FORMAX®

FD 574
Tabletop Cut-Sheet Cutter

5/2018

MAINTENANCE MANUAL

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 insuff cient 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.

■How to Use This Service Manual

- This service manual includes the structural and functional descriptions for the major areas of FD 574, along with the descriptions of procedures for disassembly and assembly , design standard and adjustment, maintenance and service requirements, and actions to be taken in the case of malfunctions. These are the information as of June, 2009.
  The parts and components used are subject to change for the quality and performance improvements, or for safety reasons. In such cases, please note that certain part of the descriptions and/or illustrations contained in this manual may differ from the actual product.
- The marking listed below accompanied by ⚠ indicates the instructions of particular importance for safety reasons. Never fail to comply with them.

●Safety instructions

⚠ **WARNING** Indicates a high degree of potential danger . If the warning is ignored, death or serious injury may result.

⚠ **CAUTION** Indicates a medium degree of potential danger. If the caution is ignored, medium injury or damage to property may result.

[Examples of Pictorial Symbols]

Δ symbol is to note that the instruction calls for close attention (including danger and warning).
Specific hazard to be careful about is indicated in the drawing (e.g. warning for electric shock in the case of illustration on the left).

⃠A circle with a line through it indicates a prohibited action.
The particular act prohibited is indicated by a picture inside the circle.
(In the example shown here, the prohibited act is disassembly.)

●A black disc indicates an instruction, or sometimes a prohibited action.
The instruction itself is indicated by pictorial symbols drawn in white on the disc. (In the example shown here, the instruction is “Remove the plug from the outlet.”)

●For maintenance operation

IMPORTANT : Failure to comply with the instruction will result in the problematic performance and poor quality of the machine.

REFERENCE : This is the information related to the know-how and key points for the effective service work.

⚠ Safety Instructions

1. Cautions regarding the installation location

⚠ Caution

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 glitch 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 humidif ers, 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.

● Avoid installing the machine in places with open f ames, or where ref ected heat or other hot air 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 5 mm in the front-rear direction, and 5 mm 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 are given in the table below. The machine's power supply voltage is indicated on the identification plate on the machine; the machine must be connected to a power supply of the voltage indicated.**

→ Otherwise, f re or electric shock could result.
If the power supply voltage is unstable or if the power supply has insuf ficient capacity, the machine may not operate normally. Make sure that the power supply has suff cient capacity for the system as whole, including optional equipment.

* 120V AC model

Power supply voltage	**120 VAC ±10%, 50/60 Hz 0.5 A**

* 230V AC model

Power supply voltage	**230 VAC ±10%, 50/60 Hz 0.3 A**

- **Use only the power cord that is provided among the accessories. Insert the power cord plug f rmly into the outlet, 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 following the Installation Manual supplied.**
- **If the machine is placed on the cabinet, lock the casters after it is installed.**
  → Otherwise, the machine could move or fall over, causing injury.

3. Cautions for maintenance, inspection and servicing

⚠ WARNING

Always remove the power cord plug from the outlet before starting work.
→ Otherwise, your could get a shock or your hands/f ngers 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 f ngers into moving parts.

The upper blade (perforating blade) of the perforator (standard/micro) unit (optional) and the upper and lower blades of the center slitter unit (option) are exposed. Take great care when installing these devices to the machine.
→ Otherwise, you could injure your hands or f ngers.
Working clothes
• Wear clothing that enables you to work safely.
Work clothing should be close-f tting.

⚠ CAUTION

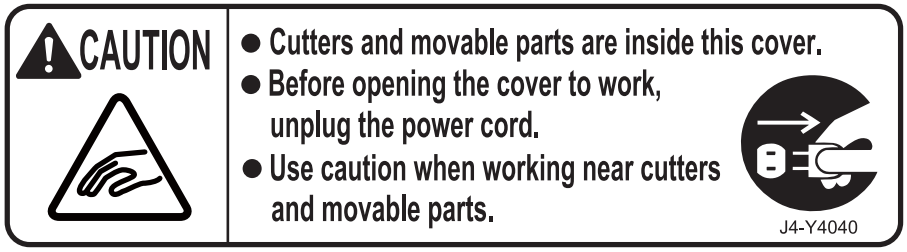
● **Tools**
• Use tools that are appropriate for the work.

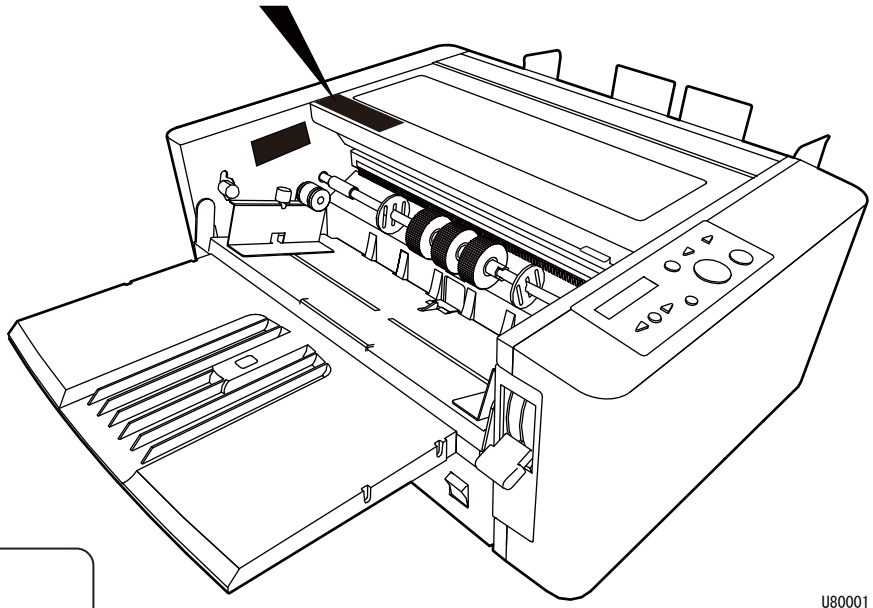
■Warning Labels

Keep the WARNING and CAUTION labels clean at all times. If labels become damaged or come off, contact our service personnel.

<Paper infeed side>

1.





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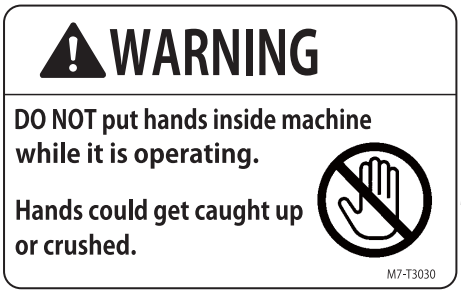
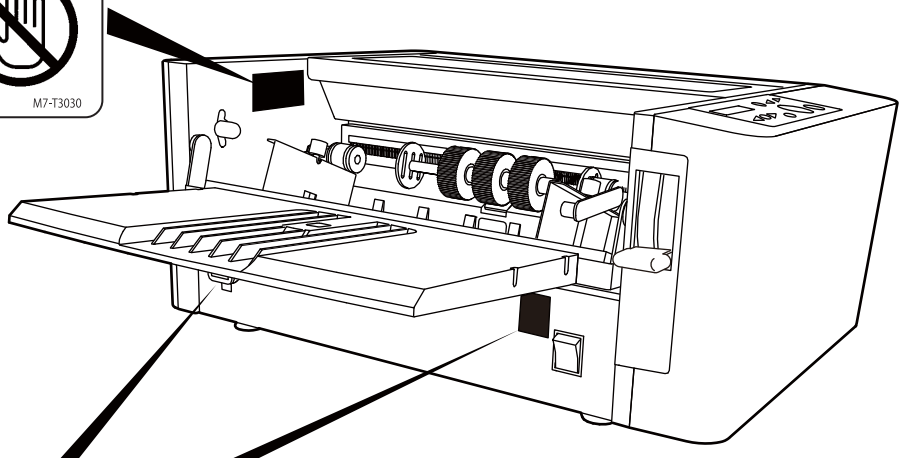
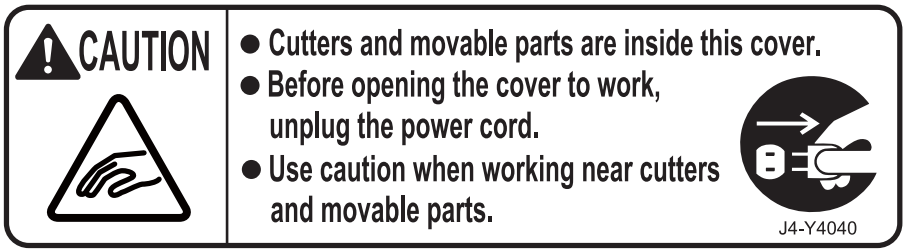


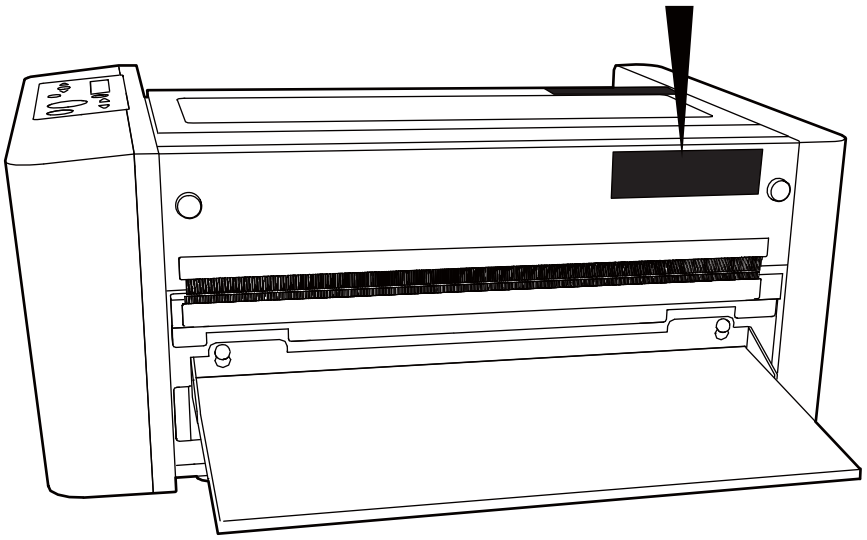


3.

<Paper ejection side>

1.





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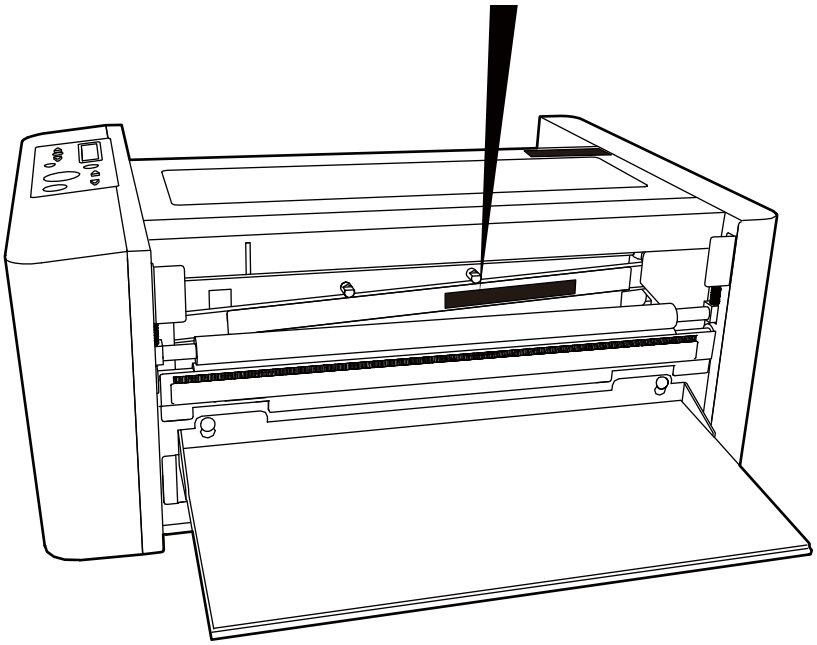
<Paper ejection side>
(without rear cover)

4.

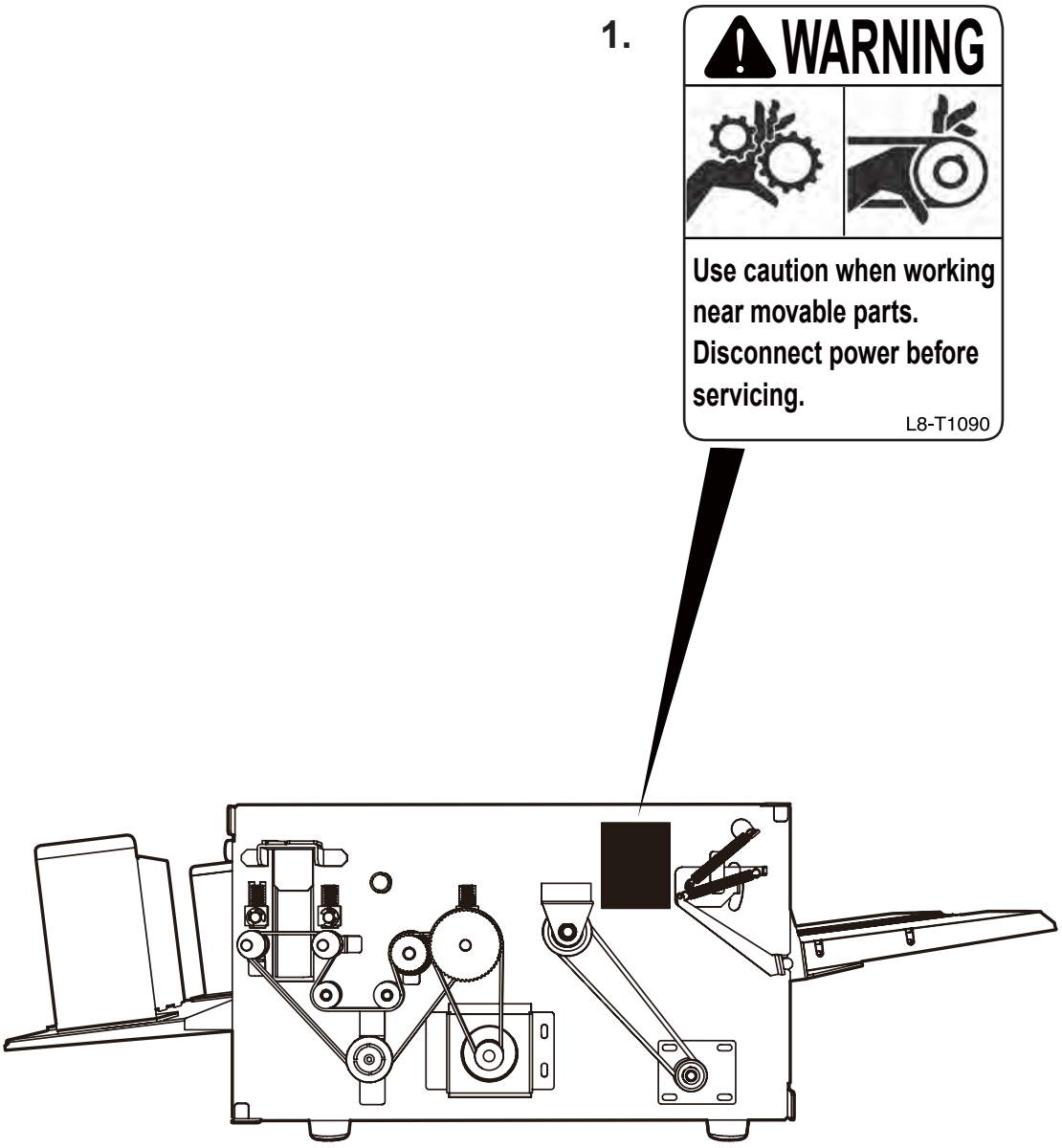


U80004

No.	Part No.	Name	Q'ty
1.	J4-Y4040	CAUTION LABEL	2
2.	M7-T3030	WARNING LABEL	1
3.	K9-T1390	WARNING LABEL	2
4.	L8-T1070	WARNING LABEL	1

<Opposite side of operation after cover L is removed>

1.



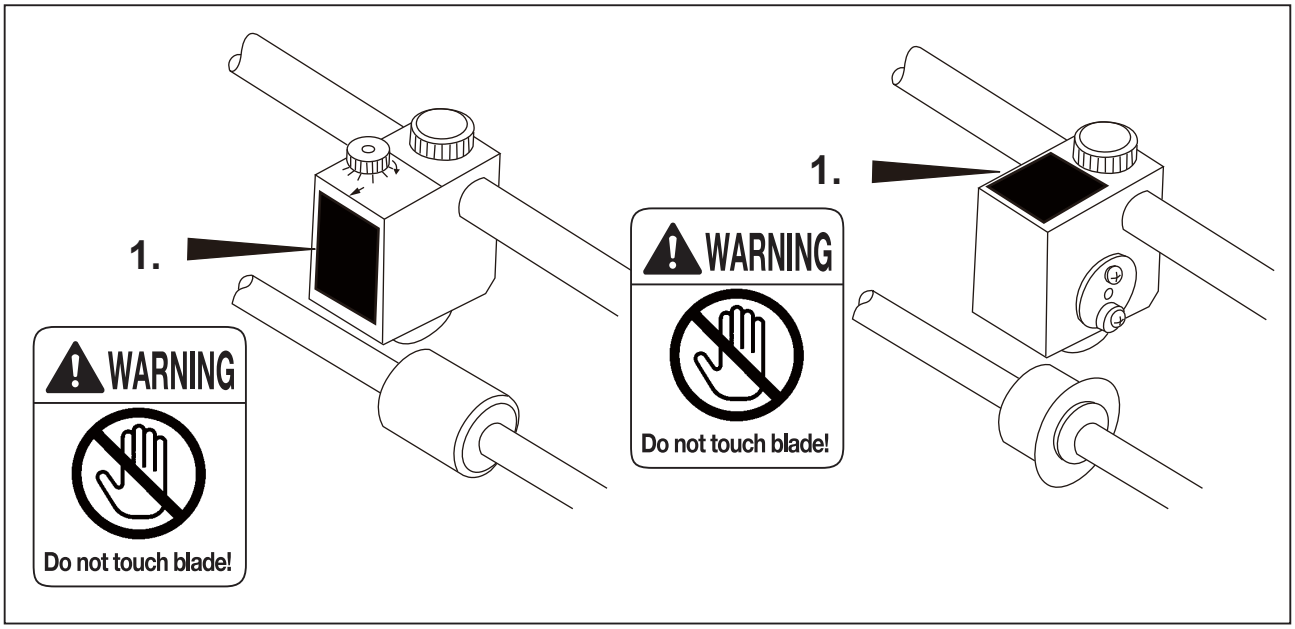
U81001

No.	Part Name	Name	Q'ty
1	L8-T1090	WARNING LABEL	1

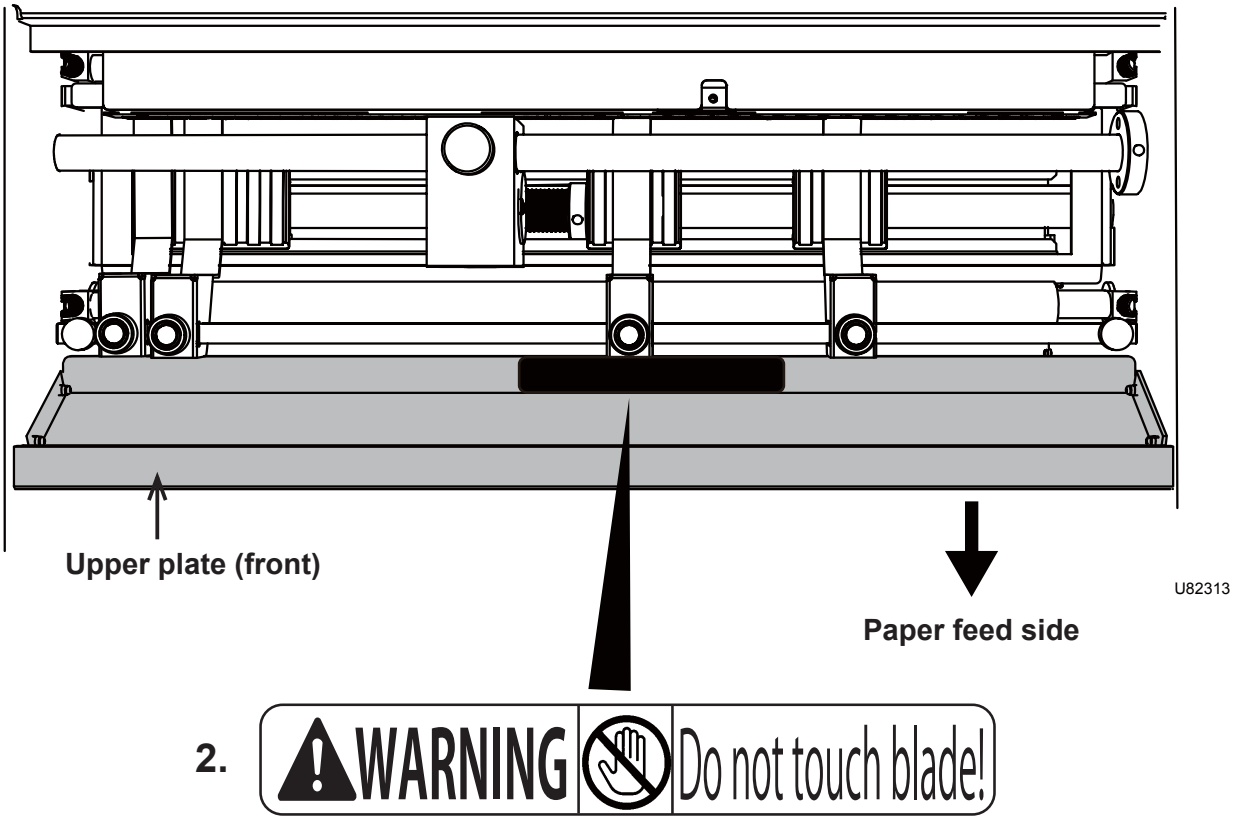
<Options>

Perforator (standard, micro) unit

Center slitter unit



Open the top cover.



2.

No.	Part No.	Name	Q'ty
1.	J4-Y4050	WARNING LABEL	1
2.	L8-T1070	WARNING LABEL	1

Contents

Chapter 1 Introduction

1 Specif cations

Model name	Cut Sheet Cutter FD 574
Type	Tabletop type cut sheet cutter
Paper size	Length: 110 - 420 mm (4.334 - 17 inches) Width: 106 - 364 mm (4.1764 - 14.3416 inches)
Paper weight	58 - 157 gsm (50 - 135 kg), 1 part/single sheet
Minimum cut size (Length)	55 mm (2.166 inches) (0.1 - 17.0 mm: can be cut using memory cut stored except rear end of the paper.)
Maximum cut size (Length)	210 mm (8.267 inches) (210.0 - 419.9 mm: can be cut using memory cut stored)
Cutting method	Guillotine cutter
Feeding method	Rubber rollers Feeding pressure adjustment (3 steps) * Feed support guide * Curl stopper roller
Load capacity	45 mm 500 sheets (55 kg/64 gsm, bond paper)
Cut accuracy	+/- 0.5 mm * Not including last piece * May not be guaranteed depending on operating conditions and paper conditions.
Cut size	A3 (2, 3, 4, 5, 6, 7 cut) A4 (2,3, 4, 5) A4R (2, 3) A5 (2, 3) A5R (2) B4 (2, 3, 4, 5, 6) B4R (2, 3, 4) B5 (2, 3, 4) B5R (2, 3) 14" (2, 3, 4, 5, 6) 11" (2, 3, 4, 5) 8.5" (2, 3, 4)
Process speed	Approx. 2,640 sheets/h (A4 3 cut, high-speed, no-slitter) Approx. 2,280 sheets/h (A4 3 cut, middle-speed, no-slitter) Approx. 1,260 sheets/h (A4 3 cut, low-speed, no-slitter) * Varies depending on slitter (with/without). * Number of processed sheets varies depending on paper conditions.
Stacker	Dropping stacker
Stacker capacity	Installed on the lower side: 75 mm, 800 sheets (55 kg/64 gsm) Installed on the upper side: 35 mm, 400 sheets (55 kg/64 gsm)
Memory cut storage	Up to 100 types
Memory cut paper size	Length: 110 - 420 mm, Width: 106 - 364 mm
Memory cut limit	17.1 - 54.9 mm: Cannot be cut.
Display	144x32 dots LCD with backlight

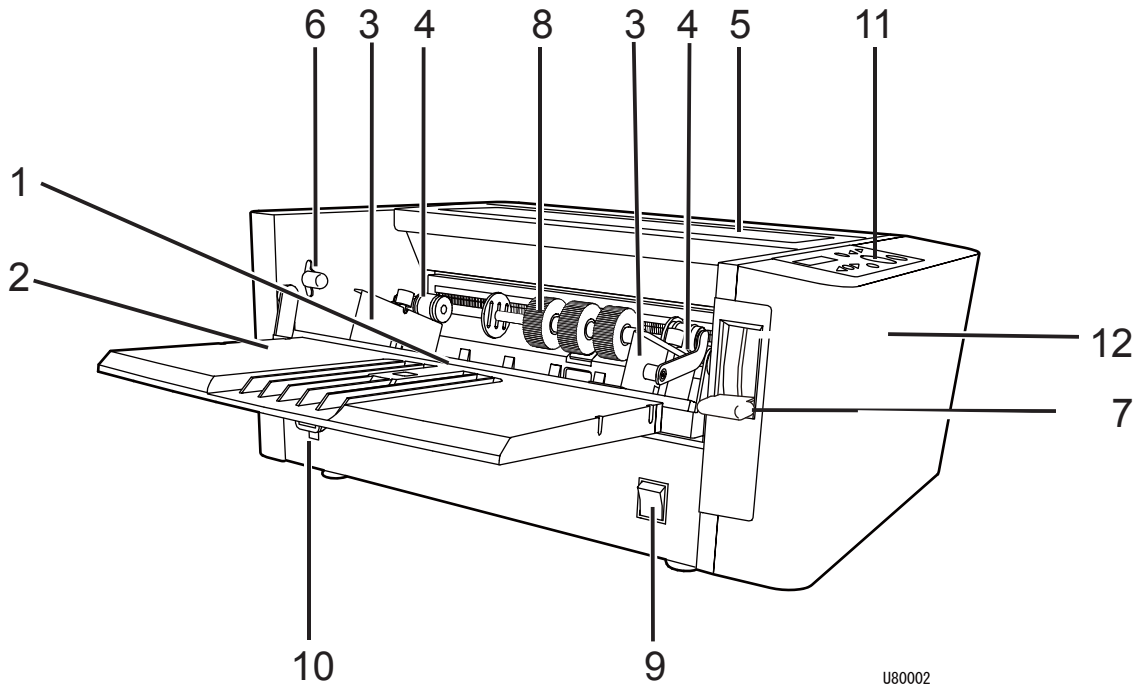
Model name	Cut Sheet Cutter FD 574
Other features	Interlock safety cover (top cover / rear cover) Sheet counter (0 - 9999 sheets) Cutter counter (0 - 9999 cuts) Preset counter (0 - 999 sheets) JOB display (ON/OFF) Slitter checking mode Auto select of f nishing process (Standard, Straight conveyor) Auto power off (OFF, 5, 15, 30, 60 min) Cut position adjustment (-15.0 mm - 0 - +15.0 mm) Process speed (3 steps) Proof feed Automatic cut up function (including the following conditions) * Finished cut accuracy: +/-0.7 mm * May not be guaranteed depending on use condition and paper conditions.
Detections	Cover (top cover / rear cover) Paper empty Paper feed lever Paper feed error Double feed (3 steps) * May not be detected depending on print darkness and print pattern. Paper conveyance error Cutter lock
Optional equipment	Center slitter unit Gutter guide Perforator (Standard/Micro) unit Attachment kit Straight conveyor Cabinet
Dimensions	In use: 795(W)×575(D)×250(H) Folded: 600(W)×575(D)×280(H)
Weight	32 kg
Power supply	100-230 V, 50/60 Hz, 0.5 - 0.3 A
Power consumption (100 V, 115 V, 230 V)	Standby: 13.2 W, 13.0 W, 13.0 W In operation: 39.6 W, 39.2 W, 38.8 W (No options attached) In operation: 34.6 W, 34.5 W, 34.0 W (with straight conveyor)
Operating temperature	10 - 30 degrees C
Operating humidity	40 - 70% (no condensing)

NOTE

Specif cations are subject to change without prior notice.

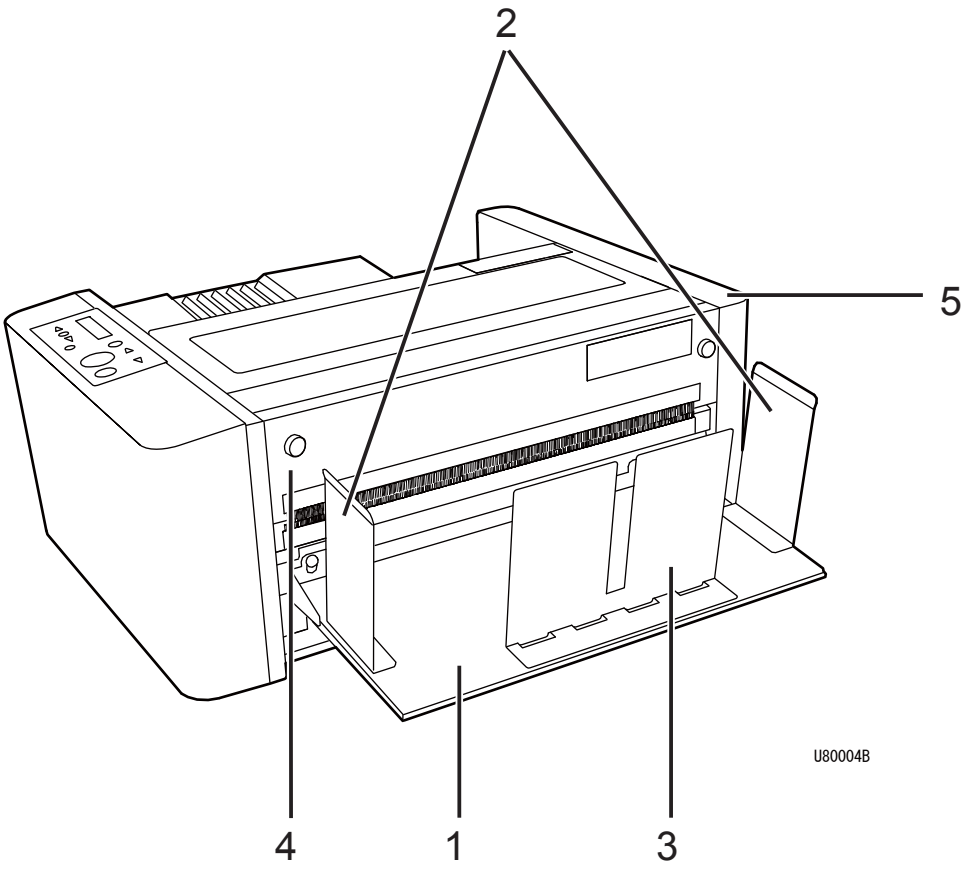
2 Part Names and Their Functions

1. Appearance (Paper Infeed Side)



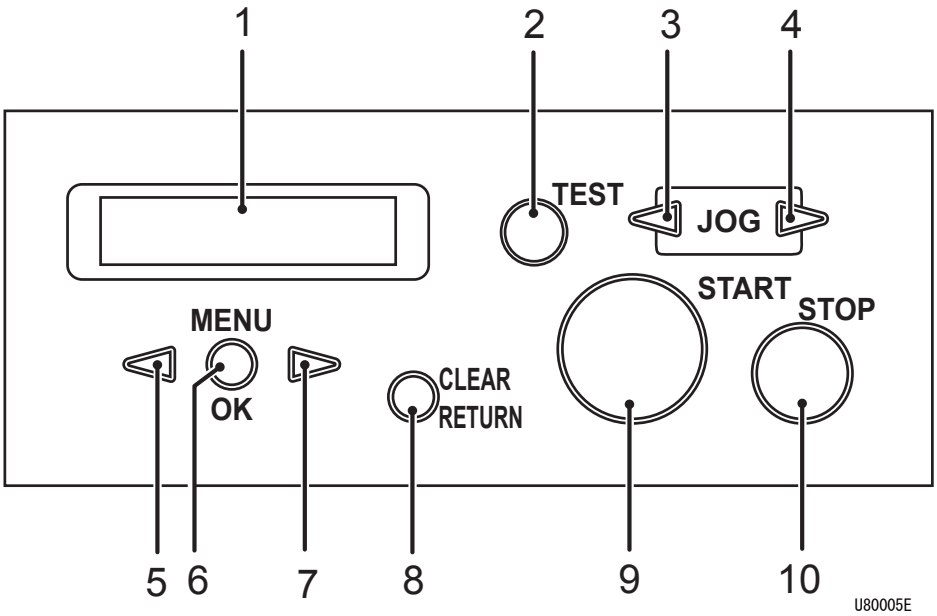
No.	Name	Function
1	Feed tray	Load paper on this tray.
2	Support tray	Open this tray when loading the paper. Close the tray when not used.
3	Paper feed guides	Set the position of these guides according to the width of the paper.
4	Curl stopper roller	Use this to hold down the paper curl.
5	Top cover	Open this cover when aligning the paper retaining plates, removing jammed paper or aligning such optional equipment as the perforator or the center slitter. The machine cannot operate with this cover opened.
6	Feed pressure lever	Adjusts paper feed pressure according to paper thickness. Usually set this lever to “NORMAL PAPER”.
7	Paper set lever	Lower this lever before loading the paper on the feed tray. After setting the paper properly, lift this lever for operation.
8	Paper feed roller unit	Feeds the paper into the machine.
9	Power switch	Press the “ I ” side of the switch to turn on the power . Press the “ ○ ” side of the switch to turn off the power.
10	Inlet	Insert the female plug of the supplied power cord into this inlet.
11	Control panel	Use the keys on this panel to operate the machine.
12	Cover R	

2. Appearance (Paper Ejection Side)



No.	Name	Function
1	Stacker	Receives the ejected paper.
2	Ejection guides	Set these guides according to the width of the paper.
3	Paper stopper	Set this stopper according to the length of the paper.
4	Rear cover	Open this cover to remove any paper jammed in the cutter unit. The machine cannot operate with this cover opened.
5	Cover L	

3. Control Panel

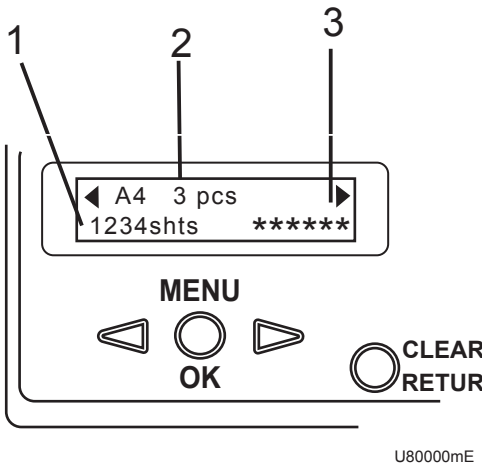


No.	Name	Function
1	LCD panel	Displays various messages.
2	TEST key	Performs proof feed. (one sheet)
3	JOG REVERSE key	The paper is fed backward slowly while this key is pressed.
4	JOG FORWARD key	The paper is fed forward slowly while this key is pressed.
5	MENU LEFT key	When selecting menu, pressing this key selects leftward item displayed on the LCD. When setting number, it decrements the number.
6	MENU/OK key	Displays the menu selection screen. Determines the selected setting.
7	MENU RIGHT key	When selecting mode, pressing this key selects rightward item displayed on the LCD. When setting number, it increments the number.
8	CLEAR/RETURN key	Press to cancel selection or to clear the number.
9	START key	Press to start operation. * This key is inactive when an error is displayed.
10	STOP key	Press to stop operation. Press to return the display to the standby screen. While this key is pressed, the LCD panel displays the counter. While this key is pressed with the optional unit connected, the machine performs the optional operation.

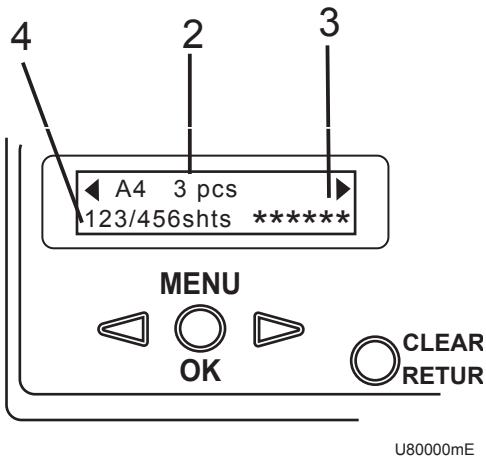
4. LCD Panel

● **Standby screen**

<Display without Preset Counter>



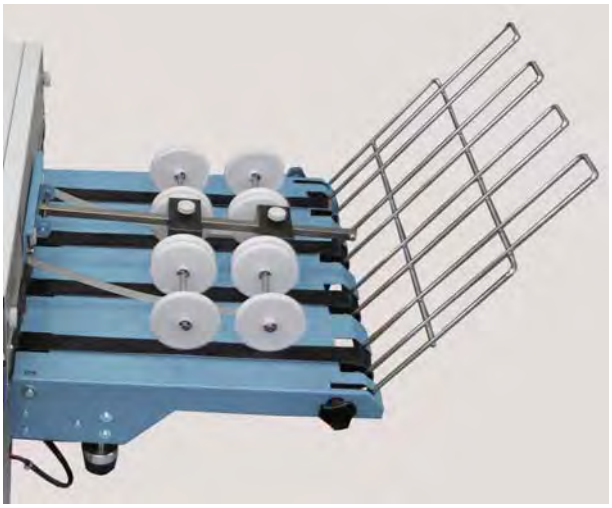
<Display with Preset Counter>



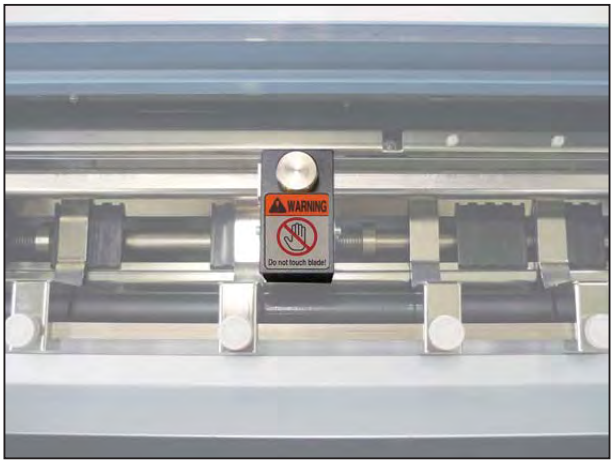
No.	Name	Function
1	Counter	Displays the current number of sheets that have been processed.
2	Processing mode	Displays the current processing mode.
3	Settings	Displays the current function settings. (Can be hidden with HELP-19)
4	Counter	Displays the current number of sheets that have been processed and the number of sheets that is set by the Preset Counter.

5. Options

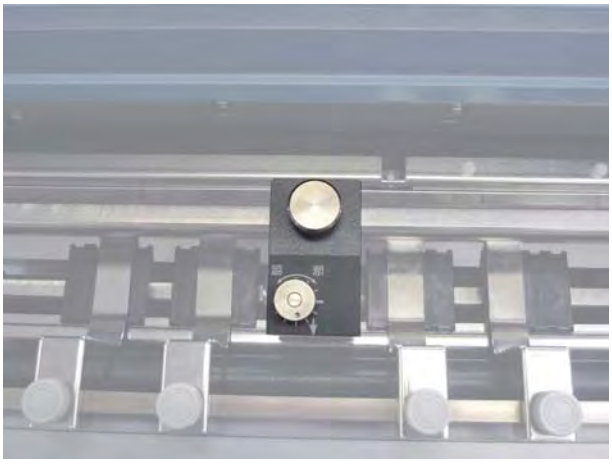
Straight conveyor



Center slitter unit



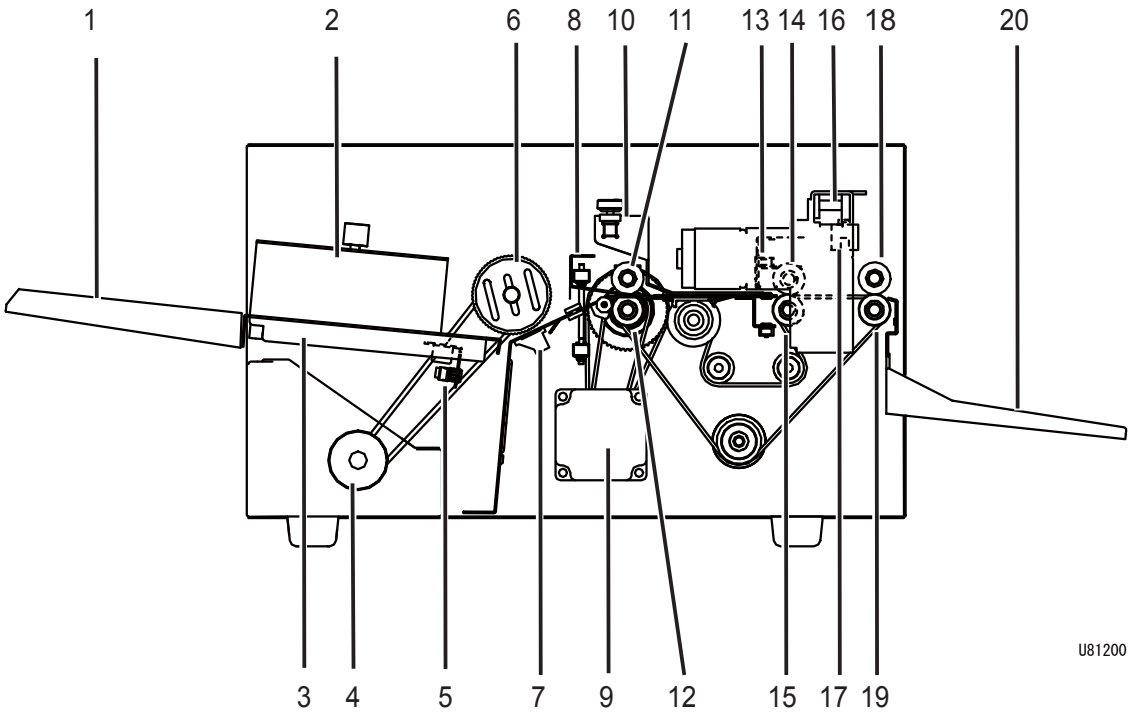
Perforator (Standard/Micro) unit



Chapter 2 Operation in General

1 Names of Internal Parts

Structural Drawing

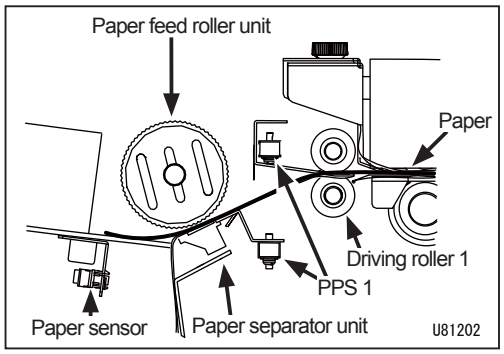


No.	Name	No.	Name
1	Support tray	11	Timing roller 1
2	Paper feed guide	12	Driving roller 1
3	Feed tray	13	PPS2 (Cut lead edge sensor)
4	Paper feed motor (DC gear motor)	14	Timing roller 2
5	Paper sensor (Photo microsensor)	15	Driving roller 2
6	Paper feed roller unit	16	Cutter assy
7	Paper separator unit	17	Cutter HP sensor
8	PPS1 (Paper lead edge sensor)	18	Timing roller 3
9	Main motor (Stepping motor)	19	Driving roller 3
10	Upper guide	20	Stacker

2 Paper Flows and Operation Principles

1. Machine Movement and Paper Flows

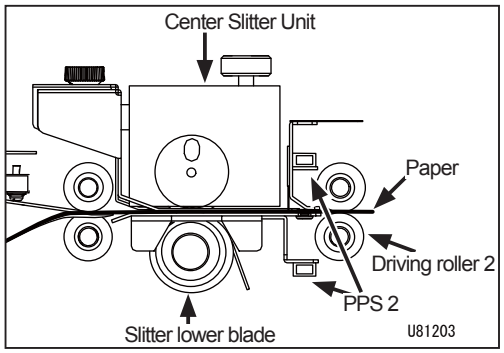
1. When the paper feed motor runs, the paper on the feed tray is fed in by the paper feed roller unit.
   The paper is separated by the paper separator unit and the paper feed roller unit.



2. The paper is fed through until its lead edge reaches between the timing roller 1 and the driving roller 1.

3. The lead edge of the paper is sensed by the PPS1 (paper lead edge sensor).
   When the paper arches up between the paper feed roller unit, the timing roller 1 and the driving roller 1, the timing roller 1 and the driving roller 1 start rotating by the rotation of the main motor, and the paper feed motor stops.

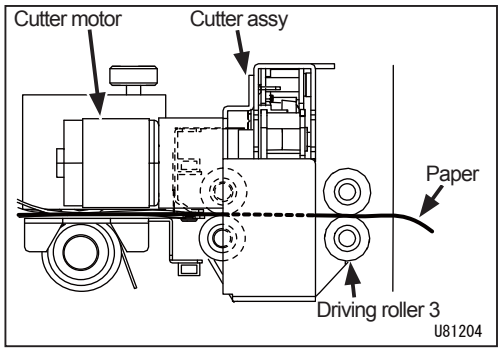
4. The paper is fed to the Center Slitter Unit (option) or the Perforator Unit (option), where it is slit or perforated. (The right f gure shows when an Center Slitter Unit is installed.)



5. The lead edge of the paper is sensed by the PPS2 (cut lead edge sensor).

6. The CPU calculates and sets the paper feed amount. When the paper has been fed by the set amount to the position for cutting by the blades of the cutter assy, the main motor stops.

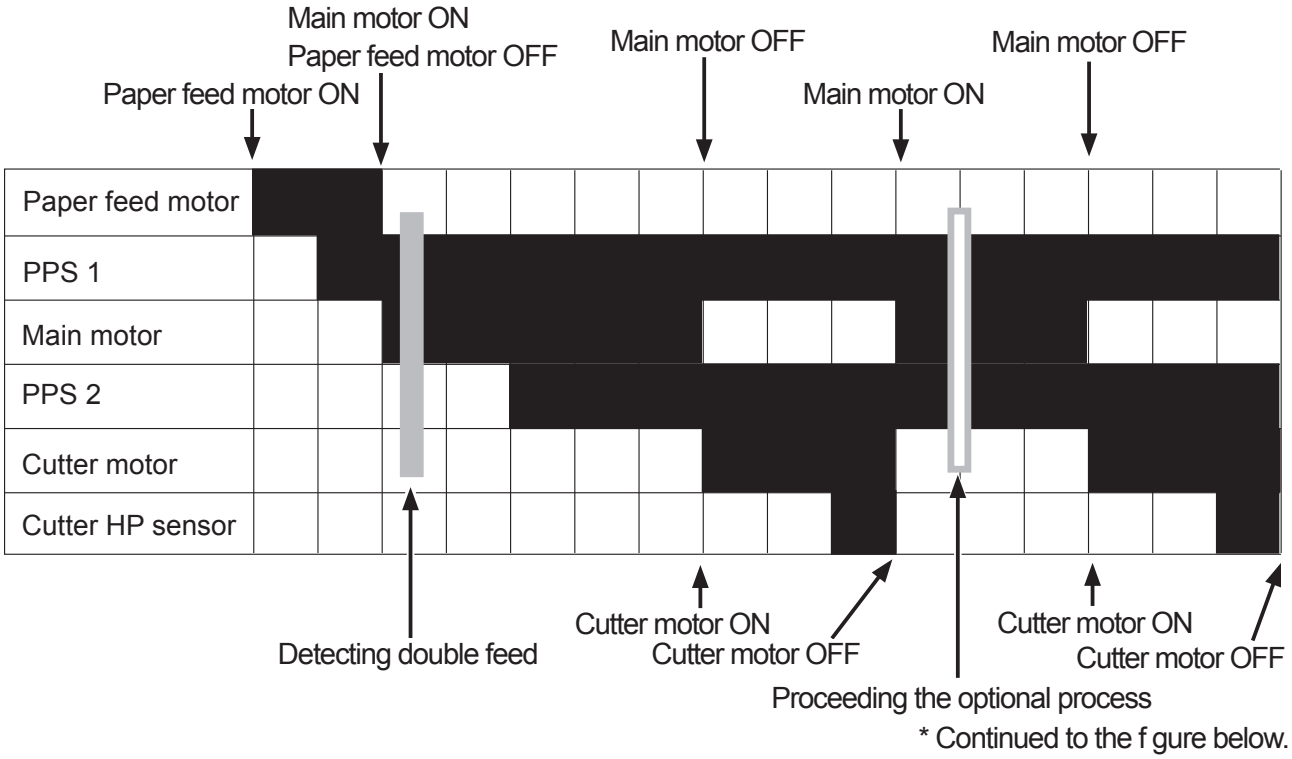
7. The cutter motor runs and the paper is cut.
   - The cutter assy is guillotine type, with an upper blade that moves vertically against a f xed lower blade. The blades have a self-dressing mechanism which prolongs their cutting life.
   - The cutter assy comprises the following components: upper and lower blade unit, upper blade motion mechanism, and cutter home position sensor.

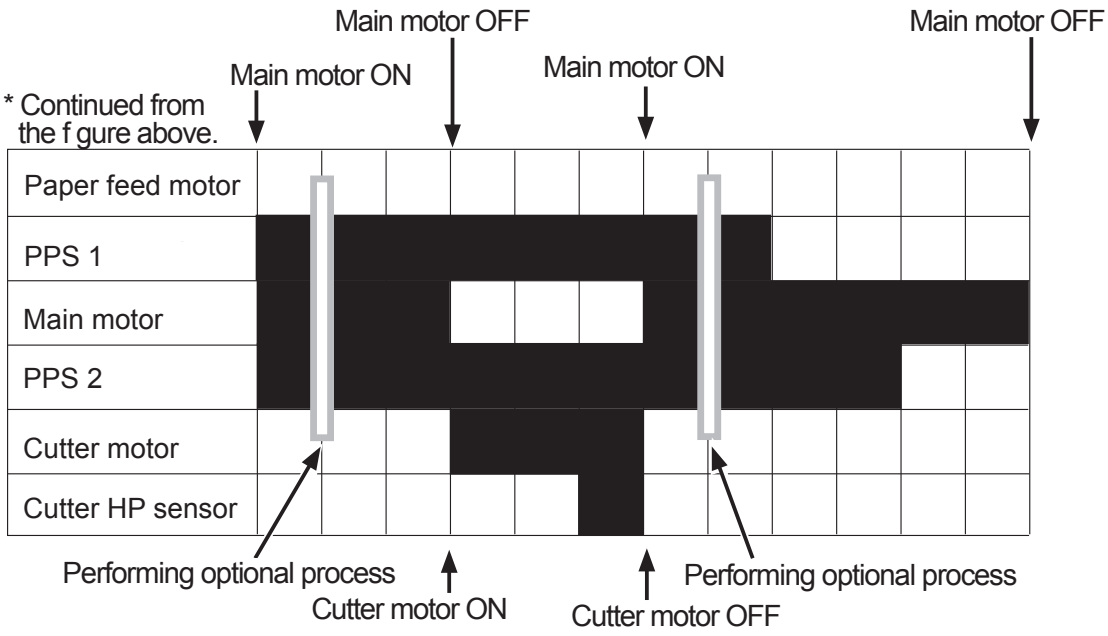


8. The main motor runs, and steps 6 and 7 are repeated.

9. The cut paper is ejected from the machine by the timing roller 3 and the driving roller 3, and received in the stacker.

2. Operation

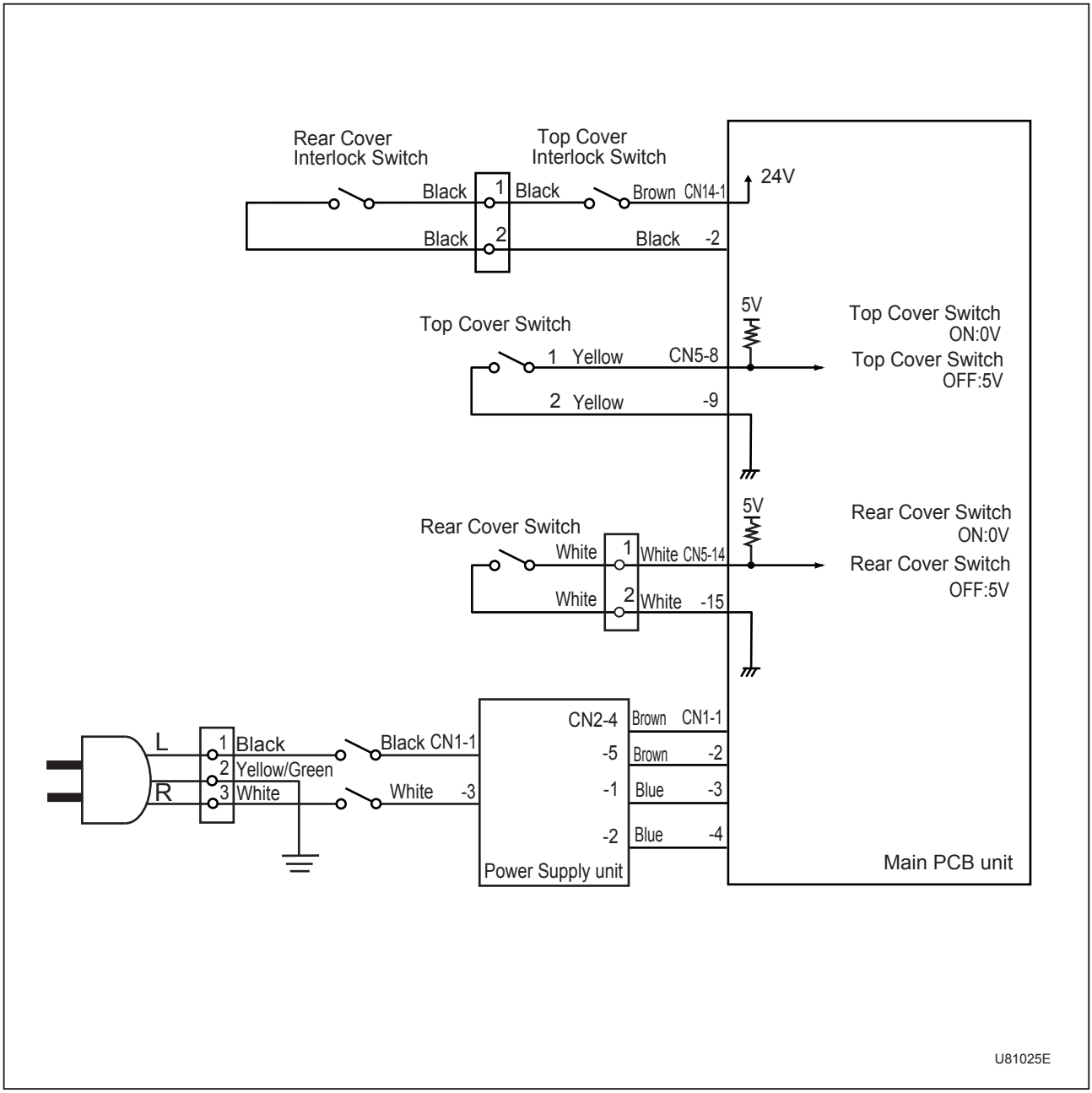

Main motor ON
Paper feed motor OFF
Paper feed motor ON
Main motor OFF
Main motor ON
Main motor OFF
Paper feed motor
PPS 1
Main motor
PPS 2
Cutter motor
Cutter HP sensor
Detecting double feed
Cutter motor ON
Cutter motor OFF
Proceeding the optional process
Cutter motor ON
Cutter motor OFF
* Continued to the f gure below.


Main motor OFF
Main motor OFF
Main motor ON
Main motor ON
* Continued from
the f gure above.
Paper feed motor
PPS 1
Main motor
PPS 2
Cutter motor
Cutter HP sensor
Performing optional process
Cutter motor ON
Cutter motor OFF
Performing optional process

3 Circuit Diagrams and Operation

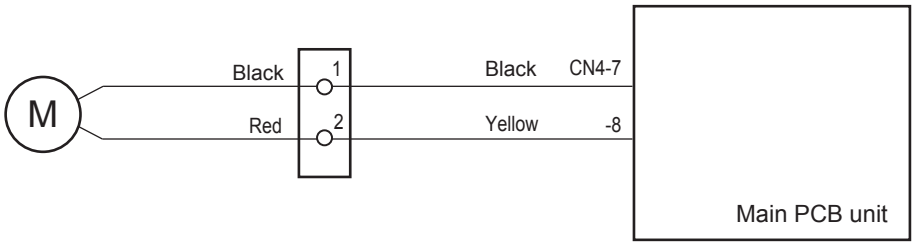
1. Top Cover Switch and Rear Cover Switch

Opening and closing of the top cover and the rear cover are detected by the top cover switch, the rear cover switch, the top cover interlock switch, and the rear cover interlock switch. This machine does not work unless the top cover and the rear cover are closed. The machine stops immediately when the top cover and/or the rear cover are opened. If operation is performed with the top cover and/or the rear cover opened, an error is detected and “Rear cover is open.” appears on the LCD panel.



2. Paper Feed Motor

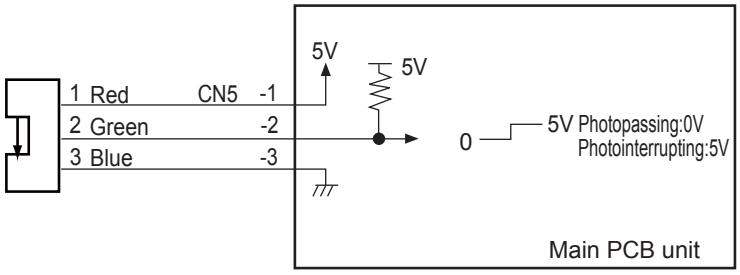
The paper feed motor runs by pressing the START key or the TEST key.
The paper feed motor stops after a certain period of time since the paper has reached the PPS1.
Operation of the paper feed motor can be checked with HELP-01.



U81021E

3. Paper Sensor

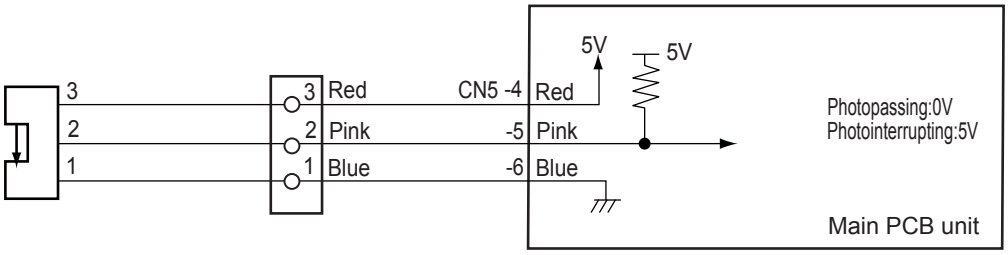
When there is no paper, the sensor is in the state of photopassing (open). When paper is loaded, the sensor is in the state of photointerrupting (close). When absence of paper is detected, a message “Load paper.” is displayed on the LCD panel.



U81010E

4. Cutter HP Sensor

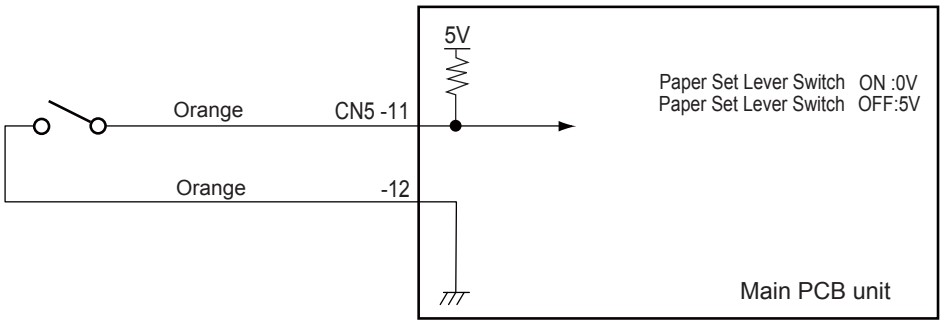
The cutter HP sensor detects an error if it cannot detect cutter home position even after the cutter motor has run for a certain period of time, and a message “E1:CTR MTR Locked Check cutter area” is displayed on the LCD panel.



U81013E

5. Paper Set Lever Switch

When the START key or the TEST key is pressed with the paper set lever lowered, an error is detected and a message “Raise paper let lever” is displayed on the LCD panel.



U81015E

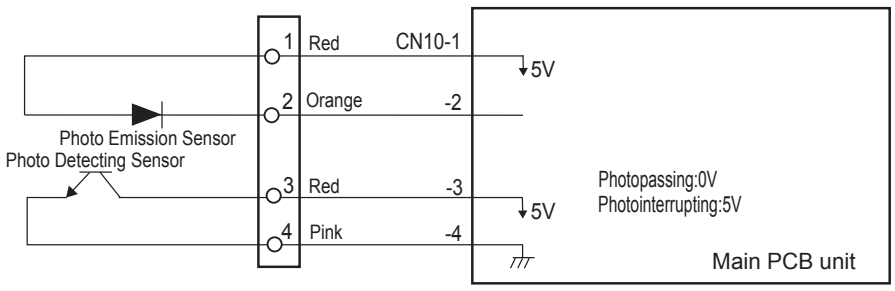
6. PPS1 (paper lead edge sensor)

The PPS1 detects an error if it detects paper presence when the ST ART key or the TEST key is pressed, a message “Remove paper from infeed area” is displayed on the LCD panel.

The PPS1 detects an error if the paper does not reach the PPS1 even after the paper feed motor has run for a certain period of time. The machine completes processing of previous paper and a message “J1:Feed error Check infeed area” is displayed on the LCD panel.

The PPS1 detects an error if transmittance levels of the previous paper and the current paper are much different, and a message “J4:Double feed Check infeed area” is displayed on the LCD panel.

The PPS1 detects an error if the paper does not reach the PPS1 even after the main motor has fed the paper for a certain distance since the paper has reached the PPS1, and a message “J2:JAM in CNV area Check center area” is displayed on the LCD panel.

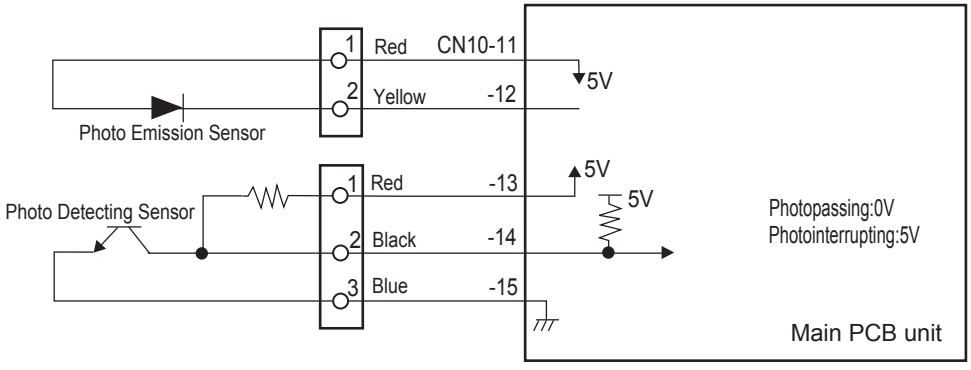


U81011E

7. PPS2 (cut lead edge sensor)

The PPS2 detects an error if it detects paper presence when the ST ART key or the TEST key is pressed, a message “Remove paper from cut area” is displayed on the LCD panel.

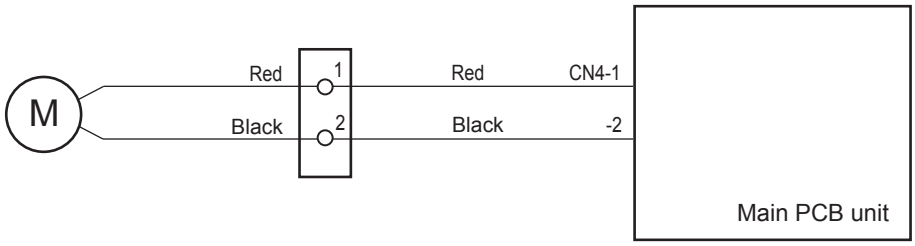
The PPS2 detects an error if the paper does not go through the PPS2 even after the main motor has fed the paper for a distance (paper length + α) since the paper has reached the PPS2, and a message “J3:JAM in cut area Remove paper from cut area” is displayed on the LCD panel.



U81012E

8. Cutter Motor

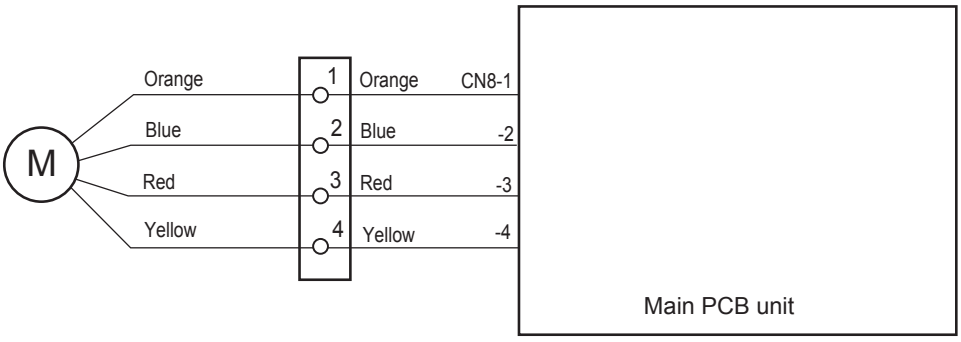
An error is detected if the cutter HP position sensor cannot detect cutter home position even after the cutter motor has run for a certain period of time, and a message “E1:CTR MTR Locked Check cutter area” is displayed on the LCD panel.
Operation of the cutter motor can be checked with HELP-02.



U81020E

9. Main Motor

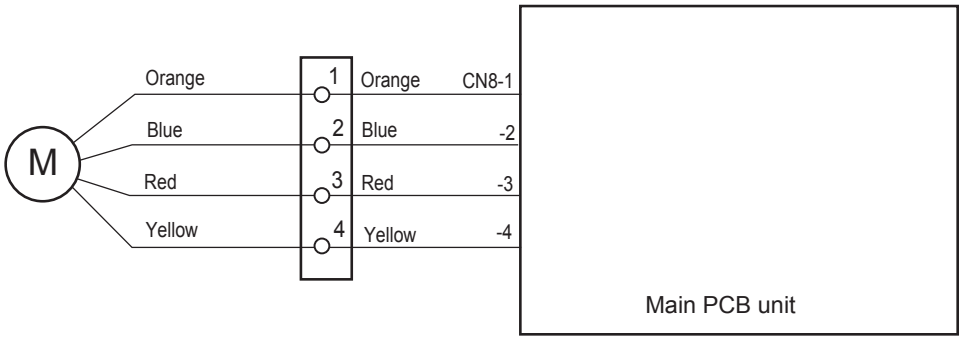
After the paper has reached the PPS1, the main motor runs. After the paper has reached the PSS2, the main motor feeds the paper a certain distance and then stops. It stops while the cutter motor is running and runs again when the cutter motor stops. It runs until the paper reaches the next cut position and stops while the cutter motor is running. This operation is repeated until all cuts set are completed. When the last cut is f nished, the main motor starts running again and stops at the next paper feed.
Operation of the main motor can be checked with HELP-03.



U81018E

4 Circuit Diagram of Straight Conveyor (Option)

1. Conveyor Motor



U81018E

Chapter 3 Mechanism

⚠ CAUTION

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

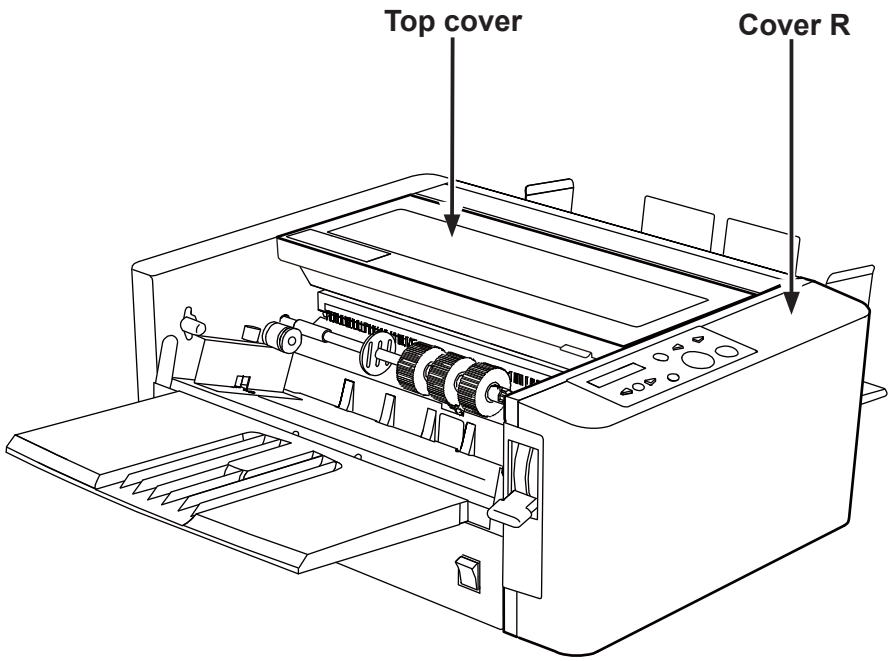
● Caution Regarding Disassembly and Assembly

- **In principle, do not operate this machine with parts removed.**
- **When assembly:**
  - **Unless otherwise specified, perform the disassembly procedure in reverse.**
  - **Make sure that screw types (radius, length) and locations are correct.**
  - **Be sure to use rosette washers when they are specif ed.**
    (Rosette washers are used with installation screws to prevent static electricity.)
  - **To ensure electrical current, a rosette washer is used with the installation screw on the ground wire. Be sure to use the rosette washer during assembly.**

1 Exterior

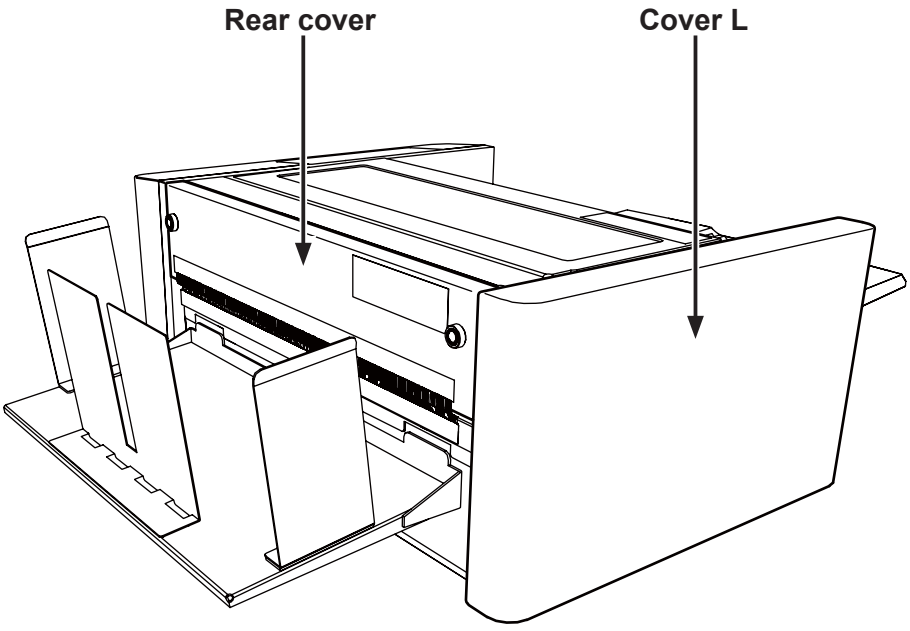
1. Names of Covers

(Paper Infeed Side)



U81302

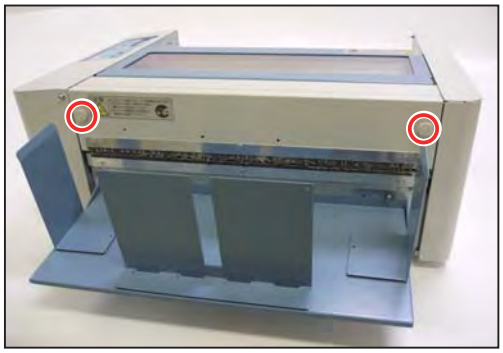
(Paper Ejection Side)



U81301

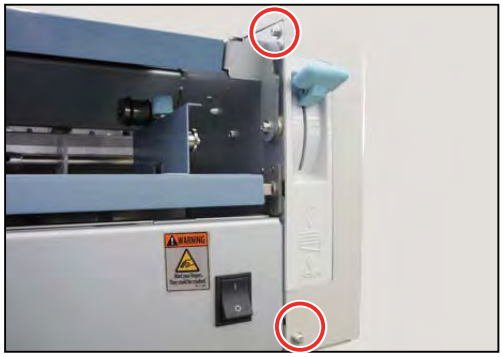
2. Removing the Rear Cover

1. Remove the two thumbscrews to remove the rear cover.

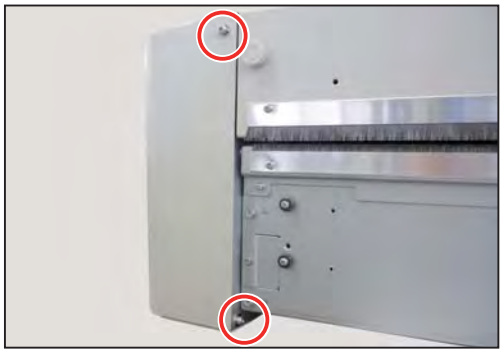


3. Removing the Cover R

1. Remove the two screws securing the cover R on the paper infeed side.

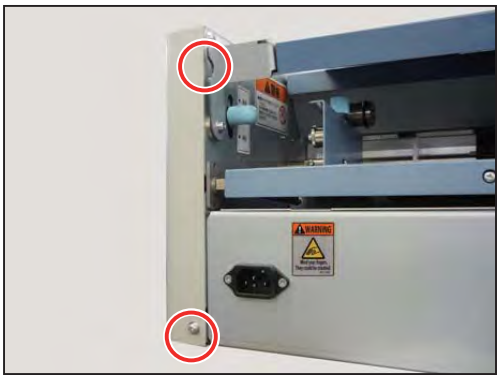


2. Remove the two screws securing the cover R on the paper ejection side.
   Remove the cover R.



4. Removing the Cover L

1. Remove the two screws securing the cover L on the paper infeed side.



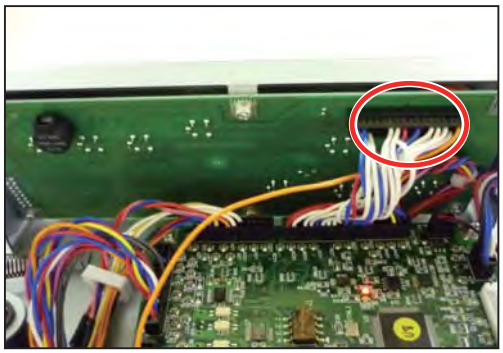
2. Remove the two screws securing the cover L on the paper ejection side.
   Remove the cover L.

2 Electrical System Section

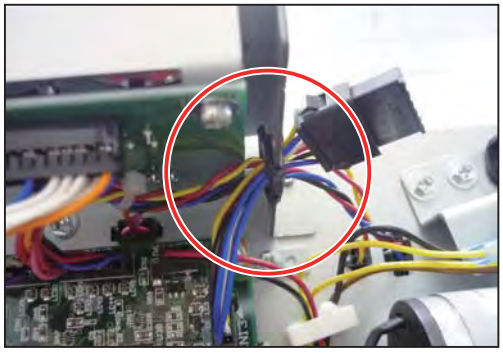
1. Removing/Replacing the Panel PCB Unit

1. Remove the cover R. (See → P.34)

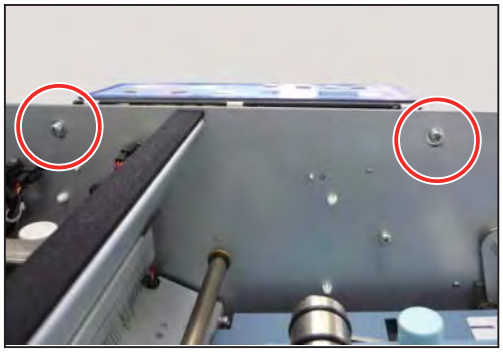
2. Disconnect the connector.



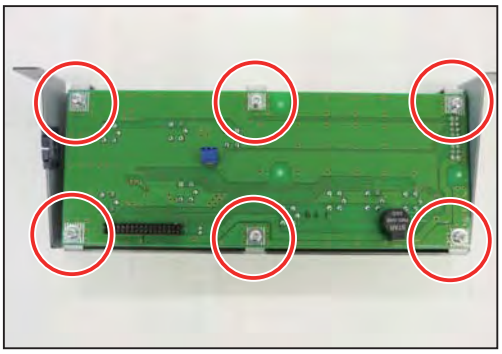
3. Take out the cable unit from the edge holder.



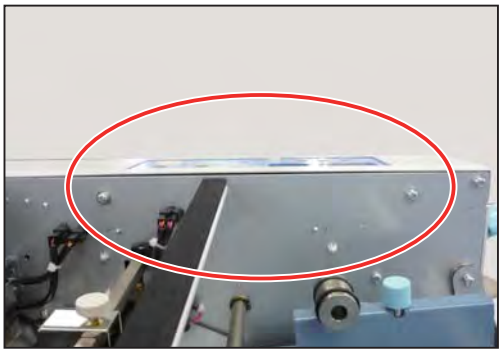
4. Open the top cover.
   Remove the two screws inside the machine to remove the control panel unit.



5. Remove the six screws to remove the panel PCB unit.



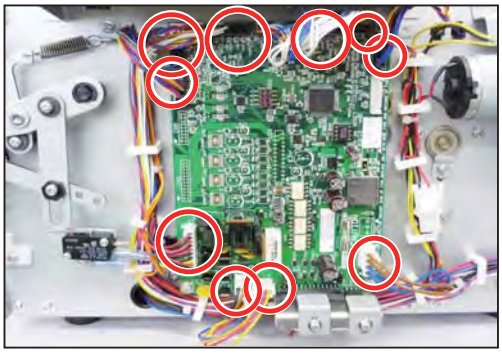
6. When reinstalling the control panel unit, align it with the cover R as below.
   Temporarily secure the control panel unit and attach the cover R. Align the control panel unit with the cover R and tighten the screws.



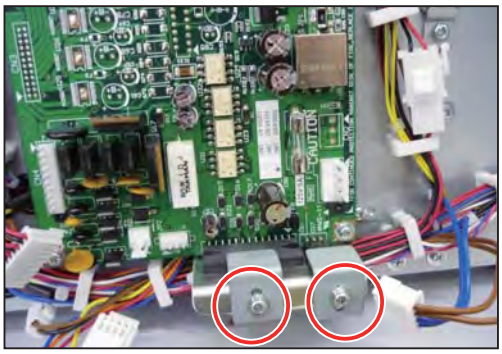
2. Removing the Main PCB Unit

1. Remove the cover R. (See → P.34)

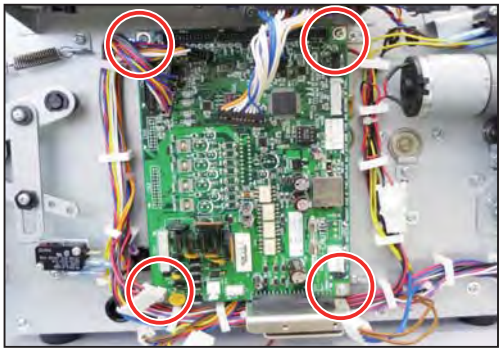
2. Disconnect the ten connectors on the main PCB unit.



3. Remove the two screws to remove the two angles securing the heat sink.



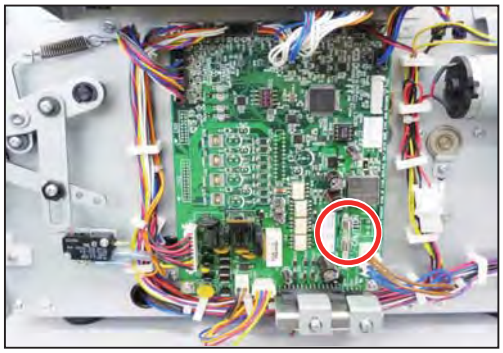
4. Remove the four screws securing the panel PCB to remove the main PCB unit.



3. Replacing the Fuse on the Main PCB

Refer to '8 Electrical Parts Layout and Their Functions - 6. Position of Connectors/Fuses in Chapter 8'. (See → P.157)

Fuses are located in the circle of the right figure.

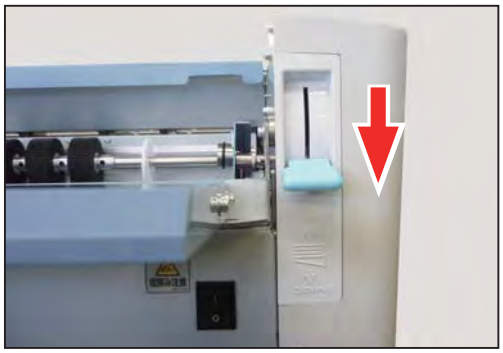


⚠ WARNING

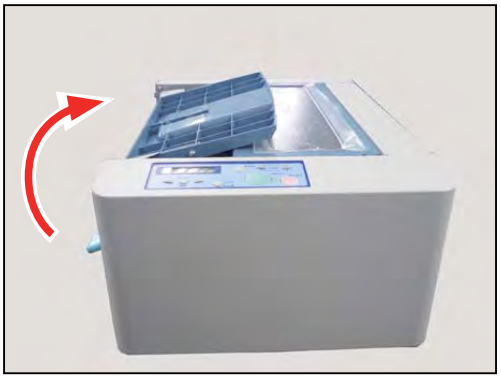
- For continued protection against risk of fire, replace only with same type and ratings of fuse.

4. Removing the Power Supply Unit

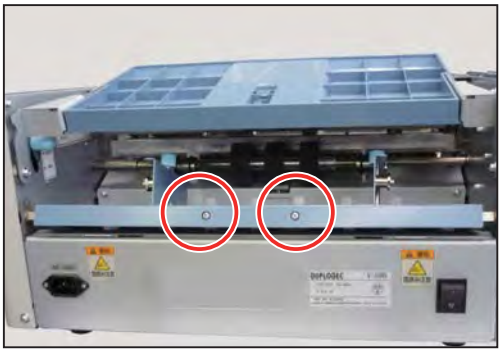
1. Lower the paper set lever.



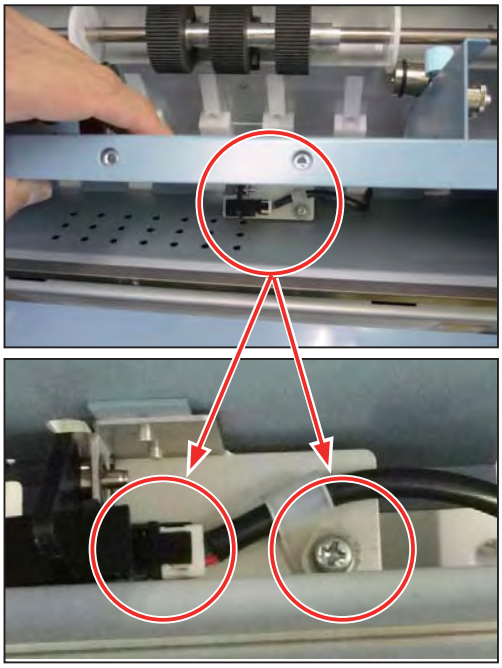
2. Fold the support tray.



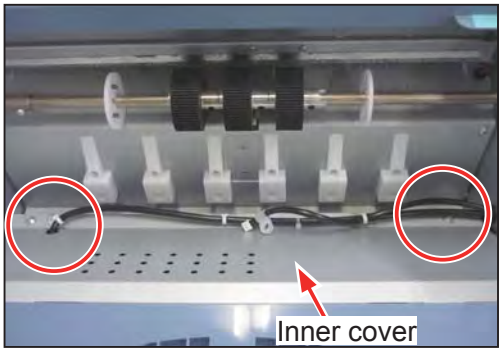
3. Remove the two screws securing the feed tray.



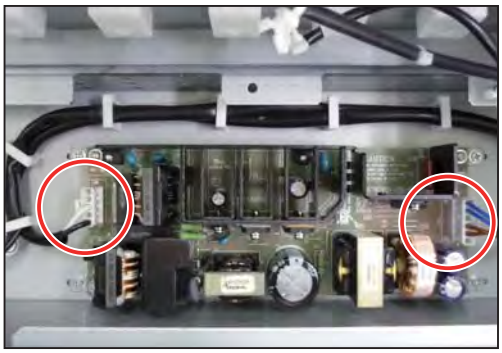
4. Unfold the support tray.
   Remove the screw attached to the reverse side of the feed tray to remove the cable clamp.
   Then disconnect the connector and remove the feed tray from the main unit.



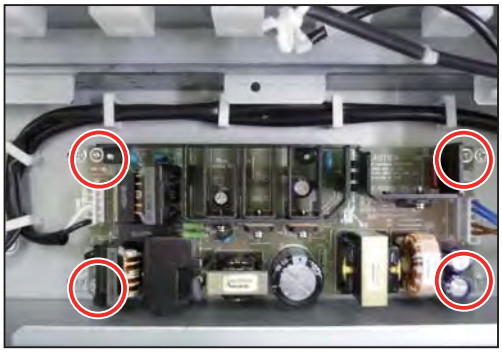
5. Inside of the machine:
   Remove the two screws to remove the inner cover.



6. Disconnect the two connectors on the power supply unit.



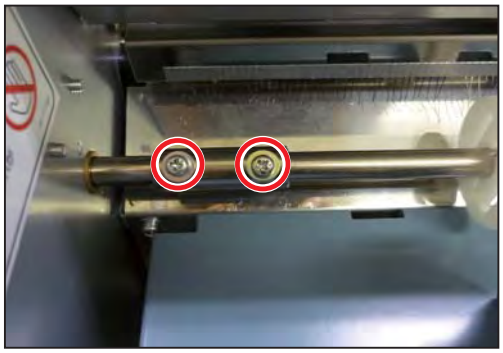
7. Remove the four screws to remove the power supply unit.

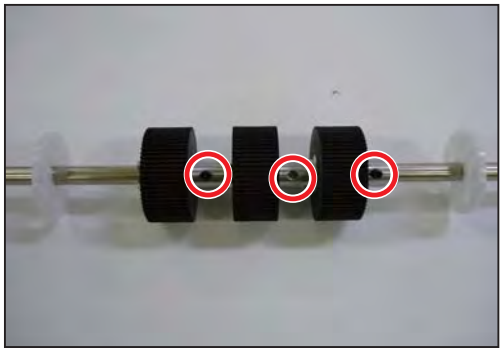


3 Paper Infeed Section

1. Replacing the Paper Feed Roller Unit

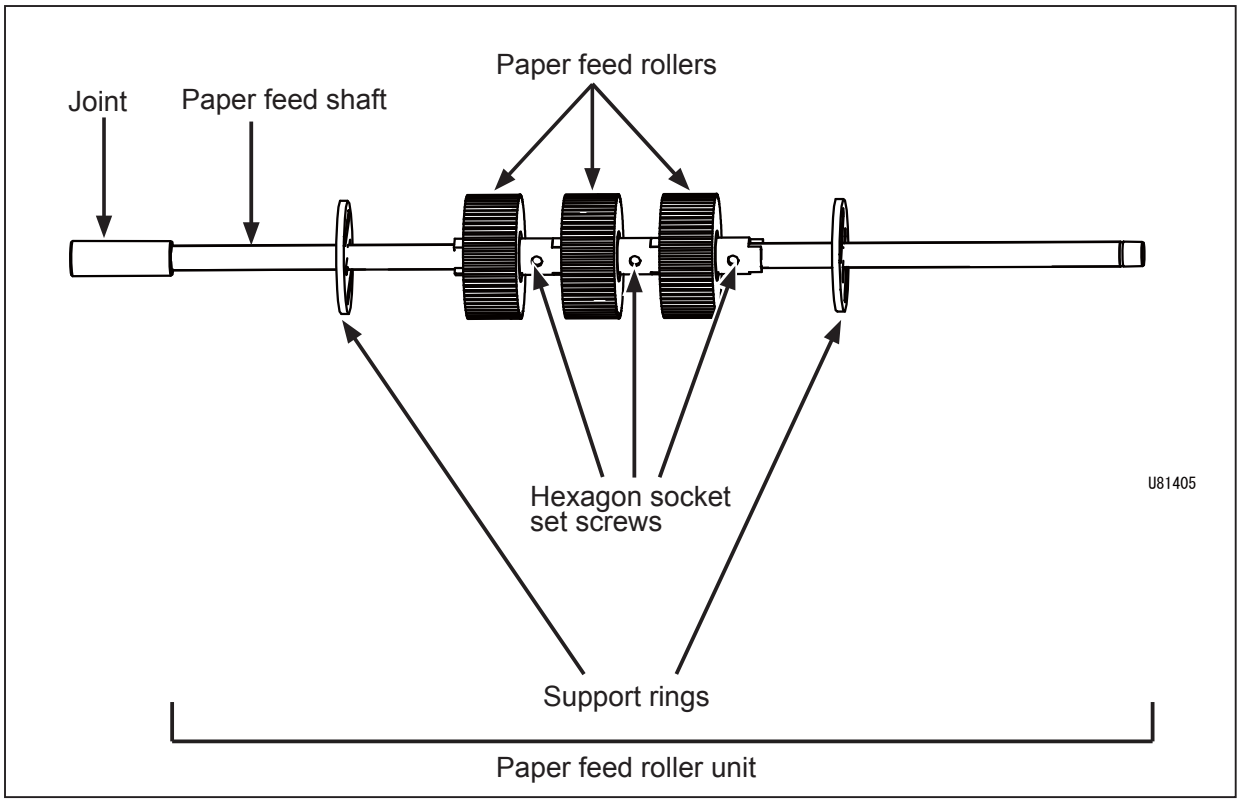
1. Remove the two screws from the joint located on the left side of the shaft of the paper feed roller unit.
2. Move the joint over to the paper feed shaft side and pull out the paper feed roller unit.
3. Remove the three hexagon socket set screws from the paper feed rollers, and pull out the support rings and the paper feed rollers.
4. Attach new paper feed rollers to the shaft and tighten the hexagon socket set screws.
   * The screws should be fitted in the counterbored holes in the shaft.
5. Reattach the paper feed roller unit to its original position.
   * For SEF (short edge feed), adjust the support rings to 5 mm from the paper edge.





IMPORTANT

- Whenever a paper feed roller needs to be replaced, replace the other two along with it.
- If the paper is very wide and skewed in the paper infeed section, add extra paper feed rollers on both sides.



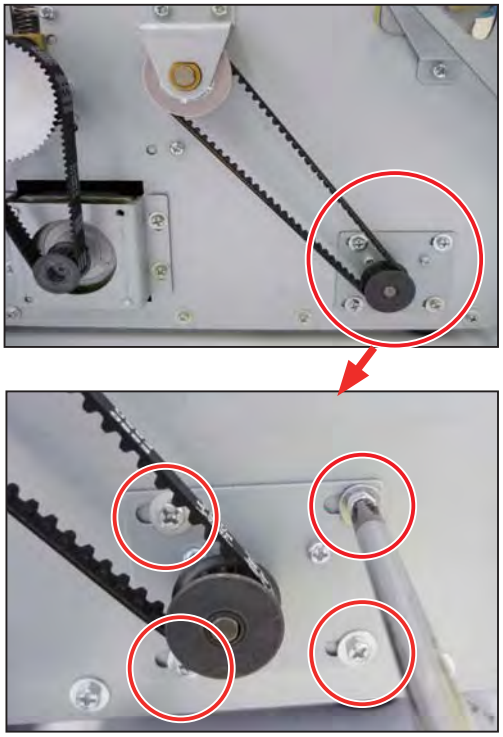
2. Removing the Paper Feed Motor (DC Gear Motor)

1. Remove the cover L. (See → P.35)

2. Remove the parts.
   Refer to steps 1 through 5 in ' 2 Electrical System Section - 4. Removing the Power Supply Unit'.
   (See → P.38)

3. Inside of the machine:
   Disconnect the connector of the paper feed motor.

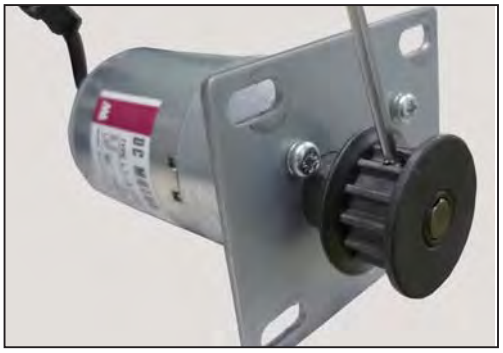
4. Opposite side of operation:
   Remove the four screws securing the paper feed motor.



5. Remove the paper feed belt from the pulley.
   Loosen the hexagon socket set screw attached in the pulley to remove the pulley from the paper feed motor.

NOTE

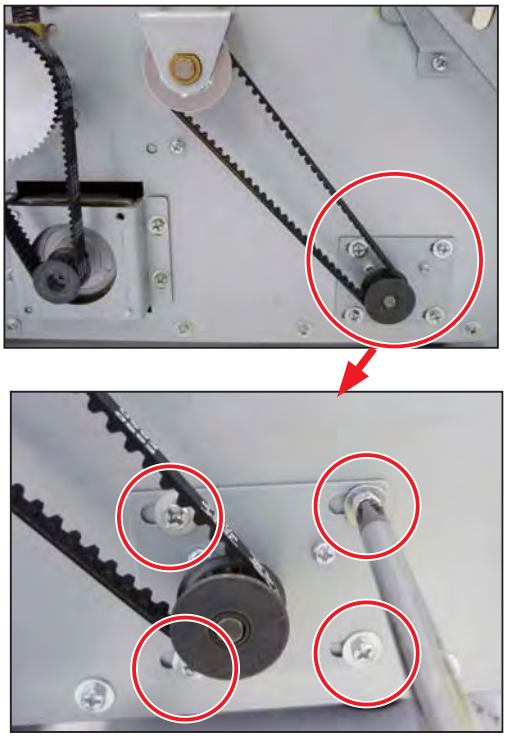
After reattaching the paper feed motor, perform 'HELP-01 Feed motor check'.
(See → P.118)



3. Removing the Paper Feed Belt

1. Remove the cover L. (See → P.35)

2. Opposite side of operation:
   Loosen the four screws securing the paper feed motor.



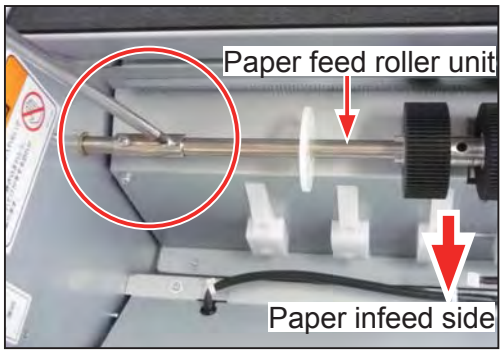
3. Remove the paper feed belt from the pulley.

NOTE

After reattaching the paper feed belt, perform 'HELP-01 Feed motor check'.
(See → P.118)

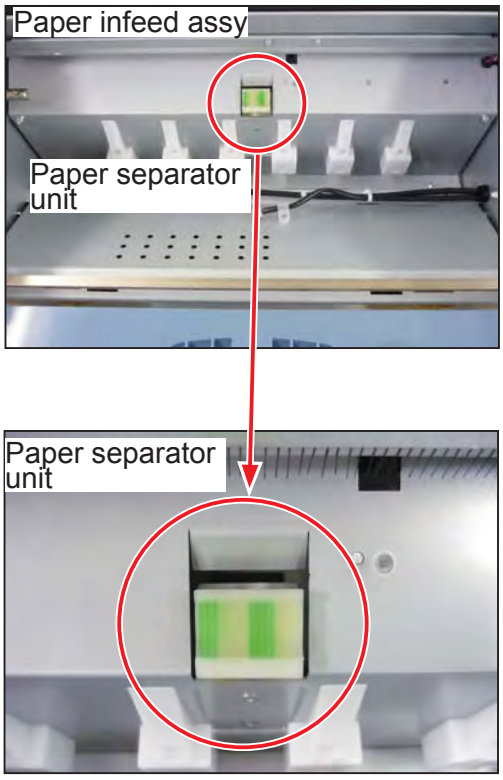
4. Removing the Paper Separator Unit

1. Remove the two screws to remove the paper feed roller unit.



2. Remove the paper separator unit.

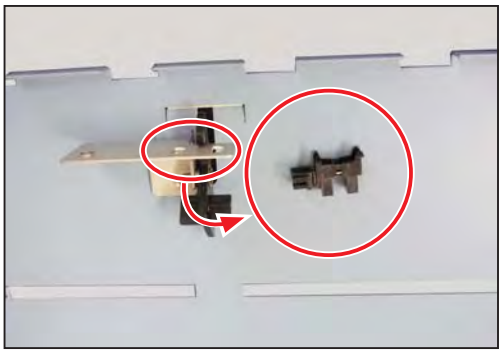
   For replacement and adjustment of the paper separator unit, refer to ‘ 1 Paper Infeed Section - 2. Replacing the Paper Separator Unit and Adjusting its Clearance’ in chapter 4.
   (See → P.90)



5. Removing the Paper Sensor

1. Remove the parts.
   Refer to ' 2 Electrical System Section - 4. Removing the Power Supply Unit'.
   (See → P.38)

2. Remove the paper sensor from the sensor bracket attached to the reverse side of the feed tray.



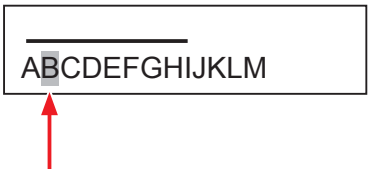
NOTE

After reattaching the paper sensor , be sure to perform ‘HELP-07 SW & Sensor check’.

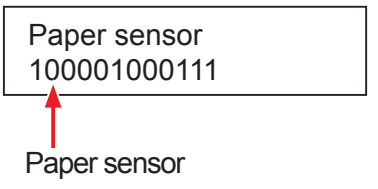
● HELP-07

1. Access HELP mode ‘HELP-07’.

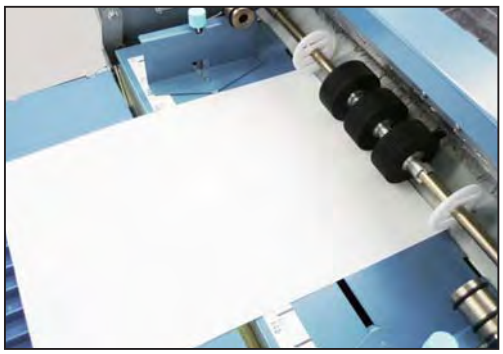
2. Position 'B' displays the current status of the paper sensor. (Alphabets are used in the right figure instead of the numbers for your easy reference.)
   Press the ◁ MENU LEFT key or the ▷ MENU RIGHT key to select the position 'B'. (Selected item is highlighted.)



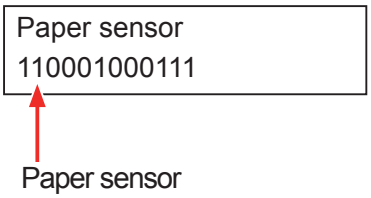
3. 'PE sensor' is displayed on the upper line on the display and you can check sensor operation.
   The arrow in the right figure shows the position where displays the sensor ’s current status.
   (0 : paper absent 1 : paper present)



4. Load paper on the feed tray.



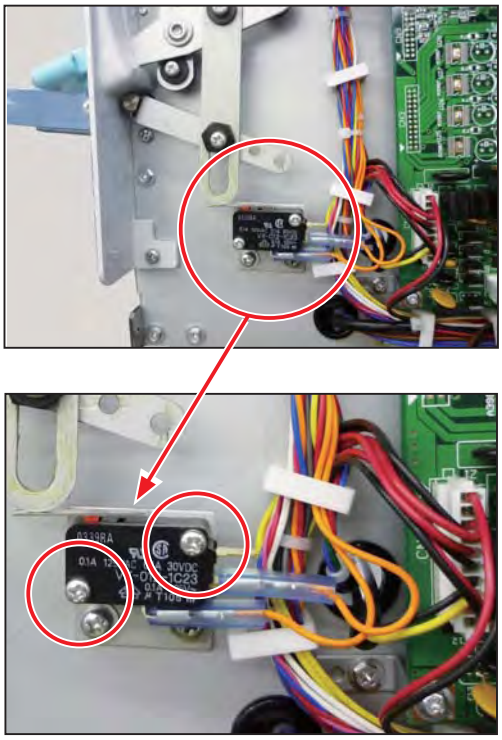
5. If the number showing the current status of the paper sensor changes from “0” to “1”, the sensor detects the presence of the paper.



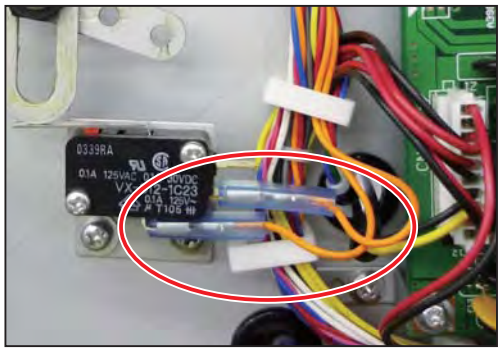
6. Removing the Paper Set Lever switch

1. Remove the cover R. (See → P.34)

2. Remove the two screws to remove the paper set lever switch.

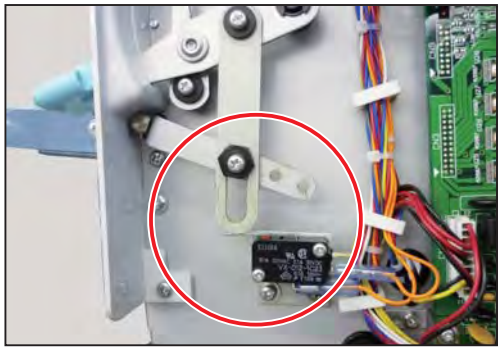


3. Pull out the two terminals of the sensor relay cable unit attached to the paper set lever switch.



● Positioning when reattaching

Fine-adjust the switch attaching position.

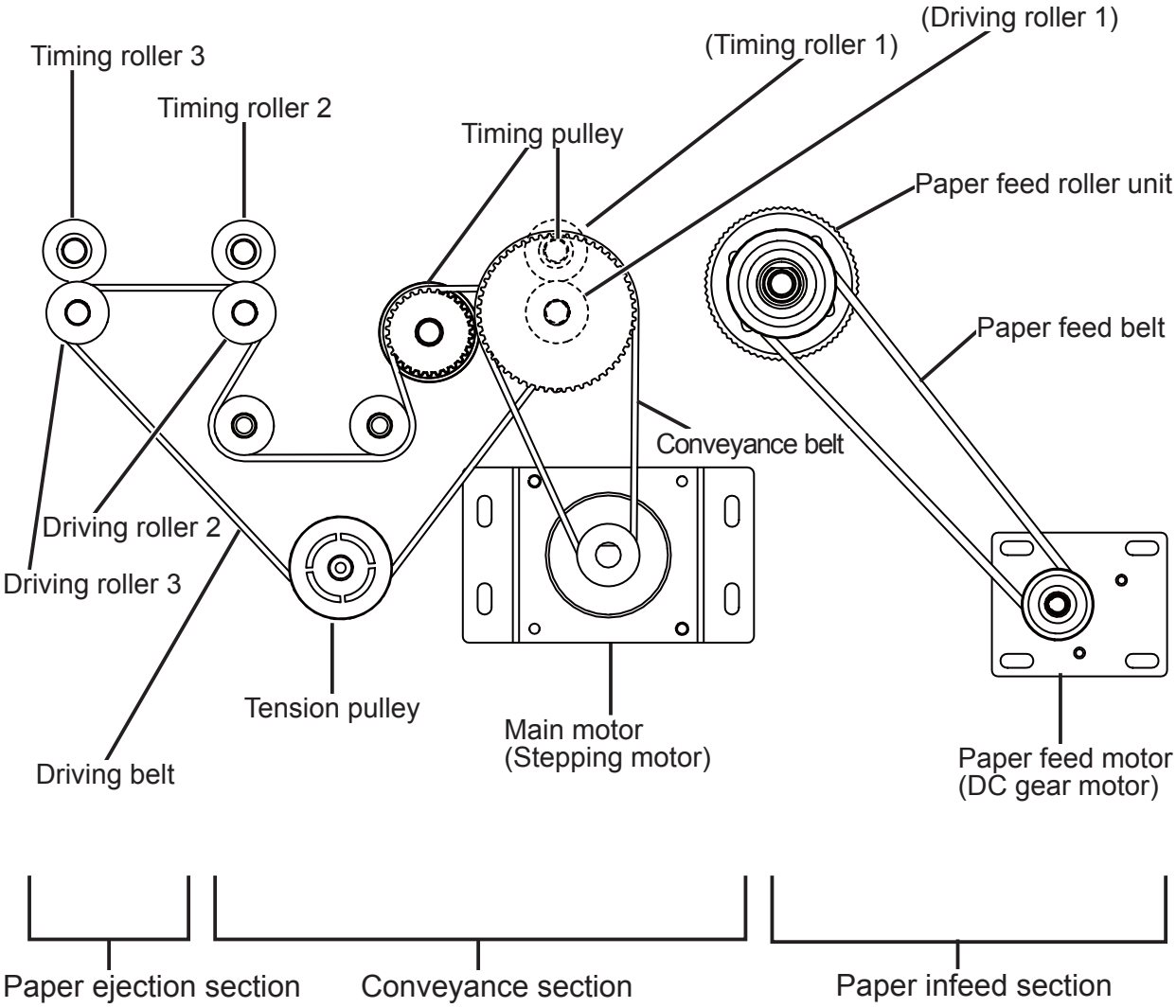


NOTE

After reattaching the paper set lever switch, be sure to perform 'HELP-07 SW & Sensor check'.
(See → P.124)

4 Conveyance Section

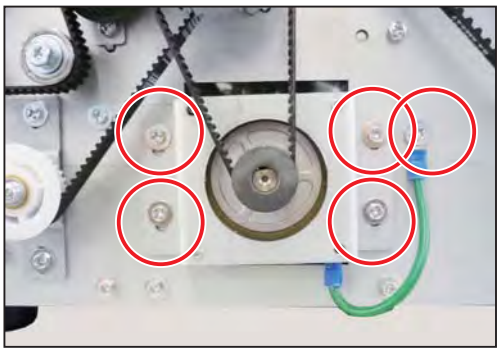
● **Opposite side of operation : Names of motors, belts and rollers**



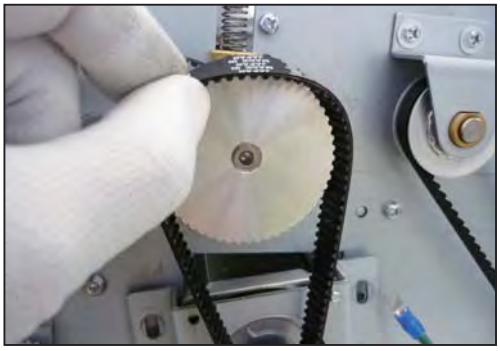
1. Removing the Main Motor (Stepping Motor)

1. Remove the cover L. (See → P.35)

2. Remove the f ve screws securing the main motor.

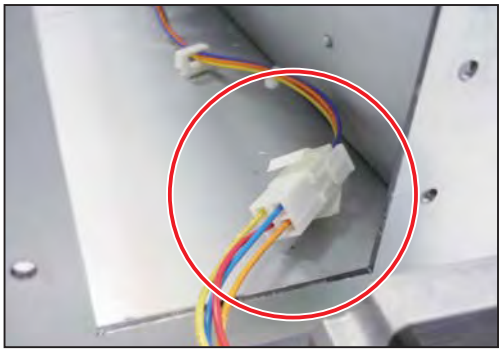


3. Remove the conveyance belt from the pulley.

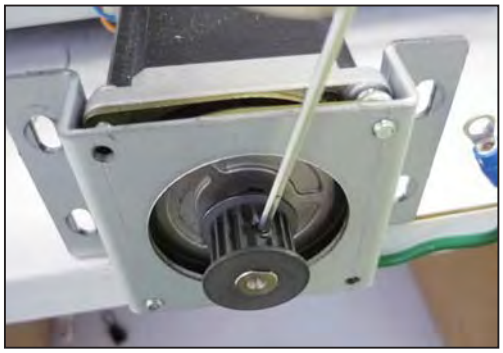


4. Remove the main motor by sliding it toward the outside.
   Note that the connectors are still connected. Be sure not to pull them strongly.

5. Disconnect the connector of the main motor.



6. Loosen the hexagon socket set screw to remove the pulley on the main motor.



NOTE

After reattaching the main motor, perform 'HELP-15 Conveyor adj. (Conveyor adjustment)'.
(See → P.132)

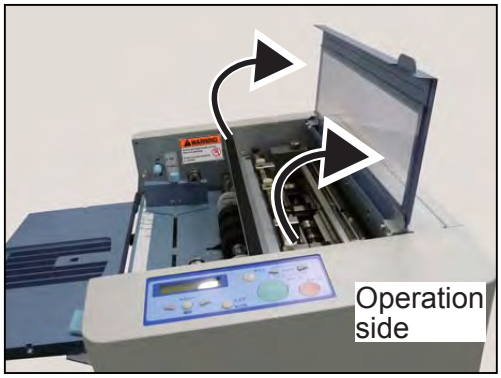
2. Removing the Timing Rollers 1, 2, and 3

1. Remove the cover L. (See → P.35)

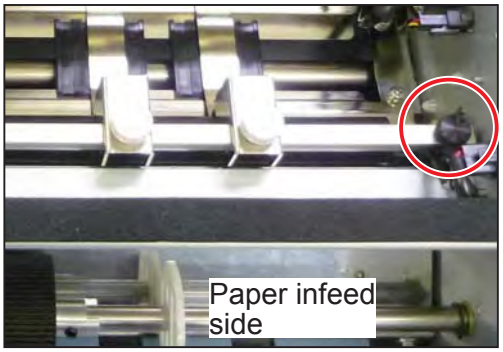
2. Remove the cover R. (See → P.34)

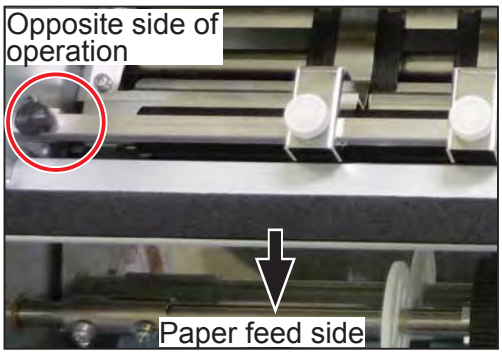
3. Remove the rear cover as well when removing the timing roller 3. (See → P.34)

4. Open the top cover.

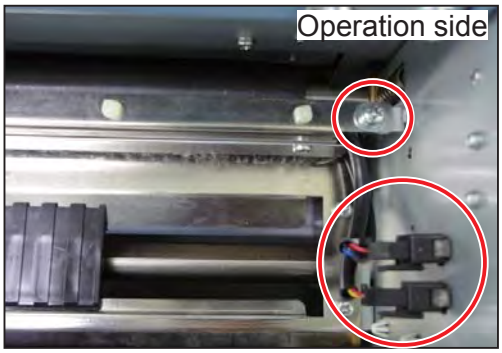


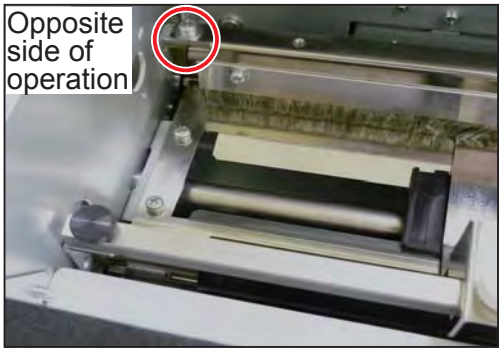
5. Loosen the two thumbscrews to remove the upper guide unit.





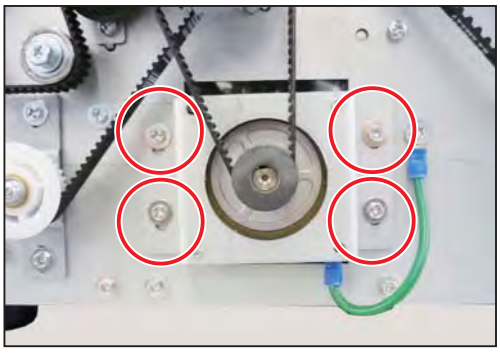
6. Remove the two screws to remove the sensor plate unit.
   Disconnect the two connectors on the sensor plate unit.



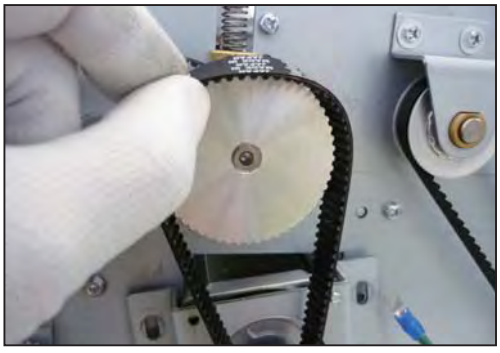


7. Outside of the machine: opposite side of operation
   Loosen the four screws securing the main motor to remove the timing roller 1.

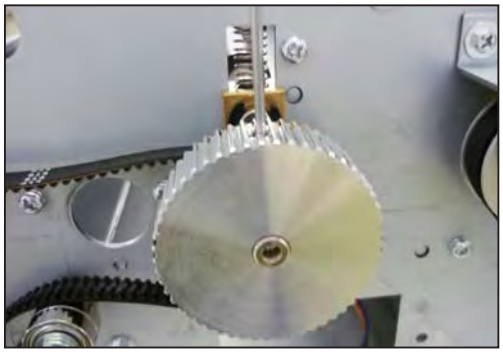
   • If you do not remove the timing roller 1, go on to step 10.



8. Remove the conveyance belt.

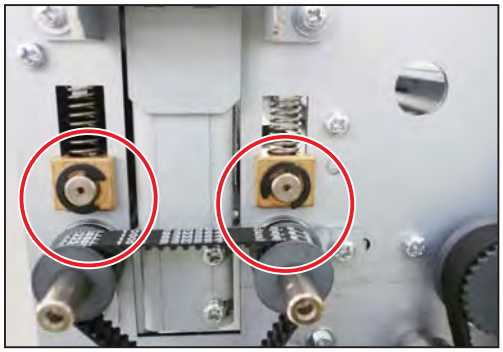


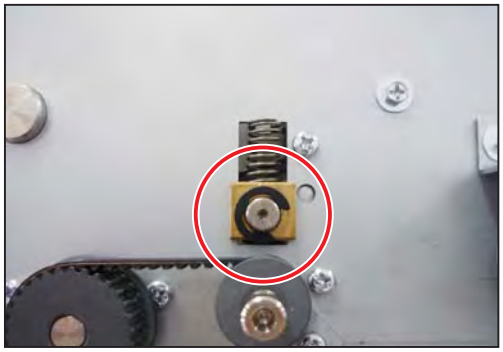
9. Loosen the hexagon socket set screw to remove the pulley.



10. Remove the E-rings securing each timing roller.

Right f gure :The left circle shows the E-ring securing the timing roller 2.
:The right circle shows the E-ring securing the timing roller 1.



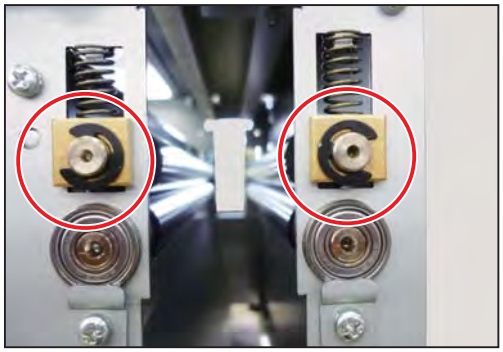


11. Remove the cutter unit.
Refer to '5 Cutter Assy - 1. Removing the Cutter Unit'. (See → P.71)

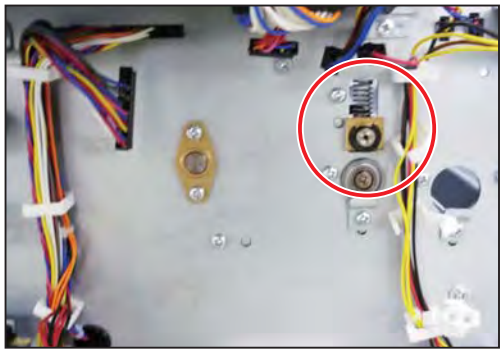
12. Remove the main PCB unit to remove the timing roller 1.
Refer to '2 Electrical System Section - 2. Removing the Main PCB Unit'. (See → P.37)

13. Operation side:
Remove the E-rings securing each timing roller.

Right f gure :The left circle shows the E-ring securing the timing roller 3.
:The right circle shows the E-ring securing the timing roller 2.



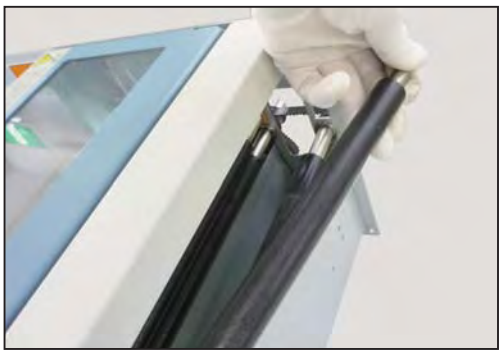
Right f gure :The circle shows the E-ring securing the timing roller 1.



14. Remove the bushes and the springs attached to the both sides of the timing roller.

15. Remove the timing roller.

Right f gure :The timing roller 3 is being removed from the ejection side.



To remove the timing rollers 1 and 2, f rst open the top cover.

NOTE

After reattaching the timing rollers, be sure to perform ‘HELP-15 Conveyor adj. (Conveyor adjustment)’. (See → P.132)

3. Removing the Driving Rollers 1, 2, and 3

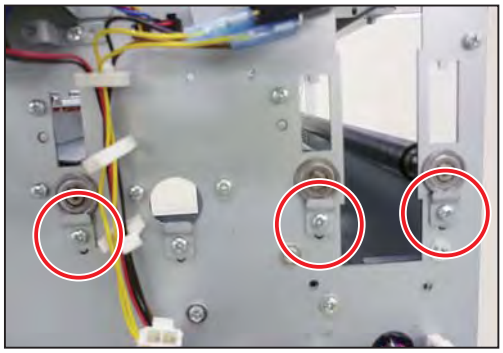
1. Remove the timing rollers.

Refer to ‘2 Electrical System Section - 2. Removing the Timing Rollers 1, 2, and 3’. (See → P.50)

2. Operation side:
Remove the three screws securing the three bearing stoppers of the driving rollers 1, 2, and 3.

Remove the three bearing stoppers.

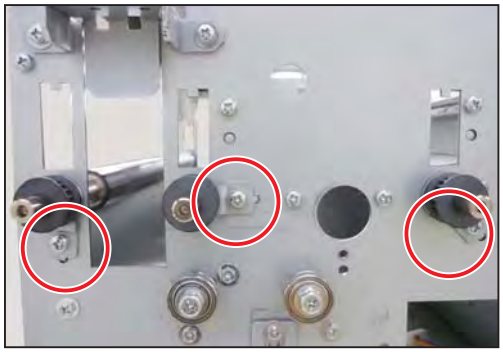
(Right f gure: from the left, Driving rollers 1, 2, and 3)



3. Opposite side of operation:
Remove the three screws securing the three bearing stoppers of the driving rollers 1, 2, and 3.

Remove the three bearing stoppers.

(Right f gure: from the left, Driving rollers 3, 2, and 1)



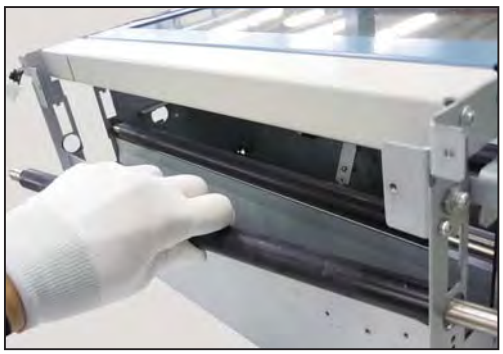
4. Loosen the hexagon socket set screw to remove the pulley.

5. Remove the bearing.

6. Remove the driving rollers from the main body.

Driving roller 3: Remove it from the paper ejection side.

Driving rollers 1 and 2: Open the top cover and remove them from the upper side of the main body.



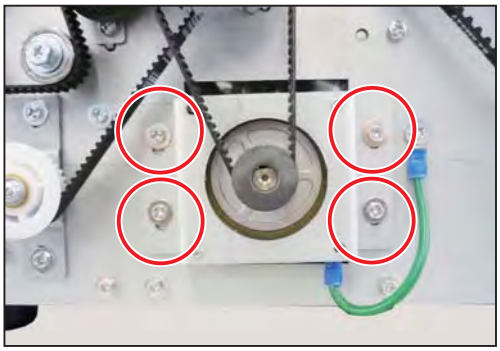
NOTE

After reattaching the driving rollers, be sure to perform 'HELP-15 Conveyor adj. (Conveyor adjustment)'. (See → P.132)

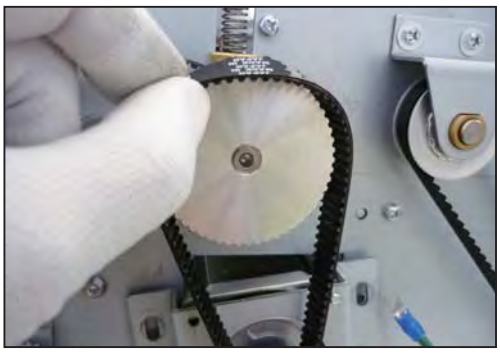
4. Removing the Conveyance Belt

1. Remove the cover L. (See → P.35)

2. Opposite side of operation:
   Loosen the four screws securing the main motor unit.



3. Remove the conveyance belt from the pulley.



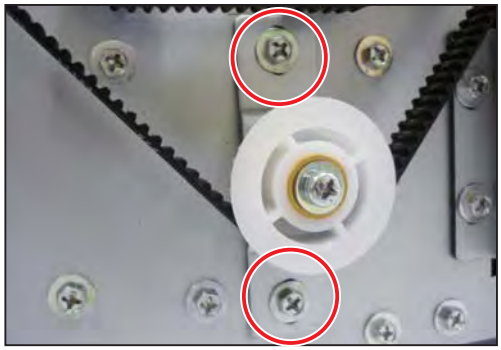
NOTE

After reattaching the conveyance belt, be sure to perform 'HELP-15 Conveyor adj. (Conveyor adjustment)'. (See → P.132)

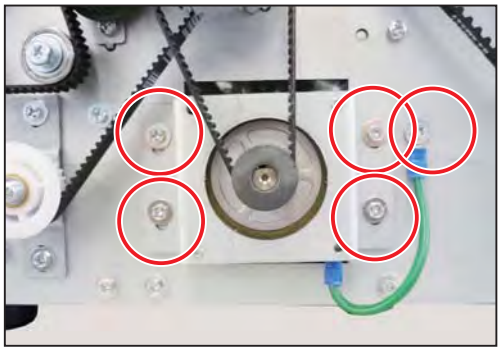
5. Removing the Driving Belt

1. Remove the cover L. (See → P.35)

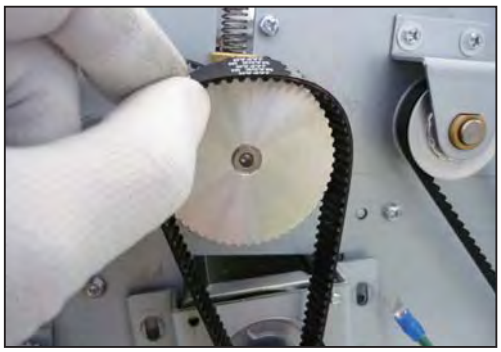
2. Opposite side of operation
   Loosen the two screws securing the tension pulley.



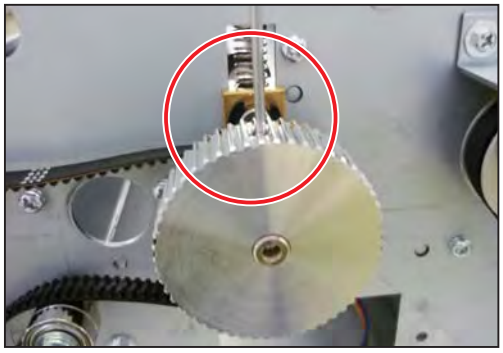
3. Remove the five screws securing the main motor unit.



4. Remove the conveyance belt from the pulley.



5. Loosen the hexagon socket set screw to remove the pulley.



6. Remove the driving belt from the main body.

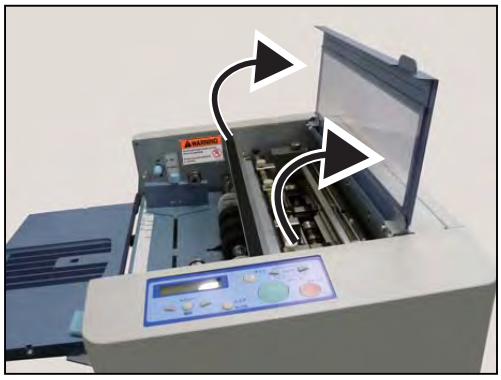
NOTE

After reattaching the driving belt, be sure to perform 'HELP-15 Conveyor adj. (Conveyor adjustment)'.
(See → P.132)

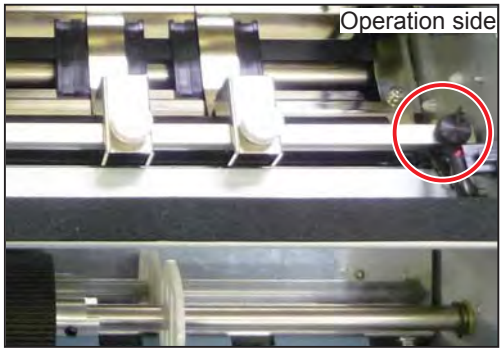
6. Removing the PPS1

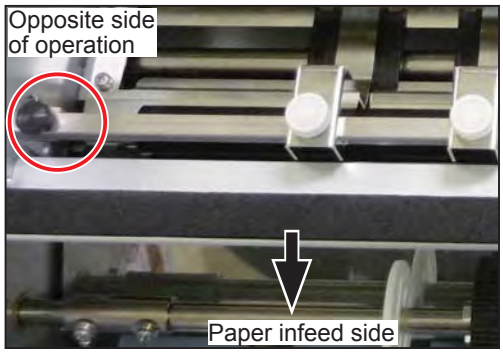
• Removing the PPS1 (upper)

1. Open the top cover.

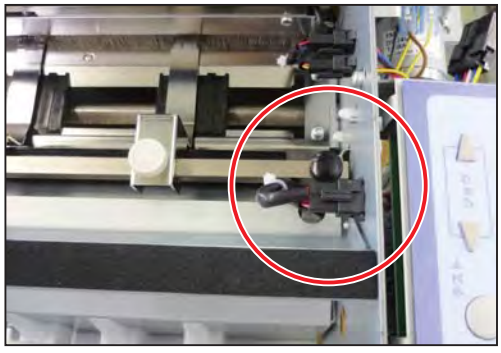


2. Loosen the two thumbscrews to remove the upper guide unit.

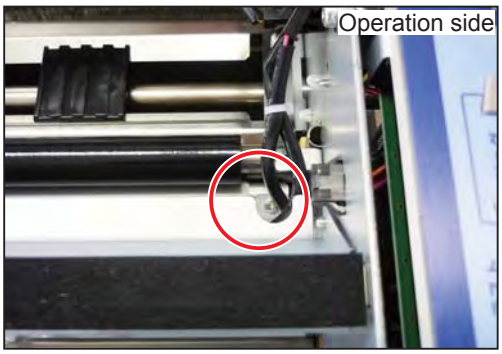


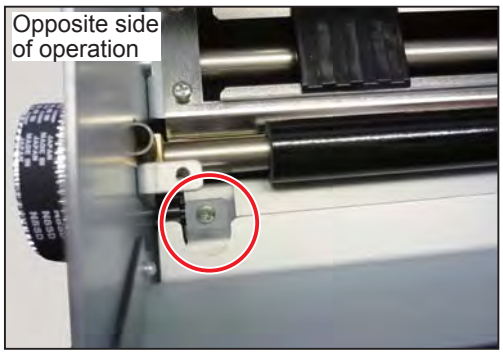


3. Disconnect the connector of the PPS1 relay cable unit.

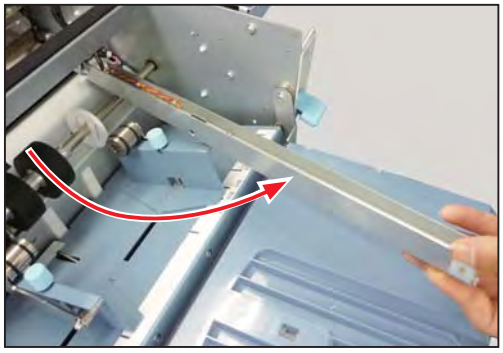


4. Remove the two screws on both sides of the paper infeed (upper) assy to remove it.

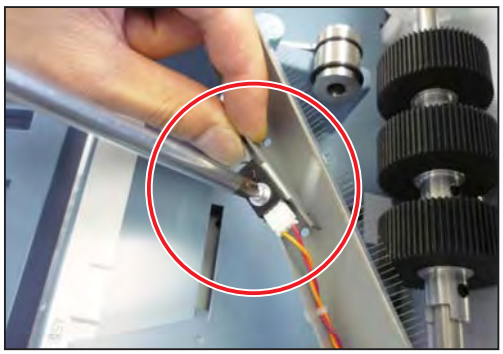




5. Remove the two screws to remove the sensor angle unit.

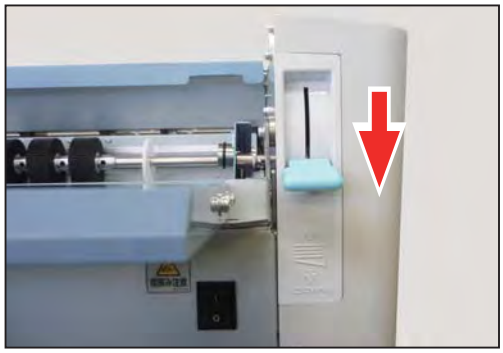


6. Remove the screw to remove the PPS1.
Disconnect the connector of the PPS1 relay cable unit.

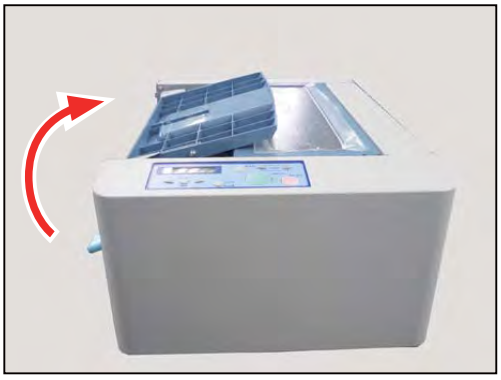


• Removing the PPS1 (lower)

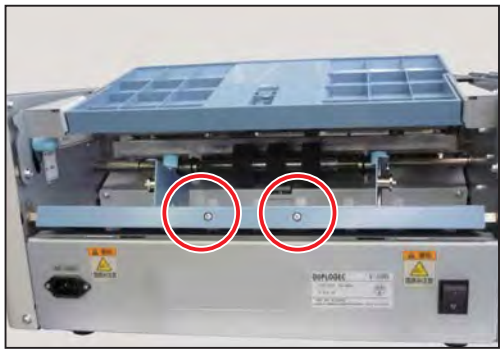
1. Lower the paper set lever.



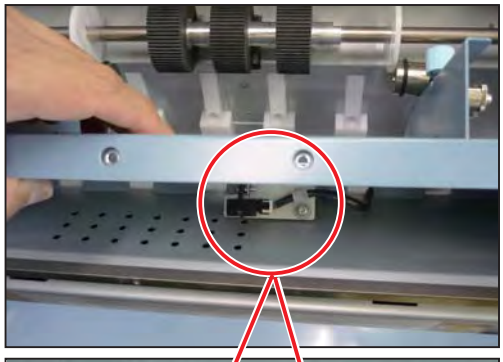
2. Fold the support tray.

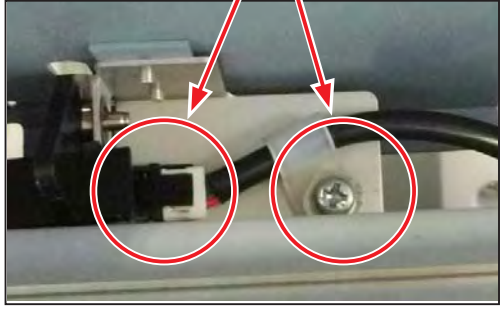


3. Remove the two screws securing the feed tray.



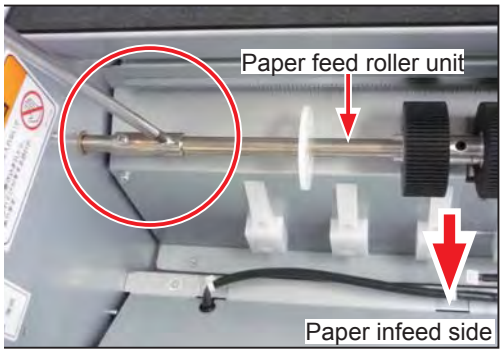
4. Unfold the support tray.
   Remove the screw attached to the reverse side of the feed tray to remove the cable clamp.
   Then disconnect the connector and remove the feed tray from the main unit.



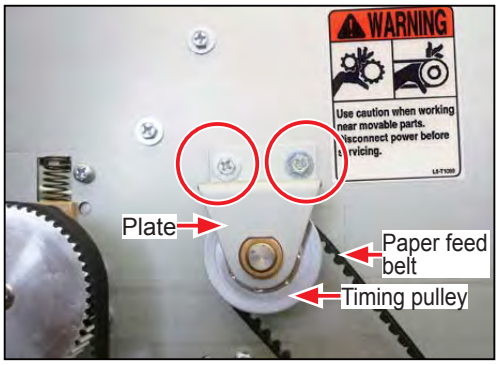


5. Open the top cover.

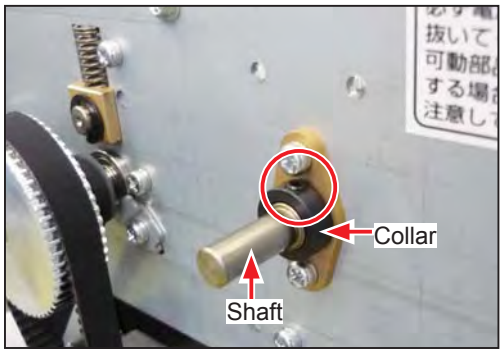
6. Remove the two screws to remove the paper feed roller unit.



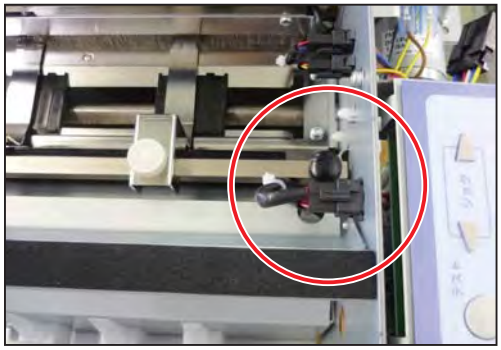
7. Opposite side of operation (outside of the machine)
   Remove the two screws to remove the plate.
   Remove the timing pulley and the paper feed belt.



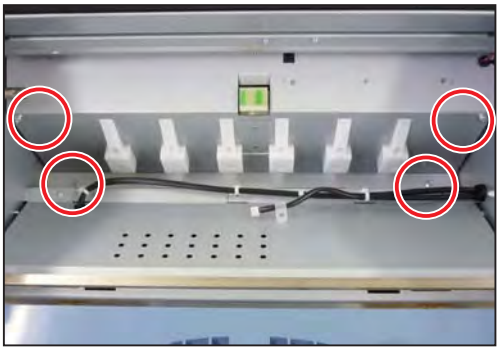
8. Loosen the hexagon socket set screw to remove the collar and the shaft.



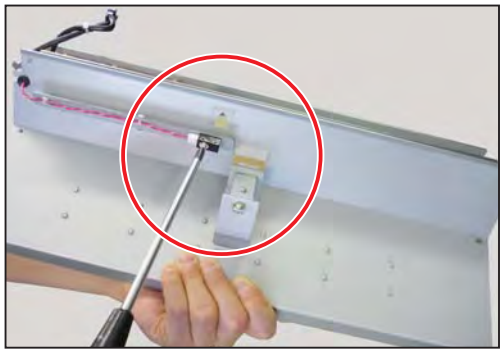
9. Inside of the machine:
   Disconnect the connector of the PPS1 relay cable unit.



10. Remove the four screws to remove the paper infeed assy.



11. Remove the screw to remove the PPS1. Disconnect the connector of the PPS1 relay cable unit.



NOTE

After reattaching the PPS1, be sure to perform 'HELP-07 SW & Sensor check' and 'HELP-08 PPS1 adjustment'.

• HELP-07

1. Access HELP mode 'HELP-07'.

HELP-07
SW & Sensor check

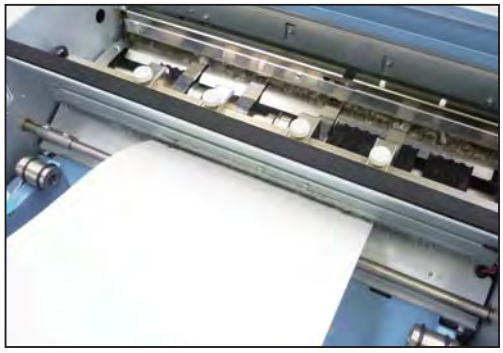
2. Position 'C' displays the current status of the PPS1. (Alphabets are used in the right f gure instead of the numbers for your easy reference.) Press the ◁ MENU LEFT key or the ▷ MENU RIGHT key to select the position 'C'. (Selected item is highlighted.)

ABCDEFGHIJKLM
PPS1

3. 'PPS1' is displayed on the upper line on the display and you can check sensor operation. The arrow in the right figure shows the position where displays the sensor's current status. (0 : paper absent 1 : paper present)

PPS1
1100001000111
PPS1

4. Insert paper into the clearance between the paper infeed (upper) assy and the paper infeed assy.



5. If the number showing the current status of the PPS1 changes from '0' to '1', the sensor detects the presence of the paper.

PPS1
1110001000111
PPS1

• HELP-08

1. Access HELP mode ‘HELP-08’.

HELP-08
PPS1 adjustment

2. ‘PPS1 adjustment’ is displayed.

PPS1 adjustment
LED: 1024 PPS1:0

3. Insert a sheet of paper to the clearance between the paper infeed (upper) assy and the paper infeed assy.

4. If the number showing the current status of the PPS1 changes from ‘0’ from ‘1’, the sensor detects the presence of the paper.

PPS1 adjustment
LED: 1024 PPS1:1

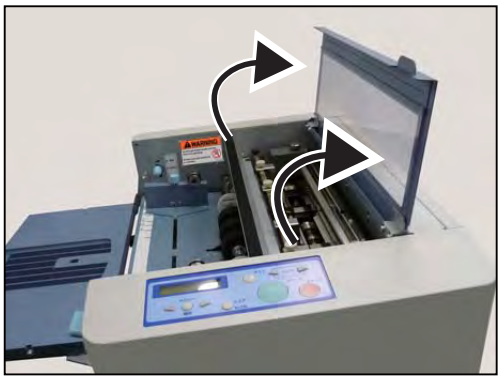
NOTE

After reattaching the PPS1, be sure to perform ‘HELP-15 Conveyor adj. (Conveyor adjustment)’. (See → P.132)

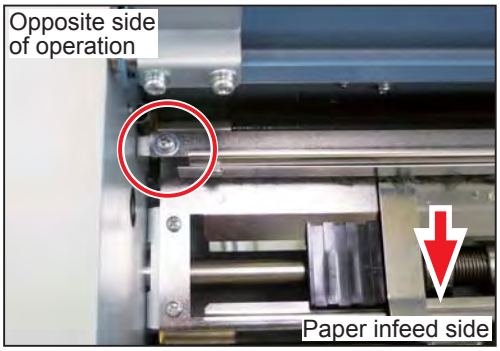
7. Removing the PPS2

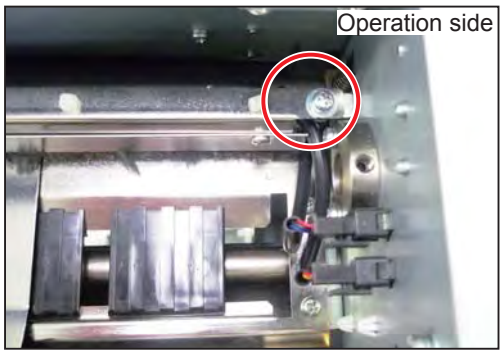
• Removing the PPS2 (upper)

1. Open the top cover .

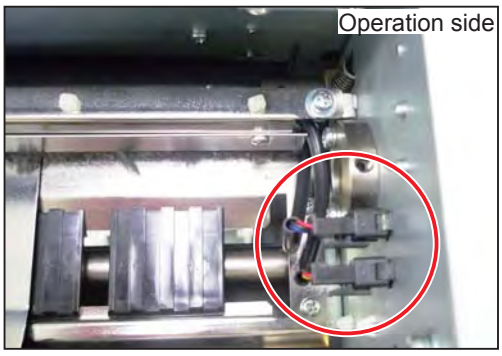


2. Remove the two screws.

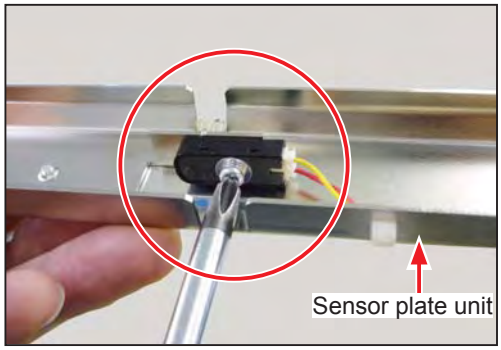




Disconnect the two connectors of the PPS2 emission relay cable unit to remove the sensor plate unit.



3. Remove the screw to remove the PPS2 attached to the reverse side of the lower guide assy.

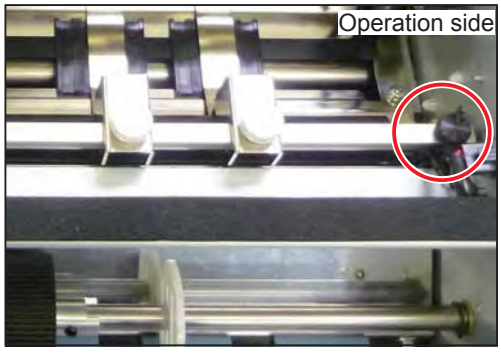


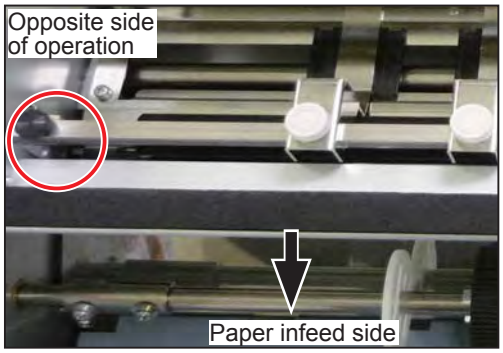
• Removing the PPS2 (lower)

1. Open the top cover.

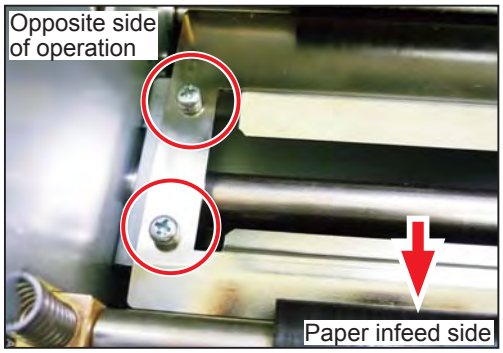
2. Remove the sensor plate unit.
Refer to step 2 in '• Removing the PPS2 (upper)'.
(See → P.62)

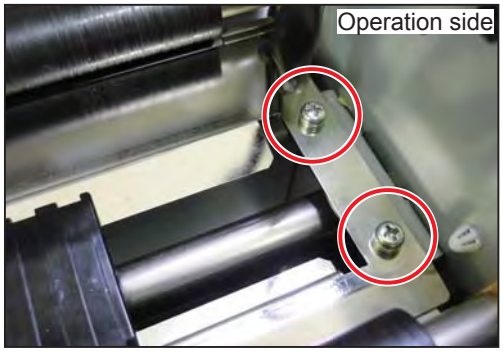
3. Loosen the two thumbscrews to remove the upper guide unit.





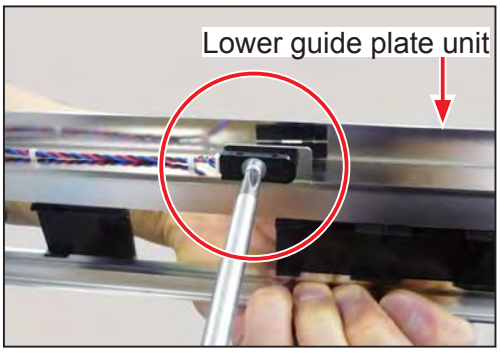
4. Remove the four screws to remove the lower guide plate unit.





5. Remove the screw to remove the PPS2 attached to the reverse side of the lower guide plate unit.

   Disconnect the connector of the PPS2 relay cable unit.



NOTE

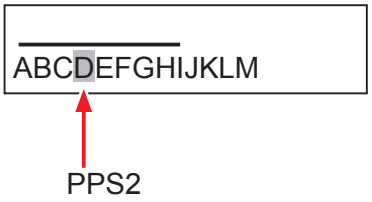
After reattaching the PPS2, be sure to perform 'HELP-07 SW & Sensor check' and 'HELP-09 PPS2 adjustment'.

• HELP-07

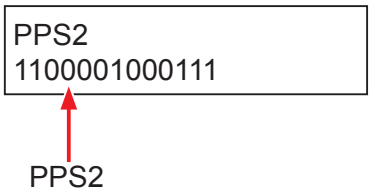
1. Access HELP mode 'HELP-07'.

HELP-07
SW & Sensor check

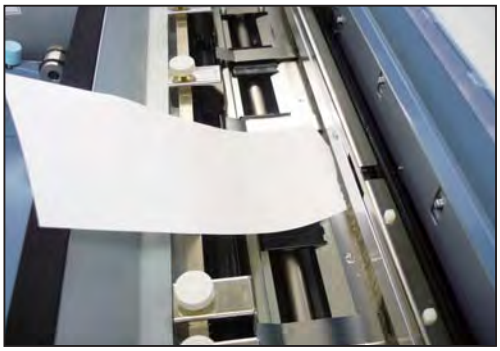
2. Position 'D' displays the current status of the PPS2. (Alphabets are used in the right figure instead of the numbers for your easy reference.)
Press the ◁ MENU LEFT key or the ▷MENU RIGHT key to select the position 'D'.
(Selected item is highlighted.)



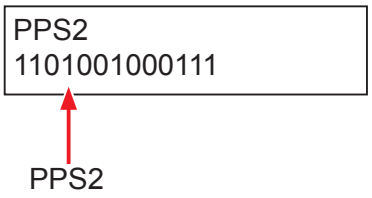
3. 'PPS2' is displayed on the upper line on the display, you can check sensor operation.
The arrow in the right figure shows the position where displays the sensor's current status.
(0 : paper absent 1 : paper present)



4. Open the top cover.
Insert a sheet of paper under the sensor plate unit.

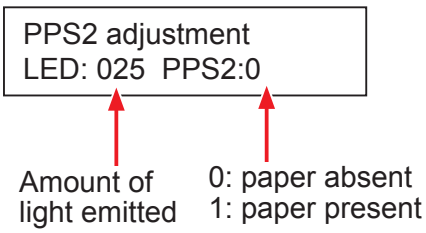


5. If the number showing the current status of the PPS2 changes from '0' to '1', the sensor detects the presence of the paper.



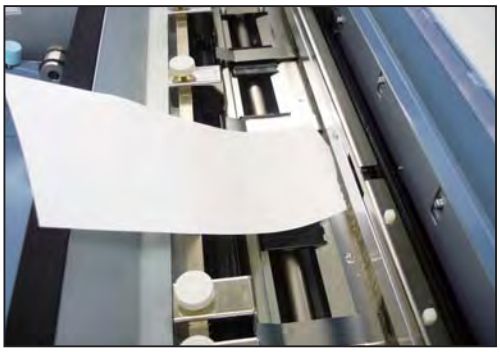
• HELP-09
1. Access HELP mode 'HELP-09'.

2. 'PPS2 adjustment' is displayed on the upper row on the display.



3. Open the top cover.

Insert a sheet of paper under the sensor plate unit.



4. If the number showing the current status of the PPS2 changes from '0' to '1', the sensor detects the presence of the paper.

PPS2 adjustment
LED: 025 PPS2:1

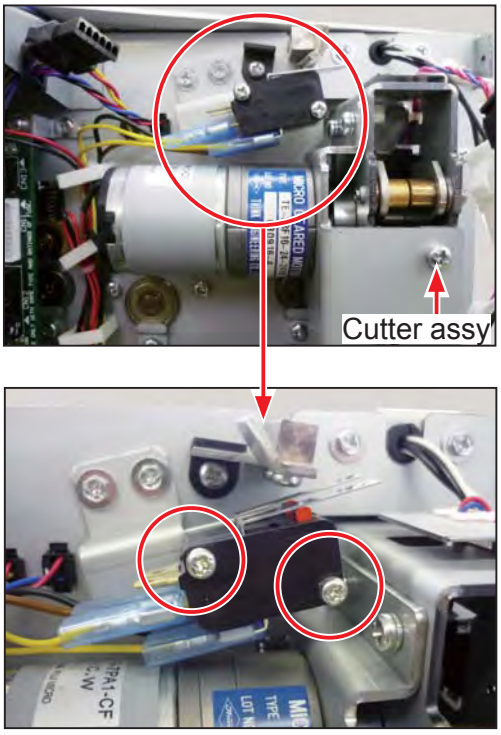
NOTE

After reattaching the PPS2, be sure to perform 'HELP-15 Conveyor adj. (Conveyor adjustment)'. (See → P.132)

8. Removing the Top Cover Switch and the Top Cover Interlock Switch

1. Remove the cover R. (See → P.34)

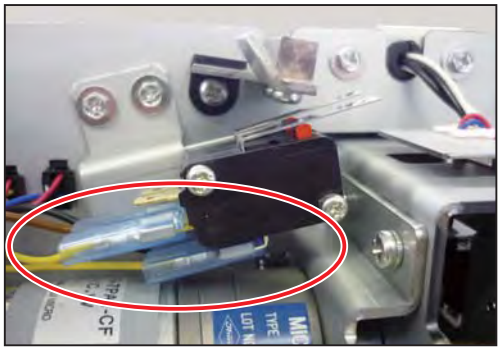
2. Remove the two screws to remove the top cover switch and the top cover interlock switch.



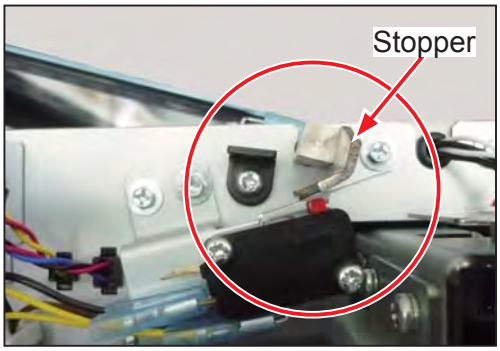
The top cover switch is on the near side and the top cover interlock switch is on the back side.

Pull out the two terminals of the sensor relay cable unit attached to the top cover switch.

Pull out the two terminals of the interlock cable unit attached to the top cover interlock switch.



● Positioning when reattaching
Attach the top cover switch and the top cover interlock switch to the position where the stopper can hold both of them simultaneously , with a space that does not allow a f nger to be inserted between the top cover and the main unit.



NOTE

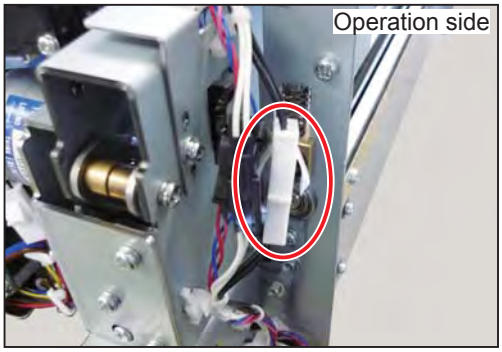
After reattaching the top cover switch and the top cover interlock switch, be sure to perform 'HELP-07 SW & Sensor check'. (See → P.124)

9. Removing the Rear Cover Switch and the Rear Cover Interlock Switch

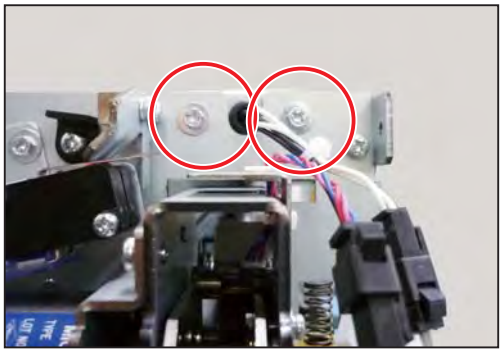
1. Remove the cover R. (See → P.34)

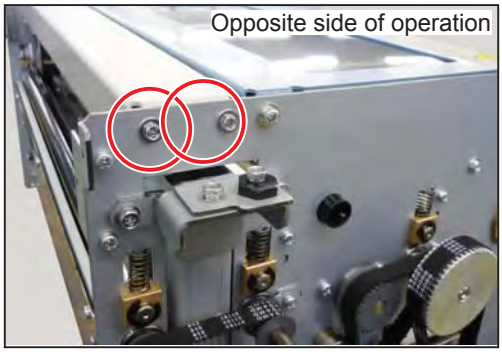
2. Remove the rear cover.(See → P.34)

3. Disconnect the connector of the sensor relay cable unit connected to the cutter assy.

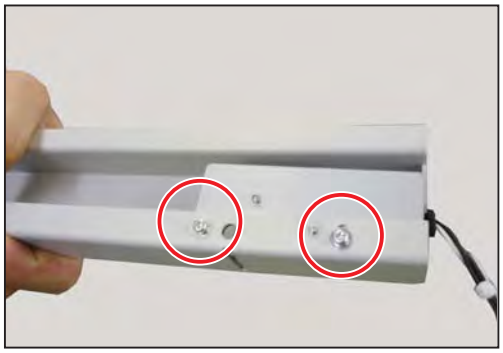


4. Remove the four screws to remove the upper plate assy.

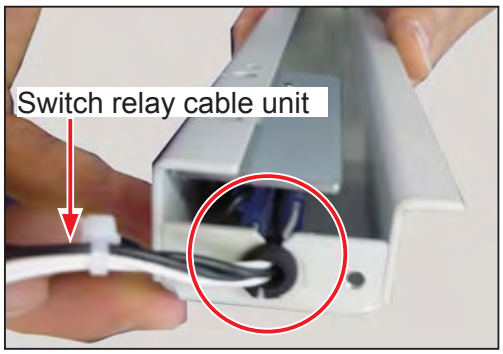




5. Remove the two screws to remove the plate attached to the upper plate assy.



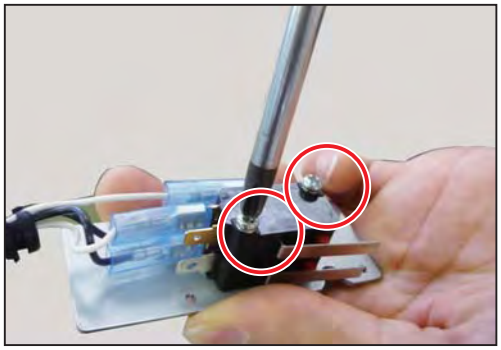
6. Remove the grommet of the switch relay cable unit from the upper plate assy.



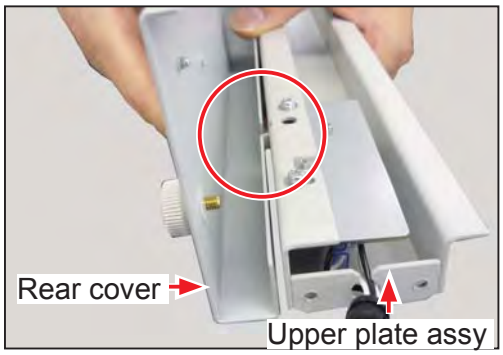
7. Remove the two screws to remove the rear cover switch and the rear cover interlock switch.

   The switch on the upper side in the right figure is the rear cover switch. The one on the lower side is the rear cover interlock switch.

   Remove the four terminals of the switch relay cable unit attached to the rear cover switch and the rear cover interlock switch.



- Positioning when reattaching
  Attach the rear cover switch and rear cover interlock switch to the upper plate assy so that the stopper of the rear cover is aligned with the holes for switches on the upper plate assy. Make sure that the stopper f ts with a sound of click.



NOTE

After reattaching the rear cover switch and the rear cover interlock switch, be sure to perform 'HELP-07 SW & Sensor check'. (See → P.124)

5 Cutter Assy

⚠ WARNING

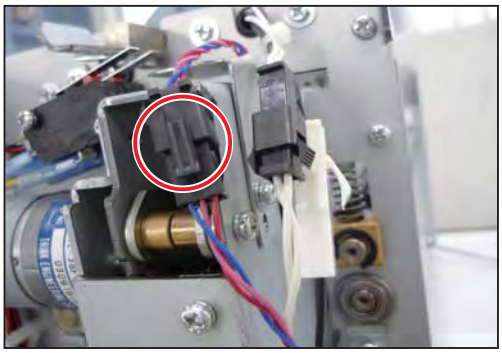
- Both the upper and lower blades of the cutter unit are exposed.
- Be very careful not to injure your hands on the blades when working with the cutter unit

1. Removing the Cutter Assy

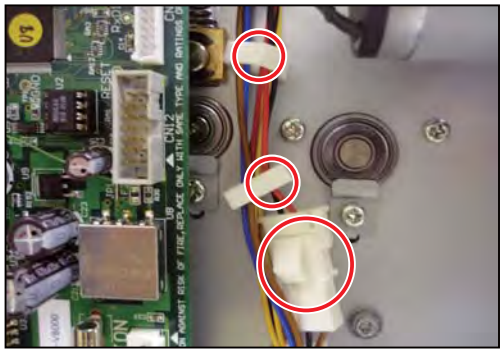
1. Remove the cover R and the cover L.
   (See → P.34, P.35)

2. Remove the rear cover. (See → P.34)

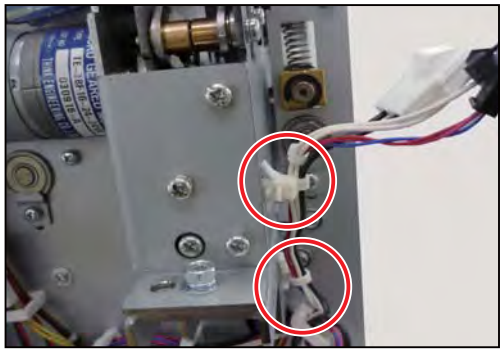
3. Disconnect the connector of the HP sensor connected to the cutter assy.



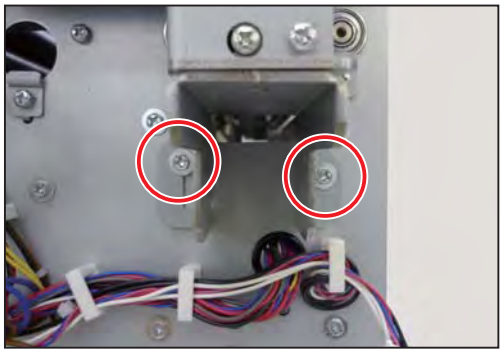
4. Disconnect the connector located on the right side of the main PCB unit.
   Open the two lock type cable clamps.



5. Remove the two banding band attached to the cutter assy.



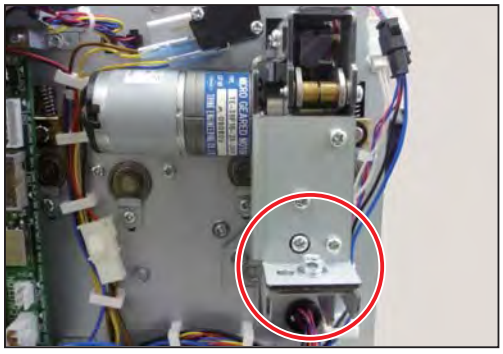
6. Remove the two screws securing the bracket on the operation side.



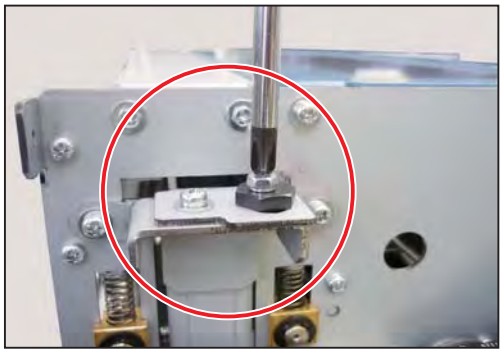
NOTE

Remove the bracket before removing the cutter assy.

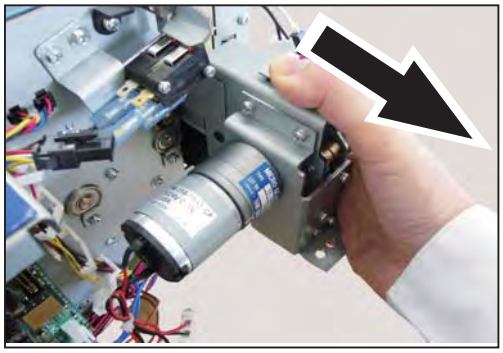
When replacing the cutter unit, remove the screw securing the bracket.



7. Remove the two screws securing the cutter assy on the opposite side of operation.



8. Pull out the cutter assy toward the operation side.



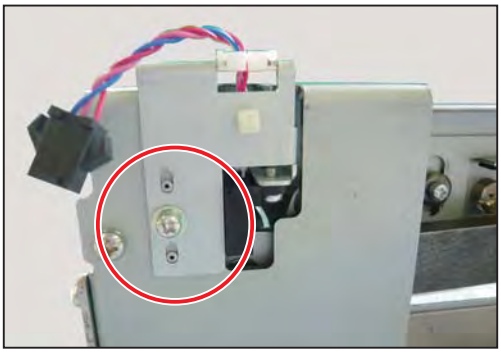
IMPORTANT

After reattaching the cutter assy, be sure to perform the followings:

- Performing the Operation Check of the Cutter Assy (See → P.73)
- Checking Perpendicular Cut (See → P.74)
- Adjusting Conveyance Error (See → P.75)
- Adjusting Lead Edge Cut (See → P.76)
- Adjusting Auto Cut Function (See → P.77)

2. Replacing the Cutter Unit

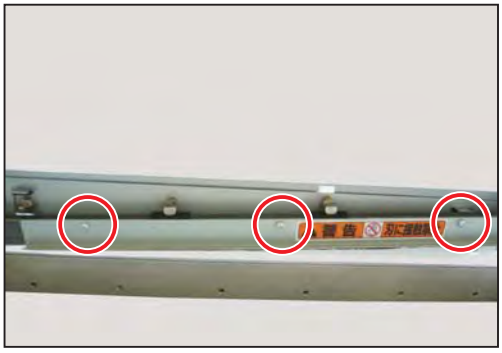
1. Remove the screw to remove the sensor bracket.



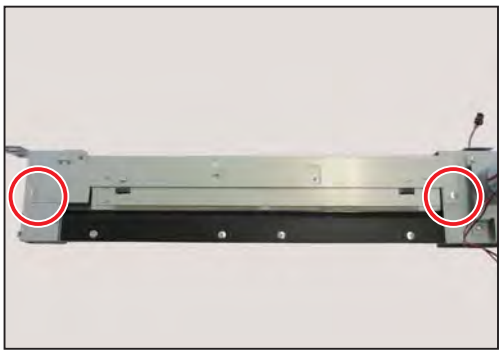
NOTE

When reattaching the sensor bracket, position the sensor bracket so that the screw is located in the middle of the elongate hole.

2. Remove the three screws to remove the angle.



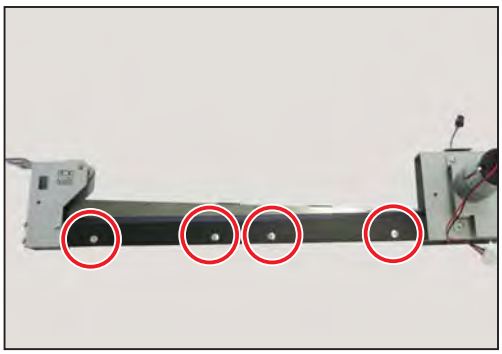
3. Remove the two screws to remove the bracket.



NOTE

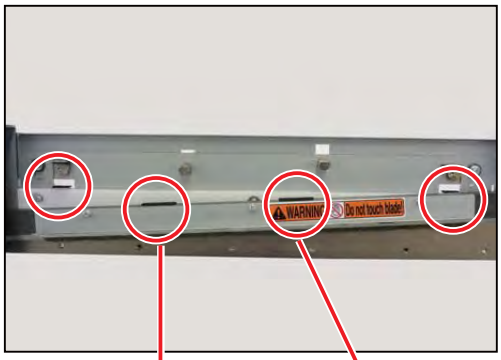
When reattaching the bracket, attach it while pressing up.

4. Remove the four screws to remove the lower guide.

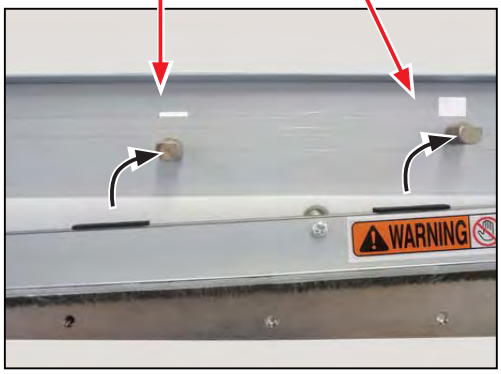


5. Reattach the parts (removed in steps 1 through 4) to a new cutter unit.

6. Remove smear and dust on the surface of sponge attaching portions of the new cutter unit, and then attach four sponges to it as below.

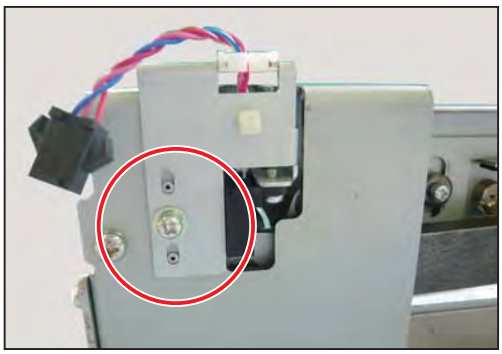


Attach two of them as shown in the right f gure so that the posts touch the sponges when the blade of the cutter unit raises.

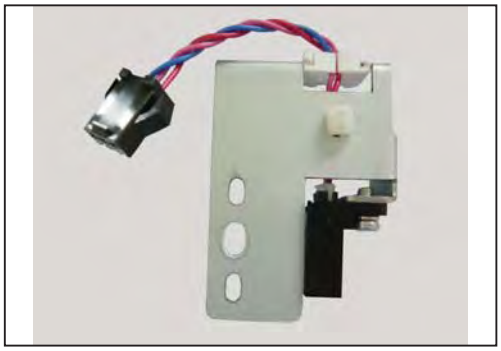


3. Removing the Cutter HP Sensor

1. Remove the screw to remove the sensor bracket.



2. Remove the screw to remove the cutter HP sensor from the sensor bracket.



4. Performing the Operation Check of the Cutter Assy

1. Simultaneously press and hold down the ◁ MENU LEFT key and ▷ MENU RIGHT key, and turn the power switch ON with those keys held down to access HELP mode.
   Select 'HELP-02 Cutter motor check', and press the START key.

   HELP-02
   Cutter motor check

   REFERENCE

   Refer to HELP mode 'HELP-02 Cutter motor check'. (See → P.119)

   Cutter motor check
   *** Test: Motor ON

   Cutter HP sensor

   0: IN 1: OUT

2. Press the TEST key to check that the cutter assy operates one cycle and then stops.

   Press the STOP key to return to the HELP mode selection display.

3. Select HELP-11 (TTL/serv. count), and press the START key.

   HELP-02
   Cutter motor check

4. Press the ◁ MENU LEFT key and/or ▷ MENU RIGHT key to display 'Service cut count'.

   Service cut count
   ****

5. Continuously press the CLEAR key . After about two seconds, service cut count will be reset to '0' with a beeping sound.
   This enables you to check cut count of the cutter assy.

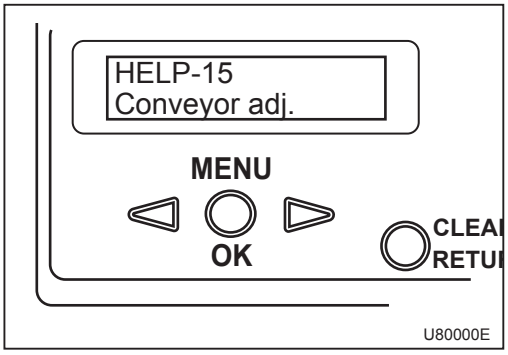
   Press the STOP key.
   The HELP mode selection display will reappear.

5. Checking Perpendicular Cut

1. Access HELP mode ‘HELP-15 Conveyor adj. (Conveyor adjustment)’, and press the START key.

2. Load paper in landscape orientation on the feed tray.

3. Press the TEST key to perform proof cut.

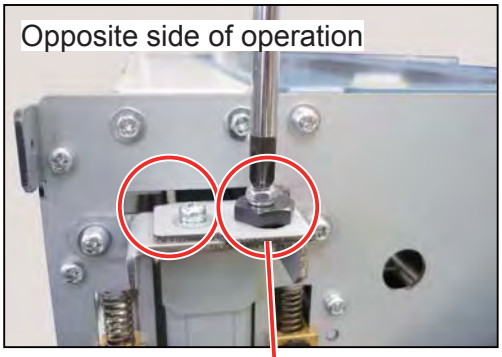


4. Measure the width of both edges of the paper produced by the f rst cut with a caliper.

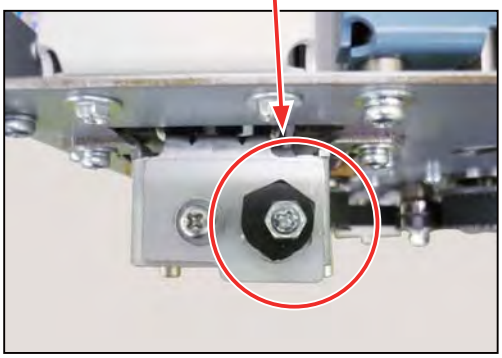
IMPORTANT

Difference in dimensions of each edge must be 0.3 mm or shorter.

5. If the paper is not cut perpendicularly (if the dimensional difference is longer than 0.3 mm, loosen the two screws on the opposite side of operation securing the cutter assy.



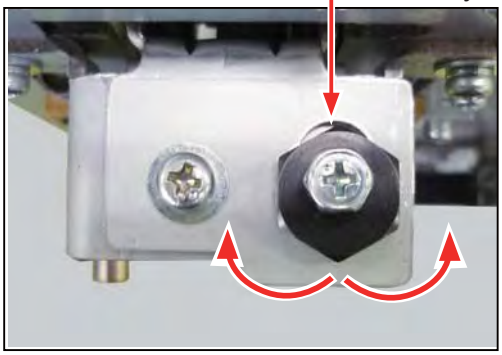
6. The eccentric shaft is attached to the screw shown in the right f gure.



Attaching position of eccentric shaft that is reference for the cutter assy

The angle of the cutter assy can be adjusted by moving the eccentric shaft right and left.

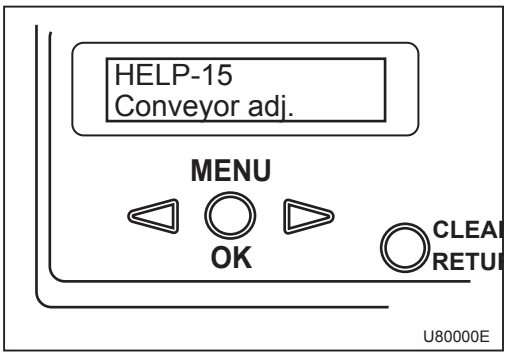
Press the TEST key to perform proof cut.
Measure the width of both edges of the paper produced by the first cut, and adjust the angle of the cutter assy so that the dimensional difference of each edge is 0.3 mm or shorter.



7. Tighten the screws loosened in step 5.

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

6. Adjusting Conveyance Error



1. Access HELP mode 'HELP-15 Conveyor adj. (Conveyor adjustment)', and press the START key.

2. Load paper in landscape orientation on the feed tray.

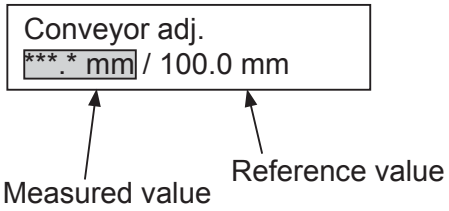
3. Press the TEST key to perform proof cut.

4. Measure the width of the paper produced by the second cut with a caliper.

   The error must be +/-0.5 mm or less to 100.0 mm (reference value).
   If it is +/-0.5 mm or less, go on to step 9.
   If it is above +/-0.5 mm, go on to step 5.

3

5. Press the MENU LEFT key and MENU RIGHT key to enter the measured value.
   Each time you press the MENU RIGHT key, the value increases in increments of 0.1.
   Each time you press the MENU LEFT key, the value decreases in increments of 0.1.



REFERENCE

Conveyance distance adjustable range: 50.0 - 400.0 mm
Pressing the CLEAR key resets the measured value to default (100.0 mm).

6. Press the TEST key to perform proof cut.

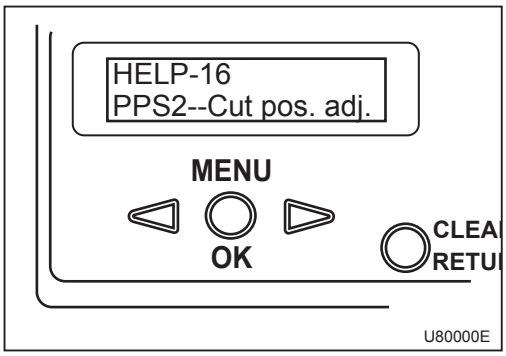
7. Measure the width of the paper produced by the second cut with a caliper.

8. Repeat steps 3 through 5 until the error reaches +/-0.5 mm or less.

9. Press the MENU/OK key to save the value entered.

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

7. Adjusting Lead Edge Cut



1. Access HELP mode 'HELP-16 Cut pos. adj. (Cut position adjustment)', and press the START key.

2. Load paper in landscape orientation on the feed tray.

3. Press the TEST key to perform proof cut.

4. Measure the width of the paper produced by the f rst cut with a caliper.

   Calculate the difference from 60.0 mm.

   The error must be +/-0.5 mm or less.
   If it is +/-0.5 mm or less, go on to step 9.
   If it is above +/-0.5 mm, go on to step 5.

5. Press the MENU LEFT key and MENU RIGHT key to add or subtract the error value calculated in step 4 to or from the value currently shown on the LCD panel.
   Each time you press the MENU RIGHT key, the value increases in increments of 0.1.
   Each time you press the MENU LEFT key, the value decreases in increments of 0.1.

   REFERENCE

   Cut position adjustable range: 32.0 - 42.0 mm
   Pressing the CLEAR key resets the value to default (37.0 mm).

6. Press the TEST key to perform proof cut.

7. Measure the width of the paper produced by the second cut with a caliper.
   Calculate the difference from 60.0 mm.

8. Repeat steps 3 through 5 until the error reaches +/-0.5 mm or less.

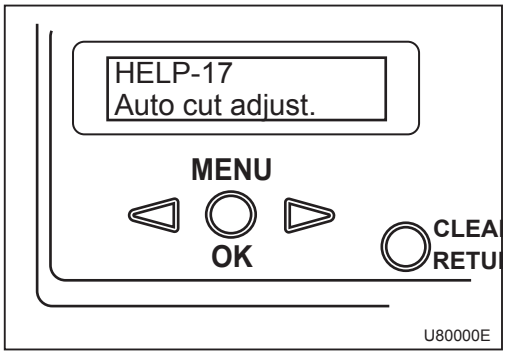
9. Press the MENU/OK key to save the value entered.

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

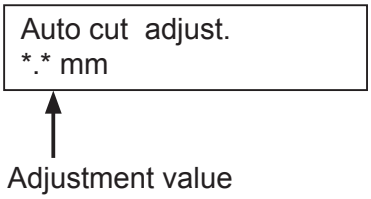
8. Adjusting Auto Cut Function

1. Access HELP mode 'HELP-17 Auto cut adjust. (Auto cut adjustment)', and press the START key.

2. Load three or more sheets of paper in landscape orientation on the feed tray.



3. Press the TEST key.
   The f rst sheet will be fed through without cut.
   Check the adjustment value shown on the LCD panel.



4. Feed the second sheet and the third sheet by pressing the TEST key in a similar way , and check the values.

5. Calculate average value of the adjustment value of the three sheets.

6. Press the ◁ MENU LEFT key and ▷ MENU RIGHT key to enter the calculated average value.
   Each time you press the ▷ MENU RIGHT key, the value increases in increments of 0.1.
   Each time you press the ◁ MENU LEFT key, the value decreases in increments of 0.1.

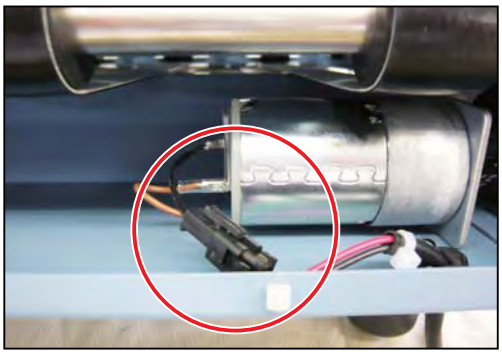
7. Press the MENU/OK key to save the value entered.

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

6 Straight Conveyor

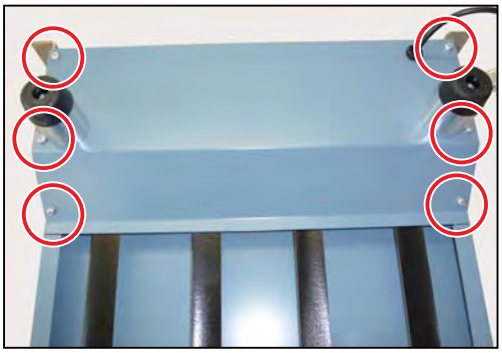
1. Removing the Conveyor Motor

1. Disconnect the connector of the conveyor motor.

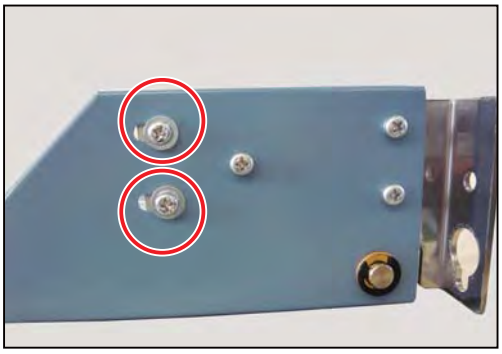


2. Reverse the straight conveyor.

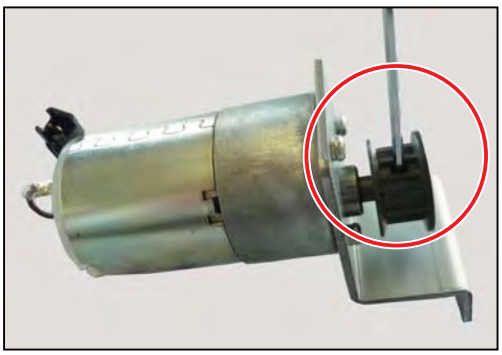
   Remove the six screws to remove the bottom plate assy.



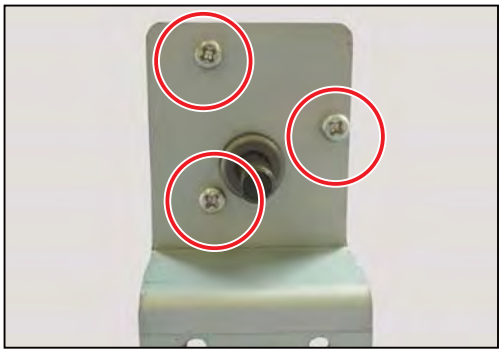
3. Remove the two screws to remove the motor assy.



4. Loosen the hexagon socket set screw attached in the pulley of the motor assy to remove the pulley.



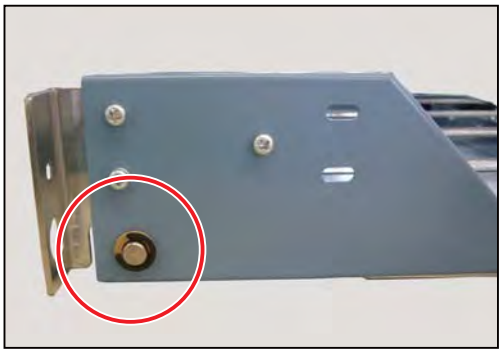
5. Remove the three screws to remove the conveyor motor.

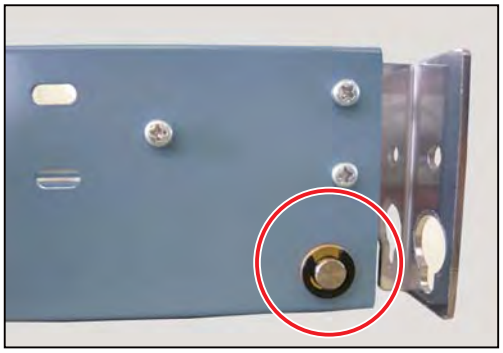


2. Removing the Timing Belt

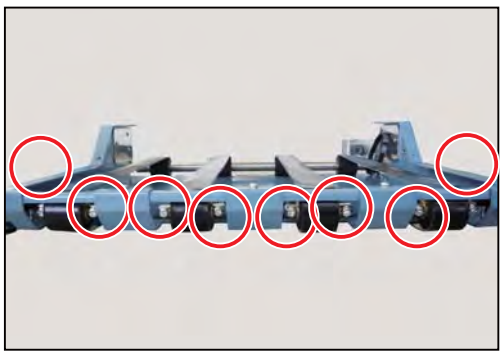
1. Remove the parts .
   Refer to '6 Straight Conveyor - 1. Removing the Conveyor Motor - steps 1 through 3'.
   (See → P.78)

2. Remove the E-rings attached to the both sides of the roller unit to remove the bearings.

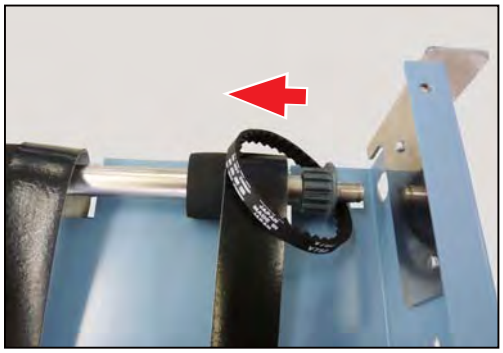




3. Tighten the eight screws adjusting the tension of the conveyor belts to loosen the tension.

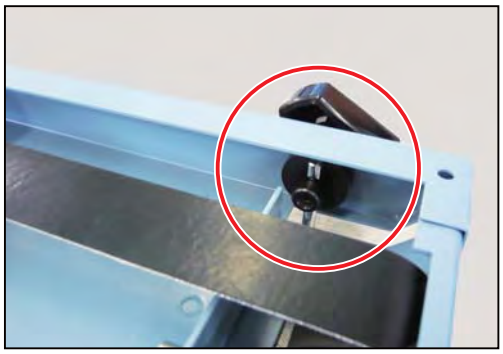


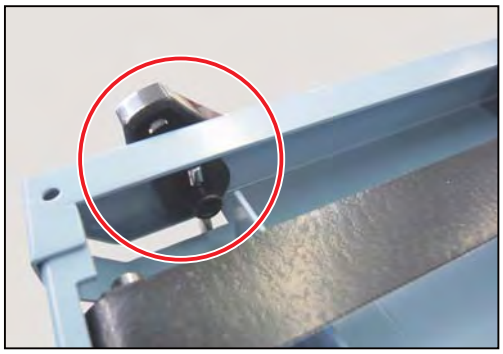
4. Slide the roller unit and remove the timing belt.



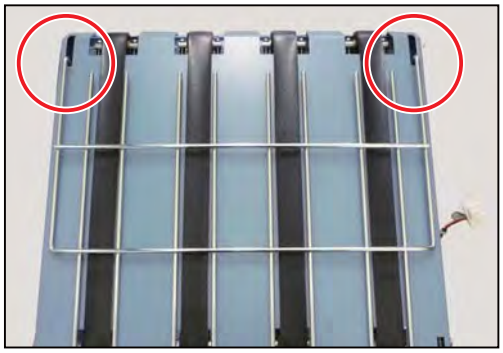
3. Removing the Conveyor Belts

1. Loosen the hexagon socket set screws on the shaft attached to the inside of the thumbscrews.
   Remove the thumbscrews, shafts, and spacers.



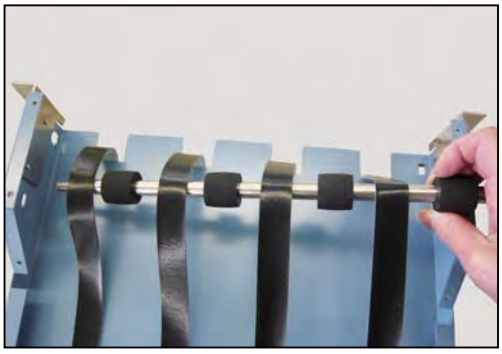


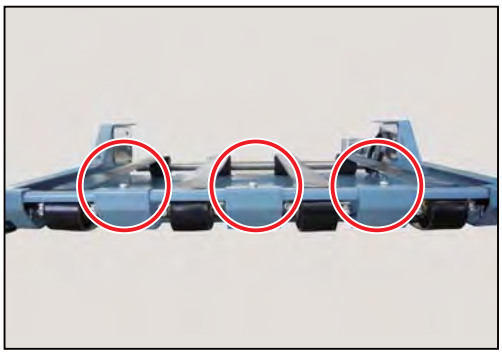
2. Return the reversed conveyor stacker to its original state.
   Remove the wires.



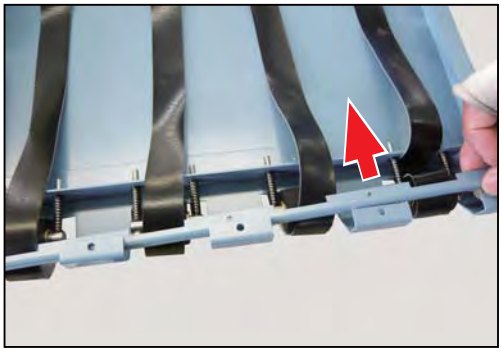
3. Remove the parts .
   Refer to '6 Straight Conveyor - 2. Removing the Timing Belt'. (See → P.79)

4. Remove the roller unit.

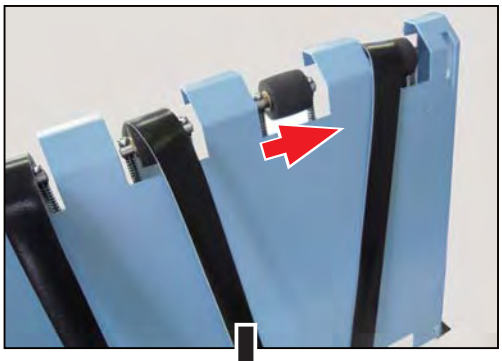


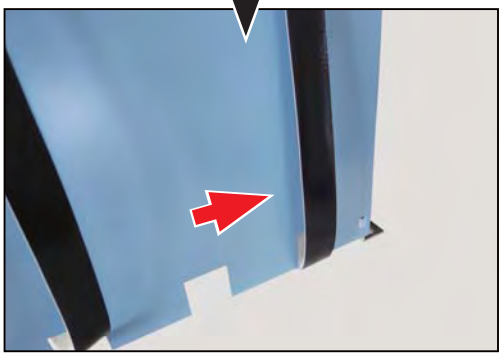


5. Remove the three screws to remove the plate.



6. Remove the conveyor belts by sliding each one as shown in the right f gures.



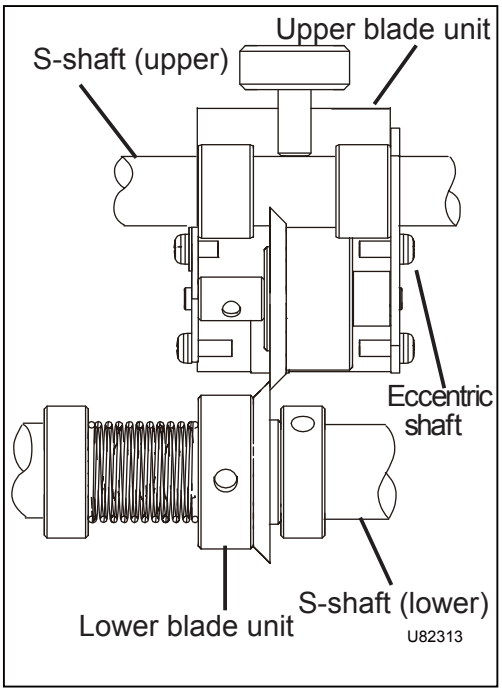


7 Center Slitter Unit

⚠ WARNING

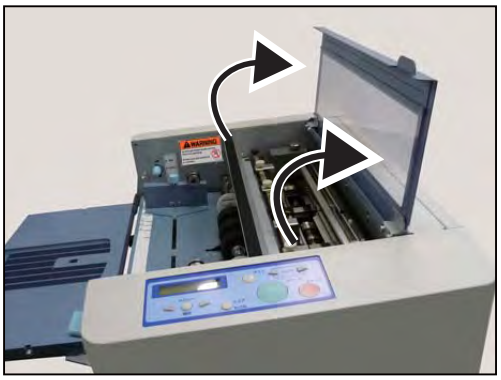
- Both the upper and lower blades of the center slitter unit are exposed.
- Be very careful not to injure your hands on the blades when working with the center sliter unit.

The right figure shows the structure of the center slitter unit.



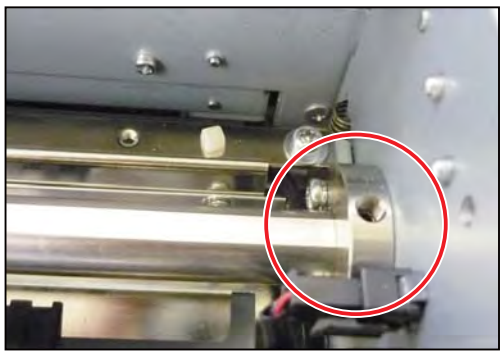
1. Removing the Upper Blade Unit

1. Open the top cover.

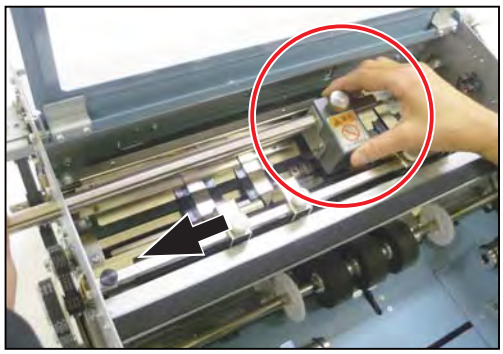


2. Remove the cover R and the cover L.
(See → P.34, P.35)

3. Loosen the hexagon socket set screw in the detent.



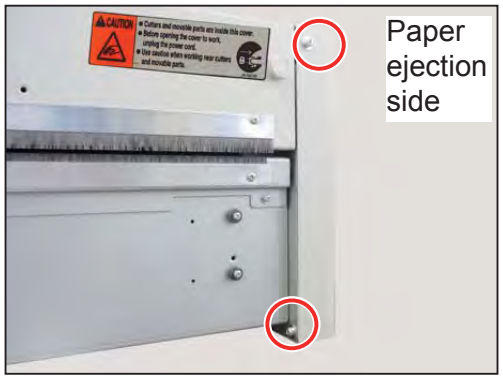
4. Slide the S-shaft (upper) and remove the upper blade unit.



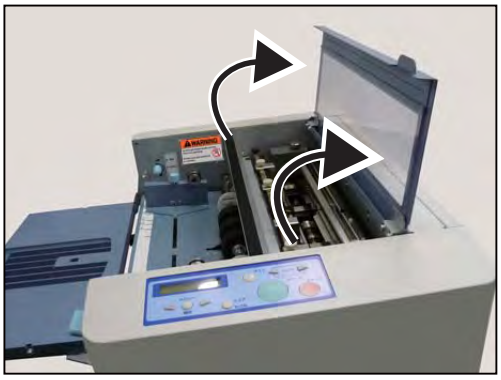
2. Removing the Lower Blade Unit

1. Hold the stacker with both hands and slide it toward you to remove.

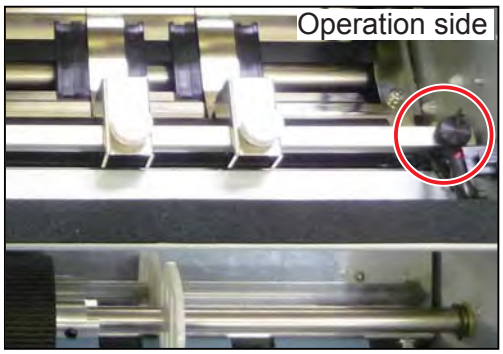
2. Remove the four screws to remove the cover L.

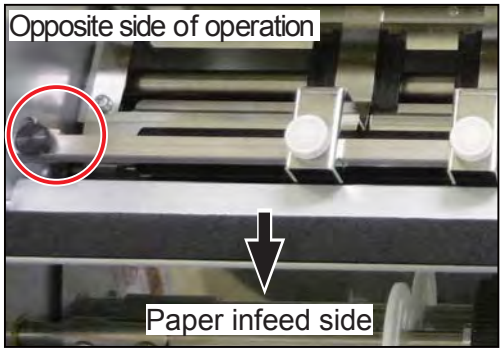


3. Open the top cover.

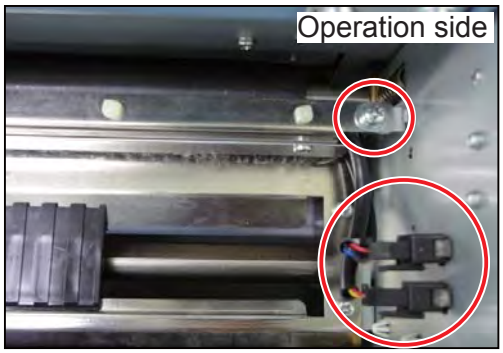


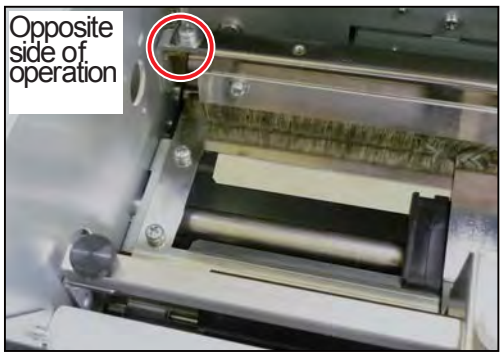
4. Loosen the two thumbscrews to remove the upper guide unit.



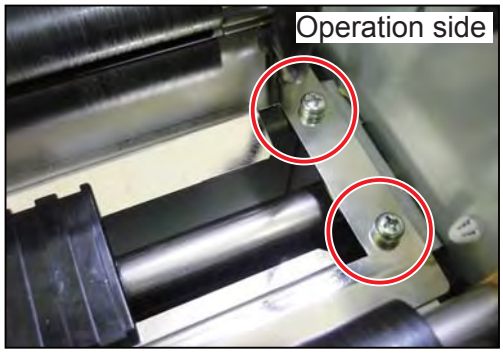


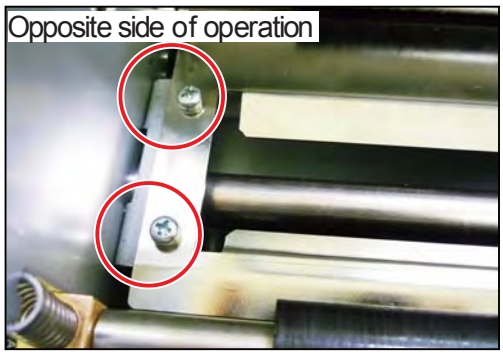
5. Remove the two screws to remove the sensor plate unit.
   Disconnect the two connectors of the sensor plate unit.



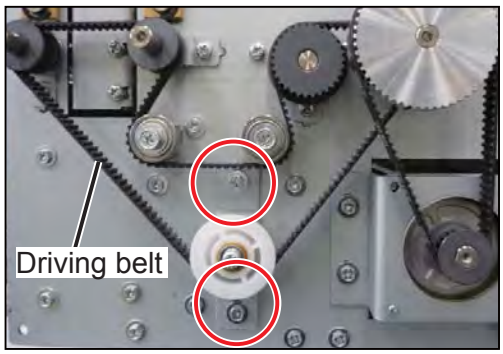


6. Remove the four screws to remove the lower guide plate unit.

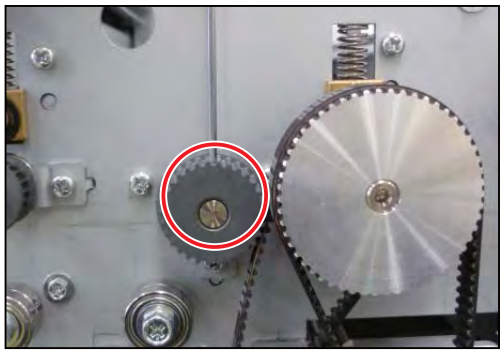




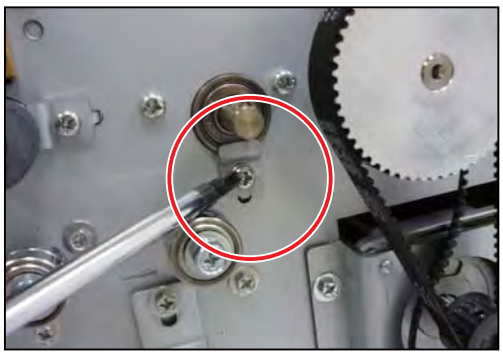
7. Loosen the two screws securing the tension pulley on the opposite side of operation to remove the driving belt.



8. Loosen the hexagon socket set screw in the timing pulley to remove the timing pulley.



9. Remove the screw to remove the bearing stopper



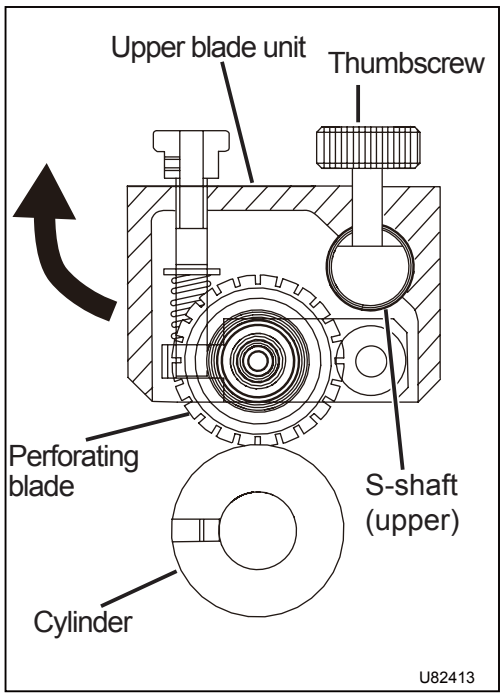
10. Remove the S-shaft (lower) from the hole on the opposite side of operation.

8 Perforator (Standard/Micro) Unit

⚠ WARNING

- The upper blade of the perforator (standard/micro) is exposed.
- Be very careful not to injure your hands on the blade when working with the perforator (standard/micro) unit.

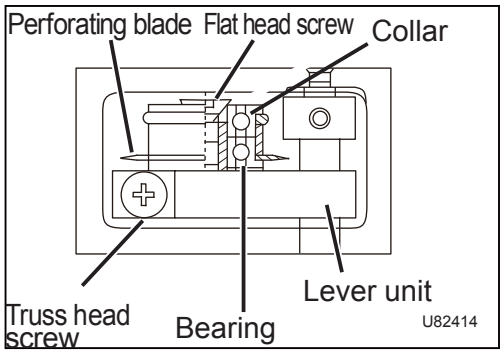
The right f gure shows the structure of the perforator (standard/micro) unit.



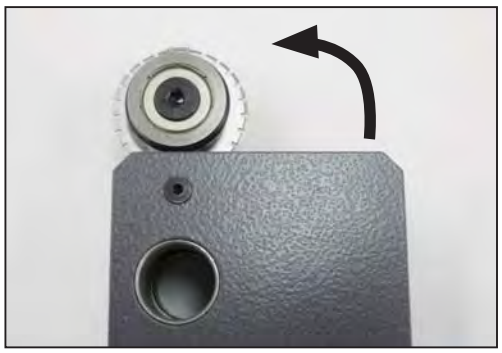
1. Removing the Perforating Blade

1. Remove the upper blade unit.
   Refer to ‘ 7 Center Slitter Unit - 1. Removing the Upper Blade Unit’. (See → P.82)

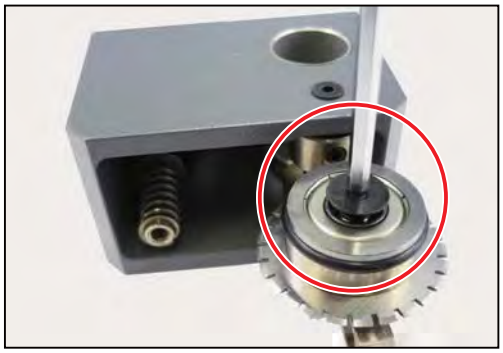
2. Turn the upper blade unit to reverse it.
   Right figure: View from the reverse side of the upper blade unit.



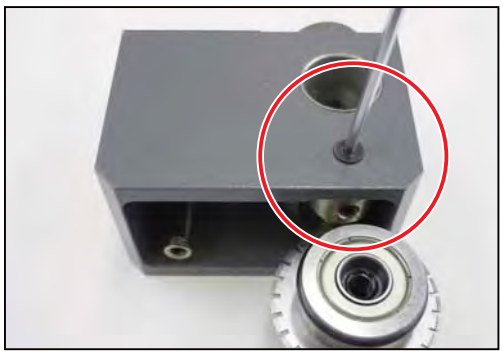
3. Remove the truss head screw to remove the lever unit.



4. Remove the f at head screw.

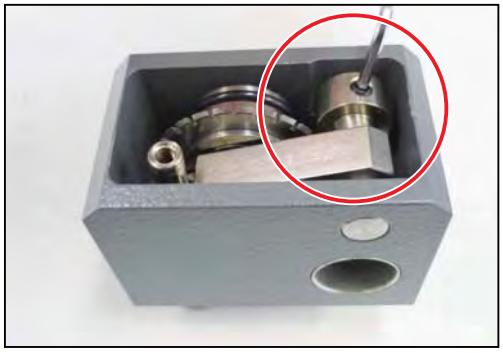


5. Remove the f at head screw securing the lever unit.



6. Loosen the hexagon socket set screw in the collar.

   Remove the lever unit.



7. Remove the perforating blade.
   Right f gure: (from the left) ball bearing, perforating blade, collar, O-ring, ball bearing

   For removing the micro perforating blade, perform similar procedures.

2. Removing the Cylinder

1. Remove the cylinder.
   Refer to ‘ 7 Center Slitter Unit - 2. Removing the Lower Blade Unit’. (See → P.83)

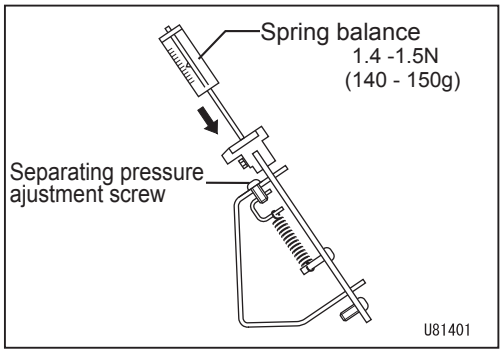
Chapter 4 Standards / Adjustment

1 Paper Infeed Section

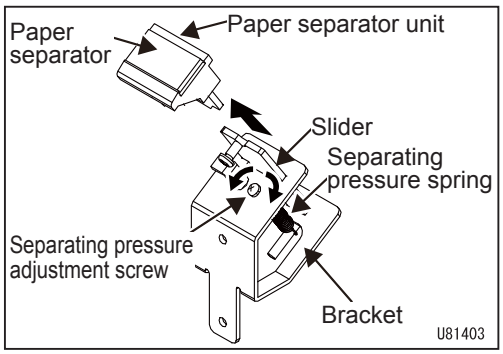
1. Adjusting the Paper Separator Pressure

< Adjustment method>

1. With the paper separator being out from the paper separator unit, turn the separating pressure adjustment screw so that the spring balance reads 1.4 to 1.5 N (140 to 150 g).



- Turning the screw clockwise increases the pressure.
- Turning the screw counterclockwise decreases the pressure.

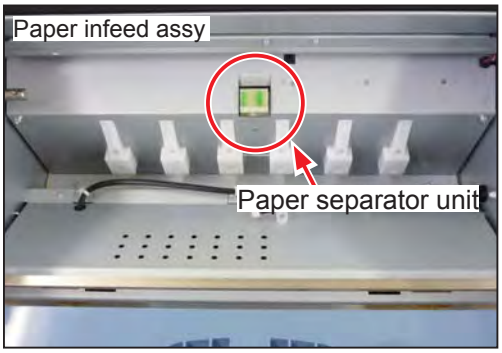


2. Replacing the Paper Separator Unit and Adjusting Clearance

< Replacement procedure >

1. Remove the paper separator unit.

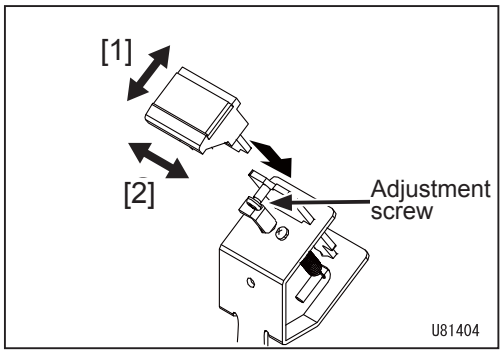
2. Attach a new paper separator unit.



< Adjustment method >

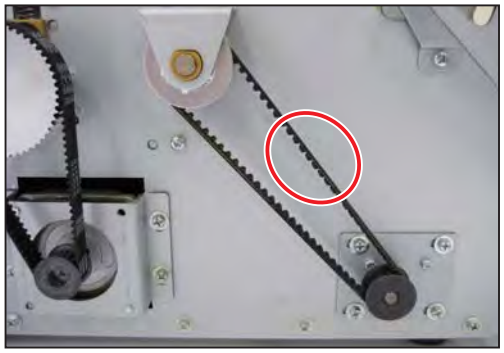
1. Attach the paper separator unit and adjust clearance using the adjustment screw as below:
   - No backlash in the direction of [1]
   - The unit moves smoothly in the direction of [2].

   Then secure the unit with the nut.



3. Adjusting the Paper Feed Belt

Adjust the tension so that the paper feed belt is deflected 2.2 mm when applying a force of 2.9 N (290 g) to the belt (center between the pulleys) with a tension gauge.



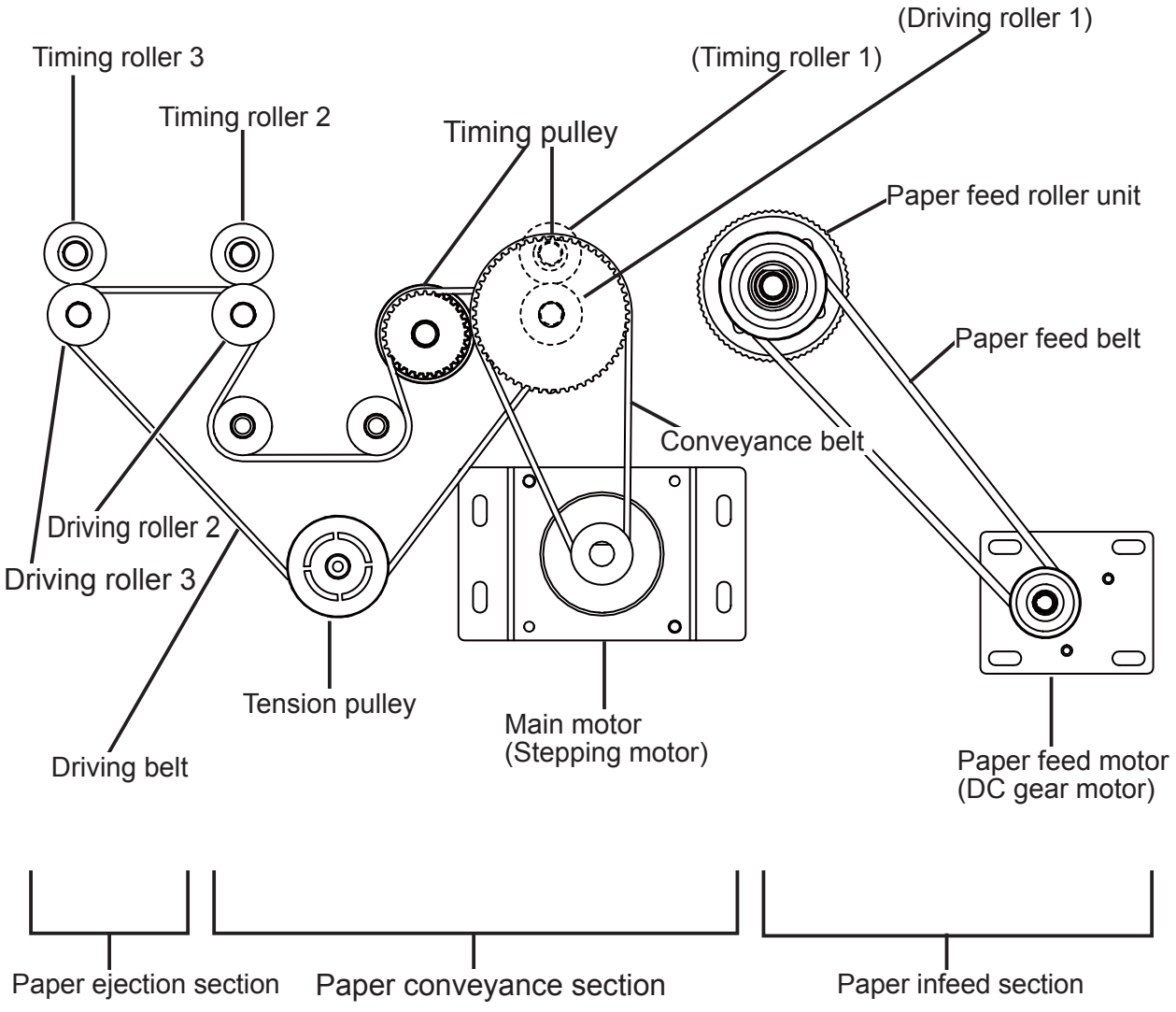
2 Conveyance Section

1. Structure

The paper feed roller unit is driven by the DC gear motor (paper feed motor).

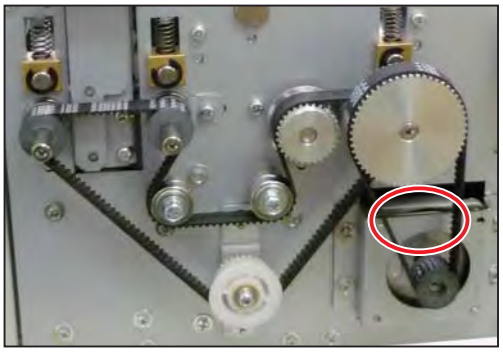
The one-way clutch is attached in the timing pulley on the paper feed roller unit' s side and rotate clockwise (viewing from the f gure below).

• Part names (opposite side of operarion)



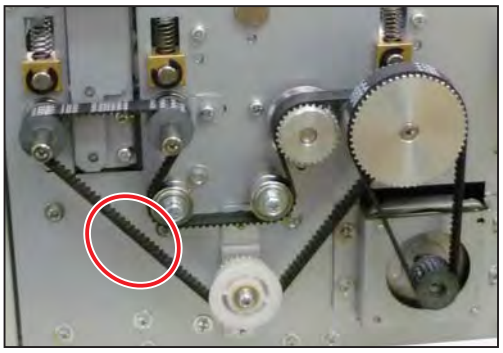
2. Adjusting the Conveyance Belt

Adjust the tension so that the conveyance belt is def ected 1.2 mm when applying a force of 3.4 N (340 g) to the belt (center between the motor pulley and intermediate pulley) with a tension gauge.



3. Adjusting the Driving Belt

Adjust the tension so that the driving belt is de f ected 1.9 mm when applying a force of 3.6 N (360 g) to the belt (center between the pulley and tension pulley) with a tension gauge.



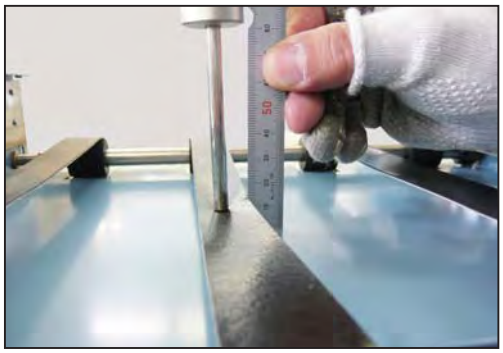
3 Straight Conveyor

1. Adjusting the Timing Belt

Adjust the tension so that the timing belt is de f ected 3.0 mm when applying a force of 5.0 N (500 g) to the center of the belt with a tension gauge.

2. Adjusting the Conveyor Belt

Adjust the tension so that the conveyor belt is def ected 1.5 mm when applying a force of 5.0 N (500 g) to the center of the belt with a tension gauge.



IMPORTANT

After replacing the conveyor belt, be sure to connect the straight conveyor to the FD 574 and check that the paper does not skew . If it skews, adjust the position of the conveyor belt to the center of the paper feed rollers.

Chapter 5 Maintenance / Checks

1 Guaranteed Periodic Maintenance Cycle

- The service personnel will visit the user periodically after delivery . The maintenance operation described in the 'Periodic Maintenance Check List' is performed and instructs how to follow the operation.
  When the service personnel is called by telephone, the following maintenance must be performed after clearing the trouble.

  1. Cleaning the PPSs (upper and lower)·····Remove paper dust.

  2. Cleaning the conveyance /ejection rubber rollers····· Wipe off paper dust.

  3. Cleaning and oiling the driving shafts and bearings ····· Smooth rotation

  4. Checking the feeding condition ····· Smooth feeding

  5. Checking the cutting condition ····· Smooth cutting

2 Cleaning and Oiling

1. Cleaning

(1) Paper dust

Clean with a brush or dry cloth.

2. Oiling

(1) Bearings

Oil the edge surface and bearing sections with a oiler while rotating the rollers.

(2) Gears

Remove paper dust on the bottom of the gears and grease the gear section.

3 Periodic Maintenance Check List

6-month Periodic Checking

No.	Section to be checked	Check item	Criterion for operation
1	PPS1, PPS2	Cleaning	Remove paper dust using a air blower.
2	Paper feed rollers, rubber rollers	Cleaning	Remove paper dust and other adhered matters.
3	Cutter assy	Cleaning	Remove paper dust and other adhered matters.
4	Slitter assy	Cleaning, oiling, inspection	Remove paper dust and other adhered matters.
5	Perforation blade	Cleaning, oiling, inspection	Remove paper dust and other adhered matters.
6	Driving section, bearings	Cleaning, oiling, inspection	Smooth rotation
7	Paper feeding condition	Inspection	Smooth paper feeding
8	Cutting condition	Inspection	Smooth cutting

4 Recommended Parts List

1. FD 574 Main Unit

No.	Part No.	Part name	MTBF
1	AJ013	Timing belt	
2	AJ263	Timing belt	
3	AJ264	Timing belt	
4	CA033	Photointerrupter	
5	CA046	Photo microsensor	
6	CA054	Photo microsensor	
7	CA056	Photo microsensor	
8	CA065	Photo microsensor	
9	E1-2366*	Separator base unit	300,000 sheets and more
10	L1-X108*	Motor (Paper feeding motor)	
11	LA048	Micro switch	500,000 times and more (ELEC) (30 times/min)
12	LA052	Micro switch	1 million times and more (ELEC) (30 times/min)
13	LC033	Rocker Switch	Manually 10,000 times and more Coil 50,000 times and more
14	R8-B302*	Rubber roller unit	300,000 sheets and more
15	S6-V322*	Panel PCB unit	
16	U8-B102*	Sponge roll (Timing roller)	
17	U8-B103*	Driving roller	
18	U8-V500*	Main PCB unit	
19	U8-X-101*	Cutter unit	1.5 million times and more
20	U8-X102*	Motor (Main motor)	
21	UA058	Switching Power supply	

2. Options

No.	Part No.	Part name	MTBF
		Straight conveyor	
1	AJ036	Timing belt	
2	F7-8106*	Motor	200,000 cycles and more (3 sec rotating/1 sec pausing) (6 million sheets)
3	G6-7002*	Belt	
		Center slitter unit	
4	G6-3201*	Upper blade unit	1.5 million sheets and more (A4 SEF)
5	U8-G104*	Lower blade unit	1.5 million sheets and more (A4 SEF)
		Perforator (Standard/Micro) unit	
6	G6-3118*	Rotary perforation blade	50,000 sheets and more (A4 SEF)
7	G6-3121*	Cylinder	50,000 sheets and more (A4 SEF)
8	G6-3134*	Blade of Micro perforation	50,000 sheets and more (A4 SEF)

Chapter 6 Troubleshooting

1 Troubleshooting Guide

1. Countermeasures for the Defective Operation

When the messages listed below are displayed on the LCD, or when trouble such as malfunctioning or a paper jam occurs, proceed with an inspection following the procedure for the item and take measures accordingly.

No.	Message	Remarks	See page
1	Remove paper from infeed area.	Paper remains in the infeed area.	103
2	Remove paper from cut area.	Paper jam in the cut area	103
3	Load paper.	No paper on the feed tray	104
4	Top cover is open.	Top cover is open.	104
5	J1: Feed error	Feed error in the paper infeed area	105
6	J2: JAM in CNV area	Paper jam in the conveyance area	105
7	J3: JAM in cut area	Paper jam in the cut area	106
8	J4: Double feed	Double feed	107
9	E1: CTR MTR locked	Cutter motor is locked.	108
10	E2: Read error	Memory error 1	108
11	E3: Write error	Memory error 2	109
12	E4: Time-out error	Memory error 3	109
13	Raise paper set lever.	Paper set lever alarm	109
14	Paper is out of specif cation.	Paper loaded is out of specif cation.	110
15	Rear cover is open.	Rear cover is open.	111

(1) When “Remove paper from infeed area.” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Inside the machine	Paper jam in the machine (infeed area)	YES	Remove the paper in the machine.	—
			NO	Go on to step 2.	—
2	PPS1	Does the PPS1 work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Clean the sensor. • Replace the sensor.	57
3	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-07 (See → P.124)

<Cause>
The PPS1 (paper lead edge sensor) detects paper presence when the ST ART key or the TEST key is pressed.
Before the operation of FD 574, proper amount of light cannot be received even emitted light is specified value or more while the LED of the double feed sensor is being adjusted.
<Condition to clear the error>
The PPS1 (paper lead edge sensor) detects paper absence, and the ST OP key or the CLEAR key is pressed.

(2) When “Remove paper from cut area” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Inside the machine	Paper jam in the machine (cut area)	YES	Remove the paper in the machine.	—
			NO	Go on to step 2.	—
2	PPS2	Does the PPS2 work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Clean the sensor. • Replace the sensor.	62
3	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-07 (See → P.124)

<Cause>
The PPS2 (cut lead edge sensor) detects paper presence when the ST ART key or the TEST key is pressed.
<Condition to clear the error>
The PPS2 (paper lead edge sensor) detects paper absence, and the ST OP key or the CLEAR key is pressed.

(3) When “Load paper.” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	No paper on the feed tray	Are there any paper on the feed tray?	YES	Go on to step 2.	—
			NO	Load paper.	—
2	Paper sensor	Does the paper sensor work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Clean the sensor. • Replace the sensor.	45
3	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-07 (See → P.124)

<Cause>
The paper sensor detects paper absence when the START key or the TEST key is pressed.
<Condition to clear the error>
The paper sensor detects paper presence.
The STOP key is pressed.

(4) When “Top cover is open.” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Top cover	Is the top cover closed?	NO	Close the top cover.	—
			YES	Go on to step 2.	—
2	Top cover switch	Does the top cover switch work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Adjust switch attaching position. • Replace the switch.	66
3	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-07 (See → P.124)

<Cause>
Operation is performed with the top cover opened.
<Condition to clear the error>
The top cover is closed.

(5) When “J1: Feed error” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Inside the machine	Paper jam in the machine (infeed area)	YES	Remove the paper in the machine.	—
			NO	Go on to step 2.	—
2	PPS1	Does the PPS1 work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Clean the sensor. • Replace the sensor.	57
3	Paper feed motor	Does the paper feed motor run properly when checked with HELP-01?	YES	Go on to step 4.	—
			NO	Replace the paper feed motor.	43
4	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-01 (See → P.118), HELP-07 (See → P.124)

<Cause>
Paper does not reach the PPS1 (paper lead edge sensor) even after the paper feed motor has run for a certain period of time.
<Condition to clear the error>
The PPS1 (paper lead edge sensor) detects paper absence, and the ST OP key or the CLEAR key is pressed.

(6) When “J2: JAM in CNV area” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Inside the machine	Paper jam in the machine (conveyance area)	YES	Remove the paper in the machine.	—
			NO	Go on to step 2.	—
2	PPS1, PPS2	Do the PPS1 and the PPS2 work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Clean the sensors. • Replace the sensors.	57,62
3	Main motor	Does the main motor run properly when checked with HELP-03?	YES	Go on to step 4.	—
			NO	Replace the main motor.	49
4	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-03 (See → P.120), HELP-07 (See → P.124)

<Cause>
Paper does not reach the PPS2 (cut lead edge sensor) even after the main motor has fed the paper for a certain distance since the paper has reached the PPS1 (paper lead edge sensor)
<Condition to clear the error>
The PPS1 (paper lead edge sensor) and the PPS2 (cut lead edge sensor) detect paper absence, and the STOP key is pressed.

(7) When “J3: JAM in cut area” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Inside the machine	Paper jam in the machine (cut area)	YES	Remove the paper in the machine.	—
			NO	Go on to step 2.	—
2	PPS1, PPS2	Do the PPS1 and the PPS2 work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Clean the sensors. • Replace the sensors.	57,62
3	Cutter motor	Does the cutter motor run properly when checked with HELP-02?	YES	Go on to step 4.	
			NO	Replace the cutter motor.	
4	Main motor	Does the main motor run properly when checked with HELP-03?	YES	Go on to step 5.	
			NO	Replace the main motor.	
5	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-02 (See → P.119), HELP-03 (See → P.120), HELP-07 (See → P.124)

<Cause>
Paper does not go through the PPS2 (cut lead edge sensor) even after the main motor has fed the paper for a distance (paper length + α) since the paper has reached the PPS2 (cut lead edge sensor).
<Condition to clear the error>
The PPS1 (paper lead edge sensor) and the PPS2 (cut lead edge sensor) detect paper absence, and the STOP key is pressed.

(8) When “J4: Double feed” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Inside the machine	Paper jam in the machine (infeed area)	YES	Remove the paper in the machine.	—
			NO	Go on to step 2.	—
2	Paper	Is the paper used unclean?	YES	Use clean paper.	—
			NO	Go on to step 3.	—
3	PPS1	Does the PPS1 work properly when checked with HELP-07?	YES	Go on to step 4.	—
			NO	• Clean the sensor. • Replace the sensor.	57
4	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-07 (See → P.124)

<Cause>
Transmittance levels of the previous paper and the current paper at the PPS1’ s position are much different.
<Condition to clear the error>
The PPS1 (paper lead edge sensor) detects paper absence, and the STOP key is pressed.

(9) When “E1: CTR MTR locked” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Cutter motor	Does the cutter motor stop at the correct position when checked with HELP-02?	YES	Go on to step 2.	—
			NO	Replace the cutter motor.	—
2	Cutter HP sensor	Does the cutter HP sensor work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Clean the sensor. • Replace the sensor.	72
3	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-02 (See → P.119), HELP-07 (See → P.124)

<Cause>
The cutter HP sensor cannot detect cutter home position even after the cutter motor has run for a certain period of time.
<Condition to clear the error>
The cutter motor runs properly and the cutter HP sensor works properly, and the ST OP key or the CLEAR key is pressed.

NOTE

Operation check of the cutter assy is required. **(See → P.73)**

(10) When “E2: Read error” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Main PCB unit	Are there any defects on the main PCB unit?	YES	Replace the main PCB unit.	37,157

<Cause>
Checksum calculated from the read data is different from that calculated from the data written in the memory.
<Condition to clear the error>
The main PCB unit is replaced.

(11) When “E3: Write error” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Main PCB unit	Are there any defects on the main PCB unit?	YES	Replace the main PCB unit.	37,157

<Cause>
When rereading the data written in the memory and comparing with the original data, these are not the same.
<Condition to clear the error>
The main PCB unit is replaced.

(12) When “E4: Time-out error” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Main PCB unit	Are there any defects on the main PCB unit?	YES	Replace the main PCB unit.	37,157

<Cause>
Accessing the EEPROM does not succeed within ** msec.
<Condition to clear the error>
The main PCB unit is replaced.

(13) When “Raise paper set lever.” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Paper set lever	The paper set lever is lowered.	YES	Raise paper set lever.	—
			NO	Go on to step 2.	—
2	Paper set lever switch	Does the paper set lever switch work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	Replace the paper set lever switch.	47
3	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-07 (See → P.124)

<Cause>
The START key or the TEST key is pressed with the paper set levered lowered.
<Condition to clear the error>
The paper set lever is raised.

(14) When “Paper is out of specif cation.” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	PPS1	Is amount of light emitted from the PPS1 reference value when checked with HELP-08?	NO	Set the amount to reference value.	125
			YES	Go on to step 2.	—
2	Paper length	Is the paper processed (auto cut) out of specif cation?	YES	Use specif ed paper.	14
			NO	Go on to step 3.	—
3	PPS1	Does the PPS1 work properly when checked with HELP-07?	YES	Go on to step 5.	—
			NO	• Clean the sensor. • Replace the sensor.	57
4	PPS2	Does the PPS2 work properly when checked with HELP-07?	YES	Go on to step 5.	—
			NO	• Clean the sensor. • Replace the sensor.	62
5	Main motor	Does the main motor run properly when checked with HELP-03?	YES	Go on to step 6.	
			NO	Replace the main motor.	
6	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-03 (See → P.120), **HELP-07 (See → P.124), HELP-08 (See → P.125)**

<Cause>
- With double feed detection function ON, when proper amount of light received cannot be gotten even if the amount of light emitted from the PPS1 has reached the reference value while adjusting, the paper that has been processed is judged to be ‘too thick’.
- When auto cut operation is performed, paper length that is out of specification is read.

<Condition to clear the error>
The STOP key or the CLEAR key is pressed.

(15) When “Rear cover is open.” is Displayed

Step	Cause/failed area	Check item	If	Action	See page
1	Rear cover	Is the rear cover attached securely?	NO	Securly attach the rear cover.	—
			YES	Go on to step 2.	—
2	Rear cover switch Rear cover Inter-lock switch	Does the r ear cover switch work properly when checked with HELP-07?	YES	Go on to step 3.	—
			NO	• Adjust switch attaching position • Replace the rear cover switch.	67
3	Main PCB unit	Are the connectors on the main PCB unit and relay cables disconnected?	YES	Reconnect the connectors properly.	—
			NO	Replace the main PCB unit.	37,157

HELP-07 (See → P.124)

<Cause>
Operation is performed with the rear cover opened.
<Condition to clear the error>
The rear cover is closed.

Chapter 7 HELP Mode

1 HELP Mode List

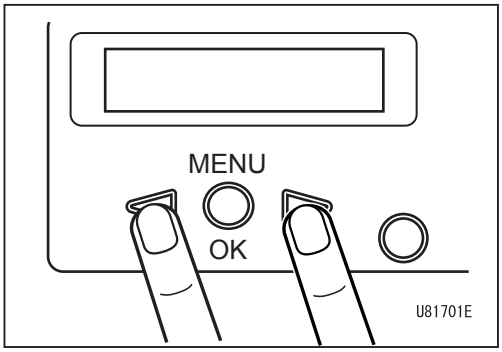
No.	Item	Function	See page
HELP-00	Software version	Display (Software version)	(See→P.116)
HELP-01	Feed motor check	Operation test (Paper feed motor)	(See→P.118)
HELP-02	Cutter motor check	Operation test (Cutter motor)	(See→P.119)
HELP-03	Main motor check	Operation test (Main motor)	(See→P.120)
HELP-04	Auto PWR off check	Operation test (Auto power off)	(See→P.121)
HELP-05	Option check	Operation test (Option unit)	(See→P.122)
HELP-06	Panel check	Operation test (Control panel)	(See→P.123)
HELP-07	SW & Sensor check	Operation test (Sensors)	(See→P.124)
HELP-08	PPS1 adjustment	Adjustment (Paper lead edge sensor)	(See→P.125)
HELP-09	PPS2 adjustment	Adjustment (Paper cut edge sensor)	(See→P.126)
HELP-10	Main motor adj.	Adjustment (Main motor speed)	(See→P.128)
HELP-11	TTL/serv. count	Display (Total sheet count/total cut count/ total running time)	(See→P.129)
HELP-12	JAM/ERROR count	Display (JAM/ERROR count)	(See→P.130)
HELP-13	Error history	Display (Error history)	(See→P.131)
HELP-14	Not used	-	-
HELP-15	Conveyor adj.	Adjustment/Conf rmation (Conveyance section)	(See→P.132)
HELP-16	PPS2 - Cut pos. adj.	Adjustment (Distance between PPS2 and cutter unit)	(See→P.134)
HELP-17	Auto cut adjustment	Adjustment (Auto cut error)	(See→P.136)
HELP-18	Initialization	Initialization	(See→P.138)
HELP-19	Function setting 1	Function setting	(See→P.139)
HELP-20	Function setting 2	Function setting	(See→P.141)
HELP-21	Interval setting		(See→P.143)
HELP-22	Language setting	Set the language to be used on the screen	(See→P.144)
HELP-23	Not used		-
HELP-24	Paper feed adj.	Adjustment (Paper feed time)	(See→P.145)
HELP-25	DBL FD adj.	Adjustment (Double feed detection level)	(See→P.146)
HELP-26	Cutter speed adj.	Adjustment (Cutter torque)	(See→P.148)
HELP-29	SRT CNV adj.	Adjustment (Straight conveyor motor speed)	(See→P.149)
HELP-30	Not used	-	-

2 HELP Mode Functions and Operating Procedures

1. Accessing HELP Modes

1. If the machine is in use, f rst put it into standby state, then turn the power switch OFF.

2. Turn the power switch ON while pressing the ◁ MENU LEFT and ▷ MENU RIGHT keys simultaneously.
   After about 2 seconds, HELP mode selection screen will appear with a beeping sound.



3. Use the ◁ MENU LEFT key or the ▷ MENU RIGHT key to select the HELP mode that you want to access.

4. Press the START key to enter the selected HELP mode.
   Follow the 'Operating procedure' of each HELP mode described in this chapter.

   Pressing the MENU/OK key will jump to HELP-15.

REFERENCE

To access another HELP mode: Repeat steps 3 and 4 above.

2. Exiting HELP Modes

1. Press the STOP key.
   The display will return to the HELP mode selection screen.

2. Turn the power switch OFF to exit the HELP mode.

7

3. HELP Mode Descriptions

HELP Mode HELP-00 Software version

1. Function

(1) Display of software version

(2) Software upgrading

2. Operating procedure

(1) Display of software version

1. Access HELP mode HELP-00, and press the START key.

2. Software version will appear.

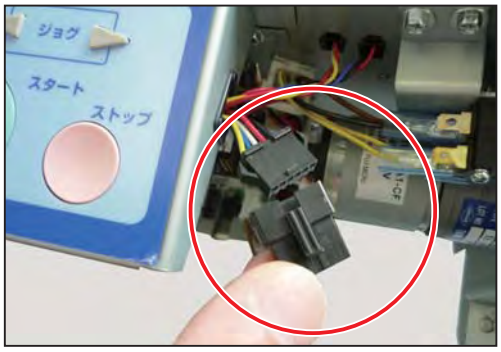
HELP-00
Software Version

Software Version
1.**

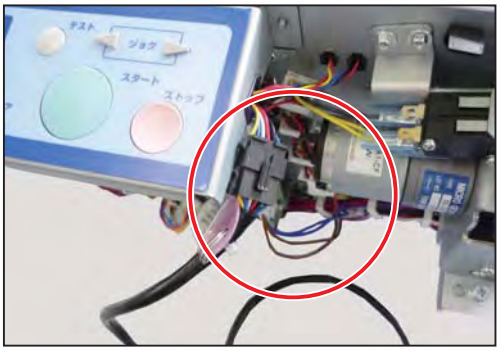
(2) Software upgrading

1. Remove the cover R.
(See→P.34)

2. Remove the connector cap from the connector located at the right side of the control panel.



3. Connect the connector of the downloader to the connector (in step 2).



HELP Mode HELP-00 Software version

4. Turn the power switch ON while pressing the MENU LEFT and MENU RIGHT keys simultaneously.

HELP-00
Software Version

5. Access HELP mode HELP-00, and press the START key.

6. The current software version will appear.

Software Version
1.**

7. Press the MENU/OK key.

8. 'Software upgrade' will appear.
All of the keys become inactive.

Software upgrade

9. Upgrade software following the service manual of the downloader.

HELP Mode HELP-01 Feed motor check

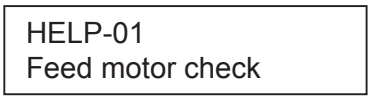
1. Function

(1) Paper feed motor operation check

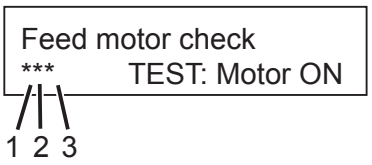
2. Operating procedure

(1) Paper feed motor operation check

1. Access HELP mode HELP-01, press the START key.



2. Press the TEST key. The paper feed motor will run while pressing the TEST key.



• About the LCD panel display
1: Feed switch
(0: UP, 1: DOWN)
2: Paper sensor
(0: Paper present, 1: Paper absent)
3: PPS1 (paper lead edge sensor)
(0: Paper absent, 1: Paper present)

3. Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-02 Cutter motor check

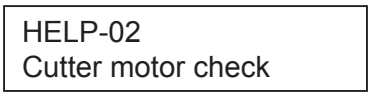
1. Function

(1) Cutter motor operation check

2. Operating procedure

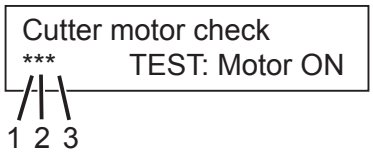
(1) Cutter motor operation check

1. Access HELP mode HELP-02, and press the START key.



2. Each time you press the TEST key, the cutter motor is driven one cycle.

   1: Cutter HP sensor (0: IN, 1: OUT)
   2: Top cover (0: OPEN, 1: CLOSE)
   3: Rear cover (0: OPEN, 1:CLOSE)



3. Press the STOP key.
   The display will return to the HELP mode selection screen.

NOTE

The machine does not operate with the top cover switch or the rear cover switch ‘OPEN’.

7

HELP Mode HELP-03 Main motor check

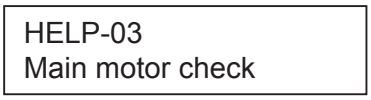
1. Function

(1) Main motor operation check

2. Operating procedure

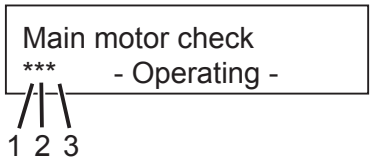
(1) Main motor operation check

1. Access HELP mode HELP-03, and press the START key.



2. The main motor will drive.
   Make sure that the main motor drives properly.

   1: Not used
   2: Not used
   3: Not used



3. Press the STOP key.
   The display will return to the HELP mode selection screen.

NOTE

The machine does not operate with the top cover switch or the rear cover switch 'OPEN'.

HELP Mode HELP-04 Auto PWR off check

1. Function

(1) Auto power off function check

When 'auto power off function' is set to ON, the power to the machine is turned off automatically after the elapse of set time since the machine has entered standby mode. This HELP mode checks its function.

REFERENCE

Standby mode means that no operation (pressing keys on the control panel, turning on/off the power switch, opening/closing the top cover) is performed.

2. Operating procedure

(1) Auto power off function check

1. Access HELP mode HELP-04, and press the START key.

HELP-04
Auto PWR off check

2. Press the TEST key. The power switch will be turned OFF.

Auto PWR off check
TEST: SW OFF

3. To reenter HELP mode, turn the power switch ON while pressing the ◁ MENU LEFT and ▷ MENU RIGHT keys simultaneously.

7

HELP Mode HELP-05 Option check

1. Function

(1) Straight conveyor (option) operation check

2. Operating procedure

(1) Straight conveyor (option) operation test

1. Access HELP mode HELP-05, and press the START key.

   HELP-05
   Option check

2. Press the TEST key.
   'TEST: Motor ON' will appear.

   Option check
   *** TEST: Motor ON

3. Press the STOP key.
   The display will return to the HELP mode selection screen.

HELP Mode HELP-06 Panel check

1. Function

(1) Control panel operation check

This HELP mode checks if all of the keys on the control panel function properly and the LCD panel displays properly .

2. Operating procedure

(1) Operation panel operation check

1. Access HELP mode HELP-06, and press the START key.

   HELP-06
   Panel check

2. A beep sounds each time any key is pressed. Press the TEST key. All the dots on the LCD panel will light up.

   Any key: buzzer
   TEST Key On:LCD On

3. Press the STOP key. The display will return to the HELP mode selection screen.

7

HELP Mode HELP-07 SW & Sensor check

1. Function

(1) Sensor check

This HELP mode checks if all of the sensors work properly.

2. Operating procedure

(1) Sensor check

1. Access HELP mode HELP-07, and press the START key.

HELP-07
SW & Sensor check

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to highlight the digit.
Highlighted sensor/switch is displayed at the position of '——'.

A: Paper set lever SW (0: UP, 1: DOWN)
B: Paper sensor
(0: Paper present, 1: Paper absent)
C: PPS1 (paper lead edge sensor)
(0: Paper absent, 1: Paper present)
D: PPS2 (cut lead edge sensor)
(0: Paper absent, 1: Paper present)
E: Cutter HP sensor (0: IN, 1: OUT)
F: Top cover switch (0: OPEN, 1: CLOSE)
G: Rear cover switch (0: OPEN, 1: CLOSE)
H: Option sensor 1
I: Option sensor 2
J: Option sensor 3
K: Connector sensor 1
L: Connector sensor 2
M: Connector sensor 3
N: Not used
O: Not used
P: Not used
Q: Not used
R: Not used
(N–R: Not displayed)

_
ABCDEFGHIJKLMNOPQR

Example:
Paper set lever switch is lowered.

Paper set lever SW
10000000000000000

3. Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-08 PPS1 adjustment

1. Function

(1) PPS1 (paper lead edge sensor) adjustment

2. Operating procedure

(1) PPS1 (paper lead edge sensor) adjustment

1. Access HELP mode HELP-08, and press the START key.

HELP-08
PPS1 adjustment

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to adjust the amount (current) of the light emitted from the PPS1 and light received.

LED: amount of light emitted ..... 0 to 225
Level: amount of light received ... 0 to 1023

PPS1 adjustment
LED:*** Level: ####

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 1.
Pressing the ▷ MENU RIGHT key continuously increases the value continuously.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 1.
Pressing the ◁ MENU LEFT key continuously decreases the value continuously.

Pressing the CLEAR key resets the value to default.

REFERENCE

Default
LED: amount of light emitted 005
Level: amount of light received ...1010 to 1023

4. Press the MENU/OK key to save the entered value.
(If you press the STOP key, the display will return to the HELP mode selection screen without saving the value.)

PPS1
- Saving -

NOTE

The saved value is invalid in PPS1 auto-adjustment mode.

7

HELP Mode HELP-09 PPS2 adjustment

1. Function

(1) PPS2 (cut lead edge sensor) adjustment

2. Operating procedure

(1) PPS 2 (cut lead edge sensor) adjustment

1. Access HELP mode HELP-09, and press the START key.

HELP-09
PPS2 adjustment

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to adjust the amount (current) of the light emitted from the PPS2.

PPS2 adjustment
LED:### PPS2: #

LED: amount of light emitted ..... 0 to 225

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 1.
Pressing the ▷ MENU RIGHT key continuously increases the value continuously.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 1.
Pressing the ◁ MENU LEFT key continuously decreases the value continuously.

Press the CLEAR key continuously. After about 2 seconds, the value will be reset to default with a beeping sound.

NOTE

PPS2: 0 (paper absent)
PPS2: 1 (paper present)

REFERENCE

Factory setting
LED: amount of light emitted ... 015

HELP Mode HELP-09 PPS2 adjustment

3. Press the MENU/OK key to save the entered value.
   (If you press the STOP key, the display will return to the HELP mode selection screen without saving the value.)

PPS2 adjustment
- Saving -

4. After saving is completed, the saved value will reappear.

   Press the STOP key.
   The display will return to the HELP mode selection screen.

PPS2 adjustment
LED:*** Level: ####

HELP Mode HELP-10 Main motor adj.

1. Function

(1) Main motor adjustment

This HELP mode changes main motor 's speed, acceleration, and deceleration by adjusting the value for the main motor (stepping motor).

2. Operating procedure

(1) Main motor adjustment

1. Access HELP mode HELP-10, and press the START key.

HELP-10
Main motor adj.

2. Use the ◁ JOG REVERSE and ▷ JOG FORWARD keys to adjust the highlighted value.

Main motor adj.
**

Main motor speed adjustment range ..... 00 to 10

Each time you press the ▷ JOG FORWARD key, the value increases in increments of 1.
Each time you press the ◁ JOG REVERSE key, the value decreases in increments of 1.

The larger the value is, the slower the main motor runs.
The smaller the value is, the faster the main motor runs.

NOTE

The value displayed on the LCD panel shows processing ability of the machine. Changing the value affects processing ability as below.

00: current specif cation
05: about 1 to 2 sheets/min. decreased
10: about 3 to 4 sheets/min. decreased

Pressing the CLEAR key resets the value to default (0).

HELP Mode HELP-11 TTL/serv. count

1. Function

(1) Total/service count

This HELP mode displays total sheet count, total cut count, total running time, service sheet count, service cut count, and service running time.

2. Operating procedure

(1) Total/service count

1. Access HELP mode HELP-11, and press the START key.

2. Pressing the ◁ MENU LEFT key and the ▷ MENU RIGHT key scroll up and down the followings on the screen:
   - Total sheet count
   - Total cut count
   - Total running time
   - Serv. sheet count
   - Service cut count
   - Serv. running time

   Press the CLEAR key continuously . After about 2 seconds, the values of 'Serv. sheet count', 'Service cut count', and 'Serv . running time' will be reset to default (0) with a beeping sound.

   IMPORTANT

   'Total sheet count' cannot be reset to '0'.

3. Press the STOP key.
   The display will return to the HELP mode selection screen.

HELP-11
TTL/serv. count

Total sheet count
****

Total cut count
****

Total running time
****H **M

Serv. sheet count
****

Service cut count
****

Serv. running time
****H **M

7

HELP Mode HELP-12 JAM/ERROR count

1. Function

(1) JAM/ERROR count

This HELP mode displays JAM count and error count.

2. Operating procedure

(1) JAM/ERROR count

1. Access HELP mode HELP-12, and press the START key.

2. Pressing the ◁ MENU LEFT key and the ▷ MENU RIGHT key scroll up and down the followings on the screen:

   E1: CTR MTR locked
   E2: Read error
   E3: Write error
   E4: Time-out error
   E5: Option error
   J1: Feed error
   J2: JAM in CNV area
   J3: JAM in cut area
   J4: Double feed
   J5: JAM in EJT area

   Pressing the CLEAR key continuously resets the value to default (0).

3. Press the STOP key.
   The display will return to the HELP mode selection screen.

HELP-12
JAM /ERROR count

JAM /ERROR count
E1: ****

JAM /ERROR count
E2: ****

JAM /ERROR count
E3: ****

JAM /ERROR count
E4: ****

JAM /ERROR count
E5: ****

JAM /ERROR count
J1: ****

JAM /ERROR count
J2: ****

JAM /ERROR count
J3: ****

JAM /ERROR count
J4: ****

JAM /ERROR count
J5: ****

HELP Mode HELP-13 Error history

1. Function

(1) Error history

This HELP mode displays paper jam and error in reverse chronological order.

2. Operating procedure

(1) Error history

1. Access HELP mode HELP-13, and press the START key.

HELP-13
Error history

2. Pressing the ◁ MENU LEFT key and the ▷ MENU RIGHT key scroll up and down 20 errors in reverse chronological order on the screen.
The number on the right side of the 'Page' in the right f gure shows reverse chronological order.

Example

Page: 01
E1: CTR MTR locked

Errors are as follows:

E1: CTR MTR locked
E2: Read error
E3: Write error
E4: Time-out error
E5: Option error
J1: Feed error
J2: JAM in CNV area
J3: JAM in cut area
J4: Double feed
J5: JAM in EJT area
Top cover open
Rear cover open

3. Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-15 Conveyor adj.

1. Function

(1) Conveyance adjustment
This HELP mode adjusts paper conveyed distance by entering measured value.

(2) Perpendicular cut check
This HELP mode also checks if perpendicular cut is performed properly.

2. Operating procedure

(1) Conveyance adjustment

1. Access HELP mode HELP-15, and press the START key.

HELP-15
Conveyor adj.

2. Load paper in landscape orientation on the feed tray.

3. Press the TEST key to perform proof cut.

4. Measure the width of the paper produced by the second cut with a caliper.

IMPORTANT

Adjust the width of the second cut so that the error is +/-0.5 mm or less to 100.0 mm.

5. Measured value is displayed on the left side of the display and the reference value is displayed on the right side of the display.

Reference value: 100.0 mm. (f xed value)
You can adjust paper conveyed distance by changing the measured value.

Conveyor adj.
***.*mm / 100.0mm

Measured value

Standard value

6. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to enter the measured value.

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 0.1.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 0.1.

Conveyor adj.
***.*mm / 100.0mm

Conveyance distance adjustable range:
50.0 to 400.0 mm
Pressing the CLEAR key resets the value to default (100.0 mm).

HELP Mode HELP-15 Conveyor adj.

7. Press the TEST key to perform proof cut.

8. Measure the width of the paper produced by the second cut with a caliper.

9. Repeat steps 3 through 6 until the error reaches +/-0.5 mm or less.

10. Press the MENU/OK key to save the entered values.
(If you press the STOP key, the display will return to the HELP mode selection screen without saving the value.)

Conveyor adj.
- Saving -

11. Press the STOP key.
The display will return to the HELP mode selection screen.

(2) Perpendicular cut check

1. Repeat steps 1 and 2 in (1) Conveyance adjustment.

2. Measure the width of both edges of the paper produced by the f rst cut with a caliperr.

IMPORTANT

Difference in dimensions of each edge must be 0.3 mm or shorter.

3. If the dimensional difference is above 0.3 mm, the two screws securing the cutter assy are required to be adjusted.
Refer to ‘ 5 Cutter Assy - 5. Checking Perpendicular Cut’ in chapter 3. (See→P.83)

HELP Mode HELP-16 PPS2-Cut pos. adj.

1. Function

(1) Adjustment of distance between the PPS2 (paper cut edge sensor) and the cutter unit
This HELP mode adjusts mechanical dimensions between the PPS2 and the cutter blade.

2. Operating procedure

(1) Adjustment of distance between the PPS2 (paper cut edge sensor) and the cutter unit

1. Access HELP mode HELP-16, and press the START key.

HELP-16
PPS2-Cut pos. adj.

2. Load paper in landscape orientation on the feed tray.

3. Press the TEST key to perform proof cut.

PPS2-Cut pos. adj.
**.*mm

4. Measure the width of the paper produced by the first cut with a caliper.

IMPORTANT

Calculate the difference from 60.0 mm.
The error must be +/-0.5 mm or less.

5. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to add or subtract the error value calculated in step 4 to or from the value currently shown on the LCD panel.

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 0.1.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 0.1.

Cut position adjustable range: 32.0 to 42.0 mm
Pressing the CLEAR key resets the value to default (37.0 mm).

HELP Mode HELP-16 PPS2-Cut pos. adj.

6. Press the TEST key to perform proof cut.

7. Measure the width of the paper produced by the second cut with a caliper.

8. Repeat steps 3 through 5 until the error reaches +/-0.5 mm or less.

9. Press the MENU/OK key to save the entered value.
   (If you press the STOP key, the display will return to the HELP mode selection screen without saving the value.)

PPS2 Cut pos. adj.
- Saving -

10. After saving is completed, the saved value will reappear.

    Press the STOP key.
    The display will return to the HELP mode selection screen.

HELP Mode HELP-17 Auto cut adjust.

1. Function

(1) Auto cut adjustment

This HELP mode corrects read error of paper length in auto cut mode.

2. Operating procedure

(1) Auto cut adjustment

1. Access HELP mode HELP-17, and press the START key.

HELP-17
Auto cut adjust.

2. Load three or more sheets of paper in landscape orientation on the feed tray.

3. Press the TEST key.
The f rst sheet will be fed through without cut.
Check the adjustment value shown on the LCD panel.

Auto cut adjust.
*.*mm
Adjusted value

4. In a similar way, press the TEST key to feed the second and third sheet and check the value.

5. Calculate average value of the adjustment value of the three sheets.

6. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to enter the calculated average value.

Auto cut adjust.
*.*mm

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 0.1.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 0.1.

Auto cut adjustment range: 0.1 to 5.0 mm
Pressing the CLEAR key resets the value to default (2.0 mm).

HELP Mode HELP-17 Auto cut adjust.

7. Press the MENU/OK key to save the entered value.
   (If you press the ST OP key, the display will return to the HELP mode selection screen without saving the value.

Auto cut adjust.
- Saving -

8. After saving is completed, the saved value will reappear.

   Press the STOP key.
   The display will return to the HELP mode selection screen.

HELP Mode HELP-18 Initialization

1. Function

(1) Initialization

This HELP mode initializes job, counter, and job+counter.

2. Operating procedure

(1) Initialization

1. Access HELP mode HELP-18, and press the START key.

HELP-18
Initialization

2. Pressing the ◁ MENU RIGHT key and the ▷ MENU LEFT key scroll up and down the followings under 'Initialization' on the screen:
   - JOB clear
   - Counter clear
   - JOB+counter clear

Initialization
******

Select item that you want to initialize, and simultaneously press the MENU/OK key and the CLEAR key. Initialization will start.

Initialization
- Initializing -

(If you press the ST OP key, the display will return to the HELP mode selection screen without performing initialization.)

3. After saving is completed, the initialized item will reappear.

Initialization
******

Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-19 Function setting 1

1. Function

(1) Function setting 1

This HELP mode sets functions.

2. Operating procedure

(1) Function setting 1

1. Access HELP mode HELP-19, and press the START key.

HELP-19
Function setting 1

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to highlight the digit.

Function setting 1
PONMLKJI HGFEDCBA

A: JOB input (0: Enabled, 1: Disabled)
B: Buzzer (0: ON, 1: OFF)
C: Cut sheet counter clear (direct clearing)
(0: Enabled, 1: Disabled)
D: Fed sheet counter clear (when counter is displayed)
(0: Enabled, 1: Disabled)
E: Proof cut count (0: Disabled, 1: Enabled)
F: 650 mm paper (0: Enabled, 1: Disabled)
G: Double feed display (0: Disabled, 1: Enabled)
H: Averaging double feed reference value
(0: Disabled, 1:Enabled)
I: Current setting display (0: Enabled, 1: Disabled)
J: -
K: Option jam detection (0: Enabled, 1: Disabled)
L: PPS1 auto-adjustment (0: Enabled, 1: Disabled)
M: Preset counter clear (0: Enabled, 1: Disabled)
N: -
O: Preset counter setting for option
(0: Enabled, 1: Disabled)
P: Cutter operation with cover opened/cover closed
(0: Disabled, 1: Enabled)

Pressing the CLEAR key switches the highlighted digit (0,1).

HELP Mode HELP-19 Function setting 1

3. Press the MENU/OK key to save the settings.
   (If you press the STOP key, the display will return to the HELP selection screen without saving.)

Function setting 1
- Saving -

4. After saving is completed, the saved settings will reappear.

   Press the STOP key.
   The display will return to the HELP mode selection screen.

HELP Mode HELP-20 Function setting 2

1. Function

(1) Function setting 2

This HELP mode sets functions.

2. Operating procedure

(1) Function setting 2

1. Access HELP mode HELP-20, and press the START key.

HELP-20
Function setting 2

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to highlight the digit.

Function setting 2
PONMLKJI HGFEDCBA

A: Inch display (0: OFF, 1: ON)
B: Long press timer (0: OFF, 1: ON)
C: Direct setting after operation
(0: Enabled, 1: Disabled)
D: Option unit restriction clear
(0: Disabled, 1: Enabled)
E: Thick paper measurement
(0: Disabled, 1: Enabled)
F: Not used
G: Not used
H: Not used
I: Not used
J: Not used
K: Not used
L: Not used
M: Not used
N: Not used
O: Not used
P: Not used

Pressing the CLEAR key switches the highlighted digit (0,1).

3. Press the MENU/OK key to save the settings. (If you press the STOP key, the display will return to the HELP selection screen without saving.)

HELP Mode HELP-20 Function setting 2

4. After saving is completed, the saved settings will reappear.

   Press the STOP key.
   The display will return to the HELP mode selection screen.

HELP Mode HELP-21 Interval setting

1. Function

(1) Interval setting

Interval setting is valid only when preset counter is set to a value other than '0'. After a lapse of time set by interval setting since processing of the sheets set by preset counter has completed, processing starts again. If you press the STOP key, processing will stop normally.

NOTE

If the optional straight conveyor is set in 'downstream unit function', cut papers are stacked in the conveyor unit

2. Operating procedure

(1) Interval setting

1. Access HELP mode HELP-21, and press the START key.

HELP-21 Interval setting

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to set interval.

Interval setting **sec.

Interval setting: 00 to 10 sec.

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 1.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 1.

Press the CLEAR key continuously. After about 2 seconds, the value will be reset to '0' (no interval).

3. Press the MENU/OK key to save the setting. (If you press the STOP key, the display will return to the HELP selection screen without saving.)

Interval setting - Saving -

4. After saving is completed, the saved iInterval setting will reappear.

Interval setting **sec.

Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-22 Language setting

1. Function

(1) Language setting

This HELP mode selects language (Japanese/English) displayed on the LCD panel.

2. Operating procedure

(1) Language setting

1. Access HELP mode HELP-22, and press the START key.

HELP-22
Language setting

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to switch language (Japanese/English).

HELP-22
English

3. Press the MENU/OK key to save the selected language.
(If you press the ST OP key, the display will return to the HELP selection screen without saving.)

Language setting
- Saving -

4. After saving is completed, the saved language will reappear.

Language setting
English

Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-24 Paper feed adj.

1. Function

(1) Paper feed adjustment

This HELP mode sets the driving time of the paper feed motor after the PPS 1 (paper lead edge sensor) has turned ON.

2. Operating procedure

(1) Paper feed adjustment

1. Access HELP mode HELP-24, and press the START key.

HELP-24 Paper feed adj.

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to set the driving time of the paper feed motor.

Paper feed adj. ***msec.

Driving time setting: 0 to 200 msec.

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 1.
Pressing the ▷ MENU RIGHT key continuously increases the value in increments of 10.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 1.
Pressing the ◁ MENU LEFT key continuously decreases the value in increments of 10.

Press the CLEAR key continuously. After about 2 seconds, the value will be reset to default with a beeping sound.

3. Press the MENU/OK key to save the setting.
(If you press the STOP key, the display will return to the HELP selection screen without saving.)

Paper feed adj. - Saving -

If you press the TEST key, proof cut is performed.
(60.0 mm, 100.0 mm, 97.0 mm)

4. After saving is completed, the saved setting will reappear.

Paper feed adj. ***msec.

Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-25 DBL FD adj.

1. Function

(1) Double feed detection adjustment

This HELP mode adjusts double feed detection level.

2. Operating procedure

(1) Double feed detection adjustment

1. Access HELP mode HELP-25, and press the START key.

```
HELP-25
DBL FD adj.
```

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to adjust double feed detection level.

```
LV###       NG###
H:***  M:***   L:***
```

LV: Light received level for double detection
NG: Upper limit of amount of light emitted
(when proper LV is not obtained, the paper is judged to be 'out of specif cation'.
H: Detection level adjustment (high)
M: Detection level adjustment (middle)
L: Detection level adjustment (low)

3. Use the ◁ JOG REVERSE and ▷ JOG FORWARD keys to adjust the highlighted value.

```
LV###       NG###
H:***  M:***   L:***
```

Double feed detection adjustment range:
00 to 250

Each time you press the ▷ JOG FORWARD key, the value increases in increments of 1.
Each time you press the ◁ JOG REVERSE key, the value decreases in increments of 1.

The larger the value is, the lower the detection level is.
The smaller the value is, the higher the detection level is.

Pressing the CLEAR key resets all the values to default. (LV: 150, NG: 40, H: 40, M:50, L:70)

4. Press the MENU/OK key to save the settings.
(If you press the STOP key, the display will return to the HELP selection screen without saving.)

```
LV###       NG###
        - Saving -
```

HELP Mode HELP-25 DBL FD adj.

5. After saving is completed, the saved settings will reappear.

Press the STOP key.
The display will return to the HELP mode selection screen.

LV### NG###
H:*** M:*** L:***

Supplement: About double feed detection control

1. When one sheet of paper is fed, the PPS raises the amount of light emitted until proper amount of light received is obtained.

2. The machine starts to convey the paper and the sensor samples seven data of amout of light received with 4.0 mm pitch.

3. Average f ve out of the seven data excluding the maximum and minimum data to get reference value.

4. Perform sampling of the second sheet in a similar way to step 2 and average them in a similar way to step 3.

5. Compare each reference value. If the difference is larger than the value set with HELP-25, it is judged to be ‘double feed’.

HELP Mode HELP-26 Cutter speed adj.

1. Function

(1) Cutter speed adjustment

This HELP mode adjusts processing speed of the cutter unit.

2. Operating procedure

(1) Cutter speed adjustment

1. Access HELP mode HELP-26, and press the START key.

HELP-26
Cutter speed adj.

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to adjust the value of the cutter speed.

Cutter speed adj.
*****

Cutter speed range: 11000 to 40000

Each time you press the ▷ MENU RIGHT key, the value increases in increments of 1.
Each time you press the ◁ MENU LEFT key, the value decreases in increments of 1.

The larger the value is, the stronger the cutter torque is and the faster the cutter speed is. (larger vibration)
The smaller the value is, the weeker the cutter torque is and the slower the cutter speed is. (smaller vibration)

Press the CLEAR key continuously. After about 2 seconds, the value will be set to 25000 with a beeping sound.

3. Press the MENU/OK key to save the adjusted value.
(If you press the STOP key, the display will return to the HELP selection screen without saving.)

Cutter speed adj.
- Saving -

4. After saving is completed, the saved value will reappear.

Cutter speed adj.
*****

Press the STOP key.
The display will return to the HELP mode selection screen.

HELP Mode HELP-29 SRT CNV adj.

1. Function

(1) Straight conveyor adjustment (option)

This HELP mode adjusts speed, default standby time, and operation time of the optional straight conveyor.

2. Operating procedure

(1) Straight conveyor adjustment (option)

1. Access HELP mode HELP-29, and press the START key.

```
HELP-29
SRT CNV adj.
```

2. Use the ◁ MENU LEFT and ▷ MENU RIGHT keys to select an item to be adjusted.

```
SRT CNV adj.
SP: **  INI: **  TM: **
```

SP: Straight conveyor motor speed (x 10%)
INI: Default standby time (x 50 msec.)
TM: Operation time (x 50 msec.)

3. Use the ◁ JOG REVERSE and ▷ JOG FORWARD keys to adjust the highlighted value.

Straight conveyor adjustment range: 00 to 10

NOTE

Adjust the value within the following range.
Settings that are outside the range are prohibited.
SP: 02 to 10
INI: 01 to 10
TM: 01 to 10

Pressing the CLEAR key resets all the values to default.

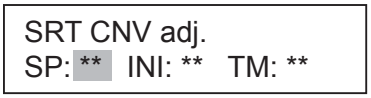
4. Press the MENU/OK key to save the settings. (If you press the STOP key, the display will return to the HELP selection screen without saving.)

```
SRT CNV adj.
      - Saving -
```

7

HELP Mode HELP-29 SRT CNV adj.

5. After saving is completed, the saved settings will reappear.

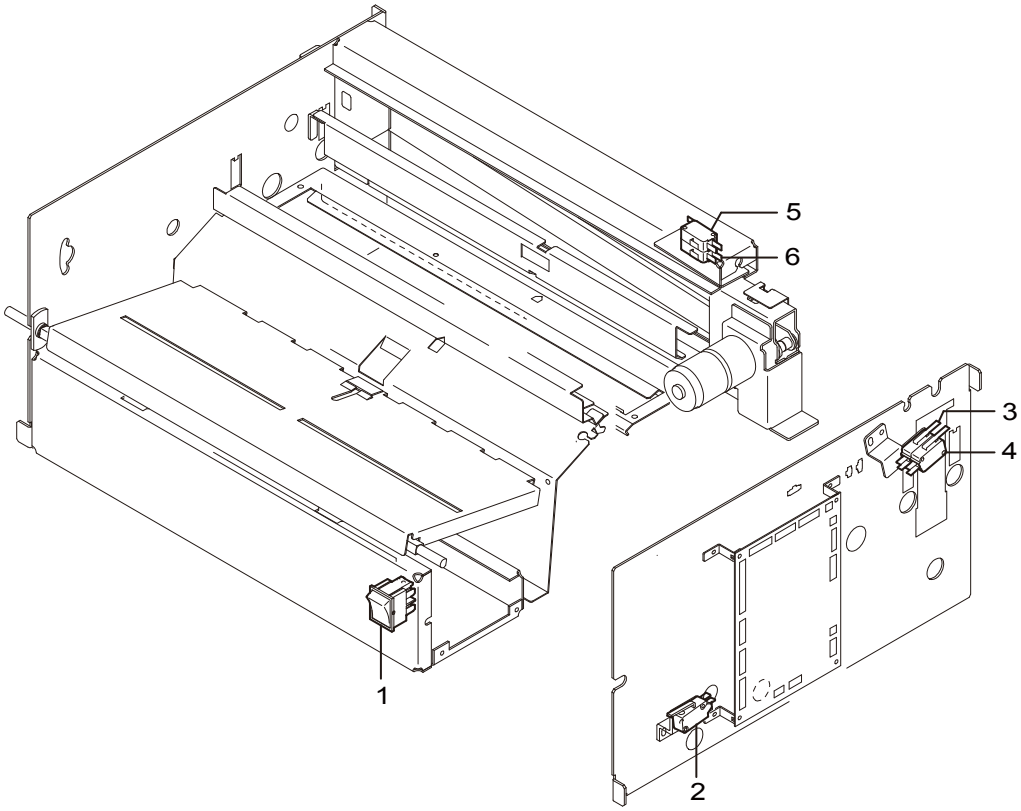


Press the STOP key.
The display will return to the HELP mode selection screen.

Chapter 8 Others

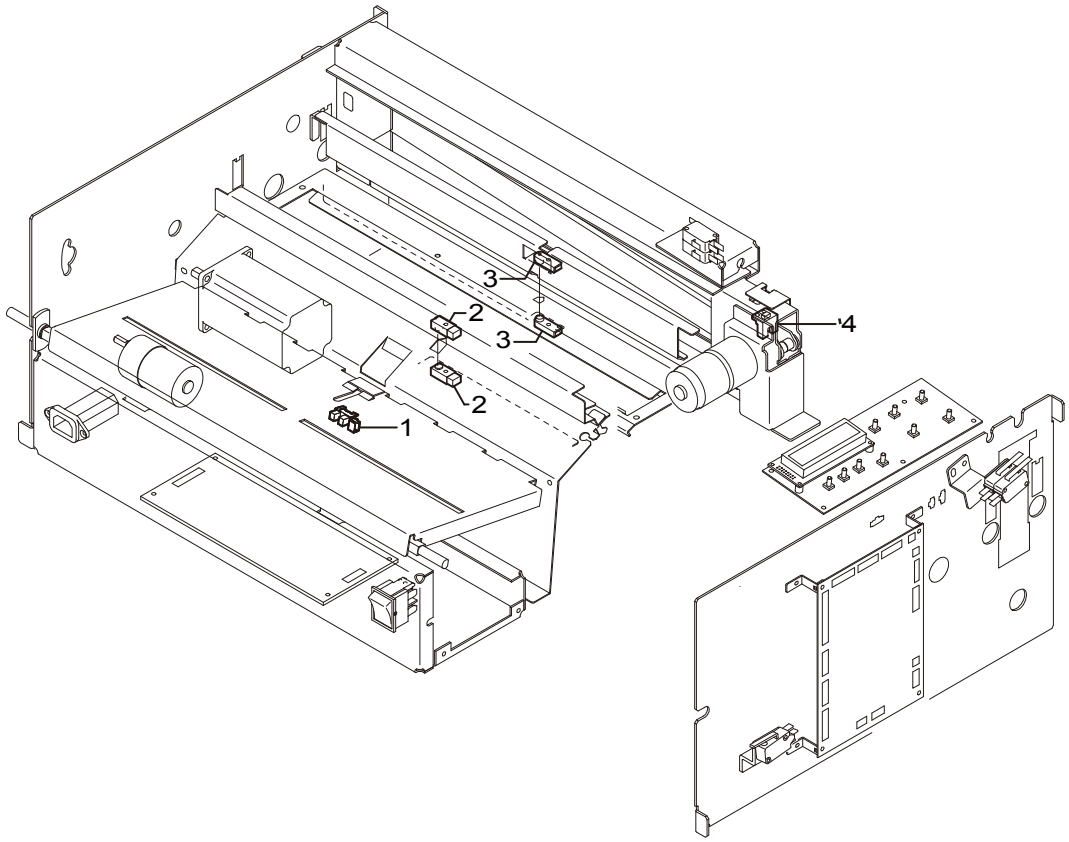
1 Electrical Parts Layout and Their Functions

1. Switches



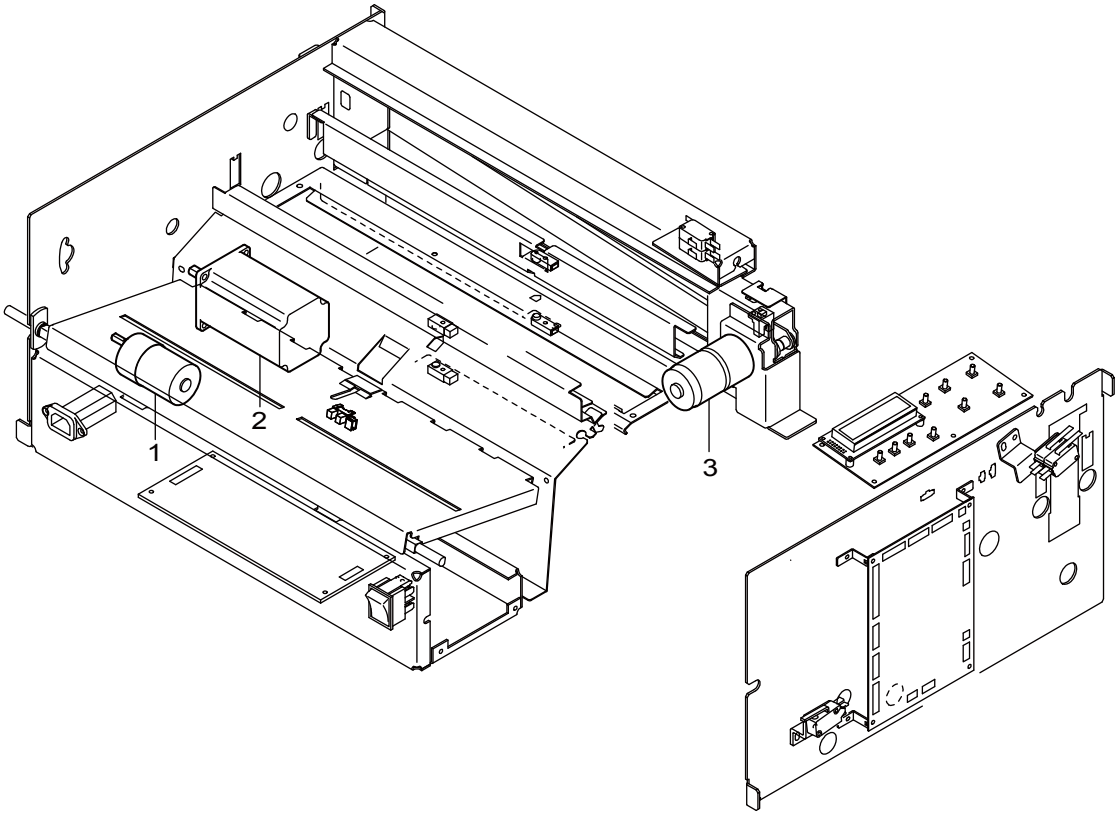
No.	Part Name
1	Power switch
2	Paper set lever switch
3	Top cover switch
4	Interlock switch for top cover 1
5	Rear cover switch
6	Interlock switch for rear cover

2. Sensors



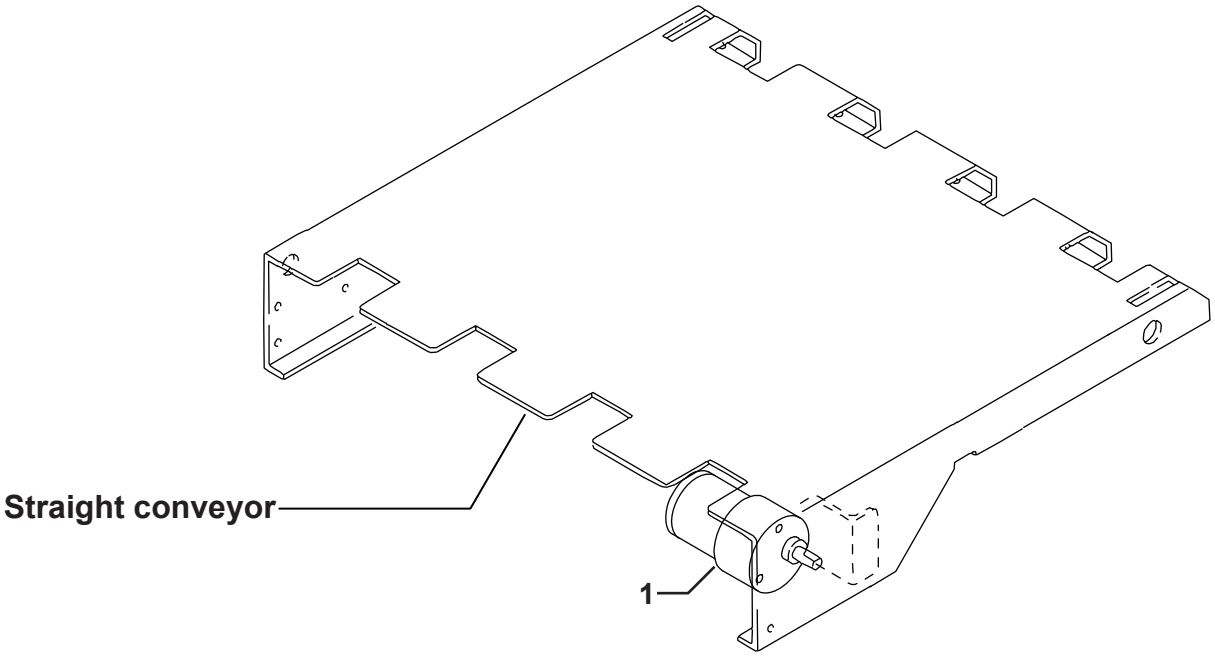
No.	Part Name
1	Paper sensor
2	PPS1 (paper lead edge sensor)
3	PPS2 (cut lead edge sensor)
4	Cutter HP sensor

3. Motors



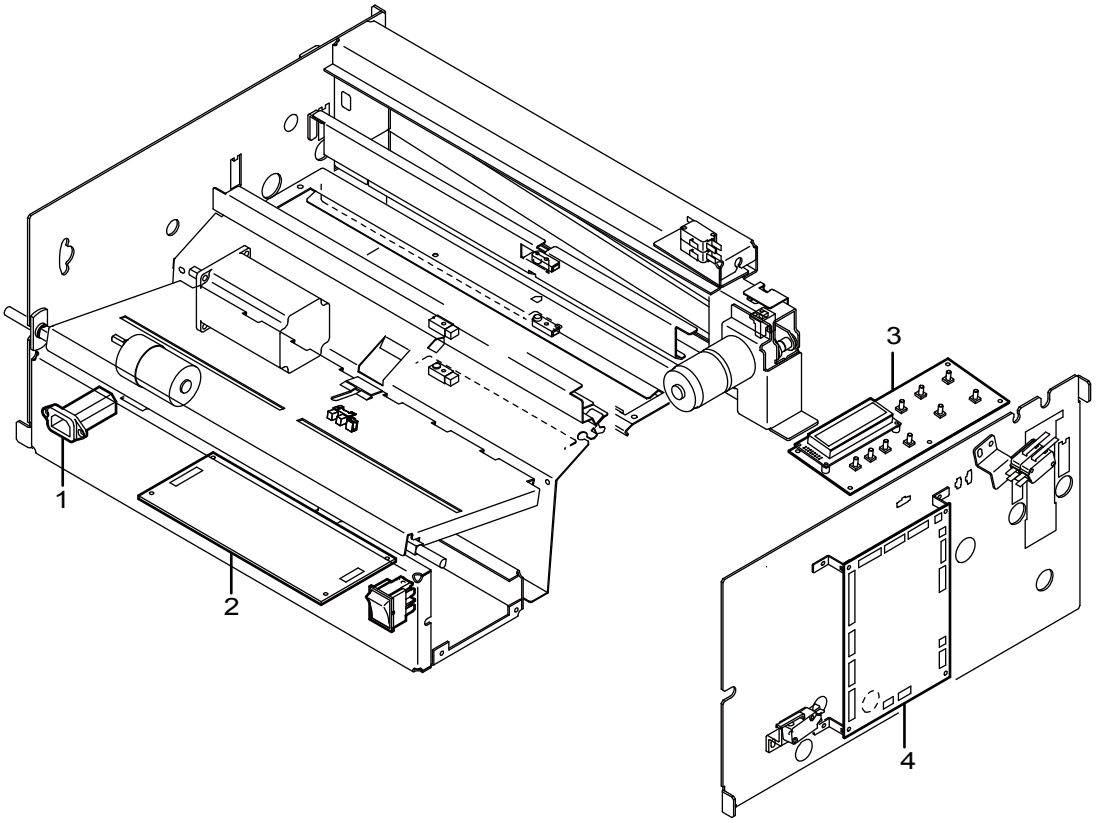
No.	Part Name
1	Paper feed motor (DC gear motor)
2	Main motor (stepping motor)
3	Cutter motor

4. Motor (option)



No.	Part Name
1	Conveyor motor

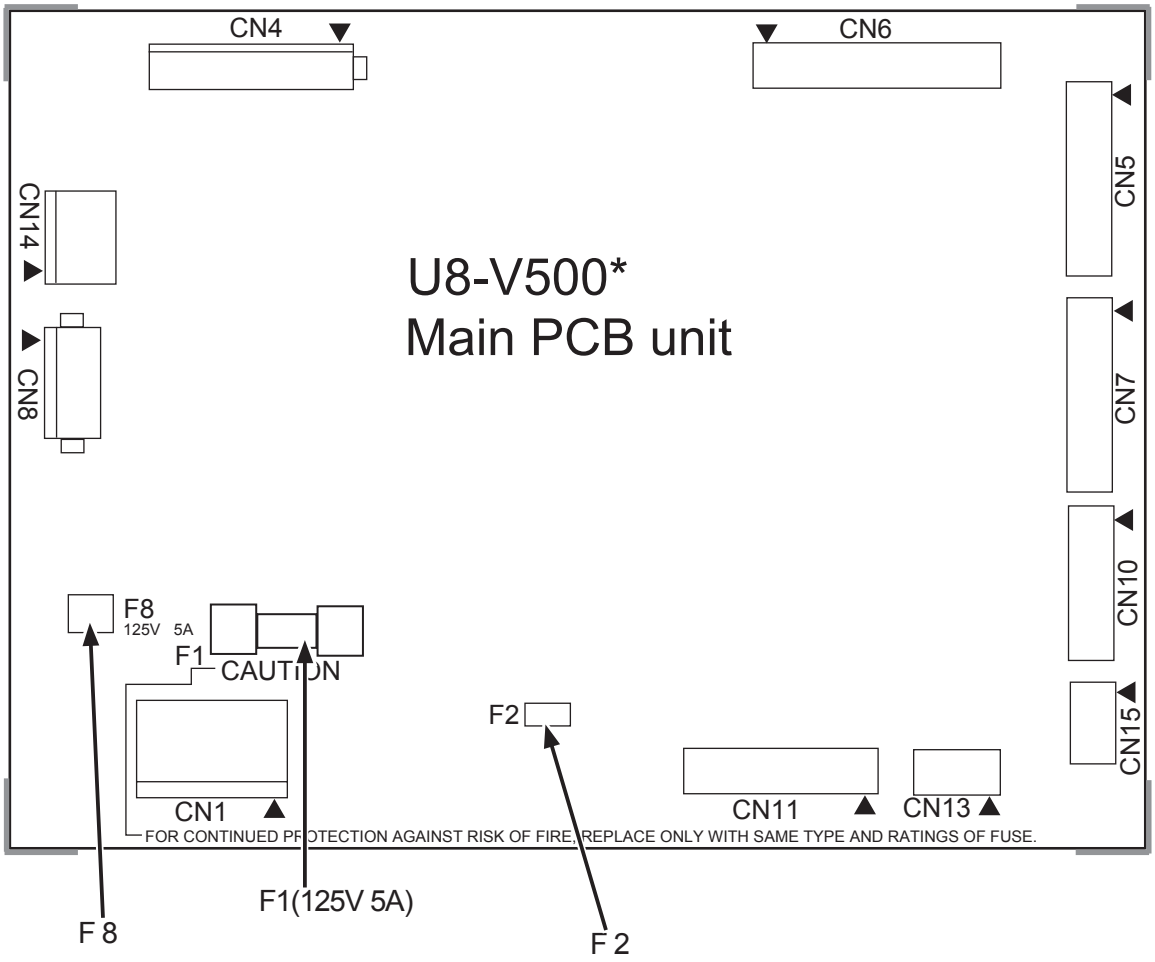
5. PCB Units • Other Electronic Parts



No.	Part Name
1	Inlet
2	Power supply unit
3	Panel PCB unit
4	Main PCB unit

6. Position of Connectors/Fuses

(1) Main PCB Unit



⚠ CAUTION

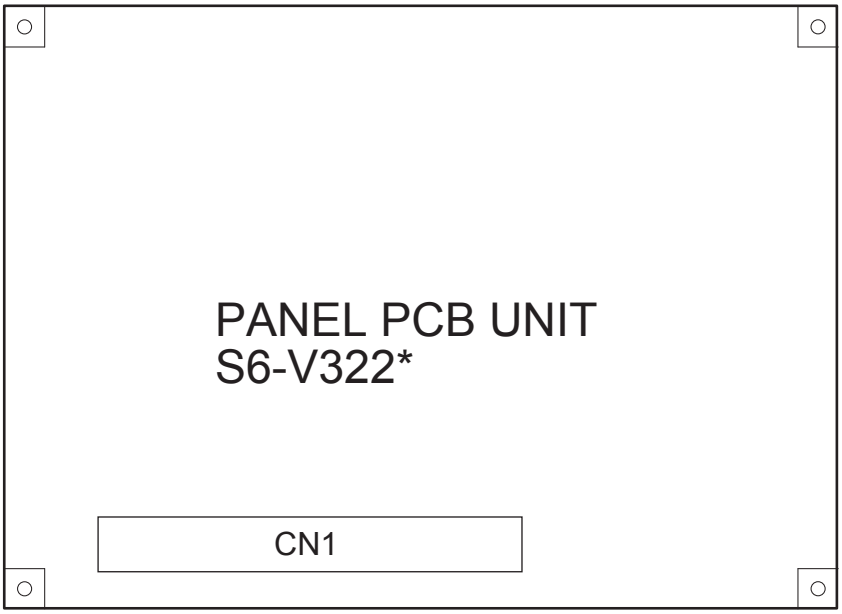
F1 : Be sure to use the same type of fuse when replaceing. Otherwise, f re may occur.

⚠ CAUTION

F2/F8 : In the event of fuse breakdown, replace the main PCB unit with a new one.

8

(2) Panel PCB Unit



(3) Power Supply Unit

2 Overall Wiring Layout