Service Manual

DUPRINTER

DP-S SERIES

Duplo

Apr. 2007

Revision 0

R8-Y1660

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 **February 2007**, and applies basically to the model **DP-S850/S650/S620/S550/S520/S510 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").

◉Service work-related instructions

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

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			230V AC model		
Power supply voltage	Connect to outlet of **120V AC**, 60Hz, at least 15A			Connect to outlet of **230V AC**, 60Hz, at least 15A		
With no load *	No more than 130V AC	Use power supply meeting these requirements		No more than 250V AC	Use power supply meeting these requirements	
At full load	At least 110V AC			At least 210V AC		
Power consumption	***DP-S850***	***DP-S650***	***DP-S620***	***DP-S550***	***DP-S520***	***DP-S510***
Master making	150 W	145 W	140 W	135 W	130 W	130 W
Printing (Speed 5)	240 W	240 W	230 W	240 W	230 W	230 W
Standing by	18 W	18 W	18 W	18 W	18 W	18 W
Sleeping	8 W	8 W	8 W	8 W	8 W	8 W

* "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 rotating parts when operating the drum removal button and JOG switch or while the machine is running.

➡ 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 that enables you to work safely.
Work clothing (overalls, etc) should be close-fitting.

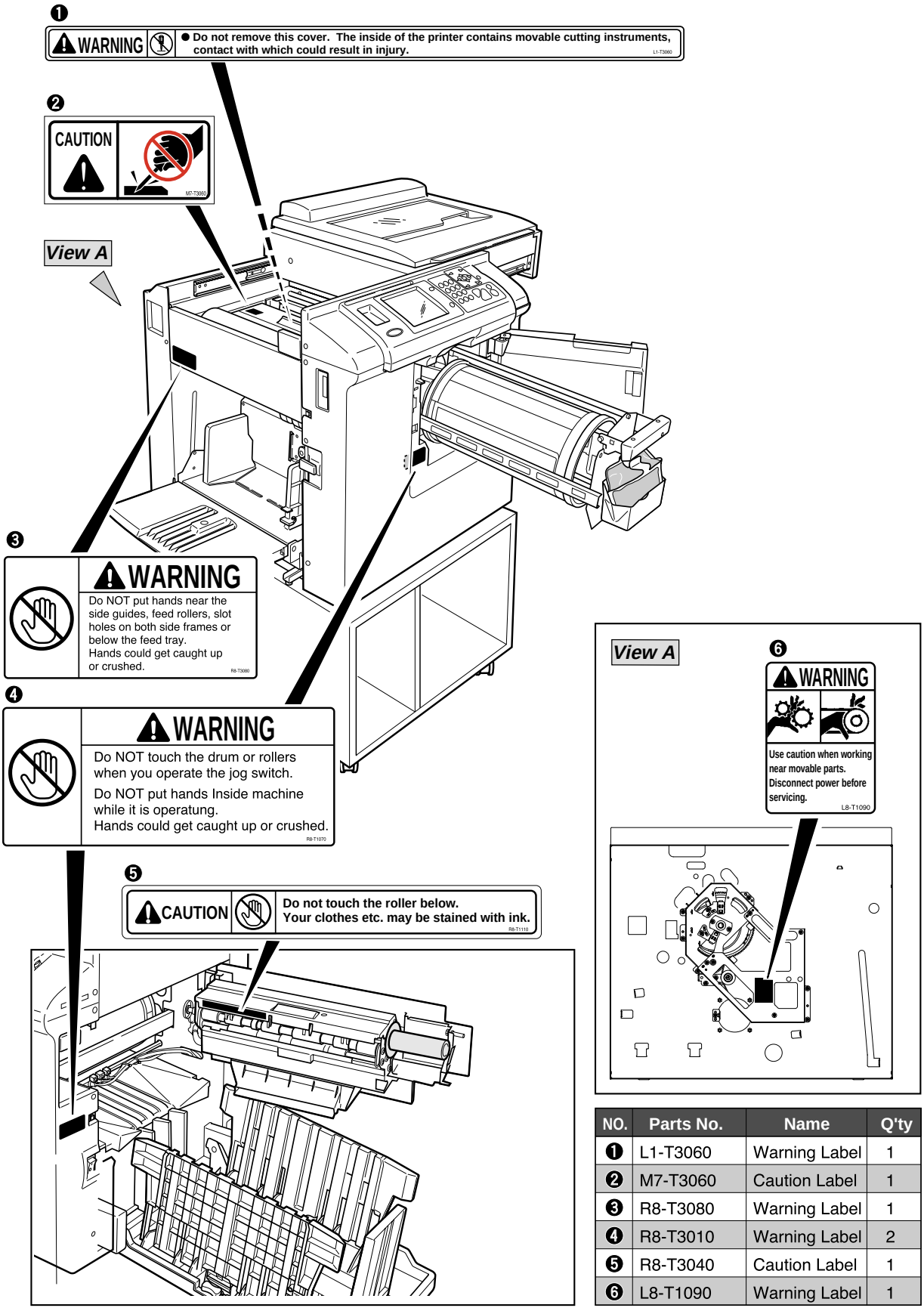
⚠ CAUTION

◉ Tools

• Use tools that are appropriate for the work.

▣Locations of warning labels

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



NO.	Parts No.	Name	Q'ty
❶	L1-T3060	Warning Label	1
❷	M7-T3060	Caution Label	1
❸	R8-T3080	Warning Label	1
❹	R8-T3010	Warning Label	2
❺	R8-T3040	Caution Label	1
❻	L8-T1090	Warning Label	1

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1 Specifications

• Specifications

Model name DUPRINTER	DP-S850	DP-S650	DP-S620	DP-S550	DP-S520	DP-S510
Model	Floor stand model					
Master making method	Thermal digital master making					
Master making interval	18 sec. (A4, 100%)	15 sec. (A4, 100%)	16 sec. (A4R, 100%)	18 sec. (A4, 100%)	20 sec. (A4R, 100%)	20 sec. (A4R, 100%)
Resolution	(Pel path dir.) x (line progression dir.)					
Scan (input)	600 dpi x 600 dpi	400 dpi x 400 dpi	400 dpi x 400 dpi	300 dpi x 600 dpi	300 dpi x 600 dpi	300 dpi x 600 dpi
Print (output)	600 dpi x 600 dpi	400 dpi x 400 dpi	400 dpi x 400 dpi	300 dpi x 600 dpi	300 dpi x 600 dpi	300 dpi x 600 dpi
(Master punch density)	600 dpi x 600 dpi*	400 dpi x 400 dpi	400 dpi x 400 dpi	600 dpi x 600 dpi	600 dpi x 600 dpi	600 dpi x 600 dpi
	* The master punch density = number of holes made on one master.					
Scanning method	Flat bed scanner (ADF: optional)					
Optional ADF Document weight	64 - 128gsm					
Optional ADF Capacity	100 sheets (64gsm), 85 sheets (20lb)(80gsm)					
Printing method	Stencil print					
Document type	Sheets, book (max. weight: 10kg)					
Document size	Max. 297mm x 432mm (with optional ADF: Min. 100mm x 148mm)					
Scanning area	293mm x 428mm					
Image area (max.)	290mm x 423mm	290mm x 423mm	250mm x 355mm	290mm x 423mm	250mm x 355mm	210mm x 355mm
	11.4" x 16.6"	11.4" x 16.6"	9.8" x 13.9"	11.4" x 16.6"	9.8" x 13.9"	8.2" x 13.9"
	* A4/Letter drum : 290mm x 207mm (11.4" x 8.1")					
Feeding capacity	1,500 sheets (64gsm) (1,280 sheets (20lb), 1,200 sheets (80gsm))					
	* Height of 1,500 sheets loaded should not exceed 140mm.					
Stacker tray	Level position / Take back jogger / Ditched side guides					
Stacker capacity	1,500 sheets (64gsm) (1,280 sheets (20lb), 1,200 sheets (80gsm))					
Paper size	Max. : 297mm x 432mm (Main unit can feed/exit 320mm x 450mm. Stacker tray does not cover paper size larger than 297mm x 432mm.)					
	Min. : 100mm x 150mm (50mm x 150mm is possible with some limitations including no vertical registration adjustment, paper lead sensor off, attaching plastic guide on separator etc.)					
Paper weight	53gsm - 210gsm (45kg-180kg) 13lb (Bond) - 110b (Index)					
	Feeding pressure adj. (3 steps) / Separator adj. (15 steps)					
Print speed	45 - 130 ppm 5 steps + TOP speed 150 ppm TOP speed: 150 ppm for B4/A4/letter/legal paper (not recommended for paper larger than B4)					
	Restrictions in top speed: * When printing on light weight paper, using TOP speed mode may cause stacking failure. * Registration may be slightly effected. * TOP speed may cause creasing on some type of paper.					
Zoom A/B size spec	100%					
	Preset reduction/enlargement: 70, 81, 86, 115, 122, 141%					
	Adjust X:Y Proportions 50 - 500%					
	Margin adjust 90 - 99%					
	Zoom : 50 - 500%					
	Auto zoom: 50, 57, 61, 70, 81, 86, 100, 115, 122, 141, (163), 173, (200)% (Auto zoom: DP-S850/S650/S620 only) ((163%) and (200%) are available on the DP-S850/S650 only.)					
Inch size spec	100%					
	Preset reduction/enlargement: 50, 64, 77, 121, 129, 154%					
	Adjust X:Y Proportions 50 - 500%					
	Margin adjust 90 - 99%					
	Zoom : 50 - 500%					
	Auto zoom: 50, 60, 64, 70, 77, 78, 91, 100, (121), 129, 137, 141, 154, (200), 212, 275% (Auto zoom: DP-S850/S650/S620 only) ((121%) and (200%) are available on the DP-S850/S650 only.					

Specifications are subject to change without prior notice.

Model name DUPRINTER		DP-S850	DP-S650	DP-S620	DP-S550	DP-S520	DP-S510
Registration adjustment	Vertical	+/-15mm Electrical					
	Horizontal	+/-10mm Electrical			+/-10mm Manual		
		(Electrical adjustment can be controlled by 0.5mm on LCD.) * mm indication + inch indication. (0.xx inch)					
Image mode		Text, Photo, Text/Photo (2 types), Pencil, Screen (2 types)					
Contrast control		Scan density: 5 steps, Master density: 5 steps, Print density: 5 steps					
Ink supply method		Automatic control (1000ml) Color ink is also 1000ml					
Color print		By replacing drum unit					
Master feeding method		Roll master automatic feed (220 masters / roll)					
Master ejection method		Automatic ejection / roll-up method (used master capacity: 55 masters)					
LCD		320 x 240 full-dot matrix LCD (with contrast control)					
		OK monitor (LCD graphic illustration display)					
		Touch panel (touch sheet overlay)					
LCD language		English / French / German / Spanish / Italian / Russian / Japanese / Chinese (simplified) / Chinese (traditional) / Korean / Thai / Polish					
Other function		Color separation (equipped in online printer driver) (When connected online)					
		Multiple exposure (2, 4, 8 & 16-up, custom: max. 5x5=25-up)					
		Book shadow erasure (adjustable)					
		Confidential safeguard					
		Panel setting memory (9 patterns of control panel settings can be stored.) (All programs can save up to 90 sets.)					
		Status LED (in 3 color)					
		90° rotation					
		Optimize print (P-roller control according to user fs input of temperature and speed)					
		Automatic pressure control (according to print speed)					
		Initial setting (paper size when the power is turned on / print speed / document mode / scan density / print density on booting)					
		Master re-make (save the data from last master making and remake master without scanning)					
		Document density detection					
		Feed heavy weight paper (standard / heavy weight) (S550/S520/S510 only) (S850/S650/S620: paper type is automatically detected by feed pressure setting.)					
		Repeat counter (default print number on/off)					
		Fine start (2 settings)					
		Pre-print					
		Entry of sets & prints					
		Energy save mode (LCD turned off in 5 min.)					
		Automatic power off (power is turned off by time specified.)					
		Ink replenishing mode					
		Auto - reset					
		Online print (USB1.1)					
		Document preview (S850/S650/S620 only)					
Detection		Document size detection (S850/S650/S620 only)					
		Paper size detection (S850/S650/S620 only)					
		Print tray detection					
		Master remain monitor					
		Master roll detection					
		Used master roll capacity monitor					
		Used master roll full detection					
		Master ejection box capacity monitor					
		Ink detection					
		Heavy weight paper detection (feed tray) (S850/S650/S620 only)					
		Double feed detection (S850/S650/S620 only)					
		Document detection					

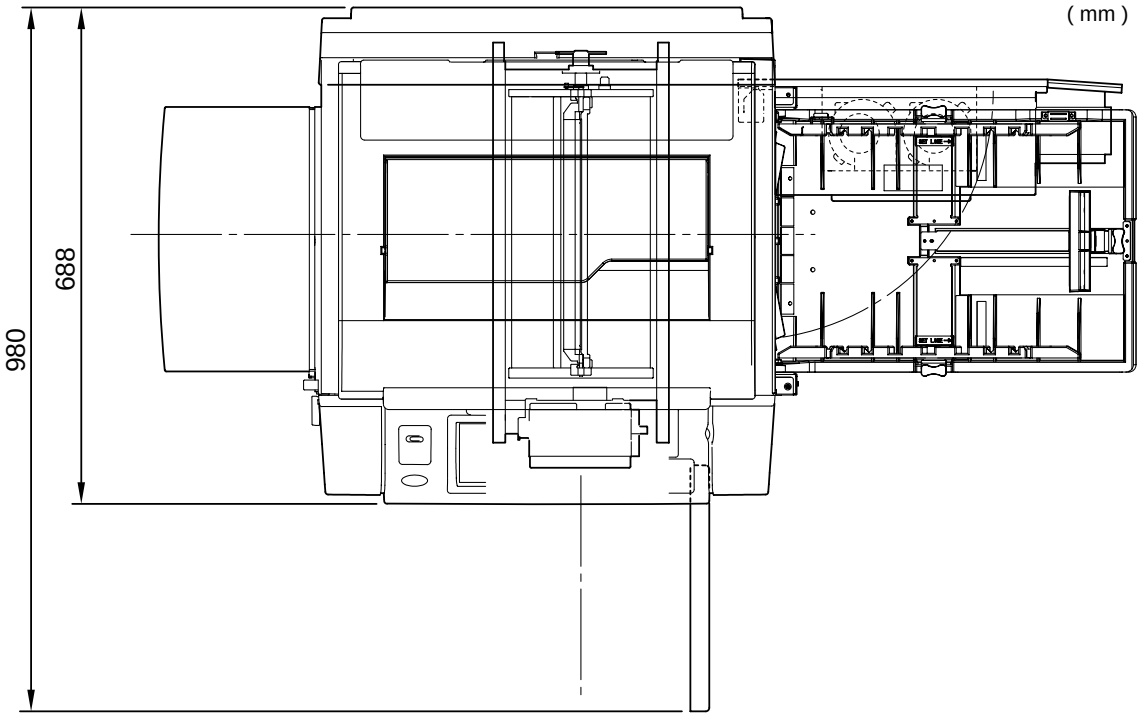
Specifications are subject to change without prior notice.

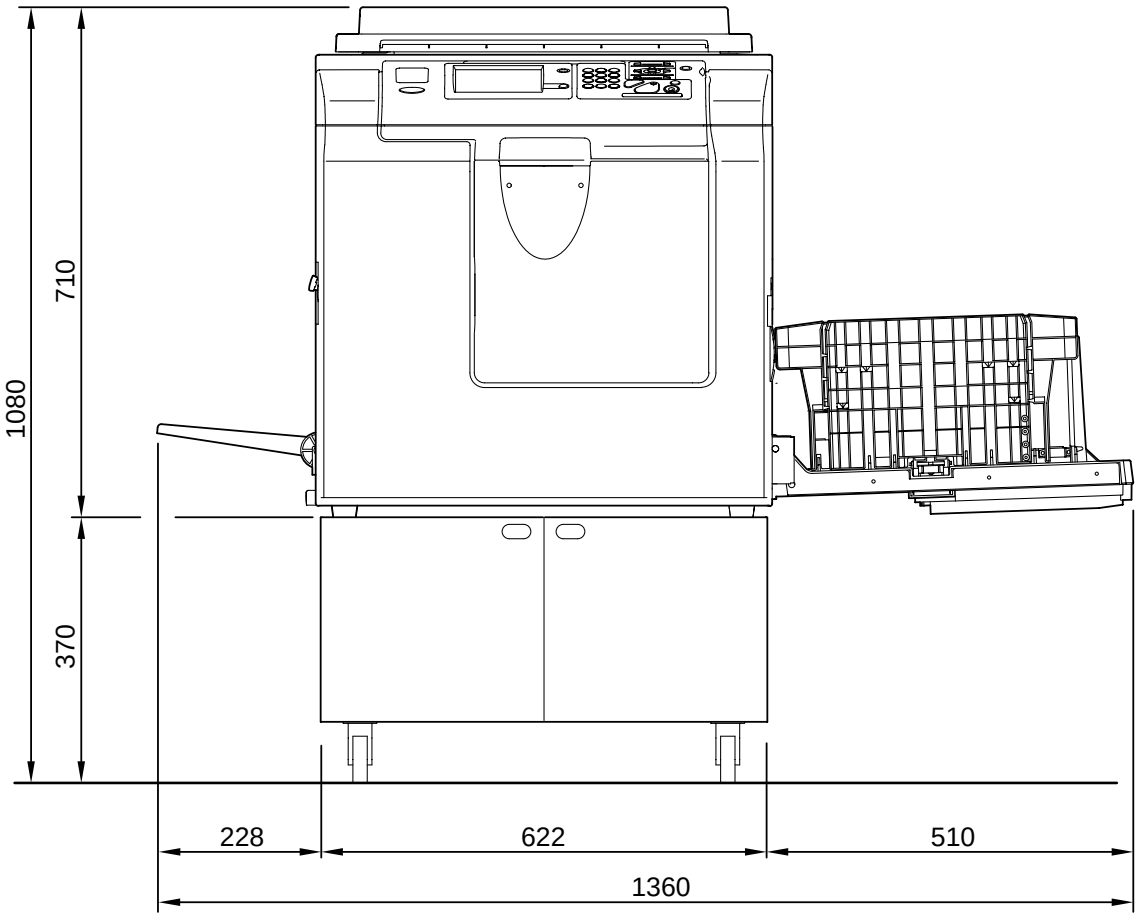
Model name DUPRINTER	DP-S850	DP-S650	DP-S620	DP-S550	DP-S520	DP-S510
Online	USB interface (standard USB1.1) (USB cable must be 3m or shorter.)					
	Printer driver must be installed in computer.					
	Windows 2000 Professional					
	WindowsXP Professional / Home Edition					
	MacOSX10.3/10.4					
	IEEE1284 (Compatibility mode, Nibble mode) parallel interface(Optional)					
	Windows 98 / Me					
	Windows NT4.0					
	Windows 2000 Professional					
	Windows XP Professional / Home Edition					
	LAN-kit (optional)					
	(Warning: Parallel board in LAN-kit must not be connected with any other devices.)					
	DP-RIP (optional)					
	IEEE1284 parallel interface is required separately.					
Options	S3-ADF / Drum unit / A4/Letter drum / Tape cluster (TAP-11/TAP-13)					
	KEY-05 Key card counter (built-in type) / Master box security lock /					
	CF Editor					
	Cabinet / Cabinet door					
	Double feed detection kit (S550/S520/S510 only) / IEEE1284 parallel interface /					
	LAN kit (built-in type) / DP-RIP (optional parallel interface is required separateiy.)					
ROM update method	1) Via PC (connect with machine by USB cable) (USB cable: A connector (male) + B connector (male)) OS: Windows 2000 Professional Windows XP Professional/Home edition 2) Via CF card (insert in main PCB)					
Master roll	DRS85	A3, 600dpi (Master ID mark)				
	DRS65	A3, 400dpi				
	DRS62	B4, 400dpi				
	DRS55	A3, 300x600 dpi				
	DRS52	B4, 300x600 dpi				
	DRS51	LG, 300x600 dpi				
Ink	DS14L	Standard black ink				
	DS04LH	High density black ink (SOY INK)				1000ml
	NDXXL, S0XAL	Color ink (1000ml, material is the same as previous color ink)				
Power source	100-240V, 50/60Hz, 2.4-1.0A					
Power consumption	(25 degree (c)) 5% coverage document					
Master making	150W	145W	140W	135W	130W	130W
Printing (Speed 5)	240W	240W	230W	240W	230W	230W
Standing by	18W	18W	18W	18W	18W	18W
Sleeping	8W	8W	8W	8W	8W	8W
Dimensions	In use: 1360mm(W) x 688mm(D) x 1080mm(H)					
	Folded: 770mm(W) x 688mm(D) x 1080mm(H)					
	With optional ADF attached:					
	In use: 1360mm(W) x 688mm(D) x 1222mm(H)					
	Folded: 770mm(W) x 688mm(D) x 1222mm(H)					
Weight	102kg (when packed: 118kg)					
Operating temperature	10 - 30 degree (C) (50 - 86 degree (F))					

Specifications are subject to change without prior notice.

2 Dimensions

(mm)





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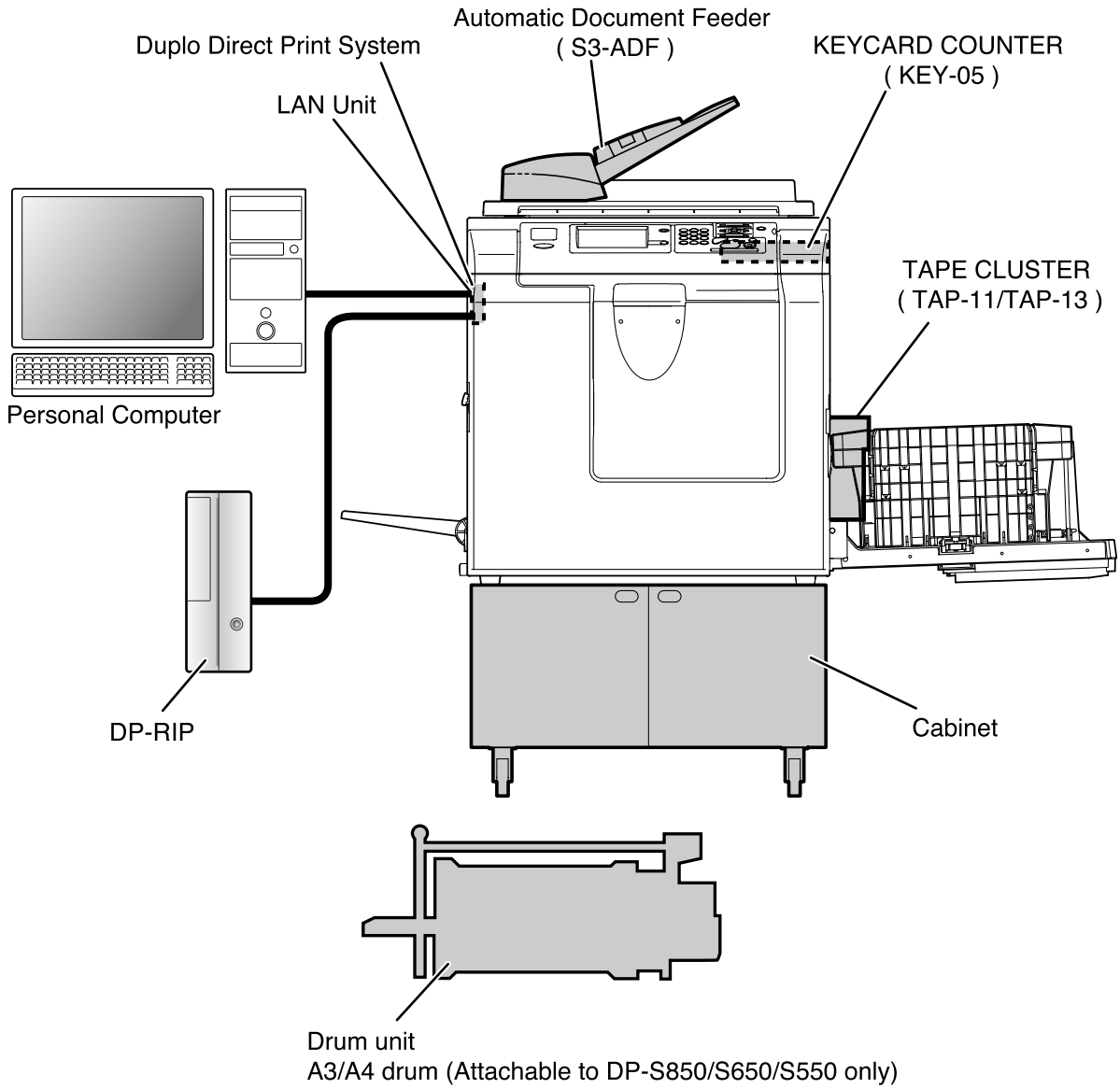
3 System Setup

1. Before Installation

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



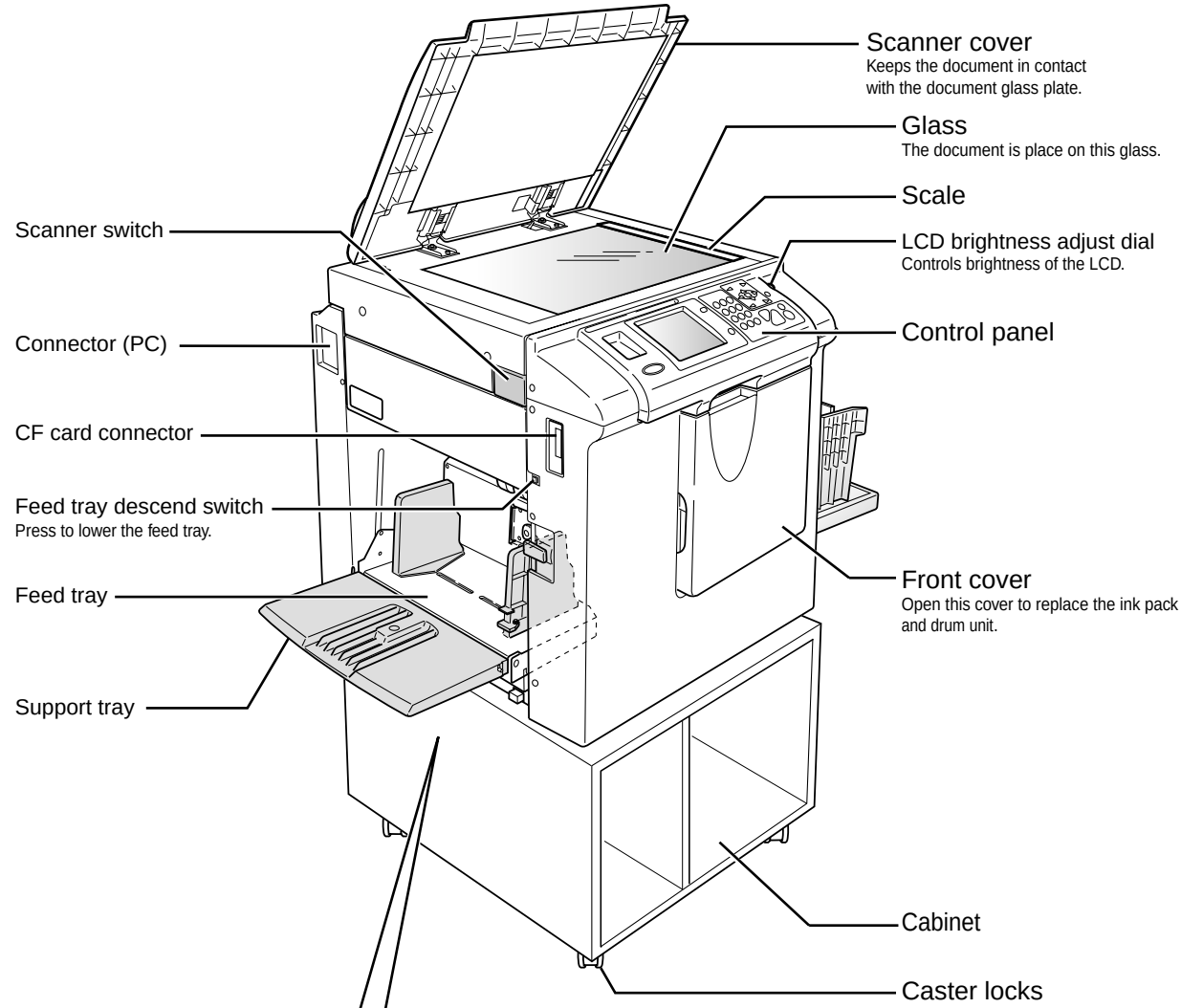
NOTE : DDP system

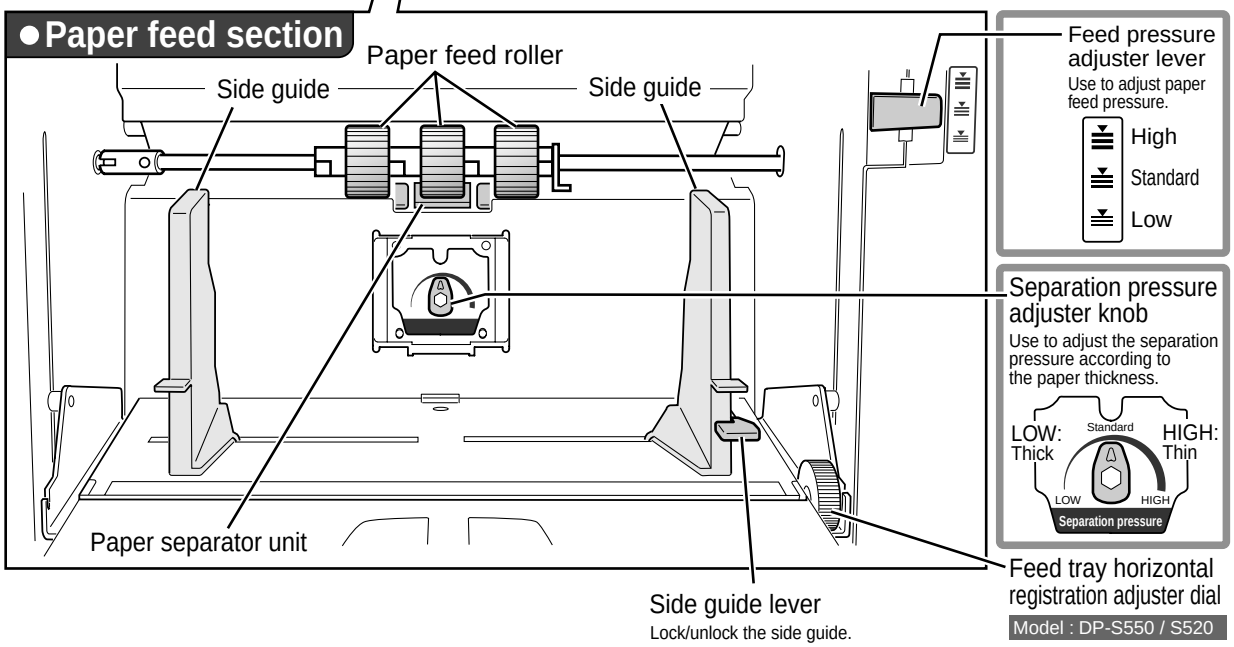
Documents prepared on a personal computer can be printed on this machine.

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

4 Part Names and Their Functions

1. Machine exteriors





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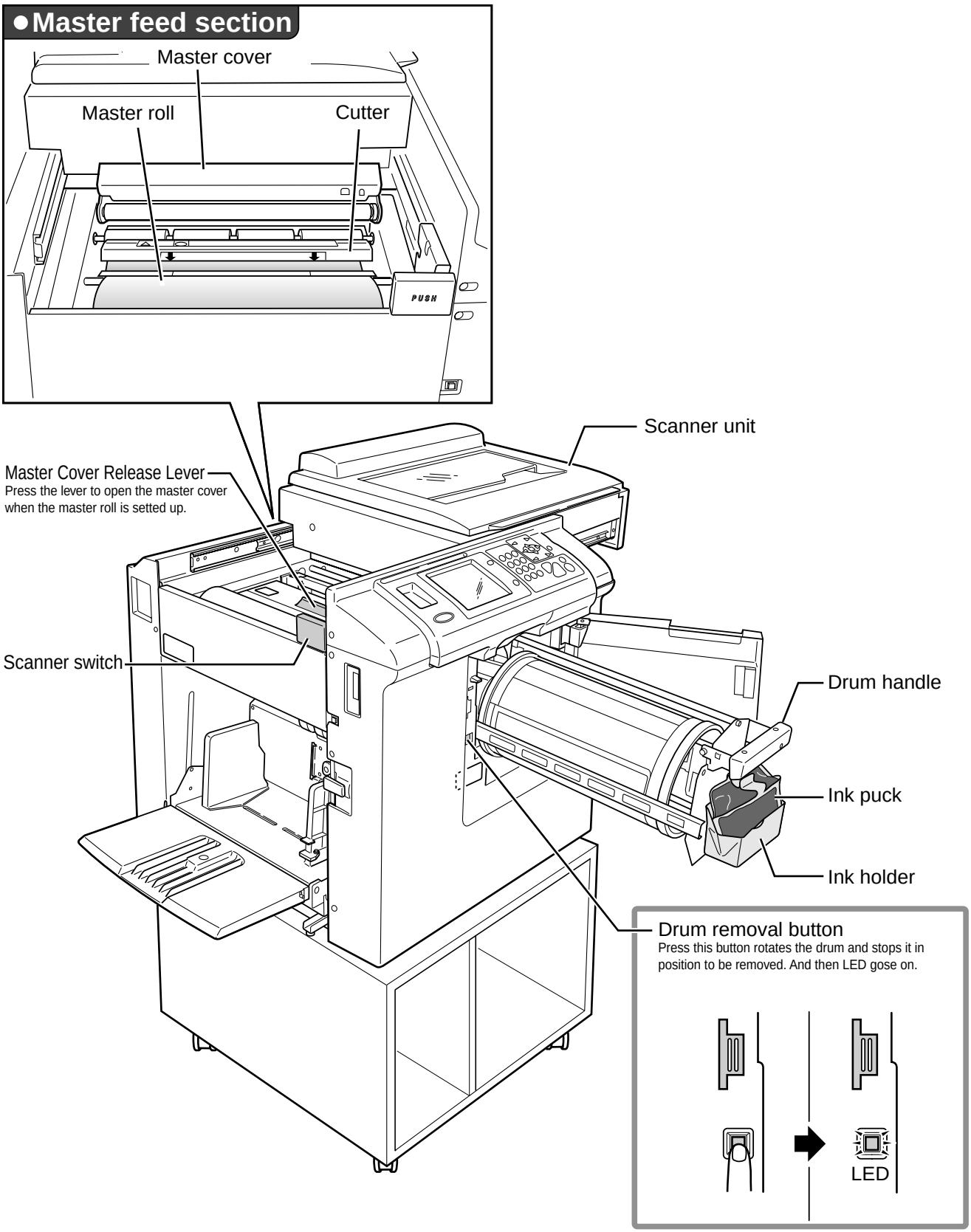
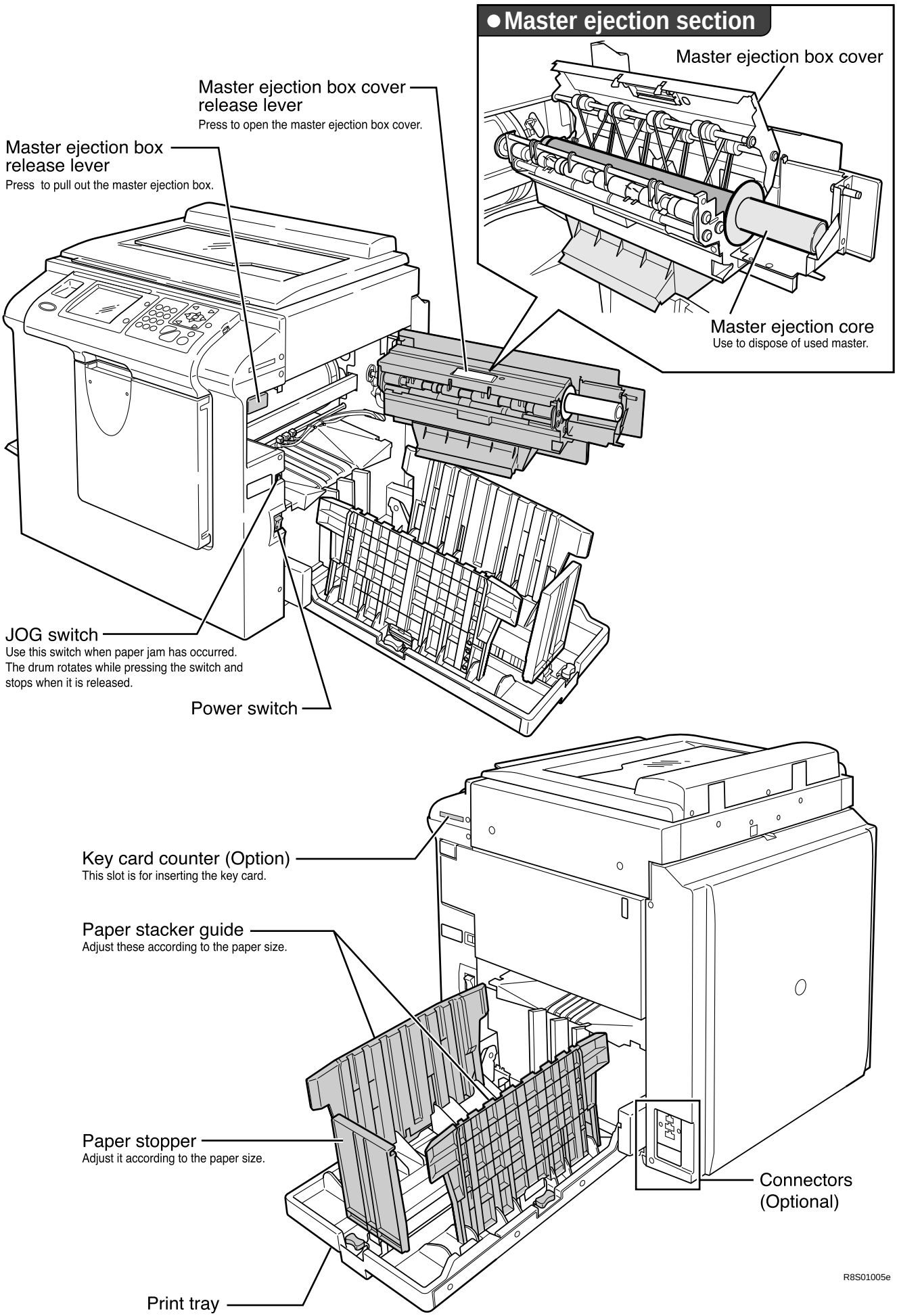
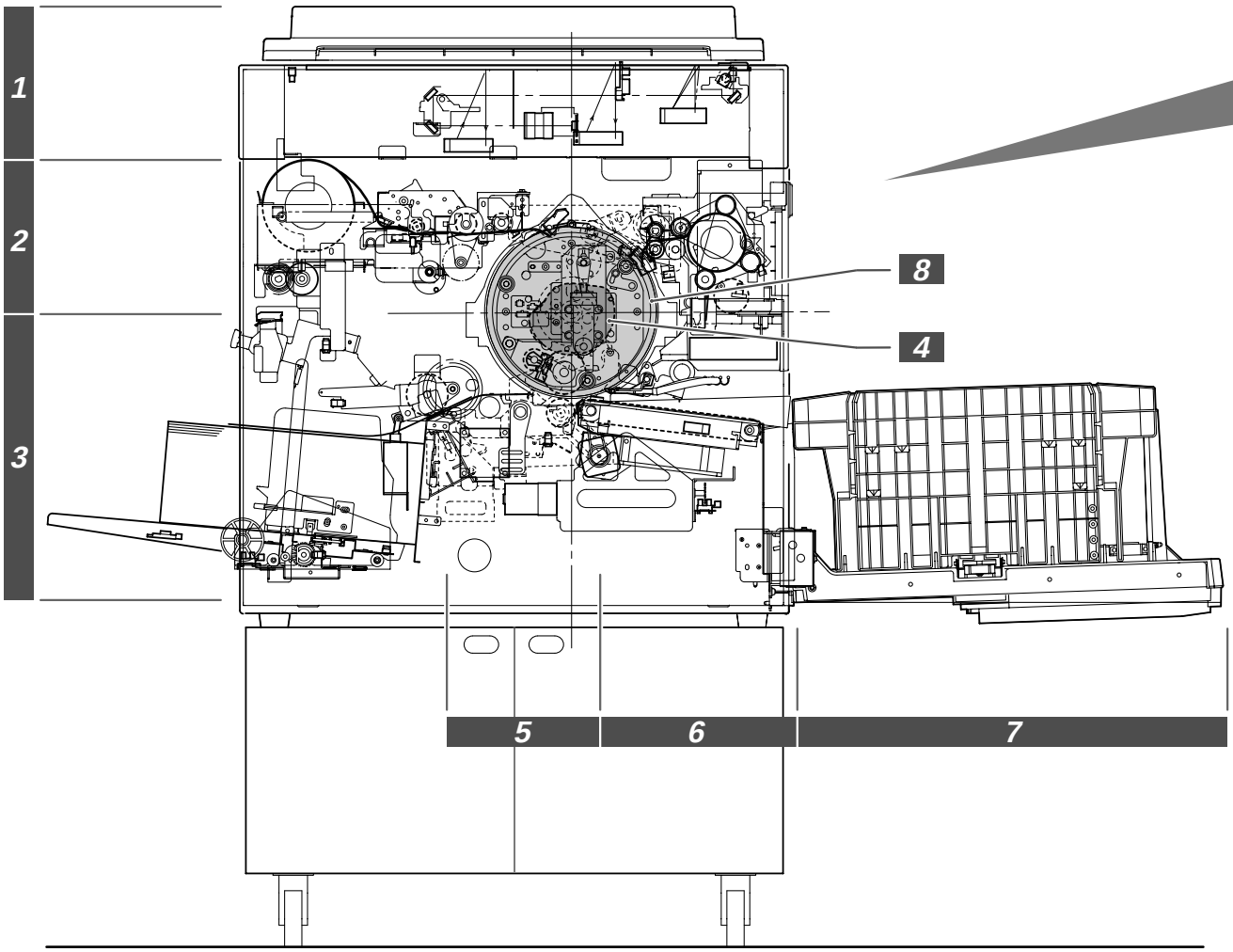

●Master feed section
Master cover
Master roll
Cutter
PUSH
Scanner unit
Master Cover Release Lever
Press the lever to open the master cover when the master roll is setted up.
Scanner switch
Drum handle
Ink puck
Ink holder
Drum removal button
Press this button rotates the drum and stops it in position to be removed. And then LED gose on.
LED

R8S01004e


● Master ejection section
Master ejection box cover
Master ejection core
Use to dispose of used master.
Master ejection box cover release lever
Press to open the master ejection box cover.
Master ejection box release lever
Press to pull out the master ejection box.
JOG switch
Use this switch when paper jam has occurred.
The drum rotates while pressing the switch and stops when it is released.
Power switch
Key card counter (Option)
This slot is for inserting the key card.
Paper stacker guide
Adjust these according to the paper size.
Paper stopper
Adjust it according to the paper size.
Connectors (Optional)
Print tray
R8S01005e

2. Sectional (structural) view of the machine

No.	Section Name	Description of the Operation	Mechanism	Srandard/Adjustment
1	Scanner section	26 page	103 page	136 page
2	Platemaking/Master feed/ejection section	36 page	109 page	138 page
2A	Platemaking/Master feed section	36 page	109 page	138 page
2B	Master ejection section	48 page	113 page	139 page
2C	Master clamp opening/closing section	50 page	114 page	142 page
3	Paper feed section	56 page	116 page	145 page
4	Drum driving section	68 page	120 page	150 page
5	Press section	74 page	–	152 page
6	Paper ejection section	79 page	122 page	154 page
7	Print tray	–	–	–
8	Drum section	85 page	127 page	155 page



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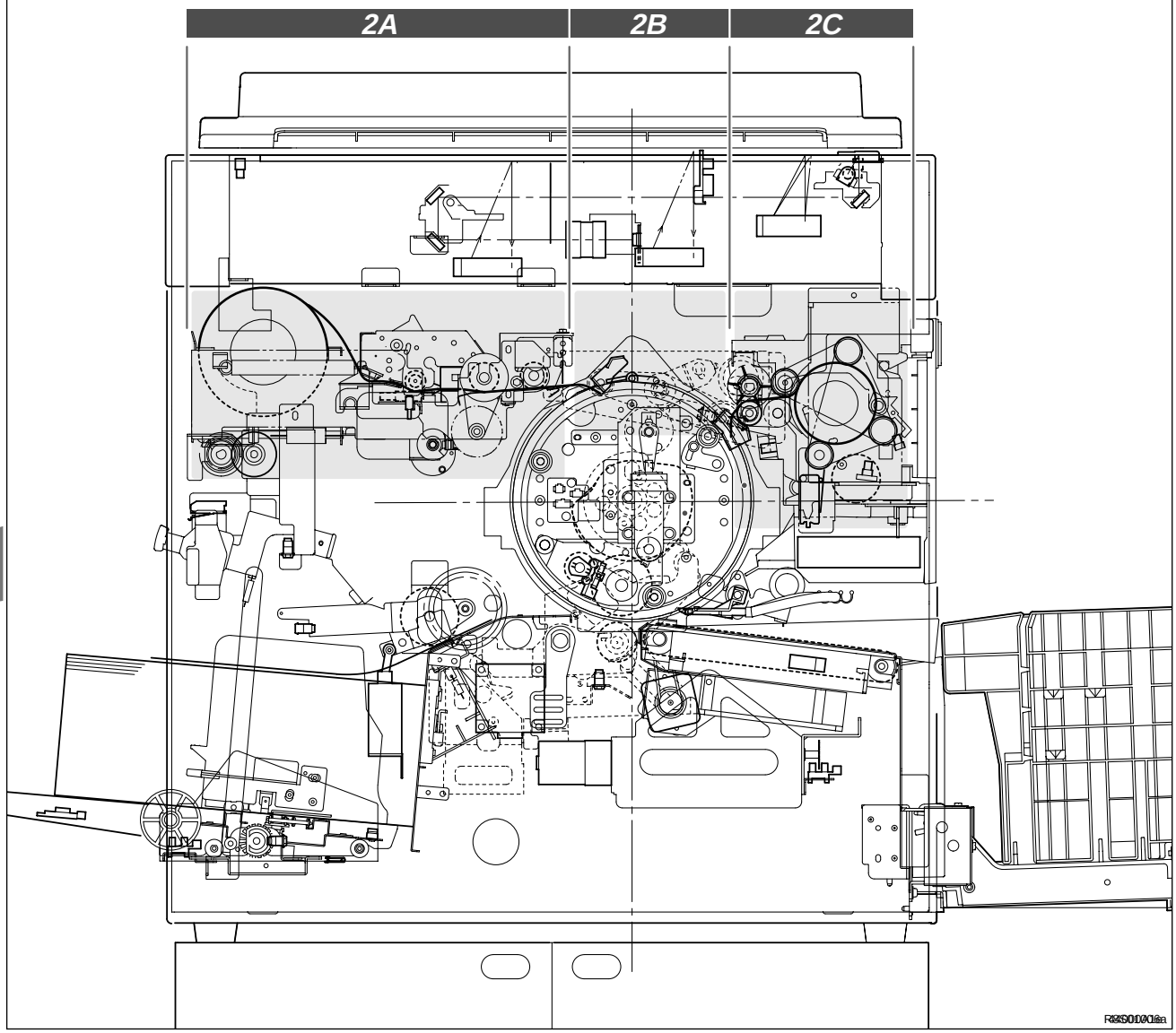
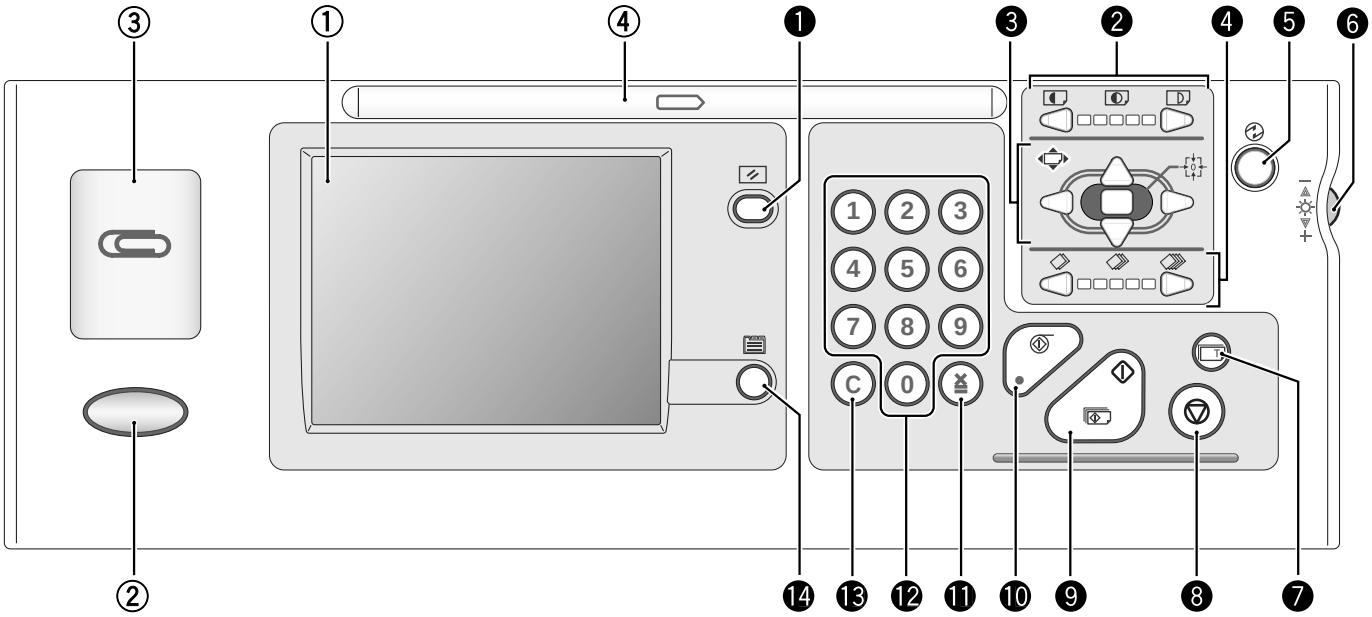
● Detailed drawing



3. Control Panel

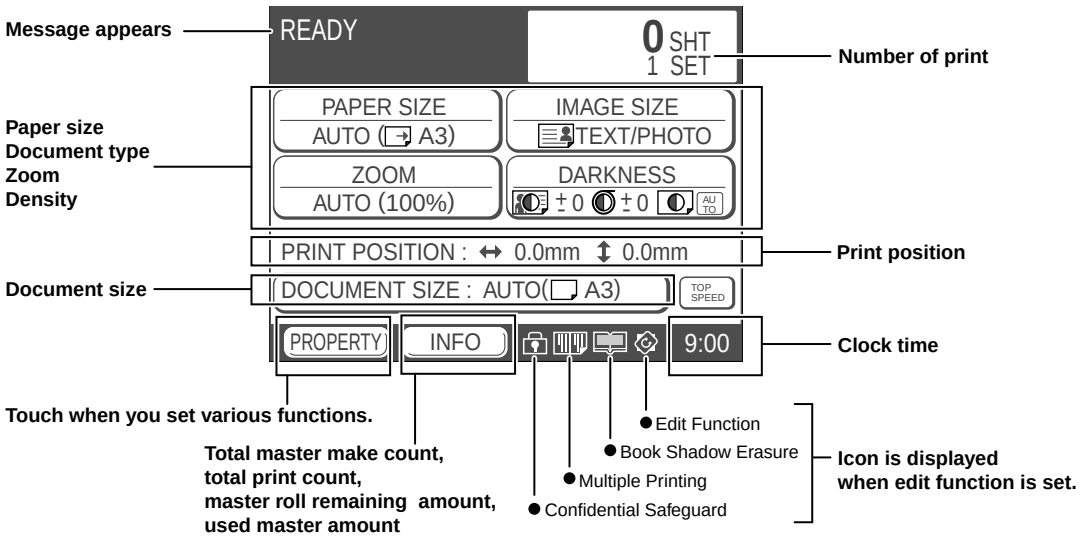


No.	Name	Function
①	**LCD (touch panel)**	Displays current settings such as number of printed sheet. Touch to change settings. Displays error messages in case of error.
②	**LAMP**	Blinks to indicate the status of the machine. Green: Operating. Red: Error message is displayed. Orange: Message replacing consumables is displayed.
③	**Clip holder**	–
④	**Pen holder**	–

No.	Name	Function
❶	**RESET key**	Returns setting to standard mode. Setting not stored is cleared.
❷	**PRINT DARKNESS keys**	Controls print darkness.
❸	**PRINT POSITION keys**	Controls print position (horizontal/vertical). * PRINT POSITION keys for horizontal are not available on DP-S550/S520/S510.
❹	**PRINT SPEED keys**	Controls print speed.
❺	**ENERGY SAVE key**	Turns the LCD panel OFF. (Reduces standby power consumption.)
❻	**LCD BRIGHTNESS ADJUST DIAL**	Controls brightness of the LCD.
❼	**TEST PRINT key**	Prints 1 copy to check the image position and density.
❽	**STOP key**	Stops printing. When this key is pressed during making a master, the machine stops after making a master.
❾	**PRINT key**	Starts printing. This key does not start making a master. Printing cannot start when the light of the PRINT key is red (When confidential function is set, when a master is not set on the drum, when error is displayed, when the number of print is not entered).
❿	**MASTER MAKING key**	Starts making a master. Master making cannot be performed during printing. Clear the number of print before master making.
⓫	**≦key**	Enters the print and group number in batch printing.
⓬	**NUMERIC keys**	Enters the print volume.
⓭	**CLEAR key**	Returns the print volume to 0. Other settings on the control panel
⓮	**PROPERTY key**	are not changed. Press to use special functions.

● Display Screen

The operation status or messages appear on the LCD panel.

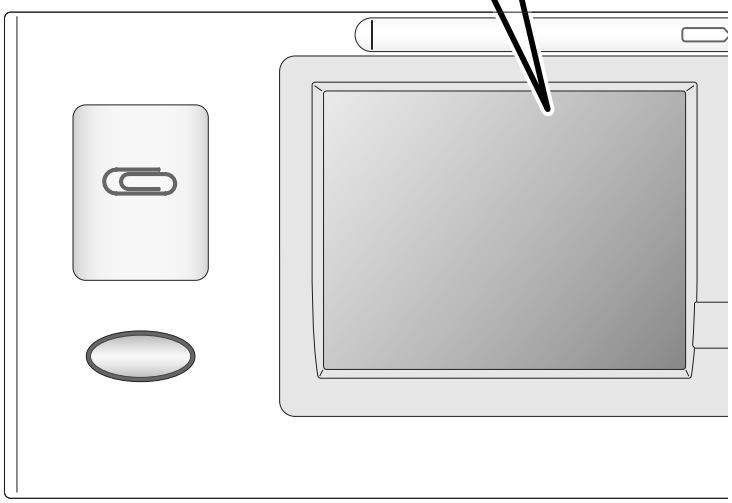


The above screen is for the DP-S850. Some function icons are not displayed on other models.

NOTES :

You can select setting by touching the LCD and buttons softly.

Please DO NOT PRESS the LCD panel and buttons strongly.



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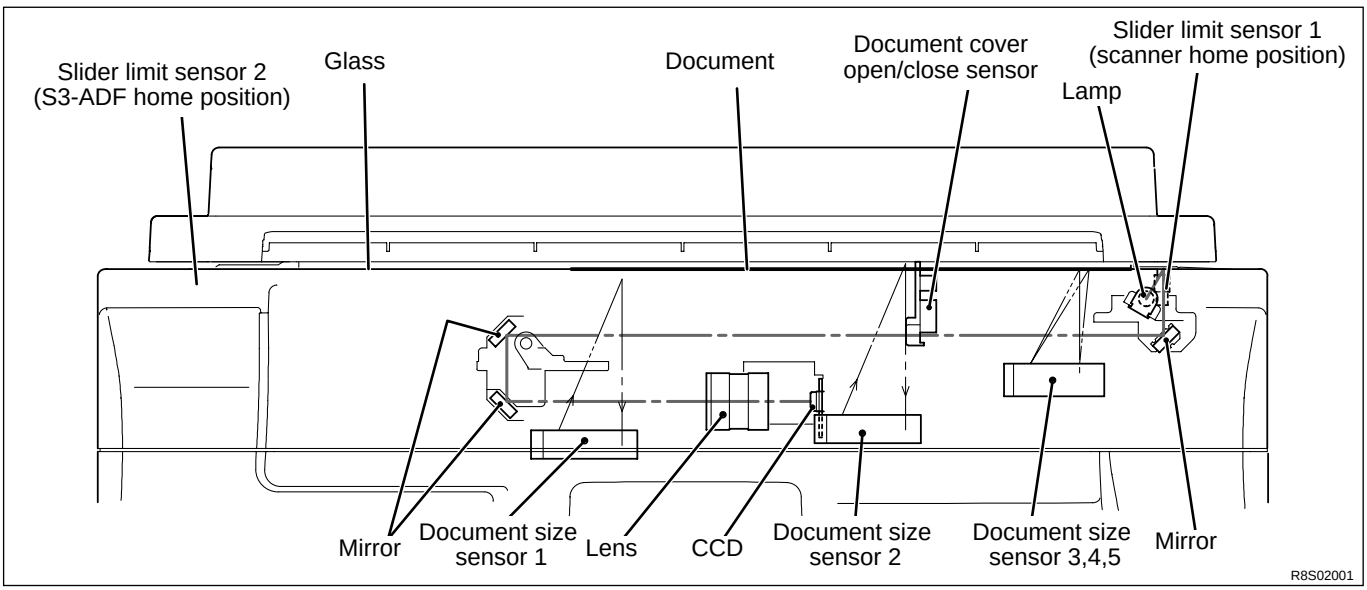
1 Scanner Section

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.

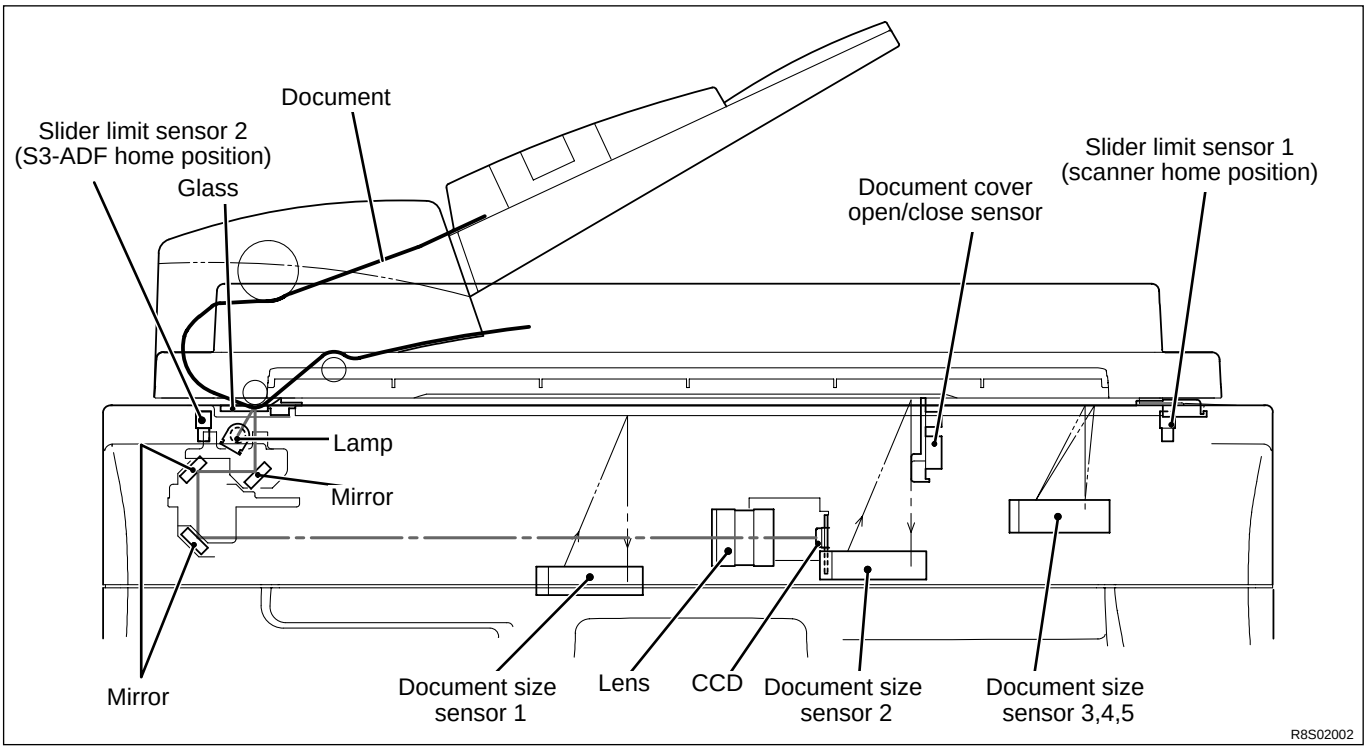
Optical System Operation

• The optical system gose forward (to the left) or back ward with a stop position of slider limit sensor 1.



Optical System Operation (with S3-ADF attached)

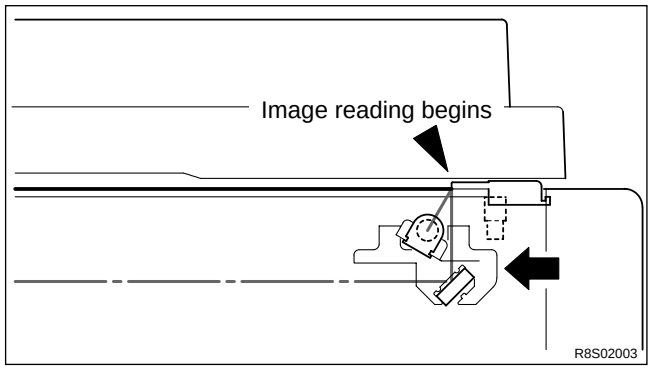
• When S3-ADF is attached, set the slider limit sensor 2 as the optical system stop position, and then read the document darkness.



2. Sequence of Operation

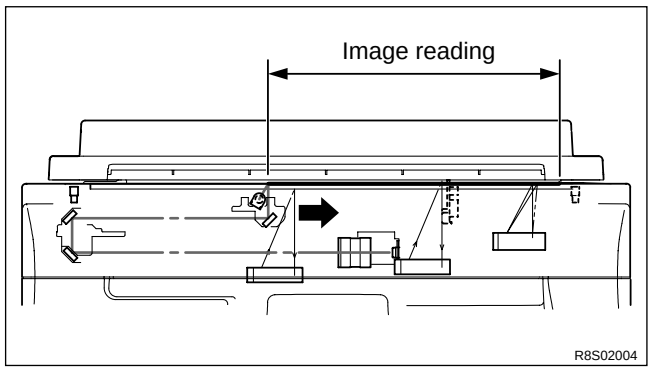
(1) Sequence of the Scanner Operation(with S3-ADF unconnected)

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



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

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



● Sequence

Document cover : OPEN | Document cover : CLOSE | **MASTER MAKING** key : ON

Sequence	STBY	SCFW	STBY	SCFW	SCRV	STBY	SCFW	SCRV	STBY
Motor (opticl system)									
Slider limit sensor 1, 2									
Lamp									

: Motor normal rotation(CW),Sensor photointerruptig
: Motor reverse rotation(CCW)
: Motor stops,Sensor photopassing

Reading the document darkness

Reading the Image

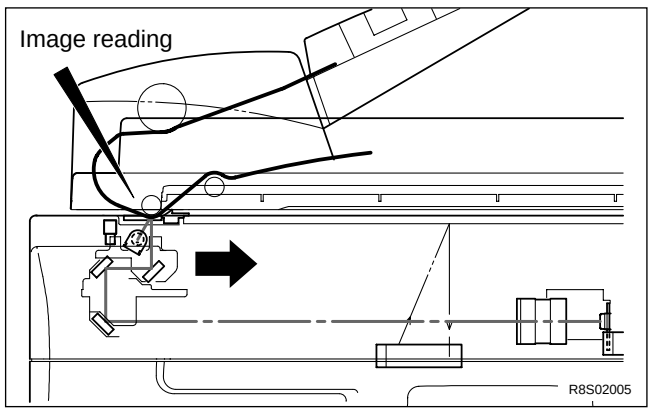
R8S02G01

(2) Sequence of the Scanner Operation(with S3-ADF connected)

1) When the **MASTER MAKING** key is pressed, the optical system will perform shading at home position (slider limit sensor 1), and then move to the left.

2) The optical system reads the image stopped at home position (slider limit sensor 2). When image reading is complete, it immediately moves to the right and returns to the home position.

3) After it returns, the optical system is then on standby for the printing process.



(3) Operation with the Document Cover Open / Closed

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

⬇

The lamps lights up.

⬇

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

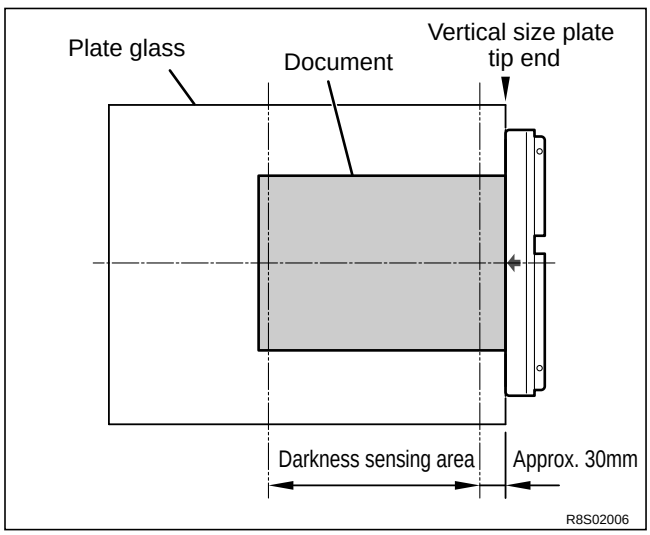
1. Reading the Document Size

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

- When the S3-ADF is installed, the document size (primary scanning) sense for S3-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.



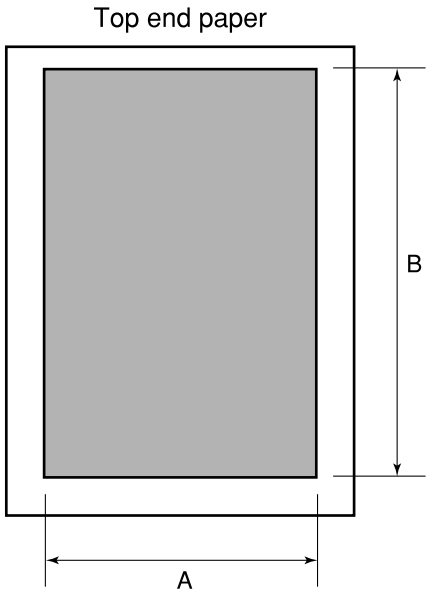
NOTE

Platemaking Area for the Selected Paper

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

Selected paper size	Vertical direction (Top:5mm+End:2mm)	Horizontal direction (Left:2mm+Right:2mm)	Remarks
A3	293mm	413mm	DP-S850/S650/S620
A4 R	206	290	
A4	293	203	
B4	253	357	
A5 R	144	203	
B5 R	178	250	
11"×17"	275.4	424.8	DP-S850/S650/S620
8.5"×14"	211.9	348.6	
8.5"×11"	211.9	272.4	
A5	206	141	
B5	253	175	
Poatcard	96	141	
11"×8.5"	275.4	208.9	
8.5"×5.5"	211.9	132.7	
5.5"×8.5"	135.7	208.9	
4"×6"	97.6	145.4	

* When the magnification error is 0 in the primary scanning (vertical) or in the secondary scanning (horizontal), the size for the same size (1:1) platemaking is shown.



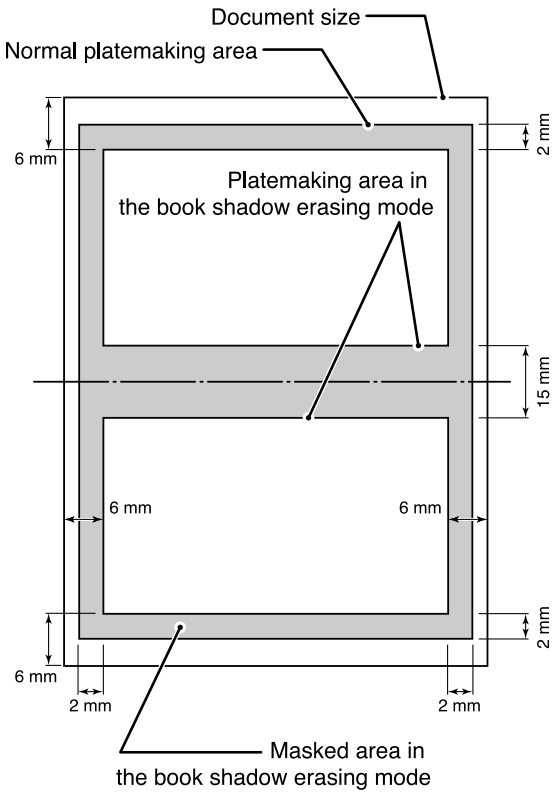
A : Primary scanning (vertical)
B : Secondary scanning (horizontal)

R8S02007e

Platemaking Area for the Book Shadow Erasing Mode

When the platemaking is performed in the book shadow erasing mode, the platemaking area is limited 2 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.



R8S02008e

3. Function of Parts and Circuit

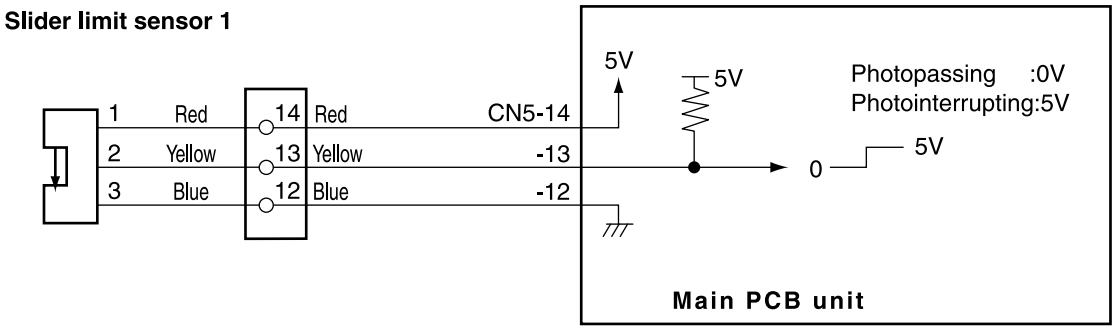
(1) Slider Limit Sensors

Description

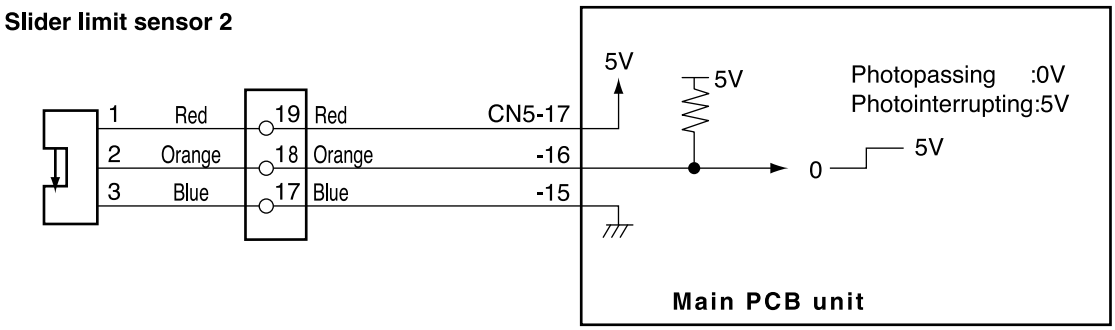
Sensor 1 detects the optical system home position when ADF is not used.

Sensor 2 detects the optical system home position when ADF is used.

Circuit



R8S02E01e

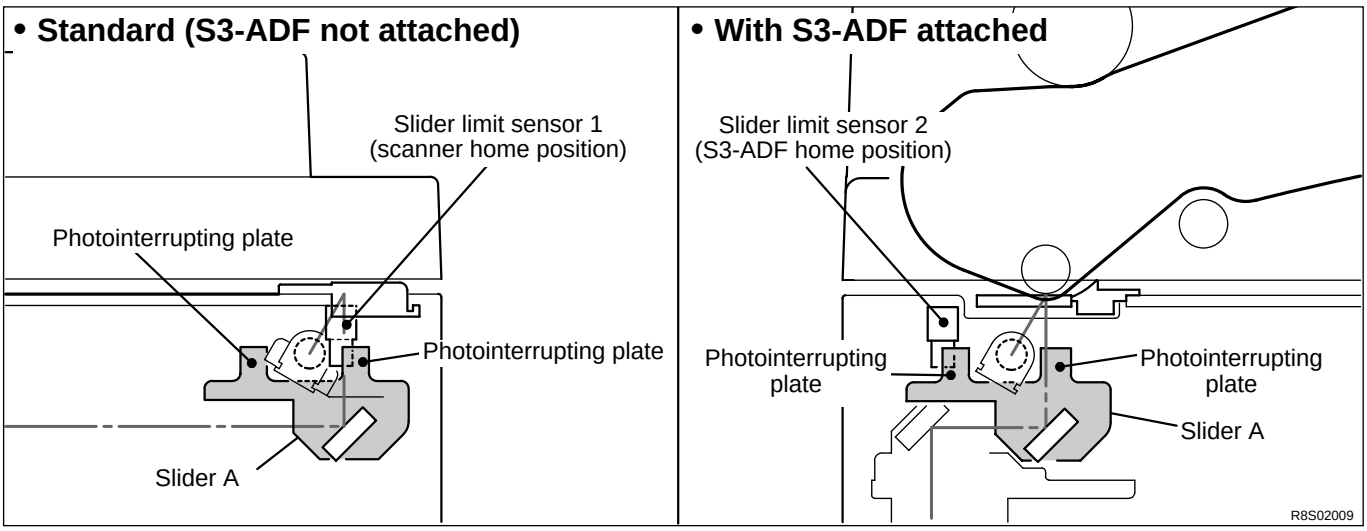


R8S02E02e

Operation

A shading plate is attached on slider A of the optical system. The position where sensor 1 is shaded becomes the optical system home position when S3-ADF is not attached.

The position where sensor 2 is shaded becomes the optical system home position when S3-ADF is used.



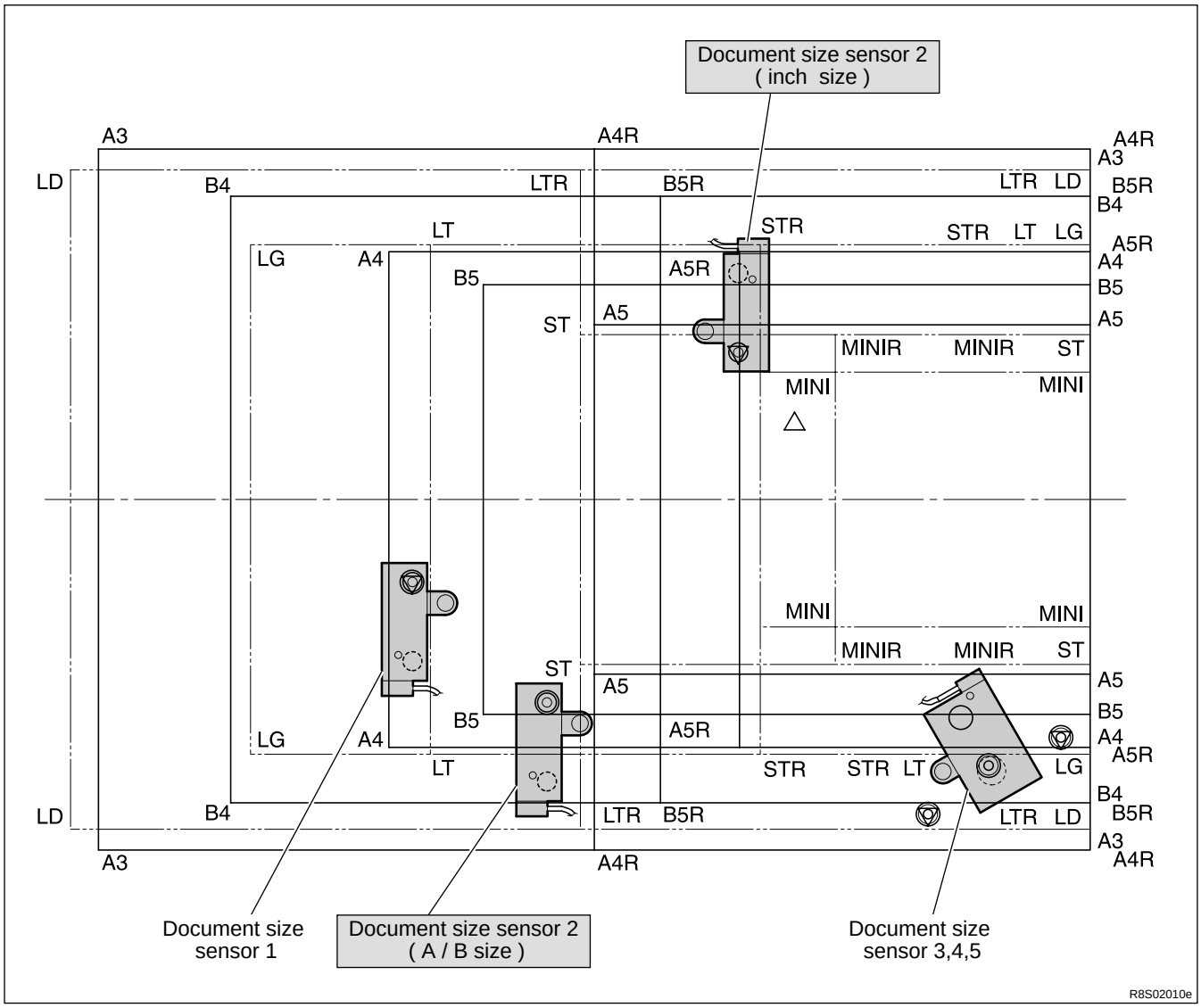
R8S02009

(2) Document Size Sensors

Description

Document size sensors 3, 4 and 5 (primary scanning) sense the document's length in the primary scanning (vertical direction) when it is placed on the document glass.

Document size sensor 1 (secondary scanning) / document size sensor 2 (secondary scanning) senses the document's length in the secondary scanning (horizontal direction) when it is placed on the document glass.



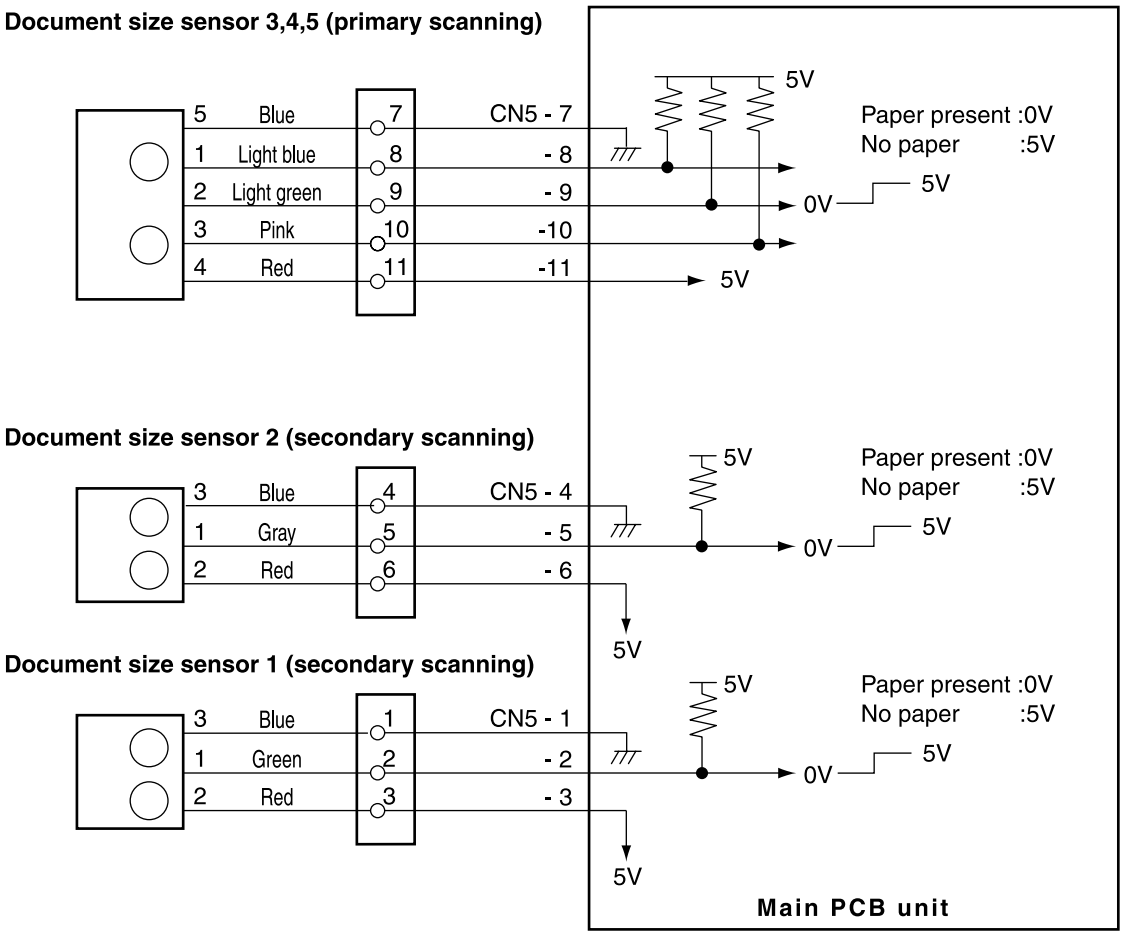
● Sequence

Sequence	A5R	B5R	A4R	B4	A3	A5	B5	A4
Document size sensor 1			■	■	■			
Document size sensor 2		■	■	■	■			
Document size sensor 3			■	■	■	■	■	■
Document size sensor 4				■	■		■	■
Document size sensor 5					■			■

■ : Sensor photointerruptig
□ : Sensor photopassing

R8S02G03e

Circuit



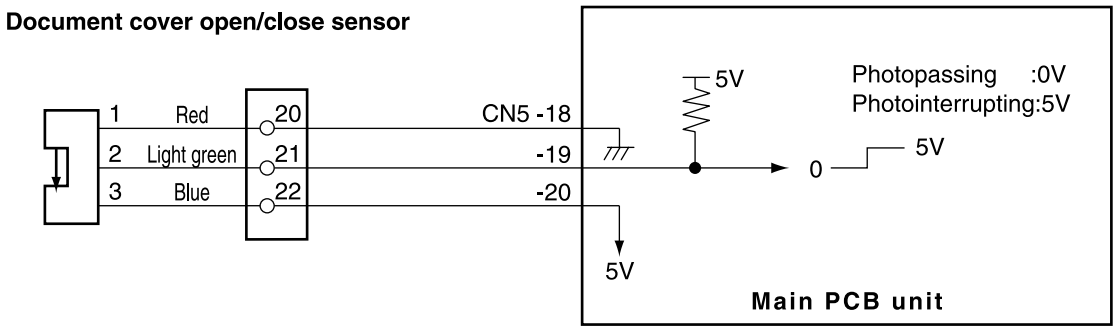
R8S02E03e

(3) Document Cover Open/Close Sensor

Description

The document cover open/close sensor detects opening and closing of the document cover (or S3-ADF if the S3-ADF is installed).

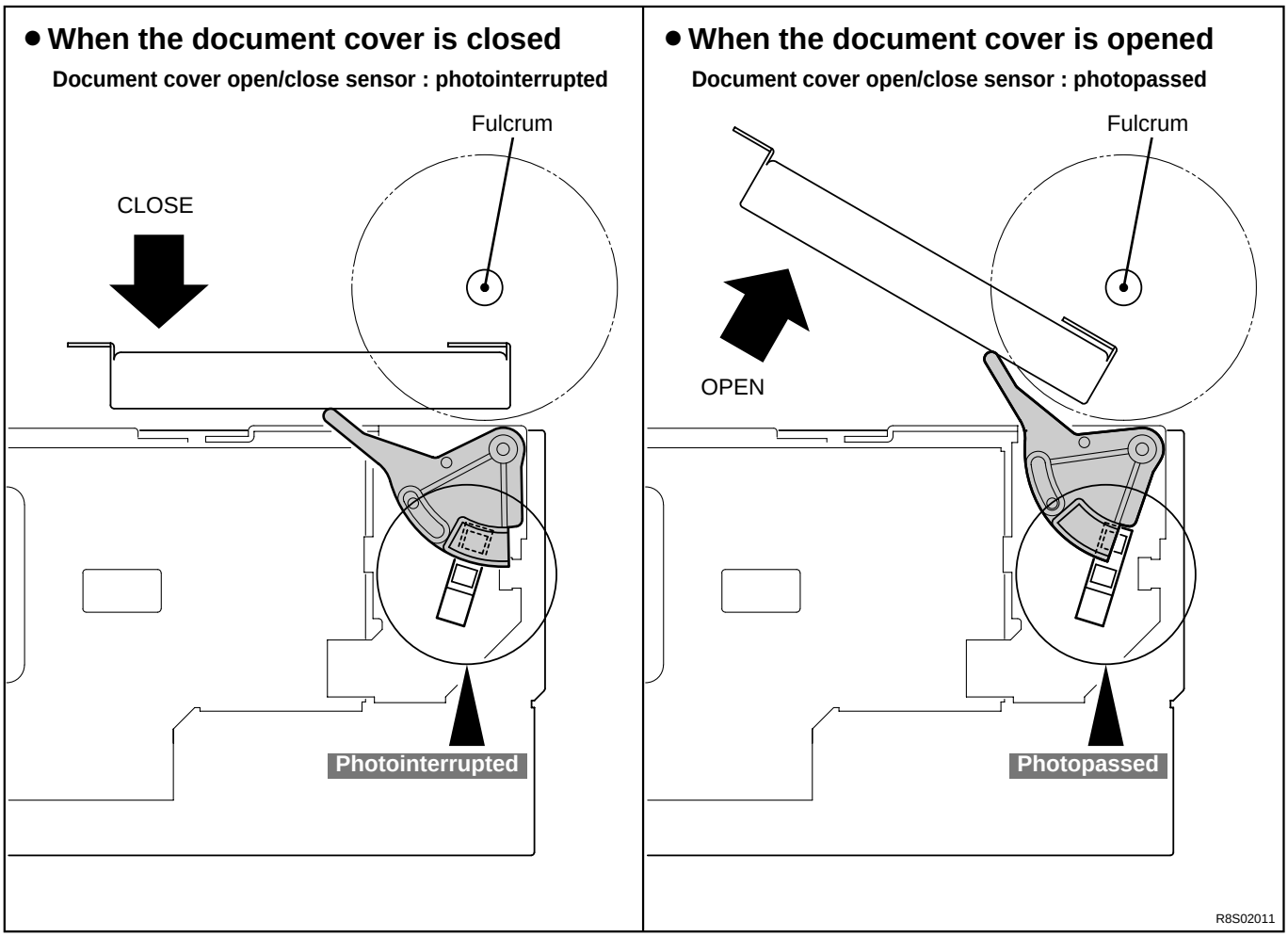
Circuit



R8S02E04e

Operation

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



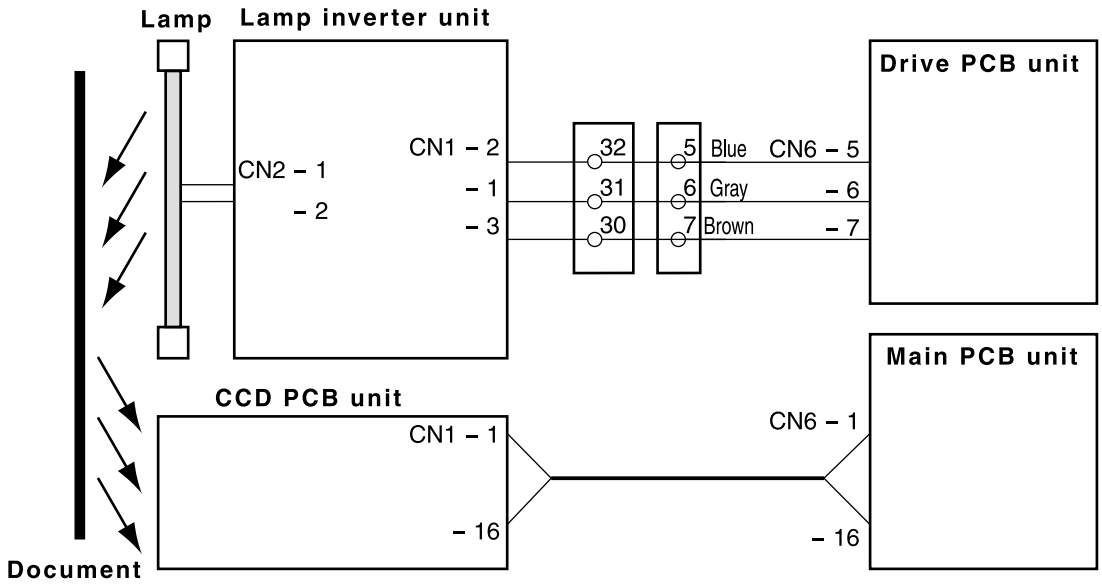
R8S02011

(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



R8S02E05e

Specification

• CCD

The table below shows the specification for the CCD.

No.	Item		Specification		
			DP-S850	***DP-S650 / S620***	***DP-S550 / S520 / S510***
1	Optical signal storage time (SH cycle)		1.6 msec./ line	1.6 msec./ line	1.6 msec./ line
2	Frequency		5 MHz	5 MHz	5 MHz
3	The number of effective picture elements		7926 picture elements	5000 picture elements	5000 picture elements
4	Reading width (This is not the image width which can be processed.)		336 mm	318 mm	318 mm
5	Reading density	primary scanning	600dpi (23.6 dots)	400dpi (15.7 dots)	300dpi (11.8 dots)
		secondary scanning	600dpi (23.6 dots)	400dpi (15.7 dots)	600dpi (23.6 dots)

• Lamp

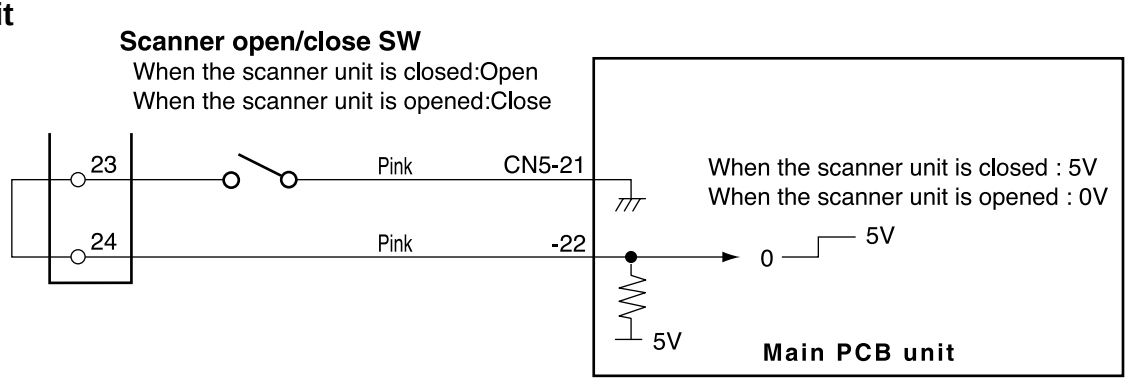
This machine adopts a xenon lamp which is lit quickly when turned on, and the quantity of light is stable.The lamp is lit when the the control signal CN1-1 for the lamp inverter unit is LOW (0V) .

(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 drum removal button and the JOG switch) unless the scanner unit is closed firmly. The machine stops immediately when the scanner unit is open.

Circuit

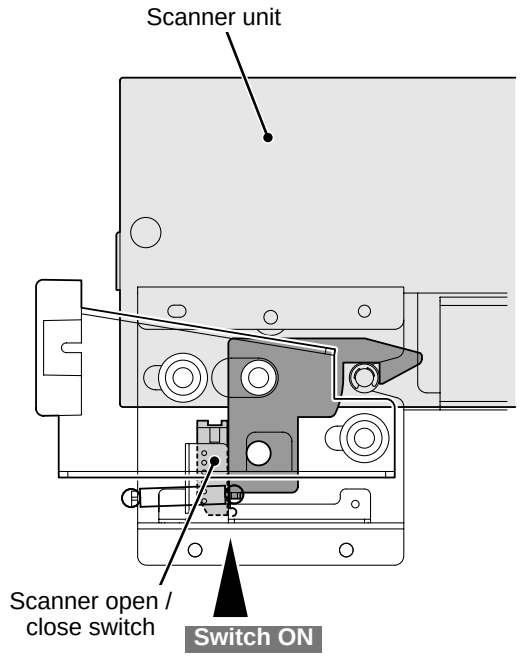


R8S02E06e

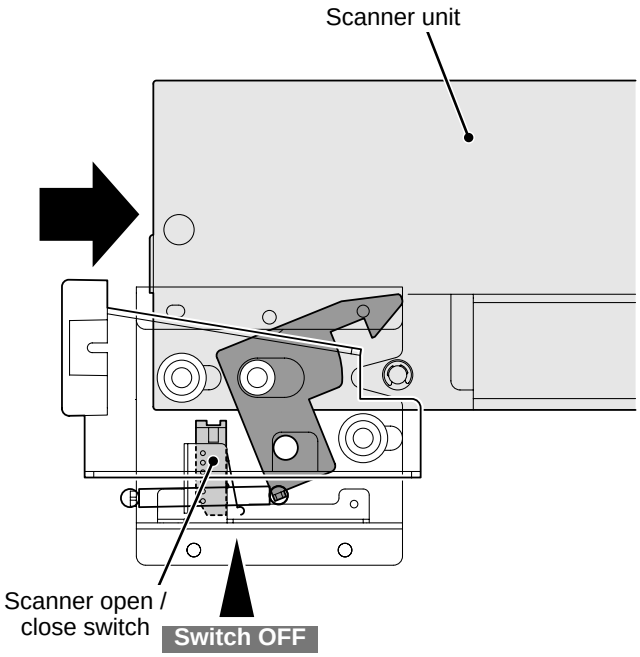
Operation

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

•When the scanner unit is closed

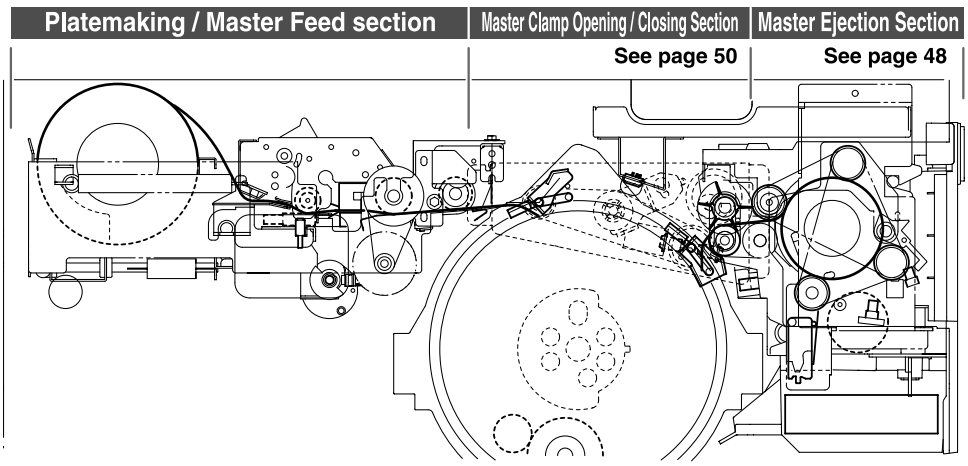


• When the scanner unit begins to open or close



R8S02012

2 Platemaking / Master Feed / Ejection Section



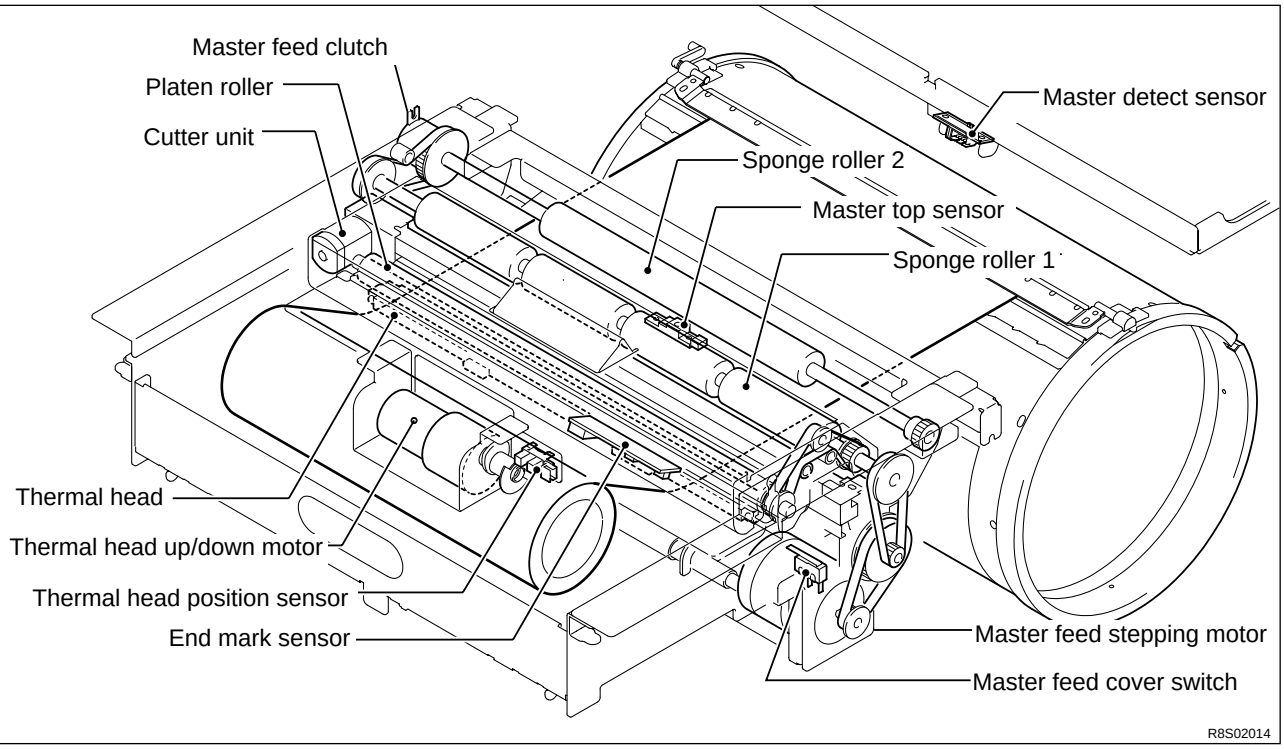
《Platemaking / Master Feed Section》

1. Description

Make the master clamp of the drum unit clamp 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 thermal 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.

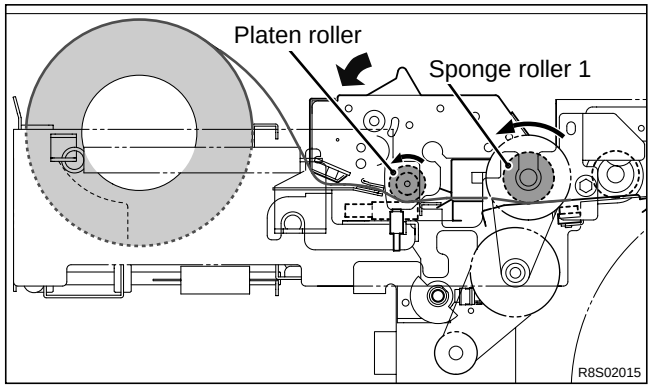
The end mark sensor starts to detect when the end mark (black) section printed on the end of the roll master is conveyed. **"NO MASTER"** is displayed on the LCD panel. The end mark sensor also detects whether the master is conveyed properly through the sensor.



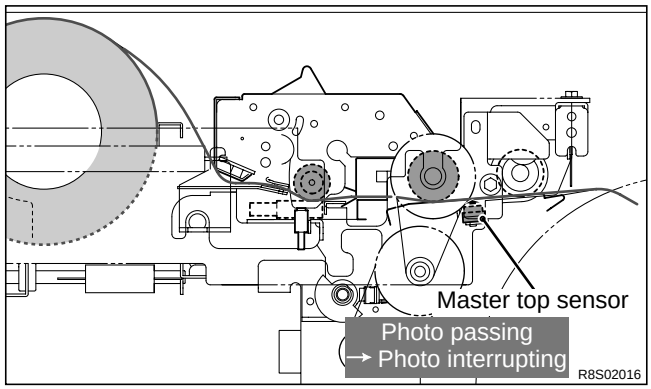
2. Sequence of Operation

(1) Operation when the master set

When the scanner and the master cover are closed, the platen roller and sponge roller1 rotate and feed out the master for 4 seconds.



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



● Sequence

Master cover : CLOSE
Master cover : OPEN
Scanner : CLOSE

Sequence	STBY	STBY	STBY	Master feed stepping motor : ON	STBY
Master feed cover switch					
Master feed stepping motor					
Master feed clutch					
Thermal head up/down motor					
Master position sensor					

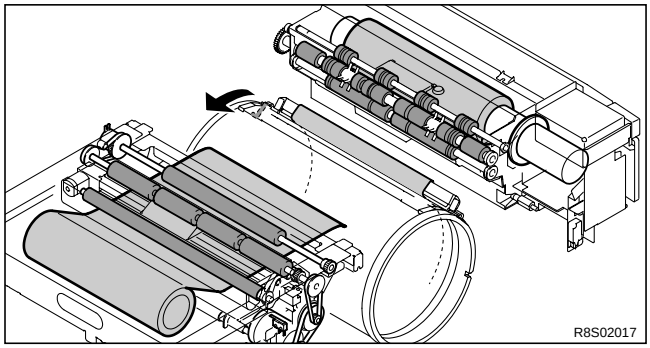
: Motor normal rotation(CW), Sensor photointerruptig
: Motor stops, Sensor, etc. OFF, Sensor photopassing

R8S02G05e

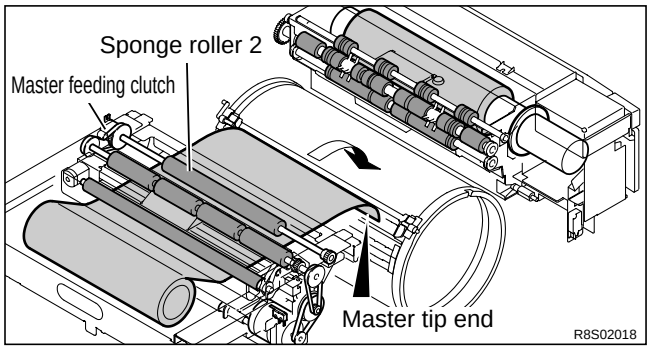
(2) Platemaking / Master Feeding

Operation

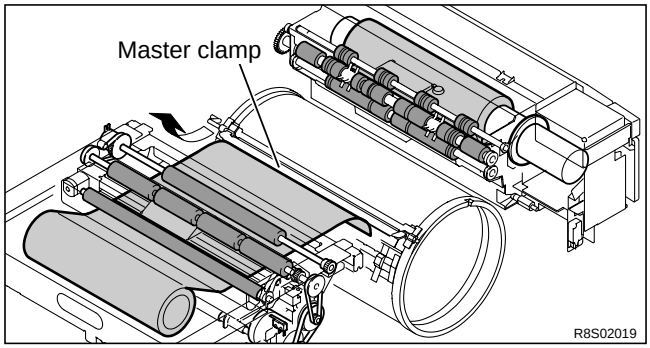
When platemaking operation starts, the drum unit rotates to perform master removal process. The drum which has finished master removal process stops at the master set position.



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

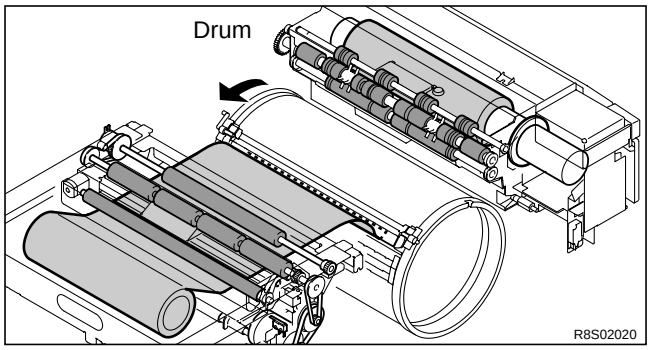


Open the master clamp

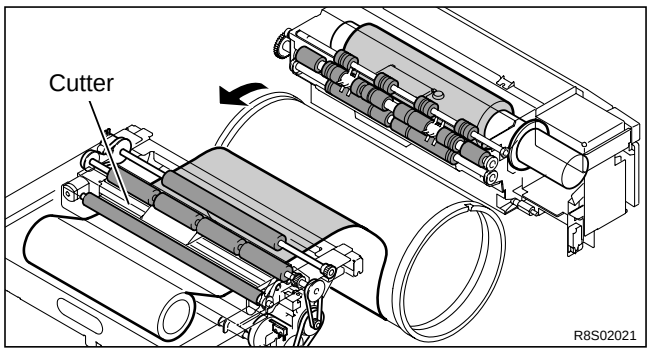


After the master clamp is closed and clamp the master tip end, the drum rotates to roll up the master.

*Check the length of the master and drum rotation angle to control the drum rotation.
*As the master feed 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.



NOTE : **HELP-061: Platemaking is available with the scanner opened.** HELP - 061 ➡ see p.268

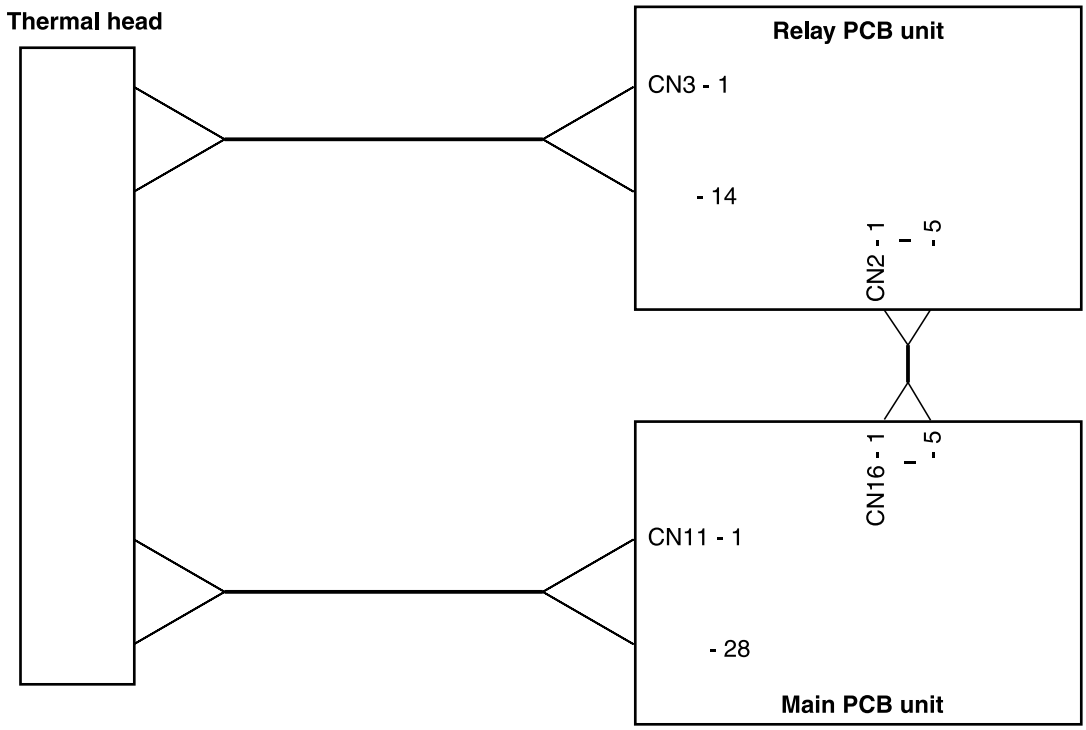
3. Functions of Parts

(1)Thermal Head

Description

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

Circuit

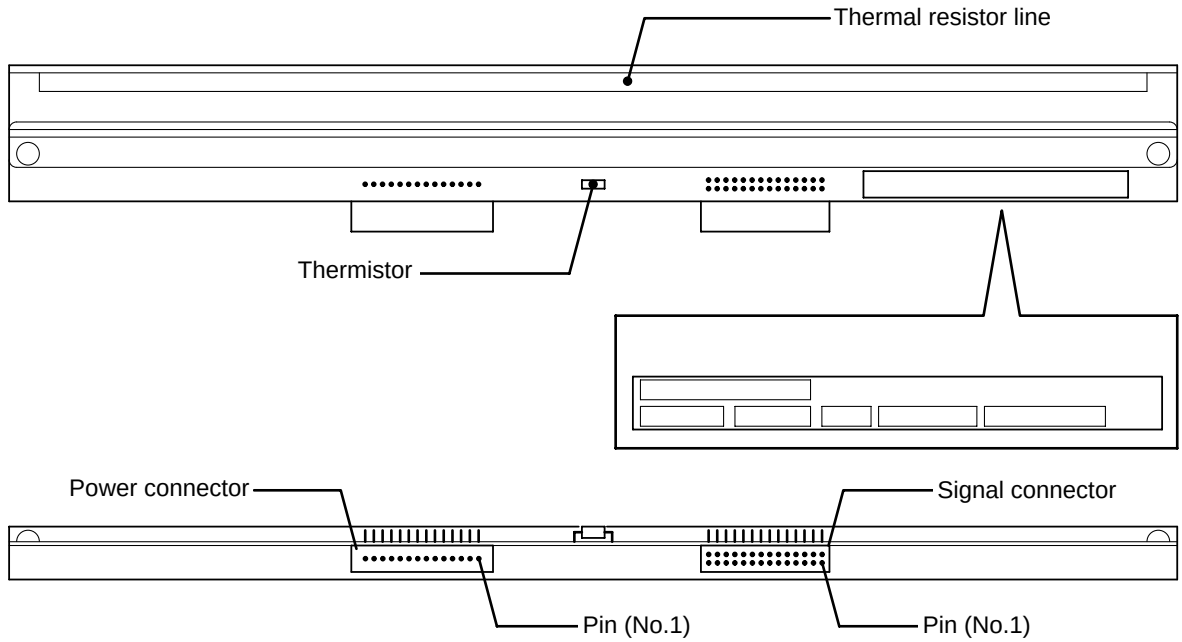


R8S02E07

Specifications

No.	Item	*DP-S850*	*DP-S650*	*DP-S550*	*DP-S620*	*DP-S520 / S510*
1	Picture element density	600DPI (23.6dot/mm)	400DPI (15.7dot/mm)	300DPI (11.81dot/mm)	400DPI (15.7dot/mm)	300DPI (11.81dot/mm)
2	Effective memory width	292.6 ± 0.1mm			260.1 ± 0.1mm	260.2 ± 0.2mm

Exterior and Lot No.

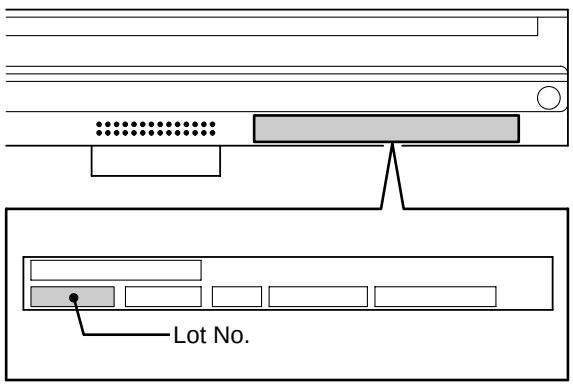


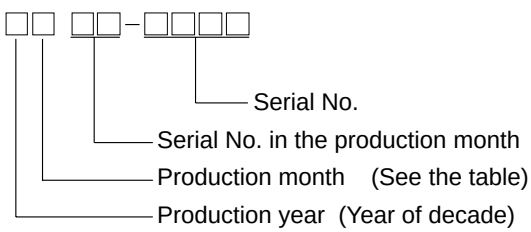
R8S02022a

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





R8S02023a

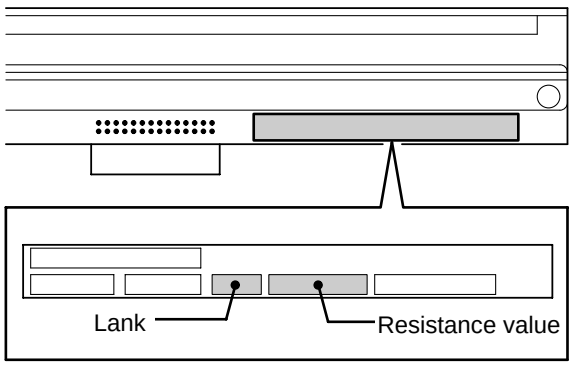
Sign	A	B	C	D	E	F	G	H	I	J	K	L
Month	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

NOTE :

Resistance

Resistance value is described on the label. When the head is replaced and the HELP mode is initialized, set the DIP-SW (HELP-048) of the HELP mode.

HELP - 048 ➡ see p.256



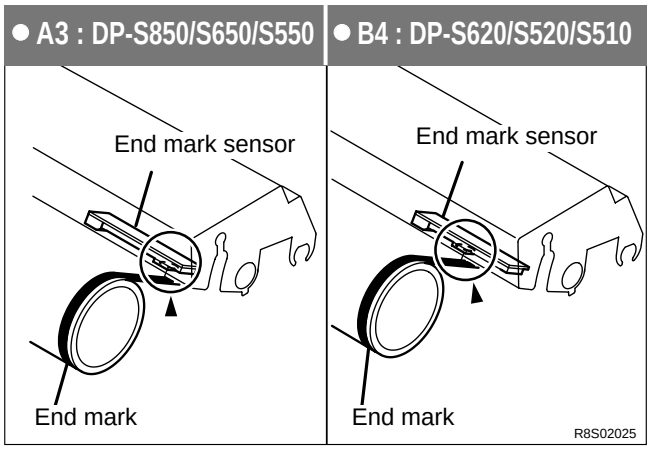
R8S02024a

DP-S550/520/510 300 X 600dpi		*DP-S650/S620* 400 X 400dpi		*DP-S850* 600 X 600dpi	
Rank	Resistance (Ω)	**Rank**	Resistance (Ω)	**Rank**	Resistance (Ω)
00	3825 - 3908	00	3400 - 3474	00	4080 - 4169
01	3909 - 3993	01	3475 - 3549	01	4170 - 4259
02	3994- 4077	02	3550- 3624	02	4260- 4349
03	4078 - 4162	03	3625 - 3699	03	4350 - 4439
04	4163 - 4264	04	3700 - 3774	04	4440 - 4529
05	4247 - 4330	05	3775 - 3849	05	4530 - 4619
06	4331 - 4415	06	3850 - 3924	06	4620 - 4709
07	4416 - 4499	07	3925 - 3999	07	4710 - 4799
08	4500 - 4583	08	4000 - 4074	08	4800 - 4889
09	4584 - 4668	09	4075 - 4149	09	4890 - 4979
10	4669 - 4752	10	4150 - 4224	10	4980 - 5069
11	4753 - 4837	11	4225 - 4299	11	5070 - 5159
12	4838 - 4921	12	4300 - 4374	12	5160 - 5249
13	4922 - 5005	13	4375 - 4449	13	5250 - 5339
14	5006 - 5090	14	4450 - 4524	14	5340 - 5429
15	5091 - 5175	15	4525 - 4599	15	5430 - 5519

(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

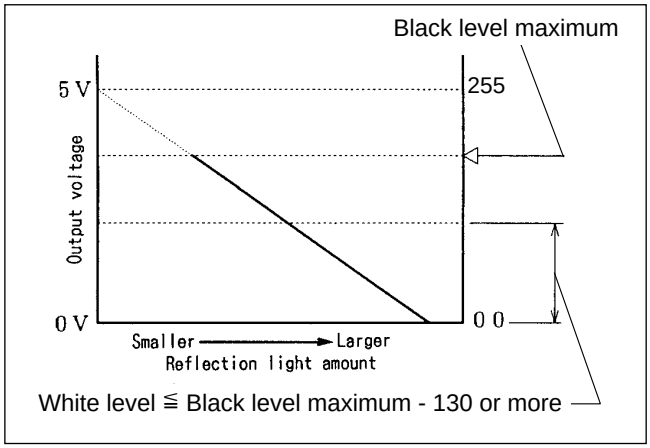
The larger the reflection light amount is, the smaller the output voltage is. The smaller the light amount is, the larger the output voltage is.
The value is checked with the HELP - 008.

HELP-008 ➡ see p.218

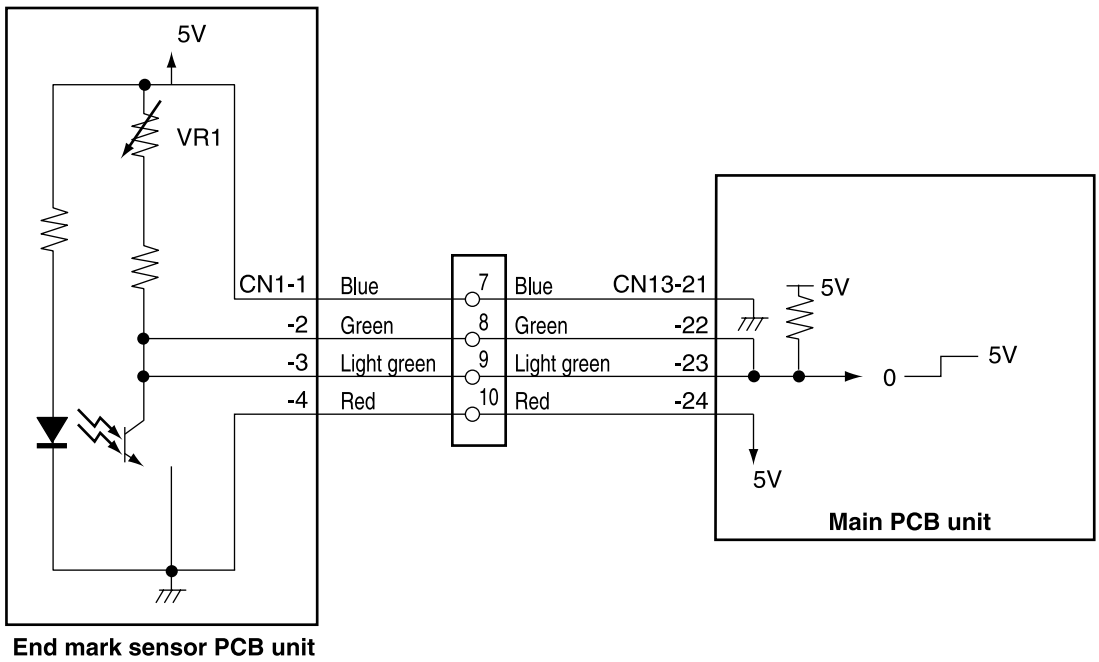
*** Sensitivity adjustment of the end mark sensor**

Make adjustment in the HELP - 008 so that the sensitivity is **150 or more** when reading the end mark printed on the master and **25 or less** in the master white part.
(Make sure that the master is not slackened.)

● Value of the HELP-008



Circuit



R8S02E08e

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 SET ERROR"** is displayed and printing is not processed.
- **"MASTER SET ERROR"** is only cleared by opening and closing the master cover.
  (It is not cleared by turning the power off.)
- **Printing is not performed but platemaking is only performed when the display is cleared after "MASTER ERROR" is displayed. (Because the master is not attached to the drum.)**

Timing

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

2. Master End Detection

Operation

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

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

Timing

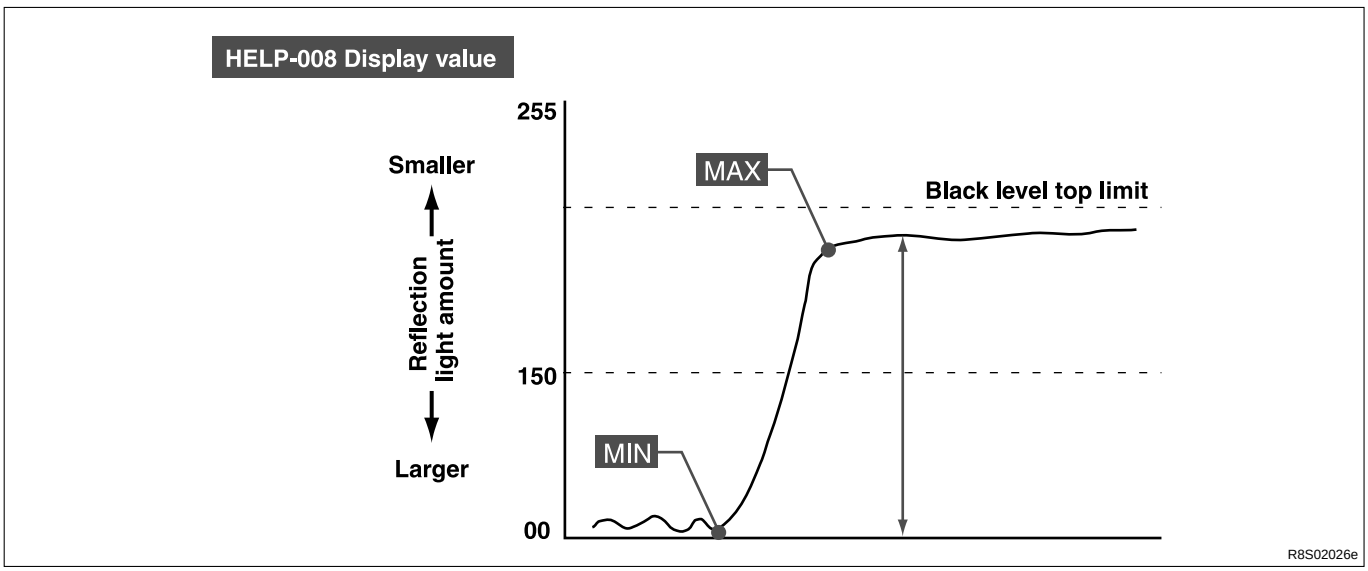
When it is considered that the end mark is read under the following conditions, **"NO MASTER"** is displayed.

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.

150 or more detected continuously.

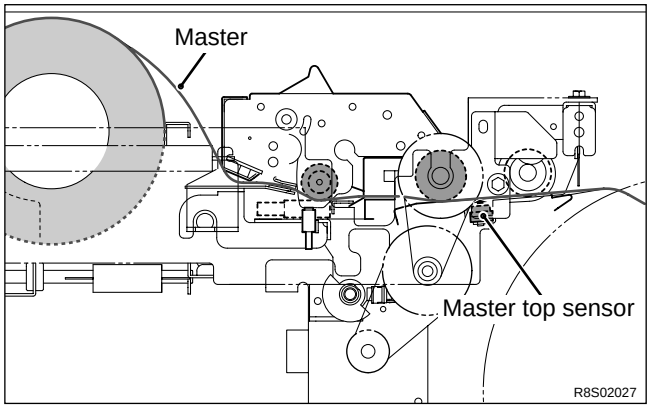


(3) Master top sensor

Description

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

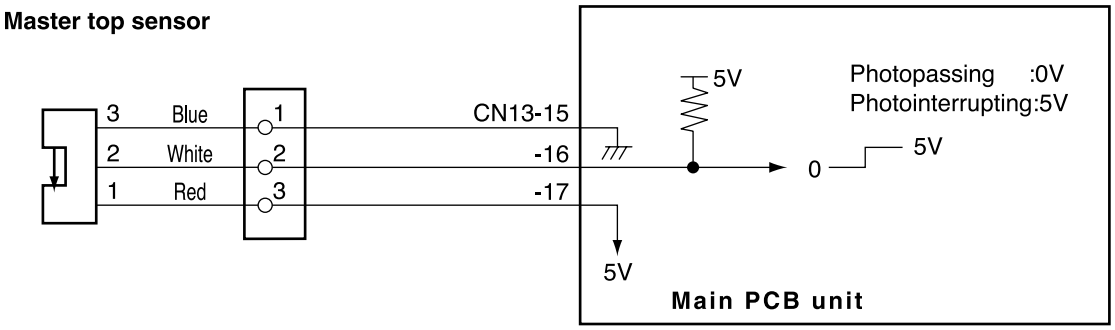
If the photointerrupting condition (master not present) is not obtained during platemaking, **"MASTER SET ERROR"** is displayed.



Operation

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

Circuit



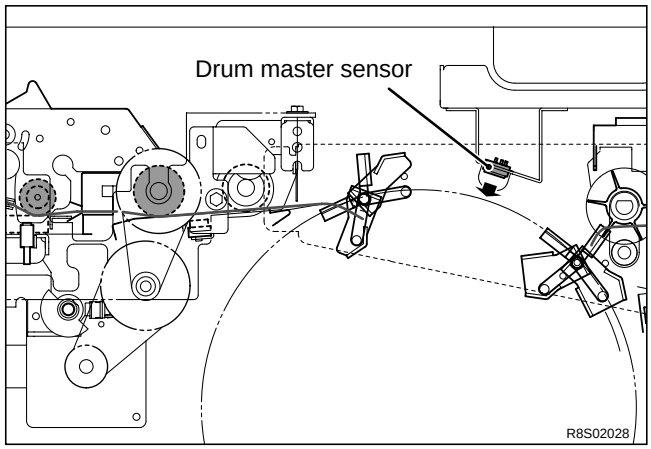
R8S02E09e

(4) Drum Master Sensor

Description

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

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



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 - 005.

HELP-005 ➡ see p.209

Sensitivity adjustment of the master detect sensor

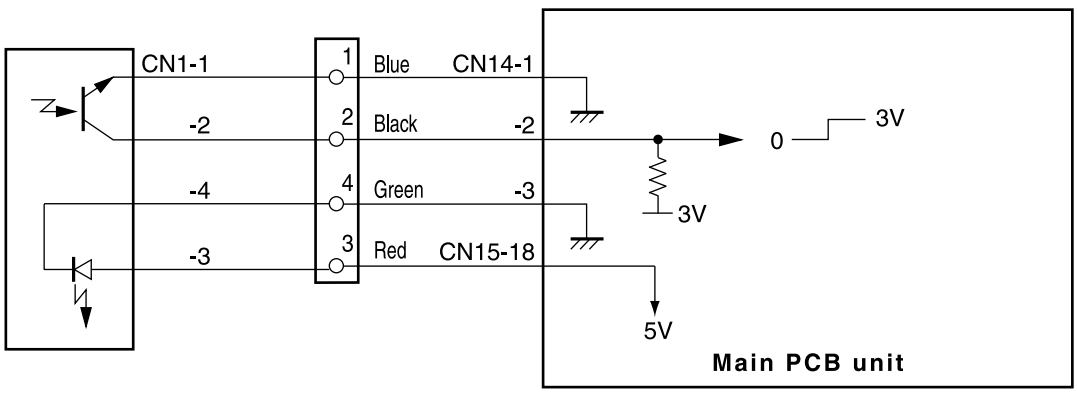
Make adjustment in HELP-005 so that:

Sensitivity is **15 or less** when the master is present on the drum surface,

Sensitivity is **15 or more** when the master is not present on the drum surface.

Circuit

Drum master sensor



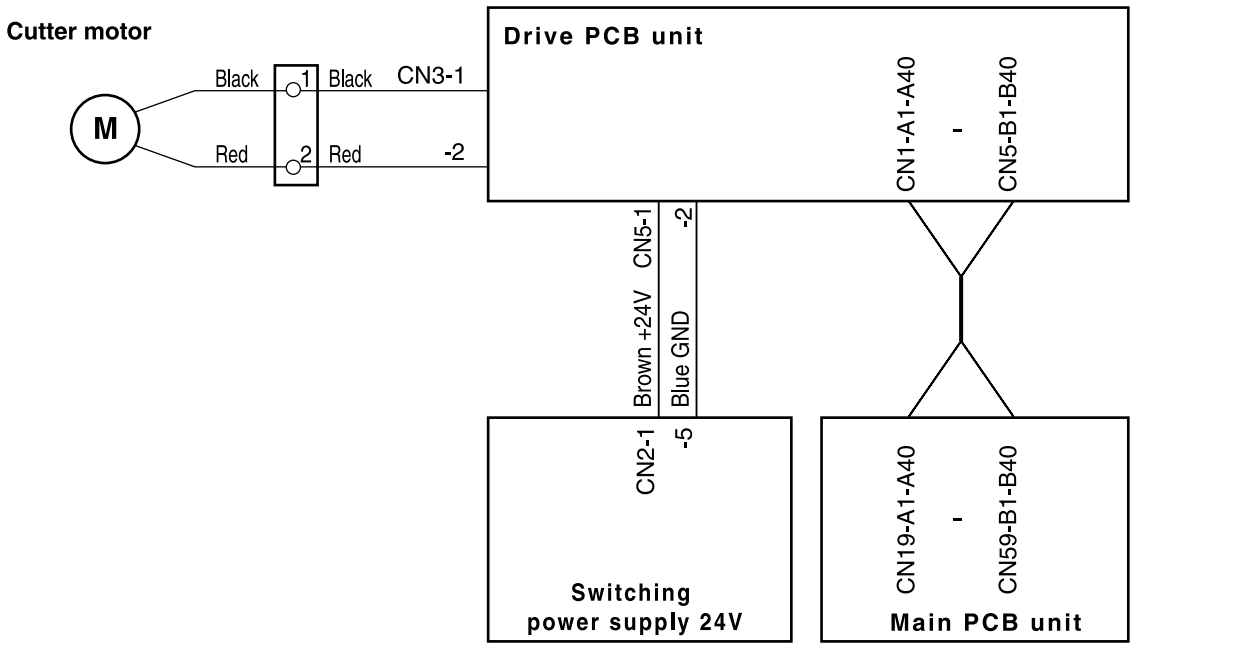
R8S02E10e

(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



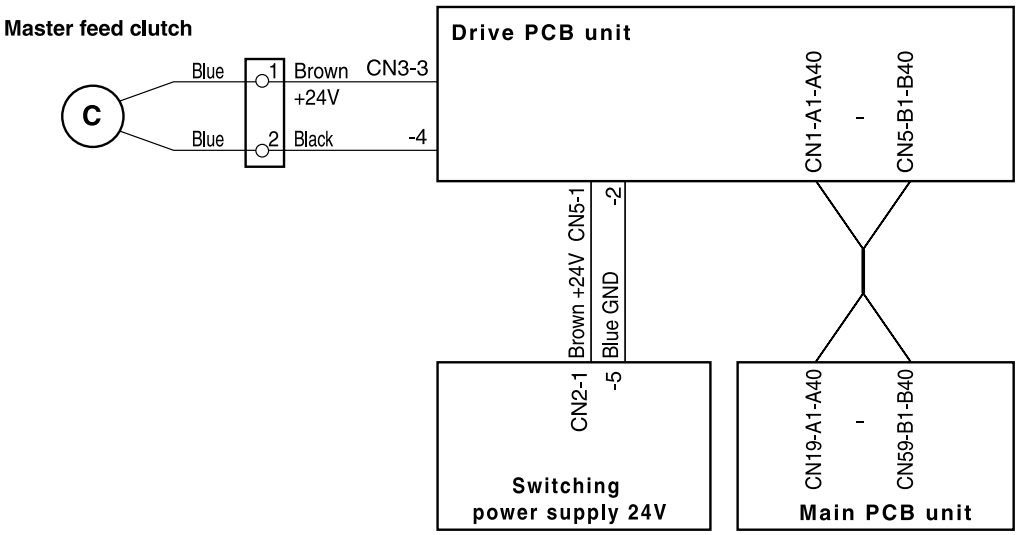
R8S02E11e

(6) Master Feed Clutch(Electromagnetic clutch)

Description

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

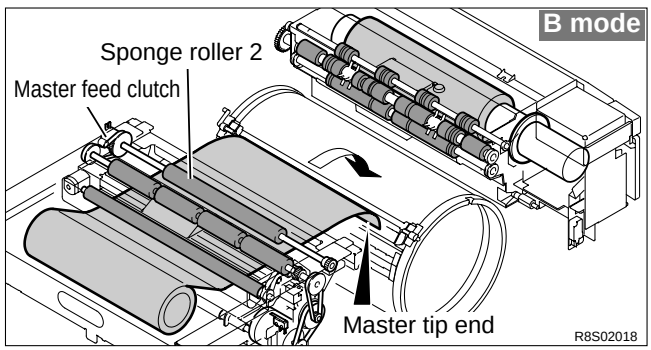
Circuit



R8S02E12e

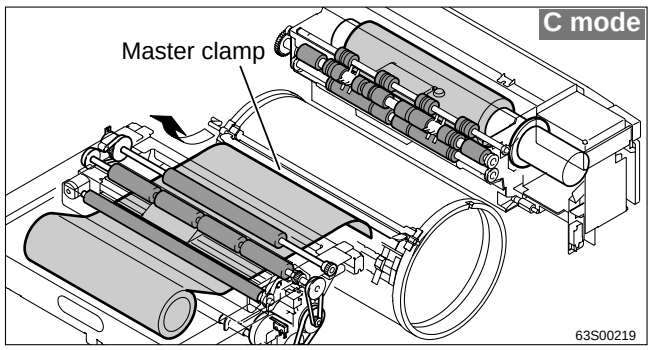
Operation

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



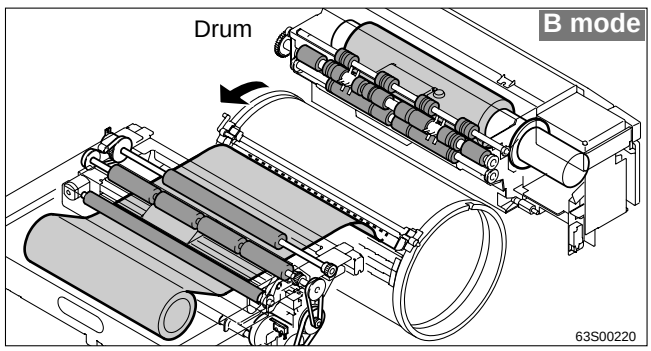
R8S02018

2. The master clamp opens and closes, to clamp the master.



63S00219

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.



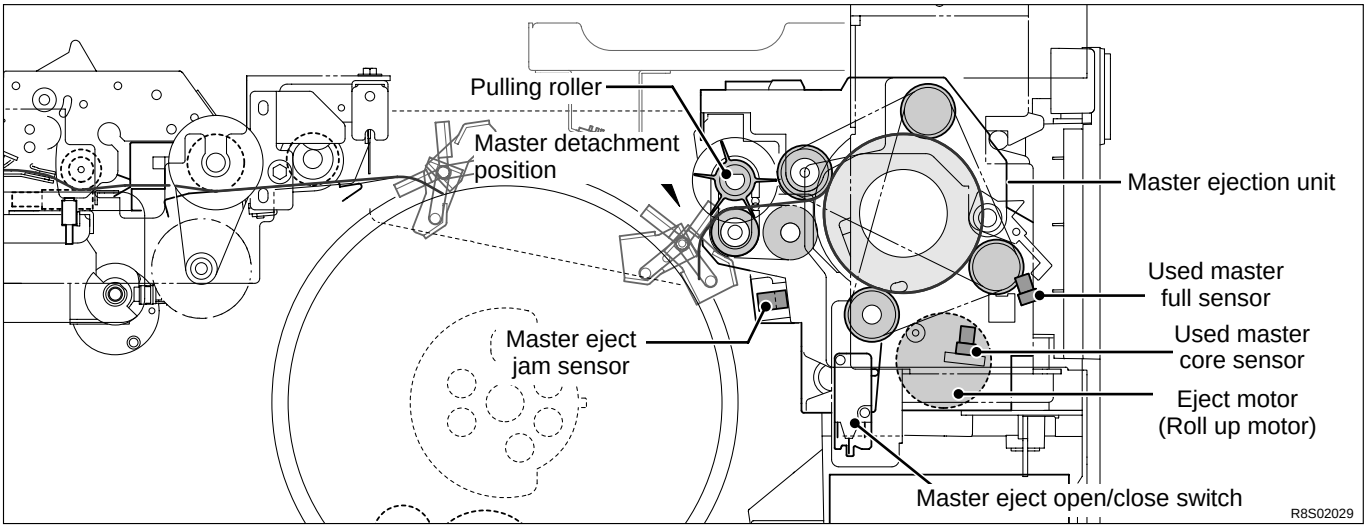
63S00220

《Master Ejection Section》

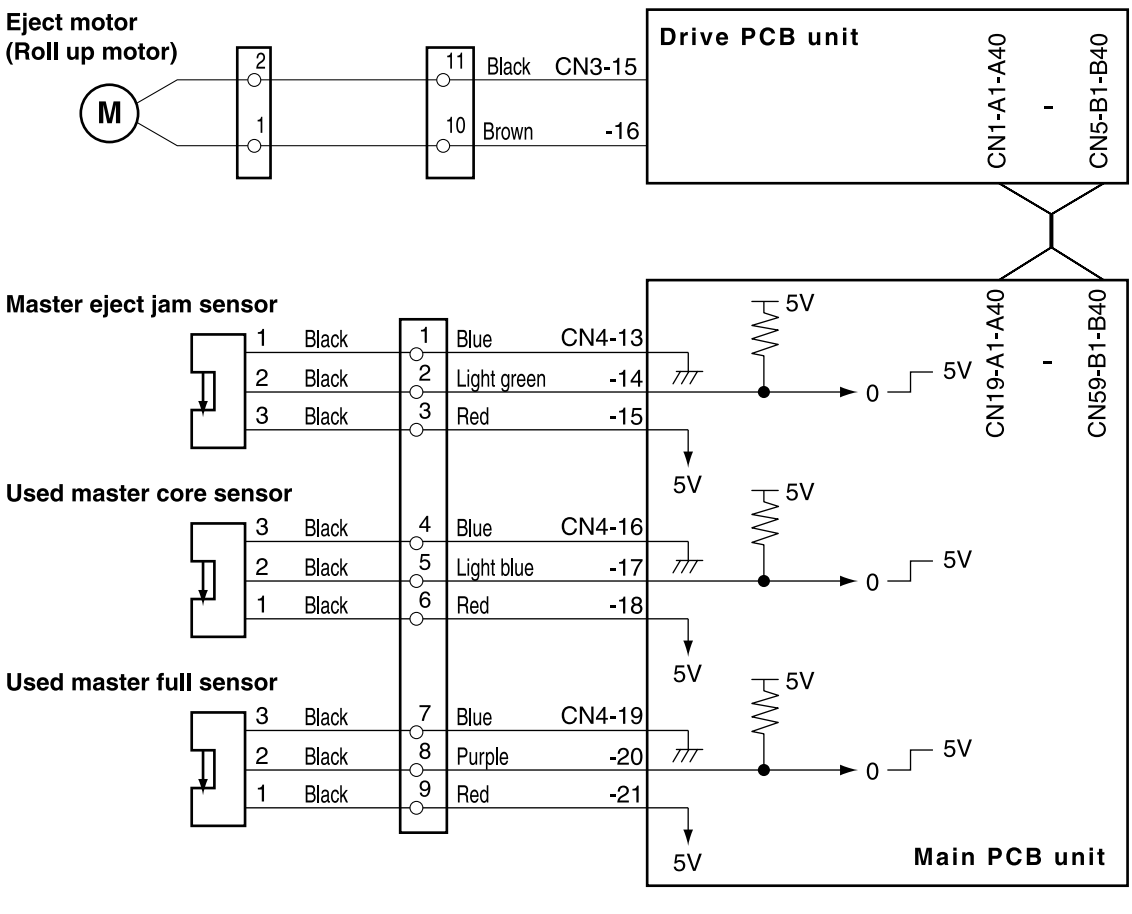
1. Description

When the drum stops at the plate detachment position and the master clamp which clamps 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 master ejection sensor becomes **"Photopassing ➡ Photointerrupting"**. Then **"USED MASTER FULL"** appears on the LCD panel.



2. Circuit



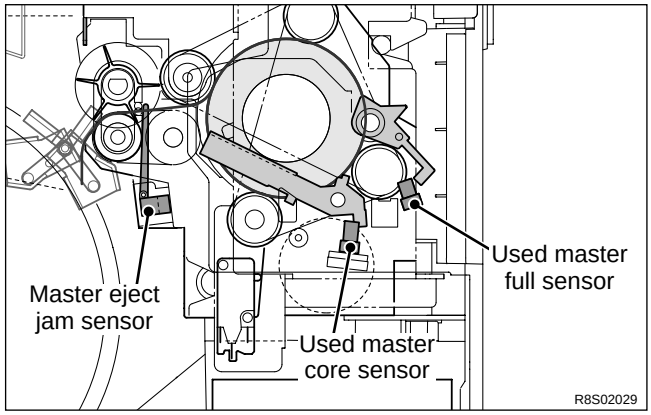
3. Function of Parts

(1) Master Ejection Sensor

Description

The used master core sensor detects that the master ejection core is set in the ejection box.
The master ejection sensor becomes **"Photopassing ➡ Photointerrupting"** and detects that the ejection box is full.
Mechanically actuated, the master eject jam sensor detects if the master is drawn into the ejection box.
The sensor status is checked in HELP - 009.

HELP-009 ➡ see p.216



1. Master Ejection Error Detection

Operation

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

- **"MASTER EJECTION ERROR"** is displayed on the LCD panel and printing is not processed.
- **"MASTER EJECTION ERROR"** is cleared with the (**RESET**) key , (**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., HELP-061 can be used to prohibit plate ejection error sensing.**

HELP-061 ➡ see p.268

Timing

If the master eject jam sensor is not actuated during the first platemaking, it is judged as a master ejection error.

2. Rotation Control of the Eject (Roll-up) Motor

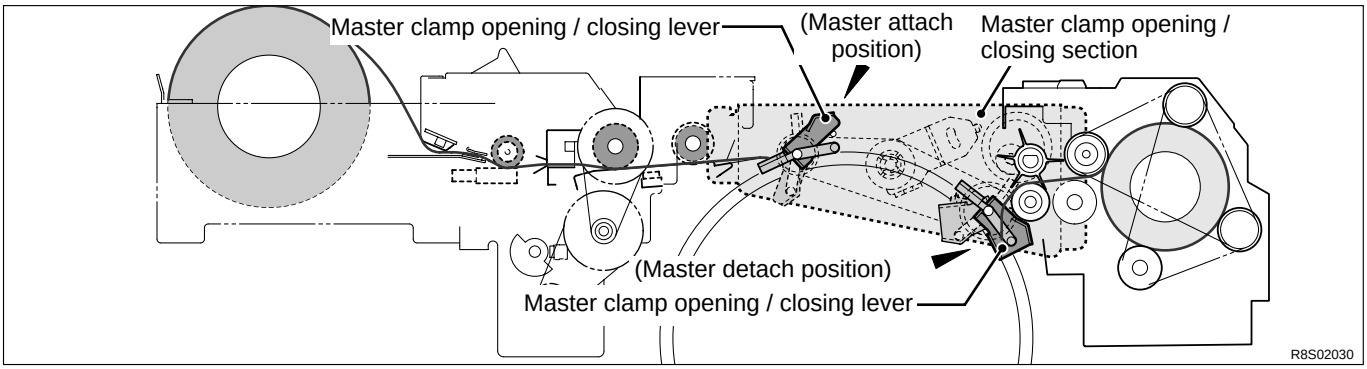
If the eject motor is kept rotating when the master tip end is pulled to the ejection box in the plate detachment process, the drum is actuated by the master and the stop position slips. To prevent this, the eject motor is stopped when the master is detected by the master eject jam sensor. (If the master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

《Master Clamp Opening / Closing Section》

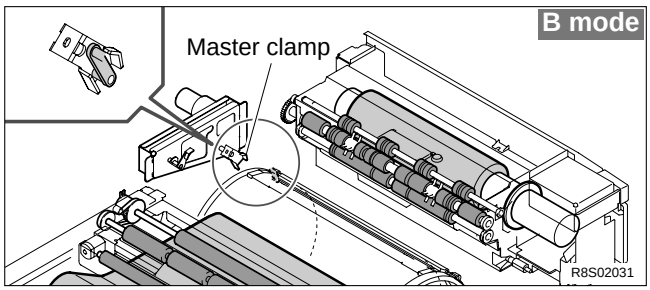
1. Description

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

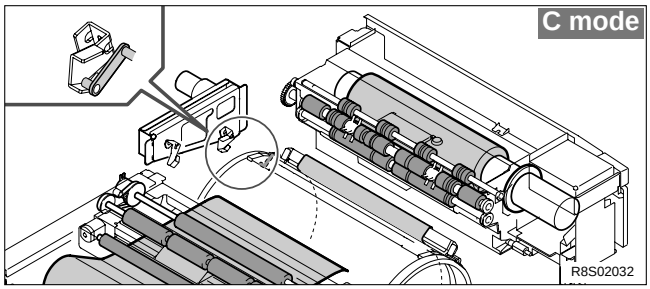
The master clamp is opened or closed during platemaking. Opening / closing operation is as follows:-



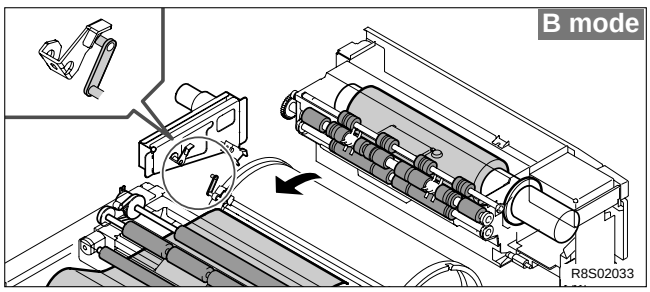
1. When platemaking starts, the drum unit rotates from the stop position to the opening / closing lever section (master detach position) and it stops temporarily. (B mode)



2. Open the master clamp to have the used master tip end gripped by the plate ejection unit. (C mode)

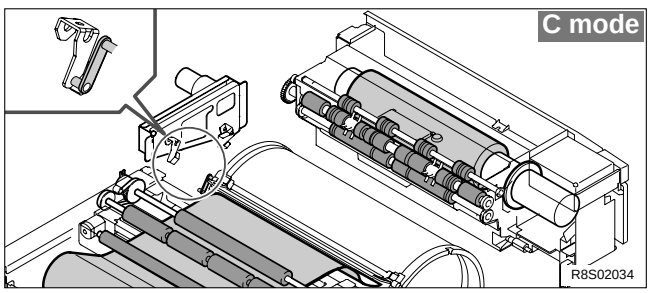


3. Close the master clamp, rotate the drum again and stop the drum at the next opening / closing lever section (master attach position).



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

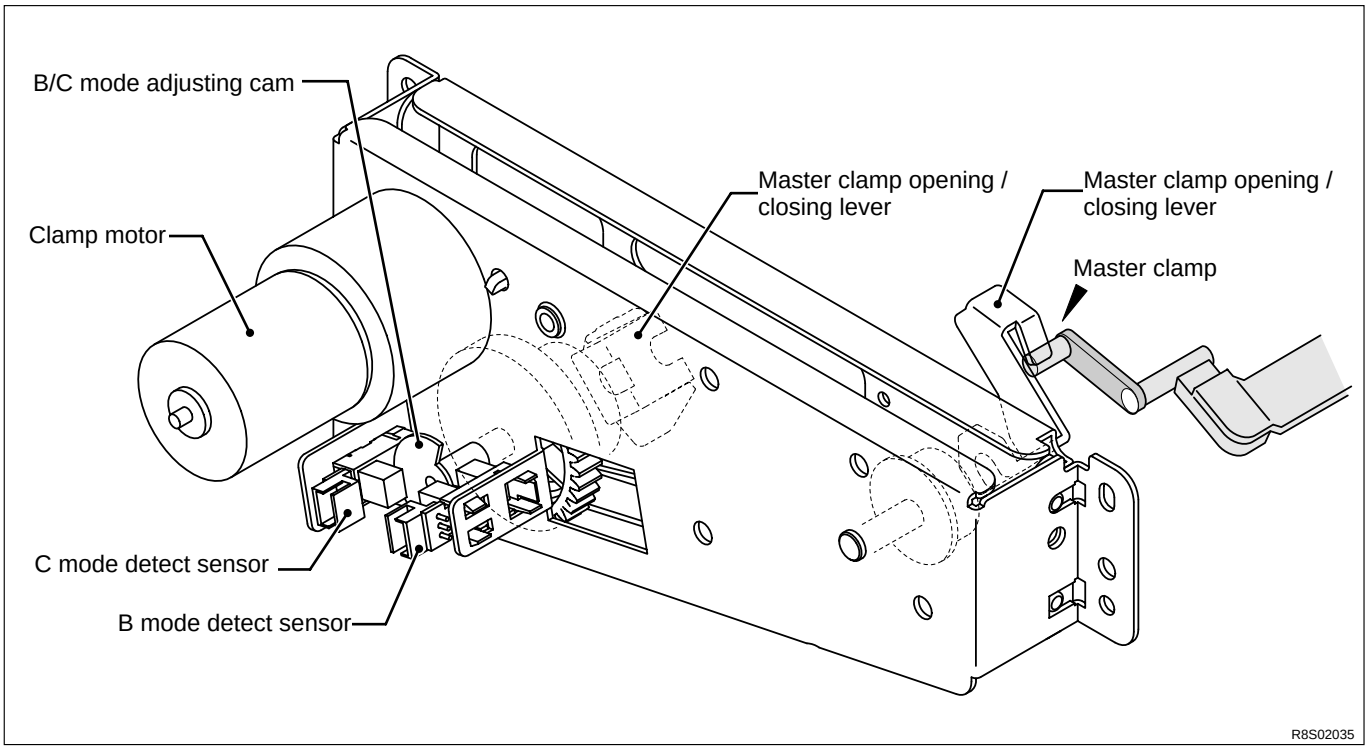
5. Rotate the drum, to wind the master onto it.



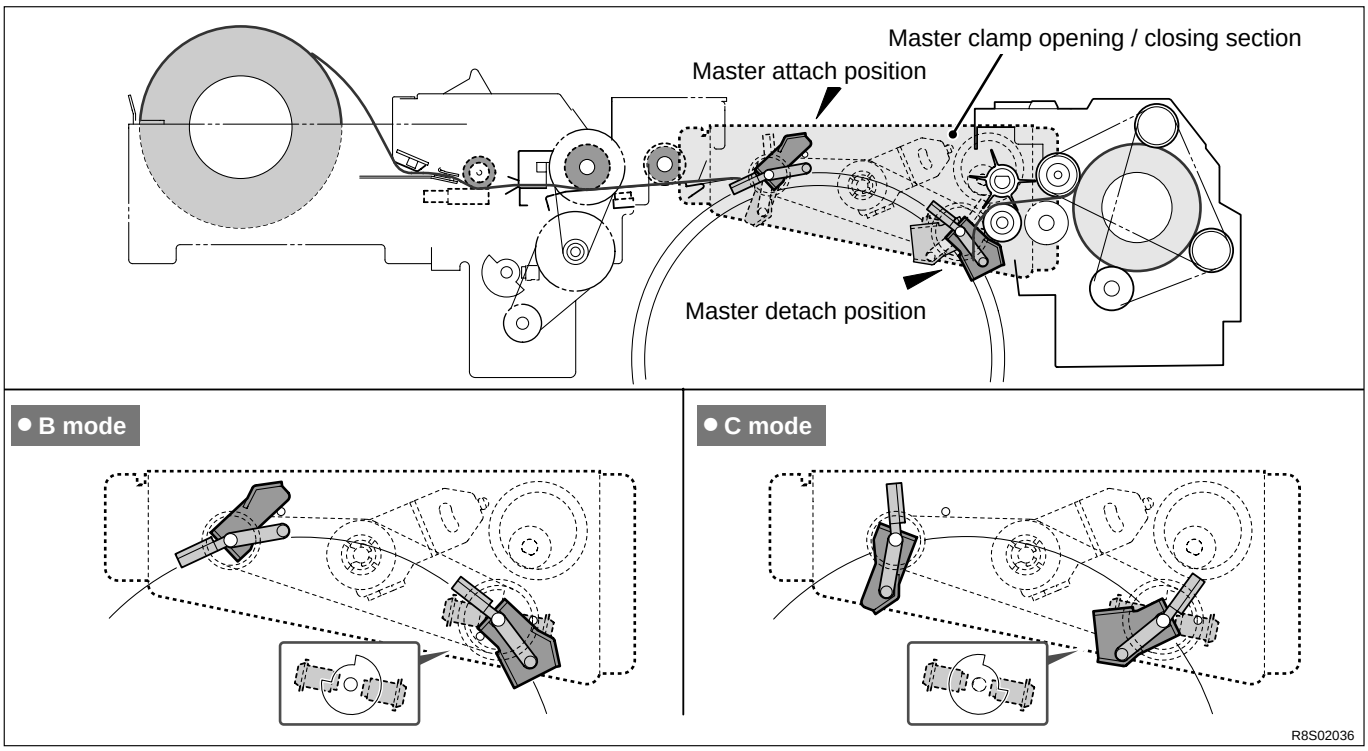
2. Operation of Master Clamp Open / Close Lever

(1) Structure

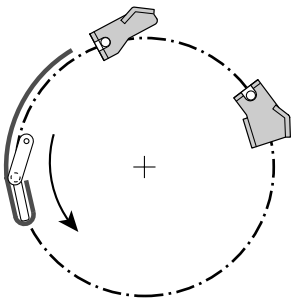
The following is the structure of the master clamp opening / closing section viewed with the rear cover opened. The rotation stop position of the master clamp opening / closing lever is determined by the clamp motor and two cams. There are 2 rotation stop positions: B mode and C mode. Their functions are as follows:-



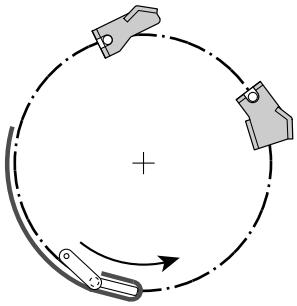
The drawing below is a section through the machine's interior, viewed from the control side.



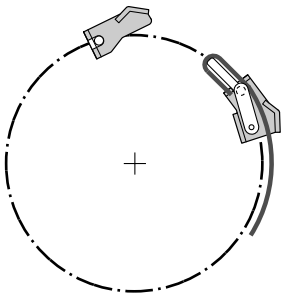
(2) Master Attach / Detach Operation



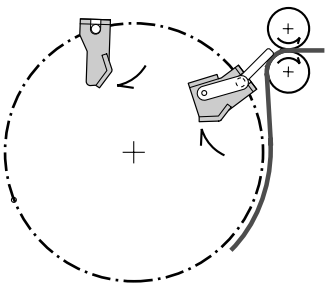
❶ **B mode**
The drum start rotates.



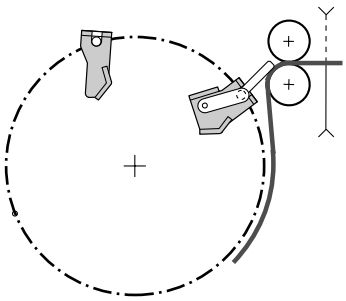
❷ **B mode**



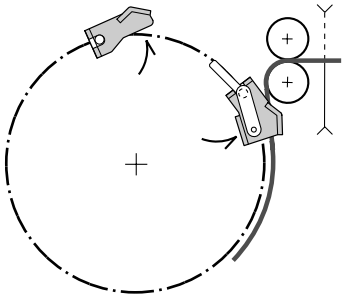
❸ **B mode**
The drum rotates to the master detach position → Stop



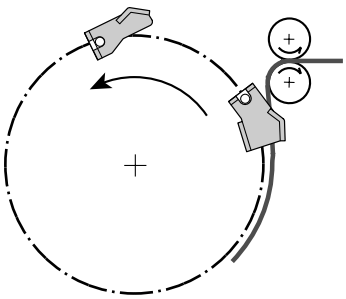
❹ **B mode → C mode**
The clamp opens to pull the master.



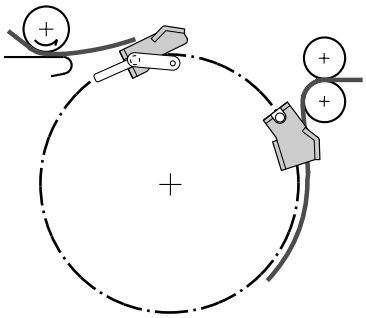
❺ **C mode**
The pulling roller stops.



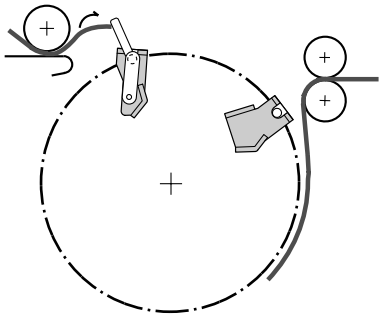
❻ **C mode → B mode**
The clamp is closed.



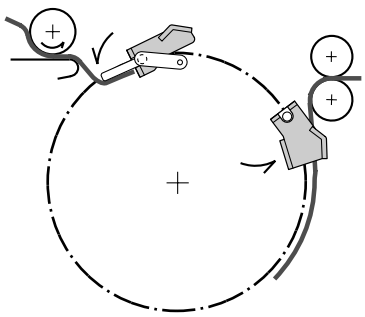
❼ **B mode**
The drum rotates to the master attach position → Stop



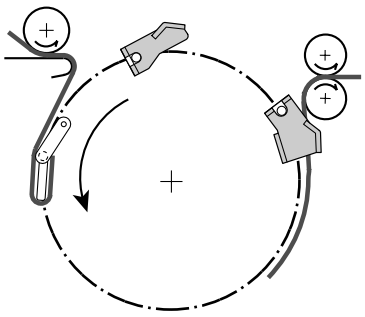
❽ **B mode**
The sponge roller feeds out the master.



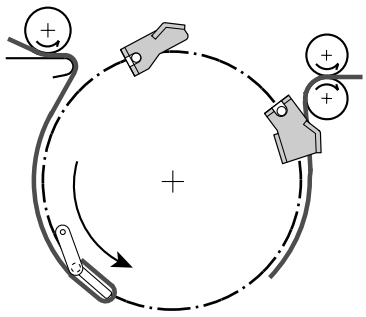
❾ **B mode → C mode**
The clamp is opens.



❿ **C mode → B mode**
The clamp grips the master.



⓫ **B mode**
The drum rotates to roll up the master.



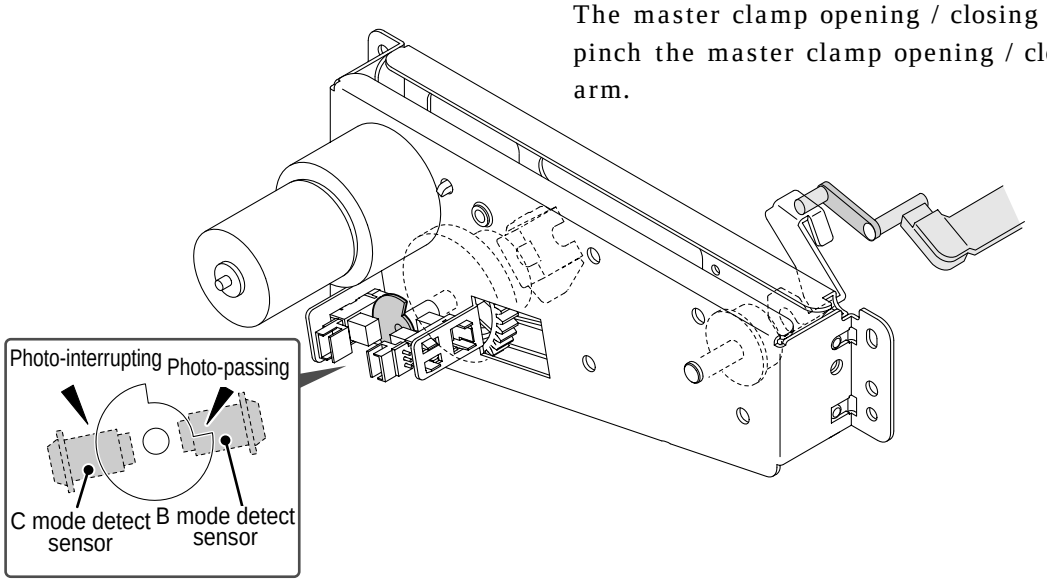
⓬ **B mode**

R8S02037e

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

B mode

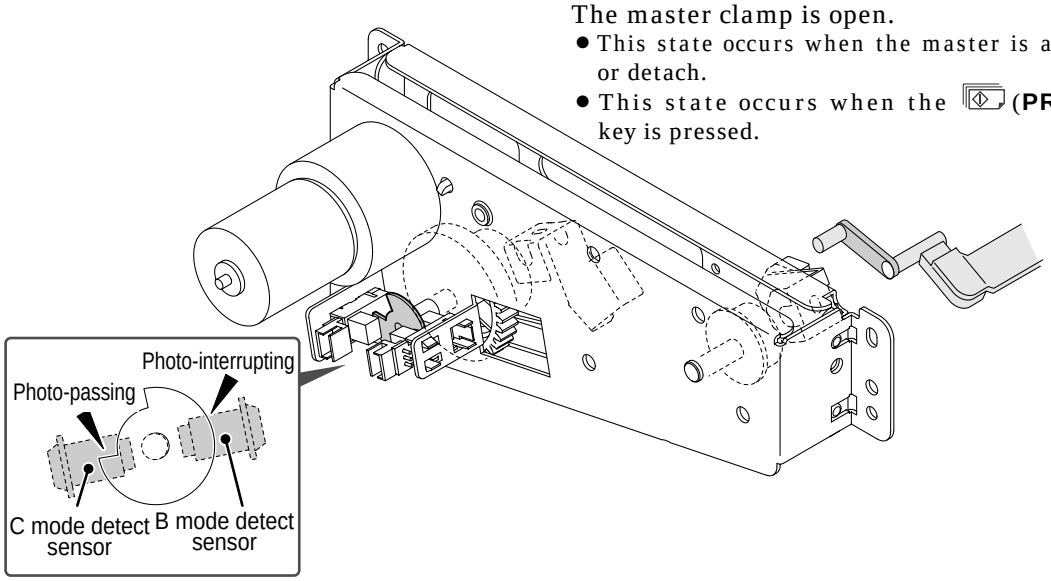
The master clamp opening / closing lever pinch the master clamp opening / closing arm.



C mode

The master clamp is open.

- This state occurs when the master is attach or detach.
- This state occurs when the (**PRINT**) key is pressed.

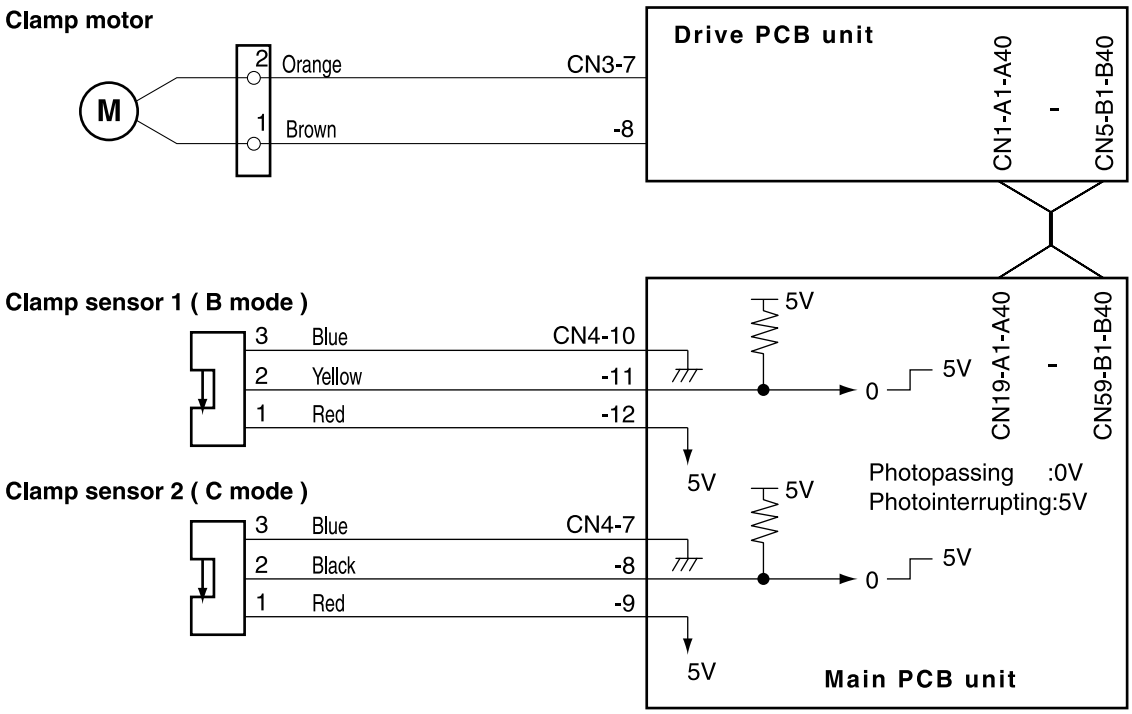


R8S02038

3. Function of Parts

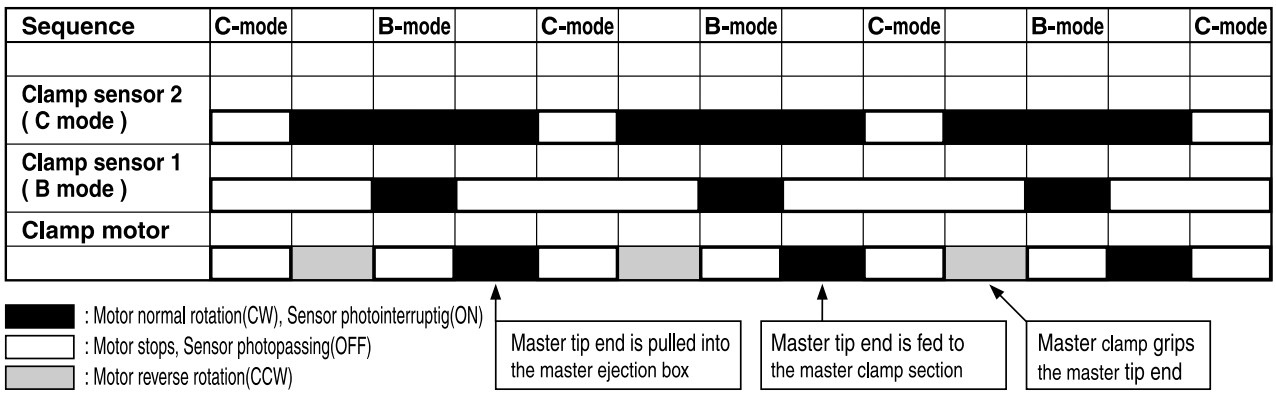
(1) B / C Mode Detect Sensor

Circuit



R8S02E14e

Operation / Sequence



R8SS02G08e

The mode is detected under the following conditions

- **B mode**

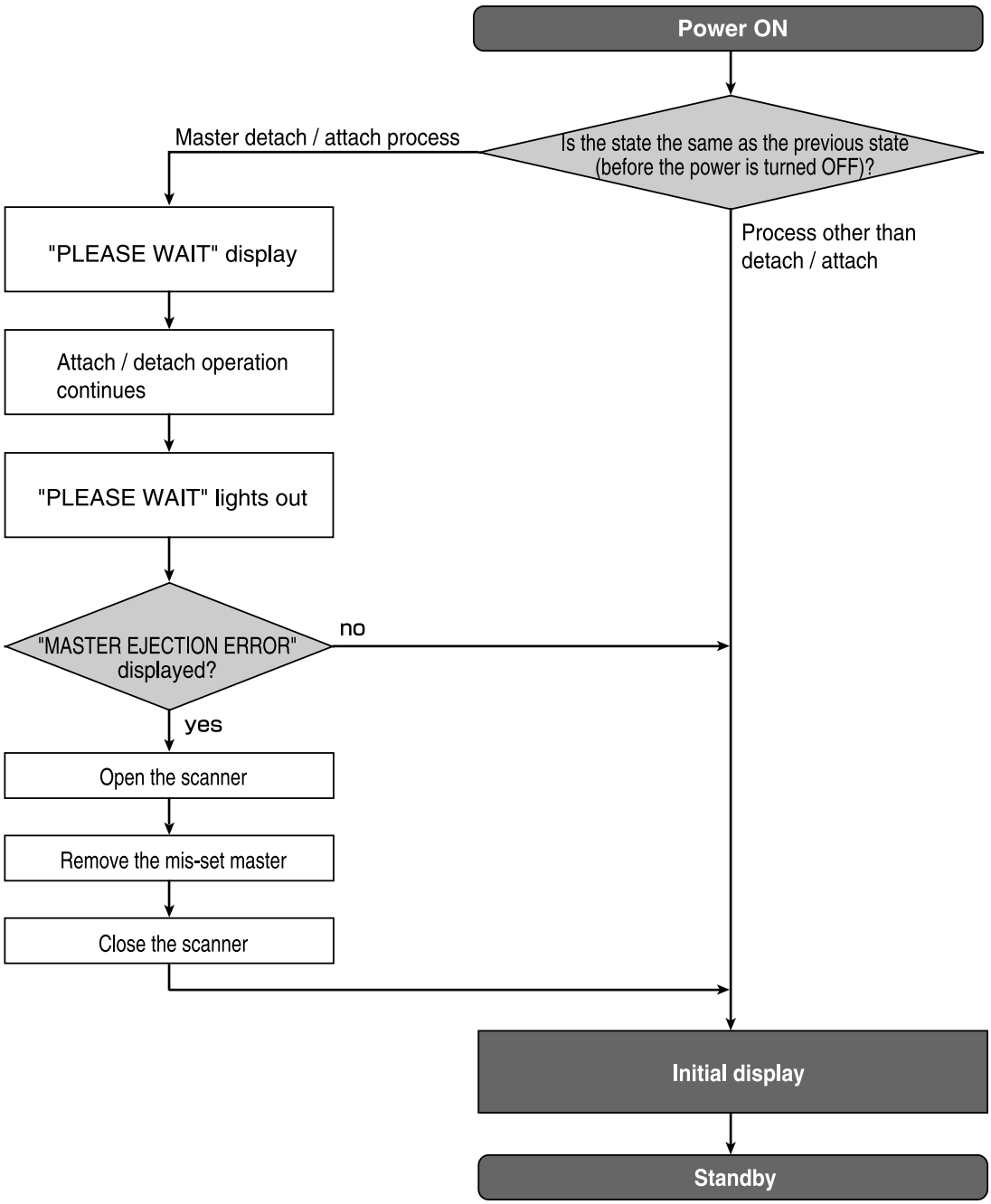
  When the clamp sensor 2 (C mode) is photointerrupted, the clamp sensor 1 (B mode) detects the edge of photointerrupting → photopassing.

- **C mode**

  When the clamp sensor 1 (B mode) is photointerrupted, the clamp sensor 2 (C mode) 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 detach and master attach simultaneously or when the power returns after it is interrupted.

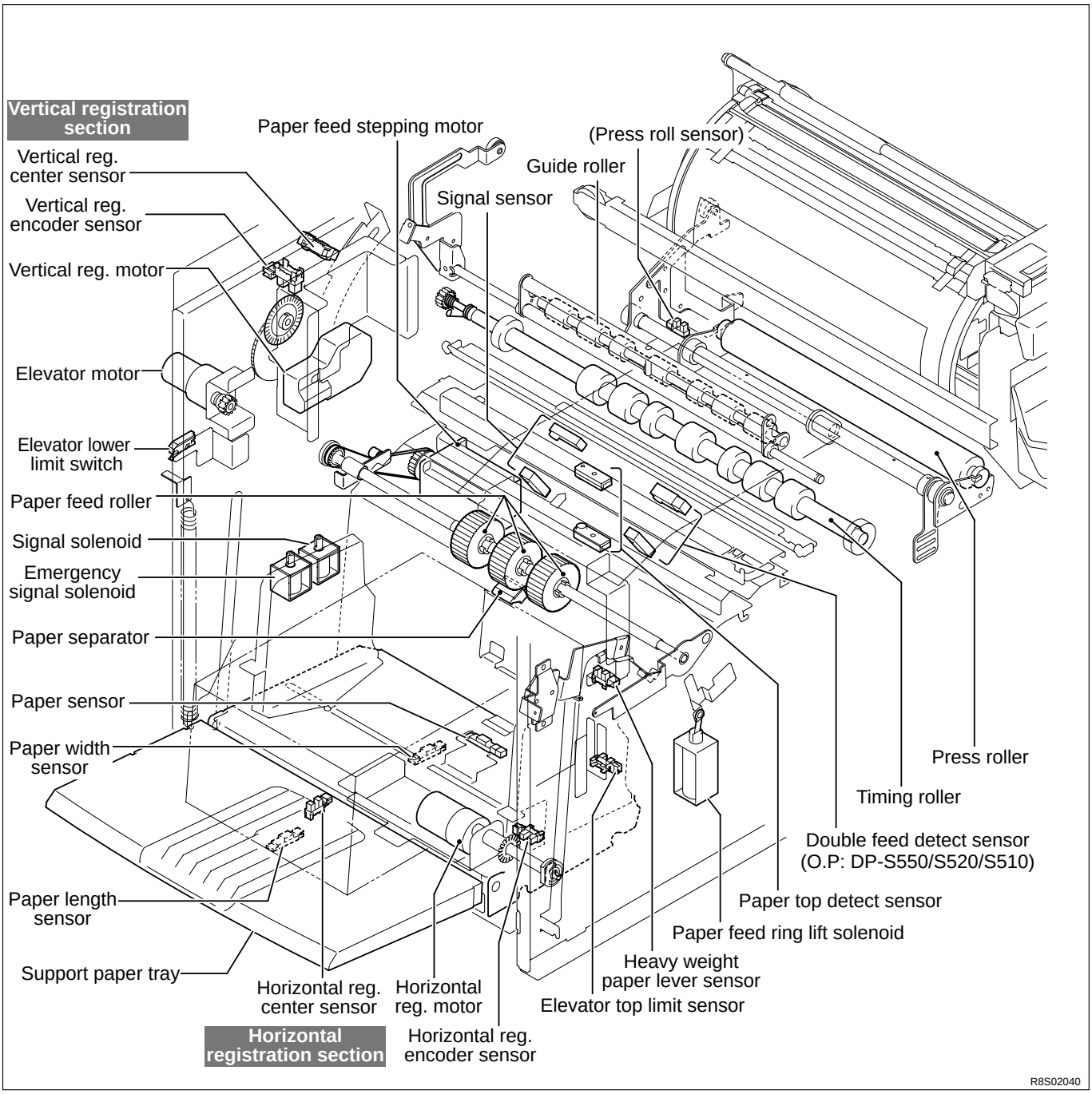


3 Paper Feed Section

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 top detect 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 FEEDER 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 roll sensor senses the paper feed condition; if a feed error occurs, the message **"PAPER JAM ON FEEDER SIDE"** is displayed.

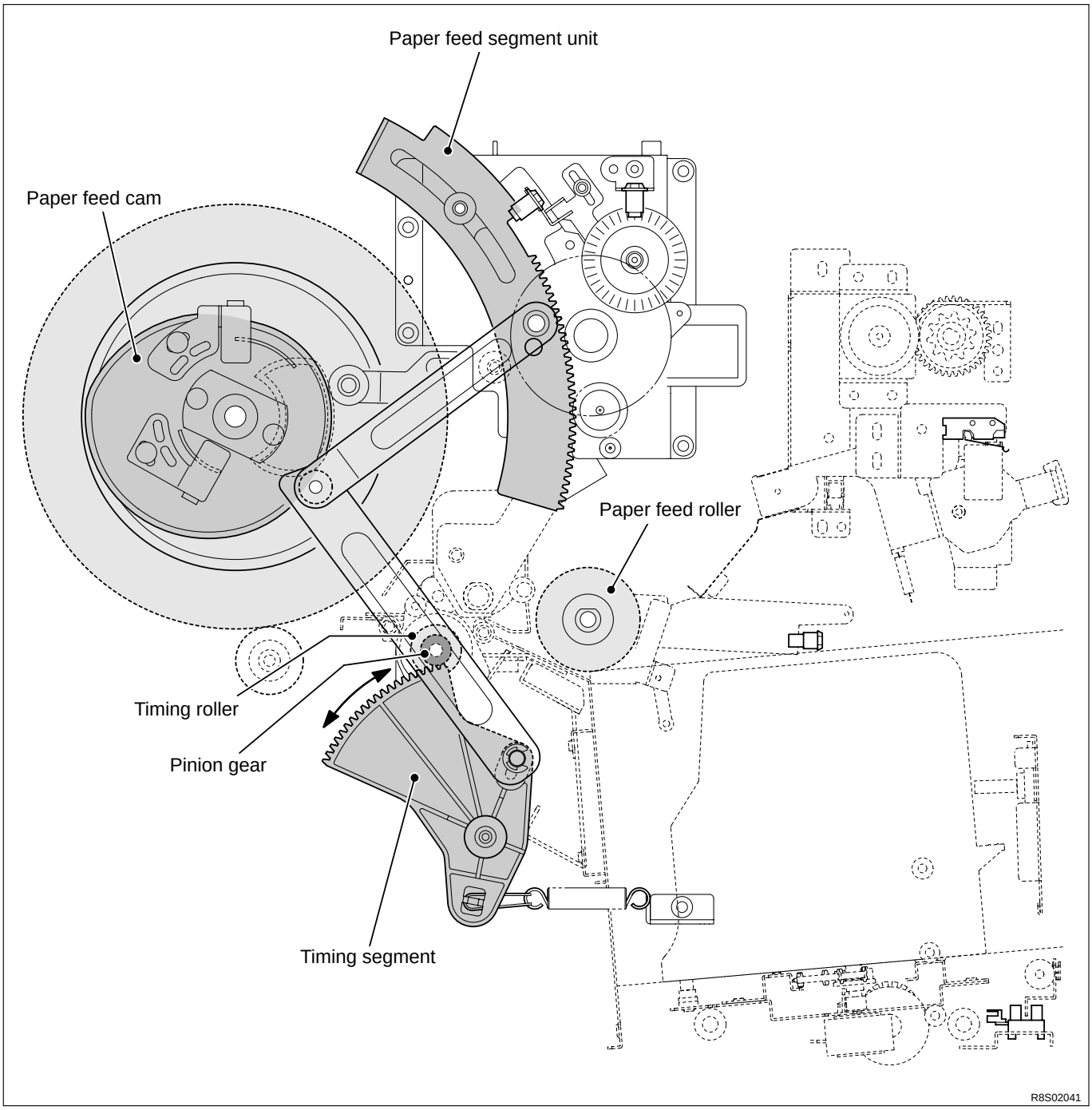
For details, see **"1.Paper Jam Detection Timing"** in chapter 2 (6 Paper ejection section). ➡See page 83



2. Operation

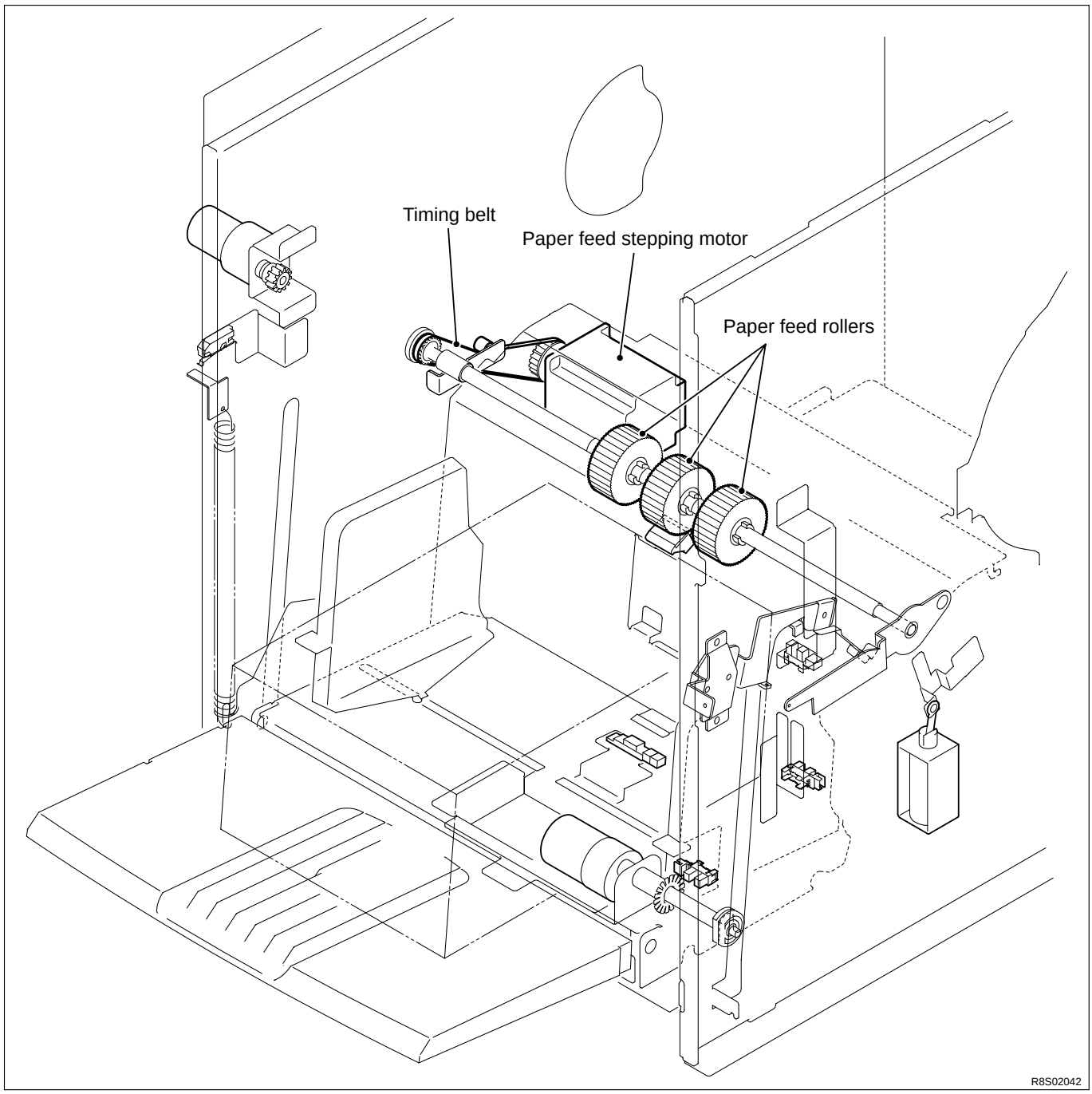
(1) Rotation of the Paper Feed Roller and Timing Roller

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



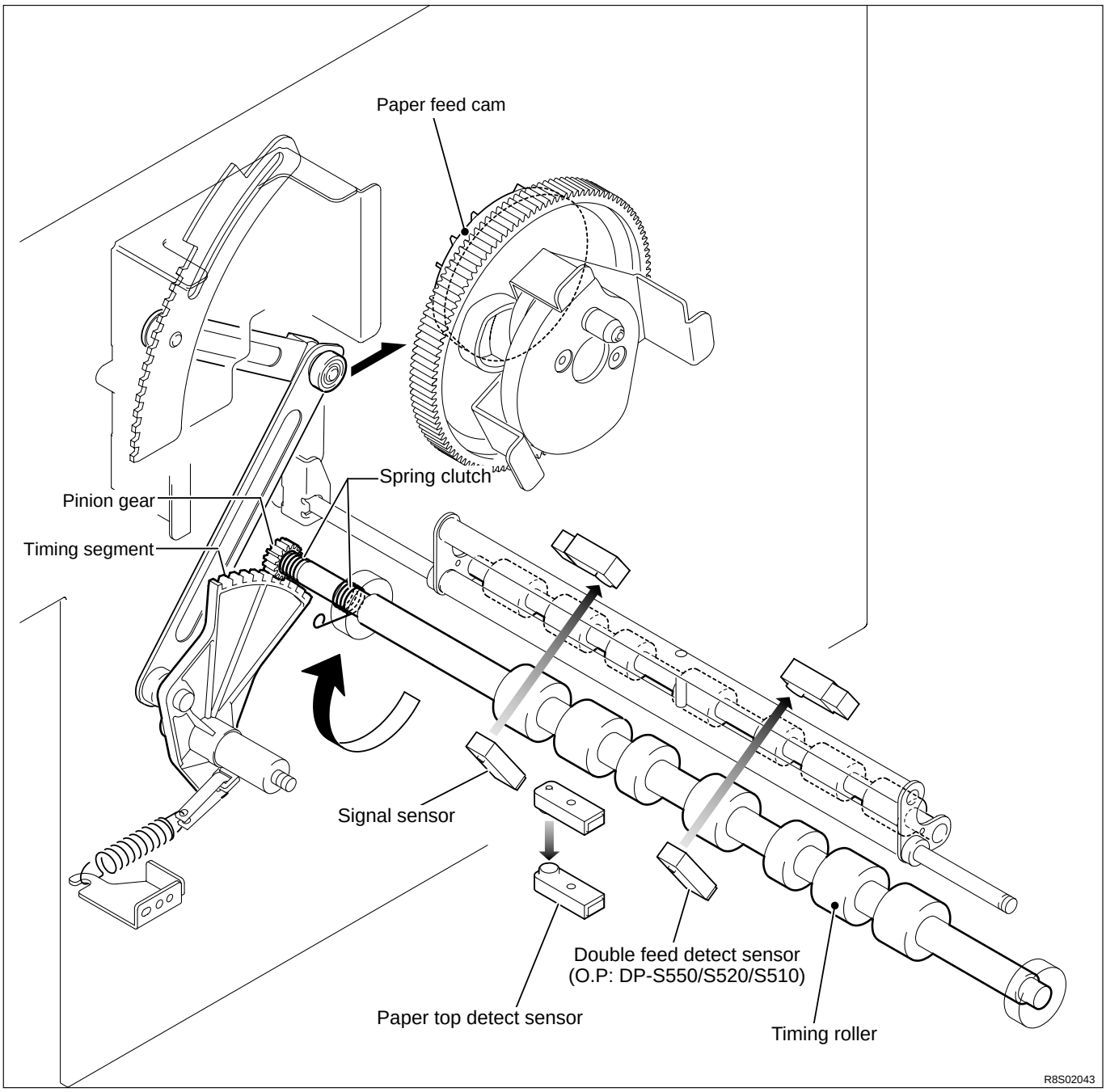
(2) Paper Feed Roller Drive

The paper feed 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

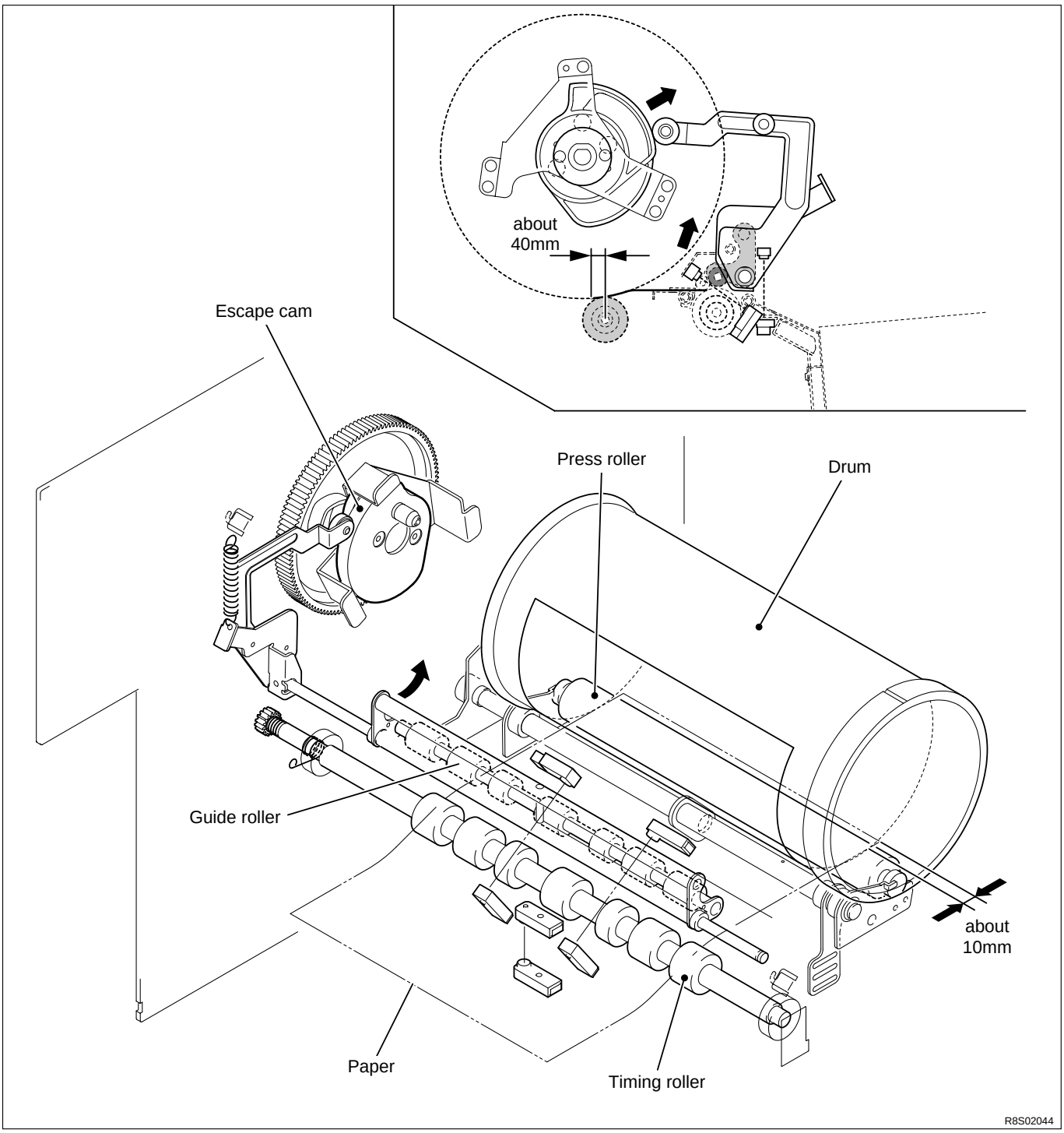
Timing roller is actuated to rotate by the pinion gear and spring clutch. When the paper feed cam rotates, the reciprocating motion of the timing roller segment is transmitted to the pinion gear, and the spring clutch works to rotate the Timing roller in the direction of conveyance.



(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 40 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.**

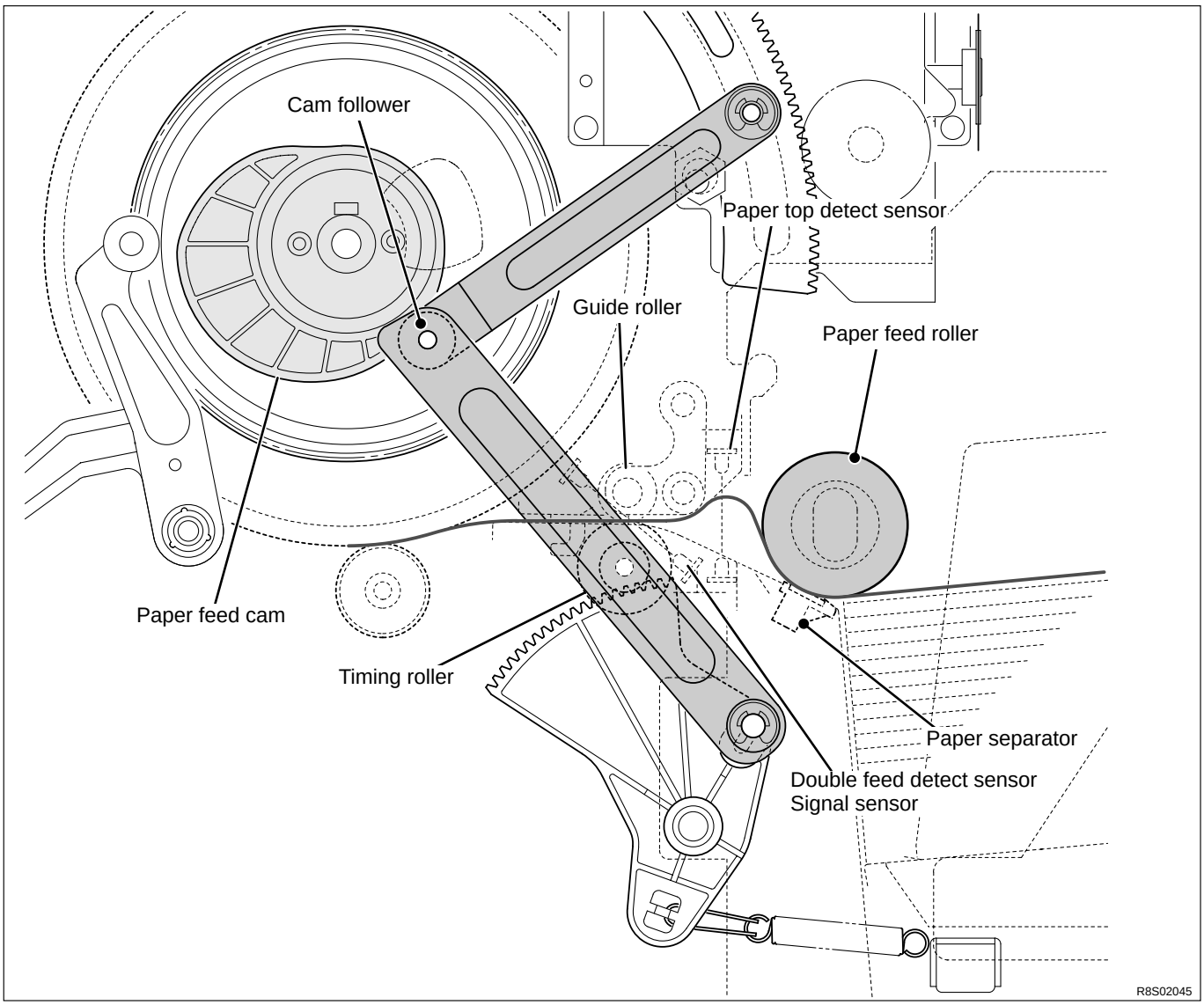


(5) Paper Feed Length

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 top detect sensor and paper feed is controlled by program(**HELP-039**).

HELP-039 ➡ see p.244



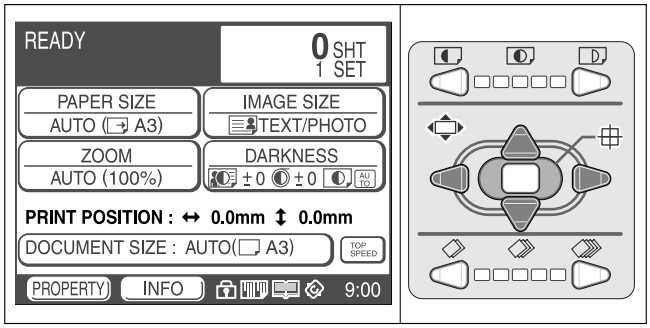
IMPORTANT :

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

3. Functions of parts

(1) Printing Position Adjusting Mechanism

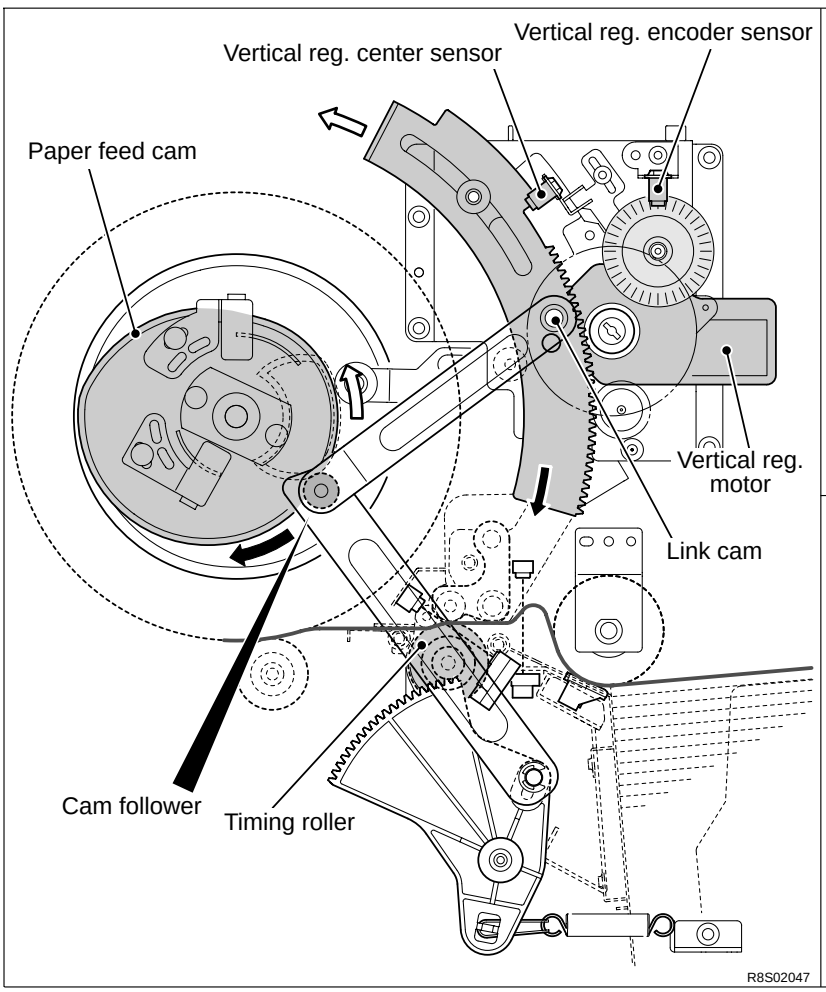
The printing position is adjusted by changing the timing of the paper toward the drum with the ✥ (**PRINT POSITION**) key on the control panel.

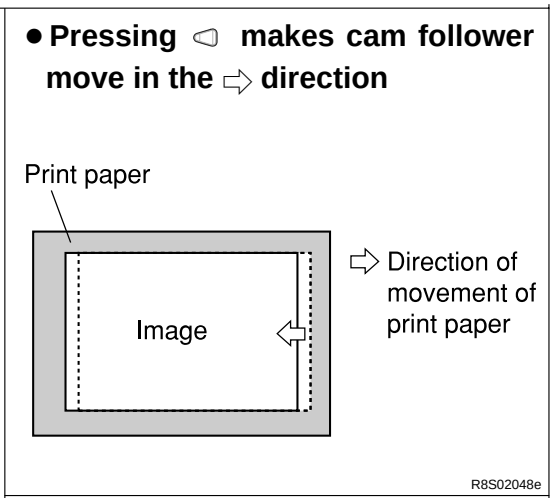


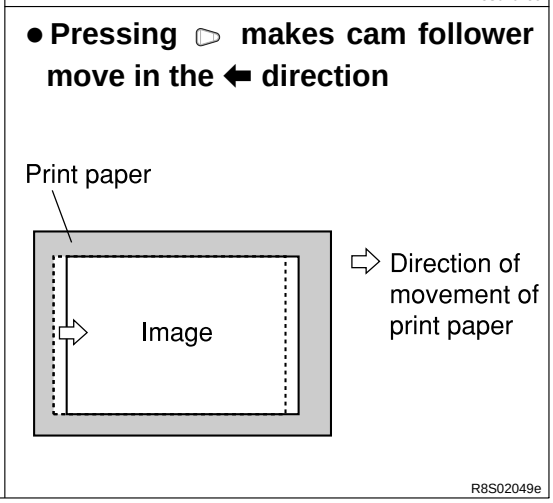
Description

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

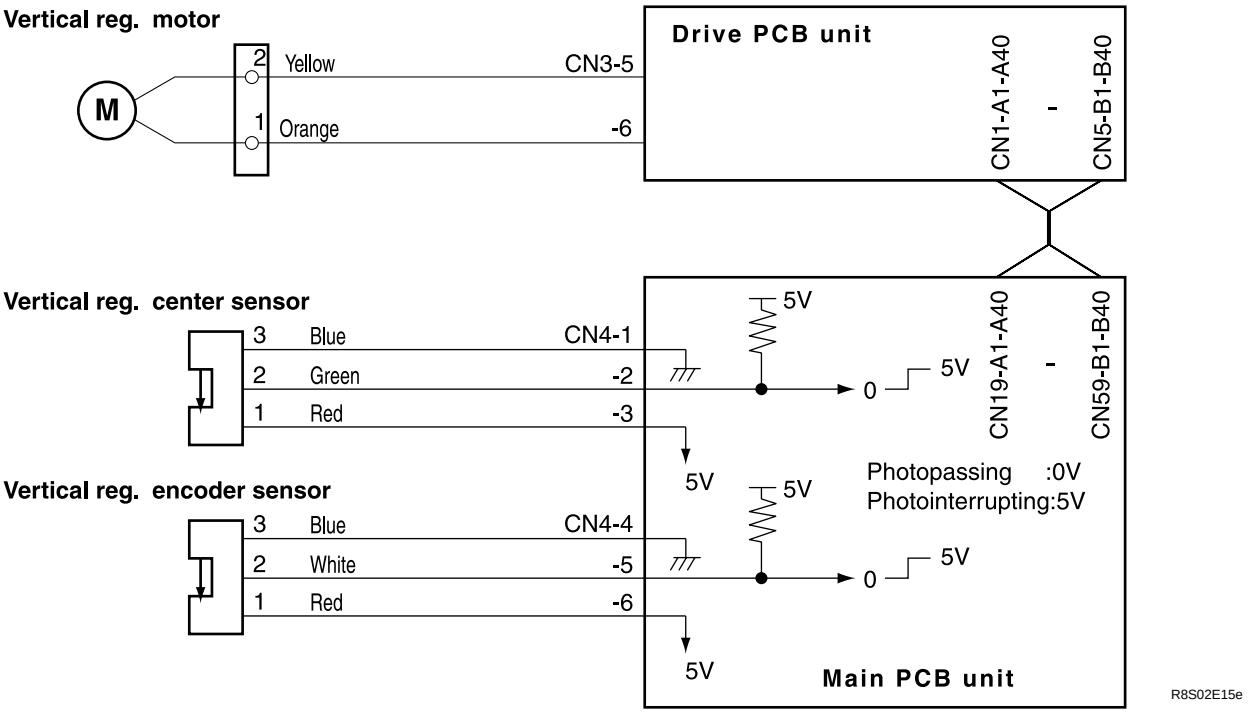
- Press the ✥ (**PRINT POSITION**) ◁ key ;
  Cam follower moves in the direction of : ⇨ Drive timing of the timing roller becomes earlier.
  Paper timing becomes earlier, and the picture image moves backward.
- Press the ✥ (**PRINT POSITION**) ▷ key ;
  Cam follower moves in the direction of : ⇦ Drive timing of the timing roller becomes later.
  Paper timing becomes later, and the picture image moves forward.







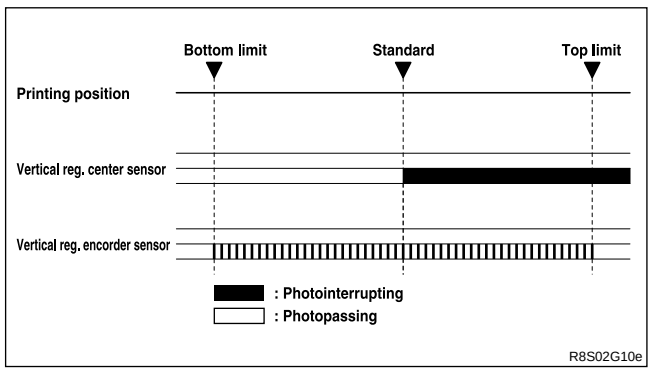
Circuit



Operation

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

The center position is detected by the standard position sensor.



NOTE :

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

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 vertical registration motor normally (CW) to return the printing position to the standard.

- **When positioned between the standard position and the top limit:**

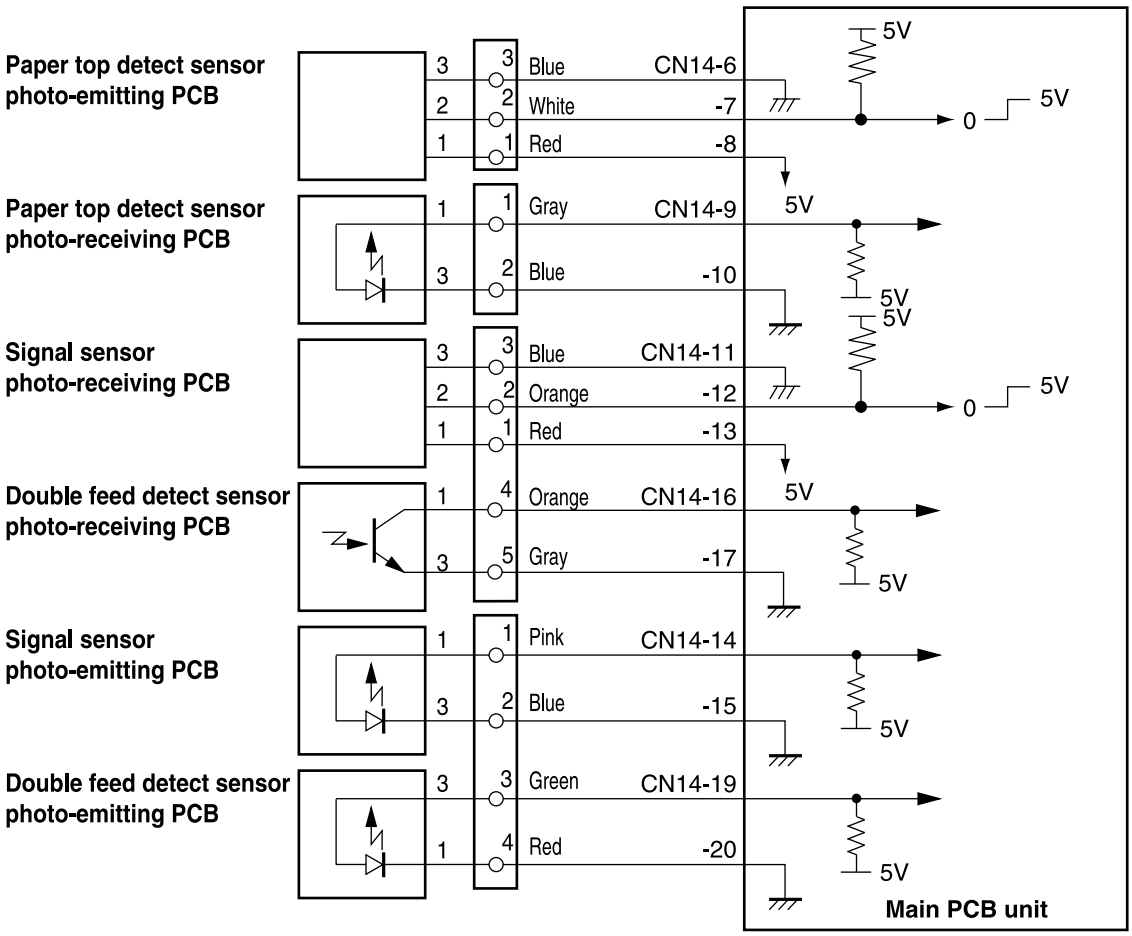
  Rotate the vertical registration motor reversely (CCW) to return the printing position to the standard.

(2) Double Feed Detect Mechanism

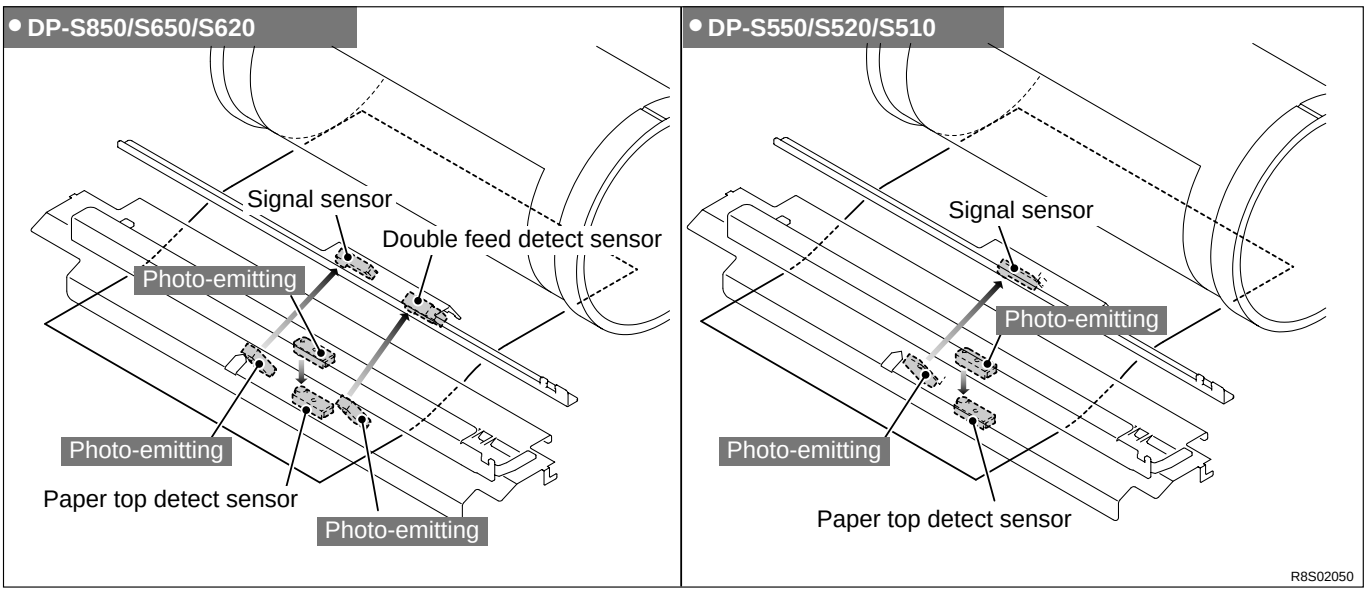
Description

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

Circuits



R8S02E16e



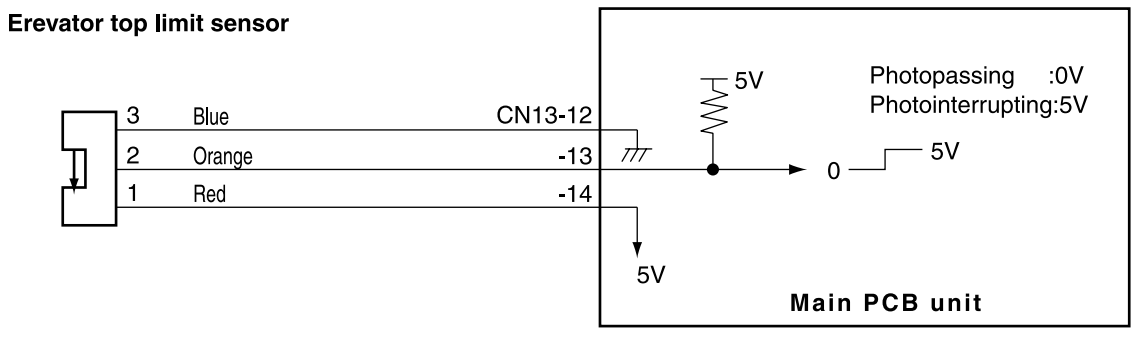
R8S02050

(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



R8S02E17e

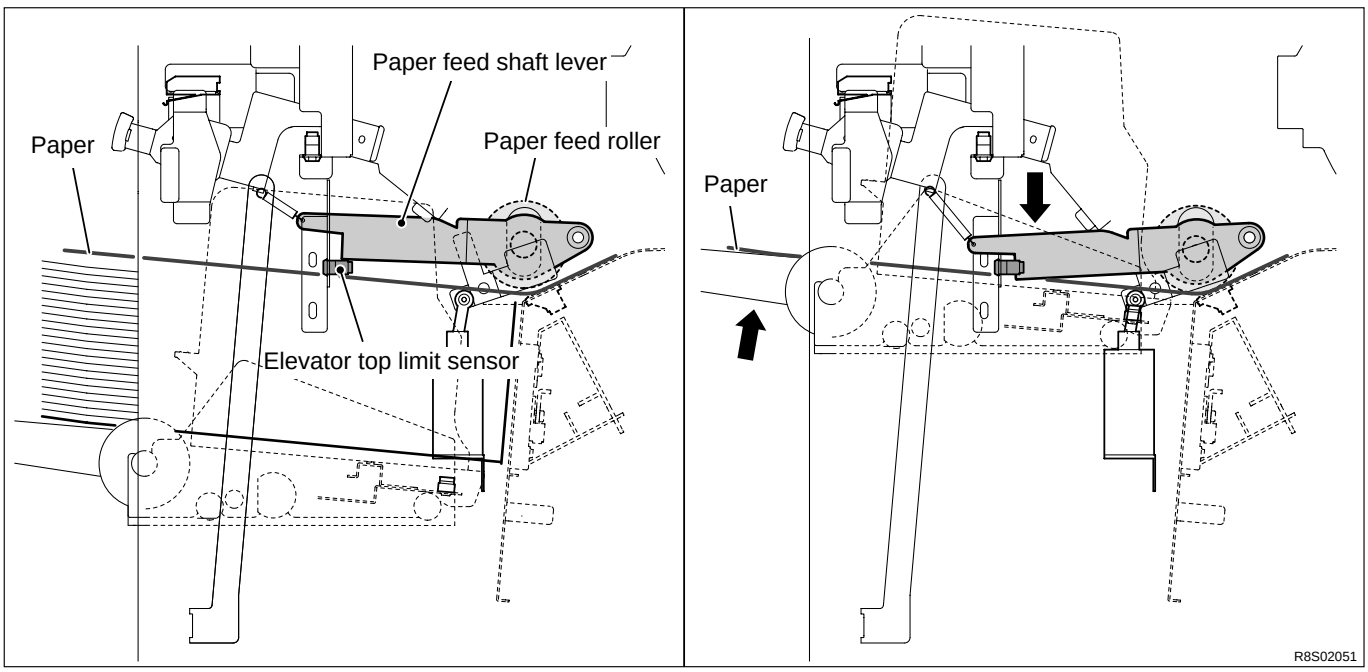
Operation

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 elevator top limit sensor does not detect "photointerrupting ➡ photopassing" within 30 seconds of sending of the **RAISE FEED TRAY** command, the error "**E002**" (elevator lock) is displayed.



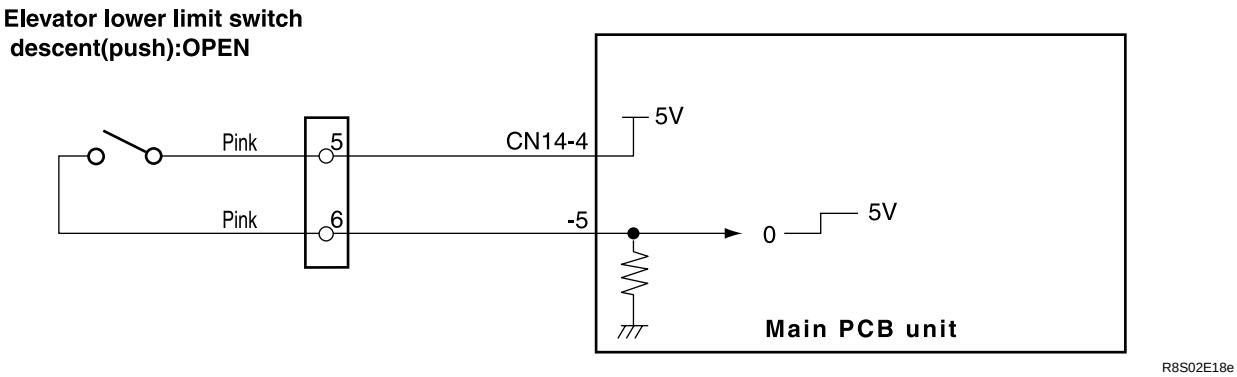
R8S02051

(4) Elevator lower limit Switch

Description

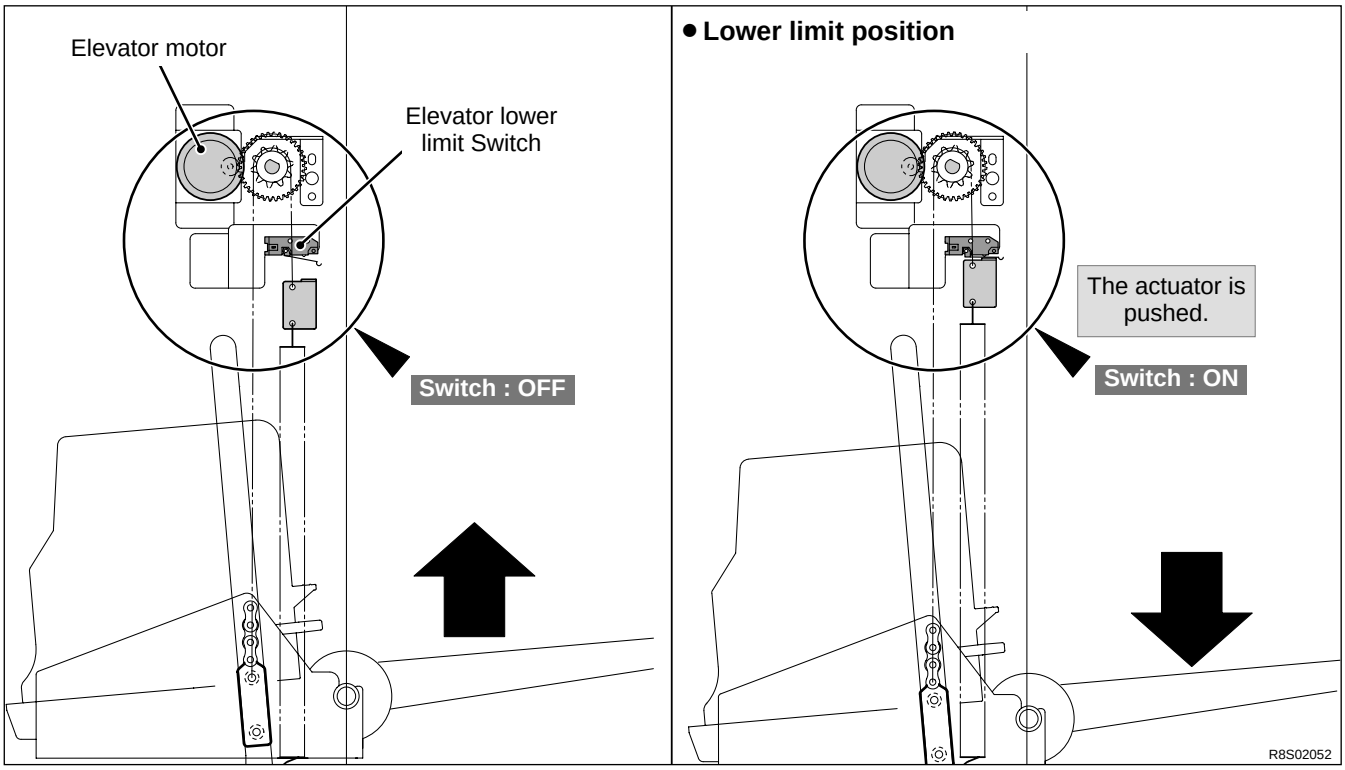
This is a micro switch that senses the lower limit position of the feed tray.

Circuits



Operation

When the feed tray rises, the bracket disengages from the switch and the switch closes. When the feed tray descends to its lower limit position, the bracket engages the switch's actuator, opening the switch.
If the elevator lower limit switch does not turn ON within 30 seconds after the feed tray down command is given, "**E002**" (Elevator lock) is displayed.

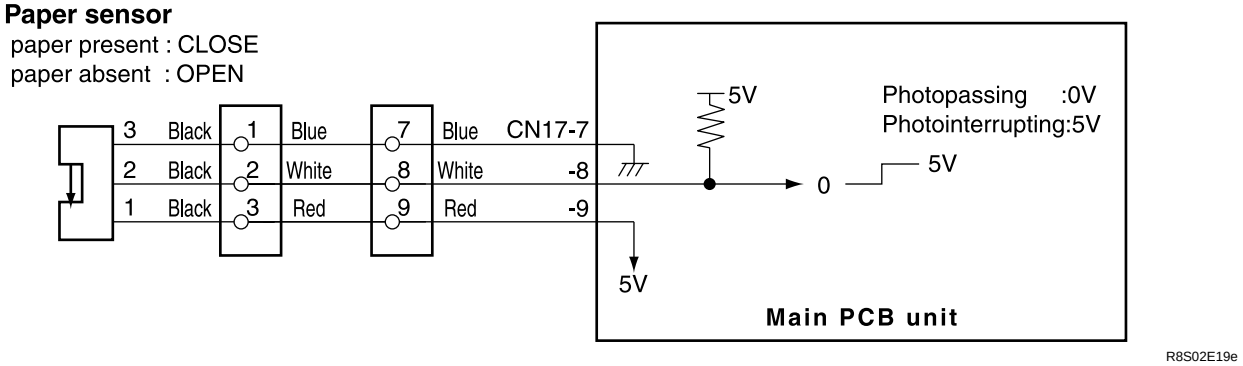


(5) Paper Sensor

Description

Senses presence/absence of paper in the feed tray. When the paper in the tray runs out, the message **"NO PAPER"** is displayed and printing stops.

Circuits



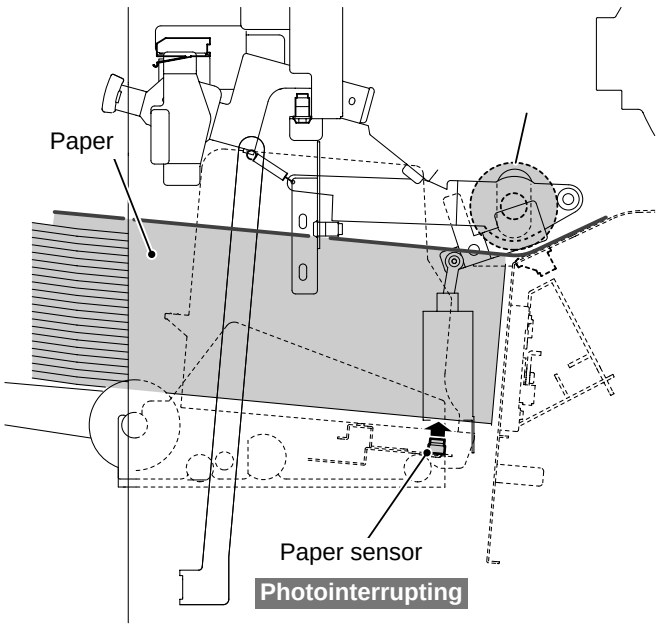
R8S02E19e

Operation

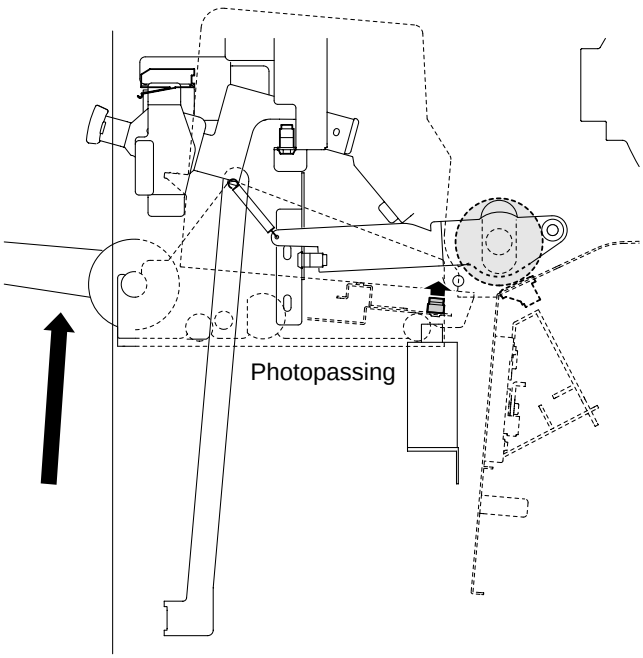
When there is no paper, the sensor is in the state of photopassing(open). When paper is placed inside, the sensor is in the state of photointerrupting(close). When an absence of paper is detected, the message **"NO PAPER"** is displayed on the LCD panel.

- When absence of paper is sensed, platemaking, printing and test printing are not possible.
- If the paper runs out during printing, **"NO 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.

● When there is paper placed :



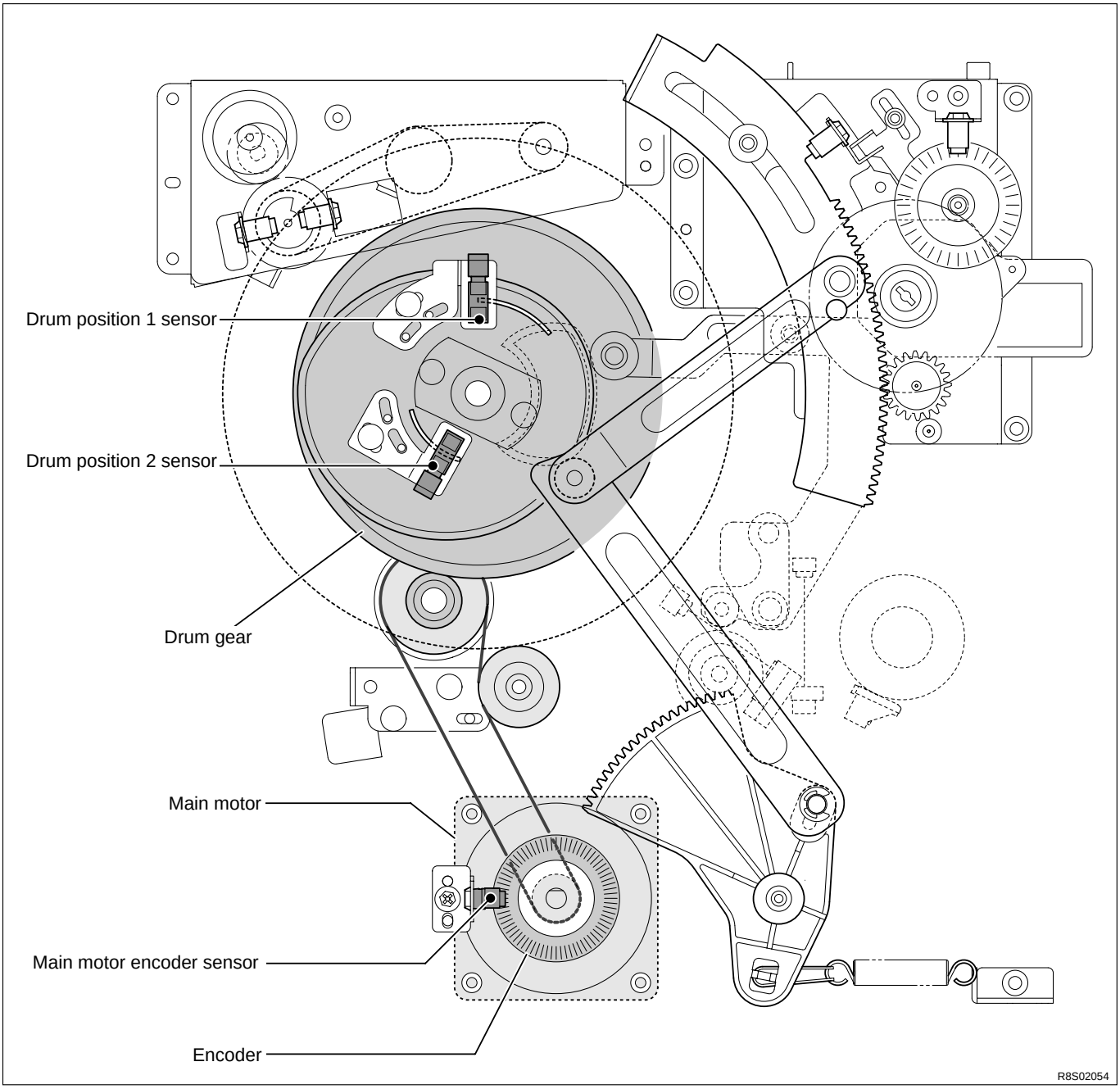
● When there is no paper :



R8S02053

4 Drum Driving Section

1. Description



2. Function of Parts

(1) Drum Position 1 Sensor

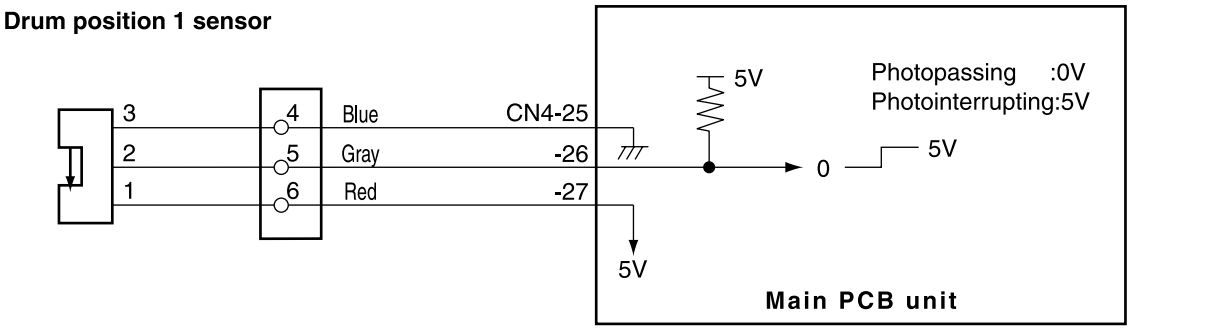
Description

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

NOTE : Drum removal button

- **You do not have to hold down the drum removal button unlike the conventional one. (Hold it down when the ejection box is open.)**

Circuit

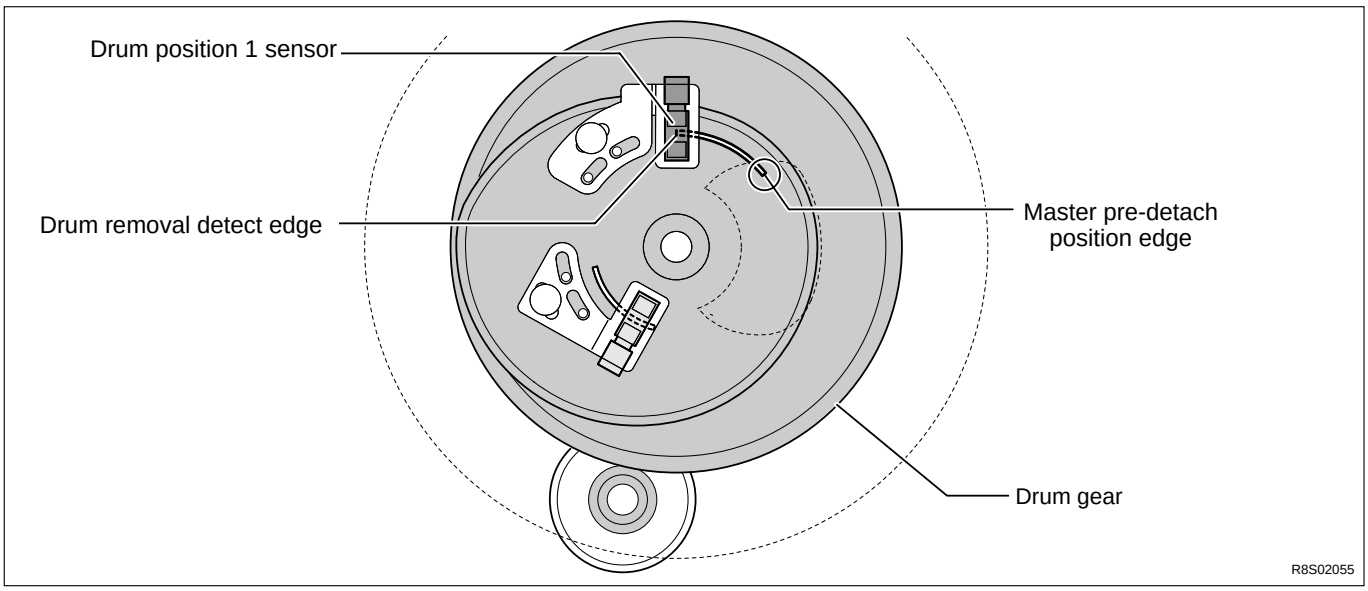


R8S02E20

Operation

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

- The drum removal position is detected on the drum removal detect edge.
- The master is detached at the position where the drum is rotated by a certain angle from the drum removal detect edge.



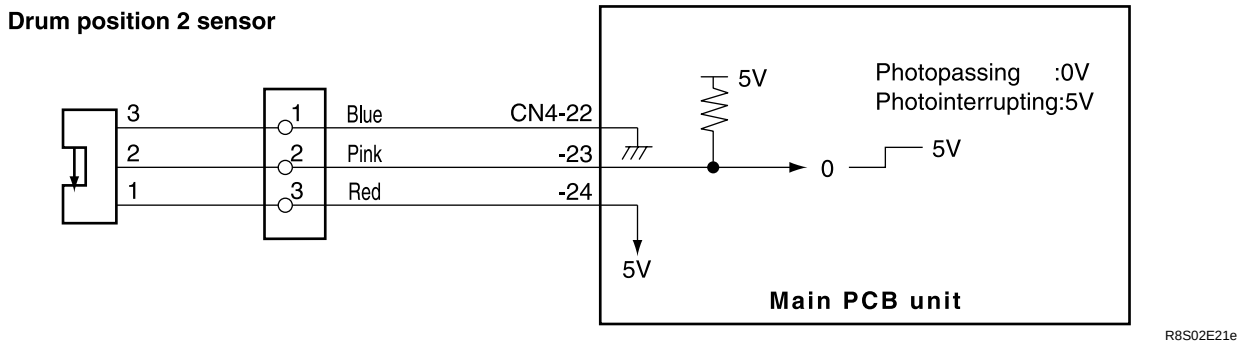
R8S02055

(2) Drum Position 2 Sensor

Description

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

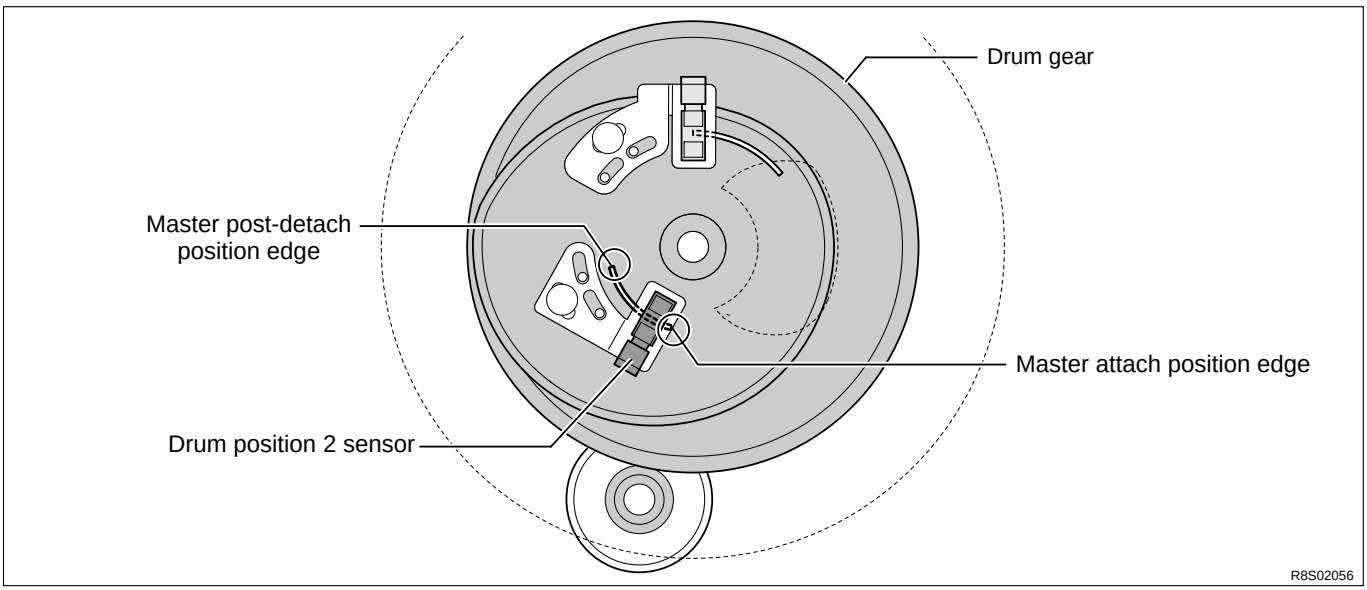
Circuit



Operation

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

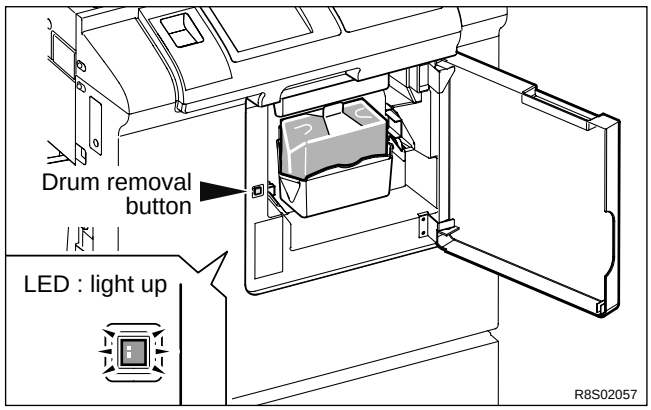
- The drum attach position is detected on the attach position edge.
- When the **drum position 2 sensor** is in the status of **photointerrupting** and the **drum position 1 sensor** is in the status of **photopassing**, the master can be detached.



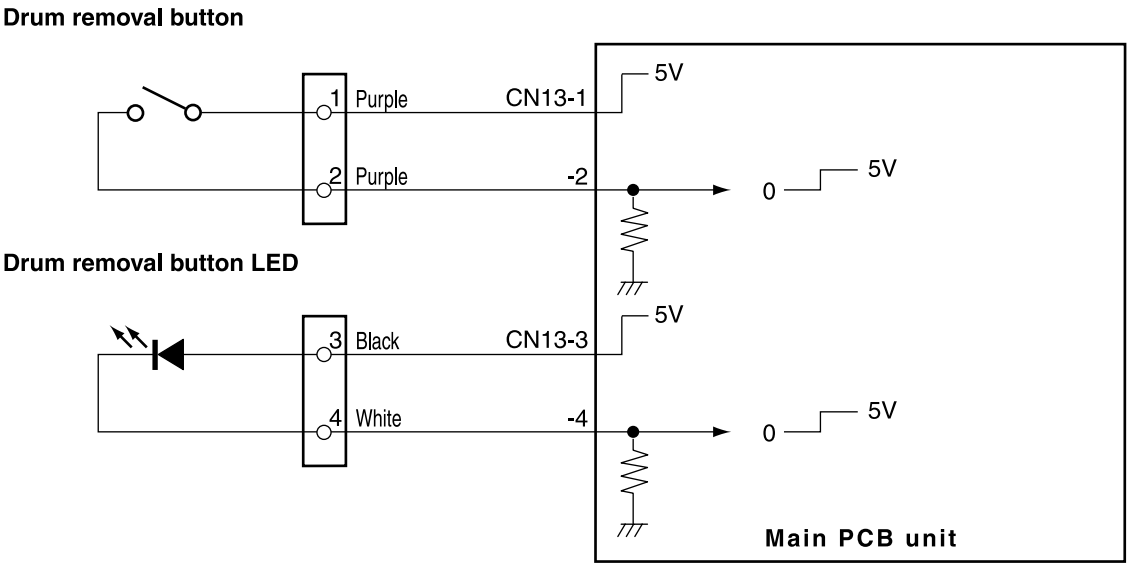
(3) Drum Removal Button / LED

Description

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



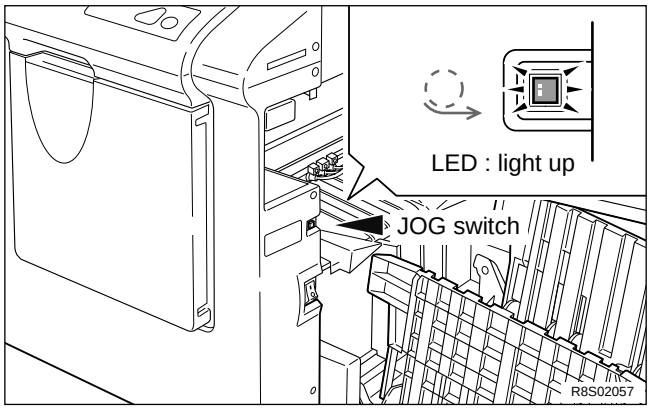
Circuit



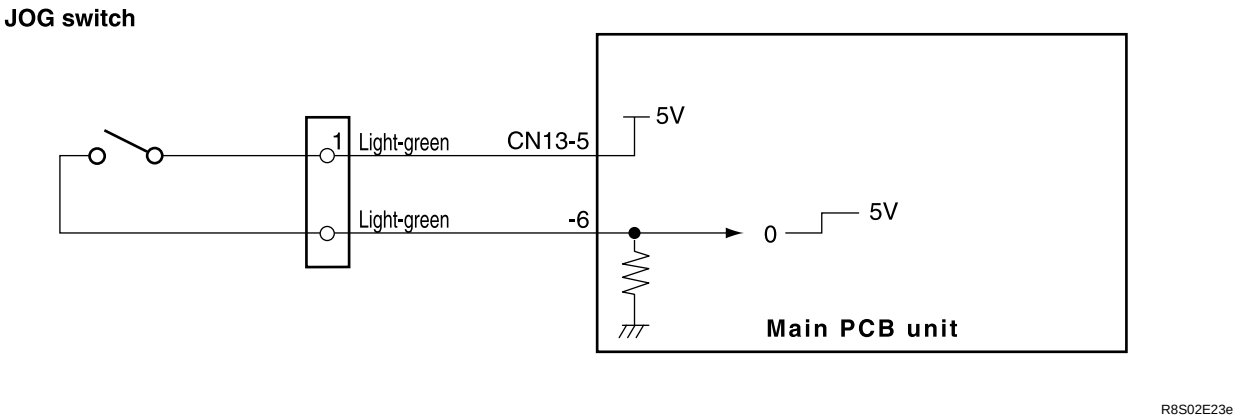
(4) JOG Switch

Description

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

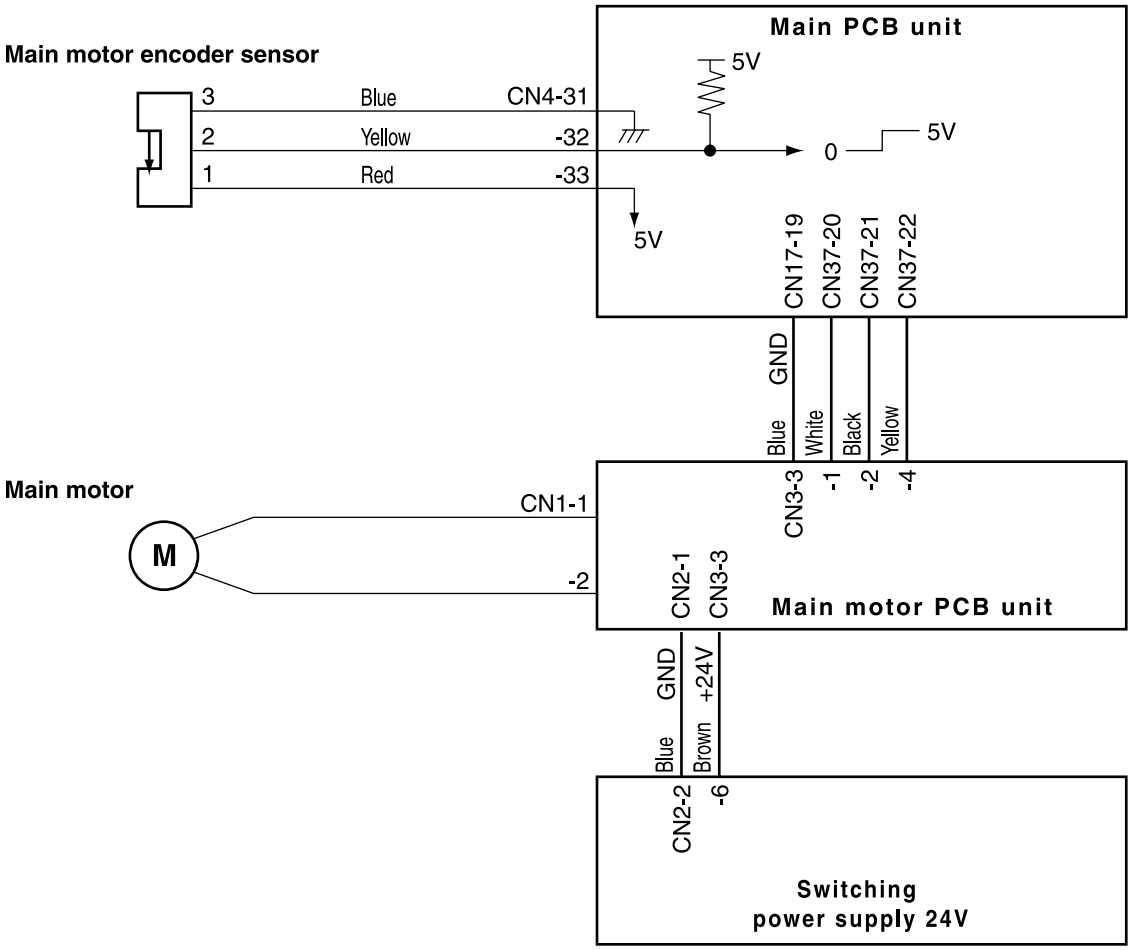


Circuit



(5) Control of the Main Motor

Circuit



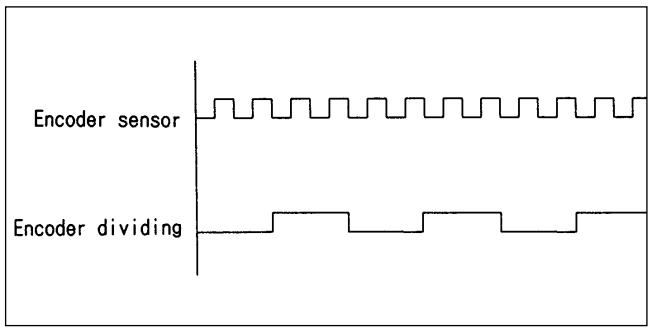
R8S02E24e

1. Rotation Speed Control by Encoder Sensor

The encoder sensor detects the main motor rotation. The main PCB Unit controls the number of main motor rotations with the encoder sensor signal.

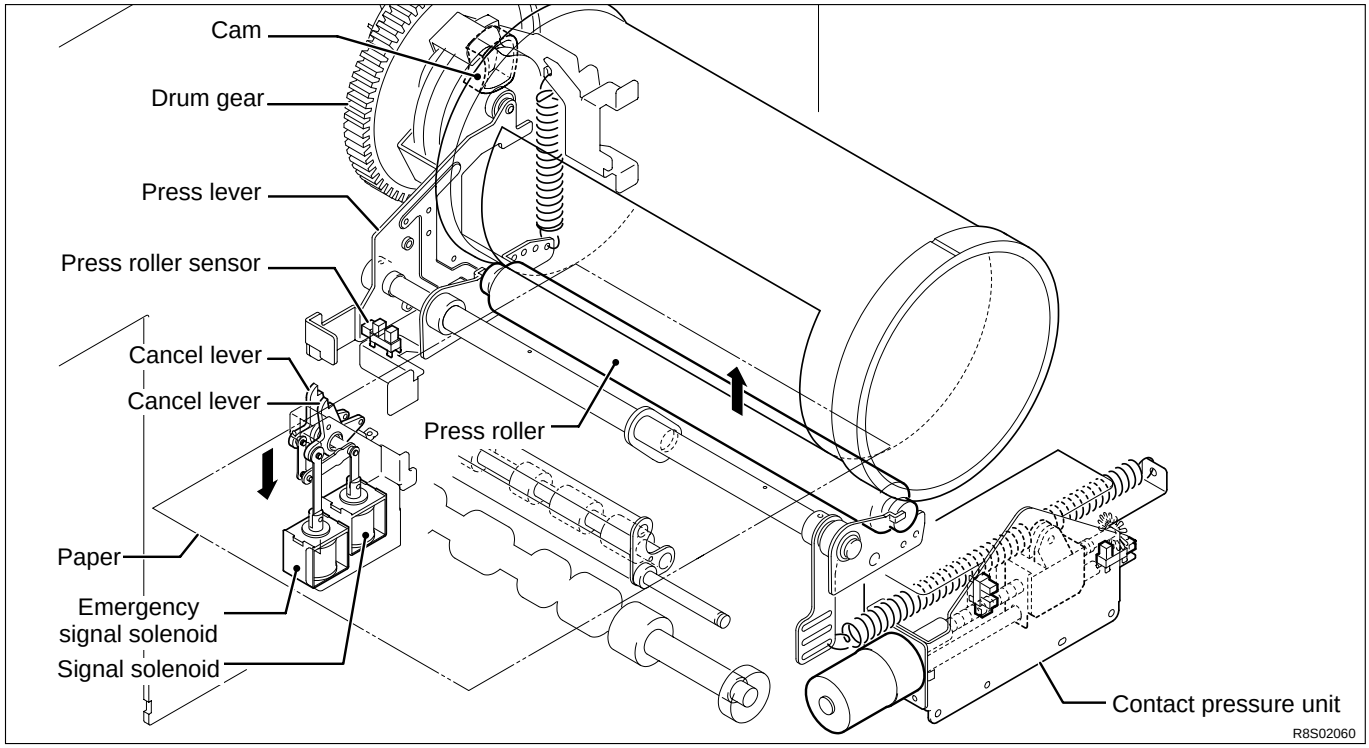
The number of main motor rotations is checked with the HELP-003.

HELP-003 ➡ see p.203



5 Press Section

1. Description



(1) Press Roller Timing & Printing Area

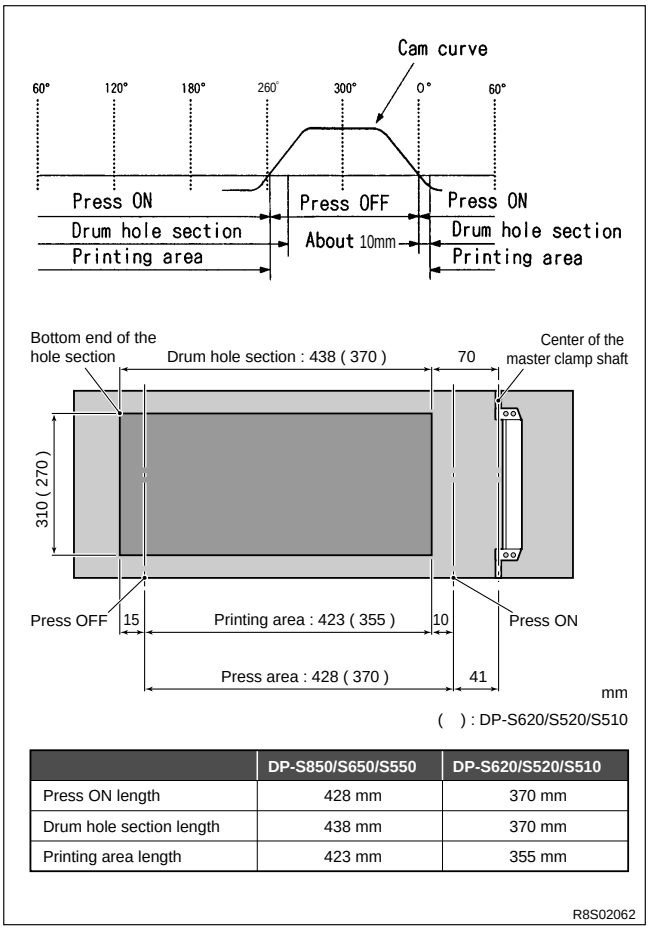
Description

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)

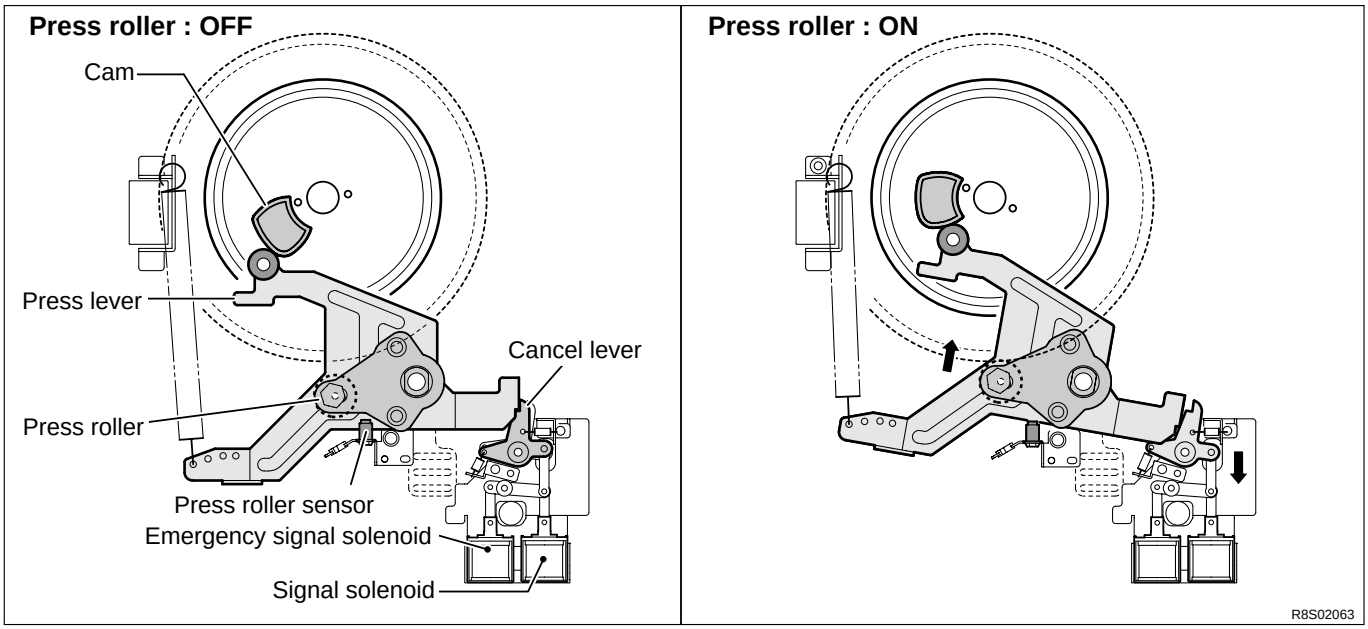
When the pressed-on position is 0 under the normally adjusted conditions, relations among 1), 2) and 3) are as follows*-



	DP-S850/S650/S550	DP-S620/S520/S510
Press ON length	428 mm	370 mm
Drum hole section length	438 mm	370 mm
Printing area length	423 mm	355 mm

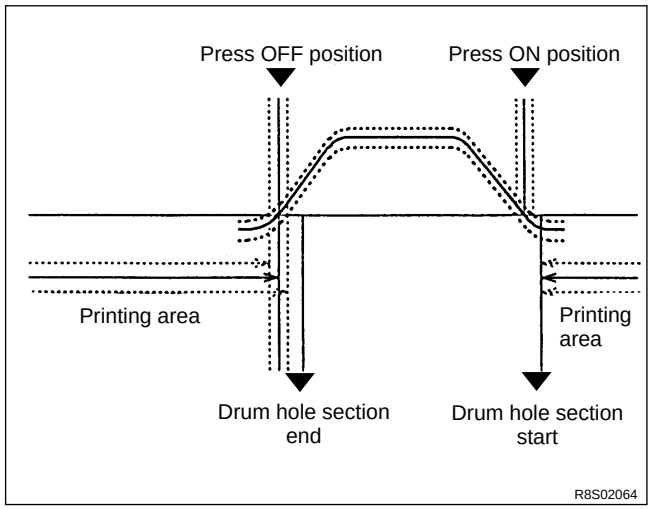
R8S02062

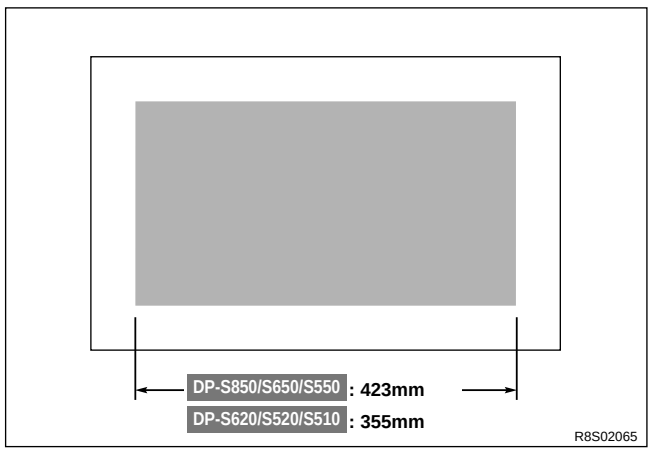
The press roller is ON (the press roller is pressed to the drum) or OFF by operating the press lever up and down with the cam inside the drum gear.



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.



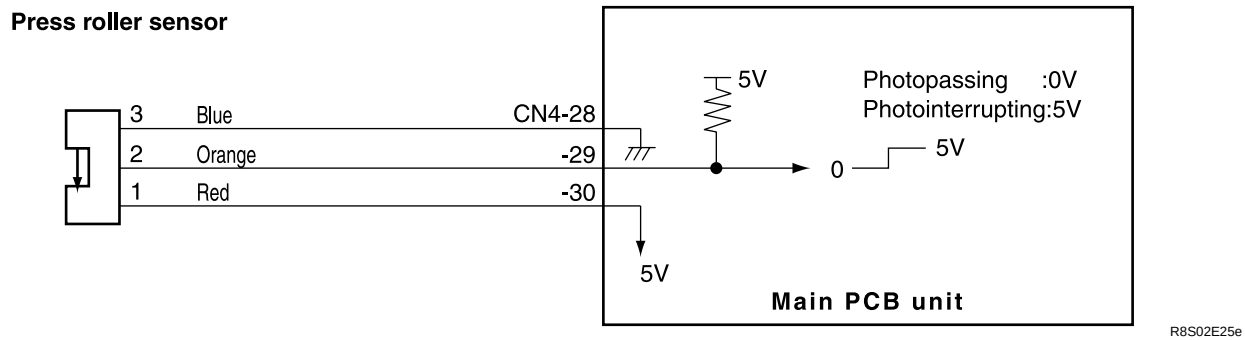


2. Function of Parts

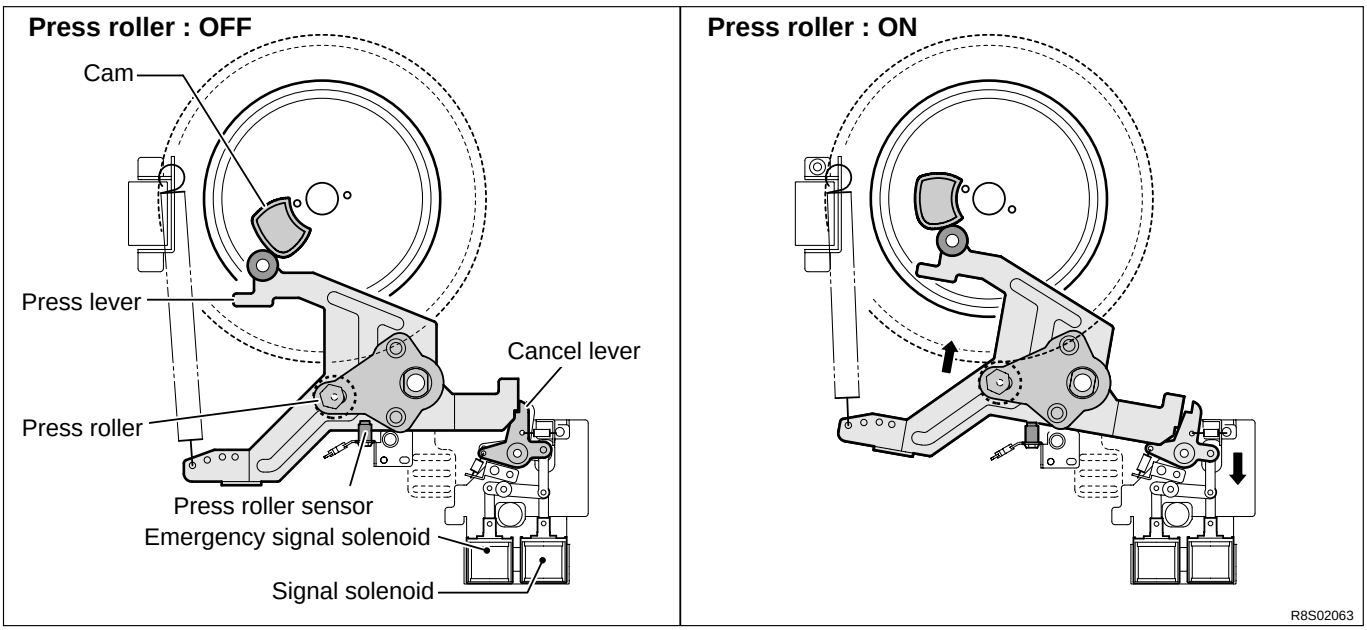
(1) Press Roller Sensor

The press roller sensor detects up and down of the press roller.
The press roller only ascends when the paper is fed from the paper feed section by the cancel lever.
The press roller sensor also is used to know whether the paper is fed.

Circuit



R8S02E25e



R8S02063

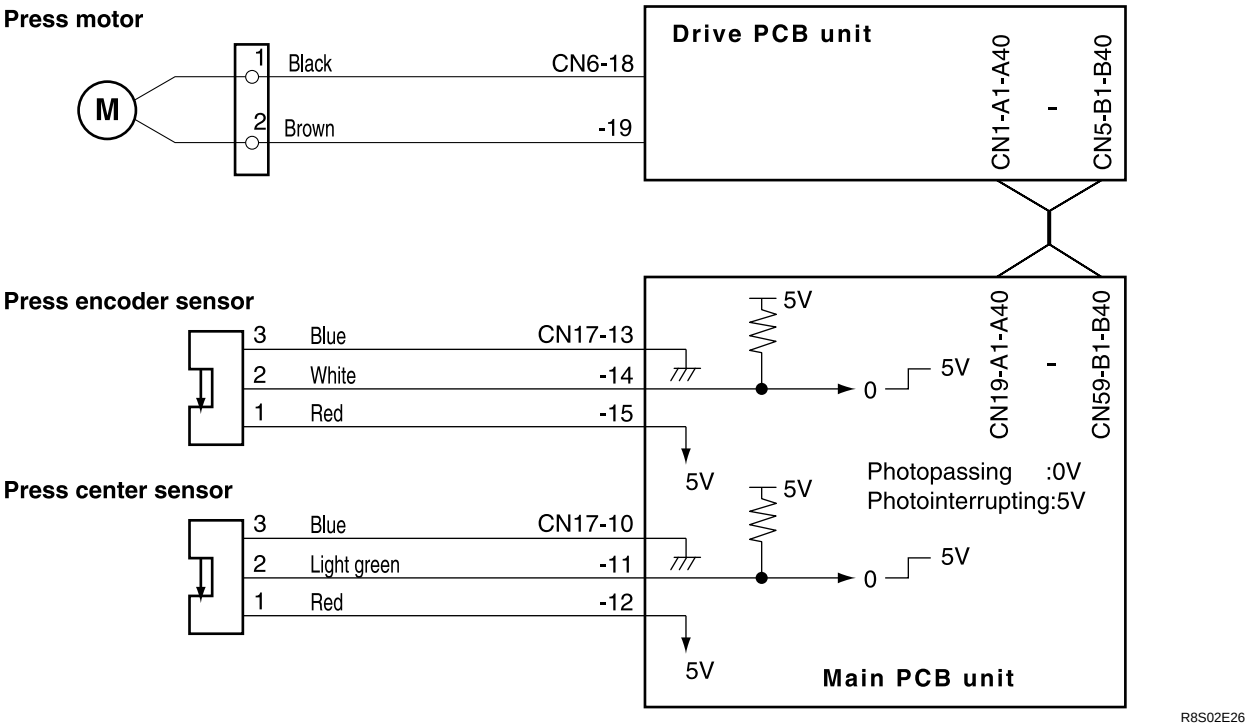
(2) Switching the Contact Pressure

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

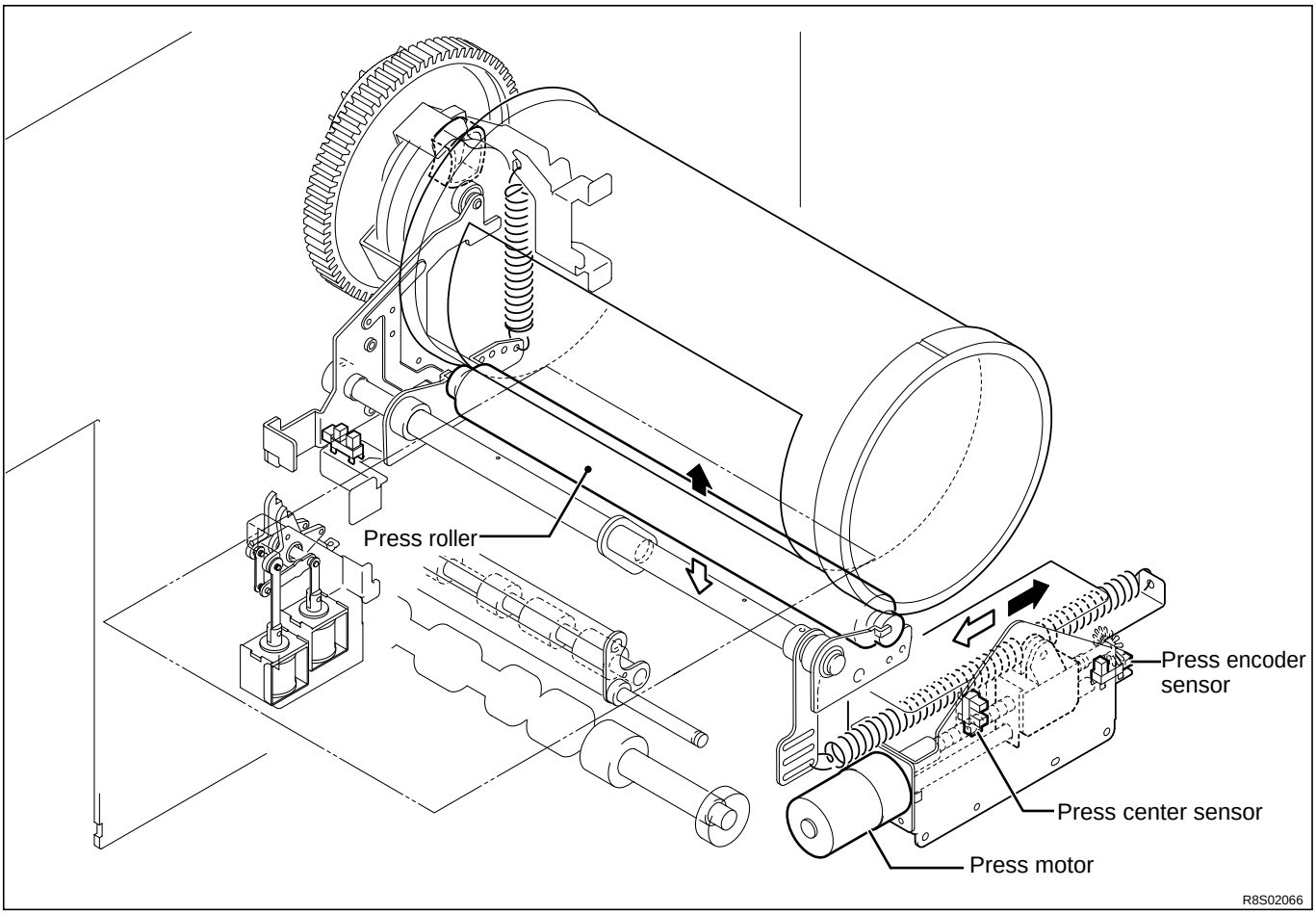
NOTE :

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

Circuits

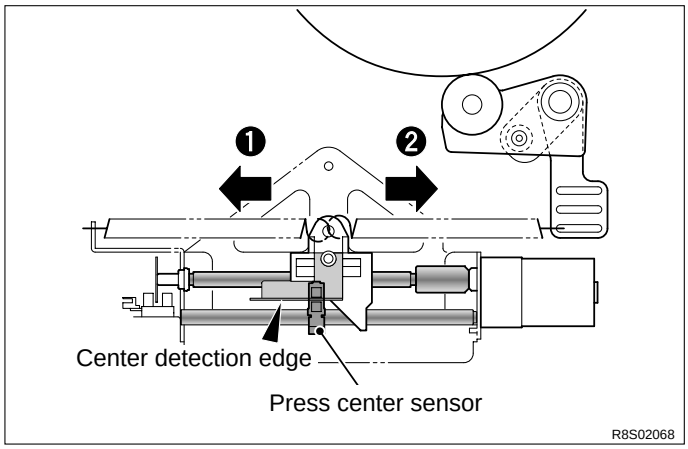


1. Contact pressure position sensing



- **Press center sensor :**
  The center is detected by the center detection edge.

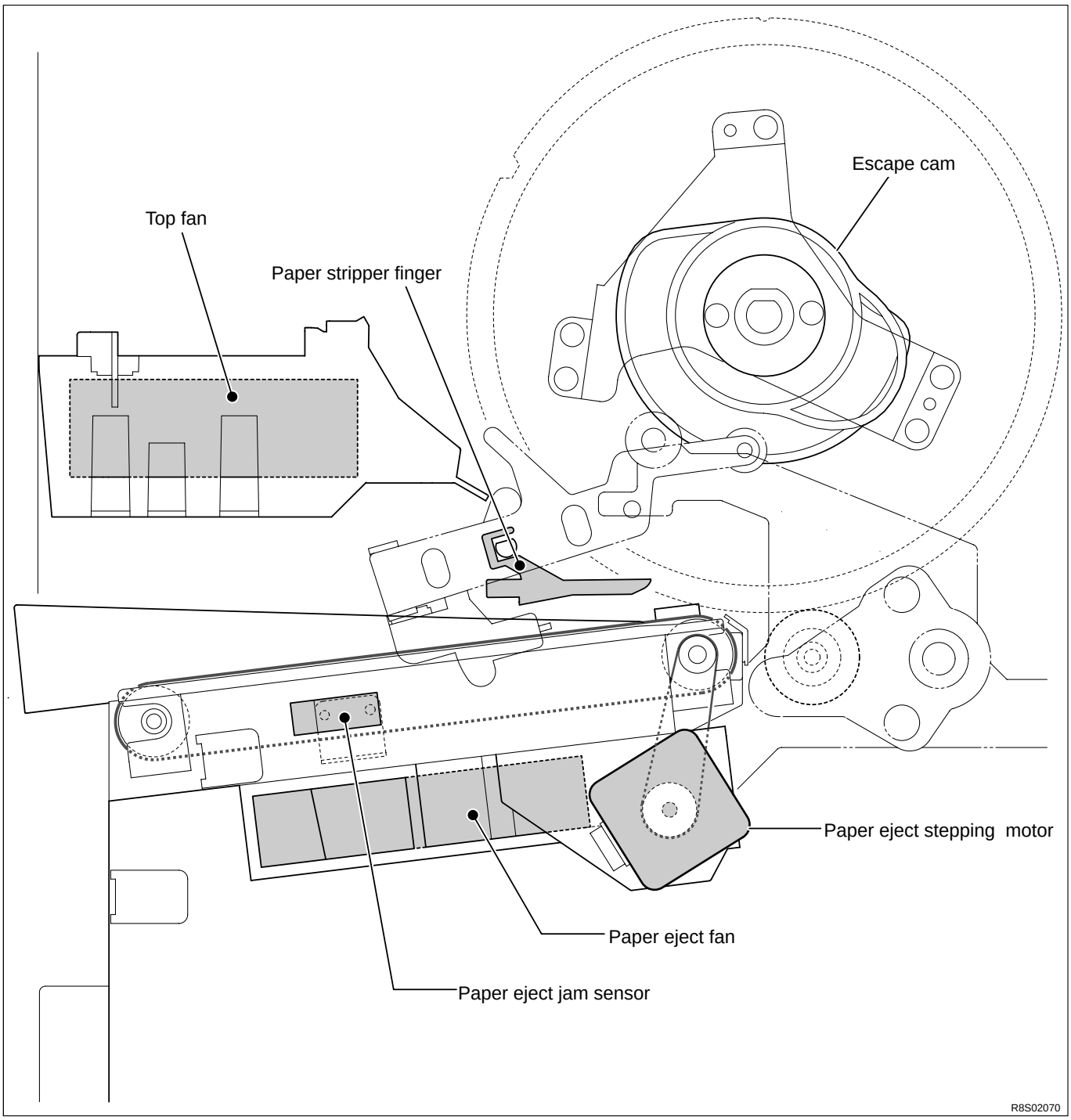
- **The press upper limit and the press lower limit are controlled by the encoder pulse from the center detection edge.**



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.

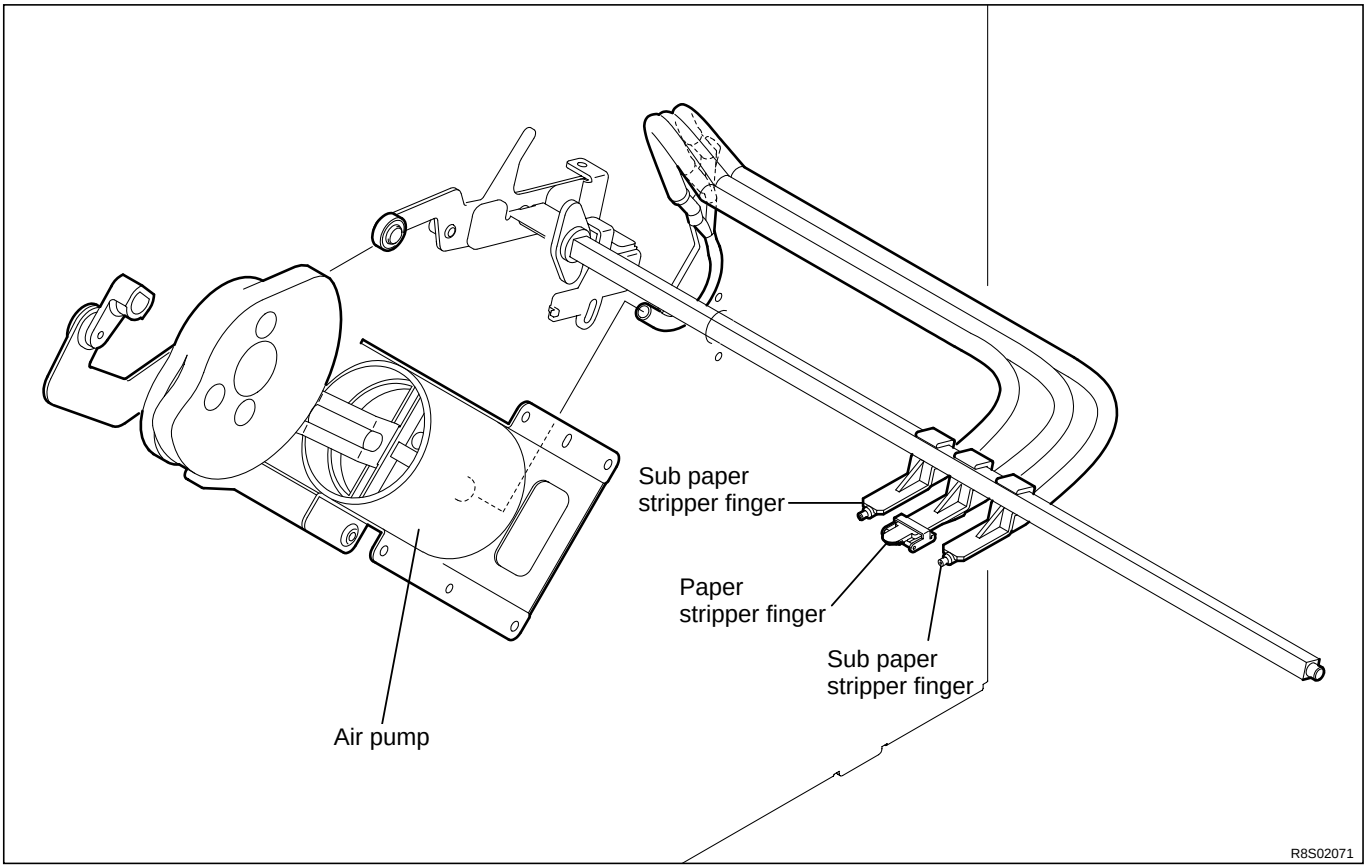


2. Functions of Parts

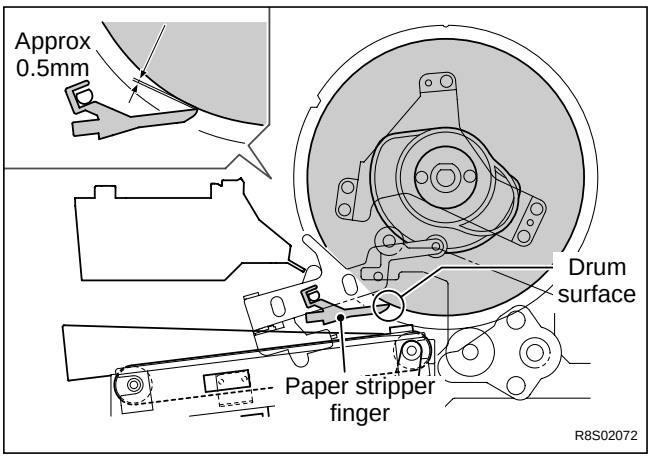
(1) Paper Stripper Finger

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.

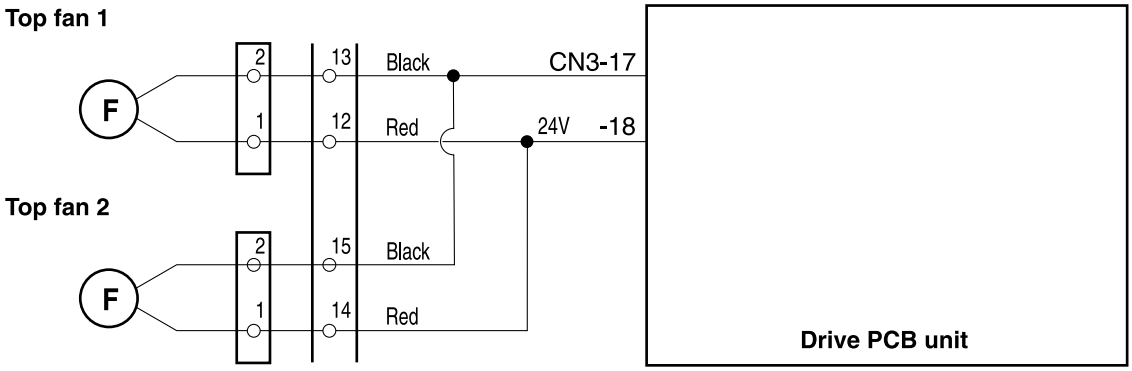


To remove the paper from the drum firmly, the gap between the tip of finger and the drum surface and between the tip of finger and the corner of the master clamp are adjusted as follows:-



(2) Top Fan

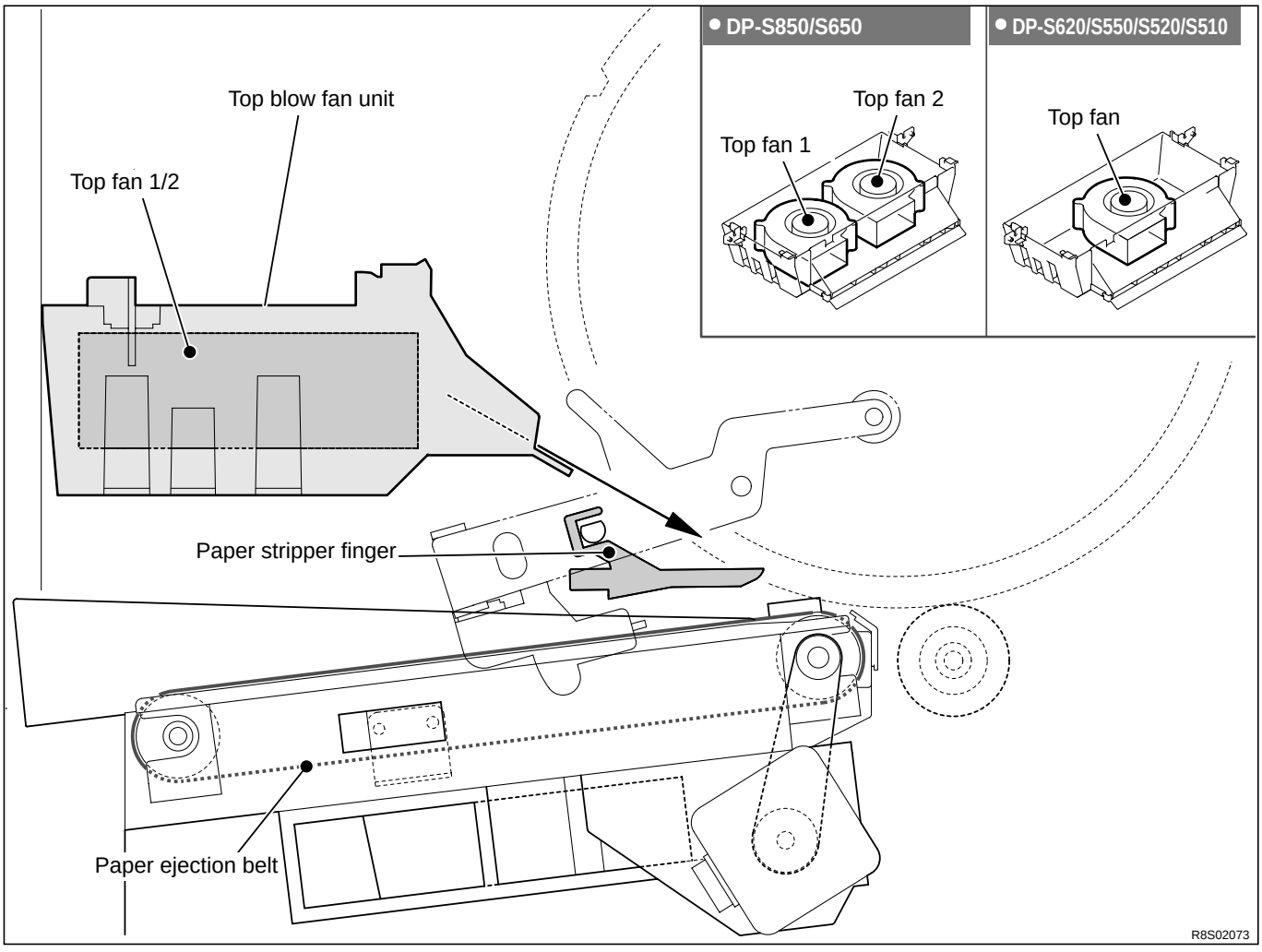
Circuit



R8S02E27e

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.

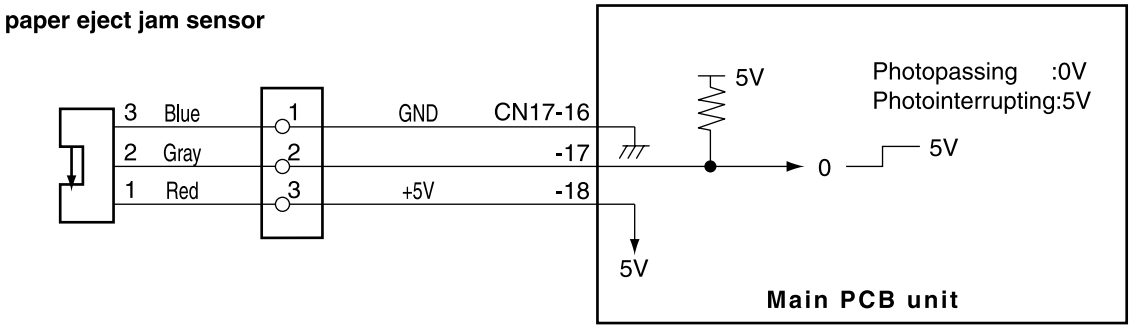


(3) Paper Eject JAM Sensor

Description

The paper eject jam sensor is installed on the paper eject fan unit and detects whether the paper is ejected normally. When it is detected that the paper is not ejected normally, **"PAPER JAM ON EJECTION SIDE"** is displayed on the LCD panel.

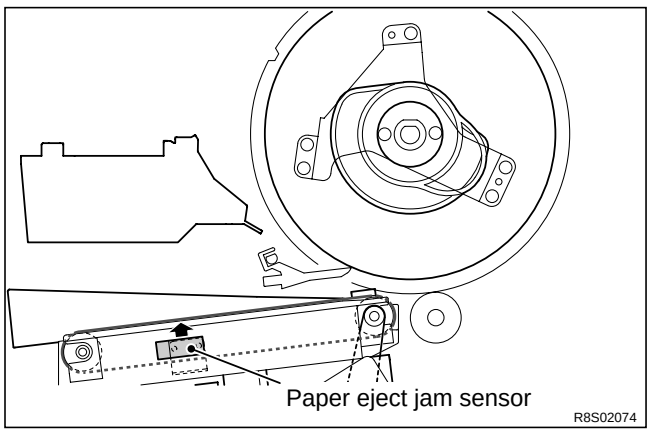
Circuit



R8S02E28e

Operation

The paper eject jam sensor is installed in the paper eject fan unit. **LOW** with the optical path interrupted. **HIGH** with the optical path passing.



R8S02074

1. Paper Jam Detection Timing

Description

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

- "**PAPER JAM ON EJECTION SIDE**" is displayed.

  JAM1 : Paper trailing edge is not ejected.
  When the software detects the certain angle from the drum stop position and at that timing the paper eject jam sensor does not have a photointerrupting status.

  JAM2 : Paper lead edge is not ejected.
  When the paper eject jam sensor never has a photointerrupting status while the drum rotates by a certain angle from the drum stop position.

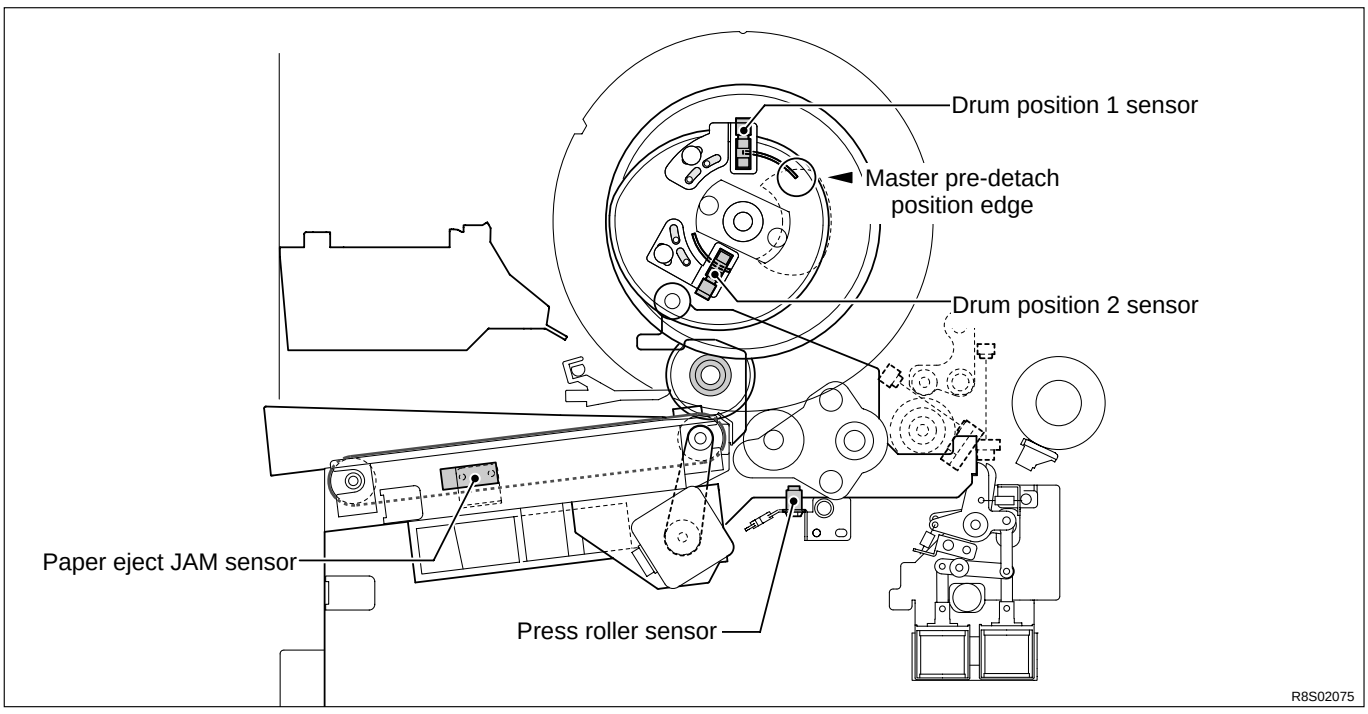
  JAM (during stop) : When the paper eject jam sensor has a photointerrupting status during the machine stop.
  If the sensor has a photopassing status, the display is cancelled.

- "**PAPER JAM IN DRUM SECTION**" is displayed.

  JAM : The paper at the signal sensor section is not ejected. When the paper top detect sensor and the paper eject jam sensor have the photopassing status and the signal sensor only has the photointerrupting status, JAM is detected.

- "**PAPER JAM ON FEEDER SIDE**" is displayed.

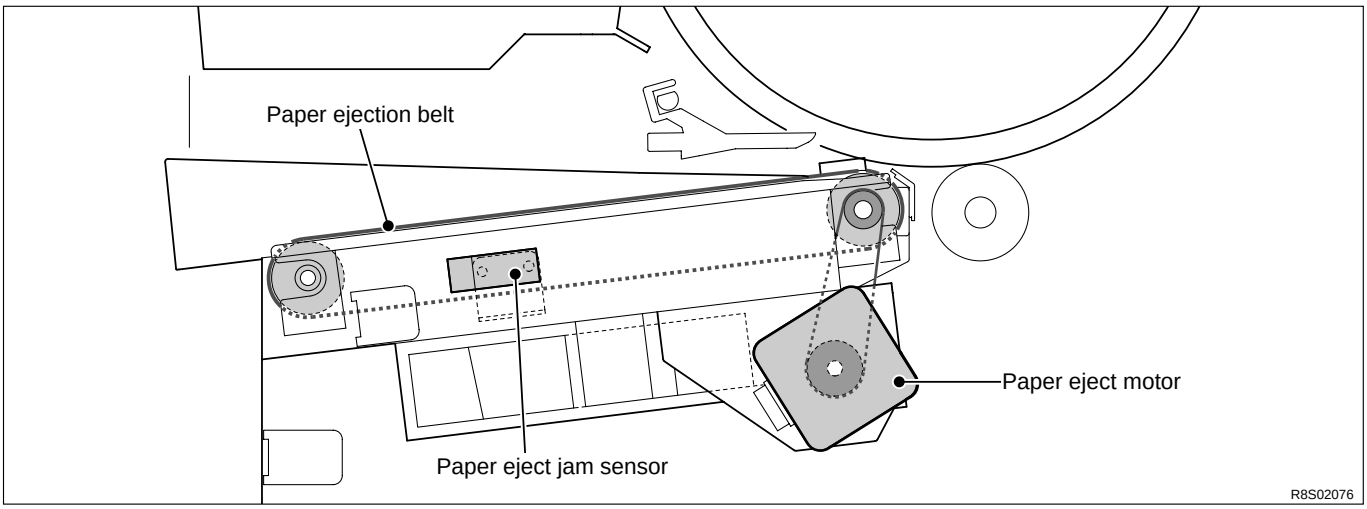
  JAM3 : During paper feed operation, the paper does not pass through the signal sensor. If the paper does not pass through the paper top detect sensor during two rotations of the drum after the paper feed command is given during printing, JAM is detected.



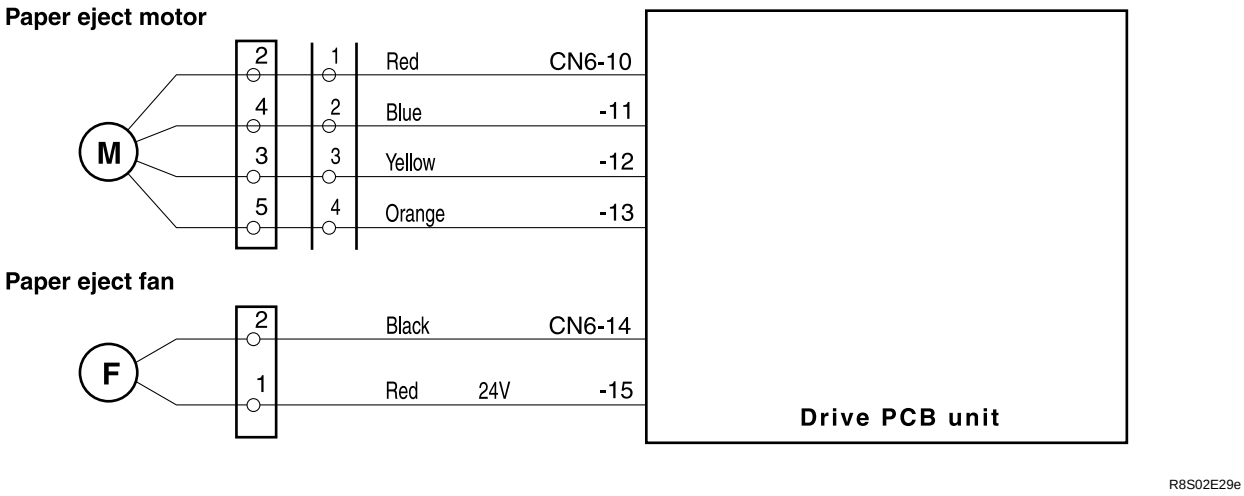
(4) Paper Ejection Belt

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 eject motor. Pulses are controlled for stepping.



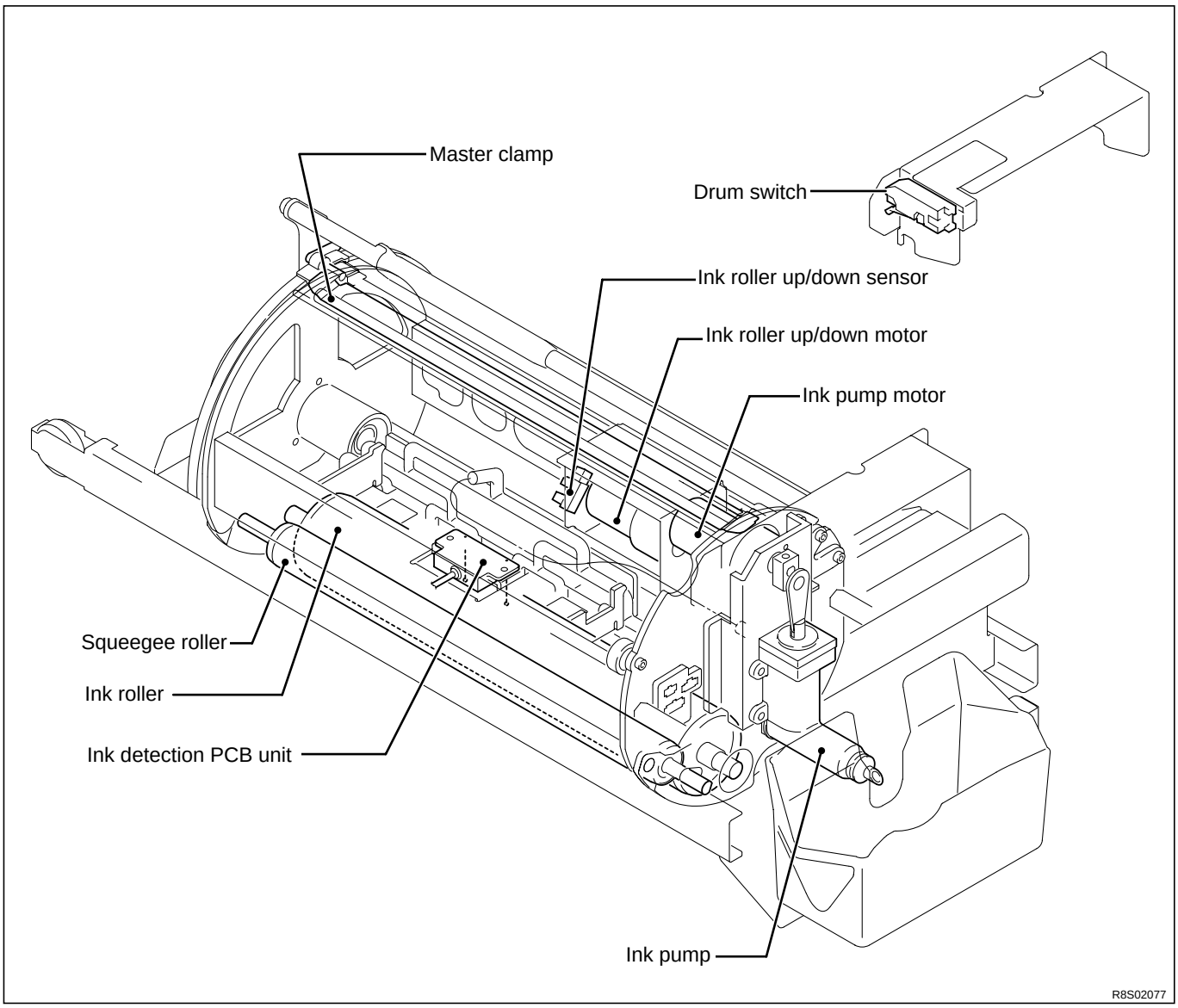
Circuit



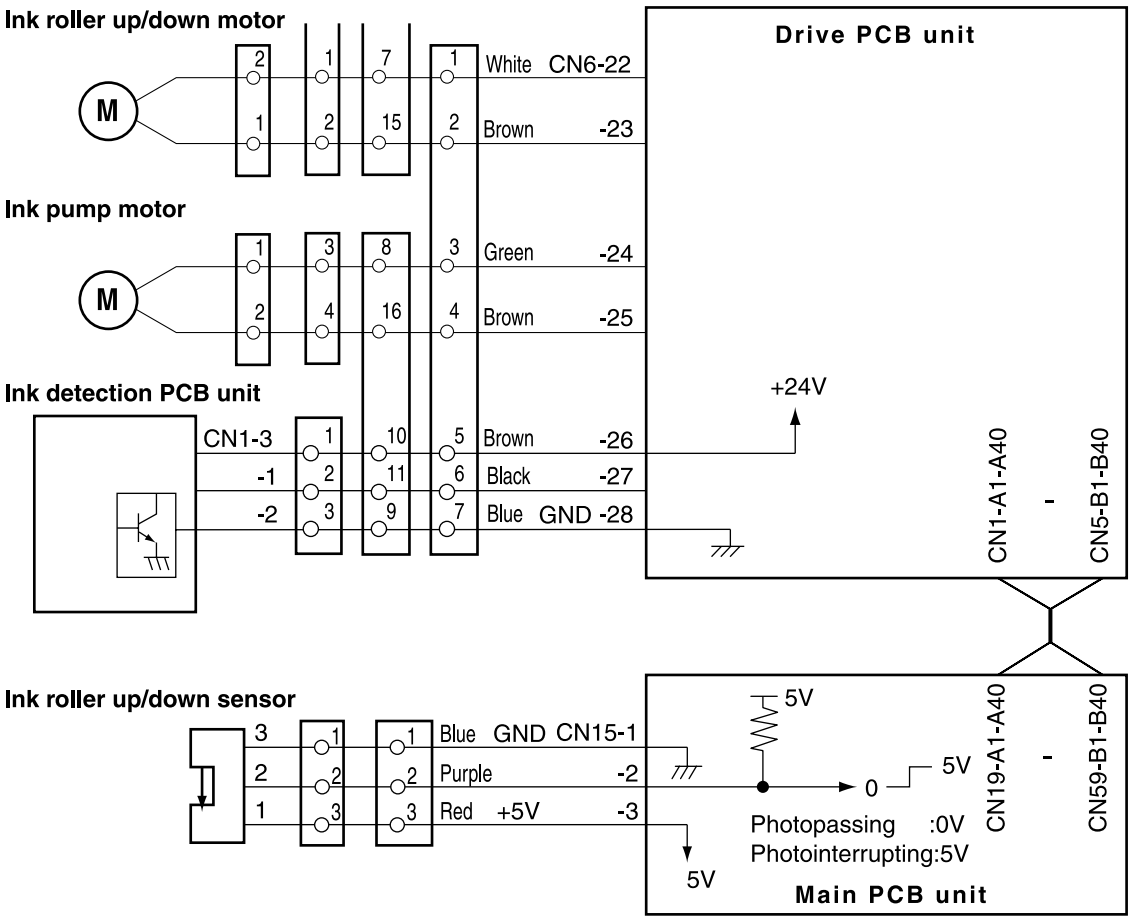
7 Drum Section

1. Description

The ink control section is in the drum unit. The ink control section is supplied with ink in the ink pack attached to the drum unit by the ink pump motor. The ink control section has an ink detection function, and is always supplied with a fixed amount of ink. Printing darkness is adjusted by changing the gap between the squeegee roller and the ink roller. Perform color printing to replace the drum unit for each color. (Press the drum removal button 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



R8S02E30

3. Function of Parts

(1) Ink Detection

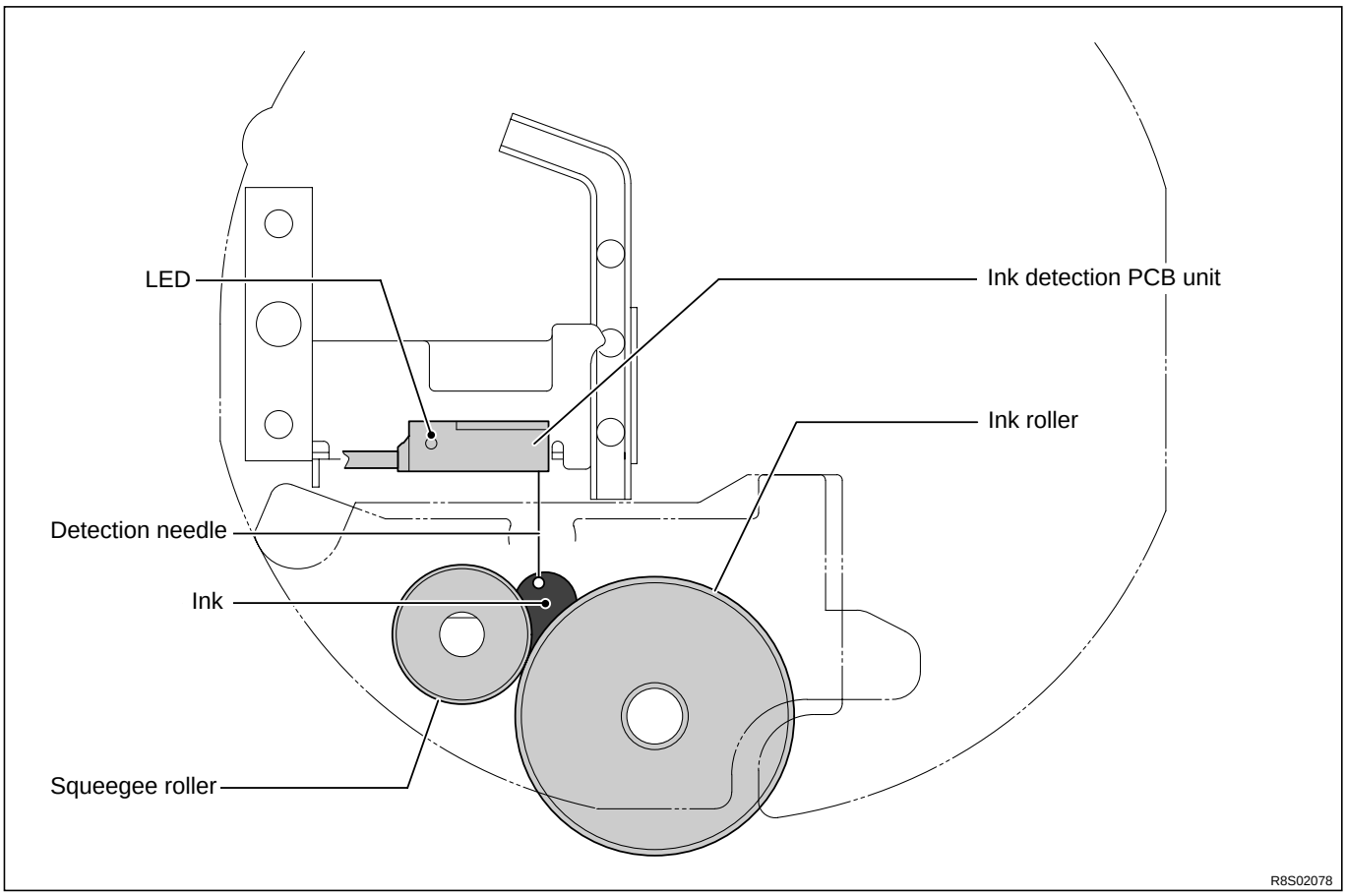
Description

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 ink pump motor ON and OFF by this signal.

When **NO INK** continues while the drum rotates 20 times (speed 3*) during printing, it is determined that the ink pack is empty, **"NO INK"** is displayed and the machine stops printing.

➡See page 89

(* the number of drum unit rotations; it varies depending on the printing speed.)



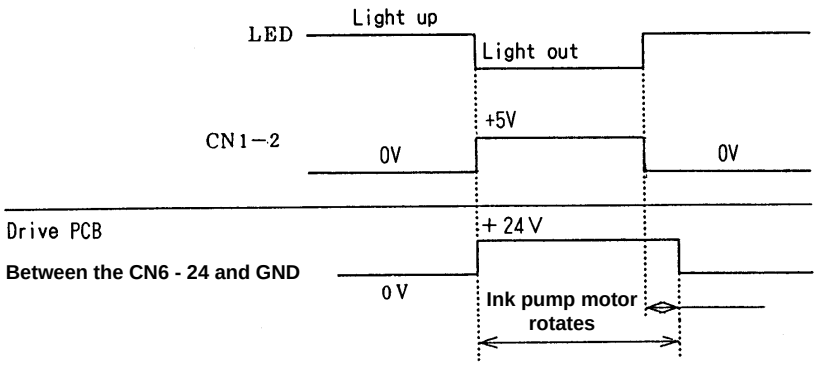
1. LED Display and Output Signal on the Ink Detection PCB Unit

- 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 pump motor operation is as follows. The ink pump motor works during printing (driving output signal).

● Ink detection PCB unit



R8S02G12

2. "NO INK" Display Timing

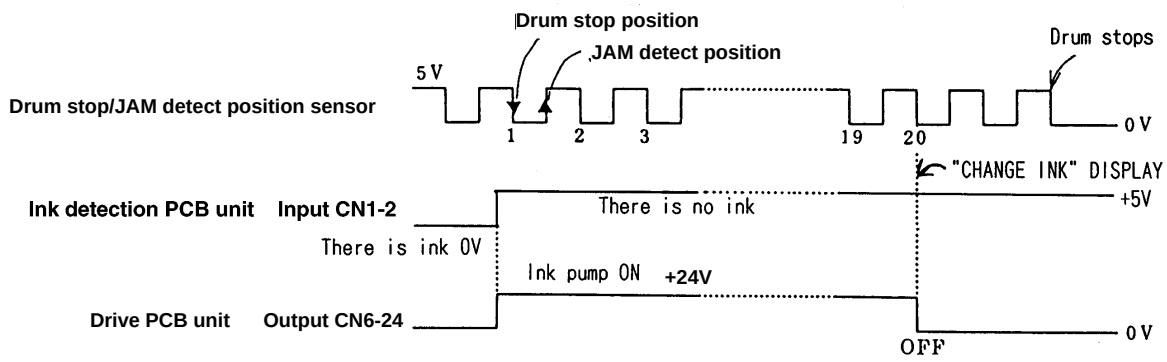
When **HIGH (5V)** is output by detecting ink while the drum continues to rotate 20 times (the number of rotations varies depending on the printing speed.*) during printing, it is detected that the ink pack is empty, **"NO INK"** is displayed on the error display, and printing stops. At the same time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

*The drum rotates until **"NO INK"** is displayed 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:-

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

*20 : Default

● "NO INK" Display Timing



R8S02G13

(2) Ink Roller Up/Down Mechanism

Description

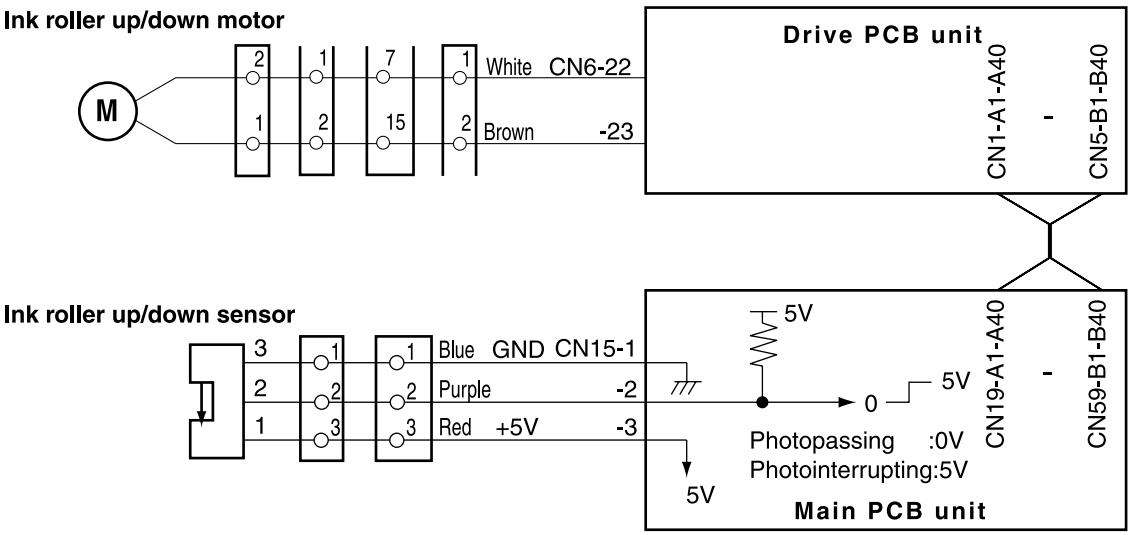
At times other than printing, the ink roller is separated from the inner surface of the drum by a fixed clearance. During printing, however, the press roller rises and presses the ink roller into contact with the drum inner surface, so that ink is supplied via the drum inner surface to the printing paper. 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.

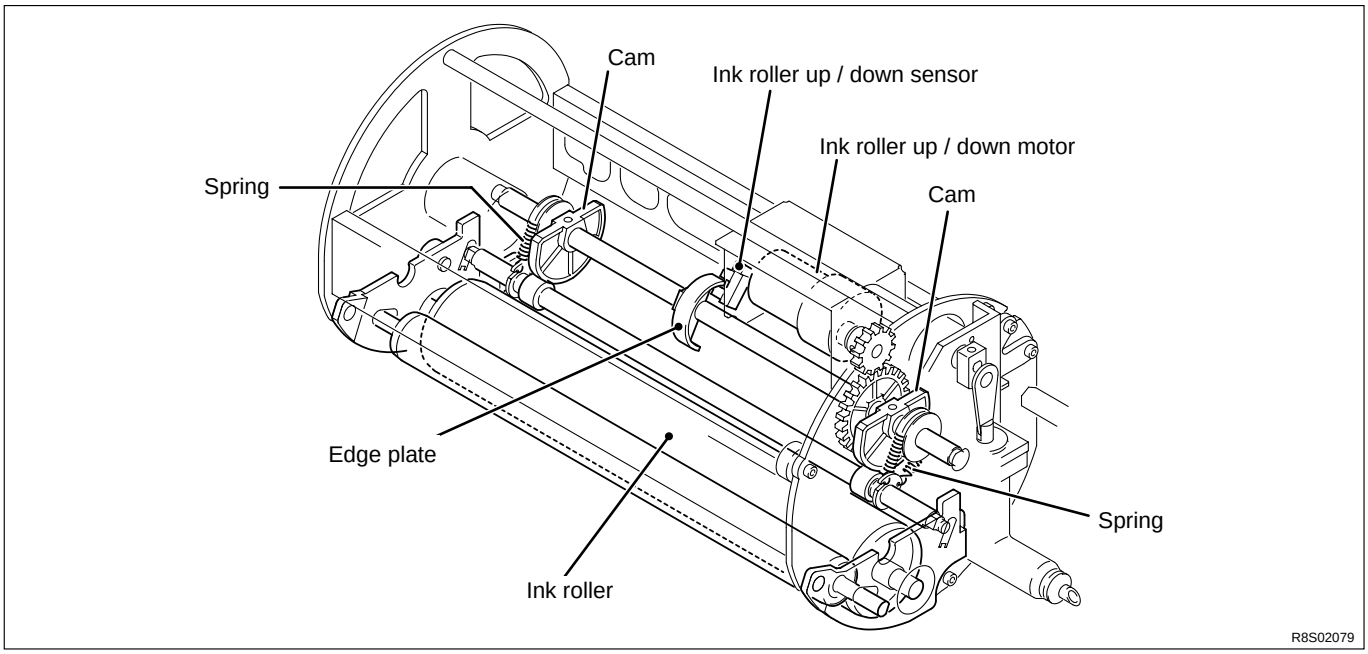
Ink roller up and down operations are included as elements in the Fine Start mode, and therefore are optimally controlled in accordance with room temperature, length of time out of use, number of sheets in last run, etc.

Circuit



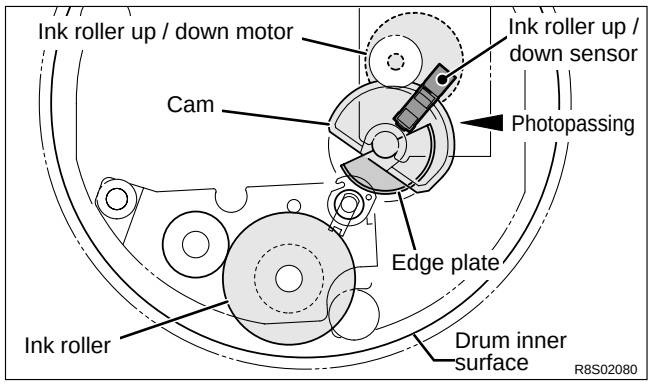
R8S02E31e

Operation



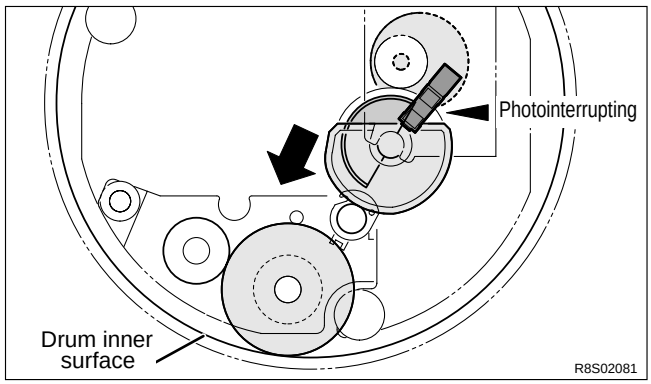
● Standby position during printing

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.



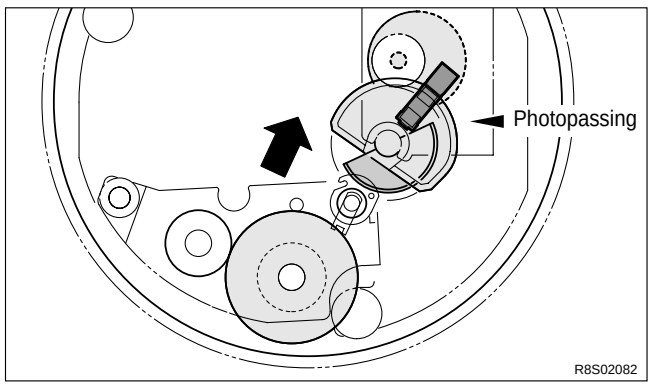
● Ink roller descent

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.

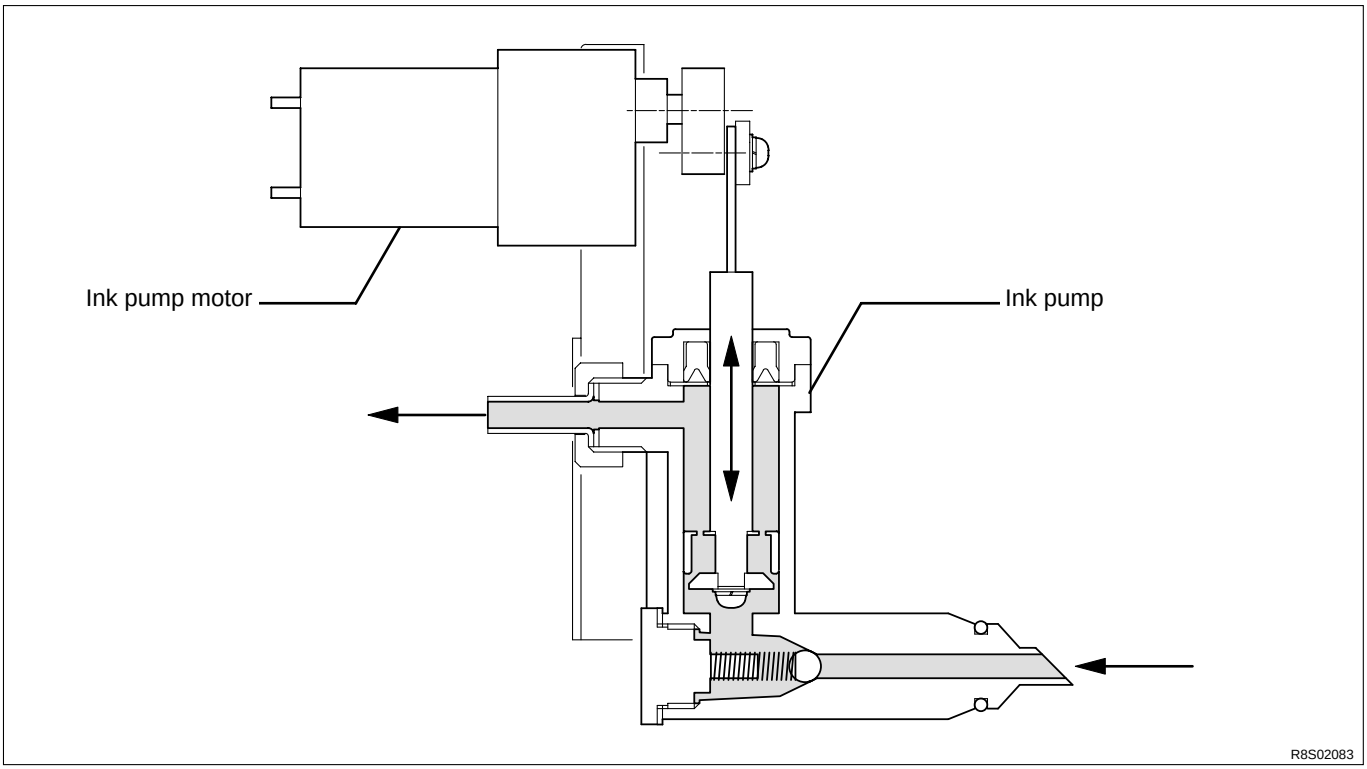


(3) Ink Pump

Description

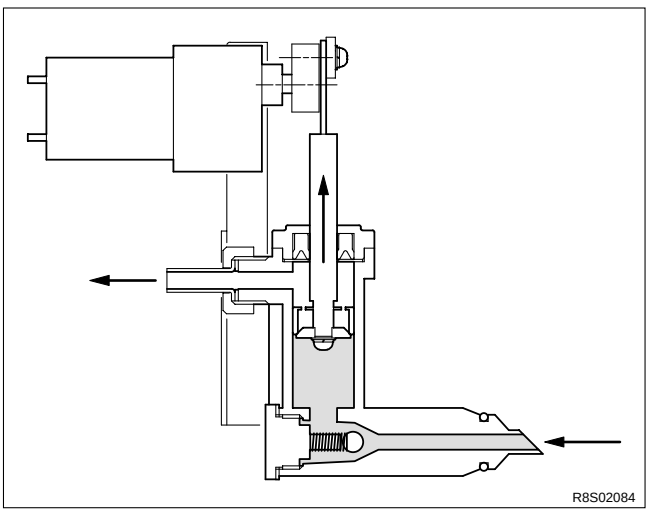
The ink control section in the drum is supplied with ink in the ink pack by driving the ink pump motor.

Mechanical Structure

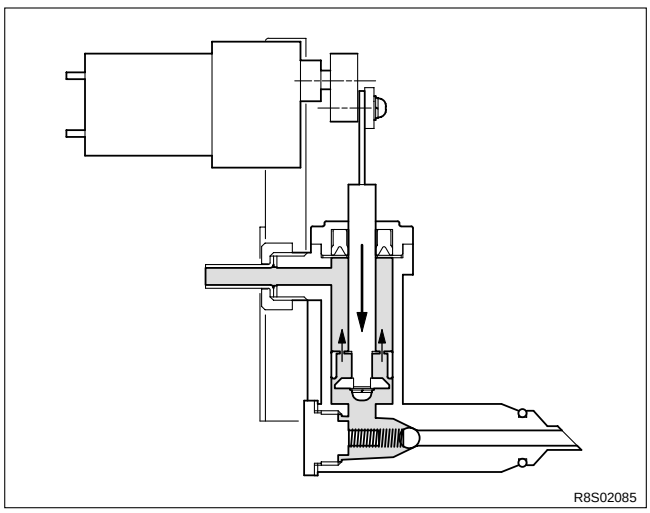


Operation

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



When the piston moves up, it draws ink from the ink pack into the pump.



When the piston moves down, the pump releases ink.

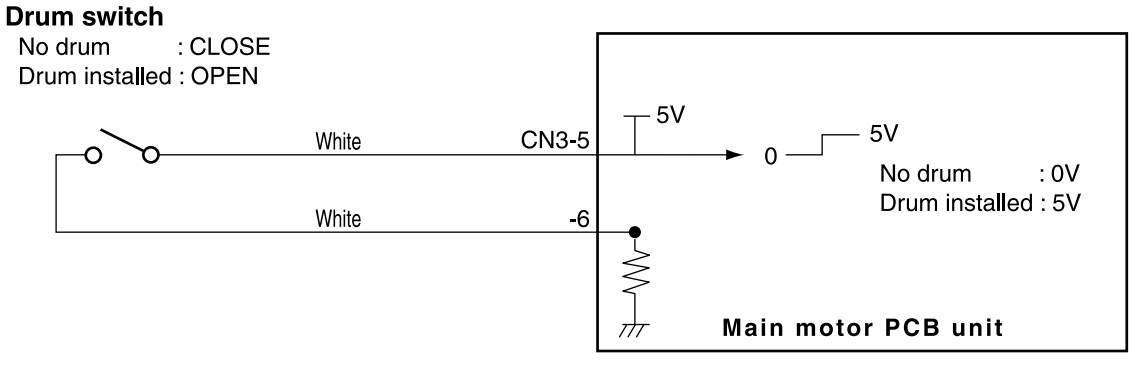
(4) Drum Switch

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

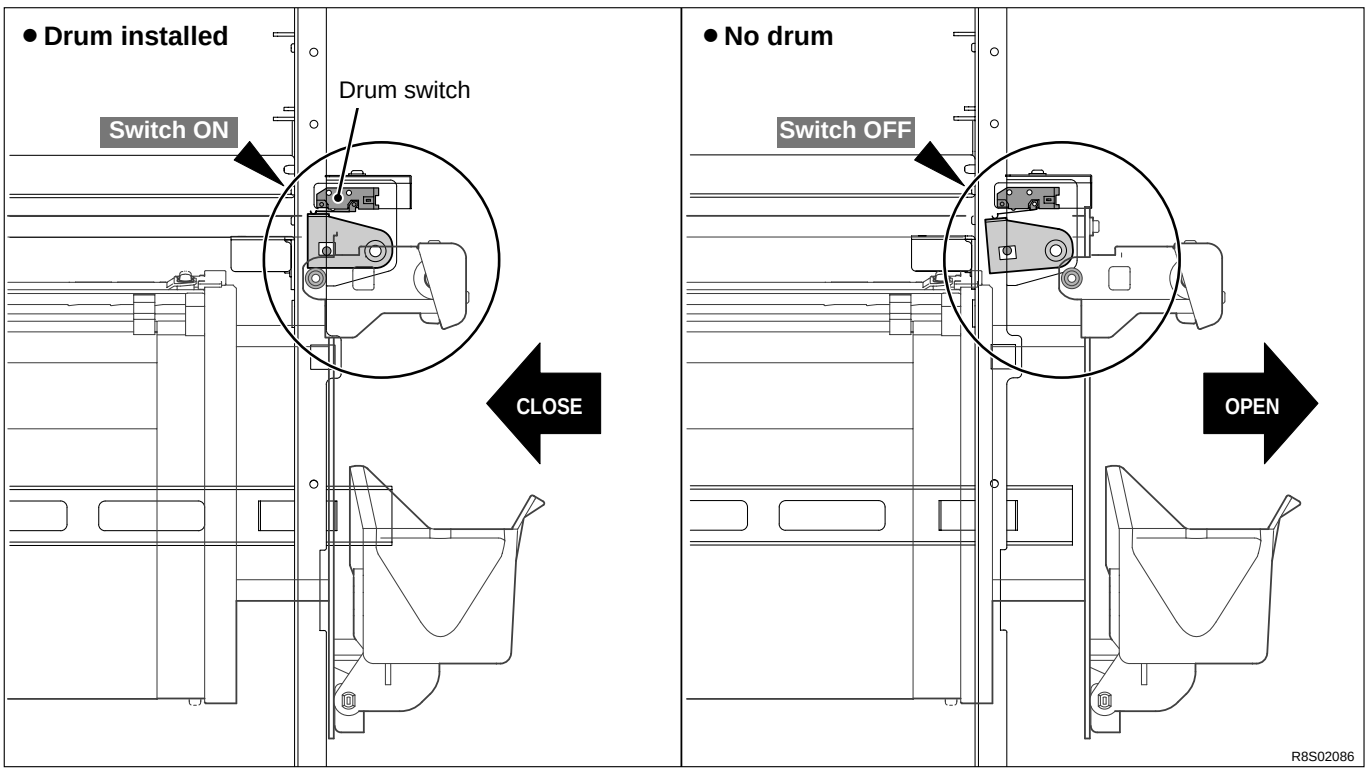


R8S02E32e

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 on as shown in the figure. When the pin is over the cam unit difference, the drum SW is off.



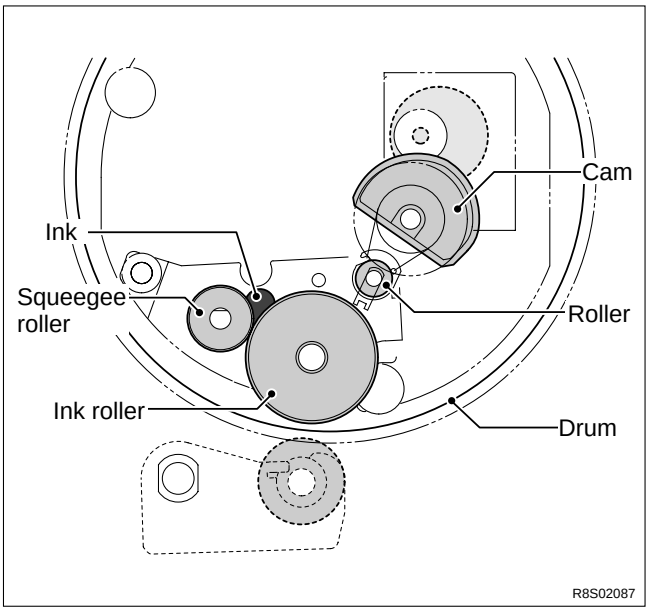
R8S02086

(5) Fine Start Mode

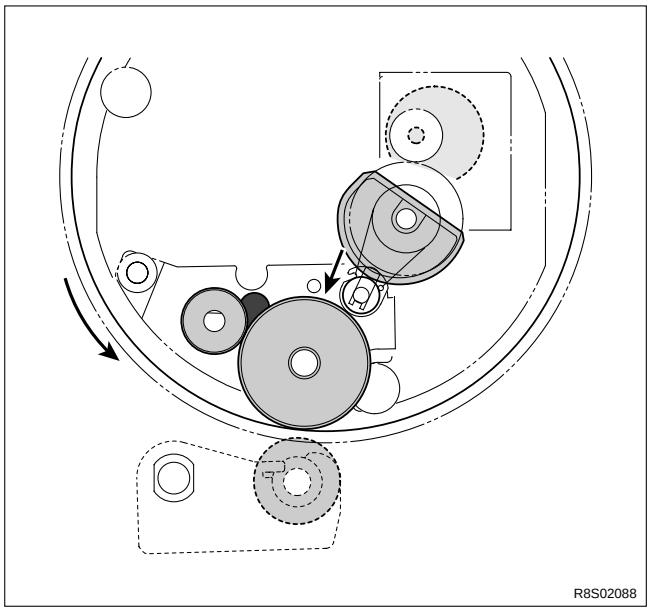
This mode automatically sets optimum values for the following start conditions: timing of ink roller actuation during platemaking, number of no-paper rotations with the ink roller actuated.
These optimum settings are based on room temperature, the length of time the printer was out of use, and the number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

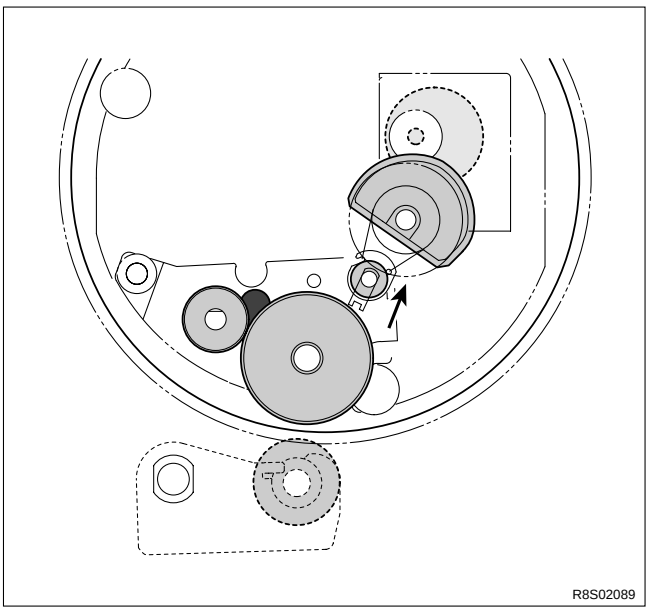
Operation



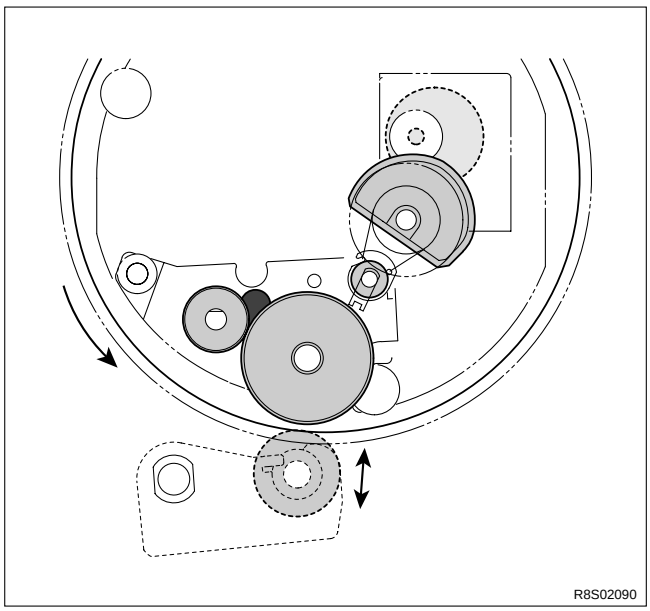
Standby state



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.



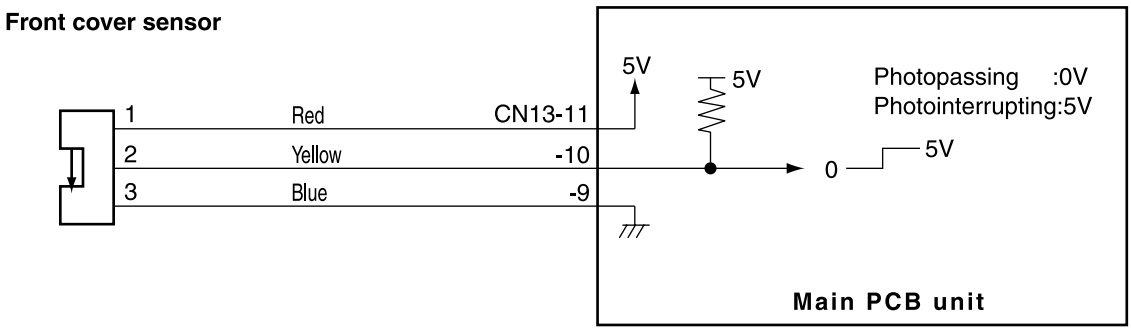
Printing begins.

(6) Front Cover Switch

Description

The front cover switch detects opening and closing of the front cover. **"CLOSE FRONT COVER"** 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. (During platemaking, the machine stops when the front cover is opened.)

Circuit



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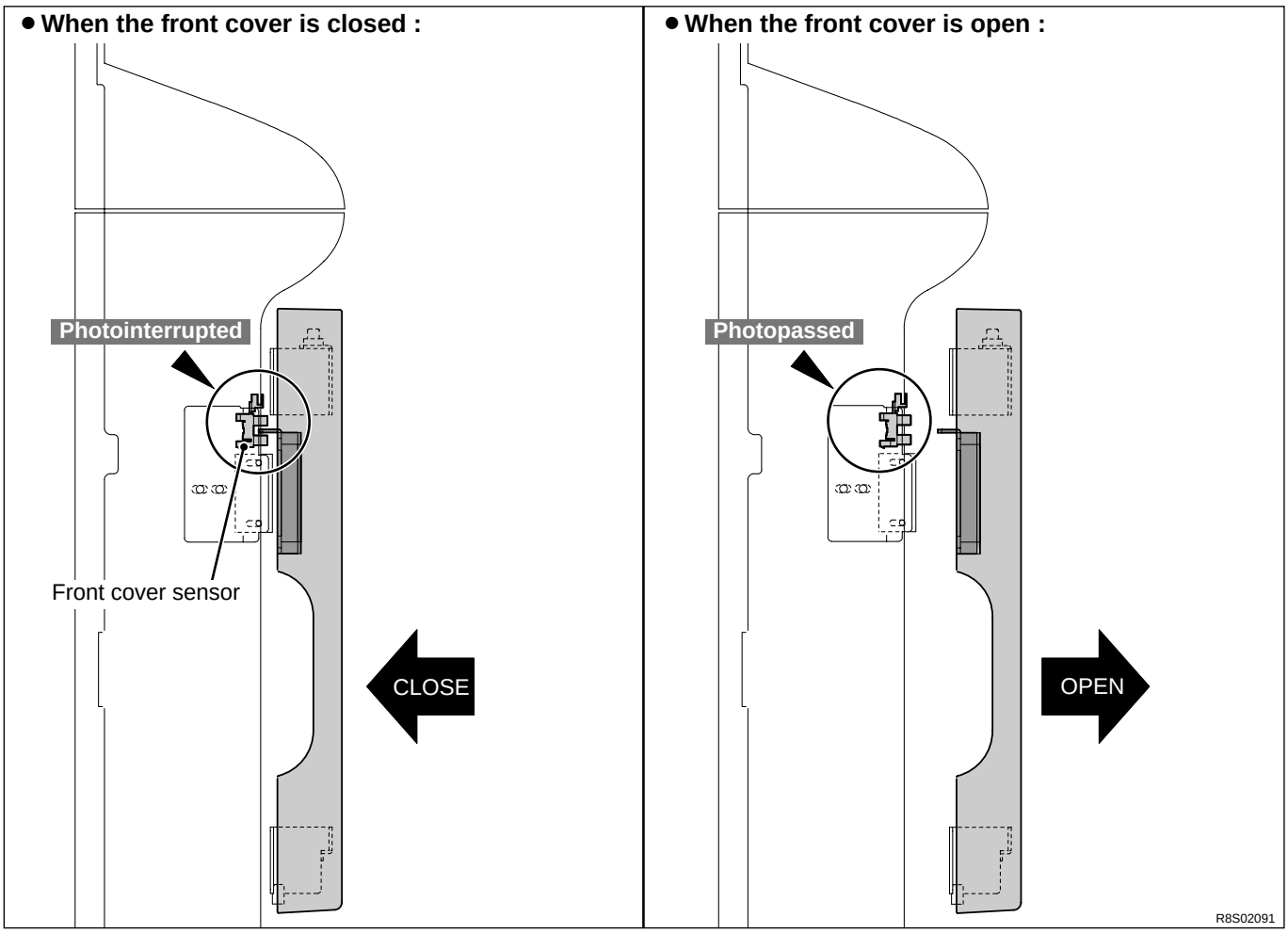
Operation

When the front cover is closed, the lever blocking off the light to the sensor is closed.
When the front cover is opened, the lever separated from the sensor is opened.



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⚠ CAUTION

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

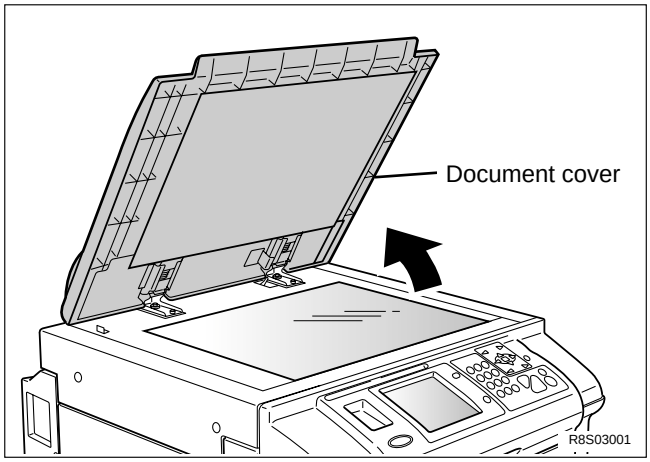
• Cautions Regarding Disassembly and Assembly

- **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.

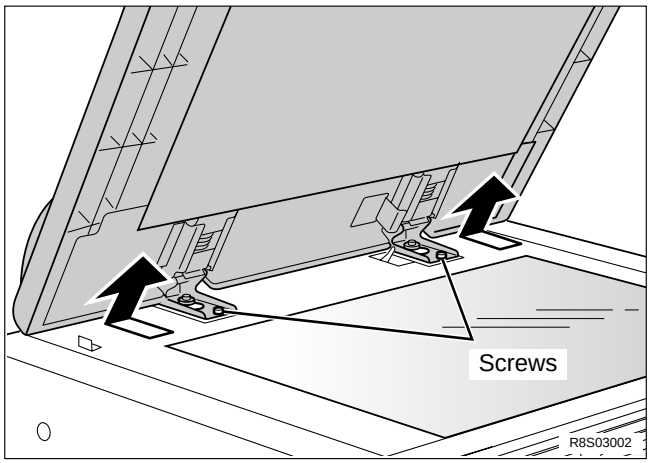
1 Exterior

(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.

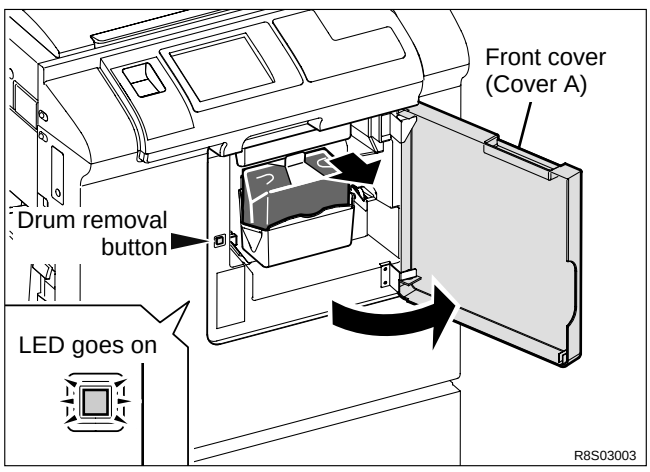


(2) Removal of Front Cover

1. Open the front cover (cover A).

2. Press the **drum removal button** to move the drum to the drum stop position.

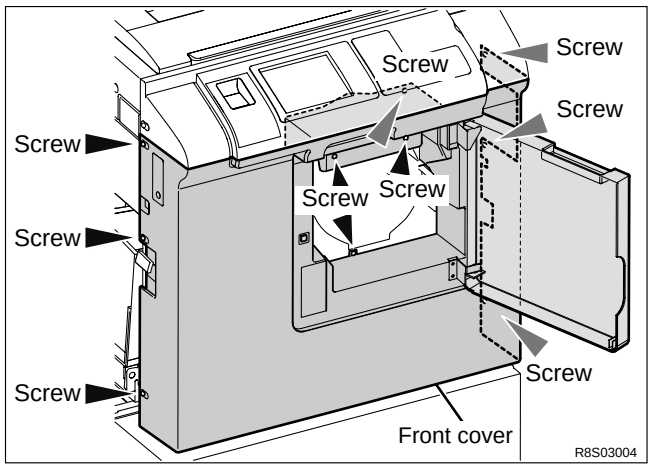
NOTE : **The drum can be removed when LED goes on.**



3. Press the **|** side on the power switch.

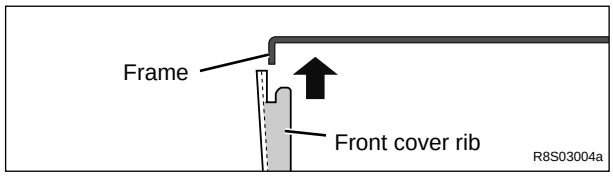
4. Remove the drum unit.

5. Remove the 10 screws indicated, then remove the front cover.



Reinstallation

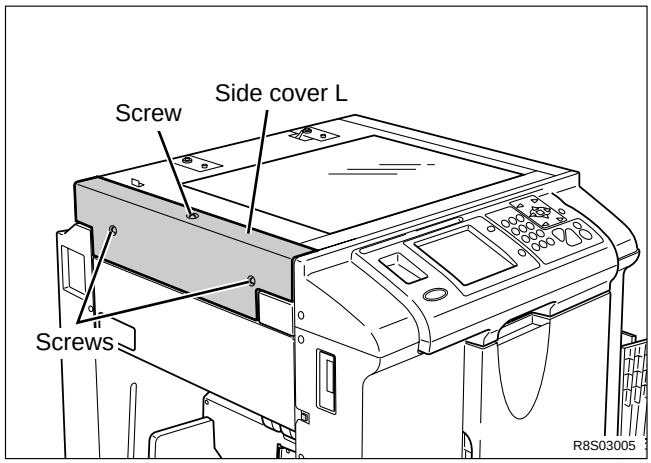
IMPORTANT : Attach the front cover rib to the frame and then fix the front cover with the screws.



(3) Removal of Scanner Outer Cover

- **Remove the Side cover L**

1. Remove the 3 screws indicated, then remove the side cover L.



- **Remove the Side cover R**

1. Remove the 3 screws indicated, then remove the side cover R.

- **Remove the Scanner rear cover**

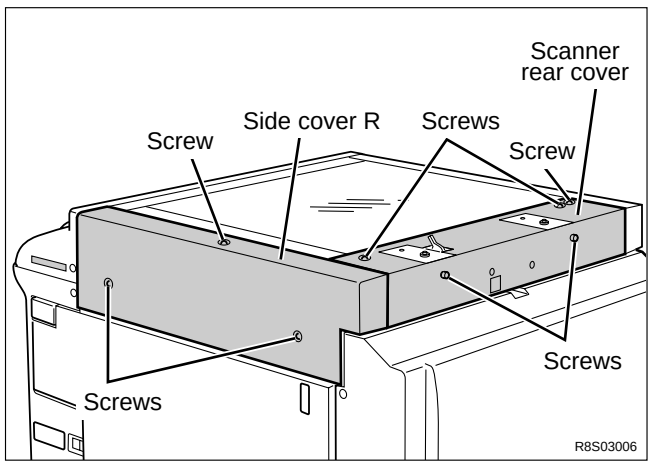
1. Remove the document cover.

➡See page 98

2. Remove the 5 screws.

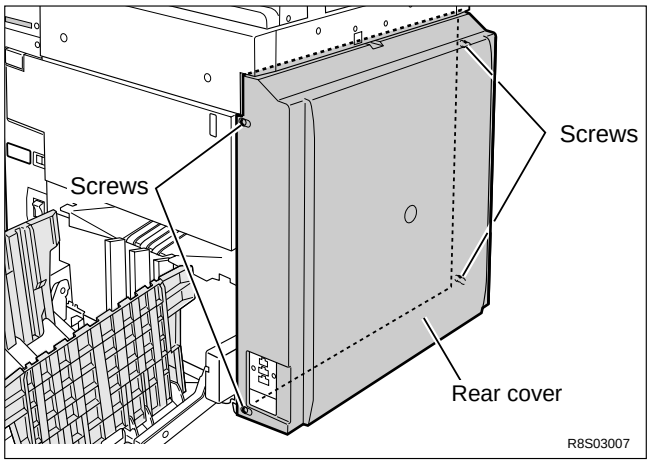
3. Press the **scanner switch** to slide the scanner unit.

4. Remove the scanner rear cover.



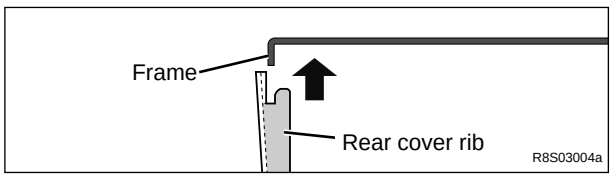
(4) Removal of Rear Cover

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



Reinstallation

IMPORTANT : Attach the rear cover rib to the frame and then fix the rear cover with the screws.



(5) Removal of Main PCB Unit ,Drive PCB Unit , Relay PCB unit and Switching power supply 24V/5V

⚠ WARNING

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

1. Remove the front cover.

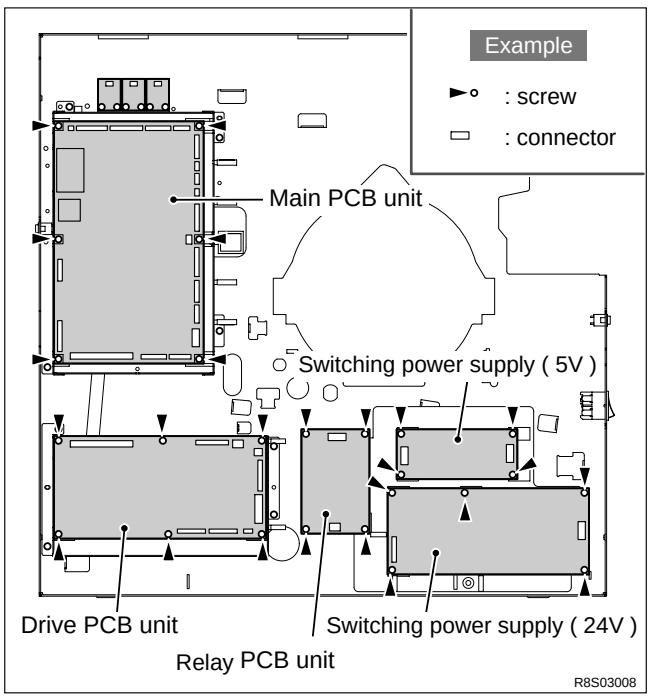
➡See page 98

2. Remove the connectors of.

- Main PCB unit : 14 connectors
- Drive PCB unit : 7 connectors
- Relay PCB unit : 5 connectors
- Switching power supply (24v) : 3 connectors
- Switching power supply (5v) : 2 connectors

3. Remove the mounting screws, and replace the PCB units.

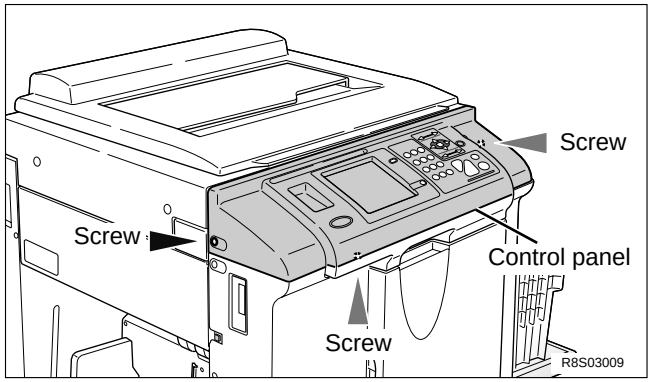
- Main PCB unit : 6 screws
- Drive PCB unit : 6 screws
- Relay PCB unit : 4 screws
- Switching power supply (24v) : 5 screws
- Switching power supply (5v) : 4 screws



(6) Removal of Control Panel

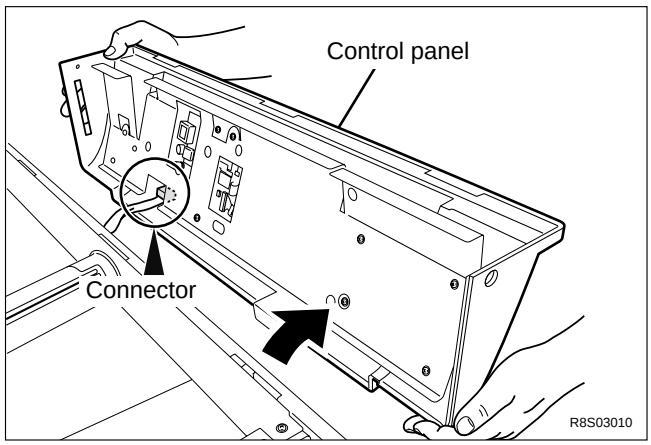
1. Remove the front cover. ➡See page 98

2. Remove the 3 screws.



3. Remove the control panel by pulling up.

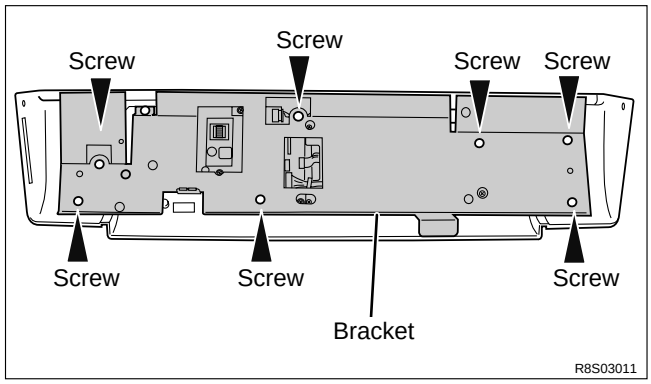
4. Remove the connector.



(7) Removal of Control Panel PCB

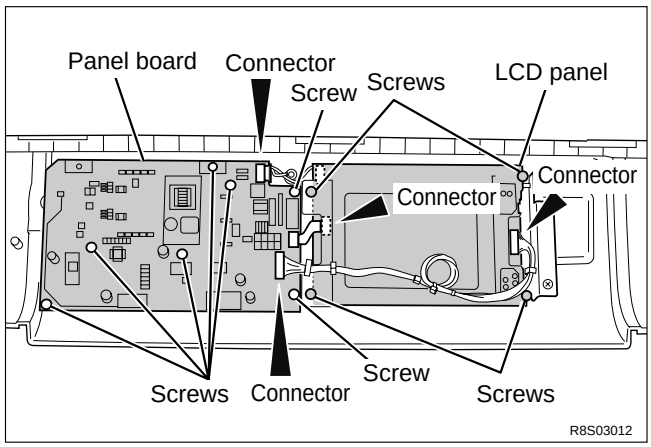
1. Remove the preciously mentioned ***2*** and ***6***.

2. Remove the 10 screws indicated, then remove the bracket.



3. Follow the instructions below to remove.

- **Panel board**
  (3 connectors, 7 screws)
- **LCD Panel**
  (3 connectors, 4 screws)



(8) Removal of Battery PCB unit

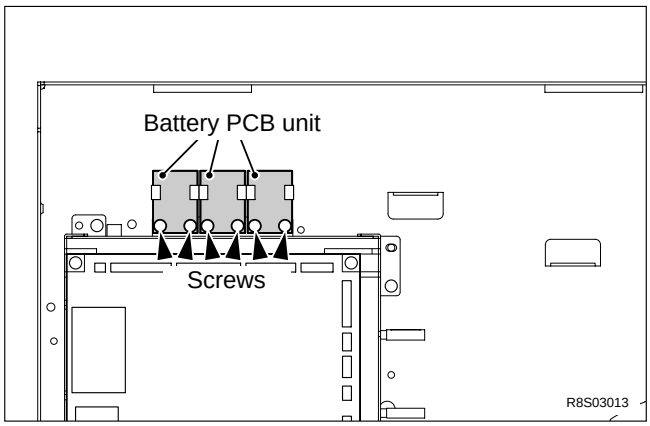
⚠ WARNING

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

1. Remove the front cover. ➡See page 98

2. Remove the control panel. ➡See page 101

3. Disconnect the connector, and replace the battery PCB unit.



(9) Removal of Motor PCB unit

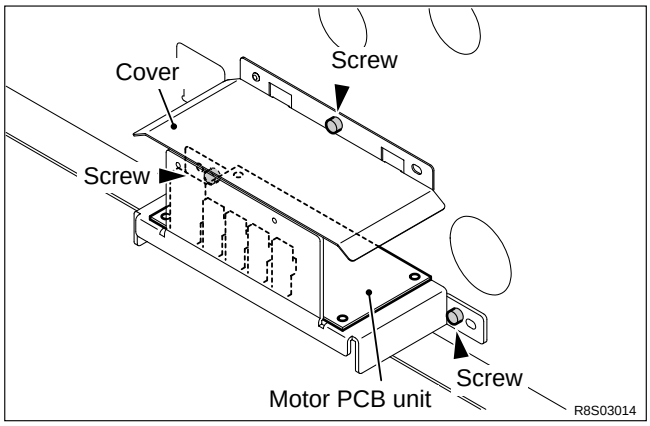
⚠ WARNING

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

1. Remove the rear cover. ➡See page 100

2. Remove the control panel. ➡See page 101

3. Remove the 3 screws and disconnect the 5 connectors, and replace the motor PCB unit.



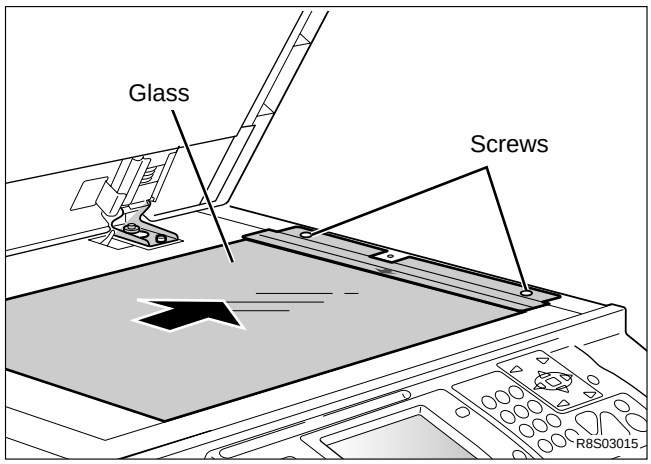
2 Scanner Section

(1) Removal of Glass

1. Remove the scanner side cover R.

➡See page 99

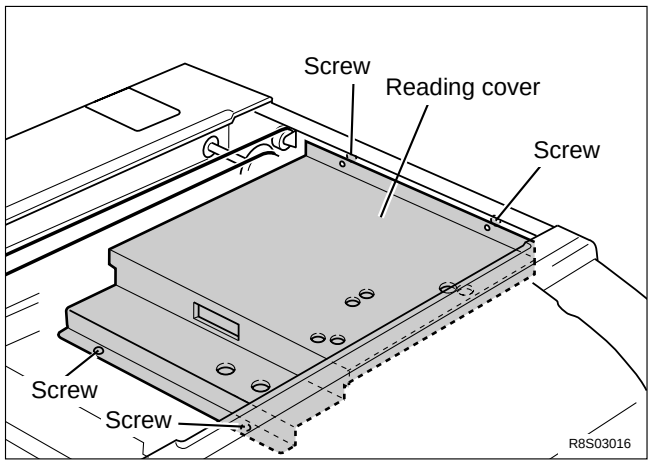
2. Remove the 2 screws to take out the glass.



(2) Removal of Reading Cover

1. Remove the glass.

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

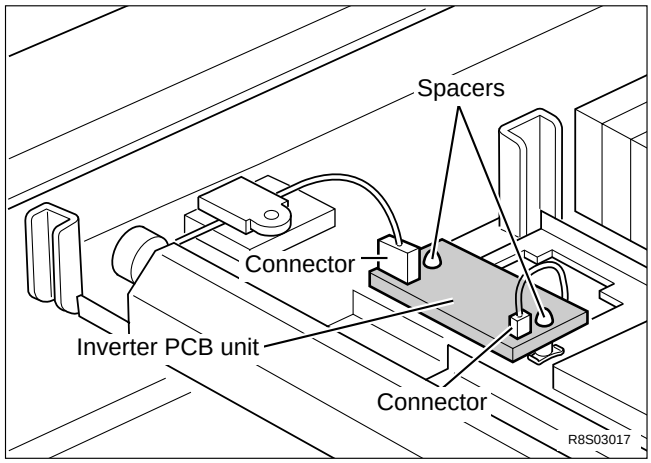


(3) Removal of Inverter PCB Unit

1. Perform steps ***1*** through ***2*** of procedure (2).

2. Disconnect the 2 connectors.

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



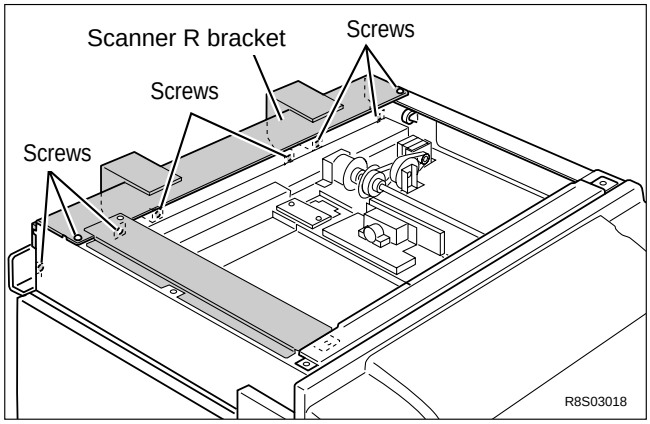
(4) Removal of Lamp Unit

1. Perform steps ***1*** through ***2*** of procedure (3).

➡See page 103

2. Remove the scanner cover(L,R). ➡See page 99

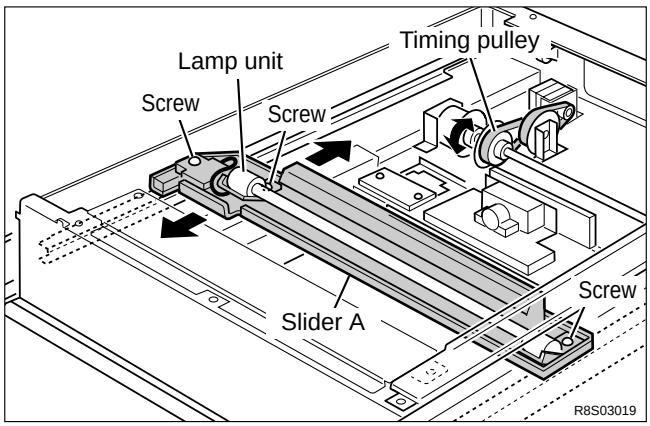
3. Remove the 8 spacers indicated, and remove the scanner R bracket.



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

IMPORTANT : Do not move Slider A by hand.

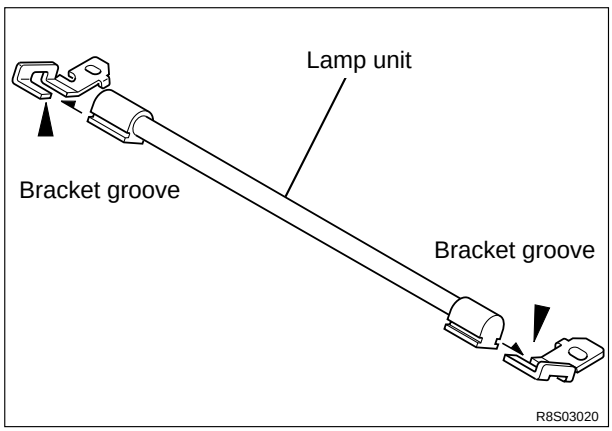
5. Remove the 3 screws indicated, and remove the lamp unit.



Reinstallation

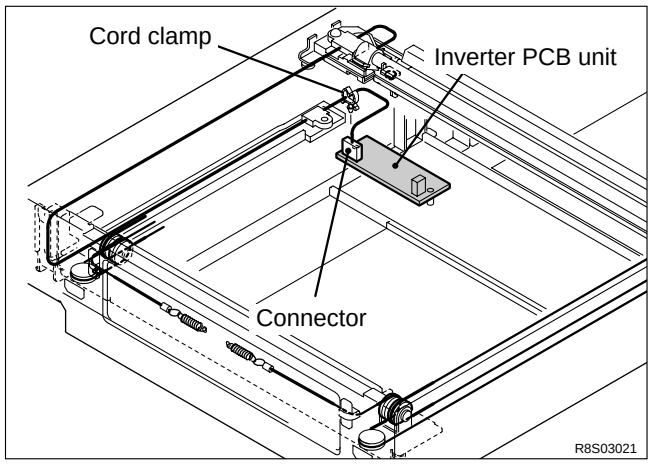
- Insert the slotted parts of the lamp unit into the grooves on the brackets.

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

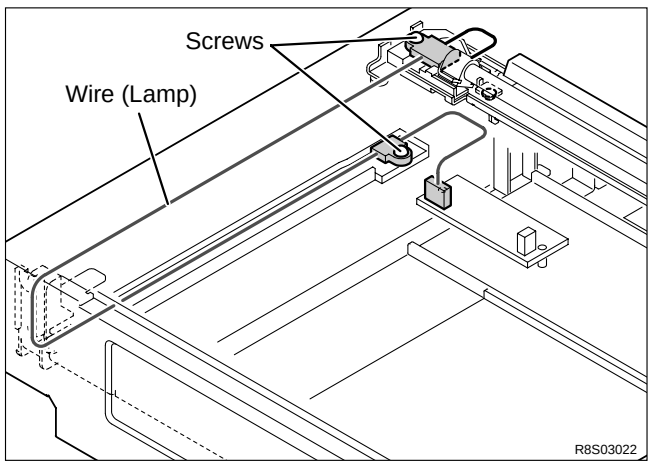


(5) Removal of Wire (Lamp)

1. Perform steps ***1*** through ***4*** of procedure (4).
2. Remove the cord clamp.
3. Disconnect the inverter PCB unit CN2 connector.



4. Remove the 4 screws indicated, and remove the wire (lamp).



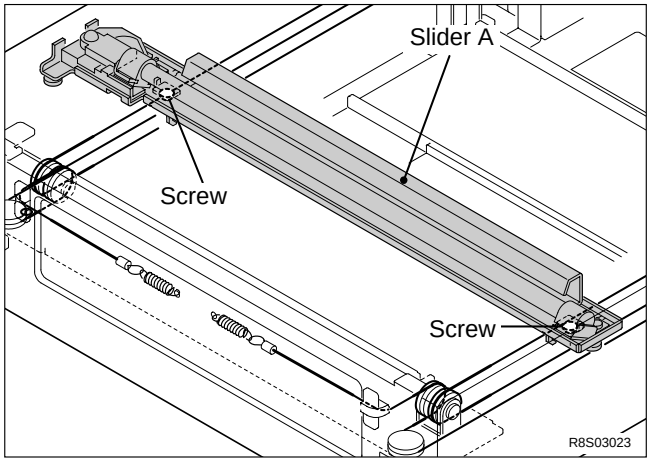
(6) Removal of Slider A

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

➡See page 104

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

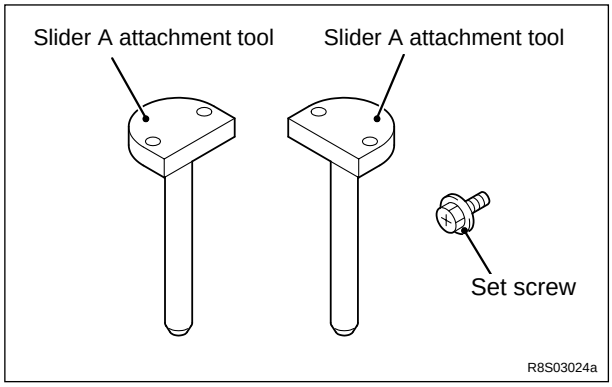
IMPORTANT : Do not move Slider A by hand.



Reinstallation

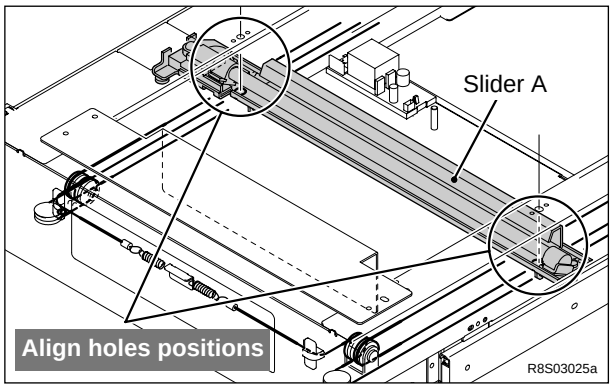
- **Attach the slider B first and then slider A.**

- **Required items**
  2 Slider A attachment tools
  4 Set screws

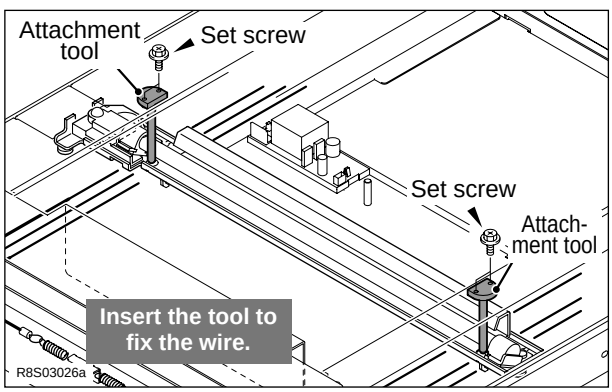


1. Move the slider A by rotating the timing pulley to align the frame holes with the slider A positioning holes. (See the figure on the right.)

IMPORTANT : Do not move Slider A by hand.



2. Set the 2 slider A attachment tools and attach the 4 set screws.
3. Fix the wire with 2 screws.
4. Remove the 2 slider A attachment tools.



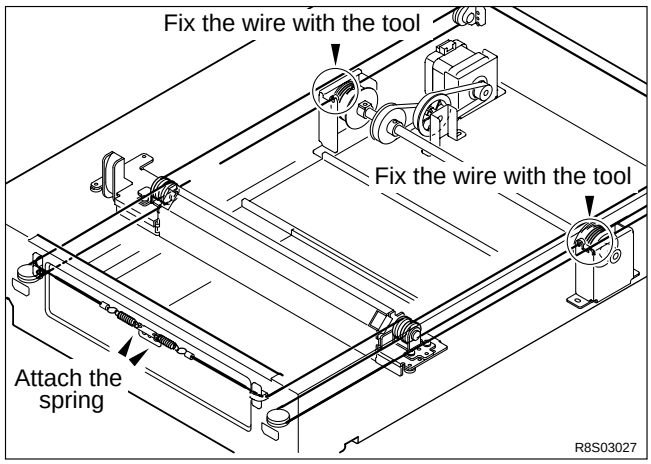
(7) Removal of Slider B

- **Required items : Wire fixing tools**

1. Perform steps ***1*** through ***3*** of procedure (4).

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.**



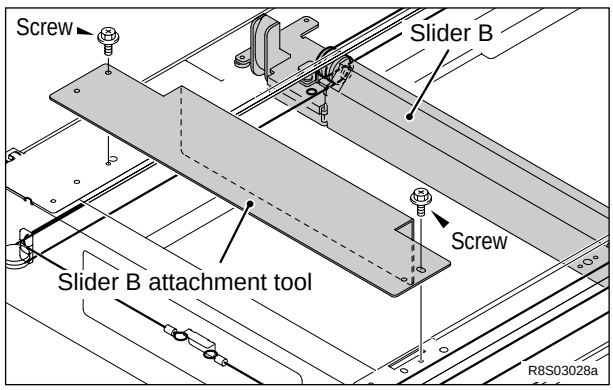
3. Remove the wire from the spring, in 2 locations before and after the spring.

4. Remove Slider B.

Reinstallation

- **Required items**
  Slider B attachment tool
  2 Set screws

1. Set the slider B attachment tool and attach the 2 set screws.

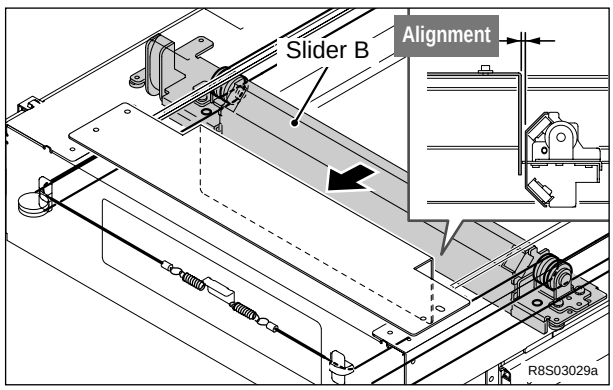


2. Place the wire on the pulley, both before and after.

➡See page 136

3. Place the wire on the spring, both before and after.

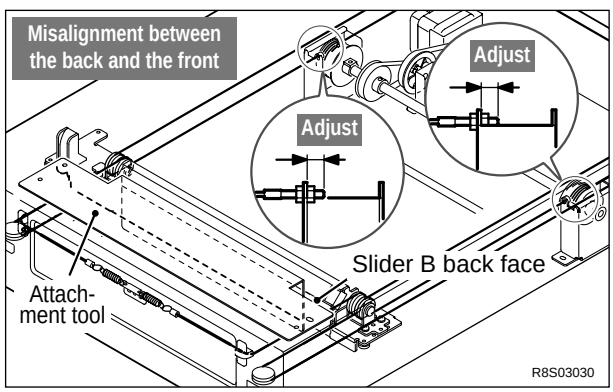
4. Move the slider B to align the slider B back face with the slider B attachment tool face.



5. Remove the Wire fixing tools.

- **If the slider B back face is misaligned with the slider B attachment tool face between the back and the front,**

➡ **Adjust the position of the wire screw.**



6. Remove the slider B attachment tool.

(8) Removal of Scanner unit

1. Remove the document cover. ➡See page 98

2. Remove the scanner outer cover(Front,Rear). ➡See page 99

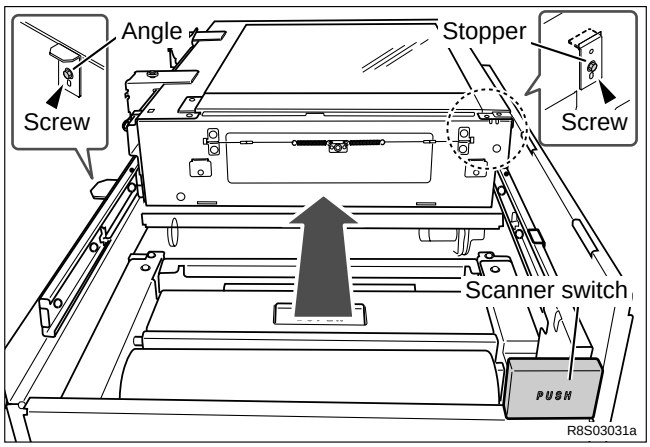
3. Remove the control panel. ➡See page 101

4. Remove the rear cover. ➡See page 100

5. Remove the screw indicated, and remove the stopper.

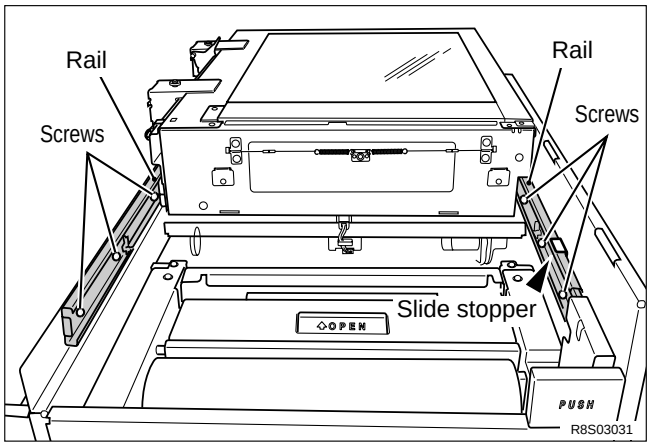
6. Remove the screw indicated, and remove the angle.

7. Press the **scanner switch** to slide the scanner unit.



8. Remove 6 screws and then remove the scanner unit by sliding it to the paper ejection side.

IMPORTANT : **Do not place the scanner unit directly on the floor.**



Reinstallation

1. Place the scanner unit on the notches from the paper ejection side.

2. Close the scanner unit.

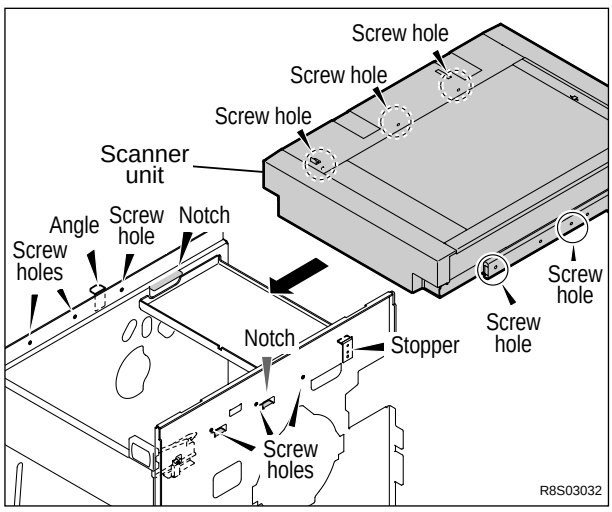
NOTE : **When closing the scanner unit, the rail holes align with the frame holes.**

3. Slide the scanner unit and attach the 6 screws.

4. Set the stopper and attach the screw.

5. Set the angle and attach the screw.

6. Close the scanner unit.

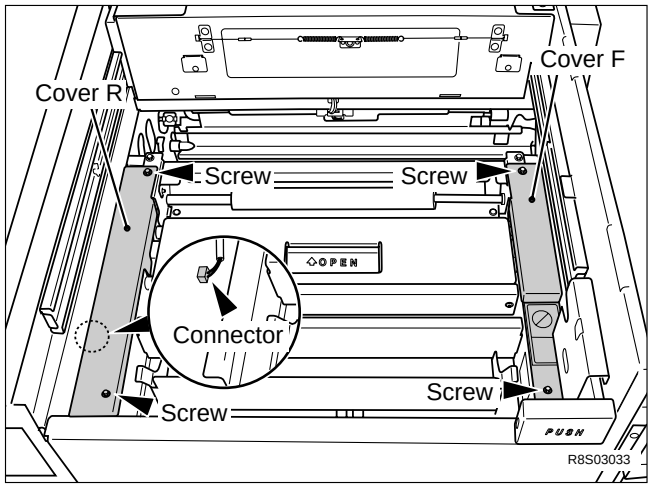


3 Platemaking / Master Feed and Ejection Section

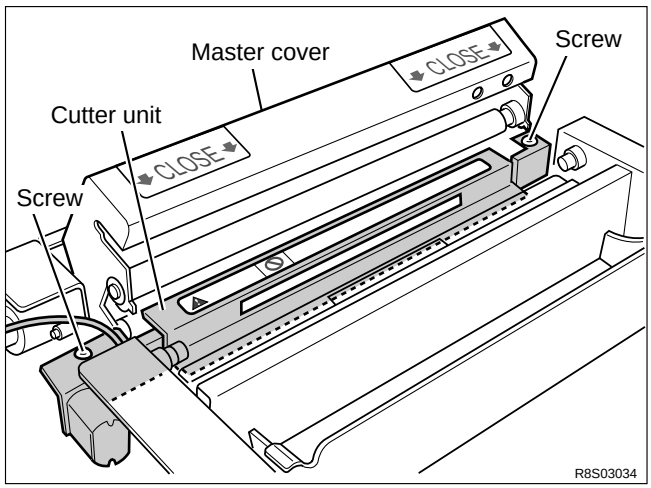
《Master Feed Section》

(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 connector indicated.



4. Open the master cover.
5. 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.**

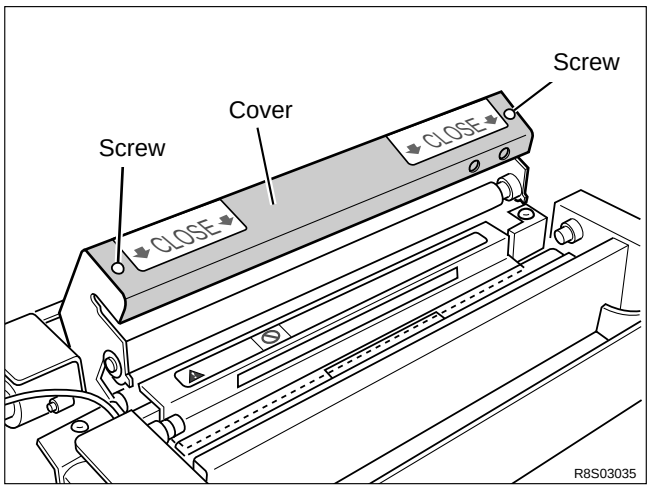
Reinstallation

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

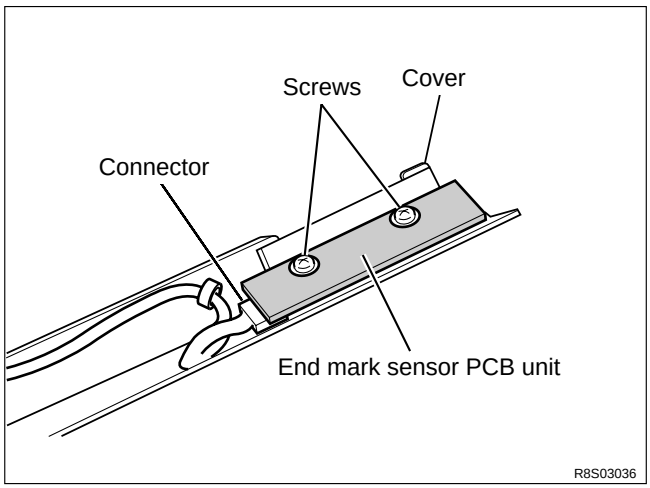
HELP-008 ➡ see p.218

(2) Removal of End Mark Sensor PCB Unit

1. Open the scanner, and take out the master roll.
2. Open the master cover.
3. Remove the 2 screws, and remove the cover.



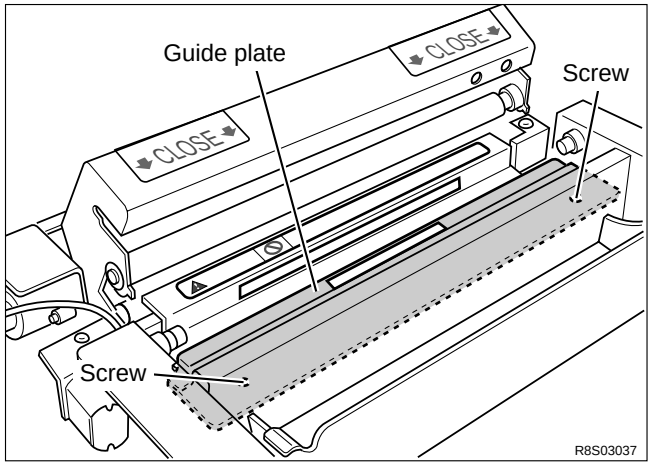
4. Remove the 2 screws.
5. Disconnect the connector indicated, and the end mark sensor PCB unit.



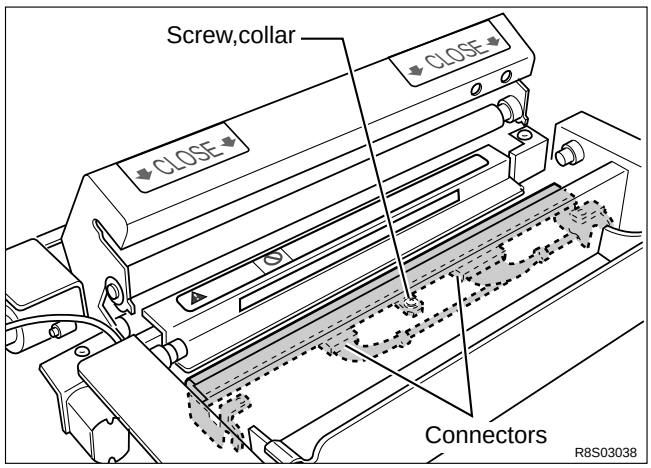
(3) Removal of Thermal Head

1. Open the scanner, and take out the master roll.
2. Open the master cover.
3. Remove the 2 screws indicated, and remove the guide plate.

IMPORTANT : **Do not contact the guide plate with the thermal head.**



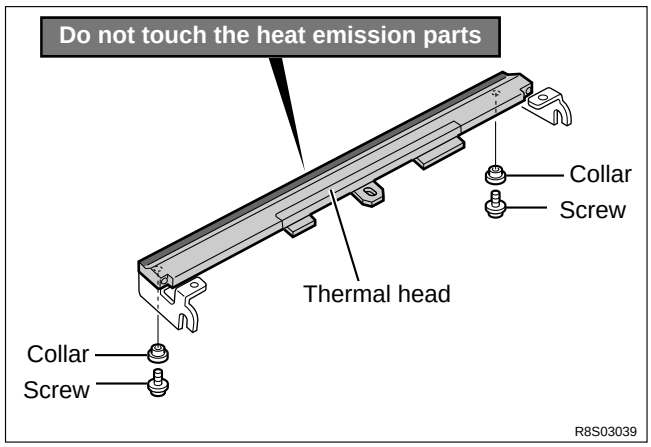
4. Remove the screw indicated, together with the collar.
5. Disconnect the thermal head's 2 connectors, and remove them together with the bracket.



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.**



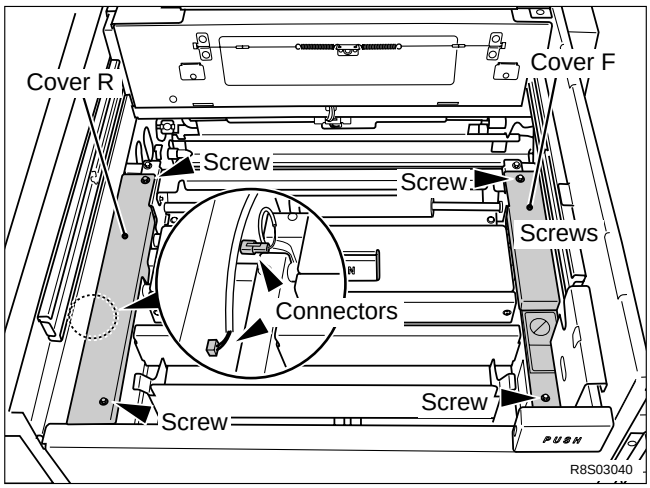
Reinstallation

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

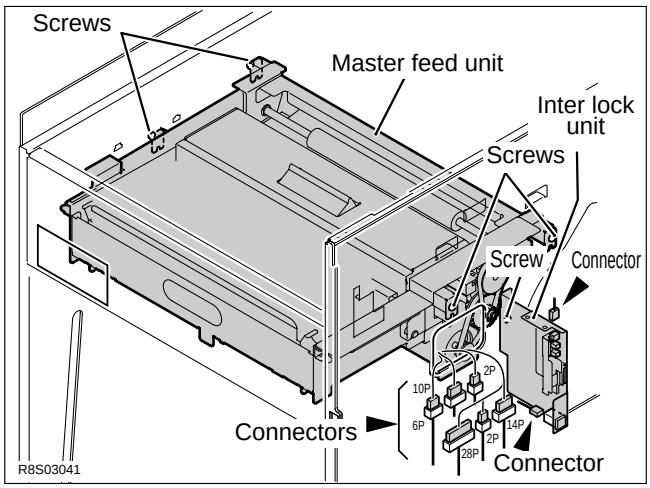
HELP-048 ➡ see p.256

(4) Removal of Master Feed Unit

1. Open the scanner, and take out the master roll.
2. Take out the drum unit.
3. Remove the front cover. ➡See page 98
4. Remove the scanner side cover L. ➡See page 99
5. Remove the 2 screws indicated, and remove the cover F.
6. Remove the 2 screws indicated, and remove the cover R.
7. Disconnect the 2 connectors indicated.

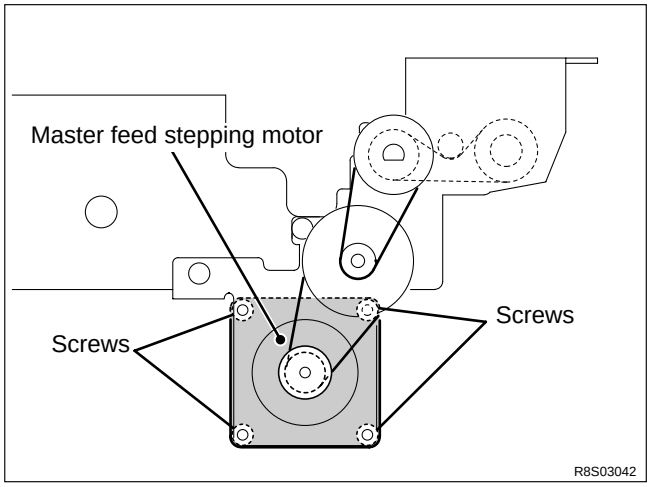


8. Remove the screw and disconnect the 2 connectors and remove the inter lock unit.
9. Disconnect the 6 connectors.
10. Remove the 4 screws indicated, and remove the master feed unit.



(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.

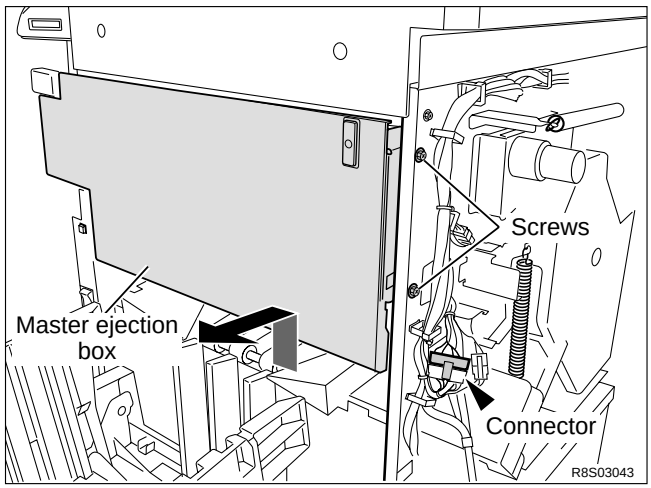


《Master Ejection Section》

(1) Removal of Master Ejection Box

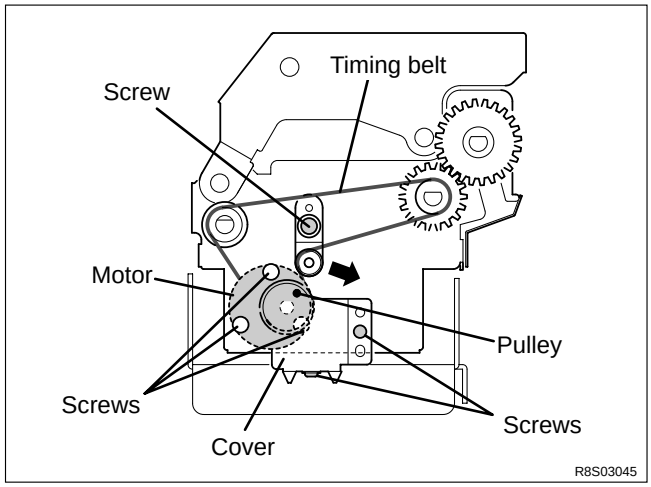
1. Open the master ejection box.

2. Remove the 2 screws and the connector and then pull the master ejection box upward to remove it.



(2) Removal of Eject Motor(Roll - up Motor)

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



Reinstallation

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

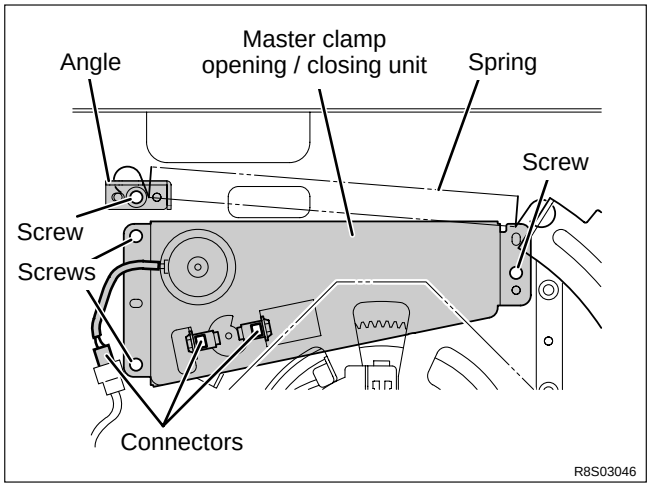
➡See page 141

《 Master Clamp opening/Closing Section 》

(1) Removal of Master Clamp Opening / Closing Unit

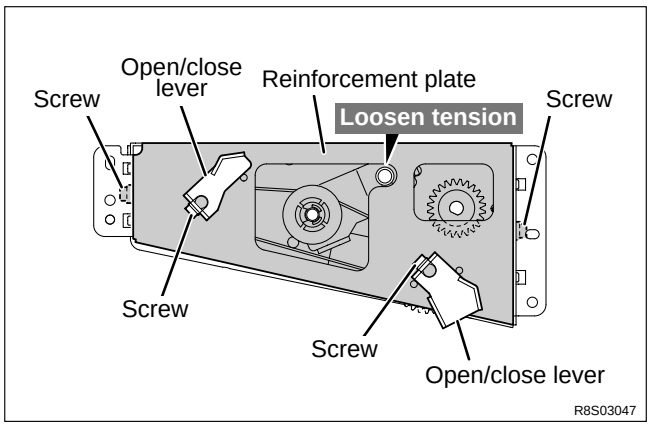
1. Remove the rear cover. ➡See page 106
2. Remove the drum unit.
3. Remove the spring.

4. Remove the screw indicated, and remove the angle.
5. Pull out 3 connectors.
6. Remove the 3 screws to take out the opening / closing unit.

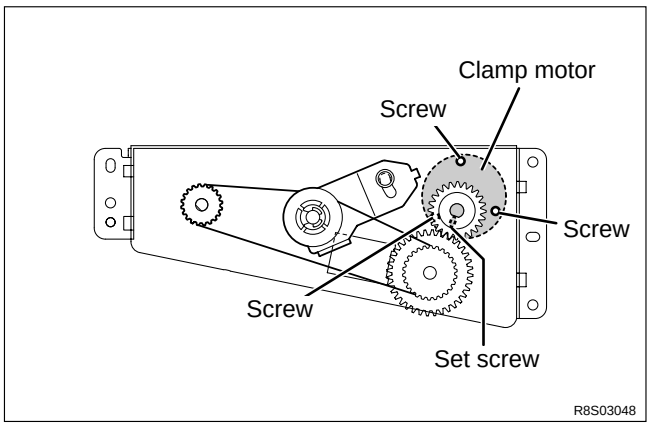


(2) Removal of Clamp Motor

1. Remove the master clamp opening / closing unit.
2. Remove the screw indicated, and remove the opening / closing lever.
3. Loosen the screw to loosen the tension as shown in the figure.
4. Remove the 2 screws indicated, and remove the reinforcement plate.



5. Loosen the set screw indicated, and remove the gear.
6. Remove the 3 screws to take out the motor.

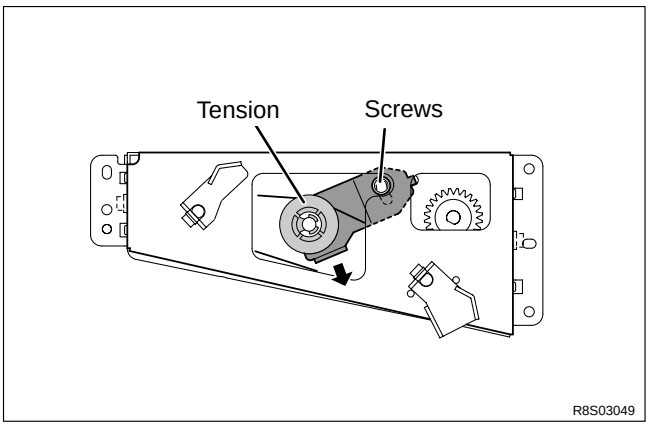


(3) Removal of Timing Belt

1. Remove the master clamp opening / closing unit.

➡See page 114

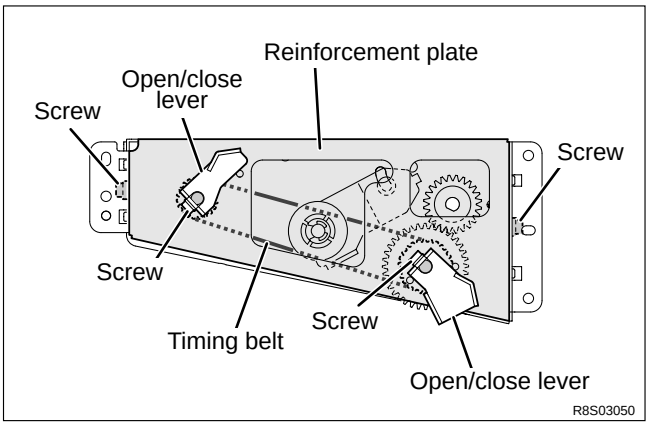
2. Loosen the screw to loosen the tension as shown in the figure.



3. Remove the screw indicated, and remove the opening / closing lever.

4. Remove the 2 screws indicated, and remove the reinforcement plate.

5. Remove the timing belt.



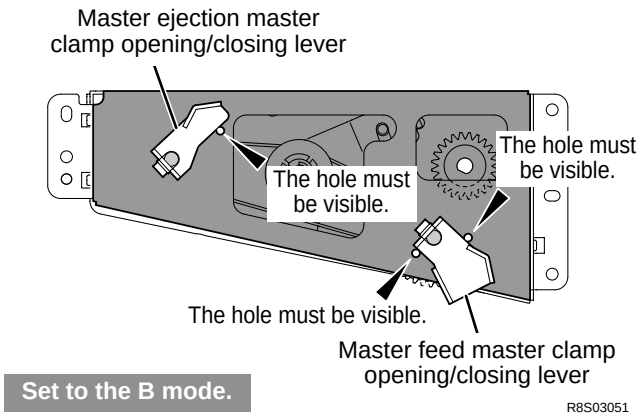
Reinstallation

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

➡See page 142

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

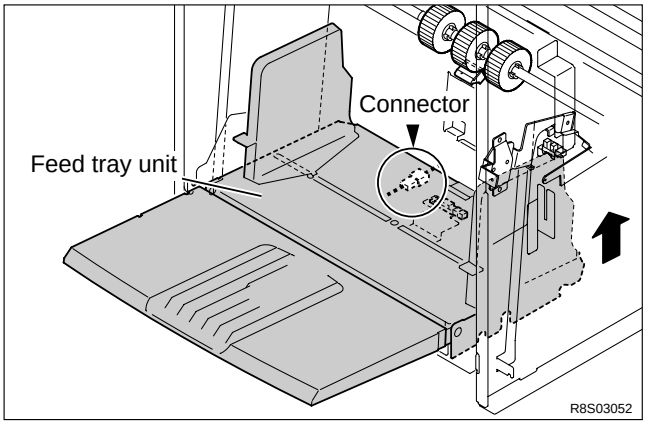
➡See page 143



4 Paper Feed Section

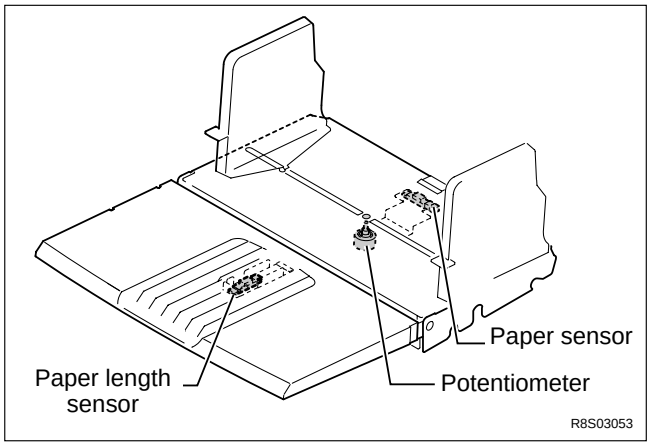
(1) Removal of Feed Tray Unit

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



NOTE : The following electric components can be removed.

- **Paper sensor**
- **Potentiometer : DP-S850/S650/S620**
- **Paper length sensor : DP-S850/S650/S620**



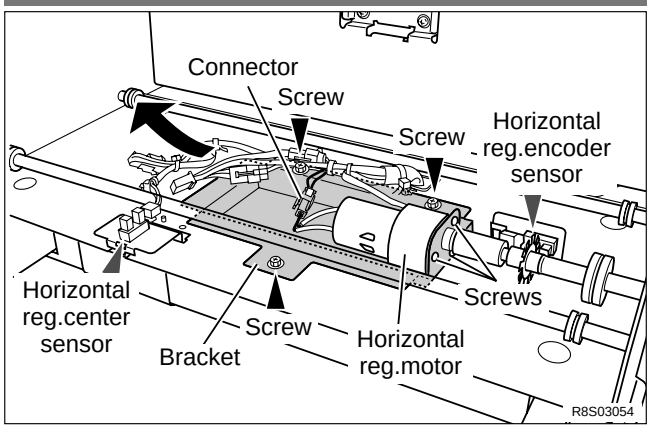
Reinstallation

IMPORTANT : Adjust the position of the potentiometer and then position the guide.

(2) Removal of Horizontal Reg. Motor

1. Remove the feed tray unit.
2. Remove the 3 screws.
3. Disconnect the connector.
4. Slide the bracket in the arrow direction to remove it.
5. Remove the 3 screws indicated, and remove the horizontal reg. motor.

● **DP-S850 / S650 / S620**

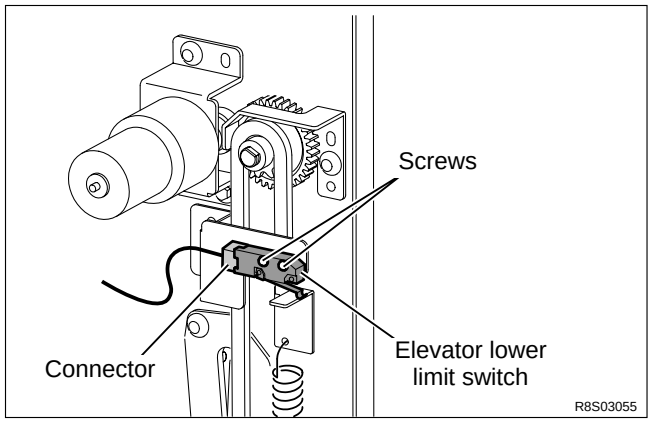


(3) Removal of Elevator Lower Limit Switch

1. Remove the front cover. ➡See page 100

2. Remove the 2 screws.

3. Disconnect the connector, and remove the elevator lower limit switch.

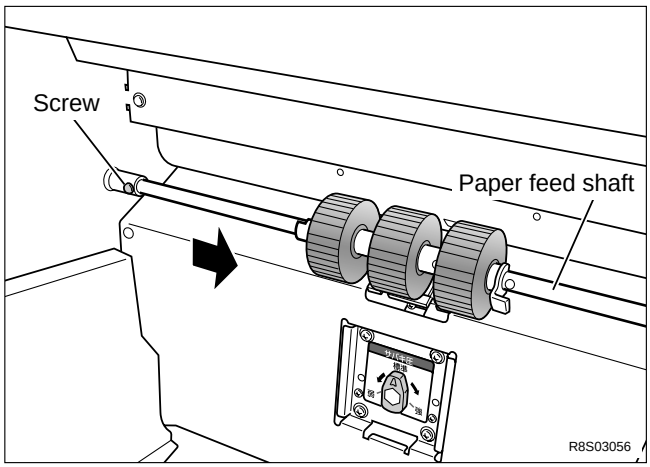


Reinstallation

IMPORTANT : After reinstalling the elevator lower limit switch, carry out adjustment of its clearance. ➡See page 146

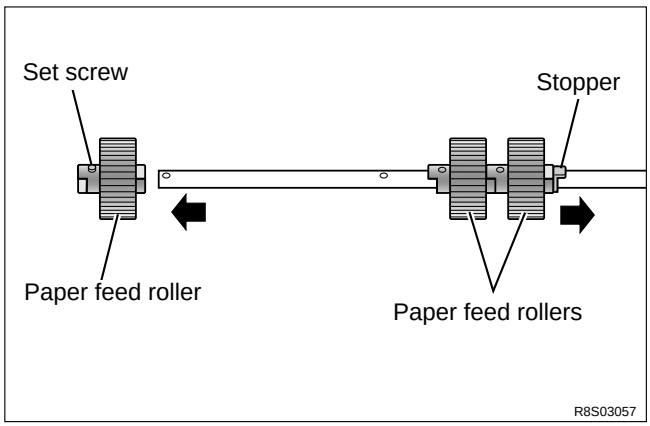
(4) Removal of Paper Feed Roller

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.

3. Remove the stopper indicated, and remove the 2 paper feed rollers.



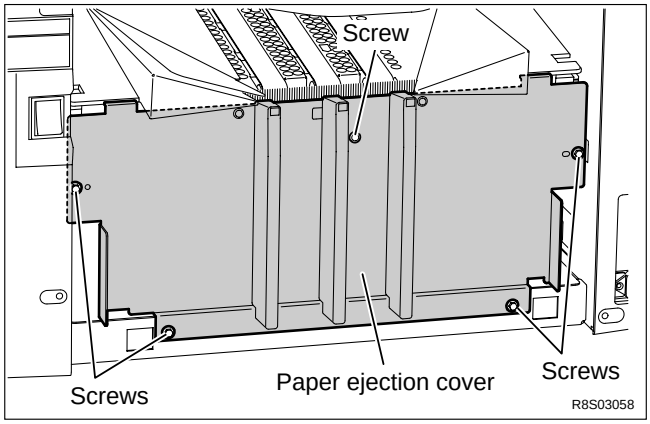
Reinstallation

- 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.

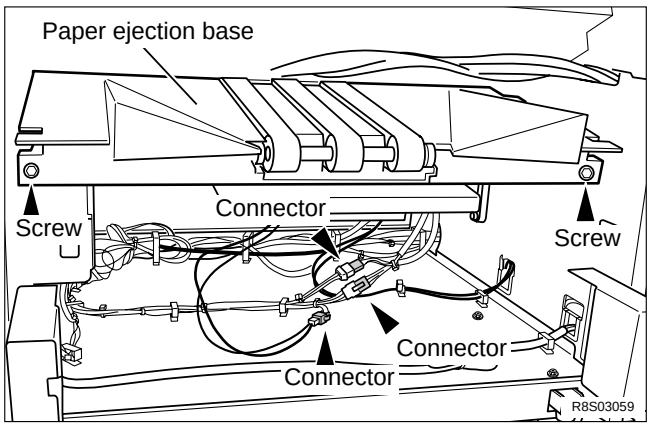
(5) Removal of Paper Top Detect , Signal , Double Feed Detect Sensor

1. Remove the 5 screws indicated, then remove the paper ejection cover.



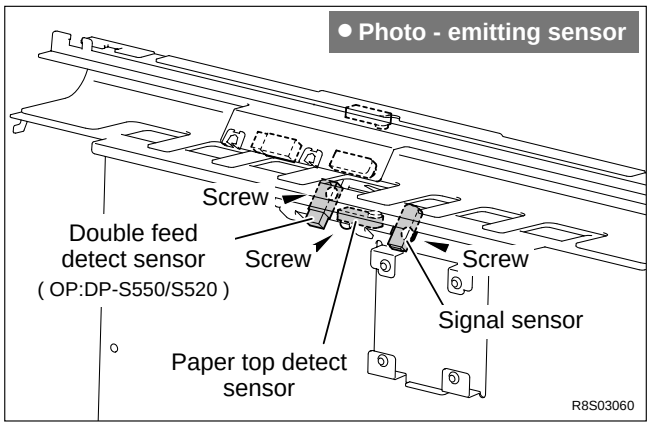
2. Disconnect the 3 connectors.

3. Remove the 2 screws indicated, and remove the paper ejection base.



4. Remove the photo-emitting sensor.

- connector : 1
- screw : 1

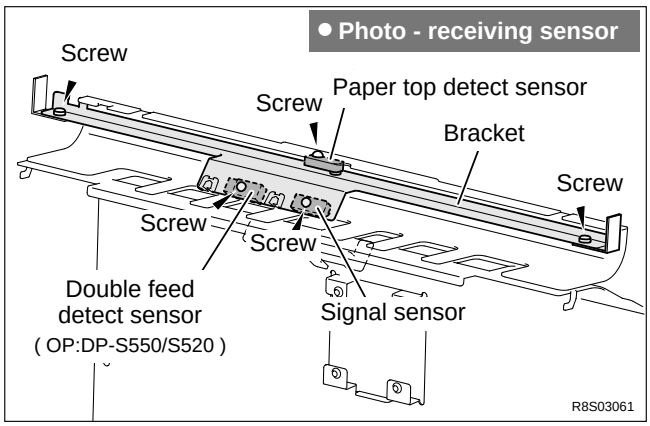


5. Remove the drum unit.

6. Remove the 2 screws indicated, then remove the bracket.

7. Remove the photo-receiving sensor.

- connector : 1
- screw : 1

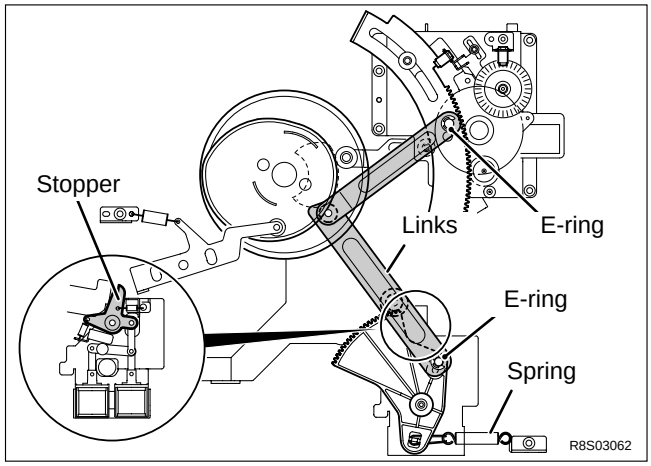


Reinstallation

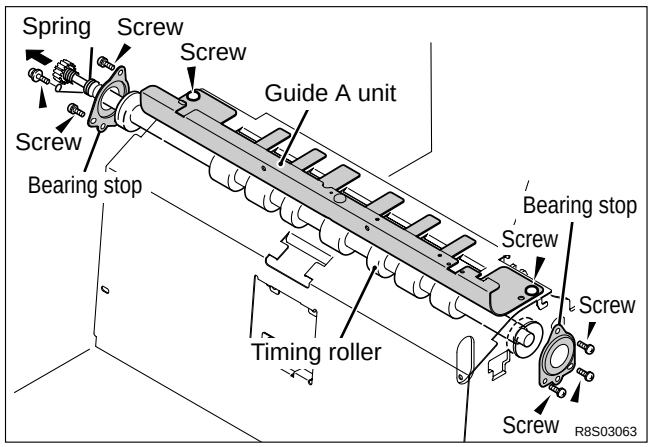
IMPORTANT : After reinstalling the double feed detect sensor, carry out adjustment of its sensitivity. ➡See page 147

(6) Removal of Timing Roller

1. Remove the paper eject unit. ➡See page 123
2. Remove the rear cover. ➡See page 100
3. Remove the drum unit.
4. Remove the sub-frame B. ➡See page 120
5. Remove the spring.
6. Remove the 2 E-rings, and remove the links.
7. Release the stopper of the release 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).



Reinstallation

IMPORTANT : After attaching the timing roller, separate the press roller from the drum and then set the drum.

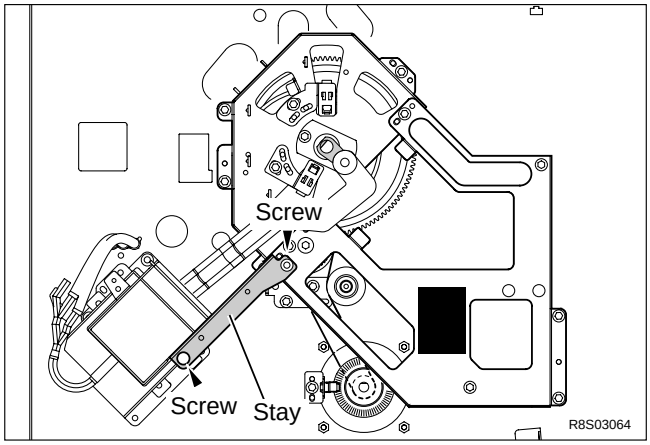
5 Drum Driving Section

(1) Removal of Sub-Frame

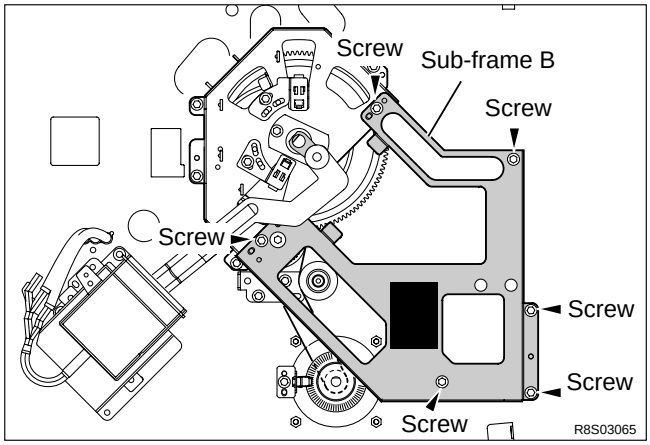
- **Remove the sub-frame B**

1. Remove the rear cover. ➡See page 100

2. Remove the 2 screws indicated, and remove the stay.



3. Remove the 6 screws indicated, and remove the sub-frame B.



- **Remove the sub-frame A**

1. Remove the rear cover. ➡See page 100

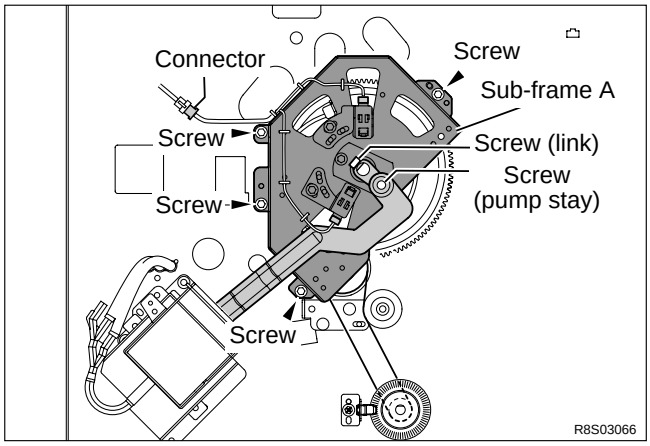
2. Remove the sub-frame B.

3. Remove the screw indicated, and remove the pump stay.

4. Remove the screw indicated, and remove the link unit.

5. Disconnect the connector.

6. Remove the 4 screws indicated, and remove the sub-frame A.

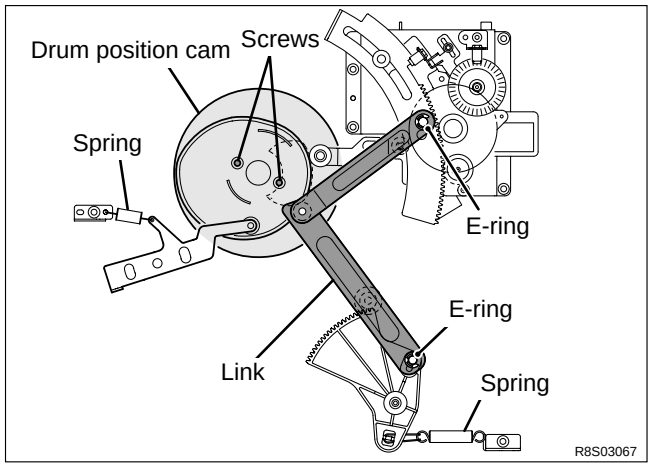


Reinstallation

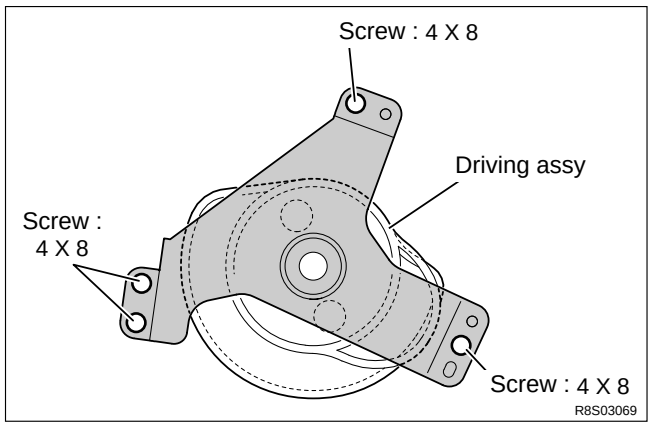
IMPORTANT : Use the screws (4 x 8) removed in step *6* to attach the subframe A.

(2) Removal of Drum Gear and Driving Assy

1. Remove the rear cover. ➡See page 100
2. Remove the sub-frame A,B.
3. Remove the spring.
4. Remove the spring.



5. Remove the 2 E-rings, and remove the links.
6. Remove the 2 screws indicated, and remove the drum gear.
7. Remove the 4 screws indicated, and remove the driving assy.



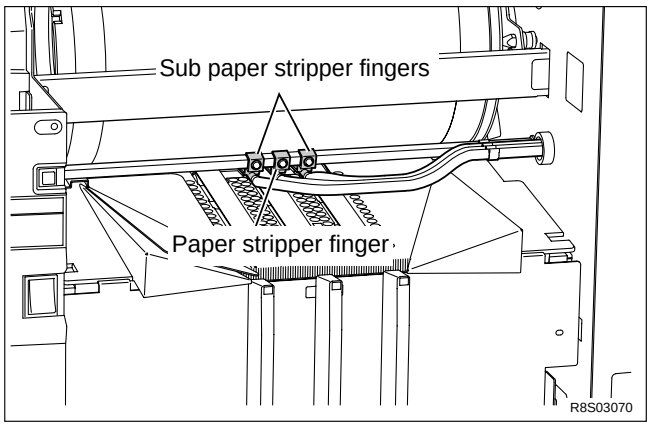
Reinstallation

IMPORTANT : Use the screws (4 x 8) removed in step *6* to attach the driving assy.

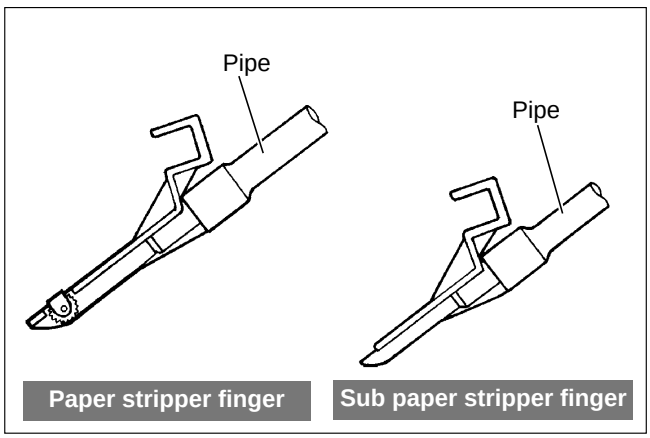
6 Paper Ejection Section

(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.



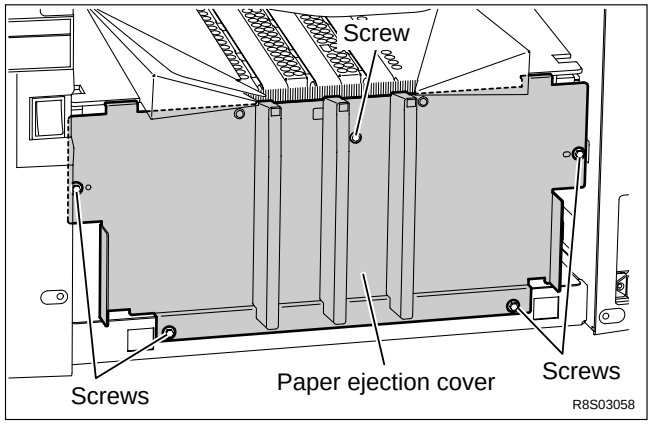
Reinstallation

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

➡See page 154

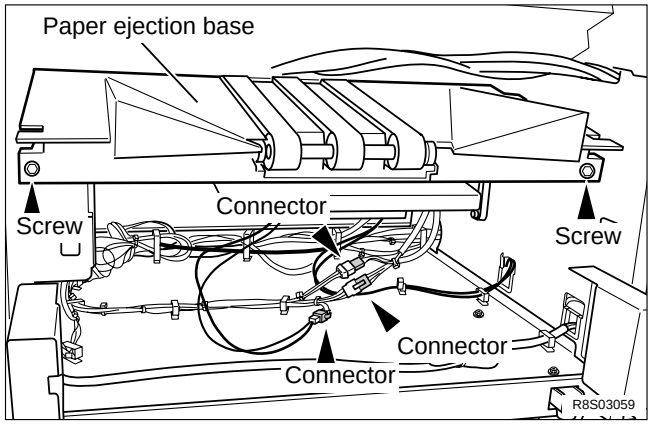
(2) Removal of Paper Eject Fan Unit

1. Remove the 5 screws indicated, then remove the paper ejection cover.

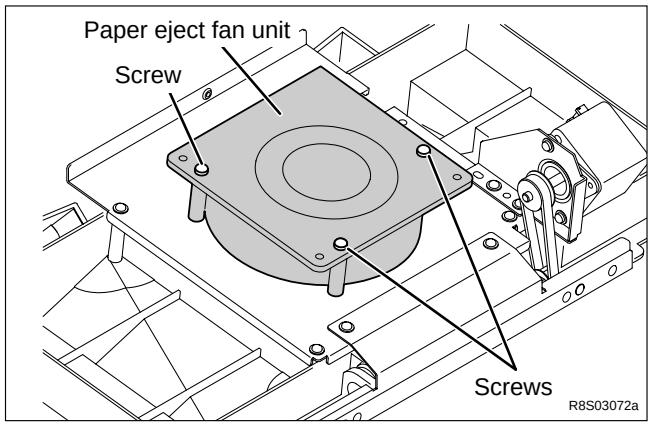


2. Disconnect the 3 connectors.

3. Remove the 2 screws indicated, and remove the paper ejection base.

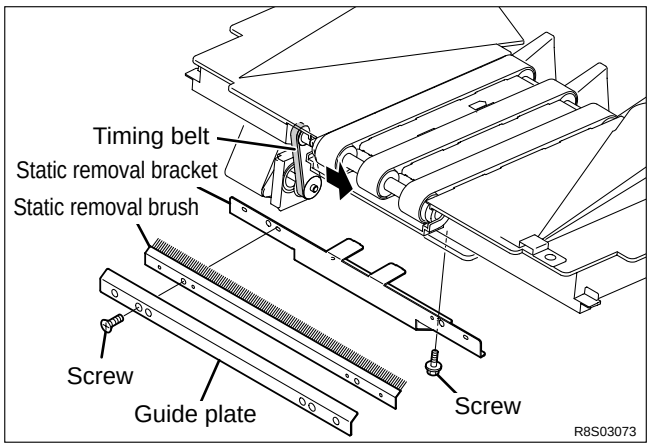


4. Remove the 3 screws indicated, and remove the paper eject fan unit.

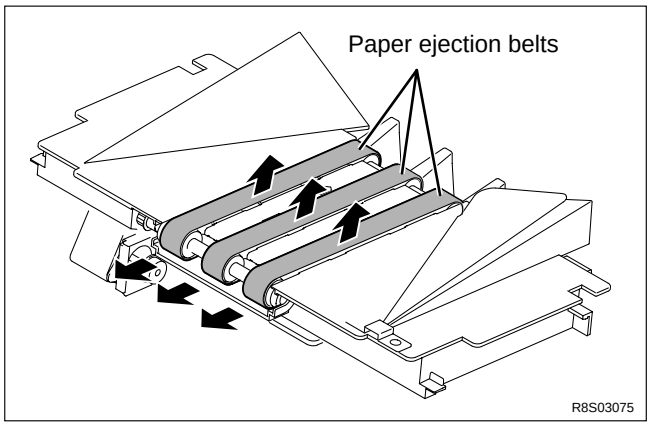


(3) Removal of Paper Ejection Belt

1. Remove the paper ejection base. ➡See page 123
2. Remove the 2 screws from the static removal brush.
3. Remove the 2 screws from the static removal bracket.
4. Remove the timing belt.

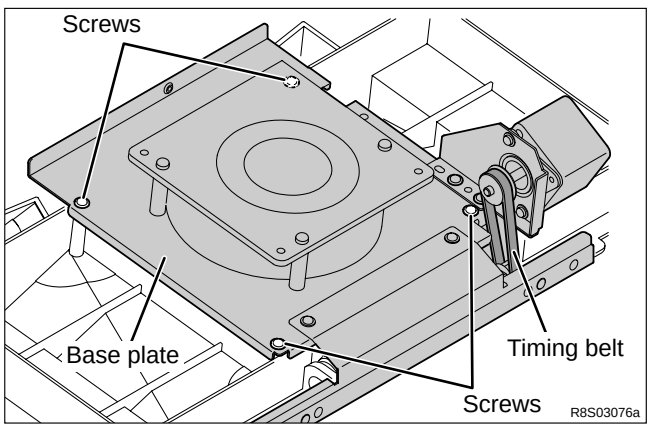


5. Stretch the belts and install them oriented as shown in the figure.

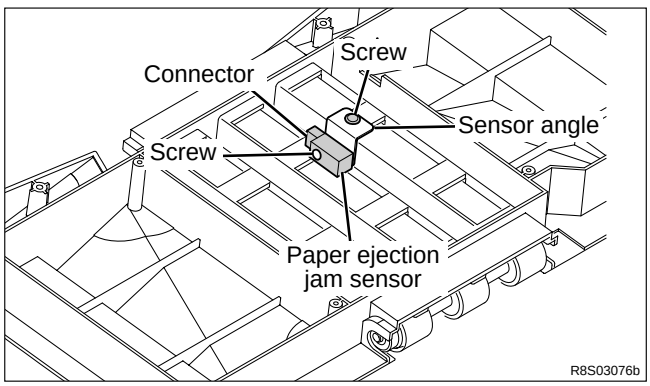


(4) Removal of Paper Ejection JAM Sensor

1. Remove the paper ejection base. ➡See page 123
2. Remove the paper ejection belts.
3. Remove the 4 screws indicated, and remove the base plate.



4. Remove the screw indicated, and remove the sensor angle.
5. Remove the screw and disconnect the connector, and remove the paper ejection jam sensor.

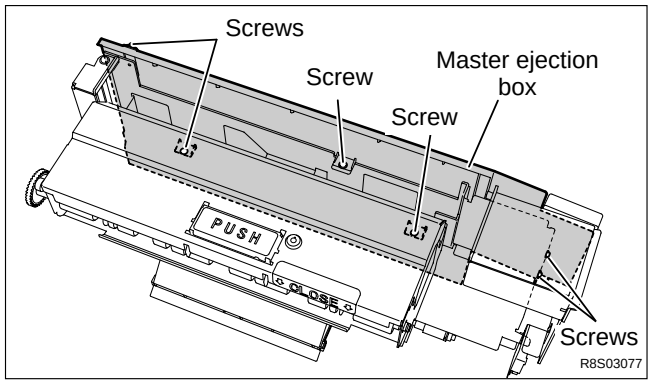


Reinstallation

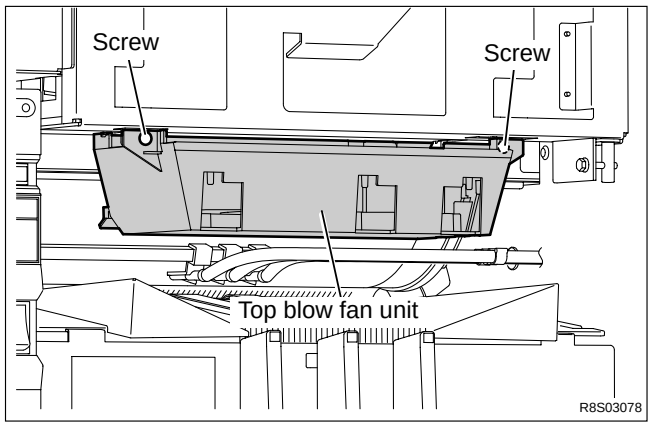
IMPORTANT : Do not mistake installation directions of the paper ejection jam sensor.

(5) Removal of Top Blow Fan Unit

1. Open the master ejection box.
2. Remove the 6 screws indicated, then remove the master ejection cover.

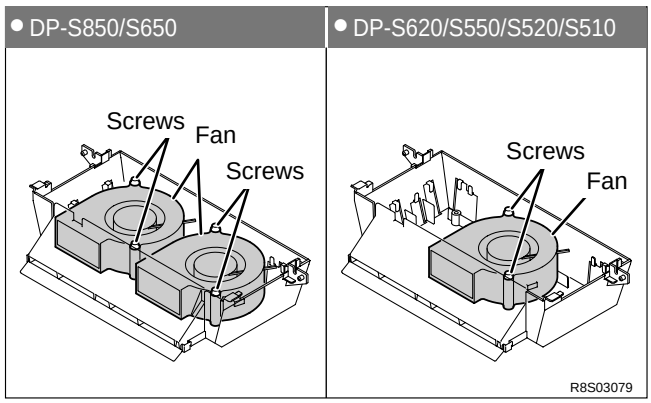


3. Remove the 2 screws.
4. Disconnect the 2 connectors, then remove the top blow fan unit.



(6) Removal of Fan

1. Remove the top blow fan unit.
2. Remove the 2 screws indicated, and remove the fan.

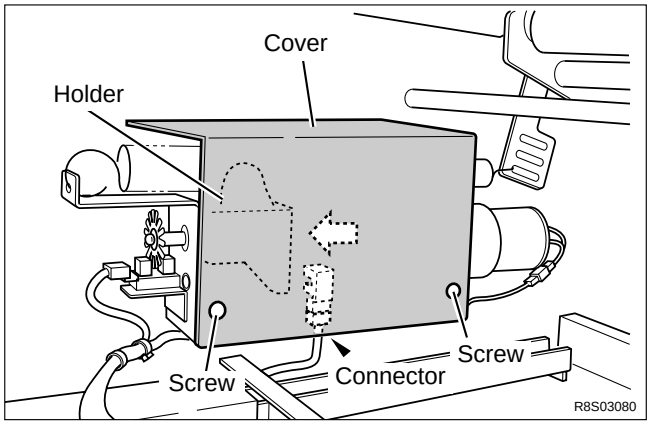


(7) Removal of Pressure Adjustment Unit

1. Remove the paper ejection fan unit.

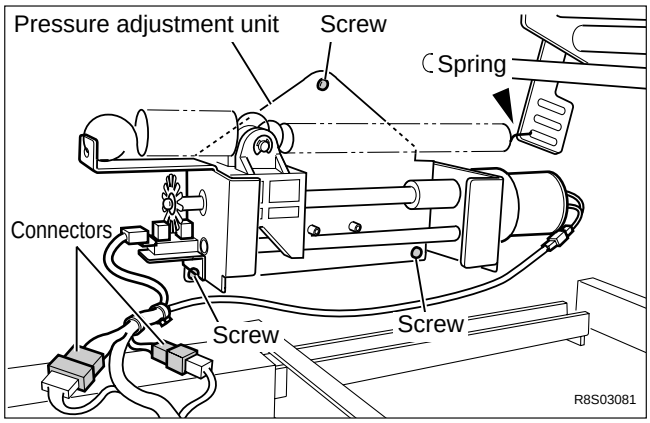
➡See page 123

2. Remove the 2 screws and remove the connector, and remove the cover.



3. Disconnect the 2 connectors.(4 pin , 2 pin)

4. Remove the 3 screws indicated, then remove the pressure adjustment unit.

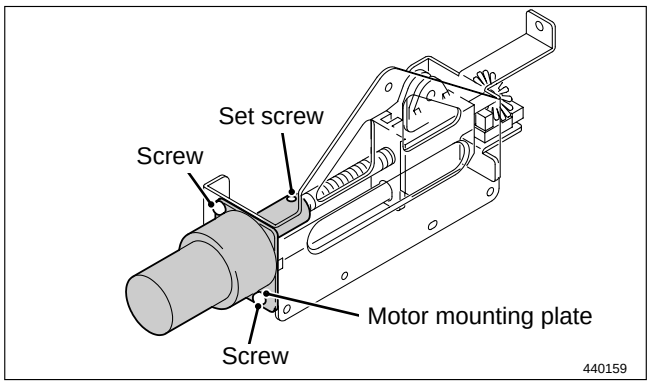


(8) Removal of Press Motor

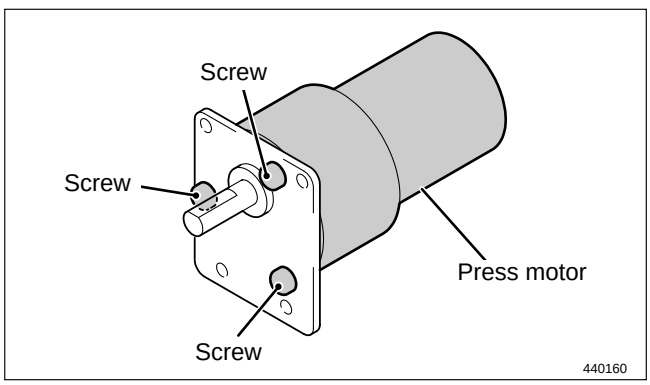
1. Remove the pressure adjustment unit.

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 press motor.

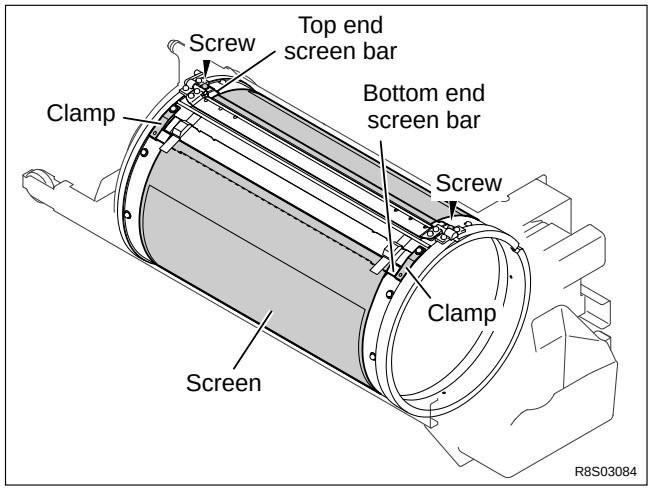


7 Drum Section

(1) Removal of Screen

1. Remove the drum unit.
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.

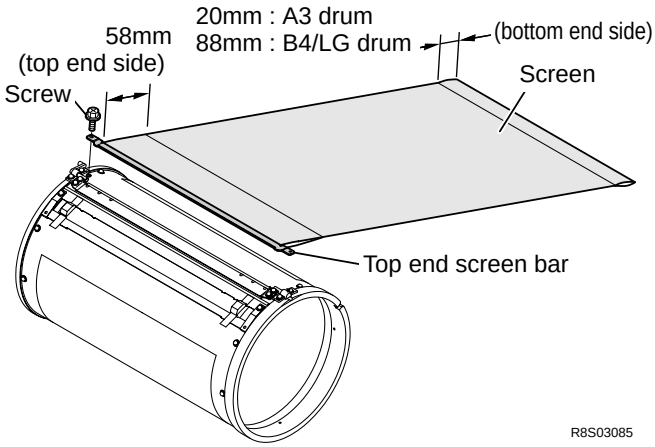
IMPORTANT : Do not rotate the drum reversely.



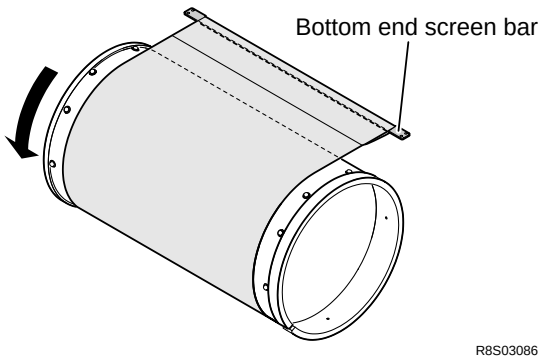
Reinstallation

1. Pass the top end screen bar through the screen (top end side).
2. Attach the top end screen bar to the drum. There is no distinction between the 2 sides of the screen.

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

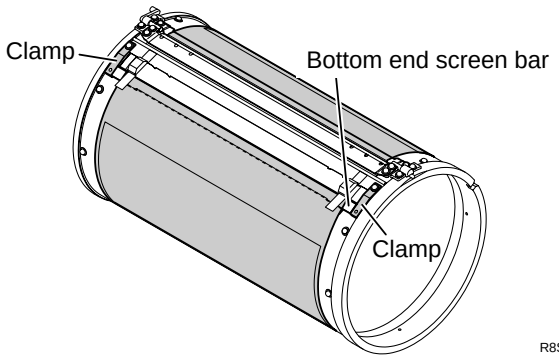


3. Pass the bottom end screen bar through the screen (bottom end side).
4. Hold the bottom end screen bar in parallel with the drum and roll it up to the drum rotating the drum normally.



5. Pull the bottom end screen bar tight and fix it with clamps.

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



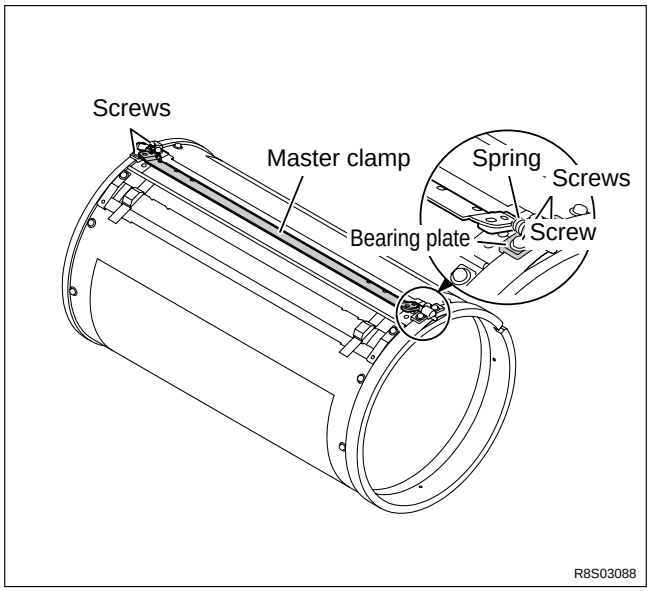
Clam

(2) Removal of Master Clamp

1. Remove the screen.

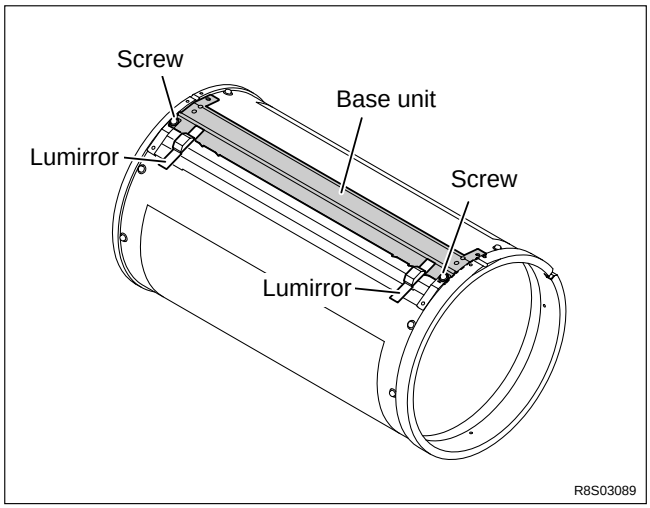
➡See page 127

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 clamp. The master clamp is attached to the base with the magnet.



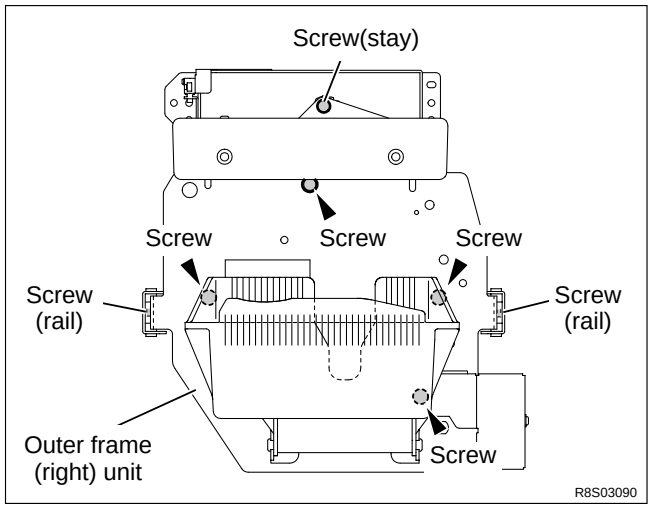
(3) Removal of Base Unit

1. Remove the master clamp.
2. Remove lumirror from the sponge surface.
3. Remove 2 screws, and remove the base unit.

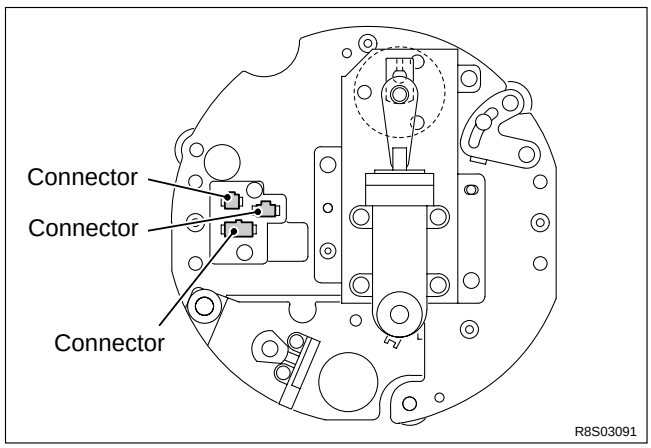


(4) Removal of Outer Frame (Right) Unit

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

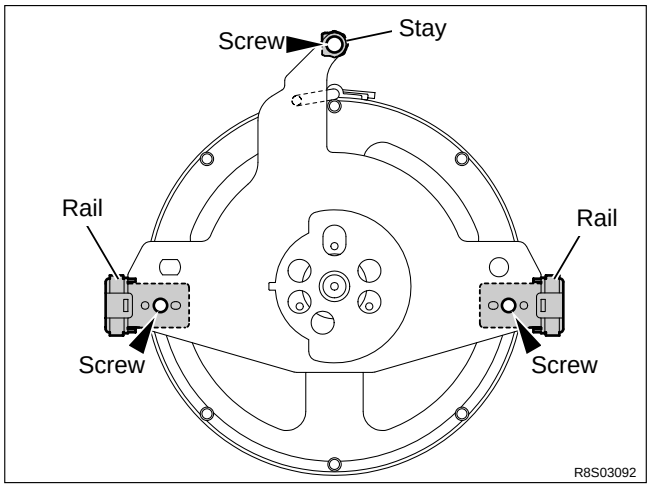


4. Part the outer frame (right) unit a little and remove 3 connectors.
5. Remove the outer frame (right) unit.

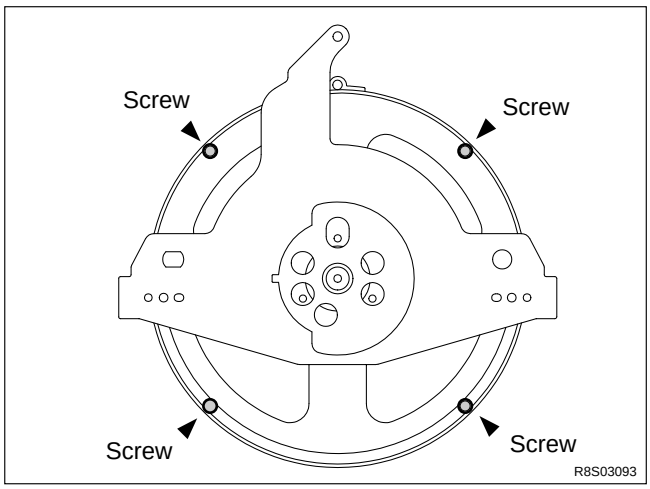


(5) Removal of Outer Frame (Left) Assy

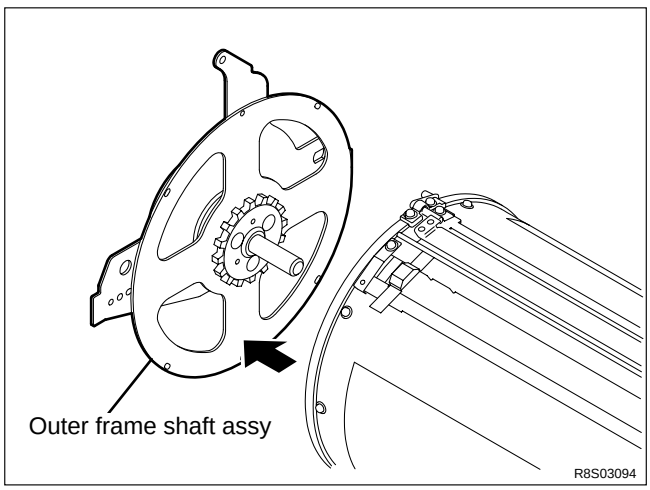
1. Remove the dram unit.
2. Remove the screw on the rail to take out the rail.
3. Remove the screw on the stay to remove the stay.



4. Remove 4 screws.



5. Pull out the outer frame (left) assy.

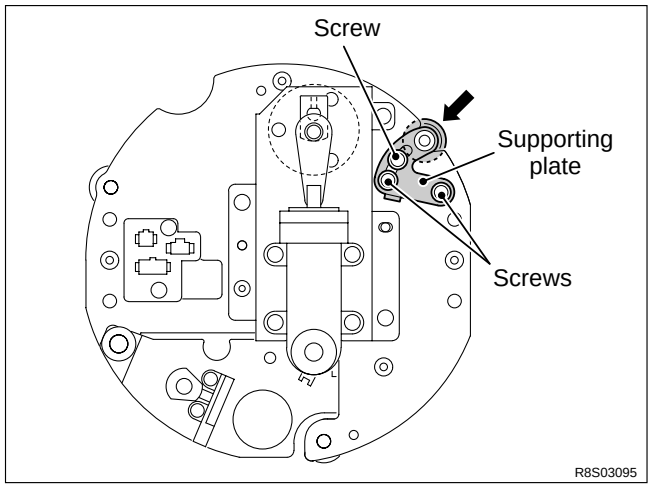


(6) Removal of Inner Frame

1. Remove the outer frame (right) unit.

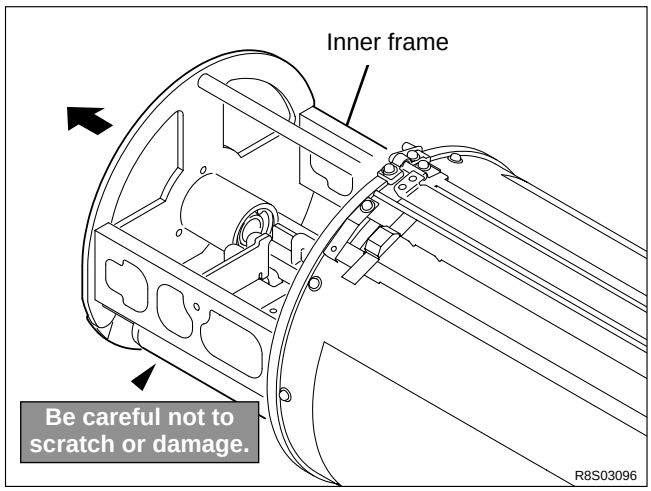
➡See page 129

2. Loosen 3 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 inner frame (section inside the drum) in the direction of an arrow.

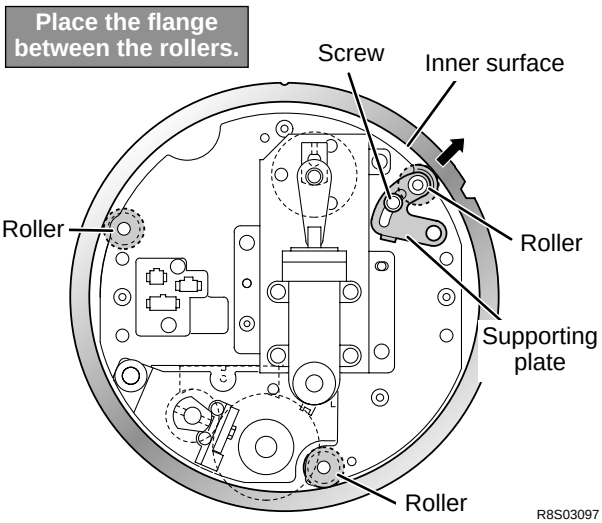
IMPORTANT : When pulling out the unit, be careful not to damage the inner surface of the drum.



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.



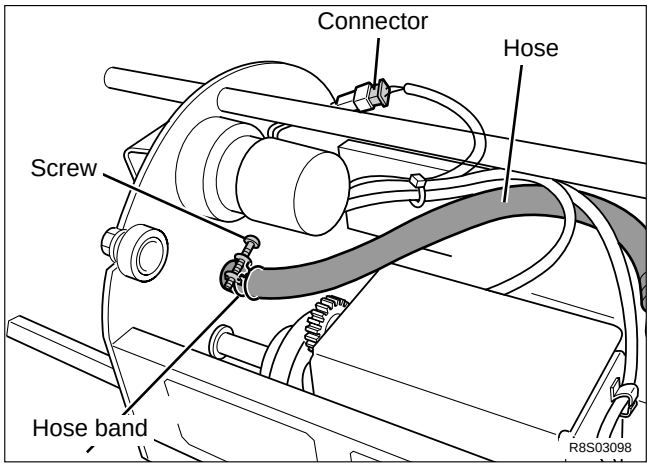
(7) Removal of Ink Pump

1. Remove the inner frame.

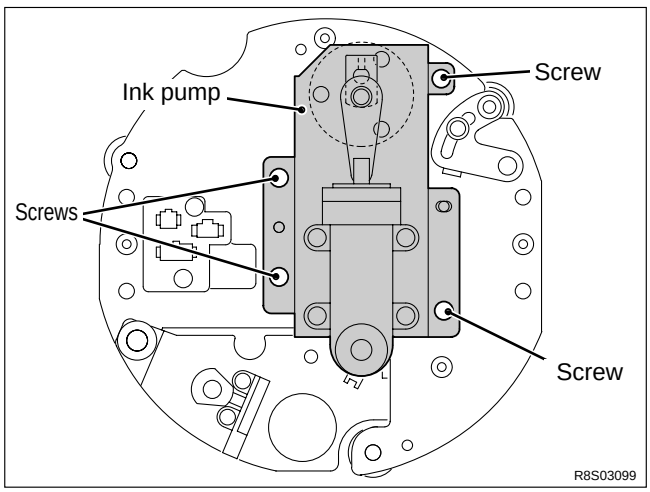
➡See page 131

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.

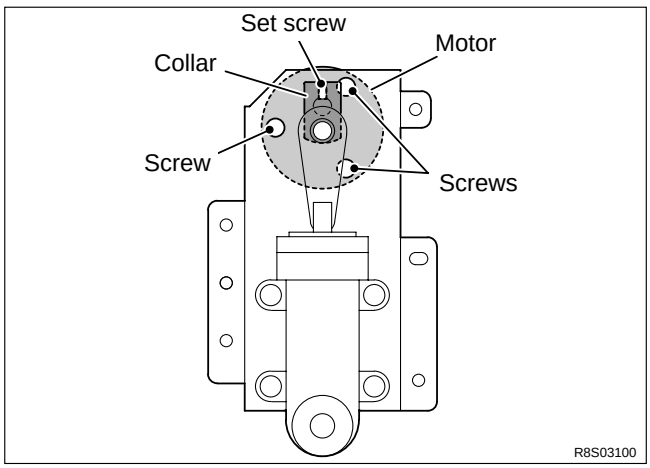


(8) Removal of Ink Pump Motor

1. Remove the ink pump.

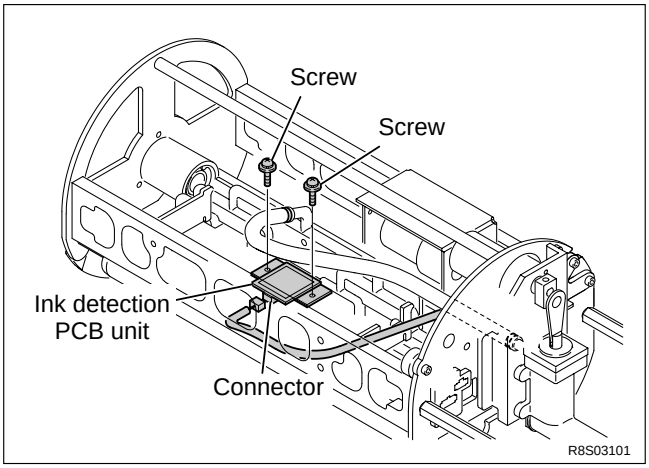
2. Loosen the set screw to remove the collar.

3. Remove 3 screws to take out the motor.



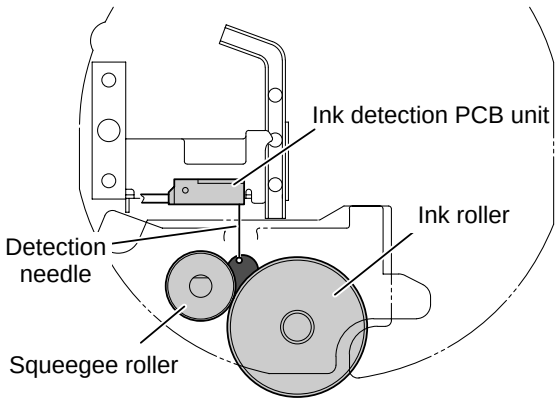
(9) Removal of Ink Detection PCB Unit

1. Remove the inner frame. ➡See page 131
2. Pull out the connector.
3. Remove 2 screws to take out the ink detection PCB Unit.



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.

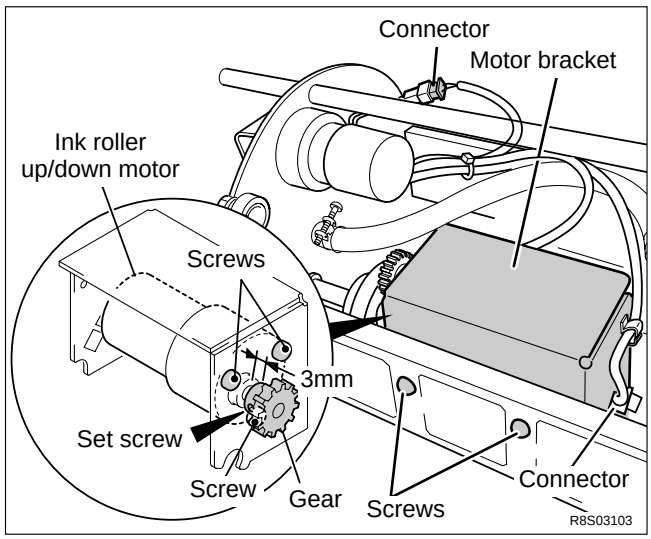


(10) Removal of Ink Roller Up/Down Motor

1. Remove the inner frame. ➡See page 131
2. Pull out the 2 connectors.
3. Remove 2 screws to take out the motor bracket.
4. Loosen the set screw to take out the gear.
5. Remove 3 screws to take out the ink roller up/down motor.

Reinstallation

IMPORTANT : Leave a space of 3 mm in the section shown in the figure when attaching the gear after replacing the motor.



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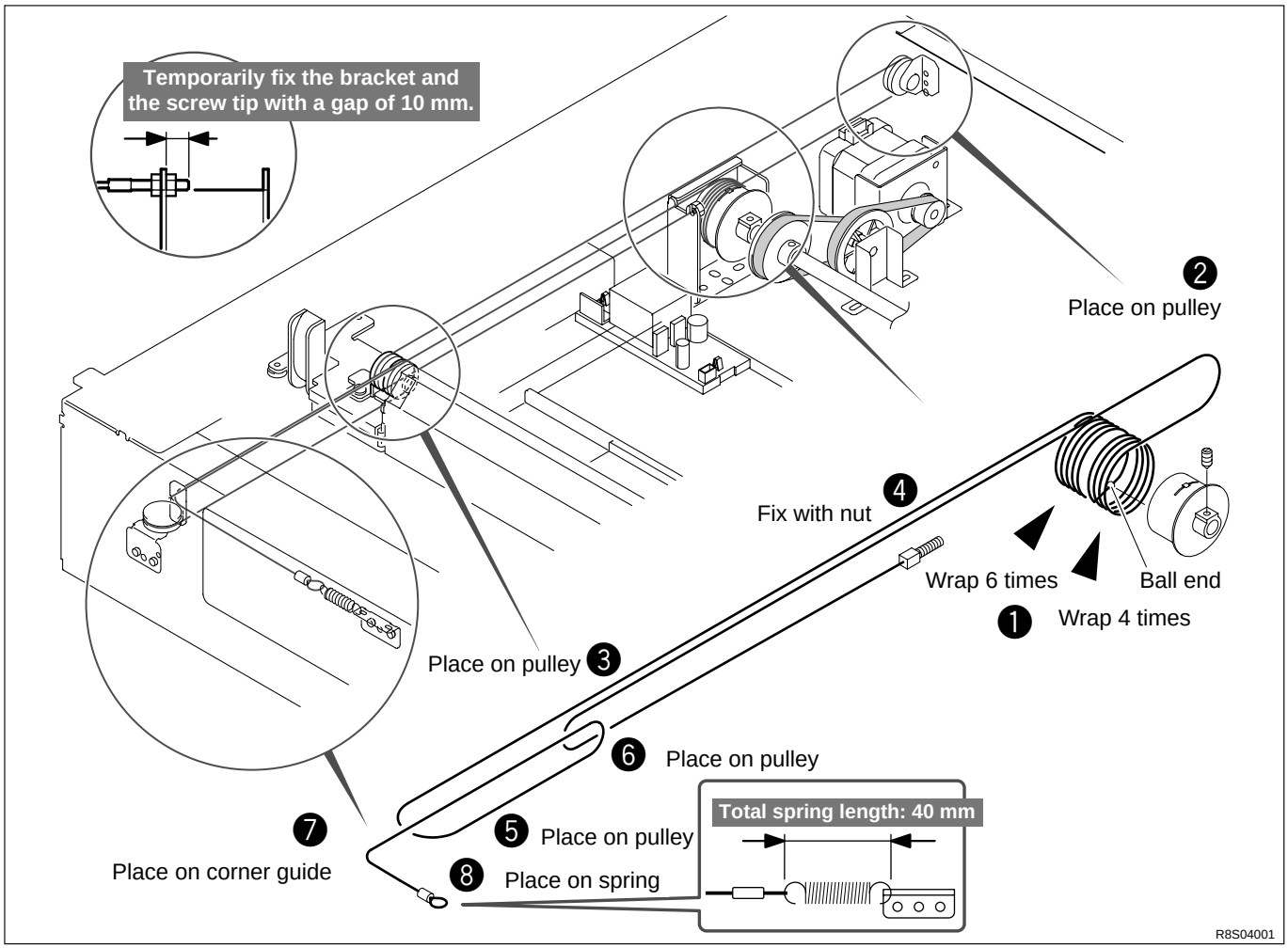
1 Scanner Section

(1) Attaching the Rear Wire



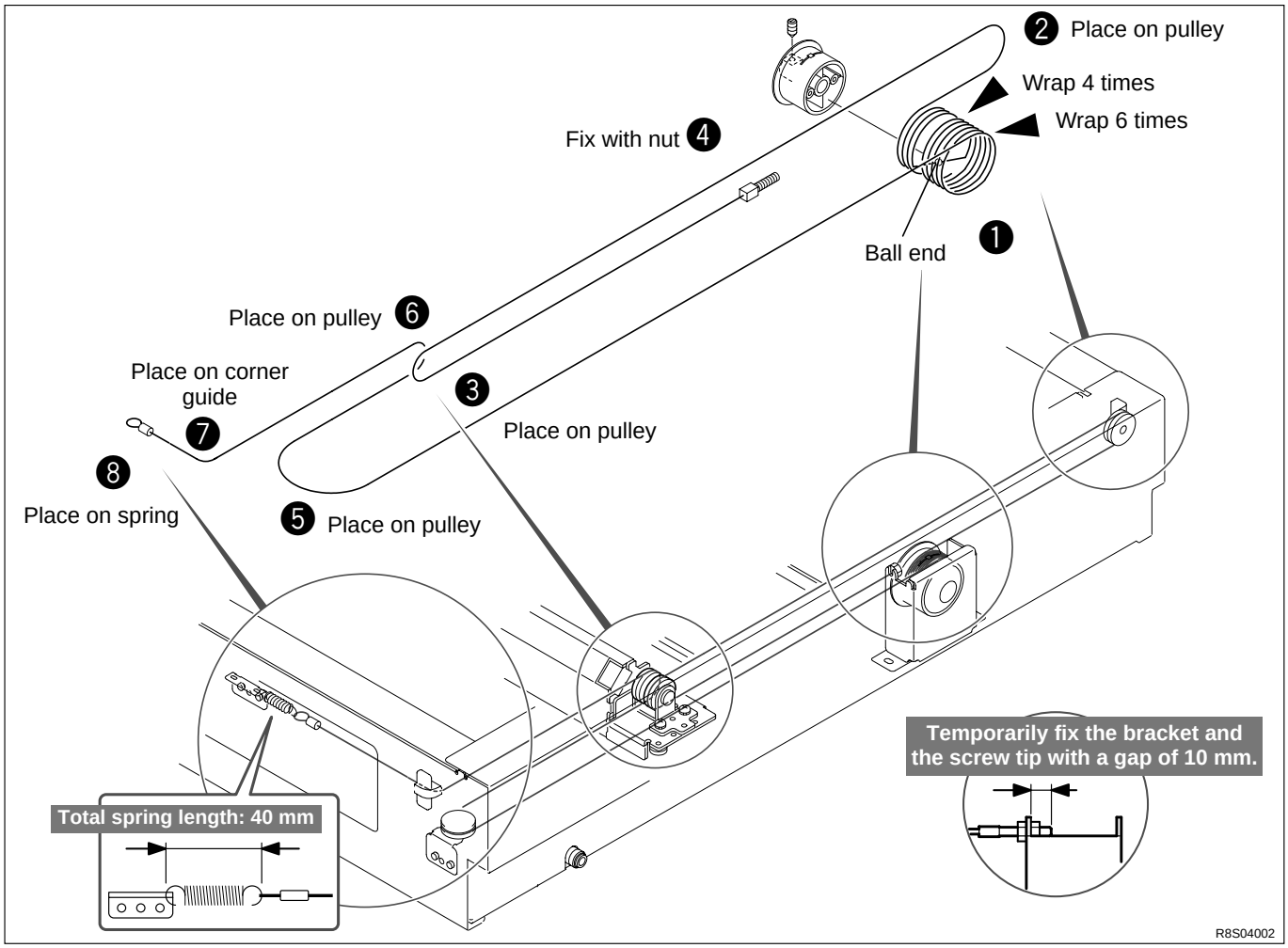
NOTE :

- **For removal of the rear wire** ➡See page 107

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. (**Temporarily fix the bracket and the screw tip with a gap of 10 mm.**)
5. Place the wire on the hook side on the pulley.
6. Place the wire on the pulley in front of Slider B.
7. Place the wire on the corner guide.
8. Place the spring on the hook.
9. the fixing position in ***4*** so that the total spring length is approx. 40 mm.

(2) Attaching the Front Wire



NOTE :

- **For removal of the front wire** ➡See page 107

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. (**Temporarily fix the bracket and the screw tip with a gap of 10 mm.**)

5. Place the wire on the hook side on the pulley.

6. Place the wire on the pulley in rear of Slider B.

7. Place the wire on the corner guide.

8. Place the spring on the hook.

9. Adjust the fixing position in ***4*** so that the total spring length is approx. 40 mm.

2 Platemaking / Master Feed / Ejection Section

《Platemaking / Master Feed Section》

(1) Adjusting the Timing Belt Tension

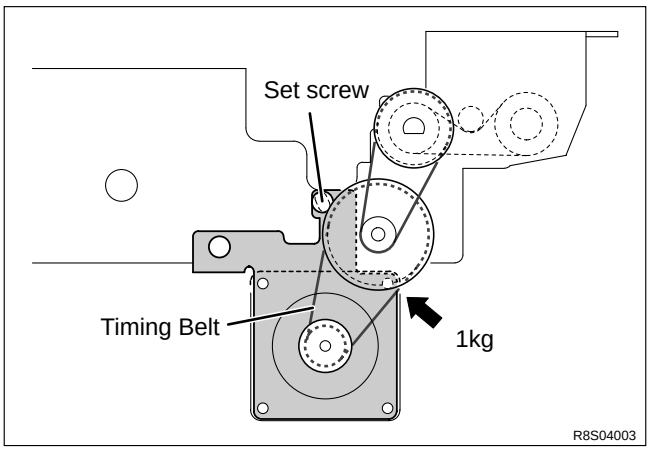
NOTE :

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

➡See page 112

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

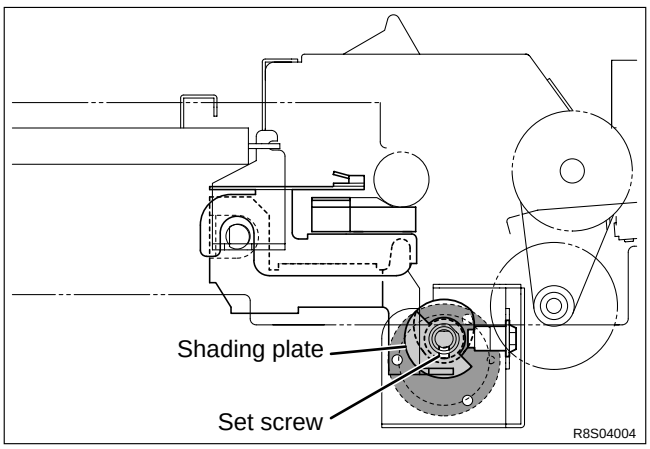
- **For removal of master feed unit.**

➡See page 112

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.

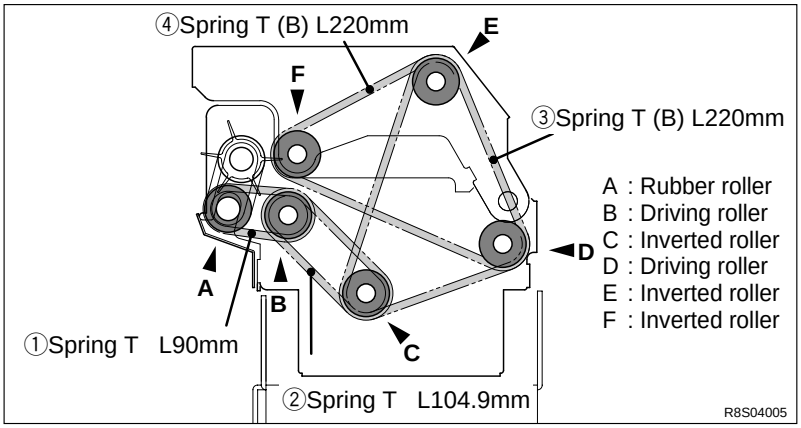


《Master Ejection Section》

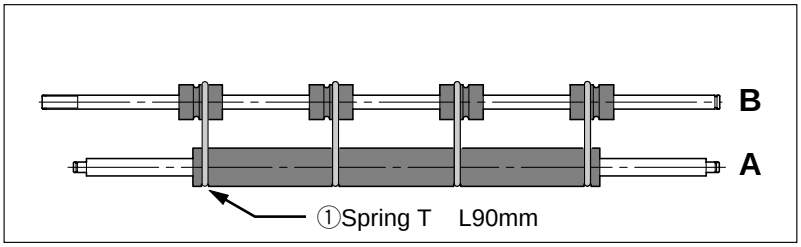
(1) Attaching the Spring

● Model : DP-S850/S650
DP-S620/S550/S520

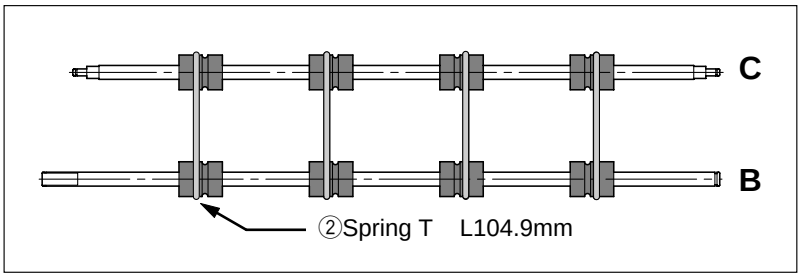
IMPORTANT : Set the hook on the spring and crush it to prevent removing.



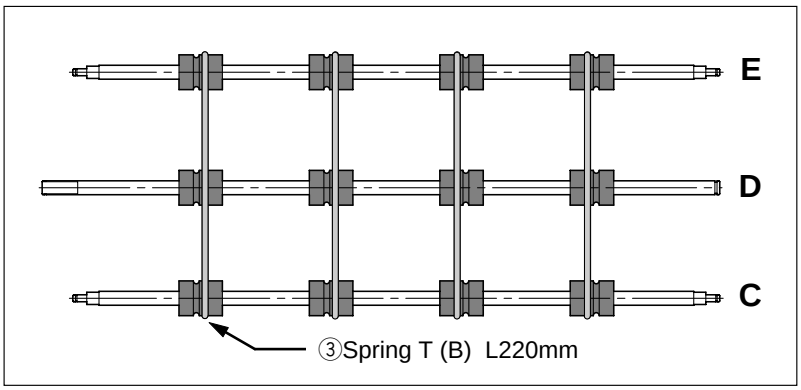
1. Attaching the spring between A and B.
4 springs : Spring T (L=90mm)



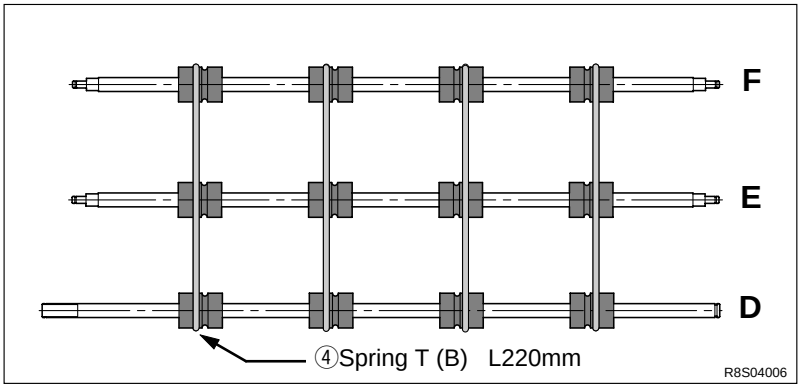
2. Attaching the spring between B and C.
4 springs : Spring T (L=104.9mm)



3. Attaching the spring between C, D and E.
4 springs : Spring T-B (L=220mm)

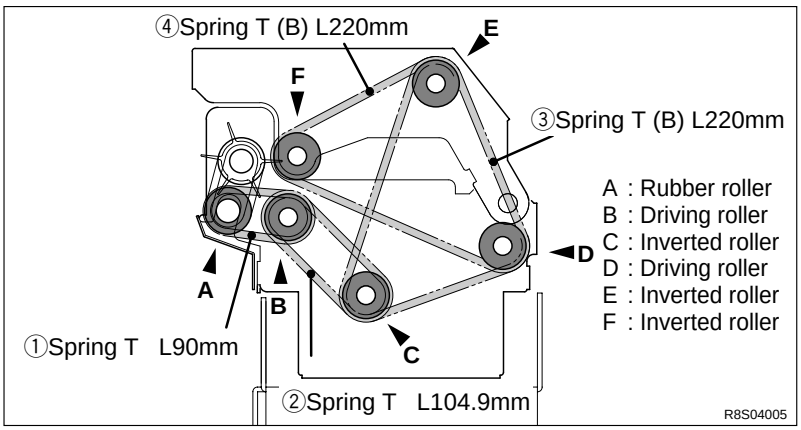


4. Attaching the spring between D, E and F.
4 springs : Spring T-B (L=220mm)

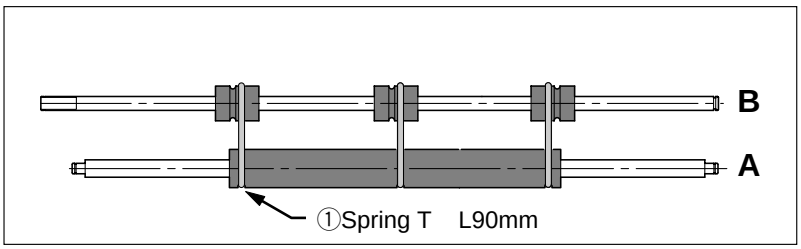


● Model : DP-S510

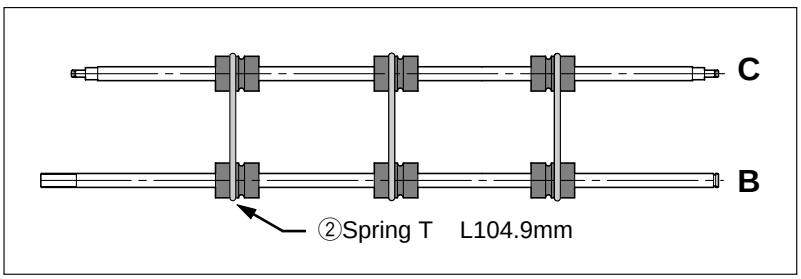
IMPORTANT : Set the hook on the spring and crush it to prevent removing.



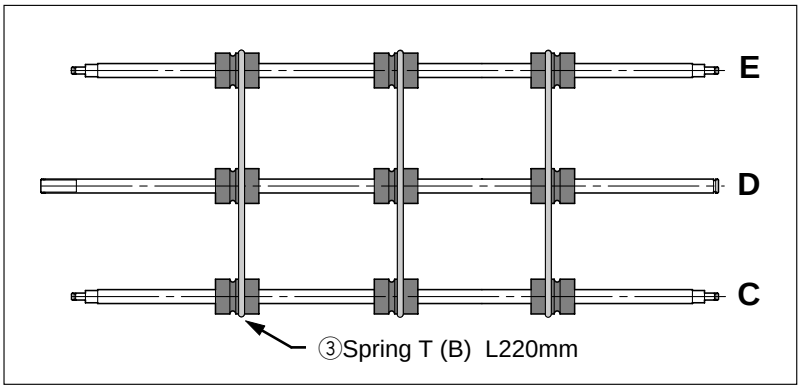
1. Attaching the spring between A and B.
3 springs : Spring T (L=90mm)



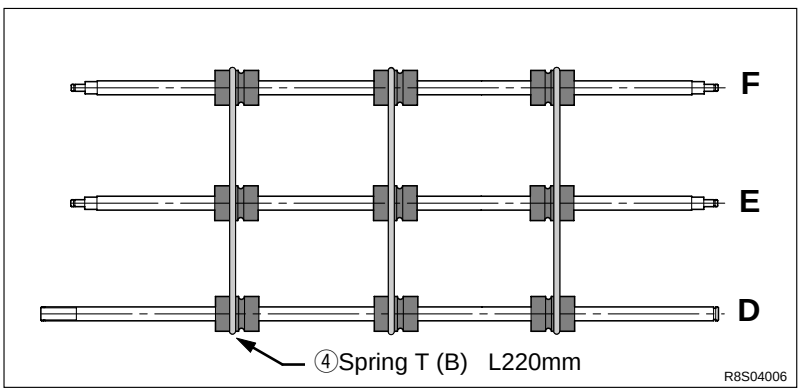
2. Attaching the spring between B and C.
3 springs : Spring T (L=104.9mm)



3. Attaching the spring between C, D and E.
3 springs : Spring T-B (L=220mm)



4. Attaching the spring between D, E and F.
3 springs : Spring T-B (L=220mm)



(2) Adjusting the Timing Belt Tension

NOTE :

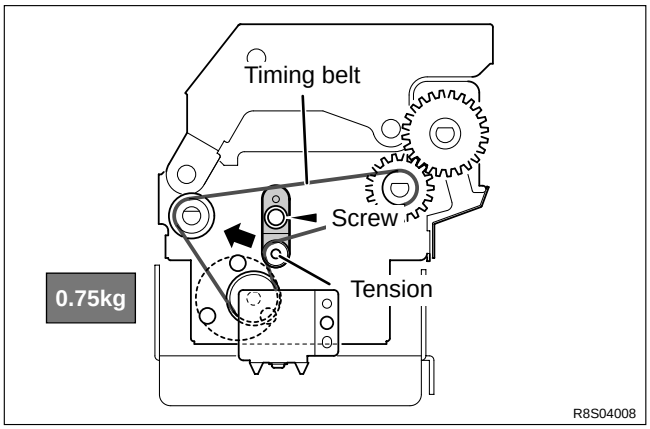
- **For removal of the master ejection box.**

➡See page 113

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 eject motor**

1. Access HELP - 009. HELP - 009 ➡ see p.220

For basic HELP mode procedures

➡See page 119

2. Press and hold down the ◀▶ (**PRINT POSITION**) ◁ key. For as long as this key is held down, the eject motor will rotate in the reverse direction (counterclockwise), causing the rollers inside the master ejection box to rotate.

IMPORTANT :

- **The motor does not reverse.**
- **Due to interlocking mechanism, the motor does not rotate if the master ejection box is open.**

3. The motor will stop when the ◀▶ (**PRINT POSITION**) ◁ key is released.

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

➡ **To exit the HELP mode:**
Turn the power switch to OFF.

➡ **To select another HELP mode:**
Enter the desired HELP mode number using the numeric keys.

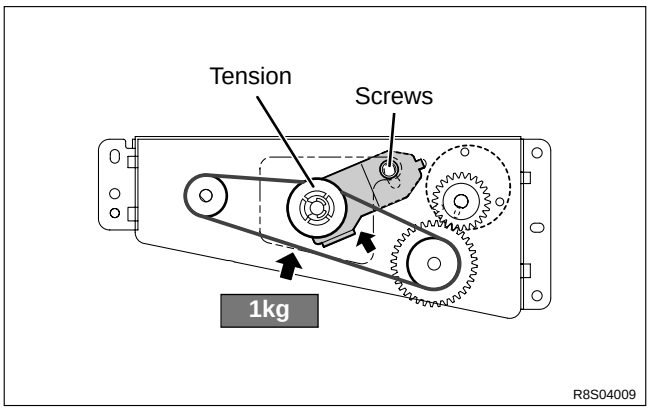
《Master Clamp Opening/Closing Section》

(1) Adjusting the Timing Belt Tension

NOTE :

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

➡See page 114



Adjustment procedure

1. Loosen the tension set screw.

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

After Adjustment

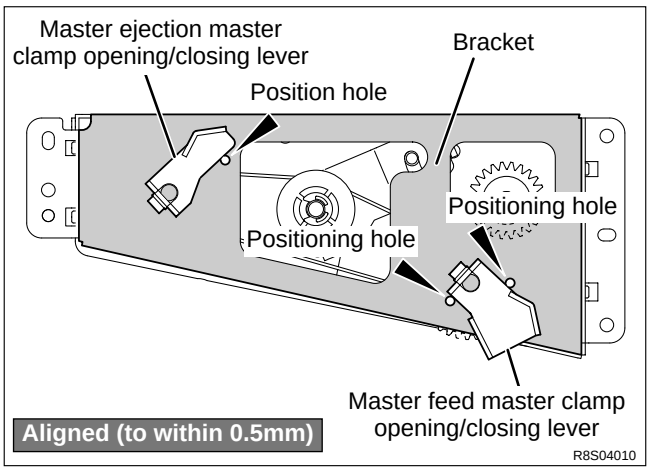
IMPORTANT : Be sure to adjust the B/C mode after installation to the printer.

(2) Positioning the Master Clamp Opening / Closing Levers

NOTE :

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

➡See page 114



1. Master feed master clamp opening/closing lever

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

2. Master ejection master clamp opening/closing lever

When tensioning the timing belt, ensure that the bracket is positioned so that the upper surface (2 places) of the master clamp opening/closing lever is aligned (to within 0.5mm) with the rim of the positioning hole.

After Adjustment

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

(3) Adjusting the B / C Mode

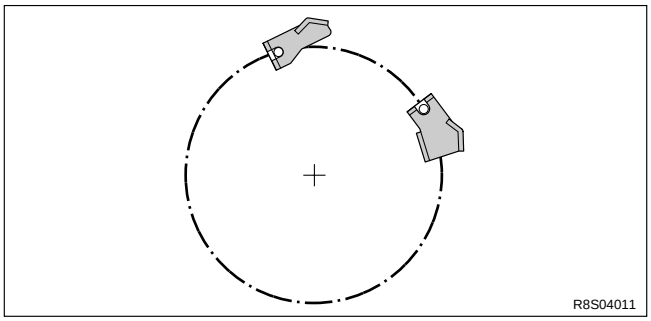
Before adjustment

IMPORTANT : C mode adjustment must be carried out After B mode adjustment has been completed.

Adjustment procedure

1. Remove the drum from the machine body.

● **When drum is removed from main body (B mode)**

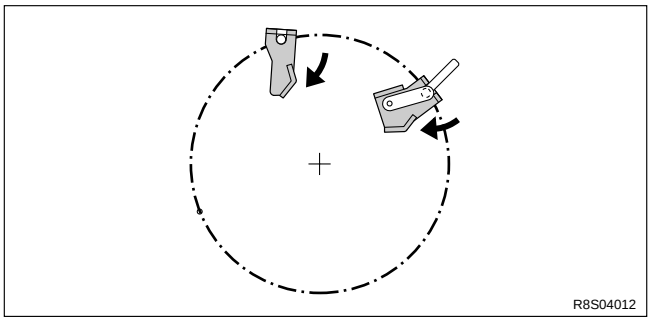


2. Access HELP - 012. HELP - 012 ➡ see p.226

For the accessing HELP modes : ➡See page 199

Press and hold down the (**PRINT POSITION**) key to set the master clamp open/close lever to the B mode position.

● **C mode**



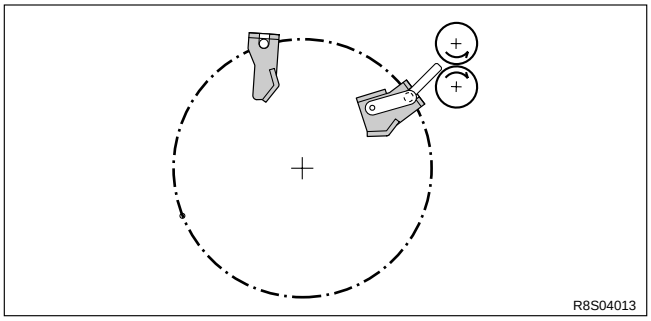
3. Turn off the power, and install the drum to the machine body.

4. Access HELP - 012. HELP - 012 ➡ see p.226

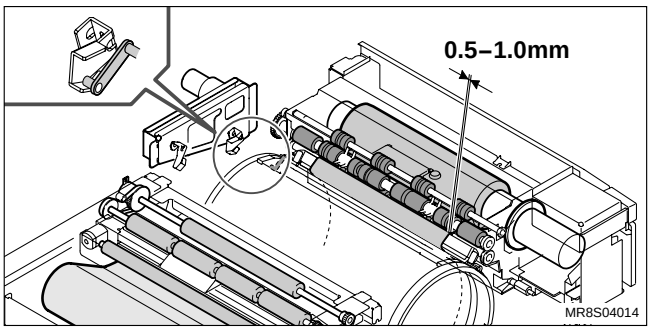
5. Press and hold down the "1" key to set the detach position.

6. Press and hold down the (**PRINT POSITION**) key to set the master clamp open/close lever to the C mode position.

● **Stopping drum in master detachment position**



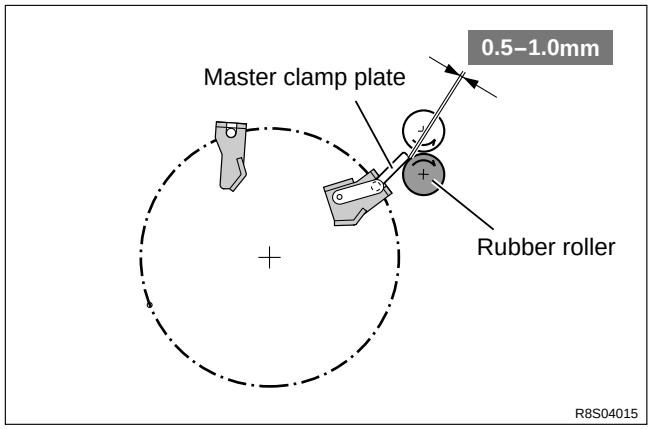
7. Open the scanner unit.



Standard value

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

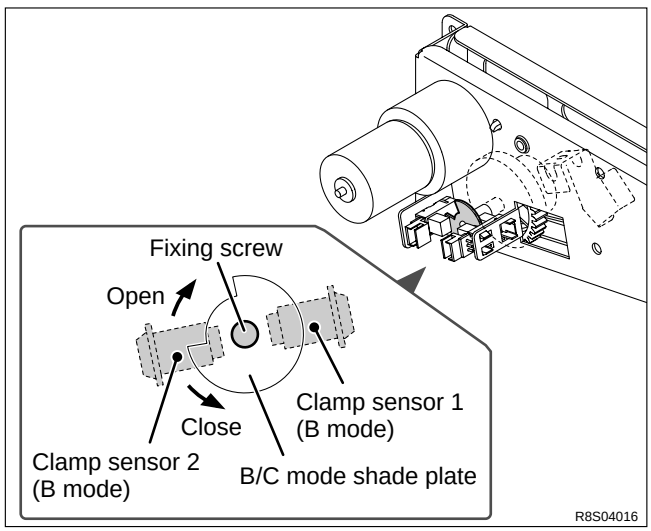
Item	Standard value
Clearance between master ejection box's rubber roller and master clamp plate	0.5 – 1.0 mm



If the clearance is outside the standard range

1. Loosen the fixing screw, then adjust the clamp sensor 2 (c mode).

IMPORTANT : Do not press the master clamp against the rubber roller.



3 Paper Feed Section

(1) Adjusting the Paper Separator Unit Clearance

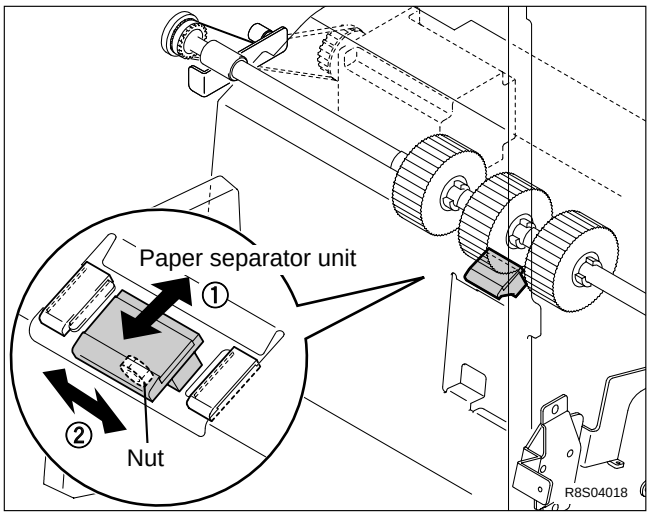
NOTE :

- **For description of operation .**

➡See page 61

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 Elevator Top Limit Sensor

NOTE :

- **For description of operation .**

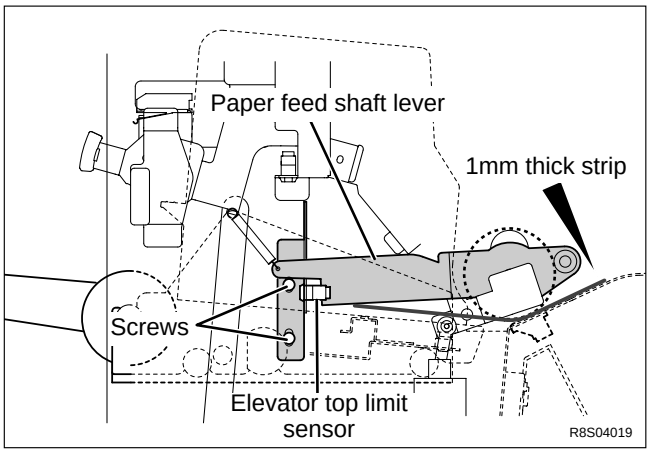
➡See page 65

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**.

IMPORTANT : For adjustment, remove the auxiliary paper separator unit.

3. After adjustment, tighten the screws.



(3) Adjusting the Elevator Lower Limit Switch

NOTE :

- **For description of operation.** ➡See page 66
- **For removal.** ➡See page 117

Adjustment method

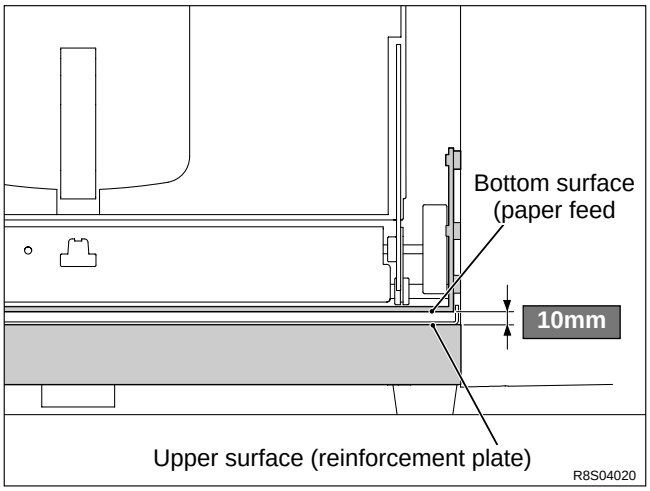
1. Access HELP - 006. HELP - 006 ➡ see p.213

For the accessing HELP modes: ➡See page 199

2. Press the ◁▷ (**PRINT POSITION**) ◁ key to select the "**ELEVATOR MOTOR**".

3. Press and hold down the ◁▷ (**PRINT POSITION**) ◁ key until the paper feed tray is at its lower position. The elevator motor will run (i.e. the paper feed tray will descend) for as long as the key is held down.

4. Check that the dimension indicated in the figure at right conforms to the value shown below.



Standard value

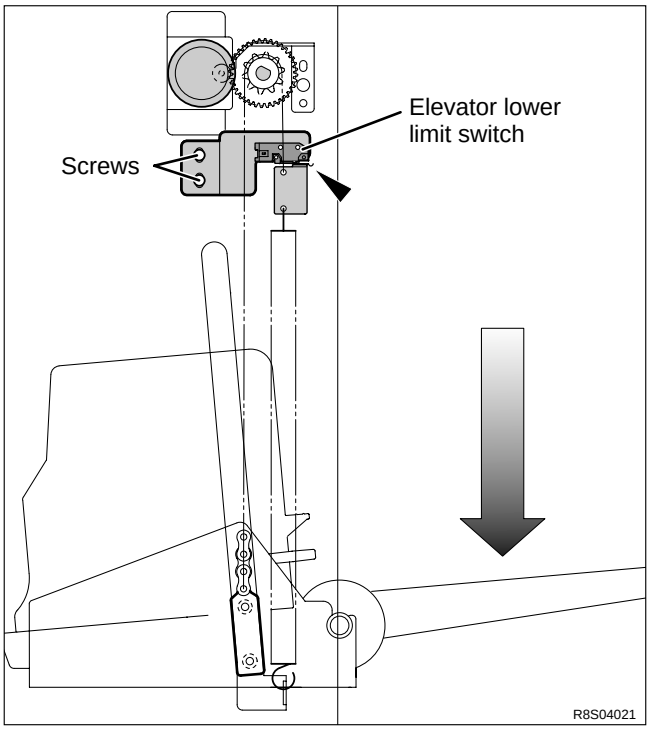
Item	Standard value
Paper feed tray clearance in lower limit position	10 mm

If the feed length is not the standard value

1. Loosen the screws, then adjust the lower limit switch to a position that yields the standard clearance value.

⬆ Moving the switch in the direction shifts the lower position downward.

⬇ Moving the switch in the direction shifts the lower position upward.



2. After adjustment, tighten the screws.

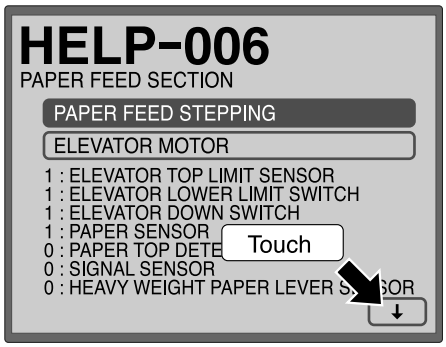
(4) Adjusting the Double Feed Detection Sensor

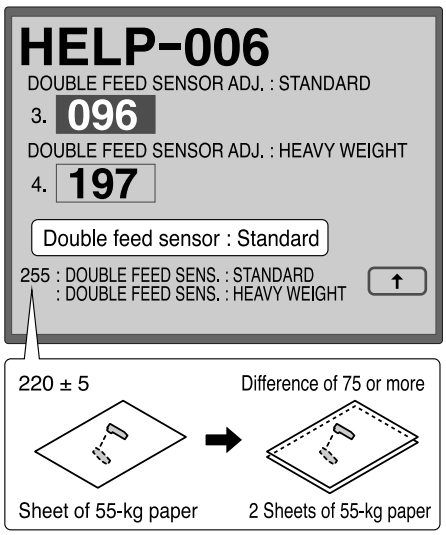
NOTE :

- **For description of operation.** ➡See page 64
- **For removal.** ➡See page 118

1. Double feed sensor adjust : standard

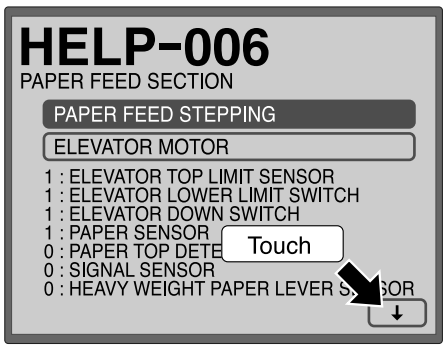
1. Access HELP - 006. HELP - 006 ➡ see p.213
   For the accessing HELP modes: ➡See page 199
2. Touch the ↓ (**arrow**) on the screen lower right twice to switch to page 3.
3. Insert one sheet of paper (55 kg) between the double feed sensors.
4. Change the adjustment value of the double feed sensor (standard) to **"220 ± 5"**.
5. Insert two sheets of paper (55 kg) between the double feed sensors to block off the light.
6. Check that the value difference is **75** or more.

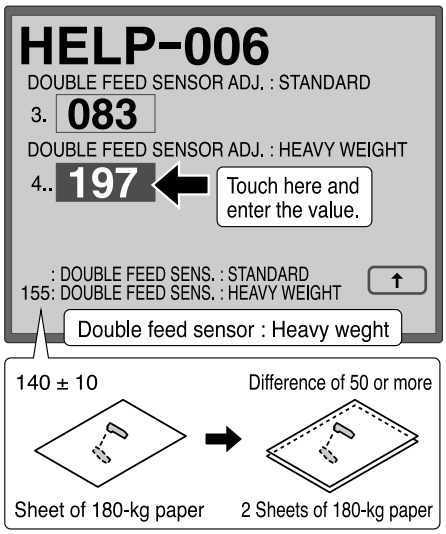




2. Double feed sensor adjust : heavy weight

1. Access HELP - 006. HELP - 006 ➡ see p.213
   For the accessing HELP modes: ➡See page 199
2. Touch the ↓ (**arrow**) on the screen lower right twice to switch to page 3.
3. Insert one sheet of paper (180 kg) between the double feed sensors.
4. Touch the **"DOUBLE FEED SENSOR ADJ: HEAVY WEIGHT"** .
5. Change the adjustment value of the double feed sensor (heavy weight) to **"140 ± 10"**.
6. Insert two sheets of paper (180 kg) between the double feed sensors to block off the light.
7. Check that the value difference is **50** or more.



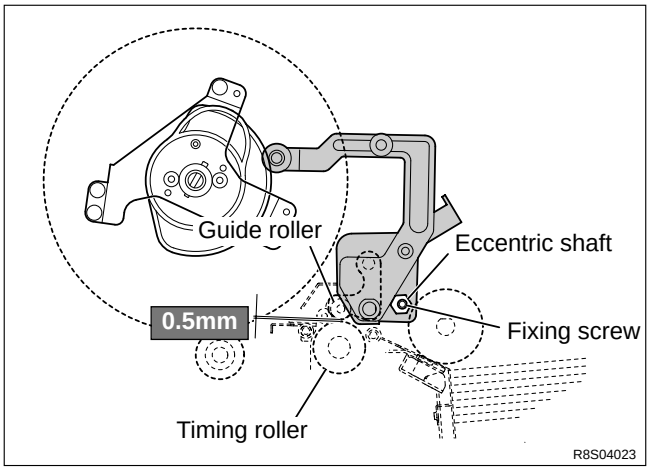


(5) Adjusting the G Roll Escape Amount / Timing

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 60

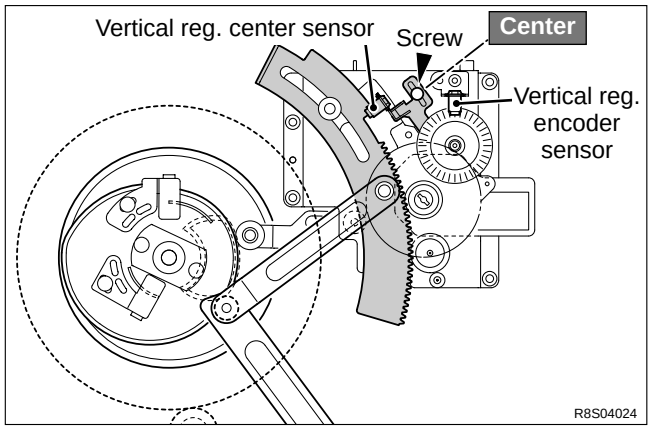
Standard value

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

(6) Adjusting the Vertical Reg. Sensors

NOTE :

- **For description of operation.** ➡See page 62



1. Vertical Registration center 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 - 014, and check the numerical value. HELP - 014 ➡ see p.229

2. Access HELP - 030. HELP - 030 ➡ see p.241

3. Touch the "**TEST PATTERN 1**".

4. Press the (**MASTER MAKING**) key. Print the test pattern.

5. Touch the "**SCREEN COARSE**" of the image mode.

6. Press the (**PRINT POSITION**) key to move the print position.(Bottom limit adjustment)

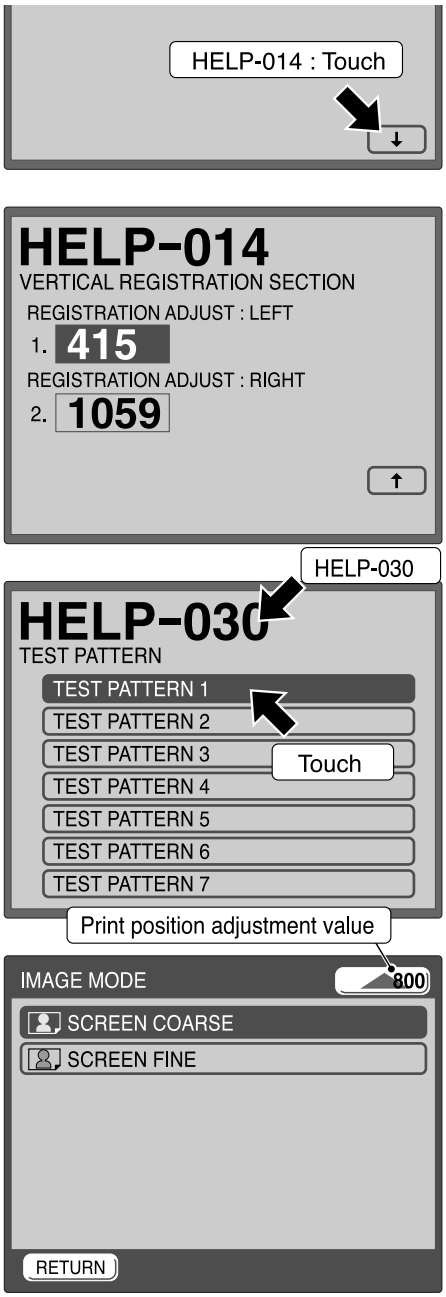
7. When the numerical value of step 1 ,release the (**PRINT POSITION**) key and press the **(PRINT)** key.

8. Compare the printed image(step ***7***) with the printed image(step ***4***).

Check the difference of 15mm ,and press the the key and the C (**CLEAR**) key.

If the moving distance is not the 15mm

- Repeat step 6 through 7.



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3. Top Limit adjustment

Adjustment procedure

1. Repeat step ***1*** through ***4***.

Touch the "**SCREEN FINE**" of the image mode (step ***5***),and repeat step ***6*** through ***8***.

4 Drum Driving Section

(1) Adjusting the Drum Stop Position

Before adjustment

IMPORTANT :

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

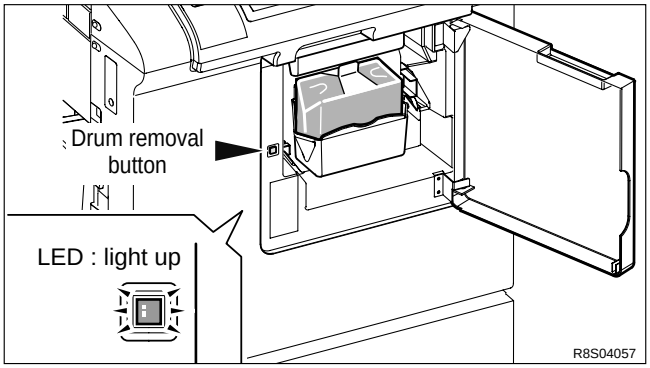
➡See page 164

Adjustment procedure

1. Press the drum removal button.
At the drum removal position, a bleep sounds.

⚠ WARNING

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



NOTE :

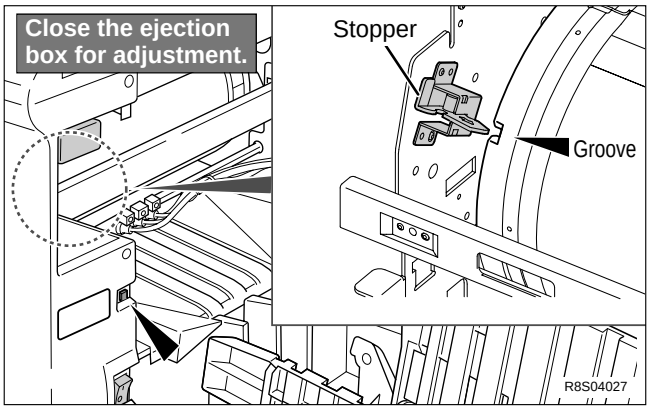
- **For description of operation .** ➡See page 69

Standard position

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

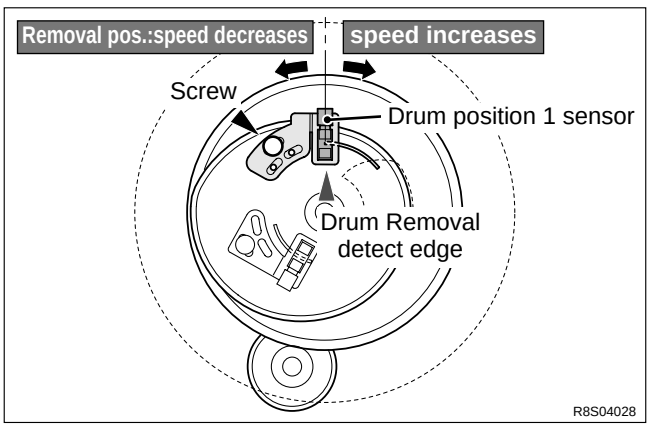
IMPORTANT :

- **The master detachment position is determined by adjusting the drum removal position. Only check the master detachment position.**
- **When the master ejection section is opened, the drum does not stop at the drum removal position even if the drum removal button is pressed. Close the master ejection section and then press the drum removal button for adjustment.**



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

When removing the drum, adjust the drum removal position sensor so that the stopper is placed in the groove center



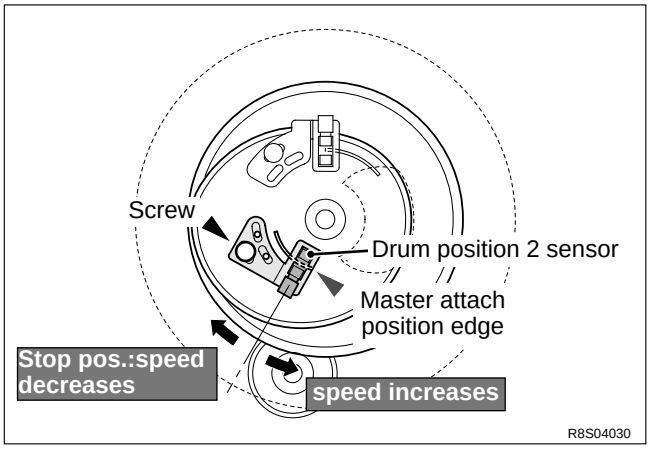
(2) Adjusting the Master Attach Position

Check procedure

1. Access HELP - 012, the drum position check mode.

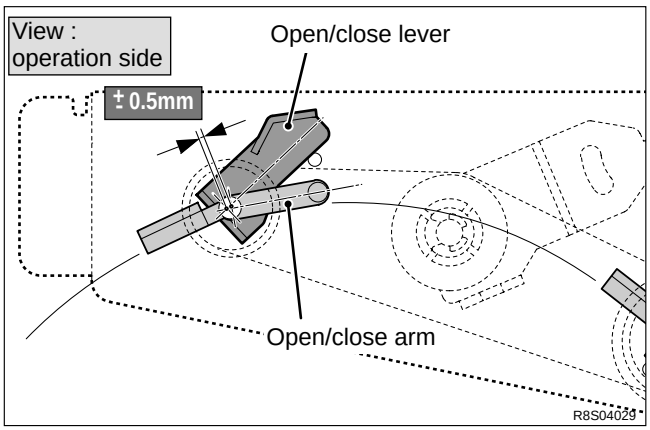
HELP -012 ➡ see p.226

2. Press the "2" key to stop the drum at the master attach position edge.



3. Adjust the offset in the alignment of the center axis of the master clamp open/close arm and the center axis of the master clamp open/close lever.

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



5 Press Section

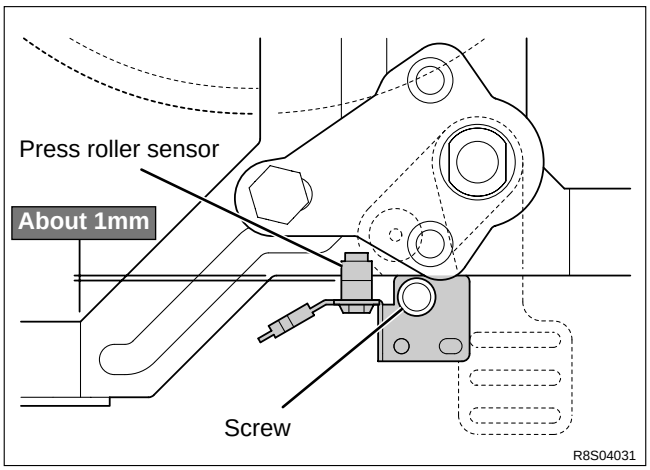
(1) Checking the of Press Roller Sensor

NOTE :

- **For description of operation.** ➡See page 76

Adjustment procedure

1. Check the press roll so that when it is pushed down to the lowest position by the cam, the distance between the bottom of its sensor and the end of the bracket is **about 1mm**.



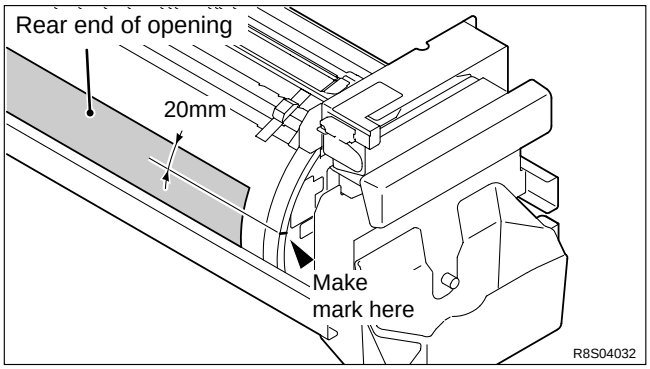
(2) Adjusting the Printing Area (Press OFF Timing)

NOTE :

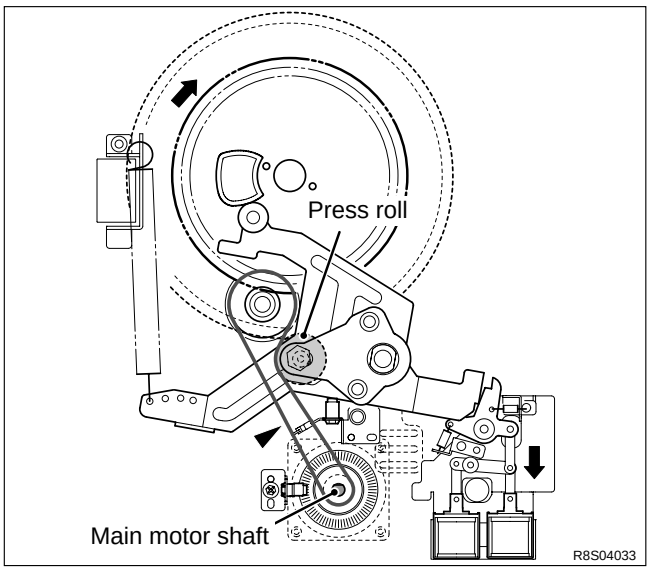
- **For description of operation.** ➡See page 74

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).



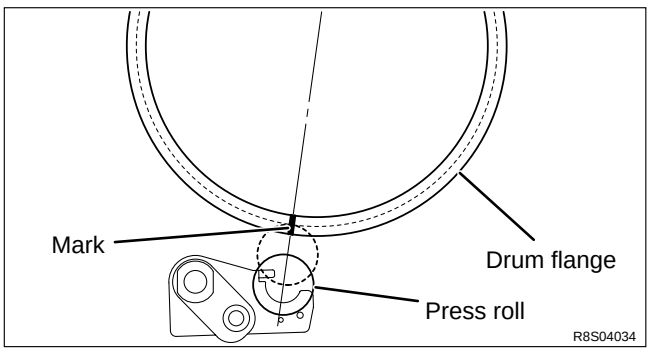
2. With the press roll activated, turn the main motor shaft by hand, and stop turning when the press roll starts to descend (move in the direction of the arrow).



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:

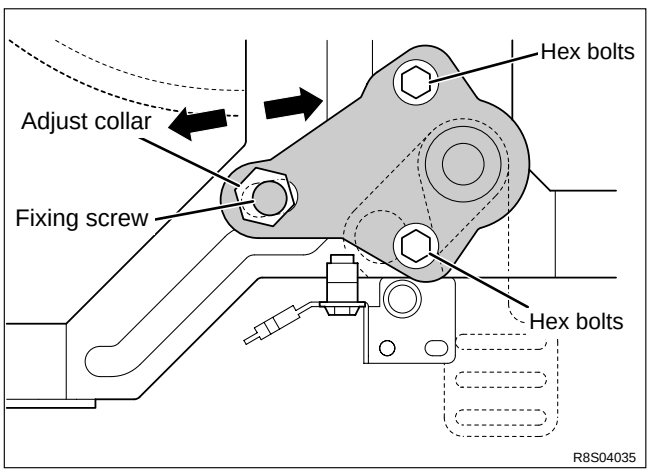
1. Loosen the 2 hex bolts indicated.

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

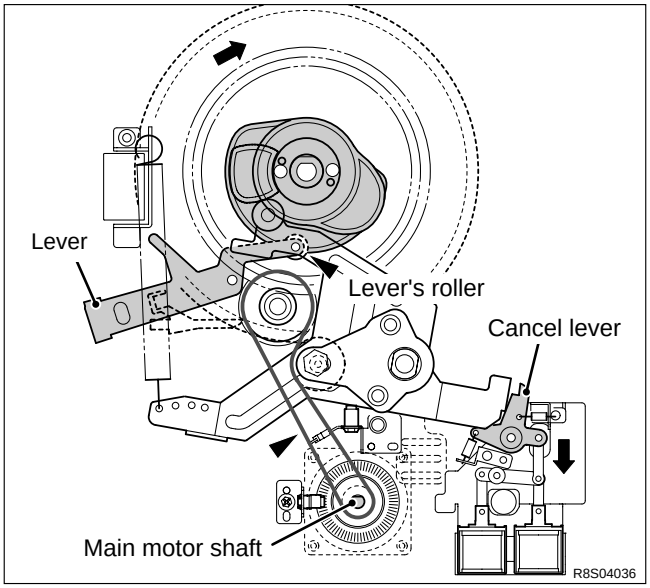
(1) Adjusting the Paper Stripper Finger Clearance

NOTE :

- **For description of operation.** ➡See page 80

Adjustment procedure

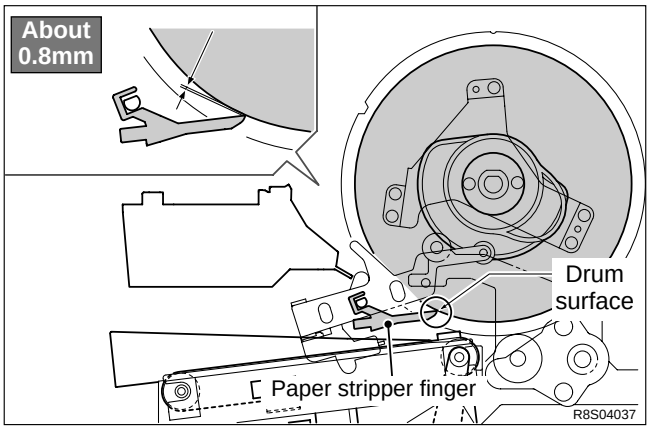
1. With the cancel lever raised up, turn the main motor shaft. Stop turning when the lever's roller is positioned at the bottom of the paper stripper finger cam.



Standard value

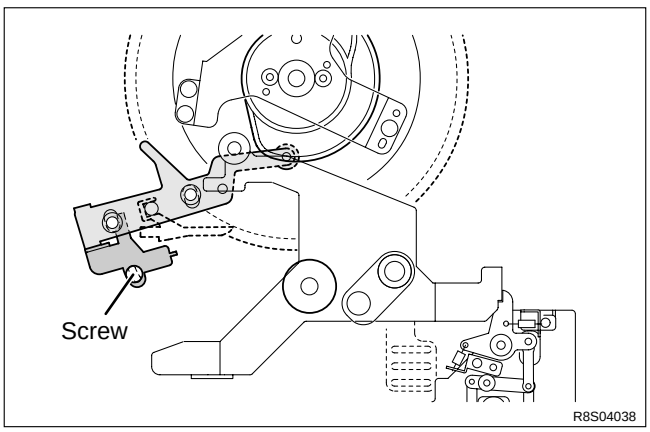
- Check that the clearance between the drum surface and the paper stripper finger conforms to the value shown below.

Item	Standard value
Clearance between drum surface and tip of paper stripper finger	about 0.8 mm



If the clearance is not the standard value:

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



After adjustment:

IMPORTANT :

- **After adjustment, press the drum removal button to return the drum to its home position.**

⚠ WARNING

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

7 Drum Section

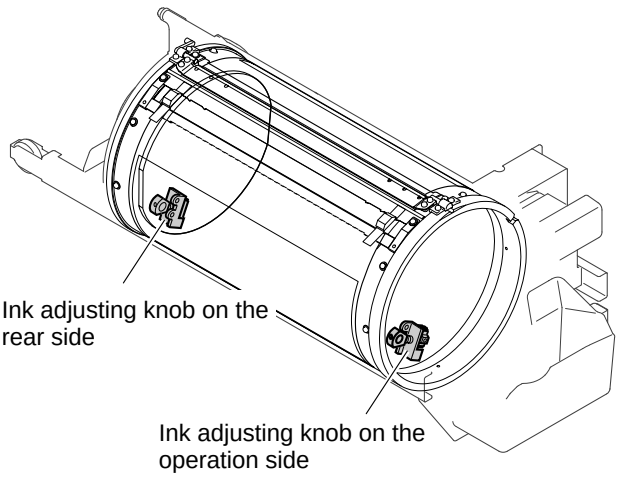
(1) Adjusting the Ink Amount

Adjusting the ink adjusting knob

NOTE :

- **For removal.**

➡See page 127

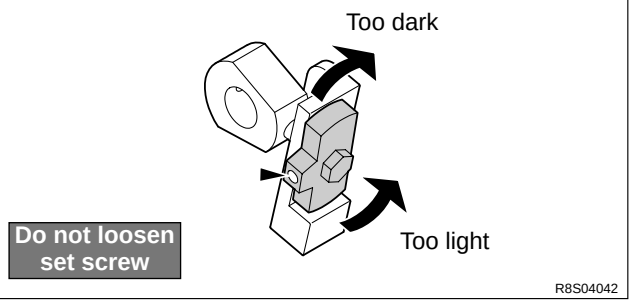


Adjustment procedure

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)**



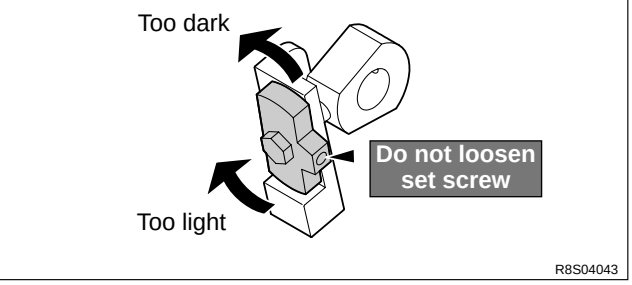
2. When printed too dark or too light on the rear side:

- **Too dark:** switch in the (-) direction (3 settings)
- **Too light:** switch in the (+) direction (3 settings)

3. When printed too dark or too light on the entire surface:

- **Adjust the above 1) and 2) at the same time.**

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



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 127

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	0.025 mm – 0.035 mm

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.

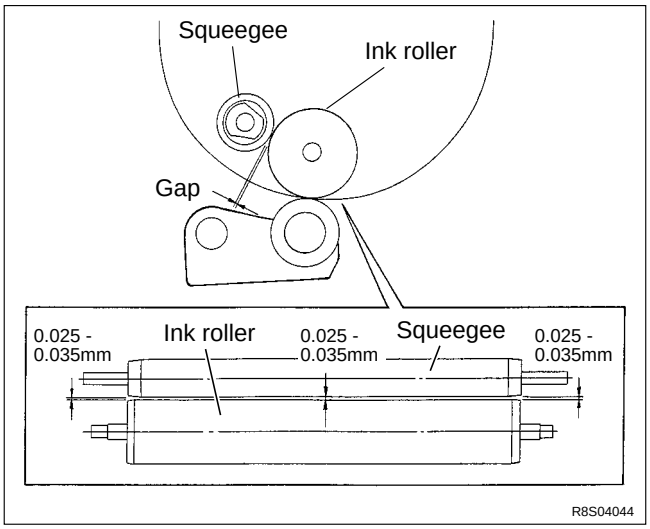
After adjustment

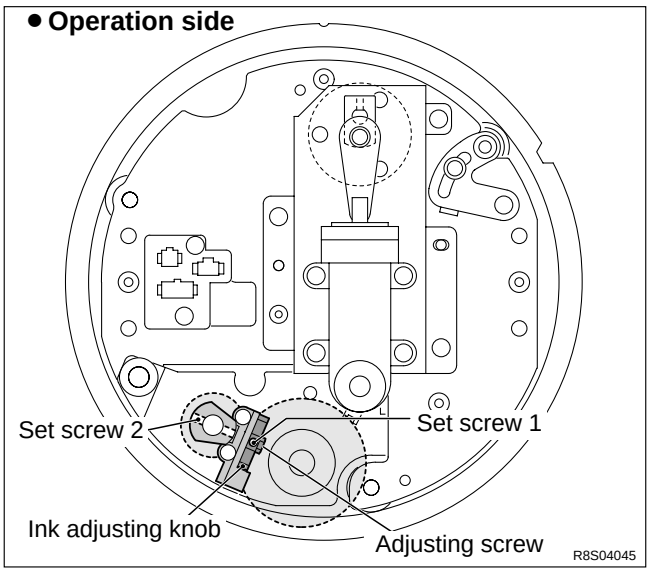
1. Tighten set screw 2.

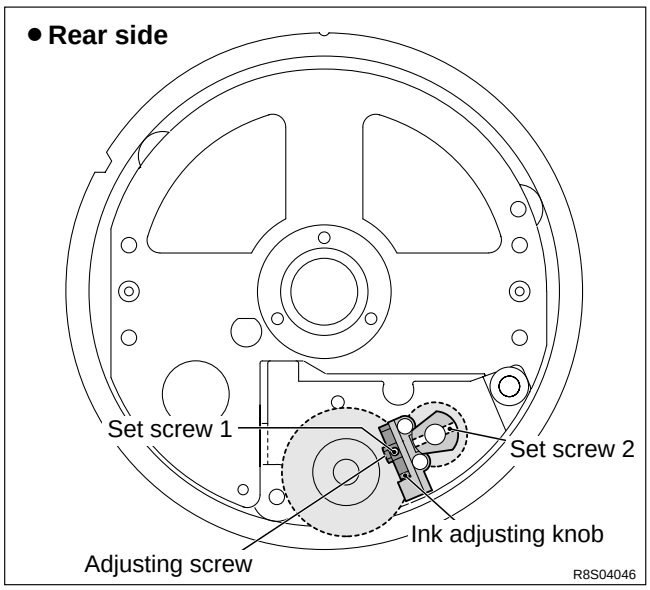
2. Tighten set screw 1.

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.







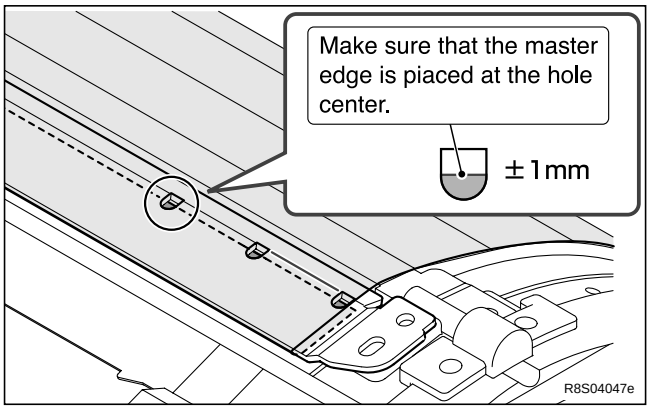
(3) Adjusting the Master Clamp Margin

Adjustment procedure

1. Attach the master and adjust the master clamp margin (Fig. A) at ± 1 mm from the hole center in HELP - 046.

HELP - 046 ➡ see p.253

2. After HELP - 046 adjustment, press the perform master set movement once. (Be sure to remove all paper scraps.) Then perform platemaking, and check the master clamp margin.



(4) Adjusting the Drum Rail Gap

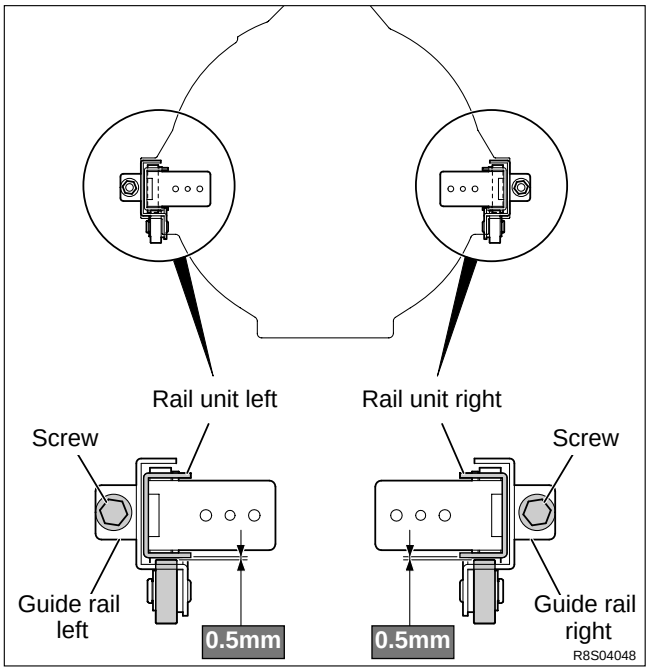
1. Operation side

Adjustment procedure

1. Attach the drum to the main body.

2. Loosen the set screw on the rail to adjust so that the gap between the rail (both sides) and the roller on the operation side is about **0.5mm**.

3. Tighten the set screw to fix the rail.



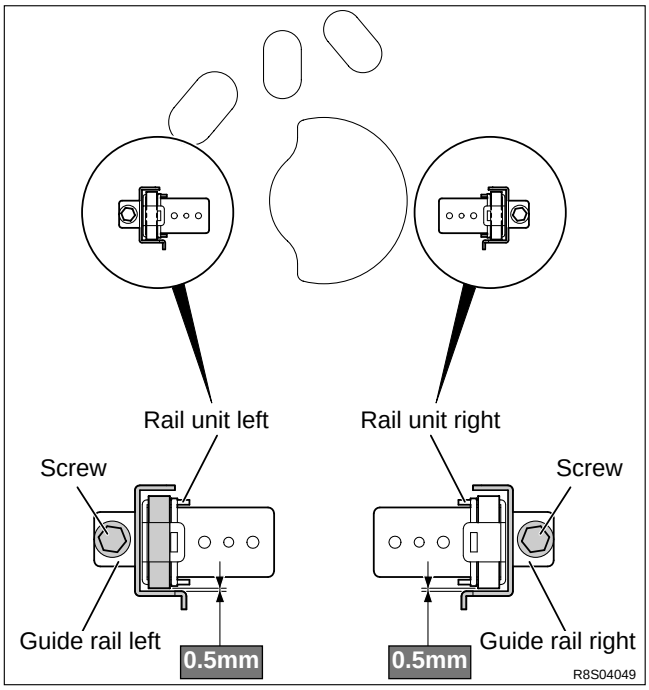
2. Rear side

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 **0.5mm**.

3. Tighten the screw to fix the rail.



8 Electrical system

(1) Adjusting Reduction / Enlargement

1. Adjusting M-mark Feed Volume Magnification

Adjustment procedure

1. Access HELP - 046 HELP - 046 ➡ see p.253

2. Open the scanner so that the master feed section is seen.

3. Press the (**MASTER MAKING**) key. The cutter operates, the master is fed by 200 mm and then the cutter operates again.

4. Actually measure the length of master cut into 200 mm length.

Standard value

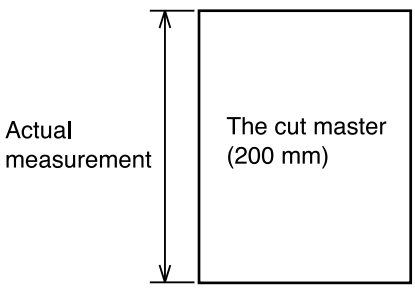
Item	Standard value
Length of the master cut into 200 mm length	200±0.5 mm

If the clearance is not the standard value:

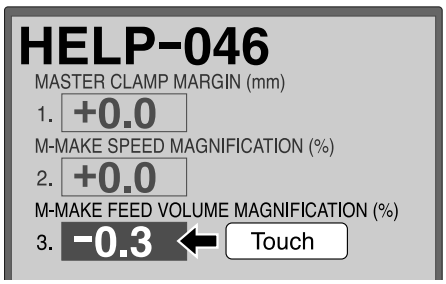
● Touch "**3**" of the HELP-046 screen for adjustment.

HELP - 046 ➡ see p.253

● **M-mark feed volume**



● **HELP-046 (page1) display**



2. Adjusting M-mark Speed Magnification

Adjustment procedure

1. Access HELP-030. HELP - 030 ➡ see p.241

2. Touch the "**TEST PATTERN 1**".

3. Press the (**MASTER MAKING**) key. Print the test pattern.

DP-S850/S650/S550 : A3 paper
DP-S620/S520/S510 : B4 paper

● For test patterns, see Chapter 8, "**HELP-030**".

4. Measure the length of two 100 mm-squares in the sub scan (vertical) direction.

Standard value

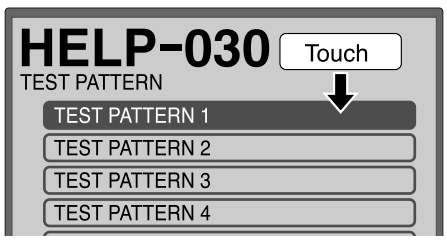
Item	Standard value
Length of two 100 mm-squares in the sub scan (vertical) direction	200±0.5 mm

If the clearance is not the standard value:

● Touch "**2**" of the HELP-046 screen for adjustment.

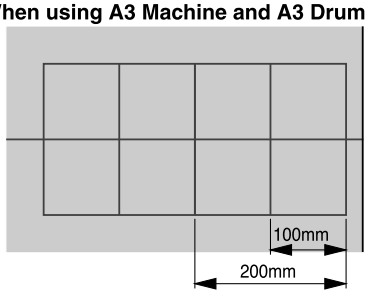
HELP - 046 ➡ see p.253

● **HELP-030 (page1) display**

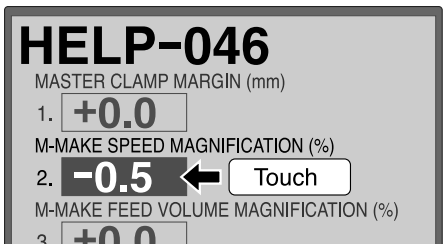


● **M-mark speed**

Test pattern 1:
When using A3 Machine and A3 Drum



● **HELP-046 (page1) display**



3. Adjusting Scan Vertical Magnification

Before adjustment

IMPORTANT : Adjust the "3.Adjusting Scan Vertical Magnification" after the "1.Adjusting M-mark Feed Volume Magnification".

Adjustment procedure

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

***DP-S850/S650/S550 : A3** paper
***DP-S620/S520/S510 : B4** paper

2. Place the document on the document table to perform master making and printing.

Standard value

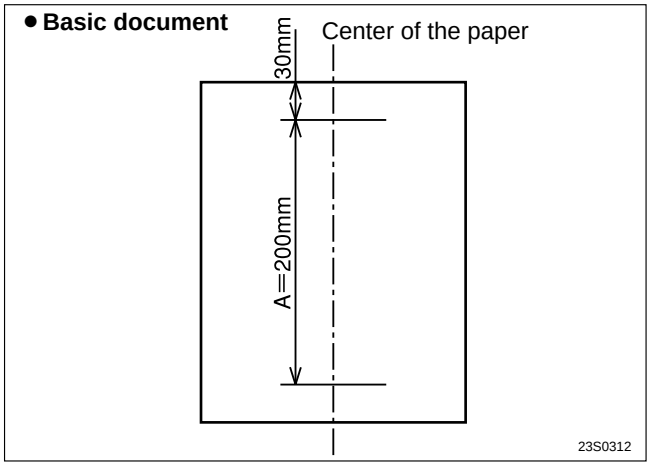
Item	Standard value
Compare the size of A section of the printed image with that of the basic document	±0.5 mm

If the clearance is not the standard value:

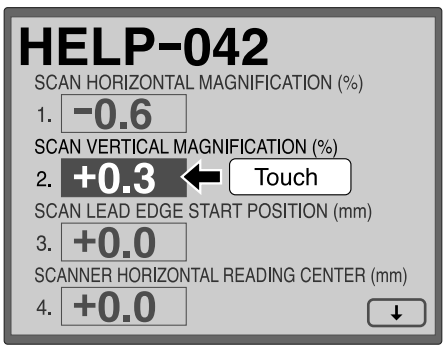
- Touch "**2**" of the HELP-042 screen for adjustment.

HELP - 042 ➡ see p.245

- **Basic document**



- **HELP-042 (page1) display**



4. Adjusting Scan Horizontal Magnification

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

***DP-S850/S650/S550 : A3** paper
***DP-S620/S520/S510 : B4** paper

2. Place the document on the document table to perform master making and printing.

Standard value

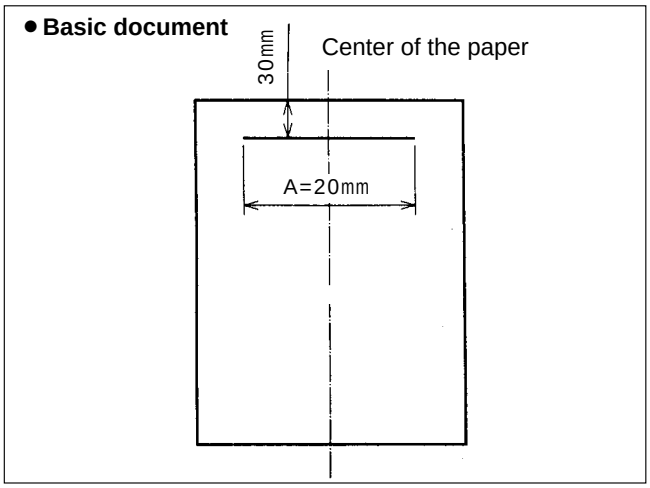
Item	Standard value
Compare the size of A section of the printed image with that of the basic document	±0.5 mm

If the clearance is not the standard value:

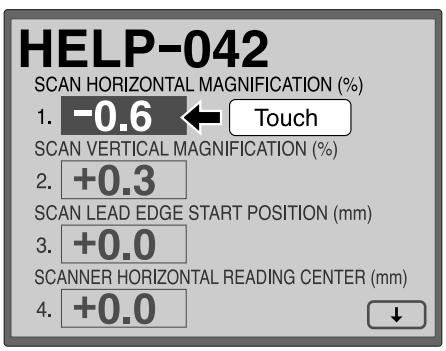
- Touch "**1**" of the HELP-042 screen for adjustment.

HELP - 042 ➡ see p.245

- **Basic document**



- **HELP-042 (page1) display**



(2) Master Making Start Position

Before adjustment

IMPORTANT : Adjust the "master making start position" after the "printing position sensor(p.149)" and "master attach position edge(p.151)" are adjusted.

Adjustment procedure

1. Access HELP-030. HELP - 030 ➡ see p.241

2. Touch the "**TEST PATTERN 1**".

3. Press the (**MASTER MAKING**) key. Print the test pattern.

DP-S850/S650/S550 : A3 paper
DP-S620/S520/S510 : B4 paper

- For test patterns, see Chapter 8, "**HELP-030**".

4. Measure the length of two 100 mm-squares in the sub scan (vertical) direction.

Standard value

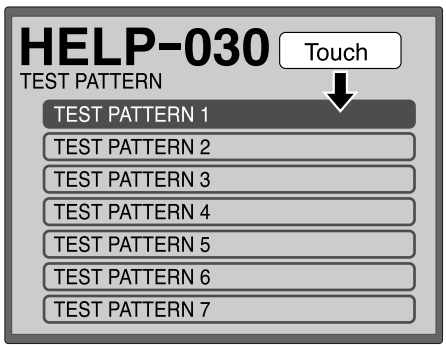
Item	Standard value
Dimensions of the 100-square lead edge line and the paper lead edge	10±0.5 mm

If the clearance is not the standard value:

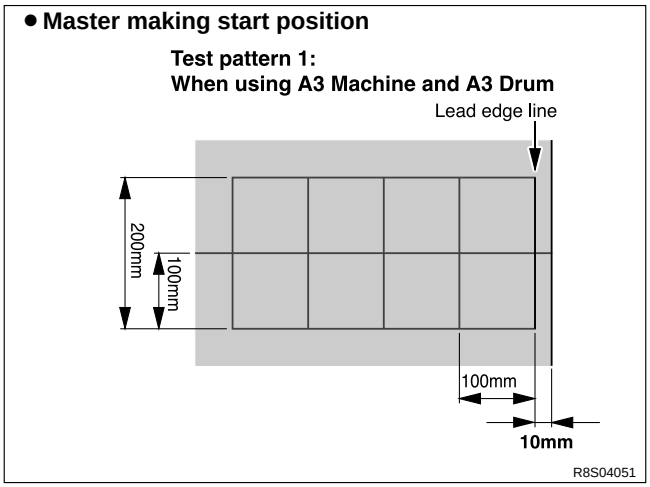
- Touch "**2**" of the HELP-046 screen for adjustment.

HELP - 046 ➡ see p.254

- **HELP-030 (page1) display**



- **Master making start position**



- **HELP-046 (page2) display**

(3) Reading Start Position

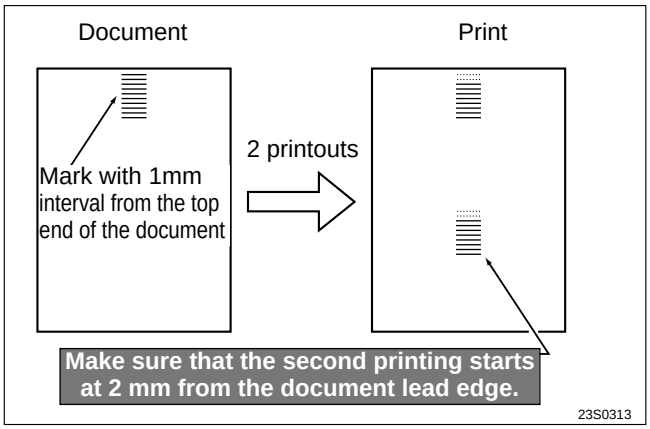
1. Adjusting the Top End Reading Start Position Adjustment procedure

1. Mark with 1mm interval up to 5mm from the top end of the paper to prepare a test document.

2. Perform master making and printing to the same size and to two printouts.

3. Make adjustment by "**3. SCAN LEAD EDGE START POSITION**" of HELP-042 so that printing starts at 2 mm from the document lead edge on the second print paper.

HELP - 042 ➡ see p.245



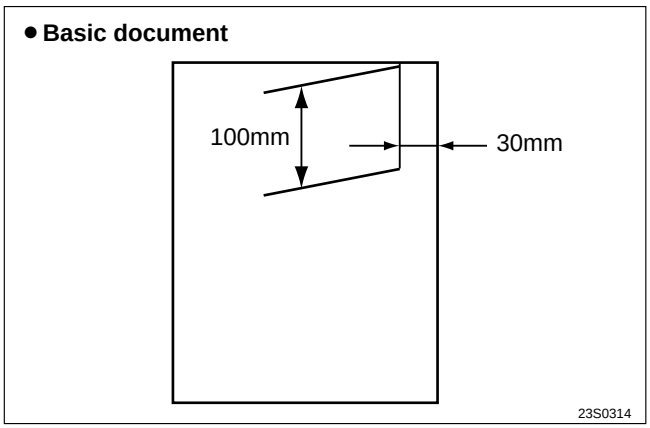
2. Adjusting the Lateral (Operation Side) Reading Start Position

Adjustment procedure

1. Make a basic document (as shown in the figure) from a sheet of **paper***.

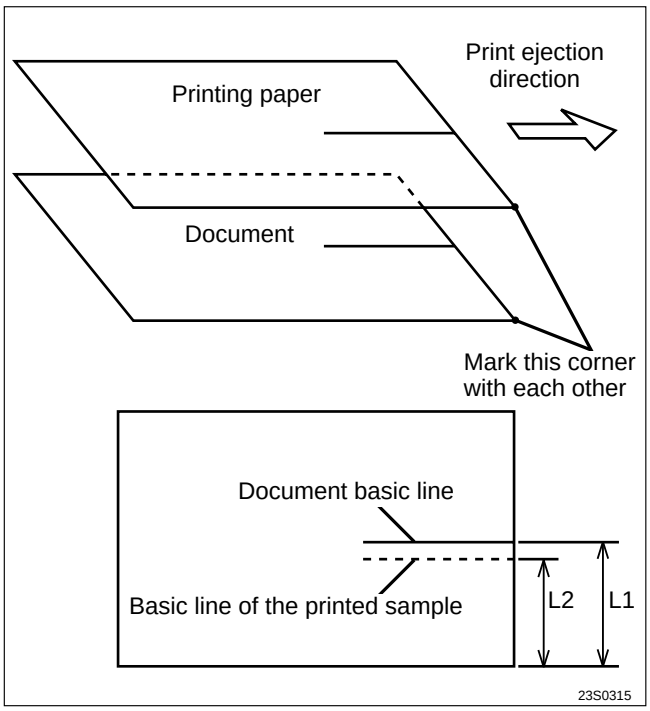
Draw a 100mm line at the position **30mm** from the right end and from the top end of the **paper***.

***DP-S850/S650/S550 : A3** paper
***DP-S620/S520/S510 : B4** paper



2. Compare the printed image with the basic document.

Check the difference between the straight lines in the vertical direction.



3. Adjust with the HELP - 042 so that **L1 - L2 ≦±3mm**.

HELP - 042 ➡ see p.245

Adjusting direction

- **L1 < L2 :** The value is decreased.
- **L1 > L2 :** The value is increased.

(4) Adjusting the Master making Start Position

1. When the Scanner Is in Use

Before adjustment

IMPORTANT :

- Adjust the **master making start position** with the scanner in use after the **printing position sensor** ➡See page 149, **master attach position edge** ➡See page 151 and **top end reading start position** ➡See page 161 are adjusted.

Adjustment procedure

1. Set the printing position (vertical direction) to the standard.

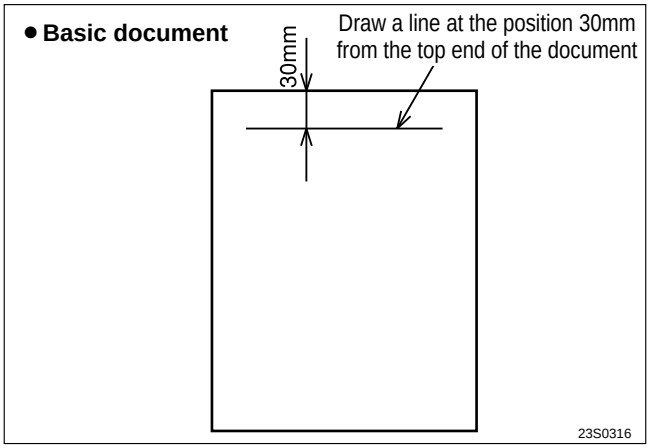
2. Draw a line at the position 30mm from the top end of the document and prepare a basic document as shown in the figure.

3. Compare the processed image with the basic document.

Check the difference of the lines in the horizontal direction.

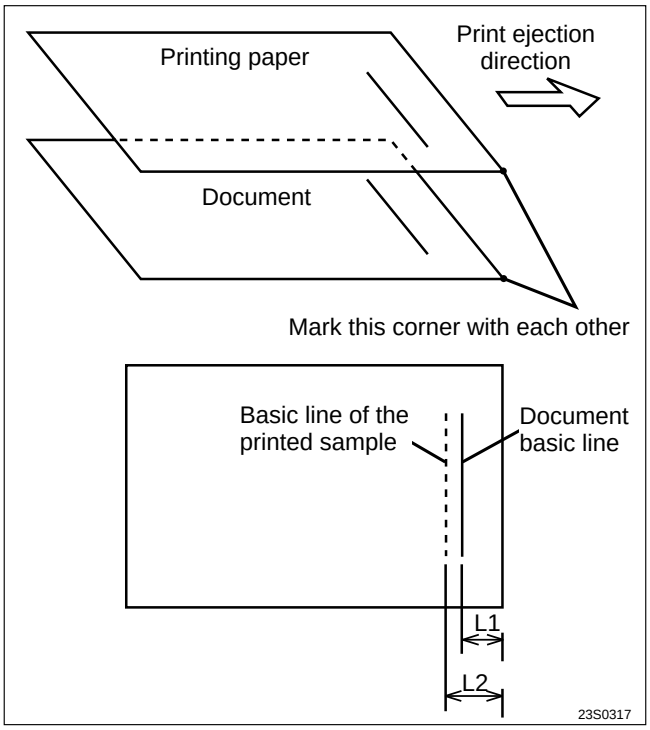
4. Adjust with the HELP - 046 (**5. M-MARK VERTICAL START POS**) so that **L1 - L2 ≦ ± 1mm**.

HELP - 046 ➡ see p.254



Adjusting direction

- **L1 < L2 :** The value is decreased.
- **L1 > L2 :** The value is increased.



2. When in Online

Before adjustment

IMPORTANT :

- Adjust the **master making start position** when in online after the **printing position sensor** ➡See page 149 and **master attach position edge** ➡See page 151 are adjusted.

Adjustment procedure

1) Perform platemaking and printing of the online test pattern. Adjust with the HELP - 047 so that the basic line is positioned **± 1mm** from the top end of the paper.

HELP - 047 ➡ see p.255

(5) Adjusting the Document Reading Darkness

1. Adjusting the Scan Level : Text mode

(Make adjustment by the black level and the white level.)

Adjustment procedure

1. Access HELP - 044. HELP - 044 ➡ see p.249

2. Select and touch the item to be adjusted and change the value.

Adjust density of the dark part.

- To heighten density of the dark part.
  ➡ Increase the black level.
- To lower density of the dark part.
  ➡ Decrease the black level.

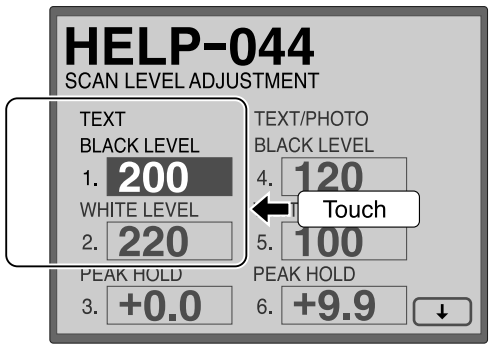
Adjust density of the light part.

- Scumming occurs.
  ➡ Increase the white level.
- Platemaking of the light part is impossible.
  ➡ Decrease the white level.

3. Press the ⩓ key to store the set value.

4. After master making and printing, check density.

● **HELP-044 display**



2. Adjusting the Scan Level : Text/Photo, Photo/Text, Photo mode

(Make adjustment by the black level and the peak hold.)

Adjustment procedure

1. Access HELP - 044. HELP - 044 ➡ see p.250

2. Select and touch the item to be adjusted and change the value.

Adjust density of the dark part.

- To heighten density of the dark part.
  ➡ Increase the black level.
- To lower density of the dark part.
  ➡ Decrease the black level.

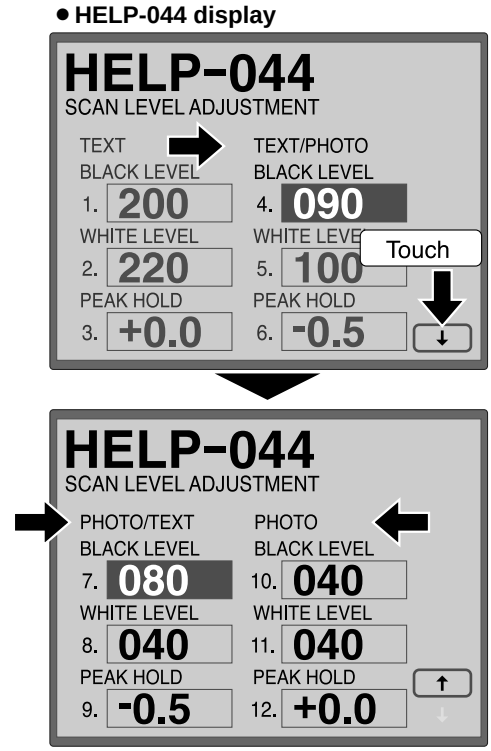
Adjust the total lightness.

- Scumming occurs. ➡ Decrease the peak hold. (Minus side)
- Platemaking of the light part is impossible. ➡ Increase the peak hold. (Plus side)

3. Press the ⩓ key to store the set value.

4. After master making and printing, check density.

● **HELP-044 display**



(6) Adjusting of Printer Unit's Printing Speed

1. Adjusting the Pre-stop Speed

Adjustment procedure

1. Access HELP-003. HELP - 003 ➡ see p.203

2. Touch the **PRESTOP SPEED**.

3. Press the (**MASTER MAKING**) key. The drum rotates and the rotation speed appears on the panel lower part.

Standard values:

Item	Standard value
Pre-stop speed	6 rpm

If the value is not correct:

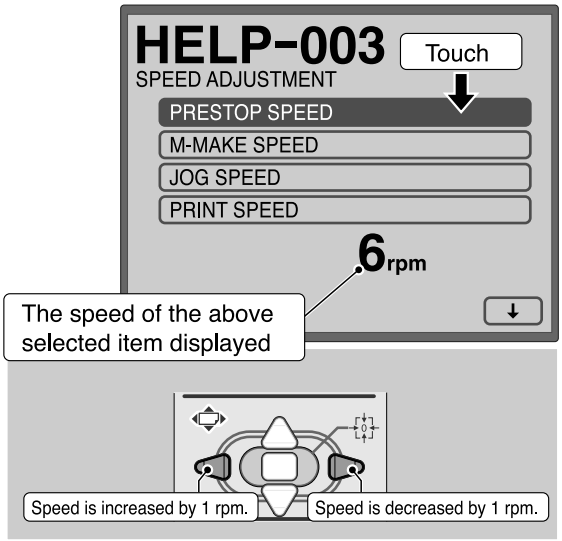
- Press the (**PRINT POSITION**) , keys to obtain the proper value in ***3*** above.
  Press the (**PRINT POSITION**) key once: By 1 rpm decreased
  Press the (**PRINT POSITION**) key once: By 1 rpm increased

4. Press the key to store all speed set values.

Initialization

- Press the **C** (**CLEAR**) key to initialize the displayed value.

● **HELP-003 display : Pre-stop speed**



2. Adjusting the M-mark Speed

Adjustment procedure

1. Access HELP-003. HELP - 003 ➡ see p.203

2. Touch the **M-MARK SPEED**.

3. Press the (**MASTER MAKING**) key. The drum rotates and the rotation speed appears on the panel lower part.

Standard values:

Item	Standard value
M-mark Speed	18 rpm

If the value is not correct:

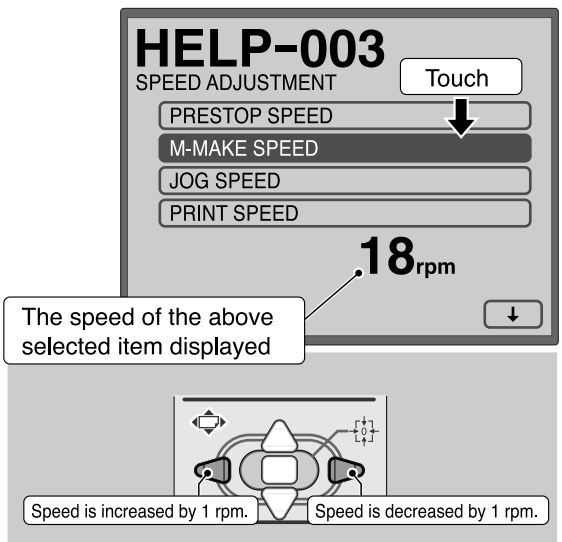
- Press the (**PRINT POSITION**) , keys to obtain the proper value in ***3*** above.
  Press the (**PRINT POSITION**) key once: By 1 rpm decreased
  Press the (**PRINT POSITION**) key once: By 1 rpm increased

4. Press the key to store all speed set values.

Initialization

- Press the **C** (**CLEAR**) key to initialize the displayed value.

● **HELP-003 display : M-mark Speed**



3. Adjusting the Jog Speed

Adjustment procedure

1. Access HELP-003.

HELP - 003 ➡ see p.203

2. Touch the **JOG SPEED**.

3. Press the (**MASTER MAKING**) key. The drum rotates and the rotation speed appears on the panel lower part.

Standard values:

Item	Standard value
Jog Speed	16 rpm

If the value is not correct:

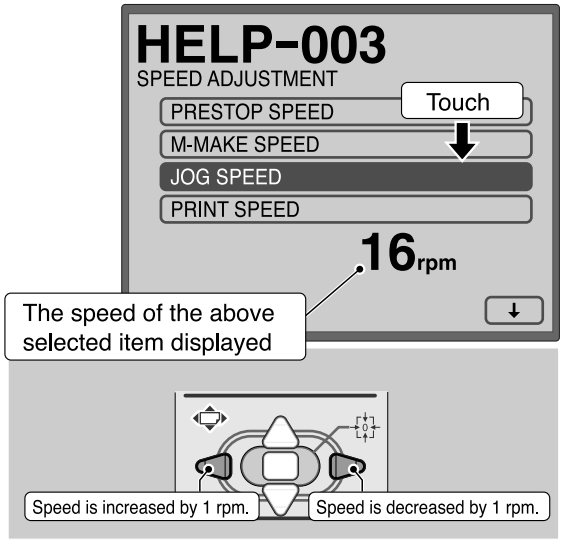
- Press the (**PRINT POSITION**) , keys to obtain the proper value in *3* above.
  Press the (**PRINT POSITION**) key once: By 1 rpm decreased
  Press the (**PRINT POSITION**) key once: By 1 rpm increased

4. Press the key to store all speed set values.

Initialization

- Press the **C** (**CLEAR**) key to initialize the speed of the selected item.

● **HELP-003 display : Jog Speed**



4. Adjusting the Print Speed

Adjustment procedure

1. Access HELP-003.

HELP - 003 ➡ see p.203

2. Touch the **PRINT SPEED**.

3. Check the displayed speed.

Standard values:

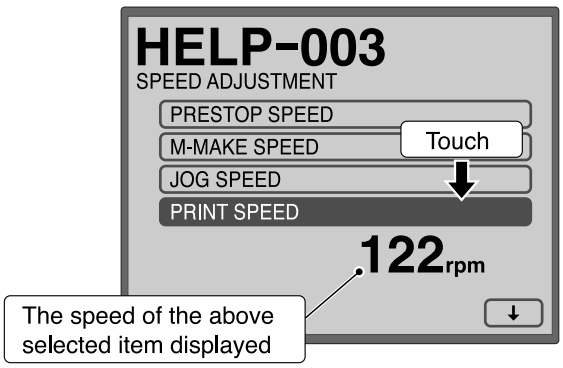
Item	Standard value
Speed 0 (Low print speed)	32 rpm
Speed 1	47 rpm
Speed 2	82 rpm
Speed 3	102 rpm
Speed 4	122 rpm
Speed 5	132 rpm
Speed 6 (High print speed)	152 rpm

If the value is not correct:

- Press the (**PRINT POSITION**) , keys to obtain the proper value in *3* above.
  Press the (**PRINT POSITION**) key once: By 1 rpm decreased
  Press the (**PRINT POSITION**) key once: By 1 rpm increased

4. Press the (**STOP**) key to store the adjusted values and to return to the HELP mode selection screen.

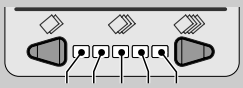
● **HELP-003 display : Print Speed**



To change the speed (**0** to **6**):

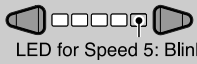
❶ Select and touch **PRINT SPEED** key.

❷ Change the speed by the **PRINT SPEED** keys on the panel.



Speed 0: Set to Speed 1 and then press .

Speed 6: Set to Speed 5 and then press .



(7) Adjusting Paper Eject Speed

1. Adjusting the Paper Eject Speed

Adjustment procedure

1. Access HELP-007. HELP - 007 ➡ see p.217

2. Touch the ↓ (**arrow**) on the screen lower right once to switch to page 2.

3. Touch the **PAPER EJECT SPEED**.

4. Check the displayed speed.

Standard values:

Item	Standard value
Paper eject speed (below 5 speed)	206 rpm
Paper eject speed (6 speed)	239 rpm

If the value is not correct:

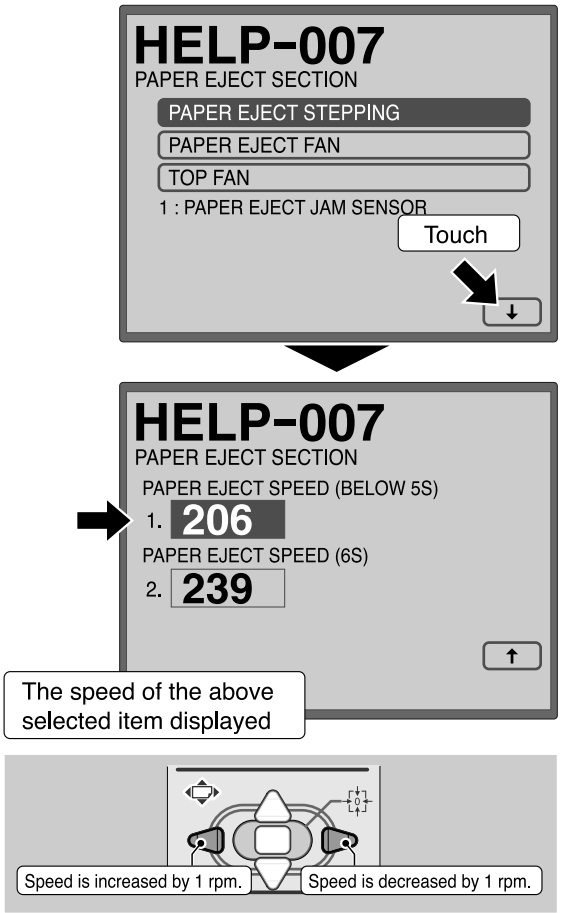
- Press the (**PRINT POSITION**) ◁, ▷ keys to obtain the proper value in ***4*** above.
  Press the (**PRINT POSITION**) ◁ key once: By 1 rpm decreased
  Press the (**PRINT POSITION**) ▷ key once: By 1 rpm increased

5. Press the ≚ key to store all speed set values.

Initialization

- Press the **C** (**CLEAR**) key to initialize the displayed value.

● **HELP-007 display : Paper eject speed**



Chapter 5 Maintenance/Check

1 **Guaranteed Periodical Maintenance 168**
2 **Cleaning and Oiling 168**
(1) Cleaning 168
(2) Oiling 168
3 **Periodical Maintenance 169**
(1) 6-month Periodical Checking 169

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.

(2) Oiling

Oil or grease after ink or paper shreds are removed.

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
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	Press roller	1,000,000 sheets or one year	

MEMO

Chapter 6 Troubleshooting

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(28) Paper Jams in the Paper Feed Side 188

2 **Error Display 189**

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
CLOSE FRONT COVER		(20)	184
CLOSE SCANNER		(21)	184
E001	Error : Main motor locked.	(3)	174
E002	Error : Elevator motor locked	(4)	174
E005	Error : Ink roller up/down motor locked	(5)	175
E006	Error : Press motor locked	(6)	176
E009	Error : Thermal head voltage	(7)	177
E011	Error : Thermal head up/down motor locked	(8)	177
E012	Error : Clamp motor locked.	(9)	178
E013	Error : Scanner stepping motor locked	(10)	179
E015	Error : Vertical registration motor locked	(11)	180
E016	Error : Horizontal registration motor locked	(12)	181
E020	Error : Tape cluster cutter motor locked	(13)	182
E021	Error : Communication with the tape cluster is not performed normally	(14)	182
MASTER EJECTION ERROR		(17)	183
NO INK		(23)	185
NO MASTER		(22)	185
NO PAPER		(19)	184
NO USED MASTER CORE		(27)	187
PAPER JAM ON FEEDER SIDE		(25)	186
PAPER JAM ON EJECTION SIDE		(26)	187
PLEASE INSERT CARD		(24)	186

▶ Error item List

Massage	Remarks	No.	Page
Lamp does not Light Up		(1)	173
Malfunction of Master Feeding Clutch		(15)	182
Malfunction of Master Stepping Motor		(16)	183
Malfunction of Eject (Roll-up) Motor		(18)	184
Optical System Dose Not Move Forward/Backward		(2)	173
Paper Jams in the Paper Feed Side		(28)	188

(1) Lamp does not Light Up

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
24V power supply	1	Measure the voltage between CN2-1(+24) and CN2-5(GND) of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between L and N of the 24V power with the tester. If it is AC100V, replace the 24V power supply.
			YES	Follow the procedure **2**.
Drive PCB Unit	2	Measure the drive PCB unit CN5-1 (+) and CN5-2(GND) with the tester. Is it +24V?	NO	Replace the drive PCB Unit.
	3	Does the lamp light up when the drive PCB unit CN6-6 produces a short circuit to GND?	YES	Follow the procedure **5**.
Drive PCB Unit	4	Does replacing the drive PCB unit solve the problem?	YES	Finish
Main PCB Unit			NO	Replace the main PCB Unit.
Lamp	5	Does replacing the lamp solve the problem?	YES	Finish
Inverter PCB Unit			NO	Replace the inverter PCB Unit.
Motors	6	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.
24V power supply	3	Measure the voltage between CN2-1(+24) and CN2-5(GND) of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between L and N of the 24V power with the tester. If it is AC100V, replace the 24V 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	Replace the main PCB Unit.
Motors	5	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/Detective section	Procedures	Items to be checked	Result	Countermeasure
Drum	1	Does drum rotate?	NO	Proceed to procedure **5**.
Drum interference with the main unit	2	Does main motor rotate without drum?	YES	Eliminate interference.
Drive system gear broken or blocked with foreign matter.	3	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.
24V power supply	4	Measure the voltage between CN2-6 and CN2-2 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
Main motor encoder sensor	5	Does the main motor encoder sensor status when it is checked using HELP-005?	NO	Replace the main motor encoder sensor. If the main motor encoder sensor does not operate even after replacement, replace the main PCB.
Main motor PCB unit	6	Does replacing the main motor PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Replace the main PCB unit.
Main motor	7	Is there any problem in the above items?	YES	Replace the main motor.

HELP-005 ➡ see page 207

(4) "E002" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Feed tray operation is defective	1	Is the feed tray moved by hand smoothly?	NO	Remove the cause of defective operation. Lean or catch?
Fuse	2	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
	3	Check with the HELP-006. Are the elevator top limit sensor and the elevator lower limit switch normal?	NO	Follow the procedure **7** when the elevator top limit sensor is defective. Follow the procedure **8** when the elevator lower limit switch is defective.
24V power supply	4	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
Elevator motor	5	At the timing when the elevator motor operates, measure the voltage between CN3-9 and CN3-10 of the drive PCB with the tester. When inserting and removing the relay connector of the elevator motor, is +24V or -24V applied?	YES	Check the wiring harness. If there is no problem, replace the elevator motor.
Drive PCB Unit	6	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB Unit			NO	Replace the main PCB Unit.
Elevator top limit sensor	7	Turn ON/OFF the elevator top limit sensor for measurement with the tester. Is the sensor normal?	NO	Replace the elevator top limit sensor.
Main PCB Unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.
Elevator lower limit switch	8	Turn the elevator lower limit switch on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the elevator lower limit switch.
Main PCB Unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.

HELP-006 ➡ see page 211

(5) "E005" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the ink roller up/down motor turn when it is checked using HELP-005?	YES	Follow the procedure **6**.
Fuse	2	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
Ink roller up/down motor	3	Using a tester, measure the voltage between CN6-22 and CN6-23 when the ink roller up/down motor is activated using HELP-005. Is it +24V?	YES	Check the bundled wire. If OK, replace the ink roller up/down motor.
24V power supply	4	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
Drive PCB unit	5	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 CN19. If OK, replace the main PCB unit.
Ink roller up/down sensor	6	Does the ink roller up/down sensor change state when it is checked using HELP-005?	NO	Check the wiring harness. If there is no problem, replace the Ink roller up/down sensor.

HELP-005 ¥ see page 207

(6) "E006" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the press motor turn when it is checked using HELP-013?	YES	Follow the procedure **6**.
Fuse	2	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
Press motor	3	Using a tester, measure the voltage between CN6-18 and CN6-19 when the press motor is activated using HELP-013. Is it +24V or -24V?	YES	Check the wiring harness. If there is no problem, replace the Ink roller up/down motor.
24V power supply	4	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
			YES	Follow the procedure **5**.
Drive PCB unit	5	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 CN19. If OK, replace the main PCB unit.
	6	Check with the HELP-013. Are the press encoder sensor and the press center sensor normal?	NO	Follow the procedure **7** when the press encoder sensor is defective.
				Follow the procedure **8** when the press center sensor is defective.
Press encoder sensor	7	Turn the press encoder sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the press encoder sensor.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.
Press center sensor	8	Turn the center encoder sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the press center sensor.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.

HELP-013 ➡ see page 227

(7) "E009" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Fuse	1	Is the fuse (F1) of the relay PCB normal?	NO	Replace the fuse.
			YES	Follow the procedure **2**.
Thermal head	2	Removing the all connectors of the themal head. Using a tester, measure the voltage between the relay PCB unit CN3-1 and CN3-14 when thermal head power is on with HELP-008. Is it +24V?	YES	Check the wiring harness. If there is no problem, replace the thermal head.
			NO	Follow the procedure **3**.
24V power supply	3	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
			YES	Follow the procedure **4**.
Relay PCB unit	4	Does replacing the relay PCB unit solve the problem?	YES	Finish.
Drive PCB unit	5	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Replace the main PCB unit.

HELP-008 ➡ see page 218

(8) "E011" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does thermal head up/down motor turn when it is checked using HELP-008?	YES	Follow the procedure **6**.
Fuse	2	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
Thermal head up/down motor	3	Using a tester, measure the voltage between CN3-23 and CN6-24 when the thermal head up/down motor is activated using HELP-008. Is it +24V?	YES	Check the wiring harness. If there is no problem, replace the Thermal head up/down motor.
24V power supply	4	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
Drive PCB unit	5	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 CN19. If OK, replace the main PCB unit.
Thermal head position sensor	6	Does the thermal head position sensor status when it is checked using HELP-005?	NO	Replace thermal head position sensor.

HELP-008 ➡ see page 218

(9) "E012" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the clamp motor turn when it is checked using HELP-012?	YES	Follow the procedure **6**.
Fuse	2	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
Clamp motor	3	Using a tester, measure the voltage between CN3-7 and CN6-8 when the clamp motor is activated using HELP-012. Is it +24V?	YES	Check the wiring harness. If there is no problem, replace the clamp motor.
24V power supply	4	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
Drive PCB unit	5	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 CN19. If OK, replace the main PCB unit.
	6	Check with the HELP-012. Are the clamp sensor 1 and the clamp sensor 2 normal?	NO	Follow the procedure **7** when the clamp sensor 1 is defective. Follow the procedure **8** when the clamp sensor 2 is defective.
Clamp sensor 1	7	Turn the clamp sensor 1 on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the clamp sensor 1.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.
Clamp sensor 2	8	Turn the clamp sensor 2 on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the clamp sensor 2.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.

HELP-012 ➡ see page 226

(10) "E013" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the scanner stepping motor turn when it is checked using HELP-010?	YES	Follow the procedure **6**.
Fuse	2	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
24V power supply	3	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
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 CN1 and the main PCB CN19. If OK, replace the main PCB unit.
Scanner stepping motor	5	Replacing the scanner stepping motor. Is it rotate?	YES	Finish.
	6	Check with the HELP-010. Are the slider limit sensor 1 and the slider limit sensor 2 normal?	NO	Follow the procedure **7** when the slider limit sensor 1 is defective. Follow the procedure **8** when the slider limit sensor 2 is defective.
Slider limit sensor 1	7	Turn the slider limit sensor 1 on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the slider limit sensor 1.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.
Slider limit sensor 2	8	Turn the slider limit sensor 2 on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the slider limit sensor 2.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.

HELP-010 ➡ see page 221

(11) "E015" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the clamp motor turn when it is checked using HELP-014?	YES	Follow the procedure **6**.
Fuse	2	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
Vertical registration motor	3	Using a tester, measure the voltage between CN3-18 and CN6-19 when the vertical registration motor is activated using HELP-014. Is it +24V?	YES	Check the wiring harness. If there is no problem, replace the vertical registration motor.
24V power supply	4	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
Drive PCB unit	5	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 CN19. If OK, replace the main PCB unit.
	6	Check with the HELP-014. Are the vertical registration encoder sensor and the vertical registration center sensor normal?	NO	Follow the procedure **7** when the vertical registration encoder sensor is defective. Follow the procedure **8** when the vertical registration center sensor is defective.
Vertical registration encoder sensor	7	Turn the vertical registration encoder sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the vertical registration encoder sensor.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.
Vertical registration center sensor	8	Turn the vertical registration center sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the vertical registration center sensor.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.

HELP-014 ➡ see page 228

(12) "E016" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Is the feed tray properly attached?		Properly attach the feed tray.
	2	Does the clamp motor turn when it is checked using HELP-015?	YES	Follow the procedure **7**.
Fuse	3	Is the fuse of the drive PCB normal?	NO	Replace the fuse.
Horizontal registration motor	4	Using a tester, measure the voltage between CN3-18 (+) and CN6-19 (GND) when the press motor is activated using HELP-015. Is it +24V?	YES	Check the wiring harness. If there is no problem, replace the horizontal registration motor.
24V power supply	5	Measure the voltage between CN2-5 and CN2-1 of the 24V power with the tester. Is the voltage +24V?	NO	Measure the voltage between CN1-1 and CN1-3 of the 24V power with the tester. If it is AC100V, replace the 24V power.
Drive PCB unit	6	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 CN19. If OK, replace the main PCB unit.
	7	Check with the HELP-015. Are the horizontal registration encoder sensor and the horizontal registration center sensor normal?	NO	Follow the procedure **8** when the horizontal registration encoder sensor is defective. Follow the procedure **9** when the horizontal registration center sensor is defective.
Horizontal registration encoder sensor	8	Turn the horizontal registration encoder sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the horizontal registration encoder sensor.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.
Horizontal registration center sensor	9	Turn the horizontal registration center sensor on and off, and use a tester to measure voltage. Is voltage normal?	NO	Replace the horizontal registration center sensor.
Main PCB unit			YES	Check the wiring harness. If there is no problem, replace the main PCB.

HELP-015 ➡ see page 230

(13) "E020" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the cutter ****** when it is checked using HELP-071?	YES	Follow the procedure **2**.
			NO	Follow the procedure **3**.
Home position switch	2	Turn the home position switch of cutter on and off, and use a tester to measure voltage. Is voltage normal?	YES	Replace the tape cluster PCB unit.
			NO	Replace the cutter unit.
Cutter motor	3	Using a tester, measure the voltage connector when the cutter motor is activated using HELP-071.Is it +24V?	YES	Replace the cutter unit.
tape cluster PCB unit			NO	Replace the tape cluster PCB unit.

HELP-071 ➡ see page 274

(14) "E021" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Is the wiring harness (including the ground wire) of the tape cluster securely connected to the printer?	NO	Securely connect the connector (the ground wire).
			YES	Follow the procedure **2**.
Tape cluster PCB unit	2	Does replacing the tape cluster PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Replace the main PCB unit.

(15) Malfunction of Master feed clutch

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
24V power supply	1	Measure the voltage between CN2-1 and CN2-5 of the 24V power with the tester. Is the voltage +24V?	NO	Replace the 24V power supply.
Master feed clutch	2	Does voltage between drive PCB unit CN3-3 (+) and CN3-4(GND) show 24V when master feed clutch is turned on?	YES	Check wiring and replace master feed clutch.
Drive PCB Unit	3	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

(16) Malfunction of Master stepping motor

Cause/Detective section	Procedures	Items 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 .
24V power supply	2	Measure the voltage between CN2-1 and CN2-5 of the 24V power with the tester. Is the voltage +24V?	NO	Replace the 24V power supply.
Drive PCB Unit	3	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

(17) "MASTER SET ERROR" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Has "MASTER EJECTION ERROR" actually occurred?	YES	Follow the procedure **3**.
Master eject jam sensor	2	Does replacing the master eject jam sensor solve the problem?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.
Eject motor	3	Does eject motor rotate normally?	NO	Refer to "(18) Malfunction of eject motor".
Master clamp dirty.	4	Is the master clamp section dirty with ink or oil?	YES	Clean master clamp section.
Master ejection box	5	Is stripper finger or springs damaged?	YES	Replace any damaged stripper finger or springs.
Drum removal position	6	Is the drum removal position within reference value?	NO	Adjust the drum removal position.
C mode			YES	Check and adjust C mode.

(18) Malfunction of Eject motor

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Eject motor	1	Does voltage between drive PCB unit CN3-16 (+) and -15(GND) show 24V when eject motor is operated with HELP-009?	YES	Replace the eject motor .
24V power supply	2	Measure the voltage between CN2-1 and CN2-5 of the 24V power with the tester. Is the voltage +24V?	NO	Replace the 24V power supply.
Drive PCB Unit	3	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

HELP-009 ➡ see page 220

(19) "NO PAPER" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Paper sensor	1	When paper sensor is checked with HELP-006, is "1" displayed if paper is absent and is "0" displayed if present?	NO	Replace the paper sensor.
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

HELP-006 ➡ see page 211

(20) "CLOSE FRONT COVER" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Front cover sensor	1	When front cover sensor is checked with HELP-021, is "0" displayed if front cover is opened and is "1" displayed if closed?	NO	Replace the front cover sensor.
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

HELP-021 ➡ see page 233

(21) "CLOSE SCANNER" is displayed

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

(22) "NO MASTER" is displayed

Cause/Detective section	Procedures	Items 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 by HELP-008?	YES	Finish.
End mark sensor PCB unit	2	Does replacing the end mark sensor PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

HELP-008 ➡ see page 218

(23) "NO INK" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Ink	1	Is enough ink left in ink pack?	NO	Replace the 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 the 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 the ink pump.
24V power supply	7	Measure the voltage between CN2-1 and CN2-5 of the 24V power with the tester. Is the voltage +24V?	NO	Replace the 24V power supply.
Ink pump motor	8	Does voltage between drive PCB unit CN6-24 and -25 show 24V?	YES	Replace the ink pump motor.
Drive PCB Unit	9	Does replacing the drive PCB unit solve the problem?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

(24) "PLEASE INSERT CARD" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Is the keycard counter connector connected?	NO	Proceed to procedure **4**.
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-070 set to "0011"?	NO	Set HELP-070 set to "0011".
Main PCB unit	5	Does voltage between main PCB unit CN9-1(5V) and CN9-10 (GND) about 5V?	YES	Replace the main PCB unit.
Keycard counte			NO	Replace the keycard counter.

HELP-070 ➡ see page 273

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

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Paper	1	Is printing paper long within specified value?	NO	Use paper conforming to specification.
	2	When paper eject jam sensor is checked with HELP-007, is "1" displayed if sensor is photopassing and is "0" displayed if photointerrupted?	NO	Replace the paper eject jam sensor.
Paper jammed	3	Is paper really jammed at master ejection section?	YES	(Refer to "(29) Paper JAM in paper eject side".
Dirt or foreign material on sensor.	4	Is there any dirt or foreign material on the paper eject jam sensor?	YES	Clean the paper eject jam sensor.
Drum position 1 sensor	5	When drum is checked with HELP-005 while rotating slowly, does the Drum position 1 sensor display "0" or "1" according to edge of photointerrupter?	NO	Adjust position of the drum position 1 sensor. If necessary, replace.
Main PCB unit			YES	Replace the main PCB unit.

HELP-007 ➡ see p.216

HELP-005 ➡ see p.207

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

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Is trouble cleared by checking, referring to "(28) Paper jams in the paper feed side"?	YES	Finish.
Main PCB unit	2	Check the paper top detect sensor and the signal sensor?	YES	Replace the main PCB unit.
Paper top detect sensor Signal sensor	3	Does replacing the paper top detect sensor and the signal sensor solve the problem?	YES	Finish.
Press roller sensor position.	4	Is the trouble cleared by adjusting press roller sensor position?	YES	Finish.
Press roller sensor	5	Does replacing the press roller sensor solve the problem?	YES	Finish.
Main PCB unit			NO	Check bundled wire and connectors and replace main PCB unit.

HELP-013 ➡ see p.227

(27) "NO USED MASTER CORE" is displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Core	1	Core is not included or core is full?	YES	Insert new core.
Used master core sensor	2	When core detect is checked with HELP-009, is "1" displayed if core is insert and is "0" displayed if take out?	NO	Replace the used master core sensor.
Used master core sensor	3	Does used master core sensor tested volt-ohm-milliammeter prove to be normal?	NO	Replace the used master core sensor.
Main PCB unit			YES	Check bundled wire and connectors and replace main PCB unit.

HELP-009 ➡ see p.220

(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 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 intransfer 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.
	• 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 145
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 145
Separation pressure	• If pressure is very low, no paper will be fed.	Perform separation pressure check.
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 145

2 Error Display

This machine has a self-diagnosis function. The state of the machine is always checked with this function and is displayed with code on the control panel. The following are the code display, cause and detection timing.

Code display	Detection timing	Cause	Page
E001	Error : Main motor locked During the main motor rotation, the main motor encoder sensor does not detect the edge for 0.1 second.	The main motor is defective. The main motor encoder sensor is defective. The main motor PCB unit is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection The drum is locked.	174
E002	Error : Elevator motor locked While the elevator is moving up, the elevator top limit sensor does not pass light within 30 seconds. While the elevator is moving down, the elevator lower limit switch does not turn on within 30 seconds.	The elevator motor is defective. The elevator top limit sensor is defective. The elevator lower limit switch is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	174
E005	Error : Ink roller up/down motor locked The ink roller up/down sensor does not detect the edge within 4 seconds after the ink roller up/down motor starts rotating.	The ink roller up/down motor is defective. The ink roller up/down sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	175
E006	Error : Press motor locked The press encoder sensor does not detect the edge within 0.5 seconds after the press motor starts rotating. During the press motor rotation, the press encoder sensor does not detect the edge for 0.1 second. When moving the press pressure to the center position, the press center sensor does not detect the center position within 1.25 x of the maximum one-side moving distance.	The press motor is defective. The press encoder sensor is defective. The press center sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	176
E009	Error : Thermal head voltage The thermal head power does not turn on during platemaking.	The relay PCB unit is defective. The fuse of the relay PCB disconnected. The drive PCB unit is defective. The main PCB unit is defective. Disconnection/Poor connector connection	177
E011	Error : Thermal head up/down motor locked The thermal head position sensor does not detect the edge within 1.5 seconds after the thermal head up/down motor starts rotating.	The thermal head up/down motor is defective. The thermal head position sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	177

Code display	Detection timing	Cause	Page
E012	Error : Clamp motor Within 3 seconds after the clamp motor starts rotating, the clamp sensor 1/the clamp sensor 2 does not detect that B mode/C mode is entered.	The clamp motor is defective. The clamp sensor 1 is defective. The clamp sensor 2 is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	178
E013	Error : Scanner stepping motor locked When moving the slider from end to end, the slider position sensor 1/the slider position sensor 2 does not detect that the slider reaches the desired position within 6 seconds after the scanner stepping motor starts rotating. When moving the slider from the position other than the end to the end, the slider position sensor 1/the slider position sensor 2 does not detect that the slider reaches the desired position within 12 seconds after the scanner stepping motor starts rotating.	The scanner stepping motor is defective. The slider position sensor 1 is defective. The slider position sensor 2 is defective. Poor connector connection The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	179
E015	Error : Vertical registration motor locked The vertical registration encoder sensor does not detect the edge within 0.5 seconds after the vertical registration motor starts rotating. Although the vertical registration motor is rotating, the vertical registration encoder sensor does not detect the edge for 0.3 second. Although the vertical registration section is moved by 1.25 x of the maximum one-side vertical registration moving distance back to the center, the vertical registration center sensor does not detect that the vertical registration reaches the center.	The vertical registration motor is defective. The vertical registration encoder sensor is defective. The vertical registration center sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	180
E016	Error : Horizontal registration motor locked The horizontal registration encoder sensor does not detect the edge within 0.5 seconds after the vertical registration motor starts rotating. Although the horizontal registration motor is rotating, the horizontal registration encoder sensor does not detect the edge for 0.3 second. Although the horizontal registration section is moved by 1.25 x of the maximum one-side horizontal registration moving distance back to the center, the horizontal registration center sensor does not detect that the horizontal registration reaches the center.	The horizontal registration motor is defective. The horizontal registration encoder sensor is defective. The horizontal registration center sensor is defective. The drive PCB unit is defective. The main PCB unit is defective. The 24V power supply is defective. Disconnection/Poor connector connection	181
E018	Error : FPGA Write /readout to FPGA of the main PCB is defective.	The main PCB unit is defective.	–
E020	Error : Tape cluster cutter motor locked Tape cutting is defective.	The tape cluster cutter motor is defective. The tape cluster cutter home position sensor is defective. The tape cluster PCB unit is defective. The drive PCB unit is defective. Disconnection/Poor connector connection	182
E021	Error : Communication with the tape cluster is not performed normally Communication between the main PCB and the tape cluster PCB is defective.	The tape cluster PCB unit is defective. The main PCB unit is defective. Disconnection/Poor connector connection	182

Code display	Detection timing	Cause	Page
E023	Error : The tape cluster TPH resistance rank The TPH resistance rank is not properly set by DIPSW of the tape cluster PCB. DIPSW setting of the tape cluster PCB cannot be detected normally.	The TPH resistance rank setting is defective. The tape cluster PCB unit is defective.	–
E024	Error : Disconnection/short circuit of the tape cluster thermistor The thermistor of the tape cluster PCB detects the abnormal temperature.	The tape cluster PCB unit is defective.	–
E030	Error : EEPROM (for the standard) Write/readout to the standard is defective.	The EEPROM PCB unit is defective. The main PCB unit is defective. Disconnection/Poor connector connection	–
E031	Error : EEPROM (for the key card) Write/readout to the key card is defective.	The key card EEPROM PCB unit is not initialized. The key card EEPROM PCB unit is defective. The main PCB unit is defective. Disconnection/Poor connector connection	–
E032	Error : Panel communication Communication between the main PCB and the panel PCB is defective.	Disconnection/Poor connector connection The panel PCB unit is defective. The main PCB unit is defective.	–
E033	Error : SDRAM Write/readout to the image memory of the main PCB is defective.	The main PCB unit is defective.	–
E034	Error : Storage/clear of the memory function The memory function storage contents are not stored/ cleared in the memory PCB normally.	The main PCB unit is defective.	–

MEMO

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7

1 HELP Mode List

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HELP-006	Adjusting/Checking the Paper Feed Section		[Page1] Check operation (PAPER FEED STEPPING MOTOR, ELEVATOR MOTOR) Checking sensors/switches.	211
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2 Overview

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

◆ Modes for ROM version display / version upgrade

To display the tape cluster ROM version if the main PCB ROM, the panel PCB ROM, FPGA and the tape cluster TAP-05 - 12 are available

To update the main PCB ROM and the panel PCB 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-027).**

◆ Modes for function checks

These modes permit the running of function checks on: individual motors, given series of operations, and electrical circuits.

When these modes are used to check motor functioning, the motor being checked is run by itself, but interlocks are suspended. When such checks are run, take care not to put hands or fingers in motor-related moving parts that could start up unexpectedly.

⚠ 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

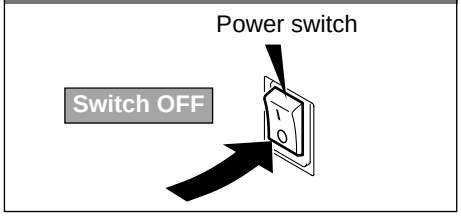
These modes provide displays of the counts of the total number of plates made and sheets printed by the DUPRINTER since it was manufactured. They also permit resetting of the total count values displayed in the user mode.

3 HELP Mode Functions and Operation Procedures

● Accessing HELP Modes

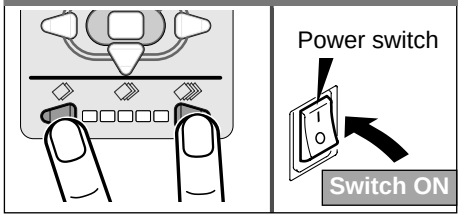
1. During use of the DUPRINTER: first put the machine into the standby state, then turn the **Power switch OFF.**

● Standby ➡ Power OFF



2. Simultaneously press and hold down the ◁ **and** ▷ **PRINT SPEED** keys, and turn the **Power switch ON** with those keys held down. After about 5 seconds, a beep-beep-beep tone will sound, and the HELP mode display will appear.particular mode accessed.

● Print speed keys and Power switch



● HELP mode number selection screen

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

Example: To access HELP mode H-011, enter [**0**], [**1**], [**1**].

Ex : enter **0**, **1**, **1**, **PRINT** ◇ key

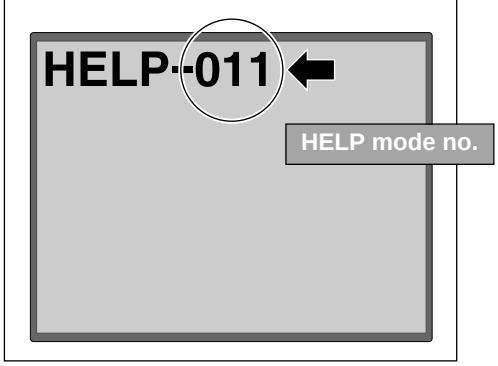
IMPORTANT :

- **The HELP mode number cannot be selected by the PRINT SPEED keys ◁ and ▷ .**

4. Press 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.

● HELP mode screen (HELP-011)



● HELP Mode Descriptions

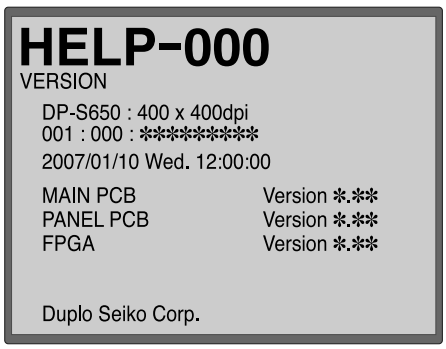
ROM Version Display

- Mode Name: Resolution
- Serial Number
- Date and Time
- Main PCB Version / Panel PCB Version / FPGA Version / Tape Cluster ROM Version
  (Only when the tape clusters TAP-05 - 12 are installed)
- Service Call Contact Number (if available)

● Operation procedure

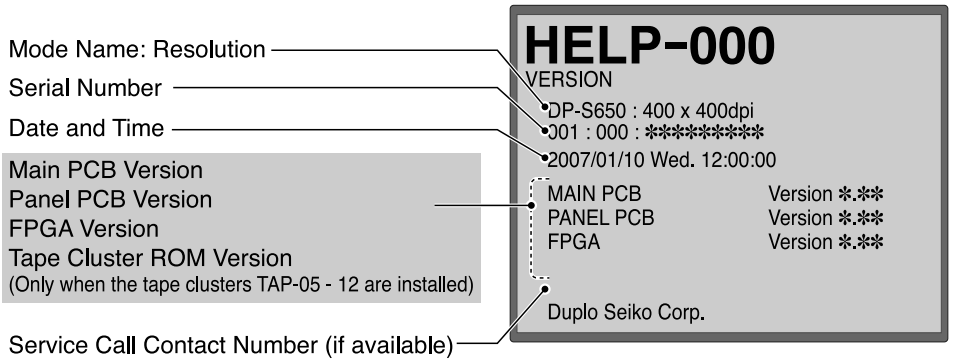
1. Call the HELP mode "H-000".

Enter "**000**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Check the display.

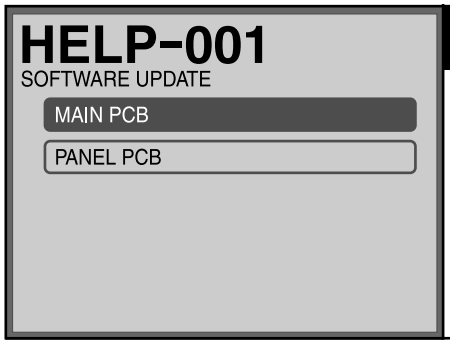
Check the ROM version displayed.



3. Return to the HELP mode.

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

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



ROM Update

Update ROM via USB connection or the CF Memory Card.

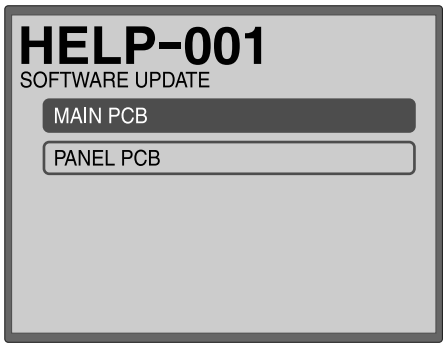
PCBs to be upgraded :

- Main PCB
- Panel PCB

● Operation procedure

1. Call the HELP mode "H-001".

Enter "**001**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Select PCB.

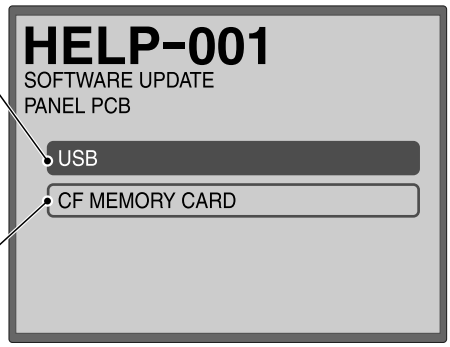
Select and touch the PCB to be upgraded.
(The right figure shows the case when the main PCB is selected.)

3. To update the main PCB:

Touch "USB" or "CF Memory Card" to update the main PCB.

"Download available" is displayed and the printer is ready to receive the updated version. The updated version is sent from PC by using the Program Update Utility. (For Windows 2000/XP only)

The updated data selection screen appears. Select the updated data.



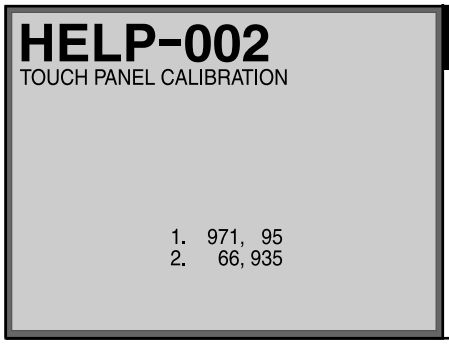
IMPORTANT :

- **Do not turn off the power during updating; otherwise you may need to replace the main PCB.**

4. Return to the HELP mode.

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

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



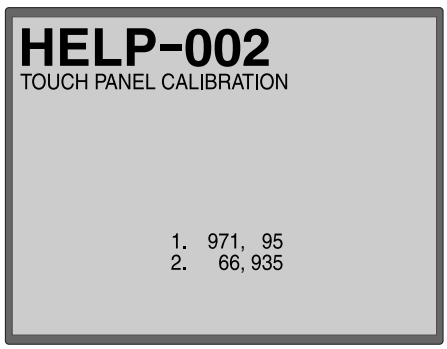
Touch Panel Calibration

Calibrating the coordinates and checking operation of the touch panel.

● Operation procedure

1. Call the HELP mode "H-002".

Enter "**002**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Touch panel calibration/check

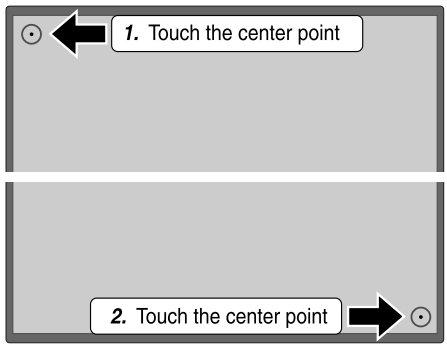
For "**Calibration**", press the (**MASTER MAKING**) key. Go to step *3* .
For "**Check**", press the (**PROPERTY**) key. Go to step *4* .

3. Touch panel calibration

1. Touch the center point of the circle on the panel upper left.
2. The circle moves to the lower right. Touch the center point again. (Calibration completed)
3. Press the key to store calibration.

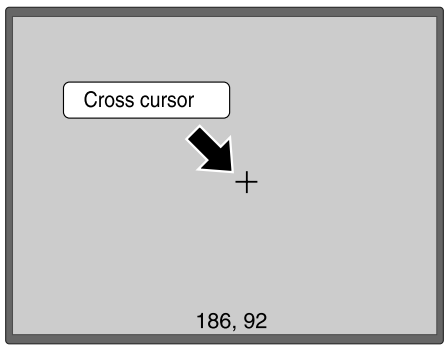
NOTE :

● Press the (STOP) key to cancel calibration.



4. Touch panel check

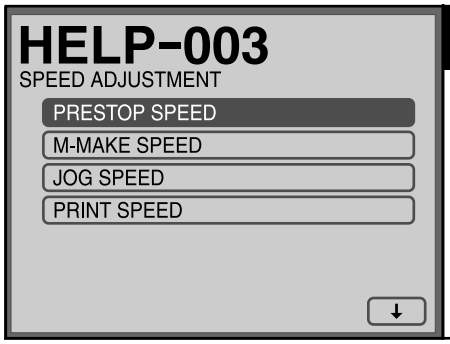
1. When pressing the **PROPERTY** key in step *2*, the cross cursor appears on the panel.
2. Check that the cross cursor follows the touch pen movement.



5. Return to the HELP mode.

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

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



(1) Checking/Adjusting Print Speed

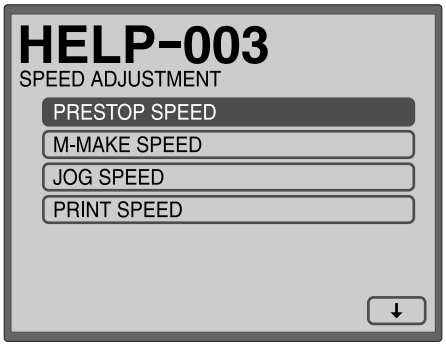
Checking/Adjusting Print Speed.

- PRINT SPEED
- JOG SPEED
- M-MAKE SPEED
- PRESTOP SPEED

● Operation procedure

1. Call the HELP mode "H-003".

Enter "**003**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Select the speed.

Select the speed to be checked on the touch panel.

3. Check the speed.

Press the (**MASTER MAKING**) key. The drum rotates and the rotation speed appears on the panel lower part.

To change the speed (**0** to **6**):

❶ Select and touch **PRINT SPEED** key.

❷ Change the speed by the **PRINT SPEED** keys on the panel.

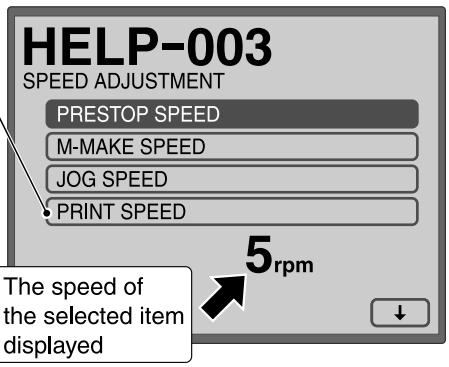
Speed :1st 2nd 3rd 4th 5th

Speed 0: Set to Speed 1 and then press .

LED: Off

Speed 6: Set to Speed 5 and then press .

LED for Speed 5: Blinking



The speed of the selected item displayed

4. Check the speed. (See the next page for speed reference values.)

Press the (**MASTER MAKING**) key. The drum rotates and the rotation speed appears on the panel lower part.

To adjust the speed while the drum is rotating:

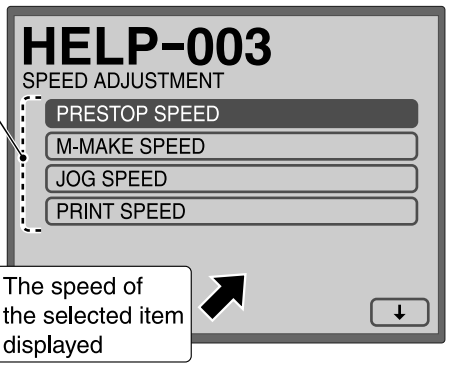
❶ Select and touch the speed to be adjusted.

❷ Every time the **PRINT POSITION** keys are pressed:

Speed is increased by 1 rpm. Speed is decreased by 1 rpm.

- Press the C (**CLEAR**) key to return the set speed to the default.

❸ Press the key to store all set speed values.

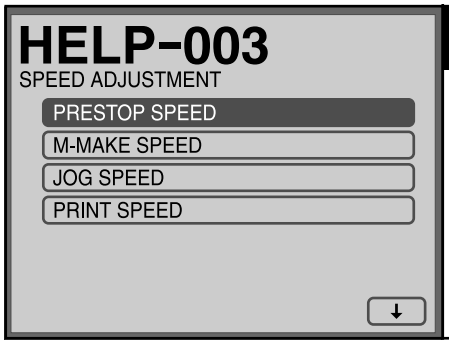


The speed of the selected item displayed

Press the (**STOP**) key to stop the drum at the stop position.

● The drum does not rotate even if the drum removal button is pressed.

step 5. ➡ Press the (**STOP**) key.



(2) Checking/Adjusting the Print Speed

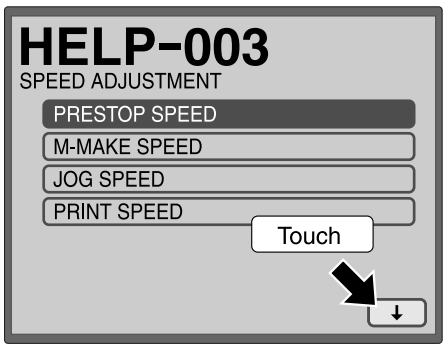
Checking/Adjusting the Print Speed.

- PRINT SPEED
- JOG SPEED
- M-MAKE SPEED
- PRESTOP SPEED

● Operation procedure

1. Call the HELP mode "H-003".

Enter "**003**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right.

3. Check/adjust the speed.

When changing the screen in step 2, speed adjustment values from "**PRESTOP SPEED**" to "**SPEED 6**" are displayed on Pages 2 and 3.

Adjustment

❶ Select and touch the speed to be adjusted.

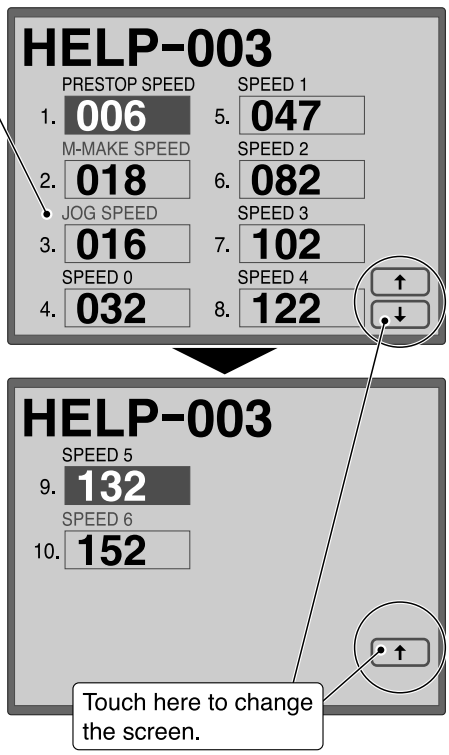
❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

Speed reference values

Item	Speed	Reference value (rpm)
1	Prestop Speed	6
2	M-mark Speed	18
3	Jog Speed	16
4	Speed 0 (Low print speed)	32
5	Speed 1	47
6	Speed 2	82
7	Speed 3	102
8	Speed 4	122
9	Speed 5	132
10	Speed 6 (High print speed)	152

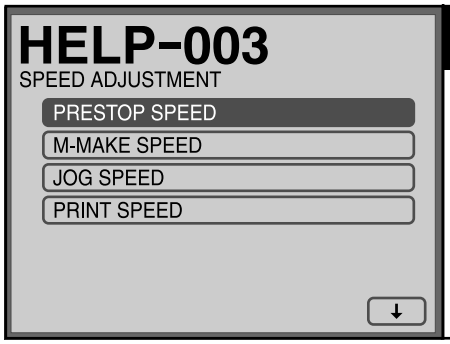
- Press the C (**CLEAR**) key to return the set speed to the default.

❸ Press the key to store all set speed values.



● **The drum does not rotate even if the drum removal button is pressed.**

step 4. ➡ Press the (**STOP**) key.



(3) Checking Paper Feed/Ejection

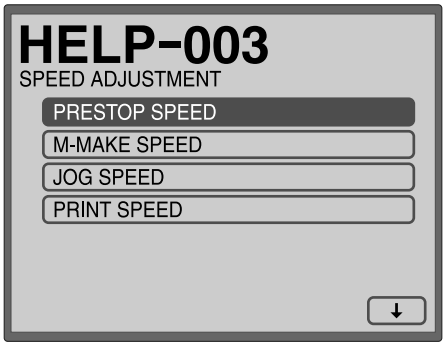
Check paper feed/ejection.

- If paper is present, paper feed/ejection can be checked.

● Operation procedure

1. Call the HELP mode "H-003".

Enter "**003**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Rotate the drum.

Press the (**MASTER MAKING**) key to rotate the drum.

3. Check paper feed/ejection.

Press the (**TEST PRINT**) key.

If paper is present, paper feed/ejection can be checked.

NOTE :

- **If paper is not present or paper jam occurs, only paper feed stops but the drum continues rotating.**
  To stop operation, press the (STOP) key.

Press the (**STOP**) key to stop the drum at the stop position.

4. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

➡ **To exit the HELP mode** : Turn the power switch OFF.

➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.

HELP-004
REPLENISH INK

Checking Ink Replenishment

While the ink level is detected, ink is replenished.

● Operation procedure

1. Call the HELP mode "H-004".

Enter "**004**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Check paper feed/ejection.

Check the following operations.

1. The ink roller moves down and the drum starts rotating.
↓
2. While the ink level is detected, ink is replenished.
↓
3. If ink is present, LED on the ink detection PCB lights up.
↓
4. Ink replenishment stops
and the drum stops at the drum removal position.

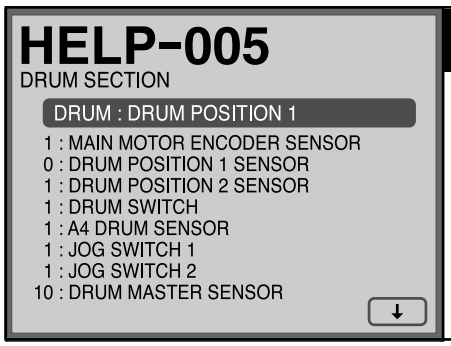
NOTE :

- **The drum rotates at the print speed set on the operation panel.**

3. Return to the HELP mode.

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

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



(1) Adjusting/Checking the Drum Section (4 pages in total)

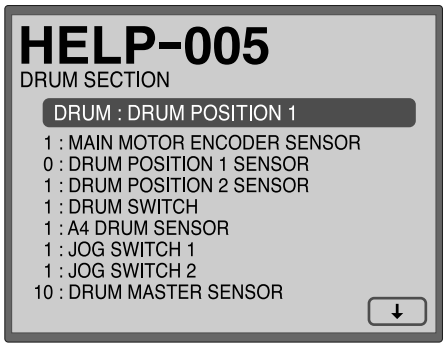
Page 1 :

- Check the drum positions.
  removal / pre-detach / detach / post-detach / attach position
- Checking sensors/switches.
  DRUM POSITION 1 SENSOR / DRUM POSITION 2 SENSOR / DRUM SWITCH / A4 DRUM SENSOR / JOG SWITCH 1 / JOG SWITCH 2 / DRUM MASTER SENSOR

● Operation procedure

1. Call the HELP mode "H-005".

Enter "**005**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Check the drum positions.

- Press the (**MASTER MAKING**) key.
  Every time this key is pressed, the drum stops at the detach position, the attach position and the removal position, in order.
- Press the (**TEST PRINT**) key.
  Every time this key is pressed, the drum stops at the pre-detach position, the post-detach position, the removal position and the attach position, in order.
- Press the "**1**" key. Every time this key is pressed, the drum rotates and stops at the detach position.
- Press the "**2**" key. Every time this key is pressed, the drum rotates and stops at the attach position.
- Press the "**3**" key. Every time this key is pressed, the drum rotates and stops at the removal position.
- Press the "**4**" key. Every time this key is pressed, the drum rotates and stops at the pre-detach position.
- Press the "**5**" key. Every time this key is pressed, the drum rotates and stops at the post-detach position.

● Except when the "3" key is pressed to select the stop position, the ink roller moves down.

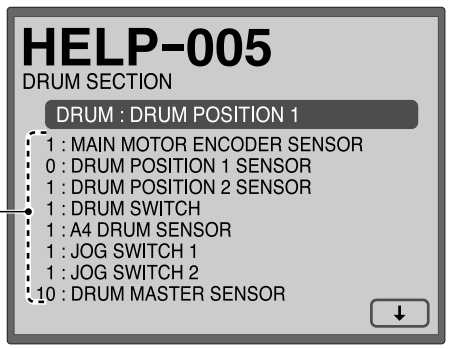
● The drum does not rotate even if the drum removal button is pressed.

3. Checking sensors/switches.

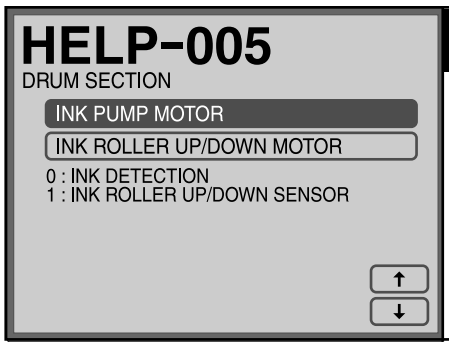
Check the following sensors and switches.

► Status of Sensors and Switches

Sensors and Switches	0	1
MAIN MOTOR ENCODER SENSOR	Photopassing	Photointerrupting
DRUM POSITION 1 SENSOR	Photopassing	Photointerrupting
DRUM POSITION 2 SENSOR	Photopassing	Photointerrupting
DRUM SWITCH	Not present	Present
A4 DRUM SENSOR	Present	Not present
JOG SWITCH 1	ON	OFF
JOG SWITCH 2	ON	OFF
DRUM MASTER SENSOR	15 or less Master present	150 or more Master not present



step 4. ➡ Press the (**STOP**) key.



(2) Adjusting/Checking the Drum Section (4 pages in total)

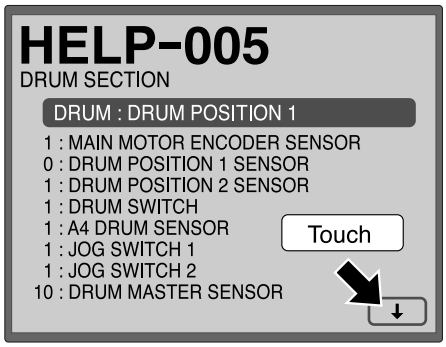
Page 2 :

- Check operation of the drum section.
  removal / pre-detach / detach / post-detach / attach position
- Checking sensors/switches.
  DRUM POSITION 1 SENSOR / DRUM POSITION 2 SENSOR / DRUM SWITCH / A4 DRUM SENSOR / JOG SWITCH 1 / JOG SWITCH 2 / DRUM MASTER SENSOR

● Operation procedure

1. Call the HELP mode "H-005".

Enter "**005**" by the **NUMERIC** keys and then press the (**PRINT**) key.



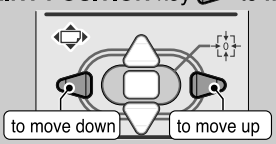
2. Change the screen.

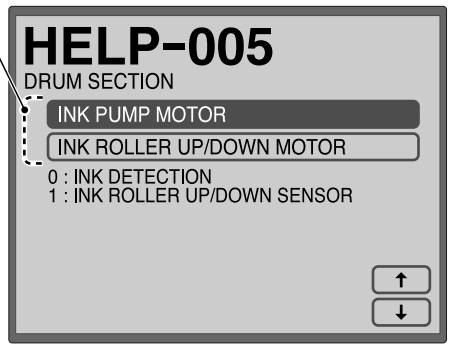
Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Check operation.

To check the operation:

❶ Select and touch the motor to be checked.
❷ When selecting INK PUMP MOTOR :
Press the **PRINT POSITION** key; while this key is held down, the motor rotates.
When selecting **INK ROLLER UP/DOWN MOTOR**:
Press the **PRINT POSITION** key to **move down** the roller.
Press the **PRINT POSITION** key to **move up** the roller.



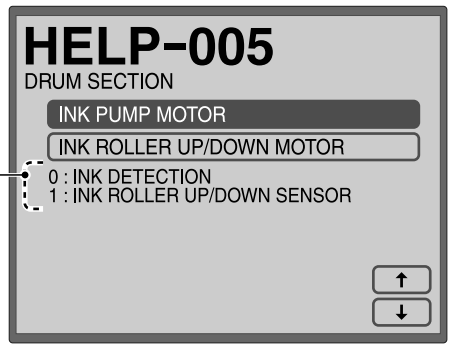


4. Checking sensors/switches.

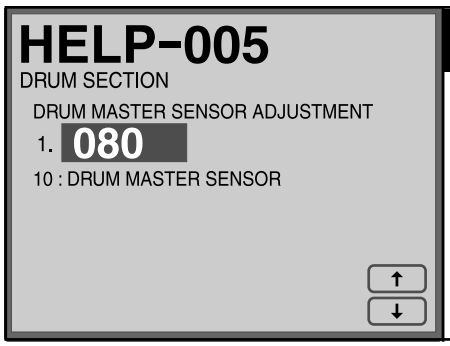
Check the following sensors and switches.

► **Status of Sensors and Switches**

Sensors and Switches	0	1
INK DETECTION	Present	Not present
INK ROLLER UP/DOWN SENSOR	Photopassing	Photointerrupting



step 5. ➡ Press the ▽ (**STOP**) key.



(3) Adjusting/Checking the Drum Section (4 pages in total)

Page 3 :

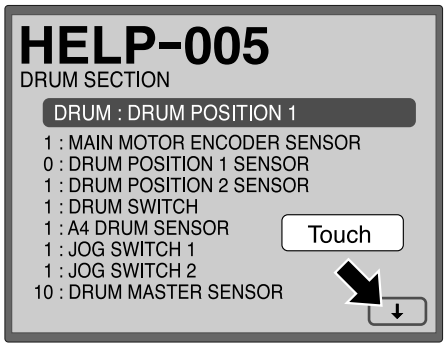
● Adjustment / Check

Drum master sensor

● Operation procedure

1. Call the HELP mode "H-005".

Check that the master is wound around the drum. Then enter "**005**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right twice to switch to Page 3.

3. Check operation.

● Press the (**MASTER MAKING**) key.

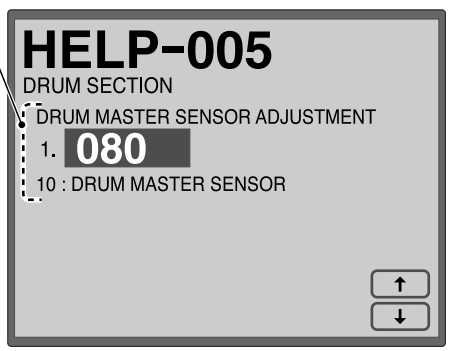
The drum stops at the **drum master detected position** (the drum stop position), at the **drum master undetected position** (the leather part at the screen back end) and **below the drum master sensor**, in order.

4. Checking the sensor.

Check the drum master sensor.

Adjustment

❶ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.



Reference value

Drum master sensor	Range
Master present	15 or less
Master not present	120 or more

● Press the C (**CLEAR**) key to return the set value to the default.

❷ Press the key to store all set values.

NOTE :

● **Normally, the adjustment value of the drum master sensor is 80 ± 10.**

step 5. ➡ Press the (**STOP**) key.

(4) Adjusting/Checking the Drum Section (4 pages in total)

Page 4 :

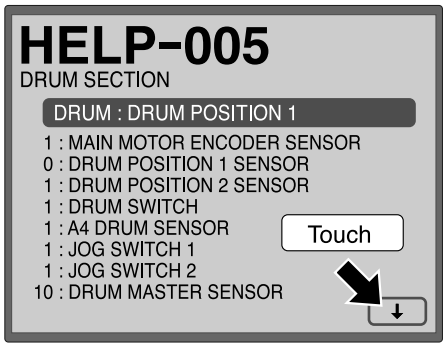
- Adjusting the master detach position.

  Normally, adjustment is not made.

● Operation procedure

1. Call the HELP mode "H-005".

Check that the master is wound around the drum. Then enter "**005**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right three times to switch to Page 4.

3. Check operation.

- Press the (**MASTER MAKING**) key.

  Every time this key is pressed, the drum stops at the **master detach position.**

4. Adjusting the master detach position.

- **Normally, adjustment is not made.**

Adjustment

❶ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the **C** (**CLEAR**) key to return the set value to the value before change.

❷ Press the key to store all set values.

5. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

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

(1) Adjusting/Checking the Paper Feed Section (3 pages in total)

Page 1 :

- Check operation.
  ELEVATOR MOTOR / PAPER FEED STEPPING MOTOR
- Checking sensors/switches.
  ELEVATOR TOP LIMIT SENSOR / ELEVATOR LOWER LIMIT SWITCH / ELEVATOR DOWN SWITCH / PAPER SENSOR / PAPER TOP DETECT SENSOR / SIGNAL SENSOR / HEAVY WEIGHT PAPER LEVER SENSOR

● Operation procedure

1. Call the HELP mode "H-006".

Enter "**006**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Check operation.

- Check operation.

❶ Select and touch the motor to be checked.
❷ Press the (**PRINT POSITION**) keys ; while this key is held down, the motor rotates.

3. Checking sensors/switches.

Check the following sensors and switches.

Status of Sensors and Switches

Sensors and Switches	0	1
ELEVATOR TOP LIMIT SENSOR	Photopassing	Photointerrupting
ELEVATOR LOWER LIMIT SWITCH	OFF	ON
ELEVATOR DOWN SWITCH	ON	OFF
PAPER SENSOR	Present	Not present
PAPER TOP DETECT SENSOR	Photopassing	Photointerrupting
SIGNAL SENSOR	Photopassing	Photointerrupting
HEAVY WEIGHT PAPER LEVER SENSOR	Photopassing	Photointerrupting

step 4. ➡ Press the (**STOP**) key.

(2) Adjusting/Checking the Paper Feed Section (3 pages in total)

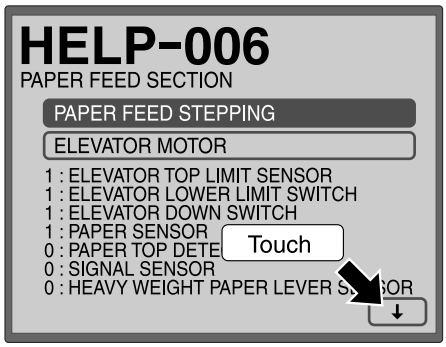
Page 2 :

- Paper width adjustment
- Paper width display

● Operation procedure

1. Call the HELP mode "H-006".

Enter "**006**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Check operation.

❶ Set the A4 paper into the feed tray and set the side guide width to 297 mm (long side length of A4 paper).

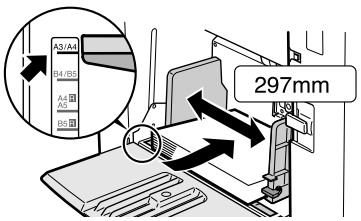
❷ Touch **DEFAULT PAPER WIDTH.**
Enter the default width of the paper set into the feed tray, by the **NUMERIC** keys or the (**PRINT POSITION**) keys.

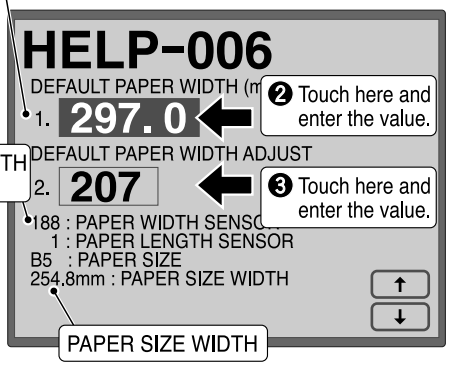
❸ Touch **DEFAULT PAPER WIDTH ADJUST.**
Enter the value of **PAPER WIDTH SENSOR** in **DEFAULT PAPER WIDTH ADJUST**, by the **NUMERIC** keys or the (**PRINT POSITION**) keys.

❹ Rearrange the A4 paper and adjust the side guide width. Then check that the value of **PAPER SIZE WIDTH** is 210 mm ± 2 mm.

If the value of **PAPER SIZE WIDTH** is not 210 mm ± 2 mm : Change the value of **DEFAULT PAPER WIDTH** by ± 2 mm to obtain 210 mm ± 2 mm.

❺ After adjustment, press the key to store the set value.





4. Checking sensors.

Check the following sensors.

► **Status of Sensors**

Sensors	Status
PAPER WIDTH SENSOR	A/D value (Potential value)
PAPER LENGTH SENSOR	0: Available 1: Not available
PAPER SIZE	Detected paper size
PAPER SIZE WIDTHPAPER SIZE WIDTH	Current paper width

step 5. ➡ Press the (**STOP**) key.

(3) Adjusting/Checking the Paper Feed Section (3 pages in total)

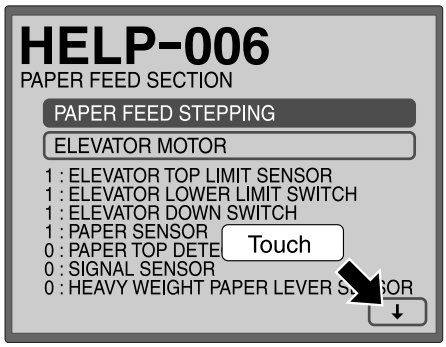
Page 3 :

- Adjusting the double feed sensor (standard/heavyweight)
- Checking the double feed sensor (standard/heavyweight)
- Adjusting the optical axis of the double feed sensor

● Operation procedure

1. Call the HELP mode "H-006".

Check that the master is wound around the drum. Then enter "**006**" by the **NUMERIC** keys and then press the (**PRINT**) key.



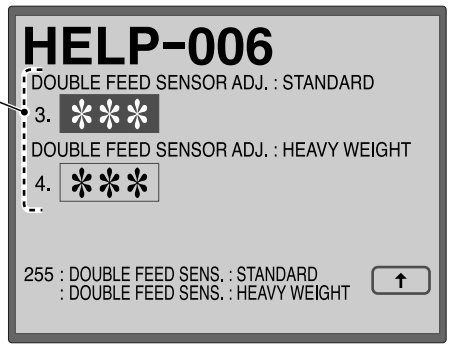
2. Change the screen.

Touch the (**arrow**) on the screen lower right twice to switch to Page 3.

3. Basic adjustment.

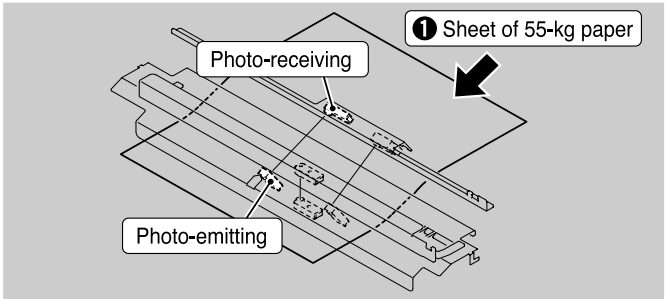
❶ Select and touch the sensor to be checked.
❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.
- Press the C (**CLEAR**) key to return the set value to the value before change.

❸ Press the key to store all set values.

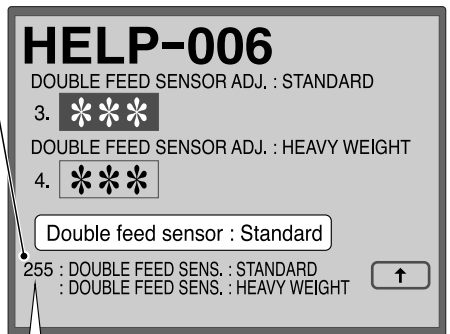


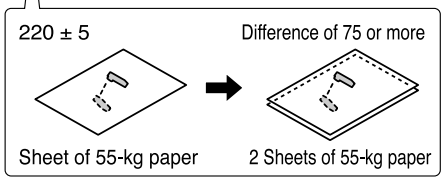
4. Adjust the double feed sensor (standard).

❶ Insert a sheet of 55-kg paper between the double feed sensors. Adjust the double feed sensor (**standard**) to obtain the value of **220 ± 5**. Insert two sheets and change the value of the double feed sensor (**standard**) to obtain difference of **75 or more**.



- Adjustment value of the double feed sensor (standard) is **45 or less** or **200 or more**, follow step *8* to adjust the optical axis of the double feed sensor.

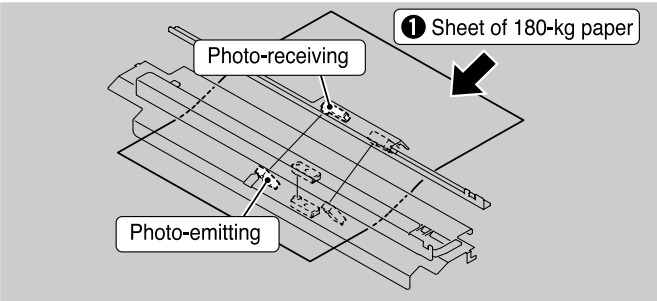


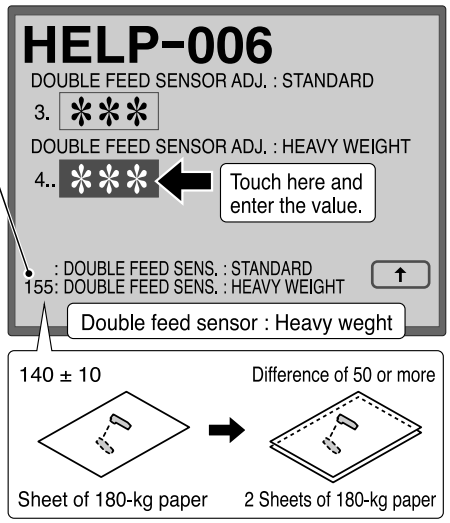


step 5. ➡ Next page.

5. Adjust the double feed sensor (heavyweight).

❶ Insert a sheet of 180-kg paper between the double feed sensors.
Adjust the double feed sensor (**heavy weight**) to obtain the value of **140 ± 10.**
Insert two sheets and change the value of the double feed sensor (**heavy weight**) to obtain difference of **50 or more.**



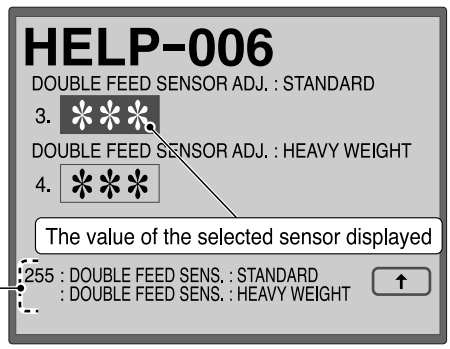


6. Checking sensor.

Check the amount of light received by the double feed sensor. The value of the selected double feed sensor is displayed. (The value of the double feed sensor not selected does not change.)

► **Status of Sensor**

Paper	One sheet	Two sheets
Standard (High-quality paper of 55 kg)	220 ± 5	Difference of 75 or more
Heavy weight (High-quality paper of 180 kg)	140 ± 10	Difference of 50 or more



7. Return to the HELP mode.

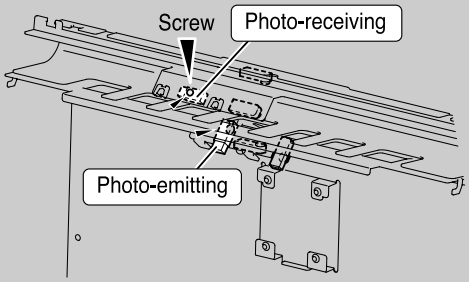
Press the ▽ (**STOP**) key.
The HELP mode selection display will reappear.

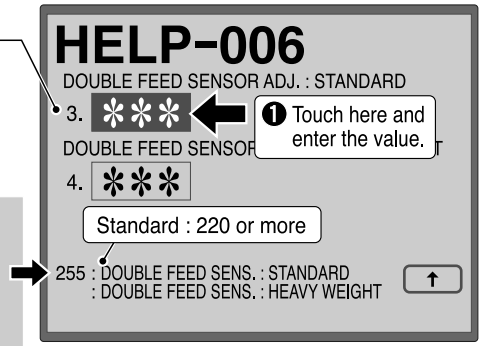
➡ **To exit the HELP mode** : Turn the power switch OFF.
➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.

8. Adjust the optical axis of the double feed sensor.

• If the adjustment value of the double feed sensor (standard) is 45 or less or 200 or more, when inserting one sheet of 55 kg between the double feed sensors for adjustment in step *4* :

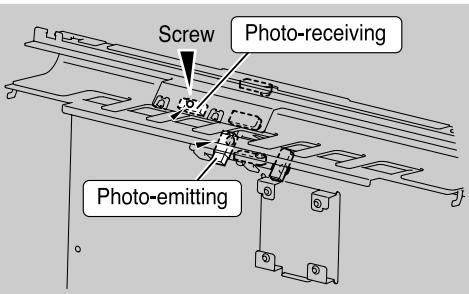
❶ Insert one sheet of 55 kg between the double feed sensors.
❷ Loosen the screw of the double feed sensor (photo-receiving) and set the value of the double feed sensor (standard) to **45 or more.** Then fix the screw at the position where the value of the double feed sensor (standard) is **220 or more.**

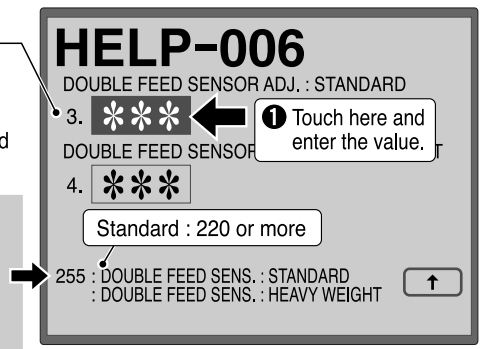




• If the adjustment value of the double feed sensor (standard) is not 200 or more without setting the value of the double feed sensor (standard) to 200 or more, when inserting one sheet of 55 kg between the double feed sensors for adjustment in step *4* :

❶ Remove the sheet between the double feed sensors and adjust the value of the double feed sensor (standard) to **001.**
❷ Loosen the screw of the double feed sensor (photo-receiving) and fix the screw at the position where a **larger value** of the double feed sensor (standard) is obtained.

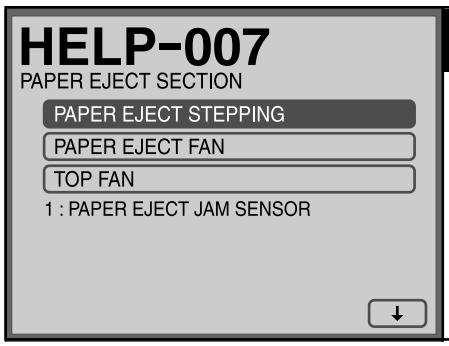




9. Return to the HELP mode.

Press the ▽ (**STOP**) key.
The HELP mode selection display will reappear.

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



(1) Adjusting/Checking the Paper Eject Section (2 pages in total)

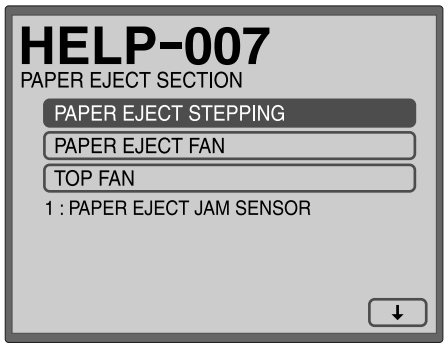
Page 1 :

- Check operation.
  MASTER FEED STEPPING MOTOR / MASTER FEED CLUTCH / CUTTER MOTOR / PAPER EJECT FAN
- Checking sensor.
  MASTER FEED COVER SWITCH / MASTER TOP SENSOR / THERMAL HEAD UP/DOWN SENSOR

● Operation procedure

1. Call the HELP mode "H-007".

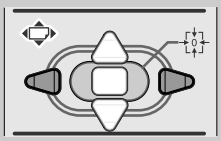
Enter "**007**" by the **NUMERIC** keys and then press the (**PRINT**) key.

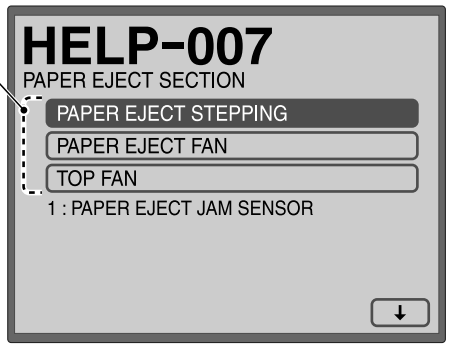


2. Check operation.

Check operation.

❶ Select and touch the motor or fan to be checked.
❷ When selecting motor / fan :
Press the **PRINT POSITION** , key ;
while this key is held down, the motor / fan rotates.



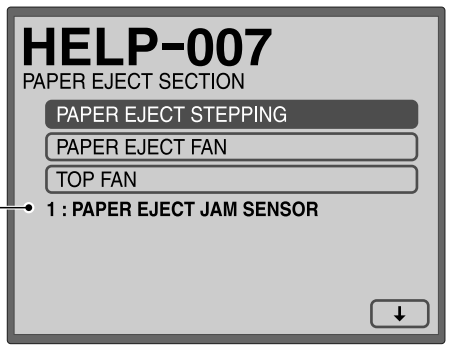


3. Checking sensors.

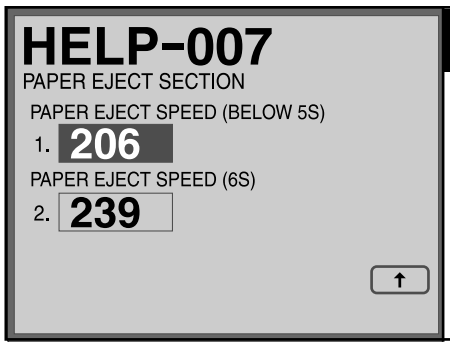
Check the following sensor.

Status of Sensor

Sensor	0	1
PAPER EJECT JAM SENSOR	Present	Not present



step 4. ➡ Press the (**STOP**) key.



(2) Adjusting/Checking the Paper Eject Section (2 pages in total)

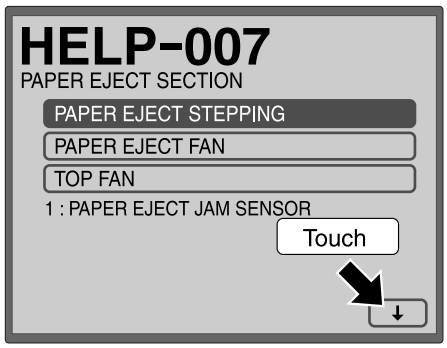
Page2 :

- Adjusting the paper eject speed.

● Operation procedure

1. Call the HELP mode "H-007".

Enter "**007**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Adjust the speed.

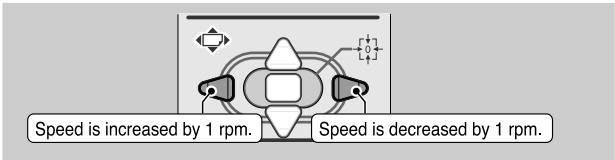
Adjustment

❶ Select and touch the speed to be adjusted.

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

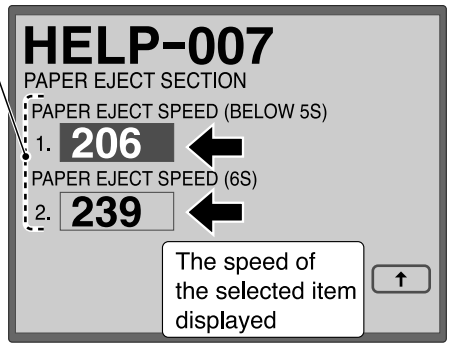
Speed reference values

Item	Paper eject speed	Reference value (rpm)
1	Below Speed 5	206
2	Speed 6	239



- Press the C (**CLEAR**) key to return the set speed to the default.

❸ Press the key to store all set speed values.



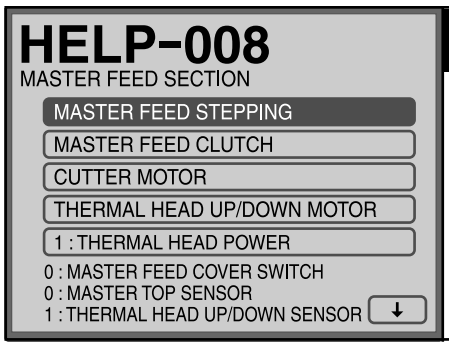
4. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

➡ **To exit the HELP mode** : Turn the power switch OFF.

➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.



(1) Adjusting/Checking the master feed section (2 pages in total)

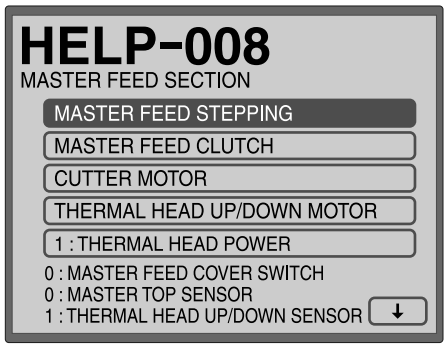
Page 1 :

- Check operation.
  MASTER FEED STEPPING MOTOR / MASTER FEED CLUTCH / CUTTER MOTOR / THERMAL HEAD UP/DOWN MOTOR
- Checking sensors/switches.
  MASTER FEED COVER SWITCH / MASTER TOP SENSOR / THERMAL HEAD UP/DOWN SENSOR

● Operation procedure

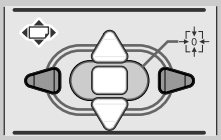
1. Call the HELP mode "H-008".

Enter "**008**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Check operation.

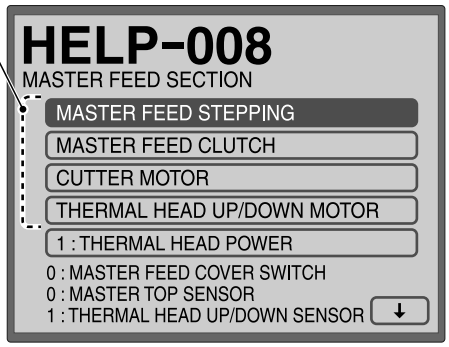
❶ Select and touch the motor or clutch to be checked.
❷ When selecting motor / clutch :
Press the **PRINT POSITION** , key ;
while this key is held down, the motor / clutch rotates.



The thermal head up/down motor **moves down** by the **PRINT POSITION** key and **moves up** by the key .

❸ While the (**MASTER MAKING**) key is held down, the thermal head moves up and the master feed clutch operates. Then the master feed stepping motor rotates to feed the master.

● Due to interlocking mechanism, the motor does not rotate if the master cover is open.



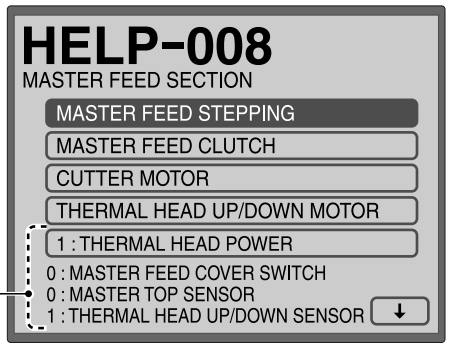
● After checking the cutter motor operation, be sure to return the cutter blade to the operation side.

3. Checking sensors/switches.

Check the following sensors and switches.

► Status of Sensors and Switches

Sensors and Switches	0	1
THERMAL HEAD POWER	ON	OFF
MASTER FEED COVER SWITCH	Open	Close
MASTER TOP SENSOR	Present	Not present
THERMAL HEAD UP/DOWN SENSOR	Photopassing	Photointerrupting



step 4. ➡ Press the (**STOP**) key.

(2) Adjusting/Checking the master feed section (2 pages in total)

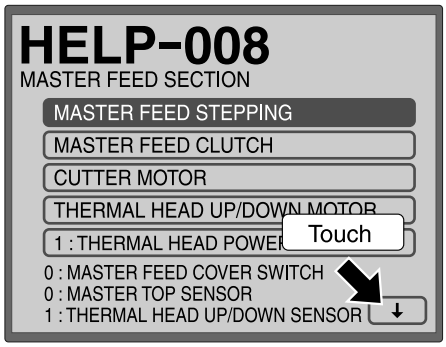
Page 2 :

- End mark sensor adjust.
- Checking sensor.
  END MARK SENSOR

● Operation procedure

1. Call the HELP mode "H-008".

Enter "**008**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Adjust the end mark sensor.

Adjustment

❶ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the C (**CLEAR**) key to **default to 128.**
- Hold down the (**MASTER MAKING**) key to feed the master.

❷ Press the key to store set values.

4. Checking sensors.

To display the amount of light received by the end mark sensor:

- For adjustment, check that the master is not slackened. If it is slackened, the value changes; proper adjustment is not made.

Adjustment

❶ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

The amount of light received by the end mark sensor

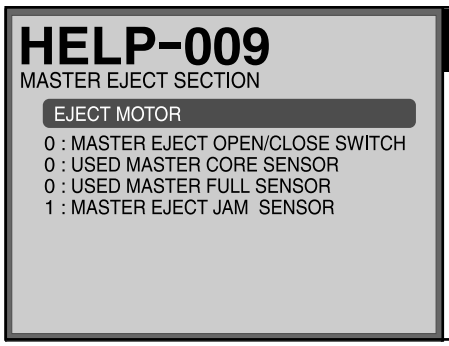
Sensor	BLACK	WHITE
End mark sensor	150 or more	28 or less

- Press the C (**CLEAR**) key to **default to 128.**
- Hold down the (**MASTER MAKING**) key to feed the master.

❷ Press the key to store set values.

5. Return to the HELP mode.

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



Adjusting/Checking the Master Ejection Section

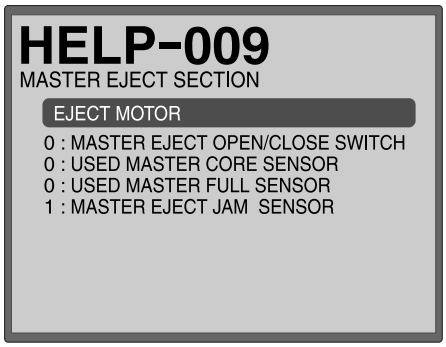
Page 1 :

- Check operation.
  EJECT MOTOR
- Checking sensors.
  MASTER EJECT OPEN/CLOSE SWITCH / USED MASTER CORE SENSOR / USED MASTER FULL SENSOR / MASTER EJECT JAM SENSOR

● Operation procedure

1. Call the HELP mode "H-009".

Enter "**009**" by the **NUMERIC** keys and then press the (**PRINT**) key.

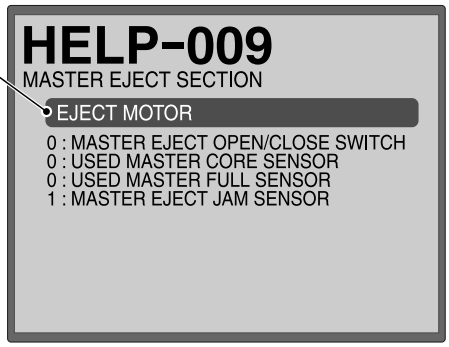


2. Check operation.

Check operation.

❶ Press the **PRINT POSITION** , key ;
while this key is held down, the motor rotates.

- The motor does not reverse.
- Due to interlocking mechanism, the motor does not rotate if the master ejection box is open.

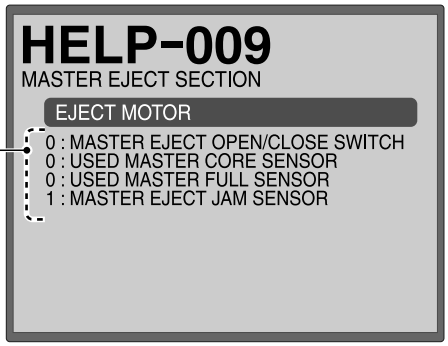


3. Checking sensors/switches.

Check the following sensors and switches.

► Status of Sensors and Switches

Sensors and Switches	0	1
MASTER EJECT OPEN/CLOSE SWITCH	ON : Close	OFF : Open
USED MASTER CORE SENSOR	Photopassing	Photointerrupting
USED MASTER FULL SENSOR	Photopassing	Photointerrupting
MASTER EJECT JAM SENSOR	Photopassing	Photointerrupting



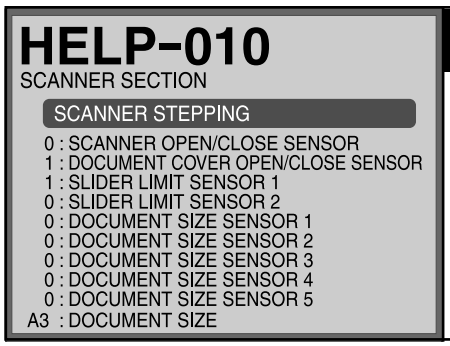
4. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

➡ **To exit the HELP mode** : Turn the power switch OFF.

➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.



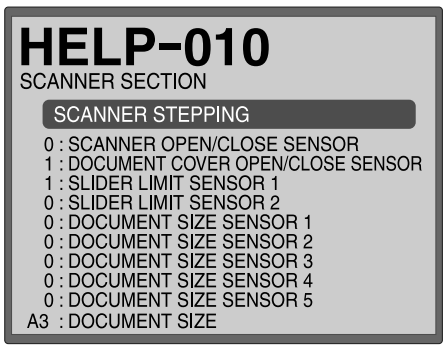
Adjusting/Checking the Scanner Section

- Check operation (SCANNER STEPPING MOTOR).
- Checking sensor.
  SCANNER OPEN/CLOSE SENSOR / DOCUMENT COVER OPEN/CLOSE SENSOR / SLIDER LIMIT SENSOR 1,2 / DOCUMENT SIZE SENSOR 1 - 5
- Data display (Document size).

● Operation procedure

1. Call the HELP mode "H-010".

Enter "**010**" by the **NUMERIC** keys and then press the (**PRINT**) key.

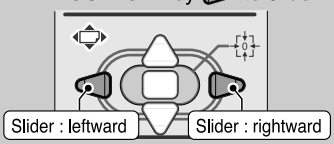


2. Check operation.

Check operation.

❶ Press the **PRINT POSITION** key.

Press the **PRINT POSITION** key to slider moves **leftward.**
Press the **PRINT POSITION** key to slider moves **rightward.**



- The slider limit sensor operates to stop the slider.

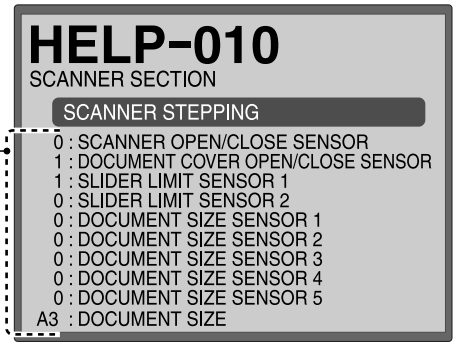
❷ Press the (**MASTER MAKING**) key.
The lamp lights on. Press the key again to turn off the lamp.

❸ Only when ADF is mounted, press the (**PROPERTY**) key.
While the (**PROPERTY**) key is held down,
the ADF clutch A/B is ON to rotate the ADF stepping motor.

step 3. ➡ Next page.

3. Checking sensors/switches.

Check the following sensors and switches.



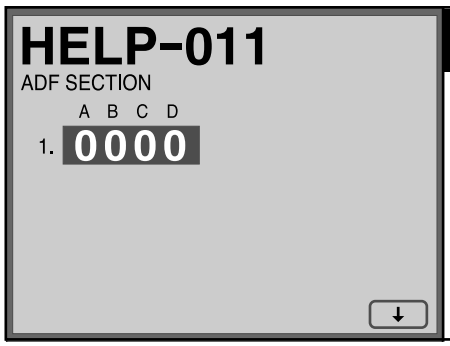
► Status of Sensors

Sensors	0	1
SCANNER OPEN/CLOSE SENSOR	Close	Open
DOCUMENT COVER OPEN/CLOSE SENSOR	Photopassing	Photointerrupting
SLIDER LIMIT SENSOR 1	Photopassing	Photointerrupting
SLIDER LIMIT SENSOR 2	Photopassing	Photointerrupting
DOCUMENT SIZE SENSOR 1	Present	Not present
DOCUMENT SIZE SENSOR 2	Present	Not present
DOCUMENT SIZE SENSOR 3	Present	Not present
DOCUMENT SIZE SENSOR 4	Present	Not present
DOCUMENT SIZE SENSOR 5	Present	Not present
DOCUMENT SIZE	Fixed document size displayed	

4. Return to the HELP mode.

Press the ▽ (**STOP**) key.
The HELP mode selection display will reappear.

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



(1) Adjusting/Checking the ADF Section (3 pages in total)

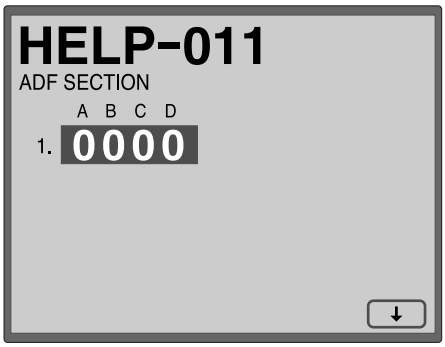
Page1 :

- Function enable/disable setting (S3-ADF , ADF2in1).

● Operation procedure

1. Call the HELP mode "H-011".

Enter "**011**" by the **NUMERIC** keys and then press the (**PRINT**) key.

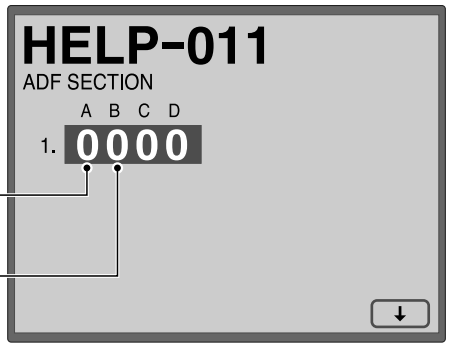


2. Function enable/disable setting

❶ Enter four digits (0 or 1) by the **NUMERIC** keys to specify enable/disable of the function.

► **Function enable/disable setting**

Item		Value	Description
1	A	0	ADF section disabled (Default)
		1	ADF section enabled
	B	0	ADF2in 1 disabled
		1	ADF2in 1 enabled (Default)
	C	0	–
		1	–
	D	0	–
		1	–



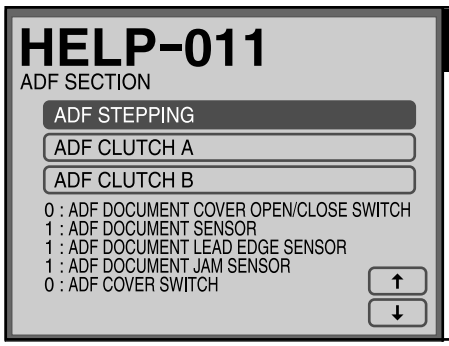
● Example: For ADF section enabled and ADF2in 1 disabled, enter 1000 by the **NUMERIC** keys.

❷ Press the key to store all set values.

3. Return to the HELP mode.

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

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



(2) Adjusting/Checking the ADF Section (3 pages in total)

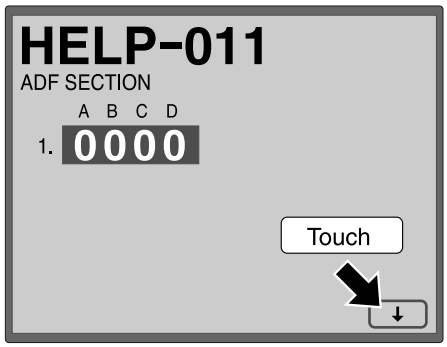
Page 2 :

- Check operation.
  EJECT MOTOR
- Checking sensors.
  MASTER EJECT OPEN/CLOSE SWITCH / USED MASTER CORE SENSOR / USED MASTER FULL SENSOR / MASTER EJECT JAM SENSOR

● Operation procedure

1. Call the HELP mode "H-011".

Enter "**011**" by the **NUMERIC** keys and then press the (**PRINT**) key.



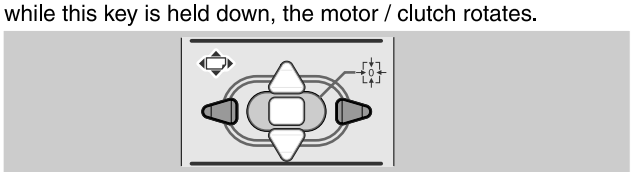
2. Change the screen.

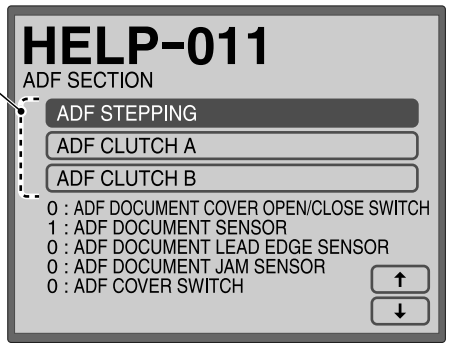
Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Check operation.

To check the operation:

❶ Select and touch the motor or clutch to be checked.
❷ When selecting motor / clutch :
Press the **PRINT POSITION** , key ;
while this key is held down, the motor / clutch rotates.





❸ While the (**MASTER MAKING**) key is held down,
the ADF clutch A/B is ON to rotate the ADF stepping motor.

❹ While the (**TEST PRINT**) key is held down,
the ADF clutch A/B is ON to rotate the ADF stepping motor at high speed.

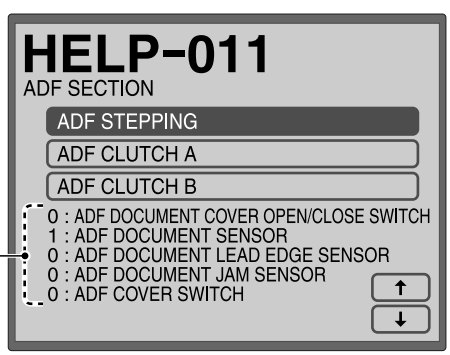
❺ While the (**TEST PRINT**) key is held down,
the ADF stepping motor operates to lower the glass where the document is placed for document standby.

4. Checking sensors/switches.

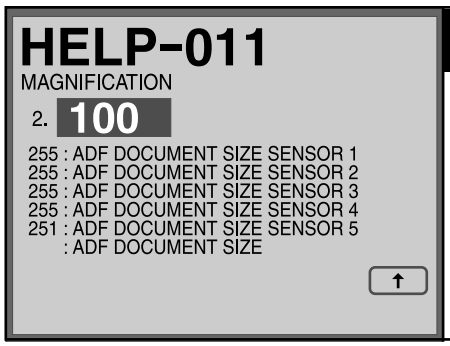
Check the following sensors and switches.

Status of Sensors and Switches

Sensors	0	1
ADF DOCUMENT COVER OPEN/CLOSE SWITCH	ON : Close	OFF : Open
ADF DOCUMENT SENSOR	Photopassing	Photointerrupting
ADF DOCUMENT LEAD EDGE SENSOR	Photopassing	Photointerrupting
ADF DOCUMENT JAM SENSOR	Photopassing	Photointerrupting
ADF COVER SWITCH	ON : Close	OFF : Open



step 5. ➡ Press the (**STOP**) key.



(3) Adjusting/Checking the ADF Section (3 pages in total)

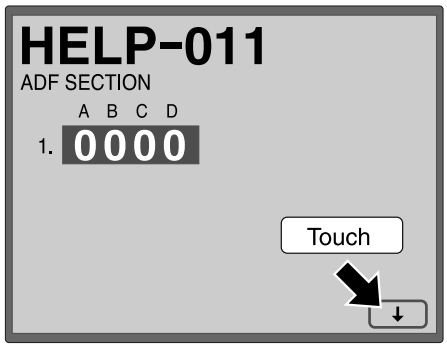
Page 3 :

- Check operation.
  Feed the document through the machine.
- Checking sensors.
  ADF DOCUMENT SIZE SENSOR 1 - 5
- Checking ADF Document size.

● Operation procedure

1. Call the HELP mode "H-011".

Enter "**011**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right twice to switch to Page 3.

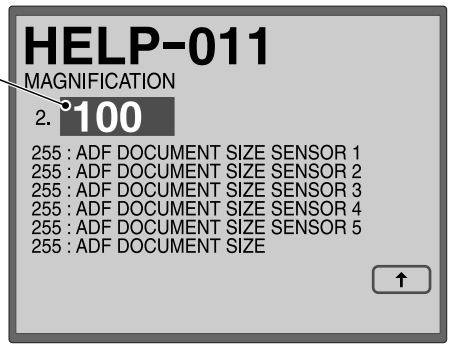
3. Check operation.

Feed the document through the machine.

❶ Feed the document by the (**TEST PRINT**) key.
The document size detected by the ADF document size sensor is displayed.
Two or more documents are present in ADF, continuously feed all documents through the machine. If the (**STOP**) key is pressed in the middle of operation, continuous feeding is cancelled.
After the document being fed is ejected, operation stops.

❷ While the (**MASTER MAKING**) key is held down, the ADF clutch A/B is ON to rotate the ADF stepping motor.

❸ While the (**PROPERTY**) key is held down, the ADF stepping motor operates to lower the glass for document standby.

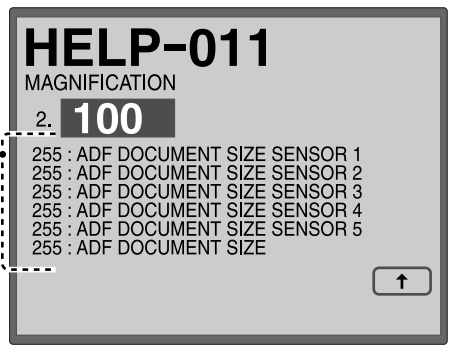


4. Checking the sensor.

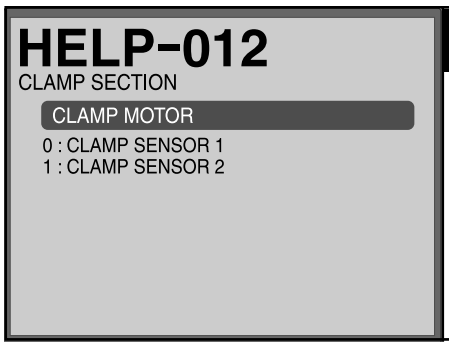
Check the drum master sensor.

Status of Sensors

Sensors	100 or less	100 or more
DOCUMENT SIZE SENSOR 1	Present	Not present
DOCUMENT SIZE SENSOR 2	Present	Not present
DOCUMENT SIZE SENSOR 3	Present	Not present
DOCUMENT SIZE SENSOR 4	Present	Not present
DOCUMENT SIZE SENSOR 5	Present	Not present
DOCUMENT SIZE	Fixed document size displayed	



step 5. ➡ Press the (**STOP**) key.



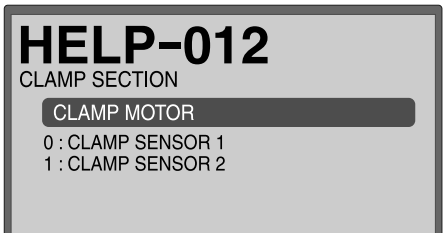
Adjusting/Checking the Clamp Section

- Check operation.
  CLAMP MOTOR
- Checking sensors.
  CLAMP SENSOR 1 / CLAMP SENSOR 2

● Operation procedure

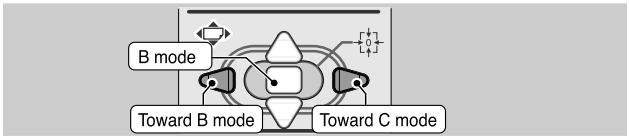
1. Call the HELP mode "H-012".

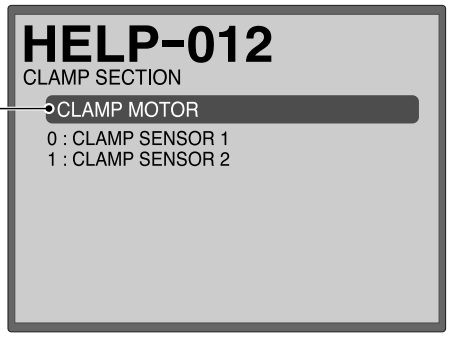
Enter "**012**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Check operation.

❶ Press the **PRINT POSITION** key are held down, the clamp motor operates.
Press the **PRINT POSITION** key to **toward B mode.**
Press the **PRINT POSITION** key to **toward C mode.**





- Press the **center** key to return to the clamp home position, **B mode.**

❷ Press the (**MASTER MAKING**) key.
B mode is entered. The drum rotates and stops at the detach position and then at the attach position.

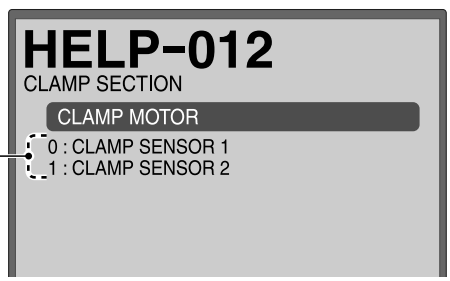
❸ Press the "**1**" key. Every time this key is pressed, the drum rotates and stops at the **detach position.**
Press the "**2**" key. Every time this key is pressed, the drum rotates and stops at the **attach position.**
Press the "**3**" key. Every time this key is pressed, the drum rotates and stops at the **removal position.**
Press the "**4**" key. Every time this key is pressed, the drum rotates and stops at the **pre-detach position.**
Press the "**5**" key. Every time this key is pressed, the drum rotates and stops at the **post-detach position.**

3. Checking sensors.

Check the following sensors.

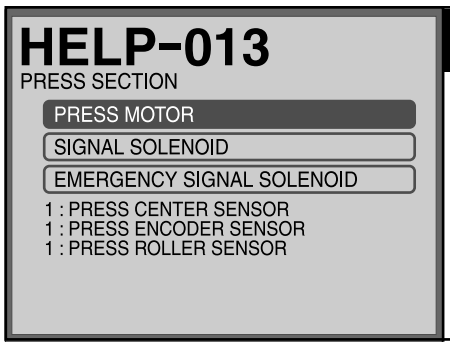
► **Status of Sensors**

Sensors	0	1
CLAMP SENSOR 1	Photopassing	Photointerrupting
CLAMP SENSOR 2	Photopassing	Photointerrupting



4. Return to the HELP mode.

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



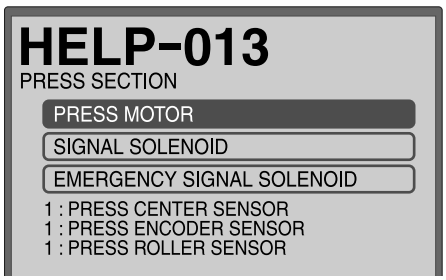
Adjusting/Checking the Press Section

- Check operation.
  PRESS MOTOR / EMERGENCY SIGNAL SOLENOID / SIGNAL SOLENOID
- Checking sensors.
  PRESS CENTER SENSOR / PRESS ENCODER SENSOR / PRESS ROLLER SENSOR

● Operation procedure

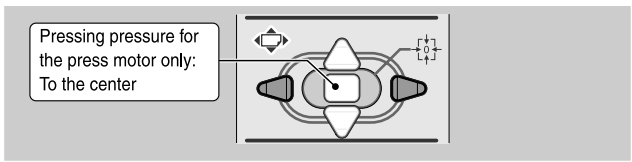
1. Call the HELP mode "H-013".

Enter "**013**" by the **NUMERIC** keys and then press the (**PRINT**) key.



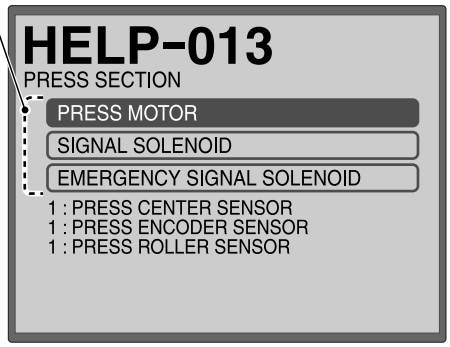
2. Check operation.

❶ Select and touch the motor or solenoid to be checked.
❷ Press the **PRINT POSITION** key , ; while this key is held down, the motor/solenoid operates.



- Even if the key is held down, the emergency signal solenoid stops operation after a specified time to protect solenoid.
- For the press motor only, pressing pressure is returned to the **PRINT POSITION center** key.

❸ Press the (**MASTER MAKING**) key. The drum rotates and then stops at the position where the signal solenoid operates.

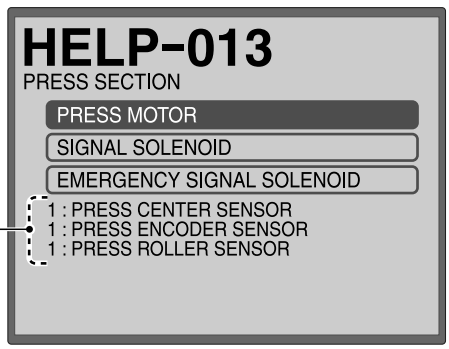


3. Checking sensors.

Check the following sensors.

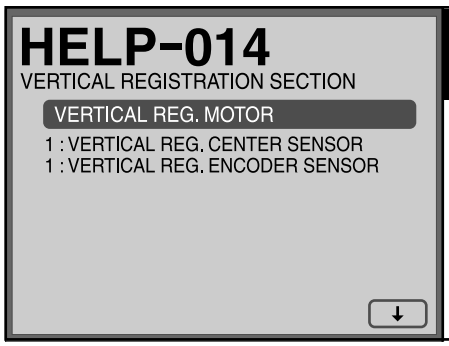
Status of Sensors

Sensors	0	1
PRESS CENTER SENSOR	Photopassing	Photointerrupting
PRESS ENCODER SENSOR	Photopassing	Photointerrupting
PRESS ROLLER SENSOR	Photopassing	Photointerrupting



4. Return to the HELP mode.

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



(1) Adjusting/Checking the Vertical Registration Section

(2 pages in total)

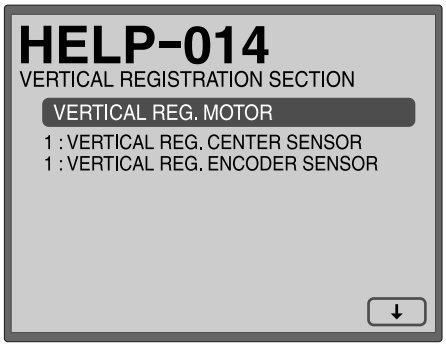
Page 1 :

- Check operation.
  VERTICAL REG. MOTOR
- Checking sensors.
  VERTICAL REG. CENTER SENSOR / VERTICAL REG. ENCODER SENSOR

● Operation procedure

1. Call the HELP mode "H-014".

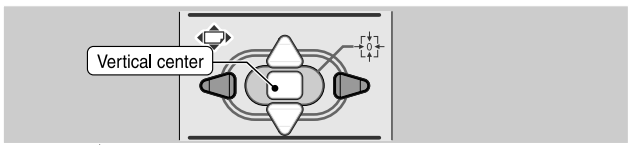
Enter "**014**" by the **NUMERIC** keys and then press the (**PRINT**) key.



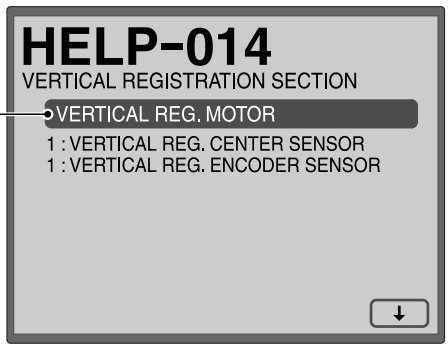
2. Check operation.

Check operation.

❶ Press the **PRINT POSITION** key , are held down, the vertical registration motor operates.



● Press the **PRINT POSITION center** key to return to the **vertical center**.

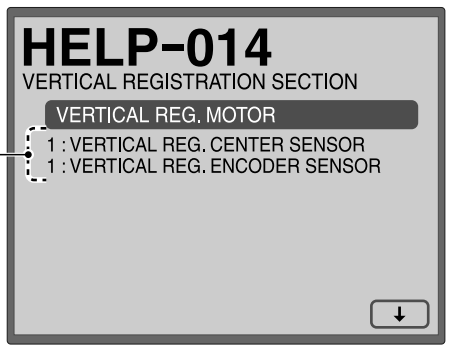


3. Checking sensors.

Check the following sensors.

Status of Sensors

Sensors	0	1
VERTICAL REG. CENTER SENSOR	Photopassing	Photointerrupting
VERTICAL REG. ENCODER SENSOR	Photopassing	Photointerrupting



4. Return to the HELP mode.

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

(2) Adjusting/Checking the Vertical Registration Section

(2 pages in total)

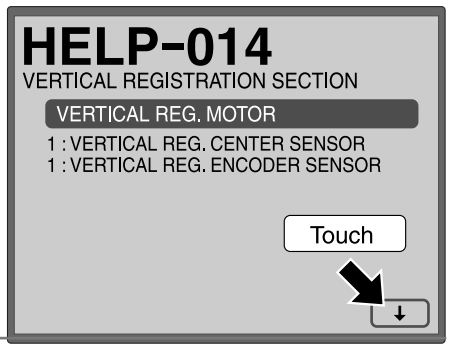
Page 2 :

- Display of adjustment values.
  REGISTRATION ADJUST : RIGHT / REGISTRATION ADJUST : LEFT

● Operation procedure

1. Call the HELP mode "H-014".

Enter "**014**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Check the adjustment values.

• Use HELP-30 for adjustment.

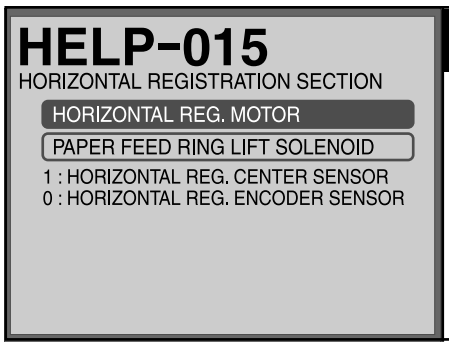
► Adjustment values

Item	Sensors	Adjustment value (mm)
1	REGISTRATION ADJUST : RIGHT	350 - 799
2	REGISTRATION ADJUST : LEFT	801 - 1250

4. Return to the HELP mode.

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

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



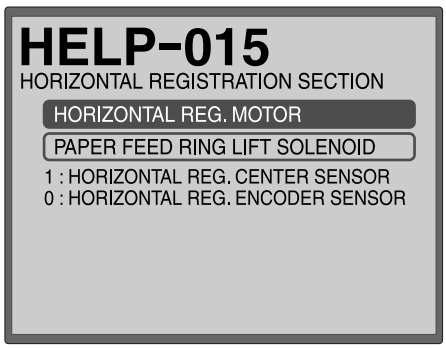
Adjusting/Checking the Horizontal Registration Section

- Check operation.
  HORIZONTAL REG. MOTOR / PAPER FEED RING LIFT SOLENOID
- Checking sensors.
  HORIZONTAL REGISTRATION CENTER SENSOR /
  HORIZONTAL REGISTRATION ENCODER SENSOR

● Operation procedure

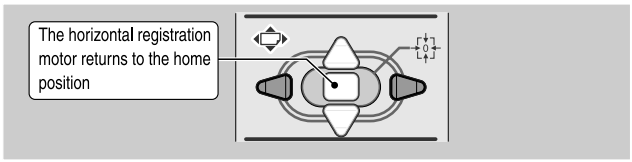
1. Call the HELP mode "H-015".

Enter "**015**" by the **NUMERIC** keys and then press the (**PRINT**) key.

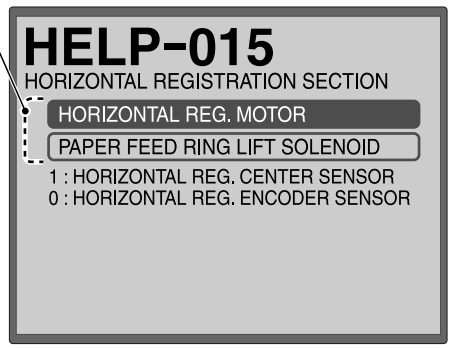


2. Check operation.

❶ Select and touch the motor or solenoid to be checked.
❷ Press the **PRINT POSITION** key , ; while this key is held down, the motor/solenoid operates.



- The horizontal registration motor returns to the home position by the (**PRINT POSITION center**) key.
- Even if the key is held down, the paper feed ring lift solenoid stops operation after a specified time to protect solenoid.

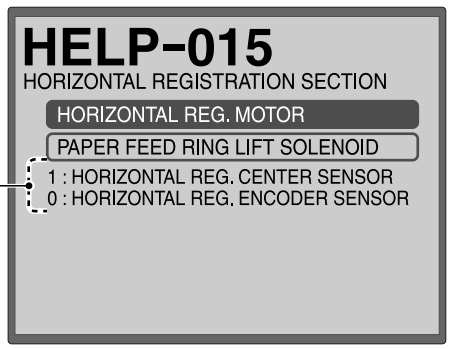


3. Checking sensors.

Check the following sensors.

Status of Sensors

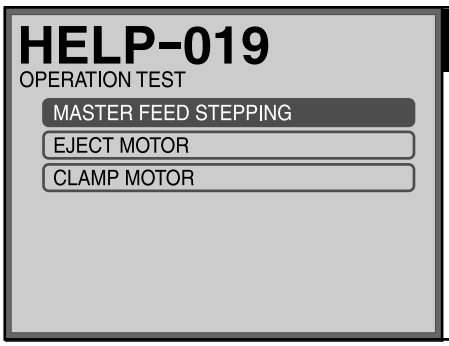
Sensors	0	1
HORIZONTAL REG. CENTER SENSOR	Photopassing	Photointerrupting
HORIZONTAL REG. ENCODER SENSOR	Photopassing	Photointerrupting



4. Return to the HELP mode.

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

HELP-016 to HELP-018 unused



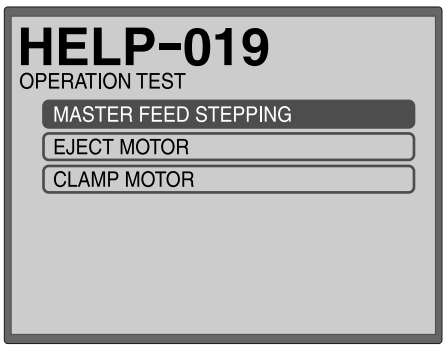
Adjusting/Checking Operation

● Check operation.
CLAMP MOTOR / EJECT MOTOR / MASTER FEED STEPPING MOTOR

● Operation procedure

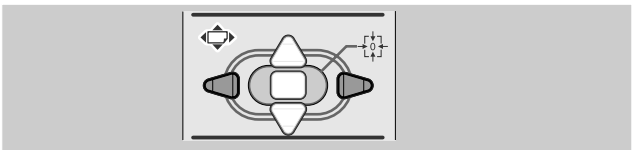
1. Call the HELP mode "H-019".

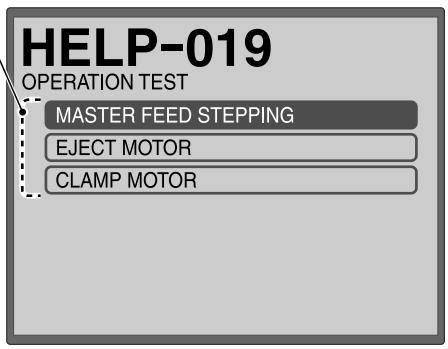
Enter "**019**" by the **NUMERIC** keys and then press the (**PRINT**) key.When HELP-019 is entered, the thermal head moves up and the ink roller moves down.



2. Check operation.

❶ Select and touch the motor to be checked.
❷ Press the **PRINT POSITION** , key ;
while this key is held down, the motor operates.





❸ While the (**TEST PRINT**) key is held down,
the master feed clutch is ON to rotate the master feed stepping motor.

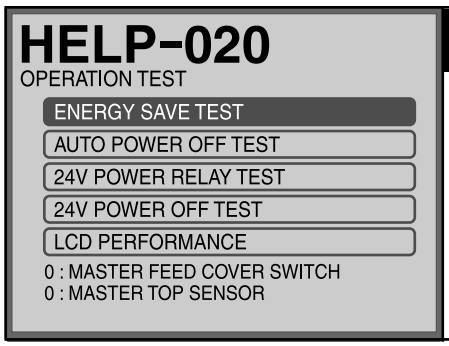
● **Only in the clamp B mode**,
every time the (**MASTER MAKING**) key is pressed,the drum rotates
and then stops at the detach position, the attach position and the drum removal position, in order.
While the drum is rotating, the drum does not rotate even if the drum rotation switch is pressed.
Only in the clamp B mode, the drum rotates if the drum rotation switch is pressed.

Press the "**1**" key. Every time this key is pressed, the drum rotates and stops at the **detach position.**
Press the "**2**" key. Every time this key is pressed, the drum rotates and stops at the **attach position.**
Press the "**3**" key. Every time this key is pressed, the drum rotates and stops at the **removal position.**
Press the "**4**" key. Every time this key is pressed, the drum rotates and stops at the **pre-detach position.**
Press the "**5**" key. Every time this key is pressed, the drum rotates and stops at the **post-detach position.**

3. Return to the HELP mode.

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

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



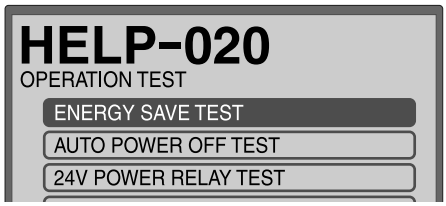
Checking Power Management

- Checking Power Management.
  ENERGY SAVE TEST / AUTO POWER OFF TEST / 24V POWER RELAY TEST / 24V POWER OFF TEST / LCD PERFORMANCE
- Checking Notice LED performance.
- Checking sensors.
  MASTER FEED COVER SWITCH / MASTER TOP SENSOR

● Operation procedure

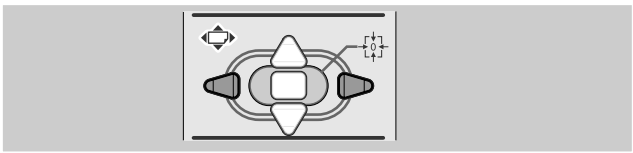
1. Call the HELP mode "H-020".

Enter "**020**" by the **NUMERIC** keys and then press the (**PRINT**) key.

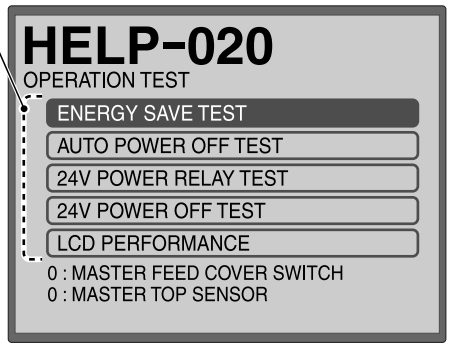


2. Check operation.

❶ Select and touch the item to be checked.
❷ Press the **PRINT POSITION** , key ; operates.



❸ Press the following keys to check the Notice LED performance.
Press the "**1**" key to turn on the Notice LED (green).
Press the "**2**" key to turn on the Notice LED (red).
Press the "**3**" key to turn on the Notice LED (orange).
Press the "**4**" key to turn off the Notice LED.



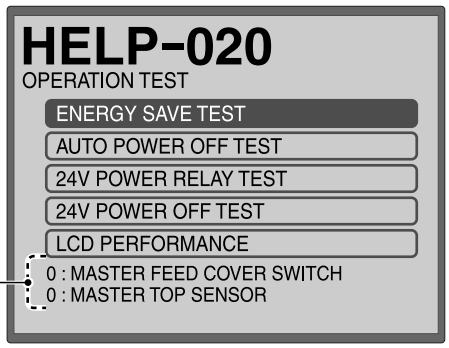
3. Checking sensors.

❶ The values of the master feed cover switch and the master top sensor are displayed to check power management.

Status of Sensor and Switche

Sensor and Switche	0	1
MASTER FEED COVER SWITCH	24V : ON	24V : OFF
MASTER TOP SENSOR	5V : ON	5V : OFF

- Make sure that the master feed cover is closed and the master top sensor detects that the master is present.
- When checking 24V, it takes a little time until the value of the switch changes after operation is directed.



4. Return to the HELP mode.

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

HELP-021
CHECK
1 : FRONT COVER SENSOR
0 : TOP COVER SENSOR
30 : MAIN THERMISTOR (℃)
24 : THERMAL HEAD THERMISTOR(℃)
OK : SHADING MEMORY CHECK
OK : FPGA CHECK
0 : 0 : TIME LAPSE FROM LAST PRINT

Self-check, Data Display, etc.

- Checking sensor , switch and etc.
  FRONT COVER SENSOR / TOP COVER SWITCH / MAIN THERMISTOR / THERMAL HEAD THERMISTOR
- Self-check. (SHADING MEMORY CHECK / FPGA CHECK)
- Data Display. (TIME LAPSE FROM LAST PRINT)

● Operation procedure

1. Call the HELP mode "H-051".

Enter "**021**" by the **NUMERIC** keys and then press the (**PRINT**) key. "**Please wait.**" is displayed and the shading memory and FPGA are checked.

HELP-021
Please wait.

2. Check data.

Data are displayed.

► **Status of Sensor, Switche and etc.**

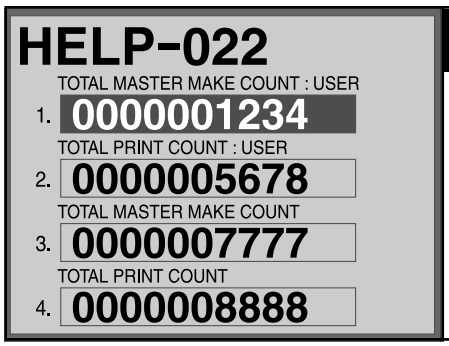
Sensor , Switche and etc.	0	1
FRONT COVER SENSOR	Photopassing	Photointerrupting
TOP COVER SWITCH	ON : Close	OFF : Open
MAIN THERMISTOR (℃)	Numeric value (C/F)	
THERMAL HEAD THERMISTOR (℃)	Numeric value (C/F)	
SHADING MEMORY CHECK	OK	OK
FPGA CHECK	OK	OK
TIME LAPSE FROM LAST PRINT	11 : 11 (Hours: Minutes)	

HELP-021
CHECK
1 : FRONT COVER SENSOR
0 : TOP COVER SWITCH
30 : MAIN THERMISTOR (℃)
24 : THERMAL HEAD THERMISTOR(℃)
OK : SHADING MEMORY CHECK
OK : FPGA CHECK
0 : 0 : TIME LAPSE FROM LAST PRINT

3. Return to the HELP mode.

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

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



Total Count Display

- Data display.
  - Total master make count for a user
  - Total print count for a user
  - Total master make count
  - Total print count

● Operation procedure

1. Call the HELP mode "H-022".

Enter "**022**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Check data.

Total count is displayed.

Clear total count for a user.

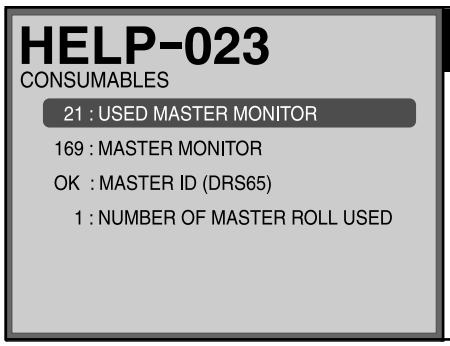
The total master make count and the total print count for a user can be cleared.

❶ Touch the item to be checked.
❷ Press the key and the C (**CLEAR**) key to clear the total count.

3. Return to the HELP mode.

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

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



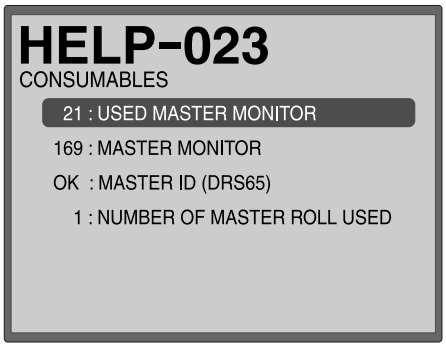
Display of the Data on the Master

- The data on the master are displayed.
  - USED MASTER MONITOR
  - MASTER MONITOR
  - MASTER ID (DRS65)
  - NUMBER OF MASTER ROLL USED

● Operation procedure

1. Call the HELP mode "H-023".

Enter "**023**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Check data.

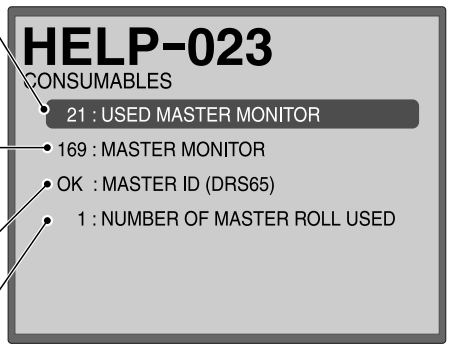
Data are displayed.

USED MASTER MONITOR
Press the C (**CLEAR**) key to clear the used master monitor.

MASTER MONITOR
The value decreases by one for each master making.

MASTER ID check

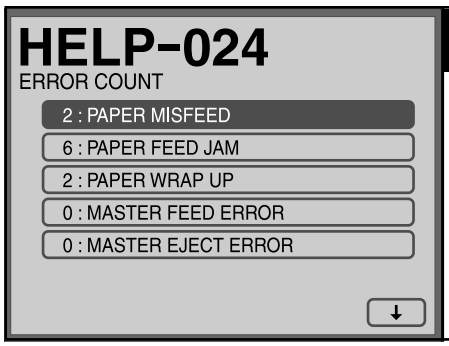
NUMBER OF MASTER ROLL USED
Counted by the number of times of end mark detection.



3. Return to the HELP mode.

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

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



Checking Error Count and Error History (6 pages in total)

Page 1, 2 : Display of Error count

- MASTER EJECT ERROR/ MASTER FEED ERROR / PAPER WRAP UP / PAPER FEED JAM / PAPER MISFEED / MASTER EJECT ERROR , (page 2 :) MASTER FEED ERROR / PAPER WRAP UP / PAPER FEED JAM / PAPER MISS FEED ERROR COUNT

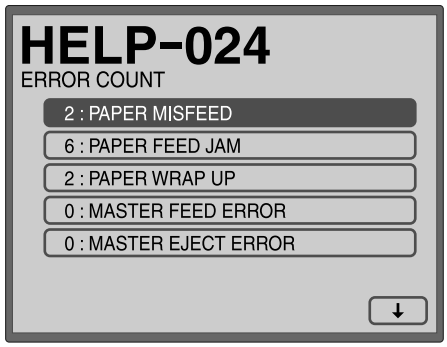
Page 3 - 5 : Display of Error History

Page 6 : Display of Service Call History

● Operation procedure

1. Call the HELP mode "H-024".

Enter "**024**" by the **NUMERIC** keys and then press the (**PRINT**) key.



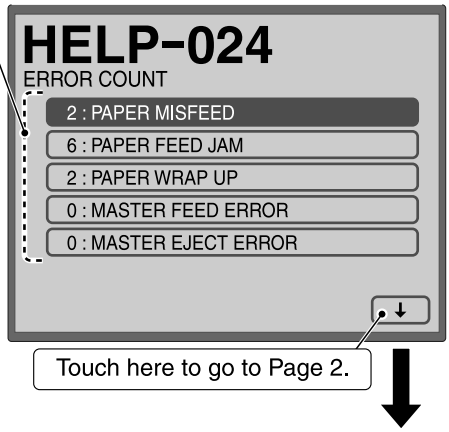
2. Error count display (Page 1)

Error count is displayed.

To display total error count:
❶ Press the (**MASTER MAKING**) key.

To clear each error count:
❶ Touch the item to be checked.
❷ Press the C (**CLEAR**) key.

To clear the total error count and the error history:
❶ Press the key and the C (**CLEAR**) key at the same time.
(The total error count cannot be cleared.)



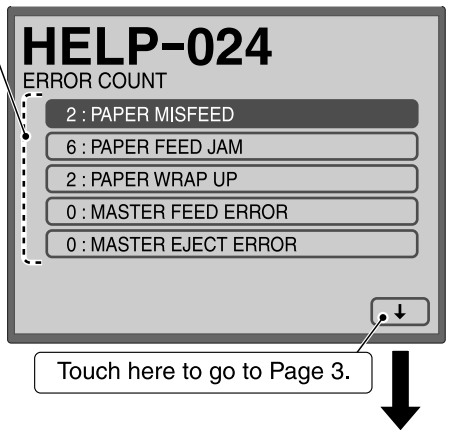
3. Error count display (Page 2)

Touch the arrow on the screen lower right in step *2* to display the error count on Page 2.

To display total error count:
❶ Press the (**MASTER MAKING**) key.

To clear each error count:
❶ Touch the item to be checked.
❷ Press the C (**CLEAR**) key.

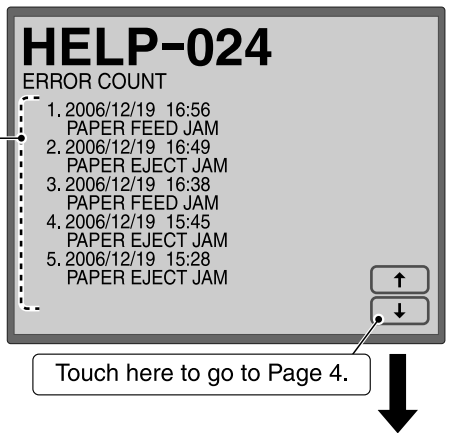
To clear the total error count and the error history:
❶ Press the key and the C (**CLEAR**) key at the same time.
(The total error count cannot be cleared.)



4. Display of Error History 1 - 6 (Page 3)

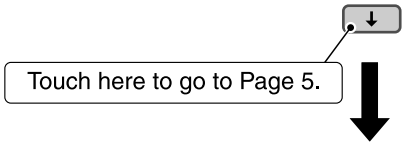
Touch the arrow on the screen lower right in step *3* to display the error history on Page 3.

Errors displayed in reverse chronological order.



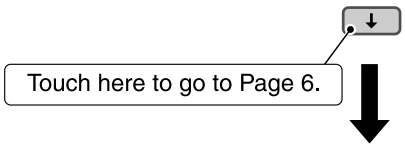
5. Display of Error History 7 - 12 (Page 4)

Touch the arrow on the screen lower right in step *4* to display the error history on Page 4.



6. Display of Error History 13 - 16 (Page 5)

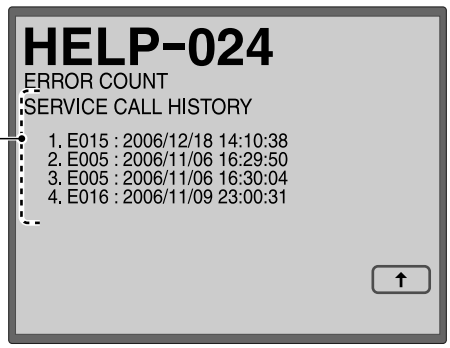
Touch the arrow on the screen lower right in step *5* to display the error history on Page 5.



7. Display of Service Call History 1 - 4 (Page 6)

Touch the arrow on the screen lower right in step *6* to display the service call history on Page 6.

Errors displayed in reverse chronological order.

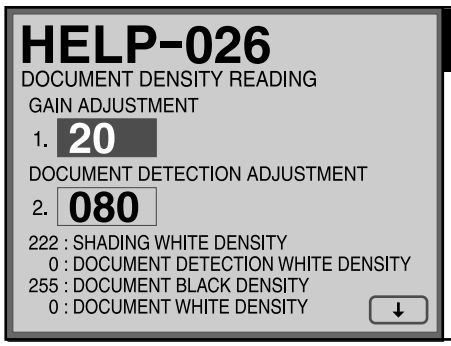


8. Return to the HELP mode.

Press the ▽ (**STOP**) key.
The HELP mode selection display will reappear.

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

HELP-025 unused



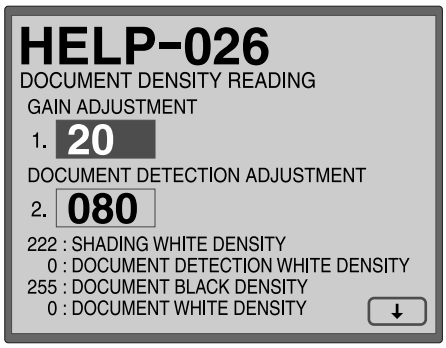
Document Density Reading (Scanner)

- Document Density Reading (Scanner).

● Operation procedure

1. Call the HELP mode "H-026".

Enter "**026**" by the **NUMERIC** keys and then press the (**PRINT**) key.

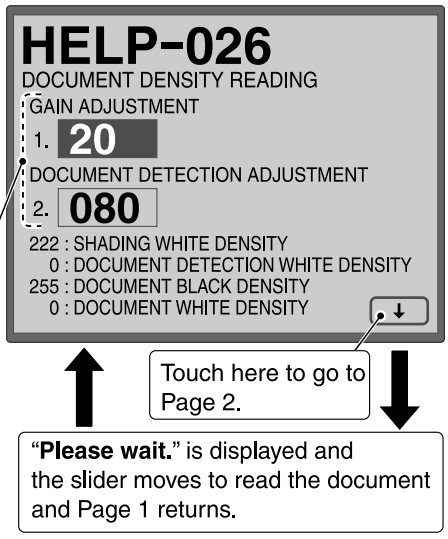


2. Display of document density (scanner).

Check display.

❶ Touch the arrow on the screen lower right.
The page is changed. The slider moves to read the document and Page 1 returns. Document density is displayed.

• Do not change the values of "GAIN ADJUSTMENT" and "DOCUMENT DETECTION ADJUSTMENT".



3. Return to the HELP mode.

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

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

Initializing HELP Contents (2 pages in total)

Page 1 : Check data.

- Code by model/destination / Machine code / Manufacturing number

Page 2 :

- Initialize HELP contents.

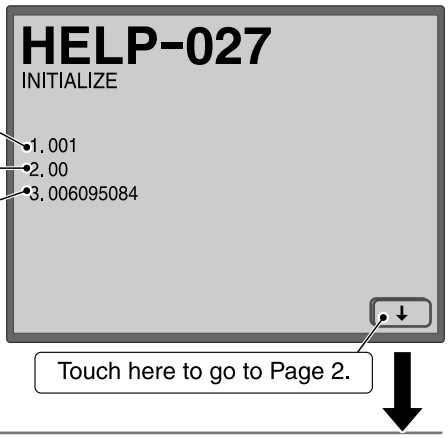
● Operation procedure

1. Call the HELP mode "H-027".

Enter "**027**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Check data. (Page 1)

Machine-specific codes and the manufacturing number are displayed.



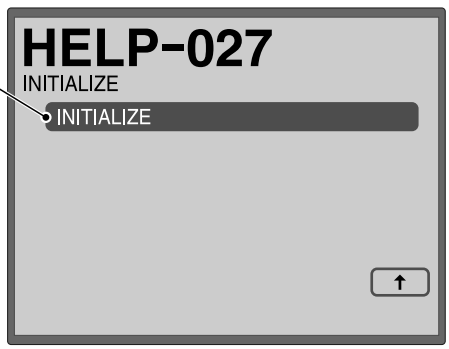
3. Initialize HELP contents. (Page 2)

Touch the arrow on the screen lower right in step *2* to display the **INITIALIZE** screen on Page 2.

To initialize HELP contents:

❶ Press the ≙ key and the C (**CLEAR**) key at the same time.

- After initialization, enter the **adjustments values indicated on the HELP sticker.**
- **If the machine-specific codes and the manufacturing number are not displayed on Page 1, HELP contents cannot be initialized.** If EEP-ROM requires replacement, the **machine-specific codes** and the **manufacturing number** must be written at the plant.



4. Return to the HELP mode.

Press the ▽ (**STOP**) key.

The HELP mode selection display will reappear.

HELP-028
Image Memory Check

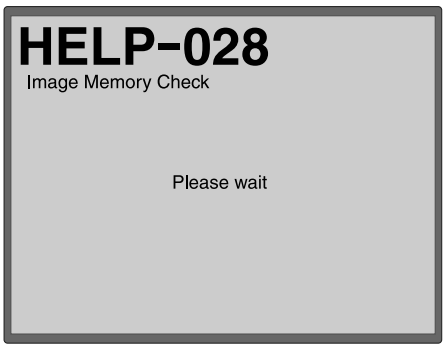
Image Memory Check

- Image Memory Check.

● Operation procedure

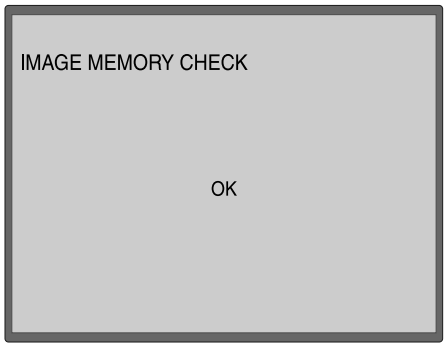
1. Call the HELP mode "H-028".

Enter "**028**" by the **NUMERIC** keys and then press the (**PRINT**) key. Memory check starts.



2. Check image memory.

"**OK**" is displayed if the check result is normal, and "**NG**" if defective.

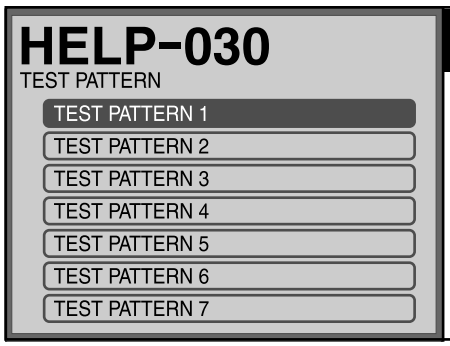


3. Return to the HELP mode.

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

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

HELP-029 unused



(1) Test Pattern

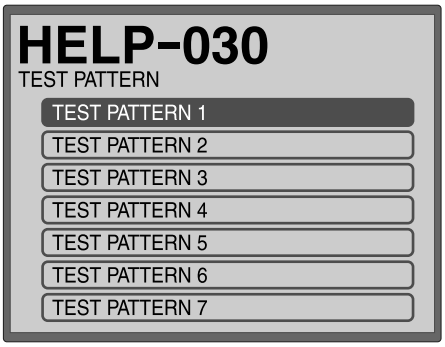
● Printing the test pattern.

● Set to "4. B = 0: Upper cover switch disabled" and "4. C =0: Scanner disabled" of HELP-061.
The test pattern can be made up and printed with the scanner opened.

● Operation procedure

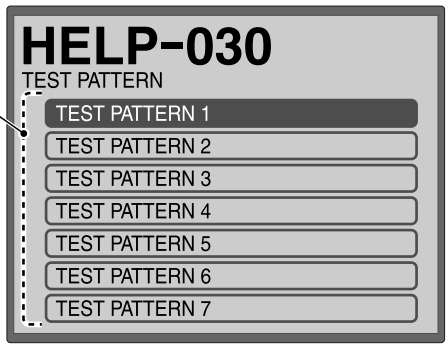
1. Call the HELP mode "H-030".

Enter "**030**" by the **NUMERIC** keys and then press the (**PRINT**) key. Memory check starts.



2. The test patter selection screen appears.

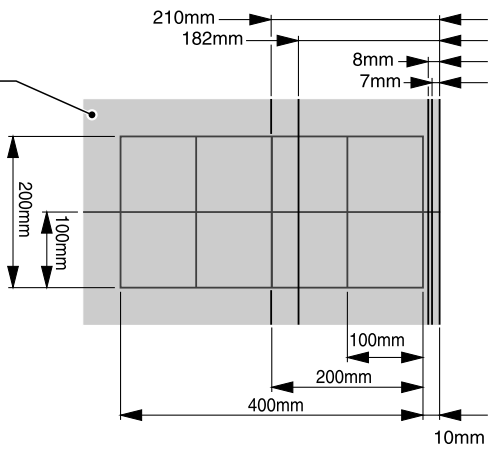
❶ Select and touch the test pattern to be printed.
HELP automatically exits and the standby screen for making master and printing appears to make up the test pattern.



- Turn off the power or make a reset to exit from this mode.
- To change the test pattern, enter HELP-030 again.
- The master size is the size of the paper selected.

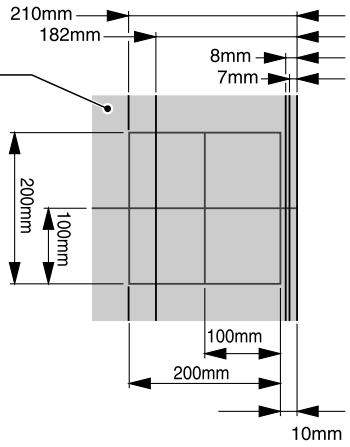
Test pattern 1: When using **A3 Machine** and **A3 Drum**

- The test pattern consists of the diagonal line pattern, the maximum width (horizontal) lines at 7mm, 8mm, 182 mm and 210 mm from the lead edge, the square [200 mm (horizontal) x 400 mm (vertical)] and lines dividing this square into four squares (100 x 200 each).



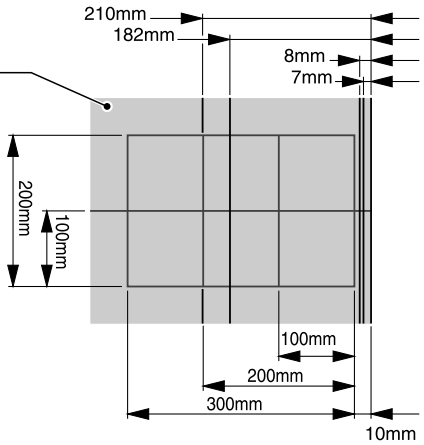
Test pattern 1: When using **A3 Machine** and **A4 Drum**

- The test pattern consists of the diagonal line pattern, the maximum width (horizontal) lines at 7mm, 8mm, 182 mm and 210 mm from the lead edge, the square [200 mm (horizontal) x 200 mm (vertical)] and lines dividing this square into four squares (100 x 100 each).



Test pattern 1: When using **B4 Machine**

- The test pattern consists of the diagonal line pattern, the maximum width (horizontal) lines at 7mm, 8mm, 182 mm and 210 mm from the lead edge, the square [200 mm (horizontal) x 300 mm (vertical)] and lines dividing this square into 100 mm x 200 mm and 100 mm x 100 mm.



Test pattern 2

- The test pattern of diagonal lines.

Test pattern 3

- This test pattern consists of the half-tone pattern with coverage rate of 12.5 % and the test pattern 1.

For print range adjustment: Paper size (Master size)	
A3 Machine and A3 Drum	297 X 452mm
A3 Machine and A4 Drum	297 X 246mm
B4 Machine	257 X 384mm

Test pattern 4

- This test pattern consists of the half-tone pattern with coverage rate of 25 % and the test pattern 1.

For print range adjustment: Paper size (Master size)	
A3 Machine and A3 Drum	297 X 452mm
A3 Machine and A4 Drum	297 X 246mm
B4 Machine	257 X 384mm

Test pattern 5

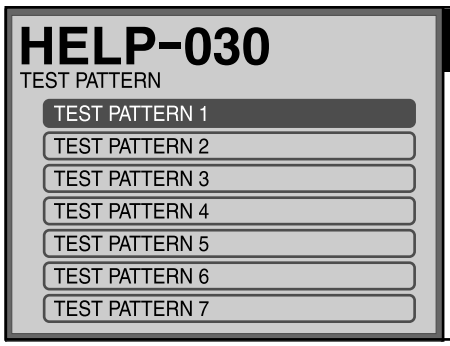
- Half-tone test pattern with coverage rate of 12.5%.

Test pattern 6

- Half-tone test pattern with coverage rate of 25%.

Test pattern 7

- Half-tone test pattern with coverage rate of 50%.



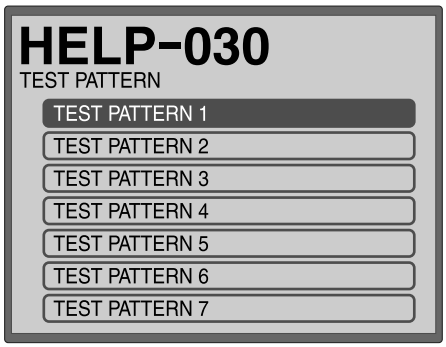
(2) Vertical Registration Adjustment

- Vertical Registration Adjustment.

● Operation procedure

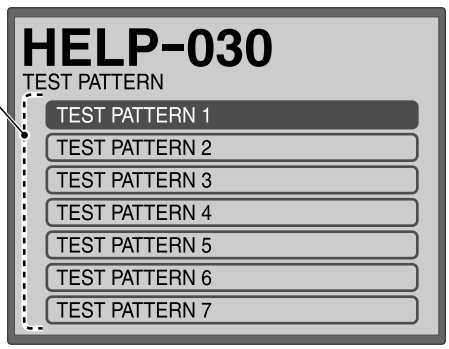
1. Call the HELP mode "H-030".

Enter "**030**" by the **NUMERIC** keys and then press the (**PRINT**) key. Memory check starts.



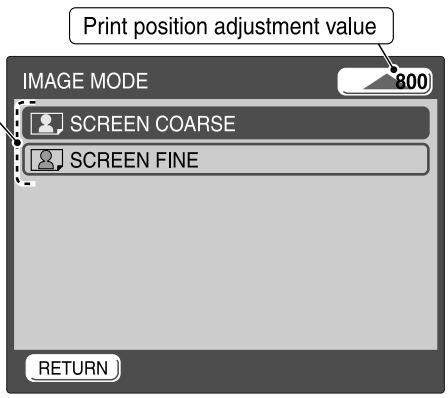
2. The test patter selection screen appears.

❶ Select and touch the test pattern to be printed.
HELP automatically exits and the standby screen for making master .

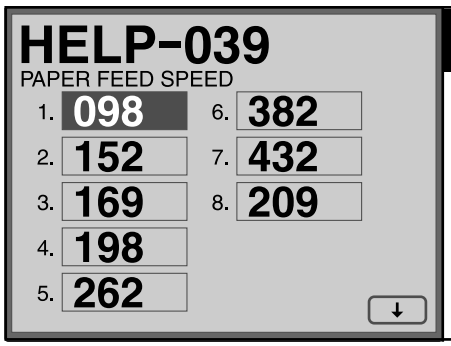


3. Adjust vertical registration.

❶ Set the image mode to **SCREEN COARSE** to adjust vertical registration ⬅ by the **PRINT POSITION** keys.
Set the image mode to **SCREEN FINE** to adjust vertical registration ➡ by the **PRINT POSITION** keys.
❷ Press the ⧖ key and the C (**CLEAR**) key at the same time to store adjustment.
The print position adjustment value is displayed at the upper right of the print volume.



HELP-031 to HELP-038 unused



Paper Feed Adjustment (5 pages in total)

- To enter H-039, be sure to set **G** of **HELP-061** (5 at Page 2) to **1**.

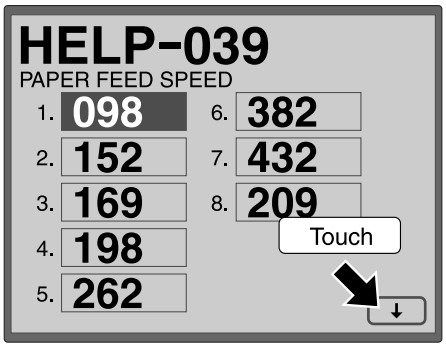
Page 1: Paper feed speed
Page 2: Paper feed angle
Page 3: Paper feed lead edge sensor angle
Page 4: Paper feed limit angle
Page 5: Paper feed loop level

Unchangeable

● Operation procedure

1. Call the HELP mode "H-039".

Enter "**039**" by the **NUMERIC** keys and then press the (**PRINT**) key. Memory check starts.



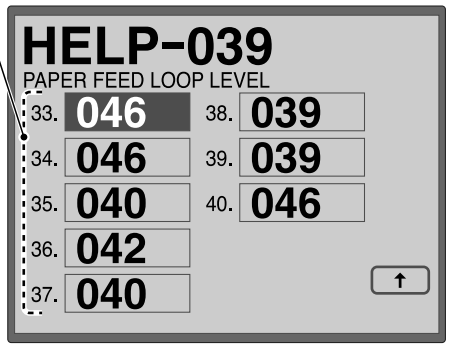
2. Change the screen.

Touch the (**arrow**) on the screen lower right four times to switch to Page 5.

3. Set value display (Page 5).

Paper feed loop levels are displayed.

- Do not change the values at Pages 1 - 4.



Adjustment

❶ Select and touch the speed to be adjusted.
❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

Speed reference values

Item	Speed	Reference value (rpm)
33	Jog Speed	46
34	Speed 0	46
35	Speed 1	40
36	Speed 2	42
37	Speed 3	40
38	Speed 4	39
39	Speed 5	39
40	Speed 6	46

- Press the C (**CLEAR**) key to return the selected set value to the value before change.

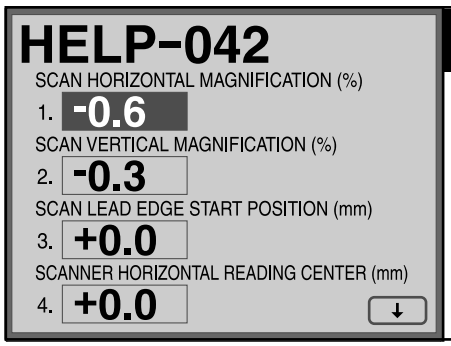
❸ Press the key to store the speed set value.

4. Return to the HELP mode.

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

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

HELP-040 and HELP-041 unused



(1) Scanner Read Adjustment (2 pages in total)

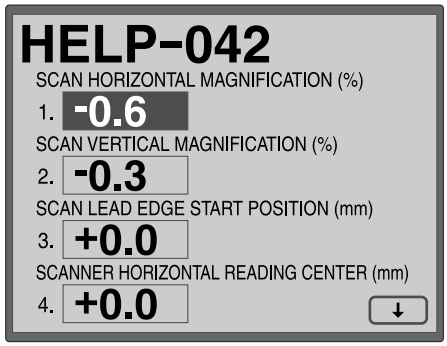
Page 1 : Adjustment.

- Scan horizontal (main scan) magnification
  Scan vertical (sub scan) magnification
  Scan lead edge start position
  Scanner horizontal reading center

● Operation procedure

1. Call the HELP mode "H-042".

Enter "**042**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Adjust the scanner read.

Adjustment

❶Select and touch the item to be adjusted.

Scan horizontal (main scan) magnification
Scan vertical (sub scan) magnification

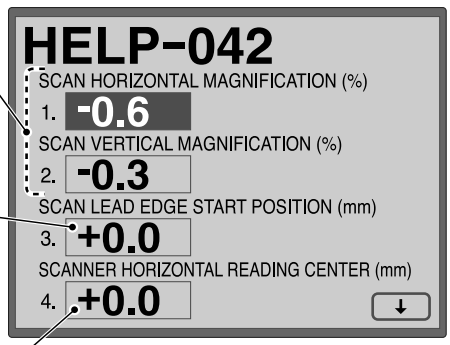
- Make a master by the scanner and make the document same length as the printed material.

Scan lead edge start position

- Make double master (2 copies on one page).
  Make the second master at 2 mm from the lead edge.
  Document reading starts earlier by "**–**".
  Document reading starts later by "**+**".

Scanner horizontal reading center

- The print deviates rightward from the document by "**–**".
  (Main scan reading starts earlier.)
  The print deviates leftward from the document by "**+**".
  (Main scan reading starts later.)



❷Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the **C** (**CLEAR**) key to return the selected set value to the value before change.

❸Press the key to store the set value.

3. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

(2) Scanner Read Adjustment (2 pages in total)

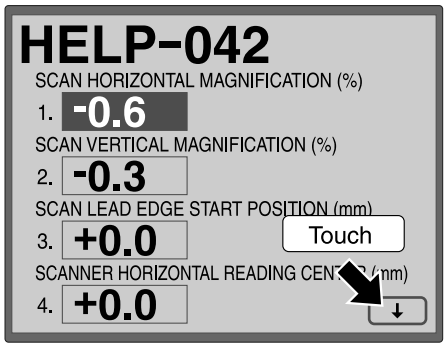
Page 2 : Adjustment.

- Scanner read width
  Scanner read length
  Scanner move range

● Operation procedure

1. Call the HELP mode "H-042".

Enter "**042**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Adjust the scanner read.

Adjustment

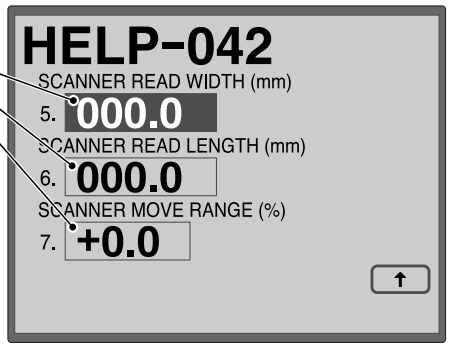
❶ Select and touch the item to be adjusted.

Scanner read width
Scanner read length
Scanner move range

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

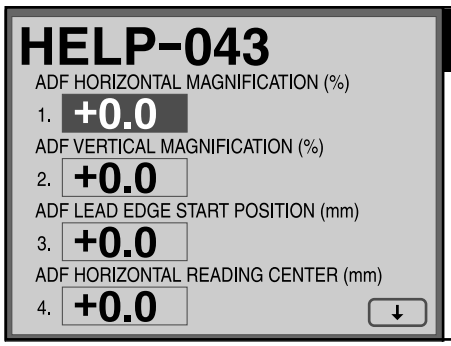
❸ Press the key to store the set value.



4. Return to the HELP mode.

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

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



(1) ADF Read Adjustment (2 pages in total)

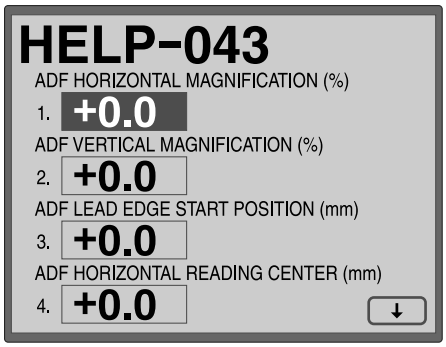
Page 1 : Adjustment.

- ADF horizontal (main scan) magnification
  ADF vertical (sub scan) magnification
  ADF lead edge start position
  ADF horizontal reading center

● Operation procedure

1. Call the HELP mode "H-043".

Enter "**043**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Adjust the ADF read.

Adjustment

❶ Select and touch the item to be adjusted.

ADF horizontal (main scan) magnification
ADF vertical (sub scan) magnification

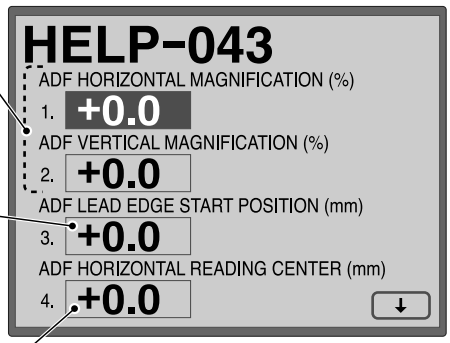
- Make a master by the ADF and make the document same length as the printed material.

ADF lead edge start position

- Make double master (2 in 1 mode).
  Make the second master at 2 mm from the lead edge.
  Document reading starts earlier by "**–**".
  Document reading starts later by "**+**".

ADF horizontal reading center

- The print deviates rightward from the document by "**–**".
  (Main scan reading starts earlier.)
  The print deviates leftward from the document by "**+**".
  (Main scan reading starts later.)



❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the **C** (**CLEAR**) key to return the selected set value to the value before change.

❸ Press the key to store the set value.

3. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

(2) ADF Read Adjustment (2 pages in total)

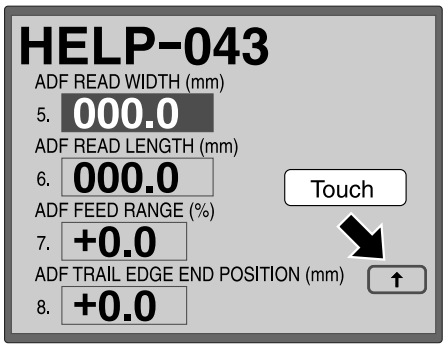
Page 2 : Adjustment.

- ADF read width
  ADF read length
  ADF feed range
  ADF trail edge end position

● Operation procedure

1. Call the HELP mode "H-043".

Enter "**043**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Adjust the ADF read.

Adjustment

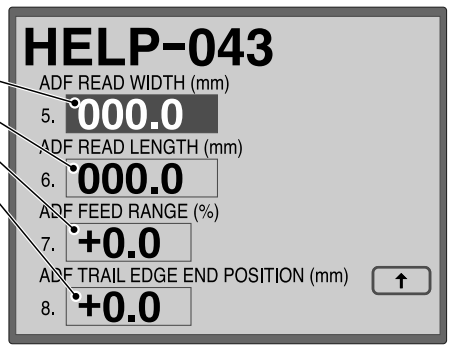
❶ Select and touch the item to be adjusted.

ADF read width
ADF read length
ADF feed range
ADF trail edge end position

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

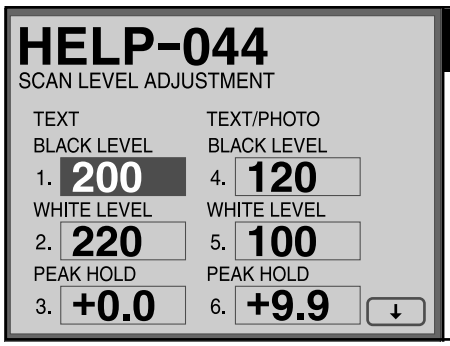
❸ Press the key to store the set value.



4. Return to the HELP mode.

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

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



(1) Scan Level Adjustment (2 pages in total)

Page 1 : Adjustment.

- TEXT mode

  Black level , White level , Peak hold

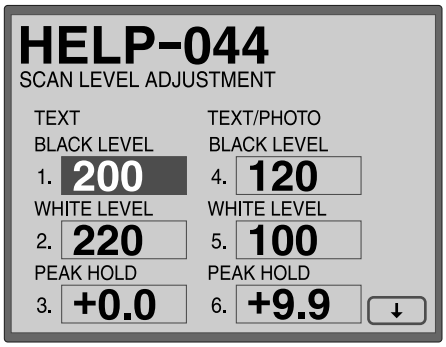
- TEXT/PHOTO mode

  Black level , White level , Peak hold

● Operation procedure

1. Call the HELP mode "H-044".

Enter "**044**" by the **NUMERIC** keys and then press the (**PRINT**) key.



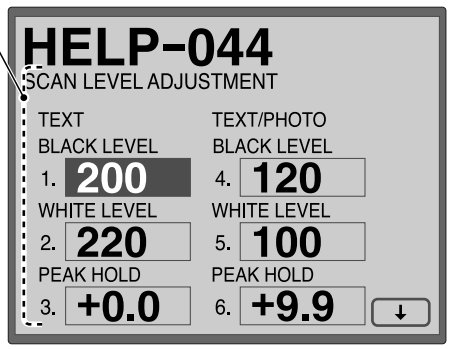
2. Adjust the scan level.

Adjustment

❶ Select and touch the speed to be adjusted.

Reference values

No.	Item		Adjustment width
1	Text mode	Black level	0 - 255
2		White level	0 - 255
3		Peak hold	−9.9 - +9.9
4	Text/Photo mode	Black level	0 - 255
5		White level	0 - 255
6		Peak hold	−9.9 - +9.9



❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**−**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

❸ Press the key to store the set value.

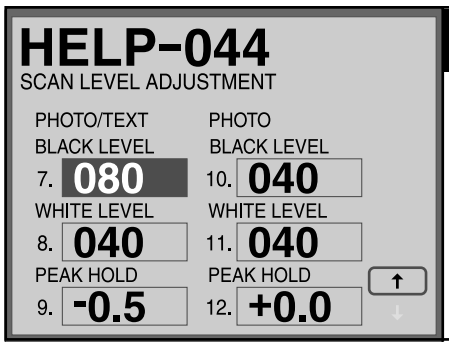
- When S3-ADF is not loaded:
  If the scan level is changed, the same value is entered in ADF (HELP-045).
  After ADF adjustment, the scan level is not changed.

- **Text mode**
  Adjust it by black and white levels.
  Do not change the peak hold.
- **Text/Photo mode**
  Adjust it by the black level and the peak hold.
  Do not change the white level.

3. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.



(2) Scan Level Adjustment (2 pages in total)

Page 2 : Adjustment.

- PHOTO/TEXT mode

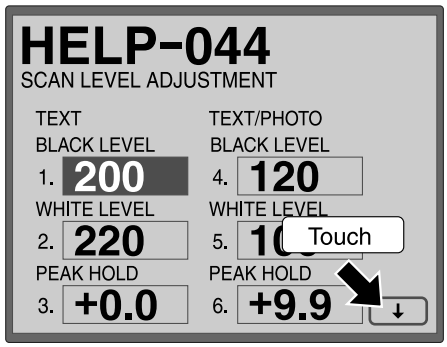
  Black level , White level , Peak hold
- PHOTO mode

  Black level , White level , Peak hold

● Operation procedure

1. Call the HELP mode "H-044".

Enter "**044**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

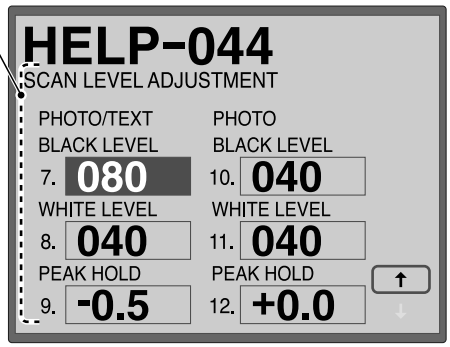
3. Adjust the scan level.

Adjustment

❶ Select and touch the speed to be adjusted.

Reference values

No.	Item		Adjustment width
7	Photo/Text mode	Black level	0 - 255
8		White level	0 - 255
9		Peak hold	−9.9 - +9.9
10	Photo mode	Black level	0 - 255
11		White level	0 - 255
12		Peak hold	−9.9 - +9.9



❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**−**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

❸ Press the key to store the set value.

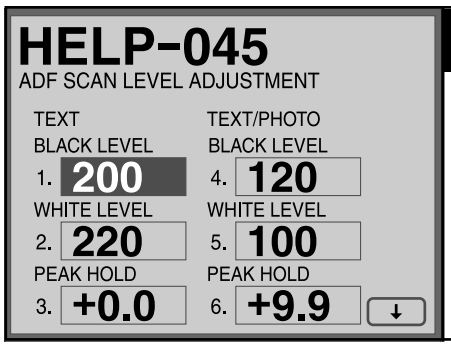
- When S3-ADF is not loaded:
  If the scan level is changed, the same value is entered in ADF (HELP-045).
  After ADF adjustment, the scan level is not changed.

- **Photo/Text mode, Photo mode**
  Adjust it by the black level and the peak hold.
  Do not change the white level.

4. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.



(1) ADF scan Level Adjustment (2 pages in total)

Page 1 : Adjustment.

- TEXT mode

  Black level , White level , Peak hold

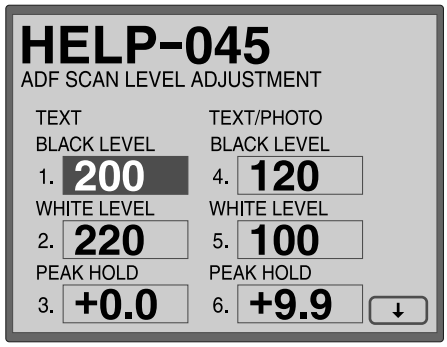
- TEXT/PHOTO mode

  Black level , White level , Peak hold

● Operation procedure

1. Call the HELP mode "H-045".

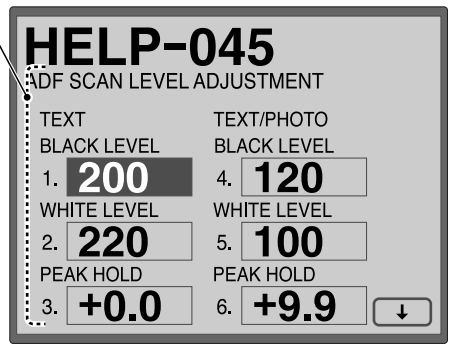
Enter "**045**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Adjust the ADF scan level.

Adjustment

❶ Select and touch the speed to be adjusted.



Reference values

No.	Item		Adjustment width
1	Text mode	Black level	0 - 255
2		White level	0 - 255
3		Peak hold	−9.9 - +9.9
4	Text/Photo mode	Black level	0 - 255
5		White level	0 - 255
6		Peak hold	−9.9 - +9.9

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**−**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

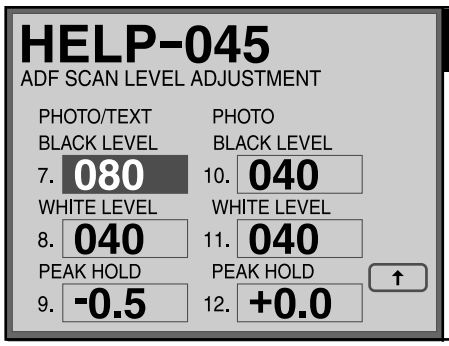
❸ Press the key to store the set value.

- **Text mode**
  Adjust it by black and white levels.
  Do not change the peak hold.
- **Text/Photo mode**
  Adjust it by the black level and the peak hold.
  Do not change the white level.

3. Return to the HELP mode.

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

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



(2) ADF scan Level Adjustment (2 pages in total)

Page 2 : Adjustment.

- PHOTO/TEXT mode

  Black level , White level , Peak hold

- PHOTO mode

  Black level , White level , Peak hold

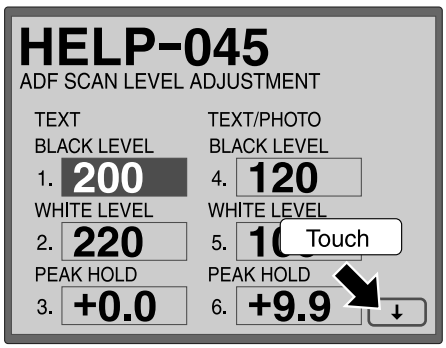
● Operation procedure

1. Call the HELP mode "H-044".

Enter "**044**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.



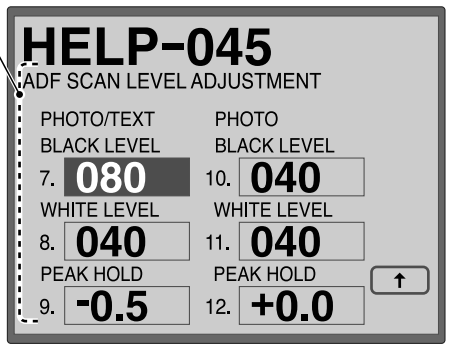
3. Adjust the ADF scan level.

Adjustment

❶ Select and touch the speed to be adjusted.

Reference values

No.	Item		Adjustment width
7	Photo/Text mode	Black level	0 - 255
8		White level	0 - 255
9		Peak hold	−9.9 - +9.9
10	Photo mode	Black level	0 - 255
11		White level	0 - 255
12		Peak hold	−9.9 - +9.9



❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**−**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

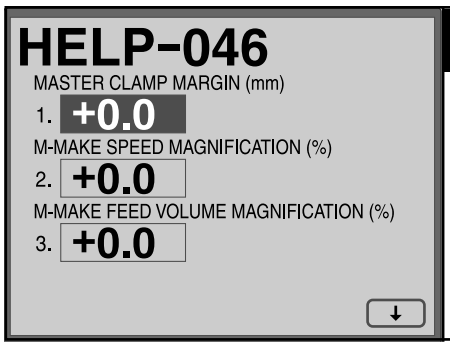
❸ Press the key to store the set value.

● Photo/Text mode, Photo mode
Adjust it by the black level and the peak hold.
Do not change the white level.

4. Return to the HELP mode.

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

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



(1) Master Feed Adjustment (2 pages in total)

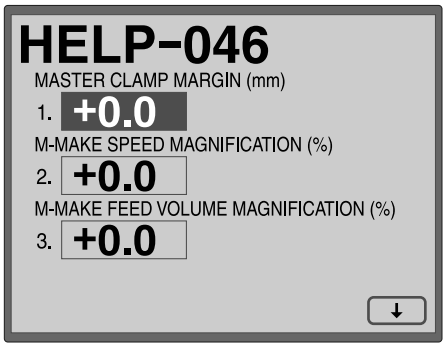
Page 1 : Adjustment.

- MASTER CLAMP MARGIN
- M-MAKE SPEED MAGNIFICATION
- M-MAKE FEED VOLUME MAGNIFICATION

● Operation procedure

1. Call the HELP mode "H-046".

Enter "**046**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Adjust the master feed.

Adjustment

❶ Select and touch the speed to be adjusted.

Master Clamp magin

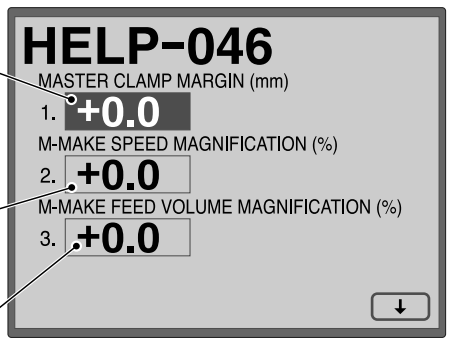
- Make adjustment so that the master edge is seen from the check hole of the master clamp. The master clamp margin becomes shorter by -, and longer by +.

M-Make speed magnification

- Adjust so that the vertical length of the two 100-mm squares made up in the HELP-30 test pattern is 200 mm ± 0.5 mm.

M-Make feed volume magnification

- Press the (**MASTER MAKING**) key to feed the master to the master edge sensor. The master is cut into the length of 200 mm. Adjust the master make horizontal feed volume magnification so that the cut master length is 200 ± 0.5 mm.



❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

❸ Press the key to store the set value.

3. Return to the HELP mode.

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

(2) Master Feed Adjustment (2 pages in total)

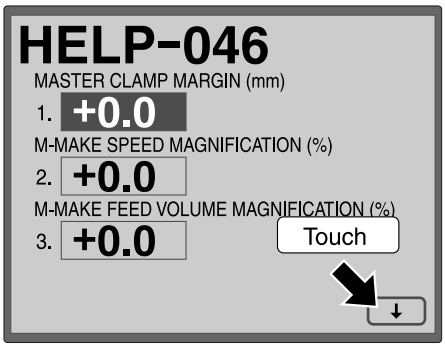
Page 2 : Adjustment.

- M-MAKE HORIZONTAL START POS.
- M-MAKE VERTICAL START POS.
- MASTER LENGTH ON DRUM

● Operation procedure

1. Call the HELP mode "H-046".

Enter "**046**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Adjust the master feed.

Adjustment

❶ Select and touch the speed to be adjusted.

M-Make horizontal start position

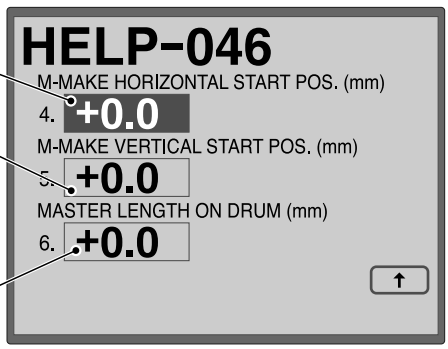
- Normally adjustment is not made. (Default: +0)

M-Make vertical start position

- Make adjustment so that the HELP-030 test pattern image has the length of 10 mm from the paper lead edge to the 100-mm square.

Master length on drum

- Normally adjustment is not made. (Default: +0.0)



❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

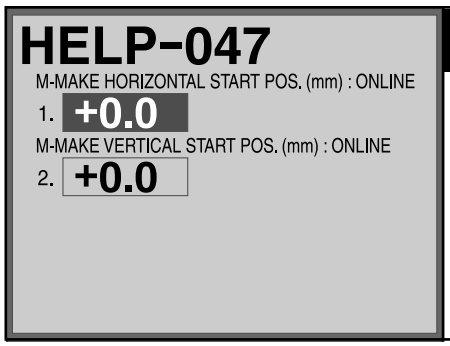
❸ Press the key to store the set value.

4. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

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



Online Master Making Adjustment

● Adjustment.

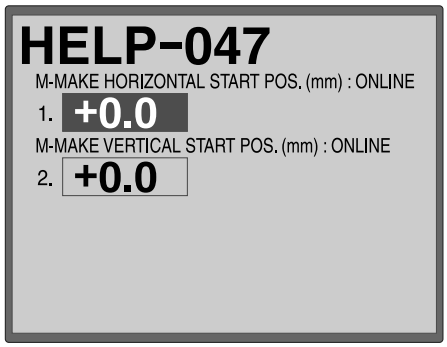
M-MAKE HORIZONTAL START POS. : ONLINE

M-MAKE VERTICAL START POS. : ONLINE

● Operation procedure

1. Call the HELP mode "H-047".

Enter "**047**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Adjust the online master making.

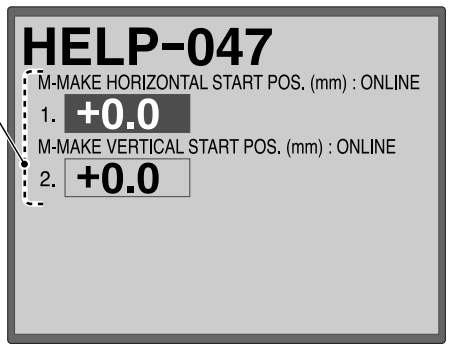
Adjustment

❶ Select and touch the speed to be adjusted.

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the C (**CLEAR**) key to return the selected set value to the value before change.

❸ Press the key to store the set value.



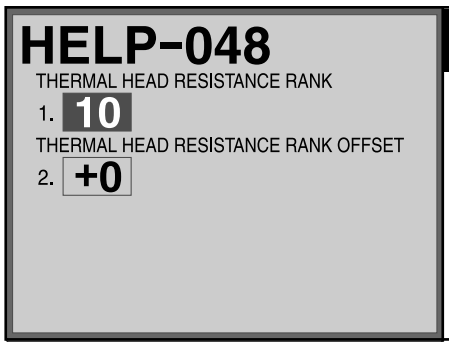
3. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

➡ **To exit the HELP mode** : Turn the power switch OFF.

➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.



Thermal Head Setting

● Thermal head setting.

THERMAL HEAD RESISTANCE RANK

THERMAL HEAD RESISTANCE RANK OFFSET

● Operation procedure

1. Call the HELP mode "H-048".

Enter "**048**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Thermal Head Setting

Adjustment

❶ Select and touch the speed to be adjusted.

Average resistance

DP-S550/520/510 300 X 600dpi		*DP-S650/S620* 400 X 400dpi		*DP-S850* 600 X 600dpi	
Rank	Resistance (Ω)	Rank	Resistance (Ω)	Rank	Resistance (Ω)
00	3825 - 3908	00	3400 - 3474	00	4080 - 4169
01	3909 - 3993	01	3475 - 3549	01	4170 - 4259
02	3994- 4077	02	3550- 3624	02	4260- 4349
03	4078 - 4162	03	3625 - 3699	03	4350 - 4439
04	4163 - 4264	04	3700 - 3774	04	4440 - 4529
05	4247 - 4330	05	3775 - 3849	05	4530 - 4619
06	4331 - 4415	06	3850 - 3924	06	4620 - 4709
07	4416 - 4499	07	3925 - 3999	07	4710 - 4799
08	4500 - 4583	08	4000 - 4074	08	4800 - 4889
09	4584 - 4668	09	4075 - 4149	09	4890 - 4979
10	4669 - 4752	10	4150 - 4224	10	4980 - 5069
11	4753 - 4837	11	4225 - 4299	11	5070 - 5159
12	4838 - 4921	12	4300 - 4374	12	5160 - 5249
13	4922 - 5005	13	4375 - 4449	13	5250 - 5339
14	5006 - 5090	14	4450 - 4524	14	5340 - 5429
15	5091 - 5175	15	4525 - 4599	15	5430 - 5519

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the (**PROPERTY**) key to invert "**+**" and "**–**" of the selected set value.
- Press the **C** (**CLEAR**) key to return the selected set value to the value before change.

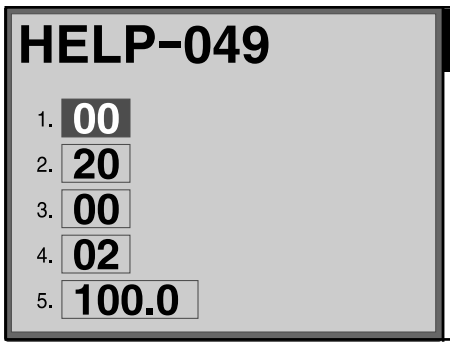
❸ Press the key to store the set value.

- The resistance rank to be entered in the thermal head is printed.

Resistance rank

No.	Item	Value
1	Thermal head resistance rank	0 - 15
2	Thermal head resistance rank offset	-7 - +7

step 3. ➡ Press the (**STOP**) key.



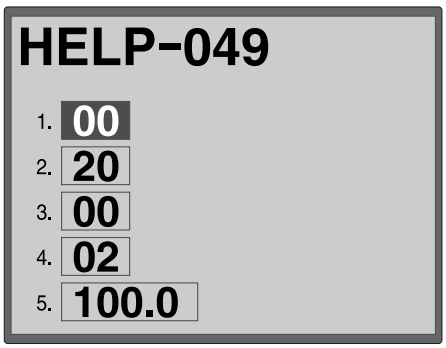
For Factory Adjustment

- CCD setting

● Operation procedure

1. Call the HELP mode "H-049".

Enter "**049**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. For Factory Adjustment.

Adjustment

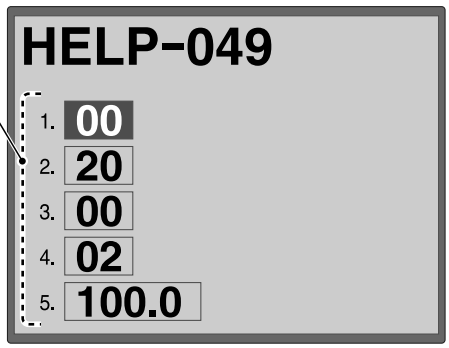
❶ Select and touch the speed to be adjusted.

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

Never change the values at this page;
otherwise you cannot scan images properly.

- Press the C (**CLEAR**) key to return the selected set value to the value before change.

❸ Press the key to store the set value.



3. Return to the HELP mode.

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

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

Model Setting (Rental Machine)

● Setting.
Rental machine setting

● Operation procedure

1. Call the HELP mode "H-050".

Enter "**050**" by the **NUMERIC** keys and then press the (**PRINT**) key.

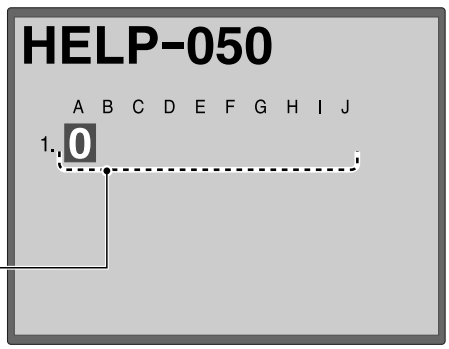
2. Rental machine setting.

❶ Enter "**0**" and "**1**" by the **NUMERIC** keys to set enable/disable of the function.

Setting enable/disable of the function

Item		Value	Function
1	A	0	Normal
		1	Rental machine
	B - J		Unused

❷ Press the key to store the set value.



3. Return to the HELP mode.

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

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

HELP-051
Setting

Setting (Model Name Change)

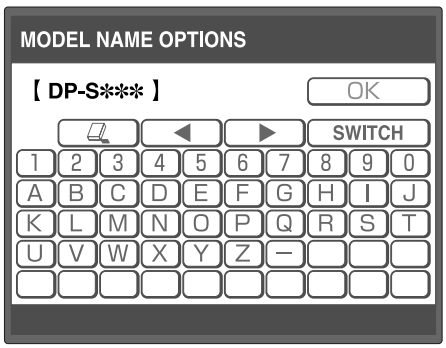
● Changing the model name

Normally, do not change the model name; otherwise the model name displayed on the PC is changed.

● Operation procedure

1. Call the HELP mode "H-051".

Enter "**051**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the model name. (Normally, do not change the model name.)

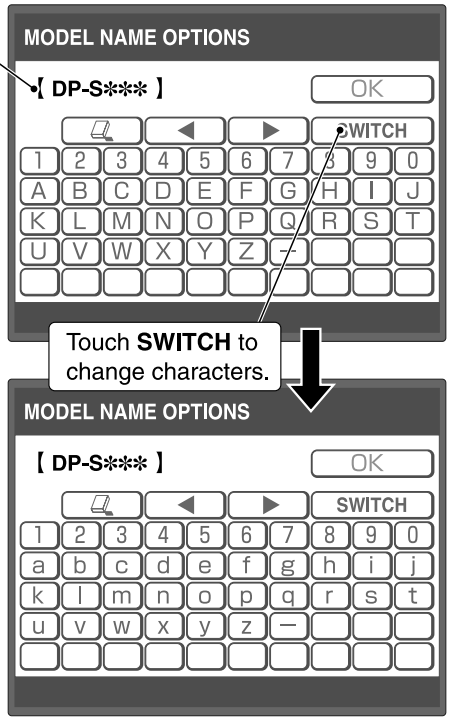
To change the model name: (Enter nine characters.)

❶ Enter the character.
Every time the character is entered, the cursor moves to the right.
Overwrite the last character.

SWITCH : To select the character list.
: To delete the character on the cursor and to narrow the space.
: Hold down this key over two seconds to delete all the characters entered.

Press the (**CLEAR**) key to return to the default name.
If the name is not entered, the default name is entered.

❷ Press the key or OK on the screen to store the set value.



Normally, do not change the model name;
otherwise the model name displayed on the PC is changed.

3. Return to the HELP mode.

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

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

HELP-052
Setting

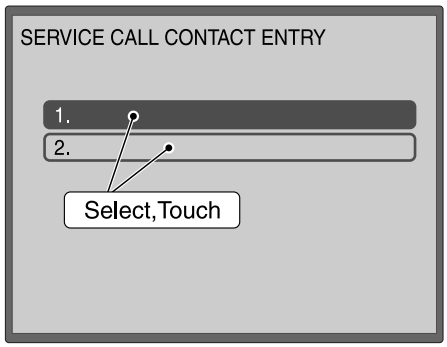
Setting (Service Call Contact Entry)

● Entering the service call number for emergencies.
Set HELP - 060 : 4 - H=1, “The service call number is displayed for emergencies.” to enter the call number.

● Operation procedure

1. Call the HELP mode “H-052”.

Enter “**052**” by the **NUMERIC** keys and then press the (**PRINT**) key. The service call contact entry screen appears.



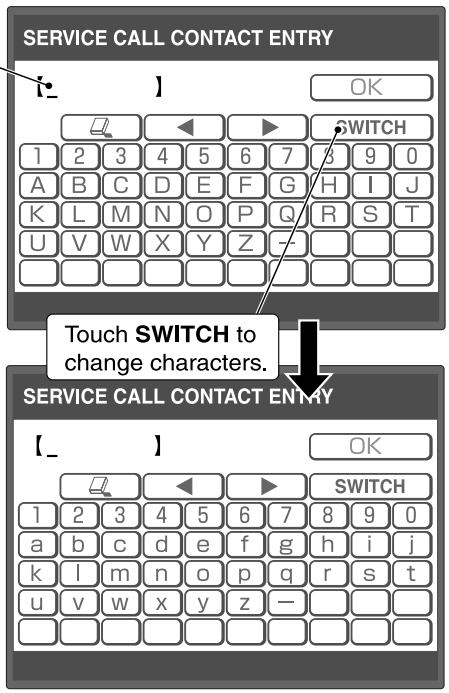
2. Select the line to be changed.

Touch the line to be changed to select it.

3. Enter the service call number for emergencies.

Enter the service call number (24 characters).

❶ Enter the character.
Every time the character is entered, the cursor moves to the right.
Overwrite the last character.
You can enter the number even if not entering the model name.
SWITCH : To select the character list.
: To delete the character on the cursor and to narrow the space.
: Hold down this key over two seconds to delete all the characters entered.
Press the (**CLEAR**) key to return to the default name.
If the name is not entered, the default name is entered.
❷ Press the key or OK on the screen to store the set value.

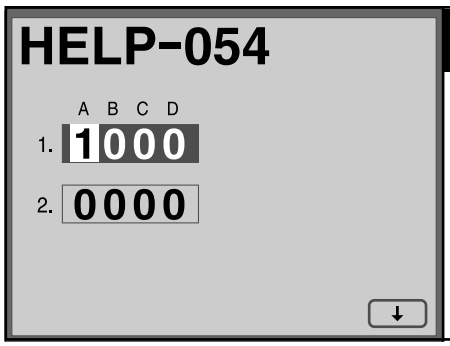


3. Return to the HELP mode.

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

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

HELP-053 unused



(1) Time Setting (2 pages in total)

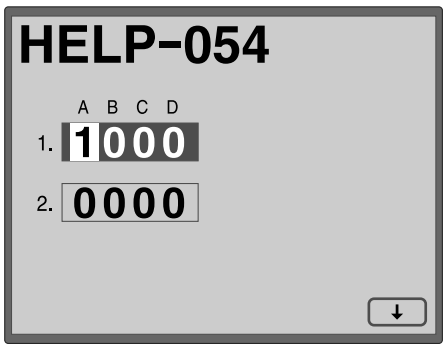
Page 1

- Setting (Date-time display rule setting).
  When the memory card is enable, date and time (clock) are enable.

● Operation procedure

1. Call the HELP mode "H-054".

Enter "**054**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Set the date-time display rules.

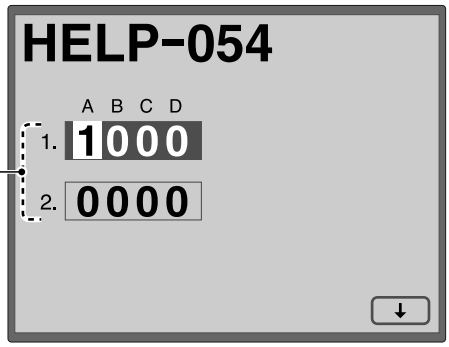
Setting

❶ Select and touch the item to be setting.

❷ Use the "**0**" and "**1**" numeric keys to enter a 4-place binary value for the desired correction value.

Setting function

Item		Value	Setting	
1	A	0	Date and time (clock) disabled	
		1	Date and time (clock) enabled (Default)	
	B,C,D	000	YYYY/MM/DD	Date display YYYY : Year MM : Month DD : Day
		001	YYYY-MM-DD	
		010	MM/DD/YYYY	
		011	MM-DD-YYYY	
		100	DD/MM/YYYY	
		101	DD-MM-YYYY	
2	A	0	Not used	
	B	0	Not used	
	C	0	Not used	
	D	0	Not used	

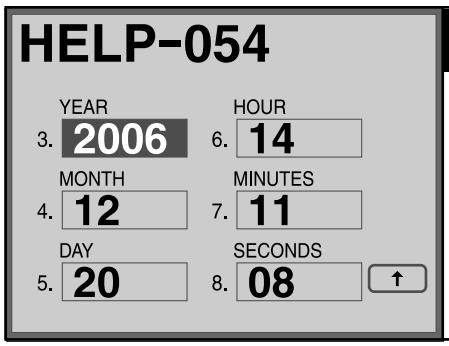


- Example: For "**Date and time (clock) enabled**" and "**YYYY/MM/DD**", enter 1000 by the NUMERIC keys.

❸ Press the ⊻ key to store the set value.

When pressing the ⊻ key at Page 1 to store the set value, the date and time at Page 2 is not updated.

step 3. ➡ Press the ▽ (**STOP**) key.



(2) Time Setting (2 pages in total)

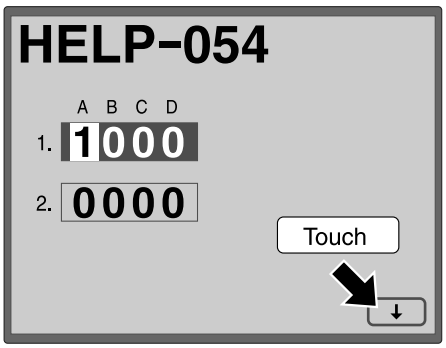
Page 2

- Setting (Year, Month, Day, Hour, Minute and Second)

● Operation procedure

1. Call the HELP mode "H-054".

Enter "**054**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Setting (Year, Month, Day, Hour, Minute and Second)

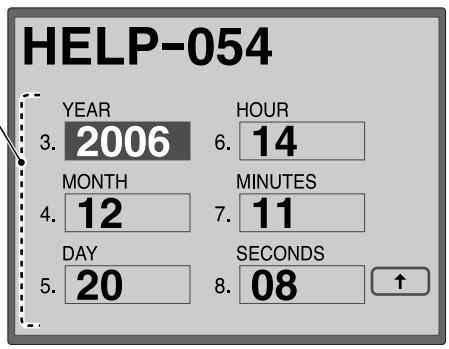
Adjustment

❶ Select and touch the speed to be adjusted.

❷ Enter the value by the **NUMERIC** keys or change the value by the (**PRINT POSITION**) keys.

- Press the C (**CLEAR**) key to return the selected set value to the value before change.

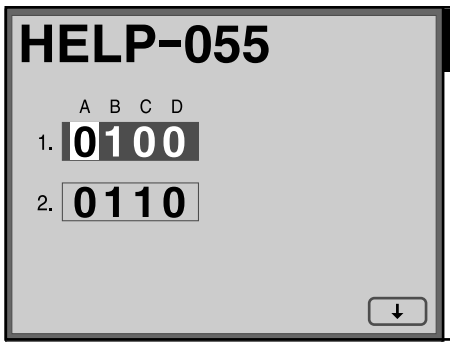
❸ Press the key to store the set value.



4. Return to the HELP mode.

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

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



(1) Buzzer Setting (2 pages in total)

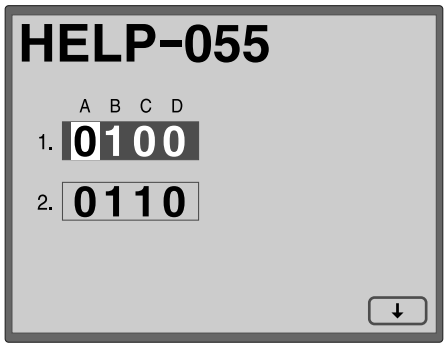
Page 1

- Setting (Buzzer ON/OFF and buzzer volume adjustment)

● Operation procedure

1. Call the HELP mode "H-055".

Enter "**055**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Setting (Buzzer ON/OFF and buzzer volume adjustment)

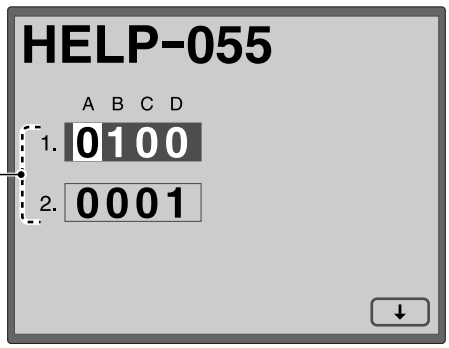
Setting

❶ Select and touch the item to be setting.

❷ Use the "**0**" and "**1**" numeric keys to enter a 4-place binary value for the desired correction value.

► **Setting function**

Item		Value	Setting
1	AB	00	Buzzer: OFF
		01	Buzzer: Standard
		10	Buzzer: For error only
		11	
	C	0	
		1	
	D	0	
		1	
2	ABCD	0001 1111	Buzzer volume adjustment 15 steps (Default: 1000)



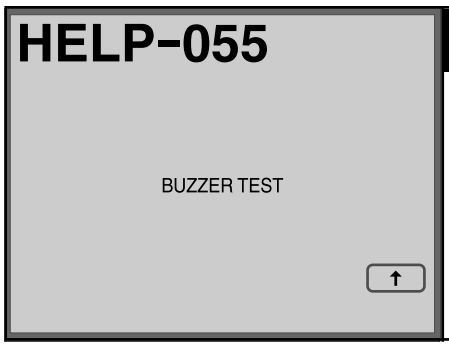
● Example: For "**Buzzer: Standard**", enter 0100 in the item 1 on the screen.

❸ Press the ⏎ key to store the set value.

3. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.



(2) Buzzer Setting (2 pages in total)

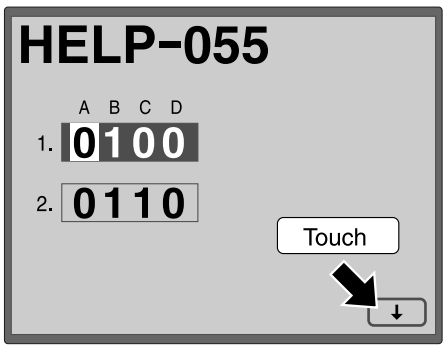
Page 2

- Operation check (Buzzer tone check)

● Operation procedure

1. Call the HELP mode "H-055".

Enter "**055**" by the **NUMERIC** keys and then press the (**PRINT**) key.

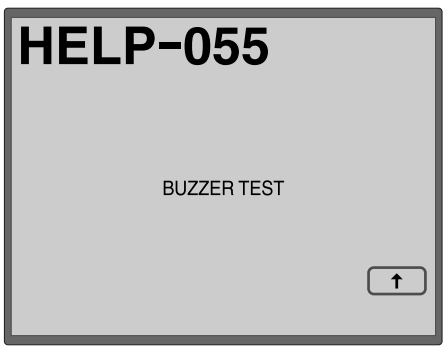


2. Change the screen.

Touch the (**arrow**) on the screen lower right once to switch to Page 2.

3. Check buzzer tone.

- Press the following **NUMERIC** keys.
  The corresponding tone sounds.
- Press the "**1**" key: The "**entry confirmation**" tone sounds.
- Press the "**2**" key: The "**base**" tone sounds.
- Press the "**3**" key: The "**normal end**" tone sounds.
- Press the "**4**" key: The "**ready**" tone sounds.
- Press the "**5**" key: The "**disable**" tone sounds.
- Press the "**6**" key: The soft warning tone 1 sounds.
- Press the "**7**" key: The soft warning tone 2 sounds.
- Press the "**8**" key: The loud warning tone sounds.



4. Return to the HELP mode.

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

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

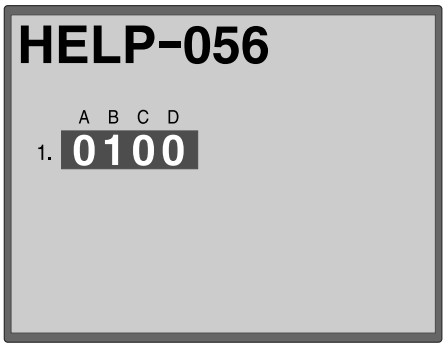
Language Setting

● Setting (Language setting)

● Operation procedure

1. Call the HELP mode "H-056".

Enter "**056**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Setting (Language setting)

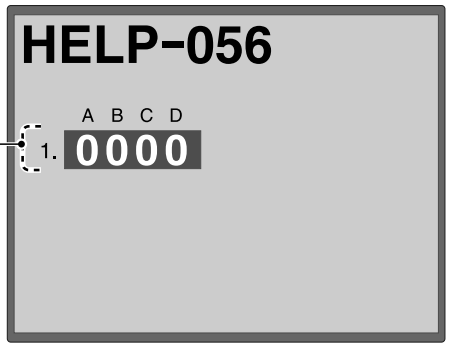
Setting

❶ Use the "**0**" and "**1**" numeric keys to enter a 4-place binary value for the desired correction value.

Setting function

Item		Value	Language
1	ABCD	0000	Japanese (Default)
		0100	English

❷ Press the key to store the set value.

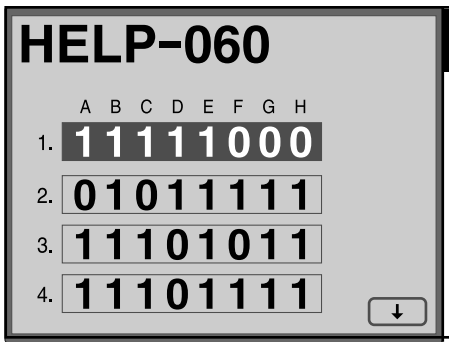


3. Return to the HELP mode.

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

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

HELP-057 to HELP-059 unused



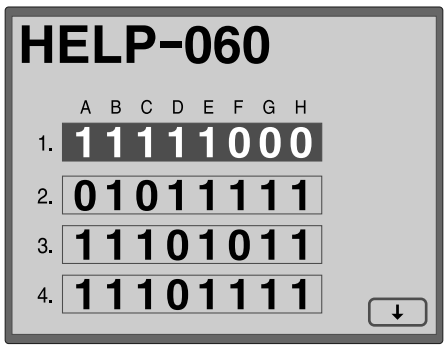
Function Setting (2 pages in total)

Page 1: Function setting
Interval print and the service call number
Page 2: Function setting
Factory setting (Do not change it.)

● Operation procedure

1. Call the HELP mode "H-060".

Enter "**060**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Function Setting (Display : Page 1)

Setting

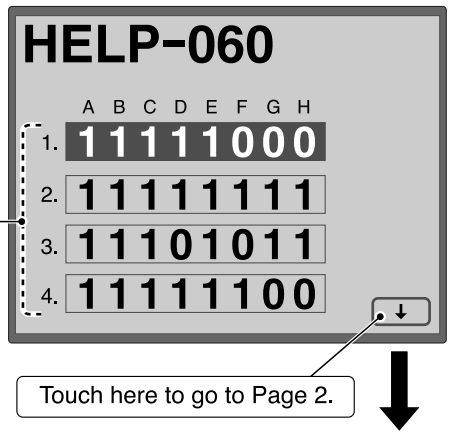
❶ Select and touch the item to be setting.

❷ Use the "**0**" and "**1**" numeric keys to enter a binary value for the desired correction value.

Setting function

Item		Value	Setting
1	A - H		Factory setting (Do not change it.)
2	A - H		Factory setting (Do not change it.)
3	A - H		Factory setting (Do not change it.)
4	A - F		Factory setting (Do not change it.)
	G	0	Interval print setting: disabled
		1	Interval print setting: enabled
	H	0	The service call number is not displayed for emergencies.
		1	The service call number is displayed for emergencies.

❸ Press the ⏎ key to store the set value.



3. Function Setting (Display : Page 2)

Touch the ↓ (**arrow**) on the screen lower right.

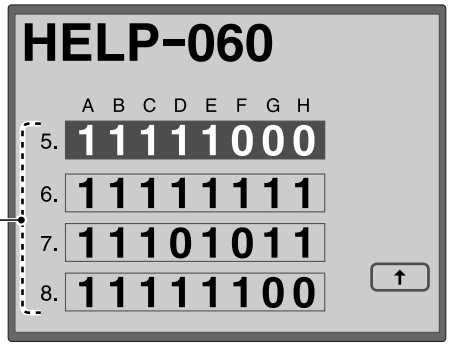
Setting

❶Select and touch the item to be setting.

❷Use the "**0**" and "**1**" numeric keys to enter a binary value for the desired correction value.

Setting function

Item		Value	Setting
5	A - H		Factory setting (Do not change it.)
6	A - H		Factory setting (Do not change it.)
7	A - H		Factory setting (Do not change it.)
8	A - H		Factory setting (Do not change it.)



❸Press the ≦ key to store the set value.

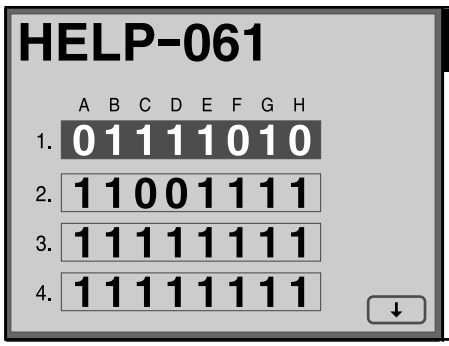
4. Return to the HELP mode.

Press the ▽ (**STOP**) key.

The HELP mode selection display will reappear.

➡ **To exit the HELP mode** : Turn the power switch OFF.

➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.



Function Setting (2 pages in total)

Page 1: Function setting

1.C Interlock: enable/disable (Default)

1.D Paper feed error: Stop at the first error/Stop at the second error (Default)

2.AB First print: Print/Jog/ Speed 0 (Default)/Speed1

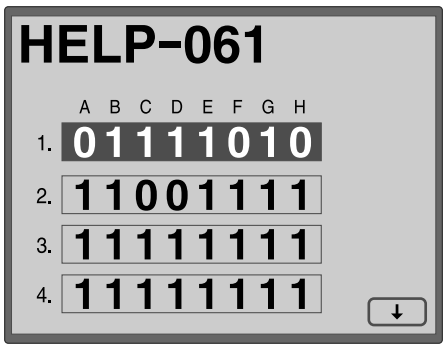
2.H 3.4. Sensor switch operation: enable/disable (Default)

Page 2: Function setting

● Operation procedure

1. Call the HELP mode "H-061".

Enter "**061**" by the **NUMERIC** keys and then press the (**PRINT**) key.

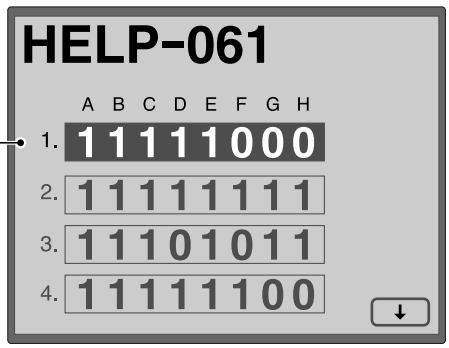


2. Function Setting (Display : Page 1)

Setting

❶ Select and touch the item to be setting.

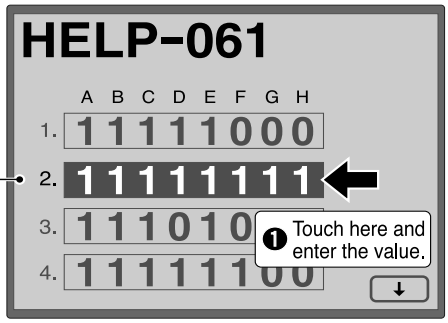
❷ Use the "**0**" and "**1**" numeric keys to enter a binary value for the desired correction value.



Setting function

Item		Value	Setting
1	A,B	0	Factory setting (Do not change it.)
	C	0	Interlock disabled
		1	Interlock enabled (Default): To set emergency stop enabled during master making
	D	0	Stop at the first paper feed error (signal jam)
		1	Stop at the second paper feed error (signal jam) (Default)
	E	0	Document remain monitor (to detect the presence of the document on the Glass before reading) disabled
		1	Document remain monitor (to detect the presence of the document on the Glass before reading) enabled (Default)
	F		Factory setting
	G	0	Paper type setting is not stored.
		1	Paper type setting is stored.
	H		Factory setting (Do not change it.)

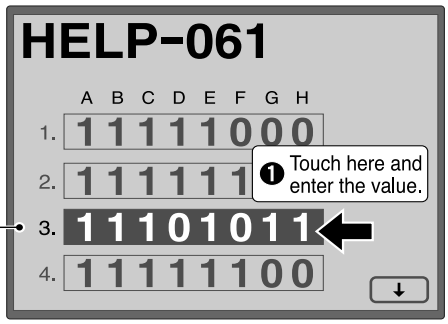
2	A,B	00	First print : Print speed
		01	First print : Jog Speed
		10	First print : Speed 0 (Low print speed)
		11	First print : Speed 1 (Default)
	C,D	00	Second print : Print speed
		01	Second print : Jog Speed
		10	Second print : Speed 0 (Low print speed)
		11	Second print : Speed 1 (Default)
	E		Factory setting (Do not change it.)
	F	0	After no master making, one sheet is not printed.
		1	After no master making, one sheet is printed. (Default)
	G	0	After master making, the machine stops after the first print.
		1	After master making, the machine prints the print volume entered.
	H	0	Drum master sensor disabled
		1	Drum master sensor enabled (Default)



← Setting when the print volume is 0.

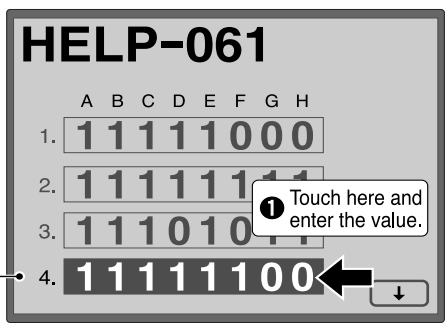
← Setting when the print volume is 1 or more.

3	A	0	Paper top detect sensor disabled
		1	Paper top detect sensor enabled (Default)
	B	0	Signal sensor disabled
		1	Signal sensor enabled (Default)
	C	0	Double feed sensor invalid
		1	Double feed sensor enabled
	D	0	Heavy weight paper lever sensor disabled
		1	Heavy weight paper lever sensor enabled
	E	0	Paper eject jam sensor disabled*
		1	Paper eject jam sensor enabled (Default)*
	F	0	Master eject jam sensor disabled
		1	Master eject jam sensor enabled (Default)
	G	0	Paper length sensor disabled
		1	Paper length sensor enabled
	H	0	Document size sensor disabled
		1	Document size sensor enabled



* Paper eject jam sensor : To detect paper jam at the ejection side

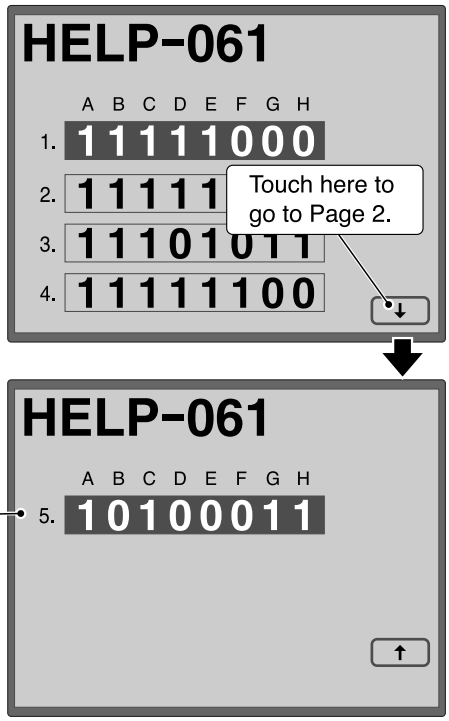
4	A	0	Front cover sensor disabled
		1	Front cover sensor enabled (Default)
	B	0	Scanner open/close switch disabled
		1	Scanner open/close switch enabled (Default)
	C	0	Scanner disabled
		1	Scanner enabled (Default)
	D	0	Ink roller up/down motor operation disabled
		1	Ink roller up/down motor operation enabled (Default)
	E	0	Press motor operation disabled
		1	Press motor operation enabled (Default)
	F	0	Vertical reg. motor operation disabled
		1	Vertical reg. motor operation enabled (Default)
	G	0	Horizontal reg. motor operation disabled
		1	Horizontal reg. motor operation enabled
	H	0	Paper feed ring lift solenoid disabled
		1	Paper feed ring lift solenoid enabled



❸Press the ≦ key to store the set value.

3. Function Setting (Display : Page 2)

Touch the ↓ (**arrow**) on the screen lower right.



► **Setting function**

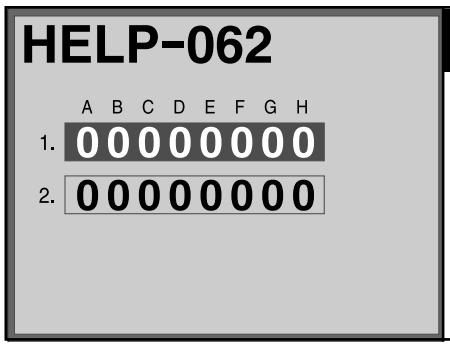
Item		Value	Setting
5	A - F		Factory setting (Do not change it.)
	G	0	Paper feed adjustment (HELP-039) disabled (Default)
		1	Paper feed adjustment (HELP-039) enabled
	H		Factory setting (Do not change it.)

❸Press the ≦ key to store the set value.

4. Return to the HELP mode.

Press the ▽ (**STOP**) key.
The HELP mode selection display will reappear.

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



Function Setting

Page 1: Function setting

1. Paper size: AB system (Default)/ Inch system

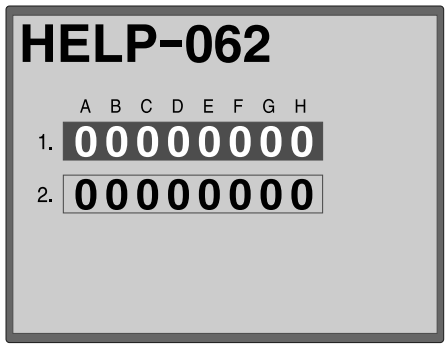
2.A Model name change screen: Alphabet (Default)/ Keyboard

2.B Temperature display: Celsius (℃) (Default)/ Fahrenheit (F)

● Operation procedure

1. Call the HELP mode "H-062".

Enter "**062**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Function Setting

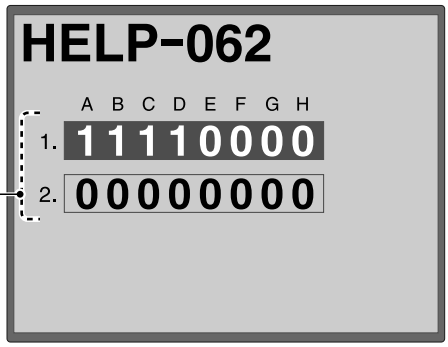
Setting

❶ Select and touch the item to be setting.

❷ Use the "**0**" and "**1**" numeric keys to enter a binary value for the desired correction value.

Setting function

Item		Value	Setting
1	A	0	Paper size/Document size: AB system (Default)
		1	Paper size/Document size: Inch system
	B – H	0	Factory setting (Do not change it.)
2	A	0	Model name change screen: Alphabet (Default)
		1	Model name change screen: Keyboard
	B	0	Celsius (˚C) (Default)
		1	Fahrenheit (F)
	C – H	0	Factory setting (Do not change it.)



* Paper eject jam sensor : To detect paper jam at the ejection side

❸ Press the key to store the set value.

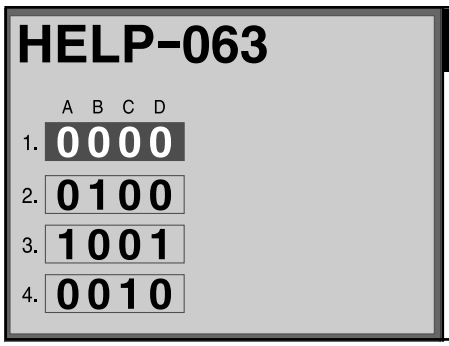
3. Return to the HELP mode.

Press the (**STOP**) key.

The HELP mode selection display will reappear.

➡ **To exit the HELP mode** : Turn the power switch OFF.

➡ **To access another HELP mode** : Enter the desired mode number using the numeric keys.



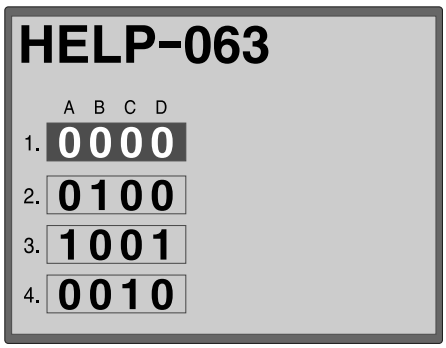
Factory Setting (H-063 - H-069)

- Displaying the factory setting

● Operation procedure

1. Call the HELP mode "H-063" - "H-069".

Enter "**063**" by the **NUMERIC** keys and then press the (**PRINT**) key. (From HELP-064, also follow the same procedure.)



2. Return to the HELP mode.

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

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

HELP-063-069 are the settings for the printer's basic functions. If they are changed, the printer may not function properly. Therefore they must not be changed.

Key Card Option Setting (3 pages in total)

Page 1
- Key Card Option Setting.

Page 2
- (Not used)

Page 3
- Initialize the extended EEPROM.

● Operation procedure

1. Call the HELP mode "H-070".

Enter "**070**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Key Card Option Setting

Setting

❶ Select and touch the item to be setting.

❷ Use the "**0**" and "**1**" numeric keys to enter a binary value for the desired correction value.

Setting function

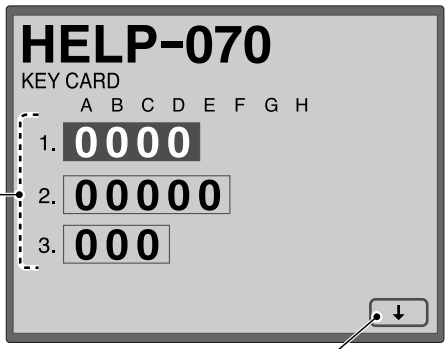
Item		Value	Setting
1	ABCD	0000	Key card disabled (Default)
		0011	Key card counter 5*

* Do not make settings other than the above; otherwise the key card does not operate properly.

2	A – D		Factory setting (Do not change it.)
	E	0	AA card
		1	BB card

3		***	Setting the maximum number of cards (001 - 200) (Default: 30)

❸ Press the ≦ key to store the set value.



Touch here to go to Page 2.

Page 2 : Not used

Touch here to go to Page 3.

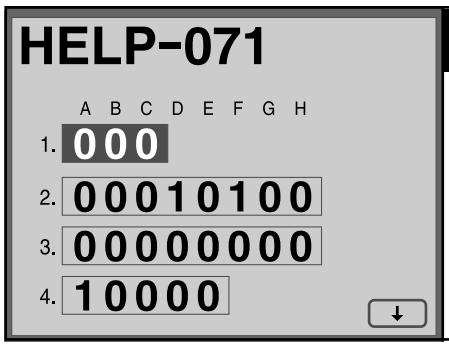
3. Initialize the extended EEPROM. (Page 3)

Touch the arrow on the screen lower right in step 2. Then touch the arrow on the screen lower right at Page 2. The setting screen appears at Page 3.

Initialization

❶ Press the ≦ key to initialize the key card EEPROM.

step 4. ➡ Press the ▽ (**STOP**) key.



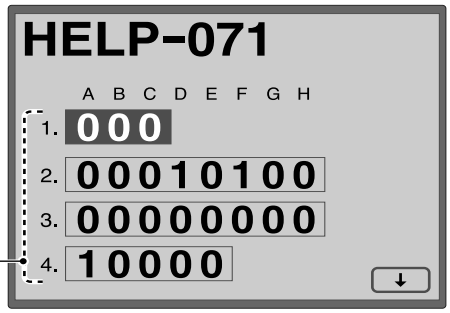
Tape Cluster Option Setting/Operation Check (2 pages in total)

Page 1: Tape cluster option setting
Tape cluster settings
Page 2: Tape cluster option setting
Tape cluster settings

● Operation procedure

1. Call the HELP mode "H-071".

Enter "**071**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Function Setting (Display : Page 1)

Setting

❶ Select and touch the item to be setting.

❷ Use the "**0**" and "**1**" numeric keys to enter a binary value for the desired correction value.

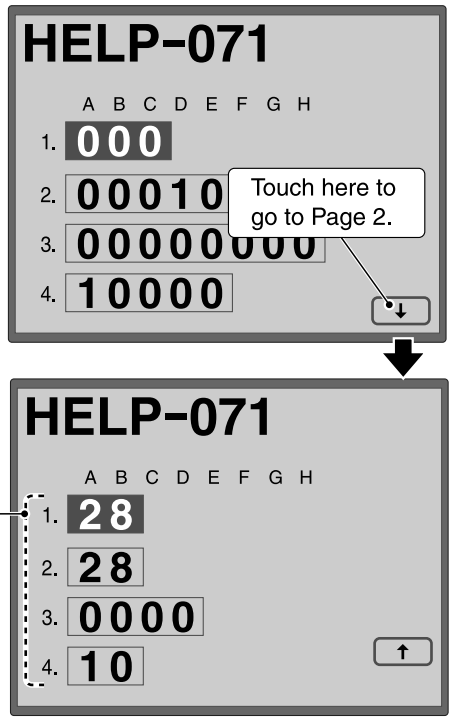
Setting function

Item		Value	Setting
1	ABC	000	Tape cluster disabled (Default)
		010	Tape cluster TAP-05/TAP-10 (with printing function) enabled
		011	Tape cluster TAP-07/TAP-12 (without printing function) enabled
2	A	0	Tape insertion after printing (Default)
		1	Tape insertion during printing
	B	0	Not used
	C	0	Minor classification mode (Default)
		1	Major/minor classification mode (Enabled only when printing is OFF.)
	D	0	Online classification tape disabled
		1	Online classification tape enabled (Default)
	E	0	Online minor classification mode (Default)
		1	Online major classification mode (Enabled only when printing is OFF.)
	F	0	Double feed classification tape disabled (Printing is stopped when double feed is detected.)
		1	Double feed classification tape enabled (Default)
	G	0	Double feed minor classification mode (Default)
		1	Double feed major classification mode (Enabled only when printing is OFF.)
	H	0	No tape insertion after printing (Default)
		1	For more than two pairs, a tape is inserted when printing is completed. (Enabled only when TAP-05/TAP-10 printing function is ON.)
3	A – H		Factory setting (Do not change it.)
4	A – E		Factory setting (Do not change it.)

❸ Press the ≚ key to store the set value.

Function Setting (Display : Page 2)

Touch the ↓ (**arrow**) on the screen lower right.



Setting function

Item		Value	Setting
5			Minor classification tape length: 23 - 50 cm: Set by 1 cm (Default: 28 cm)
6			Major classification tape length: 23 - 25 cm: set by 1 cm (Default: 28 cm)
7	ABCD	0000	TAP-05/TAP-10 Print vertical magnification calibration 0111: Contraction 0000: Standard 1111: Extension
8			To specify the number of characters for the name (Default: 10)

❸ Press the ≚ key to store the set value.

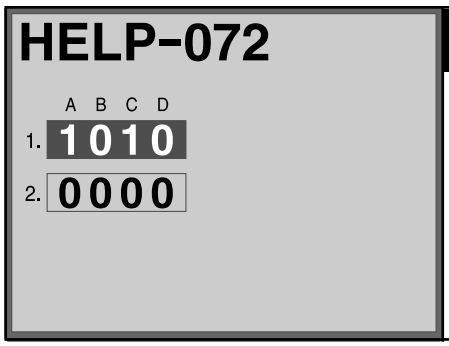
3. Check operation.

❶ Press the (**MASTER MAKING**) key.
After the tape with the major classification tape length is ejected, the tape is cut.
❷ Press the (**TEST PRINT**) key.
After the tape with the minor classification tape length is ejected, the tape is cut.
❸ Press the (**PROPERTY**) key.
Cutting is performed.

4. Return to the HELP mode.

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

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



Interface Setting

Function setting

- Interface setting

  USB enable/disable

  Parallel interface enable (Default) / disable

● Operation procedure

1. Call the HELP mode "H-072".

Enter "**072**" by the **NUMERIC** keys and then press the (**PRINT**) key.

2. Function setting

Setting

❶ Select and touch the item to be setting.

❷ Use the "**0**" and "**1**" numeric keys to enter a 4-place binary value for the desired correction value.

Setting function

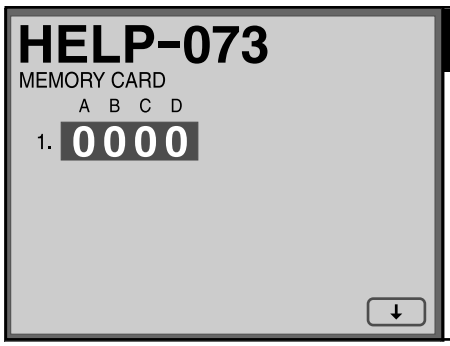
Item		Value	Setting
1	A	0	USB disabled
		1	USB enabled
	B	0	Parallel interface (IEEE1284) disabled (Default)
		1	Parallel interface (IEEE1284) enabled
	C – D		Factory setting (Do not change it.)
2	A – D		Factory setting (Do not change it.)

❸ Press the key to store the set value.

3. Return to the HELP mode.

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

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



Memory Card Option Setting

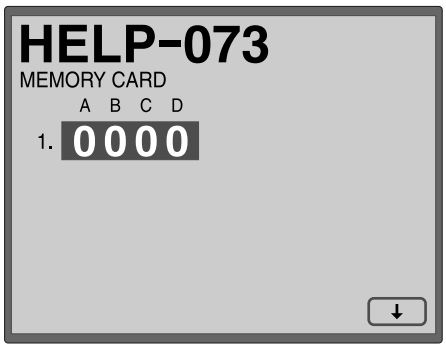
Page 1
- Memory card option setting (Set contents not yet determined)

Page 2
- Memory card format/Operation check

● Operation procedure

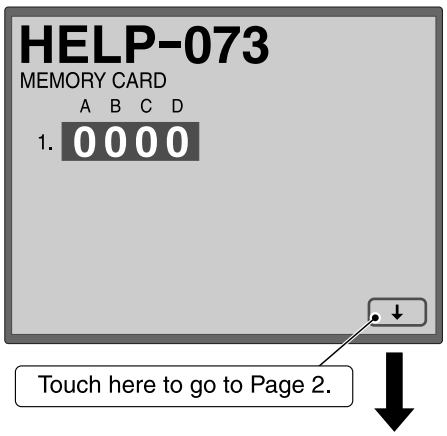
1. Call the HELP mode "H-073".

Enter "**073**" by the **NUMERIC** keys and then press the (**PRINT**) key.



2. Function Setting (Display : Page 1)

(Set contents not yet determined)



3. Format/operation check (Display : Page 2)

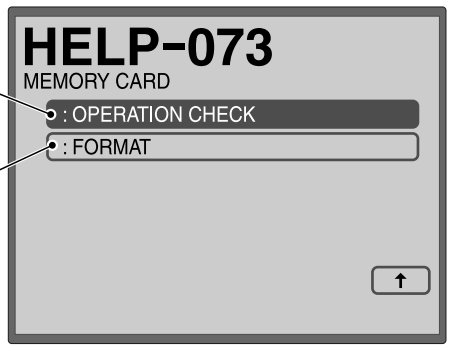
Touch the (**arrow**) on the screen lower right.

❶ Select and touch the operation.

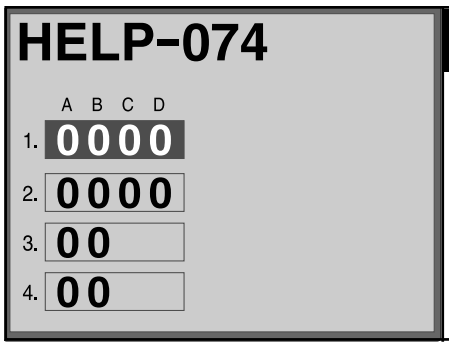
Card operation check
Check write, read and delete.

Card format

❷ After operation, check display.
OK : Normal
NG : Abnormal



step 4. ➡ Press the ▽ (**STOP**) key.



Coin Vendor Option Setting

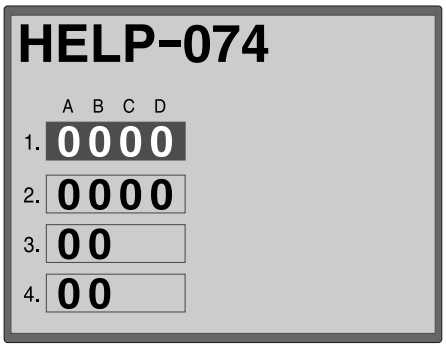
Function setting (Set contents not yet determined)

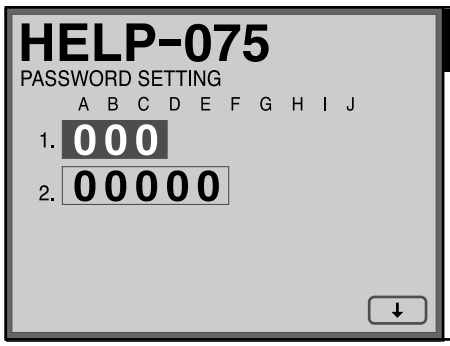
- Coin vendor option setting

● Operation procedure

1. **Call the HELP mode "H-074".**

Enter "**074**" by the **NUMERIC** keys and then press the (**PRINT**) key.





Password Setting

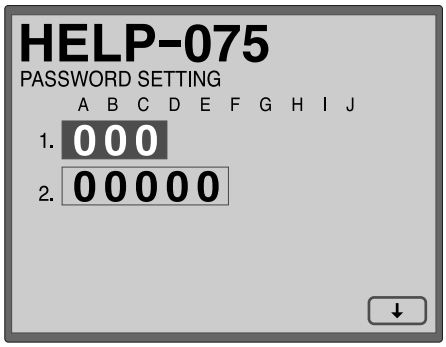
Function setting (Set contents not yet determined)

- Password setting

● Operation procedure

1. **Call the HELP mode "H-075".**

Enter "**075**" by the **NUMERIC** keys and then press the (**PRINT**) key.



HELP-076 and the followings items are the setting for the printer's basic functions. If they are changed, the printer may not function properly. Therefore they must not be changed.

MEMO

Chapter 8 Others

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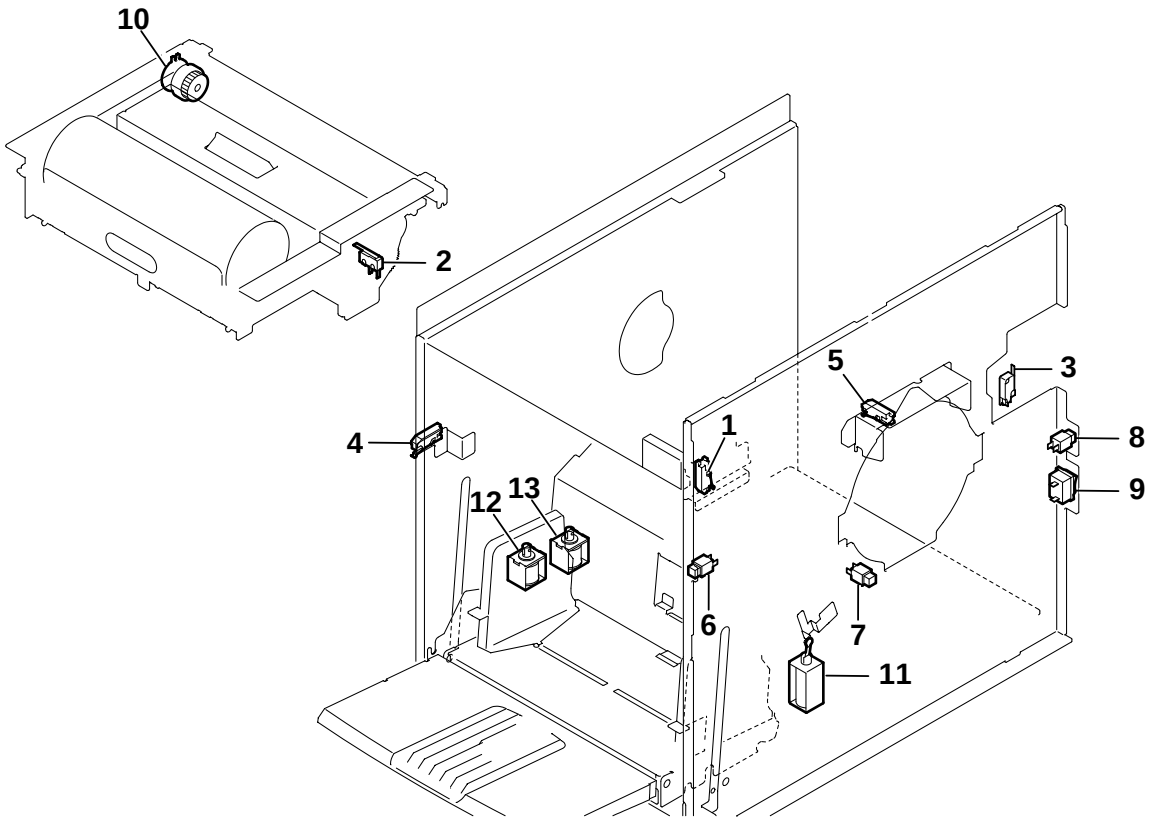
1 Electrical Parts Layout and Their Functions

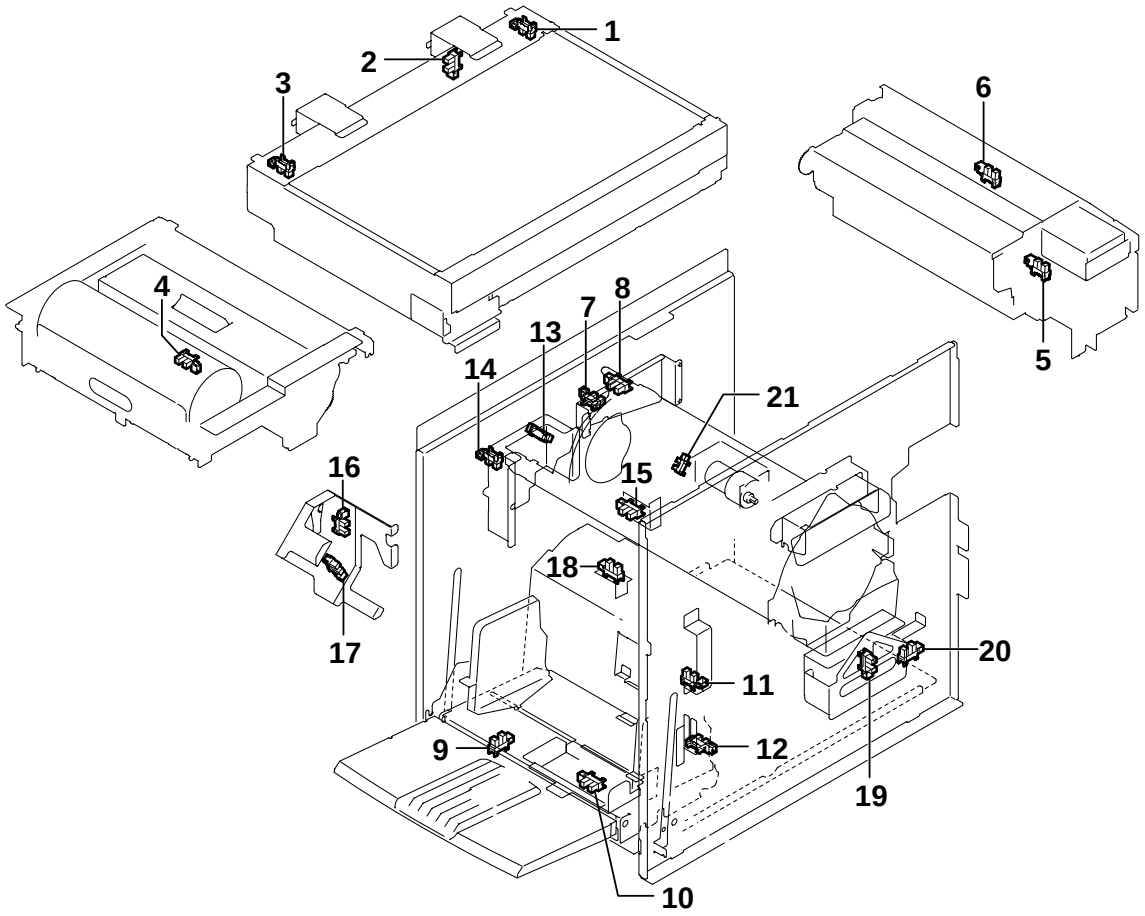
(1) Switches/Clutches/Solenoids



R8S09001

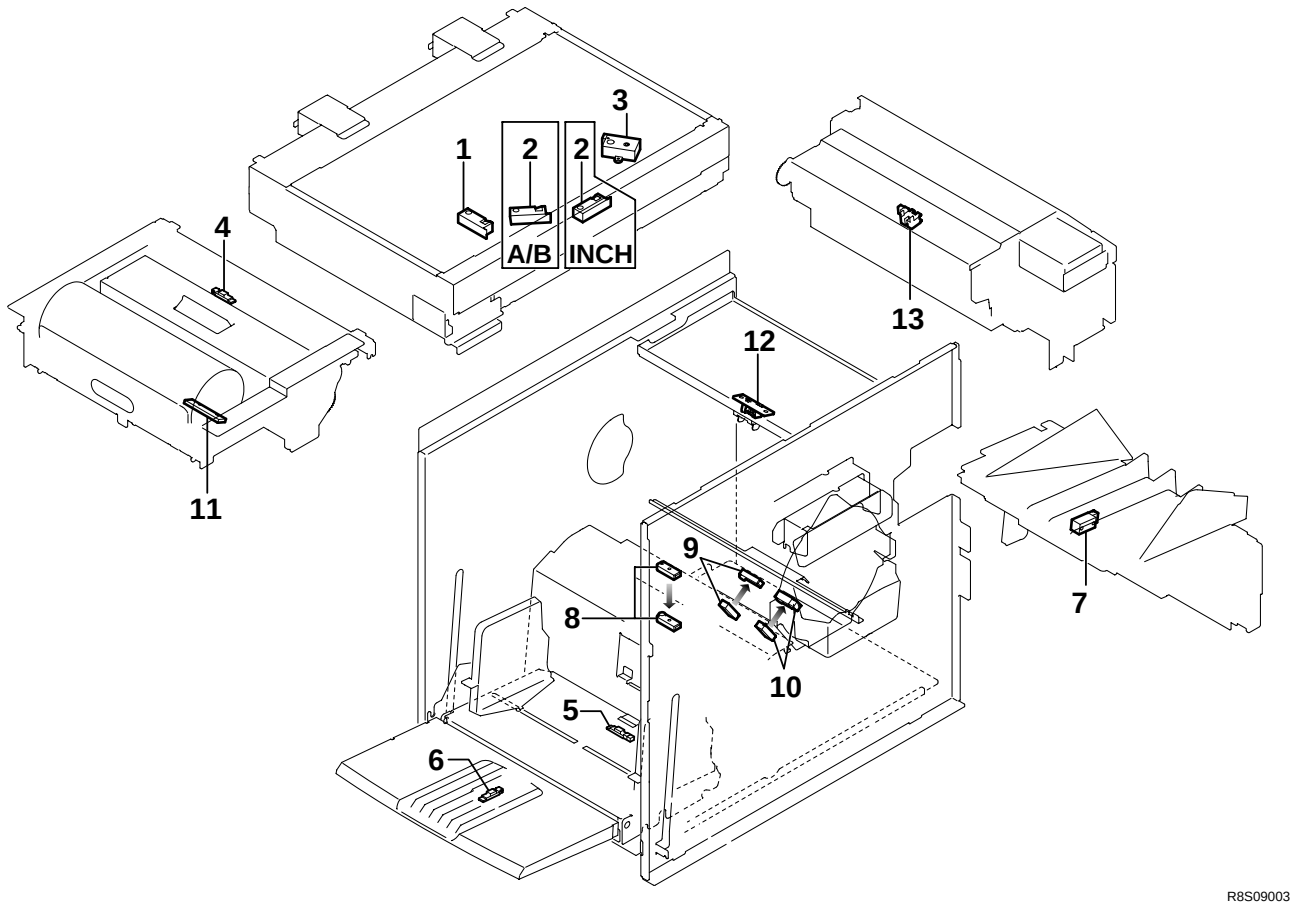
Item	No.	Functions
Microswitch/switch	1	Scanner open/closed detection
	2	Master cover open/closed detection
	3	Master ejection box open/closed detection
	4	Elevator lower limit detection
	5	Drum detection (set or not)
Push switch	6	Feed tray descend
	7	Drum removal
	8	Drum rotation
Seesaw switch	9	Power ON/OFF
Clutch	10	Master feed clutch
Solenoid	11	Paper feed ring lift solenoid
	12	Paper feed solenoid
	13	Signal solenoid

(2) Sensors 1



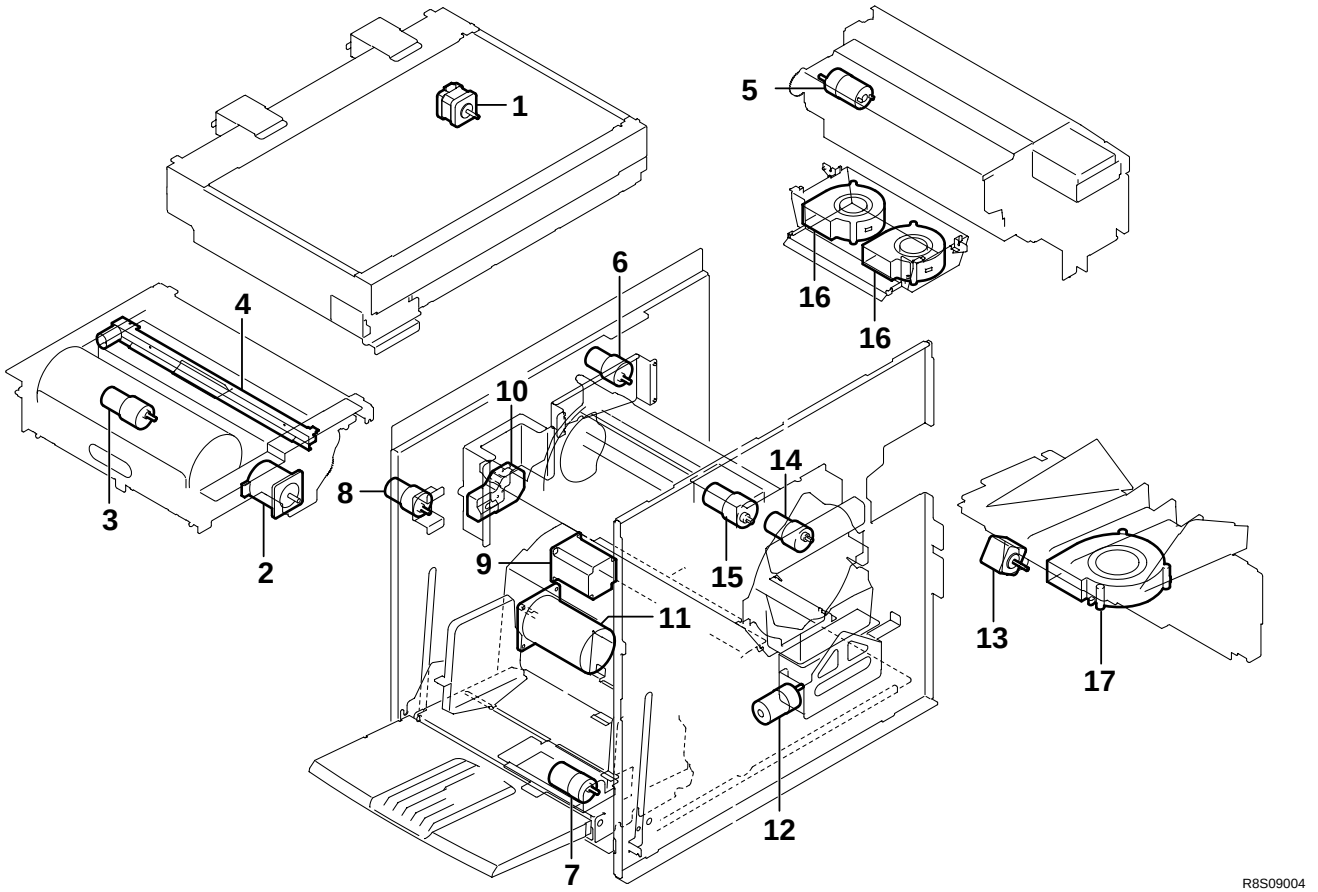
Item	No.	Functions
Microsensor	1	Scanner home position is detected.
	2	Document cover position is detected.
	3	ADF home position is detected.
	4	Thermal head press position is detected.
	5	Used master core is detected.
	6	Used master full is detected.
	7	Master clamp opening and closing lever B mode is detected.
	8	Master clamp opening and closing lever C mode is detected.
	9	Horizontal registration center is detected. (DP-S850/S650/S620)
	10	Horizontal registration encode is detected. (DP-S850/S650/S620)
	11	Heavy weight paper is detected.
	12	Paper feed elevator top limit is detected.
	13	Vertical registration center is detected.
	14	Vertical registration encode is detected.
	15	Main motor encode is detected.
	16	Drum removal position is detected.
	17	Master attach position is detected.
	18	Press roller ON and OFF is detected.
	19	Press center is detected.
	20	Press encode is detected.
	21	Ink roller up and down is detected.

(3) Sensors 2



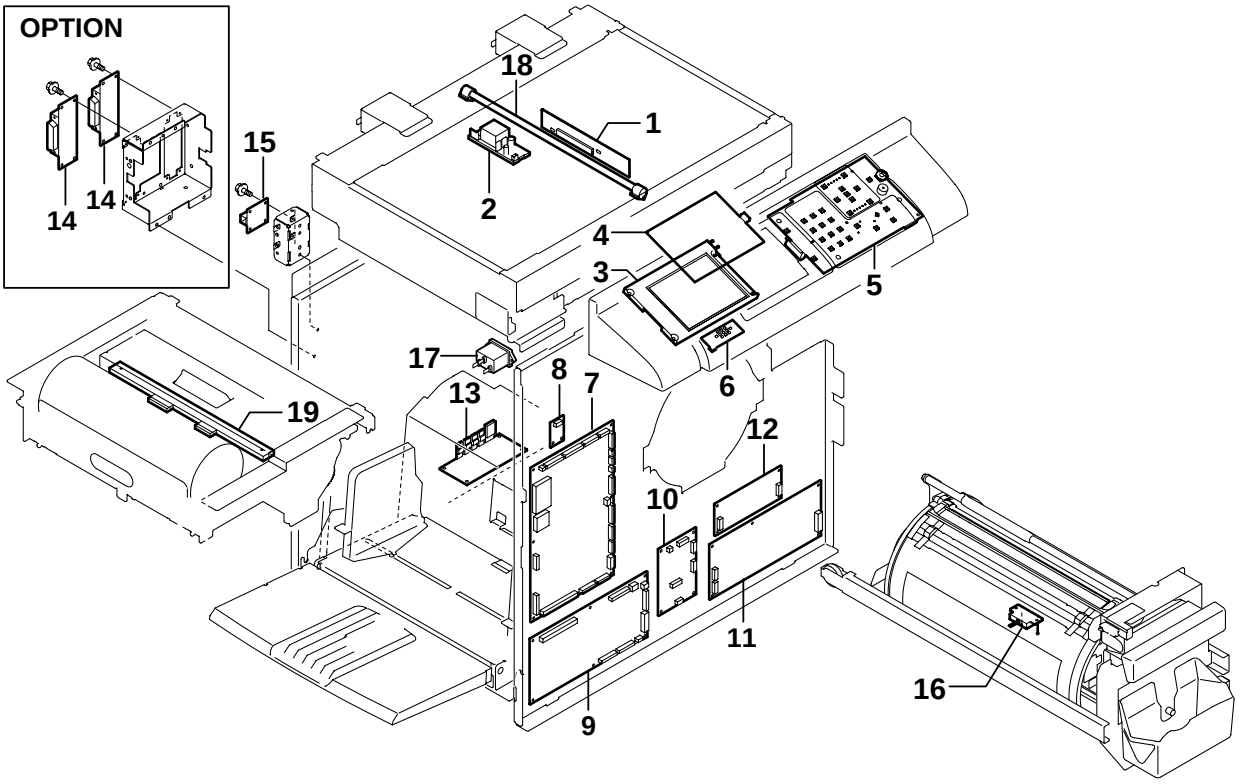
Item	No.	Functions
Photointerrupter	1	Document position is detected.(1)
	2	Document position is detected.(2) [A/B,inch]
	3	Document position is detected.(3,4,5)
	4	Master top is detected.
	5	Paper is detected. (set or not)
	6	Paper length is detected.
	7	Paper eject jam is detected.
Photo sensor (photo-emitting/photo-receiving)	8	Paper top is detected.
	9	Signal is detected.
	10	Paper double feed is detected. (DP-S850/S650/S620)
PCB sensor	11	Master end mark is detected.
	12	Master is detected. (set or not)
Actuator-sensor	13	Master eject jam is detected.

(4) Motors/Fans



Item	No.	Functions
Motor	1	Scanner stepping motor
	2	Master feed stepping motor
	3	Thermal head up/doun motor
	4	Cutter motor
	5	Master eject stepping motor
	6	Master clamp motor
	7	Horizontal registration motor (DP-S850/S650/S620)
	8	Paper feed tray elevator motor
	9	Paper feed stepping motor
	10	Vertical registration motor
	11	Main motor
	12	Press motor
	13	Paper ejection belt motor
	14	Ink pump motor
	15	Ink roller up/doun motor
Fan motor	16	Top blow fan
	17	Paper eject fan

(5) PCB unit/Others



R8S09005

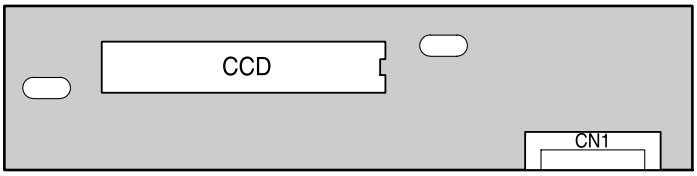
Item	No.	Functions
CCD PCB unit	1	Reading the picture image.
Inverter PCB unit	2	Lamp lights up.
LCD Panel	3	Liquid crystal display
Analog touch panel	4	Control panel key
Panel PCB	5	Control panel key, display.
Panel LED PCB	6	LED indication.
Main PCB unit	7	Image memory and controlling the parallel communication
Battery PCB unit	8	Keeping the total counter and HELP information.
Drive PCB unit	9	Driving the motor.
Relay PCB unit	10	To control the 24V power and to supply the thermal head power.
24V power supply	11	24V supply
5V power supply	12	5V power (to supply 5V)
Main motor PCB unit	13	Controlling the main motor.
I/F PCB unit	14	-
USB PCB unit	15	-
Ink detection PCB unit	16	Detecting Ink amount in the drum.
Inlet	17	-
Lamp	18	-
Thermal head	19	Thermal head

(6) Connector VR/LED Layout and Functions

1) CCD PCB unit : (R8-V325＊) DP-S850
CCD PCB unit : (R8-V322＊) DP-S650/S620
CCD PCB unit : (R8-V323＊) DP-S550/S520/S510

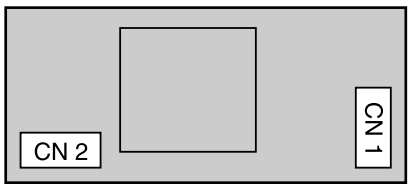
IMPORTANT :

- **Do not remove the CCD PCB or loosen the screw in the market.**



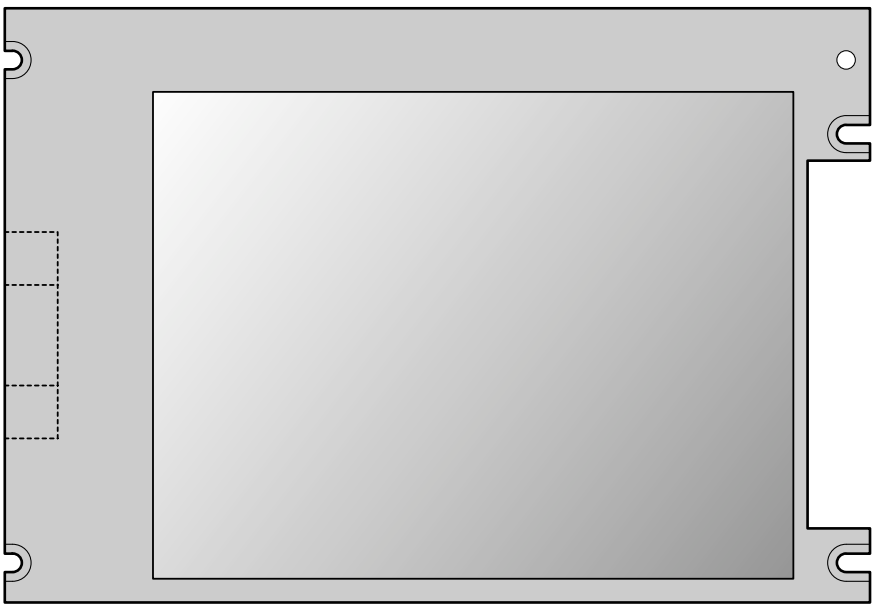
R8S09006

2) Inverter PCB unit (J2-X105＊)



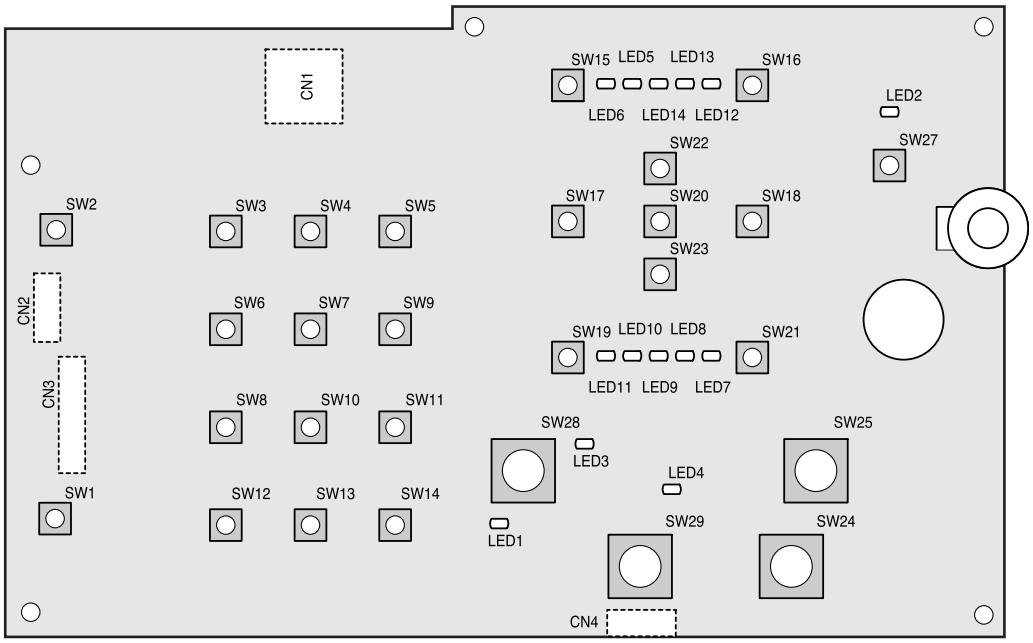
R8S09007

3) LCD Panel (TG014)



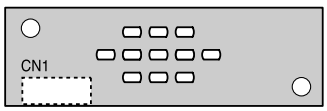
R8S09008

4) Panel PCB (R8-V332∗)



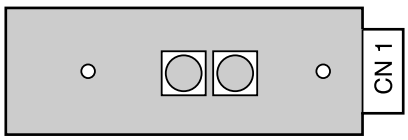
R8S09009

5) Panel LED PCB (R8-V372∗)



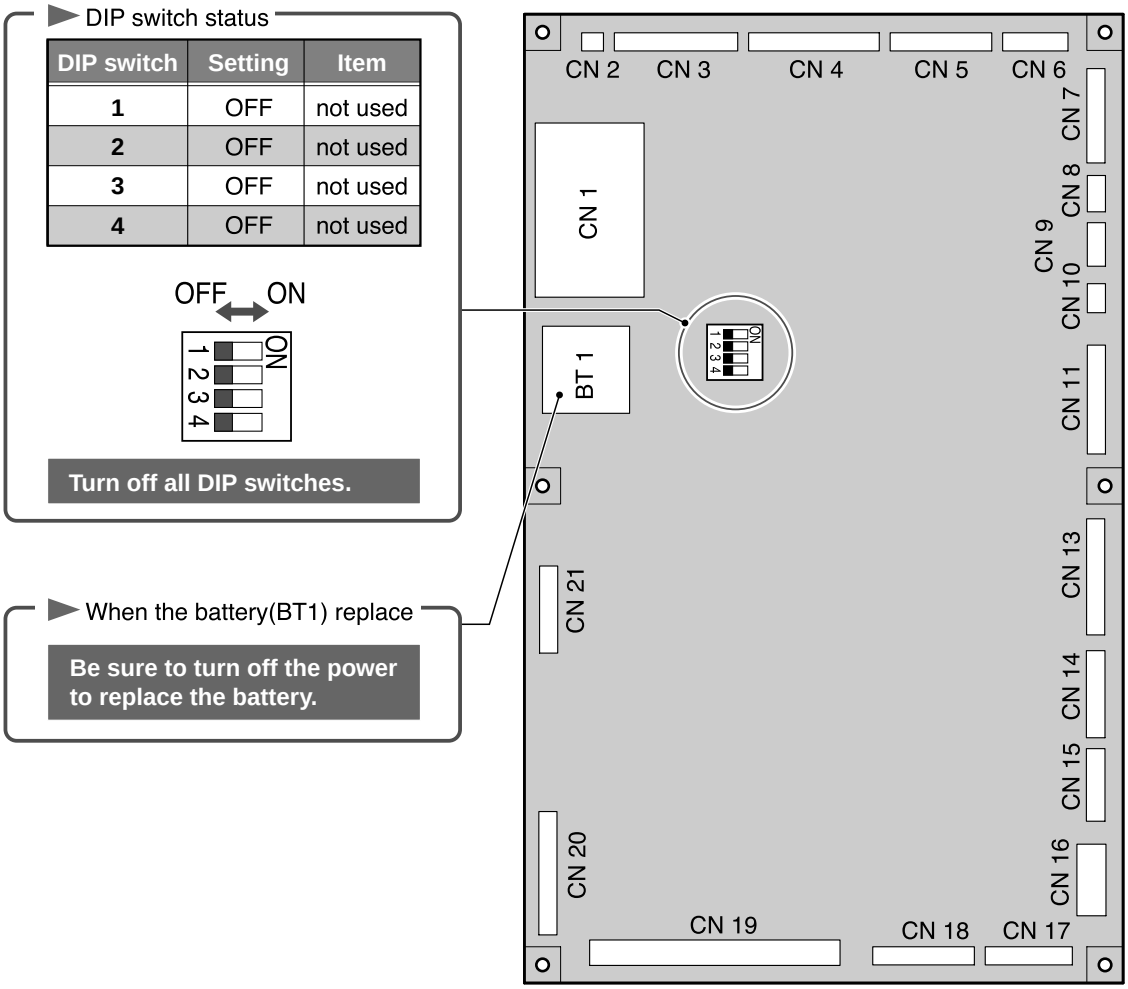
R8S09010

6) End Mark PCB unit (R8-V317∗)



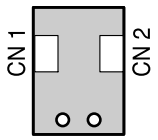
R8S09011

7) Main PCB unit : (R8-V307＊) DP-S850
Main PCB unit : (R8-V302＊) DP-S650/S620/S550/S520/S510



R8S09012e

8) Battery PCB unit (R8-V367＊)

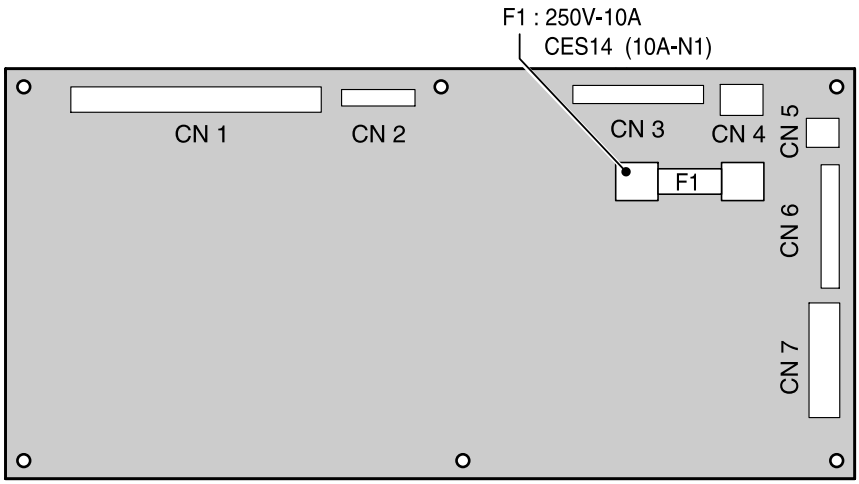


R8S09013

9) Main Motor unit (R8-V327＊)

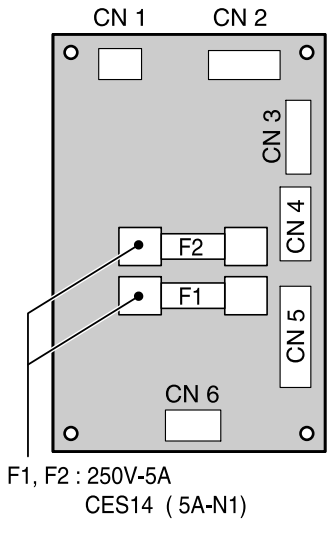
R8S09014

10) Drive PCB unit (R8-V312＊)



R8S09015

11) Relay PCB unit (R8-V362＊)



R8S09016

12) 24 V power supply (UA039)

IMPORTANT :

- **Adjusted at the factory. Do not change.**

R8S09017

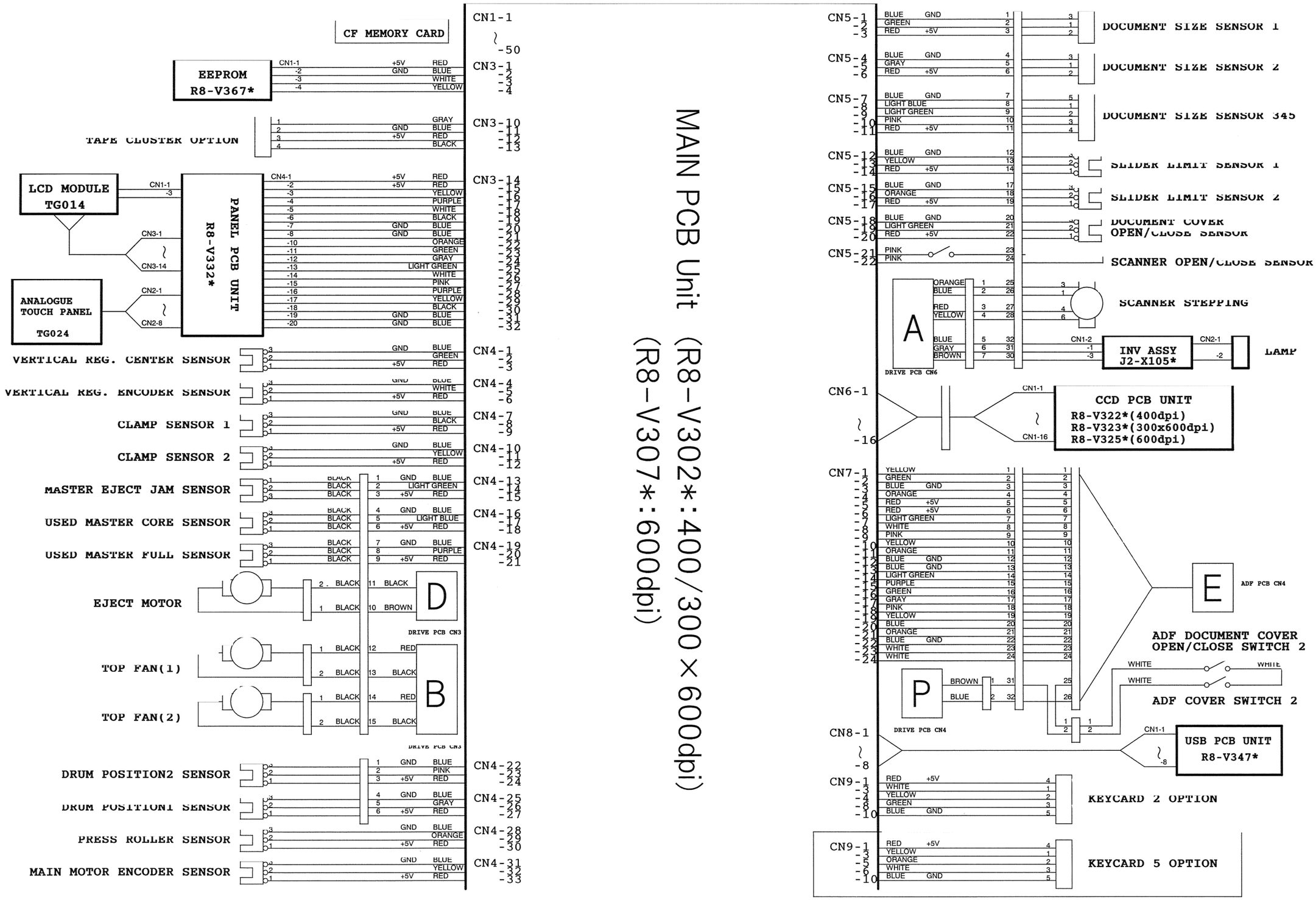
13) 5 V power supply (UA040)

R8S09018

MEMO

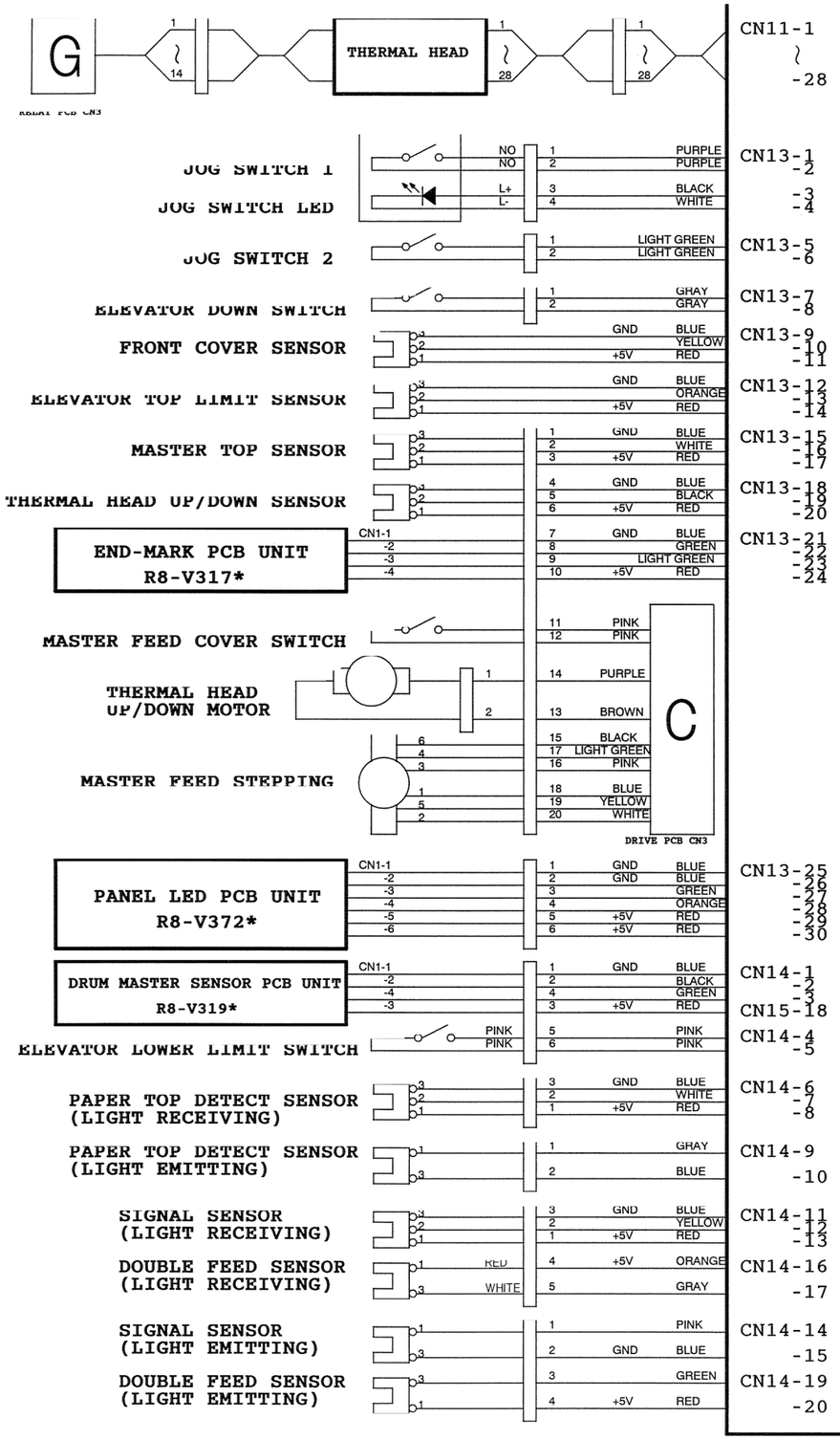
2 Overall Wiring Layout

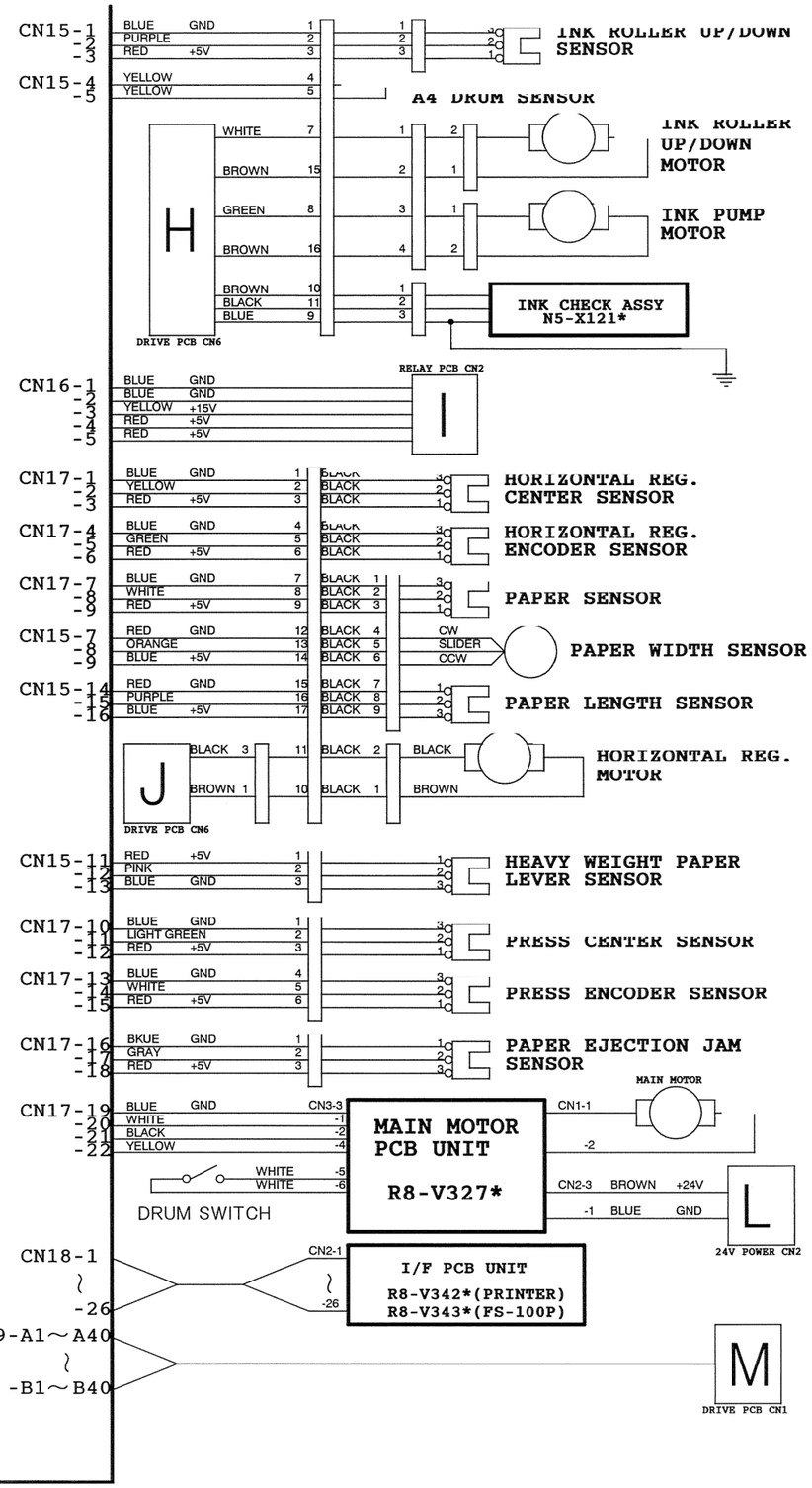
Overall Wiring Layout 1 (Main PCB) 1/2



Overall Wiring Layout 1 (Main PCB) 2/2

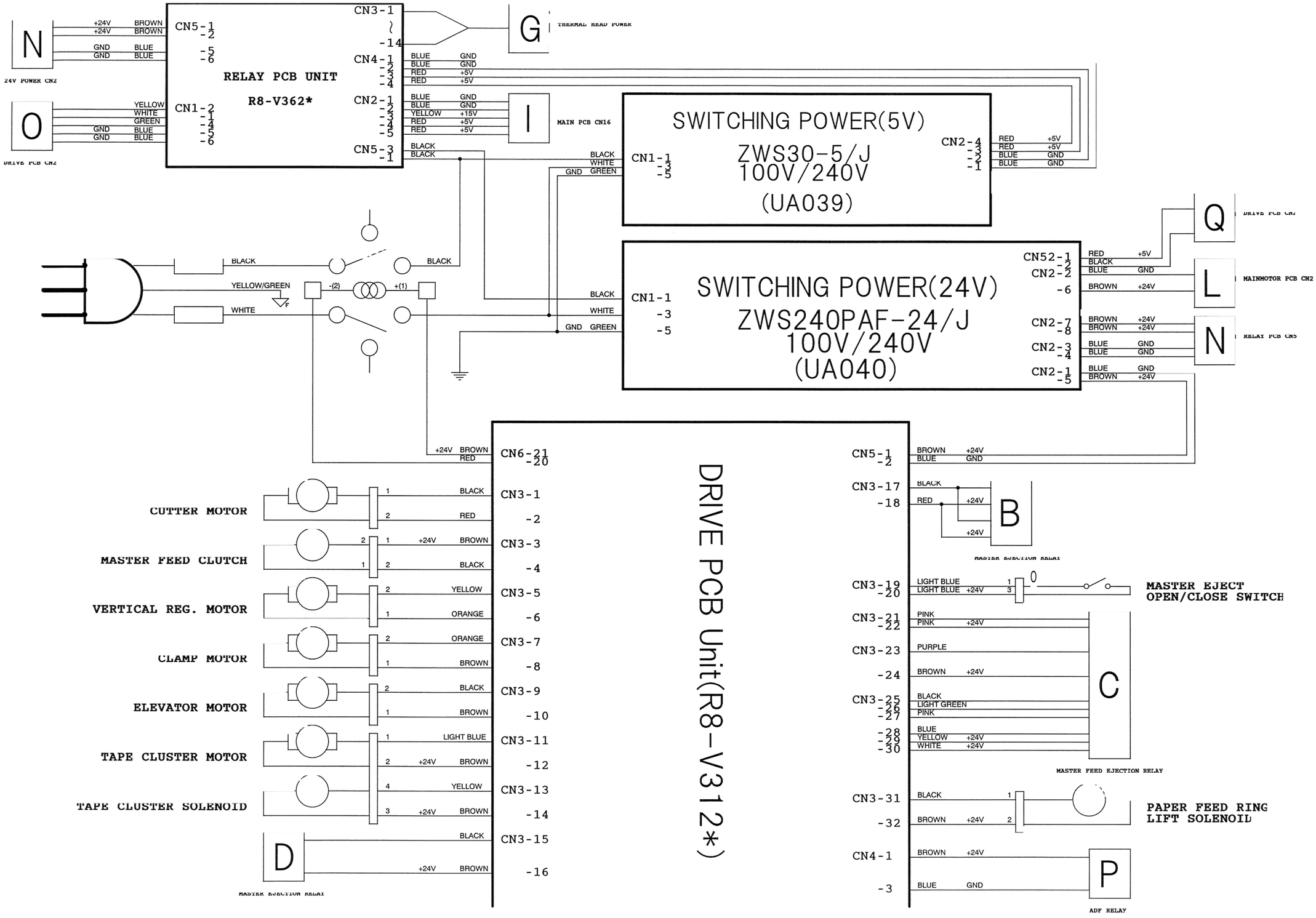
MAIN PCB UNIT (R8-V302*:400/300×600dpi)
(R8-V307*:600dpi)



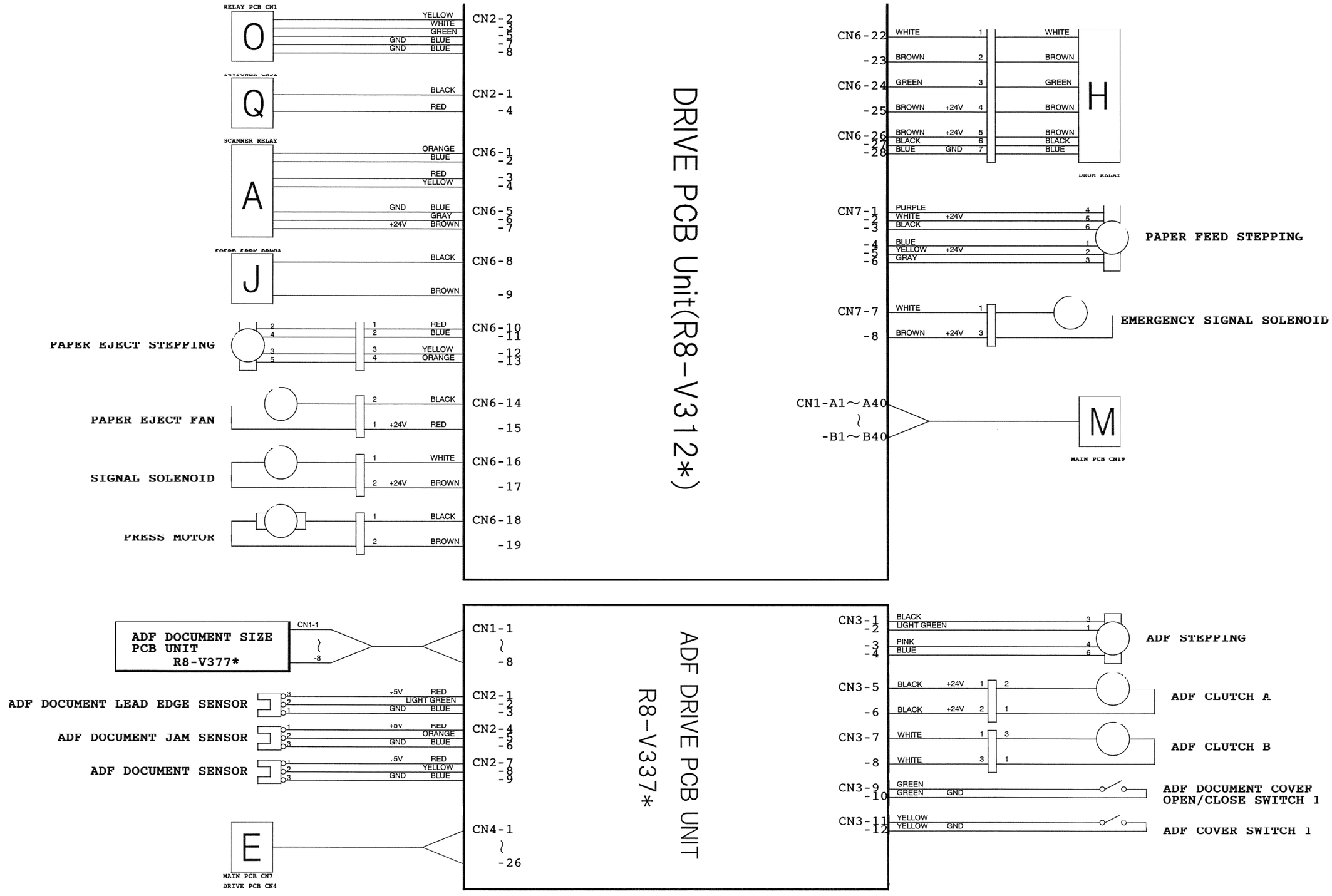


(2) Overall Wiring Layout 2

Overall Wiring Layout 2 (Drive PCB) 1/2



Overall Wiring Layout 2 (Drive PCB) 2/2



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