SERVICE MANUAL

SLITTER / CUTTER / CREASER

DC-616

Duplo

Apr. 2014 **Revision 0**

DUPLO DC-616 S2-Y1540

Introduction

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

⚠ It is not possible to anticipate and describe in a manual such as this every possible hazard that could arise in the course of repair and servicing. Therefore, besides observing the safety instructions marked ⚠ in this manual and on the machine's labels, service person 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.

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PLEASE NOTE
In the interests of upgrading our product, specifications and other data given in this manual are subject to change without notice.
If the manual contains anything that you do not understand, contact the dealer for clarification.

■ How to Use This Service Manual

- This service manual includes the structural and functional descriptions for the major areas of DC-616, 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 April, 2014. 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 instruction of particular importance for safety reasons. Never fail to comply with them.

●Safety instructions

⚠ **WARNING** Indicates a high degree of potential danger. Failure to heed the warning may lead to death or serious injury.

⚠ **CAUTION** Indicates a medium degree of potential danger. Failure to heed the caution may lead to injury or damage to property.

[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 : Introduces instructions for correct operation of the machine.
If these instructions are ignored, the machine may not be able to operate at optimum performance or may break down.

REFERENCE Introduces information that is useful for operation and maintenance of the machine, or information about the machine’s performance, etc.

⚠ 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 misoperation of the sensors.

• The heat of direct sunlight could cause deformation of the machine's plastic parts.

* Also avoid installation near to a ground glass window; light and heat penetrate such windows although they are opaque.

● Avoid installing the machine in places subject to high or low temperature or humidity.

• High or low temperature or humidity could cause the machine to operate abnormally.

Suitable temperature and humidity ranges are:

Ambient temperature : 10°C–30°C

Ambient humidity : 40%–70%

Optimum temperature and humidity : 20°C, 65%

• If the machine is installed near to faucets, water heaters or humidifiers, or in cool (sunless) parts of a building or in the vicinity of water sources, the paper could absorb moisture and curl, leading to misfeeds.

● Avoid installing the machine in places with open flames, or where reflected heat or other hot air currents (from stoves, etc), or cold air currents from coolers, etc will strike it directly.

● Avoid installing the machine in poorly ventilated places.

● Avoid installing the machine in dusty places.

● The machine should not be tilting when it is used.

• Install the machine so that it is level. (The machine should be level to within 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 machine; the machine must be connected to a power supply of the voltage indicated.**
  → Otherwise, fire or electric shock could result.
  If the power supply voltage is unstable or if the power supply has insufficient capacity, the machine may not operate normally. Make sure that the power supply has sufficient capacity for the system as whole, including optional equipment.

Power supply	115 VAC ±10%, 60Hz	230 VAC ±10%, 50/60 Hz
Power consumption	1.5 A,190 W	0.7 A,190 W
Standby energy	0.25 A, 26 W	0.22 A,26 W

- **Use only the power cord that is provided with the accessories. Insert the power cord plug firmly into the socket, so that proper electrical contact is made. Use of any other power cord could result in imperfect grounding. If grounding is imperfect and electrical leakage occurs, fire or electric shock could result.**
- **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 120 VAC model: 130 V, at least 15 A, length not exceeding 5 m
  • For a 230 VAC model: 250 V, at least 8 A, length not exceeding 5 m
- **Never tread on the power cord or pinch it between other objects, or accidents could result.**

⚠CAUTION

- **Install the machine in accordance with the Installation Manual supplied.**
- **Lock the casters after the machine 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 hands/fingers could get damaged beside electrical shock.
  - However, the plug must be left connected to the outlet when performing function checks (of individual motors, a given series of operations, or electrical circuits). When motors are operated alone in function checks, interlocks are deactivated, so be aware of the conditions and positions of related equipment, and take great care not to put your hands or fingers into moving parts.
- **The cutter unit, slitter unit, and perforation unit contain sharp tools (blades) which may cause danger. Exercise great care when inspecting these units or replacing them or their parts.**
  → Otherwise, your hands/fingers could get caught and injured.
- **Do not put your hands or fingers inside the machine while it is operating and while you are pressing the JOG key.**
  → Otherwise, your hands/fingers could get caught and injured.
  In addition, when you remove paper clogged up or work on the machine, be very careful not to roll up a tie and/or a necklace by the machine.
- **Working clothes**

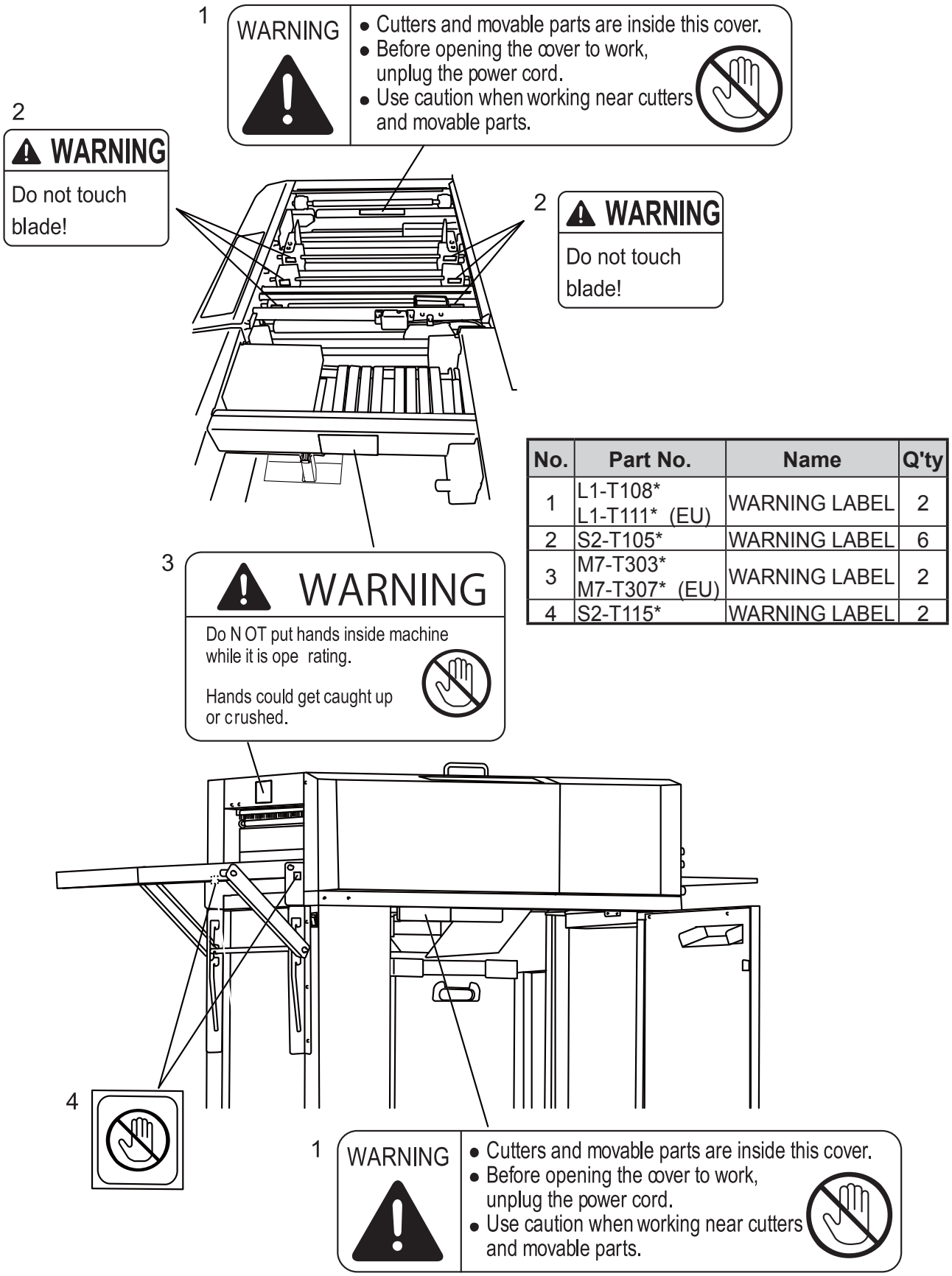
• Wear clothing that enables you to work safely.
Work clothing should be close-fitting.

⚠ CAUTION

- **Tools**

• Use tools that are appropriate for the work.

■ Warning Labels

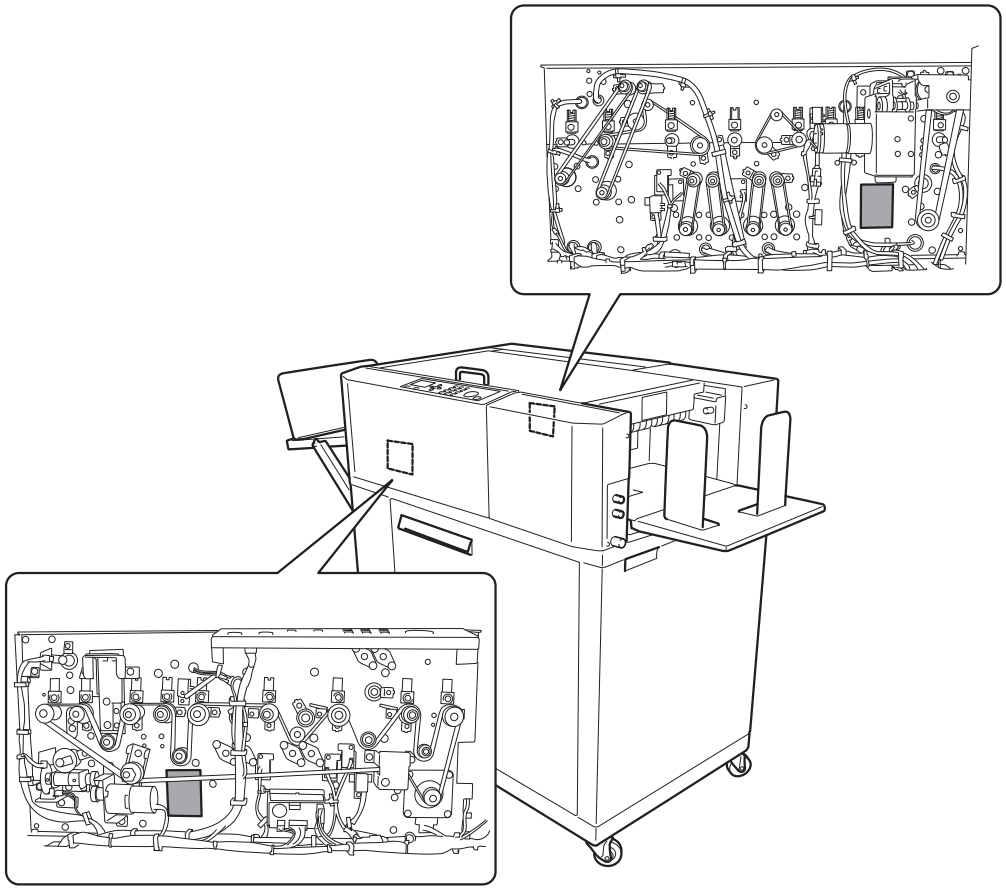


No.	Part No.	Name	Q'ty
1	L1-T108* L1-T111* (EU)	WARNING LABEL	2
2	S2-T105*	WARNING LABEL	6
3	M7-T303* M7-T307* (EU)	WARNING LABEL	2
4	S2-T115*	WARNING LABEL	2

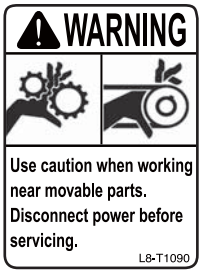
5



No.	Part No.	Name	Q'ty
5	R7-T115*	WARNING LABEL	1



6



No.	Part No.	Name	Q'ty
6	L8-T109* L8-T112* (EU)	WARNING LABEL	1

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1 Specifications

Model name	DC-616
Product type	Slitter/Cutter/Creaser Floor stand model
Feeding method	Belt suction
Infeed document size	Width: 210–320 mm Length: 210–670 mm* * The standard feed tray takes up to 460 mm. For longer sheet, the optional long paper tray is available.
Minimum finishing size	Width: 48 mm (1.89 in) Length: 50 mm (1.97 in)* The distance between the lead edge of the last card and the trail edge of the parent sheet should be 67 mm or more.
Document type	Uncoated, coated, laminated* * Laminated document is not included in the specifications of the perforation unit.)
Document weight	110 gsm–350 gsm
Paper curl	Within 5 mm
Feeder capacity	100 mm
Speed	10 ppm (A4 SEF, 2 cuts, 1 crease)
Number of slits	Max 6 slits per document (2 margin slitters and 4 center slitters)
Margin slit spec	3.2–55.0 mm from document side edges
Gutter slit width	5.0–15.0 mm Gutter slits wider than above are exited onto the exit tray.
Gutter deflector	Max 2 gutter slits can be deflected.
Number of cuts	Max 25 per document
Cut position spec	Lead edge: min. 3.0 mm Gutter cut: min. 3.0 mm Trail edge: min. 5.0 mm
Number of creases	Max 20 per document
Crease depth adjustment	3 steps (from control panel)
Tolerance	+/-0.3 mm from programmed positions (+/-0.4 mm with business cards) When creasing, it may fluctuate depending on the number of creases and their depths.
Stacker capacity	100 mm (with card stacker: 40 mm)
Control panel	64×128 dots LCD
LCD languages	Japanese, English, French, German, Italian, Spanish, Polish, Russian
Software update	DDL-01, DDL-02
Perforation unit	Operator replaceable unit Max 2 perforations parallel to the feeding direction Manual positioning
Perforation position	Minimum distance from the card side edge: 5 mm Minimum distance between 2 perforations: 48 mm
Perforation tool spec	Cut: 0.84 mm Tie: 0.84 mm

Model name	DC-616
Functions	80 job memory Test feed Skew adjustment Slitter guide Auto cut Apply shrinkage Adjust all Cleaning mode Automatic job setup by reading barcode (CCD is optional on “115V” and “230V Asia Oceania” models.) Image shift compensation by reading REG mark (CCD is optional on “115V” and “230V Asia Oceania” models.)
Options	Air knife (optional on “230V Asia Oceania” model) Double feed detection (optional on “115V” and “230V Asia Oceania” models) CCD (standard on “115V PRO” and “230V EMEA” models) Card stacker (optional on “230V Asia Oceania” model) Perforation unit (optional on “115V” and “230V Asia Oceania” models) Long paper tray PC am mount (standard on “115V PRO” model) PC controller software (standard on “115V PRO” model) USB (B TYPE CONNECTOR) Compatible OS: Windows XP Professional/Home edition (x86 32bit only) Windows Vista Ultimate/Business/Home basic/Home premium Windows 7 Ultimate/Professional/Home premium Windows 8 Professional/Enterprise
Power supply	115 VAC, 60 Hz 230 VAC, 50/60 Hz
Power consumption	115 V: current consumption 1.5 A (standby: 0.25 A) power consumption 190 W (standby: 26 W) 230 V: current consumption 0.7 A (standby: 0.22 A) power consumption 190 W (standby: 26 W)
Dimensions	In use: 1610 (W) × 625 (D) × 1060 (H) mm In use with max paper: 2025 (W) × 625 (D) × 1060 (H) mm Stored: 975 (W) × 625 (D) × 1060 (H) mm Packed: 1140 (W) × 770 (D) × 1360 (H) mm
Machine weight	115 V: 145 kg (Gross weight: 178 kg) 115 V PRO: 155 kg (Gross weight: 188 kg) 230 V EMEA: 150 kg (Gross weight: 183 kg) 230 V Asia Oceania: 140 kg (Gross weight: 173 kg)
Operating temperature	10–30 degrees (Celsius) (50-80 degrees (F))
Operating humidity	40%–70% RH (No condensation)
Storing temperature	5–35 degrees (Celsius)
Storing humidity	20%–70% RH (No condensation, No exposure to salt)
Operating altitude	Max 1000 m ALT
Safety standard	UL, CE, VCCI

The specifications are subject to change without prior notice.

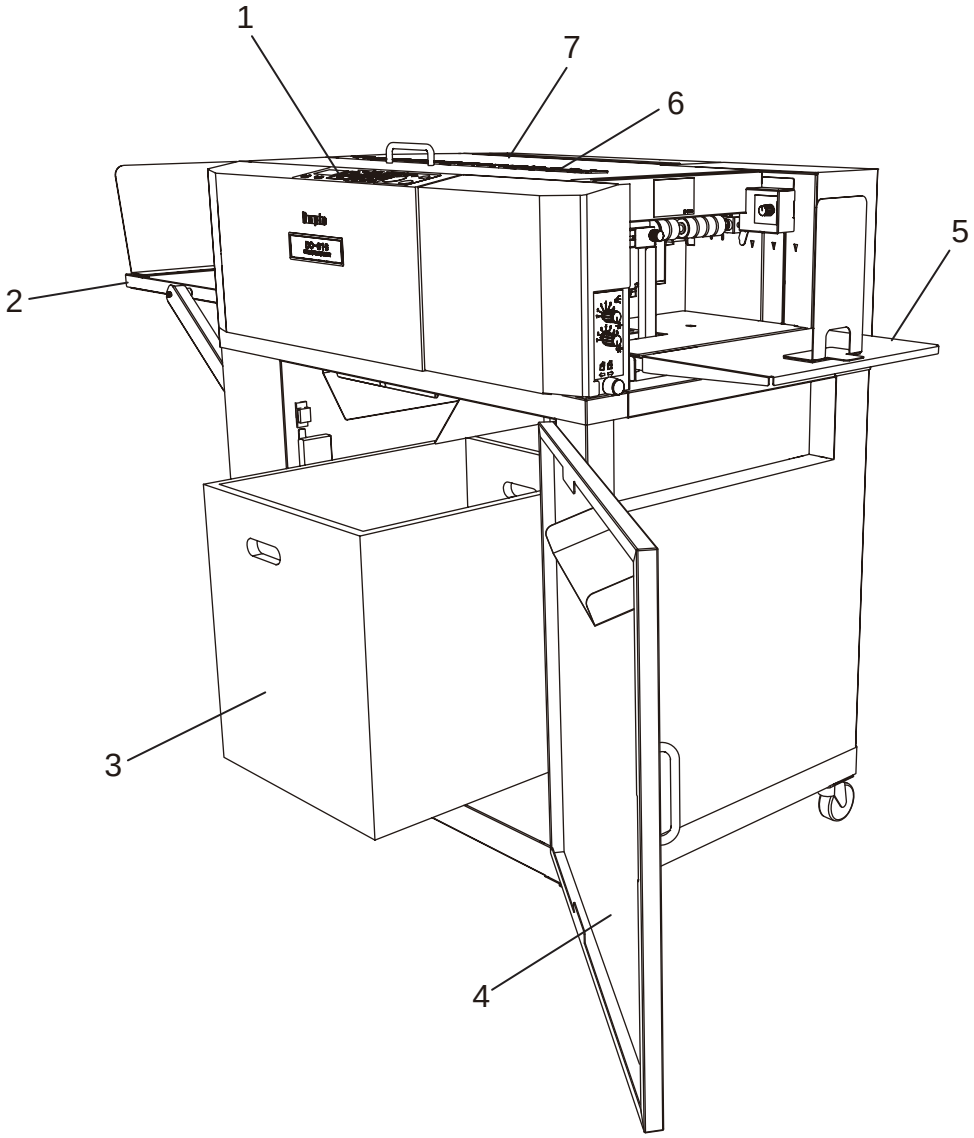
Paper Curl

Due to the automated slitter function, the paper path of the DC-616 is sensitive to paper curl.
If paper curl is causing paper jams, the following are suggestions for remedying the problem:

1. Adjust the printing devices de-curler (if available).
2. Manually de-curl the stock before loading in the fe tray.
3. Turn the paper over (reprogramming the job may be necessary).
4. Use different paper stock.

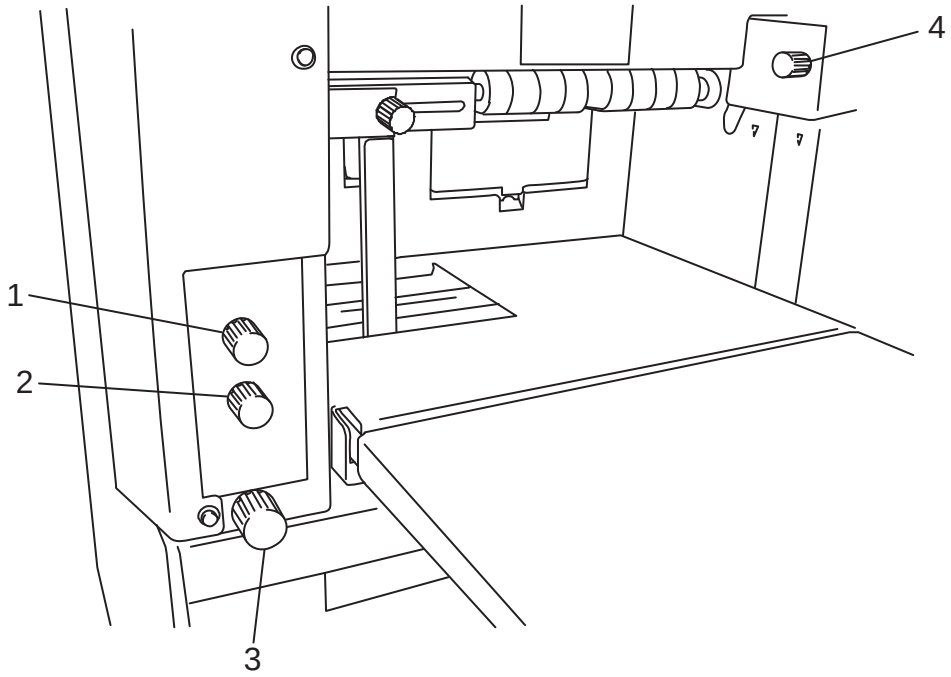
2 Part Names and Their Functions

1. Appearance



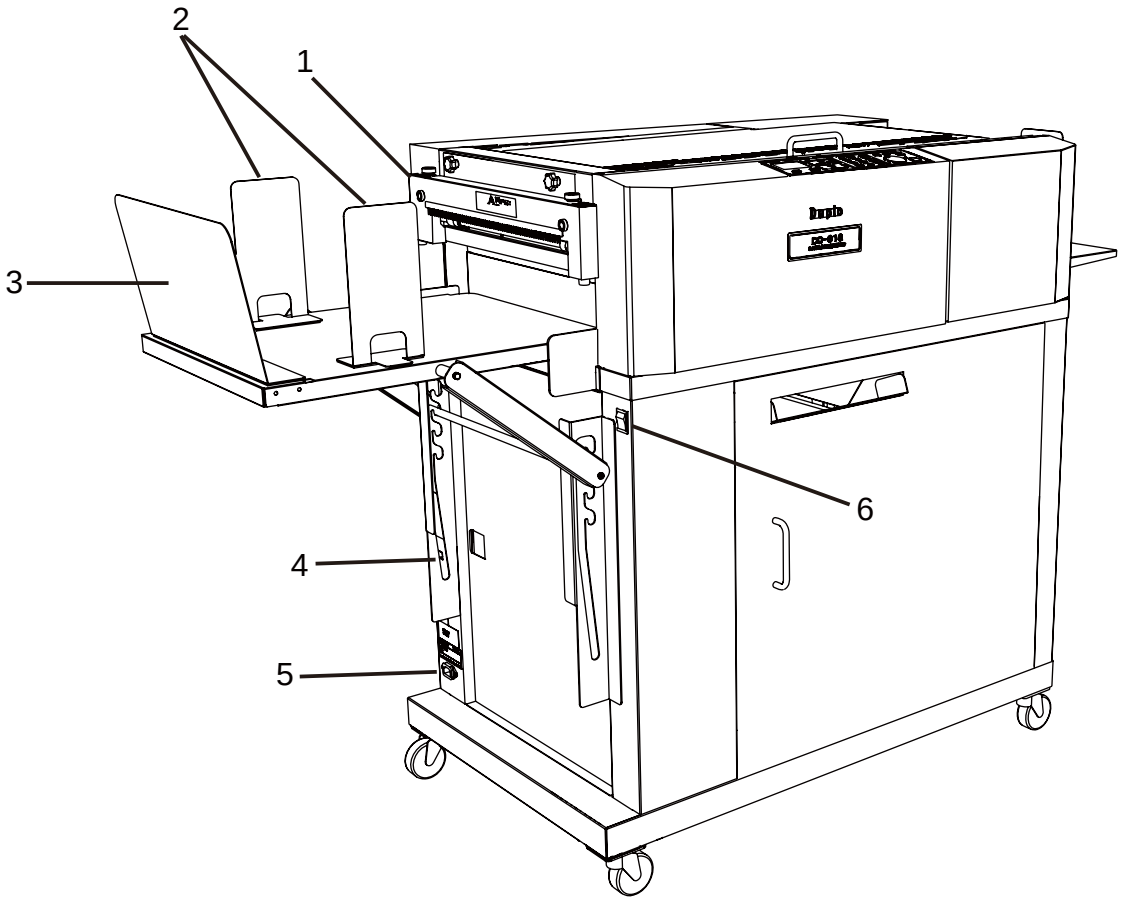
No.	Name	Function
1	Control panel	Displays operations and status.
2	Exit tray	Receives the finished products.
3	Waste box	Receives pieces of waste paper.
4	Front cover	Open this to remove the waste box.
5	Feed tray	Original document is placed here.
6	Scale	Measures the cut and slit position, and the finished product.
7	Top cover	Open this to remove paper jam from inside of the machine.

2. Appearance (Feed Side)



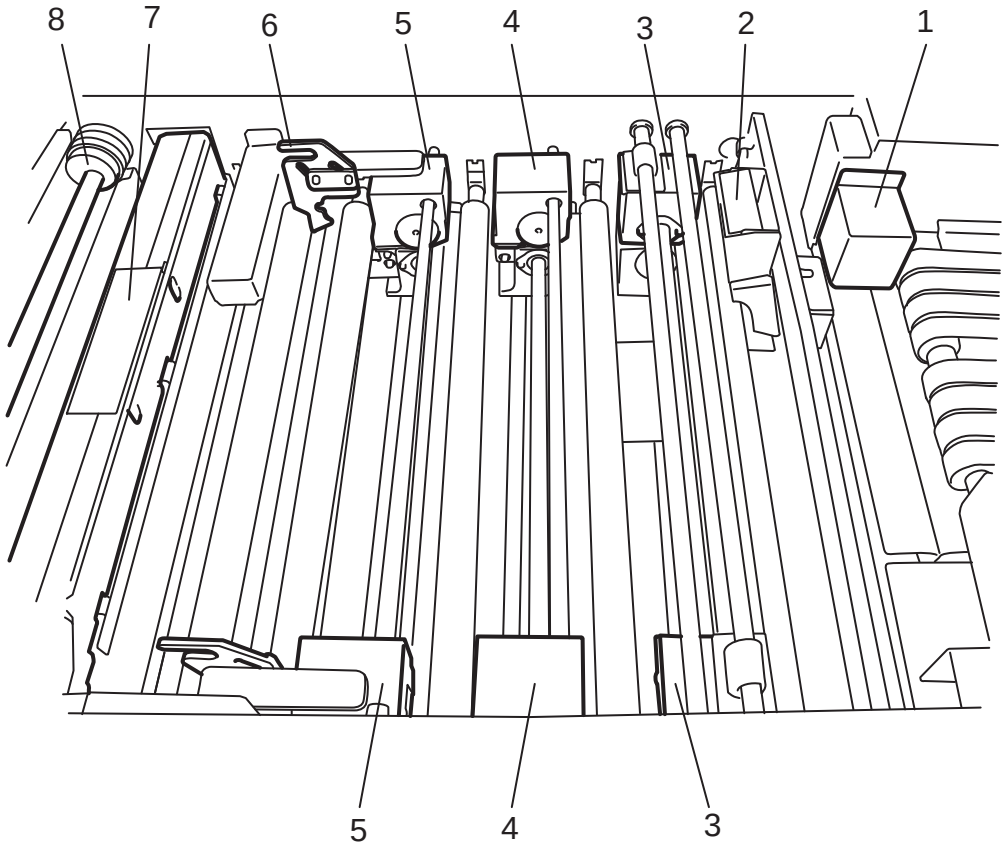
No.	Name	Function
1	Airflow adjustment knob	Adjusts airflow level.
2	Separator adjustment knob	Adjusts the distance between the separator and conveyance belt.
3	Skew adjustment knob	Adjusts the document skew.
4	Level adjustment knob	Adjusts the elevator height.

3. Appearance (Ejection side)



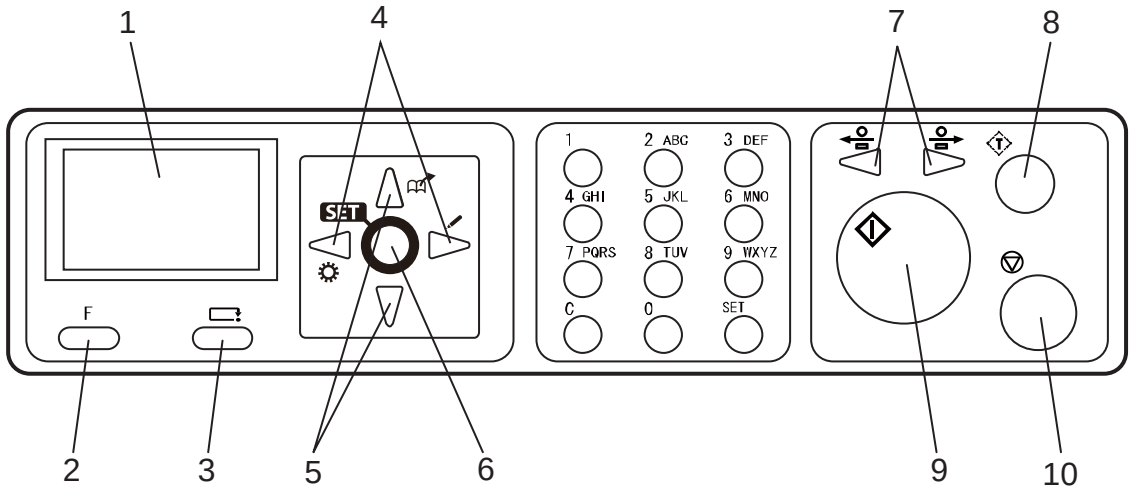
No.	Name	Function
1	Perforation unit	Perforates parallel to the document feed direction.
2	Side guide	Receives the processed documents.
3	Back guide	Receives the processed documents.
4	USB terminal	Used for the connection to your computer on PC Controller using.
5	AC inlet	Connect the power cord here.
6	Power switch	Press to switch the power on and off.

4. Inside

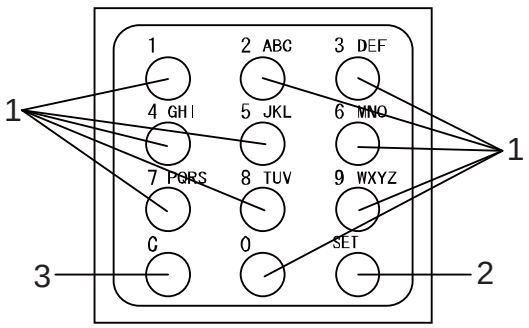


No.	Name	Function
1	Double feed detection section	Detects double feed by the ultrasonic sensor. (Option)
2	CCD section	Reads out REG Mark/Barcode. (Option)
3	Slitter module 1,2	Cuts side margins parallel to the document feed direction.
4	Slitter module 3,4	Cuts parallel to the document feed direction.
5	Slitter module 5,6	
6	Gutter deflector	Drops the margin cut off by the slitters into the waste box.
7	Cutter module	Cuts perpendicularly to the document feed direction.
8	Creaser module	Creases perpendicularly to the document feed direction.

5. Control Panel



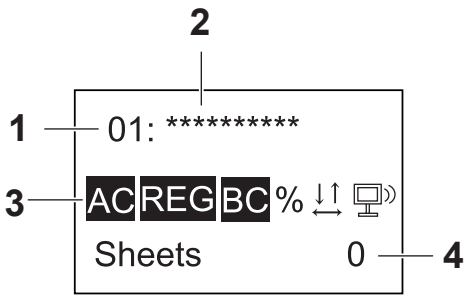
No.	Name	Function
1	LCD panel	Displays the status of the machine. Displays the message when an error or paper jam occurs.
2	F key	Switches to function selecting screen.
3	RETURN key	Switches to the previous screen.
4	CURSOR (Left/ Right) key	Press to move the cursor to the left or right.
5	CURSOR (Up/ Down) key	Press to the cursor in a lower or an upper direction.
6	SET key	Press to set selection/entry.
7	JOG (Forward/ Backward) key	Press to eject the document from the machine when paper jam occurred.
8	TEST key	One (sheet) document is processed to test to the current JOB details. When the card stacker is installed, if you press and hold the TEST key for guide adjustment, the processed document temporarily stops. Then, when you press the START key or the TEST key, the processed document is ejected.
9	START key	Press to start processing documents. The START key light turns green when when the machine is ready to process the document in this machine. The machine is inactive when the light is red. In this case, the machine may be running or having an error.
10	STOP key	Press to return the current screen to the main screen or to stop processing



No.	Name	Function
1	NUMERIC key	Press to enter JOB/values during manual programming.
2	SET key	Press to set selection/entry.
3	CLEAR key	Press to clear the count. Press to cancel manual programming.

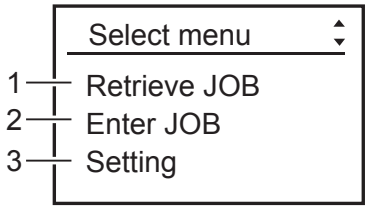
6. LCD Panel

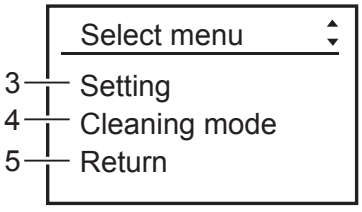
● Standby screen



No.	Name	Function
1	JOB No.	Displays the JOB number currently selected.
2	JOB Name	Displays the JOB name currently selected.
3	Counter	Displays the number of document sheets processed with the JOB currently set.
4	Function setting AC: Auto cut REG: REG mark BC: BARCODE % ↓↑ ↔ 	 AC is displayed when “Auto cut” is enabled. REG is displayed when “REG mark reading” is enabled. BC is displayed when “Barcode reading” is enabled. % is displayed when “Apply shrinkage” is enabled. ↓↑ ↔ is displayed when “Adjust all” is enabled.  is displayed when the PC Controller is online.

● “Select menu” screen

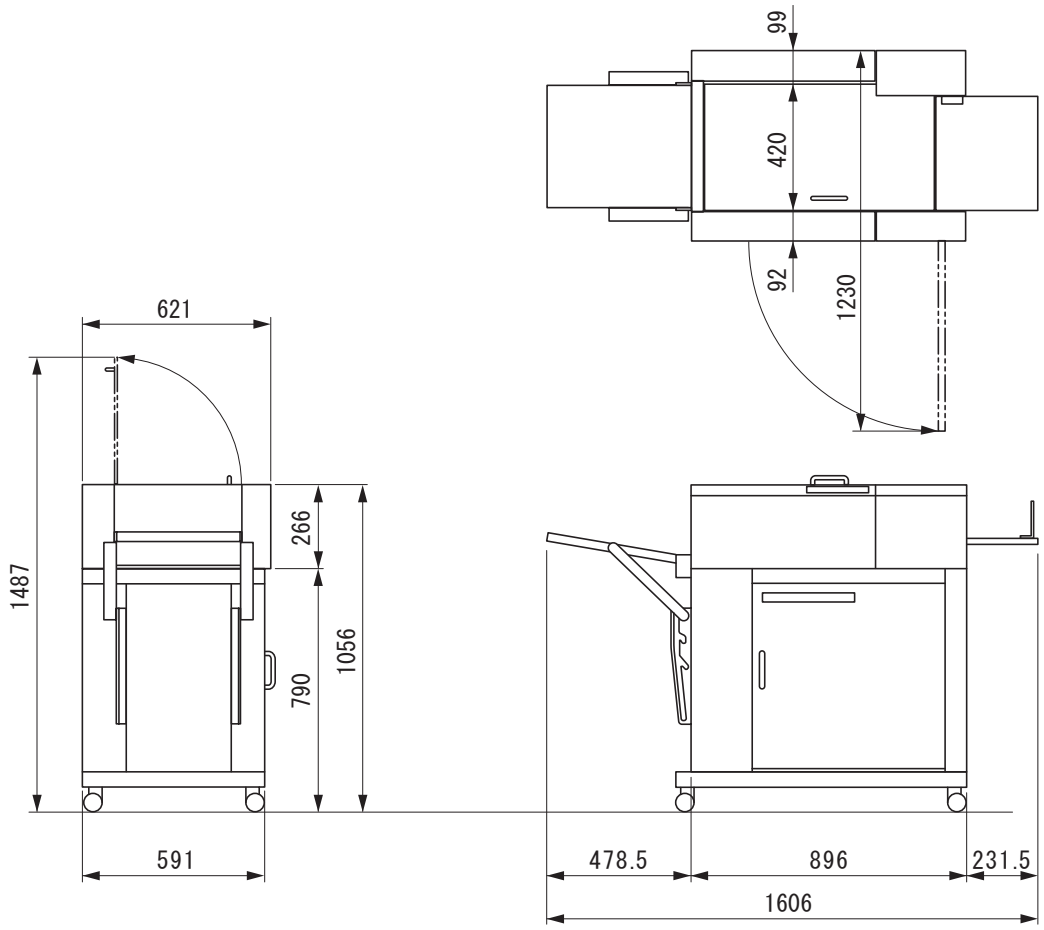




No.	Name	Function
1	Retrieve JOB	Retrieves saved JOB.
2	Enter JOB	Enters and changes JOB.
3	Setting	Changes functions of the machine.
4	Cleaning mode	Retrieves Cleaning mode to clean conveyance belt / conveyance roller.
5	Return	Returns to standby screen.

3 Dimensions

Unit: mm



Chapter 2 Operation in General

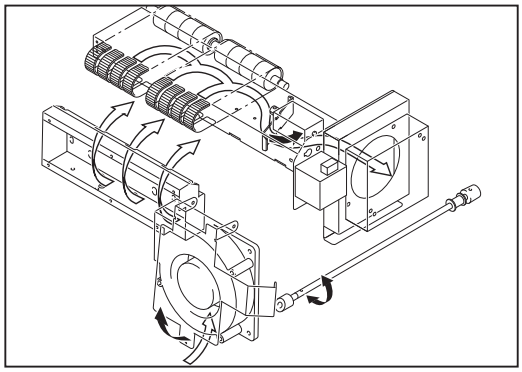
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1 Paper Feed Section

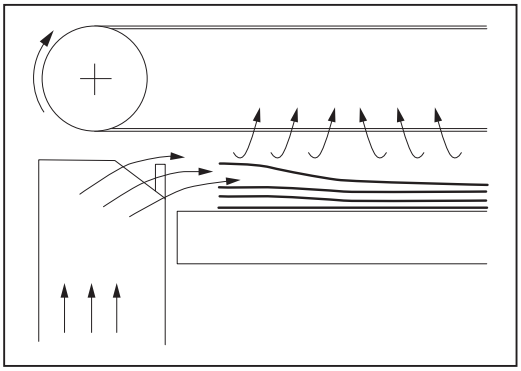
1. Description

Paper feed section feeds the paper into the machine after separating each sheet of paper by air knife. This is done through the operation of the air suction mechanism and the air blow duct mechanism.



2. Operation

Air blow duct mechanism blows the compressed air to the paper from the front side to create some gap between the papers. The separated paper is transferred when the shutter solenoid and the feed motor provided in the air suction mechanism are turned ON.

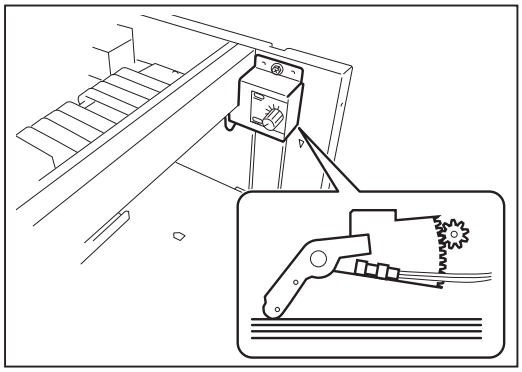


3. Operation of Each Part

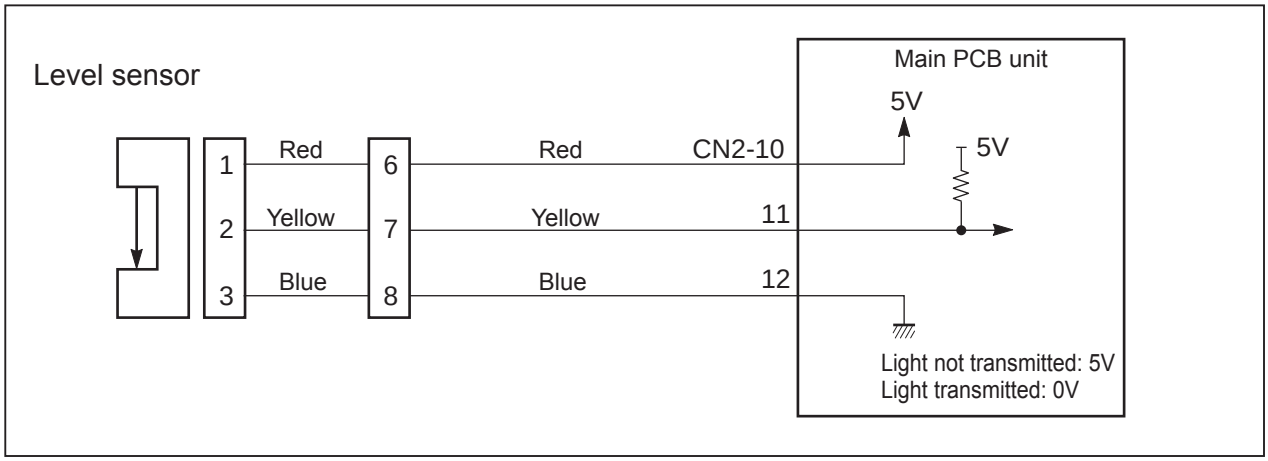
1. Level Sensor

<Operation>

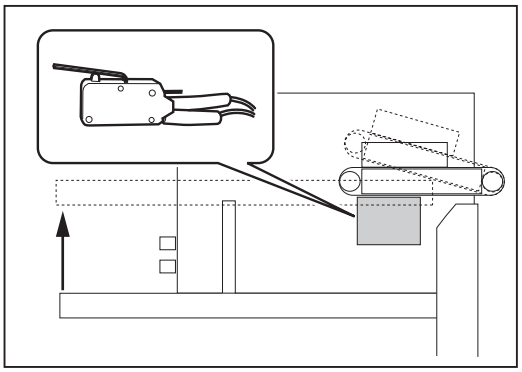
- **Detect the top of the paper on the feed tray**
  When the feed tray rises to the extent that the actuator is lifted up by the paper, the sensor comes to the “light blocked” state.
  Once the topmost sheet of paper is detected, the rising motion of the feed tray is stopped.
- **Detect the low level of paper**
  The actuator comes down as the paper level gets low until the sensor comes to the “light through” state. Once the sensor comes to the “light through” state, the feed tray rises until the sensor comes to the “light blocked” state. “E02” (elevator error) appears on the display if the topmost paper sensor does not switch to the “light blocked” state within 10 seconds after the transmission of feed tray go-up command.



<Circuit diagram>

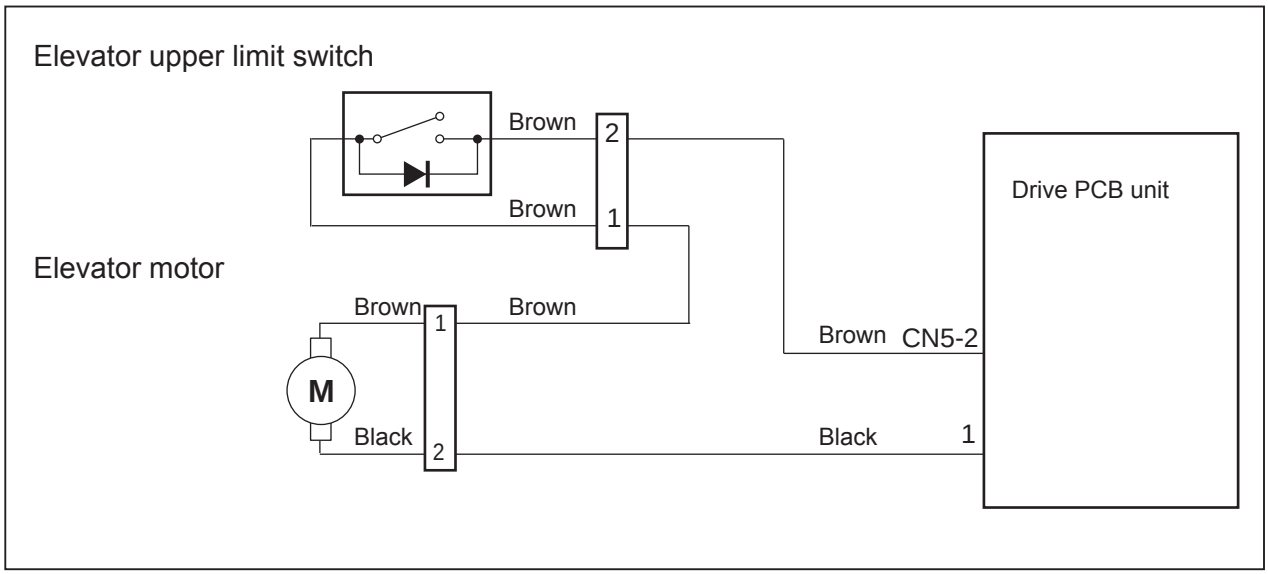


2. Elevator Upper Limit Switch
<Operation>
If the topmost sheet of paper cannot be detected, and the feed tray continues to go up, the air suction unit is pulled away from the elevator upper limit switch to come to the “OFF” state.
The elevator upper limit switch stops the machine operation immediately once it comes to the “OFF” state.



3. Elevator Motor
<Operation>
Elevator motor rotation lets the feed tray move up and down.

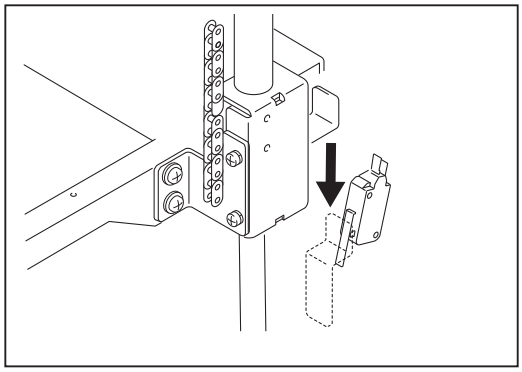
<Circuit diagram>



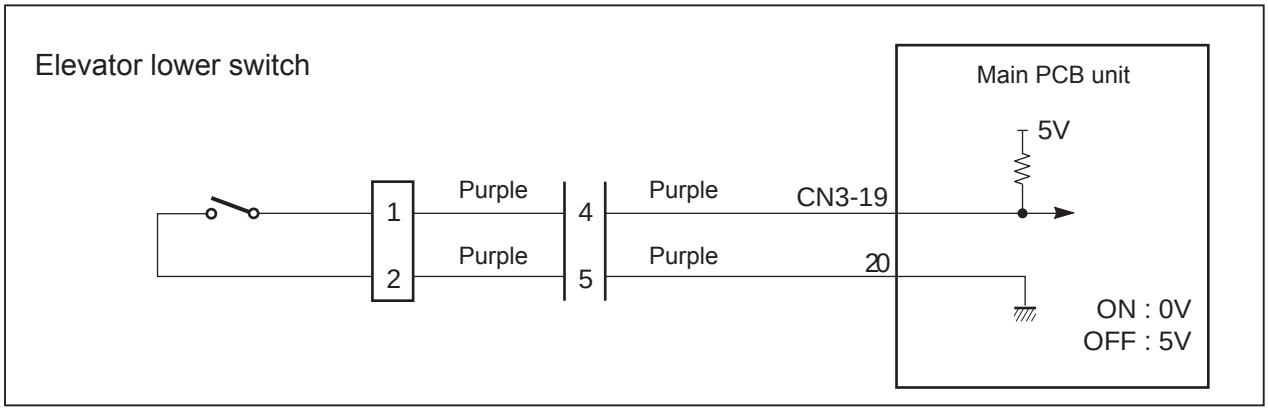
4. Elevator Lower Switch

<Operation>

As the feed tray goes up, the angle is pulled away from the elevator lower limit switch to come to the “OFF” state. As the feed tray goes down to reach the lower limit, the angle pushes the switch actuator to trigger the “ON” state. “E02” (elevator error) appears on the display if the angle does not push the elevator lower limit switch actuator within 30 seconds after the transmission of the feed tray go-down command.



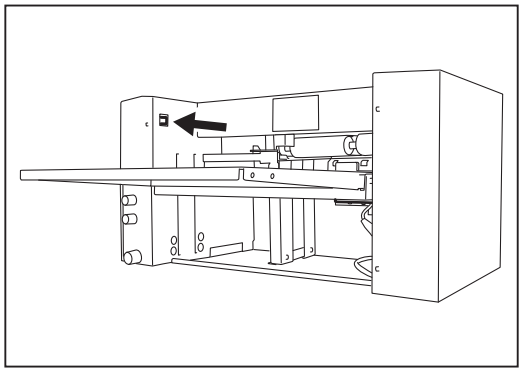
<Circuit diagram>



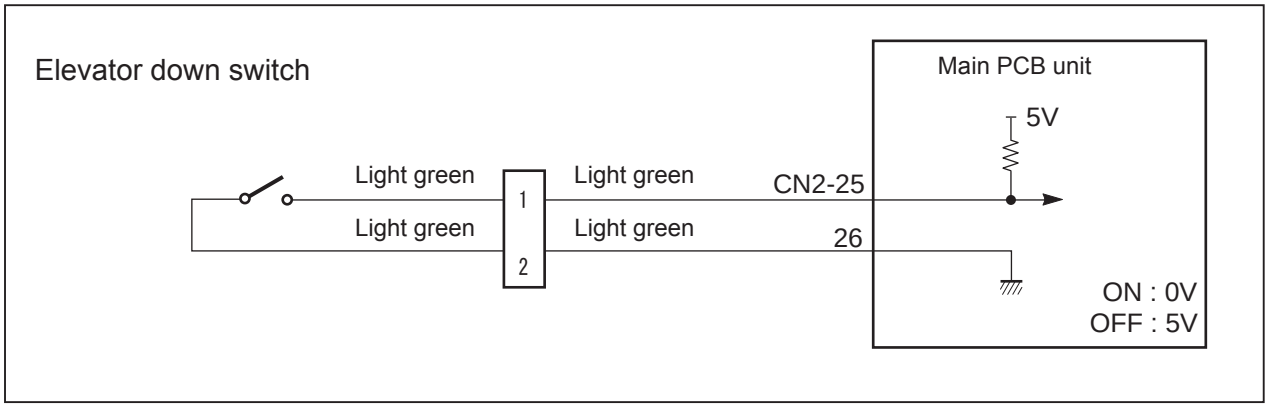
5. Perforation unit Sensor

<Operation>

Normally the feed tray goes up and down automatically. However, it may be lowered by the elevator down switch as required, including the case of paper jam.



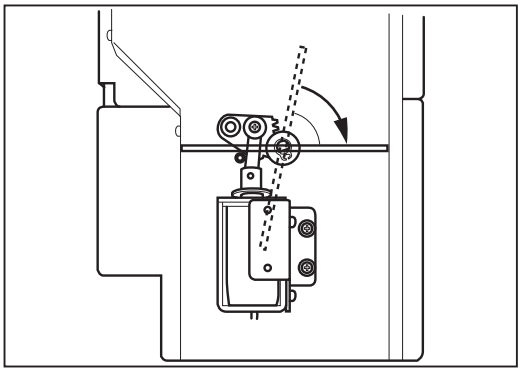
<Circuit diagram>



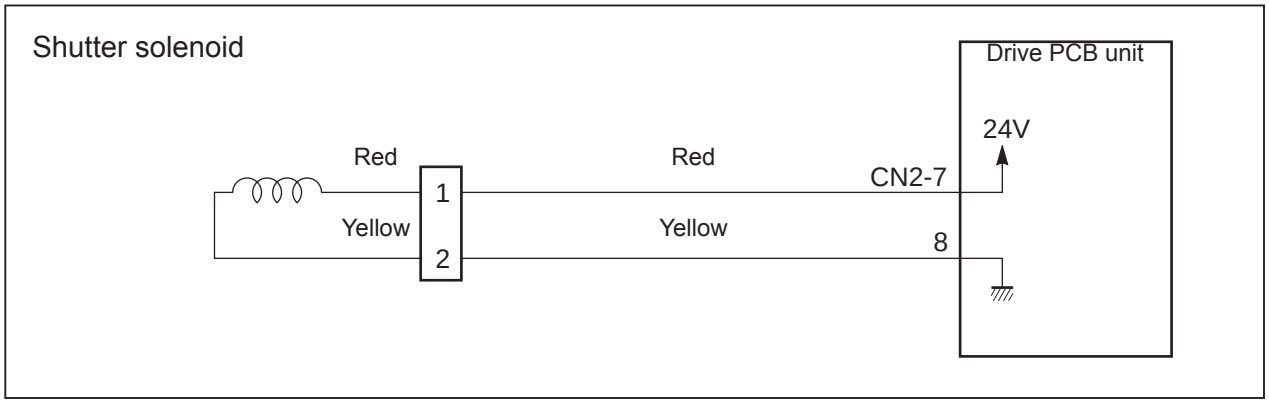
6. Shutter Solenoid

<Operation>

The suction solenoid is turned ON as the level sensor is turned ON and the paper feed is ready.
Then, the valve opens to suck up the paper.
The valve is closed by the timer after the transferred paper passes through the PPS2.



<Circuit diagram>

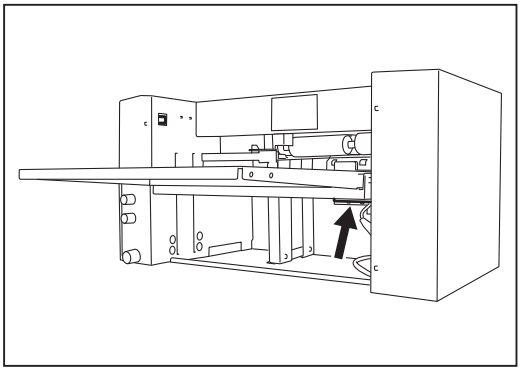


7. PPS1

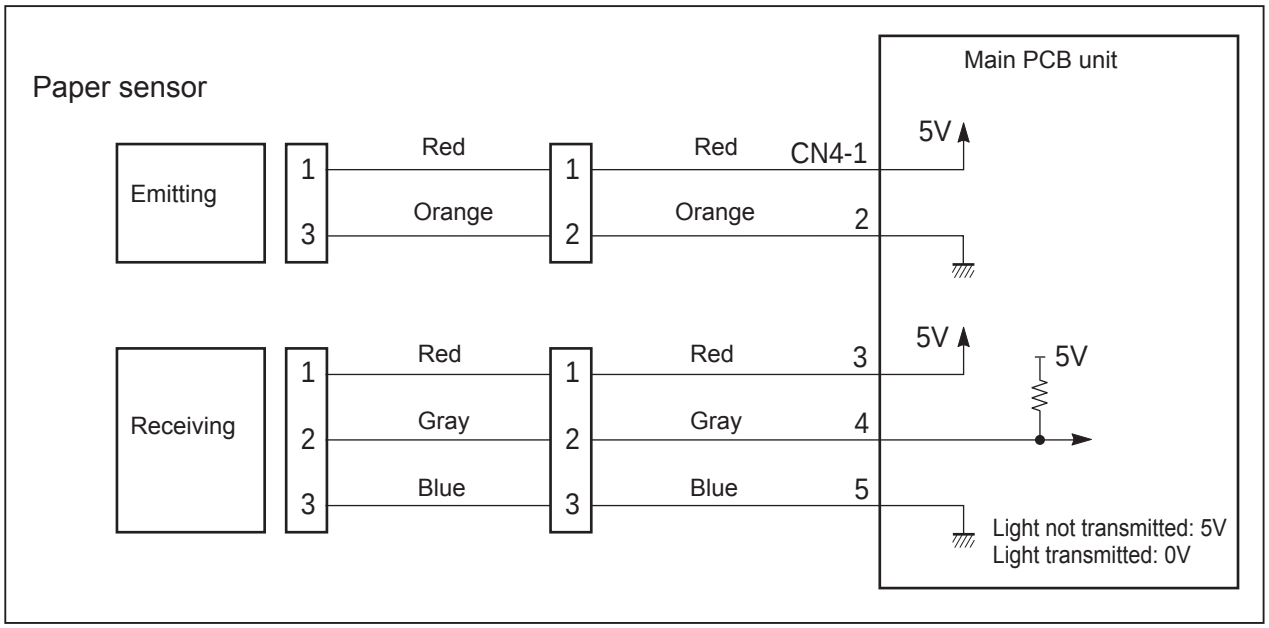
<Operation>

While the light goes through at PPS1, LED on the control panel lights up in red. “NO PAPER” appears on the display as the start key is pressed. While the light is blocked at the PPS1, the start key lights up in green.

* Wipe off the dirt or contamination, if any, on the PPS sensor with a rag.



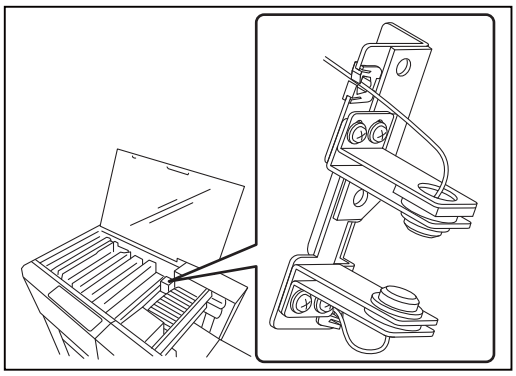
<Circuit diagram>



2 Double Feed Detection Section (Option)

1. Description

The double feed detection sensor is provided at the ejection side of feed belt.
An ultrasonic sensor is used, and no adjustment for fitting it to the particular type of paper, and no input of the paper thickness are required.



2. Operation

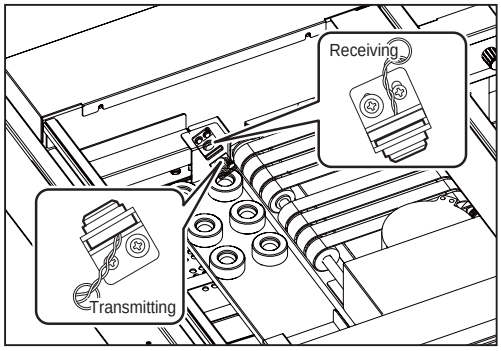
Whenever the ultrasonic sensor detects double feed, the machine stops the operation.

3. Operation of Each Part

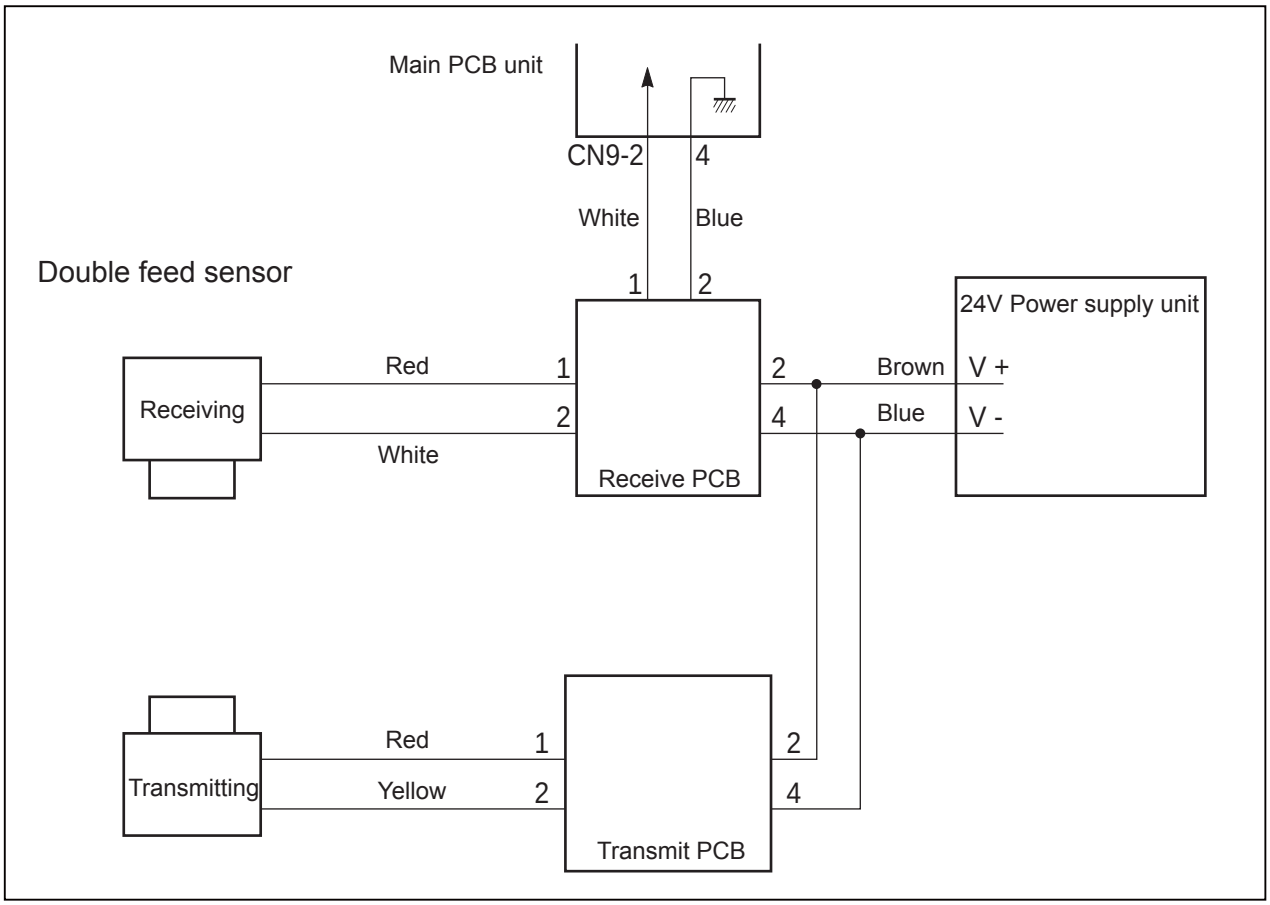
1. Double Feed Sensor

<Operation>

Whenever the ultrasonic sensor detects double feed, the machine stops the operation. The double feed is detected not by the paper thickness, but by the number of sheets.



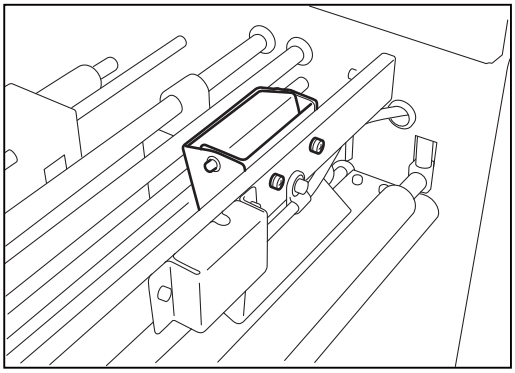
<Circuit diagram>



3 CCD Section

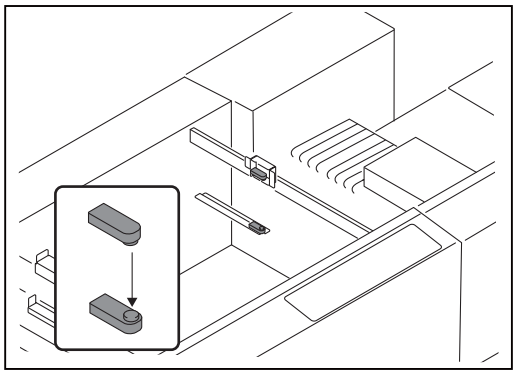
1. Description

This section reads the barcode and REG mark by CCD.



2. Operation

On the JOB using REG mark or barcode, PPS2 works to assure the correct CCD reading by temporarily stopping the paper run at the place of PPS2 and slows it. The paper conveyance speed will be accelerated after the CCD reading.



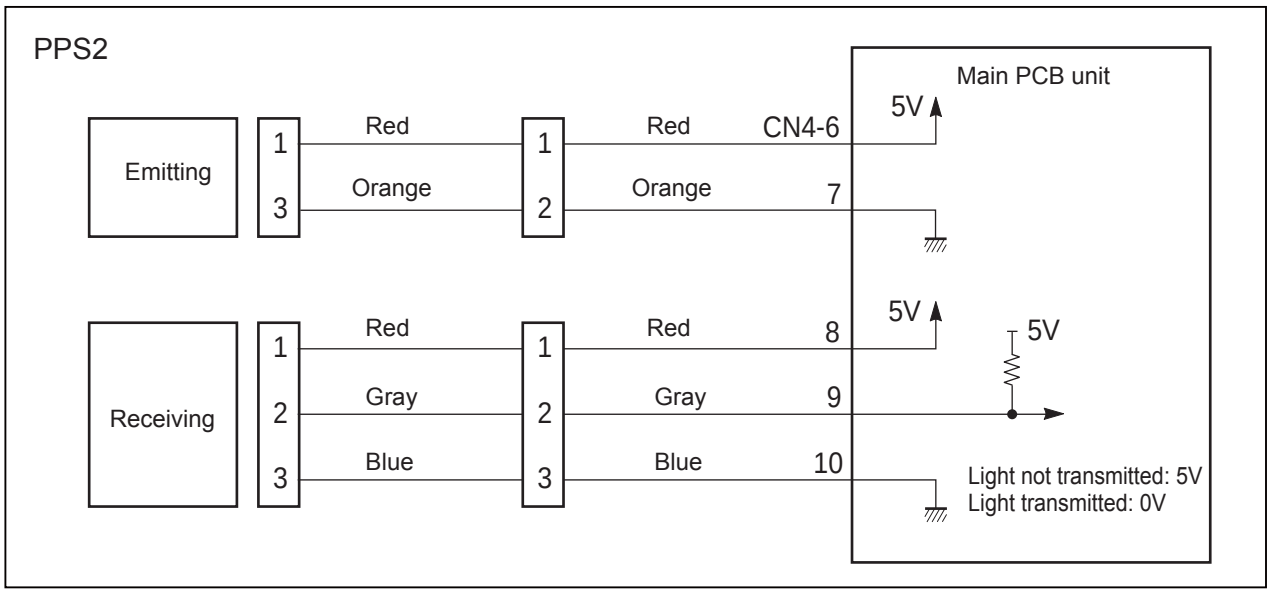
3. Operation of Each Part

1. PPS2

<Operation>

- PPS detects the presence or non-presence of paper by the “light-through” or the “light-bloced” state of the PPS photo-receiving sensor by means of receiving from the PPS photo-emitting sensor.
- In the operation without REG mark or barcode, PPS2 detects the timing of passing paper.

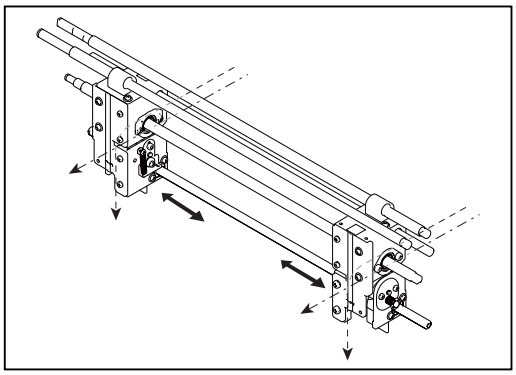
<Circuit diagram>



4 Margin Slitter Section

1. Description

The margin slitter is provided (slitter 1, 2) on both sides to cut the paper along the traveling direction by means of the rotary blades. The cut-off margin is dropped into the waste box.



2. Operation

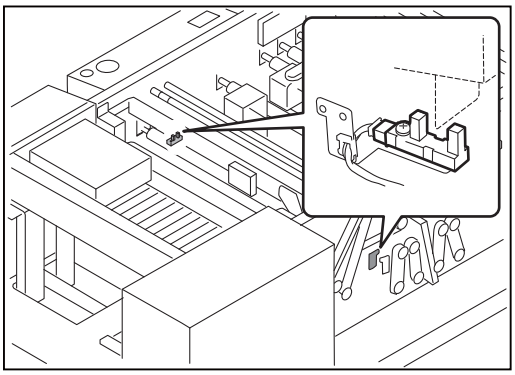
The lead screw is turned by means of the stepping motor to cause the margin slitter to move from the home position by the specified amount of pulse.

3. Slitter Blade

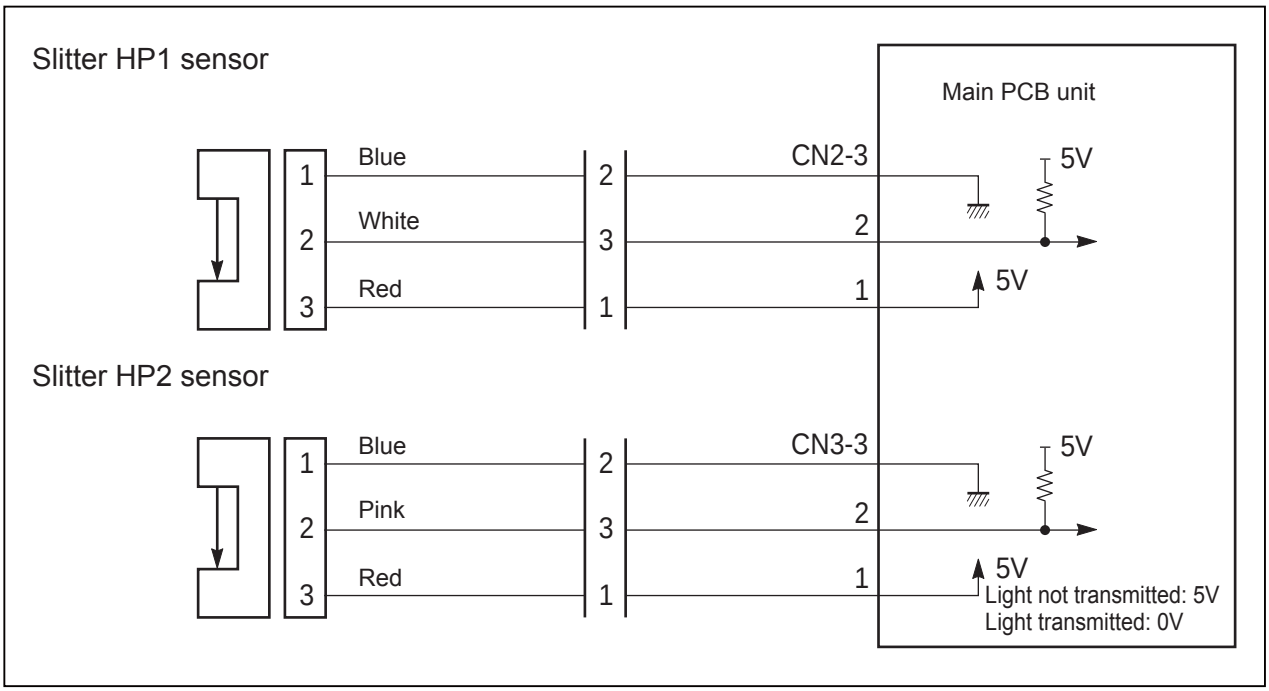
The slitter blades are constructed so that the lower blade of the slitter is tilted relative to the paper feed direction. This makes the upper and lower slitter blades contact at only one point to maintain the clean cut even after the slitter blade has worn out.

4. Operation of Each Part

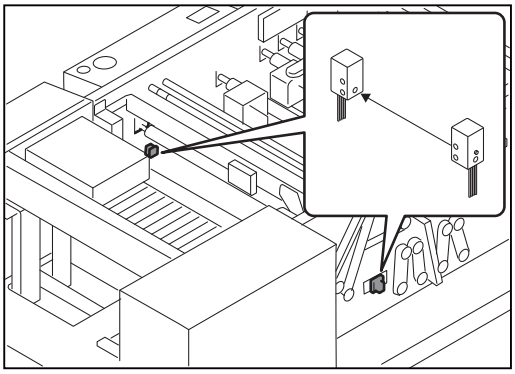
1. Margin Slitter Home Position Sensor
<Operation>
Margin slitter HP sensor detects the home position of the margin slitter by the photo-micro sensor, and controls the margin slitter position based on the amount of pulse from the home position.



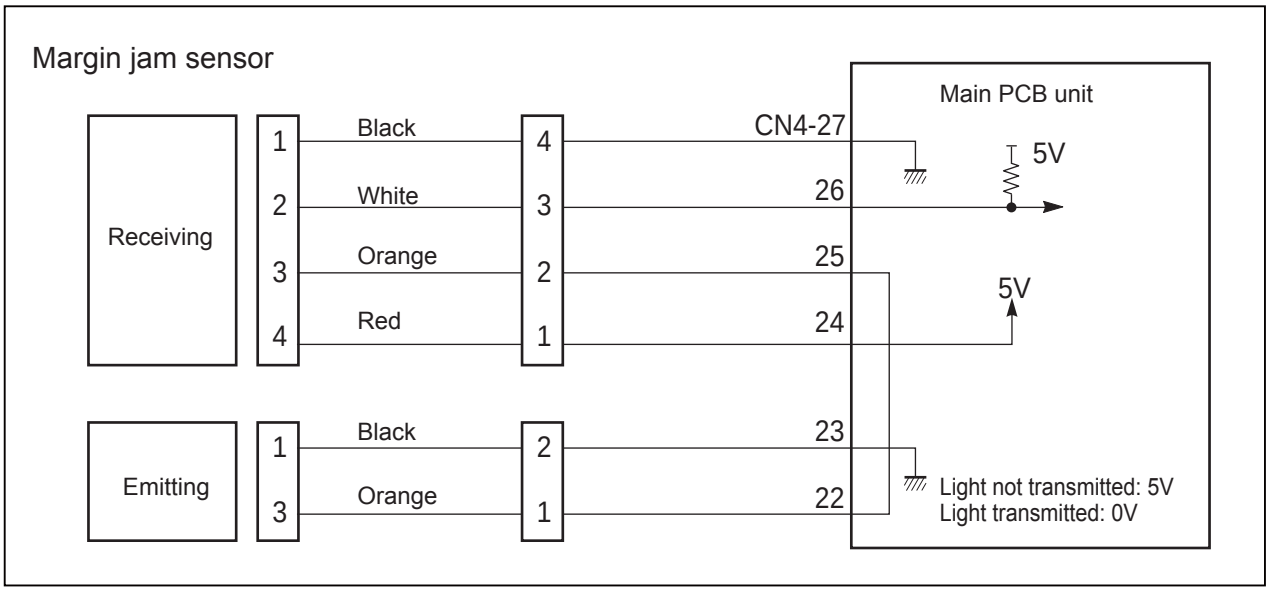
<Circuit diagram>



2. Margin Jam Sensor
<Operation>
The system stops the machine when a sensor cannot detect light for more than fixed period of time during machine runs.



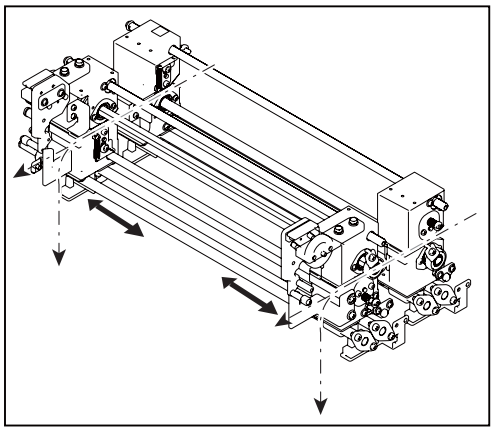
<Circuit diagram>



5 Center Slitter Section

1. Description

Two pairs of center slitters (slitter 3–6) are provided to cut the paper in the traveling direction by mean of the rotary blades arranged vertically side by side.



2. Operation

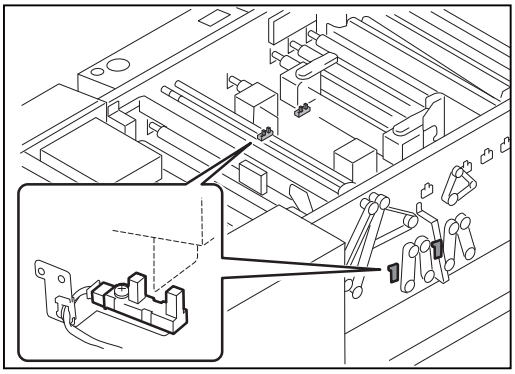
The lead screw is turned by means of the stepping motor to cause the center slitters to move from the home position by the specified amount of pulse.

3. Slitter Blade

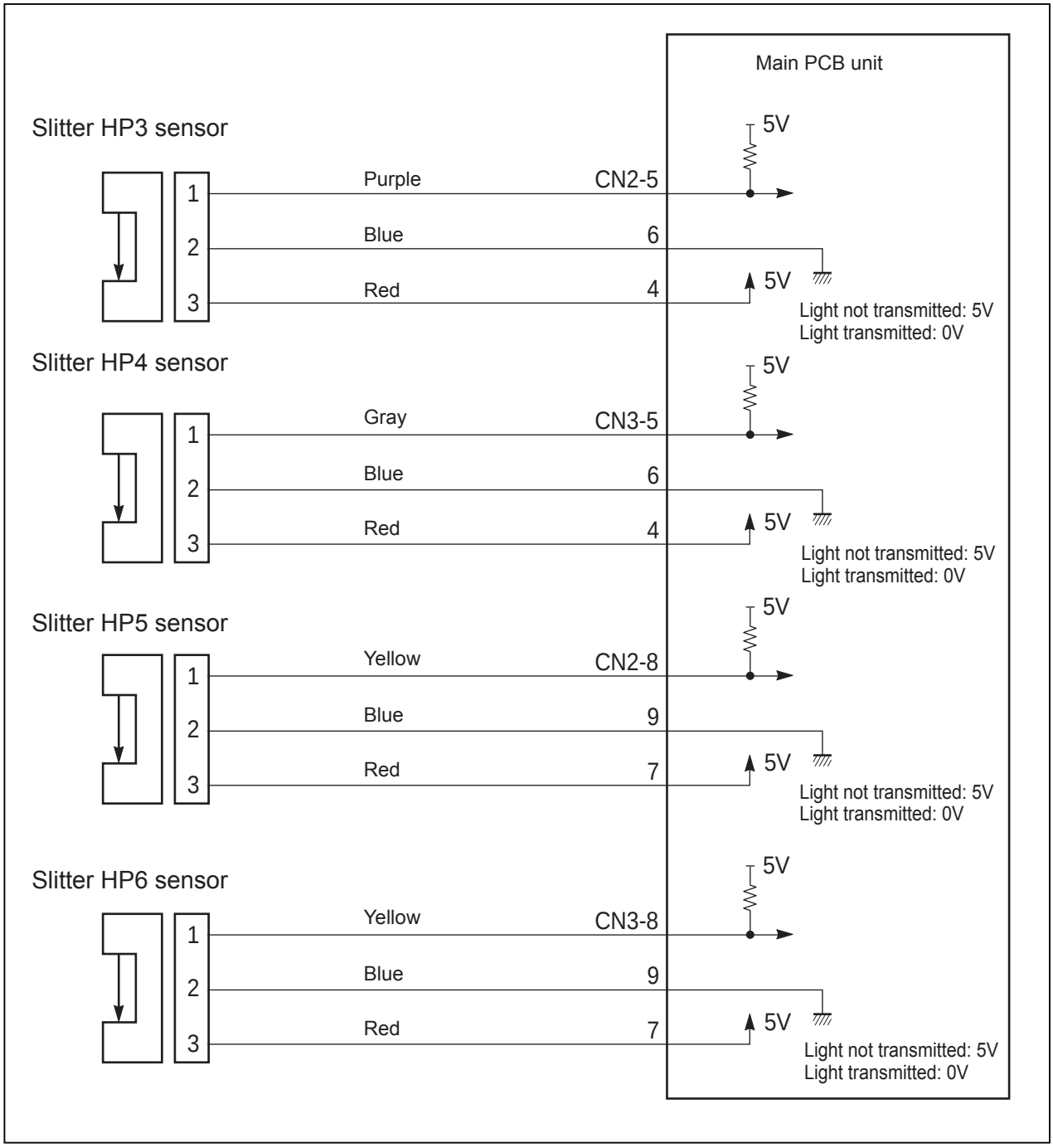
The slitter blades are constructed so that the lower blade of the slitter is tilted relative to the paper feed direction. This makes the upper and lower slitter blades contact at only one point to maintain the clean cut even after the slitter blade has worn out.

4. Operation of Each Part

1. Center Slitter Home Position Sensor
<Operation>
Center slitter HP sensor detects the home position of the center slitter by the photo-micro sensor, and controls the center slitter position based on the amount of pulse from the home position.



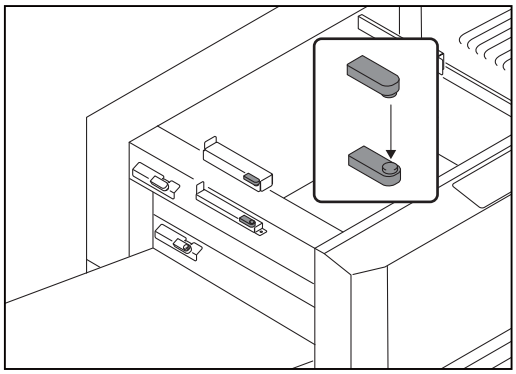
<Circuit diagram>



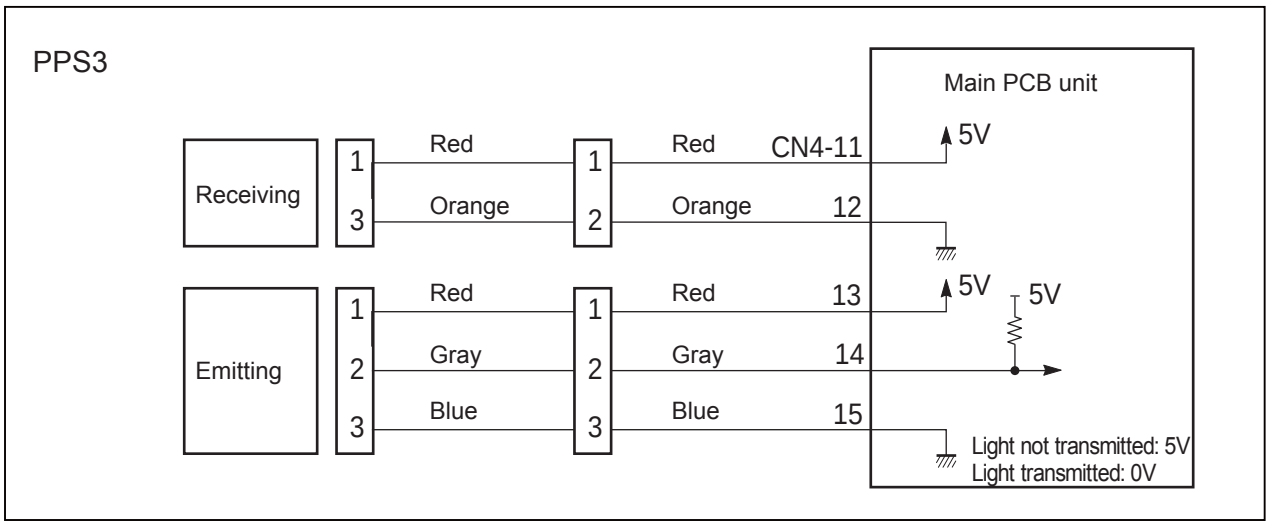
2. PPS3

<Operation>

- PPS detects the presence or non-presence of paper by the “light-through” or the “light-bloced” state of the PPS photo-receiving sensor by means of receiving from the PPS photo-emitting sensor.
- PPS3 detects the passing paper and paper jam in the slitter area.



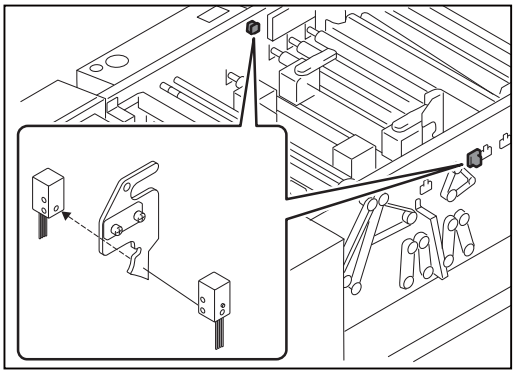
<Circuit diagram>



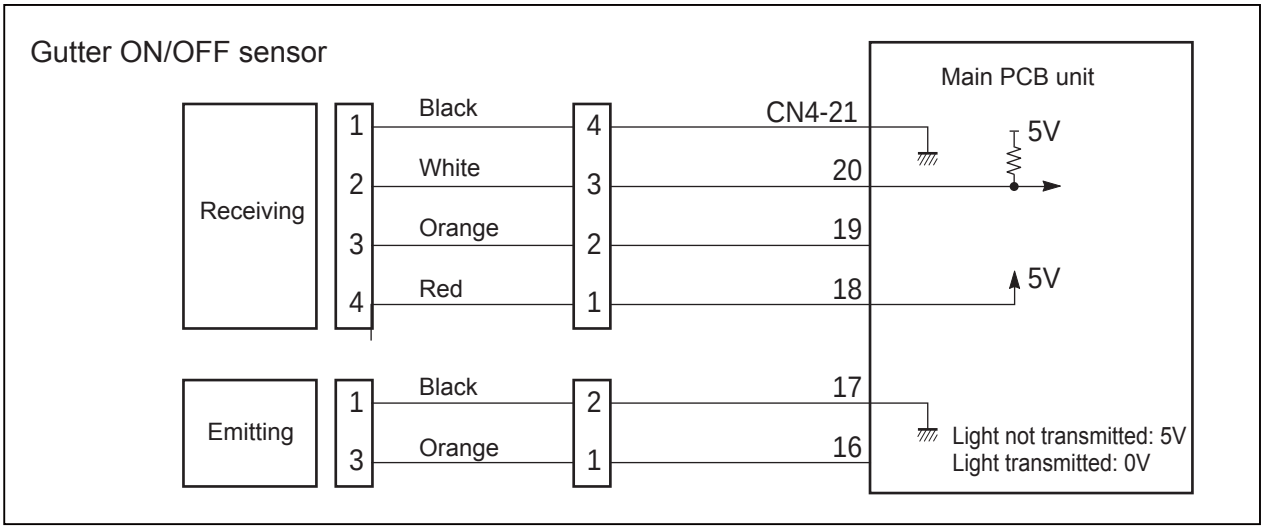
3. Gutter ON/OFF Sensor

<Operation>

The gutter ON/OFF sensor detects the gutter guide position by the photo sensor, and in case the gutter is not needed, “Gutter Released” is displayed.



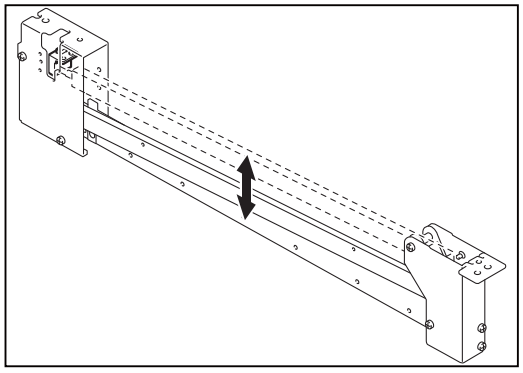
<Circuit diagram>



6 Cutter Section

1. Description

The “Guillotine type” cutter module is provided in which the lower blade is fixed while the upper blade moves up and down to cut the paper perpendicularly to the traveling direction.

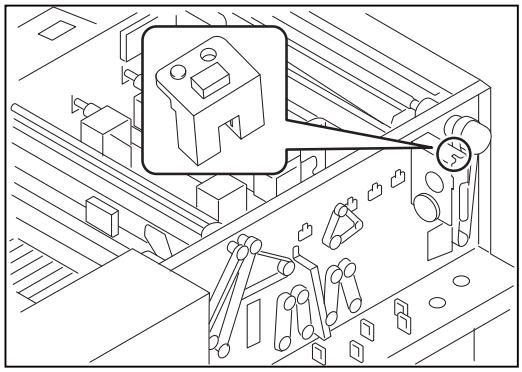


2. Operation

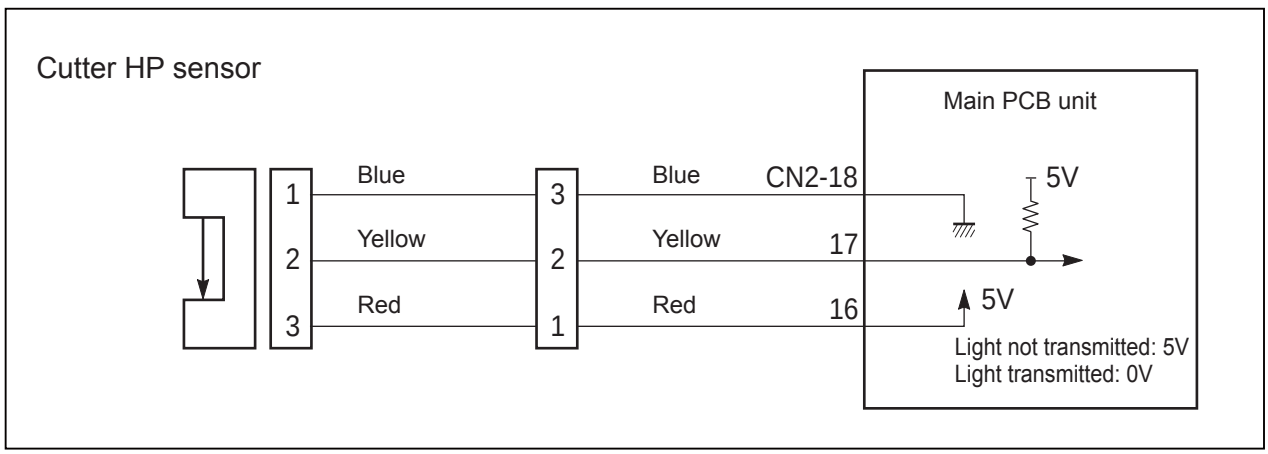
The rotating motion of the DC motor is transformed into the reciprocating motion of the upper blade by means of the eccentric shaft.
A sensor is provided at the top dead center of the blade stroke, which works to apply the brake on the blade movement at every reciprocating cycle to make it stop.

3. Operation of Each Part

1. Cutter Home Position Sensor
<Operation>
Cutter HP sensor detects the blade positions by sensing the light-blocking plate linked to the movement of rotary blade by means of the photo-micro sensor.



<Circuit diagram>

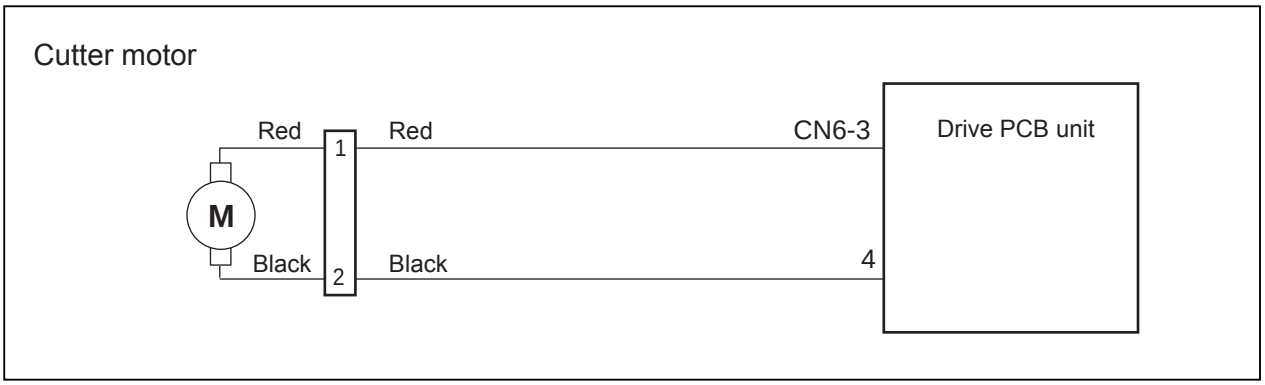


2. Cutter Motor

<Operation>

Cutter motor controls the upper blade up and down operation.

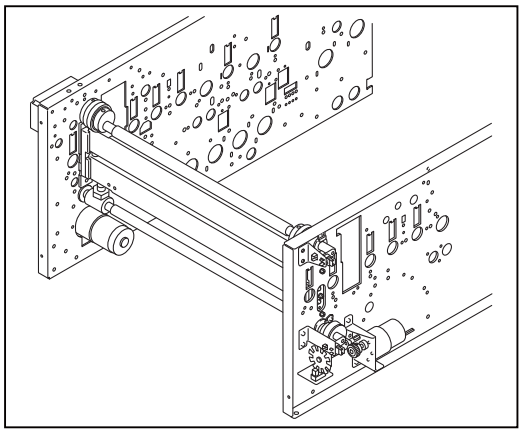
<Circuit diagram>



7 Creaser Section

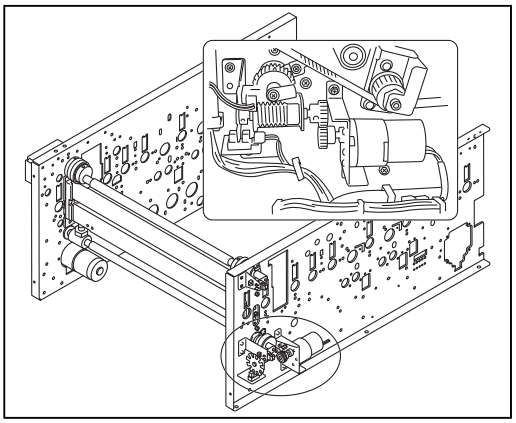
1. Description

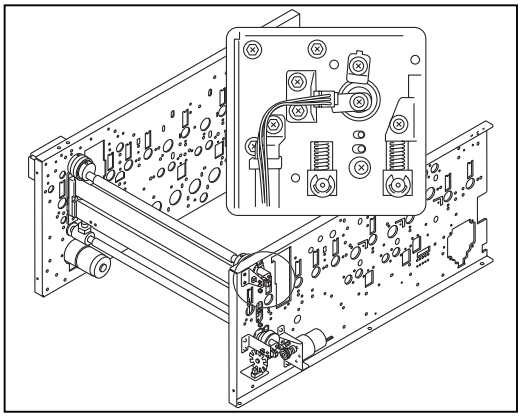
Creaser module contains the lower blade having a concave (recessed) section and the upper blade having a convex (projected) section. The creaser unit works to crease the paper perpendicularly to its traveling direction.



2. Operation

The sensor plate provided coaxially with the cam detects the top dead center of the upper blade to control the DC motor. The lower blade also can move up and down by a cam. The height of the lower blade is set by the DC motor with an encoder, and is specified relative to the lower blade's bottom dead center at which the sensor plate is provided. The crease depth is determined in this way.





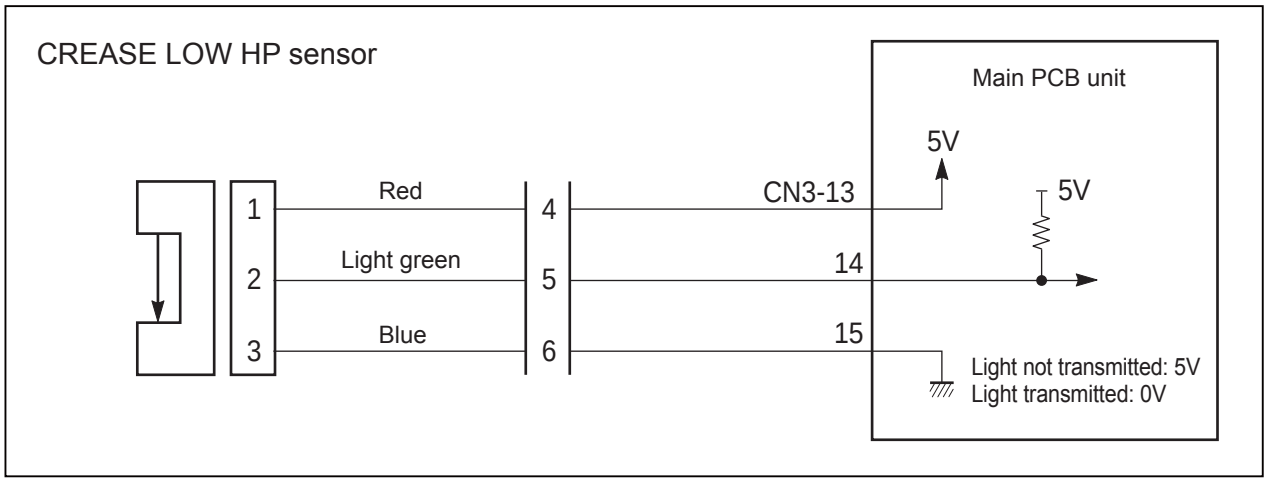
3. Operation of Each Part

1. Crease Lower Blade Home Position Sensor

<Operation>

This sensor detects the crease home position by sensing the sensor plate attached to the eccentric shaft by means of the photo-micro sensor.

<Circuit diagram>

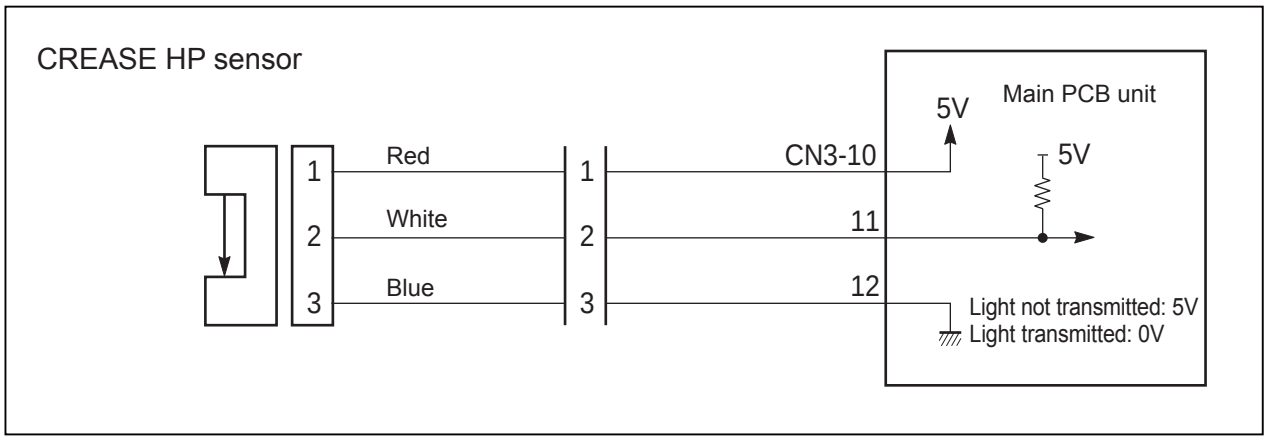


2. Crease Home Position Sensor

<Operation>

This sensor detects the crease home position by sensing the sensor plate attached to the eccentric shaft by means of the photo-micro sensor.

<Circuit diagram>

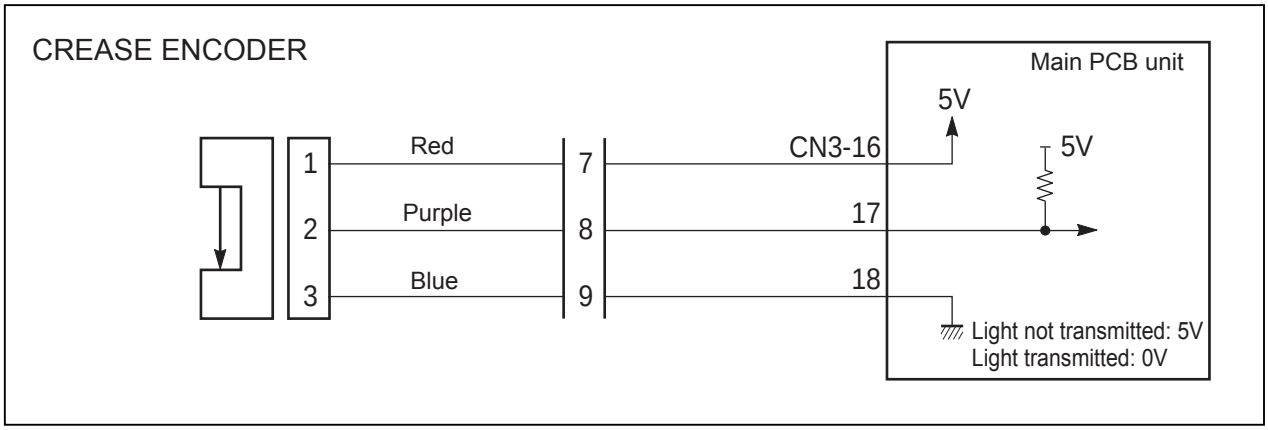


3. Creaser Lower Blade Encoder Sensor

<Operation>

Creaser lower blade encoder sensor adjusts the crease depth in three levels from the lower limit position by reading out the encoder attached to the crease depth adjustment motor by means of the photo-micro sensor.

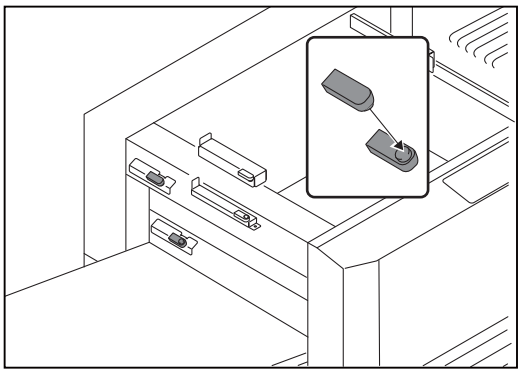
<Circuit diagram>



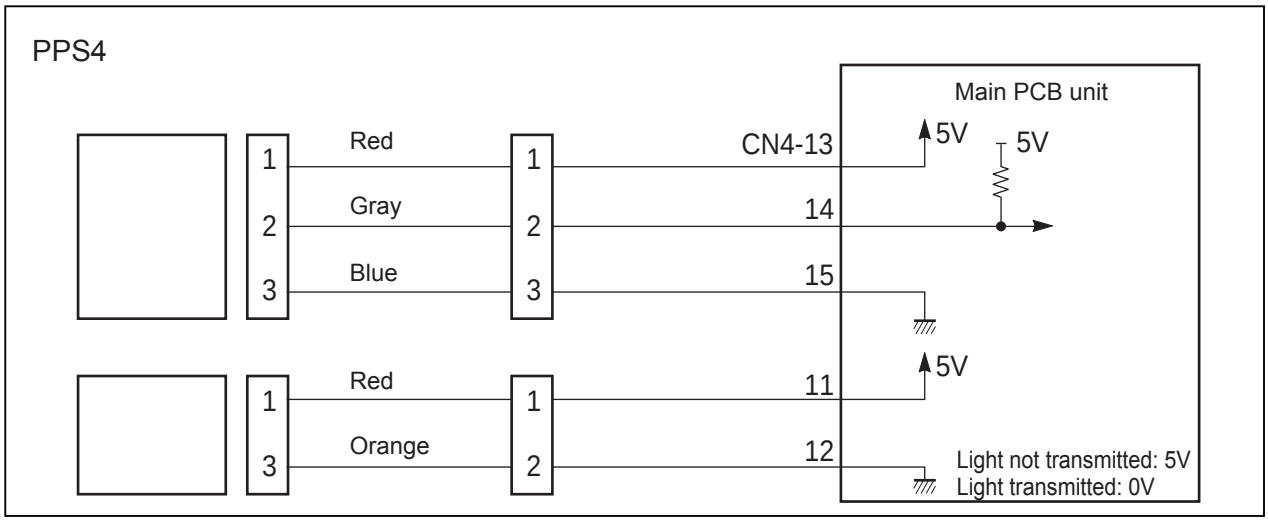
4. PPS4

<Operation>

The light from the PPS photo-emitting PCB is received by the PPS photo-detecting PCB. The presence or non-presence of the paper is determined by the receiving amount.
PPS4 detects the passing paper and paper jam in the cutter and crease areas.

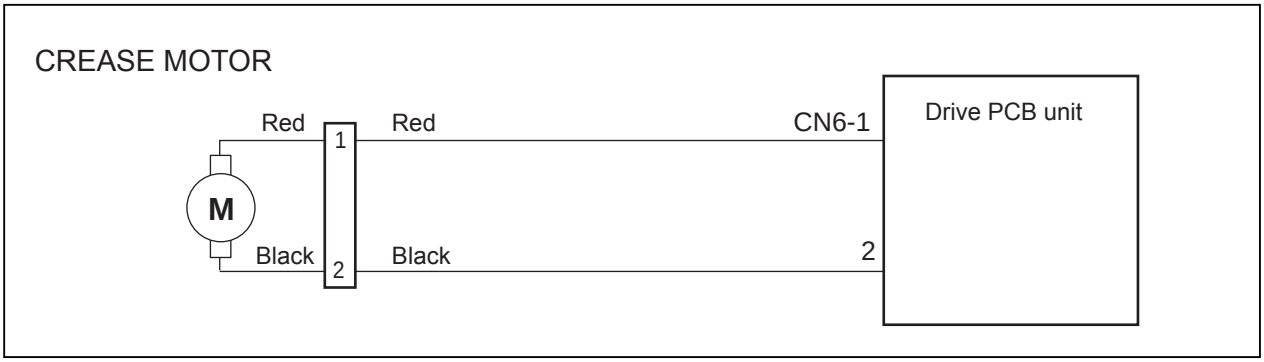


<Circuit diagram>



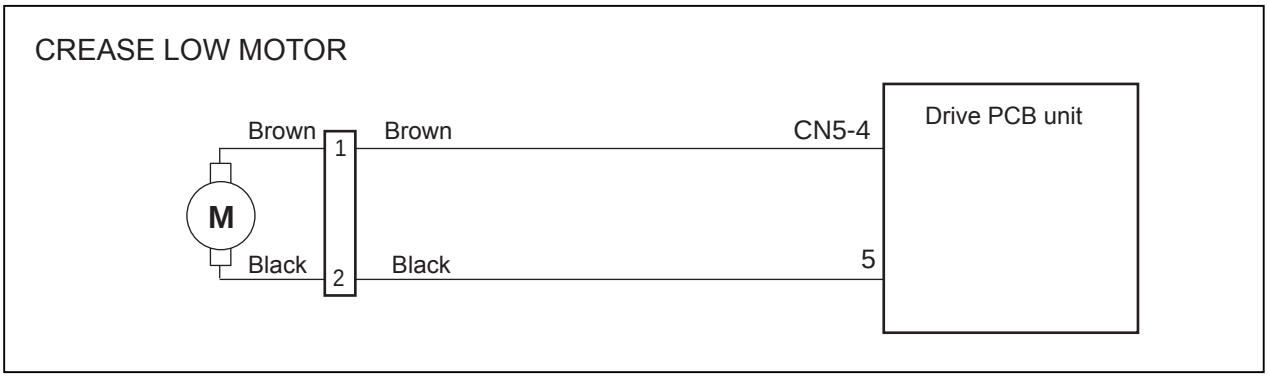
5. Crease Motor
<Operation>
Crease motor controls the crease upper blade up and down operation.

<Circuit diagram>



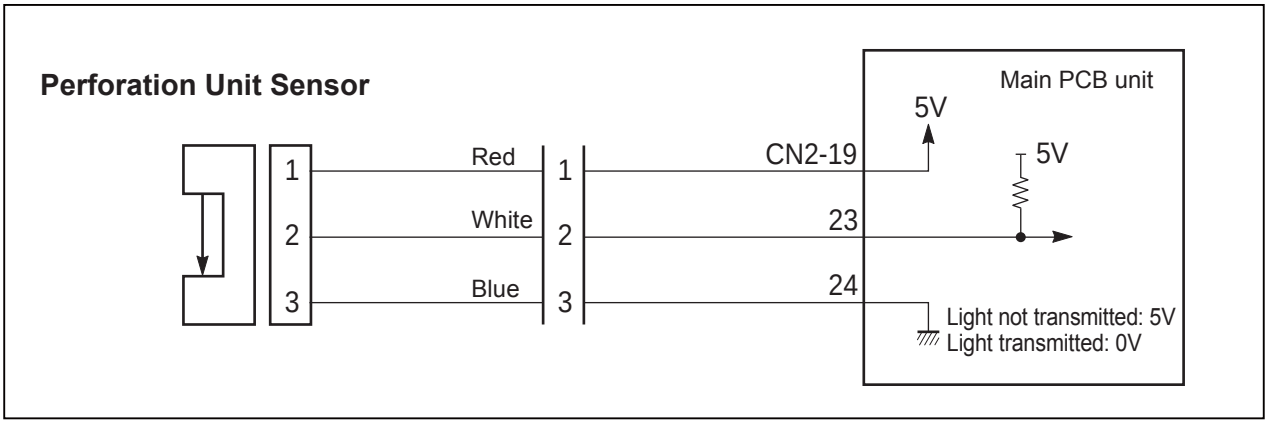
6. Crease Low Motor
<Operation>
Crease low motor rotates the encoder attached in the crease lower motor to adjust the crease depth in three steps.

<Circuit diagram>



7. Perforation Unit Sensor
<Operation>
Perforation unit sensor detects whether the perforation unit is installed or not.

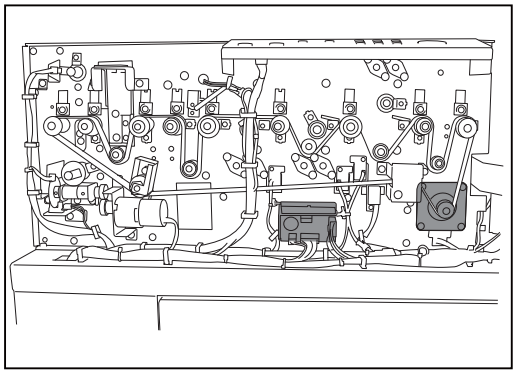
<Circuit diagram>

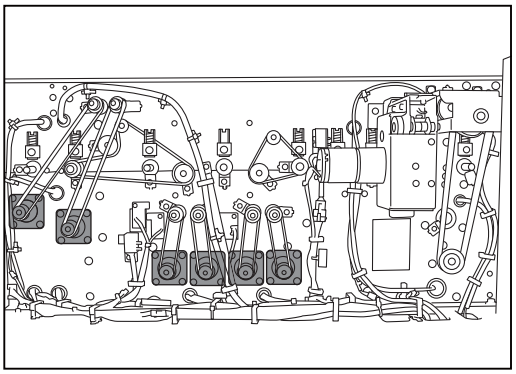


8 Main Drive Section

1. Description

Stepping motors are used for activating components related to the paper cutting dimensions, paper transfer, each slitter, transversal position of the gutter. The movement of other DC motors are also controlled by the encoder attached to the motor as required.

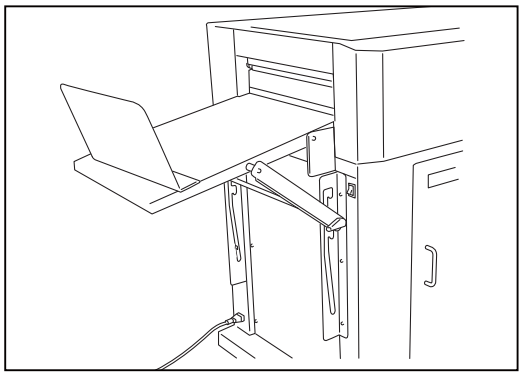




9 Exit Tray

1. Description

Exit tray is for receiving the finished paper discharged from the machine.
The exit tray can be set at four different heights.
Normally the tray is set at the middle height position.
Upper position is to install the Card Stacker.
Lower position is for the papers with strong static electricity.



10 Exterior

1. Description

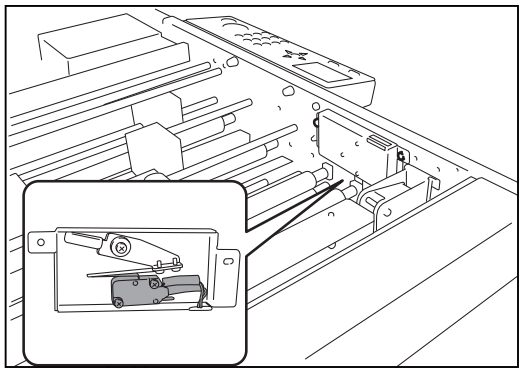
Exterior section detects the opening and closing of each cover. The machine stops immediately when the cover is opened during operations.

2. Operation

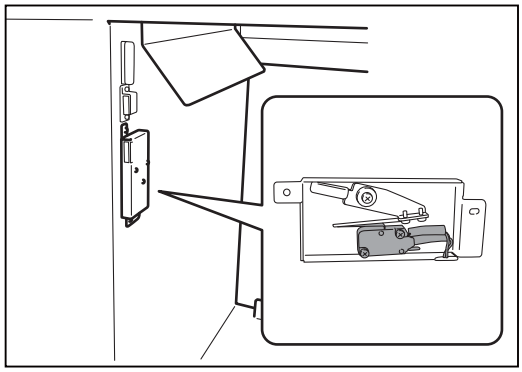
The machine stops immediately when opening of the cover is detected during operations.

3. Operation of Each Part

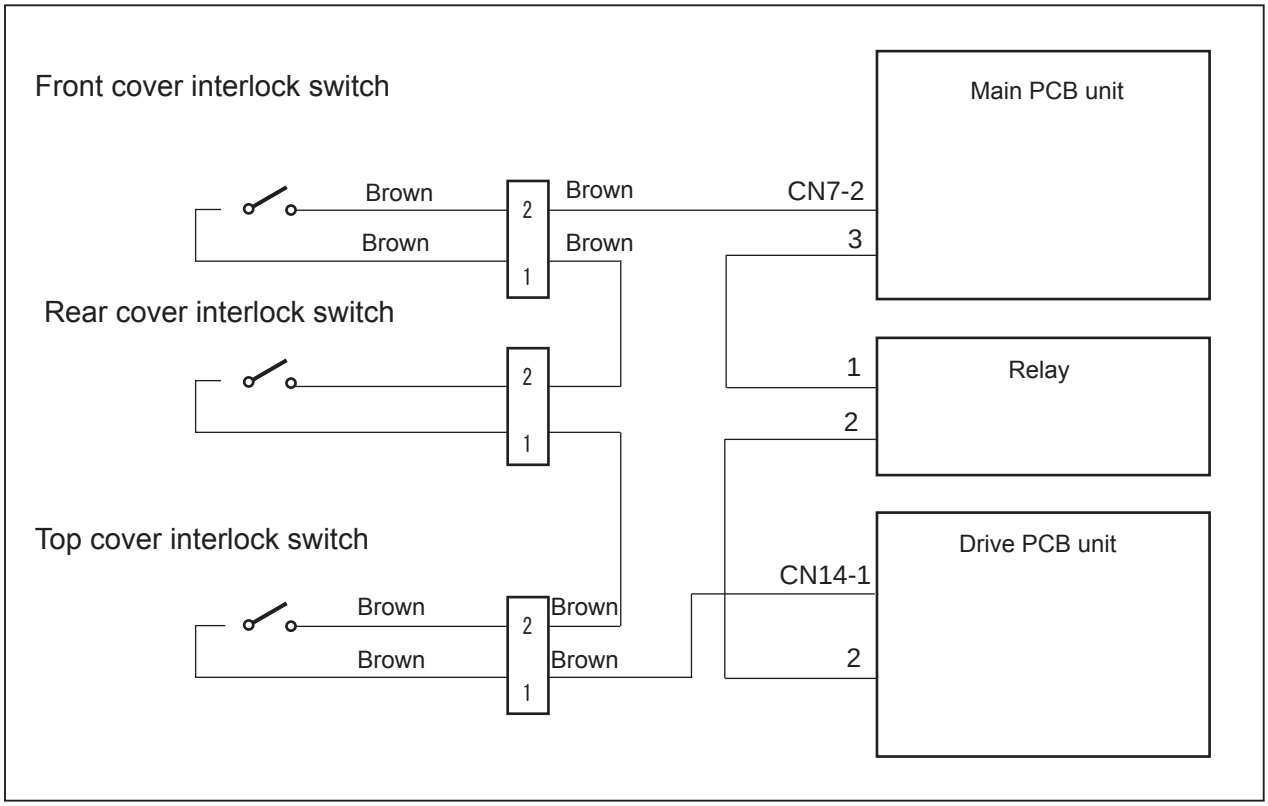
1. Top Cover Interlock Switch
<Operation>
Top cover interlock switch detects the opening and closing of the top cover. The machine stops immediately when the cover is opened during operations.
When the cover is closed, the cover presses the switch.
When the cover is opened, the cover is off the switch.



2. Front Cover Interlock Switch
<Operation>
Front cover interlock switch detects the opening and closing of the front cover. The machine stops immediately when the cover is opened during operations.
When the cover is closed, the cover presses the switch.
When the cover is opened, the cover is off the switch.

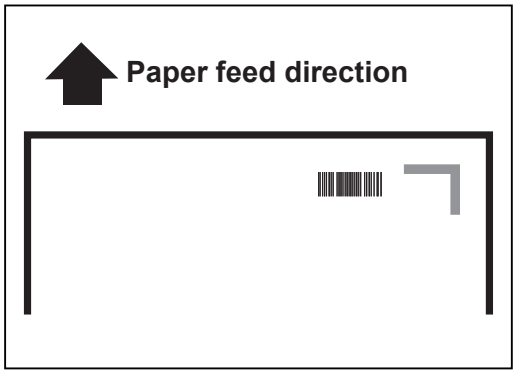


<Circuit diagram>



11 Barcode

1. Description



By adding barcode which indicates job number on each document, DC-616 automatically set up the machine and start the job. Operator can press the START key and leave. Even if multiple types of jobs are loaded on the feed tray at one time, DC-616 recognizes barcode on documents also with the built-in CCD reading and automatically switch setup and finish the jobs.
To use this function, each documents must have BARCODE printed on them. Please refer to following instructions for specifications and position of BARCODE.

1. Specifications
Barcode type : CODE-39
Start and Stop code : Required
Minimum resolving power : 0.254 mm
Thin bar: Thick bar : 1: 2.5
Bar height : 4 mm or more

Use barcode generator function equipped on your software application or use barcode generator software.

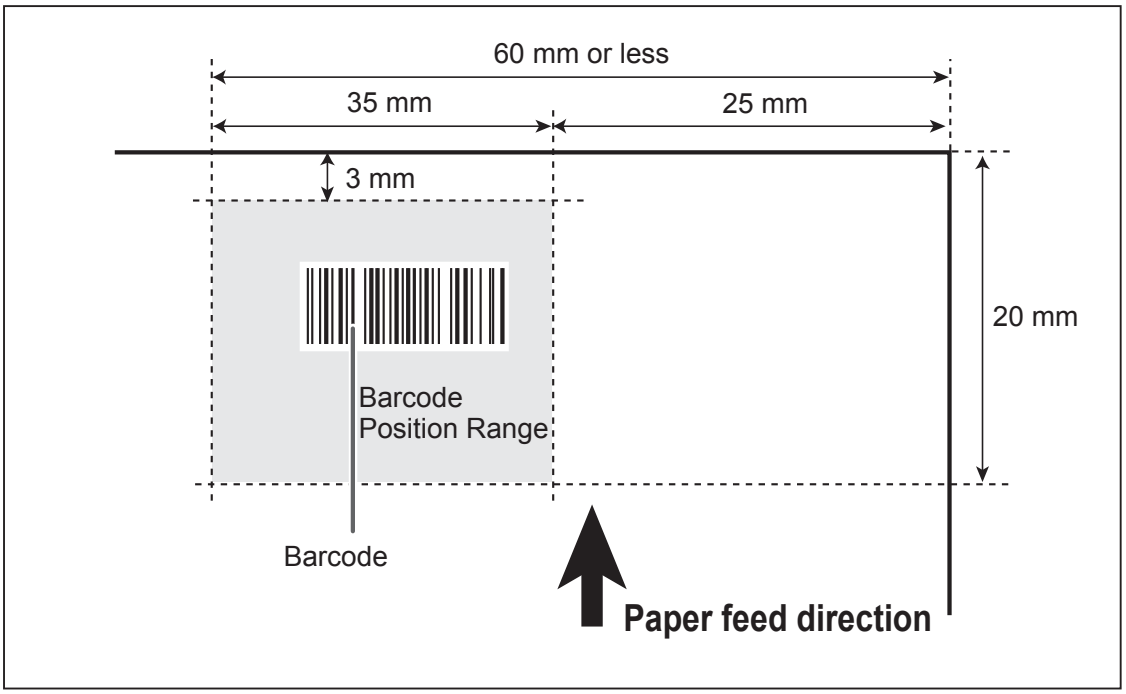
REFERENCE
Barcode may not be read even it is within the specifications depending on the print quality of printer and document type. If this is the case, enlarging the barcode may enable it to be read.

2. Position of barcode

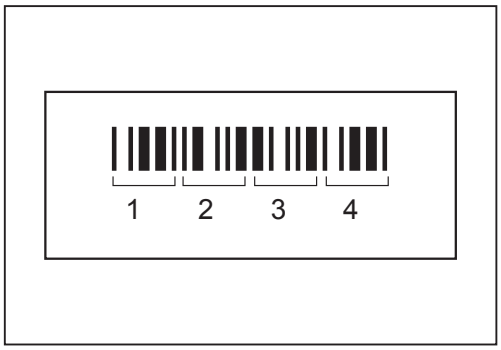
Paper feed direction: The whole BARCODE should be within 3 to 20 mm from the lead edge.

Paper width direction: The whole BARCODE should be within 25 to 60 mm from the right edge.

* Here is the example barcode: CODE39 (*21*).
(See below)

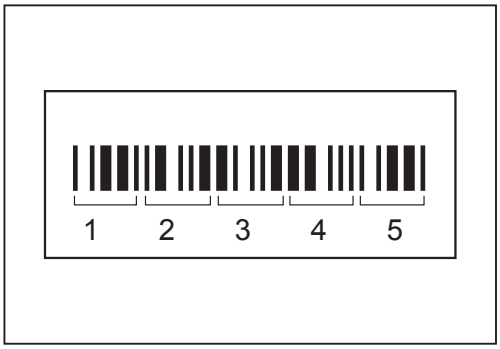


1. is the start code designator for CODE-39. (*)
2. is the 10's digit data of the JOB number.
   (Example: When the JOB number is 21, the data is "2".)
3. is the 1's digit data of the JOB number.
   (Example: When the JOB number is 21, the data is "1".)
4. is stop code of CODE-39. (*)



3. Position of check digit

Modulus43 is the calculational procedure of check digit specified for CODE39. Each of 43 character types available to CODE39 are allocated each Numeric Number to be calculated after converting them to the numeric number. Here is the example calculation of check digit (*21*) in CODE39.



1. is the start code designator for CODE-39. (*)
2. is the 10's digit data of the JOB number.
   (Example: When the JOB number is 21, the data is 2".)
3. is the 1's digit data of the JOB number.
   (Example: When the JOB number is 21, the data is 1".)
4. is stop code of CODE-39. (*)

4. Calculation procedure of check digit

1. Convert all the data characters to the numeric number referring the table 1.
   (Except start '*' and stop '*' code.) 21→2,1

2. Add the each converted number.
   2 + 1 = 3
3. Divide the number of calculated in step 2 by 43, and find out the remainder.
   3÷43 = Remainder 3

4. Convert the remainder 3 calculated in step 3 to the character referring the table 1.
   3→3

Therefore, the check digit is 3, and the data will be 213*'.

Table 1 Modulus43 Check Digit Calculation List

Character	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
Value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

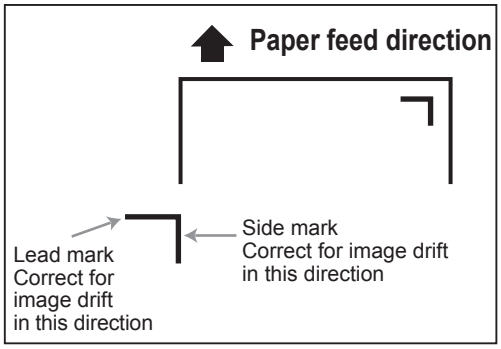
Character	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Value	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

Character	U	V	W	X	Y	Z	-	•		$	/	+	%
Value	30	31	32	33	34	35	36	37	38	39	40	41	42

12 REG Mark

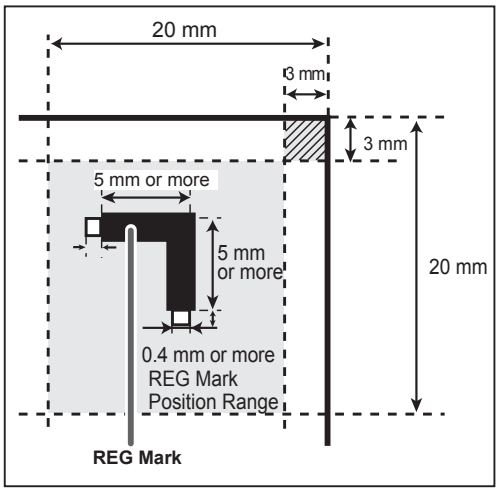
1. Description

DC-616 automatically compensate for image drift, one of the common problems on digital printers. It detects the image drift caused on each page by reading REG mark with built-in CCD and adjust the cut/slit/crease position accordingly.
To use this function, each documents must have REG mark printed on them. Please refer to following instructions for specifications and position of REG mark.



1. Specifications

REG mark consists of two straight and perpendicular lines.
Line length: 5 mm or more / each
Line thickness: 0.4 mm or more / each
Use pen tool etc. of your software application to draw 2 straight and perpendicular lines.

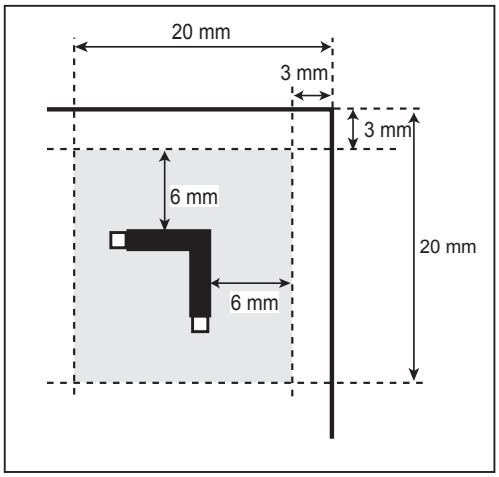


2. Position

Paper feed direction: The whole REG mark should be within 3 to 20 mm from the lead edge.
Paper width direction: The whole REG mark should be within 3 to 20 mm from the right edge.

REFERENCE

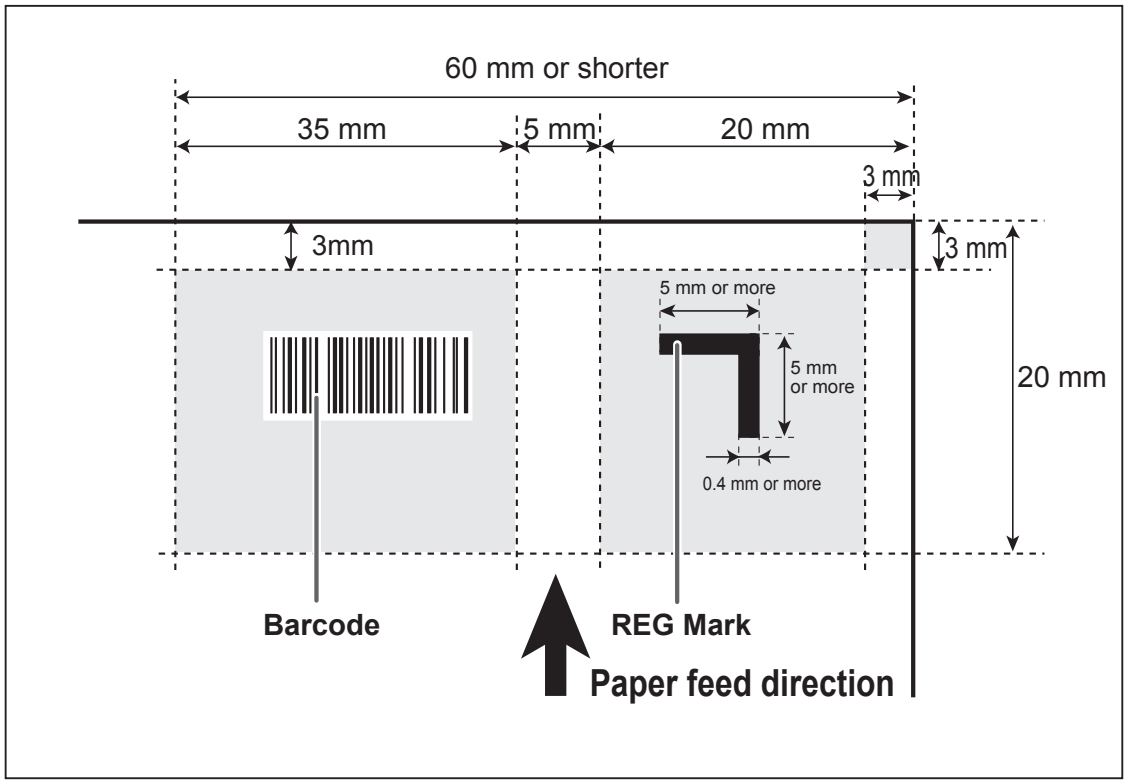
Right figure shows optimum position of REG mark.



IMPORTANT

When there are scratches or stains in the printing range of the REG mark, the position may not be corrected.
When the read side of the document is rough and glossy, the CCD scanner may not be able to read REG mark and barcode. (The document may diffusely reflect light.)

3. Printing both REG mark and barcode

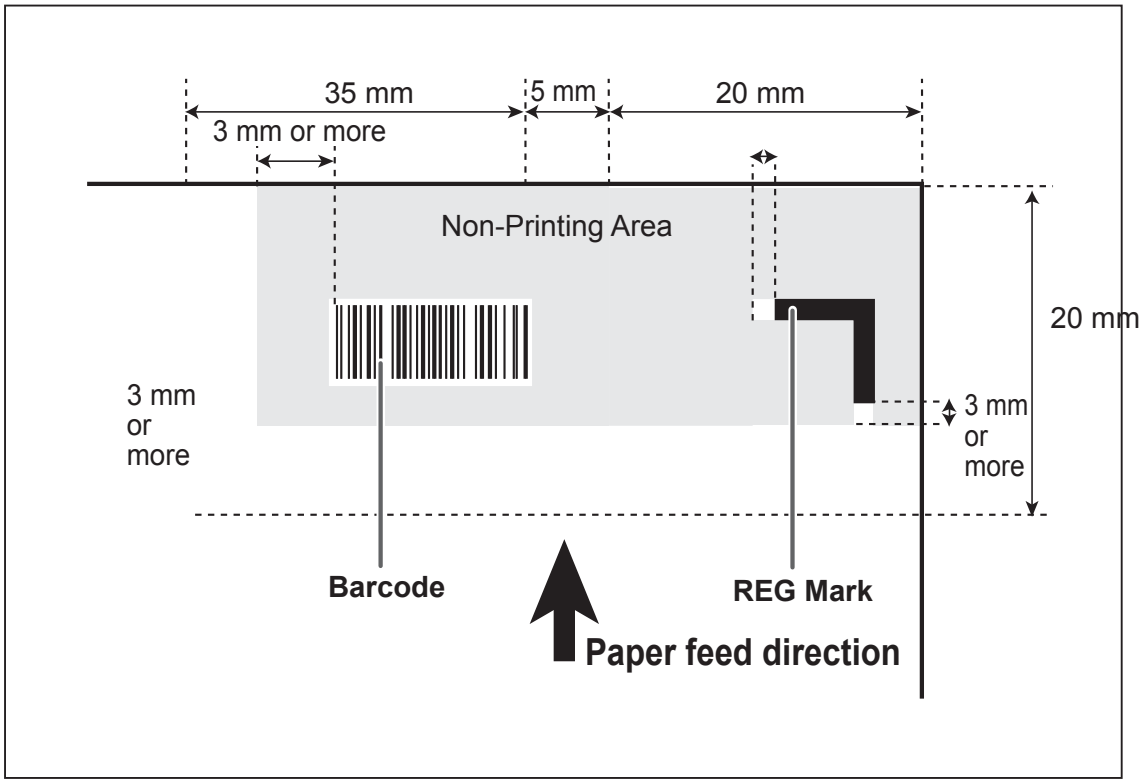


IMPORTANT

REG marks or barcodes located out of the specified printing area cannot be detected properly by DC-616.

Take account of the possible variation in the printed position of REG marks and barcodes when they are arranged on the paper.

4. Non-printable area for REG marks and barcodes



IMPORTANT

- Any part of the image to be printed shall not enter into the gray-colored area.
- No other printings than REG mark and barcode shall enter into the gray-colored area.

Chapter 3 Mechanism

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⚠ CAUTION

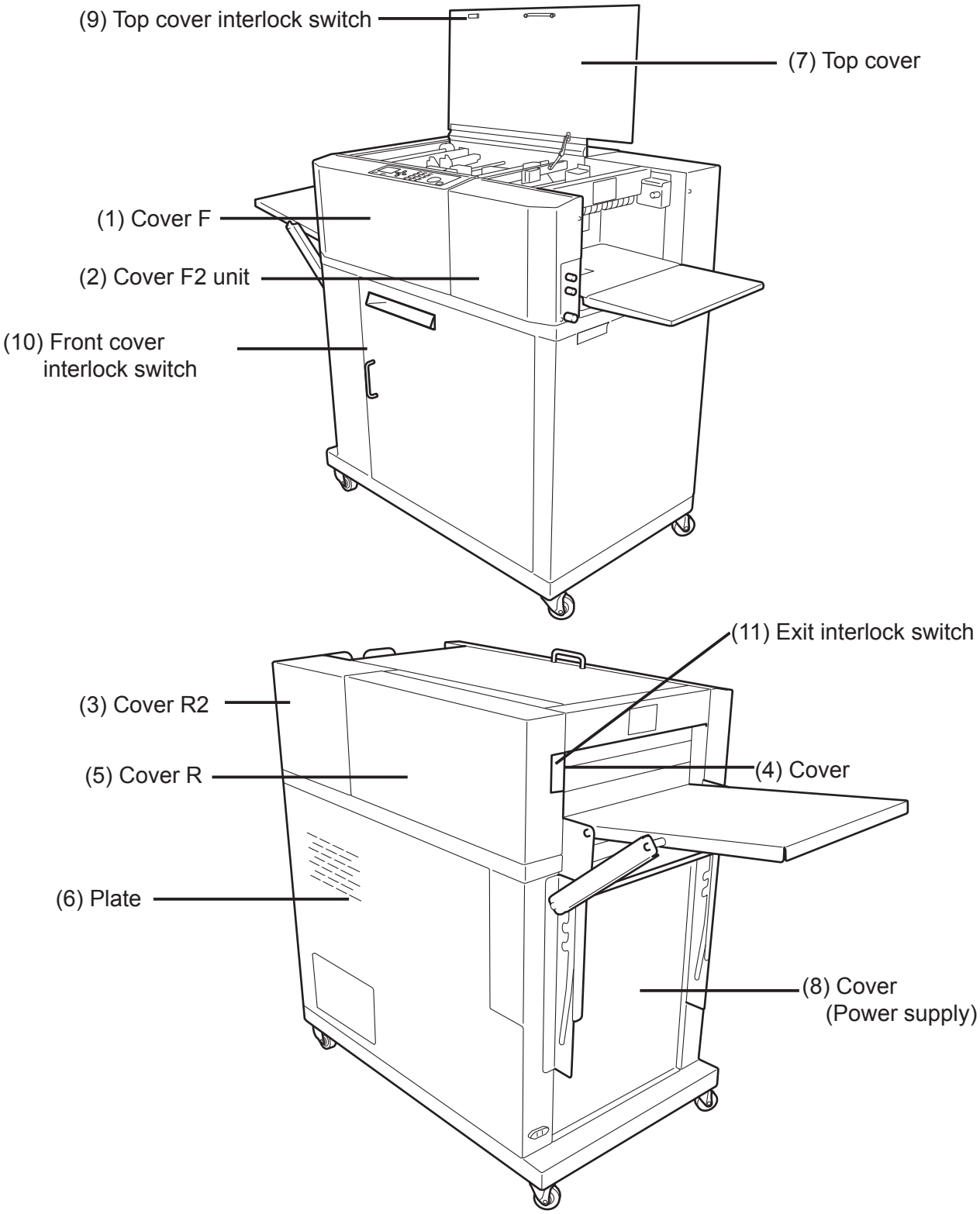
•Always remove the power cord plug from the outlet before starting work.

•Cautions Regarding Disassembly and Assembly

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

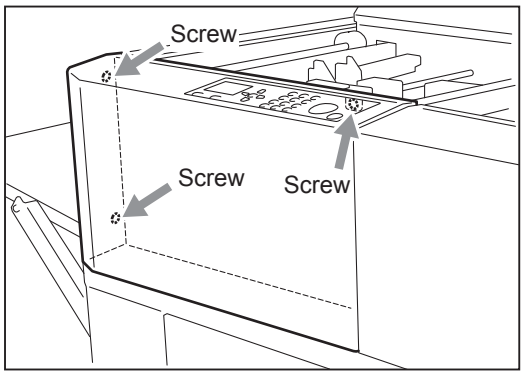
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1 Exterior of the Machine



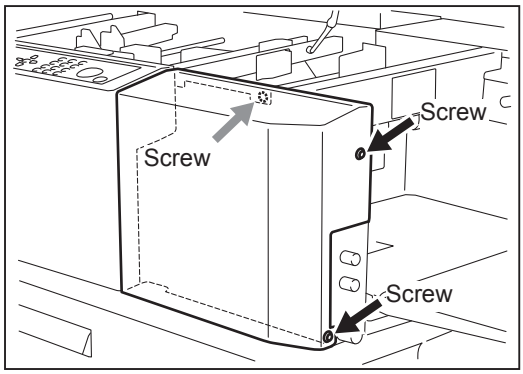
(1) Removing the Cover F (on control panel side)

1. Open the top cover.
2. Take out the three screws, and remove the cover F.



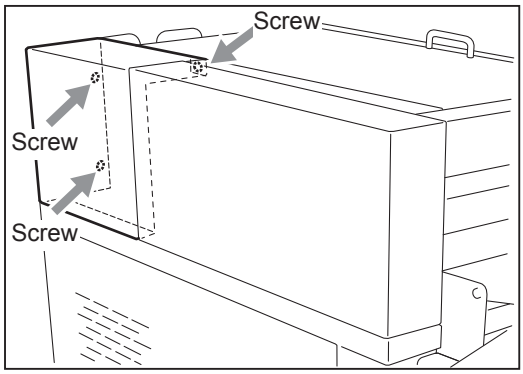
(2) Removing the Cover F2 Unit (on control panel side)

1. Open the top cover.
2. Remove the cover F.
3. Take out the three screws, and remove the cover F2 unit.



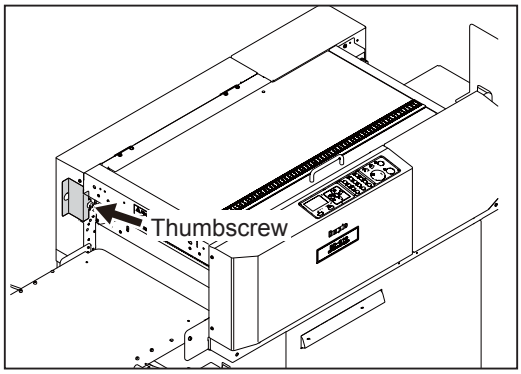
(3) Removing the Cover R2

1. Open the top cover.
2. Take out the three screws, and remove the cover R2 unit.



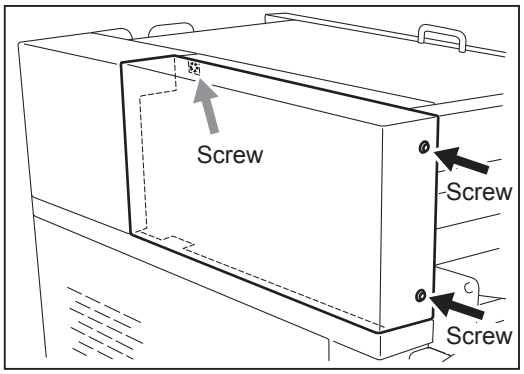
(4) Removing the Cover

1. Loosen the thumbscrew, and remove the cover.



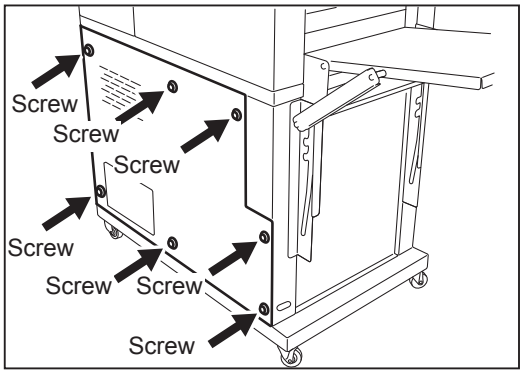
(5) Removing the Cover R

1. Open the top cover.
2. Take out the three screws, and remove the cover R.



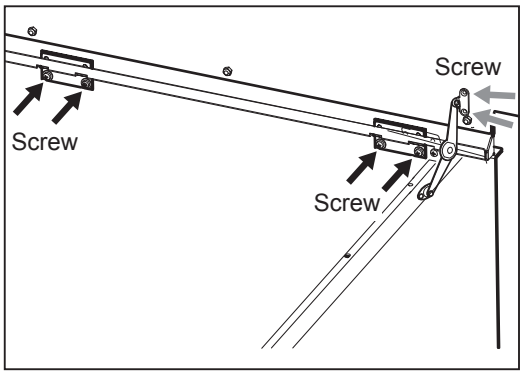
(6) Removing the Plate

1. Take out the seven screws, and remove the plate.



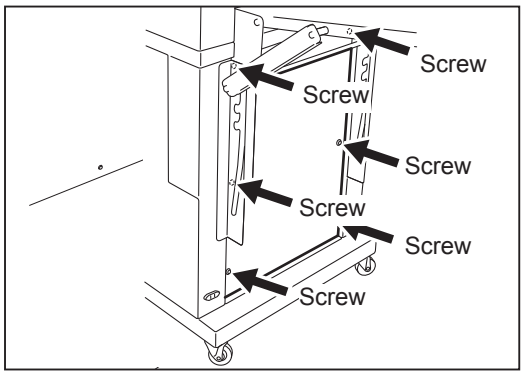
(7) Removing the Top Cover

1. Open the top cover.
2. Take out the two screws and the screw plate, and remove the hinge.
3. Take out the two screws (each), and remove the top cover with the hinges (two places).



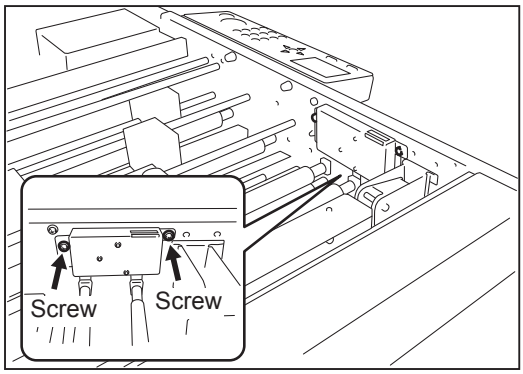
(8) Removing the Cover (Power supply)

1. Take out the six screws, and pull out the cover.
   * Be sure to work with thepower cord removed.



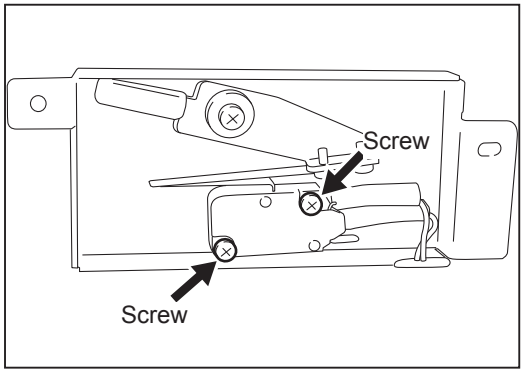
(9) Removing the Top Cover Interlock Switch

1. Open the top cover.
2. Take out the two screws, and remove the micro switch with the bracket.



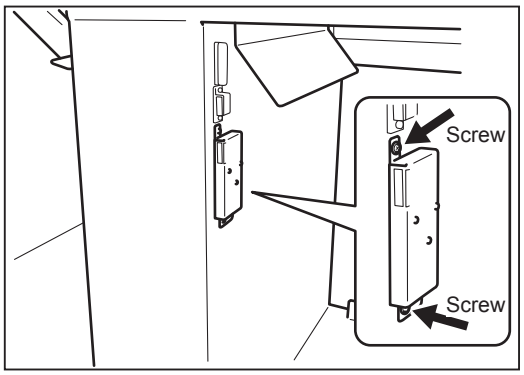
3. Disconnect the connector.
4. Take out the two screws, and remove the micro switch.
   * After the installation, adjust the interlock switch.

(See→P.103)

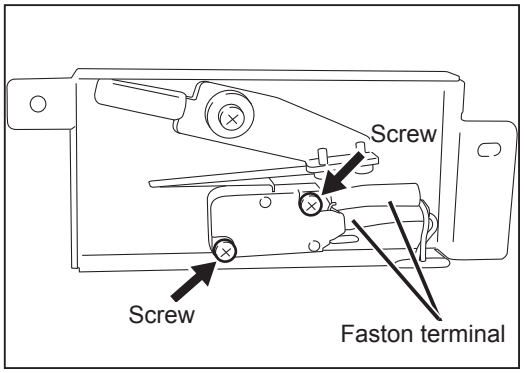


(10) Removing the Front Cover Interlock Switch

1. Open the front cover.
2. Take out the two screws, and remove the front cover interlock switch with the bracket.



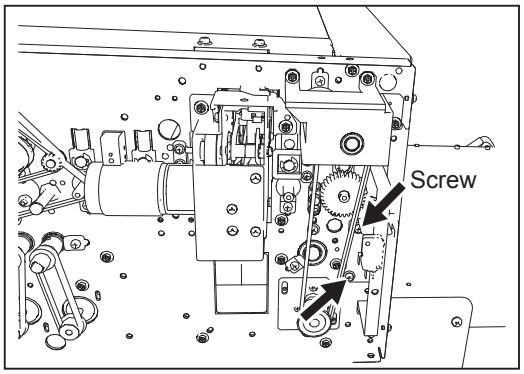
3. Remove the two faston terminals.
4. Take out the two screws, and remove the switch.



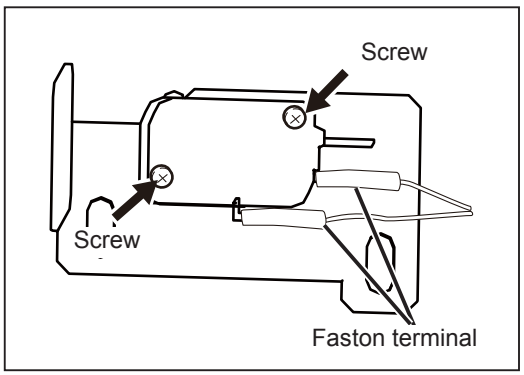
* After the installation, adjust the interlock switch.
(See→P.100)

(11) Removing the Exit Interlock Switch

1. Open the Top cover.
2. Take out the three screws, and remove the cover R.
3. Take out the two screws, and remove the exit interlock switch with the bracket.



4. Remove the two faston terminals.
5. Take out the two screws, and remove the switch.

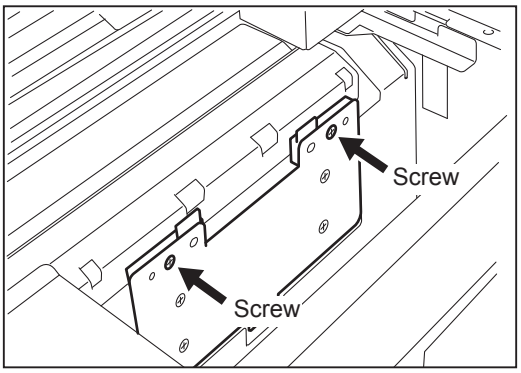


* After the installation, adjust the interlock switch.
(See→P.100)

2 Paper Feed Section

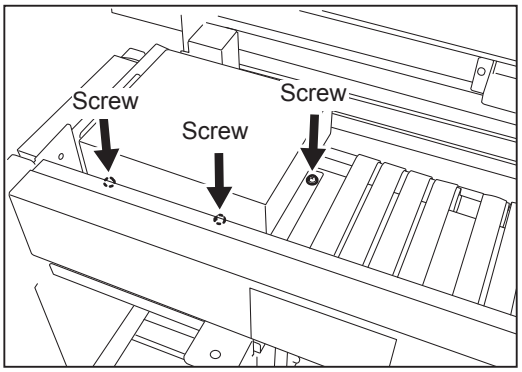
(1) Removing the Paper Separation Plate

1. Take out the two screws, and remove the paper separation plate with the unit.

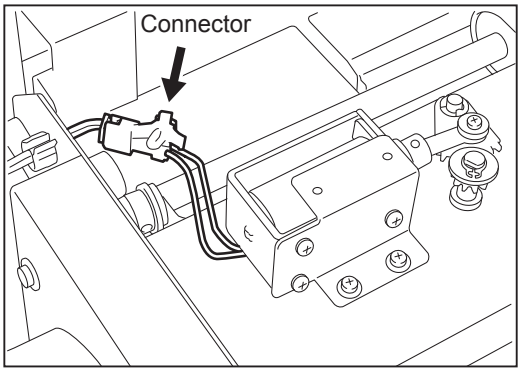


(2) Removing the Belt Suction Unit

1. Open the top cover.
2. Remove the cover F2 unit. (See→P.52)
3. Remove the feed motor connector and the suction fan connector. (See→P.58)
4. Take out the three screws, and remove the shutter solenoid cover.

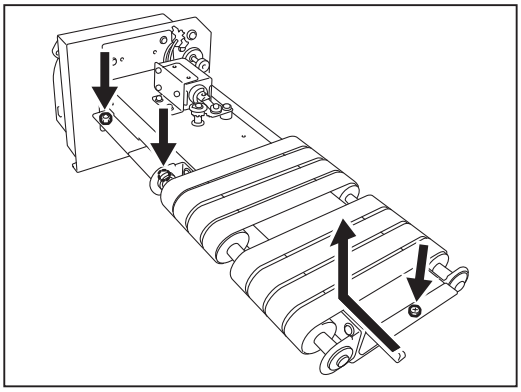


5. Disconnect the shutter solenoid connector.



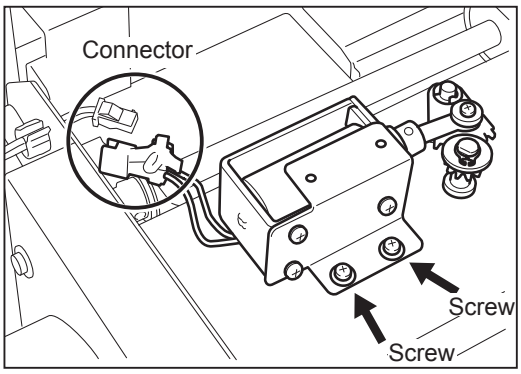
6. Take out the two nuts and one screw, and remove the belt suction unit.

   * After the installation, perform the unit operation check in HELP Mode: 19.
   (HELP Mode : 19→P.143)

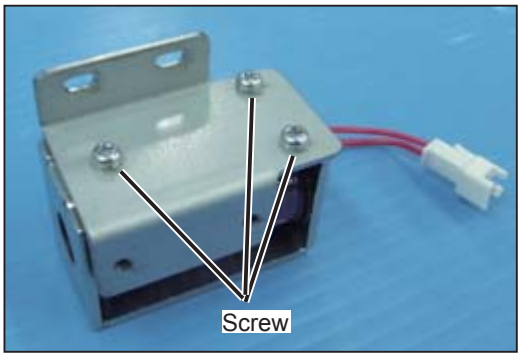


● Removing the Shutter Solenoid

1. Disconnect the connector.
2. Take out the two screws, and remove the shutter solenoid with the bracket.

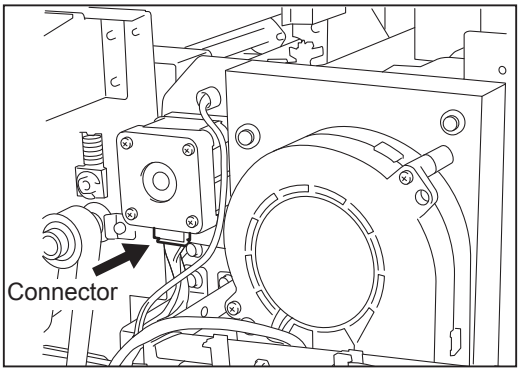


3. Take out the two screws, and remove the shutter solenoid.



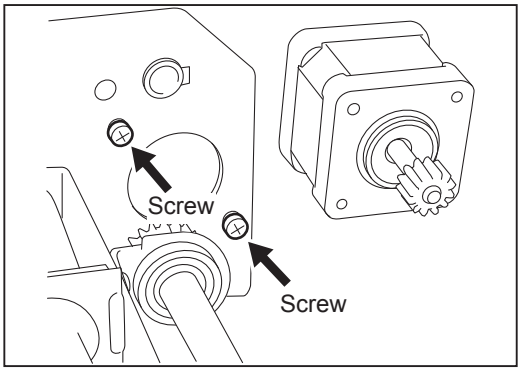
(3) Removing the Feed Motor

1. Open the top cover.
2. Remove the cover F2 unit. (See→P.52)
3. Disconnect the connector from the motor.
4. Remove the belt suction unit. (See→P.56)



5. Take out the two screws, and remove the feed motor.
   * After the installation, perform the motor operation check in HELP Mode: 19.

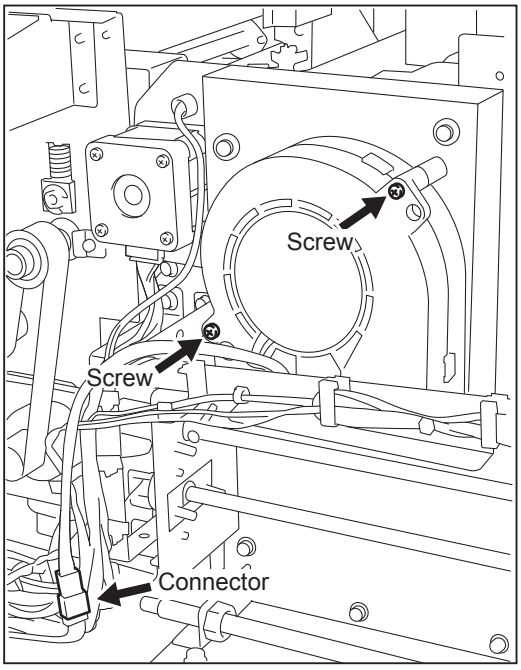
   (HELP Mode : 19→P.143)



(4) Removing the Suction Fan

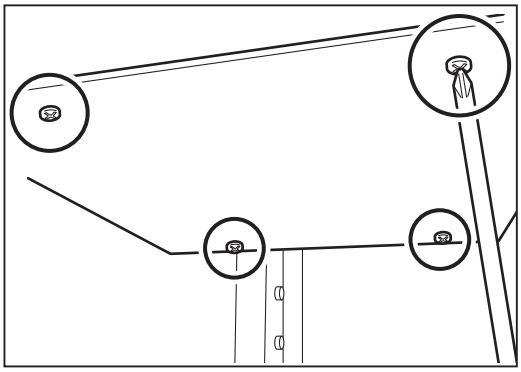
1. Remove the cover F2 unit. (See→P.52)
2. Disconnect the fan motor connector.
3. Take out the two screws, and remove the suction fan.
   * After the installation, perform the fan motor operation check in HELP Mode: 18.

   (HELP Mode : 18→P.142)

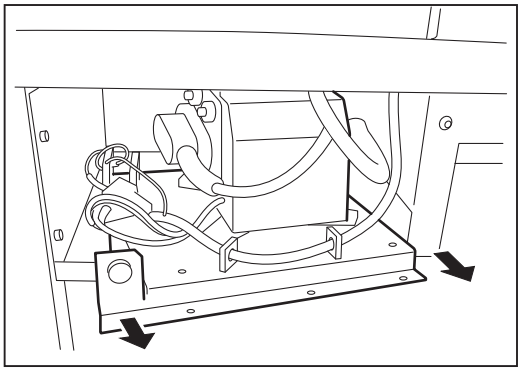


(5) Removing the Compressor

1. Remove the power cord plug.
2. Take out the three screws, and remove the cover R2.
(See→P.52)
3. Remove the plate. (See→P.53)
4. Take out the four screws securing the compressor.
(Secured from the backside.)

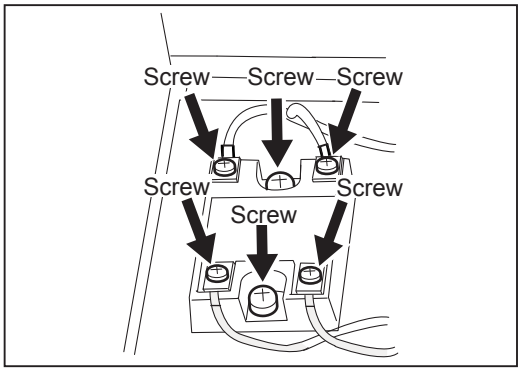


5. Draw the compressor toward you, and remove the wiring and air tube.
* After the installation, perform the compressor operation check in HELP Mode: 20.
(HELP Mode : 20→P.144)



● Removing the SSR

1. Remove the power cord plug.
2. Remove the plate. (See→P.53)
3. Take out the four screws, and remove the wirings.
4. Take out the two screws, and remove the SSR.

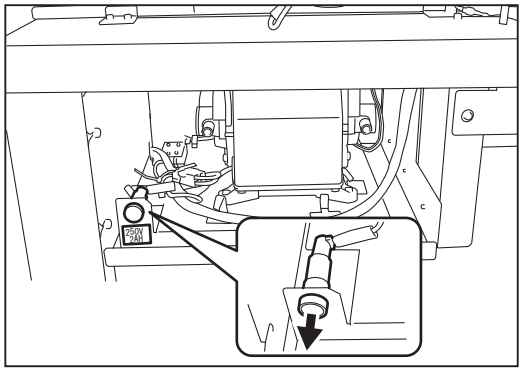


(6) Removing the Compressor Fuse

⚠ CAUTION

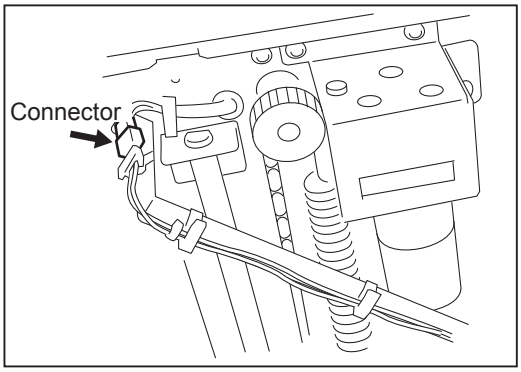
- **Be sure to remove the power cord plug from the outlet before starting the work.**
- **Replace the compressor fuse for exclusive use of the rating that showed in the label. Otherwise, fire could result.**

1. Remove the power cord plug.
2. Remove the plate. (See→P.53)
3. Open the cover, and remove the fuse.
   * Be sure to work with the power cord removed.
   * Rating of compressor fuse: 250 V, 2 A

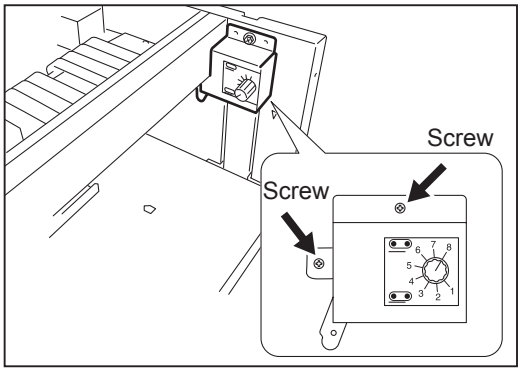


(7) Removing the Paper Level Sensor

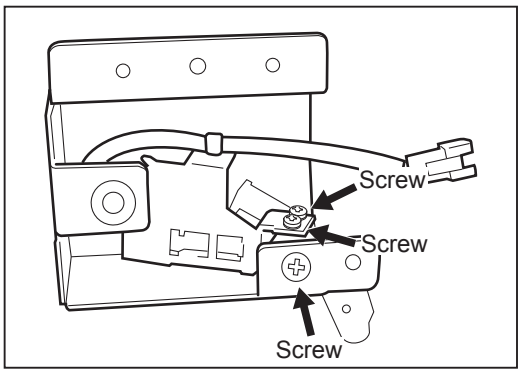
1. Remove the cover R2. (See→P.52)
2. Disconnect the sensor connector.



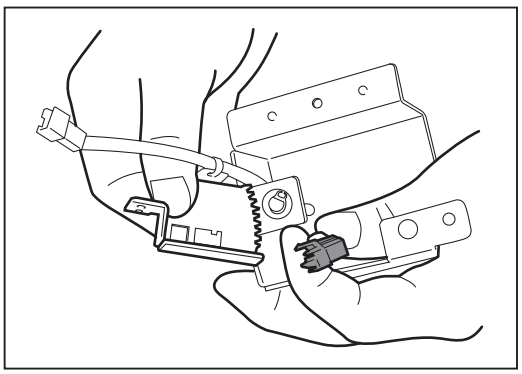
3. Take out the two screws, and remove the paper level sensor.



4. Take out one screw, and remove the shaft ASSY.
5. Take out the two screws, and remove the sensor with the bracket.
   * Install the sensor bracket at the lowest point aligned with volume 1.

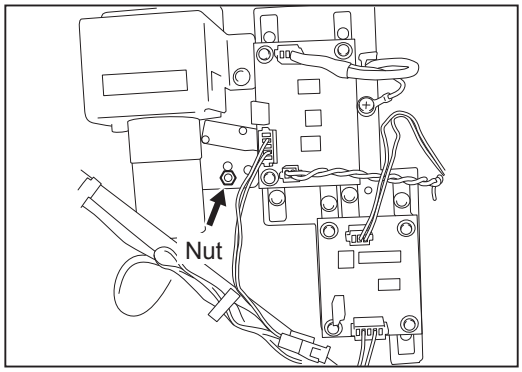


6. Remove the sensor from the bracket.
   * After the installation, perform the sensor operation check in HELP Mode: 11.
     (HELP Mode : 11→P.137)
   * Make sure that the pinion shaft and the cable tube do not interfere with other at the time of installation.

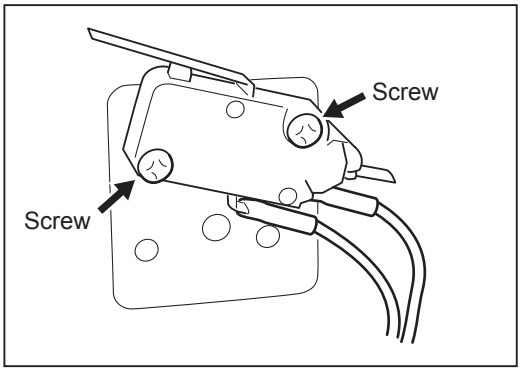


(8) Removing the Elevator Upper Limit Switch

1. Remove the cover R2. (See→P.52)
2. Disconnect the connector.
3. Take out the nut, and remove the elevator upper limit switch with the bracket.

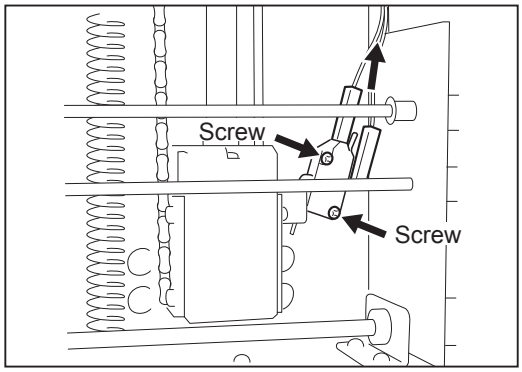


4. Take out the two screws, and remove the elevator upper limit switch.
   * Adjustment required at the time of installation (See→P.100)



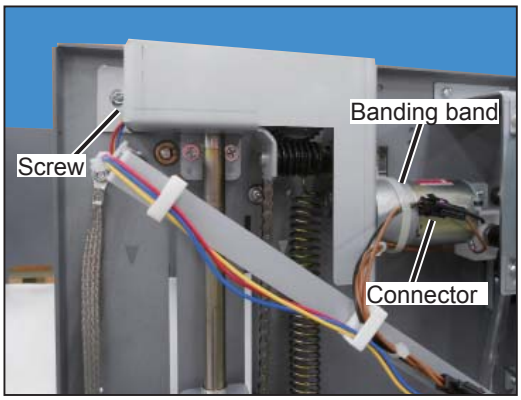
(9) Removing the Elevator Lower Limit Switch

1. Remove the cover F2 unit. (See→P.52)
2. Disconnect the two faston terminals.
3. Take out the two screws, and remove the elevator lower limit switch.
   * Adjustment required at the time of installation (See→P.100)

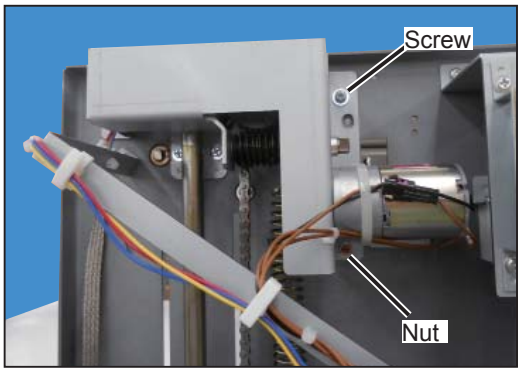


(10) Removing the Elevator Motor

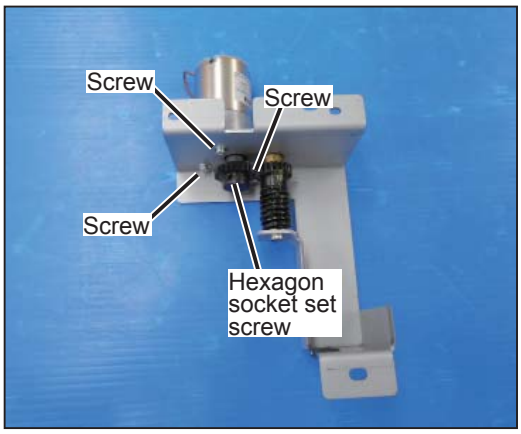
1. Move the elevator to the upper limit, and turn off the power.
2. Remove the cover R2. (See→P.52)
3. Disconnect the motor connector.
4. Remove the banding band.



5. Take out the two screws and nut, and remove the motor with the bracket.

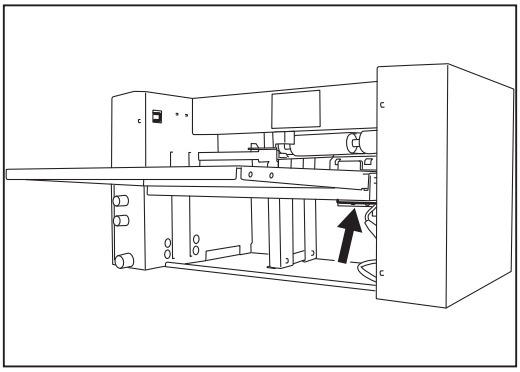


6. Loosen the hexagon socket set screw, and remove the gear.
7. Take out the three screws, and remove the motor.
   * After the installation, perform the paper feed elevator operation check in HELP Mode: 17.
   (HELP Mode : 17→P.141)

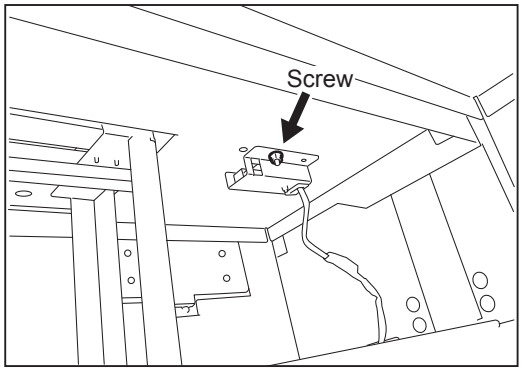


(11) Removing the PPS1

1. Move the elevator to the upper limit (HELP Mode: 17), and turn off the power.

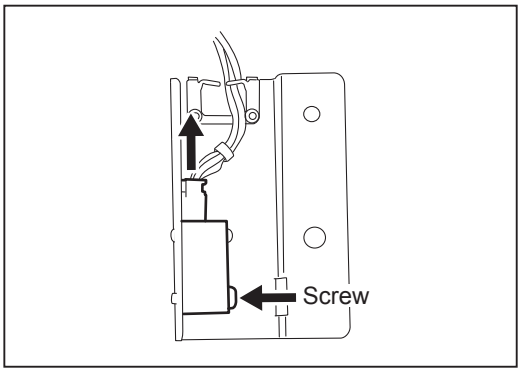


2. Take out one screw, and remove the sensor with the bracket.



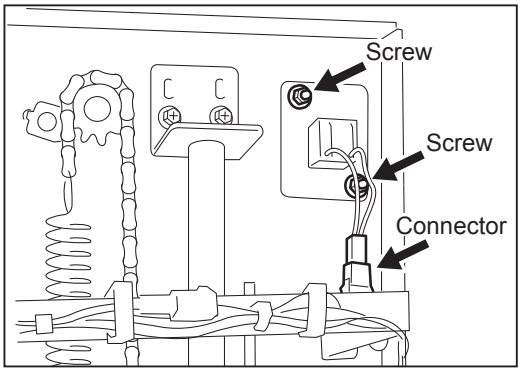
3. Take out one screw, and remove the sensor.

   * After the installation, perform the sensor operation check in HELP Mode: 11.
   (HELP Mode : 11→P.137)

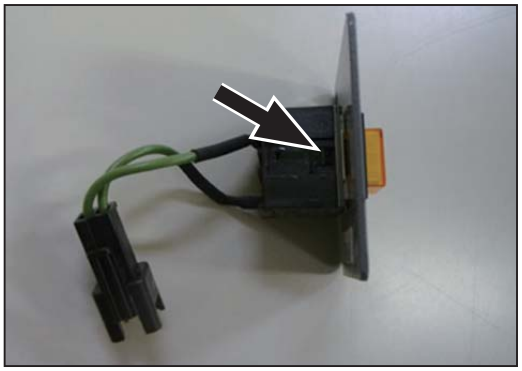


(12) Removing the Elevator Down Switch

1. Remove the cover F2 unit. (See→P.52)
2. Disconnect the switch connector.
3. Take out the two screws, and remove the elevator down switch with the angle.

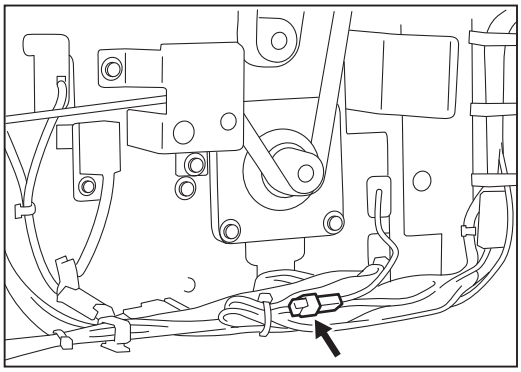


4. Push the part indicated by the arrow, and remove the elevator down switch.

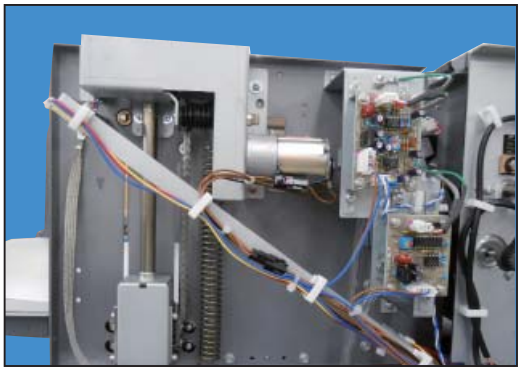


(13) Removing the Paper Feed Unit

1. Open the top cover.
2. Remove the cover F2 unit and cover R2. (See→P.52)
3. Disconnect the following connectors.
   - Elevator down switch (See→P.65)
   - Elevator lower limit switch (See→P.62)
   - Suction fan (See→P.58)
   - Feed motor (See→P.58)
   - Shutter solenoid (See→P.57)
   - Blow fan (See→P.66)



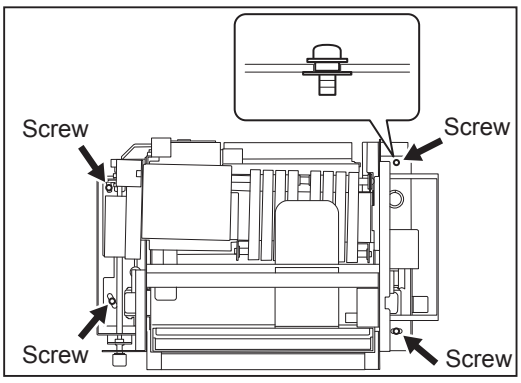
   - Paper level sensor (See→P.61)
   - Elevator motor (See→P.63)
   - Optional ultrasonic sensor (See→P.67)



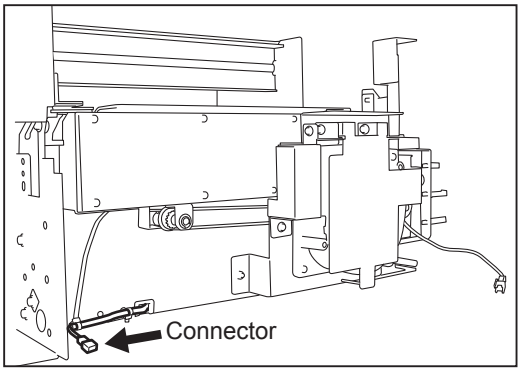
* After the installation, perform the sensor and motor operation check in HELP Mode: 11, 15, 17, 18, 19.

(HELP Mode : 11→P.137)
(HELP Mode : 15→P.139)
(HELP Mode : 17→P.141)
(HELP Mode : 18→P.142)
(HELP Mode : 19→P.143)

4. Take out the four screws securing the paper feed unit.
   * Do not loose the collars and washers.



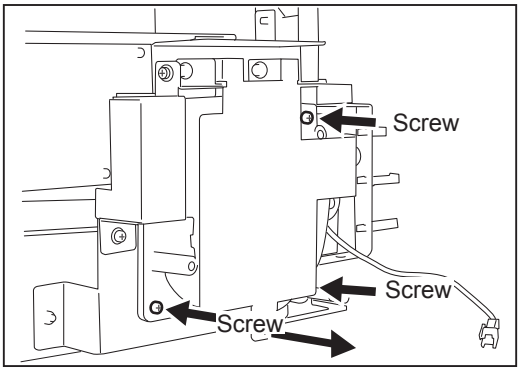
5. Disconnect the PPS1 connector, and remove the paper feed unit.
   * Adjust the indicator to "0" at the time of installation
   (See→P.101)



(14) Removing the Blow Fan

1. Remove the paper feed unit. (See→P.65)
   * Be sure to work with the power cord removed.
2. Take out the three screws, and remove the fan motor.

   * After the installation, perform the fan motor operation check in HELP Mode: 18.
   (HELP Mode : 18→P.142)

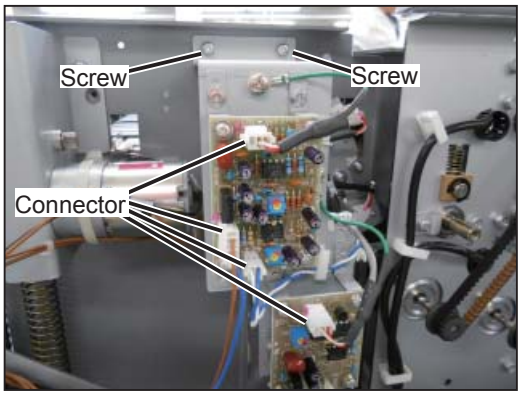


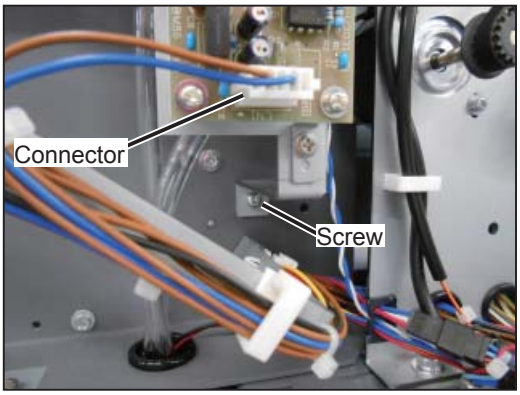
3 Double Feed Detection Section (Option)

(1) Removing the Ultrasonic Sensor Unit

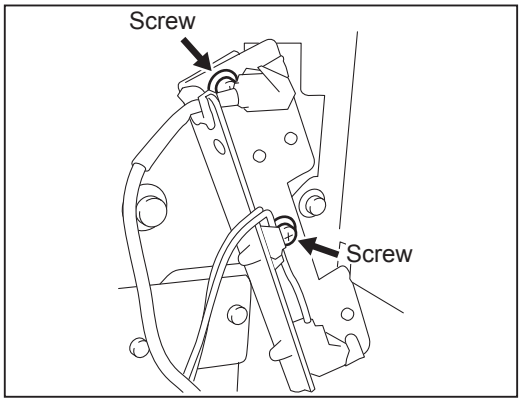
* The ultrasonic sensor unit cannot be disassembled.
  (Sensor installation angle is a factory setting.)

1. Remove the cover R2. (See→P.52)
2. Disconnect the five connectors and remove the two ground wires.
3. Take out the three screws, and remove the ultrasonic sensor unit.





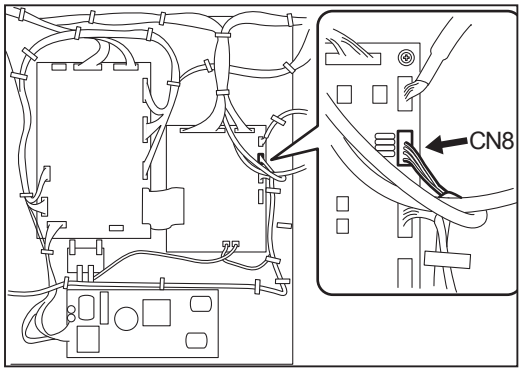
4. Take out the two screws, and remove the ultrasonic sensor.
   * After the installation, perform the sensor operation check in HELP Mode: 15.
   (HELP Mode : 15→P.139)



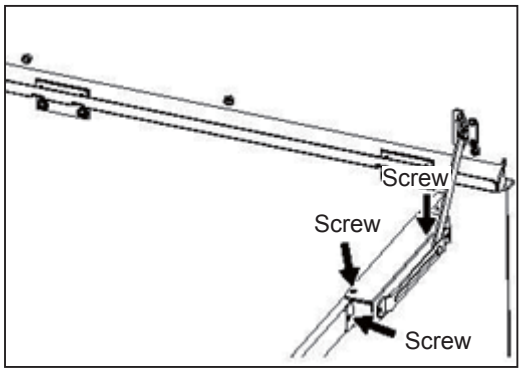
4 CCD Section (Option)

(1) Removing the CCD

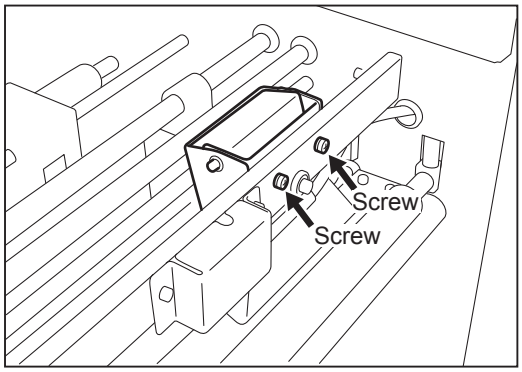
1. Remove the cover (power supply) and cover R.
(See→P.53)
   * Be sure to work with the power cord removed.
2. Disconnect the connector (CN8).
   * Make sure that the terminals do not interfere each other at the time of installation.



3. Open the top cover.
4. Take out the three screws, and remove the hinge of the top cover.



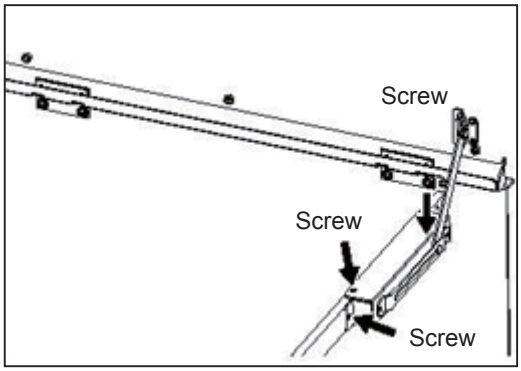
5. Take out the two screws, and remove the CCD unit.
   * Adjustment required at the time of installation
(See→P.102)



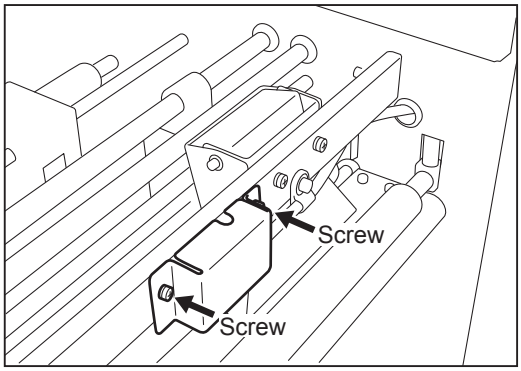
(2) Removing the PPS2

● Photo-emission sensor

1. Open the top cover.
2. Take out the three screws, and remove the hinge of the top cover.

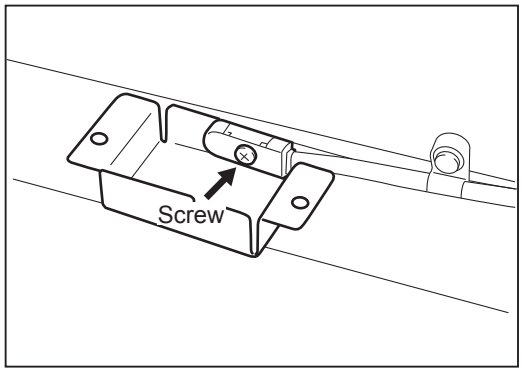


3. Take out the two screws, and remove the sensor with the bracket.



4. Take out one screw, and remove the sensor.
   * Adjustment required at the time of installation

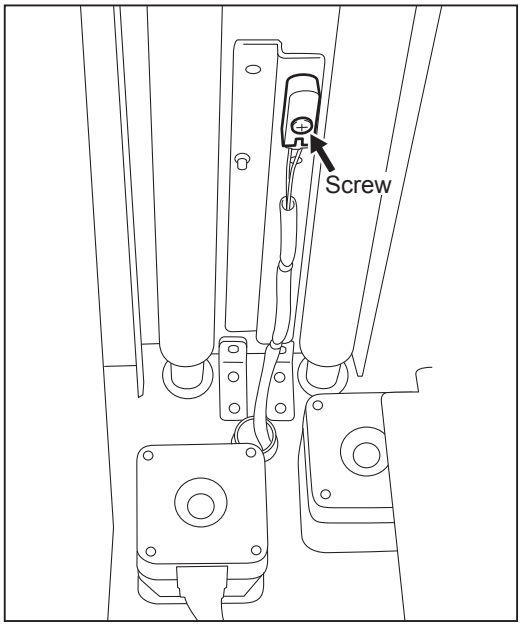
(See→P.102)



● Photo-detecting sensor

1. Open the front cover.
2. Remove the shutter.
3. Take out the screw, and remove the sensor.
   * Adjustment required at the time of installation

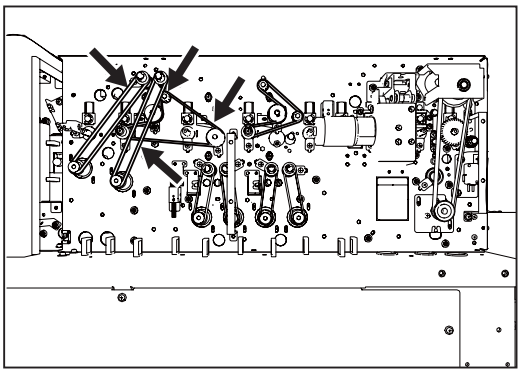
(See→P.102)



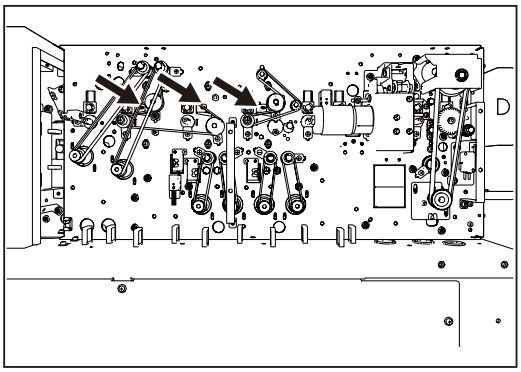
5 Margin Slitter Section

(1) Removing the Margin Slitter Module

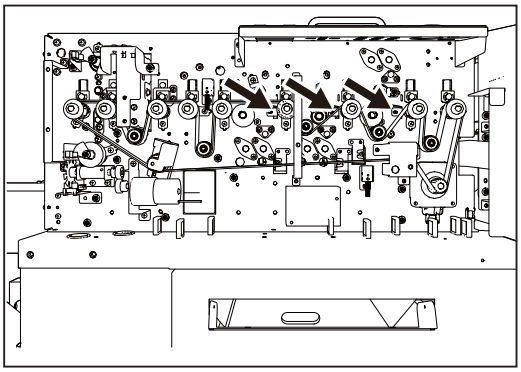
1. Open the top cover.
2. Remove the cover R and cover F. (See→P.52)
(See→P.53)
3. Remove the timing belt of the two lead shafts.
4. Loosen the motor fixing screws, and remove the timing belts.



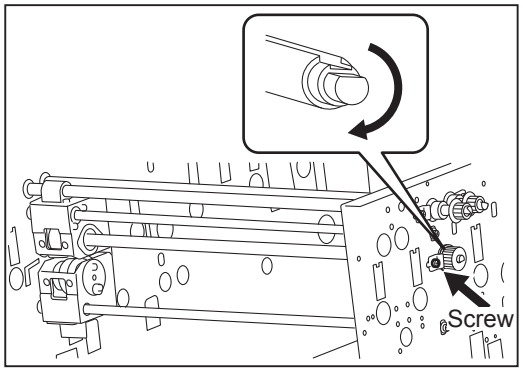
5. Take out the screw, and remove the upper guide plate. (three places)



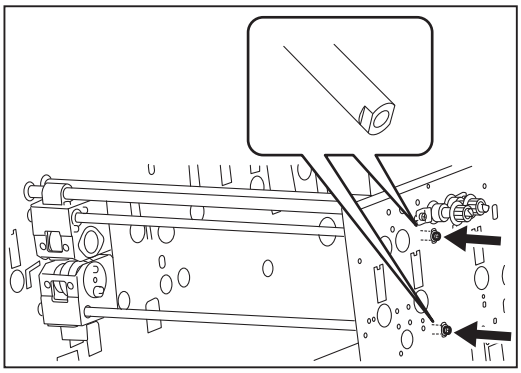
6. Take out the screw, and remove the lower guide plate. (three places)



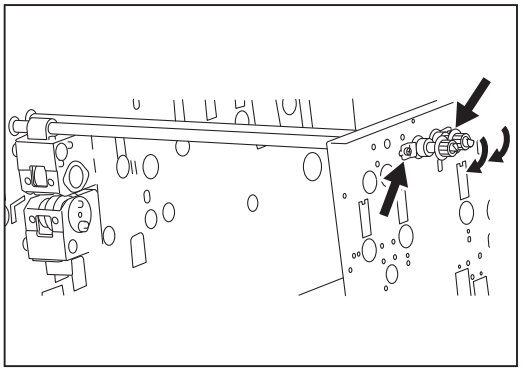
7. Take out the screw, and remove the bearing presser.
8. Pull out the slitter driving shaft with its groove facing down.
   * Do not drop the key placed in the groove.



9. Take out the screw, and pull out the two slide shafts.
   * Do not damage the ball bearings at the time of installation.
   * Take note of the orientation of the D cutting in the shaft point at the time of installation.
   * Before installation, be careful that there are two kinds of shaft with different depth of D cutting.

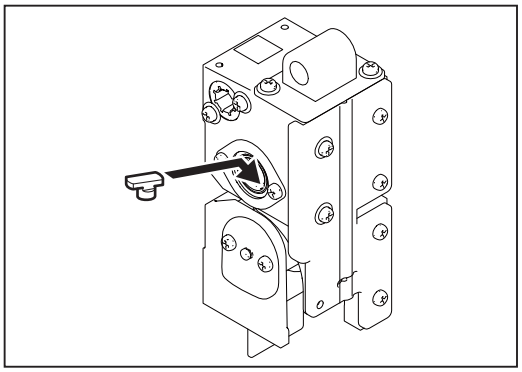


10. Take out the screw, and remove the bearing pressers. (two places)
    * Take note of the orientation to attach at the time of installation.
11. Pull out the lead shafts while turning them around.

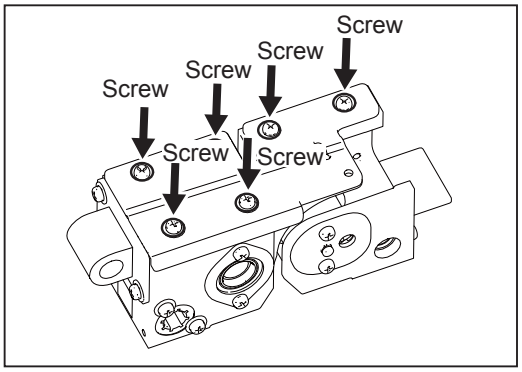


● Removing the Slitter Blade

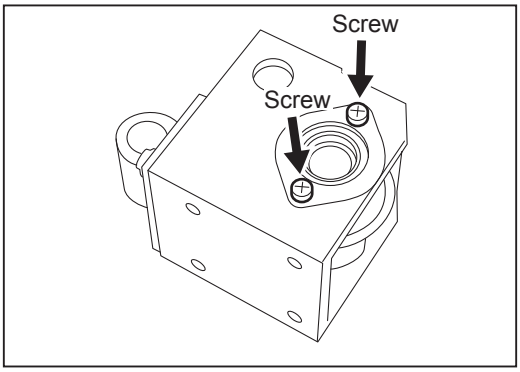
* To install the upper and lower blade housing, the jig for parallel is necessary.
* Do not lose the key.



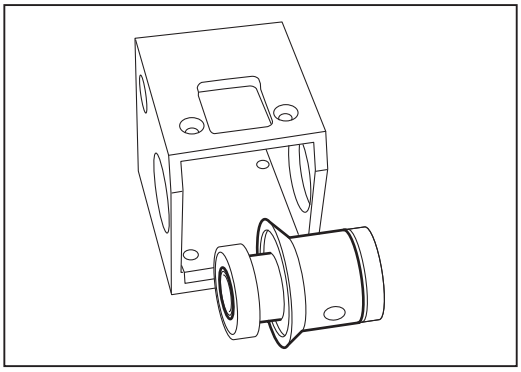
1. Take out the six screws, and separate the housing.



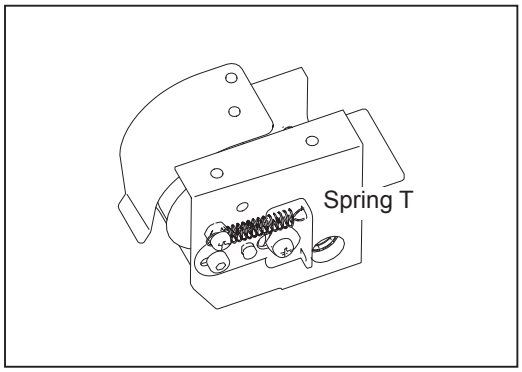
2. Take out the two screws (each), and remove the lids (two places, right and left).



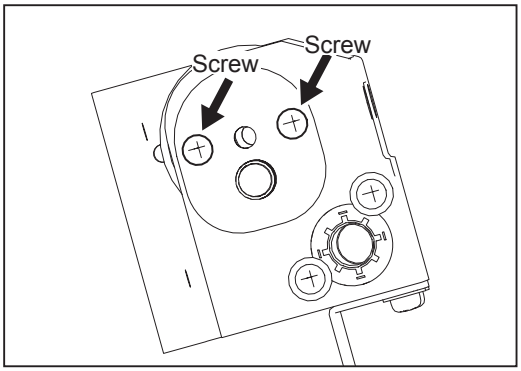
3. Pull out the upper blade unit.



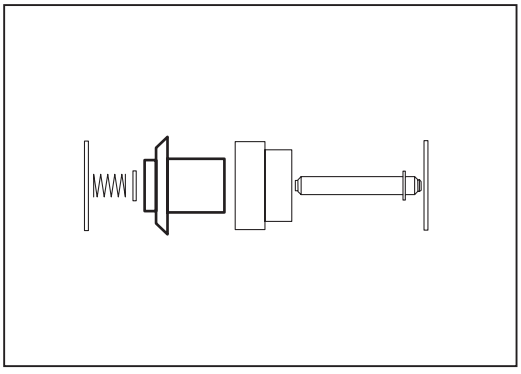
4. Remove the spring T.



5. Take out the two screws (each), and remove the lids (two places).

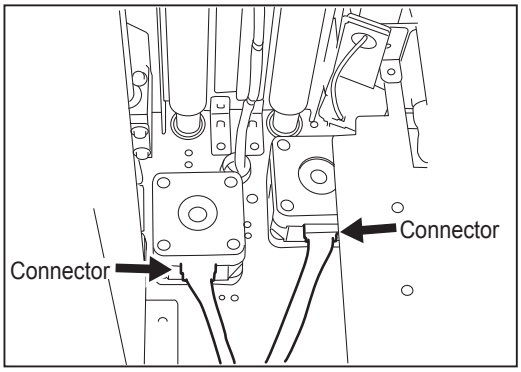


6. Pull out the shaft, and remove the lower blade.

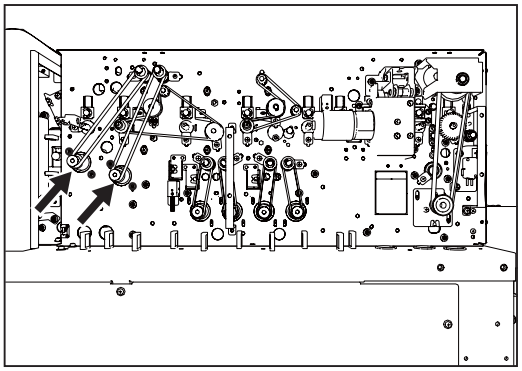


(2) Removing the Margin Slitter Position Motor/Belt

1. Open the front cover.
2. Disconnect the two motor connectors.

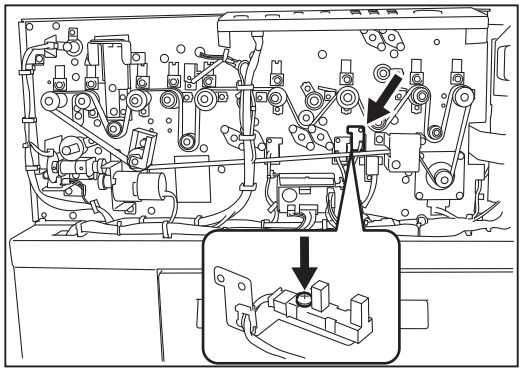


3. Remove the cover R. (See→P.53)
4. Remove the timing belt.
5. Take out the four screws, and remove the motor.
   * After the installation, perform the motor operation check in HELP Mode: 31.
   (HELP Mode : 31→P.149)

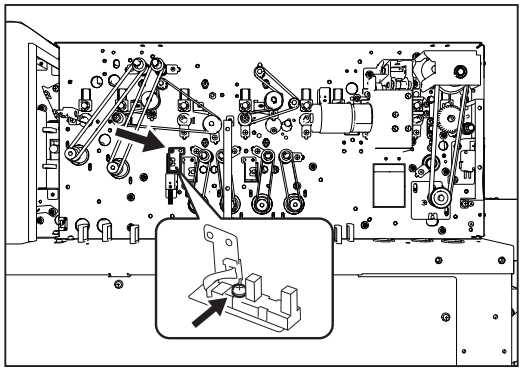


(3) Removing the Margin Slitter Home Position Sensor

1. Remove the cover F. (See→P.52)



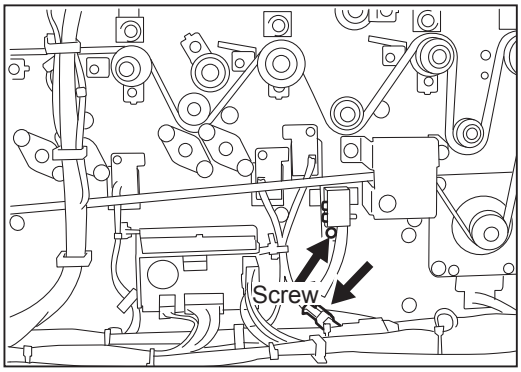
2. Remove the cover R. (See→P.53)
3. Take out one screw (each), and remove the sensor with the bracket.
4. Take out one screw (each), and remove the sensor from the bracket.
   * Adjustment required at the time of installation (See→P.103)



(4) Removing the Margin Jam Sensor

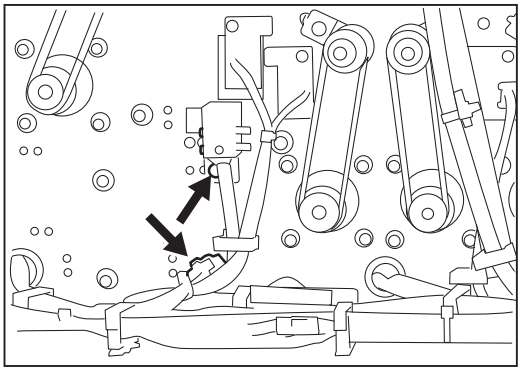
• Photo-emission sensor

1. Remove the cover F. (See→P.52)
2. Take out one screw, and remove the sensor with the bracket.

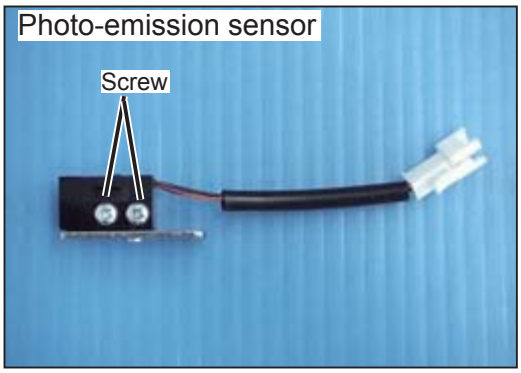


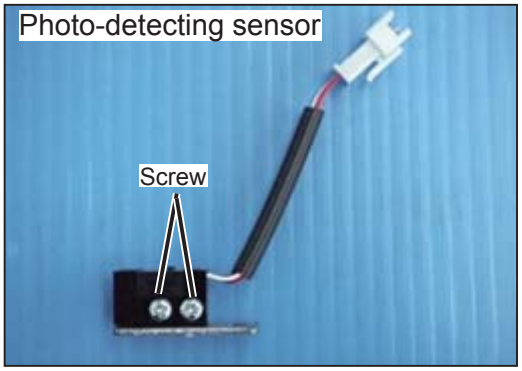
• Photo-detecting sensor

3. Remove the cover R. (See→P.53)
4. Take out one screw, and remove the sensor with the bracket.
5. Disconnect the sensor connectors.



6. Take out the two screws (each), and remove the sensors.
   * After the installation, perform the sensor operation check in HELP Mode: 11.
   (HELP Mode : 11→P.137)

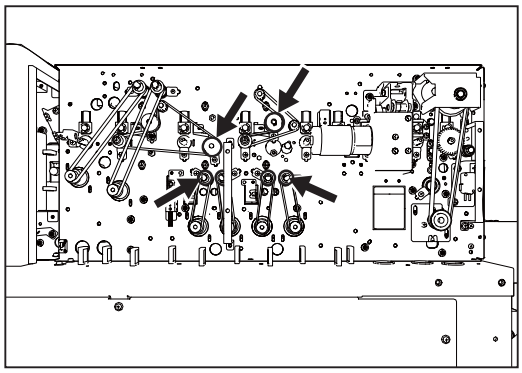




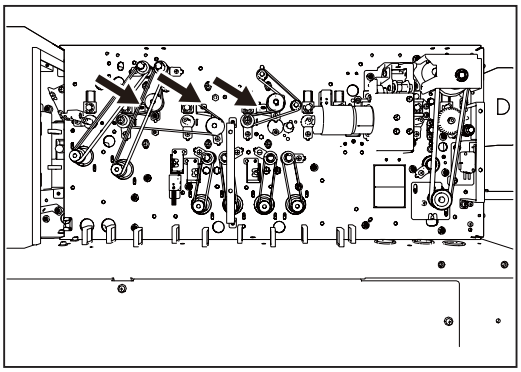
6 Center Slitter Section

(1) Removing the Center Slitter Module

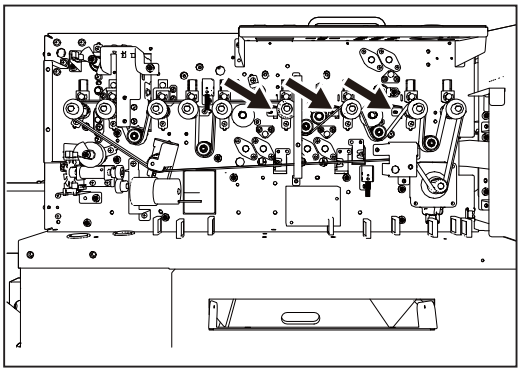
1. Open the top cover.
2. Remove the cover R and cover F. (See→P.52)
(See→P.53)
3. Remove the two slitter driving shafts and the timing belts.



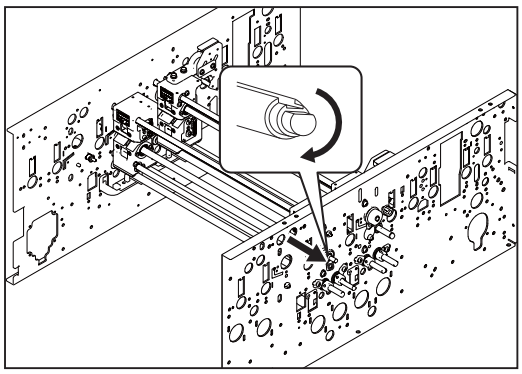
4. Take out the screw, and remove the upper guide plate. (three places)



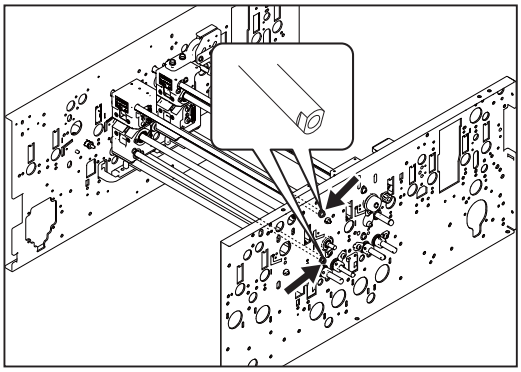
5. Take out the screw, and remove the lower guide plate. (three places)



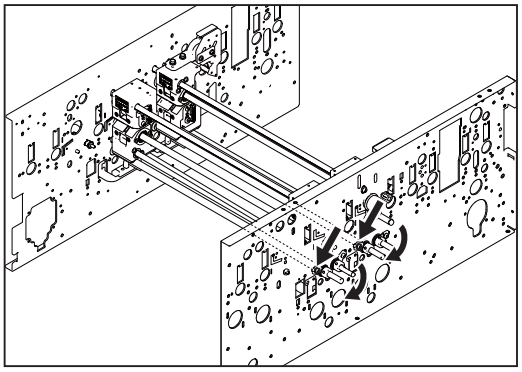
6. Take out the screw, and remove the bearing presser.
7. Pull out the slitter driving shaft with its groove facing down.
   * Do not drop the key placed in the groove.



8. Take out the screw, and pull out the two slide shafts.
   * Do not damage the ball bearings at the time of installation.
   * Take note of the orientation of the D cutting in the shaft point at the time of installation.
   * Before installation, be careful that there are two kinds of shaft with different depth of D cutting.

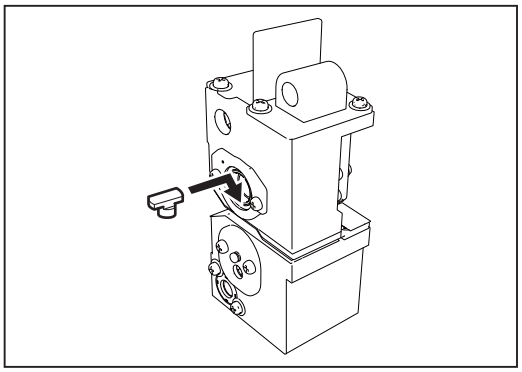


9. Take out the screw, and remove the bearing pressers. (two places)
10. Pull out the two driving shafts while turning them around.

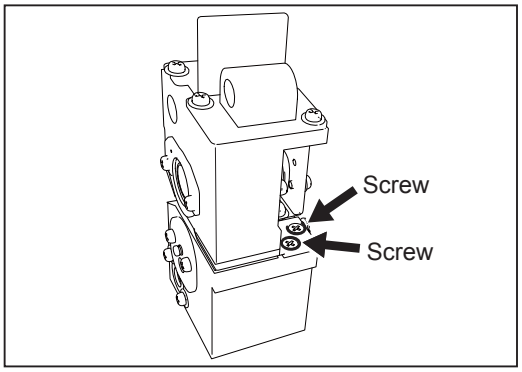


● Removing the Slitter Blade

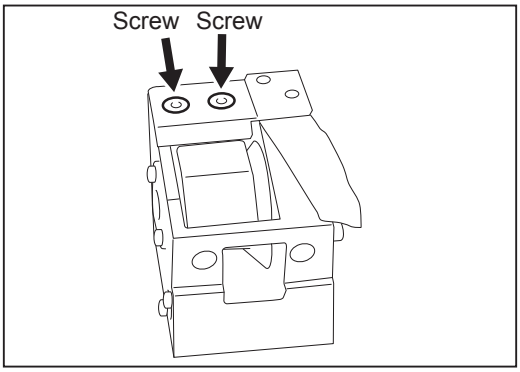
* When removing the slitter blade of center slitters (5 and 6), remove the gutter guide.
* To install the upper and lower blade housing, the jig for parallel is necessary.
* Do not lose the key.



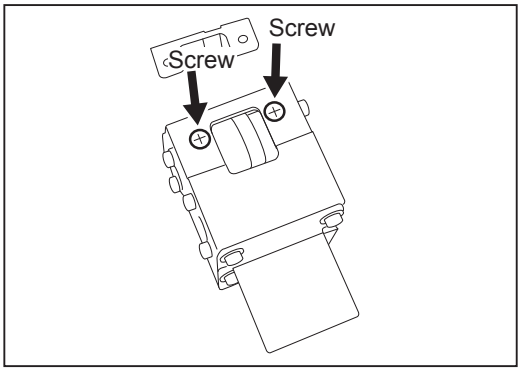
1. Remove the tape and expose the two screws.



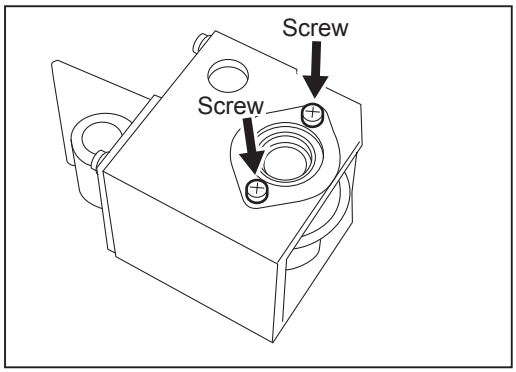
2. Take out the two screw, and separate the housing.
3. Take out the two screw, and remove the plate.



4.Take out the two screw, and remove the guide.

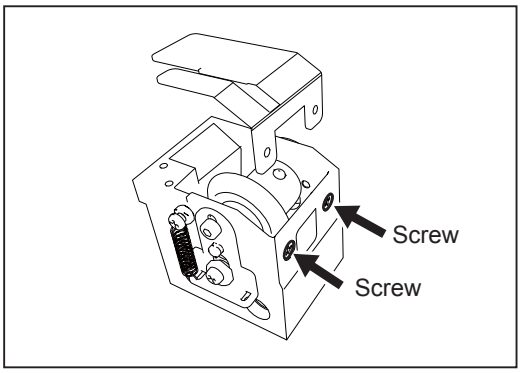


5.Take out the two screws, and remove the lids (2 places, right and left) .

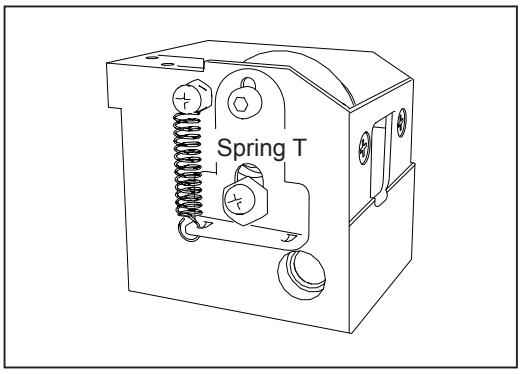


6. Draw out the upper blade unit.
(Slitter 3 and slitter 4: upper blade unit
Slitter 5 and slitter 6: lower blade unit)

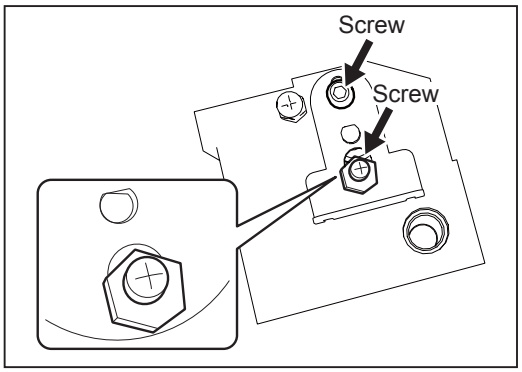
7. Take out the two screws, and remove the guide.



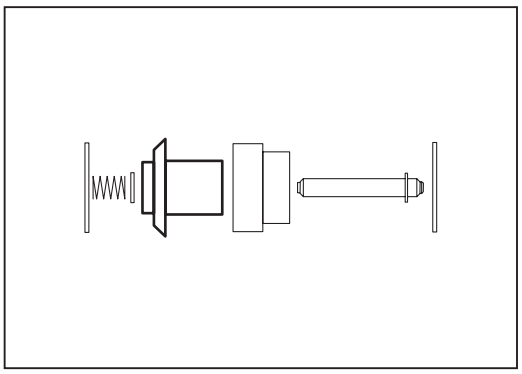
8. Remove the spring T.



9. Take out the two screw (each), and remove the lids (two places).
   * Take note of the correct orientation of the eccentric shaft at the time of installation.

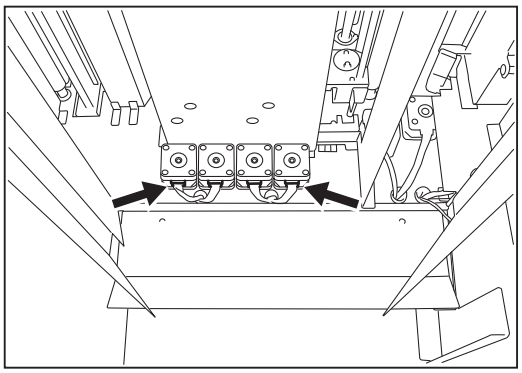


10. Draw out the lower blade unit with the shaft.



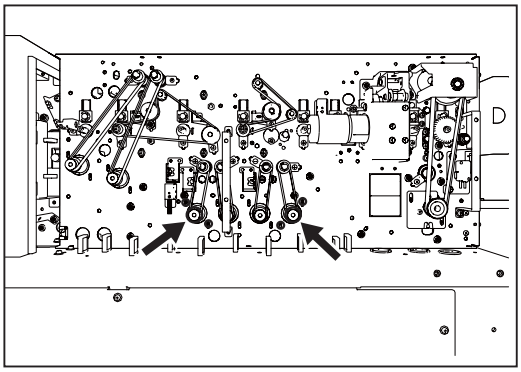
(2) Removing the Center Slitter Position Motor

1. Open the font cover.
2. Disconnect the motor connector.



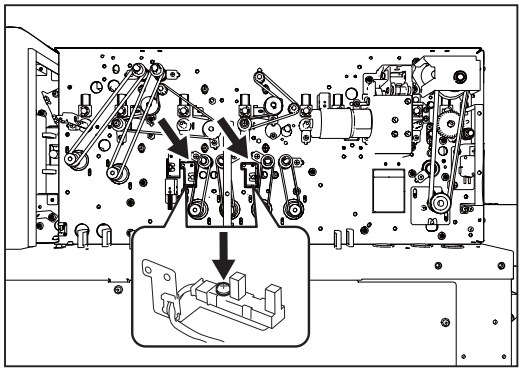
3. Remove the cover R. (See→P.53)
4. Remove the timing belt.
5. Take out the four screws, and remove the motor.
   * After the installation, perform the motor operation check in HELP Mode: 31.

(HELP Mode : 31→P.149)



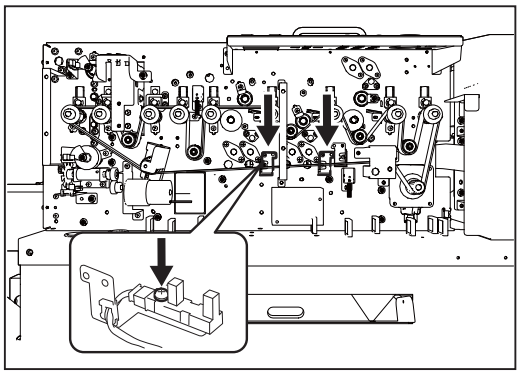
(3) Removing the Center Slitter Home Position Sensor

1. Remove the cover F. (See→P.52)



2. Remove the cover R. (See→P.53)
3. Take out one screw (each), and remove the photointerrupter with the bracket.
4. Take out one screw (each), and remove the photointerrupter from the bracket .

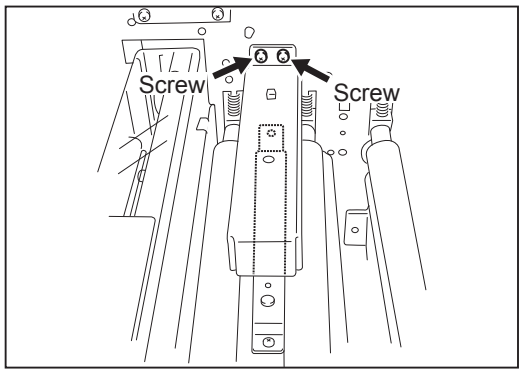
* Adjustment required at the time of installation (See→P.104)



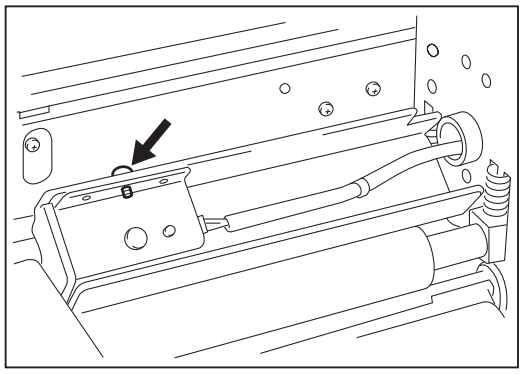
(4) Removing the PPS3

● Photo-emission sensor

1. Open the top cover.
2. Remove the cover R.
3. Take out the two screws, and remove the sensor cover.

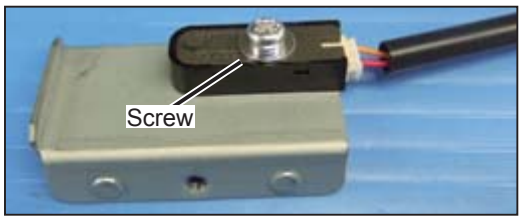


4. Take out the two screws, and remove the sensor with the bracket.



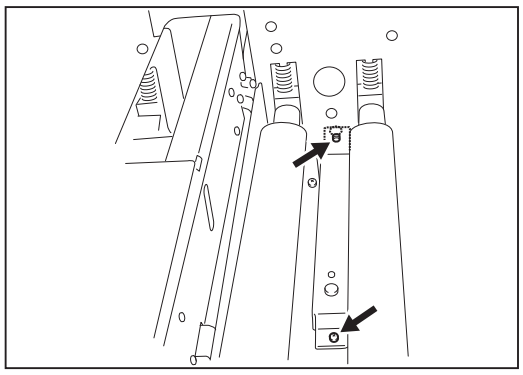
5. Take out the screw, and remove the sensor from the bracket.

* After installation, perform the sensor operation check in HELP Mode: 11. (HELP Mode : 11→P.137)



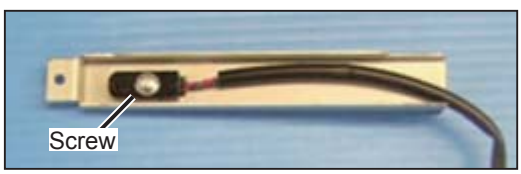
● Photo-detecting sensor

1. Take out the two screws, and remove the sensor with the bracket.



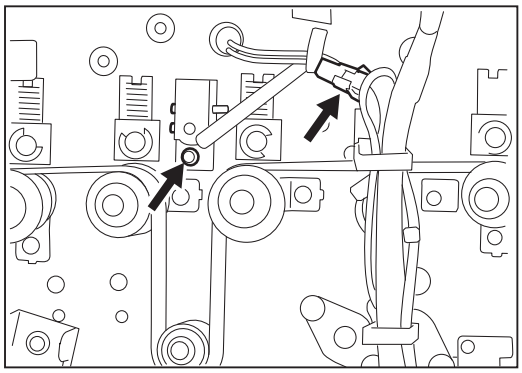
2. Take out the screw, and remove the sensor from the bracket.

* After installation, perform the sensor operation check in HELP Mode: 11.
(HELP Mode : 11→P.137)

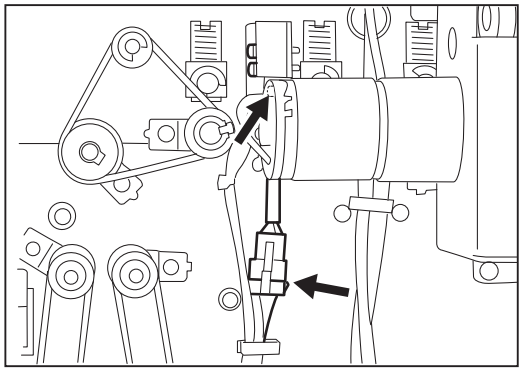


(5) Removing the Gutter ON/OFF Sensor

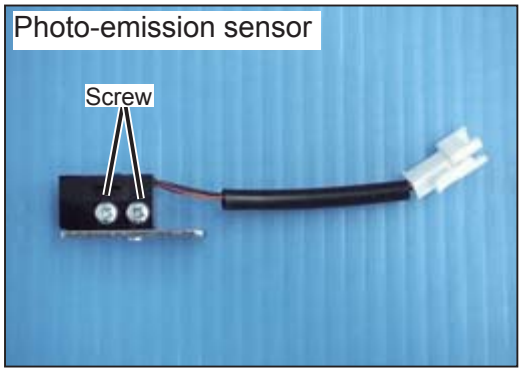
1. Remove the cover F. (See→P.52)

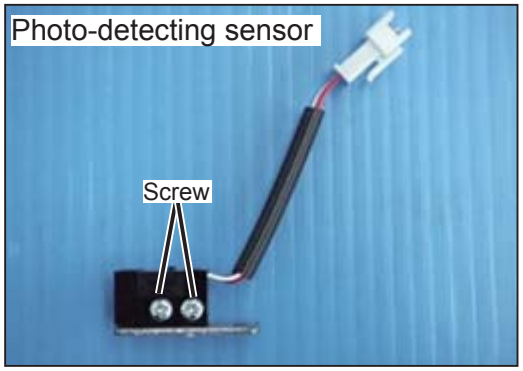


2. Remove the cover R. (See→P.53)
3. Disconnect the sensor connector.
4. Take out the screw, and remove the sensor with the bracket.



5. Take out the two screws , and remove the sensor.
   * After the installation, perform the sensor operation check in HELP Mode: 11.
   (HELP Mode : 11→P.137)

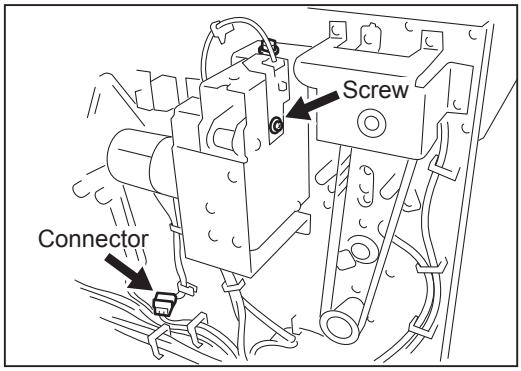




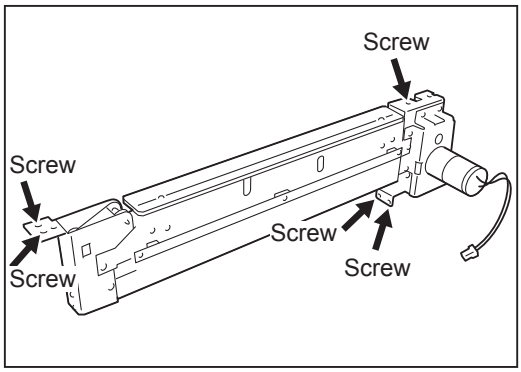
7 Cutter Section

(1) Removing the Cutter Module

1. Open the top cover.
2. Remove the covers F, R. (See→P.52) (See→P.53)
3. Disconnect the motor connector.
4. Take out one screw, and draw out the home position sensor bracket. (See→P.87)

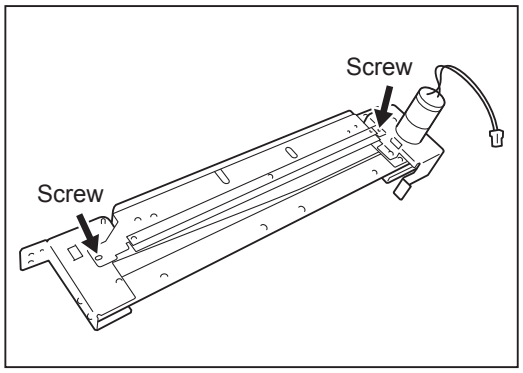


5. Take out the five screws, and draw out the cutter module.
   * Adjustment required at the time of installation (See→P.105)

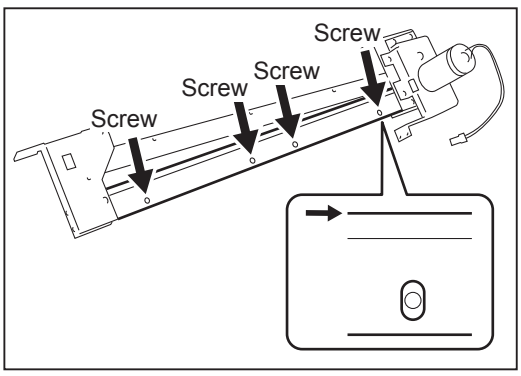


● Removing the Slitter Blade Module

1. Take out the two screws, and remove the lock plate unit.



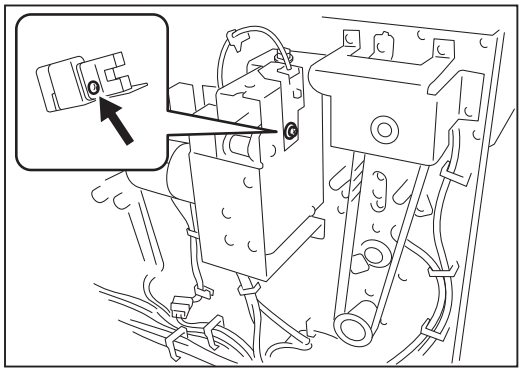
2. Take out the four screws, and remove the under guide.
   * Align the top of the under guide with the top of the blade at the time of installation.



3. Take out the three screws, and remove the bracket.

(2) Removing the Cutter Home Position Sensor

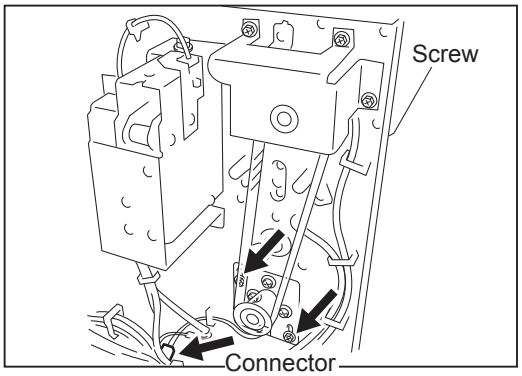
1. Remove the cover R. (See→P.53)
2. Take out the two screws, and remove the sensor with the bracket.
3. Take out one screw, and remove the sensor.
   * Adjustment required at the time of installation (See→P.107)



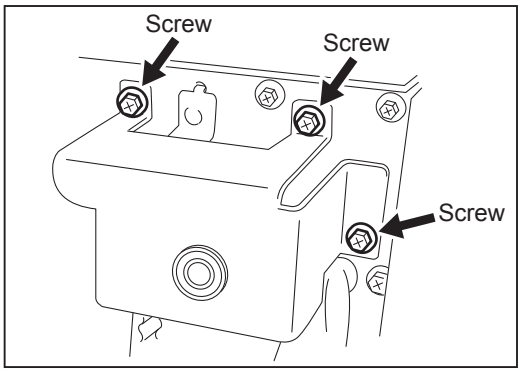
8 Creaser Section

(1) Removing the Creaser Motor and the Belt

1. Remove the covers F, R. (See→P.52) (See→P.53)
2. Disconnect the motor connector.
3. Loosen the motor fixing screws, and remove the timing belt.

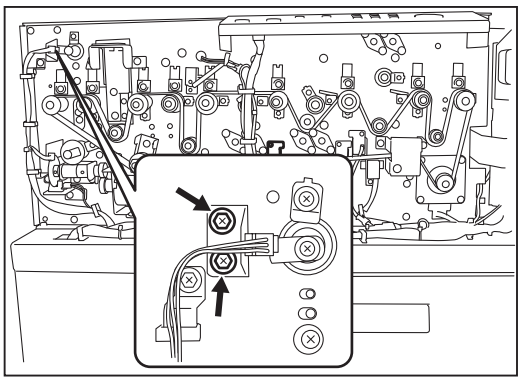


4. Take out the two screws, and draw out the motor with the bracket.
5. Take out the three screws, and remove the gear cover and timing belt.
   * Adjustment required at the time of installation (See→P.106)



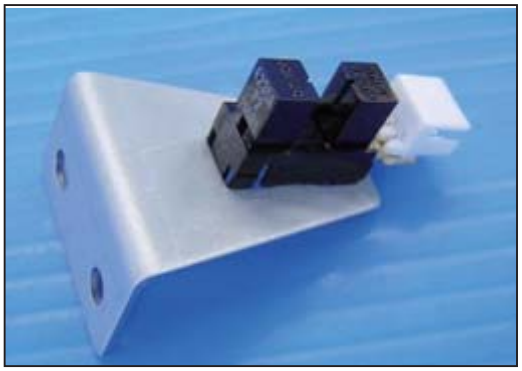
(2) Removing the Creaser Home Position Sensor

1. Remove the cover F. (See→P.52)
2. Take out the two screws, and remove the photo micro sensor with the bracket.



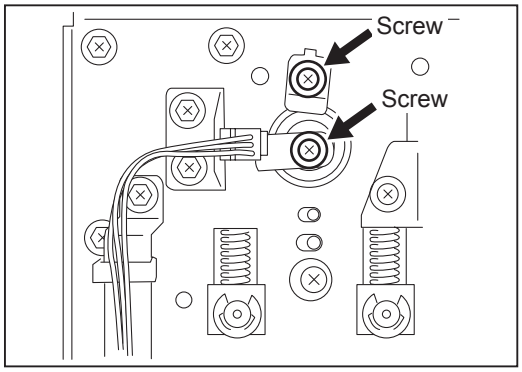
3. Remove the sensor from the bracket.

   * Adjustment required at the time of installation (See→P.107)

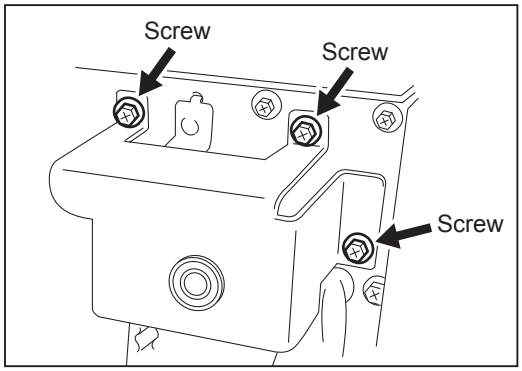


(3) Removing the Crease Blade

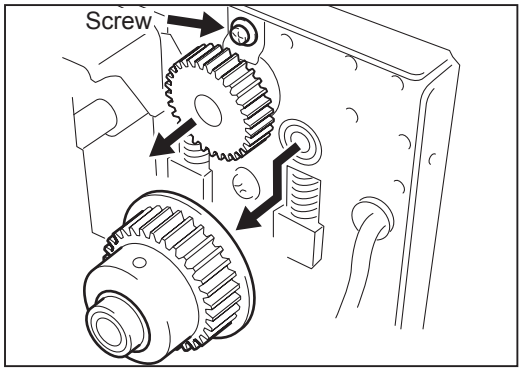
1. Remove the covers F, R. (See→P.52) (See→P.53)
2. Take out one screw, and remove the sensor plate.
3. Take out one screw, and remove the bearing presser.



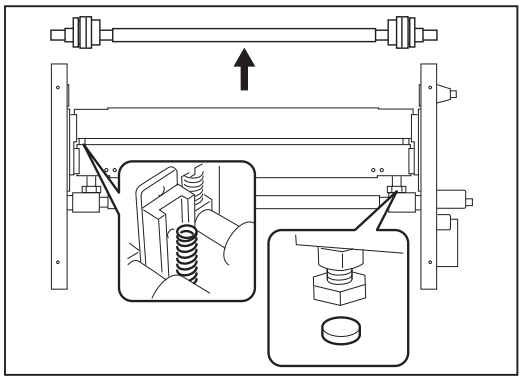
4. Take out the three screws, and remove the gear cover.
5. Remove the belt and the pulley unit.



6. Take out one screw, and remove the eccentric gear.
7. Take out one screw, and remove the bearing presser.

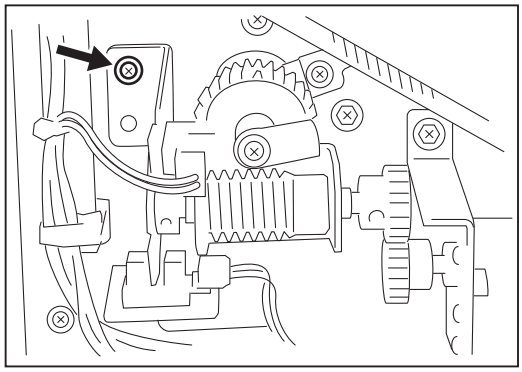


8. Draw out the eccentric shaft and the two bearings.
9. Draw out the upper blade.
10. Draw out the two springs and the lower blade.
    * Apply the grease to the slider metal at the time of installation.
    * Adjustment required at the time of installation (See→P.104)



(4) Removing the Crease Lower Blade Home Position Sensor

1. Remove the cover F. (See→P.52)
2. Take out the two screws, and remove the sensor with the bracket.



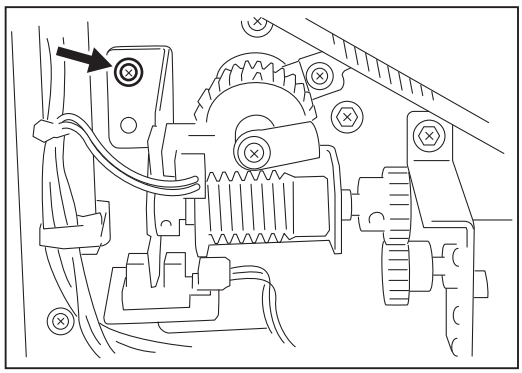
3. Remove the sensor from the bracket.

* Adjustment required at the time of installation (See→P.106)

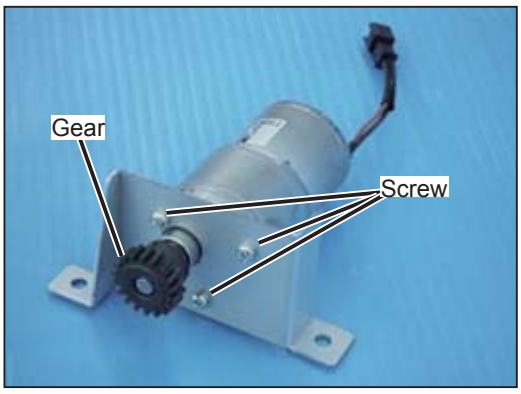


(5) Removing the Crease Lower Blade Motor

1. Remove the cover F. (See→P.52)
2. Take out the two screws, and remove the motor with the bracket.

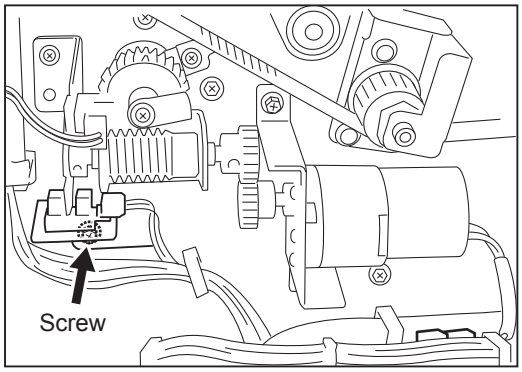


3. Loosen the hexagon socket set screw, and remove the gear.
4. Take out the three screws, and remove the motor from the bracket.
   * Adjustment required at the time of installation (See→P.108)

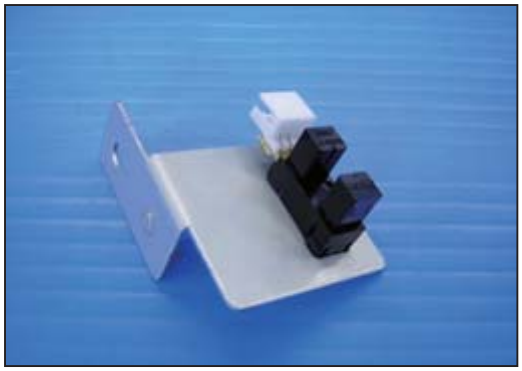


(6) Removing the Creaser Lower Blade Encoder Sensor

1. Remove the cover F. (See→P.52)
2. Take out the screw, and remove the sensor with the bracket.



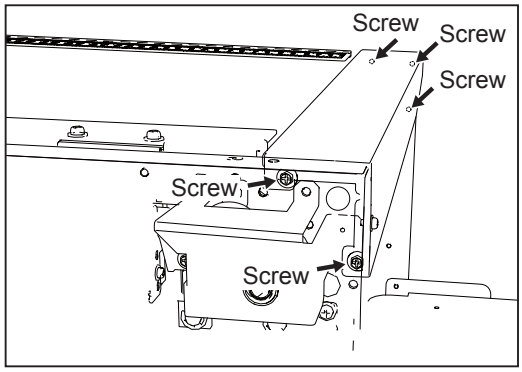
3. Remove the sensor from the bracket.
   * Adjustment required at the time of installation
   (See→P.106)



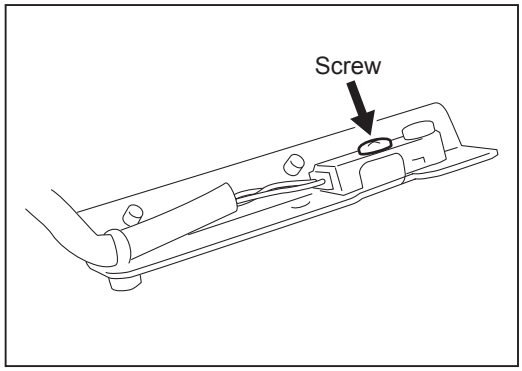
(7) Removing the PPS4

● Photo-emission sensor

1. Remove the covers F, R. (See→P.52) (See→P.53)
2. Take out the five screws, and remove the reinforcing plate.

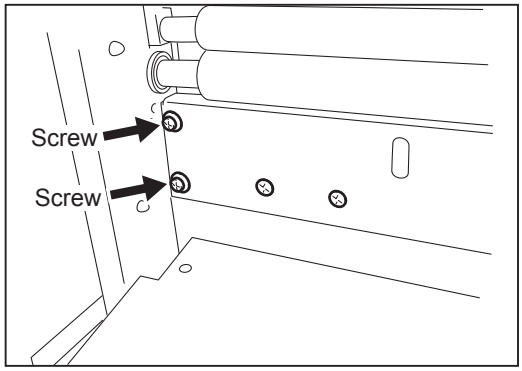


3. Take out one screw, and remove the sensor.
   * After the installation, perform the sensor operation check in HELP Mode: 11.
   (HELP Mode : 11→P.137)

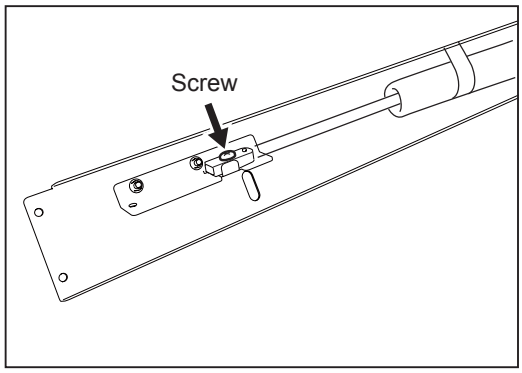


• Photo-detecting sensor

1. Take out the four screws, and remove the plate.



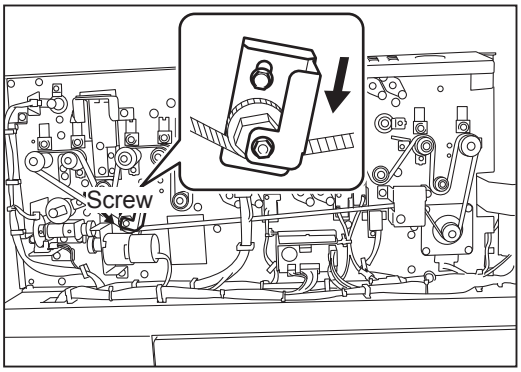
2. Take out one screw, and remove the sensor.
   * After the installation, perform the sensor operation check in HELP Mode: 11.
   (HELP Mode : 11→P.137)



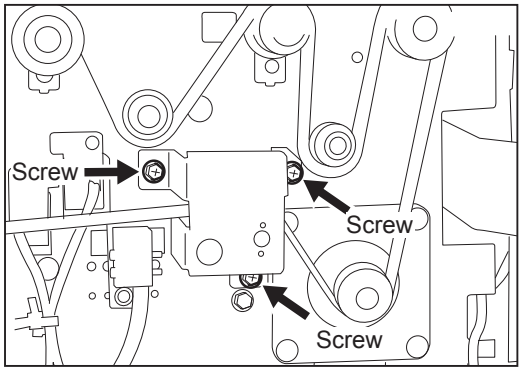
9 Main Drive Section

(1) Removing the Main Motor and the Drive Belt

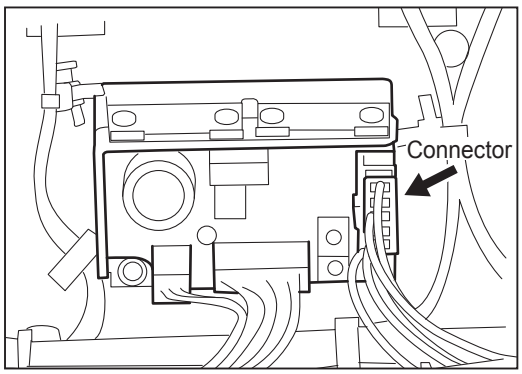
1. Remove the cover F. (See→P.52)
2. Take out the two screws, and loosen the pulley bracket.



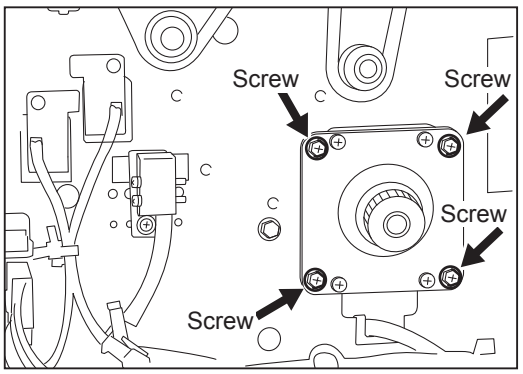
3. Take out the three screws, and remove the pulley cover.
4. Remove the timing belt.



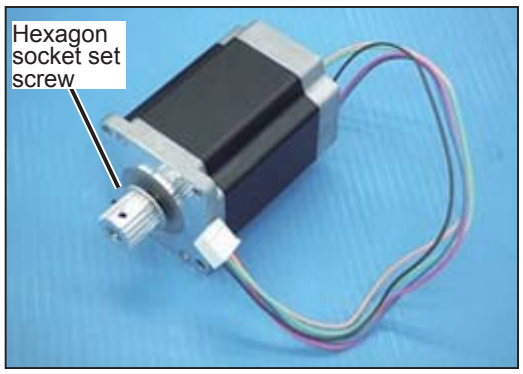
5. Disconnect the motor connector.



6. Take out the four screws, and remove the motor with bracket.

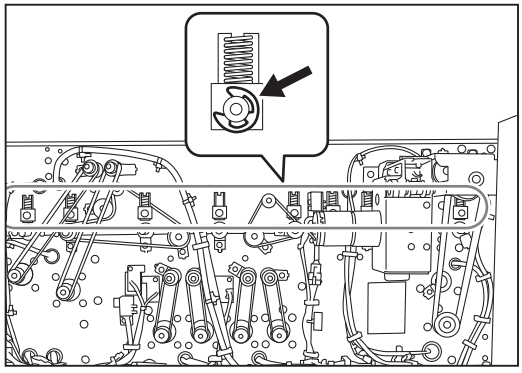


7.Loosen the hexagon socket set screw, and remove the gear.
* Adjustment required at the time of installation
(See→P.108)



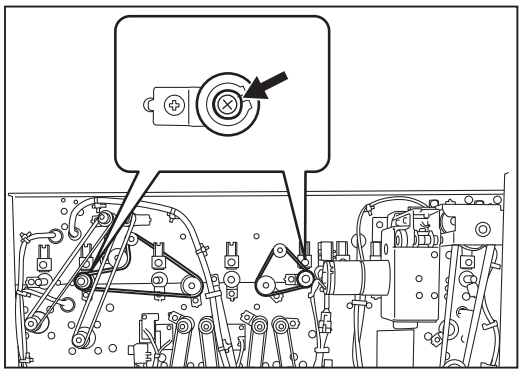
(2) Removing the Driving Roller (Upper)

1. Remove the covers F, R. (See→P.52) (See→P.53)
2. Remove the bush presser spring.
3. Take out the E-ring, and remove the bush.
4. Draw out the roller from the control panel side.

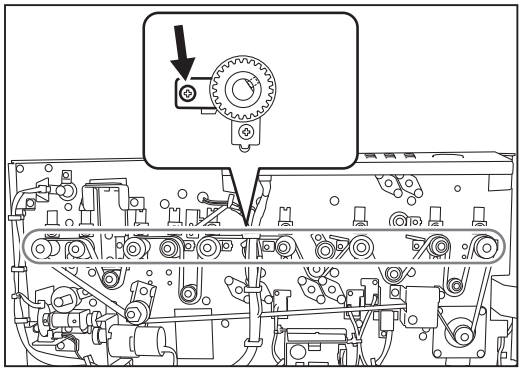


(3) Removing the Driving Roller (Lower)

1. Remove the covers F, R. (See→P.52) (See→P.53)
2. Remove the two slitter driving belts.
3. Loosen the screw to remove the pulley.
4. Draw out the roller from the control panel side.

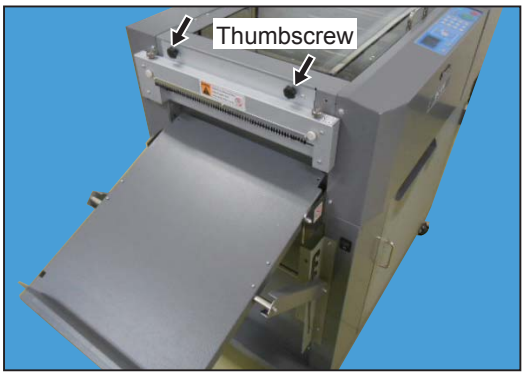


4. Loosen the timing belt. (See→P.90)
5. Take out the screw, and remove the bearing presser.
6. Draw out the roller.

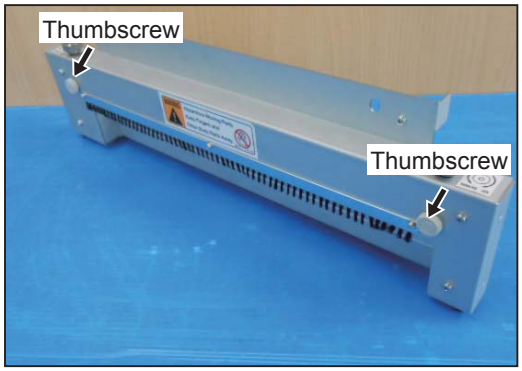


(4) Removing the Perforation Tool

1. Take out the two black thumbscrews, and remove the perforation unit from the DC-616.



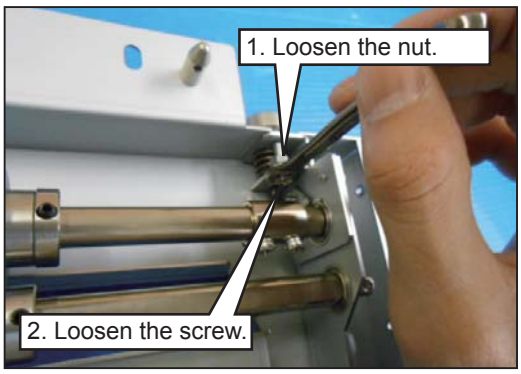
2. Loosen the two white thumbscrews on the rear side of the perforation unit.



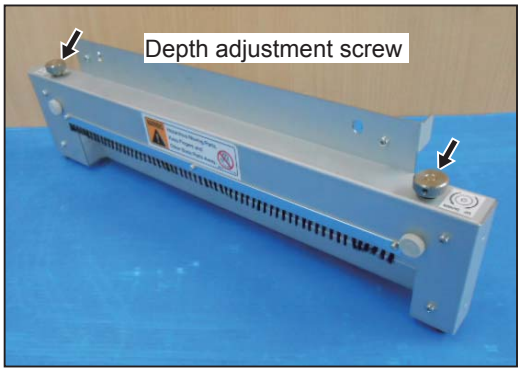
REFERENCE

The white thumbscrews should be loosened only. Do not remove them from the perforation unit.

3. Loosen the two screws securing the stoppers of the perforation tool depth adjustment screws. (approx. 3 mm)
   First loosen the nut, and then loosen the screws.

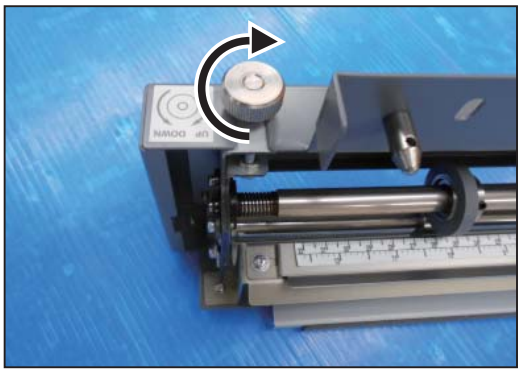


4. Raise the perforation tools on both sides up to the upper limit position with the depth adjustment screws.



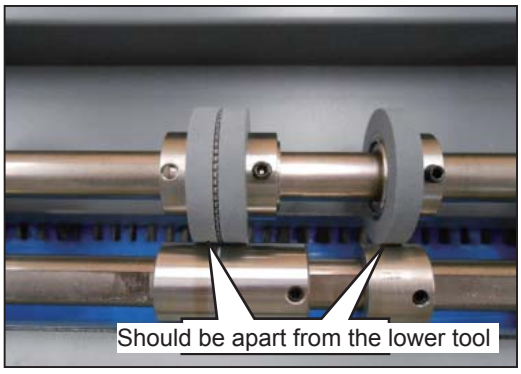
REFERENCE

Turn the depth adjustment screws until they stop.

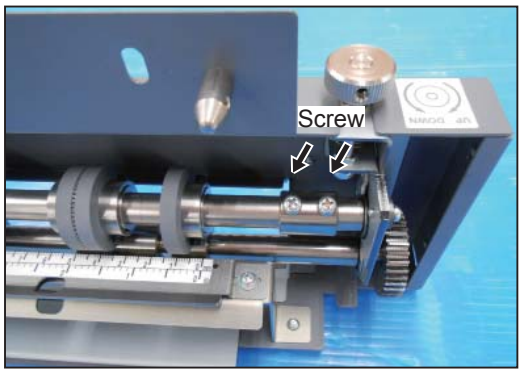


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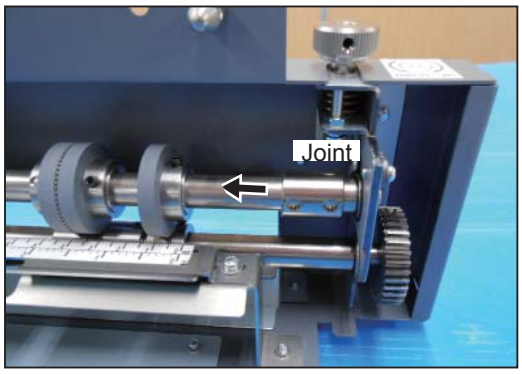
Make sure that the rubber roller of the upper tool is apart from the lower tool.
If not, loosen the screws securing the stoppers in step 3 more.



5. Take out the two screws of the joint securing the shaft (upper).

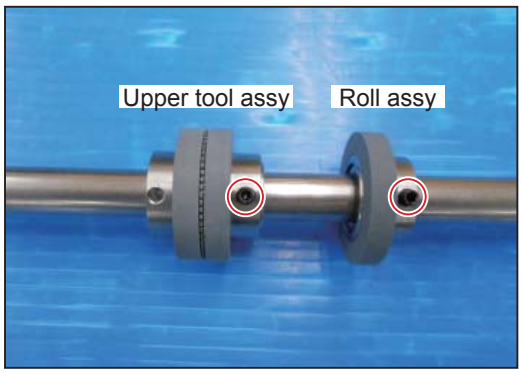


6. Slide the joint in step 5 in the direction of the arrow, and remove the shaft (upper) from the unit.





7. Replace the upper tool assy with a new one.

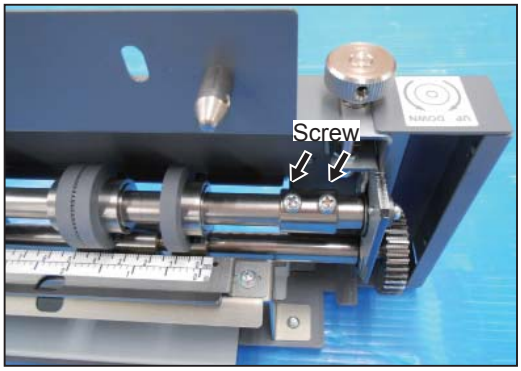


REFERENCE

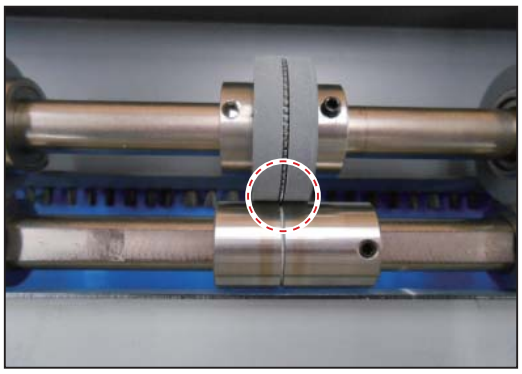
When attaching the upper tool assy to the shaft, take note of the orientation to attach the upper assy and roll assy.

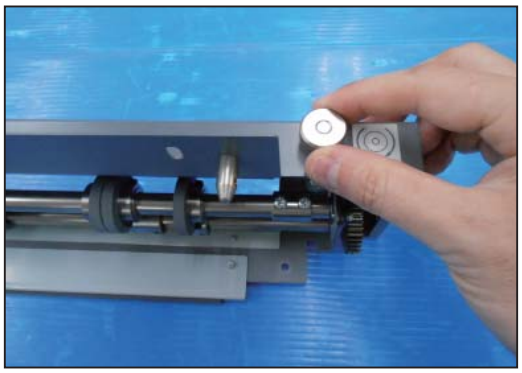
Loosen the hexagon socket set screws which suit the supplied hexagon wrench size.

8. Attach the shaft (upper) to the unit in the reverse order to steps 5 and 6.



9. Move the upper tools so that the both right and left perforation tools fit in the grooves of the lower tools, and move the roll assys to hold the paper.
Then lower the upper tools with the perforation depth adjustment thumbscrews.





10. When the perforation tool is raised up to the upper limit position, adjust the screw for the upper limit stopper to secure at the position where the perforation tool is inside of the groove of the lower tool.



11. Secure the perforation tool and the lower tool at the preferred position with a hexagon socket set screw.

12. Secure the perforation tool and the lower tool at the preferred position with a hexagon socket set screw.

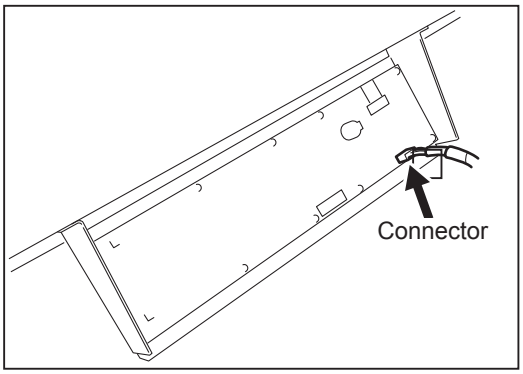
10 Electrical System Section

(1) Removing the Control Panel

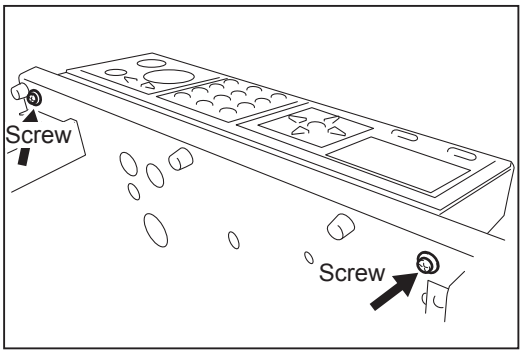
⚠ WARNING

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

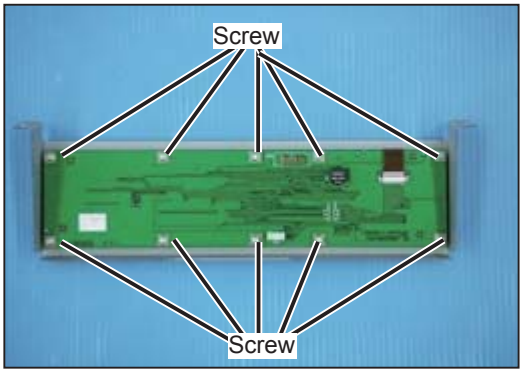
1. Open the top cover.
2. Remove the cover F. (See→P.52)
3. Disconnect the connector.



4. Take out the two screw, and remove the control panel.



5. Take out the ten screws, and remove the panel PCB unit .

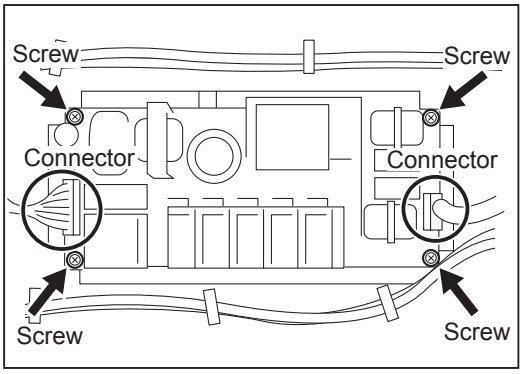


(2) Removing the Power Supply Unit

⚠ WARNING

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

1. Remove the cover. (See→P.54)
2. Disconnect all connectors.
3. Take out the four screws, and remove the PCB unit.
   * Pay attention to the terminals at the time of installation to prevent them from touching with each other.

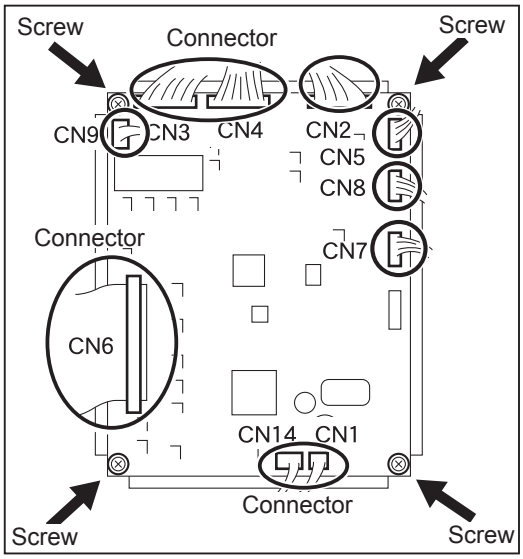


(3) Removing the Main PCB Unit

⚠ WARNING

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

1. Remove the cover. (See→P.54)
2. Disconnect 10 connectors.
3. Take out the four screws, and remove the PCB unit.
   * Pay attention to the terminals at the time of installation to prevent them from touching with each other.

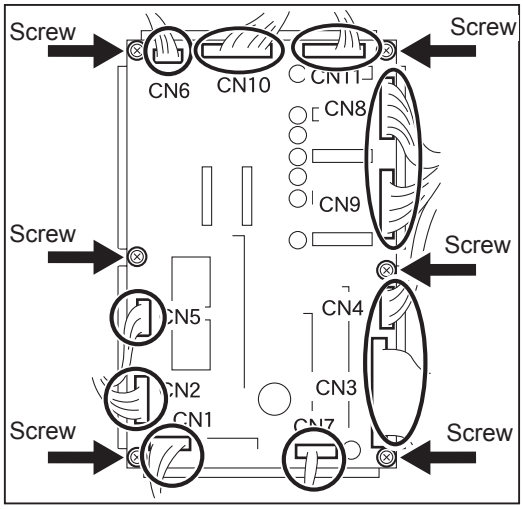


(4) Removing the Drive PCB Unit

⚠ WARNING

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

1. Remove the cover. (See→P.54)
2. Disconnect 11 connectors.
3. Take out the six screws, and remove the drive PCB unit.
   * Pay attention to the terminals at the time of installation to prevent them from touching with each other.



⚠ CAUTION

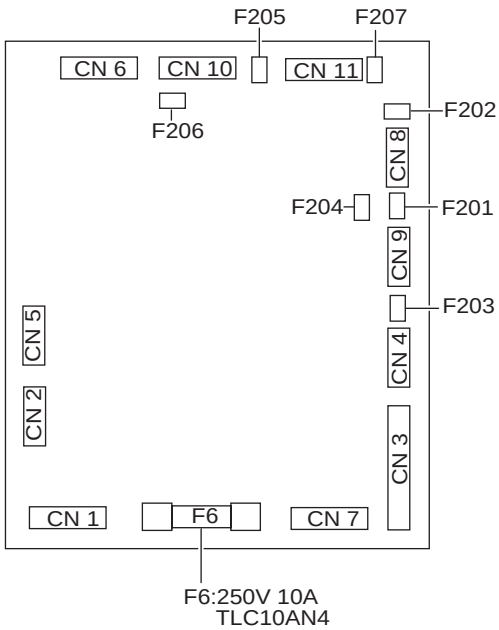
Fuse: F6

- For continued protection against fire hazard, replace only with the same type and rating fuse.

⚠ CAUTION

Fuse: F201 - F207

- When the fuse of the drive PCB unit was damaged, replace the drive PCB unit.

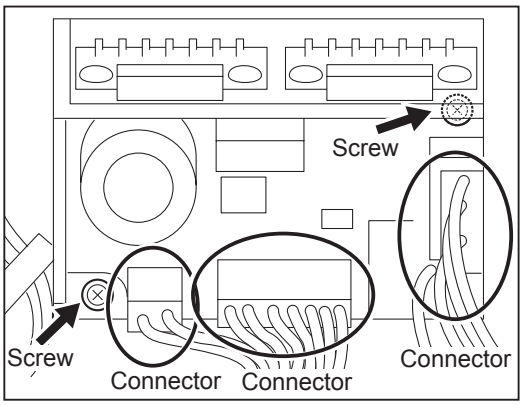


(5) Removing the Main Drive PCB Unit

⚠ WARNING

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

1. Remove the cover F. (See→P.52)
2. Disconnect three connectors.
3. Take out the two screws, and remove the PCB unit.

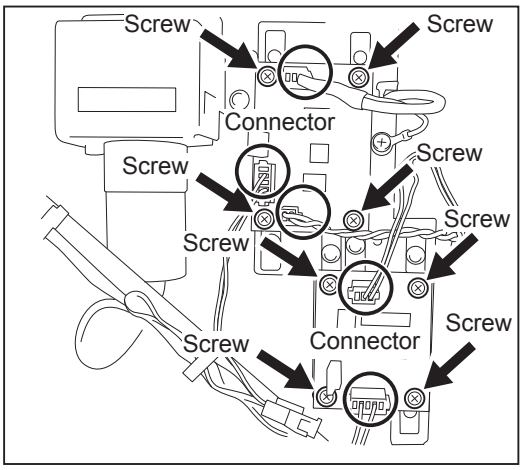


(6) Removing the Double Feed Detection PCB Unit

⚠ WARNING

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

1. Remove the cover R2. (See→P.52)
2. Disconnect five connectors.
3. Take out the eight screws, and remove the PCB unit.

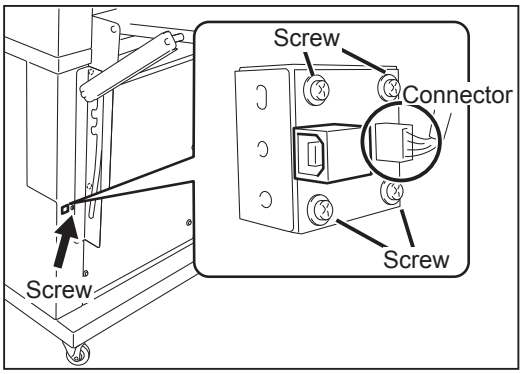


(7) Removing the USB PCB Unit

⚠ WARNING

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

1. Remove the cover. (See→P.54)
2. Disconnect one connector.
3. Take out the screw, and remove the PCB unit.



Chapter 4 Adjustment

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1 Exterior of the Machine

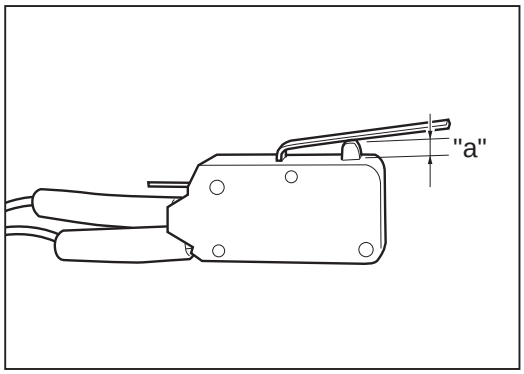
(1)Top cover interlock switch adjustment

(2)Front Cover interlock switch adjustment

(3)Exit interlock switch adjustment

1. Adjust “a” to be 0.5 mm while the switch is turned ON.
2. Perform the operation check in HELP Mode:11.

(HELP Mode : 11→P.137)

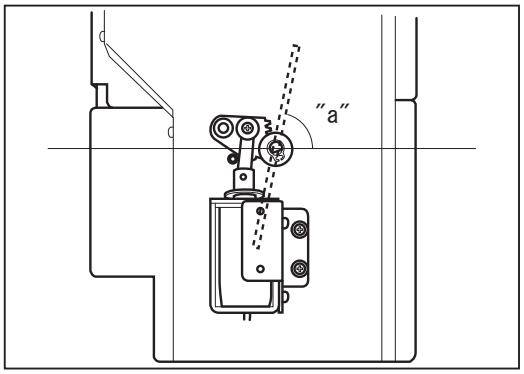


2 Paper Feed Section

(1)Shutter solenoid adjustment

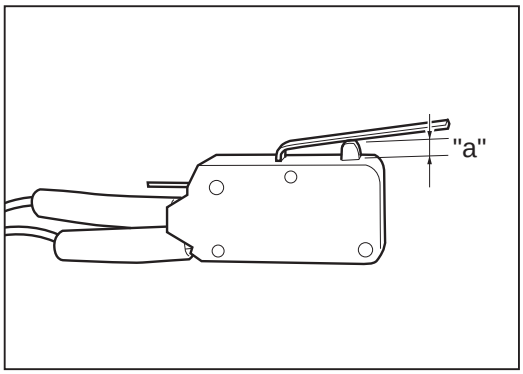
1. Adjust the bracket installation position, so that the throttle opening “a” is at 80-90 degrees when the solenoid is turned ON.
2. Install the bracket parallel so that the actuator moves smoothly.
3. After the adjustment, perform the operation check in HELP Mode: 19.

(HELP Mode : 19→P.143)



(2)Elevator upper limit switch adjustment

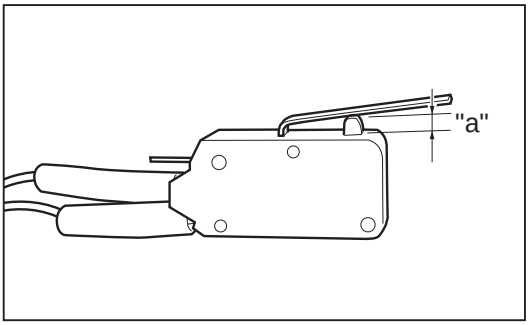
1. Adjust “a” to be 0.5 mm while the switch is turned ON.



(3)Elevator lower limit switch

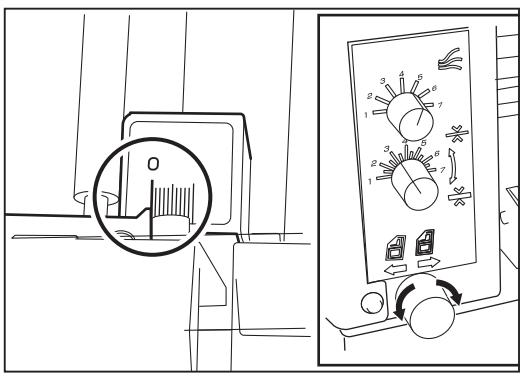
1. Make an adjustment so that the switch is turned ON when the distance between paper feed plate and MAX comes to 100 mm or more.
2. Adjust “a” to be 0.5 mm while the switch is turned ON.
3. After the adjustment, perform the operation check in HELP Mode:11, 17.

(HELP Mode : 11→P.137)
(HELP Mode : 17→P.141)



(4)Paper Feed Unit 0 Adjustment

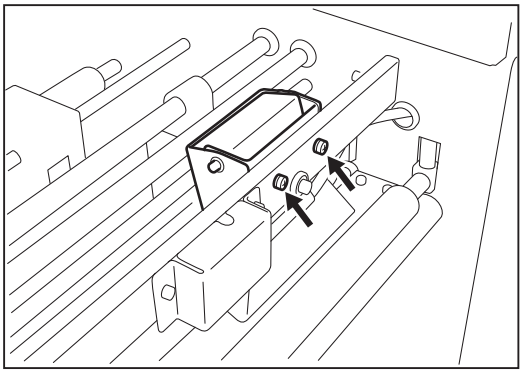
1. Adjust the indicator to “0”.
2. After the adjustment, check the parallel of the right margin.



3 CCD Section

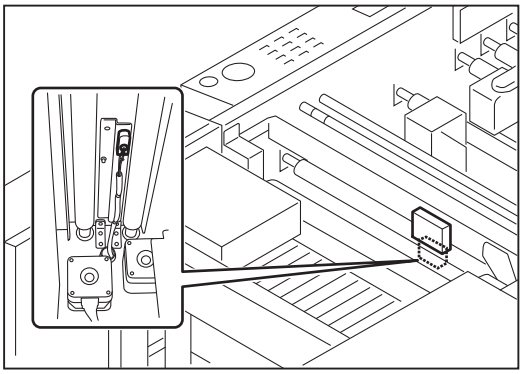
(1)CCD

1. Fix CCD in about the center of a long hole.
2. Perform REG. mark read out position adjustment in HELP Mode: 45. (HELP Mode : 45→P.152)



(2)PPS2

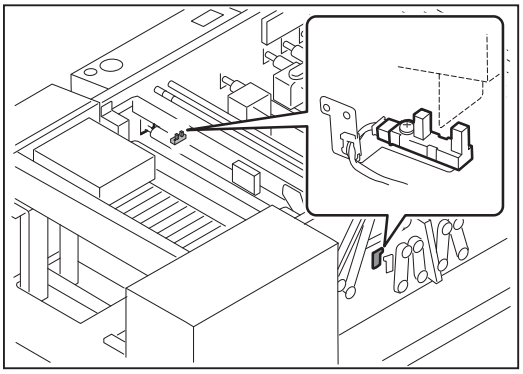
1. Perform the operation check in HELP Mode:11. (HELP Mode : 11→P.137)



4 Margin Slitter Section

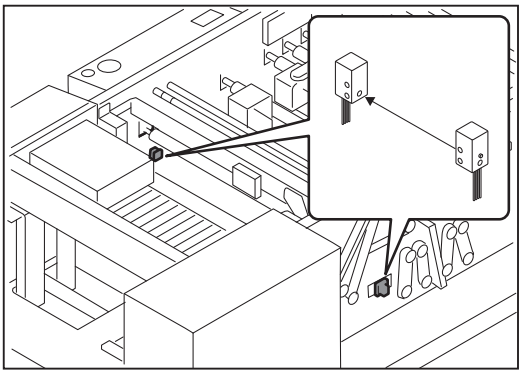
(1)Margin slitter home position sensor adjustment

1. Check the sensor operation in HELP Mode:11,26.
2. Feed the test paper through the machine applying the Service person JOB. (HELP Mode : 11→P.137) (HELP Mode : 26→P.145)
3. Adjust the home position setting in HELP Mode: 49. (HELP Mode : 49→P.156)



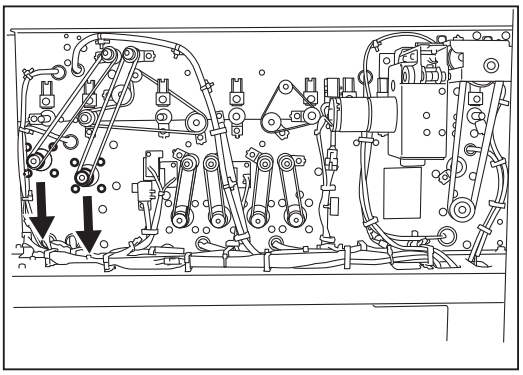
(2) Margin jam detecting sensor adjustment

1. Adjust the sensor detecting time in HELP Mode: 59.
2. Check the sensor operation in HELP Mode:11. (HELP Mode : 11→P.137) (HELP Mode : 59→P.161)



(3) Slitter position motor and belt adjustment

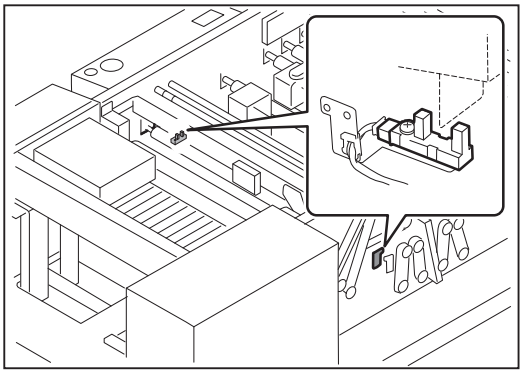
1. Adjust the belt tension to 6 mm/10N by moving the motor installation position.
2. Check the operation in HELP Mode: 26. (HELP Mode : 26→P.145)



5 Center Slitter Section

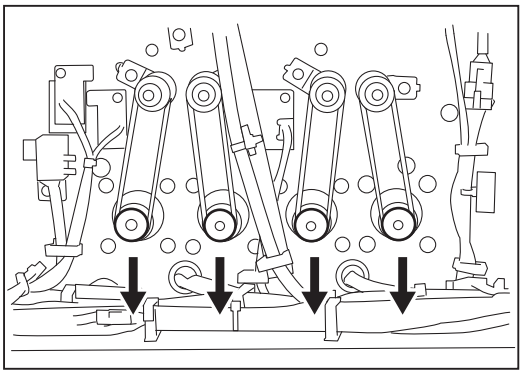
(1)Center slitter home position sensor adjustment

1. Check the sensor operation in HELP Mode:11, 26.
2. Feed the test paper through the machine applying the Service person JOB. (HELP Mode : 11→P.137)
   (HELP Mode : 26→P.145)
3. Adjust the home position setting in HELP Mode: 49.
   (HELP Mode : 49→P.156)



(2)Slitter position motor and belt adjustment

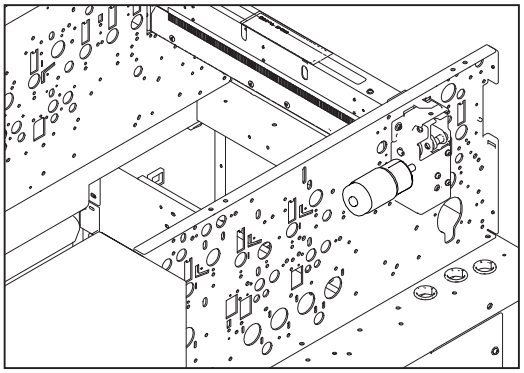
1. Adjust the belt tension to 3 mm/10N by moving the motor installation position.
2. Check the operation in HELP Mode: 26.
   (HELP Mode : 26→P.145)



6 Cutter Section

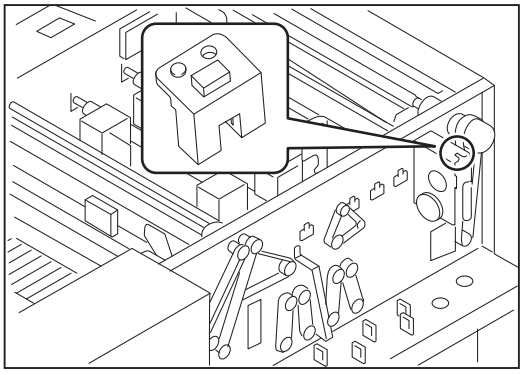
(1)Cutter motor adjustment

1. Perform the operation check in HELP Mode: 29.
(HELP Mode : 29→P.148)
2. Feed the test paper through the machine applying the Service person JOB.
3. Adjust the slide installation position (skew).
4. Adjust the cutting position in HELP Mode: 46.
(HELP Mode : 46→P.153)



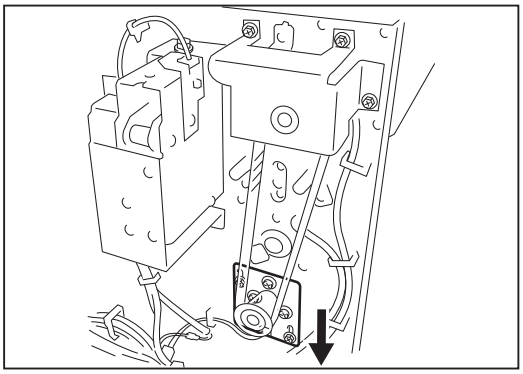
(2)Cutter home position sensor adjustment

1.Feed the test paper through the machine applying the Service person JOB.
2. Check the sensor operation in HELP Mode:11, 26.
(HELP Mode : 11→P.137)
(HELP Mode : 26→P.145)

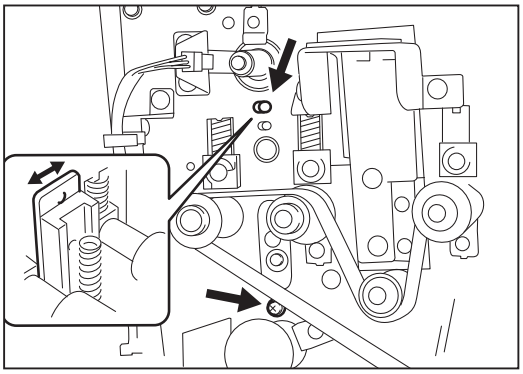


7 Creaser Section

(1)Creaser motor and belt adjustment



1. Move the motor installation position, and adjust the belt tension to 6 mm/10N.

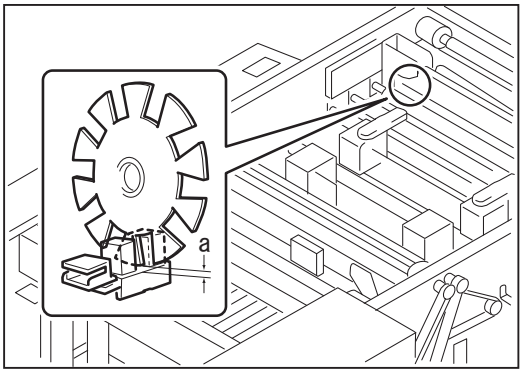


2. Perform the operation check in HELP Mode: 27.
(HELP Mode : 27→P.146)
3. Feed the test paper through the machine applying the Service person JOB.
4. Adjust the crease position and depth in HELP Mode: 47, 48.
(HELP Mode : 47→P.154)
(HELP Mode : 48→P.155)

REFERENCE

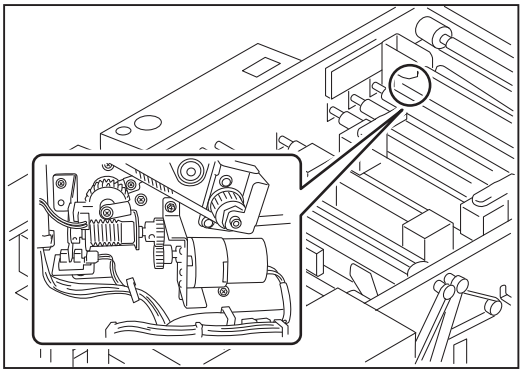
When the creaser depth is in MAX setting, creaser height is within 0.4 - 0.45 mm.

(2)Creaser lower blade encoder sensor adjustment



1. Adjust the distance between the encoder and the sensor “a” to 2.5 mm.
2. Perform the operation check in HELP Mode: 28.
(HELP Mode : 28→P.147)
3. Feed the test paper through the machine applying the Service person JOB.
4. Adjust the crease position and depth in HELP Mode: 47, 48.
(HELP Mode : 47→P.154)
(HELP Mode : 48→P.155)

(3)Creaser lower blade home position sensor

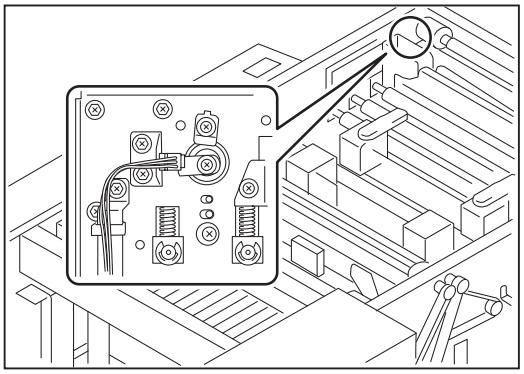


1. Perform the operation check in HELP Mode: 28.
(HELP Mode : 28→P.147)
2.Feed the test paper through the machine applying the Service person JOB.

3.Adjust the crease position and depth in HELP Mode: 47, 48.
(HELP Mode : 47→P.154)
(HELP Mode : 48→P.155)

(4)Creaser home position sensor

1. Perform the operation check in HELP Mode: 27.
(HELP Mode : 27→P.146)
2. Feed the test paper through the machine applying the Service person JOB.
3. Adjust the crease position and depth in HELP Mode: 47, 48.
(HELP Mode : 47→P.154)
(HELP Mode : 48→P.155)

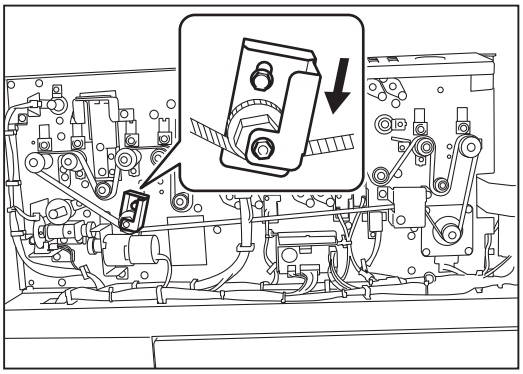


8 Main Drive Section

(1)Main motor drive belt adjustment

1. Move the pulley bracket installation position, and adjust the belt tension to 10 mm/10N.
2. After the adjustment, perform the operation check in HELP Mode: 41.

(HELP Mode : 41→P.150)



Chapter 5 Maintenance Checks

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(1) Cleaning ····· 110
(2) Oiling ····· 110
3 Periodic Maintenance Check List ····· 111
4 Recommended Parts List ····· 112

1 Guaranteeing Maintenance Cycle

After the delivered item, visit customer periodically and guide the DC-616 operation.

2 Cleaning and Oiling

(1) Cleaning

1. Slitter section and cutter section

Clean with a brush or a dry cloth.

(2) Oiling

1. Bearings

Apply a small amount of oil to the end face and axel while turning the levers and rollers.

2. Gears and Rails

Apply grease after cleaning the paper dust off of the gears.

3 Periodic Maintenance Check List

6-month Periodic Checks

Section to be checked	Description	Description
Sensors	Cleaning	Use a brush to clean any paper dust, etc.
Timing belt	Checking	Inspect Belts for signs of wear or loss of tension. Replace any cracked or worn belts, and retention as required.
Cutter	Oiling	Use a brush to clean any paper dust, etc.
Feed Belts	Cleaning	Use a brush to clean any paper dust, etc.
Gears	Greasing	
Springs	Greasing	
Slider	Greasing	

4 Recommended Parts List

No.	Part No.	Part name	MTBF	Remarks
1	S2-A114*	BELT	1 million sheets	Coated paper/230 gsm
2	AJ233	TIMING BELT	-	
3	AK049	ROLLER CHAIN	-	
4	N4-K212*	SEPARATER PLATE	-	
5	P9-F104*	UPPER BLADE	2 million sheets	Coated paper/230 gsm
6	P9-F107*	LOWER BLADE UNIT	2 million sheets	Coated paper/230 gsm
7	P9-F121*	NUT	-	
8	P9-F128*	ROLLER	-	
9	S2-J210*	CUTTER UNIT	1 million sheets	Coated paper/230 gsm
10	S2-K111*	CREASER UPPER BLADE	1 million sheets	Coated paper/230 gsm
11	S2-K102*	CREASER LOWER BLADE	1 million sheets	Coated paper/230 gsm
12	AJ232	TIMING BELT	-	
13	AJ044	TIMING BELT	-	
14	AJ301	TIMING BELT	-	
15	AJ146	TIMING BELT	-	
16	AJ230	TIMING BELT	-	
17	AJ231	TIMING BELT	-	
18	S2-N101*	DRIVING ROLLER	1 million sheets	Coated paper/230 gsm
19	S2-N102*	ROLLER CHAIN	1 million sheets	Coated paper/230 gsm
20	U7-Q515*	PERFORATION BLADE	250,000 times	high-quality paper(230 sm)
21	BZ008	MOTOR DRIVER	-	
22	CA021	PHOTO MICROSENSOR	-	
23	CA032	REFLECTIVE SENSOR	-	
24	CA033	PHOTOINTERRUPTER	-	
25	CA046	PHOTO MICROSENSOR	-	
26	CA059	PHOTOINTERRUPTER	-	
27	LA048	MICRO SWITCH	500,000 times	
28	UA040	SWITCHING POWER SUPPLY	100,000 times	
29	UD028	RELAY	-	
30	UJ040	RELAY	-	
31	P9-X107*	PHOTOINTERRUPTER	-	
32	L5-X104*	MOTOR	-	
33	M7-X104*	MOTOR	-	
34	U7-X101*	DC BLOW	-	
35	S2-X107*	DC BLOWER	-	
36	P6-X101*	DC SOLENOID	-	
37	S2-V500*	MAIN PCB UNIT	-	
38	S2-V311*	PANEL PCB UNIT	-	
39	S2-V321*	DRIVING PCB UNIT	-	
40	R8-V341*	USB PCB Unit	-	

No.	Part No.	Part name	MTBF	Remarks
41	R8-W122*	CABLE UNIT:SW1	-	
42	S2-W233*	BUNDLED CABLE UNIT SWITCH	-	
43	P9-X101*	STEPPING MOTOR	-	
44	P9-X102*	STEPPING MOTOR	-	
45	S2-X101*	MOTOR	-	
46	S2-X103*	STEPPING MOTOR	-	
47	LA051	MICRO SWITCH	1,000,000 times	
48	N4-X103*	CCD	-	
49	UI028	FUSE	-	
50	S2-X105*	AIR POMP	-	115 V
51	S2-X106*	AIR POMP	-	230 V

Please note that the replacement timing mentioned above is reference and may differ depending on actual usage environment and conditions.

Chapter 6 Troubleshooting

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(5) When “J5 Cut.crease” is displayed ··· 117
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1 Troubleshooting

(1) When “NO DOCUMENT” is Displayed

step	cause/failed area	check item	if	action	see page
1	Feed tray	Are any documents on the feed tray?	YES	Go to step 2.	-
			NO	Load the documents on the feed tray.	-
2	Paper tray sensor	Check the setting of the paper tray sensor in HELP mode 11 for the paper absence: 1,and the paper presence: 0.	YES	Go to step 3.	-
			NO	• Clean the sensor. • Replace the sensor.	64
3	Connector, Main PCB unit	Incomplete plug-in at #4 connectors of main PCB?	YES	Reconnect properly.	-
			NO	Replace the main PCB Unit.	97

(HELP Mode : 11→P.137)

(2) When “J2 FEED JAM” is Displayed

step	cause/failed area	check item	if	action	see page
1	Paper Level sensor	Check that the paper level sensor works properly in HELP Mode: 11.	YES	Go to step 2.	-
			NO	• Clean the sensor. • Replace the sensor.	61
2	Elevator upper/ lower limit switch	Check that the elevator upper/lower limit switch works properly in HELP Mode: 11.	YES	Go to step 3.	-
			NO	Replace the switch.	62
3	Connector, Main PCB unit	Check that the connection between the paper level sensor, elevator lower limit switch and #2, #3 connectors of main PCB are correct.	YES	Reconnect properly.	-
			NO	Replace the main PCB Unit.	97

(HELP Mode : 11→P.137)

(3) When “J3 FEED ERROR” is Displayed

step	cause/failed area	check item	if	action	see page
1	Inside the machine	• Paper jam in the machine (feed tray unit). • Error in the paper feed mechanism.	YES	• Remove the paper inside the machine. • Check that the paper feeds properly	-
			NO	Go to step 2.	-
2	PPS2	Check that the PPS2 sensor works properly in HELP Mode: 11.	YES	Go to step 3.	-
			NO	• Clean the sensor. • Replace the sensor.	69
3	Connector, Main PCB unit	Check that the PPS2 is connected to #4 connector of the main PCB properly.	YES	Reconnect properly.	-
			NO	Replace the main PCB Unit.	97

(HELP Mode : 11→P.137)

(4) When “J4 Slitter” is displayed

step	cause/failed area	check item	if	action	see page
1	JOB setting	Does not PPS3 detect gutter slit (blank-area)?	YES	Reset slit position or pull out gutter guides.	-
2	Inside the machine	Paper jam inside the machine (slitter unit).	YES	Remove the paper inside the machine.	-
			NO	Go to step 3.	-
3	PPS3	Check that the PPS3 sensor works properly in HELP Mode: 11.	YES	Go to step 4.	-
			NO	• Clean the sensor. • Replace the sensor.	81
4	Connector, Main PCB unit	Check that the PPS3 is connected to #4 connector of the main PCB properly.	YES	Reconnect properly.	-
			NO	Replace the main PCB Unit.	97

(HELP Mode : 11→P.137)

(5) When “J5 Cut.crease” is displayed

step	cause/failed area	check item	if	action	see page
1	Inside the machine	Paper jam in the machine (cutter unit or creaser unit).	YES	Remove the paper inside the machine.	-
			NO	Go to step 2.	-
2	PPS4	Check that the PPS4 sensor works properly in HELP Mode: 11.	YES	Go to step 3.	-
			NO	• Clean the sensor. • Replace the sensor.	89
3	Connector, Main PCB unit	Check that the PPS4 is connected to #4 connector of the main PCB properly.	YES	Reconnect properly.	-
			NO	Replace the main PCB Unit.	97

(HELP Mode : 11→P.137)

(6) When “J6 Exit tray” is displayed

step	cause/failed area	check item	if	action	see page
1	Inside the machine	Paper jam in the machine (stacker tray unit or waste box unit)	YES	Remove the paper inside the machine.	-
			NO	Go to step 2.	-
2	PPS4/Margin jam sensor	Check that the margin jam sensor and PPS4 work properly in HELP Mode: 11.	YES	Go to step 3.	-
			NO	• Clean the sensor. • Replace the sensor.	89
3	Connector, Main PCB unit	Check that the PPS4 and margin jam sensor are connected to #4 connector of the main PCB properly.	YES	Reconnect properly.	-
			NO	Replace the main PCB Unit.	97

(HELP Mode : 11→P.137)

(7) “E00 Main-Panel” is displayed

step	cause/failed area	check item	if	action	see page
1	Main PCB/ control panel	Check that the connection between the main PCB (CN6) and the board of control panel (CN3) is correct.	YES	Reconnect properly.	-
			NO	Go to step 2.	-
2	Main PCB/ control panel	Check that the LED works properly on the control panel in HELP Mode:16.	YES	Replace the main PCB Unit.	97
			NO	Replace the panel PCB Unit	96

(HELP Mode : 16→P.140)

(8) When “E01 CCD” is displayed

step	cause/failed area	check item	if	action	see page
1	CCD	Try reading out the adjustment test paper.	NG	Replace the main PCB or CCD.	97 68

(9) When “E02 Elevator” is Displayed

step	cause/failed area	check item	if	action	see page
1	Elevator lower limit switch	Check that the elevator lower switch works properly in HELP Mode: 17.	YES	Go to step 2.	-
			NO	Replace the switch.	62
2	Elevator upper limit switch	Check that the elevator upper limit switch works properly.	YES	Go to step 3.	-
			NO	Replace the switch.	62
3	Drive PCB	Check the adequate 24 V output power at #1 and 2 terminal of CN5.	YES	Replace the elevator motor.	63
			NO	Replace the drive/power source PCB.	96 97

(HELP Mode : 17→P.141)

(10) When “E03 Crease lower” is Displayed

step	cause/failed area	check item	if	action	see page
1	Creaser lower blade HP sensor	Check that the creaser lower blade sensor works properly in HELP Mode: 28.	YES	Go to step 2.	-
			NO	• Clean the sensor. • Replace the sensor.	87
2	Creaser lower blade ENC sensor	Check that the creaser lower blade ENC sensor works properly in HELP Mode: 28.	YES	Go to step 3.	-
			NO	• Clean the sensor. • Replace the sensor.	88
3	Connector, drive PCB	Check that the creaser lower blade HP sensor is connected to #3 connector of the main PCB properly.	YES	Reconnect properly.	-
			NO	Replace the main PCB Unit.	97

(HELP Mode : 28→P.147)

(11) When “E04-06 Memory error” is Displayed

step	cause/failed area	check item	if	action	see page
1	Main PCB	Check that an error message is displayed even if the power is turned on again.	YES	Replace the main PCB Unit.	97

(12) When “E07 Connect error” is displayed

step	cause/failed area	check item	if	action	see page
1	Main PCB/Drive PCB	Check that the connection between the main PCB (CN6) and the drive PCB (CN3) is correct.	YES	Reconnect properly.	-
			NO	Go to step 2.	-
2	Main PCB/Drive PCB	Check that the Drive PCB works properly in HELP Mode: 16.	YES	Replace the main PCB.	97
			NO	Replace the Drive PCB.	97

(HELP Mode : 16→P.140)

(13) “E08 FPGA ERROR” is displayed

step	cause/failed area	check item	if	action	see page
1	Main PCB	Check that an error message is displayed even if the power is turned on again.	YES	Replace the main PCB Unit.	97

(14) When “BC READ ERROR” is displayed

step	cause/failed area	check item	if	action	see page
1	Document	Is the barcode printed on the document?	YES	Go to step 2.	-
			NO	Change the document to the proper one.	-
2	Document	Is the barcode bad printing?	YES	Go to step 3.	-
			NO	Print barcode again.	-
3	Document	Is the barcode valid? (1 to 80)	YES	Go to step 4.	-
			NO	Print valid barcode.	-
4	CCD	Attempt to read the test sheet.	NG	Replace the CCD unit.	68

(15) When “REG MARK ERROR” is displayed

step	cause/failed area	check item	if	action	see page
1	Document	Is the REG mark printed on the document?	YES	Go to step 2.	-
			NO	Change the document to the proper one.	-
2	Document	Is the REG mark bad printing?	YES	Go to step 3.	-
			NO	Print REG mark again.	-
3	Document	Is the REG mark valid?	YES	Go to step 4.	-
			NO	Print valid REG mark.	-
4	CCD	Attempt to read the test sheet.	NG	Replace the CCD unit.	68

2 Conditions for the Error Detection

No paper

PPS1 is in the “light through” state when the <START> or <TEST> key is pressed.

J2 Feed tray

Both the elevator lower/upper limit switches are turned on.

J3 Feed error

The paper does not reach the PPS2 even if the feeding operation is performed for three times.

J4 Slitter

The paper does not reach the PPS3 even if it is fed by 400 mm after passing through the PPS2.

J5 Cut.crease

The PPS3 is kept in the “light blocked” state even if the paper is fed by 820 mm after the cut and crease process being completed.

The paper does not reach the PPS4 even if it is fed by 75 mm after the cut and crease process being completed.

J6 Exit tray

The PPS4 is kept in the “light blocked” state even if the paper is fed by “registration paper length + 300 mm” during processing.

J7 Waste box

The margin jam sensor is in the “light blocked” state for the configured period (800 ms) during processing.

E00 Main-Panel

The main panel does not respond to the inquiry from the control panel within 6 seconds.

E01 CCD

A communication error occurs in the barcode scanner operation.

E02 Elevator

After the driving signal of the elevator is output, it dose not reach either the upper or lower sensor within 10 seconds.

E03 Crease lower

The encoder output does not change (H/L) even if the creaser lower blade motor is started.

The HP of the lower blade cannot be detected within 10 seconds after the creaser-driving signal is output.

E04-06 Memory error

There is no response from the memory (write/read error)

E07 Connect error

The connection between the main PCB and drive PCB is incorrect.

The input to the main PCB from the drive PCB cannot be confirmed.

E08 FPGA ERROR

Program writing is not successful.

Slitter 1-6 lock

Within 12 seconds after the slitter driving signal is output, the slitter does not reach the HP or it does not move from the HP after reaching the HP (detection period: 12 seconds).

Cutter lock

Within 2 seconds after the cutter driving signal is output, the cutter does not reach the HP or it does not move from the HP after reaching the HP.

Crease lock

Within 2 seconds after the creaser upper blade driving signal is output, the creaser upper blade does not reach the HP or it does not move from the HP after reaching the HP.

Document in machine

In the standby mode, the PPS2 to PPS4 and margin jam sensor are in the “light blocked” state.

Cover open

The interlock switch is turned off when processing is started or during processing.

Double feed

The ultrasonic sensor exceeds the threshold value.

JOB error

An unsupported job is registered.

USB error

A USB communication error occurs.

Gutter deflector

The Gutter sensor is turned on when a job that does not need “Gutter” is registered.

BC error 1

Barcode reading is not successful.

BC error 2

The job printed in the barcode is not registered.

BC error 3

The check digit is not correct.

REG error 1

Particles of dirt adhere to the paper, or the lead mark cannot be read properly.

REG error 2

The REG mark cannot be read (not printed).

REG error 3

The side mark cannot be read properly.

REG error 4

The correction using REG mark causes the slitter to go beyond the limited area.

CCD read error

Both the barcode and REG mark cannot be identified using CCD while they are turned on.

Document in waste box

The margin jam sensor is in the “light blocked” state for more than the configured period.

3 Major Cause and Preventive Action for the Paper Jam

Avoid using the following types of paper:

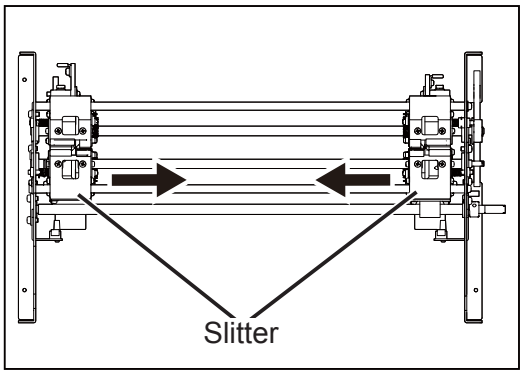
- Torn paper or paper with large holes
- Paper held together with a clip or staples
- Substantially curled, wavy, or partially folded paper
- Carbon paper and the like
- Paper of high transparency such as OHP films
- Paper with punched holes for filing
- Paper containing cut-and-paste areas
- Laminated paper of inadequate adhesion
- Paper with edges on the cutting surface

4 Slitter Blade Intersection Correction

When a heavy weight document is jammed in the margin slitter area and the center slitter area, if you pull out the document by force, the slitter upper blade and the lower blade may intersect each other. Also, when the document cannot be slit or conveyed, the blades may have intersected.
In this case, follow the procedures below to correct the upper blade or lower blade position.

● In Case of Center Slitter 3 (Example)

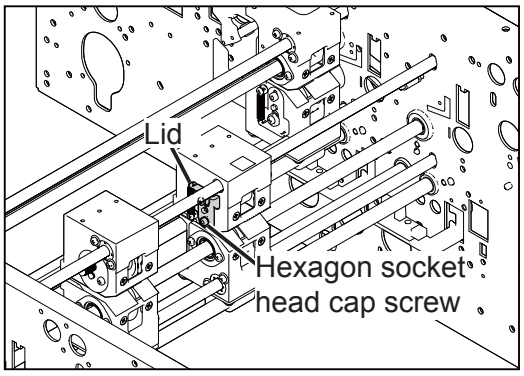
1. Move the center slitters to the center of the module.



2. Loosen the hexagon socket head cap screw securing the lid of the slitter with the intersecting blade. (The right figure shows the slitter 3.)

REFERENCE

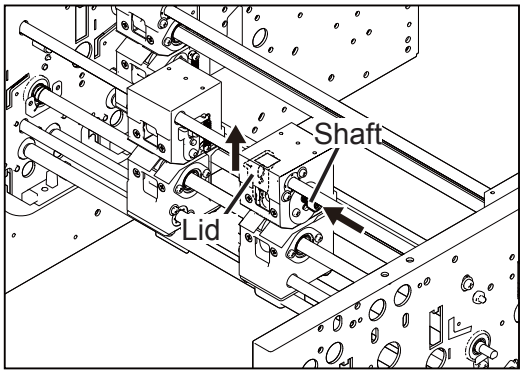
- Do not remove the screw of the lid securing the eccentric pin.
- Do not loosen the hexagon socket head cap screw excessively. The screw will drop off.



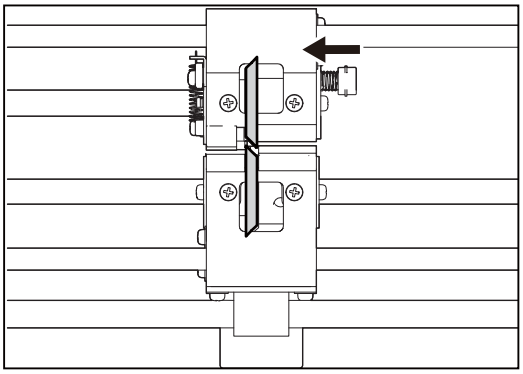
3. Insert the shaft into the hole of the lid while sliding the lid upward.

REFERENCE

- Margin slitters 1 and 2:
  Slide the lid of the lower blade downward.
- Center slitters 3 and 4:
  Slide the lid of the upper blade upward.
- Center slitters 5 and 6:
  Slide the lid of the lower blade downward.



4. Push the shaft in the direction of the arrow to correct the intersecting upper blade.

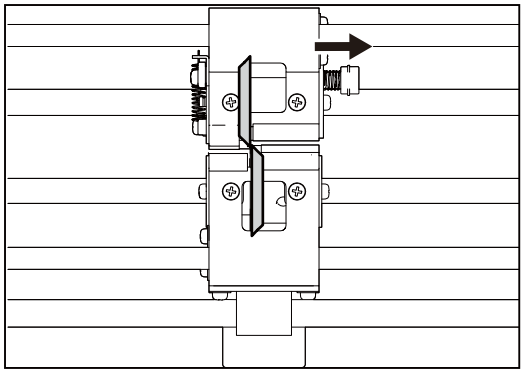


REFERENCE

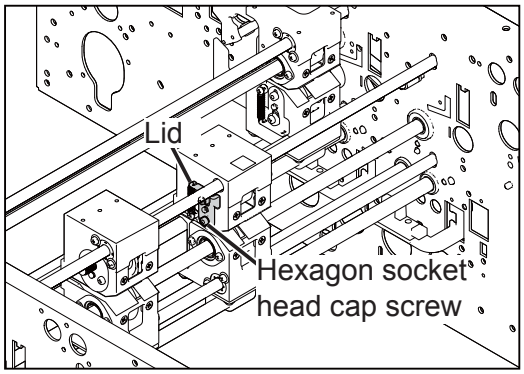
The right figure shows that the upper blade and the lower blade intersect.
Pushing the shaft in without sliding the lid may damage the upper blade and the lower blade.

REFERENCE

The right figure shows that the blade intersection is corrected and the blades are in the normal position.



5. Tighten the hexagon socket head cap screw to secure the lid.



6. Move the slitter which blade intersection has been corrected to its home position in HELP mode: 31.

7. Check that the slitter home position is detected correctly in HELP mode: 11.

Chapter 7 HELP Mode

1 HELP Mode List 128
2 Accessing the HELP Mode 129
3 Finishing the HELP Mode 129
4 Setting the Other HELP Mode No. 129
5 Accessing the Service Person JOB 129
6 HELP Mode Description 130

1 HELP Mode List

No.	Function	Category	Page
HELP00	(1) Display the ROM (FPGA) version.	ROM version display	130
	(2) ROM version upgrade	ROM version upgrade	
HELP02	(1) Display the count	counter	133
	(2) Reset the count		
HELP04	(1) Display the jam count (reset)	counter	135
HELP07	(1) Display the error count (reset)	counter	136
HELP11	(1) Sensor switch check	sensor switch check	137
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HELP20	(1) Compressor operation test	operation test	144
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HELP27	(1) Creaser upper blade motor operation test	operation test	146
HELP28	(1) Creaser lower blade motor operation test	operation test	147
HELP29	(1) Cutter motor operation test	operation test	148
HELP31	(1) Slitter operation test (1~ 6)	operation test	149
HELP41	(1) Main motor operation test	operation test	150
HELP43	(1) Clear the JOB, counter	clear the memory	151
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HELP47	(1) Creasing position adjustment	adjustment	154
HELP48	(1) Creasing depth adjustment	adjustment	155
HELP49	(1) Margin and center slitter positions adjustment	adjustment	156
HELP50	(1) Slit positions auto adjustment	adjustment	157
HELP52	(1) Main motor transfer distance adjustment	adjustment	159
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HELP60	(1) Optional function setting	setting	162
HELP61	(1) Serial number setting	setting	163
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HELP62	(1) LCD panel contrast adjustment	LCD panel contrast adjustment	165
HELP98	(1) Special setting	(User customize function)	166

2 Accessing the HELP Mode

1. When the machine is in use, put it in the standby mode and turn OFF the power switch before accessing the HELP Mode.

2. Turn on the power switch, and hold down the (Left) and (Right) JOG keys simultaneously.
   In about 10 seconds, “00: ROM VERSION” appears on the display with the beep sound.

3. Input the relevant “HELP Mode No.” that you want to check or change by the NUMERIC keys.
   e.g.: To access the HELP Mode “H-11”, input the number by pressing “1”, “1”.

REFERENCE

Alternatively, “HELP Mode No.” is selected by using the Cursor (Up/Down) key. Holding down the key can select HELP Mode automatically as well.

4. Press the <START> key. The “HELP Mode” specified in 3 above is displayed.
   Follow the procedure described under the corresponding “HELP Mode No.”

REFERENCE

Continuously pressing the RETURN key and the CURSOR (Down) key simultaneously can reset the machine to the standby mode.

3 Finishing the HELP Mode

Turn off the power switch to finish the HELP mode.

4 Setting the Other HELP Mode No.

Press the STOP key to return to the selection screen of the HELP mode.
Input the “HELP Mode No.” that you want to check or change by the NUMERIC keys.

5 Accessing the Service Person JOB

1. When the machine is in use, put it in the standby mode and turn off the power switch before accessing the HELP Mode.

2. Turn on the power switch while pressing the CURSOR (Up) key and the CLEAR key simultaneously.
   The machine is put in the standby mode with the “pip” sound.

3. Input the “Service person JOB No.” to be checked by using the NUMERIC keys.
   e.g.: To access the Service person JOB “81”, input the number by pressing “8”, “1”.

4. Press the TEST key, and the JOB will be implemented.

6 HELP Mode Description

HELP Mode: 00

1. Function

(1) ROM version display
- Main: The ROM version of the Main PCB is displayed.
- Panel: The ROM version of the control panel PCB is displayed.

H00 Version ck.▾
Main:V x.xx
Panel:V x.xx
SET:Update

(2) ROM version upgrade
2-1. DDL-1/DDL-2 version upgrade
2-2. USB version upgrade
- The main PCB and the panel PCB are upgraded.

2. Operating Procedure

(1) ROM version display
1. Access the HELP Mode, and press the <START> key .
   Main: The ROM version of the Main PCB is displayed.
   Panel: The ROM version of the control panel PCB is displayed.
   Press the DOWN cursor key.
   FPGA: FPGA is displayed.

H00 Version ck.▾
Main:V x.xx
Panel:V x.xx
SET:Update

2. Press the STOP key. It will return to the HELP Mode selection screen.

(2) ROM version upgrade

2-1. DDL-1/DDL-2 version upgrade
Upgrading the ROM needs the downloader. (DDL-1/DDL-2)

1. When the machine is in use, put it in the standby mode and turn off the power.
2. Loosen the screw, and remove the connector cover specified for version upgrade.
3. Connect the connector of downloader to the connector specified for version upgrade.
4. Turn on the power switch.
5. Hold down the (left) and (right) JOG keys simultaneously.
   “H00 : Version ck” appears on the LCD panel with beeping sound.
6. Press the SET key. The machine enters standby mode of “ROM version upgrade”.





For more details, see the instruction manual of the downloader.

2-2. USB version upgrade

The USB Serial Converter is a software necessary for upgrading product via computer.

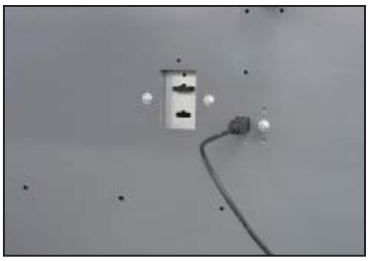
Operating system: Windows 8 (32bit/64bit)
Windows 7 (32bit/64bit)
Windows VISTA (32bit/64bit)
Windows XP Professional/Home Edition
Windows 2000 Professional

Interface: USB port (USB2.0/1.1)

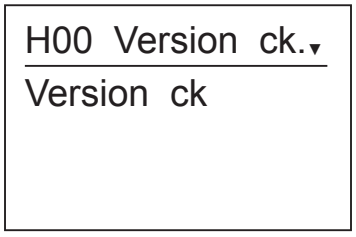
The USB Serial Converter is not available in Macintosh.

1. When the machine is in use, put it in the standby mode and turn off the power.

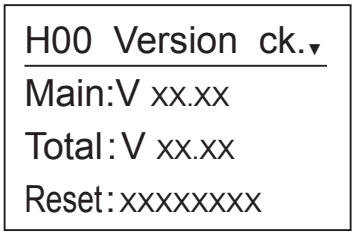
2. Connect your computer and the DC-616 with the USB cable.



3. Turn on the power switch.
Hold down the (Left) and (Right) JOG keys simultaneously.
“H00 : Version ck” appears on the LCD panel with beeping sound.



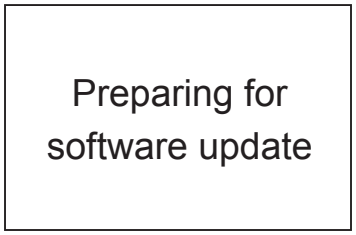
4. Press the <START> key to check the version of the main PCB unit and the panel PCB unit.



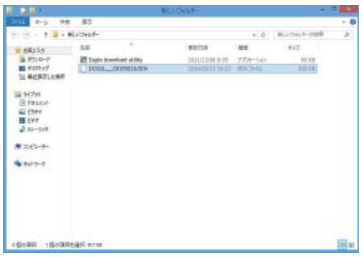
5. Press the SET key to enter upgrading mode.

REFERENCE

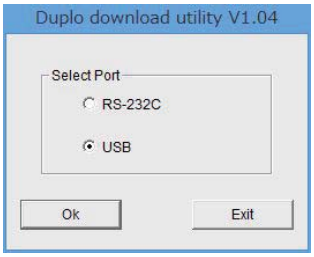
Click [**Cancel**] if “Completing the device driver installation wizard” dialog appears on your computer.



6. Click [**Duplo download utility**] folder, and double-click [**Duplo download utility. exe**].



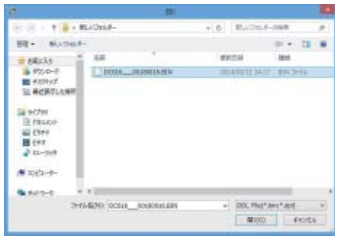
7. Select [USB] and click [**OK**].



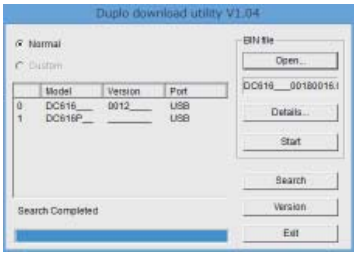
8. Click [**OPEN**].



9. Select a file, and click [**OPEN**].

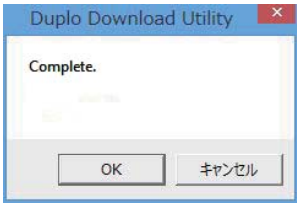


10. [**Normal**] is selected.
Click [**Start**]. Upgrading starts.



11. When the download completes, the message [**Complete**] appears.
Click [**OK**].

12. Turn off the power of DC-616, then turn on the power again.

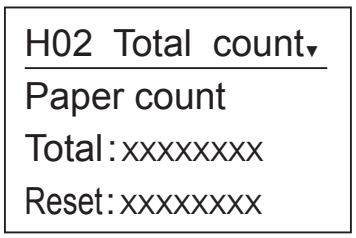


HELP Mode: 02

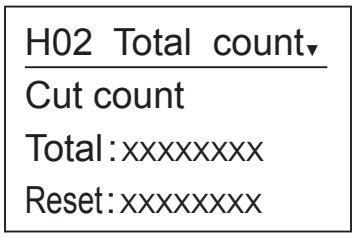
1. Function

(1) Display the count

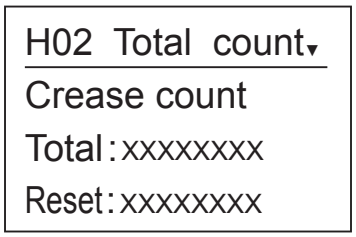
• Total number of paper feed is displayed in 8 digits numeral.



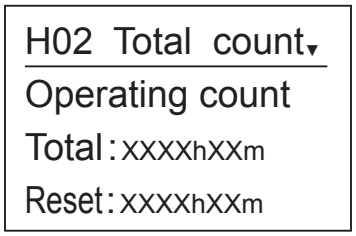
• Total number of cutting is displayed in 8 digits numeral.



• Total number of crease is displayed in 8 digits numeral.



• Paper feed time is displayed.



(2) Reset the count

• The reset count is reset.

2. Operating Procedure

(1) Display the count

1. Access the HELP Mode “02”, and press the <START> key.

2. Press the UP/DOWN cursor key to switch pages.
   Total: Total count is shown.

3. Press the <STOP> key. It will return to the HELP Mode selection screen.

(2) Reset the count

1. Access the HELP Mode “02”.

2. Continuously press the <C> in the NUMERIC key for about 3 seconds, and the reset count will be reset with the beeping sound.

REFERENCE

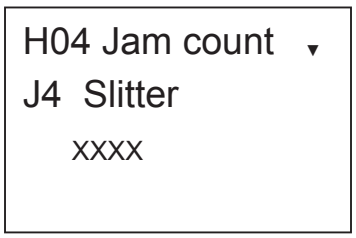
Total count cannot be reset.

3. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 04

1. Function

(1) Display on the jam count
• Display the jam count of each item.



2. Operating Procedure

(1) Check on the paper jam count

1. Access the HELP Mode “04”, and press the <START> key.

2. Press the UP/DOWN cursor key to switch pages.
J4 Slitter
J5 Cut.crease
J6 Exit tray
J7 Waste box
Slit 1 lock
Slit 2 lock
Slit 3 lock
Slit 4 lock
Slit 5 lock
Slit 6 lock
BC error 1
BC error 2
BC error 3
Reg error 1
Reg error 2
Reg error 3
Reg error 4
Double feed
Cutter lock
Creaser lock

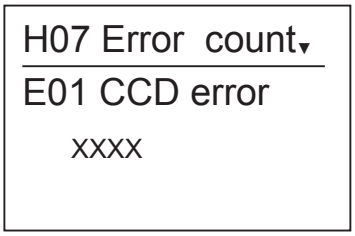
3. Continuously press the <C> in the NUMERIC key for about 3 seconds, and selected error count will be reset with the beeping sound.

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 07

1. Function

(1) Display the error count
• Display the error count of each item.



2. Operating Procedure

(1) Display the error count

1. Access the HELP Mode “07”, and press the <START> key.

2. Press the UP/DOWN cursor key to switch pages.
   E01 CCD error
   E02 Elve. error
   E03 Cre. lower

3. Continuously press the <C> in the NUMERIC key for about 3 seconds, and selected error count will be reset with the bleeping sound.

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 11

1. Function

(1) Sensor switch check
• Status of the sensor switch ON: 0 / OFF: 1 is displayed.

H11 Sens. ck. ▾	
PPS1	x
PPS2	x
PPS3	x

2. Operating Procedure

(1) Sensor switch check

1. Access the HELP Mode “11”, and press the <START> key.

2. Press the UP/DOWN cursor key to switch pages.

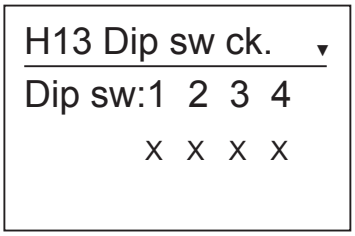
3. Press the <STOP> key. It will return to the HELP Mode selection screen.

Page	Sensor	Display
Page 1	PPS1	0: light blocked 1: light through
	PPS2	0: light through 1: light blocked
	PPS3	
Page 2	PPS4	0: light through 1: light blocked
	Slit 1 hp	
	Slit 2 hp	
Page 3	Slit 3 hp	0: light through 1: light blocked
	Slit 4 hp	
	Slit 5 hp	
Page 4	Slit 6 hp	0: light through 1: light blocked
	Cut hp	
	Crease up hp	
Page 5	Crease low. hp	0: light through 1: light blocked
	Crease enc	
	Elev. dw. SW	0: ON 1: OFF
Page 6	Elev. low. SW	0: OFF 1: ON
	Level sensor	0: light through 1: light blocked
	Cover SW	0: OFF 1: ON
Page 7	Gutter on/off	0: light through 1: light blocked
	Trim waste	
	Perf Sensor	

HELP Mode : 13

1. Function

(1) DIP switch check
- Status of the DIP switch is displayed.
- Because DIP SW1 is used for version-up, it cannot be verified in HELP Mode “13”.



2. Operating Procedure

(1) DIP switch check

1. Access the HELP Mode “13”, and press the <START> key.
   - Status of the DIP switch ON/OFF is displayed.
     1: ON
     2: OFF

2. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 15

1. Function

(1) Double feed detection check
• Double feed detection result is verified.

H15 D feed check
Value : x
0 : 1sheet
1: more

2. Operating Procedure

(1) Double feed detection check

1. Access the HELP Mode “15”, and press the <START> key.
• The double feed detection result is displayed:
0: one sheets of paper
1: two sheets of paper or more

2. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 16

1. Function

(1) Control panel check
- Check that the NUMERIC keys on the control panel work correctly.
- Check that the buzzer of the keys on the control panel sounds correctly.
- Check that the LEDs on the LED PCB function correctly.

H16 Panel check
Key : Buzzer on
SET : LCD LED on

2. Operating Procedure

(1) Control panel check

1. Access the HELP Mode “16”, and press the <START> key.

2. Press the NUMERIC keys. A buzzer sounds.

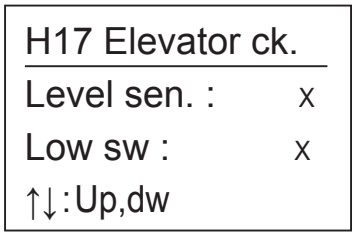
3. The LCD panel will be black while pressing the SET key.
   The LED on the control panel and on the LED PCB blinks.

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 17

1. Function

(1) Paper feed elevator operation test
- The correct operation of the paper feed elevator is verified.
- The status of the paper level sensor and the elevator lower limit switch are verified.



2. Operating Procedure

(1) Paper feed elevator operation test

1. Access the HELP Mode “17”, and press the <START> key.
2. Run the elevator by pressing the CURSOR (Up/Down) keys.
3. Press the CURSOR (Right/Left) keys to turn the pages.
4. The status of the sensor while the elevator is operating is verified.
5. Press the <STOP> key. It will return to the HELP Mode selection screen.

Sensor switch	Elevator upper limit	Elevator lower limit
Level sen.	1: light blocked	0: light through
Low SW	0: OFF	1: ON

HELP Mode : 18

1. Function

(1) Fan motor operation test
- The proper function of suction motor is verified.
- The proper function of blower motor is verified.

H18 Air check
↑: Suction fan
↓: Blow out fan

2. Operating Procedure

(1) Fan motor operation test

1. Access the HELP Mode “18”, and press the <START> key.

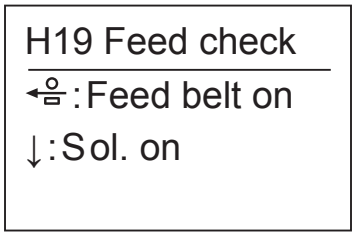
2. Press the UP/DOWN cursor key, and operate the fan motor.
   - UP cursor key: Suction fan
   - DOWN cursor key: Blower fan

3. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 19

1. Function

(1) Feed motor operation test
  • Operate the feed motor.
(2) Shutter solenoid operation test
  • Operate the shutter solenoid.



2. Operating Procedure

(1) Feed motor operation test

1. Access the HELP Mode “19”, and press the <START> key.
2. Press the <JOG> key, and operate the feed motor.
3. Press the <STOP> key. It will return to the HELP Mode selection screen.

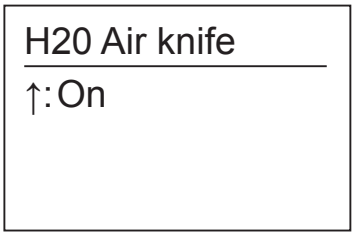
(2) Shutter solenoid operation test

1. Access the HELP Mode “19”, and press the <START> key.
2. Press the DOWN cursor key, and operate the shutter solenoid.
3. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 20

1. Function

(1) Compressor operation test
• Operate the compressor.



2. Operating Procedure

(1) Compressor operation test

1. Access the HELP Mode “20”, and press the <START> key.
2. Press the UP cursor key, and operate the compressor.
3. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 26

1. Function

(1) Slitter operation test
- Move the slitter to its home position.
- The proper function of the slitter operation is verified.

H26
Slitter run ck.
↑:Hp ck.
↓:Run test

2. Operating Procedure

(1) Slitter home position check

1. Access the HELP Mode “26”, and press the <START> key.

2. Press the UP/DOWN cursor key, and move the slitter.

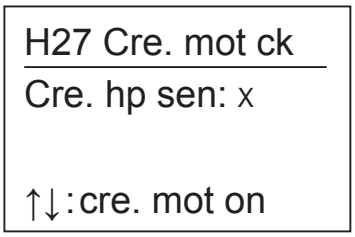
   UP cursor key : Move to home position.
   DOWN cursor key: Move to the right or the left.
   (10 back and forth)

3. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 27

1. Function

(1) Creaser upper blade motor operation test
- The proper function of the creaser upper blade motor is verified.
- The proper function of the creaser upper blade home position sensor is verified.



2. Operating Procedure

(1) Creaser upper blade motor operation test

1. Access the HELP Mode “27”, and press the <START> key.

2. Press the UP/DOWN cursor key, and operate the motor.
   UP cursor key: normal rotation
   DOWN cursor key: reverse rotation

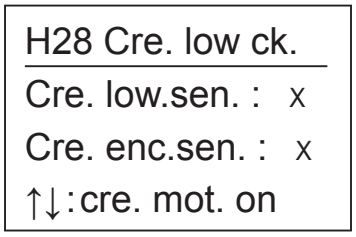
3. Verify if the sensor detects.
   0: light through
   1: light blocked

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 28

1. Function

(1) Creaser lower blade motor operation test
- The proper function of the creaser lower blade motor is verified.
- The proper function of the creaser lower blade home position is verified.



2. Operating Procedure

(1) Creaser lower blade motor operation test

1. Access the HELP Mode “28”, and press the <START> key.

2. Press the UP/DOWN cursor key, and operate the motor.

   UP cursor key: normal rotation
   DOWN cursor key: reverse rotation

3. Check that the sensors detect properly.

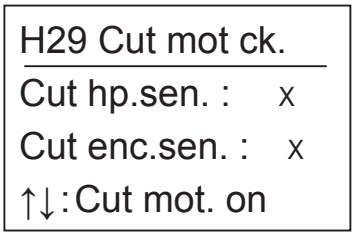
   0: light through
   1: light blocked

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 29

1. Function

(1) Cutter motor operation test
• The proper function of the cutter motor is verified.



2. Operating Procedure

(1) Cutter motor operation test

1. Access the HELP Mode “29”, and press the <START> key.

2. Press the UP/DOWN cursor key, and operate the motor.

   UP cursor key: normal rotation
   DOWN cursor key: reverse rotation

3. Check that the sensors detect properly.

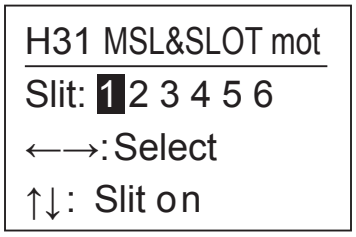
   0: light through
   1: light blocked

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 31

1. Function

(1) Slitter operation test (1~6)
- The proper function of the slitter motor is verified.



2. Operating Procedure

(1) Slitter motor operation test

1. Access the HELP Mode “31”, and press the <START> key.

2. Select the slitter by pressing the RIGHT/LEFT cursor key.

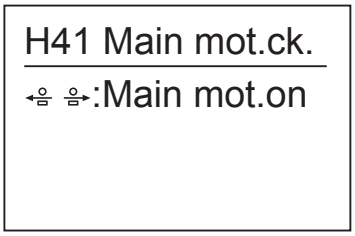
3. Move the selected slitter by pressing the UP/DOWN cursor key.
   UP cursor key: Move to the opposite side.
   DOWN cursor key: Move to the control panel side.

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 41

1. Function

(1) Main motor operation test
• The proper function of the main motor is verified.



2. Operating Procedure

(1) Main motor operation test

1. Access the HELP Mode “41”, and press the <START> key.
2. Activate the main motor by pressing the <JOG> and <JOG> keys.
3. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 43

1. Function

(1) Clear the JOB, counter
- The contents and history of the JOB (01-80) and the reset counter are reset.
- The contents and history of the JOB (01-80) is reset.

H43 Initialize
↑+↓:All clear
SET+C:JOB clear

2. Operating Procedure

(1) Clear the counter

1. Access the HELP Mode “43”, and press the <START> key.

2. Press the <SET> key and the <C> key simultaneously to reset the JOB. “Please Wait” appears on the LED panel, and the JOB initialization is commenced. It takes 30 seconds before the initializing process is completed. Once completed, “FINISH!!” appears on the LCD panel.

IMPORTANT

Do not turn OFF the power switch while “Please Wait” is displayed on the panel. If it is turned OFF, please repeat the initialization process from the beginning

3. Press the UP/DOWN cursor key simultaneously to reset the JOB and the counter.

4. “Initialize now!!” appears on the LCD panel and the HELP Mode “43” exits automatically.

HELP Mode : 45

1. Function

(1) REG. mark read out position adjustment
• REG. mark read-out position is adjusted.

H45
PPS2 CCD dist.
S:xx.x L:xx.x
JOB:xx

2. Operating Procedure

(1) REG. mark read out position adjustment

1. Access the HELP Mode “45”, and press the <START> key.

2. Select “JOB” by pressing the UP/DOWN cursor key.

3. Press the “1” key, and select the Service person JOB 87.

4. Load a check sheet on the feed tray, and press the <TEST> key.

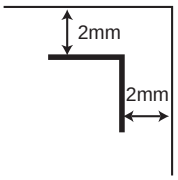
5. Enter numerical value into “S” and “L” so that a cut position of 2 mm (+/- 0.2 mm) from the lead mark/side mark is set.

H45
PPS2 CCD dist.
S:xx.x L:xx.x
JOB:xx

H45
PPS2 CCD dist.
S:xx.x L:xx.x
JOB:87

REFERENCE

Entering “-1.0” causes the cut position to be shifted by 1.0



6. Press the <SET> key , and store the adjustment information in the memory.

7. Press the <STOP> key. It will return to the HELP Mode selection screen.

REFERENCE

Perform the following procedures when you replace the CCD.
1. Access the HELP Mode “H45”, and press the <START> key.
2. Select “CCD read” by pressing the UP/DOWN cursor key.
3. Load a check sheet on the feed tray, and press the <TEST> key. Check the values of “S” and “L” are 10.0.

HELP Mode : 46

1. Function

(1) Cutting position adjustment
- The cutting position is adjusted.

H46
PPS3 -Cut dist.
Distance : xxx
SET : Save

2. Operating Procedure

(1) Cutting position adjustment

1. Set the skew adjusting dial at “0”.

2. Access the HELP Mode “46”, and press the <START> key.

3. Cut the adjustment paper (S2-Y1040) by pressing the <TEST> key.
   * The paper is cut applying the Service person JOB83.

4. Measure the cut paper length.

5. Enter the adjustment value by pressing the NUMERIC key.
   The cutting position moves by 0.1 mm when the adjustment value is changed by 1.

IMPORTANT

Cutting position change will automatically result in the creasing position change. Always readjust the creasing position after the cutting position
change (HELP: 47).

IMPORTANT

Cutting position is reset to the default value by continuously pressing the <C> key. (This is not a factory setting.)

6. Press the <SET> key, and store the adjustment information in the memory.

7. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 47

1. Function

(1) Creasing position adjustment
• The creasing position is adjusted.

H47
Cut-Crease dist.
Distance : xxx
SET : Save

2. Operating Procedure

(1) Creasing position adjustment

1. Set the skew adjusting dial at “0”.

2. Access the HELP Mode “47”, and press the <START> key.

3. Cut the adjustment paper (S2-Y1040) by pressing the <TEST> key.
* The paper is cut applying the Service person JOB83.

4. Measure the finished creasing position.

5. Enter the adjustment value by pressing the NUMERIC key.
The creasing position moves by 0.1 mm when the adjustment value is changed by 1.

REFERENCE

Creasing position is reset to the default value by continuously pressing the <C> key. (This is not a factory setting.)

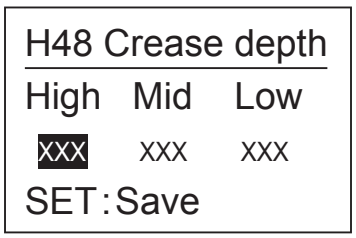
6. Press the <SET> key, and store the adjustment information in the memory.

7. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 48

1. Function

(1) Creasing depth adjustment
- The creasing depth is adjusted.



2. Operating Procedure

(1) Creasing depth adjustment

1. Set the skew adjusting dial at “0”.

2. Access the HELP Mode “48”, and press the <START> key.

3. Cut the adjustment paper by pressing the <TEST> key.
   * The paper is cut applying the Service person JOB83.

4. Measure the finished creasing depth.

5. Select the desired depth by pressing the UP/DOWN cursor key.

6. Enter the adjustment value by pressing the NUMERIC key.
   (0-150)
   The slitter position moves by 0.1 mm when the adjustment value is changed by 1.

IMPORTANT

The creasing depth is adjustable in 3-levels.
Thus the adjustment values shall be set to be HIGH > MID > LOW.

IMPORTANT

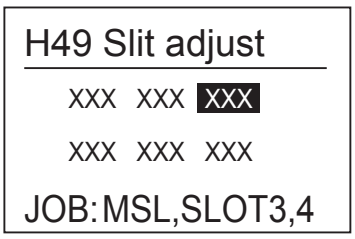
Reference depth: Total thickness - max. 0.4 - 0.45 (at 230gsm sheet).
Creasing depth is reset to the default value by continuously pressing the <C> key. (This is not a factory setting.)

7. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 49

1. Function

(1) Margin and center slitter positions adjustment
- Positions of each margin (S1, S2) and center slitter (S3 – S6) are adjusted.



2. Operating Procedure

(1) Margin and center slitter positions adjustment

1. Set the skew adjusting dial at “0”.

2. Access the HELP Mode “49”, and press the <START> key.

3. Cut the adjustment paper (S2-Y1040) by pressing the <TEST> key.
   * The paper is cut applying the Service person JOB84.

4. Measure the cut paper width.

5. Enter the adjustment value by pressing the NUMERIC key.
   The slitter position moves by 0.1 mm when the adjustment value is changed by 1.

IMPORTANT

The home position for the slitters 1, 3, and 5 is on the opposite side of the control panel, while the home position for the slitters 2, 4, and 6 is on the control panel side.

6. Press the <SET> key, and store the adjustment information in the memory.

7. Press the <STOP> key. It will return to the HELP Mode election screen.

HELP Mode : 50

1. Function

(1) Slit positions auto adjustment
- Positions of each margin (S1, S2) and center slitter (S3 – S6) are adjusted automatically.
  The entered values on HELP Mode “49” are adjusted automatically.

H50 Sl.auto adj.
MSL:xx.xxmm
1:xx.xxmm
2:xx.xxmm

2. Operating Procedure

(1) Slit auto adjustment
- Apply Service JOB: 84 for checking the slit auto adjustment.

1. Set the skew adjusting dial at “0”.

2. Access the HELP Mode “49”, and press the <START> key.

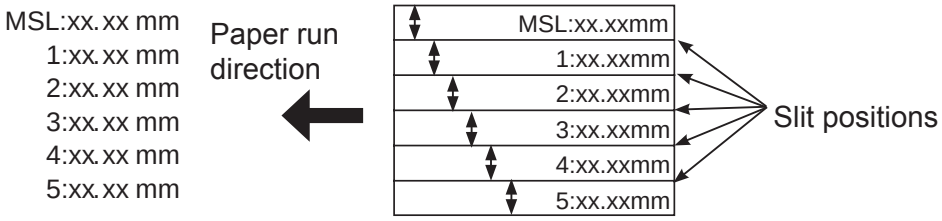
3. Load a check sheet on the feed tray, and press the <TEST> key.
   * The test RUN is proceeded by the setting of Service person JOB84.

4. Measure the processed slit positions.

5. Press the <STOP> key. The HELP mode “49” will exit.

6. Access the HELP Mode “50” and press the <START> key.

7. Press the UP/DOWN cursor key, and input the values of each finished paper width.



8. Press the <SET> key , then DC-616 calculates the magnification automatically for working out the adjustment values of HELP Mode “50”. And also the values are input on HELP Mode “49”.

9. Proceed the Service person JOB84 again to check for slitters run following the adjustment values properly.

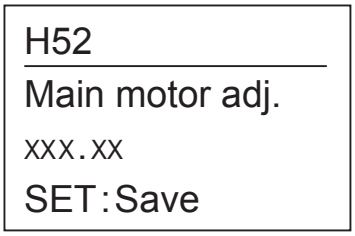
   The setting of Service person JOB84
   MSL: 25 mm
   1: 50 mm
   2: 50 mm
   3: 50 mm
   4: 50 mm
   5: 50 mm
   * If the slitter position is still incorrect, go back to the step 7 and attempt to re-adjust.

10. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 52

1. Function

(1) Main motor transfer distance adjustment
• Transfer distance of the main motor is adjusted.



2. Operating Procedure

(1) Main motor transfer distance adjustment

1. Set the skew adjusting dial at “0”.

2. Access the HELP Mode “52”, and press the <START> key.

3. Cut the adjustment paper by pressing the <START> key.
   * The paper is cut applying the Service person JOB 91.

4. Measure the cut paper width.

5. Enter the adjustment value by pressing the NUMERIC key.

REFERENCE

The transfer distance will get shorter as the adjustment value becomes smaller.
The transfer distance will get longer as the adjustment value becomes larger.

Adjustment value is reset to the default value by continuously pressing the CLEAR key.
(This is not a factory setting.)

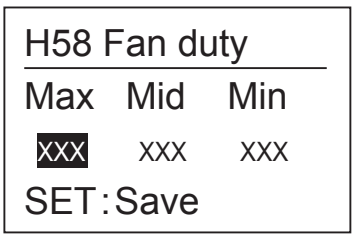
6. Press the <SET> key, and store the adjustment information in the memory.

7. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 58

1. Function

(1) Adjust the suction fan air volume.



2. Operating Procedure

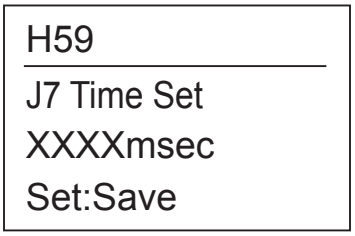
(1) Adjust the suction fan air volume.

1. Access the HELP Mode “58”, and press the <START> key.
2. Select the desired air volume by pressing the RIGHT/LEFT cursor key.
3. Enter the adjustment value by pressing the NUMERIC key.
4. Press the <SET> key, and store the adjustment information in the memory.
5. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 59

1. Function

(1) Adjust the margin jam detecting sensor.



2. Operating Procedure

(1) Adjust the margin jam detecting sensor.

1. Access the HELP Mode “59”, and press the <START> key.

2. Press the UP / DOWN cursor key to adjust the sensor detecting time.
   Each time the cursor key is pressed, the detecting time will increase or decrease by 20 msec.
   <C> quick press: sensor OFF
   <C> continuous press: return to the default (800 msec)

3. Press the <SET> key, and store the adjustment information in the memory.

5. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 60

1. Function

(1) Optional function setting
- Air knife
- Double feed detecting sensor
- CCD
- Perforation unit

H60 Option	▼
Air knife	X
Dl.feed sen	X
CCD	X

2. Operating Procedure

(1) Optional function setting

1. Access the HELP Mode “60”, and press the <START> key.

2. Select the desired option by pressing UP/DOWN cursor key.

3. Change the setting by pressing the NUMERIC key.

   0: Invalid
   1: Valid

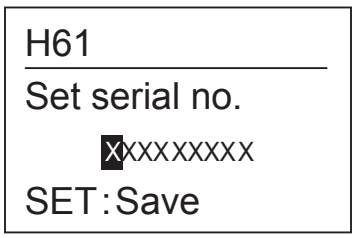
4. Press the <SET> key, and store the adjustment information in the memory.

5. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 61

1. Function

(1) Serial number setting
- Serial number is set.



2. Operating Procedure

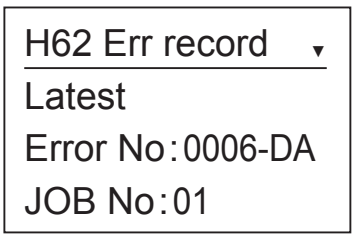
(1) Serial number setting

1. Access the HELP Mode “61”, and press the <START> key.
2. Enter the serial number by pressing the NUMERIC key.
3. Press the SET key, and store the serial number in the memory.
4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 62

1. Function

(1) Display the error record.
- Error record is displayed in order.
(Latest 3 errors)



2. Operating Procedure

(1) Display the error record.

1. Access the HELP Mode “62”, and press the <START> key.

2. Change the error contents by pressing the UP/DOWN cursor key.

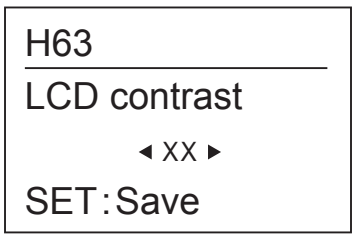
   Error No: Number of the error
   JOB No: JOB number which the error occurred

3. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 63

1. Function

(1) LCD panel contrast adjustment
• LCD panel contrast is adjusted.



2. Operating Procedure

(1) LCD panel contrast adjustment

1. Access the HELP Mode “63”, and press the <START> key.

2. Change the adjustment value by pressing the CURSOR (Right/Left) keys.
CURSOR (Right): addition
CURSOR (Left): subtraction
The LCD panel becomes darker in color as the value increases.
Setting range: 12 to 40

REFERENCE

Adjustment value is reset to the default value (24) by continuously pressing the CLEAR key.
(This is not a factory setting.)

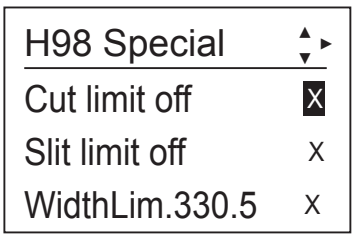
3. Press the SET key, and store the adjustment information in the memory.

4. Press the <STOP> key. It will return to the HELP Mode selection screen.

HELP Mode : 98

1. Function

(1) Special setting
- Cancelling limits of slit position, cut position, and paper width



2. Operating Procedure

(1) Special setting

1. Access the HELP Mode “98”, and press the <START> key.

2. Select the item to be set by pressing the UP/DOWN cursor key.
   Cut limit off: cancellation of cut position limit
   Slit limit off: cancellation of slit position limit
   WidthLim.330.5: cancellation of paper width limit (There is another limit, which is mechanical limit of the feed guide, and conditions of use for the slitter 2.)

3. Select and switch the function status by pressing the NUMERIC keys.
   0 : limit enabled
   1 : limit disabled

IMPORTANT

Even though “Slit limit off” is disabled, the following limits remain.
- Margin slit position: 55 mm or less from the edge of paper
- Distance between slitter 3 and slitter 4: 48 mm or more
  Distance between slitter 5 and slitter 6: 48 mm or more

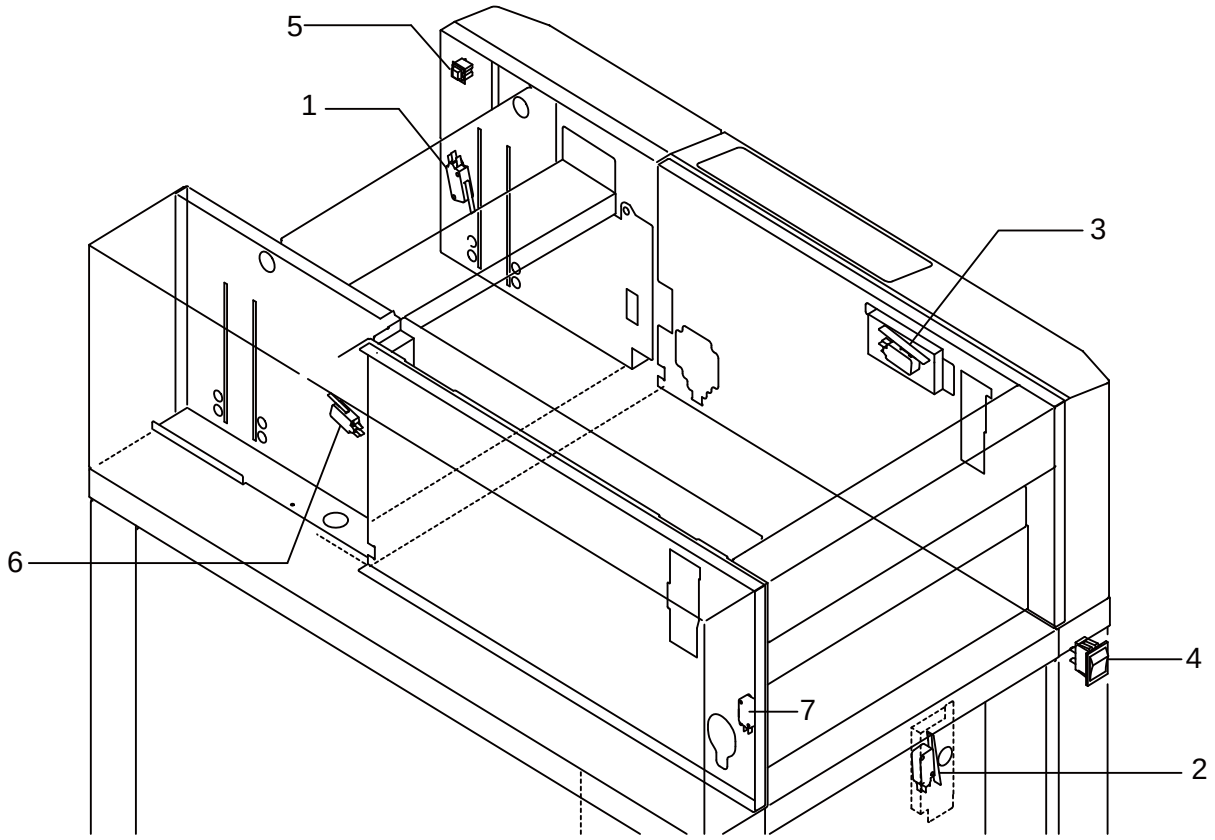
4. Press the <STOP> key. It will return to the HELP Mode selection screen.

Chapter 8 Others

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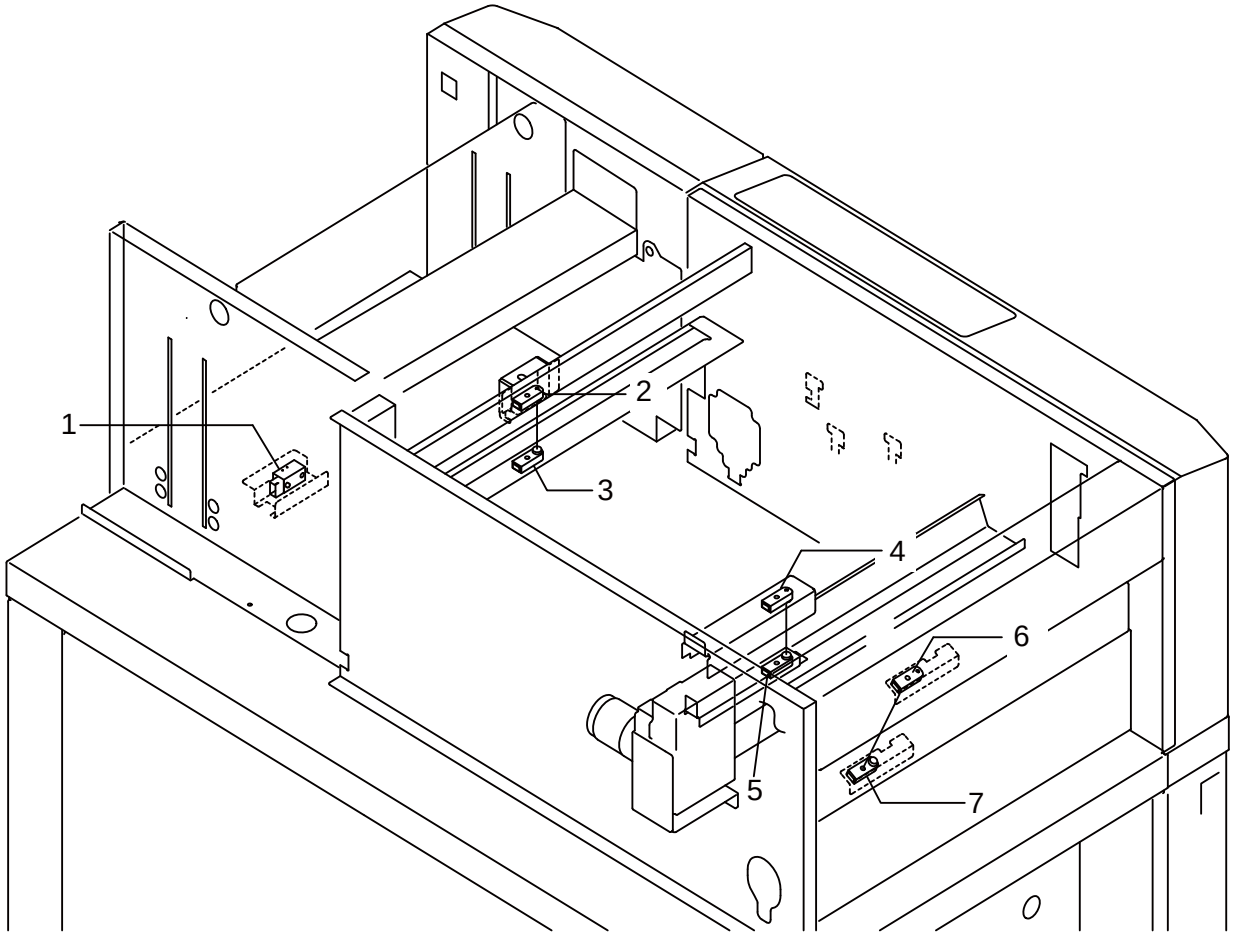
1 Position and Function of Electronic Parts

1. Switches



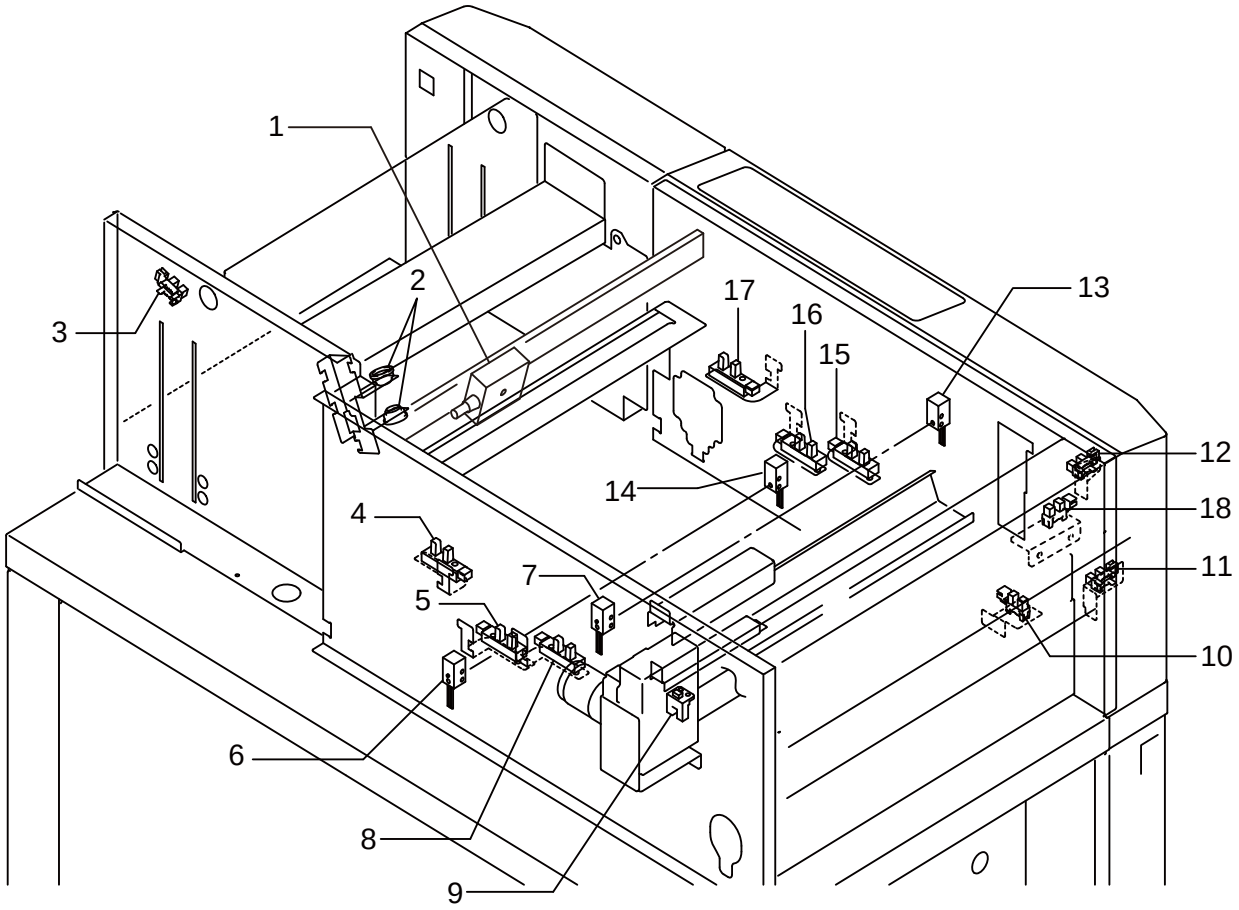
No.	Part Name
1	Elevator Lower Limit Switch
2	Interlock switch
3	Top cover Interlock switch
4	Cover switch
5	Elevator Lower Limit Switch
6	Elevator Upper Limit Switch
7	Exit Interlock switch

2. PPS sensors



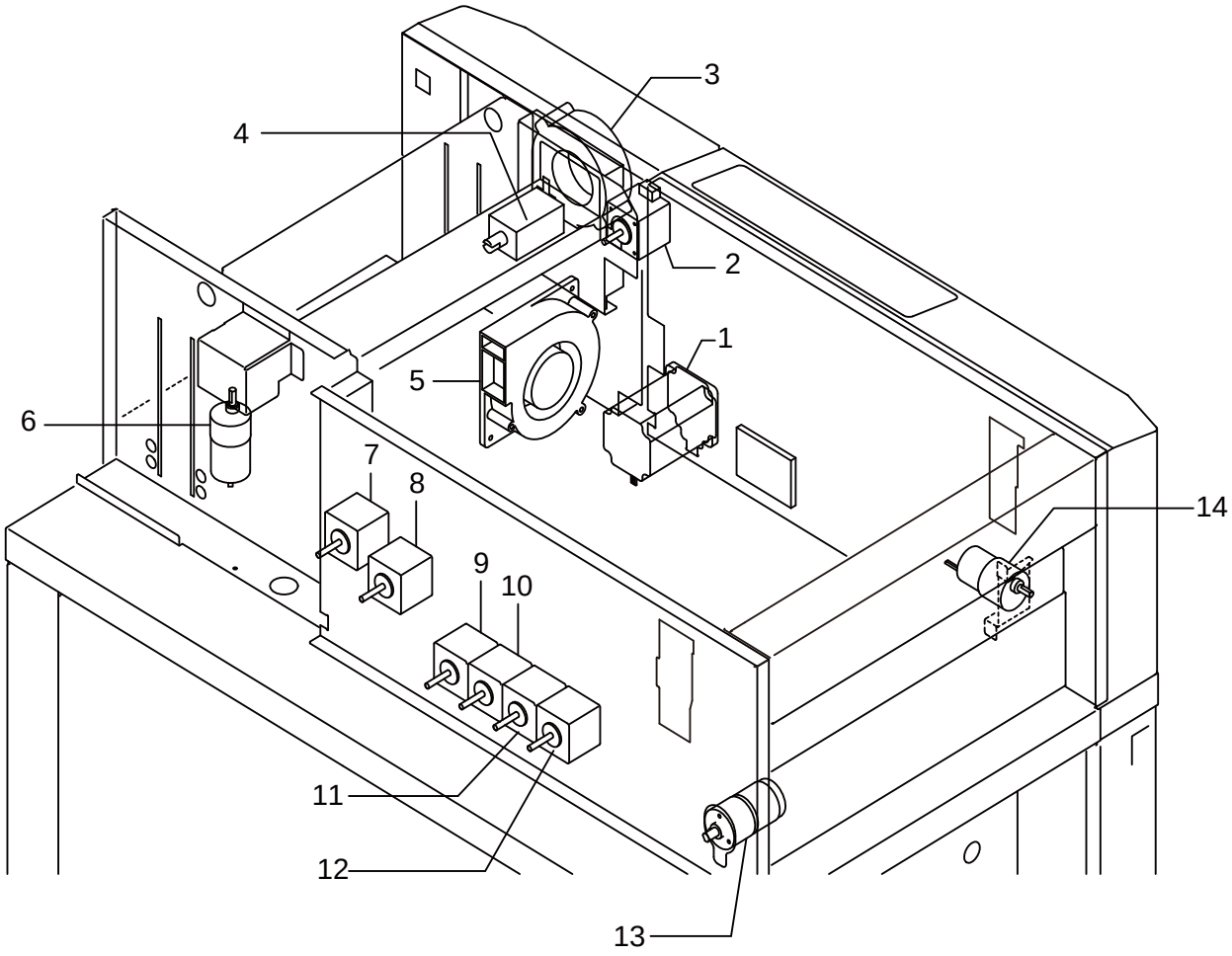
No.	Part Name
1	PPS1
2	PPS2 (Photo-emission)
3	PPS2 (Photo-detecting)
4	PPS3 (Photo-emission)
5	PPS3 (Photo-detecting)
6	PPS4 (Photo-emission)
7	PPS4 (Photo-detecting)

3. Sensors



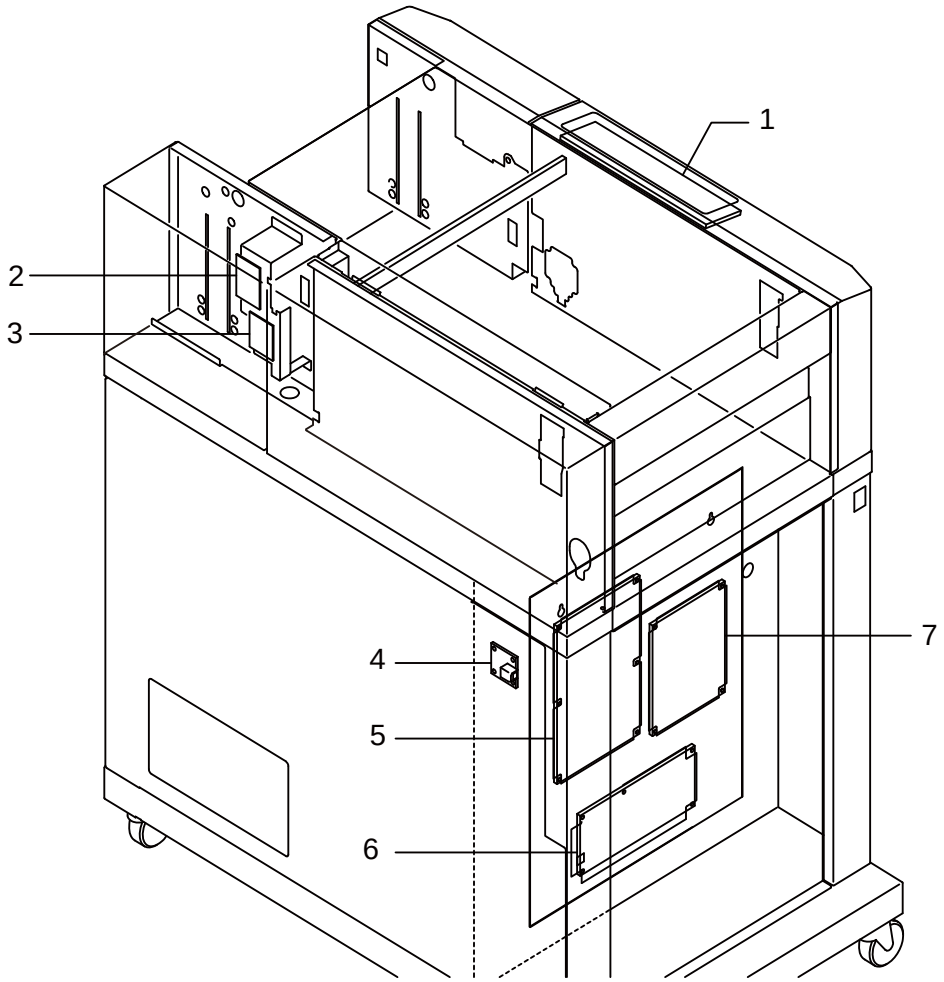
No.	Part Name
1	CCD
2	Ultrasonic Sensor
3	Paper Level Sensor
4	Margin Slitter 1 Home Position Sensor
5	Margin Slitter 2 Home Position Sensor
6	Margin Jam Detecting Sensor
7	Gutter ON / OFF sensor
8	Center Slitter 5 Home Position Sensor
9	Cutter Home Position Sensor
10	Creaser Lower Blade Encoder Sensor
11	Creaser Lower Blade Home Position Sensor
12	Creaser Upper Blade Home Position Sensor
13	Gutter ON / OFF sensor
14	Margin Jam Detecting Sensor
15	Center Slitter 6 Home Position Sensor
16	Center Slitter 4 Home Position Sensor
17	Center Slitter 2 Home Position Sensor
18	Perforation Unit Detecting Sensor

4. Motors, Fan,Solenoid



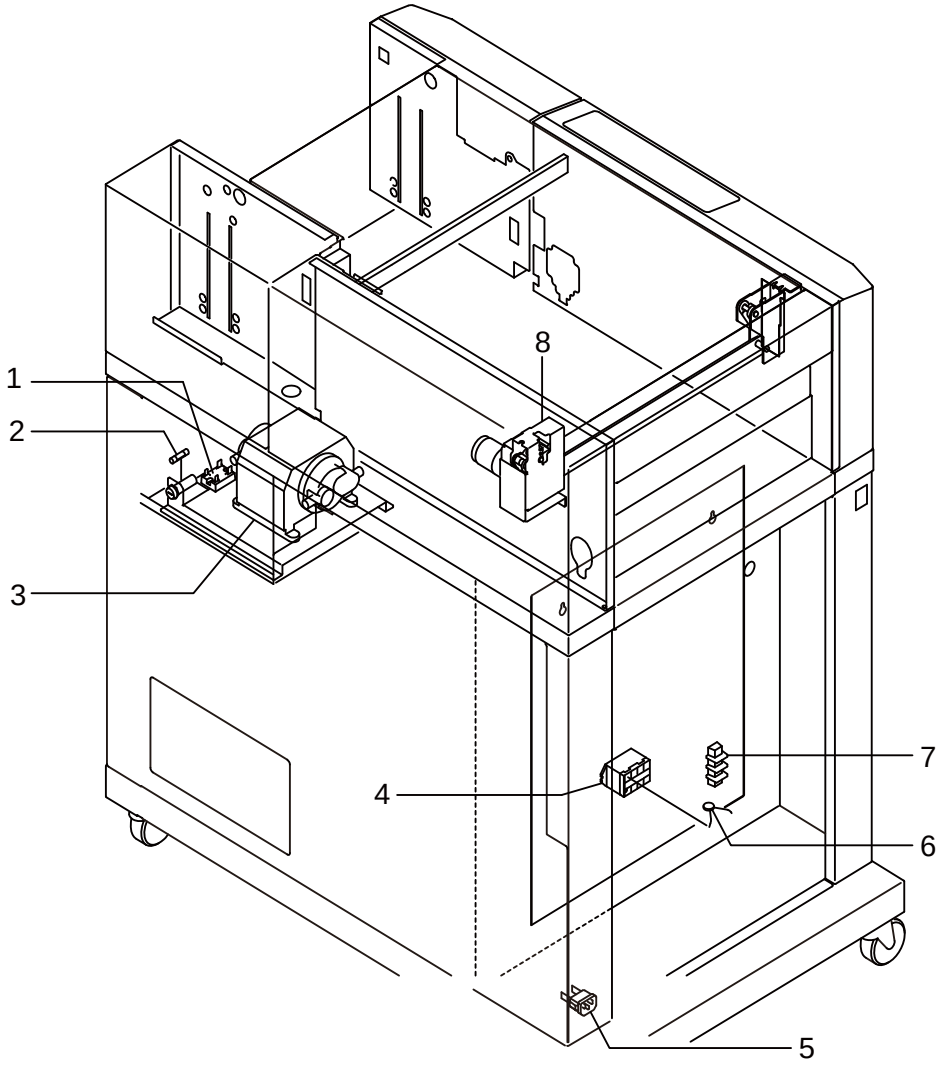
No.	Part Name
1	Main Motor Driver
2	Feed Motor
3	Suction fan
4	Shutter Solenoid
5	Blow out fan
6	Elevator Motor
7	Margin Slitter 1 Position Motor
8	Margin Slitter 2 Position Motor
9	Center Slitter 3 Position Motor
10	Center Slitter 4 Position Motor
11	Center Slitter 5 Position Motor
12	Center Slitter 6 Position Motor
13	Creaser Motor
14	Creaser Lower Blade Motor

5. PCB Units • Power Supply



No.	Part Name
1	Panel PCB unit
2	Receive PCB
3	Oscillation PCB
4	USB connector board
5	Drive PCB Unit
6	Power supply unit
7	Main PCB unit
8	Main motor drive PCB unit

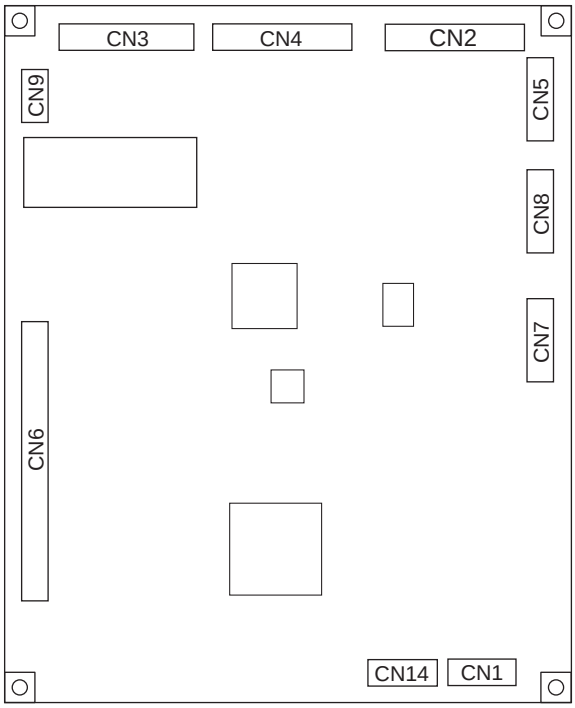
6. Others



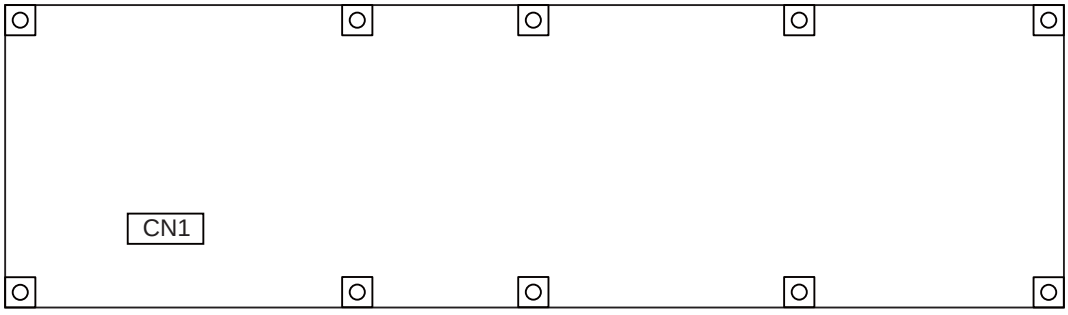
No.	Part Name
1	SSR
2	Fuse
3	Compressor
4	Relay PCB UNIT
5	Appliance inlet
6	Varistor
7	Terminal blocks

8. Connector VR/Fuse Layout

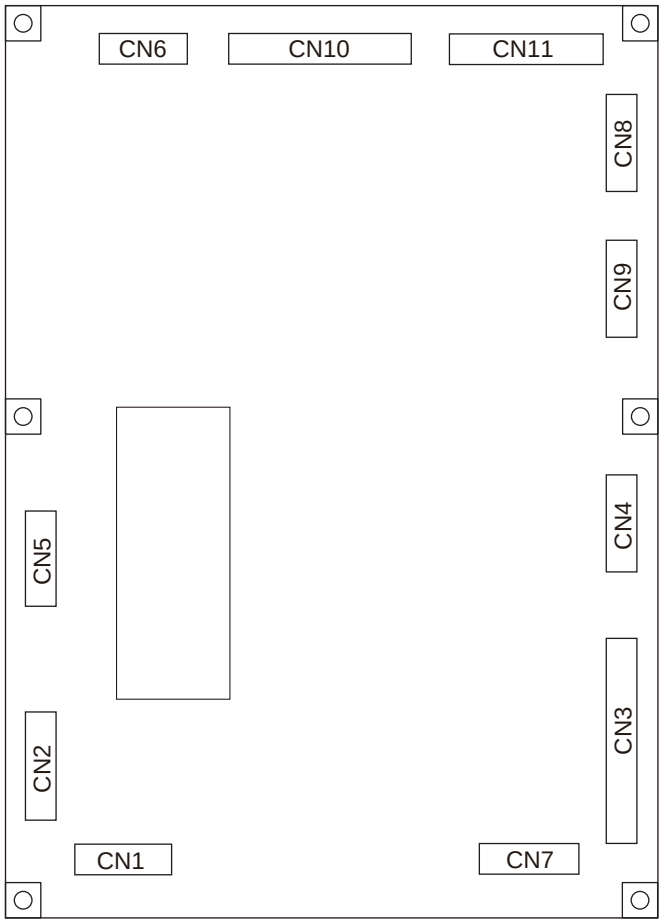
1. Main PCB Unit (S2-V500*)



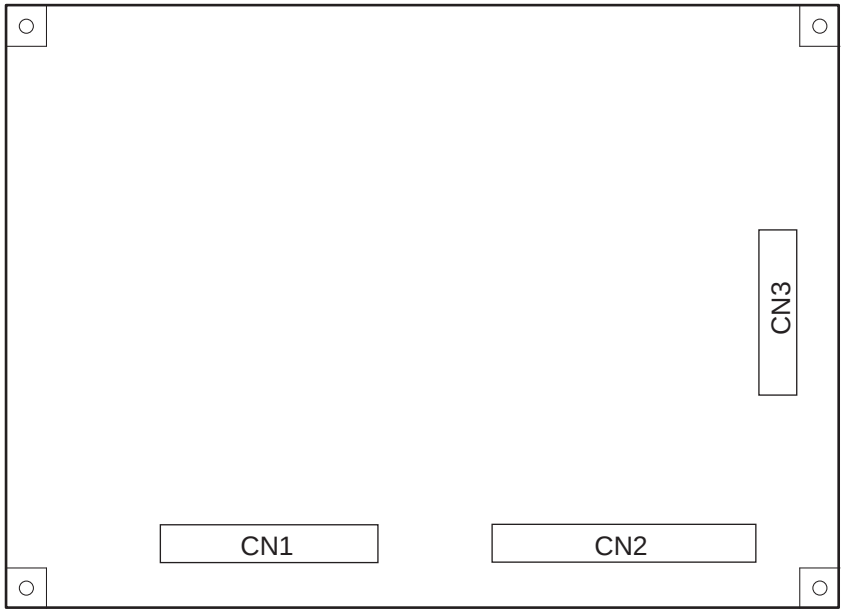
2. Panel PCB Unit (S2-V311*)



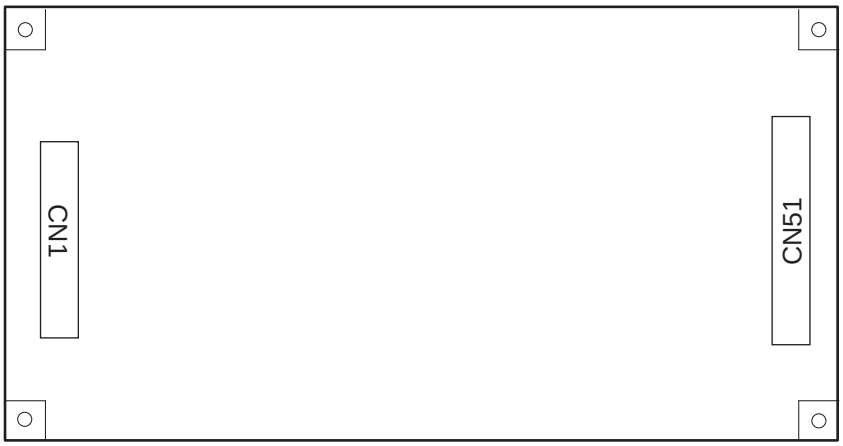
3. DRIVE PCB Unit (S2-V321*)



4. Main Motor Drive PCB Unit (BZ008)

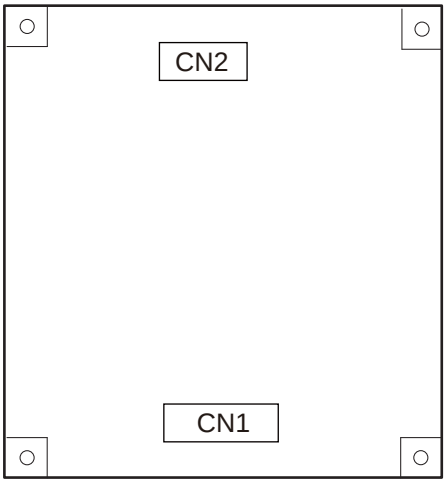


5. Power Supply Unit 24V (UA040)

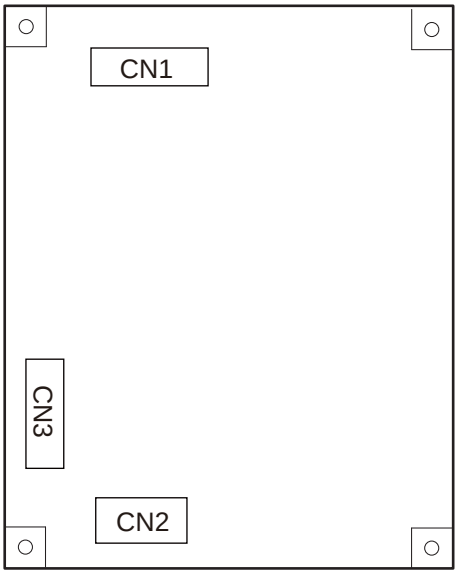


6. Double Feed Detect PCB Unit
Oscillation PCB (P9-V303*) Receive PCB (P9-V305*)

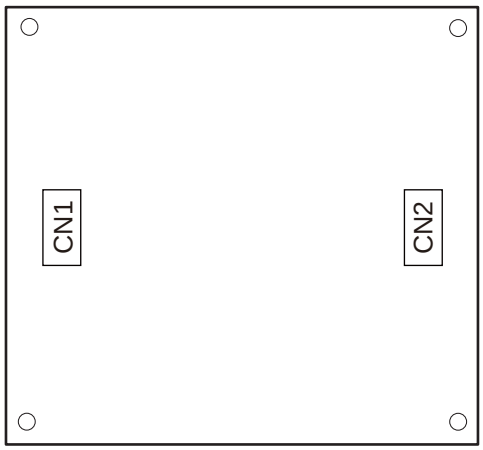
Oscillation PCB



Receive PCB

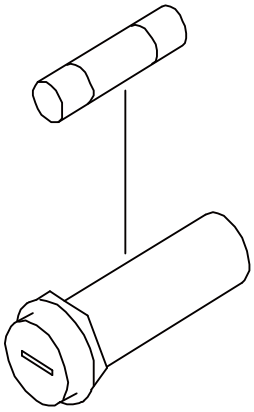


7. USB PCB Unit (R8-V347*)



8. Fuse (0216002XP)

Rating of fuse : 250 V, 2 A



⚠ CAUTION

Fuse : Use the proper type of fuse when replacing. Otherwise, fire may occur.

2 Service Person JOBs

	Use to check the parallelity of the right margin.	Use to adjust the vertical enlargement (magnification) of H-52. (using 650 exclusive paper)	H-46: Use to cut. H-47: Use to adjust the parallelity and distance of the crease. H-48: Use to adjust the depth of the crease.	H-49: Use to adjust the slit position.	H-50: Use to adjust the position of the gutter deflector guide.
JOB Name	MARGIN CK	H-52 CK1	CUT&CRE CK	SLIT CK	GUTTER CK
Paper size	297×420(A3)	320 x 650	297×420(A3)	297×420(A3)	297×420(A3)
JOB number	81	82	83	84	85
PAPER WIDTH	297	320	297	297	297
TOTAL LENGTH	420	650	420	420	420
Side Mark	0	0	0	0	0
Lead Mark	0	0	0	0	0
SLIT1	25	0	25	25	5
SLIT2	285	0	285	275	285
SLIT3	0	0	0	75	95
SLIT4	0	0	0	225	195
SLIT5	0	0	0	125	100
SLIT6	0	0	0	175	190
CUT01	0	20	20	0	0
CUT02	0	570	0	0	0
CUT03	0	0	0	0	0
CUT04	0	0	0	0	0
CUT05	0	0	0	0	0
CUT06	0	0	0	0	0
CUT07	0	0	0	0	0
CUT08	0	0	0	0	0
CUT09	0	0	0	0	0
CUT10	0	0	0	0	0
CUT11	0	0	0	0	0
CUT12	0	0	0	0	0
CUT13	0	0	0	0	0
CUT14	0	0	0	0	0
CUT15	0	0	0	0	0
CUT16-25	0	0	0	0	0
CRE.01	0	0	120	0	0
CRE.02	0	0	0	0	0
CRE.03	0	0	0	0	0
CRE.04	0	0	0	0	0
CRE.05	0	0	0	0	0
CRE.06	0	0	0	0	0
CRE.07	0	0	0	0	0
CRE.08	0	0	0	0	0
CRE.09	0	0	0	0	0
CRE.10	0	0	0	0	0
CRE.11-20	0	0	0	0	0
PERF1	0	0	0	0	0
PERF2	0	0	0	0	0
AIR KNIFE	OFF	OFF	OFF	OFF	OFF
SUCTION POWER	MAX	MAX	MAX	MAX	MAX
REG. MARK	OFF	OFF	OFF	OFF	OFF
SLIT GUIDE	ON	ON	ON	ON	ON
AUTO CUT	ON	ON	ON	ON	ON
CREASE DEPTH	MID	MID	HIGH	MID	MID
SPEED	FAST		FAST	FAST	FAST

	Use to check plain paper. Use to adjust double-feed sensor.	Use to check REG. Mark function	Use to check REG. Mark function	Use to check skew of perforation unit	Use to check processing accuracy of business cards.
JOB Name	FEED CK	REG. CK1	REG. CK2	PERF CK	50×85
Paper size	297×420(A3)	297×420(A3)	297×420(A3)	297×420	297×420(A3)
JOB number	86	87	88	89	90
PAPER WIDTH	297	297	297	297	297
TOTAL LENGTH	420	420	420	420	420
Side Mark	0	10	14	0	0
Lead Mark	0	10	14	0	0
SLIT1	0	8	12	10	25
SLIT2	0	285	289	290	275
SLIT3	0	0	0	0	75
SLIT4	0	0	0	0	225
SLIT5	0	0	0	0	125
SLIT6	0	0	0	0	175
CUT01	0	8	12	0	5
CUT02	0	0	0	0	90
CUT03	0	0	0	0	100
CUT04	0	0	0	0	185
CUT05	0	0	0	0	195
CUT06	0	0	0	0	280
CUT07	0	0	0	0	290
CUT08	0	0	0	0	375
CUT09	0	0	0	0	0
CUT10	0	0	0	0	0
CUT11	0	0	0	0	0
CUT12	0	0	0	0	0
CUT13	0	0	0	0	0
CUT14	0	0	0	0	0
CUT15	0	0	0	0	0
CUT16-25	0	0	0	0	0
CRE.01	0	0	0	0	0
CRE.02	0	0	0	0	0
CRE.03	0	0	0	0	0
CRE.04	0	0	0	0	0
CRE.05	0	0	0	0	0
CRE.06	0	0	0	0	0
CRE.07	0	0	0	0	0
CRE.08	0	0	0	0	0
CRE.09	0	0	0	0	0
CRE.10	0	0	0	0	0
CRE.11-20	0	0	0	0	0
PERF1	0	0	0	30	0
PERF2	0	0	0	270	0
AIR KNIFE	OFF	OFF	OFF	OFF	OFF
SUCTION POWER	MAX	MAX	MAX	MID	MAX
REG. MARK	OFF	ON	ON	OFF	OFF
SLIT GUIDE	ON	ON	ON	ON	ON
AUTO CUT	ON	ON	ON	ON	ON
CREASE DEPTH	MID	MID	MID	MAX	MID
SPEED	FAST	FAST	FAST	FAST	FAST

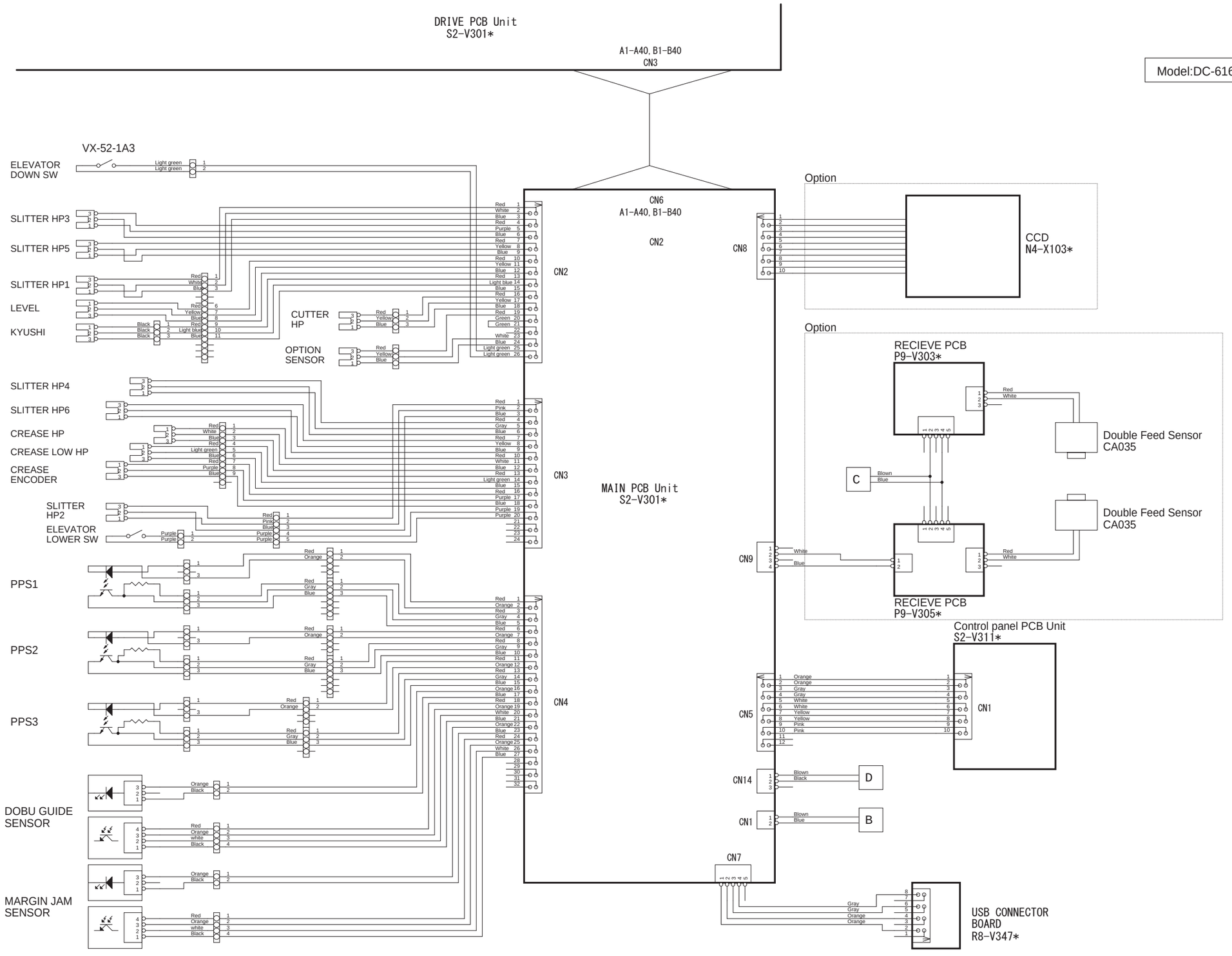
	Use to adjust the vertical enlargement magnification) of H-52. (using SRA3 exclusive paper)	This is used to check the barcode reading and to reset the setting to the factory preset state.(Can only be used in the service JOB Mode)	Use to check performance.	Use to adjust the gutter deflector .	Use to check the 55 mm margin.
JOB Name	H-52 CK2	BARCODE CK	DEEP BLUE 6UP	GUTTER TEST	MARGIN55 CK
Paper size	297×420(A3)	297×420(A3)	320×450	320×650	297×420
JOB number	91	93	94	95	96
PAPER WIDTH	297	297	320	320	297
TOTAL LENGTH	420	420	450	650	420
Side Mark	0	0	10	0	0
Lead Mark	0	0	10	0	0
SLIT1	0	0	10	10	55
SLIT2	0	0	300	300	285
SLIT3	0	0	100	100	0
SLIT4	0	0	210	210	0
SLIT5	0	0	110	110	0
SLIT6	0	0	200	200	0
CUT01	5	0	22	10	0
CUT02	405	0	225	325	0
CUT03	0	0	235	640	0
CUT04	0	0	438	0	0
CUT05	0	0	0	0	0
CUT06	0	0	0	0	0
CUT07	0	0	0	0	0
CUT08	0	0	0	0	0
CUT09	0	0	0	0	0
CUT10	0	0	0	0	0
CUT11	0	0	0	0	0
CUT12	0	0	0	0	0
CUT13	0	0	0	0	0
CUT14	0	0	0	0	0
CUT15	0	0	0	0	0
CUT16-25	0	0	0	0	0
CRE.01	0	0	147	0	0
CRE.02	0	0	360	0	0
CRE.03	0	0	0	0	0
CRE.04	0	0	0	0	0
CRE.05	0	0	0	0	0
CRE.06	0	0	0	0	0
CRE.07	0	0	0	0	0
CRE.08	0	0	0	0	0
CRE.09	0	0	0	0	0
CRE.10	0	0	0	0	0
CRE.11-20	0	0	0	0	0
PERF1	0	0	0	0	0
PERF2	0	0	0	0	0
AIR KNIFE	OFF	OFF	OFF	OFF	OFF
SUCTION POWER	MAX	MAX	MAX	MIN	MAX
REG. MARK	OFF	OFF	OFF	OFF	OFF
SLIT GUIDE	ON	ON	OFF	OFF	ON
AUTO CUT	ON	ON	ON	ON	ON
CREASE DEPTH	MID	MID	MID	MID	MID
SPEED	FAST	FAST	FAST	SLOW	FAST

	Use to check center crease on the business cards produced from A3 paper.				
JOB Name	A3 58×85 CCR				
Paper size	297×420				
JOB number	98				
PAPER WIDTH	297				
TOTAL LENGTH	420				
Side Mark	0				
Lead Mark	0				
SLIT1	3.2				
SLIT2	293.2				
SLIT3	61.2				
SLIT4	235.2				
SLIT5	119.2				
SLIT6	177.2				
CUT01	20				
CUT02	105				
CUT03	115				
CUT04	200				
CUT05	210				
CUT06	295				
CUT07	305				
CUT08	390				
CUT09	0				
CUT10	0				
CUT11	0				
CUT12	0				
CUT13	0				
CUT14	0				
CUT15	0				
CUT16-25	0				
CRE.01	62.5				
CRE.02	157.5				
CRE.03	252.5				
CRE.04	347.5				
CRE.05	0				
CRE.06	0				
CRE.07	0				
CRE.08	0				
CRE.09	0				
CRE.10	0				
CRE.11-20	0				
PERF1	0				
PERF2	0				
AIR KNIFE	OFF				
SUCTION POWER	MAX				
REG. MARK	OFF				
SLIT GUIDE	ON				
AUTO CUT	ON				
CREASE DEPTH	MAX				
SPEED	FAST				

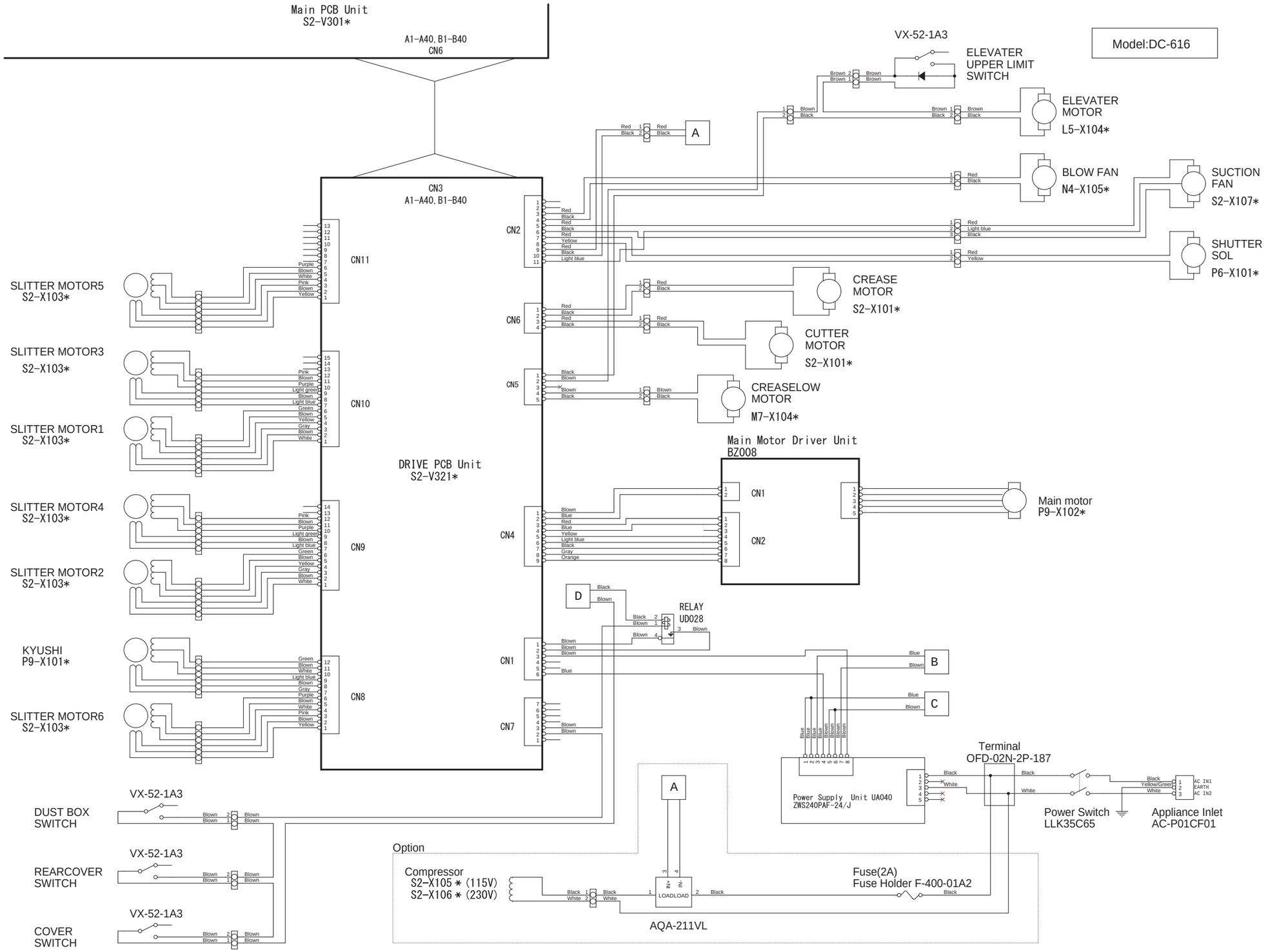
3 Overall Wiring Layout

Overall Wiring Layout 1/2

Model:DC-616



Overall Wiring Layout 2/2

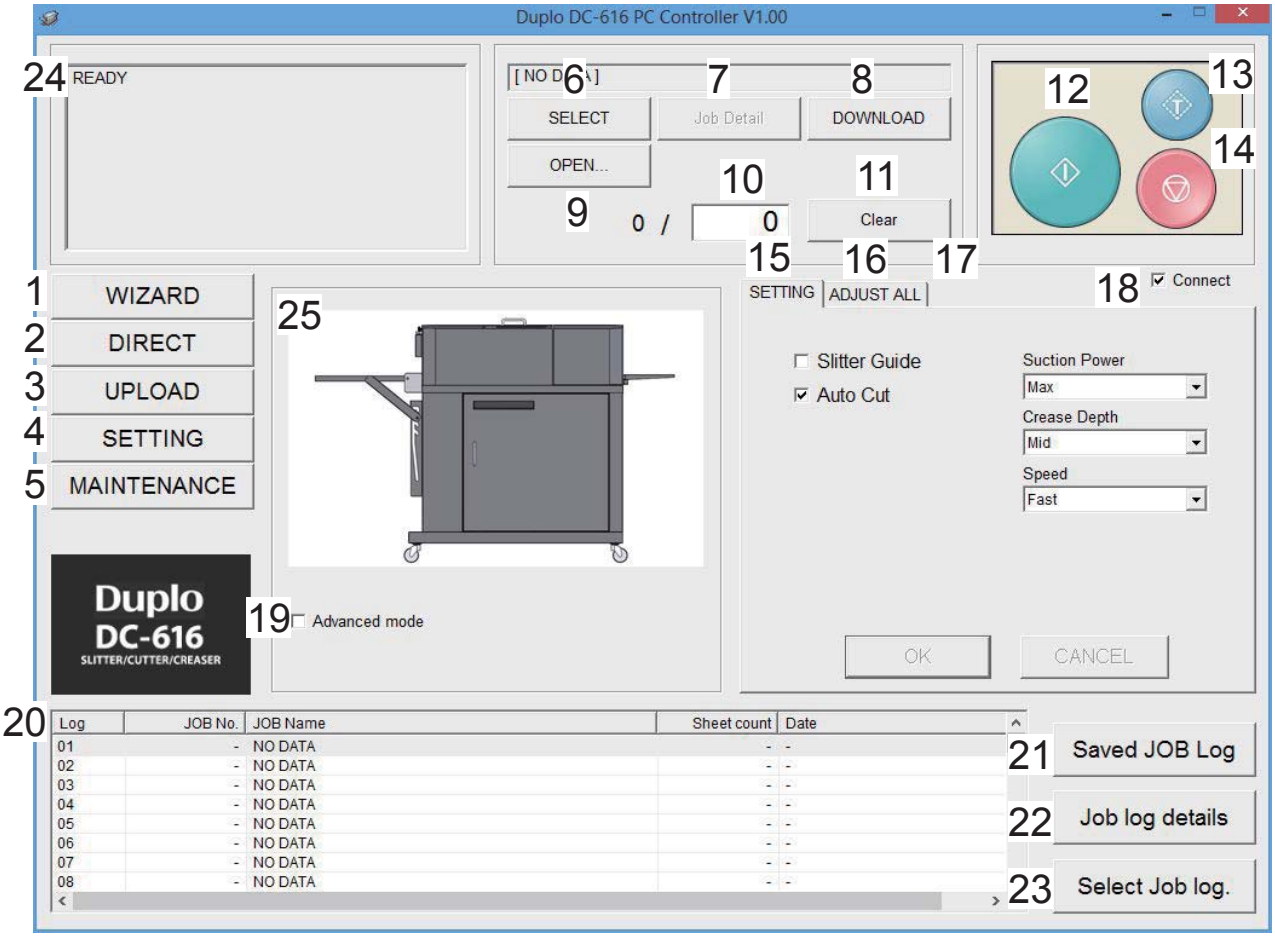


Chapter 9 PC Controller

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1 Main Menu of PC Controller

The following screen appears when PC Controller is run.
Select each sub menu to be set from this main menu screen.



No.	Item	Function
1	WIZARD	Create a JOB in Wizard format. A preview of the JOB being created is displayed. Create the JOB while checking the input details.
2	DIRECT	Directly input the number value to create a JOB. Use this to create a JOB rather than “WIZARD” when the dimensions are already finalized.
3	UPLOAD	Read the JOB from the DC-616 and save in computer.
4	SETTING	This is used to set the default values of the PC Controller.
5	MAINTENANCE	For service person use only. This is used for setting the machine etc. Password is required to access.
6	SELECT	This reads the saved JOBs on the DC-616. Select one from them.
7	Job Detail	Input JOB details are displayed.
8	DOWNLOAD	This sends the JOB saved on the computer to the DC-616.
9	OPEN	This opens the saved JOB on the computer.
10	Preset Count	This presets the number of sheets to be processed for the JOB.

No.	Item	Function
11	Clear	This clears the number of preset count.
12	Start button	Click [**Start**] to perform the process. This lights up in green in the standby mode. This will be invalid while the machine is running or having an error.
13	Test button	Click [**Test**] to process only one sheet.
14	Stop button	Click [**Stop**] to stop the running process.
15	SETTING	This sets Slitter Guide, Auto Trail Cut, Air Knife, Read Barcode, Double Feed Detection, Suction fan,Crease Depth,Speed and Read REG. Mark,
16	ADJUST ALL	This sets Apply Shrinkage and Adjust All.
17	Stacker Setup	Select the [**Stacker Setup**] check box and click [**Test**] to process only one sheet and stop it at the document ejecting position. Then click [**Stop**] or [**Test**] to eject it to the Exit tray. At that time, if you click [**Start**], the DC-616 ejects it to the exit tray and then continues the JOB.
18	Connect	Select the [**Connect**] check box to control function limit of the control panel on the DC-616.
19	Advanced Mode	Select the [**Advanced Mode**] check box to put the machine in Advanced Mode. Clear the check box to put the machine in Simple Mode.
20	JOB Log	The JOBs processed by the PC Controller (JOBs processed by clicking [**Start**] or [**Test**]) are saved in the computer as logs. Up to 50 lately processed JOBs can be saved. If the number of saved JOBs exceeds 50, they will be deleted in chronological order.
21	Saved Job log	This displays JOB log programmed and saved by the PC Controller.
22	Job log. Details	This displays the details of a JOB in the JOB log.
23	Select Job log.	Click to download the JOB being selected from the JOB log.
24	Status	This displays the current machine status by letters.
25	System	This displays the current machine status by picture (icon and color).

REFERENCE

Note when opening the JOBs

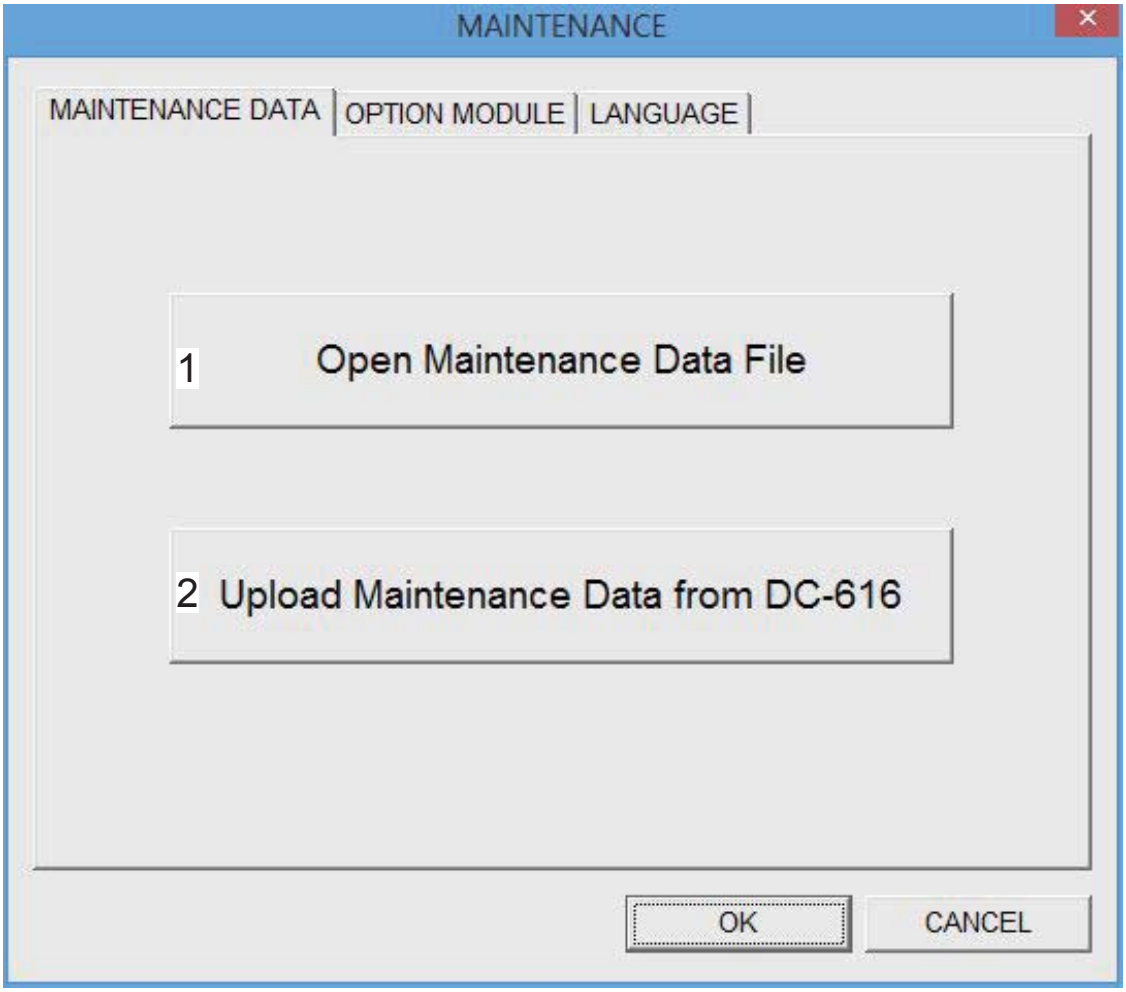
When you click [**SETTING**] and select the [**Enable re-editing Wizard JOB data**] check box on the [**DEFAULT**] tab, the retrieved JOB data that was created with the “WIZARD program” is displayed on the “WIZARD” screen.

When you created a JOB with the “DIRECT program,” the JOB data is displayed on the “DIRECT” screen.

However, if you re-enter the data, which was created with the “WIZARD program,” on the “DIRECT” screen, it is also displayed on the “DIRECT” screen.

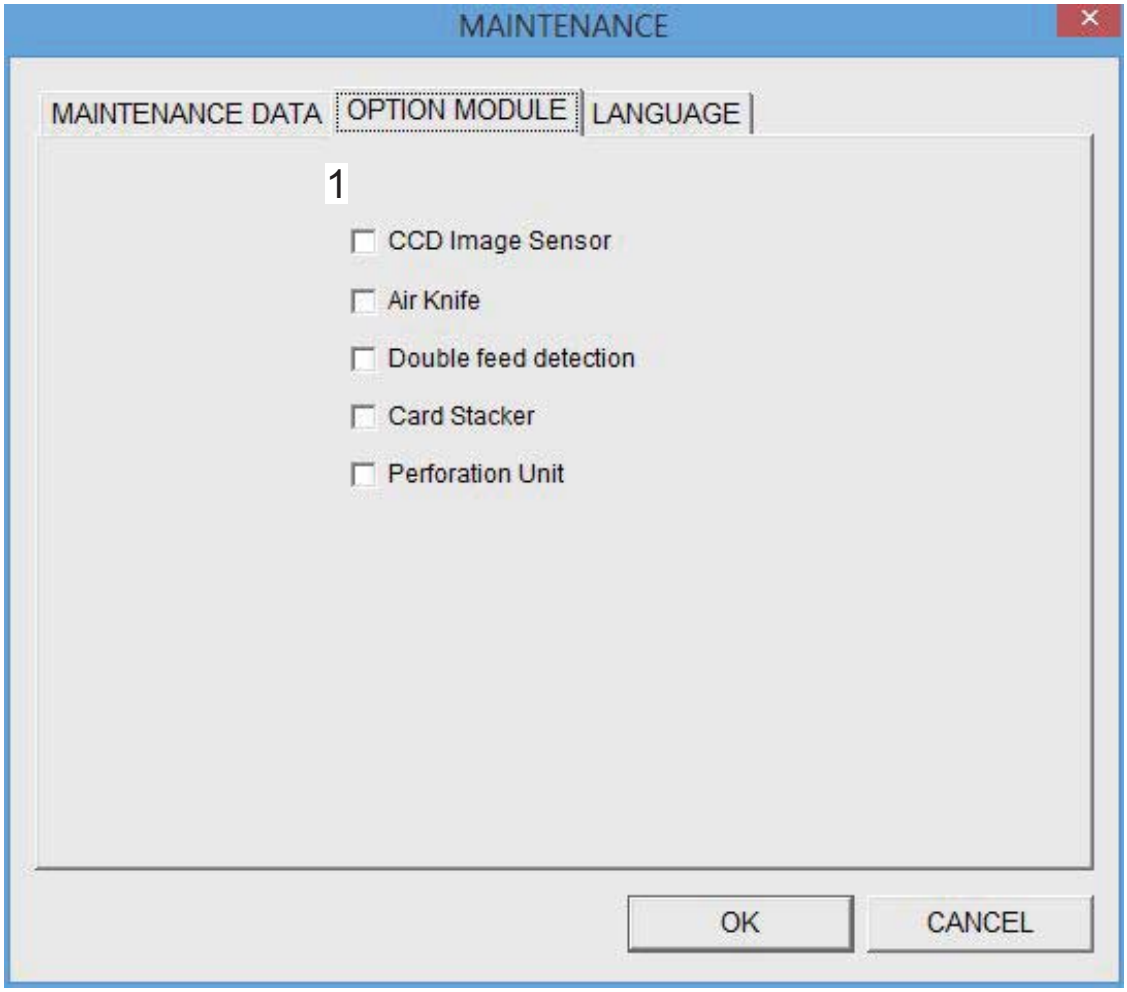
2 Maintenance Menu

1. Maintenance Data



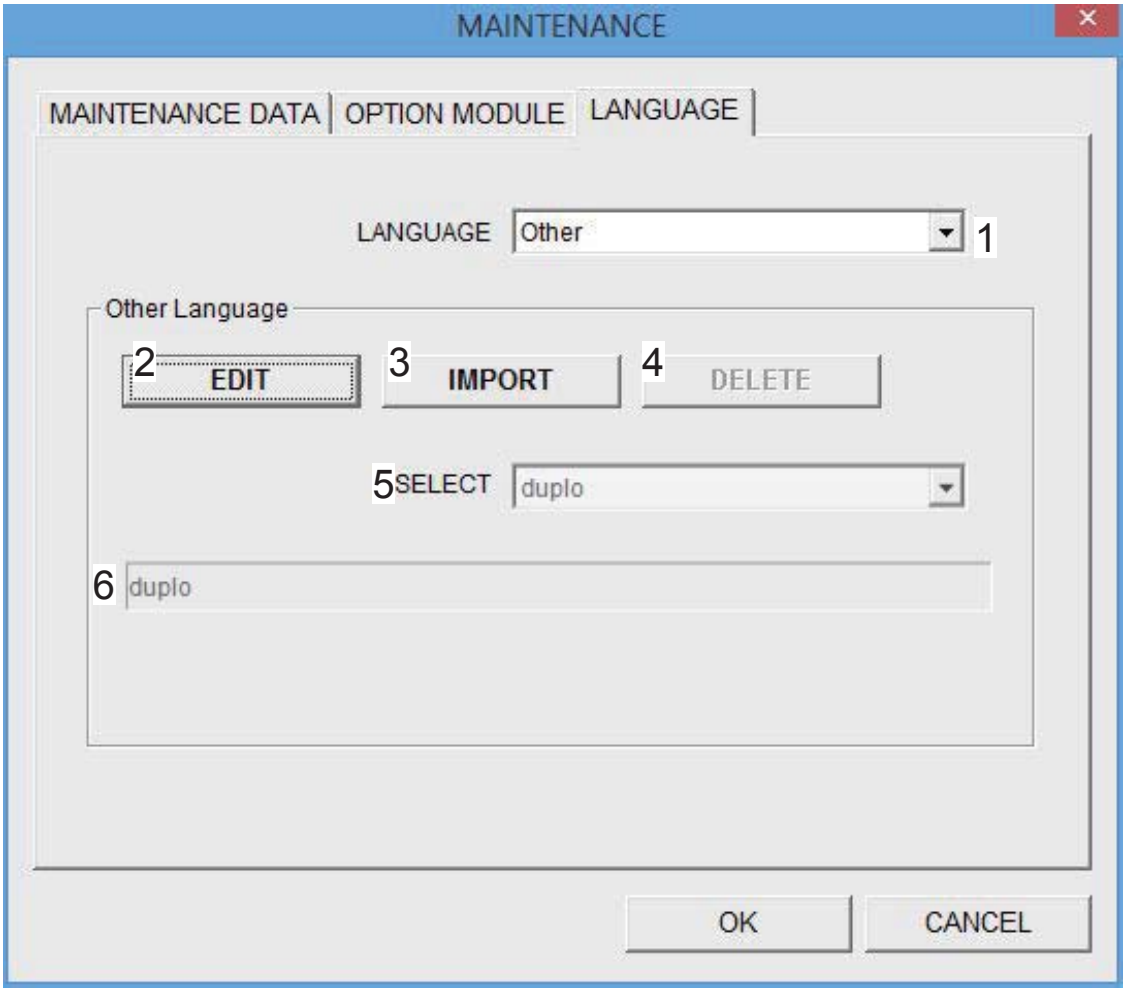
No.	Item	Function
1	Open Maintenance Data File	To confirm the maintenance data saved in computer.
2	Upload Maintenance Data from DC-616	To load the maintenance data saved in DC-616 into the PC.

2. Option Module



No.	Item	Function
1	Setting of connected device	Check the box of the optional modules.

3. Language Setting



No.	Item	Function
1	LANGUAGE	Set the language to be used on the screen.
2	EDIT	Edit the messages.
3	IMPORT	Import the message files.
4	DELETE	Delete the message files.
5	SELECT	Name of the message file.
6	Language	Displays the current set language.

3 Data Folder

1. Contents of Data Folder

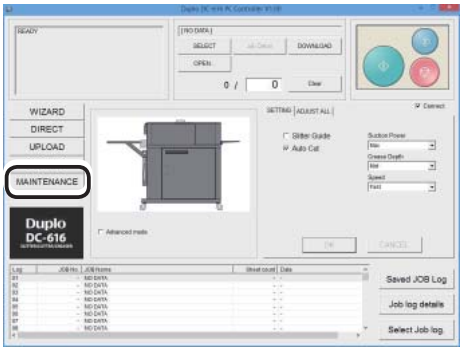
Folder Name	File/Folder Name	Function
DC-616_PC _ Controller V*.**	*.res	File of icon data.
	Duplo.exe	Application software.
	HistoryJob.H616	File of processed history data.
	HistoryJob.S616	File of JOB entering history data.
	LanguageEn.ini	Language file of English.
	LanguageFr.ini	Language file of French.
	LanguageGr.ini	Language file of German.
	LanguageIt.ini	Language file of Italian.
	LanguageJp.ini	Language file of Japanese.
	LanguagePl.ini	Language file of Polish.
	LanguageRs.ini	Language file of Russian.
	LanguageSp.ini	Language file of Spanish.
	*.tmp	Data of the language file administration.
	PC_Contoller.ini	File of setting data including the default setting.
	MSIMG32.dll	Software library povided by Microsoft.
	usb645.dll	File of data required for executing applications.
	*.M616	File of maintenance data.
	*.A616	File of ‘All JOB’ data.
	*.J616	File of JOB data.

4 Maintenance

1. Confirming Saved Maintenance Data

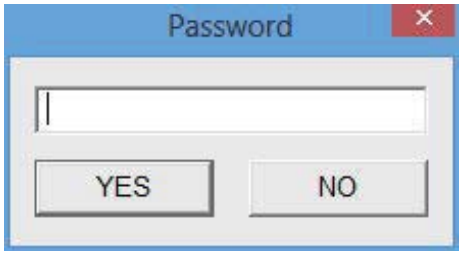
Open the saved file in computer to confirm the maintenance data.

1. The main menu screen appears.
   Click **[MAINTENANCE]**.



2. Enter the password ‘630304’, and click **[YES]**.

   If you click **[NO]**, the screen will return to the one on step 1.

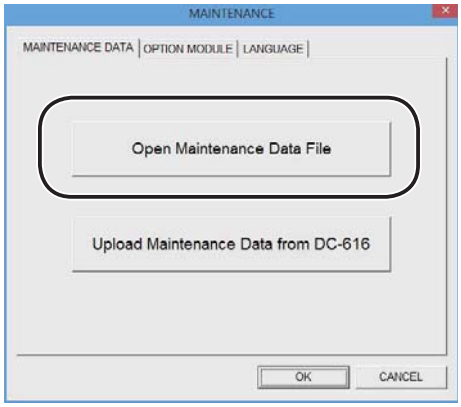


IMPORTANT

If you enter the wrong password and click **[YES]**, the maintenance screen will not appear.
The entering password screen will be stayed.
Click [**NO**] to return to the main menu screen, and try it again.

3. The maintenance menu screen appears.

   Click **[Open Maintenance Data File]**.



4. Select the file name and file type.

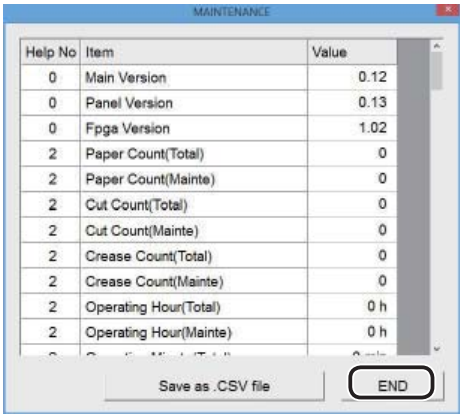
   Click **[Open]**.



5. The contents of maintenance data appears.

   Click **[Save as .CSV file.]**. The imported data will be saved as CSV file in the computer.

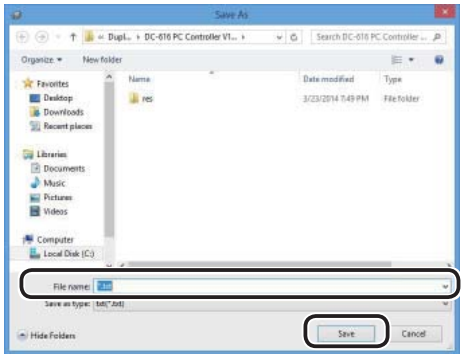
   If you click **[END]**, the screen returns to the one in step 3.



6. Enter the file name of the created data.

   Click **[Save]**.

   If you click **[Cancel]**, the screen returns to the one in step 5 without saving operation.

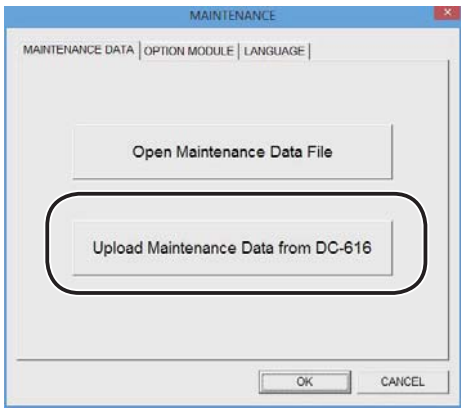


2. Uploading the Maintenance Data of DC-616

1. Process the step 1 to 2 in the “Confirming the maintenance data”.

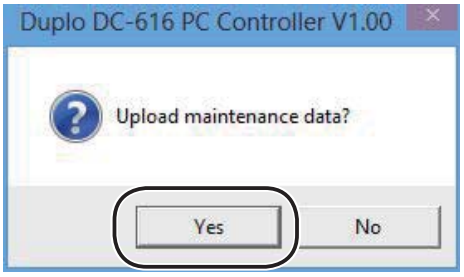
2. Select **[Upload Maintenance Data from DC-616]**, and click **[OK]**.

   If you click **[Cancel]**, the screen returns to the previous one.



3. The message ‘Upload maintenance data?’ appears. Click **[Yes]** to start uploading the data.

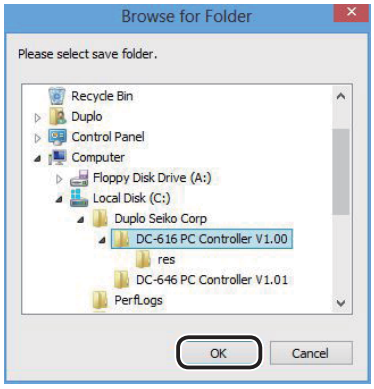
   If you click **[No]**, the screen returns to the previous one.



4. Select the location you want to save the data in.

   Right figure shows an example of selecting ‘My Documents’.

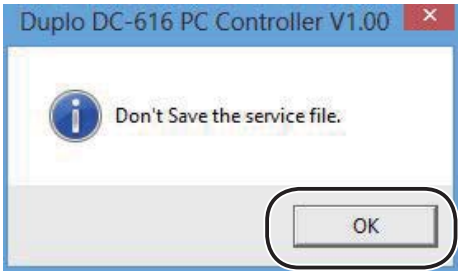
   Click **[OK]** to save the data.



   If you click **[Cancel]**, the message ‘Don’t Save the service file.’ appears.

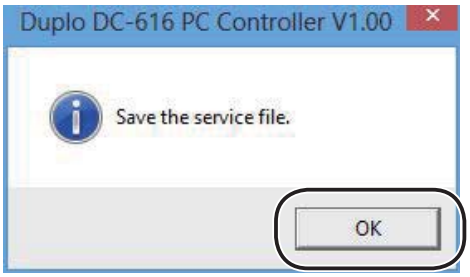
   Click **[OK]**.

   The screen returns to the one in step 2.



5. The message ‘Save the service file.’ appears.

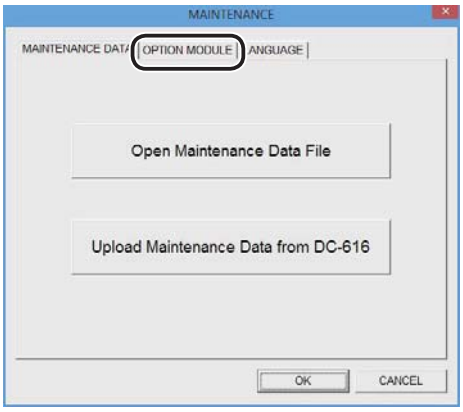
   Click **[OK]**.



3. Setting Up the Machine to Be Connected

1. Process the step 1 to 2 in the “Confirming the maintenance data”.

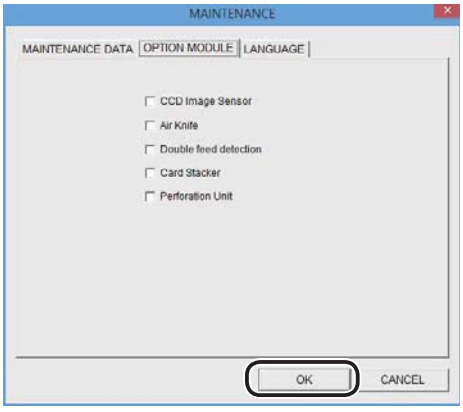
2. Click [**OPTION MODULE**] tab.



3. Check the box of option modules which is installed in DC-616.

   Click **[OK]** after confirmation of the check box.

   If you click **[CANCEL]**, the checked option modules are canceled. And the screen returns to the main menu.

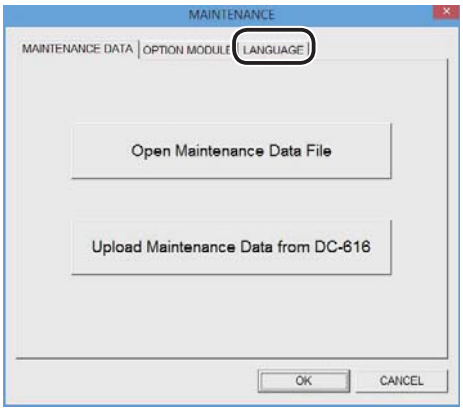


4. Set Up Language to Be Used

Set the language to be displayed on PC Controller.

1. Proceed along the step 1 to 2 in the “Confirming the maintenance data”.

2. Click [**LANGUAGE**] tab.

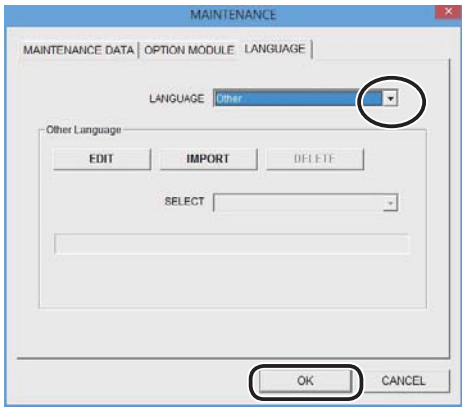


3. Click ▼ to display the language list, and select one language you want to use.

(English, French, German, Italian, Japanese, Polish, Russian, Spanish, and other)

Click **[OK]** after the selection.

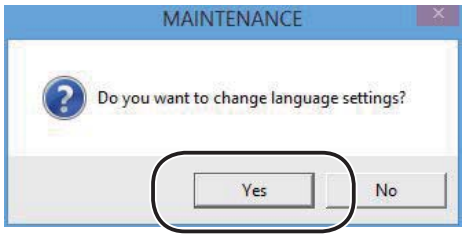
If you click **[CANCEL]**, the selected one is canceled. And the screen returns to the main menu.



4. The message ‘Do you want to change the settings?' appears.

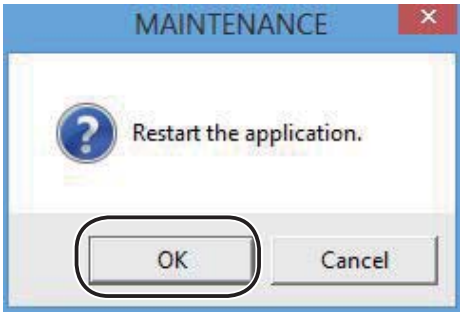
Click **[YES]**.

If you click **[NO]**, the screen returns to the one in step 3.



5. The message ‘Restart the application.' appears.

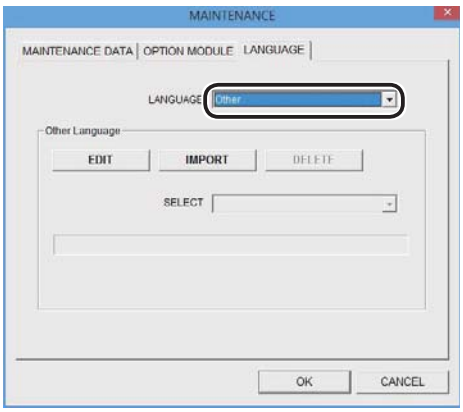
Click **[OK]**.
PC controller is finished automatically.
Restart the PC controller.
And it runs with the set language you have changed.



5. Set Up the Other Language Than Existing Ones to Be Used

1. Proceed along the step 1 to 2 in the “Setting Up Language to Be Used” when you require to use the other language than existing languages.

2. Select [**Other**].



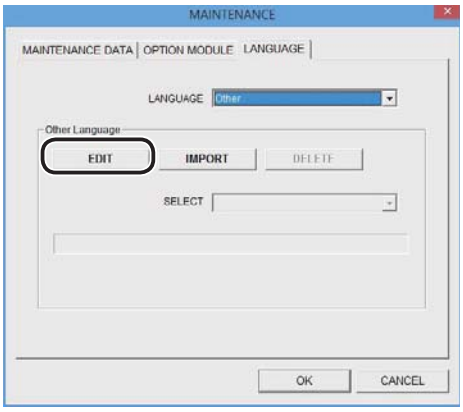
3. [**Other Language**]

・EDIT : Create the txt file of new message.

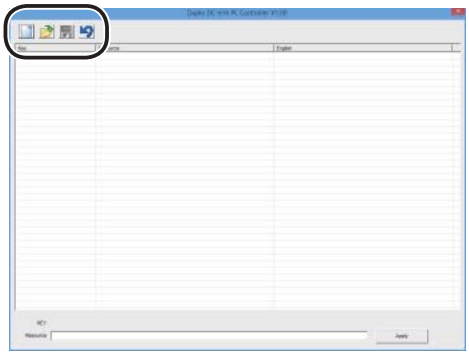
・IMPORT : Upload the txt file of message you want to use.

・DELETE : Delete the txt file displayed in the select box.

Click **[EDIT]**.



4. The screen shown on the right figure appears.



: Create New Language
You can create a new txt file of message.

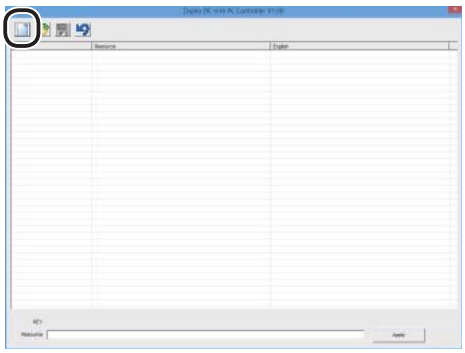
: Open File
Opens saved txt file.

: Save File
You can save data you created as new txt file.

: Undo
Deletes the current entered edit. Returns to the previous edit state by each one click. You can click here up to 20 times.

Here are the descriptions how to create a new message file.

4-1. Click .

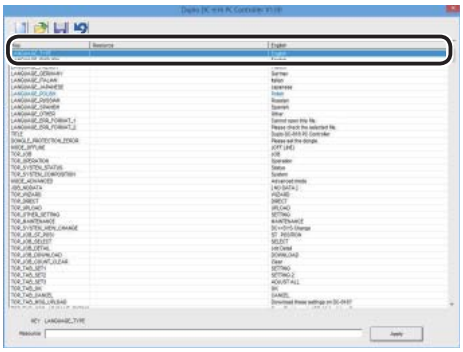


4-2. Click a low you want to edit.
(Right figure shows the topmost low as an example.)

KEY : Shows “KEY” (Symbol for administration) which is allocated on each messages.

Resource : Shows the edited language when you open existing file.
Shows nothing when you click new document.

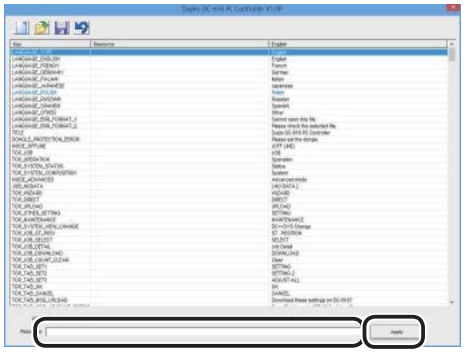
English : Shows the message in English corresponding to each “KEY”.



4-3. Click the text box on the lower screen.

Enter the message in other language corresponding to the one in English.
Click **[Apply]** to define the entered message.

The defined message will be entered in the low you selected in step 4-2.



IMPORTANT

Entering number of characters should be referred the English message character.
Though number of characters is not set out, the letters out of the display range will be left out and displayed in “…”.
Displayable letter form will depend on OS normal font.

IMPORTANT

Raw data will be displayed in English.

4-4. Repeat the sequences of step 4-2 to 4-3 until you finish editing each messages.

5. After edit complete, click  .

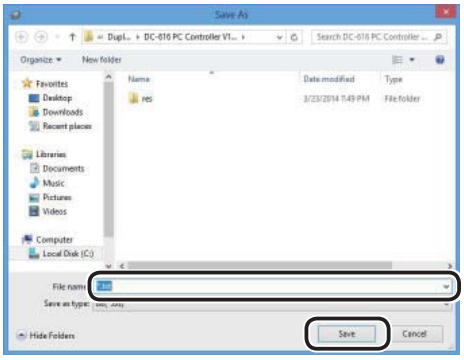
6. Enter the file name of the new data you edited, and save the message file.

IMPORTANT

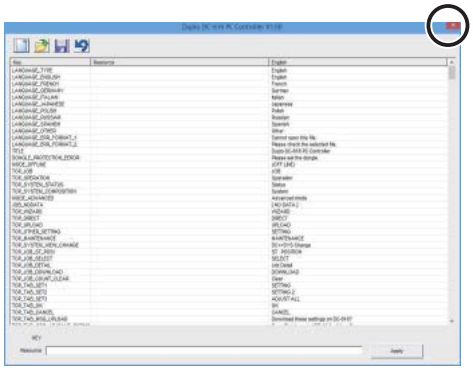
Save the message file in text format (*.txt).

Click **[Save]**.

If you click **[Cancel],** the screen returns to the one in step 4 without saving operation.

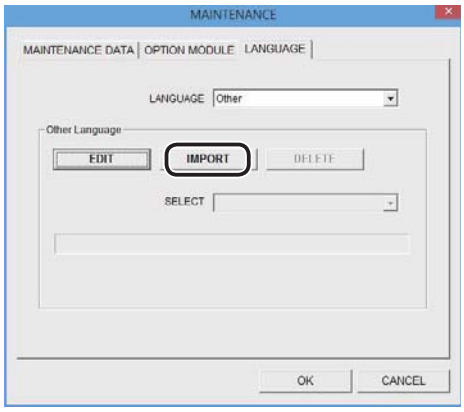


7. Close this window.



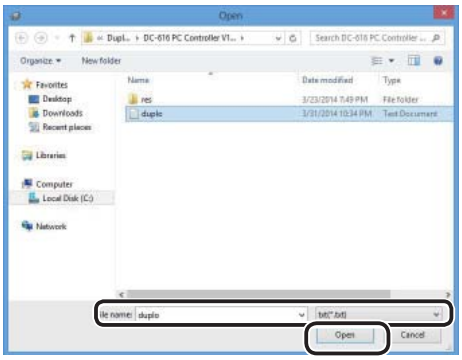
8. The right screen appears.

Click **[IMPORT]**.



9. Select the file saved in step 6, and click **[OPEN]**.
(The right figure shows an example of selecting “duplo” file.)

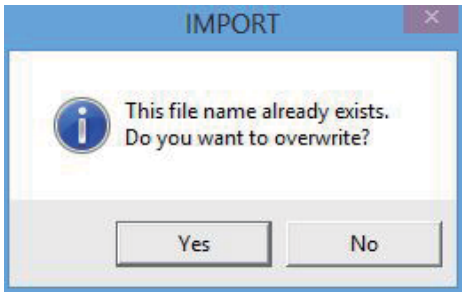
The message file will be imported in the PC controller, and the file name will be added in the list of the other language selecting box.



10. If you select the existing file, the message ‘This file name already exists. Do you want to overwrite?' appears.

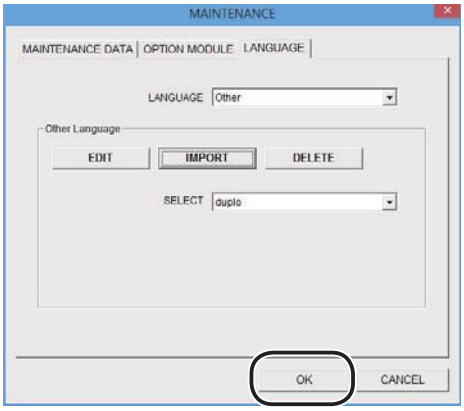
Click **[YES]** if you want to overwrite it.

Click **[NO]** if you do not overwrite it.
The screen returns to the one in step 8, and re-enter the file name.



11. Click **[OK]**.

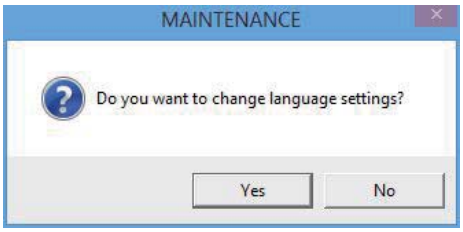
Clicking **[CANCEL]** returns to the screen of main menu.
(Reference → See P.192)



12. The message ‘Do you want to change the settings?’ appears.

Click **[YES]**.

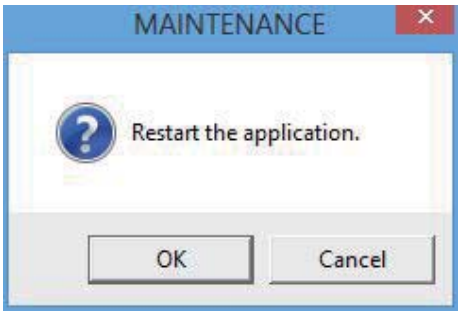
Clicking **[NO]** returns to the screen of step 11 without saving operation.



13. The message ‘Restart the application.' appears.

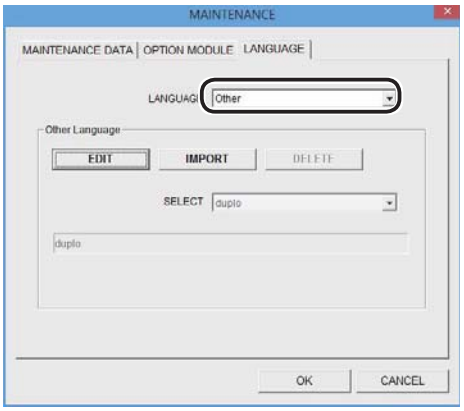
Click **[OK]**.
Application is finished automatically.
Restart the PC controller.
And it runs with the set language you have changed.

Clicking **[Cancel]** returns to the screen of step 11.

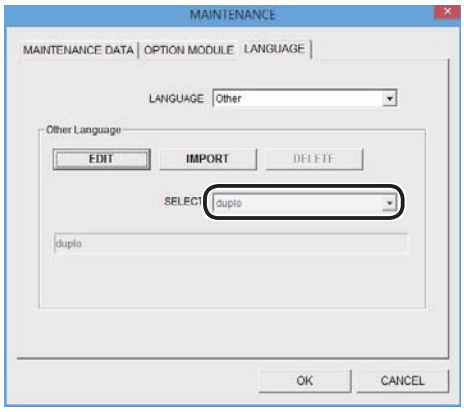


6. Deleting the Message File

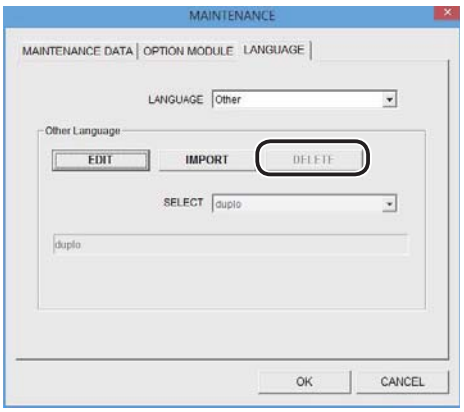
1. Select ‘Other’.



2. Select a message file to delete from the list of [**SELECT**] box.



3. Click **[DELETE]**.
The selected message file will be deleted from the folder specified to storage.



5 Confirming the Version

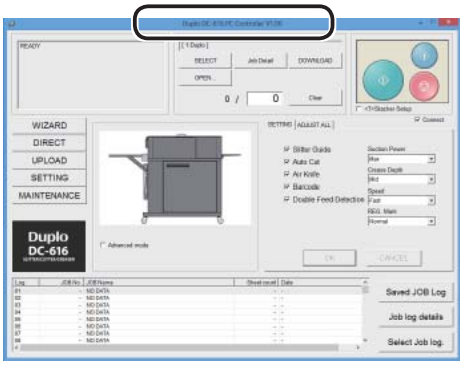
1. Descriptions

The following programs need up-version when it is required.

1. DC-616 PC Controller V*.**
   It needs up-version when adding the optional equipment on DC-616.

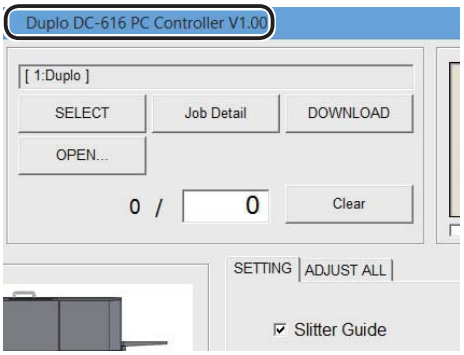
2. Duplo seiko corp. (usbdc616) USB ***** driver
   It does not need up-version normally.

Confirming the version of PC Controller
Run the PC Controller.



Look at the upper of the screen. ‘Duplo DC-616 PC Controller V*.**' is displayed.

‘V*.**’ is the version of PC controller.

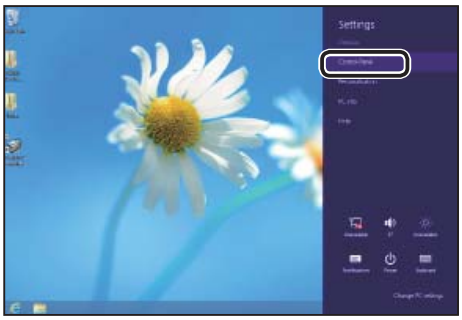


Confirming the version of driver
• Windows 8

1. Click [**Settings**] charm.



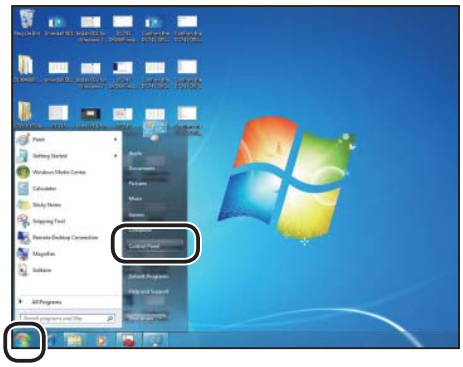
2. Click [**Control panel**].



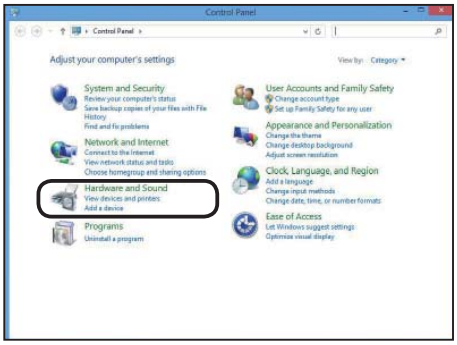
• Windows 7 / Vista

1. Click [**Start**], and then click [**Control Panel**] in the menu.

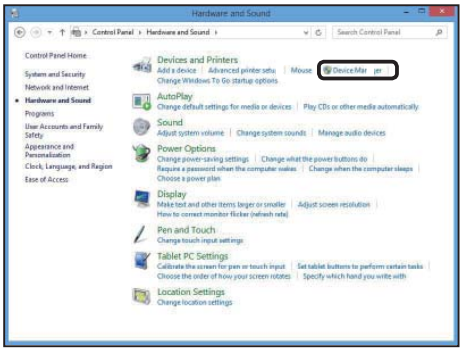
   The ‘Control Panel’ appears.



2. Click [**Hardware and Sound**].



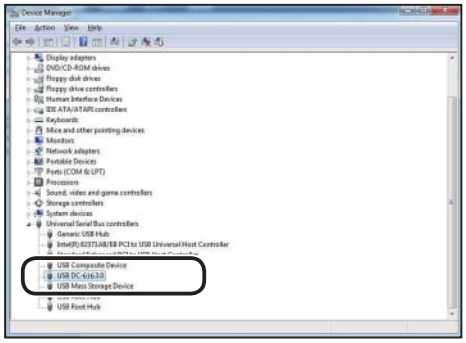
3. Click [**Device Manager**].



4. ‘USB DC-616 *.*' is registered in 'Universal Serial Bus controller' of 'Device Manager' dialog.

   The part ‘*.*' of 'USB DC-616 *.*' is the version of driver.

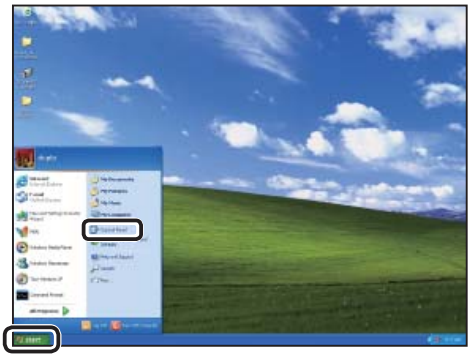
   After the confirmation, close the window.



• Windows XP

1. Click [**Start**] on the task bar.

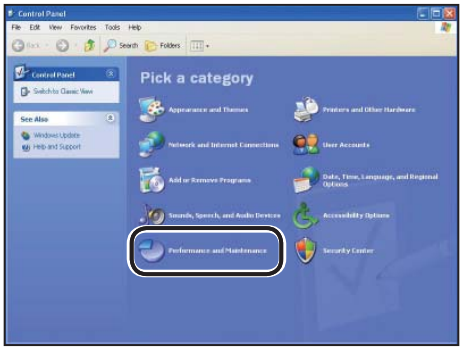
   Click [**Control Panel**] in the menu.



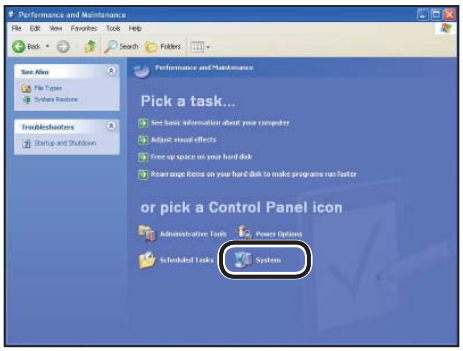
2. Click [**Performance and Maintenance**].

REFERENCE

The display of screen is different from the one in classic display setting.



3. Click [**System**].



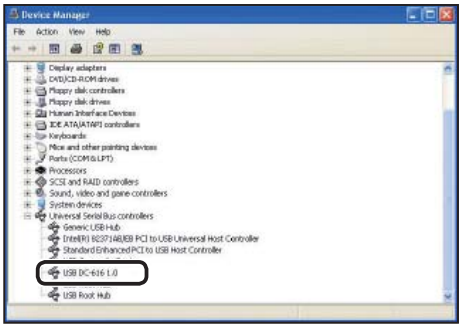
4. The ‘System Properties’ dialog appears.
   Double-click [**Hardware**] tab, and then click [**Device Manager**].



5. ‘USB DC-616 *.*’ is registered in ‘Universal Serial Bus controller’ of ‘Device Manager’ dialog.

   The part ‘*.*’ of ‘USB DC-616 *.*’ is the version of driver.

   After the confirmation, close the window.



Duplo