

SERVICE MANUAL

Ver.1 *DUPRINTER*

DP-63S



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

DUPLO SEIKO CORP.

Introduction

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

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

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

■ Using the service manual

- This manual contains the following information: structure and function of major parts, disassembly and reassembly procedures, specifications, and procedures for adjustment, maintenance, inspection and corrective action. This information is current as of December 1998, and applies basically to the model DP-63S 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°C – 30°C
Ambient humidity:	40% – 70%
Optimum temperature and humidity:	20°C, 65%
 - If the machine is installed near to faucets, water heaters or humidifiers, or in cool (sunless) parts of a building or in the vicinity of water sources, the paper could absorb moisture and curl, leading to misfeeds or poor image quality.
- Avoid installing the machine in places with open flames, or where reflected heat or other hot air currents (from stoves, etc), or cold air currents from 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 plates (upper and lower) located on the machine's left side; the machine must be connected to a power supply of the voltage indicated.

➔ Otherwise, fire or electric shock could result.

If the power supply voltage is unstable or if the power supply has insufficient capacity, the machine may not operate normally.

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

* 120V AC model

Power supply voltage	Connect to outlet of 120V AC, 60Hz, at least 15A	
With no load* At full load	No more than 130V AC At least 110V AC	} Use power supply meeting these requirements
Power consumption	During platemaking : 230W During printing at speed 3 (printing speed) : 110W On standby : 30W	

* 230V AC model

Power supply voltage	Connect to outlet of 230V AC, 50Hz, at least 8A	
With no load* At full load	No more than 250V AC At least 210V AC	} Use power supply meeting these requirements
Power consumption	During platemaking : 230W During printing at speed 5 (printing speed) : 300W On standby : 30W	

* "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.
- Lock the casters after the machine is installed.
- ➔ Otherwise, the machine could move or fall over, causing injury.
- To move the machine, push it by its mounting base.
- ➔ Pushing the printing (upper) part of the machine could make it fall over.

3. Cautions for maintenance, inspection and servicing

Warning

● Precautions for safe servicing

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

- The cutter unit contains hazardous sharp blades. Exercise great care when inspecting the cutter unit or replacing it or its parts.
- ➔ Otherwise, your hands/fingers could be injured.

- Do not touch the drum or rollers after turning on the jog switch.
- Do not put your hands or fingers inside the machine while the drum is rotating.
- ➔ Otherwise, your hands/fingers could get caught and crushed between the drum and rollers.

● Working clothes

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

CAUTION

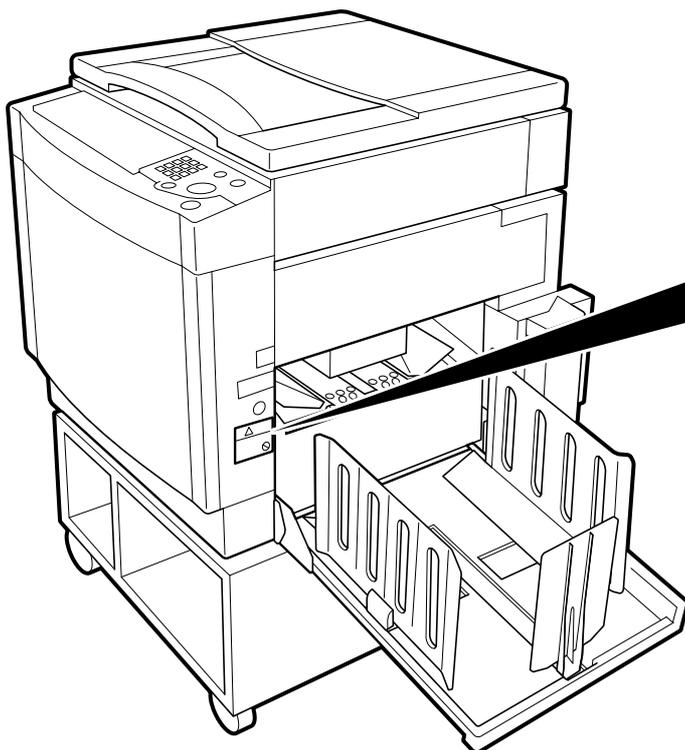
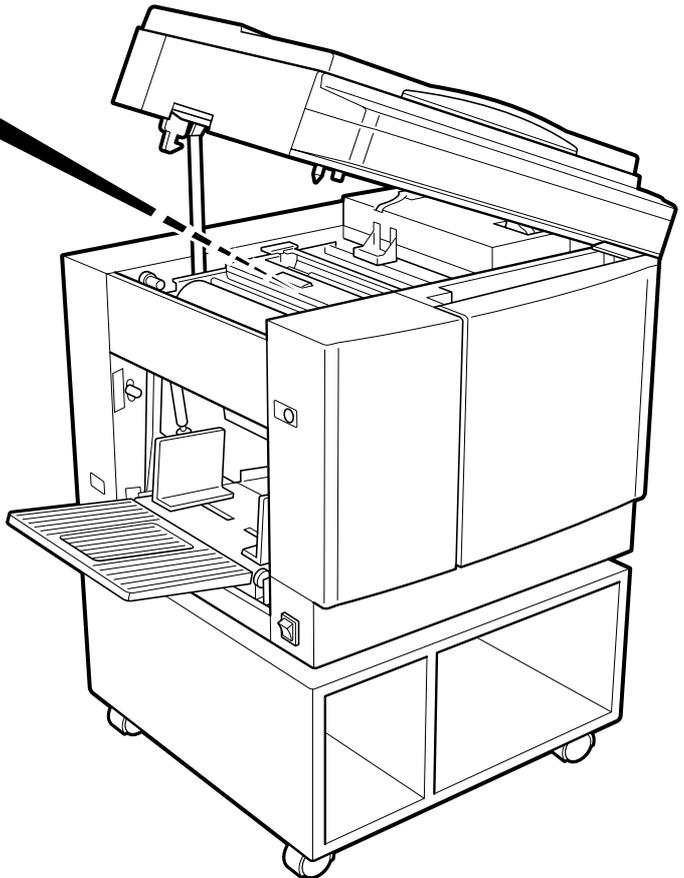
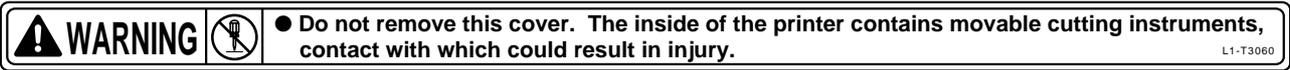
● Tools

- Use tools that are appropriate for the work.

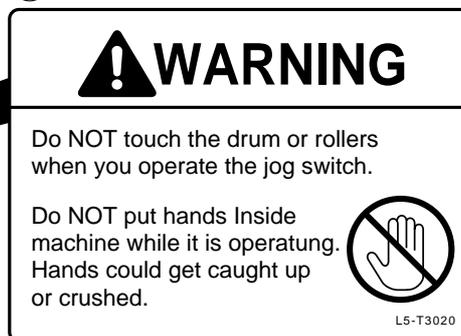
▣ Locations of warning stickers

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

①



②



No.	Parts No.	Name	Q'ty
①	L1-T3060	Warning Sticker 1	1
②	L5-T3020	Warning Sticker 2	1

Introduction	Chapter 1
Description of the Operation	Chapter 2
Mechanism	Chapter 3
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Chapter 1

Introduction

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1 Features

1. Size A3 printing

The DP-63S has size A3 (290X410mm) printing area.

2. High-speed platemaking

With the DP-63S, it takes 25 seconds¹ to print the first sheet of paper².

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

*2: When the Fine Start mode is not activated.

3. High print quality

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

Resolution is 600dpi in the DP-63S.

4. Simple operation

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

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 the room temperature³, 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.

*3: Room temperature of 10°C or below can cause insufficient ink supply, even in Fine Start Mode.

6. High-performance lamp

A long-life, high-brightness xenon arc lamp is used to illuminate the documents. Since the lamp's intensity is not affected by temperature variation⁴, printing quality at low temperatures is greatly enhanced⁵.

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

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

7. Full range of necessary functions

① Documents are easily enlarged or reduced.

In addition to same-size printing, there are three automatic settings for both enlargement and reduction. The margin function (94% reduction) can be used with any setting.

• Size A/B models

- Free ratio setting (50-499%)
- Auto zoom settings (70, 81, 86, 115, 122, 141%)
- Same-size (100%) printing

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

• Inch size model

- Free zoom range 50 to 499%
zoom (64, 74, 77, 121, 129, 141%)
- Same-size (100%)

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

② Memory functions

The printers have memory functions that can memorize frequently-used settings.

DP-63S
2 types

③ Multiple image printing

Multiple images (2, 4 or 8) of a single document can be printed on a single sheet of paper.

④ Book shadow erasure

Shadows in the middle or at the edges of book documents can be erased.

⑤ Self-diagnosis

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

⑥ Document modes

To the pre-existing Text and Photograph Modes have been added the "Text-Photograph", "Text-Fine Lettering", "Photograph-Fine Lettering", "Screen 1 & 2" and "Photo Dark" Modes, accommodating printing of a wider variety of documents.

Text-Photograph Mode:

Intermediate between the Text and Photograph Modes, this Mode is for documents with mixed photographs and text.

Text-Fine Lettering Mode:

Emphasizes letter outlines more than the regular Text Mode, providing better reproducibility of fine lettering.

Photograph-Fine Lettering Mode:

Emphasizes shape outlines more than the regular Photograph Mode, providing better reproducibility of fine lines.

Screen Modes 1 & 2:

Add dots to images produced by the Photograph Mode, to bring out the contrast. Mode 1 uses larger dots than Mode 2.

Photo Dark Mode:

Increases the number of gradations in bright halftone portions of images produced by the Photograph Mode, to prevent over-bright reproduction of bright documents.

⑦ Error message display

An LCD panel displays error messages and messages prompting replenishment of consumables.

⑧ Special functions

The following functions/modes, which formerly could only be changed/used by service personnel, have been made into user functions/modes.

- Auto Clear
- Preprint
- Print Number Input Mode
- Change Initial Setting
- Fine Start

⑨ Adjusting the Printing Position (vertical)

In addition to vertical direction adjustment.

⑩ 2 in 1 Layout Mode

In conjunction with an ADF (optional), this mode makes possible continuous printing of 2 documents onto single sheets of paper.

⑪ Key card counter

Raises the number of sections controlled to up to 200^{*6}. Versions with internalized control panel also available.

*6: Standard: 30 sections. Using the counter (optional) raises the number to 200 sections.

8. Options**① ADF**

Use of the ADF permits continuous platemaking and printing of 30 documents (64g/m² paper). The ADF's tray fits completely inside the ADF, so as not to interfere with loading/removal of printing paper.

② Tape cluster

This permits sectionized printing, by inserting tape automatically during printing.

③ Key card counter

This magnetic card can control the numbers of prints and platemakings by up to 200 sections.

NOTE: Without this optional counter, the number of sections controlled is 30 (standard).

④ Drums

Replacing the drum with optional drums permits printing with different colors.

⑤ Sorter

The newly-developed 25-bin tandem sorter can sort up to 50 sets of sheets. A stapler can be installed to staple the sets after sorting.

⑥ On-line functions^{*7}

These enable data processed on a personal computer or word processor to be directly input and used for platemaking/printing.

*7: These functions require an IPC I/F kit and PC interface.

MEMO

A series of horizontal dashed lines for writing a memo.

2 Specifications

• Specifications

Product name/model No.	DUPRINTER DP-63S
Model	Floor model
Platemaking method	Thermal digital platemaking
Platemaking interval	25 seconds(A4, same size)
Resolution	23.6 dots/mm (600 dpi)
Scanning method	Fixed document
Printing method	Stencil printing
Document type	Sheet, Book (less than 10 kg)
Document size	Max. 297 mm × 432 mm
Printing area	Max. 290 mm × 410 mm
Feeding capacity	1000 sheets (64g/m ² , duodecimo 55kg, high-grade paper)
Stacking capacity	1000 sheets (64g/m ² , duodecimo 55kg, high-grade paper)
Paper size	Max. 297 mm × 432mm Min. 100 mm × 150mm
Paper thickness	53g/m ² to 210g/m ² (45kg to 180kg) Postcard (multifeeder only) 128g/m ²
Printing speed	120 pages per minute. (45 to 120 pages per minute, 5 step adjustment)
Print enlargement/reduction A, B size model	Same size 100% Fixed zoom ratios 70, 81, 86, 115, 122, 141% Print with border 94% Free zoom range 50 to 499% Auto zoom 70, 81, 86, 115, 122, 141%
Inch size model	Same size 100% Fixed zoom ratios 64, 74, 77, 121, 129, 141% Print with border 94% Free zoom range 50 to 499% Auto zoom 64, 74, 77, 121, 129, 141%
Printing position adjustment	Vertical ±15 mm horizontal ±10 mm
Image modes	Text mode / Photograph mode / Text and photograph mode / Finelettering / Screen / Photo dark, Multiple printing (2, 4, 8 up) Book shadow eraser
Contrast control	Platemaking density 5 step adjustment Printing density 3 step adjustment
Ink supply method	Complete automatic control (600 cc, 1000 cc)
Color printing	Drum unit exchange method
Master feeder	Roll master automatic feed
Plate ejection	Complete automatic ejection plate rolling method
Power source 120VAC model	120VAC 60Hz, 3A
230VAC model	230VAC 50Hz, 2.2A
Power consumption	230W(during platemaking), 150W(during 3rd -speed printing), 30W(during standby)
Size Operational Idle	When in use: 1288 (W) × 670 (D) × 652 (H) mm When folded away: 675 (W)×670 (D)×652 (H) mm (cabinet height 350mm)
Weight	Machine 104kg Base 12kg
Operating temperature	10°C – 30°C

*Specifications are subject to change without notice.

• Specifications

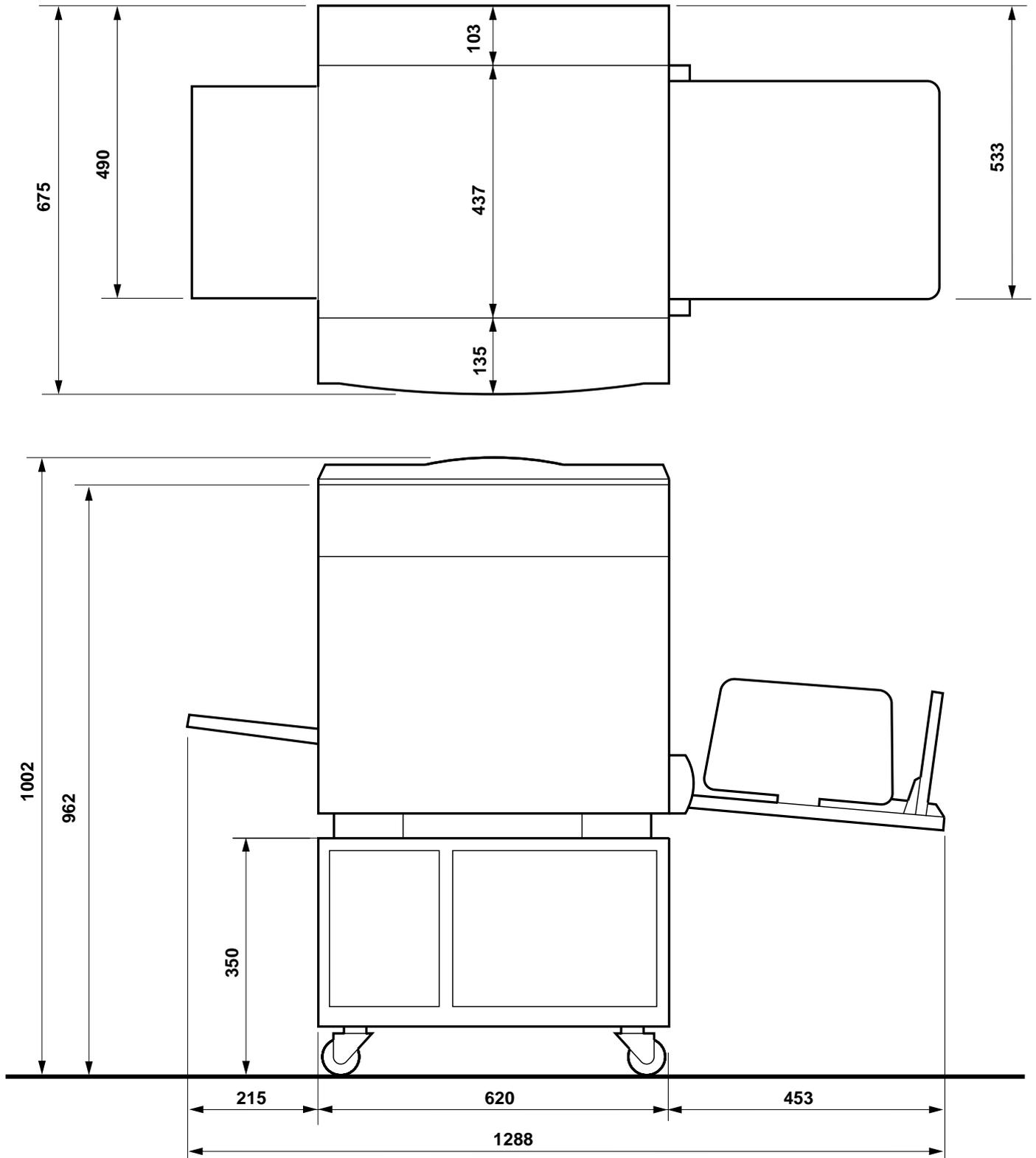
	DUPRINTER DP-63S
LCD panel	240 × 64 dots, full dot matrix LCD
Other standard functions	<ul style="list-style-type: none"> • OK monitor (graphical display, Kanji characters/illustration display) • Memory (2 channels) • Confidential Safeguard Function • Entry of different number of prints or sets • Special function • Fine Start Mode

• Option specifications

	DUPRINTER DP-63S
Options	ADF (Automatic Document Feeder) Drum unit Keycard counter (built-in type) Tape cluster Sorter PC interface kit
PC interface kit	The printer driver must be installed in the PC. <ul style="list-style-type: none"> • Compatible with Windows95 / Windows98 • Macintosh compatibility (System 7.1 or later, MAC OS or later) I/F board in main unit (on-line set III board unit) SCSI cable (4 m)

* Specifications are subject to change without notice.

3 Dimensions



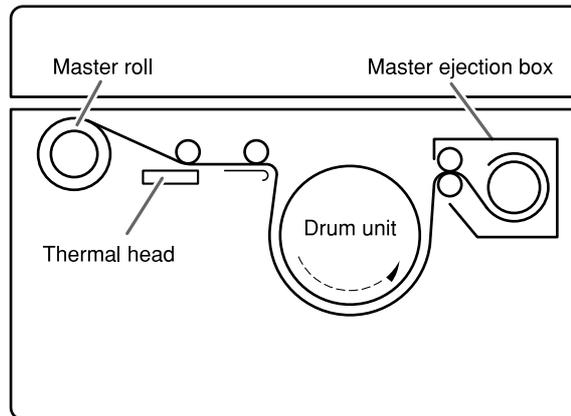
(mm)

4 Mechanism

The machine carries out the processes of “platemaking” and “printing.”

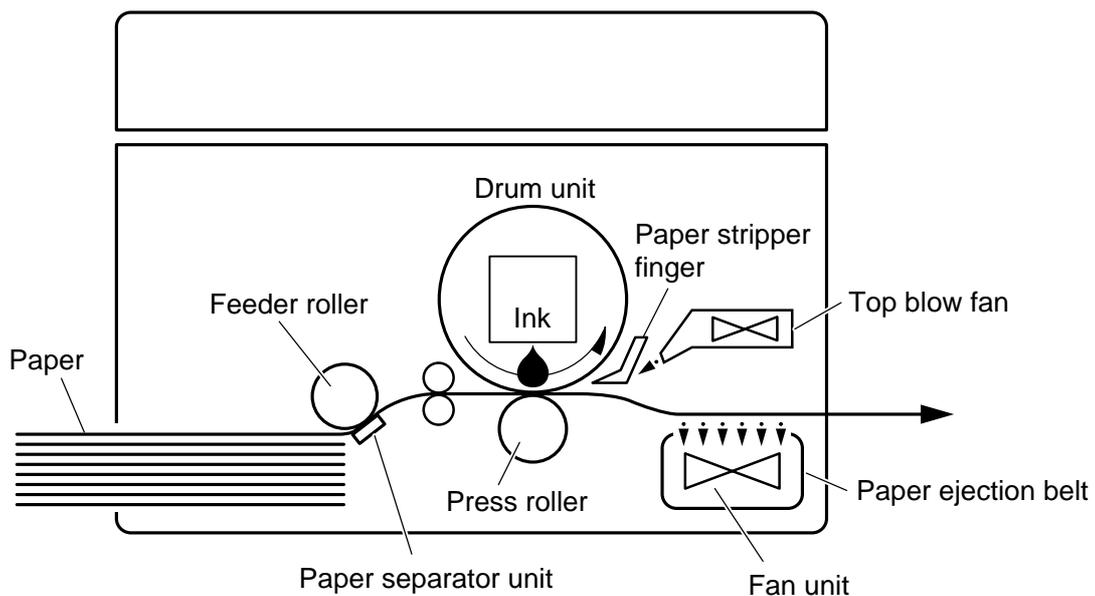
Platemaking

In the “platemaking” process, the old master on the drum is removed while the thermal head creates the scanned image on the new master and transfers it onto the drum.



Printing

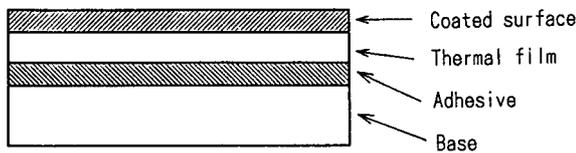
In the “printing” process, paper separated from the stack by the paper feed roller and the paper separator unit is pressed against the drum unit by the press roller. There are small holes over only the image area of the master that is attached to the drum, and ink that seeps from these holes is transferred to the paper. The paper is then peeled from the master by the paper stripper finger and the top blow fan. The paper is directed onto the paper ejection belt by a fan unit and discharged from the machine.



5 Master

1) Characteristics of the master

(1) Structure of the thermal master



(2) Functions and materials of the layers

Coated surface Prevents the film from fusing, being damaged due to friction, being peeled, and being conveyed defectively due to electric static charge.

Material: silicon fluorine mold lubricant

Thermal film Holes are made by the heat of the thermal head.

Material: Polyethylene terephthalate (polyester)

Adhesive 1) Adheres the film to the base.

2) Does not prevent ink from seeping.

3) Increases impression endurance.

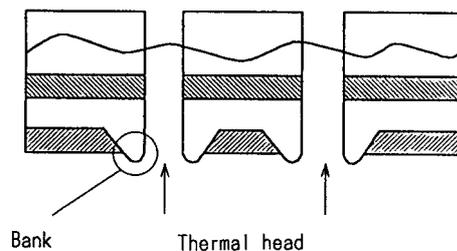
Base 1) Base material for the master. Fibrous layer

2) Ink seeps the base.

(3) Cross section of the master during platemaking

Holes are made on the coated surface, thermal film and adhesive, while base fiber, base material for the master, is left.

A part of the film fused by the thermal head is stuck to the head or banks up.



(4) Printed image

As the image consists of innumerable dots, it is taken as a continuous line through our eye.

IMPORTANT :

• Precautions to be taken in dealing in the master.

(1) Do not put a heavy thing on the box in which masters are packed.

• This may damage the master and may cause defective platemaking.

(2) Do not leave the master as it is after it is taken out.

• Foreign objects are stuck to the master and this may cause defective platemaking.

(3) Keep the master from direct sunlight, too high or low temperature and too high or low humidity.

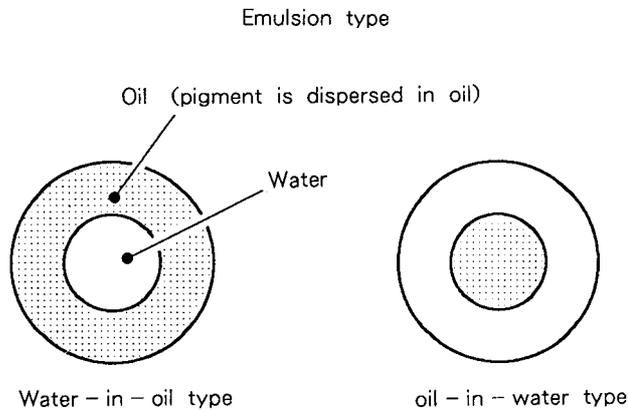
(Desirable storage temperature and humidity: 5-35 °C, 20-80%)

• If the master curls, defective plate attachment may occur.

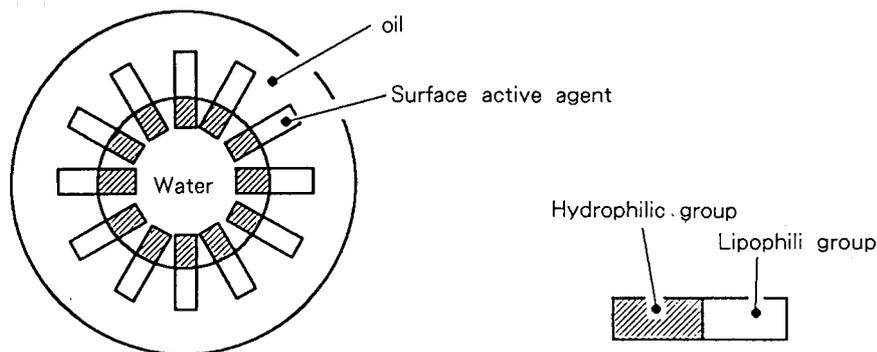
6 Ink

1) Characteristics of ink

(1) Ink for the digital printer is an emulsion type. It has a water-in-oil type structure.



(2) The surface active agent has two characteristics: hydrophilic group and lipophilic group in one molecule. Oil and water bond together by these two characteristics as shown in the figure.



(3) Ink

(3) Ink viscosity is high at a low temperature and it is low at a high temperature. So when ink is used at a low temperature (10°C or less), the amount of ink transferred to the paper is smaller and the print darkness is slightly lighter.

When ink is used at a high temperature (30°C or more), the amount of ink transferred to the paper is larger and the print darkness is slightly darker.

IMPORTANT :

• Precautions to be taken in handling ink

(1) Storage environment

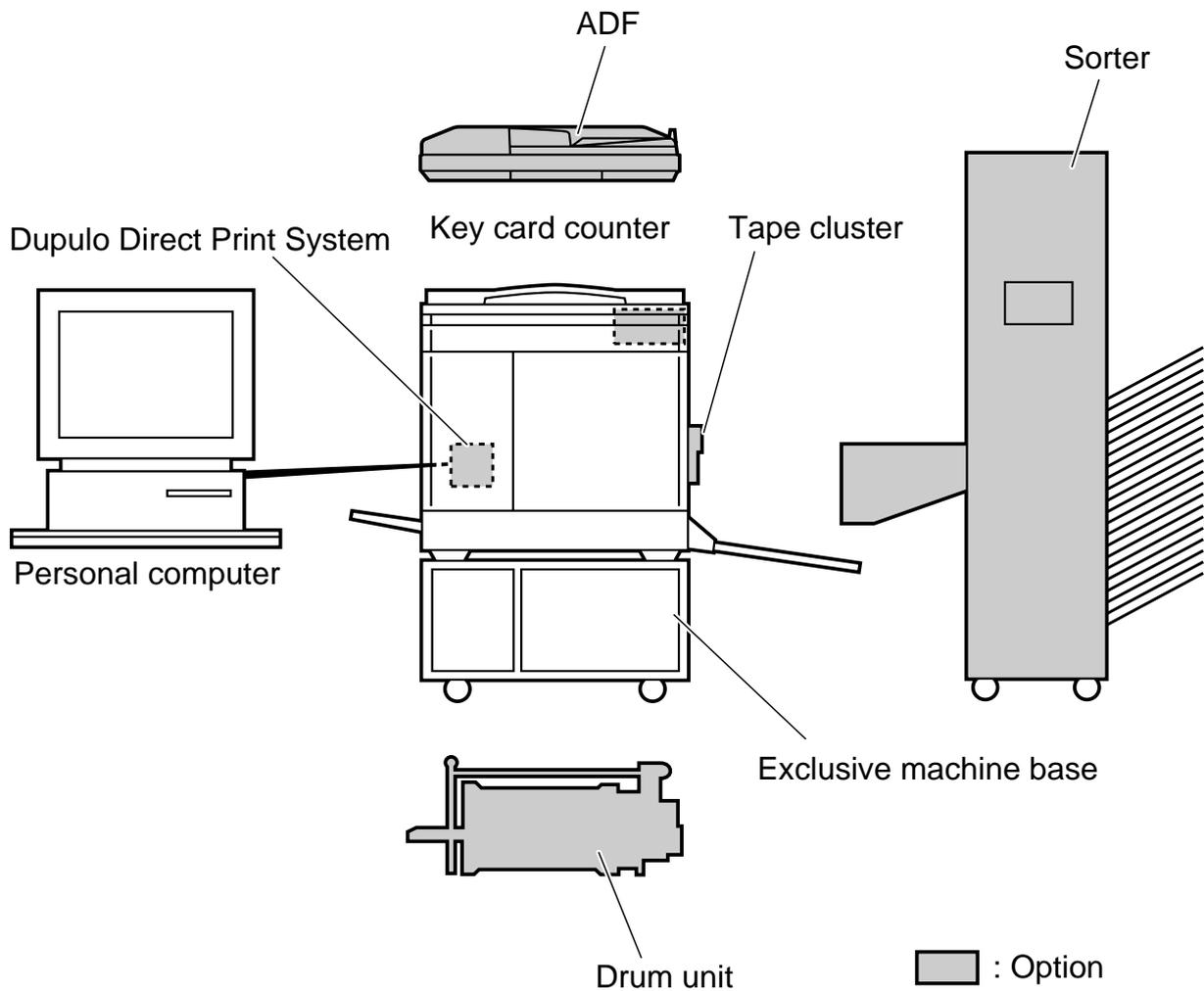
- When an emulsion type ink is stored at too high or low temperature for a long time, oil and water in the ink pack may be isolated. Keep the ink from too high or low temperature (5°C or less, 35°C or more). Also keep the ink from direct sunlight since the temperature rises sharply in the direct sunlight.
- When the water content is frozen, the water content is solidified and the bond characteristics decreases.
- When ink is stored at a high temperature, the bond characteristics decreases due to the change of the surface conditions (surface tension, solubility). The bond characteristics also decreases due to evaporation of the water content.

(2) Precautions to be taken in handling the ink pack

- When the ink pack is removed from the drum unit to store, put the ink pack with its mouth up, screw the cap firmly after expelling air from the ink tube. (If air is in the ink pack, water content is generated.)

7 System Setup

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



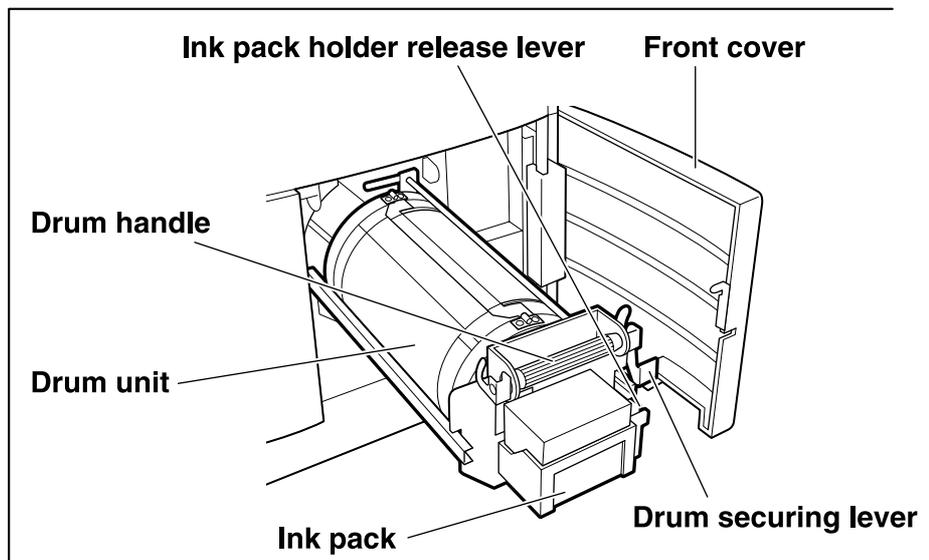
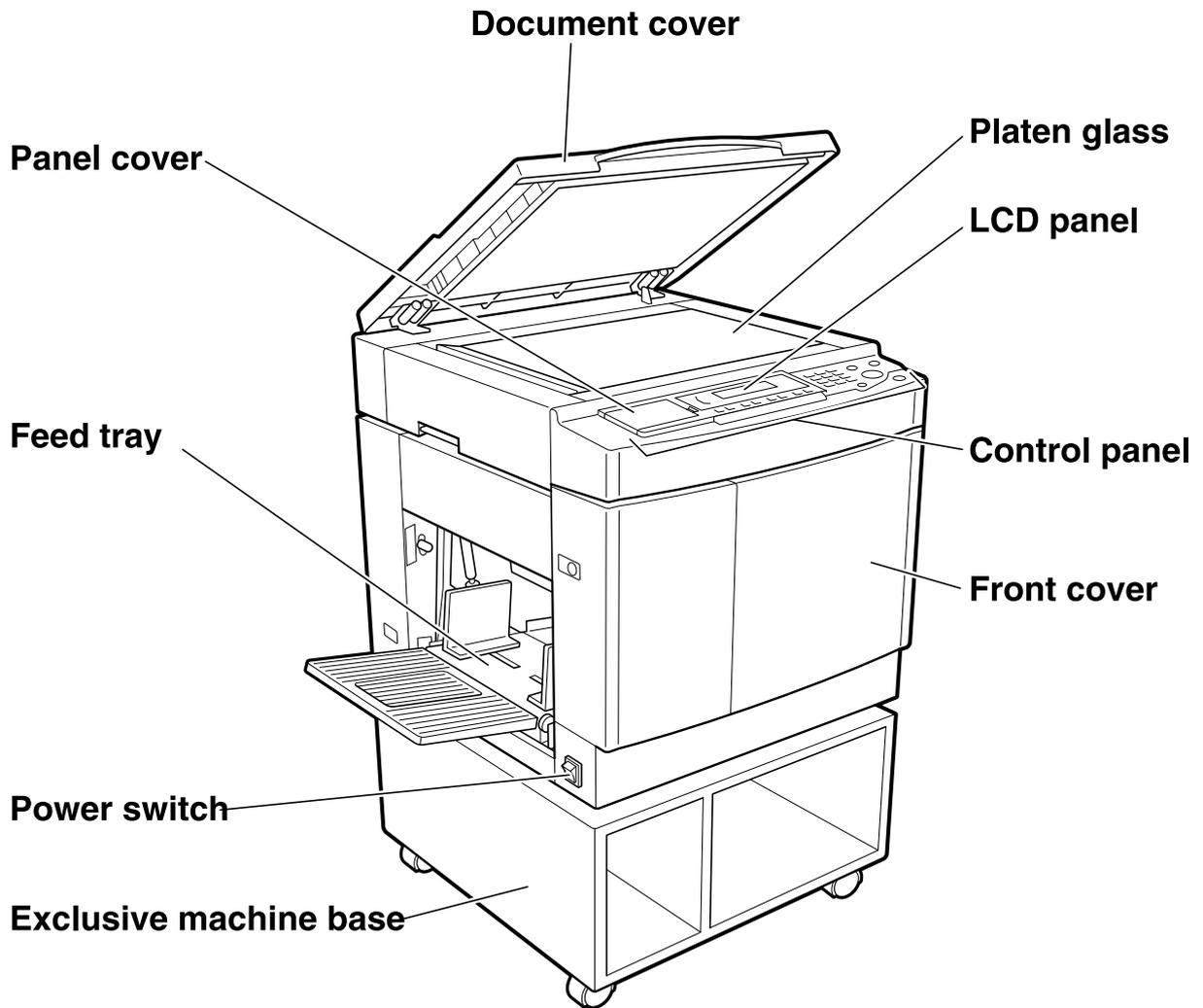
NOTE

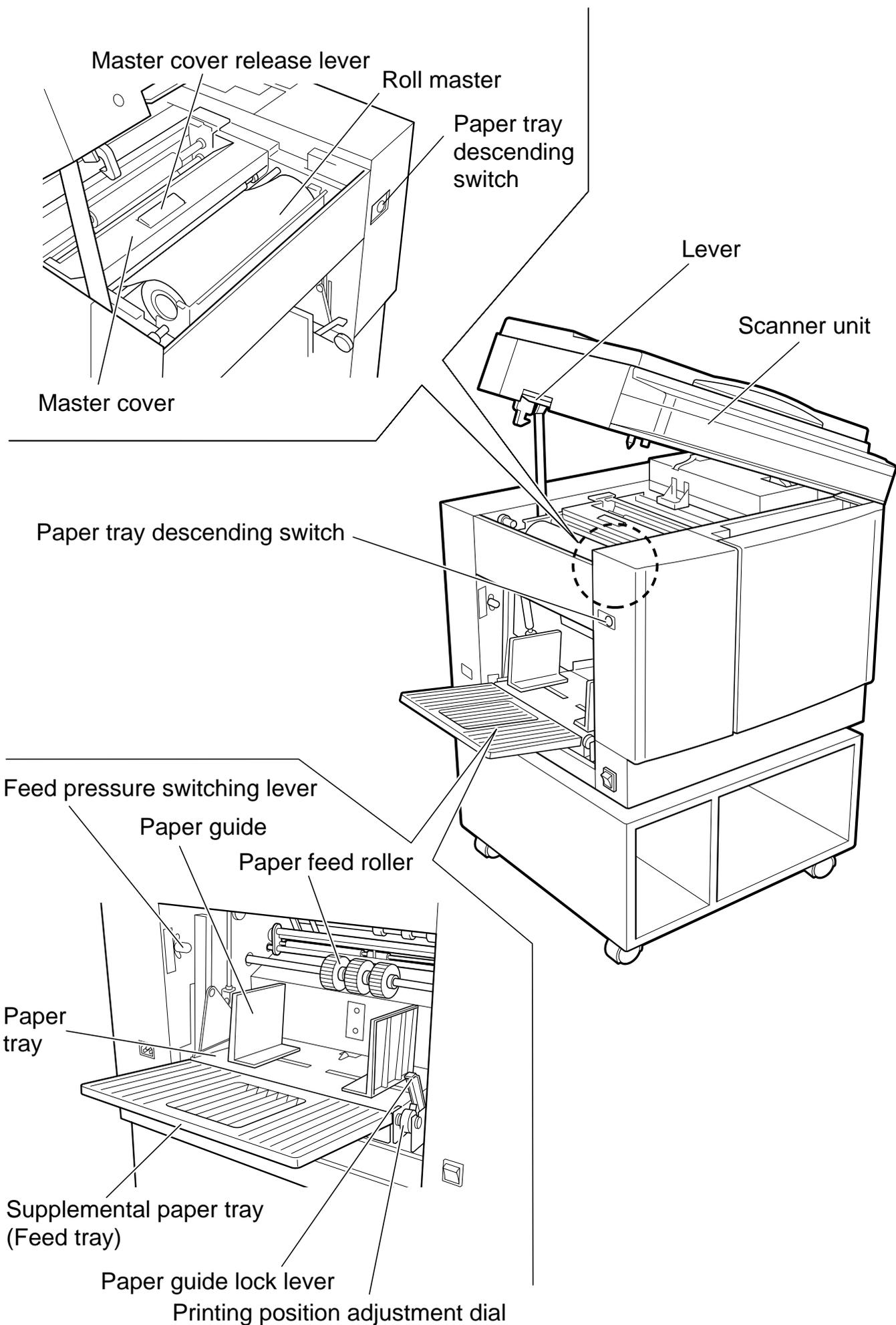
• DDP system

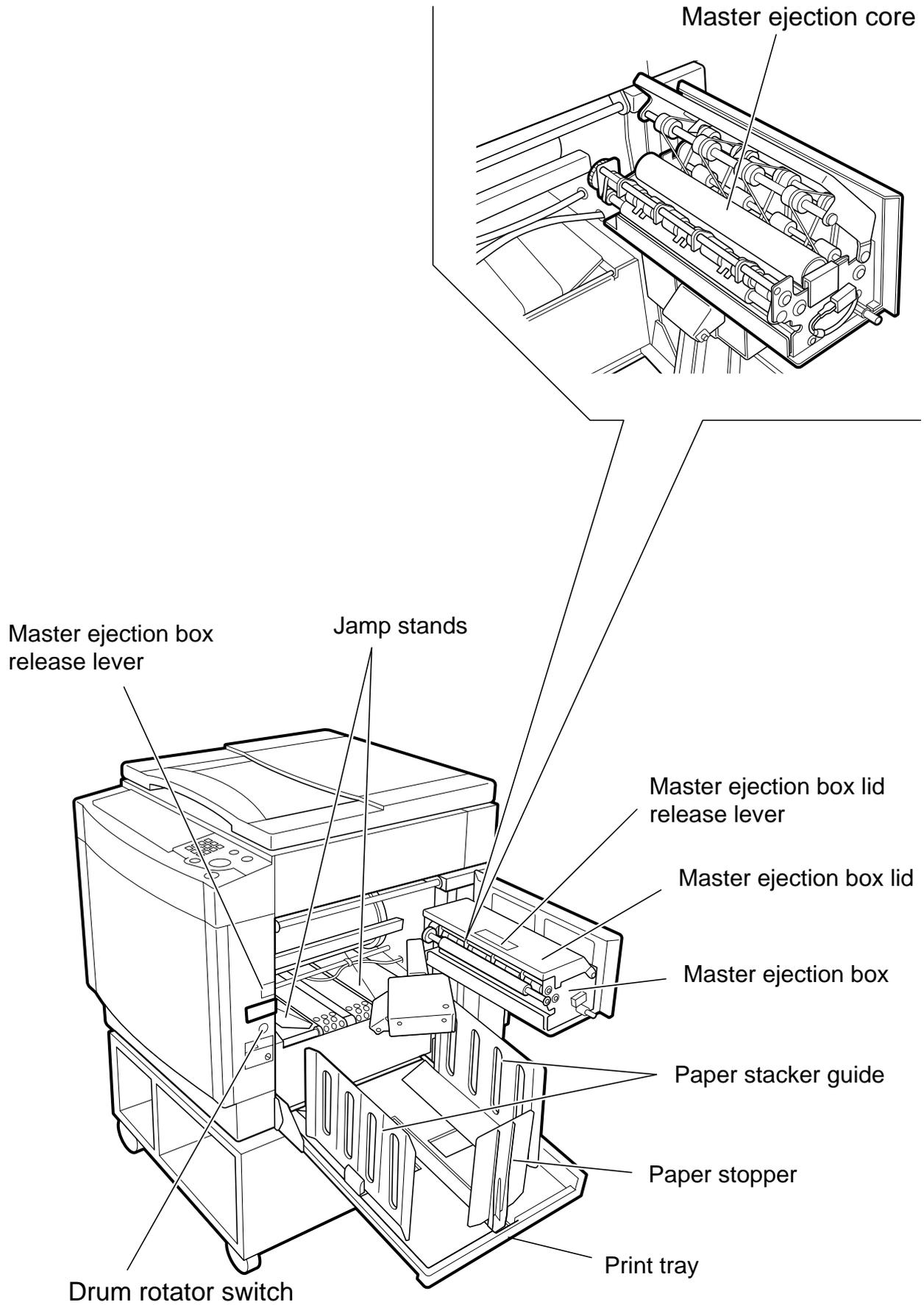
Documents prepared on a personal computer can be printed on this machine. The IPC board and PC interface kit are required to connect this machine to a personal computer.

8 Part Names and Their Functions

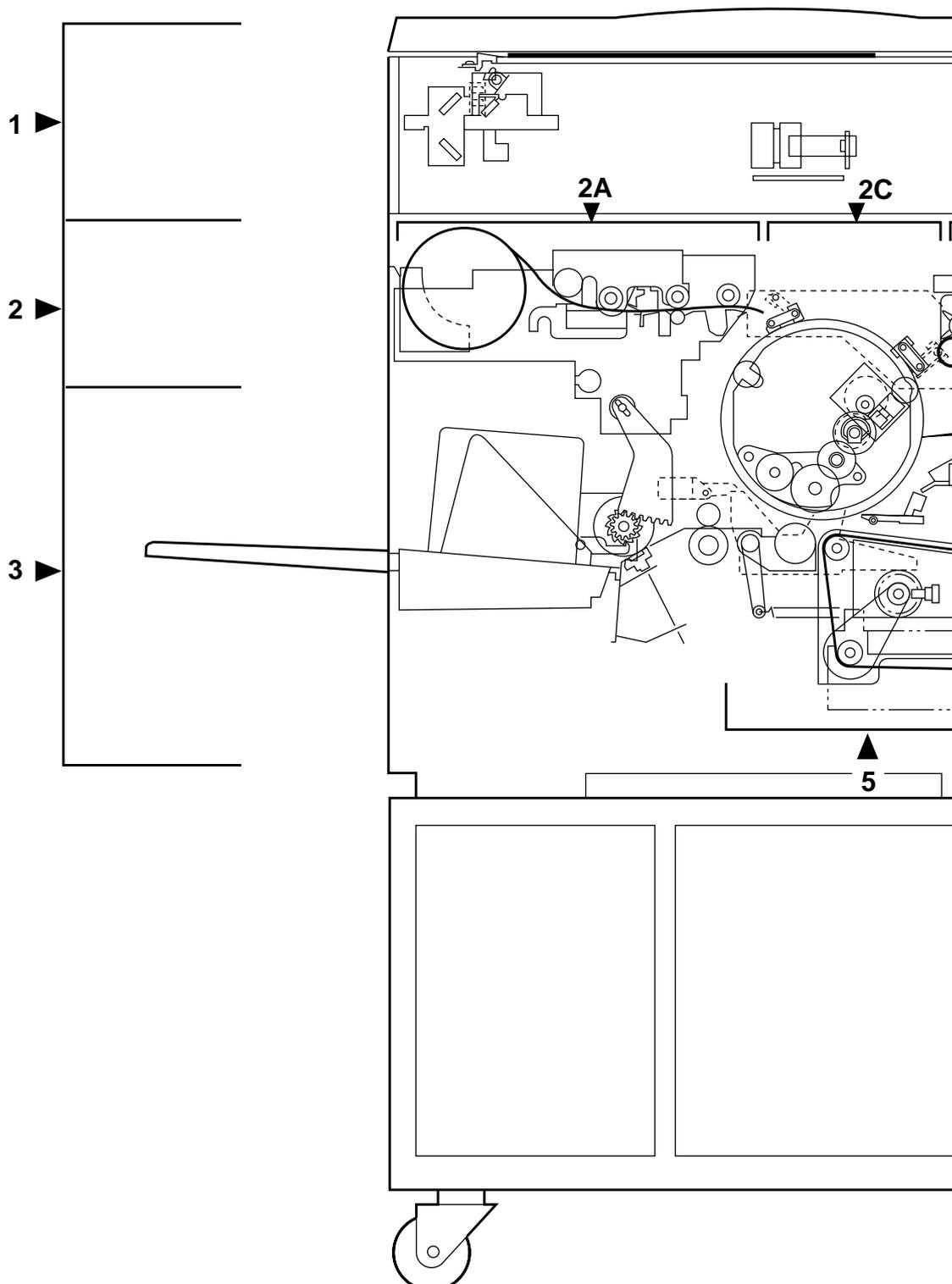
1. Machine exteriors



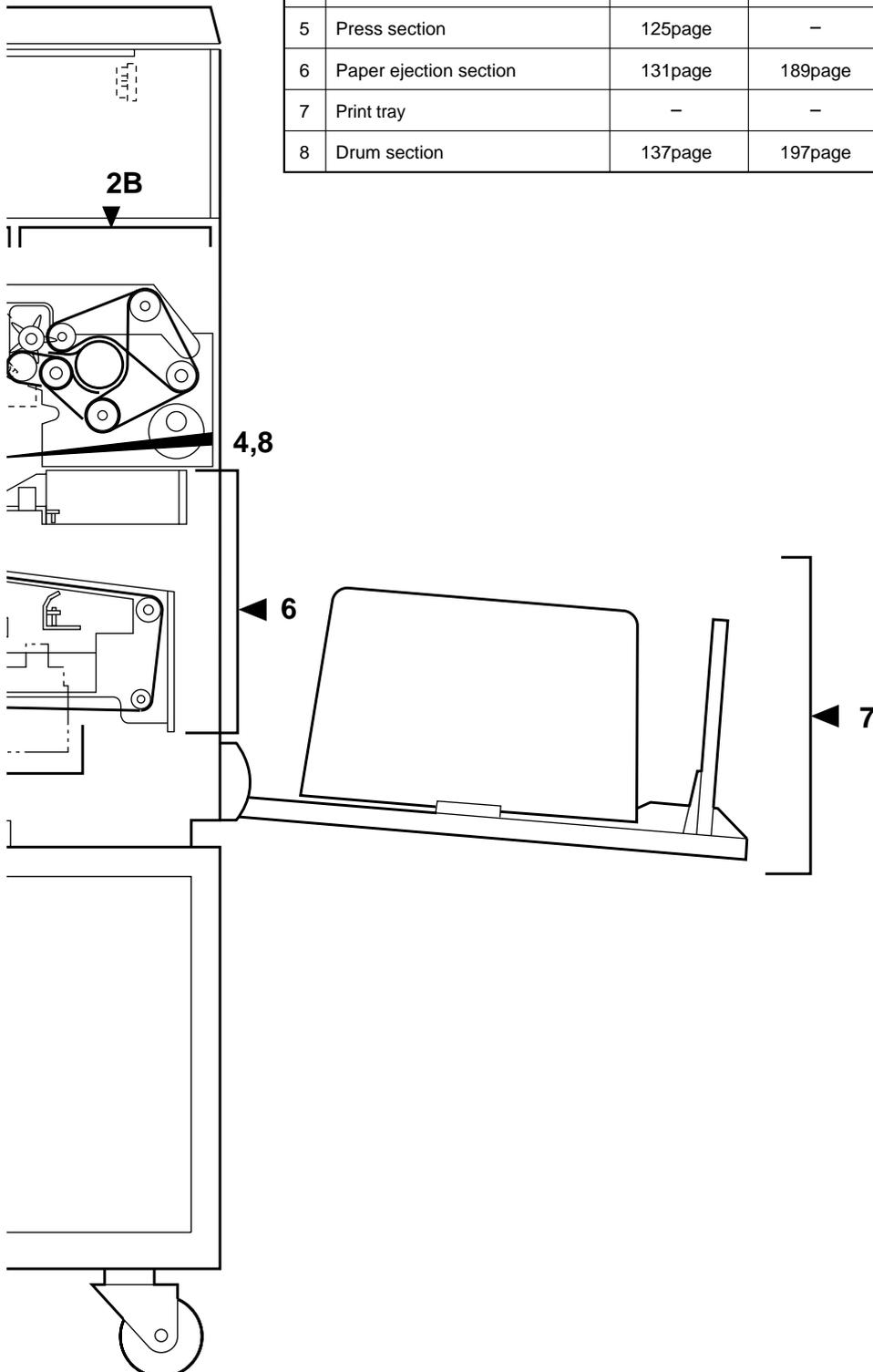




2. Sectional (structural) view of the machine

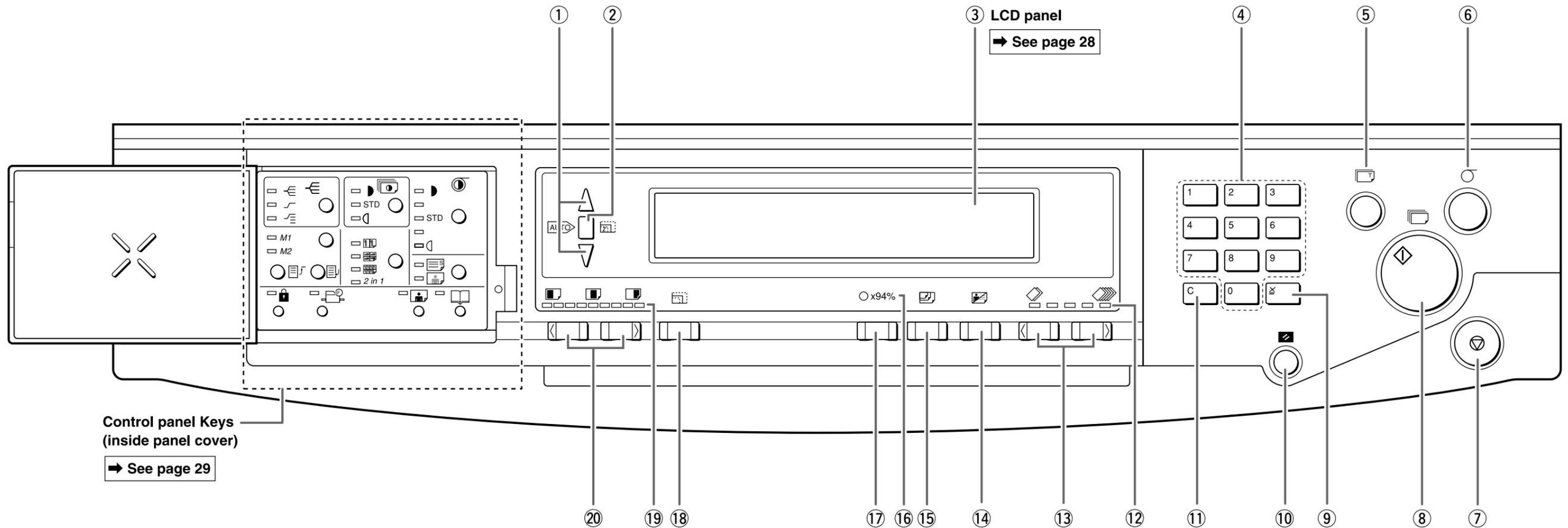


No.	Section Name	Description of the Operation	Mechanism	Standard/Adjustment
1	Scanner section	76page	158page	206page
2	Platemaking/Master feed/ejection section	84page	171page	210page
2A	Platemaking/Master feed section	84page	171page	210page
2B	Master ejection section	97page	175page	212page
2C	Master clamp opening/closing section	99page	180page	214page
3	Paper feed section	105page	181page	219page
4	Drum driving section	119page	187page	226page
5	Press section	125page	-	228page
6	Paper ejection section	131page	189page	230page
7	Print tray	-	-	-
8	Drum section	137page	197page	232page



3. Control Panel

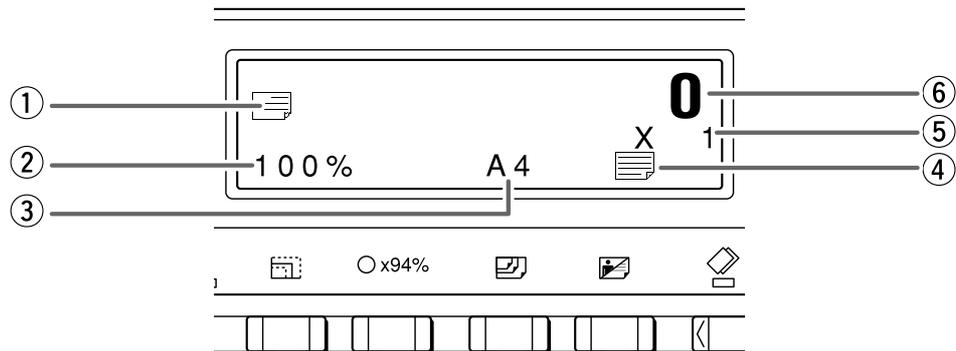
1. Keys outside of the panel cover



No.	Name	Function
①	“ZOOM” key	Adjusts the zoom factor in 1% increments.
②	“AUTO ZOOM” key	Turns the auto zoom function ON.
③	LCD panel	Displays the number of prints and other settings. Displays error messages when an error has occurred.
④	Key pad	Used for entering the number of prints.
⑤	“TEST PRINT” key	Prints one copy. This is used to check the image position and darkness.
⑥	“PLATE MAKING” key	Starts platemaking.
⑦	“STOP” key	Stops printing. If this key is pressed while the machine is stopped, the total number of prints and plates will be displayed.
⑧	“PRINT” key	Starts printing. This will not start platemaking. Printing cannot start when the print key lamp is red; press this key only when the lamp is blue. When the ADF has been installed, platemaking will start automatically after the end of printing if there is a document on the ADF.
⑨	□ key	Enters the number of prints and number of sets.
⑩	“ALL CLEAR” key	Returns the control panel settings to the standard mode settings. Press and hold for at least 1 second.

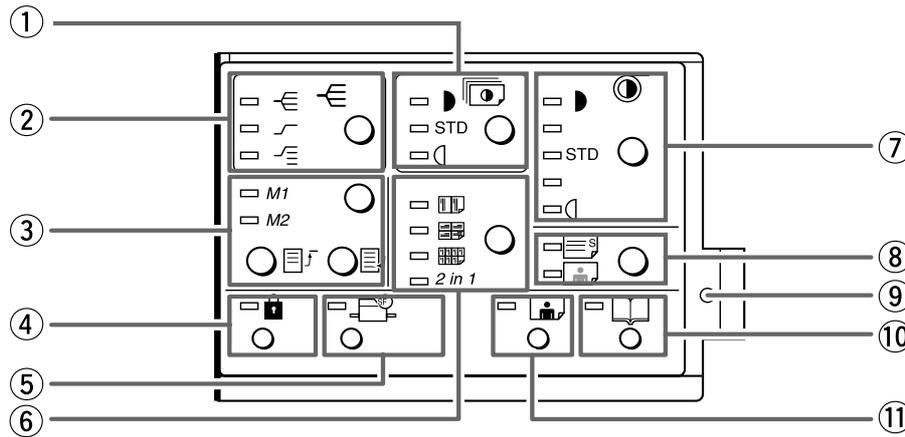
No.	Name	Function
⑪	“CLEAR” key	Clears the display to “0”. Clears the number of prints only.
⑫	Printing speed indicator lamp	The lamp for the specified printing speed lights.
⑬	“PRINTING SPEED ADJUSTMENT” keys	The printing speed is adjusted with these keys.
⑭	“TEXT/PHOTOGRAPH” key	Each press of this key switches between the text mode, photograph mode, and text/photograph mode.
⑮	“PAPER SIZE” key	Selects the paper size.
⑯	94% reduction LED	Lit when in the x94% Reduction Mode.
⑰	“94%” key	Toggles the x94% reduction mode ON/OFF. When ON, 94% reduction is applied to the selected zoom ratio.
⑱	“PRINT SIZE” key	Selects Reduction/Enlargement (standard size → standard size) percentage.
⑲	Printing position indicator lamp	The lamp for the specified printing position lights.
⑳	“PRINTING POSITION ADJUSTMENT” keys	The printing position (vertical) is adjusted with these keys.

2. LCD Panel



No.	Name	Function
①	Prints per page	Displays the icon for the selected number of prints per page (multiple printing).
②	Zoom ratio	Displays the selected zoom (enlargement/reduction) ratio.
③	Paper size	Displays the selected paper size.
④	Document mode	Displays the print mode.
⑤	Sets	Displays the number of sets to be printed.
⑥	Print count	Displays the number of prints to be made.

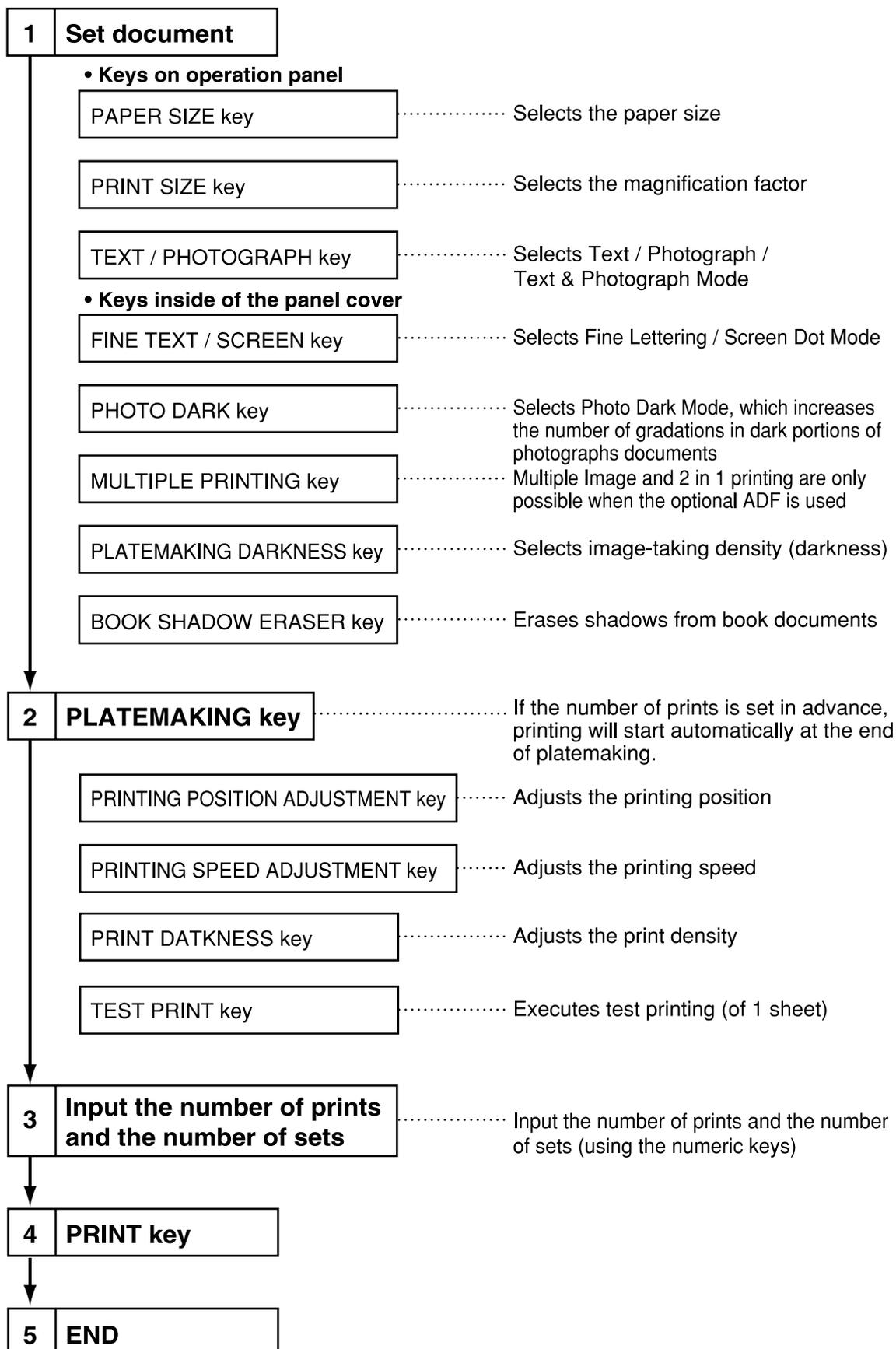
3. Keys inside of the panel cover



No.	Name	Function
①	“PRINTING DARKNESS” key	Adjusts the print darkness (ink transfer amount). The position of the lit print darkness adjustment lamp changes each time the key is pressed.
	Print darkness adjustment indicator lamp	The lamp for the specified printing darkness lights.
②	“SORTER” key	When the optional sorter is installed, this key selects the sorter mode. The position of the lit sorter mode lamp changes each time the key is pressed.
	Sorter mode indicator lamp	The lamp for the specified sorter mode lights when the sorter option is installed.
③	“MEMORY” key	Selects the memory channel to read settings from or save settings to.
	Memory indicator lamp	The lamp for the selected memory channel lights.
	“SAVE” key	Saves settings to the currently selected memory.
	“RETRIEVE” key	Reads the settings from the selected memory.
④	“CONFIDENTIAL” key	Selects Confidential Mode. Prints cannot be made unless a plate is made.
	Confidential safeguard indicator lamp	Lights when the confidential safeguard mode is ON.
⑤	“SPECIAL FUNCTION” key	Allows use of special functions.
	Special function indicator lamp	Lights when special functions are in use.
⑥	“MULTIPLE PRINTING” key	Selects the number of prints per page (2 up, 4 up, 8 up, or 2in1). Each press of the key changes the number of prints per page. The multiple printing indicator lamp changes accordingly.
	Multiple printing indicator lamp	The lamp for the specified number of multiple printing lights.
⑦	“PLATE DARKNESS” key	The plate darkness is adjusted with this key. The position of the lit plate darkness indicator lamp changes each time this key is pressed.
	Plate darkness indicator lamp	The lamp for the specified plate darkness lights.
⑧	“FINE TEXT/SCREEN” key	Selects the optimum text mode for fine text documents or the optimum screen mode for photographic documents that have not been screen processed. Each time the key is pressed, the fine text/screen mode lamp lighting changes.
	Fine text/screen mode indicator lamp	The lamp for the specified mode lights.
⑨	Function in-use lamp	Lights when functions controlled by keys under the panel cover are in use.
⑩	“BOOK SHADOW ERASER” key	Selects Book Shadow Eraser mode.
	Book shadow eraser mode indicator lamp	Lights when Book Shadow Eraser Mode is selected.
⑪	“PHOTO DARK” key	Press to adjust the gradations in dark photographic documents.
	Photo dark indicator lamp	Lights when Photo Dark is selected.

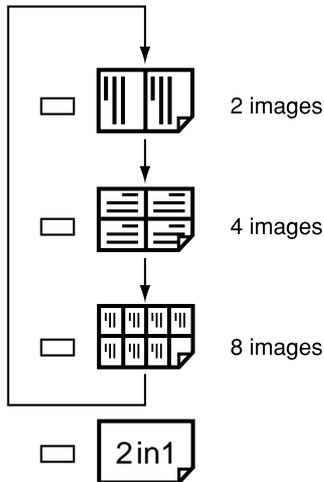
9 Operation Procedures

1. Printing



2. Multiple Image Printing / 2 IN 1 Layout Mode

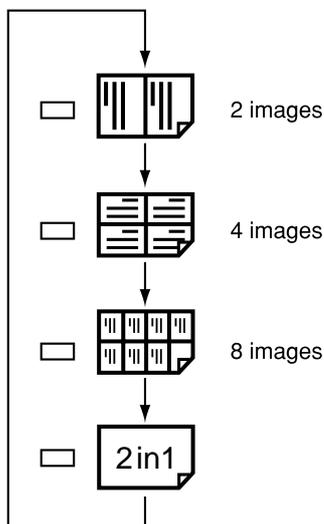
In the normal state (when the ADF is not connected) the mode is switched by pressing the multiple printing selection key as follows.



Every time the key is pressed, the mode is switched and the relevant multiple printing indicator lamp lights up.

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

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



10 Error Messages and Corrective Action

1. Error messages

Error messages are displayed as text illustrations.

Message	Cause and corrective action	See page
CHANGE INK	There is no ink. Replace the old ink pack with a new one.	35
CHANGE MASTER	There is no master. Replace the master roll with a new one.	37
CHANGE MASTER EJECTION CORE	The master ejection core is full. Replace the core with a new one.	40
ADD PAPER	There is no paper in the feed tray. Load the feed tray with printing paper.	42
NO DRUM	There is no drum. Install a drum in the machine.	46
DRUM CHANGE A3<=>A4	The installed drum is not the specified drum. Install the correct drum for this machine.	46
FRONT COVER OPEN	The front cover is open. Close the front cover.	–
TOP COVER OPEN	The scanner unit is open. Close the scanner unit.	–
PAPER JAM ON THE FEEDER SIDE	A paper jam has occurred in the feeder side. Inspect the feeder side, and remove the jammed paper.	47
PAPER JAM ON THE EJECTION SIDE	A paper jam has occurred on the ejection side. Inspect the ejection side and remove the jammed paper.	48
MASTER ROLL COVER OPEN	Cause: ● Master roll cover is open. Action: ● Close the cover.	–
SET MASTER ROLL PROPERLY	Cause: ● The master roll is not set correctly. Action: ● Reset is correctly.	54
PLATE EJECTION ERROR	There is an old master on the drum. Remove all the masters from the drum.	49,51

Message	Cause and corrective action	See page
MASTER SETTING ERROR	There is an error during master setting. Open the top cover and remove the master that is left in the plate feeder.	54
ADF PAPER JAM	The document is jammed on the ADF. Remove the jammed document in accordance with the ADF instruction manual.	ADF Instruction manual 13
PLEASE WAIT	The printer is not ready. Please wait with the power ON. If the message remains after a few minutes, turn the power OFF and ON again. If the message still remains after a few minutes, turn the power OFF and contact your service person. Insert the key card into the key card counter.	–
PLEASE INSERT CARD	Please insert card.	57
RE-INSERT CARD	Cannot read key card. Please reinsert the card.	57
NOW READING CARD PLEASE WAIT	Key card reading is in progress. Please wait.	57
CANNOT USE THIS CARD	You have inserted an unusable card. Check the card for dirt and scratches, then reinsert the card.	57
INSERT HIGHEST-NUMBER CARD	Insert the highest-numbered of the cards that are to be used.	57
CARD IS WRITE PROTECTED	You inserted suspended card. Use a different card or cancel the card's suspension.	61
CANNOT PRINT	Cannot print. This message is displayed if you press  (PRINT) or  (TEST PRINT) keys without making a plate immediately after a master setting error or master ejection error, or when the confidential safeguard function is ON.	–
PRINTING	Printing is not complete. Either press  (PRINT) key to resume printing or press  (CLEAR) key to clear the counter.	–

Message	Cause and corrective action	See page
[C301A] SORTER JAM1	A paper jam has occurred in the paper path of sorter A. Remove the jammed paper. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C302] SORTER JAM3	A paper jam has occurred in the sorter bridge. Remove the jammed paper. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C303B] SORTER JAM2	A paper jam has occurred in the paper path of sorter B. Remove the jammed paper. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C304] SORTER DOOR OPEN	The sorter door is open. Close the sorter door. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C305] STAPLER DOOR OPEN	The stapler door is open. Close the stapler door. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C306A] NO STAPLES	The stapler of sorter A is out of staples. Load staples. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C307] NO STAPLES2	The stapler of sorter B is out of staples. Load staples. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C306A] STAPLES JAM	The staplers have jammed in sorter A. Remove the jammed staples. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[C307B] STAPLES JAM2	The staplers have jammed in sorter B. Remove the jammed staples. For details, see the Sorter Instruction Manual.	Sorter Instruction Manual
[EXXX] CALL THE SERVICE PERSON	Note error code (EXXX). Turn the power OFF and back ON again. If the machine does not operate normally, call the service person and describe the error code and conditions that led to the situation as clearly as possible.	279

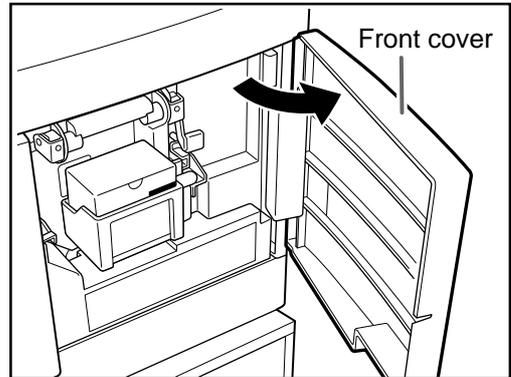
2. Corrective action

(1) Replacing the Ink Pack

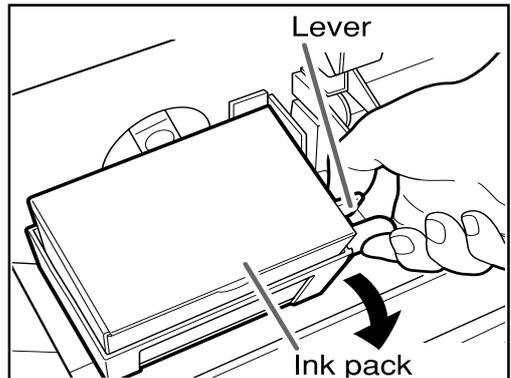
IMPORTANT

- Only use ink packs designed for this machine.

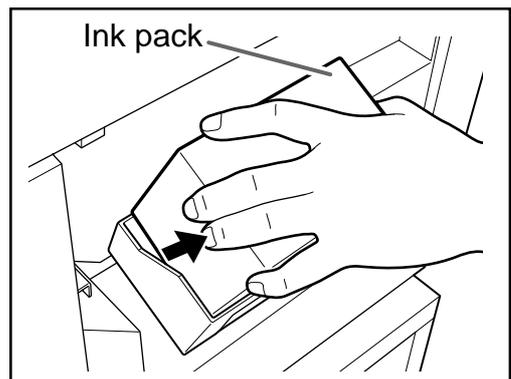
1 Open the front cover.



2 Grasp the lever and pull it toward you.



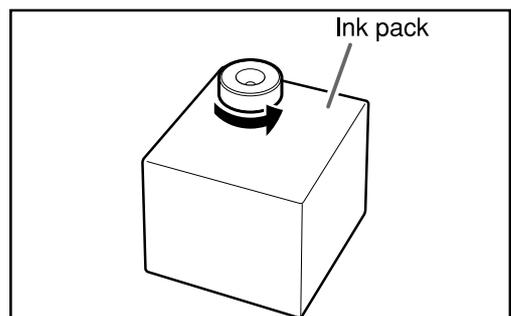
3 Lift out the empty ink pack.



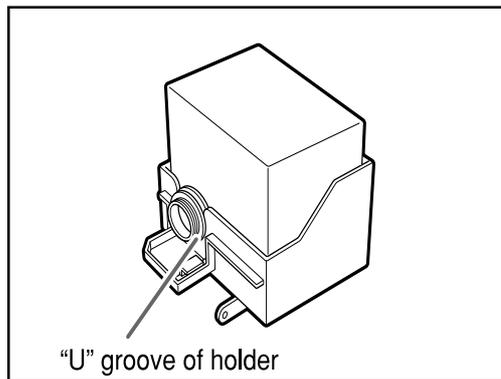
4 Remove the cap from a new ink pack.

IMPORTANT

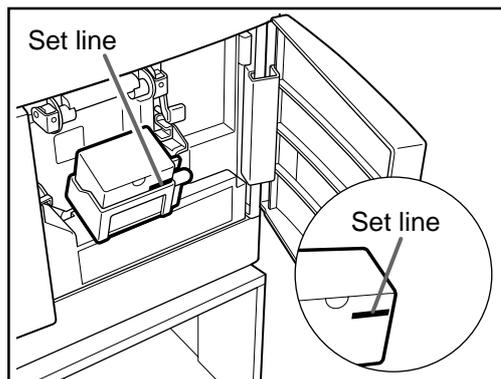
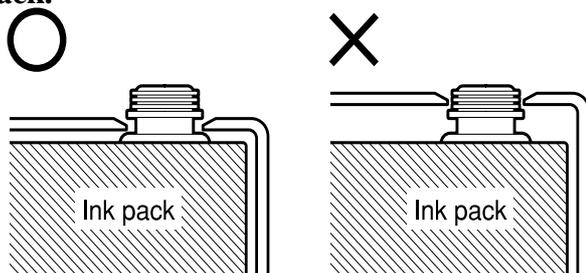
- Do not leave an ink pack uncapped for longer than necessary.



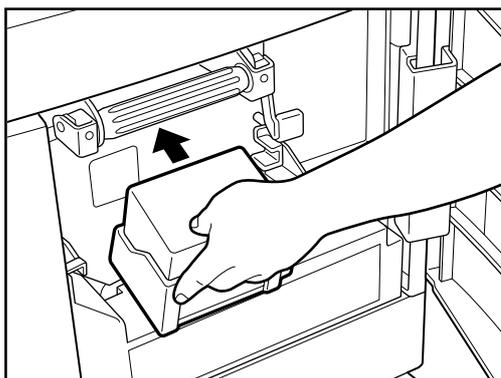
5 Insert the ink pack so that the groove on the lip fits onto the “U” groove of the holder.



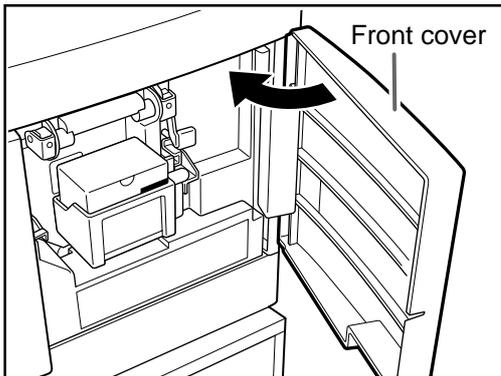
6 Push the ink pack in to the set line on the ink pack.



7 Press the back of the holder in with the palm of your hand.



8 Close the front cover.

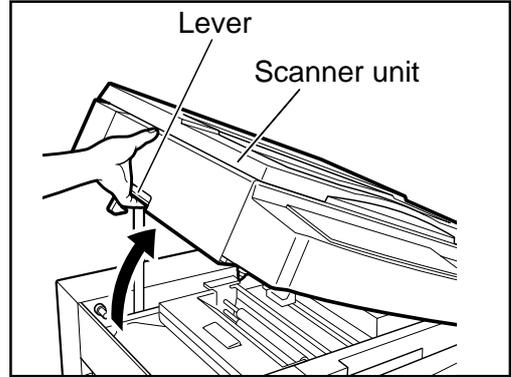


(2) Replacing the Master Roll

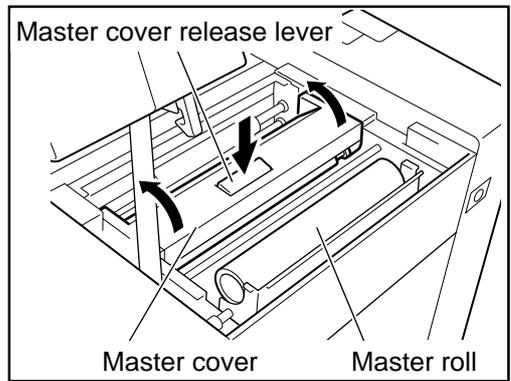
IMPORTANT

- Only use a master roll designed for use in this machine.

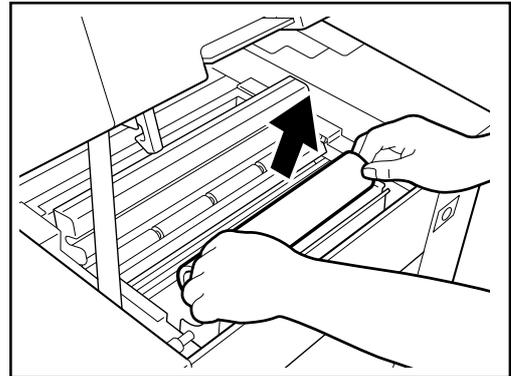
1 Raise the lever to open the scanner unit.



2 Press the master cover release lever (marked PUSH).
The master cover will open up.

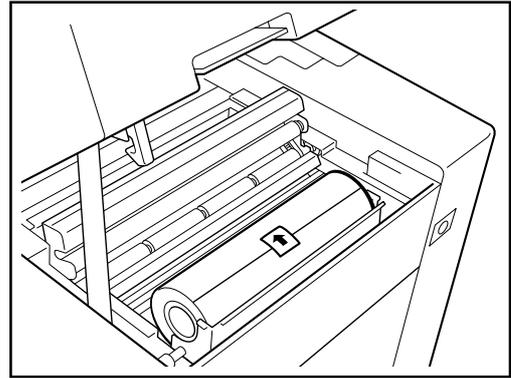


3 Lift out the master roll.

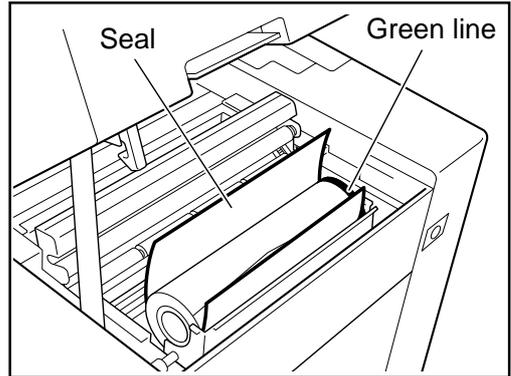


4 Take out a new master roll from the bag.

- 5** Insert the master roll into the machine so that the green line on the roll is facing the control panel.



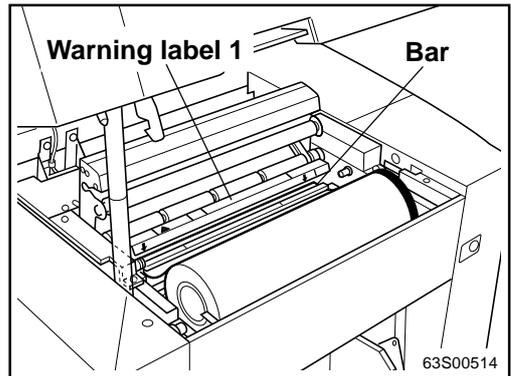
- 6** Peel off the seal.



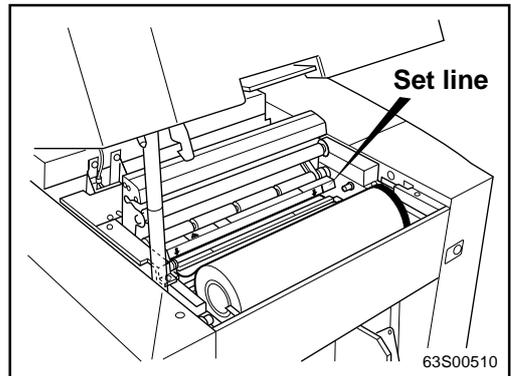
- 7** Pull out the master, and pass it under the bar.

! WARNING

- Do not remove the cover with Warning Label 1.
- You may be injured by the movable cutter inside the machine.



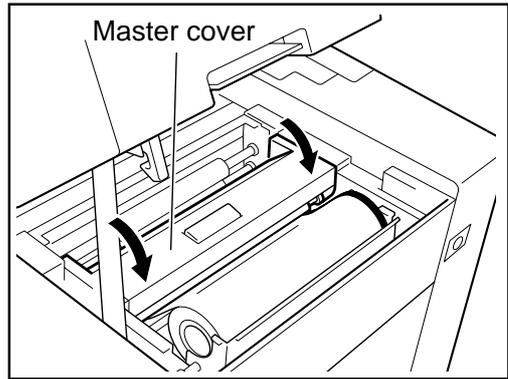
- 8** Push in the master, aligned with the setline, until the master's leading edge contacts the interior surface.



9

Close the master cover.

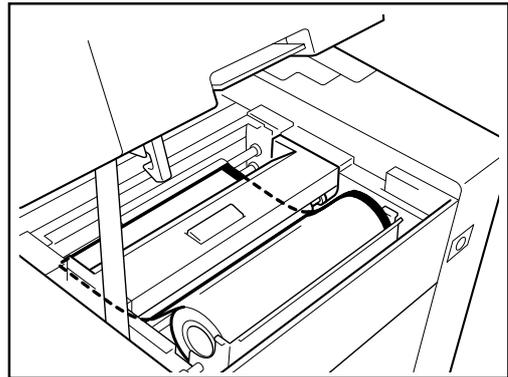
The master will automatically be pulled in.
 If the master is not pulled in, open the master cover, and gently press in as far as possible to set again.



10

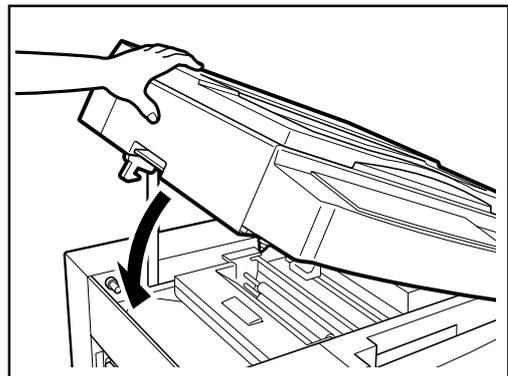
Make sure that the leading edge of the master is protruding from the inner side of the master cover.

If the master cannot be set correctly, its leading edge will not be visible. Open the master cover, and set again.



11

Gently close the scanner unit and press it down until it locks.

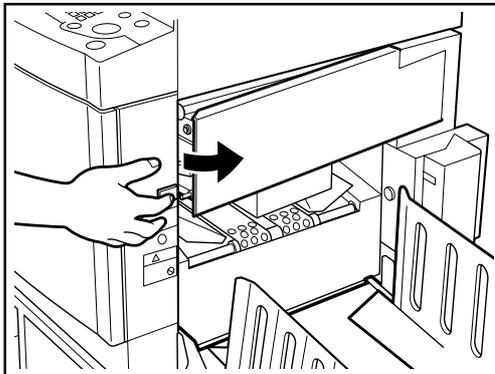


(3) Replacing the Master Ejection Core

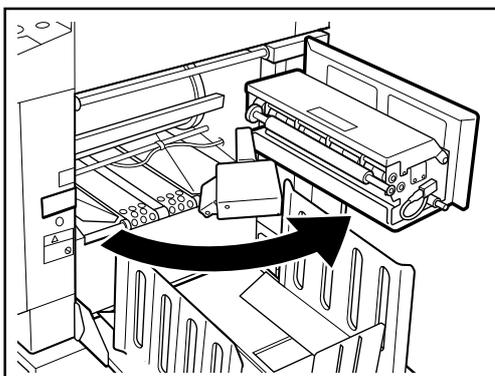
IMPORTANT

- Use only a master ejection core designed for use in this machine.

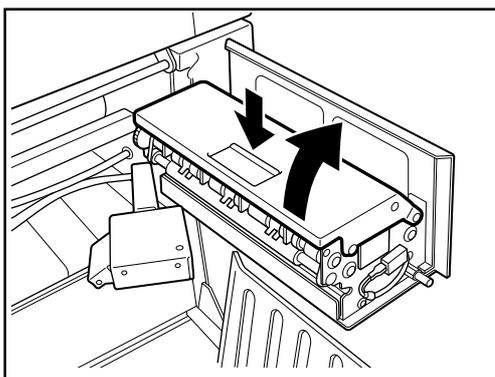
1 Press the lever to open the master ejection box.



2 Open the master ejection box until it stops.



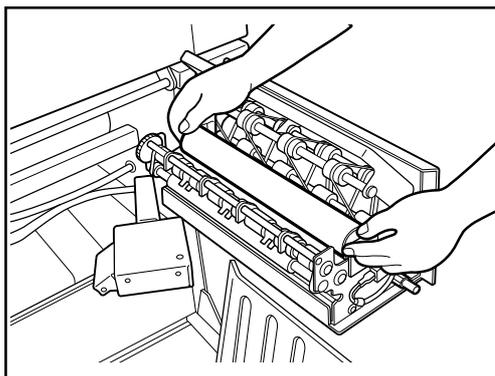
3 Open the cover while pressing and holding the release lever.



4 Holding the edges of the master ejection core, pull out the core and discard it.

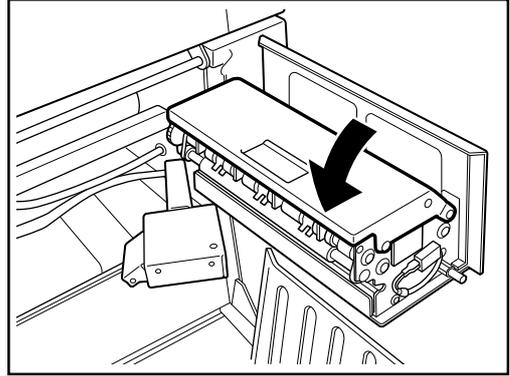
IMPORTANT

- Ink adheres to the master ejection core. Take care to prevent ink from getting onto your clothing.

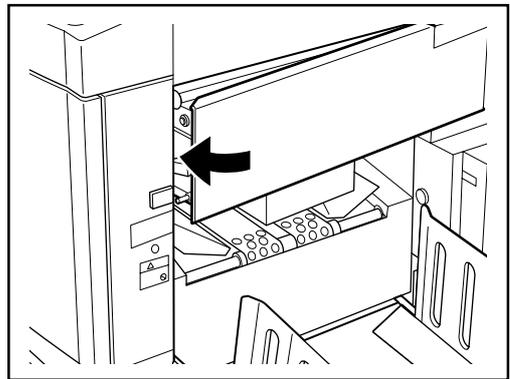


5 Insert a new master ejection core.

6 Gently close the master ejection box cover, pressing it until it locks.



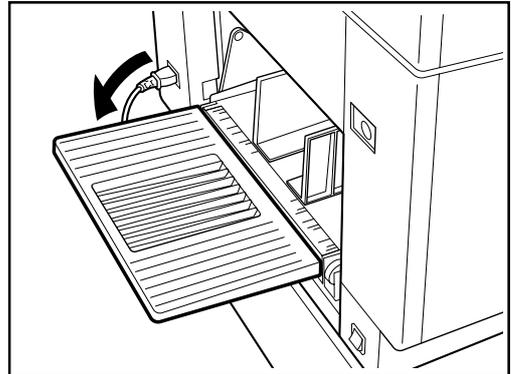
7 Close the master ejection box, pressing it until it locks.



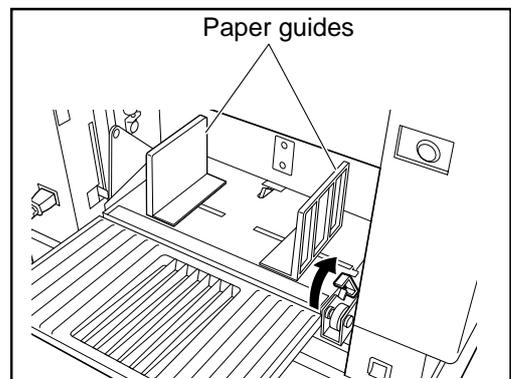
(4) Supplying Paper

《 Supplying Paper 》

- 1
Open the supplemental paper tray if it is closed.

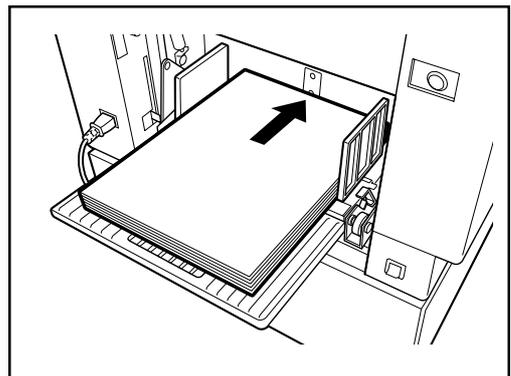


- 2
Raise the paper guide lock lever to manually move the paper guides.

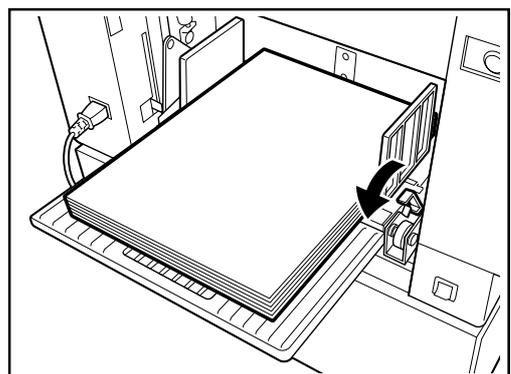


- 3
Set the paper guides to the size of the paper to be used.

- 4
Load a stack of aligned sheets between the paper guides and press the stack lightly toward the machine.

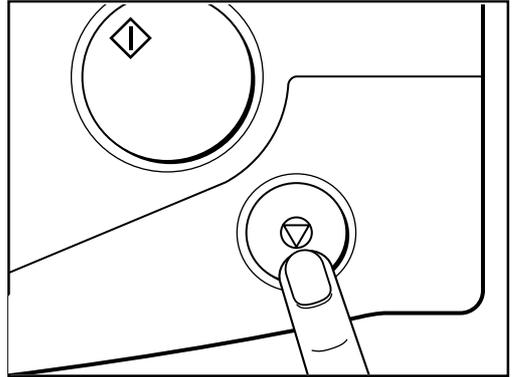


- 5
Lower the paper guide lock lever to lock the paper guides in place.



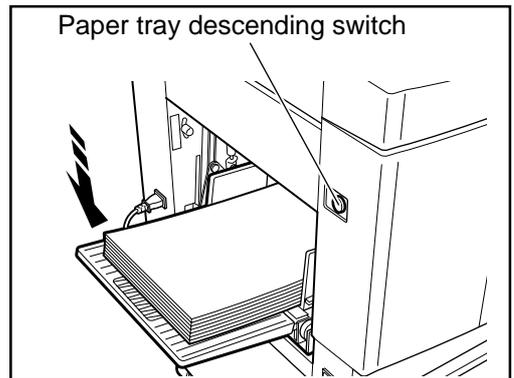
《 Changing Paper Selection 》

- 1** Press  (STOP) key.
Printing stops.



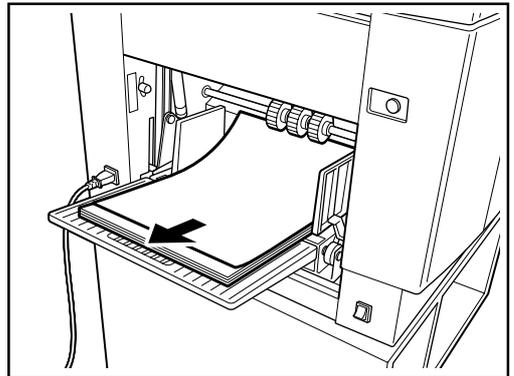
- 2** Press the paper tray descend switch continuously. Release the switch when the paper tray is at the proper height.

The paper tray will stop.

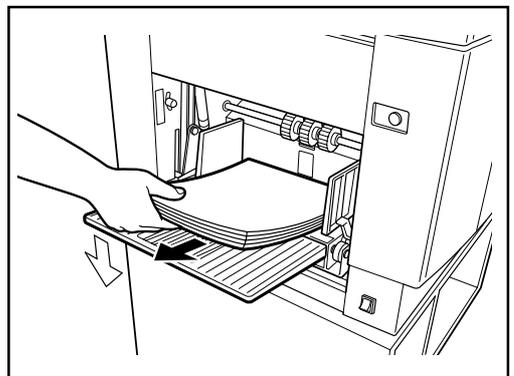


IMPORTANT

- If the sheet is still in the paper feed roller, pull it out and align it with the stack.



- 3** Remove paper from the paper tray.
The paper tray will automatically descend.

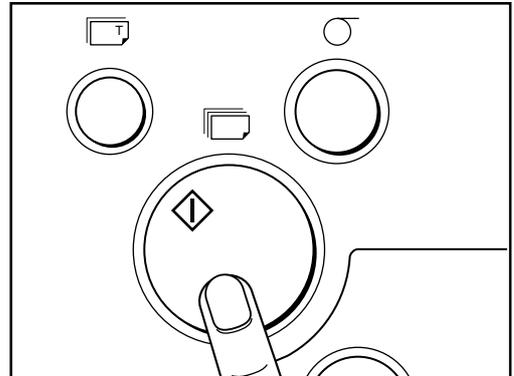


4 Load paper. ➔ See page 42

5 Press  (PRINT) key.
Printing resumes.

NOTE

- When you press  (PLATEMAKING) key, "PRINTING" is displayed on the LCD panel.
- When you press  (STOP) key, printing stops.

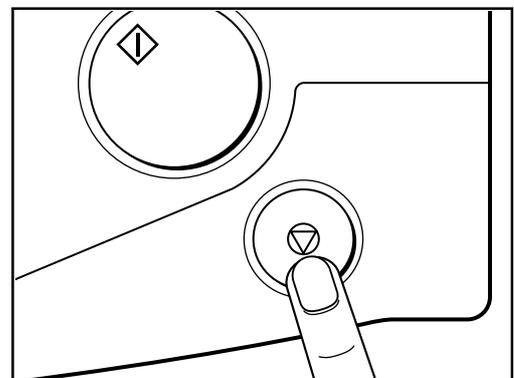


《 If Paper Runs Out During Printing 》

1 If paper runs out during printing, printing stops and the paper tray is Lowered automatically. ➔ See page 42

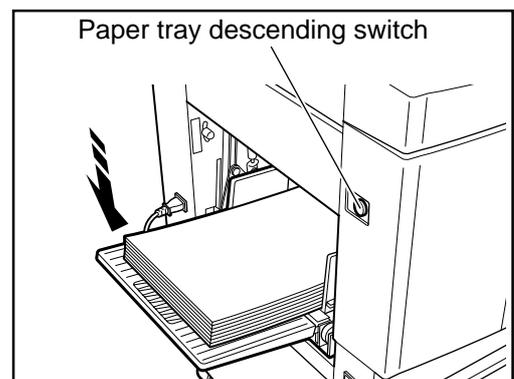
《 Adding Paper While Printing 》

1 Press  (STOP) key.
Printing stops.



2 Press the paper tray descend switch continuously. Release the switch when the paper tray reaches the proper height.

The paper tray will stop.

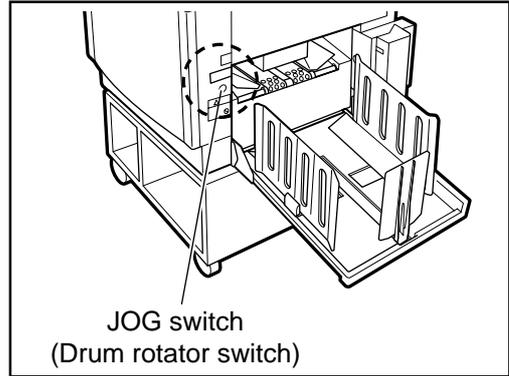


(5) Replacing the Drum Unit

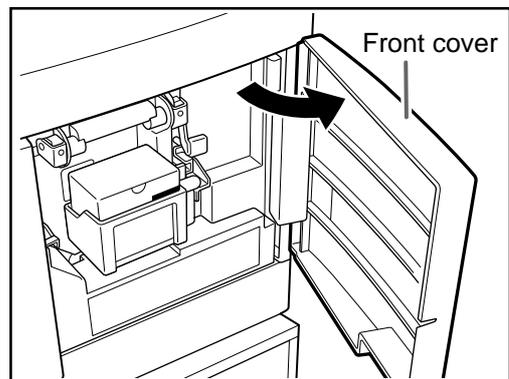
- 1 Press and hold the JOG switch until the drum comes to a stop with a beep.

! WARNING

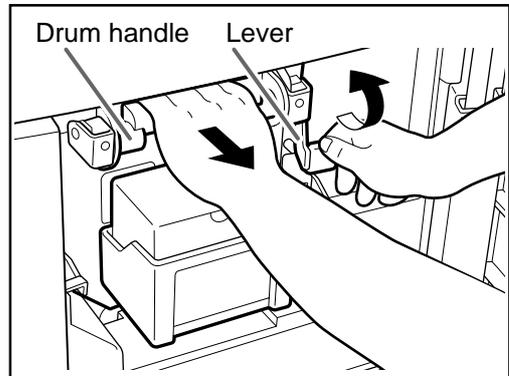
- Do not touch the drum or rollers when you operate the JOG switch.
- Do not put your hands or fingers inside the machine while it is operating. Your hands may be pulled in or nipped.



- 2 Open the front cover toward you.



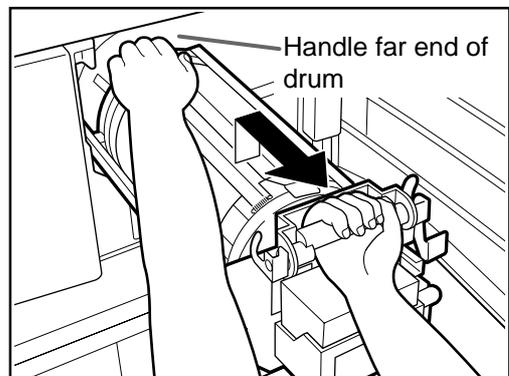
- 3 Lift the drum securing lever toward you and, holding it there, then pull out the drum handle straight toward you until it stops.



- 4 Hold the handle on the far end of the drum, and lift the front end of the drum slightly to pull the drum toward you.

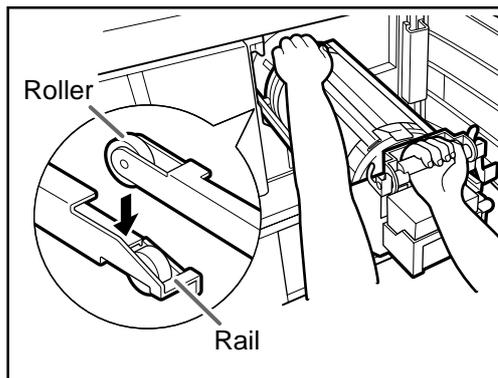
IMPORTANT

- Do not touch the drum surface. Ink may transfer to your clothes.
- Hold the drum level and place it on a flat, solid surface.

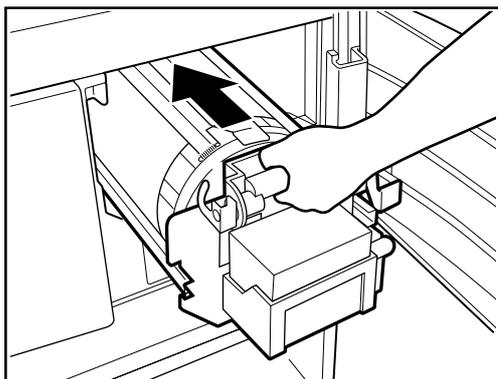


《 Installing the Drum Unit 》

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

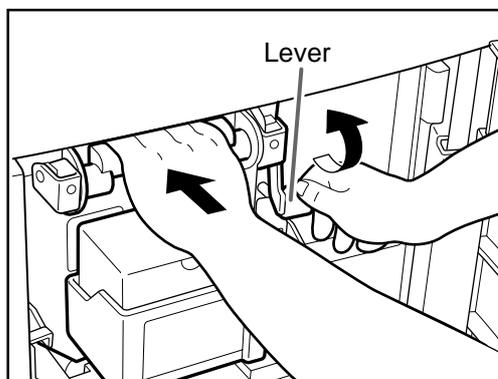


- 2 Release the handle at the far end of the drum and press the drum in about 10cm while lifting up the front end slightly.

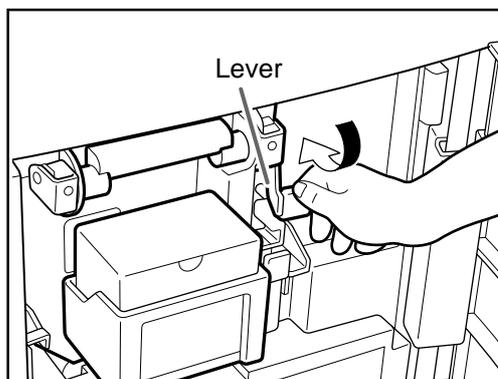


- 3 Hold the drum level and press it in gently until it comes to a stop.

- 4 Lift the drum securing lever toward you while pressing the drum in.



- 5 Lower the lever.



- 6 Close the front cover.

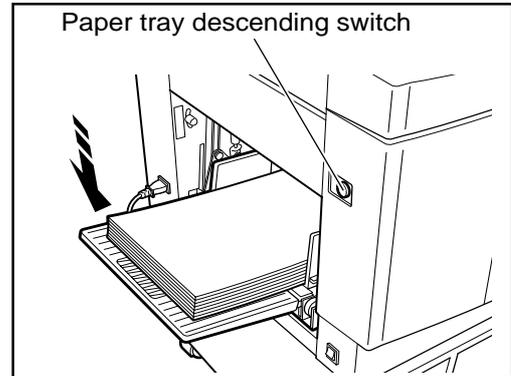
(6) Paper Jam (Feeder Side)

If the message "PAPER JAM ON THE FEEDER SIDE" is indicated in the error display panel, check the feeder side and remove the jammed paper by following the procedure below.

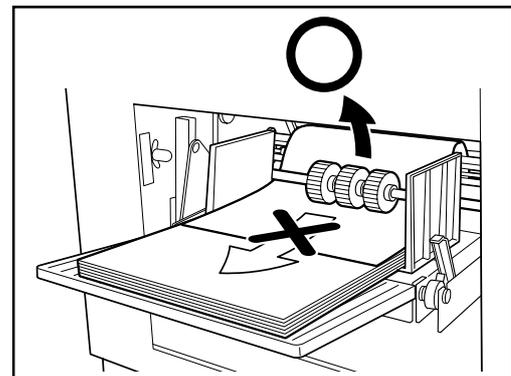
PAPER JAM ON THE FEEDER SIDE

- 1 Press the paper tray descending switch to lower the paper tray slightly.

The paper tray is lowered for the time that the switch is pressed.



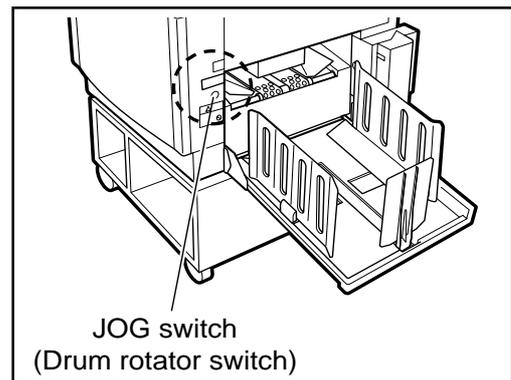
- 2 Pull out the jammed paper as shown in the diagram.



- 3 Press and hold the JOG switch until the drum comes to a stop with a beep.

⚠ WARNING

- Do not touch the drum or rollers when you operate the JOG switch.
- Do not put your hands or fingers inside the machine while it is operating. Your hands may be pulled in or nipped.

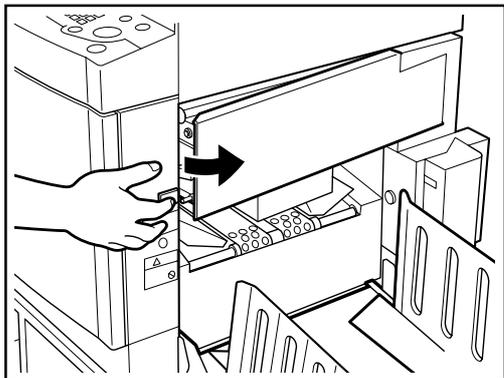


(7) Paper Jam (Ejection Side)

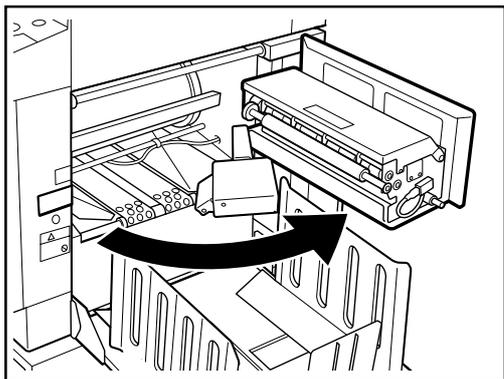
If the message "PAPER JAM ON THE EJECTION SIDE" is indicated in the error display panel, check the ejection side and remove the jammed paper by following the procedure below.

PAPER JAM ON THE EJECTION SIDE

1 Press the lever to open the master ejection box.



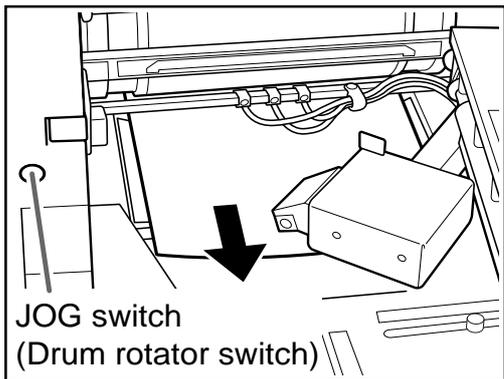
2 Open the master ejection box until it stops.



3 Remove the jammed paper.
Press the JOG switch to eject the partially printed paper.

! WARNING

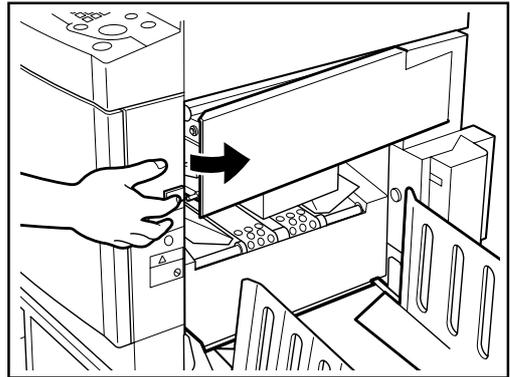
- Do not touch the drum or rollers when you operate the JOG switch.
- Do not put your hands or fingers inside the machine while it is operating. Your hands may be pulled in or nipped.



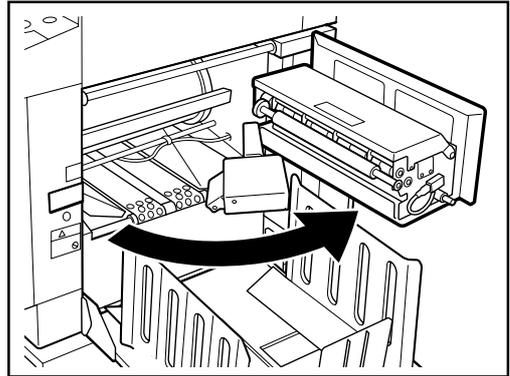
4 Close the master ejection box, pressing it until it locks.

《 Paper Adhering to Drum 》

1 Press the lever to open the master ejection box.



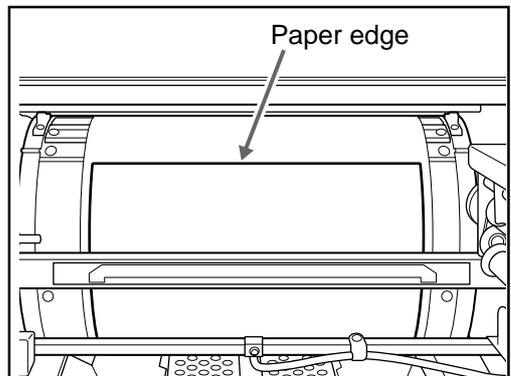
2 Open the master ejection box until it stops.



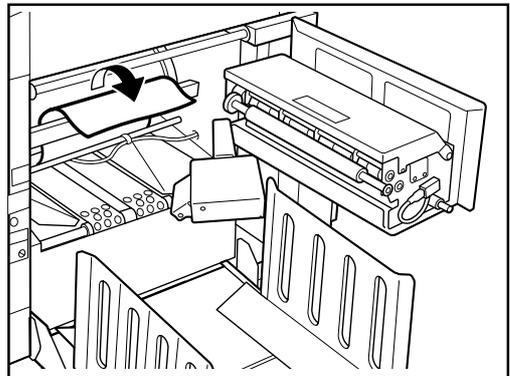
3 Press the JOG switch to find the edge of the paper, then stop the drum at the position shown in the diagram.

! WARNING

- Do not touch the drum or rollers when you operate the JOG switch.
- Do not put your hands inside the machine while it is operating. Your hands may be pulled in or nipped.



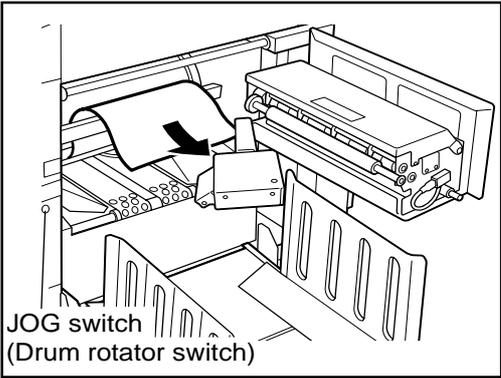
4 Peel off the edge of the paper from the drum.



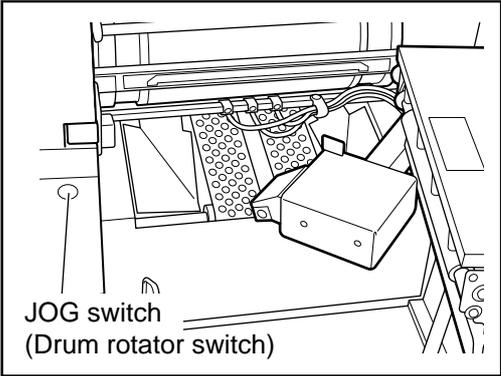
5 Pull the paper toward the ejection side while pressing the JOG switch to peel the paper off.

IMPORTANT

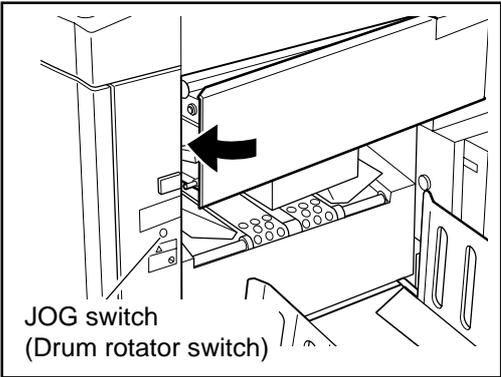
- Make sure that the peeled paper does not stick to your clothing.



6 Hold the JOG switch down until the drum comes to a stop with a beep.



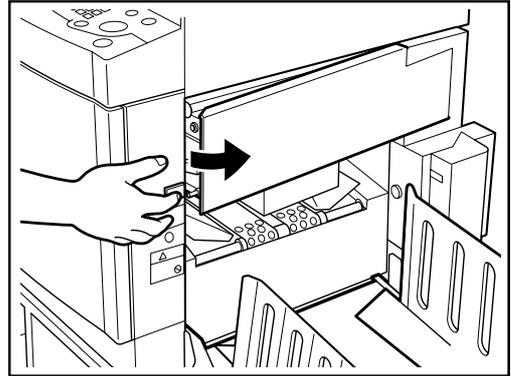
7 Close the master ejection box, pressing it until it locks.



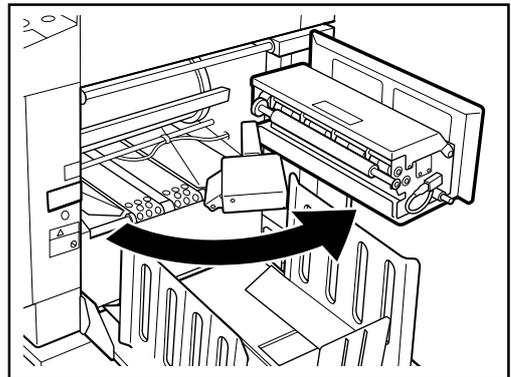
8 Make another plate.

(8) Master is Not Ejected

1 Press the lever to open the master ejection box.



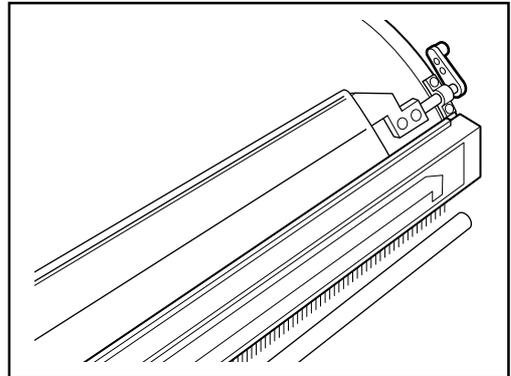
2 Open the master ejection box until it stops.



3 Press the JOG switch to find the edge of the paper, then stop the drum at the position shown in the diagram.

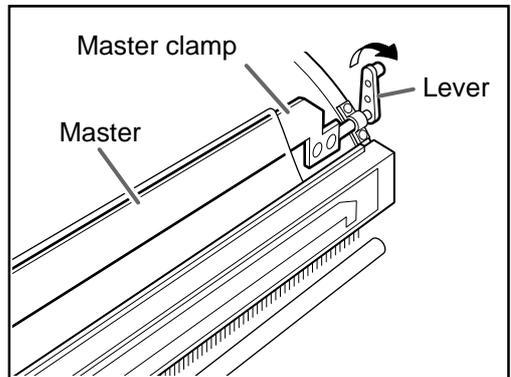
⚠ WARNING

- Do not touch the drum or rollers when you operate the JOG switch.
- Do not put your hands inside the machine while it is operating. Your hands may be pulled in or nipped.



4 Lift the lever toward you.

The master clamp opens and the edge of the master will be released from the clamp. If the master is stuck, release it manually.

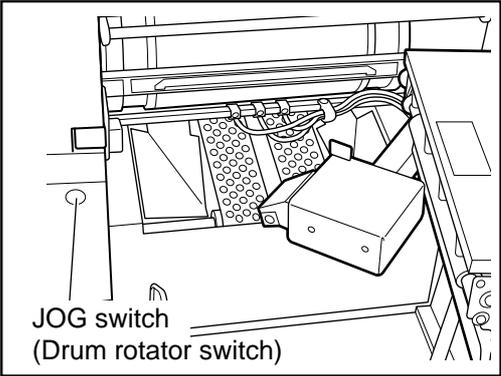


5 Return the lever.

6 Pull the front end of the master toward you and press the JOG switch intermittently.
Hold the switch down until the master peels off.

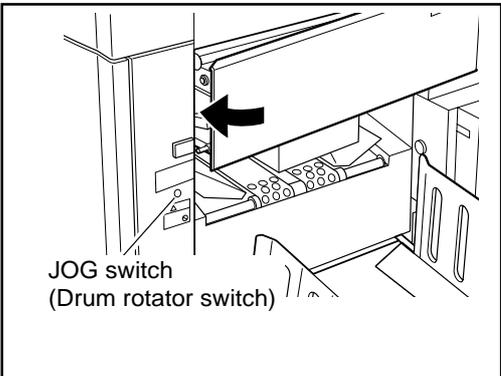
IMPORTANT

- Discard the old master, making sure that it does not touch your clothing.

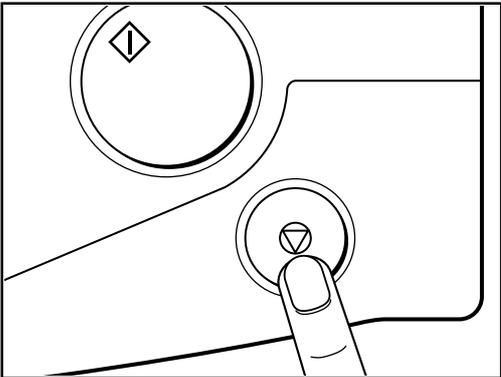


7 Hold the JOG switch down until the drum comes to a stop with a beep.

8 Close the master ejection box, pressing it until it locks.



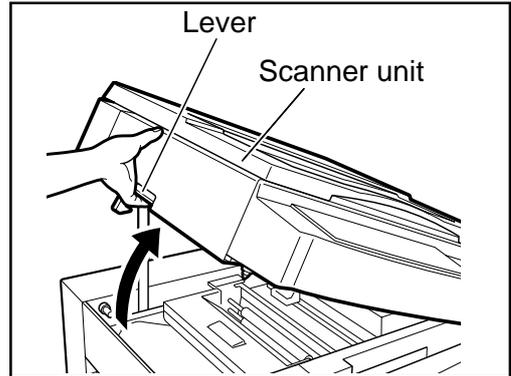
9 Press  (STOP) key.
The message is deleted.



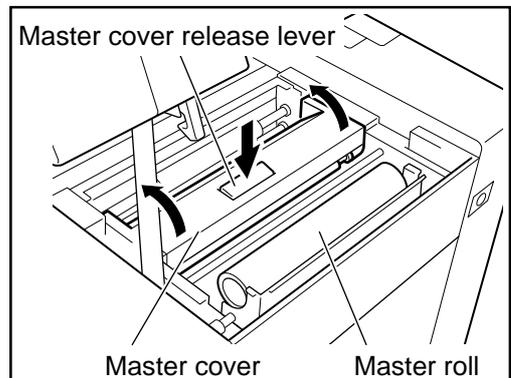
10 Make another plate.

(9) Master Set Incorrectly

- 1** Raise the top cover release lever to open the scanner unit.



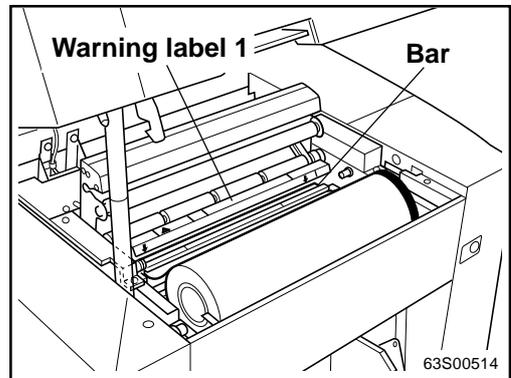
- 2** Press the master cover release lever (marked PUSH). The master cover will open up.



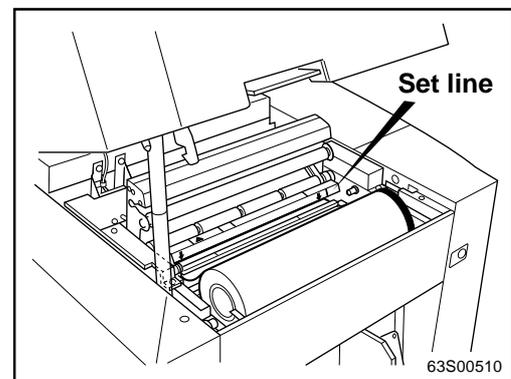
- 3** Pull out the master, and pass it under the bar.

! WARNING

- Do not remove the cover with Warning Label 1.
- You may be injured by the movable cutter inside the machine.



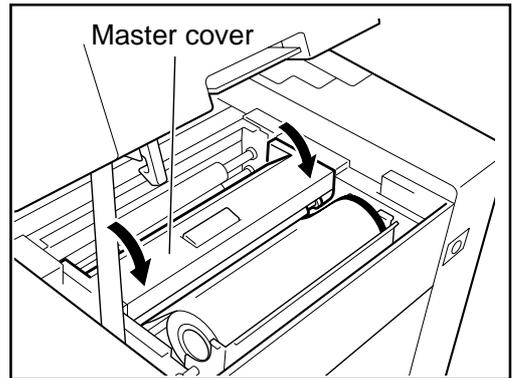
- 4** Push in the master, aligned with the setline, until the master's leading edge contacts the interior surface.



5

Close the master cover.

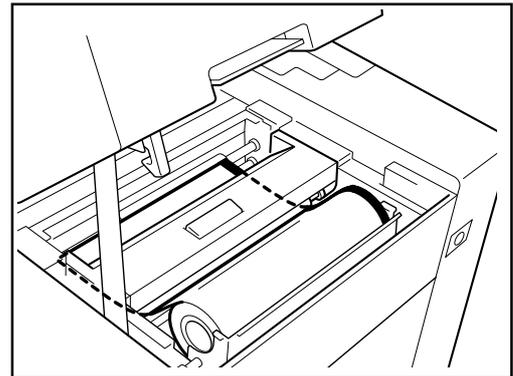
The master will automatically be pulled in. If the master is not pulled in, open the master cover, and gently press in as far as possible to set again.



6

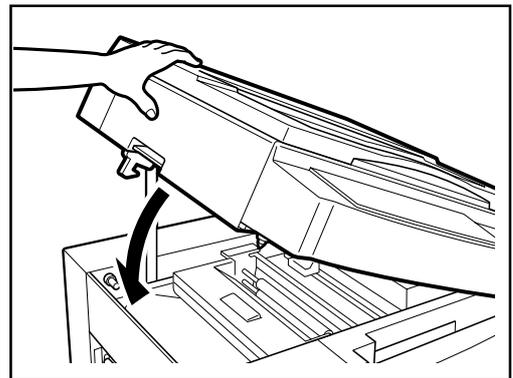
Make sure that the leading edge of the master is protruding from the inner side of the master cover.

If the master cannot be set correctly, its leading edge will not be visible. Open the master cover, and set again.



7

Gently close the scanner unit and press it until it locks.



8

Check that the error message is deleted.

9

Make a new plate and start printing.

IMPORTANT

- The message "CANNOT PRINT" is displayed on the LCD panel when  (PRINT) key is pressed without platemaking being carried out.

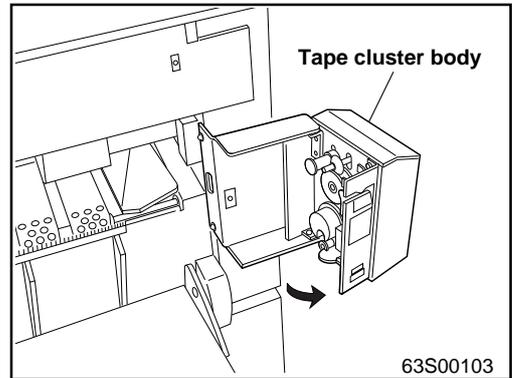
11 Option

1. DUPRINTER Option

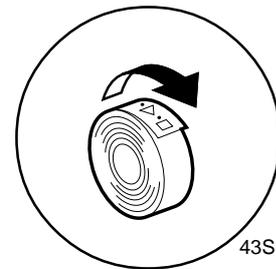
(1) TAPE CRASTER 3

1
 Open the stacker cover.

2
 Open out the tape cluster body.

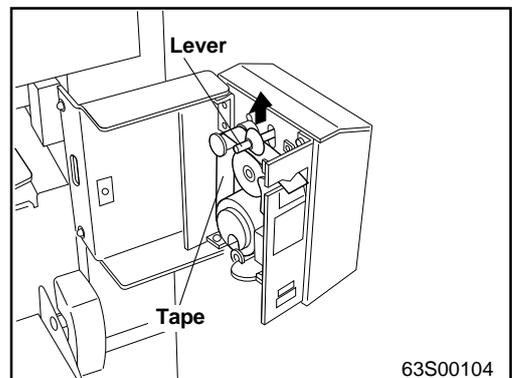


3
 Remove the old tape core.

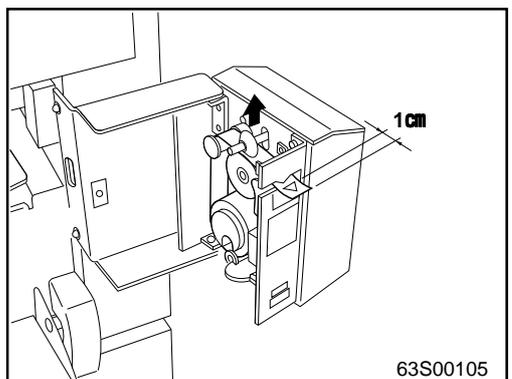


4
 Install the new tape. Make sure it will wind off in the correct direction.

5
 Lift up the lever and pass the tape through the slot.



6
 Make about 1cm of tape protrude out of the slot.



7
 Swing the tape cluster body back in.

.....

(2) KEYCARD COUNTER 3

1. About keycard counter 3

<<Features>>

There are the following types of keycard.

- **Department cards (AA01-AA30)**
 Each cards is able to totalize the number of prints and plates made on the DUPRINTER by a particular department. One card is assigned to each department, so up to 30 departments can be handled.
 *Extra cards (up to AA200) can optionally be provided, to expand handling capacity to up to 200 departments.
- **Control cards**
The control cards come in a set of 3: a CLEAR card, a RESTRICTION card, and a TOTAL card.
 *The control cards should be kept by the printer manager.
- **CLEAR card (AA CLEAR)**
 For resetting to zero the print and plate counts of individual department cards.
- **RESTRICTION card (AA RESTRICTION)**
 For prohibiting or de-prohibiting use of individual department cards.
 Use this when department cards are lost, or other applicable situations.
- **TOTAL card (AA TOTAL)**
 For displaying the departments' print and plate counts on the LC screen, for checking. The screen can display the counts for 5 departments at a time.

AA01

● CLEAR CARD

AA CLEAR

● RESTRICT CARD

AA RESTRICTION

● TOTAL CARD

AA TOTAL

BB01

IMPORTANT

When 2 DUPRINTERS equipped with KEYCARD COUNTER 3 are used in tandem:
 Use department cards AA01-AA30 with one DUPRINTER, and a separate set of cards (BB01-BB30, optionally supplied) with the other. Keep use of the cards separate; do not use both AA and BB cards with one machine.

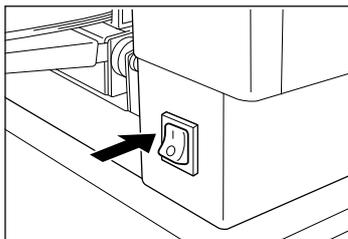
About keycards

● Handling

- Do not bend the cards. Keep the cards clean. Keep the cards away from all sources of magnetism.

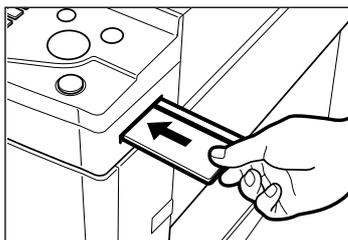
● Inserting the cards

1. Press the DUPRINTER's power switch to turn it on.
"PLEASE INSERT CARD" will appear on the LC display.



2. Insert the keycard into the DUPRINTER's keycard slot.
*Be sure to insert the card the right way around.

When the card has been inserted, "NOW READING CARD. PLEASE WAIT" will appear briefly, then be replaced by the base screen for the type of card inserted.



*If the message "RE-INSERT CARD" appears on the LCD panel, insert the card once more.

IMPORTANT

While the "PLEASE WAIT" message is displayed on the LCD panel, do NOT:

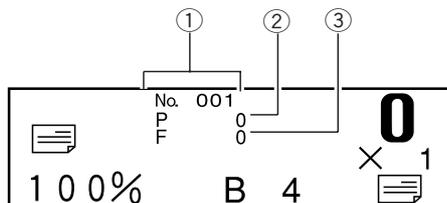
- turn off the power to the DUPRINTER
- press the DUPRINTER's ALL CLEAR key
- remove the keycard from its slot.

2. Using keycards

Department cards (AA01-AA30)

1. Insert a department card into the DUPRINTER's keycard slot. The base screen will appear on the LCD panel. The DUPRINTER is now ready for use.

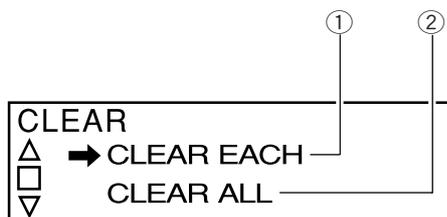
- ① Keycard No. ("1" in the illustration means card AA01)
- ② Print count
- ③ Plate count



CLEAR card (AA CLEAR)

1. Insert the CLEAR card. "NOW READING CARD. PLEASE WAIT" will appear on the LCD panel, then be replaced by the base screen.

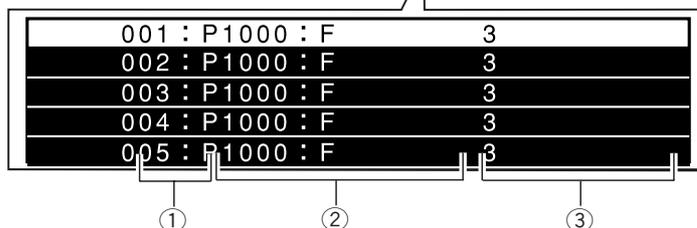
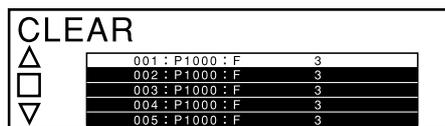
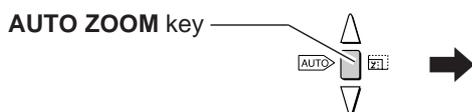
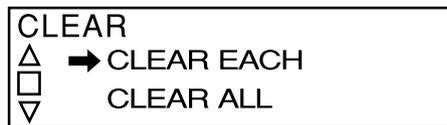
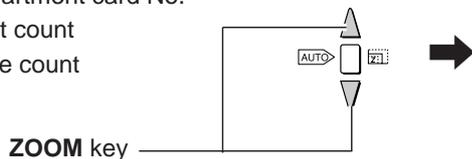
- ① CLEAR EACH: clears individual **department cards**
- ② CLEAR ALL: clears all **department cards**



2. To select individual **department cards**:

Press the **ZOOM** key to select **CLEAR EACH**, then press the **AUTO ZOOM** key to confirm. The screen shown below will appear.

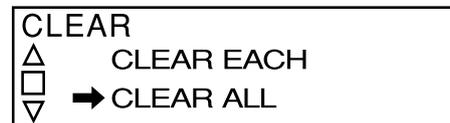
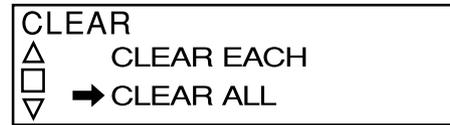
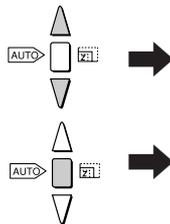
- ① Department card No.
- ② Print count
- ③ Plate count



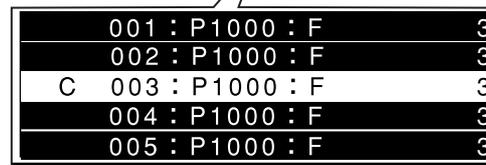
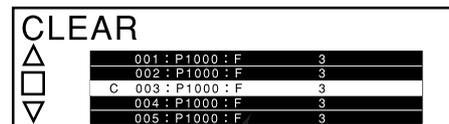
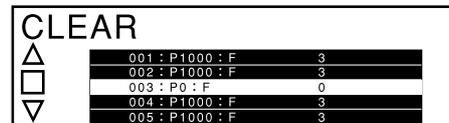
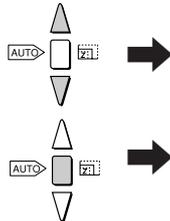
◆To select all the department cards:

Press the **ZOOM** key to select **CLEAR ALL**, then press the **AUTO ZOOM** key to confirm.

A list of the **department card numbers** will appear, with all the print ② and plate ③ counts reset to **zero**.



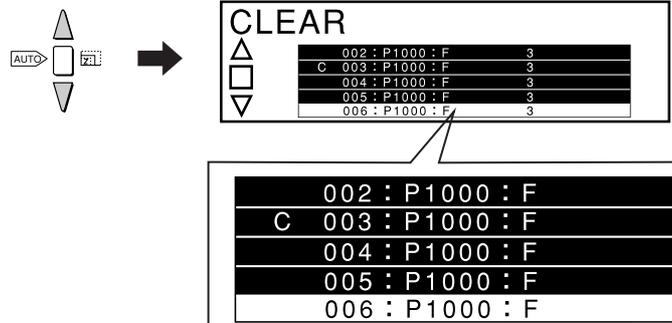
3. Press the **ZOOM** key to select the card whose counts are to be cleared, then press the **AUTO ZOOM** key to confirm. "C" will appear to the left of the selected **card number**.



◆ **To select department card No. 6 or higher:**

Press the **ZOOM** key repeatedly until the desired card number is reached.

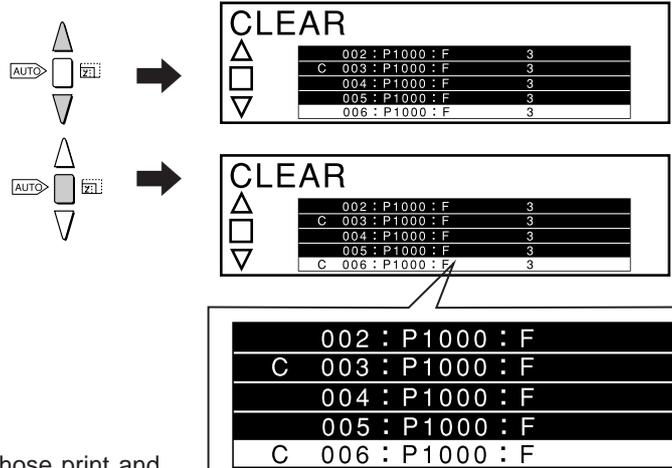
Each press of the key scrolls the display down 1 line.



◆ **To delete the C (deselect the card):**

Select **the card** again, using the **ZOOM** key, then press the **AUTO ZOOM** key to confirm.

4. If there is **another card** whose print and plate counts you want to clear, repeat the operation in step 3 to select it.



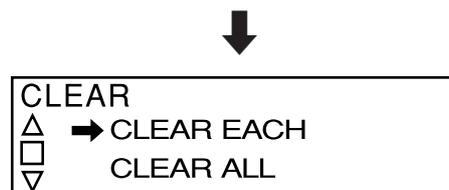
5. When selection of **the card(s)** whose print and plate counts are to be cleared is complete, press the **PRINT SIZE**  key.

"PLEASE WAIT" will appear briefly on the screen. Then the display will return to the base screen that was displayed in step 1.



◆ **To check that the counts have been cleared:**

Select **CLEAR EACH**, then press the **ZOOM** key to display **the card number(s)** that was selected, and check that the print and plate counts are **zero**.

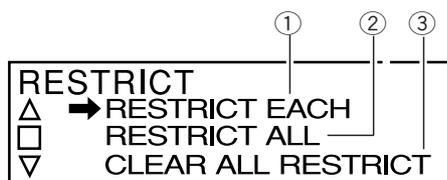


6. Remove the keycard from its slot.

RESTRICTION card (AA RESTRICTION)

1. Insert the RESTRICTION card. "NOW READING CARD. PLEASE WAIT" will appear on the LCD panel, then be replaced by the base screen.

- ① RESTRICT EACH: prohibits use of individual department cards
- ② RESTRICT ALL: prohibits use of all department cards
- ③ CLEAR ALL RESTRICT: de-prohibits use of all department cards

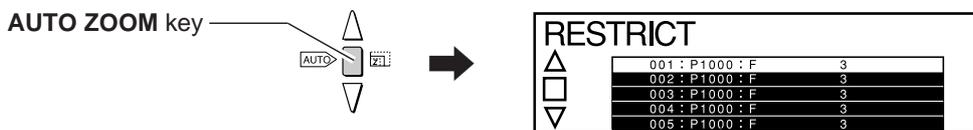
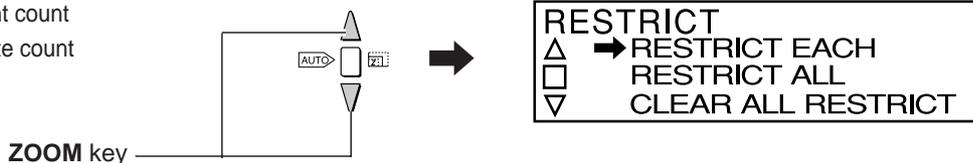


2. To select individual department cards:

Press the **ZOOM** key to select **RESTRICT EACH**, then press the **AUTO ZOOM** key to confirm.

The screen shown below will appear.

- ① Department card No.
- ② Print count
- ③ Plate count



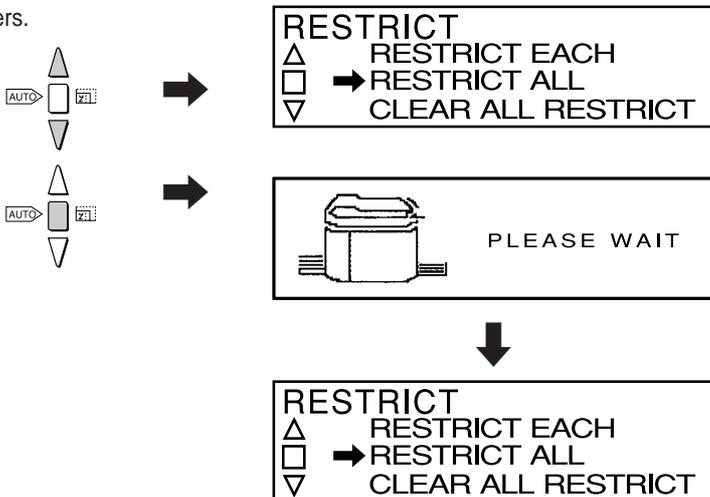
001 : P1000 : F	3
002 : P1000 : F	3
003 : P1000 : F	3
004 : P1000 : F	3
005 : P1000 : F	3

① ② ③

◆ **To select all the department cards:**

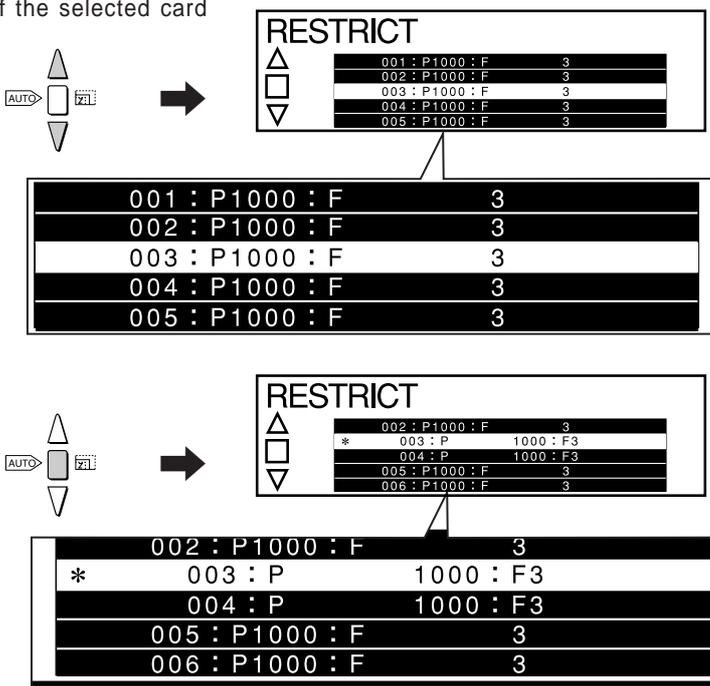
Press the **ZOOM** key to select **RESTRICT ALL**, then press the **AUTO ZOOM** key to confirm.

A list of the **department card** numbers will appear, with "*" to the left of all the numbers.



3. Press the **ZOOM** key to select the card whose use is to be prohibited, then press the **AUTO ZOOM** key to confirm.

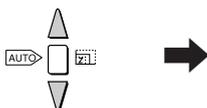
"*" will appear to the left of the selected card number.



◆ **To select department card No. 6 or higher:**

Press the **ZOOM** key repeatedly until the desired card number is reached.

Each press of the key scrolls the display down 1 line.



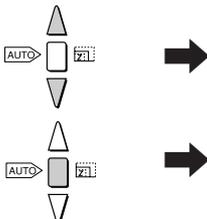
RESTRICT			
001	:	P1000 : F	3
002	:	P1000 : F	3
*	:	003 : P	1000 : F3
004	:	P1000 : F	3
005	:	P1000 : F	3

001	:	P1000 : F	
002	:	P1000 : F	
*	:	003 : P	1000 :
004	:	P1000 : F	
005	:	P1000 : F	

◆ **To delete the "*" (deselect the card):**

Select the card again, using the **ZOOM** key, then press the **AUTO ZOOM** key to confirm.

4. If there is another **card** whose use you want to prohibit, repeat the operation in step 3 to select it.



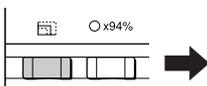
RESTRICT			
002	:	P1000 : F	3
*	:	003 : P	1000 : F3
004	:	P	1000 : F3
005	:	P1000 : F	3
006	:	P1000 : F	3

RESTRICT			
002	:	P1000 : F	3
*	:	003 : P	1000 : F3
004	:	P	1000 : F3
005	:	P1000 : F	3
*	:	006 : P	1000 : F3

002	:	P1000 : F	3
*	:	003 : P	1000 : F
004	:	P	1000 : F
005	:	P1000 : F	3
*	:	006 : P	1000 : F

5. When selection of **the card(s)** whose use is to be prohibited is complete, press the **PRINT SIZE**  key.

"PLEASE WAIT" will be appear briefly on the screen. Then the display will return to the base screen that was displayed in step 2.



RESTRICT			
△	→	RESTRICT EACH	
□		RESTRICT ALL	
▽		CLEAR ALL RESTRICT	

◆**To check that the counts have been cleared:**

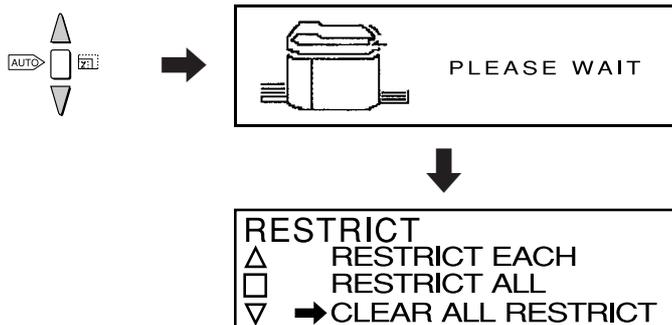
Select RESTRICT EACH, then press the **ZOOM** key to display the card number(s) that was selected, and check that "*" (indicating use prohibited) is displayed to the left of the number(s).



◆**To delete all the "*" s (deselect all the cards):**

Press the **ZOOM** key to select **CLEAR ALL RESTRICT**, then press the **AUTO ZOOM** key to confirm.

"PLEASE WAIT" will be appear briefly on the screen. Then the display will return to the base screen that was displayed in step 2.



6. Remove the keycard from its slot.

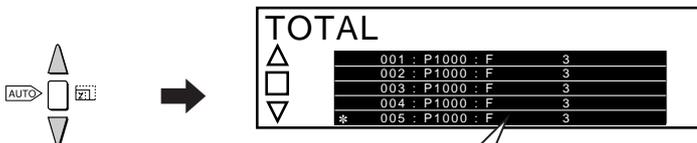
TOTAL card (AA TOTAL)

1. Insert the TOTAL card. "NOW READING CARD. PLEASE WAIT" will appear on the LCD panel, then be replaced by the screen on the right.

TOTAL			
▲			
□			
▼			
001	:	P1000 : F	3
002	:	P1000 : F	3
003	:	P1000 : F	3
004	:	P1000 : F	3
005	:	P1000 : F	3

001	:	P1000	:	F	3
002	:	P1000	:	F	3
003	:	P1000	:	F	3
004	:	P1000	:	F	3
005	:	P1000	:	F	3

2. If the number of the card whose counts you want to check is 6 or higher, press the ZOOM key as many times as needed to display it.



TOTAL				
▲				
□				
▼				
001	:	P1000 : F	3	
002	:	P1000 : F	3	
003	:	P1000 : F	3	
004	:	P1000 : F	3	
*	005	:	P1000 : F	3

001	:	P1000	:	F	3	
002	:	P1000	:	F	3	
003	:	P1000	:	F	3	
004	:	P1000	:	F	3	
*	005	:	P1000	:	F	3

- Maximum print count: 799999
- Maximum plate count: 7999

When the number of prints/plates made reaches the maximum, the count restarts from zero.

◆ "*" to the left of a card number indicates that use of that card has been prohibited.

3. Setting the maximum number of cards that can be used with the KEYCARD COUNTER 3

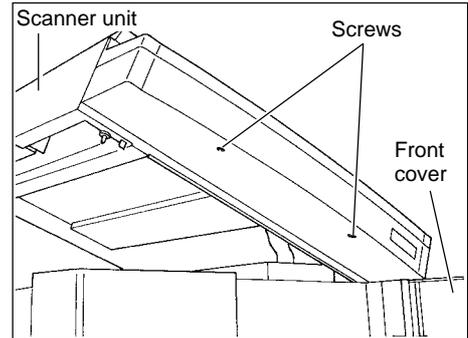
IMPORTANT

Observe the following when setting (increasing) the number of cards that can be used with the KEYCARD COUNTER 3:

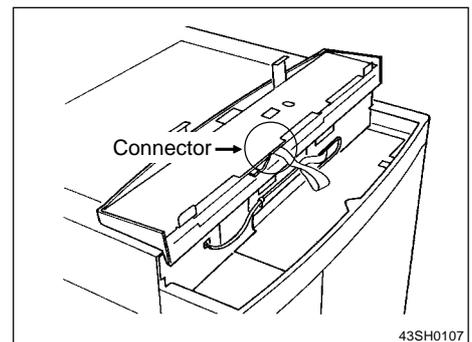
- Perform the setting operation after installation of the DUPRINTER is complete.
- Perform the setting operation after installation of the KEYCARD COUNTER 3 is complete.
- Remove the DUPRINTER power cable's plug from the outlet before performing the setting operation.
- Be sure to install the various screws in the correct places.

1 Turn off the power to the DUPRINTER.

2 Open the front cover, lift up the top cover release lever, and lift up the top cover. Then remove the two screws from the underside of the operation panel.
 * Retain the two operation panel mounting screws, as they will be reused later.

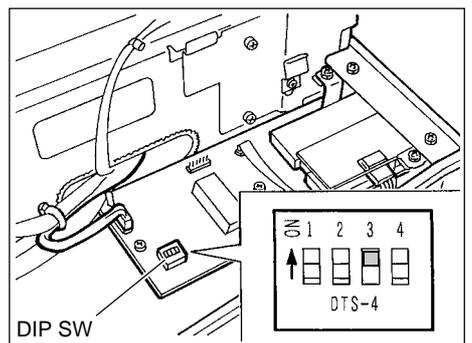


3 Slightly raise up the upper half of the operation panel. Then disconnect the connector indicated.



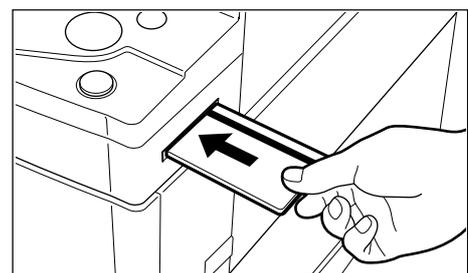
4 Set DIP SW 3 to ON.

5 Reinsert the cabled wire connector that was disconnected in step 3, and lower the operation panel back into place, making sure that it does not pinch the cabled wire.

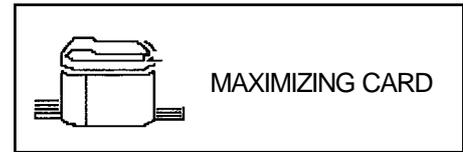


6 Turn on the power to the DUPRINTER.

7 Insert a keycard into the DUPRINTER's key card slot.

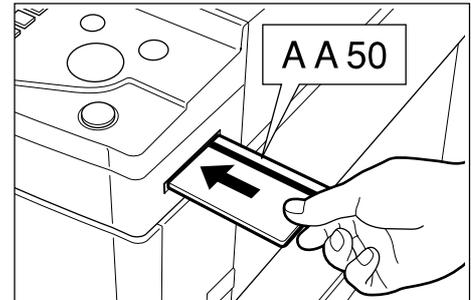


8 The message **MAXIMIZING CARD** should appear. When it does, remove the keycard.

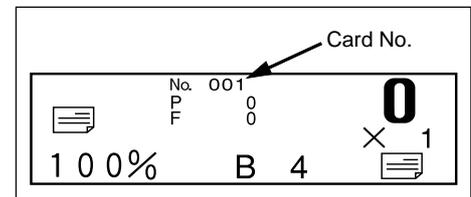


9 Insert the highest-numbered of the keycards to be used.

Example: If 50 keycards numbered AA01 through AA50 are to be used, insert the card bearing the number AA50.

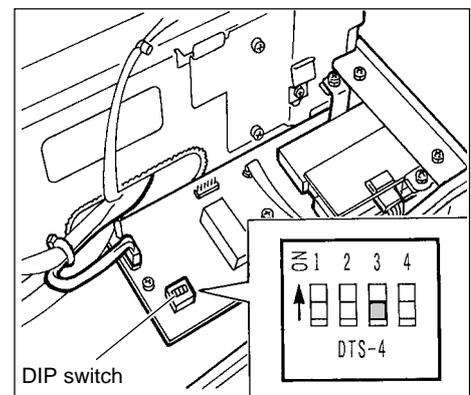


10 Provided that no reading error occurs, the number of the card inserted will be displayed, and that number will be registered as the maximum number of cards that can be used.



11 Remove the card, and turn off the power to the DUPRINTER.

12 Repeat steps 2 and 3, then set DIP SW 3 (which was set to ON in step 4) back to OFF.



13 Reinsert the cabled wire connector that was disconnected when you repeated step 3, and lower the operation panel back into place, making sure that it does not pinch the cabled wire.

14 Turn on the power to the DUPRINTER, and once more insert the highest-numbered card (e.g. AA50), to check that the number of cards that can be used has been increased to the new setting.

4. Message displays

Message	Meaning
<ul style="list-style-type: none"> ● "PLEASE INSERT CARD" 	<ul style="list-style-type: none"> • No keycard has been inserted into the DUPRINTER's keycard slot. → Insert a keycard into the slot
<ul style="list-style-type: none"> ● "NOW READING CARD PLEASE WAIT" 	<ul style="list-style-type: none"> • The DUPRINTER is reading the CLEAR/RESTRICTION/TOTAL card.
<ul style="list-style-type: none"> ● "PLEASE WAIT" 	<ul style="list-style-type: none"> • When the CLEAR card is used: Clearing (resetting) of print and plate counts is in progress. • When the RESTRICTION card is used: Prohibition of the use of a department card(s) is being registered.
<ul style="list-style-type: none"> ● "RE-INSERT CARD" 	<div data-bbox="807 864 1329 1115" style="border: 1px solid black; padding: 5px;"> <p>IMPORTANT</p> <ul style="list-style-type: none"> • While the "PLEASE WAIT" message is displayed on the LCD panel, do NOT: <ul style="list-style-type: none"> • turn off the power to the DUPRINTER • press the DUPRINTER's ALL CLEAR key • remove the keycard from its slot. </div> <p>Reading of the card inserted has taken more than 2 seconds to complete (timed from moment of insertion), OR</p> <ul style="list-style-type: none"> • the power to the DUPRINTER was turned on with a card already inserted, OR • an error occurred in reading the card. <p>Remove the card, then re-insert it into the slot.</p>
<ul style="list-style-type: none"> ● "CARD IS WRITE-PROTECTED" 	<ul style="list-style-type: none"> • Use of the card inserted (department card, AA**) has been prohibited.
<ul style="list-style-type: none"> ● "CANNOT USE THIS CARD" 	<ul style="list-style-type: none"> • The card inserted (department card) is of the wrong series, OR • the card inserted is of the correct series, but has a number higher than the applicable maximum number of cards that can be used.

5. Specifications

Main specifications

Name	KEYCARD COUNTER 3
Power supply	5V DC (supplied from the DUPRINTER)
Power consumption	0.5W
Max. depts. handled	200
Max. counts per dept.	Print count: 799,999 Plate count: 7,999
Card reading method	Magnetic scan

(3) A4 DRUM

1. About A4drum

● **Features of the A4 drum:**

- Simple to replace with a standard (A3) drum.
- Uses the roll master economically.
- Cost per sheet is lower than with the standard (A3) drum

● **About functions when the A4 drum is installed**

When the A4 drum is installed, the following functions can not be used:

- Multiple image printing; "2in1" when the S1-ADF (option) is installed
- Book shadow eraser
- Online platemaking

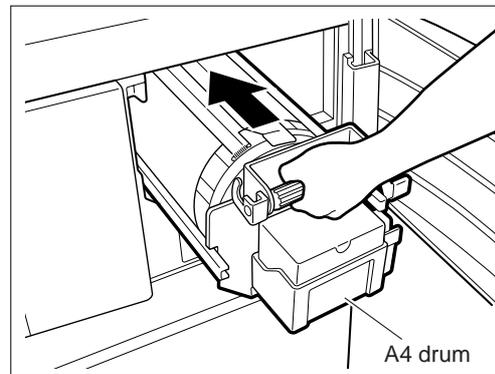
2. Using A4drum

1. Drum replacement

Open the front cover. Then remove the A3 (or A4) drum, and install the A4 (or A3) drum.

Note :

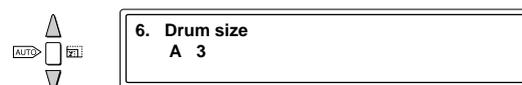
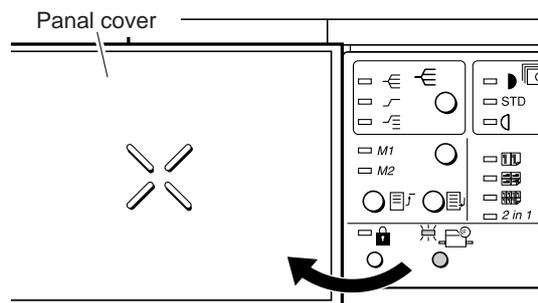
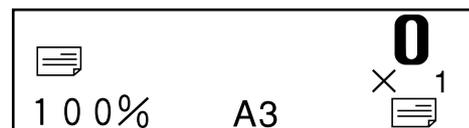
- For drum removal method : ➔ See page 45
- For drum Instruction method : ➔ See page 46



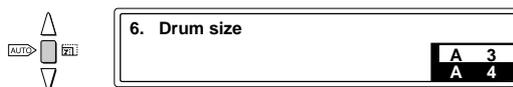
2. A4 drum setup

1. Make sure that the basic screen is displayed.
2. Open the panel cover, and press the SPECIAL FUNCTION  key.
3. Press the ZOOM ∇/Δ key repeatedly until the display shown on the right is displayed.

● **Basic screen**

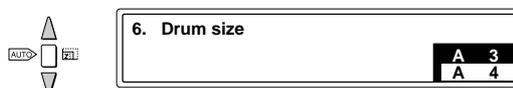


4. Press the AUTO ZOOM  key. The display shown on the right will appear.

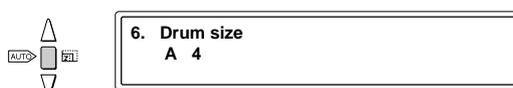


5. Press the ZOOM  key. "A4" will be highlighted.

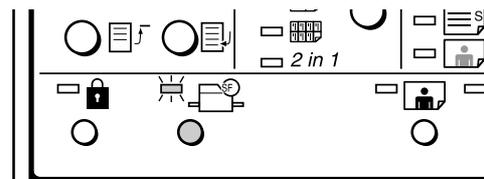
- IMPORTANT :**
- If an A3 drum has been installed, setup of an A4 drum can not be performed. In such a case, first install an A4 drum, then start again from step 1.
 - If an A4 drum has been installed, setup of an A3 drum can not be performed. In such a case, first install an A3 drum, then start again from step 1.



6. Press the AUTO ZOOM  key. The display shown on the right will appear, and the setting shown in the display will be confirmed.



7. Press the SPECIAL FUNCTION  key. The basic screen will reappear.



• A3 drum setup

The procedure for setup of an A3 drum (after an A3 drum has been installed) is the same as that for setup of an A4 drum above, except that "A3" must be pressed instead of "A4" in step 5.

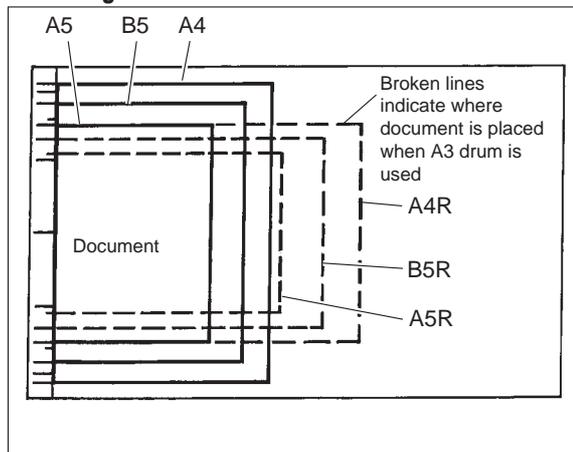
3. Placing the document / placing the paper

Note :

- For method for placing the document:
See p.24 of the DP-63S Instruction Manual.
- For method for selecting the paper size:
See p.25 of the DP-63S Instruction Manual.
- For method for placing the paper:

➔ See page 42

• Placing the document when an A4 drum is use



• **When the error message shown below is displayed:**

If the drum setting is A4 but an A3 drum has been installed, or if the drum setting is A3 but an A4 drum has been installed, the display on the right will appear when the PLATEMAKING  key is pressed.



▶ **Corrective action:**

Press the STOP  key. Then replace the drum, and perform drum setup.

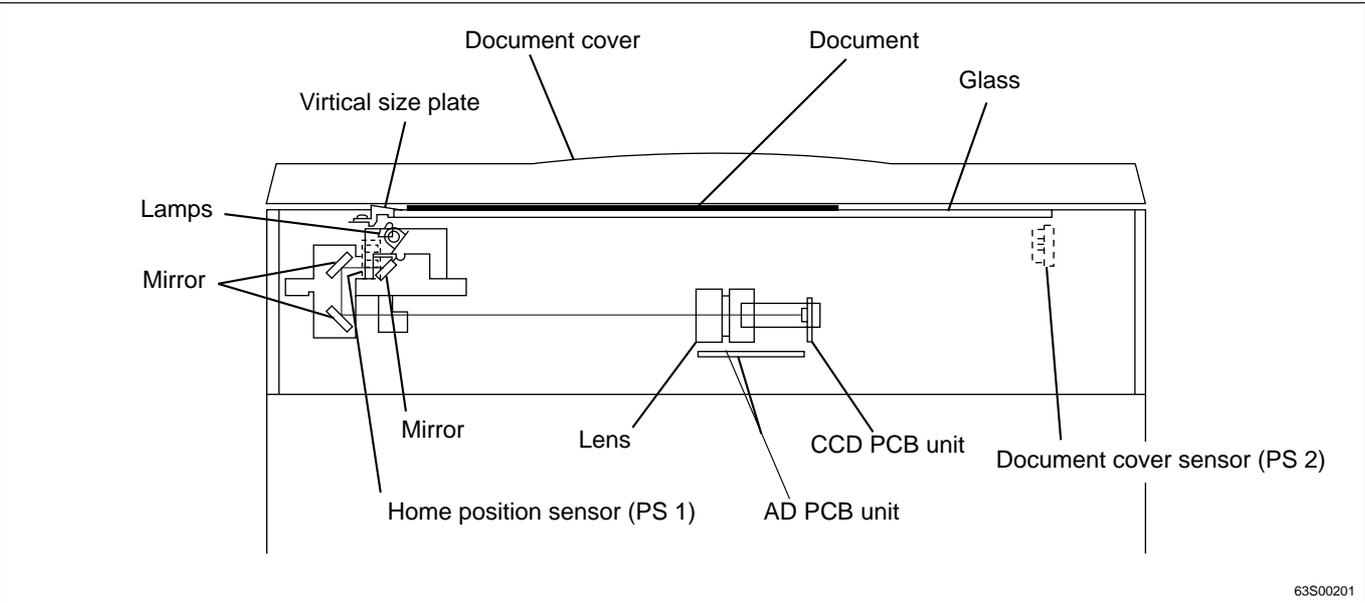
4	Drum Driving Section	119	7	Drum Section.....	137
	1. Description	119		1. Description	137
	2. Function of Parts	120		2. Circuit.....	138
	(1) Home Position / Jam Detection			3. Function of Parts	139
	Position Sensor.....	120		(1) Ink Detection	139
	(2) Master Attachment / Detachment			1. LED Display and Output Signal on	
	Position Sensor.....	121		the Ink Detection PCB Unit.....	140
	(3) Jog Switch(Drum Rotator Switch).....	122		2. "CHANGE INK" Display Timing	141
	(4) Control of the Main Motor	123		(2) Ink Roller Rise / Descent Mechanism.....	142
	1. Rotation speed control by encoder sensor	124		(3) Ink Pump	144
	2. Selecting the speed	124		(4) Drum Switch.....	145
5	Press Section.....	125		(5) Front Cover Open / Close Detection Switch.....	146
	1. Description	125		(6) Fine Start Mode.....	147
	(1) Press Roller Timing & Printing Area	125		1. Fine Start Mode Data.....	148
	2. Function of Parts	127	8	Option	149
	(1) Press Roller (P Roll) Sensor	127		(1) Tape Cluster.....	149
	(2) Switching the Contact Pressure	128			
	1. Contact pressure position sensing.....	129			
	2. Sensing of standard contact pressure				
	when power is turned on.....	130			
6	Paper Ejection Section	131			
	1. Description	131			
	2. Function of Parts	132			
	(1) Paper Stripper Finger	132			
	(2) Top Blow Fan	133			
	(3) Jam Sensor	134			
	1. Paper Jam Detection Timing	135			
	(4) Paper Ejection Belt.....	136			
	1. Paper ejection belt speed.....	136			

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 at the CCD through the mirror lens. Then it is resolved into picture elements and is converted photoelectrically.

Optical driving of illuminating the document is the same for the document placed on the ADF and for the document placed on the plate glass.



Optical operation

- The optical system goes forward (to the right) or backward with a stop position of PS1 (Stop position sensor).

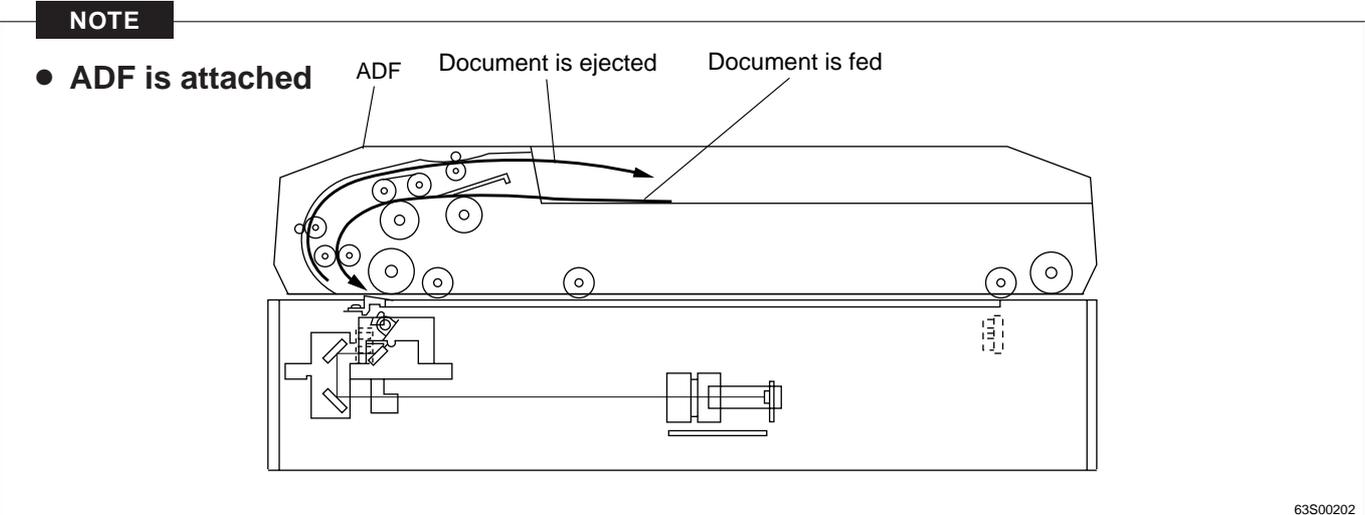
➔ See page 80

- PS2 detects opening and closing of the document cover and is used to read the document size and darkness.

NOTE

➔ See page 81

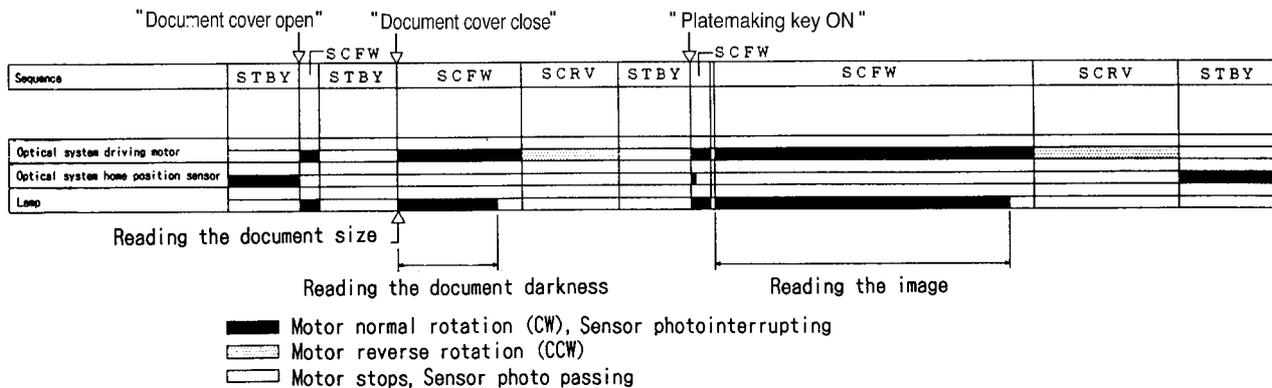
- When the ADF is attached, the optical system does not read the document size since data for the document size is received from the ADF.



2. Sequence of Operation

(1) Sequence of the Scanner Operation

- 1) When the document cover is opened (PS2: photopassing) with the system in the standby state, the lamp lights up, and the optical system moves to the document size reading position. When it reaches this position, the lamp goes out and the system returns to the standby state.
- 2) When the document cover is closed again (after having been opened in the standby state) (PS2: photointerrupting), the lamp lights up and the document size is read. When the document size is read, the optical system immediately moves to the right and reads the document darkness. When document darkness reading is complete, the lamp goes out, but the optical system decelerates, then stops. Following that, the optical system moves left and returns to the home position. The system is then in the standby state.
- 3) When the PLATEMAKING key is pressed with the system in the standby state, the lamp lights up and the system moves to the image reading start position. When it reaches this position, the system stops momentarily, and the lamp goes out and comes on again, very rapidly. (This happens so rapidly that it cannot be observed with the naked eye.) Then the scanner moves to the right and reads the image. When image reading is complete, the lamp goes out, but the optical system decelerates, then stops. Following that, the optical system moves left and returns to the home position. The system is then on standby for the printing process.



Interval		Purpose	Remarks
STBY / Standby	While the optical system is stopped.		
SCFW / Optical system goes forward.	Until the optical system stops after it starts to go forward.	It goes forward to move to the document size reading position and to read the document darkness and image.	Required time and frequency varies depending on the paper setting, R / E or number of prints per page.
SCRV / Optical system goes backward.	Until the optical system which has finished reading the document darkness and image stops after it starts to go backward.	To return the optical system to the home position.	

(2) Operation with the Document Cover Open / Closed

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



The lamps lights up, the optical system moves to the document size reading position (about 30 mm from the top end of the document) and stops. The lamps light out.



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



The lamps light up and the document size is read.



The optical system moves, and senses the document darkness. The movement distance is determined according to the document size sensed.



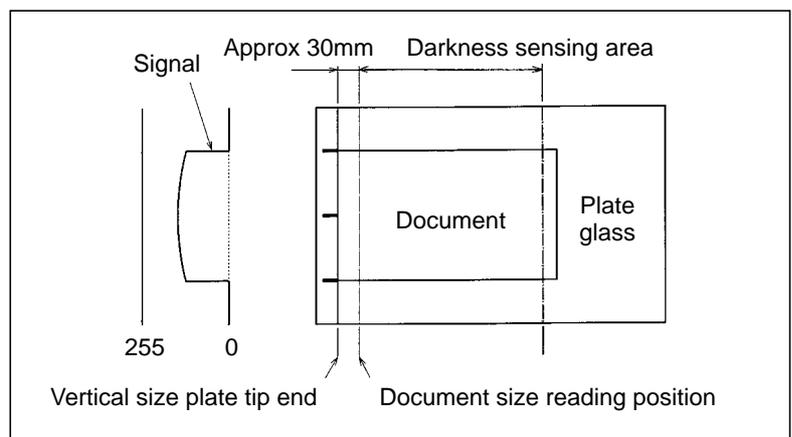
The lamps light out and the optical system decreases the speed, stops and returns to the home position.

1. Reading the Document Size

- The document size is read by detecting the photo amount. The reverse face of the document cover is white. When the document cover is opened at a certain angle, the lamp light reaches the CCD as reflection light at the document area. As there is no reflection light where the document is not placed, non-document area is detected as "black" at the CCD. The position which changes from black to white is detected as document size. Whether the document is placed in the lateral direction or in the longitudinal direction is not detected since the primary scanning direction is only detected.
- In this machine, the paper size is read as follows:
 - (1) The document darkness sensing area is determined.
 - (2) In the auto paper selection mode, the paper is selected based on the document size and zoom factor.
 - (3) In the auto zoom mode, the zoom factor is selected based on the document size and paper size.
- When the ADF is installed, data on the document size is sent from the ADF. The main body does not read the document size.

2. Reading the Document Darkness

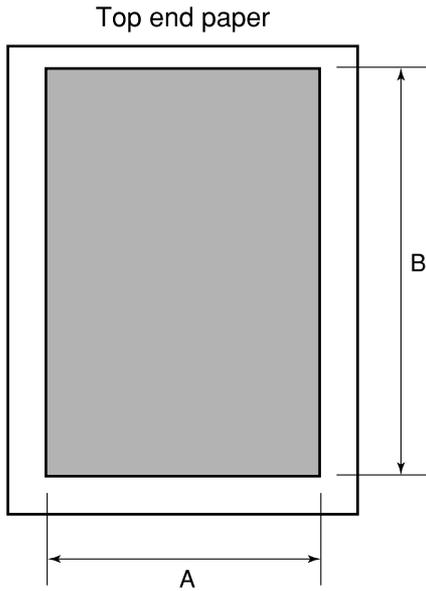
- The optical system goes forward to read the document darkness immediately after the document size is read.
- The area over which darkness is sensed is determined according to the document size sensed.



NOTE

Platemaking Area for the Selected Paper

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



A : Primary scanning direction
 B : Secondary scanning direction

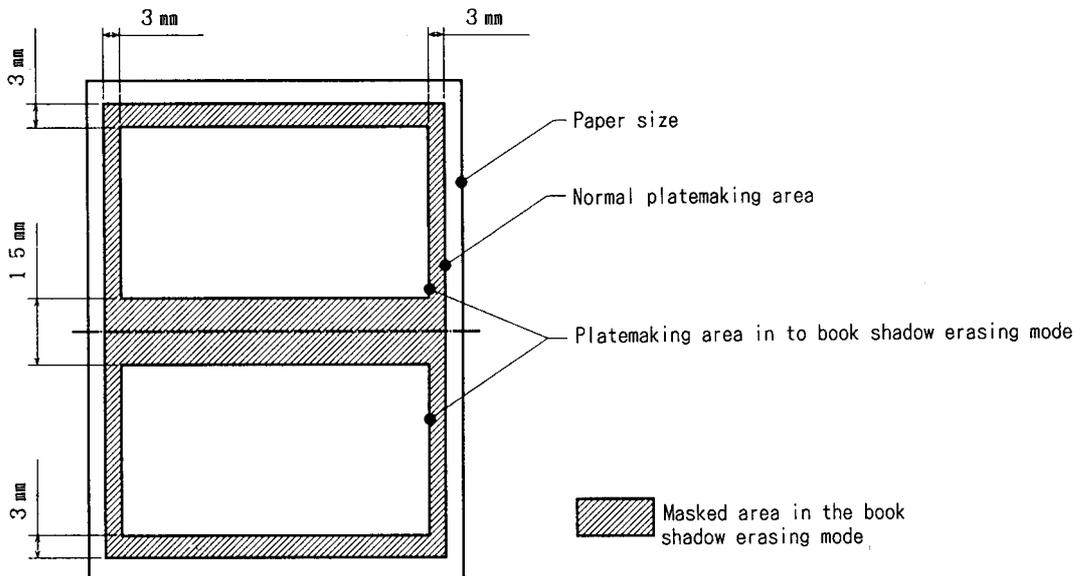
Selected paper size	A (±1%)	B (±1%)
A3	291mm	414mm
A4R	204	291
A4	291	204
B4	251	358
A5	142	204
B5	176	251
LDG	273	414
LGL	210	350
LTR	210	273
STMT	172	210
MAX	291	414

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

Platemaking Area for the Book Shadow Erasing Mode

When the platemaking is performed in the book shadow erasing mode, the platemaking area is limited 3 mm inner than the normal platemaking area as shown in the figure. 15mm is left in the central section (stitching section).

* During multiple image printing or when paper size is set to A4, the book shadow erasing mode can not be used.



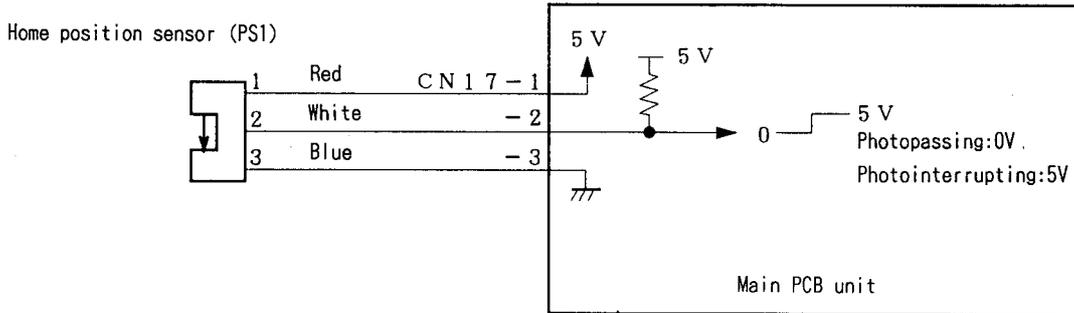
3. Function of Parts

(1) Home Position Sensor

Description

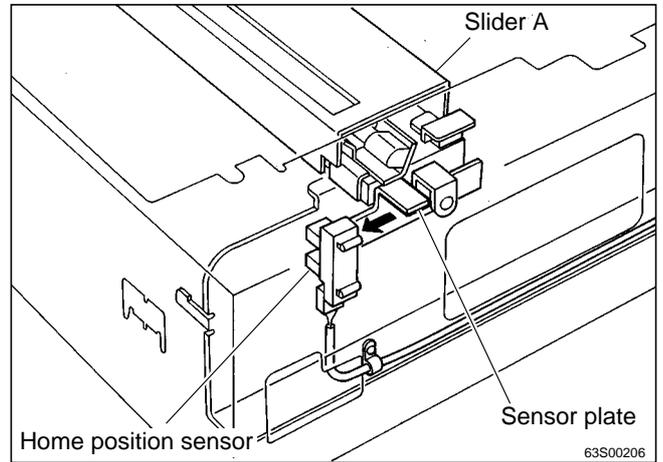
The home position sensor detects the original position for the optical system.

Circuit



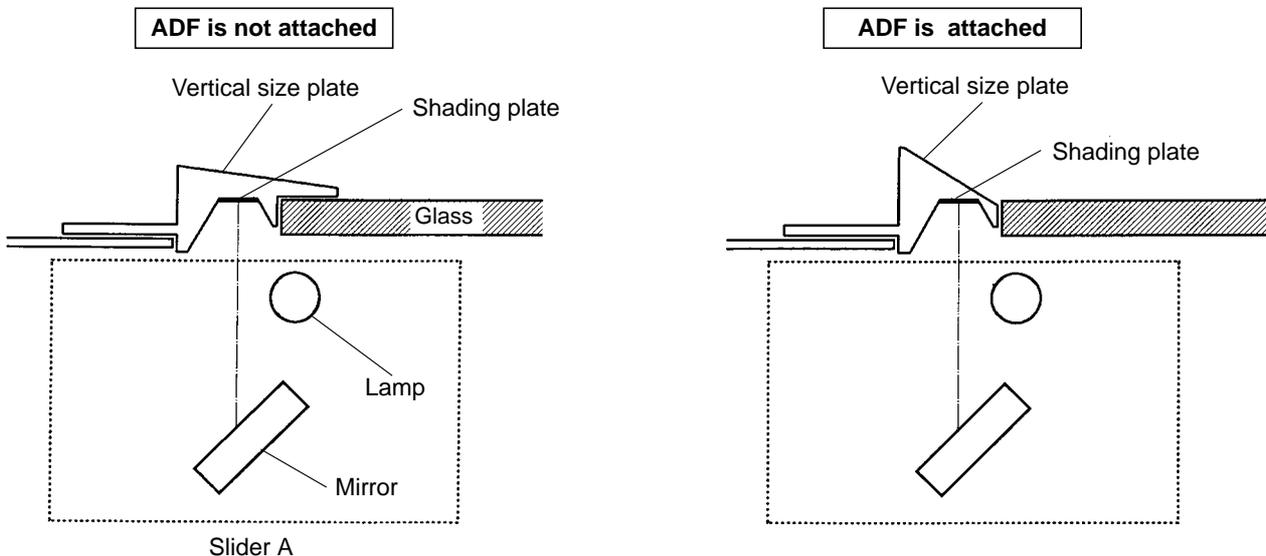
Operation

Sensor plate for the PS1 is installed to slider A, optical system. The home position of the optical system is the position where the PS1 is photo-interrupted.



NOTE

As shading is conducted at the home position, the shading plate is in alignment with the center line of the mirror at the home position. The shape of the vertical size nameplate is different depending on whether the ADF is installed or not. But the home position is the same.

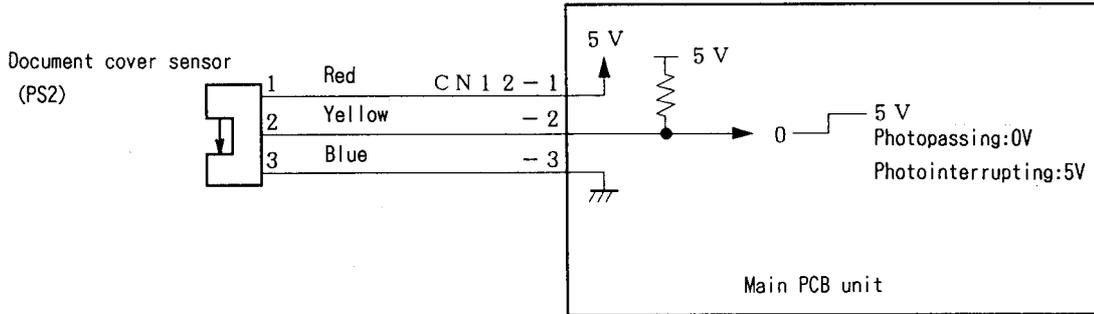


(2) Document Cover Sensor

Description

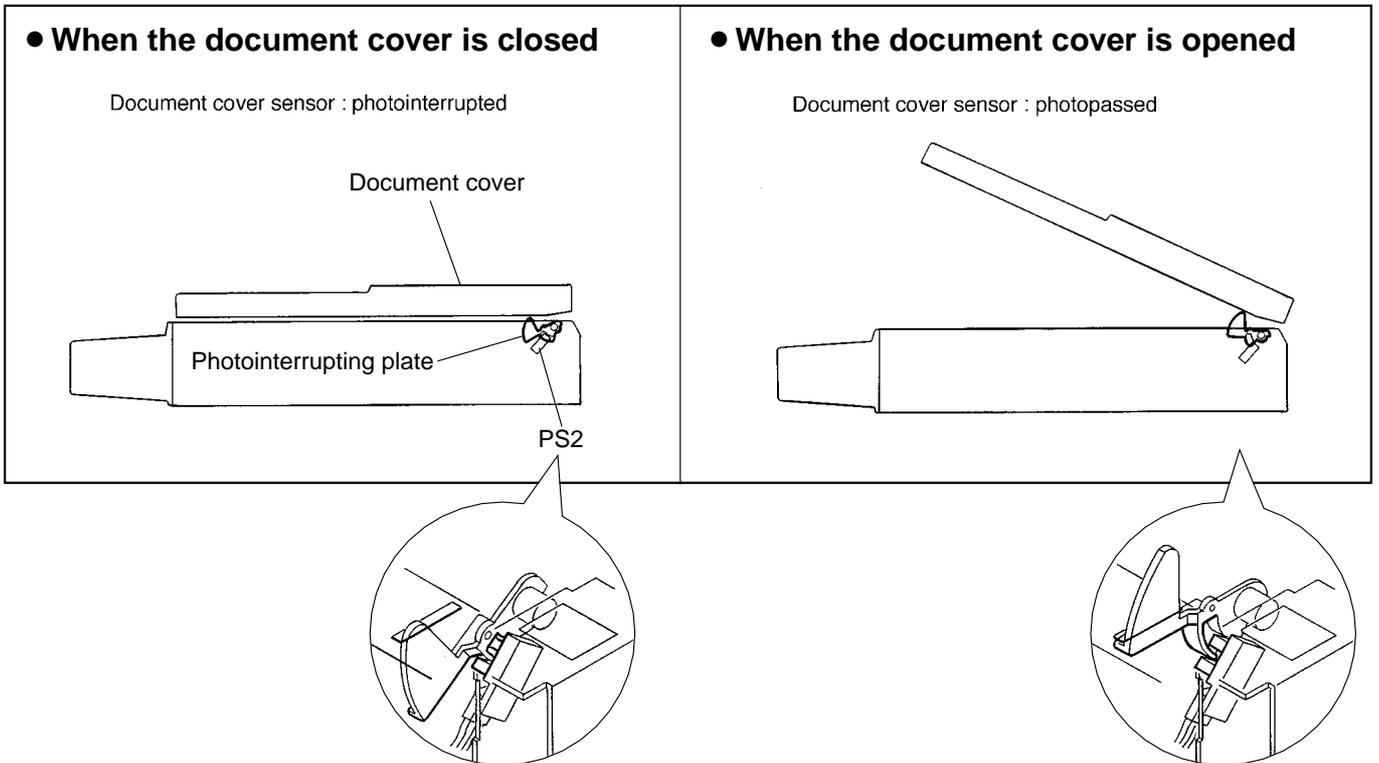
The document cover sensor detects opening and closing of the document cover (or ADF if the ADF is installed).

Circuit



Operation

Sensor PS2 is photointerrupted with the document cover closed, The photointerrupter rotates as the document cover is opened and sensor PS2 is photopassed.

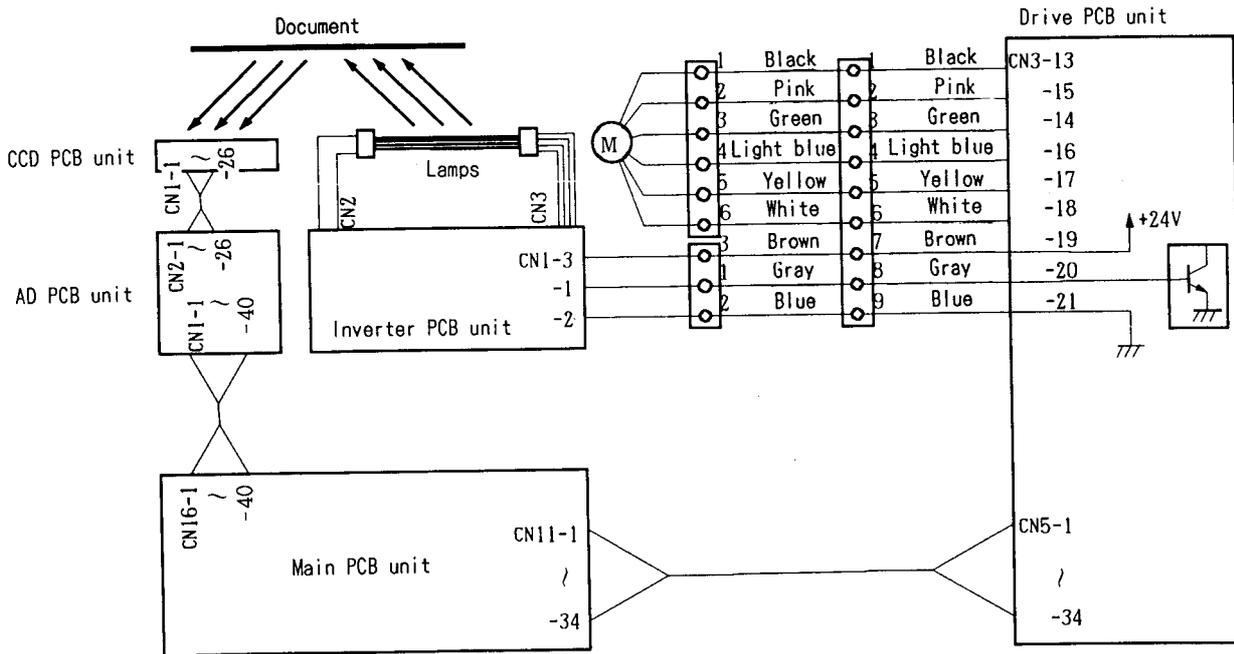


(3) CCD / Lamps

Description

The lamps illuminate the document, and the reflection light is transmitted to the CCD. The image signal is output from the CCD by the voltage level. The signal from the CCD is transmitted to the AD PCB Unit and converted.

Circuit



Specifications

• Lamp

Xenon arc lamp is used for this machine. it is excellent in starting up when the lamp is lit, and the photo amount is stable.

• CCD

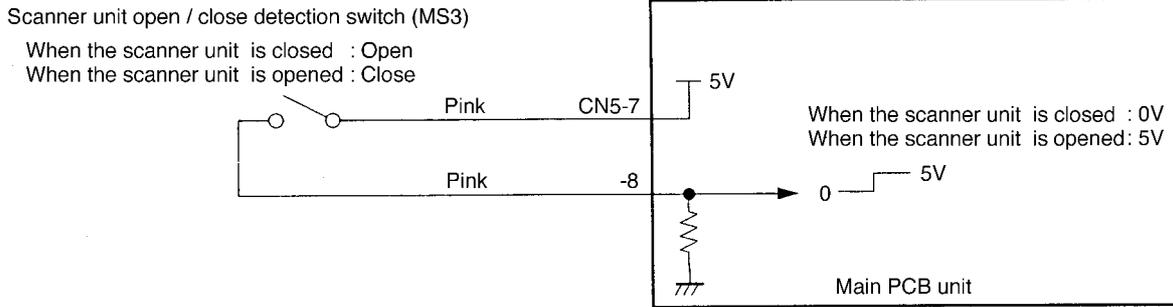
No.	Item	Specifications
1	Optical signal storage time	2.048msec/line
2	Frequency	4MHz
3	The number of effective picture elements	7200 picture elements
4	Reading width (This is not the image width which can be processed)	305mm
5	Reading density	600DPI(23.6dot / mm)

(4) Scanner Unit Open / Close Detection

Description

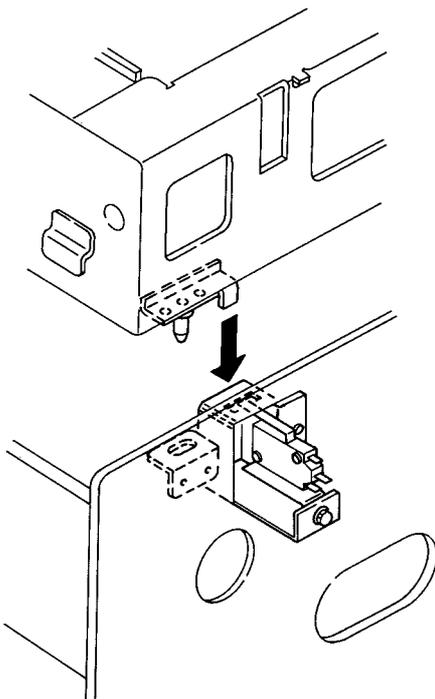
Opening and closing of scanner unit cover is detected by scanner unit cover open / close detection SW (MS3). This machine does not work (except for the master setting SW and the jog SW) unless the scanner unit is closed firmly. The machine stops immediately when the scanner unit is open. (after finishing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

Circuit

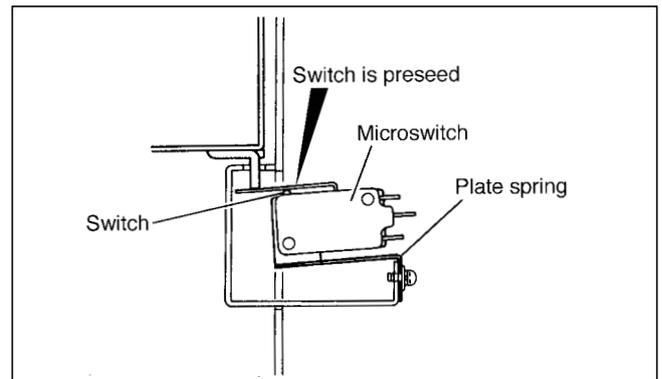


Operation

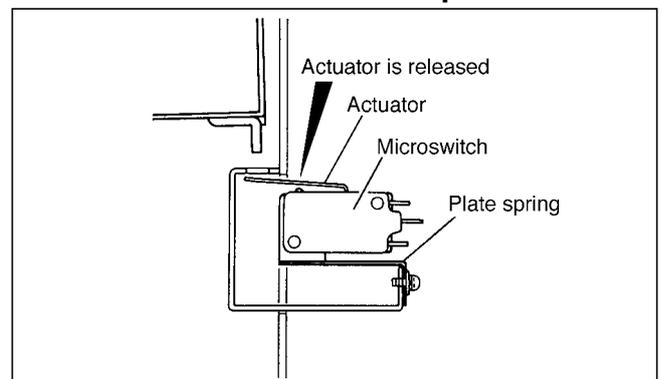
When the scanner unit is closed, the switch is pressed; OPEN. the switch is attached to the plate spring, which keeps the switch from too much pressure. When the scanner unit is open, the actuator is released; the micro switch is turned to CLOSE.



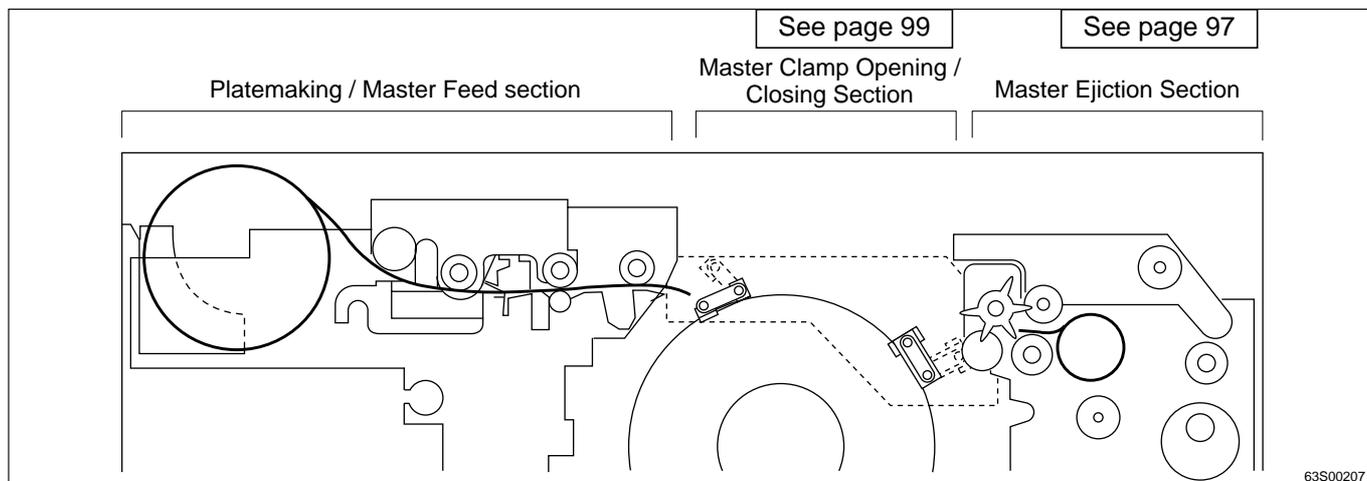
•When the scanner unit is closed



•When the scanner unit is opened



2 Platemaking / Master Feed / Ejection Section



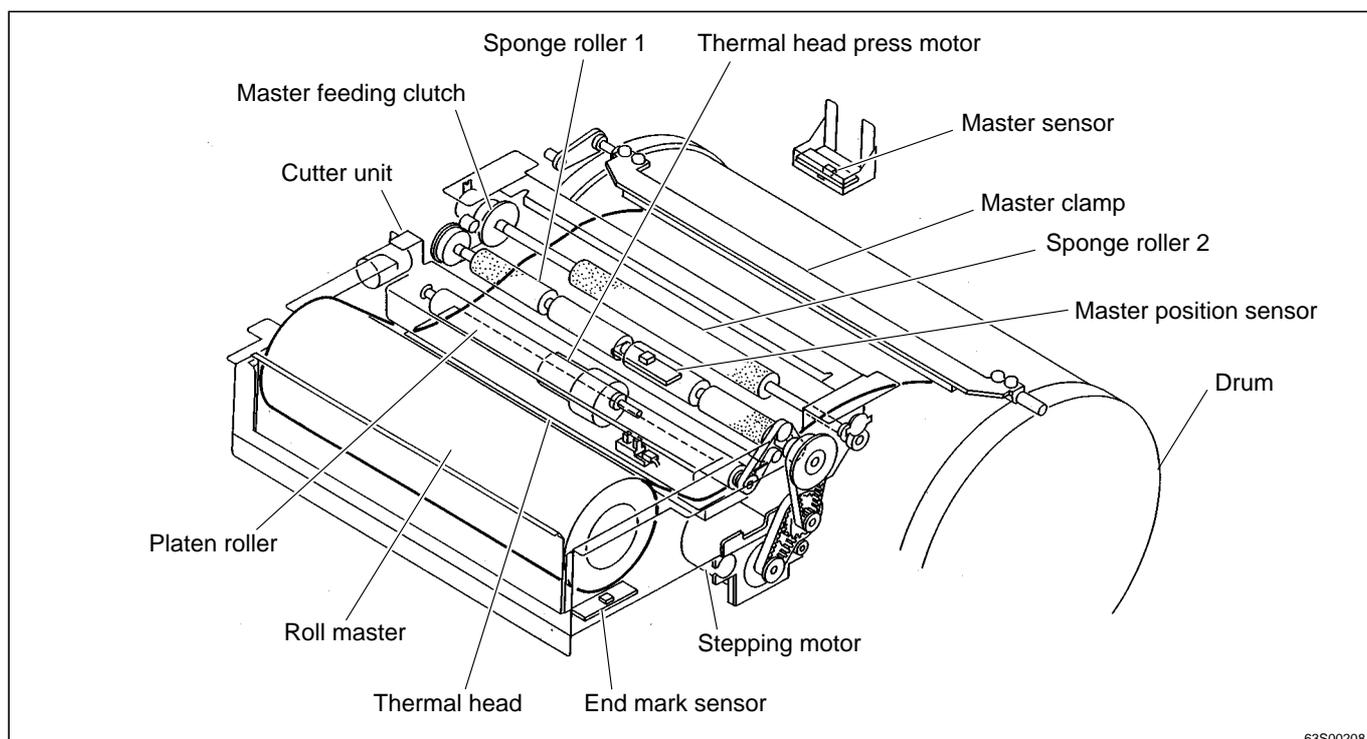
《 Platemaking / Master Feed Section 》

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 rollers 1 and 2 by driving of the stepping motor, while it is being processed in the head section. Sponge roller 2 is driven through the master feeding clutch (electromagnetic clutch), and controls the amount of master conveyed to the master clamp section of the drum unit with the master feeding clutch ON / OFF.

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



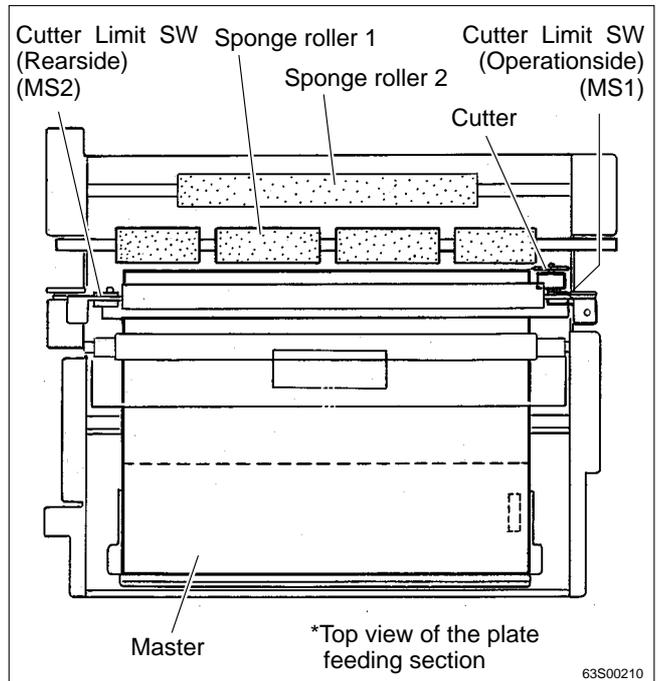
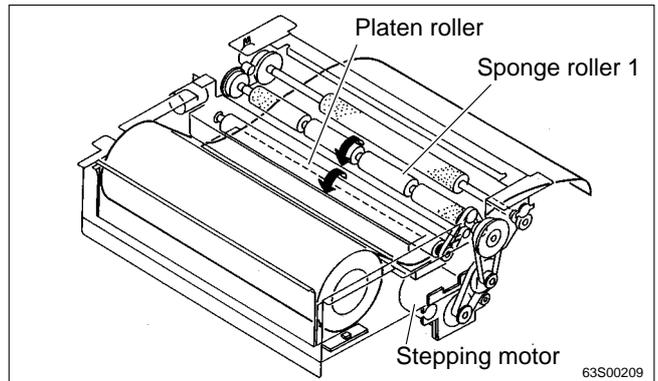
2. Sequence of Operation

(1) Sequence with the Master Set Switch ON

When the master set switch is pressed, the platen roller and sponge roller 1 rotate and the master is fed for about 3 seconds and it stops.

The cutter cuts the master, by executing 1 reciprocating motion.

The master is fed for some time after the cutter limit SW is ON.
 *Fed amount is the same as the amount fed after the master is cut for platemaking.



Sequence with the master set Switch ON

Master set SW ON

Sequence	STBY	Master feeding motor ON	Cutter motor normally	Cutter motor reversely	Master feeding motor ON	STBY
Master setting SW		■				
Master feeding motor		■			■	
Master feeding clutch		■				
Cutter limit SW(Operation side)	■				■	
Cutter limit SW(Rear side)				■		
Cutter motor			■	■		

- Motor rotates normally (CW) or switch is ON
- Motor stops or switch is OFF
- Motor rotates reversely (CCW)

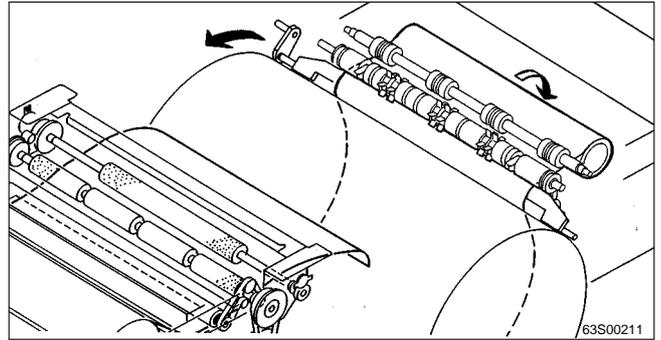
← This length varies with the HELP 29set.

HELP mode H-29 → see p.329

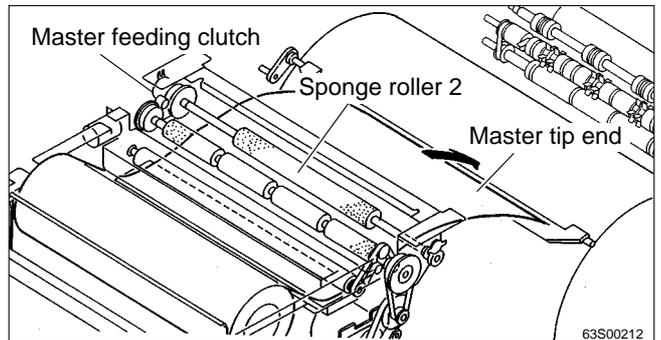
(2) Platemaking / Master Feeding

Operation

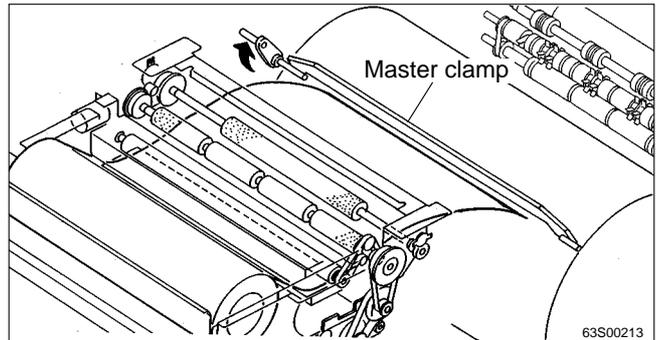
When platemaking operation starts, the drum unit rotates to perform plate detachment process. The drum which has finished plate detachment process stops at the plate attachment position.



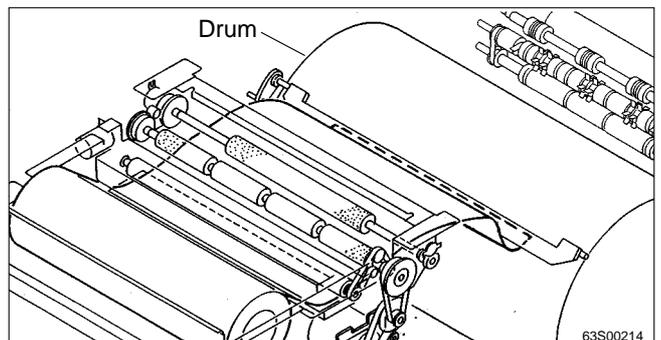
Open the master clamp.
Sponge roller 2 rotates with the master feeding clutch ON. A certain amount of the master tip end is fed to the master clamp section and the sponge roller stops.



Open the master clamp



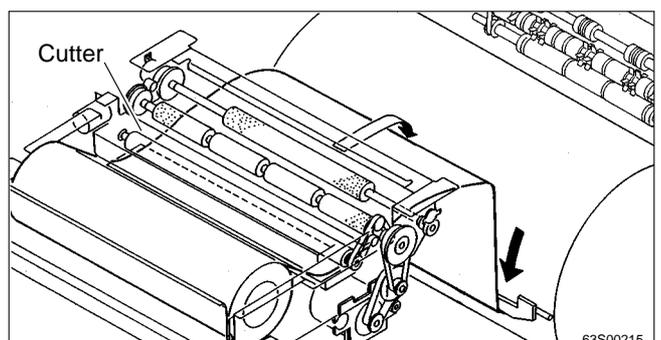
After the master clamp is closed and clamp the master tip end, the drum rotates to roll up the master.



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

*As the electromagnetic clutch is OFF, the sponge roller is free.

After finishing platemaking, the cutter cuts the master.



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

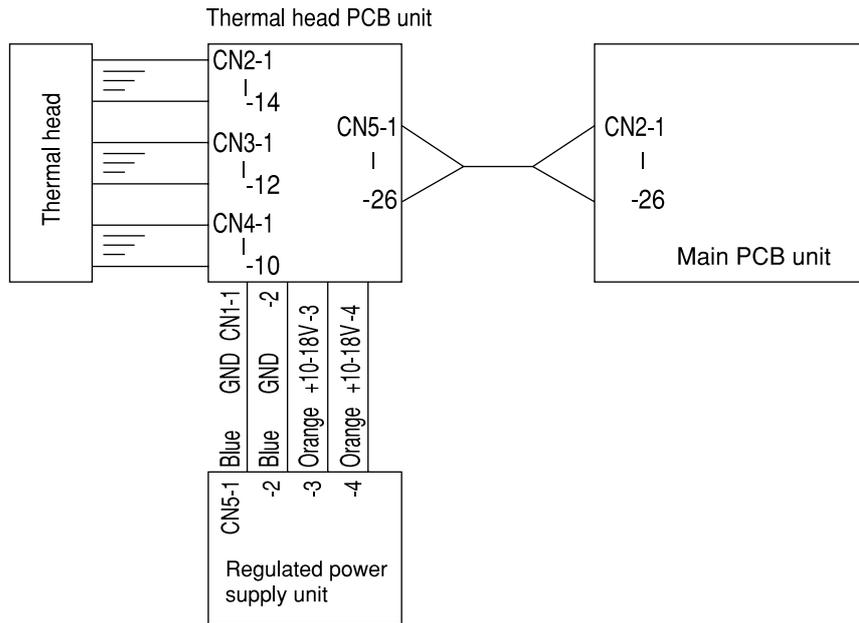
3. Functions of Parts

(1) Thermal Head

Description

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

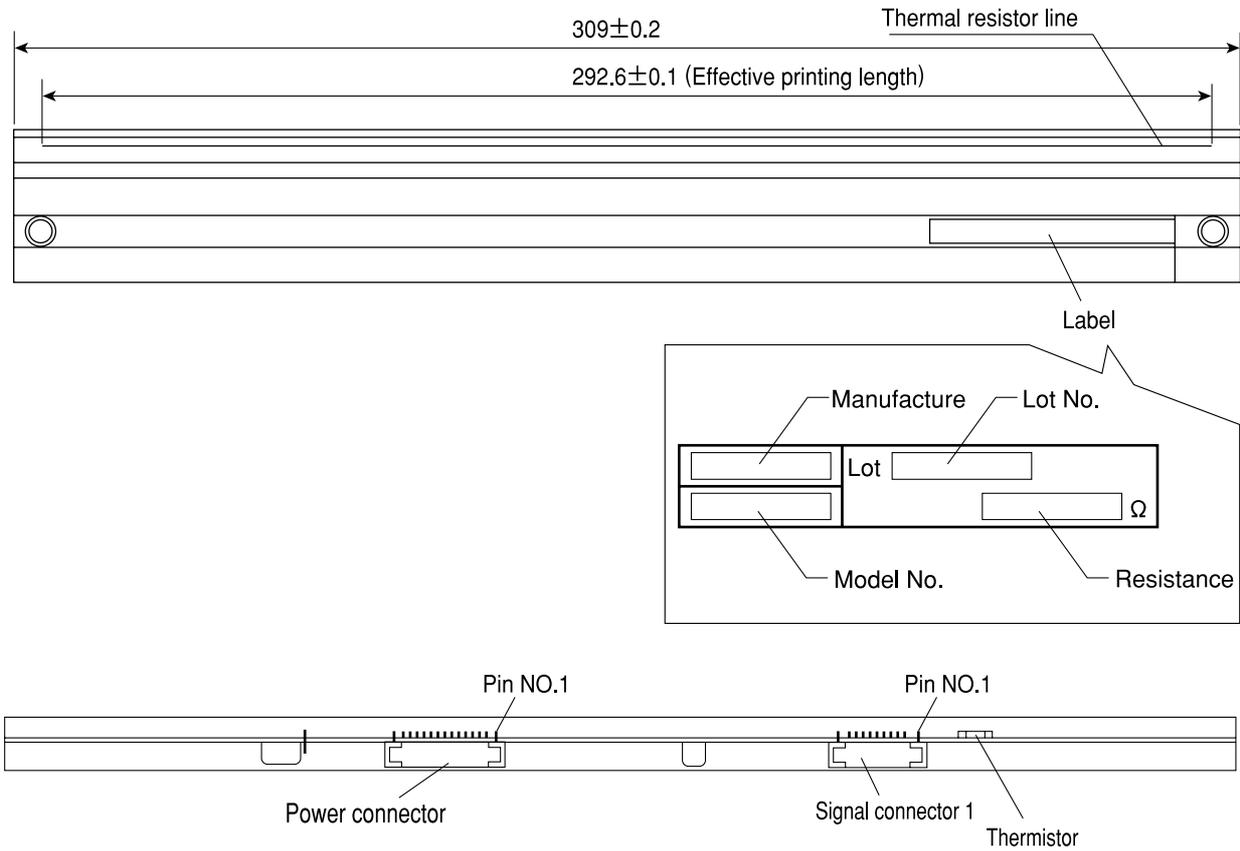
Circuit



Specifications

No.	Item	DP-63S
1	Picture element density	600DPI(23.6dot /mm)
2	Effective memory width	292.6±0.1mm

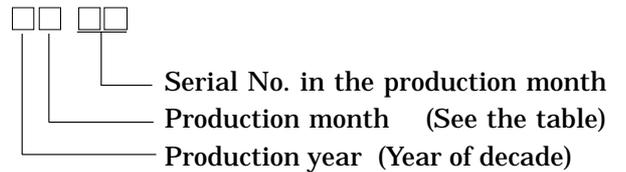
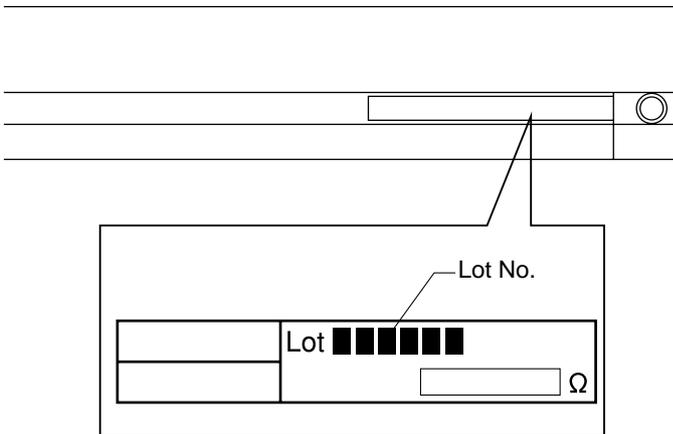
Exterior and Lot No.



NOTE

Lot No.

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



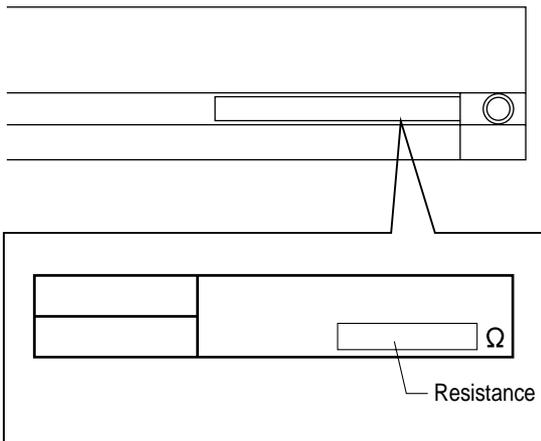
Sign	A	B	C	D	E	F	G	H	I	J	K	L
Month	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

NOTE

Resistance

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

HELP mode H-43, 44 → see p.340

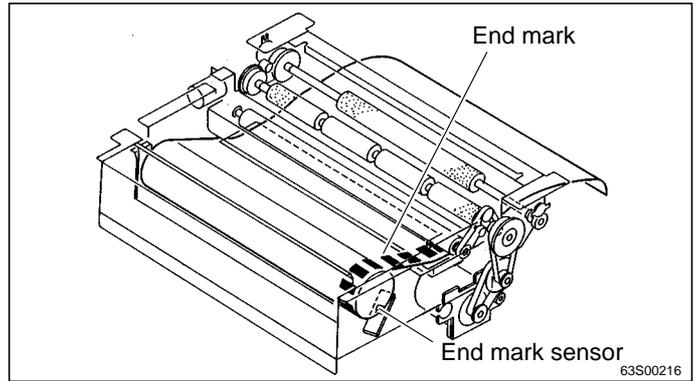


Rank	Resistance value(Ω)	H-43	H-44
1	1700 - 1765	0011	0011
2	1765 - 1799	0100	0000
3	1800 - 1835	0100	0001
4	1836 - 1870	0100	0010
5	1871 - 1922	0100	0011
6	1923 - 1961	0101	0000
7	1962 - 1999	0101	0001
8	2000 - 2037	0101	0010
9	2038 - 2099	0101	0011
10	2100 - 2141	0110	0000
11	2142 - 2183	0110	0001
12	2184 - 2225	0110	0010
13	2226 - 2271	0110	0011
14	2272 - 2300	0111	0000

(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

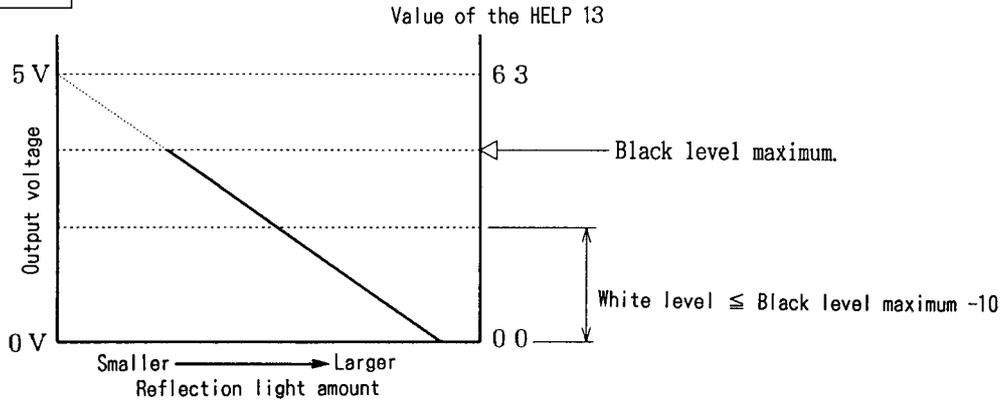
The larger the reflection light amount is, the smaller the output voltage is. The smaller the light amount is, the larger the output voltage is.

The value is checked with the HELP 13.

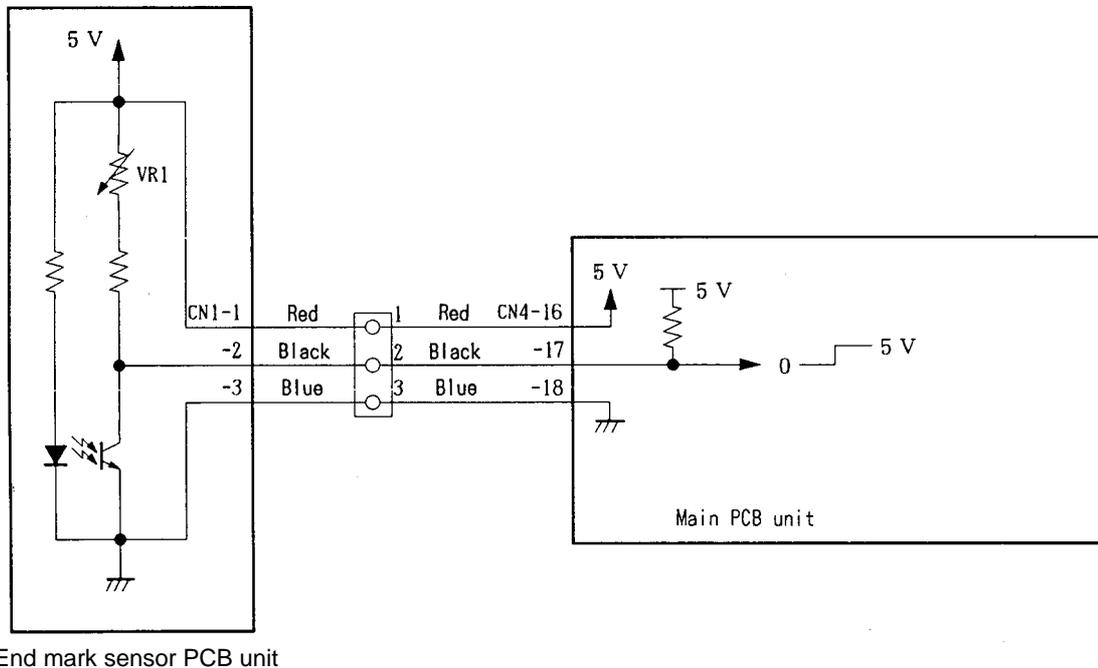
HELP mode H-13 → see p.308

* VR Adjustment of end mark PCB unit.

→ See page 236



Circuit

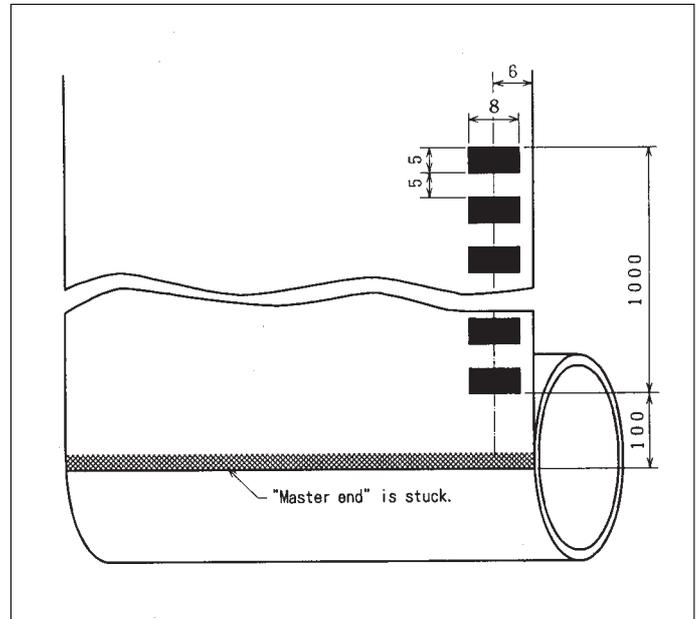


Master End Detection Operation

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

The end mark sensor detects the difference of the reflection light amount between the end mark (black) and the white section and performs the following display and operation.

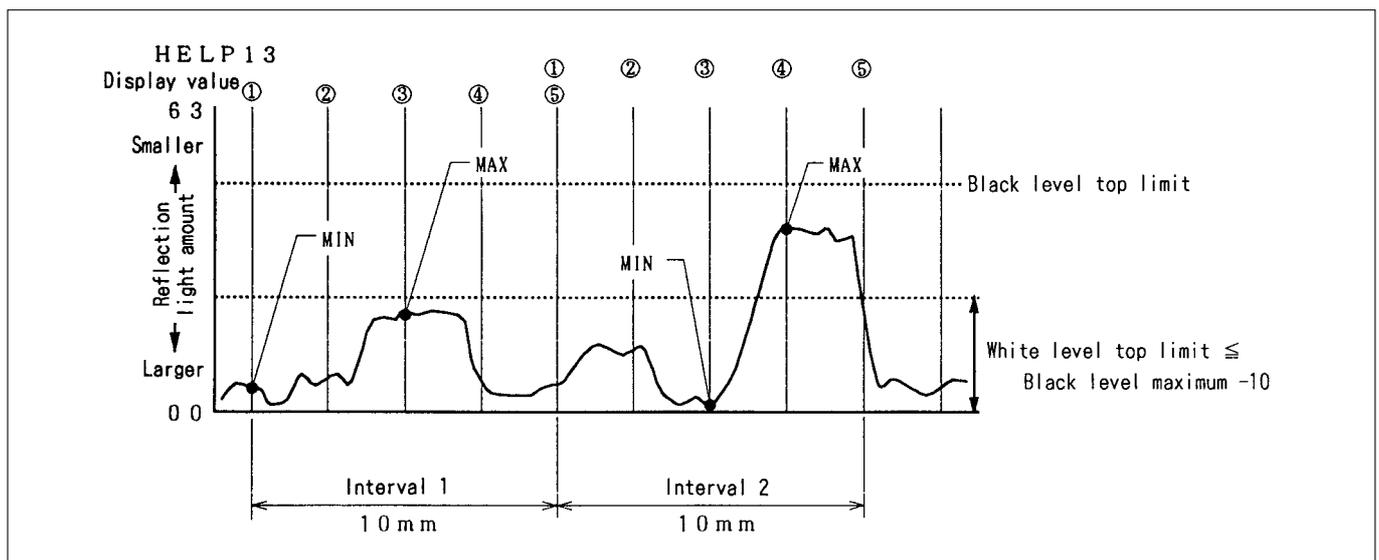
- When the end mark is detected, "CHANGE MASTER" is displayed.
- When "CHANGE MASTER" is displayed, plate-making is not performed next.
- "CHANGE MASTER" is only cleared by pressing the master set SW.
(The display is not cleared by turning the power off.)



Timing

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

- ① While the master is rolling up to the drum during platemaking, the following is checked.
- ② The reflection light amount is read 5 times while the master passes 10 mm on the lower section of the end mark sensor.
- ③ When the 5 data meet the following requirements, 1 is counted.
Maximum-Minimum > 10 and Maximum \geq White level top limit.
- ④ When over 7 is counted, the end mark is detected.



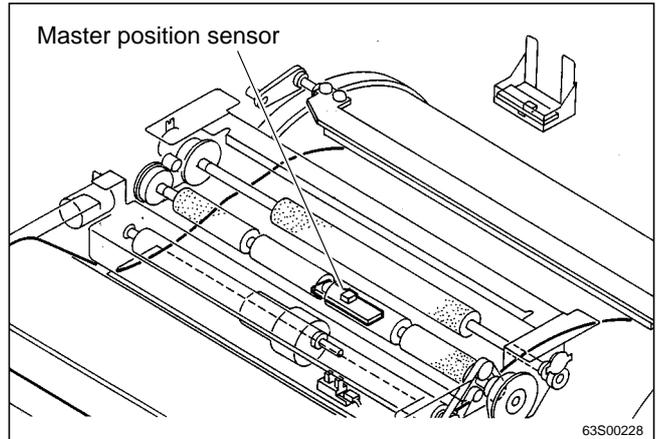
In the case of the above

- In interval 1, the maximum value is not over the white level, top limit counting is not conducted with MAX - MIN > 10.
- In interval 2, the maximum value is over the white level, top limit counting is conducted with MAX - MIN > 10.

(3) Master Position Sensor

Description

The master position 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, and controls its attachment position. If the intensity of the reflected light does not reach the "white" level (which indicates presence of the master) a single time during platemaking, "SET MASTER ROLL PROPERLY" is displayed.



Reflection light amount

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

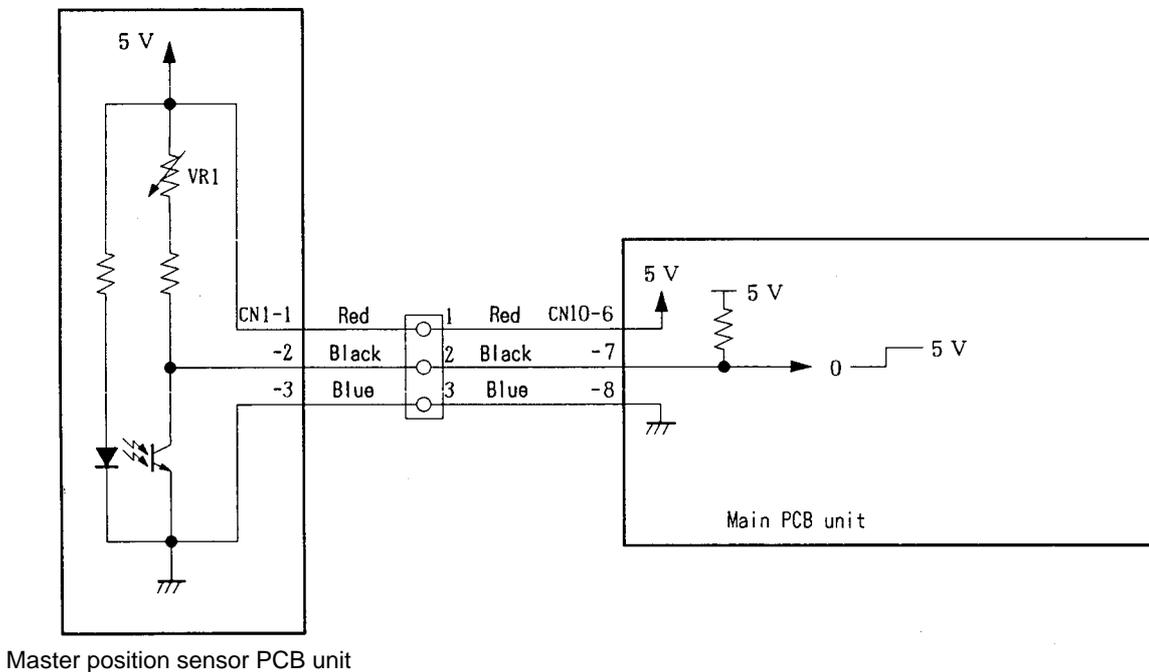
The value is checked with the HELP 13.

HELP mode H-13 → see p.308

Sensitivity adjustment of master position sensor

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

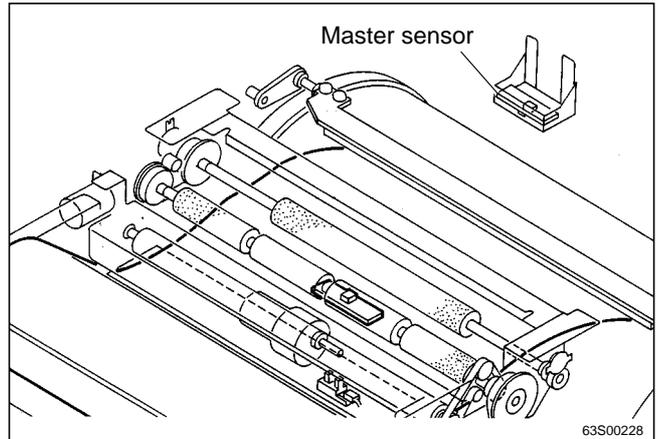
Circuit



(4) Master Sensor

Description

The 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 SETTING ERROR" 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.

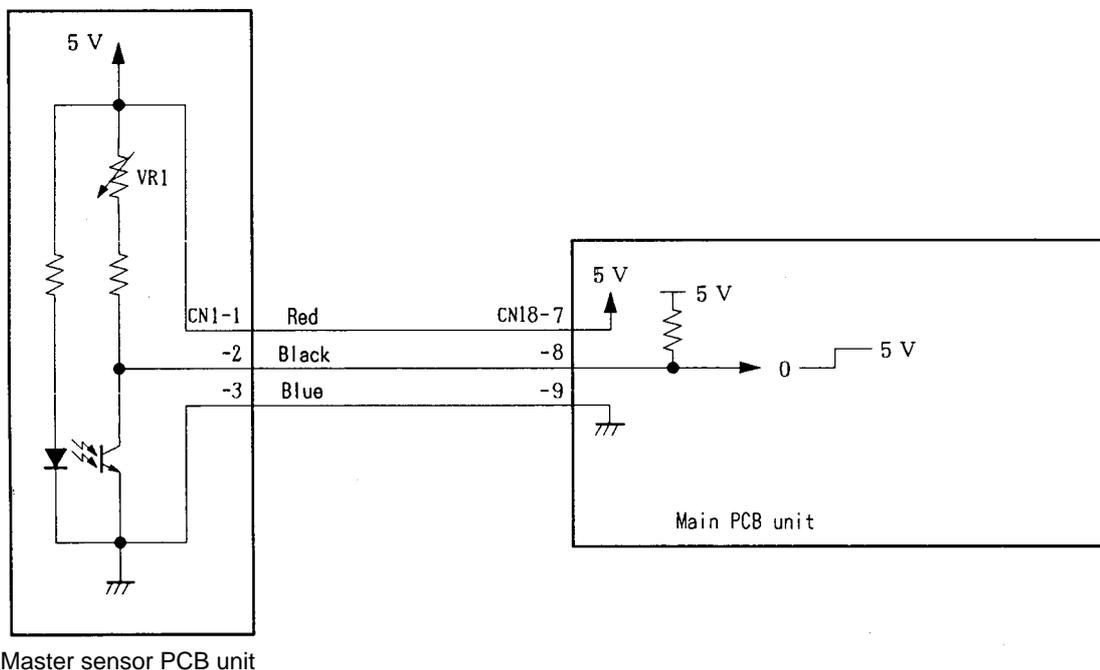
The value is checked with the HELP 13.

HELP mode H-13 → see p.308

Sensitivity adjustment of master sensor

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

Circuit



Master Setting Error Detection Operation

In platemaking, the end mark sensor uses amount of reflected light to detect presence or absence of a master on the transfer path. Then the following displays and operations are performed:

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

Timing

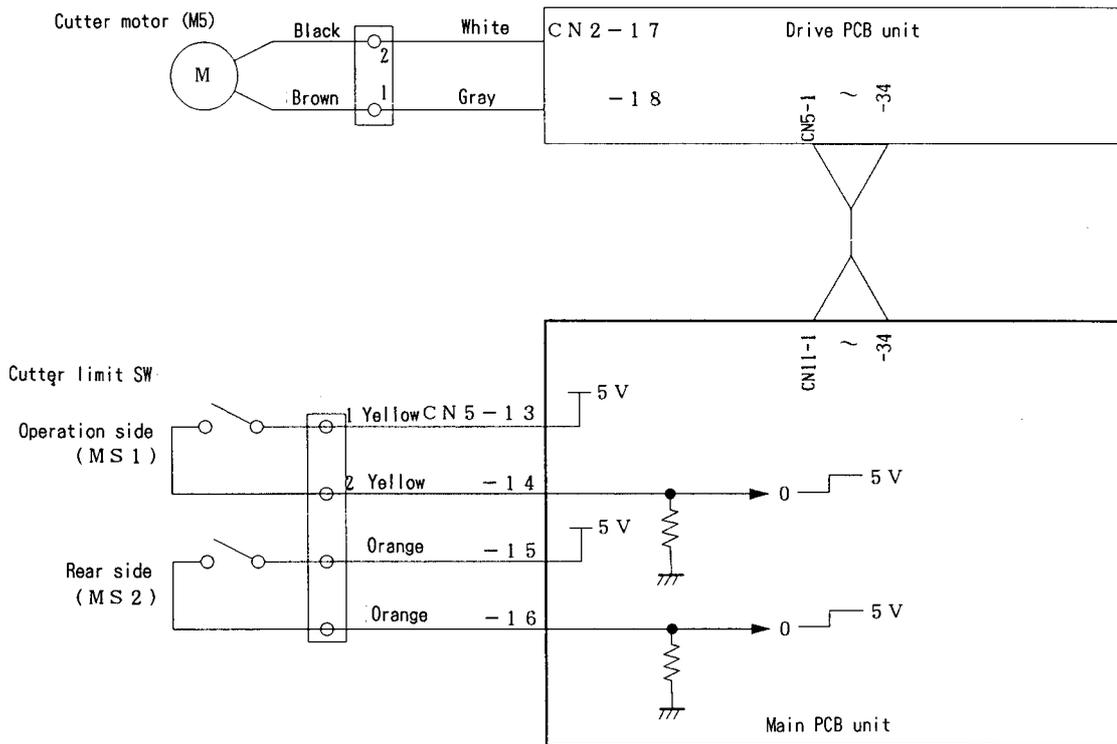
- (1) While platemaking is being processed, the reflection light amount does not turn to be in a white level.
- (2) When platemaking process is finished (before printing process), the reflection light amount is in a white level.

(5) Cutter Unit

Description

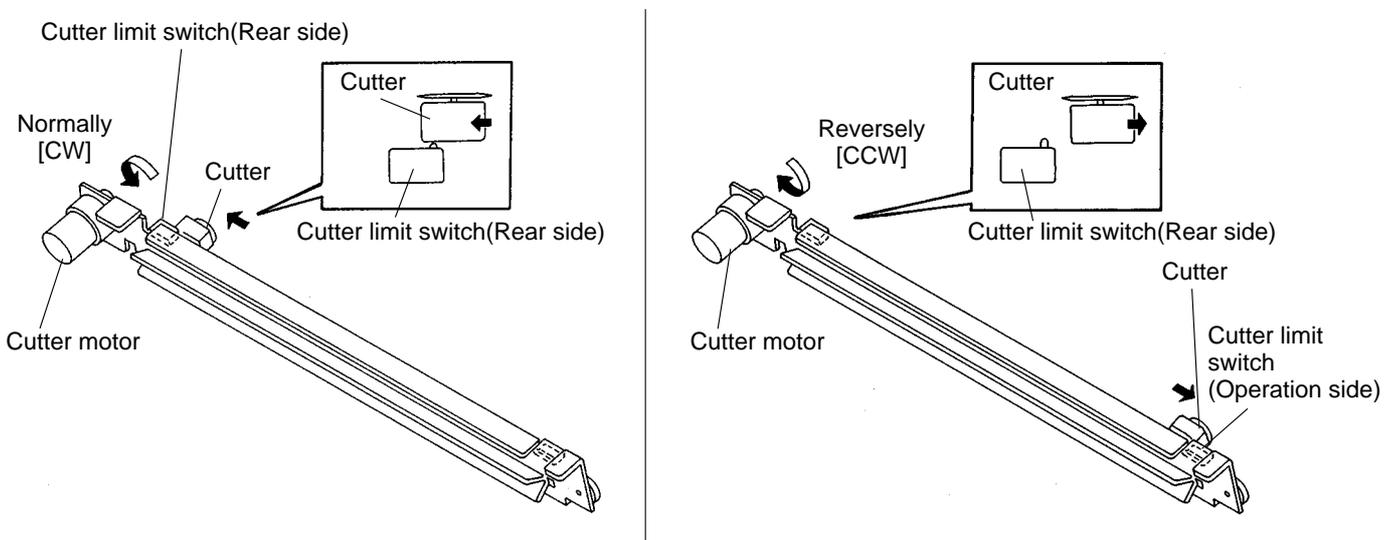
Completed, the stepping motor for platemaking and the drum stops temporarily, the cutter motor is turned on to drive the cutter and the master is cut.

Circuit



Operation

In master cutting, the cutter motor rotates in the regular (clockwise) direction, so that the cutter moves from the operation side to the rear side and cuts the master. As soon as the cutter trips the (rear side) cutter limit switch, the cutter motor reverses its rotation direction (to counterclockwise), to return the cutter to the operation side.

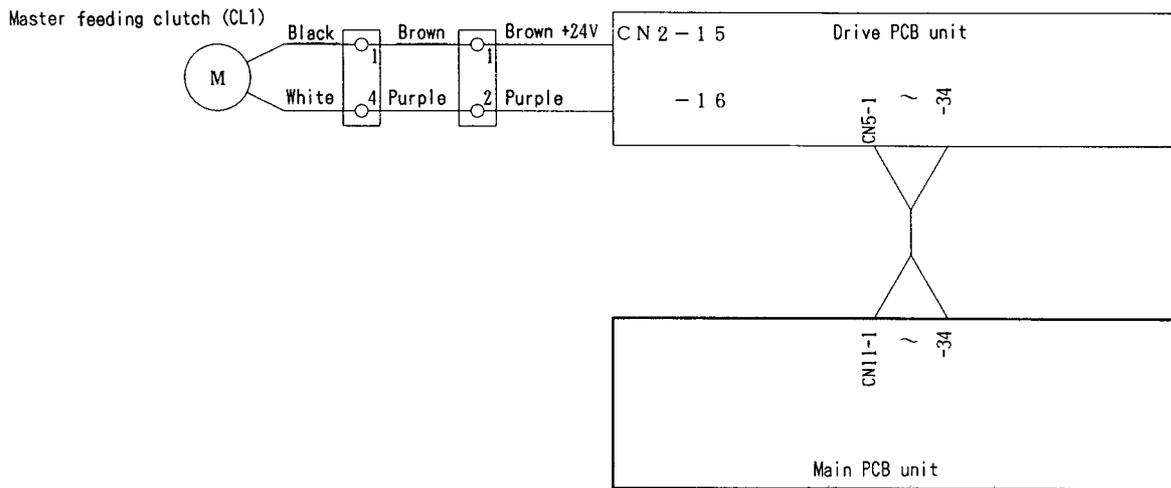


(6) Master Feeding Clutch(Electromagnetic clutch)

Description

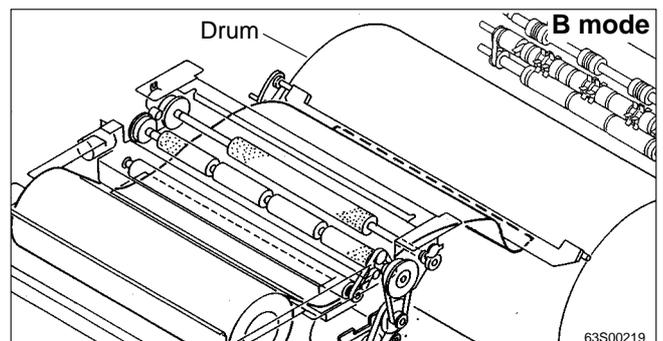
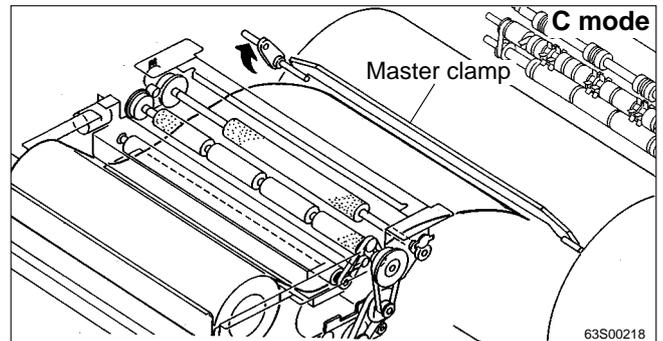
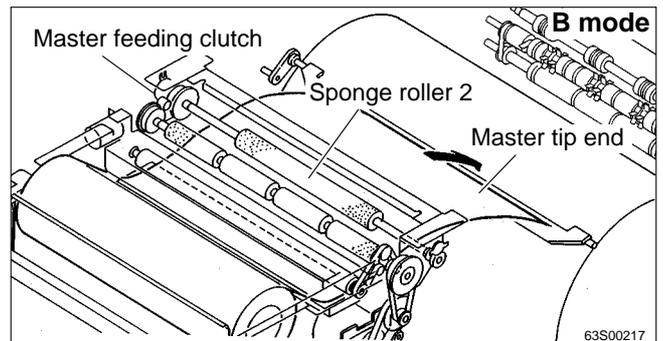
Sponge roller 2 is attached to the bottom section of the master conveyance way of the master feeding unit, and is driven via the master feeding clutch (CL1) by the platemaking motor. The rotation of sponge roller 2 is controlled with the master feeding clutch ON / OFF.

Circuit



Operation

- 1) In the platemaking process, when the drum stops in the master winding position, the master feeding clutch comes on, so that sponge roller 2 is driven and feeds out the master by a fixed amount.
- 2) The master clamp opens and closes, to clamp the master.
- 3) When the master is wound onto the drum, the master feed clutch turns off, leaving sponge roller 2 free to be turned by the master as it is wound off the drum.

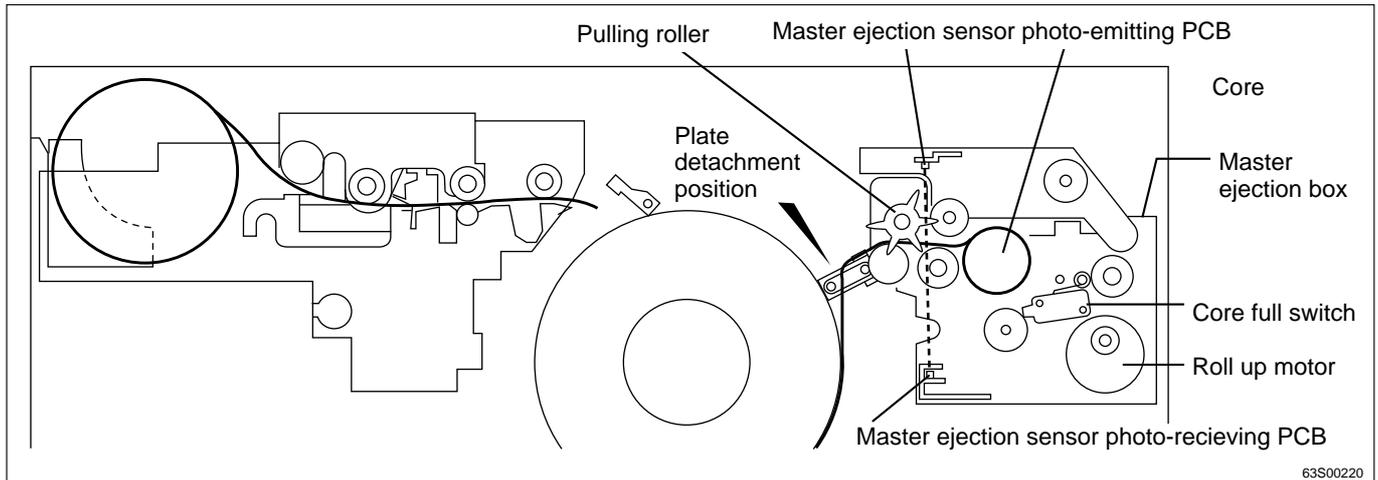


《 Master Ejection Section 》

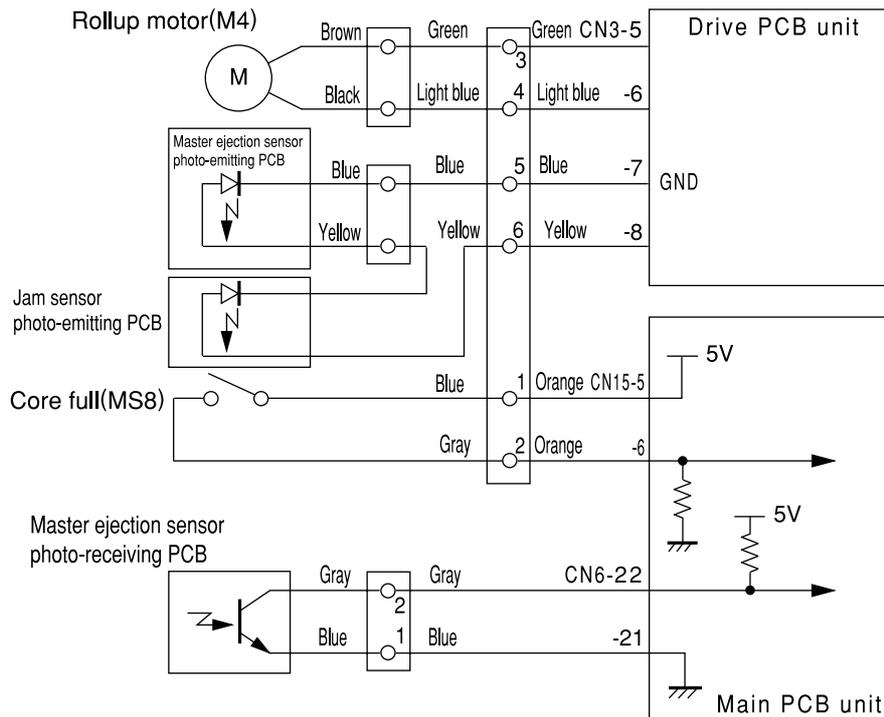
1. Description

When the drum stops at the 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 core full switch (MS8) is mechanically actuated, and the message "CHANGE MASTER EJECTION CORE" appears on the operation panel LCD panel.



2. Circuit



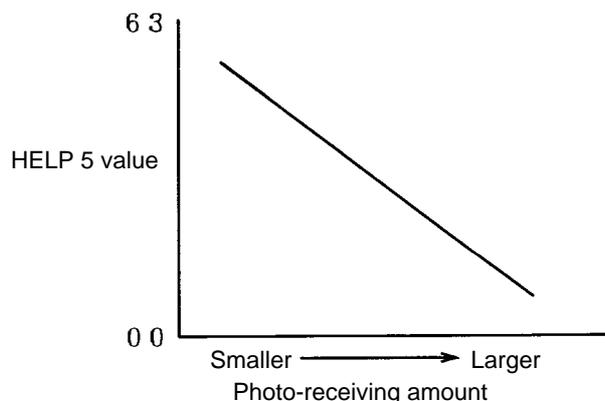
3. Function of Parts

(1) Master Ejection Sensor

Operation

Photo-emission from the master ejection sensor is received on the master ejection sensor, and the sensor detects with the photo strength whether the master is pulled to the master ejection box. Photo-receiving amount is checked with the HELP5.

HELP mode H-05 → see p.298



1. Plate Ejection Error Detection

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

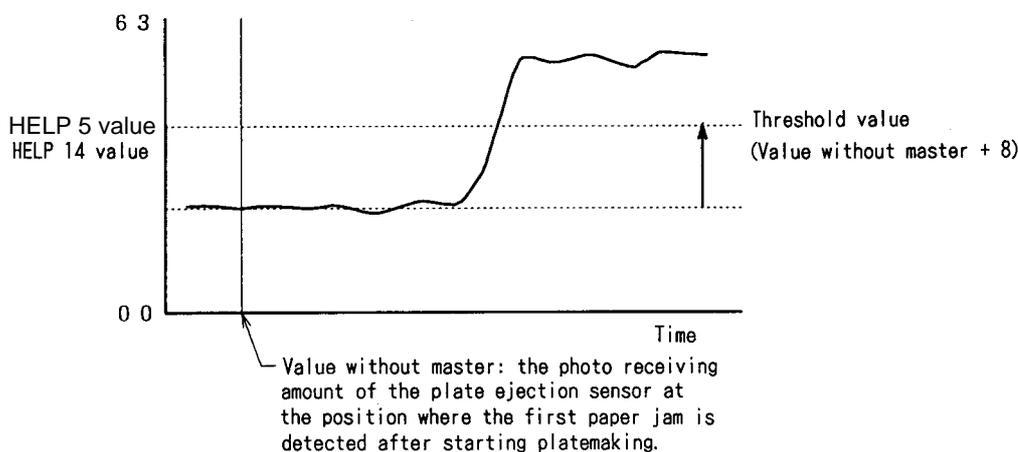
- "PLATE EJECTION ERROR" is displayed on the error display panel and printing is not processed.
- "PLATE EJECTION ERROR" is cleared with the all clear  key, stop  key or by performing platemaking / printing.
- A plate ejection error is not detected for one platemaking soon after a plate ejection error or master setting error is detected.

IMPORTANT : • If incorrect sensing occurs due to sensor malfunction, etc., HELP32 can be used to prohibit plate ejection error sensing.

HELP mode H-32 → see p.333

Timing

If the variation in the amount of light received by the master ejection sensor during the making of 1 plate is less than a certain level (8 in the HELP5 display value), a plate ejection error is deemed to have occurred.



2. Rotation Control of the Roll-up Motor

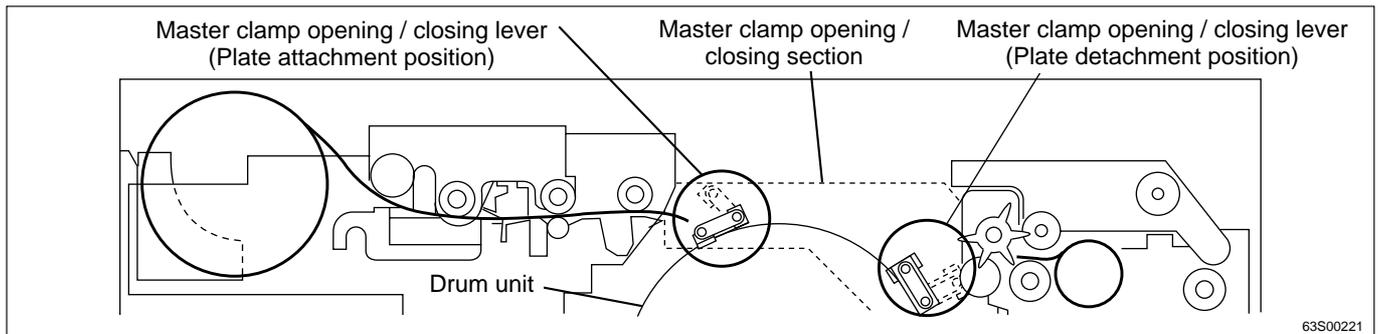
If the roll-up motor is kept rotating when the master tip end is pulled to the ejection box in the plate detachment process, the drum is actuated by the master and the stop position slips. To prevent this, the rollup motor is stopped when the master is detected by the master ejection sensor. (If the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

《 Master Clamp Opening / Closing Section 》

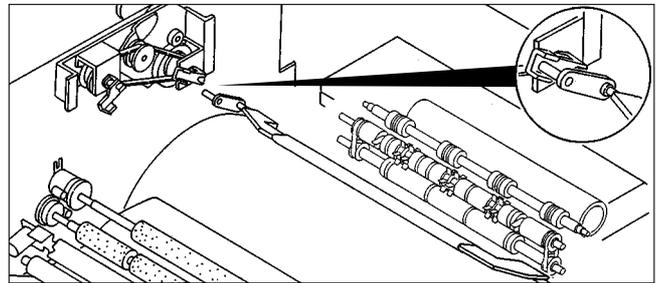
1. Description

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

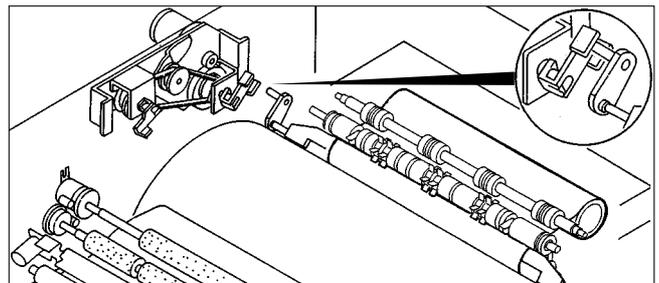
The master clamp is opened or closed during platemaking. Opening / closing operation is as follows:-



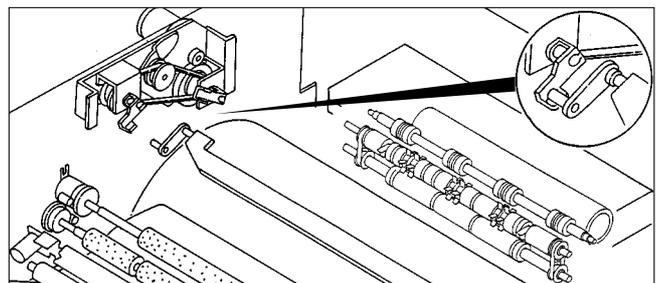
- 1) When platemaking starts, the drum unit rotates from the stop position to the opening / closing lever section (master detachment position) and it stops temporarily. (B mode)



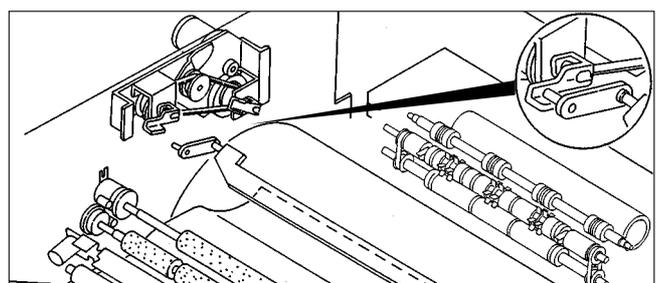
- 2) Open the master clamp to have the used master tip end gripped by the plate ejection unit.



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



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

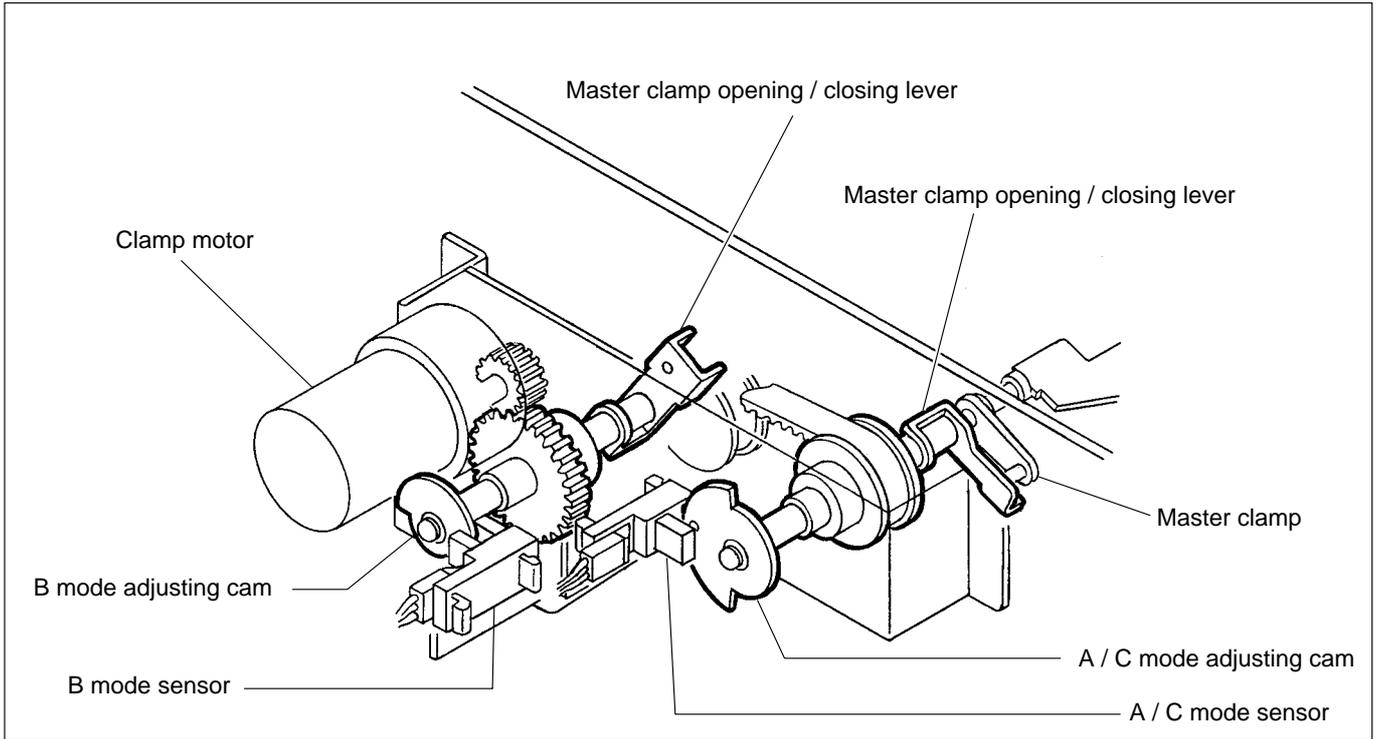


- 5) Rotate the drum, to wind the master onto it.

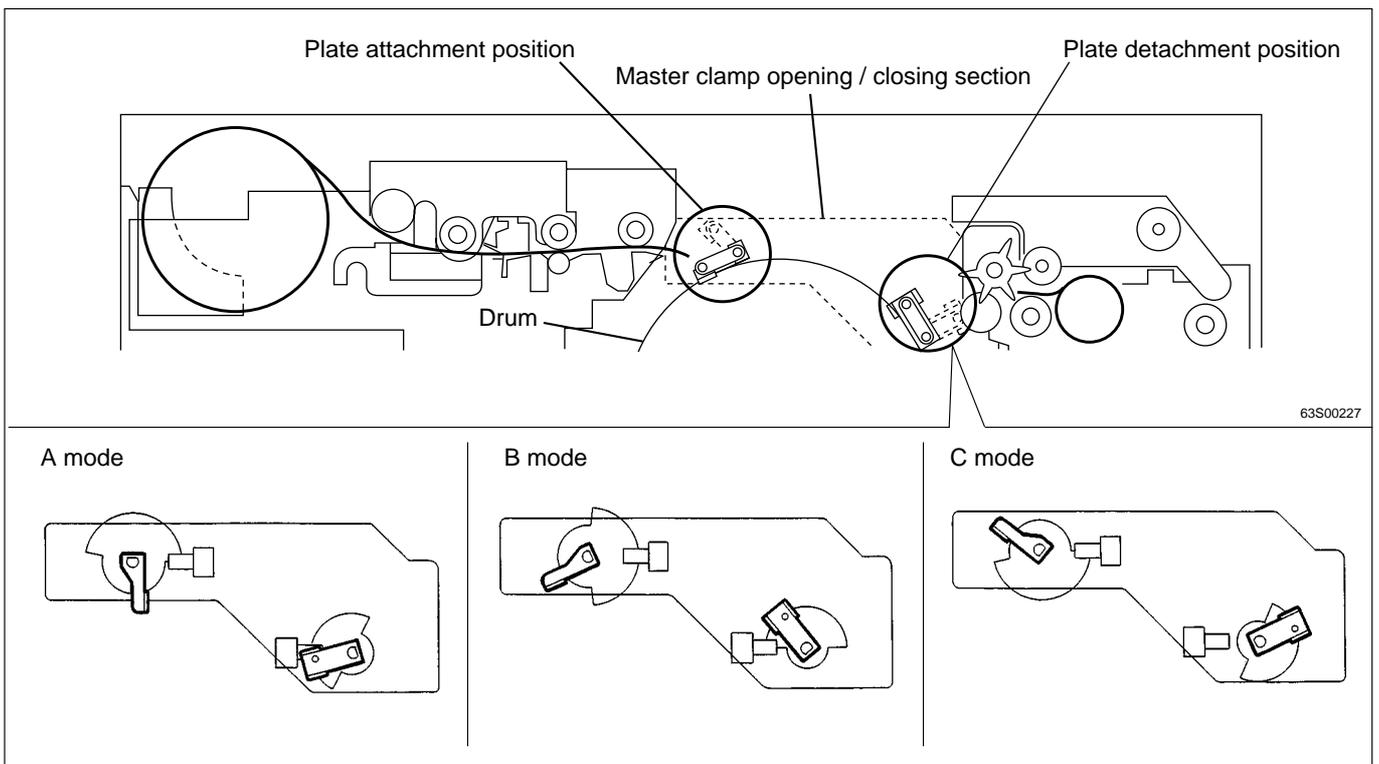
2. Operation of Master Clamp Open / Close Lever

(1) Structure

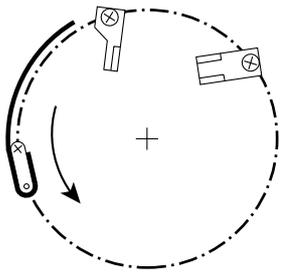
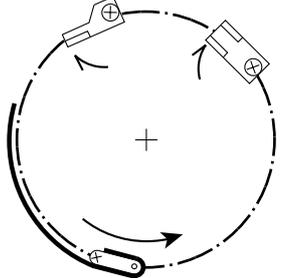
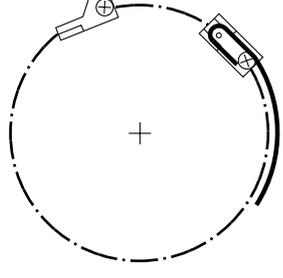
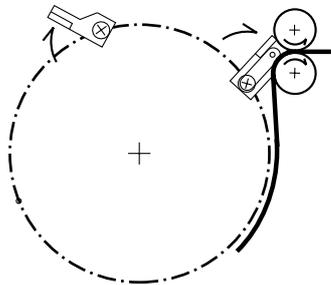
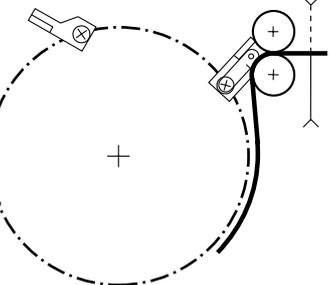
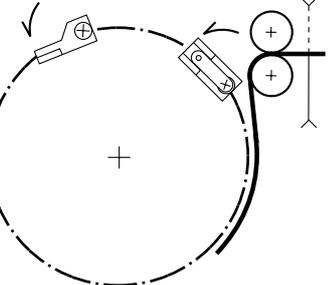
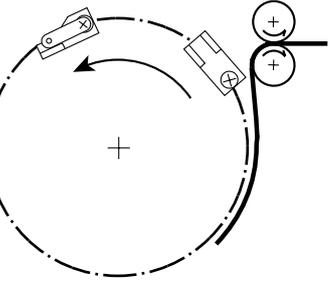
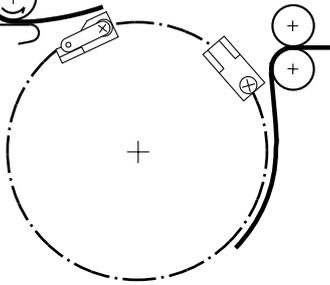
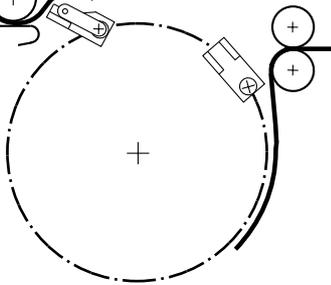
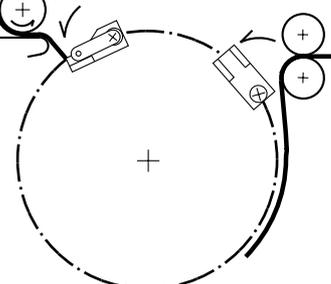
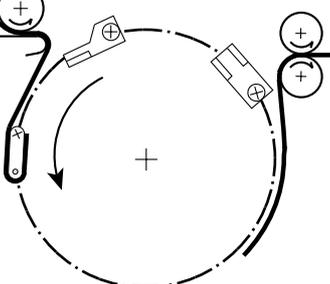
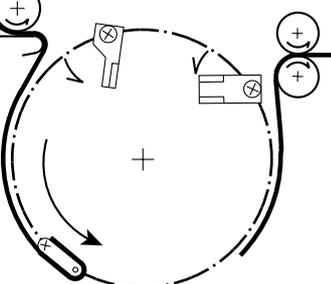
The following is the structure of the master clamp opening / closing section viewed with the rear cover opened. The rotation stop position of the master clamp opening / closing lever is determined by the clamp motor and two cams. There are 3 rotation stop positions: A mode, B mode and C mode. Their functions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



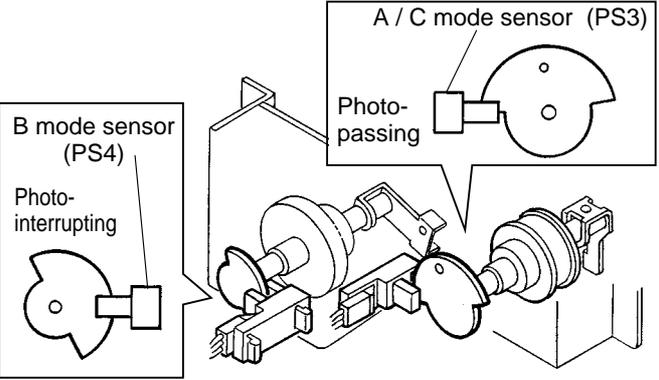
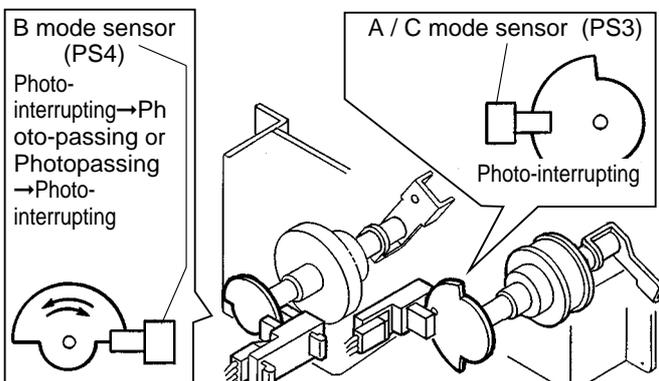
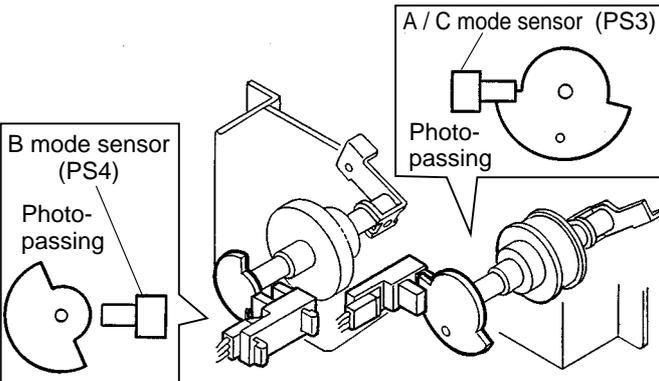
The drawing below is a section through the machine's interior, viewed from the control side.



(2) Plate Attachment / Detachment Operation

		
<p>(1) A mode The drum start rotates.</p>	<p>(2) A mode → B mode The opening / closing lever changes to B mode.</p>	<p>(3) B mode The drum rotates to the plate detachment position. → Stop</p>
		
<p>(4) B mode → C mode The clamp opens to pull the master.</p>	<p>(5) C mode The pulling roller stops. When the master ejection sensor detects the master.</p>	<p>(6) C mode → B mode The clamp is closed.</p>
		
<p>(7) B mode The drum rotates to the plate attachment position. → Stop</p>	<p>(8) The sponge roller feeds out the master.</p>	<p>(9) B mode → C mode Master clamp opens.</p>
		
<p>(10) C mode → B mode The clamp grips the master.</p>	<p>(11) B mode The drum rotates to roll up the master.</p>	<p>(12) B mode → A mode The clamp lever returns to A mode.</p>

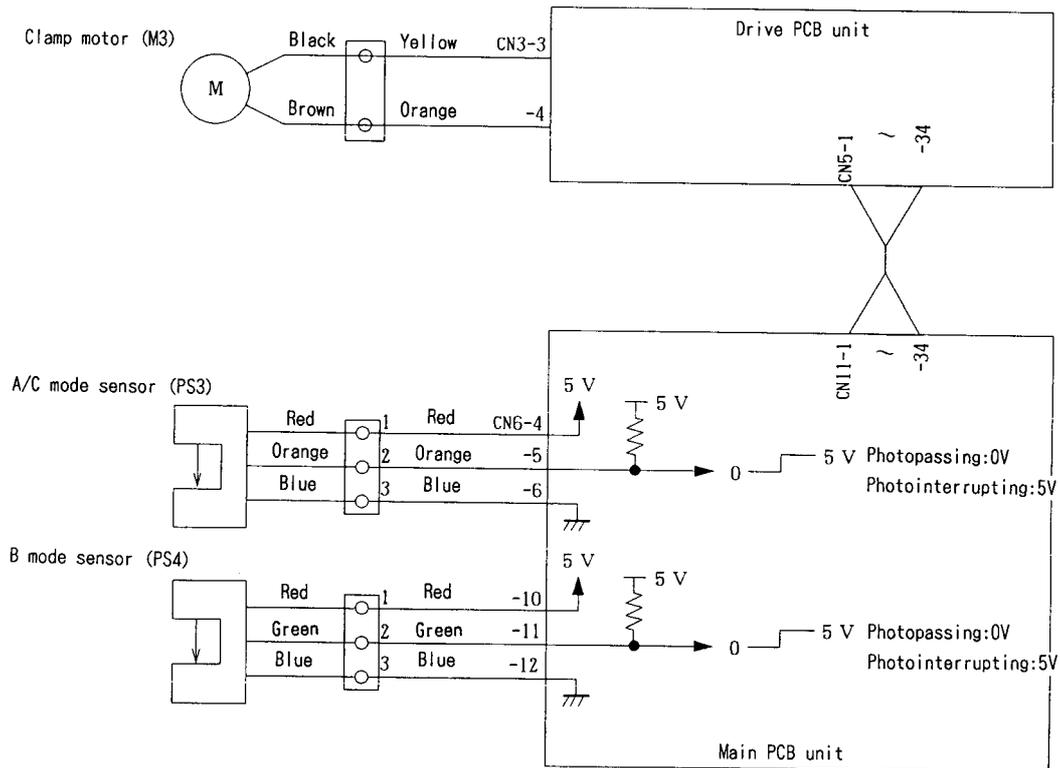
**(3) Clamp Opening / Closing Lever
Position (A / B / C Mode)**

Mode	Photointerrupter stop position / state of sensor	Functions
<p>A mode</p>	 <p>B mode sensor (PS4) Photo-interrupting</p> <p>A / C mode sensor (PS3) Photo-passing</p>	<p>In the normal state or during printing, the master clamp opening / closing lever turns out from the master clamp opening / closing lever.</p>
<p>B mode</p>	 <p>B mode sensor (PS4) Photo-interrupting → Photo-passing or Photopassing → Photo-interrupting</p> <p>A / C mode sensor (PS3) Photo-interrupting</p>	<p>The master clamp opening / closing lever pinch the master clamp opening / closing arm.</p>
<p>C mode</p>	 <p>B mode sensor (PS4) Photo-passing</p> <p>A / C mode sensor (PS3) Photo-passing</p>	<p>The master clamp is open. This state occurs when the master is attached or detached.</p>

3. Function of Parts

(1) A / B / C Mode Sensor

Circuit



Operation / Sequence

Sequence	A-MOD	B-MOD	C-MOD	B-MOD	C-MOD	B-MOD	A-MOD
A/C mode sensor (PS3)							
B mode sensor (PS4)							
Clamp motor (M3)							

- Motor rotates normaly (CW) or switchis ON.
- Motor stops or switch is OFF.
- Motor rotates reversly (CCW).

The master tip end is pulled into the master ejection box. The master clamp clamps the tip end of the master. The master tip end is fed to the master clamp section.

The mode is detected under the following conditions

● A mode

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

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

● B mode

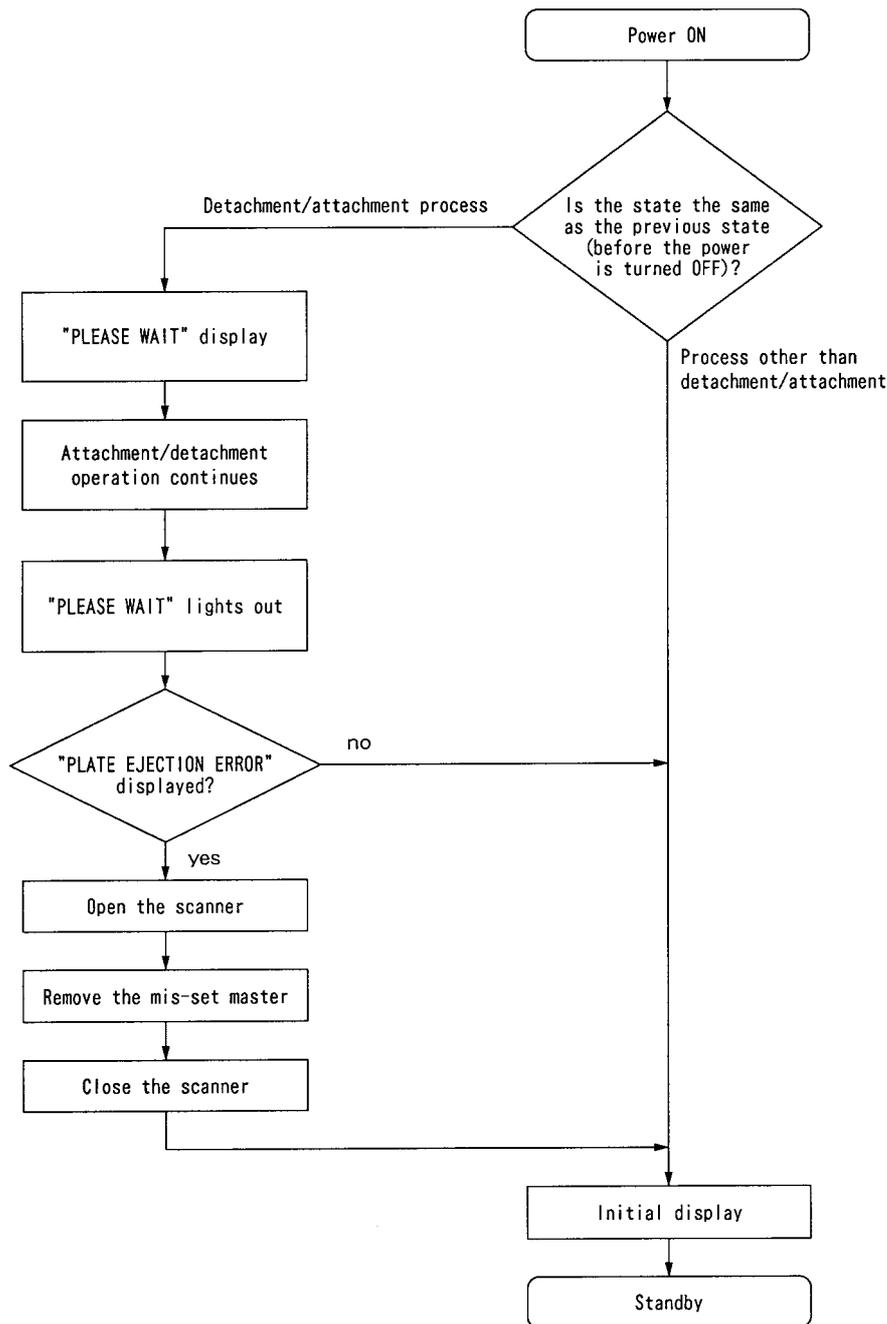
When the A/C mode sensor is photointerrupted, the B mode sensor detects the edge of photointerrupting → /photopassing or photopassing - photointerrupting.

● C mode

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

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

The machine returns to the initial state automatically when the power is turned off mistakenly during processing platemaking, plate-detaching and plate-attaching simultaneously or when the power returns after it is interrupted.

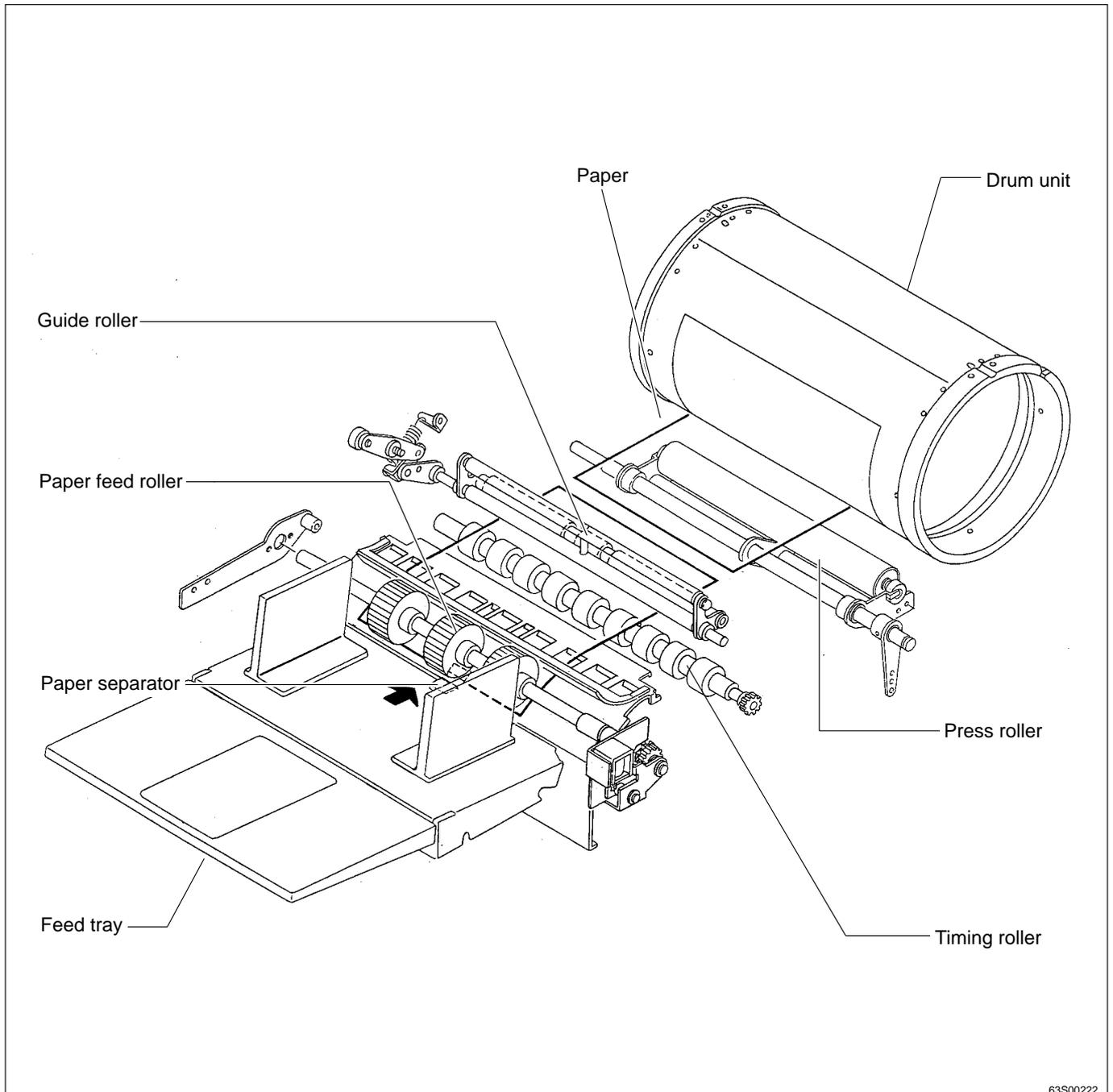


3 Paper feed section

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. Paper fed by the paper separator and paper feed roller is fed further by the timing roller and guide roller to the point where its leading edge is sandwiched between the drum and the press roller. Then the pression of the timing roller and guide roller is released (by moving the guide roller upward several mm), so that the paper is fed through at a speed equal to the circumferential speed of the drum and press roller. The press roller sensor senses the paper feed condition; if a feed error occurs, the message "PAPER JAM" is displayed. For details, see "Paper jam detection timing" in chapter 2.

➔ See page 135

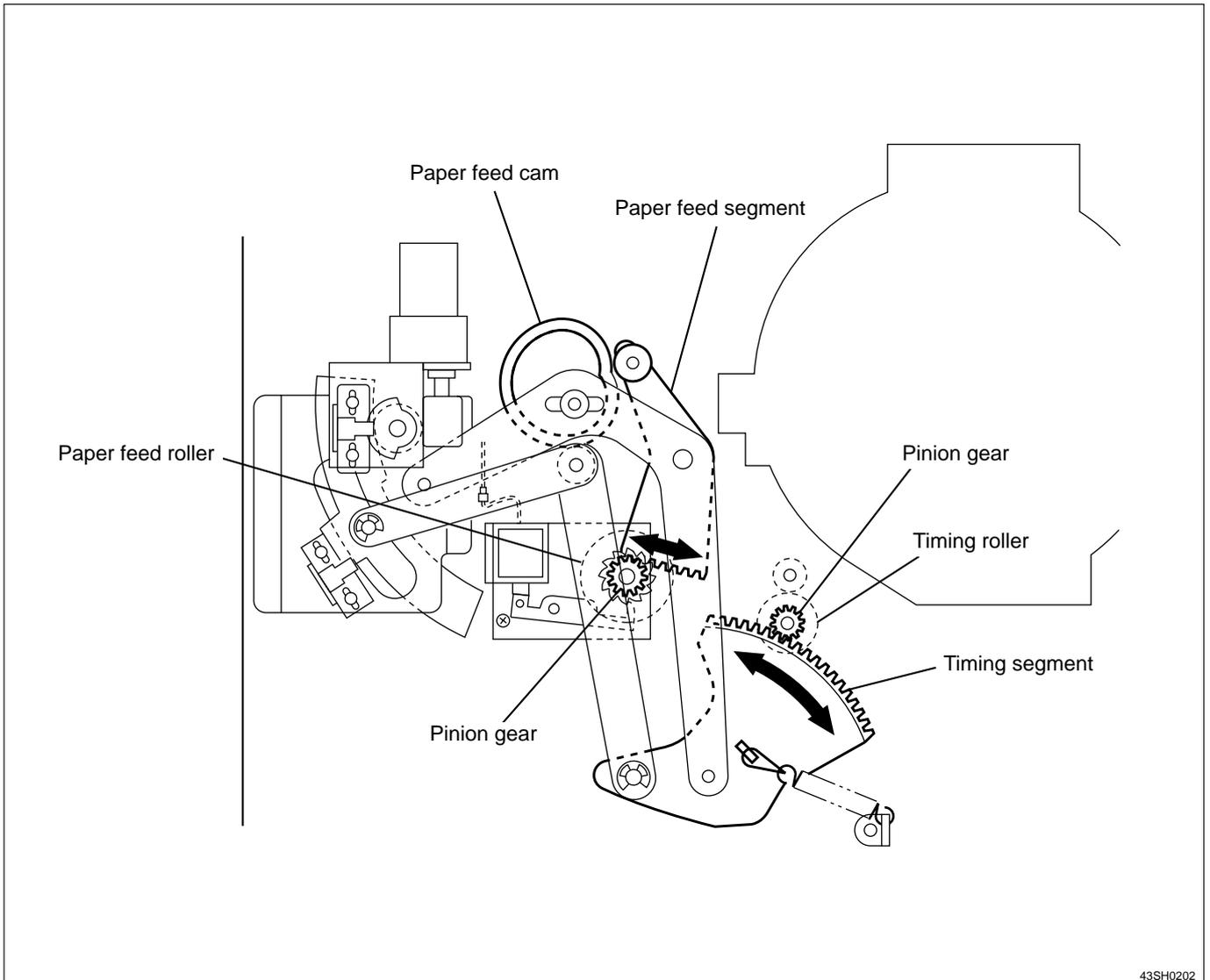


63S00222

2. Operation

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

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

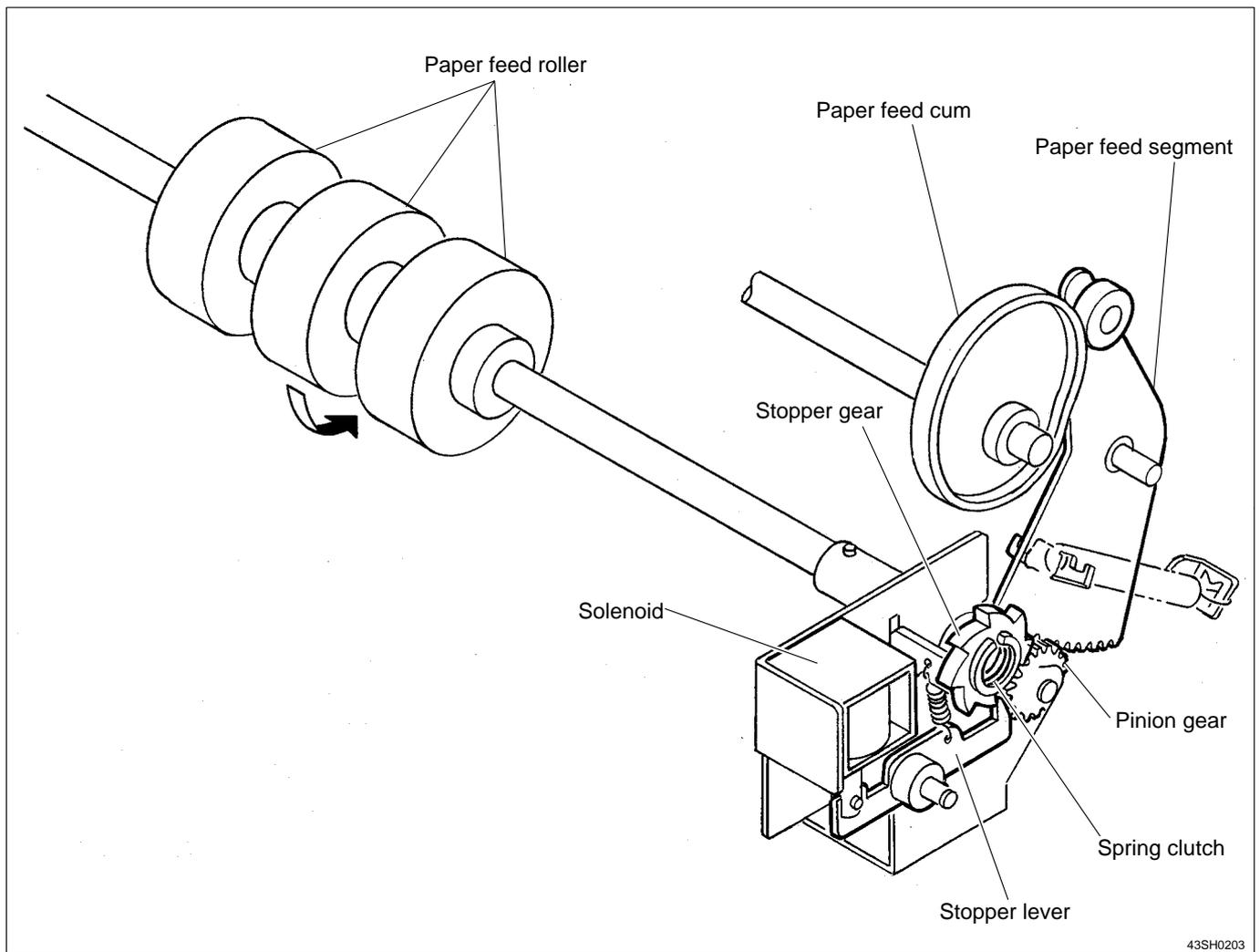


43SH0202

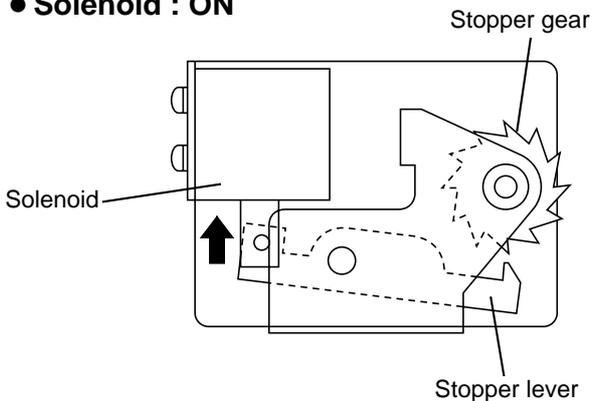
(2) Paper Feed Roller Drive

The drive power to the paper feed roller is transmitted via the pinion gear, stopper gear and spring clutch. When the solenoid (SL1) comes on, making the stopper lever move clear of the stopper gear, the paper feed cam is freed and rotates, causing the paper feed segment to execute a reciprocating motion. This motion is transmitted to the pinion gear, which, via the action of the spring clutch shown in the mechanism illustration below, makes the paper feed shaft (and hence the paper feed roller) rotate in a single direction (the paper feed direction).

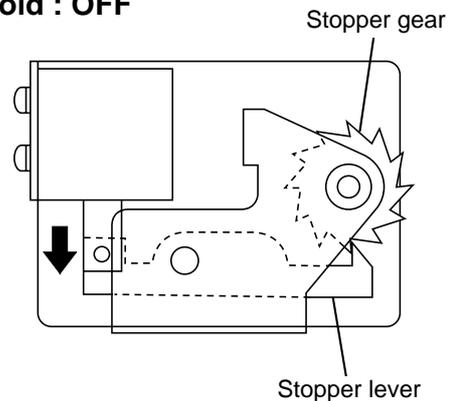
When SL1 turns off, the stopper lever is reapplied to the stopper gear, and the pinion gear's motion ceases to be transmitted to the paper feed roller shaft.



● Solenoid : ON



● Solenoid : OFF

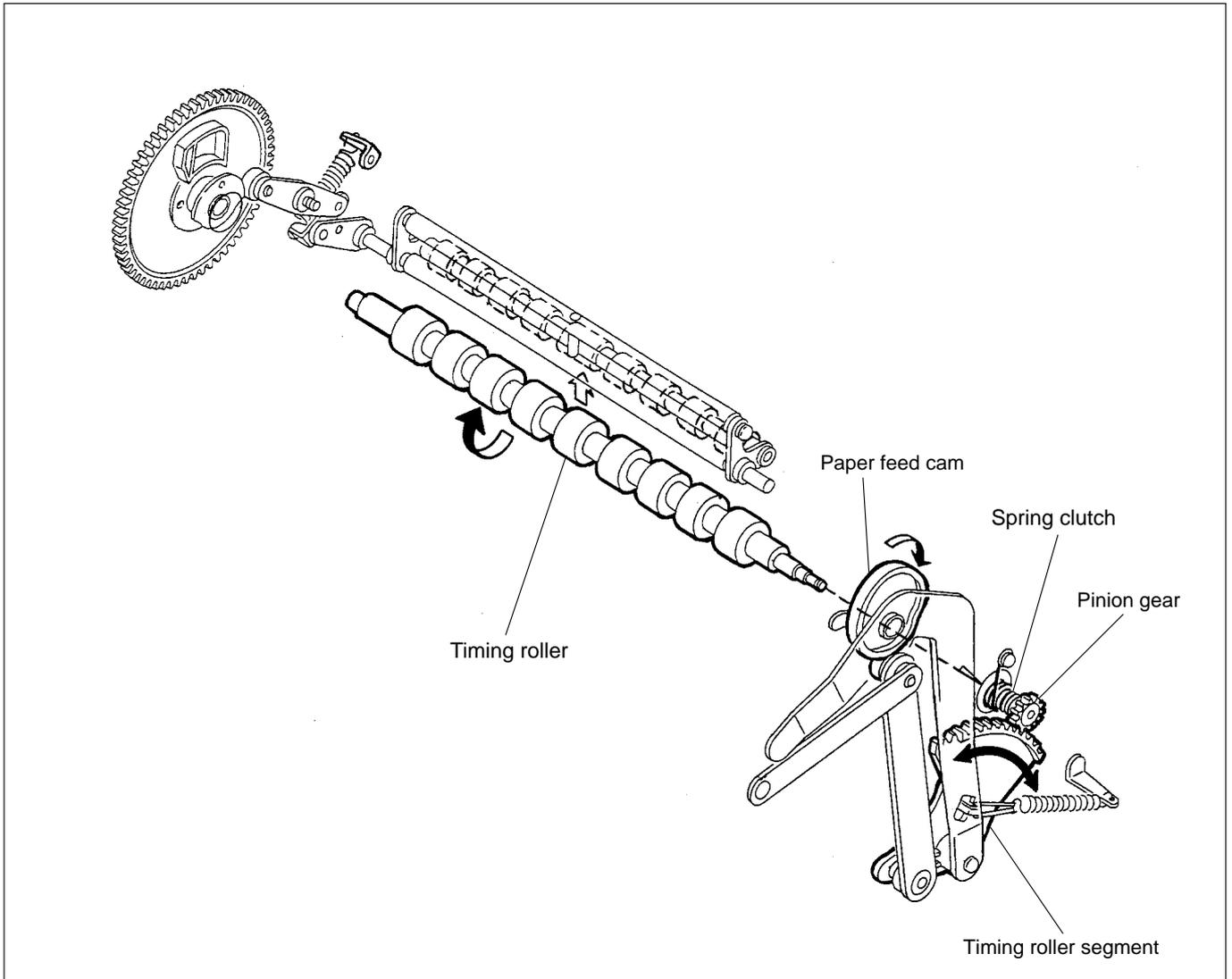


43SH0203

43SH0204

(3) Driving of the Timing roller

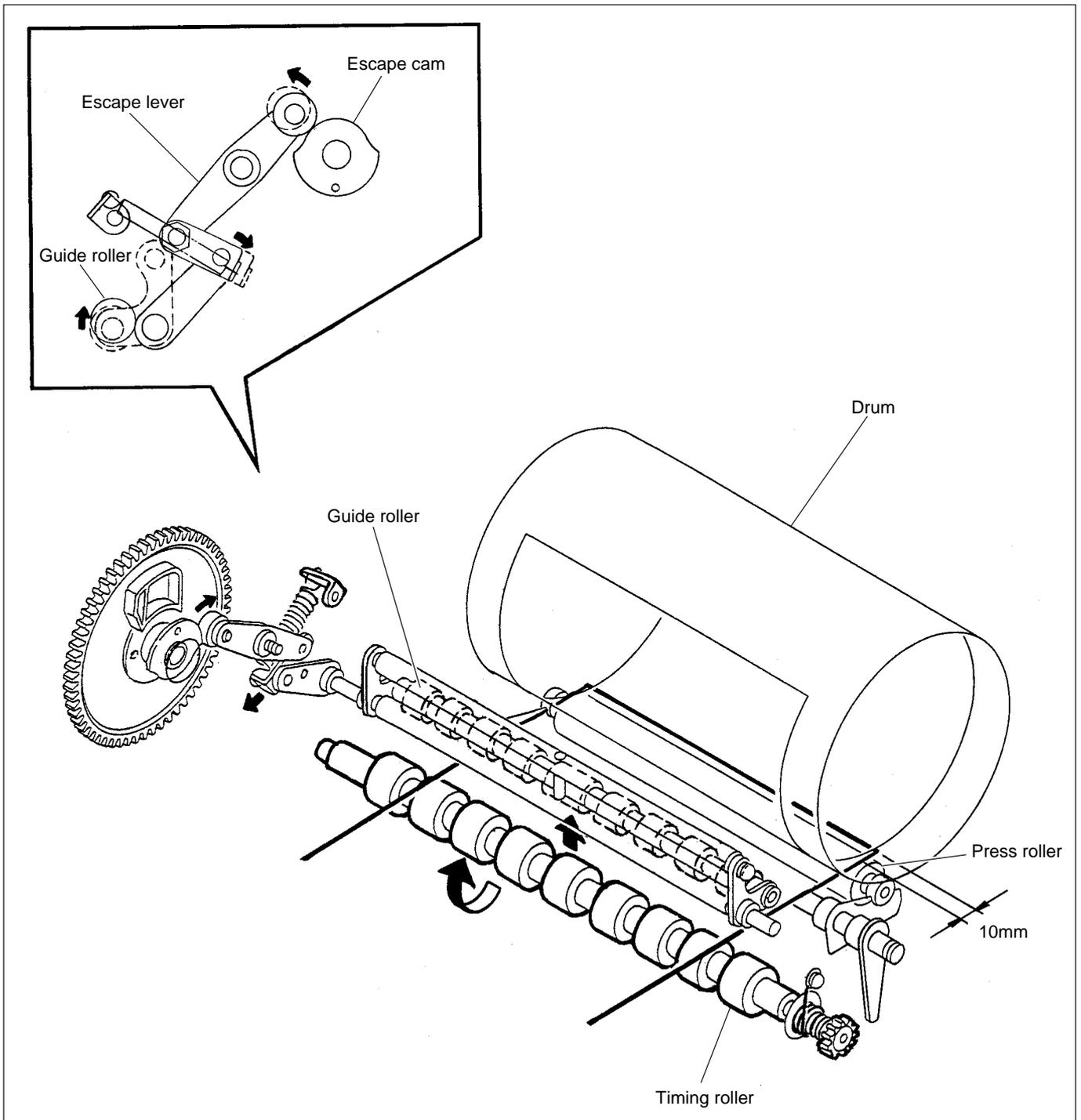
Timing roller is actuated to rotate by the pinion gear and spring clutch. When the paper feed cam rotates, the reciprocating motion of the timing roller segment is transmitted to the pinion gear, and the spring clutch works to rotate the Timing roller in the direction of conveyance.



(4) Escape the Guide roller

After the Press roller is pressed to the drum, the printing paper is gripped firmly with the drum and Press roller, the Guide roller is released from the Timing roller. This is called "escaped". Escape timing is within a period when the printing paper is conveyed about 10 mm after it is gripped with the drum and Press roller.

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

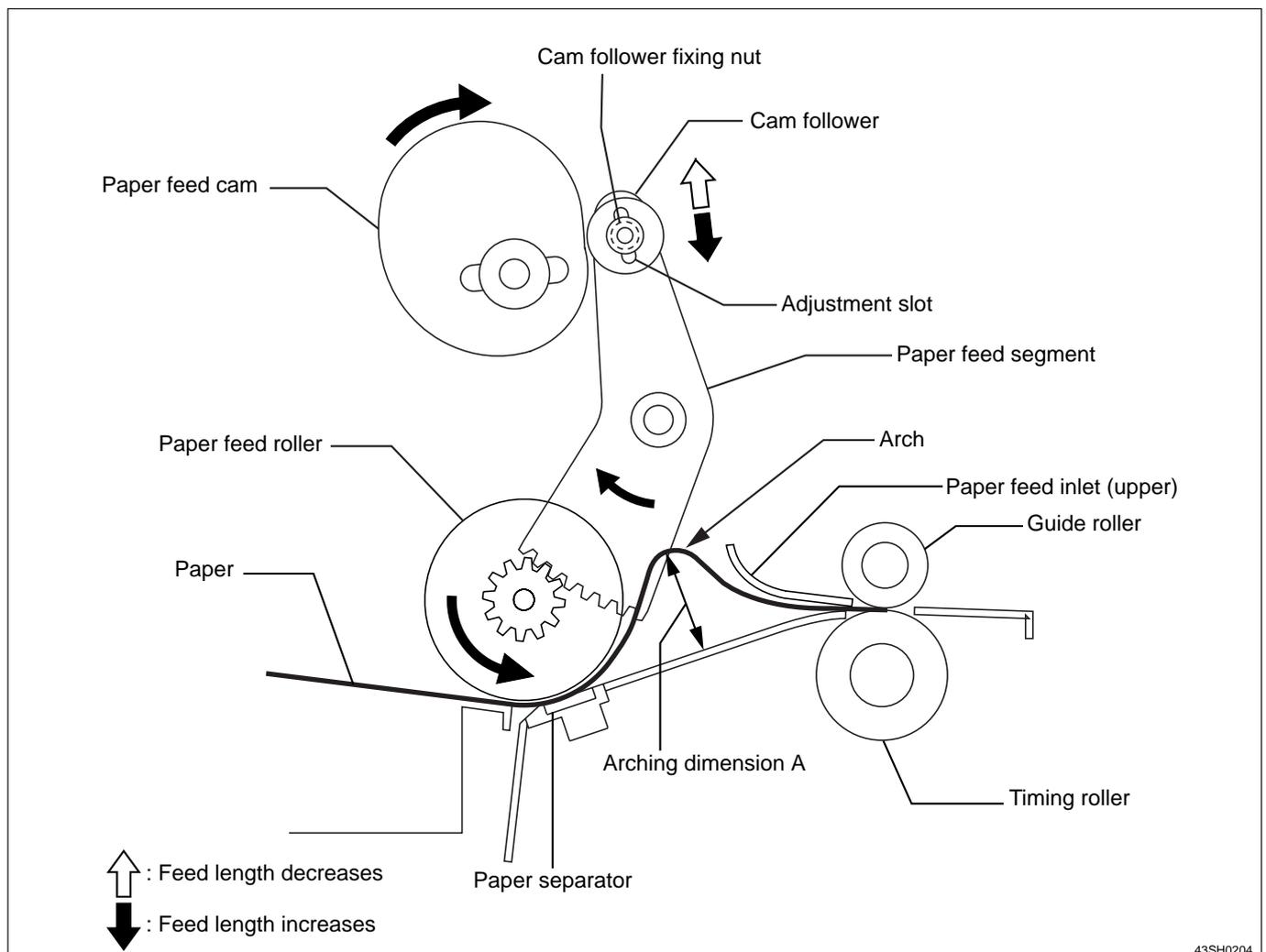


(5) Paper Feed Length

The “paper feed length” is the length by which the paper feed roller feeds out the print paper. When the paper feed roller feeds out the print paper, the guide roller is pressed against the timing roller and does not rotate; as a result, the paper arches up between the paper separator and the timing roller, since the distance between these two items is only 80mm, while the length by which the paper is fed out from the paper feed roller is 95mm. This arching has the effect of correcting any skewing of the paper (as the leading edge is held firm between the guide and timing rollers). It also has the effect of lessening the load on the timing roller when it feeds the paper through, thus minimizing slippage.

The paper feed length can be adjusted by loosening the cam follower fixing nut and moving the cam follower along the adjustment slot in the direction of the arrows in the figure below.

Appropriate range for paper arching dimension A: 3-20mm (the thicker the paper, the larger the slippage amount and the smaller the arching dimension).

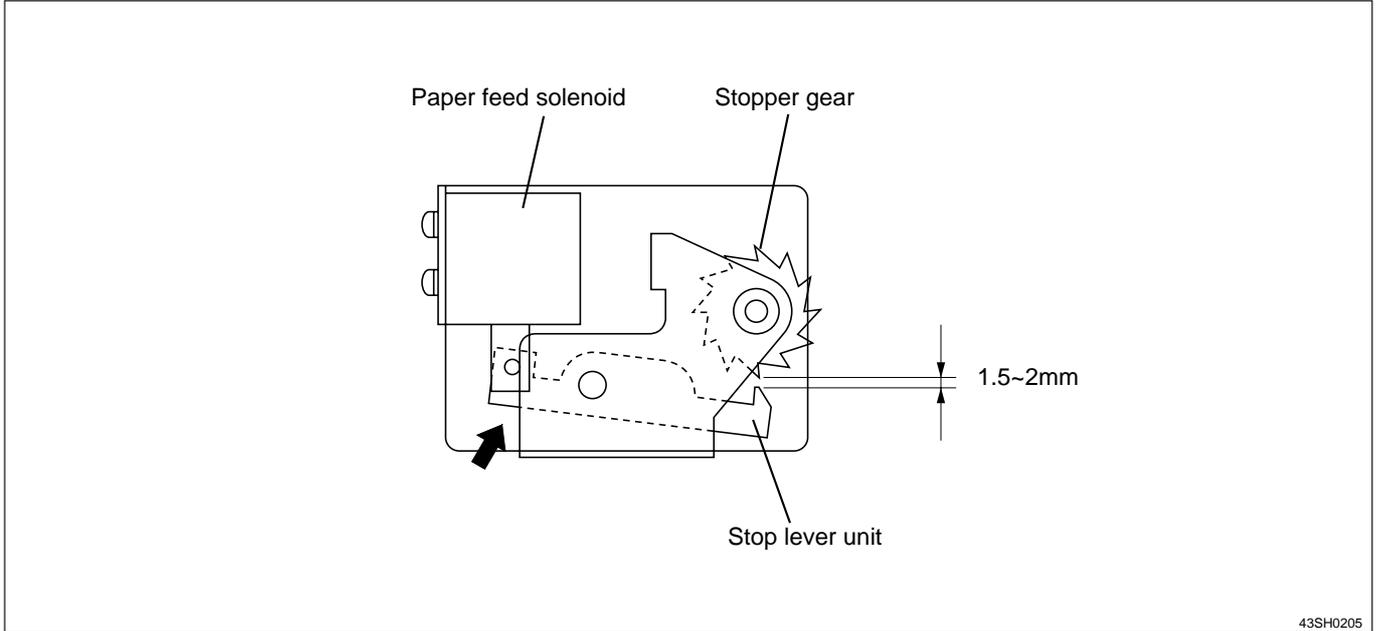


- IMPORTANT** :
- If paper feed length is too large: the arching dimension will be too large, and if the paper is of a very stiff type, it will buckle up between the paper feed roller and the paper feed inlet (upper), causing a PAPER JAM error.
 - If paper feed length is too small: the arching dimension 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.

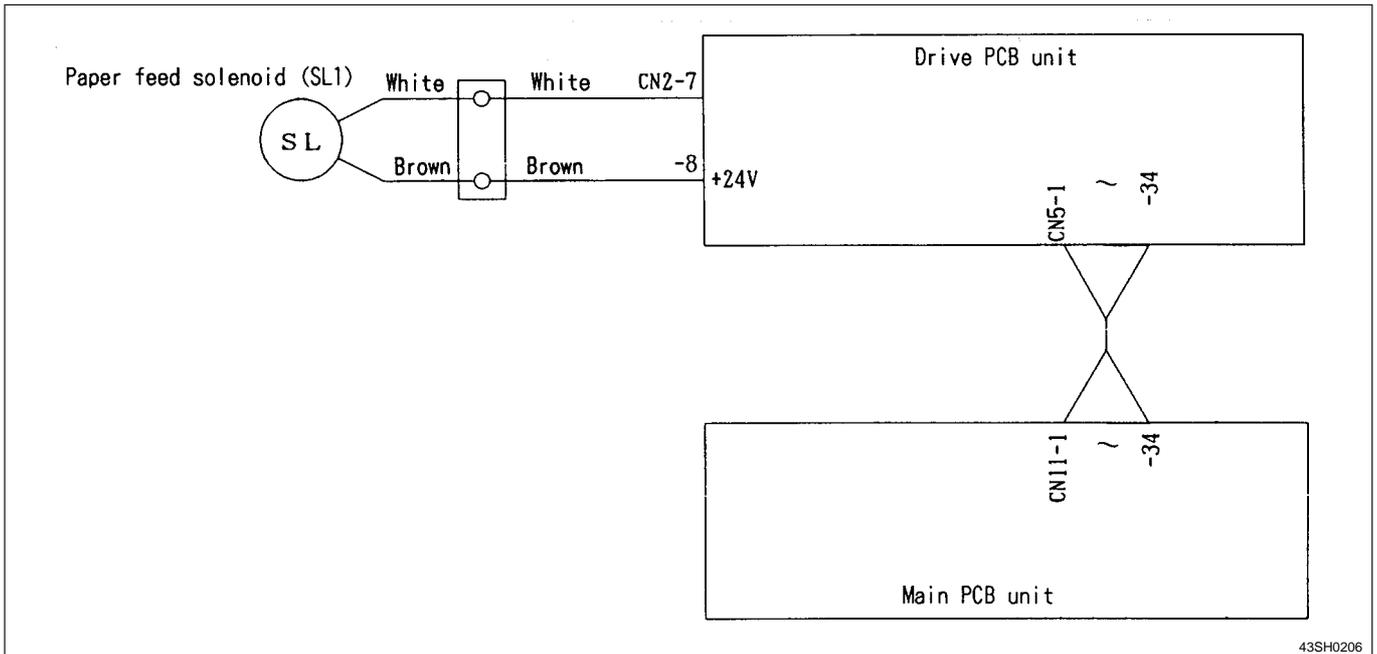
3. Functions of parts

(1) Paper Feed Clutch / Paper Feed Solenoid

Description



Circuits

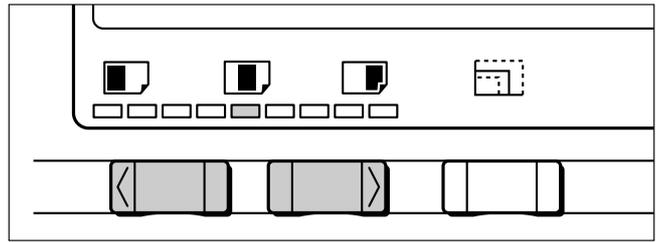


(2) Printing Position Adjusting Mechanism

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 motor. As the link cam moves, the cam follower position (bearing) from the paper feed cam changes. Accordingly drive timing for the timing roller can be changed.



- Press the  key ;

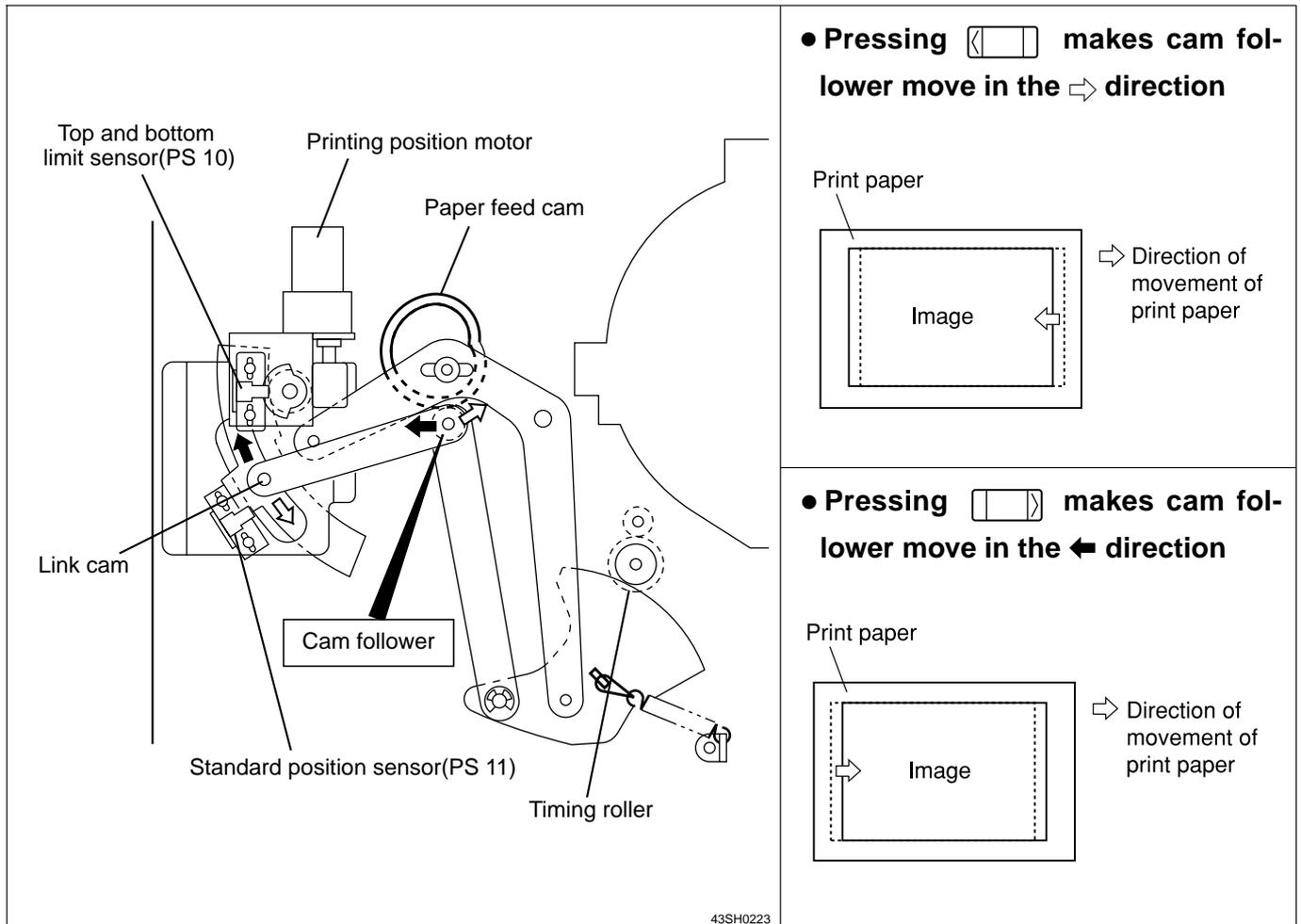
Cam follower moves in the direction of :  Drive timing of the timing roller becomes earlier.

Paper timing becomes earlier, and the picture image moves backward.

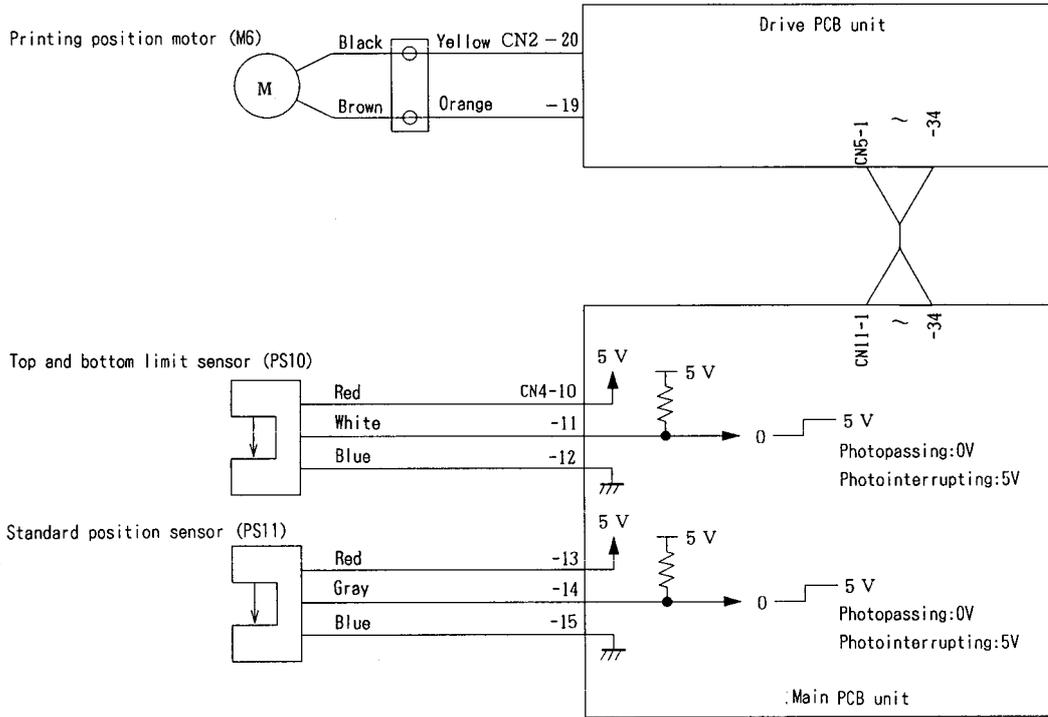
- Press the  key ;

Cam follower moves in the direction of :  Drive timing of the timing roller becomes later.

Paper timing becomes later, and the picture image moves forward.



Circuit



Operation

Top and bottom limit of print position is detected by the top and bottom limit sensor and the standard position sensor.

The center position is detected by the standard position sensor.

- Standard sensor: photopassing, Limit sensor: photointerrupting

The printing position is between the standard position and bottom limit.

- Standard position sensor: photopassing, Limit sensor: the edge of photointerrupting - photopassing is detected

The printing position is at the bottom limit.

- Standard position sensor: photointerrupting, Limit sensor: photointerrupting

The printing position is between the standard position and the top limit.

- Standard position sensor: photointerrupting, Limit sensor: the edge of photointerrupting - photopassing

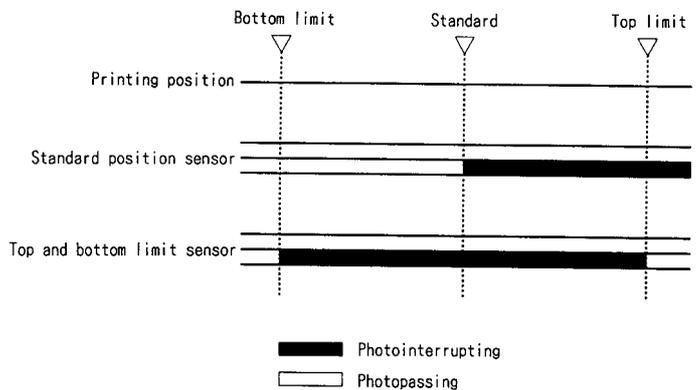
The printing position is at the top limit.

Operation with the Power ON

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

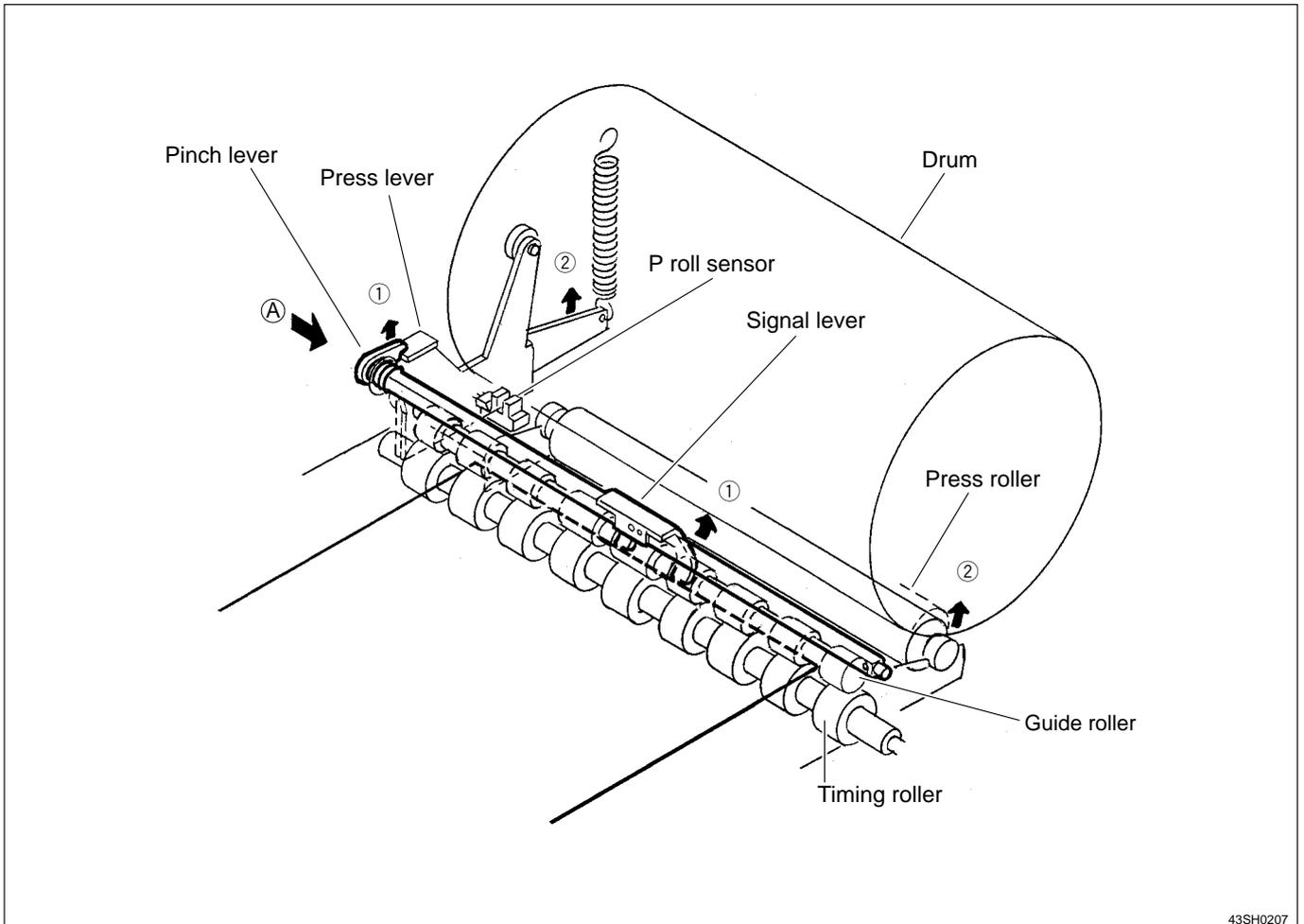
- When positioned between the standard position and the bottom limit:
Rotate the printing position motor normally (CW) to return the printing position to the standard.
- When positioned between the standard position and the top limit:
Rotate the printing position motor reversely (CCW) to return the printing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

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

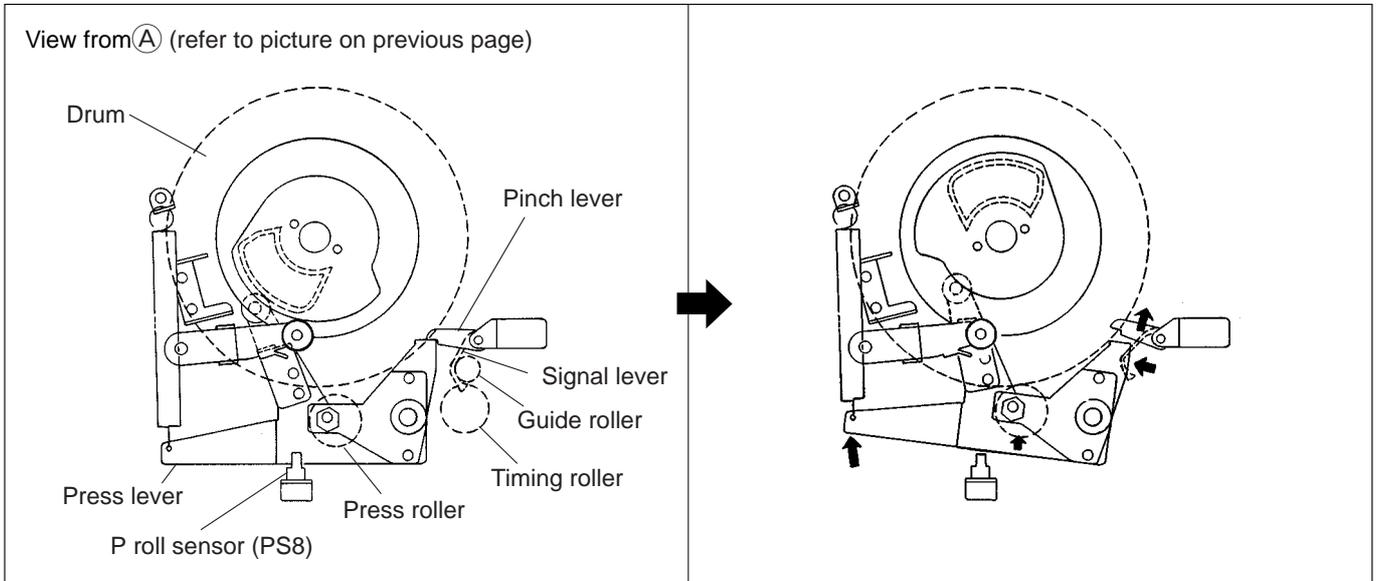


(3) Signal Lever

The signal lever is positioned at the back of the Guide roller / Timing roller. Whether the paper is fed by the Timing roller is detected mechanically. The pinch lever is attached to the other end of the shaft to which the signal lever is attached. As the signal lever is jumped by the paper, the pinch lever also jumps. Accordingly the Press roller is out of control and rises. The above operation keeps the drum from dirt as the Press roller is in contact with the drum when the paper is not fed. As the Press roller sensor detects rising of the Press roller, Whether the paper is fed from the paper feed section to the printing section normally is detected indirectly.



43SH0207

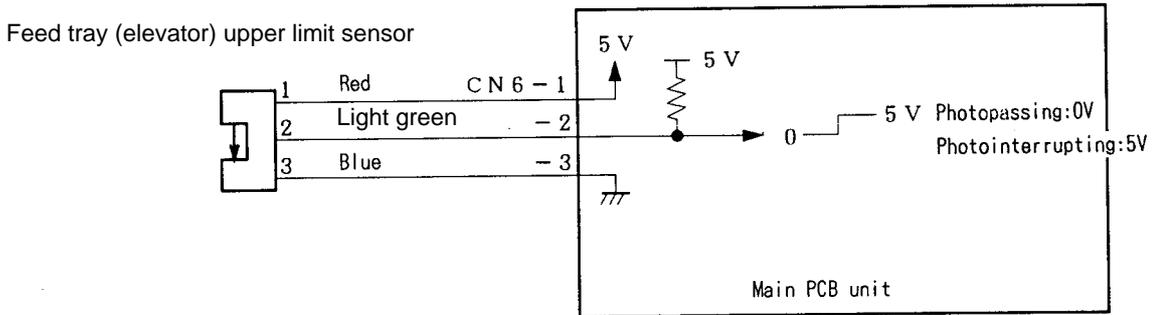


(4) Feed Tray (Elevator) Upper Limit Sensor

Description

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

Circuits



43SH0208E

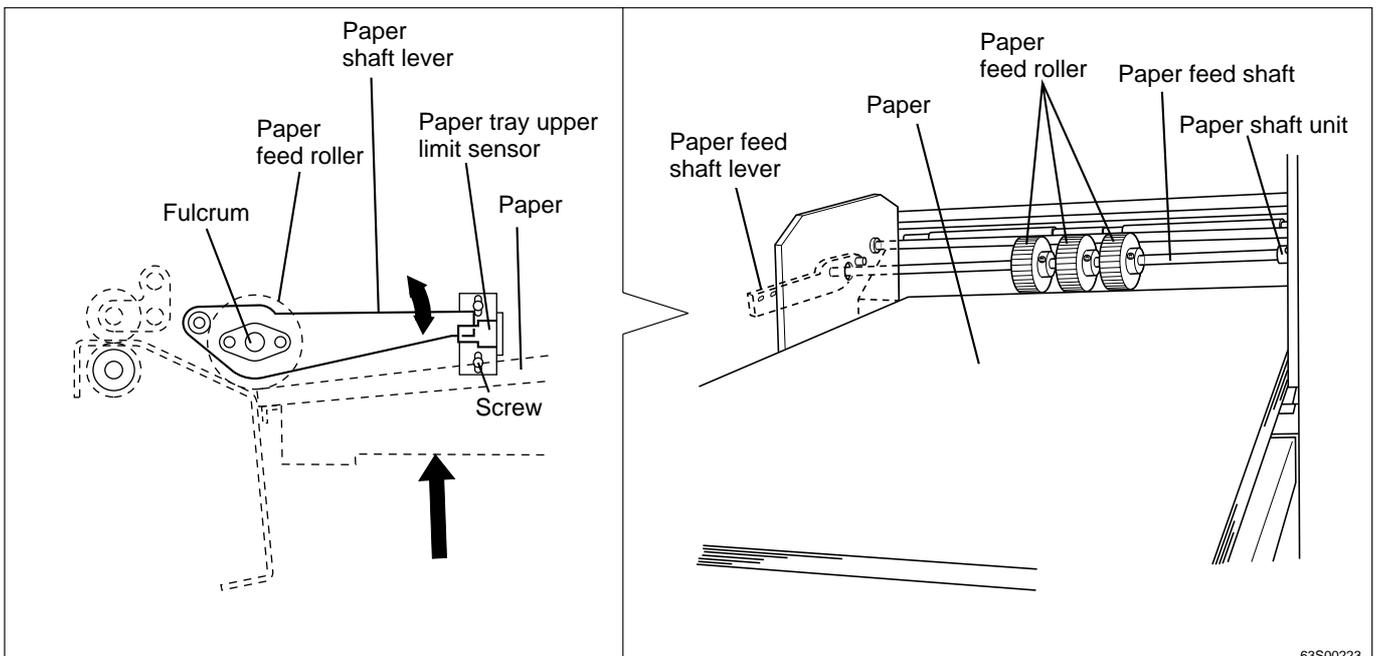
Operation

Sensing of feed tray upper 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 upper limit, and triggers stopping of the feed tray's rise.

Sensing of paper decrease

- As printing progresses and the paper decreases, the paper feed roller gradually descends, until it obstructs the sensor's light beam. When this happens, the feed tray is raised until the light beam is restored. If the light beam is not restored within 40 seconds of the sending of the RAISE FEED TRAY command, error E002 (elevator lock) is displayed.



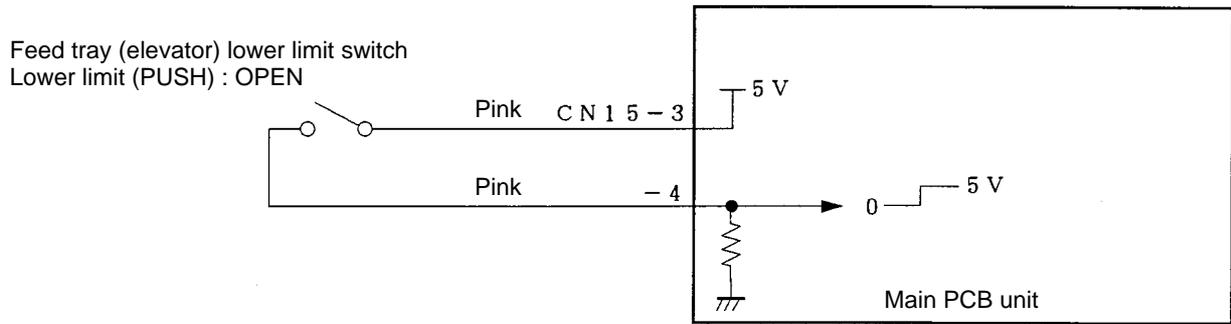
63S00223

(5) Feed Tray (Elevator) Lower Limit Switch

Description

This is a micro switch (SM6) that senses the lower limit position of the feed tray.

Circuits

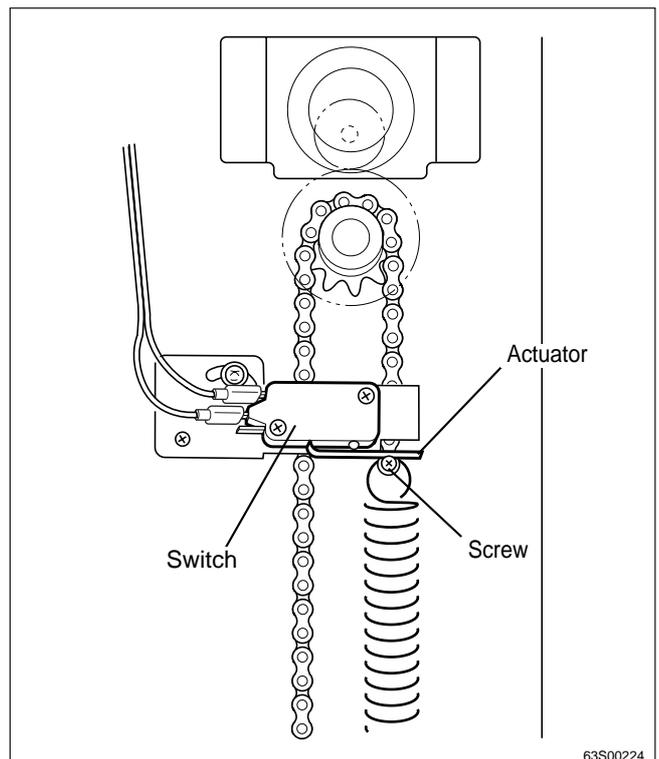


435H0210E

Operation

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

If the switch does not open within 40 seconds of the sending of the LOWER FEED TRAY command, error E002 (elevator lock) is displayed.



63S00224

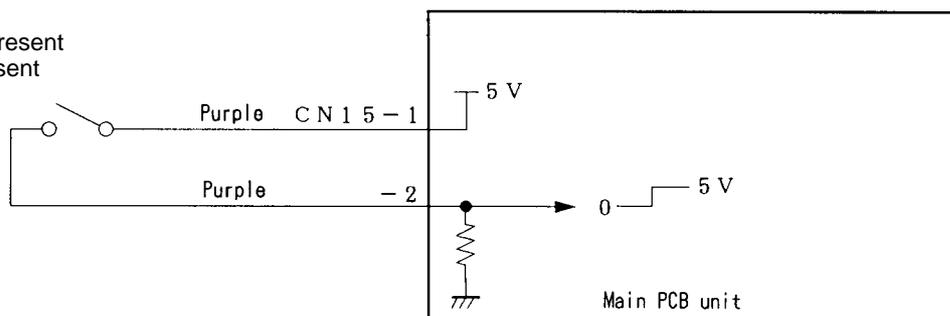
(6) Paper Switch

Description

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

Circuits

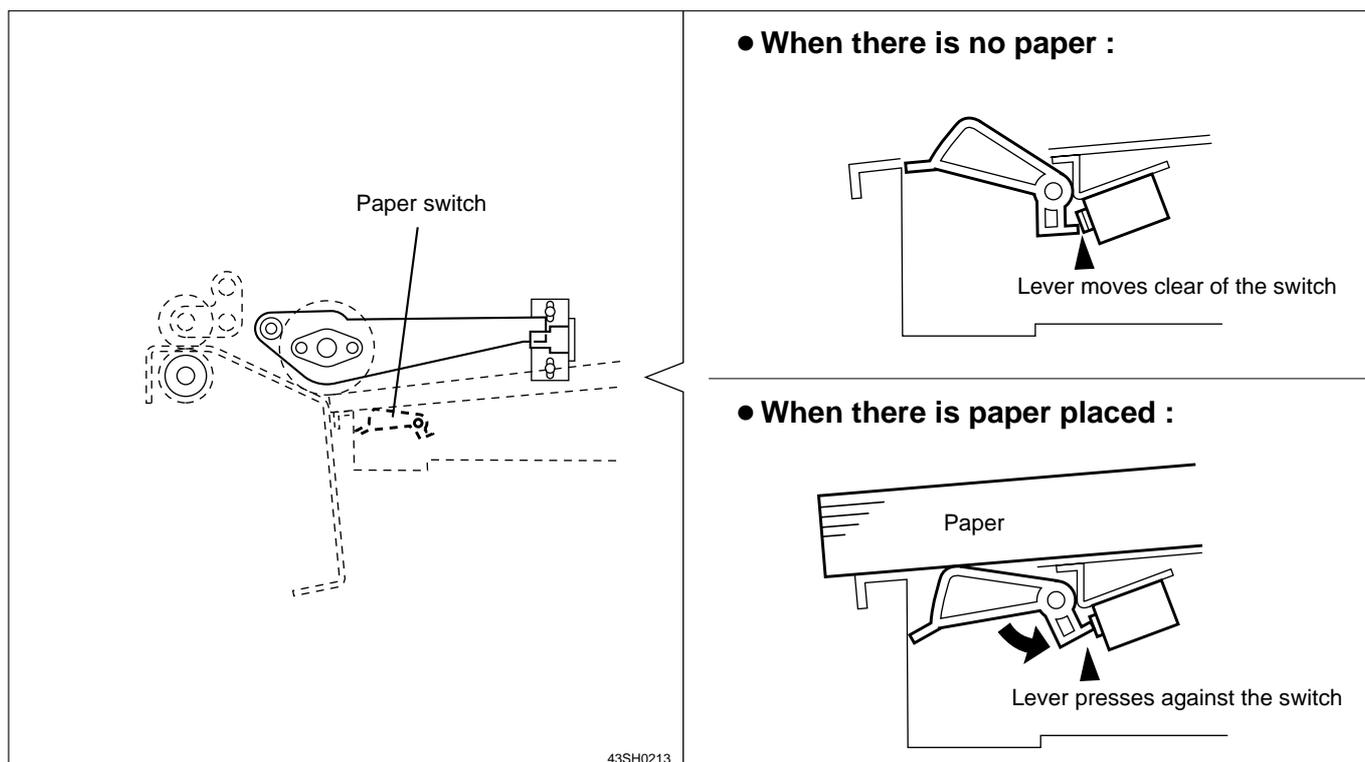
Paper switch (MS7)
 Closed when paper present
 Open when paper absent



Operation

When there is no paper, the lever moves clear of the switch and the switch opens. When paper is present, the lever presses against the switch and the switch is closed. When the switch detects absence of paper, the message ADD PAPER is displayed on the operation panel.

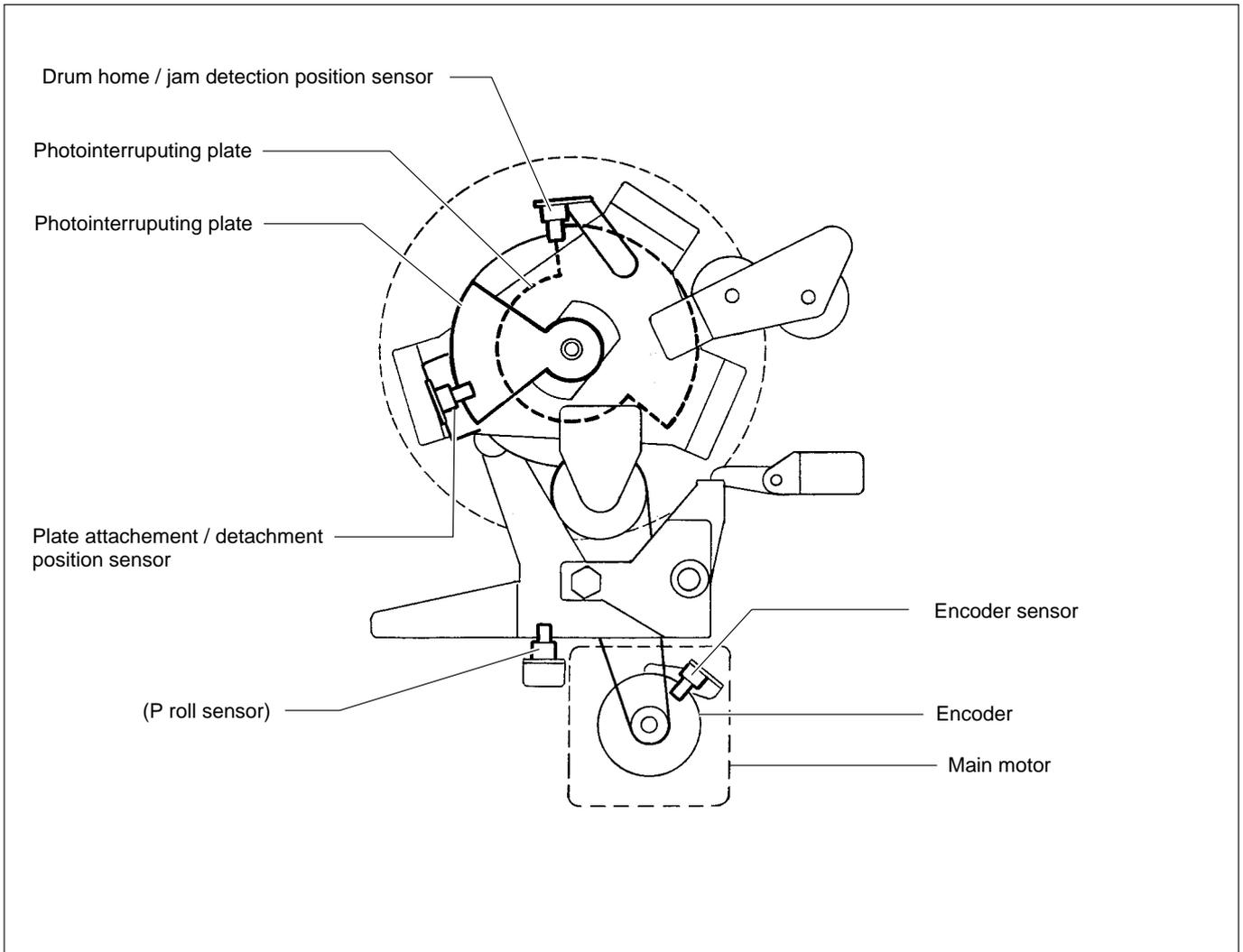
- When absence of paper is sensed, platemaking, printing and test printing are not possible.
- If the paper runs out during printing, ADD PAPER is displayed on the operation panel, printing is stopped, and the feed tray descends to its lower limit position.
- If the paper runs out during platemaking, 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.



43SH0213

4 Drum Driving Section

1. Description



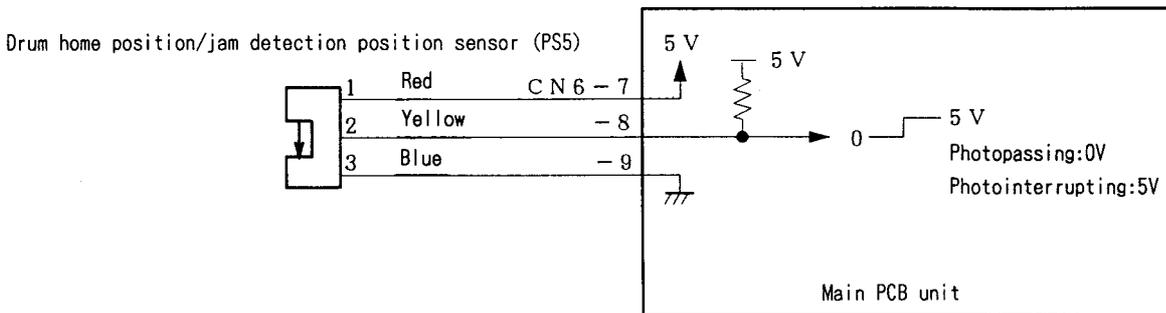
2. Function of Parts

(1) Home Position / Jam Detection Position Sensor

The home position / jam detection position sensor detects the drum home position and jam detection position.

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

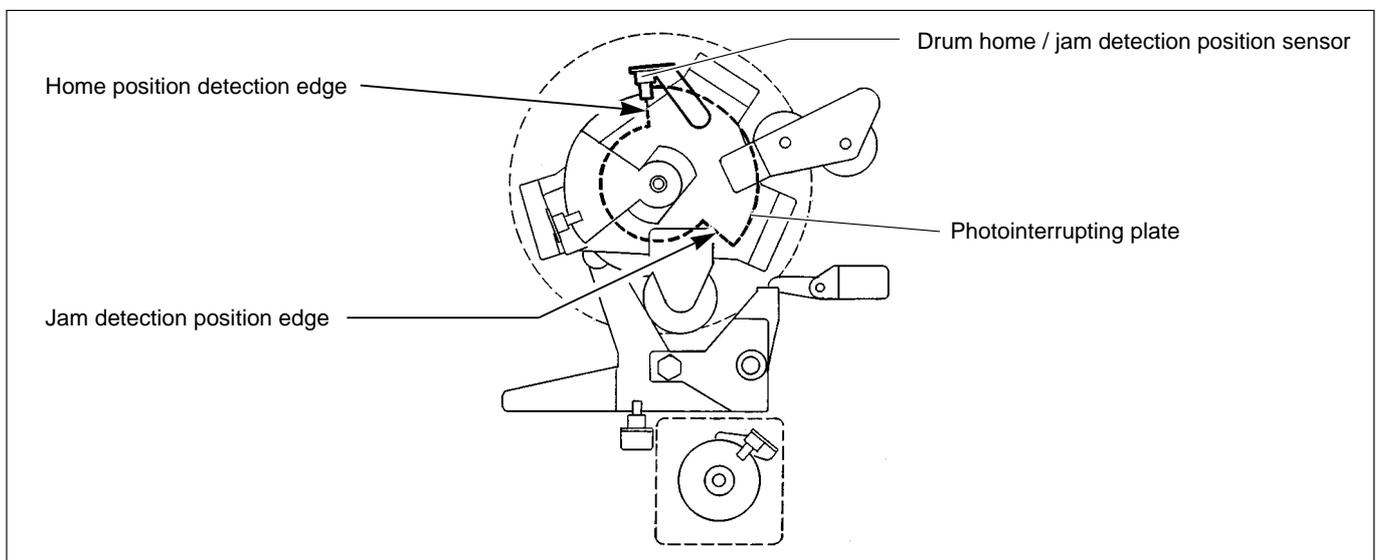
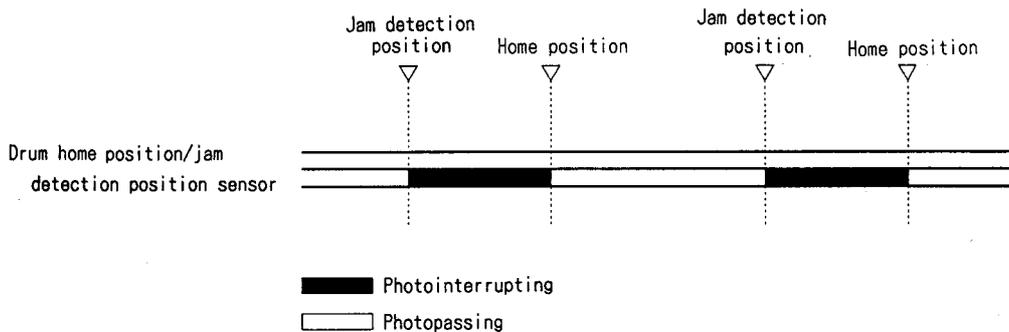
Circuit



Operation

The home position / jam detection position sensor is positioned while the drum is rotating as follows:-

- The home position is detected with the edge of photointerrupting → photopassing.
- The jam detection position is detected with the edge of photopassing → photointerrupting.

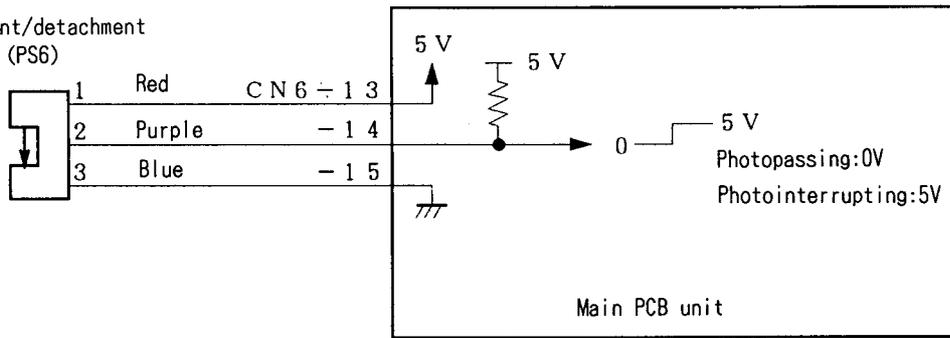


(2) Master Attachment / Detachment Position Sensor

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

Circuit

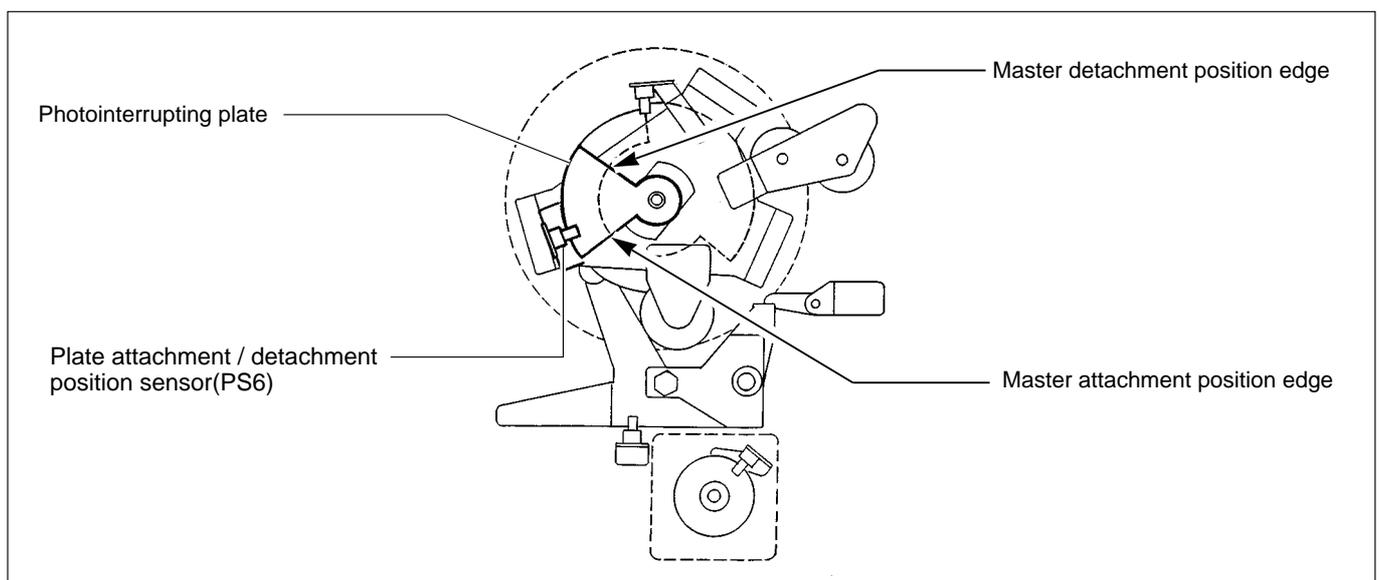
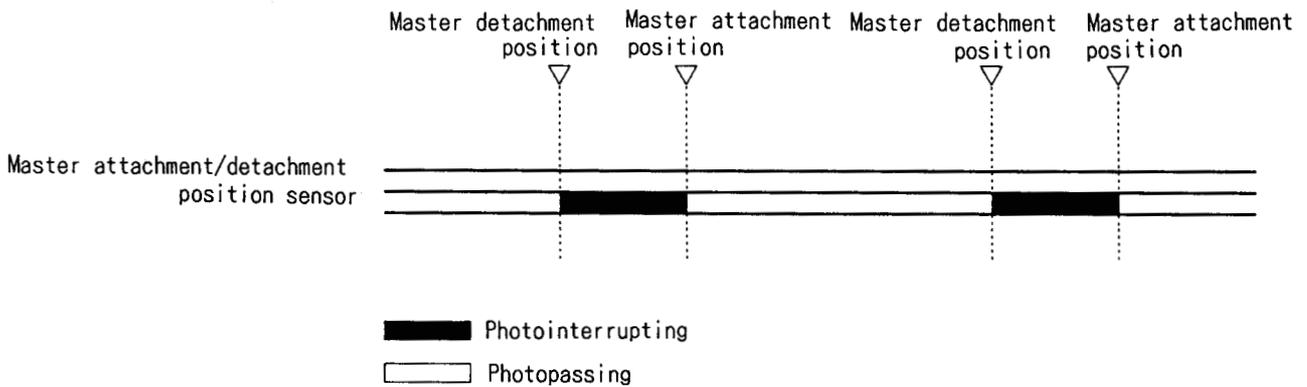
Master attachment/detachment position sensor (PS6)



Operation

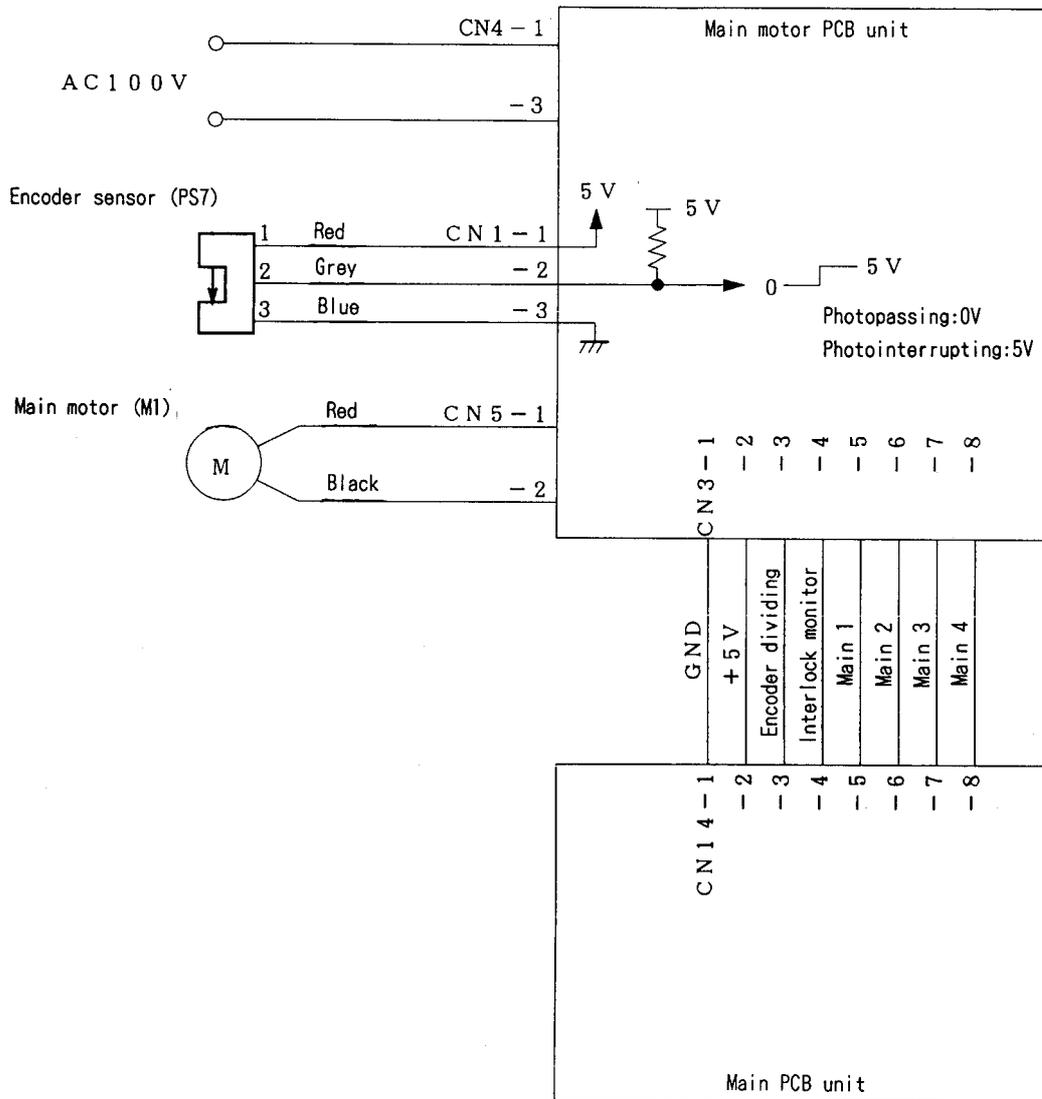
The following is the state of the master attachment / detachment position sensor while the drum is rotating.

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



(4) Control of the Main Motor

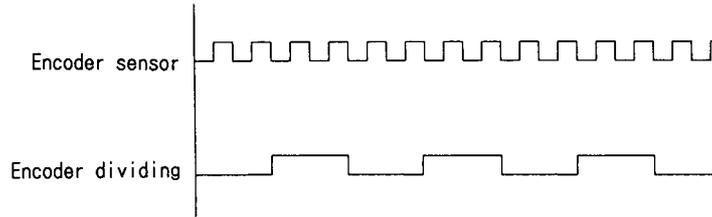
Circuit



1. Rotation speed control by encoder sensor

The encoder sensor detects the main motor rotation. The main motor PCB Unit controls the number of main motor rotations with the encoder sensor signal. The encoder sensor signal is transmitted to the main PCB Unit as encoder dividing signal (8 dividings). The number of main motor rotations is checked with the HELP01.

HELP mode H-01 ➡ see p.292



2. Selecting the Speed

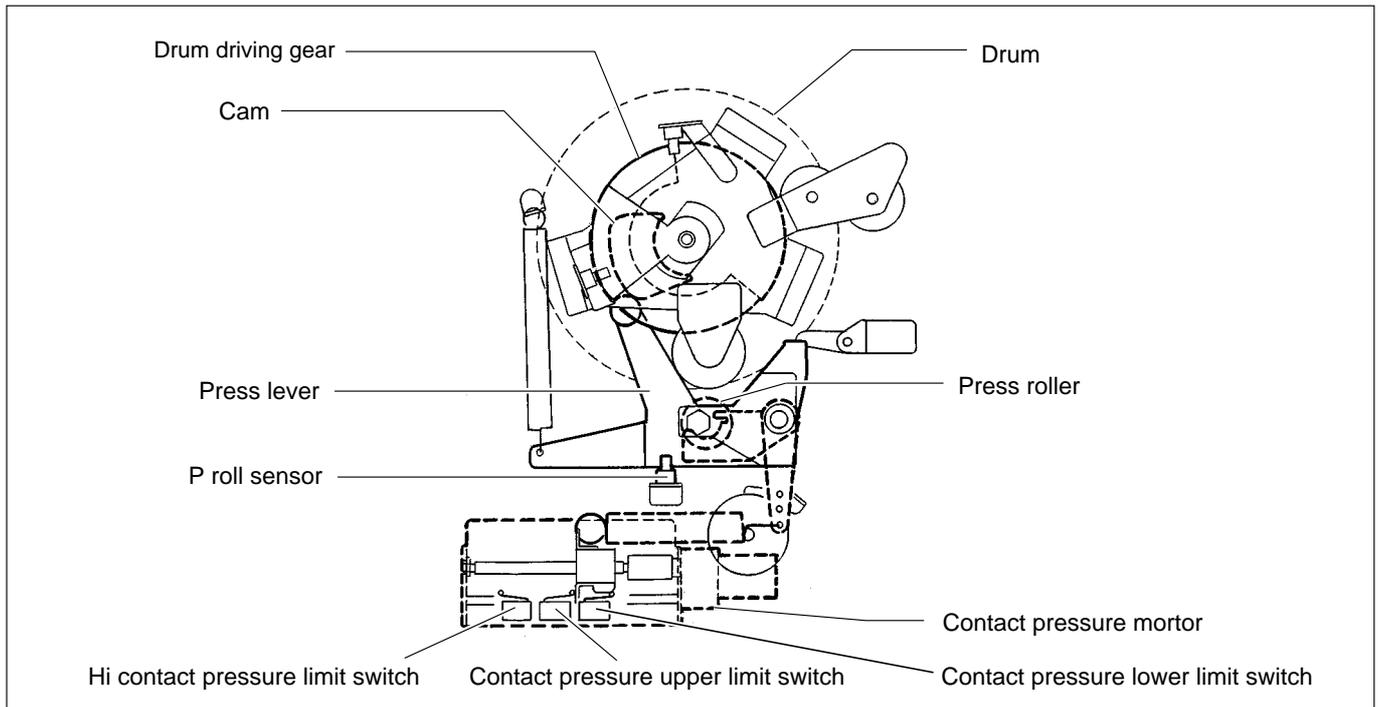
The speed is selected with the main 1 - 4 on the main PCB Unit. The following are the speed depending on the pin state.

		STOP	SLOW 1	SLOW 2	JOG	1st SPEED	2nd SPEED	3rd SPEED	4th SPEED	5th SPEED
CN 14-5	Main 1	*	L	H	L	H	L	H	L	H
-6	Main 2	*	L	L	H	H	L	L	H	H
-7	Main 3	*	L	L	L	L	H	H	H	H
-8	Main 4	H	L	L	L	L	L	L	L	L

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

5 Press Section

1. Description



(1) Press Roller Timing & Printing Area

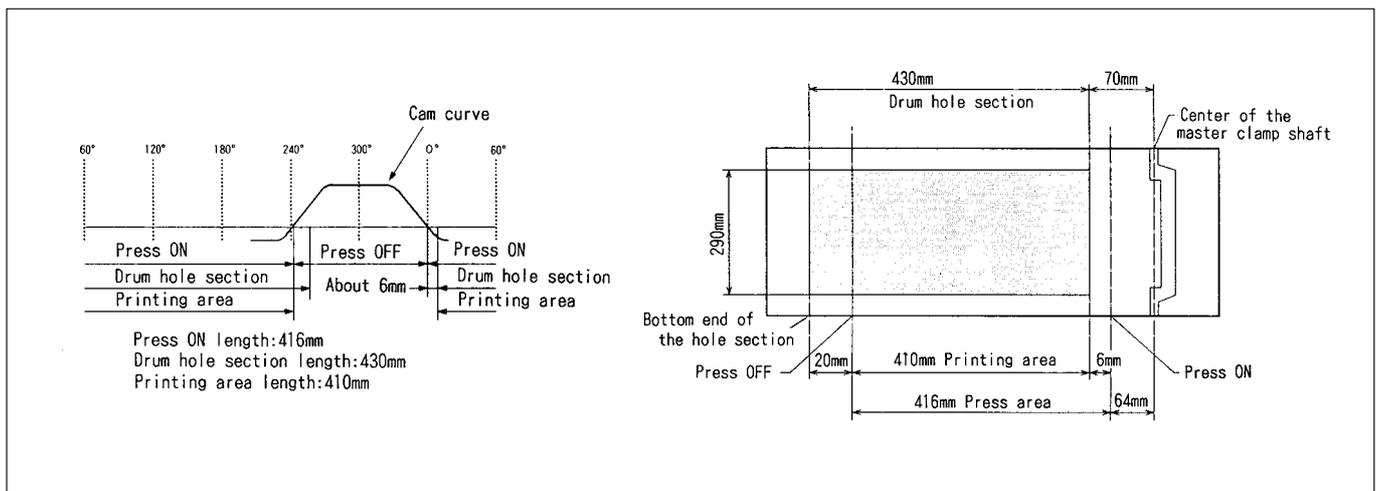
Description

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

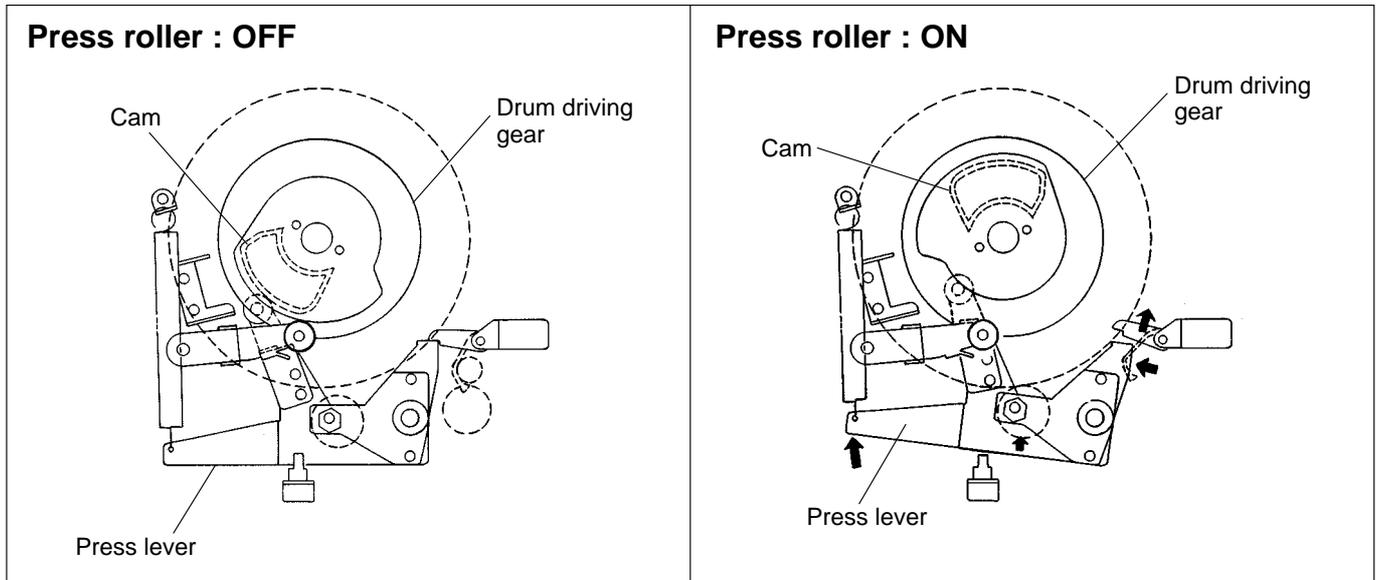
Printing is performed on only the sections that meet the following requirements.

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

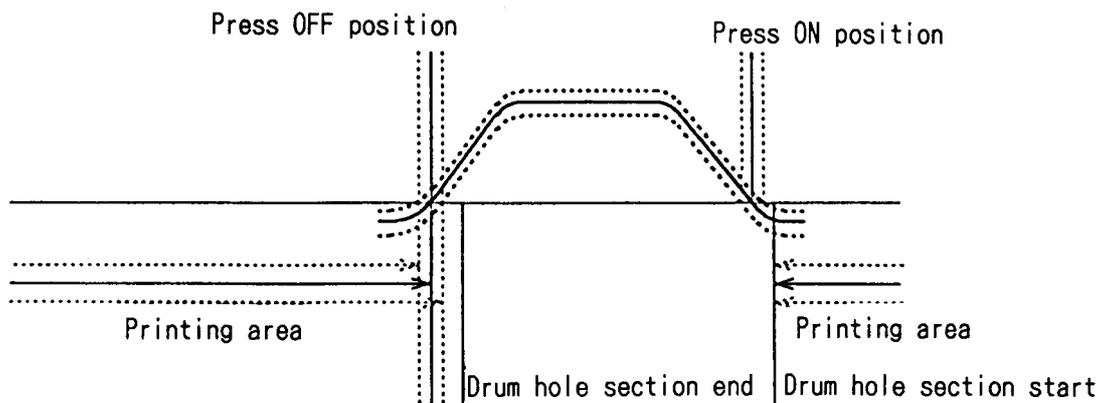
When the pressed-on position is 0 under the normally adjusted conditions, relations among 1), 2) and 3) are as follows*:-



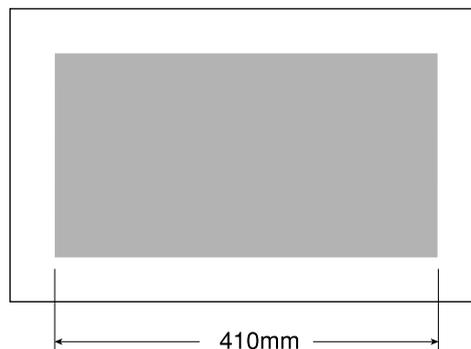
The press roller is ON (the press roller is pressed to the drum) or OFF by operating the press lever up and down with the cam inside the drum driving gear.



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.



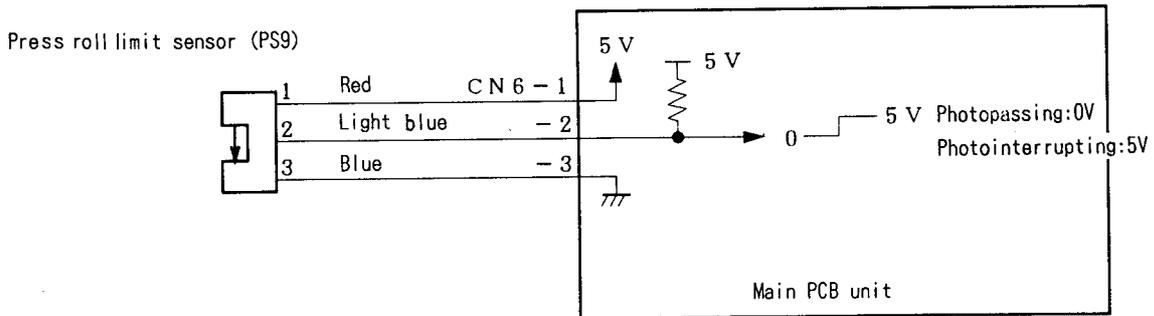
2. Function of Parts

(1) Press Roller (P Roll) Sensor

The P roll 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 pinch lever. The P roll sensor also is used to know whether the paper is fed.

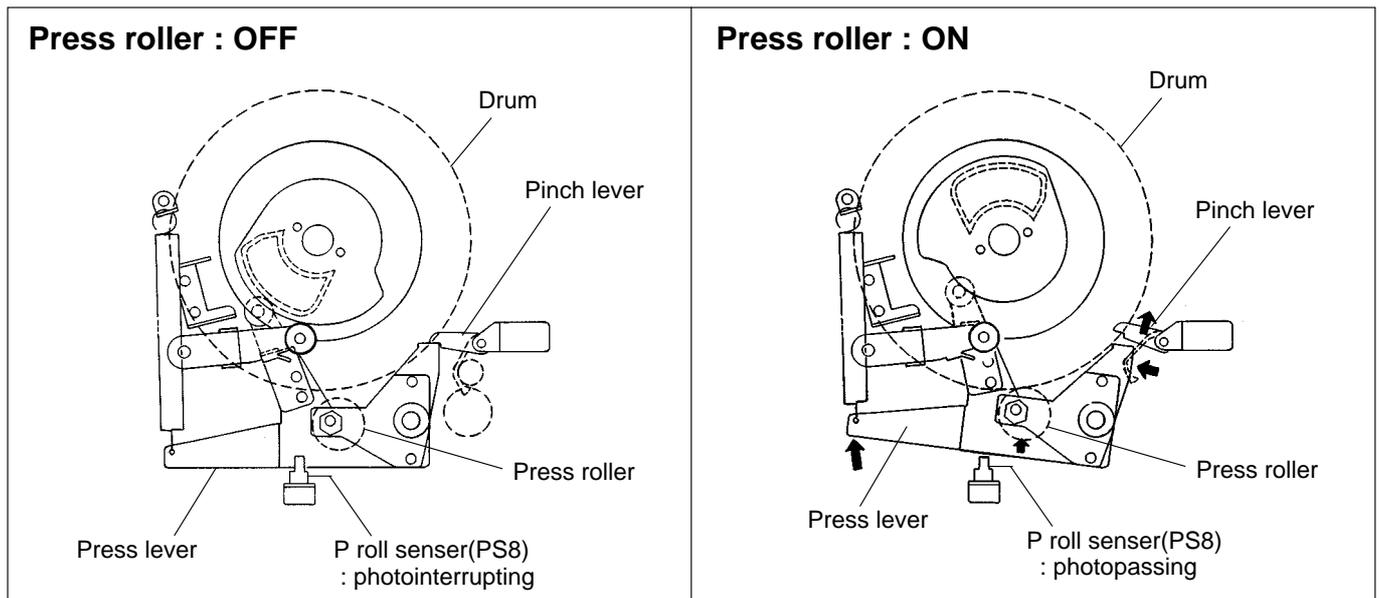
Circuit



Operation

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

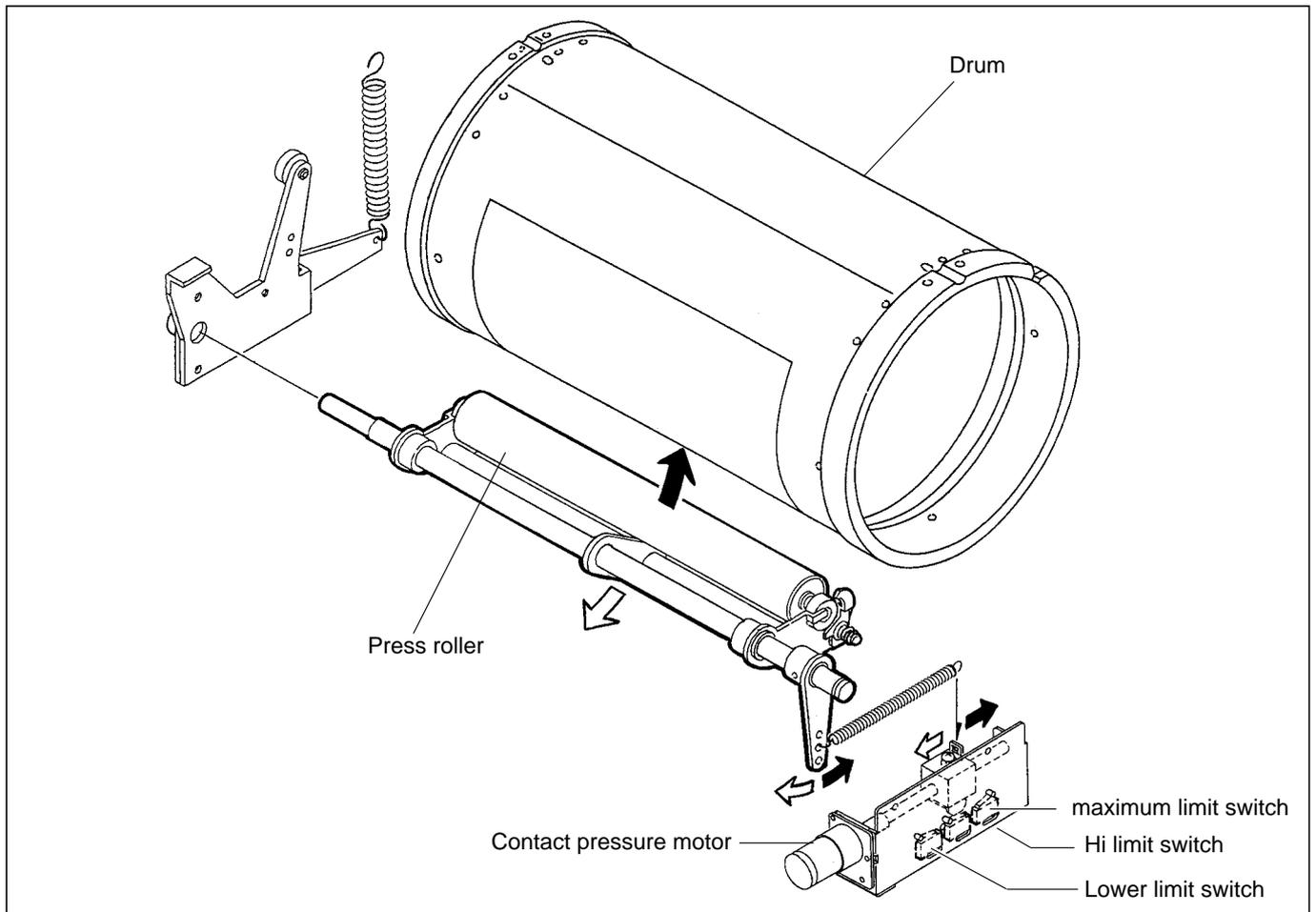
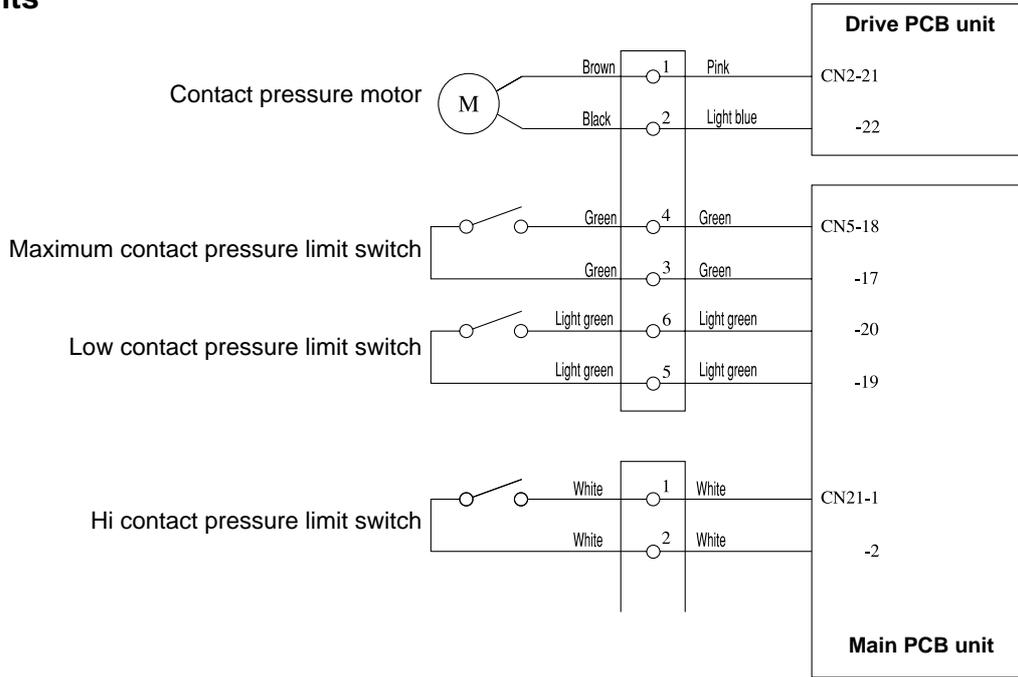
- When the press roller is OFF (DOWN) : photointerrupting
- When the press roller is ON (UP) : photopassing



(2) Switching the Contact Pressure

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

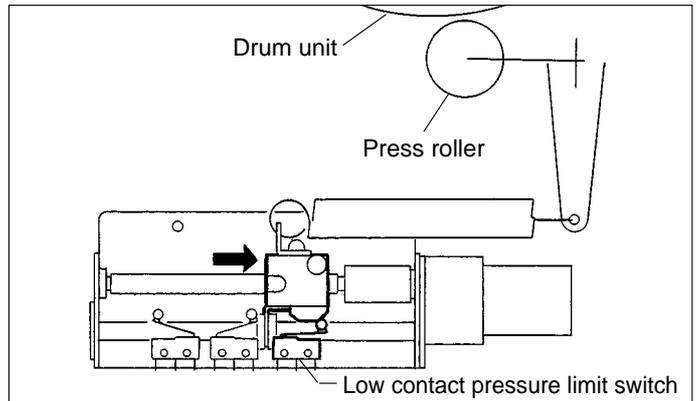
Circuits



1. Contact pressure position sensing

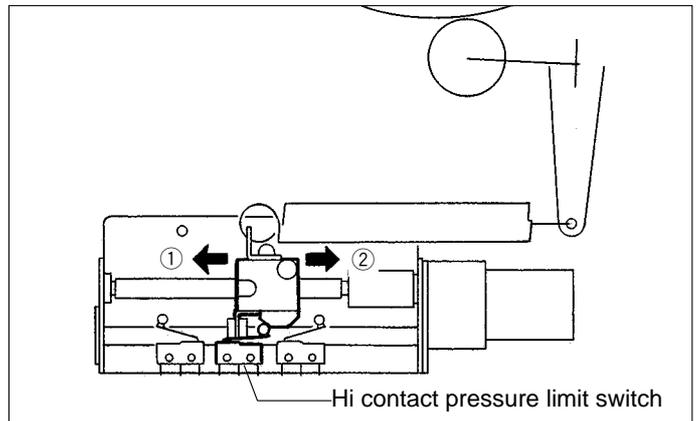
- **Low contact pressure position:**

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



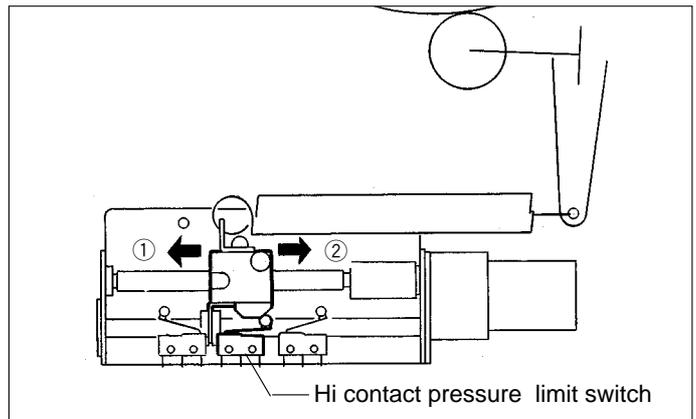
- **Standard contact pressure position:**

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



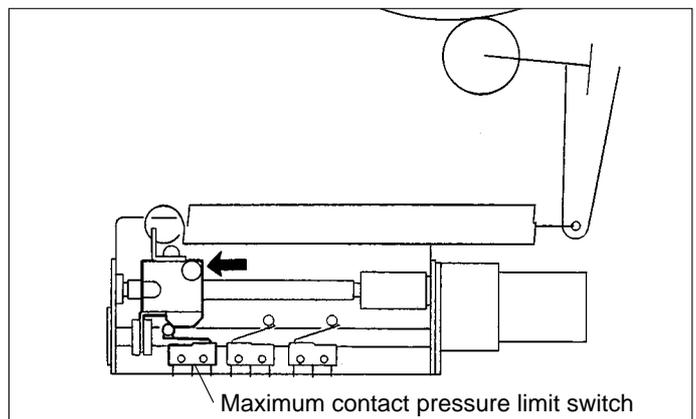
- **Hi contact pressure position:**

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



- **Maximum contact pressure position:**

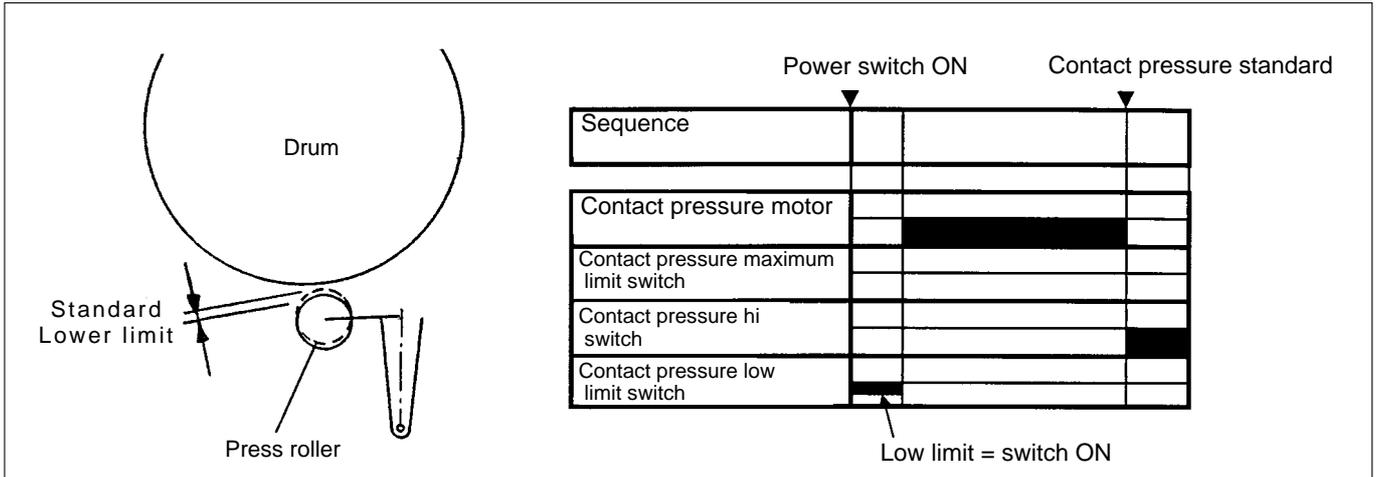
Sensed by maximum contact pressure limit switch.
Switch turns from OFF to ON in response to movement in the direction of the arrow.



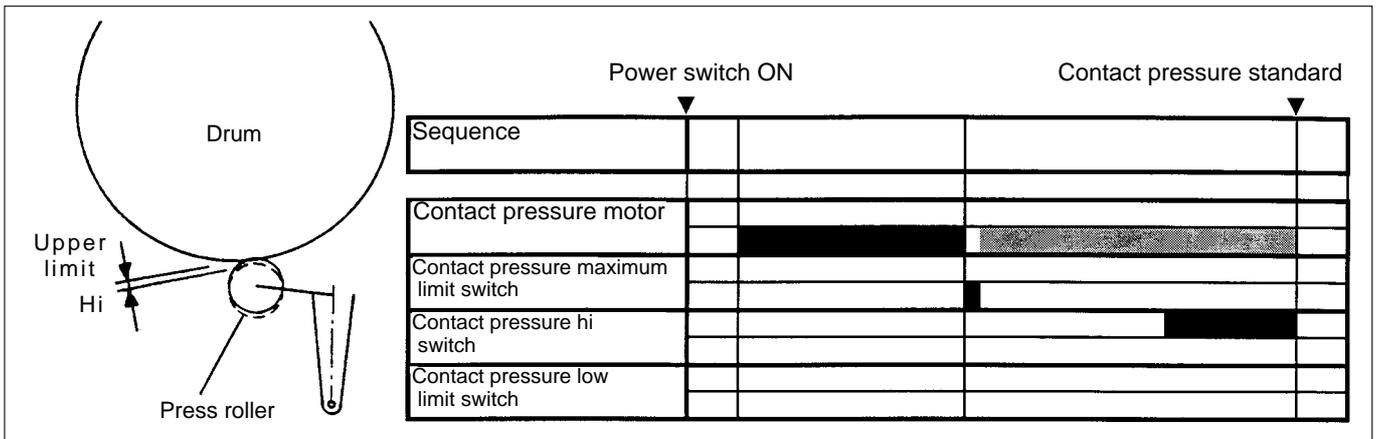
2. Sensing of standard contact pressure position when power is turned on

When the power is turned on, the standard contact pressure position is sensed by checking contact pressure position in the sequence described below.

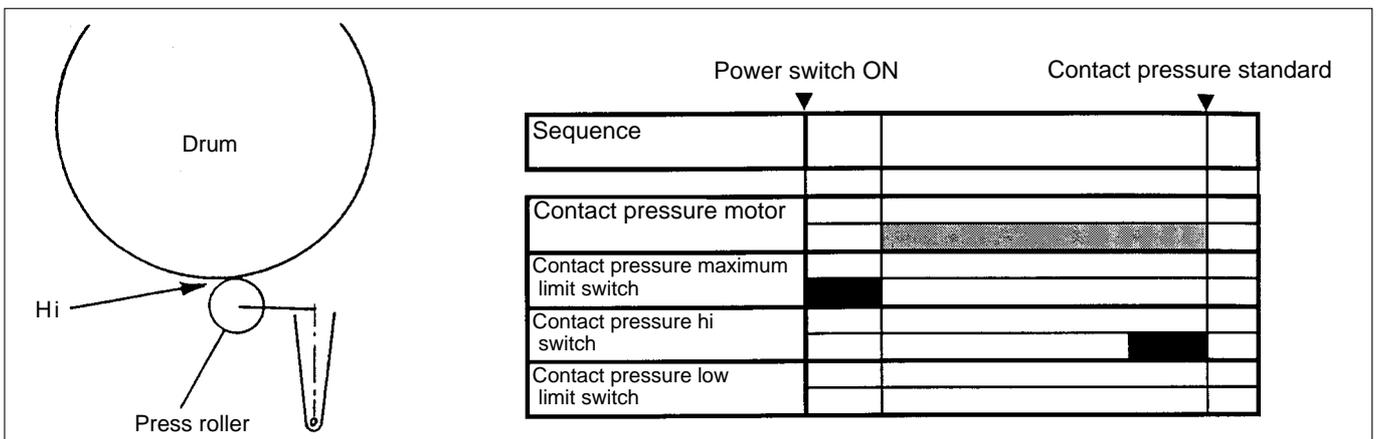
- If $low\ limit \leq contact\ pressure < hi\ limit$:



- If $hi\ limit \leq contact\ pressure < maximum\ limit$:



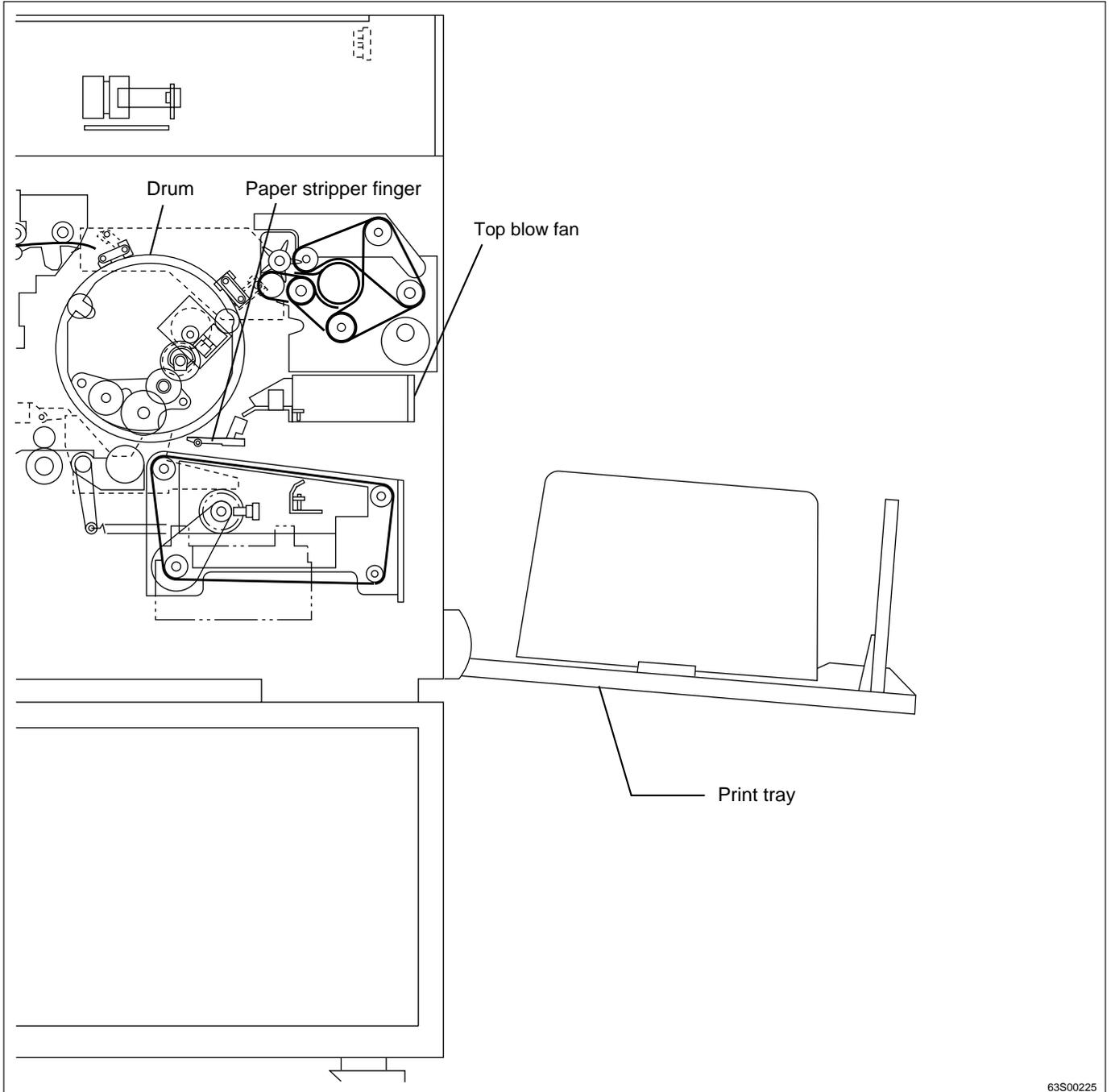
- If $contact\ pressure = maximum\ limit$:



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.



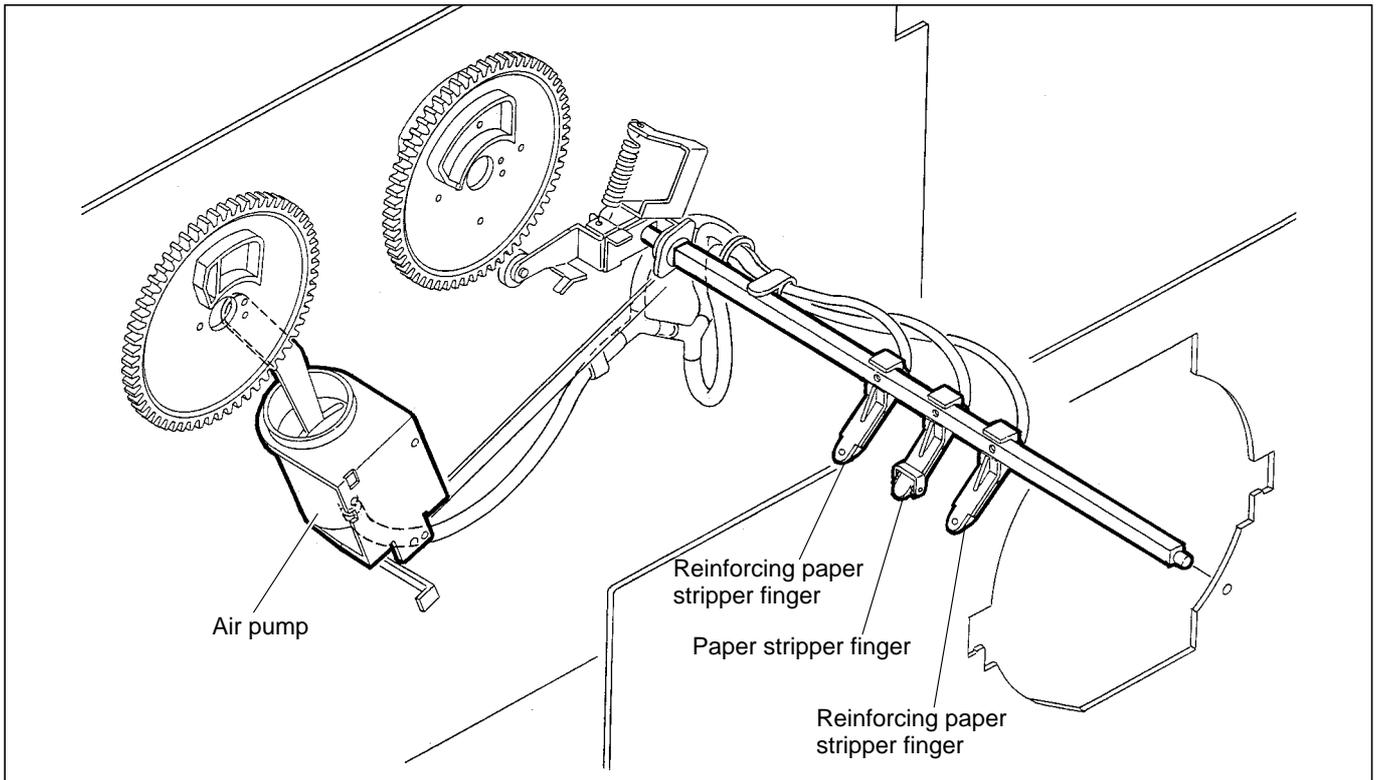
63S00225

2. Functions of Parts

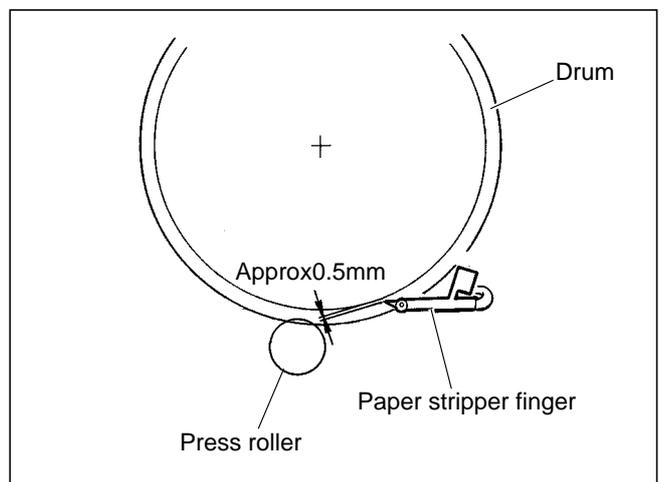
(1) Paper Stripper Finger

Mechanical Structure and Operation

In addition to the paper stripper finger installed in the center, there are two reinforcing 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 blown out of this hole to detach the tip end of the paper from the drum.

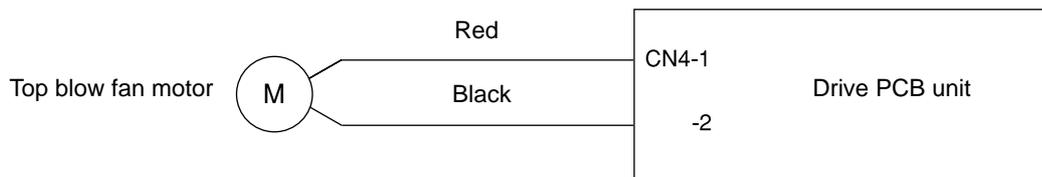


To remove the paper from the drum firmly, the gap between the tip of finger and the drum surface and between the tip of finger and the corner of the master clamp are adjusted as follows:-



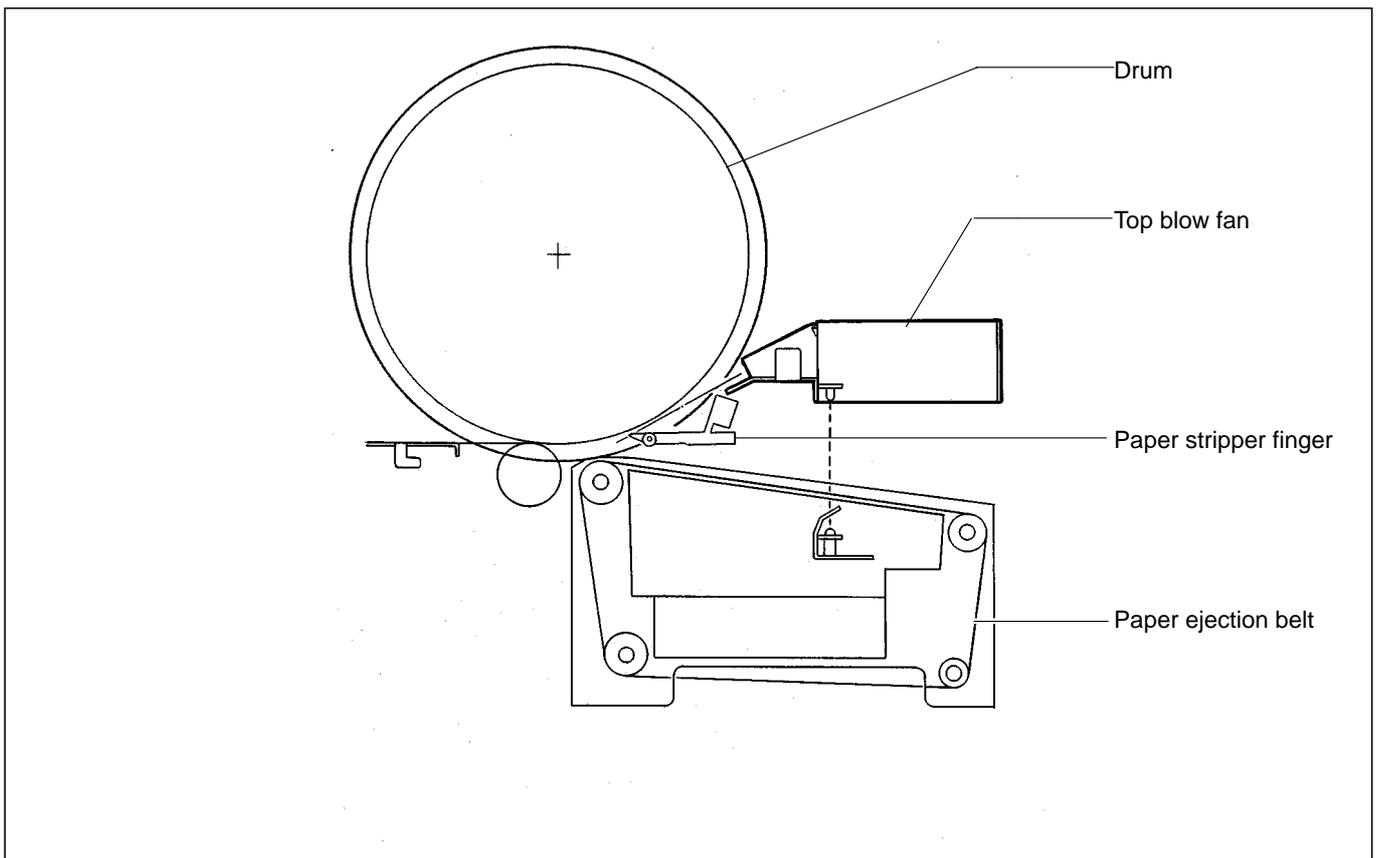
(2) Top Blow Fan

Circuit



Operation

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

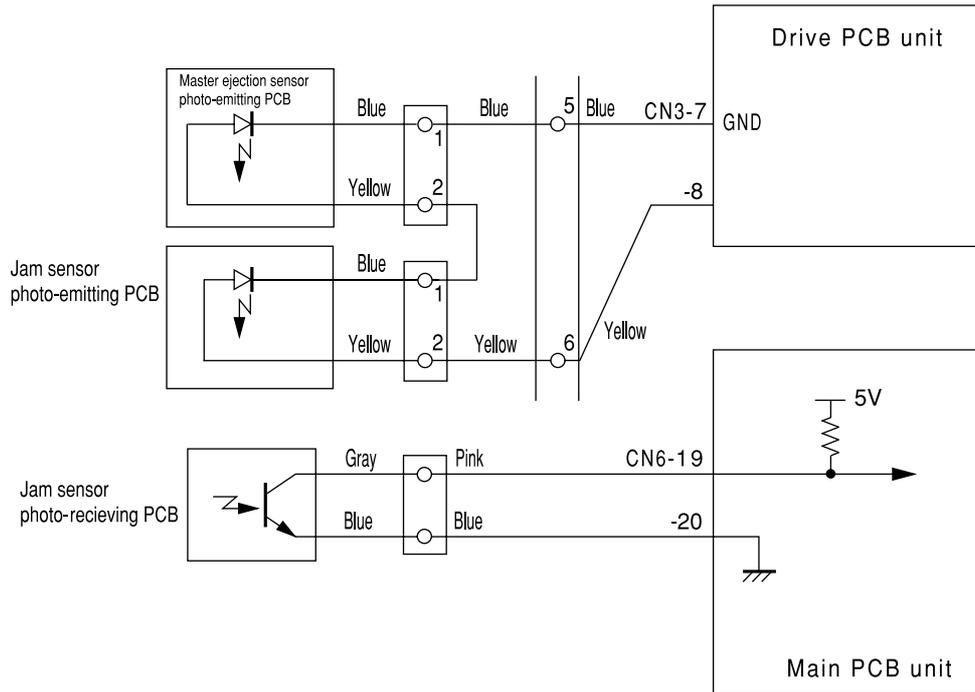


(3) Jam Sensor

Description

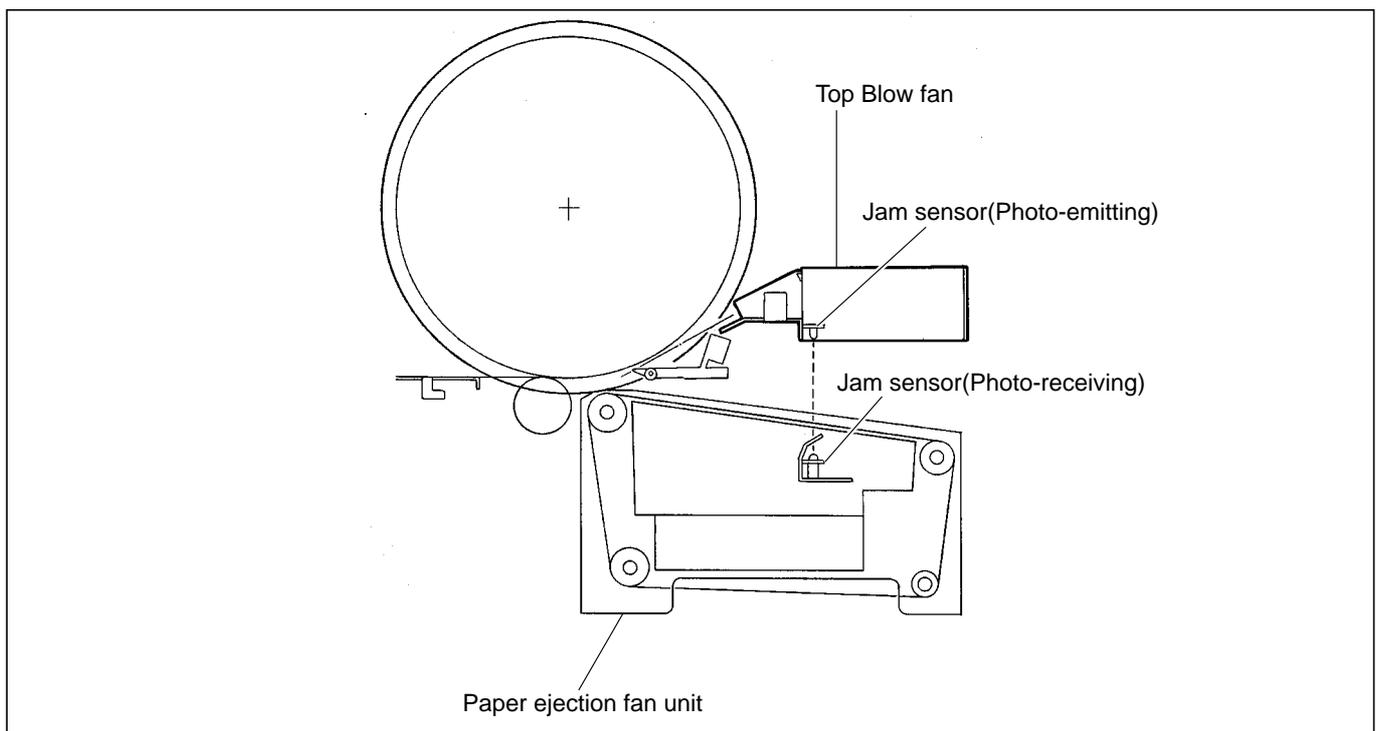
The jam sensor photo-receiving element is installed on the paper ejection fan unit and detects whether the paper is ejected normally. When it is detected that the paper is not ejected normally, "PAPER JAM" (ejection side) is displayed on the error display panel on the control panel.

Circuit



Operation

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



1. Paper Jam Detection Timing

Description

Paper jamming is divided into two types: "PAPER JAM" (ejection side) and "PAPER JAM"(feeder side). Paper jamming is detected under the following conditions. When paper jamming is detected, "PAPER JAM" is displayed on the error display panel on the control panel, the relevant lamp on the paper delivery / feeding side lights up and the machine stops printing operation. The display is cleared by removing the cause of paper jam and pressing the stop  key or by restarting printing.

• Paper jamming on the ejection side

JAM1: The bottom end of the paper is not ejected.

When the jam sensor (light-emitting and light-receiving) is interrupted at the timing of jam detection position edge (photopassing → photointerrupting) of the drum home / jam detection position sensor PS5.

JAM2: The tip end of the paper is not ejected.

When the JAM sensor is not interrupted at all while the P roll sensor is in the state of photopassing (pressed ON).

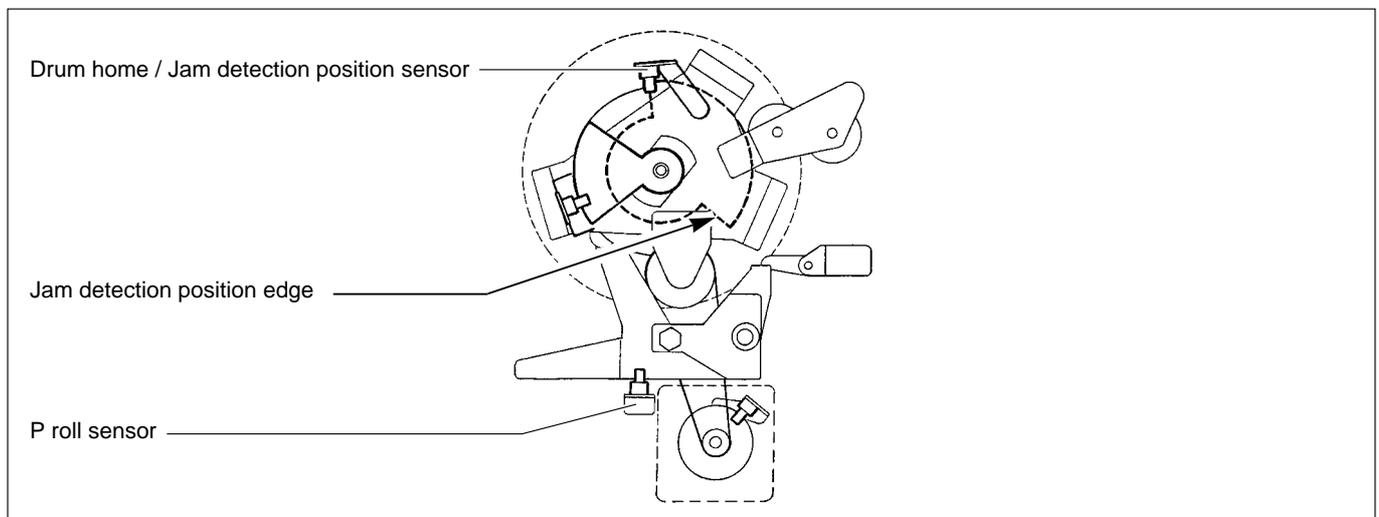
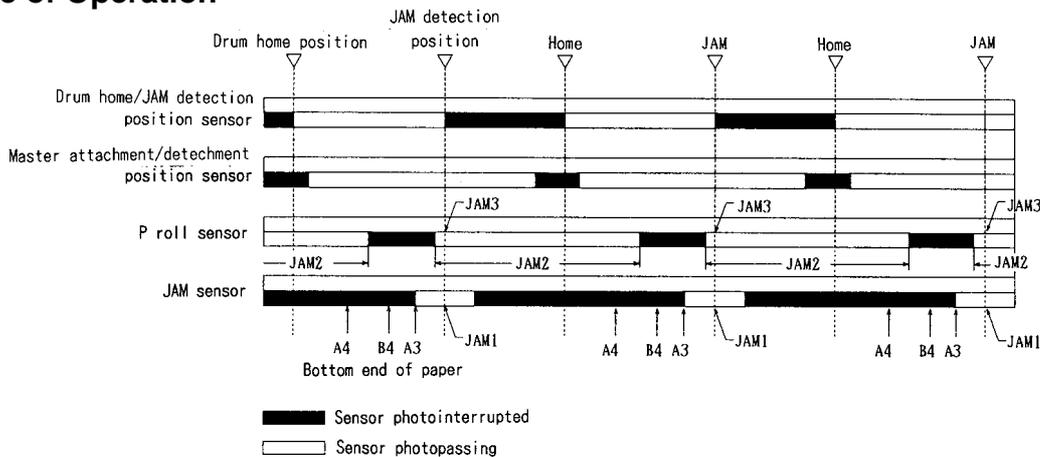
JAM (stop): When the JAM sensor is interrupted as the master ejection box is open when the machine stops.

The display is cleared when the sensor is in the state of photopassing.

• Paper jamming on the feeder side

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

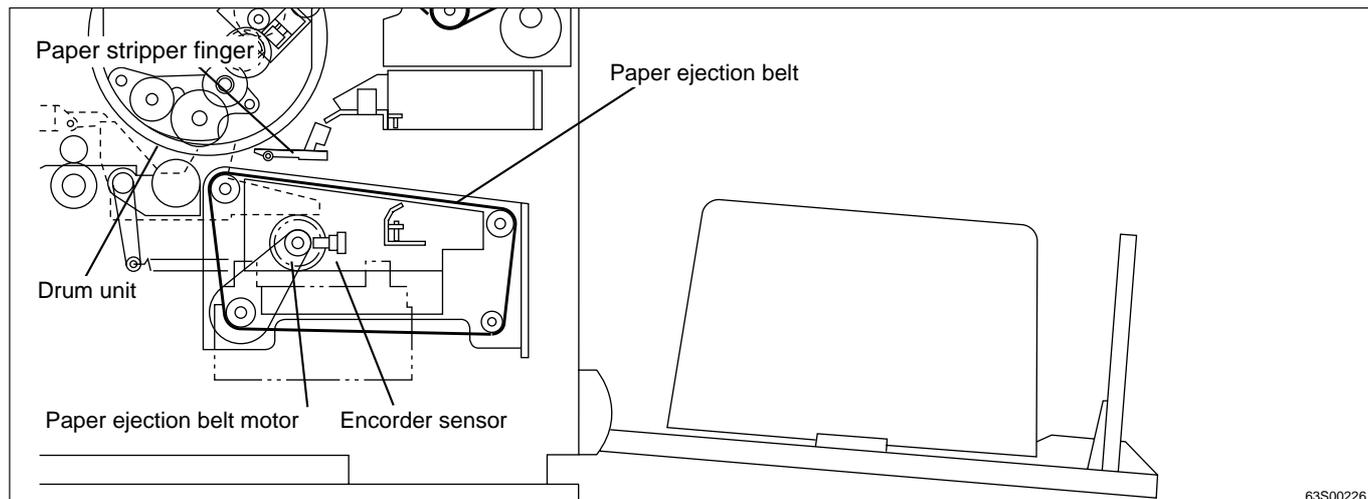
Sequence of Operation



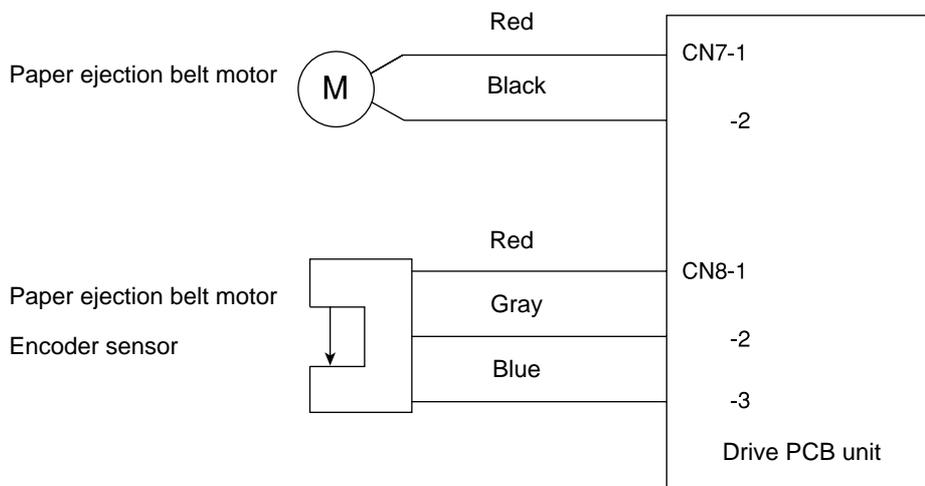
(4) Paper Ejection Belt

Description

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



Circuit



1. Paper ejection belt speed

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

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

HELP mode H-01 → see p.292

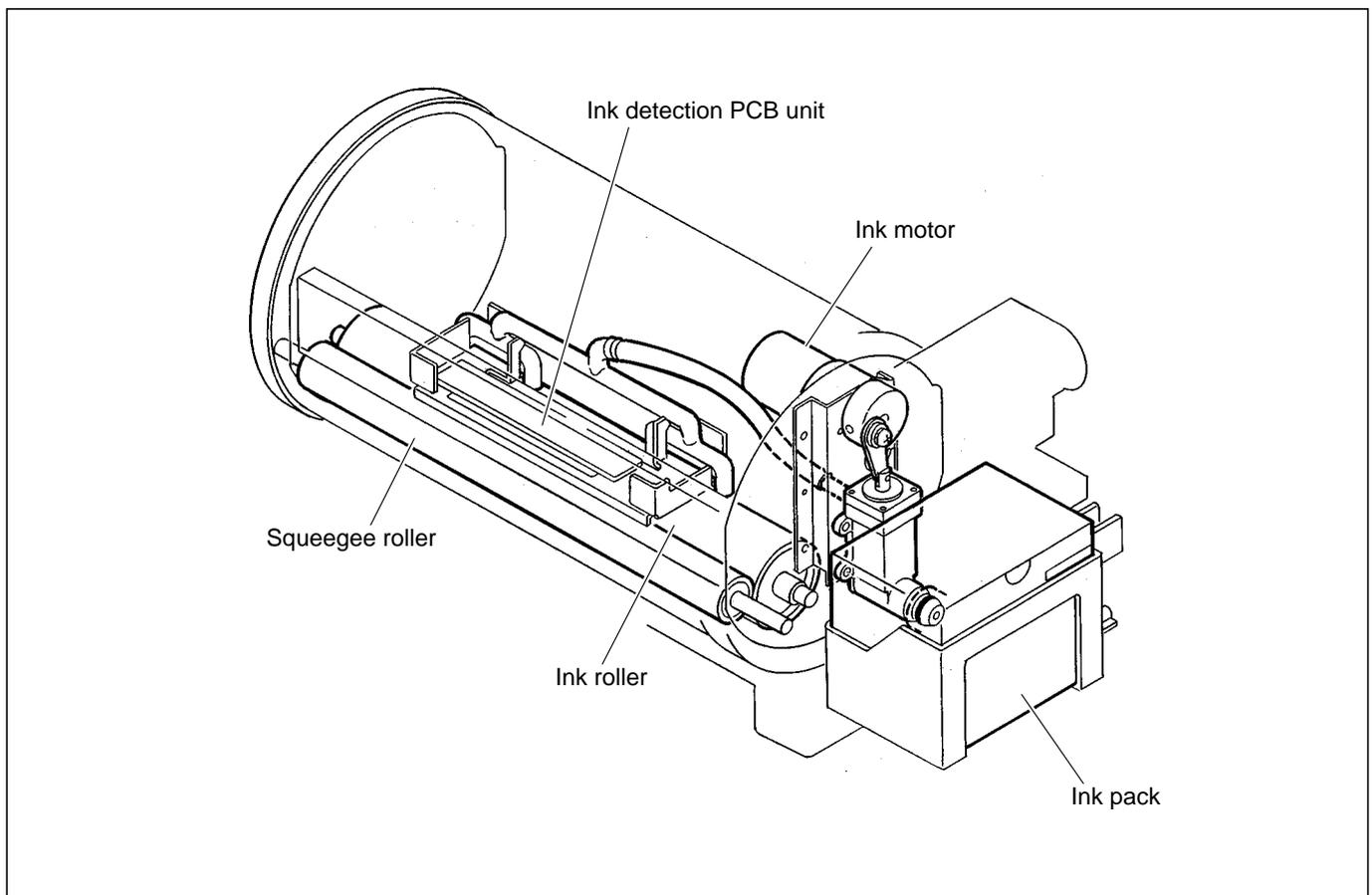
Printing speed	Paper ejection belt speed
1st speed	115rpm
2nd speed	135rpm
3rd speed	150rpm
4th speed	175rpm
5th speed	200rpm

7 Drum Section

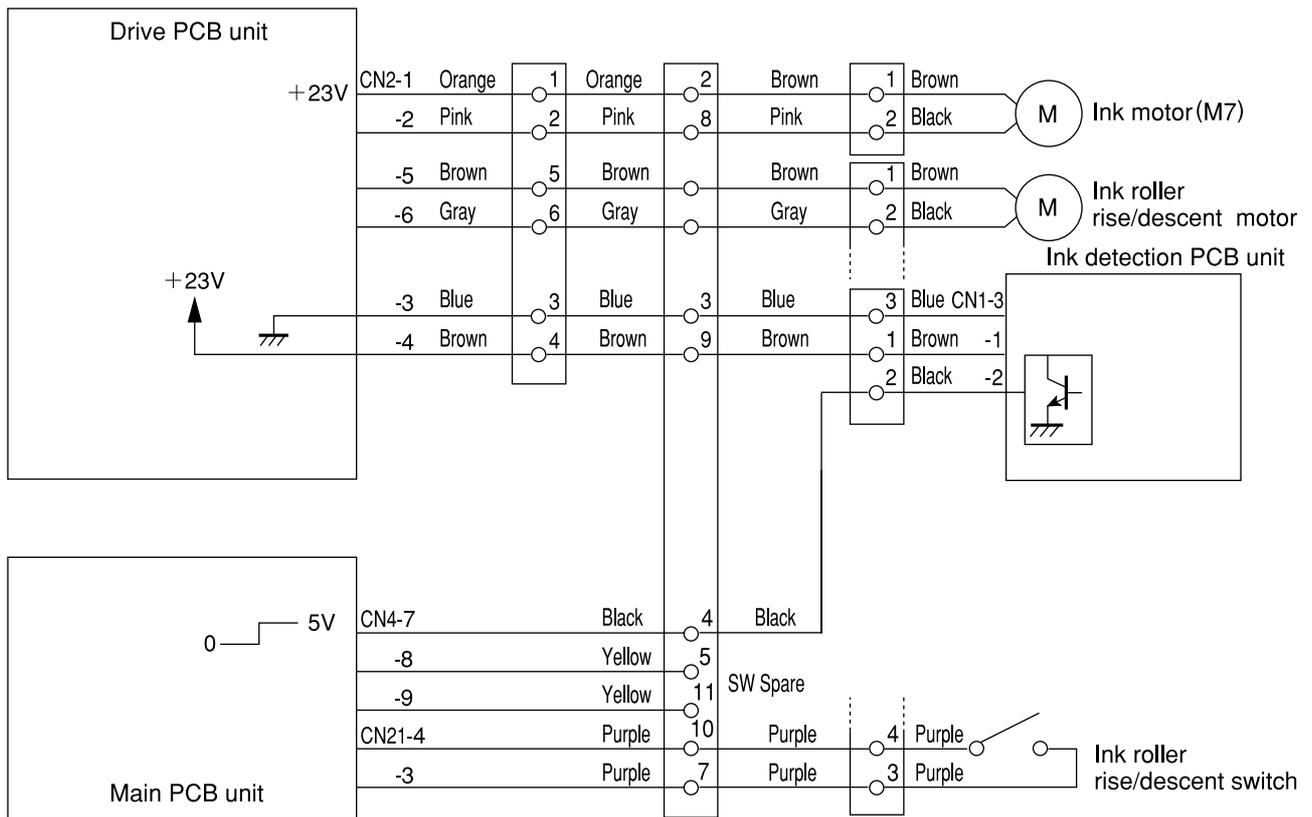
1. Description

The ink control section is in the drum unit. The ink control section is supplied with ink in the ink pack attached to the drum unit by the motor. The ink control section has an ink detection function, and is always supplied with a fixed amount of ink. Printing darkness is adjusted by changing the gap between the squeegee roller and the ink roller. Five color inks are available: black, red, blue, green and brown. Perform color printing to replace the drum unit for each color. (Press the drum rotation switch to the drum home position to replace the drum unit.)

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



2. Circuit



3. Function of Parts

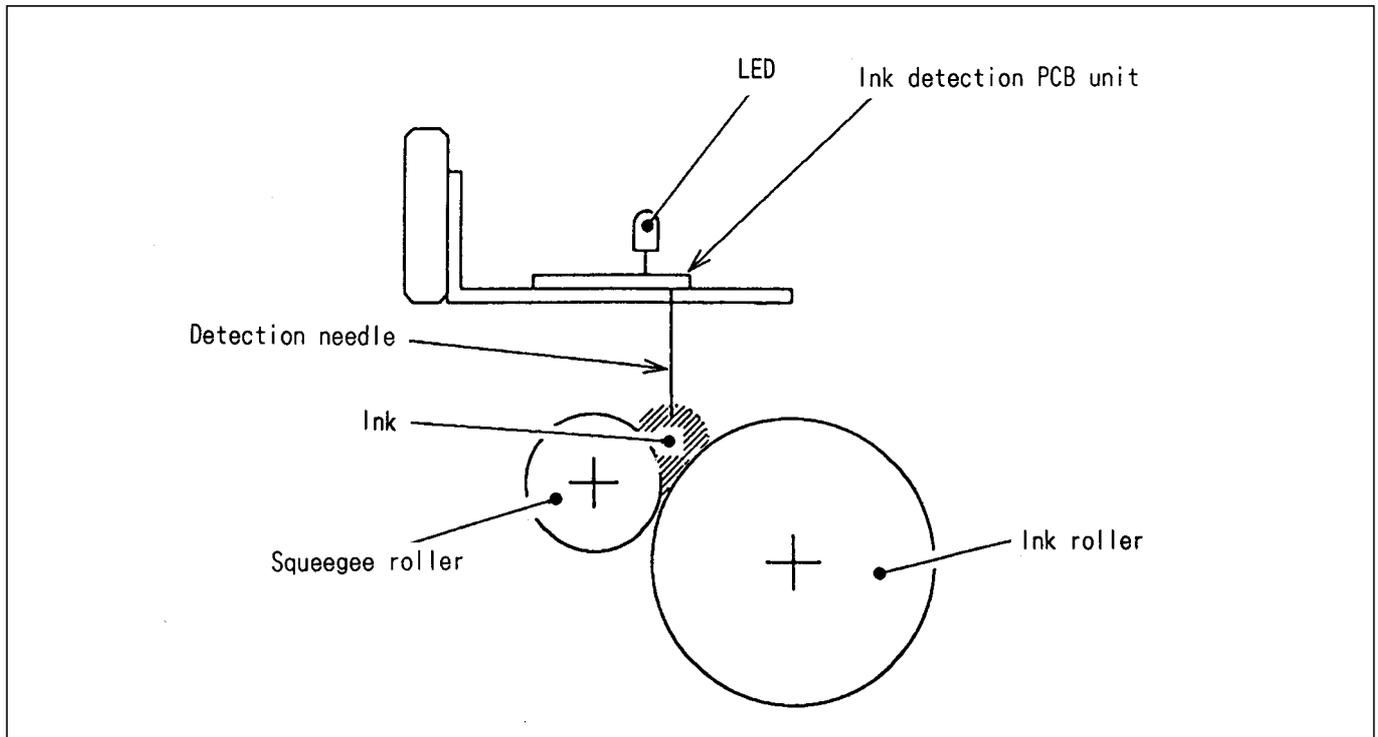
(1) Ink Detection

Description

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

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

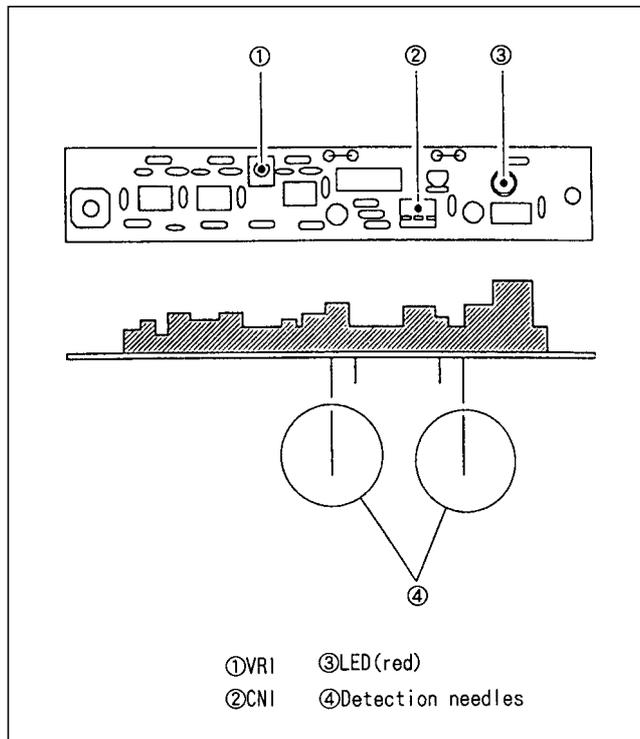
➔ See page 141



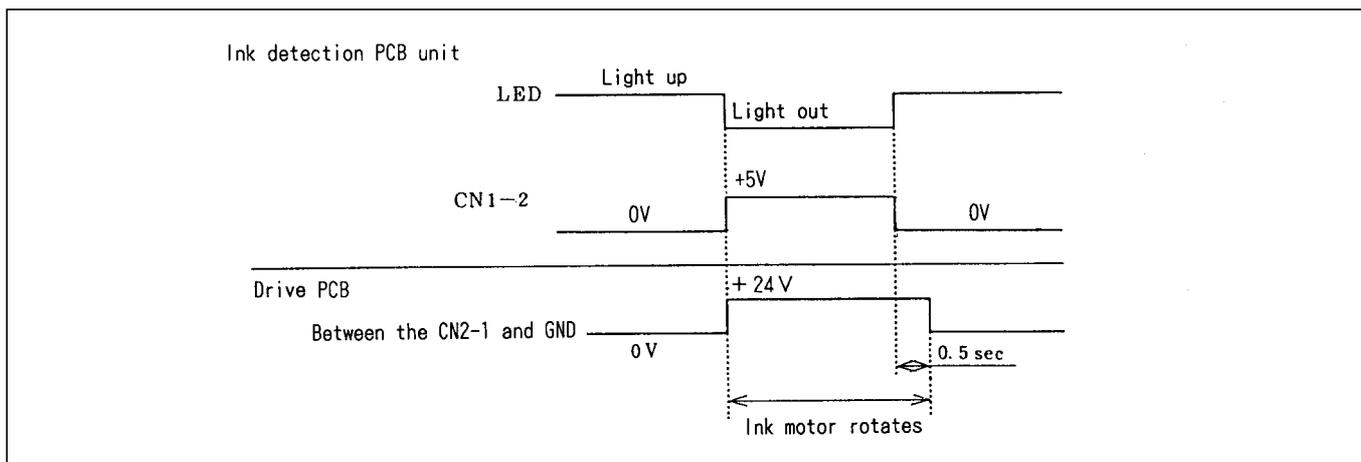
1. LED Display and Output Signal on the Ink Detection PCB Unit

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

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

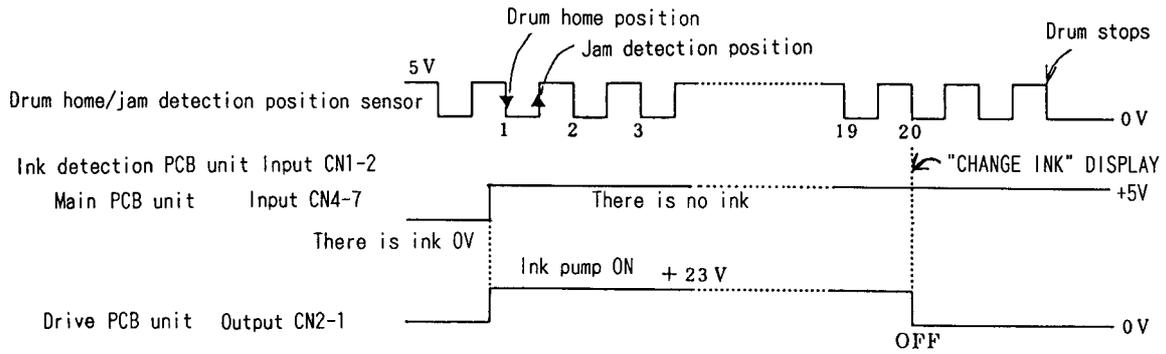


- Timing of the LED and the ink motor operation is as follows. The ink motor works during printing (driving output signal).



2. "CHANGE INK" Display Timing

When HIGH (5V) is output by detecting ink while the drum continues to rotate 20 times (the number of rotations varies depending on the printing speed.*) during printing, it is detected that the ink pack is empty, "CHANGE INK" is displayed on the error display, and printing stops. At the same time the power for the ink motor is turned off.



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

Printing speed	1	2	3	4	5
Number of rotations	15	17	20	24	28

(2) Ink Roller Rise/Descent Mechanism

Description

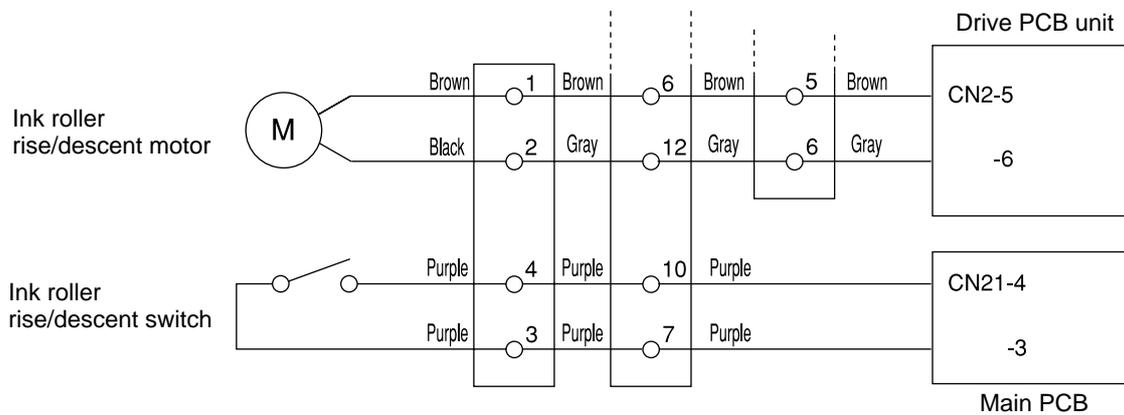
At times other than printing, the ink roller is separated from the inner surface of the drum by a fixed clearance. During printing, however, the press roller rises and presses the ink roller into contact with the drum inner surface, so that ink is supplied via the drum inner surface to the printing paper.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

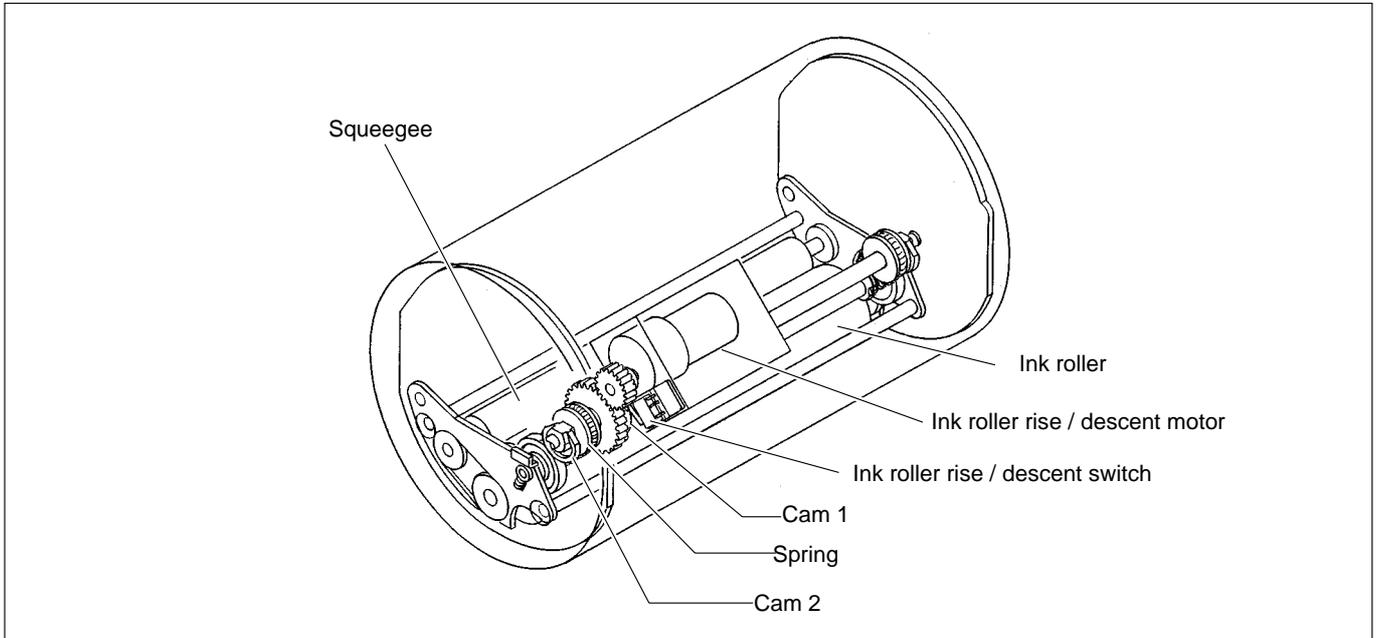
To prevent such ink insufficiency when in the first printing, the machine is equipped with a mechanism for raising and lowering the ink roller. Before paper is fed in, this mechanism pushes the ink roller against the drum inner surface, so that ink is forcibly supplied immediately prior to the start of printing. As a result, the images on the first sheet printed after platemaking are sufficiently bold.

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

Circuit

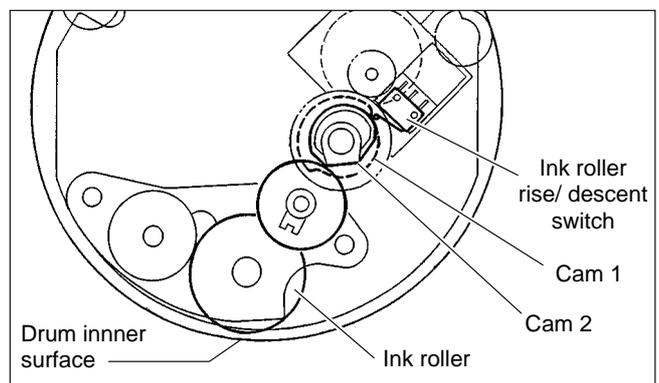


Operation



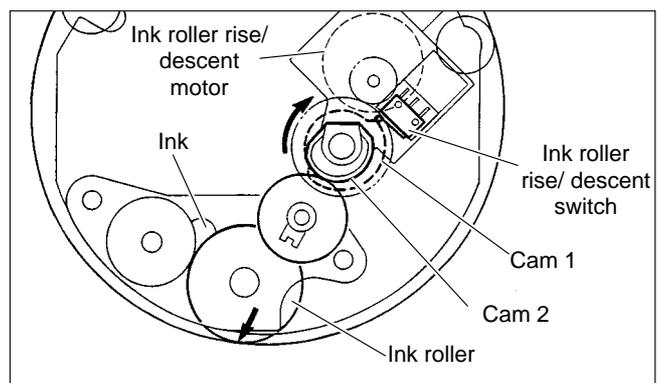
● Standby position during printing

Cam 2 is in the bottom position, and the ink roller is raised up by a spring. Cam 1 is out of contact with the ink roller rise/descent switch (is 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.



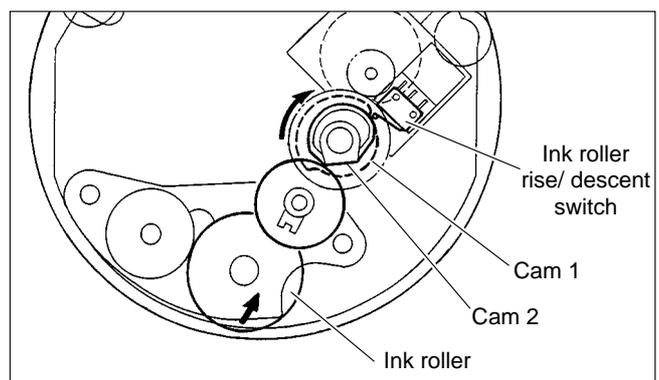
● Ink roller descent

The motor turns, and cam 2 pushes the ink roller downward. When cam 1 rotates into contact with the ink roller rise/descent switch (switch CLOSED), the switch 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 2 reaches the bottom position, the spring raises the ink roller up. When cam 1 moves out of contact with its switch, the switch signals that the roller is in the raised position, and the motor stops.

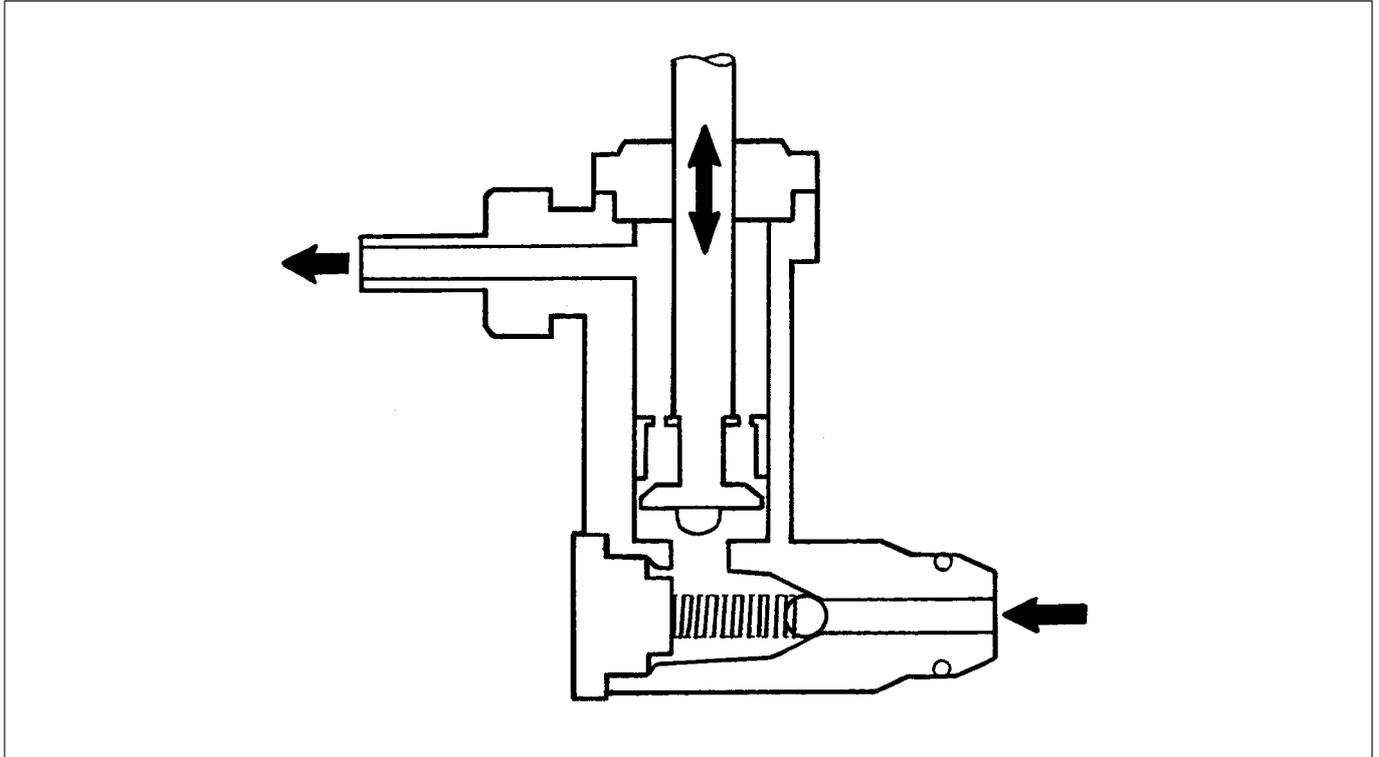


(3) Ink Pump

Description

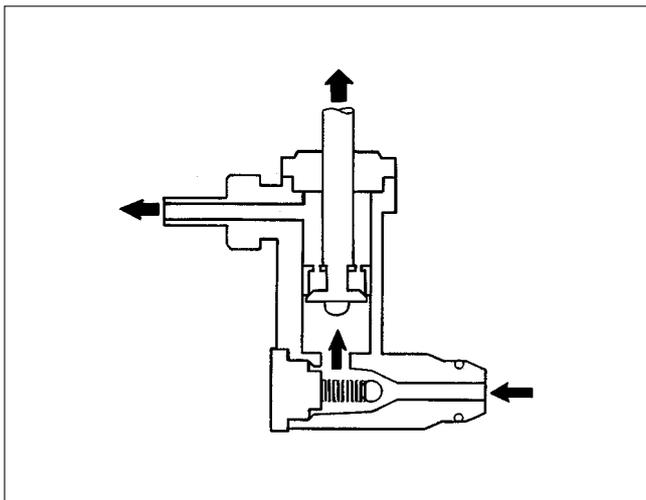
The ink control section in the drum is supplied with ink in the ink pack by driving the ink motor.

Mechanical Structure

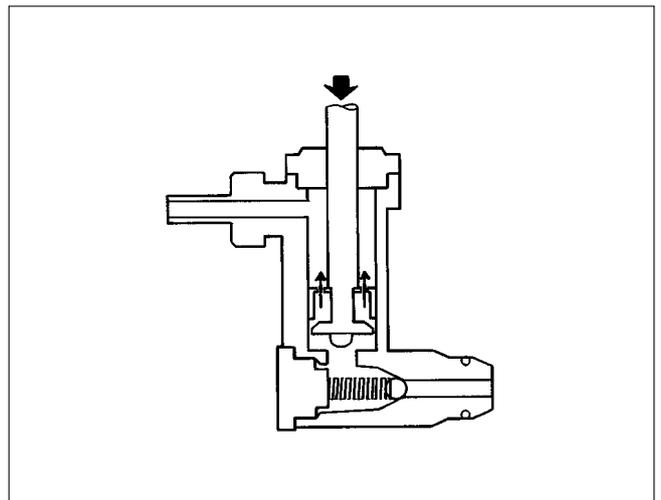


Operation

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



When the piston moves up, it draws ink from the ink pack into the pump, and at the same time pushes ink out of the upper part of the cylinder.



When the piston moves down, the ink below it is drawn into the upper part of the cylinder.

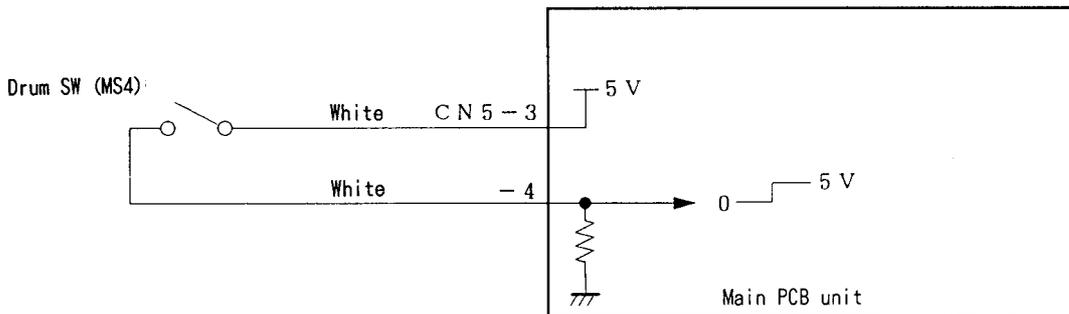
(4)Drum Switch

Discription

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 display panel on the control panel the machine stops operation. When no drum is detected during operation, all the operations stops emergently.

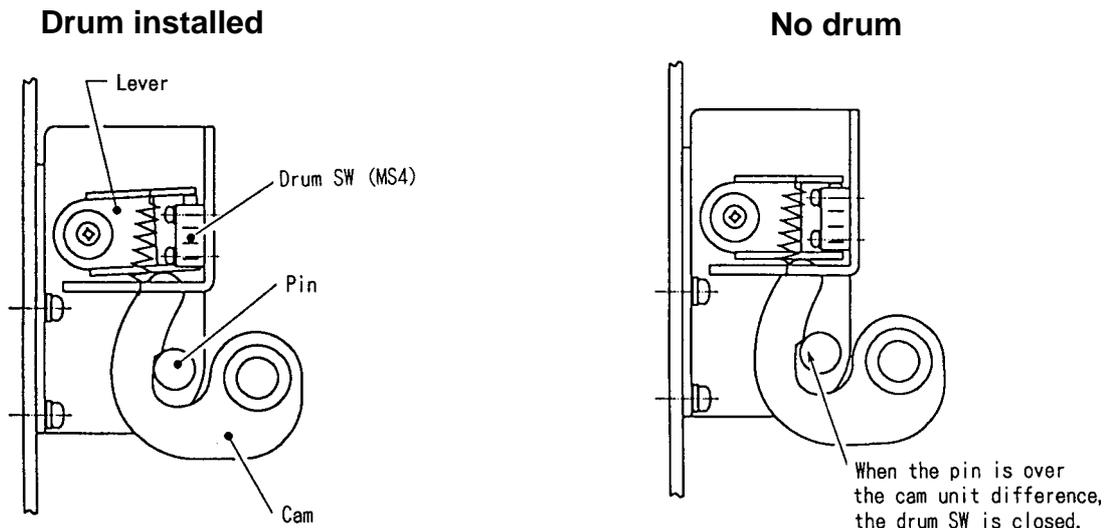
Circuit



Operation

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

When the pin is at the bottom of the cam unit difference, the drum SW is open as shown in the figure. When the pin is over the cam unit difference, the drum SW is closed.

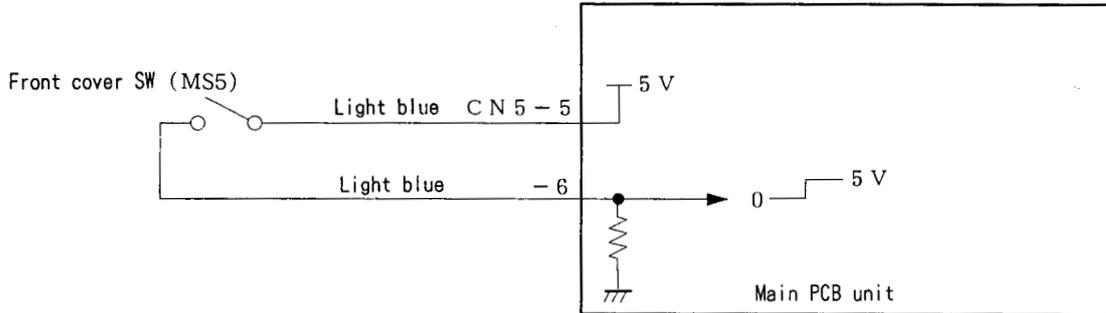


(5) Front Cover Open / Close Detection Switch

Description

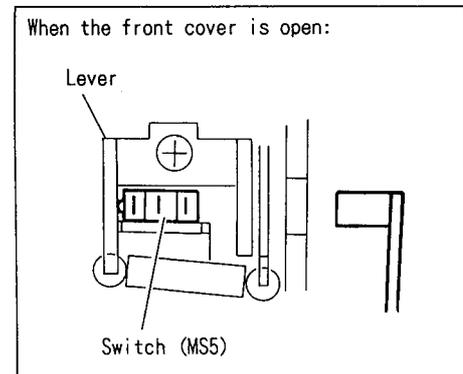
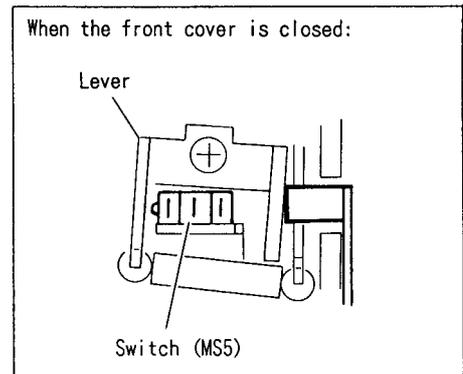
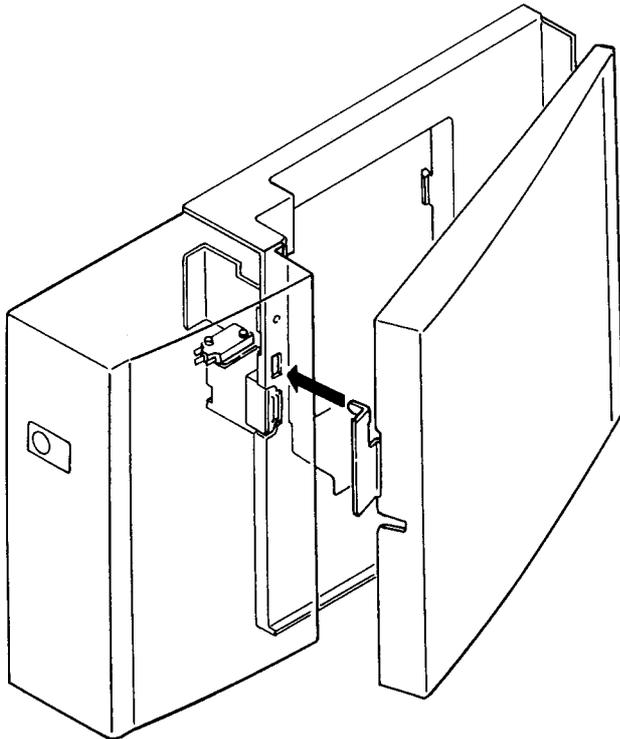
The front cover switch detects opening and closing of the front cover. "FRONT COVER OPEN" is displayed on the error display panel on the control panel, when it is detected that the front cover is open. When the front cover is open, platemaking and printing is not performed. When the front cover open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

Circuit



Operation

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

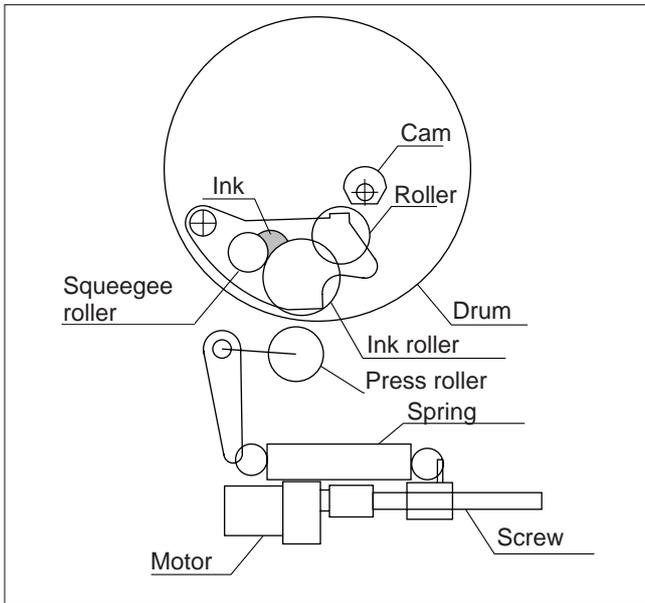


(6) Fine Start Mode

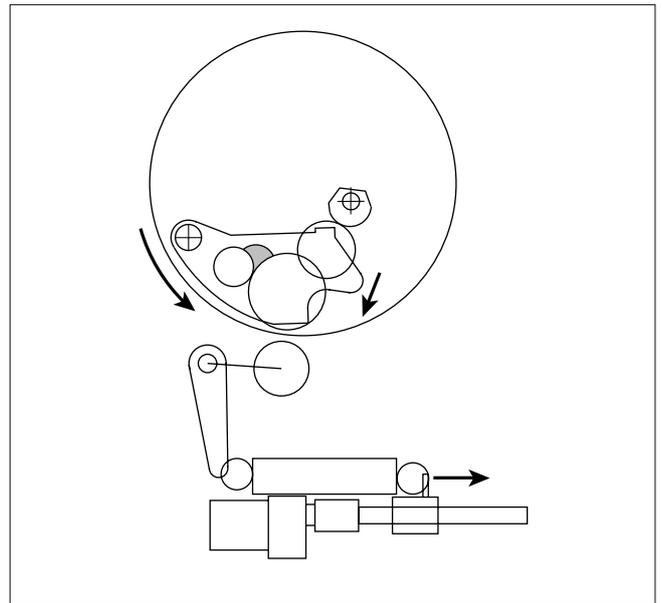
This mode automatically sets optimum values for the following start conditions: timing of ink roller actuation during platemaking, number of no-paper rotations with the ink roller actuated, and contact pressure at printing start. These optimum settings are based on room temperature, the length of time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

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

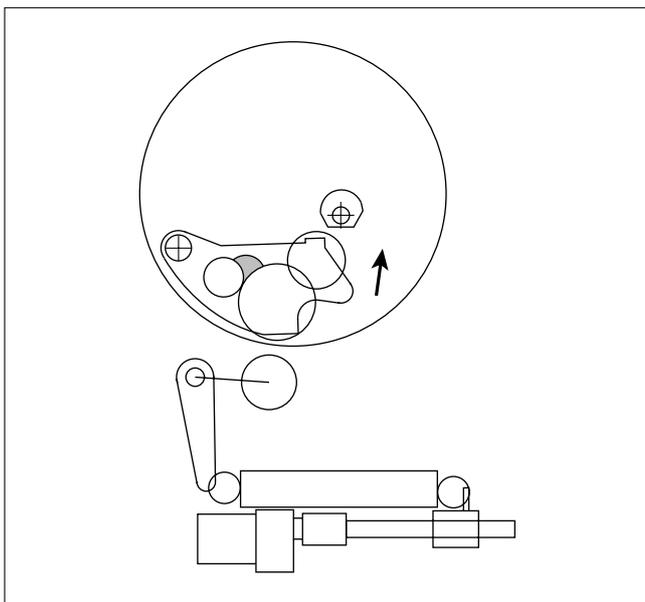
Operation



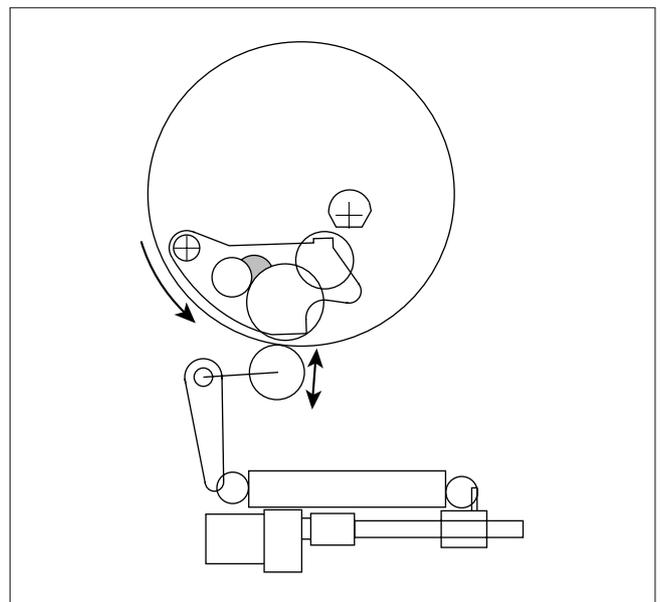
Standby state



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



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



Printing begins.

1. Fine Start Mode Data

The chart below shows the relations among elapsed time, temperature, number of no-paper revolutions, contact pressure, and first sheet printing speed.

HELP mode H-59 ➔ see p.354

HELP59 Fine Start Mode elapsed time setting		Auto				6 hrs
		12 hrs				
Temp.	Elapsed time	0 to 0.5 hrs	0.5 to 2 hrs	2 to 5 hrs	5 to 12 hrs	Over 12 hrs
		Up to 7°C	Before master detachment	–	3	3
Before master attachment	–		3	3	3	5
After master attachment	5		3	3	6	5
7 to 12°C	Before master detachment	–	–	–	–	–
	Before master attachment	–	–	–	3	5
	After master attachment	–	–	–	3	5
12 to 17 °C	Before master detachment	–	–	–	–	–
	Before master attachment	–	–	–	–	5
	After master attachment	–	3	5	5	5
17 to 22 °C	Before master detachment	–	–	–	–	–
	Before master attachment	–	–	–	–	3
	After master attachment	–	1	3	4	3
22 to 27°C	Before master detachment	–	–	–	–	–
	Before master attachment	–	–	–	–	3
	After master attachment	3	3	4	6	3
27 to 32°C	Before master detachment	–	–	–	–	–
	Before master attachment	–	–	–	–	3
	After master attachment	3	4	5	5	3
Over 32°C	Before master detachment	–	–	–	–	–
	Before master attachment	–	–	–	–	3
	After master attachment	3	3	5	5	5

*Figures for number of no-paper rotations do not include no-paper rotations for ink supply prior to printing start.

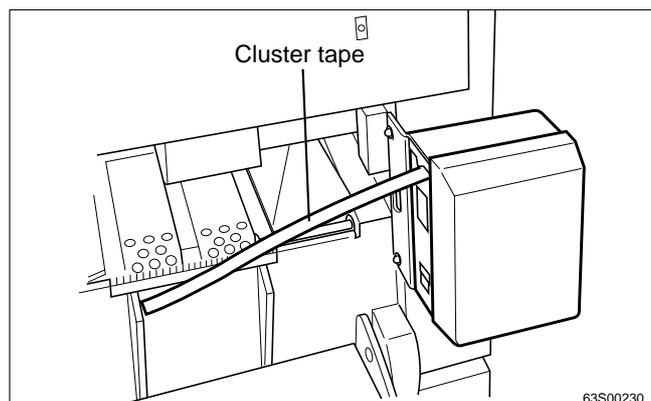
*These data were current as of December 3, 1997, and are subject to change.

8 Option

(1) Tape Cluster

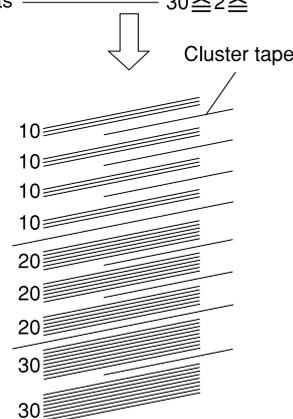
Description

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



【Example】

Import on the keypad
 4 sets of 10 sheets ———— 10 ≍ 4 ≍
 3 sets of 20 sheets ———— 20 ≍ 3 ≍
 2 sets of 30 sheets ———— 30 ≍ 2 ≍



- Both large and small classifications are made automatically by the tape length.

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

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

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

IMPORTANT : When attaching the tape cluster, set the mode to the HELP mode 28 with tape cluster.
 (For further details, refer to the list of the HELP modes. If it is not set, the tape cluster does not work.)

HELP mode H-28 ➡ see p.328

Operation

1) The tape cluster starts to feed the tape from the last 10 sheets for the set. A fixed length of the tape is fed and is cut after completing printing the set amount.

This operation is repeated until the last set is processed.

The fed amount of tape is different between the large and small classifications. When all the sets for 1 classification are processed, the fed amount of tape is longer (large classification). When all the sheets for 1 set are processed, the fed amount of tape is shorter (small classification).

Fed amount of tape for small classification: about 250mm (±15%)

Fed amount of tape for large classification: about 370mm (±15%)

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

Chapter 3

Mechanism

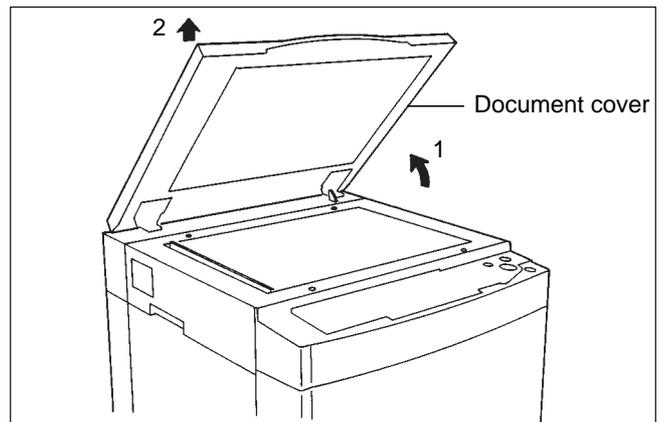
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(5) Removal of Rear Cover155	(4) Removing the Master Feed Unit.....174
(6) Removal of Drive PCB Unit and Main Motor PCB Unit155	(5) Removing the Thermal Head Press Motor176
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2 Scanner Section158	(1) Removing the Jam / Master Ejection sensor (Photo-emitting PCB Unit).....180
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1 Exterior

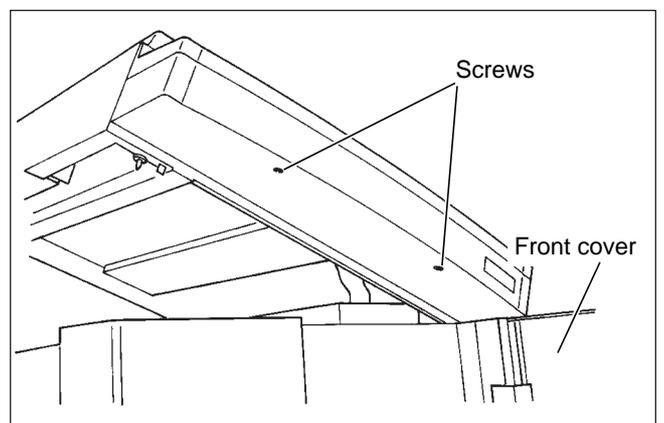
(1) Removing the Document Cover

- 1) Open the document cover until it stops.
- 2) Remove it by pulling up.

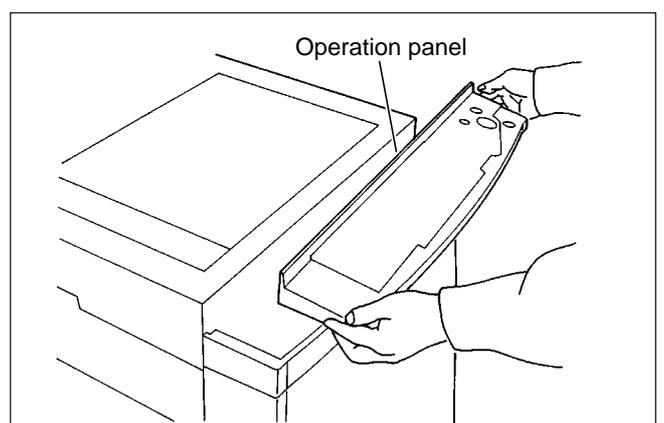


(2) Removing the Control Panel

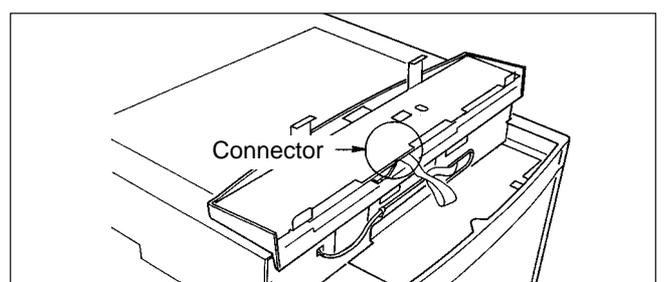
- 1) Open the front cover.
- 2) Lift up the scanner unit.
- 3) Remove the 2 screws from the bottom of the control panel.



- 4) Lift up the top half of the operation panel.

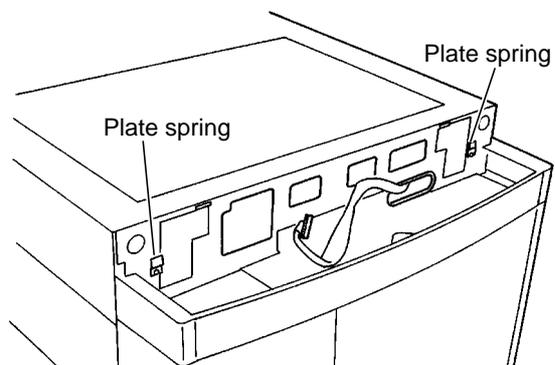


- 5) Remove the connector.

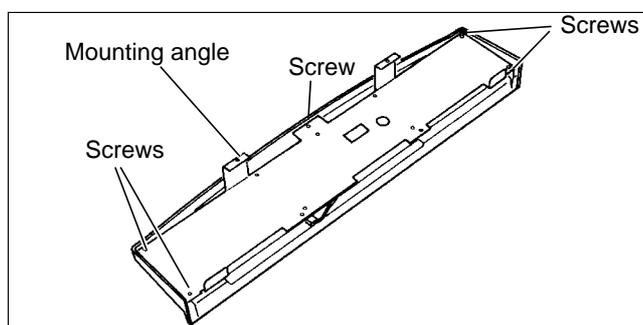


Reinstallation

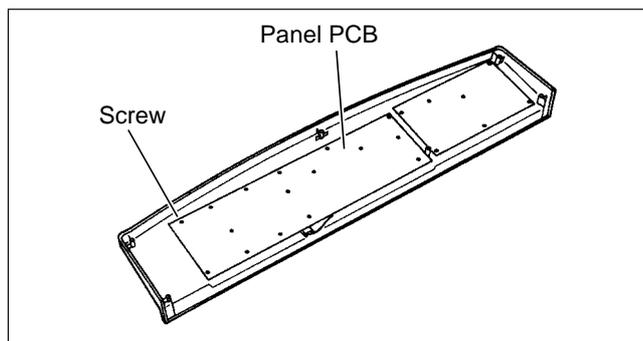
Hitch the hooks of the operation panel mounting angles onto the plate springs in the frame.

**(3) Removing the Control Panel PCB**

- 1) Remove the control panel.
- 2) Remove the 5 screws indicated. Then remove the 2 connectors.



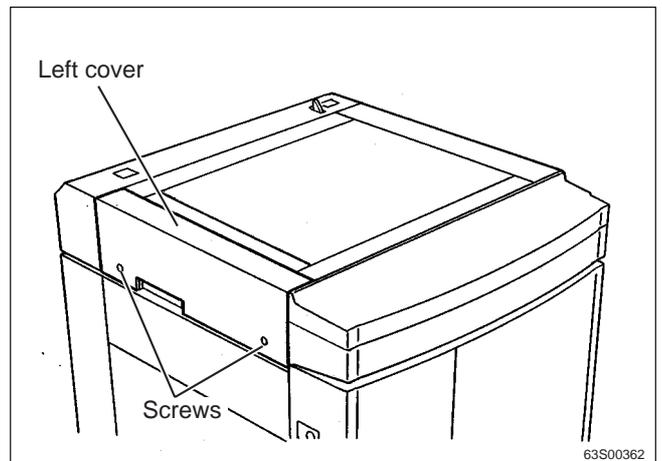
- 3) Remove the 17 screws from the panel PCB, and remove the panel PCB.



(4) Removing the Scanner Outer Cover

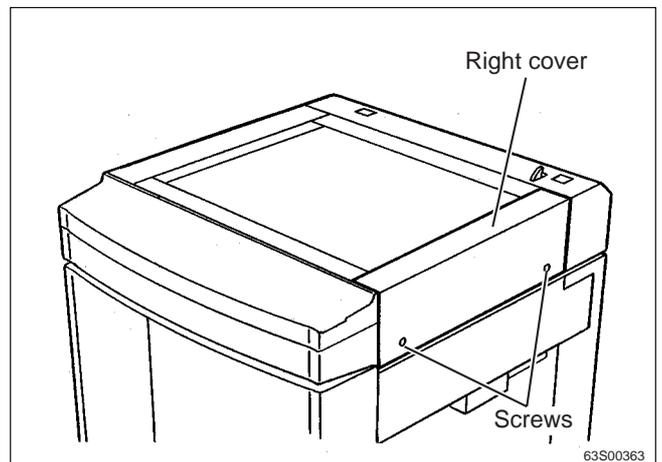
• Left cover

1) Remove 2 screws to take out the cover.



• Right cover

1) Remove 2 screws to take out the cover.

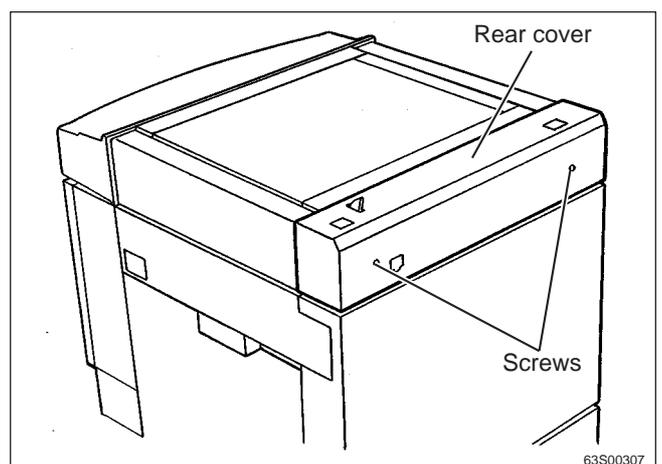


• Rear cover

1) Remove the document cover.

2) Remove 4 screws to take out the cover.

➔ See page 152

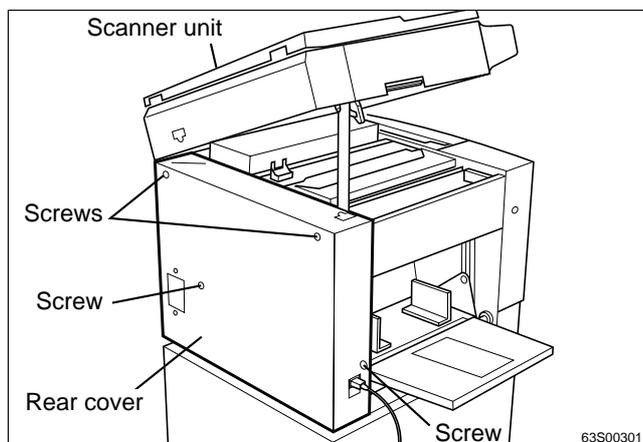


(5) Removal of Rear Cover

- 1) Press the power switch to turn it off, then disconnect the power cord from the outlet.
- 2) Disconnect the power cord from the machine body.
- 3) Open out the scanner unit.
- 4) Remove the 4 screws indicated, then remove the rear cover.

Reinstallation

- Reinstall the rear cover from the paper feed side.



(6) Removal of Drive PCB Unit and Main Motor PCB Unit

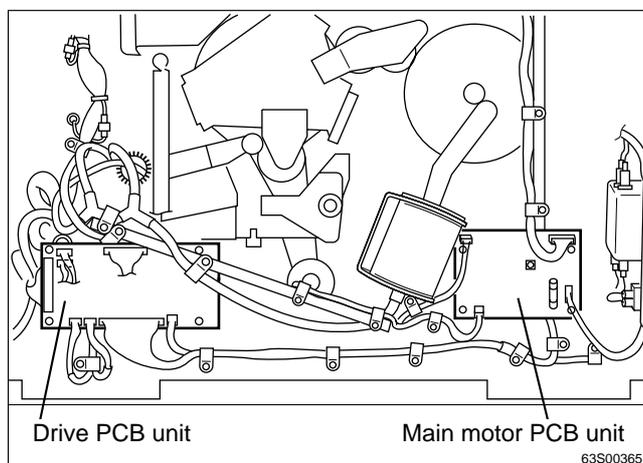
IMPORTANT : Always turn off the power before replacing a PCB Unit.

- 1) Remove the rear cover. (See above for procedure.)
- 2) Remove the connectors of.
 - Drive PCB Unit (8 connectors)
 - Main motor PCB Unit (4 connectors)
- 3) Remove the mounting screws, and replace the PCB units.
 - Drive PCB Unit: 4 screws
 - Main motor PCB Unit: 4 screws

Reinstallation

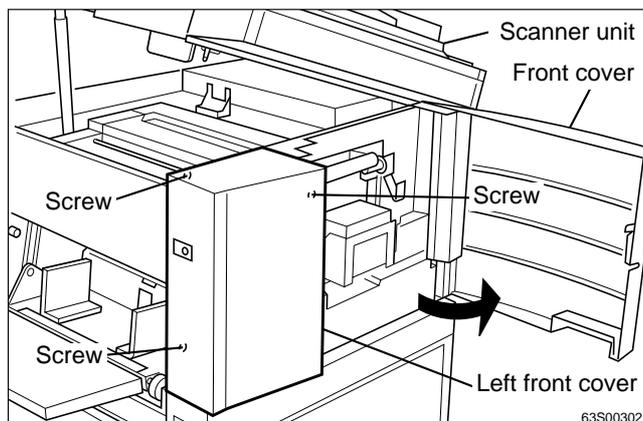
IMPORTANT : After replacing Motor PCB Unit, perform readjustment..

HELP mode H-01 ➔ see p.292



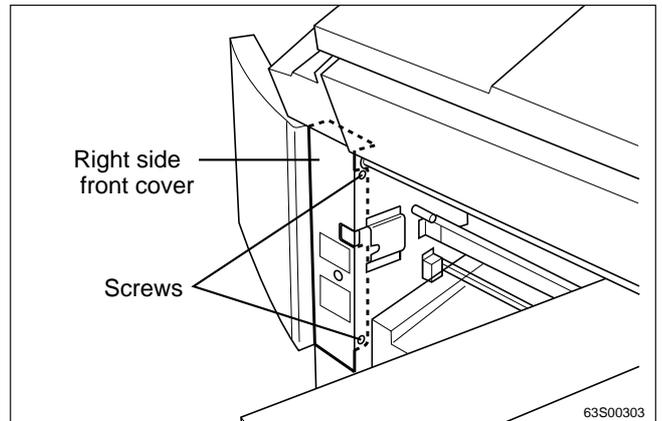
(7) Removal of Left Front Cover

- 1) Open the front covers and scanner unit.
- 2) Remove the 3 screws, then remove the left front cover.



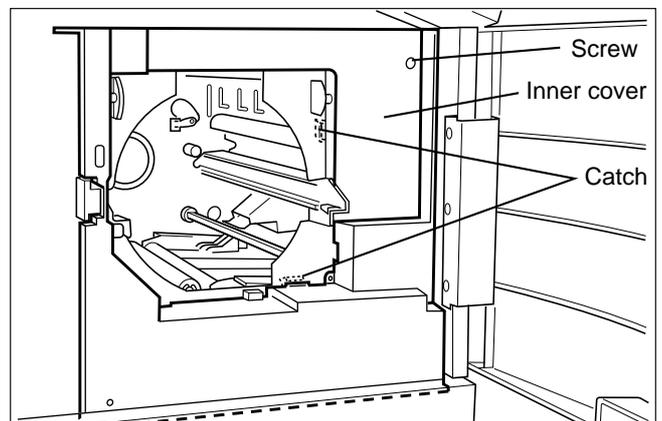
(8) Removal of Right Side Front Cover

- 1) Open the master ejection box.
- 2) Remove the 2 screws indicated, then remove the right side front cover.



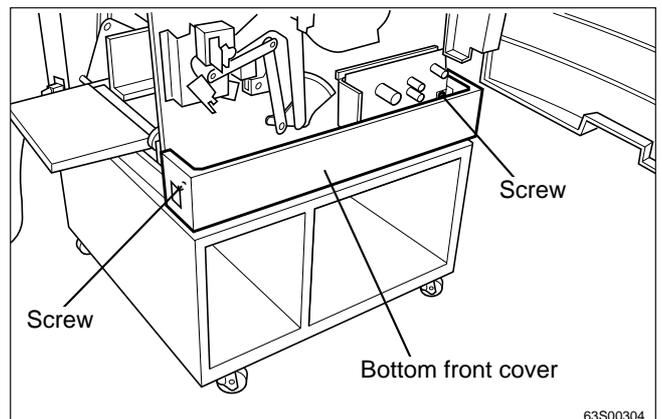
(9) Removal of Inner Cover

- 1) Remove the drum unit and the left front cover. ➔ See page 155
- 2) Remove the 2 catches and the screw, then remove the inner cover.



(10) Removal of Bottom Front Cover

- 1) Remove the left front cover and the inner cover. ➔ See page 155
- 2) Remove the 2 screws indicated, then remove the bottom front cover.



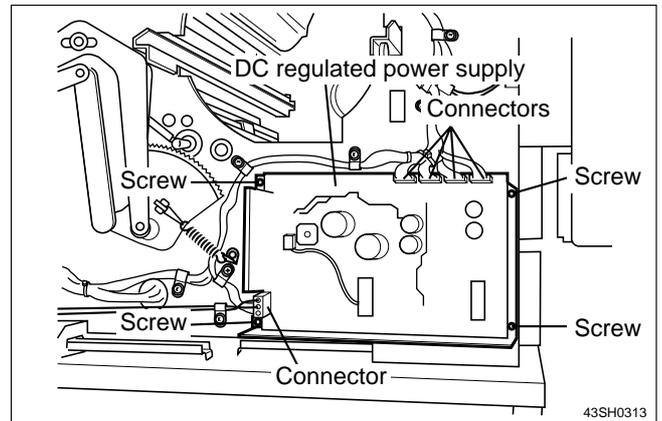
(11) Removal of DC Regulated Power Supply

IMPORTANT : Always turn off the power before replacing a PCB Unit.

1) Remove the bottom front cover.

➔ See page 156

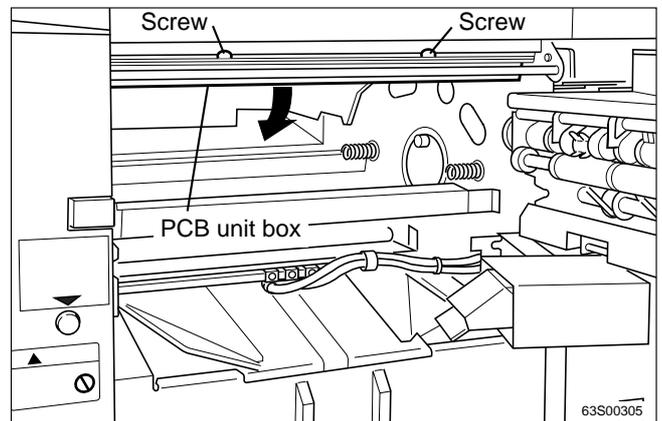
- 2) Disconnect the 5 connectors indicated.
- 3) Remove the 4 screws indicated, then remove the regulated power supply.



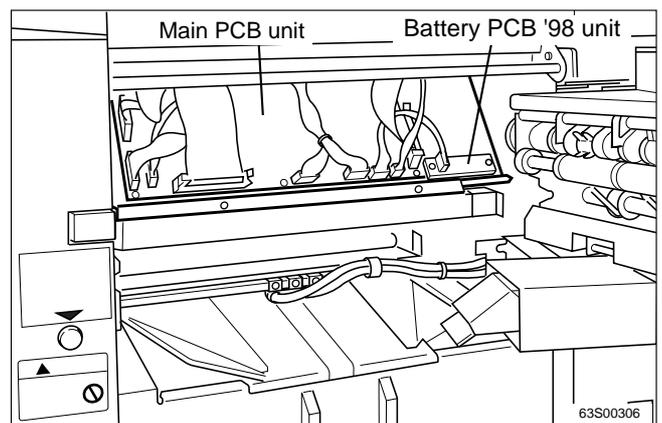
(12) Removal of Battery PCB '98 Unit and Main PCB Unit

IMPORTANT : Always turn off the power before replacing a PCB Unit.

- 1) Open the master ejection box, and remove the 2 PCB unit box fixing screws.
- 2) Open the PCB unit box out downward.



- 3) Remove the connectors:
 - Battery PCB '98 Unit: 1 connector
 - Main PCB Unit: 15 connectors
- 4) Remove the mounting screws, and replace the PCB units.
 - Battery PCB '98 Unit: 2 spacers
 - Main PCB Unit: 6 screws



Reinstallation

IMPORTANT : After replacing Main PCB Unit, set the DIP switches.

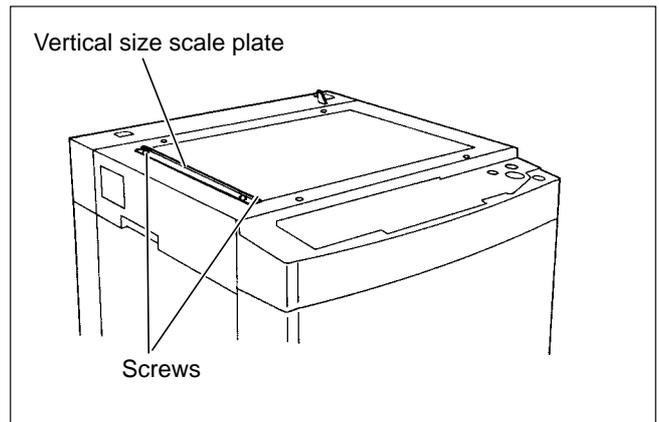
For adjustment procedure ➔ see p. 367

2 Scanner Section

(1) Removing the Vertical Size Scale Plate

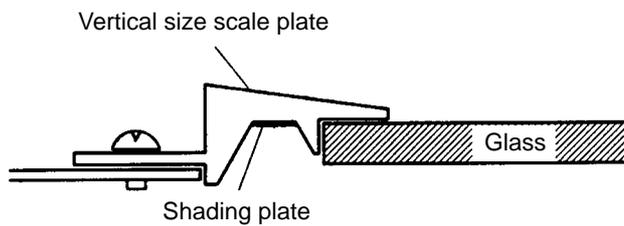
1) Remove 2 screws to take out the vertical size scale plate.

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

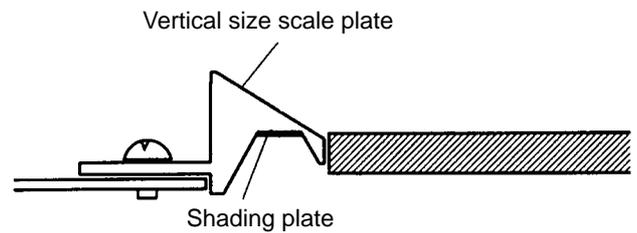


NOTE

ADF is not attached



ADF is attached

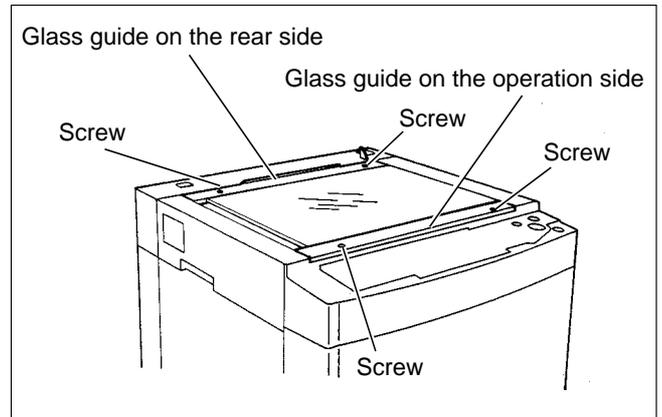


Reinstallation

- Put it between the frame and glass to attach. Match it with the frame standard face, leave a play on the operation side and tighten the screws.

(2) Removing the Glass

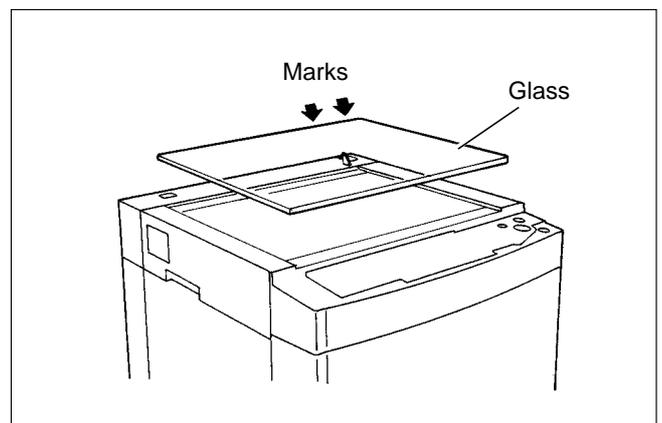
- 1) Remove the vertical size scale plate.
- 2) Remove 2 screws to take out the glass guides on the operation side and on the rear side.



- 3) Remove the glass.

IMPORTANT

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

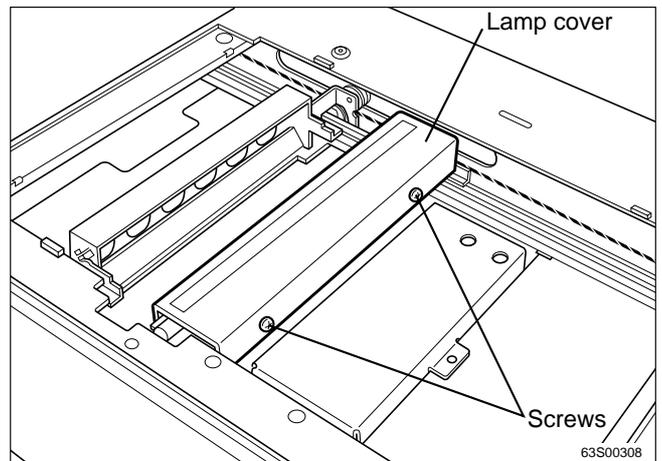


(3) Removing the Lamp Cover

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

➔ See page 158

2) Remove the lamp cover's 2 screws, then remove the lamp cover.



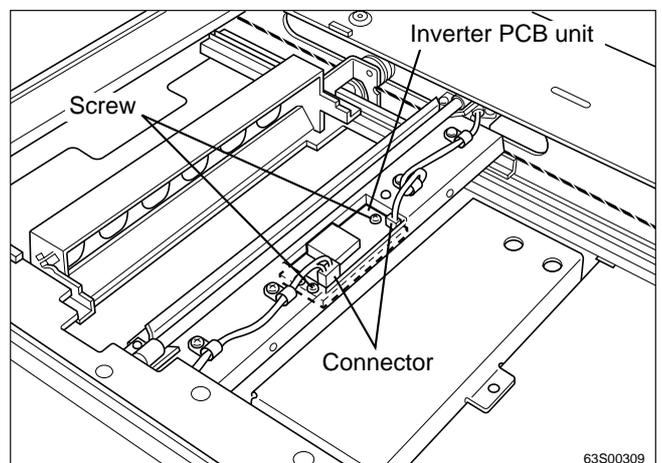
(4) Removing the inverter PCB unit

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

➔ See page 158

2) Disconnect the 2 connectors indicated.

3) Remove the 2 screws indicated, then remove the inverter PCB unit.

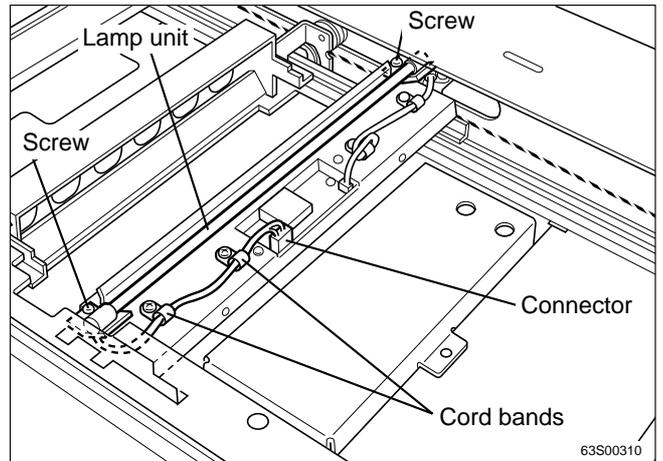


(5) Removing the lamp unit

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

➔ See page 158

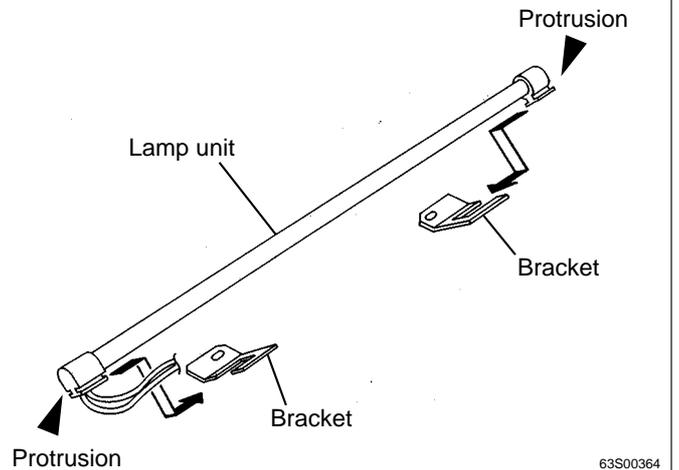
- 2) Disconnect the inverter PCB unit CN2 connector.
- 3) Remove the 2 lamp unit mounting screws and the 2 cord bands.



Reinstallation

- Insert the lamp unit's protrusions into the slots in the brackets.

IMPORTANT : Be careful not to break the lamp.



(6) Removing the lamp cord

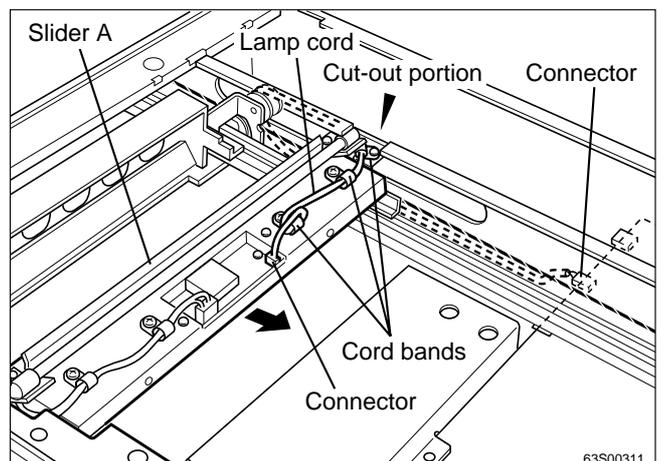
1) Carry out (1) through (3) above.

➔ See page 158

2) Remove the reinforcing frame B.

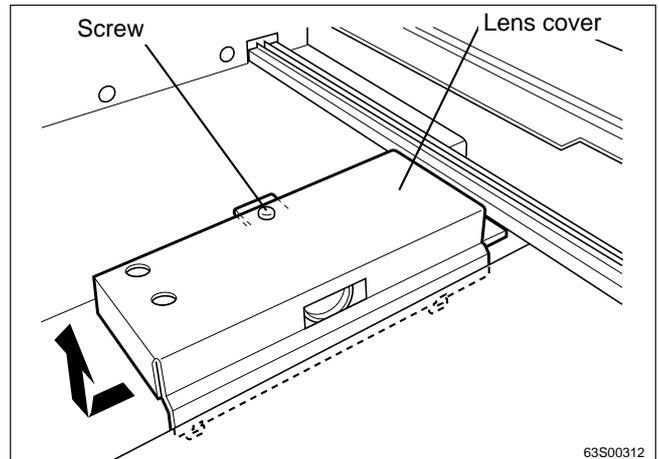
➔ See page 163

- 3) Move slider A as far as the cut-out portion of the bracket.
- 4) Remove the 3 cord bands.
- 5) Disconnect the 2 connectors indicated, and remove the lamp cord.



(7) Removing the Lens Cover

- 1) Remove the glass. ➔ See page 159
- 2) Remove the screw.
- 3) Slide the lens cover in the direction of an arrow to remove.



(8) Removing the A / D PCB Unit

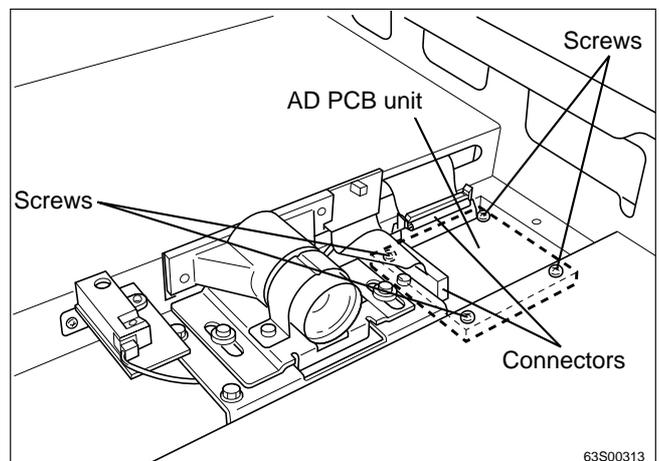
- 1) Remove the lens cover.
- 2) Pull out connector CN1 and CN2.
- 3) Remove 4 screws to take out the A / D PCB Unit.

Reinstallation

IMPORTANT

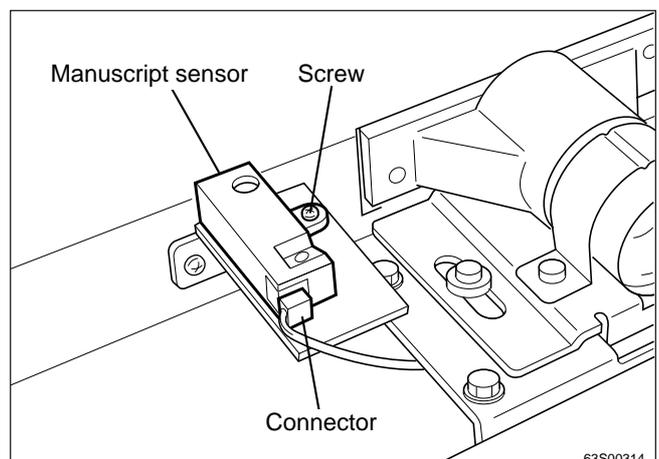
- After replacing an A / D PCB unit, return the DIP switches to the values they were set to prior to the replacement operation.

For adjustment procedure ➔ see p. 241



(9) Removing the Manuscript Sensor

- 1) Carry out (1) through (3) above. ➔ See page 158
- 2) Remove the lens cover. Refer to (7) above.
- 3) Disconnect the connector indicated.
- 4) Remove the screw indicated, and remove the manuscript sensor.



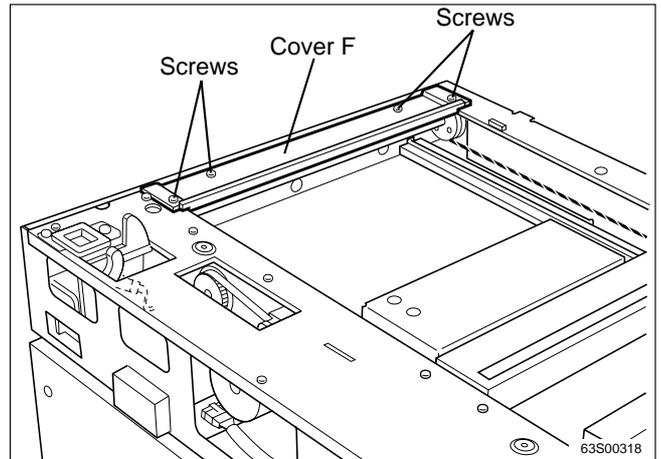
(10) Removing Reinforcing Frames A, B and C

● Reinforcing frame B

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

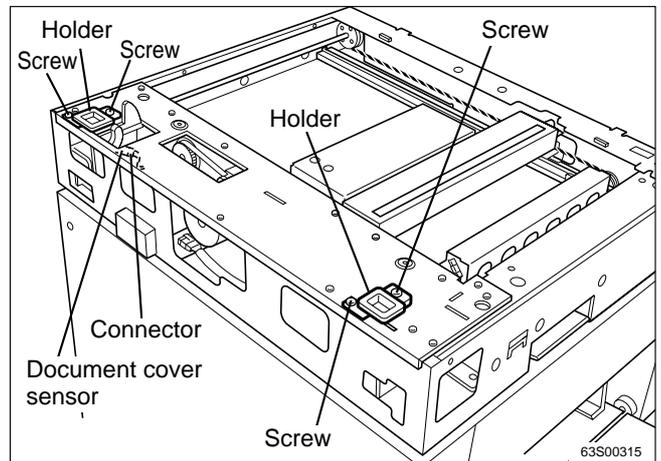
➔ See page 158

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

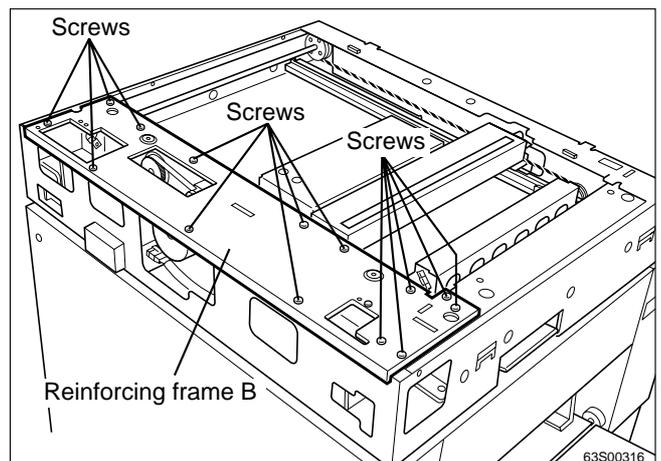


3) Remove the 2 mounting screws of both holders, then remove both holders (left and right).

4) Disconnect the document cover sensor's connector.



5) Remove reinforcing frame B's 14 screws, and remove reinforcing frame B.

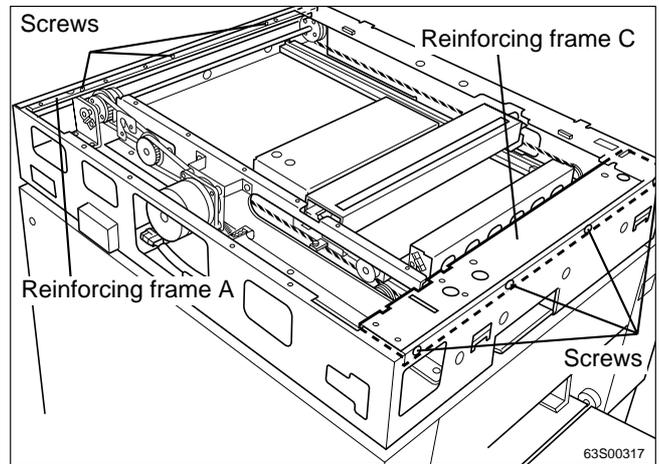


● **Reinforcing frame A**

- 1) First remove reinforcing frame B.
- 2) Remove reinforcing frame A's 3 screws, and remove reinforcing frame A.

● **Reinforcing frame C**

- 1) First remove reinforcing frame B.
- 2) Remove reinforcing frame C's 4 screws, and remove reinforcing frame C.



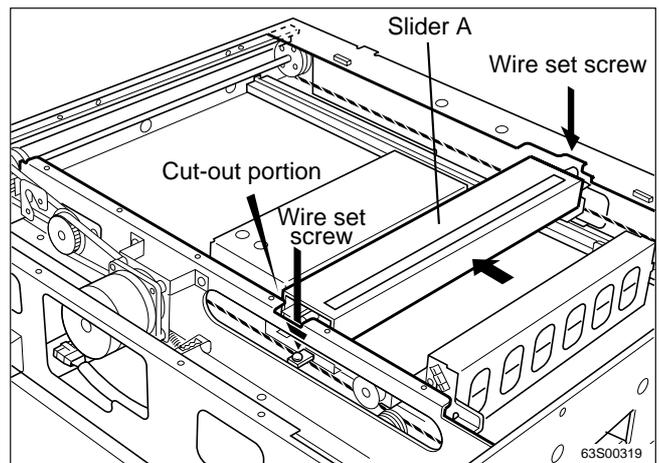
(11) Removing the Sub-Frame Rear Unit

- 1) Remove the scanner's outer covers (left, right and rear). ➔ See page 154

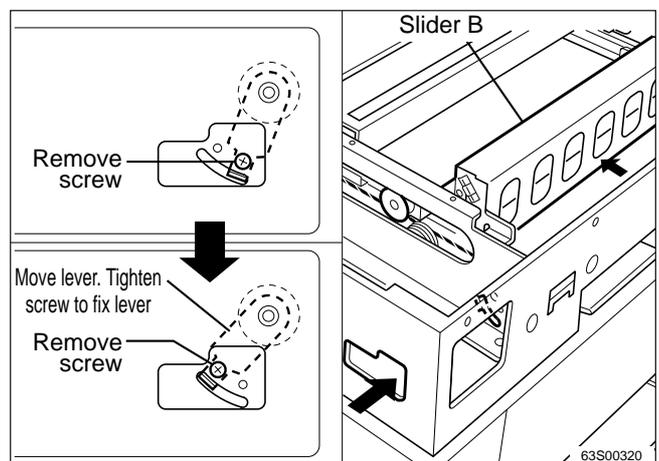
- 2) Carry out (1) and (2) above. ➔ See page 158

- 3) Remove reinforcing frames A, B and C. ➔ See page 163

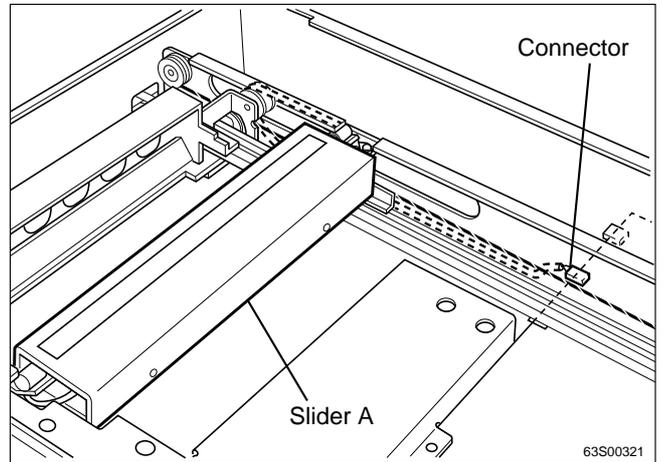
- 4) Move slider A as far as the cut-out portion of the bracket.
- 5) Remove the wire set screws on both sides of slider A, and remove the wire from the wire clump.



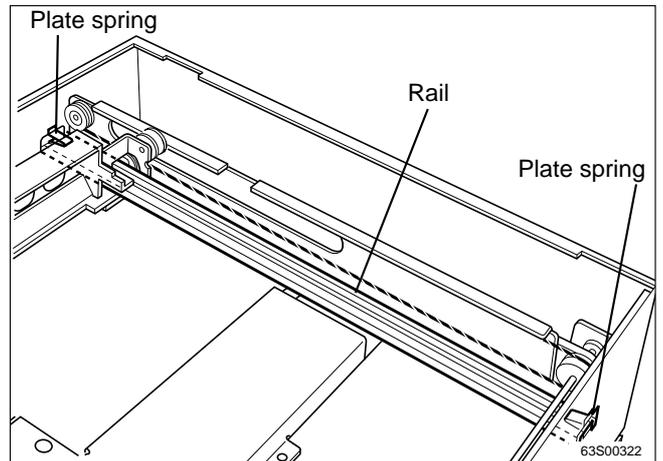
- 6) Move slider B over to the paper ejection side.
- 7) Loosen the screw securing the lever, move the lever to the position indicated in the figure, then tighten the screw to fix the lever in position.



8) Remove the connector indicated, and remove slider A.



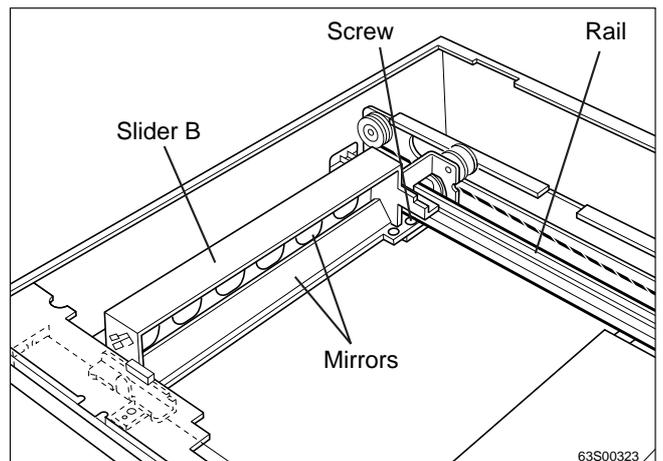
9) Use pliers to grip and pull out the left and right rail retaining plate springs.



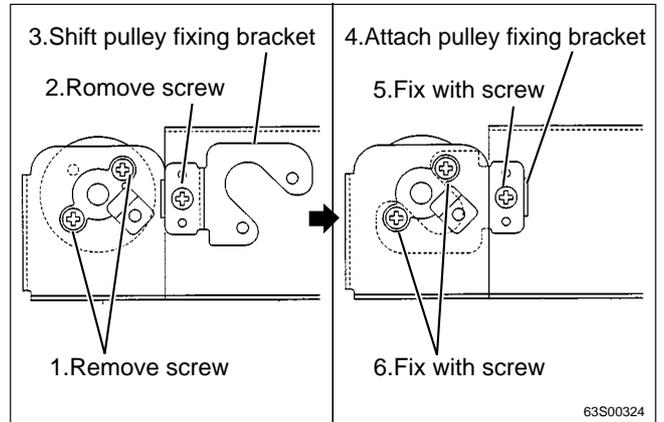
10) Hold down slider B with one hand, and remove the rail with the other.

IMPORTANT : Do not touch slider B's mirrors.

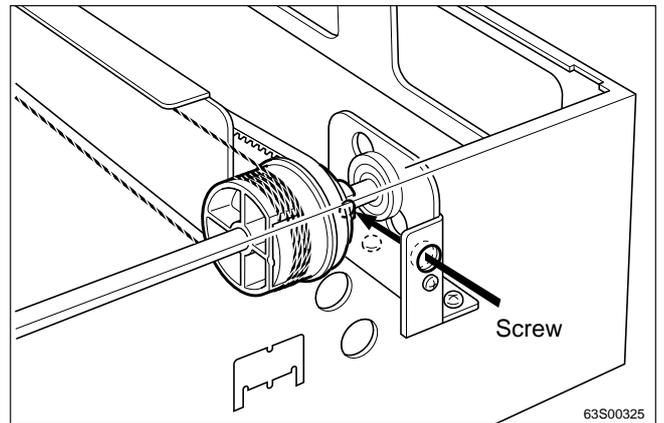
11) Remove slider B's screw.



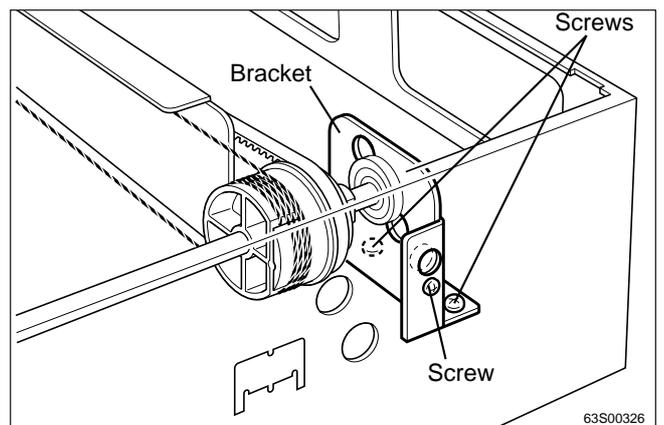
- 12) Remove the 2 screws indicated.
- 13) Loosen the pulley fixing bracket's screw. Then rotate the bracket 180 degrees and tighten the screw to fix the bracket in position.
- 14) Fix the pulley in position with the 2 screws removed in 12).



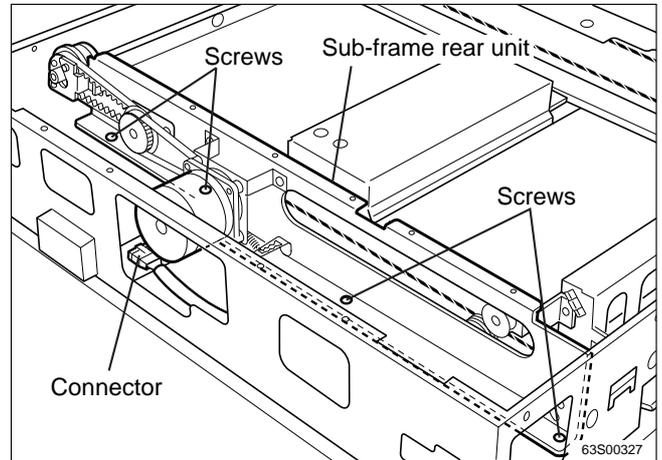
- 15) Remove the screw securing the pulley.



- 16) Remove the 3 screws indicated, and remove the bracket.



17) Remove the 4 screws indicated and disconnect the motor connector. Then remove the sub-frame rear unit.



Reinstallation

- After reinstalling the sub-frame rear unit, carry out positioning of sliders A and B.

➔ See page 208

(12) Removing the Sub-frame Front Unit

1) Remove the scanner's outer covers (left, right and rear).
 → See page 154

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

→ See page 158

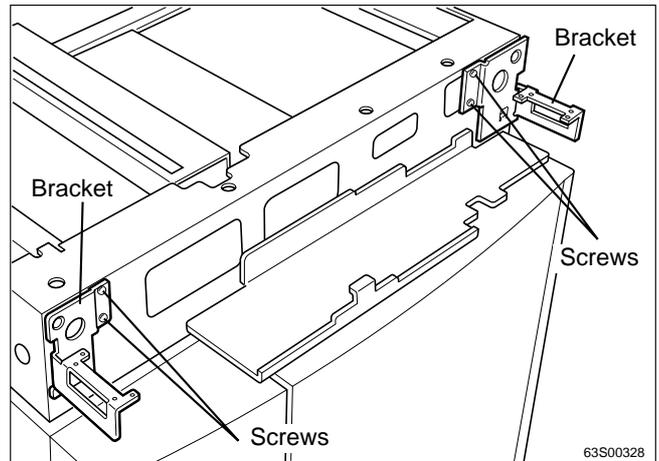
3) Remove reinforcing frames A, B and C.

→ See page 163

4) Remove the operation panel.

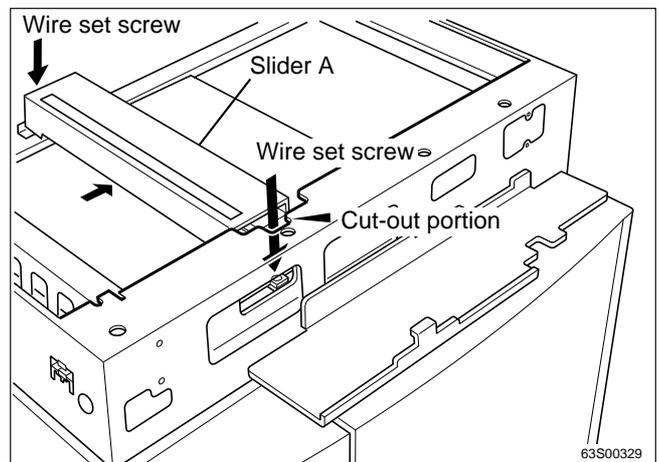
→ See page 152

5) Remove the 2 screws from each bracket (right and left), and remove both brackets.



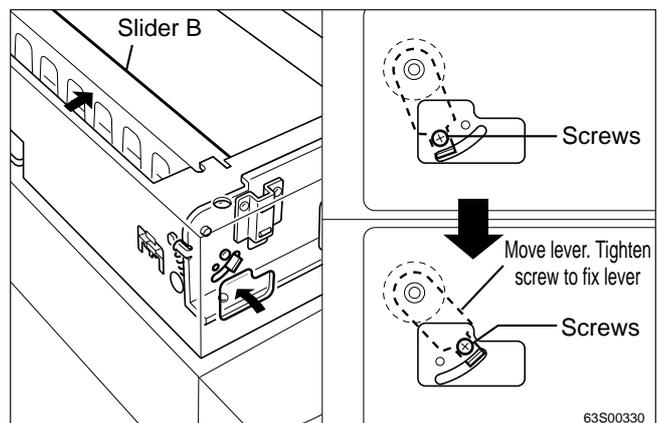
6) Move slider A as far as the cut-out portion of the bracket.

7) Remove the wire set screws on both sides of slider A, and remove the wire from the wire clump.

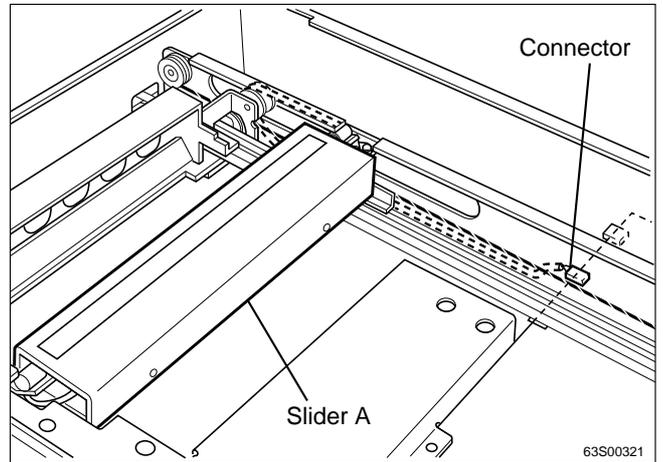


8) Move slider B over to the paper ejection side.

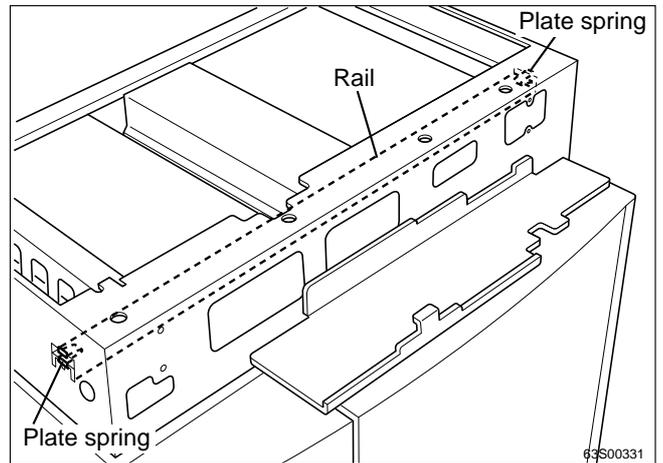
9) Loosen the screw securing the lever, move the lever to the position indicated in the figure, then tighten the screw to fix the lever in position.



10) Remove the connector indicated, and remove slider A.



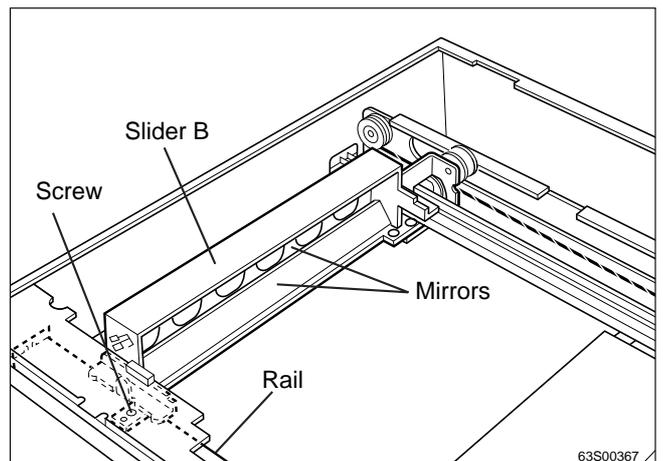
11) Use pliers to grip and pull out the left and right rail retaining plate springs.



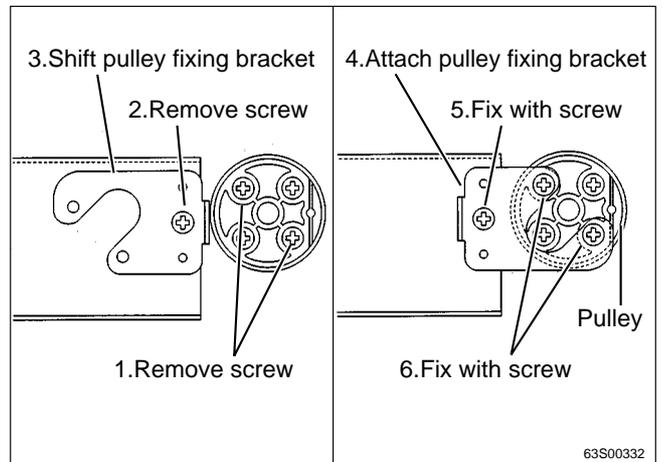
12) Hold down slider B with one hand, and remove the rail with the other.

IMPORTANT : Do not touch slider B's mirrors.

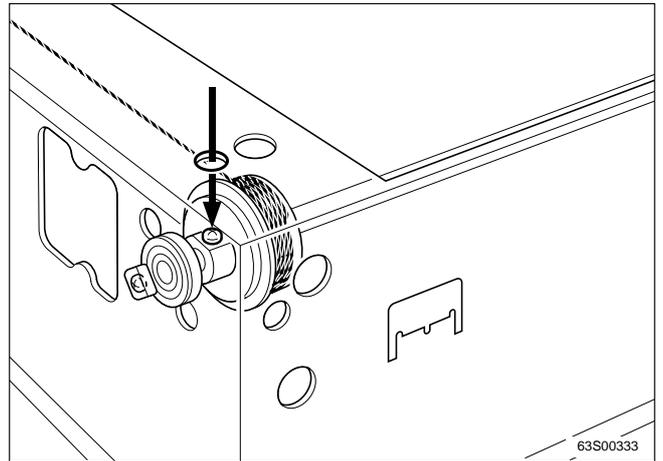
13) Remove slider B's screw.



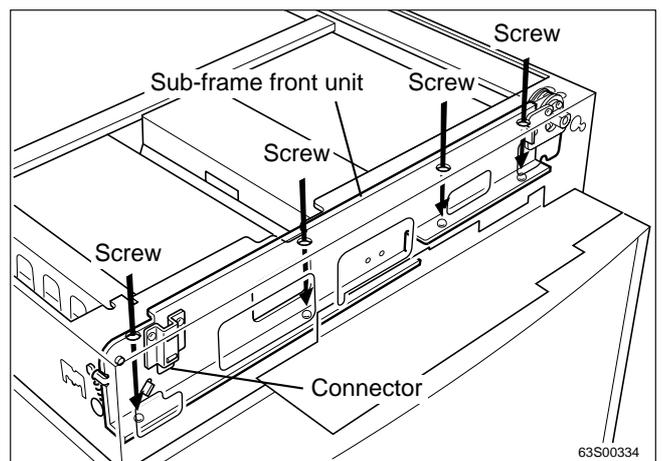
- 14) Remove the 2 screws indicated.
- 15) Loosen the pulley fixing bracket's screw. Then rotate the bracket 180 degrees and tighten the screw to fix the bracket in position.
- 16) Fix the pulley in position with the 2 screws removed in 14).



- 17) Remove the screw securing the pulley.



- 18) Remove the 4 screws indicated and disconnect the sensor connector. Then remove the sub-frame front unit.



Reinstallation

- After reinstalling the sub-frame front unit, carry out positioning of sliders A and B.

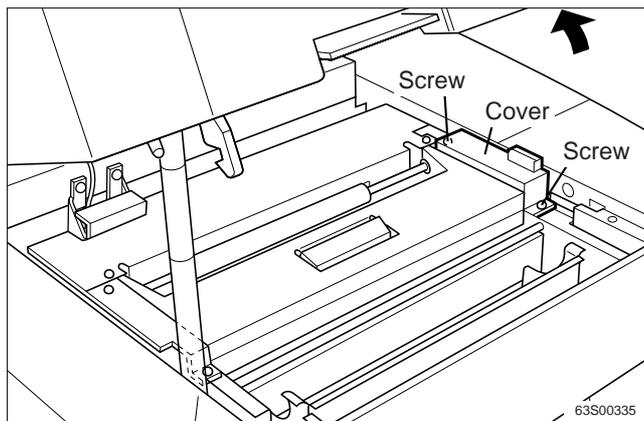
➔ See page 208

3 Platemaking / Master Feed and Ejection Section

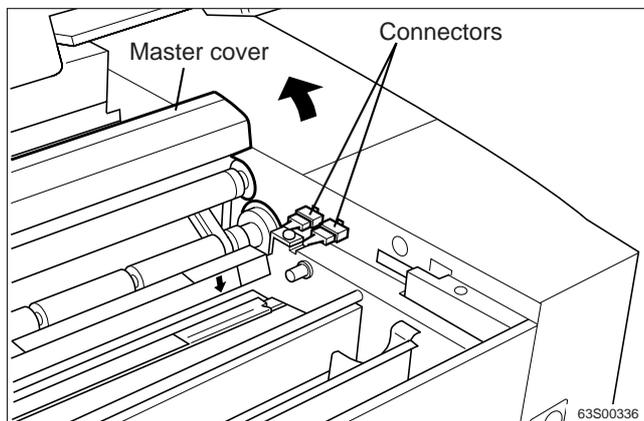
《 Master Feed Section 》

(1) Removing the Cutter Unit

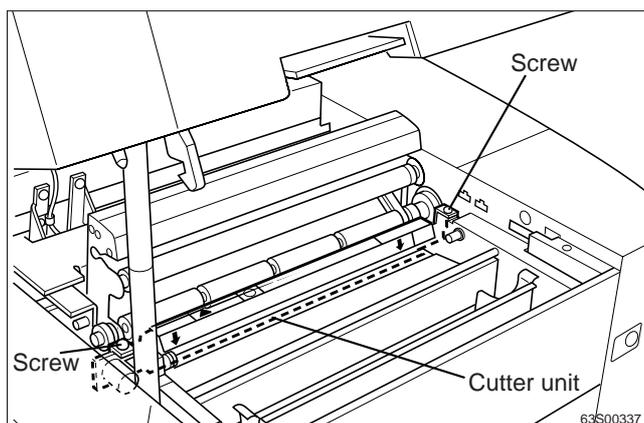
- 1) Open the scanner unit, and take out the master roll.
- 2) Remove the 2 screws indicated, and remove the cover.



- 3) Disconnect the 2 connectors indicated.
- 4) Open the master cover.



- 5) Remove the 2 screws indicated, and remove the cutter unit.

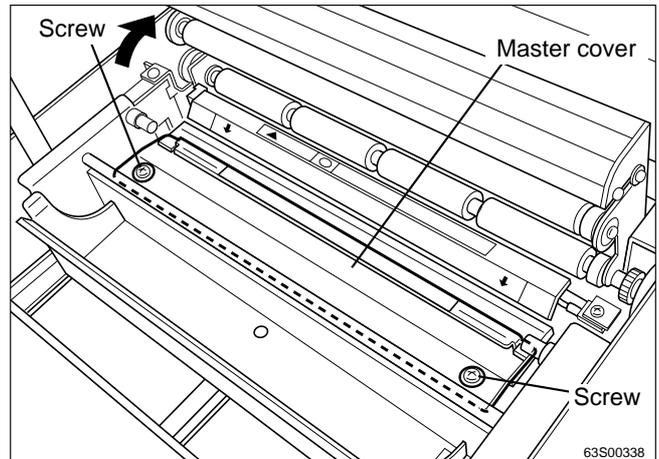


⚠ WARNING

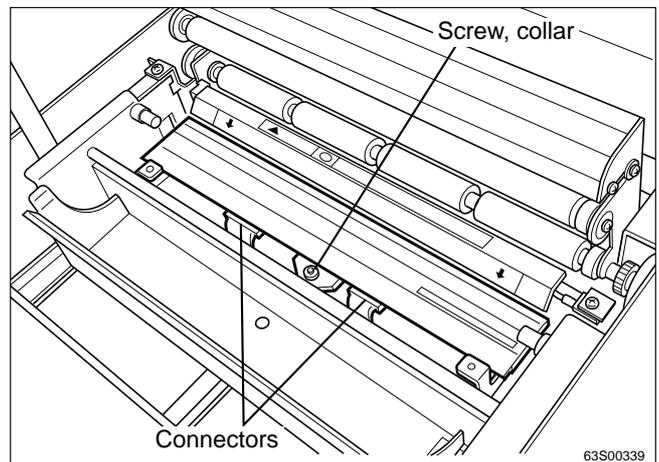
- Keep hands and fingers away from the cutter unit's blades. Do NOT touch the blades.

(2) Removing the Thermal Head

- 1) Open the scanner unit, and take out the master roll.
- 2) Open the master cover.
- 3) Remove the 2 screws indicated, and remove the thermal cover.



- 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

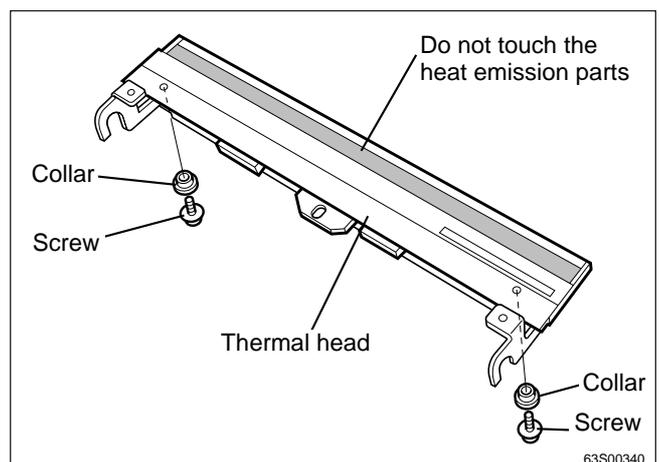
- Do not touch the heat emission parts of the thermal head.
- The thermal head is also liable to corrode. To avoid corrosion, keep the head free of moisture and salinity, and do not touch its heat emission parts. Touching these parts could scratch them.

Reinstallation

IMPORTANT

- When the thermal head is replaced, set the HELP43 and HELP44 DIP switches.

HELP mode H-43,44 → see p.340

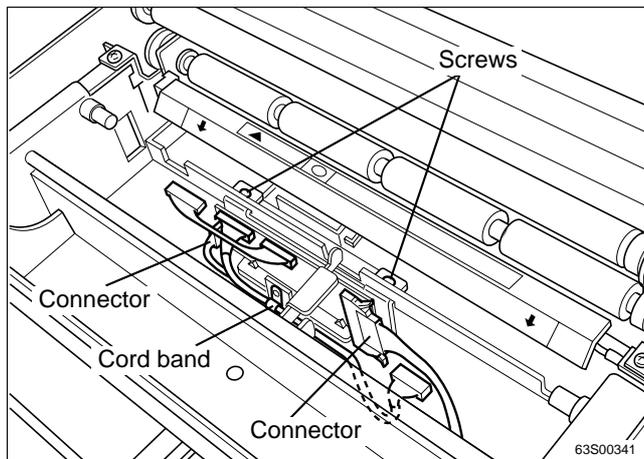


(3) Removing the Thermal Head PCB Unit.

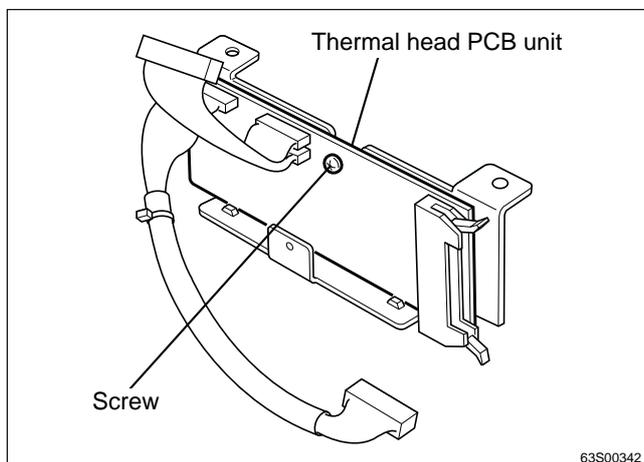
1) Remove the thermal head.

→ See page 172

- 2) Disconnect the 2 connectors indicated, and the cord band indicated.
- 3) Remove the 2 screws indicated, together with the bracket.



- 4) Remove the screw indicated, and remove the thermal head PCB unit.



(4) Removing the Master Feed Unit

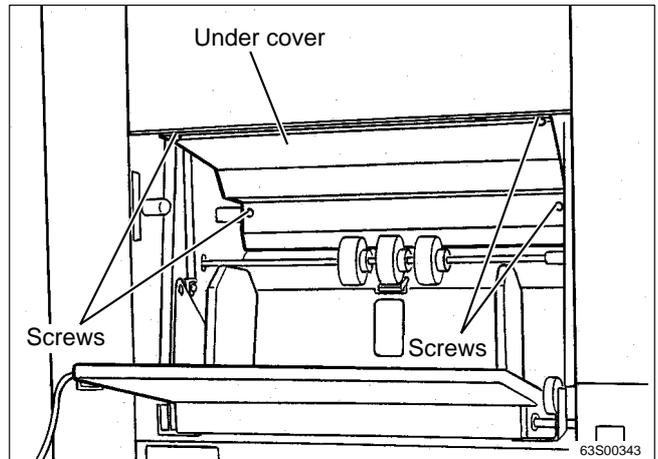
1) Remove the left front cover.

➔ See page 155

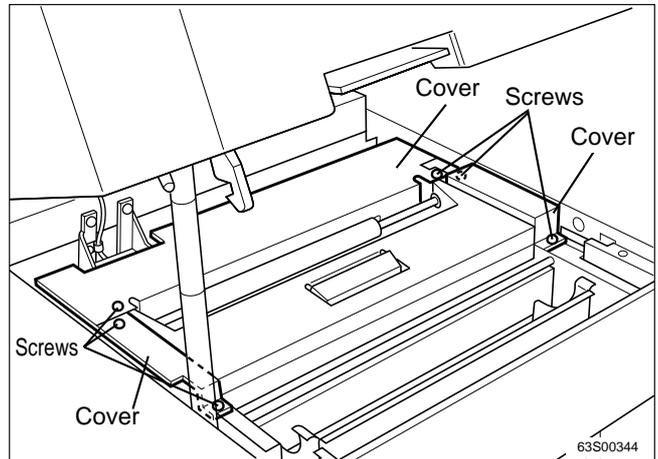
2) Take out the drum unit.

3) Take out the master roll.

4) Remove the under cover's 4 screws, and remove the under cover.



5) Remove the 3 covers shown in the figure.

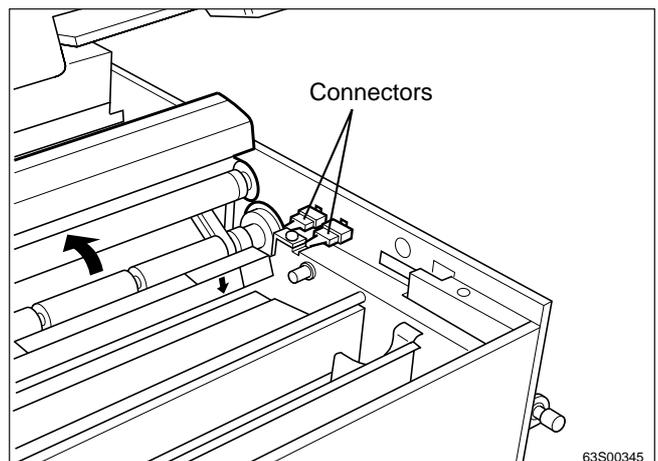


6) Disconnect the 2 connectors indicated.

7) Open the master cover.

8) Remove the thermal head cover.

➔ See page 172

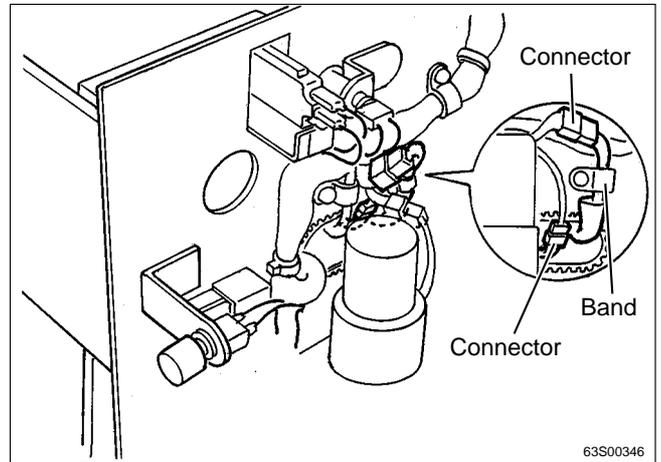


9) Disconnect the thermal head PCB unit's 2 connectors, indicated and the cord band indicated.

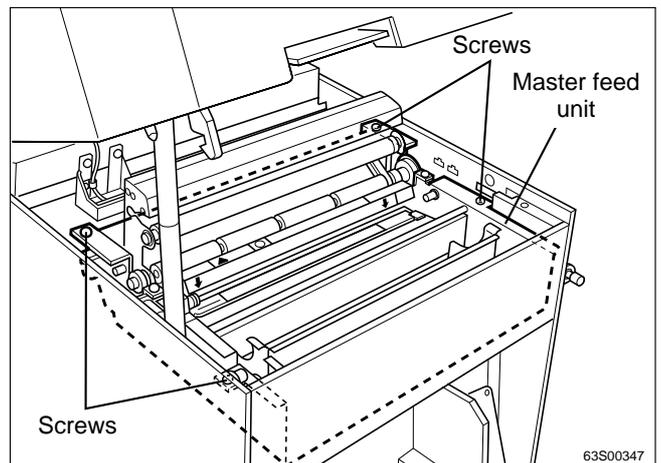
➔ See page 173

10) Close the master cover.

11) Remove the 2 screws indicated, and remove the cover.



12) Remove the 4 screws indicated, and remove the master feed unit.



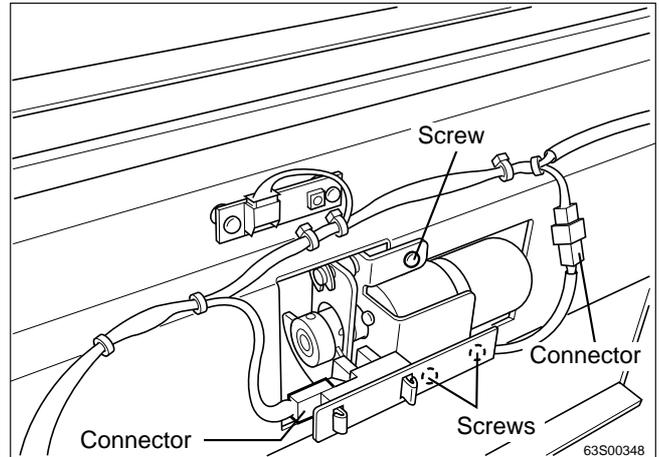
(5) Removing the Thermal Head Press Motor

1) Remove the master feed unit.

➔ See page 174

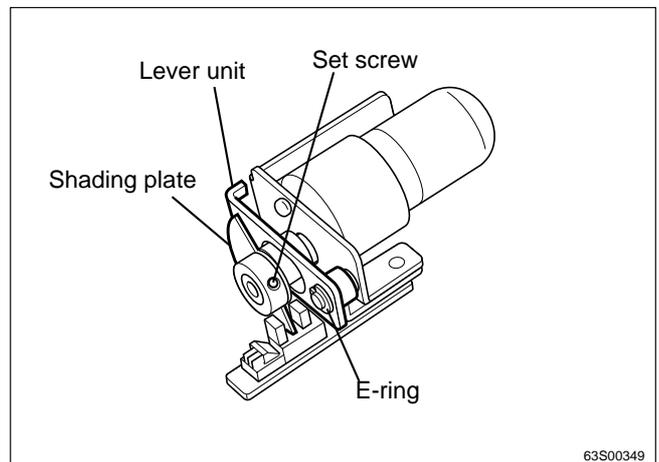
2) Disconnect the 2 connectors indicated.

3) Remove the 3 screws indicated, together with the bracket.



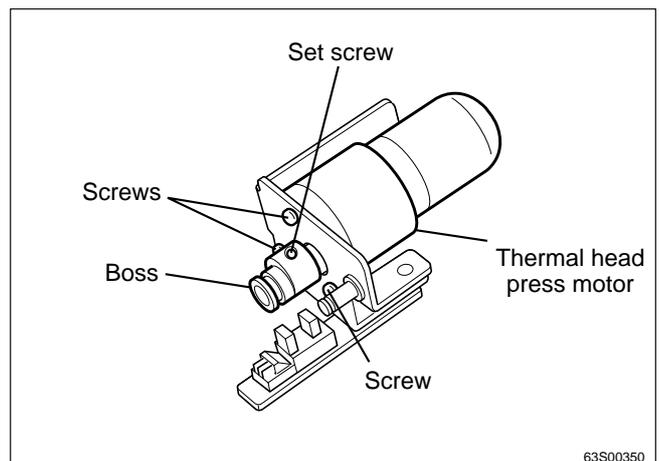
4) Loosen the shading plate's set screw, and remove the shading plate.

5) Remove the E-ring, and remove the lever unit.



6) Loosen the boss's set screw, and remove the boss.

7) Remove the 3 screws indicated, and remove the thermal head press motor.



Reinstallation

IMPORTANT

- After reinstalling the motor, adjust the position of the shading plate.

➔ See page 210

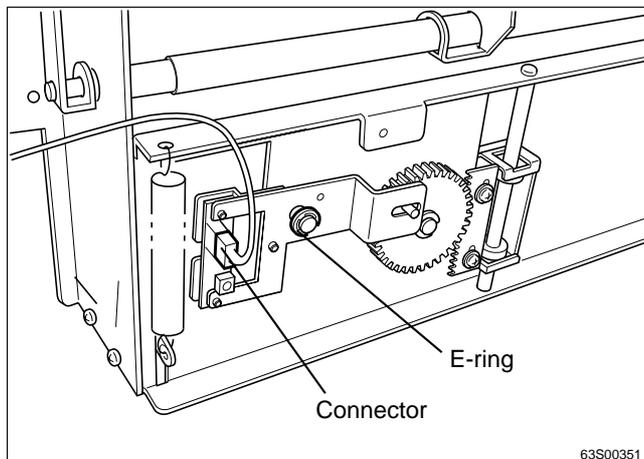
(6) Removing the End Mark Sensor

1) Remove the master feed unit.

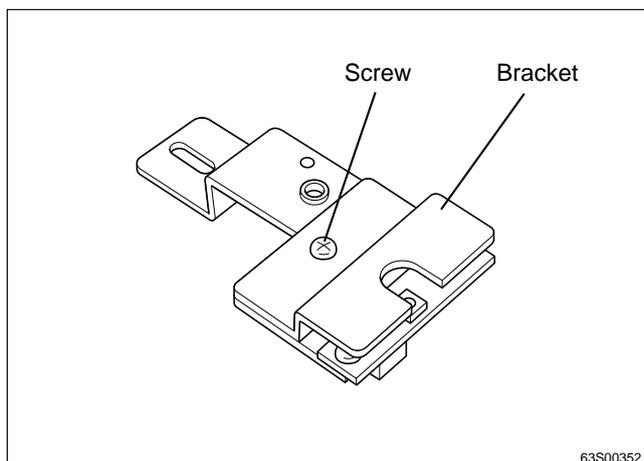
➔ See page 174

2) Disconnect the connector indicated.

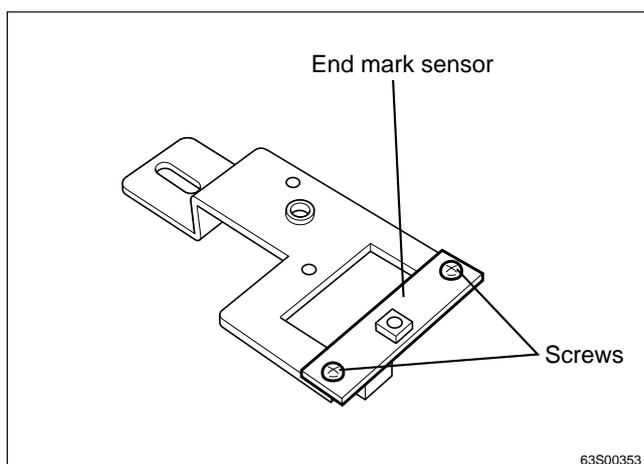
3) Remove the E-ring, together with the bracket.



4) Remove the screw indicated, and remove the bracket.



5) Remove the 2 screws indicated, and remove the end mark sensor.



Reinstallation

IMPORTANT

- After replacing the end mark sensor, carry out adjustment.

➔ See page 236

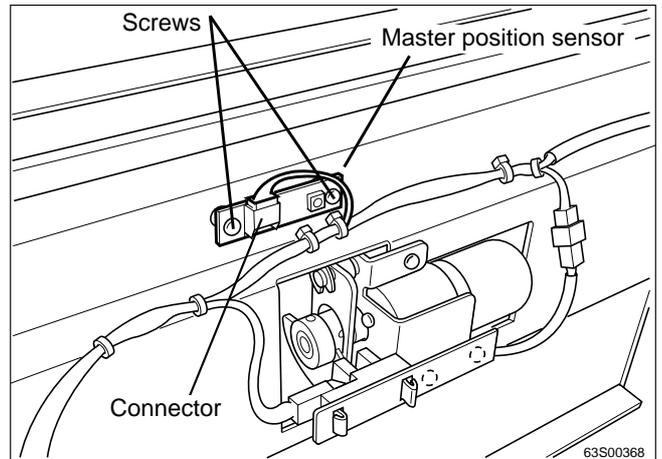
(7) Removing the Master Position Sensor

1) Remove the master feed unit.

➔See page 174

2) Disconnect the connector indicated.

3) Remove the 2 screws indicated, and remove the master position sensor.



(8) Removing the Master Feed Clutch

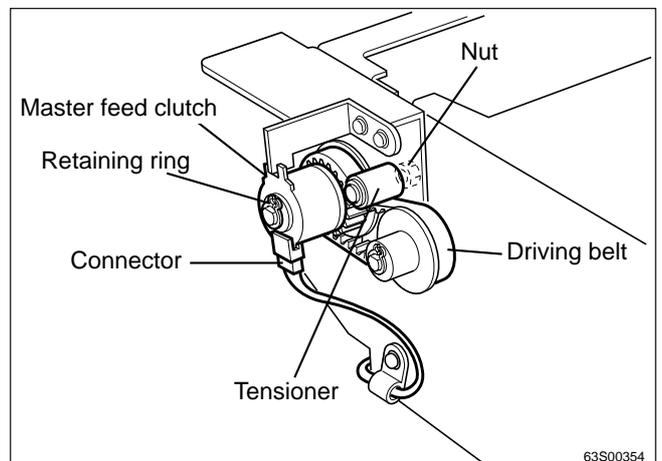
1) Remove the master feed unit.

➔See page 174

2) Disconnect the connector indicated.

3) Loosen the nut indicated, to slacken the driving belt.

4) Remove the retaining ring, and remove the master feed clutch.

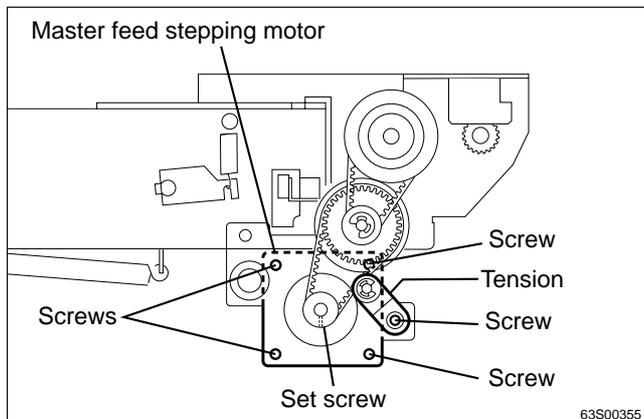


(9) Removing the Master Feed Stepping Motor

1) Remove the master feed unit.

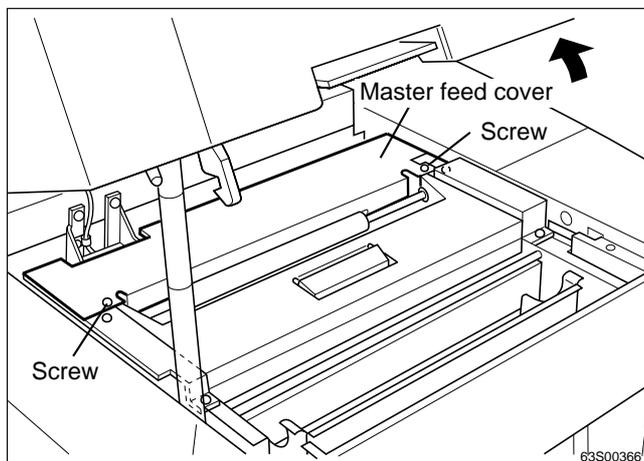
→ See page 174

- 2) Loosen the screw indicated, to slacken the driving belt.
- 3) Loosen the gear's set screw, and remove the gear.
- 4) Remove the 4 screws indicated, and remove the master feed stepping motor.

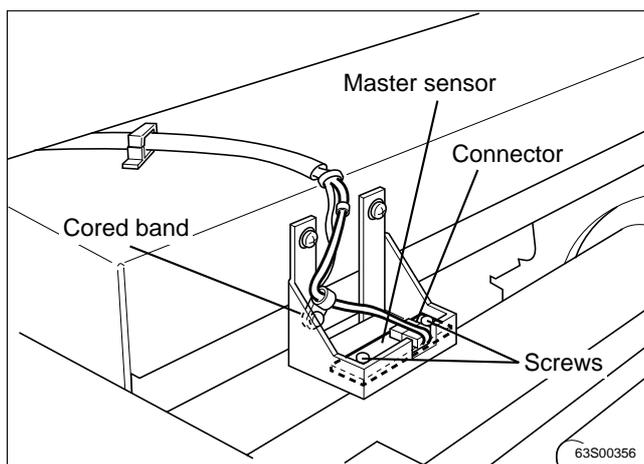


(10) Removing the Master Sensor

- 1) Open the scanner unit.
- 2) Remove the 2 screws indicated, and remove the master feed cover.



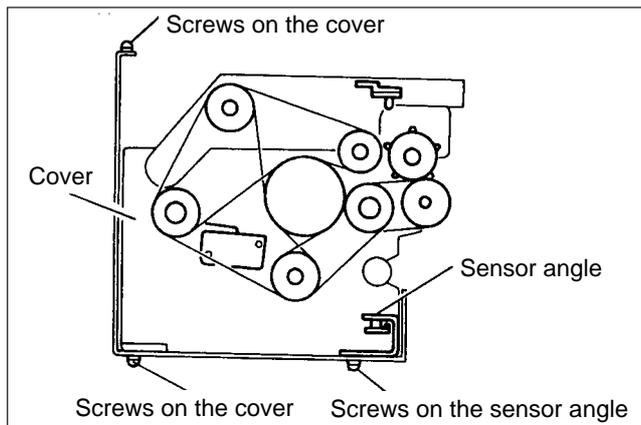
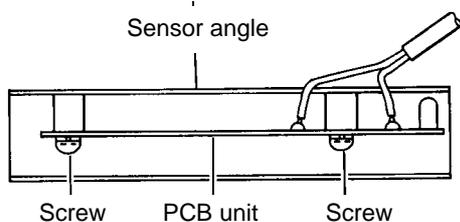
- 3) Remove the cord band indicated.
- 4) Disconnect the connector indicated.
- 5) Remove the 2 screws indicated, and remove the master sensor.



《 Master Ejection Section 》

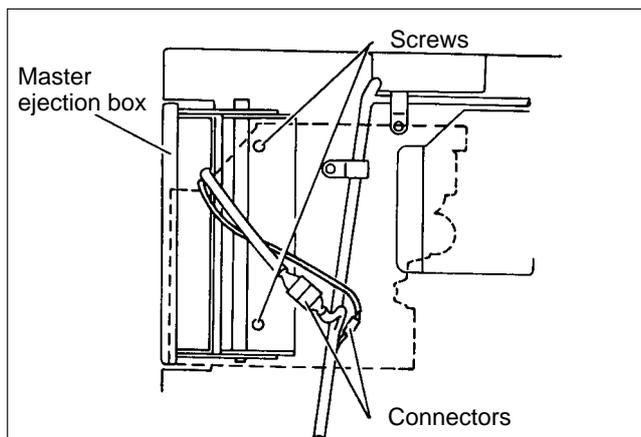
(1) Removing the Jam / Master Ejection sensor (Photo-emitting PCB Unit)

- 1) Open the master ejection box.
- 2) Remove 2 screws on the sensor angle.
- 3) Remove 4 screws on the cover.
- 4) Remove the cover.
- 5) Cut the tie wrap to pull out the relay connector.
- 6) Remove the sensor angle.
- 7) Remove 2 screws to take out the PCB Unit.



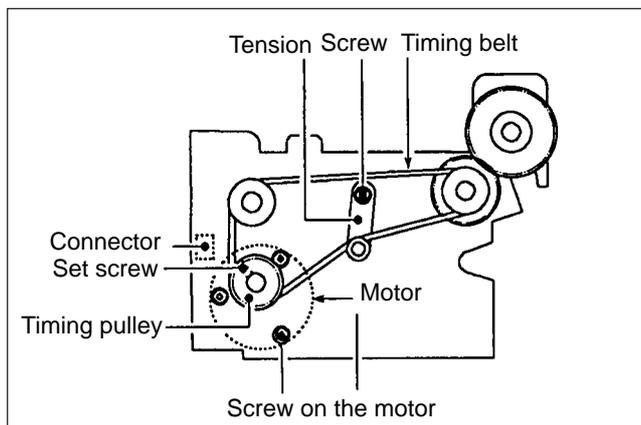
(2) Removing the Master Ejection Box

- 1) Close the master ejection box.
- 2) Pull out 2 connectors.
- 3) Remove 2 screws.
- 4) Support the master ejection box with one hand, depress the master ejection box release lever with the other, and remove the master ejection box.



(3) Removing the Rollup Motor

- 1) Remove the master ejection box.
- 2) Remove the tension set screw to take out the tension.
- 3) Remove the timing belt.
- 4) Loosen the set screw to pull out the timing pulley.
- 5) Pull out the connector.
- 6) Remove 3 set screws on the motor to take out the motor.



Reinstallation

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

➔ See page 213

《 Master Clamp opening/Closing Section 》

(1) Removing the Master Clamp Opening / Closing Unit

1) Remove the rear cover.

➔ See page 155

2) Remove the drum.

3) Move the position of the master clamp opening / closing lever to the mode other than A mode.
(Use the HELP 20)

HELP mode H-20 ➔ see p.318

4) Turn the power off and turn it on again.

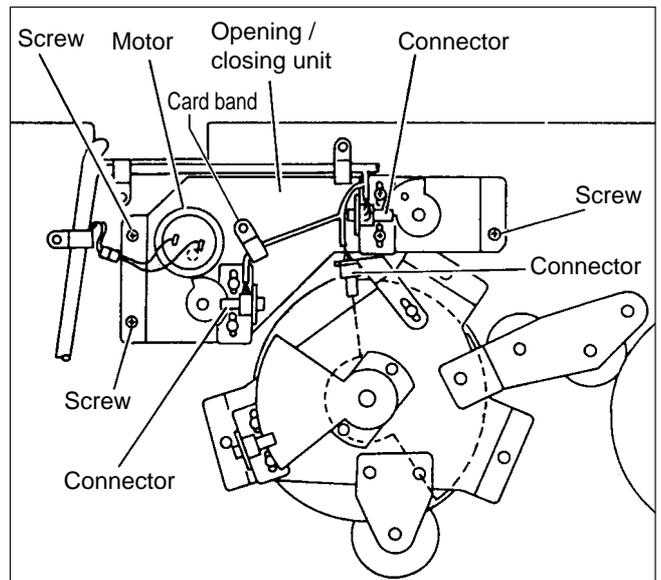
The opening / closing lever moves to the B mode and stops.

5) Pull out 3 sensor connectors.

6) Pull out the motor connector.

7) Remove the cord band.

8) Remove 3 screws to take out the opening / closing unit.

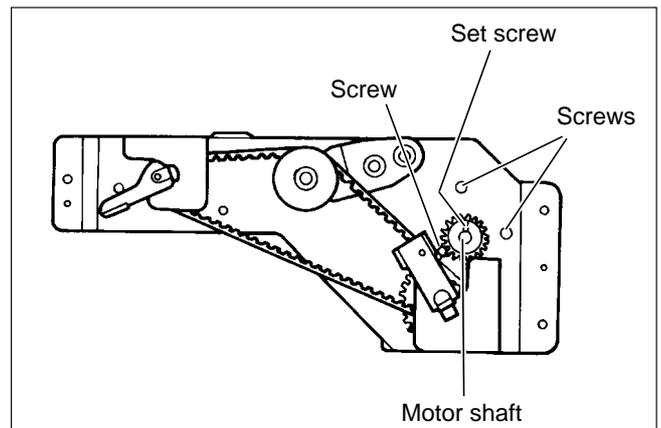


(2) Removing the Clamp Motor

1) Remove the master clamp opening / closing unit.

2) Loosen the set screw to remove the gear.

3) Remove 3 screws to take out the motor.

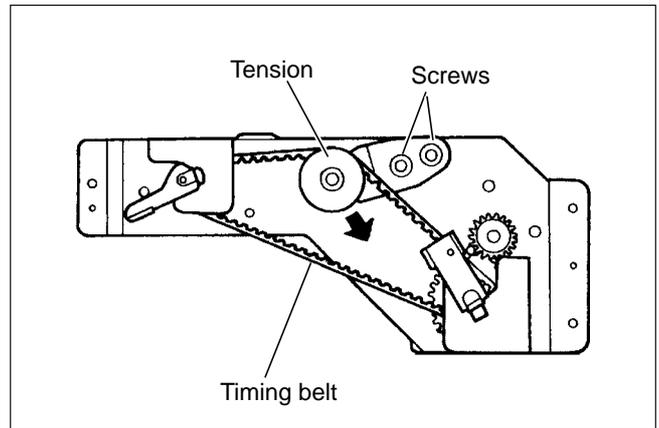


(3) Removing the Timing Belt

1) Remove the master clamp opening / closing unit.

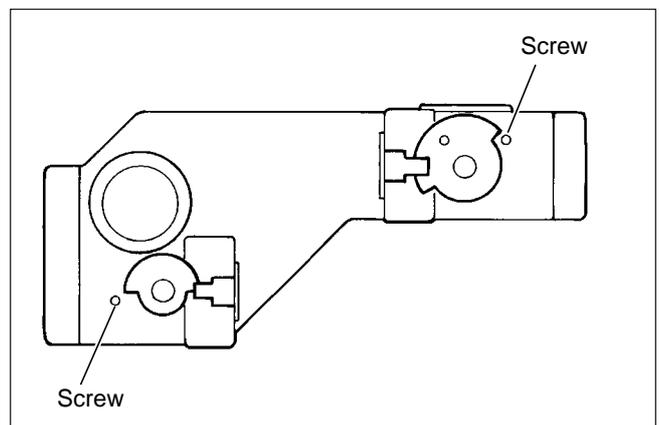
➔ See page 181

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



3) Remove the screw to remove the angle.

4) Remove the timing belt.

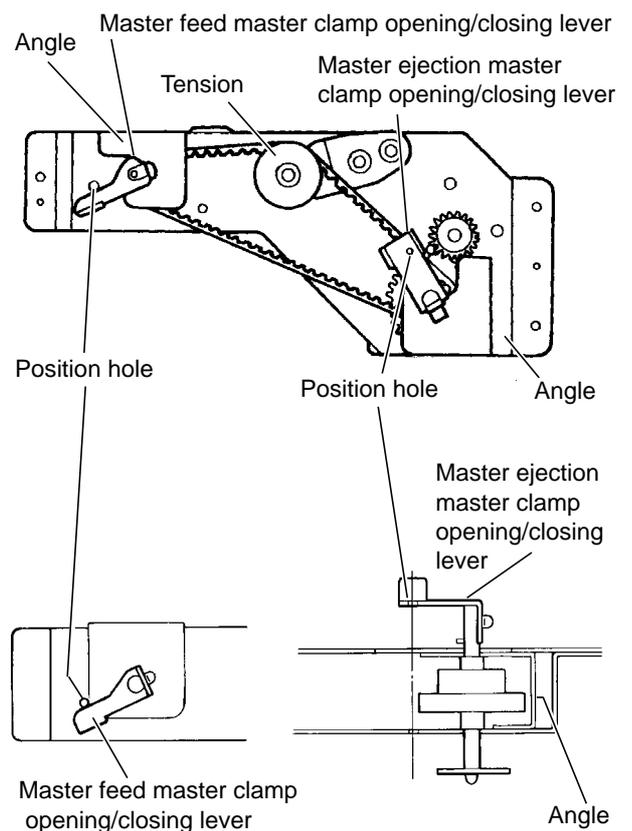


Reinstallation

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

➔ See page 214

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

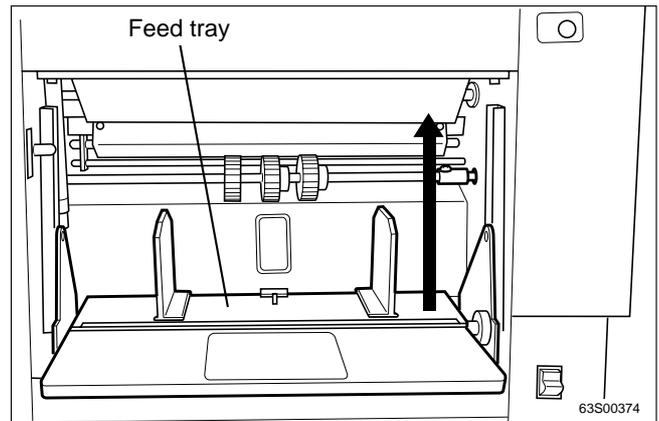


4 Paper feed section

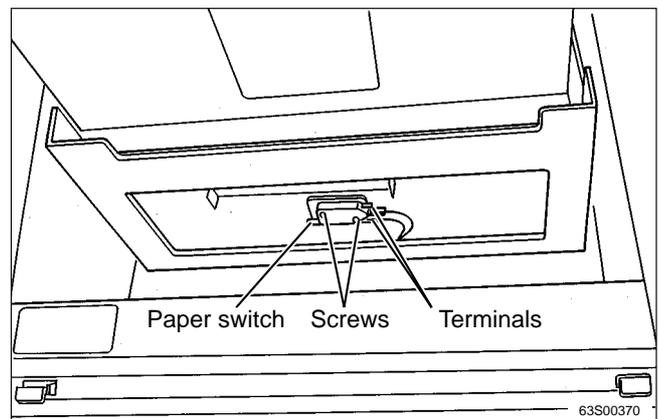
(1) Removal of Paper Switch

- 1) Pull off the cover.
- 2) Access HELP mode H-02, and use it to raise the elevator to its uppermost position.

HELP mode H-02 → see p.295



- 3) Disconnect the 2 terminals, and remove the cassette paper switch's 2 screws. Then remove the paper switch.



Reinstallation

IMPORTANT : After replacing a paper switch, adjust the new switch's clearance.

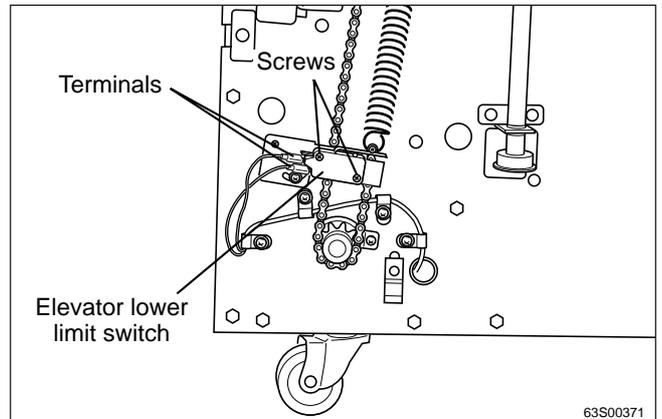
→ See page 219

(2) Removal of Elevator Lower Limit Switch

IMPORTANT : Be sure to turn off the power before removing the elevator lower limit switch.

1) Remove the rear cover.

➔ See page 155



2) Disconnect the 2 terminals and 2 screws indicated, then remove the elevator lower limit switch.

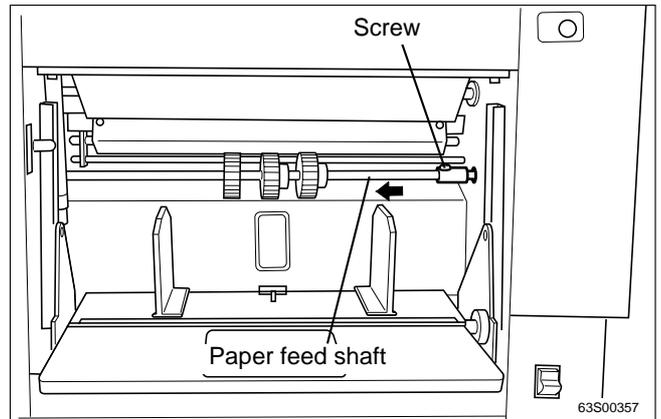
Reinstallation

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

➔ For adjustment method see page 221

(3) Removal of Paper Feed Roller

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

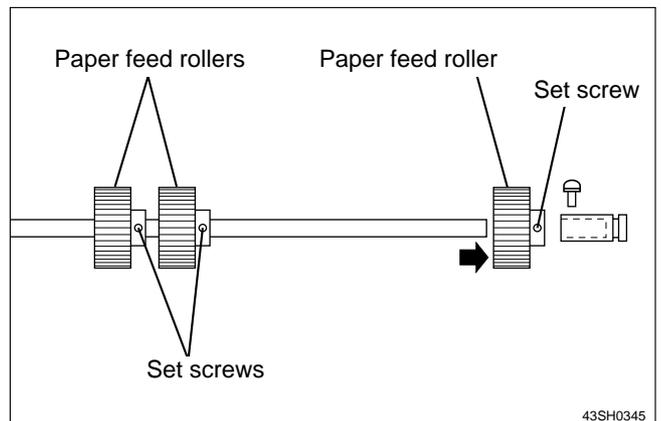


- 2) Loosen the set screw indicated, and remove the paper feed roller.

Reinstallation

- Reinstall the paper feed roller so that the set screw is positioned at the paper feed roller shaft's counterbore.

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



(4) Removal of Paper Separator Unit

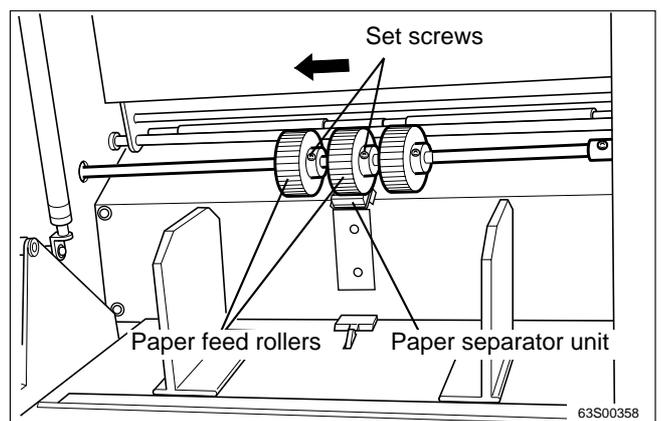
- 1) Loosen the set screws indicated, and move the 2 paper feed rollers clear of the paper separator unit.

- 2) Remove the paper separator unit.

Reinstallation

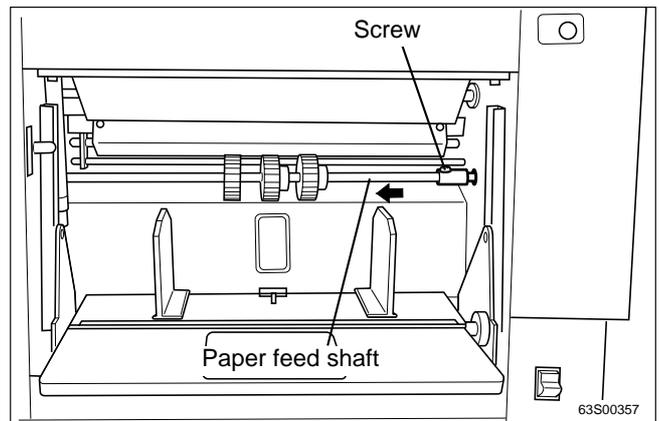
IMPORTANT : After reinstalling the paper separator unit, carry out adjustment of its clearance.

➡ See page 219



(5) Removal of Paper Feed Clutch Unit

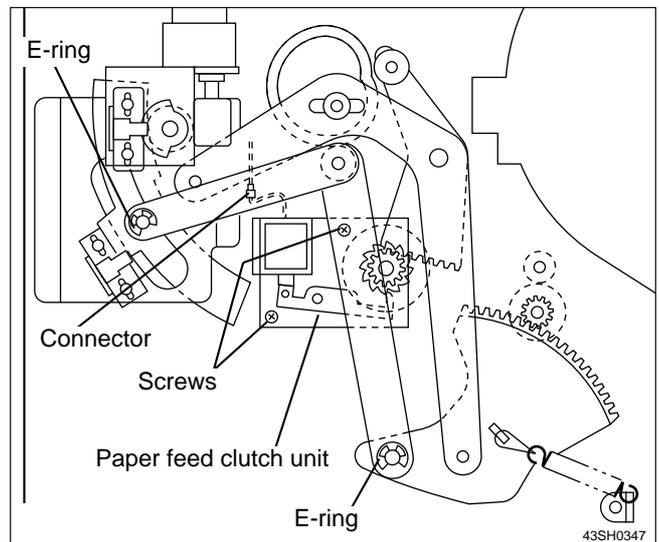
1) Remove the screw indicated, and disconnect the paper feed shaft from the coupling.



2) Remove the 2 E-rings, and remove the links.

3) Remove the cord band, and remove the connector indicated.

4) Remove the 2 screws indicated, and remove the paper feed clutch unit.



5 Drum Driving Section

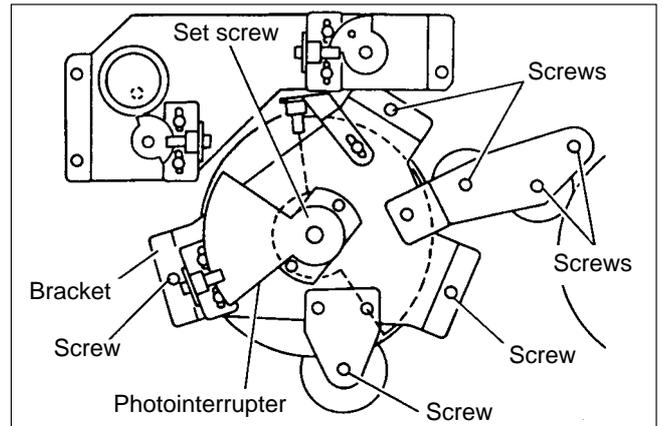
(1) Removing the Photointerrupter/Drum Gear

1) Remove the rear cover.

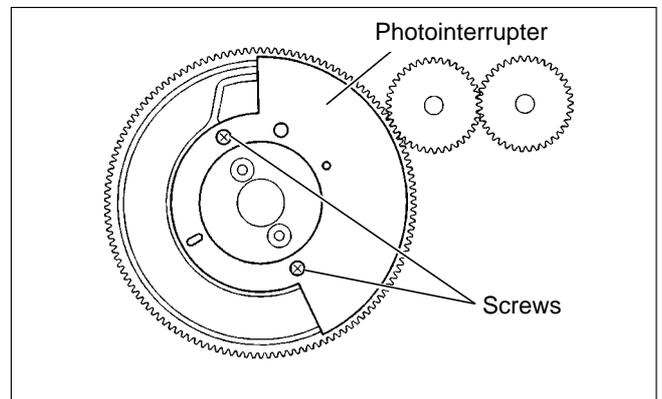
→ See page 155

2) Loosen the set screw to remove the photointerrupter.

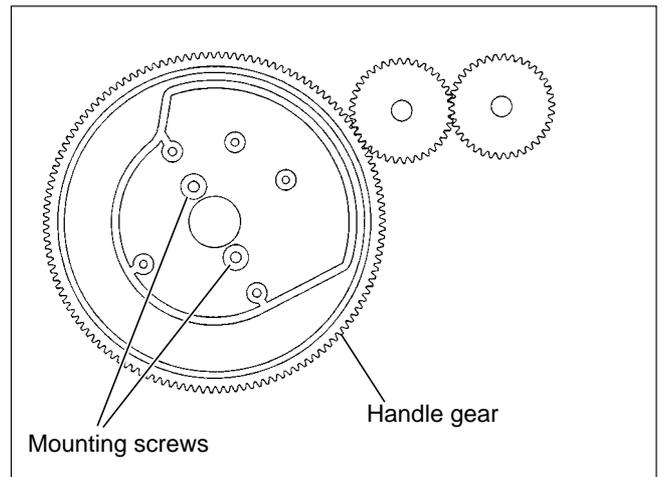
3) Remove 7 screws to take out the bracket.



4) Remove 2 screws on the photointerrupter to take out the photointerrupter.



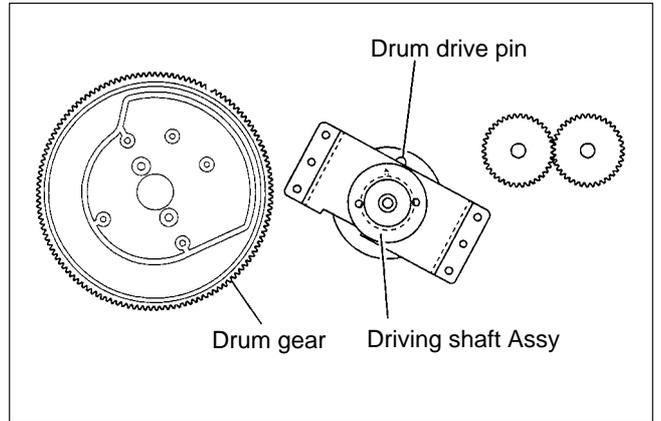
5) Remove the 2 mounting screws from the handle gear, and remove the drum gear.



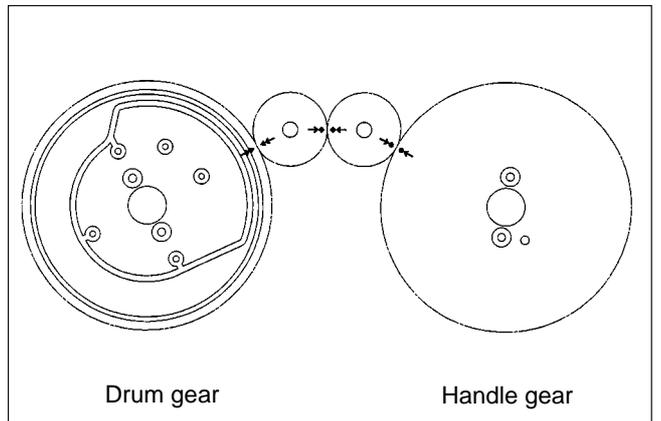
Reinstallation

• Attaching the Drum Gear

1) Make sure that the driving shaft assembly's drum drive pin is positioned precisely at the top. Then orient the drum gears in the way shown in the figure, and install them.

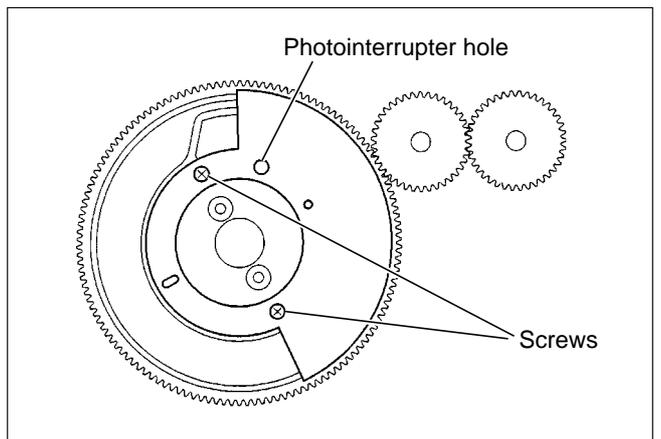


2) Mesh the gears together so that their arrow marks are positioned as shown in the figure.



• Attaching the Photointerrupter

Align the protuberance on the drum gear with the hole in the photointerrupter. Then slightly screw in the 2 mounting screws.

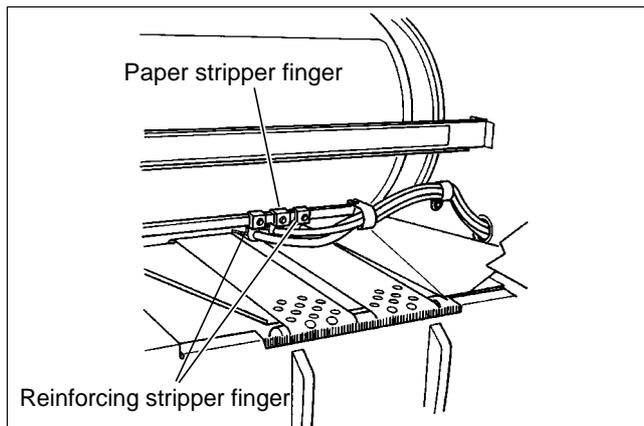


IMPORTANT : Do not forget to adjust the drum home position and the master attachment / detachment stop position after installation.

6 Paper Ejection Section

(1) Removing the Paper Stripper Finger / Reinforcing Stripper Finger

- 1) Open the master ejection box, and top fan unit.
- 2) Remove the set screws.
- 3) Remove the paper stripper finger and reinforcing stripper finger from the shaft.

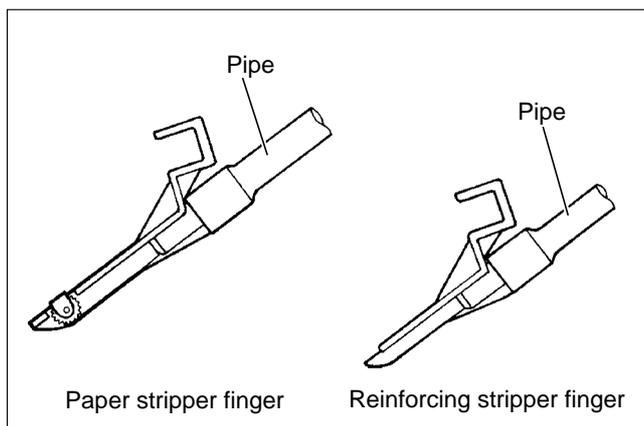


- 4) Take out the paper stripper finger and reinforcing stripper finger from the pipe.

Reinstallation

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

➔ See page 230



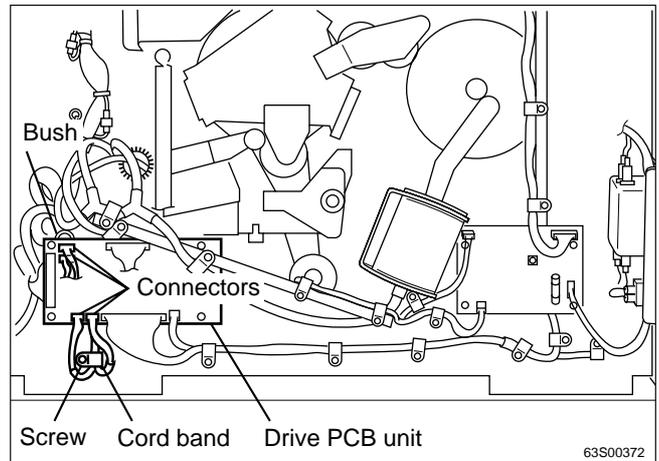
(2) Removing the Paper Ejection Fan Unit

1) Remove the rear cover.

→ See page 155

2) Remove the cord band, and remove the 4 connectors.

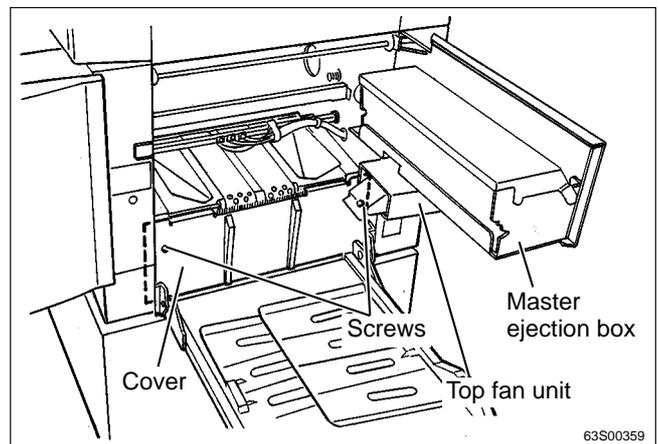
3) Remove the bush.



4) Open the front cover, and remove the drum.

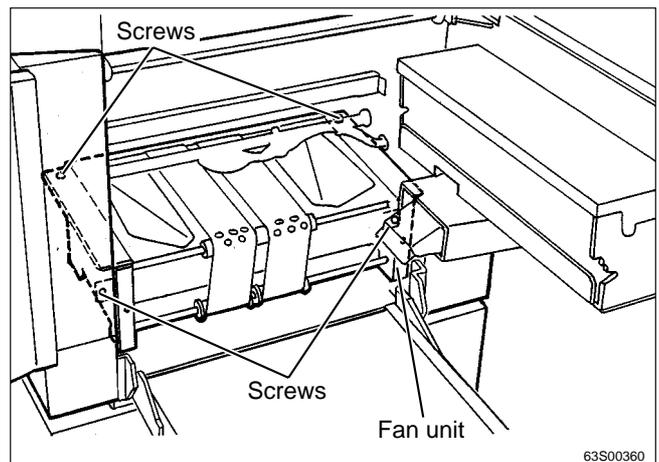
5) Open the master ejection box, and top fan unit.

6) Remove the 2 screws from the cover, and remove the cover.



7) Remove the 4 screws from the paper ejection fan unit, and remove the unit.

IMPORTANT : Take care not to scratch the encoder unit on the fan unit's right side.



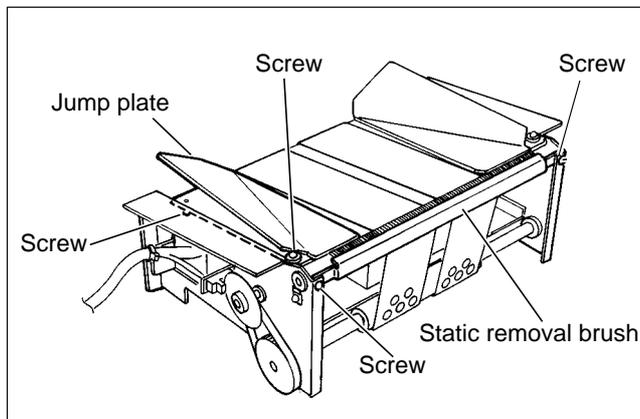
(3) Removing the Paper Ejection Belt

1) Remove the paper ejection fan unit.

➔ See page 190

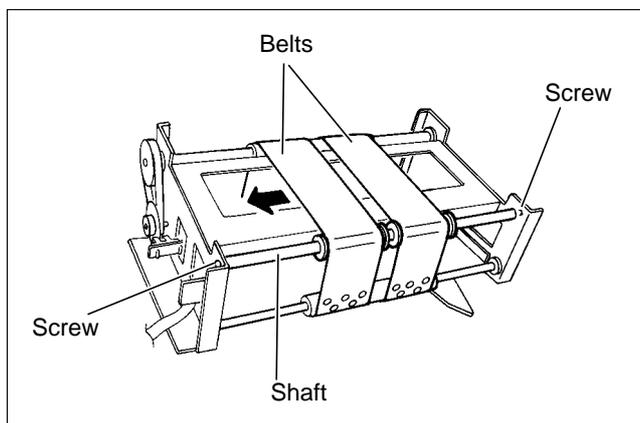
2) Remove the 2 screws from the static removal brush, and remove the static removal brush.

3) Remove the 2 screws from one of the jump plates and remove the jump plate.



4) Remove the 2 screws from the ends of the shaft, and remove the shaft.

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



Reinstallation

IMPORTANT

- When the paper ejection belts are replaced, adjust the paper ejection belt speed.

➔ See page 245

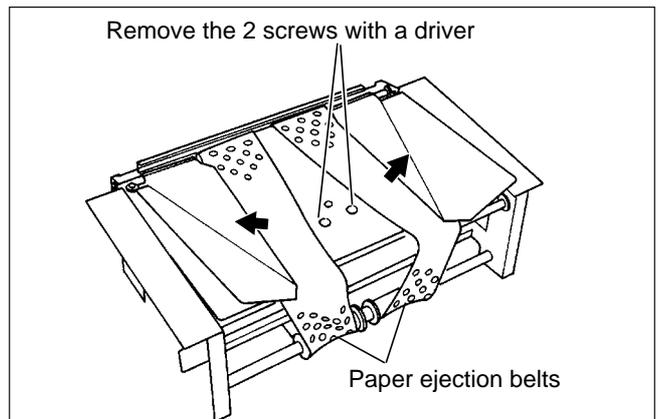
(4) Removing the Jam Sensor (Photo-receiving PCB UNIT)

1) Remove the paper ejection fan unit.

➔ See page 190

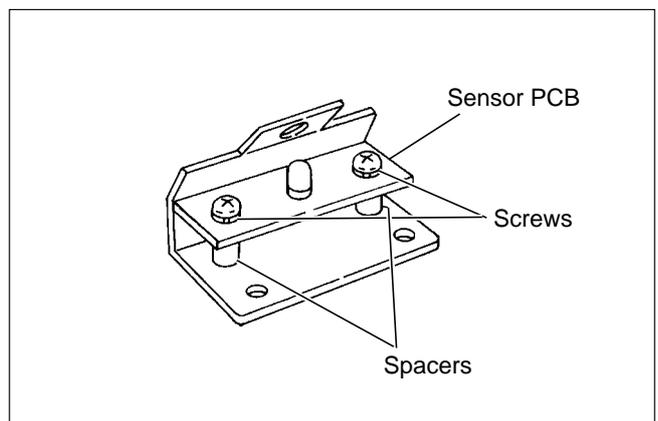
2) Pull the paper ejection belts wider apart to expose the screws, and secure the belts in that position.

3) Remove the 2 screws securing the sensor mounting angle, and remove the angle.



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

IMPORTANT : Do not lose the 2 spacers.



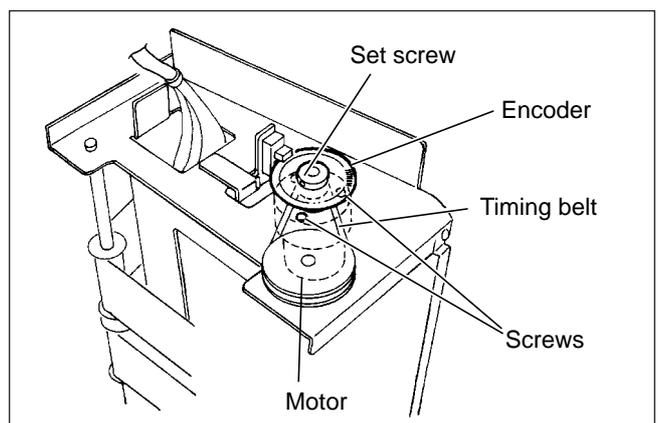
(5) Removing the Belt Motor

1) Remove the paper ejection fan unit.

➔ See page 190

2) Loosen the set screw, and remove the encoder.

3) Remove the 3 screws from the motor, and remove the belt motor.

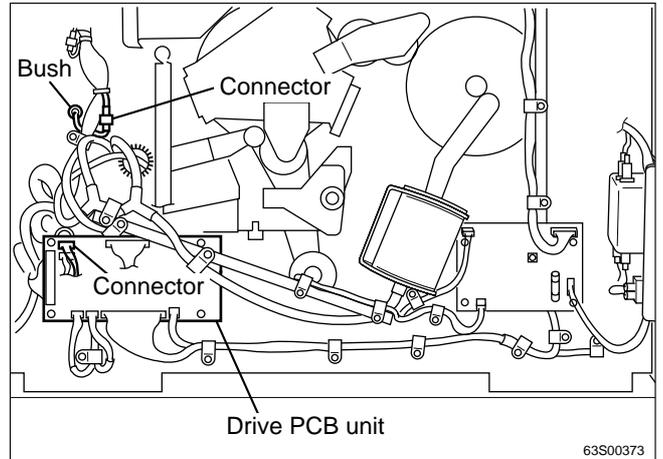


(6) Removing the Top Fan Unit

1) Remove the rear cover.

➔ See page 155

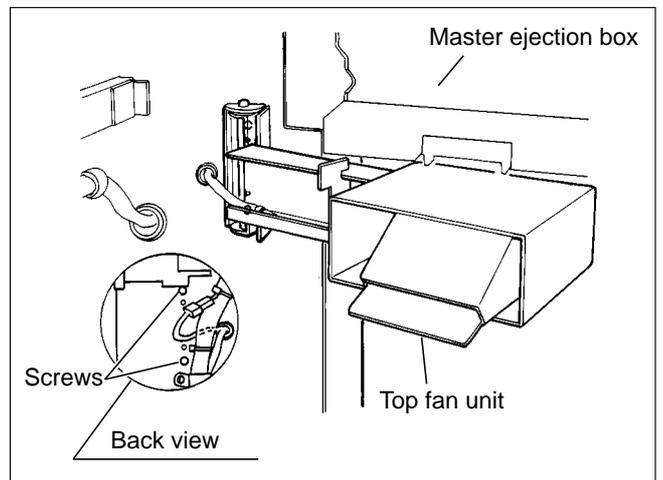
2) Remove the 2 connectors and the bush.



3) Open the front cover, and remove the drum.

4) Open the master ejection box, and top fan unit.

5) Remove the 2 screws from the top fan unit, and remove the unit.



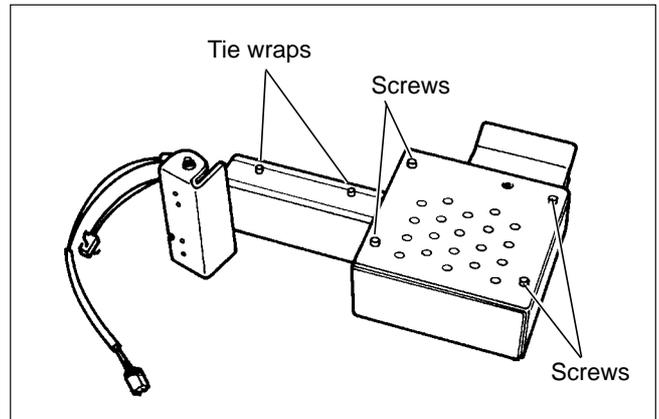
(7) Removing the Jam Sensor (Photo-emitting PCB Unit)

1) Remove the top fan unit.

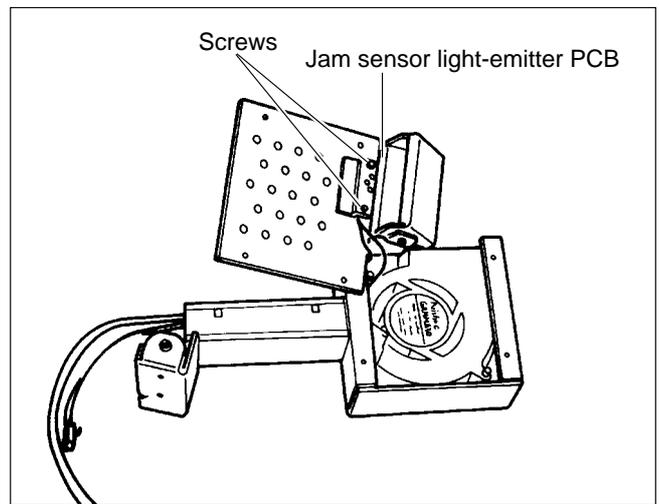
→ See page 193

2) Cut the 2 tie wraps.

3) Remove the 4 screws.



4) Remove the 2 screws from the jam sensor photo emitting PCB unit, and remove the PCB.

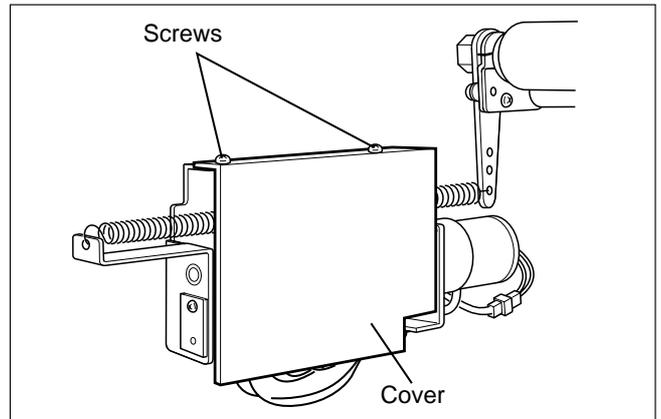


(8) Removing the Contact Pressure Switching Unit

1) Remove the paper ejection fan unit.

➔ See page 190

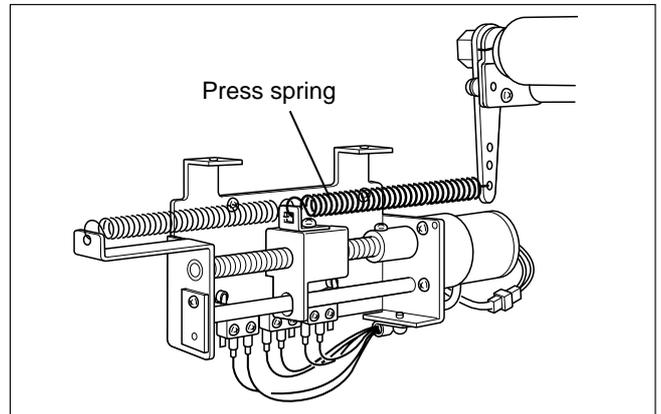
2) Remove the 2 screws from the cover.



3) Remove the press spring.

Pressing the DOWN  key in the HELP01 mode, to switch to Low contact pressure, will make it easier to remove the spring.

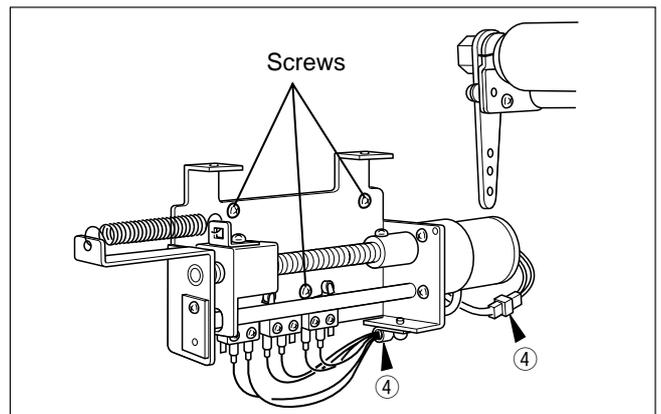
HELP mode H-01 ➔ see p.294



4) Remove the 2 connectors.

5) Remove the 3 screws from the contact pressure switching unit, and remove the unit.

(Before removing the screws, press the UP  key in the HELP01 mode to shift the unit to the Low contact pressure position and expose the screws.)

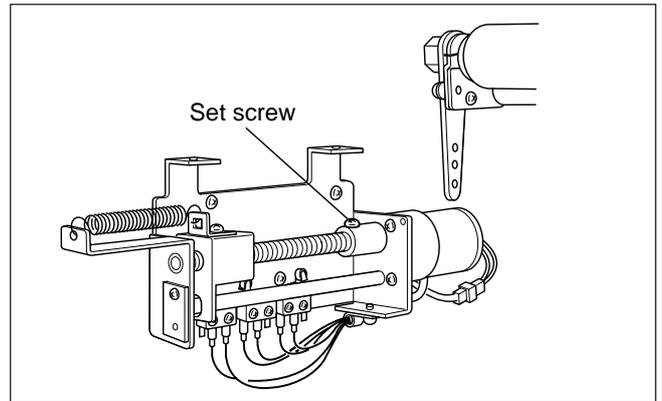


(9) Removing the Press Motor

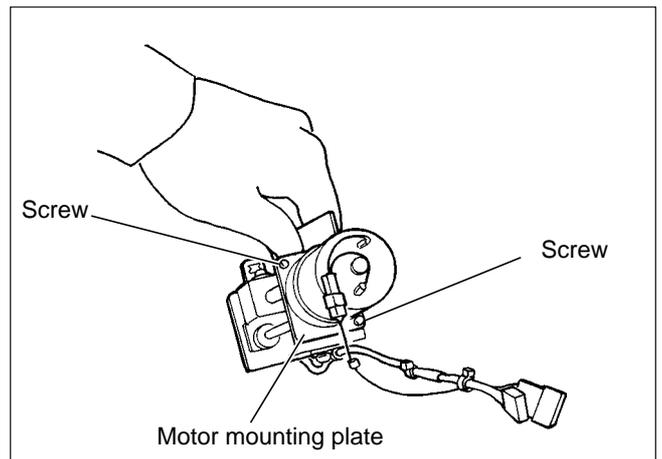
1) Remove the contact pressure switching unit.

➔ See page 195

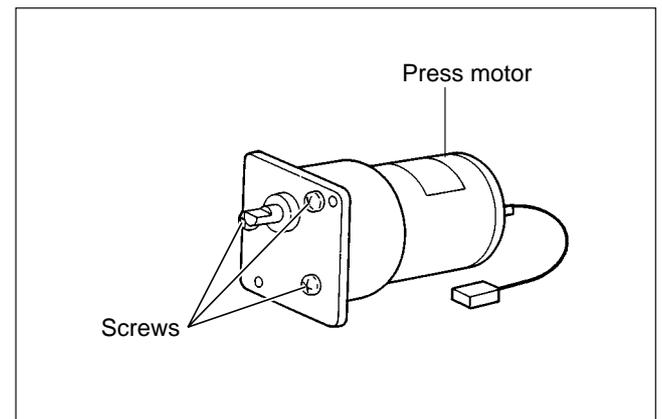
2) Loosen the set screw.



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 from the press motor, and remove the motor.

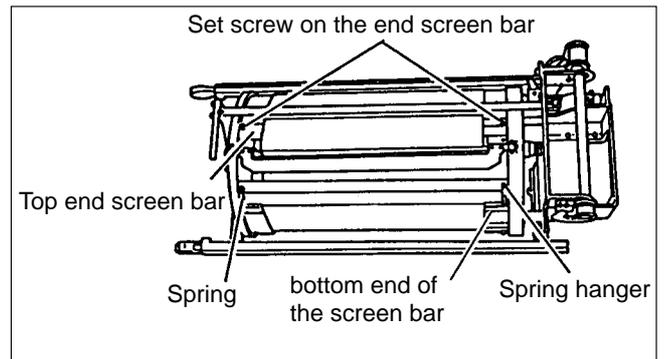


7 Drum Section

(1) Removing the Screen

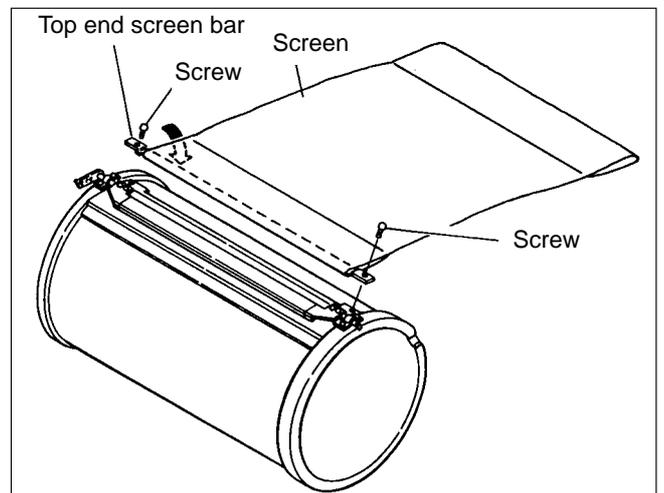
- 1) Remove the drum.
- 2) Remove the spring on the bottom end screen bar to pull out the screen bar.
- 3) Remove 2 set screws on the top screen bar to pull out the screen bar.
- 4) Remove the screen from the drum.

IMPORTANT : Do not rotate the drum reversely.

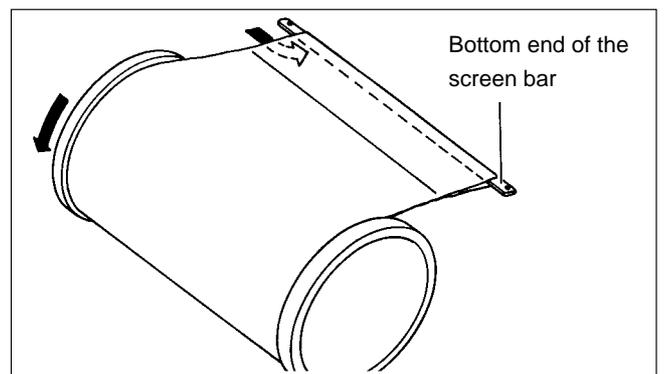


Reinstallation

- 1) Pass the top end screen bar through the screen.
- 2) Attach the top end screen bar to the drum.
There is no difference between the top and bottom of the screen.

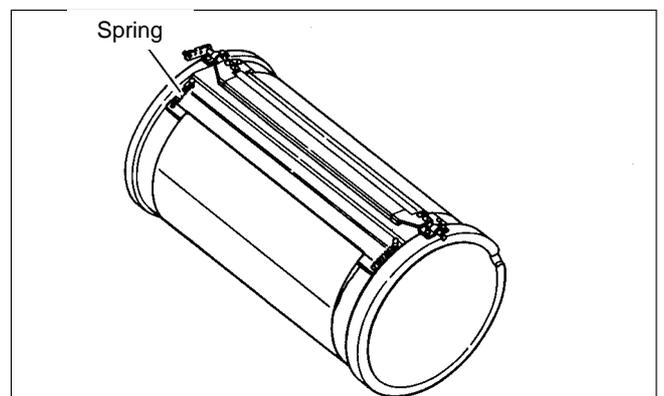


- 3) Pass the bottom end screen bar through the screen.
- 4) Hold the bottom end screen bar in parallel with the drum and roll it up to the drum rotating the drum normally.



- 5) Tighten the screen bar with the spring.

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



(2) Removing the Master Clamp

1) Remove the screen.

➔See page 197

2) Remove 2 screws on the operation side.

3) Remove the bearing plate and spring.

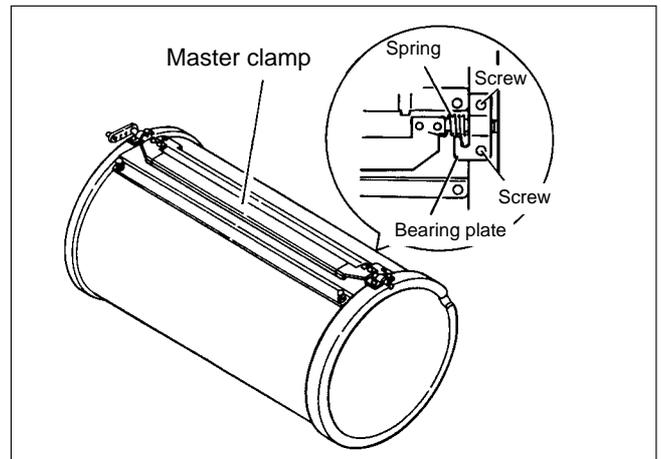
4) Remove 2 screws on the anti-operation side to take out the bearing plate.

5) Remove the master clamp. The master clamp is attached to the base with the magnet.

Reinstallation

IMPORTANT : Adjust the master clamp after installation.

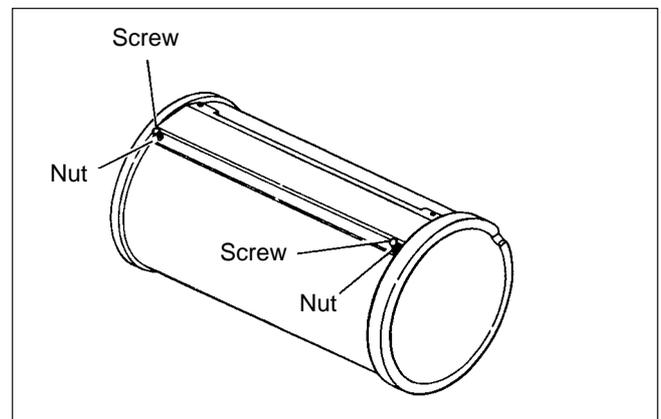
➔See page 234



(3) Removing the Base Unit

1) Remove the master clamp.

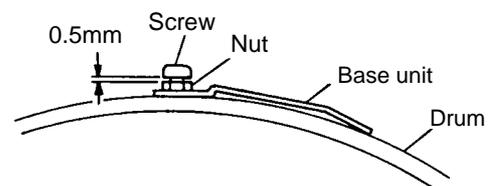
2) Loosen the nut to remove 2 screws.



Reinstallation

1) The base unit is attached to the drum as shown in the figure.

2) Tighten the nut with the screw, adjusting so that the space between the screw and nut is about 0.5mm.



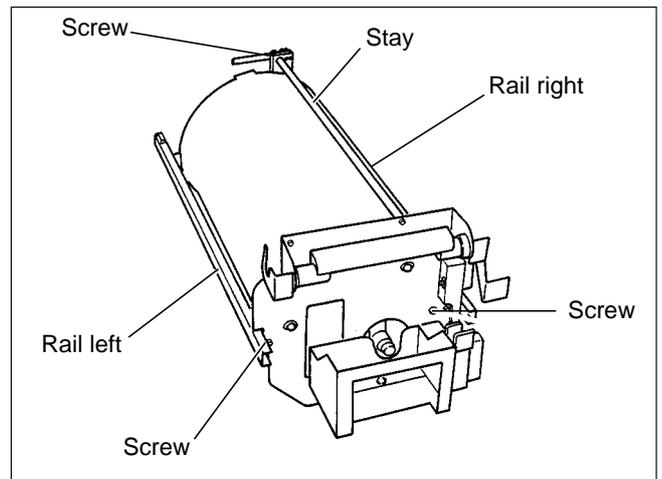
(4) Removing the Outer Frame (Right) Unit

- 1) Remove the drum.
- 2) Remove 2 screws on the rail and 1 screw on the stay.
- 3) Remove 5 screws on the outer frame (right) unit and knob screw.

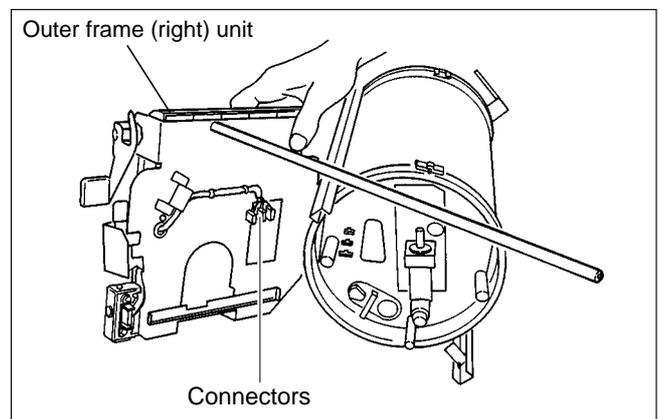
Reinstallation

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

➔ See page 235



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



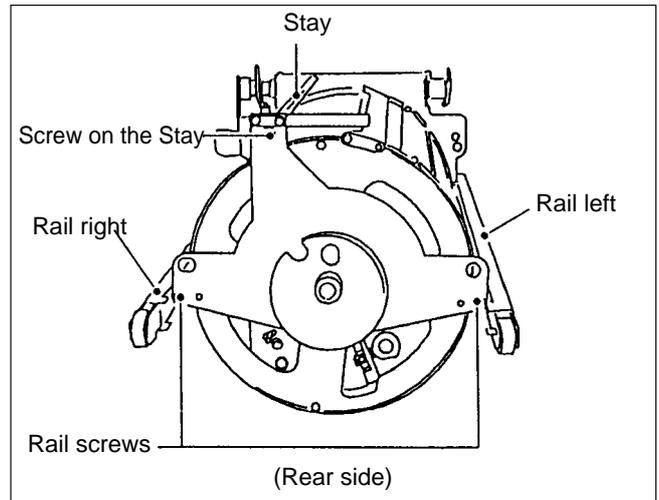
(5) Removing the Outer Frame (Left) Assy

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

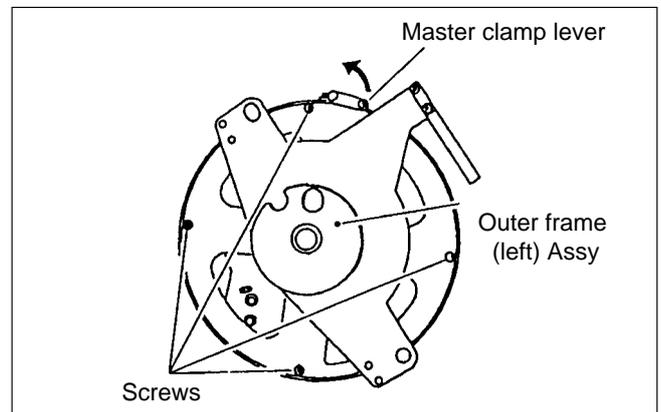
Reinstallation

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

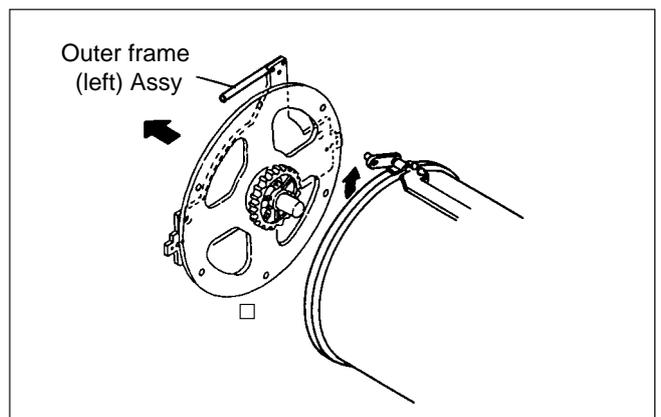
➔ See page 235



- 4) Remove 4 screws.



- 5) Pull out the outer frame (left) Assy with the master clamp open.



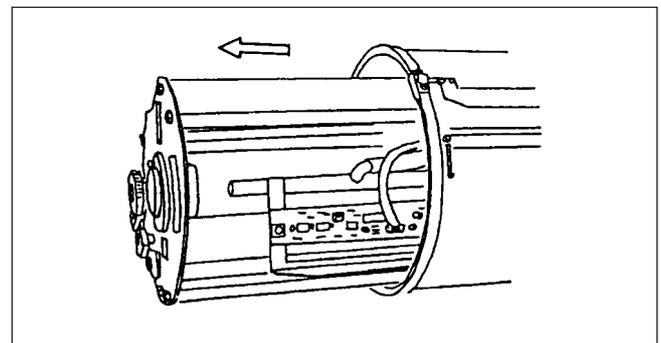
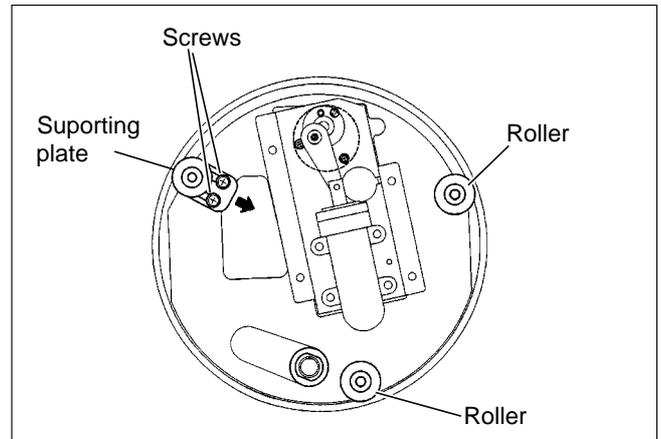
(6) Removing the Inner Frame

1) Remove the outer frame (right) unit.

➔ See page 199

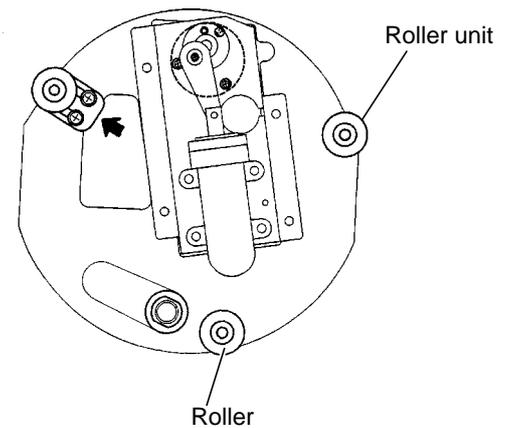
- 2) Loosen 2 set screws on the supporting plate, move the supporting plate in the direction of arrow until it stops and fix it with the screw.
- 3) Pull out the inner frame (section inside the drum) in the direction of an arrow.

IMPORTANT : Be careful not to damage the drum inside.



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.

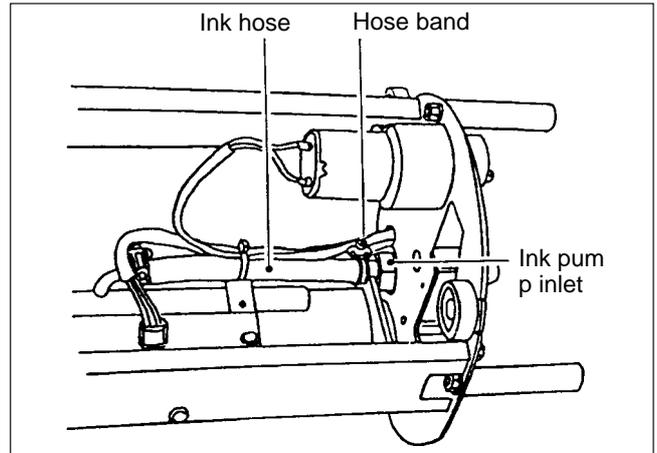


(7) Removing the Ink Pump

1) Remove the inner frame.

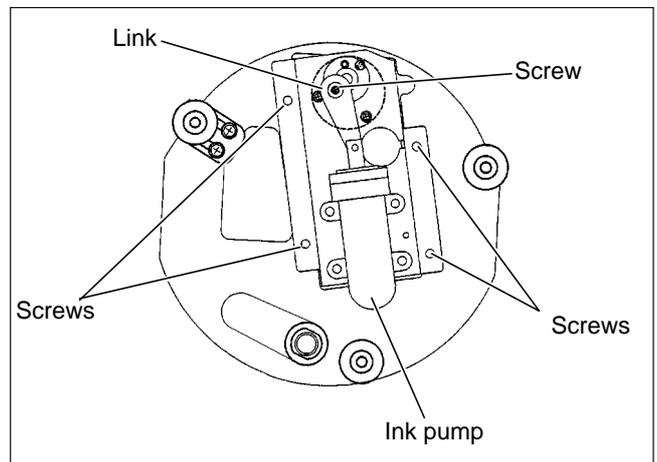
➔ See page 201

2) Loosen the screw on the hose band to remove the hose.



3) Remove the screw to take out the link.

4) Remove 3 screw to take out the ink pump.



(8) Removing the Ink Motor

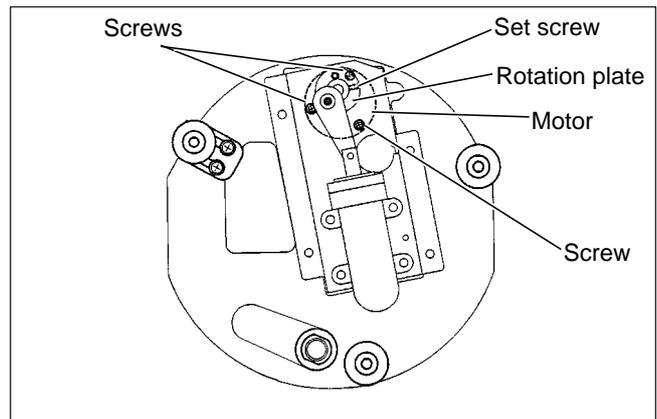
1) Remove the inner frame.

➔ See page 201

2) Cut the tie wrap.

3) Loosen the set screw to remove the rotation plate.

4) Remove 3 screws to take out the motor.



(9) Removing the Ink Detection PCB Unit

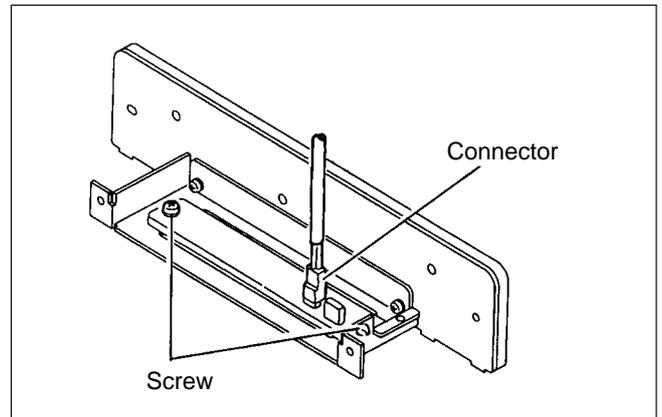
1) Remove the inner frame.

→ See page 201

2) Pull out the connector.

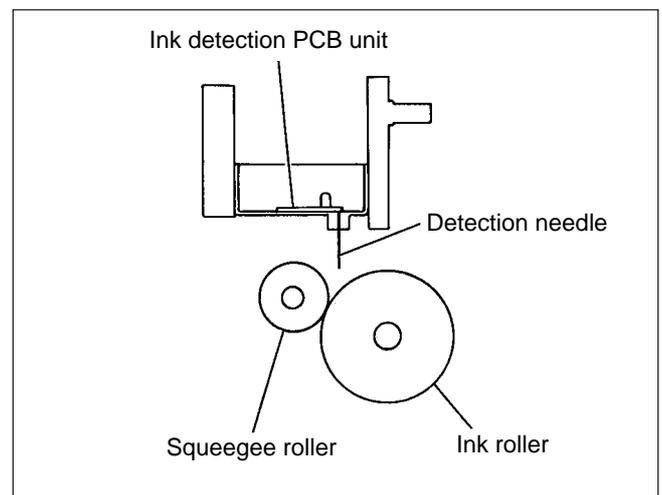
3) Remove 2 screws to take out the ink detection PCB Unit.

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



Reinstallation

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



Chapter 4

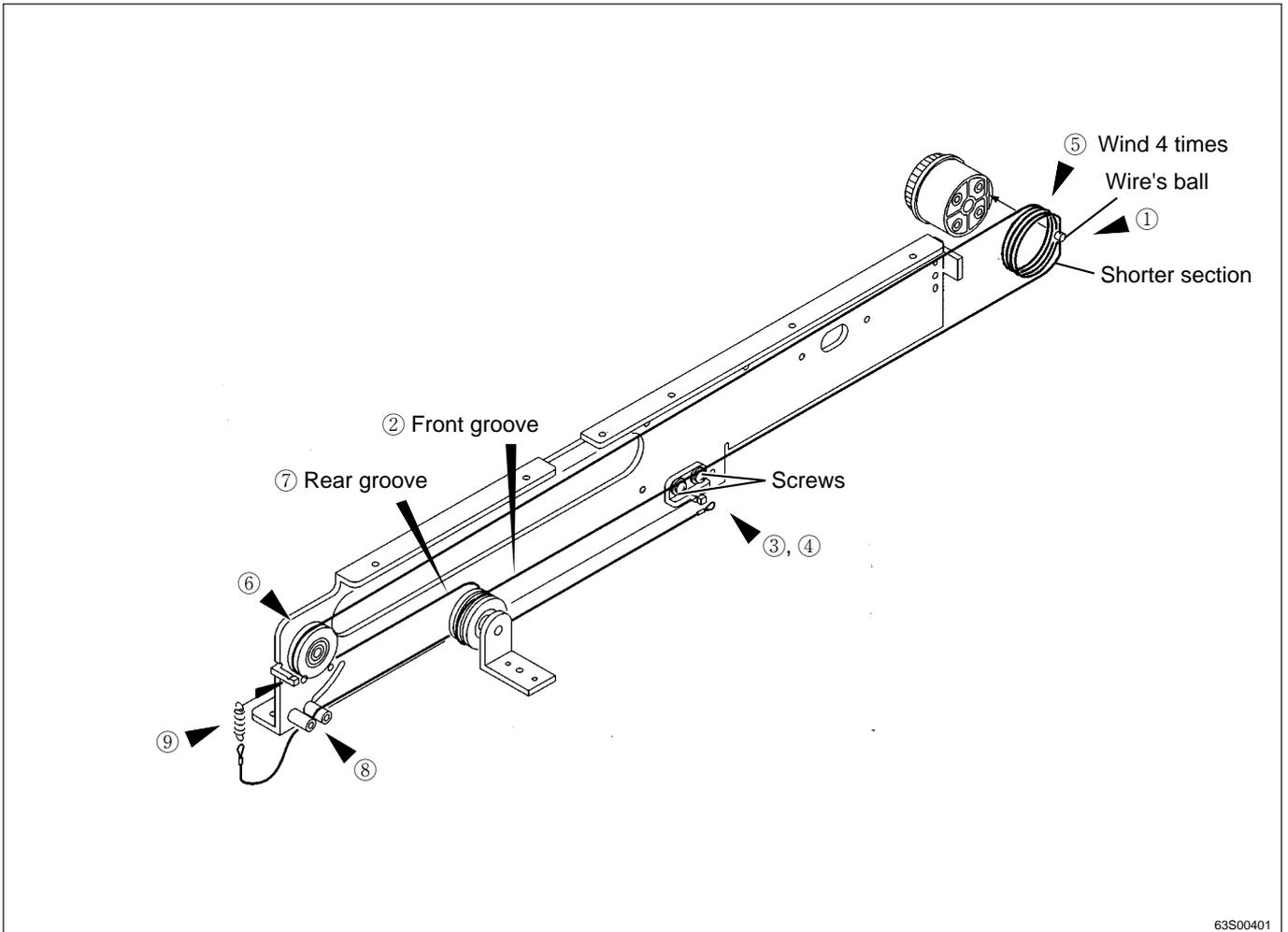
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1 Scanner Section

(1) Winding the Rear Wire

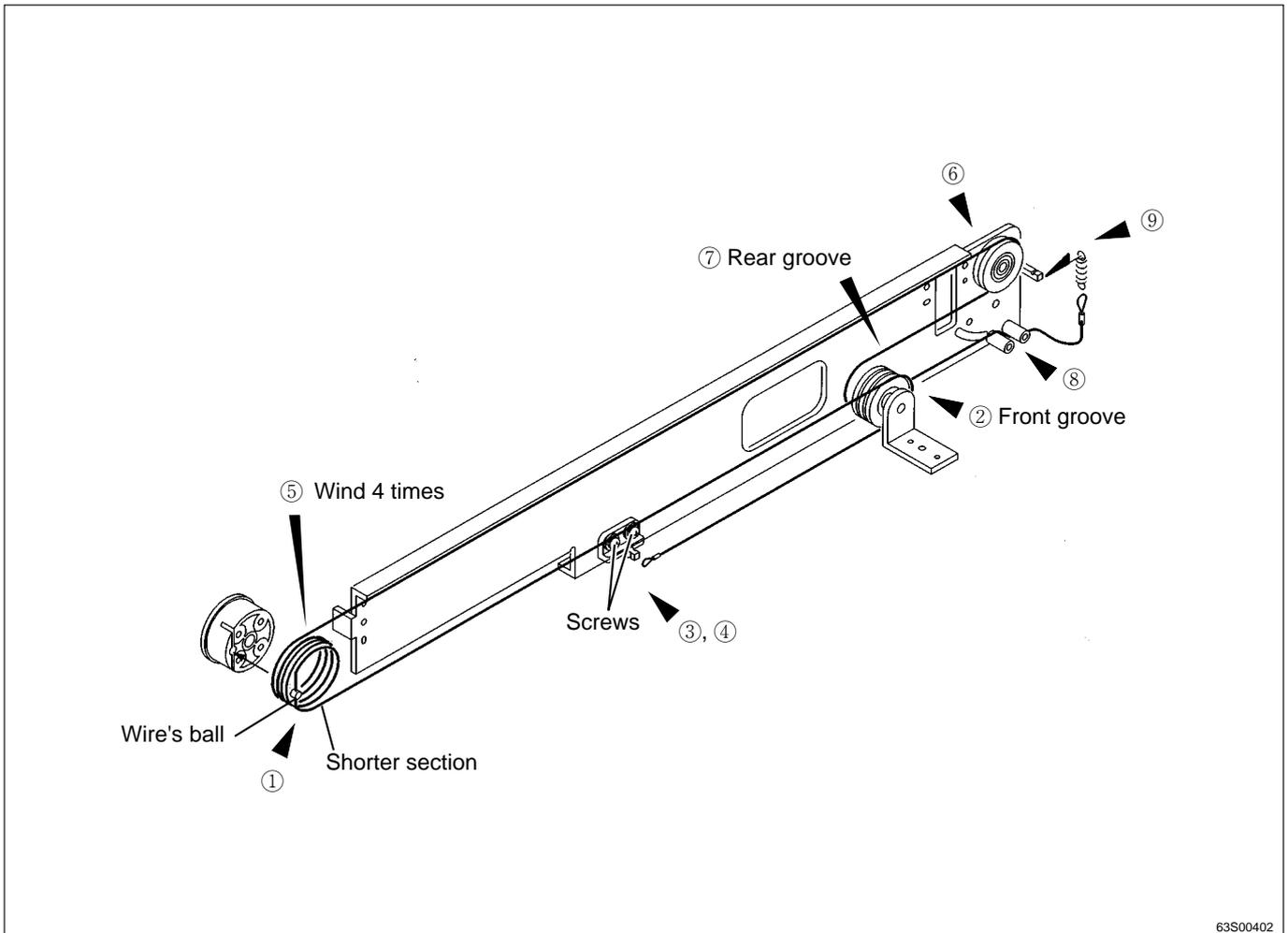


① Insert the wire's ball into the driving pulley's slot, as shown in the figure.

IMPORTANT : The shorter section of the wire, as divided by the ball, should be at the bottom.

- ② Fit the wire into the front groove (toward you).
- ③ Loosen the 2 screws indicated, and hitch the wire's end loop onto the protrusion shown.
- ④ With the wire taut, tighten the 2 screws.
- ⑤ Wind the wire 4 times around the driving pulley.
- ⑥ Fit the wire onto the driven pulley. Fit it from the top of the pulley.
- ⑦ Fit the wire into the rear groove.
- ⑧ Pass the wire through in the way shown in the figure.
- ⑨ Fit the hook of the spring on the other end of the wire onto to the protrusion shown.

(2) Winding the Front Wire



63S00402

① Insert the wire's ball into the driving pulley's slot, as shown in the figure.

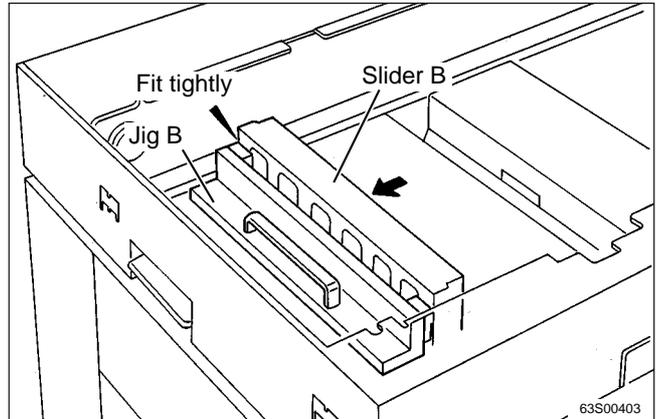
IMPORTANT : The shorter section of the wire, as divided by the ball, should be at the bottom.

- ② Fit the wire into the front groove (toward you).
- ③ Loosen the 2 screws indicated, and hitch the wire's end loop onto the protrusion shown.
- ④ With the wire taut, tighten the 2 screws.
- ⑤ Wind the wire 4 times around the driving pulley.
- ⑥ Fit the wire onto the driven pulley. Fit it from the top of the pulley.
- ⑦ Fit the wire into the rear groove.
- ⑧ Pass the wire through in the way shown in the figure.
- ⑨ Fit the hook of the spring on the other end of the wire onto to the protrusion shown.

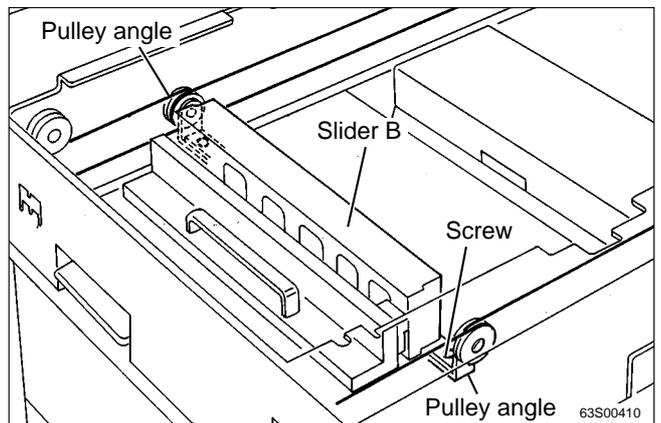
(2) Determining the Slider A / B Position

Positioning method

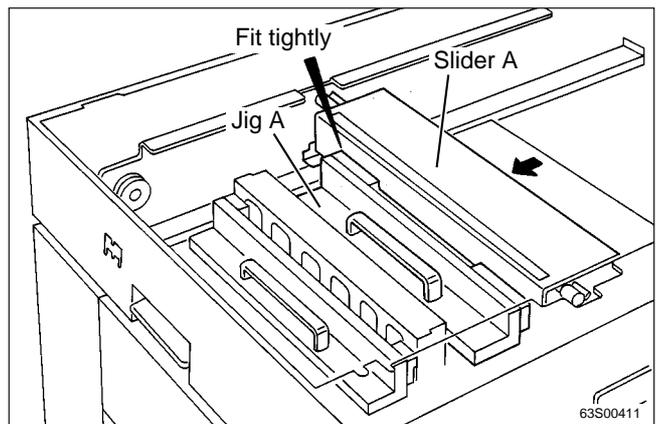
- 1) Move slider B to the paper ejection side, and install jig B.
- 2) Move slider B so that it fits tightly against jig B.



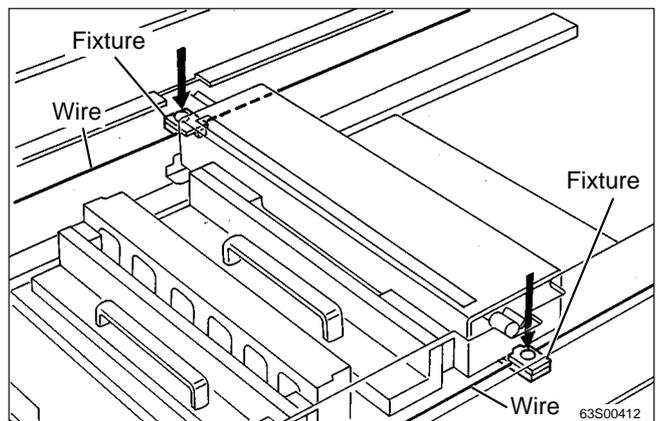
- 3) Move the pulley angle against slider B, and install it to slider B with the screw indicated.



- 4) Install jig A.
- 5) Move slider A so that it fits tightly against jig A.



- 6) Clamp the wire on either side into the fixture, and secure the wires by tightening the fixtures' screws.



(3) Adjusting the Timing Belt Tension

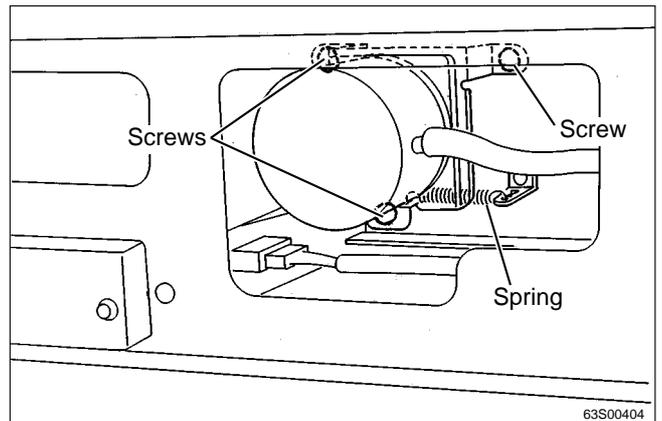
NOTE

- For removal of the scanner outer cover (rear).

➔ See page 154

Adjustment procedure

- 1) Loosen 3 screws and tighten them to produce a suitable tension as the spring works.



2 Plateaking / Master Feed / Ejection Section

《 Plateaking / Master Feed Section 》

(1) Master Feed Unit

NOTE

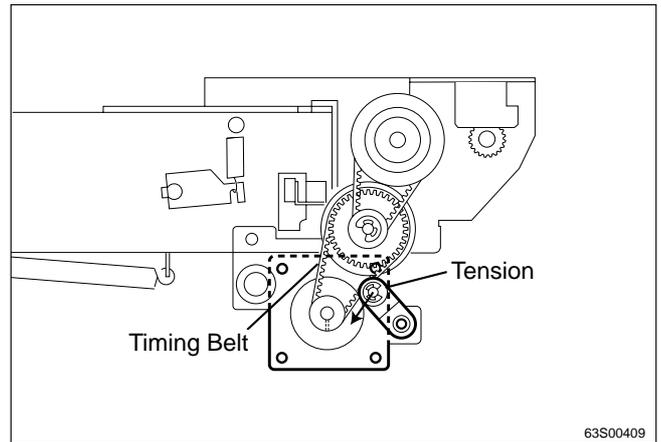
- For removal of master feed unit.

➔ See page 174

Adjustment procedure

Adjust the tension as shown in the figure.

- 1) Apply a force of **about 700g** in the direction of the arrow to tension the belt, then tighten the set screw to secure the tension.



(2) Position Adjustment of Thermal Head Press Motor

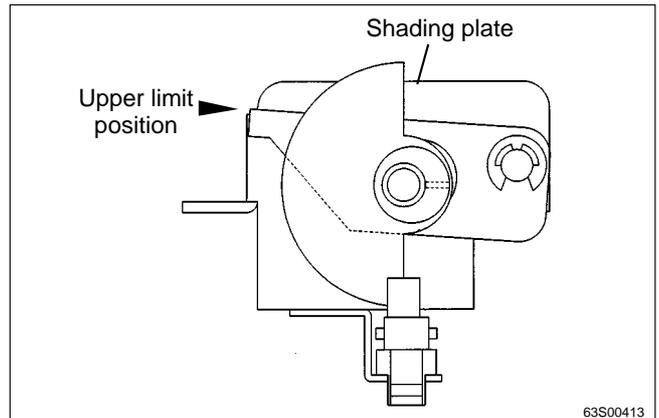
NOTE

- For removal of master feed unit.

➔ See page 174

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.



(3) End mark sensor phase adjustment

NOTE

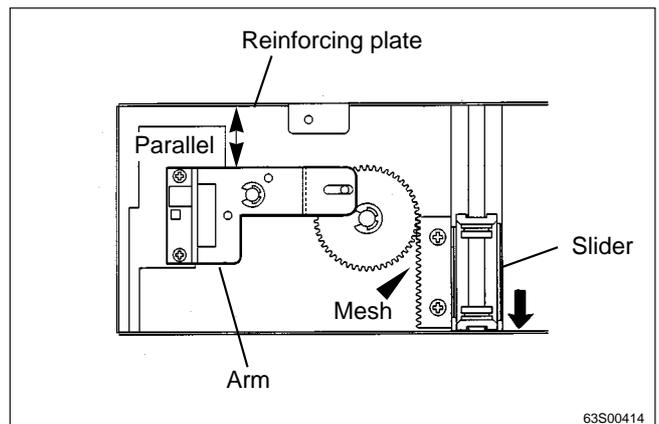
- For removal of master feed unit.

➔ See page 174

Adjustment procedure

Adjust the tension as shown in the figure.

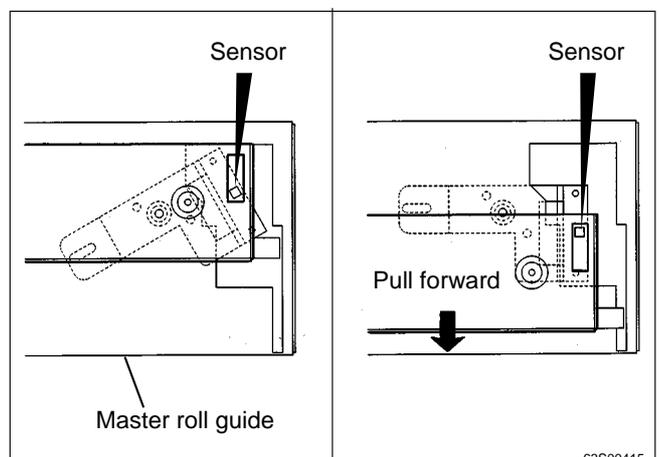
- 1) Make the arm parallel with the reinforcing plate.
- 2) Lift up the slider, move it to the position shown in the figure, and mesh the teeth with the gear's teeth.



After adjustment

Check:

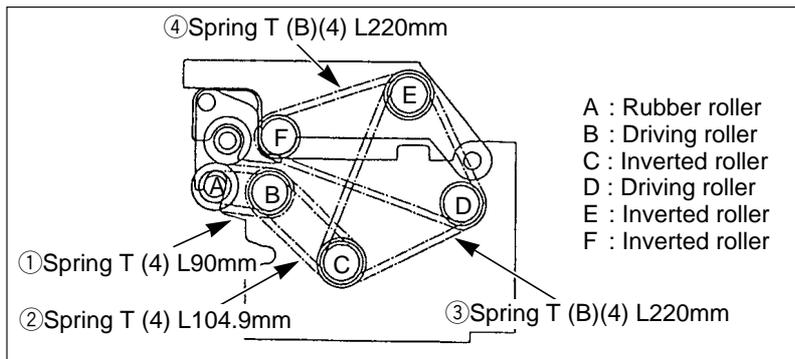
- 1) That the sensor is visible in the position shown in the figure.
- 2) That the sensor is visible when the master roll guide is pulled as far forward as possible.



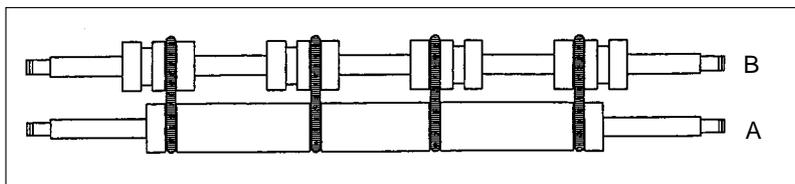
《 Master Ejection Section 》

(1) Attaching the Spring

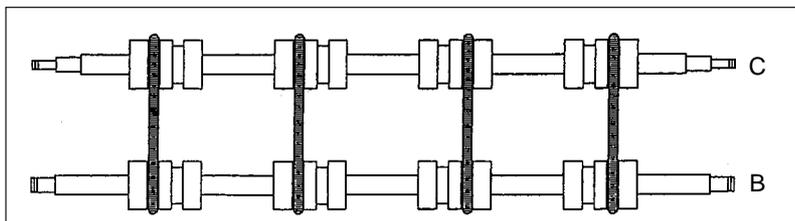
IMPORTANT : Set the hook on the spring and crush it to prevent removing



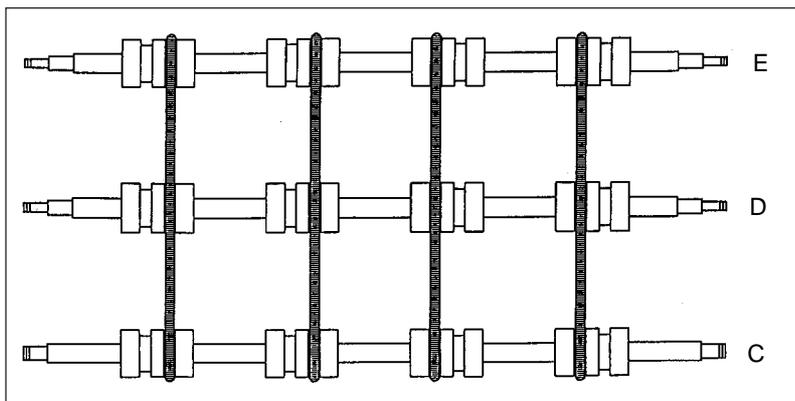
1) Attaching the spring between A and B



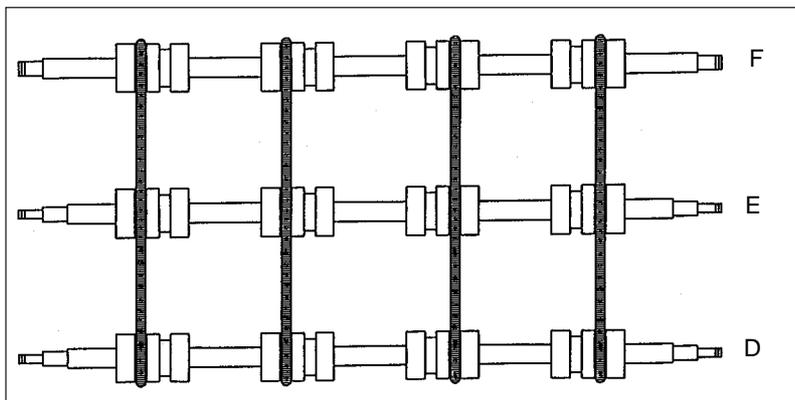
2) Attaching the spring between B and C



3) Attaching the spring between C, D and E



4) Attaching the spring between D, E and F



(2) Adjusting the Timing Belt Tension

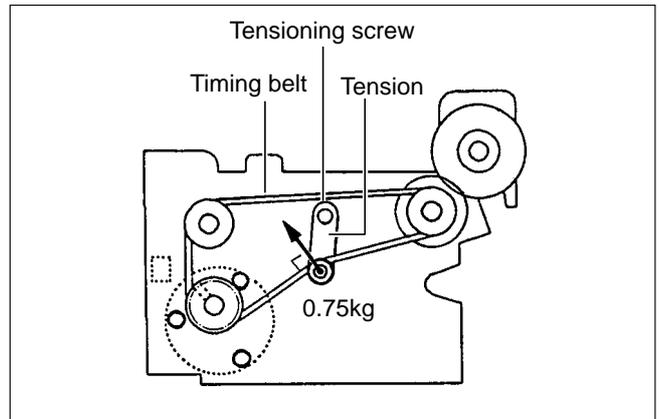
NOTE

- For removal of the master ejection box.

➔ See page 180

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.



NOTE

- Operation of roll-up motor

- 1) Access HELP mode H-18.

HELP mode H-18 ➔ see p.315

For basic HELP mode procedures

➔ See page 287

- 2) Press and hold down the [\downarrow] ("down") printing speed adjustment key. For as long as this key is held down, the roll-up motor will rotate in the reverse direction (counterclockwise), causing the rollers inside the master ejection box to rotate.
- 3) The motor will stop when the key ([\downarrow] ("down") print speed adjustment key) is released.
- 4) Press the STOP  key. The HELP mode menu will reappear.
 - ➔ To exit the HELP mode:
 - Turn the power switch to OFF.
 - ➔ To select another HELP mode:
 - Enter the desired HELP mode number using the numeric keys.

《 Master Clamp Opening/Closing Section 》

(1) Adjusting the Timing Belt Tension

NOTE

- For removal of master clamp opening / closing unit.

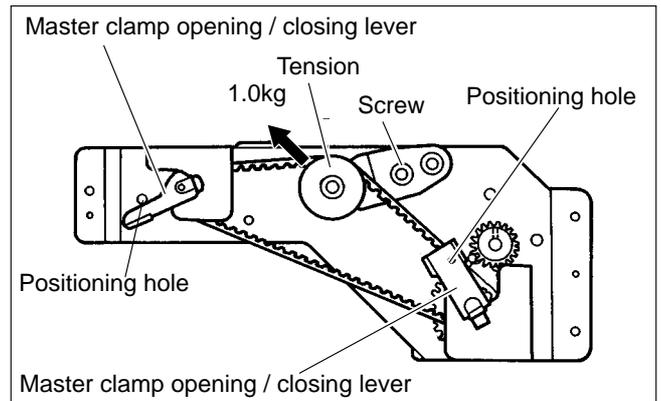
➔ See page 181

Adjustment procedure

- 1) Loosen the tension set screw.
- 2) Apply a force of about 1.0kg in the direction of the arrow to tension the belt, then tighten the set screw.

After Adjustment

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



(2) Positioning the Master Clamp Opening / Closing Levers

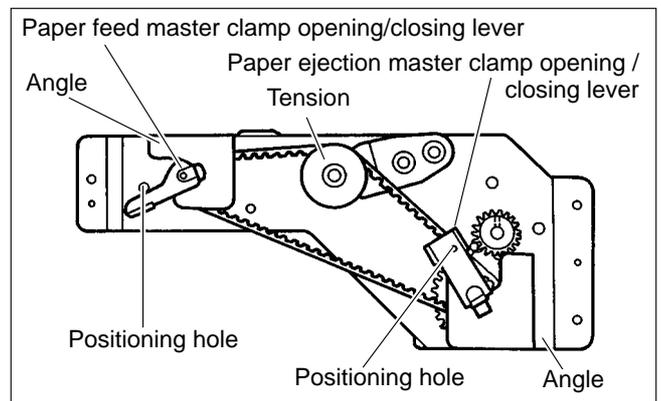
NOTE

- For removal of master clamp opening / closing unit.

➔ See page 181

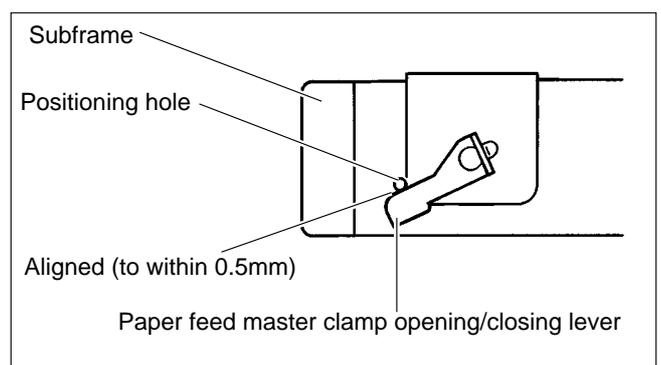
1. Paper feed master clamp opening/closing lever

When tensioning the timing belt, ensure that the subframe 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.



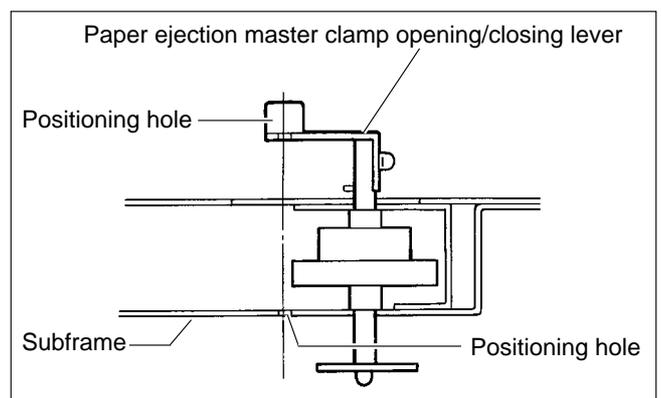
2. Paper ejection master clamp opening/closing lever

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



After Adjustment

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



(3) Adjusting the A / B / C Mode

NOTE

• For description of operation. ➔ See page 100

1. Adjustment for B mode

Adjustment procedure

- 1) Remove the drum from the machine body.
- 2) Access HELP mode H-20.

HELP mode H-20 ➔ see p.318

For basic HELP mode procedures.

➔ See page 287

- 3) Press and hold down the [>] ("up") printing speed adjustment key, until the master clamp open/close lever moves into the "more open than B mode (toward C mode) position" (see right).

- 4) Turn the power off, then on again.
The master clamp switch lever will move into the B mode position and stop there.

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

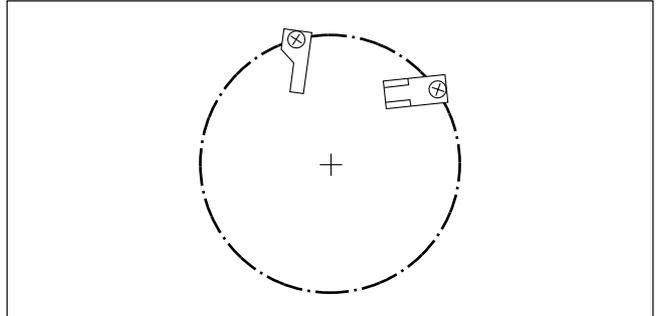
- 6) Open the plate ejection box. Then press the jog switch (drum rotator switch) to move the master clamp to a position in front of the open/close lever, and stop it there.

⚠ WARNING

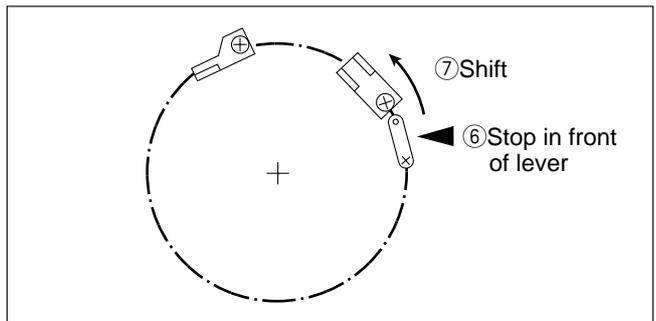
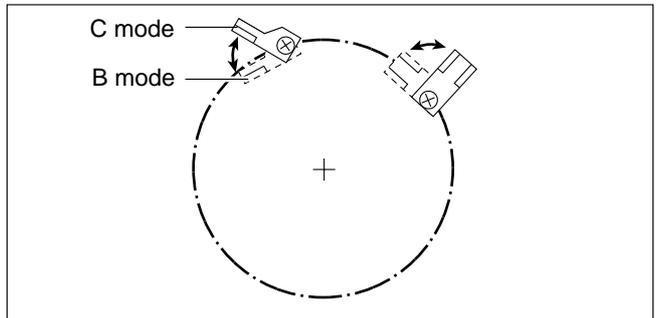
- Do not touch the drum or rolls when operating the JOG switch.
- Do not put your hands or fingers inside the machine during operation. They could be caught up or crushed in the machinery, resulting in injury.

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

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



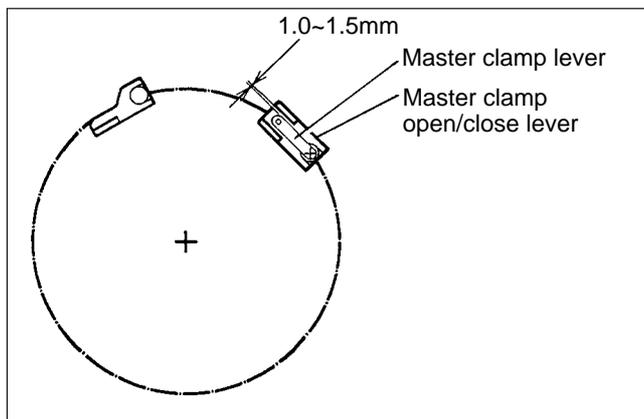
• More open than B mode (toward C mode) position



Standard value

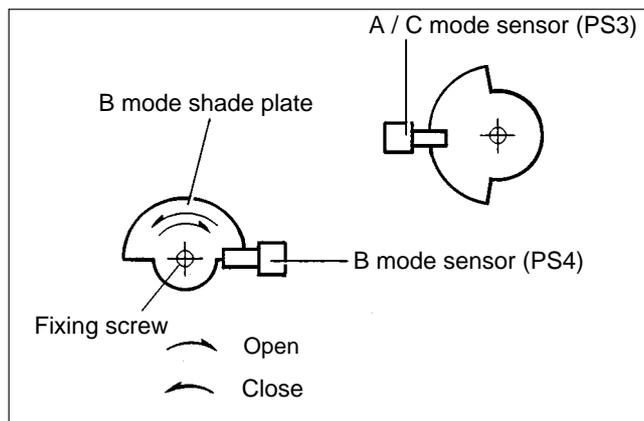
- Check that the clearance between the master clamp lever and master clamp open/close lever is within the range given below.

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



If the clearance is outside the standard range:

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



After adjustment

Follow the procedure below to return to the previous state.

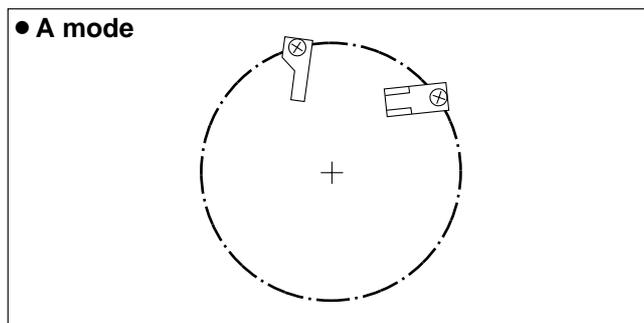
- 1) Remove the drum.
- 2) Access HELP mode H-20.

HELP mode H-20 → see p.318

For basic HELP mode procedures.

→ See page 287

- 3) Press and hold down the [>] ("up") printing speed adjustment key, until the master clamp open/close lever moves into the A mode position (see right).
- 4) Turn off the power, and install the drum to the machine body.



2. Adjustment for A and C modes

Before adjustment

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

Adjustment procedure

1) Remove the drum from the machine body.

2) Access HELP mode H-20.

HELP mode H-20 → see p.318

For basic HELP mode procedures.

→ See page 287

3) Press and hold down the [>] ("up") printing speed adjustment key, until the master clamp open/close lever moves into the "more open than B mode (toward C mode) position" (see right).

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

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

6) Access HELP mode H-09.

HELP mode H-09 → see p.302

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

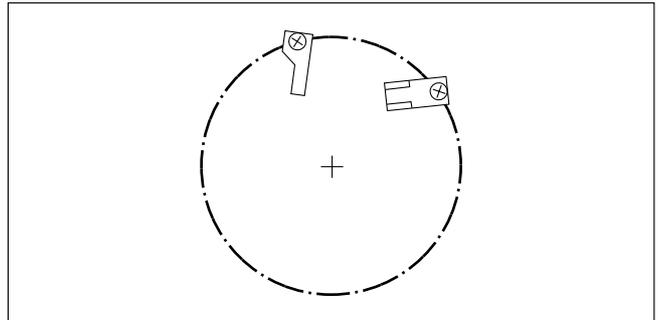
8) Use HELP20 to move the master clamp open/close lever to the C mode position.

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

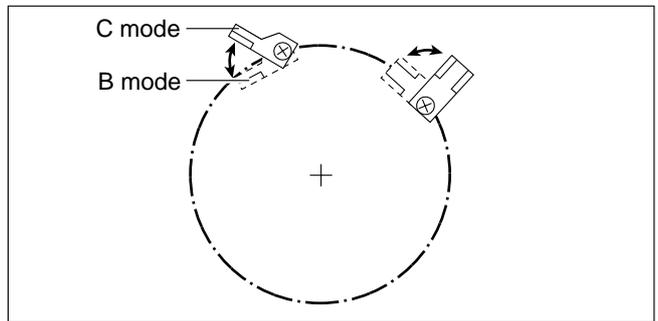
9) Open the scanner unit, and remove the master feed cover.

→ See page 179

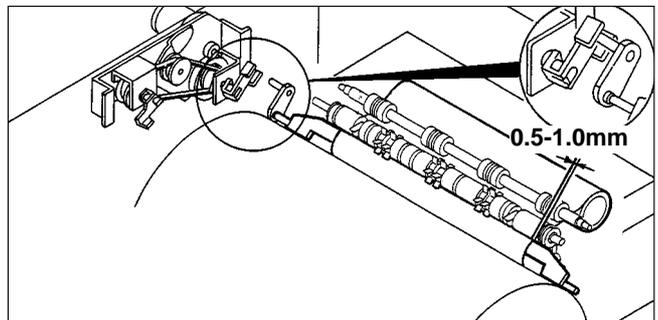
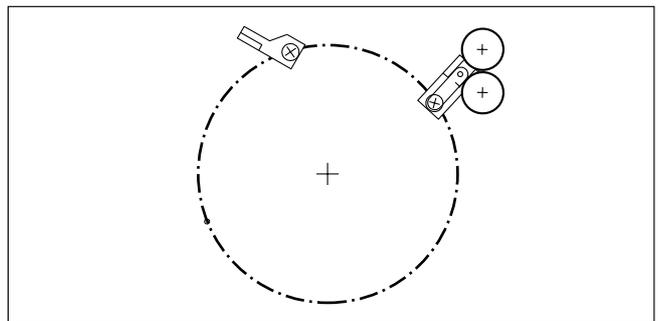
• When drum is removed from main body (A mode)



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



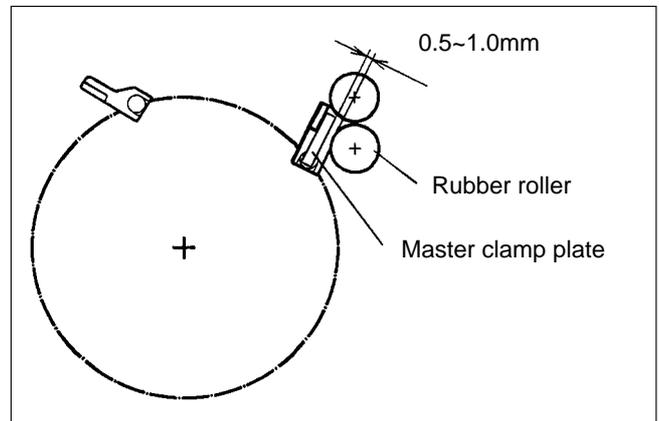
• Stopping drum in master detachment position



Standard value

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

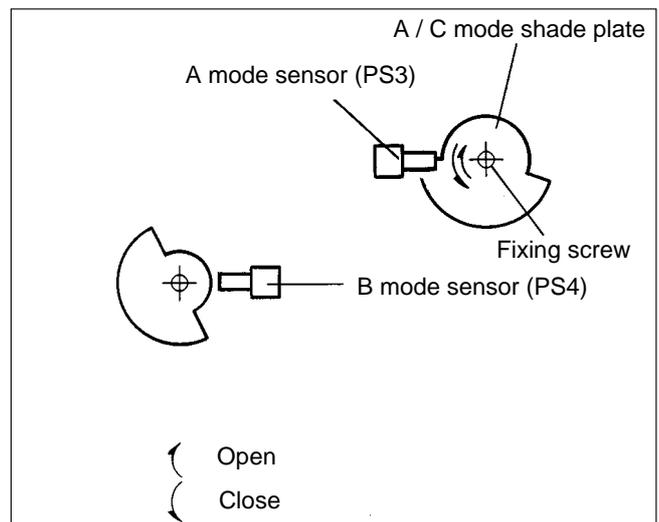
Item	Standard value
Clearance between master ejection box's rubber roller and master clamp plate	0.5 - 1.0mm



If the clearance is outside the standard range

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

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



After adjustment

Follow the procedure below to return to the previous state.

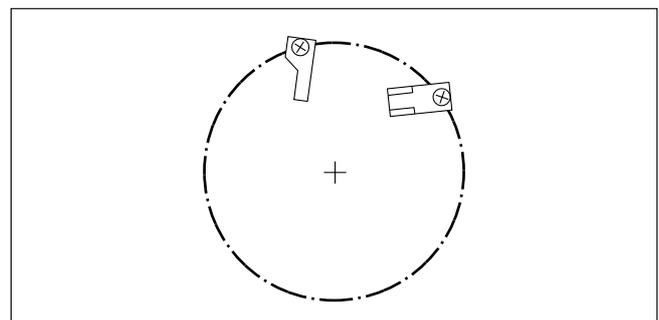
- 1) Turn the power off, then on again.
The master clamp open/close lever will move into the B mode position and stop there.
- 2) Remove the drum.

- 3) Access HELP mode H-20.

HELP mode H-20 → see p.318

- 4) Press and hold down the [>] ("up") printing speed adjustment key, until the master clamp open/close lever moves into the A mode position (see right).
- 5) Turn off the power, and install the drum to the machine body.

• A mode



3 Paper Feed Section

(1) Adjustment of Paper Switch Clearance

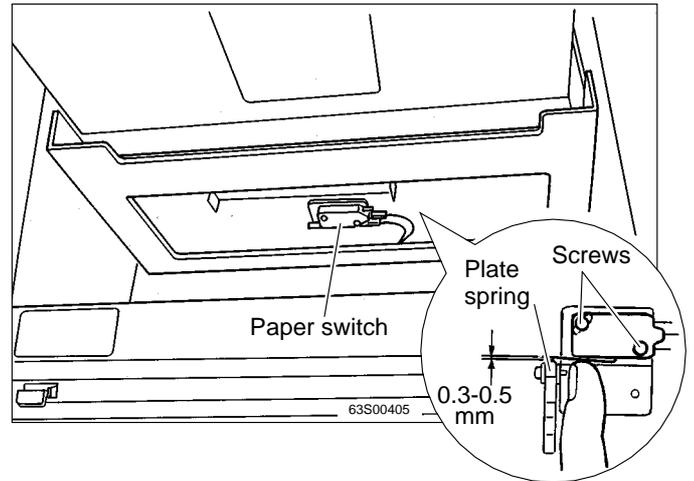
NOTE

• For description of operation . ➔See page 118

• For removal of paper switch. ➔See page 183

Adjustment procedure

• Fix the switch's plate spring in place, and use the 2 screws to adjust the clearance between the lever and the plate spring to **0.3~0.5mm**.



(2) Adjustment of Paper Separator Unit Clearance

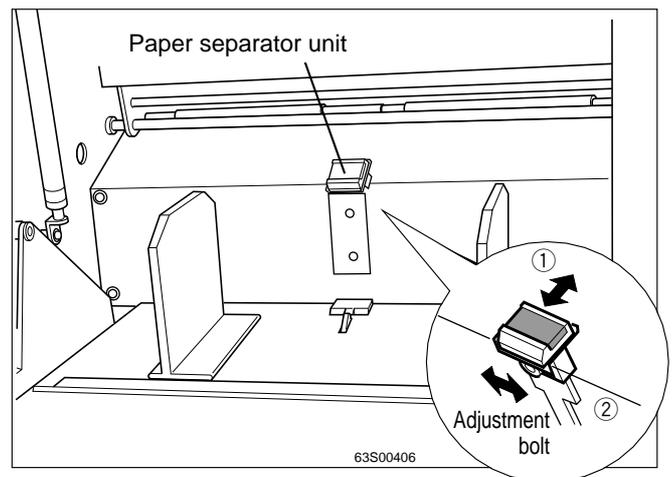
NOTE

• For description of operation . ➔See page 110

• For removal of paper separator unit . ➔See page 185

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.



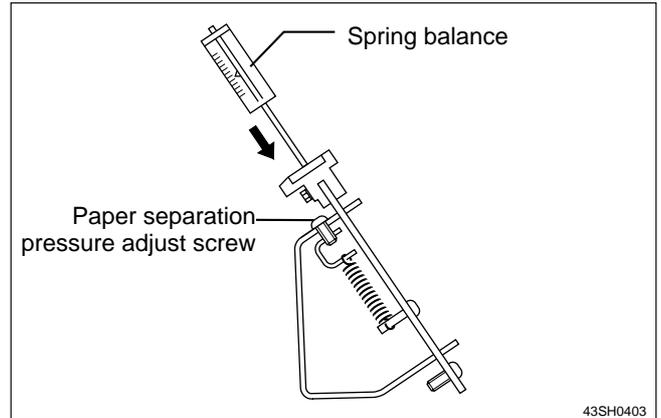
(3) Adjustment of Paper Separation Pressure

NOTE

- For description of operation . ➔See page 110

Adjustment procedure

- 1) Apply a spring balance as shown at right, then turn the separation pressure adjust screw so that the balance reads 140-150g.
 - Turning the screw clockwise increases the pressure.
 - Turning the screw counterclockwise decreases the pressure.



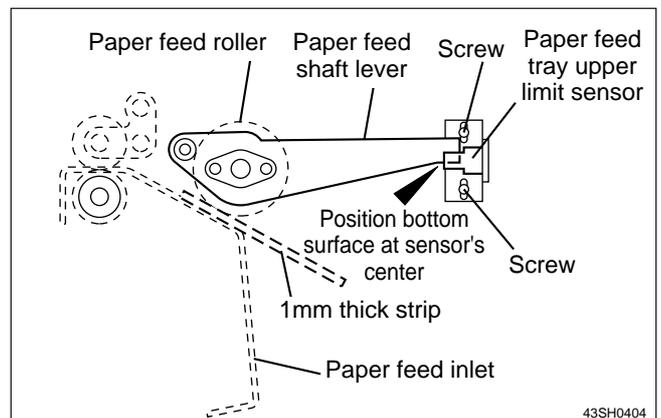
(4) Adjustment of Paper Feed Tray Upper Limit Sensor

NOTE

- For description of operation . ➔See page 116

Adjustment procedure

- 1) Insert a 1mm thick strip of material between the paper feed roller and the paper feed inlet.
- 2) Loosen the 2 screws indicated, then adjust the sensor's position so that the bottom surface of the paper feed shaft lever is at the center of the sensor.
- 3) After adjustment, tighten the screws.



(5) Adjustment of Paper Feed Tray Lower Limit Switch

NOTE

- For description of operation. ➔See page 117
- For removal . ➔See page 184

Adjustment method

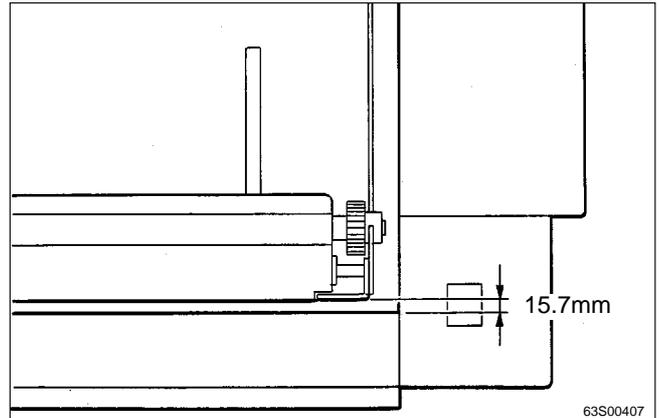
1) Access HELP mode H-02.

HELP mode H-02 ➔ see p.295

For the basic procedure for accessing HELP modes:

➔See page 287

- 2) Press and hold down the [<] (DOWN) printing speed adjustment key until the paper feed tray is at its lowermost position. The elevator motor will run (i.e. the paper feed tray will descend) for as long as the key is held down.
- 3) Check that the dimension indicated in the figure at right conforms to the value shown below.

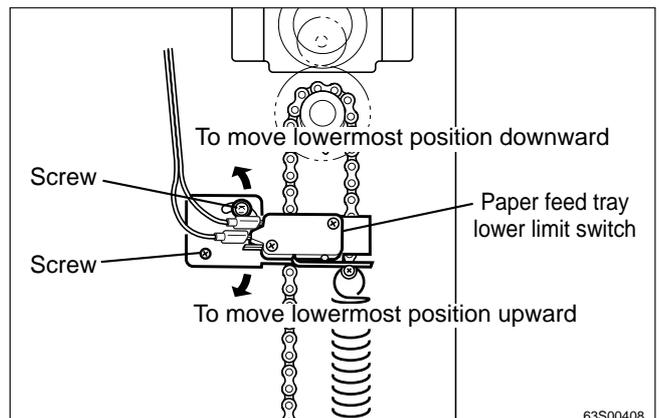


Standard value

Item	Standard value
Paper feed tray clearance in lower limit position	4 - 6mm

If the feed length is not the standard value

- 1) Loosen the eccentric shaft screws on either side, then adjust the lower limit switch to a position that yields the standard clearance value.
 - Moving the sensor in the direction shifts the lowermost position downward.
 - Moving the sensor in the direction shifts the lowermost position upward.
- 2) After adjustment, tighten the eccentric shaft screws on either side.



(6) Adjustment of Paper Feed Length

NOTE

- For description of operation. ➔ See page 110

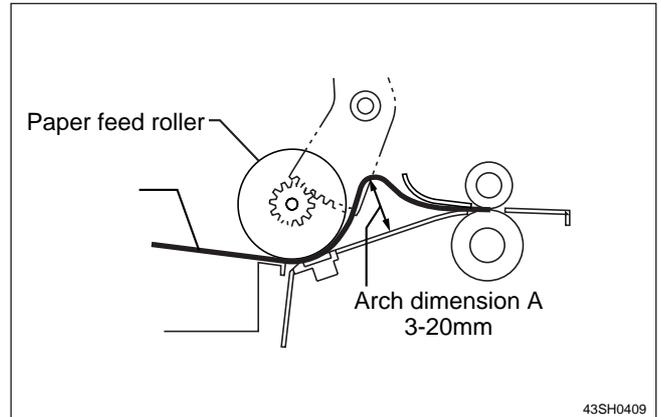
Adjustment method

- 1) Adjust the paper feed length to the standard value.

Standard value

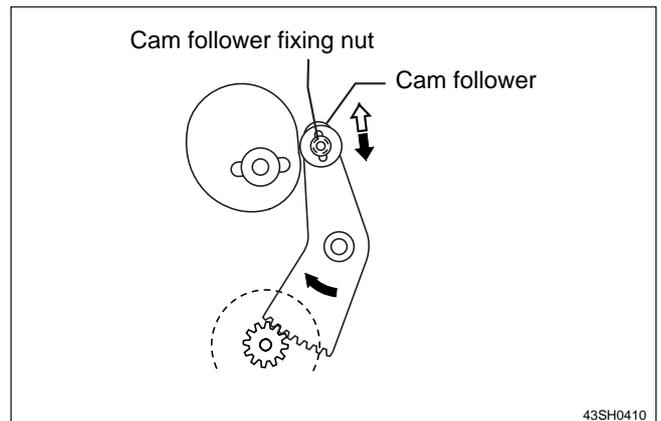
Item	Standard value
Paper feed length	95mm

- * The arch dimension A should be 3-20mm.
(Remember that the thicker the paper, the larger the slippage and the smaller the arch.)



If the feed length is not the standard value

- 1) Loosen the cam follower fixing nut.
- 2) Adjust the paper feed length by moving the cam follower along the adjustment slot in one of the directions indicated in the figure at right.
Moving the cam follower in the \uparrow direction decreases the paper feed length.
Moving the cam follower in the \downarrow direction increases the paper feed length.
- 3) Tighten the fixing nut.



(7) Adjustment of G Roll Escape Amount

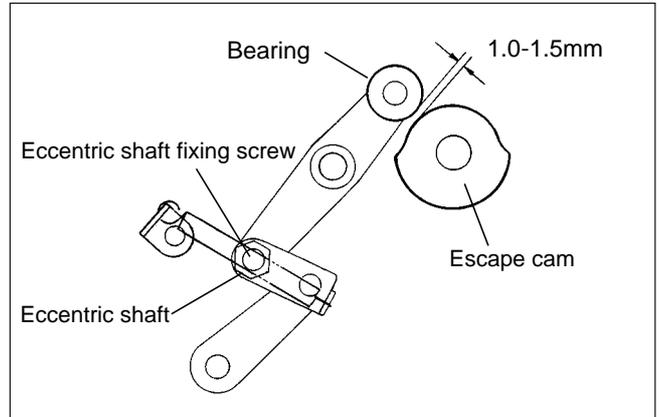
Adjustment procedure

- 1) Turn the main motor shaft by hand, to move the escape cam. Stop turning when the bottom of the escape cam reaches the bearing side of the escape lever, so that the cam stops in that position.
- 2) Loosen the eccentric shaft fixing screw. Then turn the eccentric shaft to adjust the escape amount.

NOTE

- For description of operation.

➔ See page 109



Standard value

Item	Standard value
Clearance between escape lever's bearing and escape cam's bolt	1.0 - 1.5mm

(8) Adjustment of G Roll Escape Timing

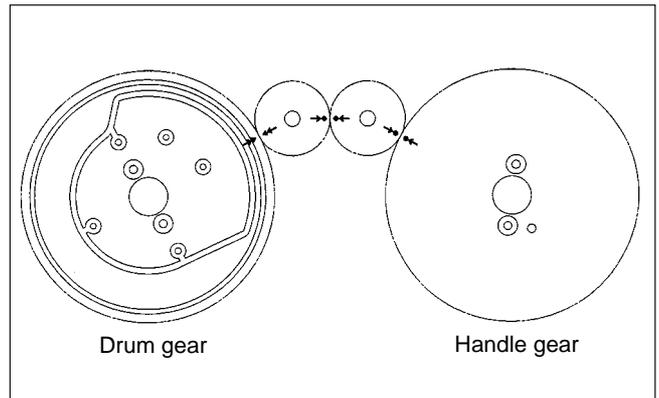
Adjustment procedure

- Match marks are inscribed on the various gears. To adjust the timing, align the match marks together in the manner shown in the figure at right.

NOTE

- For disassembly and reassembly.

➔ See page 187



(9) Position Adjustment of Feed Cam

Before adjustment

IMPORTANT

- Before feed cam position adjustment is performed, the following adjustments must have been correctly performed:
- Printing range (press OFF timing) adjustment.

➔ See page 229

- G roll escape timing adjustment.

➔ See page 223

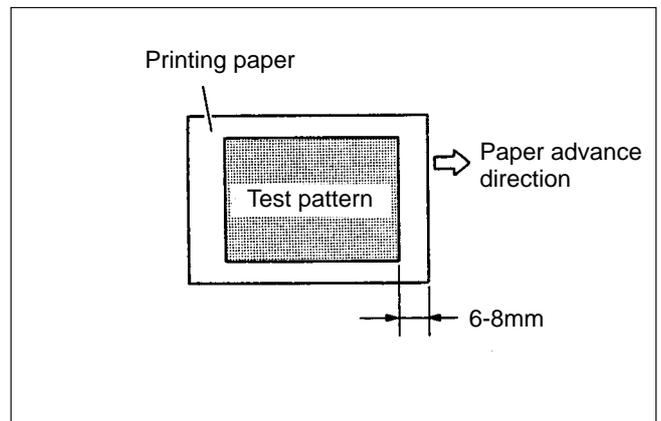
Adjustment procedure

- 1) Using HELP mode H-30, set the PLATEMAKING DARKNESS  key to DARKER 2, then execute test pattern 1 platemaking and printing.

HELP mode H-30 ➔ see p.330

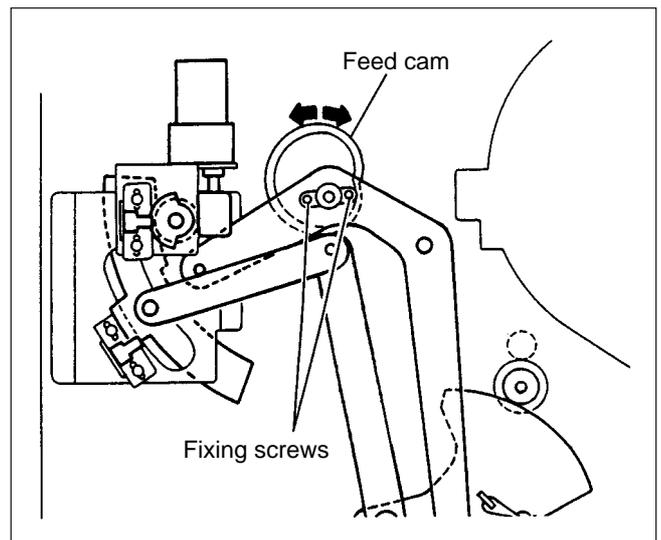
Standard value

Item	Standard value
Leading edge margin	6-8mm



If the value is outside the standard range:

- 1) Turn the main motor shaft by hand, to move the feed cam. Stop turning when the cam's fixing screw can be seen through the adjustment hole, so that the cam stops in that position.
- 2) Loosen the feed cam's two fixing screws, and move the feed cam in the direction of the arrows at right to adjust the cam's position.
 - ➔ Moving the cam in this direction narrows the leading edge margin.
 - ➔ Moving the cam in this direction widens the leading edge margin.
- 3) Tighten the feed cam's two fixing screws to fix the cam in the adjusted position.



(10) Adjustment of Printing Position Sensors

NOTE

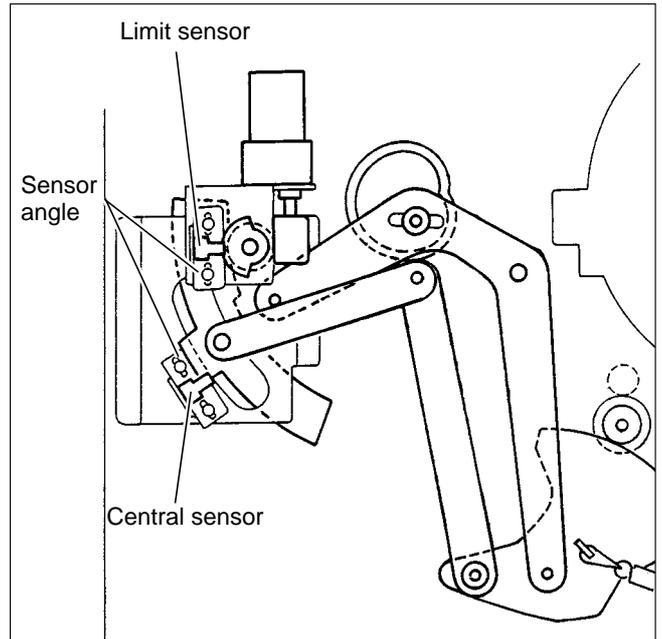
• For description of operation.

➔ See page 112

1. Central sensor

Adjustment procedure

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

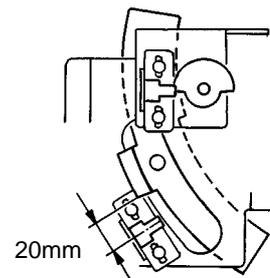


2. Limit sensor

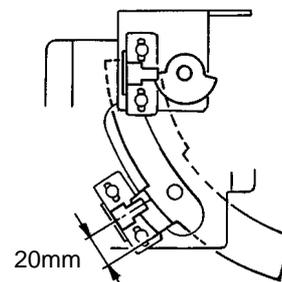
Adjustment procedure

- 1) Position the bolts of the sensor angle's rectangular holes in the center of those holes, and fix the bolts in that position.
- 2) Loosen the limit sensor shade plate fixing screw. Then adjust the distance between the centerline of the central sensor and the edge of the central sensor shade plate to $20 \pm 1\text{mm}$.

Top limit



Bottom limit



4 Drum Driving Section

(1) Adjusting the Stop Position

Before adjustment

IMPORTANT

- Adjustment of the drum position must be performed **AFTER** printing speed adjustment is complete.

➔See page 243

Adjustment procedure

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

⚠ WARNING

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

NOTE

- For description of operation .

➔See page 120

Standard position

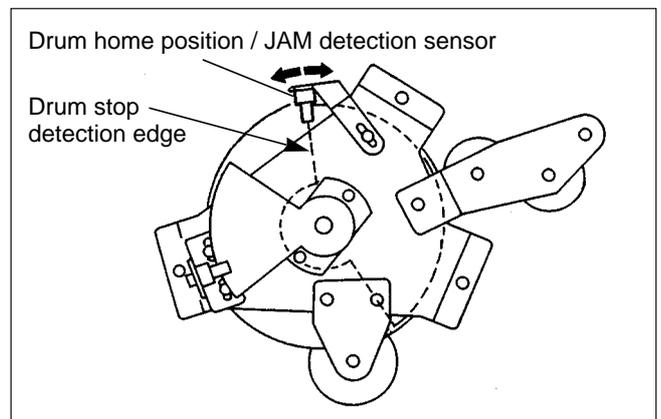
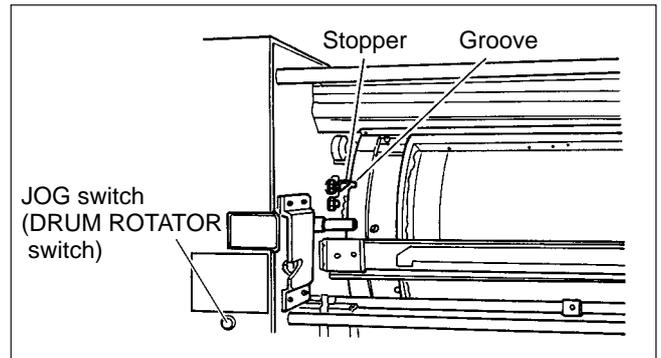
- The stop position is correctly adjusted when the groove in the drum flange is aligned with the stopper.

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

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

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

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



(2) Adjusting the Master Attachment/Detachment Position

NOTE

- For description of operation.

➔ See page 121

1. Master detachment position

- The correct position for stopping of the drum (position for master detachment) is when the center axis of the master clamp open/close arm and the center axis of the master clamp open/close lever are aligned in a straight line. Adjust so that the offset of the alignment of these two center axes is $\pm 1\text{mm}$ (gauge this value visually).

Adjustment procedure

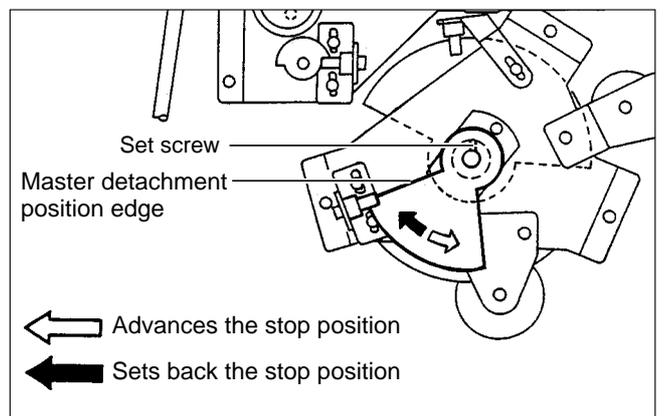
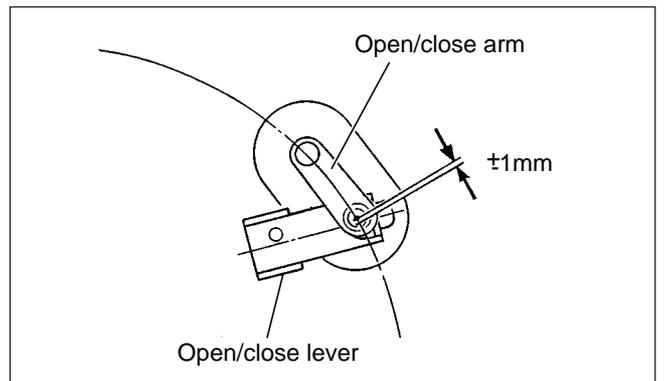
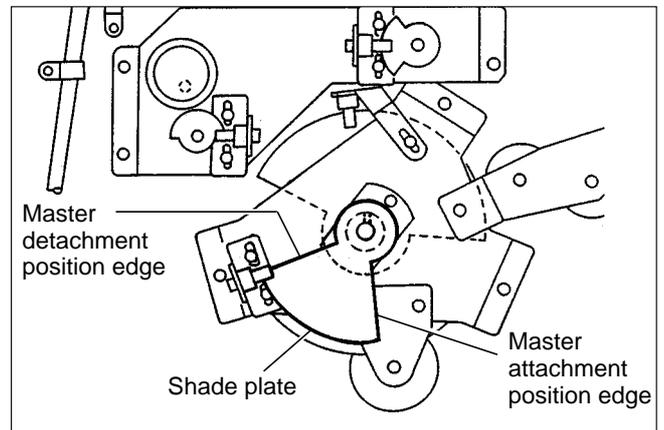
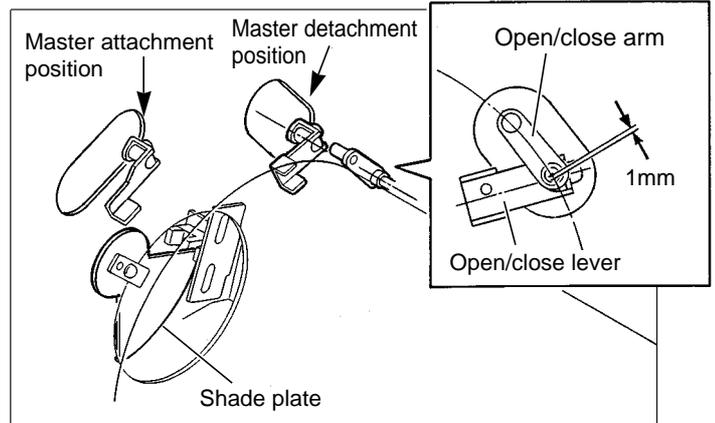
- 1) Access HELP mode H-09, the drum position check mode. HELP mode H-09 ➔ see p.302
- 2) Press the PRINT  key several times, to move the drum and stop it in the position where the master attachment/detachment sensor senses that the shade plate's master detachment position edge.
- 3) Adjust the offset 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	$\pm 1\text{mm}$

- 4) Loosen the set screw indicated, turn the master attachment/detachment sensor shade plate a little in the direction of the arrows, and provisionally tighten the set screw.
- 5) Repeat step 2), and check the center axis alignment offset.
- 6) If necessary, repeat steps 2) through 5) until the center axis alignment offset is within $\pm 1\text{mm}$.
- 7) Properly tighten the set screw, and check 6) again.

2. Master attachment position

- Perform adjustment of master attachment position at the same time as that of master detachment position. Adjust both positions to an accuracy of $\pm 1\text{mm}$.



5 Press Section

(1) Adjusting the of Press Roll (P Roll) Sensor

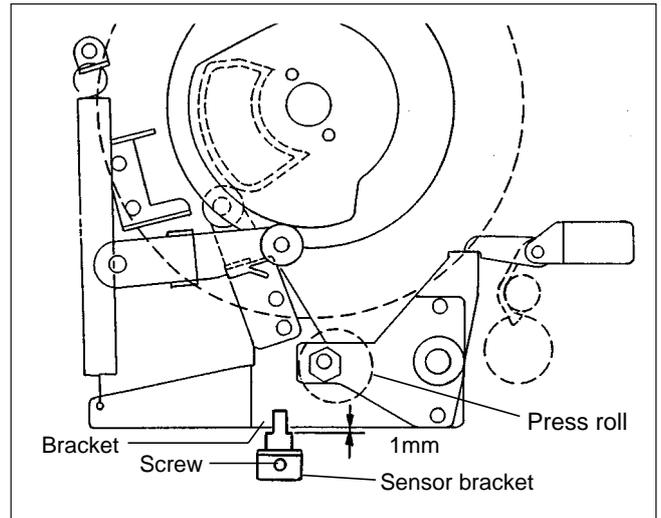
NOTE

- For description of operation.

➔ See page 127

Adjustment procedure

- 1) Loosen the screw indicated. Then move the sensor bracket up/down to adjust the press roll so that when it is pushed down to the lowest position by the cam, the distance between the bottom of its sensor and the end of the bracket is **about 1mm**.



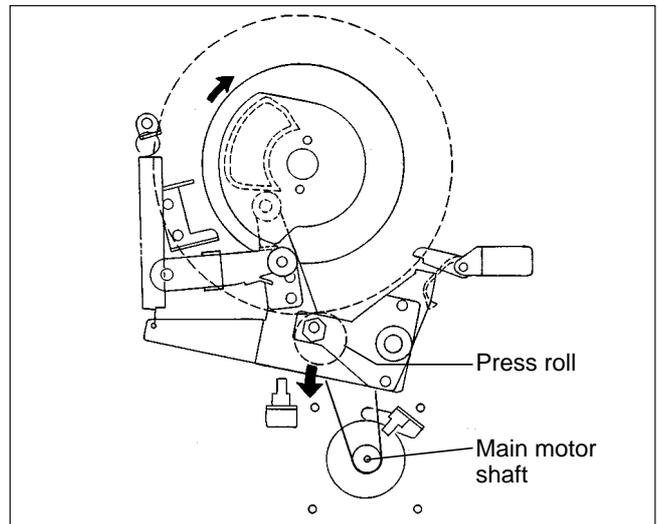
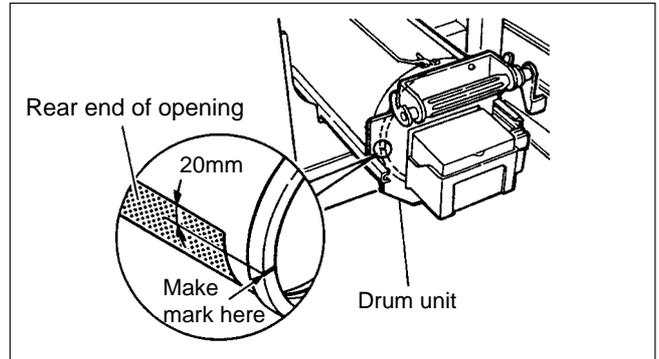
(2) Adjusting the Printing Area (Press OFF Timing)

NOTE

- For description of operation. ➔ See page 125

Adjustment procedure

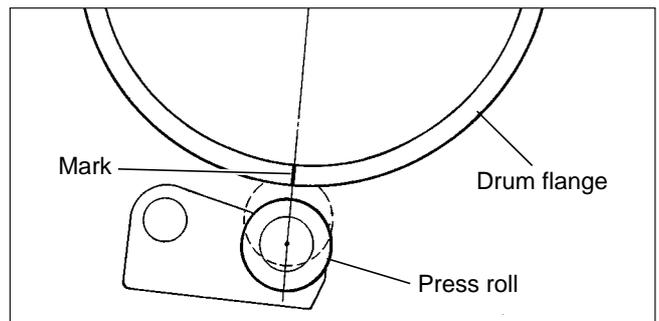
- 1) Make a mark on the end surface of the drum flange, in a position 200 forward (in the direction of the forward end) from the rear end of the drum's opening.
- 2) With the press roll activated, turn the main motor shaft by hand, and stop turning when the press roll starts to descend (move in the direction of the arrow).



Standard value

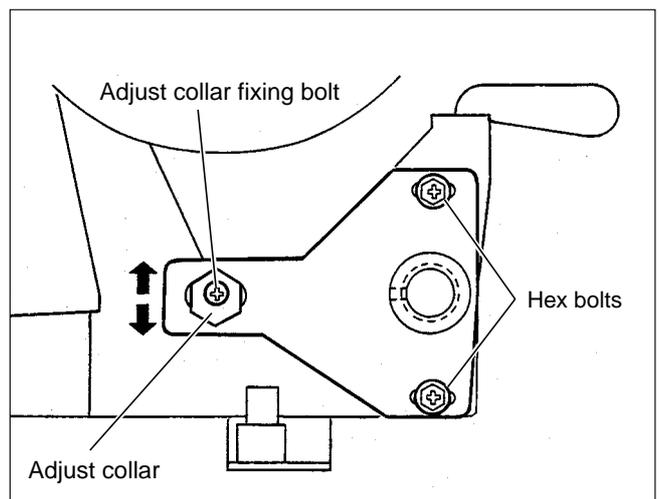
- Open the front cover, and check whether the center of the press roll is aligned with the mark made in step 1).

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

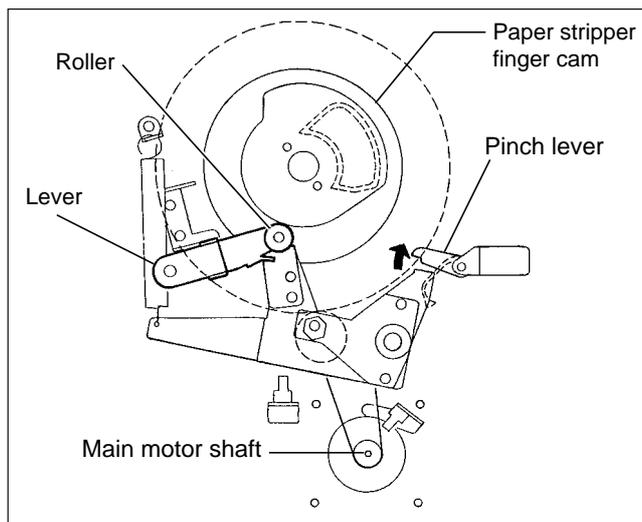
NOTE

- For description of operation.

➔ See page 132

Adjustment procedure

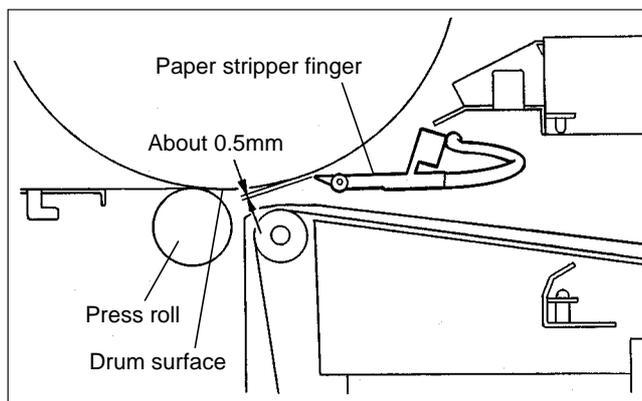
- 1) With the pinch lever raised up, turn the main motor shaft. Stop turning when the lever's roller is positioned at the bottom of the paper stripper finger cam.



Standard value

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

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



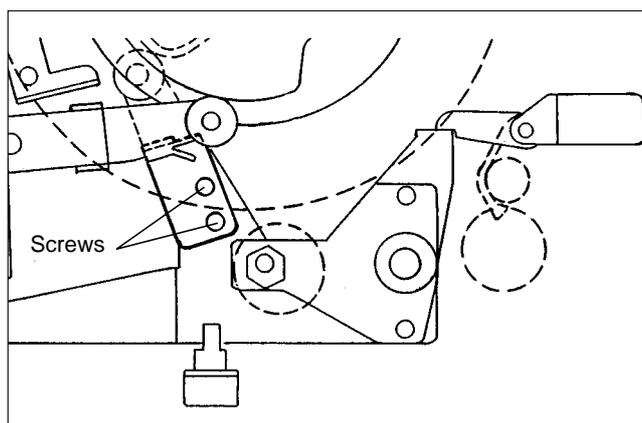
If the clearance is not the standard value:

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

After adjustment:

IMPORTANT

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



⚠ WARNING

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

(2) Adjusting the Paper Stripper Finger Return Stopper

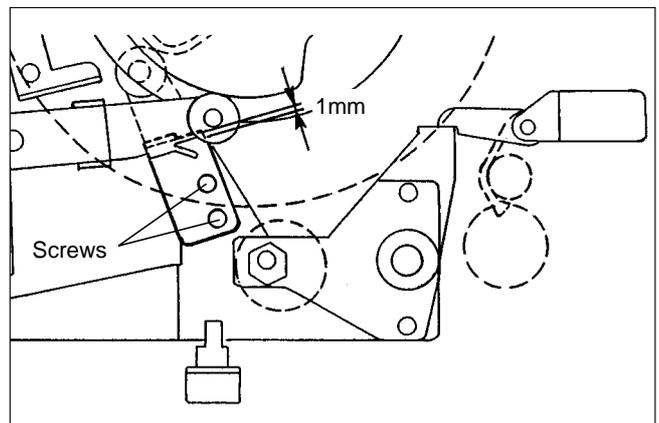
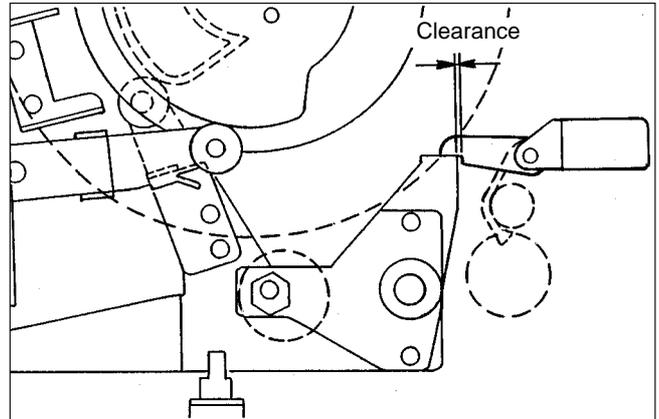
Adjustment procedure

- 1) Turn the main motor shaft by hand until a clearance is opened up between the pinch lever and the bracket.

Standard value

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

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



If the clearance is not the standard value:

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

After adjustment:

IMPORTANT

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

⚠ WARNING

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

7 Drum Section

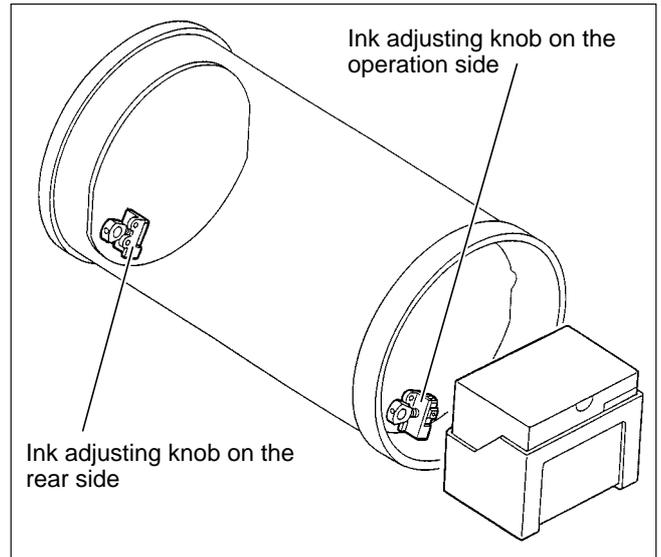
(1) Adjusting the Ink Amount

Adjusting the ink adjusting knob

NOTE

- For removal.

➔ See page 197



Adjustment procedure

1) When printed too dark or too light on the operation side:

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

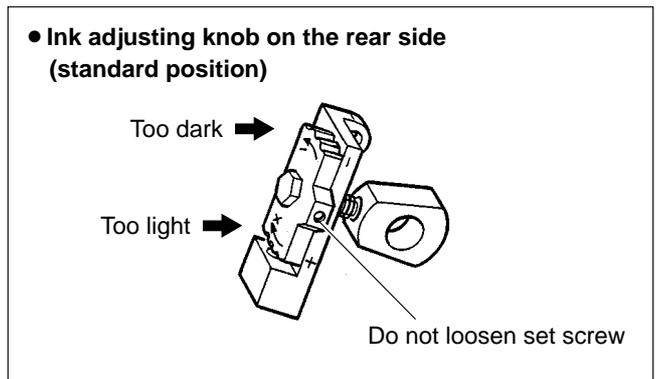
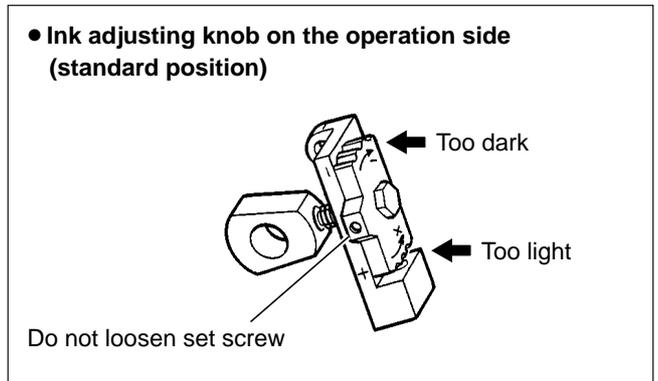
2) When printed too dark or too light on the rear side:

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

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

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

IMPORTANT : There are 7 settings, standard and ± 3 settings to adjust the printing darkness. Print more than ten sheets every time the printing darkness is switched by one setting until the most desirable printing darkness is obtained. Repeat the above procedures until the most desirable printing darkness is obtained.



(2) Adjusting the Squeegee Gap

NOTE

- For removal.

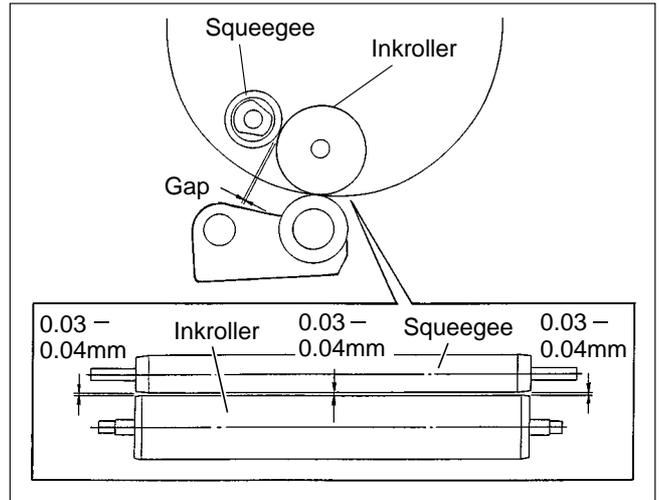
➔ See page 197

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:-

Space: 0.03-0.04mm



If the clearance is not the standard value

- 1) 2 set screws 1 are used in one place. Remove one set screw 1 and loosen the other one. Perform the same operation for both sides. Be careful not to lose the removed set screws.

- 2) Loosen set screws 2 on both sides.

- 3) Adjust the gap with the adjusting screws on both sides so that the space on both sides meets the standards.

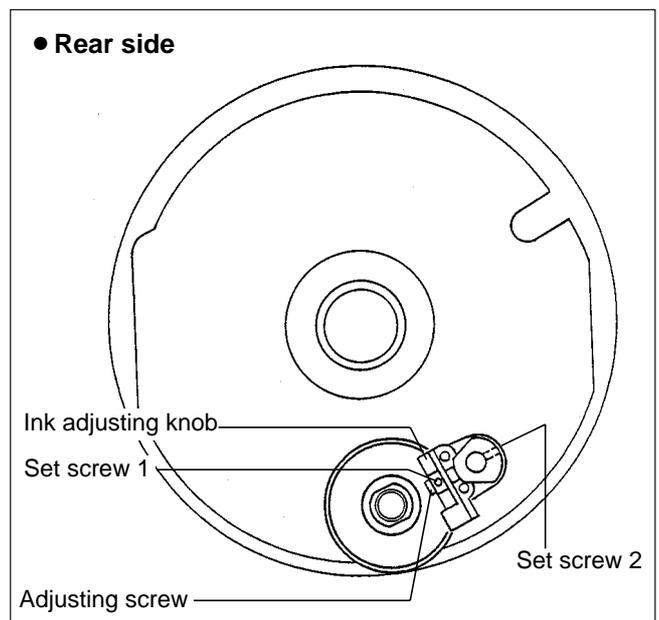
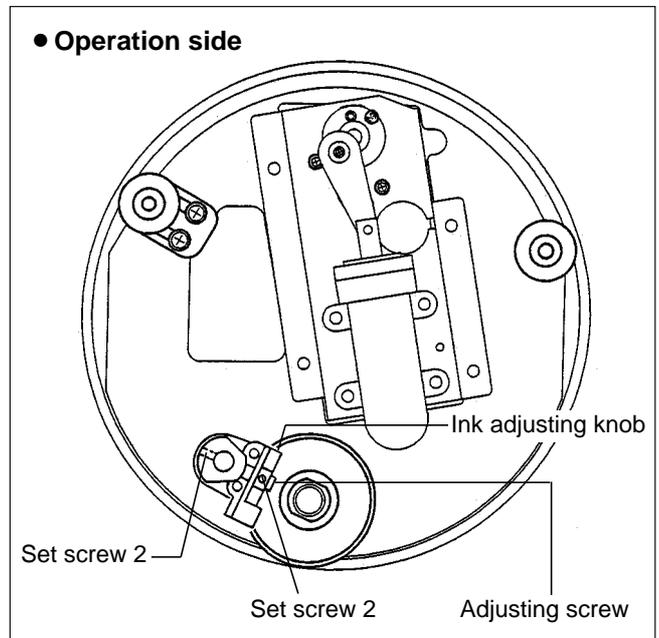
After adjustment

- 1) Tighten set screw 2.

- 2) Tighten set screw 1.

- 3) Check the gap again after the ink amount adjusting knob is moved several times in the direction + or -.

- 4) If the gap is proper, attach set screw 1 and tighten it to fix.



(3) Adjusting the Master Clamp

NOTE

• For removal.

➔ See page 197

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

1. Adjusting the clamp parallelism

Adjustment procedure

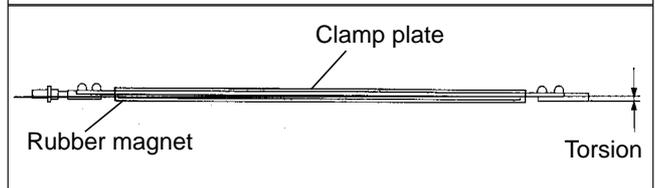
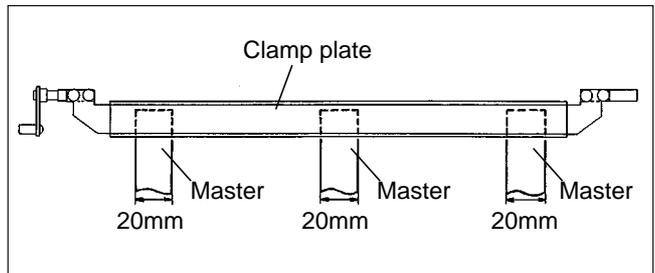
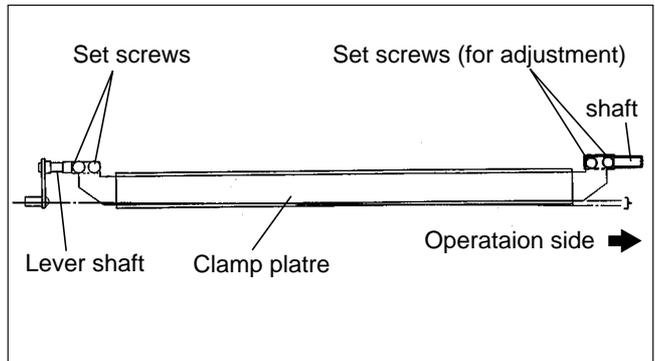
1) Loosen the set screws on the clamp plate and shaft to adjust the parallelism.

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

2. Adjusting the clamp flatness

Adjustment procedure

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



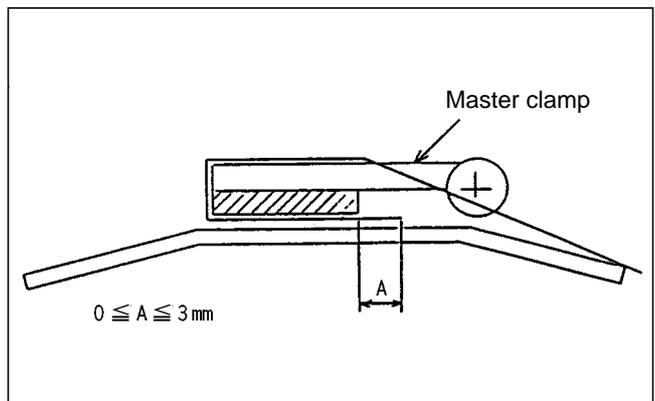
(4) Adjusting the Master Clamp Section

Adjustment procedure

1) Adjust with HELP mode 29 so that the clamp amount of the master (A section in the figure) is 0~3mm with the master attached.

HELP mode H-29 ➔ see p.329

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

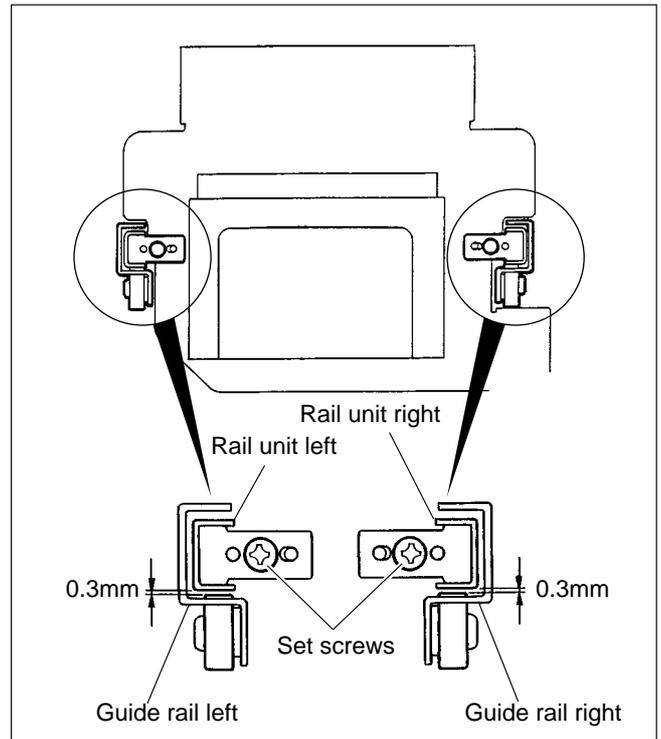


(5) Adjusting the Drum Rail Gap

1. Operation side

Adjustment procedure

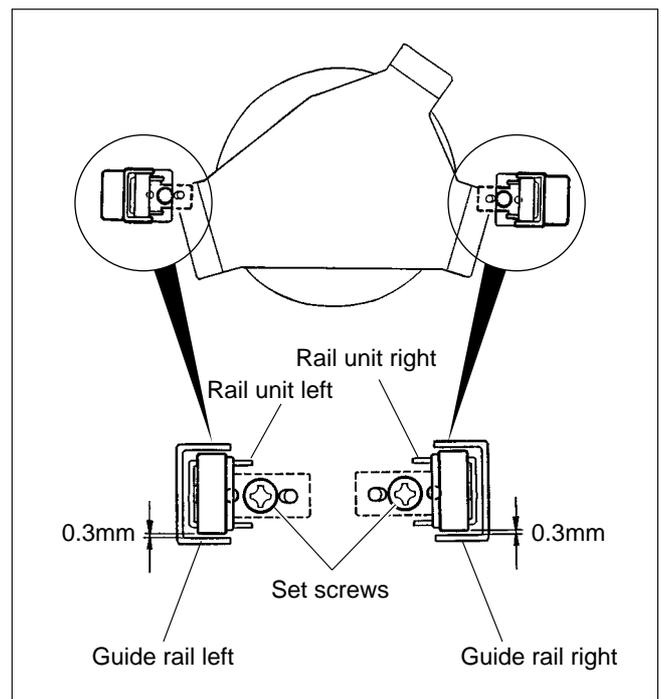
- 1) Attach the drum to the main body.
- 2) Loosen the set screw on the rail to adjust so that the gap between the rail (both sides) and the roller on the operation side is about **0.3mm**.
- 3) Tighten the set screw to fix the rail.



2. Rear side

Adjustment procedure

- 1) Open the rear cover on the main body.
- 2) Loosen the screws on the rail to adjust so that the gap between the roller on the rear side and the rail right / left unit is about **0.3mm**.
- 3) Tighten the screw to fix the rail.



8 Electrical system

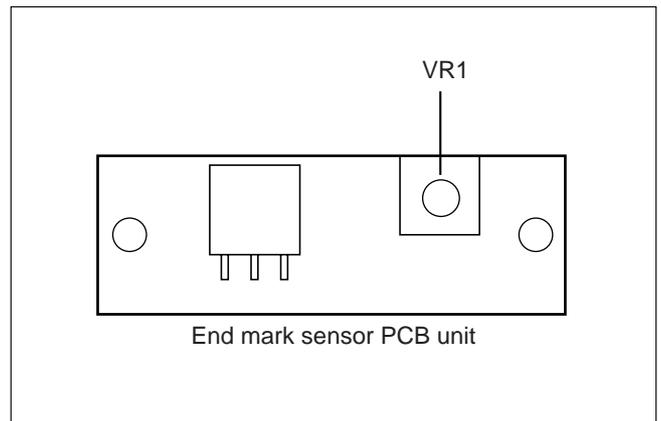
(1) VR Adjustment of End Mark PCB Unit

NOTE

- For description of operation. ➔See page 90
- For removal. ➔See page 177

Adjustment procedure

- 1) Turn the end mark PCB unit's VR1 counterclockwise as far as it will go.



- 2) Access HELP mode H-13. HELP mode H-13 ➔ see p.308

➔See page 287

For basic HELP mode procedures .

- 3) Press the PRINT ◊ key, and hold it down briefly. Then release it. When the key is released, a value between 0 and 63 will be displayed for the end mark sensor's light reception amount.

• End mark sensor's light reception amount:

This is normally in the region of $45 \leq$ displayed value ≤ 50 .

To correct the value:

• HELP mode H-13 display



End mark sensor light reception amount

(2) Adjusting Reduction / Enlargement

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

Adjustment procedure

1) Set the HELP mode.

Turn the power on with the speed keys "<" and ">" held down.

2) Set to H-30 (Test pattern printing mode). Press the PRINT key with the 3 and 0 keys held down.

HELP mode H-30 → see p.330

3) Set the printing darkness to standard, perform platemaking and print A3 paper. No need to place the document.

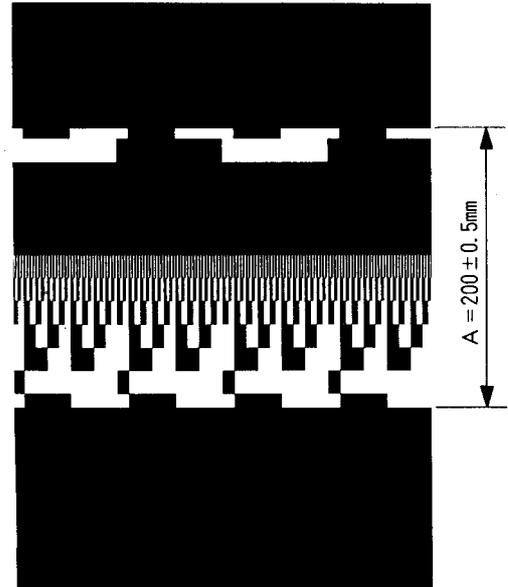
Standard values:

- Check that A section of the printed test pattern is $200 \pm 0.5\text{mm}$.

If the clearance is not the standard value:

1) If not, adjust with the H-22.

HELP mode H-22 → see p.322



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

Before adjustment

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

Adjustment procedure

1) Prepare a basic document as shown in the figure.

Draw a line at the position 30mm from the top end of the A3 paper and at the position 300mm from the above line.

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

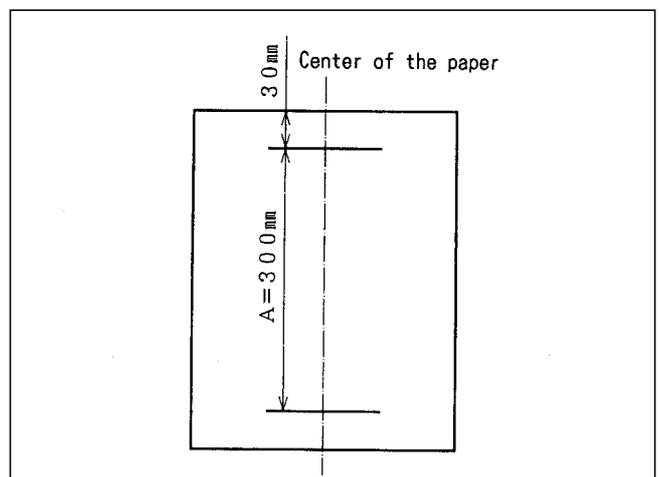
Standard values:

- Compare the size of A section of the printed image with that of the basic document. Check that the difference of the size is $\pm 2.0\text{mm}$.

If the clearance is not the standard value:

1) If not, adjust with the H-24.

HELP mode H-24 → see p.324



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

Adjustment procedure

- 1) Prepare a basic document as shown in the figure.
Draw a 200mm-line at the position 30mm from the top end of the A3 paper.
- 2) Place the basic document on the document table to perform platemaking and printing.

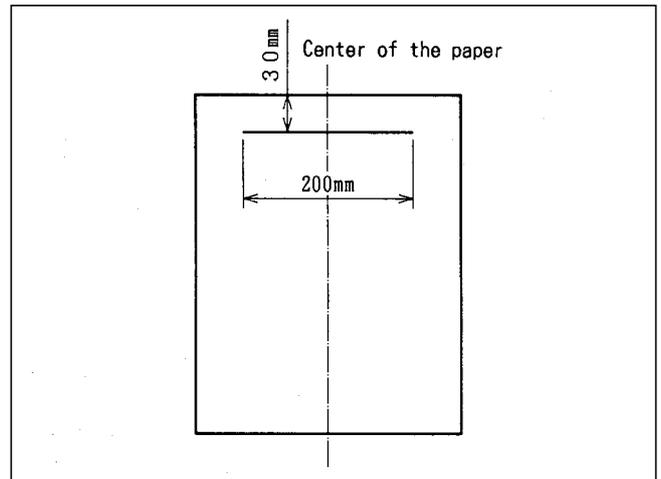
Standard values:

- Compare the size of A section of the printed image with that of the basic document. Check that the difference of the size is $\pm 2.0\text{mm}$.

If the clearance is not the standard value:

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

HELP mode H-49 → see p.346



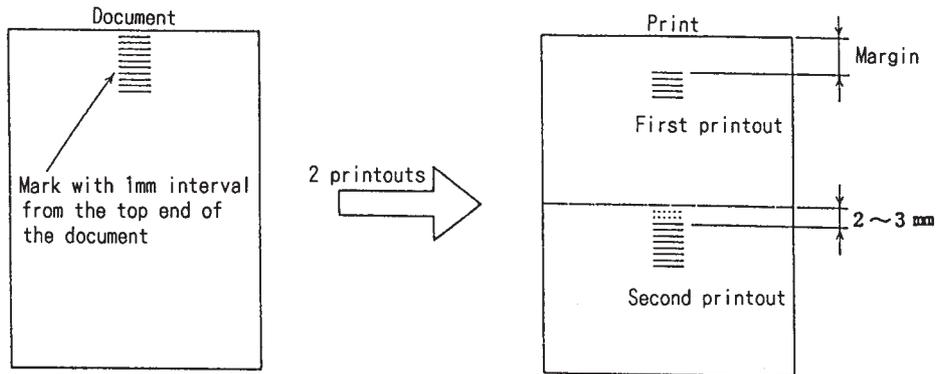
(3) Reading Start Position

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 platemaking and printing to the same size and to two printouts.
- 3) Adjust with the HELP35 so that the image of the second printout is printed with 3mm margin left.

HELP mode H-35 ➔ see p.335



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

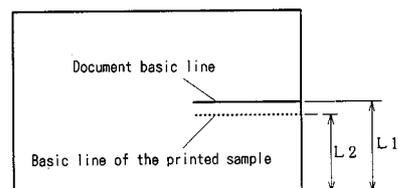
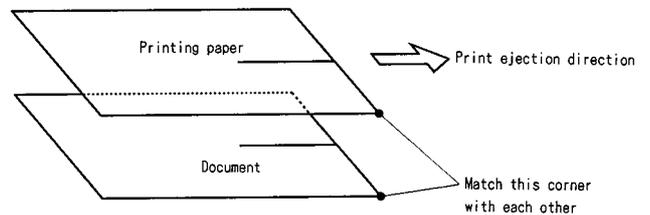
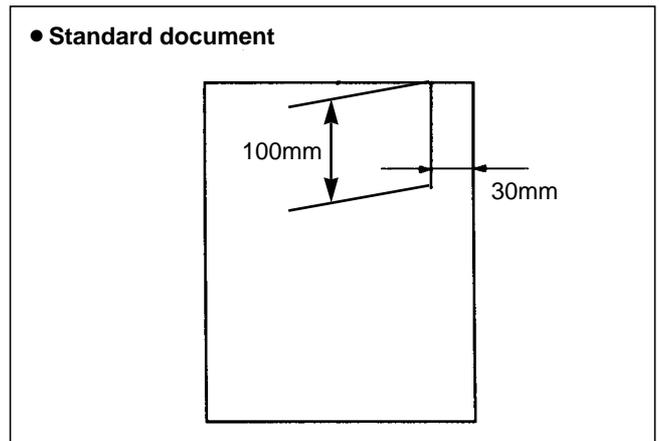
Adjustment procedure

- 1) Make a standard document (as shown in the figure) from a sheet of A3 paper. Draw a 100mm line at the position 30mm from the right end and from the top end of the A3 paper.
- 2) Compare the printed image with the basic document. Check the difference between the straight lines in the scanning direction.
- 3) Adjust with the HELP H-36 so that $L1 - L2 \leq \pm 3mm$.

HELP mode H-36 ➔ see p.336

Adjusting direction

- $L1 < L2$ / Backward
- $L1 < L2$ / Toward you



(4) Adjusting the Platemaking Start Position

1. When the Scanner Is in Use

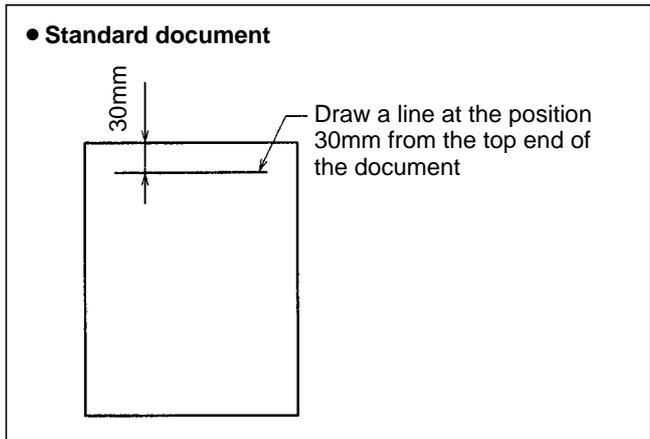
Before adjustment

IMPORTANT

- Adjust the platemaking start position with the scanner in use after the paper feed cam position [➔See page 224](#), printing position sensor [➔See page 225](#), plate attachment / detachment position [➔See page 227](#) and top end reading start position [➔See page 239](#) are adjusted.

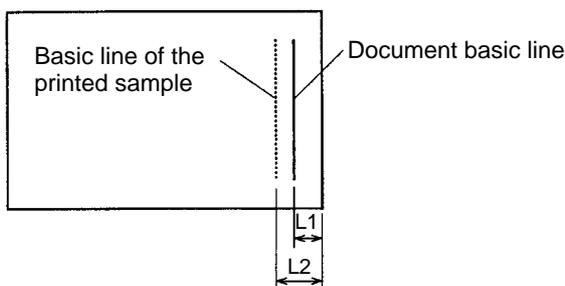
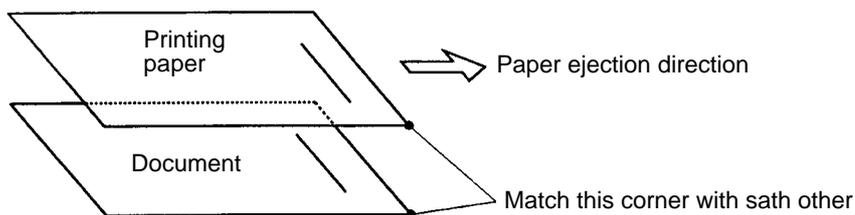
Adjustment procedure

- 1) Set the printing position (top and bottom direction) to the standard.
- 2) Draw a line at the position 30mm from the top end of the document and prepare a basic document as shown in the figure.
- 3) Compare the processed image with the basic document. Check the difference of the lines in the secondary-scanning direction.
- 4) Adjust with the HELP mode, H-37 so that $L1 - L2 \leq \pm 3\text{mm}$. [HELP mode H-37 ➔ see p.337](#)



Adjusting direction

- $L1 < L2$ / Upward
- $L1 > L2$ / Downward



2. When in Online

Before adjustment

IMPORTANT

- Adjust the platemaking start position when in online after the paper feed cam position [➔See page 224](#), printing position sensor [➔See page 225](#) and master attachment / detachment position [➔See page 227](#) are adjusted.

Adjustment procedure

- 1) Perform platemaking and printing of the online test pattern. Adjust with the HELP mode, H-16 so that the basic line is positioned $\pm 3\text{mm}$ from the top end of the paper. [HELP mode H-16 ➔ see p.313](#)

(5) Adjusting the Document Reading Darkness

NOTE

- For description of operation.

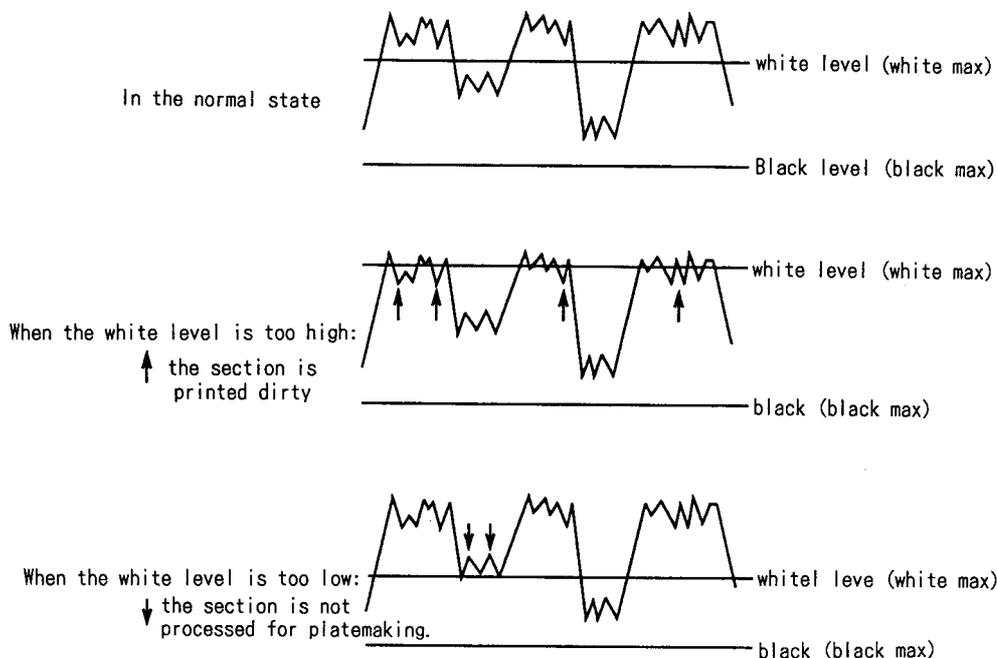
➔ See page 78

1. Adjusting the White Level of the Document Darkness

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

The document darkness is read in the normal state without the ADF when the document cover is closed to a certain extent from the open state (when half-opened).

When the ADF is in use, the document darkness is read without opening or closing the document cover. Therefore, there is a difference between the read values of the document darkness for both cases. (Especially the document is a thin type of paper and is rather translucent.)



Adjusting the White Level

1) Call the HELP mode.

Take the following procedures for adjustment:-

1. Text mode: H-33

HELP mode H-33 ➔ see p.334

2. Photograph mode: H-26

HELP mode H-26 ➔ see p.326

3. When the ADF is in use: H-25

HELP mode H-25 ➔ see p.325

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

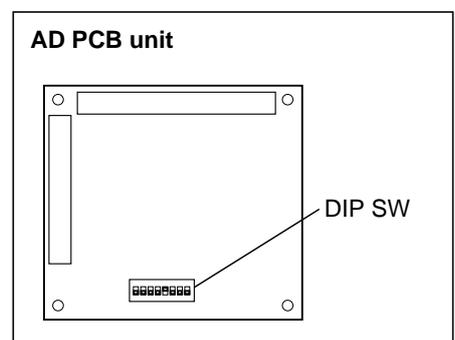
- When the processed document gets dirty : 0*** The white level is corrected down.

* When correction can not be effected: Set the AD PCB Unit's DIP switches to lower values than the current ones.

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

3) Press the \times key to memorize the correction value.

4) Perform platemaking and printing to check the darkness. Use the H-25 when the ADF is in use.



2. Adjusting the Reading Darkness

Adjustment procedure

Adjust the document reading darkness in platemaking as follows:

1) Help mode

Text mode : H-50 HELP mode H-50 → see p.347

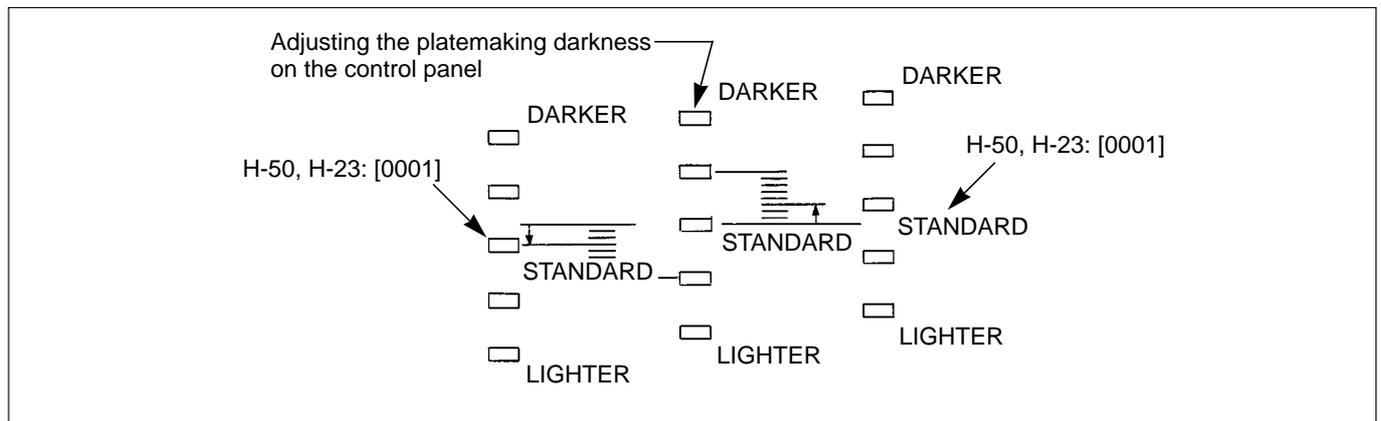
Photograph mode : H-23 HELP mode H-23 → see p.323

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

3) Press the \cong key to memorize the correction value

4) Perform platemaking and printing to check the darkness.

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



(6) Print Speed Adjustment

NOTE

- For removal.

➔See page 155

1. Pre-stop Speed Adjustment

Adjustment procedure

- 1) Access HELP mode H-01. HELP mode H-01 ➔ see p.291

For basic HELP mode procedures.

➔See page 287

- 2) Press the TEXT/PHOTOGRAPH  key repeatedly, to select TEXT . Then press the PLATEMAKING DARKNESS  key to select LIGHTER 2 .
- 3) Press the TEXT/PHOTOGRAPH  key repeatedly, to select PHOTOGRAPH .
- 4) Check the speed value displayed. The value should be 4-6rpm.

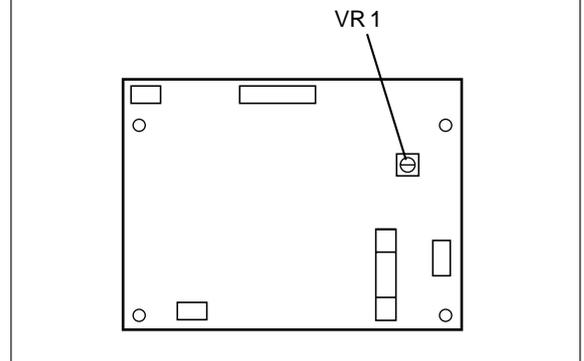
If the value is not correct:

- Turn the main motor PCB unit's VR1 to adjust the displayed value to within the correct range.
- 5) Press the STOP  key. The new (adjusted) value will be memorized, and the HELP mode menu will reappear.

• HELP mode H-01 display



Main motor PCB unit



2. JOG Speed Adjustment

HELP mode H-01 ➔ see p.291

Adjustment procedure

- 1) Access HELP mode H-01.

➔See page 287

For basic HELP mode procedures.

- 2) Press the TEXT/PHOTOGRAPH  key repeatedly, to select TEXT . Then press the PLATEMAKING DARKNESS  key to select LIGHTER 1 .
- 3) Press the TEXT/PHOTOGRAPH  key repeatedly, to select PHOTOGRAPH. .
- 4) Check the speed value displayed. The value should be 16rpm.

If the value is not correct:

- Use the [>] ("up") and [<] ("down") printing speed adjustment keys to adjust the displayed value to the correct value.
- 5) Press the STOP  key. The new (adjusted) value will be memorized, and the HELP mode menu will reappear.

• HELP mode H-01 display



3. Adjustment of Printing Speeds 1-5

Adjustment procedure

1) Access HELP mode H-01. HELP mode H-01 ➔ see p.291

For basic HELP mode procedures. ➔See page 287

- 2) Press the PLATEMAKING DARKNESS  key repeatedly to select STANDARD STD. Then use the [$<$] ("down") printing speed adjustment key to select SPEED 1.
- 3) Press the TEXT/PHOTOGRAPH  key repeatedly, to select PHOTOGRAPH .
- 4) Check the speed value displayed. The value should be **45rpm**.

● HELP mode H-01 display



If the value is not correct:

- Use the [$>$] ("up") and [$<$] ("down") printing speed adjustment keys to adjust the displayed value to the correct value.
- 5) Press the TEXT/PHOTOGRAPH  key repeatedly, to select an item other than PHOTOGRAPH  (i.e. TEXT  or TEXT/PHOTOGRAPH ).
 - 6) If desired, set the other printing speeds (2-5) by repeating steps 2) through 5) , and selecting the desired speed in step 2).
 - 7) (If setting the other speeds:) Check the speed values displayed. The values should be:
 - Speed 2 ... 67rpm ● Speed 4 ... 100rpm
 - Speed 3 ... 80rpm ● Speed 5 ... 120rpm

If the values are not correct:

- Use the [$>$] ("up") and [$<$] ("down") printing speed adjustment keys to adjust the displayed values to the correct values.
- 8) Press the STOP  key. The new (adjusted) value will be memorized, and the HELP mode menu will reappear.

HELP mode H-01 ➔ see p.293

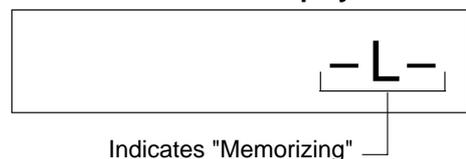
4. To Initialize Speed Settings:

1) Access HELP mode H-01. ➔See page 287

For basic HELP mode procedures.

- 2) Press the TEXT/PHOTOGRAPH  key repeatedly, to select PHOTOGRAPH . Then press the BOOK SHADOW ERASER  key, to turn it OFF.
- 3) Press the STOP  key. The speed values will be initialized, and the HELP mode menu will reappear.

● HELP mode H-01 display



NOTE

- After initialization, new speed values must be set.

(7) Ejection Belt Speed Adjustment

NOTE

- For removal.

➔ See page 191

1. Adjustment of Ejection Belt Speeds 1-5

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

HELP mode H-01 ➔ see p.291

For the basic procedure for accessing HELP modes

➔ See page 287

When the **PRINT**  key is pressed, the drum will rotate and the **DRUM SPEED (rpm)** will be displayed.

- 2) Use the [- 3) Press the **TEXT/PHOTOGRAPH**  key as many times as needed to select the **TEXT/PHOTOGRAPH**  item.
- 4) Use the [

- Ejection belt Speed 1 is now set to 115rpm.

- 5) Press the **TEXT/PHOTOGRAPH**  key to select an item other than **TEXT/PHOTOGRAPH**  (i.e. to select the **TEXT**  or the **PHOTOGRAPH**  item).
- 6) To set Speeds 2 through 5, repeat steps 2) through 5) above, substituting the appropriate speed for Speed 1 in step 2), and making the appropriate settings given below.
- 7) Settings for Speeds 2 through 5:
 - Ejection belt Speed 2: 135rpm
 - Ejection belt Speed 3: 150rpm
 - Ejection belt Speed 4: 175rpm
 - Ejection belt Speed 5: 200rpm
- 8) Press the **STOP**  key. The drum will stop rotating, the settings will be memorized, and the HELP mode selection display will reappear.

2. To Initialize Speed Settings:

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

HELP mode H-01 ➔ see p.293

For the basic procedure for accessing HELP modes

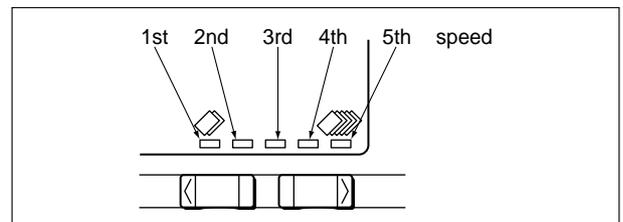
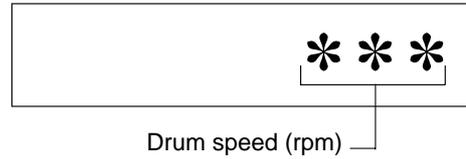
➔ See page 287

- 2) Press the **PHOTO DARK**  key. The adjusted speed settings will be cleared, and the HELP mode selection display will reappear.

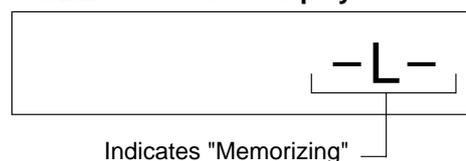
NOTE

- After clearing the settings, be sure to carry out readjustment of (i.e. make new settings for) ejection belt Speeds 1-5.

• HELP mode H-01 display



• HELP mode H-01 display

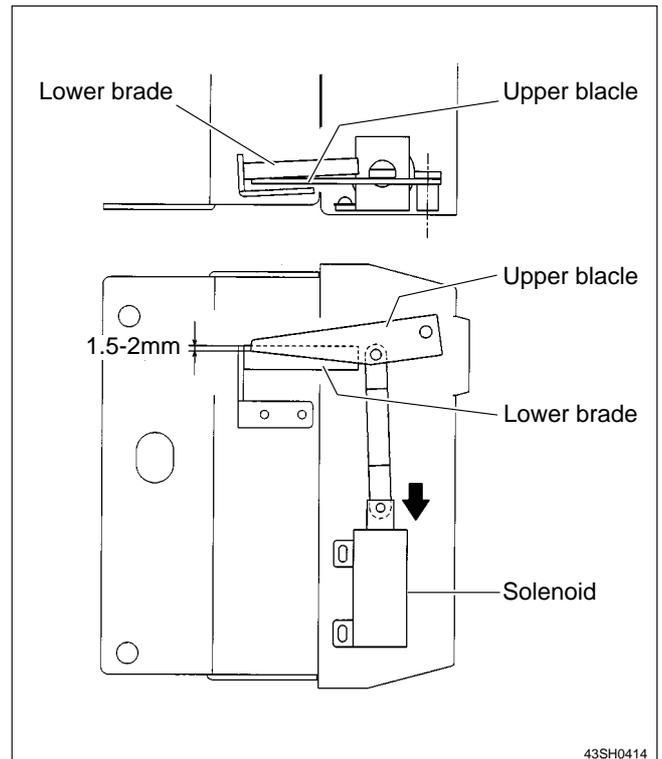


9 Option

(1) Adjusting and Replacing the Upper / Lower Blade for the Tape Cluster

Adjustment procedure

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



Chapter 5

Installation

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1 DUPRINTER Installation Instructions

1. Before Installation :

⚠ Safety precautions

- The precautions below are vital for safety and must be taken.



WARNING



- 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.
- ➔ Use of any other power cord could result in imperfect grounding. If grounding is imperfect and electrical leakage occurs, fire or electric shock could result.



- Do not use a source voltage other than that specified. Do not connect multiple loads to a single outlet. Fire or electrical shock can result.



- Do not place the machine in an unstable position, such as on an unsteady support or sloping area. If the machine drops or falls over, a person could get injured.



- Do not place the machine in a humid or dusty area. Fire or electrical shock can result.



- When installing the machine, set the caster locks. If the machine fall over, a person could get injured.

2. Installation Instructions

(1) Unpacking Checks

- 1 Packages for 1 complete DUPRINTER:
 - 1 printer unit package (product name: DP-63S)
 - 1 base unit package
 Check that the above 2 packages are present.
- 2 Unpack the various packages.

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

- 3 Contents checks for each package. Check that the packages have the contents listed below.

Printer unit package

Item	Quantity
Printer unit proper	1
Installation instructions	1
Operation Manual	1
Warranty	1
Master ejection core	1
Power cord	1

Base unit package

Item	Quantity
Base unit proper	1
Guide pin	2

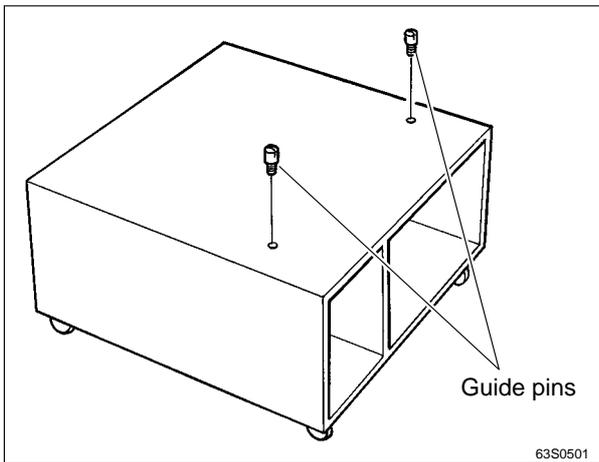
- * Check the unit's casters for abnormality.

(2) Assembly

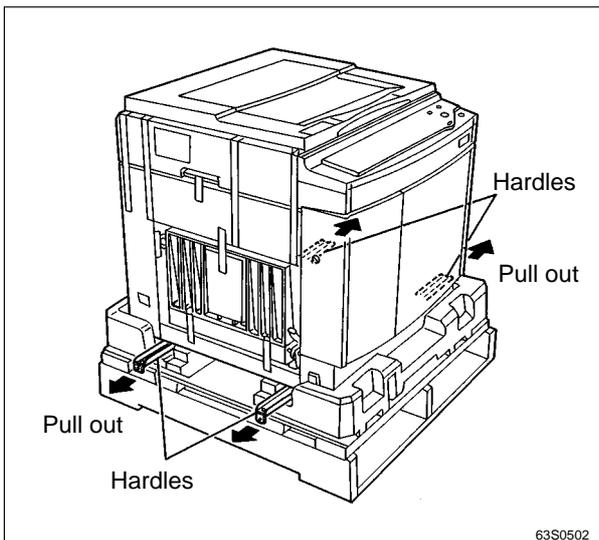
CAUTION

- To lift the printer unit, hold it by its handles **ONLY**. Lifting of the printer unit should be performed by 2 or more persons, not by 1 person alone. Otherwise, hands could get caught up or crushed.

- 1 Place the base unit on a flat, level surface.
- 2 Lock the base unit's casters.
- 3 Screw the 2 guide pins into the 2 holes in the base unit's top plate.



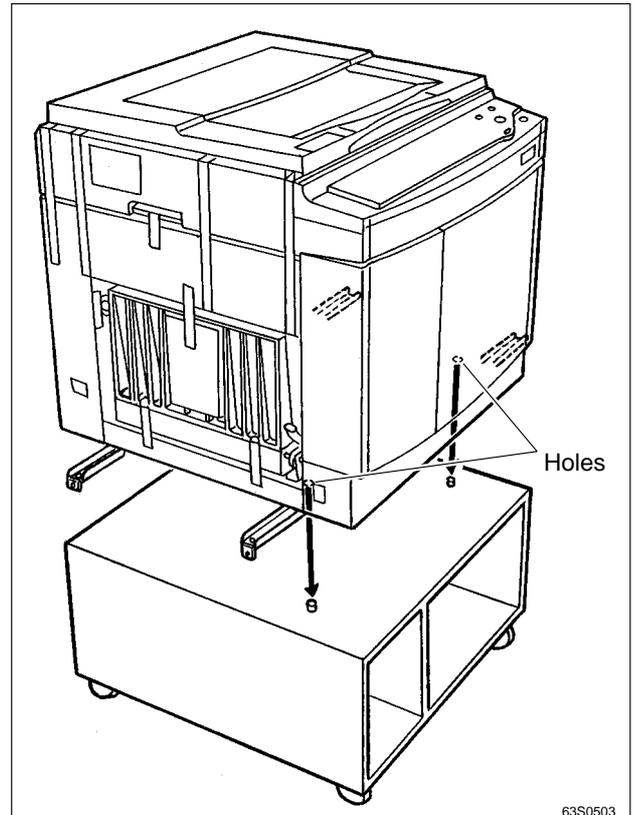
- 4 Pull out the printer unit's 4 handles.



- 5 Lift up the printer unit, and mount it onto the base unit so that the 3 guide pins on the base unit mate into the holes in the underside of the printer unit.

NOTE

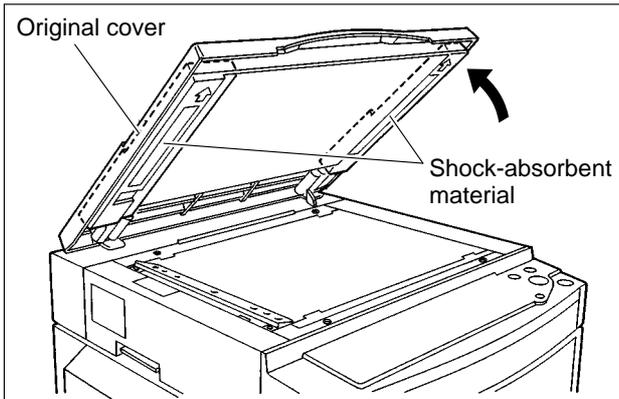
- It is easier to make the guide pins mate into the printer unit's holes if you first align the front and sides of the printer unit with those of the base unit.



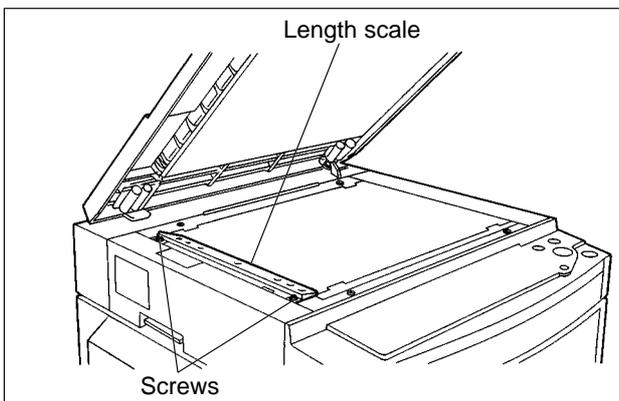
- * Make sure that the guide pins are properly mated into the holes. Then push all 4 handles back in.

(3) Removal of Fixing Tape

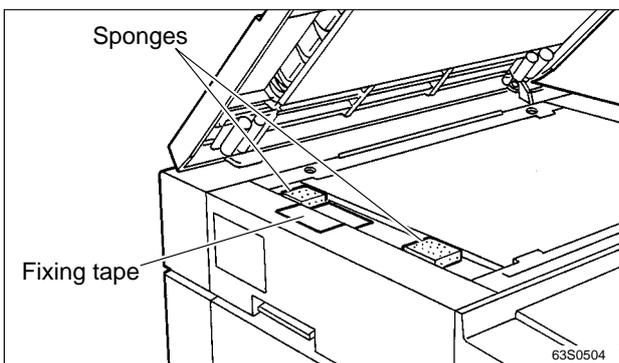
- 1 Gently lift up the original cover, and remove shock-absorbent material on both sides of the cover.



- 2 Remove the 2 screws fastening the length scale, and remove the length scale from the scanning unit.



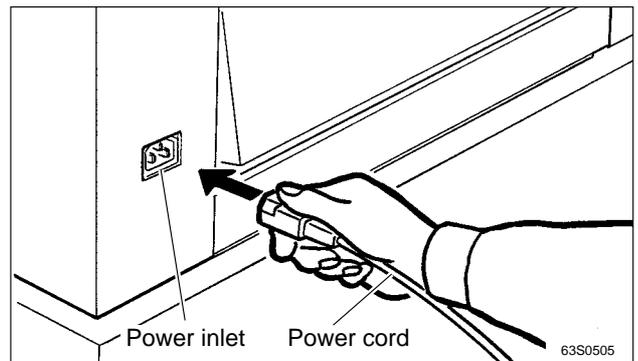
- 3 Remove the 2 sponges and fixing tape protecting the optical components, and reattach the length scale.



- 4 Remove all the remaining fixing tape.

(4) Power switch ON

- 1 Make sure that the power switch is OFF.
- 2 Insert the plug on one end of the power cord (one of the accessories) into the DUPRINTER's power inlet.



- 3 Insert the plug on the other end of the power cord into the power outlet.

120V AC model

! WARNING

- Connect the DUPRINTER to an outlet providing a 60Hz, 15A power supply of at least 120V.
- Insert the power cord's plug correctly into the outlet, so that electrical connection is effected completely.
- Position the DUPRINTER close to the power outlet. Do not connect multiple loads to a single outlet. If use of an extension cord is necessary: Extension cord should be of at least 130V, 15A specification, conform to standard, and not exceed 5m in length.
- The power cord should never be stepped on, or crushed between objects. If it is, accidents could result.

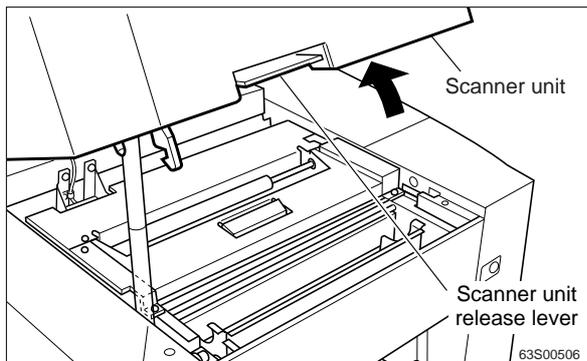
230V AC model**WARNING**

- **Connect the DUPRINTER to an outlet providing a 50Hz, 8A power supply of at least 230V.**
- **Insert the power cord's plug correctly into the outlet, so that electrical connection is effected completely.**
- **Position the DUPRINTER close to the power outlet. Do not connect multiple loads to a single outlet. If use of an extension cord is necessary: Extension cord should be of at least 250V, 8A specification, conform to standard, and not exceed 5m in length.**
- **The power cord should never be stepped on, or crushed between objects. If it is, accidents could result.**

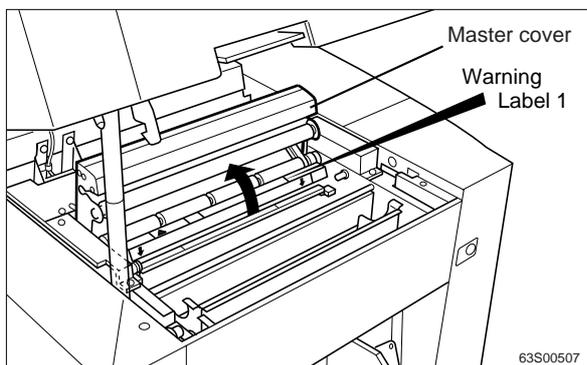
- ④ Turn the power switch ON.
- ⑤ Check the liquid crystal display on the operation panel.
 - **The display should function normally.**

(5) Setting the master roll

- 1 Grip the scanner unit release lever, and lift up the scanner unit.



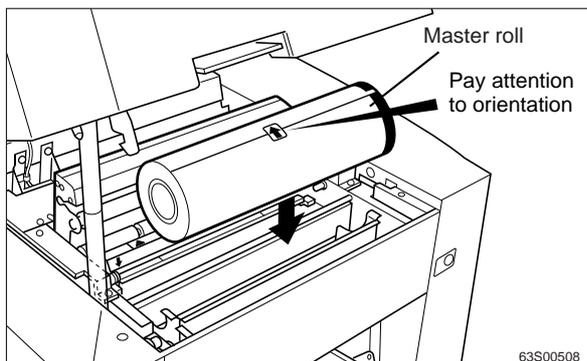
- 2 Open the master cover.



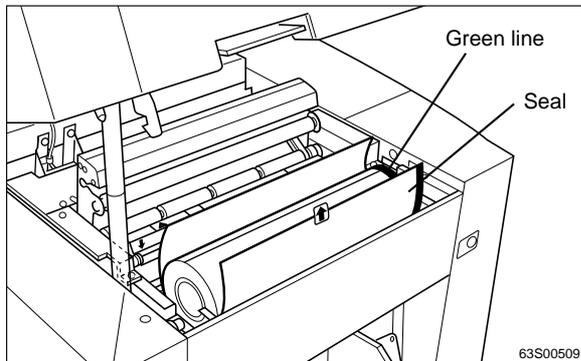
! WARNING

- Do not remove the cover affixed with Warning Label 1.
- Personnel can get injured by the movable cutter installed inside.

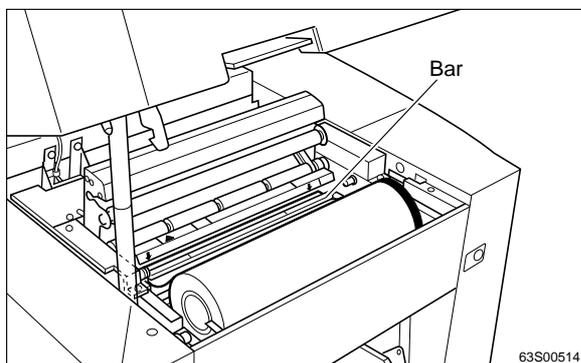
- 3 Pull the new master roll out of its bag, then insert it into the machine, making sure that its seal is correctly oriented.



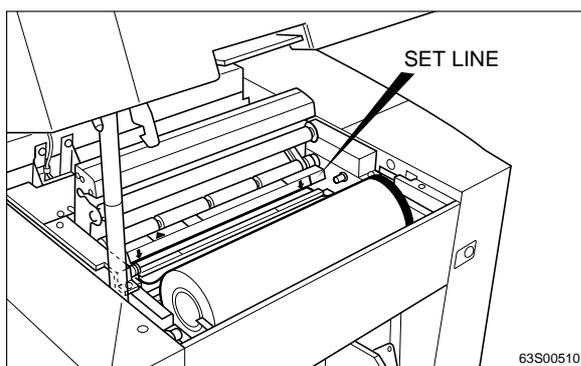
- 4 Peel off the seal. (First make sure that the end of the roll with the green line is at the control panel side.)



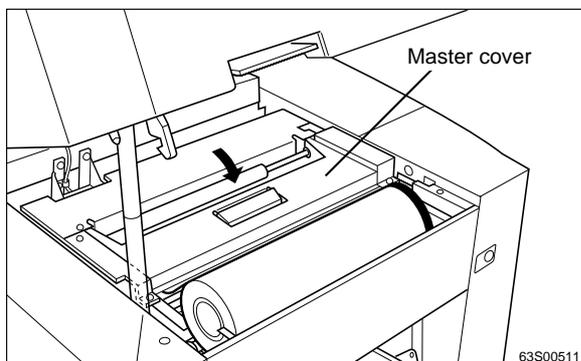
- 5 Pull out the master, and pass it under the bar.



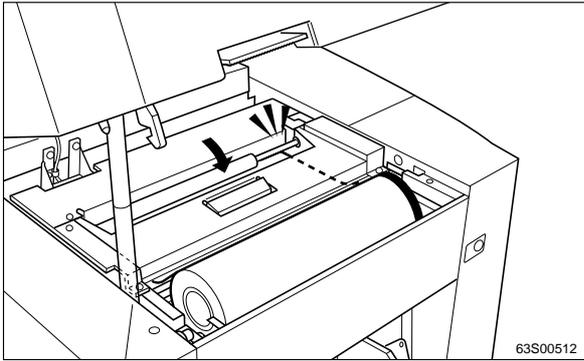
- 6 Push in the master, aligned with the set line, until the master's leading edge contacts the interior surface.



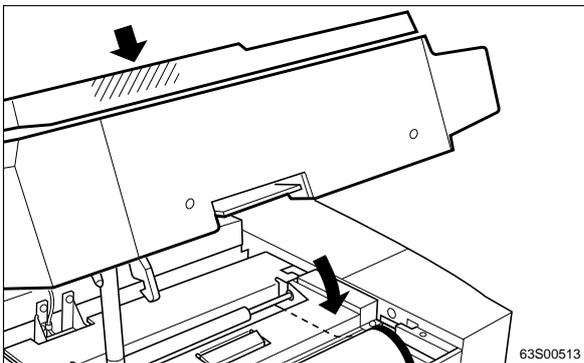
- 7 Close the master cover. The master will be fed, and stop, automatically.



- 8 Check that the master's leading edge is protruding.



- 9 Gently close the scanner unit. Push on the shaded portion until the lock is engaged.

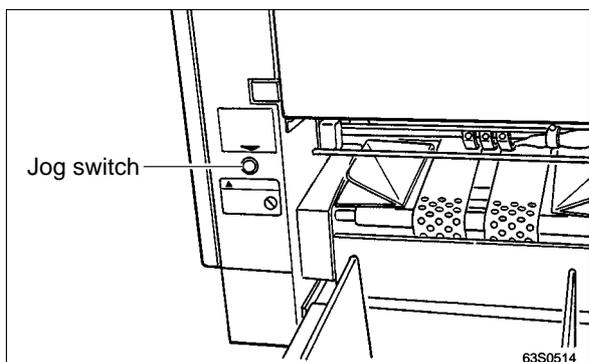


(6) Preparation of drum

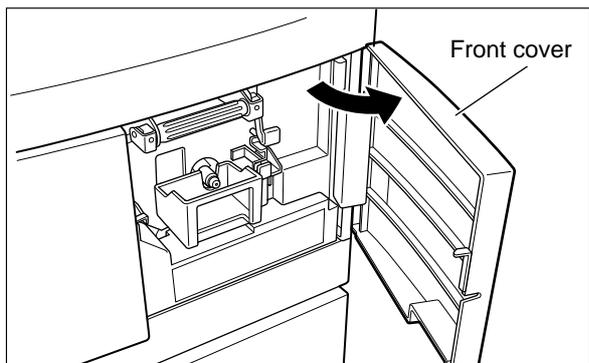
- 1 Press the jog switch (drum rotator switch).
Hold down until the drum stops with a beep.

! WARNING

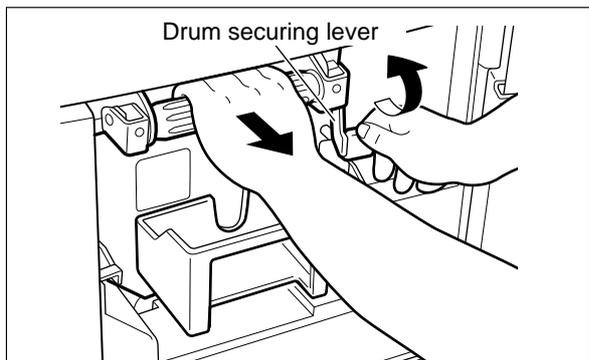
- Do not touch the drum or rollers when you operate the jog switch.
- Do not put hands inside machine while it is operating.
Hands could get caught up or crushed.



- 2 Open the front cover toward you.



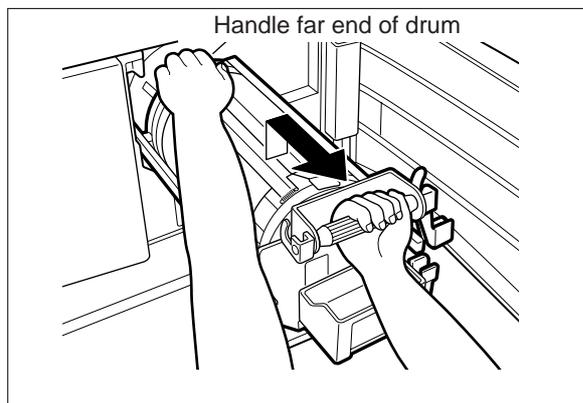
- 3 Lift up the drum securing lever.
While lifting the lever up, pull out the drum handle toward you, pulling it straight out until it stops.



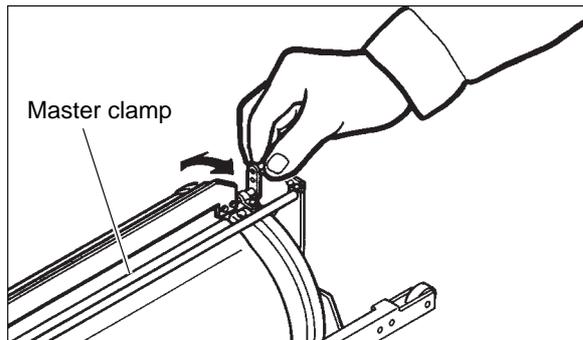
- 4 Grip the handle far end of drum, and pull the drum out toward you while slightly lifting the near end of the drum.

! CAUTION

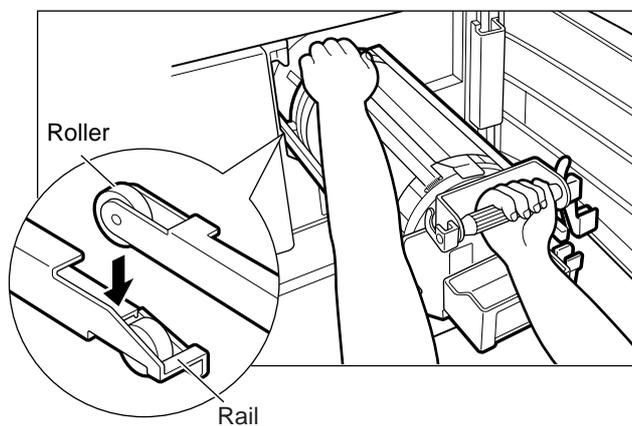
- Hold the drum level and place it on a flat, solid surface.
- The stainless screen does not return to the original state once it is folderd. Be careful to handle the screen.



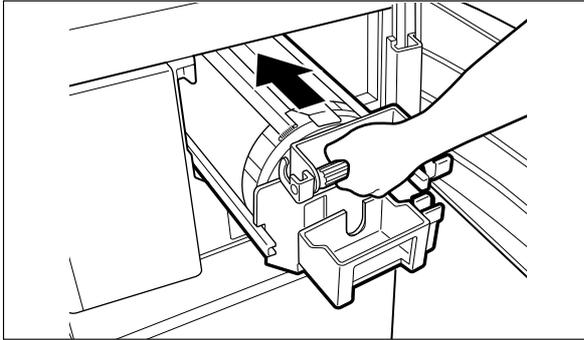
- 5 Move the lever with a hand to open and close the master clamp once or twice.



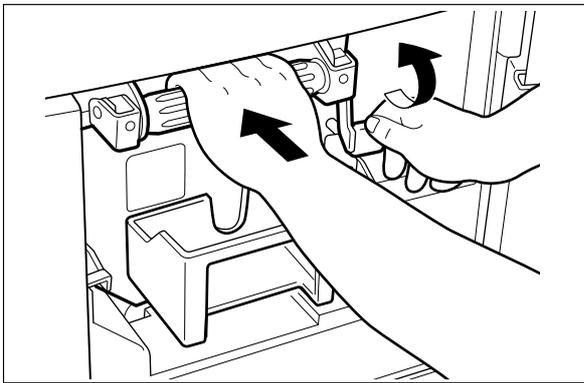
- 6 Hold the drum level and place the drum guide roller onto the rail in the machine.



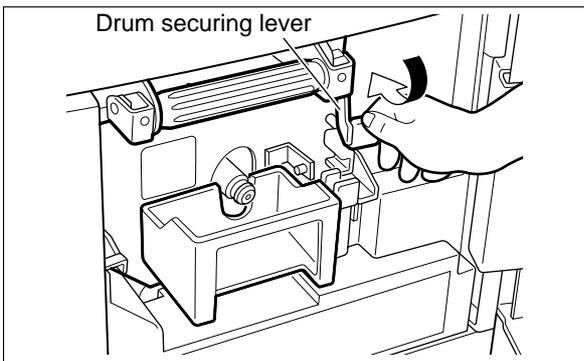
- 7 Let go of the handle far end of drum, and push the drum in about 10 cm while slightly lifting the near end of the drum.



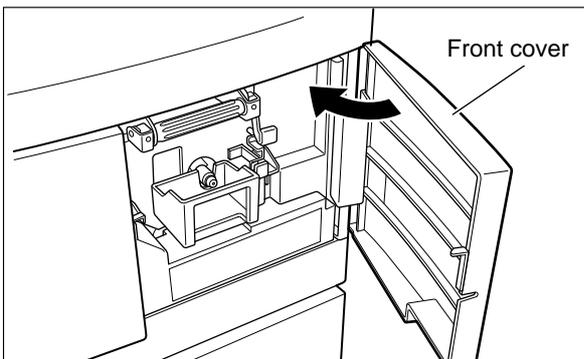
- 8 Hold the drum level and push it in gently until it stops.
 9 Lift the drum securing lever toward you while pushing the drum in.



- 10 Push down the securing lever tightly with the drum inside the machine.



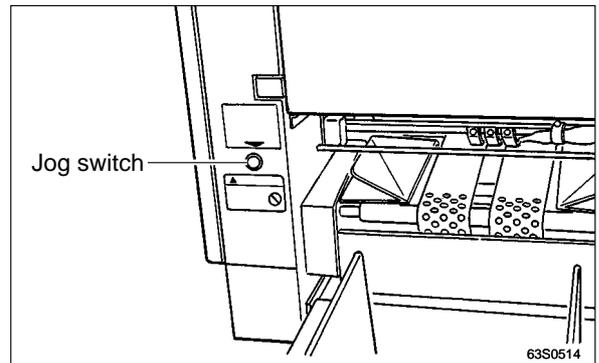
- 11 Close the front cover.



- 12 Press the jog switch (drum rotator switch).
 Continue pushing until the drum stops with a beep.

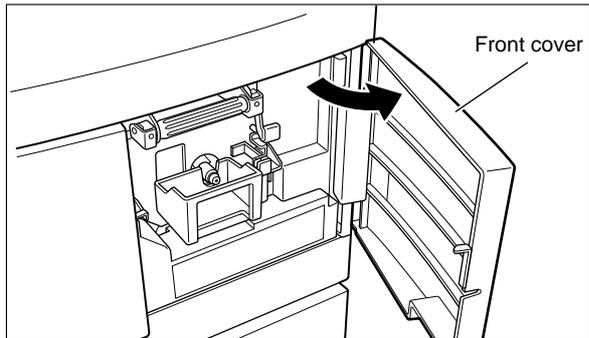
! WARNING

- Do NOT touch the drum or rollers when you operate the jog switch.
- Do NOT put hands inside machine while it is operating.
 Hands could get caught up or crushed.

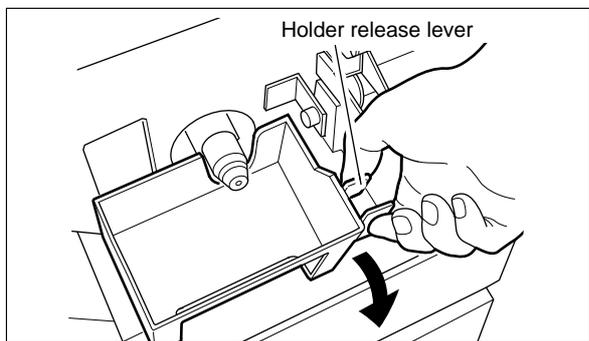


(7) Setting the ink pack

- 1 Open the front cover.



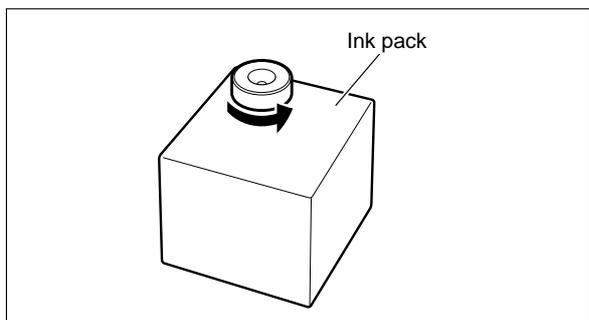
- 2 Hold the ink pack holder release lever and pull it toward you.



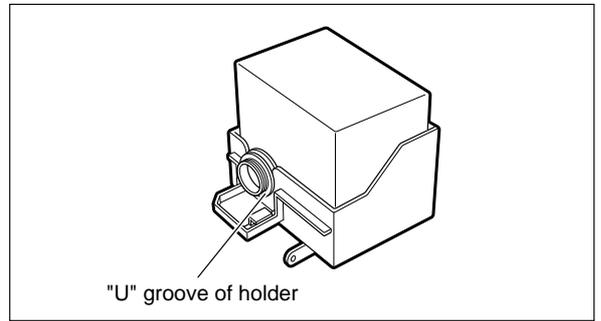
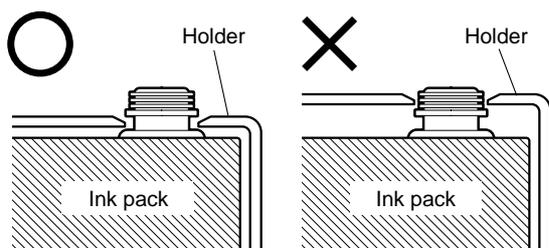
- 3 Twist open the cap of the new ink pack.

! CAUTION

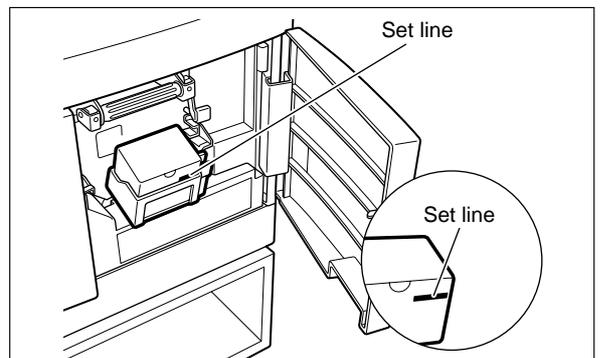
- Do not leave an uncapped INK PACK for a period longer than necessary.



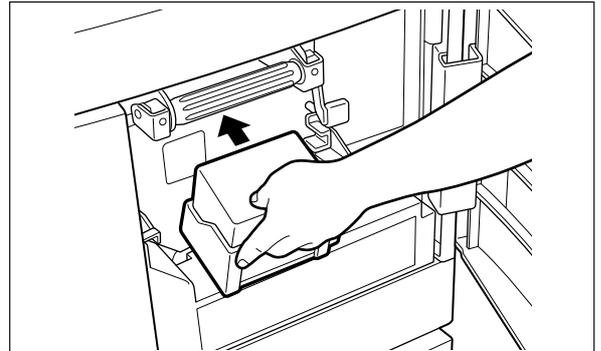
- 4 Insert the ink pack so that the groove on the LIP fits into the "U" groove of the holder.



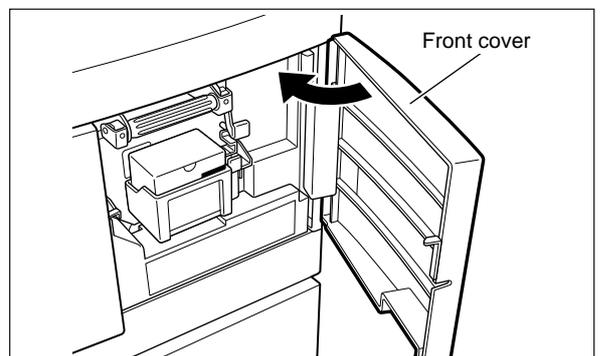
- 5 Push the ink pack to the set line on the ink pack.



- 6 Push the side of the holder in with the palm of your hand.



- 7 Close the front cover.



(8) Supplying Ink and Adjusting Ink Amount

1. Supplying Ink

- ① Invoke the HELP mode.
While holding down the Printing Speed Adjustment keys "<" and ">" simultaneously, turn the power on.
- ② Supply ink using HELP04.
Enter <0> <4> from the keypad and then press the Print  key.
Drum will begin to rotate while the ink pump starts operation. After completion of supplying ink, drum will stop rotating with continuous beep sounds.
In general, it takes approx.30 seconds to supply ink.
- ③ Turn the power OFF and then ON again.
- ④ Perform platemaking and printing of the document.

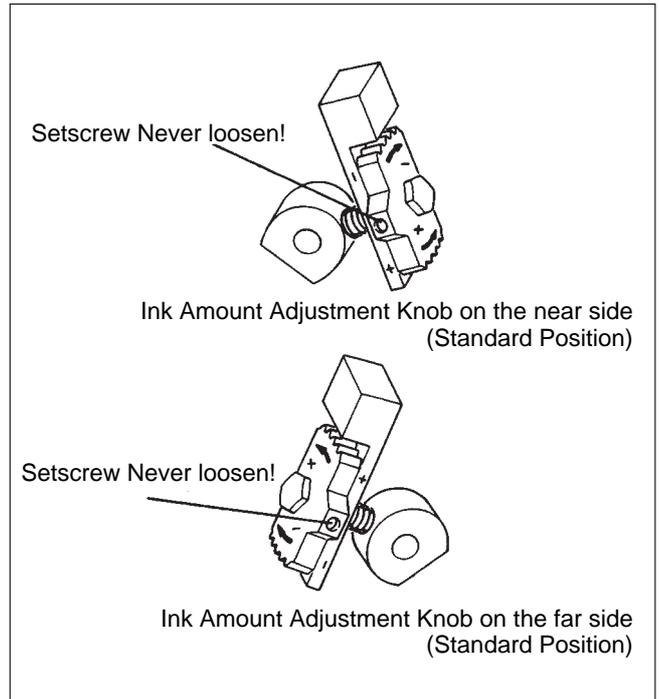
IMPORTANT : For more information, refer to "Platemaking and printing procedure" in the Instruction Manual.
The image will be light since ink is not fully spread over the drum surface. It is not a trouble. Continuously print approx.20 sheets.

- ⑤ Once ink is fully spread, check the printed image. If the density varies between the near and far areas of paper, make adjustment according to the "Adjusting Ink Amount".

2. Adjusting Ink Amount

- ① When the near area is darker or lighter, turn stepwise the Ink Amount Adjustment Knob on the near side in the "-" or "+" direction respectively (3 steps).
- ② When the far area is darker or lighter, turn stepwise the Ink Amount Adjustment Knob on the far side in the "-" or "+" direction respectively (3 steps).

- ③ When the whole area of paper is darker or lighter, turn stepwise the Ink Amount Adjustment Knob on both sides in the "-" or "+" direction respectively (3 steps).



IMPORTANT : The Ink Amount Adjustment Knob has a total of 7 positions : 3 positions for each of "-" and "+" directions as well as a standard position. When adjusting the image density, you should print the image on dozens of sheets to stabilize the density every time you change it by every step.
Repeat the above steps until you get desired print density.

(9) If Options are Installed

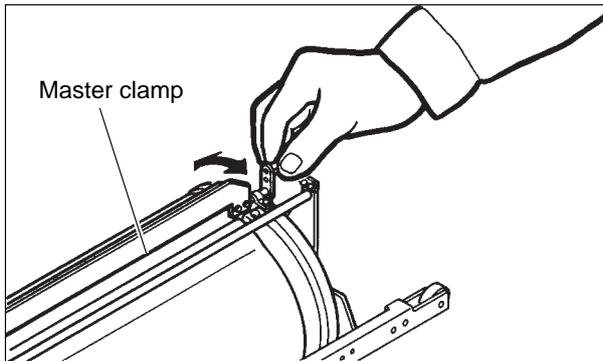
Optional equipment should be installed AFTER the machine itself has been installed and test-run to check that it functions normally. For the procedure for installing optional equipment, see the Installation Procedures supplied with it.

2 DRUM Unit Installation Instructions

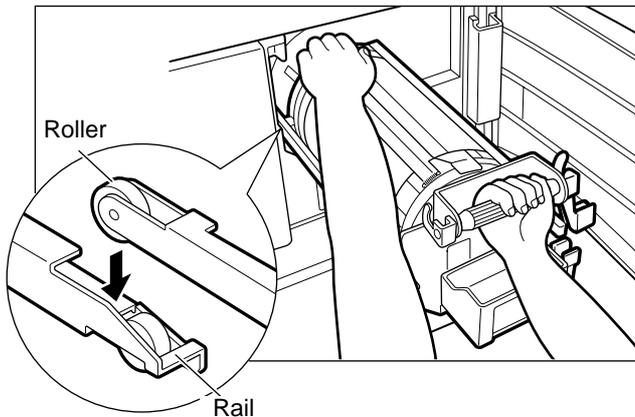
1. Installation Instructions

(1) Preparation of the Drum

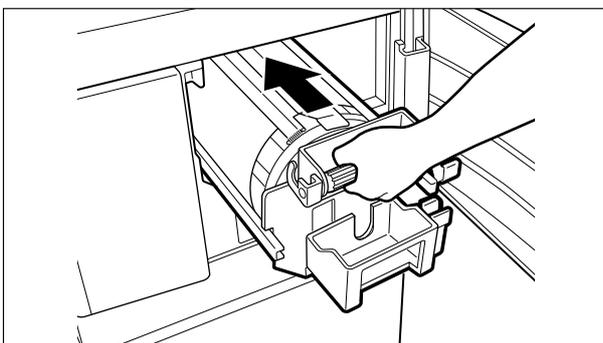
- 1 Move the lever with a hand to open and close the master clamp once or twice.



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

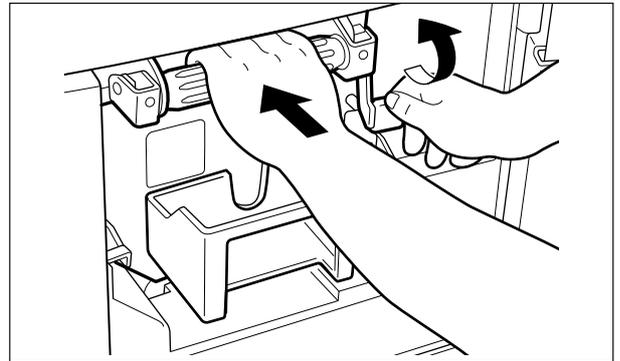


- 3 Let go of the handle far end of drum, and push the drum in about 10 cm while slightly lifting the near end of the drum.

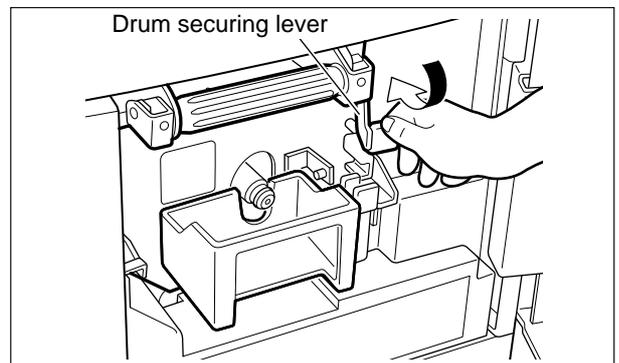


- 4 Hold the drum level and push it in gently until it stops.

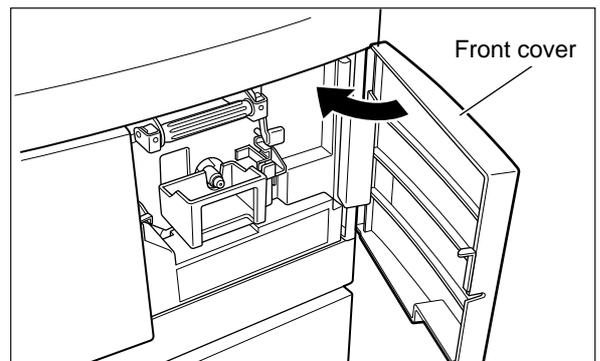
- 5 Lift the drum securing lever toward you while pushing the drum in.



- 6 Push down the securing lever tightly with the drum inside the machine.



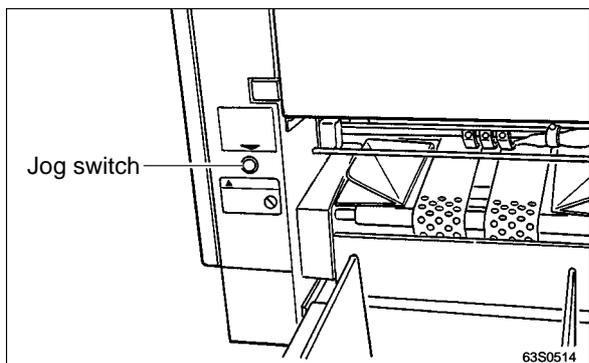
- 7 Close the front cover.



- 8 Press the jog switch (drum rotator switch).
Continue pushing until the drum stops with a beep.

! WARNING

- Do NOT touch the drum or rollers when you operate the jog switch.
- Do NOT put hands inside machine while it is operating.
Hands could get caught up or crushed.

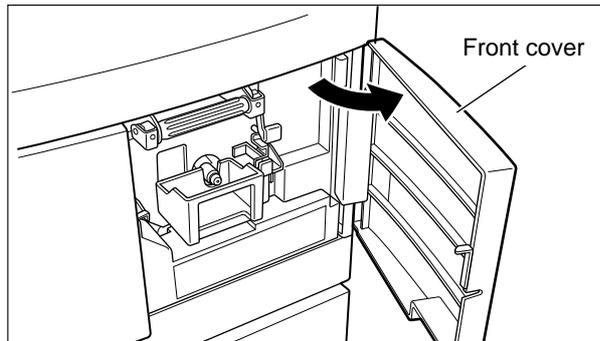


! CAUTION

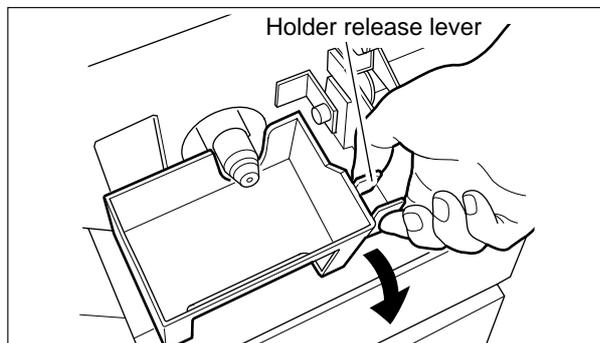
- Be sure to handle the DUPRINTER with both hands and keep it level.
- The DUPRINTER is a complex piece of machinery ; handle it gently.

(2) Setting the Ink Pack

- 1 Open the front cover.



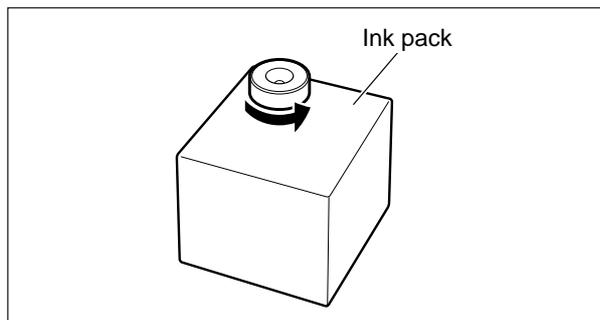
- 2 Hold the ink pack holder release lever and pull it toward you.



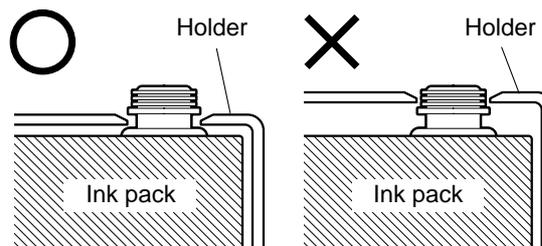
- 3 Twist open the cap of the new ink pack.

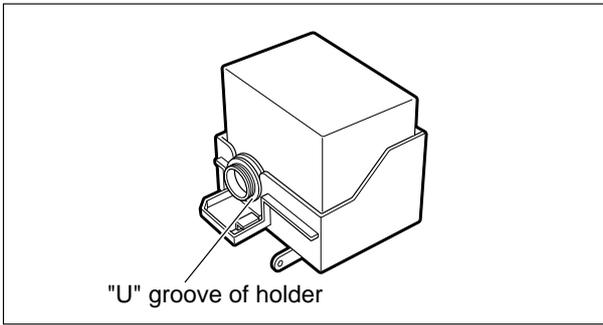
! CAUTION

- Do not leave an uncapped INK PACK for a period longer than necessary.

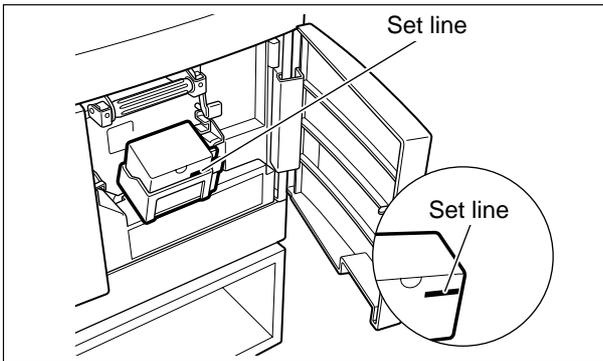


- 4 Insert the ink pack so that the groove on the LIP fits into the "U" groove of the holder.

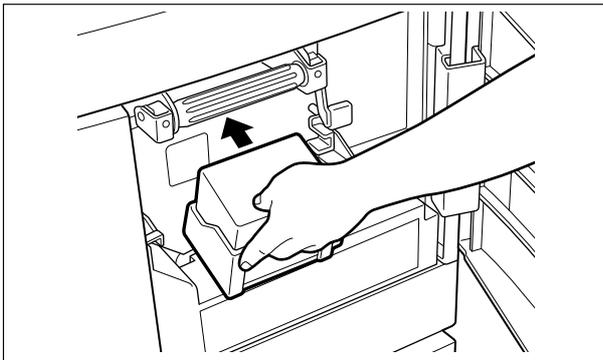




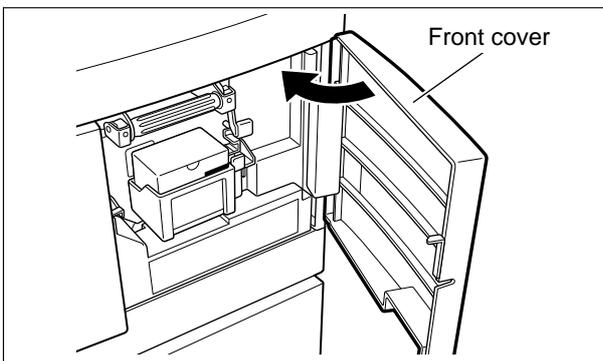
- 5 Push the ink pack to the set line on the ink pack.



- 6 Push the side of the holder in with the palm of your hand.



- 7 Close the front cover.



(3) Supplying Ink and Adjusting Ink Amount

1. Supplying Ink

- 1 Invoke the HELP mode.
While holding down the Printing Speed Adjustment keys "<" and ">" simultaneously, turn the power on.
- 2 Supply ink using HELP04.
Enter <0> <4> from the keypad and then press the Print  key.
Drum will begin to rotate while the ink pump starts operation. After completion of supplying ink, drum will stop rotating with continuous beep sounds.
In general, it takes approx. 30 seconds to supply ink.
- 3 Turn the power OFF and then ON again.
- 4 Perform platemaking and printing of the document.

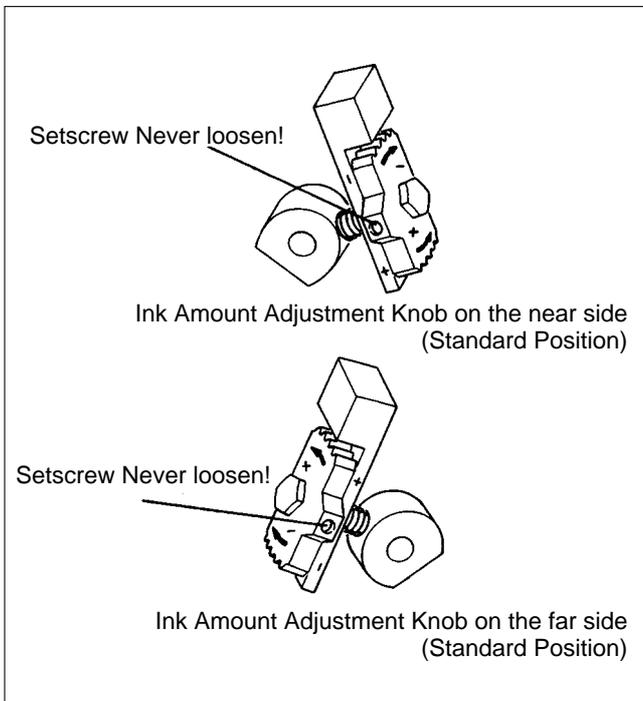
IMPORTANT : For more information, refer to "Platemaking and printing procedure" in the Instruction Manual.

The image will be light since ink is not fully spread over the drum surface. It is not a trouble. Continuously print approx. 20 sheets.

- 5 Once ink is fully spread, check the printed image. If the density varies between the near and far areas of paper, make adjustment according to the "Adjusting Ink Amount".

2. Adjusting Ink Amount

- ① When the near area is darker or lighter, turn stepwise the Ink Amount Adjustment Knob on the near side in the "-" or "+" direction respectively (3 steps).
- ② When the far area is darker or lighter, turn stepwise the Ink Amount Adjustment Knob on the far side in the "-" or "+" direction respectively (3 steps).
- ③ When the whole area of paper is darker or lighter, turn stepwise the Ink Amount Adjustment Knob on both sides in the "-" or "+" direction respectively (3 steps).



IMPORTANT : The Ink Amount Adjustment Knob has a total of 7 positions: 3 positions for each of "-" and "+" directions as well as a standard position. When adjusting the image density, you should print the image on dozens of sheets to stabilize the density every time you change it by every step. Repeat the above steps until you get desired print density.

3 KEYCARD COUNTER 3 Installation Procedure

1. Before Installation :

● Cautions for Installation

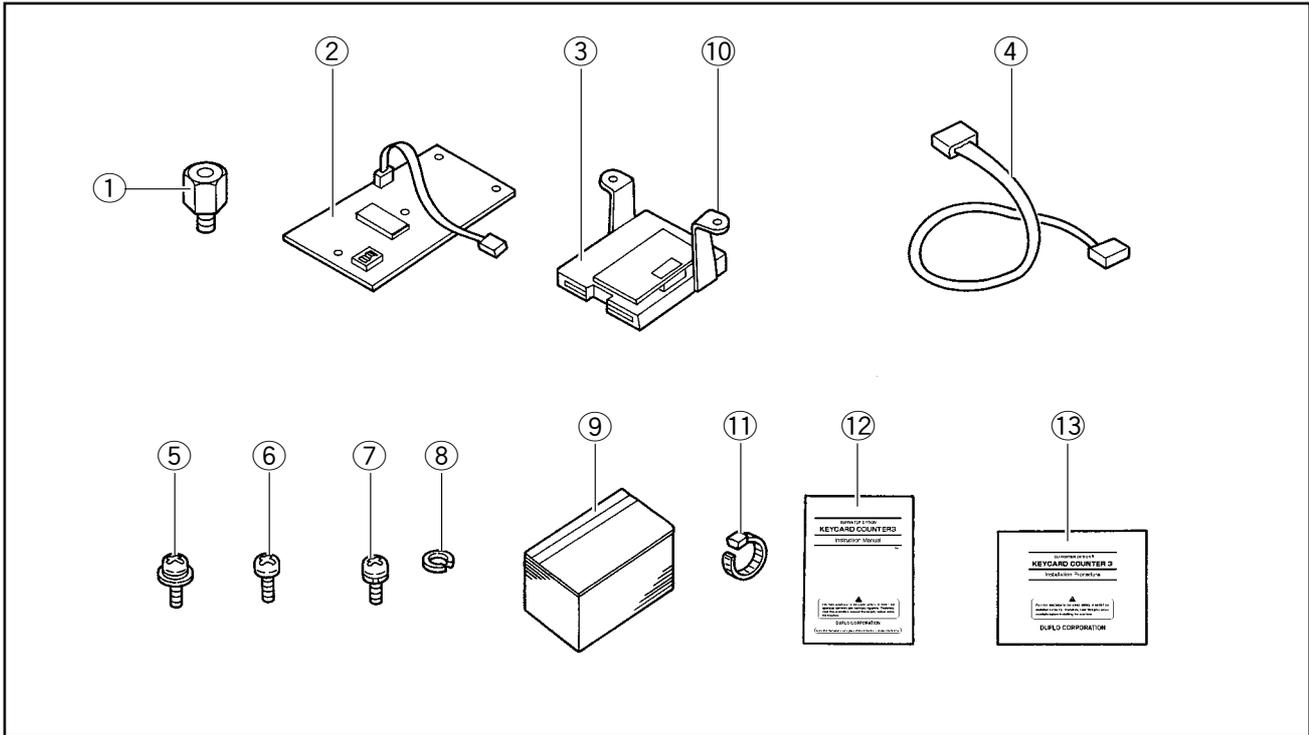
Observe the following when installing the KEYCARD COUNTER 3 to the DUPRINTER:

- **Install the KEYCARD COUNTER 3 after installation of the DUPRINTER is complete.**
- **Remove the DUPRINTER power cable's plug from the outlet before installing the KEYCARD COUNTER 3.**
- **Be sure to install the various screws in the correct places.**

2. Installation Procedure

(1) Package Contents and Options

1. Package Contents



No.	Part	Q'ty	Remarks
①	Spacers	4	
②	KEYCARD COUNTER 3 P.C.B unit	1	
③	Card reader unit	1	
④	KEYCARD COUNTER 3 cabled wire unit	1	
⑤	Screws (M3x6, with SPW)	2	
⑥	Screws (M3x6)	4	
⑦	Screws (M4x6, with SPW)	2	
⑧	Spring washers	4	
⑨	Keycards	33	30 department cards AA01-AA30 1 RESTRICTION card, 1 CLEAR card and 1 TOTAL card
⑩	Angle	1	For installation to card reader unit
⑪	Insch Lock	1	For fastening cabled wire
⑫	Instruction Manual	1	
⑬	Installation Procedure	1	

2. Options

- Department cards AA31-AA200
- Department cards BB31-BB200

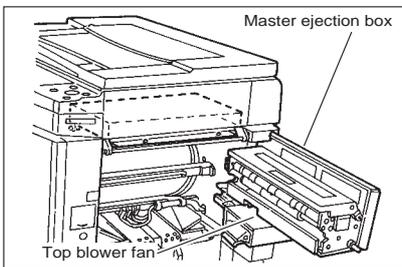
*Order these cards separately, if they are required.

(2) Installation of KEYCARD COUNTER 3 Cabled Wire Unit

! WARNING

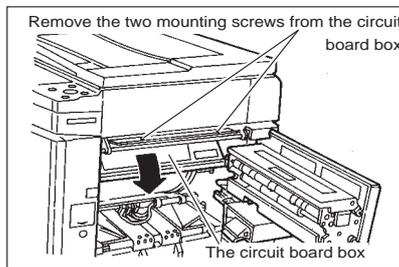
- Remove the DUPRINTER power cable's plug from the outlet before installing this unit.

- 1** Push down the master ejection box release lever. Then, keeping the lever pushed down, pull the master ejection box and top blower fan out as far as they will go.



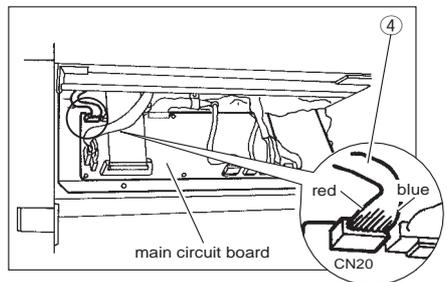
- 2** Remove the two mounting screws from the circuit board box. Then lower the circuit board box downward.

*Retain the two circuit board box mounting screws, as they will be reused later.



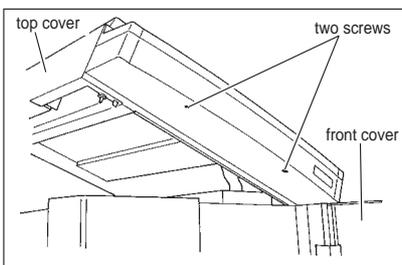
- 3** Insert the connector of the KEYCARD COUNTER 3 cabled wire unit (4) into CN20 in the main circuit board.

*Orient the connector correctly. Viewed from behind when it is pointed at the main circuit board prior to insertion, its red pin should be on the left, and its blue pin on the right.

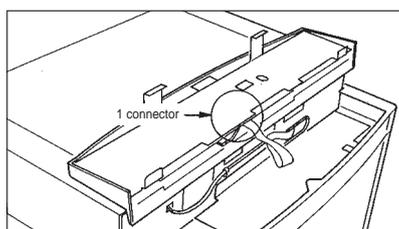


- 4** Open the front cover, lift up the top cover release lever, and lift up the top cover. Then remove the two screws from the underside of the operation panel.

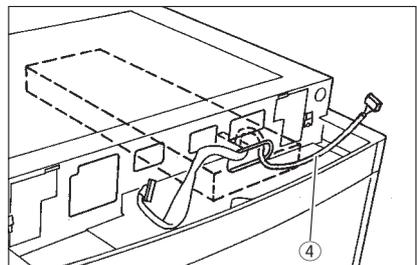
*Retain the two operation panel mounting screws, as they will be reused later.



- 5** Slightly raise up the upper half of the operation panel. Then disconnect the following connectors:
DP-63S : the single connector shown below.



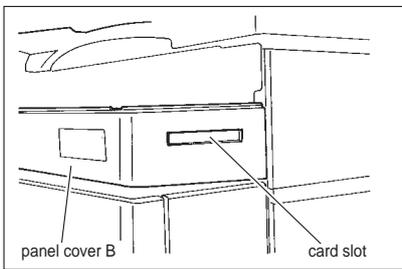
- 6** Pass the cabled wire unit's other connector through the opening in the top of the circuit board box, then out through the opening in the end of the scanner unit.



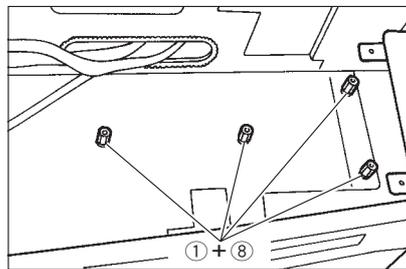
- 7** Check once again that the orientation of the connector that was connected to the main circuit board in step 3 is correct. Provided it is, close the circuit board box and secure the box with the two mounting screws removed earlier.

(3) Installation of KEYCARD COUNTER 3

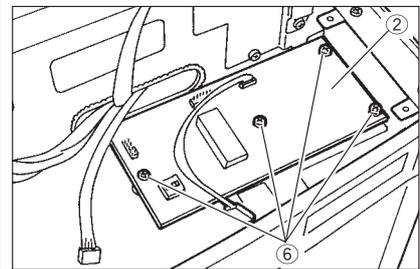
1 Eliminate the card slot in panel cover B, by cutting it out with a cutter or similar tool.



2 Fit the spring washers (8) onto the four spacers (1). Then install the spacers to the bracket.

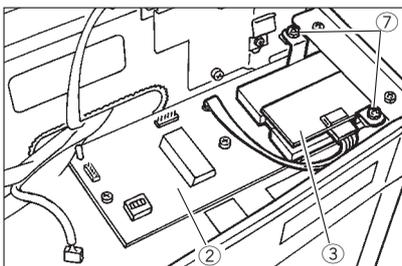


3 Install the KEYCARD COUNTER 3 P.C.B unit (2), and secure it with the M3x6 screws (6).



4 Insert the cabled wire connectors attached to the KEYCARD COUNTER 3 P.C.B unit (2) into the card reader unit (3). Then install the card reader unit to bracket R, and secure it with the M4x6 screws with SPW (7).

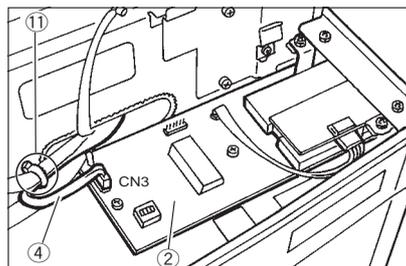
***Be sure to insert the cabled wire connectors into the correct places, with the correct pin color orientations.**



5 Insert the connector(s) of the KEYCARD COUNTER 3 cabled wire unit (4) into CN3 of the KEYCARD COUNTER P.C.B unit (2).

Be sure to orient the connector(s) correctly when inserting it/them.

***If there is a surplus connector, fasten it to the panel cord with the insch lock (11).**



6 Check that the KEYCARD COUNTER P.C.B unit (2), card reader unit (3), and KEYCARD COUNTER 3 cabled wire unit (4) are correctly installed.

***Securely reconnect the panel cord connector, which was removed in step 5. Then install the operation panel, making sure that it does not pinch the panel cord or other cords.**

7 Replace all the covers.

Installation is now complete.

4 A4 DRUM Installation Procedure

1. Setting use of A4 DRUM :

- ① Set HELP mode H-63 to " **1* "

HELP mode H-63 → See page 358

This setting enables use of an A4 drum. See the procedure appended to this manual for instructions on how to use an A4 drum.

- ② Carry out steps 1 through 8 of the drum unit installation instructions.

→ See page 258

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1 Troubleshooting Guide

1. Countermeasures for the Defective Image

(1) Countermeasures for the Defective Image

When the image is defective, the detective section can be assumed by performing platemaking and printing of the test pattern with the HELP mode (H-30).

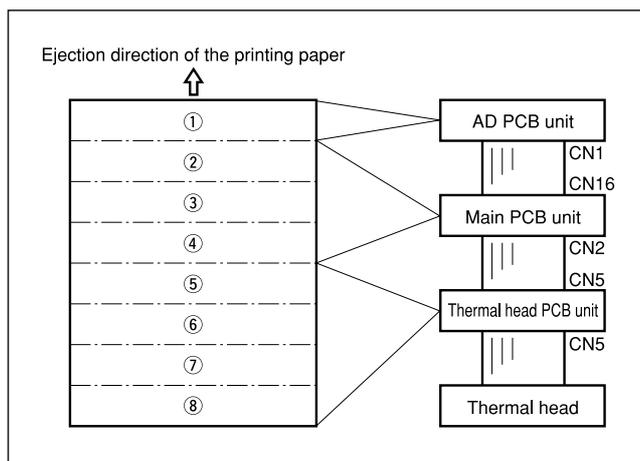
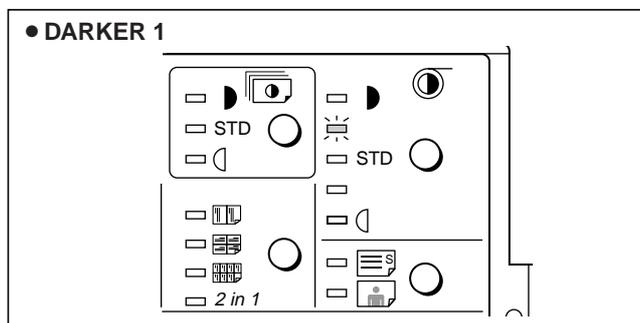
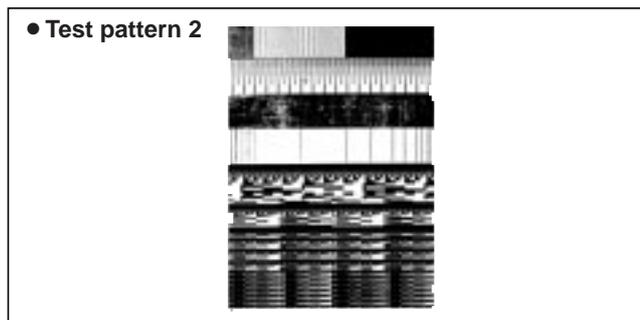
HELP mode H-30 → see p.330

1. Printing the test pattern

- 1) Turn the power on with both speed keys "<" and ">" held down.
- 2) Input the "3" and "0" on the keypad and press the print  key.
- 3) Press the platemaking darkness  key to set to DARK1.
- 4) Perform platemaking and print on the A3 paper.

2. Checking

- When the test pattern is divided into 8 equal parts in the secondary scanning direction, each part is composed of the following PCB Unit.
- Assume the defective section by checking the normally processed part. The following are the criteria.



▶ Platemaking is not performed at all.

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Thermal head	1	Is replacing the thermal head a suitable countermeasure?	Yes	Finish
Thermal head PCB Unit	2	Is replacing the thermal head PCB Unit a suitable countermeasure?	Yes	Finish
Regulated power supply			No	Check the bundled wire and connector and replace the regulated power supply.

▶ ⑦-⑧, ⑥-⑧ or ⑧ only can be performed platemaking.

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Thermal head PCB Unit	1			Replace the thermal head PCB Unit.

▶ ⑤-⑧ can be performed platemaking.

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Main substrate	1	Is replacing the main PCB Unit a suitable countermeasure?	Yes	Finish
Thermal head PCB Unit			No	Check the bundled wire and connector and replace the thermal head.

▶ ④-⑧ or ③-⑧ can be performed platemaking.

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Main PCB Unit	1			Replace the main PCB Unit.

▶ ②-⑧ can be performed platemaking.

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
AD substrate	1	Is replacing the AD PCB Unit a suitable countermeasure?	Yes	Finish
Main PCB Unit			No	Check the bundled wire and connector and replace the main PCB Unit.

▶ All the parts can be performed platemaking.

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
The document cover (ADF conveyance belt) is dirty.	1	Is the cause cleared by cleaning the document cover (ADF conveyance belt)?	Yes	Finish
The shading plate is dirty.	2	Is the cause cleared by cleaning the shading plate on the back side of the vertical size nameplate?	Yes	Finish
The mirror or glass is dirty.	3	Is the cause cleared by cleaning the mirror or glass?	Yes	Finish
Lamp	4	Is the lamp lit?	No	Refer to "The lamp does not light up". <div style="border: 1px solid black; padding: 2px; display: inline-block;">➡ See page 270</div>
AD PCB Unit	5	Is the cause cleared by replacing the AD PCB Unit?	Yes	Finish
CCD PCB Unit			No	Check the bundled wire and connector and replace the CCD PCB Unit.

2. Countermeasures for the Defective Operation

(1) The lamp does not Light Up

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Measure the voltage between the regulated power supply, CN2-1 (+) and CN3-21(GND) with the tester. Is it +24V?	No.	Follow the procedure (6).
Drive PCB Unit	2	Measure the drive PCB unit CN3-19 (+) and CN2-2(GND) with the tester. Is it +24V?	No	Replace the drive PCB Unit.
	3	Does the lamp light up when the drive PCB unit CN3-20 produces a short circuit to GND?	Yes	Follow the procedure (5).
Lamp	4	Is the cause cleared by replacing the lamp?	Yes	Finish
Inverter PCB Unit			No	Replace the inverter PCB Unit.
Drive PCB Unit	5	Is the cause cleared by replacing the drive PCB Unit?	Yes	Finish
Main PCB Unit			No	Replace the main PCB Unit.
Regulated power supply	6	Remove the regulated power supply, CN2, 3 and 5 and follow the procedure (1). Is the voltage +24 V?	No	Check the first side bundled wire connector. if it is OK, replace the regulated power supply.
	7	Is the voltage +24 V when the regulated power CN2 is supplied at the procedure (5)?	Yes	Follow the procedure 10.
ADF	8	Is the voltage +24 V when the regulated power CN2 is supplied at the procedure (5)?	Yes	24 V produces a short-circuit to GND at the ADF or ADF relay bundled wire.
Thermal head	9	Is the cause cleared by replacing the thermal head?	Yes	Finish
Thermal head PCB Unit			No	The thermal head PCB Unit is defective.
Motors	10	Remove the drive PCB Unit CN2 and follow the procedure (1). Is the voltage +24V? (CN1 is inserted)	Yes	+24V produces a short-circuit to GND at the CN2 or the motors.
Motors	11	Remove the drive PCB Unit CN3 and follow the procedure (1). Is the voltage +24V? (CN1 and 2 are inserted)	Yes	+24V produces a short-circuit to GND at the CN3 or the motors.
Drive PCB Unit			No	Replace the drive PCB Unit.

(2) The Optical System Does 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.
	3	Measure the voltage between the regulated power supply, CN2-1 (+) and CN2-2(GND) with the tester. Is it +24 V?	No	Follow the procedure (6).
Drive PCB Unit	4	Is the cause cleared by replacing the drive PCB Unit?	Yes	Finish
Main PCB Unit	5	Is the cause cleared by replacing the main PCB Unit?	Yes	Finish
Optical system stepping motor			No	Check the bundled wire and connector. Replace the optical system stepping motor.
Regulated power supply	6	Remove the regulated power supply, CN2, 3 and 5 and follow the procedure (3). Is it +24V?	No	Check the first side bundled wire connector. If OK, replace the regulated power supply.
	7	Follow the procedure (6) and insert the regulated power supply, CN2. Is the voltage +24V?	Yes	Follow the procedure (10).
ADF	8	Follow the procedure (6) and insert the regulated power supply, CN3. Is the voltage +24V?	Yes	At the ADF or ADF relay bundled wire, 24V produces a short-circuit to GND.
Thermal head	9	Is the cause cleared by replacing the thermal head?	Yes	Finish
Thermal head PCB Unit			No	The thermal head PCB Unit is defective.
Motors	10	Remove the drive PCB Unit CN2 and follow the procedure (3). Is the voltage +24V? (CN1 is inserted)	Yes	At the CN3 bundled wire or motors +24V produces a short-circuit to GND.
Motors	11	Remove the drive PCB Unit CN3 and follow the procedure (3). Is the voltage +24V? (CN1 and 2 are inserted.)	Yes	CN3 bundled wire or motors produces a short-circuit to GND.
Drive PCB Unit			No	Replace the drive PCB Unit.

(3) The Master is not Cut

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the cutter operate?	No	Follow the procedure (4).
HELP setting	2	Does cutter execute reciprocating motion in each platemaking operation?	No	Set [*1**] with HELP55*.
Master creased	3	Are there creases/sags in master?	Yes	Depress PUSH lever to eliminate creases.
Cutter sharpness			No	Replace the cutter unit.
Cutter unit	4	Measure the voltage at the cutter motor terminals when the cutter is activated. Is it 23V?	Yes	Replace the cutter unit.
Regulated power supply	5	Measure voltage between CN2-1 (+) and CN-2 (GND) of the regulated power supply. Is it +24V?	No	Replace the regulated power supply.
Drive PCB unit	6	Does replacing the drive PCB unit solve the problem?	Yes	Finish
Main PCB			No	Check the connector and bundled wire. If OK, replace the main PCB.

* HELP mode H-55 ➡ see p.353

(4) E001 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does the drum rotate?	No	Follow the procedure (5).
Main PCB Unit	2	Check the encoder sensor (PS7) with the HELP mode (H-06)*. Is it normal?	Yes	Check the encoder sensor position. If it is OK, replace the main PCB Unit.
Encoder sensor	3	Is the cause cleared by replacing the encoder?	Yes	Finish
Main motor PCB Unit	4	Is the cause cleared by replacing the main motor PCB Unit?	Yes	Finish
Main PCB Unit			No	Replace the main PCB Unit.
The drum interferes with the main body.	5	Does the main motor rotate when the drum is removed?	Yes	Remove the interference.
Driving gear is damaged and there is a foreign object.	6	Does the main motor rotate when the driving timing belt is removed?	Yes	Check that the driving gear is damaged and there is a foreign object. If any, remove the cause.
Main PCB Unit	7	Does the main motor rotate at the before-stop speed when the motor PCB Unit CN3-8 produces a short circuit to GND?	Yes	Check the bundled wire and connector. If OK, replace the main PCB Unit.
Main motor PCB Unit	8	Is the cause cleared by replacing the main motor PCB Unit?	Yes	Finish
Main motor			No	Replace the main motor.

* HELP mode H-06 ➡ see p.299

(5) E002 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Feed tray operation is defective	1	Does the elevator motor work when the chain is removed from the feed tray?	Yes	Remove the cause of defective operation. Lean or catch?
	2	Check with the HELP modes, H-06, H-07. Are the elevator top limit sensor and the elevator bottom limit switch normal?	No	<ul style="list-style-type: none"> Follow the procedure (6) when the elevator top limit sensor is defective. Follow the procedure (8) when the elevator bottom limit sensor is defective.
Regulated power supply	3	Remove the drive PCB Unit CN2. Measure the voltage between the regulated power supply, CN1-1(+), CN1-2 (GND) with the tester. Is the voltage +24 V?	No	Replace the regulated power supply.
Elevator motor	4	Measure the voltage between the main PCB Unit CN3-1 (GND) and CN3-2 (+) with the tester at the timing of the elevator motor operation. Is the voltage +24V whether the elevator motor relay connector is inserted or not?	Yes	Replace the elevator.
Drive PCB Unit	5	Is the cause cleared by replacing the drive PCB Unit?	Yes	Finish
Elevator motor			No	Replace the elevator motor.
Main PCB Unit	6	Measure the voltage between the main PCB Unit CN6-2 (+) and GND with the tester. Is the voltage of the elevator top limit sensor 0V at the time of photopassing and 5V at the time of photointerrupting?	Yes	Replace the main PCB Unit.
Main PCB Unit	7	Measure the voltage between the main PCB Unit CN6-1 (+) and CN6-3 (GND) with the tester. Is the voltage +5V?	Yes	Replace the main PCB Unit.
Elevator top limit sensor			Yes	Replace the elevator top limit sensor.
Elevator bottom limit SW	8	Check the elevator bottom limit switch with the tester. Is the switch turned on or off normally?	No	Replace the elevator bottom limit SW.
Main PCB Unit			Yes	Replace the main PCB Unit.

(6) E003 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Master jams.	1	Does the master jam on the cutter unit?	Yes	Remove the jammed master.
Wire or timing belt is cut.	2	Are the wire and timing belt on the cutter unit attached properly?	No	Attach the wire and timing belt properly.
	3	Check the cutter limit with the HELP mode H-07*. Is the cutter limit normal?	Yes	Follow the procedure (5).
Cutter limit	4	Check the cutter limit switch with the tester. Is the switch turned on or off normally?	No	Replace the cutter limit (on the rear side or front side).
Main PCB Unit			Yes	Check the bundled wire and connector. If OK, replace the main PCB Unit.
Regulated power supply	5	Remove the drive PCB Unit CN2. Measure the voltage between the regulated power supply CN2-1 (+) and CN2-2 (GND) with the tester. Is the voltage +24V?	No	Regulated power supply.
Cutter motor	6	Check the voltage of the drive PCB Unit CN2-17, CN2-18 with the tester when the cutter motor relay connector is inserted or removed. Is the voltage +24V when the cutter motor is moved to OPEN by the cutter limit? (+ or - reverse rotation depending on the cutter motor operation direction)	Yes	Replace the cutter motor.
Drive PCB Unit	7	Is the cause cleared by replacing the drive PCB Unit?	Yes	Finish
Cutter motor			No	Replace the cutter motor.

* HELP mode H-07 → see p.300

(7) E004 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Lamp	1	Is lamp lit?	No	See "The lamp Does not Light Up". → See page 270
Optical system	2	Does the lamp advance to below the shading plate?	No	See "The Optical System Does not Move Forward/Backward". → See page 271
Shading plate	3	Is the shading plate correctly installed?	No	Install the shading plate correctly.
AD PCB	4	Does replacing the AD PCB clear the error?	Yes	Finish
CCD PCB			No	Adjust CCD PCB position, or replace CCD PCB.

(8) E005 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does ink roller motor turn when it is checked using HELP01*?	Yes	Follow the procedure (5).
Ink roller rise/descent motor	2	Using a tester, measure the voltage between CN2-5 (+) and CN2-6 (GND) when the ink roller motor is activated using HELP01. Is it +23V?	Yes	Check the bundled wire. If OK, replace the ink roller rise/descent motor.
Regulated power supply	3	Measure voltage between CN2-1 (+) and CN-2 (GND) of the regulated power supply. Is it +24V?	No	Replace regulated power supply.
Drive PCB unit	4	Does replacing the drive PCB unit solve the problem?	Yes	Finish
Main PCB			No	Check the connector and bundled wire between the drive PCB unit CN5 and the main PCB CN11. If OK, replace the main PCB.
Ink roller rise/descent switch position	5	Turn the ink roller rise/descent switches on and off, and use HELP13 to check it. Is on/off switching normal?	Yes	Adjust ink roller rise/descent switch position.
Ink roller rise/descent switches	6	Turn the ink roller rise/descent switches on and off, and use a tester to measure voltage. Is voltage normal?	No	Replace ink roller rise/descent switches.
Main PCB			Yes	Check the bundled wire. If OK, replace the main PCB.

* HELP mode H-01 → see p.290

(9) E006 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Does contact pressure motor turn when it is checked using HELP01*?	Yes	Follow the procedure (5).
Contact pressure motor	2	Using a tester, measure the voltage between CN2-5 (+) and CN2-6 (GND) when the contact pressure motor is activated using HELP01*. Is it +23V?	Yes	Check the bundled wire. If OK, replace the contact pressure motor.
Regulated power supply	3	Measure voltage between CN2-1 (+) and CN-2 (GND) of the regulated power supply. Is it +24V?	No	Replace the regulated power supply.
Drive PCB unit	4	Does replacing the drive PCB unit solve the problem?	Yes	Finish
Main PCB			No	Check the connector and bundled wire between the drive PCB unit CN5 and the main PCB CN11. If OK, replace the main PCB.
Contact pressure switch position	5	Turn the contact pressure switches on and off, and use HELP13** to check them. Is on/off switching normal?	Yes	Adjust contact pressure switch position.
Contact pressure switches	6	Turn the contact pressure switches on and off, and use a tester to measure voltage. Is voltage normal?	No	Replace contact pressure switches.
Main PCB			Yes	Check the bundled wire. If OK, replace the main PCB.

* HELP mode H-01 → see p.290

** HELP mode H-13 → see p.308

(10) E008 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Online set PCB Unit	1	Is the cause cleared by replacing the online set PCB Unit ?	Yes	Finish
Online code	2	Is the cause cleared by replacing the online code ?	Yes	Finish
IPC I/F PCB Unit	3	Is the cause cleared by replacing the IPC I/F PCB Unit ?	Yes	Finish
Main PCB Unit			No	Replace the Main PCB Unit.

(11) E009 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
Main PCB Unit	1	Use a tester to measure the voltage between DC regulated power supply CN4-1(+) and the frame (GND). Is the voltage 16 - 18V during platemaking (thermal head ON)?	Yes	Check the bundled wire and connector. If OK, replace the main PCB Unit.
Thermal head	2	Disconnect all the thermal head connectors, and measure the voltage in 1) above. Is the voltage 16V approx.?	Yes	Check the bundled wire and connector. If OK, replace the thermal head.
Thermal head PCB Unit	3	Disconnect DC regulated power supply CN5 and main substrate CN2, and measure the voltage in 1) above. Is the voltage 16V approx.?	Yes	Check the bundled wire and connector. If OK, replace the thermal head PCB Unit.
Regulated power supply			No	Replace the regulated power supply.

(12) E011 is Displayed

Cause/Detective section	Procedures	Items to be checked	Result	Countermeasure
	1	Use HELP 13 to check the thermal head press motor. Does the motor turn?	Yes	Follow the procedure (5).
Thermal head press motor	2	Use HELP 13 to activate the thermal head press motor, and measure the voltage between the drive PCB unit's CN9-9 (+) and CN9-10 (GND). Is the voltage +23V?	Yes	Check the bundled wire. If OK, replace the thermal head press motor.
Regulated power supply	3	Measure the voltage between the DC regulated power supply's CN2-1 (+) and CN2-2 (GND). Is the voltage +24V?	No	Replace the regulated power supply.
Drive PCB unit	4	Replace the drive PCB unit. Is the problem solved?	Yes	Finish
Main PCB unit			No	Check the bundled wire and connectors between the drive PCB unit's CN5 and the main PCB unit's CN11. If OK, replace the main PCB unit.
Thermal head position sensor	5	Replace the master position sensor. Is the problem solved?	Yes	Finish

(13) Paper Jams in the Paper Feed Side

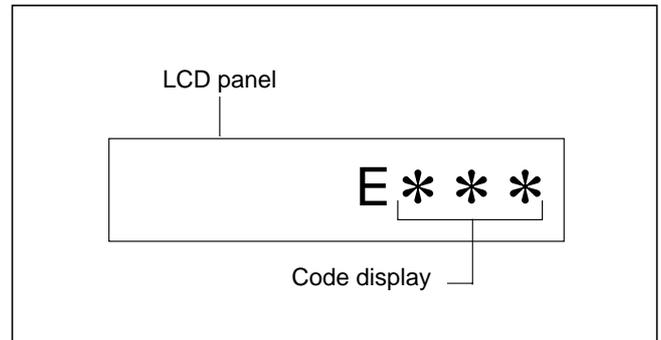
Causes	Symptoms	Countermeasure
Printing paper not suitable	<ul style="list-style-type: none"> • If paper is too thick, it won't be likely fed. If too thin, double sheets may be fed. • Paper not clearly cut: 2 sheets still adhere to each other. • Much paper scraps may deteriorate the paper feed roller and separator performance. 	Explain causes to user. Have user change to the paper conforming to specifications.
Dirt*foreign matter in transfer path	<ul style="list-style-type: none"> • Paper gets stuck in transfer path, causing creasing and tearing. 	Remove any dirt or foreign matter.
Incorrect paper feed path pressure	<ul style="list-style-type: none"> • If pressure on paper is insufficient, paper will not be fed. • If pressure on paper is excessive, double sheets will be fed. 	Explain to users how to select correct pressure for paper.
Worn paper feed roller	<ul style="list-style-type: none"> • Paper may not be fed. 	Replace paper feed roller.
Paper separator unit gap	<ul style="list-style-type: none"> • 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.
Paper separator unit	<ul style="list-style-type: none"> • 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.
Separation pressure	<ul style="list-style-type: none"> • If pressure is very low, no paper will be fed. 	Perform separation pressure adjustment.
Paper tray upper position limit	<ul style="list-style-type: none"> • Paper slant is large, causing creases. • During printing, paper feed errors often occur immediately before or after paper tray rises. 	Perform paper feed amount adjustment.
Paper feed amount	<ul style="list-style-type: none"> • If amount is too short, paper slant cannot be corrected, printing position may not be uniform, or paper may not be fed. • If amount is too long, loop becomes too large, causing paper to buckle up between paper feed roller and timing roller, resulting in feed error. 	Perform paper feed amount adjustment.
Paper feed clutch	<ul style="list-style-type: none"> • Clutch slippage will reduce paper feed amount. • If clutch does not disengage properly, the paper feed segment gear will not return correctly, leading to reduced feed amount. (See "Paper feed amount" above.) 	Perform paper feed clutch gap adjustment. If necessary, replace clutch.
Guide roller pressure & timing	<ul style="list-style-type: none"> • If Guide roller pressure is insufficient, paper will not be gripped properly, and timing roller will not assure constant feed amount. As a result, printing position will not be uniform. In the worst case, no paper will reach drum. • If there is a gap between Guide roller and the timing roller, paper slant cannot be corrected. 	Perform escape amount adjustment and escape timing adjustment.
Timing roller	<ul style="list-style-type: none"> • If the timing roller clutch slips, feed amount will not be constant. As a result, printing position will not be uniform. In the worst case, no paper will reach drum. • If the timing roller clutch does not disengage properly, the paper feed segment gear will not return correctly, leading to reduced and unstable feed amount. As a result, printing position will not be uniform. In the worst case, no paper will reach drum. 	Clean timing roller clutch . Replace if necessary.
Incorrect signal lever operation	<ul style="list-style-type: none"> • Paper may be damaged in the part of leading edge that touches the signal lever. In the worst case, paper may stick to the signal lever. 	Clean bearing unit. Check that signal lever moves smoothly.

(14) Paper Jams in Paper Eject Side

Causes	Symptoms	Countermeasure
Printing paper not suitable	<ul style="list-style-type: none"> • If paper is too thin, it will stick to drum and scrunch up. • If grain of paper is sideways relative to transfer direction, paper will crunch up, or get jammed on the paper receiving plate. • If paper curl upward, it will likely scrunch up. If curl downward, it will likely get jammed on the paper receiving plate. 	<p>Explain causes to users. Have user change to paper conforming to specifications.</p>
Image of document	<ul style="list-style-type: none"> • If set-solid exists near leading edge of paper, paper will likely scrunch up. • If set-solid is blasted to one side of paper, paper will not be ejected in a straight line. As a result, ejected paper will be disorderly piled and likely jam on the paper receiving plate. 	<ul style="list-style-type: none"> • Adjust leading edge margin to about 10 mm. (Too long margin will cause adverse results.) • Explain causes to users. If possible, have user change position for set-solid.
Static electricity	<ul style="list-style-type: none"> • If ambient air is dry, static electricity may cause disordered piles or scrunch-up of paper. 	<ul style="list-style-type: none"> • Explain causes to users. Have user desist from excessive use of A/C or heating. • If possible, have user take anti-dryness measures including humidifiers.
Leading edge margin	<ul style="list-style-type: none"> • If leading edge margin is not correct, scrunch-up of paper will likely result. <p>IMPORTANT: Scrunch-up of paper may also result if the margin is too long.</p>	<ul style="list-style-type: none"> • Perform paper feed cam position adjustment.
Guide roller pressure & timing	<ul style="list-style-type: none"> • If Guide roller pressure is insufficient, paper will not be gripped properly, causing less feed amount determined by timing roller, or disappearance of leading edge margin. This results in the paper scrunch-up. 	<p>Perform escape amount and escape timing adjustments.</p>
Timing roller clutch	<ul style="list-style-type: none"> • Any slippage of the timing roller clutch will reduce feed amount and eliminate leading edge margin. This results in the paper scrunch-up. • If the timing roller clutch does not disengage properly, the timing roller segment gear will not return correctly, causing reduction of feed amount or disappearance of leading edge margin. As a result, paper will scrunch up. 	<p>Clean timing roller clutch. Repair if necessary.</p>
Paper stripper finger	<ul style="list-style-type: none"> • If timing is too low, or the gap between drum and the leading edge of paper is too large, paper stripper finger will not enter into the gap, causing the paper scrunch-up. 	<p>Perform paper stripper finger adjustment.</p>
Air	<ul style="list-style-type: none"> • If sufficient air is not delivered from the tip of the paper stripper finger, it will not lift the leading edge of paper off drum. Scrunch-up of paper will result. 	<ul style="list-style-type: none"> • Check if the hole in the fingers tip is blocked by foreign matter. • Check pipes for kinks or disconnections. • Check valves and O-rings on the air pump.
Top blower fan	<ul style="list-style-type: none"> • If the fan's air current is insufficient, paper stripping will be poor, and there will not be sufficient force to press the paper onto the paper ejection belt. This will cause unstable paper ejection. 	<ul style="list-style-type: none"> • Inspect the fan.
Paper ejection belt	<ul style="list-style-type: none"> • If the speed of the paper ejection belt, if cannot eject the paper onto the paper receiving plate with sufficient force. As a result, there will be paper jams in the vicinity of the discharge port. (Sometimes the trailing edge of the paper gets caught in the jamming sensor and a paper jamming error is displayed.) 	<p>If the belt is broken or stretched, replace it.</p>
Paper ejection fan unit	<ul style="list-style-type: none"> • If the suction force of the fan drops, it will not be able to blow the paper (which has risen clear of the ejection belt) onto the paper receiving plate with be paper jams in the vicinity of the discharge port. (Sometimes the trailing edge of the paper gets caught in the jamming sensor and a paper jamming error is displayed.) 	<p>Clean the fan. If it still does not work properly, replace it.</p>
Ink	<ul style="list-style-type: none"> • Too much ink transferred to paper will likely cause scrunch-up of paper. 	<ul style="list-style-type: none"> • Perform ink volume adjustment of drum. • Explain user that ink transfer volume increases immediately after paper scrunch-up, and advise user to restart printing at standard speed, then.

2 Error Display

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



Code display	Cause	Detection timing
E001	<ul style="list-style-type: none"> • The main motor (M1) is defective. • The motor PCB A Unit 1 is defective. • The main PCB Unit is defective. • The encoder sensor (PS7) is defective. 	<ul style="list-style-type: none"> • While the drum rotation signal is lit, the encoder sensor (PS7) cannot detect the edge for 1 second.
E002	<ul style="list-style-type: none"> • The elevator motor (M2) is defective. • The elevator top limit sensor (PS9) is defective. • The elevator bottom limit switch (MS6) is defective. • The drive PCB is defective. - The main PCB Unit is defective. • The elevator operation is defective. 	<ul style="list-style-type: none"> • The elevator does not reach the top limit for 9 seconds after the elevator motor (M2) up signal is lit. • The elevator does not reach the bottom limit after the elevator motor (M2) down signal is lit.
E003	<ul style="list-style-type: none"> • The cutter motor (M5) is defective. • The cutter limit on the operation side (MS1) is defective. • The cutter limit on the rear side (MS2) is defective. • The drive PCB is defective. • The main PCB unit is defective. • The master jams in the cutter unit section. 	<ul style="list-style-type: none"> • The cutter motor does not reach the moved cutter limit switch for 3 seconds after the cutter motor driving signal is lit.
E004	<ul style="list-style-type: none"> • The lamp is defective. • The inverter unit is defective. • The CCD is defective. • AD PCB unit is defective. • Main PCB unit is defective. 	<ul style="list-style-type: none"> • In the lamp lighting check, amount of light received by CCD does not reach regulation value. (Perform the lamp lighting check once only, with the power turned on.)
E005	<ul style="list-style-type: none"> • The ink roller rise/descent motor is defective. 	<ul style="list-style-type: none"> • The motor does not reach the relevant switch within 15 seconds of sending of the ink roller rise/descent motor drive signal.
E006	<ul style="list-style-type: none"> • The contact pressure motor is defective. 	<ul style="list-style-type: none"> • The motor does not reach the relevant switch within 25 seconds of sending of the contact pressure motor rotation signal.

Code display	Cause	Detection timing
E008	<ul style="list-style-type: none"> The I/F PCB unit is defective. IPC I/F PCB unit is defective. 	<ul style="list-style-type: none"> During on-line platemaking, communication error occurs between main PCB unit and I/F PCB unit.
E009	<ul style="list-style-type: none"> The regulated power supply is defective. The thermal head substrate is defective. The thermal head is defective. 	<ul style="list-style-type: none"> At start of platemaking, thermal head drive voltage does not reach regulation value.
E011	<ul style="list-style-type: none"> The thermal head position sensor is defective. The thermal head press motor is defective. The drive PCB unit is defective. The main PCB unit is defective. 	<ul style="list-style-type: none"> The thermal head position sensor does not detect the head's edge within 4 seconds of sending of the thermal head press motor drive signal.
E201	<ul style="list-style-type: none"> A trouble occurs on the ADF. 	<ul style="list-style-type: none"> Refer to HELP21, communication information, error information and ADF Service Manual. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-top: 5px;">HELP mode H-21 ➡ see p.319</div>
E301	<ul style="list-style-type: none"> Sorter A conveyance motor trouble. 	<ul style="list-style-type: none"> Refer to the Service Manual for the Sorter.
E302	<ul style="list-style-type: none"> Sorter A bin unit motor trouble. 	
E303	<ul style="list-style-type: none"> Sorter B conveyance motor trouble. 	
E304	<ul style="list-style-type: none"> Sorter B bin unit motor trouble. 	
E305	<ul style="list-style-type: none"> Sorter bridge motor trouble. 	
E306	<ul style="list-style-type: none"> Sorter A stapler trouble. 	
E307	<ul style="list-style-type: none"> Sorter B stapler trouble. 	

1	HELP Mode List.....	282
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	(1) Basic Procedure for Accessing HELP Modes.....	287
	(2) Guide to the HELP Mode Descriptions.....	287
	• HELP Mode Descriptions.....	288

1 HELP Mode List

HELP Mode No.	Description	Classification	Page
H-00	(1) Display of ROM versions (2) ROM version upgrading	ROM version displays/upgrading	(1) 288 (2) 289
H-01	(1) Display and adjustment of print speeds and paper ejection belt speeds (2) Initialization of print speeds and paper ejection belt (3) Function testing of ink roller rise/descent motor (4) Function testing of contact pressure motor	Adjustment/specification setting Function testing	(1) 291 (2) 293 (3) 294 (4) 294
H-02	(1) Elevator motor function testing	Function testing	295
H-03	(1) Tape cluster function test	Function testing	296
H-04	(1) Ink replenishment function testing	Function testing	297
H-05	(1) Checking of condition of master ejection sensor and other sensors listed below <ul style="list-style-type: none"> ● Master ejection sensor ● Top/Bottom limit sensor, top /Bottom center sensor, Document cover sensor, Home position sensor 	Sensor/switch condition display	298
H-06	(1) Checking of condition of sensors listed below <ul style="list-style-type: none"> ● Drum master attachment /detachment position sensor, Paper ejection jam sensor, Drum stop/paper ejection jam Paper sensing position sensor, Press roll sensor ● Encoder sensor, Elevator top limit sensor, A/C mode sensor, B mode sensor 	Sensor/switch condition display	299
H-07	(1) Checking of condition of switches listed below: <ul style="list-style-type: none"> ● Drum rotation switch, Cutter limit switch(inner), Cutter limit switch(operation side) ● Drum cover switch, Master attachment switch, 	Sensor/switch condition display	300
H-08	(1) Checking of condition of switches listed below: <ul style="list-style-type: none"> ● Drum switch, Paper roll FULL switch, Scanner unit open / closed detection switch 	Sensor/switch condition display	301
H-09	(1) Checking of master attachment position, jam sensing position, master detachment position and drum stop position	Function testing	302
H-10	(1) Testing of functioning of indicators (on/off) and optical system	Function testing	303
H-11	(1) Display of document size and document darkness values (for use in factory checks)	Sensor/switch condition display	304
H-12	(1) Checking of AD PCB unit shading memory, thermal head and main PCB unit synchronized signals; display of thermistor temperature; display of time elapsed since last print run	Function testing	306
H-13	(1) Check the condition of the contact pressure upper limit switch, contact pressure center limit switch, contact pressure lower limit switch, ink roller rise / descent switch, master feed cover switch and platen photosensor, and check displays of amount of light received by master position sensor, master sensor and document sensor	Sensor/switch condition display	308

HELP Mode No.	Description	Classification	Page
H-14	(1) 6-digit display of count of total plates made, divided into 2 higher-order digits and 4 lower-order digits (2) Resetting of count of total plates made in user mode	Total counts	(1) 310 (2) 311
H-15	(1) Function testing of ink motor	Function testing	312
H-16	(1) Correction of platemaking start position during online platemaking	Adjustment/specification setting	313
H-17	(1) Function testing of cutter motor	Function testing	314
H-18	(1) Function testing of roll-up motor	Function testing	315
H-19	(1) 7-digit display of count of total sheets printed, divided into 3 higher-order digits and 4 lower-order digits (2) Resetting of count of total sheets printed in user mode	Total counts	(1) 316 (2) 317
H-20	(1) Function testing of clamp motor and clamp position sensing (A/B/C mode position)	Function testing	318
H-21	(1) Display of ADF communication status and error codes (2) Function testing of single and continuous feed by ADF	ADF error code display Function testing	(1) 319 (2) 321
H-22	(1) Setting of lengthwise zoom factor correction amount for platemaking side	Adjustment/specification setting	322
H-23	(1) Setting of photograph mode document sensing darkness	Adjustment/specification setting	323
H-24	(1) Setting of lengthwise zoom factor correction amount for sensing side	Adjustment/specification setting	324
H-25	(1) Compensation of document darkness white level when ADF is used	Adjustment/specification setting	325
H-26	(1) Compensation of document darkness white level in photograph mode	Adjustment/specification setting	326
H-27	(1) Initialization of all HELP mode settings	Adjustment/specification setting	327
H-28	(1) Setting of tape cluster presence/absence, buzzer selection and key card specification	Adjustment/specification setting	328
H-29	(1) Adjustment of paper infeed amount	Adjustment/specification setting	329
H-30	(1) Test pattern (front shading, poor image area checking, secondary scanning direction zoom factor adjustment) platemaking and printing	Function checking	330
H-31	(1) Setting of number of pre-print sheets	Adjustment/specification setting	332
H-32	(1) Selection of first print speed, setting of master ejection error sensing, selection of sort mode	Adjustment/specification setting	333
H-33	(1) Compensation of document darkness white level in text mode	Adjustment/specification setting	334
H-34	(Not used)	–	–
H-35	(1) Scanner leading edge sensing position adjustment	Adjustment/specification setting	335
H-36	(1) Scanner widthwise (operation side) sensing position adjustment	Adjustment/specification setting	336

HELP Mode No.	Description	Classification	Page
H-39	(Not used)	–	–
H-40	(Not used)	–	–
H-41	(1) Changing of platemaking start position for second image in multiple image printing, setting of repeat count display, selection of sorter home position timing	Adjustment/specification setting	338
H-42	(1) Setting of paper selection specification	Adjustment/specification setting	339
H-43	(1) Setting of thermal head resistance ranking	Adjustment/specification setting	340
H-44	(1) Setting of thermal head resistance ranking	Adjustment/specification setting	340
H-45	(1) Setting of special paper size length	Adjustment/specification setting	342
H-46	(1) Setting of special paper size length	Adjustment/specification setting	342
H-47	(1) Setting of special paper size width	Adjustment/specification setting	344
H-48	(1) Setting of special paper size width	Adjustment/specification setting	344
H-49	(1) Adjustment of sensing side widthwise zoom factor	Adjustment/specification setting	346
H-50	(1) Setting of text mode document sensing darkness	Adjustment/specification setting	347
H-51	(1) Setting of darkness for test pattern platemaking	Adjustment/specification setting	348
H-52	(1) Setting of online conditions	Adjustment/specification setting	349
H-53	(1) Adjustment of widthwise (operation side) platemaking start position for online platemaking	Adjustment/specification setting	351
H-54	(1) Function testing of main PCB unit sorter port	Adjustment/specification setting	352
H-55	(1) Setting of ink check at printing start, cutting operation mode for master cutting, and interlocks	Adjustment/specification setting	353
H-56	(Not used)	–	–
H-57	(1) Setting of online conditions	Adjustment/specification setting	349
H-58	(Not used)	–	–
H-59	(1) Setting of: intermittent paper feed mode, master clamp application/release timing for master attachment, count change when ink is absent, fine start mode ON/OFF	Adjustment/specification setting	354

HELP Mode No.	Description	Classification	Page
H-60	(1) Selection of operation panel auto clear activation timing, and duration of fine start mode	Adjustment/specification setting	355
H-61	(1) Selection of LCD specification	Adjustment/specification setting	356
H-62	(1) Selection of: operation stop after printing of 1 sheet after platemaking; tape insertion timing; and display of list of numbers of sets and sheets	Adjustment/specification setting	357
H-63	(1) Setting of: use of scanner pulley unit; factory adjustment value; use of A4 drum: and maximum value for user-set zoom factor	Adjustment/specification setting	358
H-64	(1) Setting of calling up of memory M1 (DP-**S) / function F1 (DP-**E) data when power turned on (when sorter present / absent), and length of long tape for tape cluster	Adjustment/specification setting	359

2 Overview

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

◆ Modes for ROM version display / version upgrade

These modes display the version numbers of the main PCB unit's ROM (U33), the I/F PCB unit's ROM (U10) and the sub main PCB unit's ROM (U4), and permit version upgrade of the main PCB unit's U33 ROM.

◆ Modes for adjustment / specification setting

These modes set the functioning of variable resistors and switches by using the battery PCB unit's EEPROM to memorize settings made on the operation panel. All of these adjustments and settings are made at the factory prior to shipment of each Duprinter.

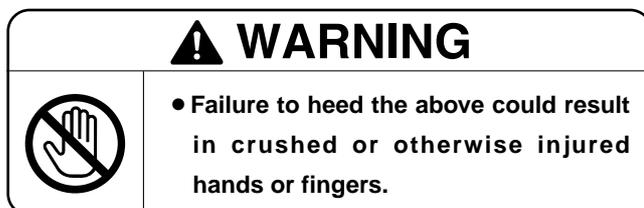
IMPORTANT

- New adjustments and appropriate settings must be made after the battery PCB unit is replaced and after initialization setting has been implemented (using HELP mode H-27).

◆ Modes for function checks

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

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



◆ 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

(1) Basic Procedure for Accessing HELP Modes

- ① During use of the Duprinter: first put the machine into the standby state, then turn the power switch OFF.
- ② Simultaneously press and hold down the and printing speed keys, and turn the power switch ON with those keys held down. After about 2 seconds, a beep-beep-beep tone will sound, and the HELP mode display will appear.
- ③ Using the numeric keys, enter the number of the HELP mode you want to access.
Example: To access HELP mode H-00, enter [0], [0].



HELP mode number

NOTE

- Alternatively, the and printing speed keys may be used to select the HELP mode number.

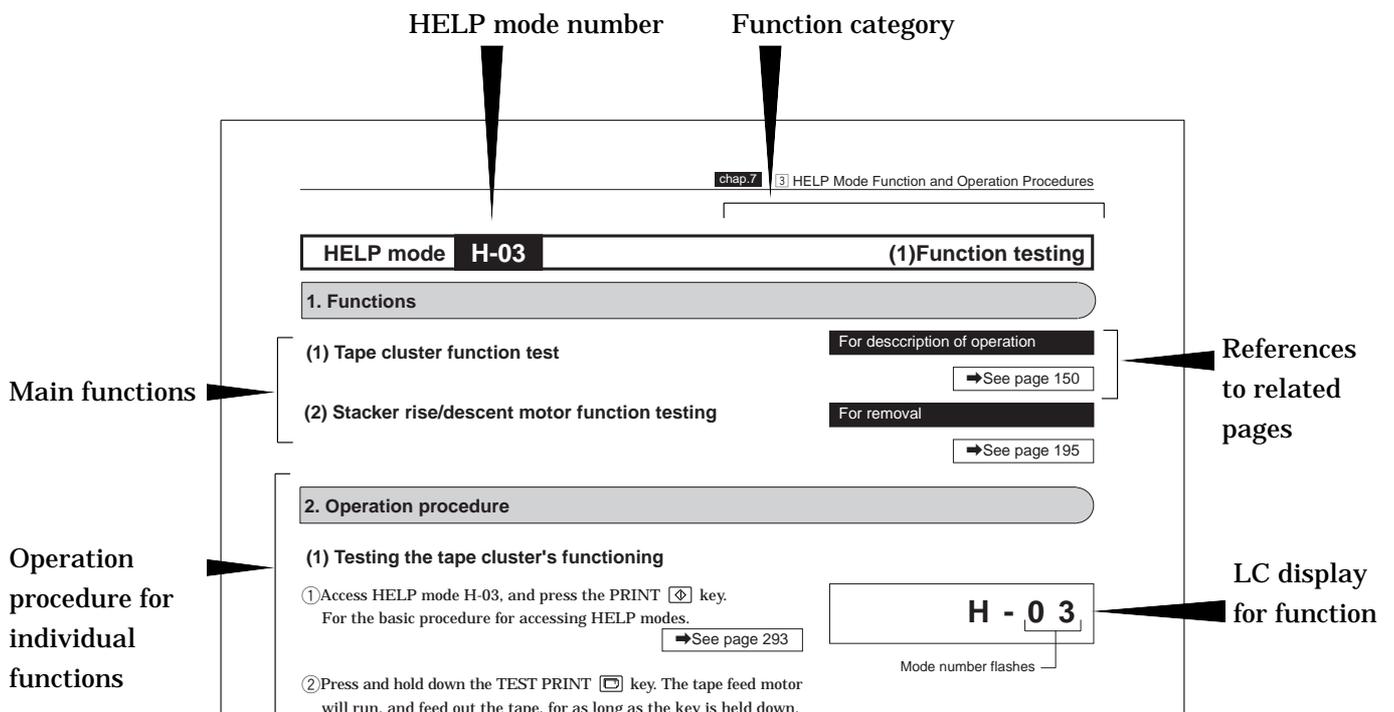
- ④ Press the PRINT key. The HELP mode specified in ③ will be accessed, and either the initial value (value set at factory), or the currently set value, for the mode will be displayed.



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

(2) Guide to the HELP Mode Descriptions

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



● **HELP Mode Descriptions**

HELP mode H-00 (1) ROM version displays

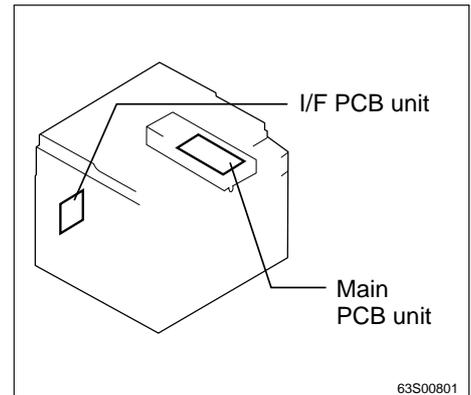
1. Functions

(1) Display of ROM versions

- Displays version of the main PCB unit's ROM (U33).
- Displays version of the I/F PCB unit's ROM (U10).

(2) ROM version upgrading

- Allows upgrading of the main PCB unit's ROM (U33).



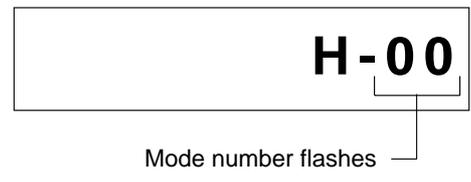
IMPORTANT ● The versions of the I/F PCB unit's ROM is upgraded by replacing the ROM with a new one.

2. Operation procedure

(1) Displaying ROM versions

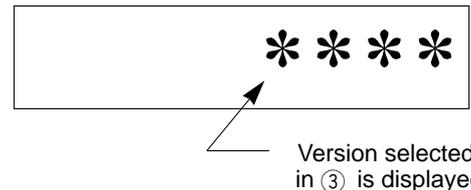
- ① Access HELP mode H-00, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287



- ② Follow the applicable procedure below for the version you want to display.

- To display version of the main PCB unit's ROM (U33):
Make sure that the BOOK SHADOW ERASE  key is off, then press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT item.



- To display version of the I/F PCB unit's ROM (U10):
Make sure that the BOOK SHADOW ERASE  key is off, then press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT/PHOTO item.

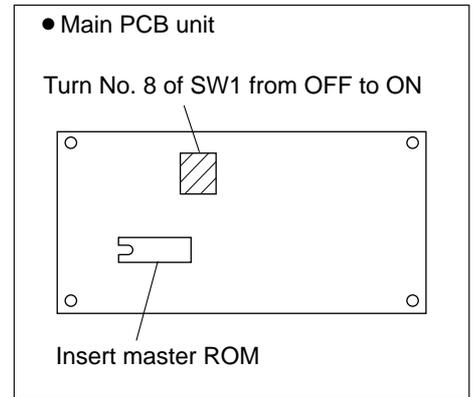
- ③ Press the STOP  key. The HELP mode selection display will reappear.

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

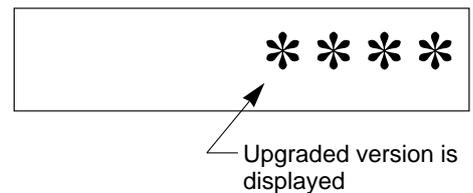
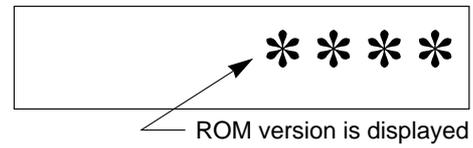
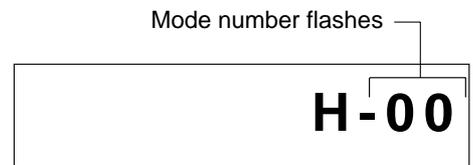
HELP mode H-00 (2) ROM version upgrading

(2) Upgrading of ROM version

- ① During use of the Duprinter: first put the machine into the standby state, then turn the power switch OFF.
- ② Set switch No. 8 of the SW1 switches to ON.
- ③ Insert a master ROM into the socket of the main PCB unit's U33 ROM.



- ④ Simultaneously press and hold down the [] and [] printing speed keys, and turn the power switch ON with those keys held down.
- ⑤ Press the [0] numeric key twice (to access HELP mode H-00).
- ⑥ Press the PRINT [] key.
- ⑦ Press the TEXT/PHOTOGRAPH [] key as many times as needed to select the TEXT item. The version of the main PCB unit's
- ⑧ Press the PRINT [] key.

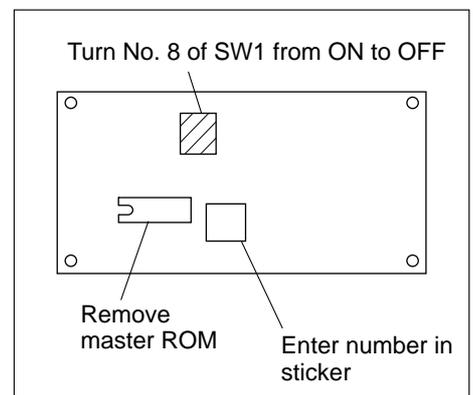


Copying will begin, and the message "COPYING.....DP***" will appear in the LCD panel. Copying takes about 40 seconds. When it is complete, the new ROM version will be displayed.

IMPORTANT

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

- ⑨ Turn the power switch OFF.
- ⑩ Remove the master ROM from the socket of the main PCB unit's U33 ROM.
- ⑪ Set switch No. 8 of the SW1 switches to OFF.
- ⑫ Write the ROM version number in the version sticker affixed to the main PCB Unit's element (U43).



1. Functions

(1) Display and adjustment of print speeds and paper ejection belt speeds

- Display and adjustment of print speeds (pre-stop speed, jog speed and speeds 1-5)
- * The pre-stop speed is adjusted by means of the main motor PCB unit's variable resistor (VR).
- Display and adjustment of paper ejection belt speeds (speeds 1-5)

Adjusting of Printing Speeds 1-5

➔ See page 243

Pre-stop Speeds Adjustment

➔ See page 243

(2) Initialization of print speeds and paper ejection belt speeds

Adjustment of Ejection Belt Printing Speed

➔ See page 245

(3) Function testing of ink roller rise/descent motor

For description of operation

➔ See page 143

(4) Function testing of contact pressure motor

For description of operation

➔ See page 128

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

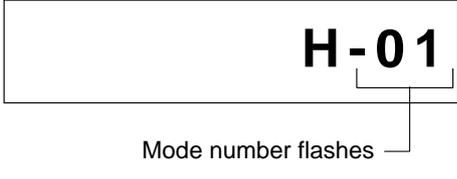
2. Operation procedure

(1) Adjusting speeds and memorizing the adjusted values

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

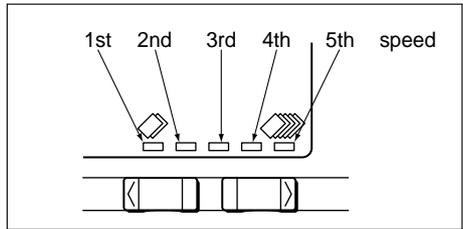
For the basic procedure for accessing HELP modes.

 See page 287



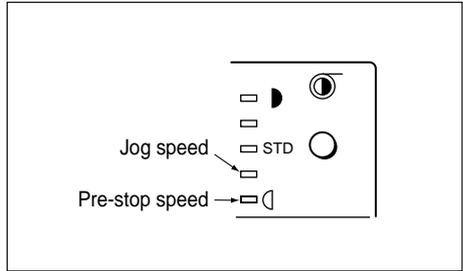
② Press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT item.

③ Select the speed you want to adjust.



● **Speeds 1-5**
Use the PLATEMAKING DARKNESS  KEY to select the STANDARD item. Then use the  and  printing speed adjustment keys to select one of speeds 1 through 5.

● **Jog speed**
Use the PLATEMAKING DARKNESS  KEY to select the LIGHTER1 item.

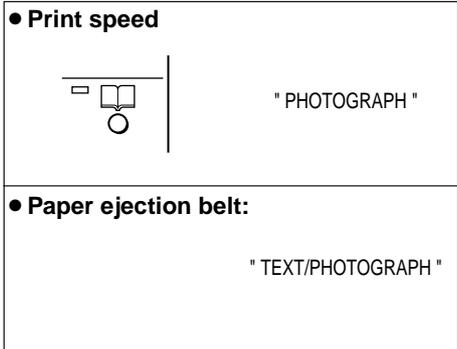


● **Pre-stop speed**
Use the PLATEMAKING DARKNESS  key to select the LIGHTER2 item.

④ Select the item speed you want to adjust

● **To select the print speed:**
Press the TEXT/PHOTOGRAPH  key as many times as needed to select the PHOTOGRAPH item. Then press the BOOK SHADOW ERASE  key, to turn it OFF.

● **To select the paper ejection belt:**
Press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT/PHOTOGRAPH item.



HELP mode

H-01

(1) Adjustment / specification setting

- ⑤ Use the  and  printing speed adjustment keys to adjust the speed value.

Speed	Adjustment standard (rpm)	
	Print speed	Paper ejection belt
Pre-stop	(4 – 6*)	---
JOG	16	---
1st.	45	115
2nd.	67	135
3rd.	80	150
4th.	100	175
5th.	120	200

* The print speed's pre-stop speed is adjusted by means of the main motor PCB unit's variable resistor (VR), not using the speed keys.

- ⑥ To display or adjust other another speed(s), repeat steps ② through ⑤.

- ⑦ Press the STOP  key. The newly adjusted value(s) will be memorized, and the HELP mode selection display will reappear.

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

HELP mode H-01 (2) Adjustment / specification setting

(2) Initializing speed settings (returning settings to the default settings prior to adjustment at factory)

IMPORTANT

After initialization, the speeds must be readjusted.

➔ See page 243,245

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

For the basic procedure for accessing HELP modes.

➔ See page 287

② Follow the appropriate procedure below to select and initialize the desired item.

• **To initialize the print speed:**

Press the [94%]  key to turn it ON.

Then press the TEXT/PHOTOGRAPH  key as many times as needed to select the PHOTOGRAPH item. Next, press the BOOK SHADOW ERASE  key, to turn it OFF.

Press the STOP  key. The settings will be initialized.

• **To initialize the paper ejection belt:**

Press the PHOTO DARK  key to turn it ON. The settings will be initialized.

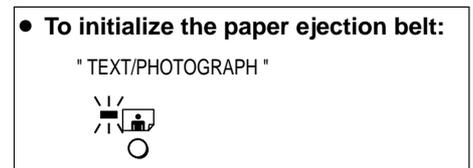
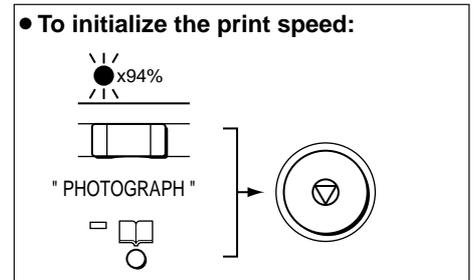
③ Press the STOP  key. The HELP mode selection display will reappear.

➔ To exit the HELP mode: Turn the power switch OFF.

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



Mode number flashes



HELP mode H-01 (3), (4) Function testing

(3) Ink roller rise/descent motor function test

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

For the basic procedure for accessing HELP modes.

➔ See page 287



Mode number flashes

② Press the [94%]  key, to turn it ON.

The ink roller rise/descent motor will run, to test whether the ink roller moves from its top limit position to its bottom limit position.

③ Press the [94%]  key again, to turn it OFF.

The ink roller rise/descent motor will run once more, to test whether the ink roller moves from its bottom limit position to its top limit position.

IMPORTANT

- Do not leave the ink roller in the bottom limit position. If it is left in that position, ink will be supplied continuously to the drum inner surface as long as the drum rotates, leading to problems.

- Do not press the STOP  key while the [94%]  key is ON. If you do, adjustment settings could be initialized, depending on the conditions of other keys (DOCUMENT MODE and BOOK SHADOW ERASE  keys). See the previous item, "Initializing speed settings".

④ Make sure that the [94%]  key is OFF, and 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.

(4) Contact pressure switching motor function test

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

For the basic procedure for accessing HELP modes.

➔ See page 287



Mode number flashes

② Press and hold down the  printing position adjustment key, to test that the contact pressure setting increases for as long as the key is held down.

③ Press and hold down the  printing position adjustment key, to test that the contact pressure setting decreases for as long as the key is held down.

④ 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 mode H-02 (1) Function testing

1. Functions

(1) Elevator motor function testing

For electrical parts layout

➔ See page 364

2. Operation procedure

(1) Testing the elevator motor's functioning

- ① Access HELP mode H-02, and press the PRINT  key.
For the basic procedure for accessing HELP modesn.

➔ See page 287



- ② Press and hold down the  print speed adjust key. The elevator motor will run, making the paper tray rise, for as long as the key is held down.
 - ③ To stop the elevator motor, either release the  print speed adjust key, or de-obstruct the elevator upper limit sensor's light beam.
 - ④ Press and hold down the  print speed adjust key. The elevator motor will run, making the paper tray descend, for as long as the key is held down.
 - ⑤ To stop the elevator motor, either release the  print speed adjust key, or alter the elevator lower limit switch's condition from closed to open.
 - ⑥ 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 mode H-03

(1)Function testing

1. Functions

(1) Tape cluster function test

For description of operation

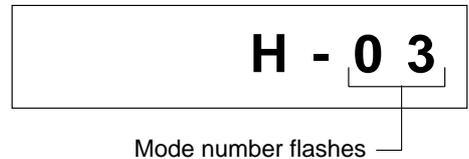
➔See page 149

2. Operation procedure

(1) Testing the tape cluster's functioning

- ① Access HELP mode H-03, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔See page 287



- ② Press and hold down the TEST PRINT  key. The tape feed motor will run, and feed out the tape, for as long as the key is held down.
 - ③ Release the TEST PRINT  key. The tape cutting solenoid will be activated, and the tape will be cut.
 - ④ 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 mode H-04

(1) Function testing

1. Functions

(1) Ink replenishment function testing

Tests functioning of ink replenishment by sensing the ink supplied.

2. Operation procedure

(1) Testing the functioning of ink replenishment

① Access HELP mode H-04, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

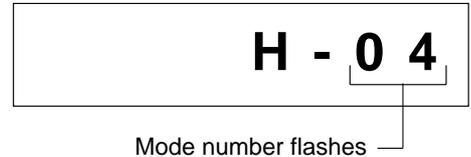
➔ See page 287

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

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

1. Functions

(1) Checking of condition of master ejection sensor and other sensors listed below

- Displays amount of light received by master ejection sensor
- Runs checks on the top/bottom limit, top/bottom center, document cover and home position sensors

For electrical parts layout
 → See page 363

For description of operation
 → See page 98

2. Operation procedure

(1) Checking the condition of master ejection sensor and other listed sensors

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

For the basic procedure for accessing HELP modes.

→ See page 287

② Make sure that the BOOK SHADOW ERASE  key is off, then press and hold down the PRINT  key. For as long as the key is held down, the master ejection sensor's photo-receiving amount will be displayed, as a value between 00 and 63.

◆ Reading the displayed value

- [00] : Maximum amount of light received
- [63] : No light received
- [00 ≤ displayed value ≤ 45] : No master between sensor components

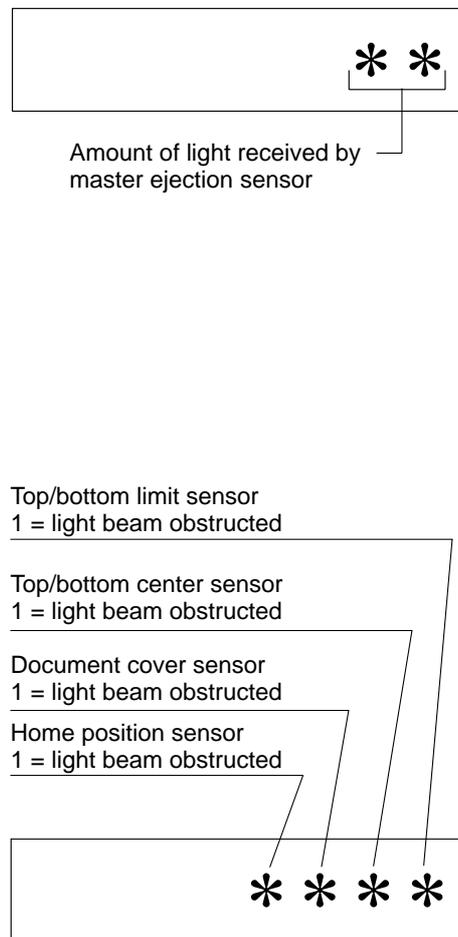
* Displayed value when master present > Displayed value when master absent

③ Release the PRINT  key. A display indicating the conditions of the following sensors will appear.

- ◆ Top/bottom limit sensor
- ◆ Top/bottom center sensor
- ◆ Document cover sensor
- ◆ Home position sensor

④ 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 mode H-06 (1) Sensor/switch condition display

1. Functions

(1) Checking of condition of sensors listed below

- Runs checks on the drum master attachment/detachment position sensor, light reception by the paper ejection jam sensor, drum stop / paper ejection jam sensing position sensor, and press roller sensor
- Runs checks on encoders, elevator top limit sensor, A/C mode sensor and B mode sensor paper sensor

For electrical parts layout

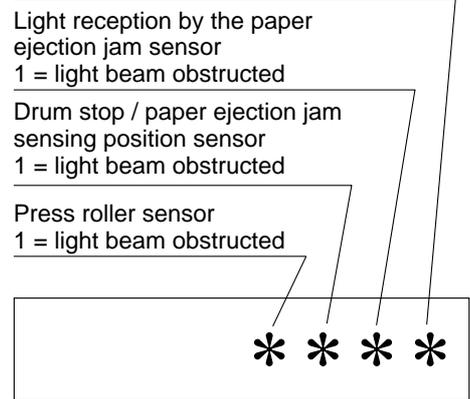
➔ See page 363

2. Operation procedure

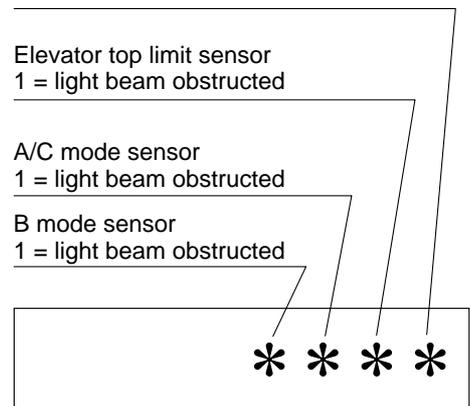
(1) Checking the condition of the listed sensors

- ① Access HELP mode H-06, and press the PRINT  key.
- ② Release the PRINT  key. A display indicating the conditions of the following sensors will appear.
(The BOOK SHADOW ERASE  key must be off for this display to be possible.)
 - ◆ Drum master attachment/detachment position sensor
 - ◆ Light reception by the paper ejection jam sensor
 - ◆ Drum stop / paper ejection jam sensing position sensor
 - ◆ Press roller sensor
- ③ Press the PRINT  key once more. For as long as the key is held down, a display indicating the conditions of the following sensors will appear.
 - ◆ Encoder checks
 - ◆ Elevator top limit sensor
 - ◆ A/C mode sensor
 - ◆ B mode sensor
- ④ 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.

Drum master attachment / position sensor
1 = light beam obstructed



Encoder check 0 or 1
(switches between 0 and 1 each time
8 edges are sensed)



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

1. Functions

(1) Checking of condition of switches listed below:

- Displays condition of drum rotation switch, and cutter limit switches (inner, and operation side) as 0 or 1
- Displays condition of drum cover switch, and master setting switch as 0 or 1

For electrical parts layout

➔ See page 362

2. Operation procedure

(1) Checking the condition of the listed switches

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

For the basic procedure for accessing HELP modes.

➔ See page 287

② Make sure that the BOOK SHADOW ERASE  key is off, then press and hold the PRINT  key. For as long as the key is held down, a display indicating the conditions of the following switches will appear.

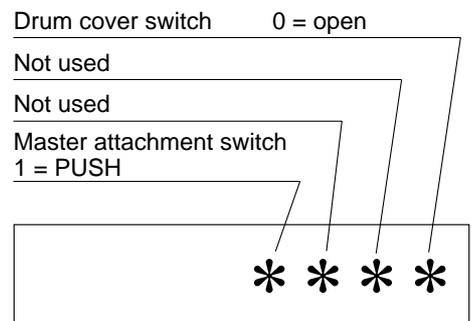
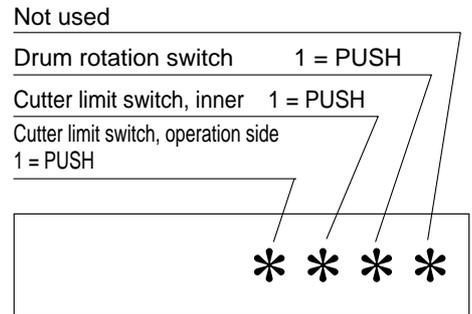
- ◆ Drum rotation switch
- ◆ Cutter limit switch, inner
- ◆ Cutter limit switch, operation side

③ Release the PRINT  key. A display indicating the conditions of the following switches will appear.

- ◆ Drum cover switch
- ◆ Master attachment switch

④ 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 mode H-08 (1) Sensor/switch condition display

1. Functions

(1) Checking of condition of switches listed below:

- Displays condition of drum presence switch, paper roll FULL switch, and scanner unit open/closed detection switch, as 0 or 1

For electrical parts layout

➔ See page 362

2. Operation procedure

(1) Checking the condition of the listed sensors

① Access HELP mode H-08, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

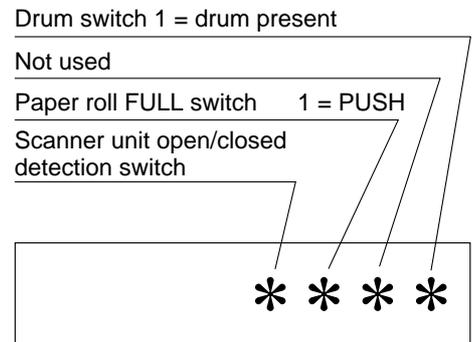
➔ See page 287

② Release the PRINT  key. A display indicating the conditions of the following sensors will appear.
(The BOOK SHADOW ERASE  key must be off for this display to be possible.)

- ◆ Drum switch
- ◆ Paper roll FULL switch
- ◆ Scanner unit open / closed detection switch

③ 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. Functions

(1) Checking of master attachment position, jam sensing position, master detachment position and drum stop position

For Standards / Adjustment

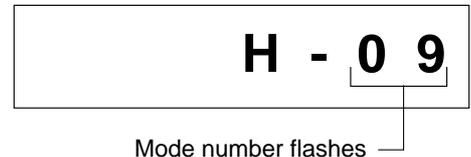
➔ See page 226,227

2. Operation procedures

(1) Checking the master attachment, jam sensing, master position and drum stop positions

- ① Access HELP mode H-09, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287



- Each time the PRINT  key is pressed, the drum stop and jam sensing position sensors, and the master attachment/detachment positions sensors, will alternately sense the edge of the shade plate, then stop.

- ② 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 mode H-10

(1) Function testing

1. Functions

(1) Testing of functioning of indicators (on/off) and optical system

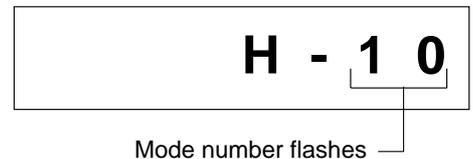
2. Operation procedures

(1) Testing the functioning of indicators (on/off) and the optical system

① Access HELP mode H-10, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287



- When the PRINT  key is pressed, the indicators will light.

② Press and hold down the  printing position adjustment key.

The optical system will move rightward for as long as the key is held down.

IMPORTANT

- Be sure to release the UP key before the optical system reaches the rightward limit. The motor will NOT stop automatically when the system reaches that limit.

③ Press and hold down the  printing position adjustment key.

The optical system will move leftward for as long as the key is held down.

IMPORTANT

- Be sure to release the DOWN key before the optical system reaches the leftward limit. The motor will NOT stop automatically when the system reaches that limit..

④ 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 mode

H-11

(1) Sensor/switch condition display

1. Functions

(1) Display of document size and document darkness values (for use in factory checks)

2. Operation procedures

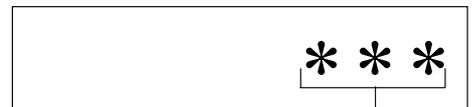
(1) Display of document size and document darkness values (for use in factory checks)

① Access HELP mode H-11, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

- When the PRINT  key is pressed, the optical system will move to the position for sensing the document size, and the indicators will light. The sensed size will be displayed (as a 3-place value, [***]).



Sensed size display

② Select one of the items below, and follow the procedure given for it.

◆ **Display of document size**

- Display of sensed size of document (in primary scanning direction) on the document glass:

➔ Use the PLATEMAKING DARKNESS  key to select the DARKER2 item.

- Display of sensed size of document (in primary scanning direction) in the ADF:

➔ Use the PLATEMAKING DARKNESS  key to select the DARKER1 item.

Press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT item.

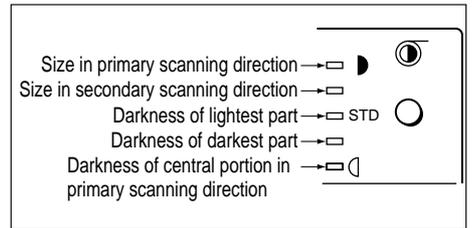
Provided there is a document in the ADF, it will be fed and ejected, and its size will be sensed, automatically.

- Display of sensed size of document (in secondary scanning direction) in the ADF:

➔ Use the PLATEMAKING DARKNESS  key to select the DARKER1 item.

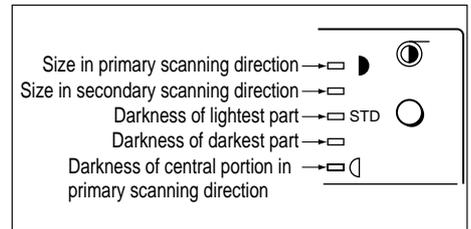
Press the TEXT/PHOTOGRAPH  key as many times as needed to select the PHOTOGRAPH item.

Provided there is a document in the ADF, it will be fed and ejected, and its size will be sensed, automatically.



HELP mode H-11 (1) Sensor/switch condition display

- ◆ **Display of document darkness (for use in factory checks)**
 - Display of darkness value for lightest part of document
 - ➔ Use the PLATEMAKING DARKNESS  key to select the STANDARD item.
 - A value between 000 ("darkest" value) and 255 ("lightest" value) will be displayed.
 - Display of darkness value for darkest part of document (relative to lightest part, above)
 - ➔ Use the PLATEMAKING DARKNESS  key to select the LIGHTER1 item.
 - A value between 000 ("darkest" value) and 255 ("lightest" value) will be displayed.
 - Display of darkness value for darkest part of document in an area 4mm to either side of the centerline, in the primary scanning direction
 - ➔ Use the PLATEMAKING DARKNESS  key to select the LIGHTER2 item.
 - A value between 000 ("darkest" value) and 255 ("lightest" value) will be displayed.



③ 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 mode H-12 (1) Function testing

1. Functions

(1) Checking of AD PCB unit shading memory, thermal head and main PCB unit synchronized signals; display of thermistor temperature; display of time elapsed since last print run

2. Operation procedures

(1) Checking AD PCB unit shading memory, thermal head and main PCB unit synchronized signals; displaying thermistor temperature; displaying time elapsed since last print run

① Access HELP mode H-12, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

 See page 287

② Select one of the items below, and follow the procedure given for it.
 • **Check of AD PCB unit shading memory, and display of result**
 ➔ Press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT item.

An "FFFF" result display indicates the memory is normal. Any other display indicates abnormality.

• **Check of thermal head and main PCB unit synchronized signals**
 ➔ Press the TEXT/PHOTOGRAPH  key as many times as needed to select the PHOTOGRAPH item.

Two digits will be displayed. The first digit represents a count based on the thermal head PCB unit's synchronized signal, and the second a count based on the main PCB unit's start signal. These counts rise from 0 up to 7, in increments of 1. The increments occur at intervals of approximately 1 second.

Check that the increment of both digits occurs at a rate of approximately 1 second per implement, so that over a period of 10 second, there is no marked difference between the two values. A marked difference indicates abnormality.

• Display during check



• Check result display



Main PCB unit start signal

Thermal head PCB unit synchronized signal



HELP mode H-12

(1) Function testing

- **Display of ambient temperature according to thermistor in main PCB unit**

➔ Press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT/PHOTOGRAPH item.

The ambient temperature will be displayed as a value between 0 and 35 (°C).



Ambient temperature around main PCB unit (°C)

- **Display of time elapsed since last print run**

➔ Press the PHOTO DARK  key, to turn it ON. A value between 000 and 255 will be displayed. To obtain the time elapsed since the last print run (in hours) multiply the value displayed by 3.



● Displayed value × 3 = hours since last print run

③ 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 mode H-13 (1) Sensor/switch condition display

1. Functions

(1) Checking of condition of switches listed below:

- Display of amount of light received by master position sensor, master sensor and document sensor
- Display of condition of master feed cover switch and platen pressure photosensor as 0 or 1.

For electrical parts layout
 → See page 362,365

For Standards / Adjustment
 → See page 236

2. Operation procedures

(1) Checking the condition of the listed switches

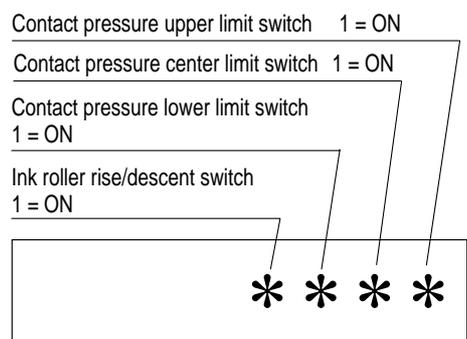
① Access HELP mode H-13, and press the PRINT  key.
 For the basic procedure for accessing HELP modes.

→ See page 287

② Press the [94%]  key, to turn it ON. The contact pressure motor will automatically start operating.

③ Press and hold the PRINT  key. For as long as the key is held down, a display indicating the conditions of the following switches will appear.

- ◆ Contact pressure upper limit switch
- ◆ Contact pressure center limit switch
- ◆ Contact pressure lower limit switch
- ◆ Ink roller rise/descent switch



④ Release the PRINT  key. The sensor / switch condition displays below are now available for accessing. Access by selecting the appropriate document mode given below for each item.

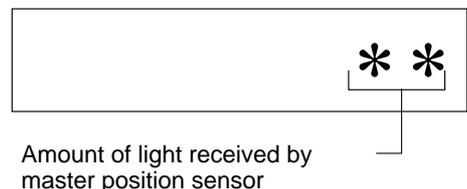
◆ **End mark sensor**

- Display of the amount of light received by the end mark sensor, as a value between 00 and 63.
- To access this display, press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT item.



◆ **Master position sensor**

- Display of presence/absence of the master on its travel path, as a numerical value.
- To access this display, press the TEXT/PHOTOGRAPH  key as many times as needed to select the PHOTOGRAPH item.
- "Approx. 10": Master present
- "Approx. 10 + 30": Master absent



HELP mode H-13 (1) Sensor/switch condition display

◆ **Master feed cover switch**

- Display of condition (ON/OFF) of master feed cover switch as 0 or 1.

➔ To access this display, press the **TEXT/PHOTOGRAPH**  key as many times as needed to select the **TEXT/PHOTOGRAPH** item.

"1": OFF

"0": ON



Master feed cover condition display

◆ **Platen pressure photosensor**

- Display of the condition of the thermal head press motor's shading plate.

➔ To access this display, press the **TEXT/PHOTOGRAPH**  key as many times as needed to select the **HALFTONE1** item.

"1": Obstructing light



Shading plate condition display

◆ **Master sensor**

- Display of presence/absence of master on drum (plate detachment position), as a numerical value.

➔ To access this display, press the **TEXT/PHOTOGRAPH**  key as many times as needed to select the **PHOTOGRAPH/FINE PRINT** item.

"Approx. 10": Master present

"Approx. 10 + 20": Master absent



Amount of light received by master sensor

◆ **Document sensor**

- Display of presence/absence of document, as a numerical value.

➔ To access this display, press the **TEXT/PHOTOGRAPH**  key as many times as needed to select the **TEXT/FINE PRINT** item.

"0": Document present

"63": Document absent



Amount of light received by document sensor

⑤ Press and hold the **TEST PRINT**  key. The thermal head press motor will run, for as long as the key is hold down.

⑥ 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.using the numeric keys.

HELP mode H-14

(1) Total counts

1. Functions

- (1) 6-digit display of count of total plates made, divided into 2 higher-order digits and 4 lower-order digits
- (2) Resetting of count of total plates made in user mode

2. Operation procedures

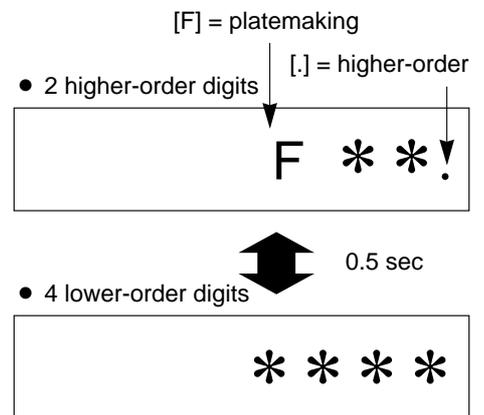
(1) Obtaining 6-digit display of count of total plates made, divided into 2 higher-order digits and 4 lower-order digits

- ① Access HELP mode H-14, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

- ② Press and hold the PRINT  key. For as long as the key is held down, the display will alternate at intervals of 0.5 seconds between the 2 higher-order digits and the 4 lower-order digits.
- ③ Release the PRINT  key. The display will stop alternating and show steadily the item displayed at the moment of key release.
- ④ 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 mode H-14

(2) Total counts

(2) Resetting the count of total plates made in user mode

① Access HELP mode H-14, and press the PRINT  key.

For the basic procedure for accessing HELP mode.

 See page 287

• When the PRINT  key is pressed, the current value for the count of total plates made in user mode will be displayed.

② Press the CLEAR  and  keys simultaneously, to execute resetting. The resetting will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

• During memorization



IMPORTANT

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

③ 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. Functions

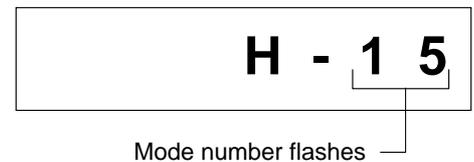
(1) Function testing of ink motor

2. Operation procedures

1) Testing the functioning of the ink motor

- ① Access HELP mode H-15, and press the PRINT  key.
For the basic procedure for accessing HELP modes

➔ See page 287



- ② Press and hold the TEST PRINT  key. The ink motor will run for as long as the key is held down.

IMPORTANT

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

- ③ Release the TEST PRINT  key. The ink motor will stop.

- ④ 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 mode H-16 (1) Adjustment / specification setting

1. Functions

(1) Correction of platemaking start position during online platemaking

For Standards / Adjustment

➔ See page 240

Related HELP mode

HELP mode H-37 ➔ See page 337

HELP mode H-52,H-57 ➔ See page 349

HELP mode H-53 ➔ See page 351

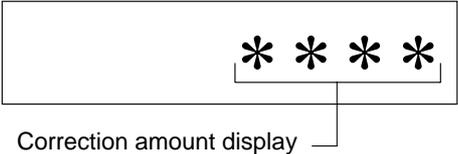
2. Operation procedures

(1) Setting correction of platemaking start position during online platemaking

① Access HELP mode H-16, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

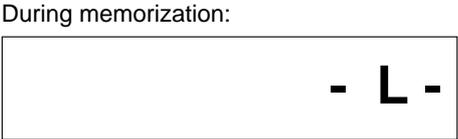
➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Display	Item	Setting
0 * * *	Sign flag	Rises by the set amount for the lower 3 digits
1 * * *		Lowers by the set amount for the lower 3 digits
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.



IMPORTANT

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

④ 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 mode H-17

(1) Function testing

1. Functions

(1) Function testing of cutter motor

For description of operation

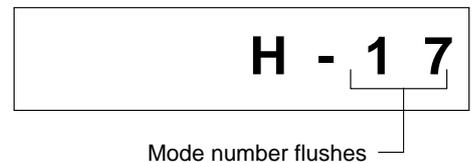
➔ See page 95

2. Operation procedures

(1) Testing the cutter motor's functioning

- ① Access HELP mode H-17, and press the PRINT  key.
For the basic procedure for accessing HELP modes .

➔ See page 287



- ② Press and hold down the  printing position adjustment key.
The cutter motor will rotate in the regular direction (clockwise), so that the cutter moves toward the inner side, for as long as the key is held down.
- ③ To stop the cutter, release the  printing position adjustment key. (Alternatively, the cutter will stop automatically when cutter limit switch MS2 is tripped (closing its contacts)).
- ④ Press and hold down the  printing position adjustment key.
The cutter motor will rotate in the reverse direction (counterclockwise), so that the cutter moves toward the operation side, for as long as the key is held down.
- ⑤ To stop the cutter, release the  printing position adjustment key. (Alternatively, the cutter will stop automatically when cutter limit switch MS1 is tripped (closing its contacts)).
- ⑥ 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 mode H-18 (1) Function testing

1. Functions

(1) Function testing of roll-up motor

For description of operation

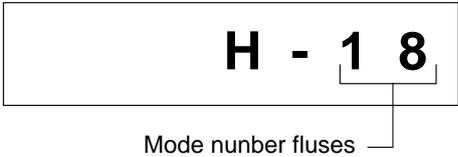
➔ See page 98

2. Operation procedures

(1) Testing the functioning of the roll-up motor

- ① Access HELP mode H-18, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287



- ② Press and hold down the  printing position adjustment key. The take-up motor will rotate in the reverse direction (counterclockwise), so that the roller inside the master ejection box turns, for as long as the key is held down.

- ③ To stop the motor (and the roller), release the  printing position adjustment key.

- ④ 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 mod : Enter the desired mode number using the numeric keys.

HELP mode H-19

(1) Total counts

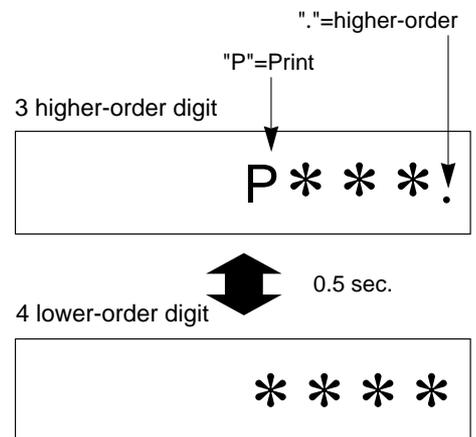
1. Functions

- (1) 7-digit display of count of total sheets printed, divided into 3 higher-order digits and 4 lower-order digits
- (2) Resetting of count of total sheets printed in user mode

2. Operation procedures

(1) Obtaining 7-digit display of count of total sheets printed, divided into 3 higher-order digits and 4 lower-order digits

- ① Access HELP mode H-19, and press the PRINT  key.
For the basic procedure for accessing HELP modes. ➔ See page 287
 - ② Press and hold the PRINT  key. For as long as the key is held down, the display will alternate at intervals of 0.5 seconds between the 3 higher-order digits and the 4 lower-order digits.
 - ③ Release the PRINT  key. The display will stop alternating and show steadily the item displayed at the moment of key release.
 - ④ 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 mode H-19

(2) Total counts

(2) Resetting the count of total sheets printed in user mode

① Access HELP mode H-19, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

 See page 287

During memorization:



- When the PRINT  key is pressed, the current value for the count of total sheets printed in user mode will be displayed.

② Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

IMPORTANT

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

③ 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 mode H-20

(1) Function testing

1. Functions

(1) Function testing of clamp motor and clamp position sensing (A/B/C mode position)

For Standards / Adjustment B mode

➔ See page 215

For Standards / Adjustment A/C mode

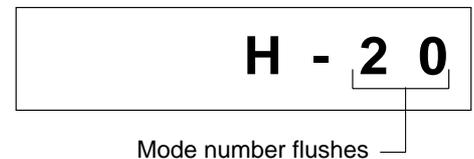
➔ See page 217

For description of operation

➔ See page 102

2. Operation procedures

(1) Testing the functioning of the clamp motor and clamp position sensing (A/B/C mode position)



- ① Access HELP mode H-20, and press the PRINT  key.
For the basic procedure for accessing HELP modes.
 - ② Press and hold down the  printing position adjustment key.
The clamp motor will rotate in the reverse direction (counterclockwise), opening out the clamp, for as long as the key is held down.
 - ③ To stop opening of the clamp, release the  printing position adjustment key. (Alternatively, opening will stop automatically when the light beam of the A/C mode sensor (PS3) is restored).
 - ④ Press and hold down the  printing position adjustment key.
The clamp motor will rotate in the regular direction (clockwise), closing the clamp, for as long as the key is held down.
 - ⑤ To stop closing of the clamp, release the  printing position adjustment key. (Alternatively, closing will stop automatically when the light beam of the A/C mode sensor (PS3) is restored).
 - ⑥ 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.

NOTE

- Whether the clamp is in the A, B or C mode position is determined by the B mode sensor and the A/C mode sensor in combination:
 - A mode position** : When the light beam of both the B mode and A/C mode sensor is unobstructed
 - C mode position** : When the light beam of both the B mode sensor is obstructed and that of the A/C mode sensor unobstructed
 - B mode position** : When the B mode sensor senses edge, and the light beam of the A/C mode sensor is obstructed.
- If the clamp is not in the A mode position when the power is turned on, it will rotate to the B position and stop there.

HELP mode H-21 (1) ADF error code display

1. Functions

- (1) Display of ADF communication status and error codes
- (2) Function testing of single and continuous feed by ADF

2. Operation procedures

(1) Displaying the ADF communication status and error codes

① Access HELP mode H-21, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

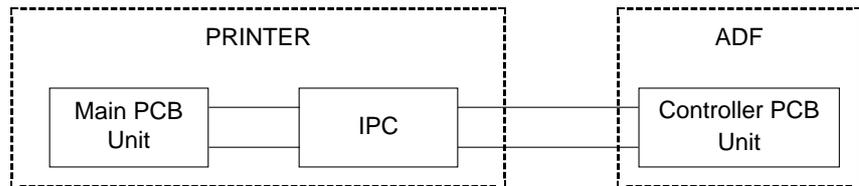
➔ See page 287

• ADF communication status display



② Press and hold down the PRINT  key. A code for the communication status will be displayed for as long as the key is held down.

Cord	Description
01	No communication between the main substrate on the printer main body and IPC board.
02	No communication between the IPC board and ADF controller substrate.
03	There is a communication between the printer main body and ADF.

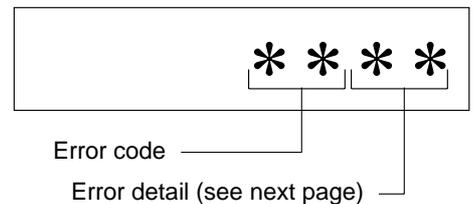


③ Release the PRINT  key. An error code will be displayed.

• Display of ADF error code

Cord	Item	Description	Countermeasures
0 1 * *	DOWN	Impossible to operate	Perform self-checking after the power is turned off and on. Reset if the state is OK.
0 2 * *		When 02** arises twice successively, 01** is displayed.	Turn the power off and on and reset.
0 3 * *	JAM	Jam occurs.	Take the necessary countermeasures referring to the instruction manual.
0 4 * *	ALARM	Resetting is needed by the user.	Turn the document detection sensor off and on.

Display of ADF error code:



④ 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.

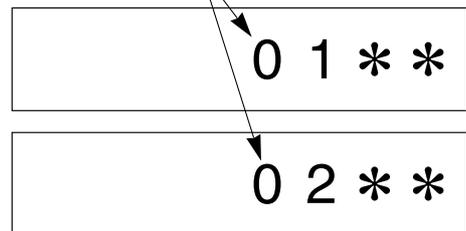
HELP mode H-21 (1) ADF error code display

Details of the error contents

◆ **DOWN information is displayed : [01 * *] and [02 * *]**

Cord	Description and Countermeasures	Operation
0 1 0 2 0 2 0 2	• Belt motor or belt clock is defective.Self-check.	Operation stops
0 1 0 4 0 2 0 4	• Paper ejection motor clock is defective.Self-check.	↑
0 1 1 1 0 2 1 1	• Sensor level is defective.Self-check.	↑
0 1 2 1 0 2 2 1	• The IPC is defective.Transmisstion is not finished within a fixed time.Self-check.	↑

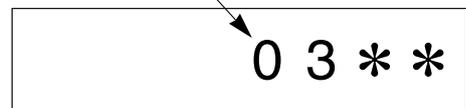
DOWN information display



◆ **JAM information is displayed : [03 * *]**

Cord	Item	Description
0301	Document mis-feed:	After paper feeding motor (M1) comes on, and before paper feedsensor S3 detects a document, document detection sensor S1goes OFF. (2nd sheet onward.)
0302	Paper feed delay:	3 seconds after paper feeding motor comes on, paper feed sensorS3 has not detected forward edge of document. (2nd sheetonward.)
0303	Registering delay:	During document separation, registering sensor S2 has notdetected forward edge of document 0.5 seconds after paper feedsensor S3 detects it.
0305	Paper feeding stop	the bottom end of the document is not detected in a certain time after the document is fed.
0306	Continuous paper feeding	Registering sensor S2 detects the document even after the document is completely fed.
0308	Paper feeding tip end backward	Registering sensor S2 does not detect the document at the time of paper feeding start.
0313	Backward together	Paper ejection sensor S4 is turned off while the clock is conveyed at the time of paper ejection.
0341	Paper ejection delay	Paper ejection sensor S4 does not detect the tip end of the document in a certain time after paper ejection starts.
0342	Paper ejection stop	Paper ejection sensor S4 does not detect the bottom end of the document in a certain time after the above is detected.
0381	OPEN	The ADF is open while the ADF is working.
0382	Cover open	The ADF cover is open while the ADF is working.
0384	Jammed document left	Paper feeding sensor S3, registering sensor S2 or paper ejection sensor S4 detects the document.
0385	Adjustment jam	Conveyance jamming at the time of adjusting the stop position.
0388	Document left	The left document is detected with the paper ejection sensor ON by rotating the belt motor reversely as long as the distance to the paper ejection sensor S4 before the first feeding.

JAM information display

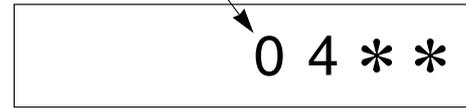


HELP mode H-21 (1) ADF error code display,(2) Function testing

◆ Alarm information is displayed : [0 4 * *]

Cord	Contents and Countermeasures	Operation
0403	<ul style="list-style-type: none"> No separation Document detection sensor S1 ON → OFF 	The separation section stops immediately. Operation stops after the previous document is ejected.
0415	<ul style="list-style-type: none"> Document size is not proper. (2 in 1 mode) Document detection sensor S1 ON → OFF 	Operation stop after end of platemaking and paper ejection.
0421	<ul style="list-style-type: none"> The mode which is not in need is received. 	Document detection sensor S1 ON → OFF

Alarm information display



(2) Testing of functioning of single feed and continuous feed by ADF

① Access HELP mode H-21, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287



Mode number flashes

② For a single feed operation: Press the PLATEMAKING  key once to execute paper feed, and a second time to execute paper ejection. (Further pressings of the PLATEMAKING  key will execute feed and ejection alternately.)

③ For continuous feed operation: Press the TEST PRINT  key. Paper feed and ejection operations will be executed continuously until there are no more documents left.

④ 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 mode H-22 (1) Adjustment / specification setting

1. Functions

(1) Setting of lengthwise zoom factor correction amount for platemaking side

For Standards / Adjustment

➔ See page 237

Related HELP mode

HELP mode H-24 ➔ See page 324

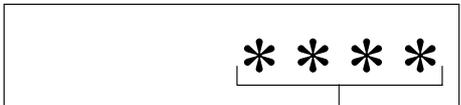
HELP mode H-49 ➔ See page 346

2. Operation procedures

(1) Setting of lengthwise zoom factor correction amount for platemaking side

① Access HELP mode H-22, and press the PRINT  key.
For the basic procedure for accessing HELP modes. ➔ See page 287

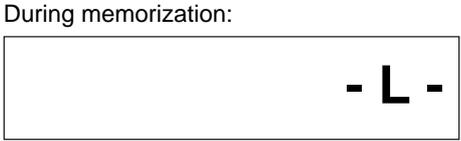
② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Shortens by the set amount for the lower 3 digits.
1 * * *		Lengthens by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ 1 rank: 0.125% ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.



IMPORTANT

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

④ 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 mode H-23 (1) Adjustment / specification setting

1. Functions

(1) Setting of photograph mode document sensing darkness

For Standards / Adjustment

➔ See page 242

Related HELP mode

HELP mode H-50 ➔ See page 347

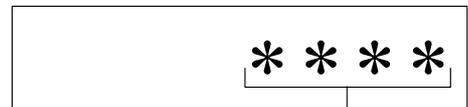
2. Operation procedures

(1) Setting of photograph mode document sensing darkness

- ① Access HELP mode H-23, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

- ② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Lighter by the set amount for the lower 3 digits.
1 * * *		Darker by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

- ③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

- ④ 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 mode H-24 (1) Adjustment / specification setting

1. Functions

(1) Setting of lengthwise zoom factor correction amount for sensing side

For Standards / Adjustment

➔ See page 237

Related HELP mode

HELP mode H-49 ➔ See page 346

HELP mode H-22 ➔ See page 322

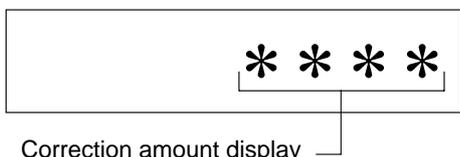
2. Operation procedures

(1) Setting of lengthwise zoom factor correction amount for sensing side

① Access HELP mode H-24, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

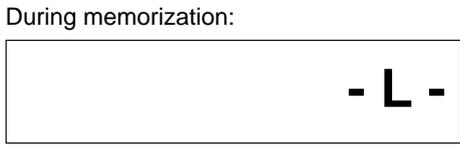
➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Display	Item	Setting
0 * * *	Sign flag	Shortens by the set amount for the lower 3 digits.
1 * * *		Lengthens by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ 1 rank: 0.25% ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.



IMPORTANT

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

④ 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 mode H-25 (1) Adjustment / specification setting

1. Functions

(1) Compensation of document darkness white level when ADF is used

For Standards / Adjustment

➔ See page 241

Related HELP mode

HELP mode H-33 ➔ See page 334

HELP mode H-26 ➔ See page 326

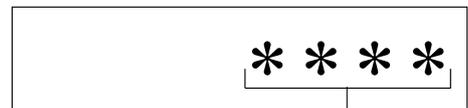
2. Operation procedures

(1) Compensation of document darkness white level when ADF is used

① Access HELP mode H-25, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

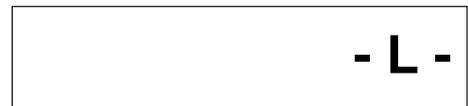


Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Rises by the set amount for the lower 3 digits
1 * * *		Lowers by the set amount for the lower 3 digits
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-26 (1) Adjustment / specification setting

1. Functions

(1) Compensation of document darkness white level in photograph mode

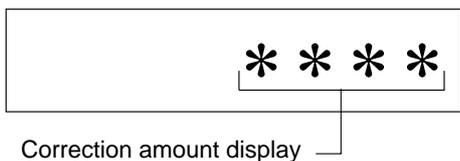
For Standards / Adjustment
 → See page 241

Related HELP mode
 HELP mode H-33 → See page 334
 HELP mode H-25 → See page 325

2. Operation procedures

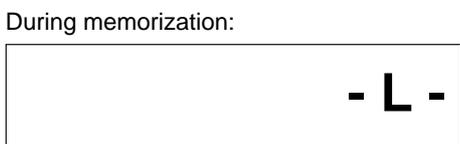
(1) Compensation of document darkness white level in photograph mode

- ① Access HELP mode H-26, and press the PRINT  key.
 For the basic procedure for accessing HELP modes.
 → See page 287
- ② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Display	Item	Setting
0 * * *	Sign flag	Rises by the set amount for the lower 3 digits
1 * * *		Lowers by the set amount for the lower 3 digits
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

- ③ Press the  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.



IMPORTANT

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

- ④ 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 mode H-27 (1) Adjustment / specification setting

1. Functions

(1) Initialization of all HELP mode settings

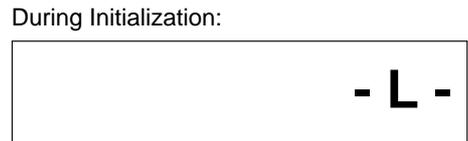
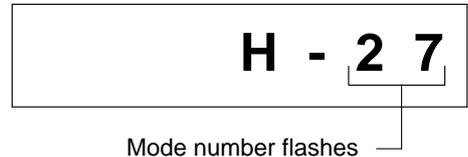
2. Operation procedures

(1) Initializing all the HELP mode settings

- ① Access HELP mode H-27, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

- ② Press the   key. The adjustment and specification settings of the HELP modes will be initialized. (But for the total counts (H-14 and H-19), only the user mode values will be initialized.) While initialization is in progress, "-L-" will be displayed.



IMPORTANT

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

- ③ 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.

IMPORTANT

- For the values after initialization, see the initialization values for each mode, and the HELP decals (on the inside of the rear cover).
- After initialization, carry out the adjustment and specification setting operations for the various modes. Inappropriate settings will results in operational problems.

HELP mode H-28 (1) Adjustment / specification setting

1. Functions

(1) Setting of tape cluster presence/absence, buzzer selection and key card specification

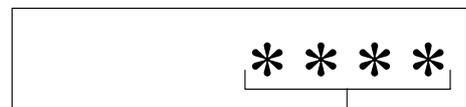
2. Operation procedures

(1) Setting of tape cluster presence/absence, buzzer selection and key card specification

① Access HELP mode H-28, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

[➔ See page 287](#)

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Whether there is a tape cluster or not.	There is a tape cluster.
1 * * *		There is not a tape cluster.
* 0 0 *	Selecting buzzer.	Standard (Buzzer sounds)
* 0 1 *		Buzzer does not sound when trouble occurs.
* 1 0 *		Does not sound
* 1 1 *		Does not sound
* * * 0	Key card counter specifications	Keycard counter
* * * 1		No Keycard counter
1 0 0 1	Initial value	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-29 (1) Adjustment / specification setting

1. Functions

(1) Adjustment of paper infeed amount

For Standards / Adjustment

➔ See page 234

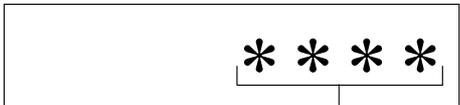
2. Operation procedures

(1) Adjustment of paper infeed amount

- ① Access HELP mode H-29, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

- ② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Shortens by the set amount for the lower 3 digits.
1 * * *		Lengthens by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

- ③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

- ④ 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 mode H-30

(1) Function checking

1. Functions

(1) Test pattern (front shading, poor image area checking, secondary scanning direction zoom factor adjustment) platemaking and printing

For position adjustment of feed cam

➔See page 224

Defective Image

➔See page 272

For adjusting reduction / enlargement

➔See page 237

2. Operation procedures

(1) Test pattern (front shading, poor image area checking, secondary scanning direction zoom factor adjustment) platemaking and printing

① Access HELP mode H-30, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔See page 287

② Select one of the items below, and follow the procedure given for it.

• **Test pattern 1 (front shading)**

➔Use the PLATEMAKING DARKNESS  key to select the DARKER2 item.

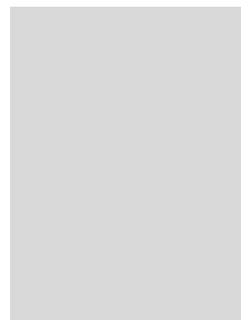
• **Test pattern 2 (poor image area checking)**

➔Use the PLATEMAKING DARKNESS  key to select the DARKER1 item.

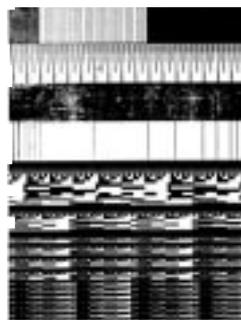
• **Test pattern 3 (secondary scanning direction zoom factor adjustment)**

➔Use the PLATEMAKING DARKNESS  key to select the STANDARD item.

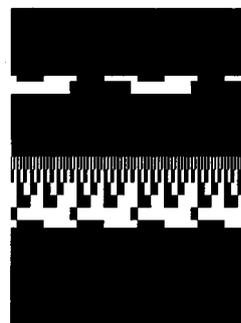
• Test pattern 1



• Test pattern 2



• Test pattern 3



IMPORTANT

• Once this mode has been entered, it is not possible to switch to any other mode. To exit this mode, turn off the power.

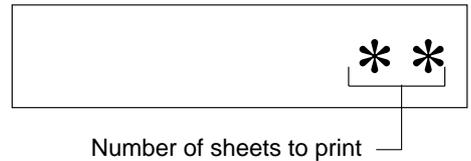
HELP mode H-30 (1) Function checking

- ③ To implement fine start mode operation (only carry out this step if fine start mode operation is required; otherwise, go to step ④):
 - Press the TEXT/PHOTOGRAPH  key as many times as needed to select the TEXT/PHOTOGRAPH item. Fine start mode operation will begin.

IMPORTANT

- Note that since this is a test mode, fine start mode operation will only be implemented if the following conditions are met:

Free rotation of ink roller	: 3 times before master detachment
	: 3 times before master attachment
	: 3 times after master attachment
Slowdown during first print	: None



- ④ Press the PLATEMAKING  key to implement platemaking/printing
- ⑤ 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 mode H-31 (1) Adjustment / specification setting

1. Functions

(1) Setting of number of pre-print sheets

Use this to set a value for the number of pre-print sheets. "Pre-print sheets" are extra sheets that are printed at the start of printing, without being added to the print count.

2. Operation procedures

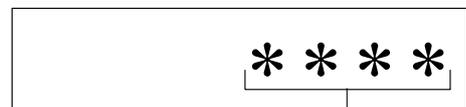
(1) Setting of number of pre-print sheets

① Access HELP mode H-31, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Display	Item
0 0 0 0	0 sheet(initial value)	1 0 0 0	8 sheets
0 0 0 1	1 sheet	1 0 0 1	9 sheets
0 0 1 0	2 sheets	1 0 1 0	10 sheets
0 0 1 1	3 sheets	1 0 1 1	11 sheets
0 1 0 0	4 sheets	1 1 0 0	12 sheets
0 1 0 1	5 sheets	1 1 0 1	13 sheets
0 1 1 0	6 sheets	1 1 1 0	14 sheets
0 1 1 1	7 sheets	1 1 1 1	15 sheets

③ Press the []  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-32 (1) Adjustment / specification setting

1. Functions

(1) Selection of first print speed, setting of master ejection error sensing, selection of sort mode

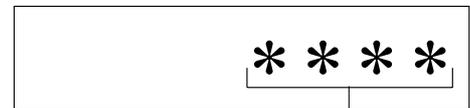
2. Operation procedures

(1) Selection of first print speed, setting of master ejection error sensing, selection of sort mode

- ① Access HELP mode H-32, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

- ② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Specification setting display

Display	Item	Setting
0 * * *	Not used.	
1 * * *		
* 0 * *	Selecting the first print speed./Selecting the print speed for the first sheet after platemaking is completed.	1st-speed (about 45 rpm)
* 1 * *		JOG speed (about 15 rpm)
** 0 *	Master mis-ejection detection	Yes
** 1 *		No
*** 0	Selecting sort mode with the power ON	Non-sort mode
*** 1		Sort mode
1 0 0 0	Initial value	

- ③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

- ④ 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 mode H-33 (1) Adjustment / specification setting

1. Functions

(1) Compensation of document darkness white level in text mode

For Standards / Adjustment
 → See page 241

Related HELP mode
 HELP mode H-26 → See page 326
 HELP mode H-25 → See page 325

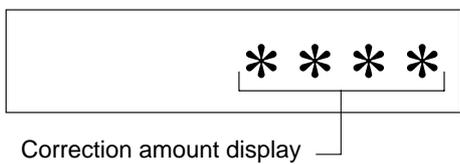
2. Operation procedures

(1) Compensation of document darkness white level in text mode

① Access HELP mode H-33, and press the PRINT  key.
 For the basic procedure for accessing HELP modes.

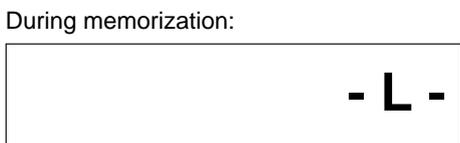
→ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Display	Item	Setting
0 * * *	Sign flag	Rises by the set amount for the lower 3 digits
1 * * *		Lowers by the set amount for the lower 3 digits
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.



IMPORTANT

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

- ④ 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 mode H-35 (1) Adjustment / specification setting

1. Functions

(1) Scanner leading edge sensing position adjustment

For Standards / Adjustment

➔ See page 239

Related HELP mode

HELP mode H-36 ➔ See page 336

2. Operation procedures

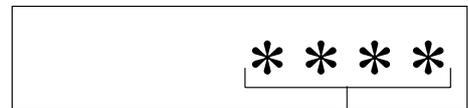
(1) Scanner leading edge sensing position adjustment

① Access HELP mode H-35, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

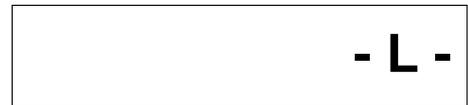


Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Moves to the left by the set amount of the lower 3 digits.
1 * * *		Moves to the right by the set amount of the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-36 (1) Adjustment / specification setting

1. Functions

(1) Scanner widthwise (operation side) sensing position adjustment

For Standards / Adjustment

➔ See page 239

Related HELP mode

HELP mode H-35 ➔ See page 335

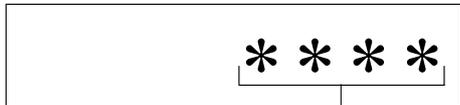
2. Operation procedures

(1) Scanner widthwise (operation side) sensing position adjustment

① Access HELP mode H-36, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Moves toward you by the set amount of the lower 3 digits.
1 * * *		Moves backward by the set amount of the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* * * 1		
* 1 1 1		

During memorization:



③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

IMPORTANT

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

④ 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 mode H-37 (1) Adjustment / specification setting

1. Functions

(1) Adjustment of platemaking start position when scanner is used

For Standards / Adjustment

➔ See page 240

Related HELP mode

HELP mode H-16 ➔ See page 313

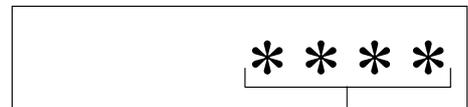
2. Operation procedures

(1) Adjustment of platemaking start position when scanner is used

① Access HELP mode H-37, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Rises by the set amount for the lower 3 digits
1 * * *		Lowers by the set amount for the lower 3 digits
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

During memorization:



③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

IMPORTANT

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

④ 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 mode H-41 (1) Adjustment / specification setting

1. Functions

(1) Changing of platemaking start position for second image in multiple image printing, setting of repeat count display, selection of sorter home position timing

2. Operation procedures

(1) Changing of platemaking start position for second image in multiple image printing, setting of repeat count display, selection of sorter home position timing

① Access HELP mode H-41, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

 See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Platemaking start position change for 2nd image in multiple image printing*1	Old version position
1 * * *		New version position
* 0 * *	Not used	
* 1 * *		
* * 0 *	Count repeat display	Repeat display of count
* * 1 *		No repeat display of count
* * * 0	Selection of sorter home position return timing	To home position after completion of last sheet
* * * 0		To home position when next print run starts
1 0 0 0	Initial value	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-42 (1) Adjustment / specification setting

1. Functions

(1) Setting of paper selection specification

2. Operation procedures

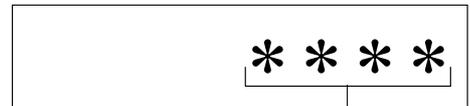
(1) Scanner leading edge sensing position adjustment

① Access HELP mode H-42, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 0 * *	Paper selecting specifications(A/B size)	A3/B4/A4/B5/A5 (B4/A4/B5/A5)
0 1 * *		A3/B4/A4/special/A5 (B4/A4/special/A5)
1 0 * *	Paper selecting specifications (inch)	LDG/LGL/LTR/STMT/MAX (10× 14/LGL/LTR/STMT/MINI)
1 1 * *		LDG/LGL/LTR/special/MAX (10× 14/LGL/LTR1/Special/MINI)
* * 0 0	Paper selecting with the power ON	A3/LDG (B4/10× 14)
* * 0 1		B4/LGL
* * 1 0		A4/LTR
* * 1 1		B5/STMT/special
0 0 0 0	Initial value	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-43, H-44 (1) Adjustment / specification setting

1. Functions

(1) Setting of thermal head resistance ranking

For description of operation

➔ See page 87

2. Operation procedures

(1) Setting of thermal head resistance ranking

• H-43



① Access HELP mode H-43, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

H-43	H-44	Rank	Resistance(Ω)
0011	0011	1	1700 – 1765
0100	0000	2	1765 – 1799
0100	0001	3	1800 – 1835
0100	0010	4	1836 – 1870
0100	0011	5	1871 – 1922
0101	0000	6	1923 – 1961
0101	0001	7	1962 – 1999
0101	0010	8	2000 – 2037
0101	0011	9	2038 – 2099
0110	0000	10	2100 – 2141
0110	0001	11	2142 – 2183
0110	0010	12	2184 – 2225
0110	0011	13	2226 – 2271
0111	0000	14	2272 – 2300

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

HELP mode H-43, H-44 (1) Adjustment / specification setting

- ④ Press the Stop  key.
- ⑤ Access HELP mode H-44. (Refer to ① above for procedure)
- ⑥ Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired resistance ranking. See the table in ② above for 4-place binary values and the corresponding rankings.
- ⑦ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

● H-44



During memorization:



IMPORTANT

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

- ⑧ 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 mode H-45, H-46 (1) Adjustment / specification setting

1. Functions

(1) Setting of special paper size length

The length of a special paper size is set using HELP modes H-45 and H-46. H-45 is used for the lower-order 4 bits of the setting, and H-46 for the higher-order 4.

2. Operation procedures

(1) Setting of special paper size length

• H-45(Lower-order 4 bits)



① Access HELP mode H-45, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

 See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

H-46	H-45	Set width(mm)
0 0 0 0	0 0 0 0	Initial value
0 0 0 0	0 0 0 1	Set width
0 0 0 0	0 0 1 0	Converted decimal value for binary H-46 (upper 4 bits) + binary H-45 (lower 4 bits) × 2 mm
.	.	Example : H-46 = 0111, H-45 = 1101
.	.	01111101 = 125
.	.	125 × 2 = 250
.	.	Set width = 250mm
.	.	Maximum value is 432mm.*
1 1 0 1	1 0 0 0	Maximum : 432mm

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

HELP mode H-45, H-46 (1) Adjustment / specification setting

- ④ Press the Stop  key.
- ⑤ Access HELP mode H-46 (for the higher-order 4 bits). (Refer to ① above for procedure)
- ⑥ Use the [0] and [1] numeric keys to enter a new 4-place binary value. See the table in ② above for 4-place binary values and the corresponding settings.
- ⑦ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

● H-46(Higher-order 4 bits)



During memorization:



IMPORTANT

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

- ⑧ 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 mode H-47, H-48 (1) Adjustment / specification setting

1. Functions

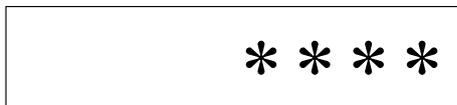
(1) Setting of special paper size width

The width of a special paper size is set using HELP modes H-47 and H-48. H-47 is used for the lower-order 4 bits of the setting, and H-48 for the higher-order 4.

2. Operation procedures

(1) Setting of special paper size width

• H-47(Lower-order 4 bits)



- ① Access HELP mode H-47, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

[➔See page 287](#)

- ② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

H-48	H-47	Set width(mm)
0 0 0 0	0 0 0 0	Initial value
0 0 0 0	0 0 0 1	Set width
0 0 0 0	0 0 1 0	Converted decimal value for binary H-48 (upper 4 bits) + binary H-47 (lower 4 bits) × 2 mm
.	.	Example : H-46 = 0111, H-45 = 1101
.	.	01111101 = 125
.	.	125 × 2 = 250
.	.	Set width = 250mm
.	.	Maximum value is 290mm.*
1 0 0 1	0 0 0 1	Maximum : 290mm

- ③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

HELP mode H-47, H-48 (1) Adjustment / specification setting

- ④ Press the Stop  key.
- ⑤ Access HELP mode H-48 (for the higher-order 4 bits). (Refer to ① above for procedure)
- ⑥ Use the [0] and [1] numeric keys to enter a new 4-place binary value. See the table in ② above for 4-place binary values and the corresponding settings.
- ⑦ Press the [\cong]  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

● H-48(Higher-order 4 bits)



During memorization:



IMPORTANT

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

- ⑧ 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 mode H-49 (1) Adjustment / specification setting

1. Functions

(1) Adjustment of sensing side widthwise zoom factor

For Standards / Adjustment

➔ See page 238

Related HELP mode

HELP mode H-24 ➔ See page 324

HELP mode H-22 ➔ See page 322

2. Operation procedures

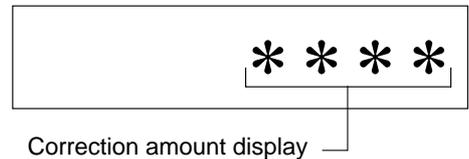
(1) Adjustment of sensing side widthwise zoom factor

① Access HELP mode H-49, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Display	Item	Setting
0 * * *	Sign flag	Shortens by the set amount for the lower 3 digits.
1 * * *		Lengthens by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-50 (1) Adjustment / specification setting

1. Functions

(1) Setting of text mode document sensing darkness

For Standards / Adjustment

➔ See page 242

Related HELP mode

HELP mode H-23 ➔ See page 323

2. Operation procedures

(1) Setting of text mode document sensing darkness

① Access HELP mode H-50, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 * * *	Sign flag	Lighter by the set amount for the lower 3 digits.
1 * * *		Darker by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-51 (1) Adjustment / specification setting

1. Functions

(1) Setting of darkness for test pattern platemaking

Use this to adjust the platemaking darkness for area ① of HELP mode H-30's test pattern 2.

Related HELP mode
 HELP mode H-30 → See page 330

Area ① (Defective image)
 → See page 268

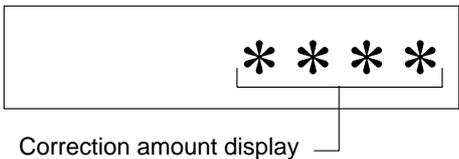
2. Operation procedures

(1) Setting of darkness for test pattern platemaking

- ① Access HELP mode H-51, and press the PRINT  key.
 For the basic procedure for accessing HELP modes.

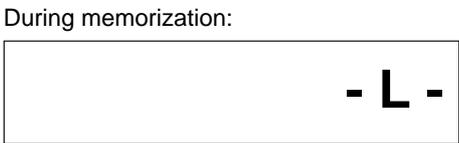
→ See page 287

- ② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Display	Item	Setting
0 * * *	Sign flag	Lighter by the set amount for the lower 3 digits.
1 * * *		Darker by the set amount for the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* 1 1 0		
* 1 1 1		

- ③ Press the [\cong]  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.



IMPORTANT

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

- ④ 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 mode H-52, H-57 (1) Adjustment / specification setting

1. Functions

(1) Setting of online conditions

- Use H-52 to set I/F switching (auto/manual) and online platemaking mode.
- Use H-57 to select data transmission speed (time for scanning of 1 line) for online platemaking.

Related HELP mode

HELP mode H-16 → See page 313

HELP mode H-53 → See page 351

2. Operation procedures

(1) Setting of online conditions

- H-52



① Access HELP mode H-52, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

→ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

H-52	H-57	Item	Setting
0 0 * *	/	I / F auto / manual setting	Manual
1 1 * *			Auto(standard)
* * 0 *	/	DP-10 test pattern	Standard
* * 1 *			DP-10 test pattern only
* * * 1	0 * * *	Line scanning speed	1.6m sec / line
* * * 0	0 * * *		2.0m sec / line(standard)
* * * 1	1 * * *		3.2m sec / line
* * * 0	1 * * *		4.0m sec / line
0 0 0 0	0 0 0 0		Factory setting

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

HELP mode

H-52, H-57

(1) Adjustment / specification setting

④ Press the Stop  key.

⑤ To also select the data transmission speed (time for scanning of 1 line), carry out this step and the following 2 steps:

⑥ Use the [0] and [1] numeric keys to enter a new 4-place binary value. See the table in ② above for 4-place binary values and the corresponding settings.

● H-57: Line scanning speed



⑦ Press the []  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

⑧ 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 mode H-53 (1) Adjustment / specification setting

1. Functions

**(1) Adjustment of widthwise (operation side)
platemaking start position for online platemaking**

Use this to adjust the platemaking darkness for area ① of HELP mode H-30's test pattern 2.

Related HELP mode

HELP mode H-52,57 → See page 349

HELP mode H-16 → See page 313

Area ① (Defective image)

→ See page 268

2. Operation procedures

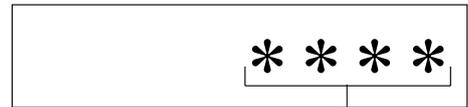
**(1) Adjustment of widthwise (operation side)
platemaking start position for online platemaking**

① Access HELP mode H-53, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

→ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 ***	Sign flag	Moves toward you by the set amount of the lower 3 digits.
1 ***		Moves backward by the set amount of the lower 3 digits.
* 0 0 0	Set amount	Standard (initial value) ↑ ↓ Maximum
* 0 0 1		
* 0 1 0		
* 0 1 1		
* 1 0 0		
* 1 0 1		
* * * 1		
* 1 1 1		

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-54

(1) Function testing

1. Functions

(1) Function testing of main PCB unit sorter port

2. Operation procedures

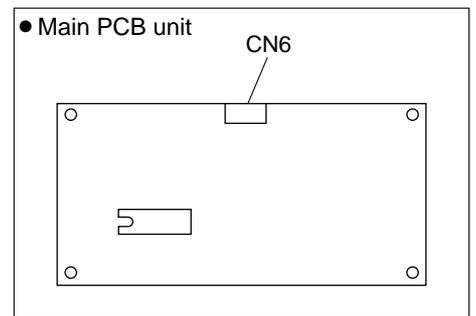
(1) Testing the functioning of the main PCB unit sorter port

- ① During use of the Duprinter: first put the machine into the standby state, then turn the power switch OFF.



WARNING

- The power switch **MUST** be turned off before the following operation is performed.



- ② Short CN6-23 and CN6-26 of the main PCB unit, to check the port.
- ③ Access HELP mode H-54, and press the PRINT key.
For the basic procedure for accessing HELP modes.

➔ See page 287

- When the PRINT key is pressed, a 4-digit binary value representing the communication status will be displayed.

- Displayed value if port is normal :



- Displayed value if port is abnormal :
any value other than the above

- ④ 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 mode H-55 (1) Adjustment / specification setting

1. Functions

(1) Setting of ink check at printing start, cutting operation mode for master cutting, and interlocks

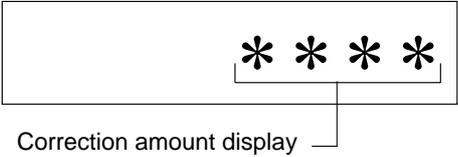
2. Operation procedures

(1) Setting of ink check at printing start, cutting operation mode for master cutting, and interlocks

① Access HELP mode H-55, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

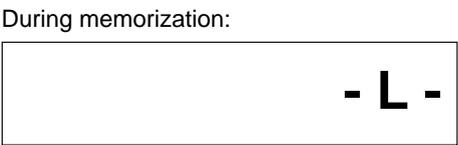
 See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Display	Item	Setting
0 * * *	Setting of ink check, that triggers ink replenishment if no ink is detected at printing start	Ink check
1 * * *		No ink check
* 0 * *	Selection of cutter operation mode	1 stroke = one-way motion
* 1 * *		1 stroke = reciprocating motion
* * 0 *	Interlock: emergency stop if top cover or ejection box open	Activated
* * 1 *		Deactivated
* * * 0	Not used	
* * * 1		
0 1 0 0	Initial value	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.



IMPORTANT

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

④ 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 mode H-59 (1) Adjustment / specification setting

1. Functions

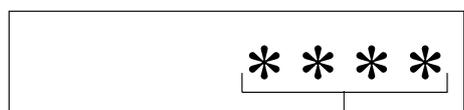
(1) Setting of: intermittent paper feed mode, master clamp application/release timing for master attachment, count change when ink is absent, fine start mode ON/OFF

2. Operation procedures

(1) Setting of: intermittent paper feed mode, master clamp application/release timing for master attachment, count change when ink is absent, fine start mode ON/OFF

① Access HELP mode H-59, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

 See page 287



Correction amount display

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 * * *		
1 * * *		
* 0 * *	Setting for master clamp opening/closing timing for master attachment	C mode → master fed out → B mode
* 1 * *		Master fed out → C mode → B mode
* * 0 *	Changing of out-of-ink count. Display of out-of-ink count Changing of count value	Standard (20 revolutions at speed 3)
* * 1 *		Treble (60 revolutions at speed 3)
* * * 0	Dis/enabling of Fine Start Mode	Enabled ((activated by HELP60/operation panel settings)
* * * 1		Disabled (enforced deactivation) *1
0 0 1 0	Factory setting	

***1: Stopgap action for failure of ink roller motor / contact pressure motor.**

Failure of these motors can be bypassed by setting "* * * 1" for HELP59. This setting is in fact intended for deactivating these motors in factory tests, but it has the effect of causing initialization of these motors to be omitted at machine start-up.

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-60 (1) Adjustment / specification setting

1. Functions

(1) Selection of operation panel auto clear activation timing, and duration of fine start mode

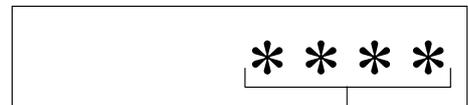
2. Operation procedures

(1) Selection of operation panel auto clear activation timing, and duration of fine start mode

① Access HELP mode H-60, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 0 * *	Selection of time for operation panel auto clear function	OFF
0 1 * *		3 minutes
1 0 * *		10 minutes
1 1 * *		15 minutes
* * 0 0	Selection of time for Fine Start Mode	Deactivated
* * 0 1		6 hours
* * 1 0		12 hours
* * 1 1		Auto
0 0 0 0	Factory setting	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-61 (1) Adjustment / specification setting

1. Functions

(1) Selection of LCD specification

2. Operation procedures

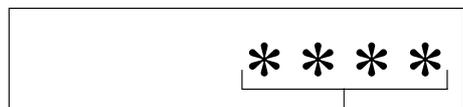
(1) Selection of LCD specification

① Access HELP mode H-61, and press the PRINT  key.

For the basic procedure for accessing HELP modes.

➔ See page 287

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.



Correction amount display

Display	Item	Setting
0 0 * *	Selection of LC display specifications	Japanese: Duplo
0 1 * *		Japanese: Other
1 0 * *		English
1 1 * *		Other foreign language
0 0 0 0	Factory setting	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-62 (1) Adjustment / specification setting

1. Functions

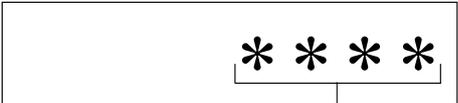
(1) Selection of: operation stop after printing of 1 sheet after platemaking; tape insertion timing; and display of list of numbers of sets and sheets

2. Operation procedures

(1) Selection of: operation stop after printing of 1 sheet after platemaking; tape insertion timing; and display of list of numbers of sets and sheets

① Access HELP mode H-62, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

 See page 287



Correction amount display

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 * * *	Stopping of print operation after printing of 1 sheet after platemaking, whether or not number of sheets to be printed has been set	OFF
1 * * *		ON
* 0 * *	Free rotation is implemented, to effect tape insertion timing	OFF
* 1 * *		ON
* 1 0 *	Selection of duration of free rotation for tape insertion timing	OFF (free rotation for 3 seconds)
* 1 1 *		ON (free rotation for 10 seconds)
* * * 0	Display of list of numbers of sets and sheets	OFF
* * * 1		ON
0 0 0 0	At shipment	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-63 (1) Adjustment / specification setting

1. Functions

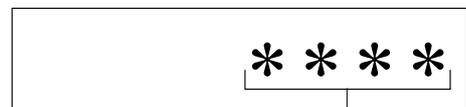
(1) Setting of: use of scanner pulley unit; factory adjustment value; use of A4 drum: and maximum value for user-set zoom factor

2. Operation procedures

(1) Setting of: use of scanner pulley unit; factory adjustment value; use of A4 drum: and maximum value for user-set zoom factor

① Access HELP mode H-63, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

 See page 287



Correction amount display

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 * * *	Use of scanner pulley unit	OFF: No pulley unit
1 * * *		ON: Pulley unit present
* 0 * *	For use in adjustment at factory	At delivery: *0**
* 1 * *		
* * 0 *	Use of A4 drum Use of A4 drum can only be disabled by HELP mode setting	OFF: Use disabled
* * 1 *		ON: Use enabled
* * * 0	Maximum value for user-set zoom factor	OFF (300%)
* * * 1		ON (499%)
0 0 0 1	At shipment	

③ Press the   key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

④ 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 mode H-64 (1) Adjustment / specification setting

1. Functions

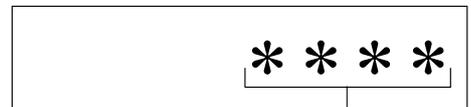
(1) Setting of calling up of memory M1 (DP-**S) / function F1 (DP-**E) data when power turned on (when sorter present / absent), and length of long tape for tape cluster

2. Operation procedures

(1) Setting of calling up of memory M1 (DP-**S) / function F1 (DP-**E) data when power turned on (when sorter present / absent), and length of long tape for tape cluster

① Access HELP mode H-64, and press the PRINT  key.
For the basic procedure for accessing HELP modes.

➔ See page 287



Correction amount display

② Use the [0] and [1] numeric keys to enter a 4-place binary value for the desired correction amount. See the table below for 4-place binary values and the corresponding correction amounts.

Display	Item	Setting
0 * * *	Calling up of memory M1 (DP-**S) / function F1 (DP-**E) data when power turned on. For when sorter is not connected.	OFF: Data not called up
1 * * *		ON: Data called up
* 0 * *	Calling up of memory M1 (DP-**S) / function F1 (DP-**E) data when power turned on. For when sorter is connected.	OFF: Data not called up
* 1 * *		ON: Data called up*1
** 0 0	Selection of length of tape cluster's long tape	445mm
** 0 1		395mm
** 1 0		335mm
** 1 1		280mm

*1: When [*1**] is set:

The sorter's power supply must be turned on prior to, or at the same time as, the DUPRINTER's power supply.

③ Press the  key. The correction amount will be memorized in the battery PCB unit's EEPROM. During memorization, "-L-" will be displayed.

During memorization:



IMPORTANT

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

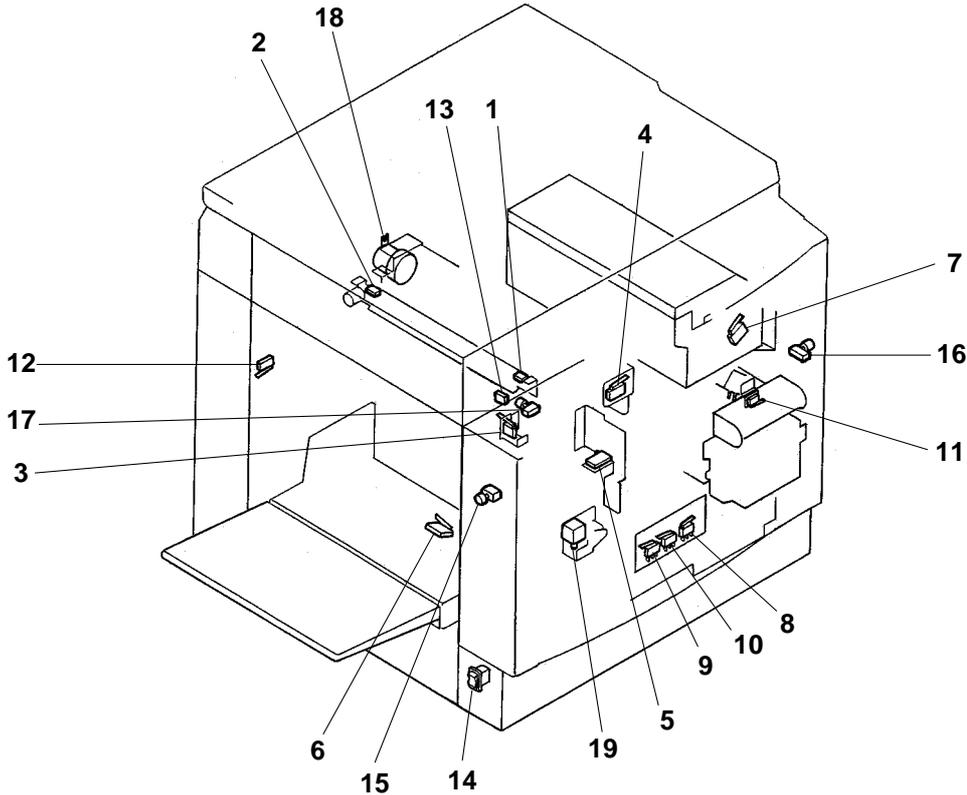
④ Press the STOP  key. The HELP mode selection display will reappear.

- ➔ 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	Electrical Parts Layout and Their Functions	362
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1 Electrical Parts Layout and Their Functions

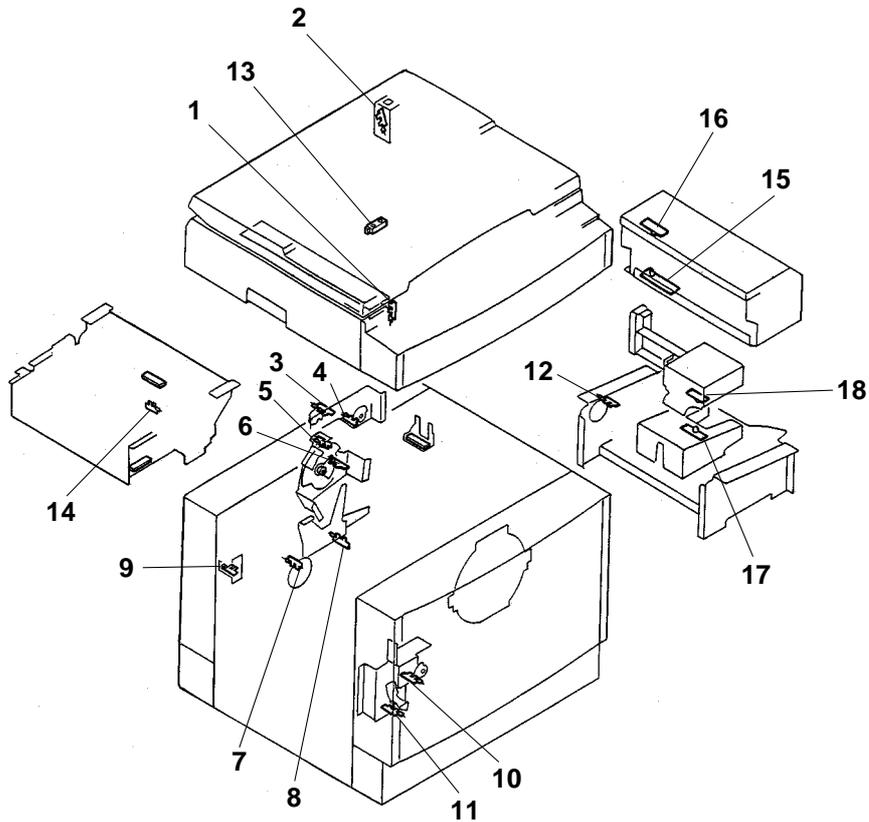
(1) Switches/Clutches/Solenoids



63S00901

Item	No.	Functions
Microswitch/switch	1	Cutter limit position on the operation side is detected.
	2	Cutter limit position on the rear side is detected.
	3	Opening and closing of the top cover is detected.
	4	Whether the drum is set or not is detected.
	5	Opening and closing of the front cover is detected.
	6	Whether the paper is placed or not is detected.
	7	Whether the master ejection core is set or not and full or not is detected.
	8	Hi contact pressure limit detection
	9	Contact pressure lower limit detection
	10	Contact pressure upper limit detection
	11	Ink roller top/bottom limit detection
	12	Elevator lower limit switch
	13	Master cover open/closed detection
	14	Power switch
Push switch	15	Paper/master feed elevator descent switch
	16	Jog switch(drum rotator switch)
	17	Master set switch
Clutch	18	Master feeding clutch
Solenoid	19	Paper feed solenoid

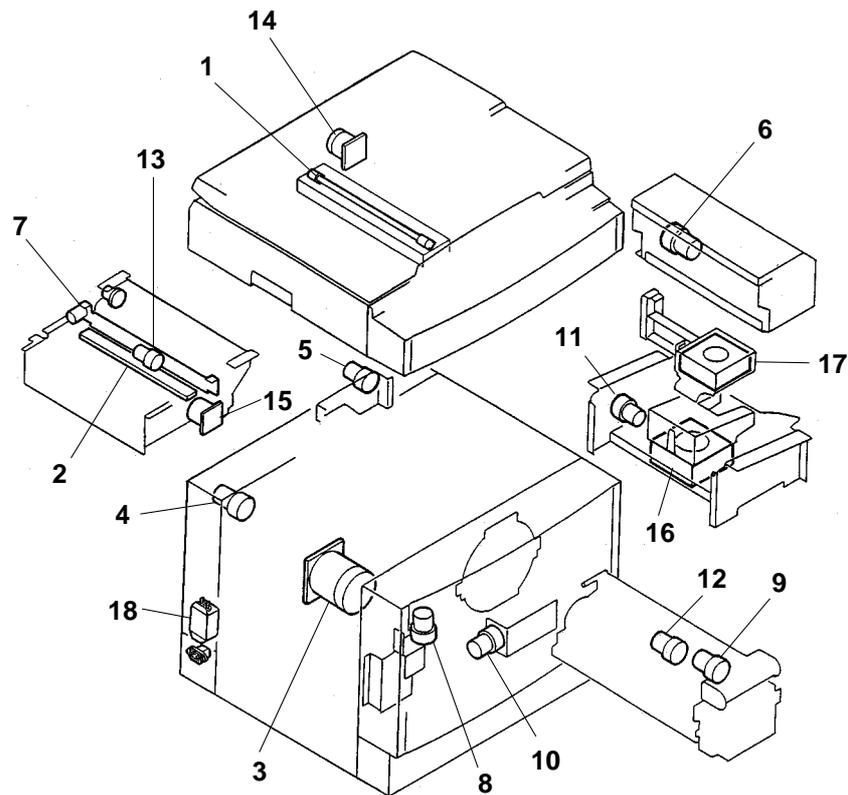
(2) Sensors



63S00902

Item	No.	Functions
Photointerrupter	1	Scanner home position is detected.
	2	Opening and closing of the document cover is detected.
	3	Master clamp opening and closing lever A/C mode is detected.
	4	Master clamp opening and closing lever B mode is detected.
	5	Drum home position and JAM detection position are detected.
	6	Master attachment/detachment position is detected.
	7	Main motor encoder sensor.
	8	Press roller ON and OFF is detected.
	9	Paper/master feed elevator top limit detection
	10	Print position limit of the print position is detected.
	11	Center position of the print position adjustment is detected.
	12	Paper ejection belt motor and encoder detection.
	13	Document size detection
	14	Thermal head press position detection
Master ejection sensor photo-emitting	15	Photo-emitting of the master ejection and JAM detection sensor.
Master ejection sensor photo-receiving	16	Master is detected at the inlet of the master ejection box.
Jam sensor photo-receiving	17	Paper on the paper delivery side is detected.
Jam sensor photo-emitting	18	Detection of paper on paper ejection side.

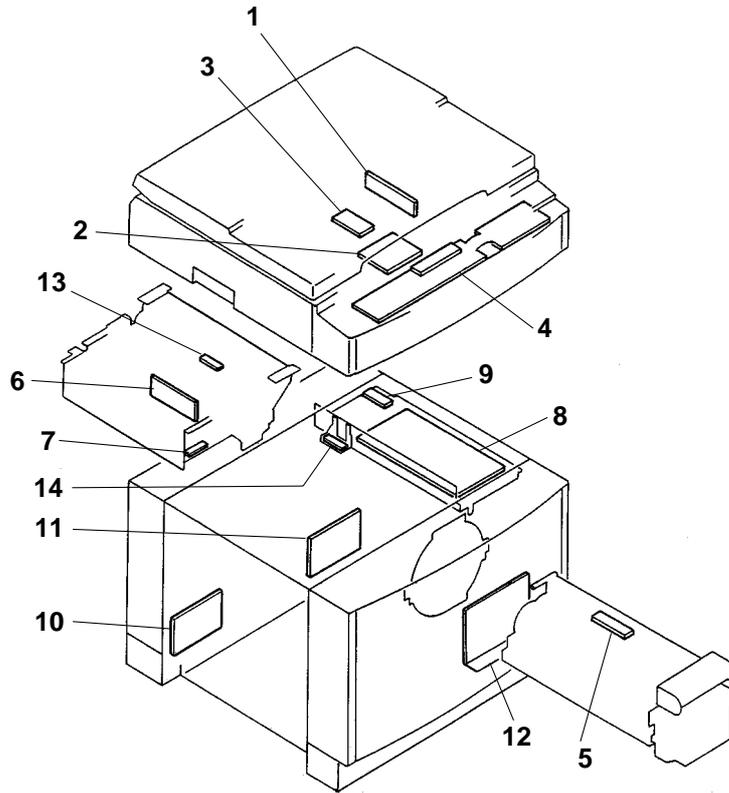
(3) Lamps/Motors



63S00903

Item	No.	Functions
Lamp	1	Document lamp
Thermal head	2	Thermal head
Motor	3	Main motor
	4	Paper feed tray elevator motor
	5	Master clamp opening/closing lever motor
	6	Roll-up motor
	7	Cutter motor
	8	Print position adjusting motor
	9	Ink pump motor
	10	Contact pressure motor
	11	Paper ejection belt motor
	12	Ink roller rise / descent motor
	13	Thermal head press motor
	14	Scanner stepping motor
	15	Plate making stepping motor
Fan motor	16	Paper ejection fan
	17	Top blowfun
Noise filter	18	Power supply line noise cut

(4) PCB unit

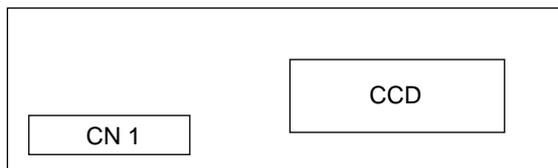


63S00904

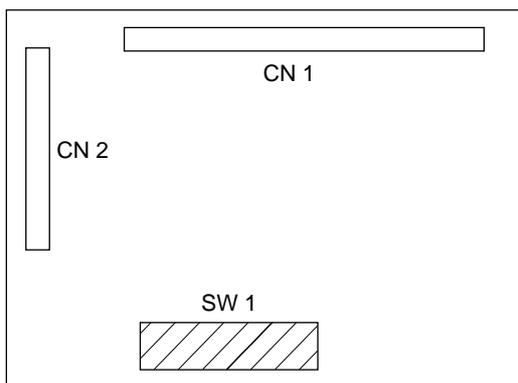
Item	No.	Functions
CCD PCB unit	1	Reading the picture image
AD PCB unit	2	Converting the image signal to AD
Inverter PCB unit	3	Lamp lights up
Control panel PCB unit	4	Control panel key, display
Ink detection PCB unit	5	Detecting Ink amount in the drum
Thermal head PCB unit	6	Controlling the thermal head
End mark sensor PCB unit	7	Detection of master presence on master feed travel path, and end mark
Main PCB unit	8	Processing the image and controlling the machine on the whole
Battery PCB '98 unit	9	Keeping the total counter and HELP information
Motor PCB unit	10	Controlling the main motor
Drive PCB unit	11	Driving the motor
Regulated power supply	12	Supplying with DC power supply
Master position sensor PCB unit	13	Attachment position control
Master sensor PCB unit	14	Master attachment error detection

(5) Connector VR/LED Layout and Functions

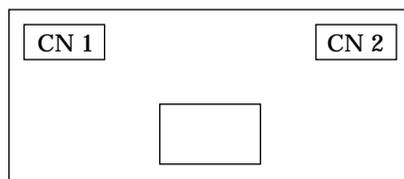
1) CCD PCB unit



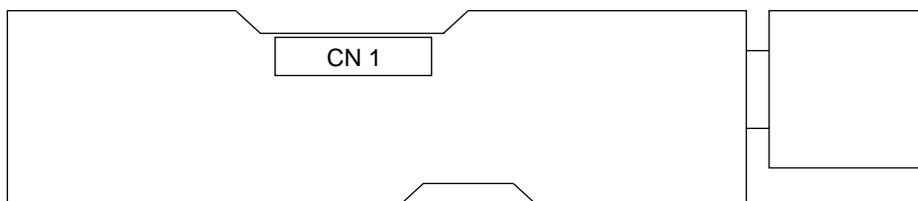
2) AD PCB unit



3) Inverter PCB unit



4) Control Panel PCB unit



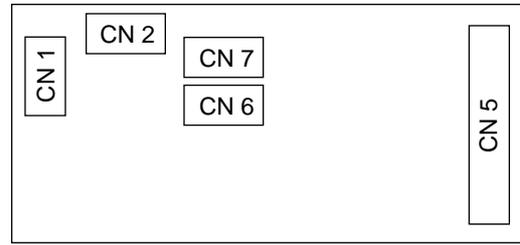
5) Ink Detection PCB unit



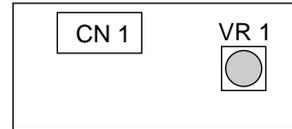
VR / LED	Functions
VR1	* Adjusting the ink detection sensitivity
LED	Lights up when ink OK is detected.

* Adjusted at the factory. Do not change.

6) Thermal Head PCB unit



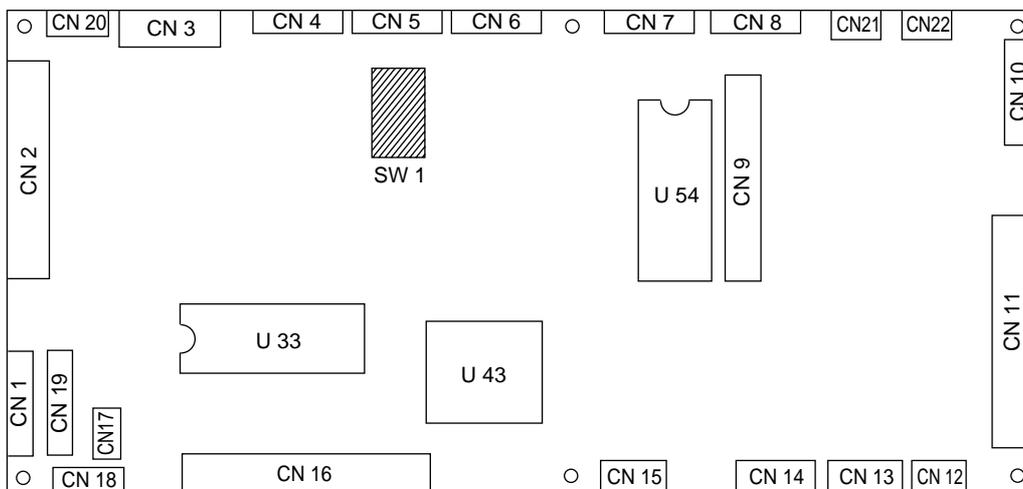
7) End Mark Sensor PCB unit



VR	Functions
VR1	Adjusting the photo-receiving sensitivity

8) Main PCB unit

The switches of SW1 of service part main PCB units are all set to OFF at shipment. Therefore, they must be set in accordance with the machine model before installation.

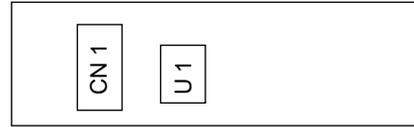


Settings for the different models

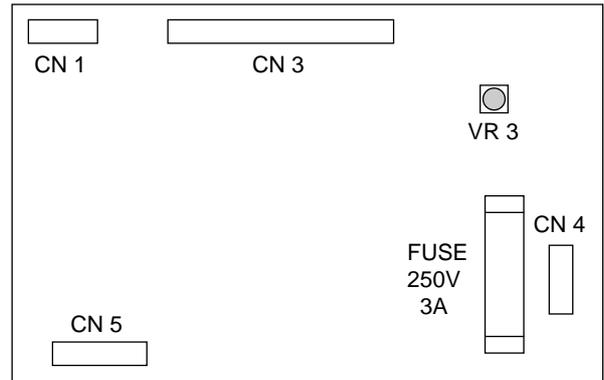
The table below shows the correct SW1 switch settings for the different machine models.

SW1	63S
1	ON
2	OFF
3	ON
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF

9) Battery PCB '98 unit

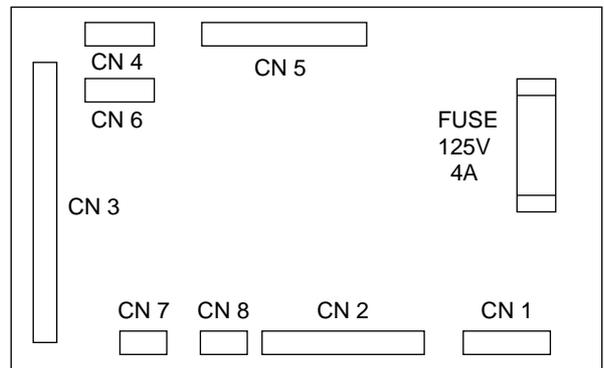


10) Main Motor PCB unit



VR3 : Pre-stop speed

11) Drive PCB unit



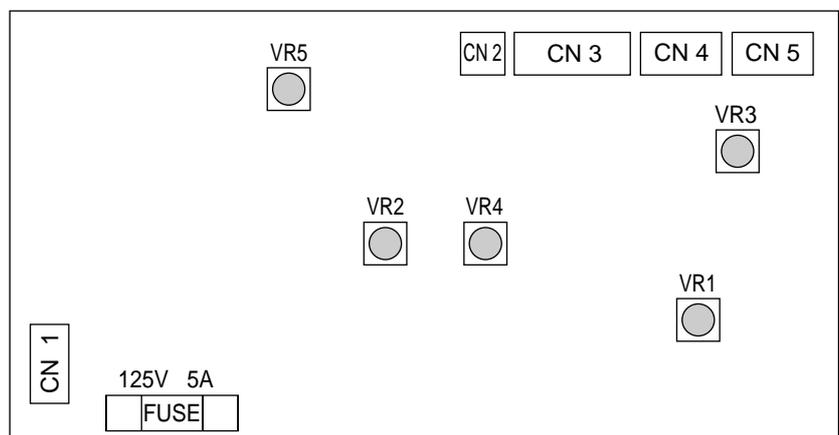
12) Regulated power supply

VR	Function
VR1 - VR5	*Voltage timing adjustment

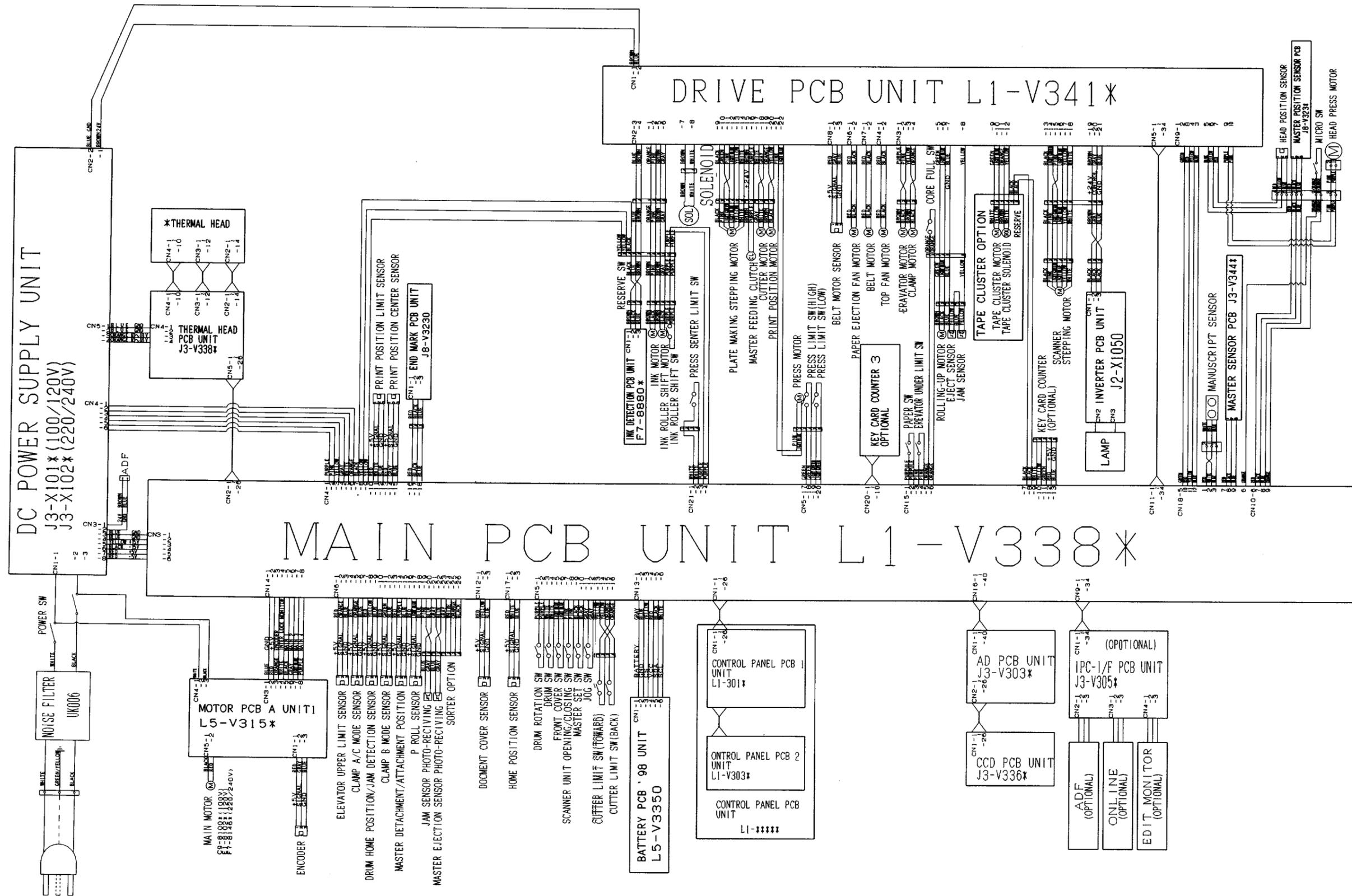
Asterisk indicates adjusted prior to shipment.

IMPORTANT

- Do NOT move the above VRs (variable resistors).



2 Overall Wiring Layout



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