## RICOH DD5450/DD5440 Machine Code: C284/C283

**Field Service Manual** 

June, 2016

## Introduction

The cause of most accidents is failure to adhere to basic safety rules and observe safety instructions. It is important to prevent potential causes of accidents from occurring. In order to do so, read this manual carefully, and be sure to understand all the safety instructions and correct inspection and servicing procedures that it provides before beginning repair or servicing work.

Repairing or servicing the machine with insufficient knowledge about it could lead to unforeseen accidents.



It is not possible to anticipate and describe in a manual such as this every possible hazard that could arise in the course of repair and servicing. Therefore, besides observing the safety instructions marked in this manual and on the machine's labels, service personnel should be safety-conscious and take other safety precautions as necessary. When performing repair or service work not covered by this manual, you should obtain safety guidance from an appropriately knowledgeable person.



Note: This symbol mark is for EU countries only.

This symbol mark is according to the directive 2006/66/EC Article 20 Information for end-users and Annex II.

This symbol means that batteries and accumulators, at their end-of-life, should be disposed of separately from your household waste.

If a chemical symbol is printed beneath the symbol shown above, this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration. This will be indicated as follows:

Hg: mercury (0.0005%), Cd: cadmium (0.002%), Pb: lead (0.004%)

In the European Union there are separate collection systems for used batteries and accumulators.

Please, dispose of batteries and accumulators correctly at your local community waste collection/recycling centre.

## Using the service manual

•This manual contains the following information: structure and function of major parts, disassembly and reassembly procedures, specifications, and procedures for adjustment, maintenance, inspection and corrective action. This information is current as of April 2014, and applies basically to the model DD5450/5440. From time to time, parts are changed to improve quality, performance or safety.

Note therefore that in some cases, certain parts or machine structure aspects described in the text or illustrations of this manual may not be precisely the same as the product being serviced.

•Safety instructions marked with a " " (WARNINGS and CAUTIONS) are very important for safety and must be observed.

## Safety-related instructions

**WARNING:** If the instructions accompanying this symbol are ignored and the machine is operated incorrectly, death or serious injury is likely to result.

**CAUTION:** If the instructions accompanying this symbol are ignored and the machine is operated incorrectly, death or serious injury, or else material damage, is likely to result.

#### **Examples of pictorial symbols**



A "O" symbol tells you that a certain action is forbidden. Precisely what is forbidden is indicated by a picture inside the symbol (in the example here, the picture means that disassembly is forbidden), or in writing at the side of the symbol.



A "•" symbol means that a certain action is forbidden and/or that a specific instruction must be followed. The specific instruction is indicated by a picture inside the symbol (in the example here, the instruction is "Remove the power plug from the socket").

## Service work-related instructions

#### IMPORTANT

Draws attention to important information. If this information is ignored and the machine is operated or serviced incorrectly, the machine's performance could drop, or it could break down.

**REFERENCE** Draws attention to information that is useful for operation or maintenance of the machine, and to information about its performance, etc.

## **▲** Safety instructions

#### 1. Cautions regarding the installation location

## 

Installation environment

- ► Avoid installing the machine in places exposed to direct sunlight.
  - Sunlight will cause the temperature in the machine's interior to rise, possibly leading to malfunction of the control system.
  - Sunlight could cause misoperation of the sensors.
  - The heat of direct sunlight could cause deformation of the machine's plastic parts. \*Also avoid installation near to a ground glass window; light and heat penetrate such windows although they are opaque.
- ► Avoid installing the machine in places subject to high or low temperature or humidity.
  - High or low temperature or humidity could cause the machine to operate abnormally. Suitable temperature and humidity ranges are:

Ambient temperature:	10°C-35°C
Ambient humidity:	40%-70%
Optimum temperature and humidity:	20°C, 65%

- If the machine is installed near to faucets, water heaters or humidifiers, or in cool (sunless) parts of a building or in the vicinity of water sources, the paper could absorb moisture and curl, leading to misfeeds or poor image quality.
- Avoid installing the machine in places with open flames, or where reflected heat or other hot air currents (from stoves, etc), or cold air currents from air conditioners, etc will strike it directly.
- ► Avoid installing the machine in poorly ventilated places.
- ► Avoid installing the machine in dusty places.
- ► The machine should not be tilting when it is used.
  - Install the machine so that it is level. (The machine should be level to within 5mm in the front-rear direction, and 5mm in the lateral direction.)
- ► Do not install the machine on shaky, sloping or otherwise unstable surfaces.
  - The machine could fall over on such surfaces, or fall off them, causing injury.

#### 2. Cautions for installation work

## 

- The machine's power supply voltage and power consumption depend on the model. Details of this are given in the tables below. The power supply voltage and power consumption for the machine are given in the table below. The machine's power supply voltage is indicated on the rating label located on the machine's left side; the machine must be connected to a power supply of the voltage indicated.
- → Otherwise, fire or electric shock could result. If the power supply voltage is unstable or if the power supply has insufficient capacity, the machine may not operate normally. Make sure that the power supply has sufficient capacity for the system as a whole, including

Make sure that the power supply has sufficient capacity for the system as a whole, including optional equipment.

		230V AC model	
Power supply		Connect to outlet of 230V AC, 60Hz, at least	
voltage		15A	
With no load *1		No more than 250V AC Use power supply meeting	
At full load		At least 210V AC	se requirements
Power		DD5450	DD5440
	Master making	85W	77W
	Printing (Speed 6)	220W	220W
	Standing by	7.4W	7.4W
	Sleeping	4.8W(0W*2)	4.8W(0W*2)

\*1 "With no load" - when the machine is on standby.

"At full load" - when the machine is running at maximum power consumption.

- \*2 Basic type with a computer unconnected
- Use only the power cord that is provided among the accessories.
- Insert the power cord plug firmly into the socket, so that proper electrical contact is effected.
- Install the machine close to its power supply. The outlet used should be exclusively for the machine, and have no other equipment connected to it.

If an extension cord is necessary, it should have a ground terminal, and be of the following ratings:

- \* For a 120V AC model: 130V, at least 15A, length not exceeding 5m.
- \* For a 230V AC model: 250V, at least 8A, length not exceeding 5m.
- Never tread on the power cord or pinch it between other objects, or accidents could result.

## 

• Install the machine in accordance with the Installation Manual appended to this manual.

#### Using the optional printer stand (cabinet)

Lock the casters after the machine is installed.
 →Otherwise, the machine could move or fall over, causing injury.

• To move the machine, push it by its mounting base.

 $\rightarrow \mbox{Pushing the Duprinter itself could make it fall over.}$ 

#### 3. Cautions for maintenance, inspection and servicing

## 

#### • Precautions for safe servicing

- Always remove the power cord plug from the outlet before starting work.
   → Otherwise, you could get a shock or your hands/fingers could be injured.
- However, the plug must be left connected to the outlet when performing function checks (of individual motors, a given series of operations, or electrical circuits).
   When motors are operated alone in function checks, interlocks are deactivated, so be aware of the conditions and positions of related equipment, and take great care not to put your hands or fingers into moving parts.
- The cutter unit contains hazardous sharp blades. Exercise great care when inspecting the cutter unit or replacing it or its parts.

 $\rightarrow$  Otherwise, your hands/fingers could be injured.

- Do not touch the rotating parts when operating the drum removal button and the paper eject switch or while the machine is running.
  - → Otherwise, your hands/fingers could get caught and crushed between the drum and rollers.

If an optional tape dispenser is used

• The tape dispenser have hazardous blades. Exercise care when inspecting or replacing the blades.

 $\rightarrow$  Otherwise, your hands/fingers could be injured.

- Working clothes
- Wear clothing that enables you to work safely.
- Work clothing should be close-fitting.

## 

- Tools
- Use tools that are appropriate for the work.

## Locations of warning labels

The locations of the machine's warning labels are shown below. To ensure safe work, read the labels and heed their instructions. Keep the labels clean at all times. If they become damaged or come off, replace them with new ones.



Introduction	1
Installation Procedure	2
Description of the Operation	3
Mechanism	4
Standards/Adjustment	5
Maintenance/Check	6
Troubleshooting	7
HELP Mode	8
Others	9

## **Table of Contents**

### Chapter 1

## Introduction

1 Specifications	10
2 Dimensions	13
3 System Setup	14
4 Part Names and Their Functions	15

## Chapter 2 Installation Procedure

Machine Installation	22
2 Platen Cover PN7000	
3 ADF DF7010	
4 A3 Color Drum Type D1	46
5 A4 Drum Type D1	53
6 Tape Dispenser Type D1	61
7 Printer Unit (USB) Type D1	72
8 Printer Unit (NIC) Type D1	80
9 USB slot Type D1	93

## Chapter 3 Description of the Operation

1 Scanner Section	99
2 Master making/Master Feed/Ejection Section	.107
3 Paper Feed Section	.126
4 Drum Driving Section	.139
5 Press Section	.145
6 Paper Ejection Section	.150
7 Drum Section	.158
	. 150

## Chapter 4

### Mechanism

1	Exterior	170
2	Scanner Section	185
3	Master making/Master Feed and Ejection Section	192
4	Paper Feed Section	200
5	Drum Driving Section	206
6	Paper Ejection Section	210
7	Drum Section	218

## Chapter 5 Standards/Adjustment

1	Scanner Section	226
2	Master making/Master Feed/Ejection Section	228
3	Paper Feed Section	235
4	Drum Driving Section	239
5	Press Section	241
6	Paper Ejection Section	243
7	Drum Section	244
8	Electrical System	247

# Chapter 6 Maintenance/Check 1 Guaranteed Periodical Maintenance ...258

Chapter 7	Troubleshooting	
1 Troubles	hooting Guide	262
2 Error Dis	play	286

# Chapter 8 HELP Mode

1 HELP Mode List2902 Overview2943 HELP Mode Functions and Operation Procedures295

## Chapter 9 Others

1 Electrical Parts Layout and Their Functions......392

# Chapter 1

## Introduction

1	Specifications	10
2	Dimensions ·····	13
3	System Setup	14
4	Part Names and Their Functions	15
	1. Machine Exteriors ······	15
	2. Inside of Machine ·····	16
	3. Outside/Inside of Print Output Side	17
	4. Display Screen ·····	20
	5. Setting Screen ·····	20

## **1**Specifications

Model name	DD5450	DD5440	
Product category	Digital Duplicator floor stand model		
Master making interval	18 sec (A4, 100%)	20 sec (A4R, 100%)	
Resolution (Pel path dir.) × (line progression dir.)	Scan (input) resolution: 300 dpi × 60 Print (output) resolution: 300 dpi ×60	0 dpi 0 dpi	
Scanning method	Flat bed scanner		
Optional ADF	64–128 gsm		
Document weight			
Optional ADF Capacity	100 sheets (64 gsm), 85 sheets (80 g	gsm/20 lb Bond)	
Document type	Sheets, book (max. weight: 10 kg)		
Document size	MAX. 297×432 mm		
	(With optional ADF: MIN.100×148 m	m)	
Scanning area	293×428 mm (297×432 mm when se	electing Use setting)	
Max. image area	290×423 mm (11.4" ×16.6")*	210×355 mm (8.2"×13. 9")	
	*With A4/Letter drum 290×207 mm (11.4	"×8.1")	
Feeder capacity	1,500 sheets (64 gsm), 1,280 sheets	(20lb Bond), 1,200 sheets (80 gsm)	
Stacker capacity	1,500 sheets (64 gsm), 1,280 sheets (20 lb Bond), 1,200 sheets (80 gsm)		
(print tray capacity)	Stacker stack height: 150 mm		
Paper size	MAX: 320×450 mm (12.6"×18")		
	With optional A4/Letter drum: 320×216 mm (12.6" x 8.5")		
	MIN: 100×150 mm (3.95"×5.5")		
	50×150 mm is possible with following	g conditions	
	<ul> <li>No ventical registration adjustment available</li> <li>Dependent appear must be turned off</li> </ul>		
	• Paper lead sensor must be turned on • A plastic guide required on the separator		
Paper weight	45-210  asm / 12  lb Bond = 110  lb Index		
Print speed	45–130 ppm 5 steps & Top Speed 150 ppm		
	Top Speed: 150 ppm for B4 / A4 / let	ter / Legal size (B4 or smaller)	
	With optional long paper unit: 22–65 ppm 5 steps & Top Speed 75 ppm		
Zoom	<a b="" size="" spec=""></a>		
	100%		
	Preset reduction/enlargement:		
	A3: 61%, 70%, 81%, 86%, 115%, 122%, 141%, 163%		
	B4: 5/%, /U%, 81%, 86%, 115%, 122%, 141%, 1/3%   Adjust X:V = Proportions 50% 500%		
	Margin adjust 90%–99%		
	Zoom: 50%–500%		

Model name	DD5450	DD5440
	<pre><inch size="" spec=""> 100% Preset reduction/enlargement: 50%, 64%, 77%, 121%, 129%, 154% Adjust X:Y Proportions 50%–500% Margin adjust 90%–99% Zoom: 50%–500% Auto zoom: 50%, 60%, 64, 70%, 77%, 78%, 91%, 100%, (121%), 129%, 137%, 141%, 154%, (200%), 212%, 275%</inch></pre>	
Registration adjustmer	nt (Can be adjusted during a printing	operation)
Vertical Registration adjustable	↔15 mm Electrical, by 0.5 mm increment	· · · · ·
Side Registration adjustable	‡ 10 mm Manual	
Image modes	Text (default), Photo, Text/Photo (2	types), Pencil, Screen (2 types)
Contrast control	Scan density: 5 steps Master density: 5 steps Print density: 5 steps	
Ink supply method	Automatic control	
Color print	By replacing a drum unit	
Master feeding	Automatic	
Master ejection	Automatic	
Used master capacity	55	
Control panel	5.7 inch QVGA color TFT panel, Touch panel	
LCD language	English, French, German, Spanish, Italian, Russian, Japanese, Cl (simplified), Chinese (traditional), Korean Thai, Polish	
Other function	(simplified), Chinese (traditional), Korean Thai, Polish         Multiple exposure (2, 4, 8 & 16-up, custom: max 5×5=25-up)         Book shadow erasure (adjustable)         Confidential safeguard         Panel setting memory (9 patterns of control panel settings can be s         Status LED         90-degree rotation, 180-degree rotation         Optimize print (according to print speed)         Initial setting (paper size / print speed) / document mode / scan dense         print density on booting / ink save mode         Master re-make (save the data from last master making)         Document density detection         Feed heavy weight paper mode         Repeat counter (default print number)         Fine start         Pre-print         Energy save mode (LCD turned off)         Automatic power off (power turned off by time specified)         Ink replenishing mode         Auto-reset         Online print (USB2.0 High-Speed) (For compatibility, please r model/specifications.)         Minimum print restriction (0–9999 sheets)         Edit function (trim & make-up)         Short-cut setting         Prints per set/ prints per document program         LCD brightness control         Clock setting         Buzzer setting	

Model name	DD5450	DD5440		
	<ul> <li>- Online print (Printer Driver)</li> <li>Color separation (equipped in online Multiple exposure (Printer Driver) (vi Mac OS X)</li> <li>(Multiple: 2, 4, 6, 8, 9, 16, 25-up/pag Combine: 2, 4, 6, 8, 9, 16, 25-image</li> </ul>	e print (Printer Driver) eparation (equipped in online printer driver) (via online only) exposure (Printer Driver) (via online only, no compatibility with X) e: 2, 4, 6, 8, 9, 16, 25-up/page, ne: 2, 4, 6, 8, 9, 16, 25-images/page)		
Online	USB interface (standard USB2.0 His or shorter) • Windows XP, • Windows Vista, • Wind • Mac OS X Leopard 10.5 (Intel), • M • Mac OS X Lion 10.7 LAN interface (FS-100U2) (Optional) • Windows XP, • Windows Vista, • Wind • Mac OS X Leopard 10.5 (Intel), • M • Mac OS X Lion 10.7	B interface (standard USB2.0 High-Speed) (USB cable must be 3 m shorter) (indows XP, • Windows Vista, • Windows 7, • Windows 8 (Desktop apps only) ac OS X Leopard 10.5 (Intel), • Mac OS X Snow Leopard 10.6, ac OS X Lion 10.7 N interface (FS-100U2) (Optional) (indows XP, • Windows Vista, • Windows 7, • Windows 8 (Desktop apps only) lac OS X Leopard 10.5 (Intel), • Mac OS X Snow Leopard 10.6, lac OS X Leopard 10.5 (Intel), • Mac OS X Snow Leopard 10.6, lac OS X Lion 10.7		
Option	ADF DF7010 Platen Cover PN7000 Spare drum A4 / Letter drum (for DD5450 only) Tape dispenser (Type D1) USB Slot Printer Unit (USB) Printer Unit (NIC)			
Power supply	100-240 V, 50/60 Hz, 200 W 2.4-	1.0 A		
Power consumption	Master making: 78 W, Printing (Spee Energy saving: 0 W (When not conn	ed6): 220 W, Standing by: 8.0 W, ected online. When online: 4.8 W)		
Energy consumption rate	When printing: 17.1 Wh/h, When not	printing: 16.8 Wh/h		
Noise level	Sound pressure level When standing by: 0 dB, When printing: 66.0 dB			
Safety demands	Electrical Appliance and Material Safety Law, CE, CCC, EAC, FCC, RoHS, Chinese RoHS, China environmental labeling, VCCI, UL, WEEE, BSMI, Green Purchasing Law (Japan), Eco mark (Japan) Energy Start, Color Universal Design, Green Mark (Taiwan)			
Dimension	In use: 1401 (W) × 688 (D) × 1080 (H) mm Folded: 770 (W) × 688 (D) × 1080 (H) mm With optional ADF attached: In use: 1401 (W) × 688 (D) × 1222 (H) mm Folded: 770 (W) × 688 (D) × 1222 (H) mm			
Weight	102 kg (when packed: 118 kg)			
Operating temperature	10–35 degrees (C) (50–95 degrees (F))			

Specifications are subject to change without prior notice due to continual improvements.

## 2 Dimensions



η

## **3** System Setup

## 1. Before Installation

The machine and its optional equipment are set up as follows:



:Option

**REFERENCE**: Documents prepared on a personal computer can be printed on this machine. The PC interface kit is required to connect this machine to a personal computer.

## **4** Part Names and Their Functions

## **1. Machine Exteriors**



No.	Name	Function
1	Connector (PC)	Use to connect a PC. *It varies by configuration.
2	Scanner button	Press to open the scanner unit.
3	USB port	Use to connect a USB flash drive. * It varies by configuration.
4	Feed tray descend switch	Press to lower the feed tray.
5	Feed tray	Load papers on this tray.
6	Support tray	Use this when you set the large size papers.
7	Caster lock	Locks the printer in position on the floor. Always lock the caster locks when
		installing the printer.
8	Cabinet (Option)	Place the printer on this cabinet. *It varies by configuration.
9	Front cover	Open to replace ink pack and drum unit, etc.
10	Control panel	Displays operations and status, and sets functions.
11	Scale	Put the document along this scale.
12	Glass	The document is placed on this glass.
13	Scanner cover	Keeps the document in contact with the document glass plate.

## 2. Inside of Machine



## 3. Outside/Inside of Print Output Side



No.	Name	Function
23	Master ejection box open button	Press to open the master ejection box.
24	Paper eject switch	Press and hold to rotate the drum for the set time. Use to remove paper jams, etc.
25	Jump plate lever	Slide to match the size of printed paper.
26	Master ejection box cover open lever	Press to open the master ejection box cover. Use when disposing of used master, etc.
27	Master ejection core	Use when disposing of used master.
28	Master ejection box cover	Open when disposing of used master.



No.	Name	Function	
29	Key card slot	Slot a key card. *It varies by configuration.	
30	Side fence	Slide to match the size of printed paper.	
31	Paper stopper	Slide to match the size of printed paper.	
32	Print tray	Holds printed papers.	
22	Connectors	Lies to connect entions	
33	(Optional)		

## 4. Control Panel



No.	Name	Function
1	Clip holder	
2	Pen holder	
3	RESET key	Returns setting to standard mode. Setting not stored is cleared.
4	Control keys	
	PRINT DARKNESS keys	Controls print darkness.
	PRINT POSITION keys	Controls print position (vertical).
	PRINT SPEED keys	Controls print speed.
5	Power switch	Press to turn the power ON and OFF. The power switch lamp lights up when the power is ON, goes out when it is OFF, and blinks when the machine is in energy save mode.
6	LAMP	Blue (lights up): Operating Whole LAMP is blinking in red.: Error message is displayed. Lower part of LAMP is blinking in red.: Message replacing consumables is displayed.
7	LCD (touch panel)	Displays current settings such as number of printed sheet. Touch to change settings. Displays error messages in case of error.
8	HOME key	The main screen will be displayed when this key is pressed.
9	CLEAR key	Returns the number of prints and the entered values to 0.
10	NUMERIC keys	Enters the number of prints.
11	<b>≚</b> key	Enters the number of prints and sets in batch printing/sequential batch print.
12	MASTER MAKING key	Starts making a master. Master making cannot be performed during printing. Clear the number of prints before master making.
13	PRINT key	Starts printing. Master making is not performed. Printing cannot start when the light of the START key is red (When confidential function is set, when a master is not set on the drum, when error is displayed, when the number of prints is not entered.)
14	STOP key	Stops printing. When this key is pressed during making a master, the machine stops after making a master.
15	TEST PRINT key	Prints 1 copy to check the image position and density. The machine keeps printing while this key is pressed.

## 5. Display Screen



• The operation status or messages appear on the touch panel LCD.

## 6. Setting Screen

• When you touch PROPERTY on the main screen, the setting screen appears.

Various functions	EDIT SPECIAL	PERIPHER SETTINGS	When you touch
Touch a function to set.	PREVIEW	MULTIPLE EXPOSURE	SPECIAL, PERIPHER, SETTINGS),
• When you touch	SHADOW ERASURE	90° ROTATION	the screen of the selected tab appears.
<ul> <li>page switches.</li> <li>The number of pages of each tab and page</li> </ul>	180° ROTATION	EDIT IMAGE	
position are shown.		• END	The main screen reappears.

#### IMPORTANT

DO NOT PRESS the touch panel LCD and buttons strongly.

# Chapter 2

## **Installation Procedure**

1 Machine Installation	
(1) Unpacking Checks	. 22
(2) Installation	. 23 . 23
1. Installing the machine	. 23
2. Attaching the Jump Plates	
(3) Turning the Power Switch ON	·• 24
(4) Setting the Roll Master	
(5) Preparing the Drum	
(6) Setting the Ink Pack ······	30
(8) Setting Date & Time ·····	• 34
2 Platen Cover PN7000	
(1) Unpacking Checks ······	• 36
(2) Installing on the machine	• 37
3 ADF DF7010	• 38
(1) Unpacking Checks ······	• 38
(2) Installing on the machine	- 39
<ul> <li>Adjusting the height of the ADF ·····</li> </ul>	•43
(3) HELP Setting	• 44
4 A3 Color Drum Type D1	• 46
(1) Unpacking Checks ······	• 46
(2) Preparing the Drum ······	• 47
(3) Setting the Ink Pack ······	• 49
(4) Replenishing Ink	• 50
1. Replenishing Ink	• 50
2. Adjusting Ink Amount ·····	• 52
5 A4 Drum Type D1 ·····	• 53
(1) Unpacking Checks ······	• 53
(2) Preparing the Drum	• 54
Setting the Drum ······	• 55
(3) Setting the Ink Pack	• 56
(4) Replenishing Ink	• 58
1. Replenishing Ink ·····	• 58
2. Adjusting Ink Amount	• 59
6 Tape Dispenser Type D1	• 61
(1) Unpacking Checks ······	• 61

(2) Installing the Knob on the Tane Dispenser $\cdots$ 62
(2) Installing the Tane Dispenser on the machine 63
(4) Sotting Tapa Ball
(4) Setting Tape Roll (5)
(5) RELP Setting (Type DT)
(6) Setting the Same Tape Length for Large
and Small Classification (Type D1) ······ 69
(7) Setting Different Tape Length for Large
and Small Classification (Type D)·····70
7 Printer Unit (USB) Type D172
(1) Unpacking Checks ·······72
(2) Installation
(2) Setting the machine (bardware) 70
Supplement (adjustment of master making
start position) 79
<b>8</b> Printer Unit (NIC) Type D1 ······80
(1) Unpacking Checks ······80
(2) Installation ····· 82
(3) Setting the machine (hardware) ····· 88
(4) Setting Password Function
Supplement (adjustment of master making
start position) 92
<b>9</b> USB slot Type D193
(1) Unpacking Checks ·······93
(2) Installation
(3) Operation Check

## 2

## **1** Machine Installation

## (1) Unpacking Checks

1. Packages for 1 complete machine:

Printer unit Model name: RICOH DD5450/DD5440

2. Check the contents.

No.	Item	Quantity
1	Cleaning Cloth	1
2	Cleaning Cloth Holder	1
3	Instruction Procedure Case	1
4	Instruction Manual	1
5	Printer Driver CD-ROM	1
6	Power cord	1

## (2) Installation

### 1. Installing the machine

- 1.1 Place the cabinet on a flat, level surface.
- 1.2 Lock the cabinet's casters.
- 1.3 Pull out the handles (4) from the printer unit.
- 1.4 Lift up the printer unit, and mount it onto the cabinet so that the rubber feet on the underside of the printer unit fit into the recesses in the cabinet.

## \land Caution

- To lift the printer unit, hold it by its handles only. Lifting the printer unit should be performed by two or more persons, not by one person alone.
- Place the printer unit on a flat, level surface.
- 1.5 Unlock the casters and move the cabinet with the printer unit to the place to be installed.
- 1.6 Install the print tray to the printer unit.







#### 2. Attaching the Jump Plates

- 2.1 Adjust the jump plates on both sides to the A3/B4/A4 position.
- 2.2 Adjust the jump plates according to the paper size.

When moving the "jump plate levers" from the A3/B4/A4 position, move them while holding them up.

#### REFERENCE

- When you use extremely heavy weight paper, set the "jump plate levers" outward.
- When you use wider paper than 297 mm, set the "jump plate levers" outward.
- When you use narrower paper than 210 mm, set the "jump plate levers" inward.



## (3) Turning the Power Switch ON

1. Plug the supplied power cord into the inlet on the machine.



2. Connect the ground wire and plug the other end of the power cord into an outlet.

### WARNING

 Insert the power cord plug firmly into the socket, so that proper electrical contact is effected. If grounding is imperfect and electrical leakage occurs, fire or electric shock could result.



3. Make sure that steps 1 and 2 are performed correctly.

#### 120V AC model

#### 

- Connect the machine to an outlet providing a 60Hz, 15A power supply of at least 120V.
- Insert the power cord's plug correctly into the outlet, so that electrical connection is effected completely.
- Position the machine close to the power outlet. Do not connect multiple loads to a single outlet.

If an extension cord is necessary: Extension cord should be of at least 130V, 15A specification, conform to standard, and not exceed 5m in length.

 The power cord should never be stepped on, or crushed between objects. If it is, accidents could result.

#### 230V AC model

#### 

- Connect the machine to an outlet providing a 50Hz, 8A power supply of at least 230V.
- Insert the power cord's plug correctly into the outlet, so that electrical connection is effected completely.
- Position the machine close to the power outlet. Do not connect multiple loads to a single outlet.

If an extension cord is necessary: Extension cord should be of at least 250V, 8A specification, conform to standard, and not exceed 5m in length.

 The power cord should never be stepped on, or crushed between objects. If it is, accidents could result.

- 4. Press the power switch.
- 5. Check the touch panel LCD of the control panel.
  - The control panel must display normally.



## (4) Setting the Roll Master

1. Press the scanner button and open the scanner unit.



2. Pull the new roll master out of its bag, then insert it into the machine with attention to the direction of the arrow on the seal.





3. Remove the seal.

4. Open the master cover while pressing and holding the master cover open lever.

5. Pull out the master and align its leading edge as shown below.





2





#### 

Do not remove the cover affixed with the Warning Label. Personnel can get injured by the movable cutter installed inside.

6. Close the mater cover.



7. Gently close the scanner unit.



8. The roll master is automatically set.

## (5) Preparing the Drum

1. Open the front cover toward you.



2. Make sure that the LED goes on. If not, press the drum removal button.

## MARNING

- Do not touch the drum or rollers when you operate the drum removal button.
- Do not put hands inside machine while it is operating. Hands could get caught up or crushed.
- 3. After the drum stops, pull out the drum toward you while pulling the drum release lever.





4. Grip the upper drum shaft with your other hand, and pull the drum out towards you while slightly lifting the near end of the drum.

## MARNING

- Hold the drum unit level with both hands.
- Do not press the surface of the drum unit or scratch it with your fingers.
- Before you place the drum unit down, make sure that the place you are placing it is free of any objects and is a flat, solid surface.
- 5. Move the lever with a hand to open and close the master clamp once or twice.







6. Hold the drum level and place the drum guide roller onto the rail in the machine.



7. Release the upper drum shaft, and gently push the drum in until it stops while holding the drum level by slightly lifting the near end of the drum.



8. Close the front cover.



## (6) Setting the Ink Pack

1. Pull the ink pack holder toward you while holding the ink pump cap. Remove the cap.



2. Insert the ink pack so that the groove on the fits into the "U" groove of the holder.



0



Incorrect

3. Push the ink holder back.



Correct

## IMPORTANT

- Push back the ink holder to its original position by holding it. Pushing it back by holding the ink pack or by pushing the ink pack fails to set correctly. You may not be able to use up the ink.
- 4. Close the front cover.



F

## (7) Replenishing Ink

#### 1. Replenishing Ink

1.1 Touch "PROPERTY".

1.2 Touch "SPECIAL" and then touch the screen switch button ► at the bottom of the screen.

READY		<b>O</b> SHT
PAPER SIZE	ZOOM	I MAGE MODE
→,	Winds House	
AUTO (A3)	100%	TEXT
DOCUMENT SIZE	PRINT POSITION	DARKNESS
		- +
AUTO (A3)	↔0. Omm ‡0. Omm	105±0 ()±0 ()±0
PROPERTY		11:25 TOP SPEED

EDIT	SPECIAL	PERIPHER	SETTINGS
JOB SETTING MEMORY		PAPER TYPE	
		AUTO	
ADOUBLE FEED DETECTION		> NARROW PAPER	
D INK SAVING MODE		© REPLENISH INK	
• •		• •	END

REPLENISH INK
REPLENISHING INK
RETURN

EDIT	SPECIAL	PERIPHER	SETTINGS	
JOB SETTI	NG MEMORY	PAPER TYP	PAPER TYPE	
		AL AL	AUTO	
BOUBLE FEED DETECTION		NARROW PAPER		
D INK SAVING MODE		© REPLENISH INK		
		• •	END	

- 1.3 Touch "REPLENISH INK".
- 1.4 Touch "REPLENISHING INK". Replenishing ink starts.

When ink replenishing is completed, the machine stops with a beep. It takes approximately 30 seconds to complete ink replenishment.

- 1.5 Touch "END".
- 1.6 Perform master making and printing. Refer to the machine Instruction Manual for more details.

#### IMPORTANT

 Print image may be light since ink is not fully spread over the drum surface.
 However, it is not a trouble. Continuously print approx. 20 sheets.

## 2. Adjusting Ink Amount



Ink adjusting knob on the operation side (standard position)
 Too dark
 Too light
 Never loosen set
 screw.



- 2.1 When printed too dark or too light on the operation side:
  - Too dark : turn the knob in the (-) direction (3 steps)
  - Too light : turn the knob in the (+) direction (3 steps)
- 2.2 When printed too dark or too light on the rear side:
  - Too dark : turn the knob in the (-) direction (3 steps)
  - Too light : turn the knob in the (+) direction (3 steps)
- 2.3 When printed too dark or too light on the entire surface:
  - Adjust steps 2.1 and 2.2 at the same time.

### IMPORTANT

• There are 7 steps, standard and ± 3 steps to adjust image density. When adjusting image density, print dozen of sheets to stabilize the density every time you change the image density by every step.

Repeat the above procedures until you get desired image density.

## (8) Setting Date & Time

1. Touch "PROPERTY".

 Touch "SETTINGS" and touch the screen switch button ► at the bottom of the screen twice.



EDIT SPECIAL	PERIPHER SETTINGS		
INITIAL CONFIGURATION	T SHORTCUT SETTING		
ENERGY SAVE	H AUTOMATIC POWER OFF		
ECO HIBERNATE, 5MINUTE			
Ø AUTOMATIC RESET	FINE START		

EDIT	SPECIAL	PERIPHER	SETTINGS
C DATE & TIME		<]≫ BUZZER OPTION	
1 INFO			
	•	• • •	END

- 3. Touch "DATE & TIME".
- 4. Touch the item to be changed and then set the values using the "+" and "-" keys.

### REFERENCE

The values can be also entered using the NUMERIC keys.
5. Touch "OK". "DATE & TIME" is set.

6. Touch "END".

♥ DATE & TIME YEAR MONTH DAY 2014 1 26 HOUR MINUTE 13 57 ▼ OK RETURN

EDIT	SPECIAL	PERIPHER	SETTINGS
C DATE & T	ME	⊲) BUZZER OF	TION
1 INFO			
	•	• • •	END

2

# 2 Platen Cover PN7000

# (1) Unpacking Checks

- 1. Check the product name on the package.
- 2. Unpack the package.

## IMPORTANT

Carry out unpacking in a place that is safe for the work.

3. Check the contents in the package.



No.	Item	Quantity
1	Platen Cover	1
2	Screw (5 x 10)	2

# (2) Installing on the machine

1. Install the platen cover using the 2 pcs. of screw.



2. Align the center of the screwhead (red line) with the center of the lines engraved on the hinge plate (blue line).



2



# (1) Unpacking Checks

- 1. Check the product name on the package.
- 2. Unpack the package.

## IMPORTANT

Carry out unpacking in a place that is safe for the work.

3. Check the contents in the package.















No.	Item	Quantity
1	Automatic Document Feeder (ADF)	1
2	Sub tray assy	1
3	Jump stand (with glass)	1
4	Sheet	1
5	Lock-type cable clamp	1
6	Screw for grounding	1
7	Screw (5 x 10)	2
8	Decal: Cleaning	1







## (2) Installing on the machine

Please observe the followings when installing the ADF to the machine.

- Install the machine first and then install the ADF.
- Make sure that correct screws are used in correct positions.
- Make sure to remove the power plug on the machine.
- 1. Remove the 3 pcs. of screw to remove the side cover L.

2. Remove the 3 pcs. of screw to remove the side cover R, and cut the precut part.

3. Cut the precut part from side cover R.







4. Remove the 2 pcs. of screw to remove the front cover.

5. Remove the 3 pcs. of screw to remove the cover while sliding in the arrow direction (operating side). And then, install the jump stand in the reverse procedure to removing.



• Glass is installed on the jump stand. Avoid touching the glass while handling the jump

• Screws for both ends of the jump stand are dedicated screw. Be sure to use the same

IMPORTANT

stand.

screw.



• remove the cover



• install the jump stand







7. Align the center of the screwhead (red line) with the center of the lines engraved on the hinge plate (blue line).



8. Fix the earth wire on the scanner frame with the screw for grounding.

Insert the lock-type cable clamp in the hole of the frame. Connect the connector and fix the cables with the lock-type cable clamp.



#### 

The cables should be fixed with the locktype cable clamp above the line shown in the above picture. If they are positioned below the line, they may contact the frame while sliding the scanner.

9. Attach the removed covers in the following order: front cover, side cover R, and side cover L.



- Place the sheet [A] alongside the edges of the jump stand on the left and the scale on the far side, as shown in the picture. Remove two release papers [B] on the left of the sheet.
- 11. Close the ADF and affix the double-sided tapes on the left of the sheet to the ADF.
- 12. Remove the release paper [A] on the right of the sheet. Affix the sheet [B] to the ADF while pulling it to prevent slackening.
- 13. Affix the document glass cleaning [B] on the machine as shown in the picture so that it does not come into contact with the magnet [A] of the ADF.







14. The ADF and scanner should be parallel each other..



2

- Remove three screws from the hinge on the rear of the ADF, and then remove the bracket [A]. Do this for both of the hinges.
- 16. Turn the bracket upside down and attach it again. Do this for both of the hinges.



17. Install all the removed parts such as cover.

This completes the set-up of the ADF. Proceed to the HELP setting on the next page.

## Adjusting the height of the ADF

• As the height of the ADF is adjusted before shipping, do not adjust it except when required.

## How to Adjust the Height

Loosen the nuts on the left and right hinges, and then use a hexagonal wrench to adjust the height by turning the screws.



## (3) HELP Setting

1. Turn on the power to the machine in HELP mode.

2. Access HELP mode HELP -011 and set "A, B = 1, 1".

#### 3. Adjustment

- (ADF) Adjusting lateral reduction/enlargement on the scanning side (HELP-043-1)
- (ADF) Adjusting longitudinal reduction/enlargement on the scanning side (HELP-043-2)
- (ADF) Adjusting top end scanning start position (HELP-043-3)
- (ADF) Adjusting primary center scanning position

Access HELP mode HELP -043.

Touch desired item on the LCD panel to correct and enter value using the NUMERIC keys.

Pressing the [PROPERTY] key reverses + sign and – sign.

Pressing the [CLEAR] key returns to the previous value.

Pressing the  $[\underline{x}]$  key stores the correction value.

#### How to Adjust

- (ADF) Adjusting lateral reduction/enlargement on the scanning side
- (ADF) Adjusting longitudinal reduction/ enlargement on the scanning side

Perform master making with the ADF.Adjust so that the document and printout are the same in length.

• (ADF) Adjusting top end scanning start position Perform master making in '2 in 1 mode'.

Adjust so that master making of the second document starts at 2mm from the top.

• (ADF) Adjusting primary center scanning position

Perform master making. Adjust so that the center of the document and printout are the same.

## NOTE

Set the feed tray horizontal registration adjuster dial to "0" for the models

DD5450/DD5440.

- (ADF) Text mode (black level correction, white level correction, peak hold correction)
  - (ADF) Text/Photo mode (black level correction, white level correction, peak hold correction)
  - (ADF) Photo/Text mode (black level correction, white level correction, peak hold correction)
  - (ADF) Photo mode (black level correction, white level correction, peak hold correction)

Access HELP mode HELP -045. Touch desired item on the LCD panel to correct and enter value using the NUMERIC keys.

Pressing the [PROPERTY] key reverses + sign and – sign.

Pressing the [ ]key stores the correction value.

Touching the screen forward button in the lower right corner on the LCD panel displays the next page.

## IMPORTANT

Be sure to adjust scanning level on the scanner side before adjusting ADF scanning level. If adjusting of scanning level on the scanner side is performed after adjusting ADF scanning level, the values for the ADF side will be changed to those for the scanner side.

Item	Adjusting Range		Contents
1	0 - 255	Black level	Text mode,
2	0 - 255	White level	Text/Photo mode, Photo/Text mode,
3	-9.9 - +9.9	Peak hold	Photo mode

### Text mode

- Adjust with the black level and the white level.
- The peak holding doesn't change.

Text/Photo mode, Photo/Text mode, Photo mode

- Adjust with the black level and the peak hold.
- The White level doesn't change.

#### Adjusting Peak Hold

- When the processed document gets dirty : Lower the value.
- When the thin section of the document is not processed for master making : Raise the value.

# 4 A3 Color Drum Type D1

# (1) Unpacking Checks

Please confirm the package contents and install them according to the following instructions.

- 1. Unpack the package.
- 2. Check the contents.

No.	ltem	Quantity
1	Drum case	1
2	Drum unit	1
3	Installation Manual	1
4	Color label	1









# (2) Preparing the Drum

1. Open the front cover toward you.

2. Press the drum removal button and remove the drum.

## MARNING

- Do not touch the drum or rollers when you operate the jog switch.
- Do not put hands inside machine while it is operating. Hands could get caught up or crushed.
- 3. Pull out the drum toward you while holding the drum unit handle.







4. Grip the upper drum shaft with your other hand, and pull the drum out towards you while slightly lifting the near end of the drum.

#### 

- Hold the drum unit level with both hands.
- Do not press the surface of the drum unit or scratch it with your fingers.
- Before you place the drum unit down, make sure that the place you are placing it is free of any objects and is a flat, solid surface.

5. Prepare the drum unpackaged.



6. Move the lever with a hand to open and close the master clamp once or twice.

7. Hold the drum level and place the drum guide roller onto the rail in the machine.

8. Release the upper drum shaft, and push the drum in while slightly lifting the near end of the drum.









# (3) Setting the Ink Pack

1. Pull the ink pack holder toward you while holding the ink pump cap. Remove the cap.

2. Insert the "ink pack" so that the "groove on the lip" fits onto the "U" groove of the holder".

IMPORTANT

Do not remove the white label affixed on the "ink pack". The machine will not operate correctly.







2





#### IMPORTANT

Close the "ink pack holder" while holding it with your hand. Closing it while pushing the "ink pack" or by pushing the "ink pack" itself may lead to incorrect setting. In that case, you may not be able to use up the ink.

3. Make sure the "ink pack" is pushed in all the way to the bottom and then press the back of the "ink holder" in with the palm of your hand.

4. Close the front cover.

(4) Replenishing Ink

### 1. Replenishing Ink

- 1. Turn the power switch ON.
- 2. Touch "PROPERTY".









3. Touch "SPECIAL".

4. Touch "REPLENISH INK".

machine stops with a beep.

5. Touch "REPLENISHING INK". Replenishing ink starts.

SPECIAL ERIPHER SETTINGS EDIT ? PAPER TYPE JOB SETTING MEMORY AUTO 😅 DOUBLE FEED DETECTION 🗖 📼 NARROW PAPER The second secon DINK SAVING MODE ٠ 0. END •

2

**O** REPLENISH INK REPLENISH INK RETURN

6. Touch "END".

ink replenishment.

7. Perform mastermaking/printing. Refer to the machine Instruction Manual for more details.

When ink replenishing is completed, the

It takes approximately 30 seconds to complete

#### IMPORTANT

White bands appear because the ink has not covered the entire surface of the drum. This is normal. Perform about three runs of 30 prints per one master.

PERIPHER SETTINGS EDIT SPECIAL JOB SETTING MEMORY PAPER TYPE AUTO

## 2. Adjusting Ink Amount

- 1. When printed too dark or too light on the operation side:
  - Too dark : turn the knob in the (-) direction (3 steps)
  - Too light : turn the knob in the (+) direction (3 steps)
- 2. When printed too dark or too light on the rear side:
  - Too dark : turn the knob in the (-) direction (3 steps)
  - Too light : turn the knob in the (+) direction (3 steps)
- 3. When printed too dark or too light on the entire surface:
  - Adjust the above steps 1 and 2 at the same time.

#### IMPORTANT

There are 7 steps, standard and  $\pm$  3 steps to adjust image density. When adjusting image density, print dozen of sheets to stabilize the density every time you change the image density by every step. Repeat the above procedures until you get desired image density.







# 5 A4 Drum Type D1

# (1) Unpacking Checks

Please confirm the package contents and install them according to the following instructions.

- 1. Unpack the package.
- 2. Check that the package has the contents listed below.

No.	ltem	Quantity
1	Drum case	1
2	Drum unit	1
3	Installation Manual	1
4	Color label	1
5	A4 lever Unit	1
6	Screw (M4×10)	5











4



6



## (2) Preparing the Drum

1. Open the front cover toward you.

2. Press the drum removal button and remove the drum.

#### 

- Do not touch the drum or rollers when you operate the jog switch.
- Do not put hands inside machine while it is operating. Hands could get caught up or crushed.
- 3. Pull out the drum toward you while holding the drum unit handle.







4. Grip the upper drum shaft with your other hand, and pull the drum out towards you while slightly lifting the near end of the drum.

## MARNING

- Hold the drum unit level with both hands.
- Do not press the surface of the drum unit or scratch it with your fingers.
- Before you place the drum unit down, make sure that the place you are placing it is free of any objects and is a flat, solid surface.



- 5. Prepare the drum unpackaged.
- 6. Install the A4 lever unit on the sub frame A using 3 pcs. of screw.



\* Hang the hook part on the shaft of the P roll bracket.



Fix the A4 lever unit using the 3 pcs. of screw. Be careful not to drop those screws.

## Setting the Drum

1. Move the lever with a hand to open and close the master clamp once or twice.



2. Hold the drum level and place the drum guide roller onto the rail in the machine.

3. Release the upper drum shaft, and push the drum in while slightly lifting the near end of the drum.





# (3) Setting the Ink Pack

1. Pull the ink pack holder toward you while holding the ink pump cap. Remove the cap.



2. Insert the "ink pack" so that the "groove on the lip" fits onto the "U" groove of the holder".





2

### IMPORTANT

Do not remove the white label affixed on the "ink pack". The machine will not operate correctly.



### IMPORTANT

Close the "ink pack holder" while holding it with your hand. Closing it while pushing the "ink pack" or by pushing the "ink pack" itself may lead to incorrect setting. In that case, you may not be able to use up the ink.

3. Make sure the "ink pack" is pushed in all the way to the bottom and then press the back of the "ink holder" in with the palm of your hand.





4. Close the front cover.



# (4) Replenishing Ink

1. Replenishing Ink

- 1. Turn the power switch ON.
- 2. Touch "PROPERTY".

3. Touch "SPECIAL".

READY		<b>O</b> SHT
PAPER SIZE	ZOOM	I MAGE MODE
→	2	
AUTO (B4)	100%	TEXT/PHOTO
DOCUMENT SIZE	PRINT POSITION	DARKNESS
	*	- +
AUTO (A3)	↔0. Omm ‡0. Omm	
PROPERTY 1		15:12 TOP SPEED

EDIT SPECIAL	ERIPHER SETTINGS
JOB SETTING MEMORY	PAPER TYPE
	AUTO
ADUBLE FEED DETECTION	D NARROW PAPER
TNK SAVING MODE	© REPLENISH INK
	•• END

◎ REPLENISH INK	
REPLENISH INK	
	RETURN

- 4. Touch "REPLENISH INK".
- 5. Touch "REPLENISHING INK". Replenishing ink starts.

When ink replenishing is completed, the machine stops with a beep. It takes approximately 30 seconds tocomplete ink replenishment.

- 6. Touch "END".
- 7. Perform mastermaking/printing. Refer to the machine Instruction Manual for more details.

## IMPORTANT

White bands appear because the ink has not covered the entire surface of the drum. This is normal. Perform about three runs of 30 prints per one master.

EDIT SPECIAL	PERIPHER SETTINGS
JOB SETTING MEMORY	PAPER TYPE
	AUTO
Z DOUBLE FEED DETECTION	D NARROW PAPER
T™JINK SAVING MODE	© REPLENISH INK
•	•• ► END

#### 2. Adjusting Ink Amount

- Ink adjusting knob on the rear side Ink adjusting knob on the operation side
- 1. When printed too dark or too light on the operation side:
  - Too dark : turn the knob in the (-) direction (3 steps)
  - Too light : turn the knob in the (+) direction (3 steps)

Ink adjusting knob on the operation side (standard position)
Too dark
Too light
Screw.

2

- 2. When printed too dark or too light on the rear side:
  - Too dark : turn the knob in the (-) direction (3 steps)
  - Too light : turn the knob in the (+) direction (3 steps)
- 3. When printed too dark or too light on the entire surface:
  - Adjust the above steps 1 and 2 at the same time.

# • Ink adjusting knob on the rear side (standard position) Too dark Too light Never loosen set screw.

#### IMPORTANT

There are 7 steps, standard and  $\pm$  3 steps to adjust image density. When adjusting image density, print dozen of sheets to stabilize the density every time you change the image density by every step. Repeat the above procedures until you get desired image density.

# 6 Tape Dispenser Type D1

# (1) Unpacking Checks

- 1. Check the product name on the package. Product name : Tape Dispenser Type D1
- 2. Unpack the package.

## IMPORTANT

Carry out unpacking in a place that is safe for the work.

3. Check the contents.





# (2) Installing the Knob on the Tape Dispenser

1. Open the tape dispenser cover.

2. Insert the knob into the position shown below and secure the knob with the screw (3×6).









 Remove the corrugated card boards. (2 places)



2





# (3) Installing the Tape Dispenser on the machine

## WARNING

• Be sure to remove the power plug from the outlet before installing the tape dispenser.

 Cut the side fence (non-operator's side) on the print tray using a nipper and so on. (5 places) Remove the burr on the cut surface using a nipper, sandpaper and so on.



2. Attach the support bracket to the cut place with the two screws (4×10).

3. Remove the eject fan.

4. Attach the bracket to the machine with the two hexagon head screws (4×6).

5. Attach the tape dispenser to the bracket attached in step 3 with the two screws (4×8, with flat washer).









- 6. Remove the two screws to remove the connector cover.
- 7. Connect the cables of the tape dispenser to the connectors for option.

#### IMPORTANT

Make sure to connect the earth wire.

A housing is inserted in the 4-pin connector of the tape dispenser cable for the purpose of insulation. Pull it out and dispose of it.

Connect the 4-pin connector of the tape dispenser to the "top connector for option" of the machine and the 6-pin connector to the "third connector for option".

Connect the earth wire with the screw (4×6).

## (4) Setting Tape Roll

The LED on the tape dispenser unit flashes when the unit runs out of the tape.



"TAPE DISPENSER EMPTY OPEN TAPE DISPENSER COVER" is displayed on the operation panel.

1. Open the cover of the tape dispenser unit.











2. Lift the lever until it clicks.



3. Set the tape roll. Make sure that the tape core is surely locked at the stopper.

#### IMPORTANT

If the tape core is not locked correctly, the tape is not fed correctly.

4. Set the end of the tape as shown in the figure.

Pull out the end of the tape for about 3 cm from the blade.

## WARNING

The blade to cut the tape is uncovered. Do not touch or keep your hands or fingers away from it.

## IMPORTANT

When setting the tape, make sure that there is no slack in the tape.

When the tape is slack, the tape dispenser may fail to eject the strip properly.





- 5. Return the lever.
- 6. Close the cover.

When the cover is closed, the unit cuts the end of the tape.

## MARNING

Do not put your hands or fingers in the blade section. Doing so may cause injury.

## REFERENCE

If the tape roll is replaced with a new one before it runs out, the end of the tape is not cut when the cover is closed.



# (5) HELP Setting (Type D1)

1. Turn on the power to the machine in HELP mode.

Access HELP mode HELP-071.

Set "HELP-071-1: 011" and press the  $\underline{\bigstar}$  key. The tape dispenser is now available.

2. Touch "ON".

 Turn off the power and then turn on again in HELP mode.
Access HELP mode HELP-071.

4. Press the TEST PRINT key. The tape is fed and cut.



TAPE CLUSTER	
ON	
OFF	
	RETURN





# (6) Setting the Same Tape Length for Large and Small Classification (Type D1)

1. Turn on the power to the machine in HELP mode. Access HELP mode HELP-071.

Set "HELP-071-2: 00010100".

2. Touch the arrow in the lower right corner of the screen to switch the screen.



- 1. ABC: 011 (Type D1 enabled)
- 2. A: 0 (Tape insertion after printing)
  - B:0 (Tape cut timing : After detecting the trail edge of the paper)
  - C: 0 (Small classification mode)
  - D: 1 (Online classification enabled)
  - E: 0 (Online small classification mode)
  - F: 1 (Double feed classification tape enabled)
  - G: 0 (Double feed small classification mode)
  - H: 0 (No tape insertion after printing)



- 3. Set the tape length of "5 (for small classification)" using the NUMERIC keys. You can set from 23 to 50.
- 4. Press the  $\underline{X}$  key to save the set value.



5. AB: Small classification tape length (unit: cm)

REFERENCE

Default is 28.

## (7) Setting Different Tape Length for Large and Small Classification (Type D)

 Turn on the power to the machine in HELP mode. Access HELP mode HELP-071. Set "HELP-071-2: 00111110".

#### REFERENCE

You can adjust the tape length both in large classification and small classification.



- 1. ABC: 011 (enabled)
- 2. A: 0 (Tape insertion after printing)
  - B: 0 (Tape cut timing : After detecting the trail edge of the paper)
  - C: 1 (Large/small classification mode. Enabled only when printing is OFF.)
  - D: 1 (Online classification enabled)
  - E: 1 (Online large classification mode. Enabled only when printing is OFF.)
  - F: 1 (Double feed classification tape enabled)
  - G: 1 (Double feed large classification mode. Enabled only when printing is OFF.)
  - H: 0 (No tape insertion after printing)
2. Touch the arrow in the lower right corner of the screen to switch the screen.

3. Set the tape length of "5 (for small classification)" and "6 (for large classification)" using the NUMERIC keys. You can set from 23 to 50.

4. Press the  $\underline{X}$  key to save the set values.



- 5. AB: Small classification tape length (unit: cm)
- 6. AB: Large classification tape length (unit: cm)

REFERENCE

Default is 28 for both.

# 7 Printer Unit (USB) Type D1

# (1) Unpacking Checks

1. Check the product name on the package. Product name : Printer Unit (USB) Type D1

2. Unpack the package.

### IMPORTANT

Carry out unpacking in a place that is safe for the work.

3. Check the contents.

1











No.	Item	Quantity
1	USB PCB unit	1
2	USB cable unit	1
3	Screw	4
4	Printer Driver CD-ROM	1
5	INSTALLATION MANUAL	1

# (2) Installation

#### 

 Make sure to remove the Duprinter's power plug from the outlet.

1. Open the front cover and remove the drum. If the drum does not stop at drum stop position, turn the power to the machine ON and press the drum removal button.

# MARNING

- Do not touch the drum, driving section or any rotation parts when you operate the drum removal button.
- Do not put hands inside machine while it is operating. Hands could get caught up or crushed.

#### 

- Hold the drum unit level with both hands.
- Do not press the surface of the drum unit or scratch it with your fingers.
- Before you place the drum unit down, make sure that the place you are placing it is free of any objects and is a flat, solid surface.
- 2. Turn off the power and remove the power plug from the outlet.
- 3. Remove the four screws to remove the rear cover.

#### Paper infeed side



Paper ejection side



- 4. Remove the 11 screws to remove the lid and the front cover.
- Paper infeed side
- Paper ejection side







- 5. Remove the screw to remove the lid.
- 6. When the LAN interface is not attached, go to step 8.
- Remove the two nuts at the upper part of the LAN ASSY and the two hexagon head screws (4×6) at the lower part to remove the LAN ASSY.





8. Attach the USB PCB unit with the supplied four screws.

9. Connect the USB cable unit to the connector of the USB PCB unit.

10. Remove the four screws to remove the feed inlet cover.

# REFERENCE

When the USB cable is already passed through, it is easier for you to work if you remove the cable clamps with a long nose pliers from the feed inlet cover.

- 11. Pass the USB cable unit through the frame opening.
- 12. When the LAN interface is not attached, go to step 14.









13. Hang the LAN ASSY by inserting the screw, that is on the frame of the machine, in the hole that is on the upper side of the bracket. Secure the upper part of the bracket with the two nuts and the lower part with the two hexagon head screws (4×6).

#### IMPORTANT

Check that the USB cable of the LAN ASSY and the power cable unit are securely connected.

# REFERENCE

- Attach the LAN ASSY at the right edge.
- The USB cable of the LAN ASSY is connected to the upper connector.

Operator's side

Non-operator's side

14. Pass the USB cable unit through the frame opening on the operator's side.

#### REFERENCE

Pass the USB cable unit through the following place.





15. Secure the USB cable unit with cable clamps.

#### REFERENCE

If you removed the cable clamps in step 10, securely attach them to their original positions.

- 16. Attach the feed inlet cover with the four screws.
- 17. Pull out the USB cable unit from the operator's side to take up the slack in the cable.

### REFERENCE

If there is much slack in the USB cable unit, the USB cable unit may not reach the connector on the main PCB unit.

18. Connect the USB cable unit to the CN1 on the Main PCB unit.

#### REFERENCE

A banding band is attached to the USB cable of the LAN interface to distinguish.

19. Attach the rear cover with the four screws.









Paper infeed side







20. Attach the lid and the front cover with the 11 screws.

This completes installation of the USB Interface. Please proceed to set the machine.

# Paper infeed side Paper ejection side







# (3) Setting the machine (hardware)

Set the machine so that the interface can be used with it.

1. Access HELP mode HELP-072.

2. Change the setting using the NUMERIC key.

	ABCD	Setting	
TIELF-072-1	1 * * *	USB interface enabled	

Do not change "\*" in the above table.

3. Press the <u>X</u>key.

# Supplement (adjustment of master making start position)

Setting correction of master making start position (Online):

Adjust online master making start position after the computer is prepared. Please refer to the PRINTER DRIVER INSTRUCTION MANUAL for computer preparation.

- 1. Access HELP mode H-047.
- 2. Set the value using the PRINT POSITION key or NUMERIC key.
  - "+" and "-" can be changed with the PROPERTY key.

No.	Adjustment Range	Setting
1	-9.9 to +9.9 mm	Primary scanning (horizontal) master making start position adjustment
2	-9.9 to +9.9 mm	Secondary scanning (vertical) master making start position adjustment

3. Press the **¥**key.

# 8 Printer Unit (NIC) Type D1

# (1) Unpacking Checks

1. Check the product name on the package. Product name: Printer Unit (NIC) Type D1

2. Unpack the package.

# IMPORTANT

Carry out unpacking in a place that is safe for the work.

3. Check the contents.





No.	Item	Quantity
1	LAN ASSY	1
2	USB expansion board unit	1
3	Angle	1
4	USB cable	1
5	Ferrite core (big)	1
6	Ferrite core (small)	1
7	Nut (M4)	2
8	Taptite screw (4×6)	2
9	Taptite screw (3×6)	2
10	Screw (3×6, with flat washer)	2
11	Banding band	2
12	FS-100 Series Setup CD	1
13	INSTALLATION MANUAL	1
14	IP ADDRESS SETTING INSTRUCTION MANUAL	1

# (2) Installation

#### 

- Make sure to remove the Duprinter's power plug from the outlet.
- Open the front cover and remove the drum. If the drum does not stop at drum stop position, turn the power to the machine ON and press the drum removal button.

# MARNING

- Do not touch the drum, driving section or any rotation parts when you operate the drum removal button.
- Do not put hands inside machine while it is operating. Hands could get caught up or crushed.

#### 

- Hold the drum unit level with both hands.
- Do not press the surface of the drum unit or scratch it with your fingers.
- Before you place the drum unit down, make sure that the place you are placing it is free of any objects and is a flat, solid surface.
- 2. Turn off the power and remove the power plug from the outlet.
- 3. Remove the four screws to remove the rear cover.

#### Paper infeed side



Paper ejection side



- 4. Remove the 11 screws to remove the lid and the front cover.
- Paper infeed side

Paper ejection side





5. Remove the screw to remove the lib.

6. Hang the LAN ASSY by inserting the screw, that is on the frame of the machine, in the hole that is on the upper side of the bracket. Secure the upper part of the bracket with the two nuts and the lower part with the two taptite screws (4×6).

## REFERENCE

Attach the LAN ASSY at the right edge.





7. Remove the four screws to remove the feed inlet cover.

#### REFERENCE

When the USB cable is already passed through, it is easier for you to work if you remove the cable clamps with a long nose pliers from the feed inlet cover.

8. Connect the USB cable to the upper connector of the LAN ASSY.

9. Pass the USB cable and the power cable unit through the frame opening.

10. Pass the USB cable and the power cable unit through the frame opening on the operator's side.









#### REFERENCE

Pass the USB cable and the power cable unit through the following place.

11. Secure the USB cable and the power cable unit with the cable clamps.

#### REFERENCE

If you removed the cable clamps in step 7, securely attach them to their original positions.

- 12. Attach the feed inlet cover with the four screws.
- 13. Pull out the USB cable and the power cable unit from the operator's side to take up the slack in the cable.

#### REFERENCE

If there is much slack in the cable, the USB cable and the power cable unit may not reach the connectors on the main PCB unit.

14. Attach the banding band to the ferrite core (small) and make a loop.









15. Attach the ferrite core (small) to the USB cable with the banding band attached in step 14 on the right.

#### REFERENCE

A banding band is attached to the USB cable of the LAN interface to distinguish from that of the USB interface.

16. Connect the USB cable to the CN21 and the power cable unit to the CN20 on the main PCB.

17. Insert the cable clamp in the loop of the banding band to secure the ferrite core (small).

18. Secure the USB cable and the power cable unit with the cable clamps securing the cables of the machine.









19. Attach the angle with the two taptite screws (3×6).

20. Connect the connector of the USB expansion board unit to the CN17 on the main PCB unit, and secure the USB expansion board unit with the two screws (with flat washer).

21. Attach the rear cover with the four screws.





#### Paper infeed side



Paper ejection side



22. Attach the lid and the front cover with the 11 screws



- 23. Mount the ferrite cores on the Ethernet cable, while looping the cable at 10 cm (approx. 4 inch) from the each end of the cable.
- 24. Fix each ferrite core with the banding band.

This completes installation of the LAN Interface. Proceed to set the machine.

# (3) Setting the machine (hardware)

Set the machine so that the interface can be used with it.

- 1. Access HELP mode HELP-072.
- 2. Change the setting using the NUMERIC key.

	ABCD	Setting
NELP-072-1	11 * *	USB interface enabled

	ABCD	Setting
HELP-072-2	1 * * *	FS-100U2 enabled (Network setting is displayed)

Do not change "\*" in the above tables.

# (4) Setting Password Function

### REFERENCE

This sets password function for the network setting screen.

- 1. Turn on the power to the machine in HELP mode.
- 2. Access HELP-075.



#### HELP-075-1

Set HELP according to customer's demands. Confirm the setting with the customer.

Changing the value of ABC enables password function. Also, you can select password setting to display the network setting screen from four types.

Change the value and press the  $\underline{X}$  key.

	tem	Value	Setting
		000	User ID manager disabled
		001	Password setting (Numeral 4
			digits) enabled
		010	Password setting (Numeral 8
			digits) enabled
1		011	Password setting
l'	ADC		(Alphanumeric 8 characters)
			enabled
		100	Register Password
			setting ID and Password
			(Alphanumeric 8 characters)
			enabled

• PASS	SWORD			• PASSWO
	•		•	•
	1	2	3	
	4	5	6	
	7	8	9	
	CLEAR	0	OK	C
			RETURN	

• PASS	WORD						
	• •	•		•	•	•	
(	1		2	)[	3		
(	4		5		6		
(	7		8		9		
(	CLEAR		0		OK		
							٦

PASSWORD PA (Numeral 4 digits) (N



PASSWORD (Numeral 8 digits)

€ ID PASSWORD	OK
	UN
	RETURN

PASSWORD (Alphanumeric 8 characters)

REGISTER PASSWORD ID and PASSWORD (Alphanumeric 8 characters)

3. Press the **X** key.

#### REFERENCE

Refer to the IP ADDRESS SETTING Instruction Manual for the setting of the IP address.

#### REFERENCE

Each number of digits/characters is maximum input number. Smaller number of digits/ characters also enables password/ID setting.

- 3. Touch the "screen switch button" in the lower right corner of the screen to proceed to the next screen.
- Touch "INITIALIZE PASSWORD" and press the <u>¥</u>key. Password/ID is initialized to "00000000".
- 5. Press the RESET key.
- 6. Set password function: Touch "PROPERTY".
- 7. Touch "SETTINGS".

8. Touch "NETWORK SETTING".



READY		<b>O</b> SHT
PAPER SIZE	ZOOM	IMAGE MODE
$\rightarrow$	10 AL	
AUTO (A3)	100%	TEXT
DOCUMENT SIZE	PRINT POSITION	DARKNESS
	+	- +
AUTO (A3)	↔0. Omm ‡0. Omm	109±0 ()±0 ()±0
PROPERTY		13:49 TOP SPEED

EDIT SPECIAL	PERIPHER SETTINGS
C DATE & TIME	⊲≫ BUZZER OPTION
-O PASSWORD	₽ NETWORK SETTING
<b>i</b> INFO	
•	• • ► END

# 9.Touch "PASSWORD".

🛃 NETWORK SETTI	NG	
QU	IICK SETUP	
ADVANCED SETUP		
INITIALIZE		
LAN MAC ADDRESS DHCP RARP IP ADDRESS SUBNET MASK SUBNET ASTEMAN	: OFFL INE : 00: 80: 92: 4E: 64: 81 : INVAL ID : INVAL ID : 000, 000, 000, 000 : 000, 000, 000, 000 : 000, 000, 000, 000	
PASSWORE	D END	

10. Enter password/ID. • PASSWORD (The following screen is "Password (Numeral 4 digits)" type.) The password after initializing is "0000".

# REFERENCE

Touch "OK".

If you select "Numeral 8 digits/Alphanumeric 8 characters)" type, the password/ID after initializing is "0000000".

11. Touch "ON".

12. Password function is set. Touch "END".

2 3 1 5 6 4 7 8 9 CLEAR 0 OK RETURN

PASSWC	D
L OF	
	RETURN

EDIT	SPECIAL	PERIPHER	SETTINGS
() DATE & TI	ME	CIN BUZZER OP	TION
<b>O</b> PASSWORD		RETWORK S	ETTING
1 INFO			
	•	• • ►	END

# Supplement (adjustment of master making start position)

Setting correction of master making start position (Online):

Adjust online master making start position after the computer is prepared.

Refer to the PRINTER DRIVER Instruction Manual for computer preparation.

- 1. Access HELP mode H-047.
- 2. Set the value using the PRINT POSITION key or NUMERIC key.

<sup>&</sup>quot;+" and "-" can be changed with the PROPERTY key.

No.	Adjustment Range	Setting
1	$0.0 to \pm 0.0 mm$	Primary scanning (horizontal) master
	-9.9 10 +9.9 11111	making start position adjustment
	0.0 to 1.0.0 mm	Secondary scanning (vertical) master
	-9.9 10 +9.9 mm	making start position adjustment

3. Press the **X**key.

# 9 USB slot Type D1

# (1) Unpacking Checks

1. Check the product name on the package.

Product name: USB Slot Type D1

2. Unpack the package.

# IMPORTANT

Carry out unpacking in a place that is safe for the work.

3. Check the contents in the package listed below.

No.	Item	Q'ty
1	CD-R (DPL conversion software)	1
2	USB flash drive	1
3	Instruction manual	1







# (2) Installation

#### IMPORTANT

Once "OPTION PERMIT" is executed, the supplied USB flash drive cannot be used in other machines.

Do not perform operation check on other machines with the USB flash drive.

- 1. Remove the screw to remove the lid. Insert the USB flash drive (part no.2).
- 2. Turn on the power to the machine in HELP mode.
- 3. Access HELP-080.
- 4. Press the MASTER MAKING key. Make sure that the "USB FLASH DRIVE" on the screen is "OK".
- 5. Press the STOP key.
- 6. Access HELP-073.
- 7. Set as below and press the ≚key to store the setting.

HELP-073-1 A=1 (USB FLASH DRIVE SETTING)



# HELP-080

OPTION PERMIT

OK:USB FLASH DRIVE



2

# (3) Operation Check

- 1. Install the USB flash drive (part no.2).
- 2. Access HELP-073.
- 3. Touch the "screen switch button" in the lower right corner of the screen to display the next page.



4. Touch ":USB FLASH DRIVE OPERATION CHECK" and press the MASTER MAKING key.

Confirm that "OK" appears on the screen when OPERATION CHECK finishes.

(Format the USB flash drive data if NG is displayed.)

- 5. Press the RESET key to return to the main screen.
- 6. Touch "PROPERTY".
- 7. Touch "PERIPHER".



EDIT	SPECIAL	PERIPHER	SETTINGS
USB FLASH [	DRIVE	E ONLINE MO	DDE DOE
		AL	ло
	◀ (	> <b>                                    </b>	END

- 8. Touch "USB FLASH DRIVE" and make sure that there is no data.
- 9. Touch "END".

Installation is now complete.

use USB FLASH DRI	IVE	
NEW ENTRY	SORT	FORMAT
TUTAL FILE:0 CAPACITY:7.5GB		

# Chapter 3 Description of the Operation

<b>1. Description</b>
2. Sequence of Operation 100
(1) Sequence of the Scanner Operation
(with ADF unconnected) ······ 100
(2) Sequence of the Scanner Operation
(with ADF connected) ······ 100
(3) Operation with the Document Cove
Open / Closed ······ 10 <sup>4</sup>
1 Reading the Document Size ····· 10
2 Reading the Document Density · · 10
Master making Area for the Selecter
Paper
3 Europian of Parts and Circuit
(1) Slider Limit Sensors (Home position sensor
(2) Document Cover Open/Close Senso
(2) CCD / Lown
(3) CCD / Lallip
106
2 Maatar Making / Maatar Food / Figation Section 10 <sup>-</sup>
2 Master Making / Master Feed / Ejection Section ··· 107
2 Master Making / Master Feed / Ejection Section ··· 107 < Master Making / Master Feed Section >
<ul> <li>2 Master Making / Master Feed / Ejection Section ··· 107</li> <li>&lt; Master Making / Master Feed Section &gt; 107</li> <li>1 Description ···· 107</li> </ul>
<ul> <li>2 Master Making / Master Feed / Ejection Section ··· 107</li> <li>&lt; Master Making / Master Feed Section &gt;</li> <li></li></ul>
<ul> <li>2 Master Making / Master Feed / Ejection Section ··· 107</li> <li>&lt; Master Making / Master Feed Section &gt; 107</li> <li>1. Description ···· 107</li> <li>2. Sequence of Operation ···· 108</li> </ul>
<ul> <li>2 Master Making / Master Feed / Ejection Section ··· 107</li> <li>&lt; Master Making / Master Feed Section &gt;</li> <li>107</li> <li>1. Description ···· 107</li> <li>2. Sequence of Operation ···· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feed Section 107</li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>Description ···· 107</li> <li>Sequence of Operation ···· 108         <ul> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> </ul> </li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>107</li> <li>Description ··· 107</li> <li>Sequence of Operation ··· 108         <ul> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(3) Functions of Parts ··· 109</li> </ul> </li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>Description ··· 107</li> <li>Sequence of Operation ··· 108         <ul> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(3) Functions of Parts ··· 110</li> <li>(1) Thermal Head ··· 110</li> </ul> </li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>1. Description ··· 107</li> <li>1. Description ··· 107</li> <li>2. Sequence of Operation ··· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>3. Functions of Parts ··· 110</li> <li>(1) Thermal Head ··· 110</li> <li>(2) End mark sensor ··· 113</li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>Description ··· 107</li> <li>Description ··· 107</li> <li>Sequence of Operation ··· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(2) Master Making / Master Feeding ··· 109</li> <li>Functions of Parts ··· 110</li> <li>(1) Thermal Head ··· 110</li> <li>(2) End mark sensor ··· 113</li> <li>(3) Master top sensor ··· 115</li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>Description ··· 107</li> <li>Sequence of Operation ··· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(3) Master top sensor ··· 118</li> <li>(4) Drum Master Sensor ··· 116</li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>1. Description ··· 107</li> <li>1. Description ··· 107</li> <li>2. Sequence of Operation ··· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(2) Master Making / Master Feeding ··· 109</li> <li>3. Functions of Parts ··· 110</li> <li>(1) Thermal Head ··· 110</li> <li>(2) End mark sensor ··· 118</li> <li>(3) Master top sensor ··· 118</li> <li>(4) Drum Master Sensor ··· 116</li> <li>(5) Cutter Unit ··· 117</li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>Description ··· 107</li> <li>Sequence of Operation ··· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(3) Master top sensor ··· 118</li> <li>(4) Drum Master Sensor ··· 116</li> <li>(5) Cutter Unit ··· 117</li> <li>(6) Master Feed Clutch (Electromagnetic</li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>Description ··· 107</li> <li>Sequence of Operation ··· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(2) Master Making / Master Feeding ··· 109</li> <li>Functions of Parts ··· 110</li> <li>(1) Thermal Head ··· 110</li> <li>(2) End mark sensor ··· 113</li> <li>(3) Master top sensor ··· 116</li> <li>(4) Drum Master Sensor ··· 116</li> <li>(5) Cutter Unit ··· 117</li> <li>(6) Master Feed Clutch (Electromagnetic clutch) ··· 118</li> </ul>
<ul> <li>Master Making / Master Feed / Ejection Section ··· 107</li> <li>Master Making / Master Feed Section &gt; 107</li> <li>10 Description ··· 107</li> <li>10 Description ··· 107</li> <li>10 Sequence of Operation ··· 108</li> <li>(1) Sequence of The Master Setting ··· 108</li> <li>(2) Master Making / Master Feeding ··· 108</li> <li>(3) Master top sensor ··· 118</li> <li>(4) Drum Master Sensor ··· 118</li> <li>(5) Cutter Unit ··· 117</li> <li>(6) Master Feed Clutch (Electromagnetic clutch) ··· 118</li> <li>&lt; Master Ejection Section &gt; 119</li> </ul>
2 Master Making / Master Feed / Ejection Section >         < Master Making / Master Feed Section >         107         1. Description         107         2. Sequence of Operation         108         (1) Sequence of The Master Setting         108         (2) Master Making / Master Feeding         108         (2) Master Making / Master Feeding         109         3. Functions of Parts         110         (1) Thermal Head         110         (2) End mark sensor         113         (3) Master top sensor         114         (5) Cutter Unit         117         (6) Master Feed Clutch (Electromagnetic clutch)         118         < Master Ejection Section >         118         119
2 Master Making / Master Feed / Ejection Section >         < Master Making / Master Feed Section >         107         1. Description         108         (1) Sequence of Operation         (1) Sequence of The Master Setting         (2) Master Making / Master Feeding         (2) Master Making / Master Feeding         (1) Thermal Head         (1) Thermal Head         (2) End mark sensor         (3) Master top sensor         (4) Drum Master Sensor         (5) Cutter Unit         (6) Master Feed Clutch (Electromagnetic clutch)         (1) Description         (1) Clutter Unit         (1) The section Section >

<b>3. Function of Parts</b> 120 (1) Master Ejection Sensor 120
< Master Clamp Opening / Closing Section >
<b>1. Description</b>
2. Operation of Master Clamp Open /
Close Lever 122
(1) Structure
(2) Operation of master attachment/detachment
(3) Clamp Opening / Closing Lever Position (B / C Mode)
3. Function of Parts 125
(1) B mode and C mode sensors ······ 125
3 Paper Feed Section   126
1. Description 120
(1) Rotation of the Paper Feed Roller and
Timing Roller 127
(2) Paper Feed Roller Drive ······· 128
(2) Timing Roller Drive 129
(4) Escaping the Guide Roller 130
(5) Paper Feed Length ······ 131
3. Functions of Parts 132
(1) Printing Position Adjusting Mechanism
(2) Double Feed Detection Mechanism 134
(3) Elevator (Paper Feed Tray) Top Limit
Sensor
(4) Elevator (Paper Feed Tray) Lower Limit
Switch
(5) Paper Sensor
(o) Faper width potentionieter, Faper
Intering in Section 130
1 Description
2. Functions of Parts
(1) Drum position-1 Sensor ······· 140
(2) Drum Position-2 Sensor ······ 141

(3) Drum Removal Button / Paper Eject Switch	LED
	• 142
(4) Paper Eject Switch ·····	143
(5) Main Motor Control	144
3. Rotational speed control (Encoder sen	isor)
	144
5 Press Section	145
1. Description ·····	145
(1) Press Roller Timing & Printing	145
2. Functions of Parts	147
(1) Press Roller Sensor ·····	147
(2) Switching the Contact Pressure ····	148
1. Contact Pressure Detection ······	149
6 Paper Ejection Section	150
1. Description ·····	150
2. Functions of Parts	151
(1) Paper Stripper Finger ·····	151
(2) Top Fan ·····	152
(3) Print Tray Fan·····	154
(4) Paper Eject Jam Sensor ·····	155
1. Paper Jam Detection Timing ·····	156
(5) Paper Ejection Belt ·····	157
(6) Paper Eject Fan ·····	157
7 Drum Section	158
1. Description	158
2. Circuit·····	159
3. Functions of Parts	160
(1) Ink Detection ·····	160
(2) Ink Roller Up/Down Mechanism ····	162
(3) Ink Pump·····	164
(4) Drum Switch ·····	165
(5) Fine Start Mode ·····	166
(6) Front Cover Sensor ······	167

# **1**Scanner Section

# 1. Description

The document is illuminated with the lamps, and the document reflection in proportion to the document image darkness is imaged on the CCDs through the mirror and lens.

It is resolved into picture elements and converted photoelectrically.

Additionally the machine is equipped with 3 reflecting sensors that detect the size of documents placed on the document glass.

# **Optical System Operation**

The optical system goes forward (to the left) or backward with a stop position of slider limit sensor 1.



# **Optical System Operation (with ADF attached)**

When ADF is attached, set the slider limit sensor 2 as the optical system stop position, and then read the document darkness.



# 2. Sequence of Operation

# (1) Sequence of the Scanner Operation (with ADF unconnected)

- When the (MASTERMAKING) key is pressed, the lamp lights up and the optical system moves system system moves to the left and reads the image.
- When image reading is complete, the lamp goes out, but the optical system decelerates, then stops.
   Following that, the optical system moves right

and returns to the home position.

3) The system is then on standby for the printing process.





# (2) Sequence of the Scanner Operation (with ADF connected)

- 1) When the MASTERMAKING key is pressed, the optical system will perform shading at home position (slider limit sensor 1), and then move to the left.
- 2) The optical system reads the image stopped at home position (slider limit sensor 2). When image reading is complete, it immediately moves to the right and returns to the home position.
- 3) After it returns, the optical system is then on standby for the printing process.



# (3) Operation with the Document Cover Open / Closed

When the document cover is opened at a certain angle, the document cover open/close sensor changes to be in the state of photopassing.

# When the document cover is closed at a certain angle, the document cover open/close sensor changes to be in the state of photointerrupting.

The lamps light up.

T

#### 1. Reading the Document Size

The document size sensors detect the document's length in the primary scanning (vertical) and secondary scanning (horizontal).

When the ADF is installed, the document size (primary scanning) is detect on ADF side.

#### 2. Reading the Document Density

The optical system goes forward to read the document density immediately before the document image is read.

The area over which density is read is determined according to the document size read.



### REFERENCE

#### Master making Area for the Selected Paper

• Master making area varies depending on the selected paper size as shown below.

Selected	A. Vertical direction	B: Horizontal direction	
		(Left: 5mm +Right:	Remarks
paper size	(Iop: 5mm +End:2mm)	2mm)	
A3	293mm	413mm	DD5450
A4R	206	290	
A4	293	203	
B4	253	357	
A5R	144	203	
B5R	178	250	
A5	206	141	
B5	253	175	
Post card	96	141	
11"×17"	275.4	424.8	DD5450
8.5"×14"	211.9	348.6	
8.5"×11"	211.9	272.4	
11"×8.5"	275.4	208.9	
8.5"×5.5"	211.9	132.7	
5.5"×8.5"	135.7	208.9	
4"×6"	97.6	145.4	



B: Secondary scanning (vertical)



When master making is performed in the book shadow erasing mode, the master making area is limited 4 mm inner than the normal master making area as shown in the figure.

15mm is left in the central section (stitching section).

["shadow specify area erasure" (shadow erasing as desired) is not included.]



# 3. Function of Parts and Circuit

# (1) Slider Limit Sensors (Home position sensor)

### Description

- •Sensor 1 detects the optical system home position when ADF is not used.
- •Sensor 2 detects the optical system home position when ADF is used.

### Circuit



# Operation

Shading plates are attached on slider A of the optical system. The position where sensor 1 is shaded becomes the optical system home position when S3-ADF is not attached. The position where sensor 2 is shaded becomes the optical system home position when S3-ADF is used.



# (2) Document Cover Open/Close Sensor

#### Description

The document cover open/close sensor detects opening and closing of the document cover (or ADF if the ADF is installed).



#### Operation

Sensor is photointerrupted with the document cover closed, The photointerrupter rotates as the document cover is opened and sensor is photopassed.



# (3) CCD / Lamp

## Description

The lamp illuminates the document and the reflected light is transmitted onto the CCDs. The CCDs output the image signals in level of voltage.

# Circuit



# Specification

#### •CCD

No.	Item		Specification
1	Optical signal storage time (SH cycle)		0.8 msec./ line
2	Frequency		15MHz
3	The number of effective picture elements		7500 picture elements
4	Reading width (This is not the image width which can be processed.)		318mm
5	Reading	primary scanning	300dpi(11.8 dots)
5	density	secondary scanning	600dpi(23.6 dots)

#### ∘Lamp

This machine adopts a white LED lamp which is lit quickly when turned on, and the quantity of light is stable.

The lamp is lit when the the control signal CN2-1 for the CCD PCB unit is LOW (0V) .

# (4) Scanner Unit Open / Close Detection

#### Description

Opening and closing of scanner unit cover is detected by scanner unit cover open / close detection SW (MS3). This machine does not work (except for the drum removal button and the paper eject switch) unless the scanner unit is closed firmly. The machine stops immediately when the scanner unit is opened.

#### Circuit



#### Operation

When the scanner unit is closed, the switch is pressed; OPEN. When the scanner unit is open, the actuator is released; the micro switch is turned to CLOSE.


# **2** Master Making / Master Feed / Ejection Section



# < Master Making / Master Feed Section >

## 1. Description

Make the master clamp of the drum unit clamp the master lead edge, performing master making on the master with the thermal head. The master is conveyed to the drum unit via the platen roller and sponge rollers 1, 2 by driving of the master feed stepping motor, while it is being processed in the thermal head section. Sponge roller 2 is driven through the master feed clutch (electromagnetic clutch), and controls the amount of master conveyed to the master clamp section of the drum unit with the master feed clutch ON / OFF. The end mark sensor starts to detect when the end mark (black) section printed on the end of the roll master is conveyed. "NO MASTER" is displayed on the LCD panel. The end mark sensor also detects whether the master is conveyed properly through the sensor.



# 2. Sequence of Operation

### (1) Sequence of The Master Setting

When the scanner and the master cover are closed, the platen roller and sponge roller 1 rotate and feed out the master for 4 seconds.



When the Master top sensor is interrupted, the master is fed a few steps and stopped. If the master lead edge does not reach the master top sensor, "MASTER SET ERROR" is displayed.



### (2) Master Making / Master Feeding

#### Operation



# 3. Functions of Parts

### (1) Thermal Head

#### Description

The thermal elements are in alignment in the primary scanning (vertical direction), and are heated on the image section to make holes on the master film.

#### Circuit



#### Specification

N⁰		DD5450	DD5440
1	Picture element density	300dpi (11.81dots/mm)	300dpi (11.81dots/mm)
2	Effective memory width	292.6±0.2mm	260.2±0.2mm

#### **Exterior and Lot No.**



#### REFERENCE

Resistance value is described on the label.

When the head is replaced and HELP mode is initialized, set the DIP-SW of HELP mode (HELP-048).



300 X 600dpi		
Rank	Resistance (Ω)	
00	3825 - 3908	
01	3909 - 3993	
02	3994 - 4077	
03	4078 - 4162	
04	4163 - 4264	
05	4247 - 4330	
06	4331 - 4415	
07	4416 - 4499	
08	4500 - 4583	
09	4584 - 4668	
10	4669 - 4752	
11	4753 - 4837	
12	4838 - 4921	
13	4922 - 5005	
14	5006 - 5090	
15	5091 - 5175	

### (2) End mark sensor

#### Description

The end mark is located at a fixed distance relative to the master; as the master is being fed, the end mark sensor detects master condition and the end mark by means of intensity of reflected light.



#### •Reflected light amount

The larger the reflected light amount is, the smaller the output voltage to the main PCB unit is. The smaller the light amount is, the larger the output voltage is. The value is checked with HELP-008.

#### HELP-008 →See page 311

\* Sensitivity adjustment of the end mark sensor

Make adjustment in HELP - 008 so that the sensitivity is 150 or more when reading the end mark printed on the master and 35 or less in the master white part. (Make sure that the master is not slacked.)

Circuit



End mark sensor PCB unit

#### 1. Master Setting Error Detection

#### Operation

During master making, the master top sensor uses amount of reflected light to detect presence or absence of a master on the transfer path. Then the following displays and operations are performed:

- When a master setting error is detected, "MASTER SET ERROR" is displayed and printing is not processed.
- "MASTER SET ERROR" is only cleared by opening and closing the master cover. (It is not cleared by turning the power off.)
- Printing is not performed but master making is only performed when the display is cleared after "MASTER SET ERROR" is displayed.

(Because the master is not attached to the drum.)

#### Timing

Master setting error is detected in the following conditions.

- While master making is being processed, the reflected light amount does not turn to be in a white level. (Master detection sensor)
- When completing master making, reflected light amount received by the master top sensor is at the white level (master present).

#### 2. Master End Detection

#### Operation

The end mark is printed on the area about 1 m from the end of the master.

- When the end mark is detected, "NO MASTER" is displayed.
- When "NO MASTER" is displayed, master making is not performed next. (The display is not cleared by turning the power off.)

#### Timing

When the end mark sensor continuously detects end mark (HELP-008, indicated value: 100 or more) during master making, it is considered as master end and "NO MASTER" is displayed.

#### (3) Master top sensor

#### Description

The master top sensor is located at a fixed distance relative to the master. By means of reflected light, this sensor detects the presence of the master on the master path.

If the photointerrupting condition (master not present) is not obtained during master making, **"MASTER SET ERROR"** is displayed.



#### Operation

When there is no master, the sensor is in the state of photopassing (5V). When master is placed inside, the sensor is in the state of photointerrupting (0V). When no master is detected, the message "NO MASTER" is displayed on the LCD panel.

#### Circuit



### (4) Drum Master Sensor

#### Description

The drum master sensor is located at a fixed distance relative to the drum. By means of reflected light, this sensor detects master setting errors.

When a master setting error occurs, "MASTER SET ERROR" is displayed.

While the master is not set to the drum, printing will not start even if the (PRINT) key is pressed. Instead, "CANNOT PRINT" is displayed.

#### **Reflected light amount**

The larger the reflected light amount is, the smaller the output voltage to the main PCB unit is. The smaller the light amount is, the larger the output voltage is.

The value is checked with HELP - 005.

#### HELP-005 $\rightarrow$ See page 304

# Sensitivity adjustment of the master detect sensor

Make adjustment in HELP-005 so that: Sensitivity is 15 or less when the master is present on the drum surface, Sensitivity is 150 or more when the master is not present on the drum surface.

#### Circuit

#### Drum master sensor





### (5) Cutter Unit

#### Description

After completing master making, the stepping motor for master making and the drum stops temporarily, and then the cutter motor is turned on to drive the cutter and the master is cut.

#### Circuit



### (6) Master Feed Clutch (Electromagnetic clutch)

#### Description

Sponge roller 2 is attached to the bottom section of the master path of the master feed unit, and is driven via the master feed clutch by the master making motor.

The rotation of sponge roller 2 is controlled with the master feed clutch ON / OFF.

#### Circuit



#### Operation

- 1. In the master making process, when the drum stops in the master attachment position, the master feed clutch comes on, so that sponge roller 2 is driven and feeds out the master by a fixed amount.
- 2. The master clamp opens and closes, to clamp the master.

3. When the master is wound onto the drum, the master feed clutch turns off, leaving sponge roller 2 free to be turned by the master as it is wound off the drum.







# < Master Ejection Section >

# 1. Description

When the drum stops at the master detachment position and the master clamp which clamps the master lead edge is opened (C mode), the pulling roller on the rolling section of the master ejection box pulls the master lead edge into the box inside, and the master is rolled up to the core. When the master is fully wound onto the core, the used master full sensor becomes "Photopassing  $\rightarrow$  Photointerrupting". Then "USED MASTER FULL" appears on the LCD panel.



# 2. Circuit



3

# 3. Function of Parts

### (1) Master Ejection Sensor

#### Description

The used master core sensor detects that the master ejection core is set in the master ejection box. The used master full sensor becomes "Photopassing → Photointerrupting" and detects that the master ejection box is full. The master eject jam sensor mechanically detects if the master is drawn into the master ejection box.

#### HELP-009 →See page 313



#### 1. Master Ejection Error Detection

#### Operation

When a master ejection error is detected, the following displays and operations are performed:

- "MASTER EJECTION ERROR" is displayed on the LCD panel and printing is not processed.
- "MASTER EJECTION ERROR" is cleared with the RESET key or STOP key pressed.
- A master ejection error is not detected for one master making soon after a master ejection error or master setting error is detected.

#### IMPORTANT

- When you use the drum on which the master is not set, a master ejection error will occur during the first master making.
- If incorrect detecting occurs due to sensor malfunction, etc., HELP-061 can be used to prohibit the master ejection error detecting.
  HELP-061 → See page 369

#### Timing

If the master eject jam sensor is not actuated during the first master making, it is judged as a master

ejection error.

#### 2. Rotation Control of the Eject Motor

If the eject motor is kept rotating when the master lead edge is pulled to the master ejection box in the master ejection process, the drum is actuated by the master, and it might slip the stop position. To prevent this, the eject motor is stopped when the master is detected by the master eject jam sensor. )If the master is not detected by the master eject jam sensor, the eject motor is stopped by the timer.)

# < Master Clamp Opening / Closing Section >

# 1. Description

The master clamp on the drum unit is opened or closed by the two opening / closing levers' rotation operation. The opening / closing levers (one for the master attachment position and the other for the master detachment position) are on the master clamp opening / closing section on the main body rear side.

The master clamp is opened or closed during master making. Opening / closing operation is as follows:



- 1. When master making starts, the drum unit rotates from the stop position to the opening/ closing lever section (master detachment position) and it stops temporarily. (B mode)
- 2. Open the master clamp to have the used master edge gripped by the master ejection unit. (C mode)
- 3. Close the master clamp, rotate the drum again and stop the drum at the next opening/closing lever section (master attachment position).
- 4. Open and close the master clamp to have it grip the lead edge of the used master.
- 5. Rotate the drum, to wind the master onto it.



## 2. Operation of Master Clamp Open / Close Lever

### (1) Structure

The following is the structure of the master clamp opening / closing section viewed with the rear cover opened. The rotation stop position of the master clamp opening / closing lever is determined by the clamp motor and two sensors.

There are 2 rotation stop positions: B mode and C mode. Their functions are as follows:



• The following is a perspective illustration viewed from the operation side.



### (2) Operation of master attachment/detachment



### (3) Clamp Opening / Closing Lever Position (B / C Mode)



# 3. Function of Parts

### (1) B mode and C mode sensors

#### Circuit

**Clamp motor** 



The mode is detected under the following conditions.

→See Page 124

#### • B mode

When the clamp sensor 2 (C mode) is photointerrupted, the clamp sensor 1 (B mode) detects the edge of Photointerrupting  $\rightarrow$  Photopassing.

#### • C mode

When the clamp sensor 1 (B mode) is photointerrupted, the clamp sensor 2 (C mode) detects the edge of Photointerrupting  $\rightarrow$  Photopassing.

# **3** Paper Feed Section

# 1. Description

Paper feeding is performed by the paper separator (employing the center separation method) and paper feed roller. Elevation of the feed tray is powered by the elevator motor. The paper top detect sensor is installed at the rear of the paper feed roller. If the paper does not reach the paper top detect sensor or the signal sensor due to drum rotation without paper, "**MASTER SET ERROR**" is displayed.

Paper fed by the paper separator and the paper feed rollers is fed further by the timing roller (T roll) and the guide roller (G roll) to the point where its lead edge is sandwiched between the drum and the press roller. Then the pressure of the timing roller and the guide roller is released (by moving the guide roller upward several millimeters), so that the paper is fed through at a speed equal to the circumferential speed of the drum and the press roller.

For details, see "1.Paper Jam Detection Timing" in chapter 2 (6.Paper Ejection Section).



# 2. Operation

### (1) Rotation of the Paper Feed Roller and Timing Roller

When the main motor turns, the paper feed cam rotates, causing the timing segment to execute the reciprocating motion shown below, which turns the pinion gear.



# (2) Paper Feed Roller Drive

The paper feed rollers are driven by the paper feed stepping motor via the timing belt. The rotational timing is controlled by the program.



## (3) Timing Roller Drive

Timing roller is actuated to rotate by the pinion gear and spring clutch.

When the paper feed cam rotates, the reciprocating motion of the timing roller segment is transmitted to the pinion gear, and the spring clutch works to rotate the timing roller in the direction of conveyance.



### (4) Escaping the Guide Roller

After the press roller is pressed to the drum, the printing paper is gripped firmly with the drum and press roller, the guide roller is released from the timing roller. This is called "escaped". Escape timing is within a period when the printing paper is conveyed about 40 mm after it is gripped with the drum and Press roller.

#### IMPORTANT

- If the timing is too late, the printing paper is gripped at two places for longer time, causing master elongation and slippage.
- On the contrary, if the timing is too early, the printing paper is not gripped at all, resulting in unstable. This causes creasing of paper and dispersion of the printing position.



### (5) Paper Feed Length

The "paper feed length" is the length by which the paper feed roller feeds out the print paper. When the paper feed roller feeds out the print paper, the guide roller is pressed against the timing roller and does not rotate; as a result, the paper arches up between the paper separator and the timing roller, since the distance between these two items is only 65 mm, while the length by which the paper is fed out from the paper feed roller is 80 mm. This arching has the effect of correcting any skewing of the paper (as the lead edge is held firm between the guide and timing rollers). It also has the effect of lessening the load on the timing roller when it feeds the paper through, thus minimizing slippage. For feed amount, the paper lead edge is detected by the paper top detect sensor and paper feed is controlled by program (HELP-039).

#### HELP-039 $\rightarrow$ See page.342



#### IMPORTANT

- If paper feed length is too large: The arching dimension will be too large, and if the paper is of a very stiff type, it will buckle up between the paper feed roller and the paper feed inlet (upper), causing a PAPER JAM error ("PAPER JAM ON THE FEEDER SIDE").
- If paper feed length is too small: The arching dimension will be too small, so that arching will be unable to correct skewing of the paper, and skewing and wrinkling will be liable to occur.
  Furthermore, the slippage that occurs when the timing roller feeds the paper through will be very large, resulting in printing position errors.

# 3. Functions of Parts

### (1) Printing Position Adjusting Mechanism

The printing position is adjusted by changing the timing of the paper toward the drum with the (PRINT POSITION) key on the control panel. When the print positioning is set to 'ON', the printing position can be adjusted by pushing the PRINT POSITION keys while printing.

#### IMPORTANT

 Print position display changes from "in mm" to "in steps".

The adjustment range is 30 steps in a vertical direction and 20 steps in a horizontal direction.



#### Description

When the PRINT POSITION key on the control panel is pressed, the link cam is driven by the vertical registration motor. As the link cam moves, the cam follower position (bearing) from the paper feed cam changes. Accordingly, drive timing for the timing roller can be changed.

• Press the key:

Cam follower moves in the direction of white arrow: Drive timing of the timing roller becomes faster. Paper timing becomes earlier, and the image moves backward.

• Press the > key:

Cam follower moves in the direction of black arrow: Drive timing of the timing roller becomes later. Paper timing becomes later, and the image moves forward.



#### Circuit



#### Operation

Top and bottom limit of print position is detected by the vertical registration encoder sensor and the center sensor. The standard position is detected by the vertical reg. center sensor.

• The vertical registration encoder sensor detects the vertical registration motor rotation. The main PCB unit controls the number of vertical registration motor rotations with the vertical registration encoder sensor signal.

#### REFERENCE

#### **Operation with the Power ON**

The printing position returns to standard position by operating with the power ON, depending on the sensor state as follows.

- When positioned between standard position and the bottom limit: Rotate the vertical registration motor normally (CW) to return the printing position to standard.
- When positioned between standard position and the top limit: Rotate the vertical registration motor reversely (CCW) to return the printing position to standard.

### (2) Double Feed Detection Mechanism

#### Description

The double feed detect sensor is installed at the rear of the paper top detect sensor to detect feeding of multiple papers. When it is detected, "DOUBLE FEED CHECK PAPER EJECTION" is displayed on the LCD panel. If double feeding occurs with the tape dispenser (option) installed, the tape is inserted.

#### Circuit





### (3) Elevator (Paper Feed Tray) Top Limit Sensor

#### Description

The elevator (paper feed tray) top limit sensor detects decrease of the paper and the upper limit position of the paper feed tray by detecting the up/down motion of the paper feed shaft.

#### Circuit



#### Detection of the elevator (paper feed tray) upper limit

• When the paper feed tray rises, the paper in it presses the paper feed roller upward, making the paper feed shaft lever (photointerrupter) rotate upward around its fulcrum, until it no longer obstructs the sensor's light beam. When the upper limit is detected, the rise of the paper feed tray is stopped.

#### Detection of paper decrease

• As printing progresses and the paper decreases, the paper feed roller gradually descends, until it obstructs the sensor's light beam. When this happens, the feed tray is raised until the light beam is restored. If the elevator top limit sensor does not detect "photointerrupting/photopassing" within 30 seconds after "RAISE FEED TRAY" command is given, the error "E002" (Elevator lock) is displayed.



### (4) Elevator (Paper Feed Tray) Lower Limit Switch

#### Description

This is a micro switch that detects the lower limit position of the feed tray.

#### Circuit



#### Operation

When the feed tray rises, the bracket disengages from the switch and the switch closes. When the feed tray descends to its lower limit position, the bracket engages the switch's actuator, opening the switch.

If the elevator top limit sensor does not detect "photointerrupting/potopassing" within 30 seconds after "descend feed tray" command is given, the error "E002" (Elevator lock) is displayed.



### (5) Paper Sensor

#### Description

The paper sensor is located at a fixed distance relative to the paper; as the paper is being fed, the paper sensor detects presence/absence of paper by means of intensity of reflected light. When the paper in the tray runs out, the message "NO PAPER" is displayed and printing stops.

#### Circuit



#### Operation

When there is no paper, the sensor does not detect the reflected light, so it is 5V. When paper is placed inside, the sensor detects the reflected light, so it is 0V.

- When absence of paper is detected, master making, printing and test printing can not be performed.
- If paper runs out during printing, "NO PAPER" is displayed on the LCD panel, printing is stopped, and the feed tray descends to its lower limit position.
- If paper runs out during master making, operation continues until the end of the master making process, then operation stops (without proceeding to the printing process), and the feed tray descends to its lower limit position.



### (6) Paper width potentiometer, Paper length sensor

#### Description

The paper width potentiometer detects paper width by the position of the paper feed guides, and the paper length sensor detects paper length by reflected light.

#### Circuit



#### Operation

The paper width potentiometer detects paper width by the position of the paper feed guides. The paper size is displayed by this and the paper width potentiometer mentioned above.

# **4** Drum Driving Section

# 1. Description



# 2. Functions of Parts

### (1) Drum position-1 Sensor

#### Description

The drum position-1 sensor detects the drum removal position and the master detachment position. When the drum removal button is pressed, the drum rotates and stops with a bleep at the drum removal position.



• You do not have to hold down the drum removal button. (Hold it down when the master ejection box is open.)

#### Circuit



#### Operation

The illustration below shows the status of the drum position-1 sensor during the drum rotation.

- The drum removal position is detected on the drum removal detect edge.
- The master detachment position is the position where the drum rotates by a certain angle from the master pre-detachment position.

Drum position-1 sensor	
Drum removal detect edge	—Master pre-detachment position edge
	——Drum gear

### (2) Drum Position-2 Sensor

#### Description

• The drum attach/detach position (drum position-2) is the position where the drum stops when master can be detached and attached.

#### Circuit

Drum position-2 sensor



#### Operation

The illustration below shows the status of the drum position-2 sensor during the drum rotation.

- The drum attachment position is detected on the master attachment position edge.
- When the drum position-2 sensor is in the status of photointerrupting and the drum position-1 sensor is in the status of photopassing, the master can be detached.

Drum position-1 sensor	
Master post-detachment position edge	
Drum position-2 sensor	iton edge

### (3) Drum Removal Button / Paper Eject Switch LED

#### Description

When the drum removal button is pressed, the drum makes one rotation and stops with a bleep at the stop position.

Then the LED on the drum removal button turns on.



#### Circuit


## (4) Paper Eject Switch

## Description

While holding down the paper eject switch, the drum rotates. When releasing the switch, the drum stops rotating. The drum stop position is not detected. When removing the drum, press the drum removal button.





## (5) Main Motor Control

## Circuit



## 3. Rotational speed control (Encoder sensor)

The encoder sensor detects the main motor rotation.

The main motor PCB unit controls the number of main motor rotations with the encoder sensor signal. The encoder sensor signal is sent to the main PCB unit. The number of main motor rotations is checked with HELP-003.

HELP-003 →See page 300

# **5** Press Section

# 1. Description



## (1) Press Roller Timing & Printing

In this machine, the master is rolled up to the drum, ink is transferred to the drum and the printing paper is pressed to the drum by the press roller to print.

Printing is performed on only the sections that meet the following requirements. The printing area is checked with the test patter 4 in HELP-030.

- Master making area: the sections of the master on which holes are made by processing master making.
- The hole sections of the drum
- The area pressed ON: the section of the drum pressed with the press roller.



• The press roller is ON (the press roller is pressed to the drum) and OFF by operating the press lever up and down with the cam inside the drum gear.



#### • Cancel lever- 1, 2 Normal condition

When the lead edge of the paper goes through under the paper lead edge and reaches the signal sensor within a certain time, the signal solenoid of the cancel lever-2 operates to lift the press roller.

#### **Abnormal condition**

When the lead edge of a paper does not go through the paper top detect sensor or it does not reach the signal sensor within a certain time, the emergency signal solenoid of the cancel lever-1 prevents the press roller from lifting. This prevents the press roller from ink adherence.

 Adjusting the printing area means that the cam curve goes up and down as shown in the illustration on the right.

The timing of drum ON/OFF varies depending on the cam curve's up and down.

The ON position is before the drum hole section, so the printing area is not influenced. (Do not shorten the printing area length as it it influenced.)

The OFF position is only changed and the printing area is adjusted.

## IMPORTANT

Do not press OFF later than the hole section end position due to ink leakage from the rear end of the master.





# 2. Functions of Parts

## (1) Press Roller Sensor

#### Description

The press roller sensor detects up and down of the press roller.

The press roller only ascends when the paper is fed from the paper feed section by the cancel lever-2. The press roller sensor is also used to judge whether the paper is fed.

## Circuit



### Operation

The status of the press roller sensor changes by the position of the press roller as below.



## (2) Switching the Contact Pressure

#### Description

The contact pressure (print density) can be switched on the control panel. When it is switched on the control panel, the press pressure motor starts moving by pressing the PRINT key.

#### REFERENCE

• In the initial setting, the press pressure (print density) changes according to the print speed.

#### Circuit



## 1. Contact Pressure Detection



- Press center sensor The center is detected by the center detection edge.
- The press upper limit and the press lower limit are controlled by the encoder pulse from the center detection edge.
  - 1. When the press motor moves in the direction of the black arrow, the contact pressure of the press roller to the drum increases and printing is darkened.
  - 2. When the press motor moves in the direction of the white arrow, the contact pressure of the press roller to the drum decreases and printing is lightened.



# **6** Paper Ejection Section

# 1. Description

In the paper ejection section the printed paper is removed from the drum and is ejected to the print tray.



# 2. Functions of Parts

## (1) Paper Stripper Finger

## **Mechanical Structure and Operation**

In addition to the paper stripper finger installed in the center, there are two sub paper stripper fingers on both sides. There is an air diffuser on the tip of the finger.

Compressed air transmitted from the air pump inside the machine is blown out of this hole to detach the paper edge from the drum.



To remove the paper from the drum firmly, the gap between the tip of finger and the drum surface and between the tip of finger and the corner of the master clamp are adjusted as follows:



## (2) Top Fan

## Circuit



### Operation

During printing, the fan blows a constant stream of air at the paper stripper finger, from the rear. This assists paper stripping and also presses the paper against the ejection belt, which stabilizes ejection.



# (3) Print Tray Fan

## Circuit

Print tray fan



## Operation

The print tray fan controls an air flow to stabilize the ejected paper alignment.



## (4) Paper Eject Jam Sensor

## Description

The paper eject jam sensor is installed on the paper eject fan unit and detects whether the paper is ejected normally.

When it is detected that the paper is not ejected normally, "PAPER JAM ON EJECTION SIDE" is displayed on the LCD panel.

## Circuit



## Operation

The paper eject jam sensor is installed in the jump plate unit.

When the paper passes through the paper eject jam sensor, the sensor detects the reflected light and outputs 0V. When the sensor does not detect the reflected light due to no paper and outputs 5V.



3

## 1. Paper Jam Detection Timing

#### Description

Paper jamming is divided into three types : "PAPER JAM ON EJECTION SIDE", "PAPER JAM IN DRUM SECTION" and "PAPER JAM ON FEEDER SIDE". Paper jamming is detected under the following conditions. When paper jamming is detected, "PAPER JAM" is displayed on the LCD panel, and the machine stops printing operation. The display is cleared by removing the cause of paper jam and pressing the STOP key or by restarting printing.

"PAPER JAM ON EJECTION SIDE" is displayed.

JAM1: Paper trailing edge is not ejected.

When the software detects a certain angle from the drum stop position and at that timing the paper eject jam sensor does not detect the reflected light.

JAM2: Paper lead edge is not ejected.

When the paper eject jam sensor never detects the reflected light while the drum rotates by a certain angle from the drum stop position.

JAM (during stop): When the paper eject jam sensor detects the reflected light during machine stop. If the sensor does not detect the reflected light, the display is cancelled.

"PAPER JAM IN DRUM SECTION" is displayed.

JAM: The paper at the signal sensor section is not ejected.

When the "paper top detect sensor" and the "paper eject jam sensor" do not detect the reflected light, and only the "signal sensor" detects the reflected light, JAM is detected. "PAPER JAM ON FEEDER SIDE" is displayed.

JAM3: During paper feed operation, the paper does not pass through the signal sensor. If the paper does not pass through the paper top detect sensor during two rotations of the drum after the paper feed command is given during printing, JAM is detected.



## (5) Paper Ejection Belt

### Description

The paper ejection belt takes the paper stripped off the drum by the paper stripper finger to the print tray.

The paper ejection belt is driven by the paper ejection motor.

The number of motor rotations is controlled by pulses.



#### Circuit



## (6) Paper Eject Fan

### Description

The paper eject fan is a suction fan and is located under the paper feed path of the paper ejection belt. It suctions the paper to the paper ejection belt.

# **7** Drum Section

# 1. Description

The ink control section is in the drum unit. The ink control section is supplied with ink in the ink pack attached to the drum unit by the ink pump motor. The ink control section has an ink detection function, and is always supplied with a fixed amount of ink. Printing darkness is adjusted by changing the gap between the squeegee roller and the ink roller. Replace the drum for each color to perform color printing. (Before replacing the drum, press the drum removal button to move the drum to the drum home position.) The drum switch detects whether a drum unit is installed or not. When the drum unit is not set correctly, the LCD panel displays "NO DRUM".



# 2. Circuit



# 3. Functions of Parts

## (1) Ink Detection

### Description

The ink amount variation in the ink control section is read by the electric capacity variation between the detection needles on the ink detection PCB Unit and the GND and the ink signal is output to the main PCB Unit.

The main PCB Unit controls the ink pump motor ON and OFF by this signal.

When NO INK continues while the drum rotates 20 times (speed 3\*) during printing, it is judged that the ink pack is empty, "NO INK" is displayed and the machine stops printing. (\* the number of drum unit rotations; it varies depending on the printing speed.)

#### →See Page163



## 1. LED Display and Output Signal on the Ink Detection PCB Unit

• When the electric capacity variation between the detection needles on the ink detection PCB Unit and GND is over the threshold value, the LED on the ink detection PCB Unit lights up and the ink signal (0V) is output.

$\sim$	Ink detection PCB unit				
	LED	CN1-2			
No ink	Light out	+5V			
Ink supplied	Light up	0V			

• Timing of the LED and the ink pump motor operation is as follows. The ink pump motor works only during printing (driving output signal).

### 2. "NO INK" Display Timing

When HIGH (5V) is output by detecting ink while the drum continues to rotate 20 times (the number of rotations varies depending on the printing speed.\*) during printing, it is detected that the ink pack is empty, "NO INK" is displayed on the error display, and printing stops. At the same time the power for the ink pump motor is turned off.

\* The drum rotates until "NO INK" is displayed on the LCD panel after HIGH (5V) is output from the ink detection PCB unit while printing. The number of drum rotations varies depending on printing speed as shown in the table below.

Print speed	1	2	3	4	5	6: High-speed print speed
Number of drum	20	20	20	20	20	20
rotations	20	20	20	30	30	50

## (2) Ink Roller Up/Down Mechanism

#### Description

Usually, the ink roller is separated from the inner surface of the drum by a fixed clearance. During printing, however, the press roller rises and presses the ink roller into contact with the drum inner surface, so that ink is supplied via the drum inner surface to the printing paper. This mechanism prevents ink from being supplied to the drum inner surface if the printer is run without any paper. When the master is detached in the master making process, ink on the drum surface is removed along with the document, which means that in the first printing after the master is attached, there is a possibility of insufficient ink on the drum surface, resulting in faint images.

To prevent such ink sufficiency when in the first printing, the machine is equipped with a mechanism raising and lowering the ink roller. Before paper is fed in, this mechanism pushes the ink roller against the drum inner surface. As a result, the images on the first sheet printed after master making are sufficiently bold.

Ink roller up and down movements are included as elements in the Fine Start mode, and therefore are optimally controlled in accordance with room temperature, length of time out of use, number of printed sheets in the last run, etc.

## Circuit



## Operation



## Standby position during printing

Cam is in the bottom position, and the ink roller is raised up by a spring.

The ink roller up/down sensor is in the state of photopassing, and it detects that the ink roller has reached the upper limit position. In this position, the ink roller is not touching the drum inner surface.

## • Ink roller descent

The motor rotates, and the cam pushes the ink roller downward.

When the shading plate rotates, and the ink roller up/down sensor is in the state of photointerrupting and detects the ink roller lower limit position, then the motor stops.

In the lower limit position, the ink roller is pressed against the drum inner surface, and ink will be supplied even if the machine performs printing without paper.

## • Ink roller ascent (to standby position)

The motor rotates, and when the cam reaches the bottom side, the spring raises the ink roller up.

When the ink roller up/down sensor is in the state of photopassing (OPENED), it detects the roller upper limit position, then the motor stops.







## (3) Ink Pump

### Description

The ink control section in the drum is supplied with ink in the ink pack by driving the ink pump motor.

## **Mechanical Structure**



#### Operation

The piston performs suction and release operation by moving up and down.





When the piston moves up, it draws ink from the ink pack into the pump and ink in the upper part of the piston is pushed out simultaneously. When the piston moves down, the ink in the lower part of the piston moves to the upper part.

## (4) Drum Switch

## Description

The drum switch detects whether a drum is installed to the machine.

When the drum switch detects that there is no drum installed, "NO DRUM" is displayed on the LCD panel and the machine stops operation.

When no drum is detected during operation, all the operations stop urgently.

## Circuit



## Operation

When the drum is installed to the machine, the cam unit covers the pin and is locked firmly. The difference of the cam unit prevents the cam unit from being loosened due to the machine vibration.

When the pin is at the bottom of the cam unit difference, the drum switch is on as shown in the illustration. When the pin is over the cam unit difference, the drum switch is off.



## (5) Fine Start Mode

#### Description

This mode automatically sets optimum values for the following start conditions: timing of ink roller actuation during master making, number of no-paper rotations with the ink roller actuated. These optimum settings are based on room temperature, the length of time the printer was out of use, and the number of prints in the last run.

They ensure clear printing right from the first sheet after master making.

\*Room temperature of 10 degrees C or below can cause insufficient ink supply, even in Fine Start.



Standby state



The cam turns a half-revolution, so that the ink roller is pressed against the drum inner surface. Then the drum rotates.



The cam turns a half-revolution, so that the ink roller moves out of contact with the drum inner surface.



Printing starts.

## (6) Front Cover Sensor

## Description

The front cover sensor detects opening and closing of the front cover. When it detects that the front cover is open, "CLOSE FRONT COVER" is displayed on the LCD panel. When the front cover is open, master making and printing are not performed. When the front cover sensor detects the front cover opening during printing, the machine stops urgently. (During master making, the machine stops when the front cover is opened.)

## Circuit



## Operation

When the front cover is closed, the lever blocks the light of the sensor. When the front cover is opened, the lever position is away from the sensor.



# Chapter 4

1 Exterior	170
(1) Removing the Document Cover	170
(2) Removing the Front Cover	170
(3) Removing the Scanner Outer Cover	171
(4) Removing the Rear Cover	172
(5) Removing the Main PCB unit, Drive PCB unit, Relay	РСВ
unit, Switching power supply 24V/5V and battery	172
(6) Removing the Control Panel	176
(7) Removing the Control Panel PCB	177
(8) Removing the LED PCB Unit	178
(9) Removing the LCD Module	179
(10) Removing the Power Switch	183
(11) Removing the Battery PCB unit	184
(12) Removing the Motor PCB unit	184
2 Scanner Section	185
(1) Removing the Glass	185
(2) Removing the Reading Cover	185
(3) Removing the Scanner Unit	186
(4) Removing the LED Lamp Unit	10/
(5) Removing the Lamp Cord	100
(0) Removing the Slider R	109
(7) Removing the Shuer D	102
S Master Making/ Master Feed and Ejection Section	102
(1) Removing the Cutter Unit	102
(2) Removing the End Mark Sensor PCB Unit.	192
(3) Removing the Static Eliminating Brush Bracket	193
(4) Removing the Thermal Head	194
(5) Removing the Master Feed Unit	195
(6) Removing the Master Feed Stepping Motor	196
<< Master Ejection Section >>	197
(1) Removing the Master Ejection Box	197
(2) Removing the Eject Motor (Roll-Up Motor)	197
< Master Clamp Opening/Closing Section	>>
	198
(1) Removing the Master Clamp Opening/Closing Unit	198
(2) Removing the Clamp Motor	198
(3) Removing the Timing Belt	199

# **Mechanism**

4	Paper Feed Section	·200
	(1) Removing the Feed Tray Unit	·200
	(2) Removing the Elevator Lower Limit Switch	201
	(3) Removing the Paper Feed Roller	<sup>.</sup> 201
	(4) Removing the Paper separator Unit	·202
	(5) Removing the Side Separators	<sup>.</sup> 203
	(6) Removing the Paper Top Detect Sensor, Signal	Sen-
	sor, Double Feed Detect Sensor	<sup></sup> 204
	(7) Removing the Timing Roller	<sup>.</sup> 205
5	Drum Driving Section	206
	(1) Removing the Sub-Frame	206
	(2) Removing the Drum Gear and Driving Assy …	207
	(3) Removing the P Roll	207
	(4) Removing the P Roll Bracket	208
6	Paper Ejection Section	210
	(1) Removing the Paper Stripper Finger,	Sub
	Paper Stripper Finger	210
	(2) Removing the Paper Tray Fan Unit	211
	(3) Removing the Paper Eject Fan Unit	212
	(4) Removing the Paper Ejection Belt	213
	(5) Removing the Paper Ejection JAW Sensor	214
	(6) Removing the Tap Cap Lipit	210
	(7) Removing the Top Fan Unit	210
	(0) Removing the Proceure Adjustment Unit:	210
	(10) Removing the Press Motor	217 ·217
7	Drum Section	·217
	(1) Removing the Screen	·210
	(2) Removing the Sponge	·210
	(3) Removing the Master Clamp	·210
	(4) Removing the Base unit	219
	(5) Removing the Outer Frame F Unit	.220
	(6) Removing the Outer Frame R Assy	·221
	(7) Removing the Inner Frame	·222
	(8) Removing the lnk Pump	·223
	(9) Removing the Ink Pump Motor	223
	(10) Removing the Ink Detection PCB Unit	·224
	(11) Removing the Ink roller Up/Down Motor	<sup>.</sup> 224

#### ∕!∖ CAUTION

•Always remove the power cord plug from the outlet before starting work.

## •Cautions Regarding Disassembly and Assembly

•In principle, do not operate this machine with parts removed.

•When assembling:

•Unless specified otherwise, perform the disassembly procedure in reverse.

- •Make sure that screw types (radius, length) and locations are correct.

•Be sure to use rosette washers when they are specified. (Rosette washers are used with installation screws to prevent static electricity.) •To ensure electrical current, a rosette washer is used with the installation screw on

the ground wire. Be sure to use the rosette washer during assembly.

# **1** Exterior

## (1) Removing the Document Cover

1. Open the document cover.

2. Remove the two screws and slide the document cover back 1 cm, then pull it up to remove it.





## (2) Removing the Front Cover

- 1. Open the front cover (Cover A).
- 2. Press the drum removal button to move the drum to the drum stop position.
- The drum can be removed when the LED lights.
- 3. Press the "I" side on the power switch to turn the power off.
- 4. Remove the drum unit.



- 5. Remove the screw to remove the USB cover. (S tight hexagon head WH rounded end screw 3 x 6)
- 6. Remove the 10 screws to remove the front cover.(S tight hexagon head WH rounded end screw 4 x 8)





# (3) Removing the Scanner Outer Cover

- Removing the Side Cover L
- 1. Remove the three screws to remove the side cover L.



- Removing the Side Cover R
- 1. Remove the three screws to remove the side cover R.

#### • Removing the Scanner Rear Cover

- 1. Remove the document cover.
- 2. Remove the five screws.
- 3. Press the scanner switch to slide the scanner unit.
- 4. Remove the scanner rear cover.



## (4) Removing the Rear Cover

- 1. Disconnect the power cord.
- 2. Remove the four screws to remove the rear cover.(S tight hexagonal head WH rounded end screw 4 x 8)



## (5) Removing the Main PCB unit, Drive PCB unit, Relay PCB unit, Switching power supply 24V/5V and battery

#### 

 Always remove the power cord plug from the outlet before replacing a PCB unit.

1. Remove the front cover.



#### REFERENCE

• Pull out the connector while pressing the protruded part. Do not forcibly pull it out. This may damage the PCB unit.



- Removing the Main PCB unit
- 2. Disconnect the connectors. (13 places)

## REFERENCE

- When the FS-100U2 (option) is installed, remove the two screws to remove the USB PCB unit. (Pan head screw with plain washer 3 x 6)
- Disconnect the two connectors, CN20 and CN21.
- 3. Remove the six screws to remove the main PCB unit (old).(Pan head screw with spring plain washer 3 x 6)
- 4. When a EEPROM is mounted on the new main PCB unit, remove it.
- 5. Remove the EEPROM on the main PCB unit (old) and mount it on the new main PCB unit.

## IMPORTANT

• Fit the cut out to the mark on the PCB unit when mounting the EEPROM.

#### Reinstallation

- Installing the Main PCB unit
- 1. Install the new PCB unit.
- 2. Connect the 13 connectors. (13 places)

### REFERENCE

- When the FS-100U2 (option) is installed, install the USB PCB unit with the two screws.
   (Pan head screw with plain washer 3 x 6)
- Connect the CN20 and CN21. Make sure not to mistake CN1 for CN21.
- 3. Turn on the power and make sure that "EEPROM error" does not appear on the LCD panel.
- 4. Make sure that master making and printing are performed correctly.

#### IMPORTANT

• Carefully release the lock when disconnecting the flat cable. Failure to do so may damage the PCB unit.

### IMPORTANT

• Connect the flat cable with the terminal surface down.





• Carefully release the lock while holding it between your fingers as shown in the above figure.



• If you release the lock as shown in the above figure, it opens sharply and may damage the connector.

- Drive PCB unit
- 2. Disconnect the connectors. (9 places)
- 3. Remove the eight screws to remove the Drive PCB unit.

(Pan head screw with spring plain washer 3 x 6)

#### IMPORTANT

• Carefully release the lock when disconnecting the flat cable. Failure to do so may damage the PCB unit.







• Carefully release the lock while holding it between your fingers as shown in the above figure.



• If you release the lock as shown in the above figure, it opens sharply and may damage the connector.

#### Reinstallation

## IMPORTANT

• Connect the flat cable with the terminal surface down.

## Relay PCB unit

- 2. Disconnect the connectors. (7 places)
- 3. Remove the four screws to remove the relay PCB unit.

(Pan head screw with spring plain washer 3 x 6)

## Reinstallation

## IMPORTANT

• After replacing the relay PCB unit, check the ROM version of the relay PCB unit. If it is not the latest version, upgrade the version.

## Switching power supply 5V

- 2. Disconnect the connectors. (2 places)
- 3. Remove the four screws to remove the Switching power supply 5V. (Pan head screw with spring plain washer 3 x 6)
- Switching power supply 24V
- 2. Disconnect the connectors. (3 places)
- 3. Remove the five screws to remove the Switching power supply 5V. (Pan head screw with spring plain washer 3 x 6)







## (6) Removing the Control Panel

- 1. Remove the front cover.
- 2. Remove the five screws.
  (2pcs : flat head screw 3 x 6)
  (3pcs : S tight hexagon head WH rounded end screw 4 x 8)



- 3. Lift and remove the control panel.
- 4. Disconnect the two connectors.



Screw



• Pull out the connector while pressing the protruded part. Do not forcibly pull it out. This may damage the PCB unit.



# (7) Removing the Control Panel PCB

1. Remove the control panel.



2. Remove the 10 screws to remove the bracket. (P tight pan head WH screw 3 x 8)



3. Disconnect the connectors 1–4.

## REFERENCE

• Connectors 2 and 4: Release the lock, and then pull out the cable unit. When releasing the lock, carefully release it. Failure to do so may damage the PCB unit.



1. Release the lock.

Recommended

Carefully release

holding it between

the lock while

your fingers as

2. Pull out the cable unit.

Incorrect

• If you release the

lock as shown in

the above figure,

it opens sharply

#### Reinstallation

#### IMPORTANT

- Connectors 2, 3, and 4: Connect the connector's cable unit in the correct direction as shown in the right figures.
  2: terminal surface up
  3: terminal surface down
  - 4: terminal surface down
- 4. Remove the seven screws to remove the panel PCB unit.
  - (P tight pan head WH screw 3 x 6)



## (8) Removing the LED PCB Unit

1. Remove the control panel.

→See (6) above

- 2. Remove the 10 screws to remove the bracket. (P tight pan head WH screw 3 x 8)
- 3. Remove the screw to remove the sheet.
- Remove the two screws to remove the LED PCB unit.
   (S tight beyagen head WH rounded end screet)

(S tight hexagon head WH rounded end screw 3 x 6)

5. Disconnect the flat cable.

### REFERENCE

• Release the connector lock, and then disconnect the cable unit. When releasing the lock, carefully release it. Failure to do so may damage the PCB unit.

#### Reinstallation

#### IMPORTANT

• Connect the flat cable with the terminal surface up as shown in the right figure.










## Reinstallation

# IMPORTANT

• When replacing the flat cable, bend it as shown in the right figure before installation.



# (9) Removing the LCD Module

1. Remove the control panel.

→See (6) above

- 2. Remove the 10 screws to remove the bracket. (P tight pan head WH screw 3 x 8)
- 3. Disconnect the connectors 1–4.

# REFERENCE

 Connectors 2 and 4: Release the lock, and then pull out the cable unit. When releasing the lock, carefully release it. Failure to do so may damage the PCB unit.



# Reinstallation

# IMPORTANT

- Connectors 2, 3, and 4: Connect the connector's cable unit in the correct direction as shown in the right figures.
  2: terminal surface up
  - 3: terminal surface down
  - 4: terminal surface down









• Carefully release the lock while holding it between your fingers as shown in the above figure.



 If you release the lock as shown in the above figure, it opens sharply and may damage the connector.

- 4. Remove the screw to remove the sheet.(S tight hexagon head WH rounded end screw 3 x 6)
- 5. Remove the two screws to remove the LCD module unit.(P tight pan head WH screw 3 x 8)
- Remove the four screws to remove the LCD module.
   (S tight hexagon head WH rounded end screw

(S tight nexagon head WH rounded end screw 3 x 6)





# <image><image><image><image>

and may damage the connector.

shown in the above

figure.

#### Reinstallation

#### IMPORTANT

 Connect the cable unit in the correct direction.
 Connect it with the terminal surface down.

side

LCD module

Terminal

surface

(down) Bend to match

the corners to each dimension

42 mm

35 mm

Panel PCB unit side

71 mm

Terminal surface

(down)

#### Reinstallation

# IMPORTANT

• When replacing the flat cable, bend it as shown in the right figure before installation.

# • When replacing the touch panel or LCD

The LCD and the touch panel are attached together. If you replace either one, follow the procedures below.

# IMPORTANT

- The touch panel have two sides (front, reverse). Take note of the correct side.
- 1. Separate the touch panel and the LCD that are attached with the adhesive tape. Remove the adhesive tape from them.



 Prepare two pieces of double-sided tape (width: 5 mm, length: same as touch panel length).
 Affix the tapes to the LCD.



4

3. Attach the touch panel to the LCD as shown in the right figure.

# IMPORTANT

• The touch panel have two sides (front, reverse). Attach it to the LCD panel so that the terminal surface is up.



# (10) Removing the Power Switch

# 

 Always remove the power cord plug from the outlet before replacing the switch.

1. Remove the control panel.

# →See (6) above

2. Widen the claws of the switch to remove the socket.



LED

# REFERENCE

• When replacing the LED, remove the LED from the socket.

3. Remove the nut and the washer to remove the power switch.

# Reinstallation

# IMPORTANT

- Attach the power switch in the correct direction as shown in the right figure.
- Attach the washer with the correct side.
- Attach the power switch so that it is located in the center of the hole of the control panel cover.



# (11) Removing the Battery PCB unit

# MARNING

 Always remove the power cord plug from the outlet before replacing a PCB unit.

1. Remove the front cover.



2. Remove the control panel.



- 3. Remove the two screws.
- 4. Disconnect the connector to remove the battery PCB unit.



# (12) Removing the Motor PCB unit

#### / WARNING

 Always remove the power cord plug from the outlet before replacing a PCB unit.

1. Remove the rear cover.



→See (6) above

- 2. Remove the control panel.
- 3. Remove the three screws and disconnect the three connectors to remove the motor PCB unit.



# 2 Scanner Section

# (1) Removing the Glass

- 1. Remove the side cover R (scanner outer cover).

   →See Page171
- 2. Remove the two screws to remove the glass.



# (2) Removing the Reading Cover

- 1. Remove the glass.
- 2. Remove the four screws to remove the reading cover.



4

# (3) Removing the Scanner Unit

- 1. Remove the document cover.
- 2. Remove the scanner outer covers (front, rear).
- 3. Remove the control panel.

#### →See Page 176

- 4. Remove the rear cover.
- 5. Remove the screw to remove the stopper. (S tight hexagon head WH rounded end screw  $4 \times 8$ )
- Remove the screw to remove the angle.
   (S tight hexagon head WH rounded end screw 4 x 6)
- 7. Press the scanner switch to slide the scanner unit.
- Remove six screws and then remove the canner unit by sliding it to the paper ejection side. (S tight bind head rounded end screw 4 x 8)

# IMPORTANT

• Do not place the scanner unit directly on the floor.

#### Reinstallation

- 1. Place the scanner unit on the cutouts from the paper ejection side.
- 2. Close the scanner unit.

#### REFERENCE

- When closing the scanner unit, the rail holes align with the frame holes.
- Slide the scanner unit and tighten the two rails by the six screws.
- 4. Install the stopper with the screw.
- 5. Install the angle with the screw.
- 6. Close the scanner unit.







# (4) Removing the LED Lamp Unit

1. Remove the glass and the reading cover. (Truss head screw 4 x 4) (S tight hexagon head WH rounded end screw 3 x 6)

→See (1)(2) above

- 2. Remove the eight screws to remove the scanner R bracket. (S tight hexagon head WH rounded end screw 3 x 6)
- Screws Scanner R bracket Screws Screws
- 3. Turn the timing pulley, and move the Slider A to the position shown in the figure.

# IMPORTANT

- Do not move the Slider A with hand.
- 4. Disconnect the flat cable.

# IMPORTANT

- Release the connector lock, and then disconnect the flat cable
- 5. Remove the two screws to remove the LED lamp unit. (Pan head screw with spring plain washer 3 x 6)

# Reinstallation

# IMPORTANT

- Connect the flat cable with the terminal surface up.
- Do not bend the reflecting plate when attaching the LED lamp.









# (5) Removing the Lamp Cord

1. Remove the scanner unit.

→See (3) above

- 2. Remove the glass and the reading cover.
- 3. Remove the eight screws to remove the scanner R bracket.
- 4. Disconnect the flat cable.

#### IMPORTANT

- Release the connector lock, and then disconnect the flat cable.
- 5. Remove the screw to remove the cable stopper.(P tight pan head WH screw 3 x 6)
- 6. Release the clamp lock to disconnect the flat cable.





#### Unit: mm 385±2 Unit: mm 385±2 LED lamp side Terminal surface down 10±1 CCD side Terminal surface up

#### Reinstallation

#### IMPORTANT

- When attaching the LED lamp cord, bend it as shown in the right figure before attachment.
- Connect the flat cable with the terminal surface up.
- The flat cable must not come into contact with the reverse side of the upper side of the scanner rear frame.
- Do not tense the flat cable excessively so that no tension is applied to the slider B.

# (6) Removing the Slider A

1. Remove the scanner unit.

→See (3) above

→See (4) above

- 2. Remove the eight screws to remove the scanner R bracket.(S tight hexagon head WH rounded end screw 3 x 6)
- 3. Remove the LED lamp unit.



# IMPORTANT

- Do not move the Slider A with hand.
- Loosen the two screws to remove the Slider A. (Pan head screw with spring plain washer 3 x 10)

# IMPORTANT

• Take note that the wire is not hitched.







#### Reinstallation

Install the slider B first and then slider A.

- Required items
   Two Slider A installation jigs
   Four Set screws
- 1. Move the slider A by rotating the timing pulley to align the frame holes with the slider A positioning holes. (See the figure on the right.)

#### IMPORTANT

- Do not move Slider A with hand.
- 2. Install the two slider A installation jigs with the four screws.
- 3. Secure the wire with the two screws.
- Remove the four screws to remove the two slider A installation jigs.
- Install the LED lamp with the two screws.
   (Pan head screw with spring plain washer 3 x 6)

Slider A installation jig





# (7) Removing the Slider B

- Required items Wire fixing jigs
- 1. Remove the glass.
- 2. Remove the reading cover.
- 3. Remove the eight screws to remove the scanner R bracket.(S tight hexagon head WH rounded end screw 3 x 6)
- 4. To prevent loosening of the wire, install the two 'wire fixing jigs' to the two wire pulleys. (front side, rear side)

See (1) above

→See (2) above

# IMPORTANT

- Do not remove the 'wire fixing jigs' before the slider B is installed.
- 5. Remove the wires from the two springs. (front side, rear side)
- 6. Remove the slider B.

# Reinstallation

- Required items
   One Slider B installation jig
   Two screws
- Install the 'slider B installation jig' with the two screws.
- 2. Place the wire on the pulleys. (front and rear). →See Page 149
- 3. Place the wire on the springs in the front and rear.
- 4. Move the slider B so that it's back face aligns with the face of 'slider B installation jig'.
- 5. Remove the two 'wire fixity jigs'. (front and rear)

If the slider B back face is misaligned with the 'slider B installation jig' face between the back and the front. Adjust it at the screw position of the wire.

6. Remove the 'slider B installation jig'.









# **3** Master Making/ Master Feed and Ejection Section

# << Master Making/ Master Feed Section >>

# (1) Removing the Cutter Unit

- 1. Open the scanner, and remove the roll master.
- Remove the four screws to remove the cover F and R.
   (S tight hexagon head WH rounded end screw 4 x 6)
- 3. Disconnect the connector.
- 4. Open the master cover.
- 5. Remove the two screws to remove the cutter unit.(S tight hexagon head WH rounded end screw 3 x 6)

# 

• Keep hands and fingers away from the cutter unit's blades. Do NOT touch the blades.

#### Reinstallation

# IMPORTANT

• After replacing the cutter unit, check the cutter blade lies to the operation side.

HELP-008 →See Page 311





# (2) Removing the End Mark Sensor PCB Unit

- 1. Open the scanner, and remove the master roll.
- 2. Open the master cover.
- Remove the two screws to remove the cover. (S tight hexagon head WH rounded end screw 3 x 6)



- 4. Remove the two screws.(S tight hexagon head WH rounded end screw 3 x 6)
- 5. Disconnect the connector, and remove the end mark sensor PCB unit.



# (3) Removing the Static Eliminating Brush Bracket

- Loosen the two screws. (Pan head screw with spring plain washer 3 x 6)
- 2. Open the master cover, and hold the static eliminating brush bracket with hand.
- 3. Remove the screws loosened in step 1 with hand to remove the static eliminating brush bracket.

# IMPORTANT

• If you remove the two screws with the master cover closed, the static eliminating brush bracket may drop on the thermal head, resulting in damage. Be sure to hold the static eliminating brush bracket with hand and then remove it.



# (4) Removing the Thermal Head

- 1. Open the scanner, and remove the roll master.
- 2. Open the master cover.
- Remove the two screws to remove the guide plate.
   (Bind head screw 3 x 6)

# IMPORTANT

- Do not contact the guide plate with the thermal head.
- 4. Remove the screw with the collar. (Pan head screw with spring plain washer 3 x 10)
- 5. Disconnect the two connectors of the thermal head, then remove them with the bracket.

6. Remove the two screws with the collars.(S tight hexagon head WH rounded end screw 3 x 6)

# IMPORTANT

- <u>Do not touch the heat emission parts of the thermal head.</u>
- The thermal head is also liable to corrode. To avoid corrosion, keep the thermal head free of moisture and salinity, and do not touch its heat emission parts. Touching these parts could scratch them.

#### Reinstallation

#### IMPORTANT

 When the thermal head is replaced, set the HELP-048 Resistance rank.

HELP-048 →See Page 354

# NOTE

If you need to clean the thermal head, please use a special cleaner [R8-S0046].







# (5) Removing the Master Feed Unit

# REFERENCE

Please put a marking around the four screws for cover R/F before remove it. Because it makes you shorten the time to

adjust the position of master feed unit.

- 1. Open the scanner, and remove the master roll.
- 2. Remove the drum unit.
- 3. Remove the front cover.
- 4. Remove the scanner side cover L



→See Page 170

- Remove the two screws to remove the cover R. (S tight hexagon head WH rounded end screw 4 x 6)
- 7. Disconnect the two connectors.
- 8. Remove the screw and disconnect the two connectors.

Remove the inter lock unit.

(S tight hexagon head WH rounded end screw 4 x 6)

Please put a marking around the four screws for cover R/F before remove it. Because it makes you shorten the time to adjust the position of master feed unit.

- 9. Disconnect the four connectors.
- 10. Remove the four screws to remove the master feed unit.(S tight hexagon head WH rounded end screw 4 x 6)









# (6) Removing the Master Feed Stepping Motor

1. Remove the master feed unit.

 $\rightarrow$ See (5) above

- Remove the four screws. (Pan head screw with spring plain washer 4 x10)
- 3. Remove the connector to remove the master feed stepping motor.

# Reinstallation

# IMPORTANT

• Be sure to adjust the tension after installing the motor.

→See Page 151



# << Master Ejection Section >>

# (1) Removing the Master Ejection Box

- 1. Push the lever and open the master ejection box.
- 2. Open the lock-type cable clamp.
- Remove the two screws and disconnect the connector, then pull the master ejection box upward to remove it. (Hexagon upset head screw with spring plain washer 5 x 10)



# (2) Removing the Eject Motor (Roll-Up Motor)

- Remove the screw to remove the cover. (S tight hexagon head WH rounded end screw 3 x 6)
- Loosen the screw and loosen the tension of the timing belt. (Pan head screw with spring plain washer 4 x 8)
- 3. Remove the timing belt from the pulley.
- 4. Loosen the screw to remove the motor pulley. (Hexagon socket set screw cup point 4 x 6)
- 5. Disconnect the connector.
- 6. Remove the three screws to remove the motor. (Pan head screw with spring plain washer 3 x 6)





# << Master Clamp Opening/Closing Section >>

# (1) Removing the Master Clamp Opening/Closing Unit

 Remove the rear cover. (S tight hexagon head WH rounded end screw 4 x 8)

→See Page172

- 2. Remove the drum unit.
- 3. Remove the spring.
- 4. Remove the screw to remove the angle.(S tight hexagon head WH rounded end screw 4 x 6)
- 5. Disconnect the three connectors.
- 6. Remove the three screws to remove the master clamp opening/closing unit.(S tight hexagon head WH rounded end screw 4 x 8)

# (2) Removing the Clamp Motor

1. Remove the master clamp opening/closing unit.

#### $\rightarrow$ See (1) above

- Remove the screw and remove the opening/ closing levers.
   (Pan head screw with spring plain washer 3 x 8)
- 3. Loosen the screw to loosen the tension of the timing belt.
- 4. Remove the two screws to remove the reinforcement plate.(S tight hexagon head WH rounded end screw 4 x 8)
- 5. Loosen the hexagon socket set screw to remove the gear.
- 6. Remove the three screws to remove the clamp motor.(Pan head screw with spring washer 3 x 6)

Angle Master clamp opening Spring /closing unit Screw Screw Connectors





Reinstallation
IMPORTANT
Be sure to adjust the tension after installing the motor.
→See Page154

# (3) Removing the Timing Belt

- 1. Remove the master clamp opening/closing unit.
- 2. Loosen the two screws to loosen the tension.
- 3. Remove the teo screws to remove the twoopen/close levers.(Pan head screw with spring plain washer 3 x 8)
- 4. Remove the two screws to remove the reinforcement plate.(S tight hexagon head WH rounded end screw 4 x 8)
- 5. Remove the timing belt.



# Reinstallation



# 4 Paper Feed Section

# (1) Removing the Feed Tray Unit

1. Hold the bottom of the feed tray unit and remove the connector. Then remove the feed tray upward.

The following electric components can be

(S tight hexagon head WH rounded end screw 3 x 6)



# Paper sensor

## Reinstallation

< How to Install >

REFERENCE

removed.
< All models >
 • Paper sensor

1. Turn the potentiometer of the cable unit until stop position in the direction of clockwise.

#### IMPORTANT

- Do not turn the potentiometer excessively. It may cause the machine to malfunction.
- 2. Return the tooth of the pulley for 2 nothes from the stop position.
- 3. Slide the side guides to both ends and install the bracket.
- 4. Install the feed tray to the printer.

#### IMPORTANT

 Be sure to adjust the paper width with the HELP Mode "HELP-006".

HELP-006 →See Page 308



200

# (2) Removing the Elevator Lower Limit Switch

1. Remove the rear cover.

→See Page 172

- 2. Disconnect the connector.
- 3. Remove the two screws to remove the elevator lower limit switch.(Pan head screw with spring washer 2 x 10)



# Reinstallation

# IMPORTANT

• After reinstalling the elevator lower limit switch, adjust its clearance.

→See Page236

# (3) Removing the Paper Feed Roller

 Remove the screw, and slide the paper feed shaft in the direction of the arrow.
 (Pan head screw with spring washer 4 x 10)



- 2. Loosen the hexagon socket set screw to remove the paper feed roller.
- 3. Remove the stopper to remove the two paper feed rollers.

#### Reinstallation

• Reinstall the paper feed roller so that the hexagon socket set screw is positioned at the paper feed roller shaft's counter bore.

# IMPORTANT

• Do not use an old paper feed roller together with a new one.

# (4) Removing the Paper separator Unit

1. Pull the clip on the right side of the right paper feed roller toward you.





2. Slightly lift up the shaft as shown in the right figure and move the right paper feed roller and the center paper feed roller to the right side.



3. Remove the Paper separator unit.





# (5) Removing the Side Separators

1. Pull the clip on the right side of the right paper feed roller toward you.

- 2. Slightly lift up the shaft as shown in the right figure and move the right paper feed roller and the center paper feed roller to the right side.
- 3. Remove the separator unit.
- 4. Remove the side separator unit.







# Reinstallation

# IMPORTANT

• Take note of the direction to install the side separators.



# (6) Removing the Paper Top Detect Sensor, Signal Sensor, Double Feed Detect Sensor

- 1. Remove the print tray.
- 2. Remove the five screws to remove the paper ejection cover.
  (4pcs : S tight hexagon head WH rounded end screw 4 x 8)
  (1pce : S tight hexagon head WH rounded end screw 3 x 8)

# IMPORTANT

- Disconnect the connector of the fan of the paper ejection cover.
- 3. Disconnect the three connectors.
- 4. Remove the two screws to remove the paper ejection base.

(S tight hexagon head WH rounded end screw 4 x 8)

- 5. Remove the four cord clamps and remove the screw, and then remove the cable unit (paper leading edge / signal) and the bracket.
  (S tight hexagon head WH rounded end screw 3 x 8)
- 6. Remove the three photo-emitting sensors.
  - 3 screws (3 places: 1 screw each) (Pan head screw with spring plain washer 3 x 10, washer 3 x 12 1.0)

(Pan head screw with spring plain washer 3 x6)

• 3 connectors (3 places: 1 connector each)









- 6. Remove the drum unit.
- 7. Remove the four cord clamps and remove the two screws, and then remove the bracket. (Hexagon head upset screw with spring washer 4 x 8)
- 8. Remove the three photo-receiving sensors.
  - 3 screws (3 places: 1 screw each)
    (Pan head screw with spring plain washer 3 x 14, washer 3, nut 3)

(Pan head screw with spring plain washer 3 x 14)

(Pan head screw with spring plain washer 3 x 14, washer 3 x 12 x 1.0)

• 3 connectors (3 places: 1 connector each)

#### Reinstallation

# IMPORTANT

• Adjust the sensitivity of the double feed detect sensor after it is installed.

# (7) Removing the Timing Roller

- 1. Remove the paper eject unit.
- 2. Remove the rear cover.
- 3. Remove the drum unit.
- 4. Remove the sub-frame B.
- 5. Remove the spring.
- 6. Remove the two E-rings to remove the link.
- 7. Release the stopper of the release lever.
- 8. Remove the three screws to remove the bearing stopper and the spring.(2pcs:S tight hexagon head WH rounded end screw 4 x 8)

(1pce:Pan head screw with spring plain washer  $4 \times 12$ )

9. Remove the two screws. Lifting the guide A unit, remove the timing roller from the rear side (opposite of operation side).

(S tight hexagon head WH rounded end screw 3 x 6)

# Reinstallation

#### IMPORTANT

• After installing the timing roller, separate the press roller from the drum and then set the drum.









4



→See Page172

→See Page206

# 5 Drum Driving Section

# (1) Removing the Sub-Frame

#### • Remove the sub-frame B

1. Remove the rear cover.

→See Page172

- Remove the two screws to remove the stay. (S tight hexagon head WH rounded end screw 4 x 6)
- 3. Remove the six screws to remove the subframe B.

(S tight hexagon head WH rounded end screw 4 x 6)

(Pan head screw with spring plain washer 4 x 8)







#### • Remove the sub-frame A

1. Remove the rear cover.

#### →See Page172

- 2. Remove the sub-frame B.
- 3. Remove the screw to remove the pump stay.
- 4. Remove the screw to remove the link unit.
- 5. Disconnect the connector.
- 6. Remove the four screws to remove the subframe A.

(Hexagon head upset screw with spring washer 5 x 10; Link)

(Pan head screw with spring plain washer 4 x 14; Pump stay)

(S tight hexagon head WH rounded end screw 4 x 8; sub-frame A)

#### Reinstallation

#### IMPORTANT

• Use the screws (4×8) removed in step 6 to install the sub-frame A.

# (2) Removing the Drum Gear and Driving Assy

- 1. Remove the rear cover.
- 2. Remove the sub-frame A and B.

 $\rightarrow$ See Page172

 $\rightarrow$  See (1) above

3. Remove the spring.

- 4. Remove the spring.
- 5. Remove the two E-rings to remove the link.
- 6. Remove the two screws to remove the drum gear.

(Hexagon head upset screw with spring plain washer (SUS)  $4 \times 10$ )

7. Remove the four screws to remove the driving assy.

(S tight hexagon head WH rounded end screw 4 x 8)

#### Reinstallation

# IMPORTANT

• Use the screws (4×8) removed in step 7 to install the driving assy.

# (3) Removing the P Roll

- 1. Remove the drum unit.
- 2. Insert a tool such as a screwdriver into the center of the P roll shaft and remove the P roll by pulling upward.

# Reinstallation

#### IMPORTANT

- When reinstalling the P roll, set it with its operator's side pressed down. If the drum unit is inserted with the operator's side of the P roll up, the P roll and the drum interfere each other and this may damage the P roll.
- Hold both edges of the P roll during reinstallation and removal so that you do not touch the P roll as much as possible.





P roll Insert a tool into the center of the shaft and press up.

# (4) Removing the P Roll Bracket

- 1. Access HELP-013 and rotate the press motor so that the pressure lever is located at the lowest pressure.
- 2. Remove the front cover.
- 3. Remove the rear cover.

# →See Page 170

# →See Page172

- 4. Remove the P roll.
- 5. Remove the paper ejection base.

→See Page 212

→See (3) above

- 6. Remove the two screws and disconnect the connector to remove the cover.(S tight hexagon head WH rounded end screw 3 x 6)
- 7. Remove the spring.

# IMPORTANT

• Be sure to install the removed spring to its original position.



 $\rightarrow$ See (2) above

 $\rightarrow$ See (1) above

- 9. Remove the drum gear and the driving assy.
- 10. Remove the spring.

#### IMPORTANT

- Be sure to install the removed spring to its original position.
- 11. Remove the four screws and disconnect the four connectors to remove the vertical reg. assy.

(S tight hexagon head WH rounded end screw  $4 \times 8$ )

12. Pull out the pin to remove the press lever.

#### IMPORTANT

• Replace the pin with a new one. Do not reuse it.

#### REFERENCE

• If the pin comes into contact with the screw when pulling it out, remove the screw.







1. Remove the E-ring on the operator's side.

2. Remove the collar and the bearing.

3. Remove the bracket shaft unit.







# Reinstallation

# IMPORTANT

• After replacing the P roll bracket, adjust the thrust backlash by inserting washers so that the press lever smoothly moves up and down and thrust backlash is 0.1 mm to 0.3 mm.

4

# 6 Paper Ejection Section

# (1) Removing the Paper Stripper Finger, Sub Paper Stripper Finger

- 1. Open the master ejection box.
- 2. Remove the three screws. (Tree places: one screw each) (Pan head screw with spring plain washer 3 x 10)
- 3. Remove the paper stripper finger and two sub paper stripper fingers from the shaft.
- 4. Take out the paper stripper finger and sub paper stripper fingers from the pipe.





#### Reinstallation

# IMPORTANT

• Adjust the paper stripper finger after it is installed.

→See Page 167

# (2) Removing the Paper Tray Fan Unit

- 1. Remove the print tray.
- 2. Remove the five screws to remove the paper ejection cover.
  (4pcs : S tight hexagon head WH rounded end screw 4 x 8)
  (1pce : S tight hexagon head WH rounded end screw 3 x 8)
- 3. Disconnect the connector.





- Paper tray fan unit
- 4. Remove the two screws to remove the paper tray fan unit.(P tight pan head screw 4 x 40)

# (3) Removing the Paper Eject Fan Unit

- 1. Remove the print tray.
- 2. Remove the five screws to remove the paper ejection cover.
  (4pcs : S tight hexagon head WH rounded end screw 4 x 8)
  (1pce : S tight hexagon head WH rounded end screw 3 x 8)
- 3. Disconnect the three connectors.
- 4. Remove the two screws to remove the paper ejection base.(S tight hexagon head WH rounded end screw)

(S tight nexagon head VVH rounded end screw 4 x 8)

 Remove the three screws to remove the paper eject fan unit. (Pan head screw 4 x 37.5)









#### Reinstallation

#### IMPORTANT

 Install the paper eject fan unit so that the four protrusions match the corners of the paper eject fan unit.

212

# (4) Removing the Paper Ejection Belt

1. Remove the paper ejection base.

 $\rightarrow$ See (3) above

- 2. Remove the timing belt.
- 3. Remove the two screws to remove the Static eliminating bracket.(Ultra low head screw 3 x 6)
- 4. Remove the two screws to remove the Z of the jump plate.(Pan head screw with spring plain washer 4 x 12)
- 5. Remove the two nuts.
- Remove the two screws to remove the jump plate. (Truss head screw 4 x 10)

# IMPORTANT

• Do not loose the collars.

7. Remove the four screws to remove the angles. (P tight pan head WH screw 3 x 8)











- 8. Remove the rollers.
- 9. Remove the two screws to remove the plate. (P tight bind head screw 4 x 10)

10. Remove the paper ejection belt from the plate.





# (5) Removing the Paper Ejection JAM Sensor

1. Remove the paper ejection base.

→See (3) above

- 2. Remove the timing belt.
- 3. Remove the two screws to remove the static eliminating bracket.(P tight pan head screw 3 x 8)

→See (4) above

4. Remove the four screws to remove the base plate.(P tight pan head Wh screw 3 x 6)


- 5. Disconnect the connector to remove the base plate.
- 6. Remove the screw to remove the paper ejection jam sensor with the bracket.
- 7. Remove the paper ejection jam sensor from the bracket.



## Reinstallation

## IMPORTANT

• Take note of the direction to install the paper ejection jam sensor.

# (6) Removing the Paper Ejection Motor

1. Remove the paper ejection base.

→See (3) above

2. Remove the timing belt.







# (7) Removing the Top Fan Unit

- 1. Open the master ejection box.
- 2. Remove the six screws to remove the master ejection cover.(S tight hexagon head WH rounded end screw 3 x 6)
- 3. Remove the two screws.(S tight hexagon head WH rounded end screw 3 x 6)
- 4. Disconnect the two connectors to remove the top fan unit.





# (8) Removing the Fan

- 1. Remove the top fan unit.
- 2. Remove the two screws to remove the two fans.

(P tight pan head screw 4 x 40)





# (9) Removing the Pressure Adjustment Unit

1. Remove the master ejection fan unit.

 $\rightarrow$ See (3) above

2. Remove the two screws, and disconnect the connector.

Then remove the cover.

(S tight hexagon head WH rounded end screw 3 x 6)

- 3. Disconnect the two connectors. (4 pins, 2 pins)
- 4. Remove the three screws to remove the pressure adjustment unit.(S tight hexagon head WH rounded end screw 4 x 6)





# (10) Removing the Press Motor

1. Remove the pressure adjustment unit.

→See (9) above

- 2. Loosen the hexagon socket set screw.
- 3. Remove the two set screws to remove the press motor with the motor plate.(S tight hexagon head WH rounded end screw 3 x 6)
- 4. Remove the three screws to remove the press motor.

(Pan head screw with spring washer 3 x 6)





# 7 Drum Section

# (1) Removing the Screen

- 1. Remove the drum unit.
- 2. Remove the two angles of the bottom end screen bar, and pull out the screen bar.
- 3. Remove the two screws of the top end screen bar, and pull out the screen bar.(Pan head screw with spring plain washer 3 x 8)
- 4. Remove the screen from the drum.

## IMPORTANT

• Do not rotate the drum reversely.



### Reinstallation

- 1. Pass the top end screen bar through the screen. (top end side)
- 2. Install the top end screen bar to the drum.

## IMPORTANT

- Make sure of the bottom end and top end of the screen before reinstallation.
- Pass the bottom end screen bar through the screen. (bottom end side)
- Hold the screen bar of the bottom end in parallel with the drum and roll it up the drum rotating the drum normally by your hands.
- 5. Pull the bottom end screen bar and secure it with the angles.

## IMPORTANT

• The stainless screen does not return to the original state once it is folded. Handle it with care.



# (2) Removing the Sponge

- 1. Remove the screen.
- $\rightarrow$  See (1) above 2. Remove the two covers of the sponge surface.
- 3. Remove the two sponges.



# (3) Removing the Master Clamp

- 1. Remove the two screws on the operation side. (Pan head screw with spring plain washer 3 x 8)
- 2. Remove the bearing plate and the spring.
- Remove the two screws on the opposite of the operation side.
  (Pan head screw with spring plain washer 3 x 8)
- 4. Remove the master clamp. The master clamp is attached to the base with the magnet.



# (4) Removing the Base unit

- 1. Remove the master clamp.
- 2. Remove the screen.
- 3. Remove the two covers of the sponge surface.

See (3) above

→See (1) above

4. Remove the two screws to remove the base unit.

(Pan head screw with spring plain washer 3 x 5)



# (5) Removing the Outer Frame F Unit

- 1. Remove the drum unit.
- Remove the two screws securing the rail, and remove the screw securing the stay. (the rail : S tight hexagon head WH rounded end screw 4 x 8) (stay : Hexagon head upset screw with spring plain washer 5 x 12)
- 3. Remove the screw to remove the ink holder. (P tight pan head WH screw 3 x 6)
- 4. Remove the four screws securing the outer frame (right) unit.(Pan head screw with spring plain washer 4 x 10)
- 5. Disconnect the three connectors, and remove the outer frame F unit.





# (6) Removing the Outer Frame R Assy

- 1. Remove the drum unit.
- Remove the two screws to remove the rails. (S tight hexagon head WH rounded end screw 4 x 8)
- Remove the screw to remove the stay. (Hexagon head upset screw with spring plain washer 5 x 12)
- 4. Remove the four screws.(Pan head screw with spring plain washer 3 x 7)





5. Remove the outer frame R assy.



### Reinstallation

 The drum stops accurately in 'master attach position' and 'drum removal position' if it marks the outer frame R assy and the drum assy. However, it is necessary to readjust 'master attach position' and ' drum removal position'.

# (7) Removing the Inner Frame

1. Remove the outer frame F unit.

→See <u>(</u>5) abov<u>e</u>

2. Loosen the three screws securing the supporting plate, move the supporting plate in the direction of arrow until it sops and secure it with the screws.



3. Pull out the inner frame (section inside the drum) in the direction of an arrow.

### IMPORTANT

• Do not damage the inner surface of the drum when pulling out the inner frame.



#### Reinstallation

• Slide the supporting plate in the direction of arrow so that the three rollers are contact with the inner surface of the flange lightly, and secure the three screws of the supporting plate.



# (8) Removing the Ink Pump

- 1. Remove the inner frame.
- →See (7) above 2. Loosen the screw securing the hose band, and pull out the hose.
- 3. Disconnect the connector.
- Remove the 4 screws to remove the ink pump. (S tight hexagon head WH rounded end screw 3 x 6)





# (9) Removing the Ink Pump Motor

1. Remove the ink pump.

→See (8) above

- 2. Loosen the hexagon socket set screw to remove the collar.
- 3. Remove the three screws to remove the motor. (Pan head screw with spring plain washer 3 x 6)



Δ

# (10) Removing the Ink Detection PCB Unit

1. Remove the inner frame.

→See (7) above

- 2. Disconnect the connector.
- Remove the two screws and the earth screw, and remove the ink detection PCB unit. (S tight hexagon head WH rounded end screw 3 x 6)



## Reinstallation

## IMPORTANT

• Confirm that the detection needle is vertical with the PCB Unit and does not contact anywhere, when installing the Ink detection PCB Unit.



# (11) Removing the Ink roller Up/Down Motor

- 1. Remove the inner frame.
- →See (7) above
- 2. Disconnect the wo connectors.
- 3. Remove the four screws to remove the motor bracket.
  - (Pan head screw with spring washer 4 x 18)
- 4. Loosen the hexagon socket set screw, and remove the gear.
- 5. Remove the three screws to remove the ink roller up/down motor.(Pan head screw with spring washer 3 x 6)

### Reinstallation

### IMPORTANT

• Leave space by 3 mm in the part in the figure when installing the gear after replacing the motor.



# Chapter 5 Standards/Adjustment

1 Scanner Section	<sup>.</sup> 226
(1) Attaching the Rear Wire	<sup></sup> 226
(2) Attaching the Front Wire	<sup>.</sup> 227
2 Master Making/Master Feed/Ejection Section	<sup></sup> 228
< <master feed="" making="" master="" section="">&gt; "</master>	<sup>.</sup> 228
(1) Adjusting the Timing Belt Tension	<sup></sup> 228
< <master ejection="" section="">&gt;</master>	<sup>.</sup> 229
(1) Attaching the Spring	<sup>.</sup> 229
(2) Adjusting the Timing Belt Tension	230
< <master clamp="" closing="" opening="" section="">&gt;</master>	231
(1) Adjusting the Timing Belt Tension	231
(2) Positioning the Master Clamp Opening/Closing Levers	231
1. Master feed master clamp opening/closing lever ···	231
2. Master ejection master clamp opening/closing lever	231
(3) Adjusting the B / C Mode	·232
1. Adjustment for B mode	.535
2. Adjusting C-Mode	<sup>.</sup> 234
3 Paper Feed Section	<sup>.</sup> 235
(1) Adjusting the Paper Separator Unit Clearance	235
(2) Adjusting the Elevator Top Limit Sensor	235
(3) Adjusting the Elevator Lower Limit Switch	.536
(4) Adjusting the G Roll Escape Amount/Timing	.232
(5) Top Margin Adjustment	.532
(6) Adjusting the Vertical Reg. Sensors	. 238
1. Bottom Limit adjustment	<sup>.</sup> 238
2. Top Limit adjustment	·238
4 Drum Driving Section	.239
(1) Adjusting the Drum Stop Position	.239
(2) Adjusting the Master Attach Position	240
5 Press Section	241
(1) Checking the of Press Roller Sensor	
(2) Adjusting the Printing Area (Press OFF Timing)	242
6 Paper Ejection Section	243
(1) Adjusting the Paper Stripper Finger Clearance	243
[7] Drum Section	244
(1) Adjusting the Ink Amount	244
(2) Adjusting the Master Clamp Marsin	240
(3) Adjusting the Drum Deil Community	240
(4) Adjusting the Drum Rail Gap	240
2. Deer eide	240
2. Real slue	240
(1) Adjusting Poduction/Enlargement	241 · 217
(1) Aujusting Meduction/Enlargement 1. Adjusting Meaks Eood Volume Magnification ···	241 • 217
Aujusting W-make Feeu Volume Wagnification	241
	241

3. Adjusting Scan Vertical Magnification <sup></sup> 248
4. Adjusting Scan Horizontal Magnification 248
(2) Master Making Start Position249
(3) Reading Start Position250
1. Adjusting the Top End Reading Start
Position Adjustment procedure250
2. Adjusting the Lateral (Operation Side)
Reading Start Position250
(4) Adjusting the Master making Start Position 251
1. When the Scanner Is in Use251
2. When in Online 251
(5) Adjusting the Document Reading Darkness <sup>252</sup>
1. Adjusting the Scan Level: Text mode "252
2. Adjusting the Scan Level: Text/Photo,Photo/
Text, Photo mode
(6) Adjusting of Printer Unit's Printing Speed <sup></sup> 253
1. Adjusting the Pre-stop Speed 253
2. Adjusting the M-make Speed253
3. Adjusting the Jog Speed254
4. Adjusting the Print Speed
(7) Adjusting Paper Eject Speed255
1. Adjusting the Paper Eject Speed
2. Setting the Top Fan

# **1** Scanner Section

# (1) Attaching the Rear Wire



# **REFERENCE:**

- For removable of the scanner unit
- For removal of the rear wire



## Adjustment procedure

- 1. Insert the ball end of the wire into the groove opening the pulley. Wrap the wire six times in the rear, and four times on the operation side.
- 2. Place the wire on the screw side onto the pulley.
- 3. Place the wire on the rear pulley of Slider B.
- 4. Pass the screw through the bracket opening, and secure it in place with two nuts. (Temporarily secure the bracket and the screw tip with a gap of 10 mm.)
- 5. Place the wire on the hook side on the pulley.
- 6. Place the wire on the pulley in front of Slider B.
- 7. Place the wire on the corner guide.
- 8. Place the spring on the hook.
- 9. Adjust the securing position in 4 so that the total spring length is approx. 40 mm.

# (2) Attaching the Front Wire



## **REFERENCE:**

• For removal of the Scanner unit

 $\rightarrow$  See page 186

 $\rightarrow$  See page 191

# • For removal of the front wire

### Adjustment procedure

- 1. Insert the ball end of the wire into the groove opening on the pulley. Wrap the wire four times in the rear, and 6 times on the operation side.
- 2. Place the wire on the screw side onto the pulley.
- 3. Place the wire on the front pulley of Slider B.
- 4. Pass the screw through the bracket opening, and secure it in place with two nuts. (Temporarily secure the bracket and the screw tip with a gap of 10 mm.)
- 5. Place the wire on the hook side on the pulley.
- 6. Place the wire on the pulley in rear of Slider B.
- 7. Place the wire on the corner guide.
- 8. Place the spring on the hook.
- 9. Adjust the securing position in 4 so that the total spring length is approx. 40 mm.

# 2 Master Making/Master Feed/Ejection Section <<Master Making / Master Feed Section>>

# (1) Adjusting the Timing Belt Tension

## **REFERENCE:**

• For removal of master feed unit.

# $\rightarrow$ See page 195

## Adjustment procedure

1. Use the set screw to adjust the belt's tension, applying a force of approx. 1N (100 g) to the timing belt in the direction of the arrow with a tension gauge so that the deflection is 2 mm.



# <<Master Ejection Section>>

# (1) Attaching the Spring

# IMPORTANT

- Set the hook on the spring and crush it to prevent removing.
- 1. Attaching the spring between A and B. 72-45361: Spring T (L=90 mm) 4 pieces
- 2. Attaching the spring between B and C. E1-35461: Spring T (L=104.9 mm) 4 pieces
- 3. Attaching the spring between C, D and E. R8-E3061: Spring T (L=235 mm) 4 pieces
- 4. Attaching the spring between D, E and F. R8-E3061: Spring T (L=235 mm) 4 pieces



# (2) Adjusting the Timing Belt Tension

For removal of the master ejection box.

 $\rightarrow$  See page 197

- Adjustment procedure
- 1. Loosen the set screw.
- Use the set screw to adjust the belt's tension, applying a force of approx. 5N (500 g) to the timing belt in the direction of the arrow with a tension gauge so that the deflection is 5±1 mm.

### After adjustment

Function testing of roll-up motor 1. Access HELP mode: HELP-009.



 Press and hold down the " <> " PRINT POSITION key.
 For as long as this key is held down, the roll-up motor will rotate in the reverse direction (counterclockwise), causing the rollers inside the master ejection box to rotate.

## IMPORTANT

- The motor does not reverse.
- Due to interlocking mechanism, the motor does not rotate if the master ejection box is open.
- 3. The motor will stop when the " < " PRINTING SPEED ADJUSTMENT key is released.
- 4. Press the STOP key. The HELP mode menu will reappear.
- → To exit the HELP mode: Turn the power switch to OFF.
- → To select another HELP mode: Enter the desired HELP mode number using the numeric keys.



# <<Master Clamp Opening/Closing Section>>

# (1) Adjusting the Timing Belt Tension

# REFERENCE

 For removal of master clump opening/closing unit. → See page 198

## Adjustment procedure

- 1. Loosen the set screw.
- Use the set screw to adjust the belt's tension, applying a force of approx. 4N (400 g) to the timing belt in the direction of the arrow with a tension gauge so that the deflection is approx. 2 mm.

## After Adjustment

## IMPORTANT

Be sure to adjust the B/C mode after installation to the printer.

# (2) Positioning the Master Clamp Opening/Closing Levers

For removal of master clump opening/closing unit.

## $\rightarrow$ See page 198

**1. Master feed master clamp opening/closing lever** When tensioning the timing belt, ensure that the sub frame is positioned so that the upper surface of the master clamp opening/closing lever is aligned (to within 0.5 mm) with the rim of the positioning hole.

2. Master ejection master clamp opening/closing lever When tensioning the timing belt, ensure that the sub frame is positioned so that the upper surface of the master clamp opening/closing lever is aligned (to within 0.5 mm) with the rim of the positioning hole.

### **IMPORTANT:**

### After Adjustment

Be sure to adjust the B/C mode after installation to the printer.





# (3) Adjusting the B / C Mode

#### Before adjustment

### IMPORTANT:

C mode adjustment must be carried out After B mode adjustment has been completed.

## 1. Adjustment for B mode

### Adjustment procedure

- 1. Remove the drum from the machine body.
- 2. Access HELP mode H-012.



#### • When drum is removed from main body( B mode )



#### • C mode

- Press and hold down the " > PRINT POSITION" key to move the master clamp opening/closing lever toward C mode position wiser than B mode position.
- 4. Turn the power off, then on again. The master clamp opening/closing lever will move into the B mode-position and stop.
- 5. Turn off the power, and install the drum to the machine body.
- 6. Open the master ejection box. Then press the paper eject switch (drum rotator switch) to set the master clamp position in front of the open/ close lever.





# 

- Do not touch the drum or rolls when operating the paper eject switch.
- Do not put your hands or fingers inside the machine during operation. They could be caught up or crushed in the machinery,resulting in injury.
- 7. Rotate the drum paying attention to the clearance of the master clamp opening/closing lever.

Standard value

• Check that the clearance between the master ejection box's rubber roller and the master clamp plate is within the range given below.

Item	Standard value
Clearance between the master	
clamp lever and the master clamp	4.0 - 5.0 mm
opening/closing lever	

# If the clearance is outside the standard range 1.

1. Loosen the fixing screw, then adjust rotating the B/C mode shade plate.





2. Adjusting C-Mode

#### Before adjusting:

### IMPORTANT

C mode adjustment must be carried out after B mode adjustment has been completed.

1. Access HELP-012.

HELP-012  $\rightarrow$  See page 319

- 2. Press and hold down the "1" key to set the detach position.
- 3. Press and hold down the  $\triangleright$  (PRINT POSITION) key to set the master clamp open/close lever to the C mode-position.
- 4. Open the scanner unit.

#### Stopping drum in master detachment position









#### Standard value

• Check that the clearance between the master ejection box's rubber roller and the master clamp plate is within the range given below.

Item	Standard value
Clearance between master	
ejection box's rubber roller and	0.5 - 1.0 mm
master clamp plate	

# If the clearance is outside the standard range 1.

Loosen the fixing screw, then adjust the clamp sensor 2 (C mode).

# IMPORTANT:

• Do not press the master clamp against the rubber roller.

# **3** Paper Feed Section

# (1) Adjusting the Paper Separator Unit Clearance

# REFERENCE

• For description of operation

 $\rightarrow$  See page 126

# Adjustment procedure

 When the paper separator unit is installed, use the adjustment bolt to adjust the unit so that it moves in direction 1 without sticking, and moves smoothly in direction 2. Tighten the bolt's nut to secure the unit in the adjusted position.

# (2) Adjusting the Elevator Top Limit Sensor

# REFERENCE

• For description of operation

 $\rightarrow$  See page 135

# Adjustment procedure

- 1. Insert a 1 mm thick strip of material between the paper feed roller and the paper feed inlet.
- 2. Loosen the two screws indicated, then adjust the sensor's position so that the bottom surface of the paper feed shaft lever is at the center of the sensor.

# IMPORTANT

For adjustment, remove the side paper separator unit.

3. After adjustment, tighten the screws.







# (3) Adjusting the Elevator Lower Limit Switch

## REFERENCE

- For description of operation  $\rightarrow$  See page 135
- For removal.



## Adjustment method

1. Access HELP-006.

HELP-006  $\rightarrow$  See page 308

- 2. Press the PRINT POSITION key to select the "ELEVATOR MOTOR".
- 3. Press and hold down the <⊃(PRINT POSITION) key until the paper feed tray is at its lower position.

The elevator motor will run (i.e. the paper feed tray will descend) for as long as the key is held down.

4. Check that the dimension indicated in the figure at right conforms to the value shown below.

### Standard value

Item	Standard value
Paper feed tray clearance in	10 mm
lower limit position	

### If the feed length is not the standard value

1. Loosen the screws, then adjust the lower limit switch to a position that yields the standard clearance value.

Moving the switch in the direction shifts the **†** lower position downward.

Moving the switch in the direction shifts the  $\clubsuit$  lower position upward.

2. After adjustment, tighten the screws.

(S tight hexagon head WH rounded end screw 4 x 6)





# (4) Adjusting the G Roll Escape Amount/Timing

## Adjustment procedure

- 1. Pull out the drum while the drum is in the stop position.
- 2. Loosen the eccentric shaft fixing screw and adjust so that the clearance between the timing roller and the guide roller becomes 0.5 mm.

## REFERENCE

• For description of operation

### Standard value

 $\rightarrow$  See page 129

Check the clearance between the timing roller and the guide roller.

Item	Standard value
Clearance between timing roller	0.5 mm
and guide roller	

# (5) Top Margin Adjustment

# Adjustment procedure

1. Access HELP-030.

HELP-030  $\rightarrow$  See page 339

- 2. Touch "TEST PATTERN 2".
- 3. Press the (MASTER MAKING) key. Print the test pattern.
- 4. Adjust the Vertical reg. center sensor so that the top margin of the paper is 6 7 mm.

Item	Standard value
Top margin	6 - 7 mm

## REFERENCE

• After adjusting the Vertical reg. center sensor, press the RESET key to return the print position to the center.







# (6) Adjusting the Vertical Reg. Sensors

## REFERENCE

For description of operation

 $\rightarrow$  See page 132

## IMPORTANT

Make the Top Margin adjustment before adjusting the vertical reg. sensors.

1. Bottom Limit adjustment

### Adjustment procedure

- 1. Access HELP-014, and check the numerical value. HELP-014  $\rightarrow$  See page 321
- 2. Access HELP-030,

HELP-030  $\rightarrow$  See page 339

- 3. Touch "TEST PATTERN 1".
- 4. Press the (MASTER MAKING) key. Print the test pattern.
- 5. Touch "SCREEN COARSE" of the image mode.
- 6. Press the (PRINT POSITION) < key to move the print position.( Bottom limit adjustment )
- Compare the printed image (step 7) with the printed image (step 4).
  Check the difference of 15 mm, and press the the *≚* key and the C (CLEAR) key.
- If the moving distance is not the 15 mm
- Repeat steps 6 through 7.
- 2. Top Limit adjustment

### Adjustment procedure

- Adjust Top Limit at the same time Repeat steps 1 through 4, then Touch "SCREEN FINE" of the image mode (step 5).
- 6. Press the > (PRINT POSITION) key to move the print position.( Top limit adjustment )
- Release the > (PRINT POSITION) key at the numerical value of step 1 and press the (PRINT) key.
- Compare the printed image (step 7) with the printed image (step 4).
   Check the difference of 15 mm, and press the

 $\underline{Z}$  key and the C (CLEAR) key simultaneously to enter the numerical value.







# **4** Drum Driving Section

# (1) Adjusting the Drum Stop Position

# Before adjustment

# IMPORTANT

• Adjusting the drum removal position must be performed AFTER printing speed adjustment is complete.

 $\rightarrow$  See page 253

# Adjustment procedure

1. Press the drum removal button. At the drum removal position, a bleep sounds.

# MARNING

- Do not touch the drum or rolls when operating the drum removal button.
- Do not put your hands or fingers inside the machine during operation. They could be caught up or crushed in the machinery, resulting in injury.



# REFERENCE

• For description of operation  $\rightarrow$  See page 140

## Standard position

• The stop position is correctly adjusted when the groove in the drum flange is aligned with the stopper.

# IMPORTANT:

- The master detachment position is determined by adjusting the drum removal position. Only check the master detachment position.
- When the master ejection section is opened, the drum does not stop at the drum removal position even if the drum removal button is pressed. Close the master ejection section and then press the drum removal button for adjustment.

If the drum is not adjusted to the standard stop detect edge position:

When removing the drum, adjust the drum removal position sensor so that the stopper is placed in the groove center





# (2) Adjusting the Master Attach Position

#### **Check procedure**

- 1. Access HELP-012, the drum position check<br/>mode.HELP-012 → See page 319
- 2. Press the "2" key to stop the drum at the master attach position edge.
- 3. Adjust the offset in the alignment of the center axis of the master clamp open/close arm and the center axis of the master clamp open/close lever.

Item	Standard value
Offset in alignment of center	
axes of master clamp	+ 0.5 mm
open/close arm and master	
clamp open/close lever	





# **5** Press Section

# (1) Checking the of Press Roller Sensor

## REFERENCE

• For description of operation

## $\rightarrow$ See page 145

Adjustment procedure1. Check the press roll so that when it is pushed down to the lowest position by the cam, the distance between the bottom of its sensor and the end of the bracket is about 1 mm.



# (2) Adjusting the Printing Area (Press OFF Timing)

## REFERENCE

• For description of operation

#### $\rightarrow$ See page 145

## Adjustment procedure

- 1. Make a mark on the end surface of the drum flange, in a position 20 mm forward (in the direction of the forward end) from the rear end of the drum's opening (hole section).
- With the press roll activated, turn the main motor shaft by hand, and stop turning when the press roll starts to descend (move in the direction of the arrow ↓).





### Standard value

• Open the front cover, and check whether the center of the press roll is aligned with the mark made in step 1.

Item	Standard value
Alignment of mark on flange	± 2 mm
end and center of press roll	

### If the alignment is not correct:

- 1. Loosen the two hex bolts indicated.
- 2. Loosen the adjustment collar (eccentric) fixing screw.
- 3. Turn the adjustment collar (eccentric) to move the flange and adjust the alignment.

Moving the flange upward makes turning off of the press occur later  $\blacklozenge$  thereby making the printing range longer

Moving the flange downward makes turning off of the press occur earlier  $\clubsuit$  thereby making the printing range shorter





242

# 6 Paper Ejection Section

# (1) Adjusting the Paper Stripper Finger Clearance

# REFERENCE

• For description of operation

## Adjustment procedure

1. With the cancel lever raised up, turn the main motor shaft. Stop turning when the lever's roller is positioned at the bottom of the paper stripper finger cam.

HELP-006  $\rightarrow$  See page 308

 $\rightarrow$  See page 150

## Standard value

Item	Standard value
Standard value	0.8 mm – 1.0 mm

- Make sure there is a BLANK master on the drum by MAKING A BLANK PRINT.
- Check that the clearance between the drum surface and the paper stripper finger conforms to the value shown below.

## If the clearance is not the standard value:

1. Loosen the screw indicated and use the stopper to adjust the clearance to the standard value.

Then retighten the screws.

# After adjustment:

# IMPORTANT:

• After adjustment, press the drum removal button to return the drum to its home position.

# 🕂 WARNING

- Do not touch the drum or rolls when operating the drum removal button.
- Do not put your hands or fingers inside the machine during operation. They could be caught up or crushed in the machinery, resulting in injury.







# **Drum Section**

# (1) Adjusting the lnk Amount

## Adjusting the ink adjusting knob

### REFERENCE

• For removal

#### $\rightarrow$ See page 218 (7. Drum Section (1) through (6) in chapter 3)

Ink adjusting knob on the rear side Ink adjusting knob on the operation side

## Adjustment procedure

- 1. When printed too dark or too light on the operation side:
  - Too dark: switch in the (-) direction (3 settings)
  - Too light: switch in the (+) direction (3 settings)
- 2. When printed too dark or too light on the rear side:

• Too dark: switch in the (-) direction (3 settings)

- Too light: switch in the (+) direction (3 settings)
- 3. When printed too dark or too light on the entire surface:

 Adjust the above steps 1 and 2 at the same time.

# IMPORTANT:

• There are seven settings, standard and ±3 settings to adjust the printing darkness. Print more than ten sheets every time the printing darkness is switched by one setting until the most desirable printing darkness is obtained.

Repeat the above procedures until the most desirable printing darkness is obtained.





# (2) Adjusting the Squeegee Gap

## REFERENCE

• For removal

 $\rightarrow$  See page 218

(7. Drum Section (1) through (6) in chapter 3)

## Adjustment procedure

• The gap between the squeegee and the ink roller is adjusted as shown in the figure when the ink amount is based on the standards.

If the ink amount does not meet the standards, adjust it as follows:-

## Standard value

Item	Item
Gap between squeegee	0.025 0.035 mm
and ink roller	0.025 - 0.055 mm

## If the gap is not the standard value

- Two set screws 1 are used in one place. Remove one set screw 1 and loosen the other one. Perform the same operation for both sides. Be careful not to lose the removed set screws.
- 2. Loosen set screws 2 on both sides.
- 3. Adjust the gap with the adjusting screws on both sides so that the space on both sides meets the standards.

# Squeegee Ink roller Gap 0.025~ Ink roller 0.035mm 0.035mm 0.035mm 0.035mm





5

After adjustment

- 1. Tighten set screw 2.
- 2. Tighten set screw 1.
- 3. Check the gap again after the ink amount adjusting knob is moved several times in the direction + or -.
- 4. If the gap is proper, attach set screw 1 and tighten it to secure.

# (3) Adjusting the Master Clamp Margin

#### Adjustment procedure

1. Attach the master and adjust the master clamp margin at ±1 mm from the hole center in HELP-046.

 $\text{HELP-046} \rightarrow \text{ See page 351}$ 

2. After HELP-046 adjustment, press the perform master set movement once. (Be sure to remove all paper scraps.) Then perform master making, and check the master clamp margin.





# (4) Adjusting the Drum Rail Gap

#### 1. Operation side

#### Adjustment procedure

- 1. Attach the drum to the main body.
- 2. Loosen the set screw on the rail to adjust so that the gap between the rail (both sides) and the roller on the operation side is about 0.5 mm.
- 3. Tighten the set screw to secure the rail.

#### 2. Rear side

#### Adjustment procedure

- 1. Open the rear cover on the main body.
- 2. Loosen the screws on the rail to adjust so that the gap between the roller on the rear side and the rail right/left unit is about 0.5 mm.
- 3. Tighten the screw to secure the rail.



# 8 Electrical system

# (1) Adjusting Reduction/Enlargement

1. Adjusting M-make Feed Volume Magnification

## Adjustment procedure

1. Access HELP-046

#### HELP-046 $\rightarrow$ See page 351

- 2. Open the scanner so that the master feed section is seen.
- 3. Press the (MASTER MAKING) key. The cutter operates, the master is fed by 200 mm and then the cutter operates again.
- 4. Actually measure the length of master cut into 200 mm length.

### Standard value

Item	Standard value
Length of the master cut into 200 mm length	200±0.5 mm

### If the clearance is not the standard value:

• Touch "3" of the HELP-046 screen for

HELP-046 → See page 351

2. Adjusting M-make Speed Magnification

### Adjustment procedure

1. Access HELP-030.

adjustment.

#### HELP-030 $\rightarrow$ See page 339

- 2. Touch "TEST PATTERN 1".
- 3. Press the (MASTER MAKING) key. Print the test pattern.
  - DD5450: A3 paper
  - DD5440: B4 paper
  - For test patterns, see Chapter 7, "HELP-030".
- 4. Measure the length of two 100 mm-squares in the sub scan (vertical) direction.

### Standard value

Item	Standard value
Length of two 100 mm-squares in the sub scan (vertical) direction	200±0.5 mm

### If the clearance is not the standard value:

• Touch "2" of the HELP-046 screen for adjustment.

<u>HELP-030</u>  $\rightarrow$  See page 339



### • HELP -046 (page1) display



### • HELP-030 (page1) display



### M-make speed



• HELP-046 (page1) display



## 3. Adjusting Scan Vertical Magnification

#### Before adjustment

### IMPORTANT

 Adjust the "3. Adjusting Scan Vertical Magnification" after the "1. Adjusting M-mark Feed Volume Magnification".

#### Adjustment procedure

1. Prepare a basic document as shown in the figure.

Draw a line (vertical direction) at the position 30 mm from the top end of the paper\* and at the position 200 mm from the above line.

\*DD5450: A3 paper

\*DD5440: B4 paper

2. Place the document on the document table to perform master making and printing.

#### Standard value

Item	Standard value
Compare the size of A section	
of the printed image with that of	±0.5 mm
the basic document	

#### If the clearance is not the standard value:

• Touch "2" of the HELP-042 screen for adjustment.

### HELP-042 $\rightarrow$ See page 343

#### 4. Adjusting Scan Horizontal Magnification

1. Prepare a basic document as shown in the figure.

Draw a 200 mm-line(horizontal direction) at the position 30 mm from the top end of the paper\*. \*DD5450: A3 paper

- \*DD5440: B4 paper
- 2. Place the document on the document table to perform master making and printing.

#### Standard value

Item	Standard value
Compare the size of A section	
of the printed image with that of	±0.5 mm
the basic document	

### If the clearance is not the standard value:

• Touch "1" of the HELP-042 screen for adjustment.

 $\mathsf{HELP-042} \rightarrow \mathsf{See page 343}$ 



#### • HELP-042 (page1) display





• HELP-042 (page1) display

HELP-042	
SCAN	HORIZONTAL MAGNIFICATION(%)
1.	-0.6 🗲 Touch
SCAN	VERTICAL MAGNIFICATION(%)
2.	+0.3
SCANL	EAD EDGE START POSITION (mm)
3.	+0.0
SCANN	ER HORIZONTAL READING CENTER (mm)
4.	+5.7 ↓

# (2) Master Making Start Position

## Before adjustment

# IMPORTANT:

• Adjust the "master making start position" after the "printing position sensor (p. 238)" and "master attach position edge (p. 240)" are adjusted.

## Adjustment procedure

1. Access HELP-030.

### HELP-030 $\rightarrow$ See page 339

- 2. Touch "TEST PATTERN 1".
- 3. Press the (MASTER MAKING) key. Print the test pattern.

DD5450: A3 paper

DD5440: B4 paper

- For test patterns, see Chapter 7, "HELP-030".
- 4. Measure the length of two 100 mm-squares in the sub scan (vertical) direction.

### Standard value

Item	Standard value
Dimensions of the 100-square	
lead edge line and the paper	10±0.5 mm
lead edge	

## If the clearance is not the standard value:

• Touch "2" of the HELP-046 screen for adjustment.

HELP-046  $\rightarrow$  See page 351

• HELP-030 (page1) display

HELP-030	Touch	
TEST PATTERN 1	·	
TEST PATTERN 2		)
TEST PATTERN 3		)
TEST PATTERN 4		)
TEST PATTERN 5		)
<b>TEST PATTERN 6</b>		
TEST PATTERN 7		)



5

• HELP-046 (page2) display

HELP-046 MASTER CLAMP MARGIN (mm)
<sup>4.</sup> <b>+0.0</b>
M-MAKE SPEED MAGNIFICATION (%)
5. +0.5 🗲 Touch
M-MAKE FEED VOLUME MAGNIFICATION (%)
<sup>6.</sup> <b>+10</b>
Ť

# (3) Reading Start Position

### 1. Adjusting the Top End Reading Start Position Adjustment procedure

#### Adjustment procedure

- 1. Mark with 1 mm interval up to 5 mm from the top end of the paper to prepare a test document.
- 2. Perform master making and printing to the same size and to two printouts.
- 3. Make adjustment by "3. SCAN LEAD EDGE START POSITION" of HELP-042 so that printing starts at 2 mm from the document lead edge on the second print paper.

HELP-042  $\rightarrow$  See page 343

2. Adjusting the Lateral (Operation Side) Reading Start Position

#### Adjustment procedure

1. Make a basic document (as shown in the figure) from a sheet of paper\*.

Draw a 100 mm line at the position 30 mm from the right end and from the top end of the paper\*.

\*DD5450: A3 paper

\*DD5440: B4 paper

2. Compare the printed image with the basic document.

Check the difference between the straight lines in the vertical direction.

 Make adjustment by "4. SCANNER HORIZONTAL READING CENTER(mm)" of HELP-042 so that the following equation holds. L1-L2 ≤ ±1 mm

HELP-042  $\rightarrow$  See page 343

#### **Adjusting direction**

- L1<L2: The value is decreased.
- L1>L2: The value is increased.






## (4) Adjusting the Master making Start Position



### Adjustment procedure

- 1. Set the printing position (vertical direction) to the standard.
- 2. Draw a line at the position 30 mm from the top end of the document and prepare a basic document as shown in the figure.
- 3. Compare the processed image with the basic document.

Check the difference of the lines in the horizontal direction.

4. Adjust with HELP-046 (5. M-MARK VERTICAL START POS) so that the following equation holds.

 $L1-L2 \le \pm 1 \text{ mm}$ 

 $\mathsf{HELP}\text{-}046 \rightarrow \overline{\mathsf{See page 351}}$ 

### 2. When in Online

Before adjustment

### IMPORTANT

- Adjust the master making start position when in online after the followings are adjusted.
- Printing position sensor

 $\rightarrow$  See page 238

Master attach position edge

 $\rightarrow$  See page 240

### Adjustment procedure

 Perform master making and printing of the online test pattern. Adjust with HELP-047 so that the basic line is positioned ± 1 mm from the top end of the paper.







### (5) Adjusting the Document Reading Darkness

### 1. Adjusting the Scan Level: Text mode

(Make adjustment by the black level and the white level.)

### Adjustment procedure

1. Access HELP-044.

HELP-044  $\rightarrow$  See page 347

2. Select and touch the item to be adjusted and change the value.

### Adjust density of the dark part.

- To heighten density of the dark part.
   → Increase the black level.
- To lower density of the dark part.
   → Decrease the black level.

### Adjust density of the light part.

- Scumming occurs.
   → Increase the white level.
- Master making of the light part is impossible.
   → Decrease the white level.
- 3. Press the  $\underline{X}$  key to store the set value.
- 4. After master making and printing, check density.

### Adjusting the Scan Level: Text/Photo,Photo/ Text, Photo mode

(Make adjustment by the black level and the peak hold.)

### Adjustment procedure

1. Access HELP-044.

### HELP-044 → See page 347

2. Select and touch the item to be adjusted and change the value.

### Adjust density of the dark part.

- To heighten density of the dark part.
   → Increase the black level.
- To lower density of the dark part. → Decrease the black level.

### Adjust the total lightness.

- Scumming occurs.
  - $\rightarrow$  Decrease the peak hold. (Minus side)
- Master making of the light part is impossible.
   → Increase the peak hold. (Plus side)
- 3. Press the  $\underline{X}$  key to store the set value.
- 4. After master making and printing, check density.

• HELP-044 display



### HELP-044 display



### (6) Adjusting of Printer Unit's Printing Speed

### REFERENCE

Access HELP-003.
 Speed higher than 150 rpm is for factory use only.

HELP-003  $\rightarrow$  See page 300

### 1. Adjusting the Pre-stop Speed

- 1. Access HELP-003.
- 2. Touch PRESTOP SPEED.
- 3. Press the (MASTER MAKING) key. The drum rotates and the rotation speed appears on the panel lower part.

### Standard values

Item	Standard value
Pre-stop speed	6 rpm

### If the value is not correct

Press the  $\bigcirc$  key once: By 1 rpm decreased Press the  $\bigcirc$  key once: By 1 rpm increased

- 4. Press the **≚**key to store all speed set values.
- Press the (CLEAR) key to initialize the displayed value.

### 2. Adjusting the M-make Speed

### Adjustment procedure

### 1. Access HELP-003.

- 2. Touch M-MAKE SPEED.
- 3. Press the (MASTER MAKING) key. The drum rotates and the rotation speed appears on the panel lower part.

### Standard values

Item	Standard value	
M-make Speed	18 rpm	

### If the value is not correct

Press the key once: By 1 rpm decreased Press the key once: By 1 rpm increased

4. Press the **≚**key to store all speed set values.

### Initialization

• Press the (CLEAR) key to initialize the displayed value.

• HELP-003 display: Pre-stop speed



• HELP-003 display: M-make Speed





### 3. Adjusting the Jog Speed

### Adjustment procedure

- 1. Access HELP-003.
- 2. Touch JOG SPEED.
- 3. Press the (MASTER MAKING) key. The drum rotates and the rotation speed appears on the panel lower part.

### Standard value

Item	Standard value	
Jog Speed	16 rpm	

### If the value is not correct

Press the key once: By 1 rpm decreased Press the key once: By 1 rpm increased

- 4. Press the <u>∠</u> key to store all speed set values. **Initialization**
- Press the (CLEAR) key to initialize the speed of the selected item.

### 4. Adjusting the Print Speed

### Adjustment procedure

- 1. Access HELP-003.
- 2. Touch PRINT SPEED.
- 3. Check the displayed speed.

### **Standard values**

Item	Standard value
Speed 0 (Low print speed)	32 rpm
Speed 1	47 rpm
Speed 2	82 rpm
Speed 3	102 rpm
Speed 4	122 rpm
Speed 5	132 rpm
Speed 6 (High print speed)	152 rpm

### If the value is not correct

Press the  $\bigcirc$  key once: By 1 rpm decreased Press the  $\bigcirc$  key once: By 1 rpm increased

 Press the <u>X</u> key to store the adjusted values and to return to the HELP mode selection screen.

### Initialization

 Press the (CLEAR) key to initialize the speed of the selected item. • HELP-003 display: JOG Speed





• HELP-003 display: Print Speed



- To change the speed (0 to 6)
- 1. Select and touch **PRINT SPEED** key.
- 2. Change the speed by the **PRINT SPEED** keys on the panel.



## (7) Adjusting Paper Eject Speed

### REFERENCE

Access HELP-007

### HELP-007 $\rightarrow$ See page 310

### 1. Adjusting the Paper Eject Speed

- 1. Access HELP-007.
- 3. Select and touch PAPER EJECT SPEED.
- 4. Check the displayed speed.

### Standard values

	Item	Standard value
1	Jog Speed	192
2	Speed 0 (Low print speed)	192
3	Speed 1	192
4	Speed 2	192
5	Speed 3	192
6	Speed 4	207
7	Speed 5	207
8	Speed 6 (High print speed)	239

### If the value is not correct

• Press the <> or >> key to obtain the proper value in 4 above.

Press the  $\bigcirc$  key once: decreased by 1 rpm Press the  $\bigcirc$  key once: increased by 1 rpm

5. Press the  $\underline{X}$  key to store all speed set values.

### Initialization

• Press the (CLEAR) key to initialize the displayed value.

### 2. Setting the Top Fan

- 1. Access HELP-007.
- 2. Touch the ↓ (arrow) on the screen lower right twice to switch to page 3.

### • HELP-007 display: Paper eject speed





• HELP-007 display: Paper eject speed



### 3. Select and touch **TOP FAN SETTING**.

4. Check the displayed value.

### **Standard values**

	Item	Standard value
9	Strong	100%
10	Standard	86%
11	Weak	61%
12	Weaker	50%

### If the value is not correct

Press the < or > key to obtain the proper value in 4 above.
 Press the < key once: decreased by 1%</li>

Press the  $\bigcirc$  key once: increased by 1%

5. Press the  $\underline{\underline{X}}$  key to store all speed set values.

### Initialization

• Press the (CLEAR) key to initialize the displayed value.





# Chapter 6 Maintenance/Check

<b>1</b> Guaranteed Periodical Maintenance <sup></sup>	258
2 Cleaning and Oiling	258
(1) Cleaning	258
(2) Oiling	258
<b>3</b> Periodical Maintenance	259
(1) Periodical Checking	259
(2) Criteria for Replacing Primary Parts	259

## **1** Guaranteed Periodical Maintenance

•The service person will visit the user periodically after delivery. The maintenance operation described in the periodical maintenance list is performed and instructs how to follow the operation.

When the service person is called by telephone, the following maintenance must be performed after clearing the trouble.

- 1. Cleaning the scanner cover
- 2. Cleaning the document glass
- 3. Cleaning the thermal head

## **2** Cleaning and Oiling

### (1) Cleaning

- 1. Paper shreds: Clean with a brush or dry cloth. Clean the mirror and reflection plate in the scanner section with a blower brush.
- 2. Ink: Clean with a cloth squeezed after soaking in the water or neutral detergent. Oil or grease after ink or paper shreds are removed.

### (2) Oiling

- 1. Bearing section: Oil the edge surface and bearing sections with oiler, rotating the lever and roller.
- 2. Gear section: Grease the gear section after removing paper shreds on the bottom of gear.

## **3** Periodical Maintenance

## (1) Periodical Checking

Section to be checked	Description	Remarks
Glass	Cleaning	Clean with a soft and clean cloth.
Lamp	Cleaning	Clean with a soft and clean cloth.
Reflection mirror	Cleaning	Remove dust with a blower brush.
Thermal head	Cleaning	Clean with a Thermal head cleaning kit (R8-S0046).
		(Do not damage the thermal head.)
Platen roller	Cleaning	Remove paper shreds. (Do not damage the platen
		roller.)
Sensor	Cleaning	Remove dust with a blower brush.
Press roller	Cleaning	Remove paper shreds.
Drum exterior	Cleaning	Remove ink and paper shreds.
Paper feeding section	Checking	Paper is fed smoothly. Remove paper shreds.
Master making section	Checking	Paper is fed smoothly. Remove paper shreds.
Roller shaft / bearing	Oiling	Except for the pinch lever bearing section
Gear	Greasing	
Air pump	Greasing	
Escape cam	Greasing	

## (2) Criteria for Replacing Primary Parts

No.	Item	Criterion	Remarks
1	Paper feed roller	300,000 sheets or more	
2	Paper separator unit	300,000 sheets or more	
3	Thermal head	About 20,000 masters	
4	Drum unit	Printing 1,000,000 sheets	
5	Air pump	Printing 1,000,000 sheets	
6	Press roller	1,000,000 sheets	
7	Drum gear	1,000,000 sheets	
8	Sub separator	300,000 sheets	

# Chapter 7

# Troubleshooting

1 Troubleshooting Guide	<sup>.</sup> 262
Countermeasures for the Defective Opera	tion
	<sup>.</sup> 262
(1) Lamp Does Not Light Up	<sup>.</sup> 263
(2) Optical System Dose Not Move Forward/Backward	<sup>.</sup> 264
(3) Malfunction of Master Feed Clutch	264
(4) Malfunction of Master Feed Stepping Motor …	<sup>.</sup> 265
(5) "MASTER EJECTION ERROR" is displayed	<sup>.</sup> 265
(6) Malfunction of Eject Motor	<sup>.</sup> 266
(7) "ADD PAPER TO FEED TRAY" is displayed	<sup>.</sup> 266
(8) "CLOSE FRONT COVER is displayed	<sup>.</sup> 266
(9) "CLOSE TOP COVER" is displayed	<sup>.</sup> 267
(10) "NO MASTER" is displayed	<sup>.</sup> 267
(11) "NO INK" is displayed	268
(12) "PAPER JAM ON EJECTION SIDE" is disp	layed
	<sup>.</sup> 269
(13) "PAPER JAM ON FEEDER SIDE" is disp	ayed
	269
(14) "NO USED MASTER CORE" or "U	SED
MASTER FULL" is displayed	<sup>.</sup> 270
(15) "OUT OF BATTERY. CALL SERV	ICE
PERSON." is displayed.	<sup>.</sup> 270
(16) Paper Jams in the Paper Feed Side	<sup>.</sup> 271
(17) Paper Jams in the Paper Eject Side	272
(18) "E001" is displayed	273
(19) "E002" is displayed	274
(20) "E005" is displayed	275
(21) "E006" is displayed	276
(22) "E009" is displayed	.277
(23) "E011" is displayed	277
(24) "E012" is displayed	278
(25) "E013" is displayed	279
(26) "E015" is displayed	280
(27) "E016" is displayed	281
(28) "EU17" IS displayed (ADF)	281
(29) E020 IS displayed (Tape Dispenser)	282
(30) EU21 IS displayed (Tape Dispenser)	282
(31) EU23 IS displayed (Tape Dispenser)	202
$(32) \equiv 024$ is displayed (lape Dispenser)	203 .202
	203 ∙204
(34) EU32 is displayed (35) "EU33" is displayed	·204
(35) E033 is displayed	·284
(30) EUSH is displayed	·204
(or) Loop is displayed	204

2 Error Display	286
(40) "E039" is displayed	285
(39) "E038" is displayed	
(38) "E037" is displayed	

## **1** Troubleshooting Guide

### **Countermeasures for the Defective Operation**

When the messages listed below are displayed on the LCD or when trouble such as malfunctioning or a paper jam occurs, proceed with an inspection following the procedure for the item and take measures accordingly.

Message	Remarks	No.	Page
MASTER EJECTION ERROR		(5)	265
ADD PAPER TO FEED TRAY		(7)	266
CLOSE FRONT COVER		(8)	266
CLOSE TOP COVER		(9)	267
NO MASTER		(10)	267
NO INK		(11)	268
PAPER JAM ON EJECTION SIDE		(12)	269
PAPER JAM ON FEEDER SIDE		(13)	269
NO USED MASTER CORE or USED MASTER FULL		(14)	270
OUT OF BATTERY. CALL SERVICE PERSON.		(15)	270
E001	Error : Main motor locked	(18)	273
E002	Error : Elevator motor locked	(19)	274
E005	Error : Ink roller up/down motor locked	(20)	275
E006	Error : Press motor locked	(21)	276
E009	Error : Thermal head voltage	(22)	277
E011	Error : Thermal head up/down motor locked	(23)	277
E012	Error : Clamp motor locked	(24)	278
E013	Error : Scanner stepping motor locked	(25)	279
E015	Error : Vertical registration motor locked	(26)	280
E016	N/A	(27)	281
E017	Error : ADF stepping motor locked	(28)	281
E020	Error : Tape dispenser cutter motor locked	(29)	282
E021	Error : Communication with the tape dispenser is not performed normally	(30)	282
E023	Error : Tape dispenser TPH R rank	(31)	282
E024	Error : Tape dispenser thermistor	(32)	283
E030	Error : Standard EEPROM	(33)	283
E032	Error : Panel communication	(34)	284
E033	Error : DDR	(35)	284
E034	Error : PROGRAM SAVE/CLEAR	(36)	284



### Message List

Message	Remarks	No.	Page
E036	Error : USB host	(37)	284
E037	Error : Resolution	(38)	285
E038	Error : PMIC (main PC anomaly)	(39)	285
E039	Error : Relay PCB communication	(40)	285

### Error item List

ltem	Remarks	No.	Page
Lamp does not Light Up		(1)	263
Optical System Dose Not Move Forward/Backward		(2)	264
Malfunction of Master Feeding Clutch		(3)	264
Malfunction of Master Stepping Motor		(4)	265
Malfunction of Eject (Roll-up) Motor		(6)	266
Paper Jams in the Paper Feed Side		(16)	271
Paper Jams in the Paper Eject Side		(17)	272

## (1) Lamp Does Not Light Up

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure	
1	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between L and N of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.	
			YES	Follow the procedure 2.	
2	Drive PCB unit	Measure the voltage between CN5- 4 (+) and CN5-2(GND) of the drive PCB unit with a tester. Is it +24V?	NO	Replace the drive PCB Unit.	7
3		Does the lamp light up when CN6- 6 of the drive PCB unit produces a short circuit to GND?	YES	Follow the procedure 5.	
4	Drive PCB unit	Does replacing the drive PCB unit	YES	Finish	
4	Main PCB unit	solve the problem?	NO	Replace the main PCB Unit.	
5	Lamp	Does replacing the lamp solve the problem?	YES	Finish	
6	Motors	Remove CN5 of the drive PCB unit and follow the procedure 1. Is the voltage +24V?	YES	At the CN5 bundled wire or motors,+24V produces a short- circuit to GND.	

## (2) Optical System Dose Not Move Forward/Backward

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Wire or timing belt is cut or removed.	Are the optical system driving wire and timing belt attached properly?	NO	Attach the wire and timing belt properly.
2	There is a foreign object on the optical system moving way.	Is the rail clean? Does the optical system move smoothly when the optical system driving timing pulley is rotated manually?	NO	Check that there is no foreign object on the rail and that nothing contacts the optical system.
3	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between L and N of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
			YES	Follow the procedure 4.
Л	Drive PCB Unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
4	Main PCB Unit		NO	Replace the main PCB Unit.
5	Motors	Remove the CN5 of the drive PCB unit and follow the procedure 3. Is it +24V?	YES	At the CN5 bundled wire or motors, +24V produces a short circuit to GND.

## (3) Malfunction of Master Feed Clutch

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Replace the 24V power supply.
2	Master feed clutch	Measure the voltage between CN3- 3 (+) and CN3-4 (GND) of the drive PCB unit with a tester when the master feed clutch is turned on? Is it +24V?	YES	Check the wiring and replace the master feed clutch.
3	Drive PCB Unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Check the bundled wire and connectors and then replace the main PCB unit.

HELP-008→See page 311

## (4) Malfunction of Master Feed Stepping Motor

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Load on drive system	Is the trouble cleared by adjusting tension of the master feeding unit timing belt or lubricating the bearing?	YES	Finish
2	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Replace the 24V power supply.
3	Drive PCB Unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Check the bundled wire and connectors and then replace the main PCB unit.

## (5) "MASTER EJECTION ERROR" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Has "MASTER EJECTION ERROR" actually occurred?	YES	Follow the procedure 3.
	Master eject jam sensor		YES	Finish
2	Main PCB unit	Does replacing the master eject jam sensor solve the problem?	NO	Check the bundled wire and connectors and then replace the main PCB unit.
3	Eject motor	Does the eject motor rotate normally?	NO	Refer to "(6) Malfunction of Eject Motor".
4	Smear on master clamp	Is the master clamp section dirty with ink or oil?	YES	Clean the master clamp section.
5	Master ejection box	Is the stripper finger or springs damaged?	YES	Replace any damaged stripper finger or springs.
6	Master eject jam sensor	Is the drum removal position within	NO	Adjust the drum removal position.
0	Main PCB unit	reference value?	YES	Check and adjust C mode.

HELP-009→See page 313

## (6) Malfunction of Eject Motor

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Eject motor	Does voltage between drive PCB unit CN3-17 (+) and -16(GND) show 24V when eject motor is operated with HELP-009?	YES	Replace the eject motor.
2	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is the voltage +24V?	NO	Replace the 24V power supply.
	Drive PCB Unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
3	Main PCB unit		NO	Check bundled wire and connectors and then replace main PCB unit.

HELP-009→See page 313

## (7) "ADD PAPER TO FEED TRAY" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
	Paper sensorWhen paper sensor is checked with HELP-006, is "1" displayed if paper is absent and is "0" displayed if present?	NO	Replace the paper sensor.	
1		YES	Check bundled wire and connectors and then replace main PCB unit.	

HELP-006→See page 308

## (8) "CLOSE FRONT COVER is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
	Front cover sensor	When front cover sensor is checked	NO	Replace the front cover sensor.
1	Main PCB unit	if front cover is opened and is "1" displayed if closed?	YES	Check bundled wire and connectors and replace main PCB unit.

HELP-021→See page 326

## (9) "CLOSE TOP COVER" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Scanner open/close switch position	Is the scanner open/close switch pressed when scanner unit is closed?	NO	Adjust the scanner open/close switch position.
2	Scanner open/close switch	When the scanner open/close switch is checked with a tester, does it CLOSE if the switch is pressed and OPEN if released?	NO	Replace the scanner open/close switch.
	Main PCB unit		YES	Check bundled wire and connectors and replace main PCB unit.
				HELP-010→See page 314
				HELP-021→See page 326

## (10) "NO MASTER" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Adjustment for the end mark sensor PCB unit	Is trouble cleared by adjusting the end mark sensor PCB unit with HELP-008?	YES	Finish
2	End mark sensor PCB unit	Does replacing the end mark sensor PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Check bundled wire and connectors and replace main PCB unit.

HELP-008→See page 311

## (11) "NO INK" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Ink	Is enough ink left in ink pack?	NO	Replace the ink pack.
2	Setting method of ink pack	Is the ink pack set properly?	NO	Set ink pack properly and instruct user how to set one.
3	Main PCB unit	Is LED on the ink detection PCB unit lit?	YES	Check bundled wire and connectors and replace main PCB unit.
4	Ink detection PCB unit	Is enough ink left in drum? (Has ink reached detection needle for the ink detection PCB unit?)	YES	Replace the Ink detection PCB unit.
5		Does ink pump operate?	NO	Follow the procedure 7.
6	Foreign object in ink pump	Is trouble cleared by cleaning	YES	Finish
0	Ink pump	inside of ink pump?	NO	Replace the ink pump.
7	24V power supply	Measure the voltage between CN2-1 and CN2-5 of the 24V power supply with a tester. Is the voltage +24V?	NO	Replace the 24V power supply.
	Ink pump motor	Does voltage between drive PCB unit CN6-24 and -25 show 24V?	YES	Replace the ink pump motor.
	Drive PCB unit		YES	Finish
8	Main PCB unit	Does replacing the drive PCB unit solve the problem?	NO	Check bundled wire and connectors and replace main PCB unit.

HELP-005→See page 304

## (12) "PAPER JAM ON EJECTION SIDE" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Paper	Is printing paper length within specified value?	NO	Use paper conforming to specification.
2		When paper eject jam sensor is checked with HELP-007, is "1" displayed if sensor is photopassing and is "0" displayed if photointerrupted?	NO	Replace the paper eject jam sensor.
3	Paper jam	Is paper actually jammed at master ejection section?	YES	Refer to "(18) Paper Jams in the Paper Eject Side".
4	Dirt or foreign object on sensor	Is there any dirt or foreign object on the paper eject jam sensor?	YES	Clean the paper eject jam sensor.
5	Drum position 1 sensor	When drum is checked with HELP- 005 while rotating slowly, does the Drum position 1 sensor display	NO	Adjust position of the drum position 1 sensor. If the trouble still exists, replace the sensor.
	Main PCB unit	photointerrupter?	YES	Replace the main PCB unit.

HELP-007→See page 310

HELP-005→See page 304

## (13) "PAPER JAM ON FEEDER SIDE" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is trouble cleared by checking, referring to "(17) Paper Jams in the Paper Feed Side"?	YES	Finish
2	Main PCB unit	Check the paper top detect sensor and the signal sensor?	YES	Replace the main PCB unit.
	Paper top detect sensor	Does replacing the paper top		
3	Signal sensor	sensor solve the problem?	YES	Finish
4	Press roller sensor position	Is the trouble cleared by adjusting press roller sensor position?	YES	Finish
	Press roller sensor		YES	Finish
5	Main PCB unit	Does replacing the press roller sensor solve the problem?	NO	Check bundled wire and connectors and replace main PCB unit.

HELP-006→See page 308

HELP-013→See page 320

### (14) "NO USED MASTER CORE" or "USED MASTER FULL" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Core	Core is not inserted or core is full.	YES	Insert a new core.
2	Used master core sensor	When the core is checked with HELP-009, is "1" displayed if it is inserted and is "0" displayed if removed?	NO	Replace the used master core sensor.
3	Used master core sensor	Check the used master core sensor with a tester. Does it work properly?	NO	Replace the used master core sensor.
	Main PCB unit		YES	Check bundled wire and connectors and replace main PCB unit.

HELP-009→See page 313

# (15) "OUT OF BATTERY. CALL SERVICE PERSON." is displayed.

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
		Set Date and Time with HELP mode	YES	Finish
1		(HELP-054). Turn OFF the power. Turn ON the power. Is it correct when you check the date and time in HELP mode (HELP-000)?	NO	Follow the procedure 2.
	Battery	Replace the battery (BT1) of Main	YES	Finish
2	Main PCB unit	mode (HELP-054). Turn OFF the power. Turn ON the power. Is it correct when you check the date and time in HELP mode (HELP- 000)?	NO	Replace the Main PCB unit.

• Please set DATE and TIME in HELP mode (HELP-054) when replacing the main PCB unit or battery.

HELP-000→See page 297

HELP-054→See page 357

## (16) Paper Jams in the Paper Feed Side

Causes	Symptoms	Countermeasure
Printing paper not suitable	<ul> <li>If paper is too thick, it won't be likely fed. If too thin, double sheets may be fed.</li> <li>Paper not clearly cut: 2 sheets adhere to each other.</li> <li>Much paper scraps may deteriorate the paper feed roller and separator performance.</li> </ul>	Explain causes to user. Have user change to the paper conforming to specifications.
Dirt / foreign object on transfer path	<ul> <li>Paper gets stuck in transfer path, causing creasing and tearing.</li> </ul>	Remove any dirt or foreign object.
Incorrect paper feed pressure	<ul> <li>If pressure on paper is insufficient, paper will not be fed.</li> <li>If pressure on paper is excessive, double sheets will be fed.</li> </ul>	Explain to users how to select correct pressure for paper. $\rightarrow$ See page 235
Paper feed roller wear	<ul> <li>Paper may not be fed.</li> </ul>	Replace paper feed roller.
Paper separator unit gap	<ul> <li>If gap is too large, separator unit will rattle in direction of paper transfer path, causing double sheets to be fed.</li> <li>If gap is too small, paper separator unit cannot follow angle change due to paper feed shaft up-down movement, which may cause double- sheet or slanted feed, and creasing.</li> </ul>	Perform paper separator unit gap adjustment.
Paper separator unit	<ul> <li>Wear or adhesion of paper scraps causes deterioration in separating performance, resulting in double-sheet feed.</li> </ul>	Clean separating surfaces. If any trouble exists, replace the unit. Perform separator unit gap adjustment on a new unit.
Separation pressure	<ul> <li>If pressure is very low, no paper will be fed.</li> </ul>	Perform separation pressure check.
Elevator top position limit	<ul> <li>Paper slant is large, causing creases.</li> <li>During printing, paper feed errors often occur immediately before or after paper feed tray rises.</li> </ul>	Perform elevator top limit sensor adjustment. →See page 235

## (17) Paper Jams in the Paper Eject Side

Causes	Symptoms	Countermeasure
Printing paper not suitable	<ul> <li>If paper is too thin, it will stick to drum and scrunch up.</li> <li>If grain of paper is sideways relative to transfer direction, paper will crunch up, or jam on the print tray.</li> <li>If paper curls upward, it will likely scrunch up. If curls downward, it will likely jam on the print tray.</li> </ul>	Explain causes to user. Have user change to the paper conforming to specifications.
Image of document	<ul> <li>If set-solid exists near leading edge of paper, paper will likely scrunch up.</li> <li>If set-solid exists on one side of paper, paper will not be ejected in a straight line. As a result, ejected paper will be disorderly piled and likely jam on the print tray.</li> </ul>	<ul> <li>Adjust leading edge margin to about 10 mm. (Too long margin will cause adverse results.)</li> <li>Explain causes to users. If possible, have user change position for set-solid.</li> </ul>
Static electricity	<ul> <li>If ambient air is dry, static electricity may cause disordered piles or scrunch-up of paper.</li> </ul>	<ul> <li>Explain to users. Have user desist from excessive use of A/C or heating.</li> <li>If possible, have user take anti- dryness measures including humidifiers</li> </ul>
Leading edge margin	<ul> <li>If leading edge margin is not correct, scrunch- up of paper will likely result.</li> <li>IMPORTANT: Scrunch-up of paper may also result if the margin is too long.</li> </ul>	Perform vertical reg. center sensor adjustment. →See page 237
Timing roller clutch	<ul> <li>Any slippage of the timing roller clutch will reduce feed amount and eliminate leading edge margin. This results in paper scrunch-up.</li> </ul>	Replace the timing roller clutch.
Paper stripper finger	<ul> <li>If timing is too low, or the gap between the drum and the leading edge of paper is too large, paper stripper finger will not enter into the gap, causing paper scrunch-up.</li> </ul>	Perform paper stripper finger unit gap adjustment. →See page 243
Air	<ul> <li>If sufficient air is not delivered from the tip of the paper stripper finger, it will not lift the leading edge of paper off drum. Scrunch-up of paper will result.</li> </ul>	<ul> <li>Check if the hole in the fingers tip is blocked by foreign object.</li> <li>Check pipes for kinks or disconnections.</li> <li>Check valves and O-rings on the air pump.</li> </ul>
Ink	<ul> <li>Too much ink transferred to paper will likely cause scrunch-up of paper.</li> </ul>	<ul> <li>Perform ink volume adjustment of drum.</li> <li>Explain user that ink transfer volume increases immediately after paper scrunch-up, and advise user to restart printing at standard speed.</li> </ul>

## (18) "E001" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Drum	Does the drum rotate?	NO	
2	Drum interference with the main unit	Does the main motor rotate without drum?	YES	Eliminate interference.
3	Drive system gear broken or blocked with foreign object	Does the main motor rotate without the driving timing belt?	NO	Check if drive system gear is broken or blocked with foreign matter and remove cause.
4	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
5	Main motor encoder sensor	Does the main motor encoder sensor work properly when checked using HELP-005?	NO	Replace the main motor encoder sensor. If it does not operate even after replacement, replace the main PCB unit.
6	Main motor PCB unit	Does replacing the main motor PCB	YES	Finish
0	Main PCB unit	unit solve the problem?	NO	Replace the main PCB unit.
7	Main motor	Is there any problem in the above items?	YES	Replace the main motor.

HELP-005  $\rightarrow$  See page 304

## (19) "E002" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	Feed tray operation is defective.	Is the feed tray moved by hand smoothly?	NO	Remove the cause of defective operation such as lean or catch.
2	Fuse	Is the fuse (F1) of the drive PCB normal?	NO	Replace the fuse.
0		Do the elevator top limit sensor and the elevator lower limit switch work properly when checked using	NO	Follow the procedure 7 when the elevator top limit sensor is defective.
5		HELP-006?	NO	Follow the procedure 8 when the elevator lower limit switch is defective.
4	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
5	Elevator motor	At the timing when the elevator motor operates, measure the voltage between CN3-9 and CN3- 10 of the drive PCB unit with a tester. When inserting and removing the relay connector of the elevator motor, is it +24V or -24V?	YES	Check the wiring harness. If there is no problem, replace the elevator motor.
e	Drive PCB Unit	Does replacing the drive PCB unit	YES	Finish
0	Main PCB Unit	solve the problem?	NO	Replace the main PCB Unit.
	Elevator top limit sensor	Measure the voltage with a tester when turning the elevator top limit	NO	Replace the elevator top limit sensor.
7	Main PCB Unit	sensor on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.
	Elevator lower limit switch	Measure the voltage with a tester when turning the elevator lower limit	NO	Replace the elevator lower limit switch.
8	Main PCB Unit	switch on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.

HELP-006→See page 308

## (20) "E005" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Does the ink roller up/down motor rotate when checked using HELP- 005?	YES	Follow the procedure 6.
2	Fuse	Is the fuse(F1) of the drive PCB normal?	NO	Replace the fuse.
3	Ink roller up/down motor	Measure the voltage between CN6- 22 and CN6-23 of the drive PCB unit with a tester when the ink roller up/down motor is activated using HELP-005. Is it +24V?	YES	Check the bundled wire. If OK, replace the ink roller up/down motor.
4	24V power supply	Measure the voltage between CN51- 5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
	Drive PCB unit	Does replacing the drive PCB unit	YES	Finish
5	Main PCB unit	solve the problem ?	NO	Check the connector and bundled wire between CN1 of the drive PCB unit and CN19 of the main PCB unit. If OK, replace the main PCB unit.
6	Ink roller up/down sensor	Does the ink roller up/down sensor work properly when checked using HELP-005?	NO	Check the wiring harness. If there is no problem, replace the ink roller up/down sensor.

 $\mathsf{HELP}\text{-}005 \rightarrow \mathsf{See} \ \mathsf{page} \ \ \mathsf{304}$ 

## (21) "E006" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Does the press motor rotate when checked using HELP-013?	YES	Follow the procedure 6.
2	Fuse	Is the fuse(F1) of the drive PCB normal?	NO	Replace the fuse.
3	Press motor	Measure the voltage between CN6- 18 and CN6-19 of the drive PCB unit with a tester when the press motor is activated using HELP-013. Is it +24V or -24V?	YES	Check the wiring harness. If there is no problem, replace the lnk roller up/down motor.
4	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with the tester. If it is AC100V, replace the 24V power supply.
			YES	Follow the procedure 5.
	Drive PCB unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
5	Main PCB unit		NO	Check the connector and bundled wire between the CN1 of the drive PCB unit and the CN19 of the main PCB unit. If OK, replace the main PCB unit.
6		Do the press encoder sensor and the press center sensor work properly when checked using HELP-013?	NO	Follow the procedure 7 when the press encoder sensor is defective.
				Follow the procedure 8 when the press center sensor is defective.
	Press encoder sensor	Measure the voltage with a tester when turning the press encoder	NO	Replace the press encoder sensor.
7	Main PCB unit	sensor on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.
	Press center sensor	Measure the voltage with a tester	NO	Replace the press center sensor.
8	Main PCB unit	when turning the center encoder sensor on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.

HELP-013→See page 320

## (22) "E009" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	-	Is the fuse (F7) of the relay PCB	NO	Replace the fuse.
	Fuse	unit normal?	YES	Follow the procedure 2.
2	Thermal head	Remove the all connectors of the thermal head. Measure the voltage between CN10-1 (+) and CN10-14 (-) of the relay PCB unit with a tester when the thermal head power is on using HELP-008. Is it +24V?	YES	Check the wiring harness. If there is no problem, replace the thermal head.
-			NO	Follow the procedure 3.
3	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
			YES	Follow the procedure 4.
4	Relay PCB unit	Does replacing the relay PCB unit solve the problem?	YES	Finish
5	Drive PCB unit	Does replacing the drive PCB unit	YES	Finish
	Main PCB unit	solve the problem?	NO	Replace the main PCB unit.

HELP-008→See page 311

## (23) "E011" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Does the thermal head up/down motor rotate when checked using HELP-008?	YES	Follow the procedure 6.
2	Fuse	Is the fuse of the drive PCB unit normal?	NO	Replace the fuse.
3	Thermal head up/down motor	Measure the voltage between CN3- 25 and CN3-26 of the drive PCB unit with a tester when the thermal head up/down motor is activated using HELP-008. Is it +24V?	YES	Check the wiring harness. If there is no problem, replace the thermal head up/down motor.
4	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1(GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
	Drive PCB unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
5	Main PCB unit		NO	Check the connector and bundled wire between CN1 of the drive PCB unit and CN19 of the main PCB unit. If OK, replace the main PCB unit.
6	Thermal head position sensor	Does the thermal head position sensor work properly when checked using HELP-008?	NO	Replace the thermal head position sensor.

HELP-008→See page 311

## (24) "E012" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Does the clamp motor rotate when checked using HELP-012?	YES	Follow the procedure 6.
2	Fuse	Is the fuse(F1) of the drive PCB unit normal?	NO	Replace the fuse.
3	Clamp motor	Measure the voltage between CN3- 7 and CN3-8 of the drive PCB unit with a tester when the clamp motor is activated using HELP-012. Is it +24V or -24V?	YES	Check the wiring harness. If there is no problem, replace the clamp motor.
4	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
5	Drive PCB unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Check the connector and bundled wire between CN1 of the drive PCB unit and CN19 of the main PCB unit. If OK, replace the main PCB unit.
6		Do the clamp sensor 1 and the clamp sensor 2 work properly when checked using HELP-012?	NO	Follow the procedure 7 when the clamp sensor 1 is defective.
0			NO	Follow the procedure 8 when the clamp sensor 2 is defective.
	Clamp sensor 1	Measure the voltage with a tester	NO	Replace the clamp sensor 1.
7	Main PCB unit	when turning the clamp sensor 1 on and off. Is the voltage normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.
	Clamp sensor 2	Measure the voltage with a tester	NO	Replace the clamp sensor 2.
8	Main PCB unit	when turning the clamp sensor 2 on and off. Is the voltage normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.

HELP-012→See page 319

## (25) "E013" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Does the scanner stepping motor rotate when checked using HELP- 010?	YES	Follow the procedure 6.
2	Fuse	Is the fuse (F1) of the drive PCB normal?	NO	Replace the fuse.
3	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
	Drive PCB unit		YES	Finish
4	Main PCB unit	Does replacing the drive PCB unit solve the problem?	NO	Check the connector and bundled wire between CN1 of the drive PCB unit and CN19 of the main PCB unit. If OK, replace the main PCB unit.
5	Scanner stepping motor	Replace the scanner stepping motor. Does it rotate after replacement?	YES	Finish
6		Do the slider limit sensor 1 and the slider limit sensor 2 work properly when checked using HELP-010?	NO	Follow the procedure 7 when the slider limit sensor 1 is defective.
0				Follow the procedure 8 when the slider limit sensor 2 is defective.
	Slider limit sensor 1	Measure the voltage with a tester	NO	Replace the slider limit sensor 1.
7	Main PCB unit	when turning the slider limit sensor 1 on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.
	Slider limit sensor 2	Measure the voltage with a testor	NO	Replace the slider limit sensor 2.
8	Main PCB unit	when turning the slider limit sensor 2 on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.

HELP-010→See page 314 **7** 

## (26) "E015" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Does the vertical registration motor rotate when checked using HELP-014?	YES	Follow the procedure 6
2	Fuse	Is the fuse of the drive PCB unit normal?	NO	Replace the fuse.
3	Vertical registration motor	Measure the voltage between CN3- 5 and CN6-6 of the drive PCB unit with a tester when the vertical registration motor is activated using HELP-014. Is it +24V or -24V?	YES	Check the wiring harness. If there is no problem, replace the vertical registration motor.
4	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
	Drive PCB unit	Does replacing the drive PCB unit solve the problem?	YES	Finish
5	Main PCB unit		NO	Check the connector and bundled wire between CN1 of the drive PCB unit and CN19 of the main PCB unit. If OK, replace the main PCB unit.
6		Do the vertical registration encoder sensor and the vertical registration center sensor work properly when checked using HELP-014?	NO	Follow the procedure 7 when the vertical registration encoder sensor is defective.
0				Follow the procedure 8 when the vertical registration center sensor is defective.
	Vertical registration encoder sensor	Measure the voltage with a	NO	Replace the vertical registration encoder sensor.
7	Main PCB unit	registration encoder sensor on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.
	Vertical registration center sensor	Measure the voltage with a	NO	Replace the vertical registration center sensor.
8	Main PCB unit	tester when turning the vertical registration center sensor on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.

HELP-014→See page 321

## (27) "E016" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the feed tray properly attached?	NO	Properly attach the feed tray.
2		Does the horizontal registration motor rotate when checked using HELP-015	YES	Follow the procedure 7.
3	Fuse	Is the fuse(F1) of the drive PCB unit normal?	NO	Replace the fuse.
4	Horizontal registration motor	Measure the voltage between CN6- 8 and CN6-9 of the drive PCB unit when the horizontal registration motor is activated using HELP-015. Is it +24V or -24V?	YES	Check the wiring harness. If there is no problem, replace the horizontal registration motor.
5	24V power supply	Measure the voltage between CN51-5 (+24) and CN51-1 (GND) of the 24V power supply with a tester. Is it +24V?	NO	Measure the voltage between CN1- 1 and CN1-3 of the 24V power supply with a tester. If it is AC100V, replace the 24V power supply.
	Drive PCB unit		YES	Finish
6	Main PCB unit	Does replacing the drive PCB unit solve the problem?	NO	Check the connector and bundled wire between CN1 of the drive PCB unit and CN19 of the main PCB unit. If OK, replace the main PCB unit.
7		Do the horizontal registration encoder sensor and the horizontal	NO	Follow the procedure 8 when the horizontal registration encoder sensor is defective.
7		properly when checked using HELP-015?		Follow the procedure 9 when the horizontal registration center sensor is defective.
	Horizontal registration encoder sensor	Measure the voltage with a tester	NO	Replace the horizontal registration encoder sensor.
8	Main PCB unit	registration encoder sensor on and off. Is it normal?	YES	Check the wiring harness. If there is no problem, replace the main PCB unit.
	Horizontal registration center sensor	Measure the voltage with a tester	NO	Replace the horizontal registration center sensor.
9	Main PCB unit	when turning the horizontal registration center sensor on and off. Is it normal?		Check the wiring harness. If there is no problem, replace the main PCB unit.

## (28) "E017" is displayed (ADF)

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Are all the wiring harnesses of the main PCB unit securely connected?	NO	Securely connect all the connectors of the main PCB unit.
	Main PCB unit		YES	Replace the main PCB unit.

## (29) "E020" is displayed (Tape Dispenser)

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
		Does the cutter work properly when	YES	Follow the procedure 2.
		checked using HELP-071?	NO	Follow the procedure 3.
2	Home position switch	Measure the voltage with a tester when turning the home position switch of the cutter on and off. Is it normal?	YES	Replace the tape dispenser PCB unit.
			NO	Replace the cutter unit.
3	Cutter motor	Measure the voltage at the connector with a tester when the cutter motor is activated using HELP-071. Is it +24V?	YES	Replace the cutter unit.
	Tape dispenser PCB unit		NO	Replace the tape dispenser PCB unit.

### HELP-071→See page 378

## (30) "E021" is displayed (Tape Dispenser)

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the wiring harness (including the ground wire) of the tape dispenser securely connected to the printer?	NO	Securely connect the connector (the ground wire).
			YES	Follow the procedure 2.
2	Tape dispenser PCB unit		YES	Finish
	Main PCB unit		NO	Replace the main PCB unit.

## (31) "E023" is displayed (Tape Dispenser)

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
		Check the FPC label of the tape dispenser's thermal head. Is the TPH resistance rank properly set by DIPSW of the tape dispenser PCB?	YES	Follow the procedure 2.
1			NO	Correctly set the DIPSW.
2	Tape dispenser PCB unit	Does replacing the tape dispenser PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Check the wiring harness. If there is no problem, replace the main PCB unit

## (32) "E024" is displayed (Tape Dispenser)

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the wiring harness (including the ground wire) of the tape dispenser securely connected to the printer?	NO	Securely connect the connector (the ground wire).
			YES	Follow the procedure 2.
2	Tape dispenser PCB unit	Does replacing the tape dispenser PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Replace the main PCB unit.

## (33) "E030" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
		In the EEDDOM property mounted	YES	Follow the procedure 2.
1	EEPROM	on the main PCB unit? (orientation of EEPROM)	NO	Mount the EEPROM on the main PCB unit.
2	EEPROM	Does initializing the HELP contents in HELP-027 solve the problem?	YES	Enter the adjustment value indicated on the HELP label.
			NO	Follow the procedure 3.
3	EEPROM	Replace the EEPROM and intialize the HELP contents in HELP-027.	YES	Enter the adjustment value indicated on the HELP label.
	Main PCB unit		NO	Replace the main PCB unit.

## (34) "E032" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Are the wiring harnesses of the	NO	Securely connect the connectors.
		main PCB unit and panel PCB unit securely connected?	YES	Follow the procedure 2.
2	Panel PCB unit	Does replacing the panel PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Replace the main PCB unit.

## (35) "E033" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the wiring harness of the main PCB unit securely connected?	NO	Securely connect the connector.
	Main PCB unit		YES	Replace the main PCB unit.

## (36) "E034" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the wiring harness of the main PCB unit securely connected?	NO	Securely connect the connector.
	Main PCB unit		YES	Replace the main PCB unit.

## (37) "E036" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the wiring harness of the main PCB unit securely connected?	NO	Securely connect the connector.
	Main PCB unit		YES	Replace the main PCB unit.

## (38) "E037" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1	EEPROM	Is the mounted EEPROM for another model with different resolution?	YES	Mount the standard EEPROM.
			NO	Follow the procedure 2.
2		Does CN8 on the main PCB unit have poor connector connection?	YES	Securely connect the connector.
	Main PCB unit		NO	Replace the main PCB unit.

## (39) "E038" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the wiring harness of the main PCB unit securely connected?	NO	Securely connect the connector.
	Main PCB unit		YES	Replace the main PCB unit.

## (40) "E039" is displayed

Procedures	Cause/Detective section	Items to be checked	Result	Countermeasure
1		Is the wiring harness of the main	NO	Securely connect the connector.
	relay PCB unit securely connected to the	YES	Follow the procedure 2.	
2	Relay PCB unit	Does replacing the relay PCB unit solve the problem?	YES	Finish
	Main PCB unit		NO	Replace the main PCB unit.

# 2 Error Display

This machine has a self-diagnosis function. The state of the machine is always checked with this function and is displayed with code on the control panel. The following are the code display, cause and detection timing.

Code display	Detection timing	Cause	Page
E001	Error : Main motor locked During the main motor rotation, the main motor encoder sensor does not detect the edge for 0.1 second.	The main motor is defective. The main motor encoder sensor is defective. The main motor PCB unit is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection The drum is locked.	273
E002	Error : Elevator motor locked While the elevator is moving up, the elevator top limit sensor does not pass light within 30 seconds. While the elevator is moving down, the elevator lower limit switch does not turn on within 30 seconds.	The elevator motor is defective. The elevator top limit sensor is defective. The elevator lower limit switch is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	274
E005	Error : Ink roller up/down motor locked The ink roller up/down sensor does not detect the edge within 4 seconds after the ink roller up/down motor starts rotating.	The ink roller up/down motor is defective. The ink roller up/down sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	275
E006	Error : Press motor locked The press encoder sensor does not detect the edge within 0.5 seconds after the press motor starts rotating. During the press motor rotation, the press encoder sensor does not detect the edge for 0.3 seconds. When moving the pressure to the center position, the press center sensor does not detect the center position within 1.25 x of the maximum one-side moving distance.	The press motor is defective. The press encoder sensor is defective. The press center sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	276
E009	Error : Thermal head voltage The thermal head power does not turn on during master making.	The relay PCB unit is defective. The fuse of the relay PCB unit is disconnected. The drive PCB unit is defective. The main PCB unit is defective. Disconnection/Poor connector connection	277
E011	Error : Thermal head up/down motor locked The thermal head position sensor does not detect the edge within 1.5 seconds after the thermal head up/down motor starts rotating.	The thermal head up/down motor is defective. The thermal head position sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	277
Code display	Detection timing	Cause	Page
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E012	Error : Clamp motor locked Within 3 seconds after the clamp motor starts rotating, the clamp sensor 1/the clamp sensor 2 does not detect that B mode/C mode is entered.	The clamp motor is defective. The clamp sensor 1 is defective. The clamp sensor 2 is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	278
E013	Error : Scanner stepping motor locked When moving the slider from end to end, the slider position sensor 1/the slider position sensor 2 does not detect that the slider reaches the desired position within 6 seconds after the scanner stepping motor starts rotating. When moving the slider from the position other than the end to the end, the slider position sensor 1/the slider position sensor 2 does not detect that the slider reaches the desired position within 12 seconds after the scanner stepping motor starts rotating.	The scanner stepping motor is defective. The slider position sensor 1 is defective. The slider position sensor 2 is defective. Poor connector connection The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	279
E015	Error : Vertical registration motor locked The vertical registration encoder sensor does not detect the edge within 0.5 seconds after the vertical registration motor starts rotating. Although the vertical registration motor is rotating, the vertical registration encoder sensor does not detect the edge for 0.3 seconds. Although the vertical registration section is moved by 1.25 x of the maximum one-side vertical registration moving distance back to the center, the vertical registration center sensor does not detect that the vertical registration reaches the center.	The vertical registration motor is defective. The vertical registration encoder sensor is defective. The vertical registration center sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	280
E017	Error : ADF stepping motor locked Write/readout to FPGA stepping controller of the main PCB is defective.	The main PCB unit is defective.	281
E018	Error : FPGA Write/readout to FPGA of the main PCB is defective.	The main PCB unit is defective.	-
E020	Error : Tape dispenser cutter motor locked Tape cutting is defective.	The tape dispenser cutter motor is defective. The tape dispenser cutter is defective. The tape dispenser cutter home position sensor is defective. The tape dispenser PCB unit is defective. The drive PCB unit is defective. Disconnection/Poor connector connection	282
E021	Error : Communication with the tape dispenser is not performed normally Communication between the main PCB and the tape dispenser PCB is defective.	The tape dispenser PCB unit is defective. The main PCB unit is defective. Disconnection/Poor connector connection	282

Code display	Detection timing	Cause	Page	
E023	Error : The tape dispenser TPH resistance rank The TPH resistance rank is not properly set by DIPSW of the tape dispenser PCB. DIPSW setting of the tape dispenser PCB cannot be detected normally.	The TPH resistance rank setting is defective. The tape dispenser PCB unit is defective.	-	
E024	Error : Disconnection/short circuit of the tape dispenser thermistor The thermistor of the tape dispenser PCB detects	The tape dispenser PCB unit is defective.	_	
	Error : EEPROM (for standard)	The EEPROM PCB unit is defective.		
E030	Write/readout to the EEPROM for standard is defective.	The main PCB unit is defective. Disconnection/Poor connector connection	-	
E032	Error : Panel communication Communication between the main PCB and the panel PCB is defective.	Disconnection/Poor connector connection The panel PCB unit is defective. The main PCB unit is defective.		
E033	Error : SDRAM Write/readout to the image memory of the main PCB is defective.	The main PCB unit is defective.	-	
E034	Error : Storage/clear of memory function The memory function storage contents are not stored/cleared in the memory PCB normally.	The main PCB unit is defective.	-	
E036	Error : USB host USB host function cannot launched. (USB flash drive cannot be used.)	The main PCB unit is defective.	-	
E037	Error : Resolution The resolution of machine is different from that set in the standard EEPROM.	When replacing with the main PCB of machine with different resolution, the standard EEPROM is not replaced. Poor connection of CN8 on the main PCB	-	
E038	Error : PMIC (main PCB error) Write/readout to PMIC of the main PCB is defective.	The main PCB unit is defective.	-	
E039	Error : Relay PCB communication Communication between the main PCB and the relay PCB is defective.	Disconnection/Poor connector connection The relay PCB unit is defective. The main PCB unit is defective.	-	

## Chapter 8

## **HELP Mode**

# HELP Mode List 290 Overview 294 HELP Mode Functions and Operation Procedures 295 Accessing HELP Modes 295 HELP Mode Descriptions 297

## **1** HELP Mode List

HELP mode No.	Item	Function	
HELP-000	ROM Version Display	Mode Name: Resolution Serial Number Date and Time Version: Main PCB, Panel PCB, Tape Dispenser ROM Service Call Contact Number (if available)	297
HELP-001	ROM Update	Main PCB, Panel PCB, Relay PCB/Tape Dispenser ROM	298
HELP-002	Touch Panel Calibration	Calibrating the coordinates and checking operation of the touch panel	299
HELP-003	Checking/Adjusting Print Speed, Checking	[Page 1] Checking/Adjusting speed :PRESTOP, M-MAKE, JOG, PRINT Check paper feed/ejection.	300
	Paper Feed/Ejection	[Page 2-3] Checking Speed :PRESTOP, M-MAKE, JOG, PRINT	
HELP-004	Checking Ink Replenishment	While the ink level is detected, ink is replenished.	303
HELP-005	Adjusting/Checking the Drum Section	[Page 1 ]Check the drum positions. (removal, pre-detach, detach, post-detach, attach position) Checking sensors/switches.	304
		[Page 2]Check operation. (INK POMP MOTOR, INK ROLLER UP/DOWN MOTOR) Checking the sensor. (INK DETECTION PCB, INK ROLLER UP/DOWN SENSOR) [Page 3] Adjusting the drum master sensor,	
		Check the drum master sensor.	
		[Page 4 ]Adjusting the master detach position.	
HELP-006	Adjusting/Checking the Paper Feed Section	[Page 1] Check operation. (PAPER FEED STEPPING MOTOR, ELEVATOR MOTOR) Checking sensors/switches.	308
		[Page 2] Paper width adjustment Paper width display	
		[Page 4] Adjusting the overlap feed detection sensor	
HELP-007	Adjusting/Checking the Paper Eject Section	[Page 1] Checking operation. (PAPER EJECT STEPPING MOTOR, PAPER EJECT FAN, TOP FAN) Checking sensor.	310
		[Page 2] Adjusting the paper eject speed	
		[Page 3] Setting the top fan	
HELP-008	Adjusting/Checking the Master Feed Section	[Page 1] Checking operation. (MASTER FEED STEPPING MOTOR, MASTER FEED CLUTCH, CUTTER MOTOR THERMAL HEAD UP/DOWN MOTOR) Checking sensors/switches (THERMAL HEAD POWER, others)	311
		[Page 2] Adjusting the end mark sensor	
HELP-009	Adjusting/Checking the Master Eject Section	Check operation (EJECT MOTOR) Checking sensors/switches.	313
HELP-010	Adjusting/Checking the Scanner Section	Check operation (SCANNER STEPPING MOTOR) Checking sensors/switches.	314
HELP-011	Adjusting/Checking the ADF Section	[Page 1] Setting(S3-ADF,ADF2in1)	316
		[Page 2 ]Check operation (ADF STEPPING MOTOR, ADF CLUTCH (A), ADF CLUTCH B) Checking sensors/switches. [Page 3 ]Check operation (Feesd the document through the machine.)	
		Information displayed (ADF DOCUMENT SIZE)	
	the Clamp Section	Check operation (CLAMP MOTOR) Checking sensors	319
HELP-013	Adjusting/Checking the Press Section	Check operation (PRESS MOTOR, SIGNAL SOLENOID, EMERGENCY SIGNAL SOLENOID) Checking sensors	320

HELP mode No	Item	Function		
HELP-014	Adjusting/Checking the Vertical Registration	[Page 1] Check operation (VERTICAL REG. MOTOR) Checking sensors	321	
	Section	[Page 2] Display of adjustment values (REGISTRATION ADJUST : RIGHT, LEFT)		
HELP-015	N/A	-	-	
HELP-016	N/A	-	-	
HELP-017	N/A	-	-	
HELP-018	N/A	-	-	
HELP-019	Adjusting/Checking Operation	Check operation (MASTER FEED STEPPING MOTOR, EJECT MOTOR, CLAMP MOTOR)	323	
HELP-020	Checking Power Management	[Page 1] Checking Power Management (ENERGY SAVE TEST, AUTO POWER OFF TEST, 24V POWER RELAY TEST, 24V POWER OFF TEST, LCD PERFORMANCE) Checking Notice LED performance Checking sensors (MASTER FEED COVER SWITCH, MASTER TOP SENSOR)	324	
		(LCD BACKLIGHT OFF TEST, LCD PERFORMANCE)		
HELP-021	Self-check, Data Display, etc.	Checking sensors (FRONT COVER SENSOR, MAIN THERMISTOR, THERMAL HEAD THERMISTOR) Checking switch (TOP COVER SWITCH) Self-check (SHADING MEMORY, FPGA) Data Display (LAPSE TIME FROM THE LATEST PRINT)	326	
HELP-022	Total Count Display	[Page 1] Data Display (Total master make count for a user, Total print count for a user, Total master make count, Total print count) [Page 2] Data Display (Total count: User, Total count (counter drum)	327	
HELP-023	Display of the Data on the Master	<ul> <li>[Page 1] USED MASTER MONITOR, MASTER MONITOR, MASTER ID (DRS65), NUMBER OF MASTER ROLL USED</li> <li>[Page 2] MASTER ROLL USED HISTORY</li> <li>[Page 3] MASTER ID LOG1-6)</li> <li>[Page 4] MASTER ID LOG 7-10)</li> <li>[Page5-6] MASTER ID LOG (BACKUP)</li> </ul>	328	
HELP-024	Checking Error Count and Error History	<ul> <li>[Page 1] Error count (PAPER MISFEED, PAPER FEED JAM, PAPER WRAP UP, PAPER EJECT JAM, MASTER FEED ERROR, MASTER EJECT ERROR)</li> <li>[Page 2] Error count (ID NOT DETECTED, Disable ID MARK, ADF JAM, SER- VICE CALL)</li> <li>[Page 3] Error count (MASTER EJECT ERROR, MASTER MISSETTING)</li> <li>[Page 4-6] Display of Error History 1 - 16</li> <li>[Page 7] Display of Service Call History 1 - 4</li> <li>[Page 8-11] List of Service Call</li> </ul>	330	
HELP-025	Checking Shading Memory	[Page 1] Preview of Shading memory BLACK/WHITE reversion, Download [Page 2] Previw of Shading memory	333	
HELP-026	Document Density Reading	Document Density Reading (Scanner)	334	
HELP-027	Initializing HELP Contents	[Page 1] Model/Area Code , Machine cord, Serial number [Page 2] Initialize HELP contents.	335	
HELP-028	Image Memory Check	Image Memory Check	336	
HELP-029	(Not used)	-	-	
HELP-030	(1)Test pattern (2)Vertical Reg. Adjustment	Printing Test Pattern Vertical Registration Adjustment	339	
HELP-031	(Not used)	-	-	
HELP-032	Information Download	Information Download	340	
HELP-033	(Not used)	-	-	
HELP-034	HELP Label List	HELP Label List	341	

HELP mode No.	Item	Function		
HELP-035	N/A	-	-	
HELP-036	N/A	-	-	
HELP-037	N/A	-		
HELP-038	N/A	-	-	
HELP-039	Paper Feed Adjustment	[Page 1] Adjustment (Paper feed speed)	0.40	
	be sure to set G of	[Page 2] Adjustment (Paper feed angle)	342	
	HELP-061 (5 at Page 2)	[Page 3] Adjustment (Paper feed lead edge sensor angle)		
		[Page 4] Adjustment (Paper feed limit angle)		
		[Page 5] Adjustment (Paper feed loop level)		
HELP-040	N/A	-	-	
HELP-041	N/A	-	-	
HELP-042	Scanner Read Adjustment	[Page 1] Adjustment : Scan horizontal (main scan) magnification, Scan vertical (sub scan) magnification, Scan lead edge start position, Scanner horizontal reading center	343	
		[Page 2] Adjustment : Scanner read width, Scanner read length, Scanner move range		
HELP-043	ADF Read Adjustment	[Page 1] Adjustment : ADF horizontal (main scan) magnification, ADF vertical (sub scan) magnification, ADF lead edge start position, ADF horizontal reading center	345	
		[Page 2] Adjustment : ADF read width, ADF read length, ADF feed range, ADF trail edge end position		
HELP-044	Scan Level Adjustment	[Page 1] Adjustment (TEXT mode, TEXT/PHOTO mode)	347	
		[Page 2] Adjustment (PHOTO/TEXT mode, PHOTO mode)		
HELP-045	ADF Level Adjustment	[Page 1] Adjustment (TEXT mode, TEXT/PHOTO mode)	349	
		[Page 2] Adjustment (PHOTO/TEXT mode, PHOTO mode)	010	
HELP-046	Master Feed Adjustment	[Page 1] Adjustment (Master Clamp margin, M-Make speed magnification, M-Make feed volume magnification)	351	
		[Page 2] Adjustment (M-Make horizontal start position, M-Make vertical start position, Master length on drum		
HELP-047	Online Master Making Adjustment	Adjustment (M-Make horizontal start position : online, M-Make vertical start position : online)	353	
HELP-048	Thermal Head Setting	Adjustment Thermal head (RESISTANCE RANK, RESISTANCE RANK OFFSET)	354	
HELP-049	For Factory Adjustment	-	-	
HELP-050	N/A	-	-	
HELP-051	N/A	-	-	
HELP-052	Setting	Entering the service call number for emergencies.	356	
HELP-053	N/A	-	-	
HELP-054	Time Setting	[Page 1] Setting (Date-time display rule setting)	357	
		[Page 2] Setting (Year, Month, Day, Hour, Minute and Second)		
HELP-055	Buzzer Setting	[Page 1-2] Setting (Buzzer ON/OFF and buzzer volume adjustment)	350	
		[Page 3] Operation check (Operating Buzzer tone check)	000	
		[Page 4] Operation check (Completion Buzzer tone check)		
		[Page 5] Operation check (Error Buzzer tone check)		
HELP-056	Language Setting	Language Setting	364	
HELP-057	N/A	-	-	
HELP-058	N/A	-	-	
HELP-059	N/A	-	-	
HELP-060	Function Setting	[Page 1] Function setting (Interval print and the service call number)	365	
		[Page 2] Function setting (Factory setting)		

HELP mode No.	Item	Item		
HELP-061	Function Setting	[Page 1] Function setting (Interlock, Paper feed error, First print, Sensor switch operation)	369	
		[Page 2] Function setting (Paper feed adjustment : HELP-039 enabled/dis-		
		able)		
HELP-062	Function Setting	Function setting (AB system/Inch system, Model name change screen, Tem-	270	
		perature display)	372	
HELP-063	N/A	-	-	
HELP-064	N/A	-	-	
HELP-065	N/A	-	-	
HELP-066	User Setting size Minimum/Maximum	[Page 1] User setting paper size (minimum/maximum) (A3 drum, B4 drum)	272	
		[Page 2] User setting paper size (minimum/maximum) (A4 drum)	373	
HELP-067	Ink Setting	Ink Setting	375	
HELP-068	Margin Setting	Margin Setting	376	
HELP-069	Master-Making Drum Rotation (without paper) setting	Setting master making drum rotation (without paper)	377	
HELP-071	Tape Dispenser Option	[Page 1] Tape dispenser option setting		
	Setting/Operation Check	[Page 2] Tape dispenser option setting	378	
		[Page 3] Check Operation		
HELP-072	Interface Setting	[Page 1]Function setting (Interface setting)	201	
		[Page 2] Function setting (Network setting)	301	
		[Page 3] Quick set-up/Advanced set-up/Initialize		
HELP-073	Memory Card Option	[Page 1] Memory card option setting (Set contents not yet determined)		
	Setting	[Page 2] Memory card format/Operation check	384	
HELP-074	N/A	-	-	
HELP-077	N/A	-	-	
HELP-078	N/A	-	-	
HELP-079	Minimum Print	Setting minimum print	389	
HELP-080	Function Setting	Option Administration Setting	390	

## 2 Overview

The DUPRINTER's HELP modes can be broadly classified into the following types:

#### ♦ Modes for ROM version display / version upgrade

To display the version of the main PCB ROM, the panel PCB ROM, relay PCB ROM, Tape Dispenser ROM (option).

#### ♦ Modes for adjustment / specification setting

These modes set the functioning of variable resistors and switches by using the battery PCB unit's EEPROM to memorize settings made on the operation panel. All of these adjustments and settings are made at the factory prior to shipment of each machine.

#### IMPORTANT

• New adjustments and appropriate settings must be made after the battery PCB unit is replaced and after initialization setting has been implemented (using HELP-027).

#### Modes for function checks

These modes permit the running of function checks on: individual motors, given series of operations, and electrical circuits.

When these modes are used to check motor functioning, the motor being checked is run by itself, but interlocks are suspended. When such checks are run, take care not to put hands or fingers **in motor-related moving parts that could start up unexpectedly.** 



#### Modes for sensor and switch displays

These modes provide displays of the conditions of sensors and switches.

#### ♦ Modes for total count displays

These modes provide displays of the counts of the total number of masters made and sheets printed by the machine since it was manufactured. They also permit resetting of the total count values displayed in the user mode.

### **3** HELP Mode Functions and Operation Procedures

#### • Accessing HELP Modes

1. Using the numeric keys, enter the number of the HELP mode you want to access.

Example: To access HELP mode H-011, enter [0], [1], [1].

#### IMPORTANT

• The HELP mode number cannot be selected by the PRINT SPEED keys <) and >.

#### REFERENCE

• The HELP mode number can be selected by the PRINT DARKNESS keys <) and >.

HELP mode number selection screen
HELP-000
VERSION DISNLAY
(The number blinks.) HELP mode number entry
↓

#### Ex : enter 0, 1, 1, PRINT key

2. Press the (PRINT) key. The HELP mode specified in 1 will be accessed.

From this point on, follow the procedure given below for the particular mode accessed.



#### REFERENCE

- You can access a HELP mode by touching an item.
- You can switch the screen by touching the arrow on the screen upper right or screen lower right.
- The "HELP-000" screen reappears by pressing the C (clear) key.

<ul> <li>Select an item to access</li> </ul>	
Screen switching	J
HELP-000	
VERSION DISPLAY	
SOFTWARE UPDATE	
TOUCH PANEL CALIBRATION	
SPEED ADJUSTMENT	
REPLENISH INK	
DRUM SECTION	
Touch an item	
Screen switching	

## Chapter 8 3 HELP Mode Function and Operation Procedures • HELP Mode Descriptions

H	ELP-000	ROM Version Display
VER DF 00 20 MJ PA RF TAI 09	SION P:400x400 000000:000000000 014/03/17 Mon.12:12:12 AIN PCB Version:1.** ANEL PCB Version:1.** ELAY PCB Version:1.** PE DISPENSER PCB Version:1.** 000000000	Mode Name: Resolution • Serial Number • Date and Time • Main PCB Version / Panel PCB Version /Relay PCB Version / Tape Dispenser ROM Version (Only when the tape dispensers is installed) • Service Call Contact Number (if available)
•	Operation procedure	
1.	Call the HELP mode "	H-000".
	Enter " <b>000</b> " by the <b>NUM</b> <b>PRINT</b> key.	<b>ERIC</b> keys and then press the DP:400x400 0000000000000000000000000000000
2.	Check the display.	
	Check the ROM version of	lisplayed.
	Mode Nam Serial Num Date and T Main PCB V Panel PCB Relay PCB Tape Disper (Only when t	e: Resolution ber ime DP:400x400 • DP:400x400 • 0000000:000000000 • 2014/03/17 Mon.12:12:12 MAIN PCB Version:1.** PANEL PCB Version:1.** PANEL PCB Version:1.** RELAY PCB Version:1.** TAPE DISPENSER PCB Version:1.**
3.	Return to the HELP m Press the STOP key. The HELP mode selection	ode. n display will reappear.
	$\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HEL	:Turn the power switch OFF. <b>P mode</b> : Enter the desired mode number using the numeric keys.

HI SOF M P R T	ELP-001         IWARE UPDATE         AIN PCB         ANEL PCB         ELAY PCB         APE DISPENSER PCB    Relay PCB (with Tape Dispenser installed)
•	Operation procedure
1.	Call the HELP mode "H-001". Enter "001" by the NUMERIC keys and then press the PRINT key.
2.	Select PCB. Select and touch the PCB to be upgraded. (The right figure shows the case when the main PCB is selected.)
3.	<b>To update the main PCB:</b> Touch "USB INTERFACE" or "USB FLASH DRIVE" to update the main PCB.   "Download available" is displayed and   "Download available" is displayed and   the printer is ready to receive the updated version.   The updated version is sent from PC by using the   Program Update Utility. (For Windows XP/Vista/7/   8 only)   The updated data selection screen appears, select the updated data. <b>EXPORTANCE</b> 9. On not turn off the power during updating; otherwise you may need to replace the main PCB. as follows and then update the main PCB again. 1: ON, 2: OFF, 3: OFF, 4: OFF
	<ul> <li>If you turn off the power during updating the panel PCB, set the DIP SW1 on the main PCB as follows and then update the panel PCB again. 1: ON, 2: OFF, 3: ON, 4: OFF</li> <li>Before updating the relay PCB, turn off the power and set the DIP SW1 on the main PCB as follows. 4: ON After updating is complete, turn off the power and return the DIP SW1 as follows. 4:OFF</li></ul>
4.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode: Enter the desired mode number using the numeric keys.

HELP-002 TOUCH PANEL CALIBRATION		Touch Panel Calibration Calibrating the coordinates and panel.	checking operation of the touch
	1. 944, 133 2. 47, 964		
•	Operation procedure		
1.	Call the HELP mode " Enter "002" by the NU PRINT key.	H-002". MERIC keys and then press the	HELP-002 TOUCH PANEL CALIBRATION
2.	Touch panel calibration For "Calibration", press step 3 . For "Check", press the H	on/check the MASTER MAKING key. Go to OME key. Go to step 4 .	1. 944, 133 2. 47, 964
3.	<ul> <li>Touch panel calibration</li> <li>1. Touch the center point</li> <li>2. The circle moves to the again. (Calibration com</li> <li>3. Press the ≱ key to store</li> <li>REFERENCE</li> <li>Press the STOP key for the store</li> </ul>	of the circle on the panel upper left. e lower right. Touch the center point upleted) re calibration.	<ul> <li>1. Touch the center point</li> <li>2. Touch the center point</li> </ul>
4.	<ul> <li>Touch panel check</li> <li>1. When pressing the HO cursor appears on the p</li> <li>2. Check that the cross comovement.</li> </ul>	<b>ME key</b> in step 2, the cross banel. ursor follows the stylus pen	Cross cursor + 186, 92
5.	Return to the HELP mPress the STOP key.The HELP mode selection $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP mode	ode. n display will reappear. :To exit the HELP mode node: Enter the desired mode number using the numeric keys.	

SPEI O M J	HELP-003         SPEED ADJUSTMENT         PRESTOP SPEED         M-MAKE SPEED         JOG SPEED         PRINT SPEED         Image: Print Speed         Image: Print Speed         Image: Print Speed         Speed Adjusting Print Speed.         Image: Print Speed         Image: Print Speed </th			
•	Operation procedure			
1.	Call the HELP mode "H-003". Enter "003" by the NUMERIC keys and then press the PRINT key.			
2.	Select the speed to be checked on the touch panel.			
3.	Check the speed. Press the MASTER MAKING key. The drum rotates and the totation speed appears on the panel lower part. To change the speed (0 to 6) 1. Select and touch PRINT SPEED key. 2. Change the speed by the PRINT SPEED keys on the panel. Speed 0: Set to Speed 1 and then press Speed 1: St to Speed 5 and then press Speed 6: Set to Speed 5 and then press DOG SPEED The speed of the selected item displayed			
4.	Check the speed. (See the next page for speed reference values.) Press the MASTER MAKING key. The drum rotates and the rotation speed appears on the panel lower part. To adjust the speed while the drum is rotating: 1. Select and touch the speed to be adjusted. 2. Every time the PRINT POSITION keys are pressed. Speed is increased by 1 pm. Speed is increased by 1 pm. Speed is increased by 1 pm. Speed is decreased by 1 pm. The speed of the selected iter displayed. The drum does not rotate even if the drum removal button is pressed.			



HI SPEI C U U	HELP-003         SPEED ADJUSTMENT         PRESTOP SPEED         M-MAKE SPEED         JOG SPEED         PRINT SPEED         Image: The set of th		
•	Operation procedure		
1.	Call the HELP mode "H-003". Enter "003" by the NUMERIC keys and then press the PRINT key. HELP-003 SPEED ADJUSTMENT PRESTOP SPEED		
2.	Rotate the drum.         Press the MASTER MAKING key to rotate the drum.         Image: Contract of the drum in the		
3.	Check paper Feed/Ejection. Press the TEST PRINT key. If paper is present, paper feed/ejection can be checked. <b>REFERENCE</b> • If paper is not present or paper jam occurs, only paper feed stops but the drum continues rotating. To stop operation, press the STOP key. Press the STOP key to stop the drum at the stop position.		
4.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode :Turn the power switch OFF.         → To access another HELP mode: Enter the desired mode number using the numeric keys.		

HELP-004		Checking Ink Replenishment	
REPLENISH INK		While the ink level is detected, ink is replenished.	
•	Operation procedure		
1.	Call the HELP mode " Enter "004" by the NUME key.	FH-004". FRIC keys and then press the PRINT HELP-004 REPLENISH INK	
2.	Check ink replenishm	ient.	
	Check the following operation	ations.	
	1. The ink roller moves do	own and the drum starts rotating.	
	2. While the ink level is d	<ul> <li>♦</li> <li>etected, ink is replenished.</li> </ul>	
	3. If ink is present, LED o	on the ink detection PCB lights up.	
	4. Ink replenishment stop <b>REFERENCE</b>	s and the drum stops at the drum removal position.	
	<ul> <li>The drum rotates at the second second</li></ul>	ne print speed set on the operation panel.	
3.	Return to the HELP m	ode.	
	Press the <b>STOP</b> key. The HELP mode selectio	n display will reappear.	
	ightarrow To exit the HELP mode $ ightarrow$ To access another HELP r	:Turn the power switch OFF. <b>mode:</b> Enter the desired mode number using the numeric keys.	





<b>H</b> DR DR 1. 10 :	ELP-005         NUM SECTION         JM MASTER SENSOR ADJUSTMENT         080         DRUM MASTER SENSOR         Image 3:         • Adjustment / Check         Drum master sensor
•	Operation procedure
1.	Call the HELP mode "H-005". Check that the master is wound around the drum. Then enter "005" by the NUMERIC keys and then press the PRINT key. HELP-005 DRUM SECTION ORUM: DRUM POSITION 1 1 :MAIN MOTOR ENCODER SENSOR 0 :DRUM POSITION 1 SENSOR
2.	Change the screen. Touch the arrow on the screen lower right twice to switch to Page 3. 1 :DRUM POSITION 2 SENSOR 0 :DRUM SWITCH 1 :A4 DRUM SENSOR 0 :COUNTER DRUM DETE 1 :JOG SWITCH 1 :PAPER EJECT SWITCH 251 :DRUM MASTER SENSOR
3.	<ul> <li>Press the MASTER MAKING key. The drum stops at the drum master detected position (the drum removal position), at the drum master undetected position (the leather part at the screen back end) and below the drum master sensor, in order.</li> </ul>
4.	<ul> <li>Checking the sensor.</li> <li>Adjustment</li> <li>1. Enter the value by the NUMERIC keys or change the value by the PRINT POSITION () () () () () () () () () () () () ()</li></ul>

**Step 5.**  $\rightarrow$  Press the **STOP** key. The HELP mode selection display will reappear.

HI DR MA 2.	<b>ELP-005</b> UM SECTION STER DETACH POSITION ADJUSTMENT +00 (4) Adjusting/Checking the Drum Section (4 pages in total) Page 4: • Adjusting the master detach position. Normally, adjustment is not made.
	Call the HELP mode "H 005"
1.	Check that the master is wound around the drum. Then enter "005" by the NUMERIC keys and then press the PRINT key. DRUM SECTION DRUM POSITION 1 1:MAIN MOTOR ENCODER SENSOR
2.	Change the screen. Touch the arrow on the screen lower right three times to switch to Page 4.
3.	<ul> <li>Check operation.</li> <li>Press the MASTER MAKING key. Every time this key is pressed, the drum stops at the master detach position.</li> </ul>
4.	Adjusting the master detach position. • Normally, adjustment is not made. Adjustment 1. Enter the value by the NUMERIC keys or change the value by the ○ PRINT POSITION keys. • Reference value : -10 - +10 • Press the C (clear) key to return the set value to the default. 2. Press the ¥ key to store all set values. It is the image of the position adjustment is not made. • It is the fourth of the position adjustment is not made. • It is the fourth of the position adjustment is not made. • It is the fourth of the position adjustment is not made. • It is the fourth of the position adjustment is not position. • It is the fourth of the position adjustment is not position. • It is the fourth of the position adjustment is not position. • It is the fourth of the position adjustment is not position. • It is the fourth of the position adjustment is not position. • It is the fourth of the position. • It is the position. •
5.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode : Turn the power switch OFF.         → To access another HELP mode : Enter the desired mode number using the numeric keys.



Step 4.  $\rightarrow$  Press the STOP key. The HELP mode selection display will reappear.

<b>HE</b> OVI 5.	(4) Adjusting/Checking the Paper Page 4: • Overlap feed detection adj (mm	Feed Section (4 pages in total)
1.	Call the HELP mode "H-006". Enter "006" by the NUMERIC keys and then press the PRINT key.	HELP-006 PAPER FEED SECTION PAPER FEED STEPPING
2.	Change the screen. Touch the arrow on the screen lower right three times to switch to Page 4.	ELEVATOR MOTOR 1 :ELEVATOR TOP LIMIT SENSOR 0 :ELEVATOR LOWER LIMIT SENSOR 1 :ELEVATOR DOWN SWITCH 0 :PAPER SENSOR 0 : PAPER TOP DETECT SENSOR 0 :SIGNAL SENSOR 0 :HEAVY WEIGHT PAPER LEVER SENSOR
3.	<ul> <li>Basic adjustment.</li> <li>"DOUBLE FEED" is detected when the difference of the length of printed paper is above the value of the "paper overlap detection adjustment".</li> <li>Adjustment</li> <li>1. Enter the value by the NUMERIC keys or change the value by the PRINT POSITION keys. <li>Reference value :10-300 mm</li> <li>Default value : 50 mm</li> <li>Press the C (clear) key to return the set value to the value before change.</li> <li>2. Press the ¥ key to store all set values.</li> </li></ul>	HELP-006 OVERLAP FEED DETECTION ADJ (mm) 5. 050
4.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode       : Enter the desired mode number using the numeric keys.	

PAP C P T 1:	HELP-007         PAPER EJECT SECTION         PAPER EJECT STEPPING         PAPER EJECT STEPPING         PAPER EJECT FAN         PRINT TRAY FAN         TOP FAN         1 :PAPER EJECT JAM SENSOR    (1) Adjusting/Checking the Paper Eject Section (3 pages in total) Page 1: <ul> <li>Check operation.</li> <li>PAPER EJECT STEPPING / PAPER EJECT FAN / PRINT TRAY</li> <li>FAN / TOP FAN</li> <li>Checking sensor.</li> <li>PAPER EJECT JAM SENSOR</li> <li>PAPER EJECT JAM SENSOR</li> </ul>	
•	Operation procedure	
1.	Call the HELP mode "H-007". Enter "007" by the NUMERIC keys and then press the PRINT key. HELP-007 PAPER EJECT SECTION PAPER EJECT STEPPING PAPER EJECT FAN PRINT TRAY FAN TOP FAN 1 :PAPER EJECT JAM SENSOR ↓	
2.	Check operation. 1. Select and touch the motor or fan to be checked. 3. When selecting motor/fan: Press the PRINT POSITION <	
3.	Checking sensor.         Status of Sensor         Sensor       0         PAPER EJECT JAM SENSOR       Present         Not present       1         PAPER EJECT JAM SENSOR       Present         Not present       1         PAPER EJECT JAM SENSOR       Present         Not present       1         PAPER EJECT JAM SENSOR       Present	

HELP-008		(1) Adjusting/Checking the m	aster feed section (2 pages in total)
MASS M () () () () () () () () () () () () ()	THERMAL HEAD UP/DOWN SENSOR	Page 1: • Check operation. MASTER FEED STEPPING CUTTER MOTOR /THERMA • Checking sensors/switches MASTER FEED COVER S THERMAL HEAD UP/DOWN	MOTOR / MASTER FEED CLUTCH / L HEAD UP/DOWN MOTOR WITCH / MASTER TOP SENSOR / I SENSOR
•	Operation procedure		
1.	Call the HELP mode " Enter "008" by the NUM PRINT key.	<b>H-008".</b> ERIC keys and then press the	HELP-008 MASTER FEED SECTION MASTER FEED STEPPING MASTER FEED CLUTCH CUTTER MOTOR THERMAL HEAD UP/DOWN MOTOR 1:THERMAL HEAD POWER 0:MASTER FEED COVER SWITCH 0:MASTER FEED COVER SWITCH 0:MASTER TOP SENSOR 1:THERMAL HEAD UP/DOWN SENSOR
2.	<ul> <li>Check operation.</li> <li>1. Select and touch the m</li> <li>2. When selecting motor/or Press the PRINT held down, the motor/clut</li> <li>The thermal head up/down POSITION key and mm</li> <li>THERMAL HEAD POWER key or is held down</li> <li>3. While the MASTER MAK head moves up and the m Then the master feed se master.</li> <li>While the HOME key is h at high speed to feed the</li> <li>Due to interlocking me not rotate if the master</li> </ul>	notor or clutch to be checked. clutch: <b>T POSITION</b> key; while this key is ch rotates. The motor moves down by the <b>PRINT</b> oves up by the key . R is "0:ON" while <b>PRINT POSITION</b> n. KING key is held down, the thermal haster feed clutch operates. Stepping motor rotates to feed the led down, the thermal head moves up master. Press the PRINT POSITION of echanism, the motor does r cover is open.	HELP-008         MASTER FEED SECTION         MASTER FEED CLUTCH         CUTTER MOTOR         THERMAL HEAD UP/DOWN MOTOR         1:THERMAL HEAD UP/DOWN SENSOR         0:MASTER FEED COVER SWITCH         0:MASTER TOP SENSOR         1:THERMAL HEAD UP/DOWN SENSOR         • After checking the cutter motor operation, be sure to return the cutter blade to the operation side.         • and the master feed stepping motor rotates center key. The master is set.
3.	Checking sensors/sw Check the following sensor ► Status of Sensors a Sensors and Switches THERMAL HEAD POWER MASTER FEED COVER SW MASTER TOP SENSOR THERMAL HEAD UP/DOWN S	itches ors and switches. and Switches 0 1 ON OFF WITCH Close Open Present Not present ENSOR Photopassing Photointerrupting	HELP-008 MASTER FEED SECTION MASTER FEED STEPPING MASTER FEED CLUTCH CUTTER MOTOR THERMAL HEAD UP/DOWN MOTOR 1:THERMAL HEAD POWER 0 :MASTER FEED COVER SWITCH 0 :MASTER TOP SENSOR 1 :THERMAL HEAD UP/DOWN SENSOR
Step	<b>4.</b> $\rightarrow$ Press the <b>STOP</b> key. The	HELP mode selection display will rea	ppear.

HE	(2) Adjusting/Checking the master feed section (2 pages in total) Page 2:		
EN 1.	D MARK SENSOR ADJUST     • End mark sensor adjustment     • Checking sensor     END MARK SENSOR		
	END MARK SENSOR		
•	Operation procedure		
1.	Call the HELP mode "H-008". Enter "008" by the NUMERIC keys and then press the MASTER FEED SECTION		
	MASTER FEED STEPPING MASTER FEED CLUTCH		
2.	Change the screen.		
	Page 2. 0:MASTER FEED COVER SWITCH 0:MASTER TOP SENSOR 1:THERMAL HEAD UP/DOWN SENSOR		
3.	Adjust the End mark sensor. HELP-008		
	Adjustment 1. Enter the value by the NUMERIC keys or change the value by		
	the <b>PRINT POSITION</b> keys. • Press <b>C</b> (clear) key to default to 150.		
	<ul> <li>Press the MASTER MAKING key to feed the master.</li> <li>2. Press the ≚ key to store all set values.</li> </ul>		
4.	• For adjustment, check that the master is not slackened. If it is slackened, the value changes; proper adjustment is not made.		
	Adjustment		
	the PRINT POSITION () keys. The amount of light received by the end mark sensor		
	Sensor     BLACK     WHITE       End mark sensor     120 or more     30 or less		
	<ul> <li>Press the C (clear) key to default to 150.</li> <li>Hold down the MASTER MAKING key to feed the master.</li> </ul>		
	2. Press the 🛓 key to store all set values.		
5.	Return to the HELP mode. Press the STOP key.		
	The HELP mode selection display will reappear. $\rightarrow$ To exit the HELP mode : Turn the power switch OFF.		
	$\rightarrow$ To access another HELP mode : Enter the desired mode number using the numeric keys.		



Η	ELP-010	Adjusting/Checking the	Scanner Section
SCA 0: 0: 1: 1:	NNER SECTION CANNER STEPPING SCANNER OPEN/CLOSE SENSOR DOCUMENT COVER OPEN/CLOSE SENSOR SLIDER LIMIT SENSOR 1 SLIDER LIMIT SENSOR 2	<ul> <li>Check operation (SCANNER ST</li> <li>Checking sensor. SCANNER OPEN/CLOSE SENSOR / DO SLIDER LIMIT SENSOR 1,2</li> <li>Data display (Document size).</li> </ul>	EPPING MOTOR). CUMENT COVER OPEN/CLOSE SENSOR /
•	Operation procedure		
1.	Call the HELP mode "	H-010".	
	Enter " <b>010</b> " by the <b>NUM</b> <b>PRINT</b> key.	ERIC keys and then press the	HELP-010 SCANNER SECTION SCANNER STEPPING 0 :SCANNER OPEN/CLOSE SENSOR 0 :DOCUMENT COVER OPEN/CLOSE SENSOR 0 :SLIDER LIMIT SENSOR 1 1 :SLIDER LIMIT SENSOR 2
2	Check operation		
2.	Check operation. Check operation. 1. Press the PRINT POS PRINT POSITION ke PRINT POSITION ke Slider : leftw • The slider limit sens 2. Press the MASTER The lamp lights on. P lamp. 3. Only when ADF is m While the HOME key ON to rotate the ADF	SITION y : to move the slider leftward y : to move the slider rightward : to move the slider rightward Sider : rightward sor operates to stop the slider. MAKING key. ress the key again to turn off the ounted, press the HOME key. is held down, the ADF clutch A/B is stepping motor.	HELP-O10 SCANNER SECTION SCANNER OPEN/CLOSE SENSOR ODCUMENT COVER OPEN/CLOSE SENSOR SLIDER LIMIT SENSOR 1 SLIDER LIMIT SENSOR 2 A3 : DOCUMENT SIZE

3.	Checking sensors/switches.
	Check the following sensors and switches.
	Sensors       0       1         SCANNER OPEN/CLOSE SENSOR       Close       Open         DOCUMENT COVER OPEN/CLOSE SENSOR       Photopassing       Photointerrupting         SLIDER LIMIT SENSOR 1       Photopassing       Photointerrupting         SLIDER LIMIT SENSOR 2       Photopassing       Photointerrupting         DOCUMENT SIZE       Detected document size displayed       A3 :DOCUMENT SIZE
4.	<b>Return to the HELP mode.</b> Press the <b>STOP</b> key. The HELP mode selection display will reappear.
	<ul> <li>→ To exit the HELP mode : Turn the power switch OFF.</li> <li>→ To access another HELP mode : Enter the desired mode number using the numeric keys.</li> </ul>

H	ELP-011	(1) Adjusting/Checking the A	DF Section (3 pages in total)
1.	A B C D 0 0 0 0	<ul> <li>Page 1:</li> <li>Function enabled/disable setti ADF. ADF2in1</li> </ul>	ng
	(I)		
•	Operation procedure	1	
1.	Call the HELP mode "	'H-011".	
	Enter " <b>011</b> " by the <b>NUM</b> <b>PRINT</b> key.	IERIC keys and then press the	HELP-011 ADF SECTION A B C D 1.0000
			Ļ
2.	Function enabled/disa	able setting	
	<ol> <li>Enter four digits (0,1) b specify enabled/disable</li> <li>Function enable</li> <li>Function enable</li> <li>A 0 ADF</li> <li>A 1 ADF</li> <li>B 0 ADF</li> <li>B 1 ADF</li> <li>C-D</li> <li>Example: For ADF set disabled, enter "1100"</li> <li>Press the ¥ key to store</li> </ol>	by the <b>NUMERIC</b> keys to e of the function. ed/disable setting Description 5 section disabled (Default) 5 section enabled 2 in1 disabled (Default) 5 in1 disabled (Default) 5 in1 enabled ection enabled and ADF2 in 1 by the <b>NUMERIC</b> keys. e all set values.	HELP-011 ADF SECTION A B C D 1.0000 
3.	<b>Return to the HELP m</b> Press the <b>STOP</b> key. The HELP mode selectio $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP	n display will reappear. : Turn the power switch OFF. mode : Enter the desired mode number using the numeric keys.	

ADF ADF (A) (A) (A) (A) (A) (A) (A) (A)	HELP-011         ADF SECTION         ADF SECTION         ADF STEPPING         ADF CLUTCH A         ADF CLUTCH B         1: ADF DOCUMENT COVER OPENCLOSE SWITCH         1: ADF DOCUMENT SENSOR         1: ADF DOCUMENT LEAD EDGE SENSOR         1: ADF DOCUMENT JAM SENSOR         1: ADF COVER SWITCH    (2) Adjusting/Checking the ADF Section (3 pages in total)           Page 2:         • Check operation.         ADF STEPPING, ADF CLUTCH A, ADF CLUTCH B         • Checking sensors.         ADF DOCUMENT SENSOR         1: ADF DOCUMENT JAM SENSOR         1: ADF COVER SWITCH		
1	Call the HELP mode "H 011"		
1.	Enter "011" by the NUMERIC keys and then press the PRINT key.		
2.	Change the screen.		
	Touch the <b>arrow</b> on the screen lower right once to switch to Page 2.		
3.	Check operation.		
	To check the operation:		
	<ul> <li>1. Select and touch the motor or clutch to be checked.</li> <li>2. When selecting motor/clutch: Press the PRINT POSITION &gt;&gt; key; while this key is held down, the motor/clutch rotates.</li> <li>ADF CLUTCH A</li> <li>ADF CLUTCH B</li> <li>1 :ADF DOCUMENT COVER OPEN/CLOSE SWITCH</li> <li>1 :ADF DOCUMENT SENSOR</li> <li>1 :ADF DOCUMENT LEAD EDGE SENSOR</li> <li>1 :ADF DOCUMENT JAM SENSOR</li> <li>1 :ADF COVER SWITCH</li> <li>1 :ADF COVER SWITCH</li> <li>1 :ADF COVER SWITCH</li> </ul>		
	3. While the <b>MASTER MAKING</b> key is held down, the ADF clutch A/B is <b>ON</b> to rotate the ADF stepping motor.		
	<ol> <li>While the TEST PRINT key is held down, the ADF clutch A/B is ON to rotate the ADF stepping motor at high speed.</li> <li>Press the HOME key, the ADF stepping motor operates to lower the glass where the document is placed for document standby.</li> </ol>		
4.	Checking sensors/switches.		
	Check the following sensors and switches.		
	Sensors/Switches       0       1         ADF DOCUMENT COVER OPEN/CLOSE SWITCH       ON: Close       OFF: Open         ADF DOCUMENT SENSOR       Photopassing       Photointerrupting         ADF DOCUMENT LEAD EDGE SENSOR       Photopassing       Photointerrupting         ADF DOCUMENT JAM SENSOR       Photopassing       Photointerrupting         ADF COVER SWITCH       ON: Close       OFF: Open         1: ADF DOCUMENT JAM SENSOR       Photopassing       Photointerrupting         ADF COVER SWITCH       ON: Close       OFF: Open		

**Step5.**  $\rightarrow$  Press the **STOP** key. The HELP mode selection display will reappear.

<b>H</b> MAG 2. 255 255 255 255 255	Similar       (3) Adjusting/Checking the ADF Section (3 pages in total)         NIFICATION       Page 3:         100       • Check operation.         5: ADF DOCUMENT SIZE SENSOR 1       • Check operation.         6: ADF DOCUMENT SIZE SENSOR 2       • Check operation.         6: ADF DOCUMENT SIZE SENSOR 3       • Checking sensors.         6: ADF DOCUMENT SIZE SENSOR 4       • Checking sensors.         6: ADF DOCUMENT SIZE SENSOR 5       • Checking ADF Document size.					
	3 :ADF DOCUMENT SIZE					
•	Operation procedure					
1.	Call the HELP mode "H-011".					
	Enter "011" by the NUMERIC keys and then press the PRINT key.					
2.	Change the screen.					
	Touch the <b>arrow</b> on the screen lower right twice to switch to Page 3.					
3.	Check operation.					
	Feed the document through the machine.					
	<ul> <li>1. Feed the document by the TEST PRINT key. The document size detected by ADF document size sensor is displayed.</li> <li>Two or more documents are present in ADF, continuously feed all documents though the machine. If the STOP key is pressed in the middle of operation, continuous feeding is cancelled. After the document being fed is ejected, operation stops.</li> <li>While the MASTER MAKING key is held down the ADF</li> </ul>					
	<ul> <li>clutch A/B is <b>ON</b> to rotate the ADF stepping motor.</li> <li>3. Press the <b>HOME key</b>. The ADF stepping motor operates to lower the glass for document standby.</li> </ul>					
4.	Checking the sensor.					
	Status of SensorsSensorsunder 8080 or moreADF DOCUMENT SIZE SENSOR 1PresentNot presentADF DOCUMENT SIZE SENSOR 2PresentNot presentADF DOCUMENT SIZE SENSOR 3PresentNot presentADF DOCUMENT SIZE SENSOR 4PresentNot presentADF DOCUMENT SIZE SENSOR 5PresentNot presentADF DOCUMENT SIZE SENSOR 5PresentNot presentADF DOCUMENT SIZEdetected document size displayed					

**Step5.**  $\rightarrow$  Press the **STOP** key. The HELP mode selection display will reappear.

HELP-012 CLAMP SECTION CLAMP MOTOR 0 :CLAMP SENSOR 1 1 :CLAMP SENSOR 2		Adjusting/Checking the Clamp Section  • Check operation. CLAMP MOTOR • Checking sensors. CLAMP SENSOR 1 / CLAMP SENSOR 2			
Operation procedure					
1.	Call the HELP mode " Enter "012" by the NUM PRINT key.	H-012". ERIC keys and then press the	HELP-012 CLAMP SECTION CLAMP MOTOR 0 :CLAMP SENSOR 1 1 :CLAMP SENSOR 2		
2.	Check operation. 1. Press the PRINT POSITION held down, the clamp motor Press the PRINT POSITION Press the PRINT POSITION B mode Toward B m • Press the center key to return 2. Press the Center key to return 2. Press the MASTER MA B mode is entered. Then conditional then at the attach pose 3. Press the "1" key. Every time this Press the "2" key. Every time this Press the "3" key. Every time this Press the "5" key. Every time this Press the "8" key: B mode Press	DN key: while this key is operates. TION key: toward B mode. TION key: toward C mode. Tion key: toward C mode. Toward C mode to the clamp home position, B mode. AKING key. frum rotates and stops at the detach position. s key is pressed, the drum rotates and stops at the a key is pressed, the drum rotates and stops at the a key is pressed, the drum rotates and stops at the a key is pressed, the drum rotates and stops at the p key is pressed, the drum rotates and stops at the p s the "9" key: C mode	HELP-O12 CLAMP SECTION • CLAMP MOTOR 0 :CLAMP SENSOR 1 1 :CLAMP SENSOR 2 tion detach position. ttach position. ttach position. emoval position. ire-detach position. iost-detach position.		
3.	Checking sensors. Check the following sensor ► Status of Sensor Sensors CLAMP SENSOR 1 CLAMP SENSOR 2	Drs. <b>rs</b> <b>O 1</b> Photopassing Photointerrupting Photopassing Photointerrupting	HELP-012 CLAMP SECTION CLAMP MOTOR 0 :CLAMP SENSOR 1 1 :CLAMP SENSOR 2		
4.	Return to the HELP m Press the STOP key. The $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP r	Ode. HELP mode selection display will rea : Turn the power switch OFF. node : Enter the desired mode number using the numeric keys.	appear.		





VER RE 1. RE 2.	HELP-014 VERTICAL REGISTRATION SELECTION REGISTRATION ADJUST : LEFT 1. 435 REGISTRATION ADJUST : RIGHT 2. 1120 (1) Adjusting/Checking the Vertical Registration Section (2 pages in total) Page 2: • Display of adjustment values. REGISTRATION ADJUST : RIGHT / REGISTRATION ADJUST : LEFT				
Operation procedure					
1.	Call the HELP mode "H-014". Enter "014" by the NUMERIC keys and then press the PRINT key.				
2.	Change the screen. Touch the arrow on the screen lower right once to switch to Page 2. 1 :VERTICAL REG. CENTER SENSOR 1 :VERTICAL REG. ENCODER SENSOR 1 :VERTICAL REG. LIMIT SENSOR Touch				
3.	Check the adjustment values.				
	• Use HELP-030 for adjustment.     ► Adjustment values           Item         Sensors         Adjustment value (mm)           1         REGISTRATION ADJUST : RIGHT         350-799           2         REGISTRATION ADJUST : LEFT         801-1250				
4.	Return to the HELP mode.         Press the STOP key. The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode : Enter the desired mode number using the numeric keys.				
HELP-016 to HELP-018 unused

HELP-019 OPERATION TEST MASTER FEED STEPPING EJECT MOTOR CLAMP MOTOR CLAMP MOTOR & EJECT MOTOR (MASTER FEED STEPPING & CLUTCH CUTTER MOTOR		Adjusting/Checking Ope	eration
		Check operation. MASTER FEED STEPPING MOT CLAMP MOTOR / CLAMP MOTO CUTTER MOTOR	OR / EJECT MOTOR / OR & EJECT MOTOR /
•	Operation procedure		
1.	Call the HELP mode " Enter "019" by the NUME key. When HELP-019 is a and the ink roller moves of	<b>H-019".</b> <b>RIC</b> keys and then press the <b>PRINT</b> entered, the thermal head moves up down.	HELP-019 OPERATION TEST MASTER FEED STEPPING EJECT MOTOR CLAMP MOTOR CLAMP MOTOR & EJECT MOTOR (MASTER FEED STEPPING & CLUTCH) CUTTER MOTOR
2.	Check operation.		
	<ol> <li>Select and touch the m</li> <li>Press the <b>PRINT POSI</b> while this key is held do</li> <li>Image: A second s</li></ol>	MAKING key is pressed, the clamp moves ps at the detach position, the attach position e TEST PRINT key. The master is set. Pressed	HELP-019 OPERATION TEST MASTER FEED STEPPING EJECT MOTOR CLAMP MOTOR & EJECT MOTOR (MASTER FEED STEPPING & CLUTCH CUTTER MOTOR to B mode position and the on and the drum removal ess the HOME key.
The master is fed to the attach position and is cut. (The clamp can be consisted of the paper eject switch. The clamp is in B mode and the drum rotate Press the "1" key. Every time this key is pressed, the drum rotates and stops at the Press the "2" key. Every time this key is pressed, the drum rotates and stops at the <b>attac</b> Press the "3" key. Every time this key is pressed, the drum rotates and stops at the <b>remo</b> Press the "4" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the press the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the press the "5" key. Every time this key is pressed, the drum rotates and stops at the <b>press</b> the selecting CLAMP MOTOR/EJECT MOTOR : The eject motor operates only when the clamp is moved toward B mode by press key.		e confirmed.) rotates. at the detach position. attach position. removal position. pre-detach position. post-detach position. ssing the PRINT POSITION key. pressing the PRINT POSITION	
3.	Return to the HELP m	ode.	
	Press the <b>STOP</b> key. The HELP mode selection	n display will reappear.	
	$\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP r	: Turn the power switch OFF. node : Enter the desired mode number using the numeric keys.	

<b>HI</b> OPE (2) (3) (5) (5) (1): (1): (1): (1): (1): (1): (1): (1)	HELP-020         OPERATION TEST         ENERGY SAVE TEST         AUTO POWER OFF TEST         24V POWER RELAY TEST         5V SUPPLY OFF TEST1         5V SUPPLY OFF TEST2         1 :MASTER FEED COVER SWITCH         I :MASTER TOP SENSOR	
•	Operation procedure	
1.	Call the HELP mode "H-020". Enter "020" by the NUMERIC keys and then press the PRINT key. HELP-020 OPERATION TEST ENERGY SAVE TEST (AUTO POWER OFF TEST (24V POWER RELAY TEST)	
2.	<ul> <li>Select and touch the item to be checked:</li> <li>Press the PRINT POSITION key C c i operates.</li> <li>Image: Comparison of the Notice LED (green). Press the "1" key to turn on the Notice LED (green). Press the "2" key to turn on the Notice LED (red). Press the "3" key to turn on the Notice LED (orange). Press the "4" key to turn off the Notice LED (state).</li> </ul>	
3.	<ul> <li>Checking sensors and switches.</li> <li>1. The values of the master feed cover switch and the master top sensor are displayed to check power management.</li> <li>Tatus of Sensors and Switch</li> <li>Sensor and Switch</li></ul>	
4.	Return to the HELP mode.         Press the STOP key. The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode       : Enter the desired mode number using the numeric keys.	



HELP-021 CHECK 1 :FRONT COVER SENSOR 0 :TOP COVER SWITCH 29 :MAIN THERMISTOR(°C ) 28:THERMAL HEAD THERMISTOR(°C ) OK :SHADING MEMORY CHECK OK : FPGA CHECK 0 :0:TIME LAPSE FROM LAST PRINT		<ul> <li>Self-check, Data Display</li> <li>Checking sensor, switch and et FRONT COVER SENSOR / TOP MAIN THERMISTOR / THERMAL</li> <li>Self-check. (SHADING MEMORY)</li> <li>Data Display. (TIME LAPSE FROM</li> </ul>	, etc. cc. COVER SWITCH / - HEAD THERMISTOR Y CHECK / FPGA CHECK) DM LAST PRINT)
•	Operation procedure		
1.	Call the HELP mode " Enter "021" by the NUME key. "Please wait." is disp FPGA are checked.	H-021". RIC keys and then press the <b>PRINT</b> layed and the shading memory and	HELP-021 PLEASE WAIT
2.	Checking sensors/swith Check the following . Status FRONT COVER SENSON TOP COVER SWITCH MAIN THERMISTOR THERMAL HEAD THER SHADING MEMORY CH FPGA CHECK TIME LAPSE FROM LAS	0       1         DR       Photopassing       Photointerrupting         ON : Close       OFF : Open         Numerical value (°C/F)       Numerical value (°C/F)         MISTOR       Numerical value (°C/F)         IECK       OK         OK       NG         ST PRINT       XX: XX (hours: minutes)	HELP-021 CHECK 1 :FRONT COVER SENSOR 0 :TOP COVER SWITCH 29 :MAIN THERMISTOR(°C ) 28:THERMAL HEAD THERMISTOR(°C ) OK :SHADING MEMORY CHECK OK: FPGA CHECK 0 :0:TIME LAPSE FROM LAST PRINT
3.	Return to the HELP m Press the STOP key. The HELP mode selection $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP n	ode. n display will reappear. : Turn the power switch OFF. node : Enter the desired mode number using the numeric keys.	

HI TC 1: TC 2: TC 3: TC 4:	TAL MASTER MAKE COUNT: USER         0000001234         TAL PRINT COUNT: USER         0000005678         TAL MASTER MAKE COUNT         0000007777         TAL PRINT COUNT         0000007777         TAL PRINT COUNT         0000008888
•	Operation procedure
1.	Call the HELP mode "H-022". Enter "022" by the NUMERIC keys and then press the PRINT key. HELP-022 TOTAL MASTER MAKE COUNT: USER 1 0000001234 TOTAL PRINT COUNT : USER 2 0000005678 TOTAL MASTER MAKE COUNT 3 000007777 TOTAL PRINT COUNT 4 0000008888
2.	Check data.(Screen: page 1) Total count is displayed. Clear total count for user. The total master make count and the total print count for a user can be cleared. 1. Touch the item to be cleared. 1. Touch the item to be cleared. Total Master Make Count: USER 2. 0000005678 Total Master Make Count 3. 0000007777 Total PRINT COUNT 4. 000008888 Image 2
3.	<pre>Check data.(Screen: page 2) Total count is displayed. Clear total count for user. The total master make count and the total print count for a user can be cleared. 1. Touch the item to be cleared. 2. Press the</pre>

**Step4.**  $\rightarrow$  Press the **STOP** key. The HELP mode selection display will reappear.

<b>H</b> <b>CON</b> 3 21 OF (	SUMBLES         SUMBLES         SUBDED MASTER MONITOR         7: MASTER MONITOR         7: MASTER ID (DPF50H)         :: NUMBER OF MASTER ROLL USED         Image 1: USED MASTER ID LOG 1-6         Page 4: MASTER ID LOG 7-10         Page 5: MASTER ID LOG (BACKUP)         Page 6: MASTER ID LOG (BACKUP)
•	Operation procedure
1.	Call the HELP mode "H-023". Enter "023" by the NUMERIC keys and then press the PRINT key. HELP-023 CONSUMBLES 3 USED MASTER MONITOR OK :MASTER ID (DPF50H) 0 :NUMBER OF MASTER ROLL USED
2.	Check data.         Data are displayed.         USED MASTER MONITOR         Press the C (clear) key to clear         the used master monitor.         MASTER MONITOR         The value decreases by one for each master making.         MASTER ID CHECK         NUMBER OF MASTER ROLL USED         Counted by the number of times of end mark detection.         Touch:         to page 2
3.	Master Roll Used History (Screen: page 2)         Touch the arrow on the screen lower right in step 2 to display the MASTER ROLL USED HISTORY on page 2.         Total amount : year/month/day hours : minutes         Total amount : year/month/day hours : minutes         I: F= 440:2014/02/20 12:34 2: F= 220:2014/02/18 15:56 3: Non 4: Non         I: Meller         I: F= 0.0000000000000000000000000000000000

4.	MASTER ID LOG 1-6 (Screen: page 3)
	Touch the arrow on the screen lower right in step 3 to display the MASTER ID LOG on page 3.
	Errors are displayed in reverse chronological order. OK : Correct ID according to model is detected. NG : Invalid ID mark is detected. ID NOT DETECTED : ID cannot be detected. BLACK : Master End is detected after setting the master M : Master monitor F : Total number of master made HELP-023 MASTER ID LOG 1: OK(18):DRF50(E) M=219 F= 226:2014/02/20 12:35 3: OK(18):DRF50(E) M=219 F= 226:2014/02/20 12:33 5: OK(18):DRF50(E) M=219 F= 226:2014/02/20 12:32 1 • • •
5.	MASTER ID LOG /-10 (Screen: page 4)
	the MASTER ROLL ID LOG 7-10 on page 4.
6,	MASTER ID LOG (BACKUP) 1-6 (Screen: page 5)
	Touch the arrow on the screen lower right in step 5 to display the MASTER BOLL ID LOG (BACKUP) 1-6 on page 5
	HELP-023
	Errors are displayed in reverse chronological order
	ID NOT DETECTED : Backup information of MASTER ID
	LOG HISTORY when ID cannot be detected.
	5 : Non 6 : Non
	Touch: to page 6
7.	MASTER ID LOG (BACKUP) 7-10 (Screen: page 6)
	Touch the arrow on the screen lower right in step 6 to display the MASTER ROLL ID LOG (BACKUP) 7-10 on page 6.
8.	Return to the HELP mode.
	Press the <b>STOP</b> key.
	The HELP mode selection display will reappear.
	<ul> <li>→ To exit the HELP mode : Turn the power switch OFF.</li> <li>→ To access another HELP mode : Enter the desired mode number using the numeric keys.</li> </ul>

HELP-024 ERROR COUNT 1:PAPER MISFEED 9:PAPER FEED JAM 3:PAPER WRAP UP 3:PAPER EJECT JAM 7:MASTER FEED ERROR 1:MASTER EJECT ERROR		Checking Error Count and Error History (12 pages in total) Page 1: ERROR COUNT • PAPER MISFEED/ PAPER FEED JAM/ PAPER WRAP UP/ PAPER EJECT JAM/ MASTER FEED ERROR/ MASTER EJECT ERROR Page 2: ERROR COUNT • DOUBLE FEED DETECTION/ ID NOT DETECTED/ Disable ID MARK/ ADF JAM/ SERVICE CALL HISTORY Page 3: ERROR COUNT • MASTER EJECT JAM/ MASTER FEED STEPPING NG/ MASTER SET ERROR/ NEW MASTER ROLL NG Pages 4-6: ERROR COUNT HISTORY 1-16 Page 7: SEVICE CALL HISTORY 1-4 Pages 8-12: LIST OF SERVICE CALL	
•	Operation procedure		
1.	Call the HELP mode " Enter "024" by the NUM PRINT key.	H-024". ERIC keys and then press the	HELP-024 ERROR COUNT 1:PAPER MISFEED 9:PAPER FEED JAM 3:PAPER WRAP UP 3:PAPER EJECT JAM 7:MASTER FEED ERROR 1:MASTER EJECT ERROR
2.	Error count Display (S Error Count Display will a To display total error co 1. Press the MASTER MA To clear each error cour 2. Select and touch the ite Press the C (clear) key. (The total error count ca To clear total error count 3. Press the ≱ key and th time. (The total error co	Screen: page 1) ppear. unt: AKING key. ht: em to be checked. annot be cleared.) ht and the error history: e C (clear) key at the same bunt cannot be cleared.)	HELP-024 ERROR COUNT 1:PAPER MISFEED 9:PAPER FEED JAM 3:PAPER WRAP UP 3:PAPER EJECT JAM 7:MASTER FEED ERROR 1:MASTER EJECT ERROR • + Touch: to page 2
3.	<ul> <li>Error count Display (S) Touch the arrow on the second count on page 2.</li> <li>To display total error count 1. Press the MASTER MATO clear each error count 2. Select and touch the iter Press the C (clear) key. (The total error count can the total error count can the total error count can be set to total error coun</li></ul>	Creen: page 2) Creen lower right in step 2 to disp unt KING key. It: It: It obe checked. Innot be cleared.) t and the error history: e C (clear) key at the same unt cannot be cleared.)	Iay the HELP-024 ERROR COUNT O:DOUBLE FEED DETECTION 1 :ID NOT DETECTED 4 :INVALID ID MARK 2 :ADF JAM 5 :SERVICE CALL 1 • • •



9.	Service call List Display (Screen: page 8)
	Touch the arrow on the screen lower right in step 8 to display the SERVICE CALL on page 8. HELP-024         Service CALL         B01:MAIN MOTOR LOCKED         B02:ELEVATOR MOTOR LOCKED         B03:NK ROLLER UP/DOWN MOTOR LOCKED         B03:NK ROLLER UP/DOWN MOTOR LOCKED         B01:THERMAL HEAD UP/DOWN MOTOR LOCKED         B01:THERMAL HEAD UP/DOWN MOTOR LOCKED         B01:THERMAL HEAD UP/DOWN MOTOR LOCKED         B01:SCANNER STEPPING MOTOR LOCKED         Image 9
10.	Service call list Display (Screen: page 9)
	Touch the arrow on the screen lower right in step 9 to display the SERVICE CALL LIST on page 9.
11.	Service call list Display (Screen: page 10)
	Touch the arrow on the screen lower right in step 10 to display the SERVICE CALL LIST on page 10.
12.	Service call list Display (Screen: page 11)
	Touch the arrow on the screen lower right in step 11 to display the SERVICE CALL LIST on page 11.
13.	Return to the HELP mode.
	Press the <b>STOP</b> key. The HELP mode selection display will reappear.
	<ul> <li>→ To exit the HELP mode</li> <li>→ To access another HELP mode</li> <li>: Enter the desired mode number using the numeric keys.</li> </ul>

HISHA	Checking the Shading Memory • Preview of the Shading memory corrected in BLACK/WHITE  Operation procedure
1.	Call the HELP mode "H-025". Enter "025" by the NUMERIC keys and then press the PRINT key. Shading BLACK/WHITE is performed and reading the Shading memory starts. HELP-025 SHADING MEMORY PLEASE WAIT
2.	Reading the Shading Memory.
	The preview of he read shading memories is displayed.
З.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode : Turn the power switch OFF.         → To access another HELP mode : Enter the desired mode number using the numeric keys.

H	LP-026 Document Density Read	ling (Scanner)
DOC GAII 1 : DOC 2: [ 220 : 220 : 220 :	UMENT DENSITY READING NADJUSTMENT 20 20 20 20 20 20 20 20 20 20 20 20 20	canner).
•	Operation procedure	
1.	Call the HELP mode "H-026".	
	Enter " <b>026</b> " by the <b>NUMERIC</b> keys and then press the <b>PRINT</b> key.	HELP-026 DOCUMENT DENSITY READING GAIN ADJUSTMENT 1: 20 DOCUMENT DETECTION ADJUSTMENT 2: 080 220 :SHADING WHITE DENSITY 220 :DOCUMENT BLACK DENSITY 220 :DOCUMENT BLACK DENSITY 220 :DOCUMENT WHITE DENSITY
2.	Display of document density (scanner).	
	<ul> <li>Display check Touch the arrow on the screen lower right. The page is changed. The slider moves to read the document and Page 1 returns. Document density is displayed.</li> <li>Do not change the values of "GAIN ADJUSTMENT" — and "DOCUMENT DETECTION ADJUSTMENT".</li> </ul>	HELP-026 DOCUMENT DENSITY READING GAIN ADJUSTMENT 1: 20 DOCUMENT DETECTION ADJUSTMENT 2: 080 220 :SHADING WHITE DENSITY 220 :DOCUMENT BLACK DENSITY 220 :DOCUMENT WHITE DENSITY
	<ul> <li>Gain adjustment Perform gain adjustment so that the shading white density is 220-230.</li> <li>Gain adjustment: Change the value of HELP-026-1 and press the <u>¥</u> key.</li> </ul>	★ Touch: to page 2 <b>"PLEASE WAIT."</b> is displayed and the slider moves to read the document and Page 1 returns.
3.	Return to the HELP mode.	
	Press the <b>STOP</b> key. The HELP mode selection display will reappear.	
	<ul> <li>→ To exit the HELP mode</li> <li>→ To access another HELP mode</li> <li>: Enter the desired mode number using the numeric keys.</li> </ul>	

HELP-027 INITIALIZE 1:013 2:010 3:000000077		Initializing HELP Conter Page 1: • Check data. MODEL/AREA CODE MACHINE CODE MANUFACTURING NUMBER Page 2: • Initialize HELP contents.	nts (2 pages in total)
•	Operation procedure		
1.	Call the HELP mode "I Enter "027" by the NUM PRINT key.	<b>H-027".</b> E <b>RIC</b> keys and then press the	HELP-027 INITIALIZE 1 :013 2 :010 3 :000000077
2.	Check data. Machine-specific codes and displayed. MODEL/AREA COM MACHINE CODE SERIAL NUMBER	nd the manufacturing number are DE Touch: to Page 2	HELP-027 INITIALIZE • 1 :013 • 2 :010 • 3 :000000077
3.	<ul> <li>Initialize HELP content</li> <li>Touch the arrow on the scithe INITIALIZE screen on</li> <li>Initialize the contents</li> <li>Press the ≱ key and C</li> <li>After initialization, enter the label. Then confirm t</li> <li>If EEPROM requires repcontents and enter the a HELP label. Then confirm</li> <li>If the machine-specific care not displayed on Paginitialized.</li> <li>If any option in HELP-80 DRIVE for option permitter In case of losing USB FLA the backup of the setting DRIVE using HELP-80 be</li> </ul>	ts. reen lower right in step 2 to display Page 2. of HELP. (clear) key at the same time. the adjustment values indicated on he value in HELP-034. lacement, first initialize the HELP djustment values indicated on the m the value in HELP-034. ode and the machine serial number ge 1, HELP contents cannot be D is permitted, a master USB FLASH ed is required after initializing HELP. ASH DRIVE for option permitted, store g information in other USB FLASH effore initializing HELP.	HELP-027 INITIALIZE INITIALIZE T

HELP-028		Image Memory Check  • Image Memory Check.	
1.	Call the HELP mode " Enter "028" by the NUME key. Memory check starts	<b>H-028".</b> RIC keys and then press the <b>PRINT</b>	HELP-028 PLEASE WAIT
2.	Check Image Memory "OK" is displayed if the ch defective.	heck result is normal, and " <b>NG</b> " if	IMAGE MEMORY CHECK OK
3.	Return to the HELP m Press the STOP key. The reappear. → To exit the HELP mode → To access another HELP m	ode. HELP mode selection display will : Turn the power switch OFF. node : Enter the desired mode number using the numeric keys.	

## HELP-029 unused





		(2) Vartical Deviation	
	ELP-030 ST PATTERN EST PATTERN 1 EST PATTERN 2 EST PATTERN 3 EST PATTERN 4 EST PATTERN 5 EST PATTERN 6 EST PATTERN 7	<ul> <li>Vertical Registration Adjustment</li> </ul>	Adjustment it.
•	Operation procedure		
1.	Call the HELP mode "I Enter "030" by the NUME key. The test pattern selec	<b>H-030".</b> <b>RIC</b> keys and then press the <b>PRINT</b> ction display appears.	HELP-030 TEST PATTERN TEST PATTERN 1 TEST PATTERN 2 TEST PATTERN 3 TEST PATTERN 4 TEST PATTERN 5 TEST PATTERN 6 TEST PATTERN 7
2.	Select test pattern. 1. Select and touch the HELP automatically exit making master.	test pattern to be printed s and the standby screen for	HELP-030 TEST PATTERN TEST PATTERN 1 TEST PATTERN 2 TEST PATTERN 3 TEST PATTERN 4 TEST PATTERN 5 TEST PATTERN 6 TEST PATTERN 7
3.	<ul> <li>Adjust Vertical registration</li> <li>1. Set the image mode to vertical registration by th</li> <li>2. Set the image mode to registration by the PRIN</li> <li>3. Press the  ¥ key and the store adjustment.</li> <li>The print position adjustration</li> </ul>	ation. SCREEN COARSE to adjust he PRINT POSITION keys. SCREEN FINE to adjust vertical T POSITION keys. e C (clear) key at the same time to ment value is displayed at the ume.	Print position adjustment value

HELP-031 unused

	HELP-032         INFORMATION DOWNLOAD         HELP CONTENT LIST         STANDARD EEPROM         MAIN PCB BUILT-IN MEMORY (FRAM)         KEYCARD EEPROM         USER ID MANAGER EEPROM         AUTO PAPER EJECTION TRAY EEPROM		
1	Call the HELP mode "H-032".		
	Enter " <b>032</b> " by the <b>NUMERIC</b> keys and then press the <b>PRINT</b> key.	HELP-032 INFORMATION DOWNLOAD (HELP CONTENT LIST STANDARD EEPROM (MAIN PCB BUILT-IN MEMORY (FRAM)) (KEYCARD EEPROM (USER ID MANAGER EEPROM (AUTO PAPER EJECTION TRAY EEPROM	
2.	Select and touch the item. Select and touch the item to be downloaded. (Right figure : the case you choose "STANDARD EEPROM" for example.)	HELP-032 INFORMATION DOWNLOAD (HELP CONTENT LIST STANDARD EEPROM (MAIN PCB BUILT-IN MEMORY (FRAM)) (KEYCARD EEPROM USER ID MANAGER EEPROM (AUTO PAPER EJECTION TRAY EEPROM	
3.	Download.         Select and touch the item which you download from "USB interface" or "USB flash drive".         • The file will be created in the folder under A: Duplo serial Number.         Information Data       files         HELP content list       "HELP "+"Serial No."         Standard EEPROM       "EEPROM "+"Serial No."         Main PCB built-in memory (FRAM)       "FRAM "+"Serial No."         • Serial number, Model name, Destination code, Machine code, Resolution, and Main PCB version are included in each data.         • Only HELP content list is in CSV format. Others are in BINARY DATA format.         • Informations of HELP setting and User setting can be analyzed from the downloaded data.         IMPORTANT:         • Do not turn the power OFF while downloading.	HELP-032 INFORMATION DOWNLOAD STANDARD EEPROM USB INTERFACE USB FLASH DRIVE	

HELP-033 unused

H	HELP Label Listed Items (4 pages in total)	
	1       001       H-003       1       006       •	
• (	Operation procedure	
1.	Call the HELP mode "H-034". Enter "034" by the NUMERIC keys and then press the PRINT key.           Image: height of the h	ED ITEMS
2.	Display the adjustment/setting values of each HELP.	
	<ul> <li>Page 3 HELP-011-1 A=0:ADF unit disabled; HELP-043 and HELP-045 are not displayed.</li> <li>HELP-033 and HELP-045 are not displayed.</li> </ul>	ED ITEMS 6 3 5 4 4 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7
	Touch: to Page 2-	4 ♥
3.	<b>Return to the HELP mode.</b> Press the <b>STOP</b> key. The HELP mode selection display will reappear.	
	<ul> <li>→ To exit the HELP mode : Turn the power switch OFF.</li> <li>→ To access another HELP mode : Enter the desired mode number using the numeric keys.</li> </ul>	

HELP-035 to HELP-038: unused



HELP-040 to HELP-041: unused

















HII MAX 1. M-N 2. M-M 3.	ELP-046         STER CLAMP MARGIN(mm)         +0.0         AKE SPEED MAGNIFICATION(%)         -0.5         AKE FEED VOLUME MAGNIFICATION(%)         +0.3
•	Operation procedure
1.	Call the HELP mode "H-046". Enter "046" by the NUMERIC keys and then press the PRINT key. HELP-046 MASTER CLAMP MARGIN(mm) 1. +0.0 M-MAKE SPEED MAGNIFICATION(%) 20.5 M-MAKE FEED VOLUME MAGNIFICATION(%) 3. +0.3
2.	<ul> <li>Adjust the master feed.</li> <li>Adjust the master clamp margin</li> <li>Adjust and houch the item to be adjusted.</li> <li>Mater clamp margin</li> <li>Make adjustment so that the master edge is seen from the check hole of the master clamp. The master clamp margin becomes shorter by "-" and longer by "+".</li> <li>M-Make speed magnification</li> <li>Adjust so that the vertical length of the two 100 mm squares made up in the HELP-30 test pattern is 20040.5 mm.</li> <li>M-Make feed volume magnification</li> <li>Press the MASTER MAKING key to feed the master make horizontal feed volume magnification so that the cust usater length is 20040.5 mm.</li> <li>Inter the value by the NUMERIC keys or change the value by the PRINT POSITION  keys.</li> <li>Press the HOME key to invert "+"and "-"of the selected set value.</li> <li>Press the C (clear) key to return the selected set set value to the value before change.</li> <li>Press the Z (clear) key to return the selected set value.</li> <li>Press the Z (clear) key to return the selected set value.</li> </ul>
3.	Return to the HELP mode.         Press the STOP key. The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode       : Enter the desired mode number using the numeric keys.



		Online Master Making	Adjustment
ня м-м 1. м-м 2.	<b>ELP-047</b> AKE HORIZONTAL START POS. (mm): ONLINE <b>+0.0</b> AKE VERTICAL START POS. (mm): ONLINE <b>+0.0</b>	Adjustment.     M-MAKE HORIZONTAL STAR     M-MAKE VERTICAL START F	Adjustment T POS. : ONLINE POS. : ONLINE
•	Operation procedure		
1.	Call the HELP mode "	H-047".	
	Enter " <b>047</b> " by the <b>NUM</b> <b>PRINT</b> key.	ERIC keys and then press the	M-MAKE HORIZONTAL START POS. (mm): ONLINE 1. +0.0 M-MAKE VERTICAL START POS. (mm): ONLINE 2. +0.0
2.	Adjust the online mas	ster making.	
	<ul> <li>Adjustment</li> <li>1. Select and touch the it</li> <li>2. Enter the value by the value by the PRINT POSI</li> <li>Press the HOME ke selected set value.</li> <li>Press the C (clear) k value to the value bef</li> <li>3. Press the <u>X</u> key to sto</li> </ul>	em to be adjusted. <b>NUMERIC</b> keys or change the <b>TION</b> $\bigcirc$ keys. By to invert "+"and "-"of the key to return the selected set ore change. re the set value.	HELP-047 M-MAKE HORIZONTAL START POS. (mm): ONLINE 1. +0.0 M-MAKE VERTICAL START POS. (mm): ONLINE 2. +0.0
3.	Return to the HELP m	ode.	
	Press the <b>STOP</b> key. The HELP mode selectio $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP r	n display will reappear. : Turn the power switch OFF. node : Enter the desired mode number using the numeric keys.	



3. Press the  $\underline{A}$  key to store the set value.

• The resistance rank to be entered in the thermal head is printed.

## Resistance rank

2.

No.	Item	Value
1	Thermal head resistance rank	0-15
2	Thermal head resistance rank offset	-7 - +7 (Normally unchanged)
3	Thermal head control	1 (Normally unchanged)

## **3.** Return to the HELP mode.

Press the **STOP** key. The HELP mode selection display will reappear.

→ To exit the HELP mode
 → To access another HELP mode
 : Enter the desired mode number using the numeric keys.

HELP-049 and HELP-050 unused

HELP-052 Sett		Setting (Service Call Co	ontact Entry)
		• Entering the service call numbers Set HELP - 060 : 4 - H=1, "The for emergencies." to enter the	per for emergencies. e service call number is displayed call number.
•	Operation procedure		
1.	Call the HELP mode " Enter "052" by the NUM PRINT key. Touch the line to be chang	<b>H-052".</b> ERIC keys and then press the ged to select it.	SERVICE CALL CONTACT ENTRY
2.	Enter the service call To enter the phone number 1. Enter the character. Every time the character is en Overwrite the last character. You can enter the number even Switch: To select the character of Comments: To select the character of Comments: To delete the character of Comments: To move cursor to the left To move cursor to the left To move cursor to the left To move cursor to the rise of the name is not enter 2. Press the C (clear) key If the name is not enter 2. Press the ▲ key or Comments Value.	number for emergencies. er:( 24 characters.) thered, the cursor moves to the right. en if not entering character. ist. In the cursor and to narrow the space. er two seconds to delete all the characters off. ght . by to return the default name. ered, the default name is entered. $\overrightarrow{DK}$ on the screen to store the set	SERVICE CALL CONTACT ENTRY
Step	<b>Step4.</b> $\rightarrow$ Press the <b>STOP</b> key. The HELP mode selection display will reappear.		

HELP-053 unused

н	ELP-054	(1)Time Setting (2 pages in total)
1. 2.	А В С D 1 0 0 0 0 0 0 0	<ul> <li>Page 1:</li> <li>Setting (Date-time display rule setting) When the USB flash drive option is enabled, date and time (clock) are enabled.</li> </ul>
	Ŧ	When the main PCB unit or the battery on the main PCB unit is replaced, time (clock) is required to set again.
•	Operation procedure	
1.	Call the HELP mode "	H-054".
	Enter " <b>054</b> " by the <b>NUM</b> <b>PRINT</b> key.	<b>ERIC</b> keys and then press the <b>A B C D</b> 1. 1000 2. 0000
2.	Set the date-time disp Setting 1. Select and touch t 2. Use the "0" and "1	b <b>lay rules.</b> he item to be set. " numeric keys to enter a 4-place
	binary value for the $3$ Press the $X$ key t	e desired correction value. https://www.enditientediatestication.com/documents/action/actio
	When pressing the	▲ key at Page 1 to store the set
	value,the date and time Setting functi	e at Page 2 is not updated.
	Item Value 0  A 1	Setting Date and time (clock) disabled Date and time (clock) enabled Default)
	1 BCD 000 001 010 011 100 101 101	YYYY/MM/DD       YYY-MM-DD       Date display       MM/DD/YYYY       YYYY: Year       MM-DD-YYYY       MM: Month       DD/MM/YYYY       DD: Day       DD-MM-YYYY
	<u>2</u> A-D 0 [ ●Example: For " <b>Date</b> " <b>YYYY/MM/DD</b> ", ent	er 1000 by the NUMERIC keys.
3.	Return to the HELP m	iode.
	Press the STOP key. The $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP i	<ul> <li>HELP mode selection display will reappear.</li> <li>: Turn the power switch OFF.</li> <li>mode : Enter the desired mode number using the numeric keys.</li> </ul>


HI 1. 2. 4.	ELI A B D 1 ( D 1 <sup>-</sup> D 6 D 6	<b>D_(</b> c [ 0 0 1 0 rati	055 A 5.0	BCD 6	(1) Buzzer Setting (5 pages in total) Page 1: • Setting Buzzer ON/OFF Buzzer volume adjustment (HELP-055-9 A=0 : 3 steps (STANDARD, ERROR, OFF)					
	Operation procedure									
1.		Ent PR	tne H er "05 INT ke	<b>IELP n</b> <b>5</b> " by th y.	HELP-055". HELP-055 A B C D A B C D 1.0100 5.06 2.0110 3.06 4.06					
		Set 1. § 2. l b 3. F	ting Select Jse the inary v Press t	and touc e "0"and value for he <u>¥</u> ke <b>ing func</b>	ch the item to be set. "1" NUMERIC keys to enter a 4-place the desired correction value. y to store the set value. tion HELP-055 A B C D A B C D 1.0100 5.06 2.0110 3.06					
			tem	Value	Setting					
			A B	0 1 0	Operation buzzer : OFF Operation buzzer : ON (Default) Completion buzzer : OFF (Default) Touch:					
		1		1	Error buzzer : OFF					
			D	1 0	Error buzzer : ON (Default)					
			A	0	- - -					
			В	0	-					
			с	0	(Error) Message remain warning buzzer is en- abled only when error message is displayed and LED (red) light blinks.					
		2		1	(Error) Message remain warning buzzer is en- abled when LED (red) light blinks.					
			D	0	(Supplying consumable) Message remain warn- ing buzzer is enabled when supplying message is displayed and LED (orange) light blinks.					
				1	(Supplying consumable) Message remain warn- ing buzzer is enabled when LED (orange) light blinks.					



H	ELP-055       (2) Buzzer Setting (5 pages         OPERATION BUZZER TEST       Page 3:         • Operation check OPERATION BUZZE TEST (HEL         • Operation procedure	- in total) P-055-1 A=1)
1.	Call the HELP mode "H-055". Enter "055" by the NUMERIC keys and then press the PRINT key.	HELP-055 A B C D A B C D 1.0100 5.06
2.	Change the screen. Touch the arrow on the screen lower right twice to switch to Page 3.	2. 0 1 1 0 3. 0 6 4. 0 6 <b>Touch</b>
3.	<ul> <li>Check buzzer tone. (Screen: page 3)</li> <li>Buzzer Test (HELP-055-9 A=0)</li> <li>Press the following NUMERIC keys. The corresponding tone sounds.</li> <li>Press the "1" key: "entry confirmation" tone sounds.</li> <li>Press the "2" key: "base" tone sounds.</li> <li>Press the "3" key: "normal end" tone sounds.</li> <li>Press the "4" key: "ready" tone sounds.</li> <li>Press the "5" key: "disable" tone sounds.</li> <li>Press the "6" key: Soft warning tone 1 sounds.</li> <li>Press the "8" key: Loud warning tone sounds.</li> </ul>	HELP-055 OPERATION BUZZER TEST
4.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode       : Enter the desired mode number using the numeric keys.	

HI	ELP-055 COMPLETION BUZZER TEST	<ul> <li>(3) Buzzer Setting (5 pages</li> <li>Page 4:         <ul> <li>Operation check</li> <li>COMPLETION BUZZER TEST (H</li> </ul> </li> </ul>	in total) IELP-055-1 B=1)
•	Operation procedure Call the HELP mode "H Enter "055" by the NUME PRINT key.	<b>1-055".</b> ERIC keys and then press the	HELP-055 A B C D A B C D 1.0100 506
2.	Change the screen. Touch the arrow on the so to Page 4.	reen lower right three times to switch	2. 0110 3. 06 Touch 4. 06 ↓
3.	Check buzzer tone. (Sci Completion Buzzer Tone T Press the following NUMEF The corresponding tone so Press the "1" key: "entry cor Press the "2" key: "base" ca Press the "2" key: "base" ca Press the "3" key: "normal Press the "3" key: "ready" c Press the "4" key: "ready" c Press the "5" key: "disable Press the "6" key: Soft warn Press the "7" key: Soft warn Press the "8" key: Loud wa	reen: page 4) Test RIC keys. unds. infirmation" completion tone sounds. completion tone sounds. end" completion tone sounds. completion tone sounds. " completion tone sounds. hing completion tone 1 sounds. hing completion tone 2 sounds. rning completion tone sounds.	HELP-055 COMPLETION BUZZER TEST
4.	Return to the HELP mode Press the STOP key. The HELP mode selection $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP m	ode. display will reappear. : Turn the power switch OFF. ode : Enter the desired mode number using the numeric keys.	

HI	ERROR BUZZER TEST       (4) Buzzer Setting (5 pages         Page 5:       • Operation check         ERROR BUZZER TEST       • Operation check	in total) 55-1 C=1)
1.	Operation procedure Call the HELP mode "H-055". Enter "055" by the NUMERIC keys and then press the PRINT key.	HELP-055
2.	Change the screen. Touch the arrow on the screen lower right four times to switch to Page 5.	2. 0 1 1 0 3. 0 6 4. 0 6 ↓
3.	<ul> <li>Check buzzer tone. (Screen : Page 5)</li> <li>Error Buzzer Test</li> <li>Press the following NUMERIC keys. The corresponding tone sounds.</li> <li>Press the "1" key: "entry confirmation" error tone sounds.</li> <li>Press the "2" key: "base" error tone sounds.</li> <li>Press the "3" key: "normal end" error tone sounds.</li> <li>Press the "4" key: "ready" error tone sounds.</li> <li>Press the "5" key: "disable" error tone sounds.</li> <li>Press the "6" key: Soft warning error tone 1 sounds.</li> <li>Press the "7" key: Soft warning error tone sounds.</li> <li>Press the "8" key: Loud warning error tone sounds.</li> </ul>	HELP-055 ERROR BUZZER TEST
4.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode       : Enter the desired mode number using the numeric keys.	

H	ELP-	056		Language Setting					
	АВС	D		Setting (Language setting)					
1.	000	0							
•	Operation procedure								
1.	Call	the HEL	<sup>o</sup> mode	"H-056".					
	Ent <b>PR</b>	ter " <b>056</b> " bj INT key.	y the <b>NU</b>	MERIC keys and then press the	A B C D 1. 0000				
2.	Setti	ng (Lang	juage s	etting)					
	Set	ting							
	1. l	Jse the "0"	and "1" n	umeric keys to enter a 4-place					
	ט ז כ	Pross the $X$	key to st	sore the set values	HELP-056				
	2.1				ABCD				
		Item	Value	Language –					
			0000	Korean: Hangul	÷				
			0010	Chinese1:Simplified					
			0011	Chinese1:Simplified					
			0100	English					
			0101	Spanish					
			0110	German					
			0110	Cerman					
			0110	French					
			0110	French Italian					
			0110 0111 1000 1001	French Italian Russian					
			0111 1000 1001 1010	French Italian Russian Chinese 2:Traditional					
			0110 0111 1000 1001 1010 1100	French Italian Russian Chinese 2:Traditional Thai Polich					
			0110 0111 1000 1001 1010 1100 1101	French Italian Russian Chinese 2:Traditional Thai Polish					
			0110 0111 1000 1001 1010 1100 1101	French Italian Russian Chinese 2:Traditional Thai Polish					
3	Retu	Irn to the	0110 0111 1000 1001 1010 1100 1101	French Italian Russian Chinese 2:Traditional Thai Polish					
3.	Retu	Irn to the	0110 0111 1000 1001 1010 1100 1101	French Italian Russian Chinese 2:Traditional Thai Polish					
3.	<b>Retu</b> Pre The	Irn to the ess the STC e HELP mo	0110 0111 1000 1001 1010 1100 1101 HELP DP key. de select	French Italian Russian Chinese 2:Traditional Thai Polish mode.					
3.	Retu Pre The	Irn to the ess the STC HELP mo	0110 0111 1000 1001 1010 1100 1101 HELP DP key. de select	French Italian Russian Chinese 2:Traditional Thai Polish mode. on display will reappear.					
3.	Retu Pre The	Irn to the ess the STC HELP mo	0111 1000 1001 1010 1100 1100 1101 0P key. de selecti ELP mode other HEL	French Italian Russian Chinese 2:Traditional Thai Polish mode. on display will reappear. : Turn the power switch OFF. mode : Enter the desired mode number					
3.	Retu Pre The	Irn to the ess the STC e HELP mo To exit the HI To access an	0111 1000 1001 1010 1100 1101 0P key. de selecti ELP mode other HELI	French Italian Russian Chinese 2:Traditional Thai Polish mode. on display will reappear. : Turn the power switch OFF. ' mode : Enter the desired mode number using the numeric keys.					

					HELP-057 to HELP-059 unused
			_		
H	ELP-0	60		Function Setting (2	2 pages in total)
1. 2. [ 3. [ 4. [	A B C D 1 1 1 1 0 1 0 1 1 1 1 1 1 1 1 0	E F 1 0 1 1 1 1 1 1	G H 0 0 1 1 1 1 0 0	Page 1:Function setting Custom scaling, Minor reduction, Custom Preset magnification, Image mode (photo Print darkness, Vertical registration adjus Multiple exposure, Book shadow eraser, 9 2 in1, Top speed (6 steps), Confidential darkness detection, Drum size, Initial conf Page 2:Function setting	n scaling range, dark), Master darkness, Scan darkness /Master darkness / tment range, Horizontal registration adjustment range, 90-degree rotation, Preview, Edit image, Document memory, Scanner I safeguard, Confidential safeguard with master ejection, Document iguration, Optimize print, Interval print, Contact phone number display.
•	Operatio	on p	roced	ure	
1.	Call t	he	HELF	<sup>o</sup> mode "H-060".	
	Ente PRIN	er" <b>0</b> NT k	60" b <u>y</u> ey.	the <b>NUMERIC</b> keys and then press	the <b>HELP-U6U</b> A B C D E F G H 1.11111000 2.01011111 3.11111111 4.11101100
2.	Funct	tion	Set	ing (Display: page 1)	
	Setti 1. Se 2. Us the 3. Pr	ing elect se th e des ress	t and t ne "0" sired c the <i>≚</i>	buch the item to be set. and "1" numeric keys to enter binary val prrection value. key to store the set value.	HELP-060 A B C D E F G H 1. 11111000 ← 2. 010111 Touch and Enter 3. 11111111
		- 5	Setting	function	4 1 1 1 0 1 1 0 0
	It	em	Value	Setting	
	1	A B C D E F G H	0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	AUTO ZOOM disabled Custom scaling disabled Custom scaling enabled (Default) Minor reduction disabled Minor reduction enabled (Default) Custom scaling range: 50%-300% Custom scaling range: 50%-500% (Default) Auto zoom in multiple exposure disabled Auto zoom in multiple exposure enabled (D Preset magnification: 150% not included (Default) Preset magnification: 150% not included (Default) Preset magnification: 130% not included (Default) Preset magnification: 130% not included Preset magnification: 50% (AB size)/60% (inch size included (Default) Preset magnification: 50% (AB size)/60% (inch size included	efault) e) not e)

Ite	em	Value	Setting	HELP-060
	^	0	Image mode (photodark) disabled (Default)	
	A	1	Image mode (photodark) enabled	ABCDEFGH
	D	0	Master darkness disabled	<sup>1</sup> <b>1 1 1 1 1 0</b> Touch and Enter
	D	1	Master darkness enabled (Default)	
	6	0	Scan darkness /Master darkness /Print darkness: 5 steps (Default)	
		1	Scan darkness /Master darkness /Print darkness: 11 steps	3. <b>1 1 1 1 1 1 1 1</b>
	Р	0	Vertical registration adjustment range: ±10 mm	4 1 1 1 0 1 1 0 0
2		1	Vertical registration adjustment range: ±15 mm (Default)	
2		0	Horizontal registration adjustment range: ±5 mm*	I
		1	Horizontal registration adjustment range: ±10 mm (Default)*	
	F G	0	Multiple exposure disabled	
		1	Multiple exposure enabled (Default)	
		0	Multiple exposure 16 disabled	
		1	Multiple exposure 16 enabled (Default)	
	н	0	Multiple exposure custom disabled	
		1	Multiple exposure custom enabled (Default)	
*Hor	rizonta	al registration	on adjustment : DD5450/DD5440 not available.	
lte	em	Value	Setting	
	Δ	0	Bookshadow erasure disabled	
		1	Bookshadow erasure enabled (Default)	ABCDEFGH
	R	0	90-degree rotation disabled	1 1 1 1 1 1 0 0 0
		1	90-degree rotation enabled (Default)	
	C	0	Preview functions disabled	<sup>2</sup> . <b>0 1 0 1 1 1</b> [Touch and Enter
		1	Preview functions enabled (Default)	
	П	0	Edit image disabled	
3		1	Edit image enabled (Default)	$\begin{array}{c} 4 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 0 \\ 1 \\ 0 \\ 1 \\ 0 \\ 0$
	F	0	Document memory disabled	
		1	Document memory enabled (Default)	
	F	0	Scanner 2 in1 disabled	
	'	1	Scanner 2 in1 enabled (Default)	
	G	0	Narrow paper (Specific paper) function disabled	
	н	0	Top speed (6 steps) function setting disabled	
		1	Top speed (6 steps) function setting enabled (Default)	

lte	em	Value	Setting
	^	0	Confidential safeguard disabled
	A	1	Confidential safeguard enabled (Default)
	Б	0	Confidential safeguard with master ejection disabled
	D	1	Confidential safeguard with master ejection enabled (Default)
	6	0	Document darkness detection disabled
		1	Document darkness detection enabled (Default)
	D	0	-
		1	-
4	E	0	Initial configuration : default setting only
		1	Initial configuration : both default settings and memory function (Default)
	Г	0	Optimize print disabled
	Г	1	Optimize print enabled (Default)
		0	-
	G	1	-
		0	Not display the phone No. when needs service call (Default)
	П	1	Displays the phone No. when needs service call

HE	LP-060
A	BCDEFGH
1. 1	1111000
2. 0	1011111
3. 1	1 1 1 1 1 Touch and Enter
• 4. 1	1101100 🗲

#### **3.** Function Setting (Display: page 2)

Touch the arrow on the screen lower right in step 2 to switch to Page 2.

#### Setting

- 1. Select and touch the item to be set.
- 2. Use the "0" and "1" numeric keys to enter binary value for the desired correction value.
- 3. Press the  $\underline{X}$  key to store the set value.

#### ► Setting function

		0					
	ltem	Value	Setting				
		000	Paper type : standard, heavy weight (Default)				
	ABC	001	Paper type : standard, heavy weight, light weight				
		0	Image position on master Disabled (Default)				
	D	1	Image position on master enabled				
	E	0	Top fan setting disabled (Default)*				
5		1	Top fan setting enabled*				
5	-	0	Paper feed amount setting disabled (Default)				
	Г	1	Paper feed amount setting enabled				
	C	0	Calculator disabled (Default)				
	G	1	Calculator enabled				
	ы	0	Language setting disabled				
		1	Language setting enabled (Default)				



\*Top fan setting : If the top fans on both sides or either one are/is OFF, separation performance may deteriorates.

	ltem	Value	Setting						
	Λ	0	Shortcut setting disabled						
	A	1	Shortcut setting enabled (Default)						
	Б	0	Document misreplacement detection disabled						
	D	1	Document misreplacement detection enabled( Default)						
	C	0	Ink saving mode disabled						
		1	nk saving mode enabled (Default)						
	П	0	-						
~		1	-						
0	E	0	-						
		1	-						
	E	0	Print position adjustment while printing disabled*						
		1	Print position adjustment while printing enabled* (Default)						
		0	Interval print setting disabled						
	G	1	Interval print setting enabled (sheet, Batch) (Default)						
	Ц	0	Proof print setting disabled(Default)						
		1	Proof print setting enabled						

	HELP-060										
l		Α	В	С	D	Е	F	G	н		
l	5.	0	0	0	0	0	0	Τοι	uch	and	Enter
	• 6.	1	1	1	1	1	1	1	0	+	•
	7.	0	1	1	0	0	0	0	0		
	8.	0	0	0	0	0	0	0	0		1
I											

БСЦ
000
1 Touch and Enter
000
100



lt	em	Value	Setting	HELP-061
		00	First print : printing speed (speed 3 or less)	
		01	First print : JOG speed	ABCDEFGH
	AD	10	First print : speed 0 (low print speed)	<sup>1.</sup> 0 1 1 1 1 0 Touch and Enter
		11	First print : speed 1 (Default)	
		00	Second print : printing speed (speed 3 or less) (Default)	
	CD	01	Second print : JOG speed	3. <b>1 1 1 1 1 1 1 1</b>
		10	Second print : speed 0 (low print speed)	4.1.1.1.1.1.1
		11	Second print : speed 1	
2	Е	0	The print which is printed by TEST PRINT and by "0 print master- Making" will not be counted for the total amount. (When using Key card/User ID manager, these will not be counted as well.)	
		1	The print which is printed by TEST PRINT and by "0 print master- Making" will be counted for the total amount. (When using Key card/User ID manager, these will be counted as well.) (Default)	
	E	0	After no master making ,one sheet is not printed.	Sotting when the print volume is 0
	Г	1	After no master making ,one sheet is printed. (Default)	
		0	-	
	9	1	-	
	Ц	0	Drum master sensor disabled	
		1	Drum master sensor enabled (Default)	

	^	0	Paper top detect sensor disabled
	А	1	Paper top detect sensor enabled (Default)
	Б	0	Signal sensor disabled
	D	1	Signal sensor enabled (Default)
	С	0	Double feed sensor disabled
_	D	0	Heavy weight paper lever sensor disabled
ა	E	0	Paper eject jam sensor disabled*
		1	Paper eject jam sensor enabled (Default)*
	г	0	Master eject jam sensor disabled
	Г	1	Master eject jam sensor enabled (Default)
	G	0	Paper length sensor disabled
	Η	0	Document size sensor disabled

Η	E	L	P	-(	)6	51				
	A	в	С	D	Е	F	G	Н		
1.	0	1	1	1	1	0	1	0		
2.	1	1	0	0	1	1	То	uch	and	Enter
• 3.	1	1	1	1	1	1	1	1	+	
4.	1	1	1	1	1	1	1	1		
										+

\*Paper eject jam sensor : To detect paper jam at the ejection side

Item		Value	Value
	^	0	Front cover sensor disabled
	A	1	Front cover sensor enabled (Default)
	D	0	Scanner open/close switch disabled
	D	1	Scanner open/close switch enabled (Default)
	0	0	Scanner disabled
	C	1	Scanner enabled (Default)
4	Г	0	Ink roller up/down motor operation disabled
4	U	1	Ink roller up/down motor operation enabled (Default)
		0	Press motor operation disabled
		1	Press motor operation enabled (Default)
	Г	0	Vertical reg. motor operation disabled
	Г	1	Vertical reg. motor operation enabled (Default)
	G	0	Horizontal reg. motor operation disabled
	Η	0	Paper feed ring lift solenoid disabled

HE	L	P	-(	)6	51			_			
A	в	С	D	Е	F	G	н				
1. 0	1	1	1	1	0	1	0				
2. 1	1	0	0	1	1	1	1				
3. 1	1	1	1	1	1	Το	uch	and	Er	nter	
• 4. 1	1	1	1	1	1	1	1				_
										<u> </u>	

#### Function Setting (Display: page 2) 3. **HELP-061** Touch the **arrow** on the screen lower right once to switch to Page 2. Settina ABCDEFGH 1. Select and touch the item to be set. 101111010 2. Use the "0" and "1" numeric keys to enter binary value for the 2.110 desired correction value. Touch: 3. Press the $\underline{X}$ store the set values. <sup>3</sup> **1 1 1** to page 2 Setting function 4 11111111 Item Value Setting μT 90-degree rotation (reduced): simple reduction 00 (The image is likely to become white in whole.) **HELP-061** 90-degree rotation (reduced): logical add reduction AB 01 (The image is likely to become black in whole.) ABCDEFGH 10 90-degree rotation (reduced): logical add. average reduction (Default) •5.10100001 🗲 00 Preview simple reduction (The image is likely to become white in whole.) Preview logical add reduction (The image is likely to become black in whole.) CD 01 6. 0 1 1 0 0 0 Touch and Enter 5 10 Preview logical add reduction (Default) 7. 1 1 0 0 0 0 0 0 0 Light paper double feed detection: standard heavy paper (Default) Е Light paper double feed detection: Chinese light paper 1 **†** <sup>8.</sup> 1 1 0 0 0 0 0 0 F Factory setting (Do not change) Paper feed adjustment (HELP-039)disabled(Default) 0 G Paper feed adjustment(HELP-039)enabled 1 Factory setting (Do not change) Н **HELP-061** Value Setting Item ABCDEFGH Test printing is not performed continuously even 0 if the TEST PRINT key is held down. 5. 1 0 1 0 0 0 Touch and Enter Α Test printing is performed continuously while the 1 • 🖬 0 1 1 0 0 0 0 0 🖛 TEST PRINT key is held down. (Default) 0 Paper overlap detection disabled 7. 11000000 В Paper overlap detection enabled (Default) 1 ↑ 6 Only when HELP-061-3 D=1 (Paper feed detection ON) <sup>8.</sup> 1 1 0 0 0 0 0 0 0 С 1 0 Confirming paper size setting disabled (Default) D 1 Confirming paper size setting enabled **HELP-061** E-H ABCDEFGH Value Setting Item <sup>5.</sup> 1010001 Vertical reg. limit sensor disabled 0 6. 0 1 1 0 0 0 Touch and Enter А 7 Vertical reg. limit sensor enabled (Default) 1 •7 1 1 0 0 0 0 0 0 🗲 B-H ( **†** 8.11000000 **HELP-061** Value Setting Item 0 Print tray fan disabled ABCDEFGH Α 1 Print tray fan enabled (Default) <sup>5.</sup> **1010001** 0 Top fan separate control disabled 8 6. **0 1 1 0 0 0 0 0** В Top fan separate control enabled 1 (HELP-060-5 E) 7. 1 1 0 0 0 0 Touch and Enter C-H Ť •8. 1 1 0 0 0 0 0 0 🖛 **Step4.** $\rightarrow$ Press the **STOP** key. The HELP mode selection display will reappear.

HE 1. 2.	HELP-062 A B C D E F G H 1.0000000 2.00000000				Function Setting <ul> <li>Function setting</li> <li>Paper size: AB system (Defa</li> <li>A Model name change screet</li> <li>B Temperature display: Cels</li> </ul>	ult)/ Inch system n: Alphabet (Default)/ Keyboard ius (C) (Default)/ Fahrenheit (F)		
•	Opera	tion	proc	cedure	)			
1.	1.       Call the HELP mode "H-062".         Enter "062" by the NUMERIC keys and then press the PRINT key.         HELP-062         A B C D E F G H         1.0000000         2.0000000							
2.	Fur S 1. 2. 3.	ettin . Seli . Use desi . Pre	on S ect ar e the " red cc ss the Sett em A B C D E F-H A B	etting and touc 0"and orrectic $e \stackrel{X}{=} ke$ ing fu Value 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1	the the item to be set. The item to be set values. The item to set values. The item to set values. The item to be set values. The item t	HELP-062 A B C D E F G H 1.0000000 2.00000000		
3.	Ret P	ress	C-H the S exit the	he HI TOP k HELP	ELP mode. ey. The HELP mode selection display will rea mode : Turn the power switch OFF. er HELP mode : Enter the desired mode number	appear.		

HELP-063-HELP-065 unused





HELP-067					Ink Setting				
1.   2.	авс 20 000	D			• Ink Setting				
•	Opera	tio	n proc	edure					
1.	Call the HELP mode "H-067".								
	EI Pl	ntei RIN	" <b>067</b> ' T key.	by the <b>NUN</b>	IERIC keys and then press the 1.20 2.0000				
2.	Fur S( 1. 2. 3.	etti Se Us des Pro	ION 5 ng elect ar e the " sired se ess the - Sett	etting of touch the if 0"and "1" <b>NUM</b> It value. e ≚ key to sto ing Function	HELP-067 A B C D 1. 20 2. 0000				
		l	tem	Value	Setting				
			1	0-99	Drum revolution to detect no ink (Default:20) (If it is set to 0, no ink error detection will be disabled.)				
				0	Pre-detach position of MASTER :ink replenishment is disabled (Default)				
			A	1	Pre-detach position of MASTER: ink replenishment is enabled (Master making fin- ishes when no ink error is detected.) (Enabled only when Fine start is OFF.)				
		2	в	0	Post-detach position of MASTER: ink replenishment is disabled (Default)				
				1	Post-detach position of MASTER: ink replenishment is enabled (Enabled only when Fine start is OFF.)				
				0	After master making: ink replenishment disabled (Default)				
			С	1	(Printing finishes when no ink error is detected.) (Enabled only when Fine start is OFF.)				
			D		-				
3.	Ret	uri ress • To	n to t s the S exit the	he HELP m TOP key. The HELP mode	node. e HELP mode selection display will reappear. : Turn the power switch OFF. mode : Enter the desired mode number				
	$\rightarrow$ to access another HELP mode : Enter the desired mode number using the numeric keys.								

H	ELP-068	Setting the Margin					
1. 0 2. 0 3. 0 4. 0 5. 0	0     5       0     2       0     2       0     4	• Setting the Margin					
•	Operation procedure						
1.	Call the HELP mode "I	H-068".					
	Enter " <b>068</b> " by the <b>NUME</b> <b>PRINT</b> key.	ERIC keys and then press the	HELP-068 1. 0 5 2. 0 2 3. 0 2 4. 0 4 5. 0 4				
2.	Setting.						
	Setting	m to bo oot	HELP-068				
	2. Use the <b>NUMERIC</b> keys	to enter value for the	1 0 5				
	desired range.		2. <b>0 2</b>				
	3. Press the <u>▲</u> key to store ► Setting function	e the set values.	3. <b>0 2</b>				
	No. Default Range	Content	4. 04				
	1 5mm 2mm-7mm	Lead edge margin(adjusted by 1 mm)	<sup>5.</sup> <b>0 4</b>				
	3 2mm 2mm-7mm	Side margin (horizontal direction) (adjusted					
	4 4mm 4mm 14mm	by 1 mm) Multiple exposure: Margin of Horizontal reading					
		center) (adjusted by 1 mm) Multiple exposure: Margin of vertical reading center)					
	5 411111 411111-1411111	adjusted bý 1 mm)					
	IMPORTANT:						
	If you desire to adjust the	e setting value of;					
	•H-042-3: Scan lead edg	e start position					
	when printing in multiple exposure setting, it is required						
	to reset to the default value of 'H-068-5: Setting margin of multiple exposure (vertical reading center)' at first.						
3.	Return to the HELP me	ode.					
	Press the <b>STOP</b> key. The	HELP mode selection display will rea	ppear.				
	$\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP m	: Turn the power switch OFF. ode : Enter the desired mode number using the numeric keys.					

Н	ELP-069	Master Making Drum Rotation (without paper) Setting				
1. ( 2. ( 3. (		• Setting Mater Making Drum Rotation (without paper)				
•	Operation procedure					
1.	Call the HELP mode "I Enter "069" by the NUMI PRINT key.	H-069". ERIC keys and then press the 1.00 2.00 3.00				
2.	Setting.					
	<ul> <li>Setting</li> <li>1. Select and touch the ite</li> <li>2. Use the NUMERIC keys desired correction value</li> <li>3. Press the ¥ key to stor</li> <li>Setting Function</li> <li>No. Range</li> <li>1 0-99 Rota</li> <li>2 0-99 Rota</li> <li>3 0-99 Rota</li> <li>3 0-99 Rota</li> <li>Orum rotation (withous is OFF.</li> <li>(Disabled other than "FI</li> </ul>	em to be set. to enter value for the to enter values. HELP-069 1.00 2.00 3.00 3.00 1.00 2.00 3.00 1.00 2.00 3.00 3.00 1.00 2.00 3.00 3.00 3.00 4.00 5.00				
3.	<b>Return to the HELP m</b> Press the <b>STOP</b> key. The $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP m	ode. HELP mode selection display will reappear. : Turn the power switch OFF. node : Enter the desired mode number using the numeric keys.				





	Sensors/Switch Checking	1		
	Check the following Sensors a  Status of Sensors /S	and Switches. <b>witches</b>		HELP-0/1 TAPE DISPENSER (INSERT TAPE
	Sensor/Switch	0	1	(TAPE CUT
	Tape Detection Sensor	Photopassing	Photointerrupting	1:TAPE DETECTION SENSOR
	Cover Switch	ON: Close	OFF: Open	1 :COVER SWITCH
	Thermistor (TAP-05/TAP-10)	0-2	55	
				↑
5.	Return to the HELP mode	•_		
	Press the <b>STOP</b> key.			
	The HELP mode selection dis	play will reappe	ar.	
		. Turn the neuron		
	$\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP mode	: Furn the powers	d mode number	
		using the numer	ic keys.	
		-	-	

HELP-072					Interface Setting (3 Pages in total)	
INTERFACE A B C D 1. 1010 2. 0000 3. 0000 4. 0000					Page 1: • Function setting USB Interface enabled/disable FS-100U2 unconnected/connected Page 2: Network Setting Page 3: Quick set-up / Advanced set-up / Initialize	
•	Opera	tio	n proc	cedure		
1.	Cal	l tł	ne HE	LP m	ode "H-072".	
	Call the HELP mode "H-072".         Enter "072" by the NUMERIC keys and then press the PRINT key.         HELP-072         INTERFACE         A B C D         1.1010         2.0000         3.0000         4.0000					
2.	Fur	nct	ion S	etting		
	S	etti	ng			
	1.	Se	elect ar	nd touc	h the item to be set \ A B C D	
	2.	Us	e the "C	)" and "	1"numeric keys to set function "enabled/disable". 1010	
	3.	Pr	ess the	e <b>≚</b> ke	y to store the set value.	
			- Fun	ction s	etting Enabled/ Disable	
			tem	Value	Setting	
			Α	0	USB Interface disabled	
				0	Expanded USB interface disabled (Default)	
		1	В	1	Expanded USB interface enabled (IEEE1284) enabled	
			С	0	Interface preview disabled A B C D	
				1	Interface preview enabled (Default)	
			D		PC) fixed (Default)	
				0	FS-100U2 unconnected (Default)	
			A	1	FS-10002 connection	
					-	
		2		0	Alert message of paper size mismatch (from interface) disabled (Default)	
			D	1	Alert message of paper size mismatch (from interface) enabled. (Set paper size and that of the image received by the interface are not matched.)	



3.	Advanced set-up	HEI P-072
	<ol> <li>Select and touch ENABLE/ DISABLE on DHCP. (You can also select by pressing the TEST PRINT key.)</li> <li>Select and touch ENABLE / DISABLE on RARP. (You can also select by pressing the TEST PRINT key.)</li> <li>Touch the place to enter and then enter the value of IP address with NUMERIC keys.</li> <li>Touch the place to enter and then enter the value of SUB NET MASK with NUMERIC keys.</li> <li>Touch the place to enter and then enter the value of DEFAULT GATEWAY with NUMERIC keys.</li> <li>Touch the place to enter and then enter the value of DEFAULT GATEWAY with NUMERIC keys.</li> </ol>	NETWORK ADVANCED SET-UP DHCP ENABLE IP ADDRESS SUB NET MASK DEFAULT GATEWAY OCO OCO OCO OCO OCO OCO OCO OC
	<ul> <li>Initialize</li> <li>1. Select and touch YES/NO. (You can also select by pressing the≚key.)</li> <li>Touch "YES". FS-100U is initialized. (same as factory setting)</li> </ul>	HELP-072 NETWORK INITIALIZE? YES NO T
4.	Return to the HELP mode.         Press the STOP key. The HELP mode selection display will reap         → To exit the HELP mode       : Turn the power switch OFF.         → To access another HELP mode       : Enter the desired mode number using the numeric keys.	opear.



	3.	Format/operation check (Display: Page 2)					
		Touch the <b>arrow</b> on the screen lower right to switch					
		<ul> <li>Deration checking</li> <li>Select and touch the item to be checked.</li> <li>USB flash drive operation check</li> <li>USB flash drive format</li> <li>USB flash drive format</li> <li>USB interface operation check</li> <li>Connect USB flash drive adapter and USB interface adaptor with a USB cable.</li> <li>Press the MASTER MAKING key and check operation.</li> <li>After operation is completed, check the display.</li> <li>OK : NORMAL</li> </ul>					
• USB host connection status is displayed only for the USB flash drive-enabled main PCB.							
		HUB: X USB: X PRN: X					
	Number of HUBs         Number of USB         Number of USB           mass storages         printers (USB           (Ex. USB flash         interface)						

**4.** Return to the HELP mode. Press the STOP key. The HELP mode selection display will reappear.
→ To exit the HELP mode : Turn the power switch OFF. → To access another HELP mode : Enter the desired mode number using the numeric keys.

drive)



		lt	em	Value	_Settina	
			^	0	Password : OFF*(Default)	HELP-075
			А	1	Password : ON*	PASSWORD SETTING
				0	Confidential password release disabled (Default) (After using User ID manager, auto confidential disabled)	1.000
			В	1	Confidential password release enabled (After using User ID manager, auto confidential en- abled) (Power OFF/After resetting, set confidential ON, and then enter the same ID and password	- <sup>2</sup> . 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
				0	confidential will be OFF.)	L III
				0	User ID manager total information download enabled	
		2	С	1	(Only for Windows) (only when HELP-072-1 A=1:USB interface enabled, HELP-072-2 A=0:FS-100U unconnected)	
				0	User ID manager ON/OFF disabled(Default)	
			D	1	User ID manager ON/OFF enabled	
			F	0	Network setting password: OFF (Default)	
				1	Network setting password: ON	
				0	Disabled when reaches the maximum num-	
					ber of User ID manager masters/prints. (Default)	
			F		Enabled even if reaches the maximum	
				1	will be reset when reaches the maximum.)	HELP-075
					(available V1.07 or later)	PASSWORD SETTING
		*In l	User I	D mana	ger is enabled only when HELP-075-2 D=1 is	1.000
		Ar	ny othe	er passv	vord is enabled regardless of setting HELP-075-2 D.	2. 000000
		lt	em	Value	Setting	
				00	Password manager sort: in numerical order	
					(Default)	
		3	AB	01	Password manager sort: in ID order	
				10	Password manager sort: in date order	Touch:
		└── * Or	nlv wit	11 h HELP.		to page 2
			iny wit			
3.	Initi	iali	ize p	assw	ord/expanded EEPROM (Display :	Page 2)
		UCC	h the	arrow	on the screen lower right in step 2 to switch t	to
		age	. 2.			HELP-075
		Ini	tialize	<del>)</del>		PASSWORD SETTING
		1	Seleo	t and t	ouch the item to be initialized	INITIALIZE PASSWORD
		2.	Pres	s the 🎽	key or MASTER MAKING key.	INITIALIZE EEPROM: USER ID MANAGER
		Pas	sword	initializir	g: All of Password/User ID/ Password (ID and	
					Password in User ID manager) are initialized to	
		EEF	PROM	initializin	g : User ID manager EEPROM is initialized.	USER ID :00000000 1
						PASSWORD :00000000
4.	Ret	uri	n to	the H	ELP mode.	
	PI Tł	ress ne F	s the HFI P	o mode	Key. selection display will reappear	
		→ To → To	exit t acces	he HELF ss anoth	P mode : Turn the power switch OFF. er HELP mode : Enter the desired mode number using the numeric keys.	

<b>HI</b> FEE 1. 2.	ELP-076 ED LONG PAPER A B C D 0 0 0 0 0 0 0 0
•	Operation procedure
1.	Call the HELP mode "H-076". Enter "076" by the NUMERIC keys and then press the PRINT key.
2.	Function Setting (Display : Page 1)
	<ul> <li>Setting</li> <li>1. Select and touch the item to be set.</li> <li>2. Use the "0" and "1"NUMERIC keys to set function to "enabled/ disable".</li> <li>3. Press the ∡ key to store the set values.</li> <li>▶ Function setting Enabled/ Disable</li> <li>1 A 0 Long paper setting disabled (Default)</li> <li>1 A 0 Long paper setting enabled</li> <li>1 A 1 Long paper setting enabled</li> <li>1 B-D -</li> <li>2 A-D -</li> </ul>
3.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode       : Turn the power switch OFF.
	→ To access another HELP mode :Enter the desired mode number using the numeric keys.

HELP-078 unused

HI MIN 1. 2.	ELP-079   IMUM PRINT   A B C D E F G H I J   0 0 0 0 0 0   0 0 0 0   Minimum Print • Setting Minimum Print
•	Operation procedure
1.	Call the HELP mode "H-079". Enter "079" by the NUMERIC keys and then press the PRINT key. HELP-079 MINIMUM PRINT A B C D E F G H I J 1.0000000 2.0000
2.	Function Setting (Display : Page 1) Setting 9. Select and touch the item to be set. 9. Use the NUMERIC keys to enter binary value for the desired correction value. 9. Setting function 1. Determine the set value. 1. Determine the temperature of the set value. 1. O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
3.	Return to the HELP mode.         Press the STOP key.         The HELP mode selection display will reappear.         → To exit the HELP mode : Turn the power switch OFF.         → To access another HELP mode : Enter the desired mode number using the numeric keys.

Sotting function				
OP	ELP-080 TION PERMIT B:USB FLASH DRIVE	Setting Option Permit		
•	Operation procedure			
1.	Call the HELP mode " Enter "080" by the NUM PRINT key.	<b>H-080".</b>	HELP-080 Option Permit NG : USB FLASH DRIVE	
2.	<ul> <li>Check operation.</li> <li>1. Insert a USB flash driv.</li> <li>2. Press the <i>X</i> key or the operates.</li> <li>Once you set the OPTION PERM permit option only for the drive is inserted.</li> <li>(The USB flash drive is dec no. Cannot set the OPTIOI</li> <li>When initializing HELP in USB flash drive dedicate another USB flash drive dedicate setting information will b backup file.</li> <li>Therefore if the option s initializing HELP in HEL OPTION PERMIT using USB flash drive.</li> </ul>	e that enables option permit. <b>MASTER MAKING</b> key. Option permit ON PERMIT in a master USB flash MIT, the master USB flash drive can e machine in which the USB flash licated for the machine with the serial N PERMIT for any other machines.) n HELP-027 in case you have lost the ed for OPTION PERMIT, insert and press the <u>¥</u> key or MASTER the OPTION PERMIT. Then the be saved in the USB flash drive as a etting information is deleted by P-027, you can operate the the backuped data saved in the	HELP-080 Option permit Ng :USB Flash Drive	
3.	Return to the HELP m Press the STOP key. The HELP mode selection $\rightarrow$ To exit the HELP mode $\rightarrow$ To access another HELP mode	n display will reappear. : Turn the power switch OFF. mode : Enter the desired mode number using the numeric keys.		

# Chapter 9

# **Others**

#### **1** Electrical Parts Layout and Their Functions ··· 392

- (1) Switches/Clutches/Solenoids ...... 392
- (2) Sensors 1 ...... 393
- (3) Sensors 2 · · · · · · · · · · · · 394
- (4) Motors/Fans ..... 395
- (5) PCB unit/Others ..... 396
- (6) Connector VR/LED Layout and Functions ··· 397

## **1** Electrical Parts Layout and Their Functions

### (1) Switches/Clutches/Solenoids



Item	No.	Functions
Microswitch/switch	1	Scanner open/closed detection
	2	Master cover open/closed detection
	3	Master ejection box open/closed detection
	4	Elevator lower limit detection
	5	Drum detection (set or not)
Push switch	6	Feed tray descend
	7	Drum removal
	8	Drum rotation
	9	Power ON/OFF
Clutch	10	Master feed clutch
Solenoid	11	Paper feed ring lift solenoid
	12	Paper feed solenoid
	13	Signal solenoid



Item	No.	Functions
	1	Scanner home position is detected.
	2	Document cover position is detected.
	3	ADF home position is detected.
	4	Thermal head press position is detected.
	5	Used master core is detected.
	6	Used master full is detected.
	7	Master clamp opening and closing lever B mode is detected.
	8	Master clamp opening and closing lever C mode is detected.
	11	Heavy weight paper is detected.
	12	Paper feed elevator top limit is detected.
Microsensor	13	Vertical registration center is detected.
	14	Vertical reg. limit sensor
	15	Vertical registration encode is detected.
	16	Main motor encode is detected.
	17	Drum removal position is detected.
	18	Master attach position is detected.
	19	Press roller ON and OFF is detected.
	20	Press center is detected.
	21	Press encode is detected.
	22	Ink roller up and down is detected.
	23	Front cover is detected.

(3) Sensors 2



Item	No.	Functions
Photointerrupter	5	Master top is detected.
	6	Paper is detected. (set or not)
	8	Paper eject jam is detected.
	9	Master eject jam sensor
	10	Paper top is detected.
Photo sensor	11	Signal is detected.
(photo-emitting/photo-receiving)		
PCB sensor	13	Master end mark is detected.
Actuator-sensor	14	Master is detected. (set or not)
		Master eject jam is detected.
## (4) Motors/Fans



Item	No.	Functions	
Motor	1	Scanner stepping motor	
	2	Master feed stepping motor	
	3	Thermal head up/down motor	
	4	Cutter motor	
	5	Master eject stepping motor	
	6	Master clamp motor	
	8	Paper feed tray elevator motor	
	9	Paper feed stepping motor	
	10	Vertical registration motor	
	11	Main motor	
	12	Press motor	
	13	Paper ejection belt motor	
	14	Ink pump motor	
	15	Ink roller up/down motor	
Fan motor	16	Top blow fan	
	17	Paper eject fan	
	18	Paper eject blow fan	

9

# (5) PCB unit/Others



Item	No.	Functions	
CCD PCB unit	1	Reading the picture image.	
Panel LED PCB	2	LED indication.	
Panel PCB	3	Control panel key, display.	
Color LCD panel	4	Liquid crystal display	
Touch panel	5	Control panel key	
Main PCB unit	6	Image memory and controlling the parallel communication	
Drive PCB unit	7	Driving the motor.	
Relay PCB unit	8	To control the 24V power and to supply the thermal head power.	
24V power supply	9	24V supply	
5V power supply	10	5V power (to supply 5V)	
Main motor PCB unit	11	Controlling the main motor.	
USB PCB unit	12	-	
Ink detection PCB unit	13	Detecting Ink amount in the drum.	
Inlet	14	-	
LED Lamp	15	-	
Thermal head	16	Thermal head	
USB expansion PCB unit	17	-	
Battery PCB unit	18	-	

### (6) Connector VR/LED Layout and Functions

- 1. CCD PCB unit
  - •Do not remove the CCD PCB or loosen the screw in the market.



2. LCD Panel (TG038)



#### 3. Panel PCB (W9-V520\*)



4. Panel LED PCB (V3-V520\*)

0	
CN1	 $\bigcirc$
	$\odot$

5. USB Expansion PCB unit (W9-V540\*)

	0
CN1	
	0

#### 6. Main PCB unit : 400 dpi (V3-V505\*)



7. EEPROM PCB unit



#### 8. Main Motor unit



#### 9. Drive PCB unit



#### 10. Relay PCB unit



#### 11. 24 V power supply



### 12.5 V power supply

0 20	0
Kr D	
CN51	CN
0	0

#### **13. ADF PCB UNIT**

