SERVICE MANUAL

Ver.1 *DUPRINTER*

DP-440
DP-430
DP-340
DP-330

Be sure to read this manual carefully, so that you repair and service this machine safely and correctly. Do not begin work until you have thoroughly understood the contents of this manual.
Repairing or servicing the machine with insufficient knowledge about it could lead to unforeseen accidents or falls in the machine's performance or quality.

DUPLO SEIKO CORP.

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.

▣ 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 January 2002, and applies basically to the model DP-440/DP-430/DP-340/DP-330 DUPRINTER.
  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 "⃠" 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").

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.

NOTE: 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

⚠ Safety instructions

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℃－30℃
Ambient humidity:	40%－70%
Optimum temperature and humidity:	20℃, 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 coolers, 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

⚠ Warning

• 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 identification plate 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 optional equipment.

*** 120V AC model**

Power supply voltage	Connect to outlet of 120V AC, 60Hz, at least 15A
With no load* At full load	No more than 130V AC At least 110V AC } Use power supply meeting these requirements
Power consumption	During platemaking : 250W During printing at speed 3 (printing speed) : 230W On standby : 60W

*** 230V AC model**

Power supply voltage	Connect to outlet of 230V AC, 50Hz, at least 8A
With no load* At full load	No more than 250V AC At least 210V AC } Use power supply meeting these requirements
Power consumption	During platemaking : 250W During printing at speed 3 (printing speed) : 230W On standby : 60W

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

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

• 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.

⚠ CAUTION

• Install the machine in accordance with the installation procedure appended to this manual.

Using the optional printer stand

• 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.

➡ Pushing the printing (upper) part of the machine could make it fall over.

3. Cautions for maintenance, inspection and servicing

⚠ Warning

◉ 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.

➡ Otherwise, your hands/fingers could be injured.

• Do not touch the drum or rollers after turning on the jog switch.

• Do not put your hands or fingers inside the machine while the drum is rotating.

➡ Otherwise, your hands/fingers could get caught and crushed between the drum and rollers.

If optional tape clusters are used

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

➡ Otherwise, your hands/fingers could be injured.

◉ Working clothes

• Wear clothing than enables you to work safely.

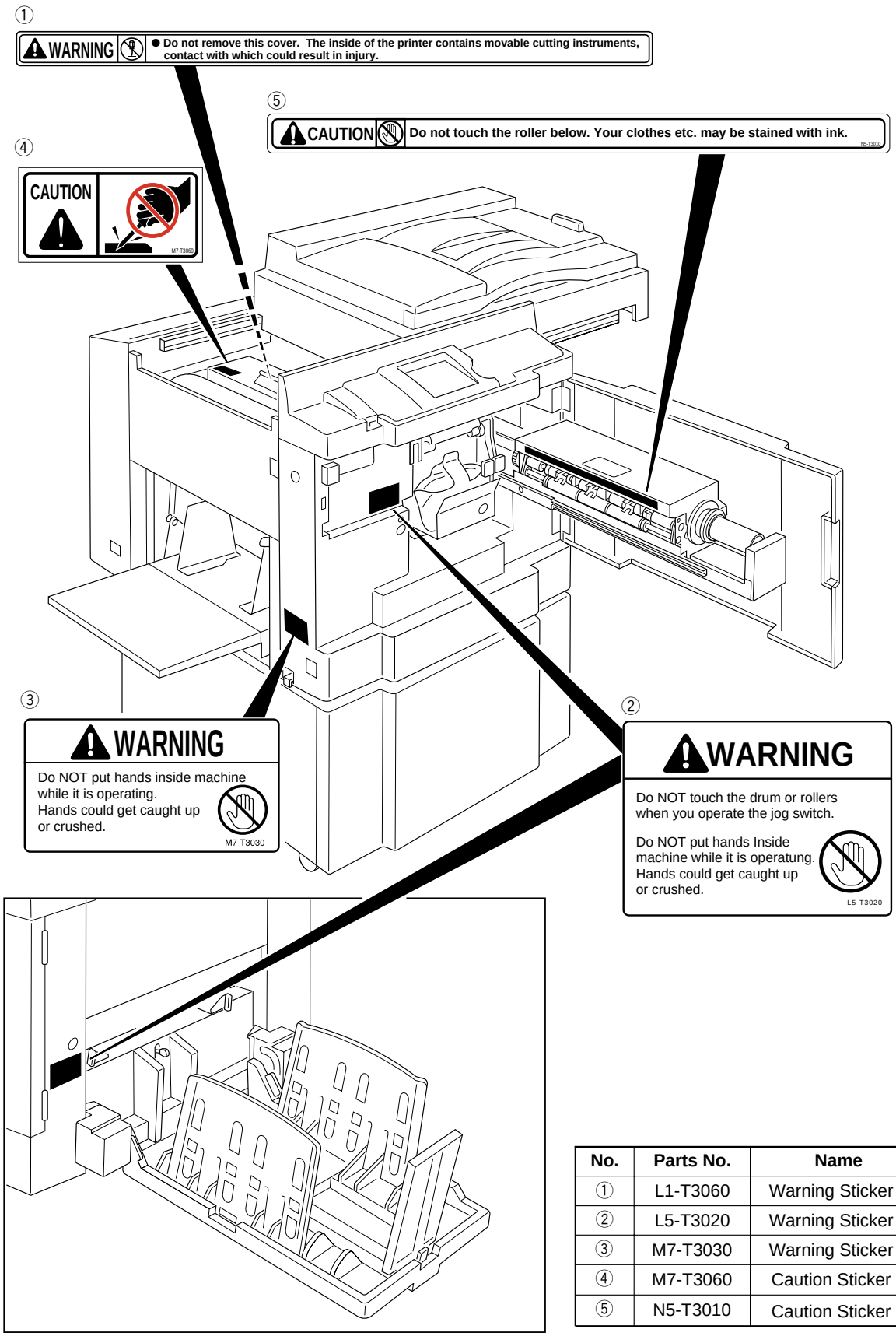
⚠ CAUTION

◉ Tools

• Use tools that are appropriate for the work.

■Locations of warning stickers

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



No.	Parts No.	Name	Q'ty
①	L1-T3060	Warning Sticker 1	1
②	L5-T3020	Warning Sticker 2	2
③	M7-T3030	Warning Sticker 3	1
④	M7-T3060	Caution Sticker 1	1
⑤	N5-T3010	Caution Sticker 2	1

Table of Contents

Chapter 1 Introduction

1 Features

1. Size A3/B4 printing(Printing area)

DP-440/DP-430 : **A3 (290X423mm)**
DP-340/DP-330 : **B4 (250X355mm)**

2. High-speed platemaking

Print the first sheet of paper.(document size : **A4**)
DP-440/DP-340: 21 seconds*1
DP-430/DP-330: 27 seconds*1

*1:Time required to print the first sheet of paper after the platemaking key is pressed.

3. High print quality

A new, originally-developed superfine thermal head gives beautifully accurate reproductions of fine print and halftone photographs.

DP-440/DP-340

Its resolution is **400dpi** in the **pel path direction** and **400dpi** in the **line progression direction**.

DP-430/DP-330

Its resolution is **300dpi** in the **pel path direction** and **600dpi** in the **line progression direction**.

4. Align paper

Adjusting the eject enables both thin and thick sheets of paper to be aligned neatly.

5. High-performance lamp

A long-life, high-brightness xenon arc lamp is used to illuminate the documents. Since the lamp's intensity is not affected by temperature variation*2, printing quality at low temperatures is greatly enhanced*3.

*2: The lamp is filled with xenon gas, which means that it does not require heat to vaporize mercury, as a fluorescent lamp does, and therefore its intensity does not vary with temperature.

*3: Increased viscosity of the ink at low temperatures results in fainter printing than at normal temperatures.

6. Simple operation

Operation is simplified by concealing occasionally-used keys under a panel, leaving just the basic function keys permanently accessible.

7. Full range of necessary functions

❶ Documents are easily enlarged or reduced.
In addition to same-size printing, there are three automatic settings for both enlargement and reduction. Further, the margin (94% reduction) function can be used for these automatic settings.

Size A/B models

- Zoom settings : (70, 81, 86, 115, 122, 141%)
- Same-size : (100%) printing
- Free zoom : 50% -500% (1%)

Enlargement : 141% [A4→A3, B5→B4]*4
122% [A4→B4, A5→B5]
115% [B4→A3, B5→A4]*4
Reduction : 86% [A3→B4, A4→B5]*4
81% [B4→A4, B5→A5]
70% [A3→A4, B4→B5]*4

*4:Maximum printing area of **DP-340** and **DP-330** is **B4**(250×355mm).

Inch size models

- Zoom settings : (64, 74, 77, 121, 129, 141%)
- Same-size : (100%) printing
- Free zoom : 50% -500% (1%)

Enlargement : 141%
129% [LTR→LDG]
121% [LGL→LDG]
Reduction : 77% [LGL→LTR]*5
74% [LDG→LGL]*5
67% [LDG→LTR]

*5:Maximum printing area of **DP-340** and **DP-330** is **11"×14"**(250×355mm).

❷ Self-diagnosis
The machines have self-diagnostic functions. Messages for self-diagnosed errors, as well as consumable part replacement prompt messages, appear on an LCD panel.

❸ Book shadow erasure
Shadows in the middle or at the edges of book documents can be erased.

❹ Adjusting the Printing Position(vertical)
In addition to vertical direction adjustment.

❺ Document modes

The "Text-Photograph", "Text-Fine Lettering", "Photograph-Fine Lettering", "Screen 1 & 2" and "Photo Dark" Modes selecting, accommodating printing of a wider variety of documents.

❻ Adjusting the contrast control

The degree of contrast for printing can be adjusted.

8. User setting

❶ Memory Function

Equipped with a memory function (for 9 items) able to memorize frequently used settings.

❷ Optimize Print

Optimal images can be printed in times of low/high temperature by setting the temperature and the print speed.

❸ Initial Paper Size setting

The paper size and print speed, etc., that are valid when the power is turned on can be set.

❹ Document Memory

The last platemaking image can be memorized, and used later for platemaking without having to read it out again.

9. Special functions

The HELP mode items listed below can now also be used in the user mode. And the power save mode can cut power consumption.

❶ Sorter Fine Start
❷ Auto Clear
❸ Pre-print
❹ Batch Print
❺ Auto Power Off
❻ Auto LCD Off
❼ Long Paper mode
❽ Ink Circulation
❾ Tape Cluster (tape inserter)
❿ Double Feed Detection
⓫ Drum selection (A3/A4)

10. Option

❶ S2-ADF
❷ Drum unit
❸ A3/A4 Drum unit
❹ Tape Cluster
❺ PC Interface kit Ⅱ
❻ Key card counter 4
❼ Postcard stacker
❽ Long paper unit
❾ Sorter

2 Specifications

• Specifications

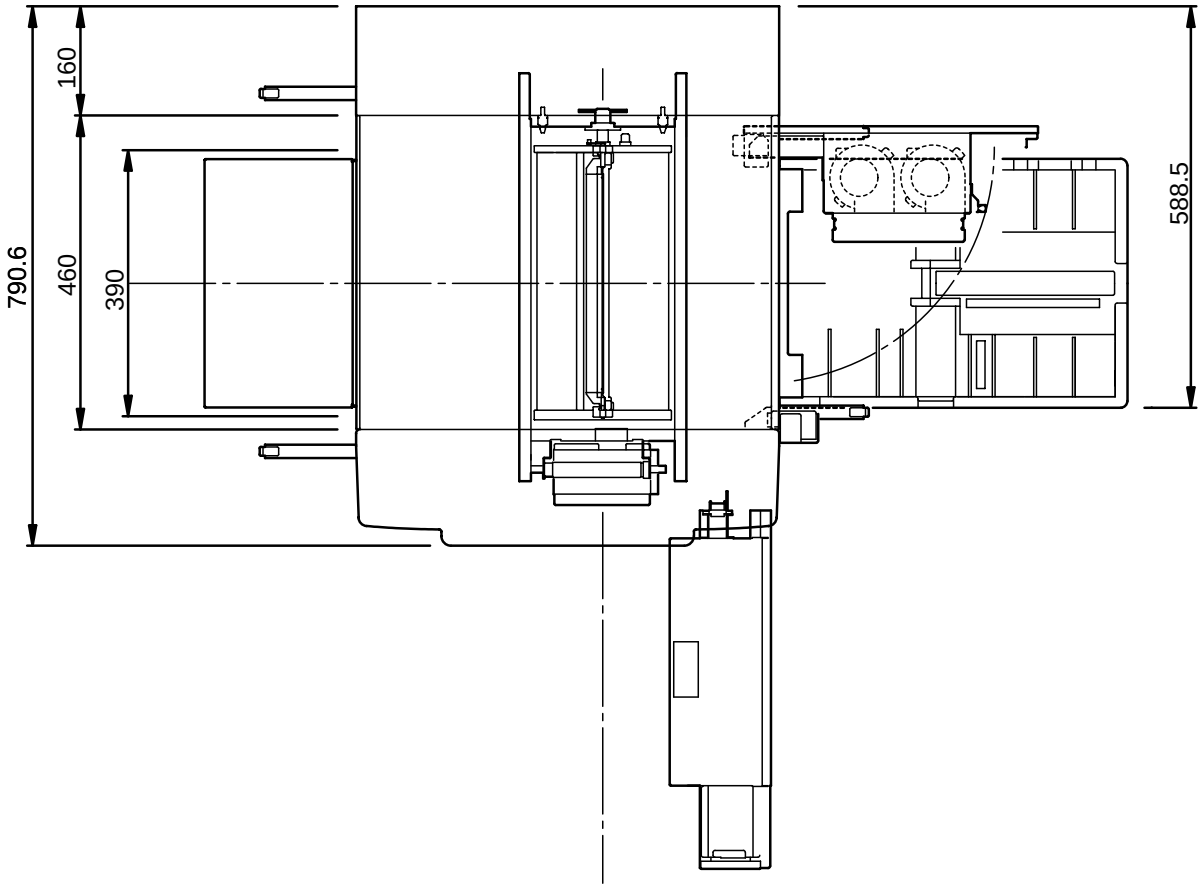
* Specifications are subject to change without notice.

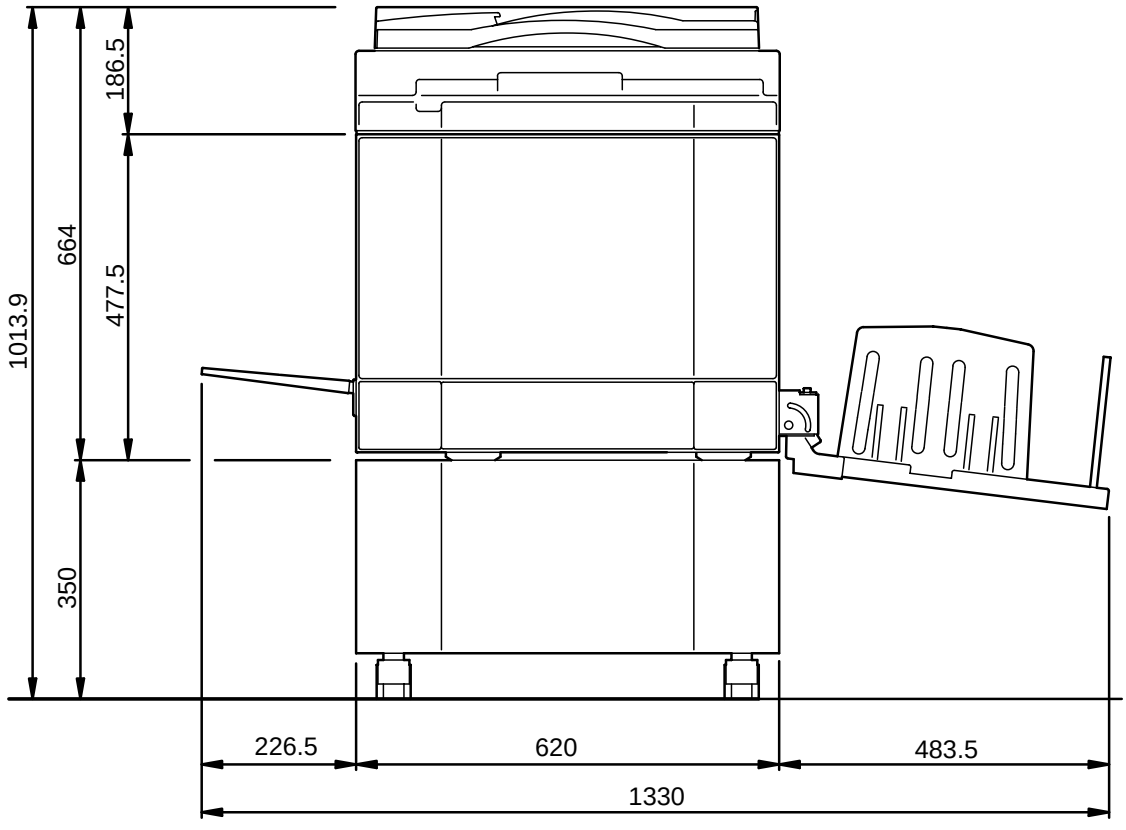
Model name		DUPRINTER DP-440	DUPRINTER DP-430	DUPRINTER DP-340	DUPRINTER DP-330
Model		Floor model			
Master making method		Thermal digital master making			
Master making interval		21 sec (A4 100%)	27 sec (A4 100%)	21 sec (A4 100%)	27 sec (A4 100%)
Resolution		400dpi	300 dpix 600 dpi	400dpi	300 dpix 600 dpi
Scanning method		Flat bed scanner			
ADF (Optional)		100 sheets (64 - 128gsm)			
Printing method		Stencil print			
Document type		Sheets, book (max: 10kg)			
Document size		MAX. 297mm x 432mm			
Scanning area		290mm x 423mm			
Image area (max)		290mm x 423mm (A3) (11.4"x16.6")		250mm x 355mm (B4) (9.8"x14")	
Feeding capacity		1,500 sheets(64gsm)			
Stacking capacity		1,500 sheets (64gsm)			
Paper size		MAX: 297mm x 432mm With Long paper unit (service part) : Max: 540mm			
		MIN: 100mm x 150mm			
Paper weight		53gsm -210gsm (45kg-180kg)			
		13lb - 110lb (Index)			
		Feeding pressure adj.(3 steps)			
		Separator adj. (3 steps)			
Print speed		120 ppm (45-120 ppm, 5 steps) Within operating temperature			
Zoom	A/B size	100%			
		Preset reduction/enlargement: 70, 81, 86, 115, 122, 141%			
		94%			
		Zoom: 50 - 500%			
		Auto zoom: 70, 81, 86, 115, 122, 141%			
	Inch size	100%			
		Preset reduction/enlargement: 64, 74, 77, 121, 129, 141%			
		94%			
		Zoom: 50 - 500%			
		Auto zoom: 64, 74, 77, 121, 129, 141%			
Registration adjustment		Vertical : +/- 15mm [shown on the LCD by 0.5(mm)]			
		Horizontal: +/- 10mm [shown on the LCD by 0.5(mm)]			
Image modes		Text,Photo,Text/Photo,Text Fine,Photo Fine,Screen1,Screen2,Photo Dark			
		Contrast control : 5steps			
Contrast control		Master making density: 5 steps			
		Print density: 11 steps			
Ink supply method		Automatic control (600ml, 1000ml)			
Colour print		Drum unit exchange			
Master feeding method		Roll master automatic feed			
Master ejection method		Automatic ejection/ master rolling-up method			
Used master capacity		50sheets			
LCD		320 x 240 dot matrix full- dot matrix LCD (with contrast control)			
		OK monitor (LCD graphic)			
		Remainig master display function, remainig master ejection display function			

* Specifications are subject to change without notice.

Model name	DUPRINTER DP-440 / 430 / 340 / 330
Other function	Image Rotation (90 & 180 degree)
	Colour Separation (equipped in online printer driver)
	Sorter Mode setting (sort, no sort, group)
	Document Size Auto Scan
	Multiple Exposure (2, 4, 8, & 16- up.)
	Book Shadow Erasure (adjustable)
	Memory Function (9 pattern of settings of control panel can be stored.)
	Confidential Safeguard
	Initial setting (when the power is turned on.)
	Optimize Print (P-roller control according to user's input of temperature and speed.)
	Online (IEEE1284 standard bi-directional parallel interface)
	NB:For USB/SCSI connection, optional interface kit II is required.
	Document Memory , Auto Clear
	Fine Start , Pre-print
	Batch Print
	Auto LCD Off
	Auto Power Off
	Ink Circulation
	Double Feed Detection
Option	S2-ADF [100sheets (64gsm)]
	Drum unit
	A3/A4 drum unit (DP-440/DP-430)
	Tape inserter
	PC interface kit II
	Key card counter 4 (built-in type)
	Cabinet(with front door)
	Cabinet(open)
Power source	Domestic:100V +/- 10%, 50/60Hz, 3.0A
	120V :120VAC60Hz, 2.5A
	230V :230VAC50Hz, 1.3 A
Power consumption	250W(during plate making),230W(during 3rd speed printing),60W(during standby)
Dimension	In use: 1374mm(W) x 738mm(D) x 1089mm(H)
	Folded: 753mm(W) x 738mm(D) x 1089mm(H)
	With optional ADF attached:
	In use: 1374mm(W) x 738mm(D) x 1228mm(H)
	Folded: 753mm(W) x 738mm(D) x 1228mm(H)
Weight	119kg
Operating temperature	10 -30 degree(C)
Online	Parallel bi-directional interface (standard)
	Confirmed with IEEE1284 (compatibility mode, nibble mode)
	Printer driver must be installed in computer
	[Windows95/98/Me, Windows NT4.0/2000,]
	USB, SCSI interface (optional) PC interface kit II
	Printer driver must be installed in computer
	[Windows95/98/Me, Windows NT4.0/2000,]
	[Macintosh (MacOS7.6.1 - 9.1)]
	I/F PCB must be installed in the main unit.

3 Dimensions





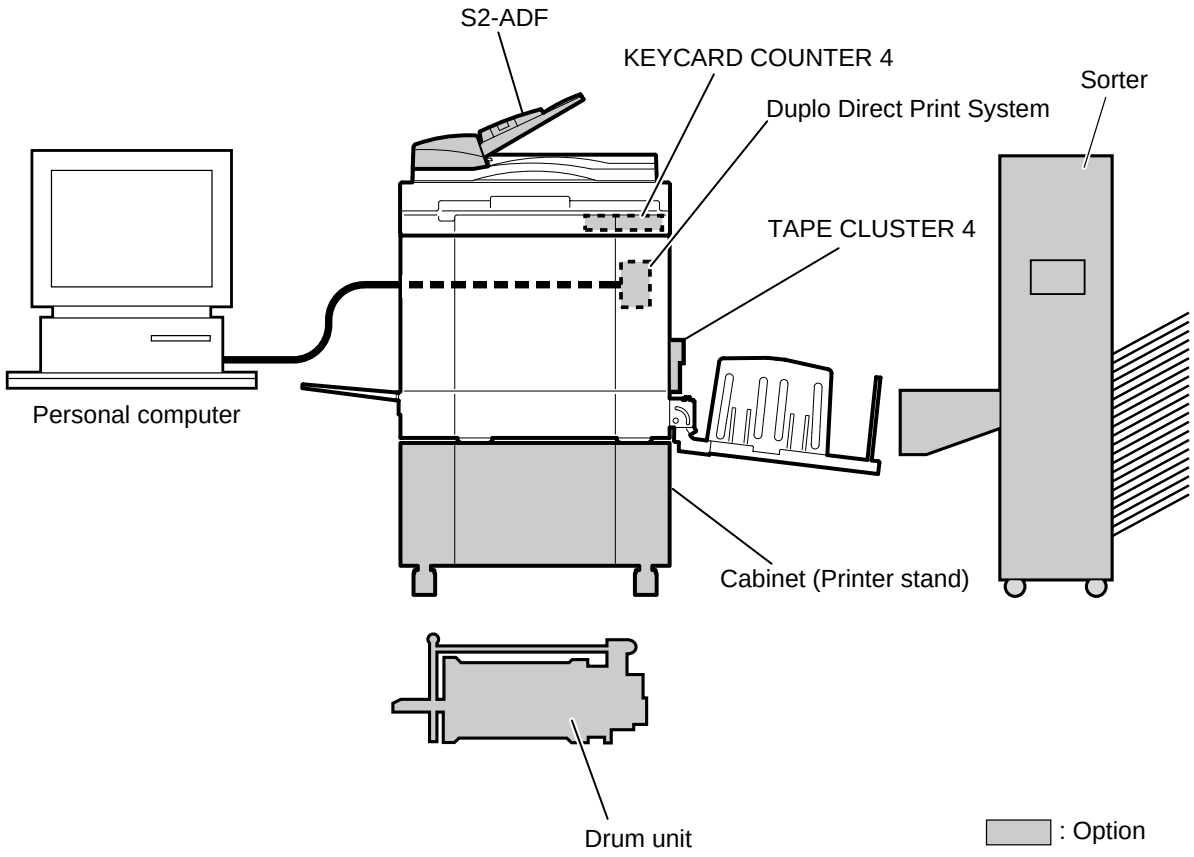
(mm)

44000B

4 System Setup

1. Before Installation

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



44000C

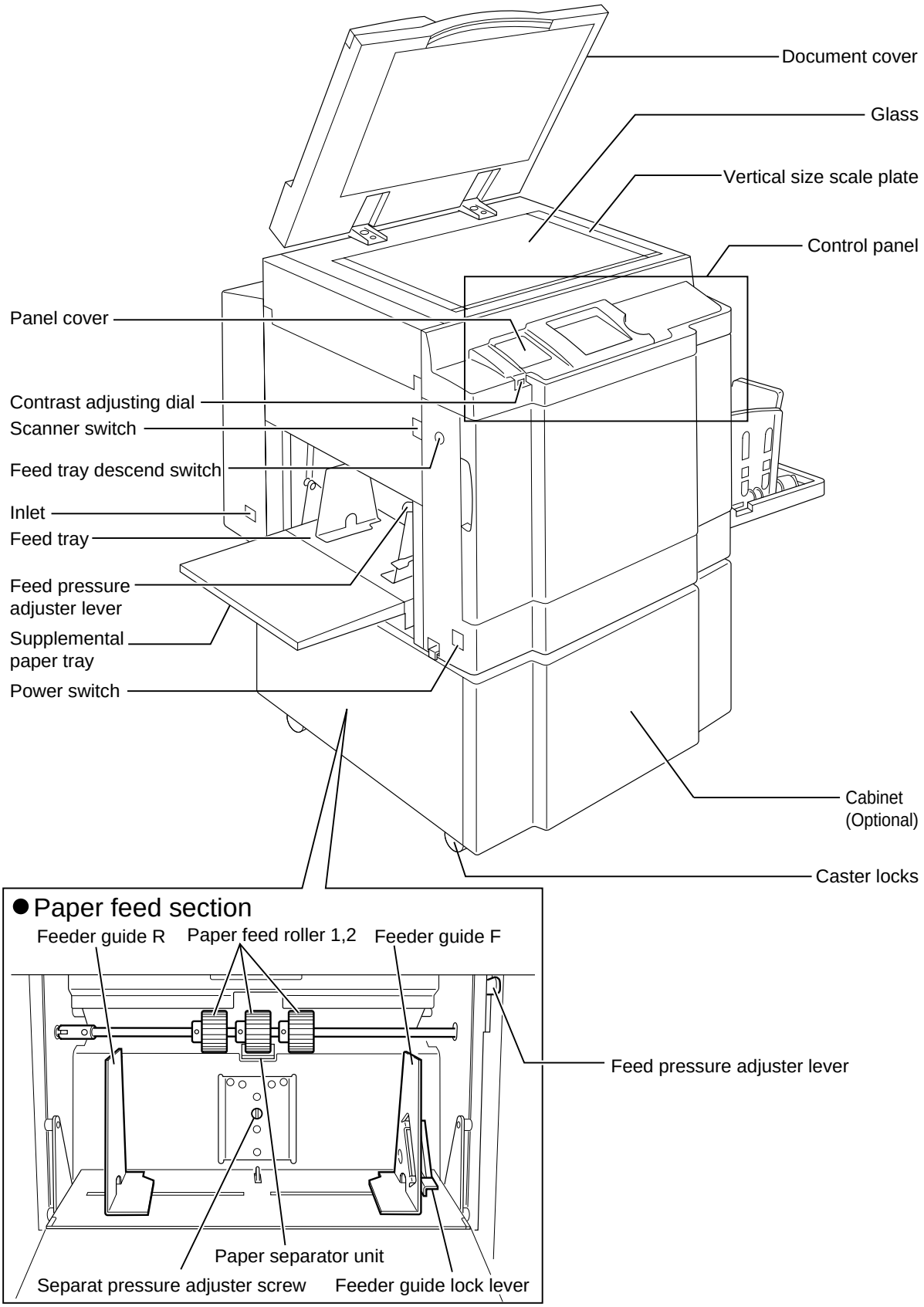
NOTE : DDP system

Documents prepared on a personal computer can be printed on this machine.

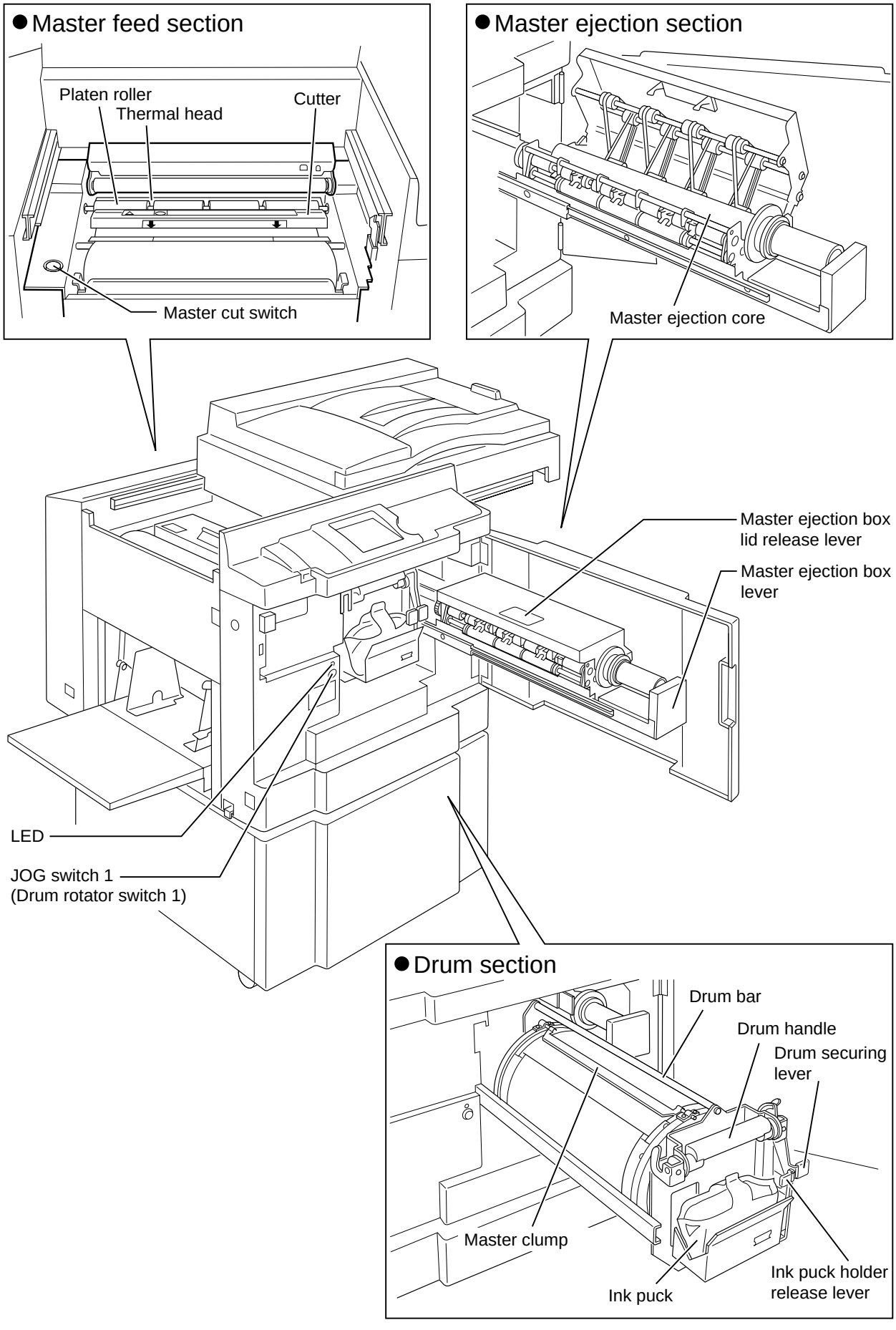
The PC interface kit is required to connect this machine to a personal computer.

5 Part Names and Their Functions

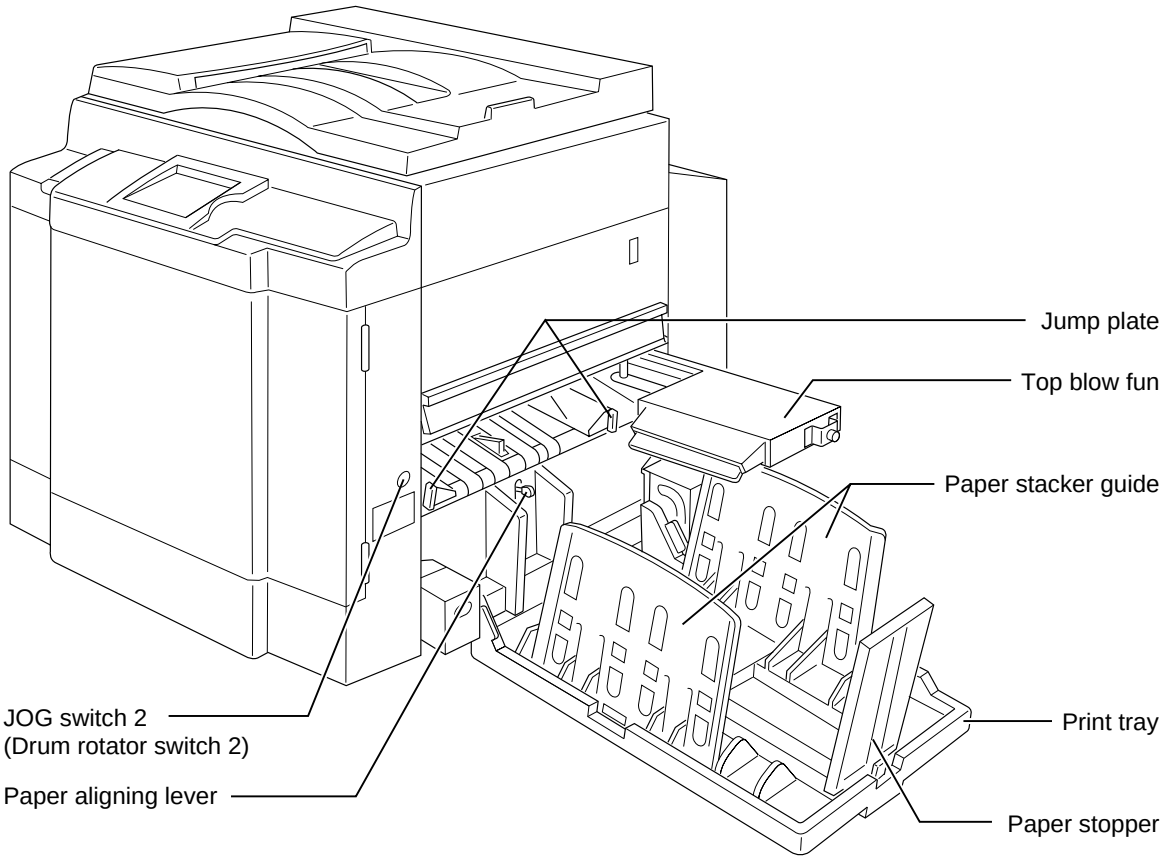
1. Machine exteriors

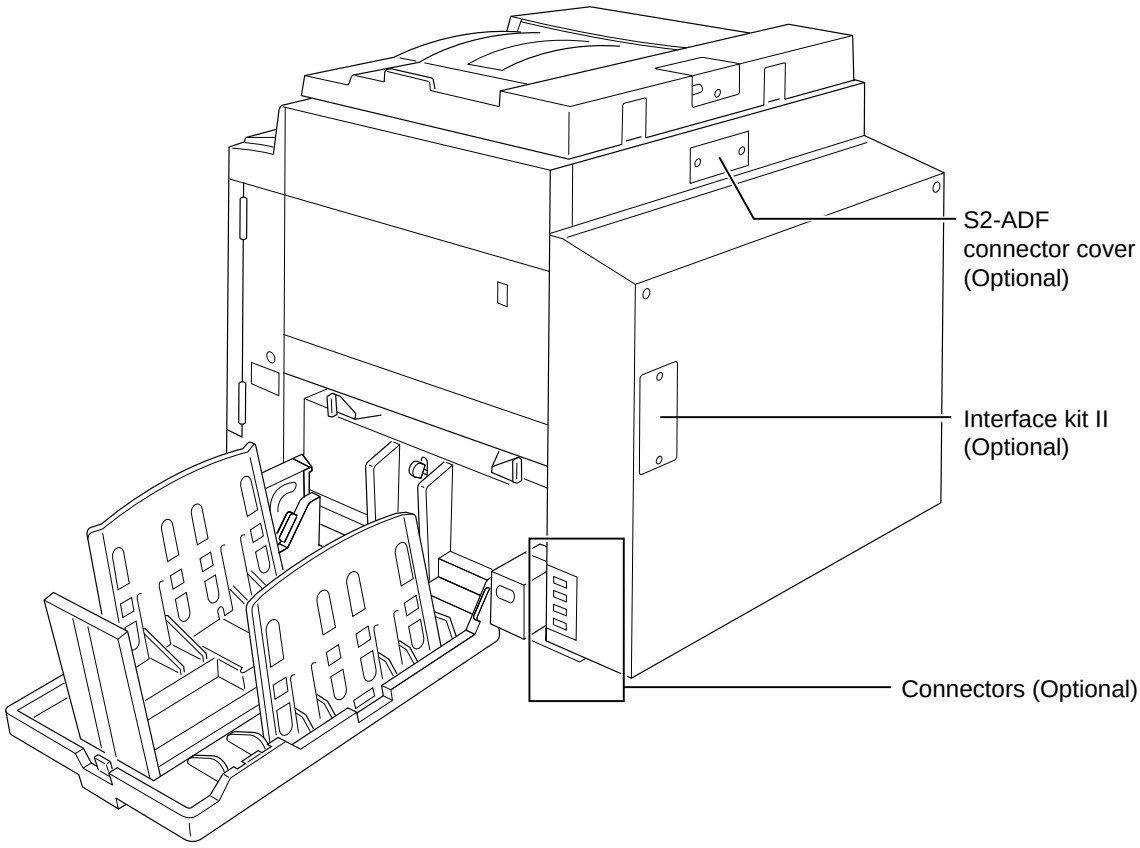


440AAe


● Master feed section
Platen roller
Thermal head
Cutter
Master cut switch
● Master ejection section
Master ejection core
Master ejection box lid release lever
Master ejection box lever
LED
JOG switch 1 (Drum rotator switch 1)
● Drum section
Drum bar
Drum handle
Drum securing lever
Master clump
Ink puck
Ink puck holder release lever

440BBe

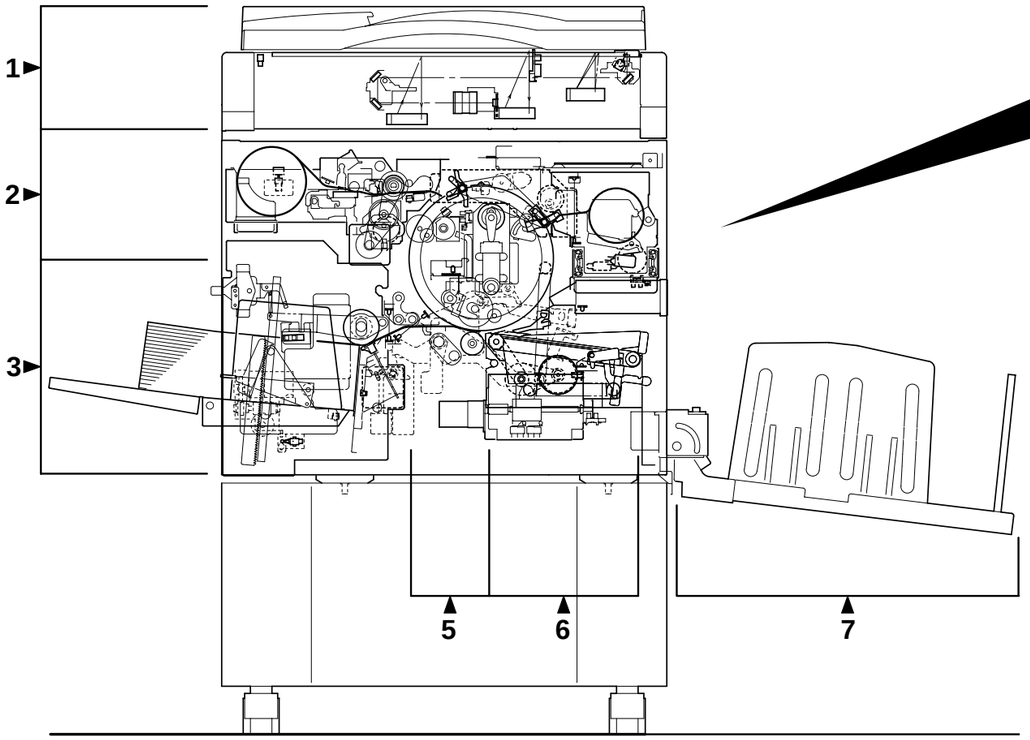

Jump plate
Top blow fun
Paper stacker guide
JOG switch 2
(Drum rotator switch 2)
Paper aligning lever
Print tray
Paper stopper


S2-ADF
connector cover
(Optional)
Interface kit II
(Optional)
Connectors (Optional)

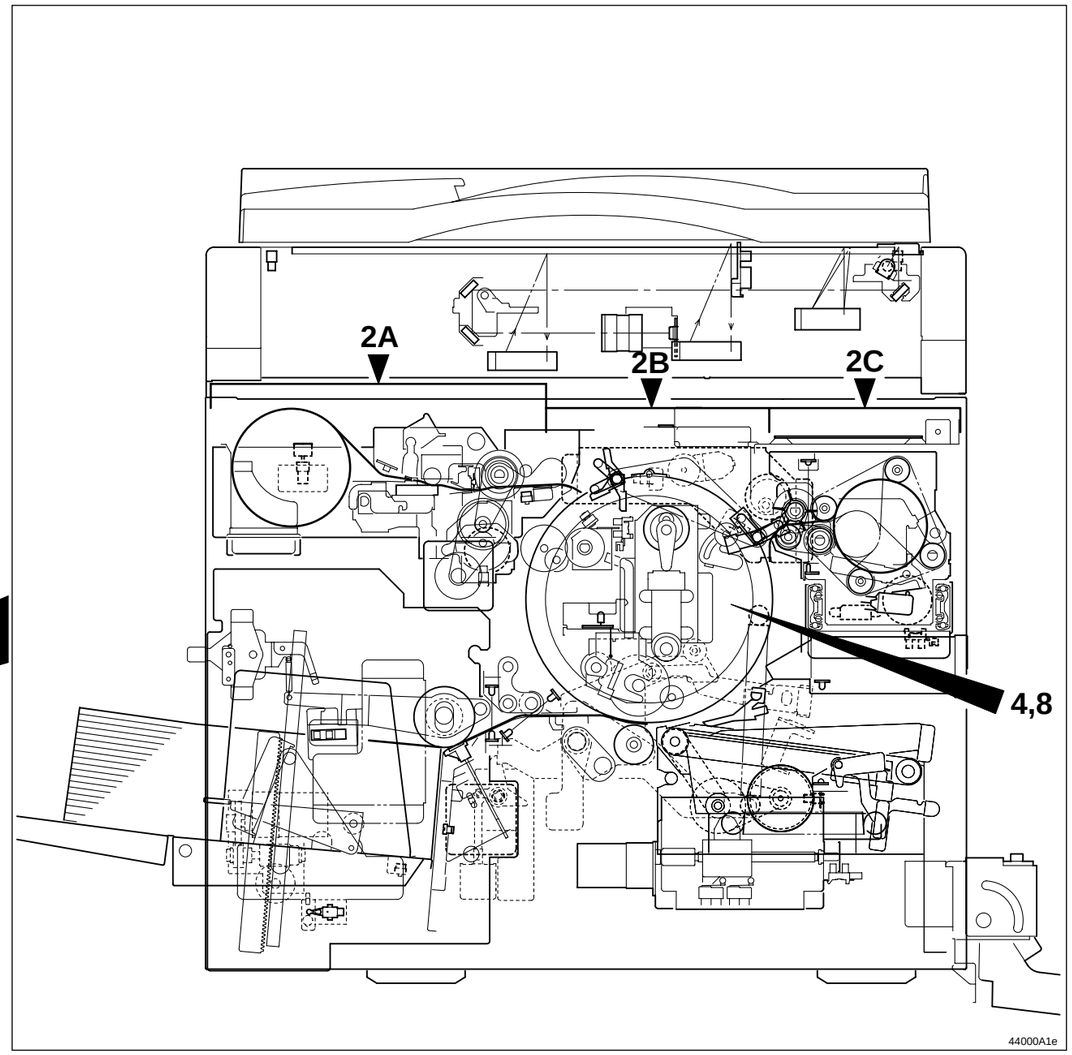
440CCe

2. Sectional (structural) view of the machine

No.	Section Name	Description of the Operation	Mechanism	Srandard/Adjustment
1	Scanner section	32page	114page	148page
2	Platemaking/Master feed/ejection section	42page	120page	150page
2A	Platemaking/Master feed section	42page	120page	150page
2B	Master ejection section	54page	124page	151page
2C	Master clamp opening/closing section	56page	125page	153page
3	Paper feed section	62page	127page	158page
4	Drum driving section	75page	132page	163page
5	Press section	81page	–	165page
6	Paper ejection section	86page	134page	167page
7	Print tray	–	–	–
8	Drum section	93page	139page	169page



44000Ae



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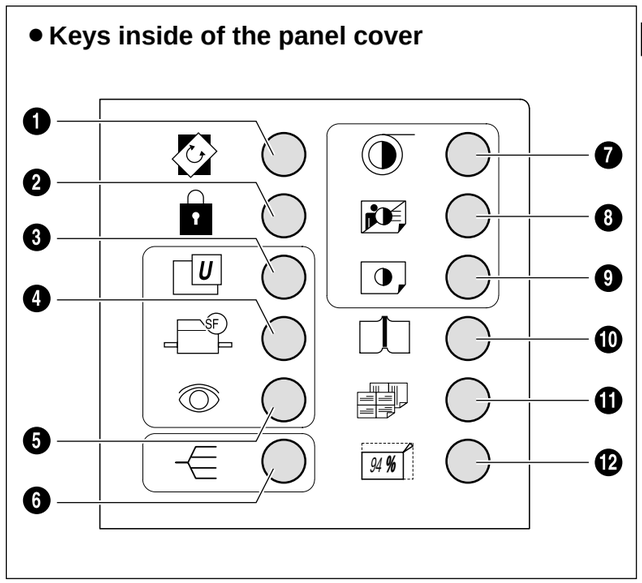
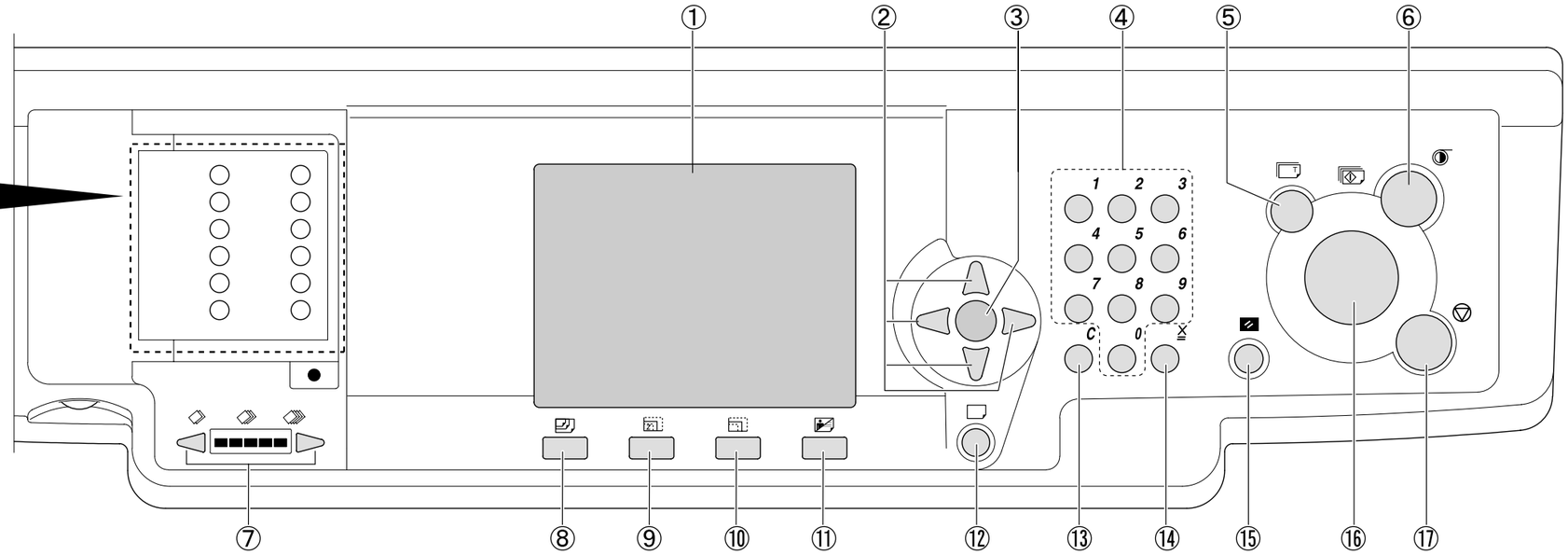
3. Control Panel

● **Keys inside of the panel cover**



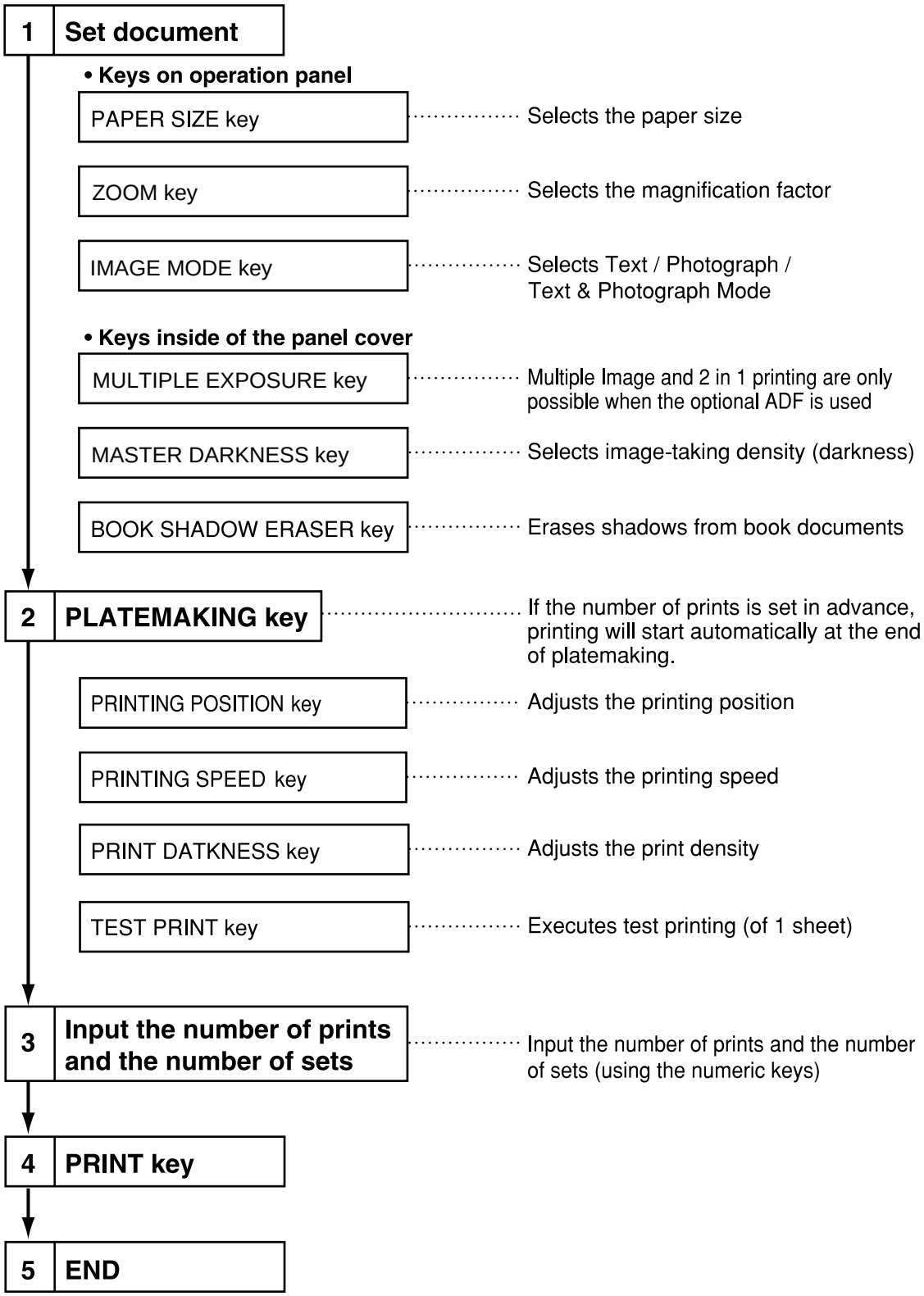


No.	Name	Function
❶	EDIT key	Switches to rotate the document image for plate.
❷	CONFIDENTIAL SAFEGUARD key	Enables confidential safeguard function. Prints cannot be made unless a new master is made.
❸	USER SETTING key	Switches to User setting list display.
❹	SPECIAL FUNCTION key	Switches to Special function list display.
❺	CURRENT SETTING key	Shows a list of current setting of the machine.
❻	SORTER MODE key	Switches to sorter mode display.
❼	MASTER DARKNESS key	Switches to Master darkness control display.
❽	MASTER CONTRAST key	Switches to Master contrast control display.
❾	PRINT DARKNESS key	Switches to Print Darkness control display.
❿	BOOK SHADOW ERASURE key	Switches to Book Shadow erasure setting display.
⓫	MULTIPLE EXPOSURE key	Switches to multiple exposure setting display.
⓬	94% key	Reduces image to 94%. 94% key can be used in conjunction with preset zoom setting.

No.	Name	Function
①	LCD	Displays current settings and status of the machine e.g. print volume, and error messages in case of error.
②	Cursor keys	Selects setting item and adjusts printing position.
③	OK key	Enters specified setting.
④	Ten keys	Enter the print volume etc.
⑤	TEST PRINT key	Prints 1 copy to check the image position and density etc.
⑥	PLATE MAKING key	Starts making a master.
⑦	PRINT SPEED key	Switches to Print speed control display.
⑧	PAPER SIZE key	Switches to Paper size selection display.
⑨	ZOOM key	Switches to Zoom setting display.
⑩	PRINT POSITION key	Switches to Print Position control display.
⑪	IMAGE MODE key	Switches to image mode selection display.
⑫	CANCEL key	Cancels settings in Special Functions etc and returns to main display.
⑬	CLEAR key	Returns the print volume to 0. Other settings on the control panel are not changed.
⑭	≦ key	Enters the print and group number in batch printing.
⑮	ALL CLEAR key	Return all settings on the control panel to default. (Press and hold at least 1 second.)
⑯	PRINT key	Starts printing. This key does not start making a master. Printing cannot start when the lamp o the key is red. Confirm that the light is Blue before pressing. When equipped with optional ADF unit: When next document is set on the ADF, next master making starts automatically after a printing is finished.
⑰	STOP key	Stops printing. *While the machine is not working, indicates the total print quantity and the total master quantity.

6 Operation Procedures

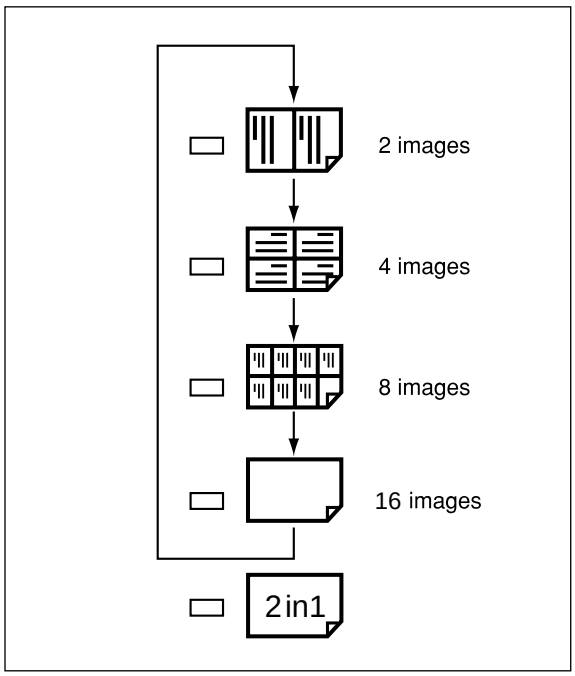
1. Pratemaking & Printing



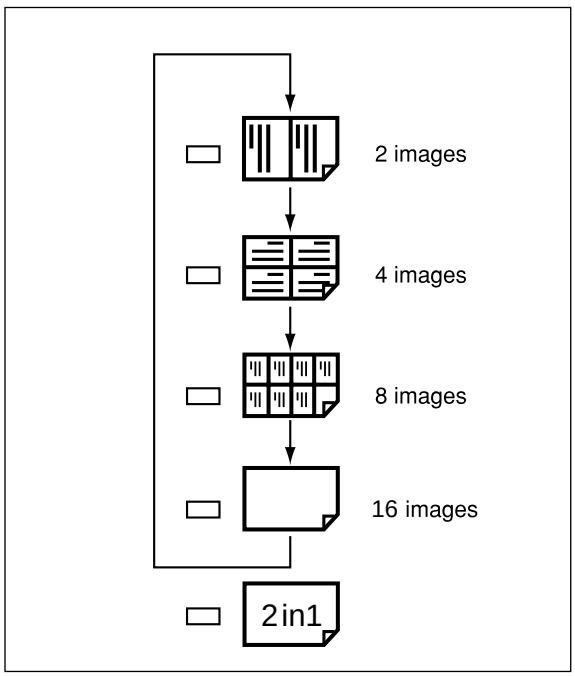
2. Multiple Image Printing / 2 IN 1 Layout Mode

In the normal state (when the ADF is not connected) the mode is switched by pressing the multiple printing selection key as follows.

NOTE : Each press of the multiple printing selection key makes a different multiple printing indicator light up, in sequence.
To set the number of images, press the key until the indicator for the desired number of images is lit.



When the ADF is connected, the multiple printing selection key can also be used to select the 2 in 1 Layout Mode, as shown below.
To activate the 2 in 1 Layout Mode, press the key until the " 2in1 " icon is lit.

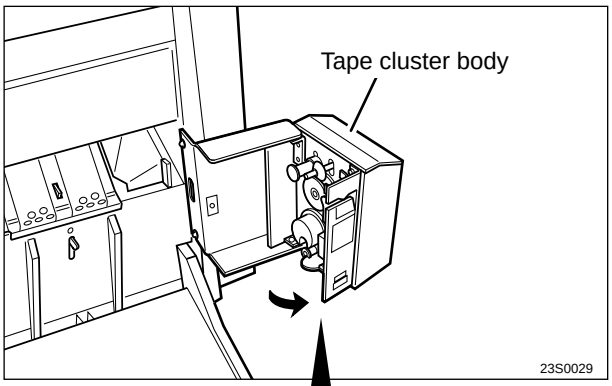


7 Option

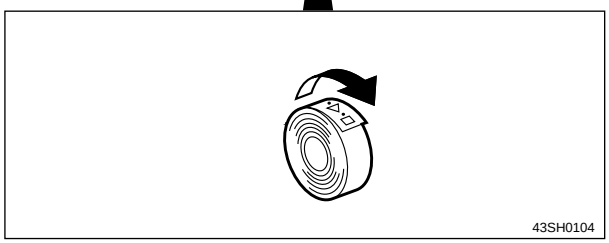
1. DUPRINTER Option

(1) TAPE CLUSTER 4

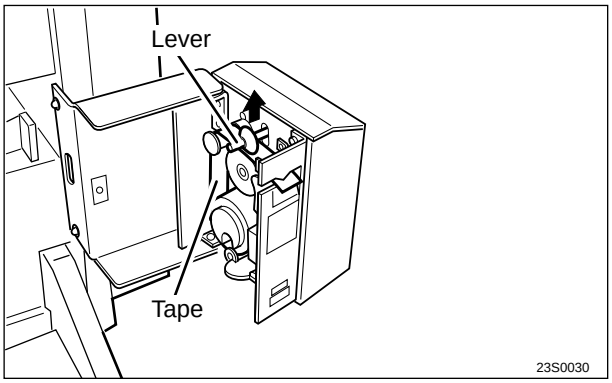
❶Open out the tape cluster body.



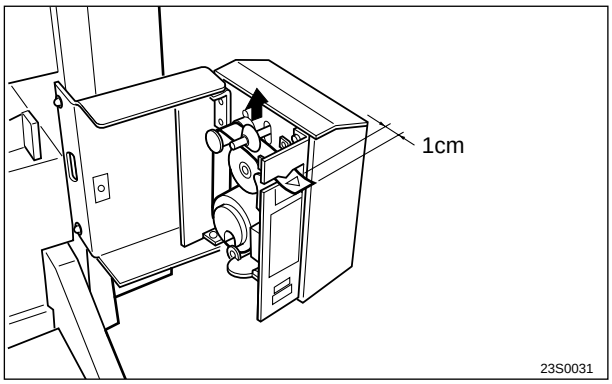
❷Install the new tape. Make sure it will wind off in the correct direction.



❸Lift up the lever and pass the tape through the slot.



❹Make about 1cm of tape protrude out of the slot.



❺Swing the tape cluster body back in.

MEMO

Chapter 2 Description of the Operation

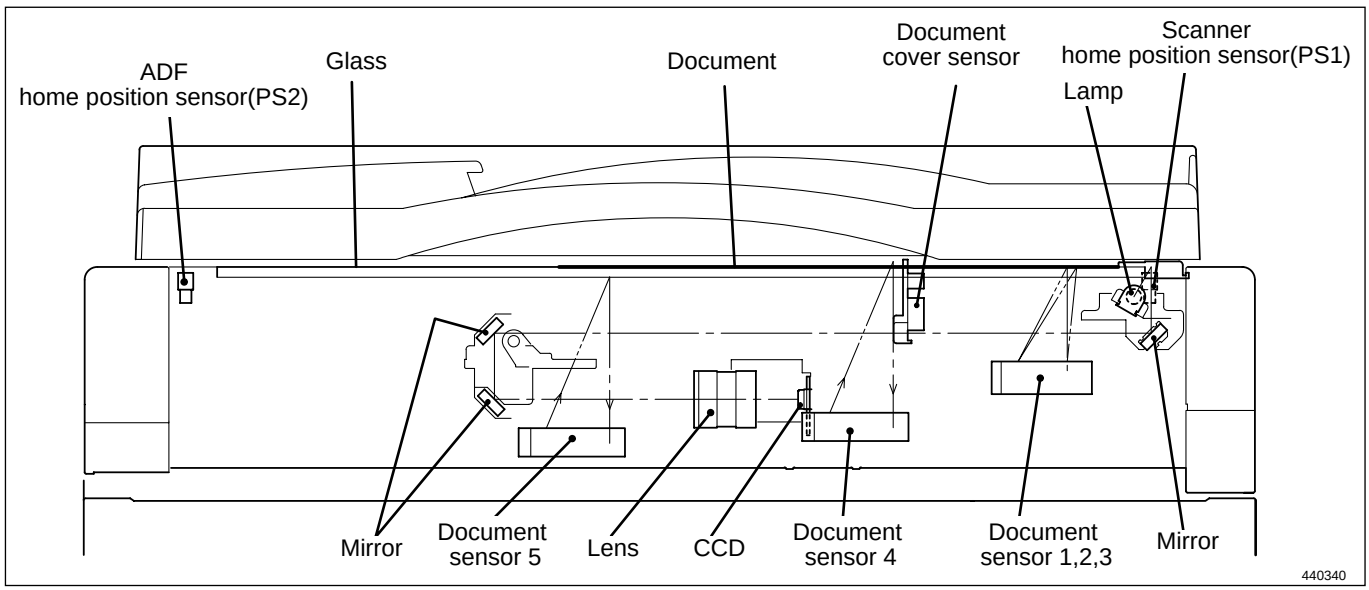
1 Scanner Section

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. Then it is resoluted into picture elements and converted photoelectrically.Additionally the machine is equipped with 3 reflecting sensors that sense the size of documents placed on the document glass.

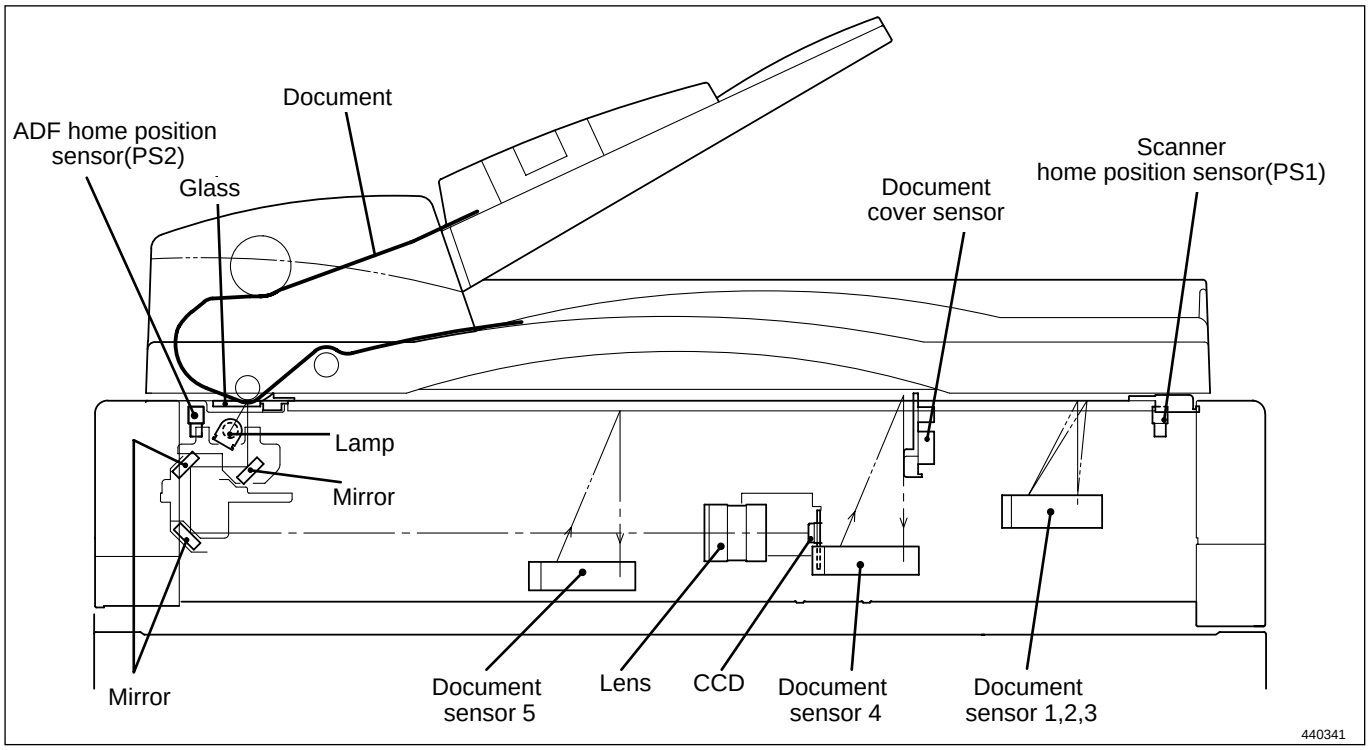
Optical System Operation

• The optical system gose forward (to the left) or back ward with a stop position of scanner home position sensor(PS1).



Optical System Operation (with ADF attached)

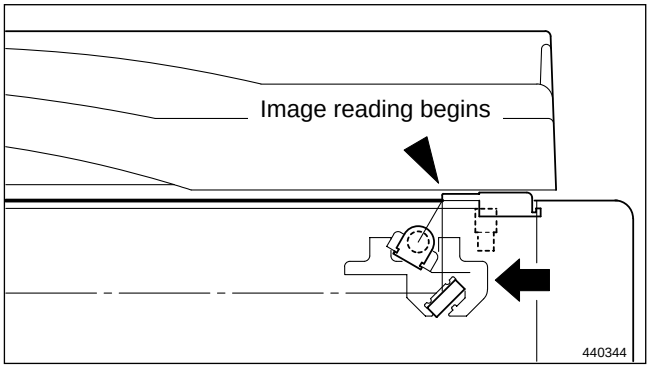
• When ADF is attached, set the ADF Home Position Sensor (PS2) as the optical system stop position, and then read the document darkness.



2. Sequence of Operation

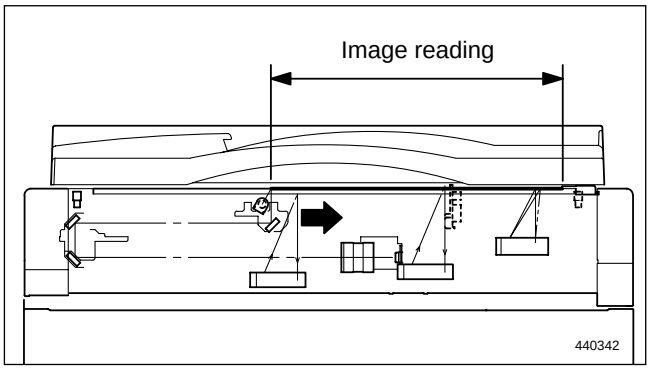
(1) Sequence of the Scanner Operation(with ADF unconnected)

1)When the **PLATEMAKING** key is pressed, the optical system moves to the left and reads the image.



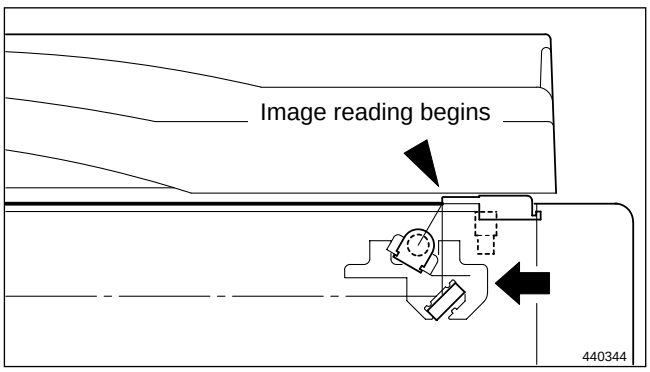
2) When image reading is complate, the lamp goes out, but the optical system decelerates, then stops. Following that, the optical system moves right and returns to the home position.

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



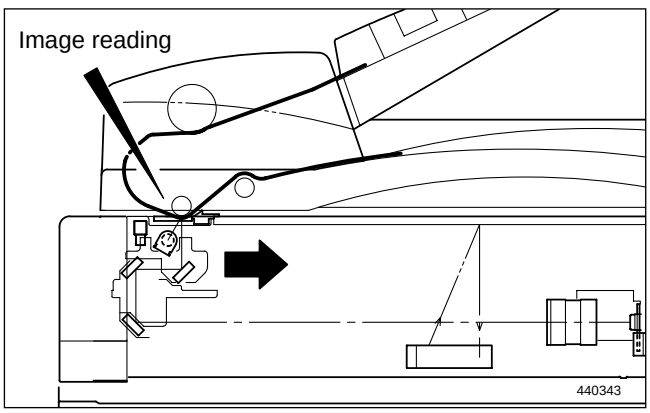
(2) Sequence of the Scanner Operation(with ADF connected)

1) When the **PLATEMAKING** key is pressed, the optical system will perform shading at home position (PS1), and then move to the left.



2) The optical system reads the image stopped at home position (PS2). 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 position sensor changes to be in the state of photopassing.

↓

The lamps lights up.

↓

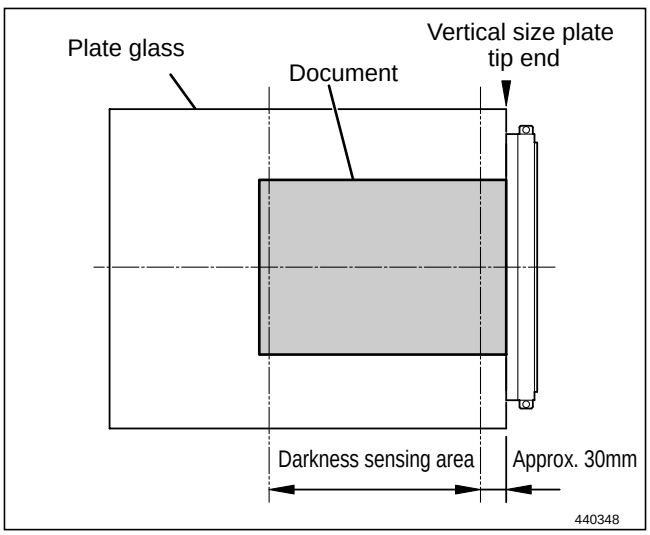
When the document cover is closed at a certain angle, the document cover position sensor changes to be in the state of photointerrupting.

1. Reading the Document Size

- The document sensors sense the document's length in the pel path and line progression directions.
- When the ADF is installed, the document size (pel path direction) sense for ADF side.

2. Reading the Document Darkness

- The optical system goes forward to read the document darkness immediately after the document size is read.
- The area over which darkness is sensed is determined according to the document size sensed.



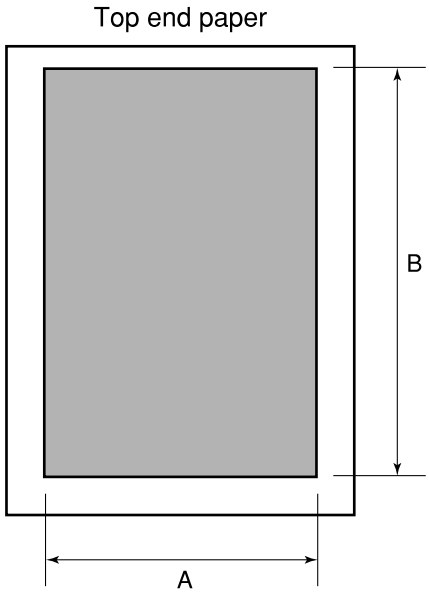
NOTE

Platemaking Area for the Selected Paper

● The platemaking area varies depending on the selected paper size as shown below.

Selected paper size	A (±1%)	B (±1%)	Remarks
A3	290mm	414mm	DP-440/430
A4 R	204	290	
A4	290	204	
B4	251	358	
A5	142	204	
B5	176	251	
LDG	273	414	DP-440/430
11"×14"	251	358	DP-340/330
LGL	210	350	
LTR	210	273	
STMT	172	210	
MAX	290	414	DP-440/430
MINI	134	210	DP-340/330

* When the magnification error is 0 in the pei path direction or in the line progression direction, the size for the same size (1:1) platemaking is shown.

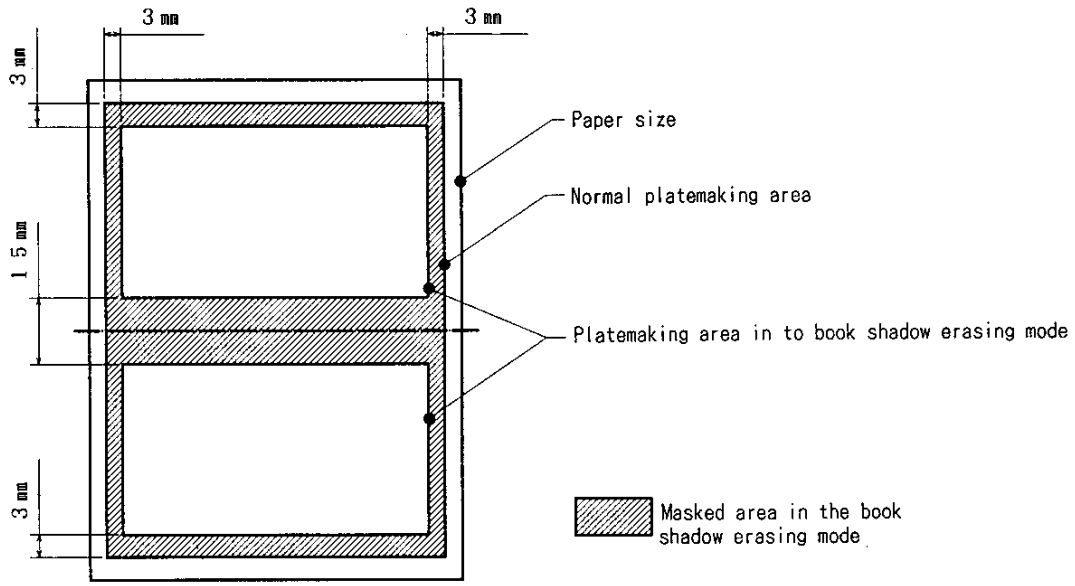


A : Pel path direction
B : Line progression direction

Platemaking Area for the Book Shadow Erasing Mode

When the platemaking is performed in the book shadow erasing mode, the platemaking area is limited 3 mm inner than the normal platemaking area as shown in the figure. 15mm is left in the central section (stitching section).[Shadow erasing as desired is not included.]

* During multiple image printing, the book shadow erasing mode can not be used.



3. Function of Parts and Circuit

(1) Home Position Sensors

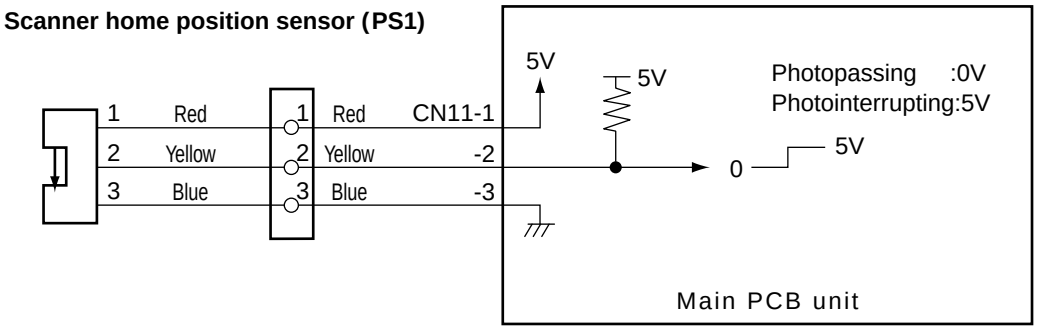
Description

PS1 detects the optical system home position when ADF is not used.

PS2 detects the optical system home position when ADF is used.

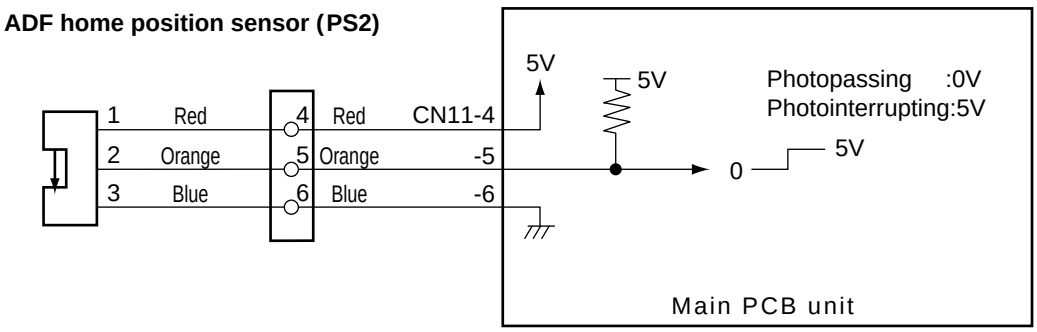
Circuit

Scanner home position sensor (PS1)



440W01e

ADF home position sensor (PS2)

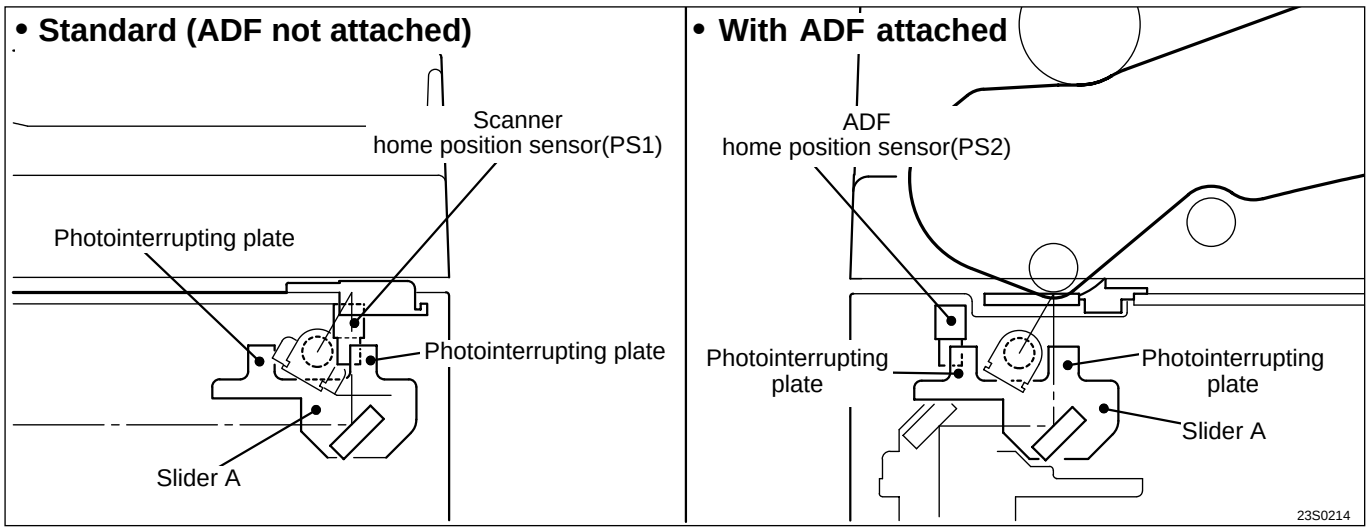


440W02e

Operation

A shading plate is attached on slider A of the optical system. The position where PS1 is shaded becomes the optical system home position when ADF is not attached.

The position where PS2 is shaded becomes the optical system home position when ADF is attached.

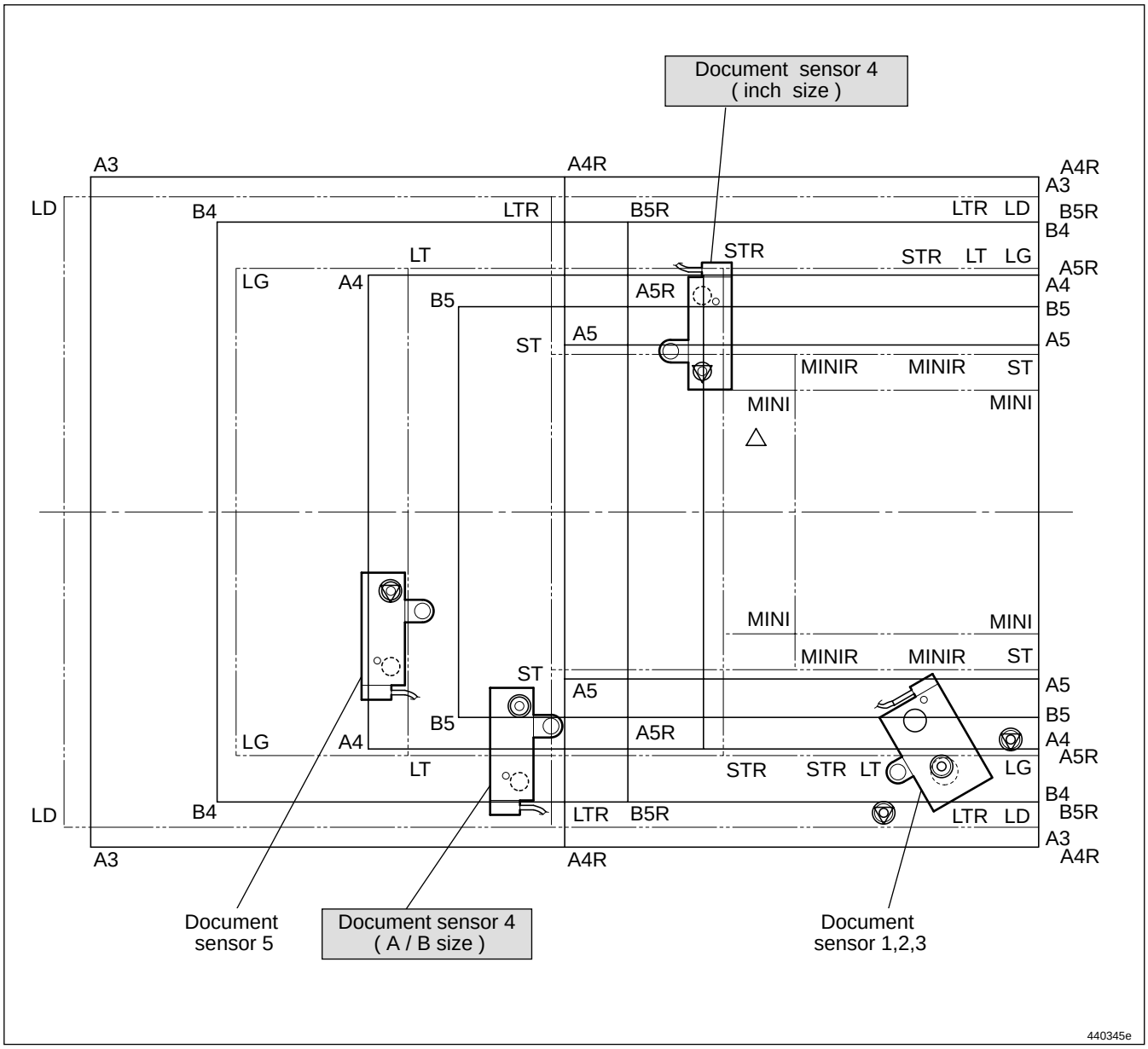


(2) Document Sensors

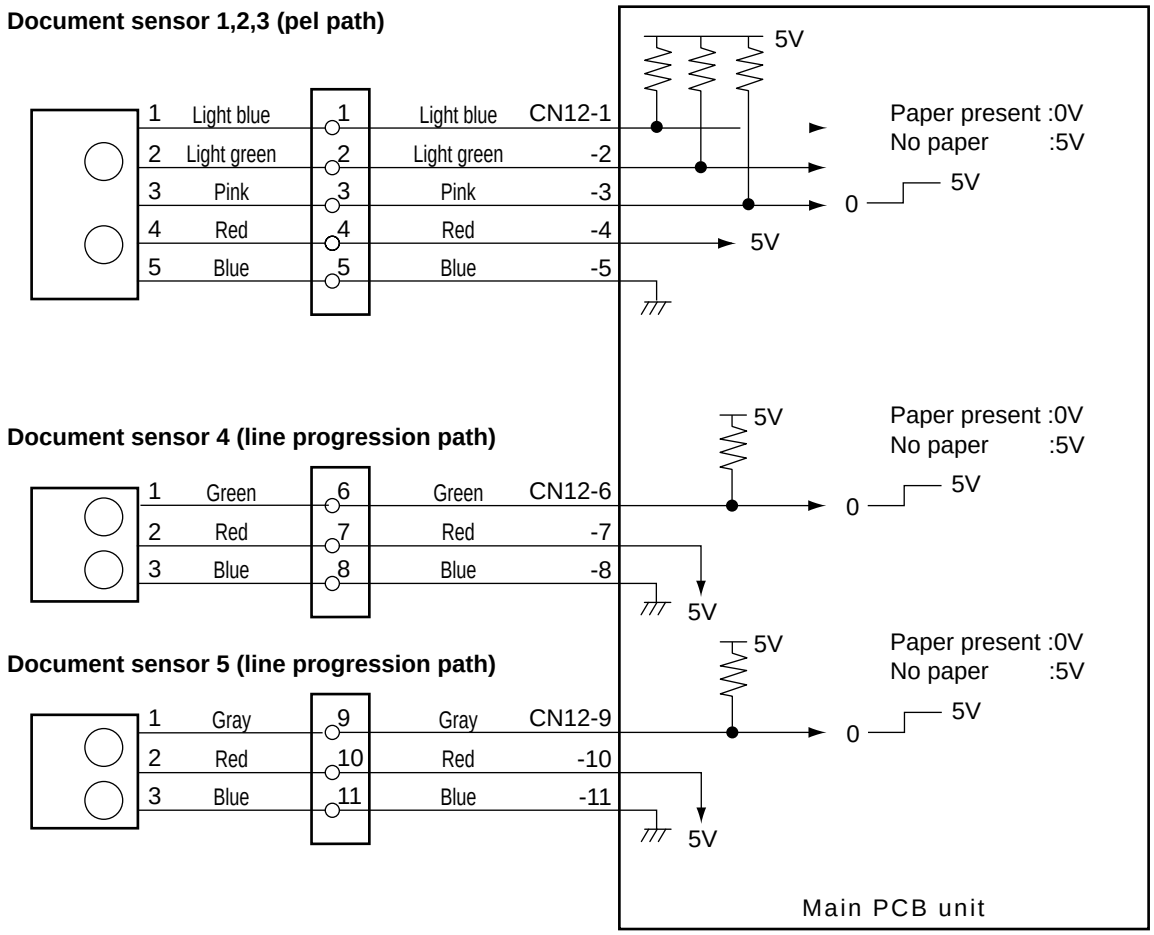
Description

Document sensors 1, 2 and 3 (pel path) sense the document's length in the pel path direction when it is placed on the document glass.

Document sensor 4 (line progression path) / document sensor 5 (line progression path) senses the document's length in the line progression path direction when it is placed on the document glass.



Circuit



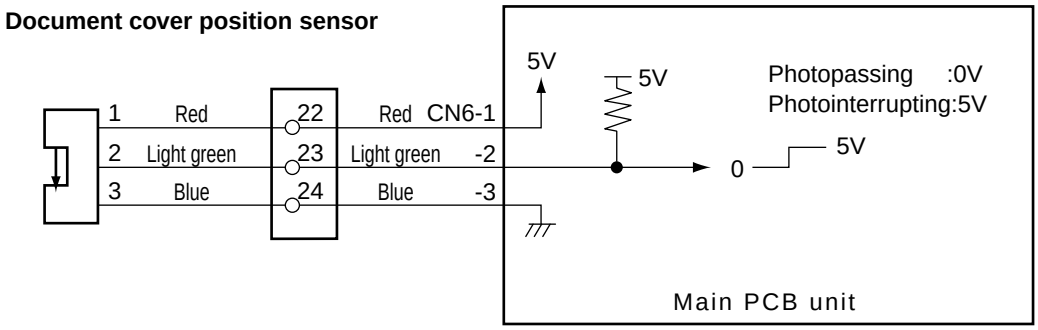
440W03e

(3) Document Cover Position Sensor

Description

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

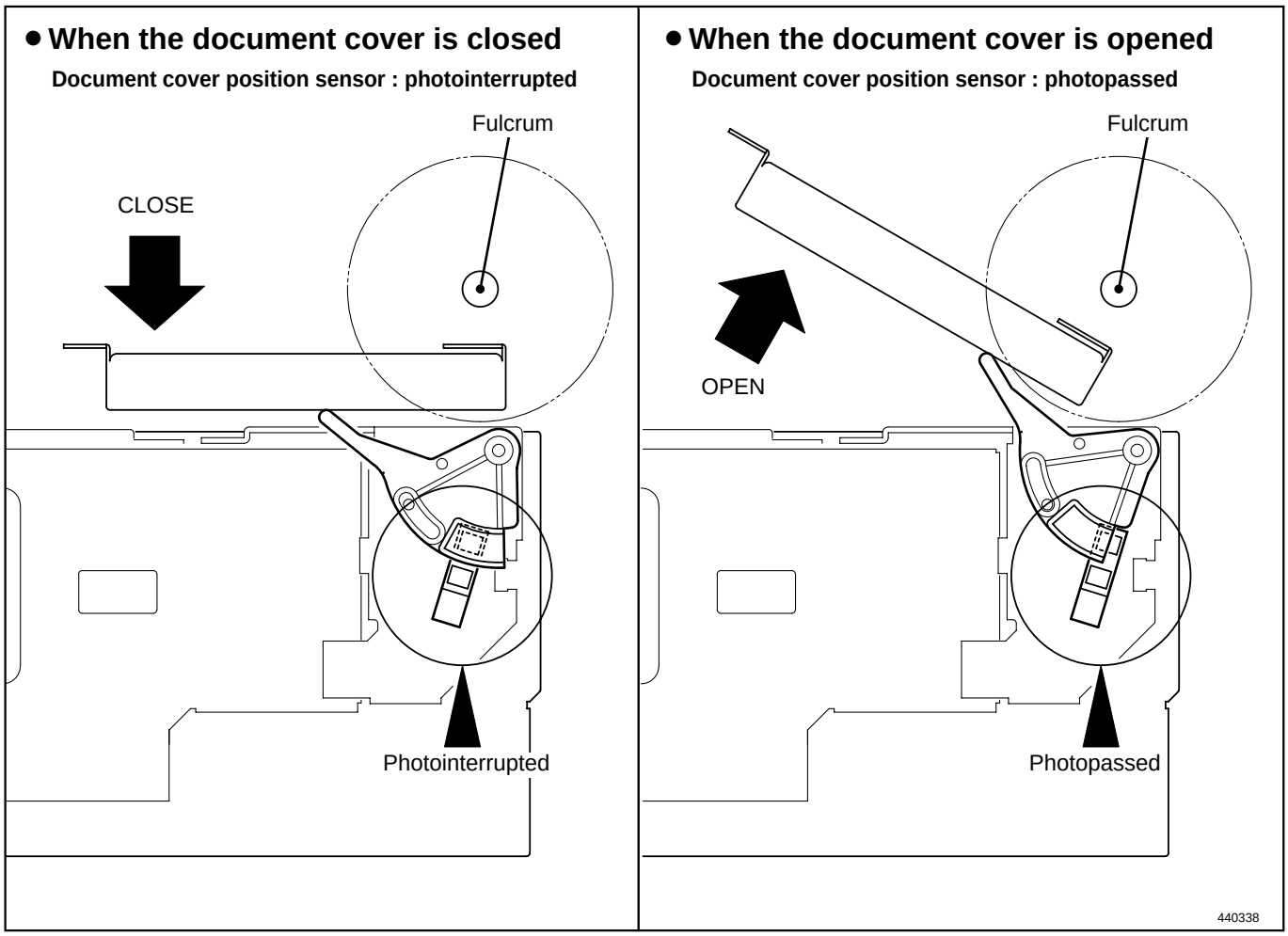
Circuit



440W04e

Operation

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

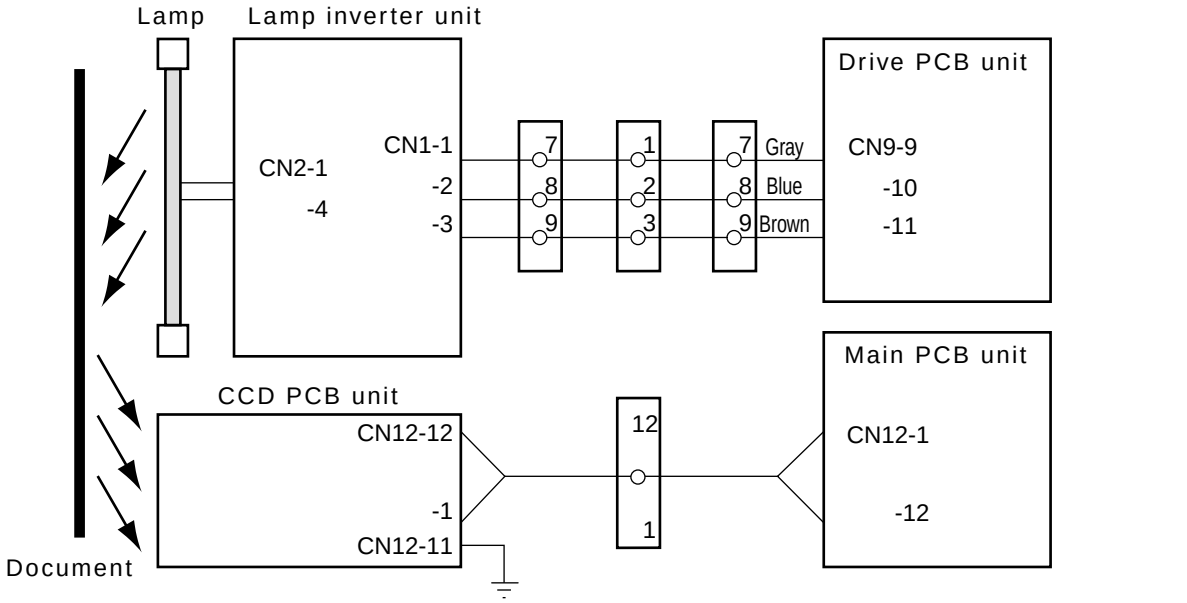


(4) CCD / Lamp

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



440W05e

Specification

• CCD

The table below shows the specification for the CCD.

No.	Item	Specification
1	Optical signal storage time (SH cycle)	2.048 msec./ line
2	Frequency	2.5MHz
3	The number of effective picture elements	4800 picture elements
4	Reading width (This is not the image width which can be processed.)	305mm
5	Reading density	15.7 dot/mm(400DPI)

• Lamp

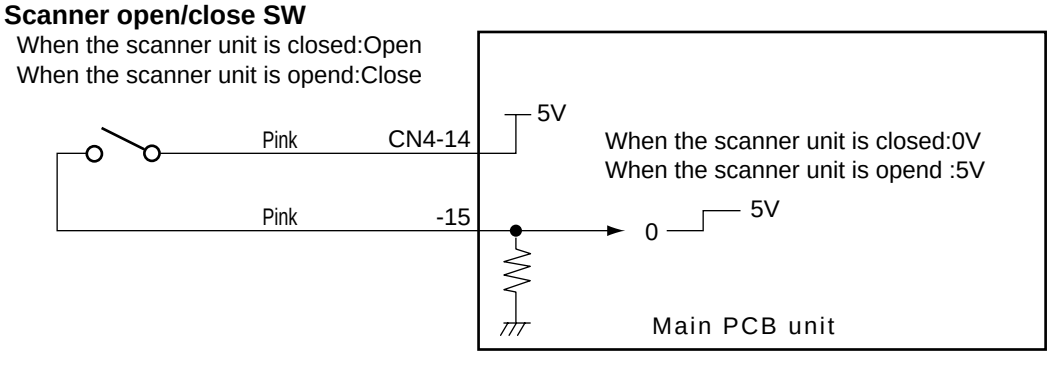
This machine adopts a xenon lamp which is lit quickly when turned on, and the quantity of light is stable.The lamp is lit when the the control signal CN1-1 for the lamp inverter unit is LOW (0V) .

(5) Scanner Unit Open / Close Detection

Description

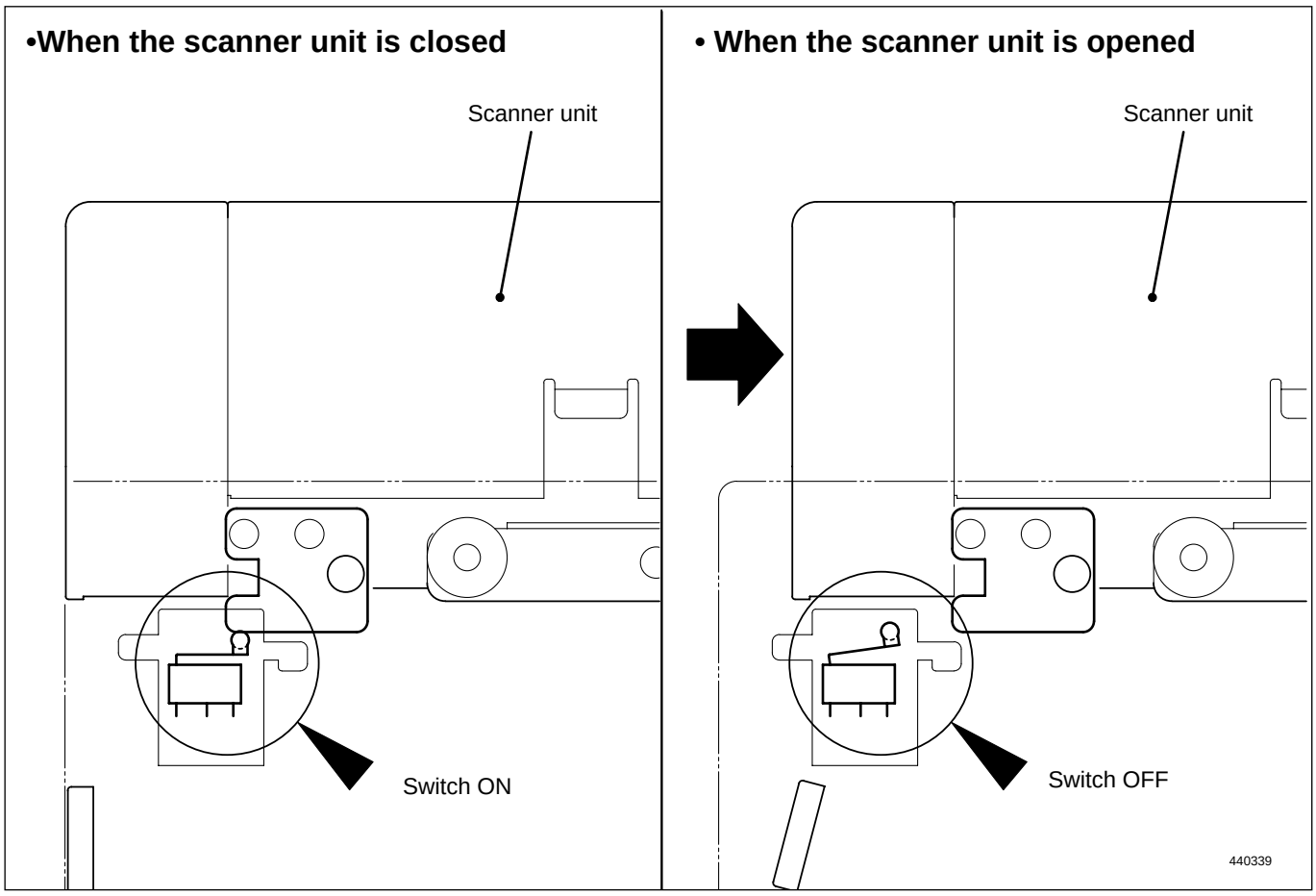
Opening and closing of scanner unit cover is detected by scanner unit cover open / close detection SW (MS3). This machine does not work (except for the master cut SW and the jog SW) unless the scanner unit is closed firmly. The machine stops immediately when the scanner unit is open. (after finishing platemaking if platemaking is being performed.)

Circuit

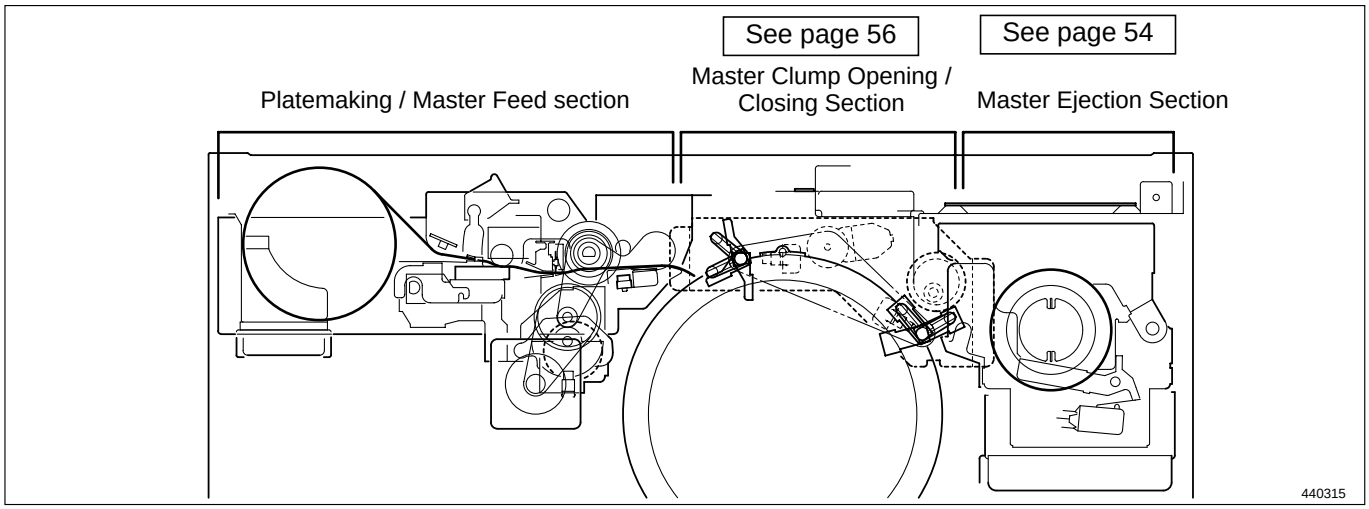


Operation

When the scanner unit is closed, the switch is pressed; OPEN. the switch is attached to the plate spring, which keeps the switch from too much pressure. When the scanner unit is open, the actuator is released; the micro switch is turned to CLOSE.



2 Platemaking / Master Feed / Ejection Section



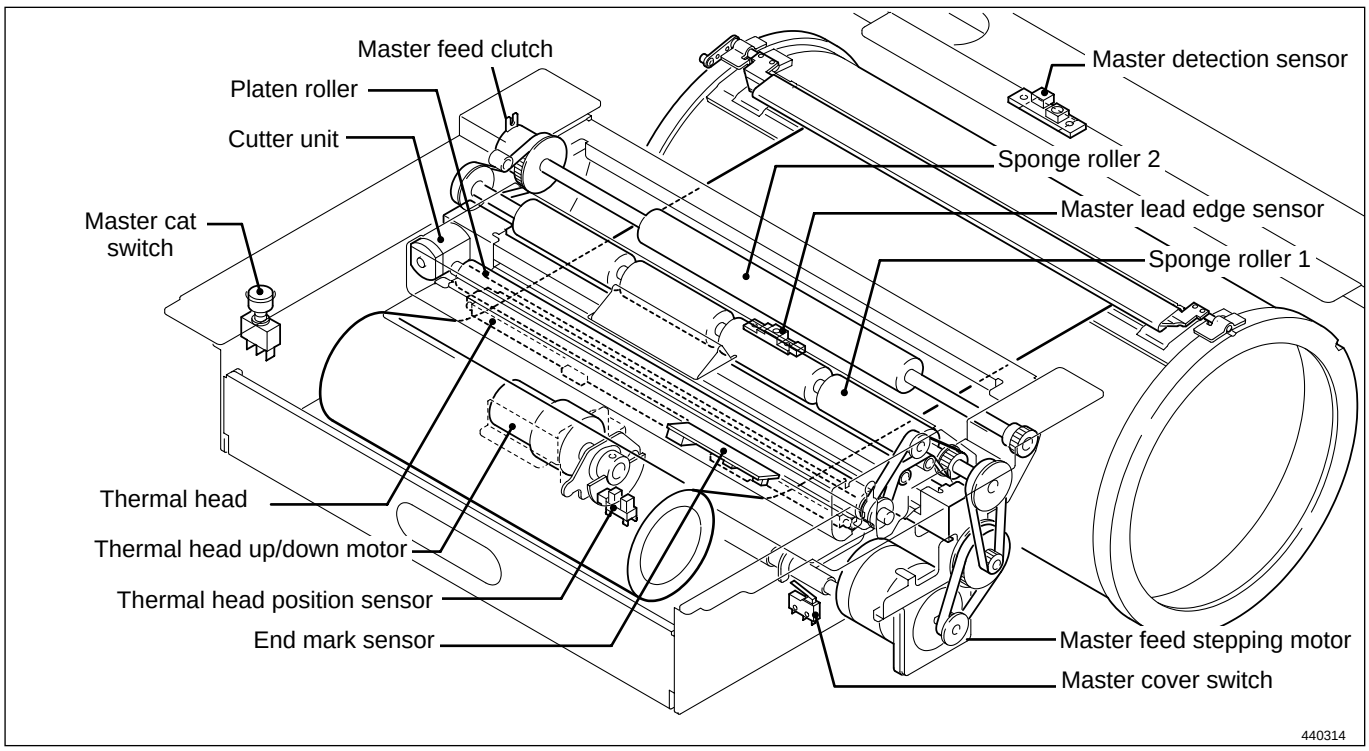
《Platemaking / Master Feed Section》

1. Description

Make the master clump of the drum unit clump the master top end, performing platemaking on the master with the thermal head. (In this machine, the master on the drum is ejected at the same time when platemaking is performed.)

The master is conveyed to the drum unit via the platen roller and sponge roller1,2 by driving of the master feed stepping motor, while it is being processed in the head section. Sponge roller2 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.

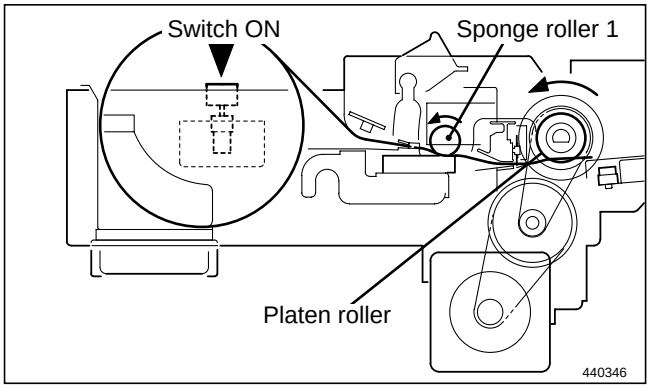
The end mark sensor starts to detect when the end mark (black) section printed on the end of the roll master is conveyed. **"CHANGE MASTER"** is displayed on the LCD panel. The end mark sensor also detects whether the master is conveyed properly through the sensor.



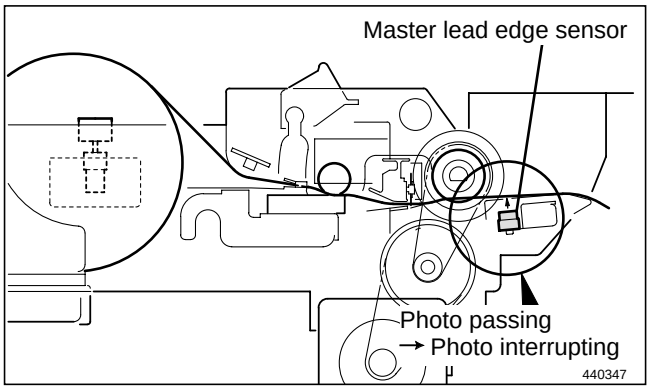
2. Sequence of Operation

(1) Operation when the master set

When the master cover is closed, the platen roller and sponge roller1 rotate and feed out the document for 10 seconds.



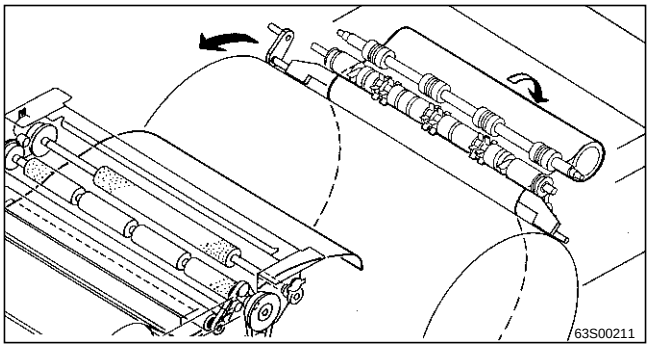
When the master lead edge sensor is interrupted, the master is fed a few steps and stopped.
If the master lead edge does not reach the master lead edge sensor, **"MASTER SETTING ERROR"** is displayed.



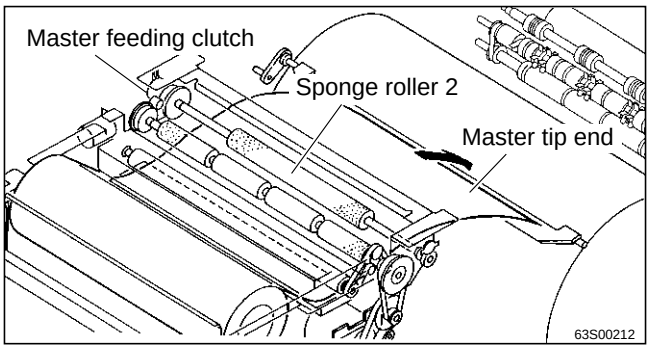
(2) Platemaking / Master Feeding

Operation

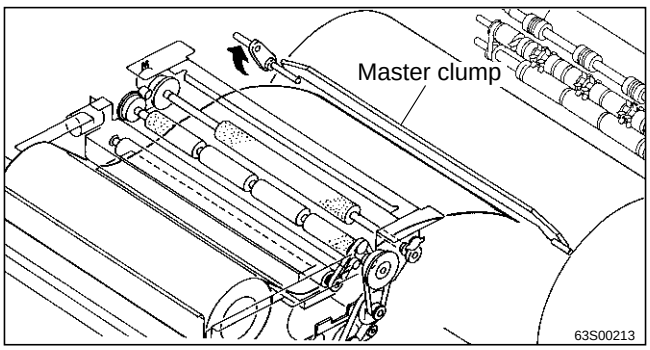
When platemaking operation starts, the drum unit rotates to perform master removal process. The drum which has finished master removal process stops at the master set position.



Open the master clump.
Sponge roller2 rotates with the master feeding clutch ON. A certain amount of the master tip end is fed to the master clump section and the sponge roller stops.

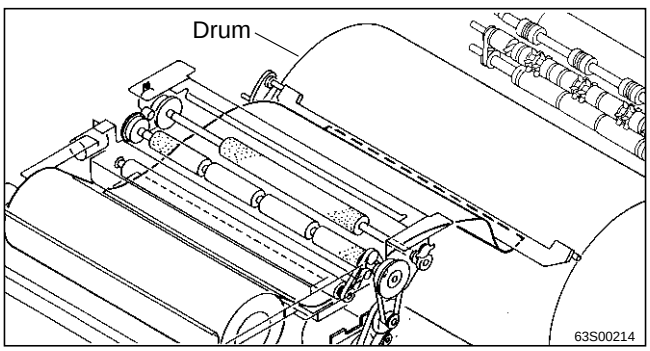


Open the master clump

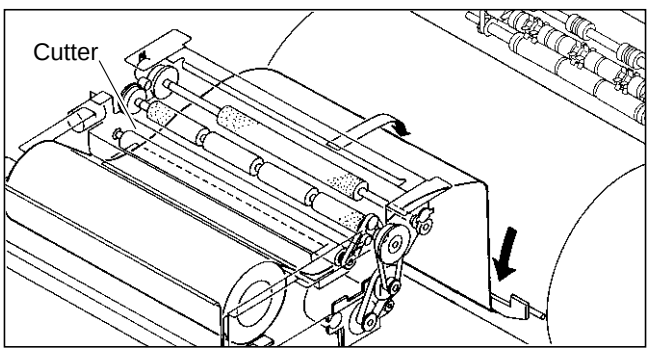


After the master clump is closed and clump the master tip end, the drum rotates to roll up the master.

*Check the length of the master and drum rotation angle to control the drum rotation.
*As the electromagnetic clutch is OFF, the sponge roller is free.



When the master bottom end reaches the top of the drum, master set is completed. Commence printing.



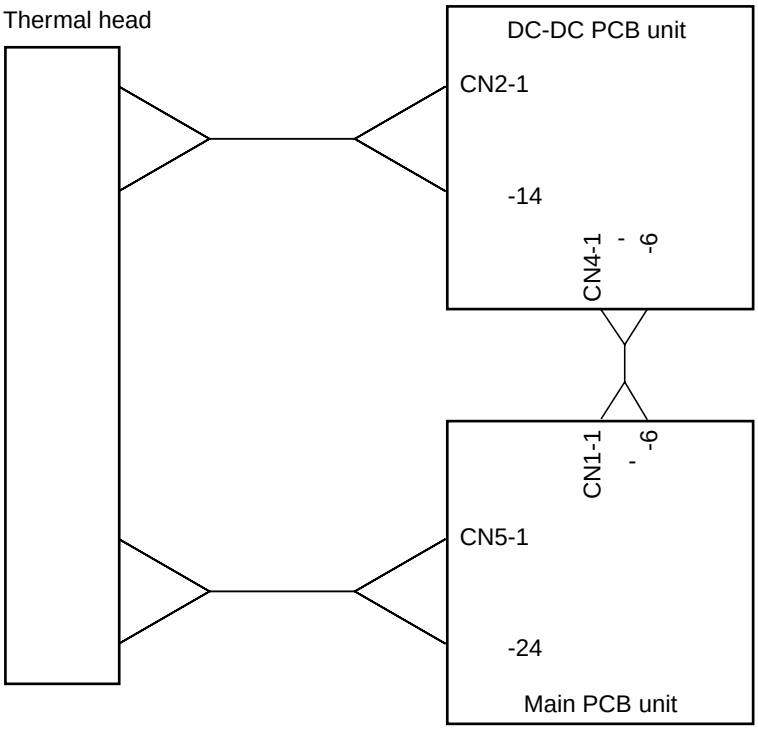
3. Functions of Parts

(1)Thermal Head

Description

The thermal elements are in alignment in the pel path direction, and are heated on the image section to make holes on the master film.

Circuit

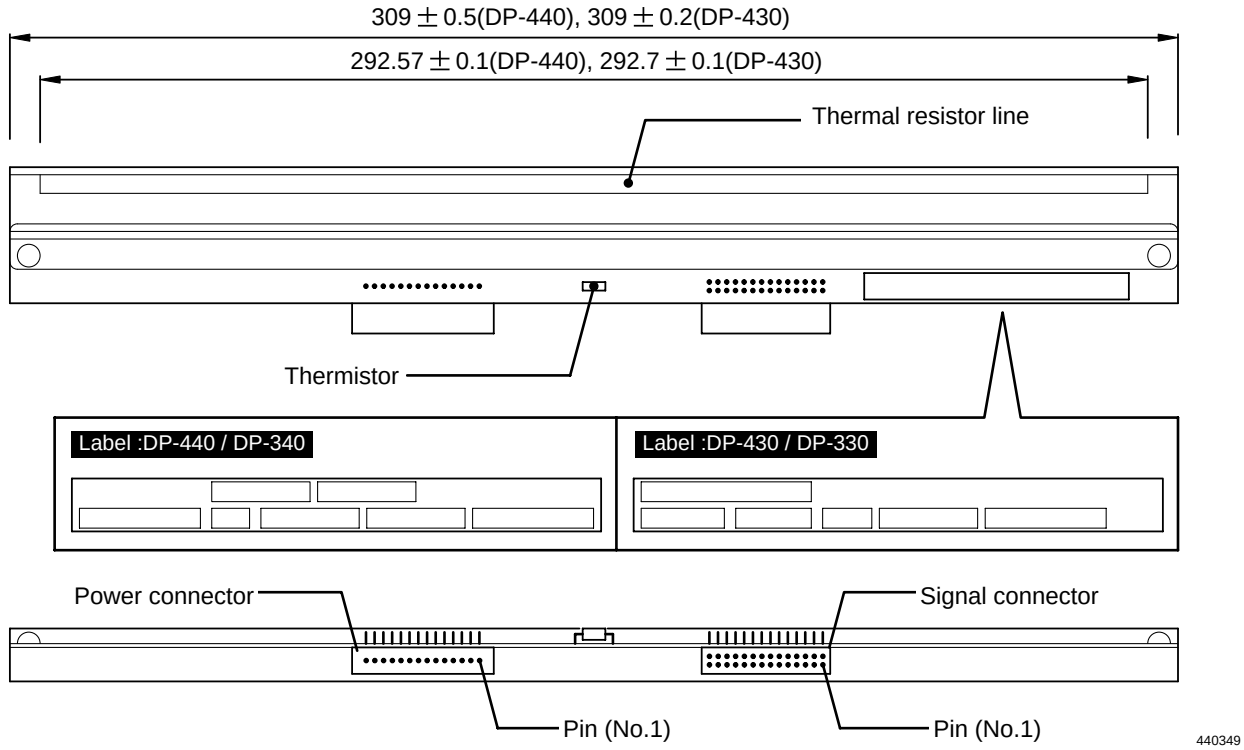


440W07e

Specifications

No.	Item	DP-440	DP-430	DP-340	DP-330
1	Picture element density	400DPI (15.7 dot/mm)	300DPI (11.81 dot/mm)	400DPI (15.7 dot/mm)	300DPI (11.81 dot/mm)
2	Effective memory width	292.6 ± 0.1mm		260.1 ± 0.1mm	260.2 ± 0.2mm

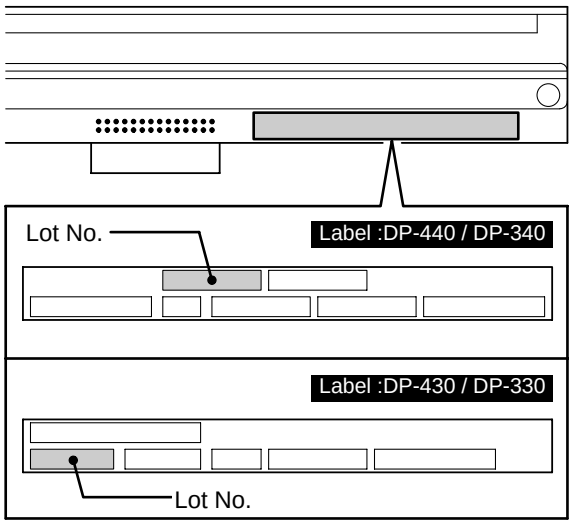
Exterior and Lot No.

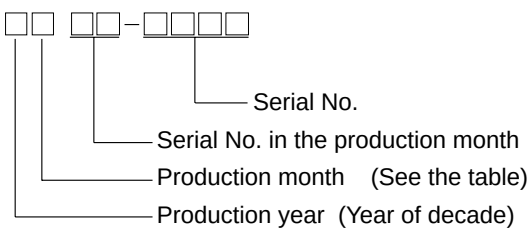


NOTE :

Lot No.

Lot No. is shown with 4 digits including alphabet. Each digit has the following meanings. Serial No. in the production month Production month (See the table) Production year





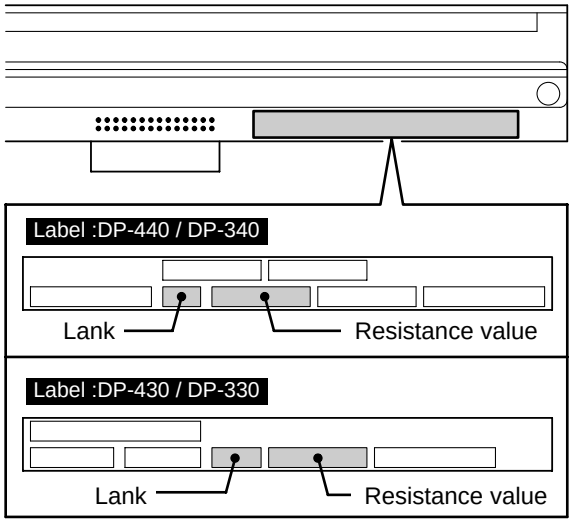
Sign	A	B	C	D	E	F	G	H	I	J	K	L
Month	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

NOTE :

Resistance

Resistance value is described on the label. When the head is replaced and the HELP mode is initialized, set the DIP-SW (H-43,H-44) of the HELP mode.

HELP mode H-43,44 ➡ see p.263

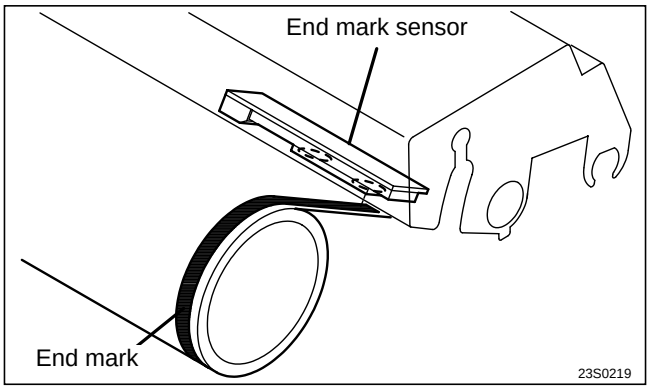


H-43	H-44	DP-440 / DP-340		DP-430 / DP-330	
		Lank	Resistance (Ω)	Lank	Resistance (Ω)
0100	1011	1	1822 - 1860	00	3825 - 3908
0101	1000	2	1861 - 1899	01	3909 - 3993
0101	1001	3	1900 - 1939	02	3994 - 4077
0101	1010	4	1940 - 1979	03	4078 - 4162
0101	1011	5	1980 - 2019	04	4163 - 4246
0110	1000	6	2020 - 2059	05	4247 - 4330
0110	1001	7	2060 - 2099	06	4331 - 4415
0110	1010	8	2100 - 2139	07	4416 - 4499
0110	1011	9	2140 - 2179	08	4500 - 4583
0111	1000	10	2180 - 2220	09	4584 - 4668
0111	1001	11	2221 - 2261	10	4669 - 4752
0111	1010	12	2262 - 2302	11	4753 - 4837
0111	1011	13	2303 - 2343	12	4838 - 4921
1000	1000	14	2344 - 2384	13	4922 - 5005
1000	1001	15	2385 - 2425	14	5006 - 5090
1000	1010	16	2426 - 2466	15	5091 - 5075

(2) End Mark Sensor

Description

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



Reflection light amount

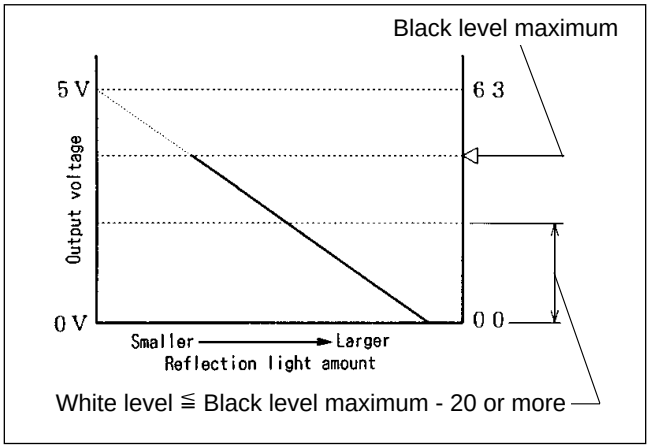
The larger the reflection light amount is, the smaller the output voltage is. The smaller the light amount is, the larger the output voltage is.
The value is checked with the HELP 07.

HELP mode H-07 ➡ see p.228

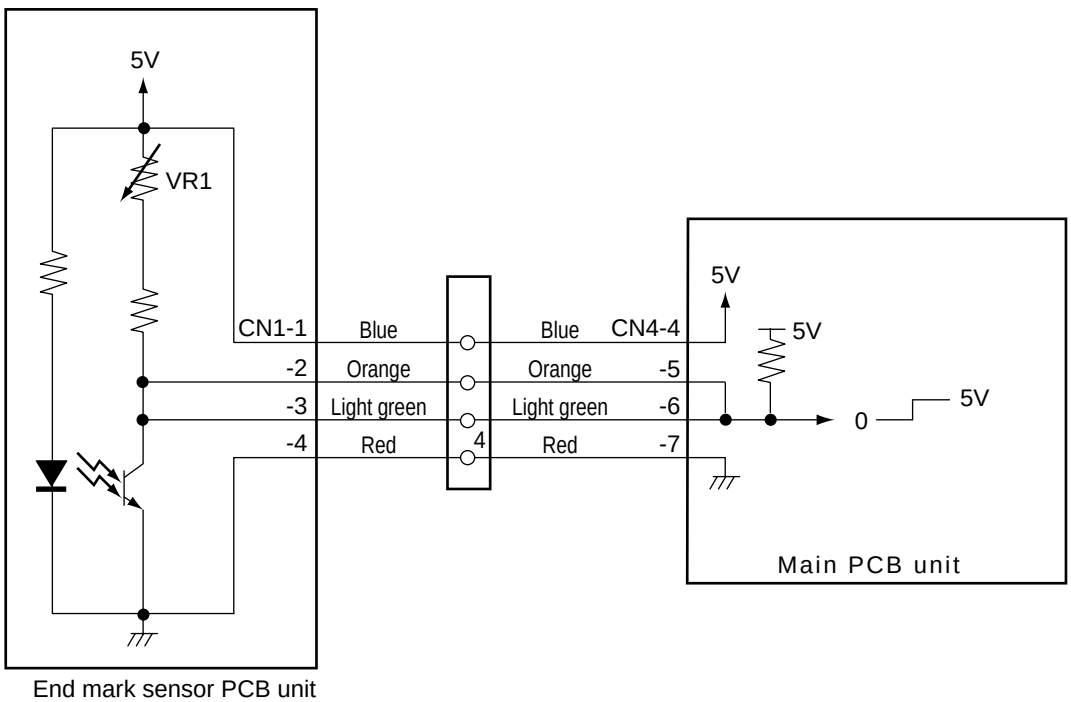
* Adjustment of end mark PCB unit

Adjust the HELP mode H-07 so the difference between the maximum value of the black level and the white level becomes 20 or more.

● **Value of the HELP mode H-07**



Circuit



1. Master Setting Error Detection

Operation

In platemaking, the end mark 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 SETTING ERROR"** is displayed and printing is not processed.
- **"MASTER SETTING 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 platemaking is only performed when the display is cleared after "MASTER SETTING ERROR" is displayed. (Because the master is not attached to the drum.)**

Timing

(1) While platemaking is being processed, the reflection light amount does not turn to be in a white level. (Master detection sensor)

(2) When platemaking process is finished (before printing process), the reflection light amount is in a white level.

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, **"CHANGE MASTER"** is displayed.
- When **"CHANGE MASTER"** is displayed, plate-making is not performed next.
  (The display is not cleared by turning the power off.)

Timing

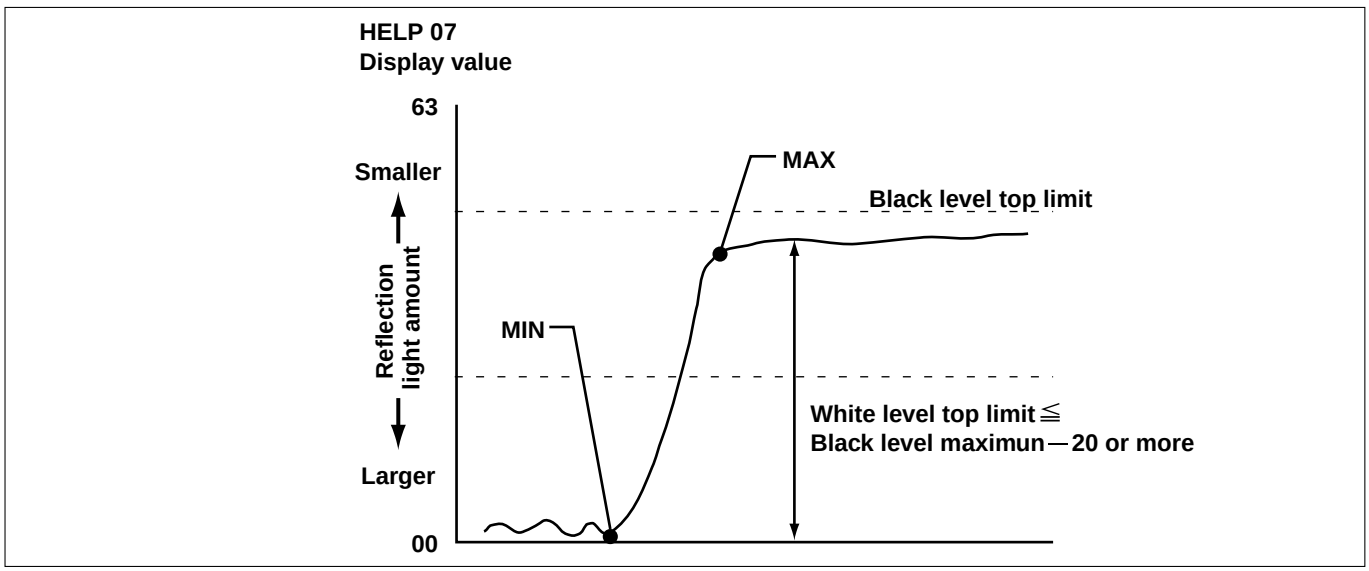
When it is considered that the end mark is read under the following conditions, **"CHANGE MASTER"** is displayed.

① While the master is rolling up to the drum during platemaking, the following is checked.

② When the master passes under the end mark sensor, the amount of reflected light is read.

③ If the following conditions are met, it is considered as master end.

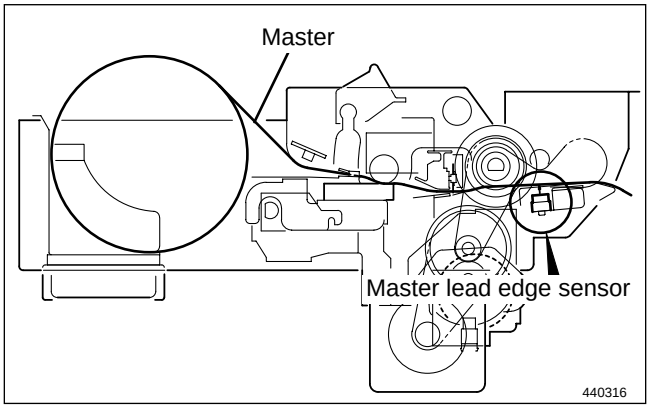
Maximum − Minimum ≧ 20 and **Maximum ≧ white level top limit**



(3) Master Lead Edge Sensor

Description

The master lead edge sensor is located at a fixed distance relative to the master. By means of reflected light, this sensor senses the presence of the master on the master travel path. If the intensity of the reflected light does not reach the "white" level (which indicates presence of the master) a single time during platemaking, **"SET MASTER ROLL PROPERLY"** is displayed.

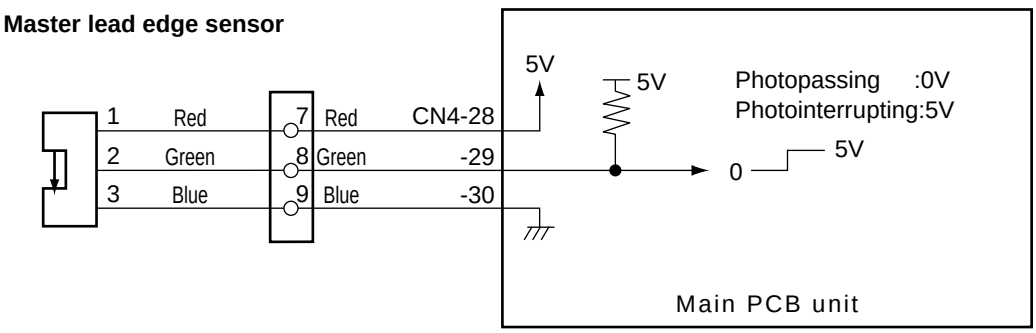


Reflection light amount

The larger the reflection light amount is, the smaller the output voltage is. The smaller the light amount is, the larger the output voltage is.
The value is checked with the HELP 05.

HELP mode H-05 ➡ see p.224

Circuit

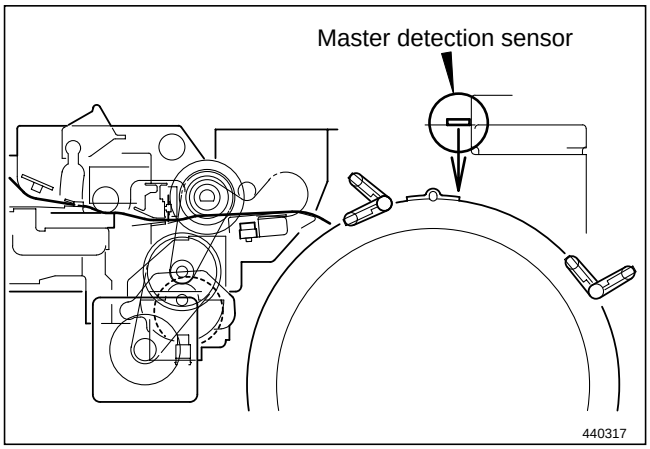


(4) Master Detection Sensor

Description

The master detection sensor is located at a fixed distance relative to the drum. By means of reflected light, this sensor senses master setting errors. When a master setting error occurs, **"MASTER SETTING 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.



Reflection light amount

The larger the reflection light amount is, the smaller the output voltage is. The smaller the light amount is, the larger the output voltage is.

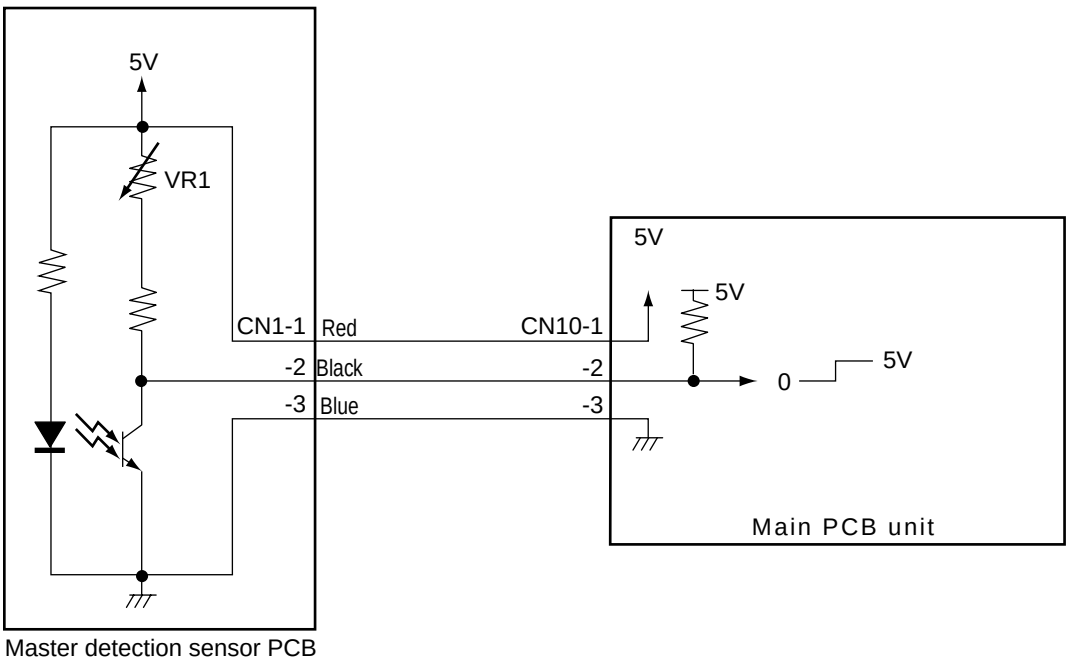
The value is checked with the HELP 07.

HELP mode H-07 ➡ see p.229

Sensitivity adjustment of master detection sensor

Adjust variable resistor dial **VR1** so that the difference between the black and white levels is 30 or more. Preferably, the value when master presence is sensed should be around **10**.

Circuit

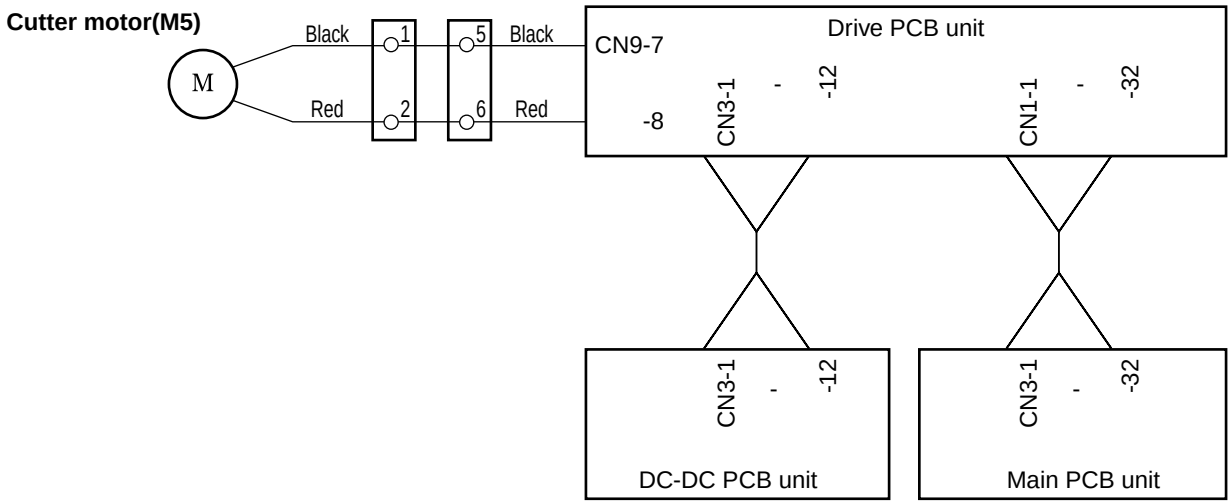


(5) Cutter Unit

Description

Completed, the stepping motor for platemaking and the drum stops temporarily, the cutter motor is turned on to drive the cutter and the master is cut.

Circuit



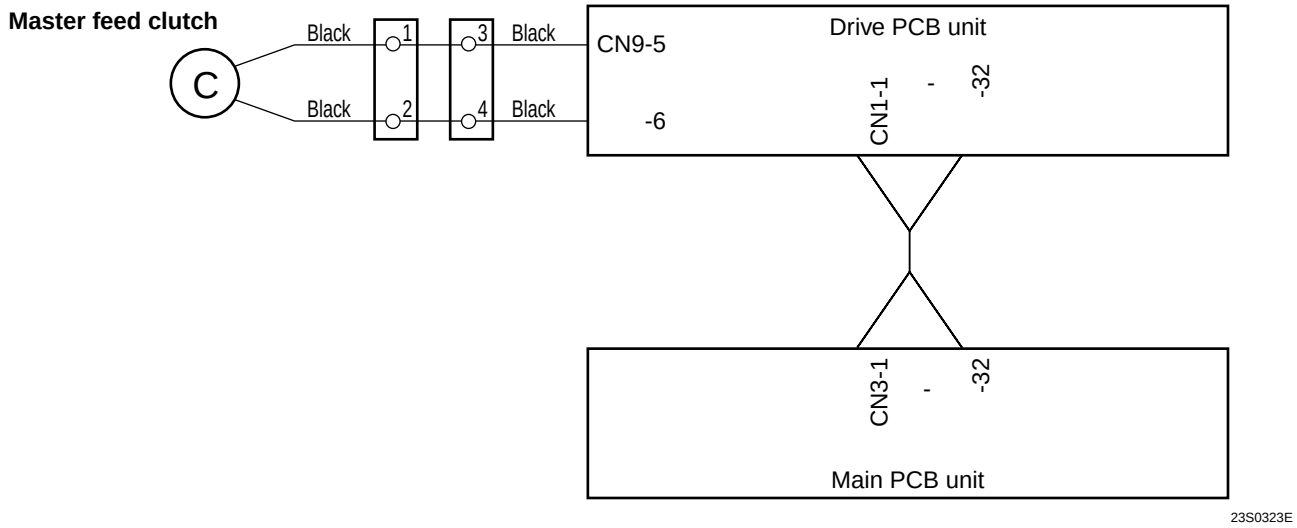
440W11e

(6) Master Feed Clutch(Electromagnetic clutch)

Description

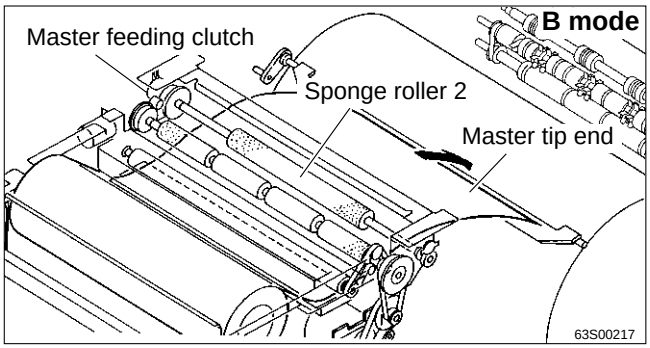
Sponge roller2 is attached to the bottom section of the master conveyance way of the master feeding unit, and is driven via the master feeding clutch (CL1) by the platemaking motor. The rotation of sponge roller2 is controlled with the master feeding clutch ON / OFF.

Circuit

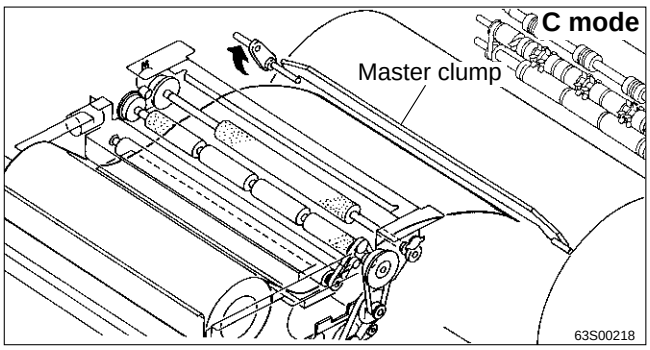


Operation

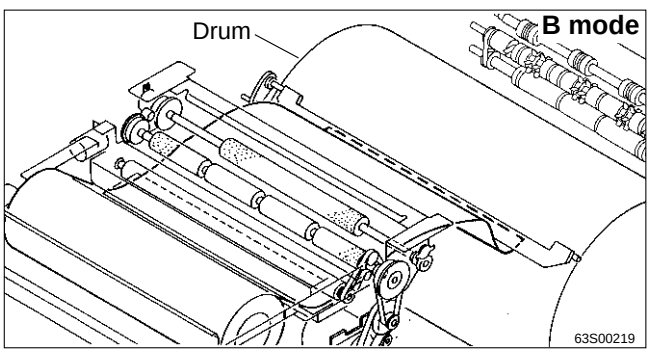
1) In the platemaking process, when the drum stops in the master winding position, the master feeding clutch comes on, so that sponge roller2 is driven and feeds out the master by a fixed amount.



2) The master clump opens and closes, to clump the master.



3) When the master is wound onto the drum, the master feed clutch turns off, leaving sponge roller2 free to be turned by the master as it is wound off the drum.

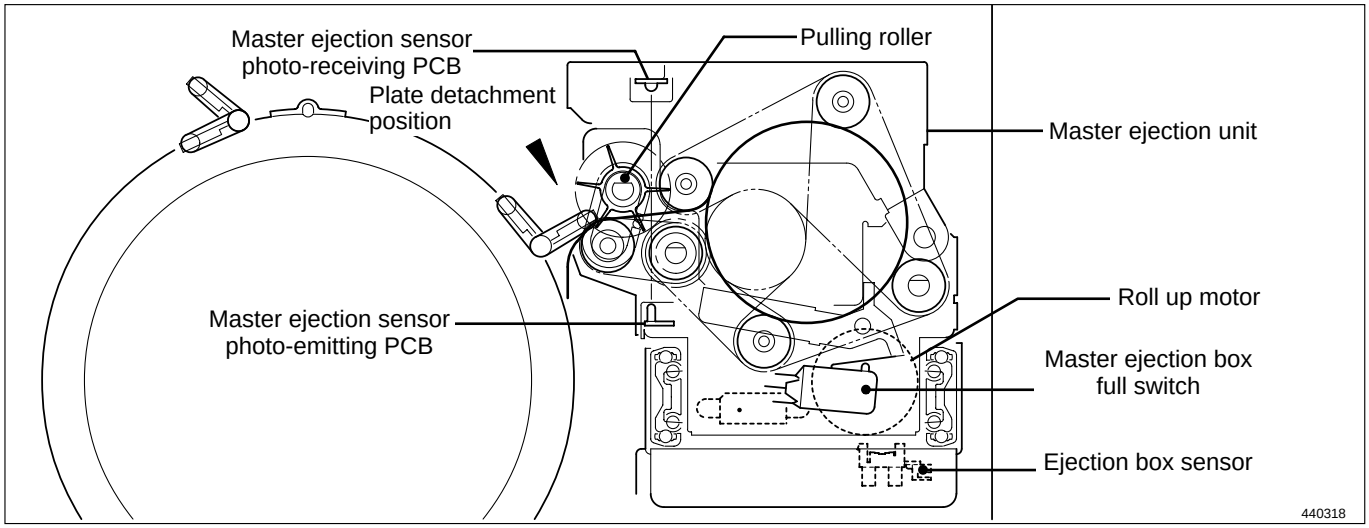


《Master Ejection Section》

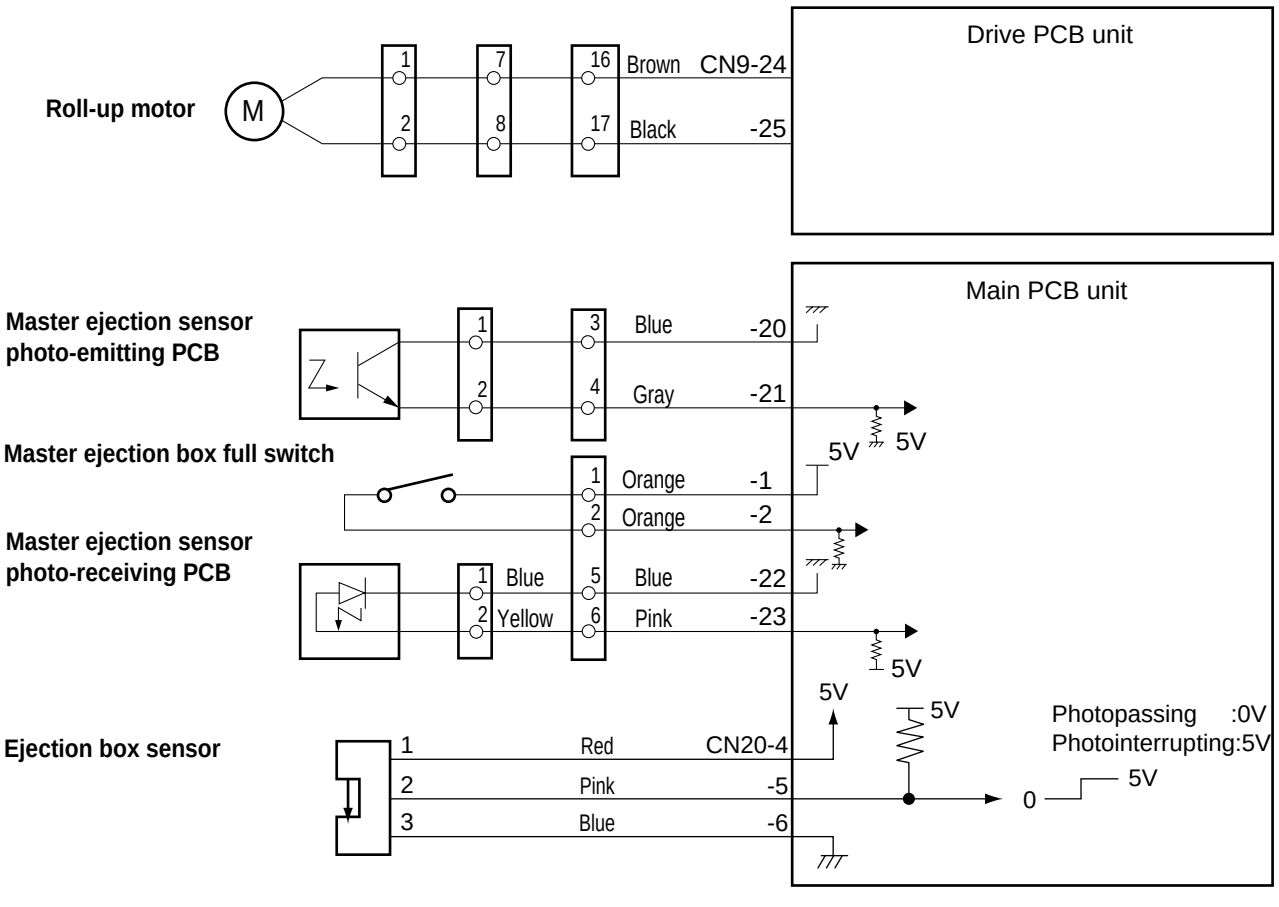
1. Description

When the drum stops at the plate detachment position and the master clump which clumps the master tip end is opened (C mode), the pulling roller on the rolling section of the master ejection box pulls the master tip end into the box inside, and the master is rolled up to the core.

If no core is installed, or when the master is fully wound onto the core, the core full switch (MS8) is mechanically actuated, and the message **"CHANGE MASTER EJECTION CORE"** appears on the LCD panel.



2. Circuit



3. Function of Parts

(1) Master Ejection Sensor

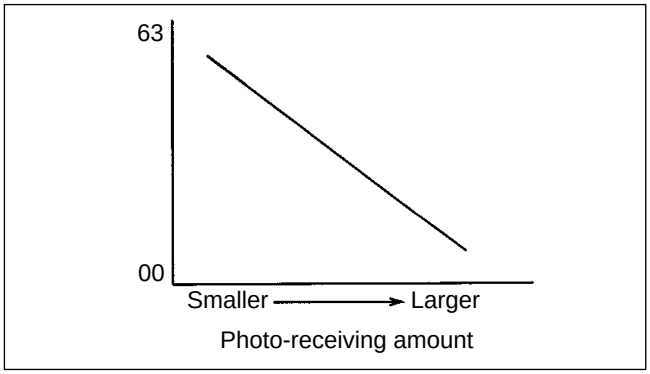
Description

Photo-emission from the master ejection sensor is received on the master ejection sensor, and the sensor detects with the photo strength whether the master is pulled to the master ejection box.

Photo-receiving amount is checked with the HELP06.

HELP mode H-06 ➡ see p.226

● **HELP mode H-06 value**



1. Master Ejection Error Detection

Operation

While one platemaking is being processed, the difference of photo-receiving amount is less than 8 by checking with the HELP5, which is determined as an master ejection error. The following display and operation are shown.

- **"PLATE EJECTION ERROR"** is displayed on the LCD panel and printing is not processed.
- **"PLATE EJECTION ERROR"** is cleared with the **ALL CLEAR** key , **STOP** key pressed.
- A master ejection error is not detected for one platemaking soon after a plate ejection error or master setting error is detected.

IMPORTANT : ● **If incorrect sensing occurs due to sensor malfunction, etc., HELP32can be used to prohibit plate ejection error sensing.**

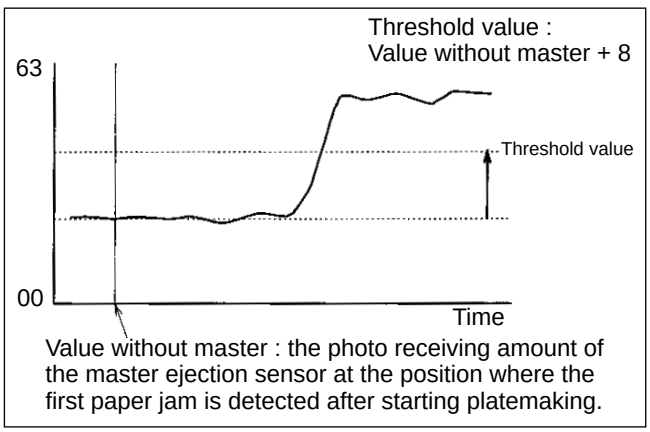
HELP mode H-32 ➡ see p.254

Timing

If the variation in the amount of light received by the master ejection sensor during the making of 1 plate is less than a certain level (8 in the HELP06 display value), a plate ejection error is deemed to have occurred.

HELP mode H-06 ➡ see p.226

● **HELP mode H-06 value**



2. Rotation Control of the Roll-up Motor

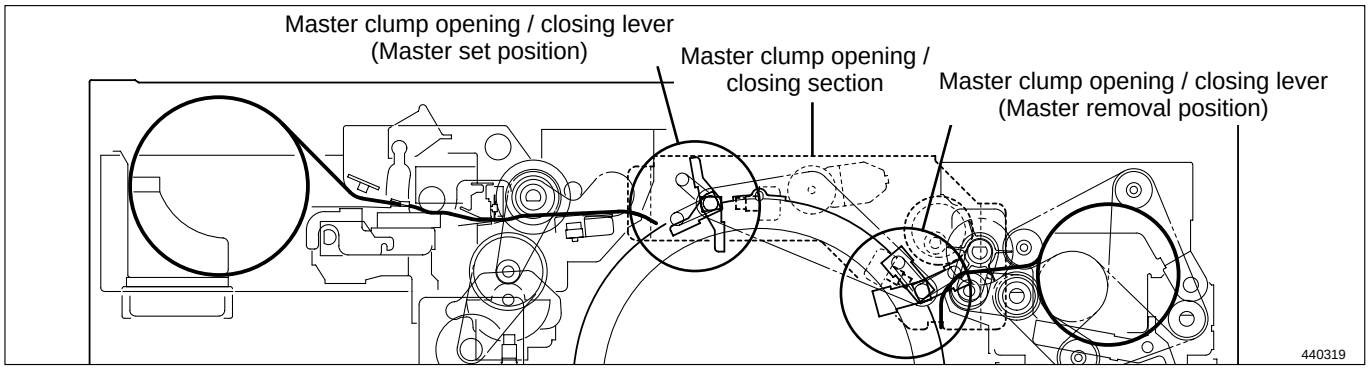
If the roll-up motor is kept rotating when the master tip end is pulled to the ejection box in the plate detachment process, the drum is actuated by the master and the stop position slips. To prevent this, the roll-up motor is stopped when the master is detected by the master ejection sensor. (If the master is not detected by the master ejection sensor, the Roll-up motor is stopped by the timer.)

《Master Clump Opening / Closing Section》

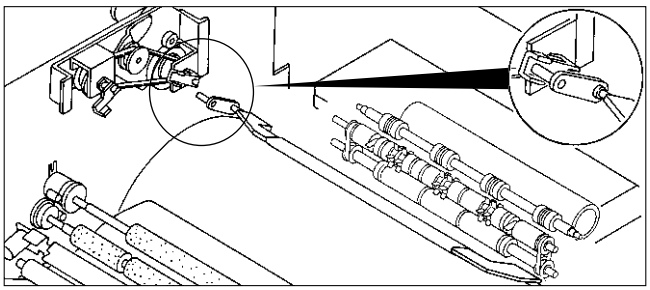
1. Description

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

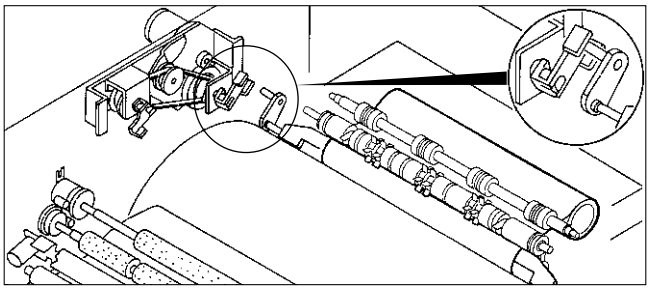
The master clump is opened or closed during platemaking. Opening / closing operation is as follows:-



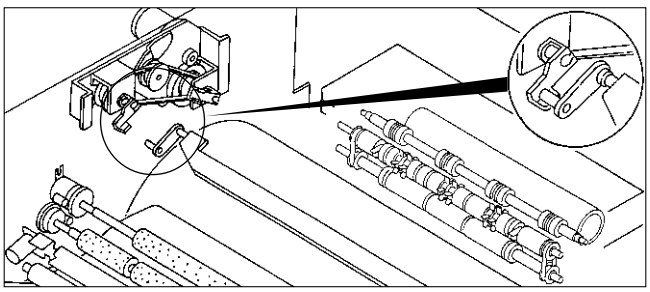
1) When platemaking starts, the drum unit rotates from the stop position to the opening / closing lever section (master removal position) and it stops temporarily. (B mode)



2) Open the master clump to have the used master tip end gripped by the plate ejection unit.

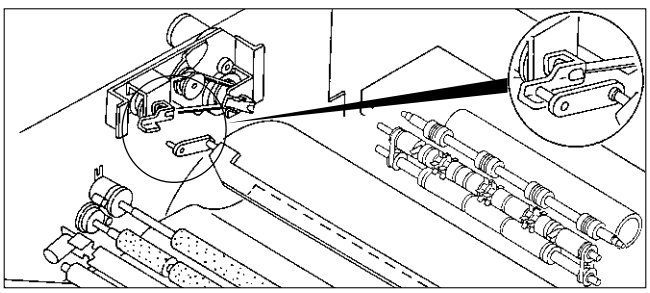


3) Close the master clump, rotate the drum again and stop the drum at the next opening / closing lever section (master set position).



4) Open and close the master clump to have it grip the leading edge of the used master.

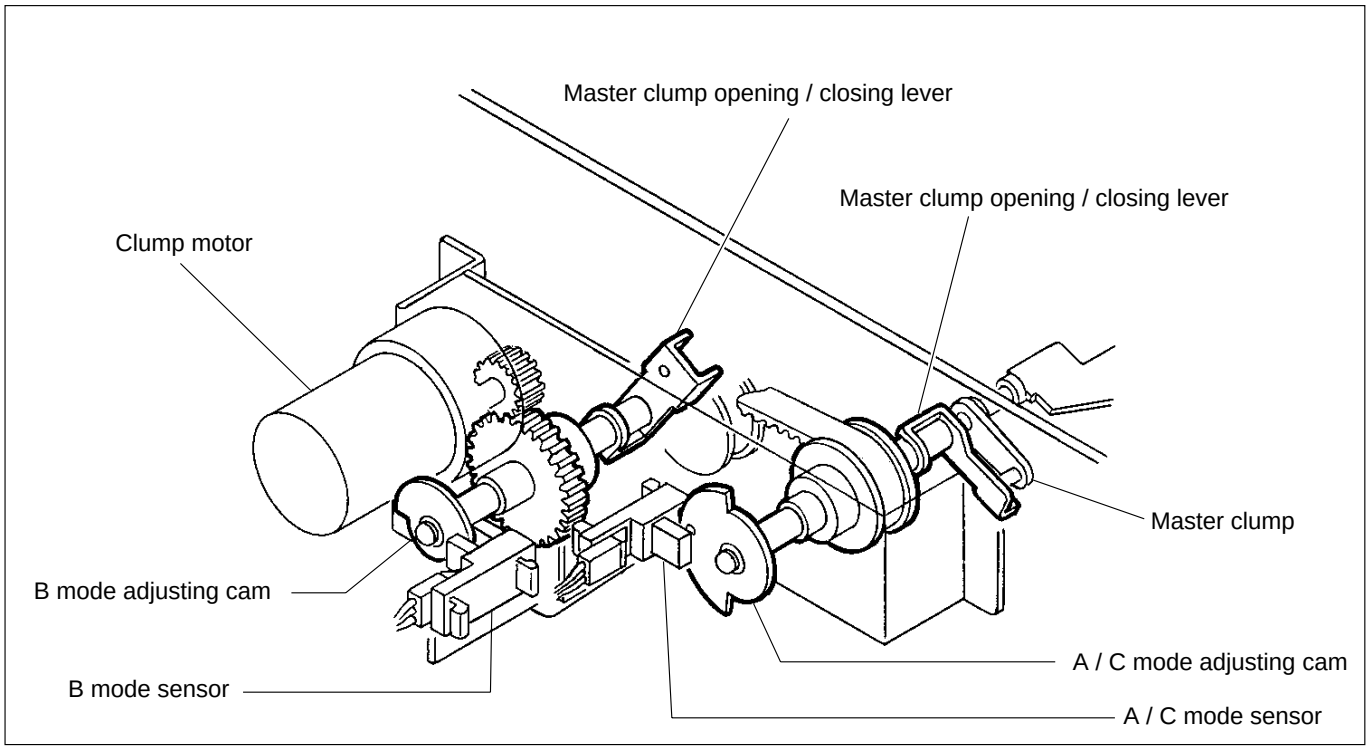
5) Rotate the drum, to wind the master onto it.



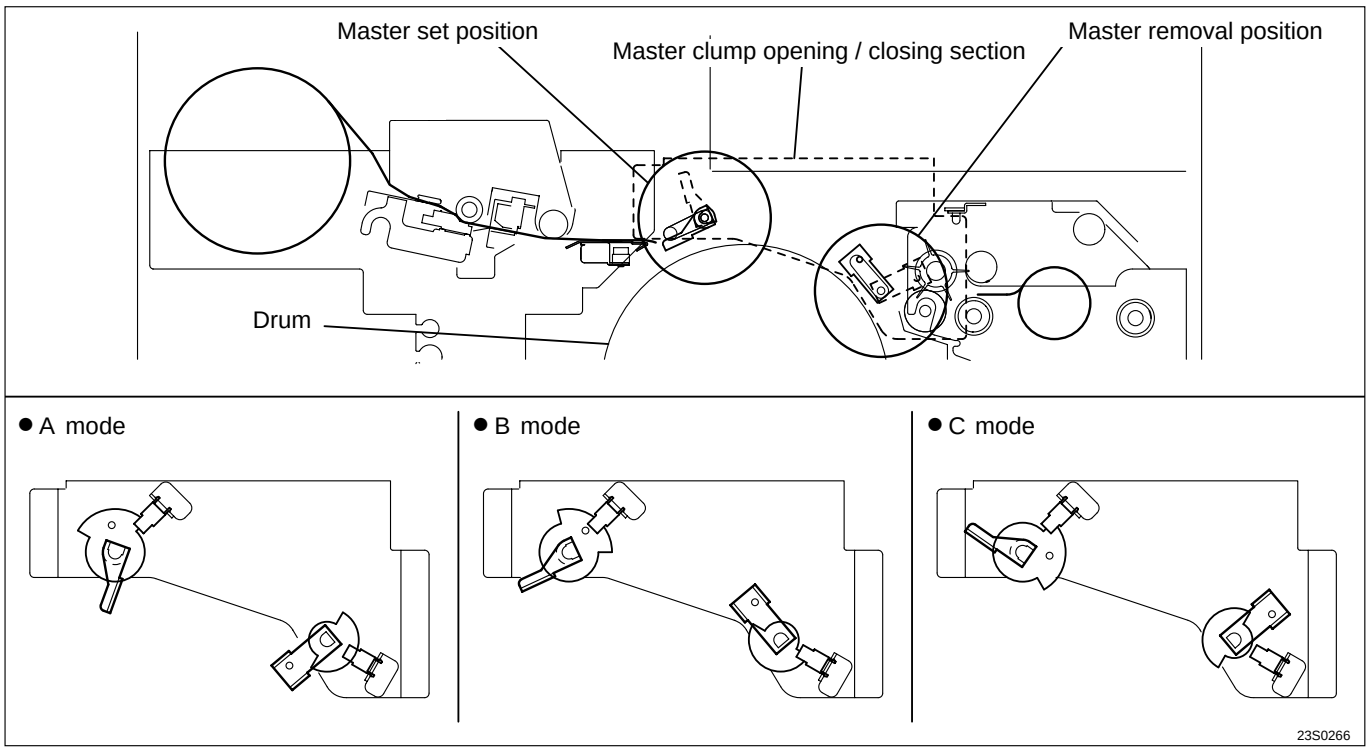
2. Operation of Master Clump Open / Close Lever

(1) Structure

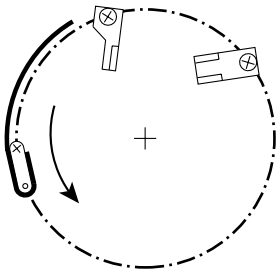
The following is the structure of the master clump opening / closing section viewed with the rear cover opened. The rotation stop position of the master clump opening / closing lever is determined by the clump motor and two cams. There are 3 rotation stop positions: A mode, B mode and C mode. Their functions are as follows:-



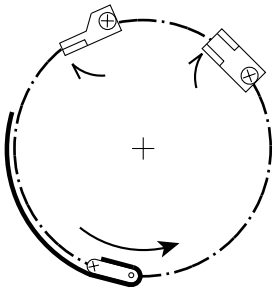
The drawing below is a section through the machine's interior, viewed from the control side.



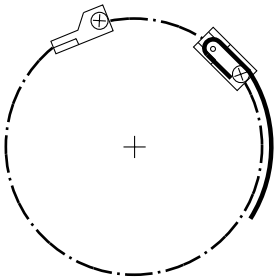
(2) Master Set / Removal Operation



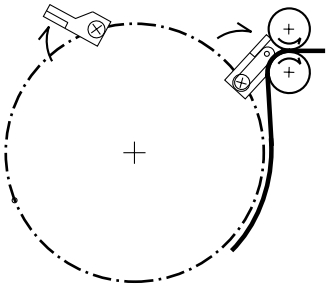
(1) A mode
The drum start rotates.



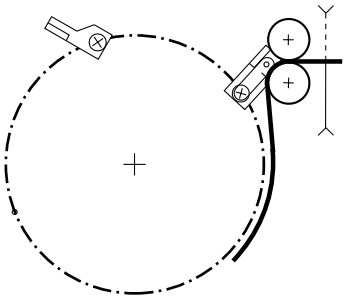
(2) A mode → B mode
The opening / closing lever changes to B mode.



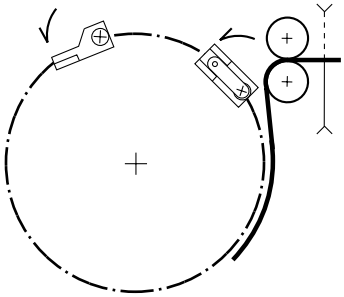
(3) B mode
The drum rotates to the master removal position → Stop



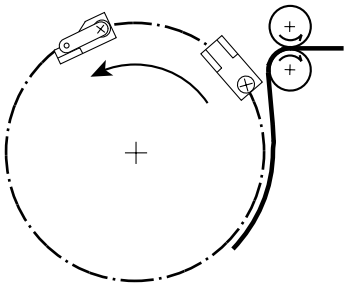
(4) B mode → C mode
The clump opens to pull the master.



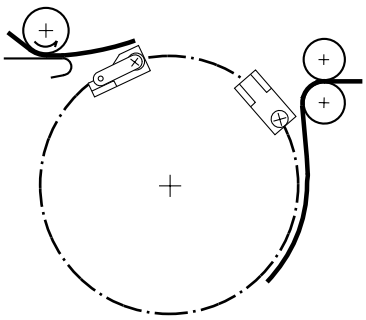
(5) C mode
The pulling roller stops.
When the master ejection sensor detects the master.



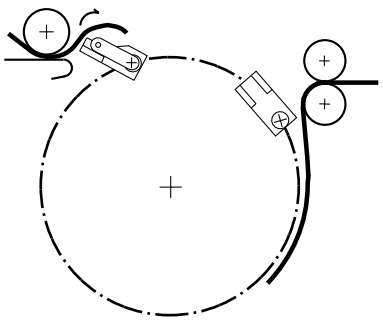
(6) C mode → B mode
The clump is closed.



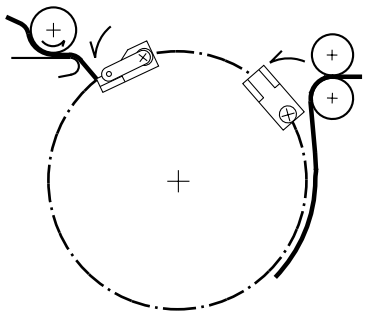
(7) B mode
The drum rotates to the master set position → Stop



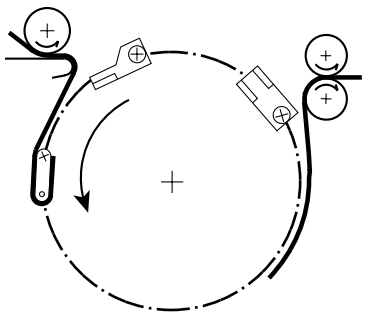
(8) The sponge roller feeds out the master.



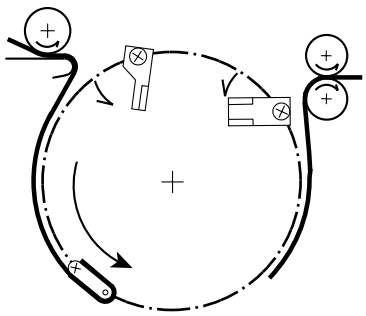
(9) B mode → C mode
Master clump opens.



(10) C mode → B mode
The clump grips the master.

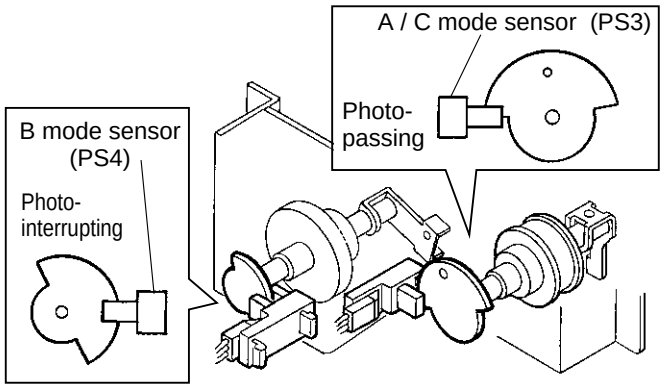
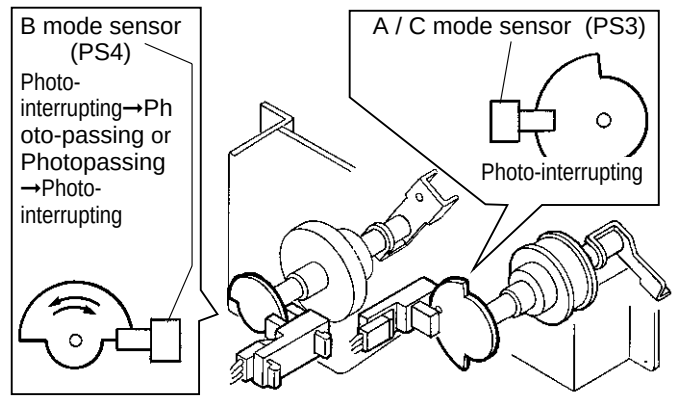
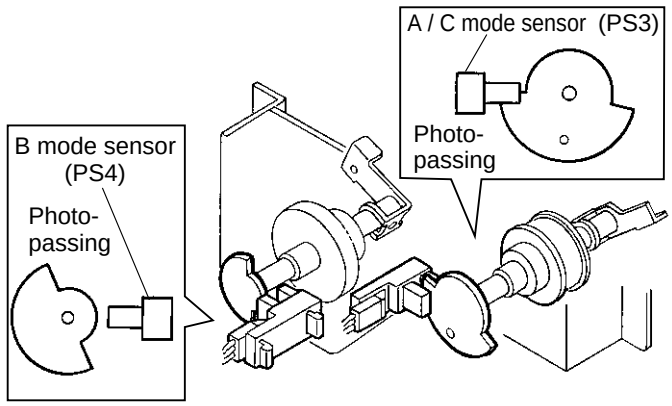


(11) B mode
The drum rotates to roll up the master.



(12) B mode → A mode
The clump lever returns to A mode.

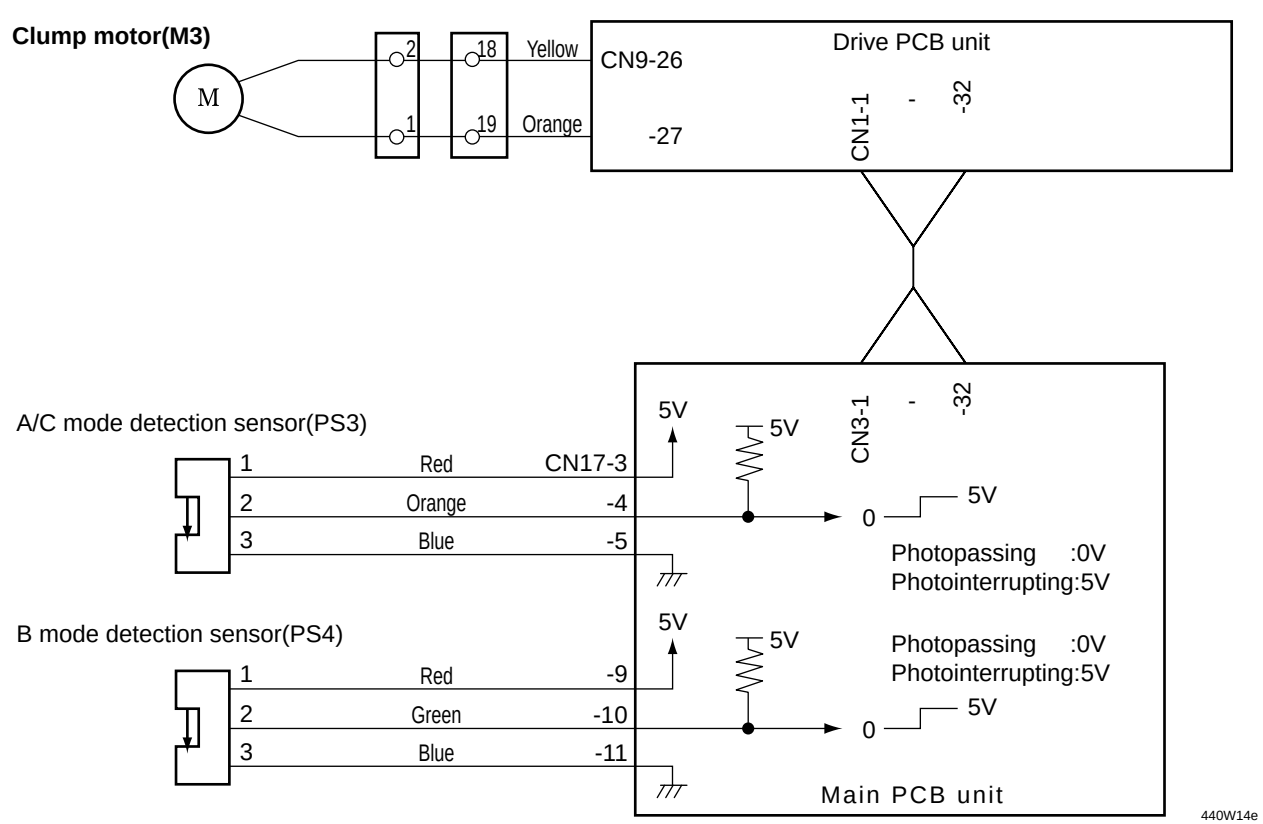
(3) Clump Opening / Closing Lever Position (A / B / C Mode)

Mode	Photointerrupter stop position / state of sensor	Functions
A mode		In the normal state or during printing, the master clump opening / closing lever turns out from the master clump opening / closing lever.
B mode		The master clump opening / closing lever pinch the master clump opening / closing arm.
C mode		The master clump is open. This state occurs when the master is set or removal.

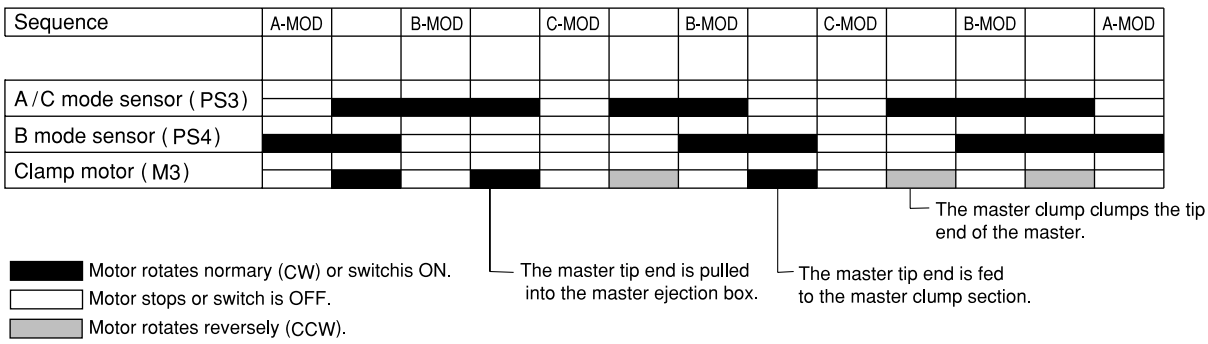
3. Function of Parts

(1) A / B / C Mode Sensor

Circuit



Operation / Sequence



The mode is detected under the following conditions

- **A mode**

When the B mode sensor (PS4) is photointerrupted, the A / C mode sensor (PS3) detects the edge of photointerrupting → photopasing.

***With the power ON, the A mode is determined when the B mode sensor is in the photointerrupting state and the A/C mode sensor is in the photopassing state. If not in the A mode with the power ON, the master clump opening / closing lever rotates to the B mode and stops. When the lever stops at the B mode, the drum rotates with the drum rotation switch and returns to the A mode at the stop position.**

- **B mode**

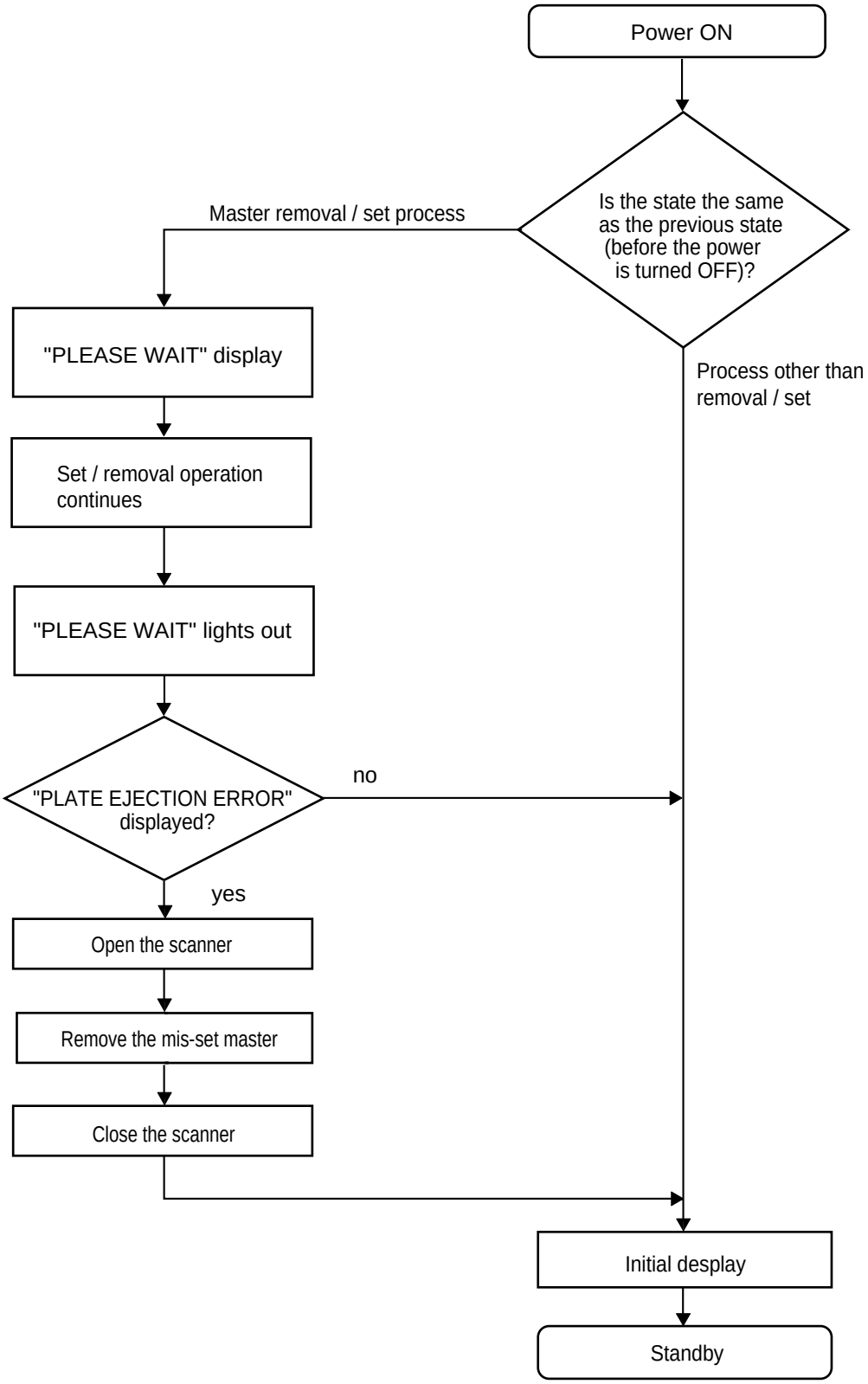
When the A/C mode sensor is photointerrupted, the B mode sensor detects the edge of photointerrupting → /photopassing or photopassing - photointerrupting.

- **C mode**

When the B mode sensor is photopassing, the A/C mode sensor detects the edge of photointerrupting → photopassing.

4. Returning Operation Flowchart When the Power Is Cut Off Accidentally

The machine returns to the initial state automatically when the power is turned off mistakenly during processing platemaking, master removal and master set simultaneously or when the power returns after it is interrupted.

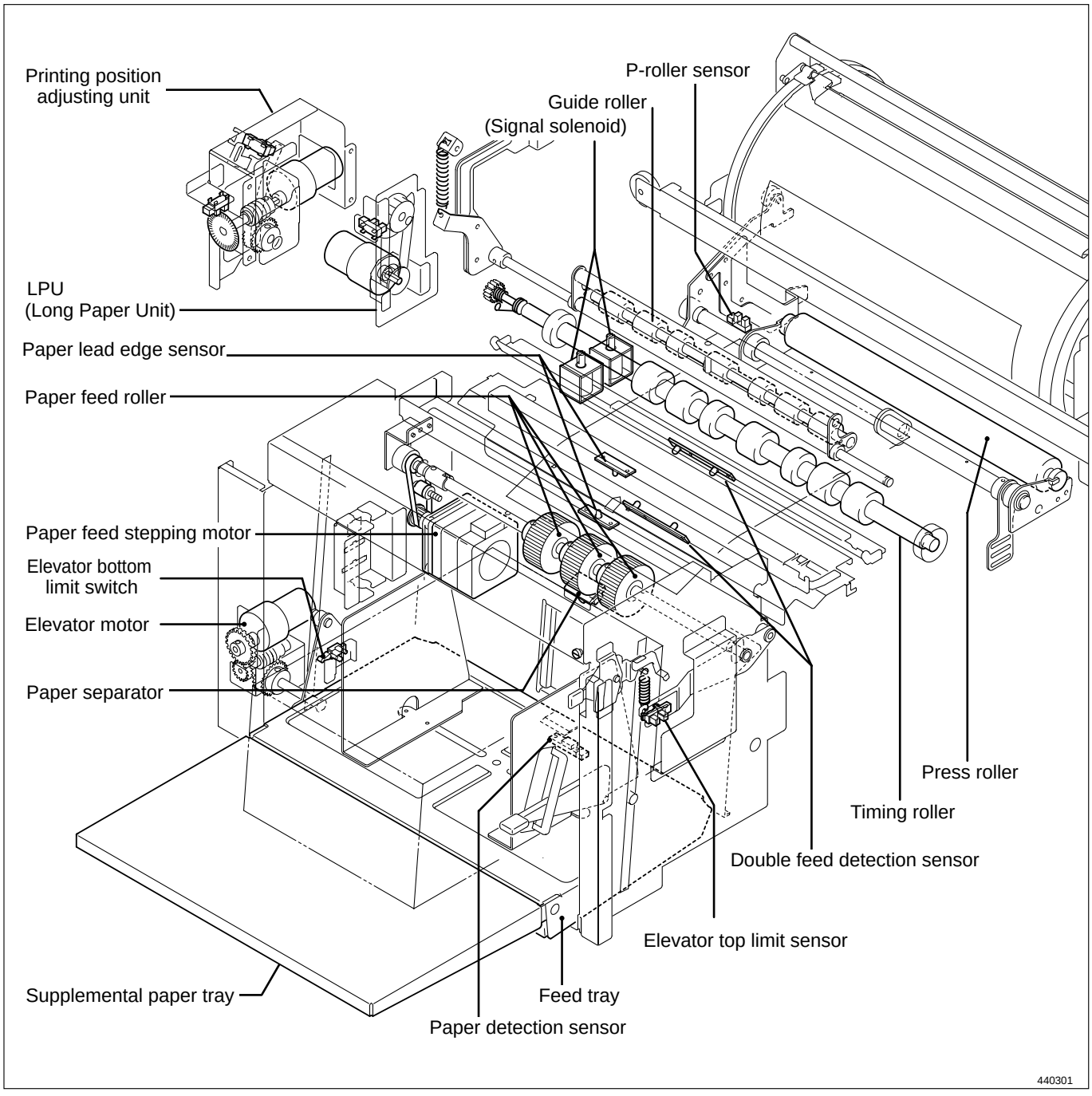


3 Paper Feed Section

1. Description

Feeding of the paper is performed by the paper separator (employing the center separation method) and paper feed roller (there is no corner finger). Elevation of the feed tray is powered by the elevator motor.The paper lead edge sensor is equipped at the rear of the paper feed roller. When the paper does not reach the paper lead edge sensor or the signal sensor during the preliminary feeding, **"PAPER JAM ON THE LEFT SIDE"** appears. Paper fed by the paper separator and paper feed roller is fed further by the timing roller and guide roller to the point where its leading edge is sandwiched between the drum and the press roller. Then the pression of the timing roller and guide roller is released (by moving the guide roller upward several mm), so that the paper is fed through at a speed equal to the circumferential speed of the drum and press roller. The press roller sensor senses the paper feed condition; if a feed error occurs, the message **"PAPER JAM ON THE FEEDER SIDE"** is displayed.

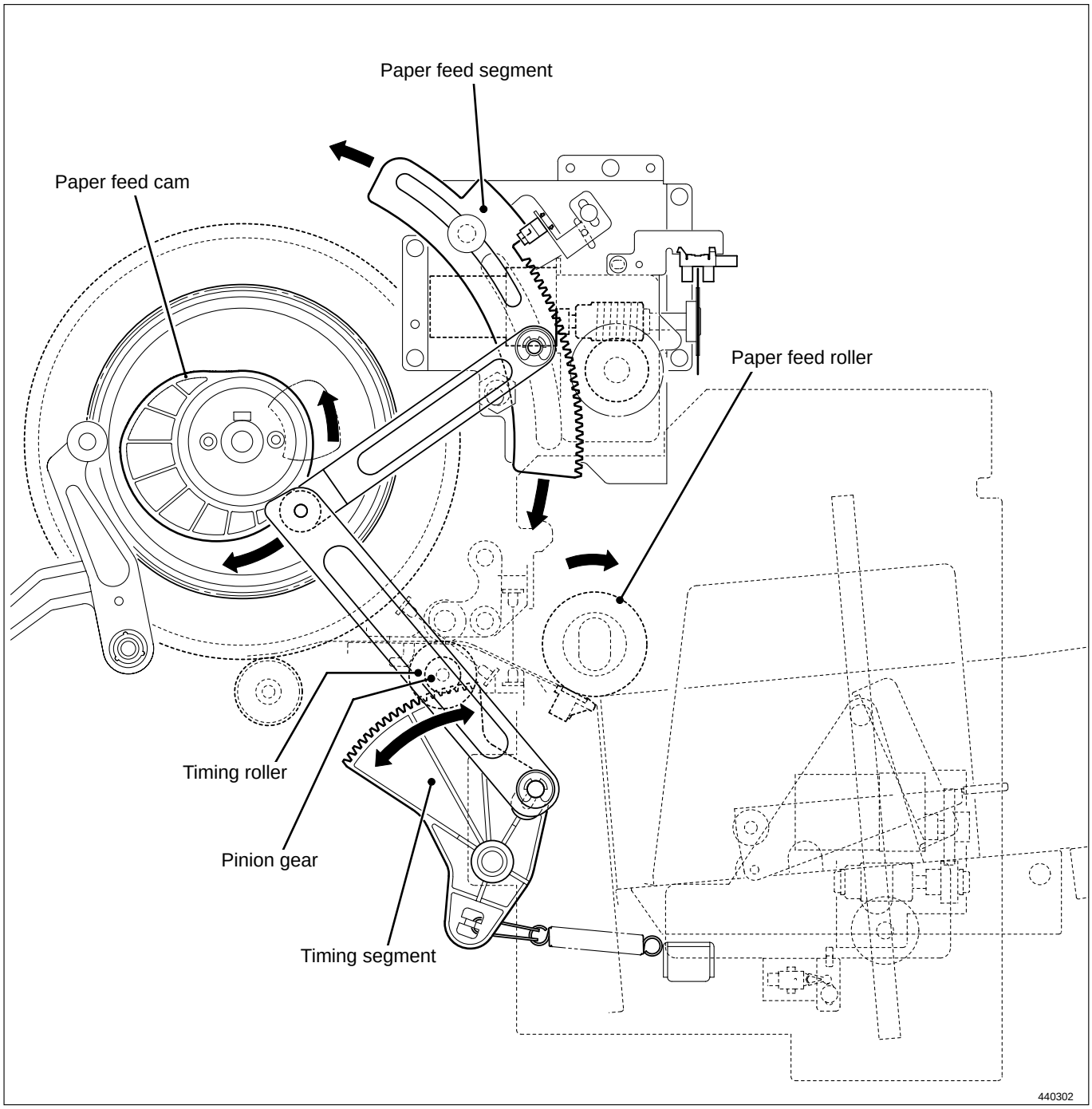
For details, see **"1.Paper Jam Detection Timing"** in chapter 2 (6 Paper ejection section). ➡See page 90



2. Operation

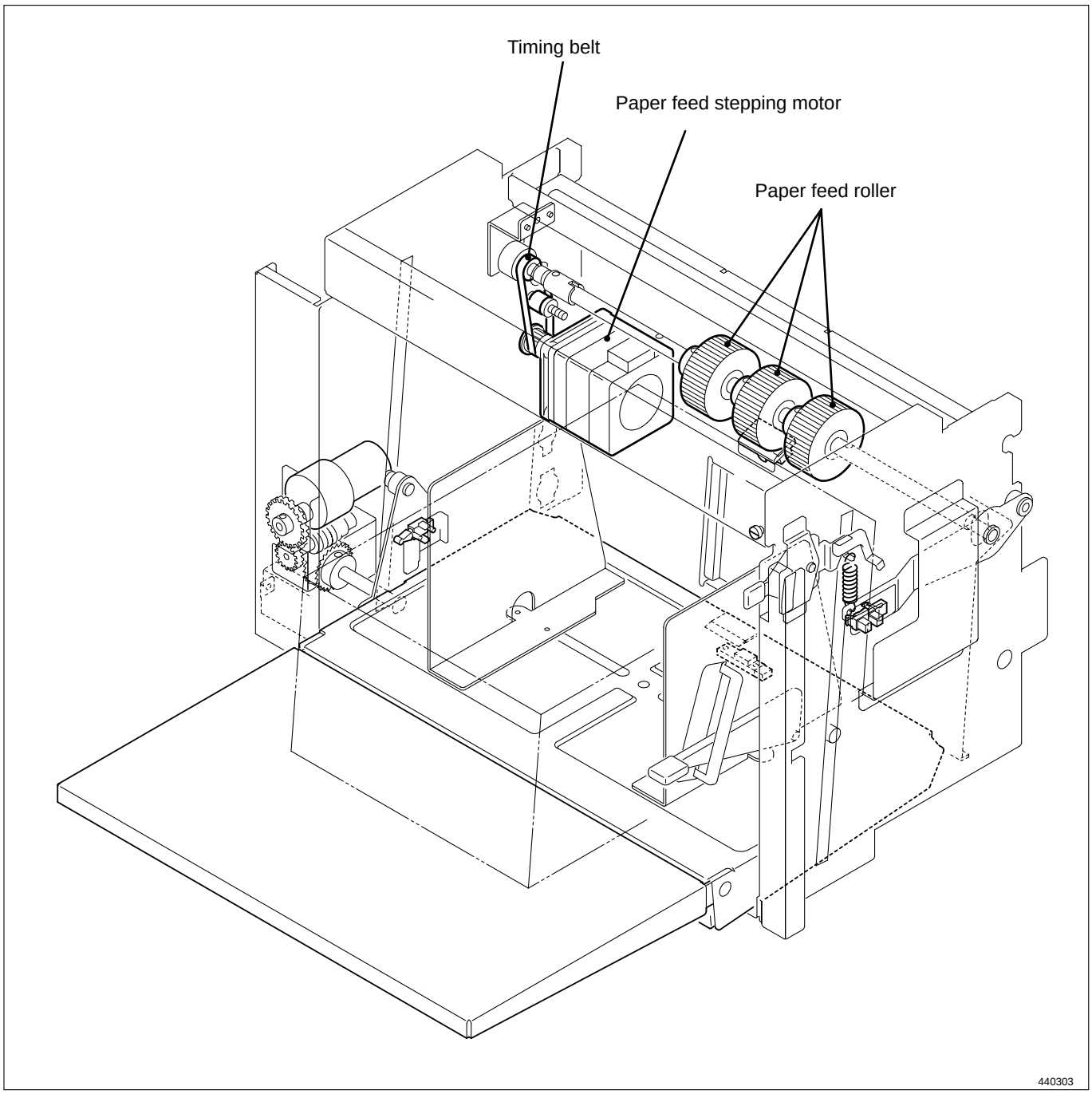
(1) Rotation of the Paper Feed Roller and Timing Roller

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



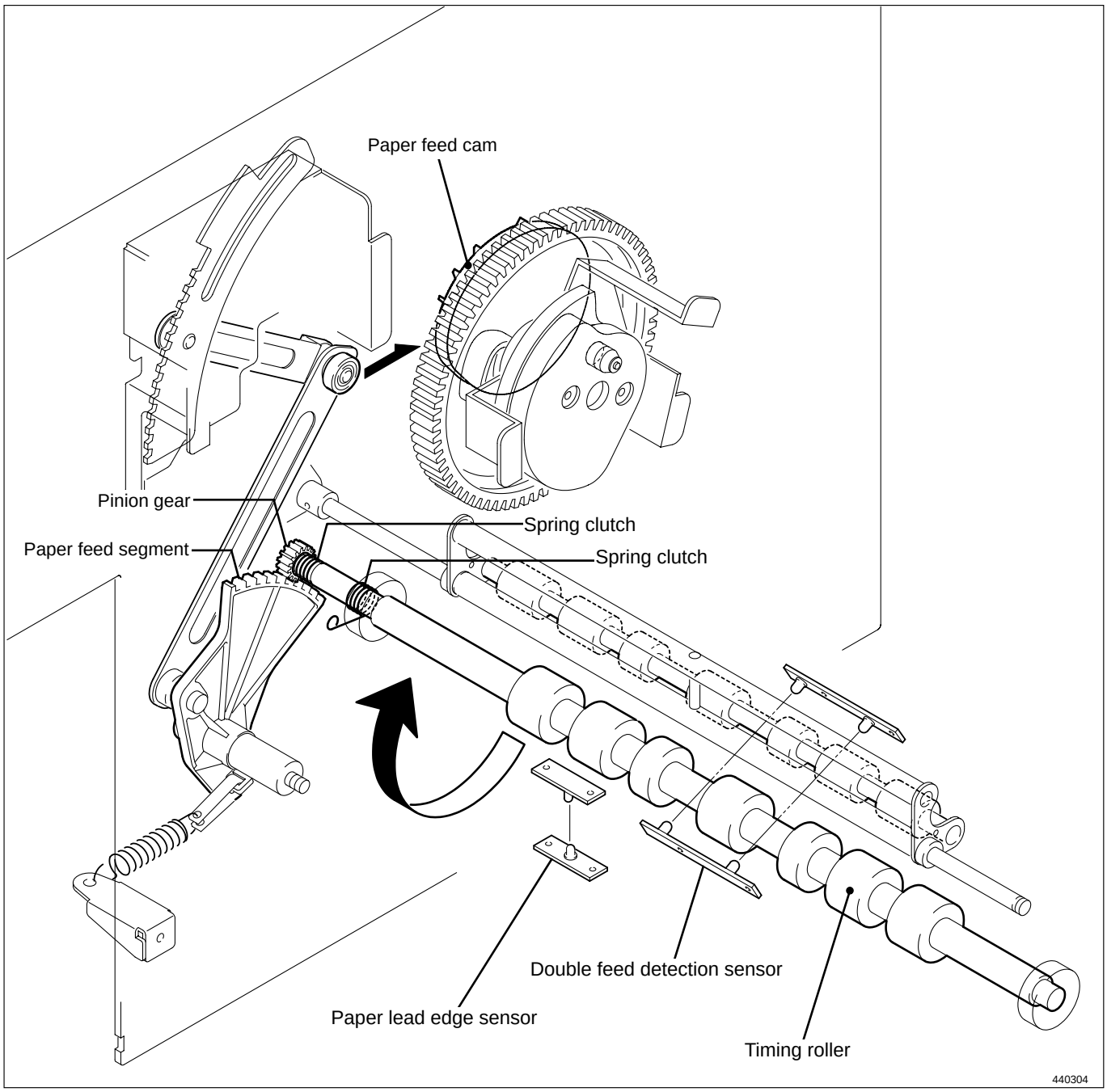
(2) Paper Feed Roller Drive

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



(3) Driving of the Timing Roller

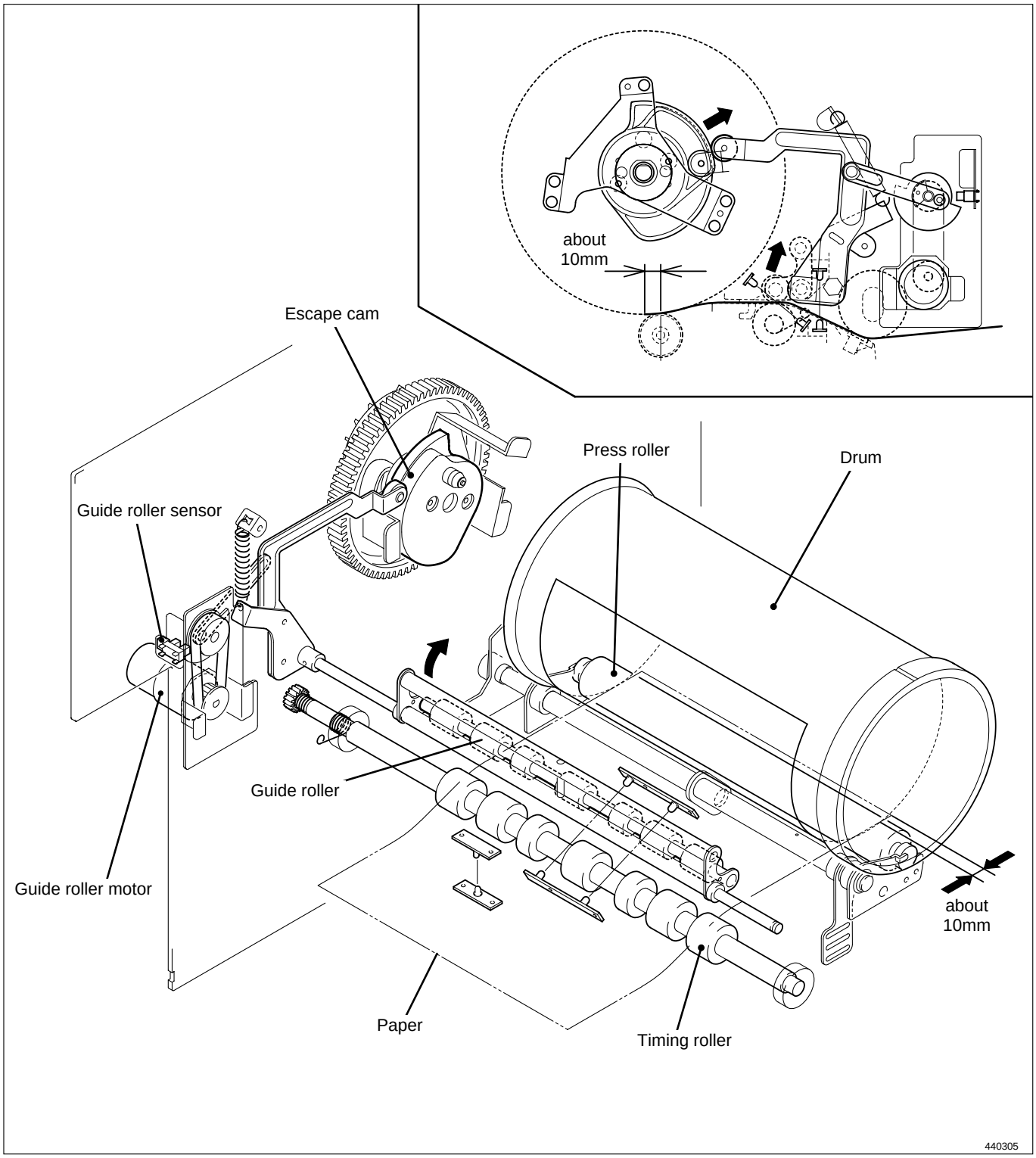
Timing roller is actuated to rotate by the pinion gear and spring clutch. When the paper feed cam rotates, the reciprocating motion of the timing roller segment is transmitted to the pinion gear, and the spring clutch works to rotate the Timing roller in the direction of conveyance.



(4) Escape 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 10 mm after it is gripped with the drum and Press roller.

IMPORTANT :
- **When the timing is too late, the printing paper is gripped at two places too long. Thus master elongation and slippage occur.**
- **On the contrary, when the timing is too early, the printing paper is not gripped at all, and it is not well settled. Thus creasing of paper and dispersion of the printing position occurs.**

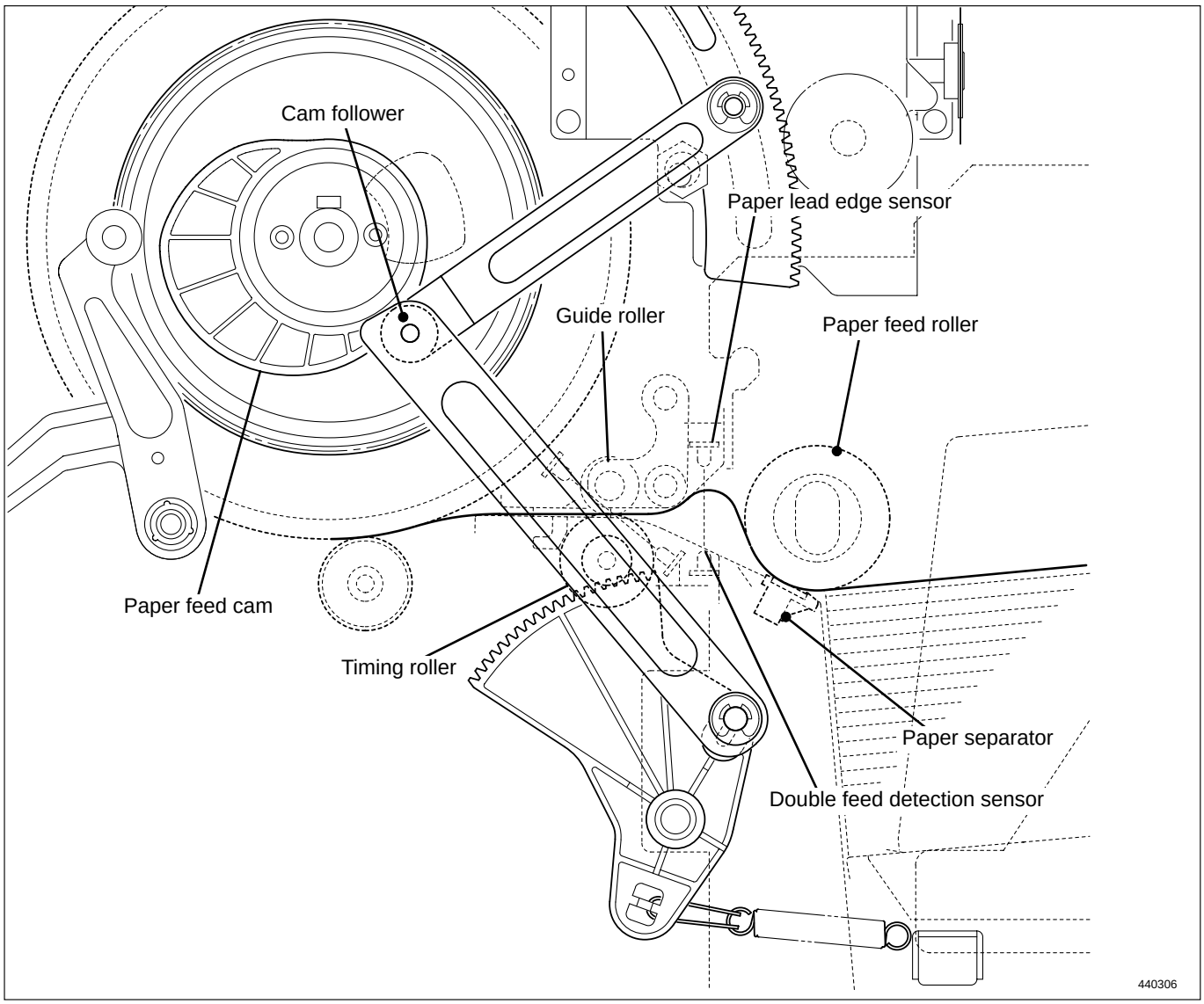


(5) Paper Feed Length

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 80mm, while the length by which the paper is fed out from the paper feed roller is 95mm. This arching has the effect of correcting any skewing of the paper (as the leading 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 leading edge of the paper is detected by the paper feed length sensor and paper feed is controlled by program(**HELP mode H-86,88**).

HELP mode H-86,88 ➡ see p.294,296



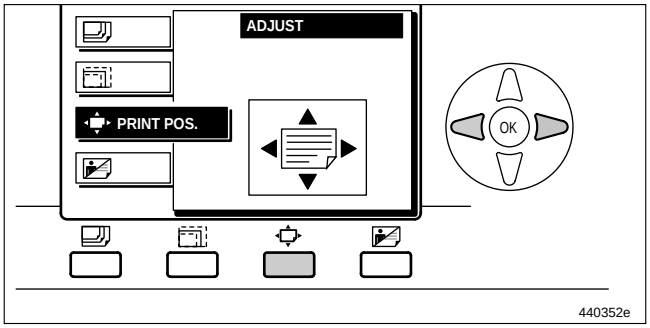
IMPORTANT :

- **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

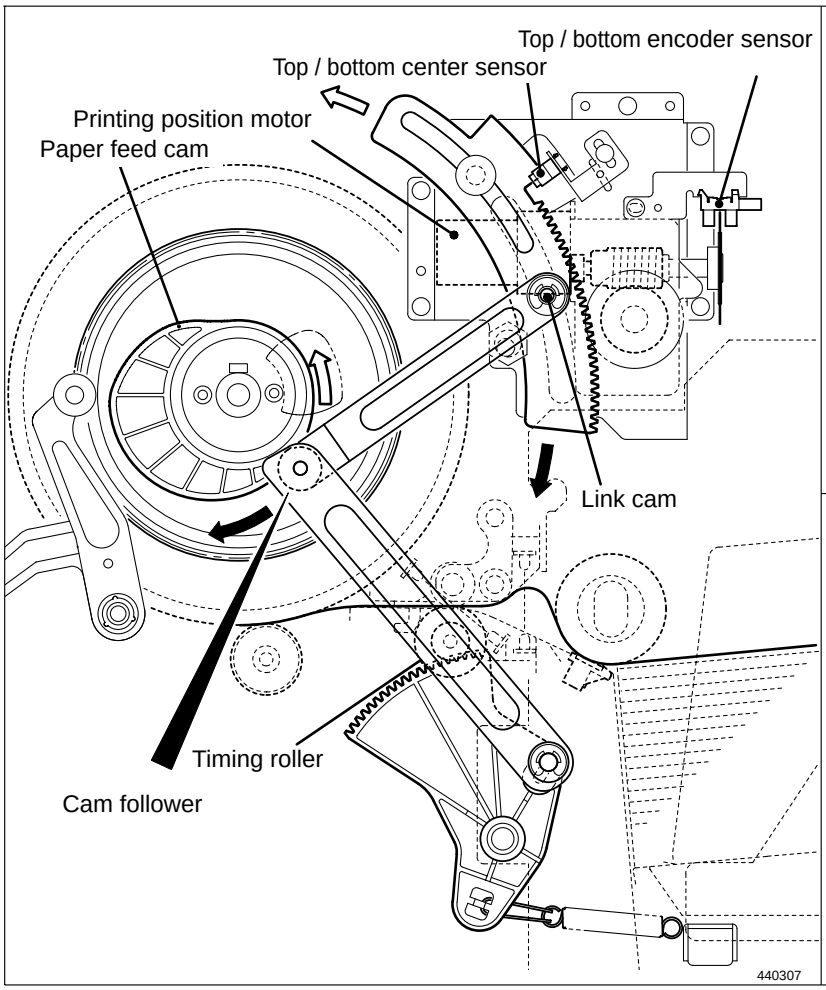
The printing position is adjusted by changing the timing of the paper toward the drum with the **PRINTING POSITION** key on the control panel.



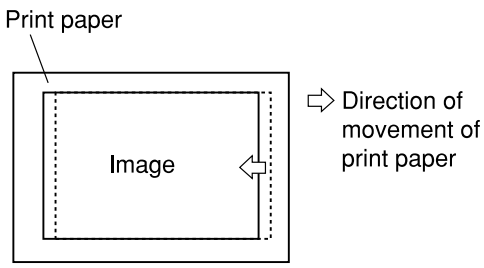
Description

When the **PRINTING POSITION** key on the control panel is pressed, the link cam is driven by the 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.

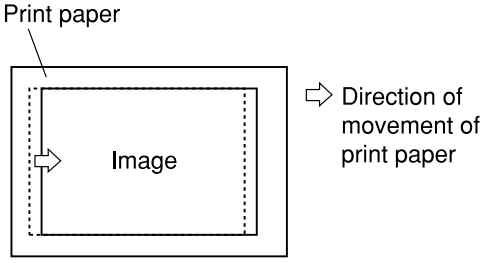
- Press the ◁ key ;
  Cam follower moves in the direction of : ⇨ Drive timing of the timing roller becomes earlier.
  Paper timing becomes earlier, and the picture image moves backward.
- Press the ▷ key ;
  Cam follower moves in the direction of : ⬅ Drive timing of the timing roller becomes later.
  Paper timing becomes later, and the picture image moves forward.



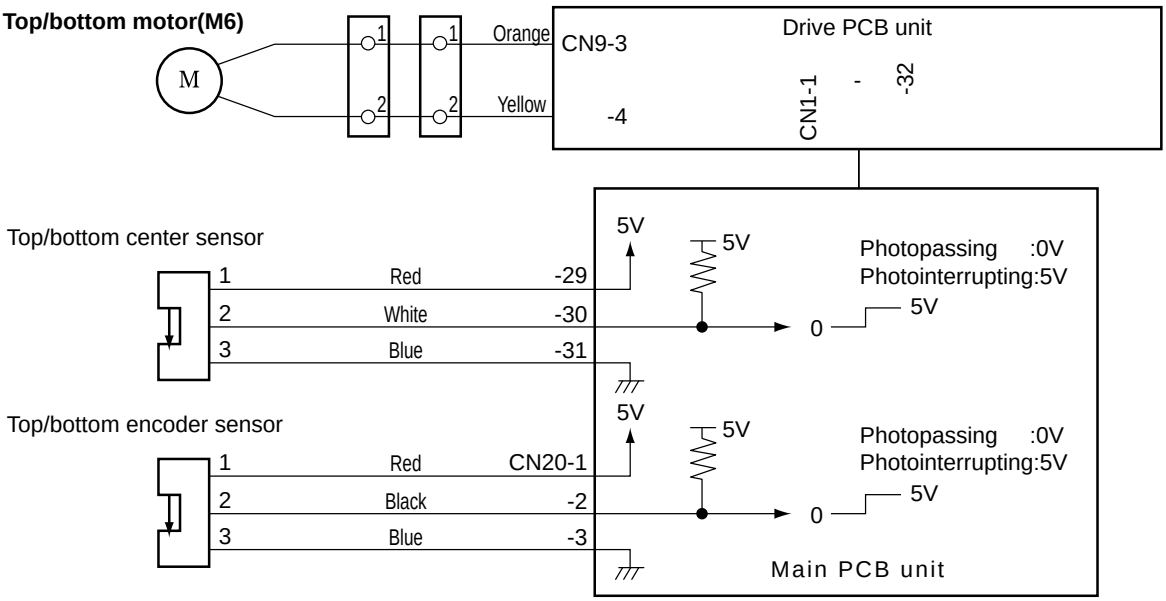
● Pressing ◁ makes cam follower move in the ⇨ direction



● Pressing ▷ makes cam follower move in the ⬅ direction



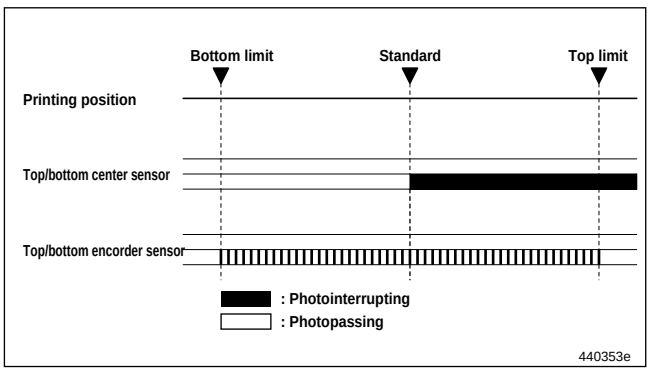
Circuit



440W15e

Operation

Top and bottom limit of print position is detected by the top/bottom encoder sensor and the center sensor.
The center position is detected by the standard position sensor.
The top/bottom encoder sensor detects the top/bottom motor rotation.
The main PCB unit controls the number of top/bottom motor rotations with the top/bottom encoder sensor signal.



440353e

Operation with the Power ON

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

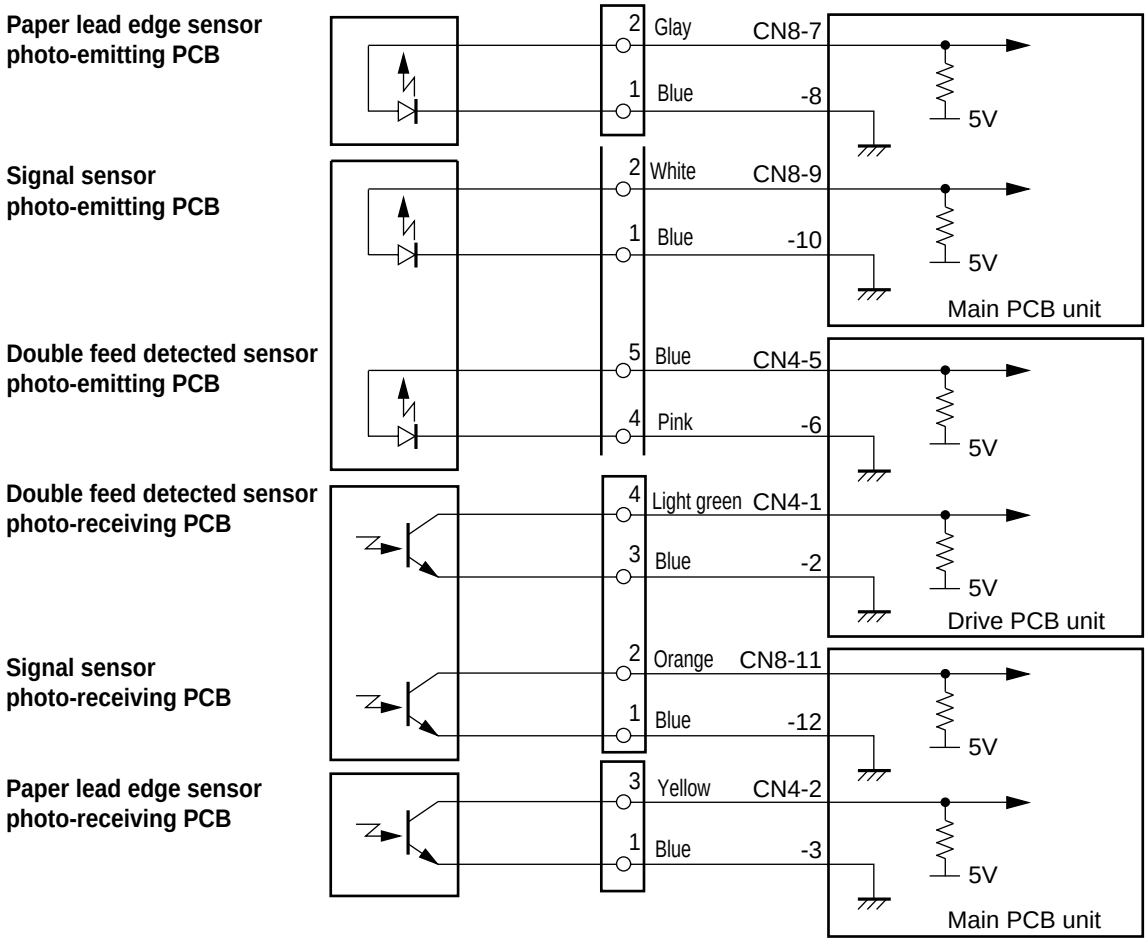
- **When positioned between the standard position and the bottom limit:**
  Rotate the printing position motor normally (CW) to return the printing position to the standard.
- **When positioned between the standard position and the top limit:**
  Rotate the printing position motor reversely (CCW) to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

(2) Double Feed Detection Mechanism

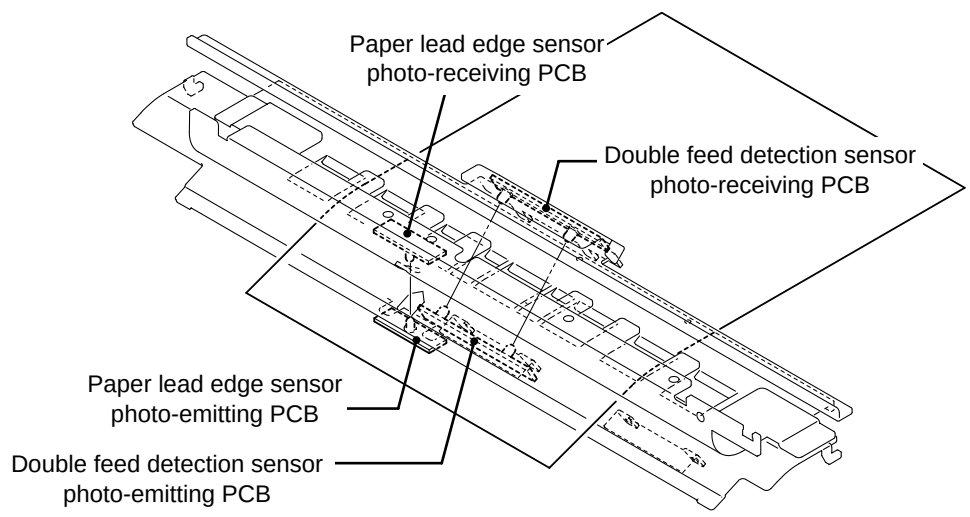
Description

The double feed detection sensor is mounted at the rear of the paper lead edge sensor to detect feeding of multiple papers. When it is detected, **"DOUBLE FEEDING ERROR"** is displayed on the LCD. If double feeding occurs with the tape cluster (optional) equipped, the tape is inserted.

Circuits



440W32e



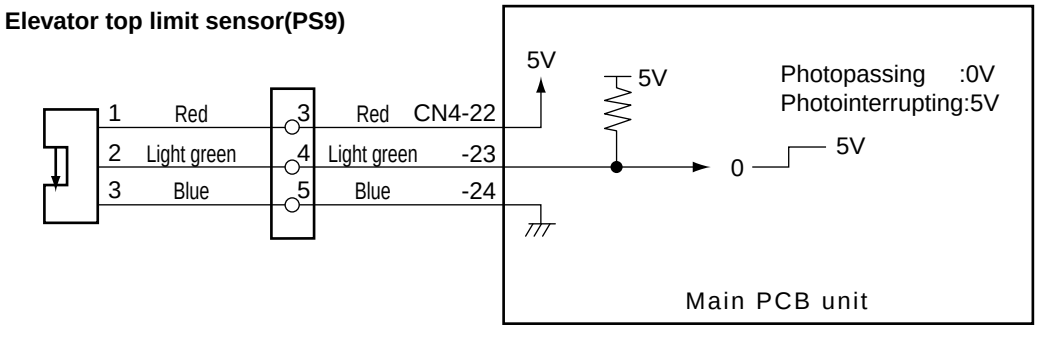
440354

(3) Elevator Top Limit Sensor

Description

The elevator top limit sensor senses decrease of the paper pile, and the top limit position of the feed tray. It does so by detecting the up/down motion of the paper feed shaft.

Circuits



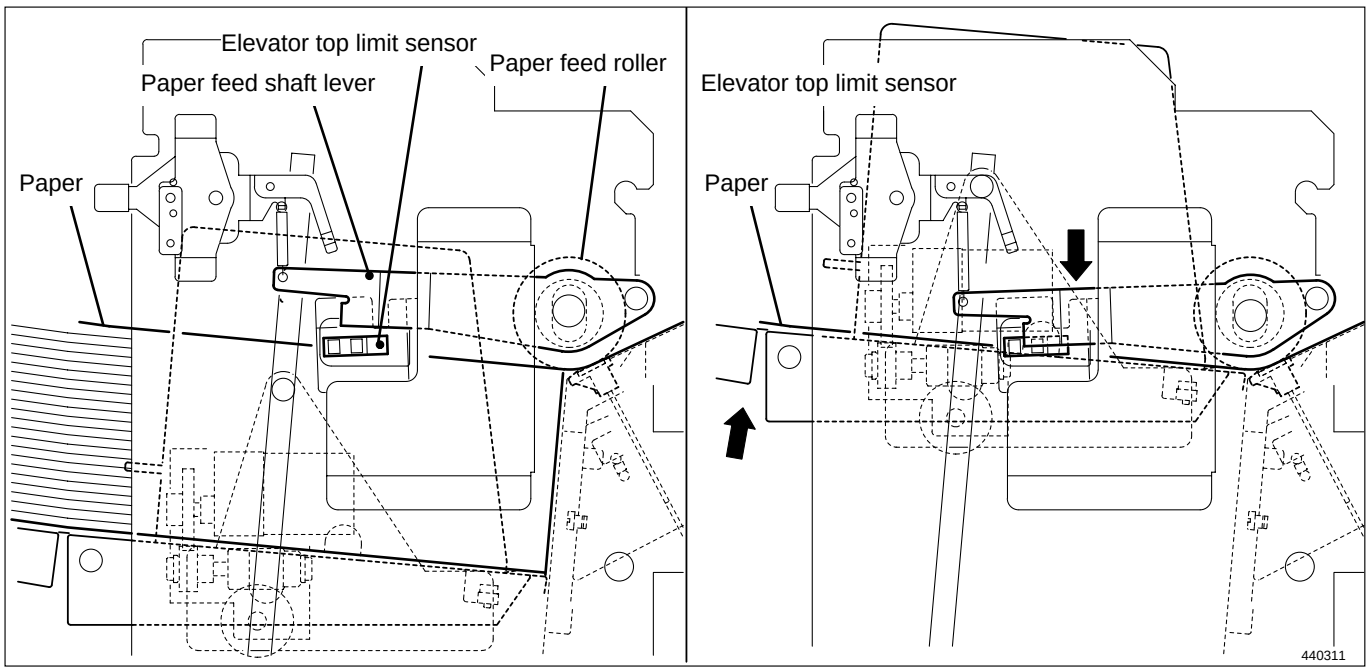
Operation

Sensing of feed tray top limit

- When the feed tray rises, the paper in it presses the paper feed roller upward, making the paper feed shaft lever (photointerrupter) rotate upwards about its fulcrum, until it no longer obstructs the sensor's light beam. Restoration of the sensor's light beam signals that the paper tray has reached the top limit, and triggers stopping of the feed tray's rise.

Sensing 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 light beam is not restored within about 30 seconds of the sending of the **RAISE FEED TRAY** command, error **E002** (elevator lock) is displayed.

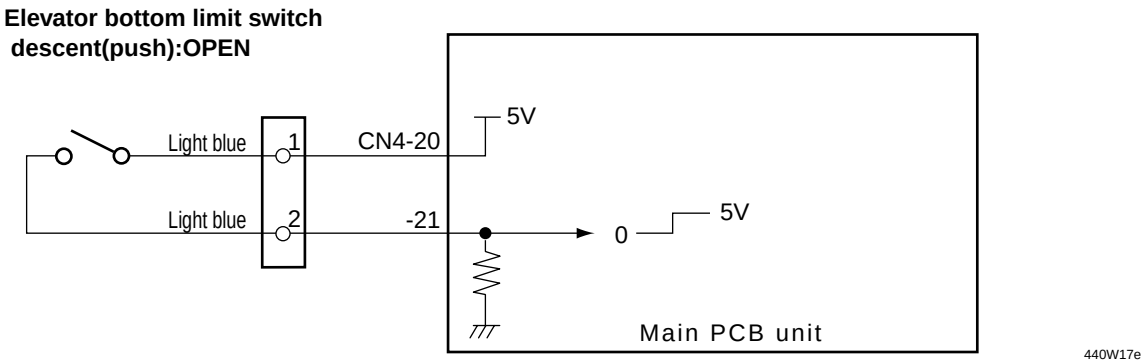


(4) Elevator bottom Limit Switch

Description

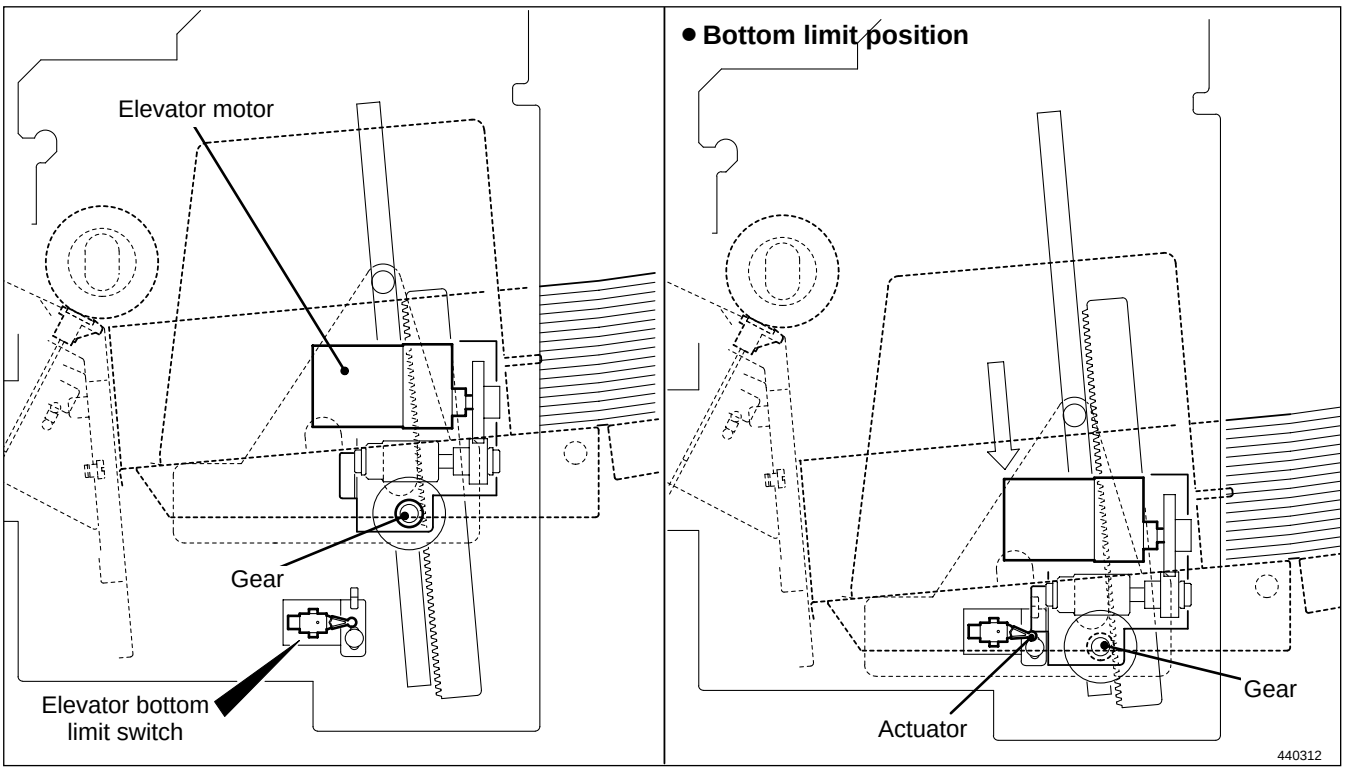
This is a micro switch that senses the bottom limit position of the feed tray.

Circuits



Operation

When the feed tray rises, the bracket disengages from the switch and the switch closes. When the feed tray descends to its bottom limit position, the bracket engages the switch's actuator, opening the switch.
If the switch does not open within about 30 seconds of the sending of the **LOWER FEED TRAY** command, error **E002** (elevator lock) is displayed.

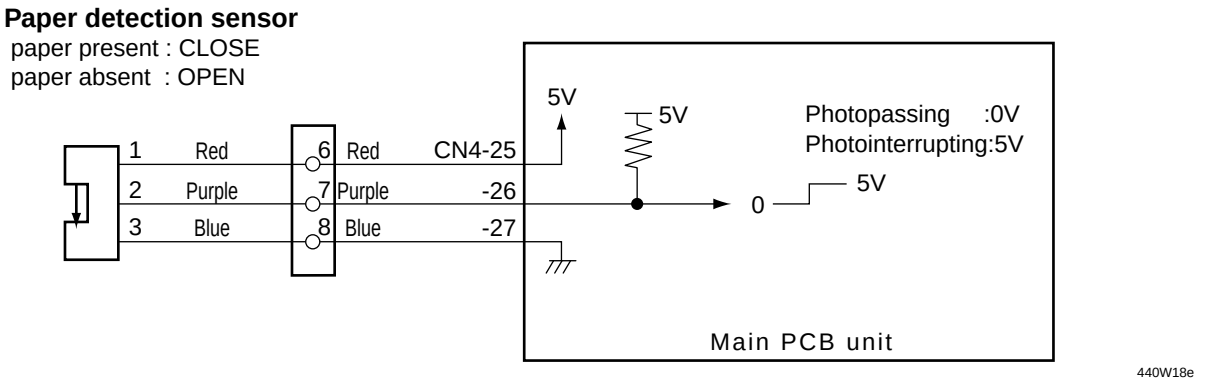


(5) Paper Detection Sensor

Description

Senses presence/absence of paper in the feed tray. When the paper in the tray runs out, the message **"ADD PAPER"** is displayed and printing stops.

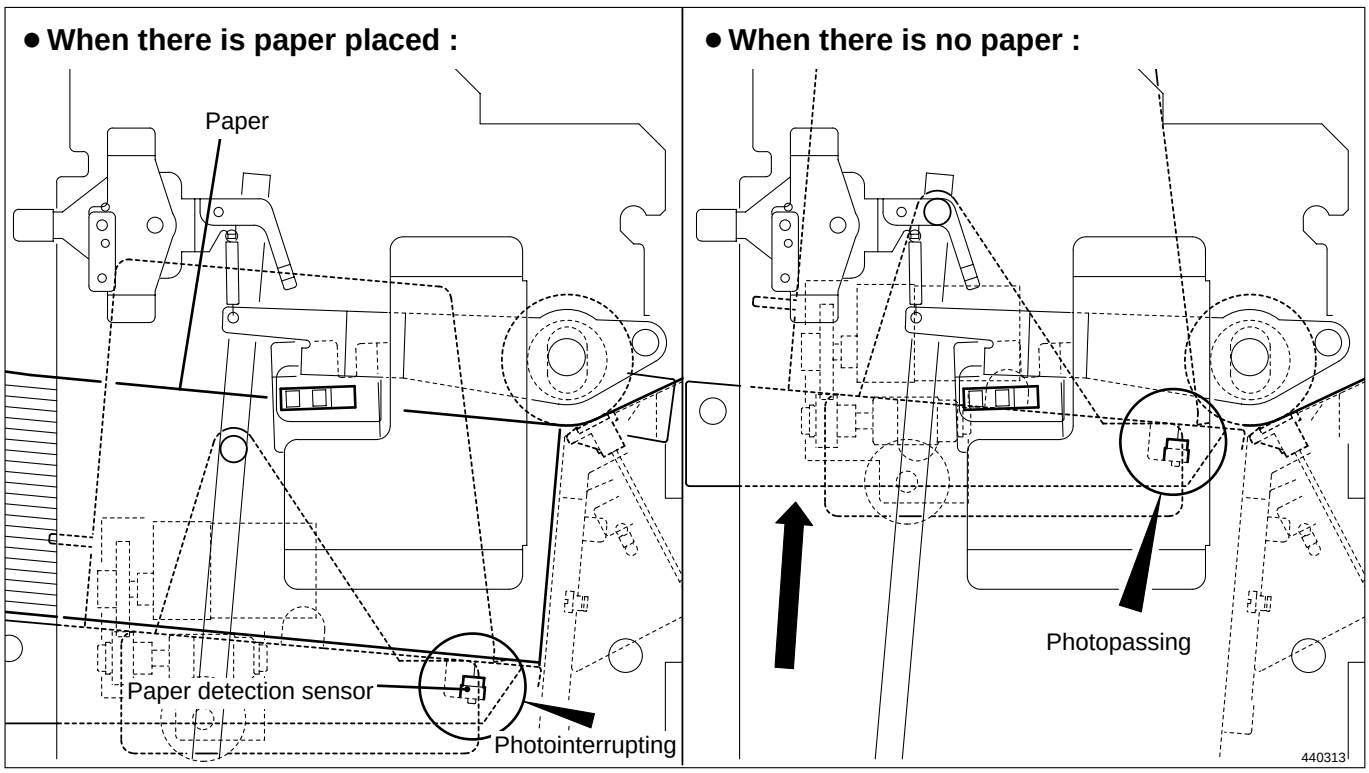
Circuits



Operation

When there is no paper, the sensor is in the state of photopassing(open). When paper is placed inside, the sensor is in the state of photointerrupting(close). When an absence of paper is detected, the message **"ADD PAPER"** is displayed on the LCD panel.

- When absence of paper is sensed, platemaking, printing and test printing are not possible.
- If the paper runs out during printing, **"ADD PAPER"** is displayed on the LCD panel, printing is stopped, and the feed tray descends to its lower limit position.
- If the paper runs out during platemaking, operation continues until the end of the platemaking process, then operation stops (without proceeding to the printing process), and the feed tray descends to its lower limit position.

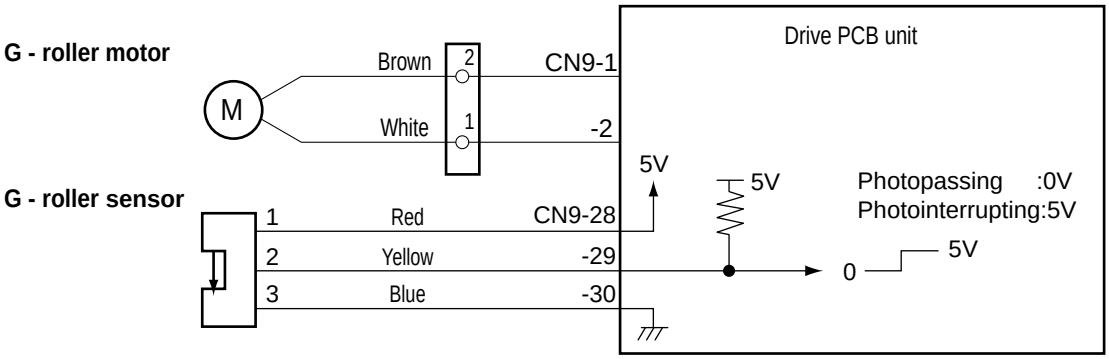


(6) Long Paper Unit Mechanism (Option)

Description

With the LPU unit equipped, duration the timing roller and the guide roller are detached from each other is extended (the guide roller is lifted by a few millimeters), thus the paper with the maximum length of **540 mm** can be fed through.

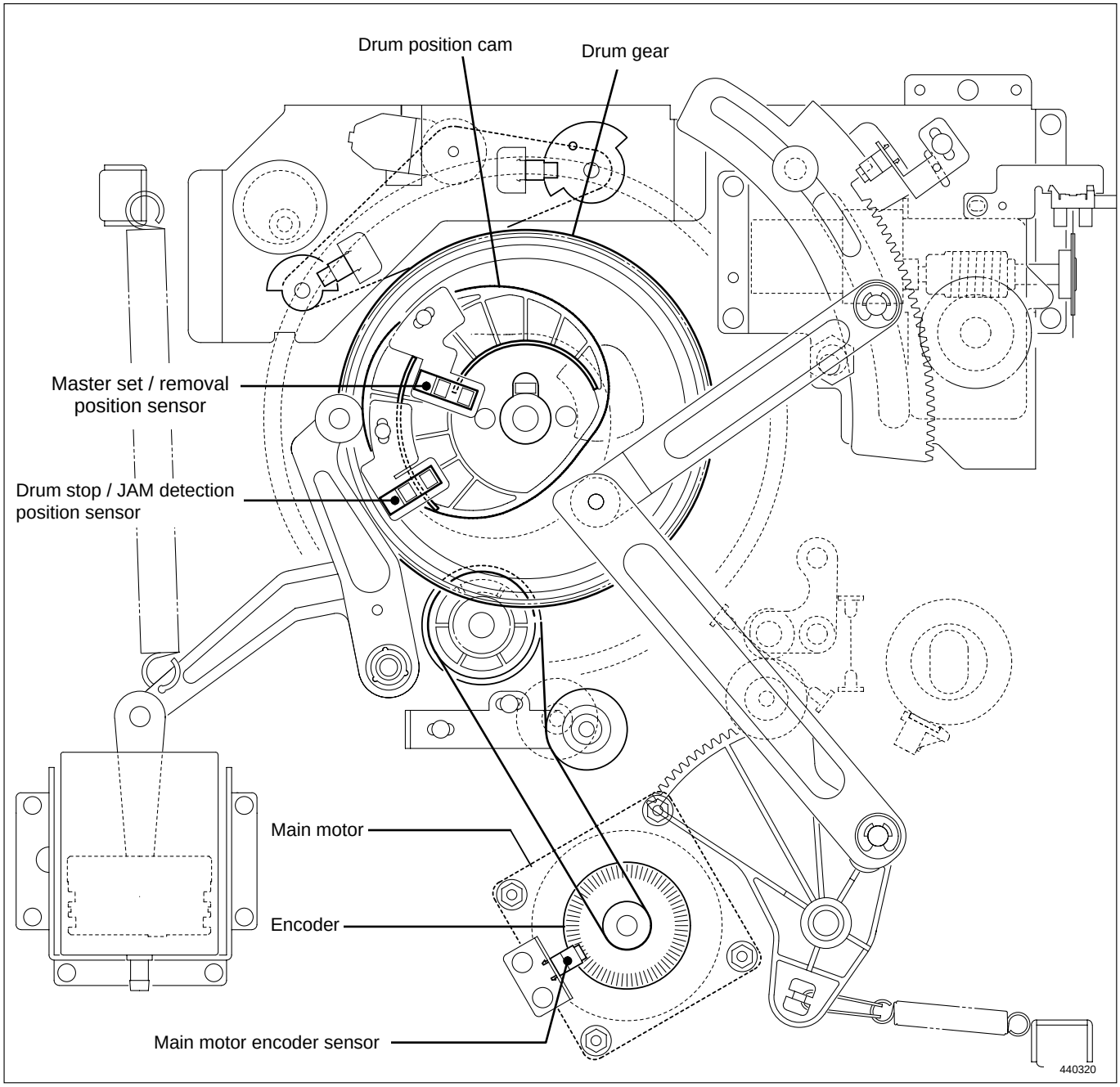
Circuits



440W33e

4 Drum Driving Section

1. Description



2. Function of Parts

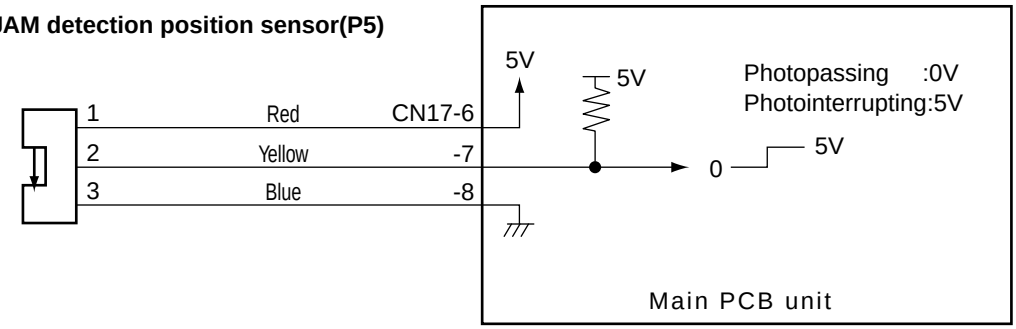
(1) Drum Stop / JAM Detection Position Sensor

The drum stop / JAM detection position sensor detects the drum stop position and JAM detection position.

- The drum stop position is the position where the drum stops at the same time when a beep sounds after the JOG switch (drum rotation switch) is kept pressing.
- The JAM detection position is the timing to check paper jamming in the paper ejection section.
- Paper jamming in the paper ejection section is checked in the above timing with the jam sensor (photo-receiving) and P roll sensor.

Circuit

Drum stop/JAM detection position sensor(P5)

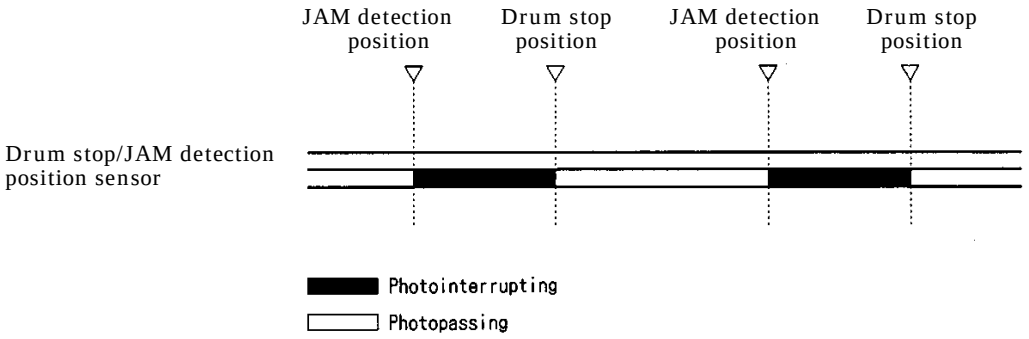


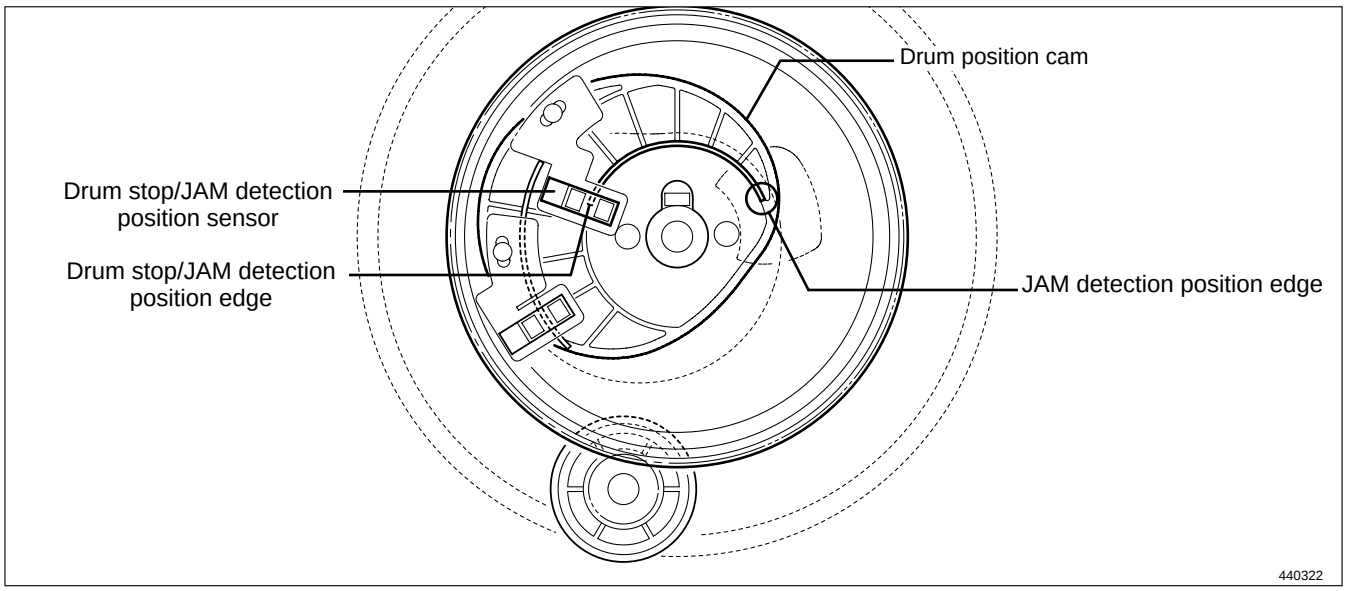
440W19e

Operation

The drum stop / JAM detection position sensor is positioned while the drum is rotating as follows:-

- The drum stop position is detected with the edge of **photointerrupting → photopassing.**
- The JAM detection position is detected with the edge of **photopassing → photointerrupting.**





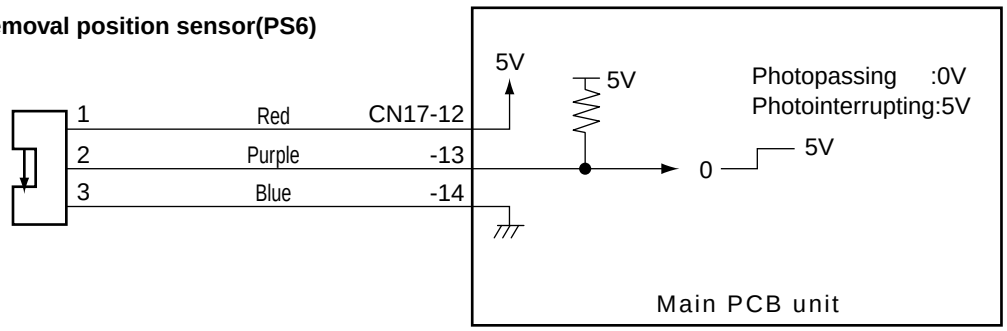
440322

(2) Master Set / Removal Position Sensor

The master set / removal position sensor detects the drum stop position when the plate is attached or detached. It also detects the speed reducing timing for stopping at the printing speed and for pressing the **JOG switch (drum rotation switch).**

Circuit

Master set/removal position sensor(PS6)

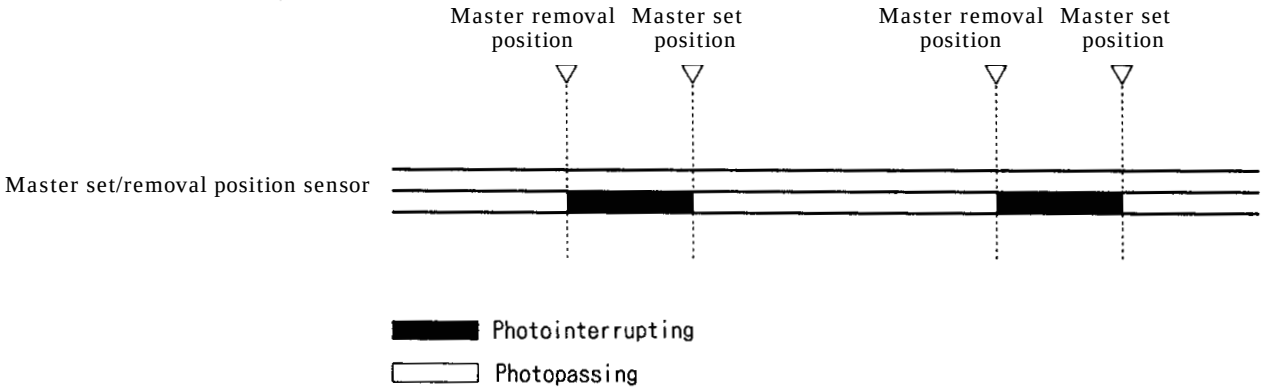


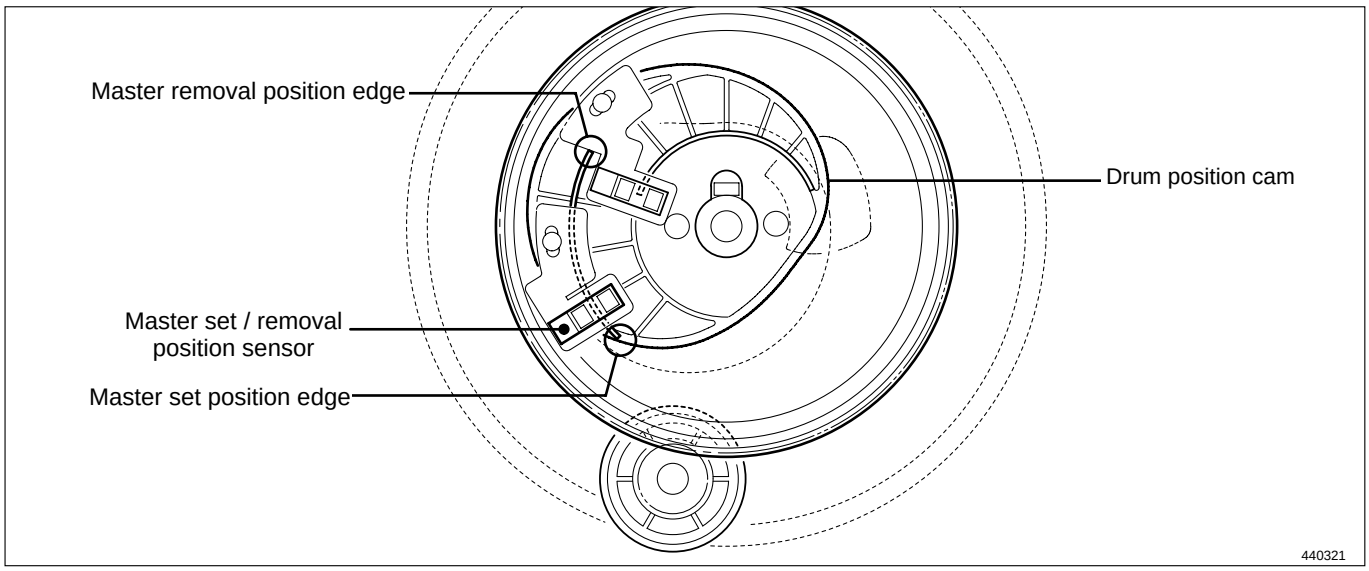
440W20e

Operation

The following is the state of the master set / removal position sensor while the drum is rotating.

- The master detachment position is detected with the edge of **photopassing → photointerrupting.**
- The master set position is detected with the edge of **photointerrupting → potopassing.**
- The drum speed is reduced to the slow (before-stop) speed at the master removal position before the drum stops.





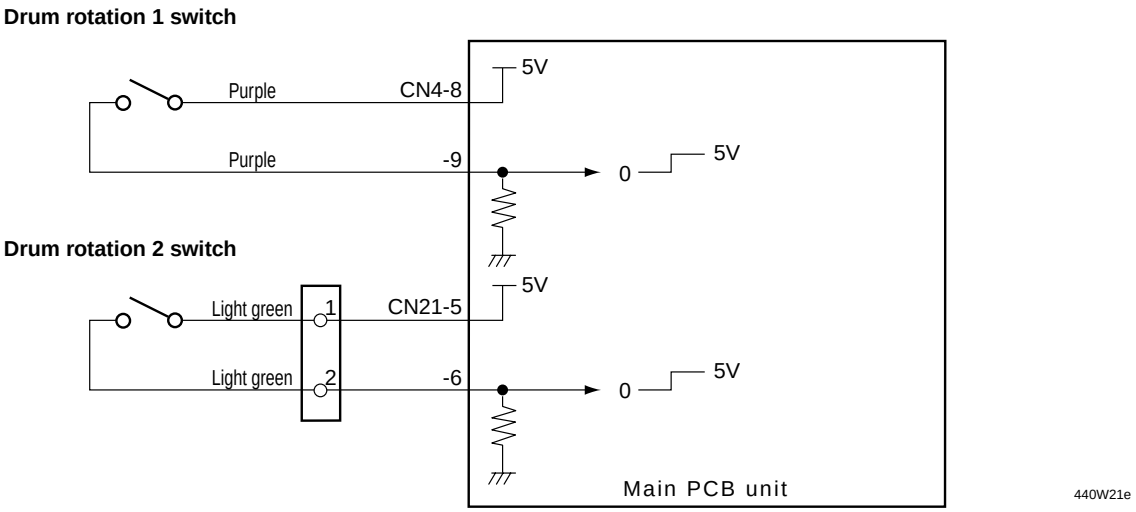
440321

(3) JOG Switch 1,2 (Drum Rotation Switch 1,2)

Description

The drum rotates as long as the **JOG switch (drum rotation switch)** is pressed (within one rotation) and stops at the stop position with a beep.When the drum stops there, the LED mounted on the JOG switch 1 will light up.

Circuit

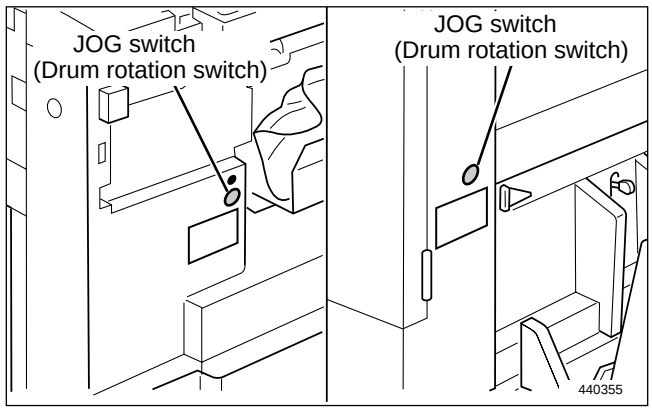


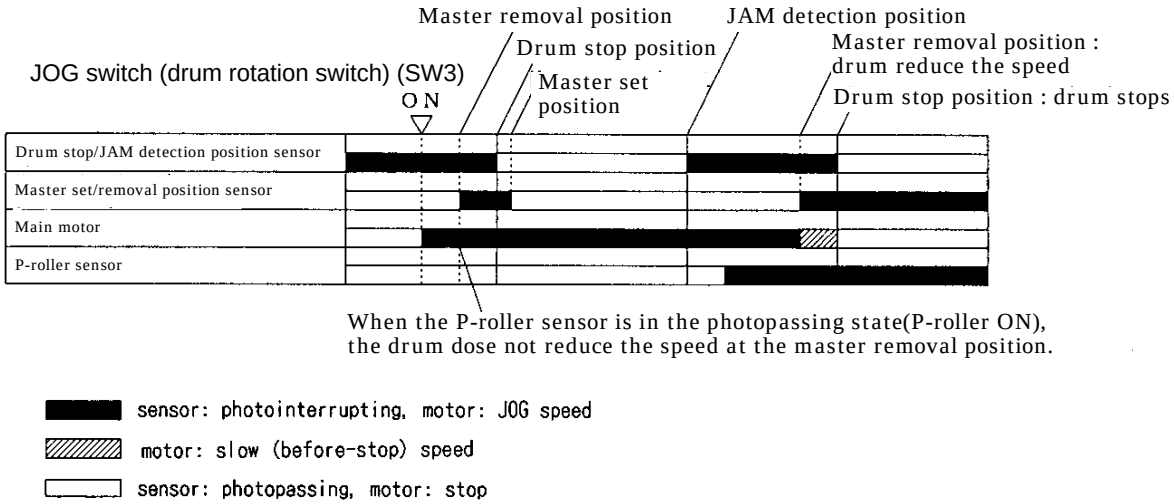
Sequence of Operation

- **When the JOG Switch (Drum Rotation Switch) Is Pressed Down**

In the normal state, the drum rotates (within one rotation) when the **JOG switch (drum rotation switch)** is kept pressed and the drum stops at the stop position, reducing the speed to the slow (before-stop) speed at the first master removal position.

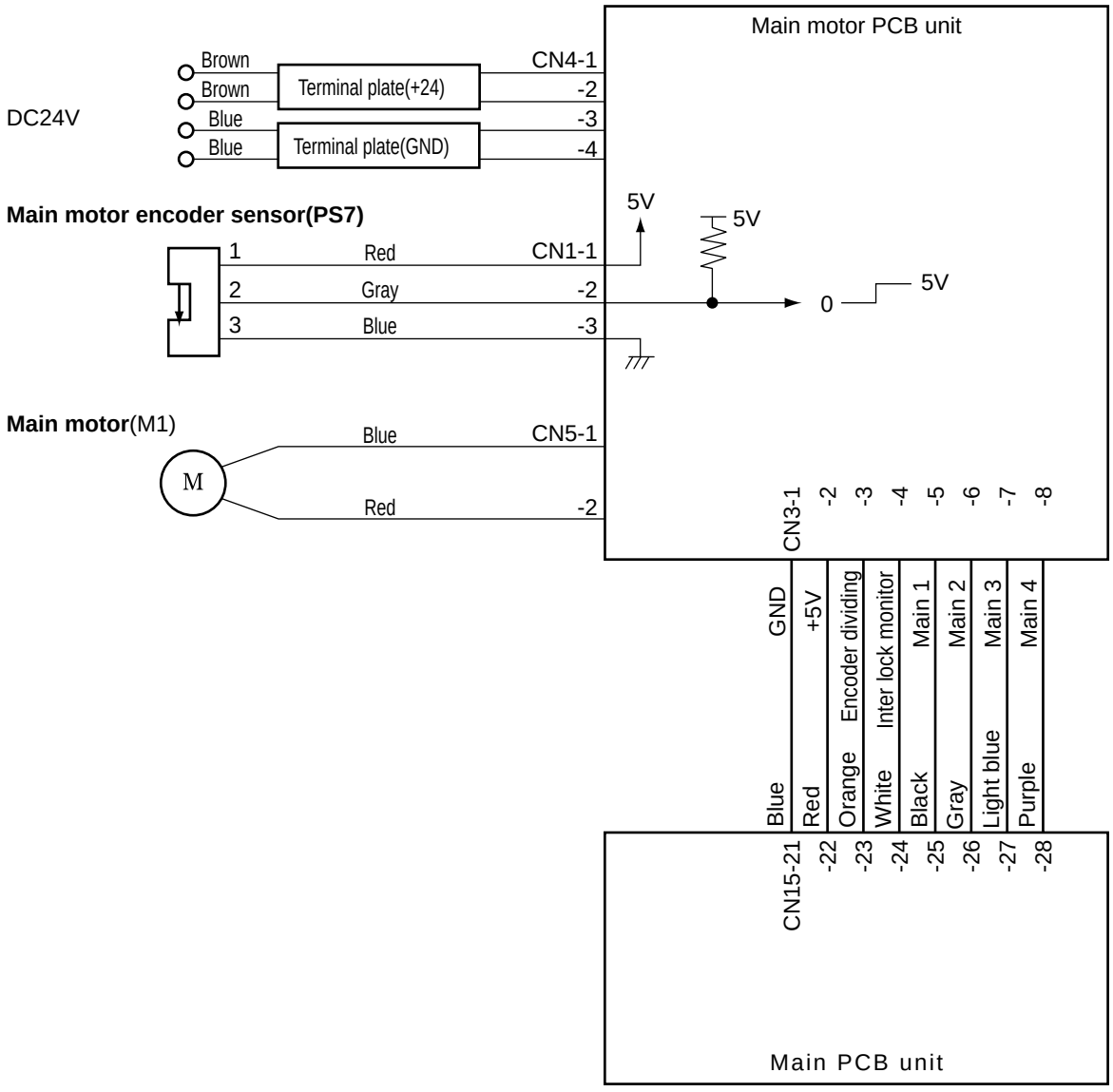
When the P-roller sensor is in the photopassing state (P-roller ON) at the first plate detachment position, the drum passes the stop position without reducing the speed.





(4) Control of the Main Motor

Circuit

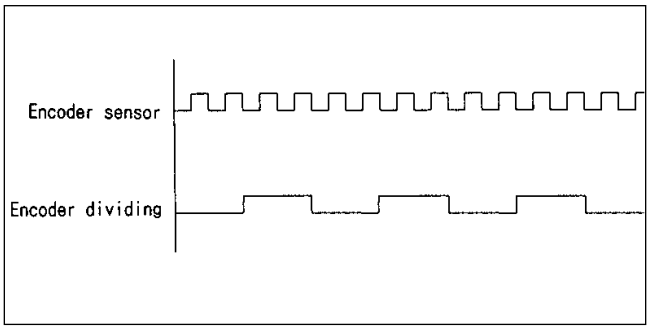


440W22e

1. Rotation Speed Control by 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 transmitted to the main PCB Unit as encoder dividing signal (8 dividings). The number of main motor rotations is checked with the HELP01.

HELP mode H-01 ➡ see p.217



2. Selecting the Speed

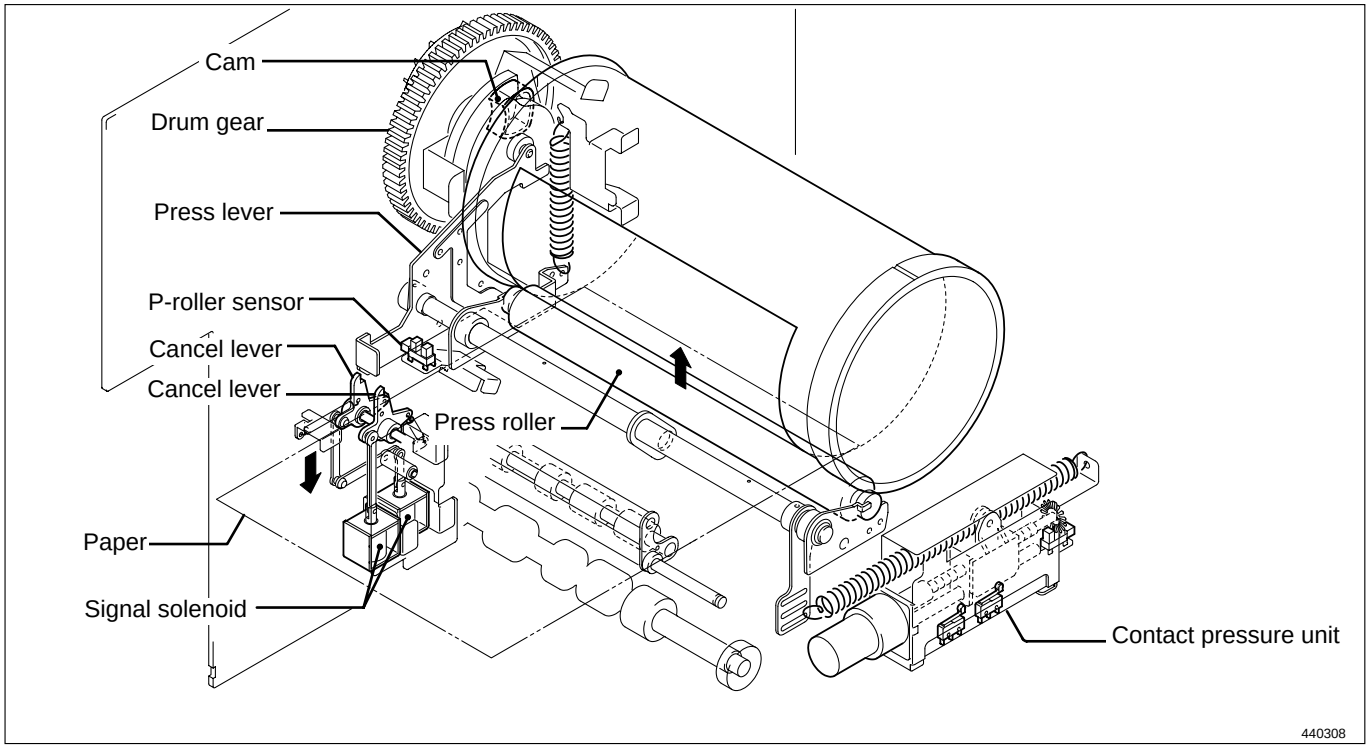
The speed is selected with the main 1 - 4 on the main PCB Unit.
The following are the speed depending on the pin state.

		STOP	Pre-stop 1	Pre-stop 2	JOG	1st SPEED	2nd SPEED	3rd SPEED	4th SPEED	5th SPEED
CN 15-25	Main 1	✻	L	H	L	H	L	H	L	H
-26	Main 2	✻	L	L	H	H	L	L	H	H
-27	Main 3	✻	L	L	L	L	H	H	H	H
-28	Main 4	H	L	L	L	L	L	L	L	L

IMPORTANT : Slow 2 is applied to accelerating only. it is not used to reduce the speed. All the speeds including slow 1 are accelerating speeds. if the slow 1 is not operated, all the other speeds are not operated.

5 Press Section

1. Description



(1) Press Roller Timing & Printing Area

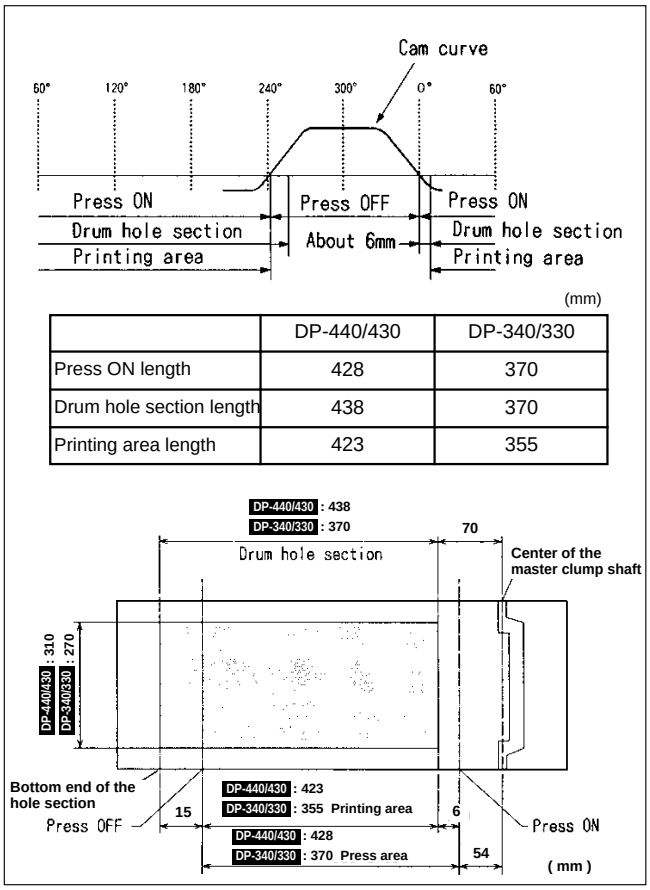
Description

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.

1) The sections of the master on which holes are made by processing platemaking. (platemaking area)
2) The hole sections of the drum.
3) The section of the drum pressed with the press roller. (the area pressed ON)

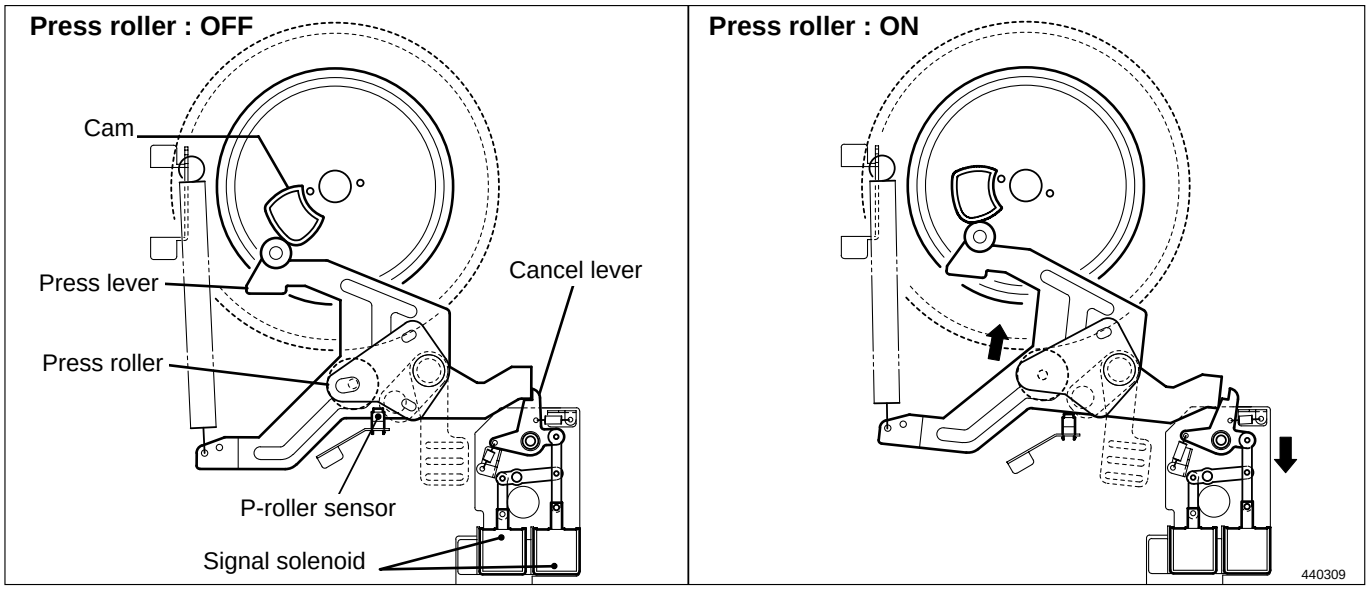
When the pressed-on position is 0 under the normally adjusted conditions, relations among 1), 2) and 3) are as follows*-



(mm)

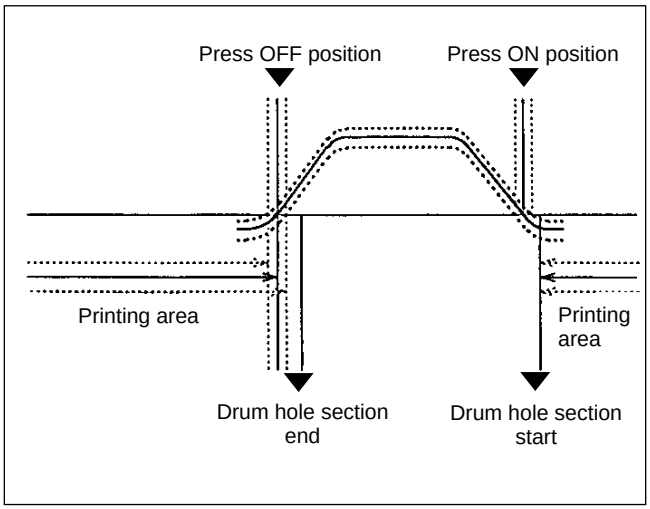
	DP-440/430	DP-340/330
Press ON length	428	370
Drum hole section length	438	370
Printing area length	423	355

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



Adjusting the printing area means that the cam curve goes up and down as shown in the figure. 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 is 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 since ink seeps from the bottom end of the master.



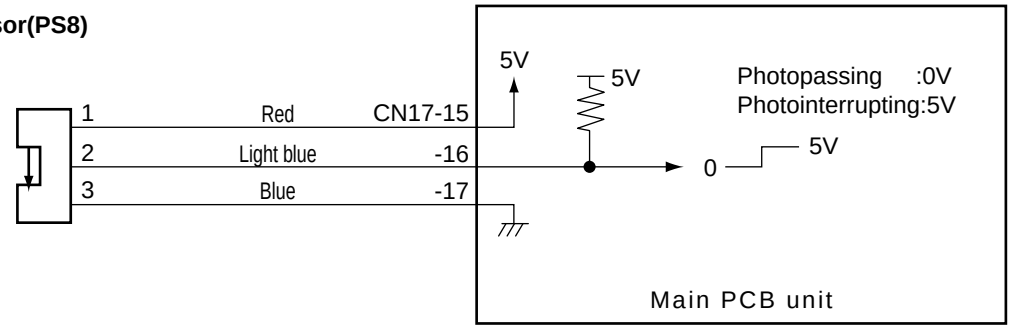
2. Function of Parts

(1) P- roller Sensor

The P- 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.
The P- roller sensor also is used to know whether the paper is fed.

Circuit

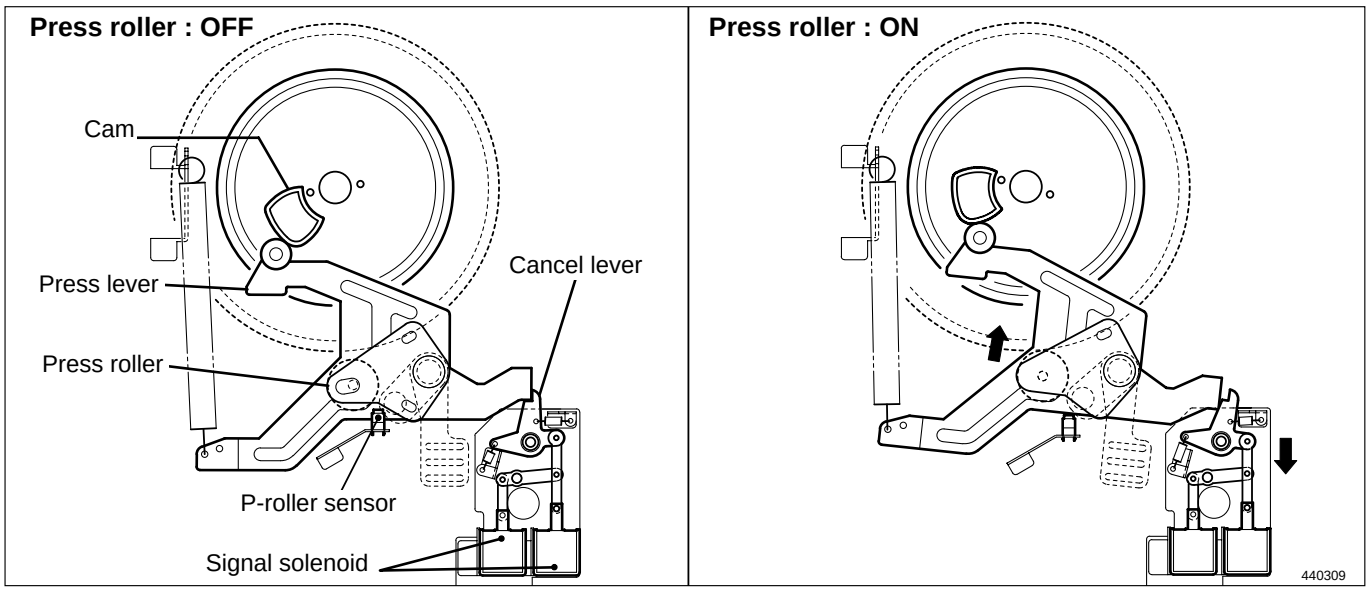
P-roller sensor(PS8)



Operation

The P- roller sensor position varies depending on the press roller position as follows:-

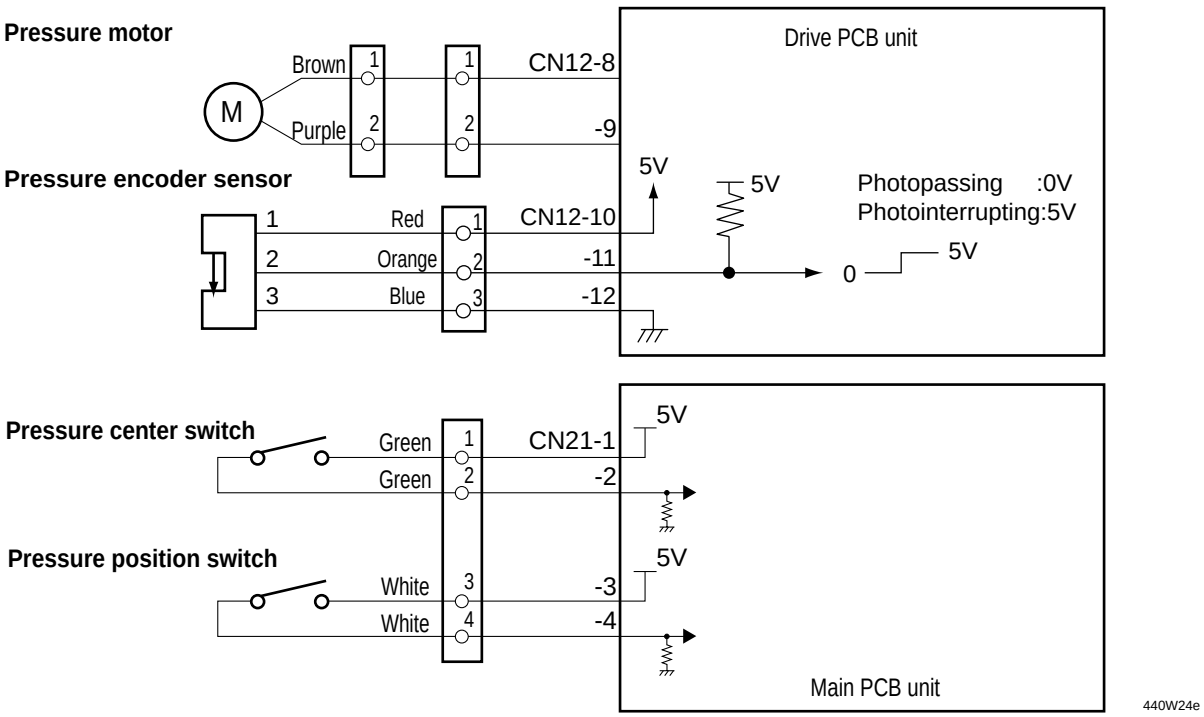
- When the press roller is OFF (DOWN) : **photointerrupting**
- When the press roller is ON (UP) : **photopassing**

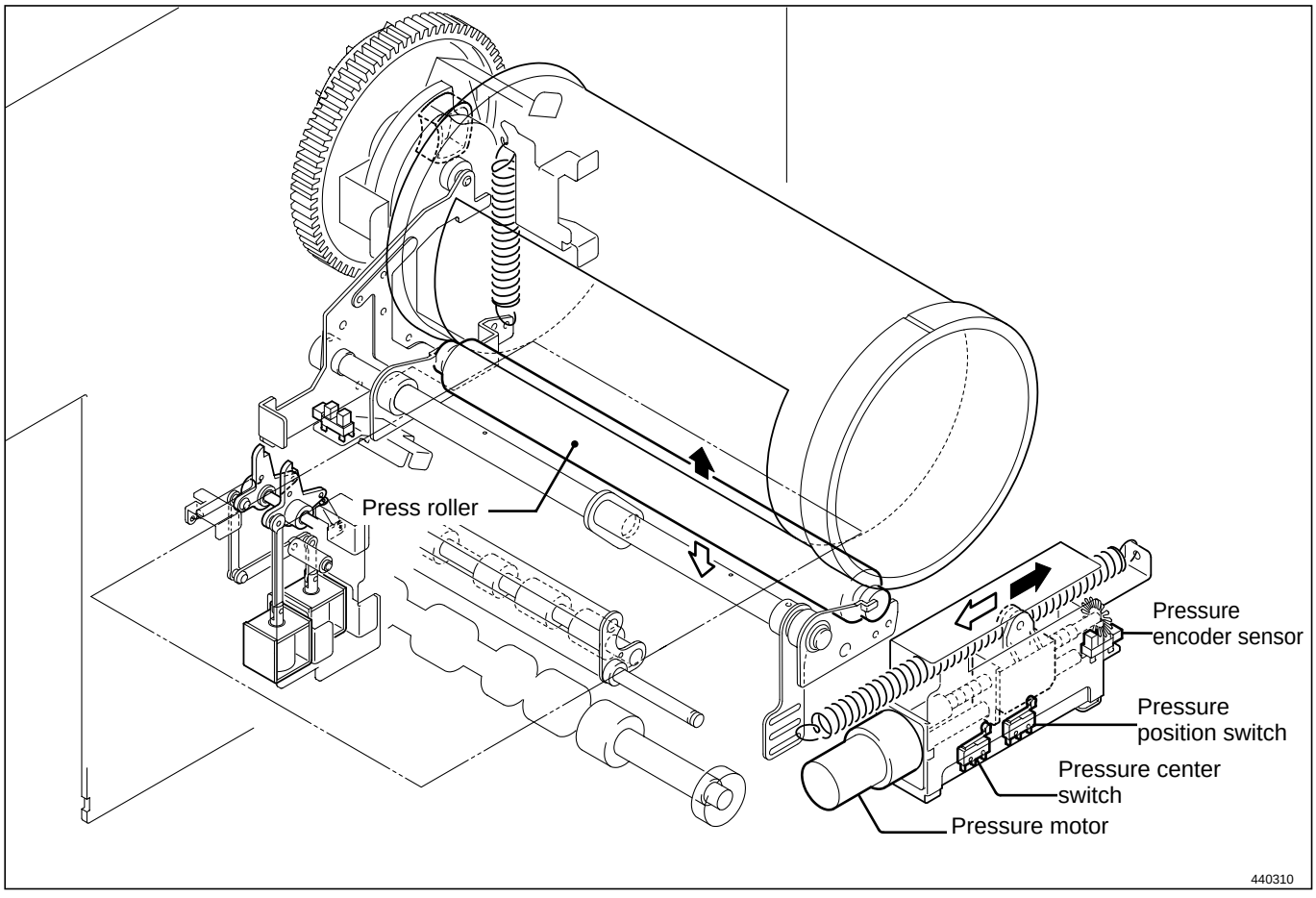


(2) Switching the Contact Pressure

The contact pressure can be switched on the operation panel. When it is changed on the operation panel, the contact motor will start up to effect the switch as soon as the **PRINT** key is pressed.

Circuits

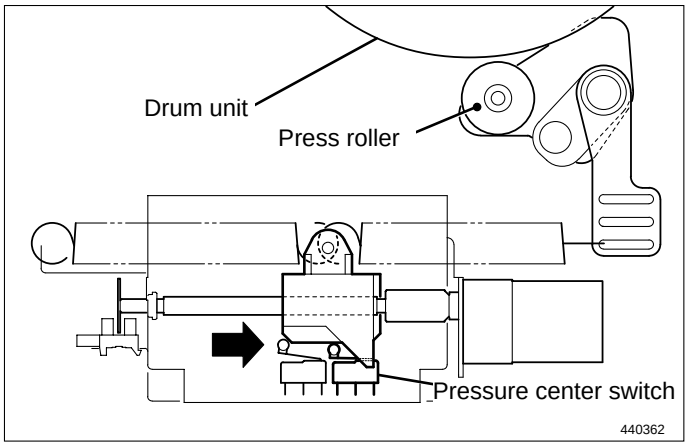




1. Contact pressure position sensing

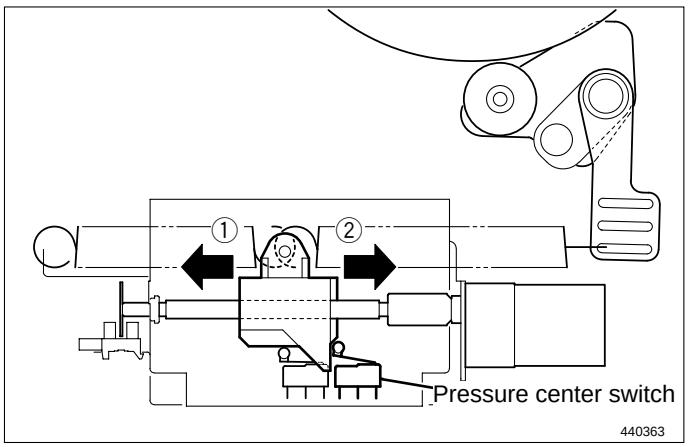
- **Low contact pressure position:**

  Sensed by pressure center switch.
  Switch turns from OFF to ON in response to movement in the direction of the arrow.



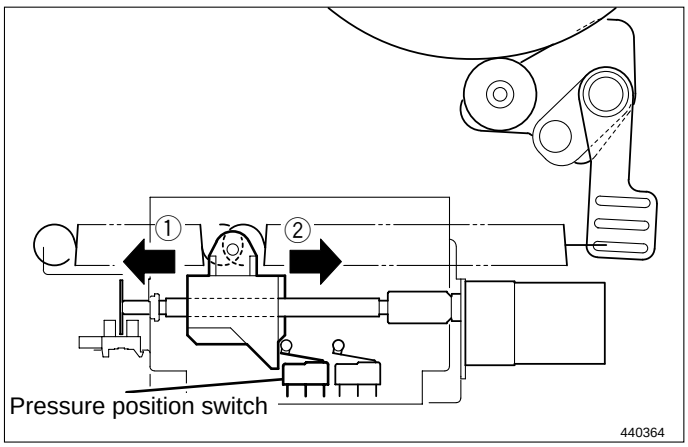
- **Standard contact pressure position:**

  Sensed by pressure center switch.
  Switch turns from OFF to ON in response to movement in the direction of arrow ①.
  Switch turns from ON to OFF in response to movement in the direction of arrow ②.



- **Hi contact pressure position:**

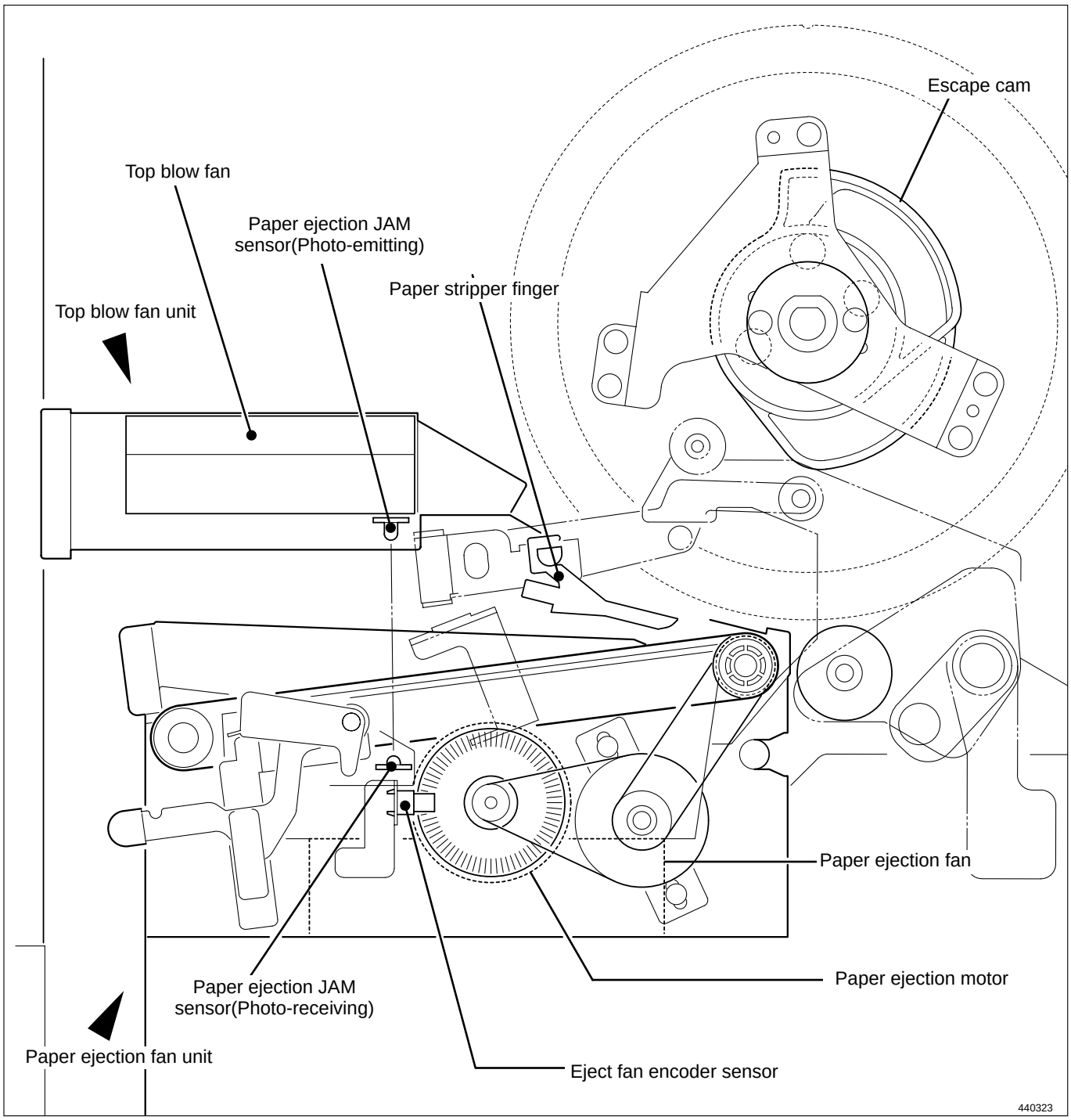
  Sensed by pressure position switch.
  Switch turns from ON to OFF in response to movement in the direction of arrow ①.
  Switch turns from OFF to ON in response to movement in the direction of arrow ②.



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.

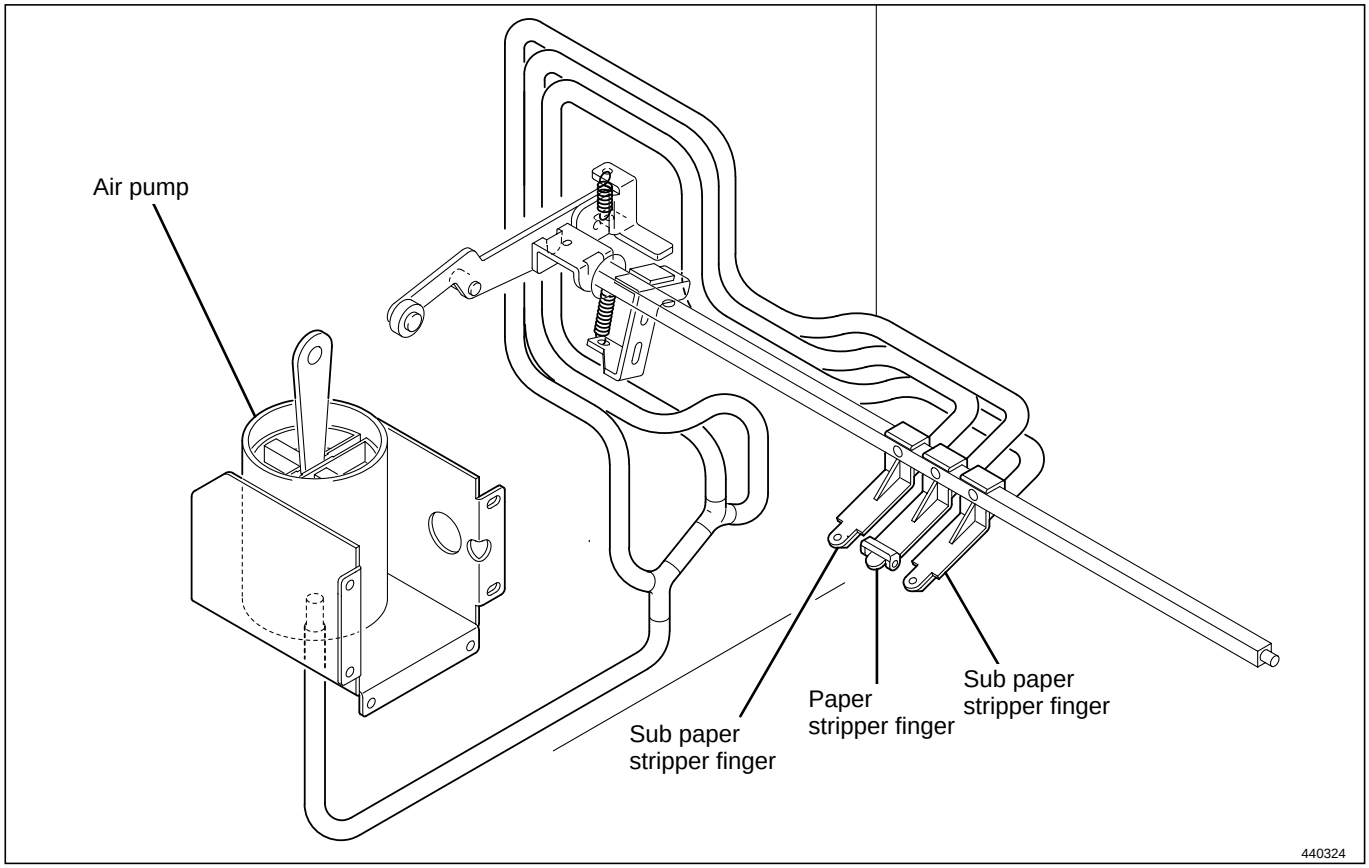


2. Functions of Parts

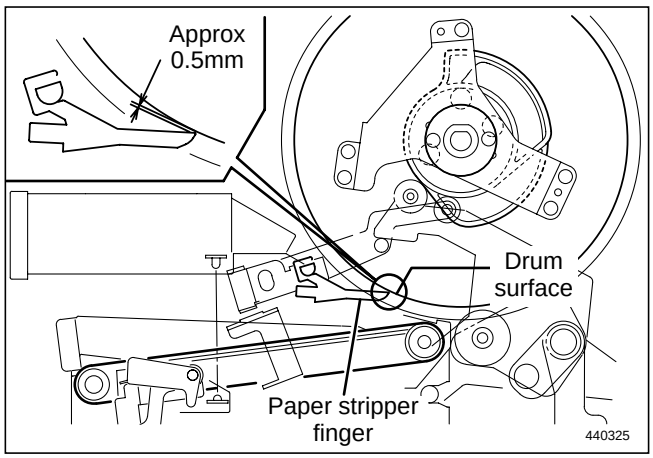
(1) Paper Stripper Finger

Mechanical Structure and Operation

In addition to the paper stripper finger installed in the center, there are two sub paper remover fingers on both sides. There is an air diffuser on the tip of the finger. Compressed air transmitted from the air pump is blowed out of this hole to detach the tip end of the paper from the drum.

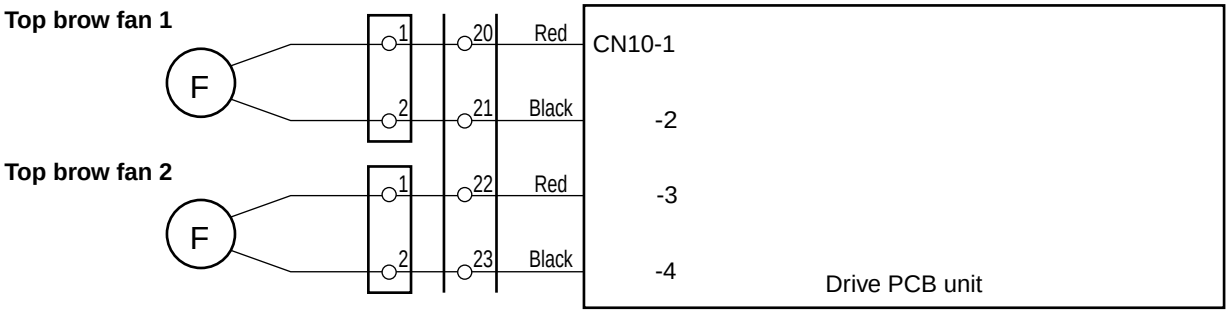


To remove the paper from the drum firmly, the gap between the tip of finger and the drum surface and between the tip of finger and the corner of the master clump are adjusted as follows:-



(2) Top Blow Fan

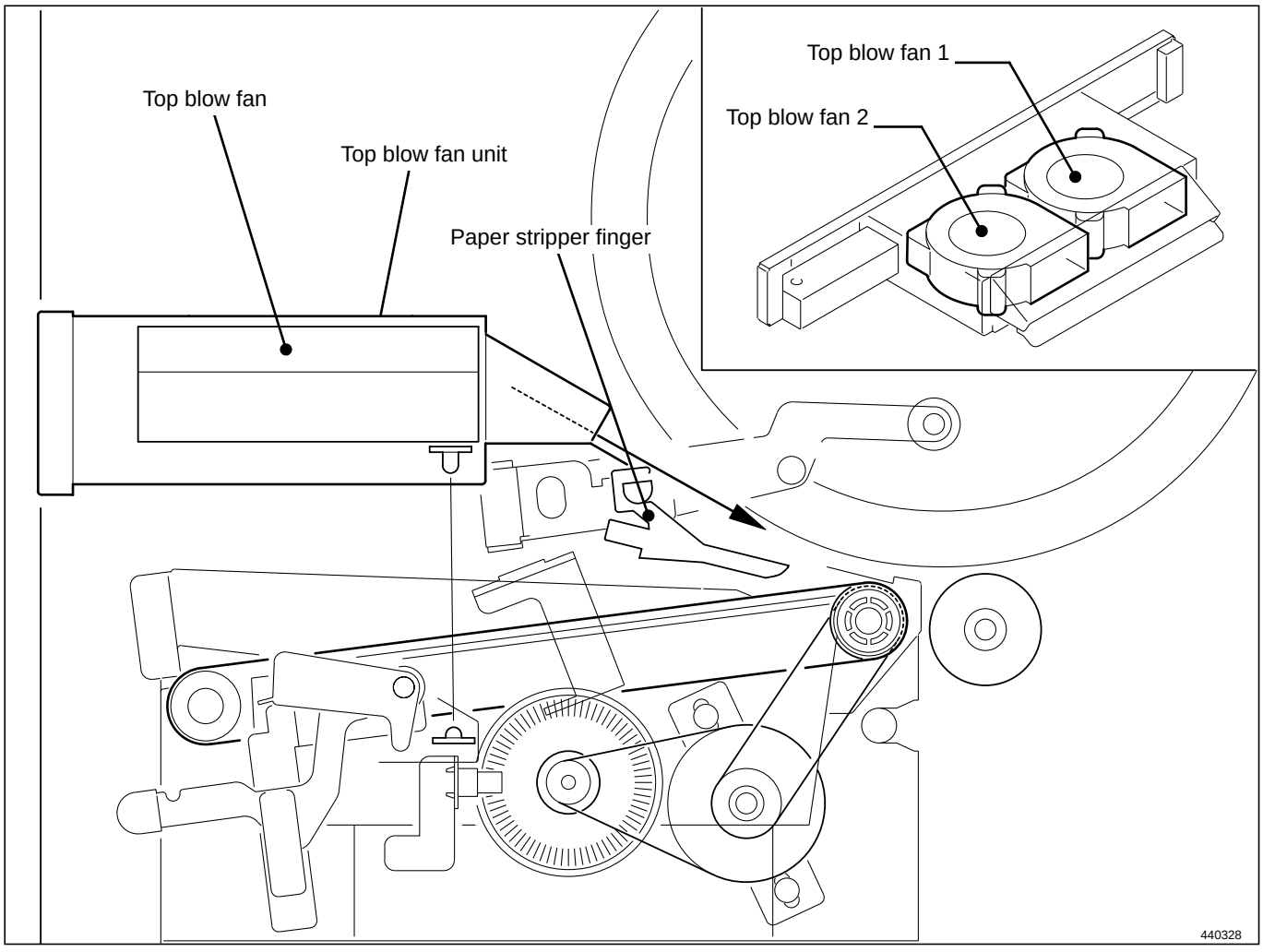
Circuit



440W26e

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.

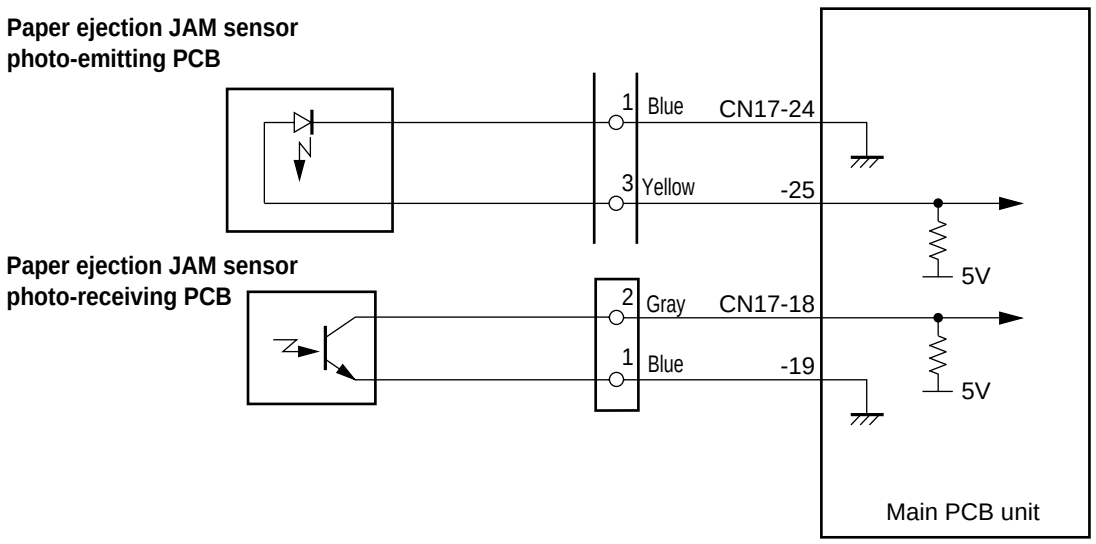


(3) Paper Ejection JAM Sensor

Description

The JAM sensor photo-receiving element is installed on the paper ejection fan unit and detects whether the paper is ejected normally. When it is detected that the paper is not ejected normally, **"PAPER JAM ON THE EJECTION SIDE"** is displayed on the LCD panel.

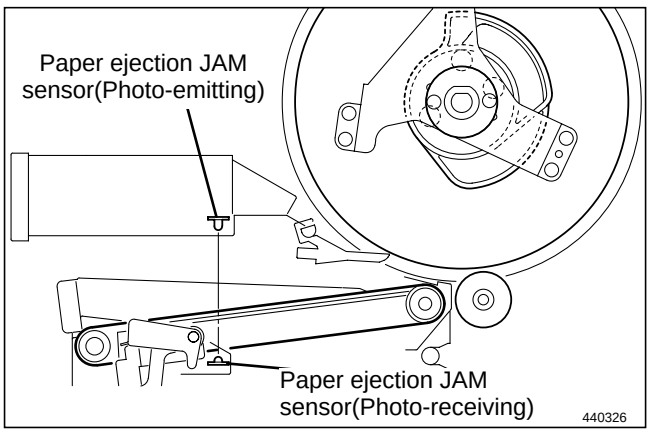
Circuit



440W25e

Operation

The JAM photo-emitting PCB is installed in the top blow fan, and the photo-receiving PCB in the paper ejection fan unit. **HIGH** with the optical path interrupted. **LOW** with the optical path passing.
There are two cases of interruption; interrupted by the paper and the top blow fan is open.



1. Paper Jam Detection Timing

Description

Paper jamming is divided into two types: **"PAPER JAM ON THE EJECTION SIDE"** and **"PAPER JAM ON THE 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 jamming on the ejection side**

JAM1: The bottom end of the paper is not ejected.
When the JAM sensor (light-emitting and light-receiving) is interrupted at the timing of JAM detection position edge (photopassing ➡ photointerrupting) of the drum stop / JAM detection position sensor PS5.

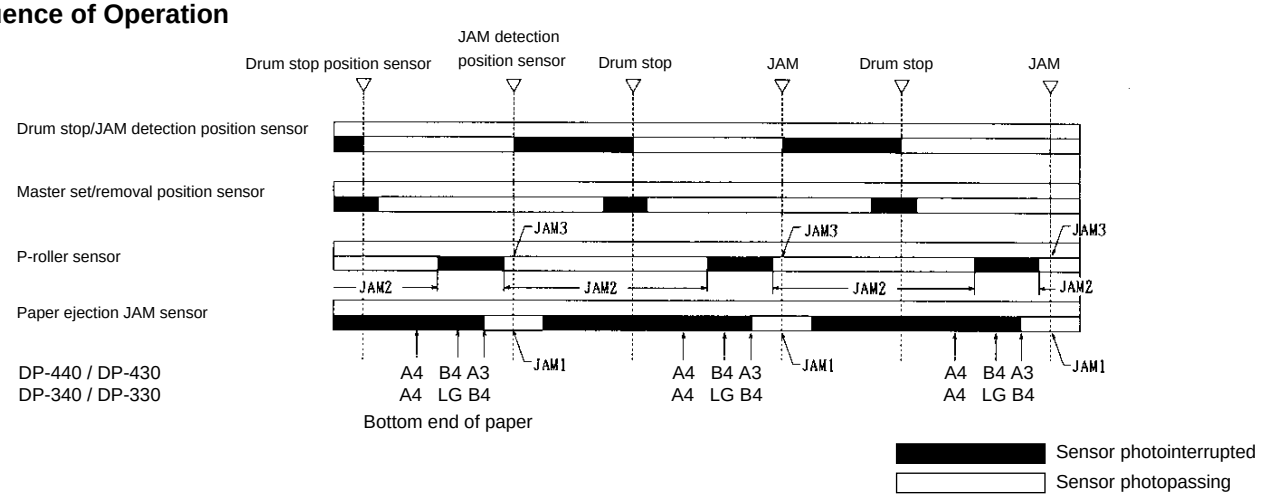
JAM2: The tip end of the paper is not ejected.
When the JAM sensor is not interrupted at all while the P-roller sensor is in the state of photopassing (pressed ON).

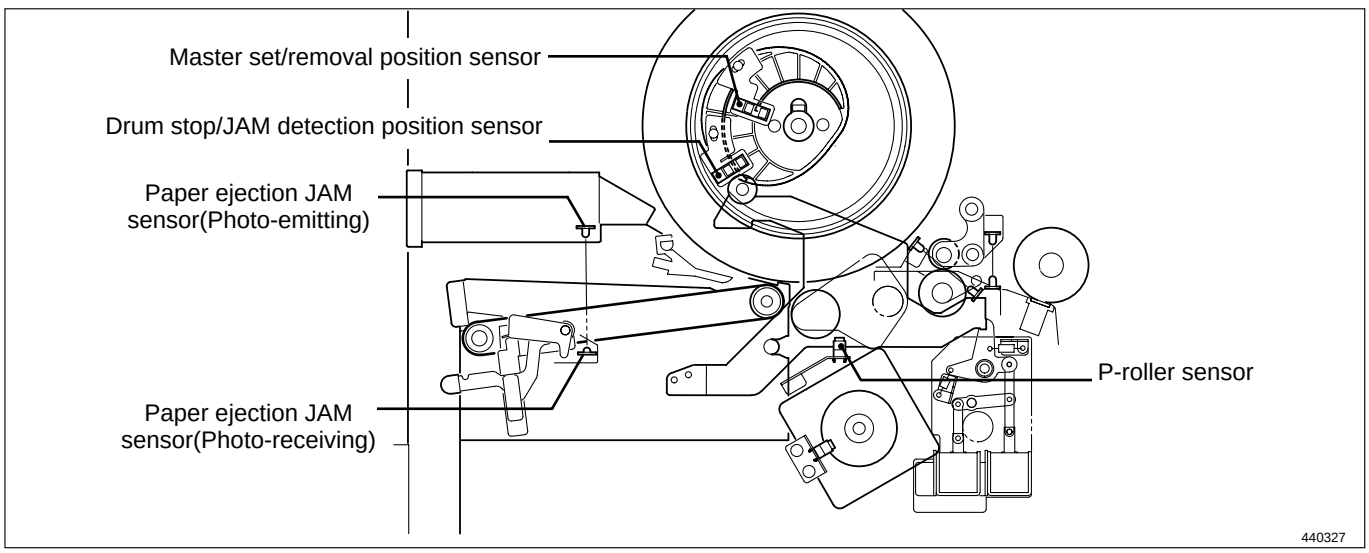
JAM (stop): When the JAM sensor is interrupted as the top blow fan unit is open when the machine stops.
The display is cleared when the sensor is in the state of photopassing.

- **Paper jamming on the feeder side**

JAM3: The paper does not pass the signal sensor though the paper is fed. The P-roller sensor is not in the state of photopassing when the drum rotates twice after the paper feed is ordered ON.

Sequence of Operation

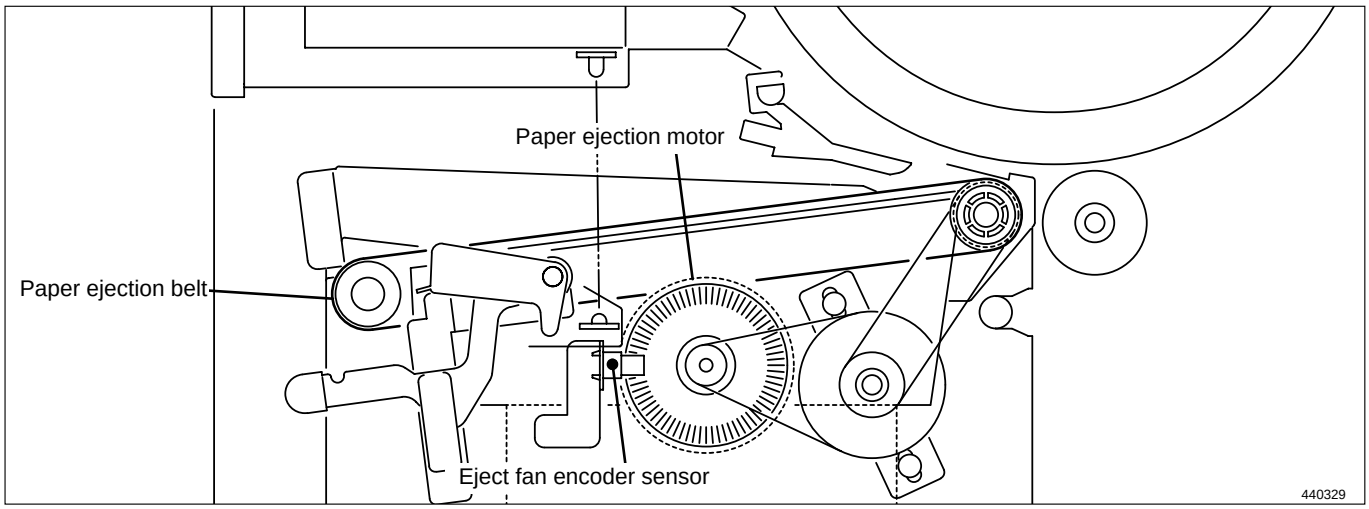




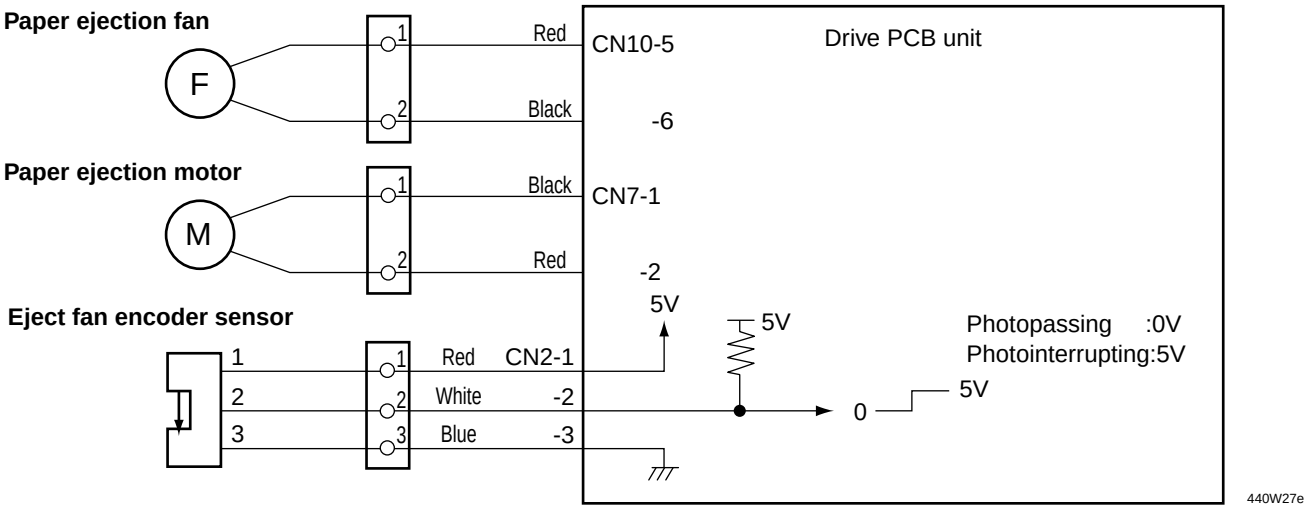
(4) Paper Ejection Belt

Description

The paper ejection belt takes the paper stripped off the drum by the paper stripper finger to the print tray. The belt is driven by the paper ejection motor. Its speed is sensed by an eject fan encoder sensor.



Circuit



1. Paper ejection belt speed

The paper ejection belt is controlled to the speed that matches the printing speed.

The belt speeds that are set for the various printing speeds are shown in the table below. The set speeds can be adjusted using HELP01.

HELP mode H-01 ➡ see p.220

Printing speed	Paper ejection belt speed
1st speed	130rpm
2nd speed	150rpm
3rd speed	165rpm
4th speed	190rpm
5th speed	225rpm

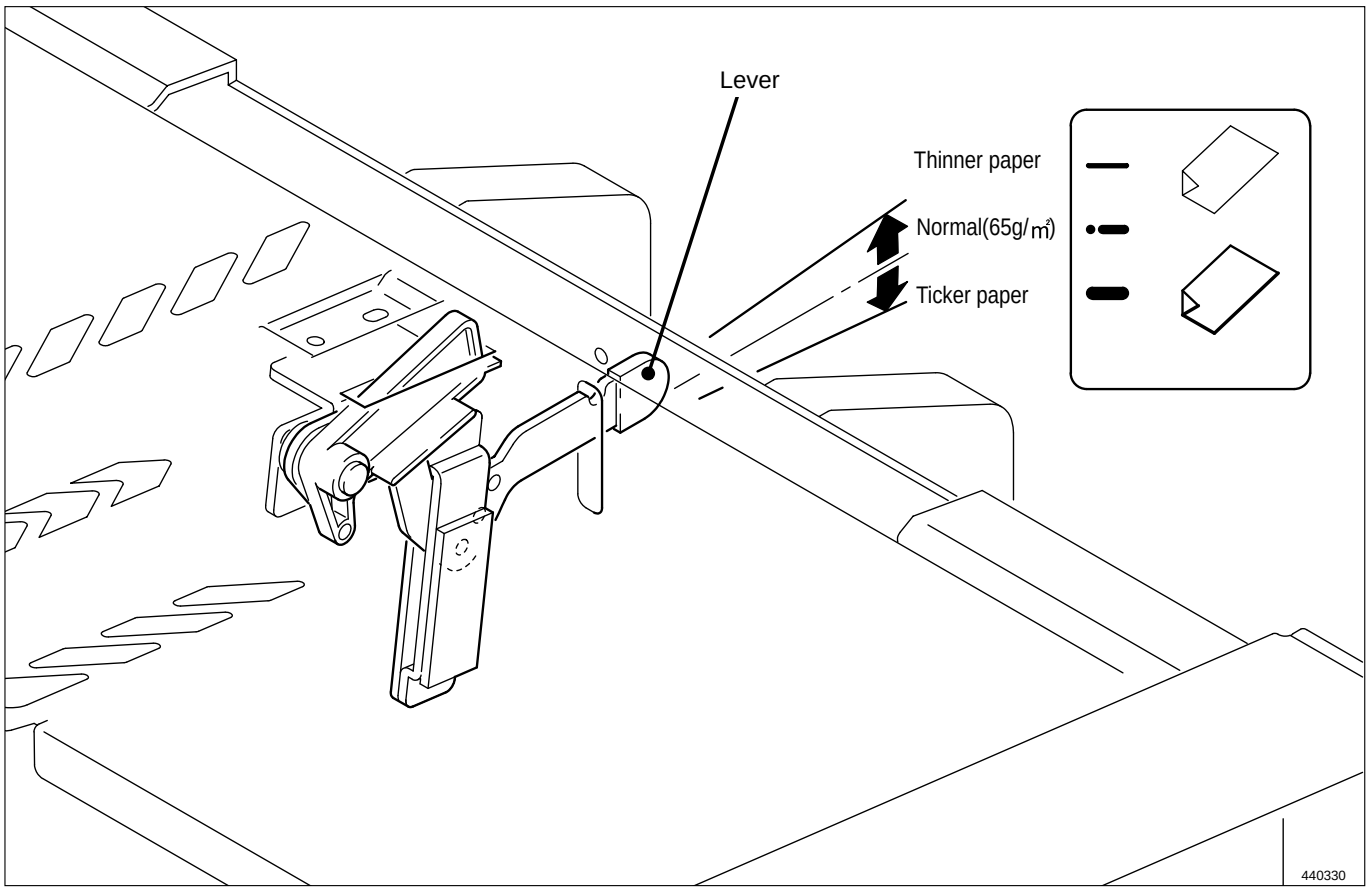
(5) Paper aligning mechanism

Description

Paper can be aligned neatly by considering the ejection angle.
Adjustments should be made in accordance with paper thickness.

For thinner paper: Set the lever in the upper position.
For thicker paper: Set the lever in the lower position.

*** Although the lever is usually set at the intermediate position for paper of normal thickness (65g/m²), the lever position should be adjusted depending on the condition of the paper.**

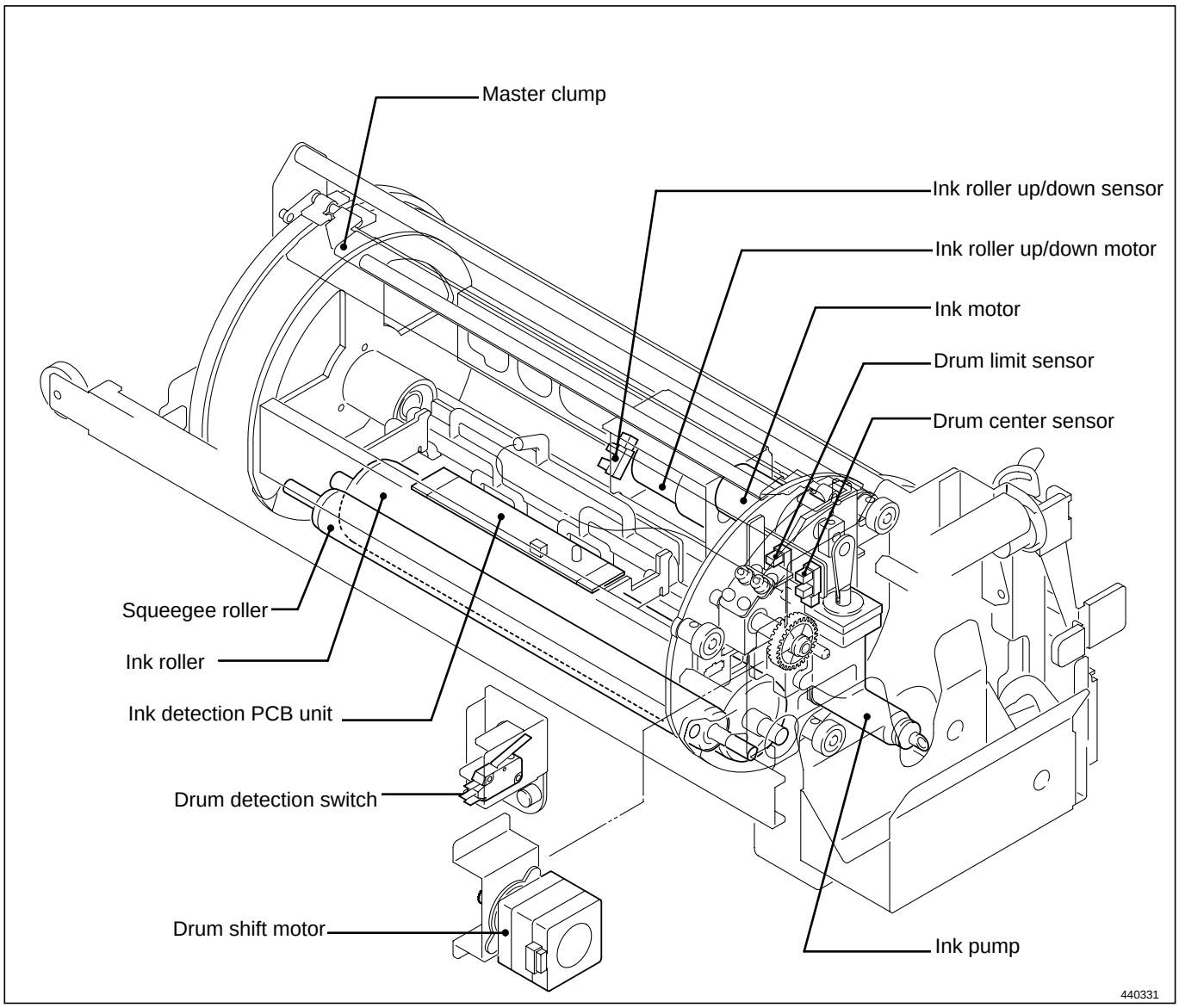


7 Drum Section

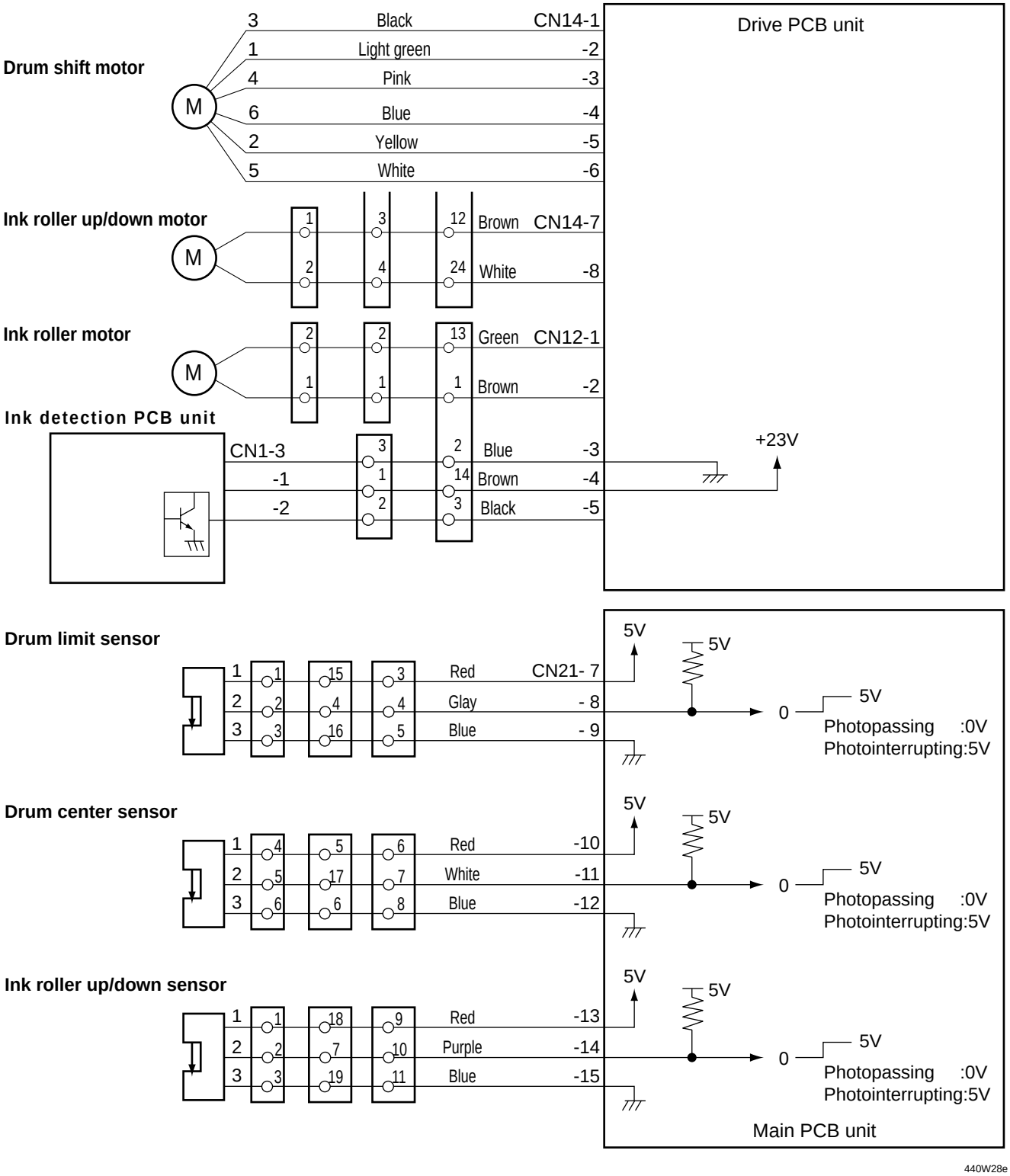
1. Description

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 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. Five color inks are available: black, red, blue, green and brown. Perform color printing to replace the drum unit for each color. (Press the drum rotation switch to the drum home position to replace the drum unit.)

In this machine, whether there is a drum or not is detected. If the drum is not attached properly, it is taken as **"NO DRUM"**, and **"NO DRUM"** is displayed on the LCD panel.



2. Circuit


Drive PCB unit
Drum shift motor
3 Black CN14-1
1 Light green -2
4 Pink -3
6 Blue -4
2 Yellow -5
5 White -6
M
Ink roller up/down motor
1 3 12 Brown CN14-7
2 4 24 White -8
M
Ink roller motor
2 2 13 Green CN12-1
1 1 1 Brown -2
M
Ink detection PCB unit
CN1-3 3 2 Blue -3
-1 1 14 Brown -4
-2 2 3 Black -5
+23V
Drum limit sensor
1 1 15 3 Red CN21- 7
2 2 4 4 Glay - 8
3 3 16 5 Blue - 9
5V
5V
0
5V
Photopassing :0V
Photointerrupting:5V
Drum center sensor
1 4 5 6 Red -10
2 5 17 7 White -11
3 6 6 8 Blue -12
5V
5V
0
5V
Photopassing :0V
Photointerrupting:5V
Ink roller up/down sensor
1 1 18 9 Red -13
2 2 7 10 Purple -14
3 3 19 11 Blue -15
5V
5V
0
5V
Photopassing :0V
Photointerrupting:5V
Main PCB unit
440W28e

3. Function of Parts

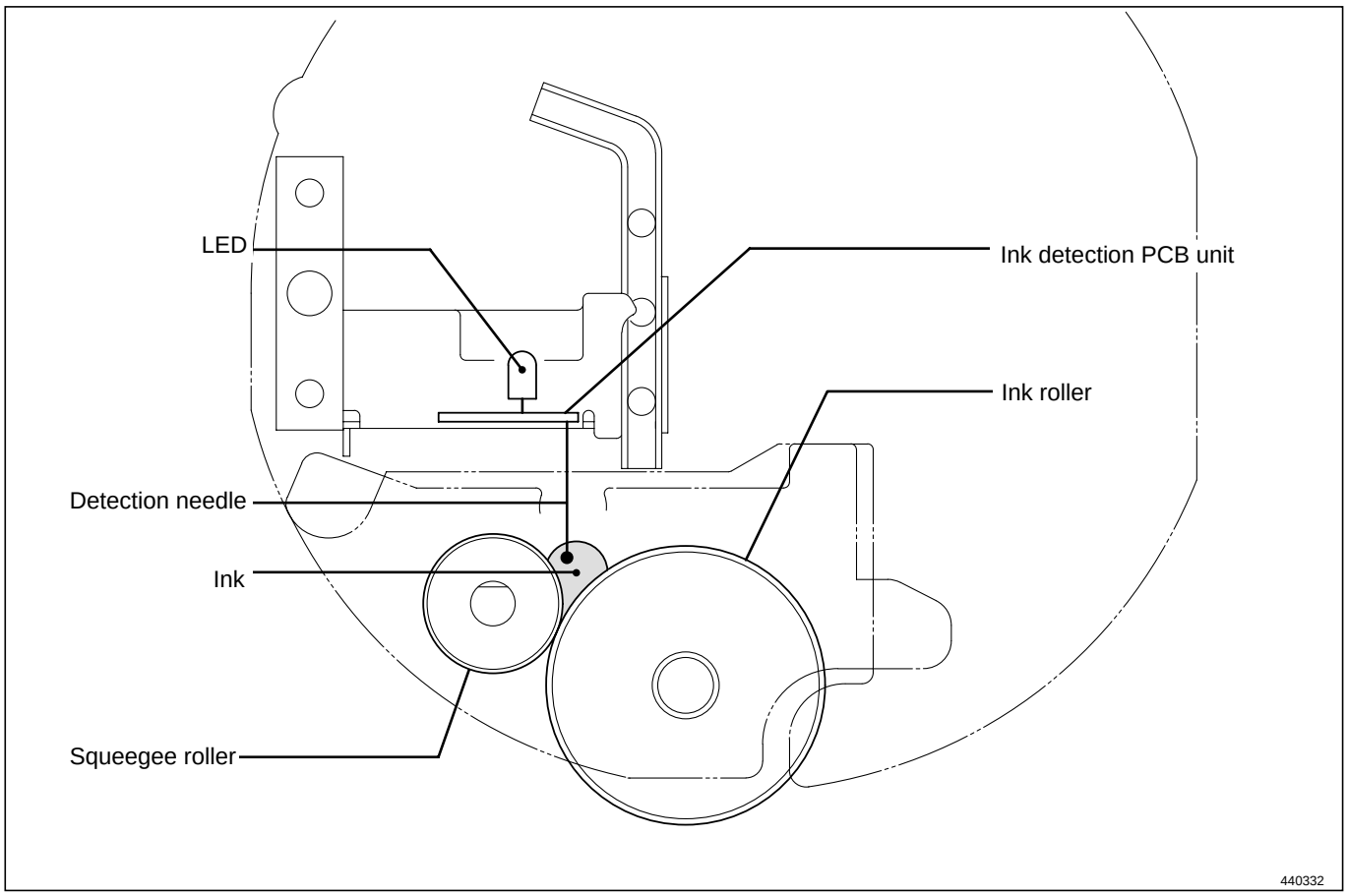
(1) Ink Detection

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 motor ON and OFF by this signal.

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

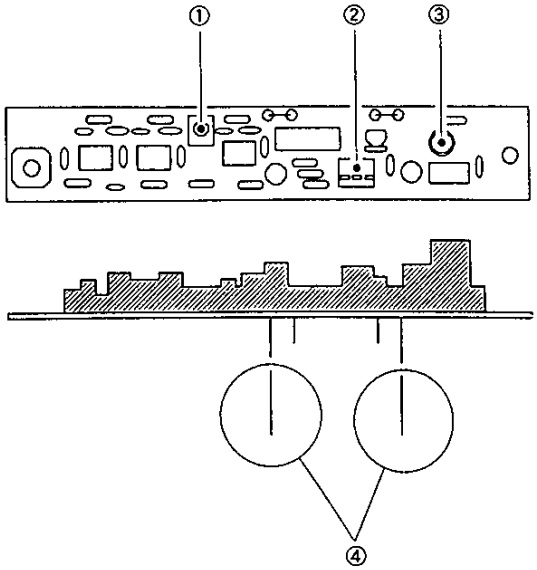
➡See page 97



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

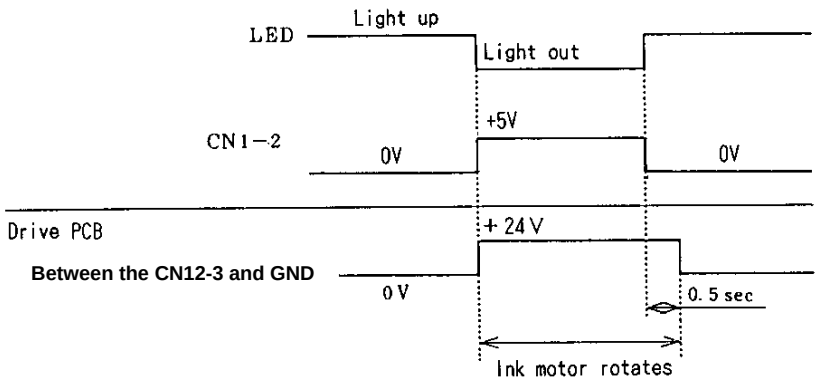
- When the electric capacity variation between the detection needles on the ink detection PCB Unit and GND is over the threshold value, the LED on the ink detection PCB Unit lights up and the ink signal (0V) is output.

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



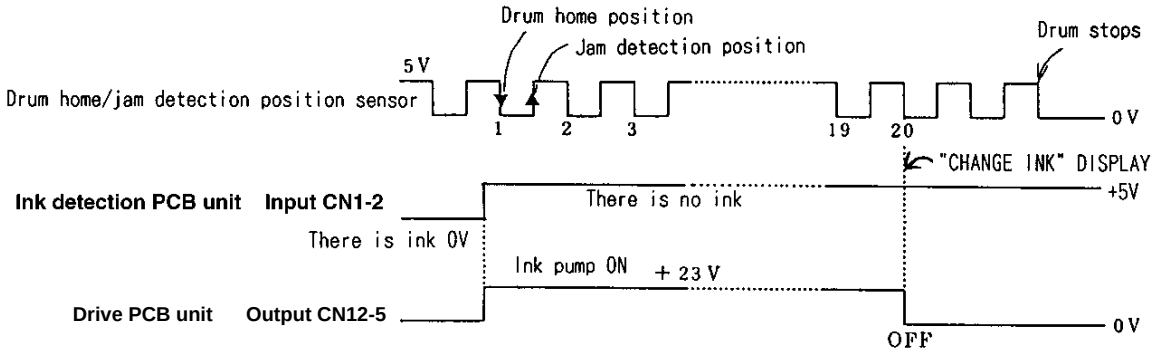
- Timing of the LED and the ink motor operation is as follows. The ink motor works during printing (driving output signal).

● Ink detection PCB unit



2. "CHANGE 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, **"CHANGE INK"** is displayed on the error display, and printing stops. At the same time the power for the ink motor is turned off.



*The drum rotates until **"CHANGE INK"** is displayed after **HIGH** is output from the ink detection PCB unit during printing. The number of drum rotations varies depending on the printing speed as follows:-

Printing speed	1	2	3	4	5
Number of rotations	45	68	80	100	120

(2) Ink Roller Up/Down Mechanism

Description

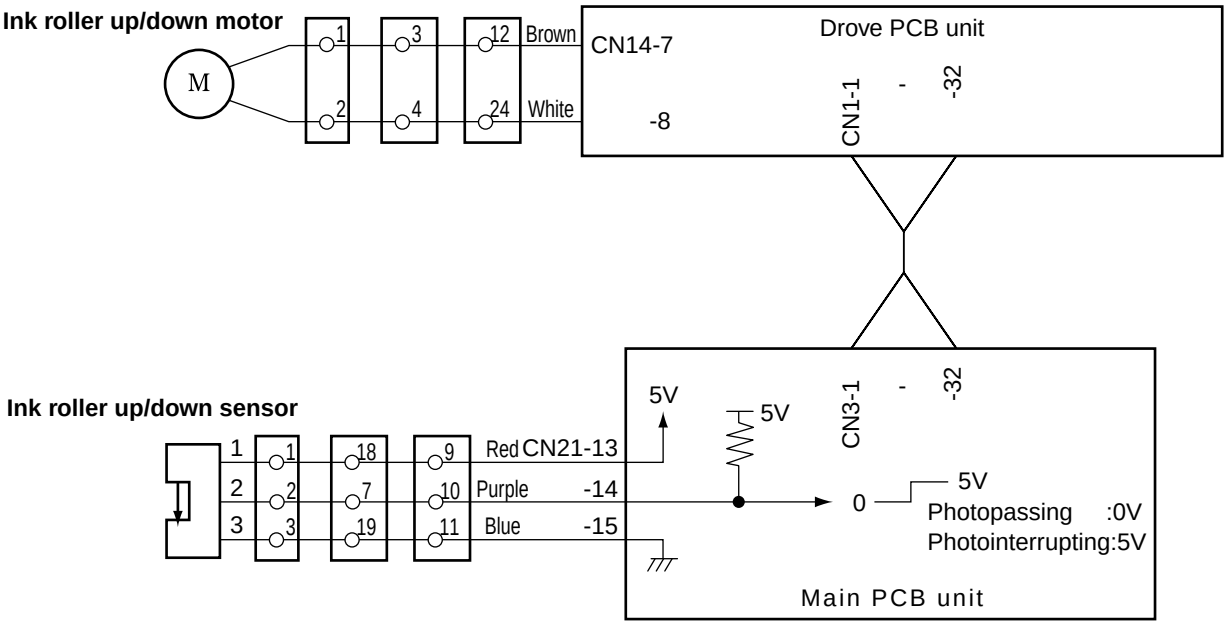
At times other than printing, the ink roller is separated from the inner surface of the drum by a fixed clearance. During printing, however, the press roller rises and presses the ink roller into contact with the drum inner surface, so that ink is supplied via the drum inner surface to the printing paper. 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 platemaking 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 insufficiency when in the first printing, the machine is equipped with a mechanism for raising and lowering the ink roller. Before paper is fed in, this mechanism pushes the ink roller against the drum inner surface, so that ink is forcibly supplied immediately prior to the start of printing. As a result, the images on the first sheet printed after platemaking are sufficiently bold.

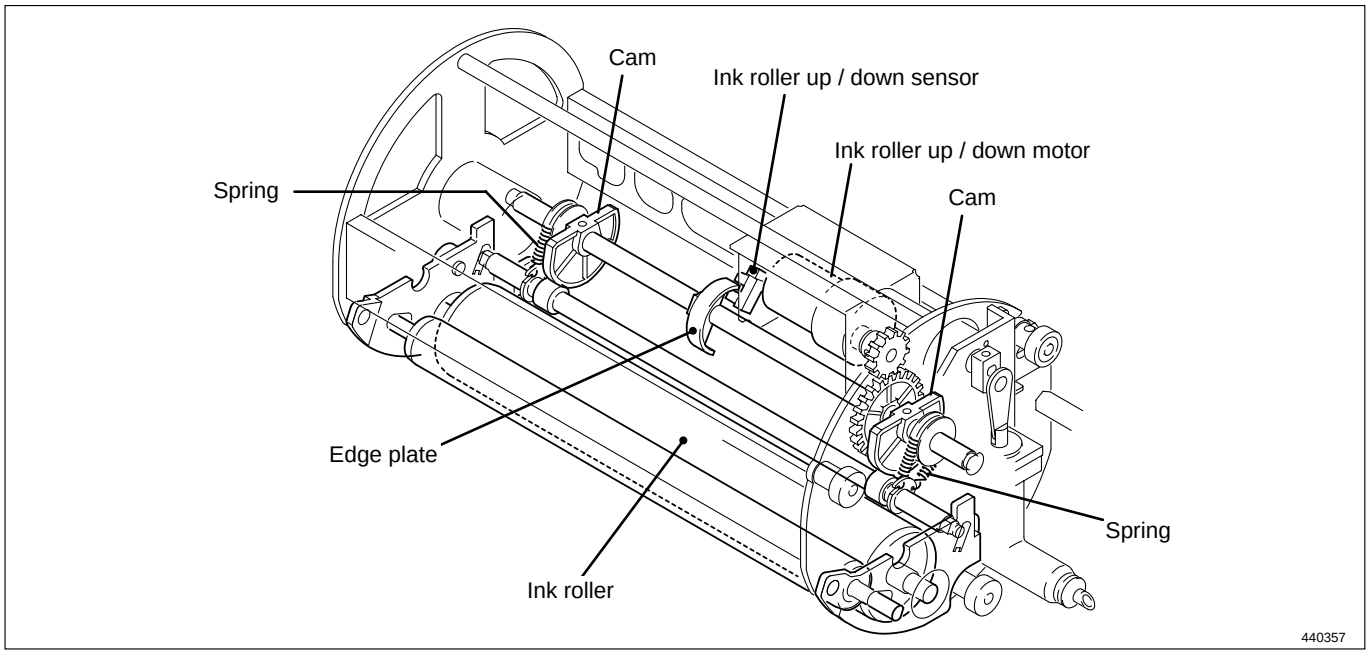
Ink roller up and down operations are included as elements in the Fine Start mode, together with contact pressure adjustment, and therefore are optimally controlled in accordance with room temperature, length of time out of use, number of sheets in last run, etc.

Circuit



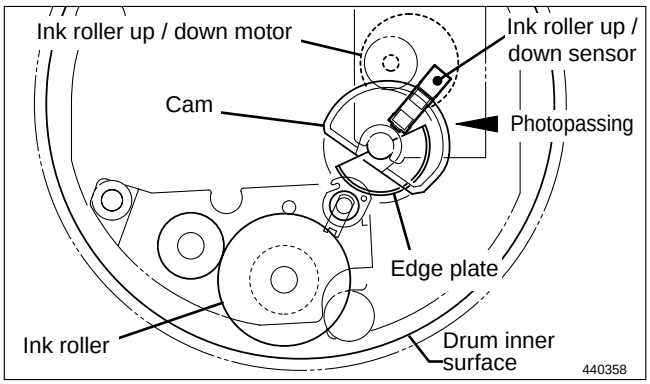
440W29e

Operation



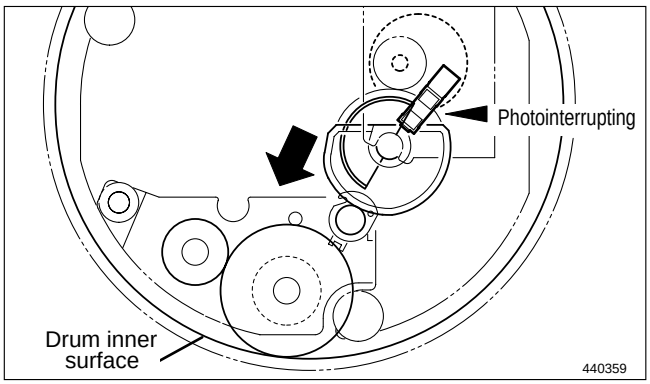
● Standby position during printing

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(OPEN), signalling that the ink roller has reached the upper limit position. In this position, the ink roller is not touching the drum inner surface.



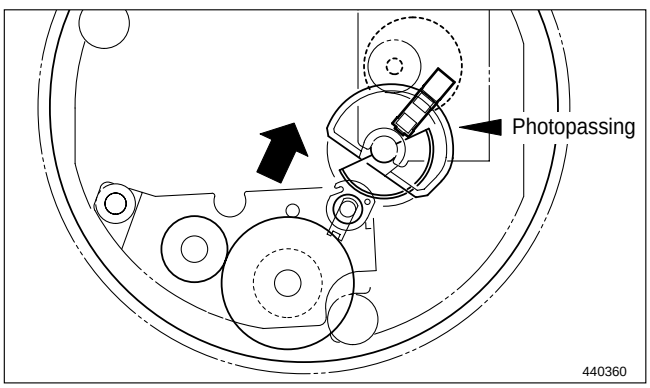
● Ink roller descent

The motor turns, and cam pushes the ink roller downward. When edge plate rotates, the ink roller up/down sensor is in the state of photointerrupting (CLOSED), the sensor signals that the roller has reached the bottom limit position, and the motor stops. In this 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 turns, and when cam reaches the bottom position, the spring raises the ink roller up. When the ink roller up/down sensor is in the state of photopassing, the sensor signals that the roller is in the raised position, and the motor stops.

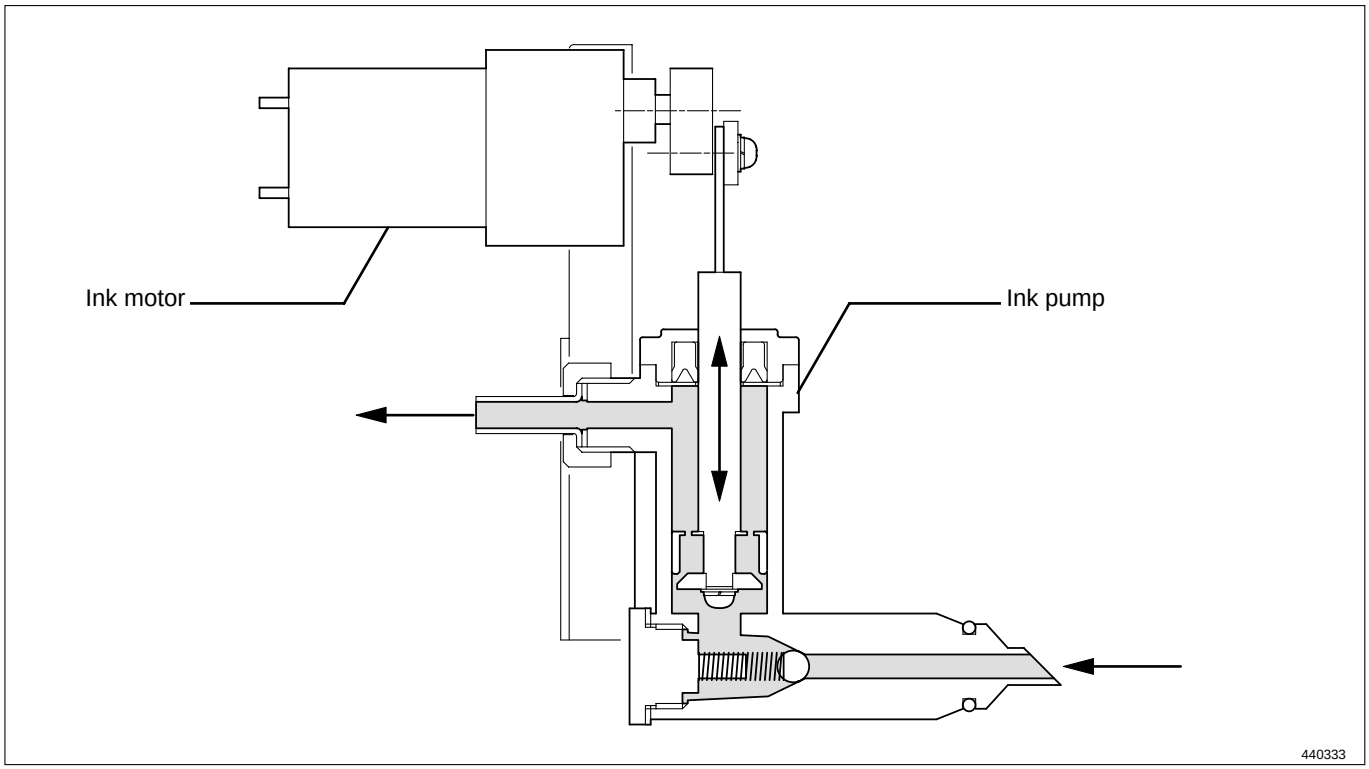


(3) Ink Pump

Description

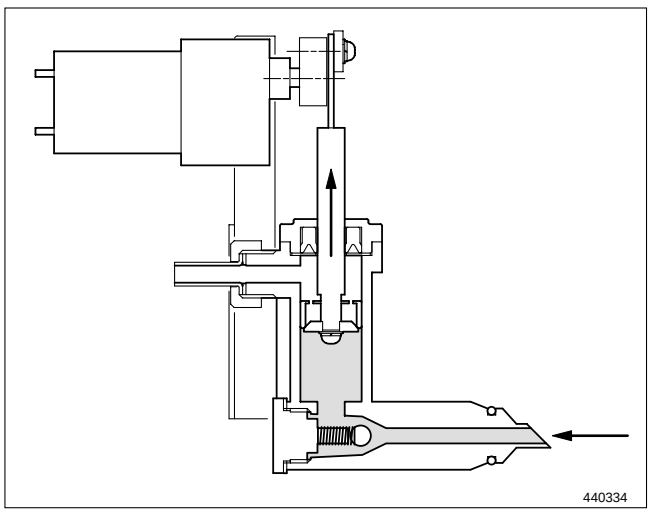
The ink control section in the drum is supplied with ink in the ink pack by driving the ink motor.

Mechanical Structure

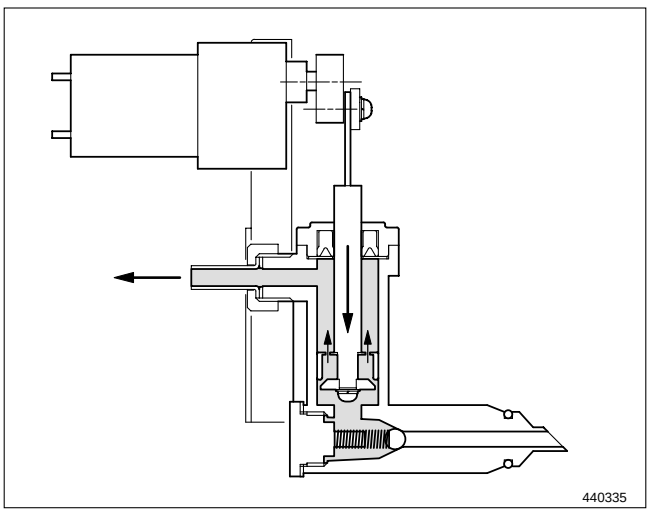


Operation

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.



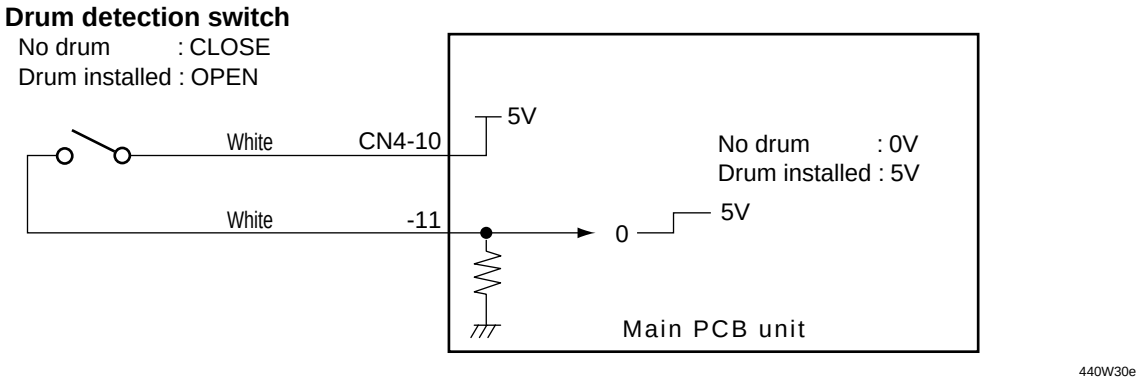
When the piston moves down, the pump releases ink.

(4)Drum Detection Switch

Description

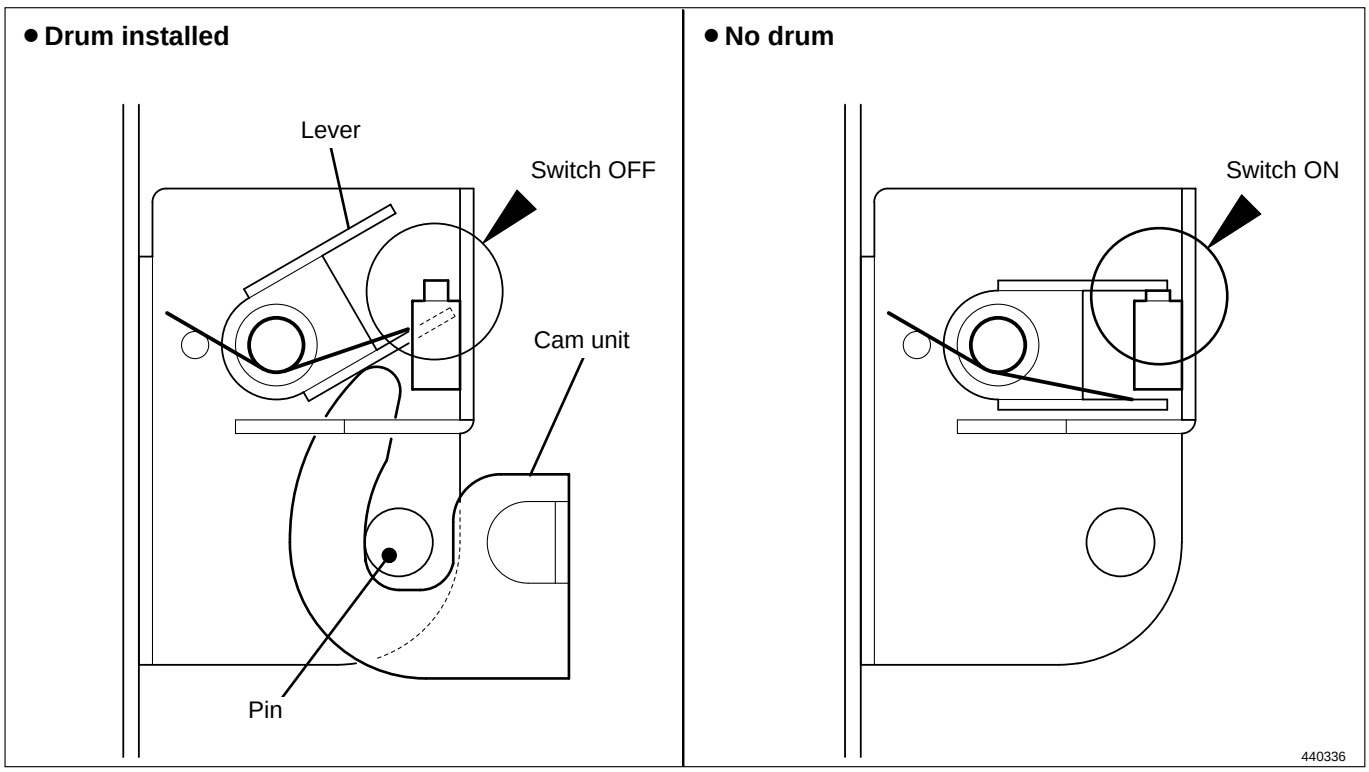
The drum switch detects whether the drum is installed to the machine.
When it is detected that there is no drum installed, **"NO DRUM"** is displayed on the error LCD panel the machine stops operation. When no drum is detected during operation, all the operations stops emergently.

Circuit



Operation

When the drum is attached to the main body, 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 SW is open as shown in the figure. When the pin is over the cam unit difference, the drum SW is closed.

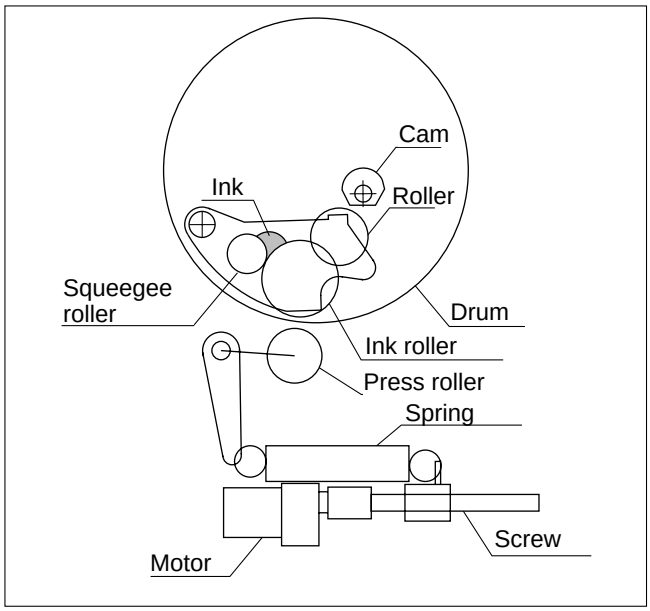


(5) Fine Start Mode

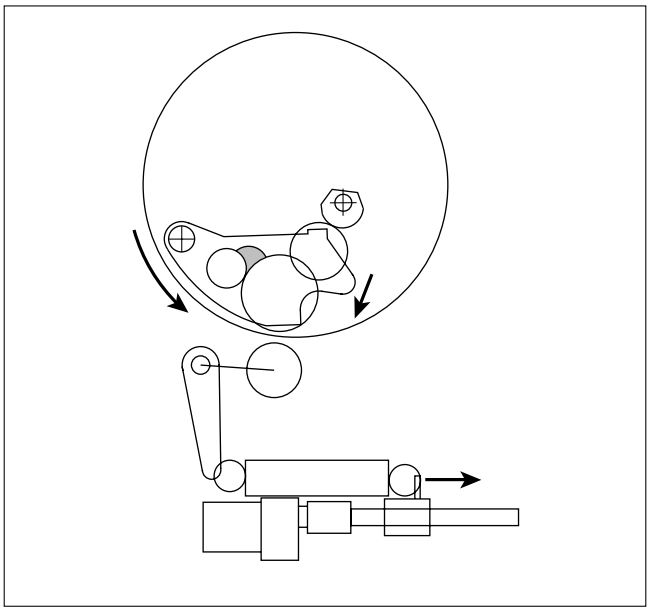
This mode automatically sets optimum values for the following start conditions: timing of ink roller actuation during platemaking, number of no-paper rotations with the ink roller actuated, and contact pressure at printing start. These optimum settings are based on room temperature, the length of time the printer was out of use, and the number of prints last time it was used. They ensure clear printing right from the first sheet after platemaking.

*Room temperature of 10℃ or below can cause insufficient ink supply, even in Fine Start Mode.

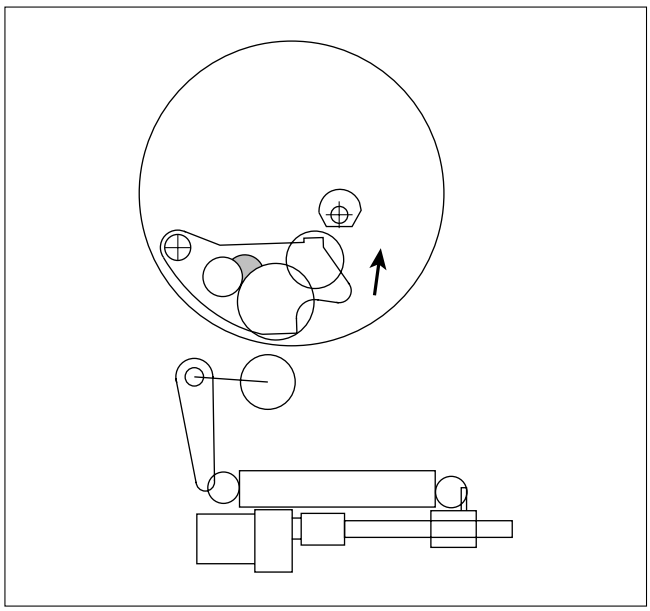
Operation



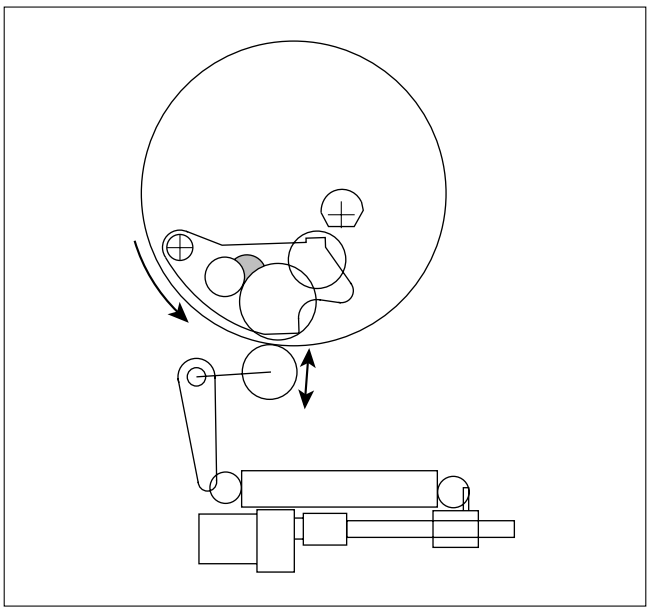
Standby state



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.



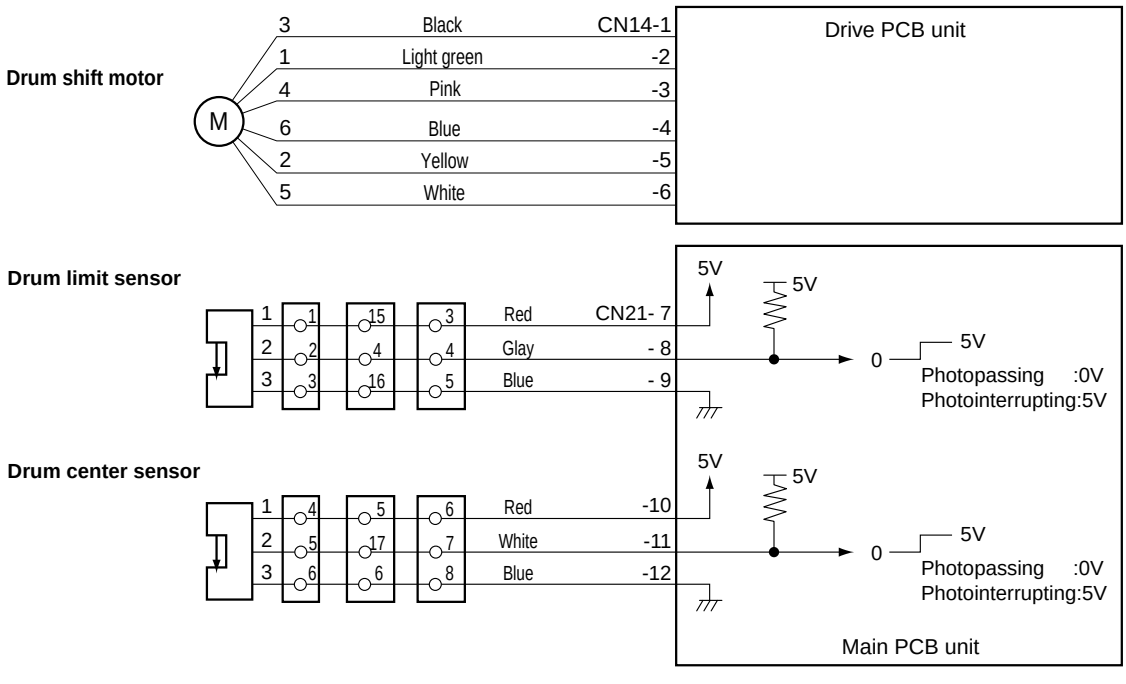
Printing begins.

(6) Drum Shift Mechanism

Description

The printing position (left and right) can be switched automatically via the operation panel. If the position is changed via the operation panel, the drum shift motor starts moving by turning the **PRINT** key on.

Circuit



Operation

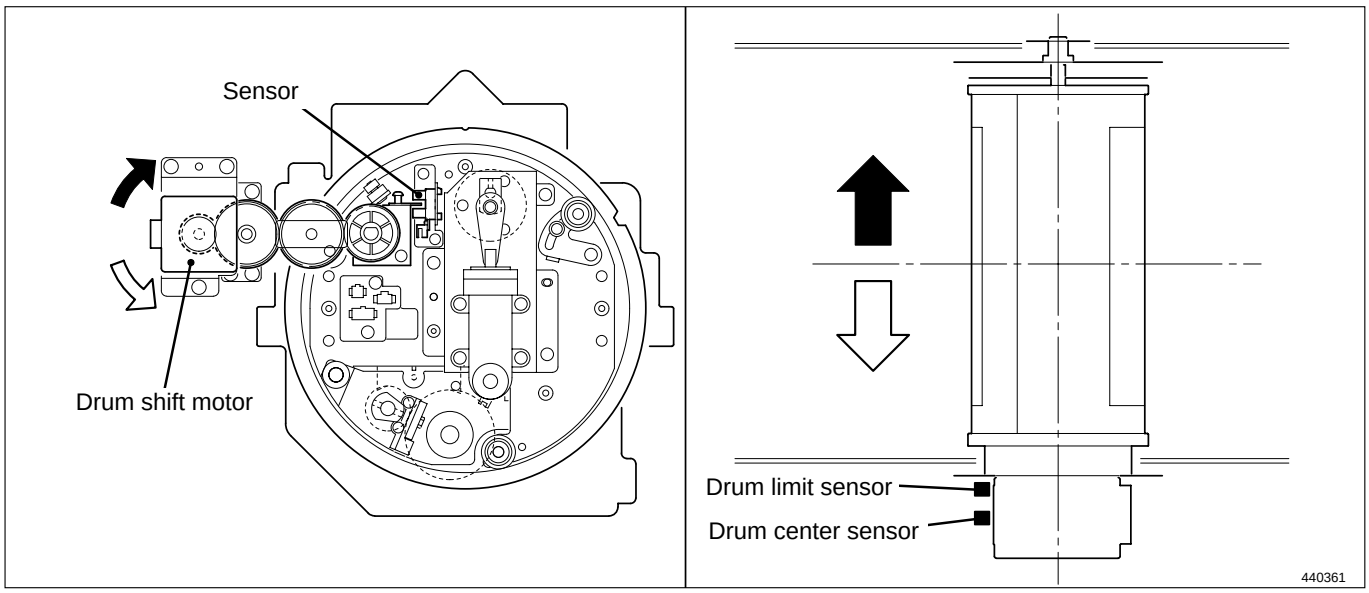
Shifting amount of the printing position in the pel path direction is detected by combining the drum center sensor and the drum limit sensor to detect the standard position by using the drum center senor.

*** Operation during plate making**

The following operations are performed by pressing the **PLATEMAKING** key.

When the drum shift motor is rotated clockwise (CW), the drum is shifted from the drum home position to the plate making position (opposite from the control).

After master setting, the drum is returned to the drum home position by rotating the drum shift motor counterclockwise (CCW).

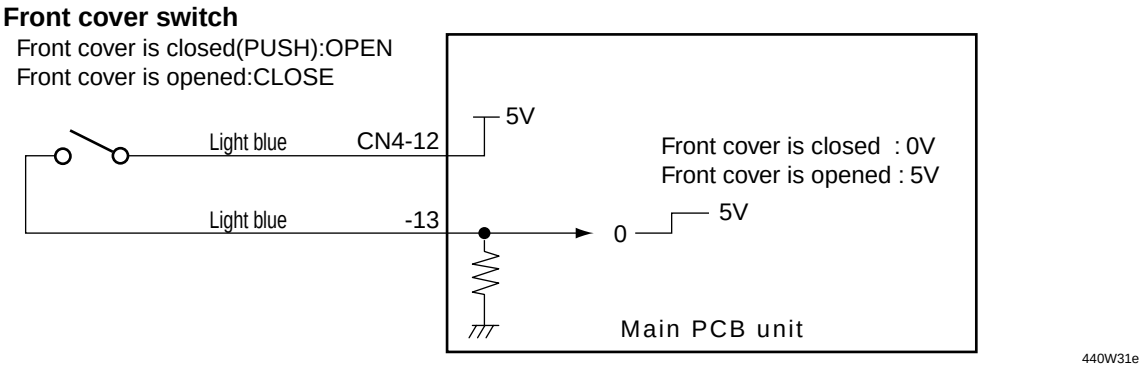


(7) Front Cover Switch

Description

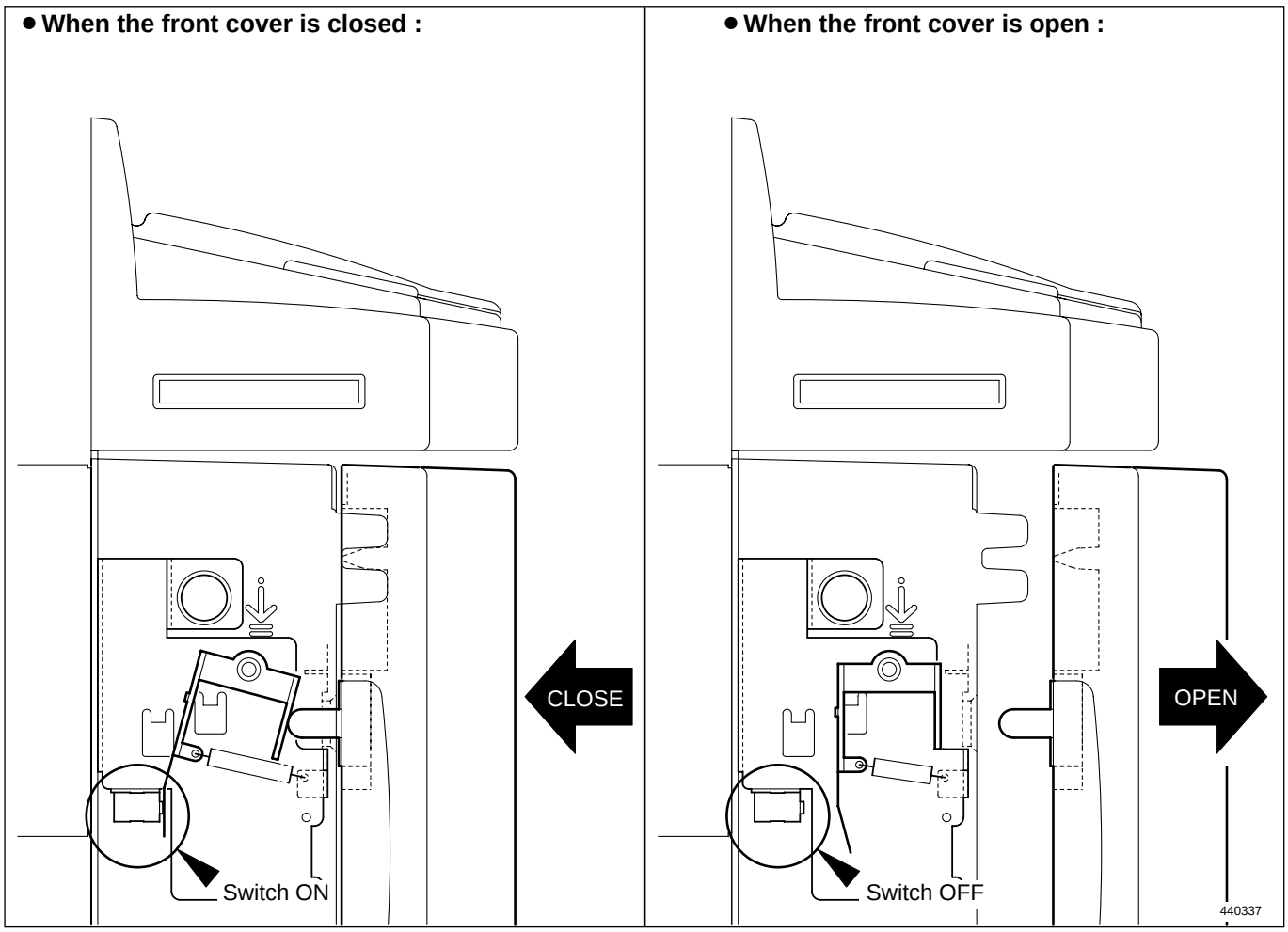
The front cover switch detects opening and closing of the front cover. **"FRONT COVER OPEN"** is displayed on the error display panel on the control panel, when it is detected that the front cover is open. When the front cover is open, platemaking and printing is not performed. When the front cover open is detected during printing, the machine stops immediately. (When the front cover open is detected during platemaking, the machine stops before processing printing.)

Circuit



Operation

When the front cover is closed, the lever presses the switch and is **closed.**
When the front cover is open, the lever is apart from the switch and is **open.**

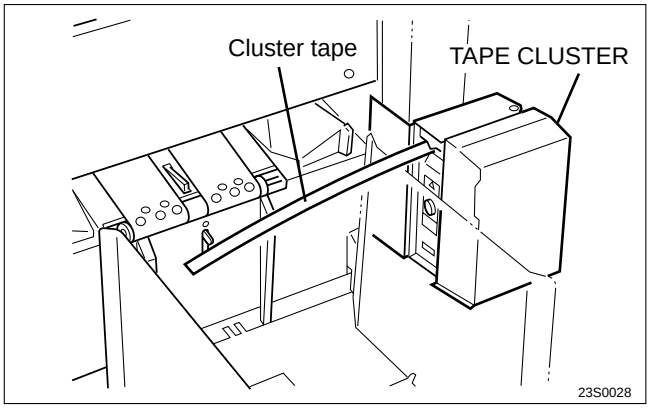


8 Option

(1) TAPE CLUSTER

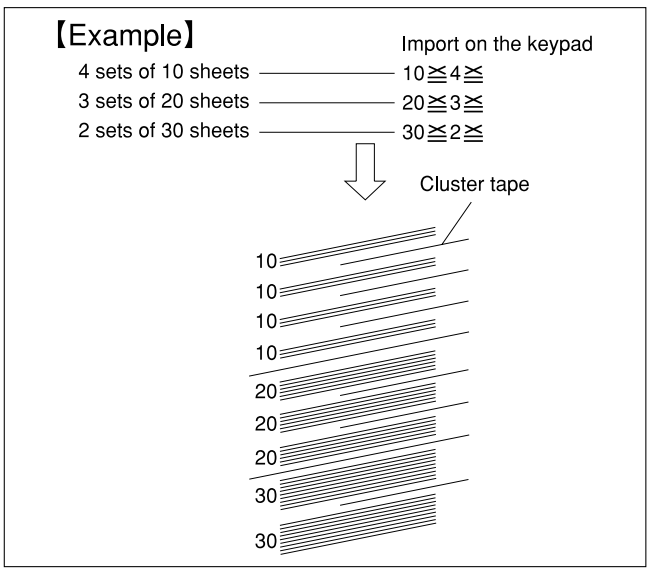
Description

A certain length of tape is fed and cut from the **TAPE CLUSTER** to finish printing the number of sets in the cluster printing operation. The operation is continued to process the number of sets.



***Printing does not stop when the tape runs out during printing.**

The number of sheets for 1 set to be processed is 1 - 9999 sheets. The number of sets for 1 classification to be processed is 1 - 99 sets.



- When the number of sets is input without a **TAPE CLUSTER** (optional), the following is operated. Printing stops at the timing of feeding tape, Press the **PRINT** ◇ key again to start printing. (Manual clustering)

IMPORTANT : **When attaching the TAPE CLUSTER, set the mode to the HELP mode 67 with B = 1.**
(For further details, refer to the list of the HELP modes. If it is not set, the TAPE CLUSTER does not work.)

HELP mode H-67 ➡ see p.282

Operation

1) The **TAPE CLUSTER** starts to feed the tape from the last 10 sheets for the set. A fixed length of the tape is fed and is cut after completing printing the set amount.
This operation is repeated until the last set is processed.
The fed amount of tape is different between the large and small classifications. When all the sets for 1 classification are processed, the fed amount of tape is longer (large classification). When all the sheets for 1 set are processed, the fed amount of tape is shorter (small classification).
Fed amount of tape for small classification: about 250mm (±15%)
Fed amount of tape for large classification: about 370mm (±15%)

2) When the number of sheets for the set is less then 10 sheets, the tape is fed at the same time when printing starts. When the number of sheets is printed before a fixed amount of tape is fed, printing for the next set is discontinued until the tape is fed. (Paper feeding stops. The drum rotates at a low speed.)

Chapter 3 Mechanism

3

⚠ CAUTION

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

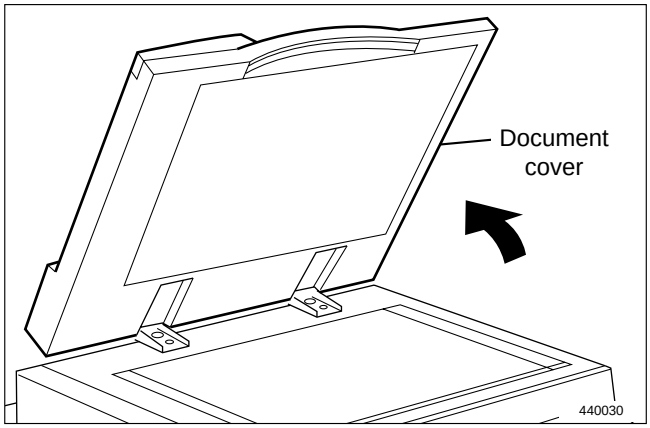
• Cautions Regarding Disassembly and Assembly

- **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.

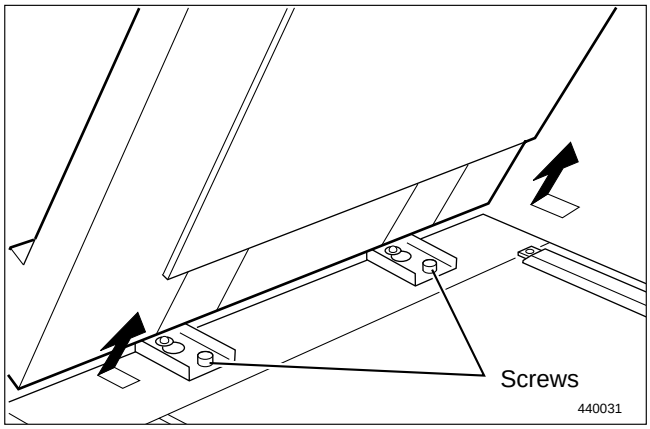
1 Exterior

(1) Removal of Document Cover

1) Open the document cover.

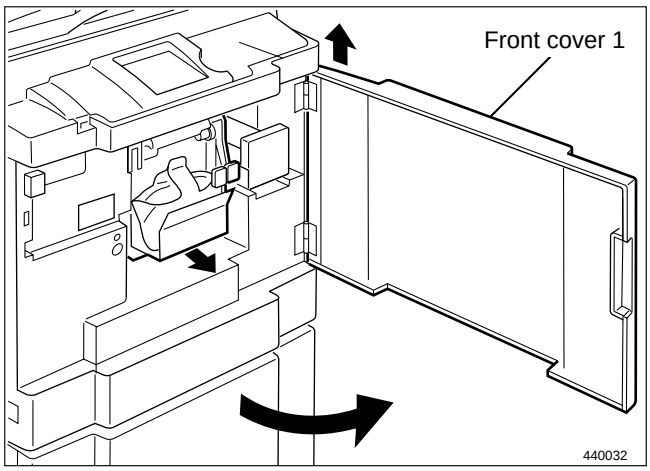


2) Remove the 2 screws shown. Slide the document cover back 1cm, and then pull it up to remove it.

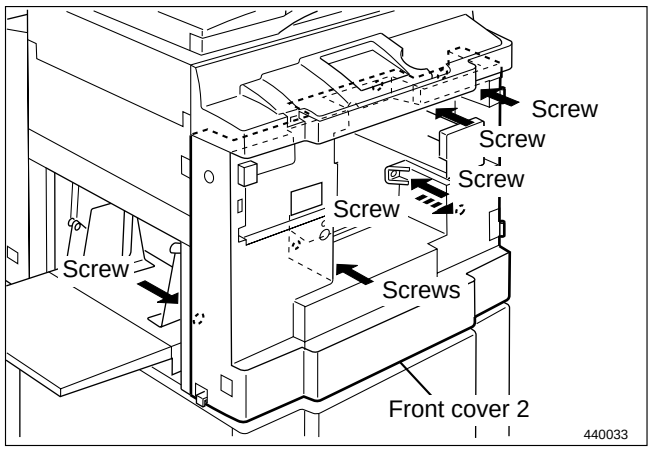


(2) Removal of Front Cover

1) Open the front cover, and take out the drum unit.
2) Remove the front cover 1 by pulling up.



3) Remove the 6 screws indicated, then remove the front cover 2.



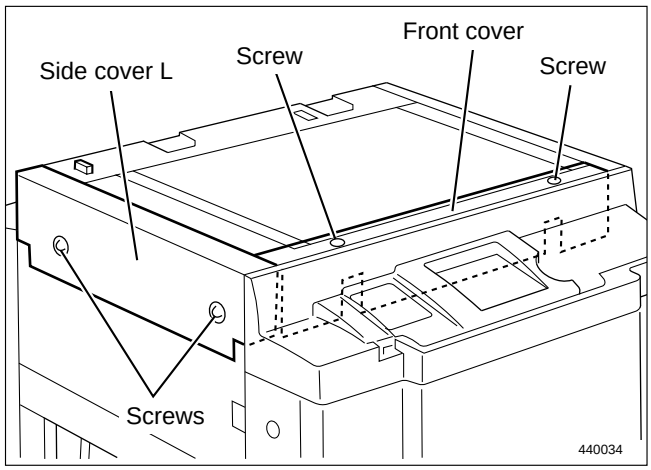
(3) Removal of Scanner Outer Cover

- **Remove the Front cover**

  1) Remove the 2 screws indicated, then remove the front cover.

- **Remove the Side cover L**

  1) Remove the 2 screws indicated, then remove the side cover L.



- **Remove the Side cover R**

  1) Press the scanner switch to slide the scanner to its far position.

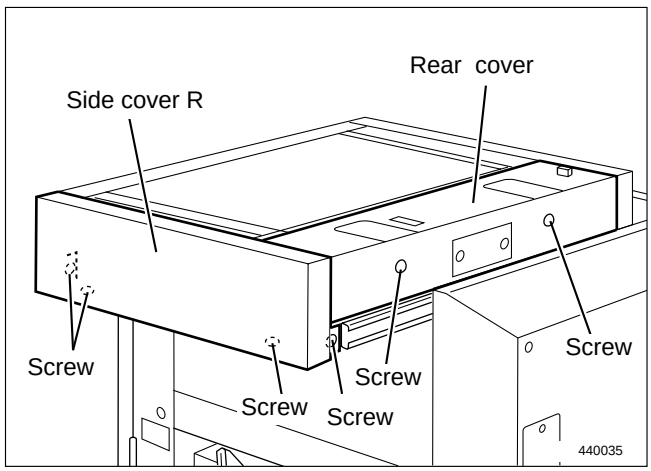
  2) Remove the 4 screws indicated, then remove the side cover R.

- **Remove the Rear cover**

  1) Remove the document cover.

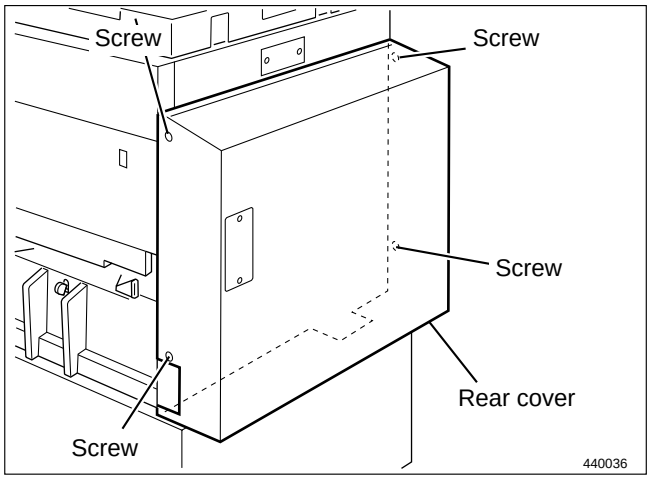
➡See page 108

  2) Remove the 2 screws indicated, then remove the rear cover.



(4) Removal of Rear Cover

1) Remove the 4 screws indicated, then remove the rear cover.



(5) Removal of Main PCB Unit ,P-memory PCB Unit, Battery PCB unit and Master Sensor

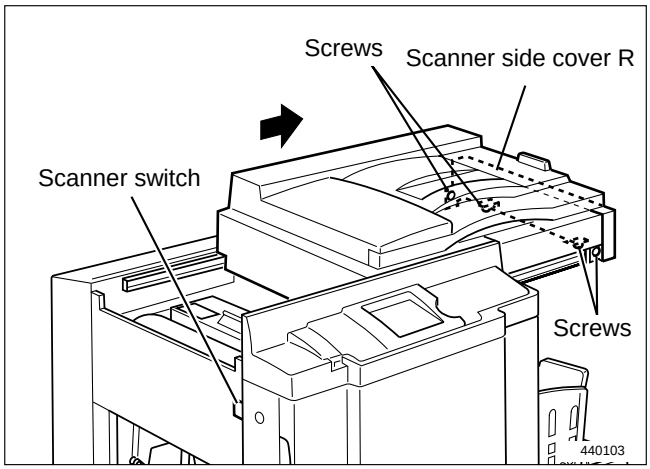
⚠ WARNING

- **Always remove the power cord plug from the outlet before replacing a PCB Unit.**

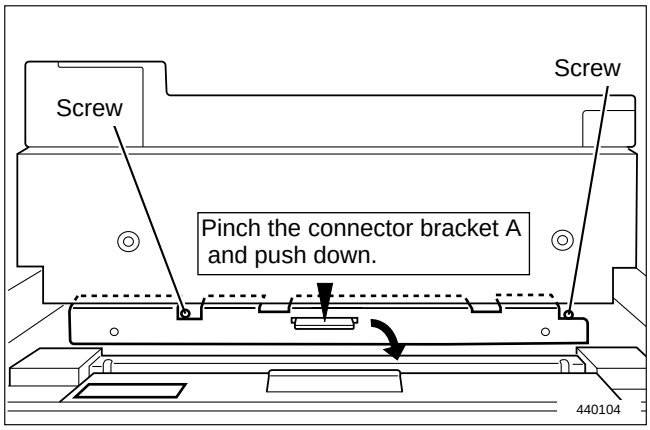
1) Remove the scanner cover(L,R). ➡See page 109

2) Press the Scanner switch to slide the scanner to its far position.

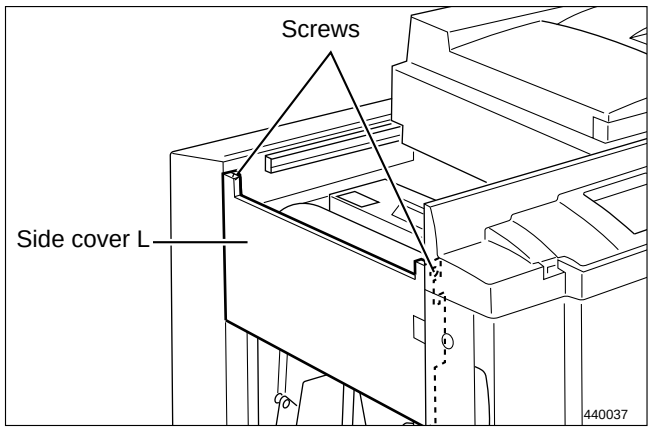
3) Remove the 4 screws indicated, then remove the scanner side cover R.



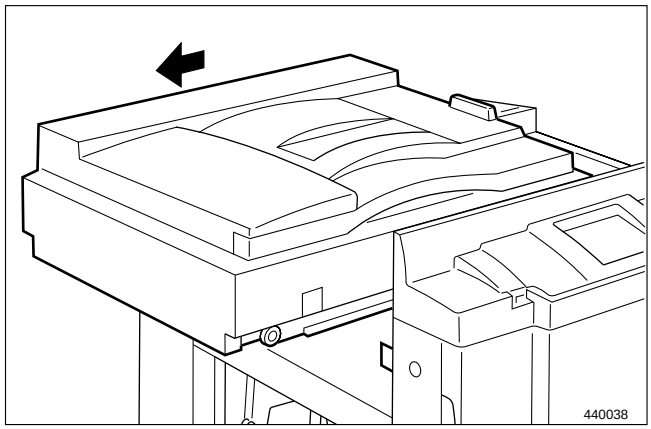
4) Loosen the 2 screws, and slide the connector bracket A downwards.



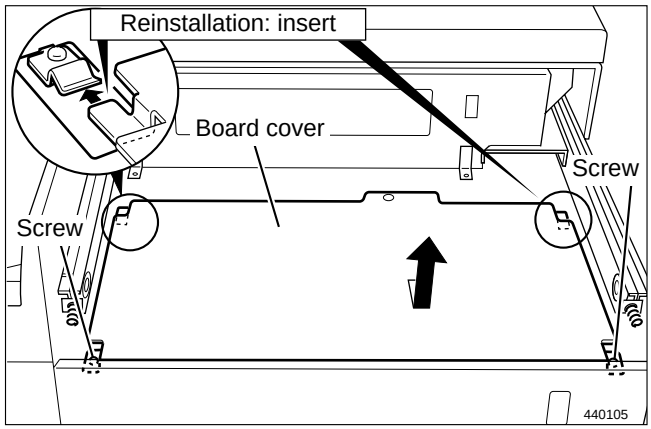
5) Remove the 2 screws indicated, then remove the side cover L.



6) Press and hold the Scanner switch while sliding the scanner all the way in the paper feed direction.



7) Remove the 4 screws,and take out the board cover sliding in the direction of an arrow.

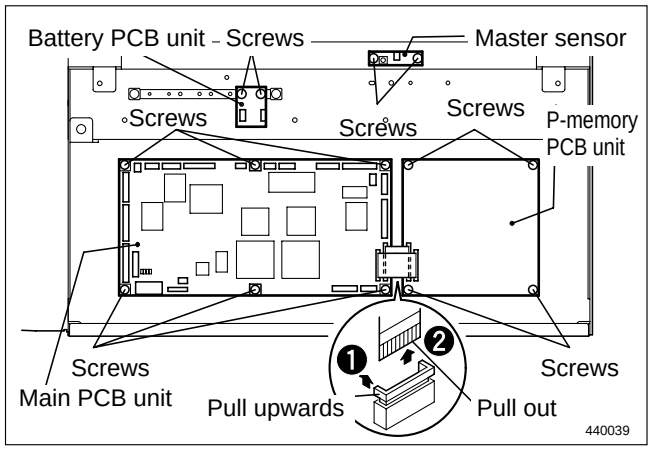


8) Remove the connectors of.

- Battery PCB Unit (connector)
- P-memory PCB unit (4 connectors)
- Main PCB unit (17 connectors)
- Master sensor(connector)

9) Remove the mounting screws, and replace the PCB units.

- Battery PCB Unit:2 screws
- P-memory PCB unit:4 screws
- Main PCB unit:6 screws
- Master sensor:2 screws



Reinstallation

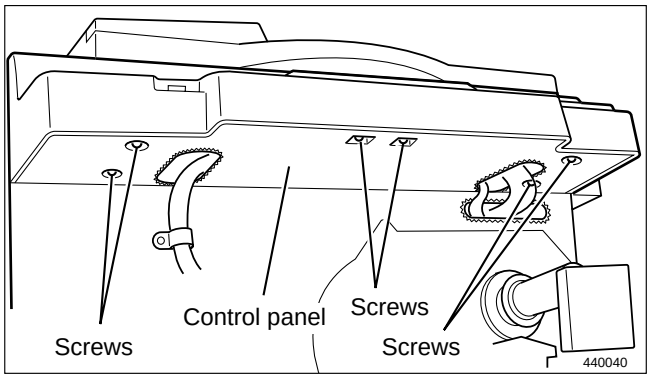
IMPORTANT : After reinstalling the master sensor, carry out adjustment of its sensitivity.

HELP mode H-07 ➡ see p.229

(6) Removal of Control Panel

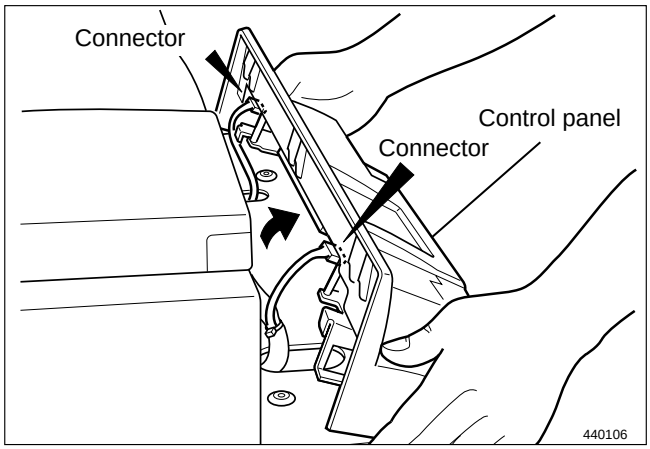
1) Remove the front cover. ➡See page 108

2) Remove the 6 screws.



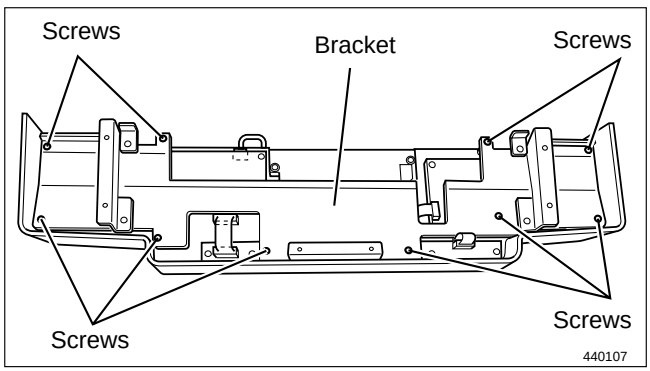
3) Remove the control panel by pulling up.

4) Remove the 2 connectors.



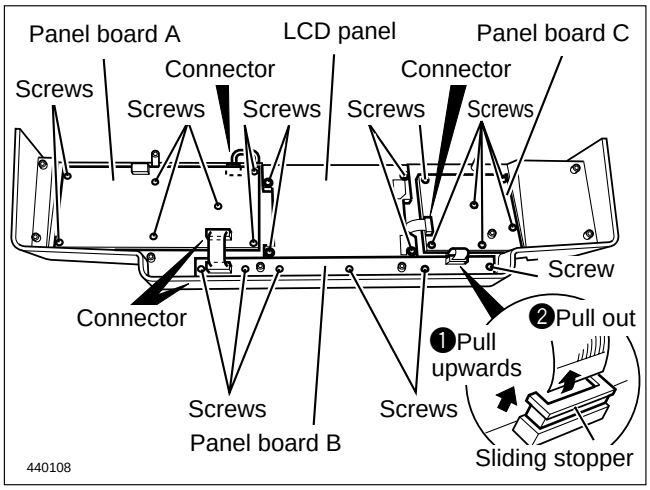
(7) Removal of Control Panel PCB

1) Remove the preciously mentioned (2) and (6). and detach the LCD code.
2) Remove the 10 screws indicated, then remove the bracket.



3) Follow the instructions below to remove.

- **Panel board A**
  (2 connectors, 7 screws)
- **Panel board B**
  (2 connectors, 6 screws)
  Pull the sliding stopper on the connector terminal upwards to release it, then pull out the LCD cable.
- **Panel board C**
  (2 connectors, 6 screws)
  Pull the sliding stopper on the connector terminal upwards to release it, then pull out the LCD cable.
- **LCD Panel**
  (2 connectors, 4 screws)



(8) Removal of Drive PCB Unit and DC - DC PCB Unit

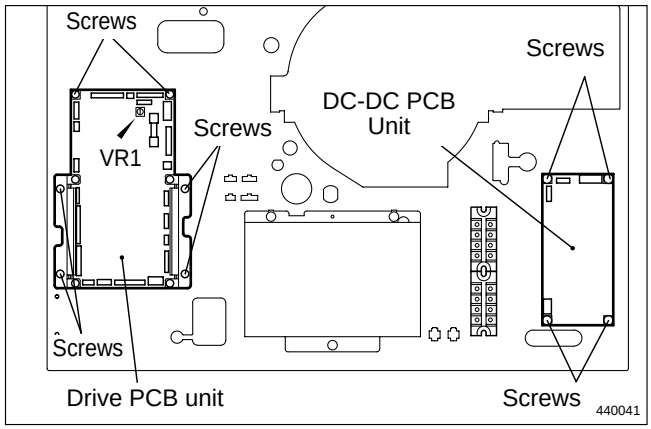
⚠ WARNING

- **Always remove the power cord plug from the outlet before replacing a PCB Unit.**

1) Remove the front cover. ➡See page 108

2) Remove the connectors and terminals of.
- Drive PCB Unit (14 connectors,12 terminals)
- DC-DC PCB Unit (4 connectors)

3) Remove the mounting screws, and replace the PCB units.
- Drive PCB Unit:6 screws
- DC-DC PCB Unit:4 screws



Reinstallation

IMPORTANT : Do not forget to adjust the double feed detection sensor after the drive PCB unit is changed. ➡See page 161

(9) Removal of DC Regulated Power Supply

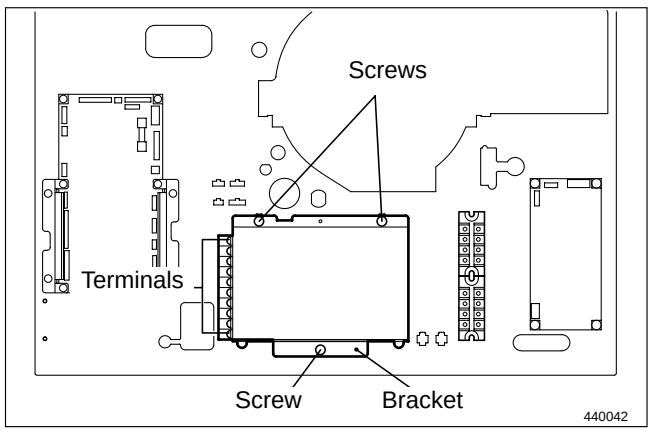
⚠ WARNING

- **Always remove the power cord plug from the outlet before replacing a PCB Unit.**

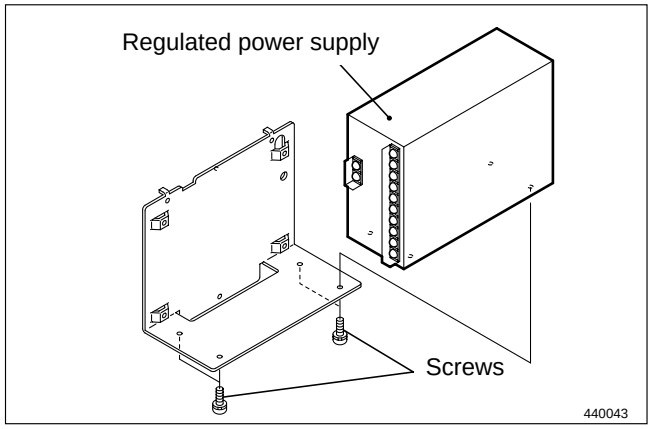
1) Remove the front cover. ➡See page 108

2) Remove the 3 screws indicated,and remove the bracket.

3) Remove the 12 terminals.



4) Remove the 4 screws indicated,and remove the DC regulated power supply.

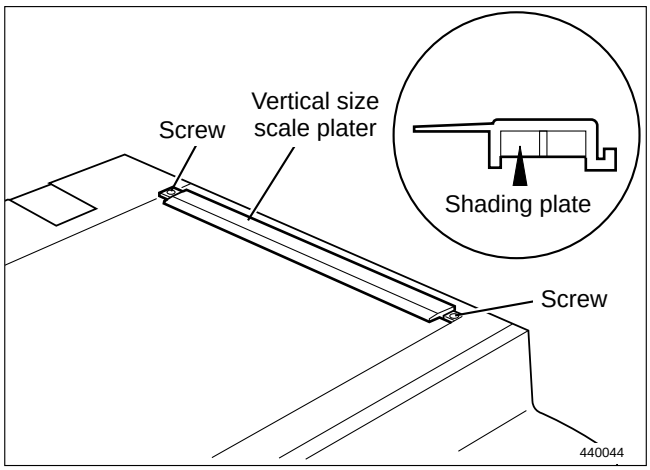


2 Scanner Section

(1) Removal of Vertical Size Scale Plate

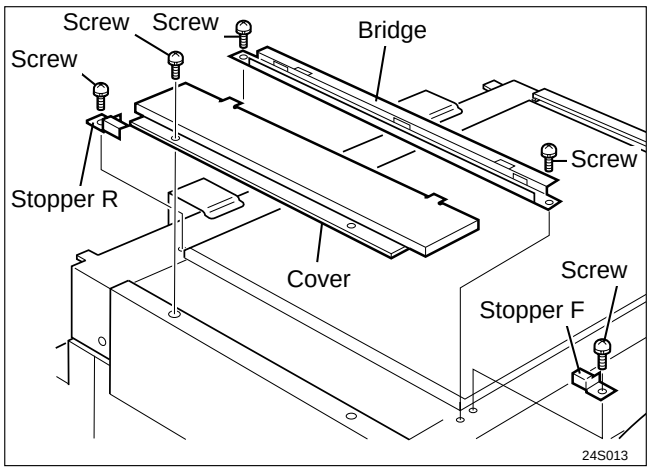
1) Remove the scanner cover R. ➡See page 109
2) Remove the scanner cover F and side cover R. ➡See page 109
3) Remove the 2 screws to take out the vertical size scale plate.

IMPORTANT : Do not dirt the shading plate. Clean it if it is dirty.



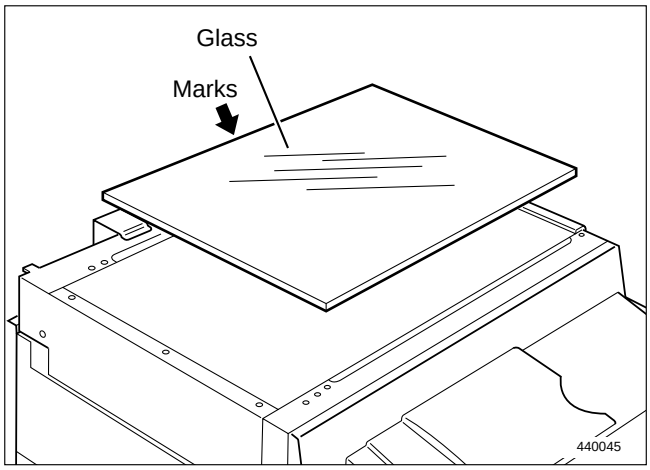
(2) Removal of Glass

1) Remove the vertical size scale plate.
2) Remove the side cover(L). ➡See page 109
3) Remove the 2 screws and remove the cover.
4) Remove the 2 screws and remove the stopper(L,R).
5) Remove the 2 screws and remove the bridge.



6) Remove the glass.

IMPORTANT : Check both sides of the glass as the top surface of the glass is conductively coated.
Pay attention to position of mark.
Clean the glass if it is dirty.

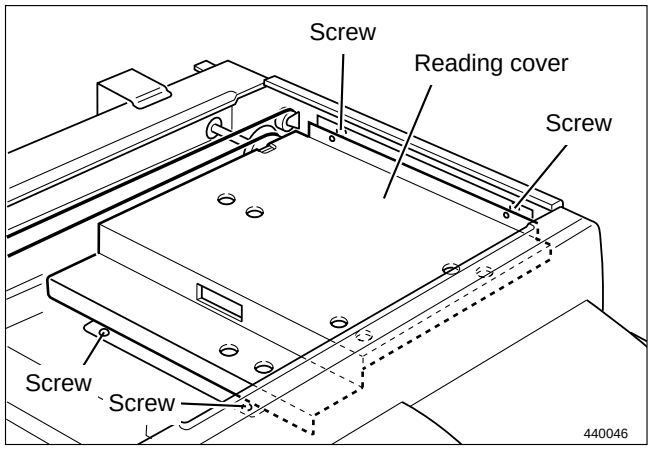


(3) Removal of Reading Cover

1) Carry out (1) and (2) above.

➡See page 114

2) Remove the 4 screws indicated, and remove the reading cover.

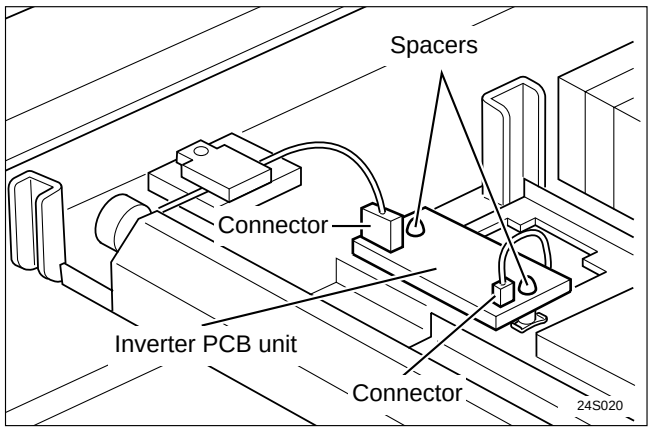


(4) Removal of Inverter PCB Unit

1) Carry out (1) through (3) above.

➡See page 114

2) Disconnect the 2 connectors.
3) Remove the 2 spacers indicated, and remove the inverter PCB unit.



(5) Removal of Lamp Unit

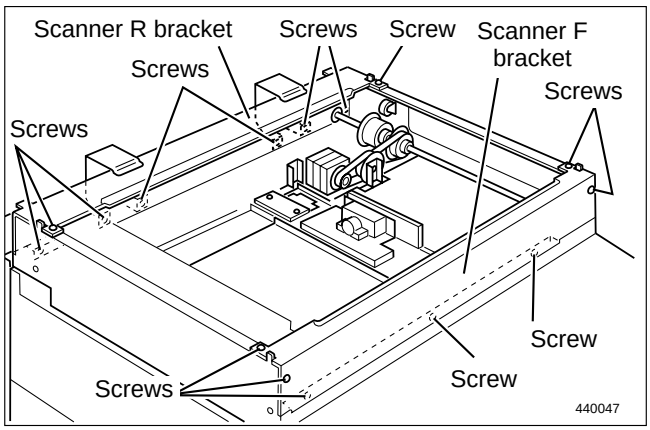
1) Carry out (1) through (3) above.

➡See page 114

2) Remove the scanner cover(L,R). ➡See page 109

3) Slide the scanner forward and backward to remove the 7 screws securing the scanner F bracket. Remove the scanner F bracket.

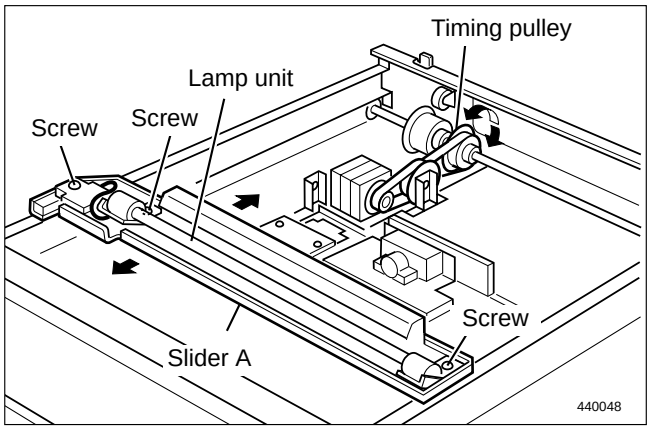
4) Remove the 8 spacers indicated, and remove the scanner R bracket.



5) Turn the timing pulley, and move Slider A to the position shown in the diagram.

IMPORTANT : Do not move Slider A by hand.

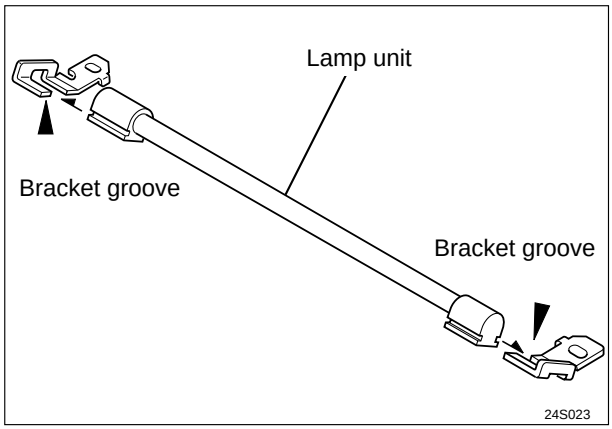
6) Remove the 3 screws indicated, and remove the lamp unit.



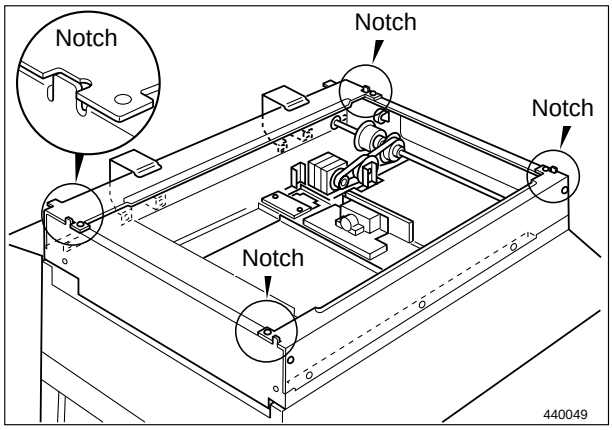
Reinstallation

- Insert the slotted parts of the lamp unit into the grooves on the brackets.

IMPORTANT : The lamp is fragile; handle it with care.

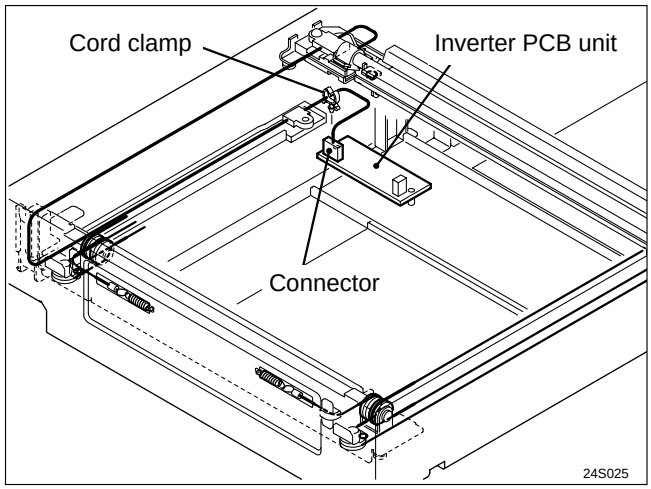


- When attaching the scanner's front and rear brackets:
  1. Align the notches on the left and right sides.
  2. When attaching the scanner's rear bracket, be careful to not pinch the wiring.

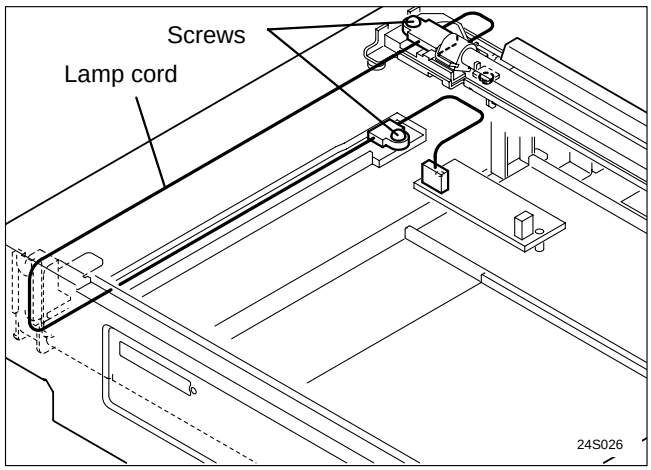


(6) Removal of Lamp Cord

1) Carry out (5) 1 through 4 above.
2) Remove the cord clamp.
3) Disconnect the inverter PCB unit CN2 connector.



4) Remove the 4 screws indicated, and remove the lamp cord.



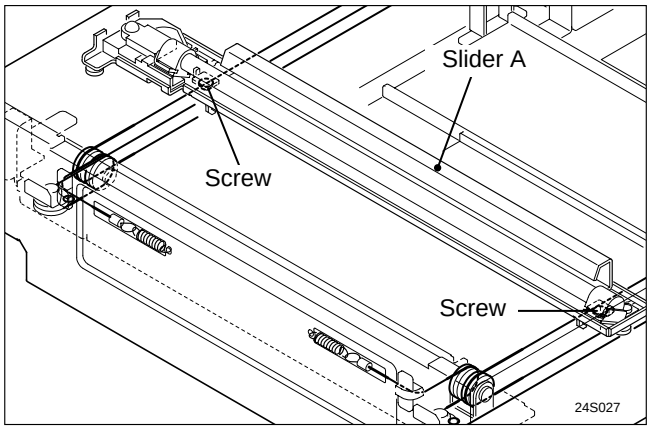
(7) Removal of Slider A

1) Perform steps 1 through 4 of procedure (5).

➡See page 116

2) Loosen the 2 screws shown, and remove slider A.

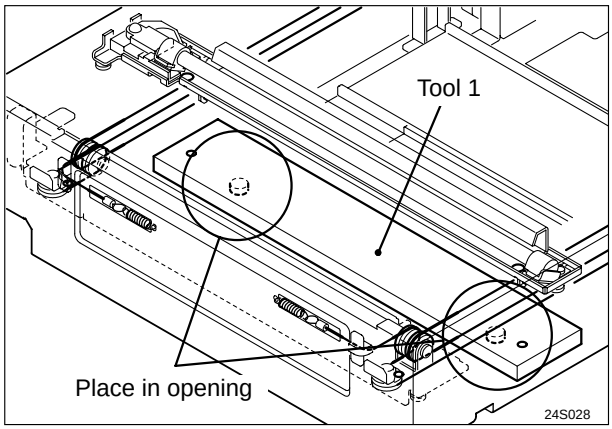
IMPORTANT : Do not move Slider A by hand.



Reinstallation

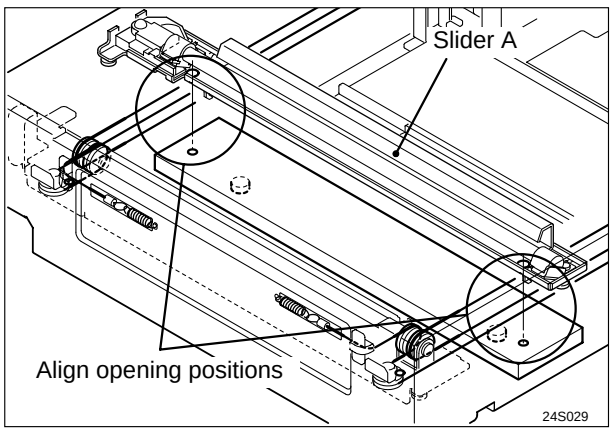
- **Required items**
  - *** Slider A attachation tool 1**
  - *** Slider A attachation tool 2**

1) Attach 2 Slider A attachation tools 1.

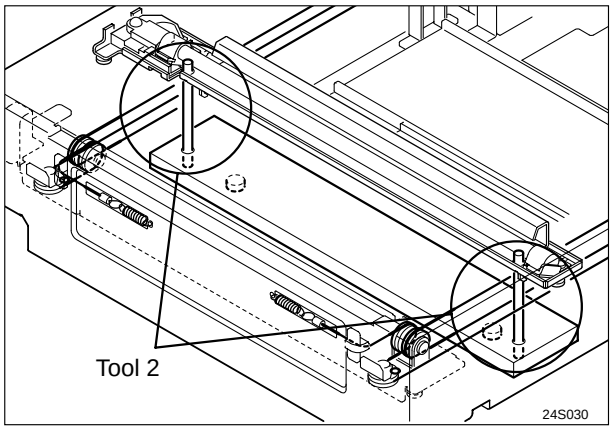


2) Turn the timing pulley and move Slider A so that the Slider A positioning openings are aligned with the Slider A attachation tool 1 positioning openings.

IMPORTANT : Do not move Slider A by hand.



3) Attach 2 Slider A attachation tools 2.
4) Fix the wire with 2 screws.
5) Remove the Slider A attachation tools 2.
6) Remove the Slider A attachation tools 1.



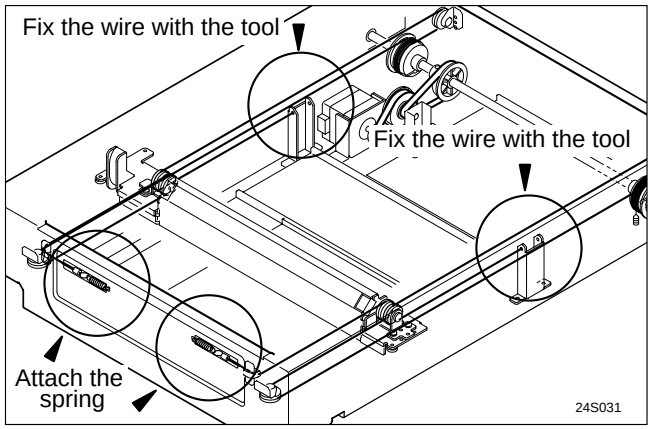
(8) Removal of Slider B

- **Required items**
  - *** Wire fixing tools**

1) Perform steps 1 through 3 of procedure (5).
2) To prevent loosening of the wire, attach 2 wire fixing tools, one before and one after the wire pulley.

IMPORTANT : Do not remove the wire fixing tools before Slider B is attached.

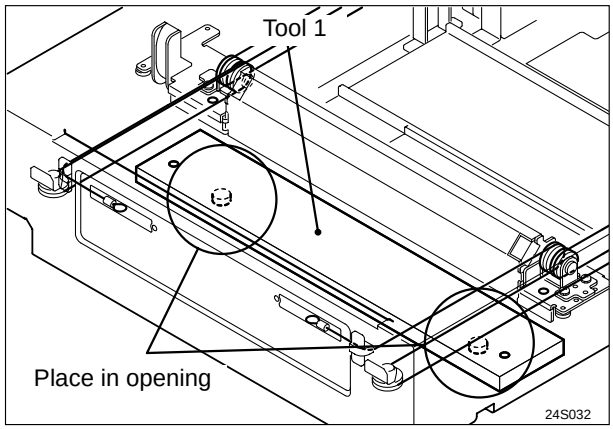
3) Remove the wire from the spring, in 2 locations before and after the spring.
4) Remove Slider B.



Reinstallation

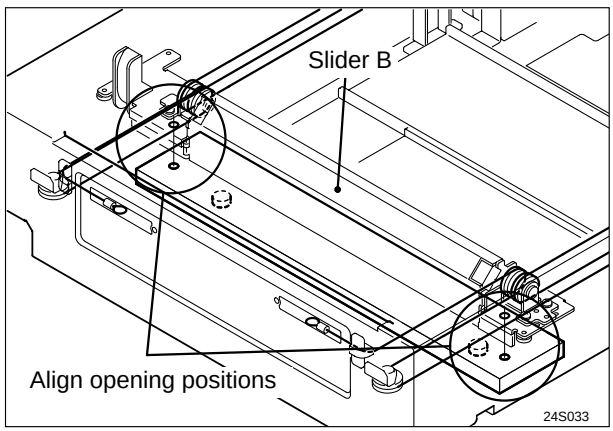
- **Required items**
  - *** Slider B attachation tool 1**
  - *** Slider B attachation tool 2**

1) Attach 2 Slider B attachation tools 1.

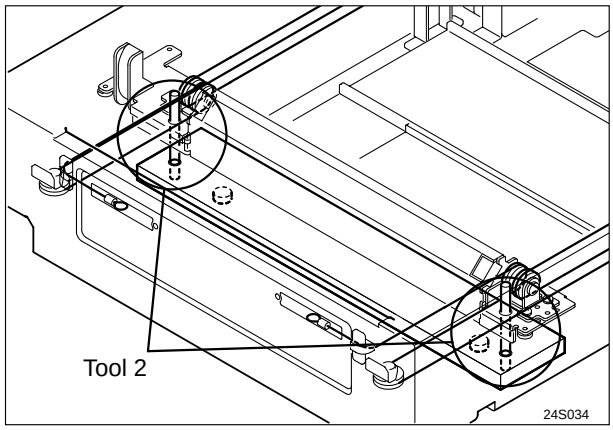


2) Place the wire on the pulley, both before and after.
➡See page 148

3) Move Slider B so that the Slider B positioning openings are aligned with the Slider B attachation tool 1 positioning openings.



4) Attach 2 Slider B attachation tools 2.
5) Place the spring on the hook(wire).
6) Remove the Wire fixing tools.
7) Remove the Slider B attachation tools 2.
8) Remove the Slider B attachation tools 1.

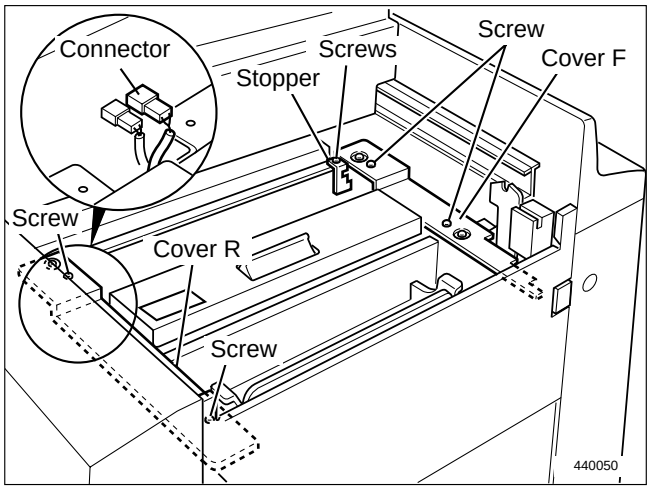


3 Platemaking / Master Feed and Ejection Section

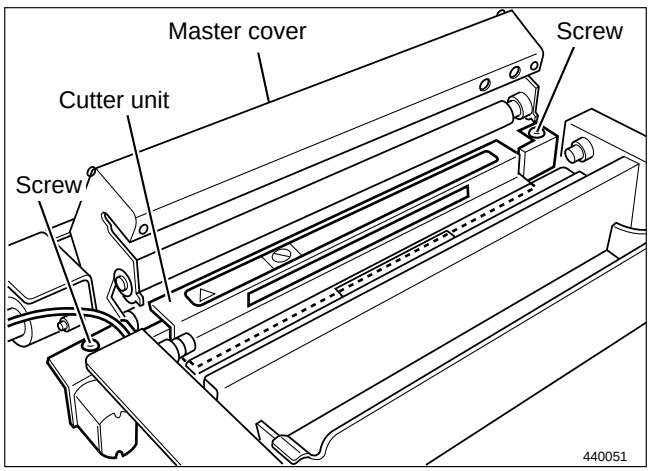
《Master Feed Section》

(1) Removal of Cutter Unit

1) Open the scanner, and take out the master roll.
2) Remove the 4 screws indicated, and remove the cover F and R.
3) Disconnect the 1 connectors indicated.
4) Remove the screw indicated, and remove the stopper.



5) Open the master cover.
6) Remove the 2 screws indicated, and remove the cutter unit.



⚠ WARNING

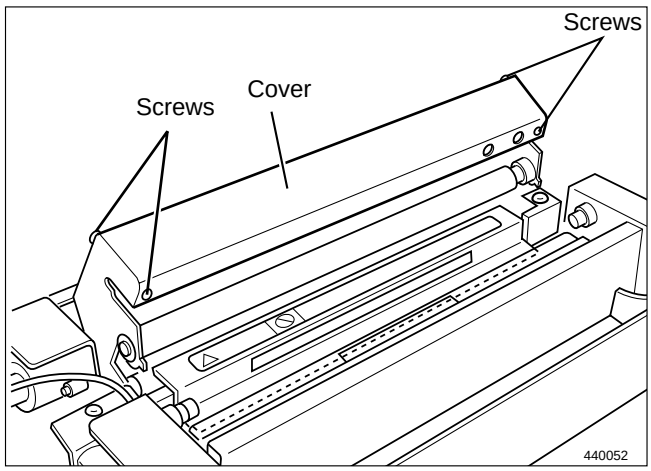
- **Keep hands and fingers away from the cutter unit's blades. Do NOT touch the blades.**

Reinstallation

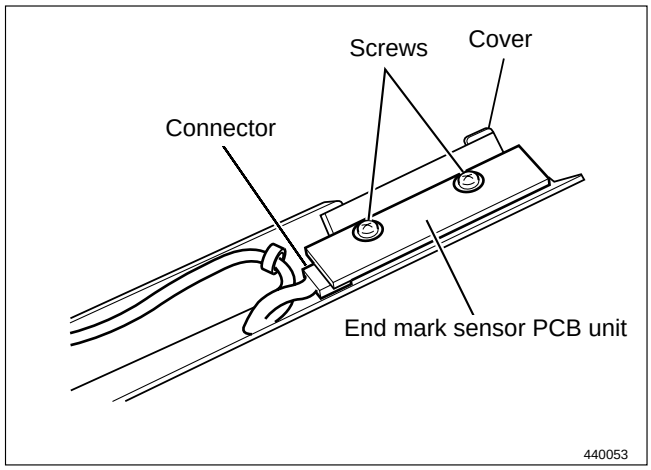
IMPORTANT : After replacing the cutter unit,check the cutter blade lies to the operation side. HELP mode H-02 ➡ see p.221

(2) Removal of End Mark Sensor PCB Unit.

1) Open the document receiving tray, and take out the master roll.
2) Open the master cover.
3) Remove the 4 screws, and remove the cover.

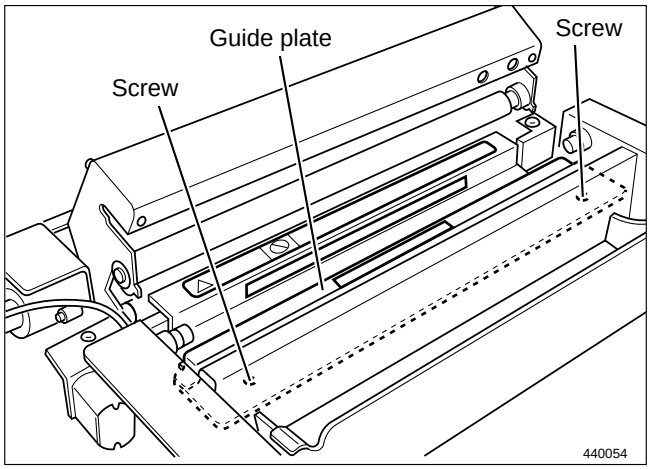


4) Remove the 2 screws.
5) Disconnect the connector indicated, and the end mark sensor PCB unit.

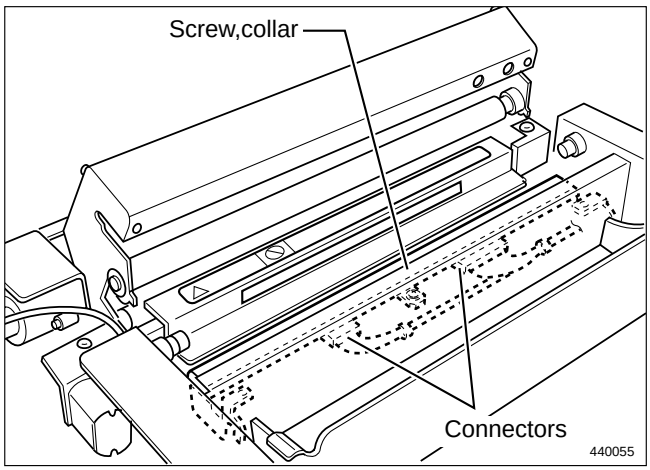


(3) Removal of Thermal Head

1) Open the document receiving tray, and take out the master roll.
2) Open the master cover.
3) Remove the 2 screws indicated, and remove the guide plate.



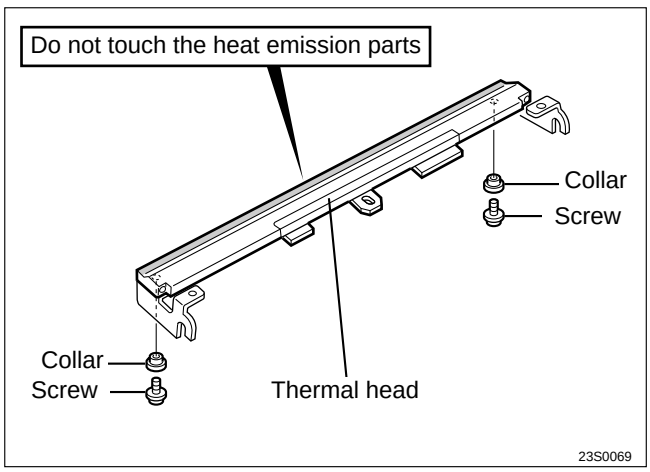
4) Remove the screw indicated, together with the collar.
5) Disconnect the thermal head's 2 connectors, and remove them together with the bracket.



6) Remove the 2 screws together with the collars, and remove the thermal head.

IMPORTANT :

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



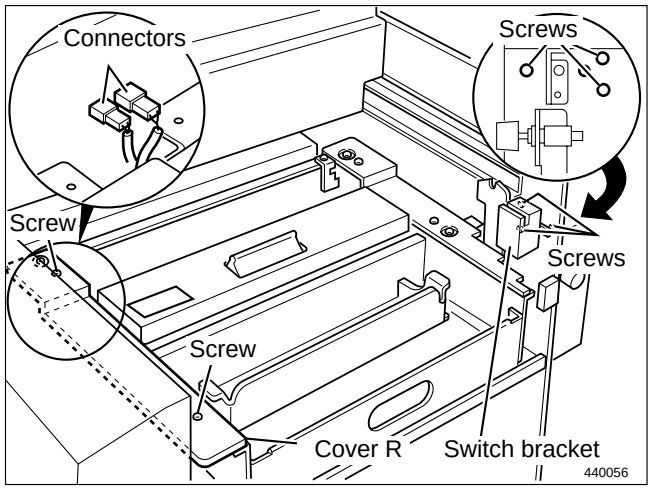
Reinstallation

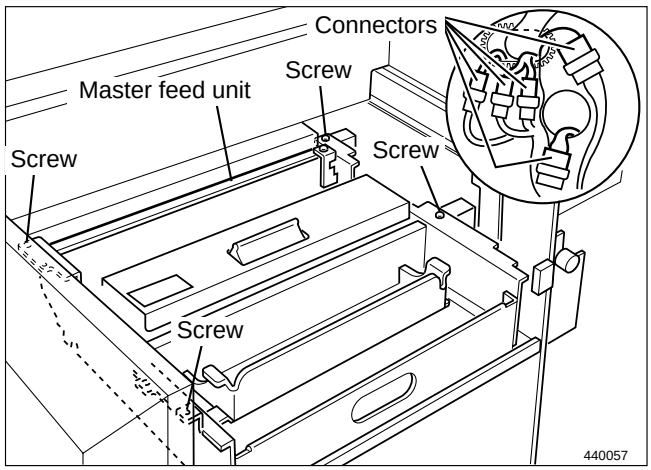
IMPORTANT : When the thermal head is replaced, set the HELP 43,44 DIP switch.

HELP mode H-43,44 ➡ see p.263

(4) Removal of Master Feed Unit

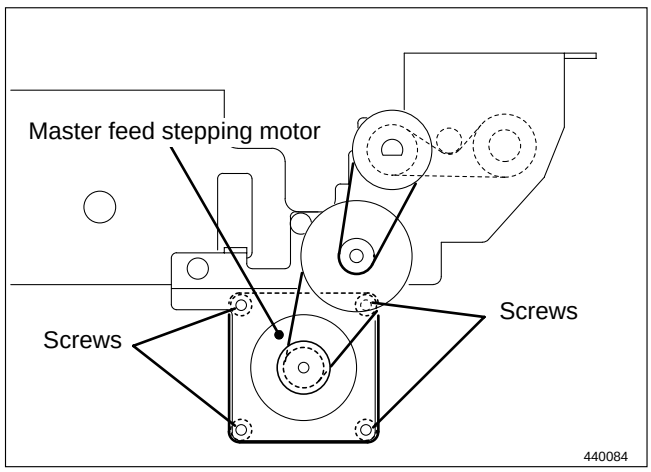
1) Open the document receiving tray, and take out the master roll.
2) Take out the drum unit.
3) Remove the front cover. ➡See page 108
4) Remove the scanner side cover L. ➡See page 109
5) Remove the side cover L. ➡See page 111
6) Remove the 2 screws indicated, and remove the cover L.
7) Remove the 3 screws indicated, and remove the switch bracket.
8) Remove the 2 covers shown in the figure.
9) Disconnect the 2 connectors indicated.
10) Open the master cover.
11) Remove the guide plate. ➡See page 122
12) Remove the bundle wire from the 2 connectors of the thermal head and the clamp. ➡See page 122
13) Close the master cover.
14) Disconnect the 4 connectors.
15) Remove the 6 screws indicated, and remove the master feed unit.





(5) Removal of Master Feed Stepping Motor

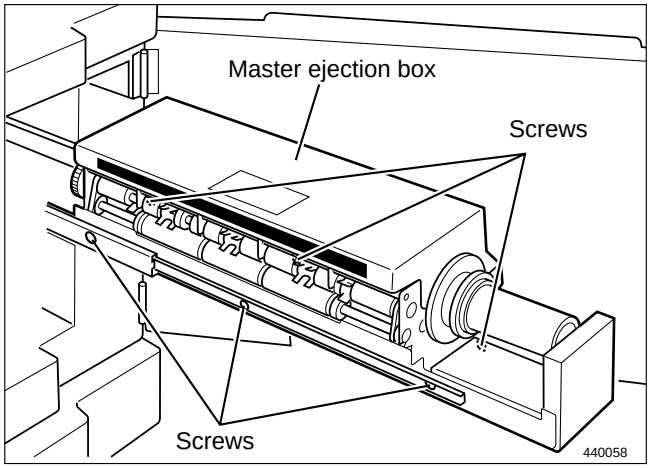
1) Remove the master feed unit.
2) Remove the 4 screws.
3) Remove the bush indicated, and remove the mater feed stepping motor.



《Master Ejection Section》

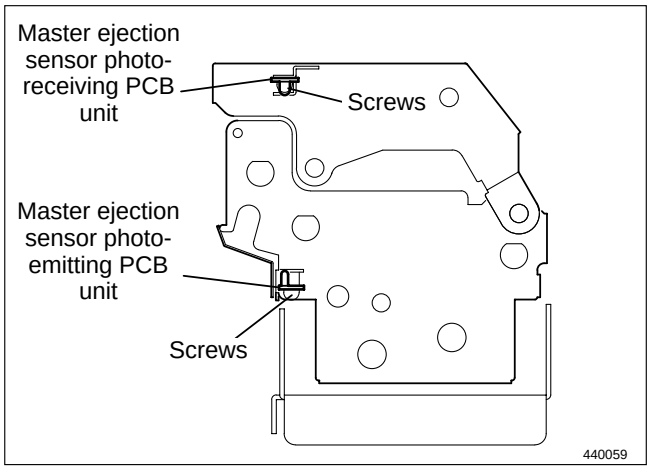
(1) Removal of Master Ejection Box

1) Open the front cover.
2) Pull the master ejection box lever toward you.
3) Remove the 6 screws indicated, and remove the master ejection box.



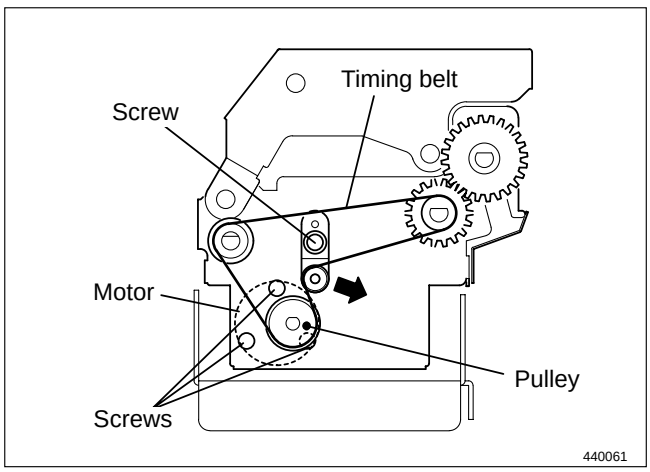
(2) Removal of Master Ejection Sensor

1) Remove the respective photo-emitting PCB units by removing the 2 screws.



(3) Removal of Roll - up Motor

1) Loosen the screw indicated, to slacken the timing belt.
2) Remove the timing belt from the pulley.
3) Loosen the screw shown,and remove the motor pulley.
4) Disconnect the connector.
5) Remove the 3 motor mounting screws indicated, and remove the roll - up motor.



Reinstallation

IMPORTANT : Do not forget to adjust the tension after the motor is attached.

➡See page 152

《Master Clump opening/Closing Section》

(1) Removal of Master Clump Opening / Closing Unit

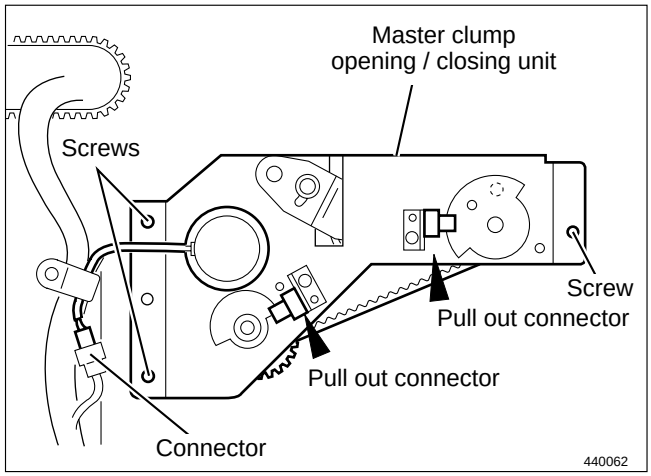
1) Remove the rear cover. ➡See page 110

2) Remove the drum.

3) Move the position of the master clump opening / closing lever to the mode other than B mode. (Use the HELP 02)

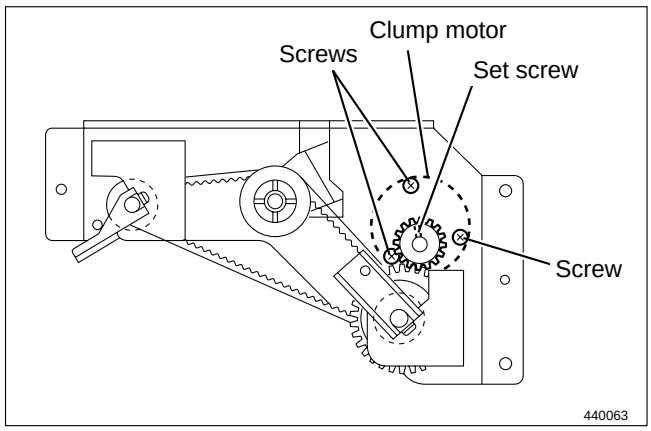
HELP mode H-02 ➡ see p.221

4) Pull out 3 connectors.
5) Remove the sub-frame C. ➡See page 132
6) Remove 3 screws to take out the opening / closing unit.



(2) Removal of Clump Motor

1) Remove the master clump opening / closing unit.
2) Loosen the set screw to remove the gear.
3) Remove 3 screws to take out the motor.

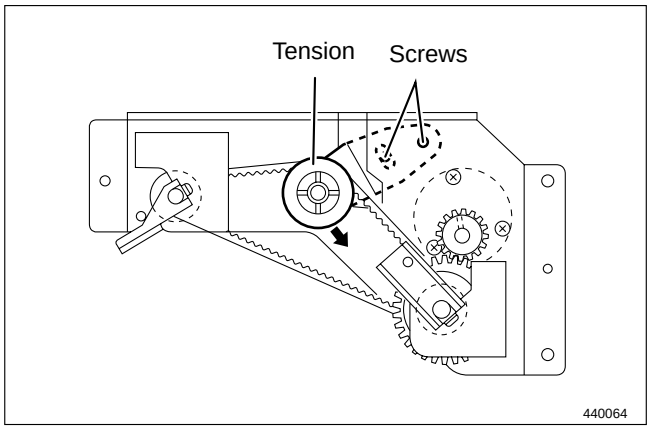


(3) Removal of Timing Belt

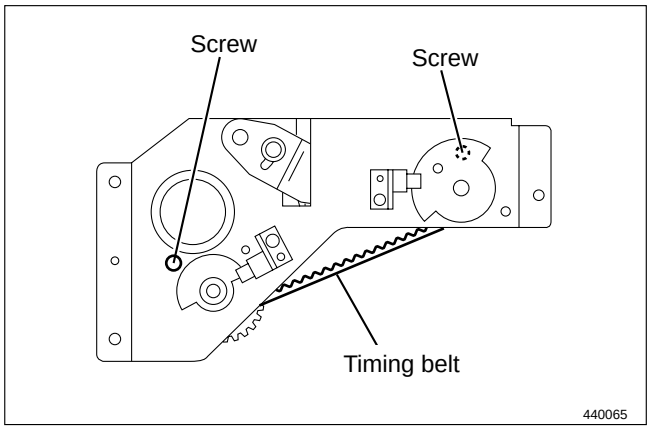
1) Remove the master clump opening / closing unit.

➡See page 125

2) Loosen 2 screws to loosen the tension as shown in the figure.



3) Remove the screw to remove the angle.
4) Remove the timing belt.



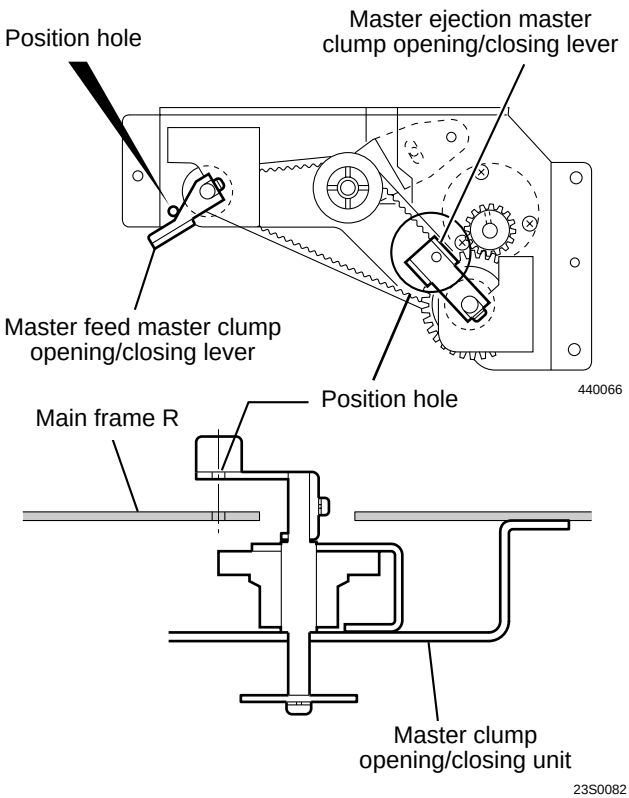
Reinstallation

- Adjust tension by adjusting the master feed master clump opening/closing lever and master ejection master clump opening/closing lever. Then fit the timing belt on.

➡See page 153

IMPORTANT : Adjust the A, B and C modes after the master clump opening / closing unit is attached to the printer main body.

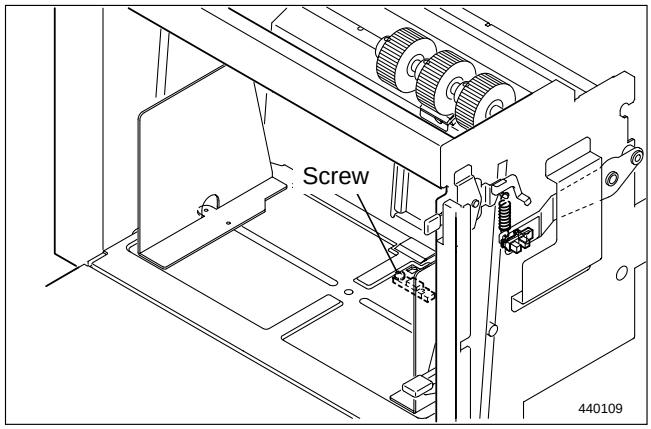
➡See page 154



4 Paper Feed Section

(1) Removal of Paper Detection Sensor

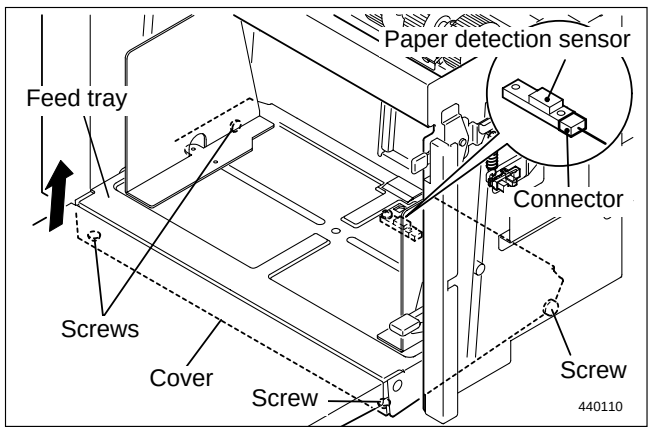
1) Remove the screw.



2) Lift the floor of the feed tray, approximately 10cm.

3) Remove the 4 screws indicated, then remove the cover.

4) Disconnect the connector, and remove the paper detection sensor.



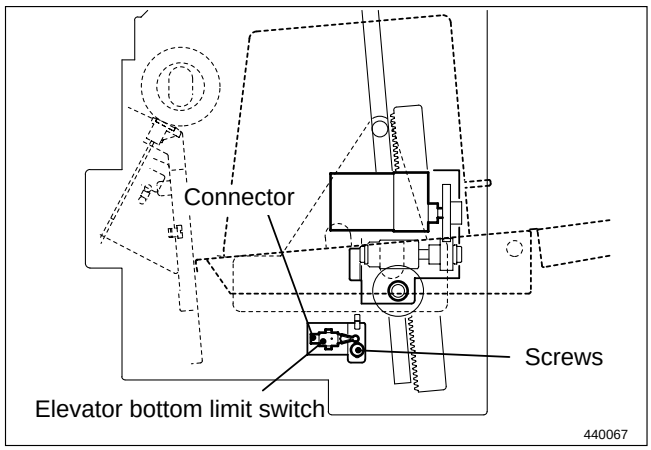
(2) Removal of Elevator Bottom Limit Switch

1) Remove the front cover.

➡See page 110

2) Remove the 1 screw indicated, then remove the bracket.

3) Disconnect the connector, and remove the elevator bottom limit switch.

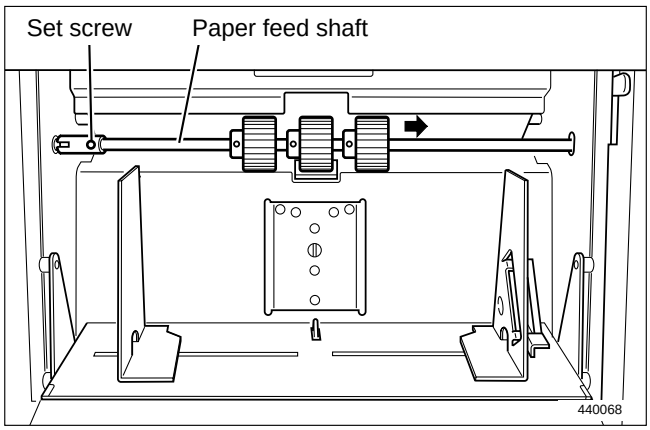


Reinstallation

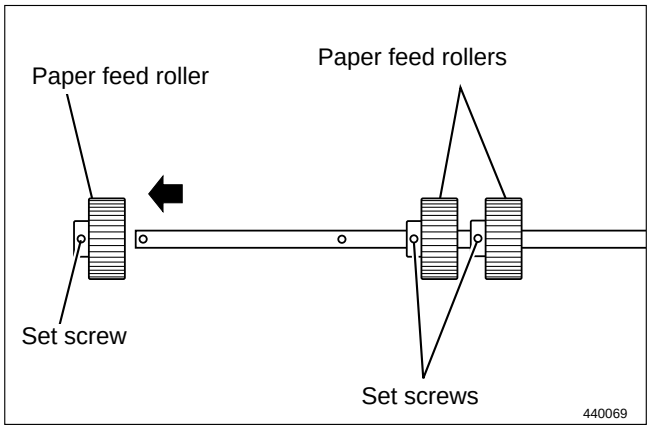
IMPORTANT : After reinstalling the elevator lower limit switch, carry out adjustment of its clearance. ➡See page 160

(3) Removal of Paper Feed Roller

1) Remove the screw indicated, and slide the paper feed shaft in the direction of the arrow.



2) Loosen the set screw indicated, and remove the paper feed roller.



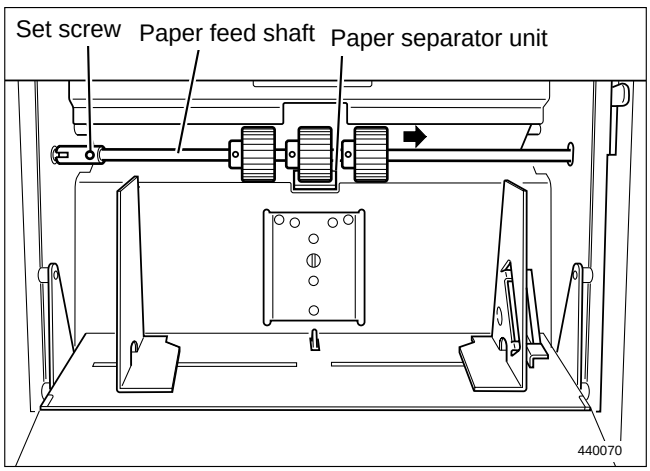
Reinstallation

- Reinstall the paper feed roller so that the 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) Removal of Paper Separator Unit

1) Remove the paper feed shaft.
2) Remove the paper separator unit.



Reinstallation

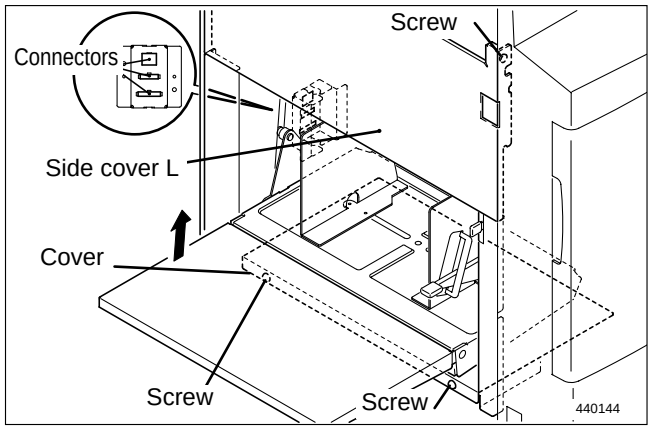
IMPORTANT : After reinstalling the paper separator unit, carry out adjustment of its position.

➡See page 158

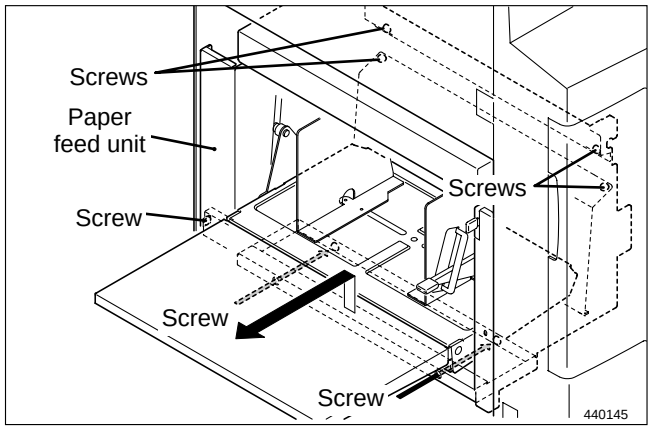
(5) Removal of Paper Feed Unit

IMPORTANT : Before power off, press the feed tray descend switch until the paper feed tray is at its lower most position.

1) Remove the rear cover. ➡See page 110
2) Remove the 2 screws indicated, then remove the side cover L. ➡See page 111
3) Disconnect the 3 connectors.
4) Remove the 2 screws indicated, then remove the cover.

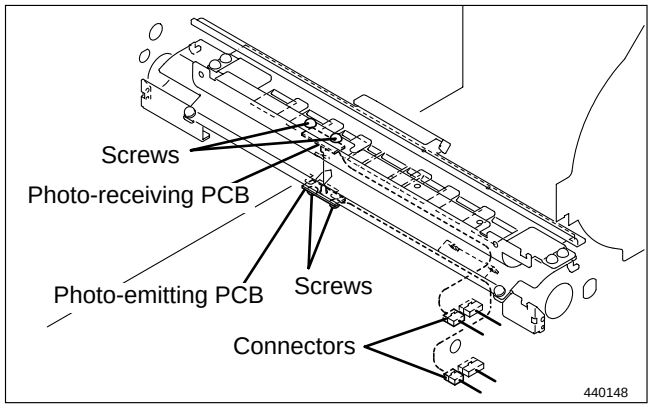


5) Remove the 7 screws



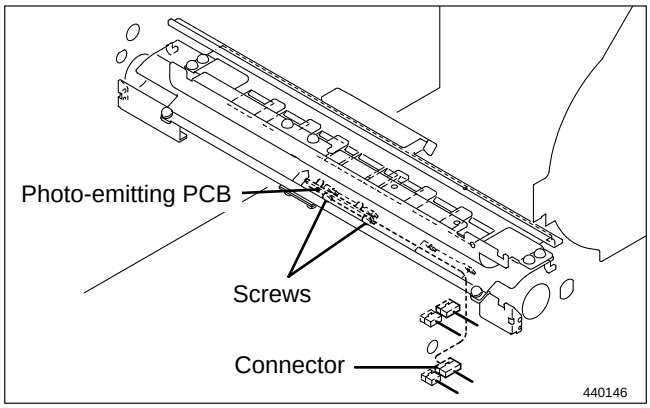
(6) Removal of Paper Lead Edge Sensor

1) Remove the paper feed unit.
2) Disconnect the 2 connectors.
3) Remove the 4 screws indicated, then remove the paper lead edge sensors.

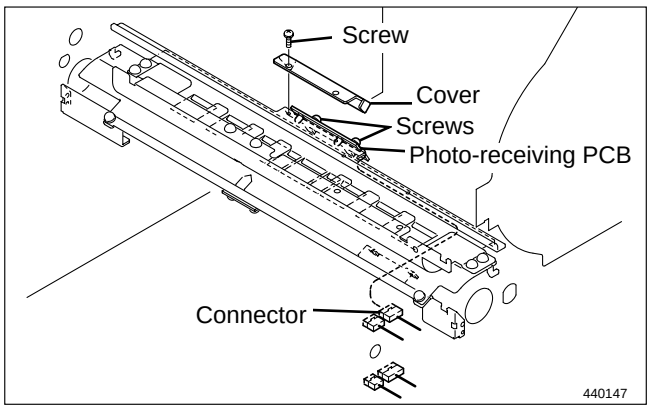


(7) Removal of Double Feed Detection Sensor

1) Remove the paper feed unit. ➡See page 129
2) Disconnect the 2 connectors.
3) Remove the 2 screws indicated, then remove the photo-emitting PCB sensor.



4) Remove the drum unit.
5) Remove the 2 screws indicated, then remove the cover.
6) Remove the 2 screws indicated, then remove the photo-receiving PCB sensor.



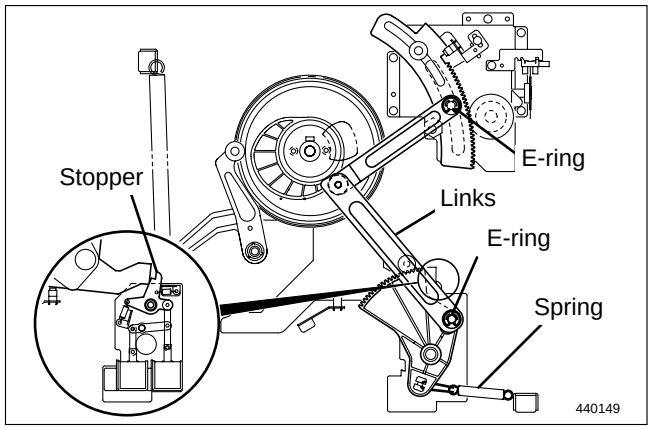
Reinstallation

IMPORTANT : After reinstalling the double feed detection sensor, carry out adjustment of its sensitivity. ➡See page 161

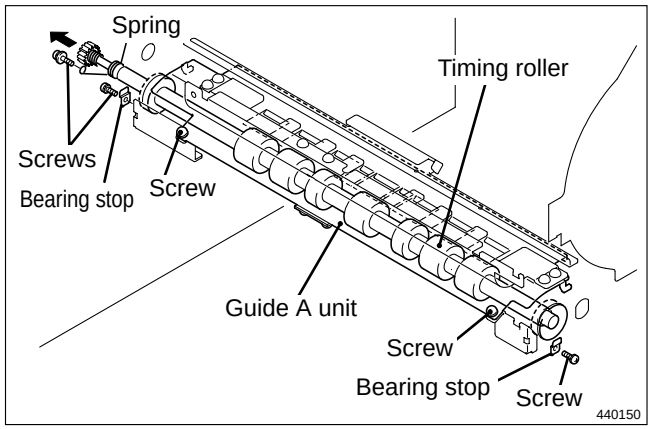
(8) Removal of Timing Roller

1) Remove the paper feed unit. ➡See page 129

2) Remove the front cover. ➡See page 108
3) Remove the drum unit.
4) Remove the sub-frame A. ➡See page 132
5) Remove the spring.
6) Remove the 2 E-rings, and remove the links.
7) Remove the stopper of the cancel lever.

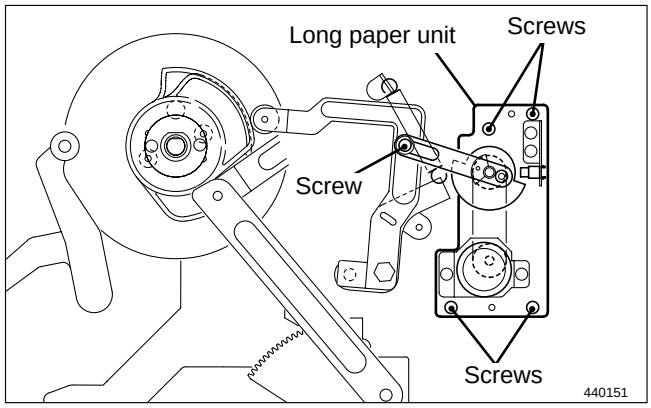


8) Remove the 3 screws shown. Remove the bearing stops and the spring.
9) Remove the 2 screws shown. Lifting the guide A unit, and remove the timing roller from the rear (opposite side from the operation panel).



(9) Removal of Long Paper Unit(LPU)

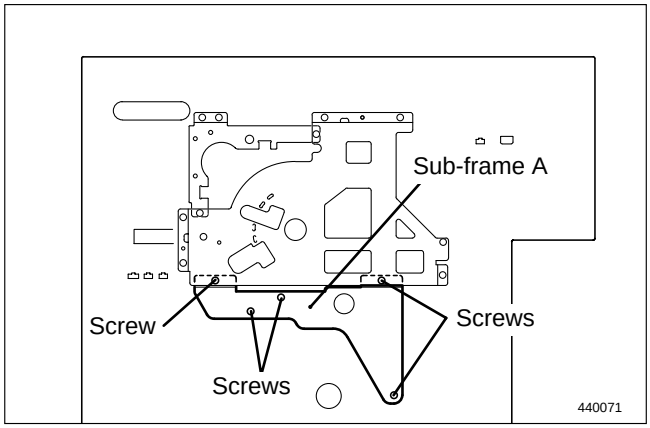
1) Remove the front cover. ➡See page 108
2) Remove the drum unit.
3) Remove the rear cover. ➡See page 110
4) Remove the 5 screws indicated, then remove the long paper unit..



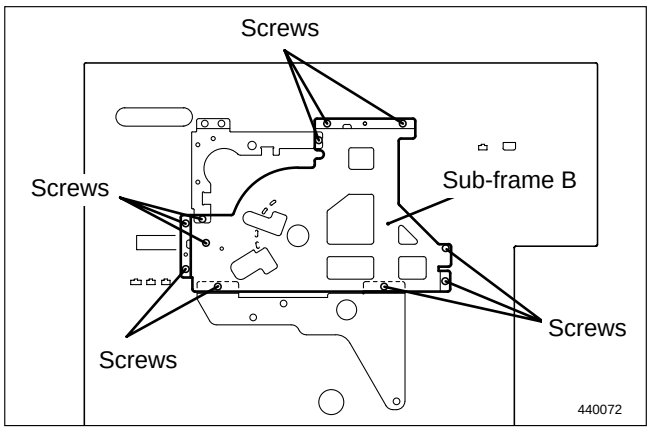
5 Drum Driving Section

(1) Removal of Sub-Frame

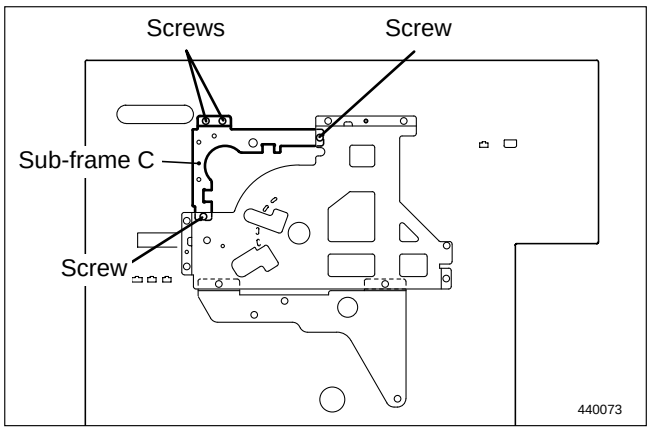
- **Remove the sub-frame A**
  1) Remove the rear cover. ➡See page 110
  2) Remove the 5 screws indicated, and remove the sub-frame A.



- **Remove the sub-frame B**
  1) Remove the rear cover. ➡See page 110
  2) Disconnect the 2 connectors.
  3) Remove the 9 screws indicated, and remove the sub-frame B.



- **Remove the sub-frame C**
  1) Remove the rear cover. ➡See page 110
  2) Disconnect the 3 connectors.
  3) Remove the 2 screws indicated, and remove the sub-frame C.



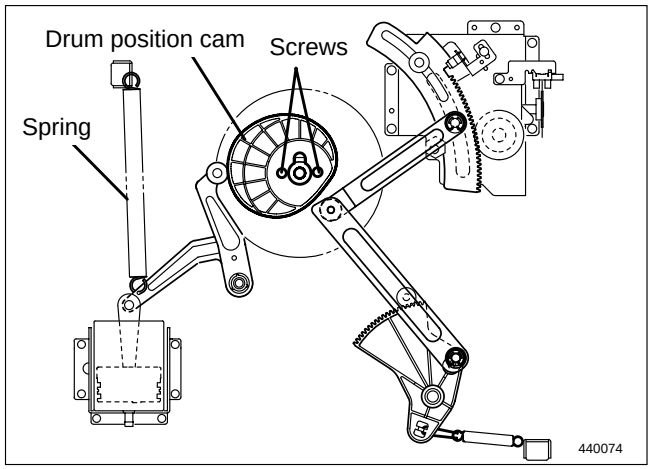
(2) Removal of Drum Position Cam

1) Remove the rear cover. ➡See page 110

2) Remove the sub-frame A,B,C.

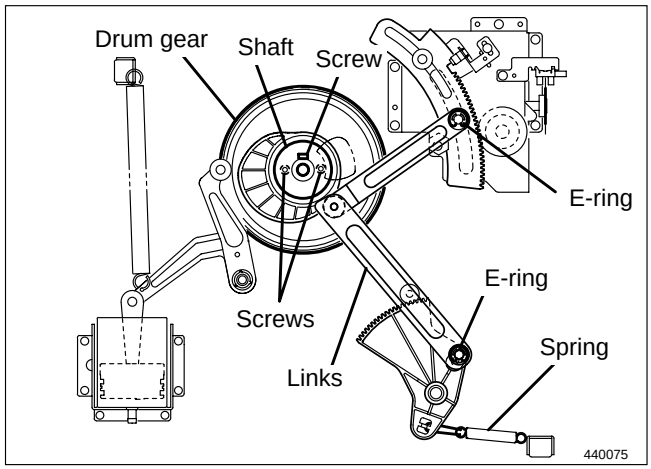
3) Remove the spring.

4) Remove the 2 screws indicated, and remove the drum position cam.

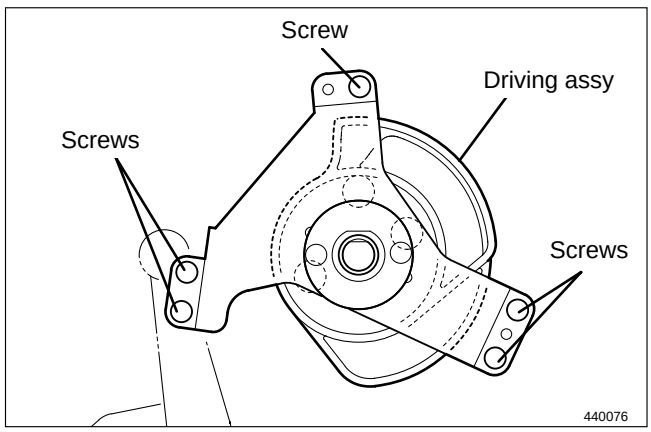


(3) Removal of Drum Gear and Driving Assy

1) Remove the drum position cam.
2) Remove the screw indicated,and remove the shaft.
3) Remove the spring.
4) Remove the 2 E-rings, and remove the links.
5) Remove the 2 screws indicated, and remove the drum gear.



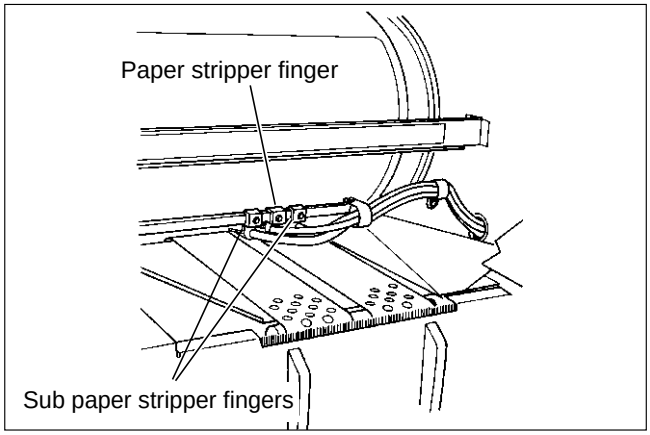
6) Remove the 5 screws indicated, and remove the driving assy.



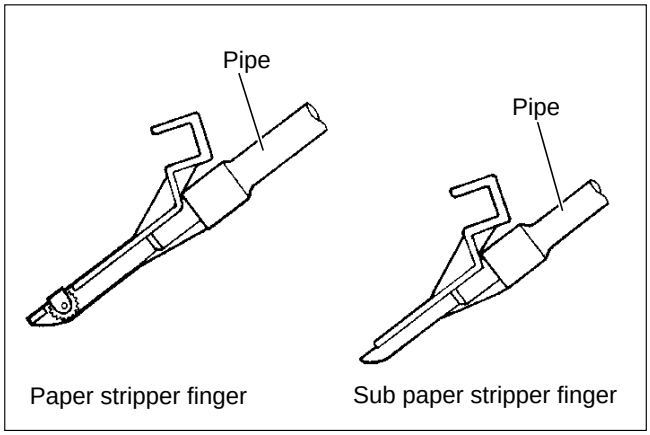
6 Paper Ejection Section

(1) Removal of Paper Stripper Finger / Sub Paper Stripper Finger

1) Open the master ejection box.
2) Remove the set screws.
3) Remove the paper stripper finger and sub paper stripper fingers from the shaft.



4) Take out the paper stripper finger and sub paper stripper fingers from the pipe.



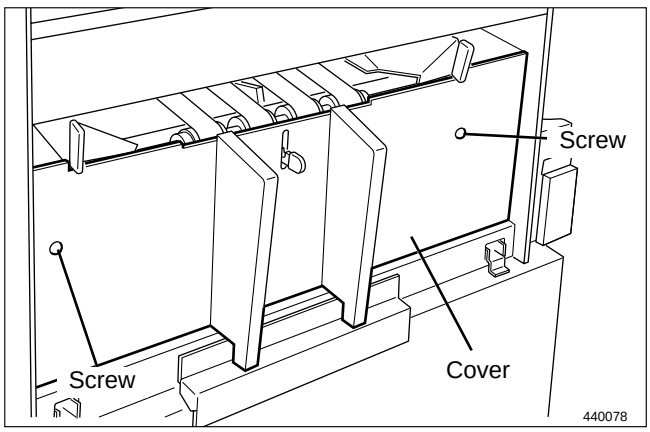
Reinstallation

IMPORTANT : Adjust the paper stripper finger after it is installed.

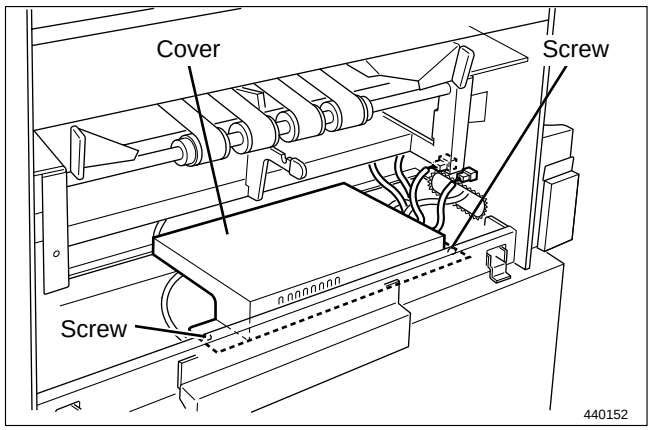
➡See page 167

(2) Removal of Main Motor PCB Unit

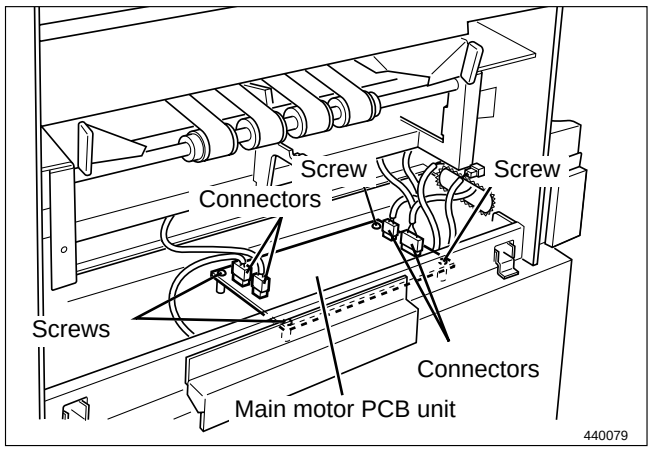
1) Remove the print tray.
2) Remove the 2 screws from the cover, and remove the cover.



3) Remove the 3 screws indicated, and remove the cover.



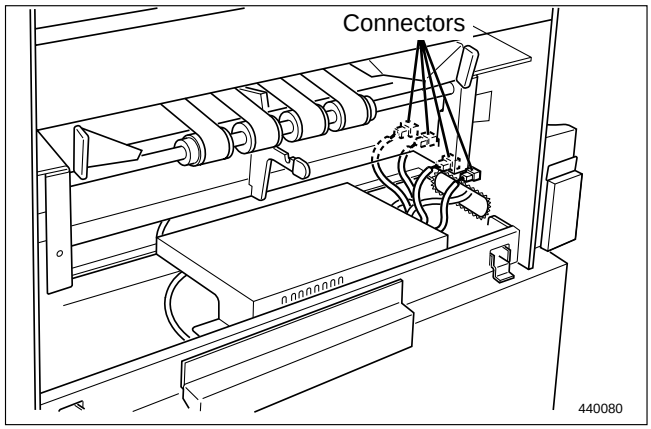
4) Disconnect the 4 connectors.
5) Remove the 4 screws indicated, and remove the main motor PCB unit.



(3) Removal of Paper Ejection Fan Unit

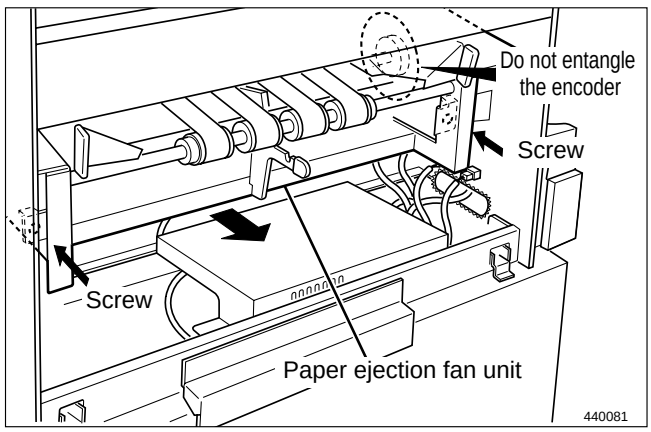
1) Remove the print tray.
2) Remove the 2 screws from the cover, and remove the cover.

3) Disconnect the 4 connectors.



4) Remove the 2 screws, and pull out the paper ejection fan unit sliding in the direction of an arrow.

IMPORTANT : When pulling out the paper ejection fun unit, do not entangle the encoder.

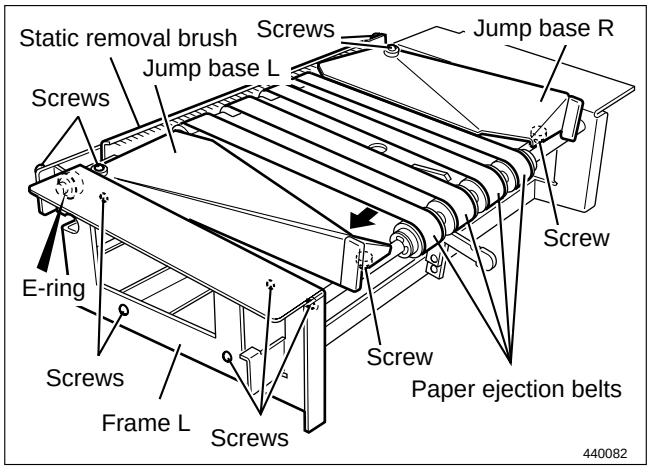


(4) Removal of Paper Ejection Belt

1) Remove the paper ejection fan unit.

➡See page 135

2) Remove the 2 screws from the static removal brush, and remove the static removal brush.
3) Remove the 4 screws indicated, and remove the jump base L,R.
4) Remove the 5 screws indicated, and remove the frame L.
5) Remove the E-ring.
6) Stretch the belts and install them oriented as shown in the figure.

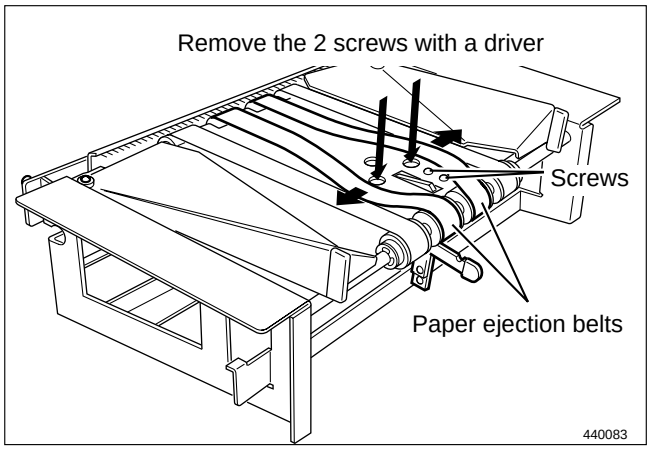


(5) Removal of Paper Ejection JAM Sensor (Photo-receiving PCB UNIT)

1) Remove the paper ejection fan unit.

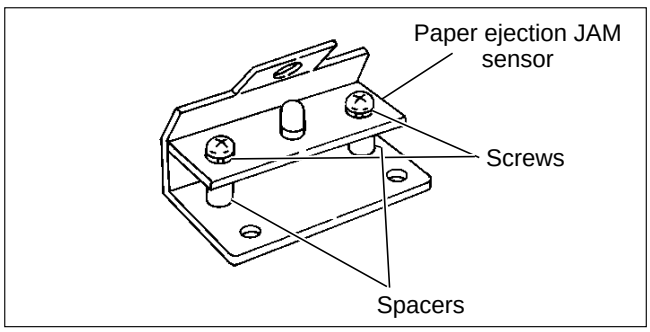
➡See page 135

2) Pull the paper ejection belts wider apart to expose the screws, and secure the belts in that position.
3) Remove the 2 screws indicated, and remove the paper aligning lever assy.
4) Remove the 2 screws securing the sensor mounting angle, and remove the angle.



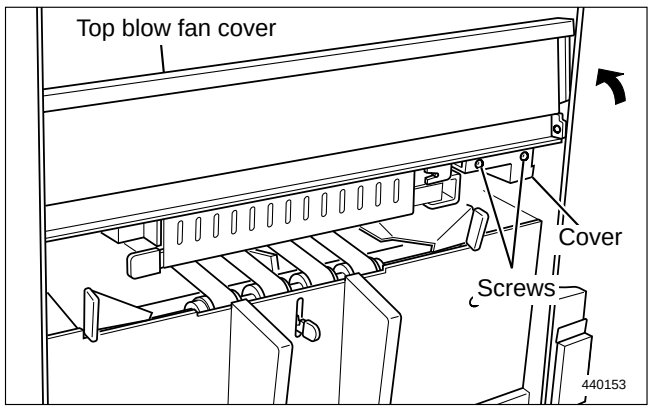
5) Remove the 2 screws from the sensor PCB, and remove the PCB.

IMPORTANT : Do not lose the 2 spacers.

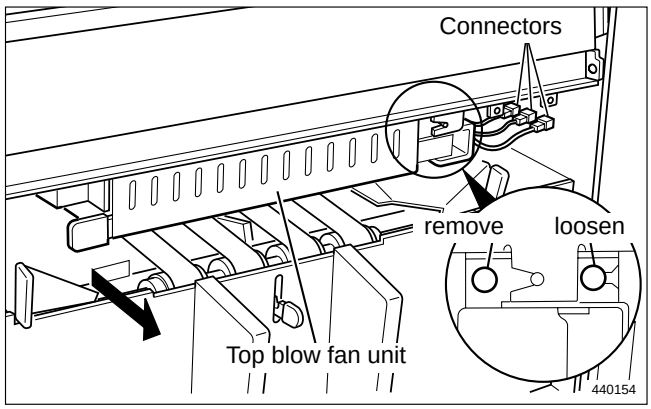


(6) Removal of Top Blow Fan Unit

1) Open the top blow fan cover.
2) Remove the 2 screws indicated, then remove the cover.

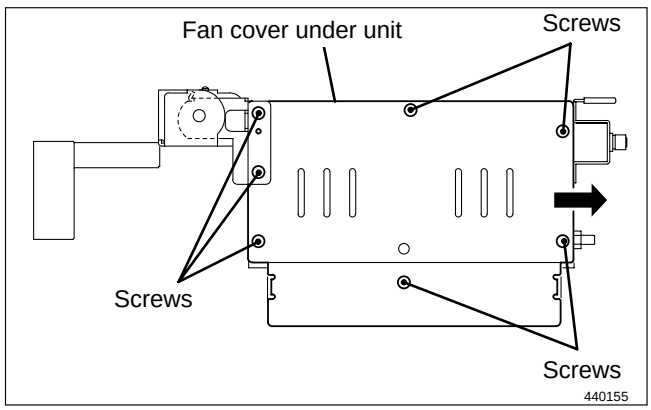


3) Disconnect the 3 connectors.
4) Loosen the screw and remove the screw indicated, then remove the top blow fan unit.

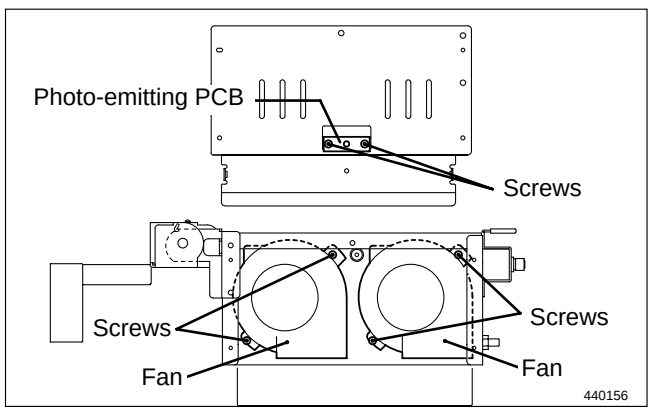


(7) Removal of Fan/Jam Sensor (Photo-emitting PCB Unit)

1) Remove the top blow fan unit.
2) Remove the 7 screws indicated, and remove the cover sliding in the direction of an arrow.



3) Remove the 2 screws indicated, then remove the fan / photo-emitting PCB sensor.



(8) Removal of Pressure Adjustment Unit

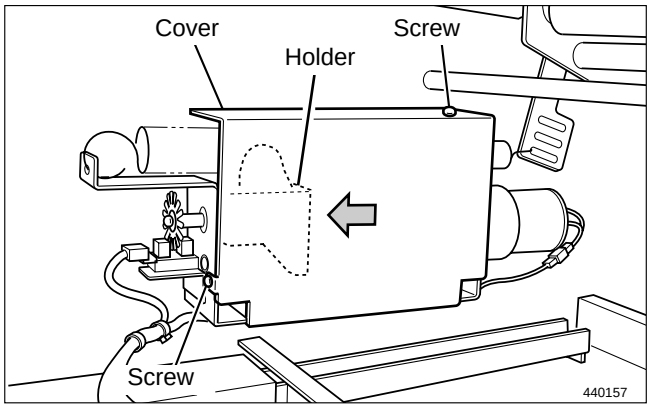
IMPORTANT : Before power off, Access HELP mode H-02, and use it to move the holder to its print tray side.

HELP mode H-02 ➡ see p.221

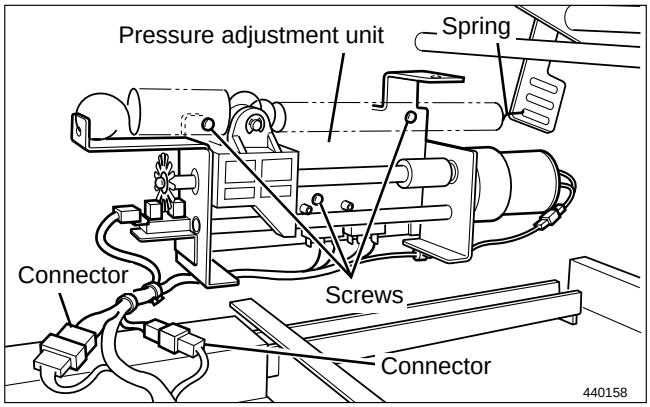
1) Remove the paper ejection fan unit.

➡See page 135

2) Remove the 2 screws indicated, then remove the cover.

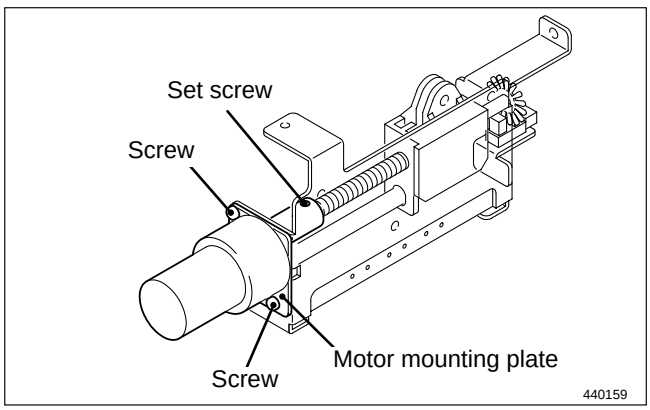


3) Disconnect the 2 connectors.(4 pin , 2 pin)
4) Remove the 3 screws indicated, then remove the pressure adjustment unit.

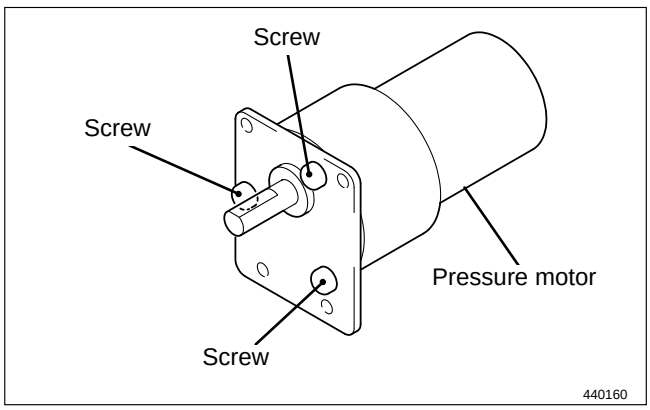


(9) Removal of Top Blow Fan Unit

1) Remove the pressure adjustment unit.
2) Loosen the set screw.
3) Unscrew the 2 screws in the motor mounting plate , and remove the mounting plate with its screws in it.



4) Remove the 3 screws indicated, then remove the pressure motor.

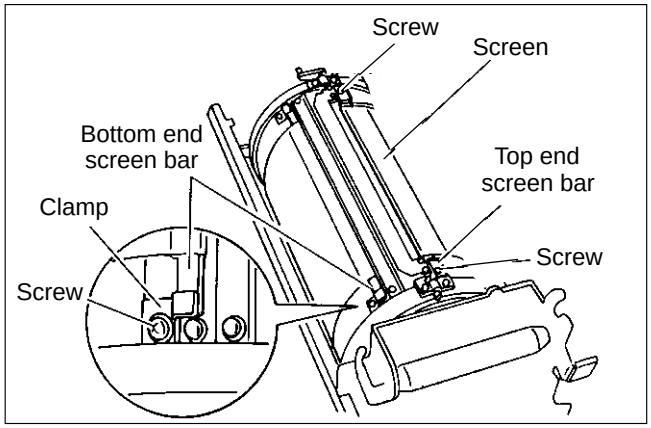


7 Drum Section

(1) Removal of Screen

1) Remove the drum.
2) Remove the clamp on the bottom end screen bar to pull out the screen bar.
3) Remove 2 set screws on the top screen bar to pull out the screen bar.
4) Remove the screen from the drum.

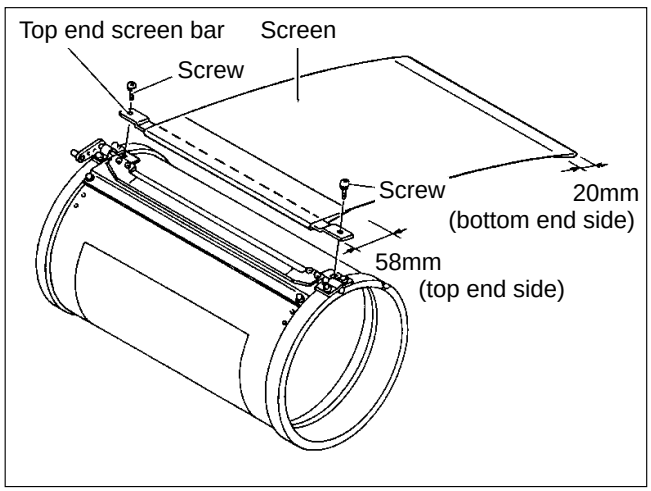
IMPORTANT : Do not rotate the drum reversely.



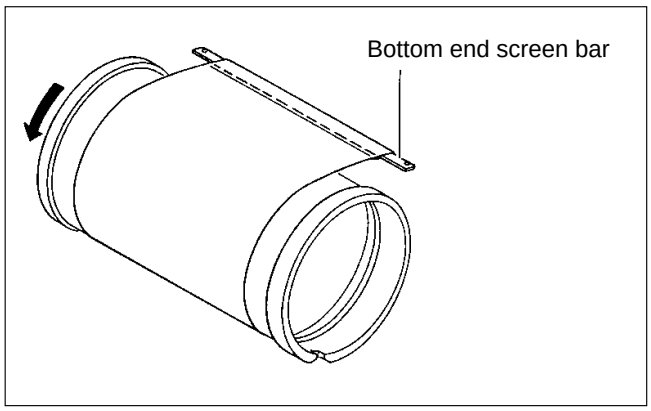
Reinstallation

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

IMPORTANT : Do not mistake the bottom end of the screen for the top end.

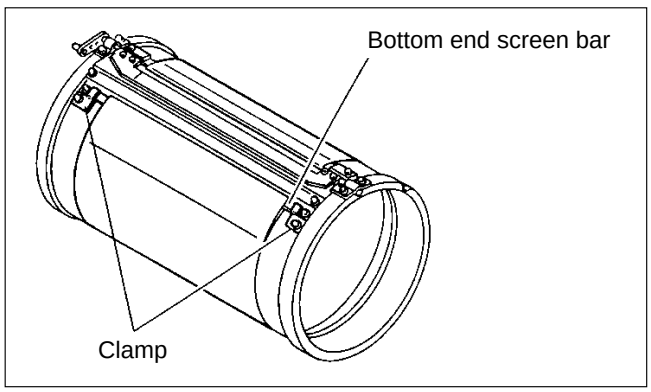


3) Pass the bottom end screen bar through the screen (bottom end side).
4) Hold the bottom end screen bar in parallel with the drum and roll it up to the drum rotating the drum normally.



5) Tighten the screen bar with the clamp.

IMPORTANT : The stainless screen does not return to the original state once it is folded. Be careful to handle the screen.

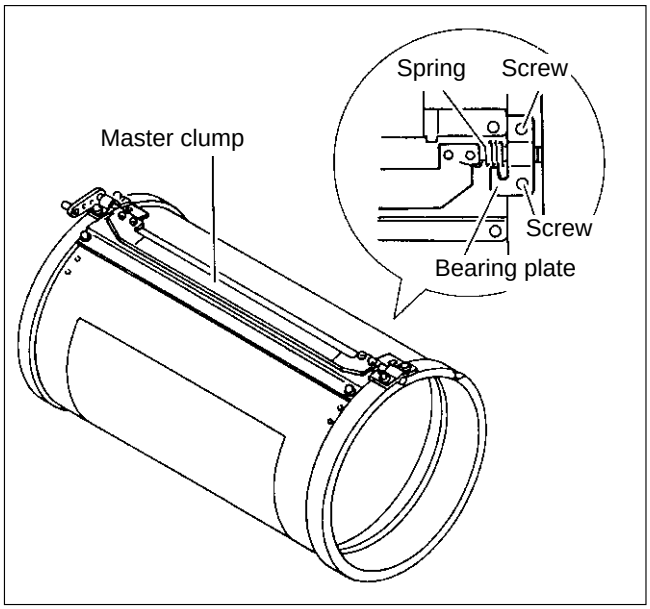


(2) Removal of Master Clump

1) Remove the screen.

➡See page 139

2) Remove 2 screws on the operation side.
3) Remove the bearing plate and spring.
4) Remove 2 screws on the anti-operation side to take out the bearing plate.
5) Remove the master clump. The master clump is attached to the base with the magnet.



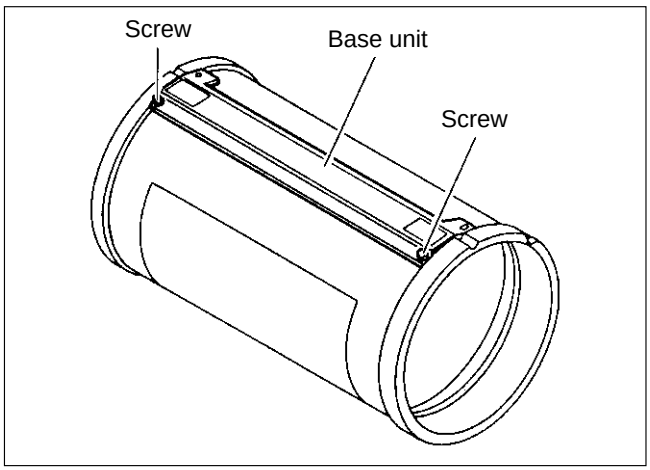
Reinstallation

IMPORTANT : Adjust the master clump after installation.

➡See page 171

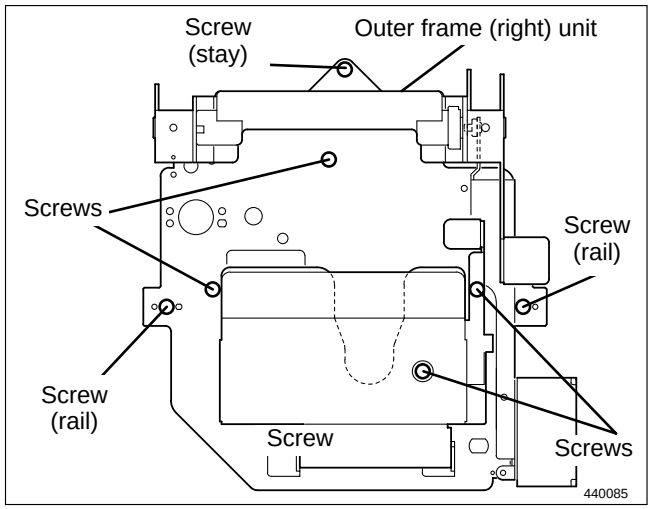
(3) Removal of Base Unit

1) Remove the master clump.
2) Remove 2 screws, and remove the base unit.



(4) Removal of Outer Frame (Right) Unit

1) Remove the drum.
2) Remove 2 screws on the rail and 1 screw on the stay.
3) Remove 4 screws on the outer frame (right) unit and knob screw.

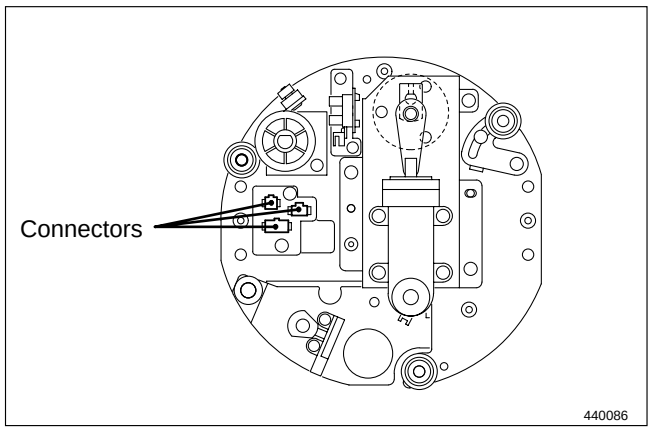


Reinstallation

IMPORTANT : Do not forget to adjust the rail space after the rail is installed.

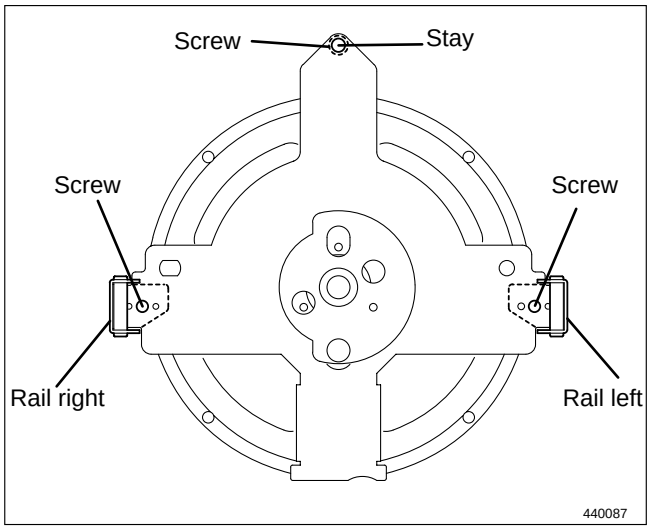
➡See page 172

4) Part the outer frame (right) unit a little and remove 3 connectors.
5) Remove the outer frame (right) unit.



(5) Removal of Outer Frame (Left) Assy

1) Remove the dram.
2) Remove the screw on the rail to take out the rail.
3) Remove the screw on the stay to remove the stay.

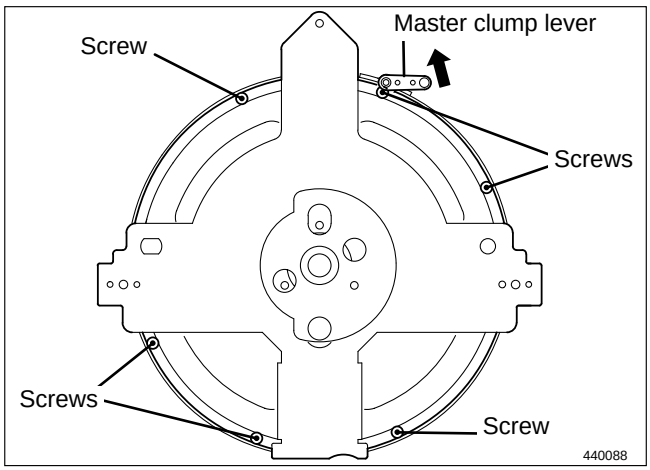


Reinstallation

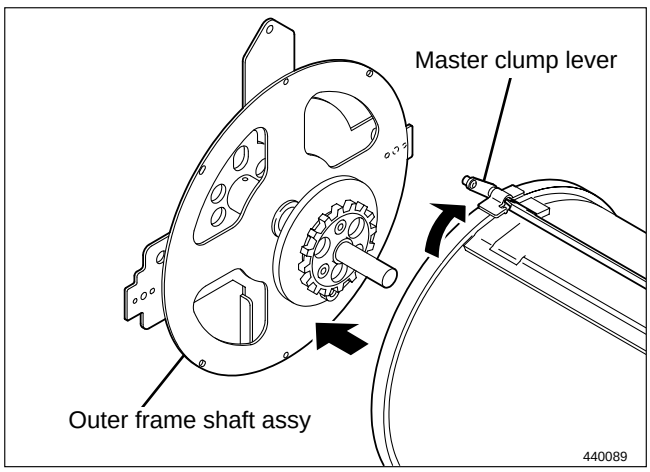
IMPORTANT : Do not forget to adjust the rail space after the rail is installed.

➡See page 172

4) Remove 6 screws.



5) Pull out the outer frame (left) assy with the master clump open.

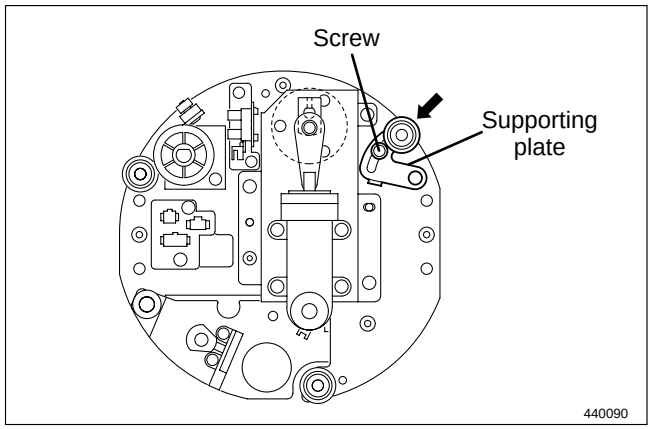


(6) Removal of Inner Frame

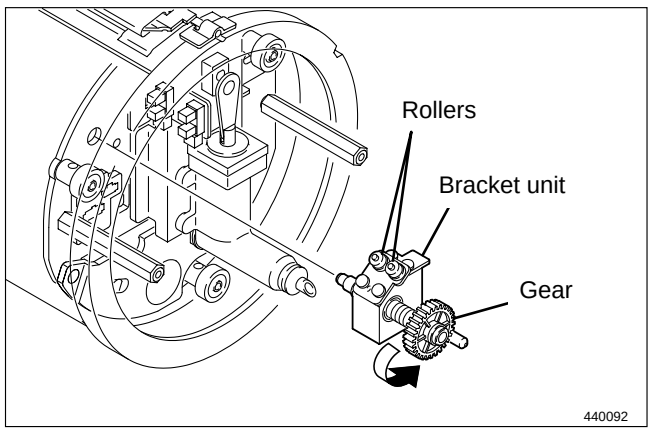
1) Remove the outer frame (right) unit.

➡See page 141

2) Loosen 2 set screws on the supporting plate, move the supporting plate in the direction of arrow until it stops and fix it with the screw.

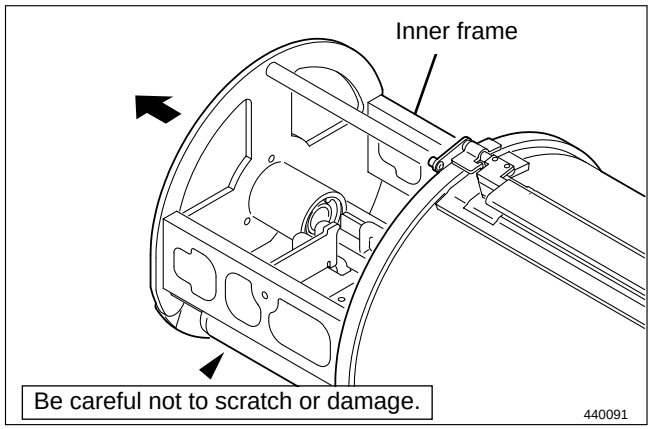


3) Pull out the bracket unit while turning the gear.



4) Pull out the inner frame (section inside the drum) in the direction of an arrow.

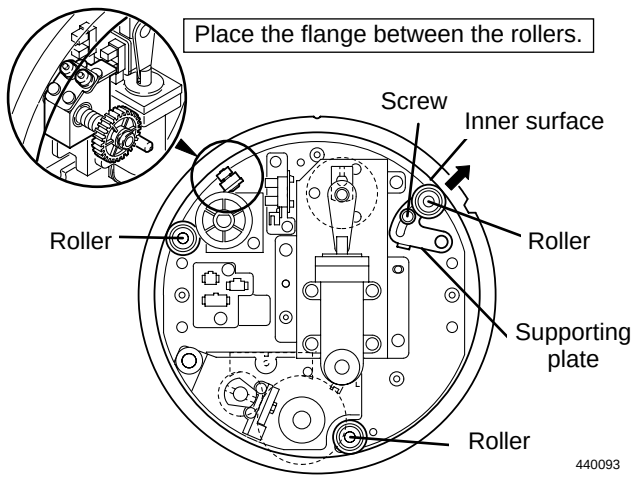
IMPORTANT : When pulling out the unit, be careful not to damage the inner surface of the drum.



Reinstallation

Slide the supporting plate in the direction of arrow 1 so that the supporting plate roller, roller unit and roller are in contact with the inner surface of the flange right and tighten the roller with the screw, pressing the roller to the inner surface lightly.

IMPORTANT : Be sure to place the flange between the rollers.

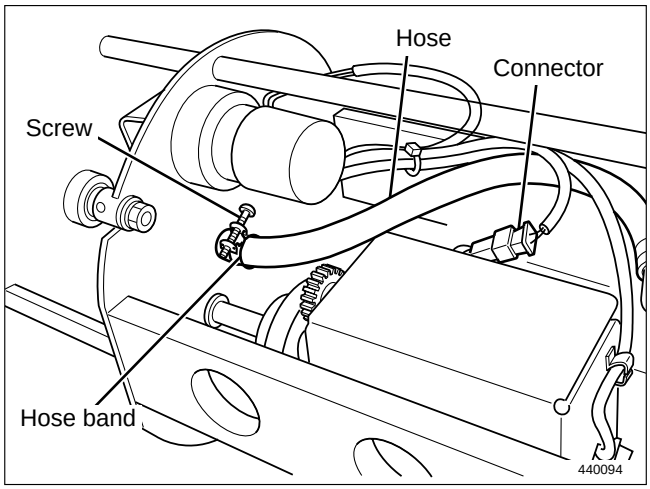


(7) Removal of Ink Pump

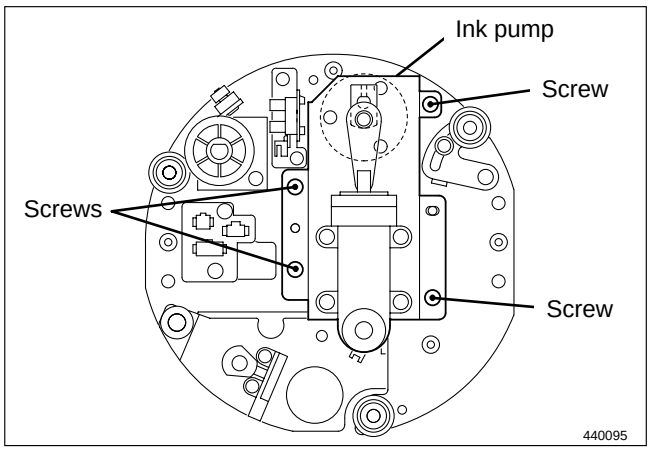
1) Remove the inner frame.

➡See page 143

2) Loosen the screw on the hose band to remove the hose.
3) Pull out the connector.

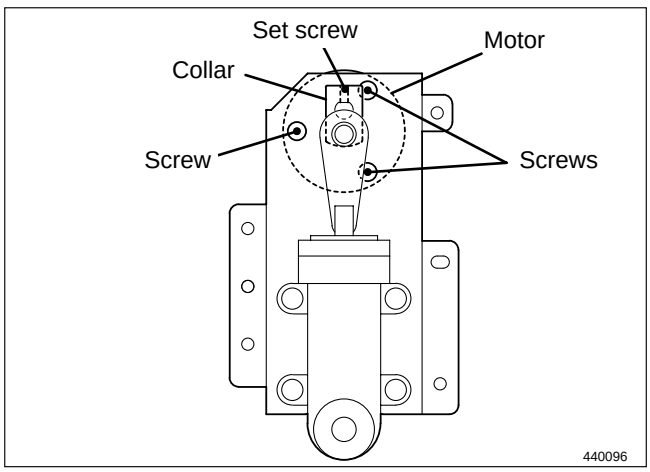


4) Remove 4 screw to take out the ink pump.



(8) Removal of Ink Motor

1) Remove the ink pump.
2) Loosen the set screw to remove the collar.
3) Remove 3 screws to take out the motor.



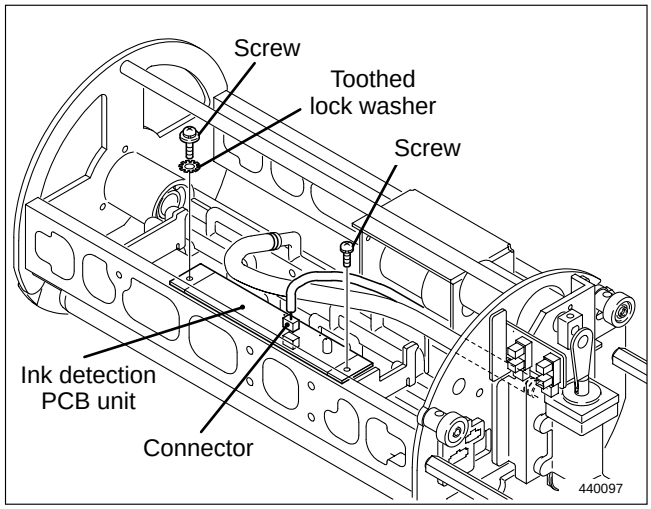
(9) Removal of Ink Detection PCB Unit

1) Remove the inner frame.

➡See page 143

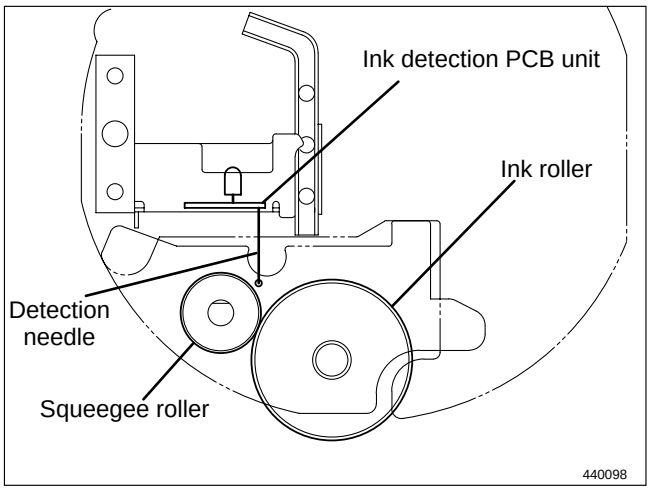
2) Pull out the connector.
3) Remove 2 screws to take out the ink detection PCB Unit.

IMPORTANT : The toothed lock washer is attached to one of the screws. Be careful not to lose it.



Reinstallation

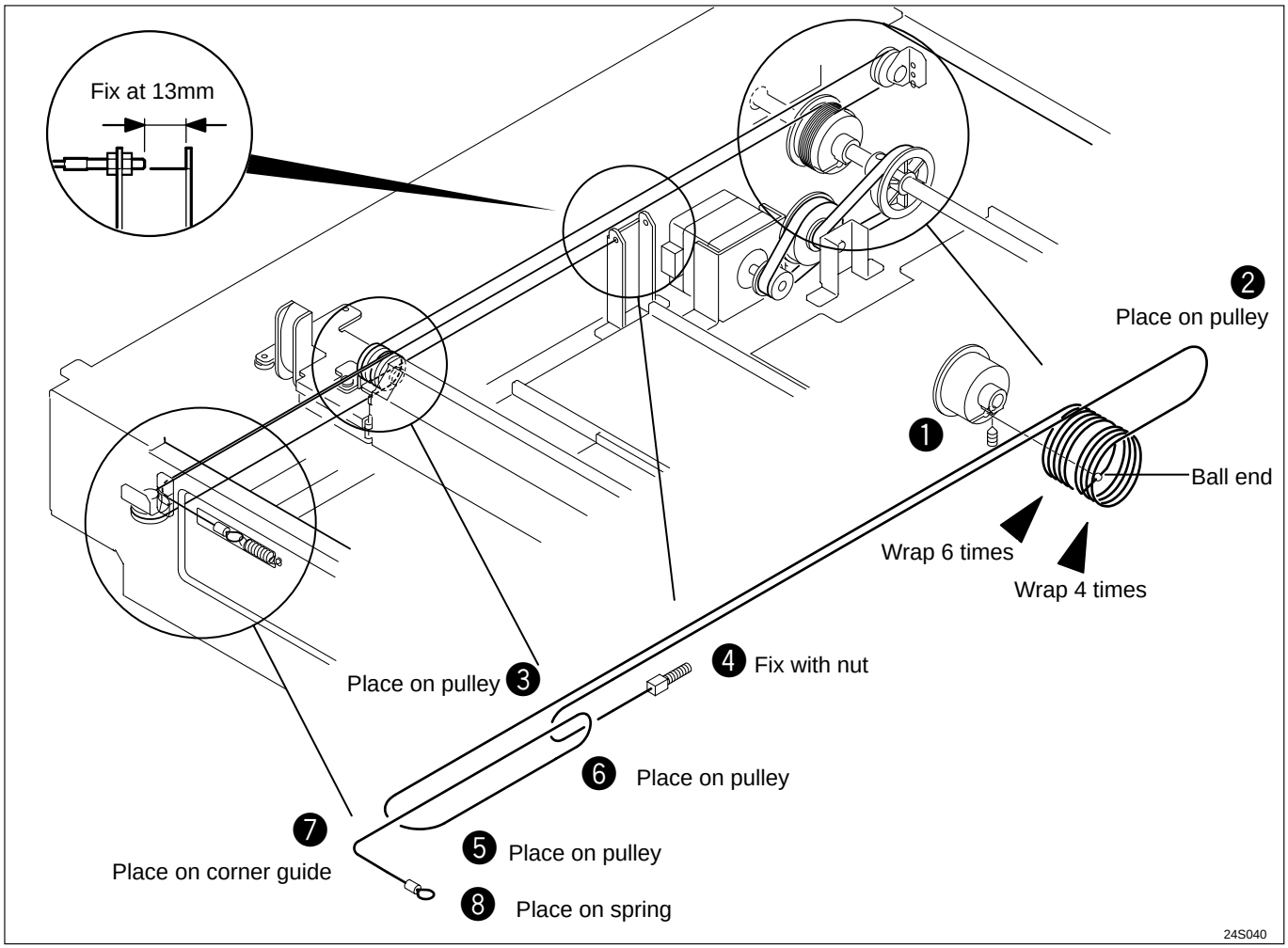
IMPORTANT : Confirm that the detection needle is vertical with the PCB Unit and does not contact anywhere, when installing the Ink detection PCB Unit.



Chapter 4 Standards / Adjustment

1 Scanner Section

(1) Attaching the Rear Wire



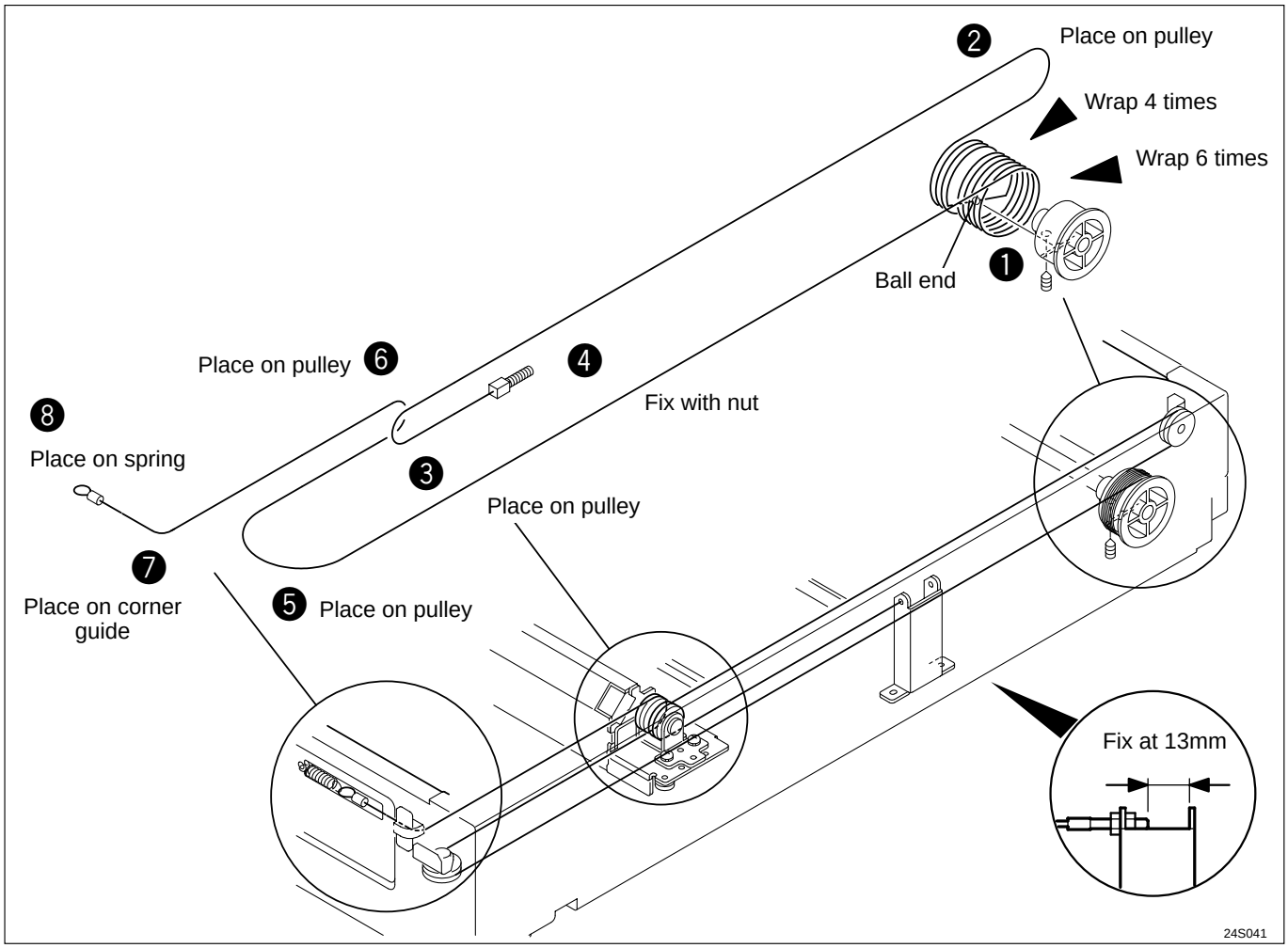
NOTE :

- **For removal of the rear wire** ➡See page 118

Adjustment procedure

1) Insert the ball end of the wire into the groove opening on the pulley. Wrap the wire **6 times in the rear**, and **4 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 fix it in place with 2 nuts. (**There should be a 13mm gap between the screw tip and the bracket.**)
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.

(2) Attaching the Front Wire



NOTE :

- **For removal of the front wire** ➡See page 118

Adjustment procedure

1) Insert the ball end of the wire into the groove opening on the pulley. Wrap the wire **4 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 fix it in place with 2 nuts. (**There should be a 13mm gap between the screw tip and the bracket.**)
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.

2 Platemaking / Master Feed / Ejection Section

《Platemaking / Master Feed Section》

(1) Adjusting the Timing Belt Tension

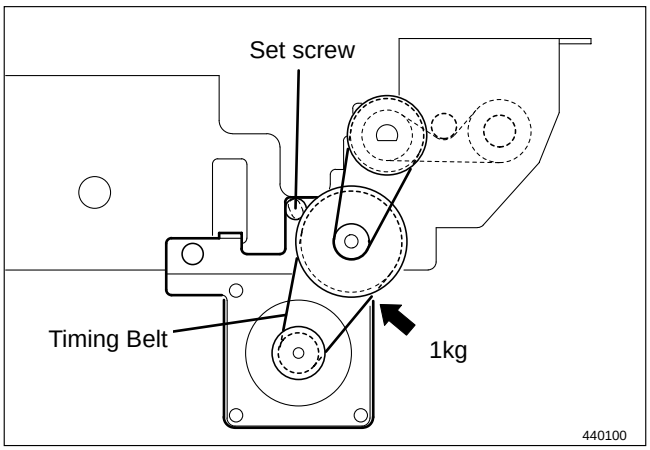
NOTE :

- **For removal of master feed unit.**

➡See page 123

Adjustment procedure

1) Use the set screw to adjust the belt's tension to **about 1kg.**



(2) Position Adjustment of Thermal Head Up/Down Motor

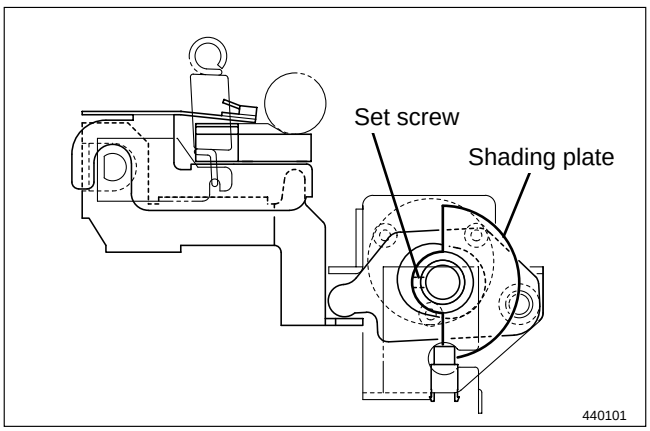
NOTE

- **For removal of master feed unit.**

➡See page 123

Adjustment procedure

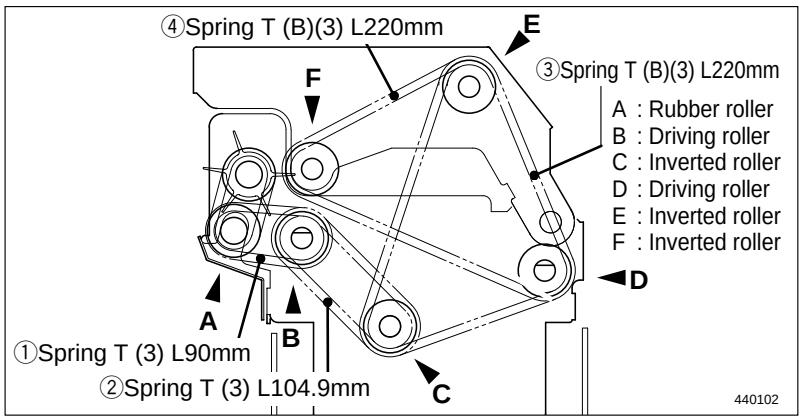
1) Lift up the lever to its upper limit position.
2) Loosen the shading plate's set screw. Then align the shading plate in the position shown in the figure, and tighten the set screw to fix the plate in position.



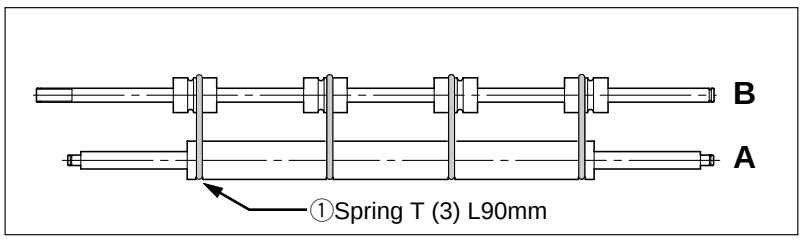
《Master Ejection Section》

(1) Attaching the Spring

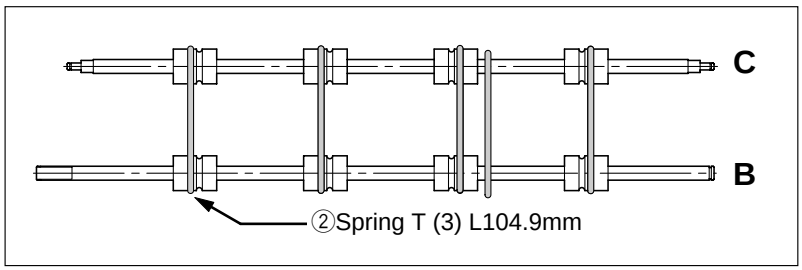
IMPORTANT : Set the hook on the spring and crush it to prevent removing.



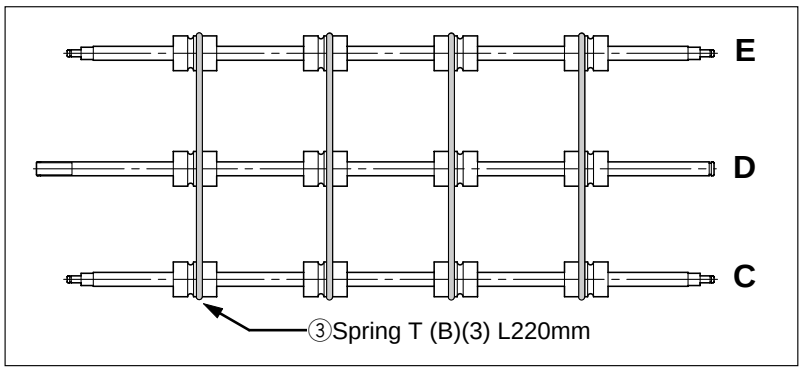
1) Attaching the spring between A and B.



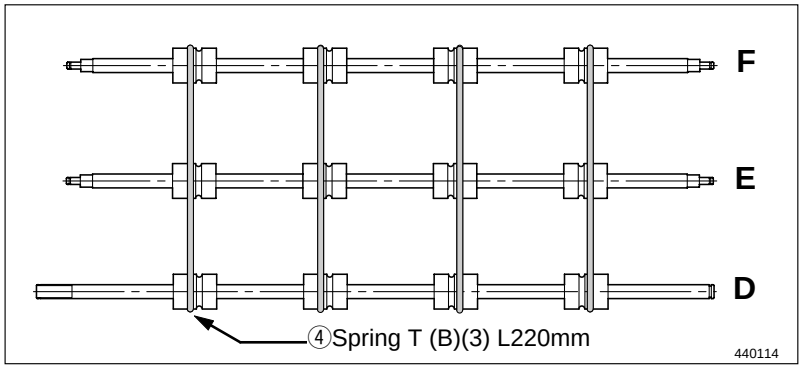
2) Attaching the spring between B and C.



3) Attaching the spring between C, D and E.



4) Attaching the spring between D, E and F.



(2) Adjusting the Timing Belt Tension

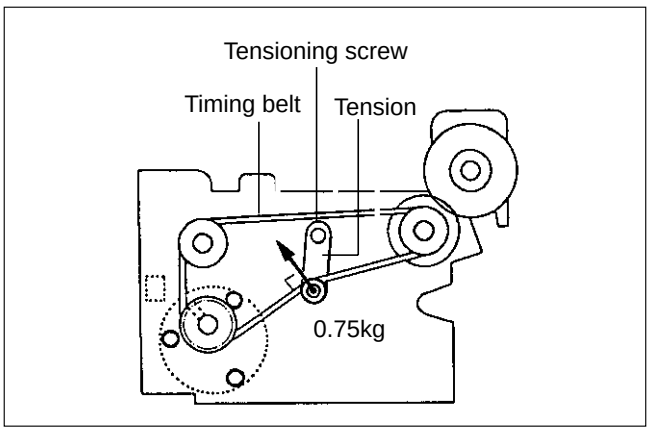
NOTE :

- **For removal of the master ejection box.**

➡See page 124

Adjustment procedure

1) Loosen the tensioning screw.
2) Use the tensioning screw to adjust the belt's tension with a force of **0.75kg** applied to the tension shaft, as shown in the figure at right.



After adjustment

- **Function testing of roll-up motor**

1) Access HELP mode H-02.

HELP mode H-02 ➡ see p.221

For basic HELP mode procedures

➡See page 213

2) Press and hold down the ◁ **"down" PRINTING SPEED ADJUSTMENT** 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.
3) The motor will stop when the ◁ **"down" 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 Clump Opening/Closing Section》

(1) Adjusting the Timing Belt Tension

NOTE :

- **For removal of master clump opening / closing unit.**

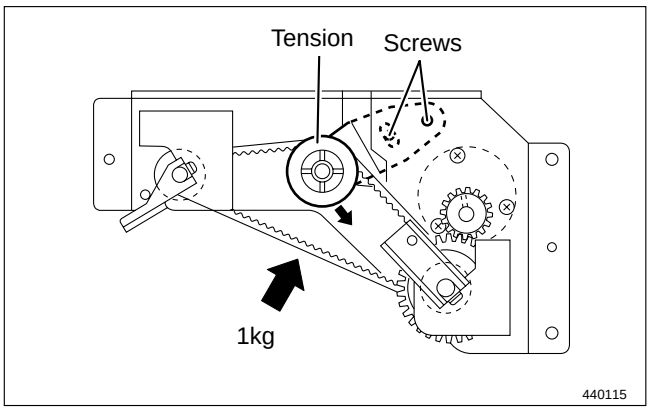
➡See page 125

Adjustment procedure

1) Loosen the tension set screw.
2) Use the set screw to adjust the belt's tension to **about 1kg.**

After Adjustment

IMPORTANT : Be sure to adjust the A/B/C mode after installation to the printer.

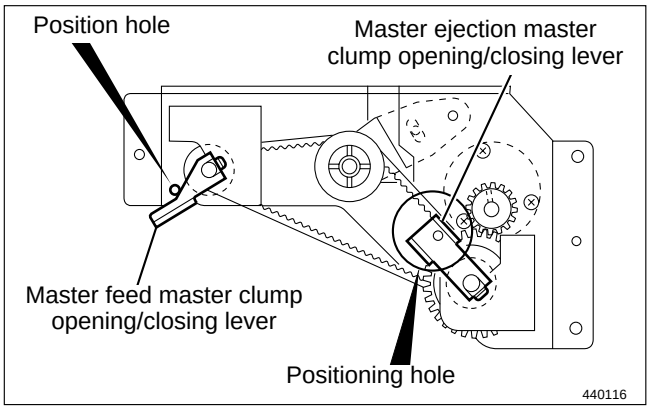


(2) Positioning the Master Clump Opening / Closing Levers

NOTE :

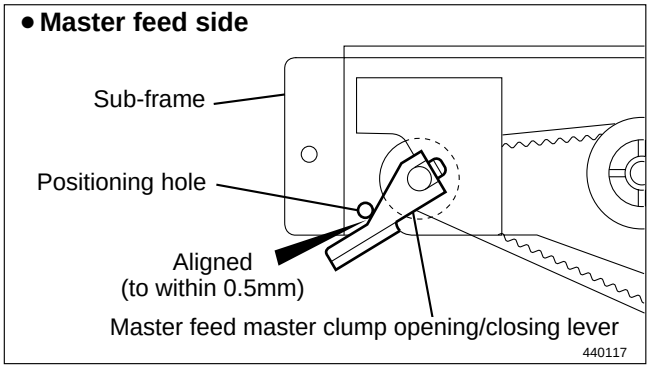
- **For removal of master clump opening / closing unit.**

➡See page 125



1. Master feed master clump opening/closing lever

When tensioning the timing belt, ensure that the sub frame is positioned so that the upper surface of the master clump opening/closing lever is aligned (to within 0.5mm) with the rim of the positioning hole.

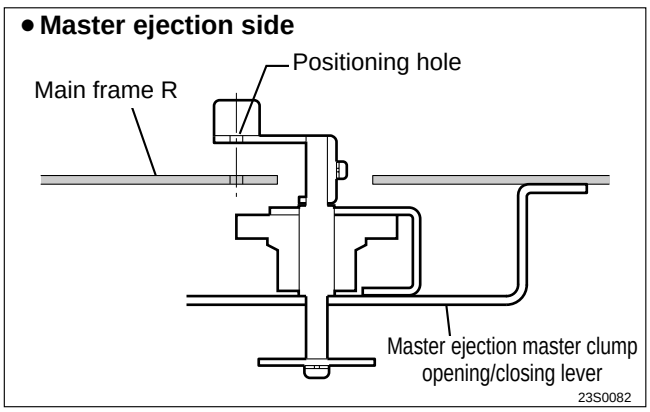


2. Master ejection master clump opening/closing lever

When tensioning the timing belt, ensure that the master clump opening/closing lever is co-centered with the sub-frame's positioning holes.

After Adjustment

IMPORTANT : Be sure to adjust the A/B/C mode after installation to the printer.



(3) Adjusting the A / B / C Mode

NOTE :

- **For description of operation.**

➡See page 58

1. Adjustment for B mode

Adjustment procedure

1) Remove the drum from the machine body.
2) Access HELP mode H-02.

HELP mode H-02 ➡ see p.221

For basic HELP mode procedures.

➡See page 213

3) Press and hold down the **"up" PRINTING SPEED ADJUSTMENT** key, until the master clump open/close lever moves into the **"more open than B mode (toward C mode) position"** (see right).

4) Turn the power off, then on again.
The master clump switch lever will move into the B mode position and stop there.
5) Turn off the power, and install the drum to the machine body.

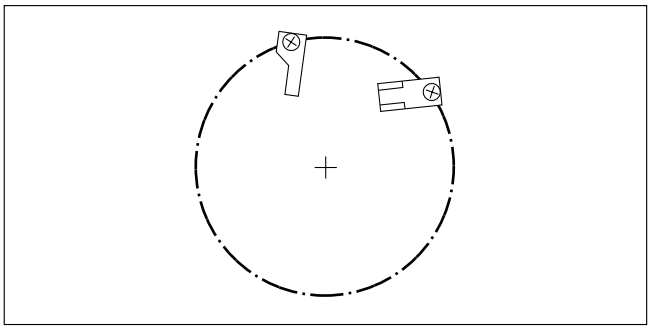
6) Open the plate ejection box. Then press the **JOG switch (drum rotator switch)** to move the master clump to a position in front of the open/close lever, and stop it there.

⚠ WARNING

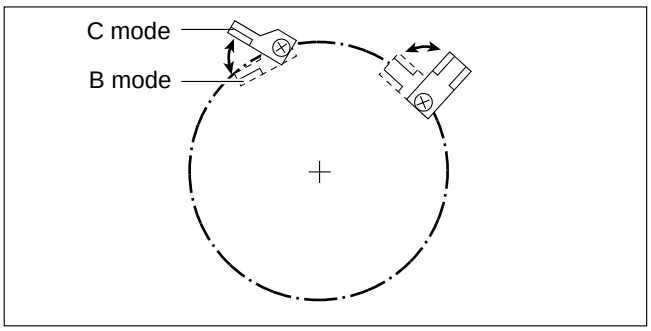
- **Do not touch the drum or rolls when operating the JOG switch.**
- **Do not put your hands or fingers inside the machine during operation. They could be caught up or crushed in the machinery, resulting in injury.**

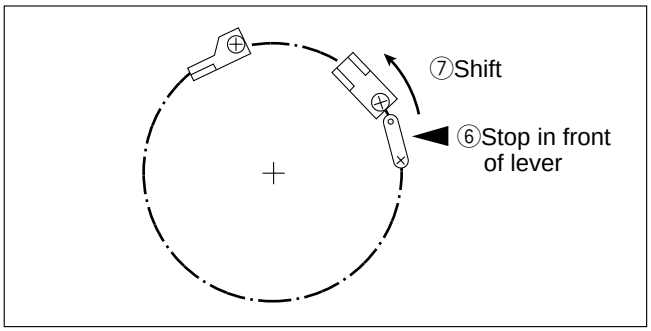
7) Move the master clump, paying attention to the clearance at the same time.

- **When drum is removed from main body (A mode)**



- **More open than B mode (toward C mode) position**

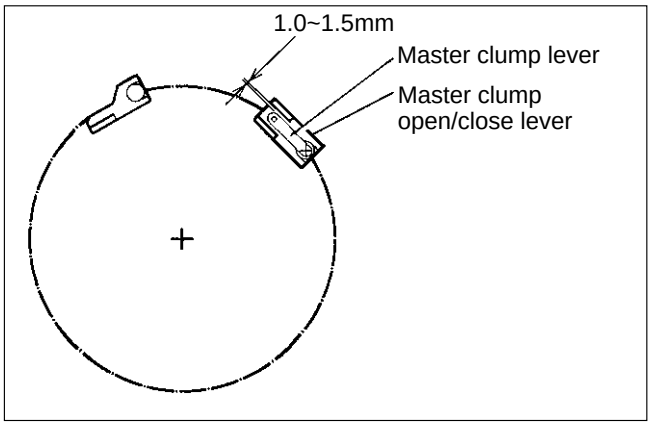




Standard value

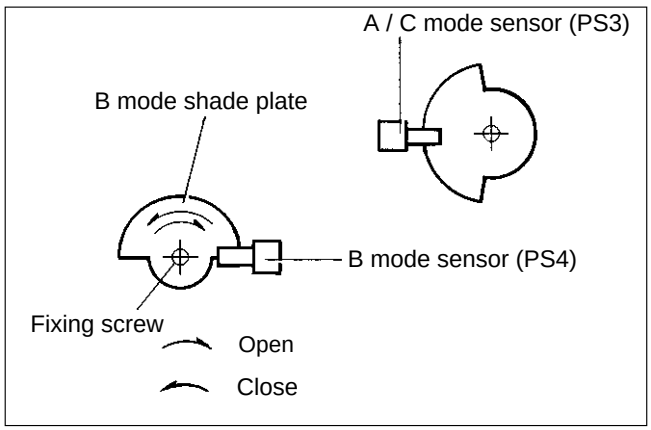
- **Check that the clearance between the master clump lever and master clump open/close lever is within the range given below.**

Item	Standard value
Clearance between master clump lever and master clump open/close lever	1.0 - 1.5mm



If the clearance it outside the standard range:

1) Turn the fixing screw indicated to move the B mode shade plate and thereby adjust the clearance.



After adjustment

Follow the procedure below to return to the previous state.

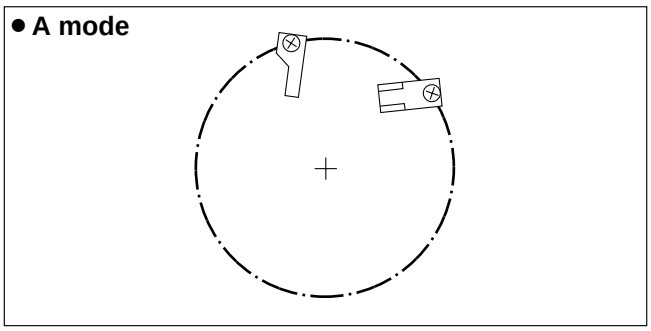
1) Remove the drum.
2) Access HELP mode H-02.

HELP mode H-02 ➡ see p.221

For basic HELP mode procedures.

➡See page 213

3) Press and hold down the **"up" PRINTING SPEED ADJUSTMENT** key, until the master clump open/close lever moves into the **A mode** position (see right).



4) Turn off the power, and install the drum to the machine body.

2. Adjustment for A and C modes

Before adjustment

IMPORTANT : A and C mode adjustment must be carried out AFTER B mode adjustment has been completed.

Adjustment procedure

1) Remove the drum from the machine body.

2) Access HELP mode H-02.

HELP mode H-02 ➡ see p.221

For basic HELP mode procedures.

➡See page 213

3) Press and hold down the **"up" PRINTING SPEED ADJUSTMENT** key, until the master clump open/close lever moves into the **"more open than B mode (toward C mode) position"** (see right).

4) Turn the power off, then on again.
The master clump open/close lever will move into the B mode position and stop there.

5) Turn off the power, and install the drum to the machine body.

6) Access HELP mode H-09.

HELP mode H-09 ➡ see p.231

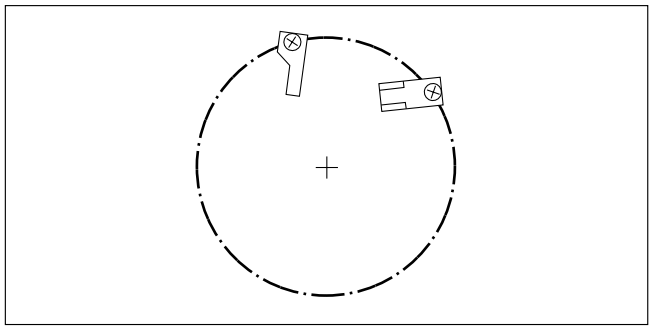
7) Press the **PRINT** key to move the drum to the master removal position, and stop it there.

8) Use HELP20 to move the master clump open/close lever to the C mode position.

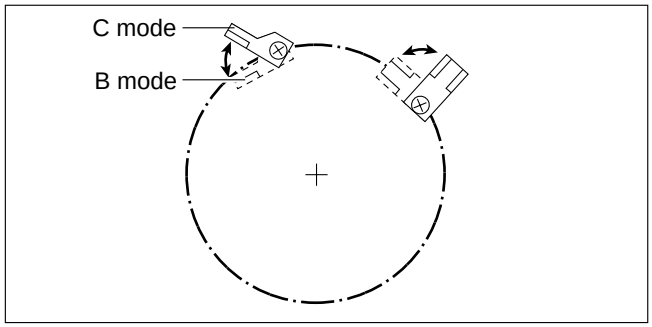
IMPORTANT : Do not move the master clump open/close lever towards the A mode position from the B mode position. Doing so will break the master clump.

9) Open the scanner unit.

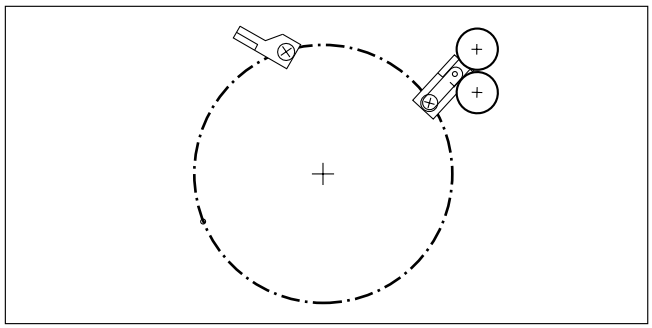
● When drum is removed from main body (A mode)

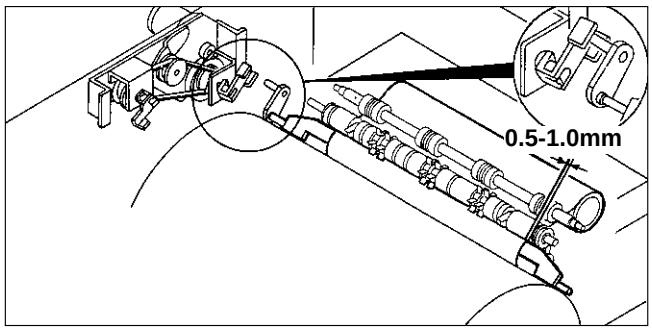


● More open than B mode (toward C mode) position



● Stopping drum in master detachment position

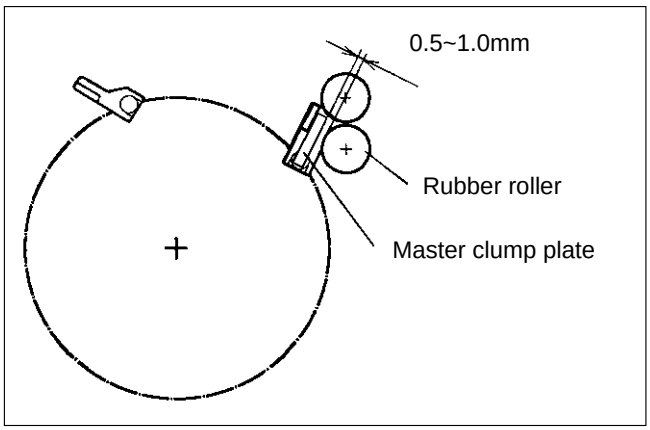




Standard value

- **Check that the clearance between the master ejection box's rubber roller and the master clump plate is within the range given below.**

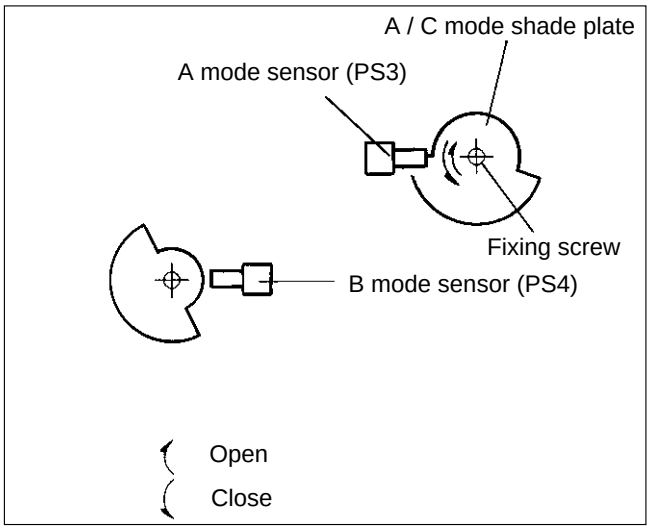
Item	Standard value
Clearance between master ejection box's rubber roller and master clump plate	0.5 - 1.0mm



If the clearance is outside the standard range

1) Turn the fixing screw indicated to move the A/C mode shade plate and thereby adjust the clearance. This operation adjusts the clearance for both the A and C modes.

IMPORTANT : **Do not press the master clump against the rubber roller.**



After adjustment

Follow the procedure below to return to the previous state.

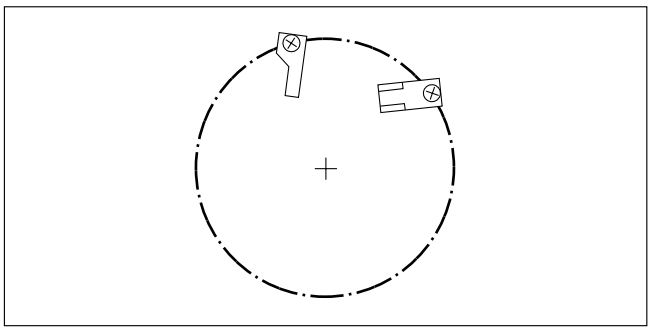
1) Turn the power off, then on again.
   The master clump open/close lever will move into the B mode position and stop there.
2) Remove the drum.

3) Access HELP mode H-02.

HELP mode H-02 ➡ see p.221

4) Press and hold down the **"up" PRINTING SPEED ADJUSTMENT** key, until the master clump open/close lever moves into the **A mode** position (see right).

- **A mode**



5) Turn off the power, and install the drum to the machine body.

3 Paper Feed Section

(1) Adjusting the Paper Separator Unit Clearance

NOTE :

- **For description of operation .**

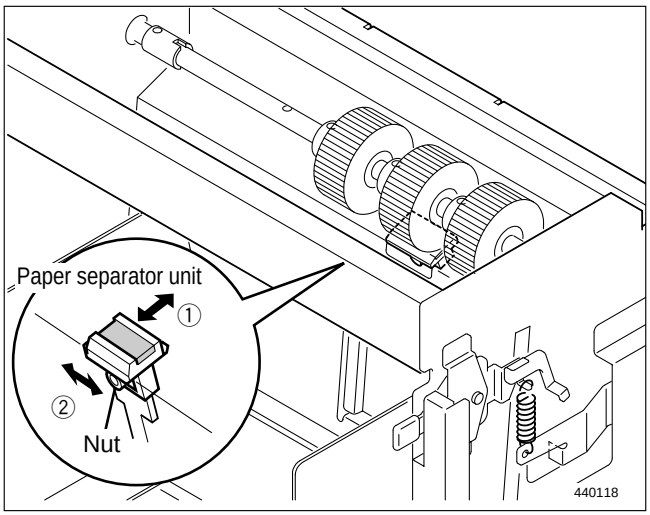
➡See page 67

- **For removal of paper separator unit .**

➡See page 128

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 fix the unit in the adjusted position.



(2) Adjusting the Paper Separation Pressure

NOTE :

- **For description of operation .**

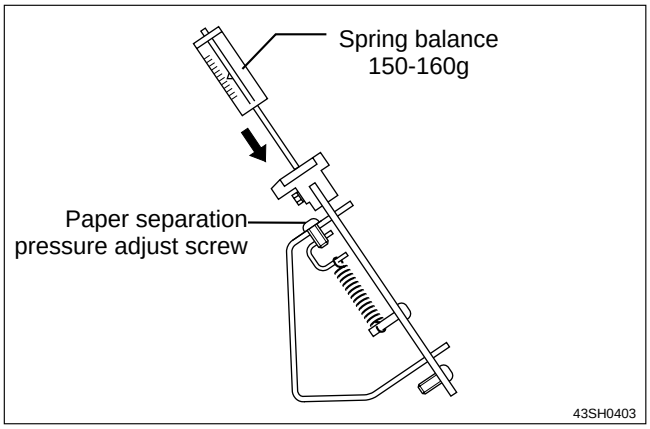
➡See page 67

- **For removal .**

➡See page 128

Adjustment procedure

1) Apply a spring balance as shown at right, then turn the separation pressure adjust screw so that the balance reads **150-160g**.
   - Turning the screw clockwise increases the pressure.
   - Turning the screw counterclockwise decreases the pressure.



(3) Adjusting the Elevator Top Limit Sensor

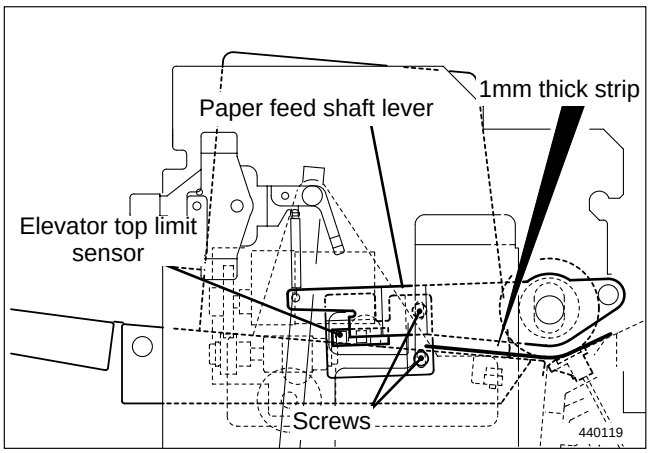
NOTE :

- **For description of operation .**

➡See page 71

Adjustment procedure

1) Insert a 1mm thick strip of material between the paper feed roller and the paper feed inlet.
2) Loosen the 2 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**.
3) After adjustment, tighten the screws.



(4) Adjusting the Elevator Bottom Limit Switch

NOTE :

- **For description of operation.** ➡See page 72
- **For removal.** ➡See page 127

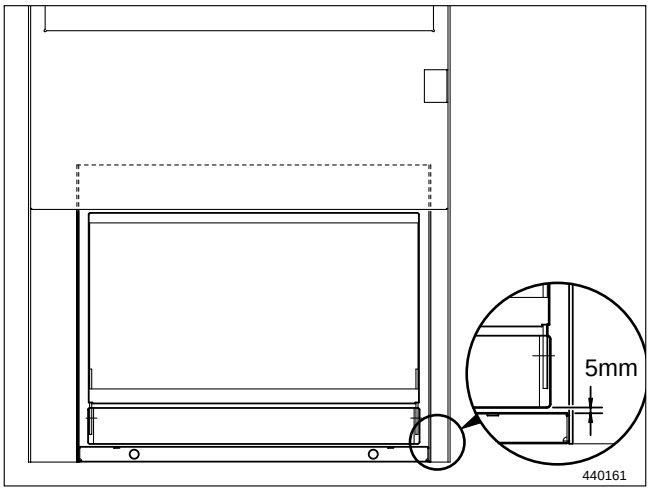
Adjustment method

1) Access HELP mode H-08.

HELP mode H-08 ➡ see p.221

For the accessing HELP modes: ➡See page 213

2) Press and hold down the ◁ **"down" PRINTING SPEED ADJUSTMENT** key until the paper feed tray is at its bottom position. The elevator motor will run (i.e. the paper feed tray will descend) for as long as the key is held down.
3) Check that the dimension indicated in the figure at right conforms to the value shown below.



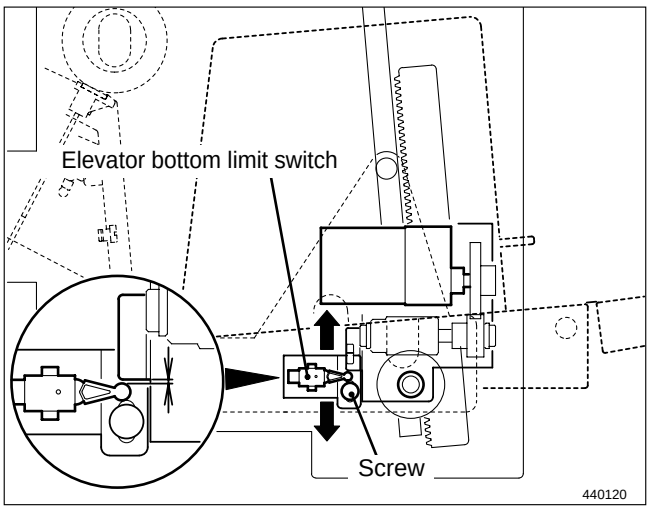
Standard value

Item	Standard value
Paper feed tray clearance in bottom limit position	5mm

If the feed length is not the standard value

1) Loosen the screws, then adjust the bottom limit switch to a position that yields the standard clearance value.
   - ⬆ Moving the sensor in the direction shifts the bottom position downward.
   - ⬇ Moving the sensor in the direction shifts the bottom position upward.

2) After adjustment, tighten the screws.



(5) Adjusting the Double Feed Detection Sensor

NOTE :

- **For description of operation.** ➡See page 70
- **For removal.** ➡See page 130

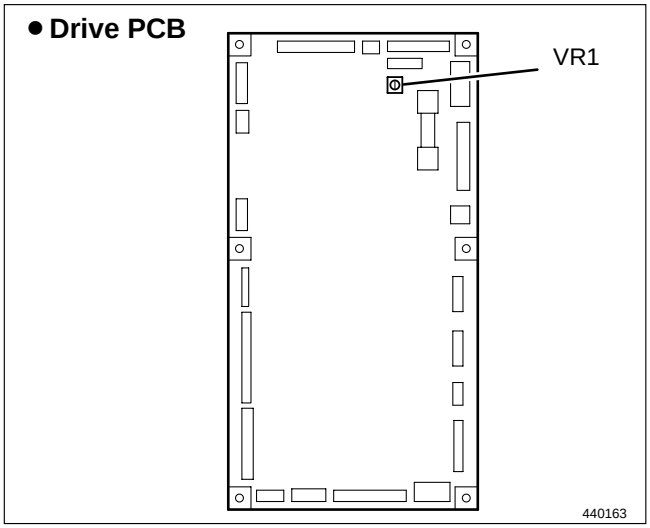
Adjustment method

1) Access HELP mode H-06.

HELP mode H-06 ➡ see p.226

For the accessing HELP modes: ➡See page 213

2) Photointerrupt the double feed detection sensor by one piece of wood free paper (55kg).
3) Adjust the sensor with **VR1** on the drive PCB so that the value is set to **"105"**.
4) Photointerrupt the double feed detection sensor by two pieces of wood free paper (55kg).
5) Check that the value is **"57"**.



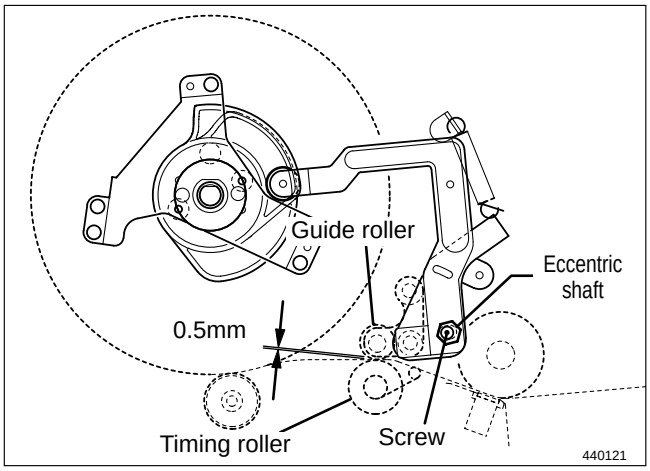
(6) Adjusting the G Roll Escape Amount / Timing

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**.

NOTE :

- **For description of operation.** ➡See page 66



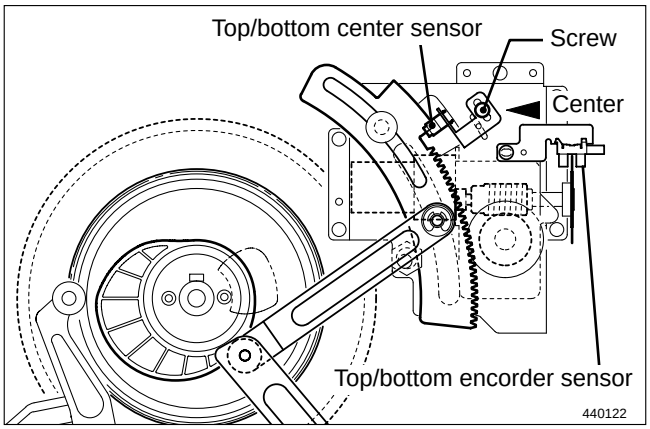
Standard value

Item	Standard value
Clearance between timing roller and guide roller	0.5mm

(7) Adjusting the Top/Bottom Position Sensors

NOTE :

- **For description of operation.** ➡See page 68



1. Top/Bottom Central sensor

Adjustment procedure

1) To adjust the sensor's position, position the screws of the sensor bracket's rectangular holes in the center of those holes, and fix the screws in that position.

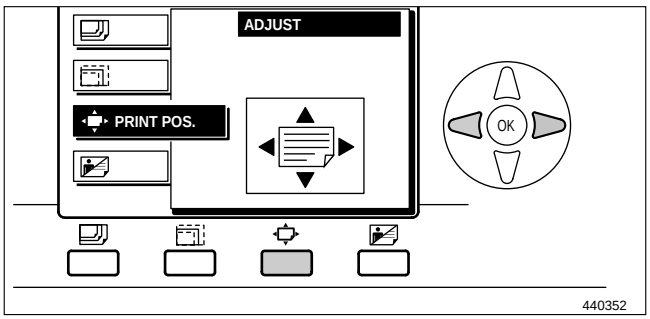
2. Bottom Limit adjustment

Adjustment procedure

1) Access HELP mode H-15, and check the numerical value. HELP mode H-15 ➡ see p.237

2) Access HELP mode H-30(select the test pattern 1), and perform platemaking and printing. HELP mode H-30 ➡ see p.252

3) Press the IMAGE MODE key to select the photo-graph item.

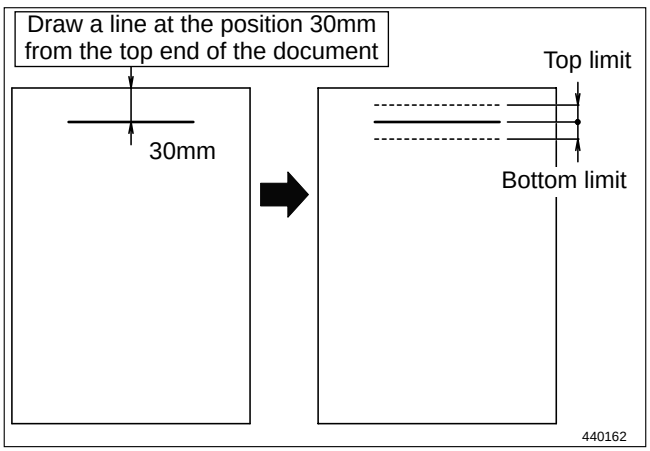


4) Press the key to move the print position. (Bottom limit adjustment)

5) When the numerical value of step 1 ,release the key and press the PRINT key.

6) Compare the printed image(step 5) with the printed image(step 2).

Check the difference of 15mm ,and press the [=] and **CLEAR** keys.



If the moving distance is not the 15mm

- Repeat step 4) through 5).

3. Top Limit adjustment

Adjustment procedure

1) Perfome adjustment of top limit at the same time as that of bottom limit.Repeat step 4) through 6).

4 Drum Driving Section

(1) Adjusting the Drum Stop Position

Before adjustment

IMPORTANT :

- **Adjusting the the drum stop position must be performed AFTER printing speed adjustment is complete.**

➡See page 179

Adjustment procedure

1) Press and hold down the JOG switch (DRUM ROTATION switch). Release the switch when a "beep" tone sounds and the drum stops.

⚠ WARNING

- **Do not touch the drum or rolls when operating the JOG 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.**

NOTE :

- **For description of operation .**

➡See page 76

Standard position

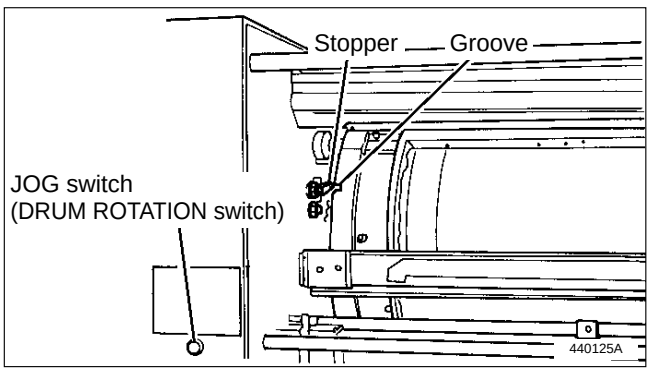
- The stop position is correctly adjusted when the groove in the drum flange is aligned with the stopper.

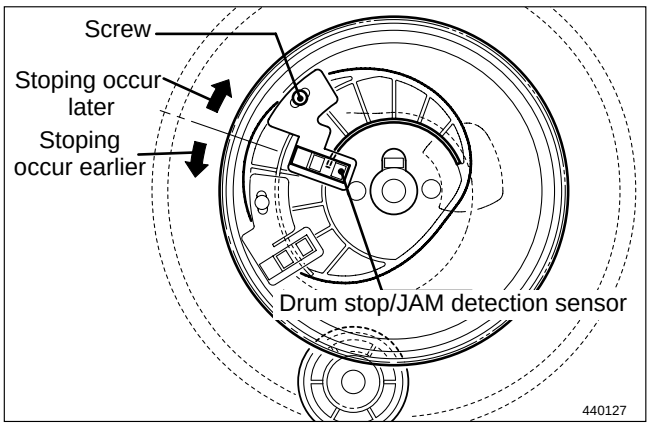
If the drum is not adjusted to the standard stop position:

Adjust the position of the drum stop / JAM detection sensor so that the stopper fits smoothly into the groove when the drum is pulled out.

⬆ Moving the sensor in this direction makes stopping occur later.

⬇ Moving the sensor in this direction makes stopping occur earlier.





(2) Adjusting the Master Set/Removal Position

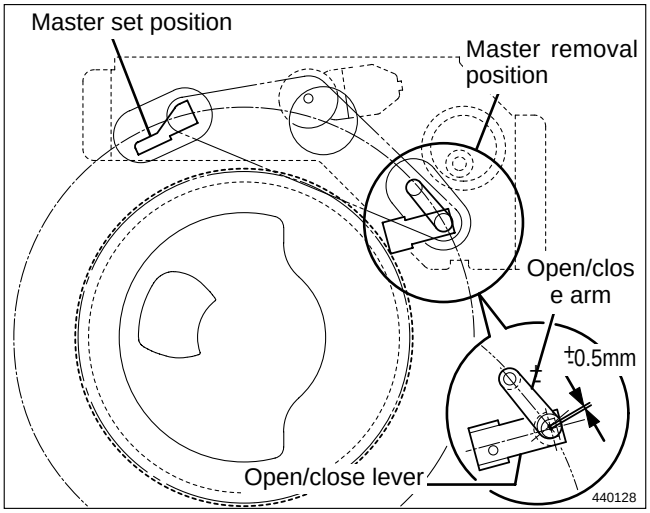
NOTE :

- **For removal of operation.**

➡See page 77

1. Master set position

- The correct position for stopping of the drum (position for master removal) is when the center axis of the master clump open/close arm and the center axis of the master clump open/close lever are aligned in a straight line. Adjust so that the offset of the alignment of these two center axes is **±0.5mm** (gauge this value visually).

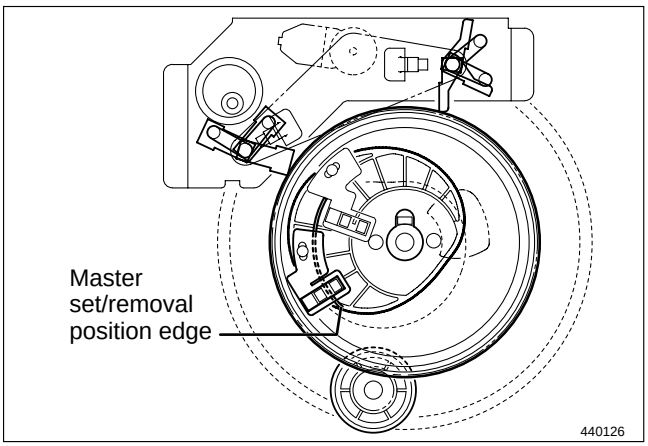


Adjustment procedure

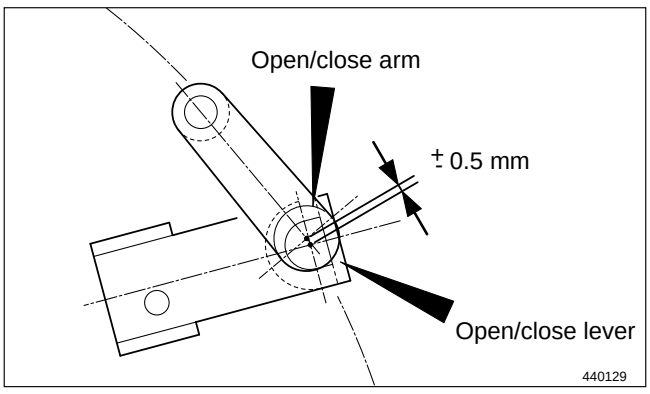
1) Access HELP mode H-09, the drum position check mode.

HELP mode H-09 ➡ see p.231

2) Press the **PRINT** key several times, to move the drum and stop it in the position where the master set/removal sensor senses that the shade plate's master removal position edge.
3) Adjust the offset in the alignment of the center axis of the master clump open/close arm and the center axis of the master clump open/close lever.



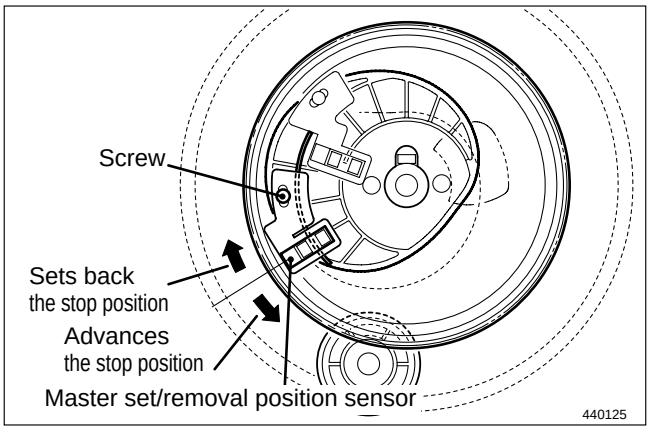
Item	Standard value
Offset in alignment of center axes of master clump open/close arm and master clump open/close lever	± 0.5 mm



4) Loosen the screws indicated, turn the master set/removal sensor shade plate a little in the direction of the arrows, and provisionally tighten the screws.
5) Repeat step 2), and check the center axis alignment offset.
6) If necessary, repeat steps 2) through 5) until the center axis alignment offset is within ±1mm.
7) Properly tighten the screws, and check 6) again.

2. Master removal position

- Perform set of master removal position at the same time as that of master set position. Adjust both positions to an accuracy of **± 0.5mm**.



5 Press Section

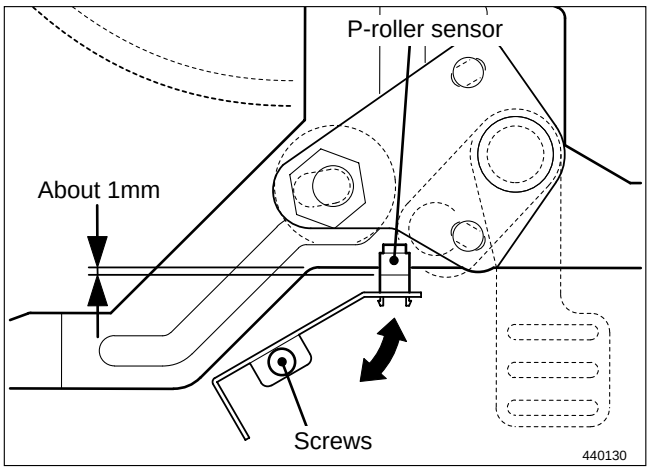
(1) Adjusting the of P-roller Sensor

NOTE :

- **For description of operation.** ➡See page 83

Adjustment procedure

1) Loosen the screw indicated. Then move the sensor bracket up/down to adjust 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 1mm**.



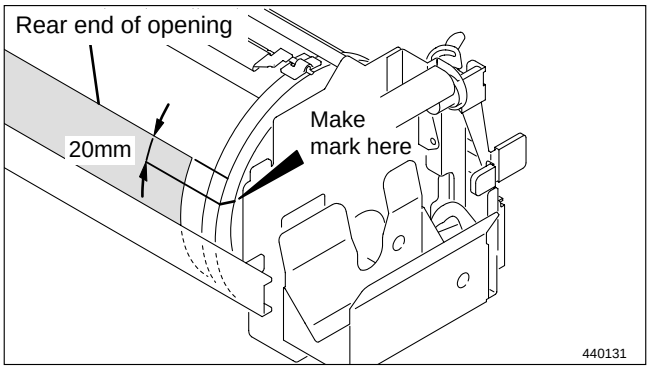
(2) Adjusting the Printing Area (Press OFF Timing)

NOTE :

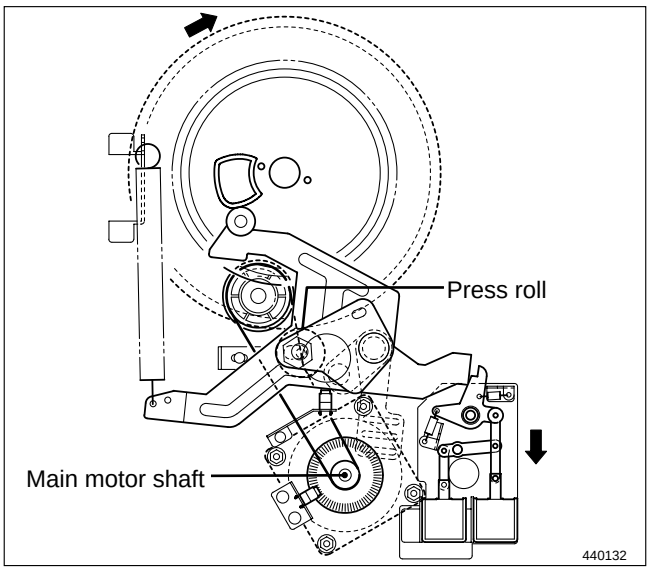
- **For description of operation.** ➡See page 81

Adjustment procedure

1) Make a mark on the end surface of the drum flange, in a position **20mm** forward (in the direction of the forward end) from the rear end of the drum's opening(hole section).



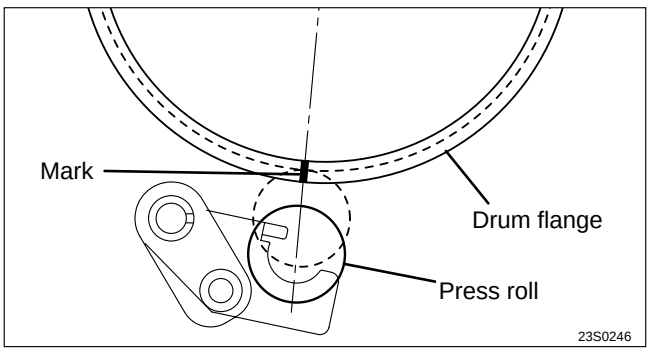
2) With the press roll activated, turn the main motor shaft by hand, and stop turning when the press roll starts to descend (move in the direction of the arrow).



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 end and center of press roll	±2mm

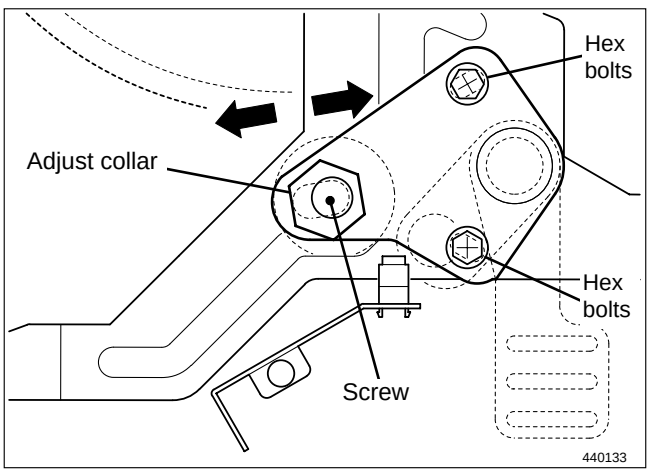


If the alignment is not correct:

1) Loosen the 2 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 ➡ thereby making the printing range longer

Moving the flange downward makes turning off of the press occur earlier ➡ thereby making the printing range shorter



6 Paper Ejection Section

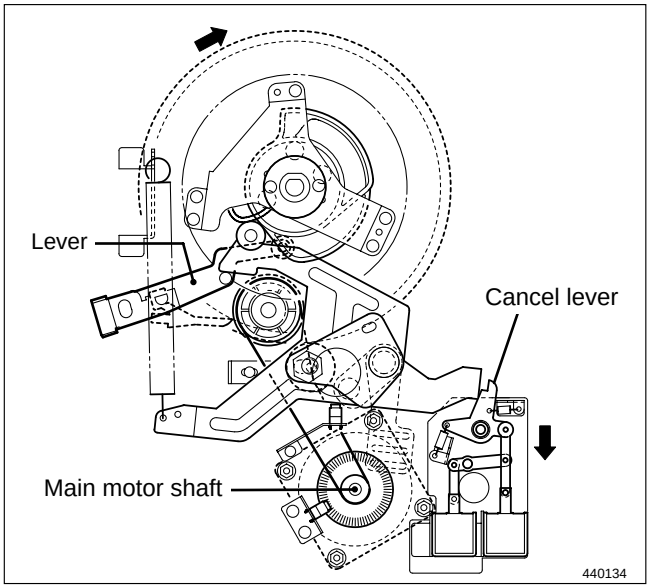
(1) Adjusting the Paper Stripper Finger Clearance

NOTE :

- **For description of operation.** ➡See page 87

Adjustment procedure

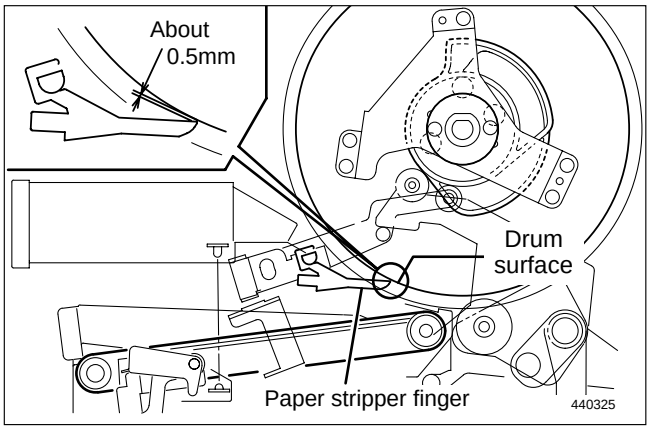
1) With the cancel lever raised up, turn the main motor shaft. Stop turning when the lever's roller is positioned at the bottom of the paper stripper finger cam.



Standard value

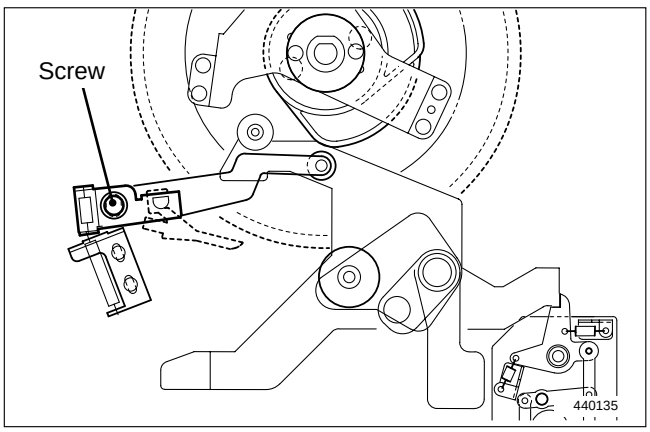
- Check that the clearance between the drum surface and the paper stripper finger conforms to the value shown below.

Item	Standard value
Clearance between drum surface and tip of paper stripper finger	about 0.5mm



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 JOG switch (DRUM ROTATION switch) to return the drum to its home position.**

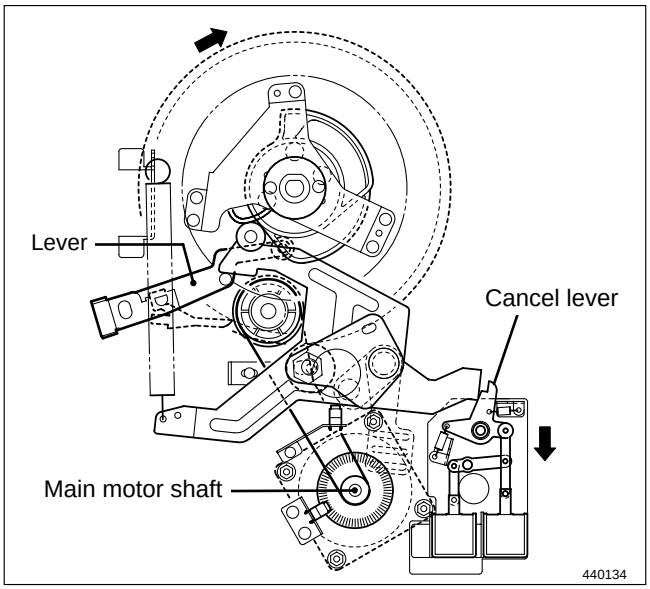
⚠ WARNING

- **Do not touch the drum or rolls when operating the JOG 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.**

(2) Adjusting the Paper Stripper Finger Return Stopper

Adjustment procedure

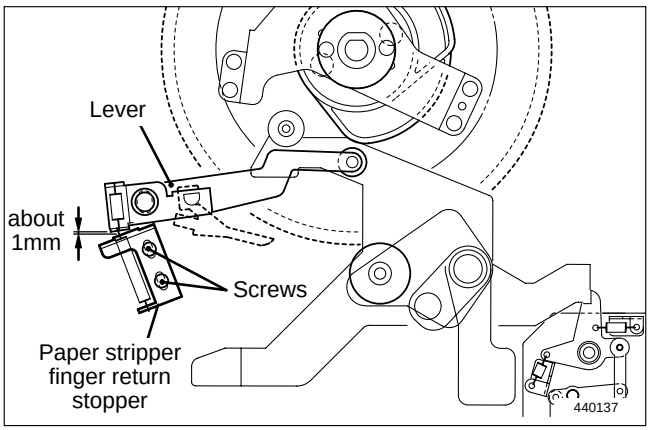
1) Turn the main motor shaft by hand, and stop the press roller at the ON position.



Standard value

- Check that the clearance between the lever and the paper stripper finger return stopper conforms to the value shown below.

Item	Standard value
Clearance between lever and paper stripper finger return stopper	about 1mm



If the clearance is not the standard value:

Loosen the 2 screws indicated and use the stopper to adjust the clearance to the standard value. Then retighten the screws.

After adjustment:

IMPORTANT :

- **After adjustment, press the JOG switch (DRUM ROTATION switch) to return the drum to its home position.**

⚠ WARNING

- **Do not touch the drum or rolls when operating the JOG 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 Drum Section

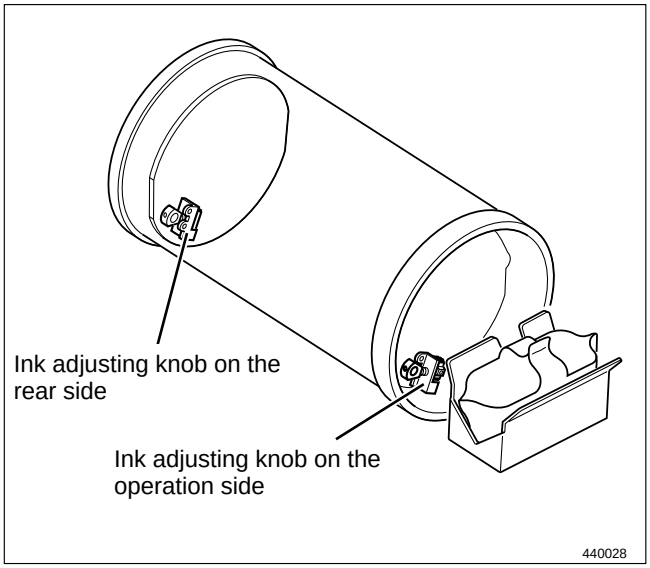
(1) Adjusting the Ink Amount

Adjusting the ink adjusting knob

NOTE :

- **For removal.**

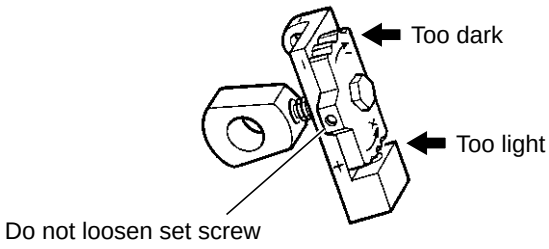
➡See page 139



Adjustment procedure

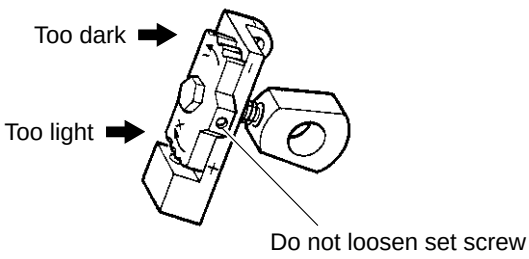
1) When printed too dark or too light on the operation side:
   - **Too dark:** switch in the (-) direction (3 settings)
   - **Too light:** switch in the (+) direction (3 settings)

- **Ink adjusting knob on the operation side (standard position)**



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)

- **Ink adjusting knob on the rear side (standard position)**



3) When printed too dark or too light on the entire surface:
   - **Adjust the above 1) and 2) at the same time.**

IMPORTANT : There are 7 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

NOTE :

- **For removal.**

➡See page 139

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	Standard value
Clearance between squeegee and ink roller	0.03mm-0.04mm

If the clearance is not the standard value

1) 2 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.

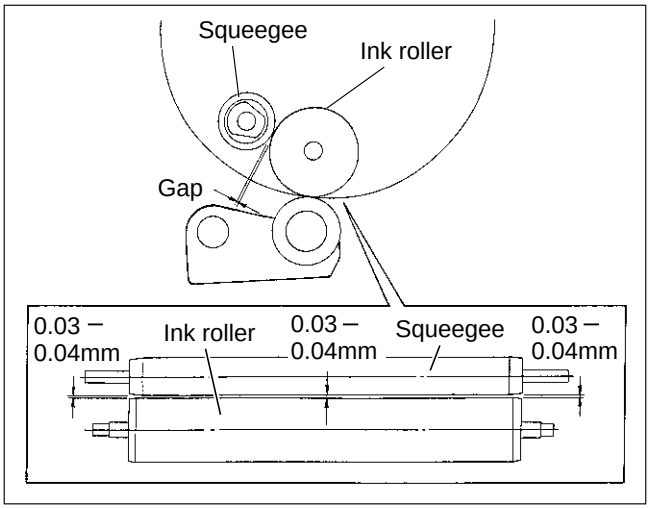
After adjustment

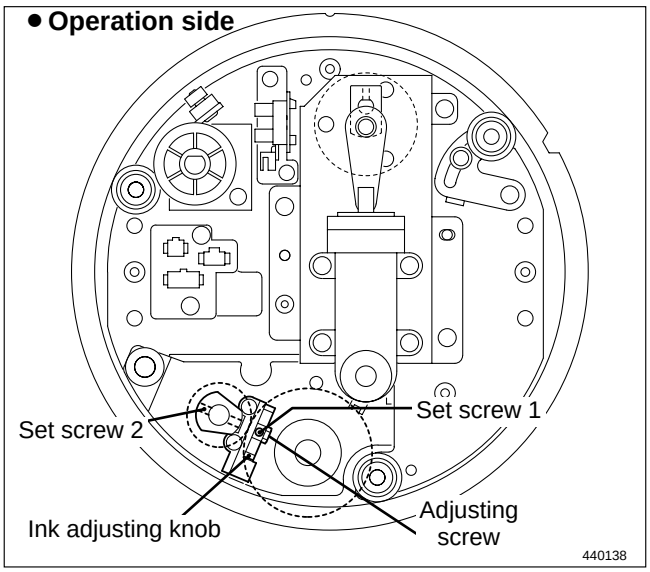
1) Tighten set screw 2.

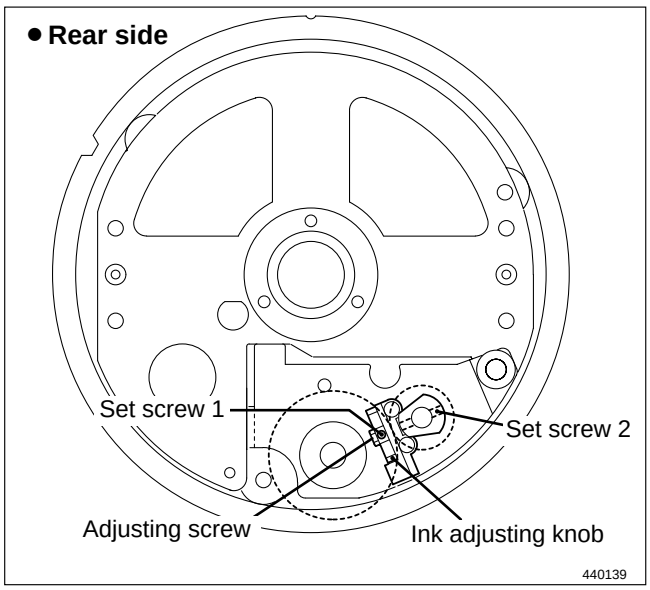
2) Tighten set screw 1.

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 fix.







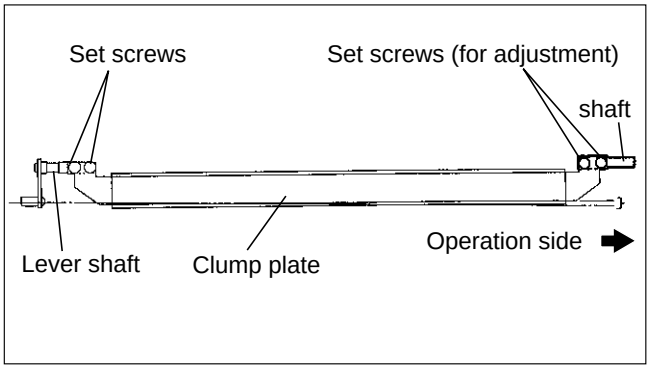
(3) Adjusting the Master Clump

NOTE :

● **For removal.**

➡See page 139

When the master clump parallelism is not proper, the master creases. When the master clump is not flat, the master is easily removed and creases.
* Adjust the master clump with the set screw on the operation side.

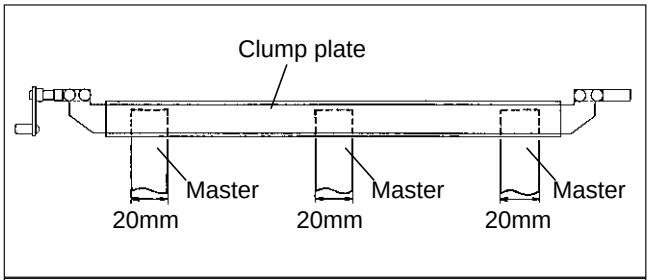


1. Adjusting the clump parallelism

Adjustment procedure

1) Loosen the set screws on the clump plate and shaft to adjust the parallelism.

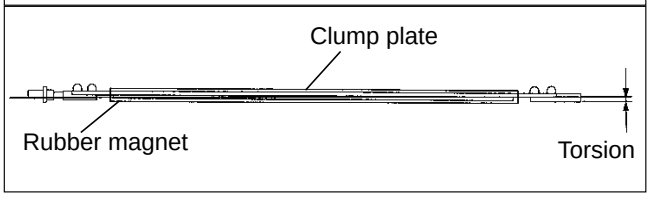
IMPORTANT : Loosen the set screw on the operation side to adjust. But do not loosen the set screw on the lever shaft.



2. Adjusting the clump flatness

Adjustment procedure

1) Cut the master, leaving 20mm wide piece at three places, both sides and center. Have the clump plate grip the three sections.
2) When the resistance for pulling the master out is not stable, rotate the clump screw to adjust.



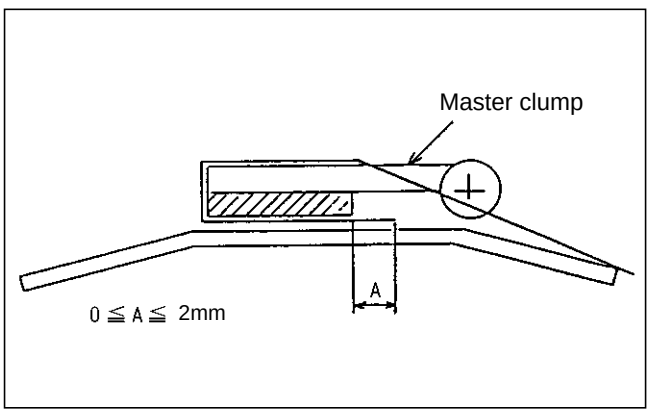
(4) Adjusting the Master Clump Section

Adjustment procedure

1) Adjust with HELP mode 29 so that the clump amount of the master (A section in the figure) is **0~2mm** with the master attached.

HELP mode H-29 ➡ see p.251

2) After HELP 29 adjustment, press the master set switch and perform master set movement once. (Be sure to remove all paper scraps.) Then perform platemaking, and check the gripper margin.

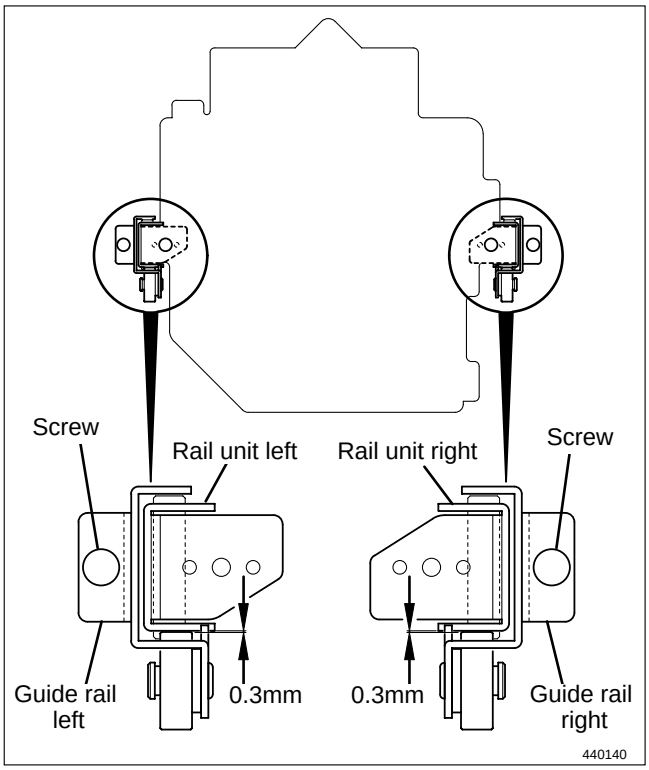


(5) Adjusting the Drum Rail Gap

1. Operation side

Adjustment procedure

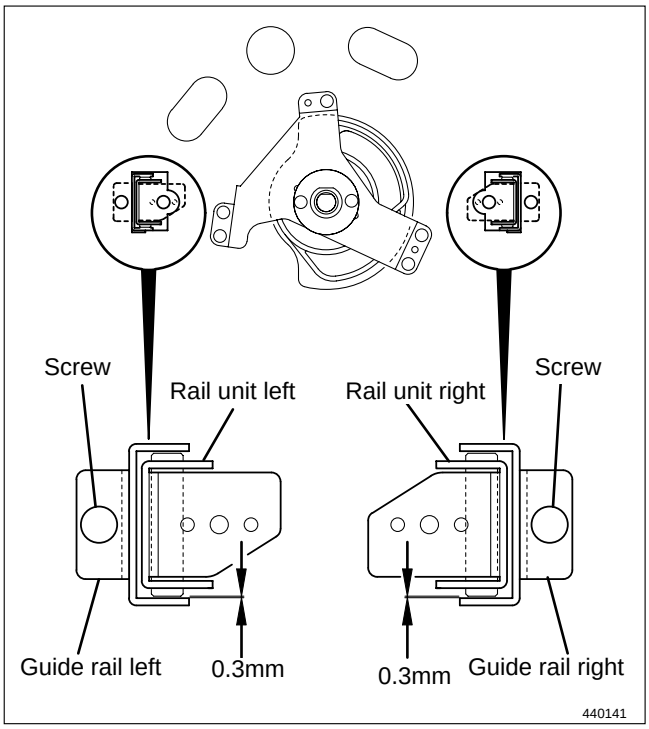
1) Attach the drum to the main body.
2) Loosen the set screw on the rail to adjust so that the gap between the rail (both sides) and the roller on the operation side is about **0.3mm**.
3) Tighten the set screw to fix the rail.



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 **0.3mm**.
3) Tighten the screw to fix the rail.



8 Electrical system

(1) Adjusting Reduction / Enlargement

1. Adjusting the Longitudinal R / E on the Platemaking Side

Adjustment procedure

1) Set the HELP mode.
Turn the power on with the **PRINTING SPEED ADJUSTMENT** keys ◁ and ▷ held down.

2) Set to H-30 (Test pattern printing mode). Press the **PRINT** [◈] key with the 3 and 0 keys held down.
HELP mode H-30 ➡ see p.252

3) Set the plate darkness to **NORMAL**, perform platemaking and **paper***. No need to place the document.
***DP-440/430 : A3** paper
***DP-340/330 : B4** paper

Standard values:

- Check that **A** section of the printed test pattern is **200 ± 0.5mm**.

If the clearance is not the standard value:

1) If not, adjust with the H-22.
HELP mode H-22 ➡ see p.244

2. Adjusting the Longitudinal R / E on the Reading Side

Before adjustment

IMPORTANT : Adjust the longitudinal R / E on the reading side after the longitudinal R / E on the platemaking side.

Adjustment procedure

1) Prepare a basic document as shown in the figure. Draw a line **(pel path direction)** at the position 30mm from the top end of the **paper*** and at the position 200mm from the above line.
***DP-440/430 : A3** paper
***DP-340/330 : B4** paper

2) Place the document on the document table to perform platemaking and printing.

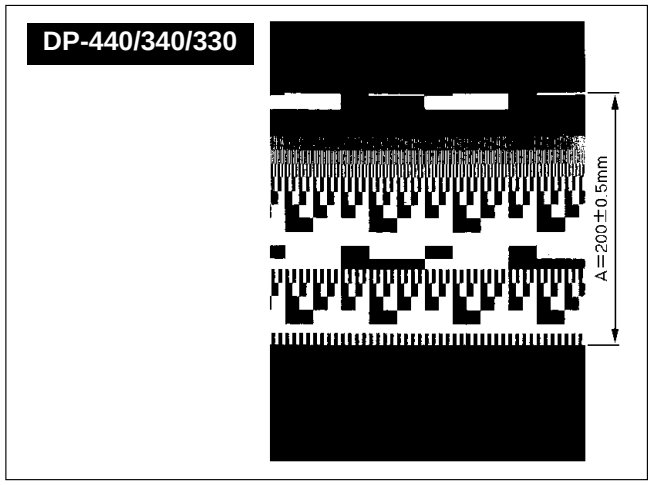
Standard values:

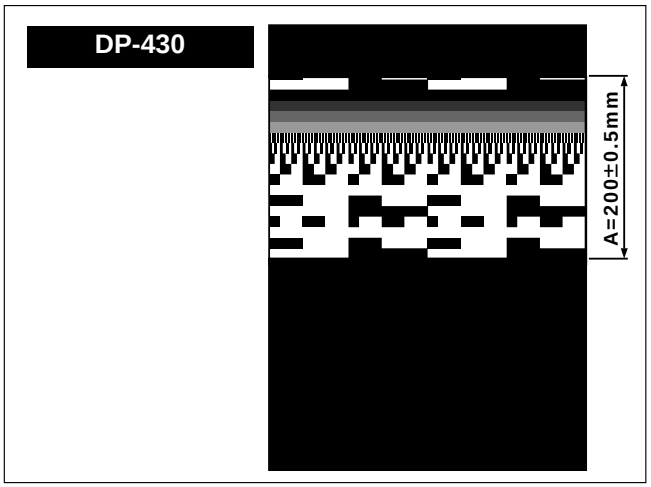
- Compare the size of **A** section of the printed image with that of the basic document. Check that the difference of the size is **±2.0 mm**.

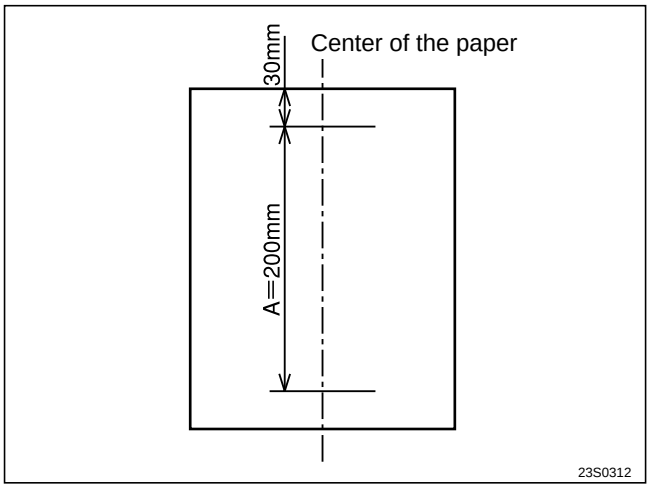
If the clearance is not the standard value:

1) If not, adjust with the H-24.
HELP mode H-24 ➡ see p.246

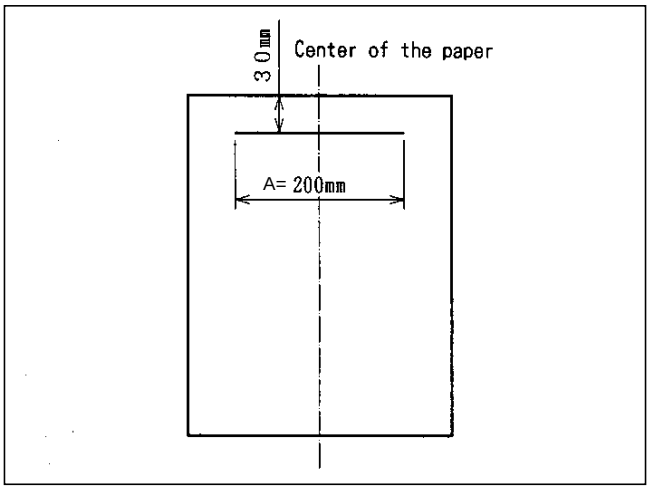
- **Test pattern 2**







3. Adjusting the Lateral R / E on the Reading Side Adjustment procedure



1) Prepare a basic document as shown in the figure. Draw a 200mm-line(pel path direction) at the position 30mm from the top end of the **paper***.

***DP-440/430 : A3** paper

***DP-340/330 : B4** paper

2) Place the basic document on the document table to perform platemaking and printing.

Standard values:

- Compare the size of **A** section of the printed image with that of the basic document. Check that the difference of the size is **±2.0mm**.

If the clearance is not the standard value:

1) If not, adjust with the H-49.

HELP mode H-49 ➡ see p.269

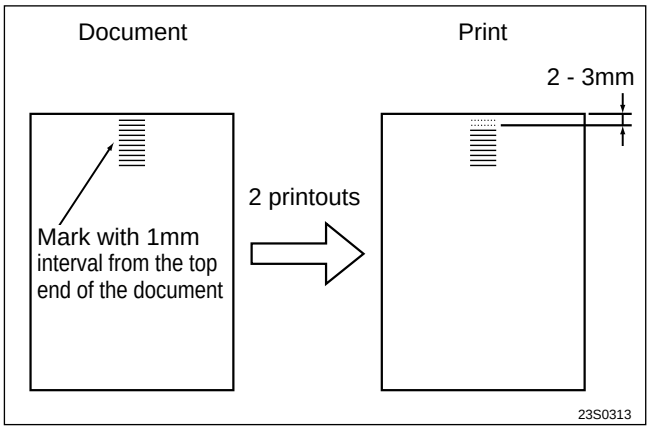
(2) Reading Start Position

1. Adjusting the Top End Reading Start Position

Adjustment procedure

1) Mark with 1mm interval up to 5mm from the top end of the paper to prepare a test document.
2) Perform platemaking and printing to the same size and to two printouts.
3) Adjust with the HELP35 so that the image of the second printout is printed with **3mm** margin left.

HELP mode H-35 ➡ see p.257

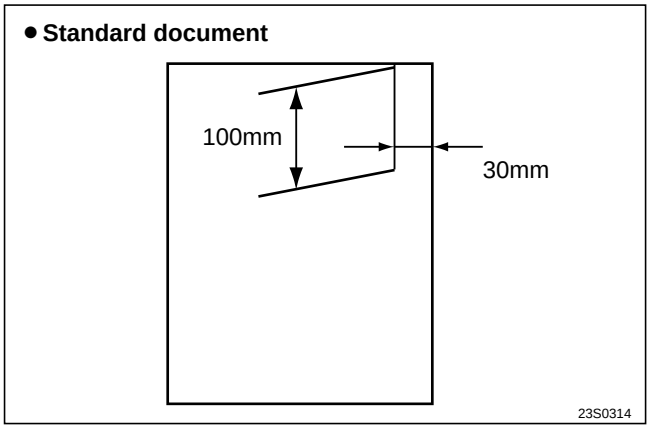


2. Adjusting the Lateral (Operation Side) Reading Start Position

Adjustment procedure

1) Make a standard document (as shown in the figure) from a sheet of **paper***.
Draw a 100mm line at the position **30mm** from the right end and from the top end of the **paper***.

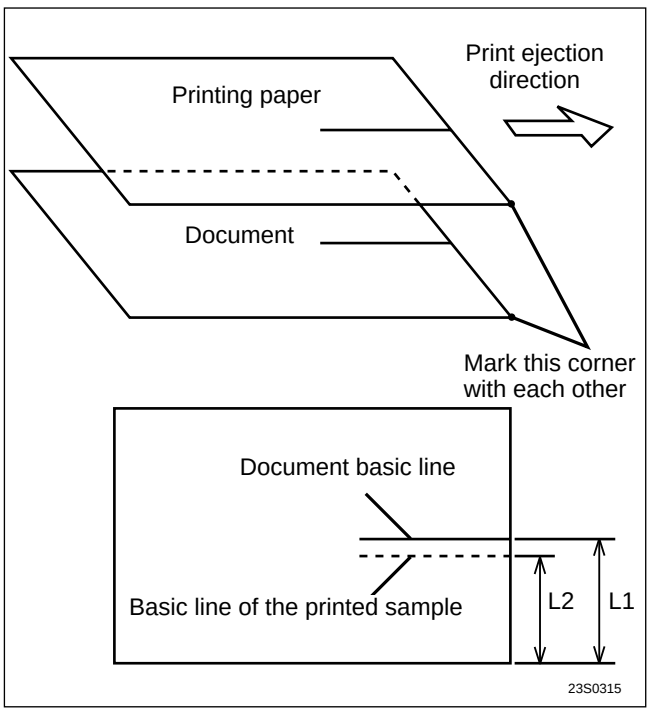
***DP-440/430 : A3** paper
***DP-340/330 : B4** paper



2) Compare the printed image with the basic document.
Check the difference between the straight lines in the pel path direction.

3) Adjust with the HELP H-36 so that **L1 - L2 ≦±3mm**.

HELP mode H-36 ➡ see p.258



Adjusting direction

- **L1<L2 :** Backward
- **L1<L2 :** Toward you

(3) Adjusting the Platemaking Start Position

1. When the Scanner Is in Use

Before adjustment

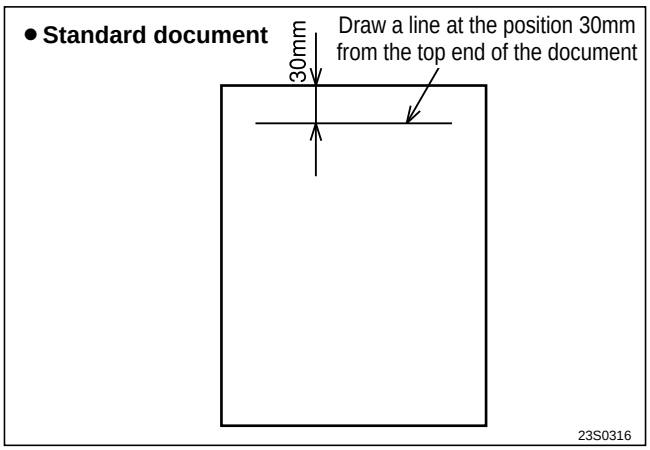
IMPORTANT :

- Adjust the platemaking start position with the scanner in use after the **printing position sensor** ➡See page 162, **master attachment / detachment position** ➡See page 164 and **top end reading start position** ➡See page 175 are adjusted.

Adjustment procedure

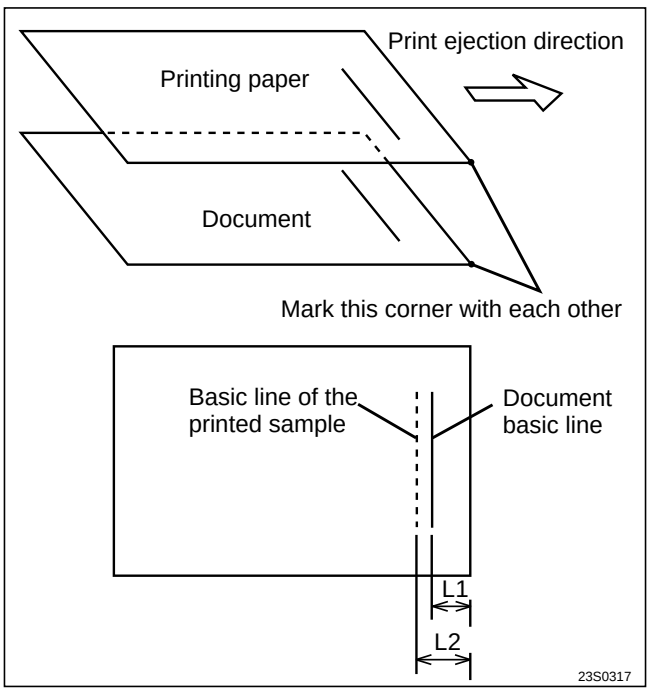
1) Set the printing position (top and bottom direction) to the standard.
2) Draw a line at the position 30mm from the top end of the document and prepare a basic document as shown in the figure.
3) Compare the processed image with the basic document.
   Check the difference of the lines in the line progression direction.
4) Adjust with the HELP mode, H-37 so that **L1 - L2 ≦ ± 3mm**.

HELP mode H-37 ➡ see p.259



Adjusting direction

- **L1<L2 :** Upward
- **L1>L2 :** Downward



2. When in Online

Before adjustment

IMPORTANT :

- Adjust the platemaking start position when in online after the **printing position sensor** ➡See page 162 and **master attachment / detachment position** ➡See page 164 are adjusted.

Adjustment procedure

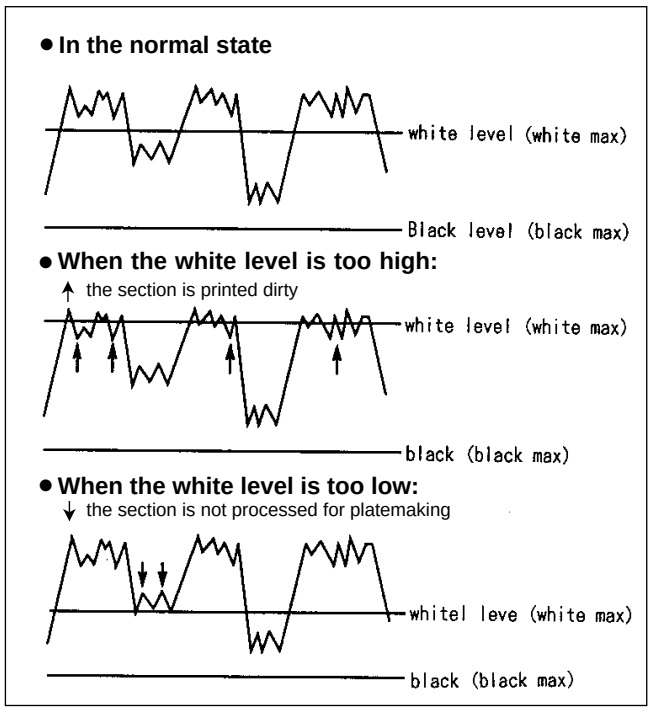
1) Perform platemaking and printing of the online test pattern. Adjust with the HELP mode, H-16 so that the basic line is positioned **± 3mm** from the top end of the paper.

HELP mode H-16 ➡ see p.238

(4) Adjusting the Document Reading Darkness

1. Adjusting the White Level of the Document Darkness

The basic darkness of the document (lightness of the white section of the document = white level) is detected by reading the document darkness. If the white level is not proper, printed surface gets dirty or the light section of the document is not processed for platemaking.



Adjusting the White Level

1) Call the HELP mode.
Take the following procedures for adjustment:-

1. Text mode: H-33

HELP mode H-33 ➡ see p.255

2. Photograph mode: H-26

HELP mode H-26 ➡ see p.248

2) Input the correction value on the keypad, "0" or "1".

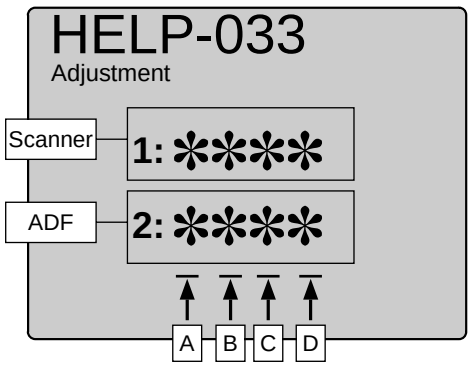
- **When the processed document gets dirty :**
  "0 ✻ ✻ ✻" The white level is corrected down.

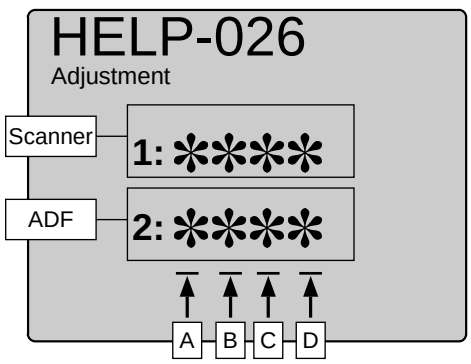
- **When the thin section of the document is not processed for platemaking :**
  "1 ✻ ✻ ✻" The white level is corrected up.

3) Press the = [✻] key to memorize the correction value.

4) Perform platemaking and printing to check the darkness.

● **HELP mode H-33/26 display**





2. Adjusting the Reading Darkness

Adjustment procedure

Adjust the document reading darkness in platemaking as follows:

1) Help mode

Text mode : H-50

HELP mode H-50 ➡ see p.270

Photograph mode : H-23

HELP mode H-23 ➡ see p.245

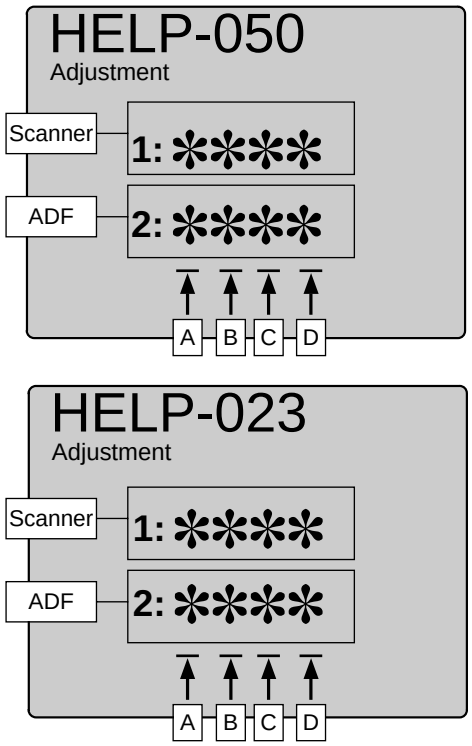
2) Input the correction value on the keypad, **"1"** or **"0" (Sign flag / Collection amount display)**.

3) Press the = key to memorize the correction value

4) Perform platemaking and printing to check the darkness.

- **When adjusted with the H-23 by one stage, the standard position on the control panel changes to 3/8 stage.**

● **HELP mode H-50/23 display**



(5) Adjusting of Printer Unit's Printing Speed

1. Pre-stop Speed Adjustment

Adjustment procedure

1) Access HELP mode H-01.

HELP mode H-01 ➡ see p.218

2) Press the ▲ and/or ▼ key to select item.

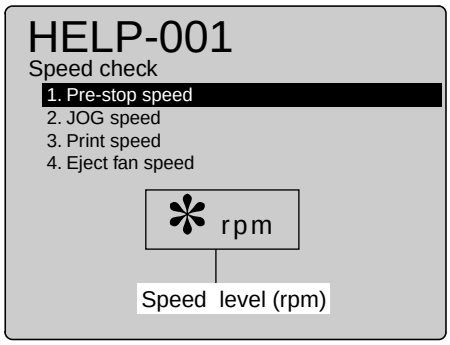
3) Check the speed value displayed. The value should be **4-6rpm**.

If the value is not correct:

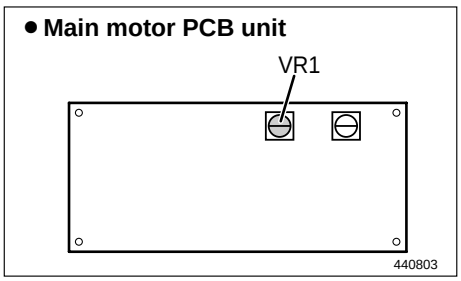
- Turn the main motor PCB unit's **VR1** to adjust the displayed value to within the correct range.

4) Press the **STOP** ⊘ key. The new (adjusted) value will be memorized, and the HELP mode menu will reappear.

- **HELP mode H-01 display**



- **Main motor PCB unit**



2. JOG Speed Adjustment

Adjustment procedure

1) Access HELP mode H-01.

HELP mode H-01 ➡ see p.218

2) Press the ▲ and/or ▼ key to select item.

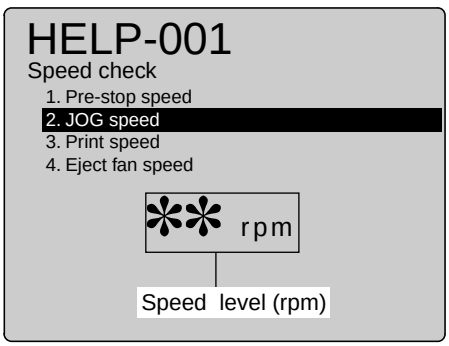
3) Check the speed value displayed. The value should be **16rpm**.

If the value is not correct:

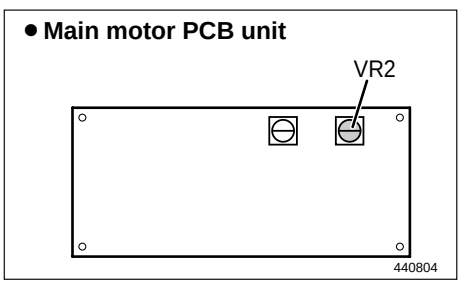
- Turn the main motor PCB unit's **VR 2** to adjust the displayed value to the correct value.

4) Press the **STOP** ⊘ key. The new (adjusted) value will be memorized, and the HELP mode menu will reappear.

- **HELP mode H-01 display**



- **Main motor PCB unit**



3. Adjustment of Printing Speeds 1-5

1) Access HELP mode **H-01**, and press the **PRINT** key.

HELP mode H-01 ➡ see p.219

2) Press the ▲ and/or ▽ key to select the **Print speed** item.

3) Press the ◁ and/or ▷ **PRINTING SPEED ADJUSTMENT** key to select the **speed 1** item.

4) Check the indicated speed level The value should be **50rpm**.
- **Printing Speed 1 is now set to 50rpm.**

If the value is not correct:
- Use the ▲ and/or ▽ key to adjust the displayed value to the correct value.

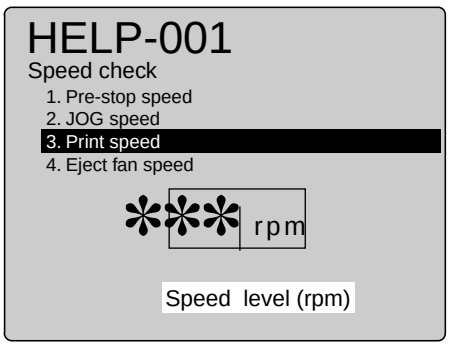
5) To set Speeds 2 through 4, repeat steps 2) through 4) above, substituting the appropriate speed for Speed 1 in step 2), and making the appropriate settings given below.

6) Settings for Speeds 2 through 5:

Printing speed	DP-440/430	DP-340/330
1 st speed	50 rpm	50 rpm
2 nd speed	72 rpm	72 rpm
3 th speed	85 rpm	85 rpm
4 th speed	105 rpm	105 rpm
5 th speed	125 rpm	135 rpm

7) Press the **STOP** ▽ key. The drum will stop rotating, the settings will be memorized, and the HELP mode selection display will reappear.

- **HELP mode H-01 display**



4. To Initialize Speed Settings:

1) Access HELP mode H-01.

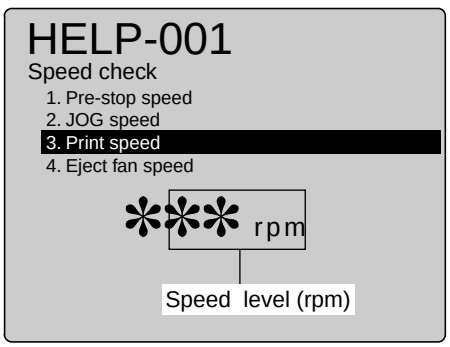
HELP mode H-01 ➡ see p.219

2) Press the ▲ and/or ▽ key to select the **Print speed** item.
3) Press the [=] ✳ and **CLEAR** C key. The settings will be initialized.
4) Press the **STOP** ▽ key. The HELP mode menu will reappear.

NOTE :

- **After initialization, new speed values must be set.**

- **HELP mode H-01 display**



(6) Eject Fan Speed Adjustment

1. Adjustment of Eject Fan Speeds 1-5

1) Access HELP mode **H-01**, and press the **PRINT** key.

HELP mode H-01 ➡ see p.220

2) Press the ∧ and/or ∨ key to select the **Eject fan speed** item.

3) Press the ◁ and/or ▷ **PRINTING SPEED ADJUSTMENT** key to select the **speed 1** item.

4) Check the indicated speed level The value should be **130rpm**.
- **Eject fan Speed 1 is now set to 130rpm.**

If the value is not correct:

- Use the ∧ and/or ∨ key to adjust the displayed value to the correct value.

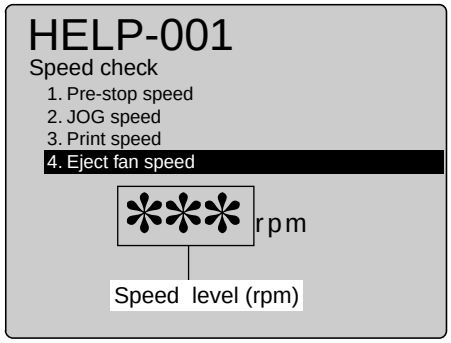
5) To set Speeds 2 through 4, repeat steps 2) through 4) above, substituting the appropriate speed for Speed 1 in step 2), and making the appropriate settings given below.

6) Settings for Speeds 2 through 5:

Eject fan speed	DP-440/430	DP-340/330
1 st speed	130 rpm	130 rpm
2 nd speed	150 rpm	150 rpm
3 th speed	165 rpm	165 rpm
4 th speed	190 rpm	190 rpm
5 th speed	225 rpm	235 rpm

7) Press the **STOP** ⓥ key. The drum will stop rotating, the settings will be memorized, and the HELP mode selection display will reappear.

- **HELP mode H-01 display**



2. To Initialize Speed Settings:

1) Access HELP mode H-01.

HELP mode H-01 ➡ see p.220

2) Press the ∧ and/or ∨ key to select the **Eject fan speed** item.

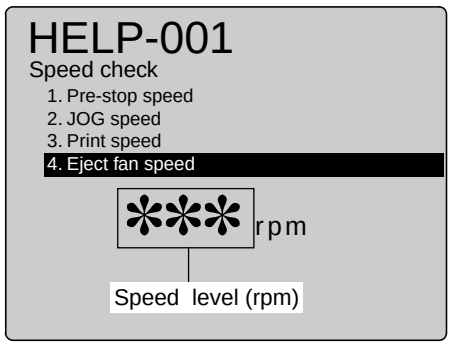
3) Press the [=] ✳ and **CLEAR** C key. The settings will be initialized.

4) Press the **STOP** ⓥ key. The HELP mode menu will reappear.

NOTE :

- **After initialization, new speed values must be set.**

- **HELP mode H-01 display**

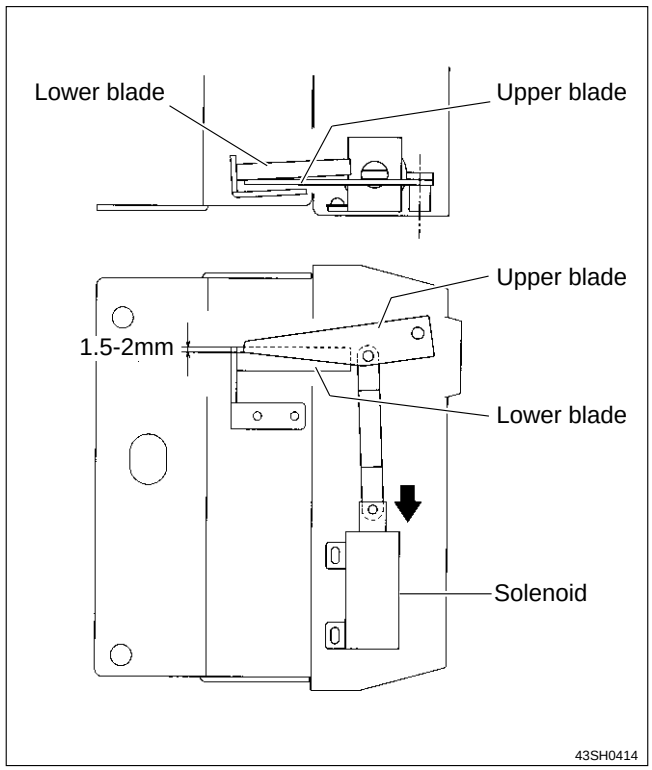


9 Option

(1) Adjusting and Replacing the Upper / Lower Blade for the TAPE CLUSTER

Adjustment procedure

1) When the solenoid is pulled manually, adjust the solenoid position up and down so that the upper blade edge is positioned **1.5 - 2.0 mm** lower than the lower blade.
2) At the same time, adjust the space with the adjusting washer so that the space of the blades is **about 0.5 mm** when seen from the top.



MEMO

Chapter 5 Maintenance/Check

1 Guaranteed Periodical Maintenance

• The serviceman 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 serviceman is called by telephone, the following maintenance must be performed after clearing the trouble.

1. **Cleaning the document.**
2. **Cleaning the document table 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 soap.
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) 6-month Periodical Checking

Section to be checked	Description	Remarks
Shading plate	Cleaning	Clean with a soft and clean cloth
Glass	Cleaning	Clean with a soft and clean cloth
Lamp	Cleaning	Clean with a soft and clean cloth
Reflection mirror	Cleaning	Remove dust with blower brush
Thermal head	Cleaning	Clean with a soft and clean cloth (Do not damage the thermal head)
Platen roller	Cleaning	Remove paper shreds (Do not damage the platen roller)
Sensor	Cleaning	Remove dust with 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
Plate making section	Checking	Paper is fed smoothly. Remove paper shreds
Roller shaft / bearing	Oiling	
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 plates or one year	Up to 10 voids
4	Drum unit	Printing 1,000,000 sheets or one year	Overhaul
5	Air pump	Printing 1,000,000 sheets or one year	
6	Tape cutter upper/lower blade	Cutting 10,000 times or one year	
7	Press roller	1,000,000 sheets or one year	
8	Lamp	10,000 plates or one year	

MEMO

Chapter 6 Troubleshooting

6

1 Troubleshooting Guide

1. 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 List

Massage	Remarks	No.	Page
ADD PAPER		(19)	199
CHANGE INK		(23)	201
CHANGE MASTER		(22)	200
CHANGE MASTER EJECTION CORE		(27)	203
E001		(3)	190
E002		(4)	191
E005		(5)	192
E006		(6)	192
E008		(7)	193
E009		(8)	193
E011		(9)	194
E013		(10)	194
E014	Machine with LPU connected	(11)	195
E016		(12)	195
FRONT COVER OPEN		(20)	199
MASTER SETTING ERROR		(14)	196
NO DRUM		(13)	196
PAPER JAM ON THE EJECTION SIDE		(25)	202
PAPER JAM ON THE FEEDER SIDE		(26)	203
PLATE EJECTION ERROR		(17)	198
PLEASE INSERT CARD		(24)	201
SCANNER OPEN		(21)	200

▶ Error item List

Item	Remarks	No.	Page
Lamp does not Light Up		(1)	189
Malfunction of Master Feeding Clutch		(15)	197
Malfunction of Master Stepping Motor		(16)	197
Malfunction of Roll-up Motor		(18)	198
Optical System Dose Not Move Forward/Backward		(2)	190
Paper Jams in the Paper Eject Side		(29)	205
Paper Jams in the Paper Feed Side		(28)	204

(1) Lamp does not Light Up

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Regulated power supply	**1**	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **2**.
Drive PCB Unit	**2**	Measure the drive PCB unit CN5-1 (+) and CN5-3(GND) with the tester. Is it +24V?	NO	Replace the drive PCB Unit.
	3	Does the lamp light up when the drive PCB unit CN9-9 produces a short circuit to GND?	YES	Follow the procedure **5**.
Drive PCB Unit	**4**	Is the cause cleared by replacing the drive PCB Unit?	YES	Finish.
Main PCB Unit			NO	Replace the main PCB Unit.
Lamp	**5**	Is the cause cleared by replacing the lamp?	YES	Finish.
Inverter PCB Unit			NO	Replace the inverter PCB Unit.
Thermal head	**6**	Is the cause cleared by replacing the thermal head?	YES	Finish.
Thermal head PCB Unit			NO	Replace the thermal head PCB Unit.
Motors	**7**	Remove the drive PCB Unit CN5 and follow the procedure **1**. Is the voltage +24V? (CN1 is inserted)	YES	At the CN5 bundled wire or motors +24V produces a short-circuit to GND.

(2) Optical system dose not move forward/backward

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Wire or timing belt is cut or removed.	**1**	Are the optical system driving wire and timing belt attached properly?	NO	Attach the wire and timing belt properly.
There is a foreign object on the optical system moving way.	**2**	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.
Regulated power supply	**3**	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **4**.
Drive PCB Unit	**4**	Is the cause cleared by replacing the drive PCB Unit?	YES	Finish.
Main PCB Unit			NO	Replace the main PCB Unit.
Lamp	**5**	Is the cause cleared by replacing the lamp?	YES	Finish.
Inverter PCB Unit			NO	Replace the inverter PCB Unit.
Thermal head PCB Unit	**6**	Is the cause cleared by replacing the thermal head?	YES	Finish.
Motors	**7**	Remove the drive PCB Unit CN5 and follow the procedure **3**. Is the voltage +24V?	YES	At the CN5 bundled wire or motors +24V produces a short-circuit to GND.

(3) "E001" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
	1	Does drum rotate?	NO	Proceed to procedure **5**.
Motor PCB unit	**2**	Is trouble cleared by replacing motor PCB unit?	YES	Finish.
Main PCB unit			NO	Replace main PCB unit.
Drum interferes with body.	**3**	Does main motor rotate without drum?	YES	Eliminate interference.
Drive system gear broken or blocked with foreign matter.	**4**	Does main motor rotate without the driving timing belt?	YES	Check if drive system gear is broken or blocked with foreign matter and remove cause.
Regulated power supply	**5**	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
Main motor PCB unit	**6**	Is the trouble cleared by replacing main motor PCB unit?	YES	Finish.
Main motor			NO	Replace main motor.

(4) "E002" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Feed tray operation is defective	**1**	Does the feed tray operate smoothly when moved up/down by hand?	YES	Remove the cause of defective operation. Lean or catch?
	2	Check with the HELP modes, H-05, H-07. Are the elevator top limit sensor and the elevator bottom limit switch noraml?	NO	• Follow the procedure **7** when the elevator top limit sensor is defective. • Follow the procedure **10** when the elevator bottom limit sensor is defective.
Regulated power supply	**3**	Remove the drive PCB Unit CN5. Measure the voltage between the regulated power supply, +S(+24), -S (GND) with the tester. Is the voltage +24 V?	NO	Replace the regulated power supply.
Elevator motor	**4**	Measure the voltage between the main PCB Unit CN8-4 (+) and CN8-3 (-) with the tester at the timing of the elevator motor operation. Is the voltage +24V whether the elevator motor relay connector is inserted or not?	YES	Replace the elevator motor.
Drive PCB Unit	**5**	Is the cause cleared by replacing the drive PCB Unit?	YES	Finish.
Elevator motor			NO	Replace the elevator motor.
Main PCB Unit	**6**	Measure the voltage between the main PCB Unit CN1-6 (+) and GND with the tester. Is the voltage of the elevator top limit sensor 0V at the time of phototopassing and 5V at the time of phototinterrupting?	YES	Replace the main PCB Unit.
Main PCB Unit	**7**	Measure the voltage between the main PCB Unit CN1-6 (+) and CN1-1 (GND) with the tester. Is the voltage +5V?	NO	Replace the main PCB Unit.
Elevator top limit sensor			YES	Replace the elevator top limit sensor.
DC-DC PCB Unit	**8**	Measure the voltage between the DC-DC PCB Unit CN4-1 (GND) and CN4-6 (+) with the tester. Is the voltage +5V?	YES	Replace the DC-DC PCB Unit.
			NO	Follow the procedure **9**.
Regulated power supply	**9**	Measure the voltage between the regulated power supply,CN1-1(GND) and CN1-3(+) with the tester. Is it +24V?	NO	Replace the regulated power supply.
Elevator bottom limit SW	**10**	Check the elevator bottom limit switch with the tester. Is the switch turned on or off normally?	NO	Replace the elevator bottom limit SW.
Main PCB Unit			YES	Replace the main PCB Unit.

* HELP mode H-05 ➡ see p.224
HELP mode H-07 ➡ see p.228

(5) "E005" is displayed

* HELP mode H-02 ➡ see p.221
** HELP mode H-05 ➡ see p.224

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the ink roller up/down motor turn when it is checked using HELP02*?	YES	Follow the procedure **5**.
Ink roller up/down motor	2	Using a tester, measure the voltage between CN21-13 (+) and CN21-15 (GND) when the ink roller up/down motor is activated using HELP02*. Is it +24V?	YES	Check the bundled wire. If OK, replace the ink roller up/down motor.
Regulated power supply	3	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **4**.
Drive PCB unit	4	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Check the connector and bundled wire between the drive PCB unit CN3 and the main PCB CN1. If OK, replace the main PCB unit.
Ink roller up/down sensor	5	Does the ink roller up/down sensor status when it is checked using HELP05**?	YES	Replace ink roller up/down sensor.

(6) "E006" is displayed

* HELP mode H-02 ➡ see p.221

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does contact pressure motor turn when it is checked using HELP02*?	YES	Follow the procedure **5**.
Contact pressure motor	2	Using a tester, measure the voltage between CN12-8 (+) and CN12-9 (GND) when the contact pressure motor is activated using HELP02*. Is it +24V?	YES	Check the bundled wire. If OK, replace the contact pressure motor.
Regulated power supply	3	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **4**.
Drive PCB unit	4	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB			NO	Check the connector and bundled wire between the drive PCB unit CN1 and the main PCB CN3. If OK, replace the main PCB unit.
Pressure encoder sensor	5	Turn the pressure encoder sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace t pressure encoder sensor.

(7) "E008" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
I/F PCB Unit	1	Is the cause cleared by replacing the I/F set PCB Unit ?	YES	Finish.
Online code	2	Is the cause cleared by replacing the online code ?	YES	Finish.
IPC I/F PCB Unit	3	Is the cause cleared by replacing the IPC I/F PCB Unit ?	YES	Finish.
P-memory PCB Unit	4	Is the cause cleared by replacing the P-memory PCB Unit ?	YES	Finish.
Main PCB Unit			NO	Check the bundled wire between the I/F PCB unit CN4 and the P-memory PCB CN3. If OK, replace the main PCB unit.

(8) "E009" is displayed

* HELP mode H-03 ➡ see p.222

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Thermal head	1	Disconnect all the thermal head connectors, and cheked using HELP03* (Thermal head power source). DP-440/340 : Is the voltage 16-18V approx.? DP-430/330 : Is the voltage 24V approx.?	YES	Chech the bundled wire and connector. If OK, replace the thermal head.
DC-DC PCB Unit	2	In platemaking, measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	YES	Chech the bundled wire and connector. If OK, replace the DC-DC PCB Unit.
Regulated power supply			NO	Replace the regulated power supply.

(9) "E011" is displayed

* HELP mode H-02 ➡ see p.221
** HELP mode H-05 ➡ see p.224

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does thermal head up/down motor turn when it is checked using HELP02*?	YES	Follow the procedure **5**.
Thermal head up/down motor	2	Using a tester, measure the voltage between CN14-9 (+) and CN14-10 (GND) when the thermal head up/down motor is activated using HELP02*. Is it +24V?	YES	Check the bundled wire. If OK, replace the thermal head up/down motor.
Regulated power supply	3	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **4**.
Drive PCB unit	4	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB			NO	Check the connector and bundled wire between the drive PCB unit CN1 and the main PCB CN3. If OK, replace the main PCB unit.
Thermal head position sensor position	5	Does the thermal head position sensor status when it is checked using HELP05**?	YES	Adjust the thermal head position sensor.
Thermal head position sensor	6	Turn the thermal head position sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace thermal head position sensor.
Main PCB Unit			YES	Check the bundled wire. If OK, replace the main PCB unit.

(10) "E013" is displayed

* HELP mode H-05 ➡ see p.224
** HELP mode H-10 ➡ see p.232

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does scanner stepping motor turn when it is checked using HELP10*?	YES	Follow the procedure **5**.
Regulated power supply	2	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **3**.
Drive PCB unit	3	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB Unit			NO	Check the connector and bundled wire between the drive PCB unit CN1 and the main PCB CN3. If OK, replace the main PCB unit.
Scanner home position sensor position	4	Does the scanner home position sensor status when it is checked using HELP05**?	YES	Adjust the scanner home position sensor.
Scanner home position sensor	5	Turn the scanner home position sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace scanner home position sensor.
Main PCB Unit			YES	Check the bundled wire. If OK, replace the main PCB unit.
Scanner stepping motor	6	Does replacing the scanner stepping motor solve the problem?	YES	Finish.

(11) "E014" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Execute printing in the regular mode. Does the guide roller drive motor turn?	YES	Follow the procedure **5**.
Guide roller motor	2	Execute printing in the regular mode, and measure the voltage between the drive PCB unit's CN9-1 (+) and CN9-2 (GND). Is the voltage +24V?	YES	Check the bundled wire. If OK, replace the guide roller motor.
Regulated power supply	3	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **4**.
Drive PCB unit	4	Does replacing the drive PCB unit solve the problem?	YES	Finish
Main PCB			NO	Check the connector and bundled wire between the drive PCB unit CN1 and the main PCB CN3. If OK, replace the main PCB unit.
Guide roller sensor	5	Does replacing the guide roller sensor solve the problem?	YES	Finish.

(12) "E016" is displayed

* HELP mode H-02 ➡ see p.221
** HELP mode H-05 ➡ see p.224

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does drum shift motor turn when it is checked using HELP02*?	YES	Follow the procedure **5**.
Regulated power supply	2	Measure the voltage between the regulated power supply, +S (+24) and -S(GND) with the tester. Is it +24V?	NO	Measure the voltage between L and N of the regulated power supply with the tester. If it is 100V, replace the regulated power supply.
			YES	Follow the procedure **3**.
Drive PCB unit	3	Does replacing the drive PCB unit solve the problem?	YES	Finish
Main PCB			NO	Check the connector and bundled wire between the drive PCB unit CN1 and the main PCB CN3. If OK, replace the main PCB unit.
Drum limit /center sensor position	4	Does the drum limit /center sensor status when it is checked using HELP05**?	YES	Adjust the drum limit /center sensor.
Drum limit /center sensor	5	Turn the drum limit /center sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace drum limit /center sensor.
Main PCB Unit			YES	Check the bundled wire. If OK, replace the main PCB unit.
Drum shift motor	6	Does replacing the drum shiftmotor solve the problem?	YES	Finish.

(13) "NO DRUM" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Drum setting.	1	Is trouble cleared by setting drum again?	YES	Finish.
Main PCB unit	2	Does drum SW checked by HELP mode (H-08)* prove to be normal?	YES	Check if drum SW is installed in place and replace main PCB unit.
Drum SW	3	Does drum SW checked by volt-ohm-milliammeter prove to be normal?	NO	Replace drum SW.
Main PCB unit			YES	Check if drum SW is installed in place and replace main PCB unit.

* HELP mode H-08 ➡ see p.230

(14) "MASTER SETTING ERROR" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
End mark sensor PCB unit	1	Has "MASTER SETTING ERROR" actually occurred?	NO	Adjust VR for end mark sensor by HELP mode (H-07)*. If unable,replace end mark sensor PCB unit. **IMPORTANT: VR must be adjusted after replacement of end mark sensor PCB unit.**
Master feeding clutch	2	Does master feeding clutch operate normally?	NO	Refer to "(15) Malfunction of master feeding clutch". ➡ see page 197
Master stepping motor	3	Does master stepping motor operate normally?	NO	Refer to "(16) Malfunction of master stepping motor". ➡ see page 197
Cutter unit	4	Is master cut normally?	NO	Replace cutter unit.
Static electricity	5	Is static-eliminating brush on master feeding unit damaged or deteriorated?	YES	Remove static-eliminating brush.
Master	6	Is trouble cleared by replacing master?	YES	Finish.
Transfer path			NO	Remove any foreign matter in transfer path.

* HELP mode H-07 ➡ see p.228

(15) Malfunction of Master Feeding Clutch

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Regulated power supply	**1**	Does voltage between regulated power supply +S (+24) and -S (GND) show 24V?	NO	Replace regulated power supply.
Master feeding clutch	**2**	Does voltage between drive PCB unit CN9-5 (+) and -6 (GND) show 24V when master feeding clutch is turned on?	YES	Check wiring and replace master feeding clutch.
Drive PCB unit	**3**	Is trouble cleared by replacing drive PCB unit?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

(16) Malfunction of Master Stepping Motor

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Load on drive system	**1**	Is trouble cleared by adjusting tension of the master feeding unit timing belt or supplying oil to bearing?	YES	Finish.
Regulated power supply	**2**	Does voltage between regulated power supply +S (+24) and -S (GND) show 24V?	NO	Replace regulated power supply.
Drive PCB unit	**3**	Is trouble cleared by replacing drive PCB unit?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

(17) "PLATE EJECTION ERROR" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
	1	Has “PLATE EJECTION ERROR” actually occurred?	YES	Proceed to procedure **5**.
Foreign material or dirt on sensors.	**2**	Are there any foreign matter or dirt between the master ejection sensor photo-receiving and the master ejection sensor photo-emitting PCB?	YES	Remove any foreign matter and clean.
Master ejection sensor photo-receiving	**3**	Is trouble cleared by replacing the master ejection sensor photo-receiving ?	YES	Finish.
Master ejection sensor photo-emitting PCB	**4**	Is trouble cleared by replacing the master ejection sensor photo-emitting PCB?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.
Roll-up motor	**5**	Does roll-up motor rotate normally?	NO	Refer to “(18) Malfunction of roll-up motor”.
Master clump dirty.	**6**	Is the master clump section dirty with ink or oil?	YES	Clean master clump section.
Master ejection box	**7**	Is stripper finger or springs damaged?	YES	Replace any damaged stripper finger or springs.
Drum master ejection stop position	**8**	Is the drum master ejection stop position within reference value?	NO	Adjust the drum master ejection stop position.
C mode			YES	Check and adjust C mode.

(18) Malfunction of Roll-up Motor

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Roll-up motor	**1**	Does voltage between drive PCB unit CN9-24 (+) and -25 (GND) show 24V when roll-up motor is operated with HELP mode (H-02)*****?	YES	Replace roll-up motor .
Regulated power supply	**2**	Does voltage between regulated power supply +S (+24) and -S (GND) show 24V?	NO	Replace regulated power supply.
Drive PCB unit	**3**	Is trouble cleared by replacing drive PCB unit?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

* HELP mode H-02 ➡ see p.221

(19) "ADD PAPER" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Paper detection sensor	1	When paper sensor is checked using HELP mode (H-05), does it indicate "1" when paper is absent and "0" when paper is present?	NO	Replace paper detection sensor .
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

* HELP mode H-05 ➡ see p.224

(20) "FRONT COVER OPEN" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Front cover SW position	1	Is front cover SW pressed when front cover is set?	NO	Adjust front cover SW position.
Front cover SW	2	When front cover SW is checked with volt-ohm-milliammeter, does it OPEN if switch is pressed (front cover open) and CLOSE if released (front cover close)?	NO	Replace front cover SW .
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

(21) "SCANNER OPEN" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Scanner switch position	1	Is the scanner switch pressed when document receiving tray is closed?	NO	Adjust the scanner switch position.
Scanner switch	2	When the scanner switch is checked with volt-ohm-milliammeter, does it CLOSE if switch is pressed and OPEN if released?	NO	Replace the scanner switch.
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

(22) "CHANGE MASTER" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Adjustment for the end mark sensor PCB unit.	1	Is trouble cleared by adjusting the end mark sensor PCB unit (PS3) by HELP mode (H-07)*?	YES	Finish.
End mark sensor PCB unit	2	Is trouble cleared by replacing the end mark sensor PCB unit?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

* HELP mode H-07 ➡ see p.228

(23) "CHANGE INK" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Ink	**1**	Is enough ink left in ink pack?	NO	Replace ink pack.
Setting method of ink pack.	**2**	Is ink pack set properly?	NO	Set ink pack properly and teach user how to set one.
Main PCB unit	**3**	Is LED on the ink detection PCB unit lit?	YES	Check bundled wire and connectors and replace main PCB unit.
Ink detection PCB unit	**4**	Is enough ink left in drum? (Has ink reached detection needle for the ink detection PCB unit?)	YES	Replace Ink detection PCB unit.
	5	Does ink pump operate?	NO	Proceed to procedure **7**.
Foreign material in ink pump	**6**	Is trouble cleared by cleaning inside of ink pump?	YES	Finish.
Ink pump			NO	Replace ink pump.
Regulated power supply	**7**	Does voltage between regulated power supply +S (+24) and -S (GND) show 24V?	NO	Replace regulated power supply.
Ink motor	**8**	Does voltage between drive PCB unit CN12-1 and -2 show 24V?	YES	Replace ink motor
Drive PCB unit	**9**	Is trouble cleared by replacing drive PCB unit?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

(24) "PLEASE INSERT CARD" is displayed specification for export

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
	1	Is the keycard counter connector connected?	NO	Proceed to procedure **5**.
How to use.	**2**	Is trouble cleared by inserting department card as keycard?	YES	Finish.
Keycard counter connector	**3**	Is the keycard counter connector connected properly?	NO	Connect connector properly.
HELP setting.	**4**	Is HELP mode(H-28)***** set to "* * * 1" and HELP mode(H-70)***** set to "0 0 0 0"?	NO	Set HELP mode (H-28)***** set to"* * * 1" and HELP mode(H-70)***** set to "0 0 0 0"
Main PCB unit	**5**	Does voltage between main PCB unit CN7-1 and GND about 5V?	YES	Finish.
Keycard counter			NO	Replace keycard counter.

* HELP mode H-28 ➡ see p.250

* HELP mode H-70 ➡ see p.284

(25) "PAPER JAM ON THE EJECTION SIDE" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Paper	**1**	Is printing paper long within specified value?	NO	Use paper conforming to specification.
	2	When JAM sensor 1 is checked with HELP mode (H-06)*****, is 0 displayed if sensor is photopassing and is 1 displayed if photointerrupted?	YES	Proceed to procedure **7**.
Paper jammed	**3**	Is paper really jammed at master ejection section?	YES	Refer to "(29) Paper JAM in paper eject side". ➡ see page 205
Master ejection box is not closed.	**4**	Is trouble cleared by properly closing the master ejection box?	YES	Finish.
Dirt or foreign material on sensor	**5**	Is there any dirt or foreign material on the JAM sensor photo-emitting or photo-receiving section?	YES	Clean the photo-emitting and photo-receiving sections of JAM sensor.
Sensor position	**6**	Is trouble cleared by adjusting the JAM detection sensor position?	YES	Finish.
JAM sensor photo-emitting PCB	**7**	Is 0 displayed by directing another light to the photo-receiving section of the document sensor photo-receiving PCB when JAM sensor 1 is checked with HELP mode (H-06)*****?	YES	Replace JAM sensor photo-emitting PCB.
JAM sensor photo-receiving PCB			NO	Replace JAM sensor photo-receiving PCB.
Drum stop/JAM detection position sensor	**8**	When drum is checked with HELP mode (H-05)***** while rotating slowly, does the drum stop/JAM detection position sensor display 0 or 1 according to edge of photointerrupter?	NO	Adjust position of the drum stop/JAM detection position sensor. If necessary, replace.
Main PCB unit			YES	Replace main PCB unit.

* HELP mode H-05 ➡ see p.224

* HELP mode H-06 ➡ see p.226

(26) "PAPER JAM ON THE FEEDER SIDE" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
	1	Is trouble cleared by checking, referring to "(28) Paper jams in the paper feed side"? ➡ see page 204	YES	Finish.
Main PCB unit	**2**	When P- roller sensor is checked with HELP mode (H-05)*****, is 0 displayed if press is turned ON and 1 displayed if OFF? **NOTE:** **If no problem is detected by the check with HELP mode (H-05)*, result on printing may differ depending on speed or load. Recommended is to follow procedure 3 and 4 below for further check.**	YES	Replace the main PCB unit.
P- roller sensor position	**3**	Is the trouble cleared by adjusting P-roller sensor position?	YES	Finish.
P- roller sensor	**4**	Is the trouble cleared by replacing P-roller sensor ?	YES	Finish.
Main PCB unit			NO	Check the bundled wire and connectors and replace the main PCB unit.

* HELP mode H-05 ➡ see p.224

(27) "MASTER EJECTION CORE" is displayed

Cause/Defective section	Procedures	Item to be checked	Result	Countermeasure
Core	**1**	Core is not included or core is full?	YES	Insert new core.
Core full SW actuator actuator	**2**	Is core full SW pressed when empty core is installed?	YES	Adjust actuator of core full SW.
Core full SW	**3**	Does core full SW tested volt-ohm-milliammeter prove to be normal?	NO	Replace core full SW .
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

(28) Paper Jams in the Paper Feed Side

Causes	Symptoms	Countermeasure
Printing paper not suitable	• If paper is too thick, it won't be likely fed. If too thin, double sheets may be fed. • Paper not clearly cut: 2 sheets still adhere to each other. • Much paper scraps may deteriorate the paper feed roller and separator performance.	Explain causes to user. Have user change to the paper conforming to specifications.
Dirt / foreign matter in transfer path	• Paper gets stuck in transfer path, causing creasing and tearing.	Remove any dirt or foreign matter.
Incorrect paper feed path pressure	• If pressure on paper is insufficient, paper will not be fed. • If pressure on paper is excessive, double sheets will be fed.	Explain to users how to select correct pressure for paper.
Worn paper feed roller	• Paper may not be fed.	Replace paper feed roller.
Paper separator unit gap	• If gap is too large, separator unit will rattle in direction of paper transfer path, causing double sheets to be fed. • 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.	Perform paper separator unit gap adjustment. ➡ see page 158
Paper separator unit	• Wear, or adhesion of paper scraps causes deterioration in separating performance, resulting in double-sheet feed.	Clean separating surfaces. If any trouble exists, replace. Perform separator unit gap adjustment on new unit. ➡ see page 158
Separation pressure	• If pressure is very low, no paper will be fed.	Perform separation pressure adjustment. ➡ see page 159
Elevator top position limit	• Paper slant is large, causing creases. • During printing, paper feed errors often occur immediately before or after paper tray rises.	Perform elevator top limit sensor adjustment. ➡ see page 159
Paper feed amount	• If amount is too short, paper slant cannot be corrected, printing position may not be uniform, or paper may not be fed. • If amount is too long, loop becomes too large, causing paper to buckle up between paper feed roller and timing roller, resulting in feed error.	Perform paper feed amount adjustment. HELP mode H-86 / 294 page
Paper feed clutch	• Clutch slippage will reduce paper feed amount. • If clutch does not disengage properly, the paper feed segment gear will not return correctly, leading to reduced feed amount. (See "Paper feed amount" above.)	Replace paper feed cluch.
Guide roller pressure & timing	• If Guide roller pressure is insufficient, paper will not be gripped properly, and timing roller will not assure constant feed amount. As a result, printing position will not be uniform. In the worst case, no paper will reach drum. • If there is a gap between Guide roller and the timing roller, paper slant cannot be corrected.	Perform escape amount adjustment and escape timing adjustment. ➡ see page 161
Timing roller	• If the timing roller clutch slips, feed amount will not be constant. As a result, printing position will not be uniform. In the worst case, no paper will reach drum. • If the timing roller clutch does not disengage properly, the paper feed segment gear will not return correctly, leading to reduced and unstable feed amount. As a result, printing position will not be uniform. In the worst case, no paper will reach drum.	Clean timing roller clutch . Replace if necessary.

(29) Paper Jams in Paper Eject Side

Causes	Symptoms	Countermeasure
Printing paper not suitable	• If paper is too thin, it will stick to drum and scrunch up. • If grain of paper is sideways relative to transfer direction, paper will crunch up, or get jammed on the paper receiving plate. • If paper curl upward, it will likely scrunch up. If curl downward, it will likely get jammed on the paper receiving plate.	Explain causes to users. Have user change to paper conforming to specifications.
Image of document	• If set-solid exists near leading edge of paper, paper will likely scrunch up. • If set-solid is blasted to 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 paper receiving plate.	• Adjust leading edge margin to about 10 mm. (Too long margin will cause adverse results.) • Explain causes to users. If possible, have user change position for set-solid.
Static electricity	• If ambient air is dry, static electricity may cause disordered piles or scrunch-up of paper.	• Explain causes to users. Have user desist from excessive use of A/C or heating. • If possible, have user take anti-dryness measures including humidifiers.
Leading edge margin	• If leading edge margin is not correct, scrunch-up of paper will likely result. **IMPORTANT:** **Scrunch-up of paper may also result if the margin is too long.**	Perform printing position sensors adjustment. ➡ see page 162
Guide roller pressure & timing	• If Guide roller pressure is insufficient, paper will not be gripped properly, causing less feed amount determined by timing roller, or disappearance of leading edge margin. This results in the paper scrunch-up.	Perform escape amount and escape timing adjustments. ➡ see page 161
Timing roller clutch	• Any slippage of the timing roller clutch will reduce feed amount and eliminate leading edge margin. This results in the paper scrunch-up. • If the timing roller clutch does not disengage properly, the timing roller segment gear will not return correctly, causing reduction of feed amount or disappearance of leading edge margin. As a result, paper will scrunch up.	Clean timing roller clutch. Repair if necessary.
Paper stripper finger	• If timing is too low, or the gap between drum and the leading edge of paper is too large, paper stripper finger will not enter into the gap, causing the paper scrunch-up.	Perform paper stripper finger adjustment. ➡ see page 167
Air	• 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.	• Check if the hole in the fingers tip is blocked by foreign matter. • Check pipes for kinks or disconnections. • Check valves and O-rings on the air pump.
Top blower fan	• If the fan's air current is insufficient, paper stripping will be poor, and there will not be sufficient force to press the paper onto the paper ejection belt. This will cause unstable paper ejection.	• Inspect the fan.
Paper ejection belt	• If the speed of the paper ejection belt, if cannot eject the paper onto the paper receiving plate with sufficient force. As a result, there will be paper jams in the vicinity of the discharge port. (Sometimes the trailing edge of the paper gets caught in the jamming sensor and a paper jamming error is displayed.)	If the belt is broken or stretched, replace it.
Paper ejection fan unit	• If the suction force of the fan drops, it will not be able to blow the paper (which has risen clear of the ejection belt) onto the paper receiving plate with be paper jams in the vicinity of the discharge port. (Sometimes the trailing edge of the paper gets caught in the jamming sensor and a paper jamming error is displayed.)	Clean the fan. If it still does not work properly, replace it.
Ink	• Too much ink transferred to paper will likely cause scrunch-up of paper.	• Perform ink volume adjustment of drum. • Explain user that ink transfer volume increases immediately after paper scrunch-up, and advise user to restart printing at standard speed, then. ➡ see page 169

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	Cause	Detectiontiming
E001	● The main motor is defective. ● The main motor PCB unit is defective. ● The main PCB unit is defective. ● The main motor encoder sensor is defective. ● The regulated power supply is defective.	While the drum rotation signal is lit,the encorder sensor cannnot detect the edge for 1 second.
E002	● The elevator motor is defective. ● The elevator top limit sensor is defective. ● The elevator bottom limit SW is defective. ● The drive PCB unit is defective. ● The main PCB unit is defective. ● The elevator operation is defective. ● The regulated power supply is defective.	The elevator dose not reach the top limit for 30 seconds after the elevator up signal is lit. The elevator dose not reach the bottom limit for 30 seconds after the elevator down signal is lit.
E005	● The ink roller up/down motor is defective. ● The regulated power supply is defective. ● The drive PCB unit is defective. ● The main PCB unit is defective. ● The ink roller up/down sensor is defective.	While the ink roller up/down motor driving signal is lit, the ink roller up/down sensor cannnot detect the edge for 15 seconds.
E006	● The pressure motor is defective. ● The regulated power supply is defective. ● The drive PCB unit is defective. ● The main PCB unit is defective. ● The pressure encoder sensor is defective.	While the pressure motor driving signal is lit,the pressure encoder sensor cannnot detect the edge for 3 seconds.
E008	● The I/F PCB unit is defective. ● The on-line csble is defective. ● The I/F PCB B unit is defective. ● The P-memory PCB unit is defective. ● The main PCB unit is defective.	During on-line master-making,communication error occurs between P-memory PCB unit and I/F PCB B unit. During on-line master-making,communication error occurs between main PCB unit and I/F PCB unit.
E009	● The thermal head is defective. ● The regulated power supply is defective.	At start of master-making, thermal head drive voltage dose not reach reguration value.
E011	● The thermal head up/down motor is defective. ● The regulated power supply is defective. ● The drive PCB unit is defective. ● The thermal head position sensor is defective. ● The main PCB unit is defective.	While the thermal head up/down motor driving signal is lit, the thermal head position sensor cannnot detect the edge for 4 seconds.
E013	● The scanner stepping motor is defective. ● The regulated power supply is defective. ● The main PCB unit is defective. ● The scanner home position sensor is defective. ● The drive PCB unit is defective.	At master-making, while the scanner stepping motor driving signal is lit,the scanner home position sensor cannnot detect the edge for 17 seconds.
E014	● The regulated power supply is defective. ● The G-roller motor is defective. ● The G-roller sensor is defective. ● The main PCB unit is defective. ● The drive PCB unit is defective.	While the G-roller motor driving signal is lit,the G-roller sensor cannnot detect the edge for 2 seconds.
E015	● The regulated power supply is defective. ● The main PCB unit is defective. ● The drive PCB unit is defective. ● The top/bottom motor is defective. ● The top/bottom encoder sensor is defective. ● The top/bottom center sensor is defective.	While the top/bottom motor driving signal is lit,the top/bottom encoder sensor cannnot detect the edge for 3 seconds.
E016	● The regulated power supply is defective. ● The main PCB unit is defective. ● The drive PCB unit is defective. ● The drum limit/center sensor is defective. ● The drum shift motor is defective.	While the drum shift motor driving signal is lit,the sensor cannnot detect the edge for 12 seconds.

Chapter 7 HELP Mode

7

1 HELP Mode List

HELP Mode No.	Description	Classification	page
H-00	(1) Display of ROM versions(Main,P-memory,ADF,I/F PCB unit) (2) ROM version upgrading (Main PCB unit) (3) ROM version upgrading (P-memory PCB unit)	ROM version displays / upgrading	(1) 214 (2) 215 (3) 216
H-01	(1) Speed check(Pre-stop,JOG,Print speed,Eject fan speed) (2) Pre-stop speed adjustment (3) JOG speed adjustment (4) Print speeds adjustment (5) Initialization of print speeds (6) Eject fan speeds adjustment (7) Initialization of eject fan speeds	Adjustment/specification	(1) 217 (2) 218 (3) 218 (4) 219 (5) 219 (6) 220 (7) 220
H-02	(1) Motor function testing	Function test	221
H-03	(1) Function testing : Signal solenoid Auto power OFF Thermal head's power source/ signal Paper feed clutch	Function test	222
H-04	(1) Ink supply/circulation testing	Function test	223
H-05	(1) Sensor condition checking 1	Sensor condition display	224
H-06	(1) Sensor condition checking 2	Sensor condition display	226
H-07	(1) Condition checking/Adjusting : End mark sensor (2) Condition checking/Adjusting : Master detection sensor	Sensor condition display / adjustment	(1) 228 (2) 229
H-08	(1) Switch condition checking	Switch condition display	230
H-09	(1) Position check : Master set position JAM position Master removal position Drum stop position	Function test	231
H-10	(1) Function testing : Lamp(ON/OFF) Motor(Scanner/ADF)	Function test	232
H-11	(1) Checking : Document size Document density level	Function test	233
H-12	(1) Checking : Shading memory Synchronous signal Temperature Time elapsed from the last printing	Function test	234
H-13	(1) Setting : Master ejection counter Master making counter Factory adjustment	Adjustment/specification	235
H-14	(1) Master total counter display (2) Resetting of count of total plates made in user mode	Total counts	(1) 236 (2) 236
H-15	(1) Checking : Movement amount of printing position(top/bottom)	Function test	237
H-16	(1) Master-making start position (Online) setting [Parallel / Inter face kit Ⅱ]	Adjustment/specification	238
H-17	(1) Setting : Pre-platemaking slider operation enable/disable Thick paper feed setting Editing setting	Adjustment/specification	239
H-18	(1) Checking of number of error occurrences	Adjustment/specification	240

HELP Mode No.	Description	Classification	page
H-19	(1) Printing total counter display (2) Resetting of count of total sheets printed in user mode	Total counts	(1) 241 (2) 241
H-20	(Not used)	—	—
H-21	(1) ADF communication check	ADF communication check	243
H-22	(1) Master make magnification / line progression direction setting	Adjustment/specification	244
H-23	(1) Photo mode scan density setting(Scanner/ADF)	Adjustment/specification	245
H-24	(1) Scan R/E /line progression direction setting(Scanner/ADF)	Adjustment/specification	246
H-25	(1) Scan R/E /line progression direction setting(ADF)	Adjustment/specification	247
H-26	(1) Photo mode white level setting(Scanner/ADF)	Adjustment/specification	248
H-27	(1) Initialization of all HELP mode settings	Adjustment/specification	249
H-28	(1) Setting : Tape cluster Buzzer options Key card counterⅡ	Adjustment/specification	250
H-29	(1) Adjustment of master infeed amount	Adjustment/specification	251
H-30	(1) Test pattern	Function test	252
H-31	(1) Pre-print setting	Adjustment/specification	253
H-32	(1) Setting : First print setting Master ejection failure detection Default Sort mode	Adjustment/specification	254
H-33	(1) Text mode white level setting	Adjustment/specification	255
H-34	(1) Scanning start position setting[Document memory]	Adjustment/specification	256
H-35	(1) Scanning start position setting	Adjustment/specification	257
H-36	(1) Scanning start/ Pel path direction setting	Adjustment/specification	258
H-37	(1) Scanning start/ Line progression direction setting	Adjustment/specification	259
H-38	(Not used)	—	—
H-39	(Not used)	—	—
H-40	(1) Outline highlight setting	Adjustment/specification	260
H-41	(1) Setting : Paper size selection Double feed detection Counter repeat Sorter return timing	Adjustment/specification	261
H-42	(1) Default paper option setting	Adjustment/specification	262

HELP Mode No.	Description	Classification	page
H-43	(1) Thermal head resistance ranking setting	Adjustment/specification	263
H-44	(1) Thermal head resistance ranking setting	Adjustment/specification	263
H-45	(1) Setting of special paper size length (lower-order 4bits)	Adjustment/specification	265
H-46	(1) Setting of special paper size length (higher-order 4bits)	Adjustment/specification	266
H-47	(1) Setting of special paper size width (lower-order 4bits)	Adjustment/specification	267
H-48	(1) Setting of special paper size width (higher-order 4bits)	Adjustment/specification	268
H-49	(1) Scan magnification (pel path direction)	Adjustment/specification	269
H-50	(1) Text mode Scan density setting (Scanner/ADF)	Adjustment/specification	270
H-51	(1) Setting of darkness for test pattern platemaking	Adjustment/specification	271
H-52	(1) Setting : I/ F switch DP-10 test pattern 1 line process time	Adjustment/specification	272
H-53	(1) Widthwise master-making start position (Online) setting[Parallel / Inter face kit Ⅱ]	Adjustment/specification	273
H-54	(1) Main PCB unit sorter port operation check	Function test	274
H-55	(1) Setting : Ink check when starting printing Emergency stop Signal jam	Adjustment/specification	275
H-56	(1) LCD language setting	Adjustment/specification	276
H-57	(1)1 line process time setting	Adjustment/specification	272
H-58	(Not used)	—	—
H-59	(1) Setting : "Out of ink" count change Fine start mode ON/OFF	Adjustment/specification	277
H-60	(1) Setting : Control panel auto clear - timer Fine star mode timer	Adjustment/specification	278
H-61	(Not used)	—	—
H-62	(Not used)	—	—
H-63	(1) 2 sheets memory (online) setting	Adjustment/specification	279
H-64	(1) Buzzer (tone) setting	Adjustment/specification	280
H-65	(Not used)	—	—
H-66	(1) Setting : Signal sensor ON/OFF Loop sensor ON/OFF A3/A4 drum Long Mode setting	Adjustment/specification	281

HELP Mode No.	Description	Classification	page
H-67	(1) Display setting : Double feed detection Tape cluster A3/A4 drum Long Mode	Adjustment/specification	282
H-68	(1) Setting : Auto power OFF Auto LCD OFF	Adjustment/specification	283
H-69	(Not used)	—	—
H-70	(1) Option setting	Adjustment/specification	284
H-71	(1) Option setting	Adjustment/specification	285
H-72	(1) Option setting	Adjustment/specification	286
H-73	(1) Option setting	Adjustment/specification	287
H-74	(1) Setting : Initial print density Initial master density Initial document mode Initial print speed	Adjustment/specification	288
H-75	(1) USB setting	Adjustment/specification	289
H-76	(1) C. / F. setting	Adjustment/specification	290
H-77	(Not used)	—	—
H-78	(Not used)	—	—
H-79	(Not used)	—	—
H-80	(1) Setting : After master making, the machine prints 1 copy and stop S2-ADF option Drum rotates once at tape insertion timing Drum rotation setting at tape insertion timing	Adjustment/specification	291
H-81	(1) Setting : Tape cluster Long tape Tape cluster 4 motor	Adjustment/specification	292
H-82	(Not used)	—	—
H-83	(Not used)	—	—
H-84	(Not used)	—	—
H-85	(1) Paper feed timing adjustment	Adjustment/specification	293
H-86	(1) Paper feed length adjustment	Adjustment/specification	294
H-87	(1) Paper feed timing(Long paper mode) adjustment	Adjustment/specification	295
H-88	(1) Paper feed length(Long paper mode) adjustment	Adjustment/specification	296

2 Overview

The DUPRINTER's HELP modes can be broadly classified into the following types:

◆ Modes for ROM version display / version upgrade

These modes display the version numbers of the main PCB unit's ROM (U40), the P-memory PCB unit's ROM, the ADF PCB unit's version , the I/F PCB PCB unit's version and permit version upgrade of the main PCB unit's U40 ROM.

◆ 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 DUPRINTER.

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 mode H-27).**

◆ 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.

⚠ WARNING

- **Failure to heed the above could result in crushed or otherwise injured hands or fingers.**

◆ 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 plates made and sheets printed by the DUPRINTER since it was manufactured. They also permit resetting of the total count values displayed in the user mode.

◆ Modes for ADF communication check

3 HELP Mode Functions and Operation Procedures

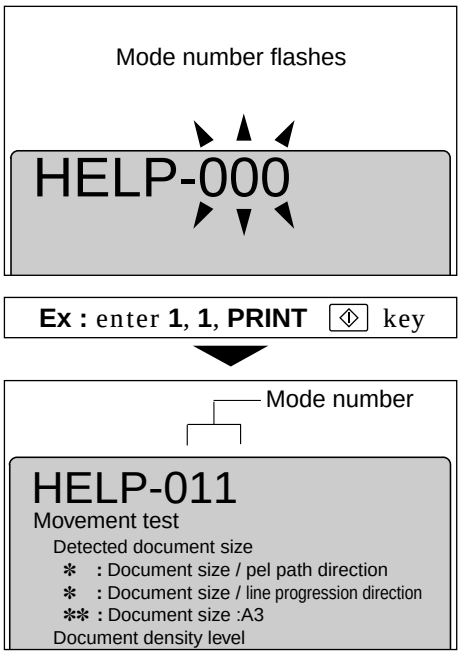
(1) Accessing HELP Modes

① During use of the DUPRINTER: first put the machine into the standby state, then turn the **Power switch OFF.**

②Simultaneously press and hold down the ◁ and ▷ **PRINTING SPEED ADJUSTMENT** keys, and turn the **Power switch ON** with those keys held down. After about 2 seconds, a beep-beep-beep tone will sound, and the HELP mode display will appear.

③Using the numeric keys, enter the number of the HELP mode you want to access.

Example: To access HELP mode H-11, enter [**1**], [**1**].



NOTE :

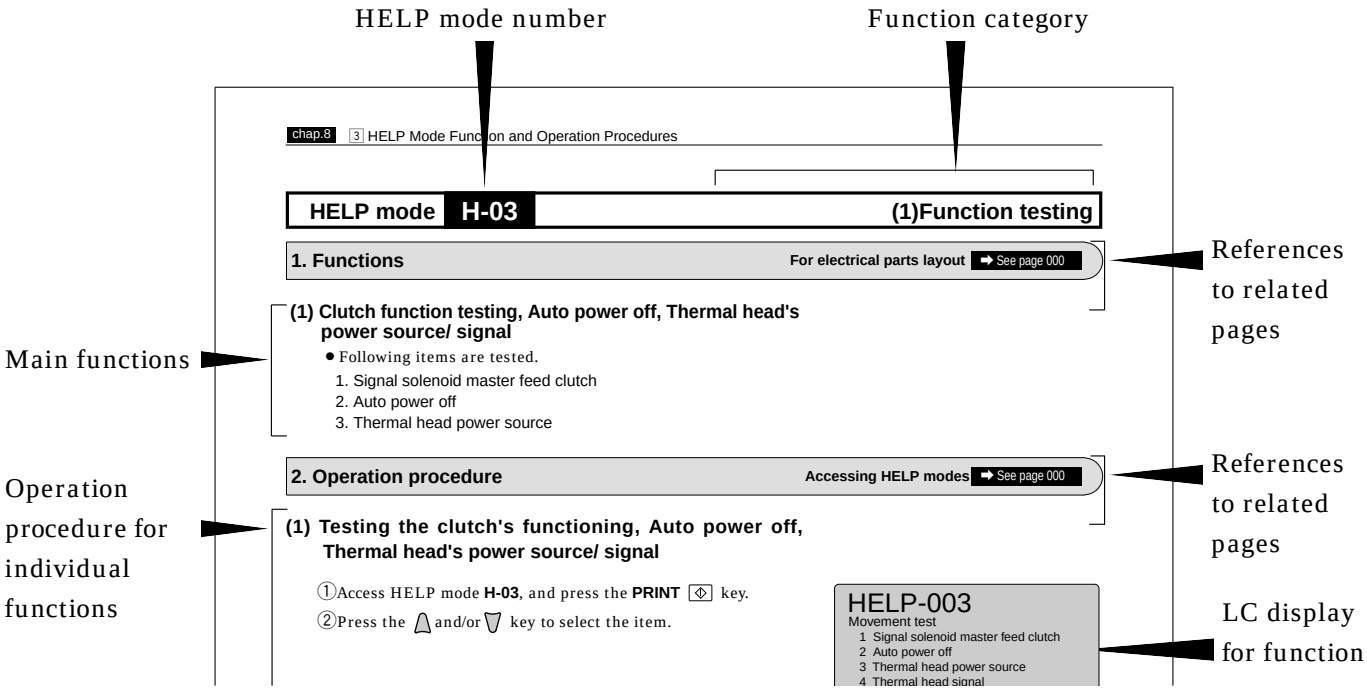
- **Alternatively, the ◁ and ▷ PRINTING SPEED ADJUSTMENT keys may be used to select the HELP mode number.**

④Press the **PRINT** ◈ key. The HELP mode specified in ③ will be accessed.

From this point on, follow the procedure given below for the particular mode accessed.

(2) Guide to the HELP Mode Descriptions

The descriptions of each HELP mode given on the following pages are laid out as follows:



● HELP Mode Descriptions

HELP mode H-00 (1) ROM version displays

1. Functions

(1) Display of ROM versions

- The ROM versions of following PCB unit are displayed.
  1. Main PCB unit
  2. P-memory PCB unit
  3. ADF PCB unit
  4. I/F PCB unit

(2) ROM version upgrading Main PCB unit

- Allows upgrading of the main PCB unit's ROM (U40).

(3) ROM version upgrading P-memory PCB unit

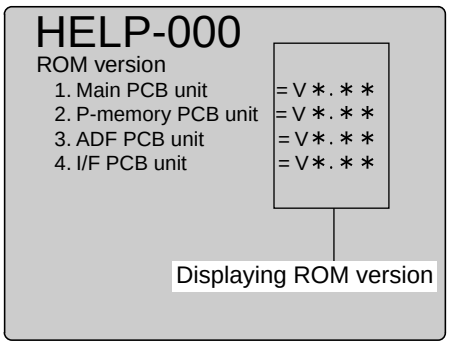
- Allows upgrading of the P-memory PCB unit's ROM (U6).

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Displaying ROM versions

①Access HELP mode **H-00**, and press the **PRINT** key.
Displays version of the ROM.



②Press 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 mode H-00 (2) ROM version upgrading

(2) Upgrading of ROM version Main PCB unit

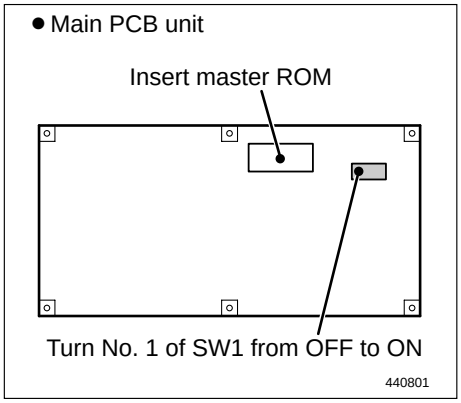
①During use of the DUPRINTER: first put the machine into the standby state, then turn the **Power switch OFF.**

②Switch on only **No.1 of SW1** on the main PCB unit.

IMPORTANT :

- **Never touch anything except for "No. 1 of SW1".**

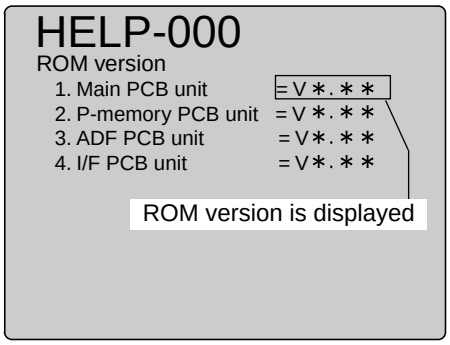
③Insert a **master ROM** into the socket of the main PCB unit's **U40 ROM**.



④Simultaneously press and hold down the ◁ and ▷ **PRINTING SPEED ADJUSTMENT** keys, and turn the **Power switch ON** with those keys held down.

⑤Press the [**0**] numeric key twice (to access HELP mode H-00).

⑥Press the **PRINT** [◈] key.

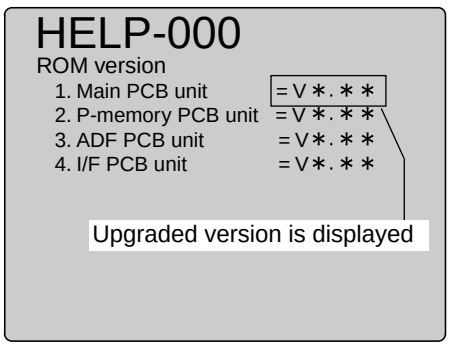


⑦Press the **PRINT** [◈] key.

Copying will begin, and the message **"---COPYING---"** will appear in the LCD panel. Copying takes about 40 seconds. When it is complete, the new ROM version will be displayed.

IMPORTANT :

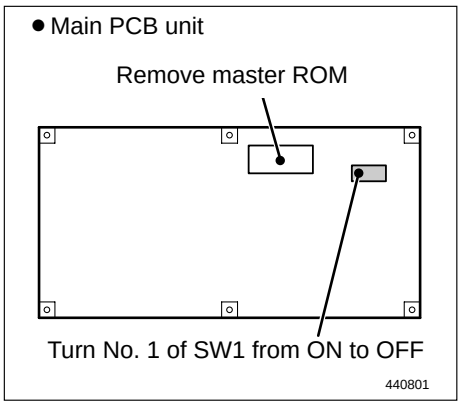
- **DO not turn off the power while "---COPYING---" is displayed. If you do you will have to repeat the copying operation from the beginning.**



⑧Turn the **Power switch OFF.**

⑨Remove the **master ROM** from the socket of the main PCB unit's **U40 ROM**.

⑩Set switch **No. 1** of the SW1 switches to **OFF.**



HELP mode H-00 (3) ROM version upgrading

(3) Upgrading of ROM version P-memory PCB unit

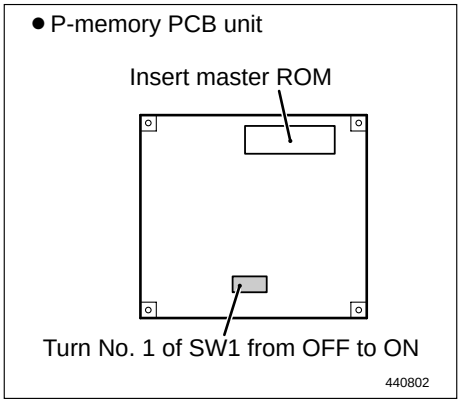
①During use of the DUPRINTER: first put the machine into the standby state, then turn the **Power switch OFF.**

②Switch on only **No.1 of SW1** on the P-memory PCB unit.

IMPORTANT :

- **Never touch anything except for "No. 1 of SW1".**

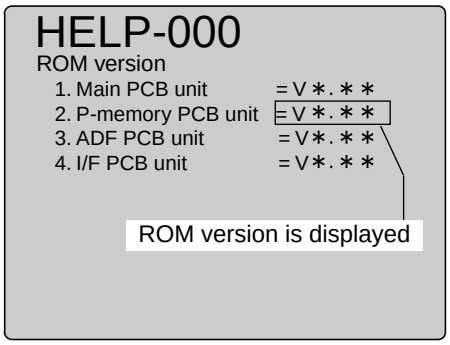
③Insert a **master ROM** into the socket of the P-memory PCB unit's **U6 ROM**.



④Simultaneously press and hold down the ◁ and ▷ **PRINTING SPEED ADJUSTMENT** keys, and turn the **Power switch ON** with those keys held down.

⑤Press the [**0**] numeric key twice (to access HELP mode H-00).

⑥Press the **PRINT** ◇ key.

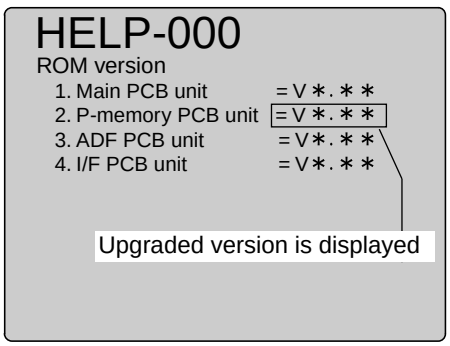


⑦Press the **PRINT** ◇ key.

Copying will begin, and the message **"---COPYING---"** will appear in the LCD panel. Copying takes about 40 seconds. When it is complete, the new ROM version will be displayed.

IMPORTANT :

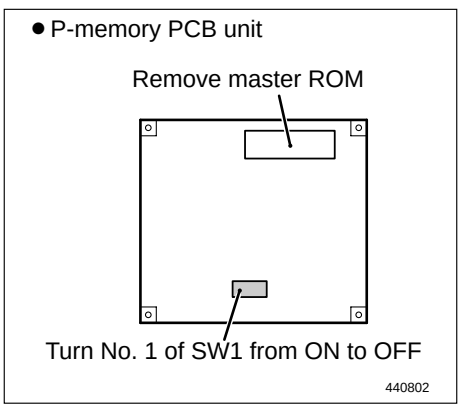
- **DO not turn off the power while "---COPYING---" is displayed. If you do you will have to repeat the copying operation from the beginning.**



⑧Turn the **Power switch OFF.**

⑨Remove the **master ROM** from the socket of the P-memory PCB unit's **U6 ROM**.

⑩Set switch **No. 1** of the SW1 switches to **OFF.**



HELP mode H-01 (1) Adjustment / specification setting

1. Functions

(1) Speed check

- Following speed levels are is indicated/adjusted.
  1. Pre-stop speed
  2. JOG speed
  3. Print speed
  4. Eject fan speed

(2) Pre-stop speed adjustment

(3) JOG speed adjustment

(4) Print speeds adjustment

(5) Initialization of print speeds

(6) Eject fan speeds adjustment

(7) Initialization of eject fan speeds

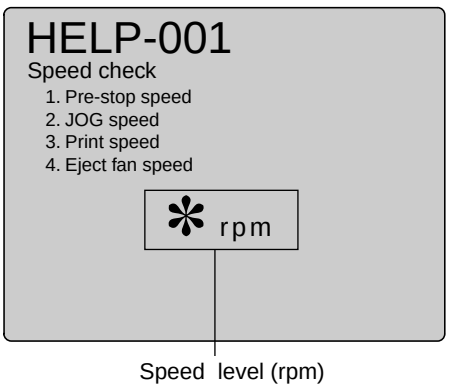
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Following speed levels are is indicated

①Access HELP mode **H-01**, and press the **PRINT** key.
The pre-stop speed (rpm) is displayed.

②Press the and/or key to check the item speed you want to adjust.



③Press 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 mode H-01 (2) , (3) Adjustment / specification setting

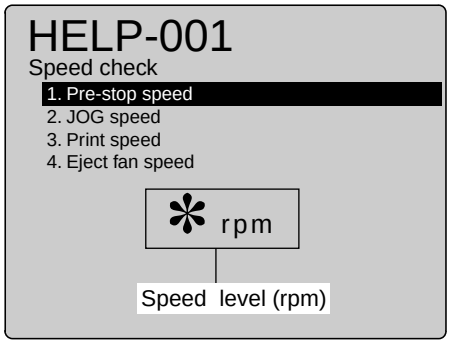
(2) Adjustment of Pre-stop speed

①Access HELP mode **H-01**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select the **Pre-stop speed** item.

③Check the indicated speed level.

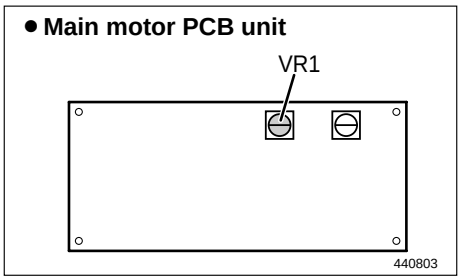
Recommendation	Pre-stop speed : 4-6pm



If the indicated value does not accord with the recommended value above ?

- **Adjust it with VR1 on the main motor PCB unit.**

➡ See page 179



④Press 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.

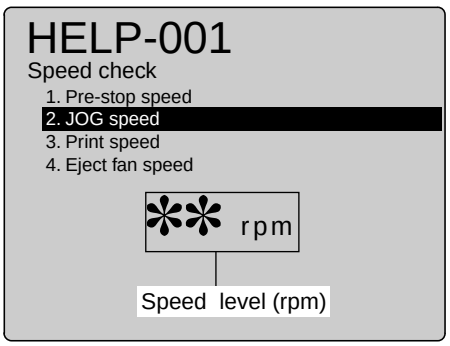
(3)Adjustment of JOG speed

①Access HELP mode **H-01**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select the **JOG speed** item.

③Check the indicated speed level.

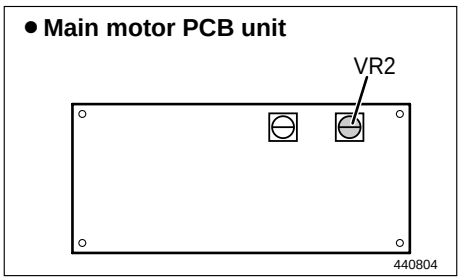
Recommendation	JOG speed : 16rpm



If the indicated value does not accord with the recommended value above ?

- **Adjust it with VR2 on the main motor PCB unit.**

➡ See page 179



④Press 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 mode H-01 (4) , (5) Adjustment / specification setting

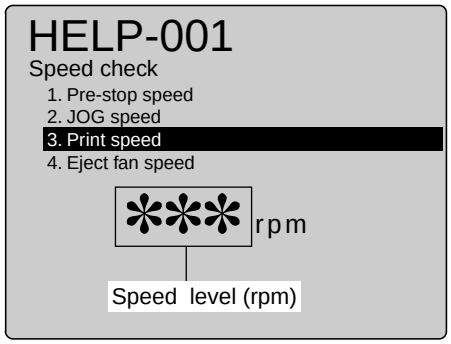
(4) Adjustment of Print speeds 1-5

①Access HELP mode **H-01**, and press the **PRINT** key.

②Press the and/or key to select the **Print speed** item.

③Press the and/or **PRINTING SPEED ADJUSTMENT** key to select the **Print speed** item.

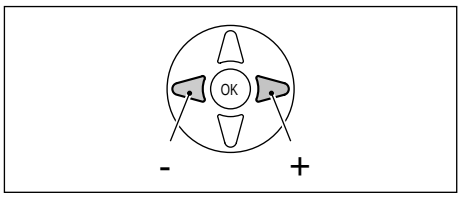
④Check the indicated speed level.



Recommendation	DP-440/430	DP-340/330
	Speed 1 : 50rpm	Speed 1 : 50rpm
	Speed 2 : 72rpm	Speed 2 : 72rpm
	Speed 3 : 85rpm	Speed 3 : 85rpm
	Speed 4 : 105rpm	Speed 4 : 105rpm
	Speed 5 : 125rpm	Speed 5 : 135rpm

If the indicated value does not accord with the recommended value above ?

- **Use the and/or key to adjust the displayed value to within the recommendation.**



⑤Press the **STOP** key.
The HELP mode selection display will reappear.

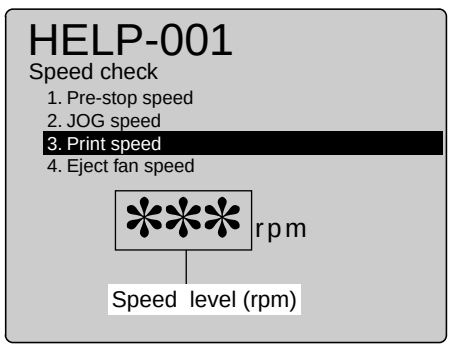
➡ **To exit the HELP mode**	:	Turn the power switch OFF.
➡ **To access another HELP mode**	:	Enter the desired mode number using the numeric keys.

(5) Initialization of print speeds

①Access HELP mode **H-01**, and press the **PRINT** key.

②Press the and/or key to select the **Print speed** item.

③Press the [≦] and **CLEAR** keys.
The settings will be initialized.



IMPORTANT :

- **After initialization, the speeds 1-5 must be readjusted.**

④Press the **STOP** key.
The HELP mode selection display will reappear.

- During memorization:

- SAVE -

➡ **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 mode H-01 (6) , (7) Adjustment / specification setting

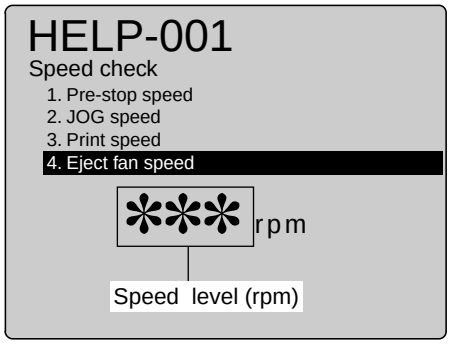
(6) Adjustment of Eject fan speeds 1-5

①Access HELP mode **H-01**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select the **Eject fan speed** item.

③Press the ◁ and/or ▷ **PRINTING SPEED ADJUSTMENT** key to select the **Eject fan speed** item.

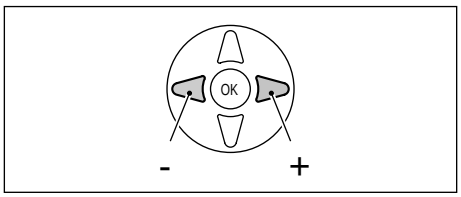
④Check the indicated speed level.



	DP-440/430	DP-340/330
Recommendation	**Speed 1 : 130rpm**	**Speed 1 : 130rpm**
	Speed 2 : 150rpm	**Speed 2 : 150rpm**
	Speed 3 : 165rpm	**Speed 3 : 165rpm**
	Speed 4 : 190rpm	**Speed 4 : 190rpm**
	Speed 5 : 225rpm	**Speed 5 : 235rpm**

If the indicated value does not accord with the recommended value above ?

- **Use the ◁ and/or ▷ key to adjust the displayed value to within the recommendation.**



⑤Press the **STOP** key.
The HELP mode selection display will reappear.

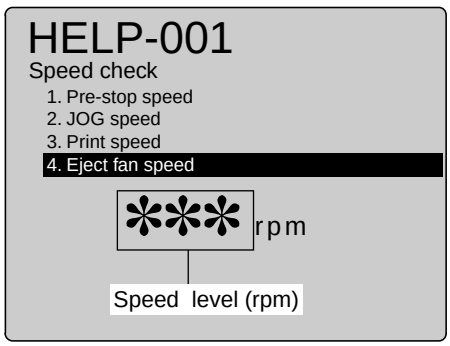
➡ **To exit the HELP mode**	: Turn the power switch OFF.
➡ **To access another HELP mode**	: Enter the desired mode number using the numeric keys.

(7) Initialization of Eject fan speeds

①Access HELP mode **H-01**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select the **Eject fan speed** item.

③Press the [≦] and **CLEAR** keys.
The settings will be initialized.



IMPORTANT :

- **After initialization, the speeds 1-5 must be readjusted.**

④Press the **STOP** key.
The HELP mode selection display will reappear.

- During memorization:

- SAVE -

➡ **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 mode H-02 (1) Function testing

1. Functions

For electrical parts layout ➡ See page 301

(1) Motor function testing

- Following items are tested.

1. Elevator motor
2. Top/bottom motor
3. Cutter motor
4. Clump motor
5. Pressure motor
6. Ink roller up/down motor
7. Thermal head up/down motor
8. Master feed stepping motor
9. Ink motor
10. Drum shift stepping motor
11. Master ejection motor
12. Paper feed stepping motor
13. G-roller motor
14. Tape cluster motor

IMPORTANT :

- **After executing the cutter motor test, be sure to return the cutter blade to the original position (operation side).**

IMPORTANT :

- **When operating the clump motor, be careful with the drum (master clump).**

IMPORTANT :

- **Remember that ink will be delivered when the ink motor runs.Take any precautions necessary.**

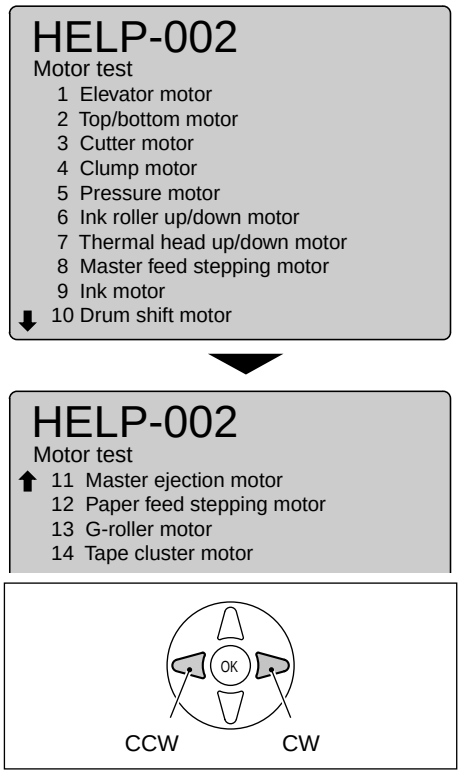
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Motor function testing

①Access HELP mode **H-02**, and press the **PRINT** [◇] key.

②Press the ∧ and/or ∨ key to select the **motor** item.



③Press the ◁ and/or ▷ key to test the motor's functioning.

④Press 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 mode H-03 (1)Function testing

1. Functions

For electrical parts layout ➡ See page 298

(1) Signal solenoid, Auto power off, Thermal head's power source/ signal,Paper feed clutch testing

- Following items are tested.

1. Signal solenoid
2. Auto power off
3. Thermal head power source
4. Thermal head signal (factory adjustment)
5. Paper feed clutch 1 (ADF)
6. Paper feed clutch 2 (ADF)

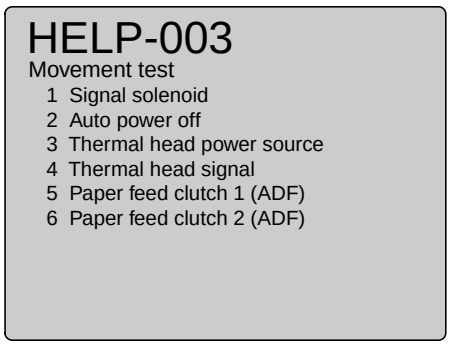
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Testing the signal solenoid, Auto power off, Thermal head's power source/ signal,Paper feed clutch

①Access HELP mode **H-03**, and press the **PRINT** key.

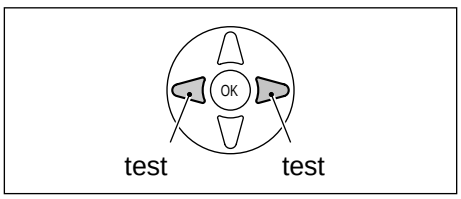
②Press the and/or key to select the item.



③Press the (or) key to test the functioning.

NOTE :

- **"2. Auto power off" turns off the power supply.**
- **"3. Thermal head power source" permits measurement of the thermal head's voltage via the DC-DC PCB unit (CN2).**



④Press 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 mode H-04 (1) Function testing

1. Functions

(1) Ink supply/circulation testing

- Tests functioning of ink replenishment by sensing the ink supplied.

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Testing the Ink supply/circulation

①Access HELP mode **H-04**, and press the **PRINT** [◇] key.

- When the **PRINT** [◇] key is pressed, the drum will rotate, and the ink pump run, until the ink sensing PCB unit's LED lamp lights to signal that ink supply is OK. When this lamp lights, a buzzer sounds and the drum and ink pump stop.

HELP-004
Ink supply/circulation test

②Press 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 mode H-05 (1) Sensor / switch condition display

1. Functions

For electrical parts layout ➡ See page 299,300

(1) Sensor condition checking 1

- Checking of condition of sensors listed below.

No.	Sensor	Displayed value	Chap.9
1	Scanner home position sensor	**0** : Photopassing **1** : Photointerrupting	(2) -1
2	Document cover position sensor	**0** : Photopassing **1** : Photointerrupting	(2) -2
3	ADF home position sensor	**0** : Photopassing **1** : Photointerrupting	(2) -3
4	Top/bottom center sensor	**0** : Photopassing **1** : Photointerrupting	(2) -4
5	(Not used)	-	-
6	Top/bottom encoder sensor	**0** : Photopassing **1** : Photointerrupting	(2) -5
7	Elevator top limit sensor	**0** : Photopassing **1** : Photointerrupting	(2) -6
8	Paper detection sensor	**0** : Photopassing **1** : Photointerrupting	(3) -1
9	Main motor encoder sensor	**0** : Photopassing **1** : Photointerrupting	(2) -7
10	Eject fan encoder sensor	**0** : Photopassing **1** : Photointerrupting	(2) -8
11	A/C mode detection sensor	**0** : Photopassing **1** : Photointerrupting	(2) -9
12	B mode detection sensor	**0** : Photopassing **1** : Photointerrupting	(2) -10
13	Master set/removal position sensor	**0** : Photopassing **1** : Photointerrupting	(2) -11
14	Drum stop/JAM detection position sensor	**0** : Photopassing **1** : Photointerrupting	(2) -12
15	P-roller sensor	**0** : Photopassing **1** : Photointerrupting	(2) -13
16	Pressure encoder sensor	**0** : Photopassing **1** : Photointerrupting	(2) -14
17	Thermal head position sensor	**0** : Photopassing **1** : Photointerrupting	(2) -15
18	Master lead edge sensor	**0** : Photopassing **1** : Photointerrupting	(3) -3
19	Ejection box sensor	**0** : Photopassing **1** : Photointerrupting	(2) -16
20	Drum center sensor	**0** : Photopassing **1** : Photointerrupting	(2) -17
21	Drum limit sensor	**0** : Photopassing **1** : Photointerrupting	(2) -18
22	Ink roller up/down sensor	**0** : Photopassing **1** : Photointerrupting	(2) -19
23	Paper lead edge sensor	**0** : Photopassing **1** : Photointerrupting	(3) -10
24	Signal sensor	**0** : Photopassing **1** : Photointerrupting	(3) -11
25	G-roller sensor	**0** : Photopassing **1** : Photointerrupting	(2) -20
26	Document sensor 1 (scanner)	**0** : Photopassing **1** : Photointerrupting	(3) -5
27	Document sensor 2 (scanner)	**0** : Photopassing **1** : Photointerrupting	(3) -5
28	Document sensor 3 (scanner)	**0** : Photopassing **1** : Photointerrupting	(3) -5
29	Document sensor 4 (scanner)	**0** : Photopassing **1** : Photointerrupting	(3) -6
30	Document sensor 5 (scanner)	**0** : Photopassing **1** : Photointerrupting	(3) -7
31	Document sensor (ADF)	**0** : Photopassing **1** : Photointerrupting	-
32	Document JAM sensor (ADF)	**0** : Photopassing **1** : Photointerrupting	-

HELP mode H-05 (1) Sensor / switch condition display

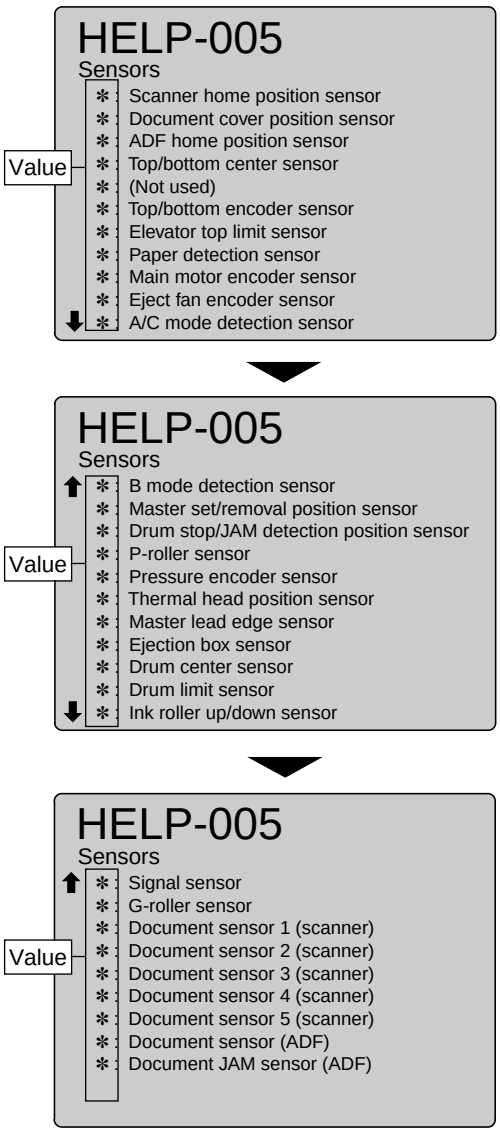
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Checking the condition of the displayed sensors

①Access HELP mode **H-05**, and press the **PRINT** key.

②Press the and/or key to select the **sensor** item.



③Press 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 mode H-06 (1) Sensor/switch condition display

1. Functions

For electrical parts layout ➡ See page 300

(1) Sensor condition checking 2

- Checking of light-receipt level by following sensors.

No.	Sensor	Displayed value	Chap.9
1	Master ejection sensor	✻✻✻ : Light-receipt level	(3) -8
2	Paper ejection JAM sensor	✻✻✻ : Light-receipt level	(3) -9
3	Double feed detection sensor	✻✻✻ : Light-receipt level	(3) -11
4	Motor thermister(factory check)	✻✻✻ : Light-receipt level	-
5	Super capacitor thermister	✻✻✻ :	-
6	Thermal head thermister(factory check)	✻✻✻ :	-
7	Thermal head current monitor(factory check)	✻✻✻ :	-
8	PC-IN current monitor(factory check)	✻✻✻ :	-
9	Paper size 0	✻✻✻ :	-
10	Paper size 1	✻✻✻ :	-
11	(Not used)	-	-
12	Document lead edge sensor (ADF)	✻✻✻ : Light-receipt level	(3) -3
13	Document sensor 1 (ADF)	✻✻✻ : Light-receipt level	(3) -5
14	Document sensor 2 (ADF)	✻✻✻ : Light-receipt level	(3) -5
15	Document sensor 3 (ADF)	✻✻✻ : Light-receipt level	(3) -5
16	Document sensor 4 (ADF)	✻✻✻ : Light-receipt level	(3) -6
17	Document sensor 5 (ADF)	✻✻✻ : Light-receipt level	(3) -7

HELP mode H-06 (1) Sensor/switch condition display

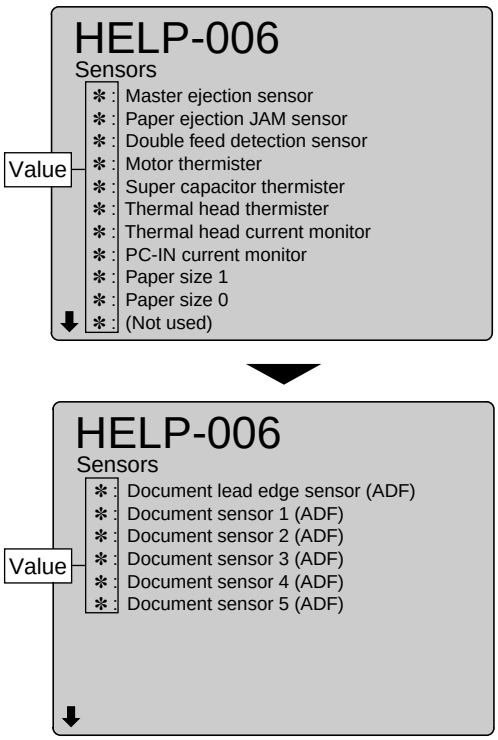
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Checking the light-receipt level of the displayed sensors

①Access HELP mode **H-06**, and press the **PRINT** key.

②Press the and/or key to select the **sensor** item.



③Press 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 mode H-07 (1) Sensor/switch condition display

1. Functions

For electrical parts layout ➡ See page 300

(1) End mark sensor and Master detection sensor condition checking

- The status of following sensors are indicated and their sensitivity can be adjusted.

1. End mark sensor
2. Master detection sensor

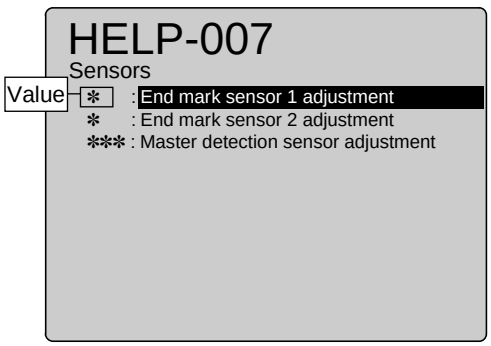
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Checking the condition of the end mark sensor 1,2

①Access HELP mode **H-07**, and press the **PRINT** key.

②Press the and/or key to select the **End mark sensor 1**.



③Check the displayed light-receipt level of the End mark sensor 1.

NOTE :

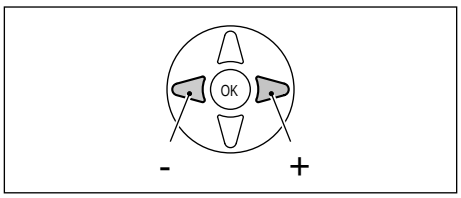
- **The DP-440 is not use for the end mark sensor 2.**

④Adjust the sensitivity of the end mark sensor.

Sensitivity adjustment of the end mark sensor

- **Use the and/or key to adjust the sensitivity.**

Confirm that the black level is MAX - 10 and the gap between white level and black level is 20 or more.



⑤Press the **STOP** key.

The HELP mode selection display will reappear.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display hasdisappeared.

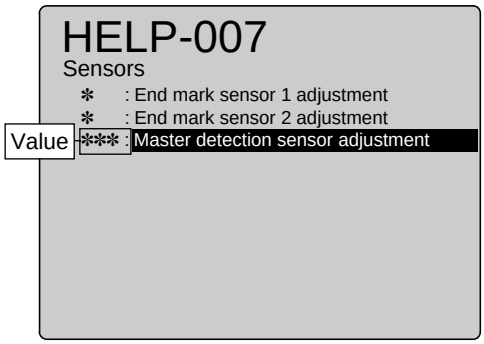
➡ **To exit the HELP mode** : Turn the power switch OFF.
➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.

HELP mode H-07 (2) Sensor/switch condition display

(2) Checking the condition of the master detection sensor

①Access HELP mode **H-07**, and press the **PRINT** key.

②Press the and/or key to select the **master detection sensor**.



③Check the displayed light-receipt level of the master detection sensor.

④Adjust the light-receipt level of the master detection sensor.

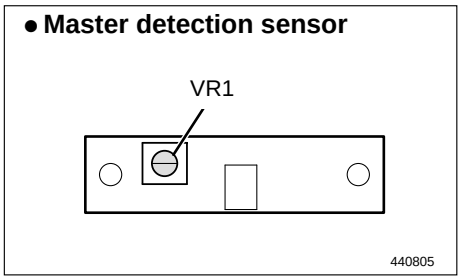
Master detection sensor adjustment

- **Display of presence/absence of the master on its travel path, as a numerical value.**

  Adjust the sensitivity with VR on the sensor.

  Master/Yes : about 10 - 30

  Master/ No : about 140 or more



⑤Press the **STOP** key.

The HELP mode selection display will reappear.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

● During memorization:

- SAVE -

➡ **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 mode H-08 (1) Sensor/switch condition display

1. Functions

For electrical parts layout ➡ See page 298

(1) Switch condition checking

- Checking of condition of switches listed below.

No.	Switch	Displayed value	Chap.9
1	Drum rotation 1 SW	**1** : PUSH	(1) -1
2	Drum rotation 2 SW	**1** : PUSH	(1) -2
3	Elevator descending SW	**1** : PUSH	(1) -3
4	Master cut SW	**1** : PUSH	(1) -4
5	Master cover SW	**1** : OPEN	(1) -5
6	Front cover SW	**1** : OPEN	(1) -6
7	Elevator bottom limit SW	**0** : PUSH	(1) -7
8	Drum detection SW	**1** : drum present	(1) -8
9	Master ejection box full SW	**1** : PUSH	(1) -9
10	Scanner open/close SW	**0** : OPEN	(1) -10
11	Pressure position SW	**1** : PUSH	(1) -11
12	Pressure limit SW	**1** : PUSH	(1) -12
13	A4 drum detection	**1** : PUSH	-
14	Cover SW (ADF)	**1** : PUSH	-

2. Operation procedure

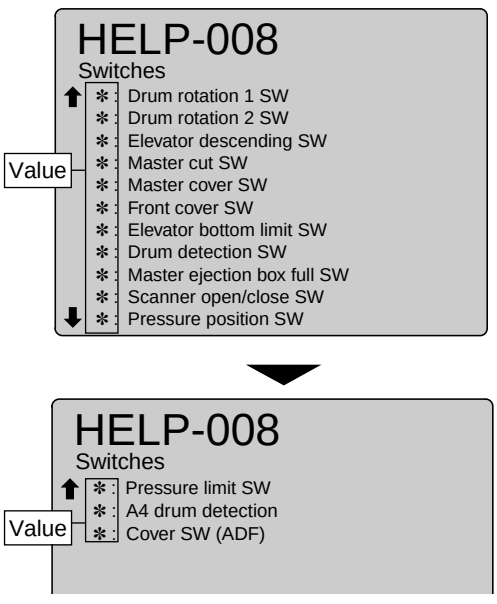
Accessing HELP modes ➡ See page 213

(1) Checking the condition of the displayed switches

①Access HELP mode **H-08**, and press the **PRINT** key.

Display condition of the switches.

(Press the and/or key to change display)



②Press 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 mode H-09 (1) Function testing

1. Functions

(1) Master set/ JAM/ Master removal/ Drum stop position can be checked

- Following items are checked.
  1. Master set position
  2. JAM sensing position
  3. Master removal position
  4. Drum stop position

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Master set/ JAM/ Master removal/ Drum stop position can be checked

①Access HELP mode **H-09**, and press the **PRINT** [◈] key.

- Each time the **PRINT** [◈] key is pressed, the drum stop and jam sensing position sensors, and the master removal /set positions sensors, will alternately sense the edge of the shade plate, then stop.

②Press 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 mode H-10 (1) Function testing

1. Functions

For electrical parts layout ➡ See page 301

(1) Lamp(ON/OFF),Motor(Scanner/ADF) function testing

- Following items are tested.
  1. Stepping motor (Scanner)
  2. Stepping motor (ADF)

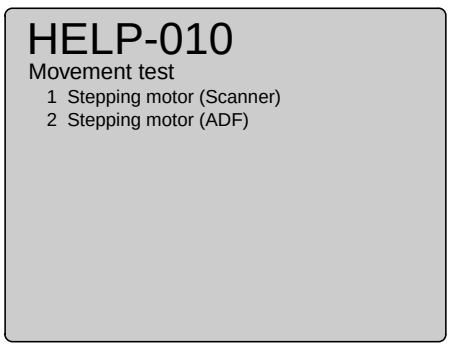
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Testing the lamp/motor's functioning

①Access HELP mode **H-10**, and press the **PRINT** key.

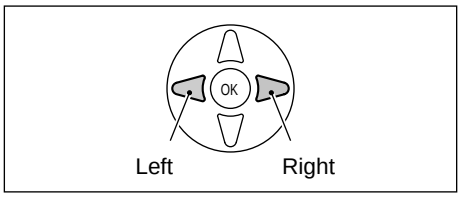
- When the **PRINT** key is pressed, the indicators will light.



②Press the and/or key to check the **motor** item.

③Press the key to test the motor's functioning(**to right**).

④Press the key to test the motor's functioning(**to left**).



IMPORTANT :

- **Be sure to release the key before the optical system reaches the rightward limit. The motor will NOT stop automatically when the system reaches that limit.**

⑤Press 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 mode H-11 (1) Function testing

1. Functions

(1) Document size, Document density level checking

- Following items are indicated.

1. Detected document size :
   Document size (pel path direction)
   Document size (line progression direction)
   Document size (A3, B4, B5, A4R, B5R, 11x17, LG, LTR, STR, POST, LT, ST)

2. Document density level:
   Lightest section
   Darkest section
   Center section

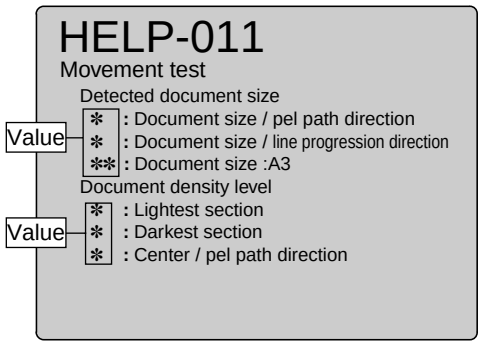
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Checking the detected document size / density level

①Open the document cover, place the document on the document glass, then close the document cover.

②Access HELP mode **H-11**, and press the **PRINT** key.
Check the data displayed for the document placed on the document glass.



Display of document size :

- Document size pel path direction (mm)
  Display of sensed size of document (in pel path direction) on the document glass.
- Document size line progression direction (mm)
  Display of sensed size of document (in line progression direction) on the document glass.
- Document size
  A3, B4, B5, A4R, B5R, 11x17, LG, LTR, STR, POST, LT, ST

Document density level:

- Lightest section
  A value between 000 ("darkest" value) and 255 ("lightest" value) will be displayed.
- Darkest section
  A value between 000 ("darkest" value) and 255 ("lightest" value) will be displayed.
- Center section
  A value between 000 ("darkest" value) and 255 ("lightest" value) will be displayed.

③Press 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 mode H-12 (1) Function testing

1. Functions

(1) Shading memory, Synchronous signal,Temperature, Time elapsed from the last printing

- Following items are checked.
  1. Shading memory
  2. Synchronous signal
  3. Temperature
  4. Time elapsed from the last printing

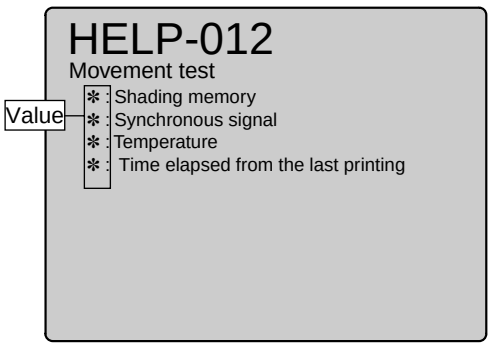
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Checking the Shading memory, Synchronous signal, Temperature, Time elapsed from the last printing

①Access HELP mode **H-12**, and press the **PRINT** key.

②Press the and/or key to select the item.



Check of shading memory, and display of result

- An **"FFFF"** result display indicates the memory is normal. Any other display indicates abnormality.

Check of thermal head and main PCB unit synchronized signals

- Two digits will be displayed. The first digit represents a count based on the thermal head PCB unit's synchronized signal, and the second a count based on the main PCB unit's start signal. These counts rise from **0 up to 7**, in increments of 1. The increments occur at intervals of approximately 1 second.

  Check that the increment of both digits occurs at a rate of approximately 1 second per implement, so that **over a period of 10 second**, there is no marked difference between the two values. A marked difference indicates abnormality.

Display of ambient temperature according to thermistor in main PCB unit

- The ambient temperature will be displayed as a value **between 0 and 35 (℃)**.

Display of time elapsed since last print run

- A value **between 000 and 255** will be displayed. To obtain the time elapsed since the last print run (in hours) multiply the value displayed by **3**.

③Press 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 mode H-13 (1) Adjustment / specification setting

1. Functions

(1) Master ejection counter,Master making counter,Factory adjustment

- Following items are indicated.
  1. Master ejection counter
  2. Master making counter
  3. Factory adjustment

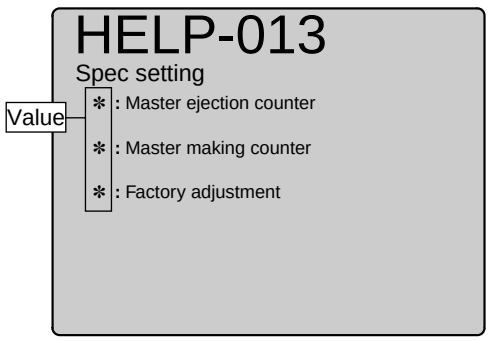
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Checking the Master ejection counter,Master making counter,Factory adjustment

①Access HELP mode **H-13**, and press the **PRINT** key.

②Press the and/or key to select the item.



Check of Master ejection counter

- Press the [≧] and **CLEAR** keys.

  The resetting will be memorized.

IMPORTANT :

- **Do not turn off the power before the "SAVE" display has disappeared.**

Check of Master making counter

- Press the [≧] and **CLEAR** keys.

  The resetting will be memorized.

IMPORTANT :

- **Do not turn off the power before the "SAVE" display has disappeared.**
- **Make sure to set a new master after clearing the master making counter.**

- During memorization:

- SAVE -

③Press 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 mode H-14 (1),(2) Total counts

1. Functions

(1) Master total counter display

(2) Resetting of count of total plates made in user mode

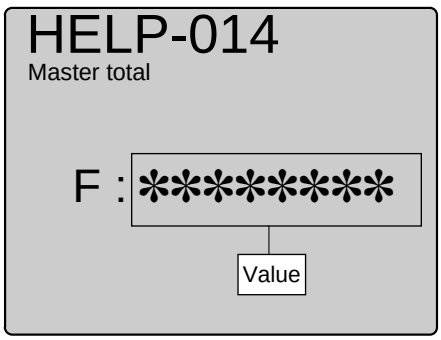
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Master total counter display

①Access HELP mode **H-14**, and press the **PRINT** key.

- When the **PRINT** key is pressed, the total number of master is displayed.



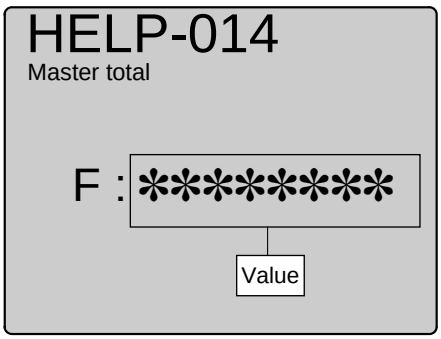
②Press the **STOP** key.
The HELP mode selection display will reappear.

➡ **To exit the HELP mode**	: Turn the power switch OFF.
➡ **To access another HELP mode**	: Enter the desired mode number using the numeric keys.

(2) Resetting the count of total plates made in user mode

①Access HELP mode **H-14**, and press the **PRINT** key.

- When the **PRINT** key is pressed, the total number of platemaking is displayed.



②Press the [≧] and **CLEAR** keys.
The resetting will be memorized.

IMPORTANT :

- **Do not turn off the power before the "SAVE" display has disappeared.**

- During memorization:

- SAVE -

③Press 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 mode H-15 (1) Function testing

1. Functions

(1) Checking the movement amount of printing position(top/bottom)

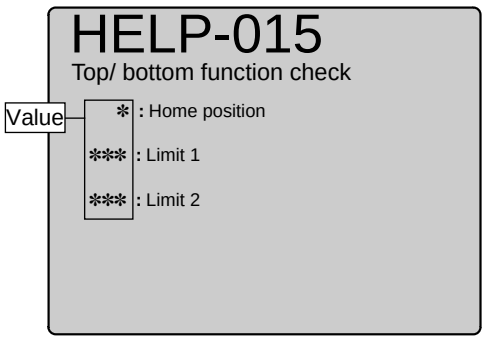
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Checking the movement amount of printing position(top/bottom)

①Access HELP mode **H-15**, and press the **PRINT** [◇] key.

- The movement amount of printing position(top/bottom) is displayed.



②Press 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 mode H-16 (1) Adjustment / specification setting

1. Functions

(1) Master-making start position (Online) setting [Parallel / Inter face kit Ⅱ]

- Following items are indicated.
  1. Master-making start position setting(Parallel)
  2. Master-making start position setting(Inter face kit Ⅱ)

2. Operation procedure

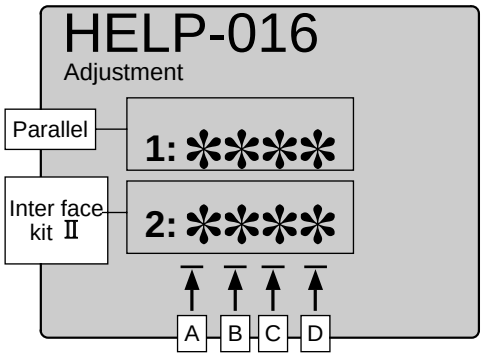
Accessing HELP modes ➡ See page 213

(1) Setting correction of master-making start position (Online) [Parallel / Inter face kit Ⅱ]

①Access HELP mode **H-16**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.



ABCD	Item	Setting
0 ✻ ✻ ✻	Sign flag	Rises by the set amount for the lower 3 digits
1 ✻ ✻ ✻		Lowers by the set amount for the lower 3 digits
✻ 0 0 0	Set amount	Standard (initial value)
✻ 0 0 1		
✻ 0 1 0		
✻ 0 1 1		
✻ 1 0 0		
✻ 1 0 1		
✻ 1 1 0		
✻ 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-17 (1) Adjustment / specification setting

1. Functions

(1) Pre-platemaking slider operation enable/disable / Thick paper feed setting / Editing setting

- Following items are indicated.

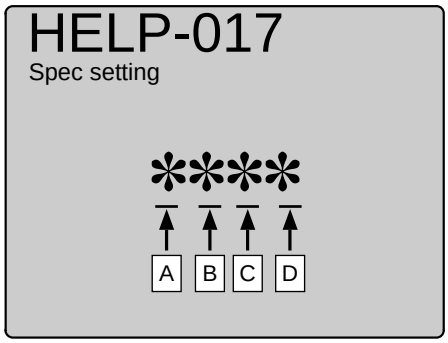
A : Pre-platemaking slider operation enable/disable
B : Thick paper feed setting
C,D : Editing setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Pre-platemaking slider operation enable/disable / Thick paper feed setting / Editing setting

①Access HELP mode **H-17**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 * * *	Pre-platemaking slider operation enable/disable	Disable
1 * * *		Enable
* 0 * *	Thick paper feed setting	Used
* 1 * *		Not used
* * 0 0	Editing setting	No rotation
* * 0 1		90 degrees
* * 1 0		180 degrees
* * 1 1		AUTO
0 0 0 0	Factory setting	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-18 (1) Function testing

1. Functions

(1) Checking of number of error occurrences

- Following items are indicated.
  1. Paper jam right
  2. Paper jam left
  3. Master placing error
  4. Misfeed error
  5. Double-sheet feed jam
  6. Single-sheet feed jam
  7. Document jam (ADF)
  8. ID error

2. Operation procedure

Accessing HELP modes ➡ See page 213

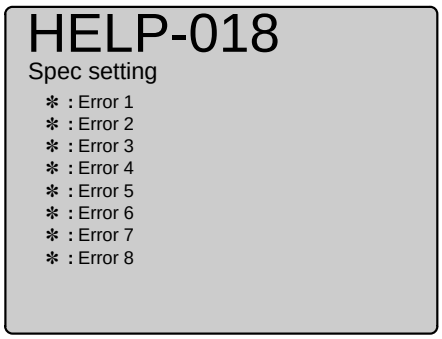
(1) Checking of number of error occurrences

①Access HELP mode **H-18**, and press the **PRINT** key.

Number of error occurrences

- The number of occurrences of errors 1 through 8 is displayed.

"Error 1": Paper jam right
"Error 2": Paper jam left
"Error 3": Master placing error
"Error 4": Misfeed error
"Error 5": Double-sheet feed jam
"Error 6": Single-sheet feed jam
"Error 7": Document jam (ADF)
"Error 8": ID error



②Press the ∧ and/or ∨ key to check the item.

③Press the [≦] and **CLEAR** keys.
The clearing will be number of error occurrences.

IMPORTANT :

- **Do not turn off the power before the "SAVE" display has disappeared.** ➡ See page 000

- During memorization:

- SAVE -

④Press 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 mode H-19 (1),(2) Total counts

1. Functions

(1) Printing total counter display

(2) Resetting of count of total sheets printed in user mode

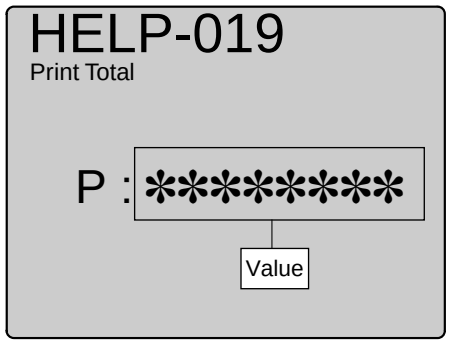
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Printing total counter display

①Access HELP mode **H-19**, and press the **PRINT** key.

- When the **PRINT** key is pressed, the total number of printing is displayed.



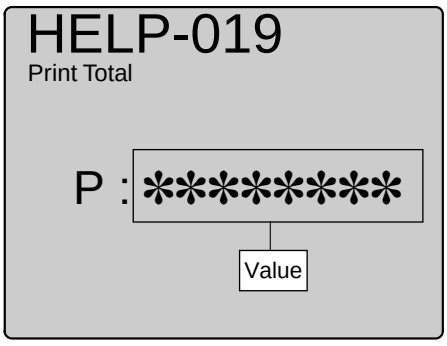
②Press the **STOP** key.
The HELP mode selection display will reappear.

➡ **To exit the HELP mode**	: Turn the power switch OFF.
➡ **To access another HELP mode**	: Enter the desired mode number using the numeric keys.

(2) Resetting of count of total sheets printed in user mode

①Access HELP mode **H-19**, and press the **PRINT** key.

- When the **PRINT** key is pressed, the total number of printing is displayed.



②Press the [≧] and **CLEAR** keys.
The resetting will be memorized.

IMPORTANT :

- **Do not turn off the power before the "SAVE" display has disappeared.**

- During memorization:

- SAVE -

③Press 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.

MEMO

Modes H-20 are not used.

HELP mode H-21 (1) ADF communication check

1. Functions

(1) ADF communication check

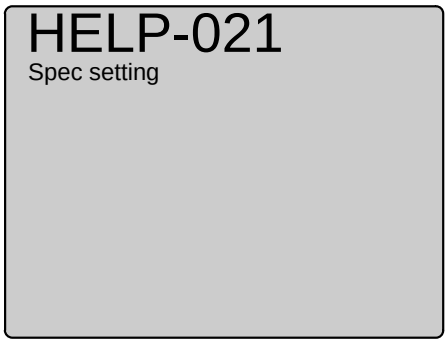
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) ADF communication check

①Access HELP mode **H-21**, and press the **PRINT** key.

- Perform a communication check between the ADF and the main board. If an error is indicated, refer to the Troubleshooting Guide for a solution.



②Press 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 mode H-22 (1) Adjustment / specification setting

1. Functions

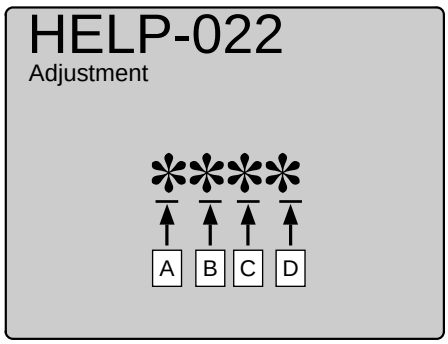
(1) Master make magnification / line progression direction setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Setting of master make magnification / line progression direction setting

①Access HELP mode **H-22**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 * * *	Sign flag	Shortens by the set amount for the lower 3 digits.
1 * * *		Lengthens by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value)
* 0 0 1		↕ 1 rank: 0.125%
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		Maximum

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-23 (1) Adjustment / specification setting

1. Functions

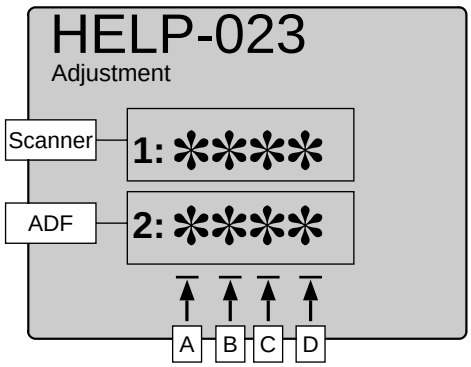
(1) Photo mode scan density setting

- Following items are indicated.
  1. Photo mode scan density (Scanner)
  2. Photo mode scan density (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Photo mode scan density setting



①Access HELP mode **H-23**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 ✻ ✻ ✻	Sign flag	Lighter by the set amount for the lower 3 digits
1 ✻ ✻ ✻		Darker by the set amount for the lower 3 digits
✻ 0 0 0	Set amount	Standard (initial value)
✻ 0 0 1		1 rank: 0.125%
✻ 0 1 0		
✻ 0 1 1		
✻ 1 0 0		
✻ 1 0 1		
✻ 1 1 0		
✻ 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-24 (1) Adjustment / specification setting

1. Functions

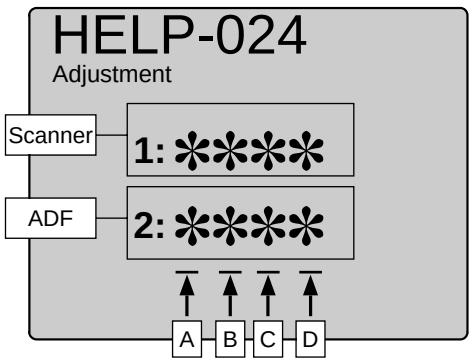
(1) Scan R/E /line progression direction setting

- Following items are indicated.
  1. Scan R/E /line progression direction (Scanner)
  2. Scan R/E /line progression direction (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Scan R/E /line progression direction setting



①Access HELP mode **H-24**, and press the **PRINT** key.

②Press the and/or key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 0	Set amount	Standard (initial value)
0 0 0 1		1 rank: 0.25%
0 0 1 0		
0 0 1 1		
• • • • •		
1 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-25 (1) Adjustment / specification setting

1. Functions

(1) Scan R/E /line progression direction setting (ADF)

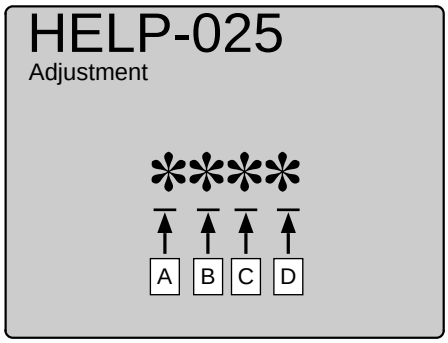
- Adjust the scan R/E /line progression direction of ADF with H-25 if it cannot be corrected with H-24.

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Scan R/E /line progression direction setting (ADF)

①Access HELP mode **H-25**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 0	Set amount	Standard (initial value)
0 0 0 1		↑ 1 rank: 0.25%
0 0 1 0		
0 0 1 1		
• • • • •		
1 1 1 1		Maximum

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-26 (1) Adjustment / specification setting

1. Functions

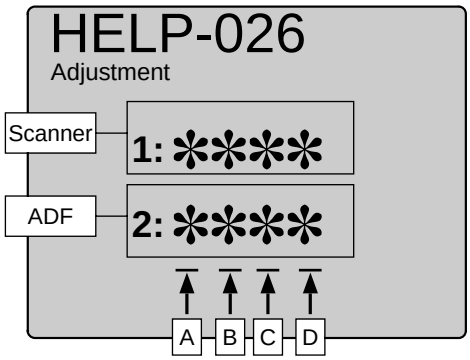
(1) Photo mode white level setting

- Following items are indicated.
  1. Photo mode white level (Scanner)
  2. Photo mode white level (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Photo mode white level setting



①Access HELP mode **H-26**, and press the **PRINT** key.

②Press the and/or key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 ✻ ✻ ✻	Sign flag	Rises by the set amount for the lower 3 digits
1 ✻ ✻ ✻		Lowers by the set amount for the lower 3 digits
✻ 0 0 0	Set amount	Standard (initial value)
✻ 0 0 1		1 rank: 0.25%
✻ 0 1 0		
✻ 0 1 1		
✻ 1 0 0		
✻ 1 0 1		
✻ 1 1 0		
✻ 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-27 (1) Adjustment / specification setting

1. Functions

(1) Initialization of all HELP mode settings

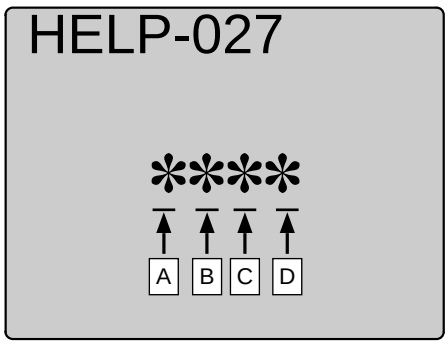
- To Initialize all adjustments and spec settings in HELP mode.
  (As to the total counter (H-14 and 19), Only user mode counters are cleared.)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Initializing all the HELP mode settings

①Access HELP mode **H-27**, and press the **PRINT** [◇] key.



②Press the [≧] [ ] key. The adjustment and specification settings of the HELP modes will be initialized. (But for the total counts (H-14 and H-19), only the user mode values will be initialized.) While initialization is in progress, **"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

- **Do not turn off the power before the "SAVE" display has disappeared.**

③Press 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.

IMPORTANT :

- **For the values after initialization, see the initialization values for each mode, and the HELP decals (on the inside of the front cover).**
- **After initialization, carry out the adjustment and specification setting operations for the various modes.**
  Inappropriate settings will results in operational problems.

HELP mode H-28 (1) Adjustment / specification setting

1. Functions

(1) Tape cluster,Buzzer options,Key card counter Ⅱ setting

- Following items are indicated.

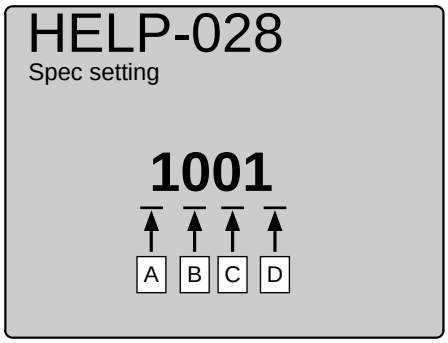
A :Tape cluster
B,C :Buzzer options
D :Key card counter Ⅱ

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Tape cluster,Buzzer options,Key card counter Ⅱ setting

①Access HELP mode **H-28**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0＊＊＊	Whether there is a TAPE CLUSTER or not.	There is a TAPE CLUSTER.
1＊＊＊		There is not a TAPE CLUSTER.
＊0 0＊	Selecting buzzer.	Standard (Buzzer sounds)
＊0 1＊		Buzzer does not sound when trouble occurs.
＊1 0＊		Does not sound
＊1 1＊		Does not sound
＊＊＊0	KEYCARD COUNTER 2 specifications	KEYCARD COUNTER 2
＊＊＊1		No KEYCARD COUNTER 2
1 0 0 1	Initial value	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-29 (1) Adjustment / specification setting

1. Functions

(1) Adjustment of master infeed amount

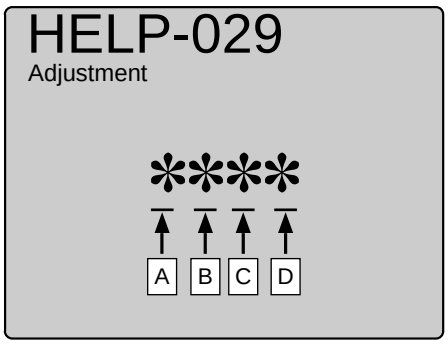
- Feed amount is adjusted after cutter operation.

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Adjustment of master infeed amount

①Access HELP mode **H-29**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 * * *	Sign flag	Shortens by the set amount for the lower 3 digits.
1 * * *		Lengthens by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value)
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		Maximum

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-30 (1) Function checking

1. Functions

(1) Test pattern

- Master making/ printing of Test patterns (slant lines, magnification adjustment in line progression direction.)
  1.Test pattern 1 (slant lines pattern)
  2.Test Pattern 2 (magnification adjustment in line progression direction)

2. Operation procedure

Accessing HELP modes ➡ See page 213

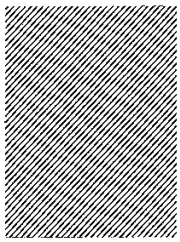
(1) Test pattern

①Access HELP mode **H-30**, and press the **PRINT** key.

②Press the and/or key to select the item.

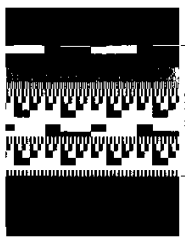
Test pattern 1

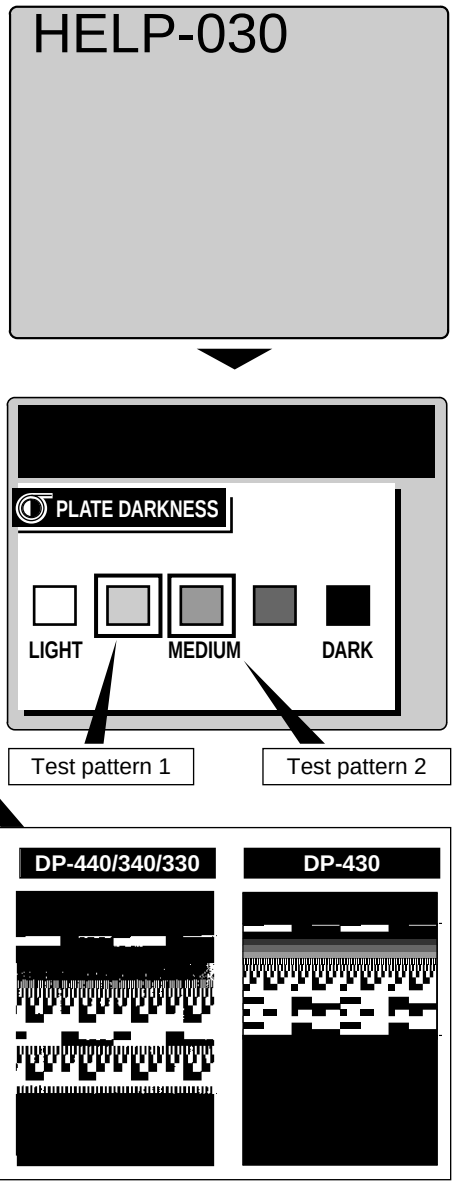
- **Test pattern 1 (slant lines pattern)**
  1. Press the **PLATE DARKNESS** key .
  2. Press the and/or key to select the **LIGHT 1**.
  3. Press the OK key.
  4. Press the **PLATE MAKING** key .



Test pattern 2

- **Test pattern 2**
  1. Press the **PLATE DARKNESS** key .
  2. Press the and/or key to select the **MEDIUM**.
  3. Press the OK key.
  4. Press the **PLATE MAKING** key .





IMPORTANT :
Once this mode has been entered, it is not possible to switch to any other mode.
To exit this mode, turn off the power.

③Press the **PLATEMAKING** key to implement platemaking/printing.

④Press 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 mode H-31 (1) Adjustment / specification setting

1. Functions

(1) Pre-print setting

- Use this to set a value for the number of pre-print sheets.
  "Pre-print sheets" are extra sheets that are printed at the start of printing, without being added to the print count.

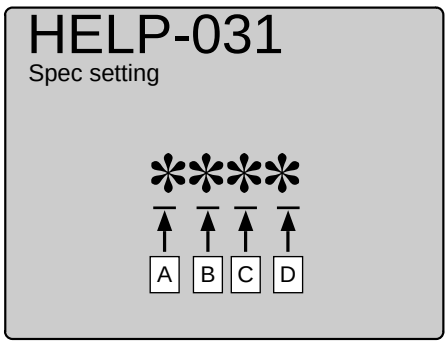
2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Pre-print setting

①Access HELP mode **H-31**, and press the **PRINT** key.

②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.



ABCD	Item	ABCD	Item
0 0 0 0	0 sheet(initial value)	1 0 0 0	8 sheets
0 0 0 1	1 sheet	1 0 0 1	9 sheets
0 0 1 0	2 sheets	1 0 1 0	10 sheets
0 0 1 1	3 sheets	1 0 1 1	11 sheets
0 1 0 0	4 sheets	1 1 0 0	12 sheets
0 1 0 1	5 sheets	1 1 0 1	13 sheets
0 1 1 0	6 sheets	1 1 1 0	14 sheets
0 1 1 1	7 sheets	1 1 1 1	15 sheets

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

- During memorization:

- SAVE -

④Press 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 mode H-32 (1) Adjustment / specification setting

1. Functions

(1) Confidential Safeguard,First print setting,Master ejection failure detection,Default Sort mode setting

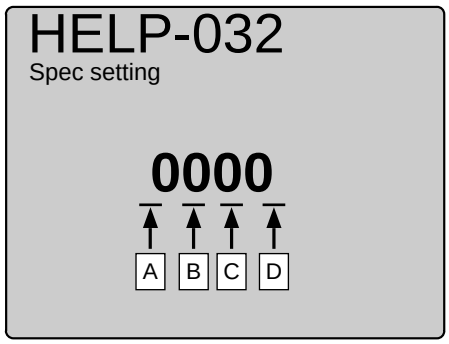
- Following items are indicated.

A : (Not used)
B : First print setting
C : Master ejection failure detection
D : Default Sort mode setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Confidential Safeguard,First print setting,Master ejection failure detection,Default Sort mode setting



①Access HELP mode **H-32**, and press the **PRINT** key.

②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 * * *	Not used	
1 * * *		
* 0 * *	Selecting the print speed for the first sheet after master make is completed.	1st-speed (about 45 rpm)
* 1 * *		JOG speed (about 15 rpm)
* * 0 *	Master ejection failure detection	Yes
* * 1 *		No
* * * 0	Default Sort mode setting	No sort mode
* * * 1		Sort mode
0 0 0 0	Initial value	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-33 (1) Adjustment / specification setting

1. Functions

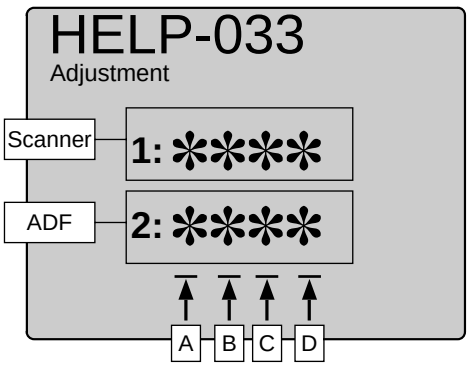
(1) Text mode white level setting

- Following items are indicated.
  1. Text mode white level (Scanner)
  2. Text mode white level (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Text mode white level setting



①Access HELP mode **H-33**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 * * *	Sign flag	Rises by the set amount for the lower 3 digits
1 * * *		Lowers by the set amount for the lower 3 digits
* 0 0 0	Set amount	Standard (initial value)
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-34 (1) Adjustment / specification setting

1. Functions

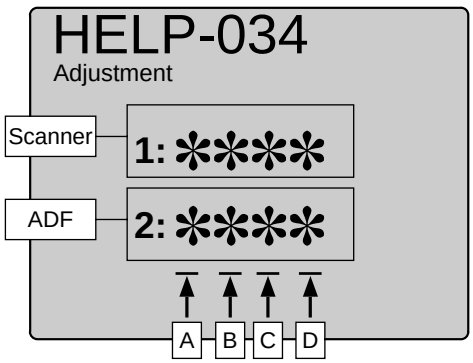
(1) Scanning start position setting[Document memory]

- Following items are indicated.
  1. Scanning start position [Document memory] (Scanner)
  2. Scanning start position [Document memory] (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Scanning start position setting[Document memory]



①Access HELP mode **H-34**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 ✱ ✱ ✱	Sign flag	Moves to the left by the set amount of the lower 3 digits.
1 ✱ ✱ ✱		Moves to the right by the set amount of the lower 3 digits.
✱ 0 0 0	Set amount	Standard (initial value)
✱ 0 0 1		
✱ 0 1 0		
✱ 0 1 1		
✱ 1 0 0		
✱ 1 0 1		
✱ 1 1 0		
✱ 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-35 (1) Adjustment / specification setting

1. Functions

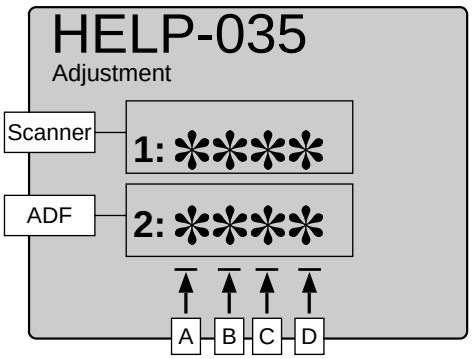
(1) Scanning start position setting

- Following items are indicated.
  1. Scanning start position (Scanner)
  2. Scanning start position (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Scanning start position setting



①Access HELP mode **H-35**, and press the **PRINT** key.

②Press the and/or key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 * * *	Sign flag	Moves to the left by the set amount of the lower 3 digits.
1 * * *		Moves to the right by the set amount of the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value)
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-36 (1) Adjustment / specification setting

1. Functions

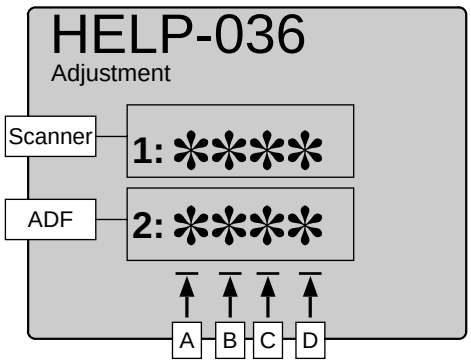
(1) Scanning start/ Pel path direction setting

- Following items are indicated.
  1. Scanning start/ Pel path direction (Scanner)
  2. Scanning start/ Pel path direction (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Scanning start/ Pel path direction setting



①Access HELP mode **H-36**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 * * *	Sign flag	Moves toward you by the set amount of the lower 3 digits.
1 * * *		Moves backward by the set amount of the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value)
* 0 0 1		1 rank: 1mm
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* * * 1		
* 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-37 (1) Adjustment / specification setting

1. Functions

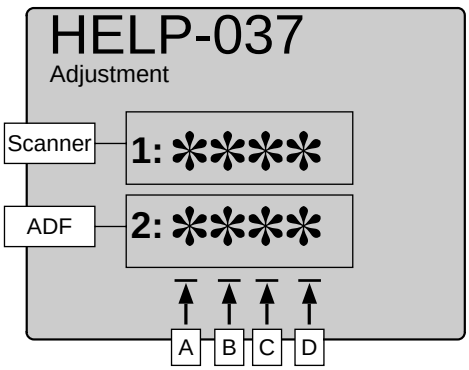
(1) Scanning start/ Line progression direction setting

- Following items are indicated.
  1. Scanning start/ Line progression direction (Scanner)
  2. Scanning start/ Line progression direction (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Scanning start/ Line progression direction setting



①Access HELP mode **H-37**, and press the **PRINT** key.

②Press the and/or key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 ✱ ✱ ✱	Sign flag	Rises by the set amount for the lower 3 digits
1 ✱ ✱ ✱		Lowers by the set amount for the lower 3 digits
✱ 0 0 0	Set amount	Standard (initial value)
✱ 0 0 1		
✱ 0 1 0		
✱ 0 1 1		
✱ 1 0 0		
✱ 1 0 1		
✱ 1 1 0		
✱ 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

- During memorization:

- SAVE -

⑤Press 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.

Modes H-38,H-39 are not used.

HELP mode H-40 (1) Adjustment / specification setting

1. Functions

(1) Outline highlight setting

- Following items are indicated.

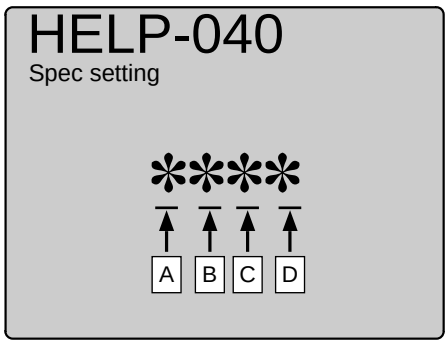
A : (Not used)
B : (Not used)
C,D : Outline highlight (Scanner)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Outline highlight setting

①Access HELP mode **H-40**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 ＊ ＊ ＊	Not used	
1 ＊ ＊ ＊		
＊ 0 ＊ ＊	Not used	
＊ 1 ＊ ＊		
＊ ＊ 0 0	Photograph mode	Normal
＊ ＊ 0 1		Dark
＊ ＊ 1 0		Light
0 0 0 0	Initial value	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-41 (1) Adjustment / specification setting

1. Functions

(1) Paper size selection,Double feed detection,Counter repeat, Sorter return timing setting

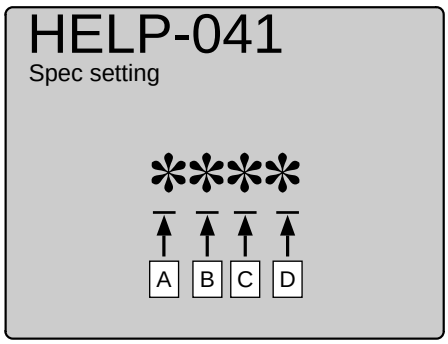
- Following items are indicated.
  - A : Paper size selection setting
  - B : Double feed detection setting
  - C : Counter repeat setting
  - D : Sorter return timing setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Paper size selection,Double feed detection,Counter repeat, Sorter return timing setting

①Access HELP mode **H-41**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0＊＊＊	Paper size selection setting	A/B size
1＊＊＊		Inch size
＊0＊＊	Double feed detection setting	OFF
＊1＊＊		ON
＊＊0＊	Count repeat display	Repeat display of count
＊＊1＊		No repeat display of count
＊＊＊0	Selection of sorter home position return timing	To home position after complation of last sheet
＊＊＊1		To home position when next print run starts
0 0 0 0	Initial value	

③Press the [≧] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-42 (1) Adjustment / specification setting

1. Functions

(1) Default paper option setting

2. Operation procedure

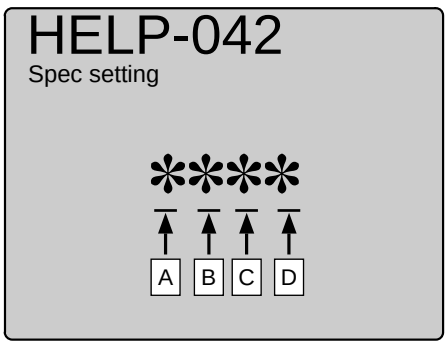
Accessing HELP modes ➡ See page 213

(1) Default paper option setting

①Access HELP mode **H-42**, and press the **PRINT** key.

Display (when H-41 is set as follows)

- **A=0 : A/B size, A=1 : Inch size**



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.

See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	ABCD	Item
0 0 0 0	A3	0 0 0 0	11×17
0 0 0 1	B4	0 0 0 1	LG
0 0 1 0	A4R	0 0 1 0	LTR
0 0 1 1	B5R	0 0 1 1	STR
0 1 0 0	A5R	0 1 0 0	MAX
0 1 0 1	POST	0 1 0 1	—

③Press the [≦] key.

The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-43,H-44 (1) Adjustment / specification setting

1. Functions

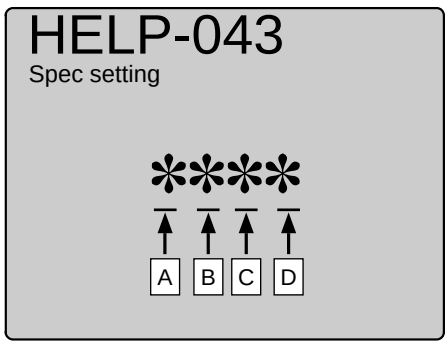
(1) Thermal head resistance ranking setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Thermal head resistance ranking setting

①Access HELP mode **H-43**, and press the **PRINT** [◈] key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

H-43	H-44	DP-440 / DP-340		DP-430 / DP-330	
		Lank	Resistance (Ω)	Lank	Resistance (Ω)
0100	1011	1	1822 - 1860	00	3825 - 3908
0101	1000	2	1861 - 1899	01	3909 - 3993
0101	1001	3	1900 - 1939	02	3994 - 4077
0101	1010	4	1940 - 1979	03	4078 - 4162
0101	1011	5	1980 - 2019	04	4163 - 4246
0110	1000	6	2020 - 2059	05	4247 - 4330
0110	1001	7	2060 - 2099	06	4331 - 4415
0110	1010	8	2100 - 2139	07	4416 - 4499
0110	1011	9	2140 - 2179	08	4500 - 4583
0111	1000	10	2180 - 2220	09	4584 - 4668
0111	1001	11	2221 - 2261	10	4669 - 4752
0111	1010	12	2262 - 2302	11	4753 - 4837
0111	1011	13	2303 - 2343	12	4838 - 4921
1000	1000	14	2344 - 2384	13	4922 - 5005
1000	1001	15	2385 - 2425	14	5006 - 5090
1000	1010	16	2426 - 2466	15	5091 - 5075

③Press the [≦] [▭] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

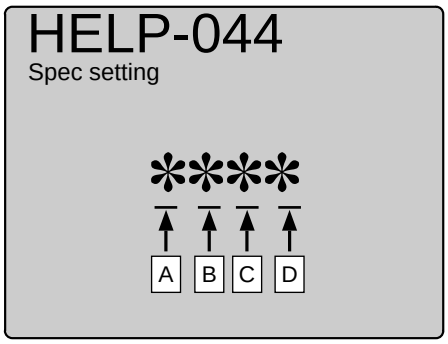
④Press the **STOP** [▽] key.
The HELP mode selection display will reappear.

HELP mode H-43,H-44 (1) Adjustment / specification setting

⑤Access HELP mode **H-44**, and press the **PRINT** key.

⑥Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.

See the table below for 4-place binary values and the corresponding correction amounts.



H-43	H-44	DP-440 / DP-340		DP-430 / DP-330	
		Lank	Resistance (Ω)	Lank	Resistance (Ω)
0100	1011	1	1822 - 1860	00	3825 - 3908
0101	1000	2	1861 - 1899	01	3909 - 3993
0101	1001	3	1900 - 1939	02	3994 - 4077
0101	1010	4	1940 - 1979	03	4078 - 4162
0101	1011	5	1980 - 2019	04	4163 - 4246
0110	1000	6	2020 - 2059	05	4247 - 4330
0110	1001	7	2060 - 2099	06	4331 - 4415
0110	1010	8	2100 - 2139	07	4416 - 4499
0110	1011	9	2140 - 2179	08	4500 - 4583
0111	1000	10	2180 - 2220	09	4584 - 4668
0111	1001	11	2221 - 2261	10	4669 - 4752
0111	1010	12	2262 - 2302	11	4753 - 4837
0111	1011	13	2303 - 2343	12	4838 - 4921
1000	1000	14	2344 - 2384	13	4922 - 5005
1000	1001	15	2385 - 2425	14	5006 - 5090
1000	1010	16	2426 - 2466	15	5091 - 5075

⑦Press the [≦] key.

The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑧Press 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 mode H-45 (1) Adjustment / specification setting

1. Functions

(1) Setting of special paper size length (lower-order 4bits)

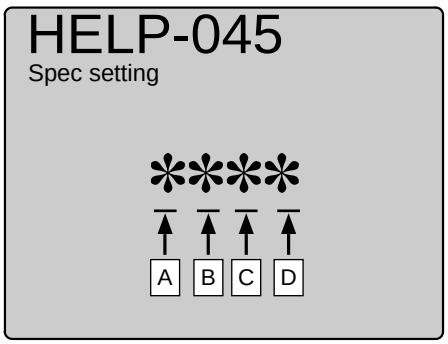
- The length of a special paper size is set using HELP modes H-45 and H-46. **H-45 is used for the lower-order 4 bits of the setting,** and H-46 for the higher-order 4.

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Setting of special paper size length (lower-order 4bits)

①Access HELP mode **H-45**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

H-46	H-45	Set width(mm)
0 0 0 0	0 0 0 0	Initial value
0 0 0 0	0 0 0 1	Set width Converted desimal value for binary H-46 (upper 4 bits) + binary H-45 (lower 4 bits) × 2 mm Example : H-46 = 0111, H-45 = 1101 01111101 = 125 125 × 2 = 250 Set width = 250mm Maximum value is 432mm.*
0 0 0 0	0 0 1 0	
. . . . .	. . . . .	
1 1 0 1	1 0 0 0	Maximum : 432mm

③Press the [≧] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-46 (1) Adjustment / specification setting

1. Functions

(1) Setting of special paper size length (higher-order 4bits)

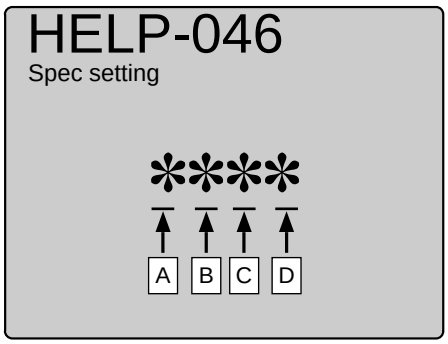
- The length of a special paper size is set using HELP modes H-45 and H-46. H-45 is used for the lower-order 4 bits of the setting, and **H-46 for the higher-order 4**.

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Setting of special paper size length (higher-order 4bits)

①Access HELP mode **H-46**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

H-46	H-45	Set width(mm)
0 0 0 0	0 0 0 0	Initial value
0 0 0 0	0 0 0 1	Set width Converted desimal value for binary H-46 (upper 4 bits) + binary H-45 (lower 4 bits) × 2 mm Example : H-46 = 0111, H-45 = 1101 01111101 = 125 125 × 2 = 250 Set width = 250mm Maximum value is 432mm.*
0 0 0 0	0 0 1 0	
.	.	
.	.	
.	.	
.	.	
.	.	
1 1 0 1	1 0 0 0	Maximum : 432mm

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-47 (1) Adjustment / specification setting

1. Functions

(1) Setting of special paper size width (lower-order 4bits)

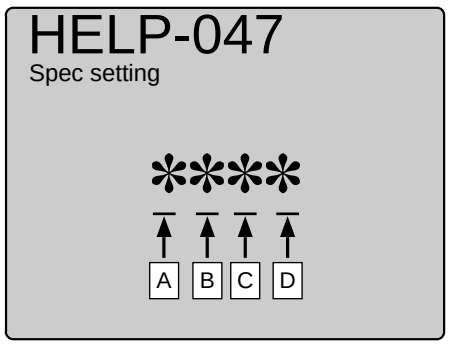
- The width of a special paper size is set using HELP modes H-47 and H-48. **H-47 is used for the lower-order 4 bits of the setting,** and H-48 for the higher-order 4.

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1)Setting of special paper size width (lower-order 4bits)

①Access HELP mode **H-47**, and press the **PRINT** [◇] key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

H-48	H-47	Set width(mm)
0 0 0 0	0 0 0 0	Initial value
0 0 0 0	0 0 0 1	Set width Converted desimal value for binary H-48 (upper 4 bits) + binary H-47 (lower 4 bits) × 2 mm Example : H-46 = 0111, H-45 = 1101 01111101 = 125 125 × 2 = 250 Set width = 250mm Maximum value is 290mm.*
0 0 0 0	0 0 1 0	
. . . . .	. . . . .	
1 0 0 1	0 0 0 1	Maximum : 290mm

③Press the [≦] [↵] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-48 (1) Adjustment / specification setting

1. Functions

(1) Setting of special paper size width (higher-order 4bits)

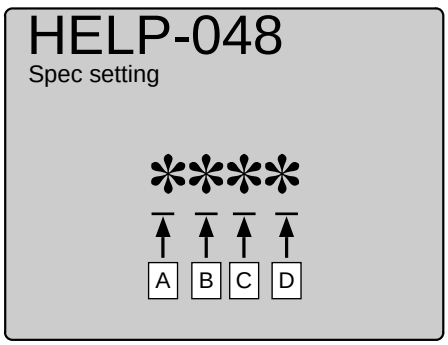
- The width of a special paper size is set using HELP modes H-47 and H-48. H-47 is used for the lower-order 4 bits of the setting, and **H-48 for the higher-order 4.**

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Setting of special paper size width (higher-order 4bits)

①Access HELP mode **H-48**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

H-48	H-47	Set width(mm)
0 0 0 0	0 0 0 0	Initial value
0 0 0 0	0 0 0 1	Set width Converted desimal value for binary H-48 (upper 4 bits) + binary H-47 (lower 4 bits) × 2 mm Example : H-46 = 0111, H-45 = 1101 01111101 = 125 125 × 2 = 250 Set width = 250mm Maximum value is 290mm.*
0 0 0 0	0 0 1 0	
.	.	
.	.	
.	.	
.	.	
.	.	
1 0 0 1	0 0 0 1	Maximum : 290mm

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-49 (1) Adjustment / specification setting

1. Functions

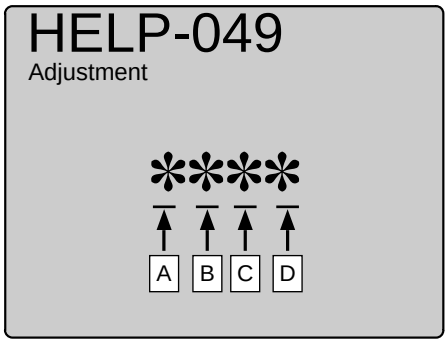
(1) Scan magnification (pel path direction)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Scan magnification (pel path direction)

①Access HELP mode **H-49**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 * * *	Sign flag	Shortens by the set amount for the lower 3 digits.
1 * * *		Lengthens by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value)
* 0 0 1		↕
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		Maximum

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-50 (1) Adjustment / specification setting

1. Functions

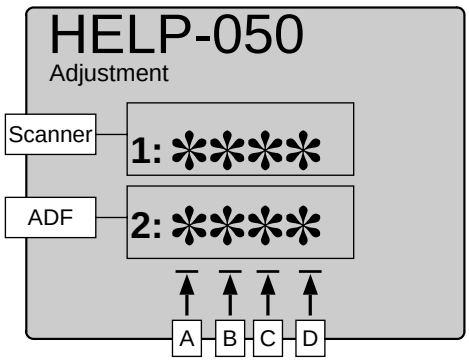
(1) Text mode Scan density setting

- Following items are indicated.
  1. Text mode Scan density (Scanner)
  2. Text mode Scan density (ADF)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Text mode Scan density setting



①Access HELP mode **H-50**, and press the **PRINT** key.

②Press the and/or key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 ✻ ✻ ✻	Sign flag	Lighter by the set amount for the lower 3 digits
1 ✻ ✻ ✻		Darker by the set amount for the lower 3 digits
✻ 0 0 0	Set amount	Standard (initial value)
✻ 0 0 1		
✻ 0 1 0		
✻ 0 1 1		
✻ 1 0 0		
✻ 1 0 1		
✻ 1 1 0		
✻ 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-51 (1) Adjustment / specification setting

1. Functions

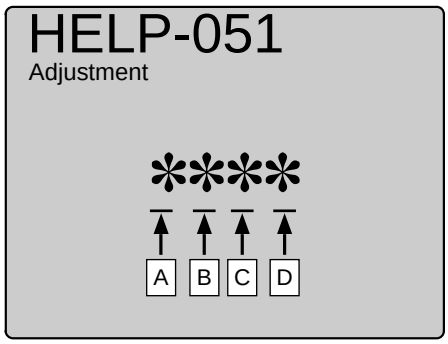
(1) Setting of darkness for test pattern platemaking

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Setting of darkness for test pattern platemaking

①Access HELP mode **H-51**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 * * *	Sign flag	Lighter by the set amount for the lower 3 digits
1 * * *		Darker by the set amount for the lower 3 digits
* 0 0 0	Set amount	Standard (initial value)
* 0 0 1		↕
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		Maximum

③Press the [≧] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-52, H-57 (1) Adjustment / specification setting

1. Functions

(1) I/ F switch,DP-10 test pattern,1 line process time setting

- Following items are indicated.

A : I/F switch(H-52)
B : DP-10 test pattern(H-52)
C,D : 1 line process time(H-52), 1 line scan time(H-57)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1)I/ F switch,DP-10 test pattern,1 line process time setting

①Access HELP mode **H-52**, and press the **PRINT** [◈] key.

1 line scan time (H-57)

- Access HELP mode **H-57**, and press the **PRINT** [◈] key.

②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

H-52	H-57	Item	Setting
0 0 ∗ ∗		I / F auto / manual setting	Manual
1 1 ∗ ∗			Auto(standard)
∗ ∗ 0 ∗		DP-10 test pattern	Standard
∗ ∗ 1 ∗			DP-10 test pattern only
∗ ∗ ∗ 1	0 ∗ ∗ ∗	1 line process / scan time	1.6m sec / line
∗ ∗ ∗ 0	0 ∗ ∗ ∗		2.0m sec / line(standard)
∗ ∗ ∗ 1	1 ∗ ∗ ∗		3.2m sec / line
∗ ∗ ∗ 0	1 ∗ ∗ ∗		4.0m sec / line
0 0 0 0	0 0 0 0		Factory setting

HELP-052
Spec setting
∗∗∗∗
A B C D

HELP-057
Spec setting
∗∗∗∗
A B C D

③Press the [≦] [⌫] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :
Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-53 (1) Adjustment / specification setting

1. Functions

(1) Widthwise master-making start position (Online) setting [Parallel / Inter face kit Ⅱ]

- Following items are indicated.
  1. Widthwise master-making start position setting(Parallel)
  2. Widthwise master-making start position setting(Inter face kit Ⅱ)

2. Operation procedure

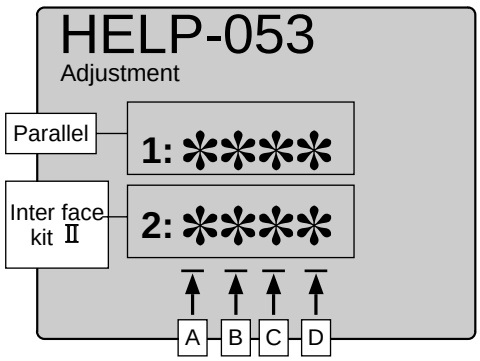
Accessing HELP modes ➡ See page 213

(1) Widthwise master-making start position (Online) setting (Online) [Parallel / Inter face kit Ⅱ]

①Access HELP mode **H-53**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.



ABCD	Item	Setting
0 ✻ ✻ ✻	Sign flag	Moves toward you by the set amount of the lower 3 digits.
1 ✻ ✻ ✻		Moves backward by the set amount of the lower 3 digits.
✻ 0 0 0	Set amount	Standard (initial value)
✻ 0 0 1		
✻ 0 1 0		
✻ 0 1 1		
✻ 1 0 0		
✻ 1 0 1		
✻ ✻ ✻ 1		
✻ 1 1 1		Maximum

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

⑤Press 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 mode H-54 (1) Function testing

1. Functions

(1) Main PCB unit sorter port operation check

2. Operation procedure

Accessing HELP modes ➡ See page 213

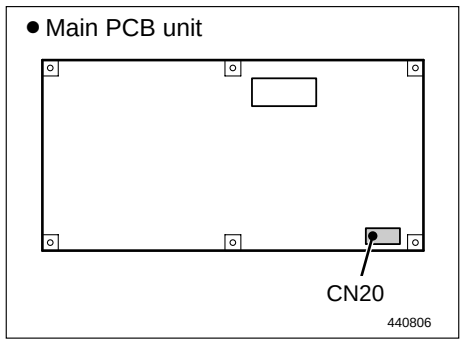
(1) Main PCB unit sorter port operation check

①During use of the DUPRINTER : first put the machine into the standby state, then turn the power switch OFF.

②Short **CN20-9** and **CN20-12** of the main PCB unit, to check the port.

⚠ WARNING

- **The power switch MUST be turned off before the following operation is performed.**



③Access HELP mode **H-54**, and press the **PRINT** key.

- When the PRINT key is pressed, a 4-digit binary value representing the communication status will be displayed.

④Press 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 mode H-55 (1) Adjustment / specification setting

1. Functions

(1) Ink check when starting printing,Emergency stop,Signal jam setting

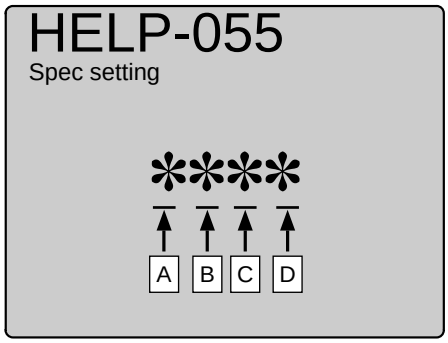
- Following items are indicated.
  - A : Ink check when starting printing
  - B : (Not used)
  - C : Emergency stop (interlock)
  - D : Signal jam

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Ink check when starting printing,Emergency stop,Signal jam setting

①Access HELP mode **H-55**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 ＊＊＊	Setting of ink check, that triggers ink replenishment if no ink is detected at printing start	Ink check
1 ＊＊＊		No ink check
＊0＊＊	Not used	
＊1＊＊		
＊＊0＊	Interlock: emergency stop if scanner unit or ejection box open	Activated
＊＊1＊		Deactivated
＊＊＊0	Signal jam setting	Stops if jam occurs twice on the left side
＊＊＊1		Stops if jam occurs once on the left side
0 0 0 0	Initial value	

③Press the [≧] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-56 (1) Adjustment / specification setting

1. Functions

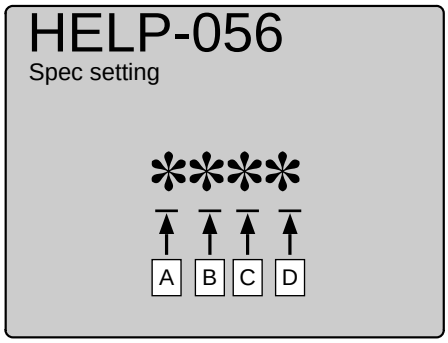
(1) LCD language setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) LCD language setting

①Access HELP mode **H-56**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

A B C D	Setting	A B C D	Setting
0 0 0 0	Japanese	0 1 0 1	Spanish
0 0 0 1	Korean	0 1 1 0	German
0 0 1 0	Chinese 1	0 1 1 1	French
0 0 1 1	Chinese 2	1 0 0 0	Italian
0 1 0 0	English	1 0 0 1	Russian

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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.

Modes H-57(refer to H-52). Modes H-58 is not used.

HELP mode H-59 (1) Adjustment / specification setting

1. Functions

(1) "Out of ink" count change,Fine start mode ON/OFF setting

- Following items are indicated.
  - A : (Not used)
  - B : (Not used)
  - C : "Out of ink" count change
  - D : Fine start mode ON/OFF (factory check)

2. Operation procedure

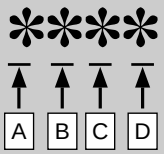
Accessing HELP modes ➡ See page 213

(1) "Out of ink" count change,Fine start mode ON/OFF setting

①Access HELP mode **H-59**, and press the **PRINT** [◇] key.

②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

HELP-059
Spec setting



Display	Item	Setting
0 ＊＊＊	Not used	
1 ＊＊＊		
＊ 0＊＊	Not used	
＊ 1＊＊		
＊＊ 0＊	Changing of out-of-ink count. Display of out-of-ink count Changing of count value	Standard (20 revolutions at speed 3)
＊＊ 1＊		Treble (60 revolutions at speed 3)
＊＊＊ 0	Dis/enabling of Fine Start Mode	Enabled ((activated by HELP60/operation panel settings)
＊＊＊ 1		Disabled (enforced deactivation)
0 0 1 0	Factory setting	

③Press the [≦] [ ] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

- During memorization:

- SAVE -

④Press 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 mode H-60 (1) Adjustment / specification setting

1. Functions

(1) Control panel auto clear - timer, Fine star mode timer setting

- Following items are indicated.

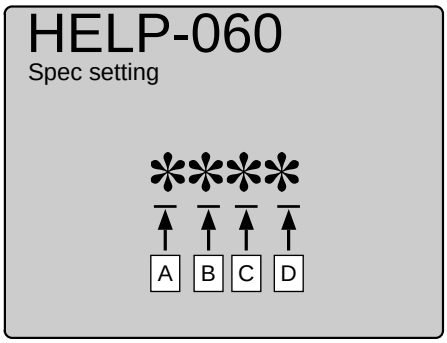
A ,B : Control panel auto clear - timer setting
C,D : Fine star mode - timer setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Control panel auto clear - timer, Fine star mode timer setting

①Access HELP mode **H-60**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 0 ∗∗	Control panel auto clear - timer setting	OFF
0 1 ∗∗		3 minutes
1 0 ∗∗		10 minutes
1 1 ∗∗		15 minutes
∗∗ 0 0	Fine star mode - timer setting	Deactivated
∗∗ 0 1		6 hours
∗∗ 1 0		12 hours
∗∗ 1 1		Auto
0 0 1 1	Factory setting	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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.

Modes H-61 and H-62 are not used.

HELP mode H-63 (1) Adjustment / specification setting

1. Functions

(1) 2 sheets memory (online) setting

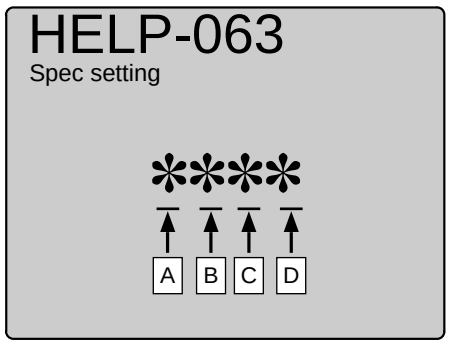
- Following items are indicated.
  A : 2 sheets memory (online) setting
  B : (Not used)
  C : (Not used)
  D : (Not used)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) 2 sheets memory (online) setting

①Access HELP mode **H-63**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 * * *	2 sheets memory (online) setting	OFF
1 * * *		ON
* 0 * *	(Not used)	
* 1 * *		
* * 0 *	(Not used)	
* * 1 *		
* * * 0	(Not used)	
* * * 1		
0 0 0 1	Factory setting	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-64 (1) Adjustment / specification setting

1. Functions

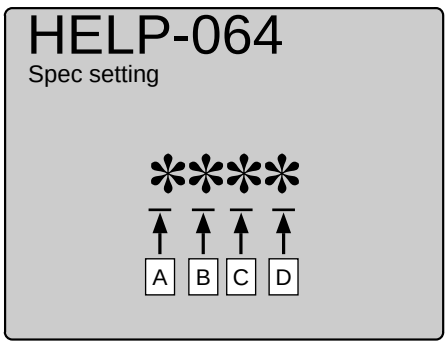
(1) Buzzer (tone) setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Buzzer (tone) setting

①Access HELP mode **H-64**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 ＊ ＊ ＊	Sign flag	Tone setting
＊ 0 0 0	Set amount	Standard (initial value : 0000)
＊ 0 0 1		↕ Tone adjusting
＊ 0 1 0		
＊ 0 1 1		Maximum

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

● During memorization:

- SAVE -

④Press 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.

Mode H-65 is not used.

HELP mode H-66 (1) Adjustment / specification setting

1. Functions

(1) Signal sensor ON/OFF, Loop sensor ON/OFF, A3/A4 drum, Long Mode setting

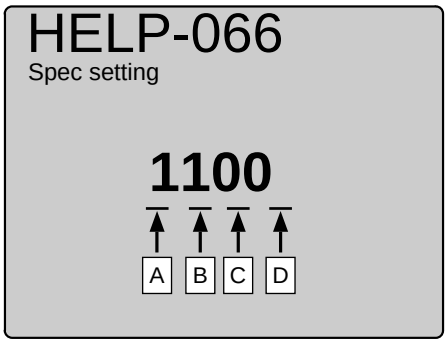
- Following items are indicated.
  - A : Signal sensor ON/OFF
  - B : Loop sensor ON/OFF
  - C : A3/A4 drum
  - D : Long Mode ON/OFF

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Signal sensor ON/OFF, Loop sensor ON/OFF, A3/A4 drum, Long Mode setting

①Access HELP mode **H-66**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0＊＊＊	Signal sensor setting	OFF
1＊＊＊		ON
＊0＊＊	Paper feed sensor (loop sensor) setting	OFF
＊1＊＊		ON
＊10＊	A3/A4 drum setting	A3
＊11＊		A4
＊＊＊0	Long Mode setting	OFF
＊＊＊1		ON
1100	Factory setting	

③Press the [≧] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-67 (1) Adjustment / specification setting

1. Functions

(1) Double feed detection, Tape cluster,A3/A4 drum, Long Mode display setting

- Following items are indicated.

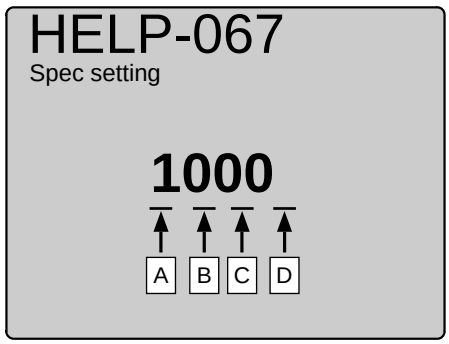
A : Double feed detection display setting
B : Tape cluster display setting
C : A3/A4 drum display setting
D : Long paper mode display setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Double feed detection, Tape cluster,A3/A4 drum, Long Mode display setting

①Access HELP mode **H-67**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 ＊ ＊ ＊	Double feed detection display setting	OFF
1 ＊ ＊ ＊		ON
＊ 0 ＊ ＊	Tape cluster display setting	OFF
＊ 1 ＊ ＊		ON
＊ 1 0 ＊	A3/A4 drum display setting	OFF
＊ 1 1 ＊		ON
＊ ＊ ＊ 0	Long mode display setting	OFF
＊ ＊ ＊ 1		ON
0 0 0 0	Factory setting	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-68 (1) Adjustment / specification setting

1. Functions

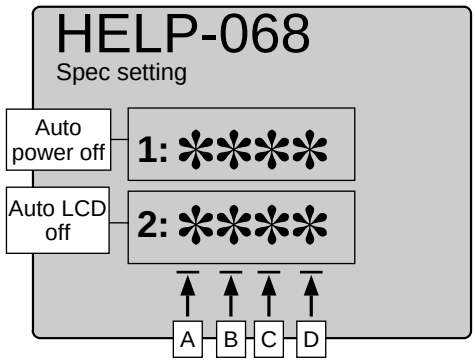
(1) Auto power off / Auto LCD off setting

- Following items are indicated.
  1. Auto power off
  2. Auto LCD off

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Auto power off / Auto LCD off setting



①Access HELP mode **H-68**, and press the **PRINT** key.

②Press the ∧ and/or ∨ key to select item.

③Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

A B C D	Setting
0 0 0 0	OFF
0 0 0 1	5 minutes
0 0 1 0	10 minutes
0 0 1 1	30 minutes
0 1 0 0	60 minutes

④Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

- During memorization:

- SAVE -

⑤Press 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.

Mode H-69 is not used.

HELP mode H-70 (1) Adjustment / specification setting

1. Functions

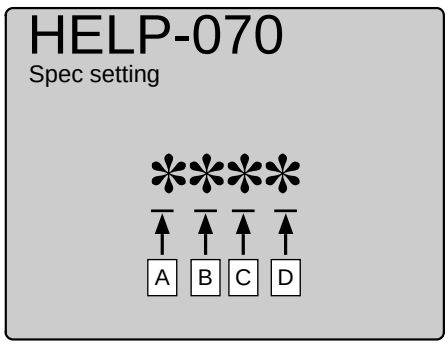
(1) Option setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Option setting

①Access HELP mode **H-70**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 0	Option setting	Normal
0 0 0 1		Option

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-71 (1) Adjustment / specification setting

1. Functions

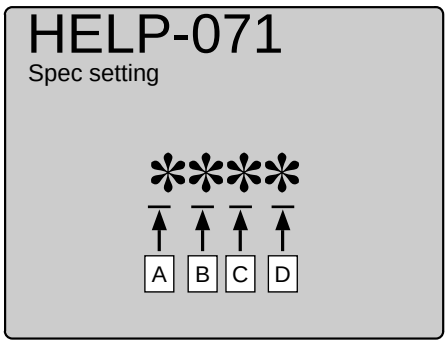
(1) Option setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Option setting

①Access HELP mode **H-71**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 0	Option setting	Normal
0 0 0 1		Option

③Press the [≧] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

● During memorization:

- SAVE -

④Press 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 mode H-72 (1) Adjustment / specification setting

1. Functions

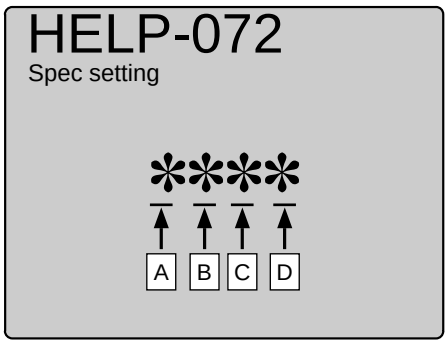
(1) Option setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Option setting

①Access HELP mode **H-72**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 0	Option setting	Normal
0 0 0 1		Option

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

● During memorization:

- SAVE -

④Press 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 mode H-73 (1) Adjustment / specification setting

1. Functions

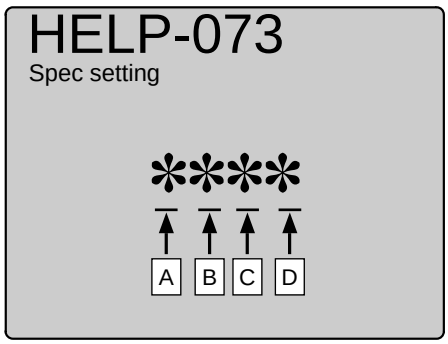
(1) Option setting

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Option setting

①Access HELP mode **H-73**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 0	Option setting	Normal
0 0 0 1		Option

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

● During memorization:

- SAVE -

④Press 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 mode H-74 (1) Adjustment / specification setting

1. Functions

(1) Initial print density, Initial master density,Initial document mode,Initial print speed setting

- Following items are indicated.

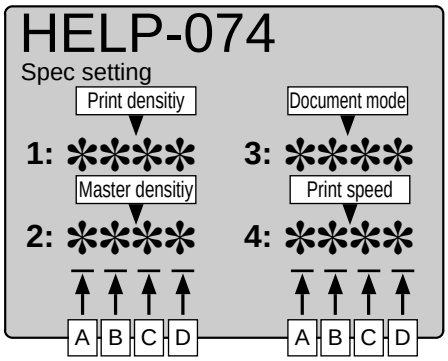
A : Initial print density
B : Initial master density
C : Initial document mode
D : Initial print speed

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Initial print density, Initial master density,Initial document mode,Initial print speed setting

①Access HELP mode **H-74**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.

See the table below for 4-place binary values and the corresponding correction amounts.

A B C D	1. Print density	2. Master density	3. Document mode	4. Print speed
0 0 0 0	LIGHT	LIGHT 2	TEXT	1st speed
0 0 0 1		LIGHT 1	PHOTO	2nd speed
0 0 1 0		MEDIUM	TEXT/PHOTO	3th speed
0 0 1 1		DARK 1	TEXT/FINE	4th speed
0 1 0 0		DARK 2	PHOTO/FINE	5th speed
0 1 0 1	MEDIUM		SCREEN 1	
0 1 1 0			SCREEN 2	
0 1 1 1			PHOTO DARK	
⋮				
1 0 1 0	DARK			

③Press the [≦] key.

The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-75 (1) Adjustment / specification setting

1. Functions

(1) USB setting

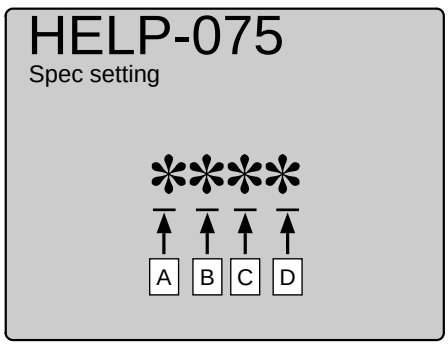
- When multiple DUPRINTERs are used, apply a USB ID to each of them (up to 15 units).

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) USB setting

①Access HELP mode **H-75**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

A B C D	Setting	A B C D	Setting
0 0 0 0	1	1 0 0 0	8
0 0 0 1	1	1 0 0 1	9
0 0 1 0	2	1 0 1 0	A
0 0 1 1	3	1 0 1 1	B
0 1 0 0	4	1 1 0 0	C
0 1 0 1	5	1 1 0 1	D
0 1 1 0	6	1 1 1 0	E
0 1 1 1	7	1 1 1 1	F

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-76 (1) Adjustment / specification setting

1. Functions

(1) C.(Centigrade) / F.(Fahrenheit) setting

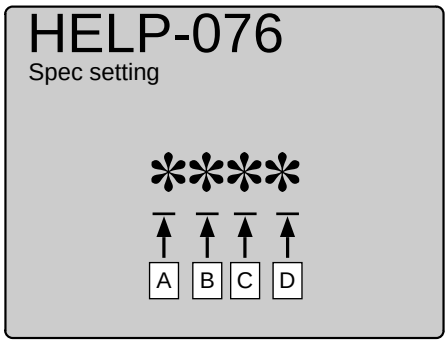
- Following items are indicated.
  A : C. / F. setting
  B : (Not used)
  C : (Not used)
  D : (Not used)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) C.(Centigrade) / F.(Fahrenheit) setting

①Access HELP mode **H-76**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 ✻ ✻ ✻	C. / F. setting	OFF : C.
1 ✻ ✻ ✻		ON : F.
✻ 0 ✻ ✻	(Not used)	
✻ 1 ✻ ✻		
✻ ✻ 0 ✻	(Not used)	
✻ ✻ 1 ✻		
✻ ✻ ✻ 0	(Not used)	
✻ ✻ ✻ 1		
0 0 0 1	Factory setting	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

- During memorization:

- SAVE -

④Press 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.

Mode H-77,H-78 and H-79 are not used

HELP mode H-80 (1) Adjustment / specification setting

1. Functions

(1) After master making, the machine prints 1 copy and stop, S2-ADF option,Drum rotates once at tape insertion timing, Drum rotation setting at tape insertion timing setting

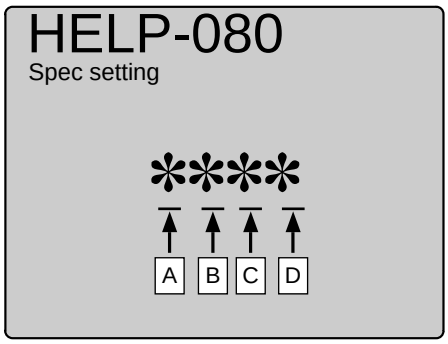
- Following items are indicated.
  - A : After master making, the machine prints 1 copy and stop
  - B : S2-ADF option
  - C : Drum rotates once at tape insertion timing
  - D : Drum rotation setting at tape insertion timing

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) After master making, the machine prints 1 copy and stop, S2-ADF option,Drum rotates once at tape insertion timing, Drum rotation setting at tape insertion timing setting

①Access HELP mode **H-80**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

A B C D	Item	Setting
0 * * *	After master-making, the machine prints 1 copy and stop	OFF
1 * * *		ON
* 0 * *	S2-ADF option setting	OFF
* 1 * *		ON
* * 0 *	Drum rotates once at tape insertion timing	OFF
* * 1 *		ON
* * * 0	Drum rotation setting at tape insertion timing	Drum rotation for 3 seconds
* * * 1		Drum rotation for 10 seconds
0 0 0 0	Factory setting	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-81 (1) Adjustment / specification setting

1. Functions

(1) Tape cluster Long tape, Tape cluster 4 motor setting

- Following items are indicated.

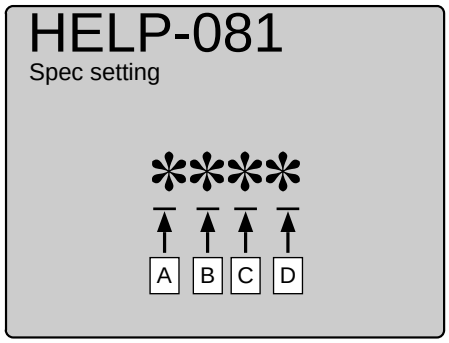
A ,B : Tape cluster Long tape setting
C : Tape cluster 4 motor setting
D : (Not used)

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Tape cluster Long tape, Tape cluster 4 & new tape setting

①Access HELP mode **H-81**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

A B C D	Item	Setting
0 0 ＊ ＊	Tape cluster long tape setting	445mm
0 1 ＊ ＊		395mm
1 0 ＊ ＊		335mm
1 1 ＊ ＊		280mm
＊ ＊ 0 ＊	Tape cluster 4 motor setting	old type
＊ ＊ 1 ＊		new type
＊ ＊ ＊ 0	Not used	
＊ ＊ ＊ 1		
0 0 1 0	Factory setting	

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

- During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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.

Mode H-82, H-83 and H-84 are not used

HELP mode H-85 (1) Adjustment / specification setting

1. Functions

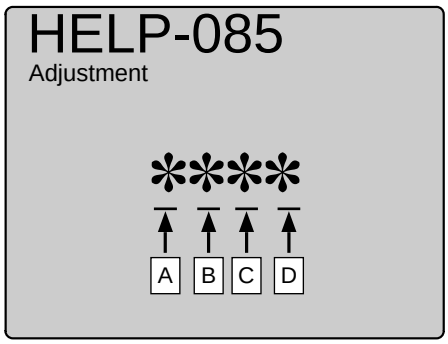
(1) Paper feed timing adjustment

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Paper feed timing adjustment

①Access HELP mode **H-85**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 1	Set amount	Larger the paper feed timing
⋮		
0 0 0 0		
⋮		
1 1 1 0		
1 1 1 1		Smaller the paper feed timing

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-86 (1) Adjustment / specification setting

1. Functions

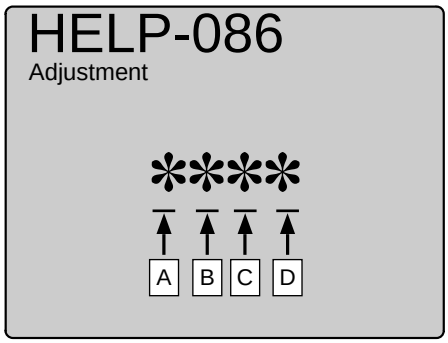
(1) Paper feed length adjustment

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Paper feed length adjustment

①Access HELP mode **H-86**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 1	Set amount	Smaller the arching dimension
⋮		↕
0 0 0 0		
⋮		
1 1 1 0		
1 1 1 1		Larger the arching dimension

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-87 (1) Adjustment / specification setting

1. Functions

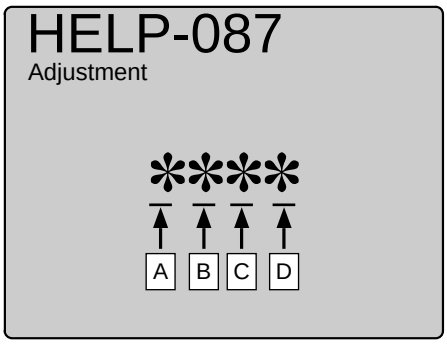
(1) Paper feed timing(Long paper mode) adjustment

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Paper feed timing(Long paper mode) adjustment

①Access HELP mode **H-87**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 1	Set amount	Smaller ↕ Larger
⋮		
0 0 0 0		
⋮		
1 1 1 0		
1 1 1 1		

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

● During memorization:

- SAVE -

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

④Press 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 mode H-88 (1) Adjustment / specification setting

1. Functions

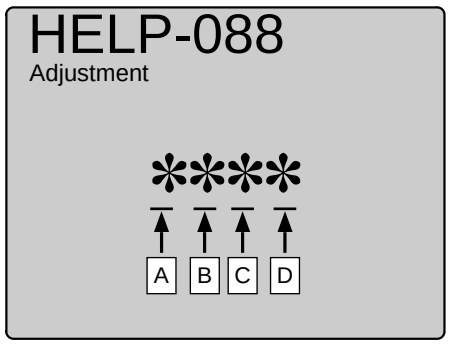
(1) Paper feed length(Long paper mode) adjustment

2. Operation procedure

Accessing HELP modes ➡ See page 213

(1) Paper feed length(Long paper mode) adjustment

①Access HELP mode **H-88**, and press the **PRINT** key.



②Use the [**0**] and [**1**] numeric keys to enter a 4-place binary value for the desired correction amount.
See the table below for 4-place binary values and the corresponding correction amounts.

ABCD	Item	Setting
0 0 0 1	Set amount	Smaller the arching dimension ↕ Larger the arching dimension
⋮		
0 0 0 0		
⋮		
1 1 1 0		
1 1 1 1		

③Press the [≦] key.
The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization,**"SAVE"** will be displayed.

IMPORTANT :

Do not turn off the power before the "SAVE" display has disappeared.

● During memorization:

- SAVE -

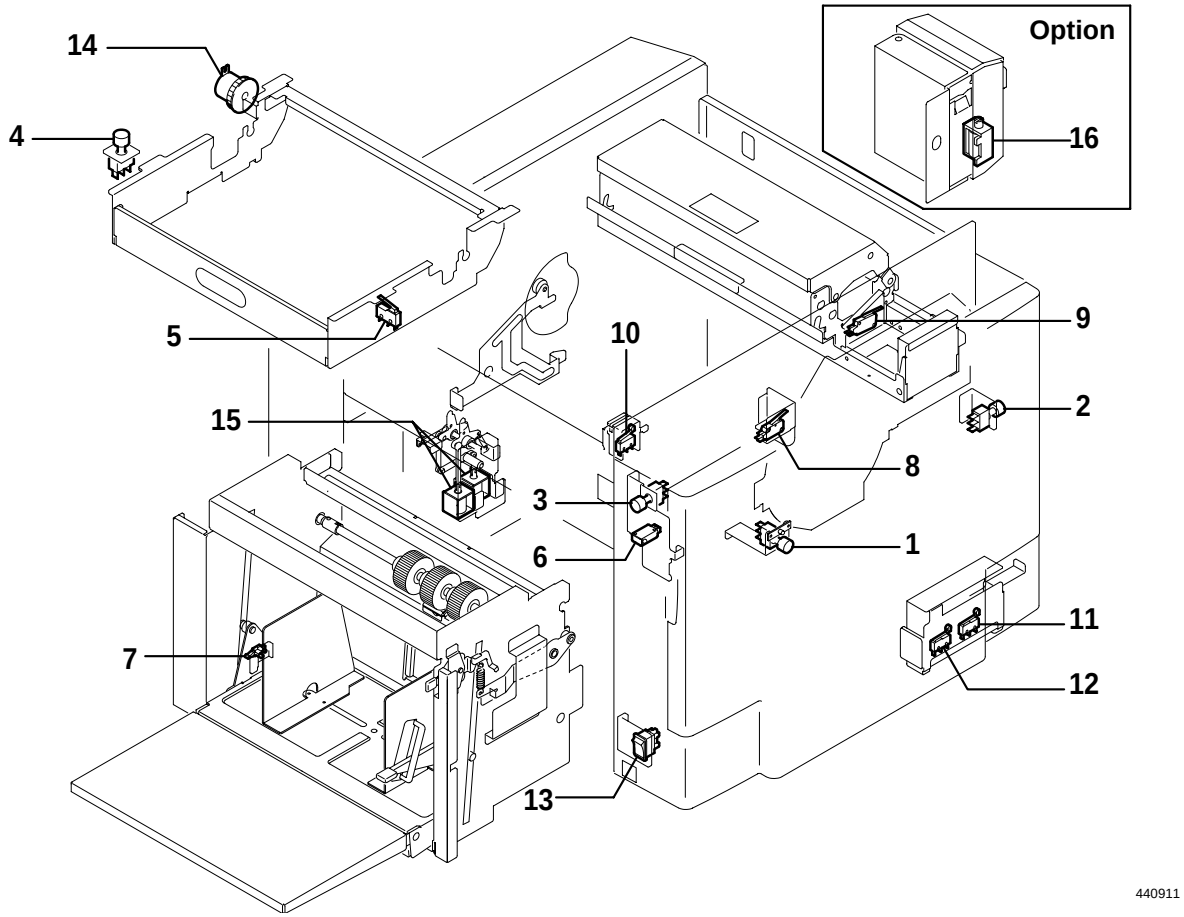
④Press the **STOP** key.
The HELP mode selection display will reappear.

➡ **To exit the HELP mode**	:	Turn the power switch OFF.
➡ **To access another HELP mode**	:	Enter the desired mode number using the numeric keys.

Chapter 8 Others

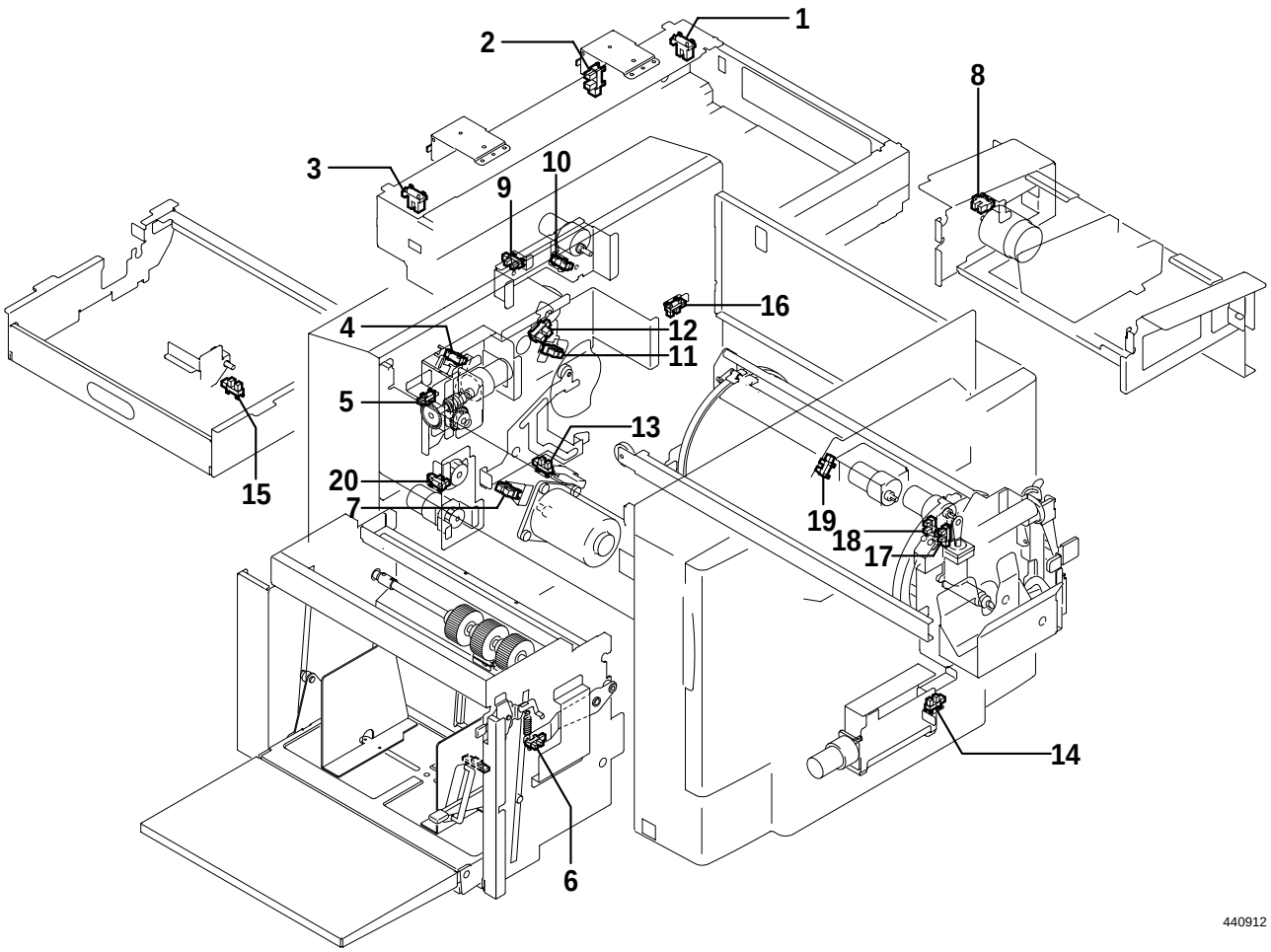
1 Electrical Parts Layout and Their Functions

(1) Switches/Clutches/Solenoids



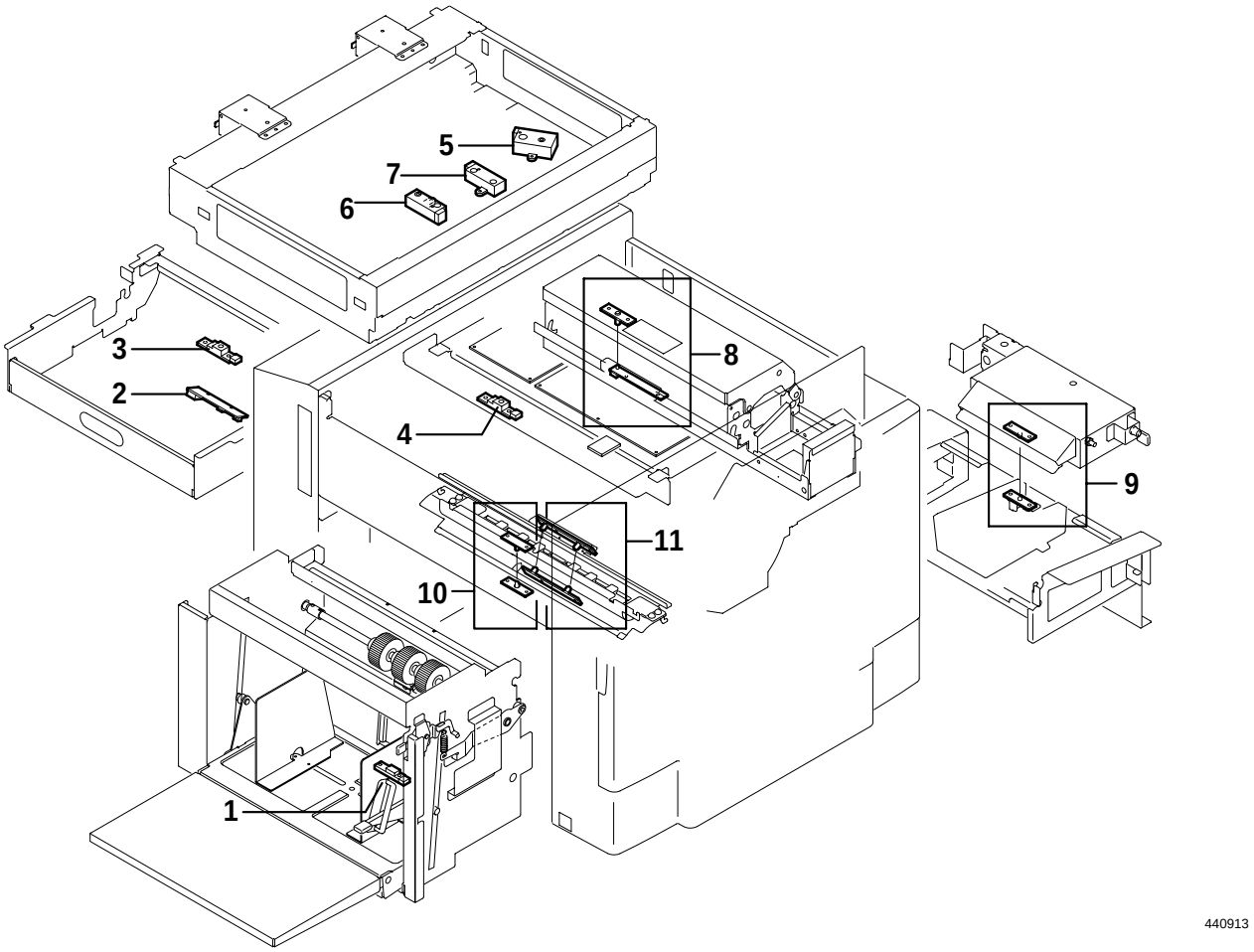
Item	No.	Functions
Push switch	**1**	Drum rotation
	2	Drum rotation
	3	Paper feed elevator descent
	4	Master cut
Microswitch/switch	**5**	Master cover open/closed detection
	6	Front cover open/closed detection
	7	Elevator bottom limit
	8	Whether the drum is set or not is detected.
	9	Whether the master ejection core is set or not and full or not is detected.
	10	Scanner open/closed detection
	11	Contact pressure position is detected.
	12	Contact pressure limit
	13	Power ON/OFF
Clutch	**14**	Master feed clutch
Solenoid	**15**	Paper feed solenoid
	16	Tape cluster solenoid

(2) Sensors 1



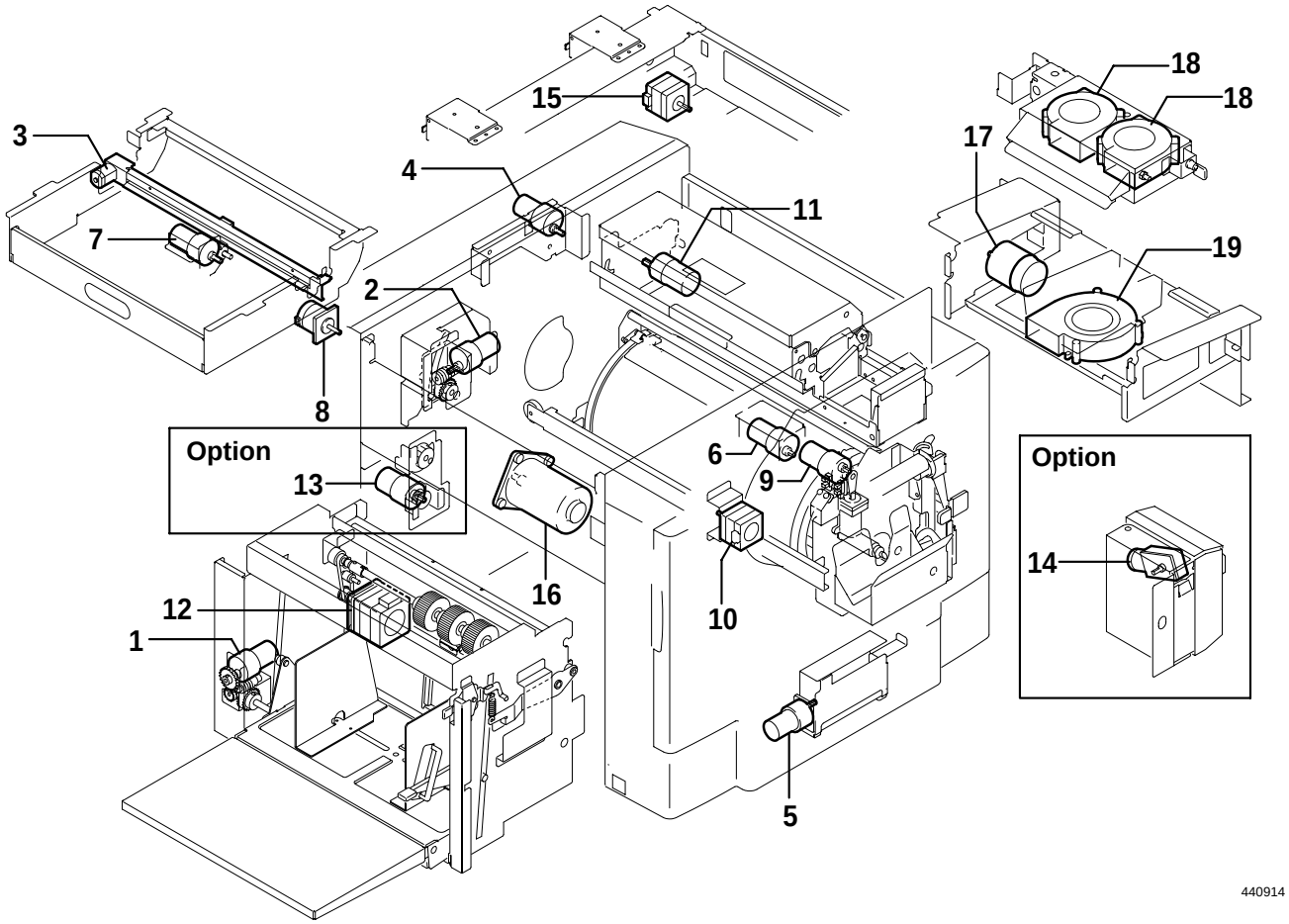
Item	No.	Functions
Microsensor	**1**	Scanner home position is detected.
	2	Document cover position is detected.
	3	ADF home position is detected.
	4	Top/bottom center of the print position is detected.
	5	Print position encoder sensor.
	6	Paper feed elevator top limit is detected.
	7	Main motor encoder sensor.
	8	Paper ejection fan encoder detection.
	9	Master clump opening and closing lever A/C mode is detected.
	10	Master clump opening and closing lever B mode is detected.
	11	Master set/removal position is detected.
	12	Drum stop position and JAM detection position are detected.
	13	Press roller ON and OFF is detected.
	14	Pressure sensor.
	15	Thermal head press position is detected.
	16	Master ejection box opening and closing is detected.
	17	Drum center position is detected.
	18	Drum position limit sensor.
	19	Ink roller up and down is detected.
	20	LPU escape timing is detected.

(3) Sensors 2



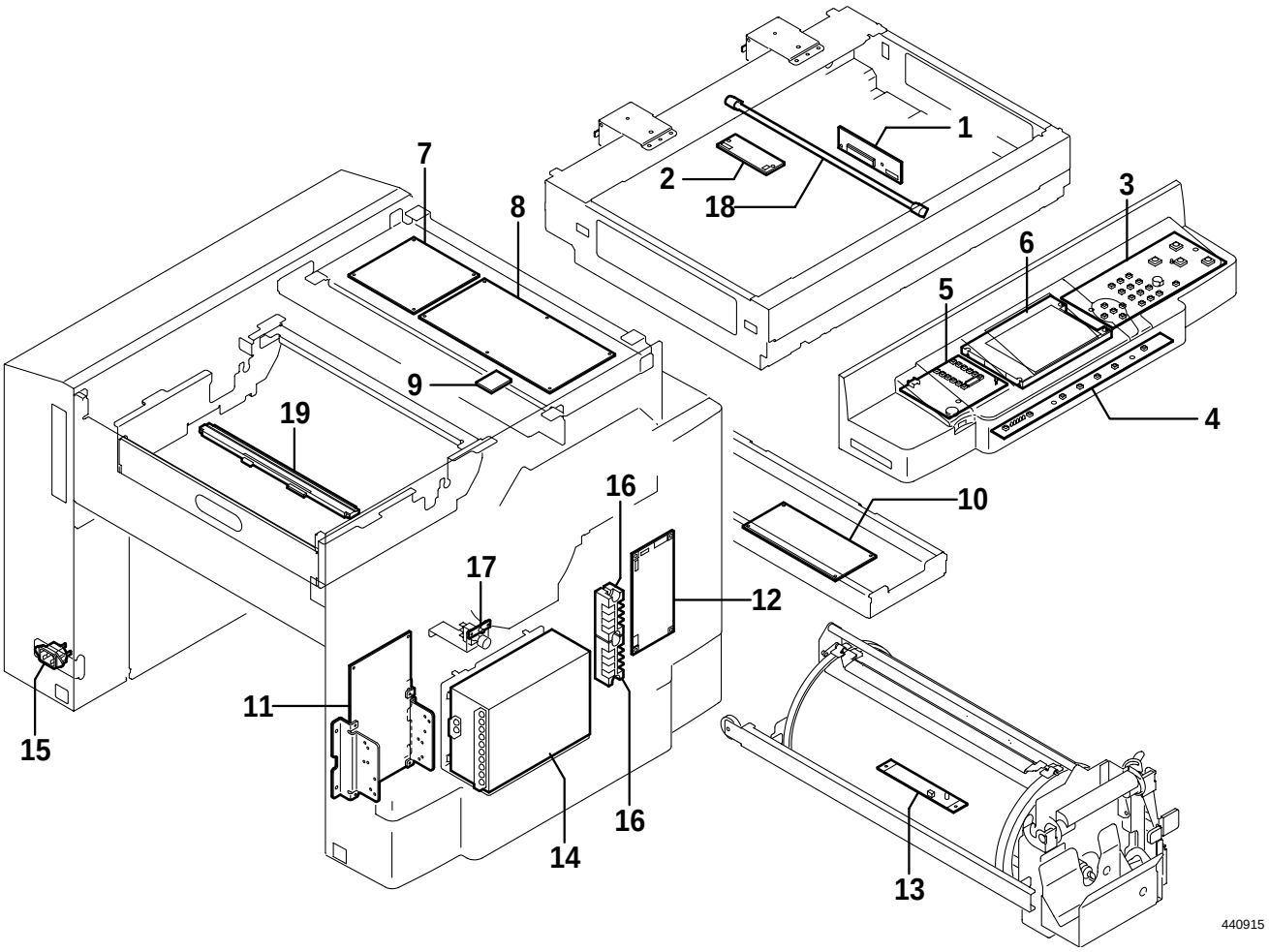
Item	No.	Functions
Photointerrupter	1	Weather the paper is placed or not is detected.
	2	Detection of master presence on master feed travel path, and end mark.
	3	Master position is detected.
	4	Master set error detection.
	5	Document position is detected.(1,2,3) [pel path]
	6	Document position is detected.(4) [line progression path]
	7	Document position is detected.(5) [line progression path]
Master ejection sensor	8	Photo-emitting of the master ejection and JAM detection sensor.
		Master is detected at the inlet of the master ejection box.
Jam sensor	9	Paper on the paper delivery side is detected.
		Detection of paper on paper ejection side.
Paper position sensor	10	Paper lead edge is detected.
Double feed detected sensor	11	Paper double feed is detected.
		Left jam is detected.

(4) Motors/Fans



Item	No.	Functions
Motor	**1**	Paper feed tray elevator motor
	2	Print position (top/bottom) adjusting motor
	3	Cutter motor
	4	Master clump opening/closing lever motor
	5	Pressure motor
	6	Ink roller up/doun motor
	7	Thermal head up/doun motor
	8	Plate making stepping motor
	9	Ink pump motor
	10	Drum shift stepping motor
	11	Roll-up motor
	12	Paper feed stepping motor
	13	Guide roller drive motor
	14	Tape cluster motor
	15	Scanner stepping motor
	16	Main motor
	17	Paper eject fan motor
Fan motor	**18**	Top blow fan motor
	19	Paper ejection fan motor

(5) PCB unit/Others



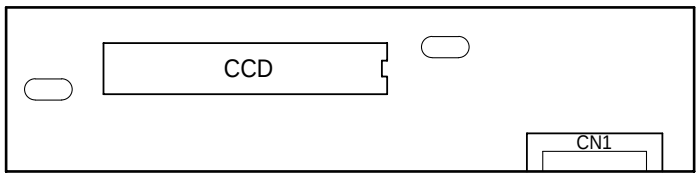
Item	No.	Functions
CCD PCB unit	**1**	Reading the picture image.
Inverter PCB unit	**2**	Lamp lights up.
Panel board A	**3**	Control panel key, display.
Panel board B	**4**	Control panel key, display.
Panel board C	**5**	Control panel key, display.
LCD panel	**6**	Liquid crystal display
P-memory PCB unit	**7**	Image memory and controlling the parallel communication
Main PCB unit	**8**	Processing the image and controlling the machine on the whole.
Battery PCB unit	**9**	Keeping the total counter and HELP information.
Motor PCB unit	**10**	Controlling the main motor.
DC-DC PCB unit	**11**	24V / 12V,5V
Drive PCB unit	**12**	Driving the motor.
Ink detection PCB unit	**13**	Detecting Ink amount in the drum.
Regulated power supply	**14**	Supplying with DC power supply.
Inlet	**15**	-
Terminasl plate	**16**	-
LED	**17**	-
Lamp	**18**	-
Thermal head	**19**	Thermal head

(6) Connector VR/LED Layout and Functions

1) CCD PCB unit (N5-V320 *)

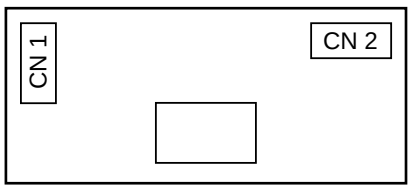
IMPORTANT :

- **Do not remove the CDD PCB or loosen the screw in the market.**



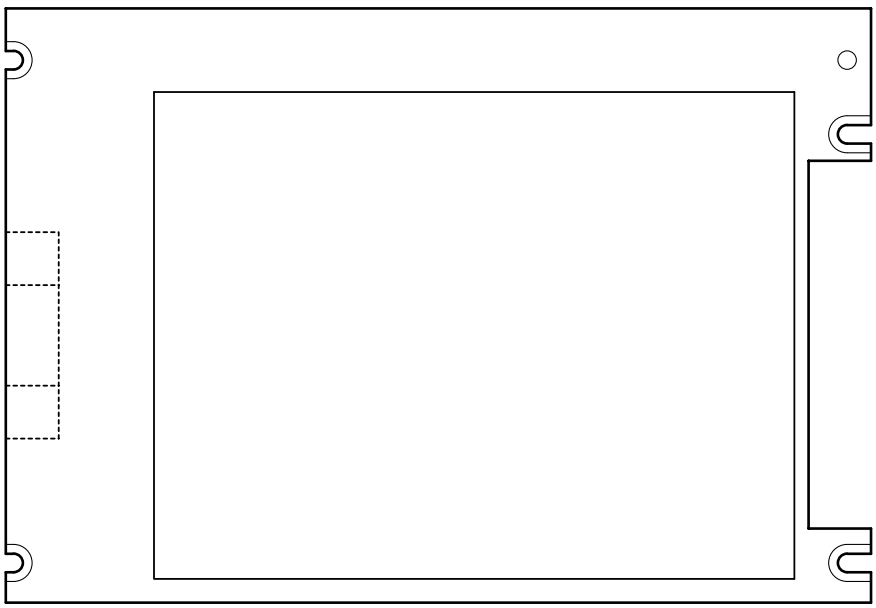
440910

2) Inverter PCB unit (J2-X105 *)



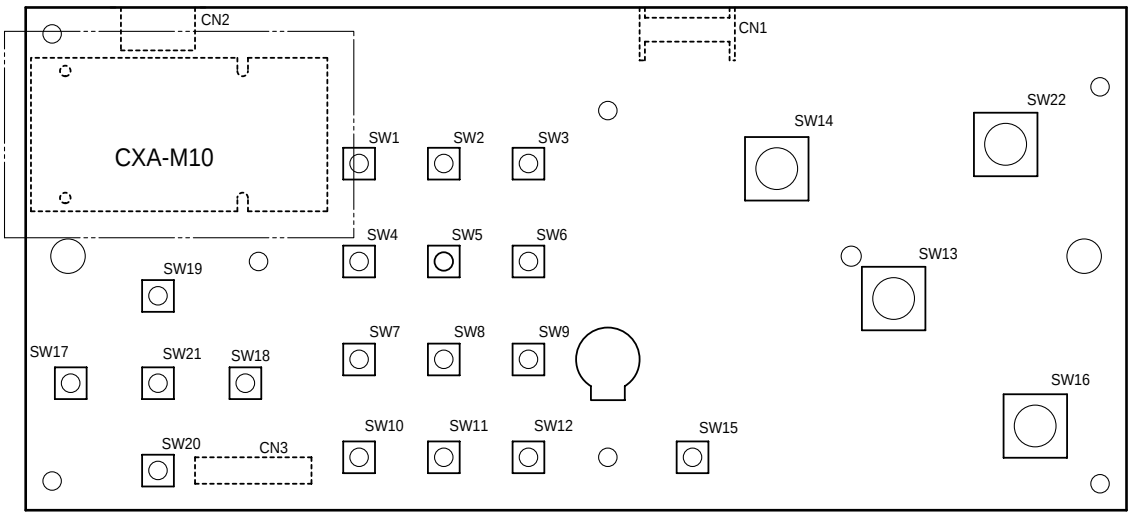
440917

3) LCD Panel (TG014 *)



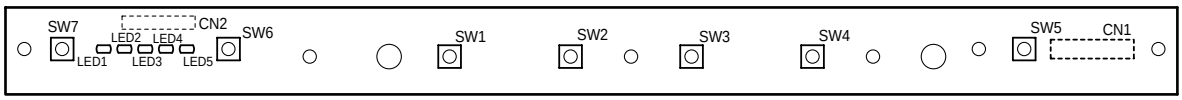
440904

4) Panel Board A (N5-V303 *)



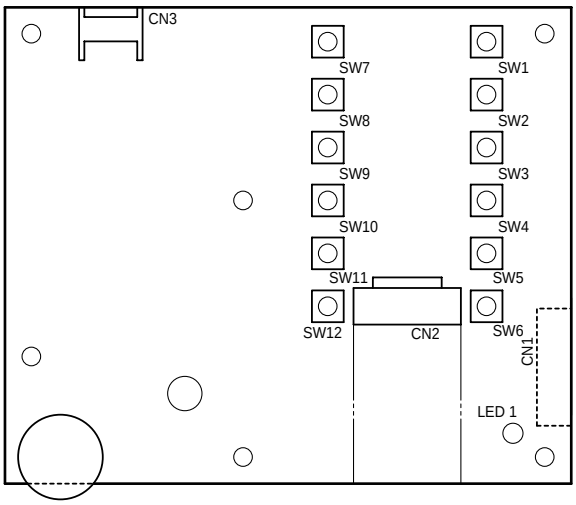
440901

5) Panel Board B (N5-V305 *)



440902

6) Panel Board C (N5-V307 *)



440903

7) Ink Detection PCB unit (F7-8880 *)

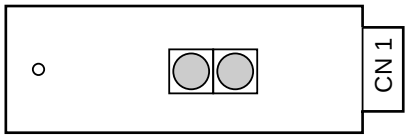
VR / LED	Function
VR	* Adjusting the ink detection sensitivity.
LED	Lights up when ink OK is detected.

440918

IMPORTANT :

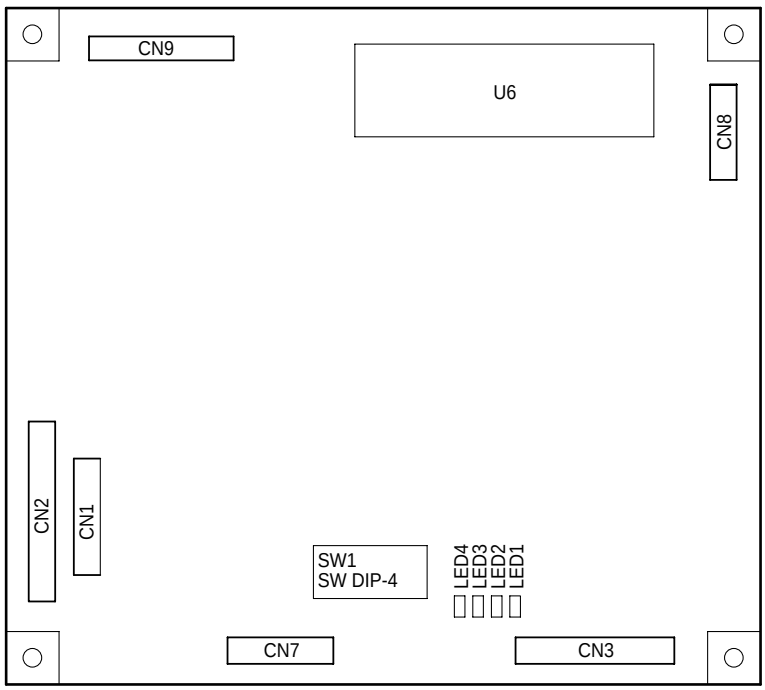
*** : Adjusted at the factory. Do not change.**

8) End Mark Sensor PCB unit (M7-V320 *)



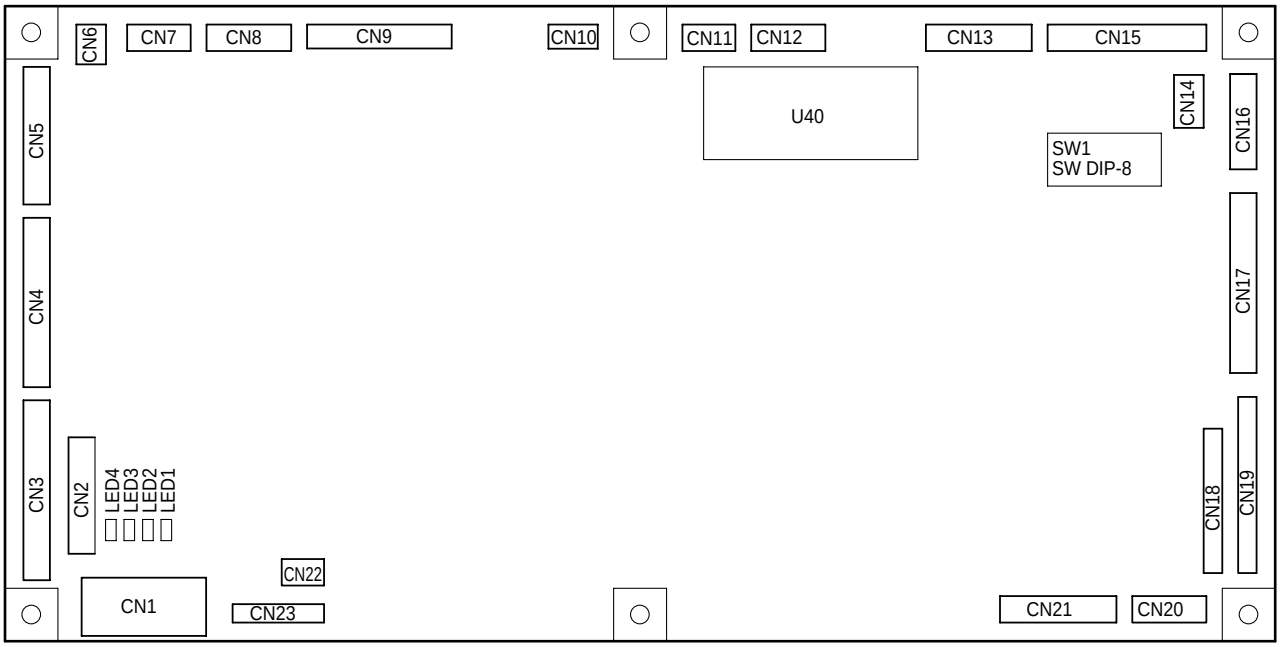
440919

9) P-memory PCB unit (N5-V322 *)



440921

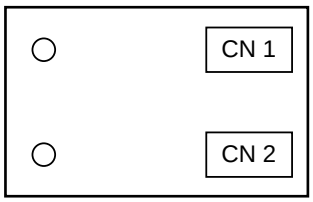
10) Main PCB unit (N5-V318 *)



440905

DIP SW	Details	
	Setting	Item
SW1	OFF	Not used
SW2	OFF	Not used
SW3	OFF	Not used
SW4	OFF	Not used
SW5	OFF	Not used
SW6	OFF	Not used
SW7	OFF	400 dpi
	ON	300 dpi
SW8	OFF	A3
	ON	B4

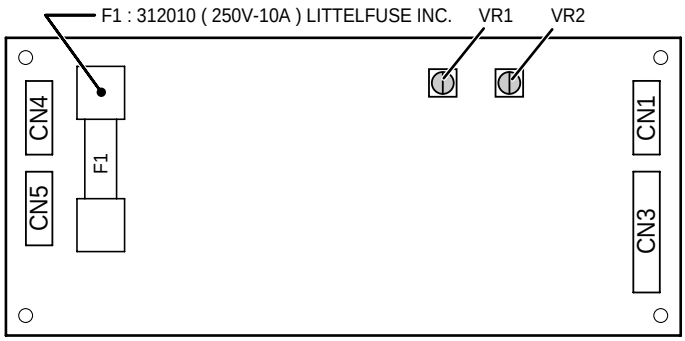
11) Battery PCB unit (M7-V305 *)



440920

12) Main Motor PCB unit (M7-V323 *)

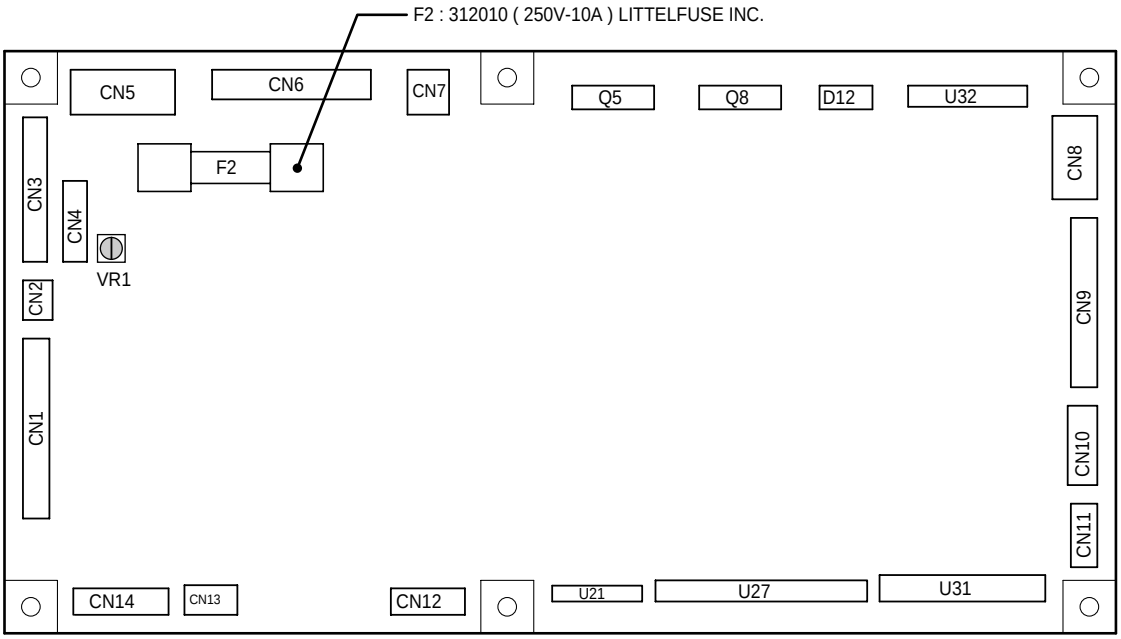
VR	Function
VR 1	Pre-stop speed adjustment.
VR 2	JOG speed adjustment.



440906

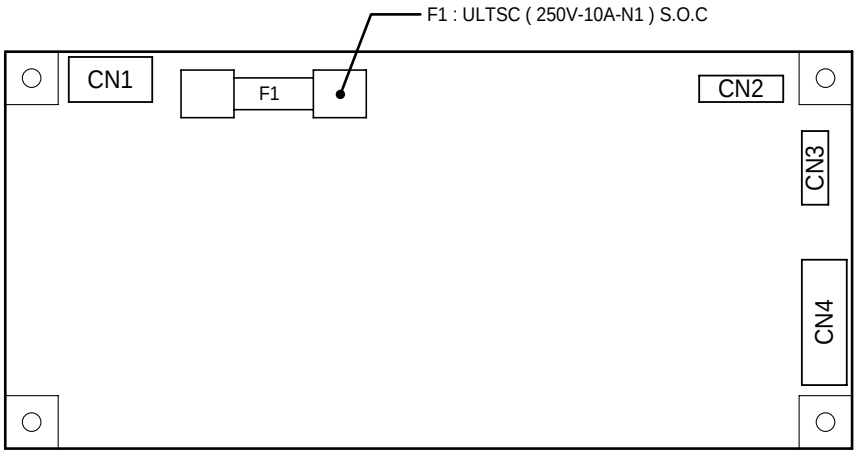
13) Drive PCB unit (N5-V309 *)

VR	Function
VR 1	Double feed detection adjustment.



440907

14) DC-DC PCB unit (N5-V312 *)

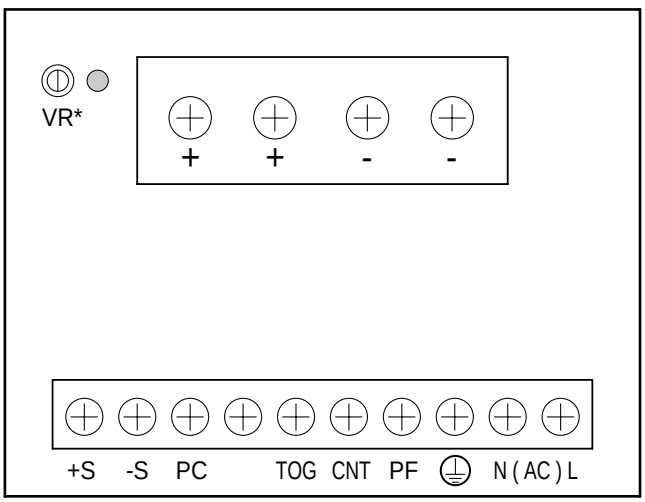


440908

15) Regulated power supply (UA036 *)

IMPORTANT :

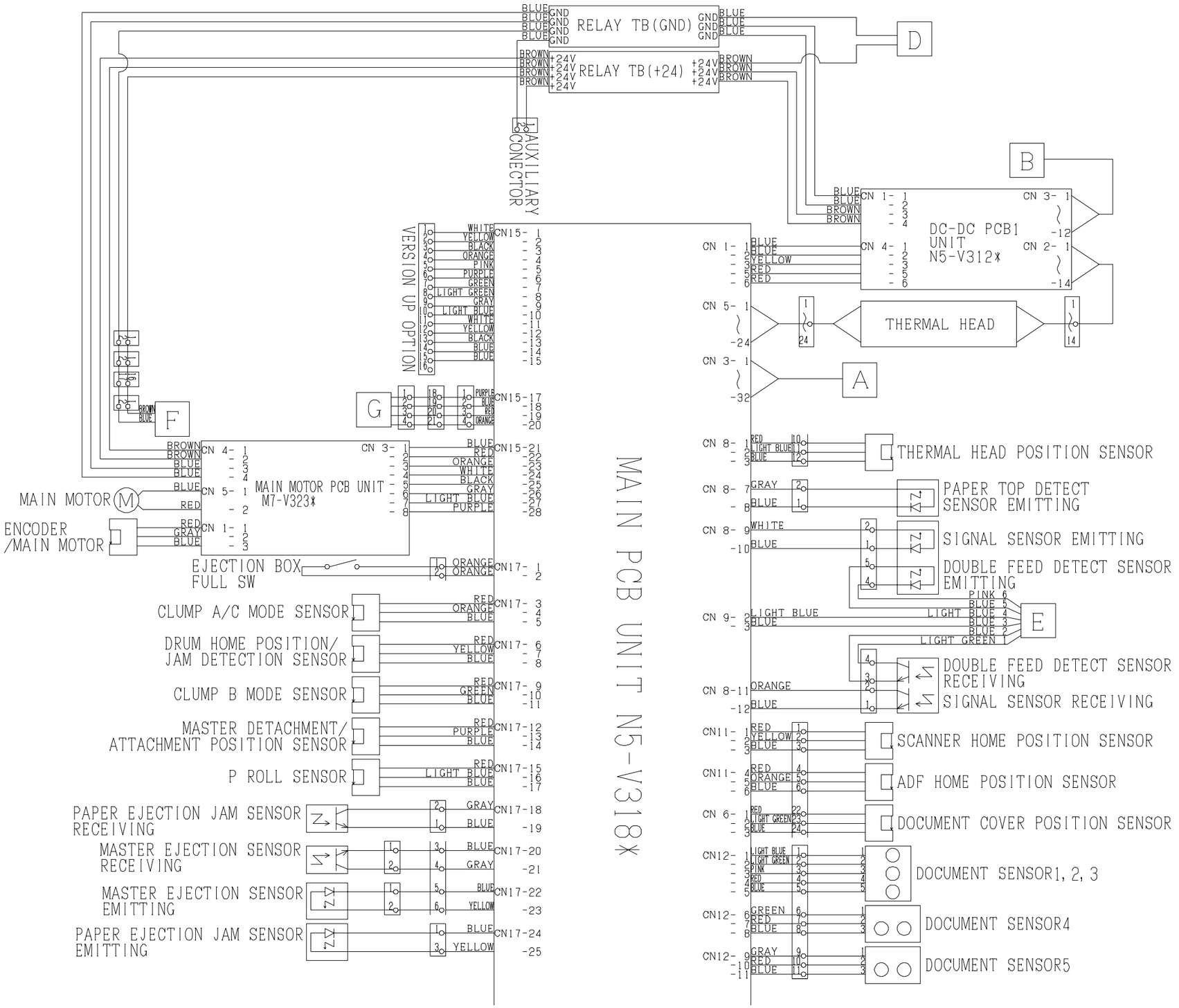
*** : Adjusted at the factory. Do not change.**



440909

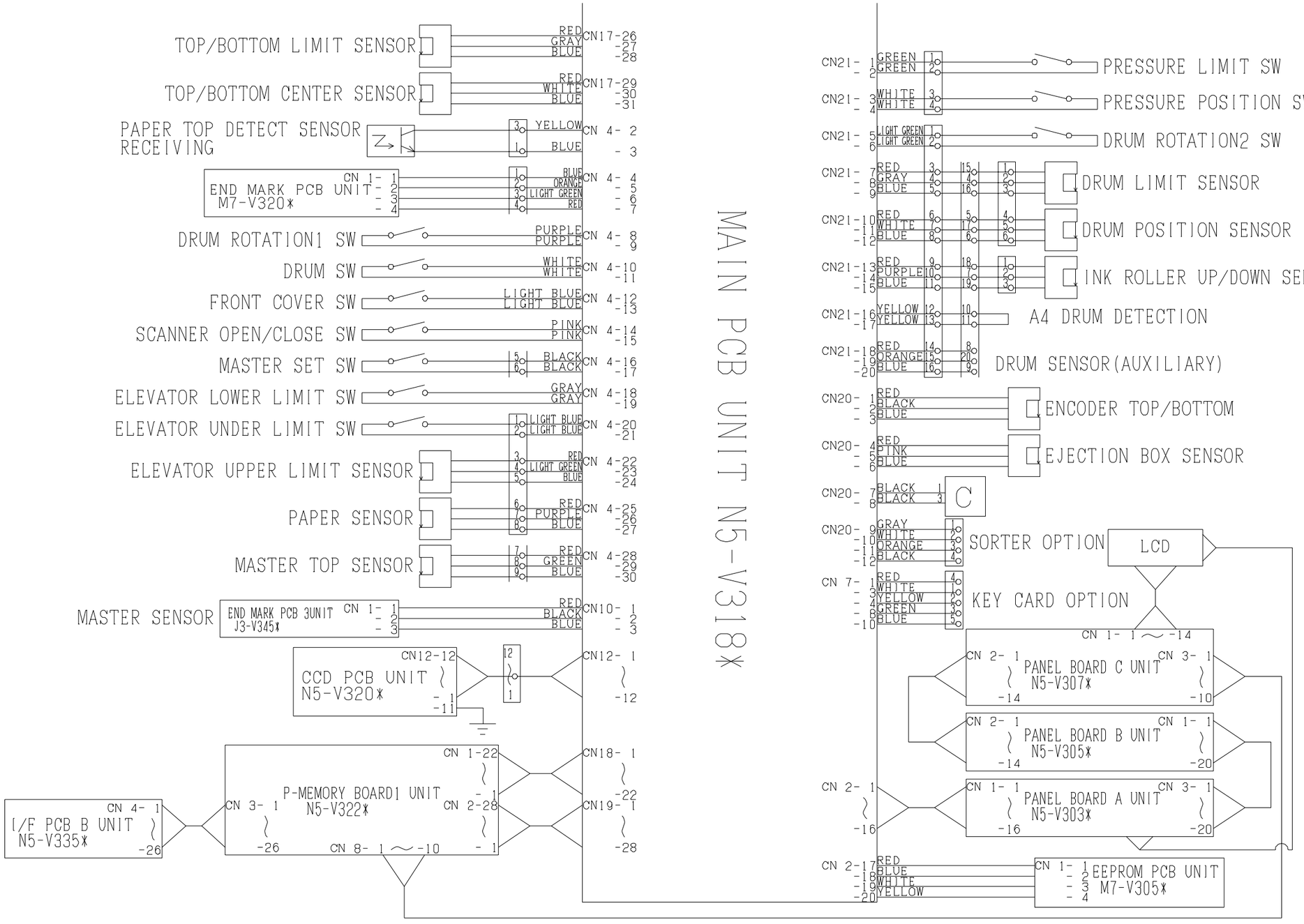
2 Overall Wiring Layout

Overall Wiring Layout 1 (Main PCB) 1/2



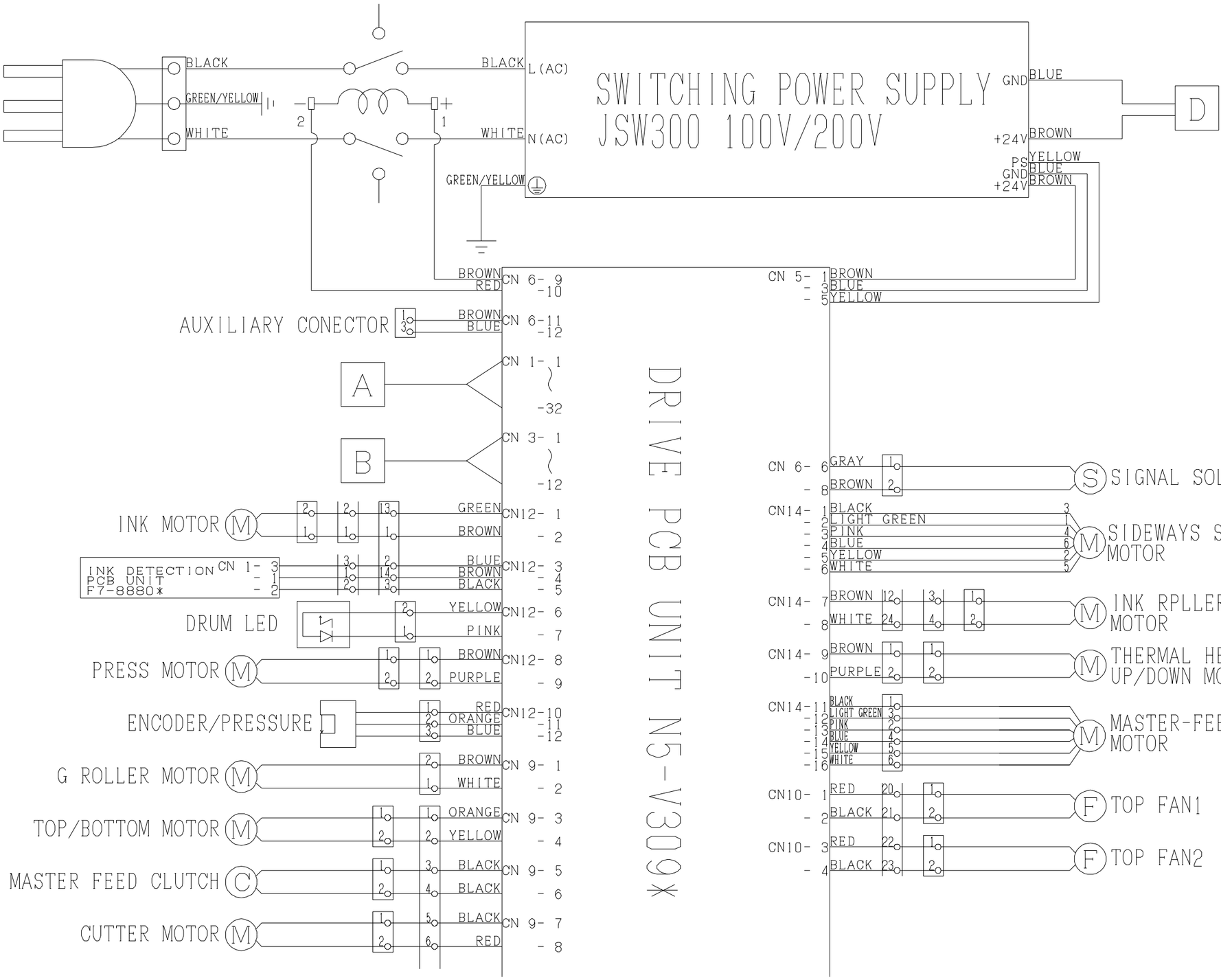
MAIN PCB UNIT N5-V318*

Overall Wiring Layout 1 (Main PCB) 2/2

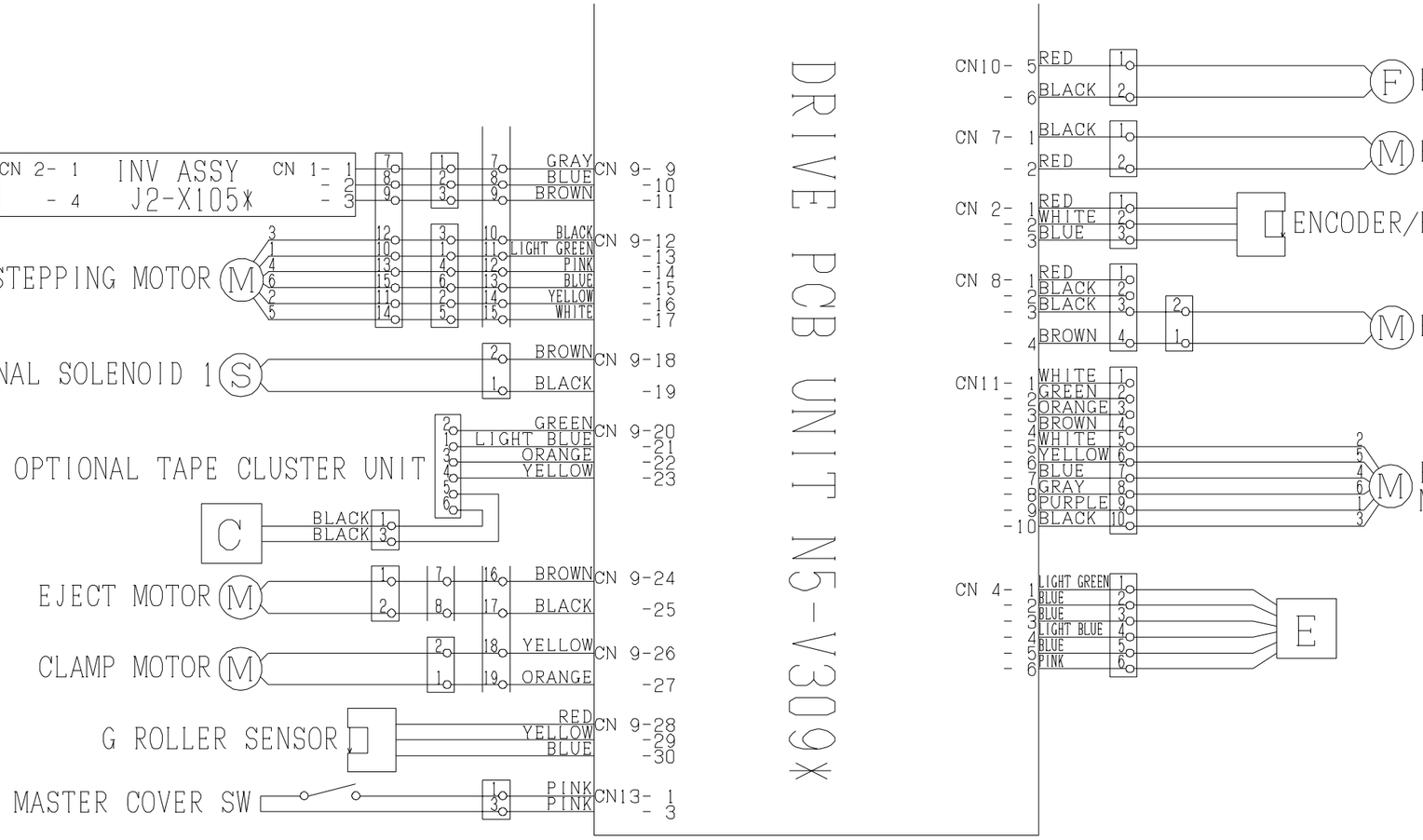


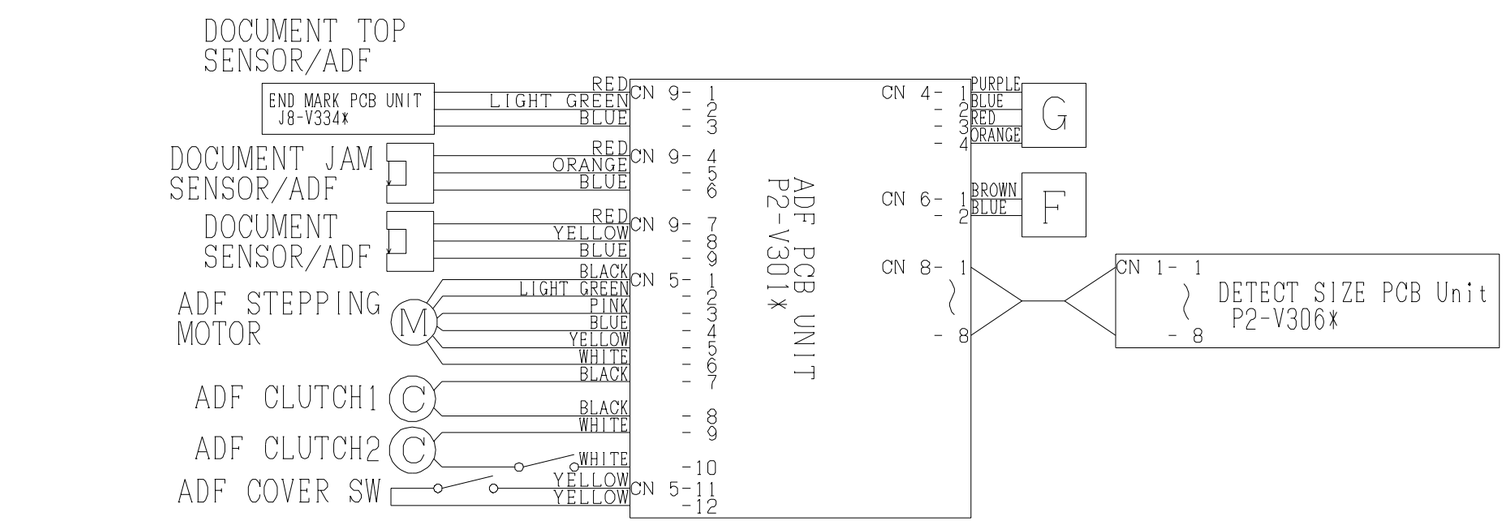
(2) Overall Wiring Layout 2

Overall Wiring Layout 2 (Drive PCB) 1/2



Overall Wiring Layout 2 (Drive PCB) 2/2





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