DIGITAL PRINTER

Starprint 8000

(K-77)

SERVICE MANUAL

Version G.0

KIP America

This service manual contains the basic information required for carrying out field service to support the product quality and functions of the Starprint 8000.

Chapter 1 Introduction	: Features, specifications
Chapter 2 Installation	: Installation place and procedure/Unpacking
Chapter 3 Copy Process	: Brief explanation of image formation and copy processes
Chapter 4 Electrical Systems	: Basic principles of electrical system and operation
Chapter 5 Mechanical Systems	: Mechanical structure, disassembly, assembly, and adjustment methods
Chapter 6 Maintenance/Checking	: Periodic replacement parts table, consumables durability yardstick table, periodic service table
Chapter 7 Troubleshooting	: Procedures and handling against malfunctions and image quality
Chapter 8 Service Mode & User Mode	
Chapter 9 Appendices	: Overall timing chart, overall circuit diagram, printed circuit diagram, etc.

Some of the information contained in this manual may be changed by product upgrades etc.
Such information will be communicated as engineering notices as necessary. Read this service manual and any engineering notices carefully. A deep and correct understanding of this machine is the only way to develop the skills for maintaining the product quality and functions of this product for a long period of time and the applied capacity for finding the causes of breakdowns.

Chapter 1

Introduction

1.1 Features

(1) New Contact Development Technology with non-magnetic mono-component toner

Benefits you will obtain are:

Superior image quality	High definition line, distinctive greyscale and consistent solid black can be produced.
100% toner efficiency	No toner is wasted. Neither cleaning mechanism nor waste toner receptacle is needed. It is environmentally friendly and also can reduce the running cost.

(2) Superior printing productivity

Print speed is 240mm / second (11 A0 prints / minute).
It is enough processible a large volume of print/copy.

(3) Long parts life and low frequency of service maintenance

Mortal parts such as Photoconductive Drum or Image Corona Wire, which are key parts to gain a nice image, are durable for very long term use.
You will continuously gain a nice image for a long term without maintenance as the printer is provided with self-cleaning functions.

(4) Pre-calibrated LED Head

All LED pixels are individually calibrated in advance to produce the best image.

(5) Image Smoothing Technology

Printed diagonal and curved lines look smoother because of the optimization by the Image Smoothing Technology.

(6) Replacement of media and Toner Cartridge without interrupting print production

It is possible to replace the roll media or the Toner Cartridge without interrupting the continuous print operation.

(7) Long print

The maximum print length guaranteed is 6 meters (plain paper) but it is possible to print up to 24 meters optionally. (Quality of print is not guaranteed.)

1.2 Specifications

Subject	Specification
Model	KipStar8000 / StarPrint8000
Type	Console
Printing method	LED Array Electro Photography
Photoconductor	Organic Photoconductive Drum
Print speed	240mm / second (11 A0 prints / minute)
Exposure method	LED Print Head
Resolution	400dpi x 400dpi
Print width	Maximum : 914mm (36 inches) Minimum : 297mm (11 inches)
Print length	Maximum : Plain paper ..... 6000mm, or 5 x standard length Tracing paper ..... A0 Film ..... A0 Minimum : 210mm NOTE : If the print is longer than 6m, KIP does not guarantee image quality or the reliability of media feeding system.
Warm up time	Shorter than 6 minutes (At 23 degrees centigrade, 60% RH and 230V)
First print time	Shorter than 12.5 seconds (A0)
Fusing method	Heat roller fusing
Development	Contact type mono component non-magnetic development system (Initial toner is unnecessary. One toner cartridge contains 500g.)
Charging method	Corona
Media feeding method	Automatic (4 Roll Decks) and manual (50 cut sheets capacity)
Transfer method	Corona
Separation method	Corona and LED
Input power	220 to 240V (+6% to -10%), 16A and 50/60Hz in U.S.A. and Europe
Interface	KIP Interface 8 (2 channels)
Maximum power consumption	When 230V, 50/60Hz and Dehumidify Heater is ON Stand by ..... 0.63 Kwh Printing ..... 2.45 Kwh Warm up ..... 3.4 Kwh
Acoustic noise	Less than 70db (Printing) NOTE : Impact noise such as cutting sound is excluded. Less than 55db (Stand by)
Ozone	Less than 0.05ppm (Average of 8 hours)
Dimensions	1360mm (Width) x 980mm (Depth) x 885mm (Height)
Weight	About 400kg
Media	Specified media Plain paper ..... SHN Tracing paper ..... KMS-75 Film ..... FA-75 (Available types) Plain paper ..... 70 to 90g/m^2 Tracing paper ..... 70 to 90g/m^2 Film ..... Thickness is 100 micrometer or thinner.

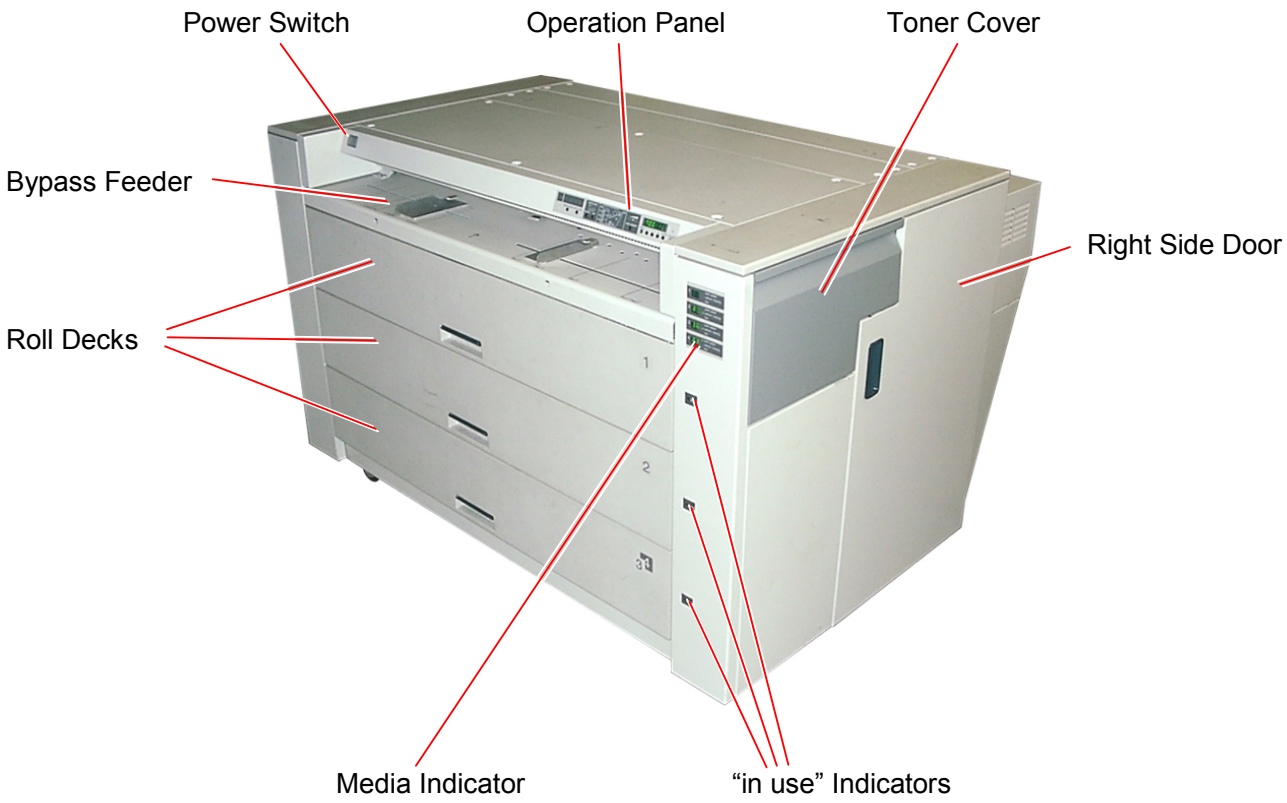
Subject	Specification
Environmental condition	Temperature ..... 10 to 32.5 degrees centigrade Humidity ..... 20 to 80% RH
Storage condition of consumables	Print media ..... Wrap the media surely to shut out the humidity. Toner ..... Keep the toner cartridge away from the direct sunlight, and store it in the condition of 0 to 35 ^{o}C and 10 to 85% RH.

NOTE

These specifications may be changed without notice.

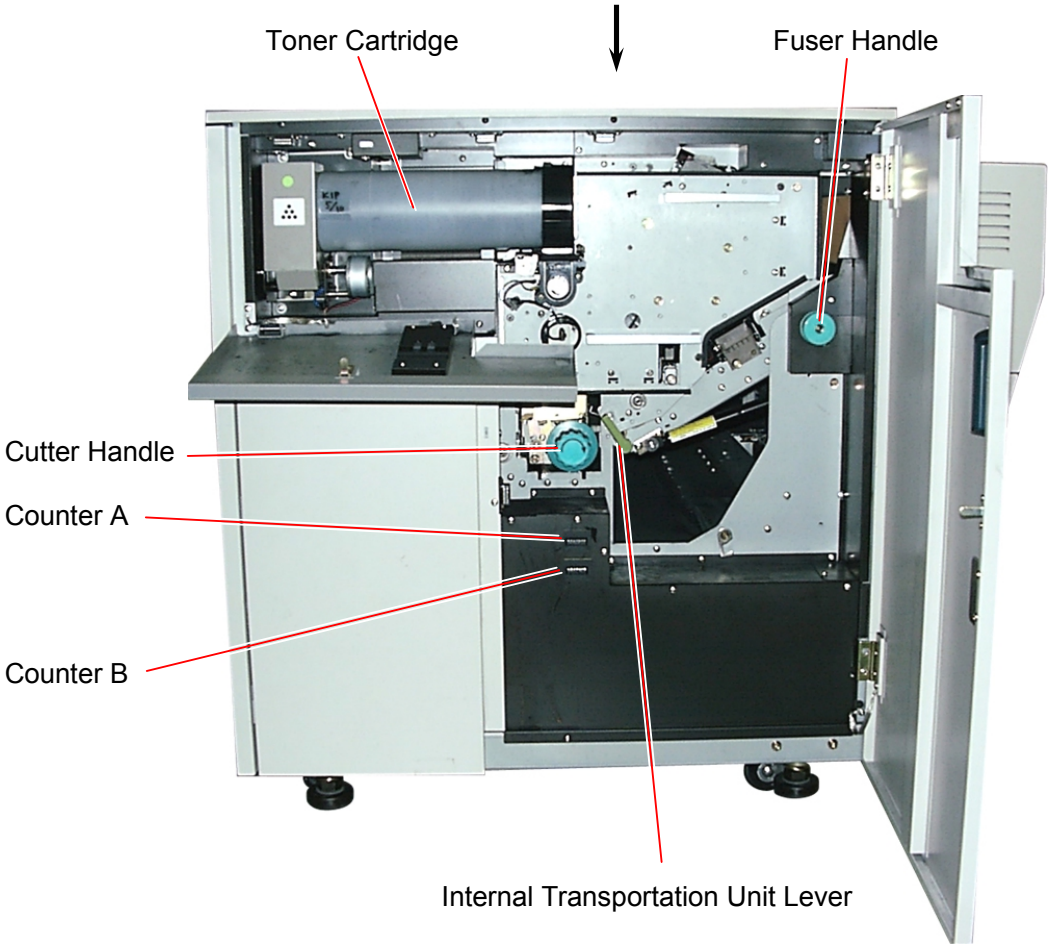
1.3 Appearance

1.3.1 Front view



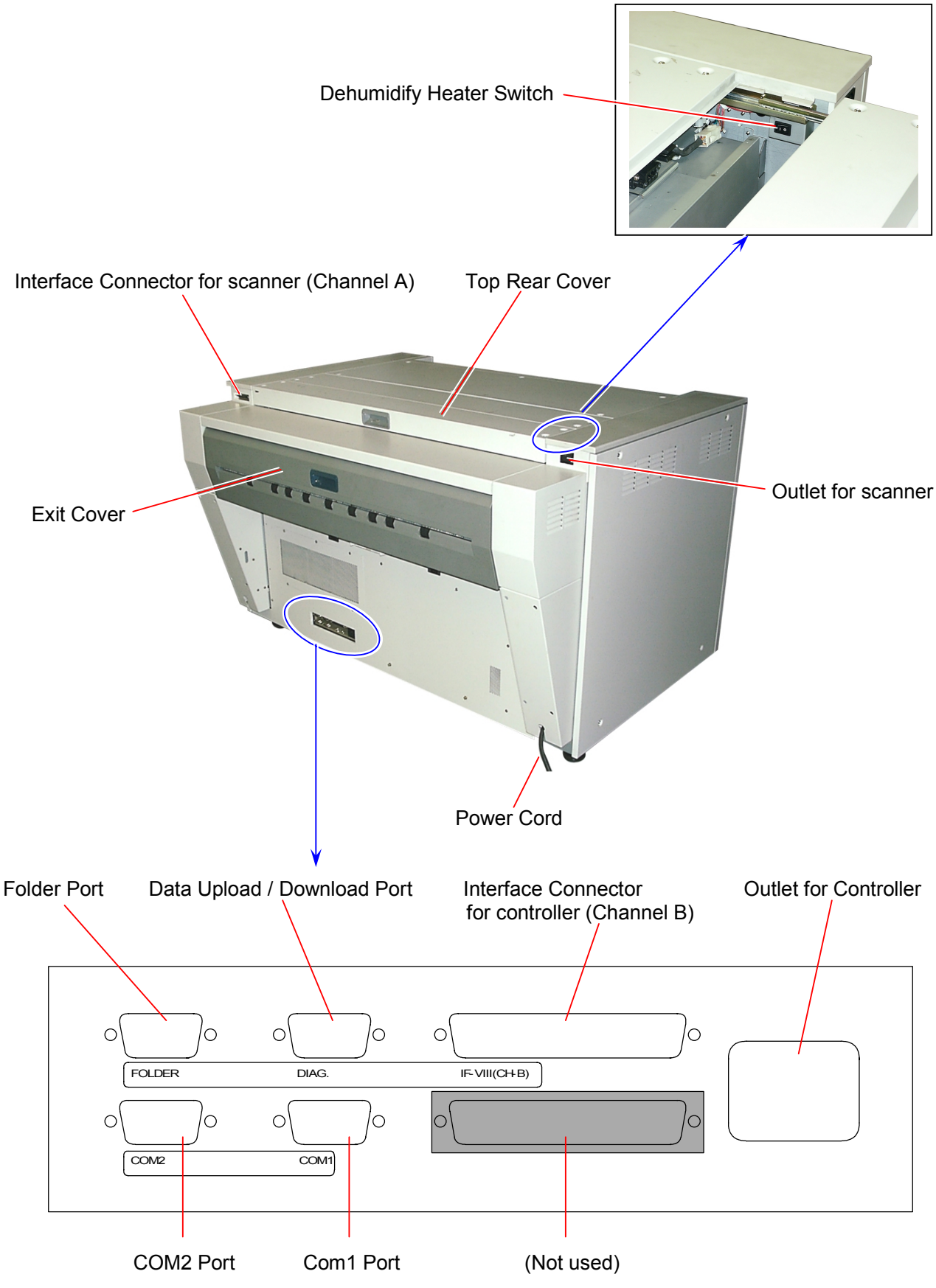
Name of part	Function
Power Switch	The printer is turned on and off.
Bypass Feeder	Cut sheet media can be set here and fed into. It is possible to set 50 sheets in maximum if the media is A2 (594mm) or narrower. (24” or narrower)
Operation Panel	It informs you of printer’s status, error, mis-feed location and so on.
Roll Decks	There are 4 Roll Decks (Drawers are 3 but Roll Spools are 4.). Each Roll Deck holds one roll of media. Roll Deck 1 : (Top drawer) Roll Deck 2 : (Middle drawer) Roll Deck 3 : (Front side of bottom drawer) Roll Deck 4 : (Rear side of bottom drawer)
Media Indicator	It informs you of the size and the material of roll media loaded on each Roll Deck.
Toner Cover	Open the Toner Cover and access the Toner Supplying Mechanism when you replace the Toner Cartridge.
Right Side Door	When a mis-feed of media occurs inside of the machine, open the Right Side Door and remove the mis-fed media.
“in use” Indicators	These indicators let you know which drawer must not be opened during print.

1.3.2 Right side view



Name of part	Function
Cutter Handle	If the mis-fed media has not been cut yet, rotate the Cutter Handle to cut it manually.
Counter A	Counter A counts the linear meter (inch) of total prints.
Counter B	Counter B counts the square meter (inch) of total prints.
Internal Transportation Unit Lever	Move this lever to unlock and open the Internal Transportation Unit, and then remove the mis-fed media.
Fuser Handle	When a media mis-feed occurs in the Fuser Unit, it is possible to eject it manually from the print exit rotating the Fuser Handle.
Toner Cartridge	It contains 500 grams of toner, and supplies the toner to the Developer Unit little by little.

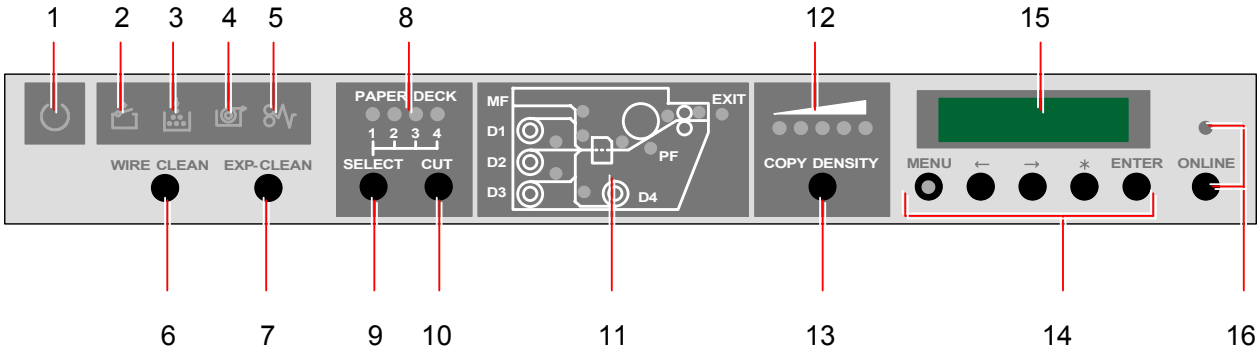
1.3.3 Rear view



Name of part	Function
Interface Connector for scanner (Channel A)	Connect the cable here, which comes from the image scanner. Connector type is D-Sub Connector 37 pins : max.5Vdc (large)
Exit Cover	When a media mis-feed occurs in the Fuser Unit, open the Exit Cover and remove the mis-fed media.
Top Rear Cover	Open the Top Rear Cover and access the Dehumidify Heater Switch.
Power Cord	Connect to the wall outlet alone.
Outlet for scanner	It is possible to supply the power from the printer to the scanner if you connect the power cord to this outlet. (220 - 240V, 2A max.)
Dehumidify Heater Switch	Turn on the Dehumidify Heater pressing “|” side of this switch to dehumidify the printing media. Press “O” side to turn it off.
Folder Port	Connect this port and the Folder with a cable.
Data Upload / Download Port	Connect this port and PC with a cable, and then download or upload the data between printer and PC.
COM2 Port	Connect this port and the LCD of controller with a cable.
COM1 Port	Connect this port and the COM1 Port of controller with a cable. The “Shutdown” signal is sent from the printer to the controller through this cable.
Interface Connector for controller (Channel B)	Connect the cable here, which comes from the controller PC. Connector type is D-Sub Connector 37 pins : max.5Vdc (large) (D-Sub Connector 9 pins : max.12Vdc (small) is also available.)
(Not used)	This is not used so it is covered.
Outlet for Controller	In case you place the controller PC outside of the printer, it is possible to supply the power from the printer to the controller PC if you connect the power cord to this outlet. (220 - 240V, 1A max.)

1.3.4 Operation Panel

There is an Operation Panel on the upper right of printer's front face.
Names and functions of key and indication LED are as follows.

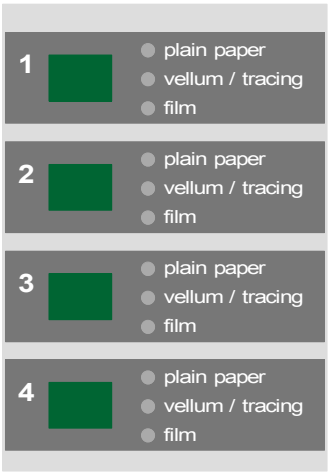


No.	Name of part	Function
1	Ready Indicator	It flashes green when the printer is warming up, and it lights green when the printer is ready for printing.
2	Open Indicator	It lights orange when some door or unit is open or unlocked.
3	Toner Empty Indicator	It flashes red when the toner is near empty. (Toner Cartridge has no toner.) And it lights red when the toner is completely empty. (Developer Unit has no toner. No more print is available.)
4	Roll Empty Indicator	It lights red if the roll media in use is empty.
5	Mis-feed Indicator	It lights red when the print media is mis-fed. (A mis-feed code like "J-XX" is indicated on the Status Display and some indication LED of Mis-feed Location Indicator lights red to inform you of the location of mis-feed.)
6	WIRE-CLEAN Key	It is possible to clean the Image Corona Wire to avoid the defective image.
7	EXP-CLEAN Key	It is possible to clean the LED Head to avoid the defective image.
8	Roll Deck Indicator	It indicates which roll media you will make initial cut.
9	SELECT Key	Before making the initial cut, select the Roll Deck of which roll media you will make initial cut.
10	CUT Key	After selecting the Roll Deck with the SELECT Key, press the Cut Key to make initial cut.
11	Mis-feed Location Indicator	If the print media is mis-fed, some indication LED lights red to show where the mis-fed media exists. (The Mis-feed Indicator lights red and a mis-feed code like "J-XX" is indicated also on the Status Display to inform you of the location of mis-feed.)
12	Density Indicator	It indicates the density level presently selected.
13	COPY DENSITY Key	It is possible to change the density level with this key. Please change the density level if you feel the printed image (print from the PC or copy from the scanner) is too dark or too light.
14	MENU Key ← Key → Key * Key ENTER Key	These keys are used in the User Mode and the Service Mode.

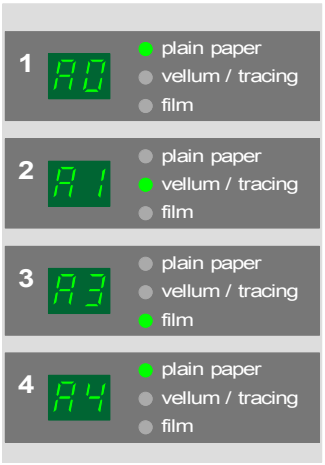
No.	Name of part	Function
15	Status Display	It indicates kinds of information as error codes or mis-feed codes.
16	ONLINE Key & Indicator	The ONLINE Indicator lights green when the controller is online, and it is put out when offline. It is possible to switch between online and offline pressing the ONLINE Key.

1.3.5 Media Indicators

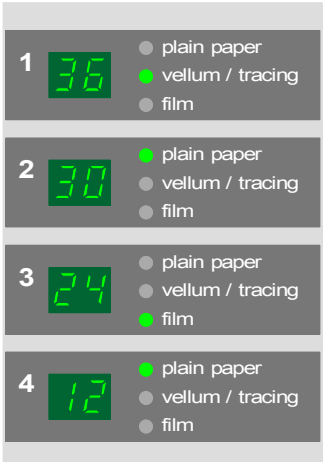
There is a Media Indicator on the right of printer's front face.
It informs you of the size (width) and the material of roll media loaded in each Roll Deck.



Example 1 : Metric mode
Roll Deck 1 : A0 plain paper
Roll Deck 2 : A1 tracing paper
Roll Deck 3 : A3 film
Roll Deck 4 : A4 plain paper

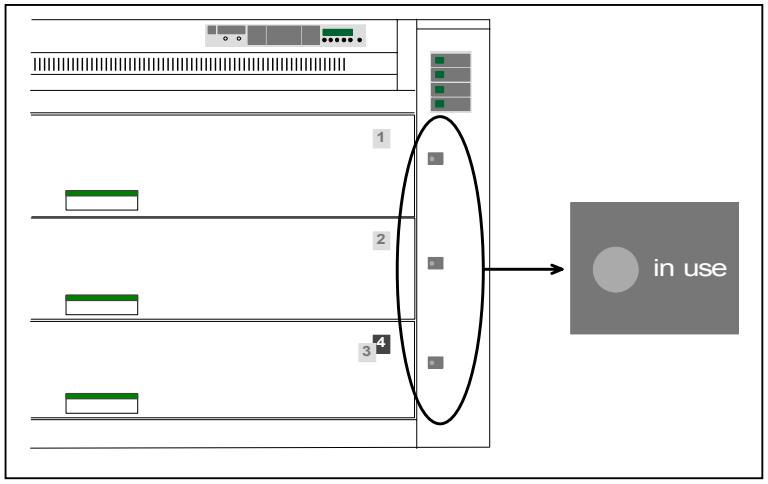


Example 2 : In the metric mode
Roll Deck 1 : 36" vellum
Roll Deck 2 : 30" plain paper
Roll Deck 3 : 24" film
Roll Deck 4 : 12" plain paper



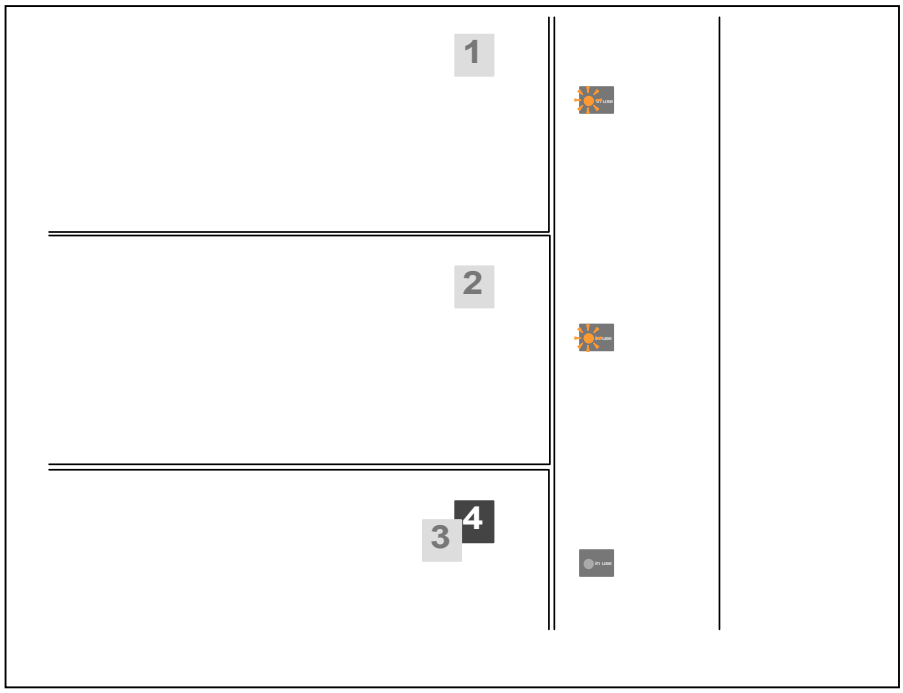
1.3.6 “in use” Indicators

There are 3 “in use” Indicators on the right of printer’s front face being concerned to 3 drawers.
These indicators show whether it is possible or not to open the concerning drawer when the printer is on printing.



One or two of them light orange when the printer is on printing.
If the “in use” Indicator is lighting orange, do not open the concerning drawer.
If it is not lighting, you may open the concerning drawer.

Example : “in use” Indicators of top and middle drawers are lighting orange, so do not open them.
You may open the bottom drawer because its “in use” Indicator is not lighting.



Reference

Even if the KipStar8000 is on printing with the roll media fed from one drawer, it is possible to open another drawer and install the roll media without interrupting to print.
However, it is not necessarily allowed to open any drawer.
We do not allow you to open a certain drawer in the following cases.

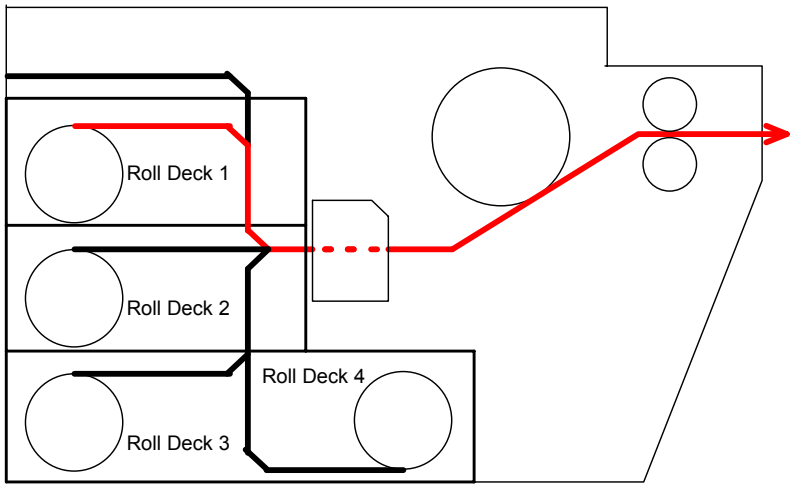
1. When the roll media is fed from that drawer.
2. Roll media is not fed from that drawer but another roll media fed from a different drawer is passing through in that certain drawer.

See the following section diagram.
Media feeding paths from each Roll Deck is integrated into one path in the middle drawer.
When the KipStar8000 is printing with the roll media fed from the Roll Deck 1, for example, it is allowed to open only the bottom drawer.
(“in use” Indicators for top and middle drawers will light orange in this case to forbid you to open them.)

Top Drawer is not allowed to open.

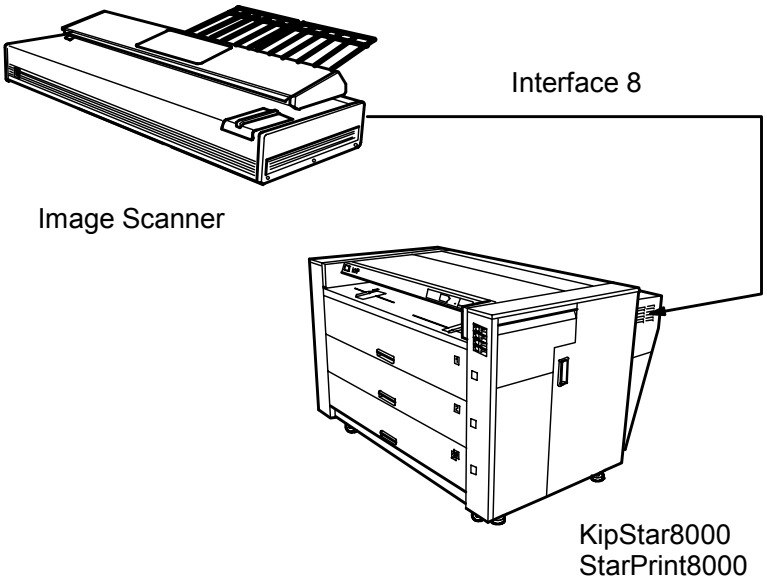
Middle Drawer is not allowed to open.

Bottom Drawer is allowed to open.

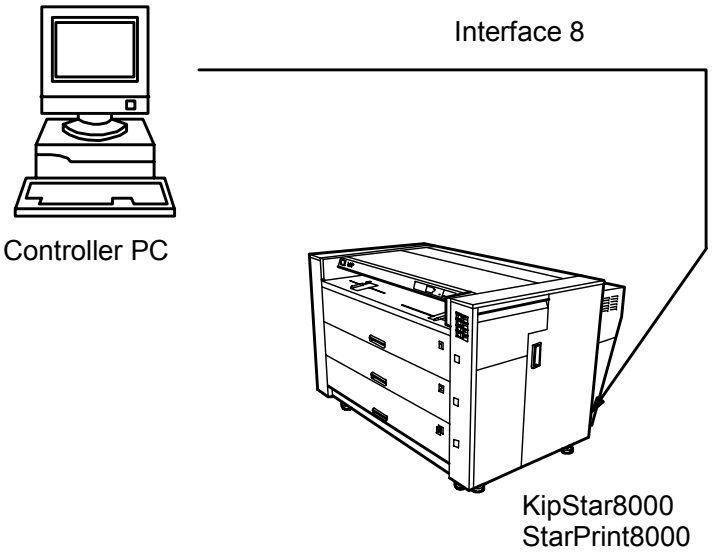


1.4 Optional Configurations

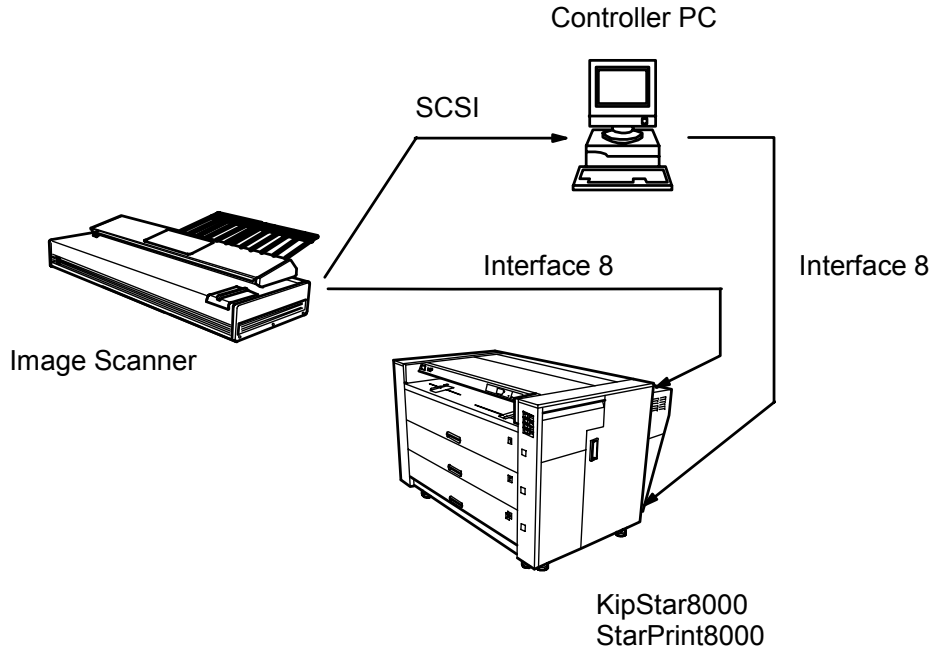
(1) Combination with the image scanner



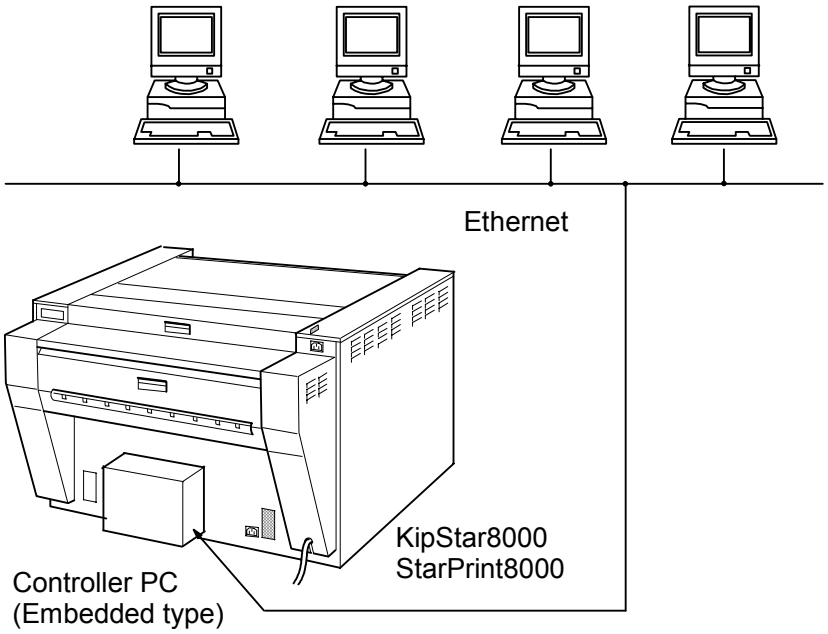
(2) Combination with the controller PC



(3) Combination with the controller PC and the image scanner



(2) Connection to the network



⚠ NOTE

UL Listed Communication Cable should be used as the LAN cable to the Controller.

Chapter 2

Installation

This machine is packaged and shipped after careful adjustment and passed a strict inspection in our factory.
Installation is important work to reappear the efficiency of the machine that has passed the test in our factory after having installed at customer site.
A service engineer has to understand this machine's function very well, install this machine in a good environmental place in a correct procedure, and check this machine completely.

2.1 Installation Requirements

The following conditions are required for installation of the equipment.

(1) Power source should be as follows (according to your region).
U.S.A. / Europe ..... 220 to 240V (+6% to -10%), 16A, 50/60Hz

(2) The equipment must be on an exclusive circuit.
The outlet must be near the equipment and easy accessible.

(3) Make sure to connect this equipment to a grounded outlet.

(4) The site temperature range = 10 to 32.5 degrees centigrade, with the humidity between 20% to 80.0% RH (NON CONDENSING).
Keep the equipment away from water sources, boilers, humidifiers or refrigerators.

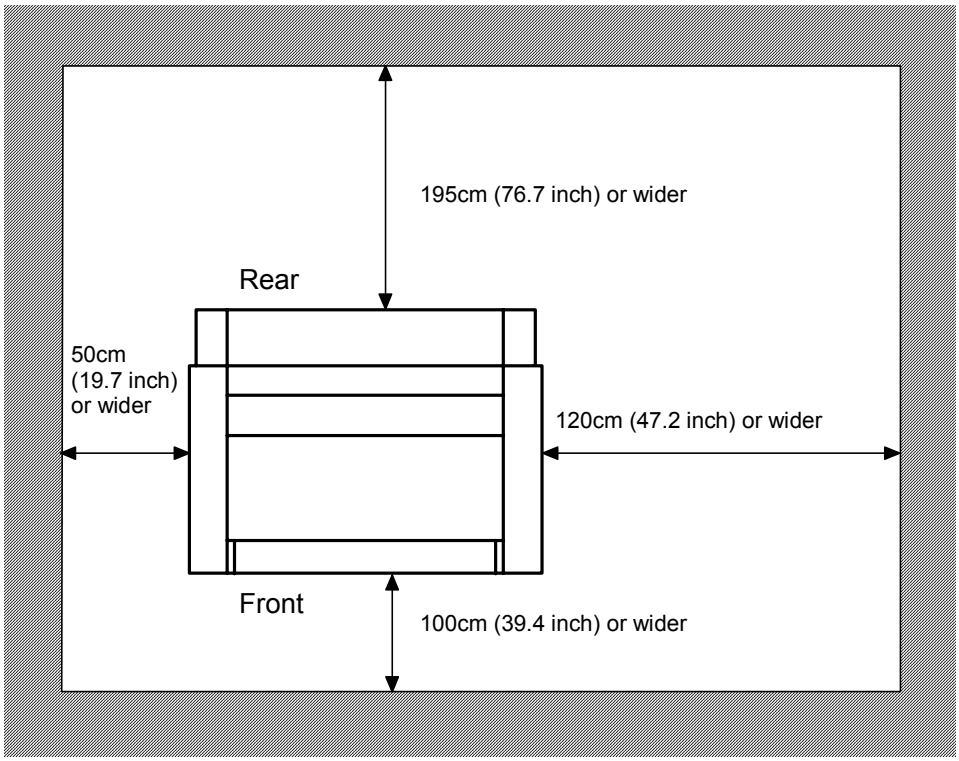
(5) The installation site must not have open flames, dust or ammonia gases.

(6) The equipment should not be exposed to the direct sunlight.
Please draw curtains to block any sunlight.

(7) Ozone will be generated while this equipment is in use, although the quantity generated is within safe levels. (see certifications)
Ventilate the room, if required.

(8) Levelling Bolts on the bottom of the printer should touch the floor correctly.
And the equipment must be levelled.
Floor strength must be ample to sustain the weight of the equipment.

(9) Keep ample room around the equipment to ensure comfortable operation.
Required space is noted.



2.2 Unpacking

⚠ CAUTION

1. When this printer is to be installed in winter, if a printer that has been kept in a cold warehouse is moved to a warm room and is unpacked, it may cause several troubles since each part of the printer will be dewed.
   In this case, leave the printer in the room for 6 hours or longer before it is unpacked, then start installation work.

2. Handle with great care when you unpack or install the printer because its net weight is heavier than 400Kg.

⚠ NOTE

The printer package does not include toner cartridge and printing paper.
So ask them separately before installing the printer.

1) Remove a top crate, and also remove 4 pieces of side crate.

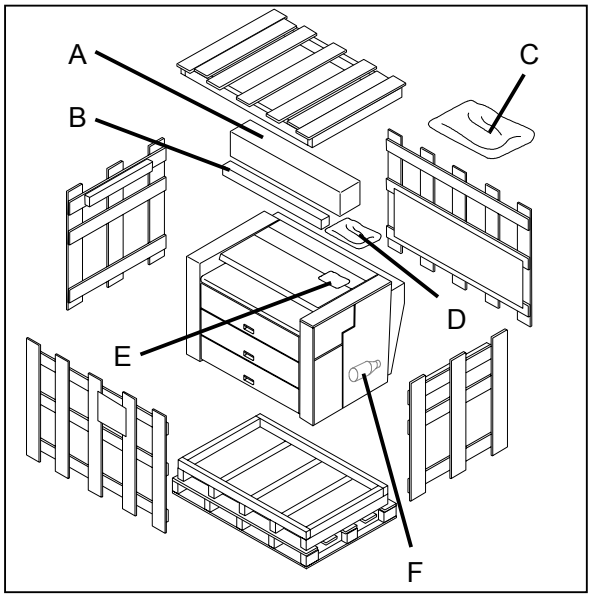
2) Remove both the wrapping film and the protection paper from the printer.
   You will find 2 boxes and 1 package, which include the following 5 kinds of accessory.

   A : Drum Package
   B : LED Head Package
   C : Manual Tray
   D : Drum Stand and a sheet of paper
   E : Setup Procedure and User's Manual
   F : Setup Toner Bottle (Inside of the Right Side Door)

3) Lift up the machine using a folk lift, with the forks set to the widest possible position to fit into the inner skid, and place the printer directly onto the floor.

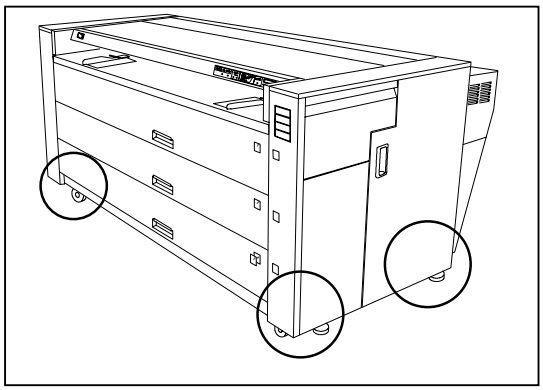
4) Remove the vinyl from the printer.

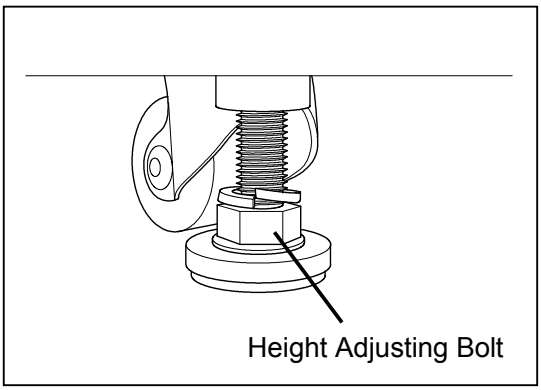
5) Remove the wrapping film from the printer.



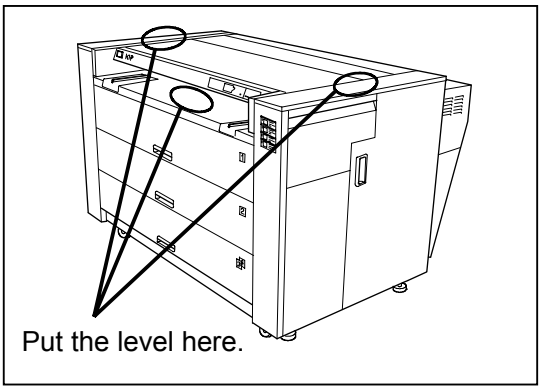
2.3 Levelling the Printer

It is necessary to level the printer to get a proper print image.
By tightening or loosening the Height Adjusting Bolts on the bottom, please level the printer.





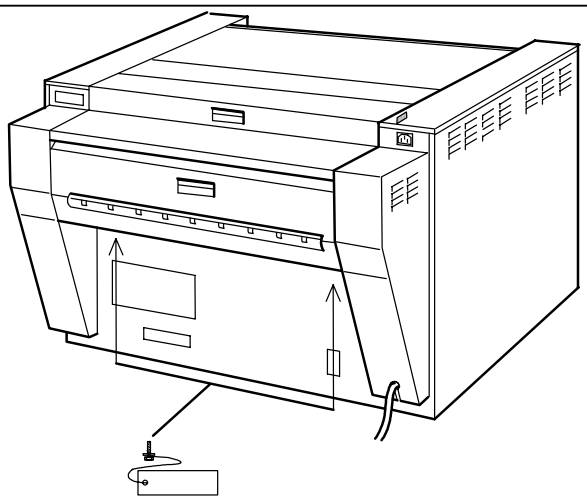
Put the level on the specified places of the printer.
See the right figure.



2.4 Removing Tapes and Screws

Several movable parts of KIP8000 have been fixed with screws, tapes or shock absorbers before shipment, so as not to be broken by the shock or the vibration during transportation.
Please remove these screws, tapes and shock absorbers at the time of installation.

1) Remove 2 screws with the tag on the bottom of the Fuser.
   These screws are not reused.

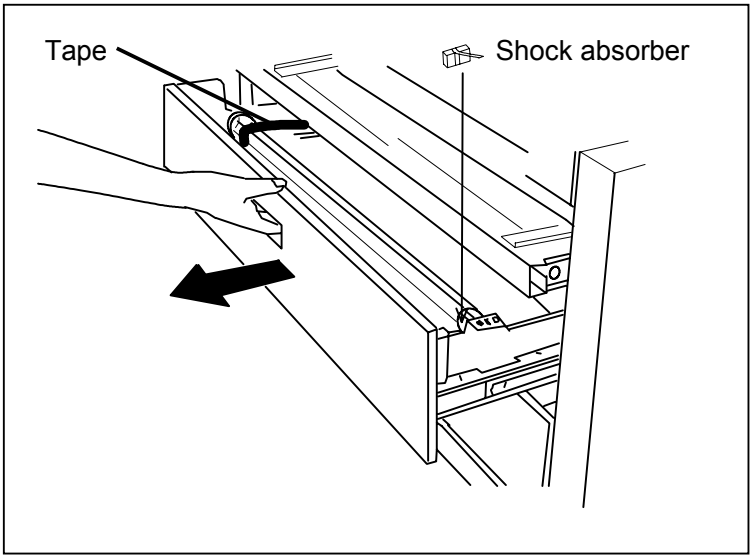


Screw with the tag

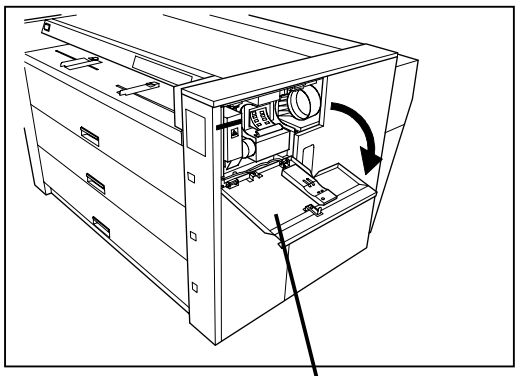
⚠ NOTE

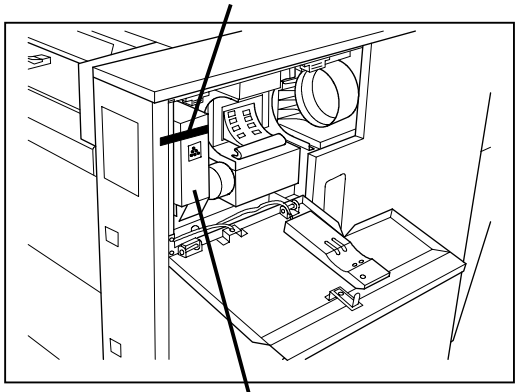
We have separated the Fuser Roller and the Pressure Roller each other so as not to damage them during transportation, by pulling the Pressure Roller with the above shown 2 screws.
But please remove these screws at the time of installation because it is necessary to contact Fuser Roller and Pressure Roller strongly.
Otherwise, the toner image will not be fixed to the paper firmly.

2) Draw out each Roll Deck.
   Remove the tape and the shock absorber which hold the Roll Spool.



3) Open the Toner Cover.
Remove the tape which holds the Toner Cartridge Cover.

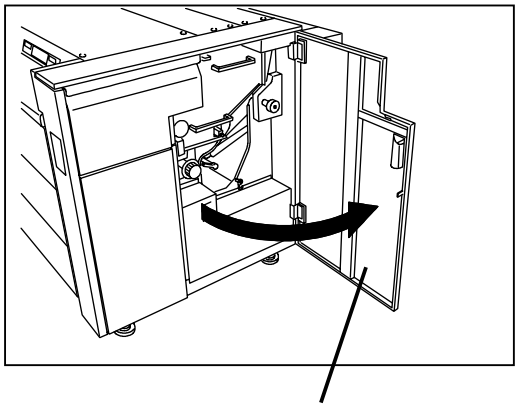


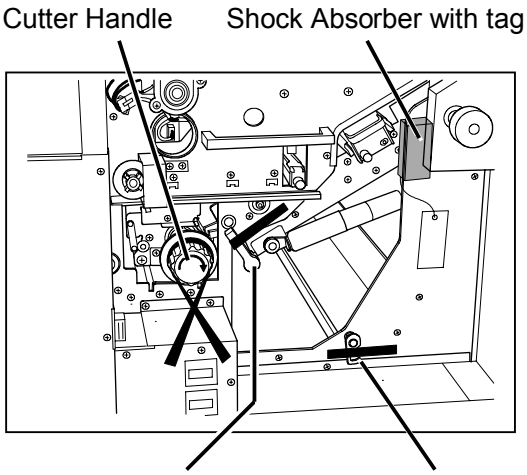


4) Open the Right Side Door.
Remove the tapes fixing the following parts.

Cutter Handle
Inner Transportation Unit Lever
Hook

Remove the shock absorber with tag also.



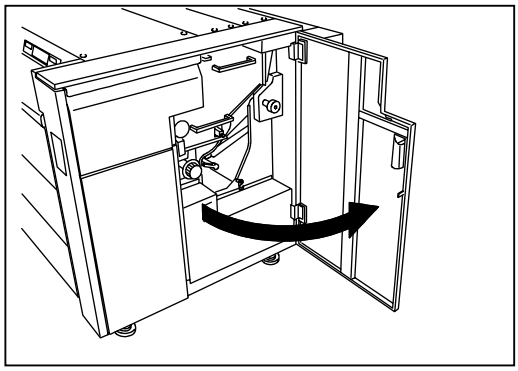


2.5 Confirmation of Service Mode Lists, Shading Sheet and Drum Cleaning Blade

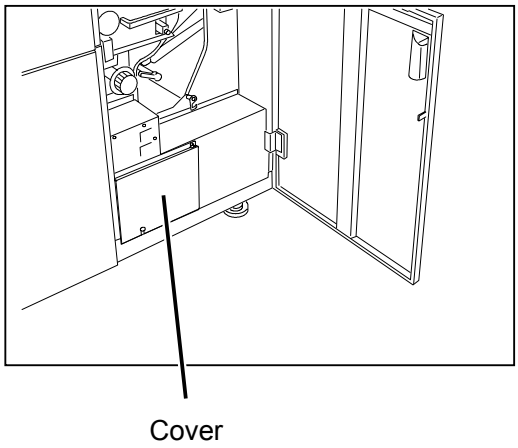
Service Mode Lists, Shading Sheet and Drum Cleaning Blade are inside of the Cover on the right. Open the Cover at the time of installation and confirm they are included.

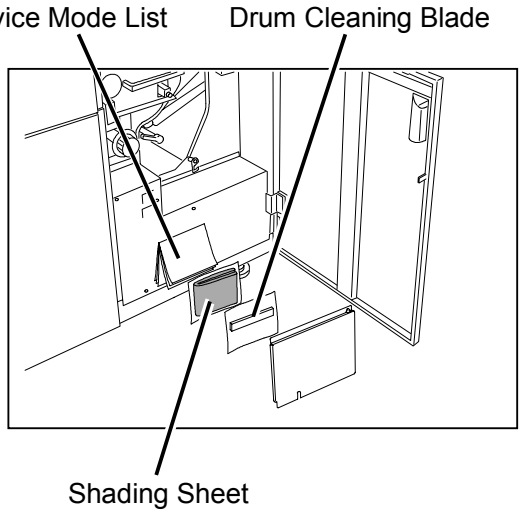
> **⚠ NOTE**
>
> 1. Setting values of Service Modes, which are uniquely decided for each machine, are written in the Service Mode Lists.
> 2. If you make some product service pulling out the Process Unit, cover the Drum with Shading Sheet so as not to expose the Drum to the light.
> 3. Drum Cleaning Blade is used when the Drum gets dirt and white spots appear on the print.

1) Open the Right Side Door.



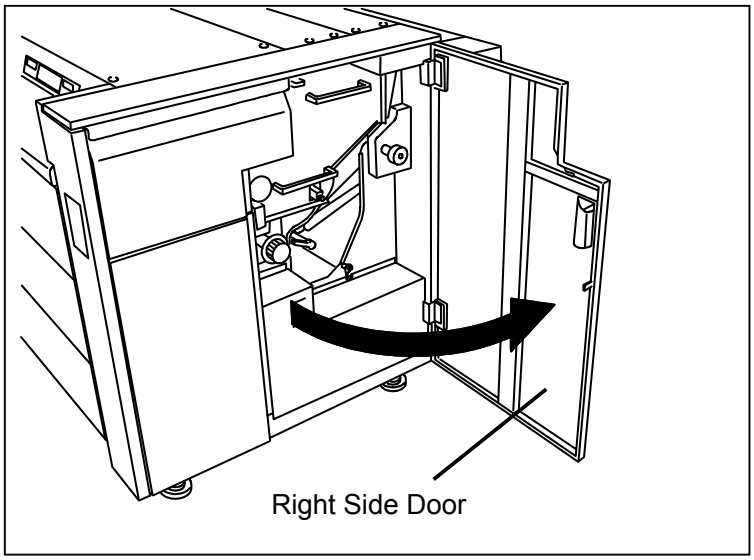
2) Remove 2 screws to remove the Cover.
You will find the Service Mode List, the Shading Sheet and the Drum Cleaning Blade.



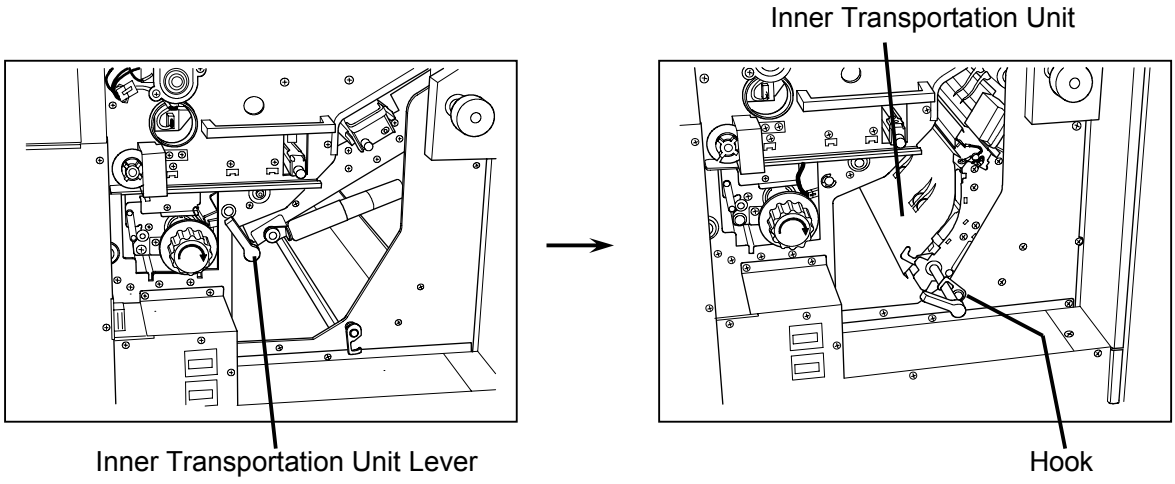


2.6 Setting up the Process Unit (LED Head, Developer & Drum)

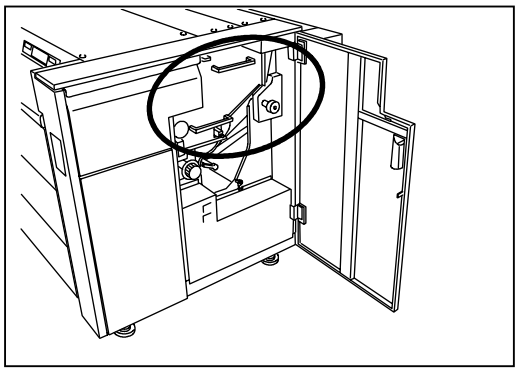
1) Open the Right Side Door.

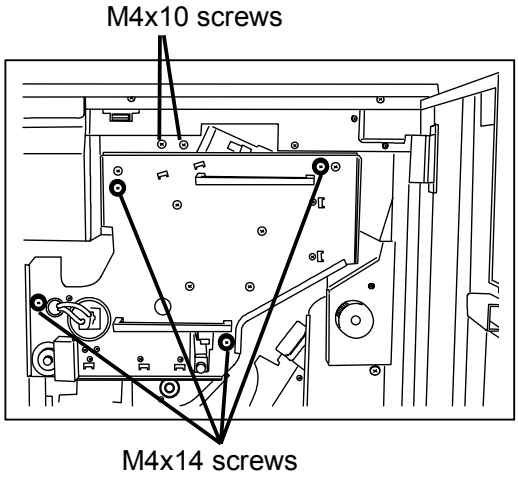


2) Twist the Inner Transportation Lever counter-clockwise to unlock the Inner Transportation Unit, bring down the Inner Transportation Unit and hold it with the Hook.



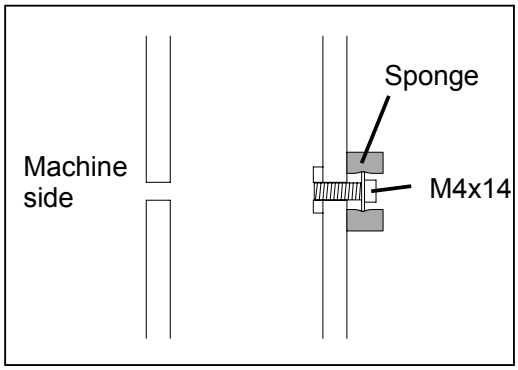
3) Remove 2 pieces of M4x10 screw.
Also, remove 4 pieces of M4x14 screw which are enclosed with the sponges.



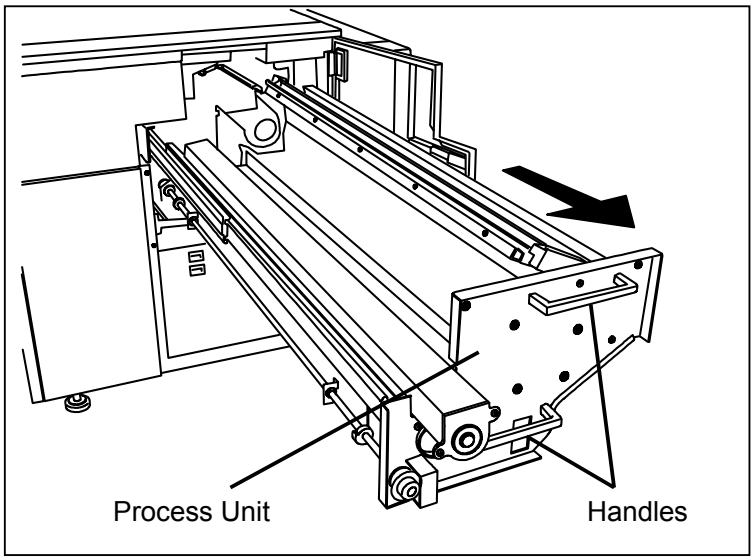


⚠ NOTE

Do not remove the sponges as it prevents the M4x14 screws from dropping off.



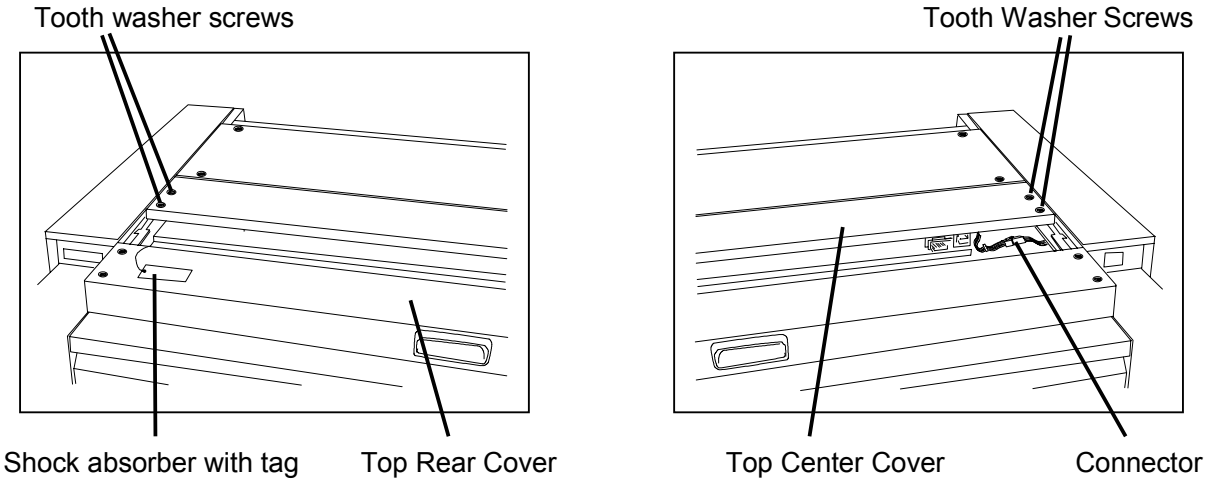
4) Catch the Handles and draw out the Process Unit.



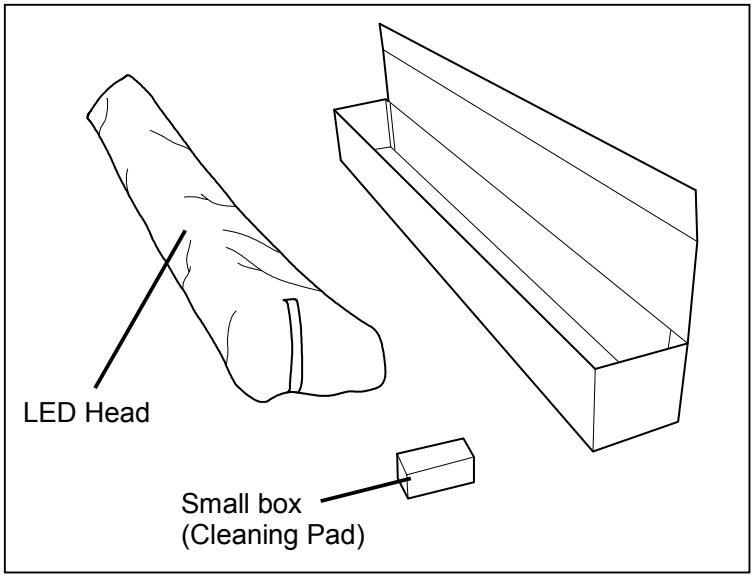
⚠ NOTE

Make sure to catch both Handles when you draw it out.

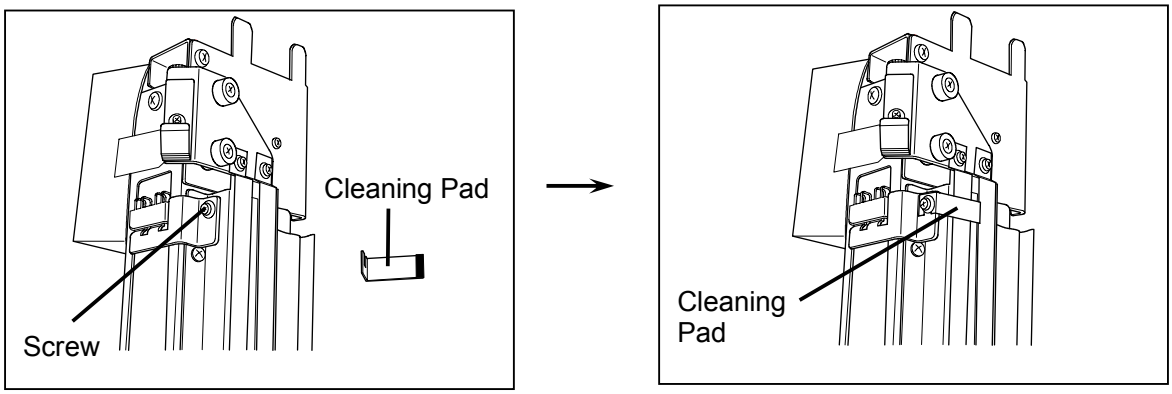
5) Open the Top Rear Cover, and remove the shock absorber with tag on one side.
Disconnect a connector on another side, remove 4 pieces of tooth washer screw, and then remove the Top Center Cover.



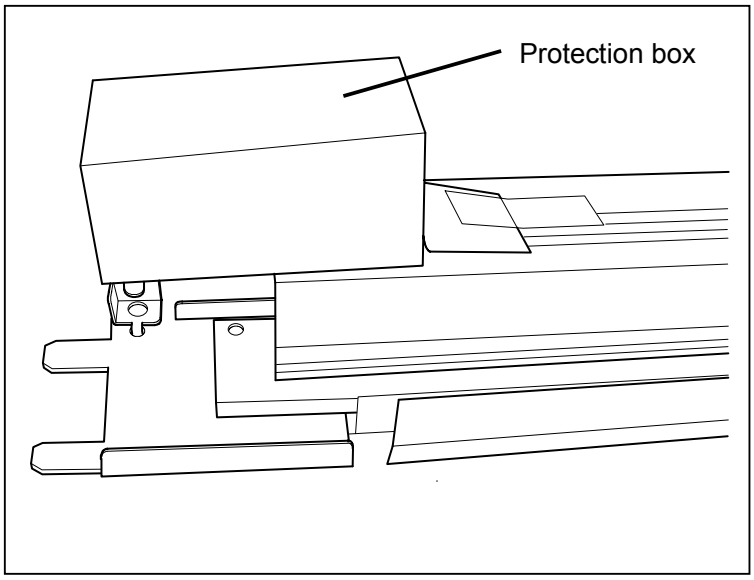
6) Open the box of LED Head.
There are wrapped LED Head and small box in it.
The small box includes a Cleaning Pad.



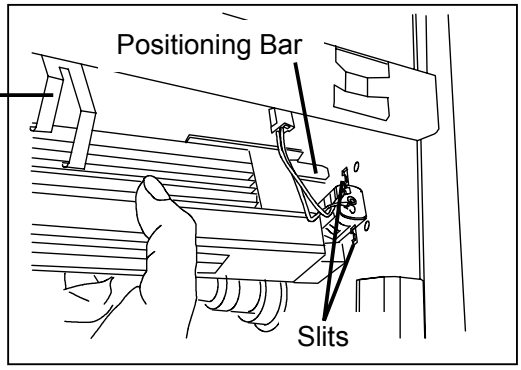
7) Remove the wrapping from the LED Head, and take out the Cleaning Pad from the box. Loosen the screw, install the Cleaning pad there and tighten the screw.



8) Since the Cleaning Motor is protected with the box, remove it.



9) Insert the Positioning Bars on the motor side of LED Head Unit into the slits on the left side of printer.



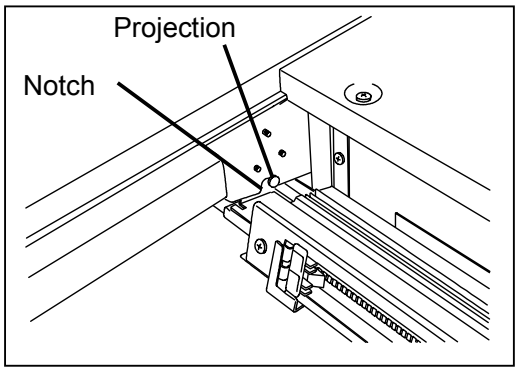
⚠ NOTE

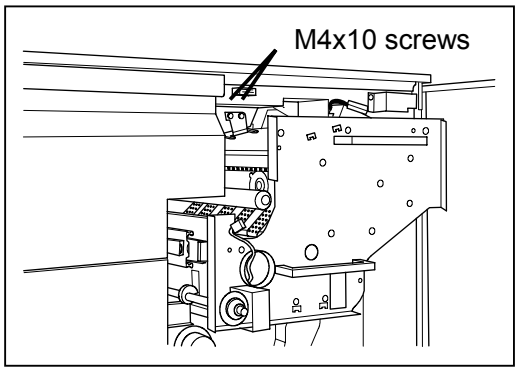
There are 3 pieces of Ground Plates. Be careful not to break them.

10) Fit the projection on another side of LED Head to the notch on the right side of printer. Then, hold the LED Head temporarily with the M4x10 screws which you have removed at the step 3).

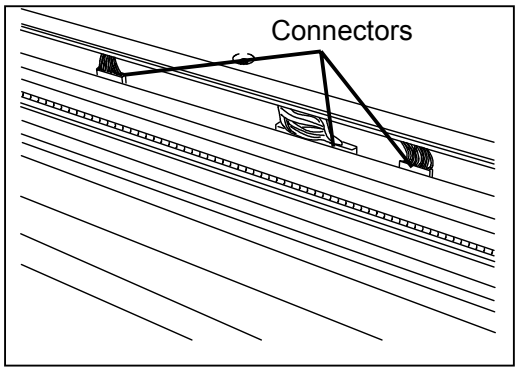
⚠ CAUTION

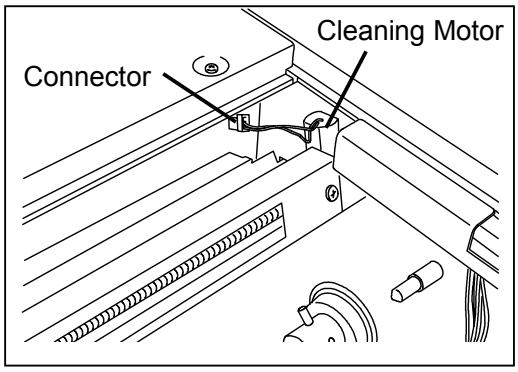
Do not tighten the M4x10 screws positively!
The LED Head must be moved easily up and down when you close the Process Unit in the later step 12).



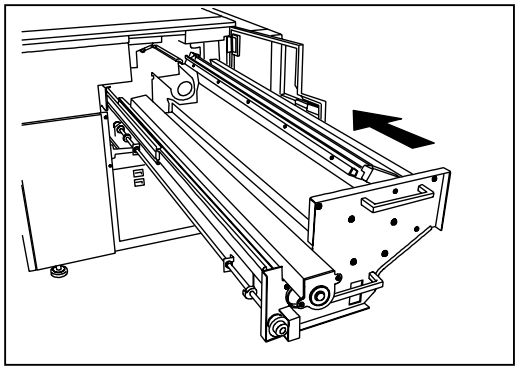


11) Connect 3 connectors to the LED Head, and connect the connector of Cleaning Motor.



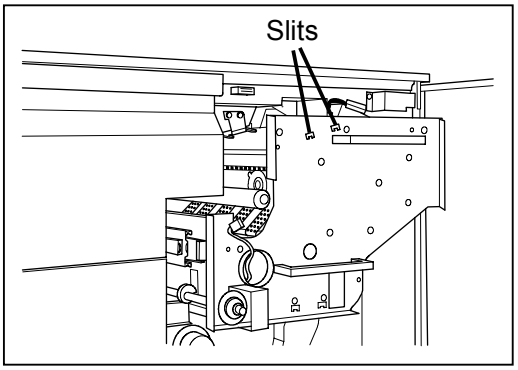


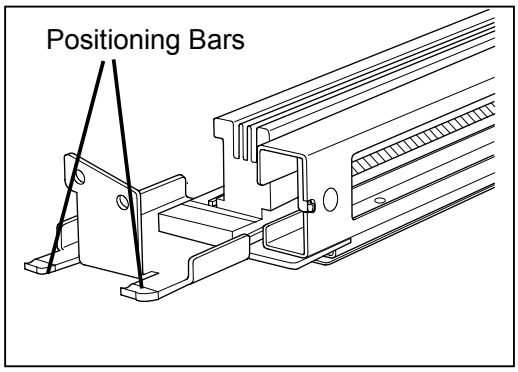
12) Make sure that the LED Head is easily moved up and down (M4x10 screws are loosed), push in the Process Unit into the printer.



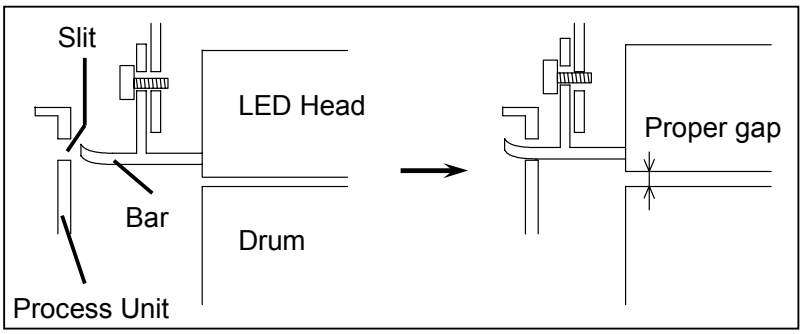
⚠ NOTE

Make sure to close the Process Unit without tightening the M4x10 screws.
The Positioning Bars of the LED Head are fitted into the slits of the Process Unit.

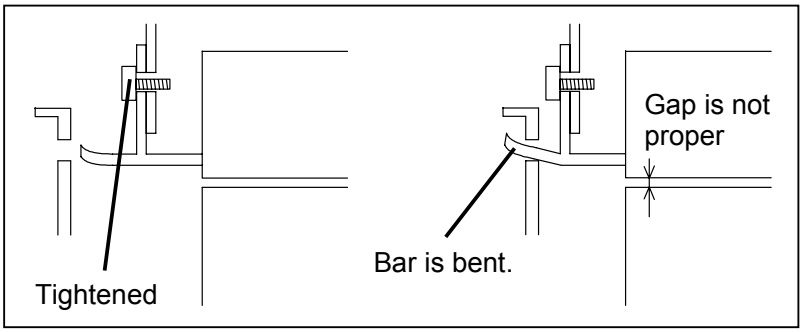




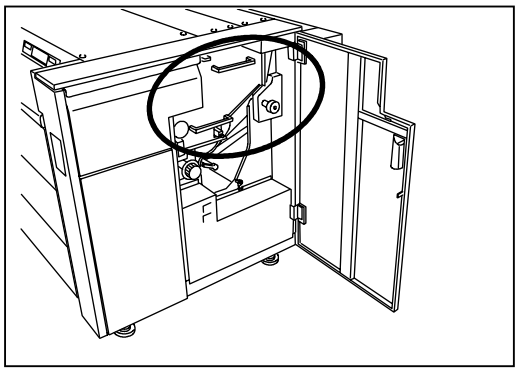
These Positioning Bars are curved upward, and the LED Head is smoothly moved up when the bars are fitted into the slits. By this, a proper gap can be kept between LED Head and Drum.

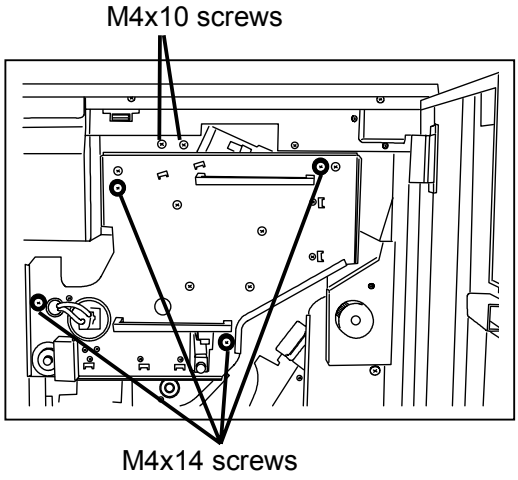


If you close the Process Unit when the LED Head is not movable being fixed with the M4x10 screws, the gap between LED Head and Drum is not adjusted properly. Or you may bend the Positioning Bars in the worst case.



13) Fix the Process Unit tightening 4 pieces of M4x14 screw, and then fix the LED Head tightening 2 pieces of M4x10 screw.

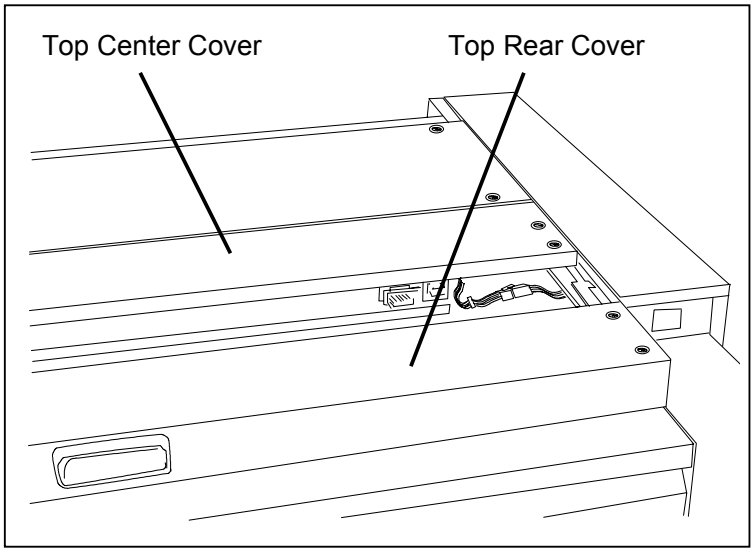




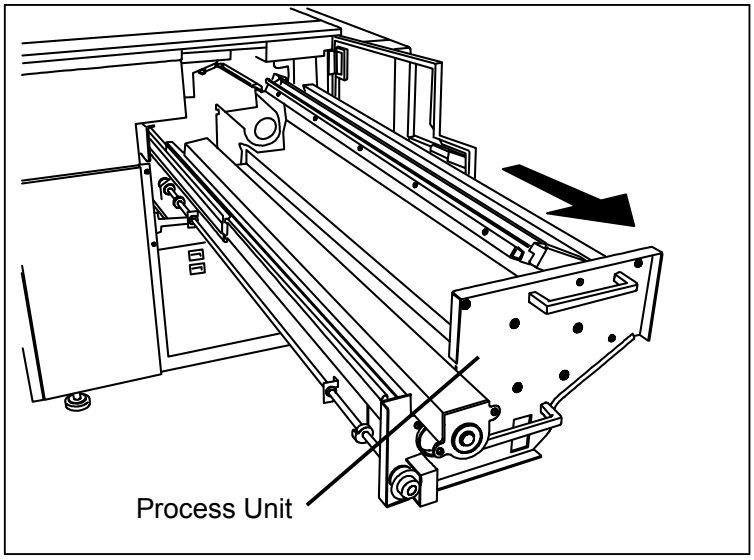
⚠ NOTE

It is necessary to fix the Process Unit before fixing the LED Head.
So make sure to tighten M4x14 screws first, and then tighten M4x10 screws

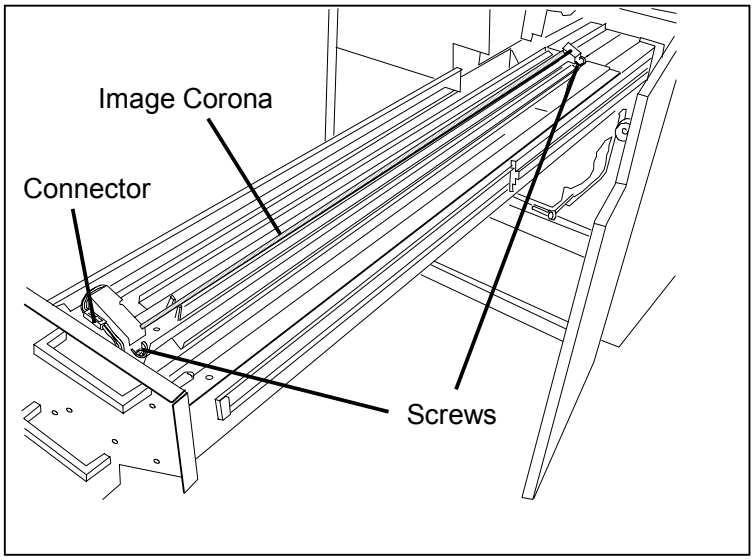
14) Put back the Top Center Cover and close the Top Rear Cover.



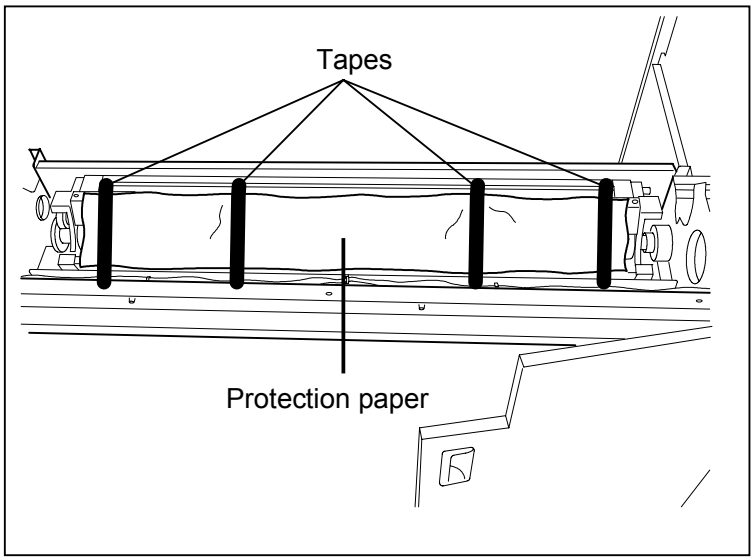
15) Draw out the Process Unit again.



16) Disconnect the connector of the Wire Cleaning Motor, remove 2 screws at both sides and remove the Image Corona.



17) The Developer Unit is held with 4 tapes and is protected with a paper.
Remove them.



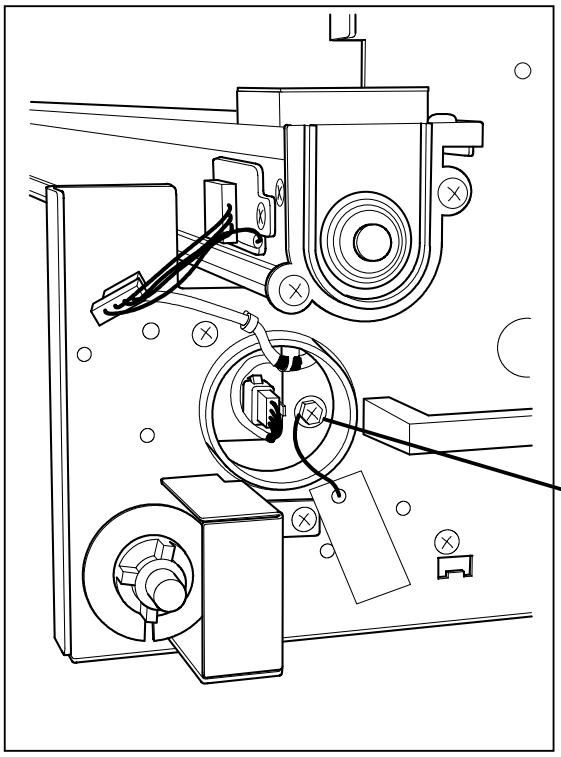
⚠ NOTE

The Developer Roller is covered with the toner.
Be careful not to remove it when you remove the protection paper.

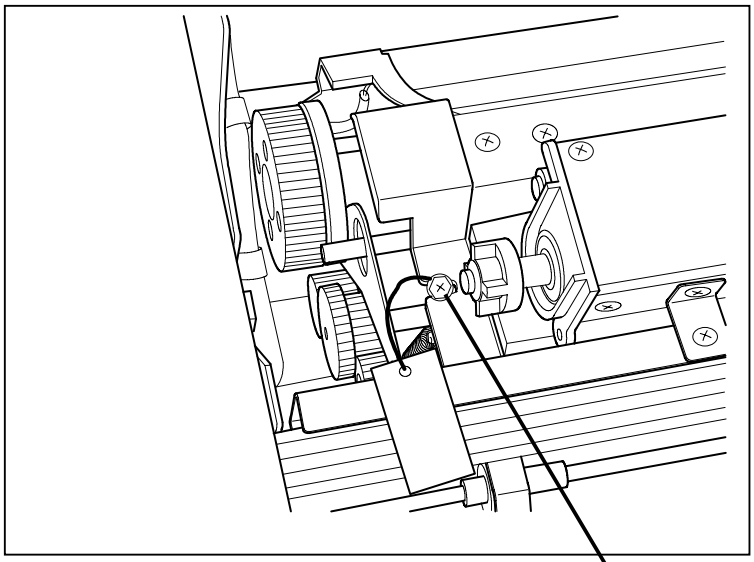
18) The Regulation Roller has been separated from the Developer Roller so as not to damage the Developer Roller during transportation.
But the Regulation Roller must press the Developer Roller when the printer operates.

To make the Regulation Roller press the Developer Roller, carry out the following matters

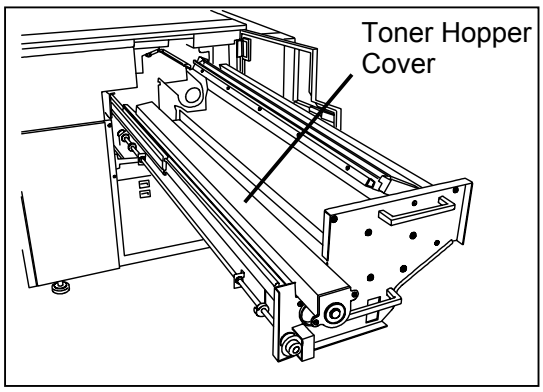
1. Loosen the screw with tag, which is on the connector side and fixes the Pressure Brackets. As the spring will pull the Pressure Brackets, the Regulation Roller comes to press the Development Roller. Then, tighten the said screw. (Please remove the tag.)

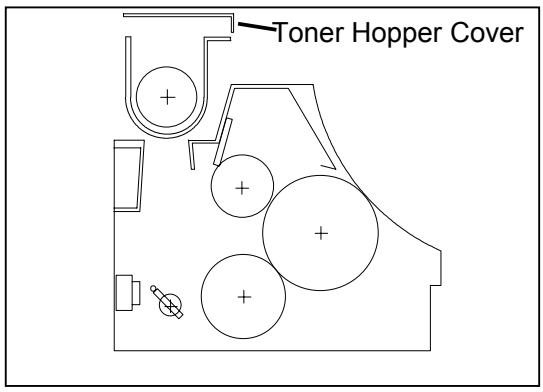


2. Remove the screw with tag on another side.
(This screw is not reused.)

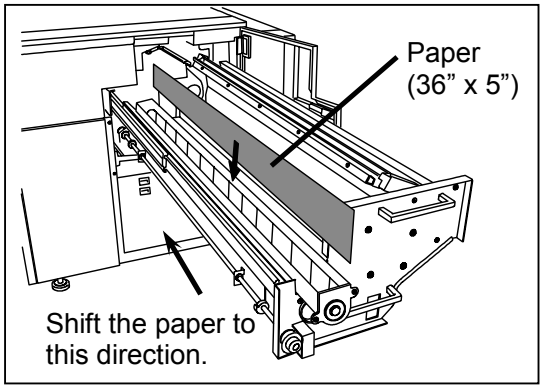


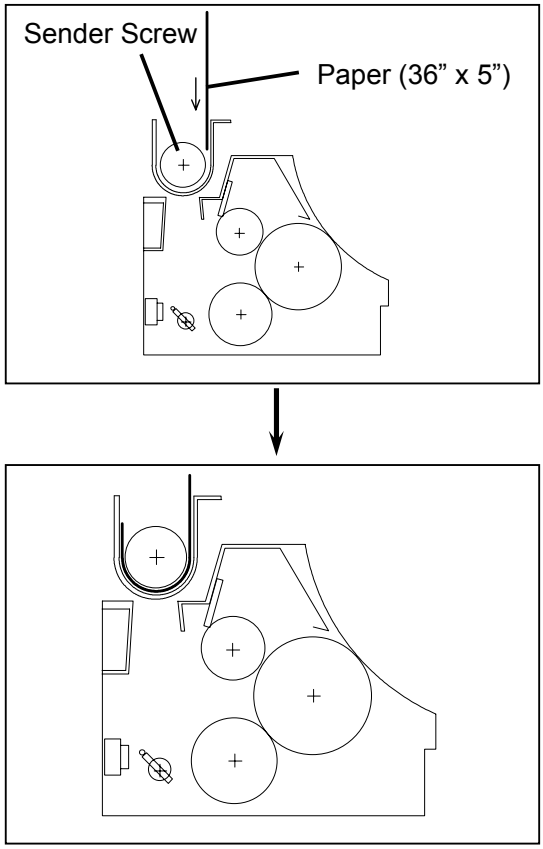
19) Remove the Toner Hopper Cover.



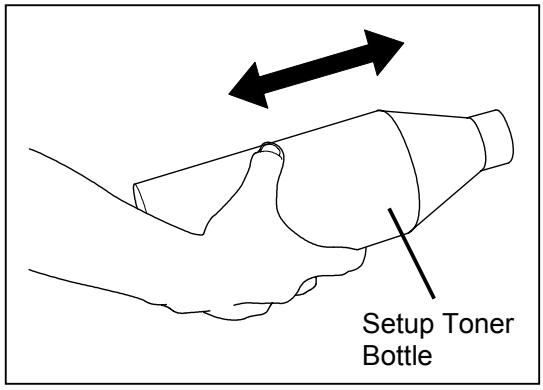


20) The accessory package includes a sheet of paper of which size is 36” (width) by 5” (length).
Insert this paper under the Sender Screw in the Toner Hopper.
Please shift the media more to the printer side.

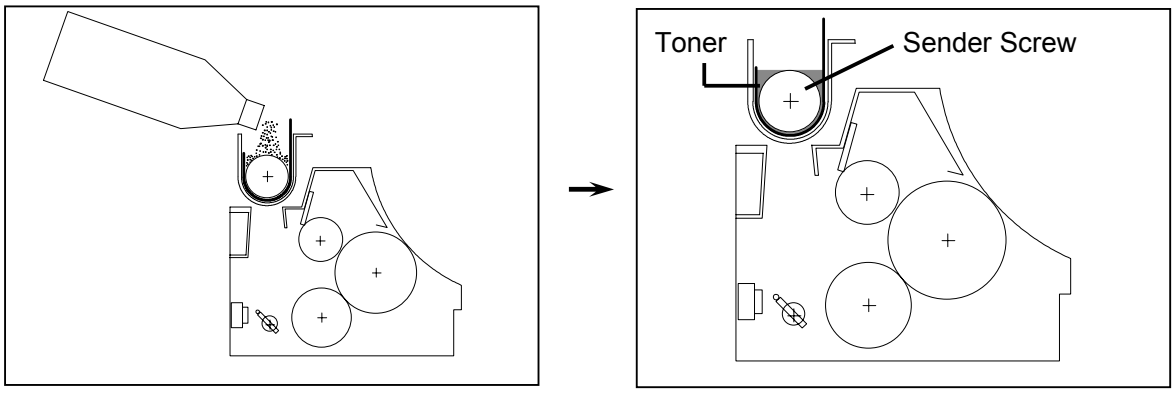




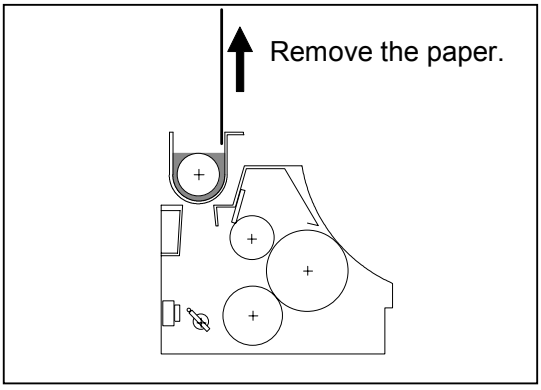
21) Shake the Setup Toner Bottle to make the toner smooth.
(Setup Toner Bottle contains 200g of toner.)



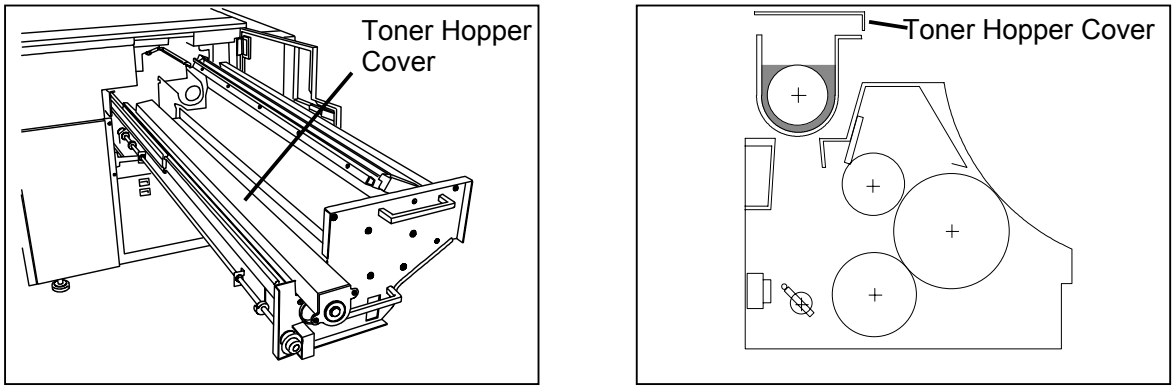
22) Supply the Setup Toner into the Toner Hopper evenly until the top of Sender Screw is hidden by the toner.



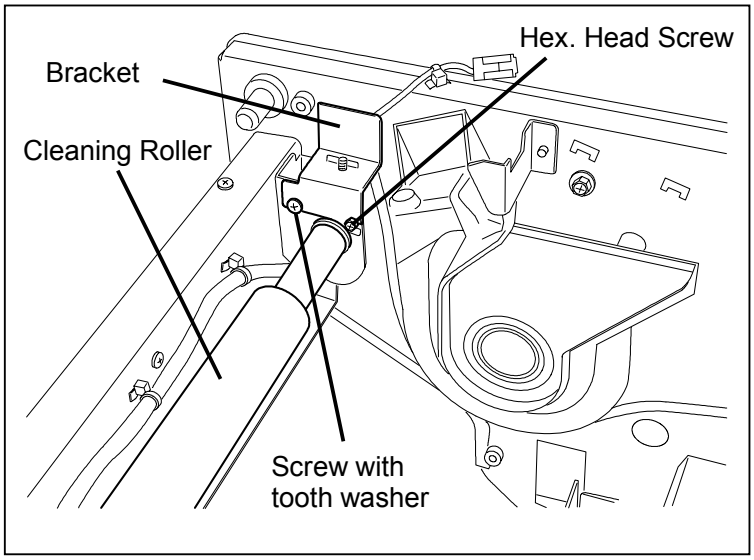
23) Bring up and remove the printing paper.



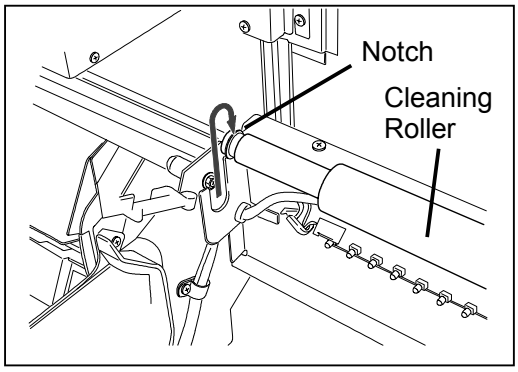
24) Put back the Toner Hopper Cover.

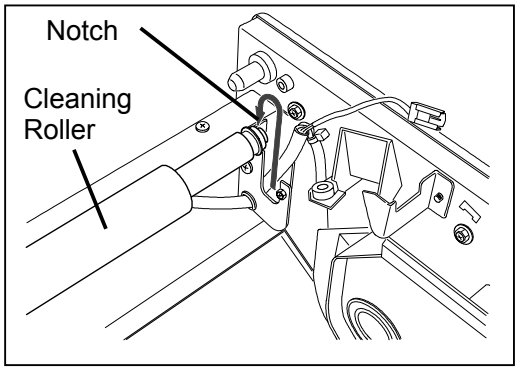


25) There is a Cleaning Roller in the Process Unit.
As its both sides are fixed with the tapes, remove them.
One side is fixed with the bracket.
Loosen 2 screws (one is with tooth washer, and another is hexagon head) to remove the bracket.



26) Bring up the Cleaning Roller.
As there are notches at both sides to put the Cleaning Roller temporarily, put the Cleaning Roller there.

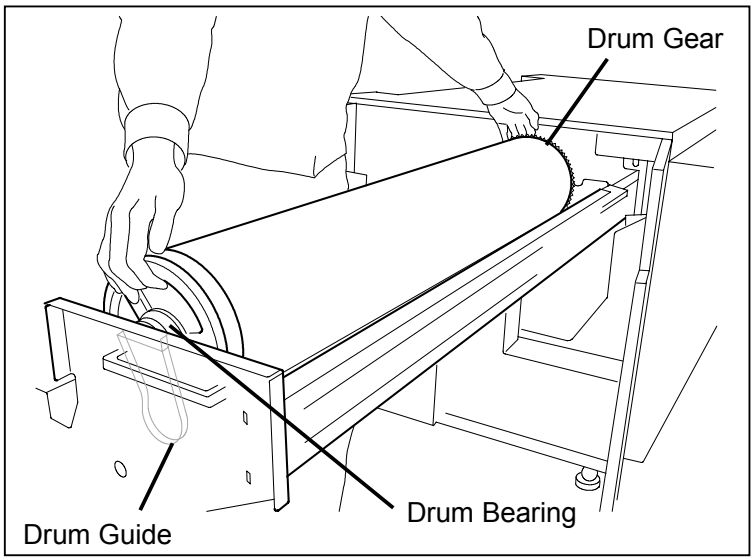




⚠ NOTE

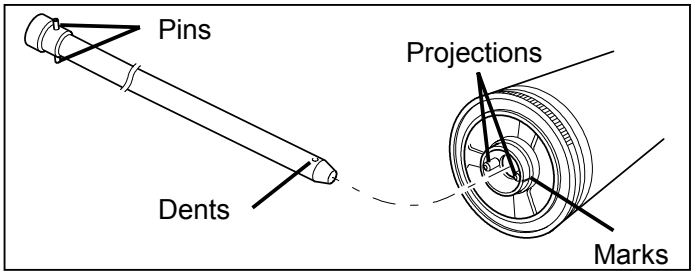
Make sure to re-install the Cleaning Roller before you close the Process Unit!
If you close the Process Unit leaving the Cleaning Roller on the notches, the surface of Cleaning Roller may be damaged.

27) Open the box of the Drum and take out the Drum.
Fit the Drum Bearing into the black Drum Guides at both sides of the Process Unit, and then carefully bring down the Drum. (Place the Drum Gear on printer side.)

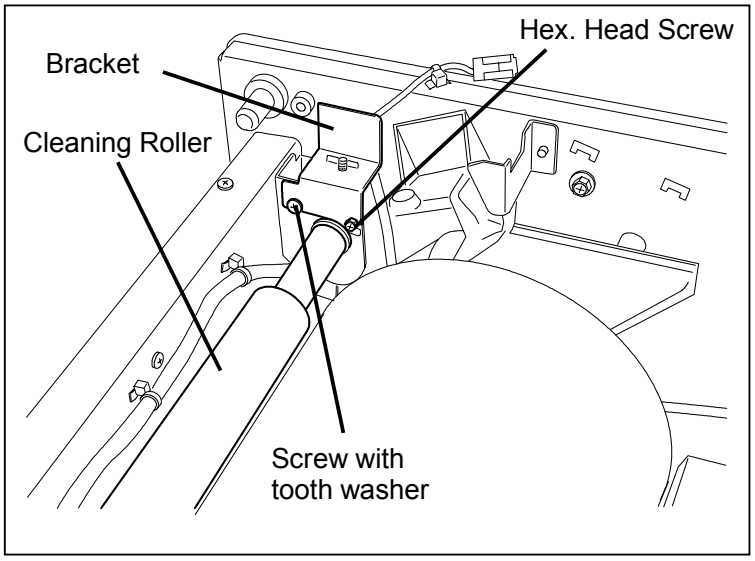


⚠ NOTE

There are Pins on the Drum Shaft which is in the printer, and there are Projections inside of the Drum Bearing. When the Drum Shaft rotates, the Pins hold the Projections and the Drum is rotated.
If you close the Process Unit when Pins and Projections are on the same line, the Pins may be bent or broken.
Please place the Dents on the Drum Shaft and Marks on the Drum Bearing in the cross position. Since the Dents show the position of Pins and the Marks show that of Projections, you will not break the Pins.



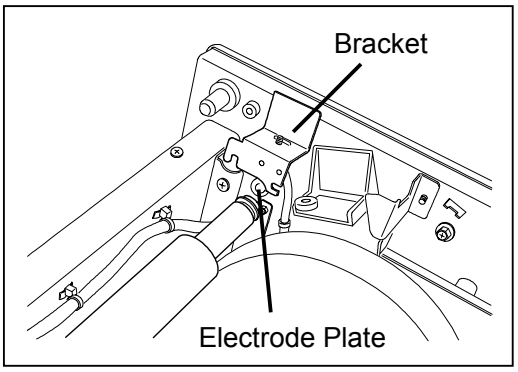
28) Put back the Cleaning Roller, and fix it with Bracket and 2 screws you have removed at the step 29).

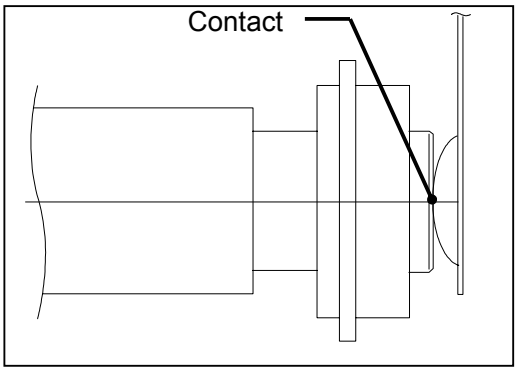


⚠ NOTE

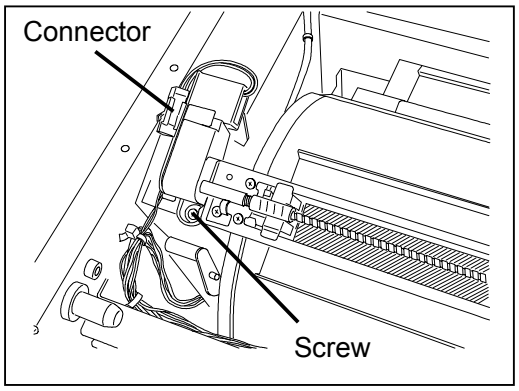
1. Tighten screws while pressing the Bracket downward.
   Tighten the Hexagon Head Screw with a wrench. (Do not use a screwdriver as you may damage the Drum.)

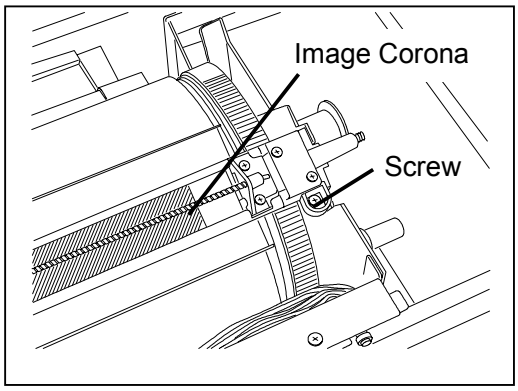
2. Bracket has an Electrode Plate.
   Confirm it is contacted to the shaft of the Cleaning Roller.



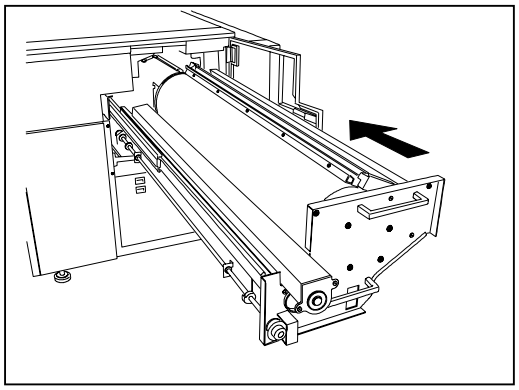


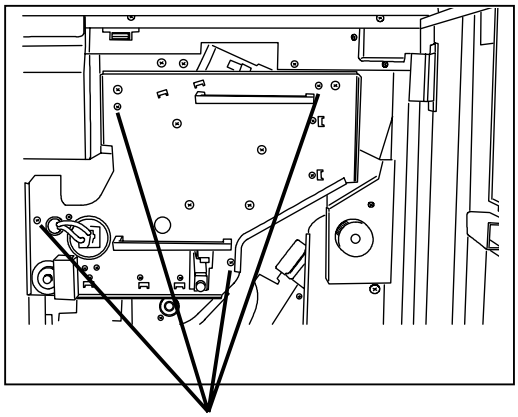
29) Put back the Image Corona to the Process Unit, and fix it with 2 screws.
Connect the connector of the Wire Cleaning Motor.



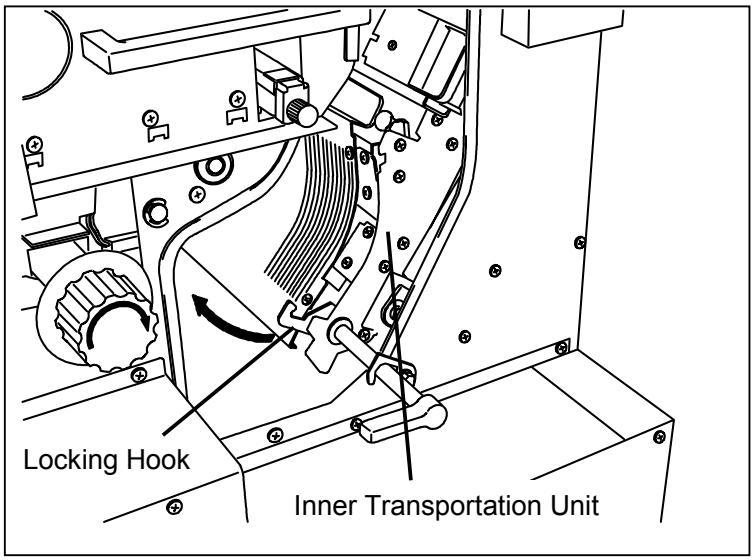


30) Close the Process Unit, and fix it with 4 pieces of M4x14 screws.

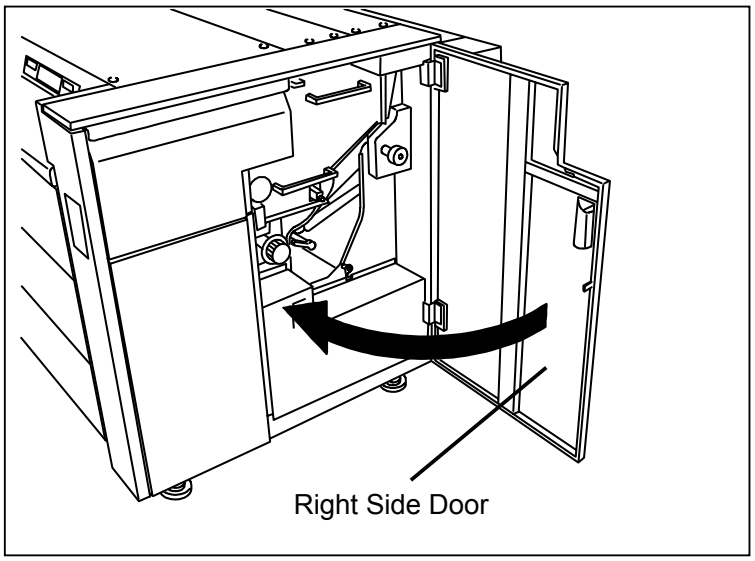




31) Close the Inner Transportation Unit gently.
Confirm the unit is firmly locked with the Locking Hook.



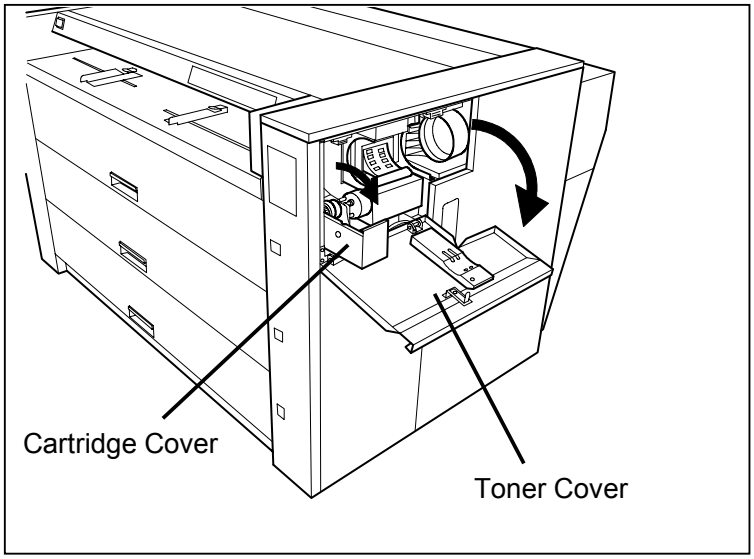
32) Close the Right Side Door finally.



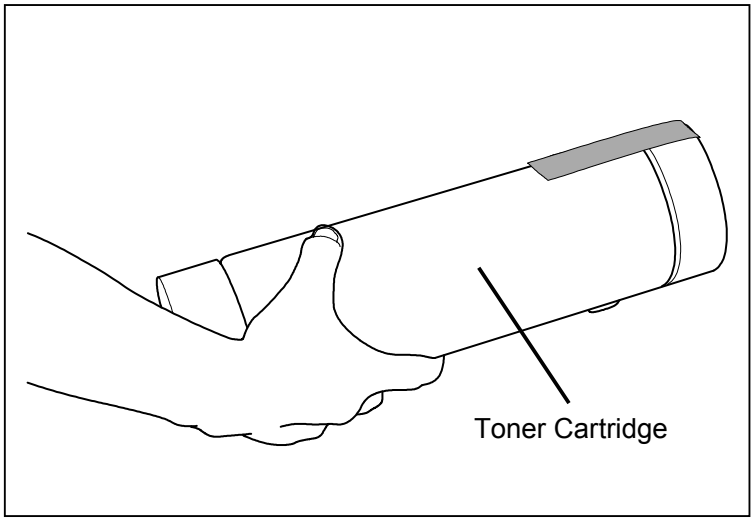
2.7 Installing the Toner Cartridge

> **⚠ NOTE**
>
> The printer package does not include toner cartridge.
> So ask it separately before installing the printer.

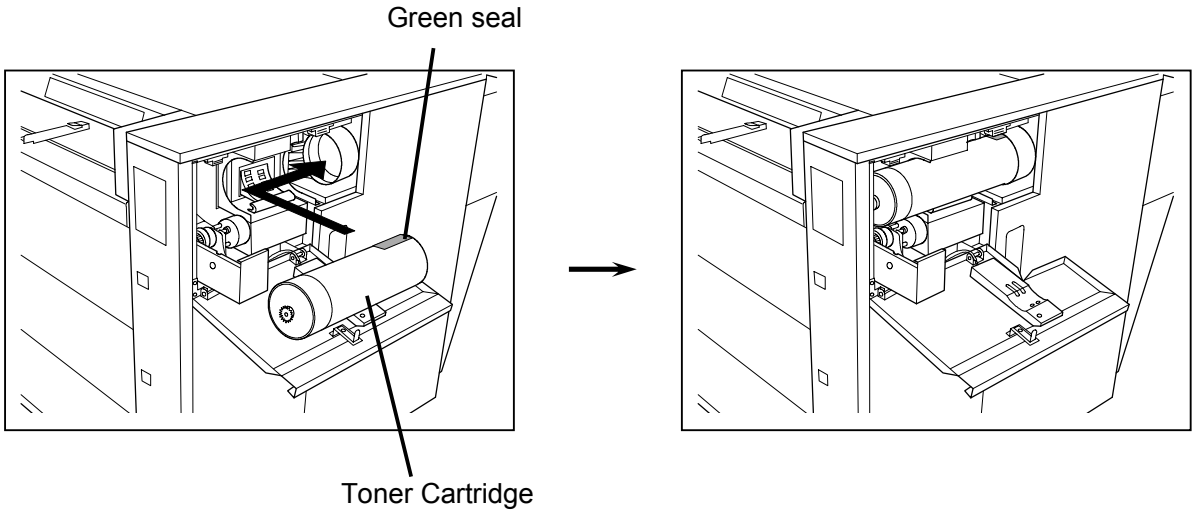
1) Open the Toner Cover, and also open the Cartridge Cover.



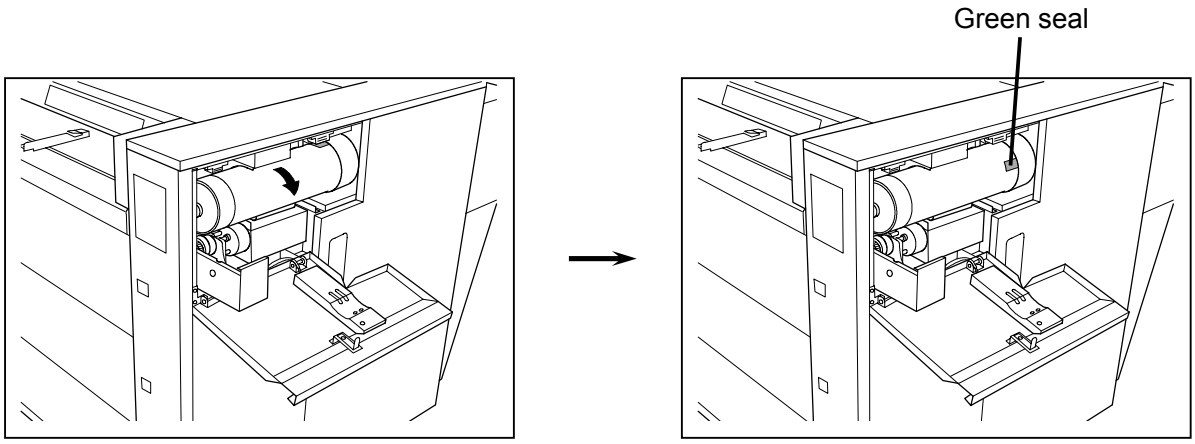
2) Shake the Toner Cartridge well to make the inner toner smooth.



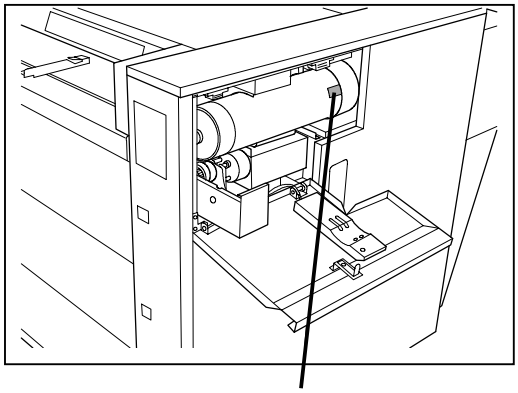
3) Set the Toner Cartridge with its green seal up.



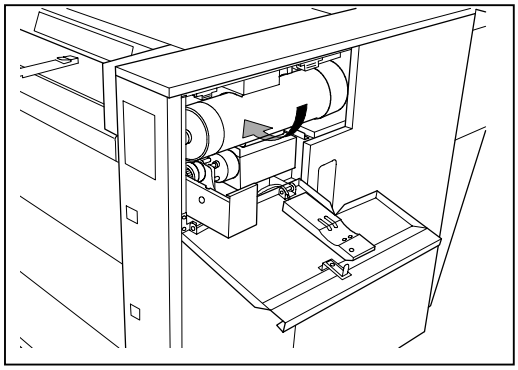
4) Catching the left side of Toner Cartridge, rotate it quarter revolution until the green seal comes to the front.



5) Strip off the green seal.



6) Rotate the Toner Cartridge quarter revolution more until it is blocked.
(The opening of cartridge is moved to the bottom.)

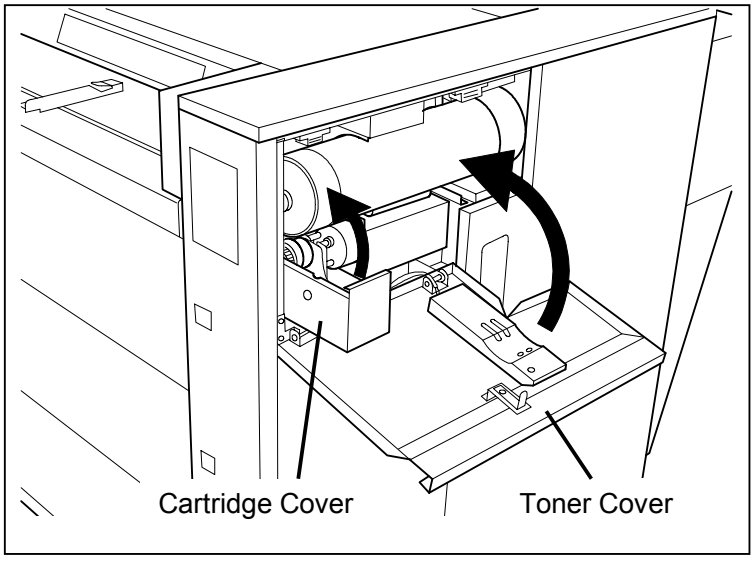


⚠ NOTE

1. Do not forget to move down the opening.
   Otherwise the toner is not supplied to the Developer Unit and you will have the Toner Empty Error soon.

2. Do not catch the central part of Toner Cartridge when you rotate it, because the toner may spout out from the opening.

7) Close the Cartridge Cover, and then close the Toner Cover.

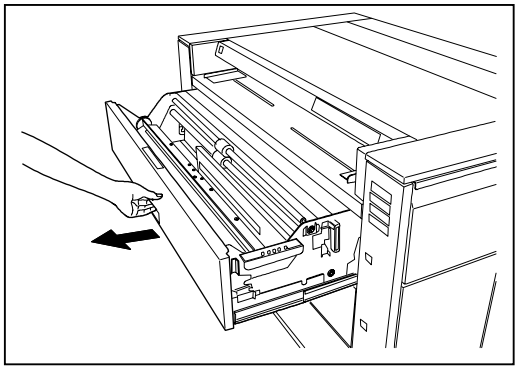


2.8 Loading the Roll Media into Roll Deck

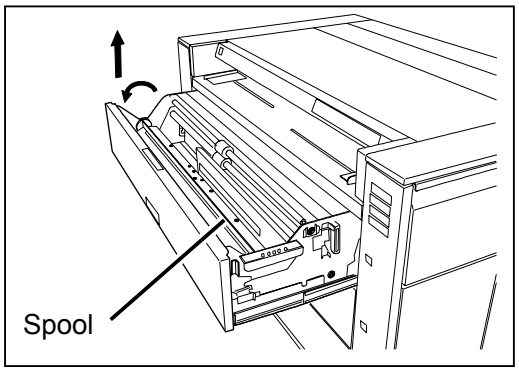
> **⚠ NOTE**
>
> The printer package does not include printing paper.
> So ask it separately before installing the printer.

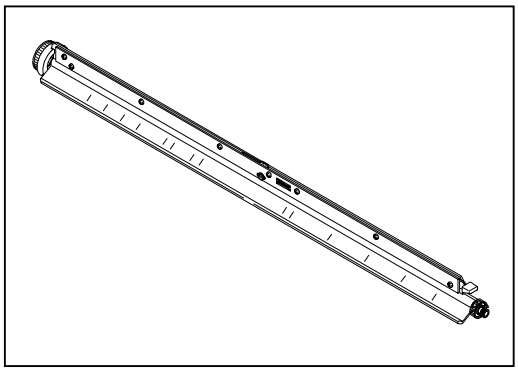
2.8.1 In case of roll deck 1, 2 and 3

1) Draw out the concerning Roll Deck.

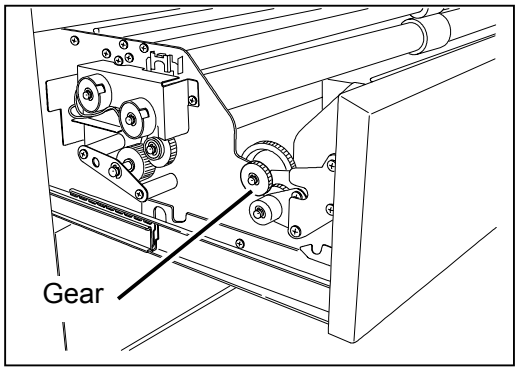


2) Rotate the Roll Spool to the winding direction (see the following drawing) for 1 revolution, and then bring it up to take out.

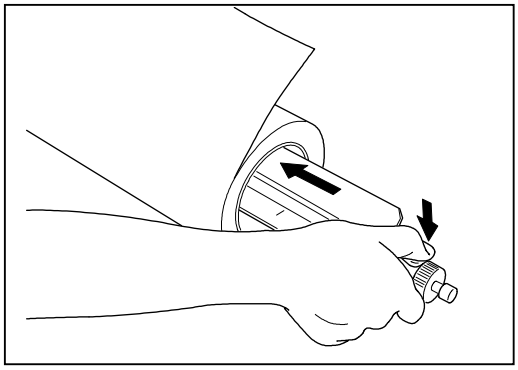




> **⚠ NOTE**
>
> During normal use, gears on the left mesh each other.
> The purpose to rotate the Roll Spool to the winding direction is to make these gears out of mesh.
> If you bring up the Roll Spool without rotating, these gears may be broken.

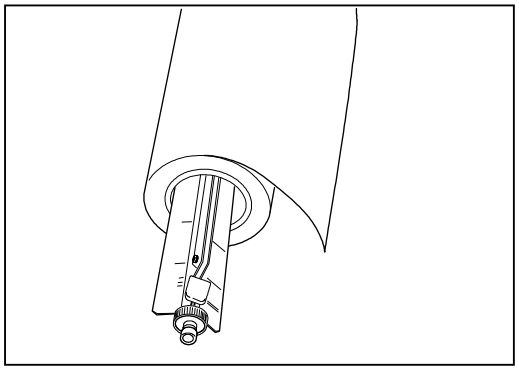


3) Pressing down the green lever, insert the Roll Spool to the new roll media.

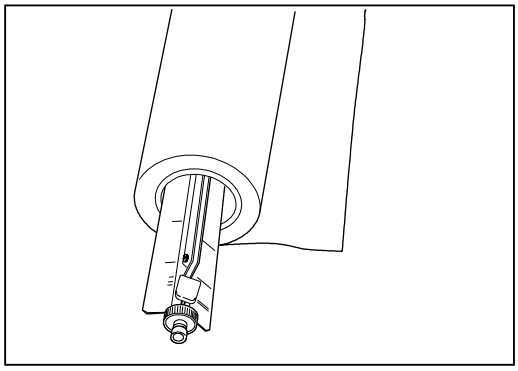


⚠ NOTE

Be careful of the winding direction of roll media.
Please keep the correct direction as the following left drawing.

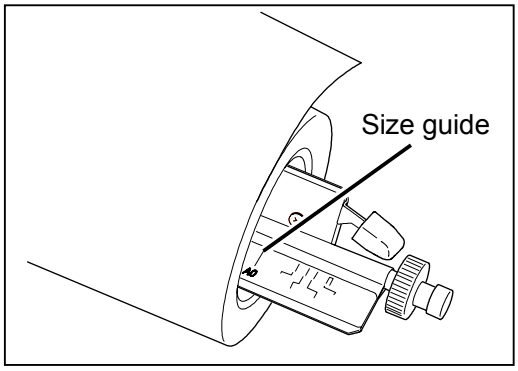


Correct

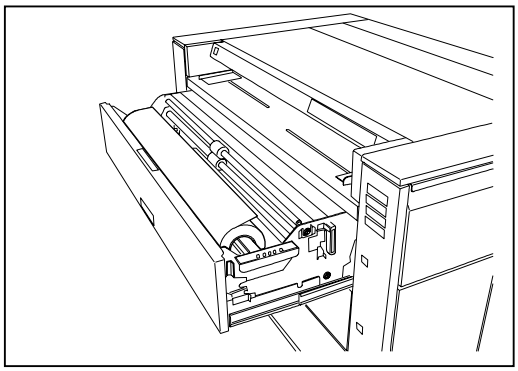


Not correct

4) There are size guides on the Roll Spool.
Align the edge of roll media and the concerning size guide.
Then release the green lever to catch the roll media surely.

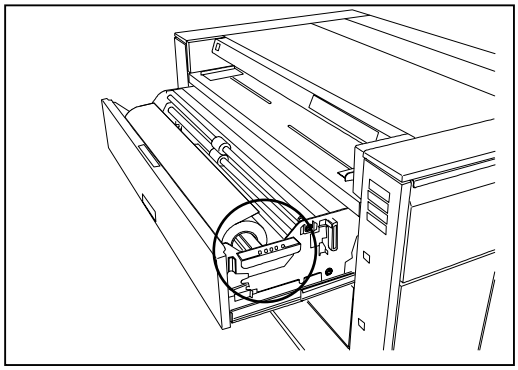


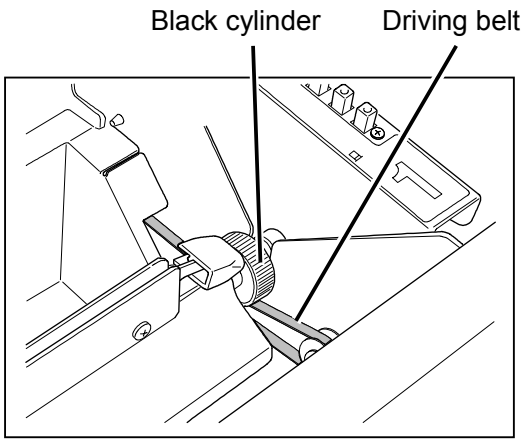
5) Install the Roll Spool into the Roll Deck.



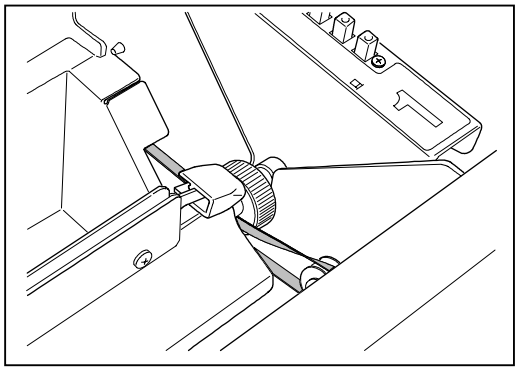
⚠ NOTE

There is a driving belt inside of the Roll Deck.
This belt must be flat and contact the bottom of black cylinder on the right of the Roll Spool.
It must not be twisted or separated from the black cylinder.



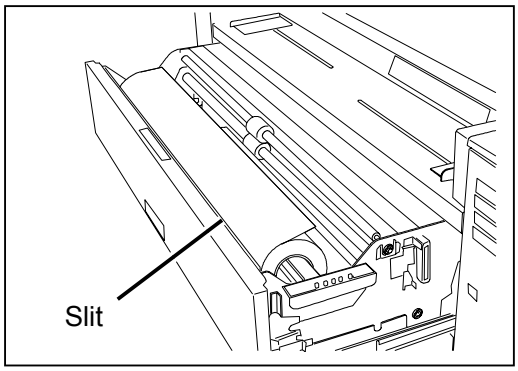


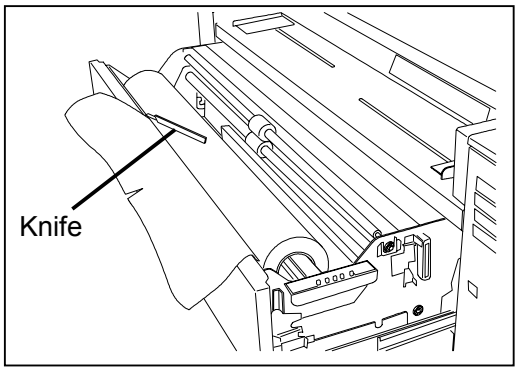
Correct



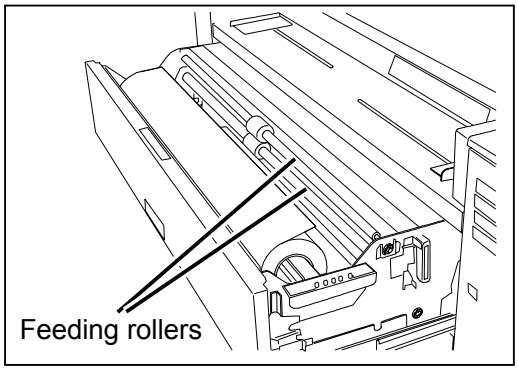
Not correct (Belt is twisted.)

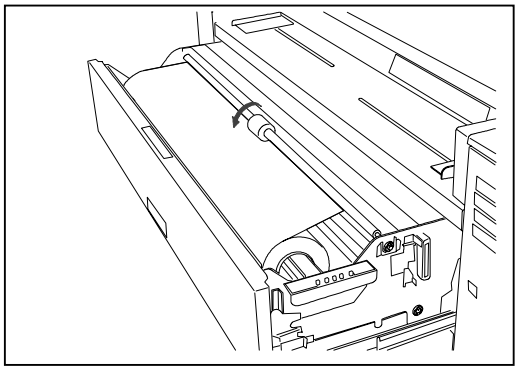
6) There is a slit in each Roll Deck.
As it is possible to insert a cutter knife in this slit, cut the leading part of roll media to straighten the leading edge.





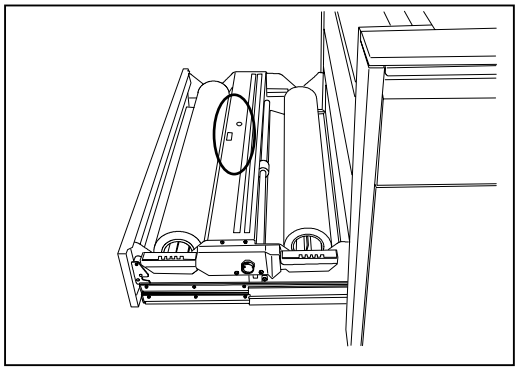
7) Insert the leading edge of roll media between feeding rollers, and then rotate the upper feeding roller as the drawing shows to feed the roll media about 1 or 2cm.

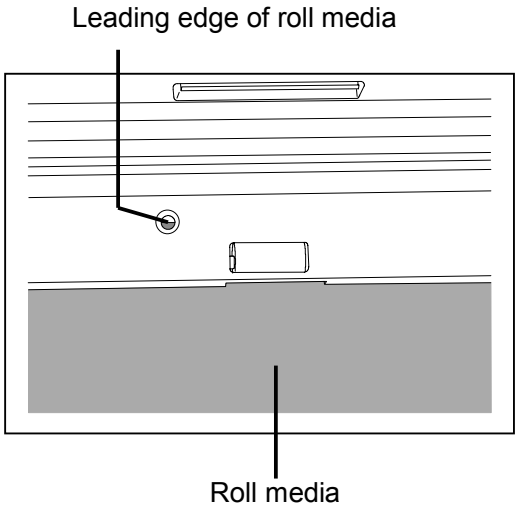




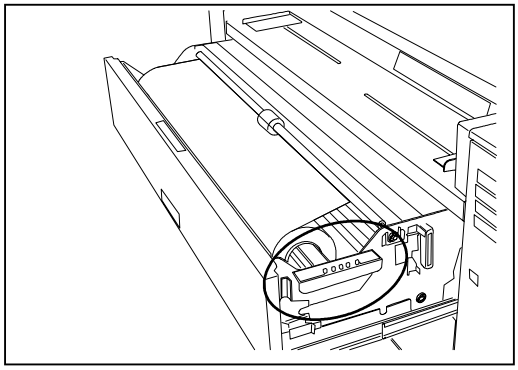
⚠ NOTE

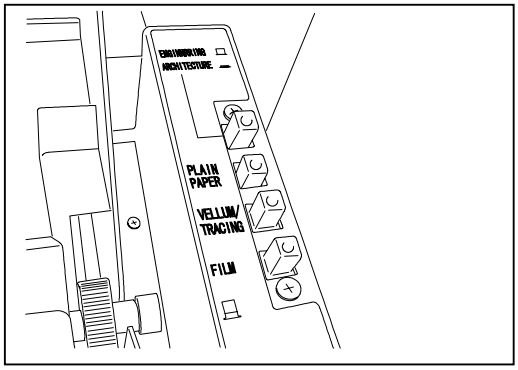
There is a positioning hole only in the Roll Deck 3.
Feed the roll media until its leading edge can see in the hole, and stop feeding when the leading edge is center of the hole.





8) There is a Media Selector on the right of the Roll Media.
Press any of “PLAIN PAPER”, “VELLUM / TRACING” and “FILM” according to the type of media you loaded.
If you loaded an inch media, select either “ENGINEERING” or “ARCHITECTURE”.
(You will select “ENGINEERING” when the button is up, and will select “ARCHITECTURE” when it is down.)



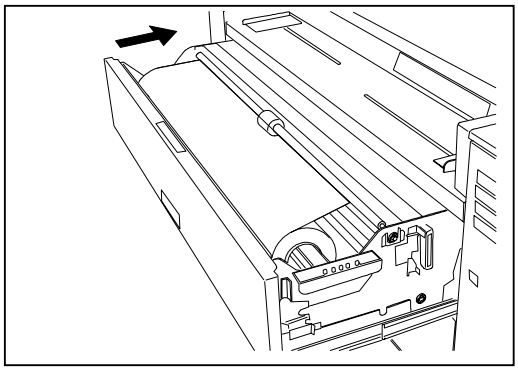


⚠ NOTE

1. Do not make a wrong setting.
   This setting of media type will effect on several printer settings as feeding speed or fusing temperature.
   If the media type selected on the Media Selector is different from the actual type of media, you may have a problem like wrong print size or poor image.

2. The machine will recognize the selected media is “plain paper” when no button is pressed down.

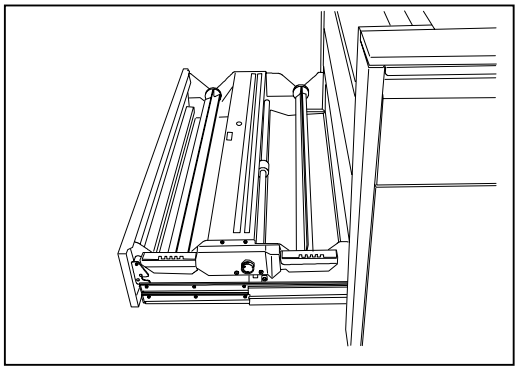
9) Close the Roll Deck finally.



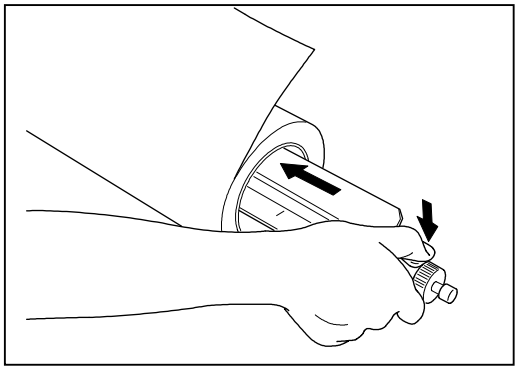
2.8.2 In case of roll deck 4

The position of feeding roller in the Roll Deck 4 is different from other Roll Decks.
Therefore, the way of setting the roll media is a little different.
Only the points noted are shown below.
As for the other points, refer to [8.1 Roll Deck 1, 2 & 3] on and after the page 2-27.

1) Draw out the Roll Deck 4.

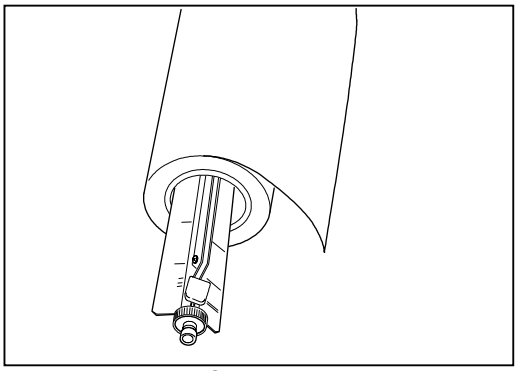


2) Remove the Roll Spool from the Roll Deck, and then set the new roll media onto the Roll Spool.

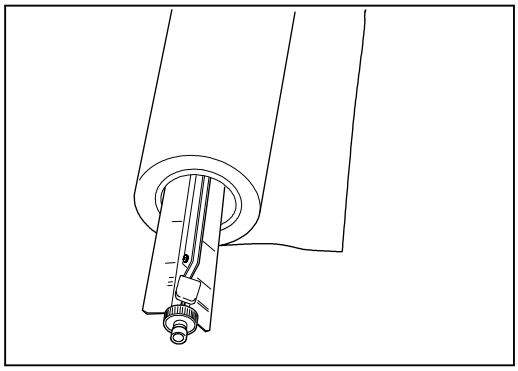


⚠ NOTE

Please keep the correct direction as the following left drawing.
(It is the same way you make for Roll Deck 1, 2 & 3.)

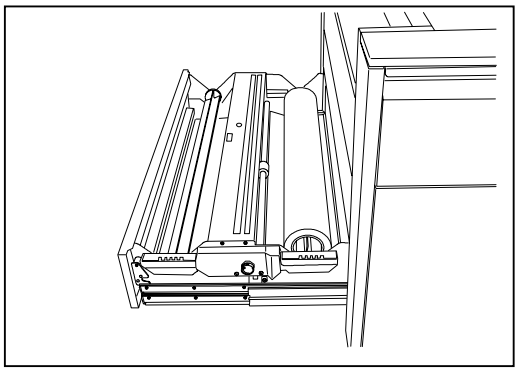


Correct

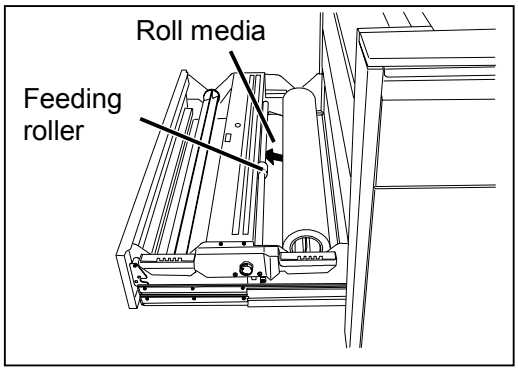


Not correct

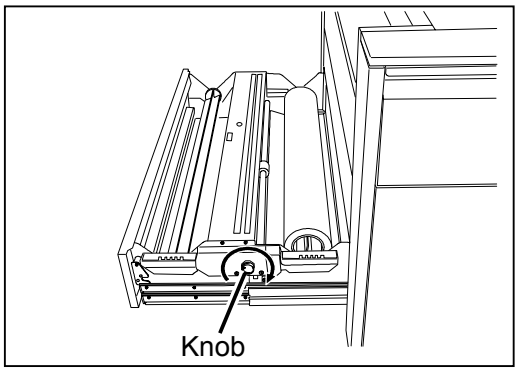
3) Install the Roll Spool into the Roll Deck 4.



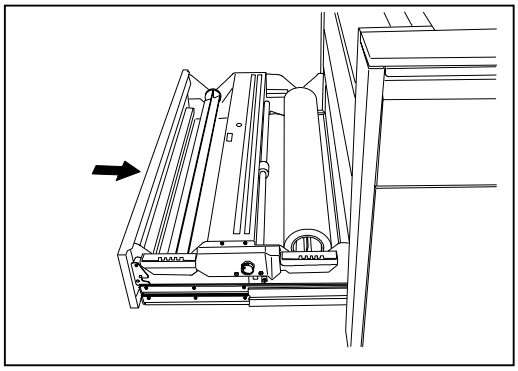
4) Insert the leading edge of roll media under the feeding roller.



5) Rotate the green knob clockwise to feed the roll media about 1 or 2cm.

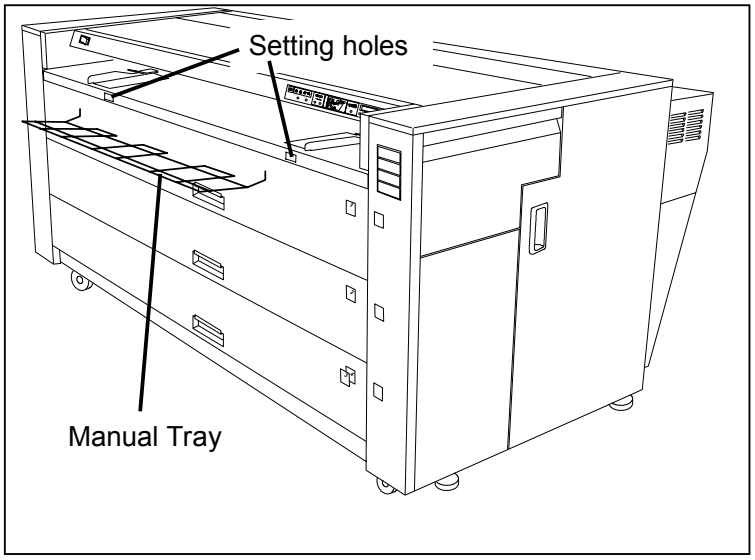


6) Close the Roll Deck 4 finally.



2.9 Installing the Manual Tray

Install the Manual Tray to the setting holes on the front face.

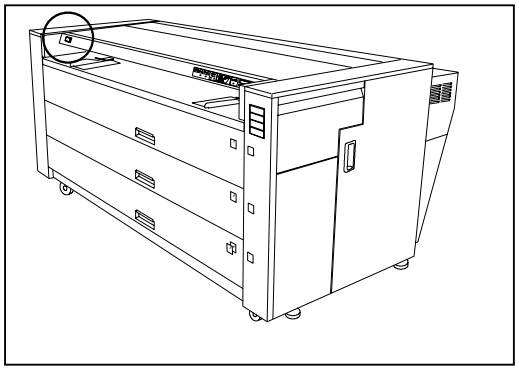


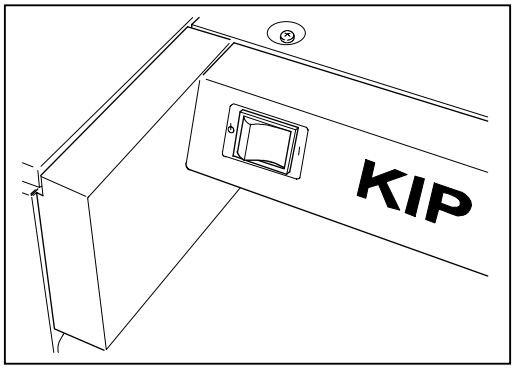
2.10 Turning on the Printer

1) Plug the printer to the exclusive wall outlet.

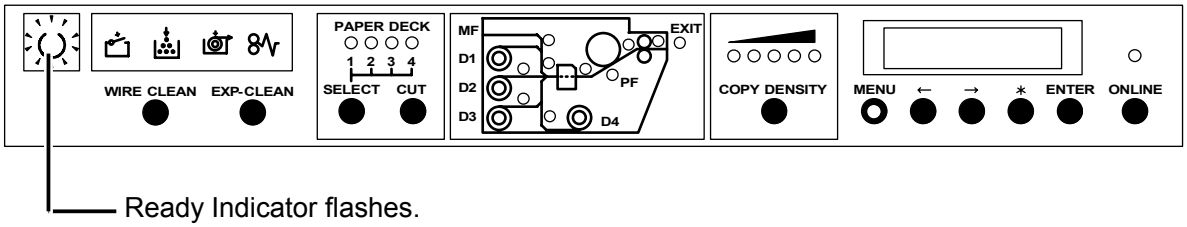
> **⚠ NOTE**
>
> Please confirm the outlet satisfies the following condition before plugging the printer into.
>
> U.S.A. / Europe ..... 220 to 240V (+6% to -10%), 16A, 50/60Hz

2) There is a Power Switch on the upper left of front side.
Press its "|" side to turn on the printer.





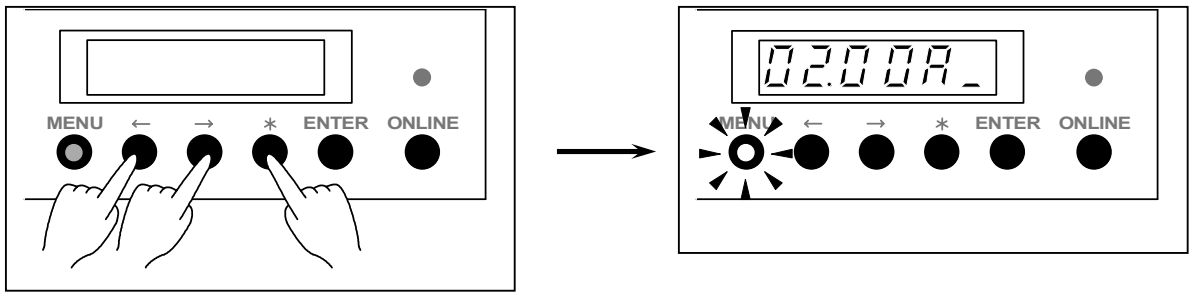
3) The Printer starts warming up the Fuser Unit, and the Ready Indicator on the Operation Panel starts flashing.
It keeps on flashing until the Fuser Unit is enough warmed up and the printer gets ready for printing.



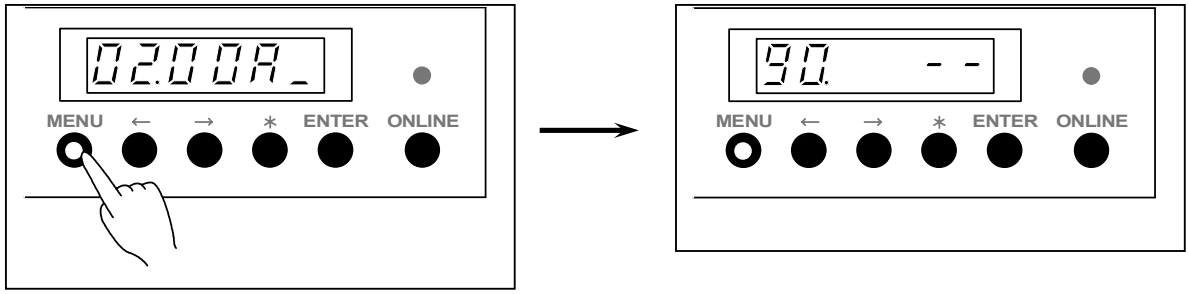
4) It will take about 6 minutes until the printer gets ready.
When it gets ready, the Ready Indicator stops flashing but stays lighting.
Send a print job from the outer devices as PC and scanner.

2.11 Supplying the Toner into Developer Unit

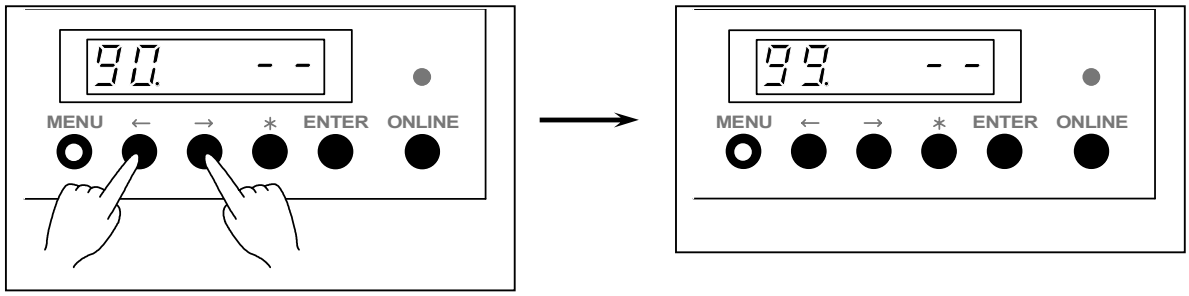
1) Press and hold the [*] key, and then press switches in the order of [⇐], [⇐], [⇒] and [⇐] to enter the Service Mode.
The lamp of [MENU] Key lights green when you enter the Service Mode.



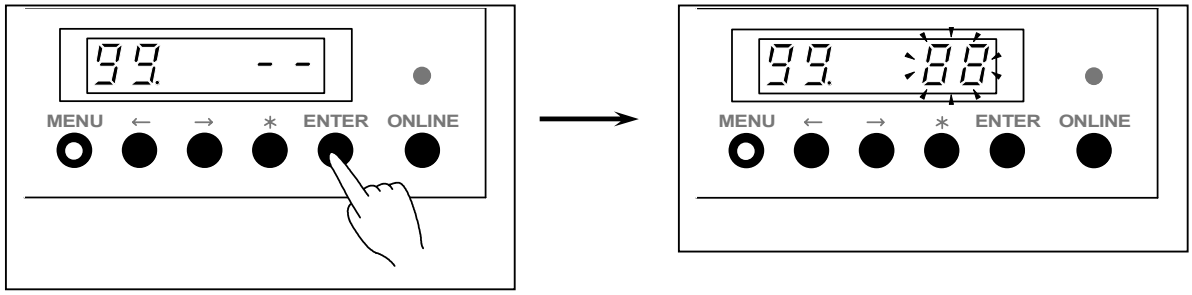
2) You need select the Special Mode.
To select the Special Mode, press the [MENU] Key to indicate “9” on the most left digit, which is the Mode Number of the Special Mode.



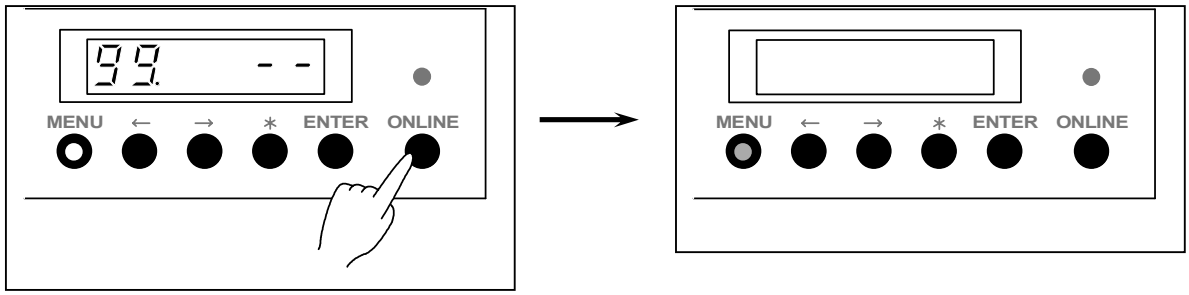
3) You need select the Toner Supplying Mode.
To select the Toner Supplying Mode, press [⇐] or [⇒] Key to indicate “9” on the 2nd digit from the left, which is the Mode Number of the Toner Supplying Mode



4) Press the [ENTER] Key to start supplying the toner to the Developer Unit.
The printer will continue to operate for about 10 minutes.
"88" on 5th and 6th digits keeps on flashing during the operation, so do not turn off the printer.

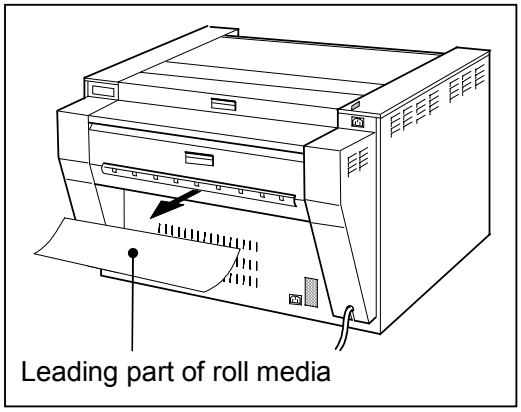


5) "88" on 5th and 6th digits stops flashing when the printer has stopped operating.
Press the [ONLINE] Key to cancel the Service Mode.



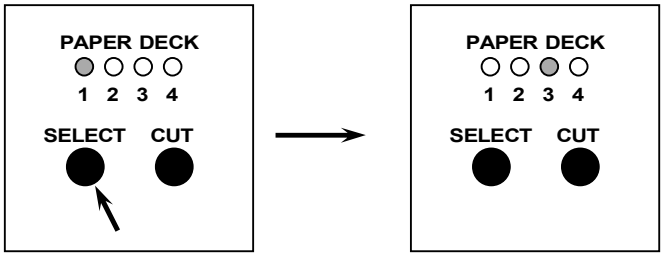
2.12 Initial Cut

The leading edge of new roll media may be rough.
To straighten the leading edge easily, the printer has a convenient function called “Initial Cut”.
If you select one roll media and make the Initial Cut, the leading part (240mm from the leading edge) of roll media is cut and ejected.
The leading edge of that roll media is straight after the Initial Cut.

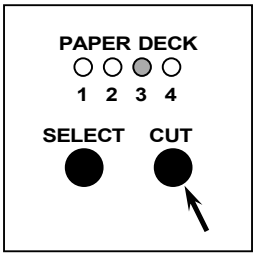


Make the Initial Cut in the following way.

1) Pressing the [SELECT] Key, select the Roll Deck of which roll media you would like to make Initial Cut.



2) Press the [CUT] Key.
The leading part of the selected roll media is cut and ejected automatically.



Chapter 3

Print Process

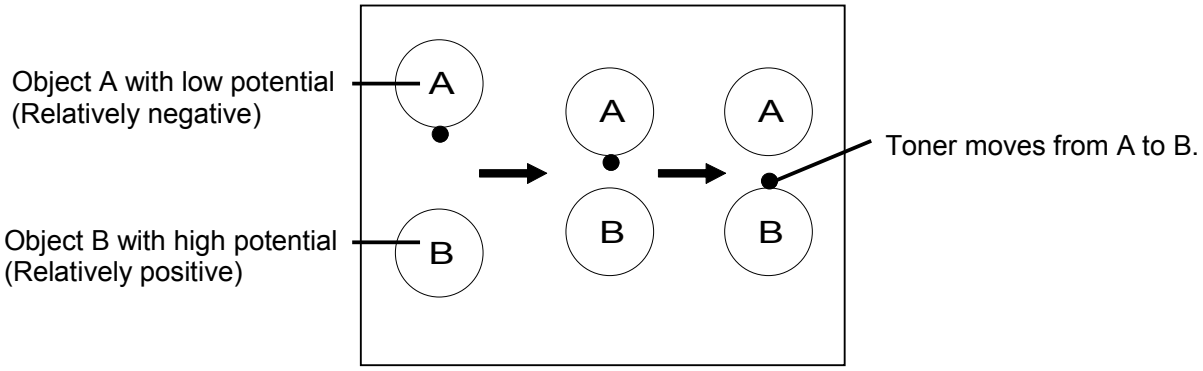
3.1 Characteristic of Toner

The toner used for KIP8000 Printer has a characteristic to be charged “negative” (like a negative object), which tends to be attracted to a relatively “positive” object.

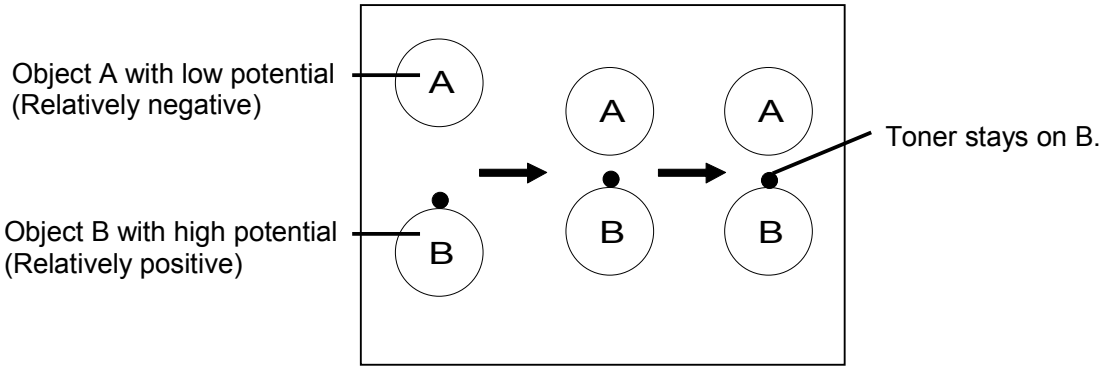
Suppose that there are objects A and B, and the situation is as follows.

1. Electric potential of the object B is higher than that of object A.
2. Toner exists on the object A.

Comparing the potential of both objects, it can be said that the object B is relatively “positive” and the object A is “negative”. (In another word, object B is more “positive” than the object A.)
As the toner is “negative”, it is attracted to the object B which is more “positive”.
If you move the object B close to the object A, therefore, the toner moves onto the object B.



On the contrary, suppose that the toner exists on the object B of which electric potential is higher than the object A.
Even if you move the object A close to the object B, the toner continues to stay on the object B because negative toner and relatively negative object A repel each other.

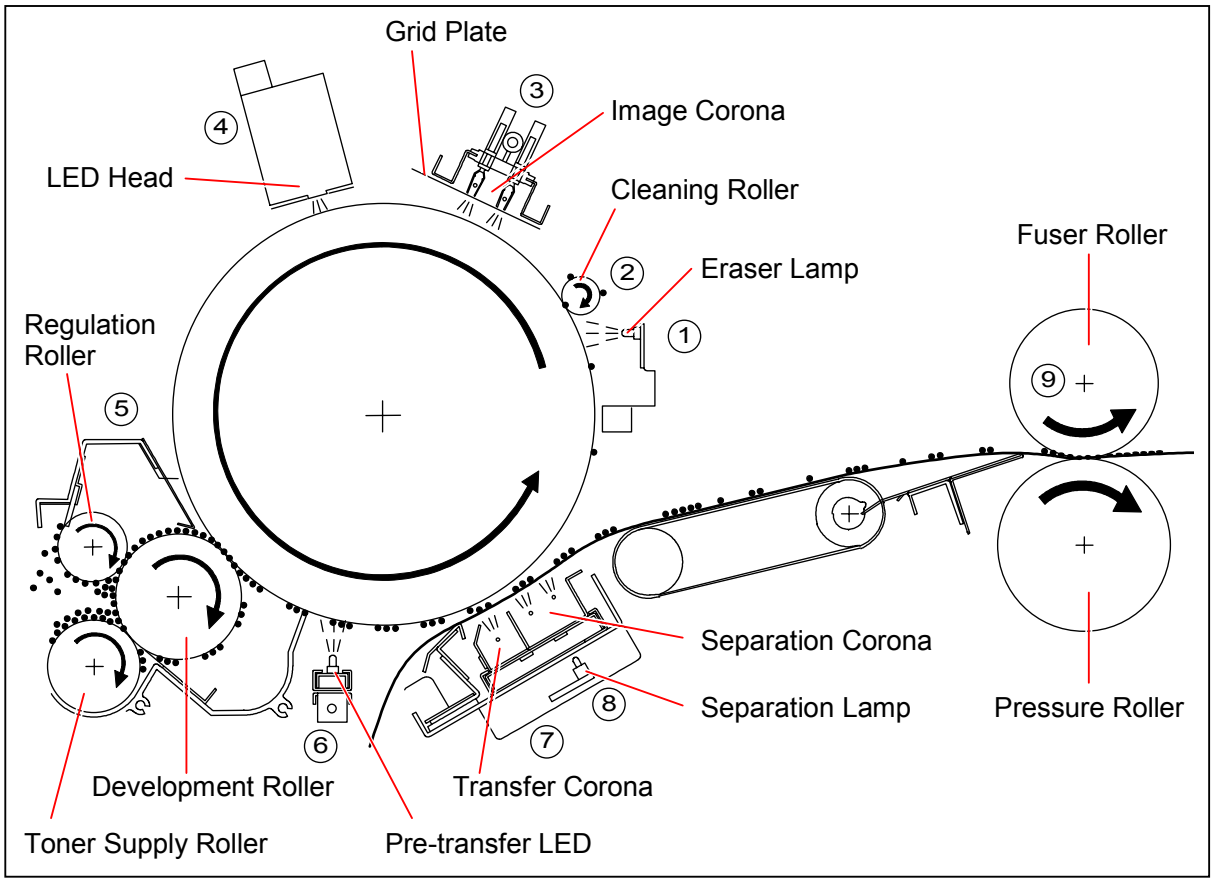


Thus, the toner has a characteristic to move from one place with a lower potential to another place with a higher potential.
If we properly control the electric potentials, therefore, it is possible to move the toner from one place to another as we intend, or it is also possible to remove the toner from unwanted place.
KIP8000 Printer controls the electric potentials properly working each part as Drum, Corona Units, Lamps, Developer Unit and Cleaning Roller.
The movement of toner is controlled correctly and several processes as Development, Toner Transfer, Drum Cleaning and etc. are performed.

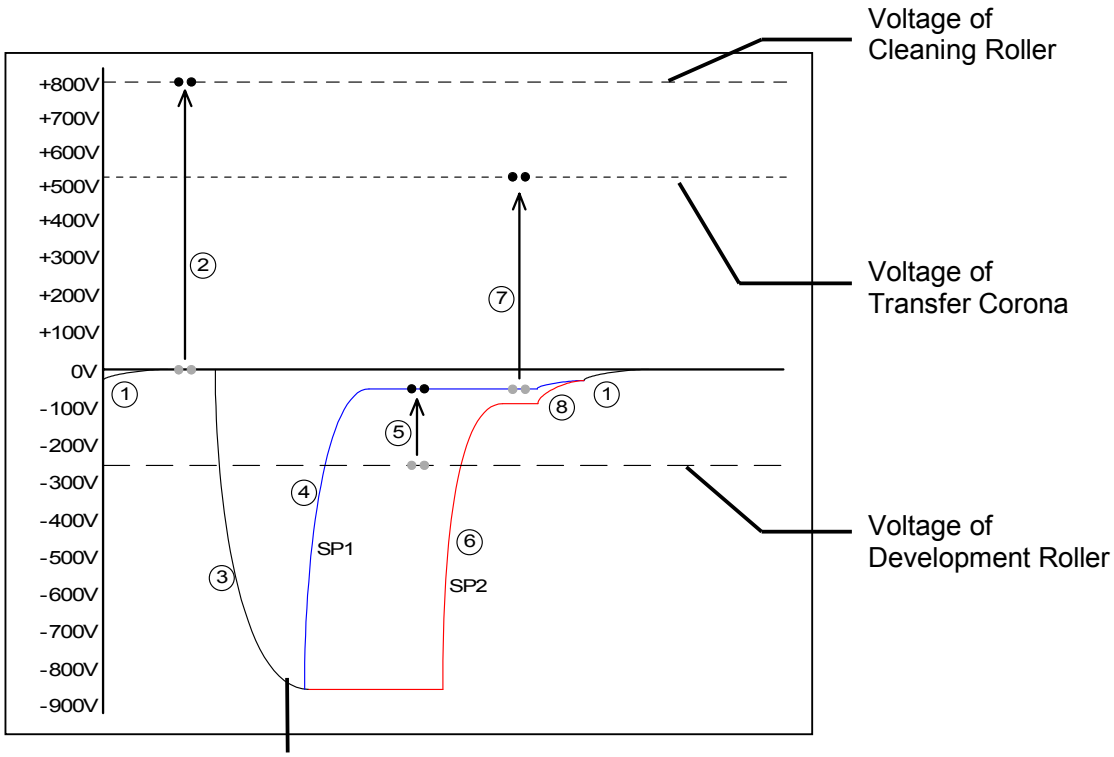
3.2 Print Processes

One cycle of print consists of the following 9 processes.

1. Erasing (Removal of negative electric charges)
2. Drum Cleaning (Removal of remained toner)
3. Charge of Drum
4. Exposure
5. Development
6. Pre-transfer LED
7. Transfer
8. Separation
9. Fusing



Processes from 1 to 8 are related with the control of the electric potentials.
The following graphic shows the electric potential at each process and the movement of toner.



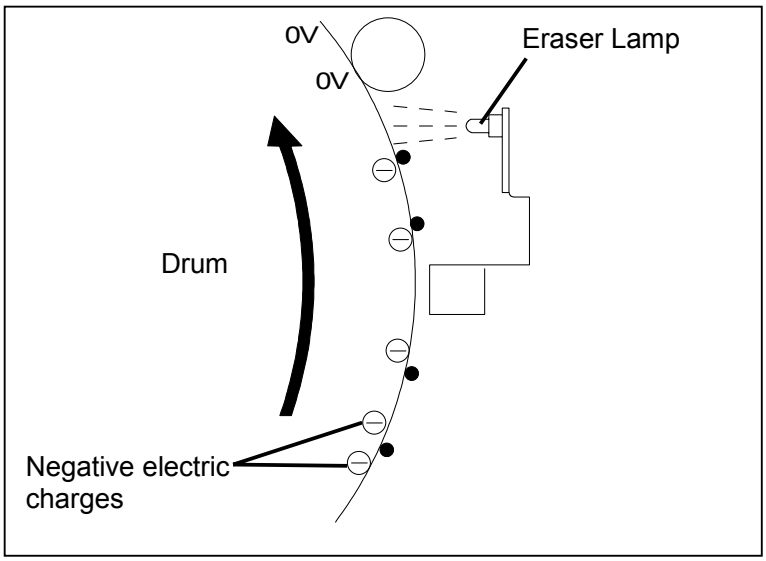
Name of part	Voltage (Current) during Print Cycle	Voltage during Toner Collection Process
Image Corona Wire	About -5.8KV (-2.0mA +/-0.05mA)	-
Grid Plate	-780V +/-20V	-
Development Roller	-250V +/-3V (It varies following the machine temperature.)	+350V +/-3V
Regulation Roller (Center)	-100V +/-3V from the voltage of Development Roller	0V +/-3V from the voltage of Development Roller
Regulation Roller (Both sides)	+365V +/-3V from the voltage of Development Roller	+120V +/-5V from the voltage of Development Roller
Toner Supply Roller	-500V +/-3V from the voltage of Development Roller	-340V +/-3V from the voltage of Development Roller
Transfer Corona	+520V +/-30V (When the Insulated Drum is used.)	-
Separation Corona	AC (11KVp-p) + DC (-250V +/-3V : Plain paper) (-300V +/-3V : Tracing paper) (-10V +/-3V : Film)	-
Cleaning Roller	+800V +/-3V	-500V +/-3V

Reference

When the printer is going to stop after printing, or when the used Roll Deck is changed with other one, the KIP8000 Printer will make “Toner Collection Process” to take back the remained toner into the Developer Unit until it starts next print job.
Refer to [3.4 Toner Collection Process] on the page 3-19 for the detail.

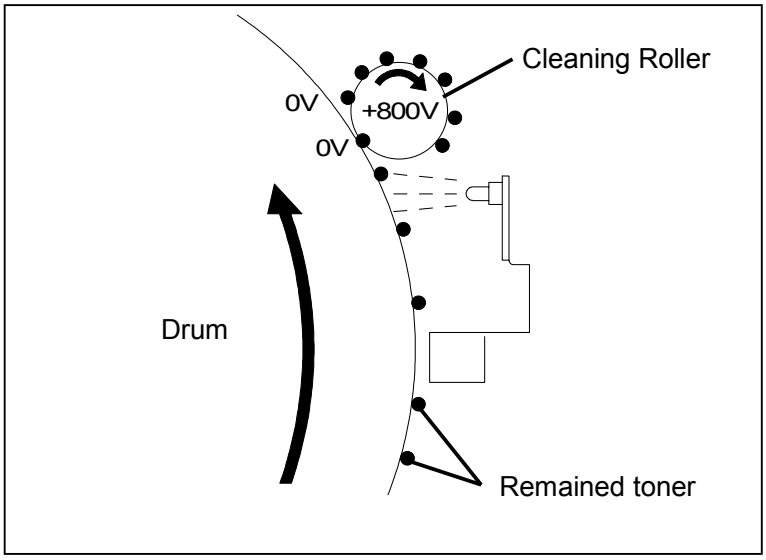
3.2.1 Erasing (Removal of negative electric charges)

As the first step of print cycle, it is necessary to remove the negative electric charges from the Drum, which has remained there after the former print cycle.
The Drum has a characteristic to lose the negative electric charges if it is exposed to the light.
So the Drum is rotated and evenly exposed to the light from the Eraser Lamp.
The electric potential on the Drum becomes 0V by this process.



3.2.2 Drum Cleaning (Removal of remained toner)

Some amount of toner was not transferred onto the printing media but remained on the Drum in the former print cycle.
This remained toner will be removed by the Cleaning Roller.
The Cleaning Roller is supplied with +800V (+/-3V), and the potential of Drum is 0V at this time because the Eraser Lamp has removed the electric charges in the former “Erasing” process.
As the Cleaning Roller is relatively “positive” and the Drum is “negative”, the toner moves from the Drum to the Cleaning Roller.



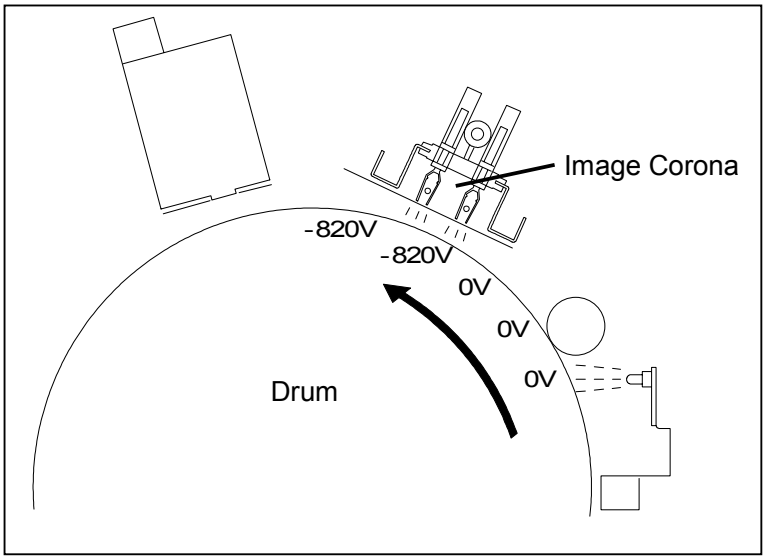
⚠ NOTE

If too much toner exists in a small area (like a trace of solid black image) the Cleaning Roller may not be able to remove all of them.
But this toner is removed from the Drum in the later Development Process.

3.2.3 Charge of Drum

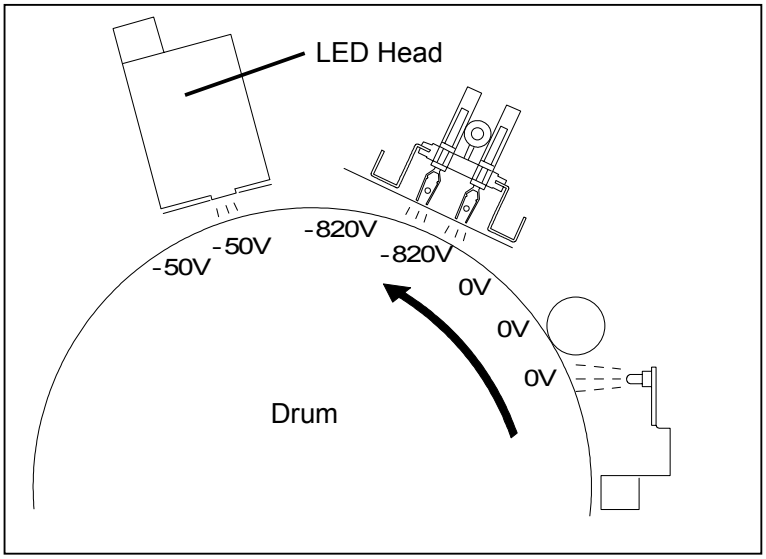
The Image Corona discharges negative electric charges which are given to the Drum.
The surface of Drum is charged with -820V evenly as a result, which corresponds to the white area of the printed image pattern.
Voltages (Current) supplied to the Image Corona Wire and the Grid Plate are as follows.

Corona Wire ..... About -5.8KV (-2mA +/-0.05mA)
Grid Plate ..... -780V +/-20V

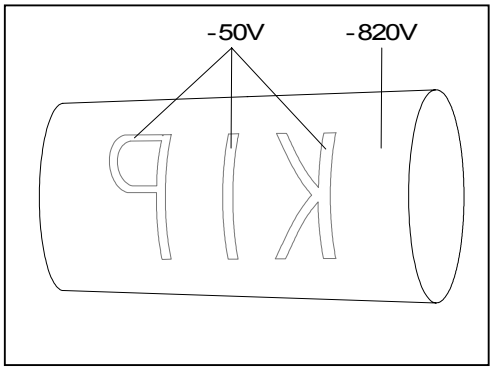


3.2.4 Exposure

According to the printed image pattern, the LED Head throws infrared light onto some part of Drum which corresponds to the black area of printed image pattern. As the Drum has a characteristic to lose the negative electric charges if it is exposed to the light, this part of Drum surface loses the charges and its potential becomes about -50V. (This potential is not constant but is variable by the environment.)
The other part of Drum surface, which was not exposed to the light from the LED Head, keeps -820V of potential that was given by the Image Corona.
An invisible electric image pattern consists of -820V area and -50V area is formed on the surface of Drum as a result. (This is called “Electrostatic Latent Image”.)



(Distribution of electric potentials after the Exposure)

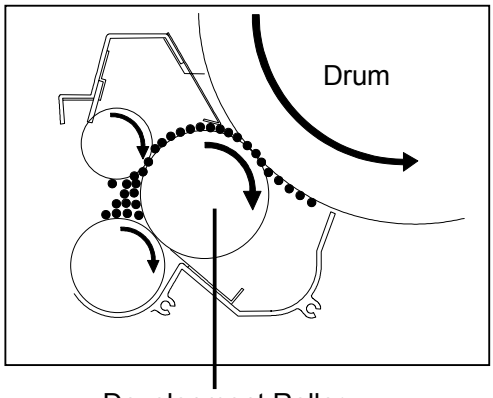


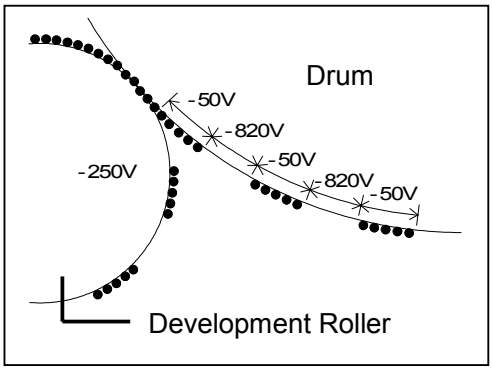
Reference

Even if the toner remains on the Drum, it will not block the light from the LED Head as the diameter of toner is much smaller than that of 1 pixel of LED.
You do not have to worry because the electric charges on the Drum are surely removed.

3.2.5 Development

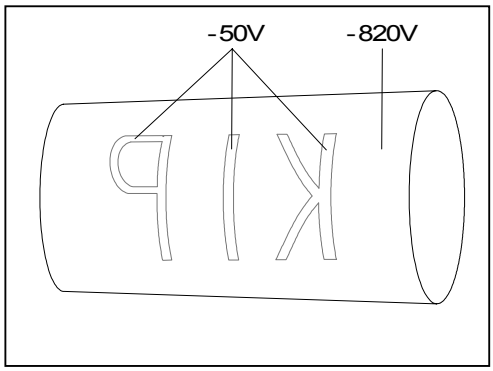
The Development Roller, which is evenly covered with the toner, is contacted to the Drum because the Developer Unit is pressed to the Drum side. (The width of contact point is about 5mm.)
The Development Roller is supplied with -250V (+/-3V) during print cycle.
And both -820V area and -50V area exist on the Drum because the Electrostatic Latent Image has been formed in the former Exposure process.
Seen from the voltage of Development Roller (-250V), the -50V area on the Drum is relatively “positive”. So the toner moves from the Development Roller to the -50V area of Drum.
On the other hand, the -820V area is relatively “negative” seen from the Development Roller. So the toner does not move to the Drum but stays on the Development Roller.
A visible toner image is formed on the Drum as a result.



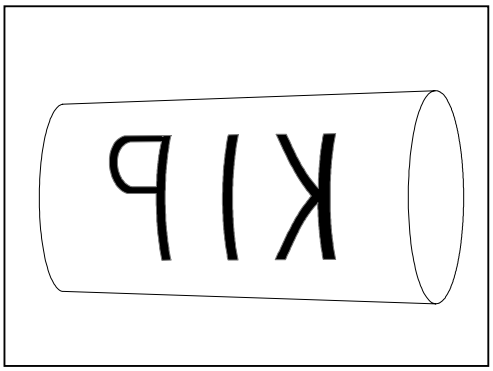


Before Development

After Development : Toner moves only to -50V area



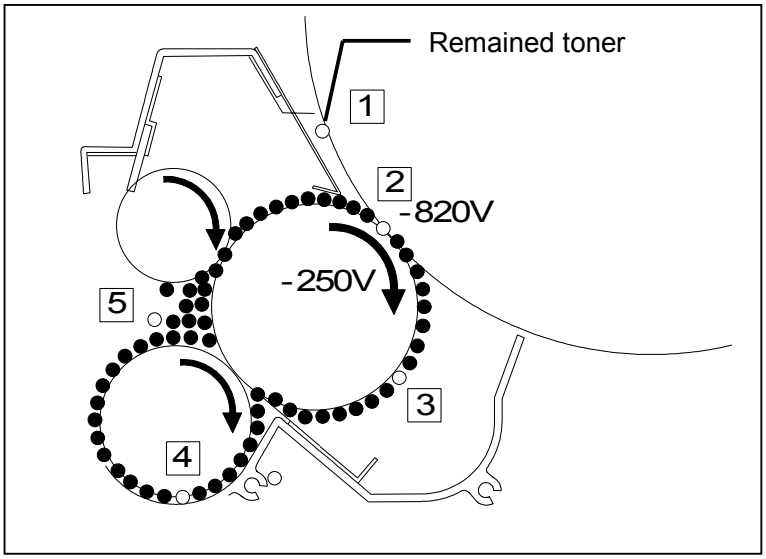
(Invisible Electrostatic Latent Image)



(Visible toner image)

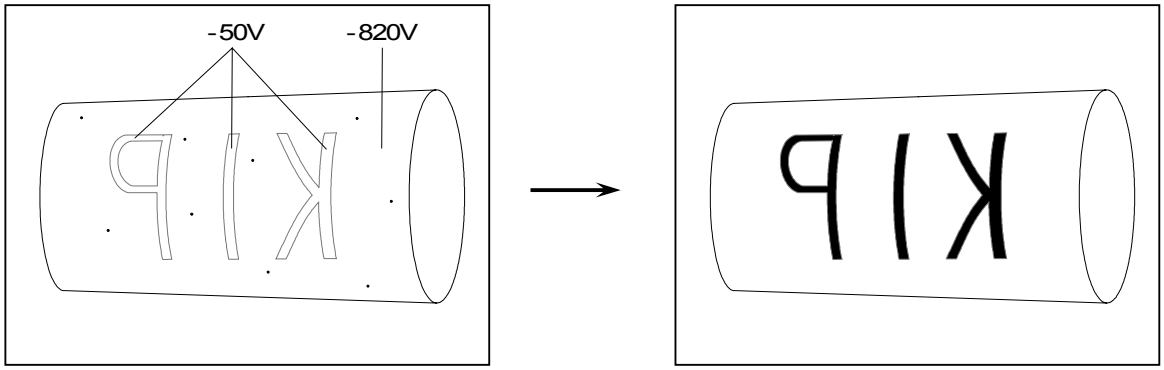
Even if some toner was not removed by the Cleaning Roller but remained on the -820V area of Drum (It corresponds to the white area of the print) in the former [3.2.2 Drum Cleaning], this toner is removed at the time of Development because it moves to the Development Roller of which potential (-250V) is higher than Drum (-820V).
So there will be no case that unnecessary black spot is printed on the white area of the print.
The remained toner moved to the Development Roller is carried into the Developer Unit and then reused.

1. Toner remained on the Drum
2. Toner moves from the Drum to the Development Roller.
3. Development Roller carries the toner toward the Toner Supply Roller
4. Toner Supply Roller carries the toner to the inside of the Developer Unit.
5. Toner is reused.



Before Development
(Toner is remaining on the white area.)

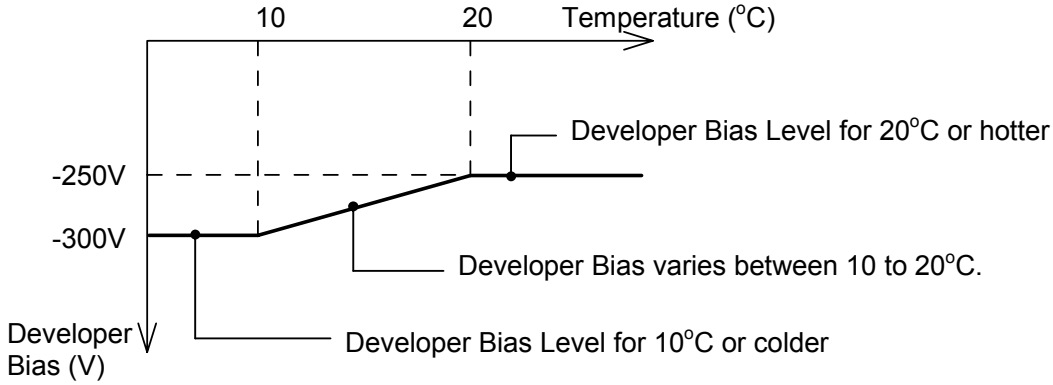
After Development
(Toner is removed from the white area.)



Reference

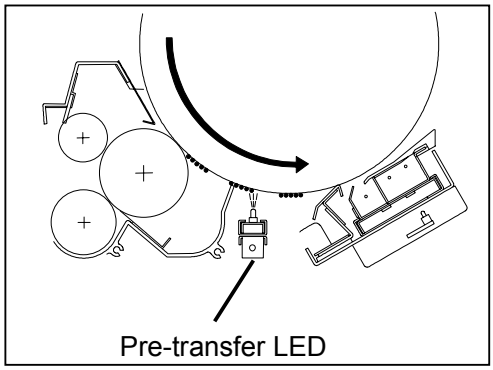
(1) The Developer Unit has not only the Development Roller but also 2 more rollers inside which are also supplied with the individual voltages.
The Developer Unit controls the movement of toner in the unit taking advantage of the difference of potentials among these rollers, and covers the Development Roller with the toner in the end.
Refer to [3.3 Controlling the Movement of Toner in the Developer Unit] on the page 3-15 to know how the Developer Unit controls the movement.

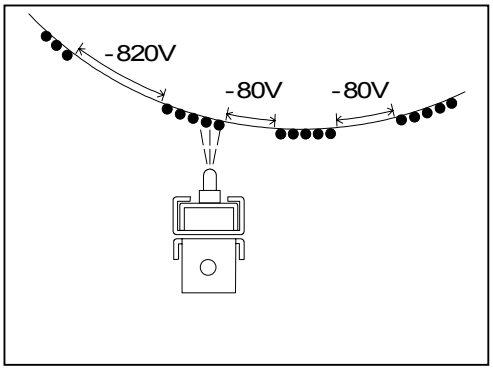
(2) The print image tends to become lighter if the temperature inside machine is colder. Even if the temperature is cold, however, it is possible to avoid the light image if the voltage of the Development Roller (Developer Bias) is low.
The voltage actually provided to the Development Roller varies according to the temperature therefore.
You will specify each Developer Bias Level for the cold situation (10°C or colder) and for the hot situation (20°C or hotter) in the Service Mode.
Provided Bias is constant and its value follows the specifications in the Service Mode if the temperature is 10°C or colder or 20°C or hotter.
Between 10°C and 20°C, the Developer Bias is automatically calculated considering the Developer Bias Levels specified in the Service Mode, and its value gets lower if the temperature is colder.
With the factory default, -300V is specified for 10°C or colder, and -250V is specified for 20°C or hotter.



3.2.6 Pre-transfer LED

The potential of non-toner area of the Drum is still -820V after the Development.
If we take the next Transfer Process with this state, it is very difficult to separate the printing media from the Drum and causes a jam as the media is strongly attracted to this -820V area by the static force.
To reduce the static force before the Transfer Process, the Pre-transfer LED throws light onto the Drum to remove the negative electric charges from the non-toner area.
The potential of non-toner area is increased from -820V to -80V (This potential is not constant but is variable by the environment.) by this process.

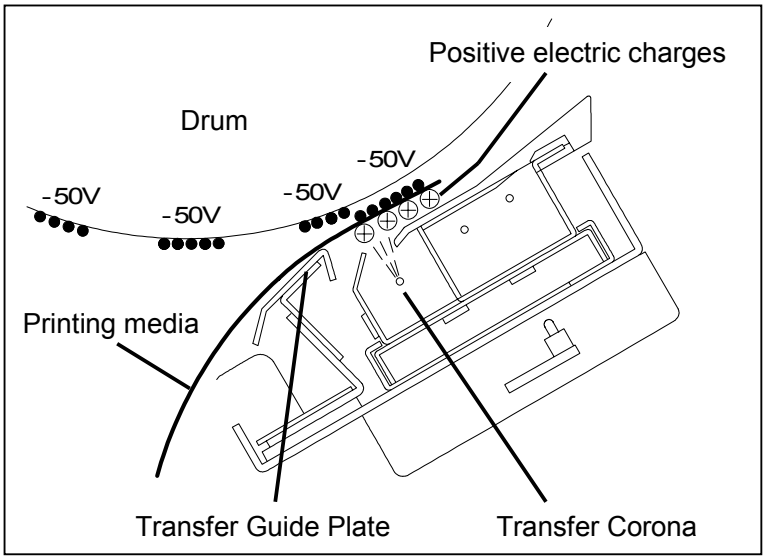




3.2.7 Transfer

The printing media is charged positively as the Transfer Corona discharges positive electric charges from under the media.
The toner existing on the -50V area on the Drum will move to the printing media because the potential of the media comes to be higher than the Drum by the Transfer Process.
The voltage supplied to the Transfer Corona Wire is as follows.

Transfer Corona Wire : +520V +/-30V (When the Insulated Drum is used.)



Reference

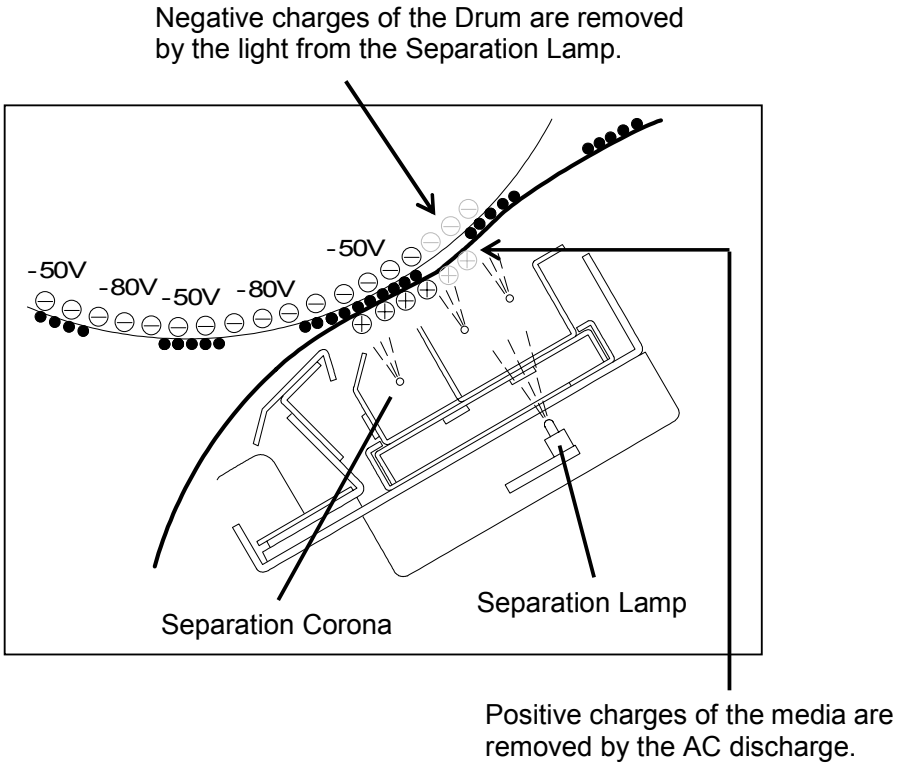
The Transfer Guide Plate, which exists before the transfer point, is grounded through the Varistor to keep only the necessary amount of positive electric charges while dismissing over charges to the ground.

1. If the Transfer Guide Plate is directly grounded, the positive electric charges given to the printing media will escape to the ground through the Transfer Guide Plate.
   As the printing media is not enough charged positive, much toner remains on the Drum not being transferred onto the media.
   The image looks very light in this case.

2. If the Transfer Guide Plate is floated from the ground so as to block the escape route of the positive electric charges, it collects too much positive charges because the Transfer Corona exists nearby it.
   As the Transfer Guide Plate is strongly charged positive, it attracts the toner floating inside the machine.
   This toner attracted onto the Transfer Guide Plate will cause the dirt on the back of the print.

3.2.8 Separation

The printing media is attracted to the Drum after the Transfer because the potential of media is positive and that of Drum is negative (about -50 to -80V).
It is necessary for avoiding the jam to separate the media from the Drum by removing the static force between them.
The Separation Corona takes AC discharge being supplied with the AC voltage (11KVp-p) and the DC voltage (-250V for plain paper, -300V for tracing paper and -10V for film). Negative charges are generated more than positive ones by the compensation of the DC voltage (-250V), which mainly results in removing the positive charges of the printing media.
On the other hand, the Separation Lamp throws light from under the Corona Wires to remove the negative charges of the Drum.
The static force between the printing media and the Drum is reduced as a result, and the media is separated from the Drum by its weight.



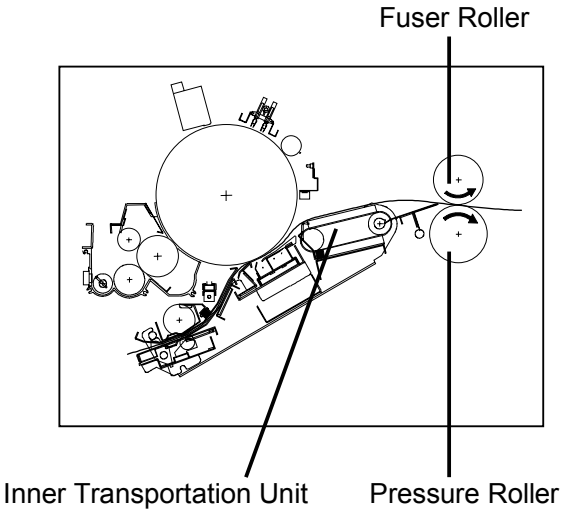
⚠ NOTE

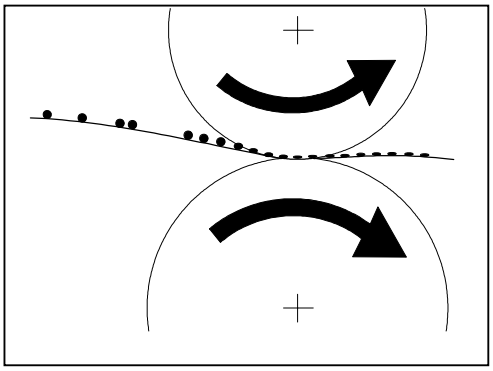
With the factory default setting, the Separation Lamp will not light if you use a film.
But the printed image may not be so clear if you use some special type of film.
You may be able to sharpen the image if you make the Separation Lamp light even in this case.
It is possible to change the ON/OFF setting of Separation Lamp for film in the Service Mode (Or User Mode).
Please refer to the following pages

[(35) Separation Lamp ON / OFF (Film) (Item No.C6)] on the page 8-75
[8.2.6 User Mode 6 (Transfer Support LED ON/OFF [Film])] on the page 8-163

3.2.9 Fusing

After Transfer / Separation Processes, the printing media is transported to the Fuser Unit by the Inner Transportation Unit.
The Fuser Unit mainly consists of the Fuser Roller and the Pressure Roller. The Fuser Roller is very hot, and the Pressure Roller is strongly pressed to the Fuser Roller by the spring.
The toner is firmly fused onto the printing media by the heat and the pressure when the media passes through between these rollers.

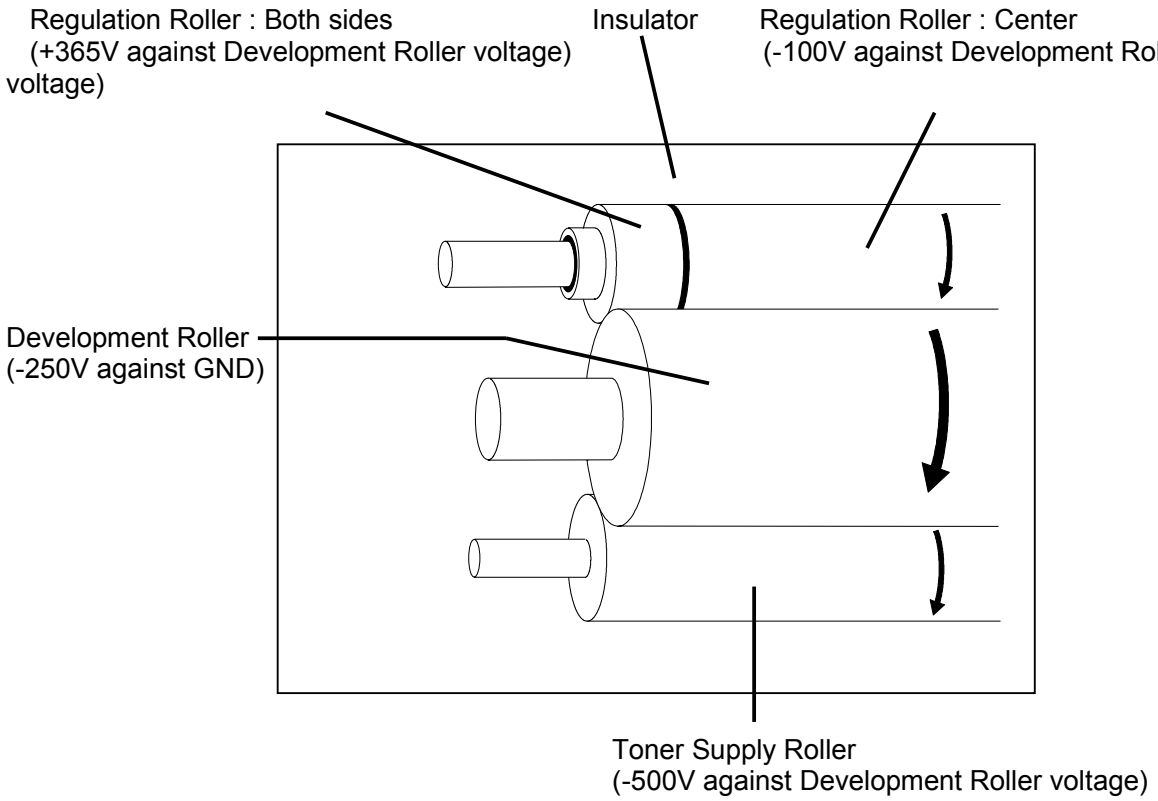




3.3 Controlling the Movement of Toner in the Developer Unit

There are 3 kinds of rollers called “Development Roller”, “Regulation Roller” and “Toner Supply Roller” in the Developer Unit.
Each roller is supplied with its own voltage.
In the following list, the voltage of the Development Roller (-250V) is measured against the ground.
The other voltages mean the difference against the voltage of Development Roller.

Name of roller	Supplied voltage (Against the ground)	Supplied voltage (Against the voltage of Development Roller)
Development Roller	-250V +/-3V	-
Regulation Roller (Center)	-	-500V +/-3V
Regulation Roller (Both sides)	-	-100V +/-3V
Toner Supply Roller	-	+365V +/-3V

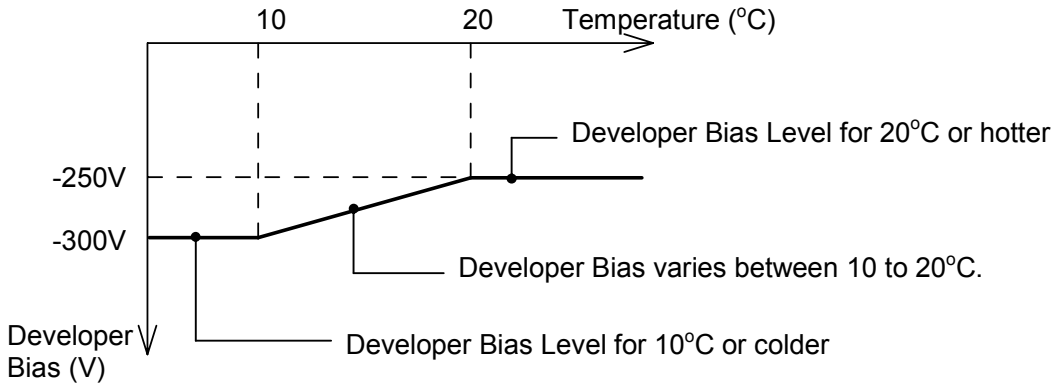


⚠ NOTE

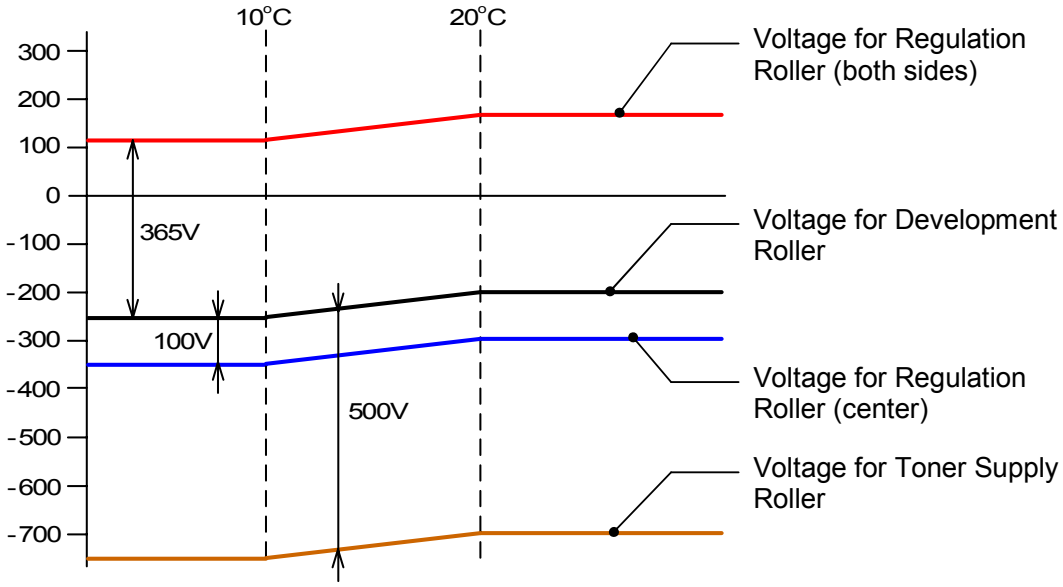
The Regulation Roller is divided into central area and both sides area by the insulator, and individual voltages is supplied to each area.

Reference

The print image tends to become lighter if the temperature inside machine is colder.
Even if the temperature is cold, however, it is possible to avoid the light image if the voltage of the Development Roller (Developer Bias) is low.
The voltage actually provided to the Development Roller varies according to the temperature therefore.
You will specify each Developer Bias Level for the cold situation (10°C or colder) and for the hot situation (20°C or hotter) in the Service Mode.
Provided Bias is constant and its value follows the specifications in the Service Mode if the temperature is 10°C or colder or 20°C or hotter.
Between 10°C and 20°C, the Developer Bias is automatically calculated considering the Developer Bias Levels specified in the Service Mode, and its value gets lower if the temperature is colder.
With the factory default, -300V is specified for 10°C or colder, and -250V is specified for 20°C or hotter.



The voltages for Toner Supply Roller, Regulation Roller (center) and Regulation Roller (both sides) are decided taking the Developer Roller voltage as a standard.
If the Developer Roller voltage varies according to the temperature, therefore, these voltages also vary same degree.



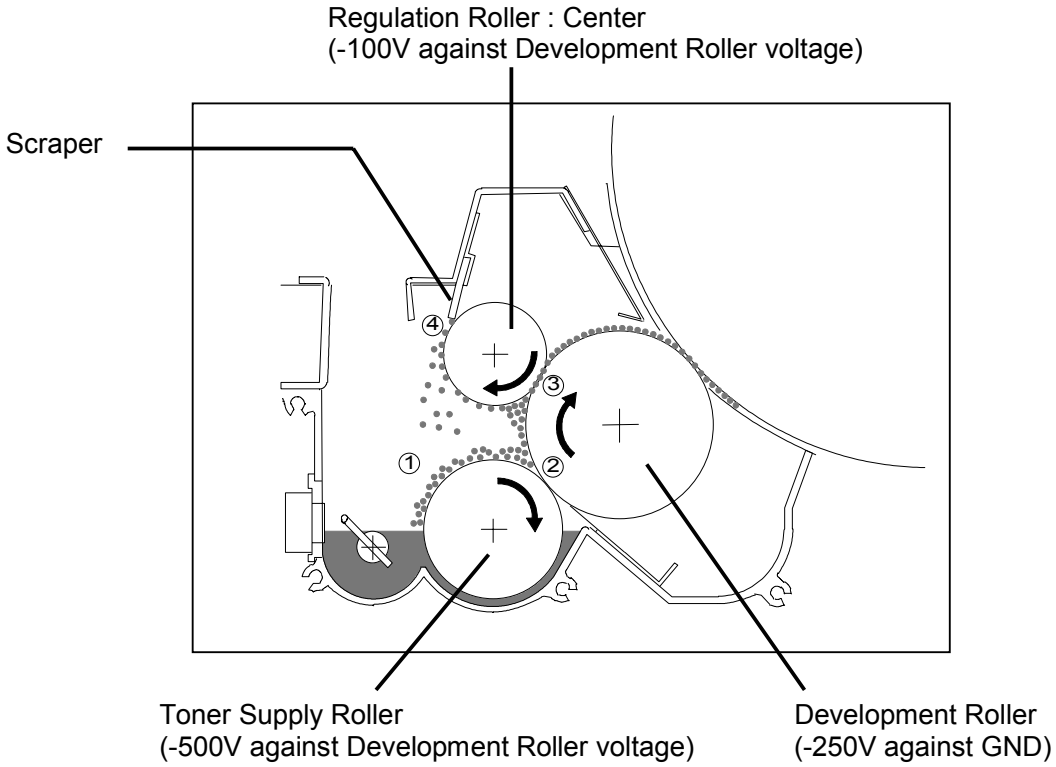
Taking advantage of the difference of potentials among these rollers, the movement of toner is controlled in the Developer Unit as follows.

1. The Toner Supply Roller carries the toner toward the Development Roller.

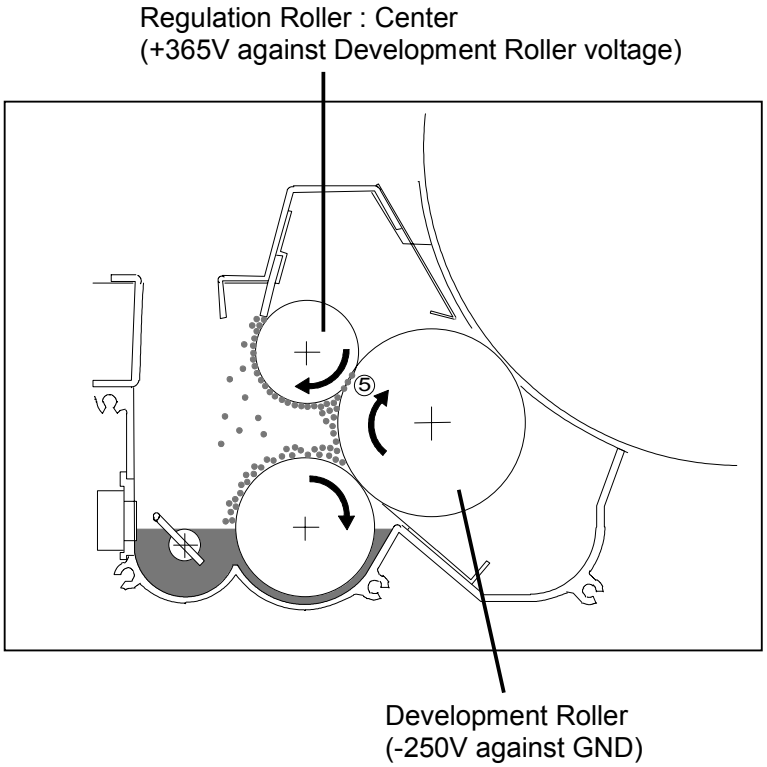
2. The voltage of the Toner Supply Roller is 500V lower than that of Development Roller. When the toner reaches the contact point of these rollers, therefore, it moves onto the Development Roller.
   Then the Development Roller carries the toner toward the Regulation Roller.

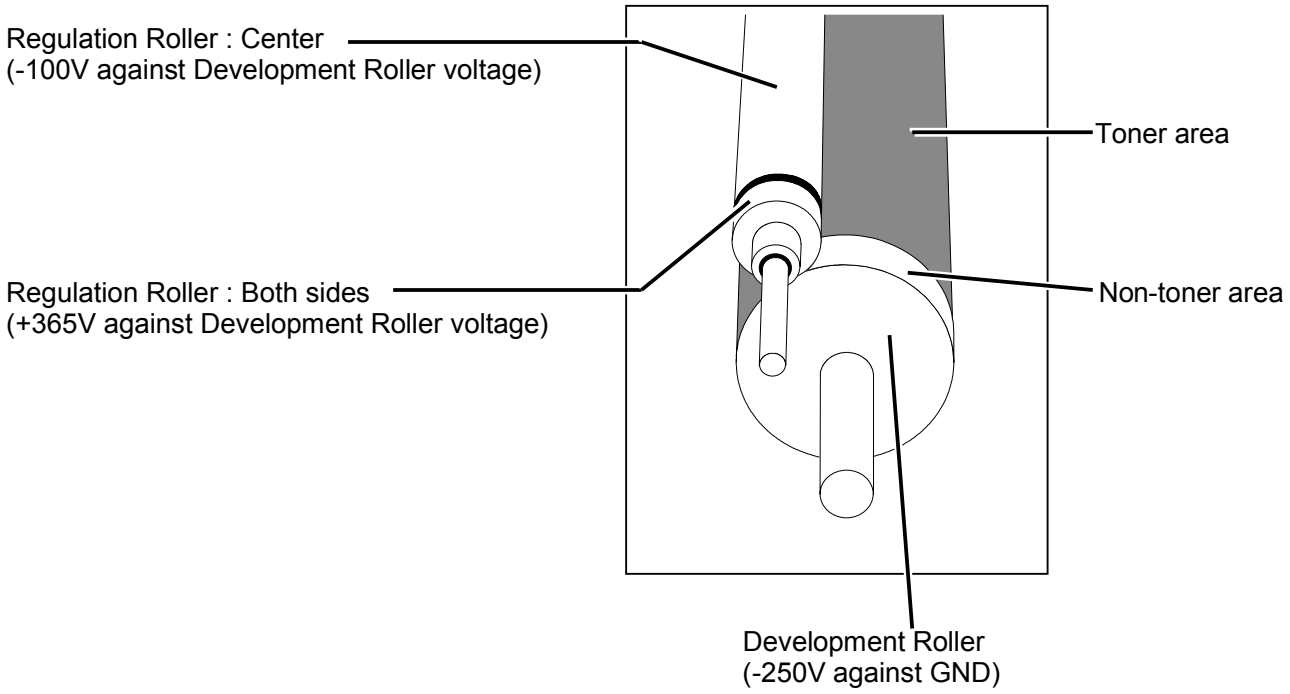
3. The Regulation Roller is strongly pressed to the Development Roller by the spring, and these 2 rollers move to the opposite direction each other at the contact point.
   Even if the Developer Roller carries more toner than required, the Regulation Roller limits the amount of toner that can pass through between 2 rollers. So very small amount of toner can pass through between rollers and the rest is returned back to the inside.
   As the voltage of Development Roller is 100V higher than that of Regulation Roller (Center), the toner which has passed through between these rollers is firmly attracted to the Development Roller.
   Very thin layer of toner is evenly formed on the surface of Development Roller as a result.

4. Much toner sticks onto the Regulation Roller when it is returned back to the inside.
   This toner is scraped off by the Scraper which is contacted to the Regulation Roller.



5. Both sides of the Regulation Roller have higher potential than the Development Roller as the voltage of Regulation Roller (both sides) is 365V higher than that of Development Roller.
   When the toner reaches the contact point of these rollers, therefore, it moves onto the Regulation Roller.
   The side areas of the Development Roller are not covered with the toner as a result, so it is possible to avoid the toner drops into the machine from the side.





3.4 Toner Collection Process

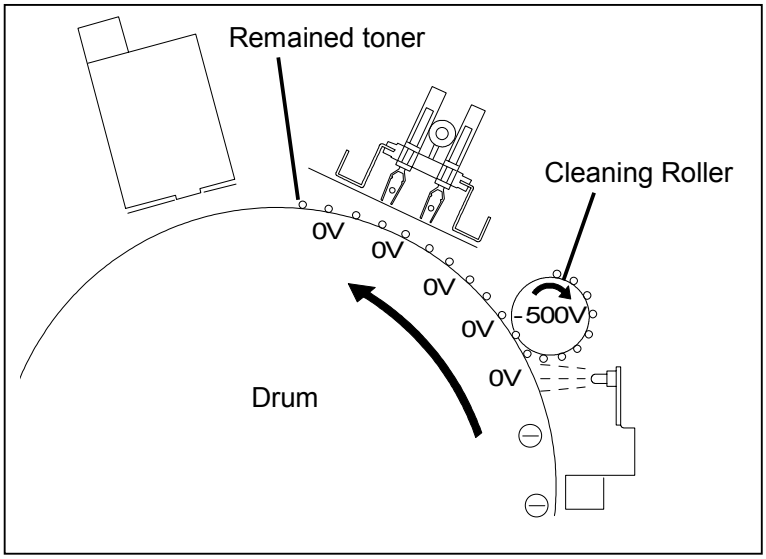
As explained in [3.2.2 Drum Cleaning] on the page 3-5, the Cleaning Roller is supplied with +800V to remove the remained toner from the Drum during the print cycle.
This toner gathered by the Cleaning Roller is returned to the Developer Unit in the following 3 cases.

(1) When the printer has finished printing out all the accumulated print jobs and then going to stop.
(2) When the used roll media is ended and changed with another one.
(3) When the used roll media if changed from one to another because the print size specified in the job is different.

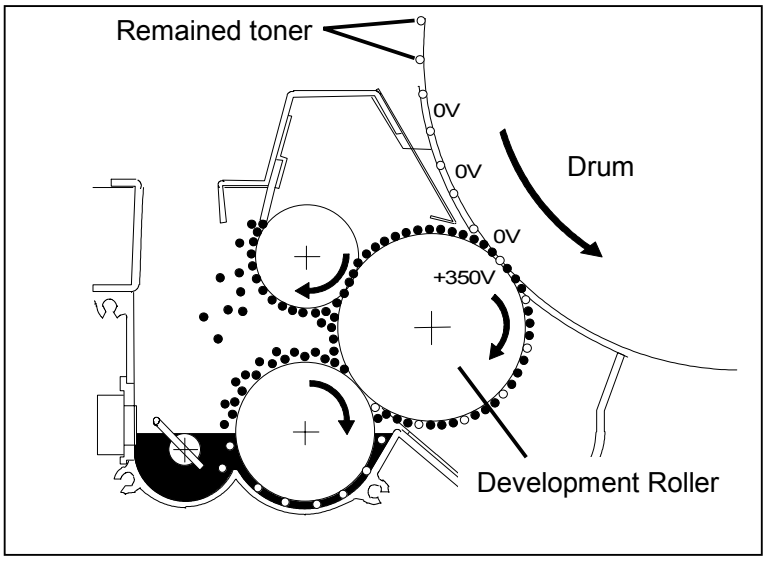
This process to return the toner is called “Toner Collection Process”.
When the trailing edge of the last sheet passes over the Separation Area, the printer will take the Toner Collection Process as follows rotating the Drum for 2 revolutions.

1. The Eraser Lamp throws light onto the Drum to remove the negative electric charges from the Drum. The potential of Drum becomes 0V.

2. The voltage supplied to the Cleaning Roller is changed to -500V in the Toner Collection Process. As the potential of Drum becomes higher than that of Cleaning Roller, toner on the Cleaning Roller moves onto the Drum.



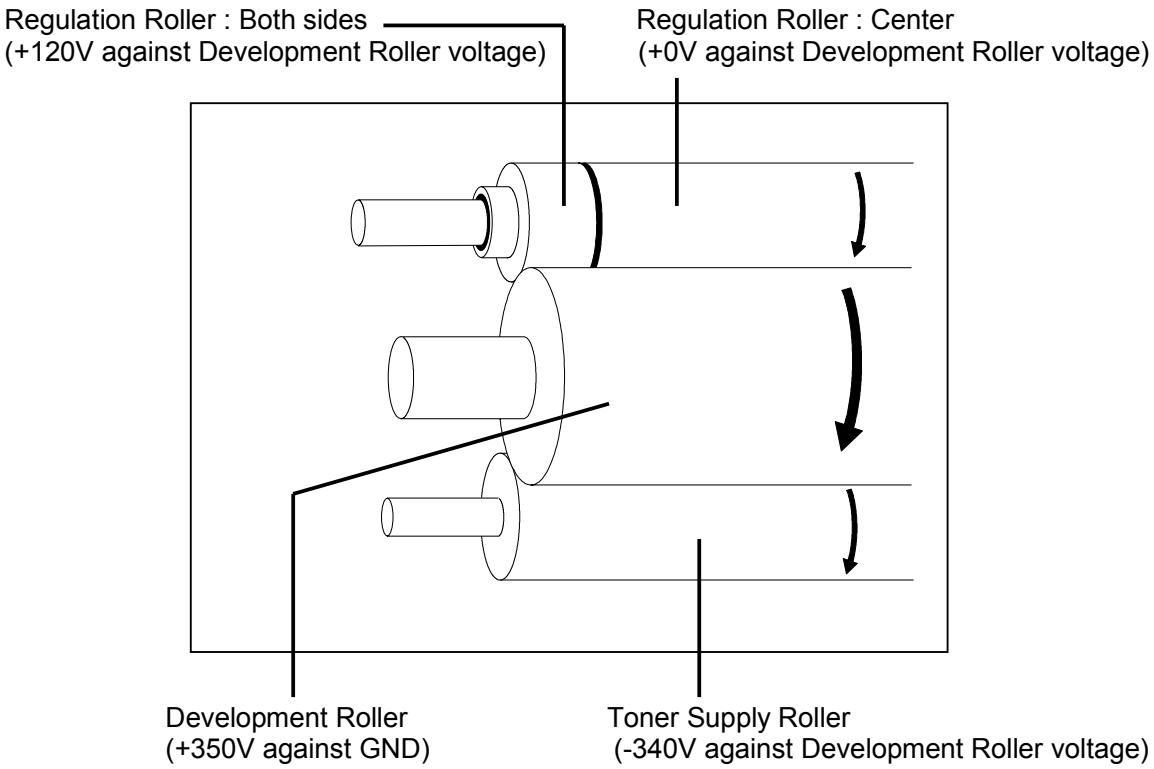
3. The voltage supplied to the Development Roller is also changed to +350V (+/-3V) in the Toner Collection Process.
   As the potential of Development Roller becomes higher than that of Drum, toner on the Drum moves onto the Development Roller.
   Then the toner is carried into the Developer Unit by both the Development Roller and the Toner Supply Roller.



Reference

Voltages supplied to Regulation Roller and Toner Supply Roller are changed also as follows.

Name of roller	Supplied Voltage (Against the ground)	Supplied voltage (Against the voltage of Development Roller)
Developer Roller	+350V +/-3V	-
Toner Supply Roller	-	-340V +/-3V
Regulation Roller (Center)	-	0V +/-3V
Regulation Roller (Both sides)	-	+120V +/-5V

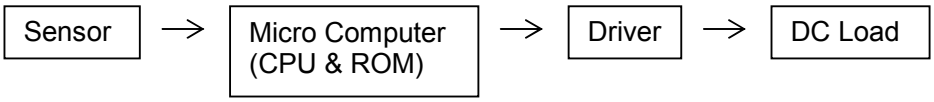


Chapter 4

Electrical Systems

4.1 Summary

This machine is mainly controlled by a microcomputer, which is located on DC Controller.
This microcomputer reads input signals from sensors, control loads such as motors, SSRs, solenoid, clutches and blowers on programmed timing.



DC Controller has an LED, meaning that 5Vdc is applied on this DC Controller safely.

Generally the color of wiring is separated depends on the voltage.

0Vdc:	blue	Signal in to DC Controller (sensors):	purple
5Vdc:	yellow	Signal out from DC Controller:	gray
24Vdc:	orange		
36Vdc:	pink		

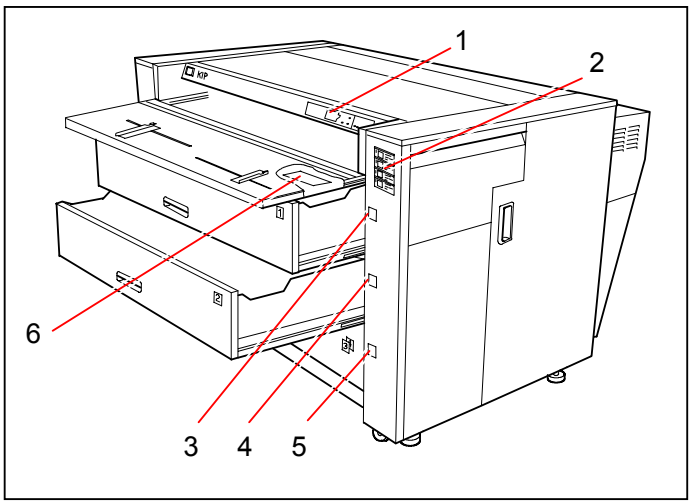
⚠ CAUTION

There are batteries on the DC Controller PCB (PW7720) and the Mother Board of IMA Controller (Model K-77 ICA).

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.
Waste disposal method of battery:
As for the waste disposal of battery, dispose in accordance with local state and federal relations.

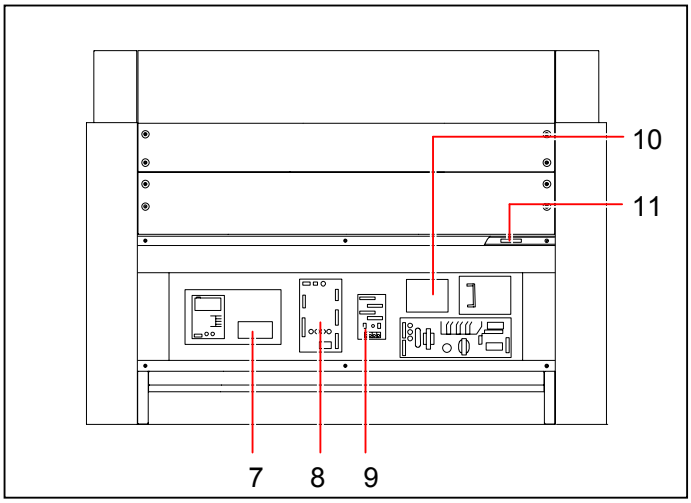
4.2 Location of Electrical Components

4.2.1 Printed Circuit Board



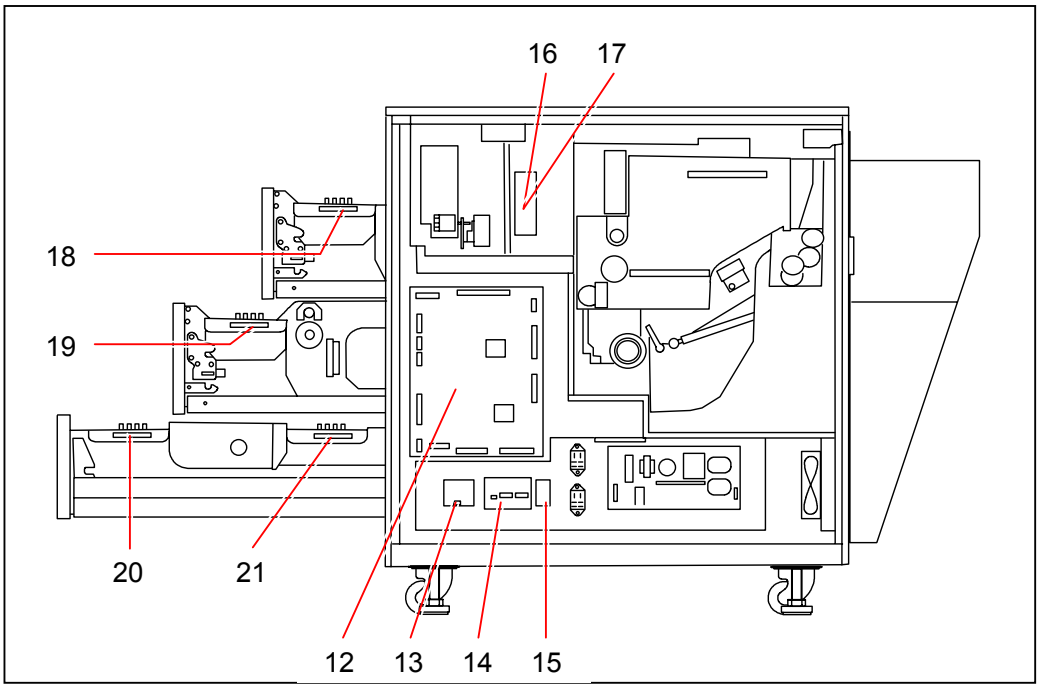
Item	Symbol	Signal name	Name	Type	Function
1	PW7771		Indication PCB B (Operation Panel PCB)	PW7771	Several operations can be done and operational information is indicated.
2	PW7770		Indication PCB A (Media Indicator PCB)	PW7770	Size and type of each roll media is indicated.
3	PW7170		Deck Indicator	PW7170-01	Upper Deck “in use” indication
4	PW7170		Deck Indicator	PW7170-01	Medium Deck “in use” indication
5	PW7170		Deck Indicator	PW7170-01	Bottom Deck “in use” indication
6	PW7790		Paper Size PCB	PW7790	Detecting cut sheet size

(Seen from the top)



Item	Symbol	Signal name	Name	Type	Function
7	PW7758		LED Driver PCB	PW7758	Driver for Pre-Transfer LED
8	PW7755		DC Driver PCB	PW7755	Driver for Motors, HVPs, Bias, Fans, Solenoid and Clutches
9	PW3590		DC Translation PCB (DC Terminal PCB)	PW3590-01	Junction for LED Head
10	PW7757		Transmission Driver PCB (Toner Quantity Sensor LED Driver PCB)	PW7757	Driver for the Transmission PCB used for toner quantity check
11			Surface Potential Sensor PCB	ES2A-4102 (600mm)	Detecting Surface Potential (Always replace with SPS Sensor)

(Right side)



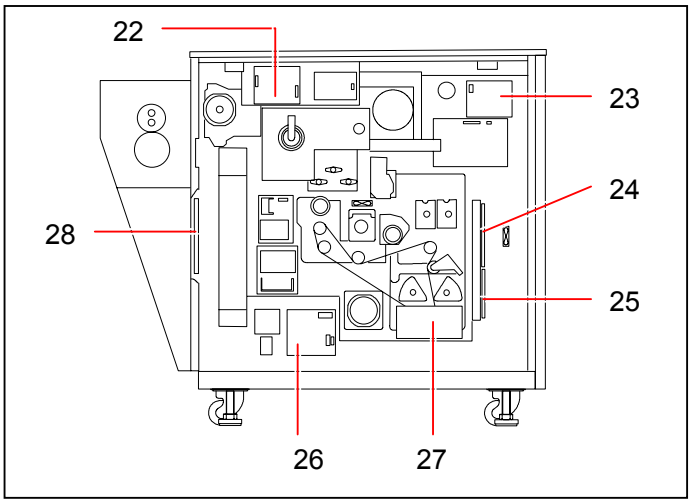
Item	Symbol	Signal name	Name	Type	Function
12	PW7720		DC Controller PCB	PW7720	Overall Sequence Control with Interface
13	PW5580	HUMID	Humidity Sensor PCB	PW5580	Detecting Humidity in the machine
14	PW3599		Signal Terminal PCB	PW3599	Signal Junction
15	PW7772		DCP Indication PCB	PW7772	Indicating the output conditions of DC Power Supplies.
16	PW7750		Transmission PCB	PW7750	Checking the quantity of toner in the Toner Cartridge. (It is inside the Toner Cover and LEDs throw light to the Receiver PCB.)
17	PW7751		Receiver PCB	PW7751	Checking the quantity of toner in the Toner Cartridge. (It is on the machine side and receives the light from the Transmission PCB.)
18	PW3575UA		Paper Choice PCB U	PW3575	Media size and material selector of Roll 1
19	PW3575UB		Paper Choice PCB U	PW3575	Media size and material selector of Roll 2
20	PW3575UC		Paper Choice PCB U	PW3575	Media size and material selector of Roll 3
21	PW3575UD		Paper Choice PCB U	PW3575	Media size and material selector of Roll 4

⚠ CAUTION

There are batteries on the DC Controller PCB (PW7720) and the Mother Board of IMA Controller (Model K-77 ICA).

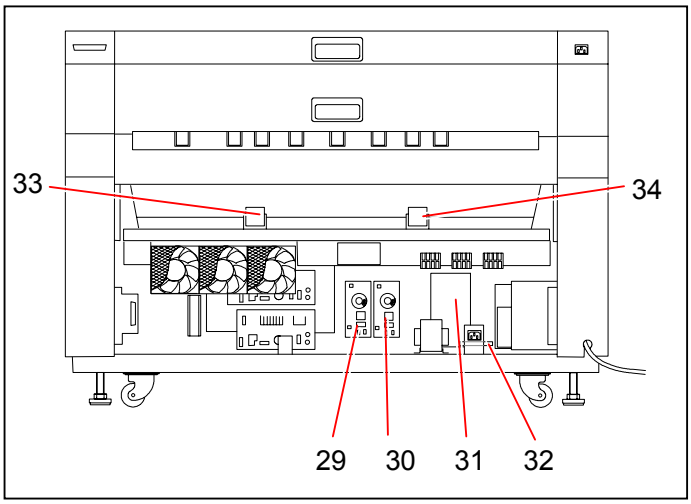
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.
Waste disposal method of battery:
As for the waste disposal of battery, dispose in accordance with local state and federal relations.

(Left side)



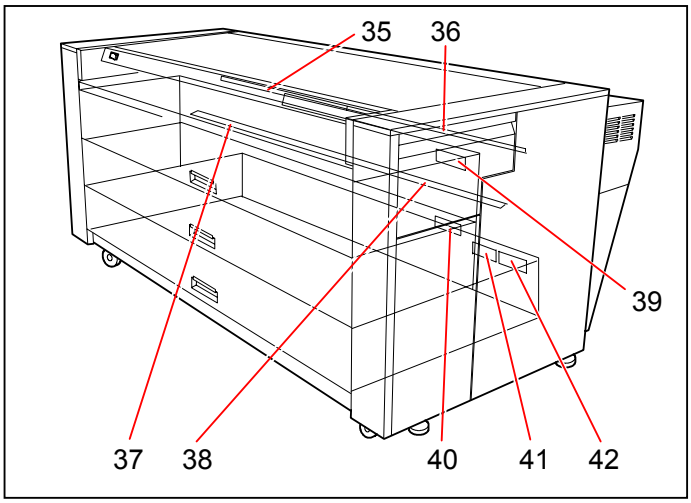
Item	Symbol	Signal name	Name	Type	Function
22	TP0362	FUMTR	Motor Controller PCB	TP0362	Fuser Motor Controller
23	TP1142	DRMTR	Motor Controller PCB	TP1142	Drum Motor Controller
24	PW7756	CUTMTR	Motor Controller PCB A	PW7756	Cutter Motor Controller
25	PW6125(C)		Phase Control PCB C	PW6125	Reducing flicker.
26	PW4210		AC Circuit Board B	PW4210	Terminal of AC
27	TP0362	PFMTR	Motor Controller PCB	TP0362	Paper Feed Motor Controller
28	PW7740		Temperature Detect PCB	PW7740	Detecting the temperature of IR Lamps.

(Rear side)



Item	Symbol	Signal name	Name	Type	Function
29	PW2215		Filter PCB C	PW2215	AC line filter
30	PW2215		Filter PCB C	PW2215	AC line filter
31	PW6624		PC Controller PCB A	PW6624	Shutting down the controller PC
32	PW4211		Filter PCB	PW4211	Noise filter for the controller
33	PW5490		Reception PCB	PW5490	Communication with optional device
34	PW5491		Transmission PCB	PW5491	Communication with optional device

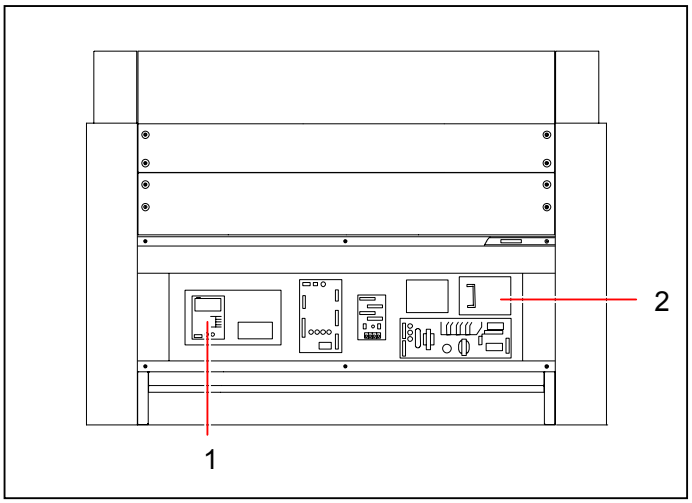
(Inside)



Item	Symbol	Signal name	Name	Type	Function
35	PW7730	E_LAMP	Eraser Lamp PCB A	PW7730	Removing electric charges from the Drum before starting the print process
36	PW7731	E_LAMP	Eraser Lamp PCB B	PW7731	Removing electric charges from the Drum before starting the print process
37	PW1034	S_LAMP	Eraser PCB C (Separation Lamp)	PW1034	Removing the electric charges to help paper separation
38	PW1034	S_LAMP	Eraser PCB I (Separation Lamp)	PW1034	Removing the electric charges to help paper separation
39	PW3597		DC Translation PCB P	PW3597	Roll Deck 1 Roll Size Sensor PCB
40	PW3597		DC Translation PCB P	PW3597	Roll Deck 2 Roll Size Sensor PCB
41	PW3597		DC Translation PCB P	PW3597	Roll Deck 3 Roll Size Sensor PCB
42	PW3597		DC Translation PCB P	PW3597	Roll Deck 4 Roll Size Sensor PCB

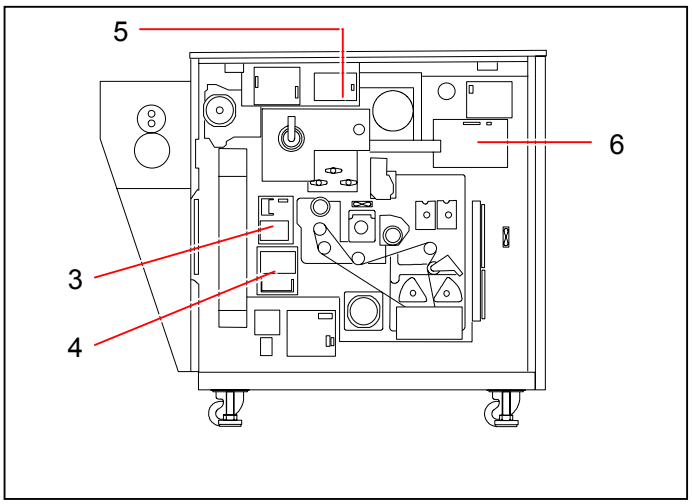
4.2.2 High Voltage Power Supplies & Transformer

(Seen from the top)



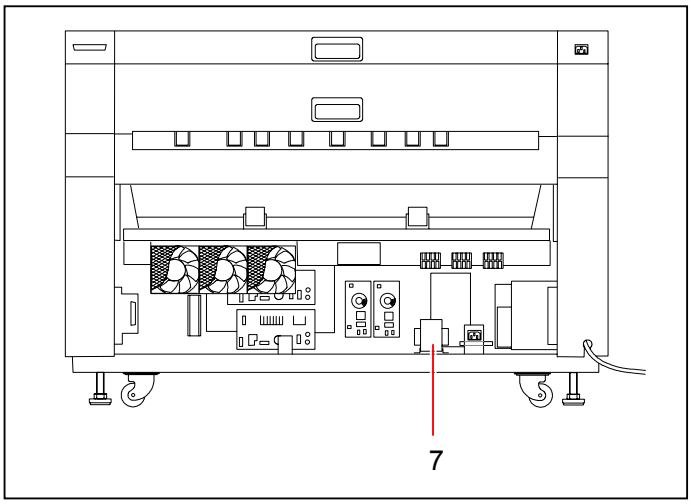
Item	Symbol	Signal name	Name	Type	Function
1	HVP1	HV1	High Voltage Power Supply	KHKG-063	Supplying the high voltage to the Image Corona.
2	HVP5	HV5	High Voltage Power Supply	AHKG-067	Supplying the high voltage to the Cleaning Roller.

(Left side)



Item	Symbol	Signal name	Name	Type	Function
3	HVP3	HV_TR	High Voltage Power Supply	BHKG-070	Supplying the high voltage to the Transfer Corona.
4	HVP4	HV_AC	High Voltage Power Supply	FHKG-046	Supplying the high voltage AC to the Separation Corona.
5	HVP6	HV6	High Voltage Power Supply	KHKG-065	Supplying the high voltage to the Grid Plate.
6	BIAS		Bias Power Supply	KHKG-062	Supplying the Developer Bias to each roller in the Developer Unit. Output 1 : Toner Supply Roller Output 2 : Developer Roller Output 3 : Regulation Roller (Center) Output 4 : Regulation Roller (Both sides)

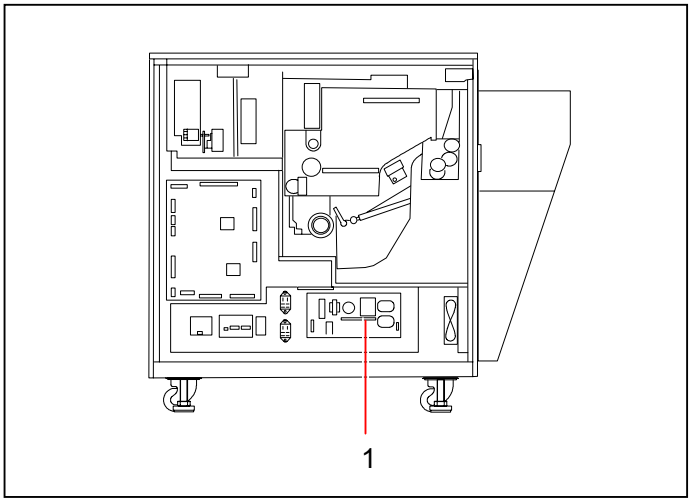
(Rear side)



Item	Symbol	Signal name	Name	Type	Function
7	T1		Insulation Transformer	KCT-01B (EUR & USA)	Converting the inputted AC into 24VAC for Dehumidify Heater of Roll 1 and 2

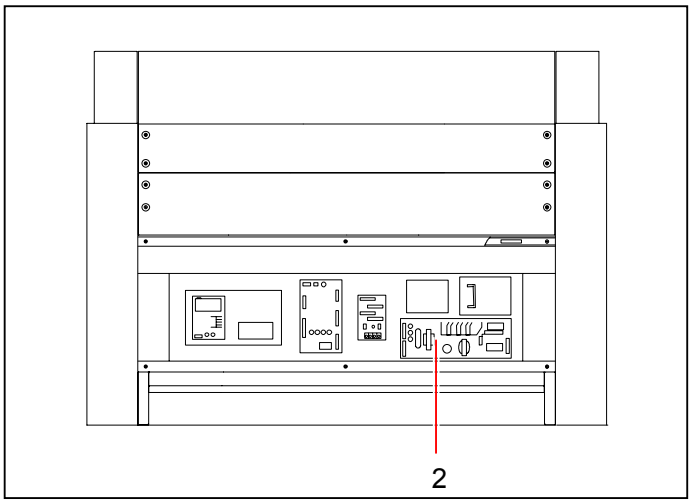
4.2.3 DC Power Supplies

(Right side)



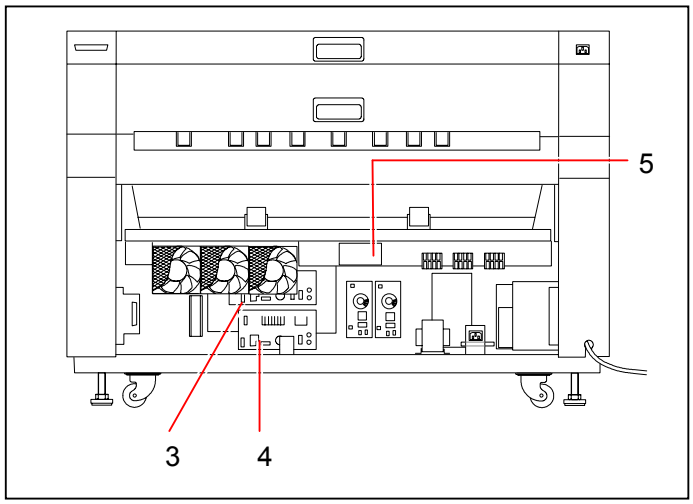
Item	Symbol	Signal name	Name	Type	Function
1	DCP1		DC Power Supply	ZWS240PAF-24/J	Supplying +24VDC (240W).

(Seen from the top)



Item	Symbol	Signal name	Name	Type	Function
2	DCP2		DC Power Supply	LEA150F-5	Supplying +5VDC (150W) to sensors, LED Head, DC Controller and so on.

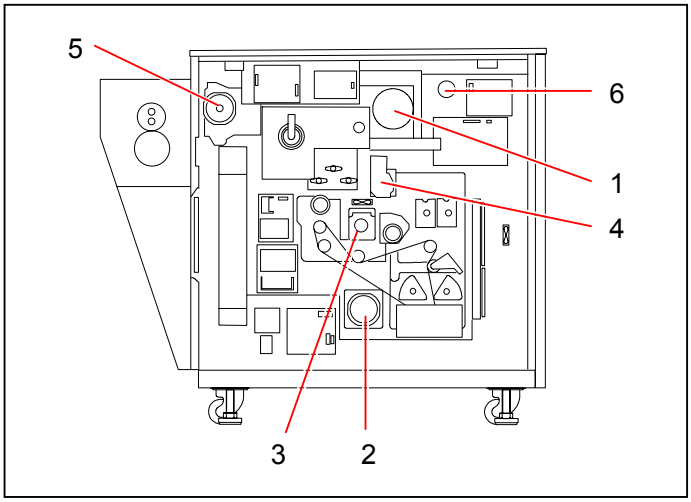
(Rear side)



Item	Symbol	Signal name	Name	Type	Function
3	DCP3		DC Power Supply	ZWS150PAF-36/J	Supplying +36VDC (150W) to the Drum Motor (M1).
4	DCP4		DC Power Supply	ZWS150PAF-36/J	Supplying +36VDC (150W) to Paper Feed Motor (M2), Cutter Motor (M3) and Fuser Motor (M5).
5	DCP5		DC Power Supply	ZWS10-24/J	Supplying +24VDC (10W) to the PC Controller PCB A.

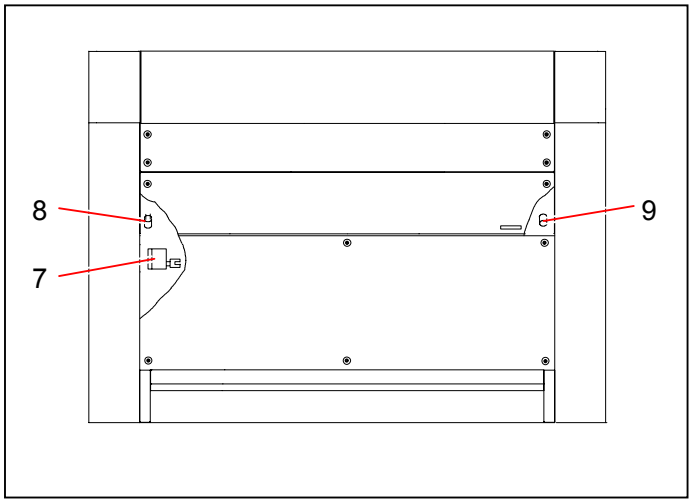
4.2.4 Motors

(Left side)



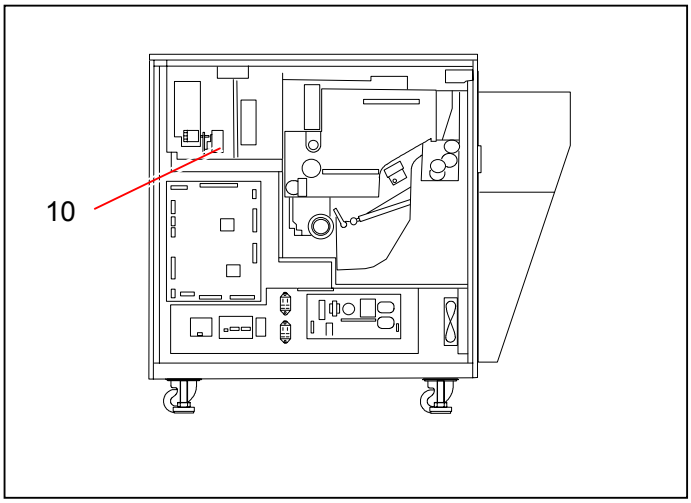
Item	Symbol	Signal name	Name	Type	Function
1	M1	DRMTR	DC Motor (Drum Motor)	TL1142	Driving both the Drum and the Developer Unit.
2	M2	PFMTR	DC Motor (Paper Feed Motor)	TL0314	Driving the roll feeding mechanism.
3	M3	CUTMTR	Stepping Motor (Cutter Motor)	KT56LM4 G-004	Driving the Cutter Unit.
4	M4	DPMTR	DC Motor (Developer Positioning Motor)	DU2422-1	It presses the Developer Unit to the Drum, and also separates the Developer from the Drum.
5	M5	FUMTR	DC Motor (Fuser Motor)	TL0314	Driving the Fuser Roller.
6	M10	T_MTR	DC Motor (Bypass Feeding Motor)	DME37B6 H30B	Driving the cut media feeding mechanism.

(Seen from the top)



Item	Symbol	Signal name	Name	Type	Function
7	M6	HOP_MTR2	DC Motor Toner Supply Motor 2	DU2711-3	Driving the Toner Hopper to supply the toner to the Developer Unit.
8	M8		DC Motor (LED Cleaning Motor)	LA20-282BD	Driving the Cleaning Pad to clean the LED Head.
9	M9		DC Motor (Wire Cleaning Motor)	LA20-282BD	Driving the Cleaning Pad to clean the Image Corona Wire.

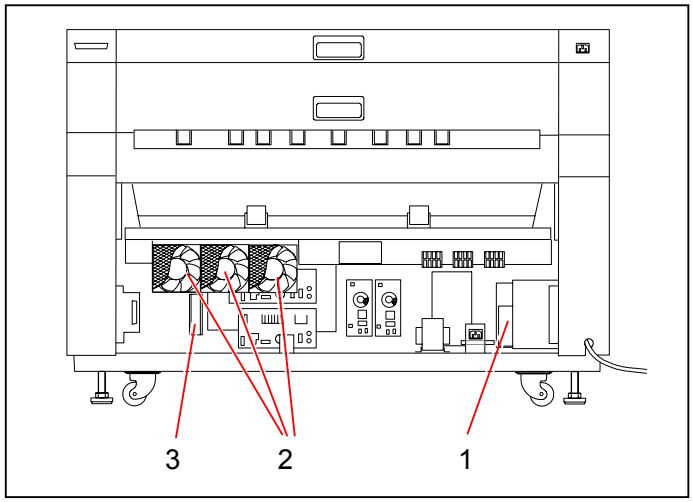
(Right side)



Item	Symbol	Signal name	Name	Type	Function
10	M7	HOP_MTR1	DC Motor (Toner Supply Motor 1)	DME34B50 G96B	Driving the Toner Cartridge to supply the toner to the Toner Hopper.

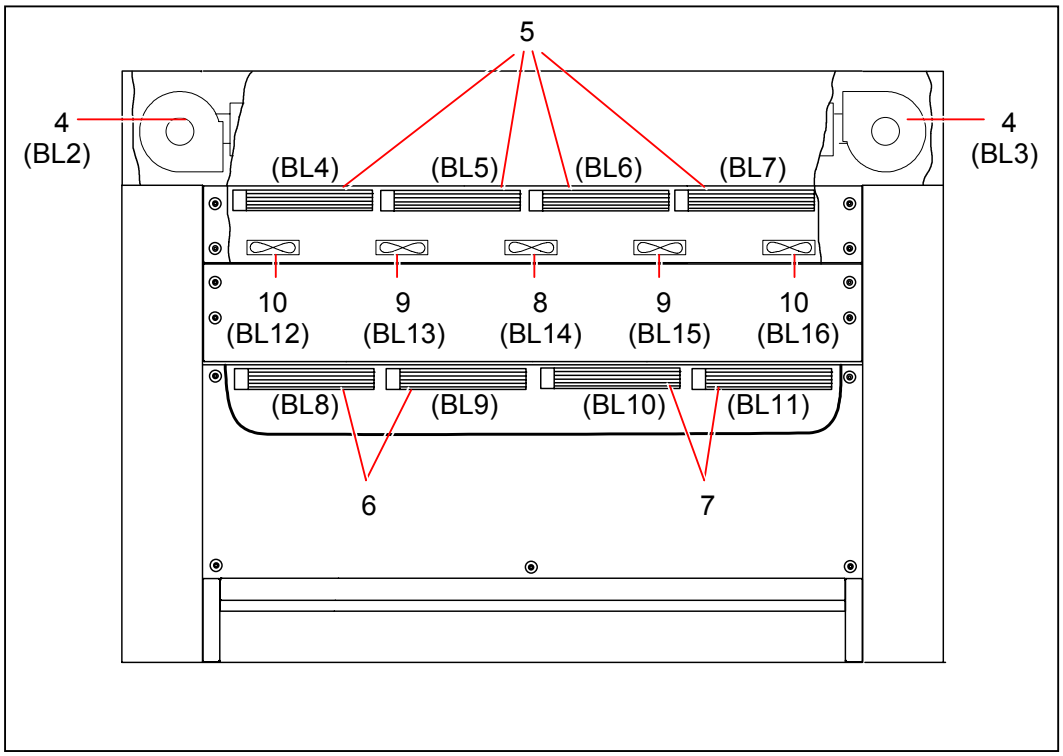
4.2.5 Blowers & Fans

(Rear side)



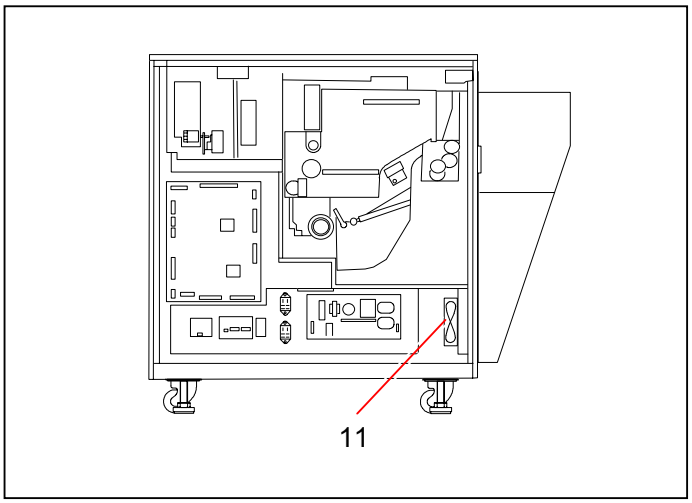
Item	Symbol	Signal name	Name	Type	Function
1	BL1	SEPBLW	Sirocco Fan (Separation Fan)	TA0409	Inhaling the air from the bottom of Internal Transportation Unit to help paper separation. 4 Ozone Filters are provided.
2	BL17, 18 & 19	EXBLW3	Fan Motor (Exhaust Fan 3)	CNDC24B7-027	Exhausting the inside air.. An Ozone Filter is provided to each of them.
3	FM2		Fan Motor (Cooling Fan 2)	FBA09A24H	Cooling down both the DCP3 and the DCP4.

(Seen from the top)



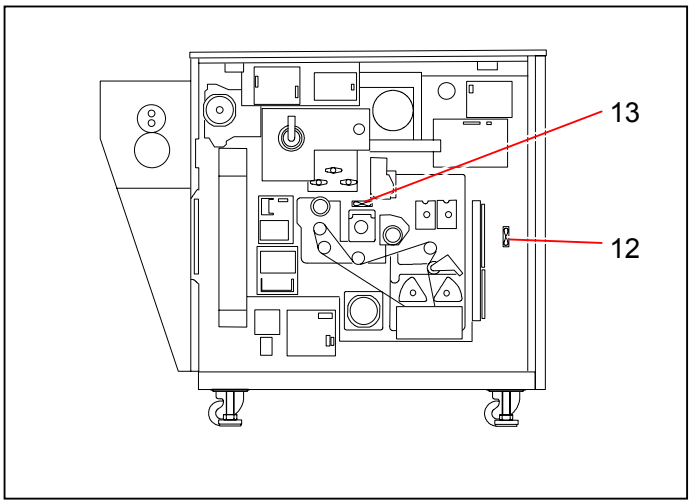
Item	Symbol	Signal name	Name	Type	Function
4	BL2 & BL3	EXBLW_L EXBLW_H	Sirocco Fan (Exhaust Blower)	FAL-14C4RH	Cooling down the top of the Fuser.
5	BL4, BL5, BL6 & BL7	PRESBLW_L PRESBLW_H	Cross Flow Fan (Pressure Blowers)	FCB34AD24	Blowing the air from the top so as to help the paper goes into the Fuser Area easily.
6	BL8 & BL9	COOL_FAN1	Cross Flow Fan (LED Cooling Fans 1)	FCB34AD24	Cooling down the LED Head.
7	BL10 & BL11	COOL_FAN2	Cross Flow Fan (LED Cooling Fans 2)	FCB34AD24	Cooling down the LED Head.
8	BL14	SEPBLW2	Sirocco Fan (Separation Assist Blower 2)	E0515H24B7AZ-13	Helping paper's separation from the Drum. It works always during print regardless of the paper size.
9	BL13 & BL15	SEPBLW3	Sirocco Fan (Separation Assist Blower 3)	E0515H24B7AZ-13	Helping paper's separation from the Drum. They work if the paper is 364mm (17") or wider.
10	BL12 & BL16	SEPBLW4	Sirocco Fan (Separation Assist Blower 4)	E0515H24B7AZ-13	Helping paper's separation from the Drum. They work if the paper is 841mm (30") or wider.

(Right side)



Item	Symbol	Signal name	Name	Type	Function
11	FM1		Fan Motor (Cooling Fan 1)	FBA09A24H	Cooling down the DCP1.

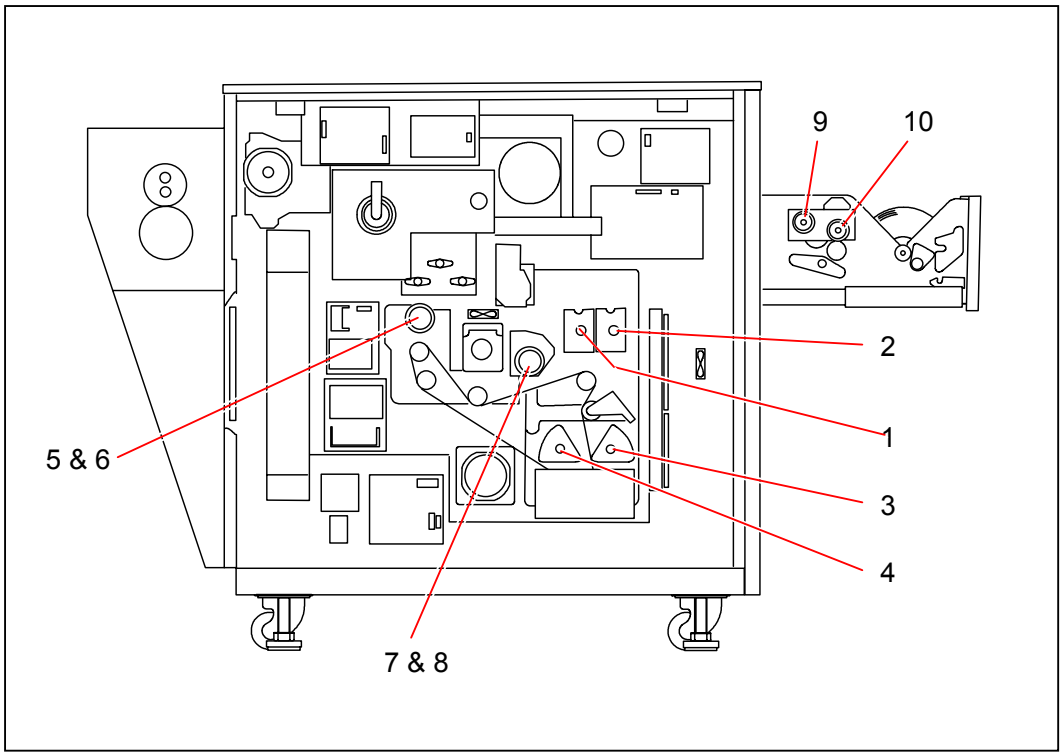
(Left side)



Item	Symbol	Signal name	Name	Type	Function
12	FM3		Fan Motor (Cooling Fan 3)	FBA06T24H	Cooling down the Cutter Motor Controller PCB (PW7756).
13	FM4		Fan Motor (Cooling Fan 4)	FBA06T24H	Cooling down the Cutter Motor (M3)

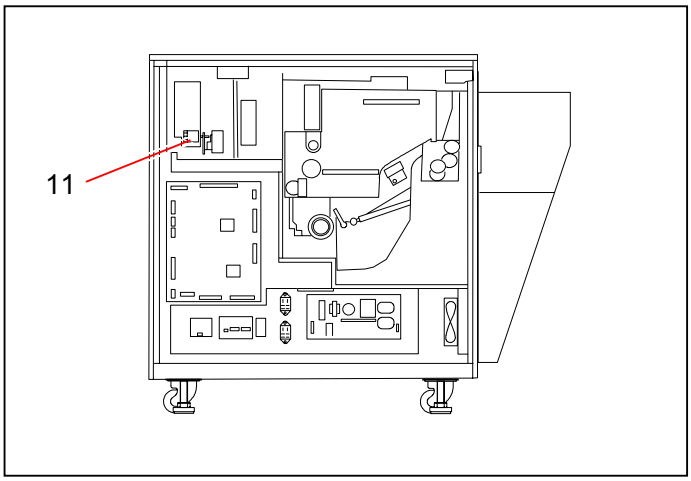
4.2.6 Clutches & Brakes

(Left side)



Item	Symbol	Signal name	Name	Type	Function
1	MC1	RP_CL	Electromagnetic Clutch (Roll Paper Feed Clutch 1)	BJ-3.5-160	
2	MC2	RP_CL2	Electromagnetic Clutch (Roll Paper Feed Clutch 2)	BJ-3.5-160	
3	MC3	RP_CL3	Electromagnetic Clutch (Roll Paper Feed Clutch 3)	BJ-3.5-160	
4	MC4	RP_CL4	Electromagnetic Clutch (Roll Paper Feed Clutch 4)	BJ-3.5-160	
5	MC5	P_GATE	Electromagnetic Clutch (Paper Gate Clutch)	BJ-3.5-160	
6	MC10	PG_BK	Electromagnetic Brake (Paper Gate Brake)	BB-3.2-E01	
7	MC6	RP_FEED	Electromagnetic Clutch (Paper Feed Clutch)	BO-5--E01 (Or AMC20)	
8	MC9	PF_BK	Electromagnetic Brake (Paper Feed Brake)	BB-3.2-E01	
9	MC7	MF_CL	Electromagnetic Clutch 2 (Bypass Feed Clutch)	BJ-3.5-E06	
10	MC8	RP_CL1	Electromagnetic Clutch (Roll Deck 1 Feed Clutch)	BJ-3.5-166	

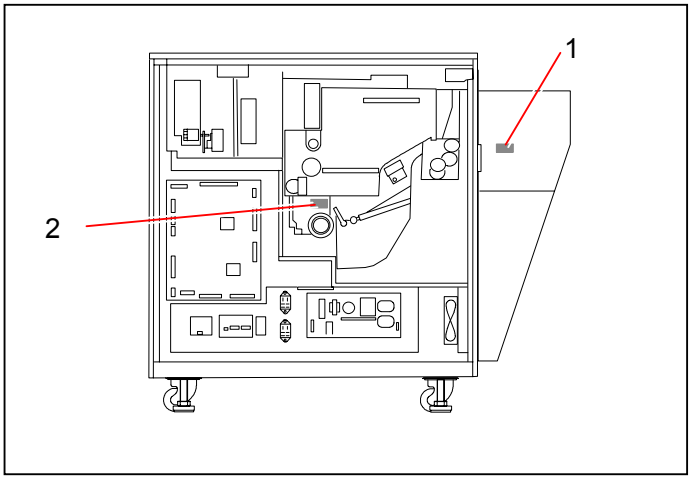
(Right side)



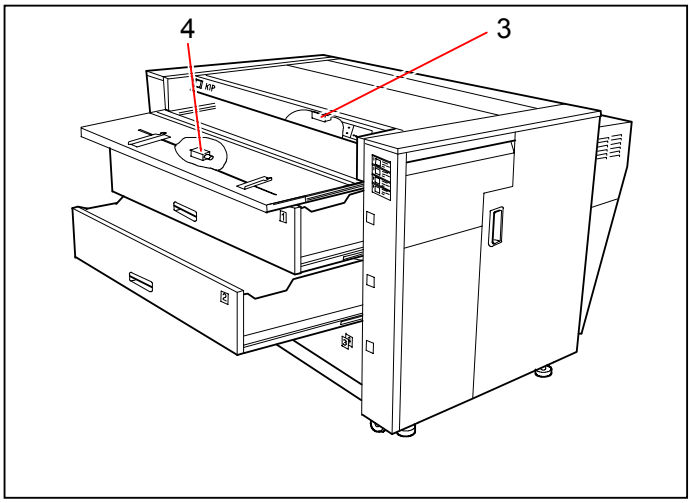
Item	Symbol	Signal name	Name	Type	Function
11	MC11	HOPPER	Electromagnetic Clutch 1 (Toner Supply Clutch)	BJ-3.5-E07	

4.2.7 Solenoids

(Right side)



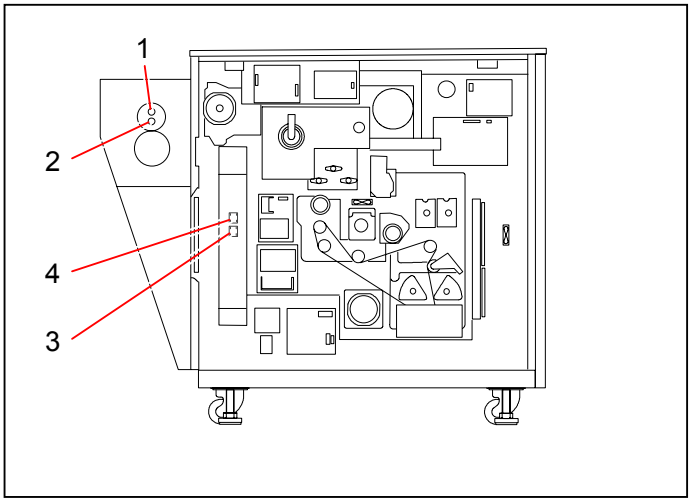
Item	Symbol	Signal name	Name	Type	Function
1	SL1	FU_SL	Solenoid G1247 (Fuser Solenoid)	G1247	Moving the Fuser Entrance Guide Plate up and down. **This solenoid is locked and does not function presently.**
2	SL2	CT0_SL	Solenoid (Cutter Oil Supply Solenoid)	G1253-K7	Moving the oil pad to lubricate the Cutter Blade.



Item	Symbol	Signal name	Name	Type	Function
3	SL3	T_SL1	Solenoid (Bypass Feeding Roller Down Solenoid)		Moving the Bypass Feeding Roller up and down.
4	SL4	T_SL2	Solenoid (Bypass Reversal Roller Down Solenoid)	G-1053-K12	Moving the Bypass Reversal Roller up and down.

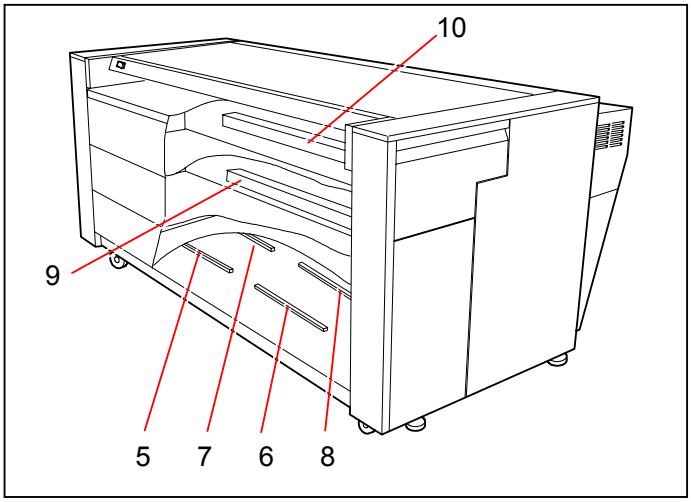
4.2.8 Heaters & SSR

(Left side)



Item	Symbol	Signal name	Name	Type	Function
1	H1	F_LAMP1	IR Lamp	QIR220-1750KIC (EUR & USA)	Heating the center of the Fuser Roller.
2	H2	F_LAMP2	IR Lamp	QIR220-1350KIAG (EUR & USA)	Heating both sides of the Fuser Roller.
3	SSR1		Solid State Relay	S5N-225HV	Turning on and off the IR Lamp (H1).
4	SSR2		Solid State Relay	S5N-225HV	Turning on and off the IR Lamp (H2).

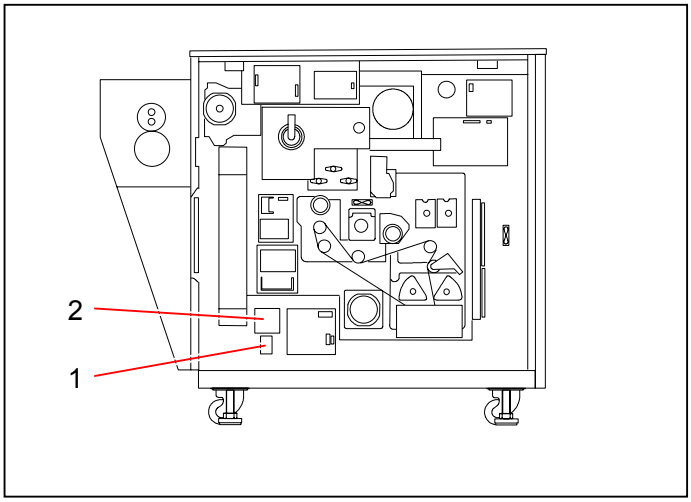
(Inside)



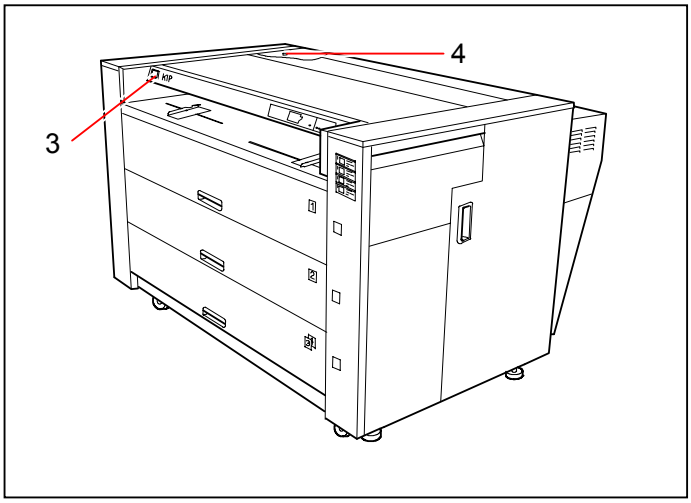
Item	Symbol	Signal name	Name	Type	Function
5	H3		Heater (Dehumidify Heater)		Dehumidifying the roll media in the Roll 3 (Left side) 15W (3.5 kilo ohm)
6	H4		Heater (Dehumidify Heater)		Dehumidifying the roll media in the Roll 3 (Right side) 15W (3.5 kilo ohm)
7	H5		Heater (Dehumidify Heater)		Dehumidifying the roll media in the Roll 4 (Left side) 15W (3.5 kilo ohm)
8	H6		Heater (Dehumidify Heater)		Dehumidifying the roll media in the Roll 4 (Right side) 15W (3.5 kilo ohm)
9	H7		Heater (Dehumidify Heater)		Dehumidifying the roll media in the Roll 2 15W (38 ohm)
10	H8		Heater (Dehumidify Heater)		Dehumidifying the roll media in the Roll 1 15W (38 ohm)

4.2.9 Terminal Block, Switches, Breaker & Counters

(Left side)

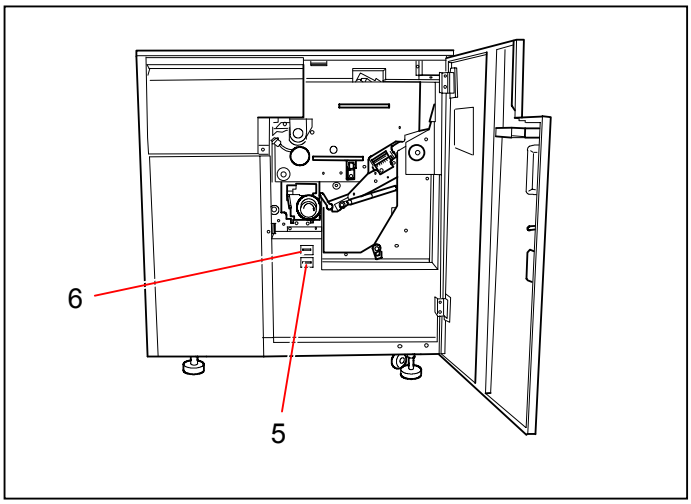


Item	Symbol	Signal name	Name	Type	Function
1	TB1		Terminal Block	UF1005-30A-2P	
2	CB1		Circuit Protector	IEG-6-11-62-20A-M	



Item	Symbol	Signal name	Name	Type	Function
3	S1		Power Supply Switch (Main Switch)	AJ8R2004ZZC01	Turning on the printer.
4	S2		Power Supply Switch (Dehumidify Heater Switch)	SDDJE1	Turning on the Dehumidify Heaters.

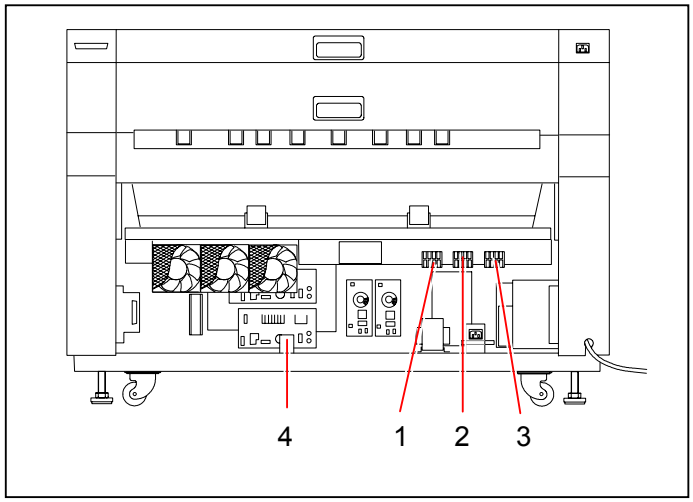
(Right side)



Item	Symbol	Signal name	Name	Type	Function
5	CNT B	CPY_CNT	Electromagnetic Counter 2 (Counter B)	E760PD10DC 24-008	Counting the number of prints. (Counting unit is changeable in the Service Mode.) It has 3 pins connector.
6	CNT A	LNG_CNT	Electromagnetic Counter 1 (Counter A)	E760PD10DC 24-008	Counting the length of total print. (Counting unit is changeable in the Service Mode.) It has 2 pins connector.

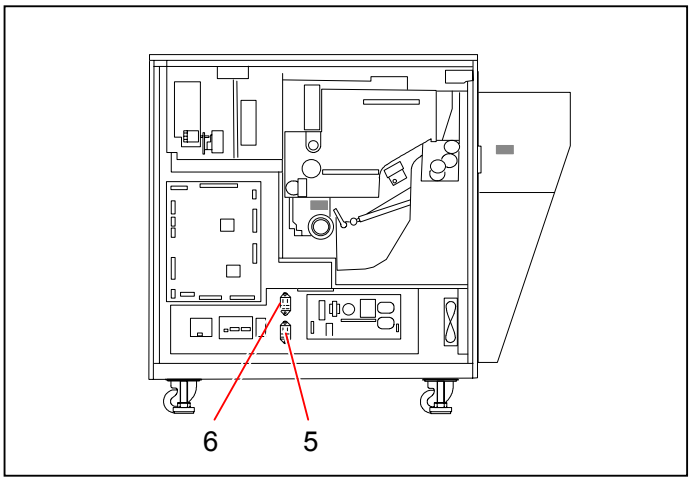
4.2.10 Relays

(Rear side)



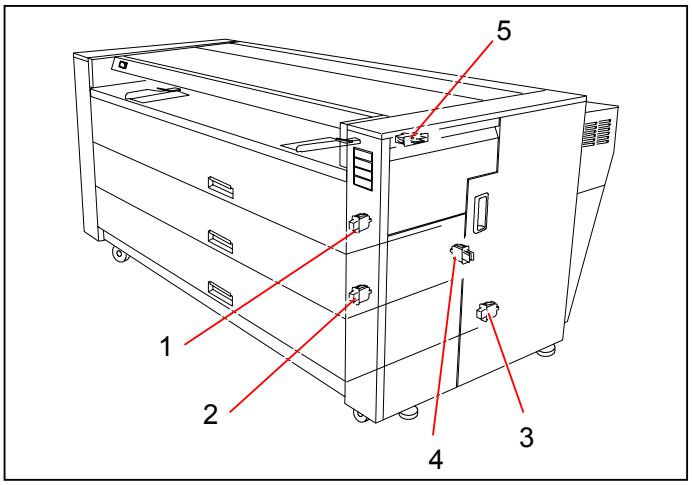
Item	Symbol	Signal name	Name	Type	Function
1	RY1		Relay (Relay 1)	G7L-2A-BUB AC200-240	Power is supplied to DCP1, DCP2 and the Filter PCB (PW2215) of H2. It is not shut off even if the Interlock is open.
2	RY2		Relay (Relay 2)	G7L-2A-BUB DC24	Power is supplied to the Filter PCB (PW2215) of H1. It is shut off if the Interlock is open.
3	RY3		Relay (Relay 3)	G7L-2A-BUB DC24	Power is supplied from the Filter PCB (PW2215) to H2. It is shut off if the Interlock is open.
4	RY6		Relay (Relay 6)	G7L-2A-BUB DC24	Power is supplied to DCP3 and DCP4. It is shut off if the Interlock or any Roll Deck is open.

(Right side)

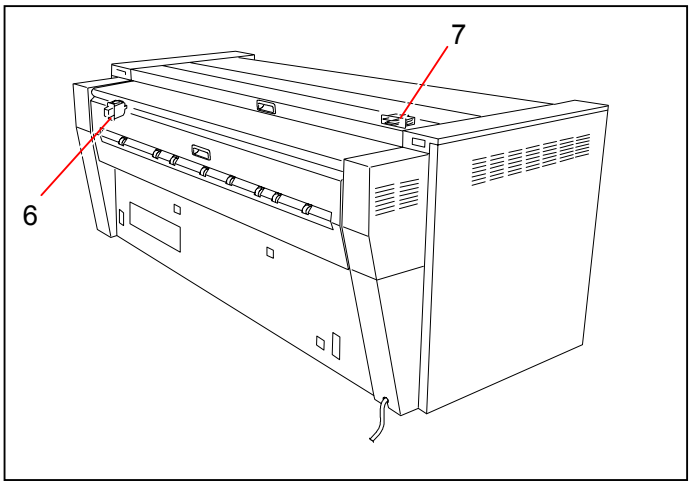


Item	Symbol	Signal name	Name	Type	Function
5	RY4		Relay (Relay 4)	JC2aF-TM-DC24V	DC power is supplied to the following parts. It is shut off if the Interlock or any Roll Deck is open. (1) HVP1, 3, 4 & 6 (2) BIAS (3) M10 (4) BL4, 5, 6 & 7 (5) FM3 & FM4 (6) Pre-transfer LED
6	RY5		Relay (Relay 5)	JC2aF-TM-DC24V	DC Power is supplied to the following parts. It is shut off if the Interlock is open. (1) HVP5 (2) M6 & 7 (3) MC1, 2, 3, 4, 5, 6, 7, 9 & 10 (4) BL1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 & 19 (5) SL1, 2, 3 & 4 (6) CNT1 & 2 (7) Surface Potential Sensor PCB (8) Eraser PCB C & I (Separation Lamp)

4.2.11 Micro Switches

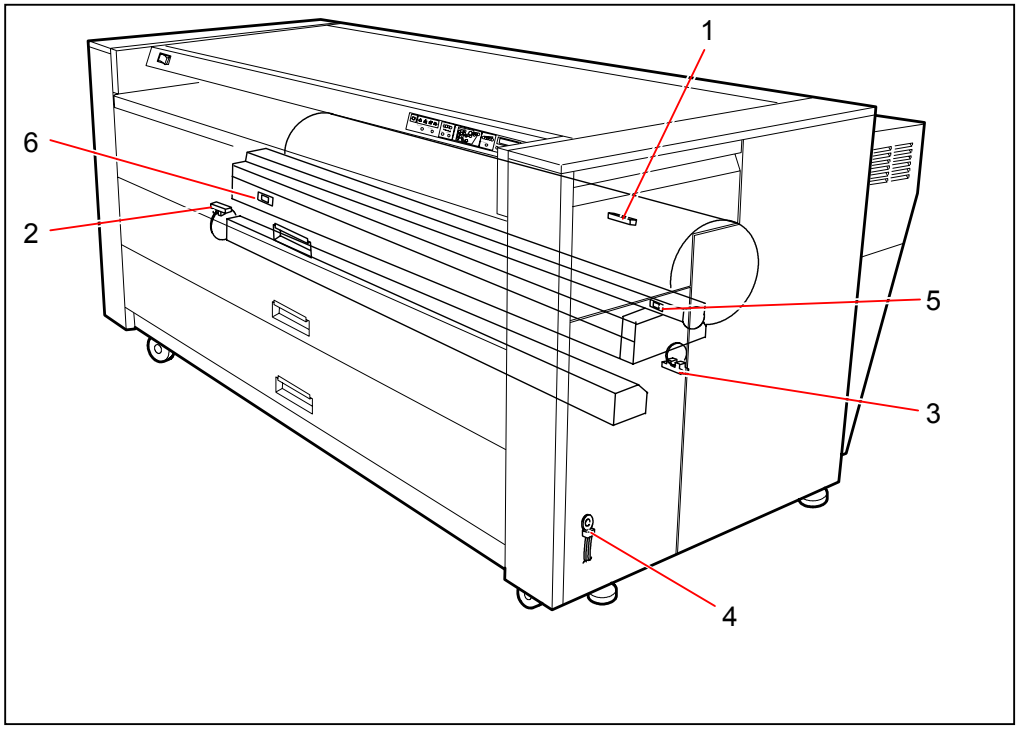


Item	Symbol	Signal name	Name	Type	Function
1	DS1	DECK_SW1	Door Switch (Roll Deck Switch 1)	FA3L-BJAB	When this is open, RY4 and RY6 are opened.
2	DS2	DECK_SW2	Door Switch (Roll Deck Switch 2)	FA3L-BJAB	When this is open, RY4 and RY6 are opened.
3	DS3	DECK_SW3	Door Switch (Roll Deck Switch 3)	FA3L-BJAB	When this is open, RY4 and RY6 are opened.
4	DS7	RIGHT_SW1	Door Switch (Right Side Door Switch)	FB3L-BA12	When this is open, RY2, RY3, RY4, RY5 and RY6 are opened.
5	DS8	RIGHT_SW2	Door Switch (Toner Cover Switch)	FB3L-BA12	When this is open, powers for Toner Supply Motor 1 (M7), Toner Supply Motor 2 (M6), Toner Supply Clutch (MC11) and Transmission PCB (PW7750) are shut off.

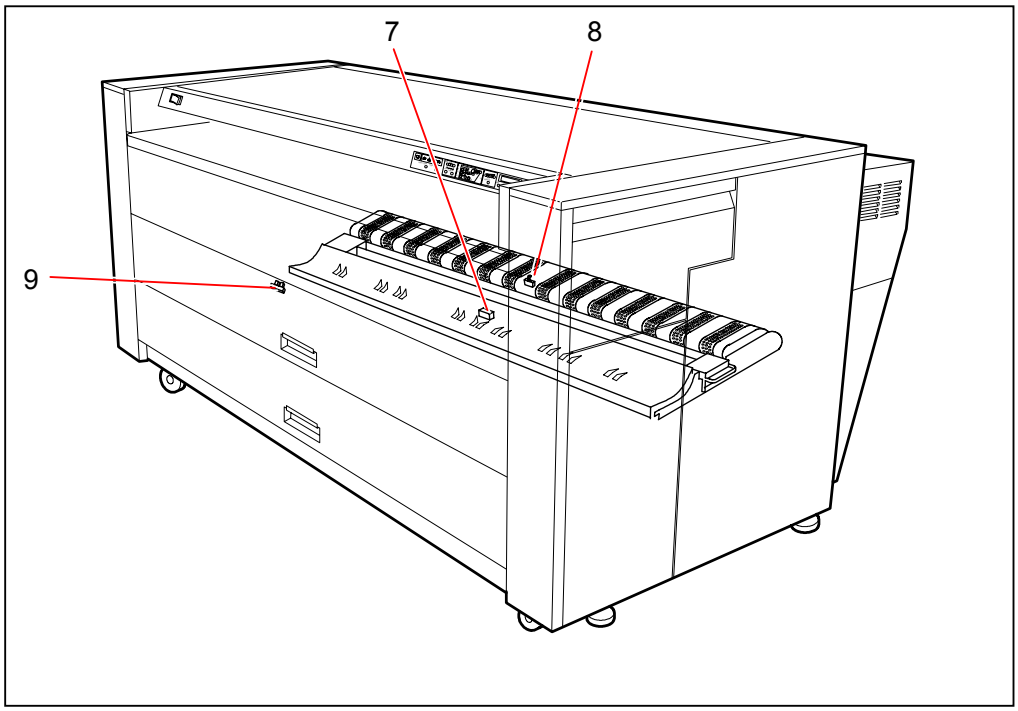


Item	Symbol	Signal name	Name	Type	Function
6	DS5	EXIT_SW	Door Switch (Exit Cover Switch)	FA3L-BJAB	When this is open, RY2, RY3, RY4, RY5 and RY6 are opened.
7	DS6	UPPER_SW	Door Switch (Top Rear Cover Switch)	FA3L-BJAB	When this is open, RY2, RY3, RY4, RY5 and RY6 are opened.

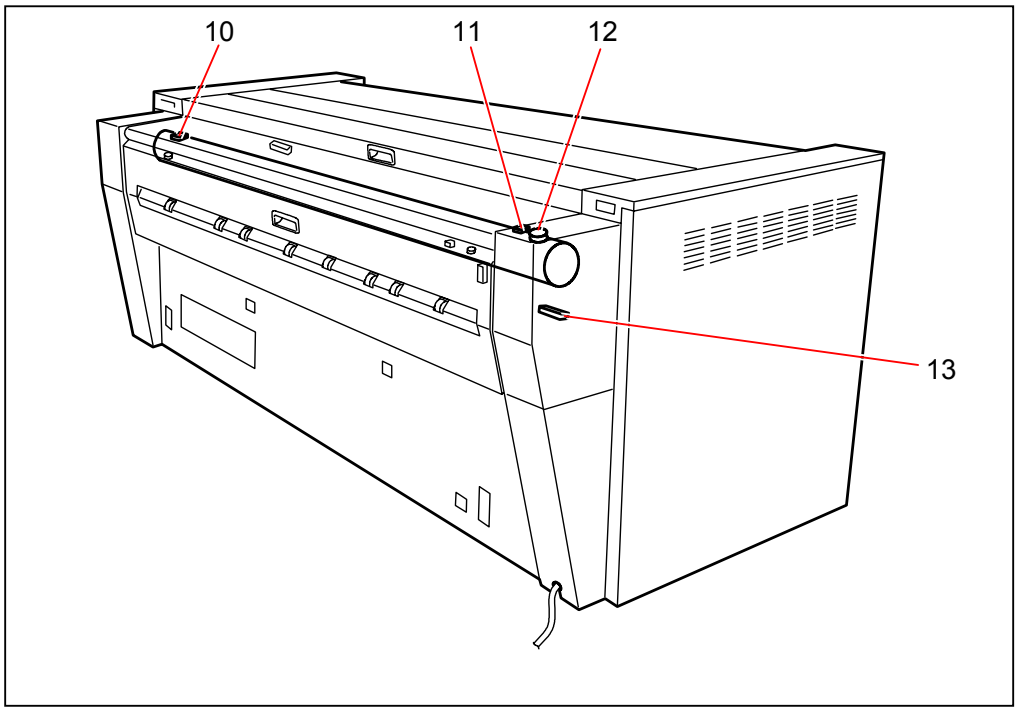
4.2.12 Paper Sensors, Thermistor, Thermostat, Toner Sensors & SPS



Item	Symbol	Signal name	Name	Type	Function
1	SPS1		Surface Potential Sensor		Detecting the potential of the Drum
2	PH22	CUTHP_O	Cutter Home Position Sensor	PW2285	Detecting the Home Position of the Cutter Blade
3	PH25	DEVE_HP	Photo Interrupter (Developer Unit Position Sensor)	GP3A23	Detecting the position of the Developer Unit (Pressed or released)
4	TH3	M_TEMP	Thermistor	EC2F103A2-30185	Detecting the temperature of machine inside (Developer Bias is controlled variably depending on the temperature detected by this sensor.)
5	TLS1	DEV_TNR1	Toner Sensor (Hopper Toner Sensor)	TS15D20-37	Detecting the existence of the toner in the Hopper
6	TLS2	DEV_TNR2	Toner Sensor (Developer Toner Sensor)	TS15D20-37	Detecting the existence of the toner in the Developer Unit



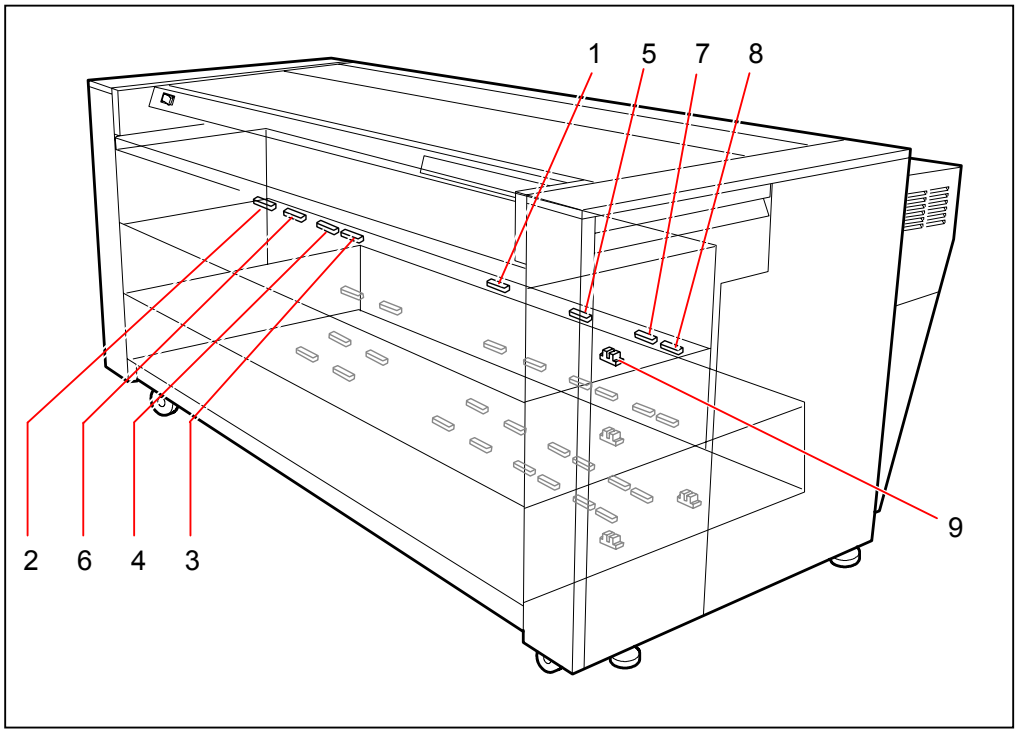
Item	Symbol	Signal name	Name	Type	Function
7	PH12	PA_ENT	Photo Interrupter (Leading Edge Sensor)	GP2A25	When this sensor detects the leading edge, the machine stops transporting the media once. Then, it starts transporting again so that the leading edge and the head of print image should meet with each other.
8	PH18	P_SEPR	Actuator 2 Assy (Separation Sensor)		Detecting the Separation Jam.
9	PH24	PFUNIT_ST	Photo Interrupter (Internal Transportation Unit Set Sensor)	GP3A23	Detecting whether the Internal Transportation Unit is closed or not.



Item	Symbol	Signal name	Name	Type	Function
10	TH1		Thermistor	ES2U1.3B6-20031	Controlling the temperature of the Fuser Roller
11	TH2		Thermistor	ES2U1.3B6-20075	When this Thermistor detects over temperature of fuser, RY2 and RY3 will be shut off before the Thermostat opens.
12	TS1	INT1	Thermostat Assy		Protecting the Fuser from over heating
13	LS2	P_EXIT	Lead Switch (Exit Sensor)	RS-801EA	Detecting the Exit Jam.

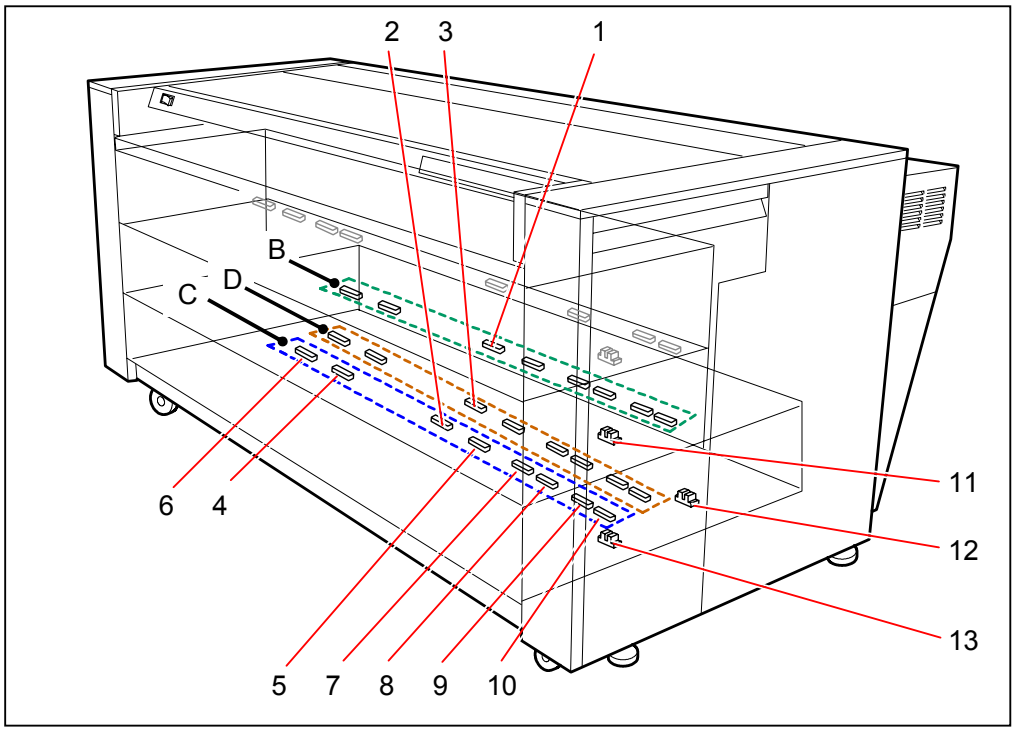
4.2.13 Sensors in Roll Decks

(Roll Deck 1)



Item	Symbol	Signal name	Name	Type	Function
1	PH1	RP_SET1	Photo Interrupter (Roll Set Sensor 1)	GP2A25	Detecting the existence of roll media. Detecting 210mm, 9” & 8.5” roll media also
2	PH5A	SZDATA0	Photo Interrupter (Paper Size Sensor 0)	GP2A25	Detecting 880mm, 890mm & 900mm roll media
3	PH6A	SZDATA1	Photo Interrupter (Paper Size Sensor 1)	GP2A25	Detecting 420mm, 18” and 17” roll media
4	PH7A	SZDATA2	Photo Interrupter (Paper Size Sensor 2)	GP2A25	Detecting 515mm & 22” roll media
5	PH8A	SZDATA3	Photo Interrupter (Paper Size Sensor 3)	GP2A25	Detecting 594mm & 24” roll media
6	PH9A	SZDATA4	Photo Interrupter (Paper Size Sensor 4)	GP2A25	Detecting 728mm & 30” roll media
7	PH10A	SZDATA5	Photo Interrupter (Paper Size Sensor 5)	GP2A25	Detecting 841mm & 34” roll media
8	PH11A	SZDATA6	Photo Interrupter (Paper Size Sensor 6)	GP2A25	Detecting 36” roll media
9	PH13	RF_CLK1	Photo Interrupter (Paper Feed Clock Sensor 1)	GP3A23	Detecting the clock pulse generated by Roll 1 (No pulse : Roll end)

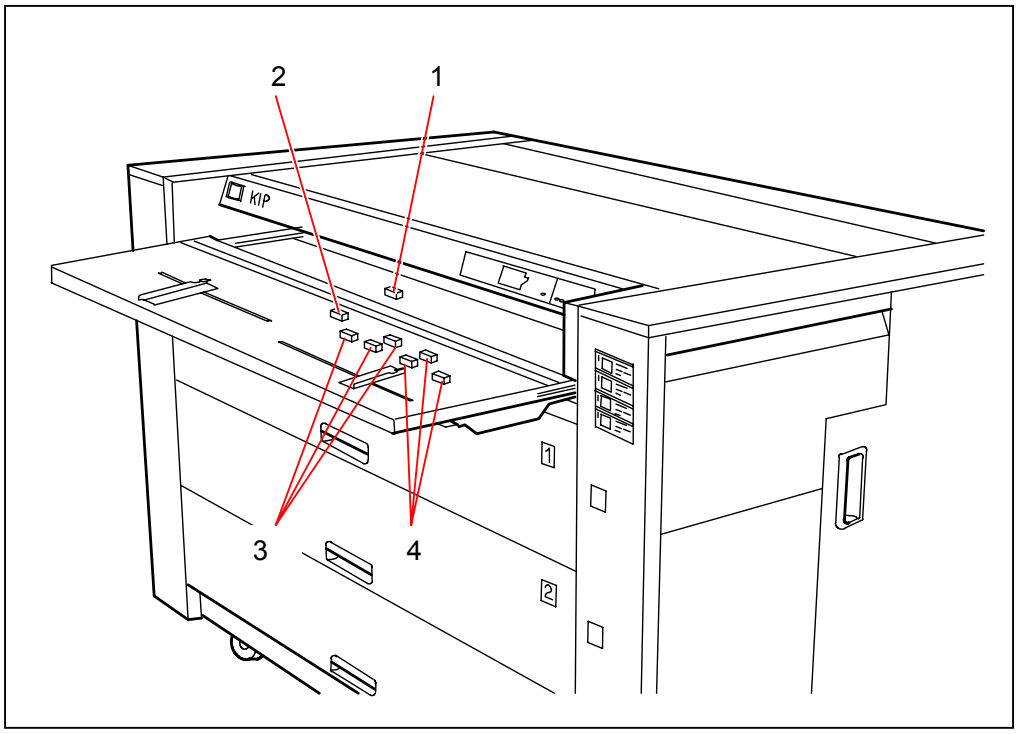
(Roll Decks 2, 3 & 4)



Item	Symbol	Signal name	Name	Type	Function
1	PH2	RP_SET2	Photo Interrupter (Roll Set Sensor 1)	GP2A25	Detecting the existence of roll media. Detecting 210mm, 9” & 8.5” roll media also
2	PH3	RP_SET3	Photo Interrupter (Roll Set Sensor 1)	GP2A25	Detecting the existence of roll media. Detecting 210mm, 9” & 8.5” roll media also
3	PH4	RP_SET4	Photo Interrupter (Roll Set Sensor 1)	GP2A25	Detecting the existence of roll media. Detecting 210mm, 9” & 8.5” roll media also
4	PH5B, C & D	SZDATA0	Photo Interrupter (Paper Size Sensor 0)	GP2A25	Detecting 297mm, 12” & 11” roll media PH5B : Roll Deck 2 PH5C : Roll Deck 3 PH5D : Roll Deck 4
5	PH6B, C & D	SZDATA1	Photo Interrupter (Paper Size Sensor 1)	GP2A25	Detecting 420mm, 18” & 17” roll media PH6B : Roll Deck 2 PH6C : Roll Deck 3 PH6D : Roll Deck 4
6	PH7B, C & D	SZDATA2	Photo Interrupter (Paper Size Sensor 2)	GP2A25	Detecting 515mm & 22” roll media PH7B : Roll Deck 2 PH7C : Roll Deck 3 PH7D : Roll Deck 4
7	PH8B, C & D	SZDATA3	Photo Interrupter (Paper Size Sensor 3)	GP2A25	Detecting 594mm & 24” roll media PH8B : Roll Deck 2 PH8C : Roll Deck 3 PH8D : Roll Deck 4
8	PH9B, C & D	SZDATA4	Photo Interrupter (Paper Size Sensor 4)	GP2A25	Detecting 728mm & 30” roll media PH9B : Roll Deck 2 PH9C : Roll Deck 3 PH9D : Roll Deck 4

Item	Symbol	Signal name	Name	Type	Function
9	PH10B, C & D	SZDATA5	Photo Interrupter (Paper Size Sensor 5)	GP2A25	Detecting 841mm & 34” roll media PH10B : Roll Deck 2 PH10C : Roll Deck 3 PH10D : Roll Deck 4
10	PH11B, C & D	SZDATA6	Photo Interrupter (Paper Size Sensor 6)	GP2A25	Detecting 36” roll media PH11B : Roll Deck 2 PH11C : Roll Deck 3 PH11D : Roll Deck 4
11	PH14	RF_CLK2	Photo Interrupter (Paper Feed Clock Sensor 2)	GP3A23	Detecting the clock pulse generated by Roll 2 (No pulse : Roll end)
12	PH15	RF_CLK3	Photo Interrupter (Paper Feed Clock Sensor 3)	GP3A23	Detecting the clock pulse generated by Roll 3 (No pulse : Roll end)
13	PH16	RF_CLK4	Photo Interrupter (Paper Feed Clock Sensor 4)	GP3A23	Detecting the clock pulse generated by Roll 4 (No pulse : Roll end)

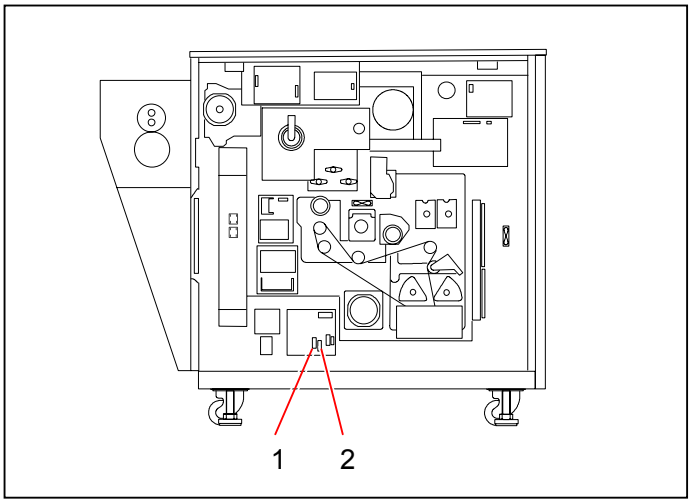
4.2.14 Sensors in Bypass Feeder



Item	Symbol	Signal name	Name	Type	Function
1	PH20	MP_SRT	Photo Interrupter (Bypass Start Sensor)	GP2A11	When you set a large cut sheet media on the Bypass Feeder, it is carried until this sensor detects its leading edge, and then stayed. (Large means 841mm, 30", 34" and 36".)
2	PH31		Photo Interrupter (Cut Sheet Set Sensor)	GP2A25 (GP2A28)	Detecting the existence of cut sheet media on the Bypass Feeder It also detects 8.5".
3	PH32, 33 & 34	T_SIZE0	Photo Interrupter (Cut Sheet Size Sensor 0)	GP2A25 (GP2A28)	Detecting the size of the cut sheet media PH32 : 297mm & 9" PH33 : 420mm & 17" PH34 : 18"
4	PH35, 36 & 37	T_SIZE1	Photo Interrupter (Cut Sheet Size Sensor 1)	GP2A25 (GP2A28)	Detecting the size of the cut sheet media PH35 : 22" PH36 : 594mm & 24" PH37 : 841mm, 30", 34" & 36"

4.2.15 Fuses

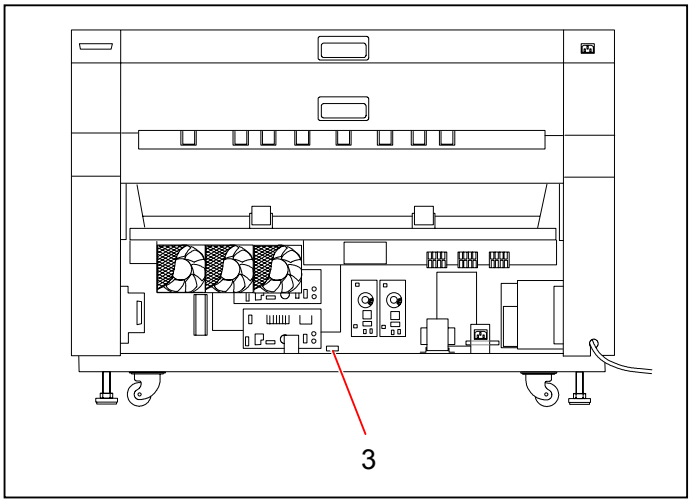
(Left side)



F101 and F102 are on the AC Circuit Board B (PW4210).

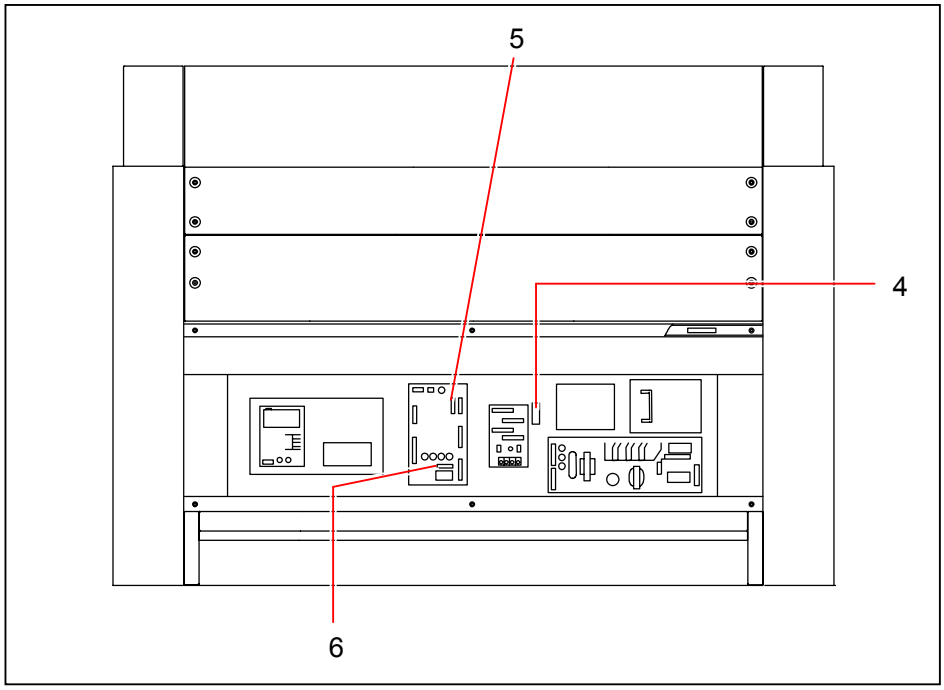
Item	Symbol	Name	Rate	Type	Caution for replacement
1	F101	Fuse	250V / 2A	218002	If you replace the fuse (F101), make sure to use the following specified one. Manufacturer : LITTEL FUSE INC. Type : 218002 (250V / 2A) **CAUTION : DOUBLE POLE / NEUTRAL FUSING**
2	F102	Fuse	250V / 2A	218002	If you replace the fuse (F102), make sure to use the following specified one. Manufacturer : LITTEL FUSE INC. Type : 218002 (250V / 2A) **CAUTION : DOUBLE POLE / NEUTRAL FUSING**

(Rear side)



Item	Symbol	Name	Rate	Type	Caution for replacement
3	F1	Fuse	250V / 2A	218002	If you replace the fuse (F1), make sure to use the following specified one. Manufacturer : LITTEL FUSE INC. Type : 218002 (250V / 2A)

(Seen from the top)



F551 and F552 are on the DC Driver PCB (PW7755).

Item	Symbol	Name	Rate	Type	Caution for replacement
4	F2	Fuse	250V / 5A	215005	If you replace the fuse (F1), make sure to use the following specified one. Manufacturer : LITTEL FUSE INC. Type : 215005 (250V / 5A)
5	F551	Fuse	250V / 0.5A	215.500	
6	F552	Fuse	250V / 0.25A	215.250	

4.3 Checking & Adjustment of Analog Output from HVP & BIAS

4.3.1 Situations necessary to check the analog output

It is necessary to check the analog output from HVP & BIAS after replacing the following parts.

1. DC Controller PCB
2. DC Power Supply 1 (DCP1)
3. DC Power Supply 2 (DCP2)
4. Concerning HVP or BIAS itself

Please check the analog output of the following part, and please adjust if the output is out of the specified range.
Each “Reference page” in the list shows how to check and adjust each item.

Check Item	Reference page
HVP1 (For Image Corona)	4-35
HVP3 (For Transfer Corona)	4-37
HVP4 (For Separation Corona)	4-40
HVP5 (For Cleaning Roller)	4-43
HVP6 (For Grid Plate)	4-46
BIAS (For Developer Unit)	4-50

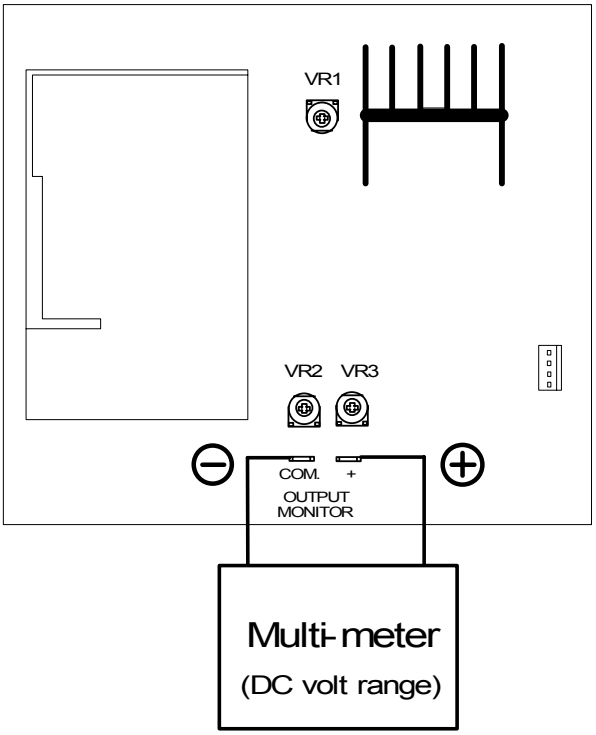
4.3.2 Checking & Adjustment of HVP1 (For Image Corona)

The standard value of current supplied from the HVP1 is **-2.0mA +/-0.05mA**.

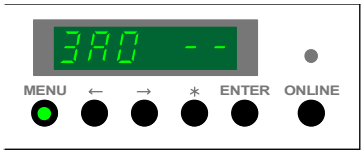
Check and adjust the HVP1 in the following way.

1) Remove the Drum from the machine for the safety.
   You may damage the Drum if you do not remove!

2) You need to connect the multi-meter to “OUTPUT MONITOR” pins on the HVP1.
   Connect the “+” cable of the multi-meter to the “+” pin, and connect the “-” one to the “COM.” pin.
   And then, select the DC volt range on the multi-meter.

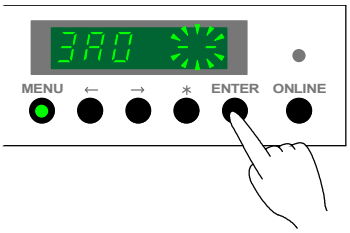


3) Enter the Service Mode, select the Function Checking Mode (Sub Mode No.3), and then select the Signal Code “A0” (HV1 : Image Corona Control Signal).

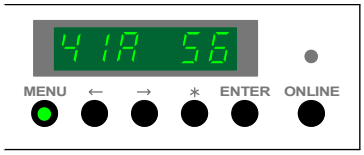


4) Press the [ENTER] Key to make the HVP1 output the high voltage.
Check the voltage with multi-meter.
If the multimeter shows “2.0V”, it means “-2.0mA”.
(Replace “+” with “-“, and replace “V” with “mA”.)
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of current is **-2.0mA +/-0.05mA**.



5) If necessary, adjust the current of HVP1 so that it should be **-2.0mA +-/0.05mA**.
To adjust the value of HVP1 current, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.1A (Intensity of current on the Corona Wire [Image Corona]).



Refer to [8.1.5.3 Operation (Example of usage)] on the page 8-34 as for the way to change the setting value.

Refer to [(19) Intensity of current on the Corona Wire (Image Corona)] on the page 8-61 as for the contents of the setting.

⚠ CAUTION

Do not move any VR on the HVP1 positively as they have been adjusted in the factory!

4.3.3 Checking & Adjustment of HVP3 (For Transfer Corona)

The standard values of current supplied from the HVP3 are as follows.

For plain paper	**1.4mA +/-0.02mA**
For tracing paper	**1.4mA +/-0.02mA**
For film	**1.4mA +/-0.02mA**

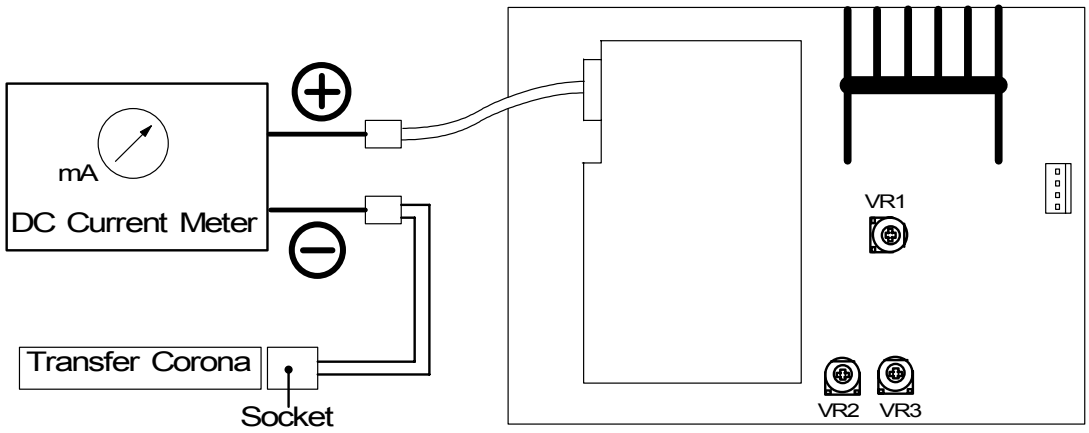
It is impossible to check the intensity of Transfer Current supplied from the HVP3 with a multi-meter. If you have a DC Current Meter and connect it directly to the HVP3, however, it is possible to check.

> **⚠ CAUTION**
>
> It is very dangerous to check the Transfer Current because you need to connect the DC Current Meter directly to the HVP3.
> For the safety, put a thick insulation pad such as urethane form under the DC Current Meter, and also use a high voltage lead wire.

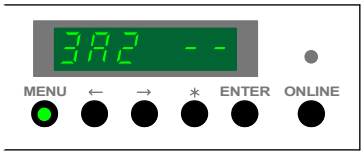
Check and adjust the HVP3 in the following way.

1) Remove the Drum from the machine for the safety.
   You may damage the Drum if you do not remove!

2) Disconnect the connector between HVP3 and Socket for the Transfer / Separation Corona. Connect the "+" cable of the DC Current Meter to the cable from the HVP3, and connect "-" one to the cable from the Socket.
   Put a Urethane Pad under the DC Current Meter!



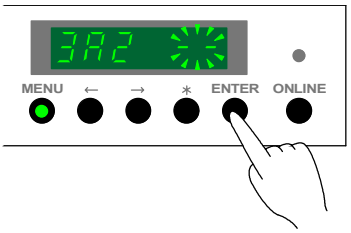
3) Enter the Service Mode, select the Function Checking Mode (Sub Mode No.3), and then select the Signal Code "A2" (HV_TR : Transfer Corona Control Signal).



4) Press the [ENTER] Key to make the HVP3 output the high voltage.
Check the voltage with DC Current Meter.
As the Transfer Current is decided separately for plain paper, tracing paper and film, please check all. (See the following NOTE.)
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard values of Transfer Current are as follows.

For plain paper ..... **1.4mA +/-0.02mA**
For tracing paper ..... **1.4mA +/-0.02mA**
For film ..... **1.4mA +/-0.02mA**



⚠ NOTE

If you output the high voltage in the Service Mode 3-A2, the HVP3 will output Transfer Current corresponding to the type of paper you used at the latest opportunity. (If you used the plain paper last time, HVP3 outputs Transfer Current which corresponds to the plain paper.)
This correspondence can not be changed even if you change the Material Selector in the Roll Deck.

Change the correspondence by the following operation.

(1) Select the Adjustment Mode 0 (Sub Mode No.4), and then select any of Item No.1C, 1d and 1E of which Transfer Current you would like to check next.

1C : Intensity of Current (Transfer Corona : PPC)
1d : Intensity of Current (Transfer Corona : Tracing)
1E : Intensity of Current (Transfer Corona : Film)

(2) Change the setting value and decide it in the selected Item No.
By deciding the setting value, you can change the correspondence of Transfer Current that is outputted in the Service Mode 3-A1.

(3) Select the Service Mode 3-A2.
Make the HVP3 output, and check the Transfer Current.

5) If necessary, adjust the Transfer Current of HVP3 so that it should be **1.4mA +/-0.02mA**.
To adjust the Transfer Current, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.1C, 1d and 1E.

1C : Intensity of Current (Transfer Corona : PPC)
1d : Intensity of Current (Transfer Corona : Tracing)
1E : Intensity of Current (Transfer Corona : Film)

Refer to [8.1.5.3 Operation (Example of usage)] on the page 8-34 as for the way to change the setting value.

Refer to [(21) Intensity of current on the Corona Wire (Transfer Corona)] on the page 8-62 as for the contents of the setting.

⚠ CAUTION

Do not move any VR on the HVP3 positively as they have been adjusted in the factory!

4.3.4 Checking & Adjustment of HVP4 (For Separation Corona)

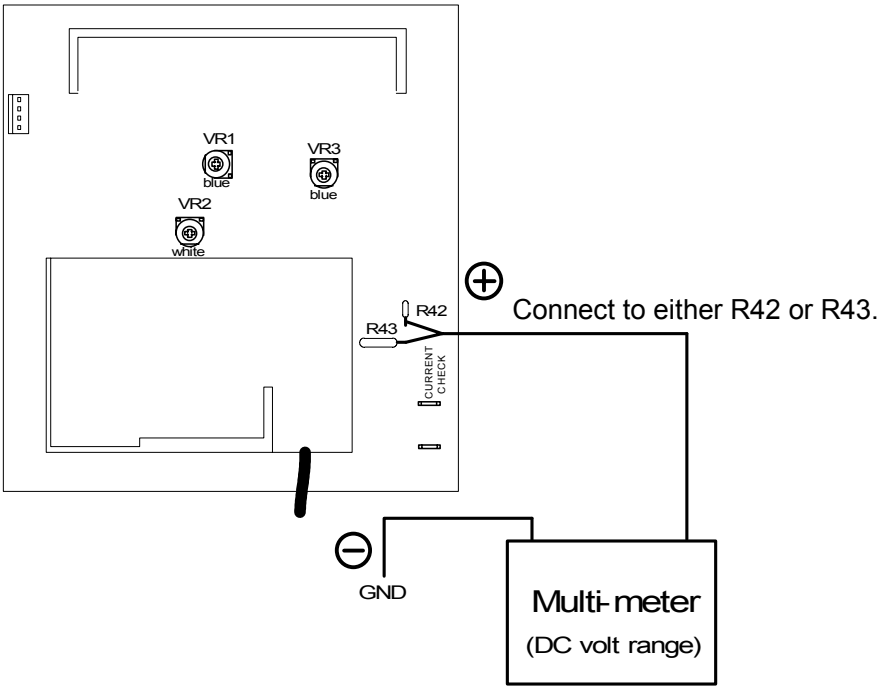
The standard values of AC Component and DC Component supplied from HVP4 are as follows.

DC Component : Plain paper ..... **-250V +/-3V**
Tracing paper ..... **-300V +/-3V**
Film ..... **-10V +/-3V**

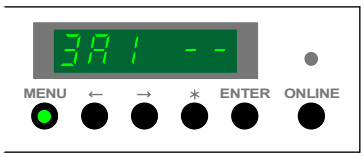
Check and adjust the HVP4 in the following way.

1) Remove the Drum from the machine for the safety.
You may damage the Drum if you do not remove!

2) To check the **DC Component**, connect the "+" cable of multi-meter to "R42" or "R43" (either one is available), and connect the "-" one to the ground.
And then, select the DC volt range on the multi-meter.



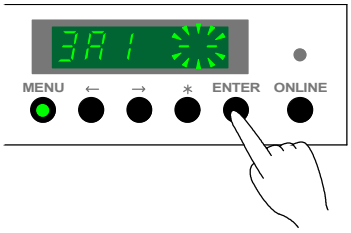
3) Enter the Service Mode, select the Function Checking Mode (Sub Mode No.3), and then select the Signal Code "A1" (HV_AC : Separation Corona Control Signal).



4) Press the [ENTER] KEY to make the HVP4 output the high voltage.
Check the voltage with multi-meter.
As the DC Component is decided separately for plain paper, tracing paper and film, please check all. (See the following NOTE.)
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of DC Component for each type of paper is as follow.

Plain paper ..... **-250V +/-3V**
Tracing paper ..... **-300V +/-3V**
Film ..... **-10V +/-3V**



⚠ NOTE

If you output the high voltage in the Service Mode 3-A1, the HVP4 will output DC Component corresponding to the type of paper you used at the latest opportunity. (If you used the plain paper last time, HVP4 outputs DC Component which corresponds to the plain paper.)
This correspondence can not be changed even if you change the Material Selector in the Roll Deck.

Change the correspondence by the following operation.

(1) Select the Adjustment Mode 0 (Sub Mode No.4), and then select any of Item No.1F, 20 and 21 of which DC Component you would like to check next.

1F : DC Component (Separation Corona : PPC)
20 : DC Component (Separation Corona : Tracing)
21 : DC Component (Separation Corona : Film)

(2) Change the setting value and decide it in the selected Item No.
By deciding the setting value, you can change the correspondence of DC Component that is outputted in the Service Mode 3-A1.

(3) Select the Service Mode 3-A1.
Make the HVP4 output, and check the DC Component.

5) If necessary, adjust the DC Component so that they should satisfy the standard written on the former page.
To adjust the DC Component, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.1F, 20 and 21.

1F : DC Component (Separation Corona : PPC)
20 : DC Component (Separation Corona : Tracing)
21 : DC Component (Separation Corona : Film)

Refer to [8.1.5.3 Operation (Example of usage)] on the page 8-34 as for the way to change the setting value.

Refer to [(22) DC component (Separation Corona)] on the page 8-62 as for the contents of the setting.

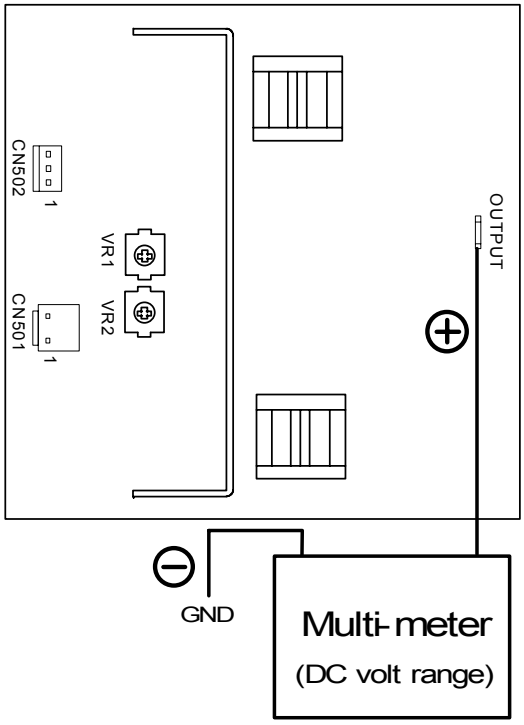
4.3.5 Checking & Adjustment of HVP5 (For Cleaning Roller)

The standard value of positive Cleaning Roller Bias and negative one supplied from the HVP5 are as follows.

Positive Cleaning Roller Bias ..... **+800V +/-3V**
Negative Cleaning Roller Bias ..... **-500V +/-3V**

Check and adjust the HVP5 in the following way.

1) Connect the "+" cable of the multi-meter to "OUTPUT" pin on the HVP5, and connect the "-" one to the ground.
And then, select the DC volt range on the multi-meter.



2) Output both the positive Cleaning Roller Bias (applied during Print Cycle) and the negative one (applied during Toner Collection Process).
Check the voltage with multi-meter.
(Refer to the following NOTE for the way to output both Bias.)

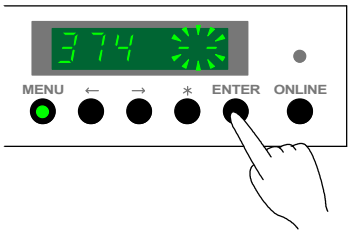
The standard value of positive Cleaning Roller Bias and negative one are as follows.

Positive Cleaning Roller Bias ..... **+800V +/-3V**
Negative Cleaning Roller Bias ..... **-500V +/-3V**

⚠ NOTE

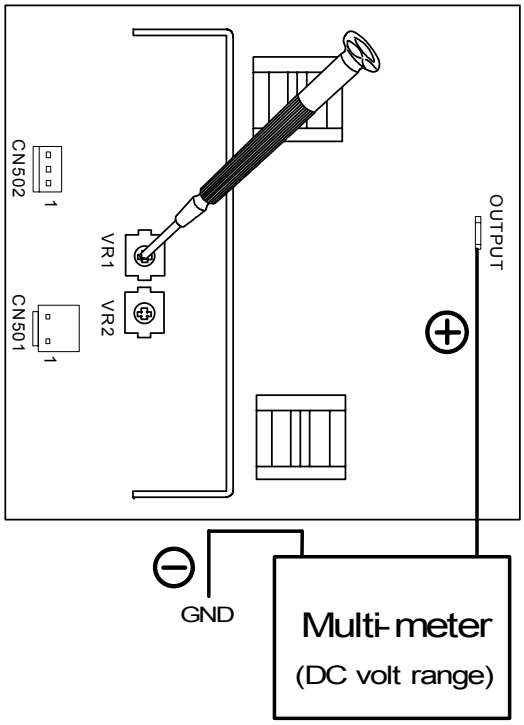
The polarity of Cleaning Roller Bias is “positive” normally.

1. To output the positive Cleaning Roller Bias alone, enter the Service Mode, select the Function Checking Mode (Sub Mode No.3), and then select the Signal Code “74” (HV5 : Cleaning Roller Bias Control Signal). Output the positive Bias pressing the [ENTER] Key.

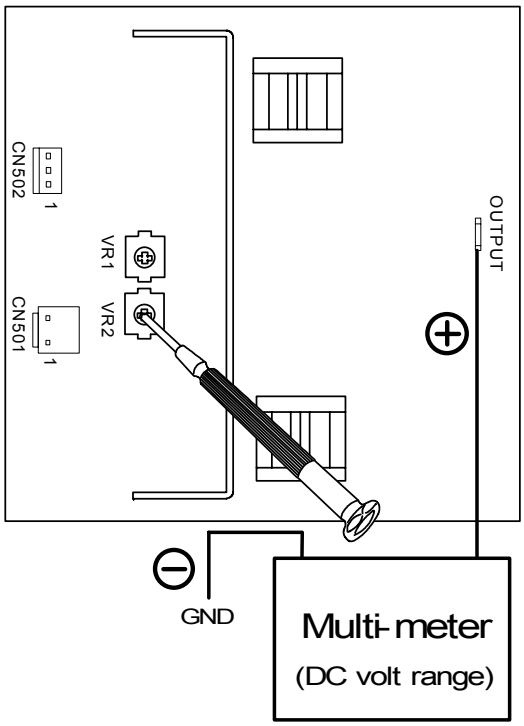


2. You can not output the negative Cleaning Roller Bias alone in the Service Mode because there is no way to switch the polarity on purpose.
Therefore, please check the voltage taking a Test Print.
Negative Bias will be outputted when the printer is going to stop after Test Print.

3) If necessary, adjust the negative Cleaning Roller Bias so that it should be **-500V +/-3V**.
Rotate the VR1 on the HVP5 with a screwdriver to adjust the negative Cleaning Roller Bias.



4) If necessary, adjust the positive Cleaning Roller Bias so that it should be **+800V +/-3V**.
Rotate the VR2 on the HVP5 with a screwdriver to change the positive Cleaning Roller Bias.

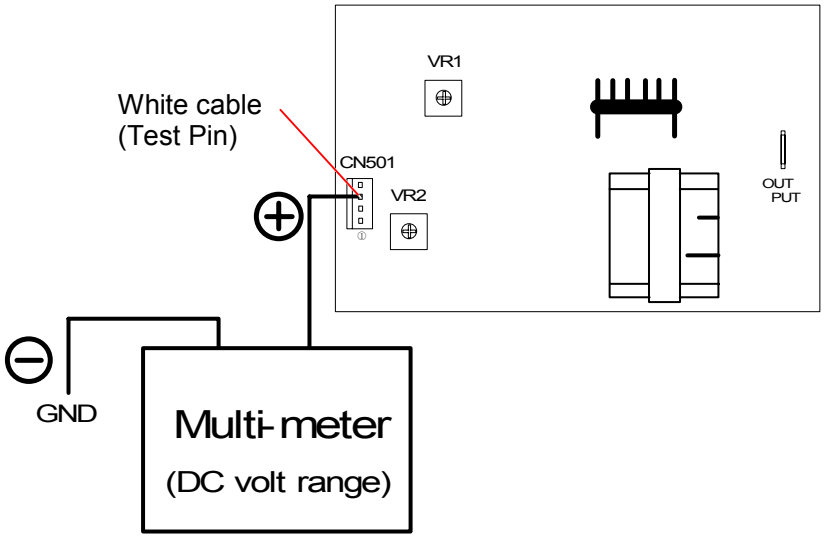


4.3.6 Checking & Adjustment of HVP6 (For Grid Plate of Image Corona)

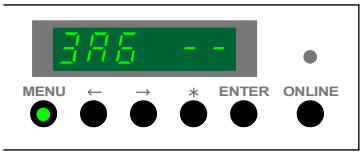
The standard value of voltage supplied from the HVP6 is **-780V +/-20V (About 12.2V on the Test Pin)**.
Check and adjust the HVP6 in the following way.

1) Remove the Drum from the machine for the safety.
   You may damage the Drum if you do not remove!

2) There is a connector “CN501” on the HVP6.
   Connect the “+” cable of the multi-meter to the white cable (Test Pin) which is 2nd cable from the top of CN501.
   Connect the “-” cable to the ground.
   And then, select the DC volt range on the multi-meter.

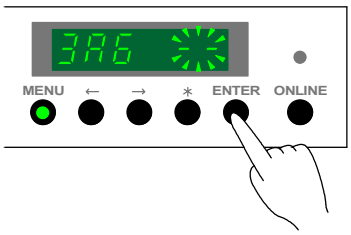


3) Enter the Service Mode, select the Function Checking Mode (Sub Mode No.3), and then select the Signal Code “A6” (HV6 : Grid Bias Control Signal).



4) Press the [ENTER] Key to make the HVP6 output the high voltage.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value on the Test Pin is **about 12.2V**.



5) If necessary, adjust the voltage on the Test Pin so that it should be **about 12.2V**.
To adjust the voltage on the Test Pin, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.1b (Intensity of current on the Grid Plate [Image Corona]).

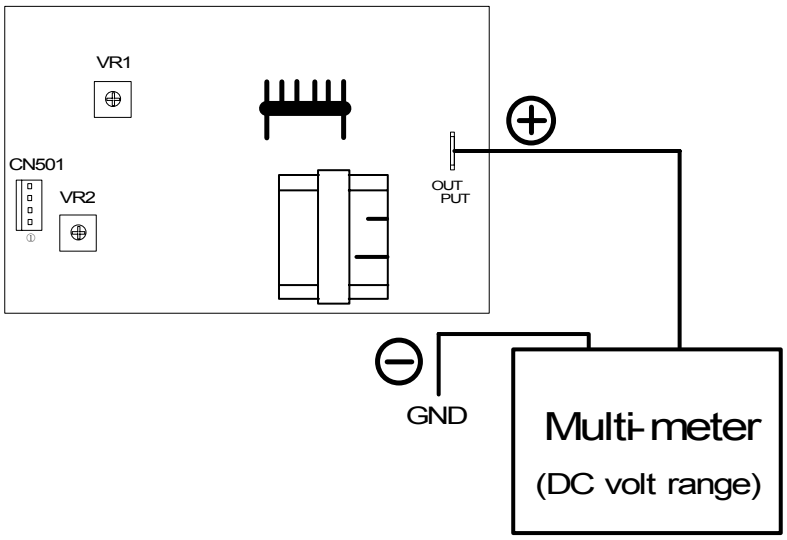
Refer to [8.1.5.3 Operation (Example of usage)] on the page 8-34 as for the way to change the setting value.

Refer to [(20) Intensity of current on the Grid Plate (Image Corona)] on the page 8-61 as for the contents of the setting.

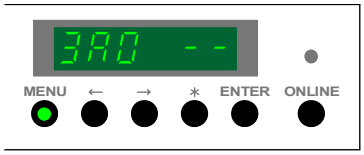
⚠ CAUTION

Do not move any VR on the HVP6 positively as they have been adjusted in the factory!

6) Confirm the actual voltage supplied from the “OUTPUT” Pin on the HVP6 after the adjustment.
To confirm it, connect the “+” cable of the multi-meter to “OUTPUT” and connect the “-“ one to the ground.
And then, select the DC volt range on the multi-meter.



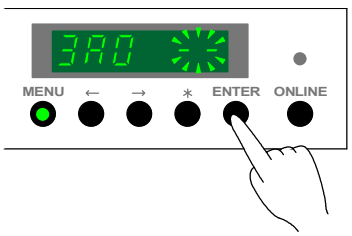
7) Select the Function Checking Mode (Sub Mode No.3), and then select the Signal Code **“A0” (HV1 : Image Corona Control Signal)**.



> **⚠ NOTE**
>
> Do not select the Signal Code “A6” (Intensity of current on the Grid Plate [Image Corona]) this time because it can output only the analog voltage but the high voltage is not supplied from “OUTPUT” to the Grid Plate.
> If you select “A0” and output the high voltage to the Image Corona Wire, the high voltage is supplied to the Grid Plate also.

8) Press the [ENTER] Key to make the HVP1 output the high voltage.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of output voltage on “OUTPUT” is **-780V +/-20V**.



9) If the output voltage does not satisfy -780V +/-20V, re-adjust it in the Service Mode 4-1b.

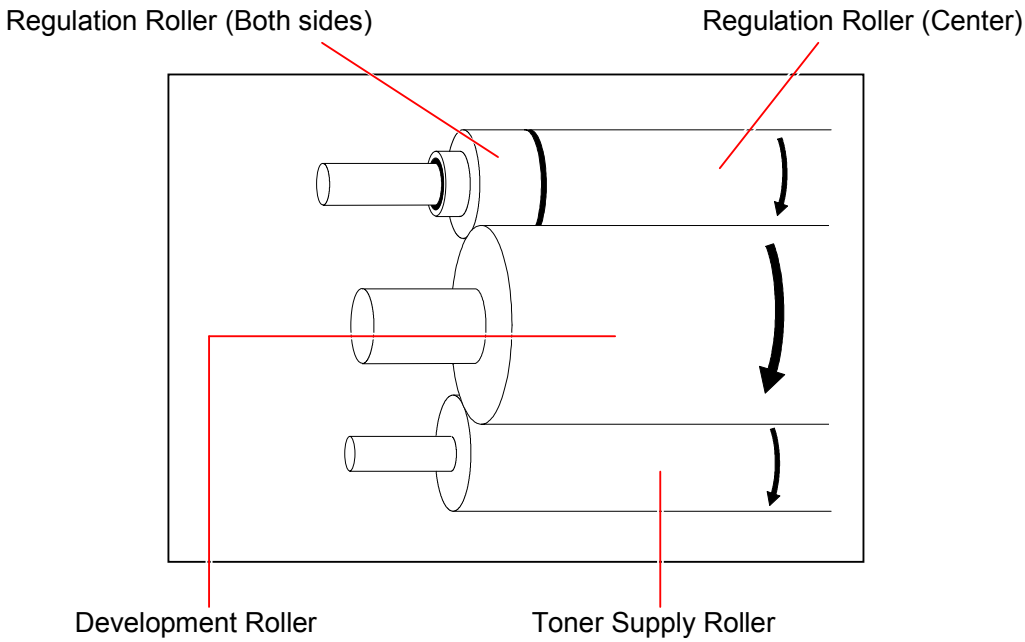
4.3.7 Checking & Adjustment of BIAS (For Developer Unit)

Each roller in the Developer Unit is supplied with a voltage independently during the Print Cycle.
These voltages supplied during the Print Cycle are called “Negative Developer Bias”.
The following list shows each value of “Negative Developer Bias”.

Supplied to ;	Voltage (Against the ground)	Voltage (Against the voltage of Development Roller)	Output Pin on the BIAS	Adjustment VR on the BIAS
Development Roller	-250V +/-3V	-	Output 2	- (Service Mode)
Toner Supply Roller	-	-500 +/-3V	Output 1	VR8
Regulation Roller (Center)	-	-100V +/-3V	Output 3	VR6
Regulation Roller (Both sides)	-	+365V +/-3V	Output 4	VR4

Also, each roller is supplied with a voltage independently during the Toner Collection Process, which is different from the voltage supplied during the Print Cycle.
These voltages supplied during the Toner Collection Process are called “Positive Developer Bias”.
The following list shows each value of “Positive Developer Bias”.

Supplied to ;	Voltage (Against the ground)	Voltage (Against the voltage of Development Roller)	Supplied from ; (Output Pin on the BIAS)	Adjustment VR (VR on the BIAS)
Development Roller	+350V +/-3V	-	Output 2	VR1
Toner Supply Roller	-	-340V +/-3V	Output 1	VR7
Regulation Roller (Center)	-	0V +/-3V	Output 3	VR5
Regulation Roller (Both sides)	-	+120V +/-5V	Output 4	VR3

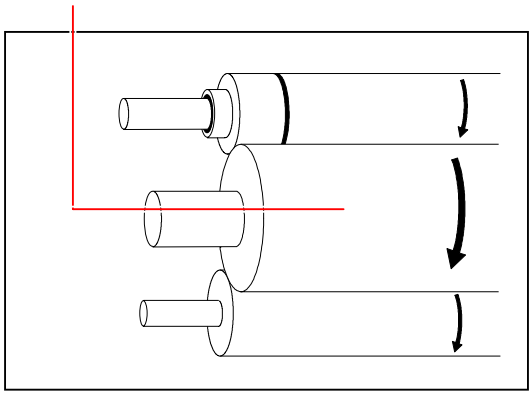


4.3.7.1 Negative Developer Bias adjustment (for Print Cycle)

(1) Negative Developer Bias for Development Roller

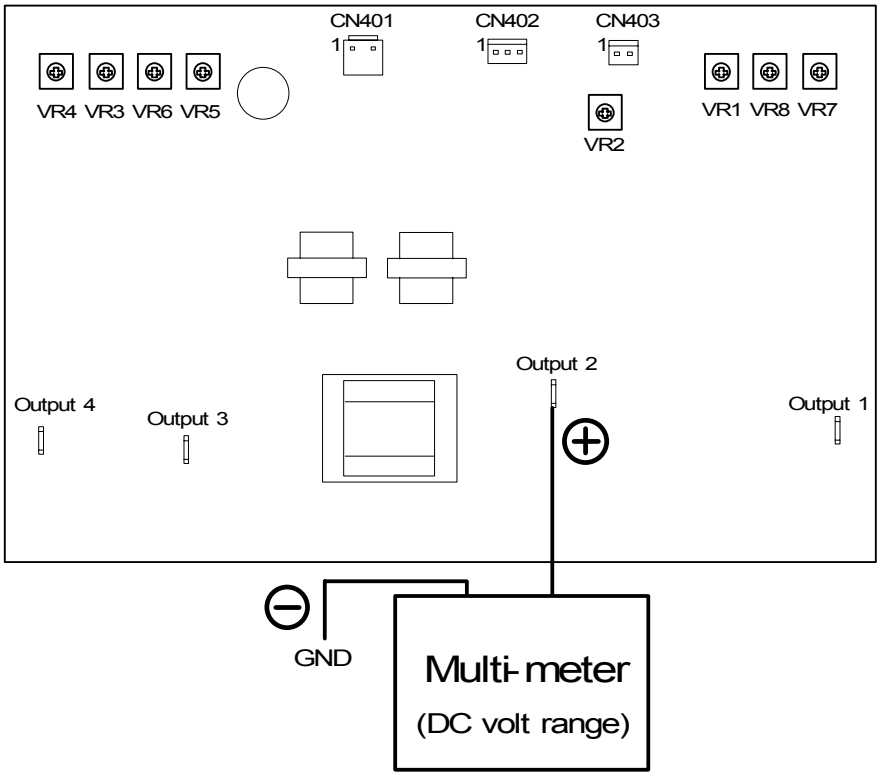
The standard value of Negative Developer Bias supplied to the Development Roller is **-250V +/-3V against the ground**.

Development Roller

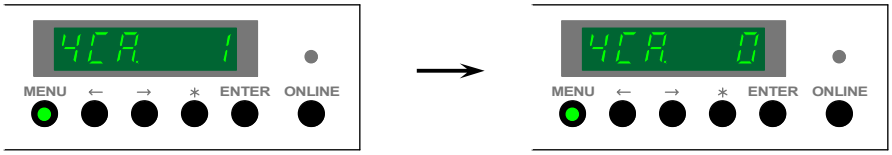


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 2" on the BIAS, and connect the "-" one to the ground.
And then, select the DC volt range on the multi-meter.



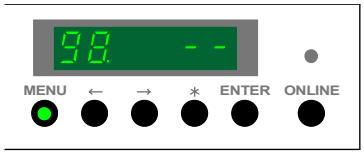
2) Enter the Service Mode, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.CA (Constant / Variable control of Developer Bias).
The setting value will be “1” (Variable control) in the usual case.
Select the setting value “0” (Constant control) before starting the adjustment.



⚠ NOTE

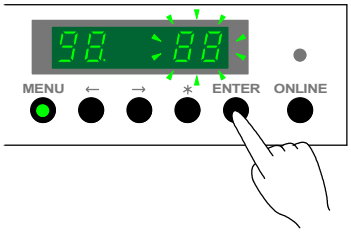
You can not check the correct Negative Developer Bias with the setting value “1” (Variable control) because the Bias is controlled variably by the difference of the temperature.
Make sure to select “0” as the Bias is always constant regardless of the temperature.

3) Select the Special Mode (Sub Mode No.9), and then select the Item No.8 (Developer Bias [Negative] Adjustment Mode).

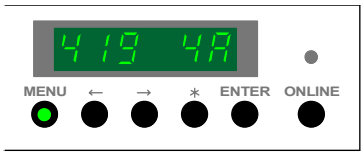


4) Press the [ENTER] Key to make the BIAS output the Negative Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Negative Developer Bias to the Development Roller is **-250V +/-3V**.



5) If necessary, adjust the Negative Developer Bias to the Development Roller so that it should be **-250V +/-3V**.
To adjust it, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.19 (Developer Bias).



Refer to [8.1.5.3 Operation (Example of usage)] on the page 8-34 as for the way to change the setting value.

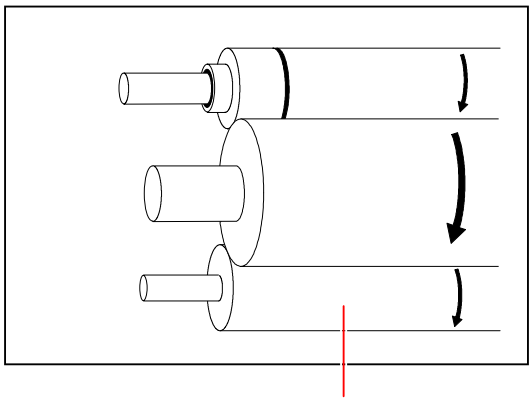
Refer to [(18) Developer Bias (Item No.19)] on the page 8-60 as for the contents of the setting.

⚠ CAUTION

Do not move the VR2 on the BIAS positively as it has been adjusted in the factory!

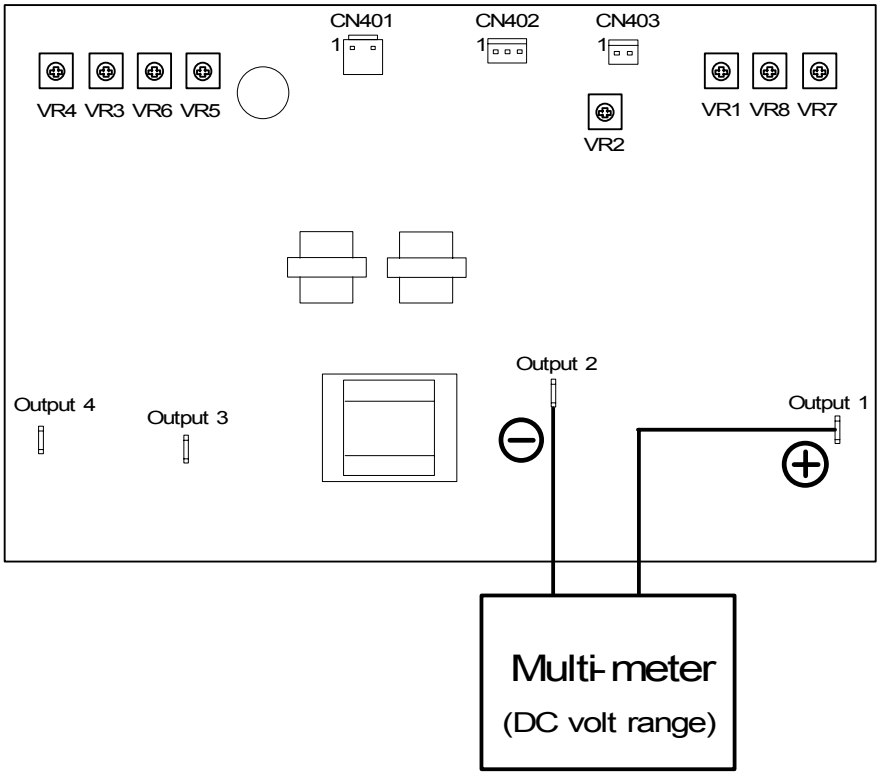
(2) Negative Developer Bias for Toner Supply Roller

The standard value of Negative Developer Bias supplied to the Toner Supply Roller is **-500V +/-3V against the Negative Developer Bias of the Development Roller**.

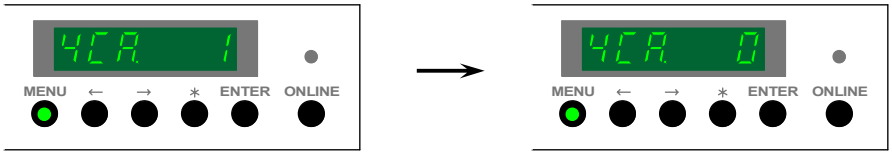


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 1" on the BIAS, and connect the "-" one to the "Output 2".
   And then, select the DC volt range on the multi-meter.



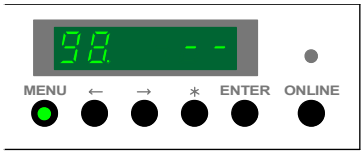
2) Enter the Service Mode, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.CA (Constant / Variable control of Developer Bias).
The setting value will be “1” (Variable control) in the usual case.
Select the setting value “0” (Constant control) before starting the adjustment.



⚠ NOTE

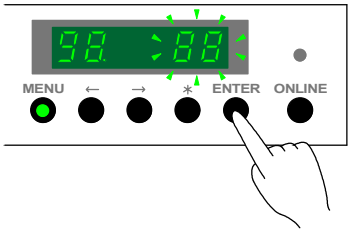
You can not check the correct Negative Developer Bias with the setting value “1” (Variable control) because the Bias is controlled variably by the difference of the temperature.
Make sure to select “0” as the Bias is always constant regardless of the temperature.

3) Select the Special Mode (Sub Mode No.9), and then select the Item No.8 (Developer Bias [Negative] Adjustment Mode).

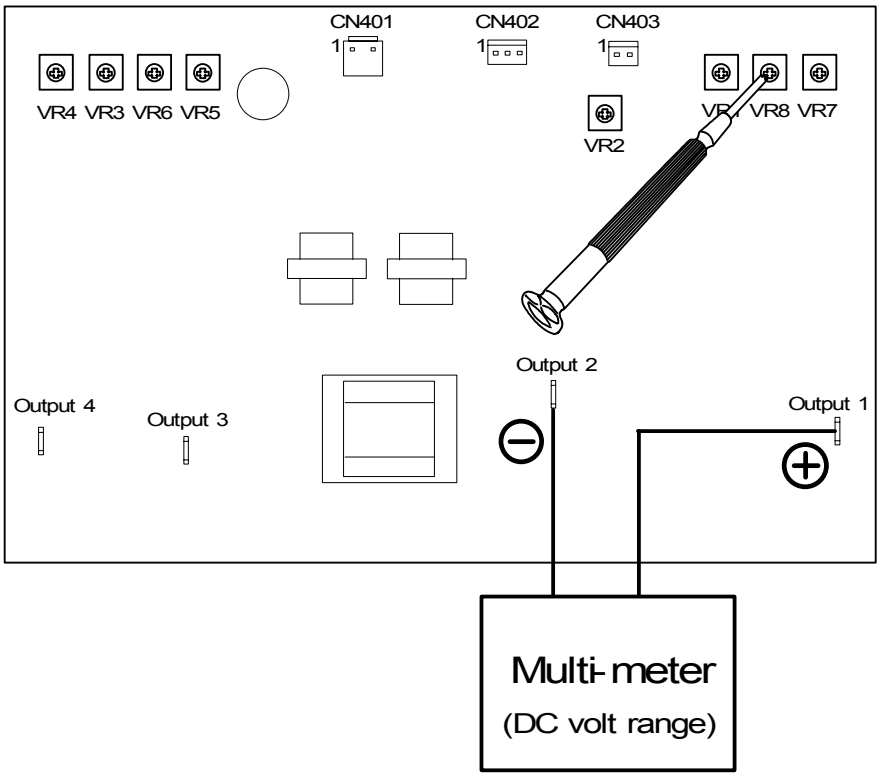


4) Press the [ENTER] Key to make the BIAS output the Negative Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Negative Developer Bias to the Development Roller is **-500V +/-3V**.

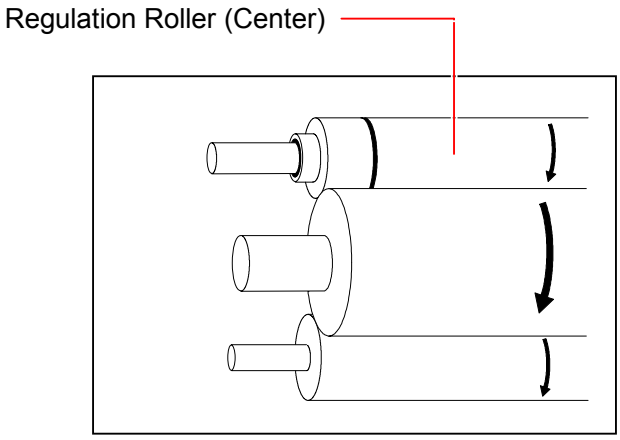


5) If necessary, adjust the Negative Developer Bias to the Toner Supply Roller so that it should be **-500V +/-3V**.
To adjust it, rotate the VR8 on the BIAS with a screwdriver.



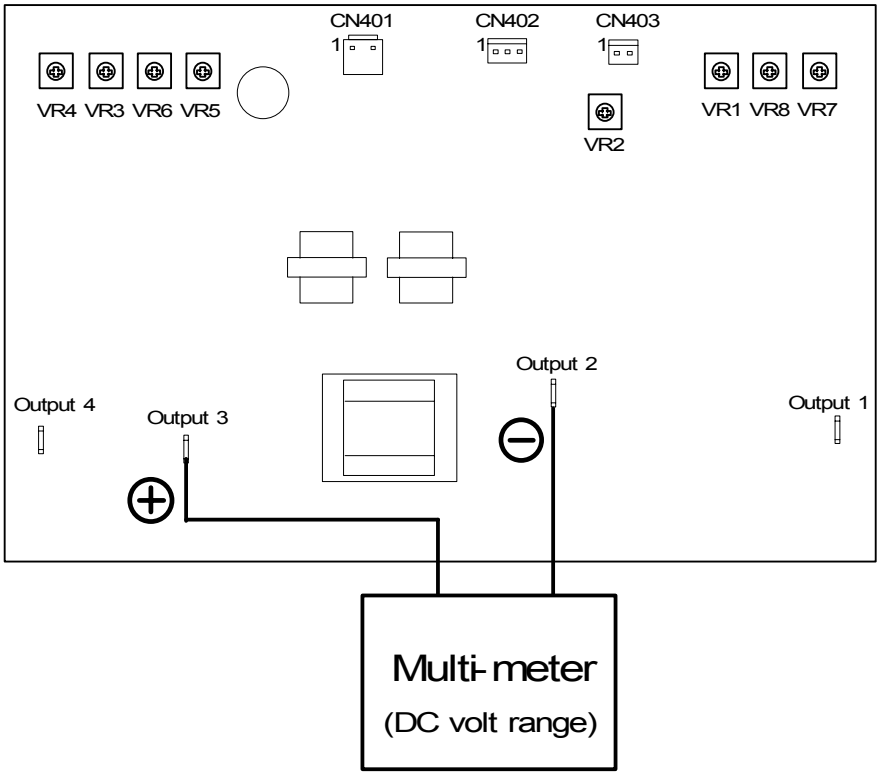
(3) Negative Developer Bias for Regulation Roller (Center)

The standard value of Negative Developer Bias supplied to the center of Regulation Roller is **-100V +/-3V against the Negative Developer Bias of the Development Roller**.

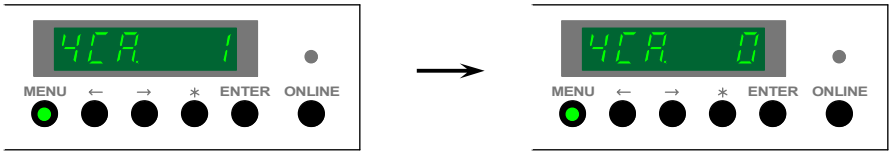


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 3" on the BIAS, and connect the "-" one to the "Output 2".
   And then, select the DC volt range on the multi-meter.



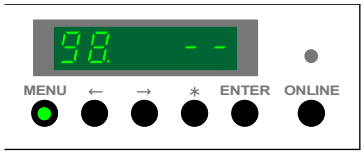
2) Enter the Service Mode, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.CA (Constant / Variable control of Developer Bias).
The setting value will be “1” (Variable control) in the usual case.
Select the setting value “0” (Constant control) before starting the adjustment.



⚠ NOTE

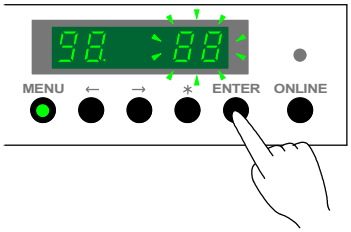
You can not check the correct Negative Developer Bias with the setting value “1” (Variable control) because the Bias is controlled variably by the difference of the temperature.
Make sure to select “0” as the Bias is always constant regardless of the temperature.

3) Select the Special Mode (Sub Mode No.9), and then select the Item No.8 (Developer Bias [Negative] Adjustment Mode).

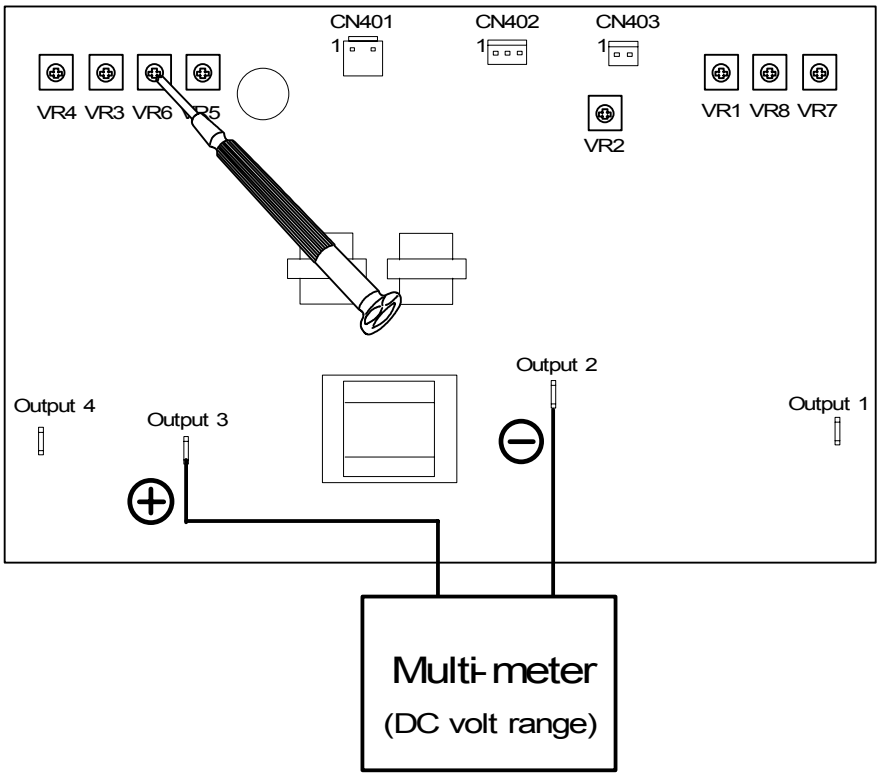


4) Press the [ENTER] Key to make the BIAS output the Negative Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Negative Developer Bias to the center of Regulation Roller is **-100V +/-3V**.

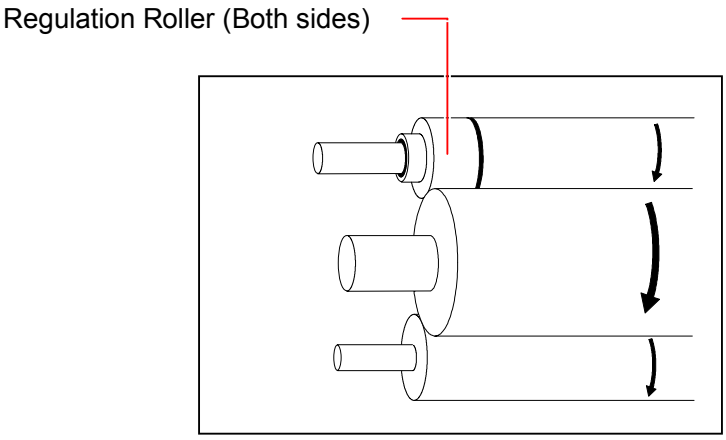


5) If necessary, adjust the Negative Developer Bias to the center of Regulation Roller so that it should be **-100V +/-3V**.
   To adjust it, rotate the VR6 on the BIAS with a screwdriver.



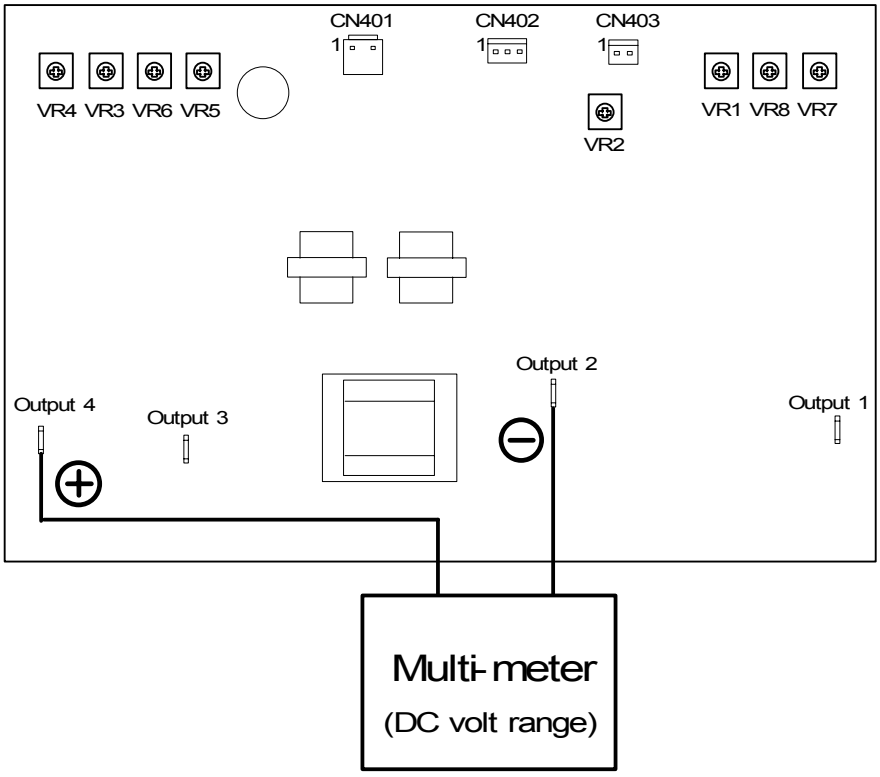
(4) Negative Developer Bias for Regulation Roller (Both sides)

The standard value of Negative Developer Bias supplied to both sides of Regulation Roller is **+365V +/-3V against the Negative Developer Bias of the Development Roller**.

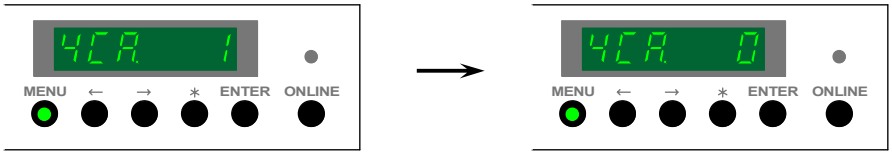


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 4" on the BIAS, and connect the "-" one to the "Output 2".
   And then, select the DC volt range on the multi-meter.



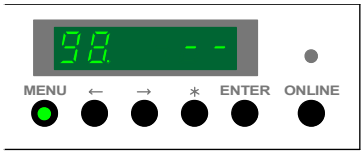
2) Enter the Service Mode, select the Adjustment Mode 0 (Sub Mode No.4), and then select the Item No.CA (Constant / Variable control of Developer Bias).
The setting value will be “1” (Variable control) in the usual case.
Select the setting value “0” (Constant control) before starting the adjustment.



NOTE

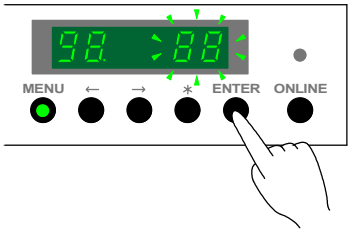
You can not check the correct Negative Developer Bias with the setting value “1” (Variable control) because the Bias is controlled variably by the difference of the temperature.
Make sure to select “0” as the Bias is always constant regardless of the temperature.

3) Select the Special Mode (Sub Mode No.9), and then select the Item No.8 (Developer Bias [Negative] Adjustment Mode).

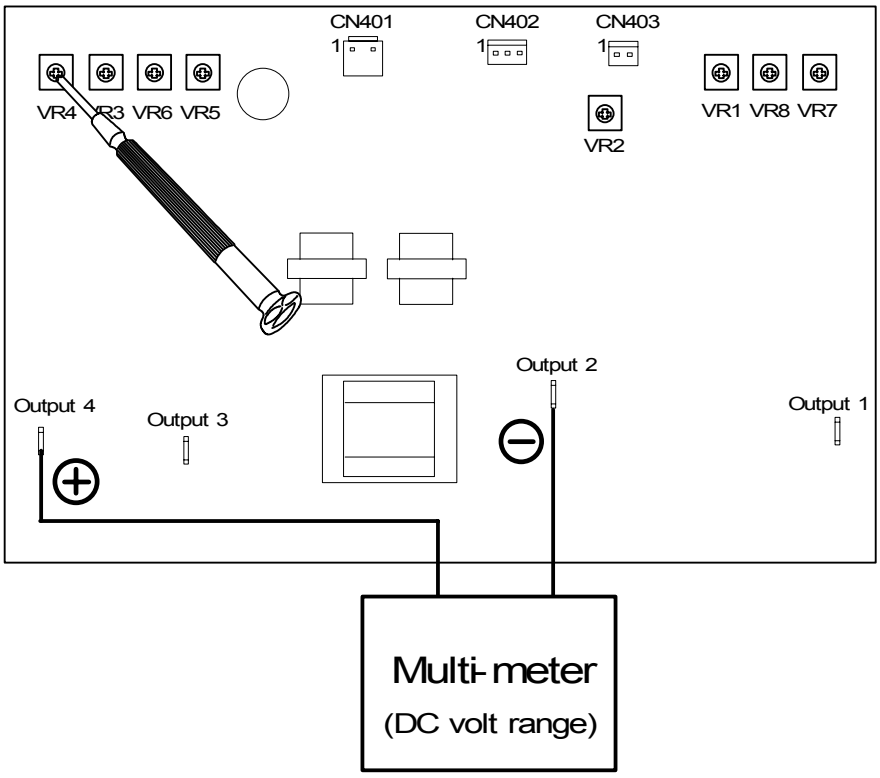


4) Press the [ENTER] Key to make the BIAS output the Negative Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Negative Developer Bias to both sides of Regulation Roller is **+365V +/-3V**.



5) If necessary, adjust the Negative Developer Bias to both sides of Regulation Roller so that it should be **+365V +/-3V**.
   To adjust it, rotate the VR4 on the BIAS with a screwdriver.

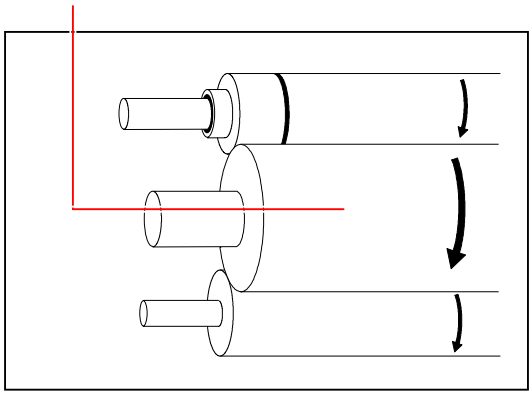


4.3.7.2 Positive Developer Bias adjustment (for Toner Collection Process)

(1) Positive Developer Bias for Development Roller

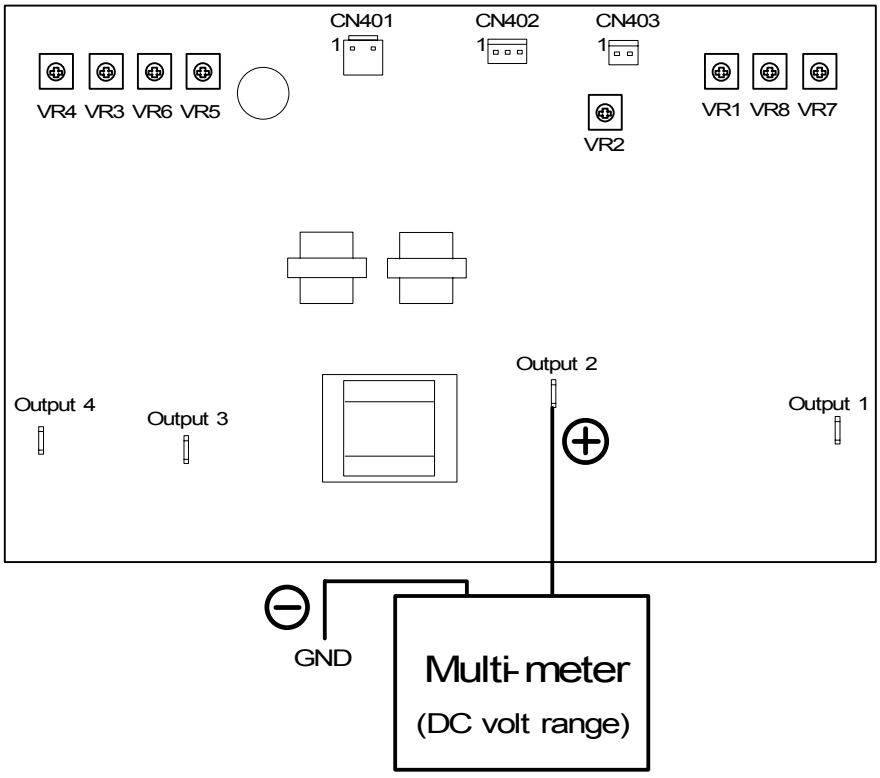
The standard value of Positive Developer Bias supplied to the Development Roller is **+350V +/-3V against the ground**.

Development Roller

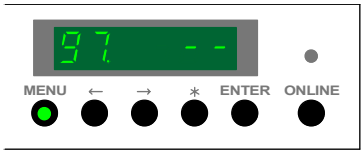


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 2" on the BIAS, and connect the "-" one to the ground.
And then, select the DC volt range on the multi-meter.

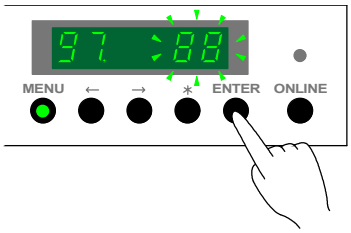


2) Enter the Service Mode, select the Special Mode (Sub Mode No.9), and then select the Item No.7 (Developer Bias [Positive] Adjustment Mode).

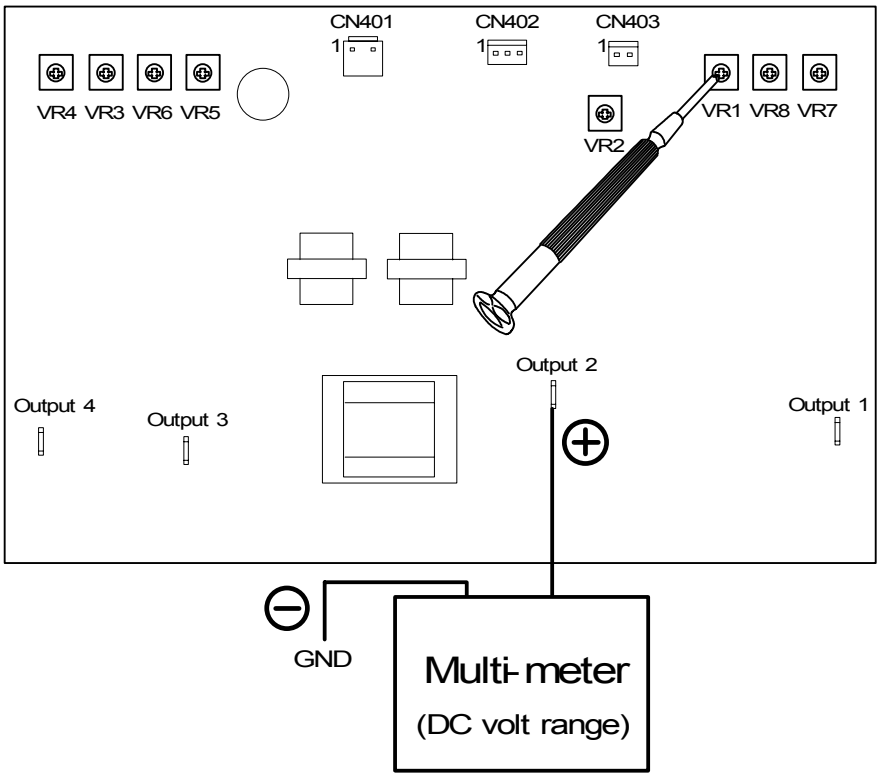


3) Press the [ENTER] Key to make the BIAS output the Positive Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Positive Developer Bias to the Development Roller is **+350V +/-3V**.

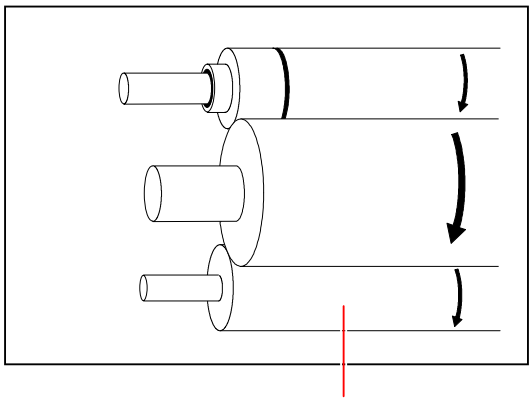


4) If necessary, adjust the Positive Developer Bias to the Development Roller so that it should be **+350V +/-3V**.
To adjust it, rotate the VR1 on the BIAS with a screwdriver.



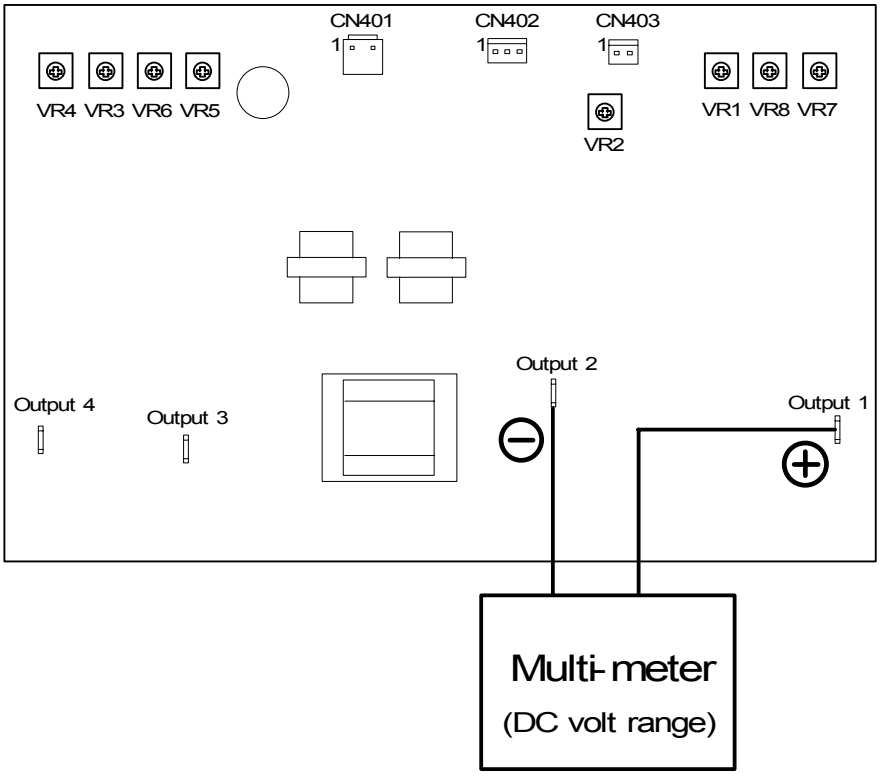
(2) Positive Developer Bias for Toner Supply Roller

The standard value of Positive Developer Bias supplied to the Toner Supply Roller is **-340V +/-3V against the Positive Developer Bias of the Development Roller**.

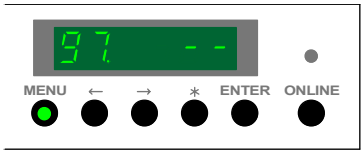


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 1" on the BIAS, and connect the "-" one to the "Output 2".
   And then, select the DC volt range on the multi-meter.

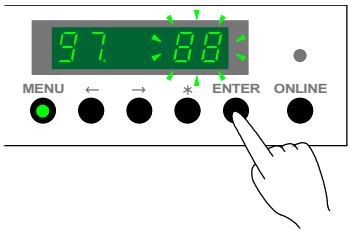


2) Enter the Service Mode, select the Special Mode (Sub Mode No.9), and then select the Item No.7 (Developer Bias [Positive] Adjustment Mode).

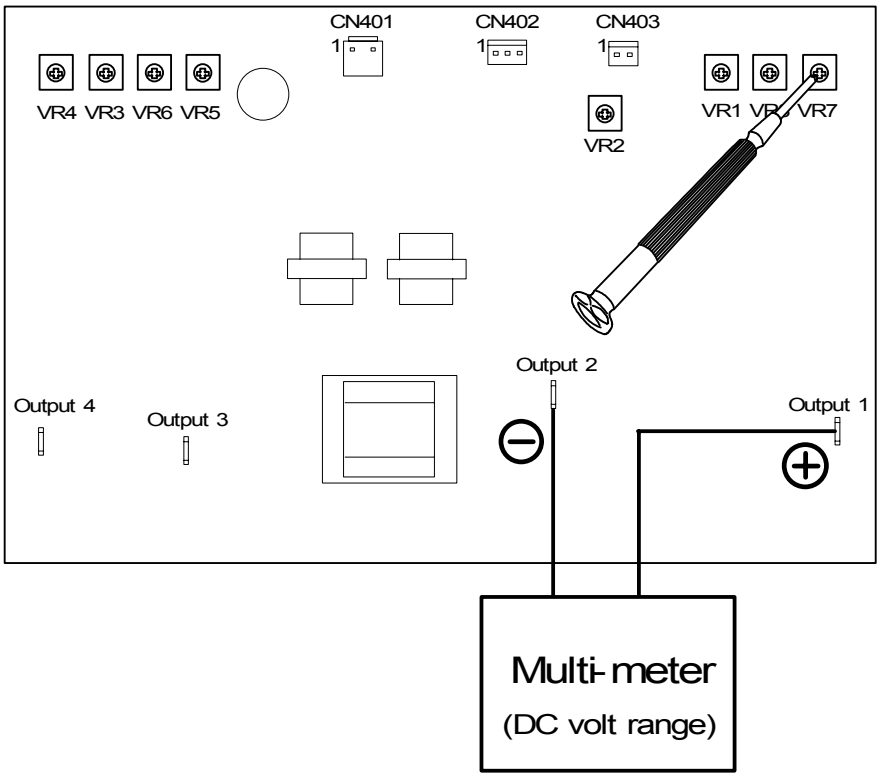


3) Press the [ENTER] Key to make the BIAS output the Positive Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Positive Developer Bias to the Toner Supply Roller is **-340V +/-3V**.

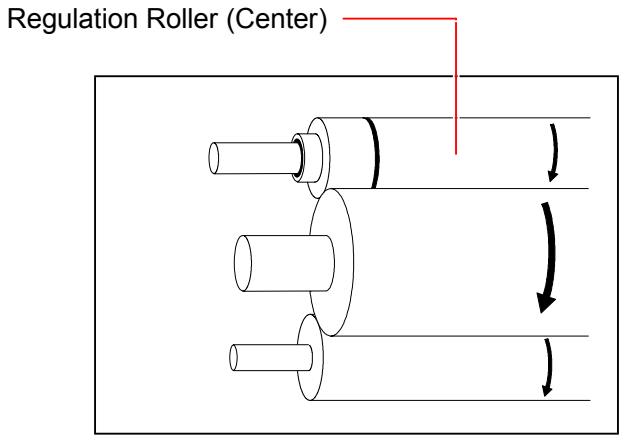


4) If necessary, adjust the Positive Developer Bias to the Toner Supply Roller so that it should be **-340V +/-3V**.
To adjust it, rotate the VR7 on the BIAS with a screwdriver.



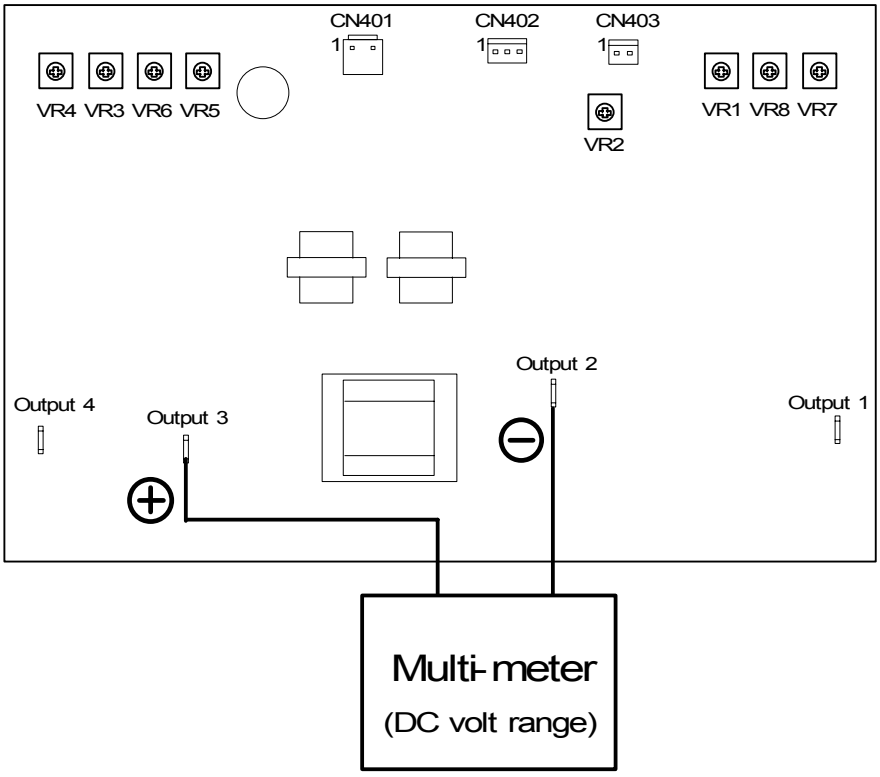
(3) Positive Developer Bias for Regulation Roller (Center)

The standard value of Positive Developer Bias supplied to the center of Regulation Roller is **0V +/-3V against the Positive Developer Bias of the Development Roller**.

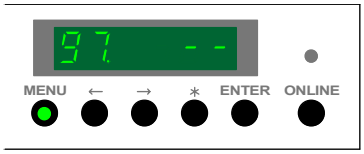


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 3" on the BIAS, and connect the "-" one to the "Output 2".
   And then, select the DC volt range on the multi-meter.

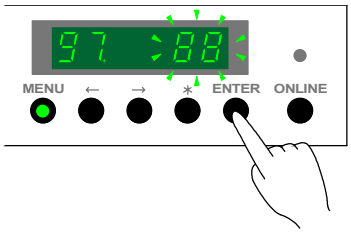


2) Enter the Service Mode, select the Special Mode (Sub Mode No.9), and then select the Item No.7 (Developer Bias [Positive] Adjustment Mode).

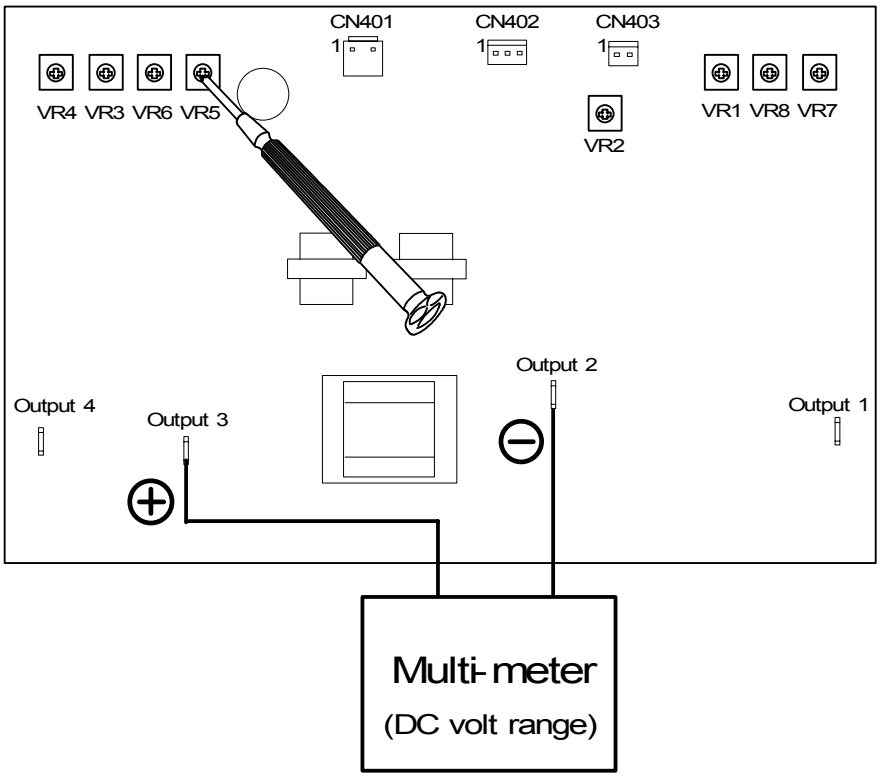


3) Press the [ENTER] Key to make the BIAS output the Positive Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Positive Developer Bias to the center of Regulation Roller is **0V +/-3V**.

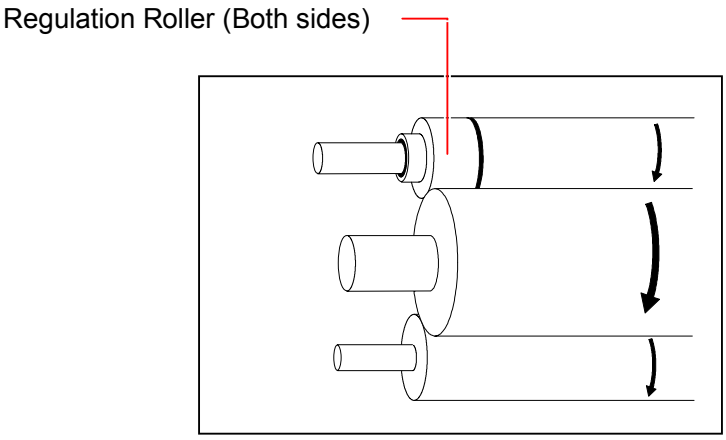


4) If necessary, adjust the Positive Developer Bias to the center of Regulation Roller so that it should be **-0V +/-3V**.
To adjust it, rotate the VR5 on the BIAS with a screwdriver.



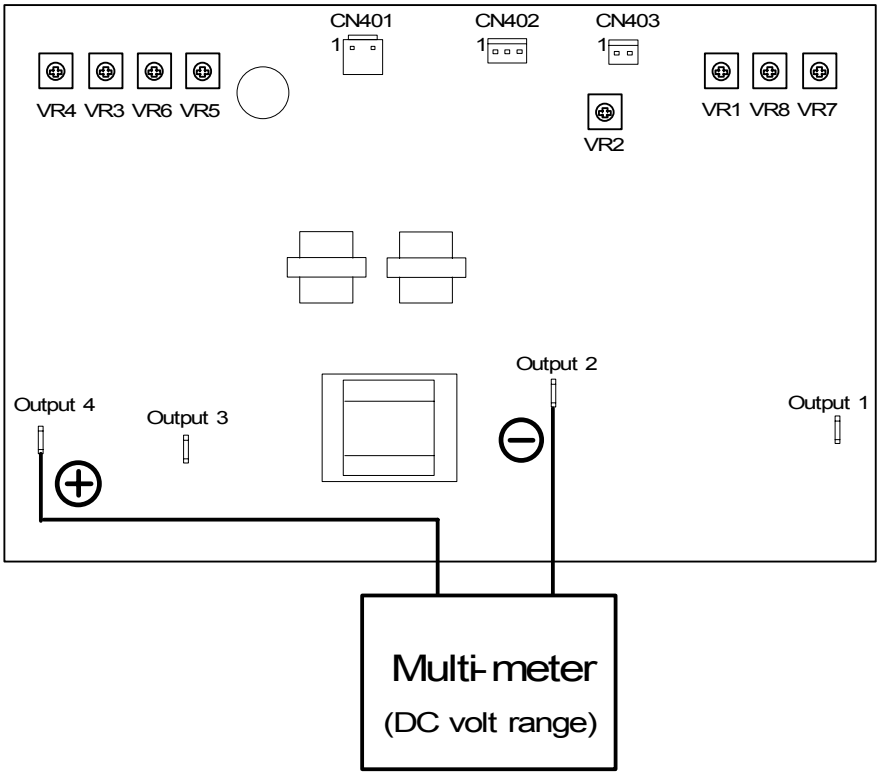
(4) Positive Developer Bias for Regulation Roller (Both sides)

The standard value of Positive Developer Bias supplied to both sides of Regulation Roller is **+120V +/-5V against the Positive Developer Bias of the Development Roller**.

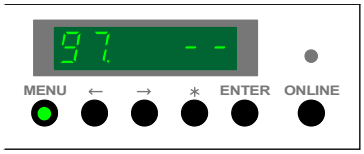


Check and adjust it in the following way.

1) Connect the "+" cable of the multi-meter to "Output 4" on the BIAS, and connect the "-" one to the "Output 2".
   And then, select the DC volt range on the multi-meter.

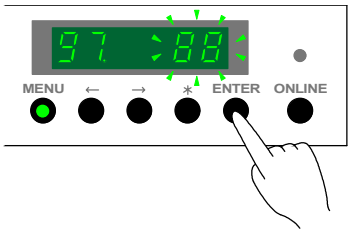


2) Enter the Service Mode, select the Special Mode (Sub Mode No.9), and then select the Item No.7 (Developer Bias [Positive] Adjustment Mode).

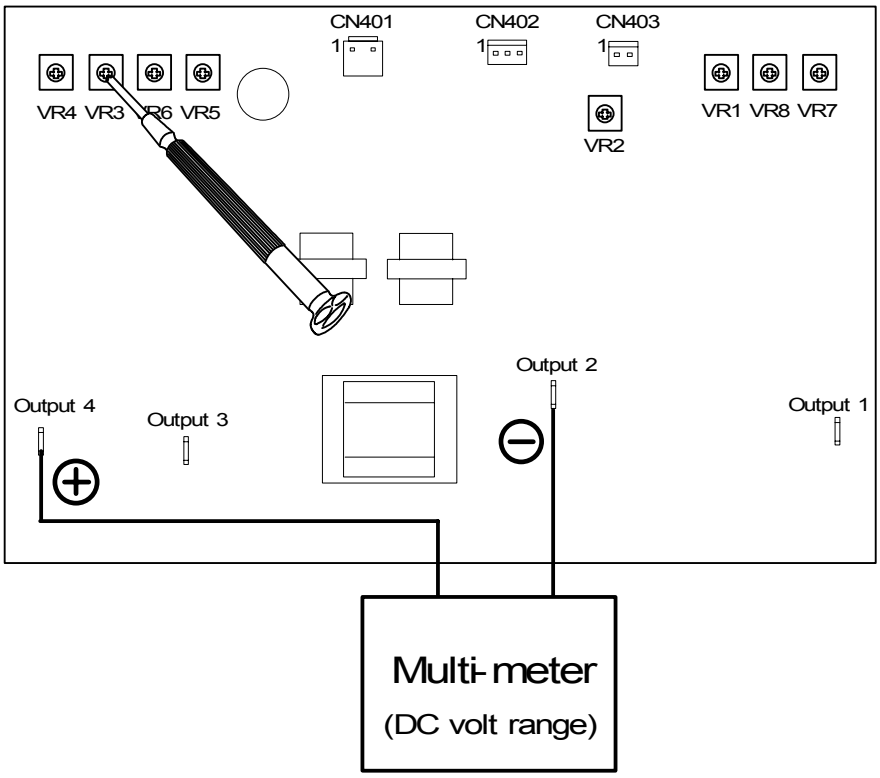


3) Press the [ENTER] Key to make the BIAS output the Positive Developer Bias to each roller in the Developer Unit.
Check the voltage with multi-meter.
Press the [ENTER] Key again to stop outputting if you have checked the value.

Standard value of the Positive Developer Bias to both sides of Regulation Roller is **+120V +/-5V**.

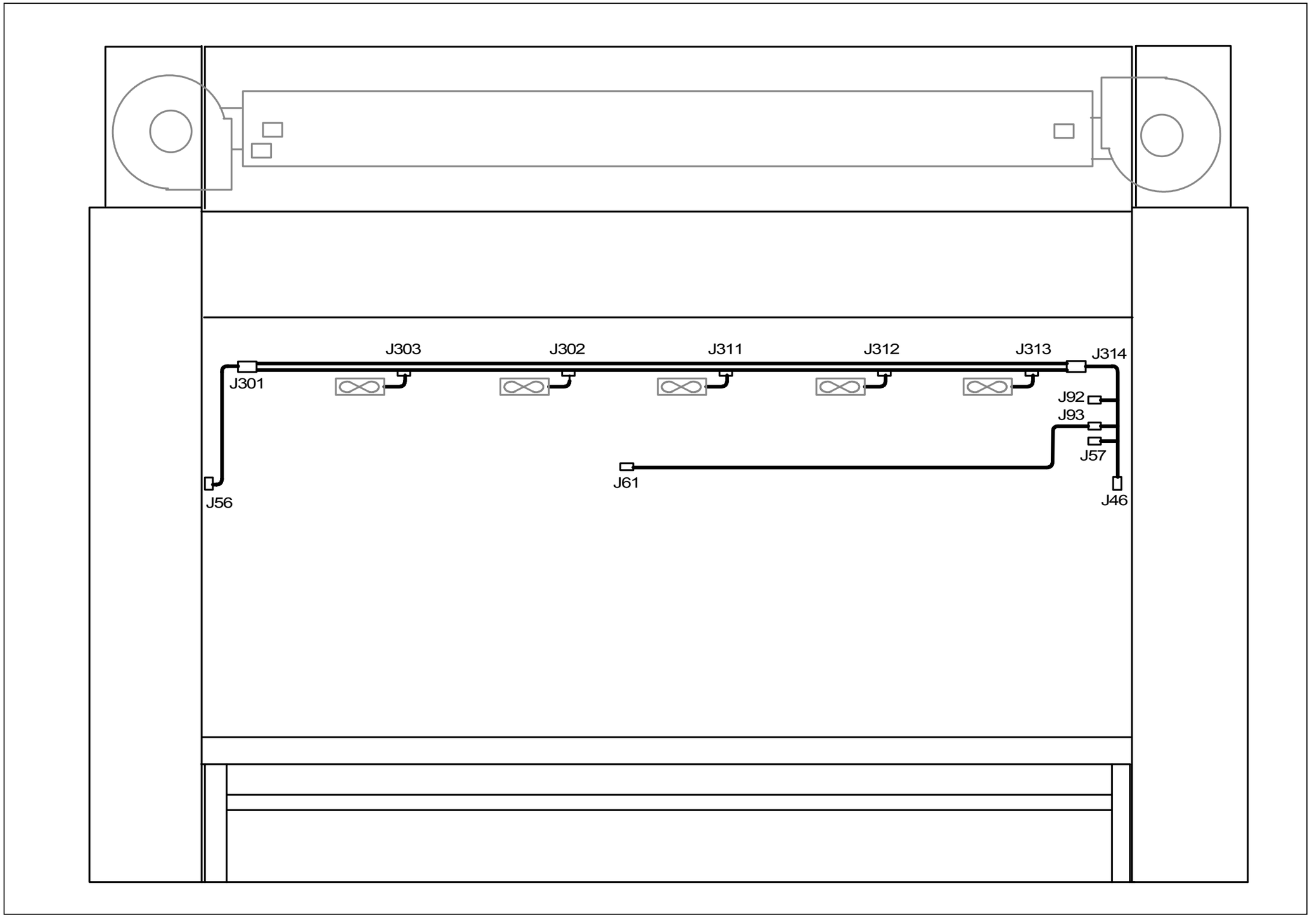


4) If necessary, adjust the Positive Developer Bias to both sides of Regulation Roller so that it should be **+120V +/-5V**.
To adjust it, rotate the VR3 on the BIAS with a screwdriver.

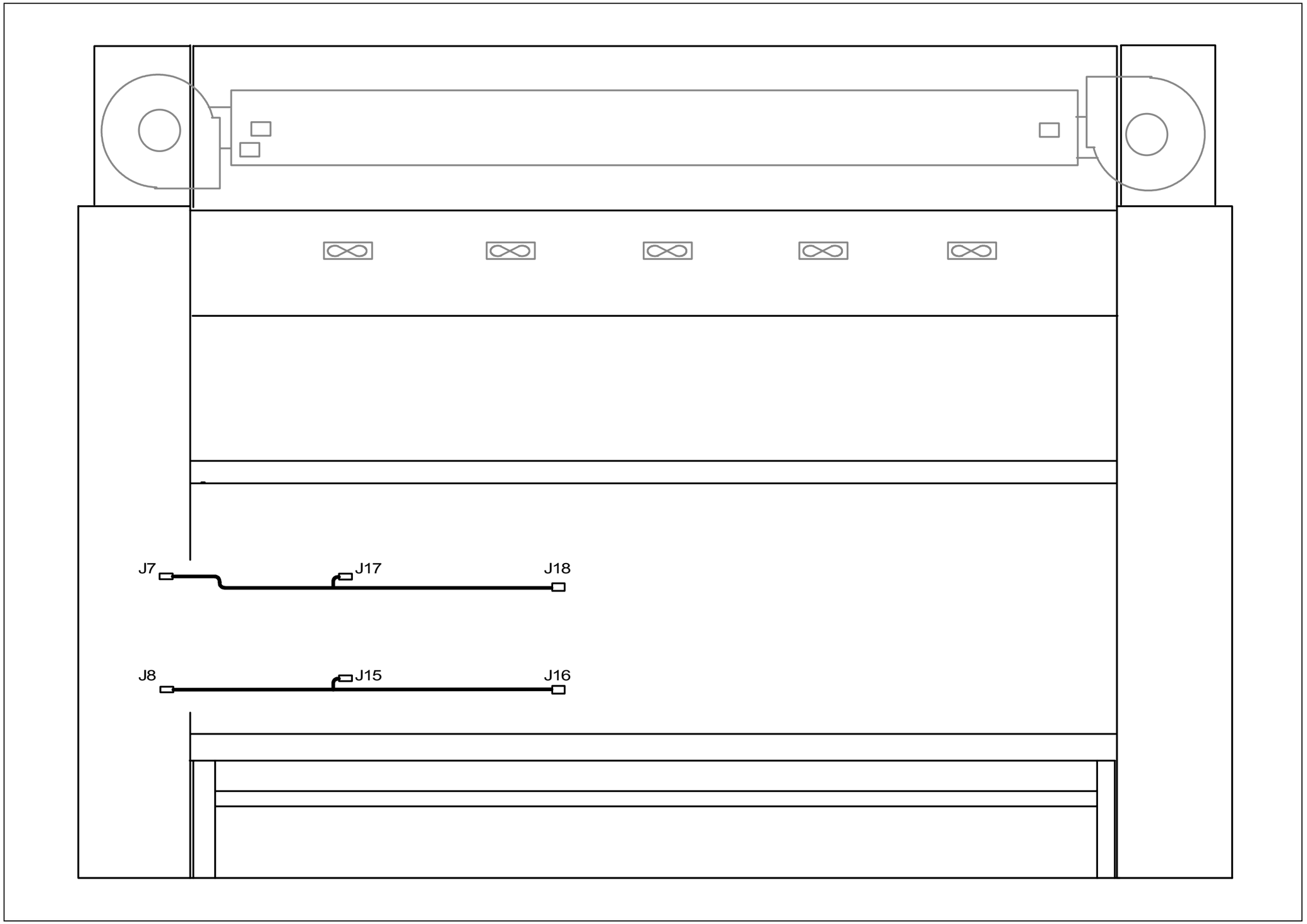


4.4 Location of Connectors

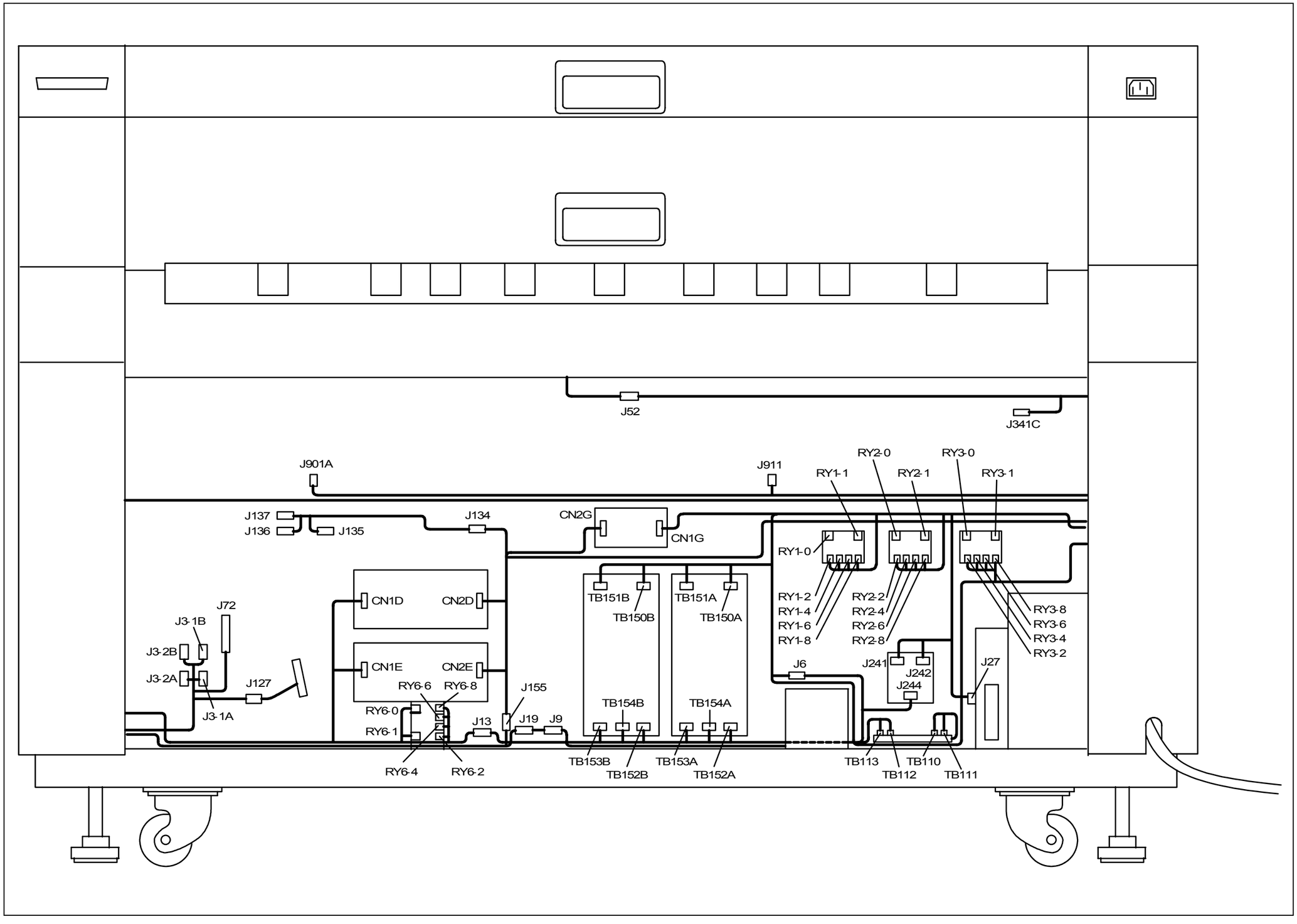
4.4.1 Process Unit



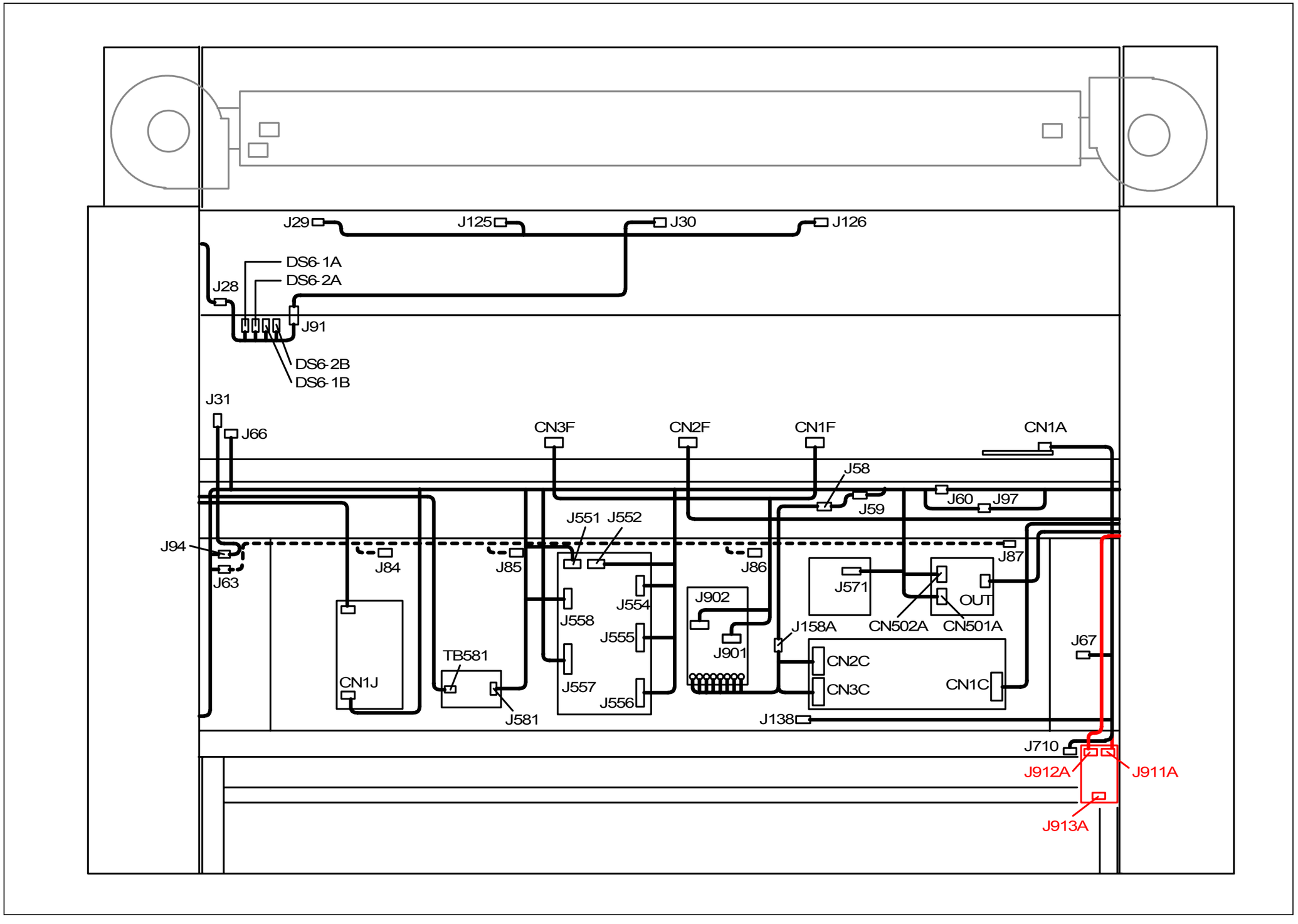
4.4.2 Base of machine



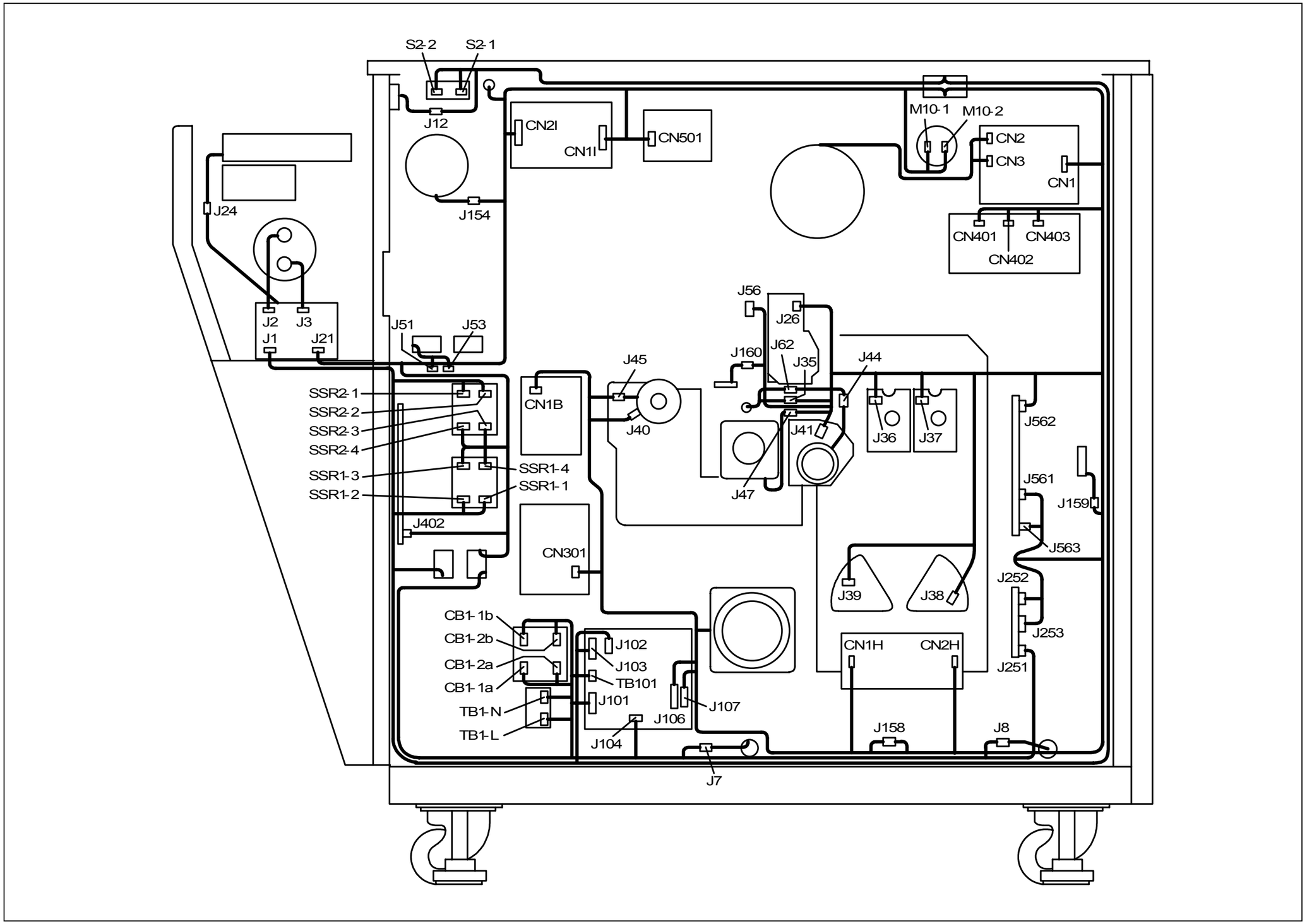
4.4.3 Back of machine



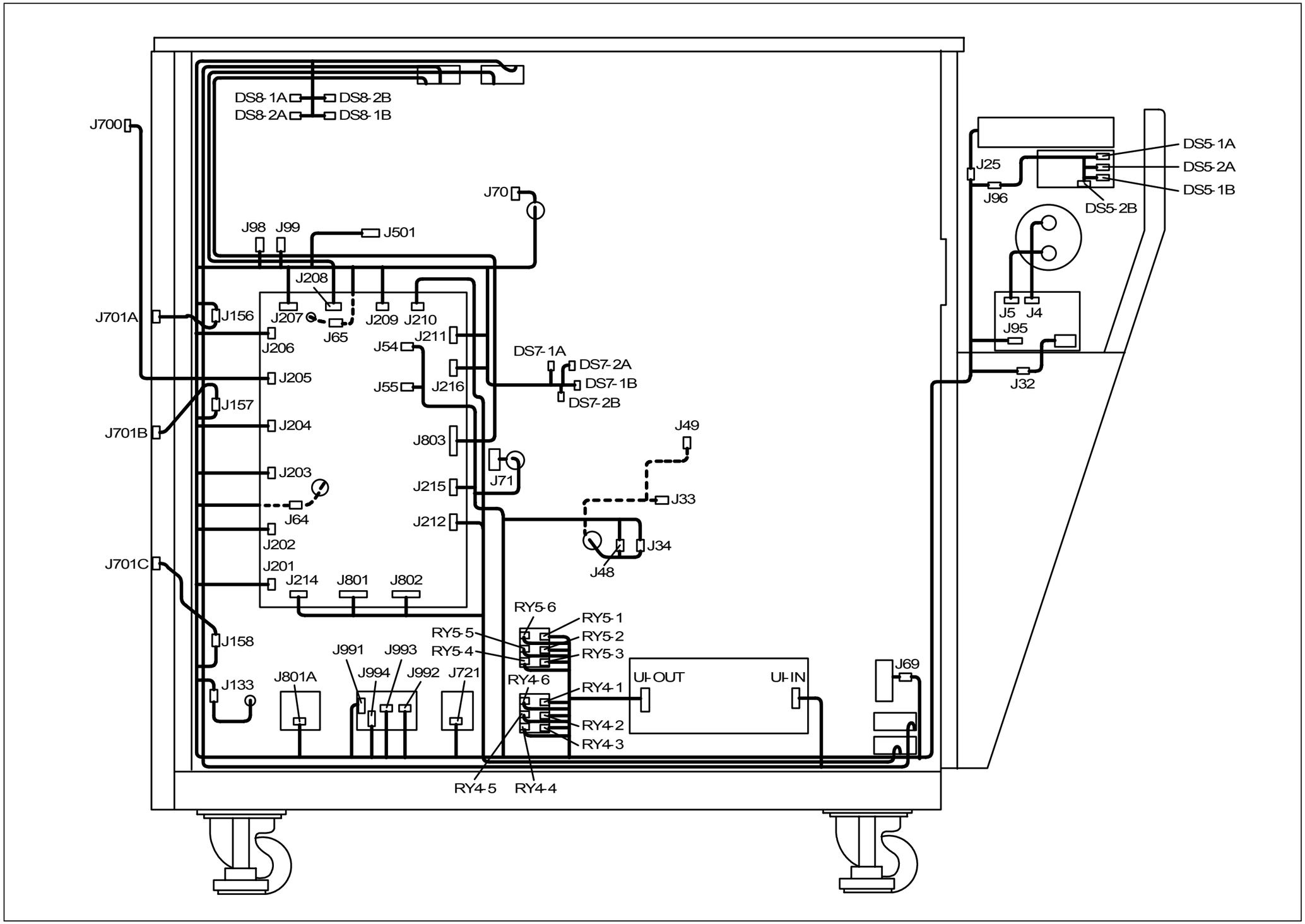
4.4.4 Top of machine



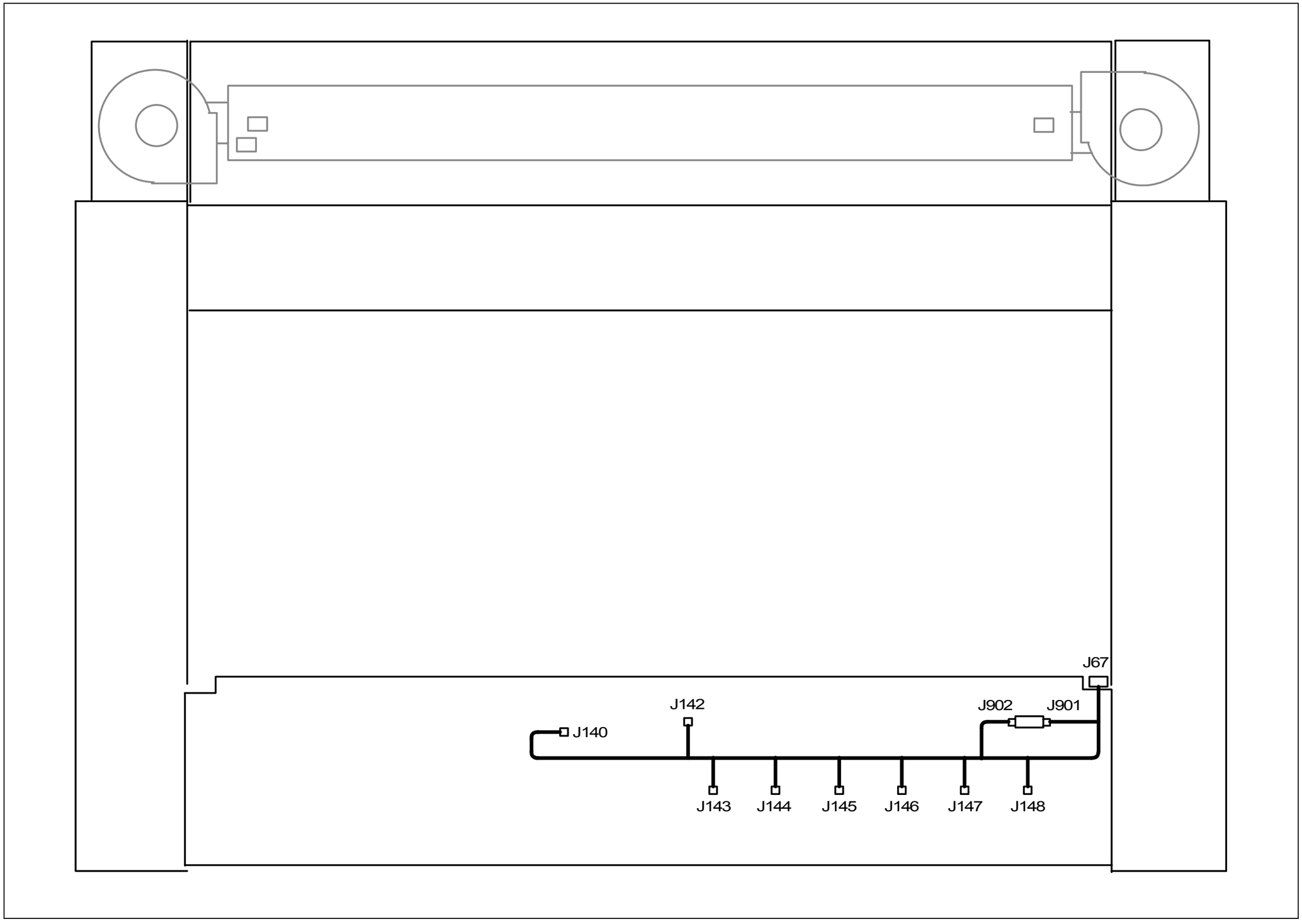
4.4.5 Left side of machine



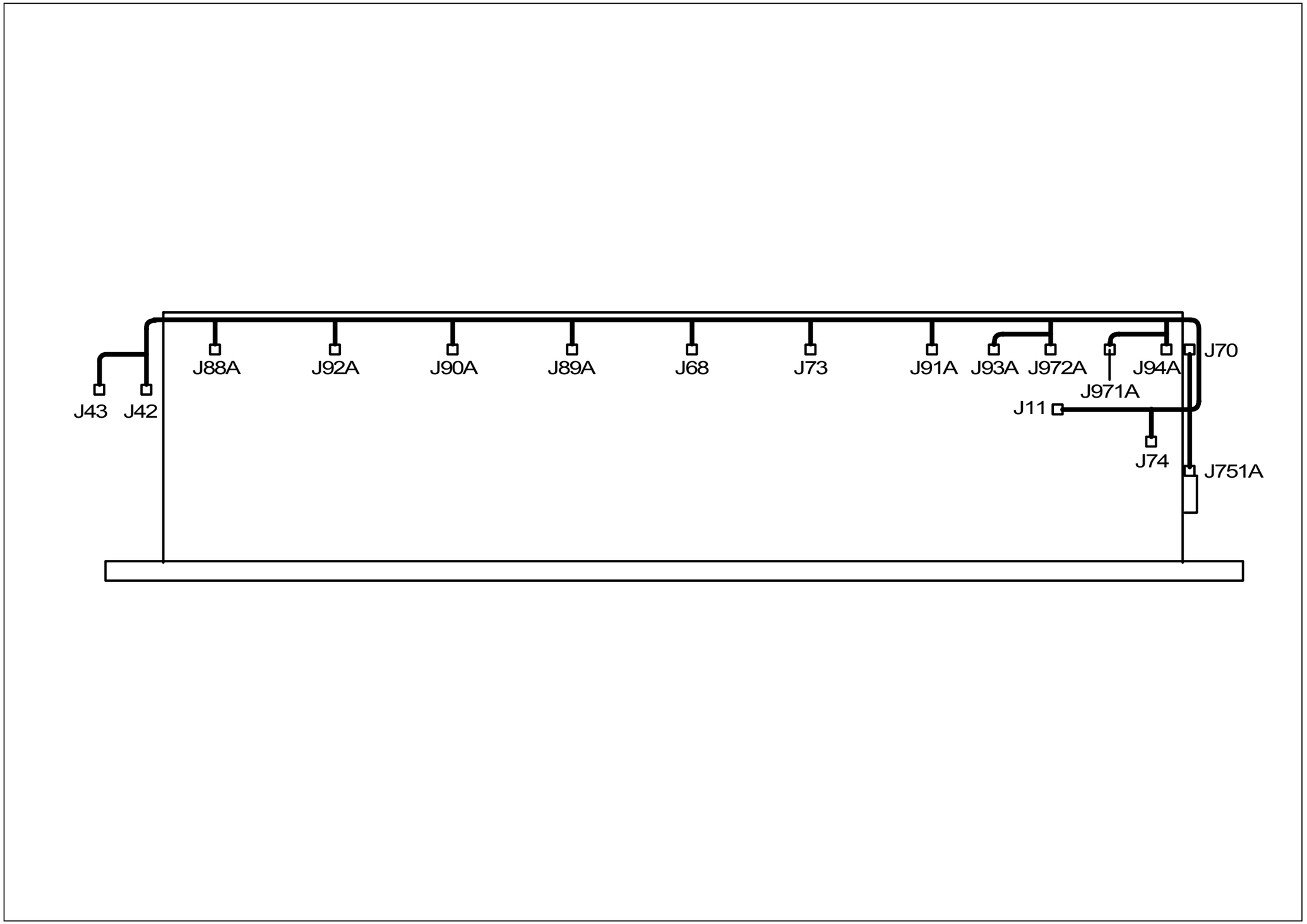
4.4.6 Right side of machine



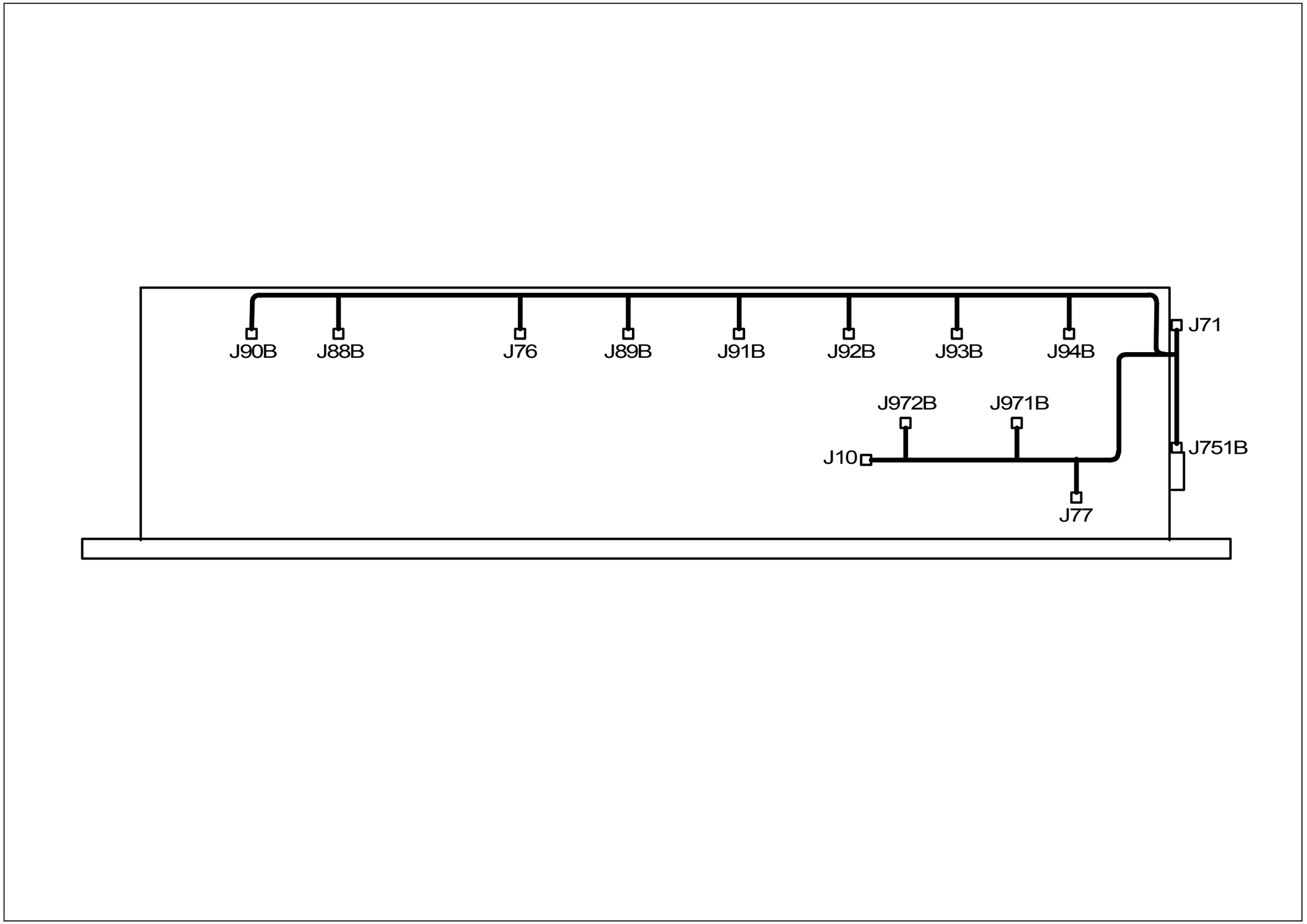
4.4.7 Bypass Feeder Unit



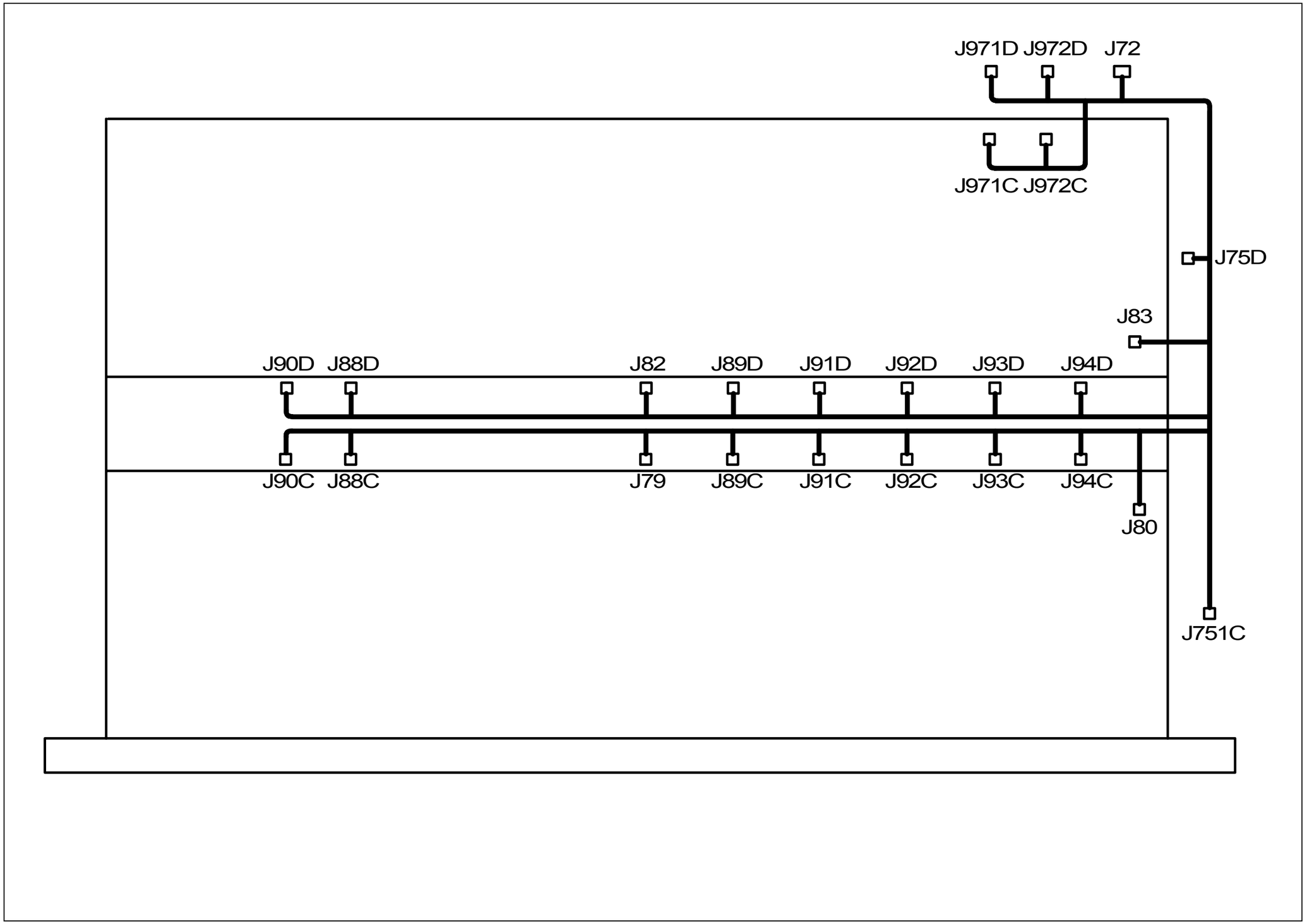
4.4.8 Top Drawer Unit



4.4.9 Middle Drawer Unit



4.4.10 Bottom Drawer Unit



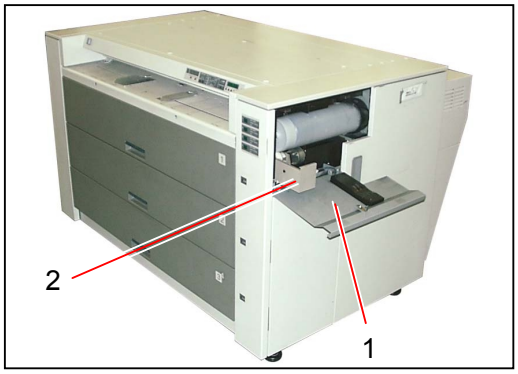
Chapter 5

Mechanical Systems

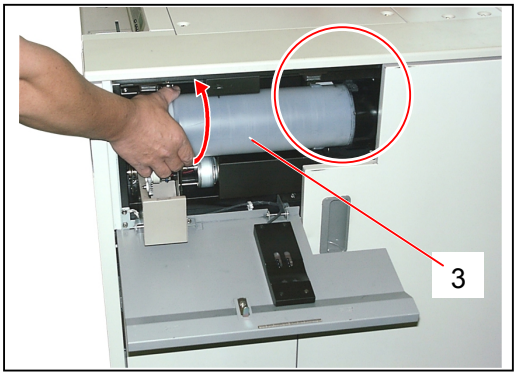
5.1 Process Unit

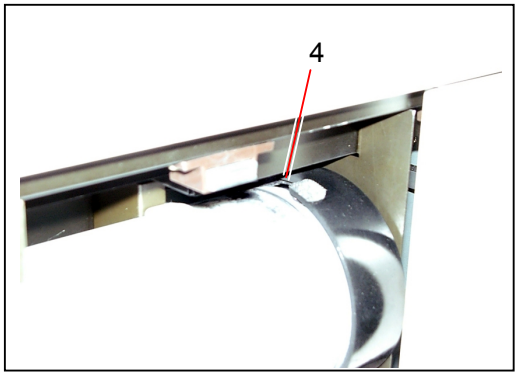
5.1.1 Drawing out the Process Unit

1) Open the Toner Cover (1) and the Toner Cartridge Cover (2).



2) Rotate the Toner Cartridge (3) half revolution to move the opening (4) to the top position. Then, close both Toner Cover (1) and Toner Cartridge Cover (2).

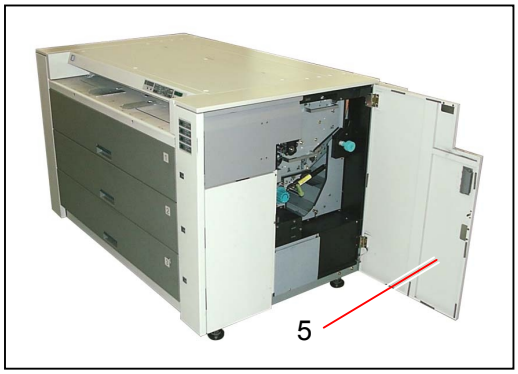




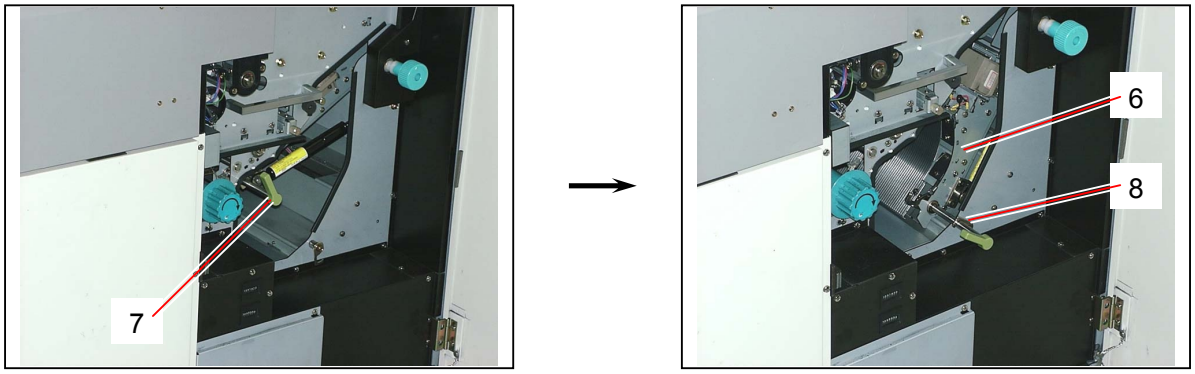
⚠ NOTE

There is a Shutter under the opening (4).
Even if you draw out the Process Unit without moving the opening (4) to the top, it will catch the spilt toner.
But if too much toner is caught, it will spill into the machine in the end.
Please do not forget to move the opening to the top.

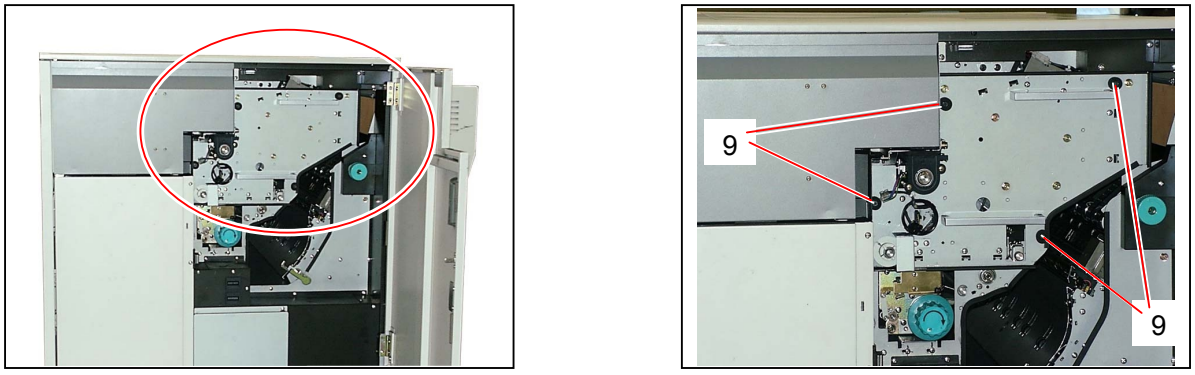
3) Open the Right Side Door (5).



4) Unlock the Internal Transportation Unit (6) rotating the Internal Transportation Unit Lever (7) counter-clockwise, bring down the unit and then lock the shaft of lever with the Hook (8).



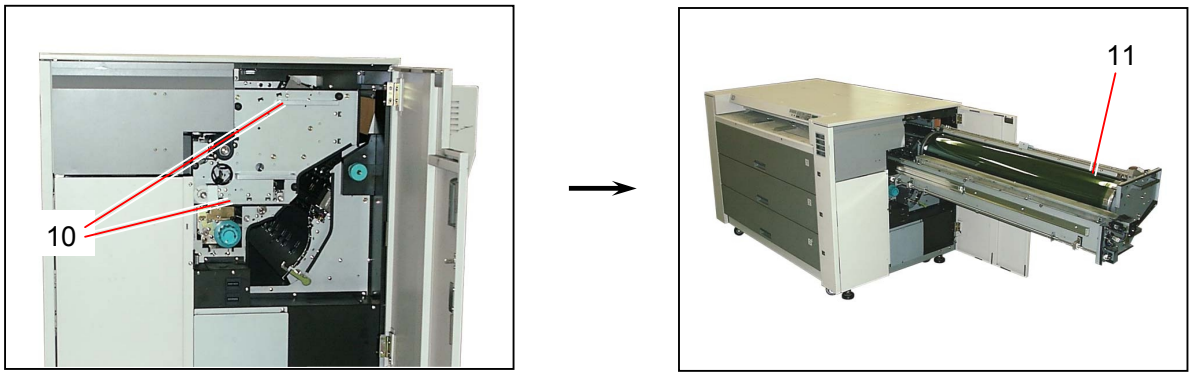
5) Remove 4 pieces of black M4x14 screws (9) which are inside of Sponges.



NOTE

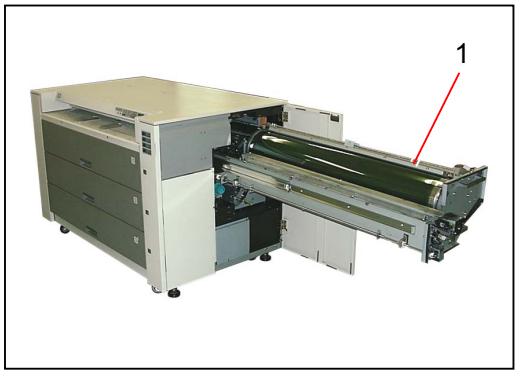
Even if you remove black M4x14 screws (9), sponges will hold them so as not to lose.

6) Hold both Handles (10) firmly, and draw out the Process Unit (11) from the machine.

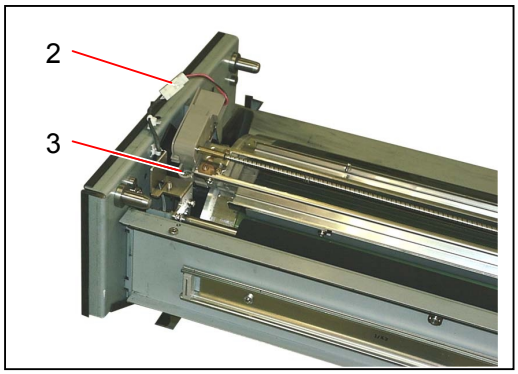


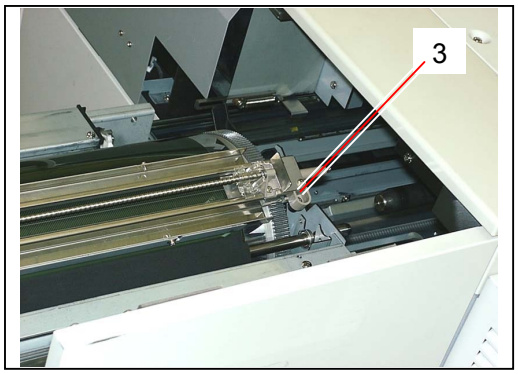
5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit

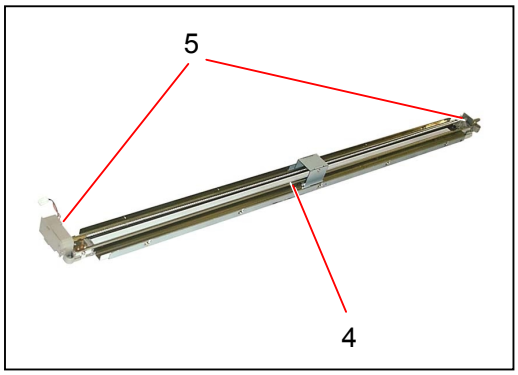
1) Draw out the Process Unit (1) from the machine making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1.



2) Disconnect the connector (2), remove 2 pieces of bind head screw (3), and then remove the Image Corona (4) holding both plastic corona heads (5).

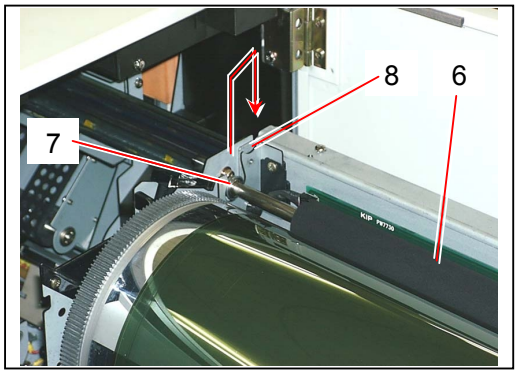


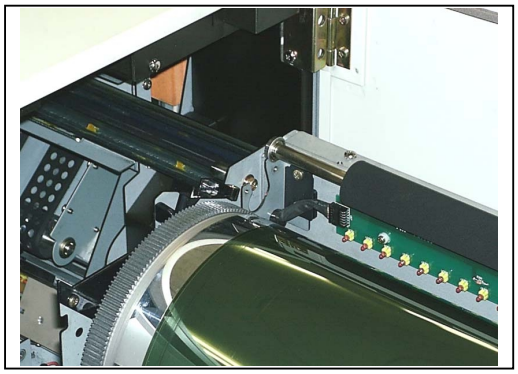




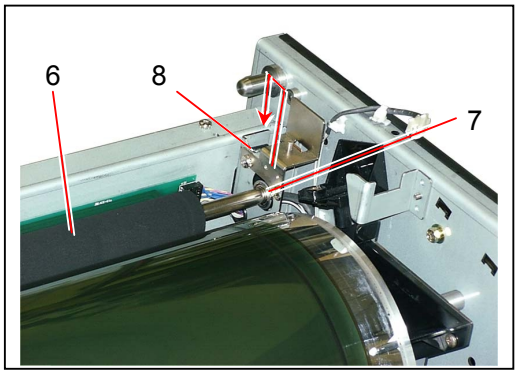
3) Catch the shaft of Cleaning Roller (6), bring it up (bring up driving side first then driven side) to remove the bearings (7) from the brackets.
As there are notches (8) near the setting position, fit the bearings (7) to put the Cleaning Roller (6) temporarily.

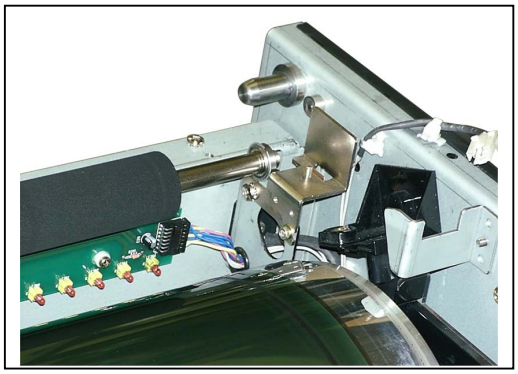
(Driving side)





(Driven side)

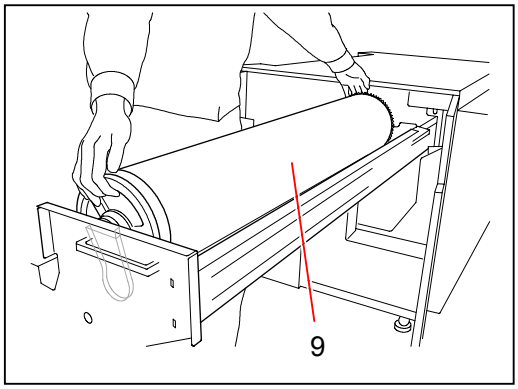


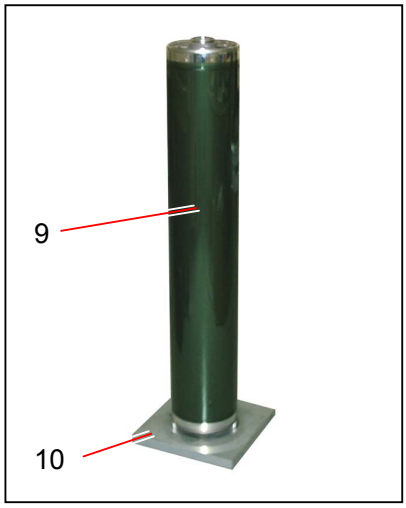


NOTE

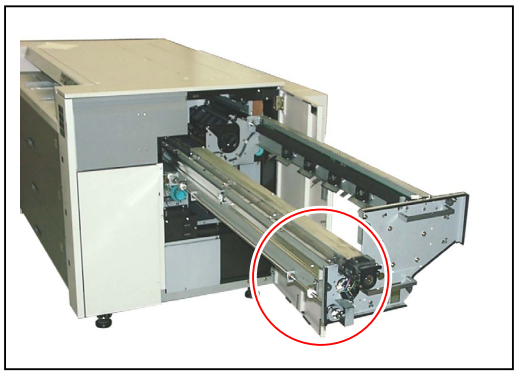
Please put back the Cleaning Roller to the setting position before you close the Process Unit. If you close the unit without putting back the roller, roller will touch the plate and its surface will be broken!

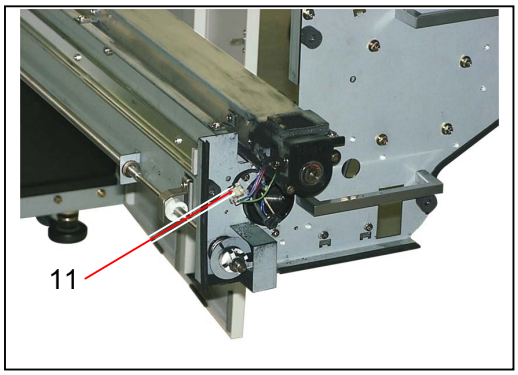
4) Catching both sides, move the **Drum Assembly** (9) upward along the Drum Guide in the Process Unit and remove from the machine.
Keep the Drum Assembly in the Package Box if it should be out of the machine for a long time.
Or stand it on the attached Drum Stand (10) temporarily if you put it back within a short time.



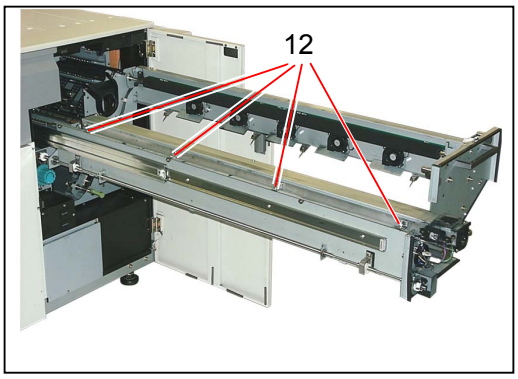


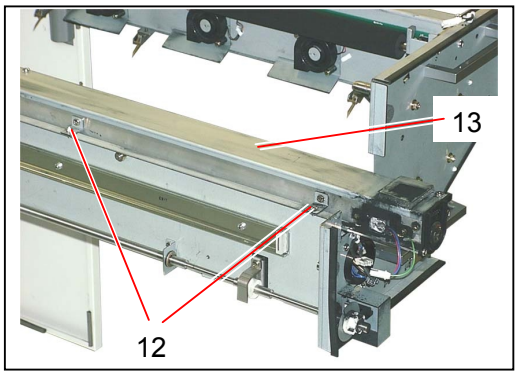
5) Disconnect the connector (11) of the Hopper Toner Sensor.

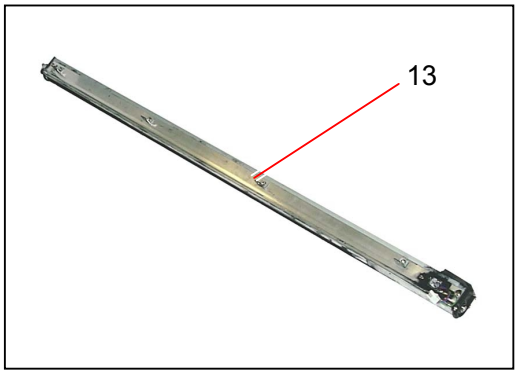




6) Remove 4 pieces of tooth washer screws (12), and then bring up and remove the **Toner Hopper** (13).



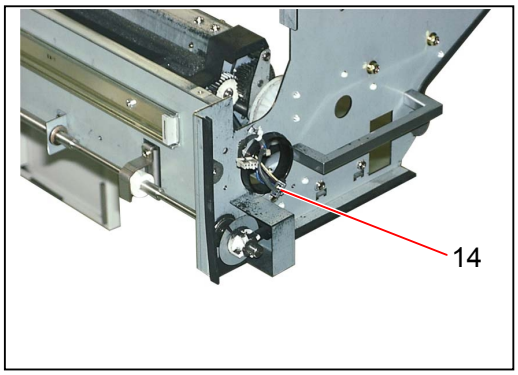




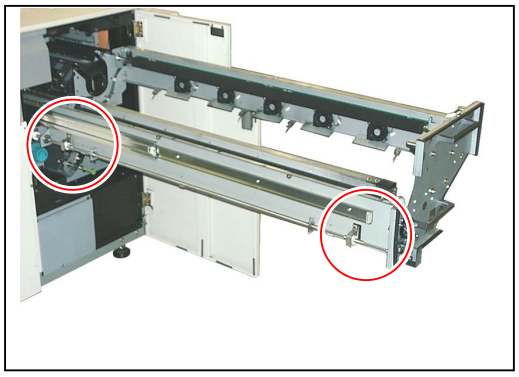
⚠ NOTE

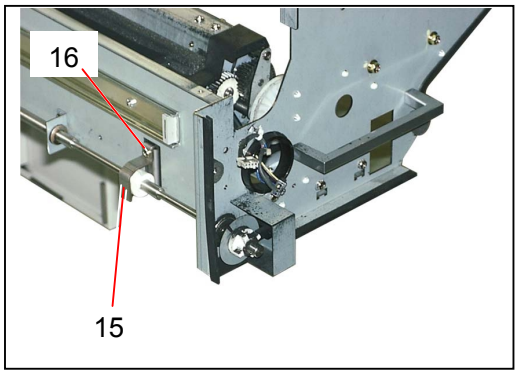
There are many holes on the bottom of the Toner Hopper and the toner will spill out. Please lay a large paper under the Process Unit before you remove the Toner Hopper.

7) Disconnect the connector (14) of the Developer Toner Sensor.

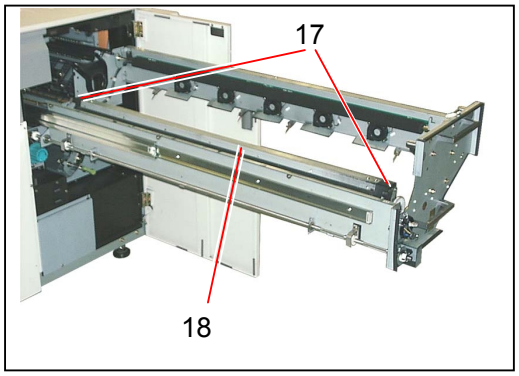


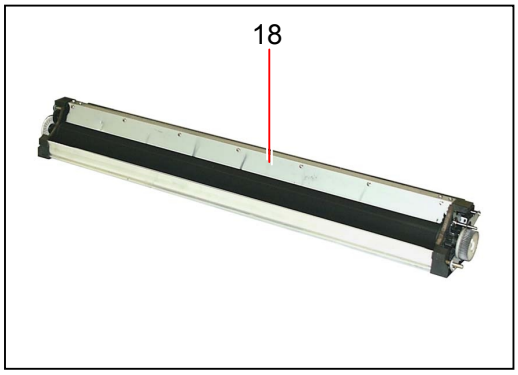
8) Remove 2 pieces of Developer Release Brackets (15) removing 1 tooth washer screw (16) for each one.





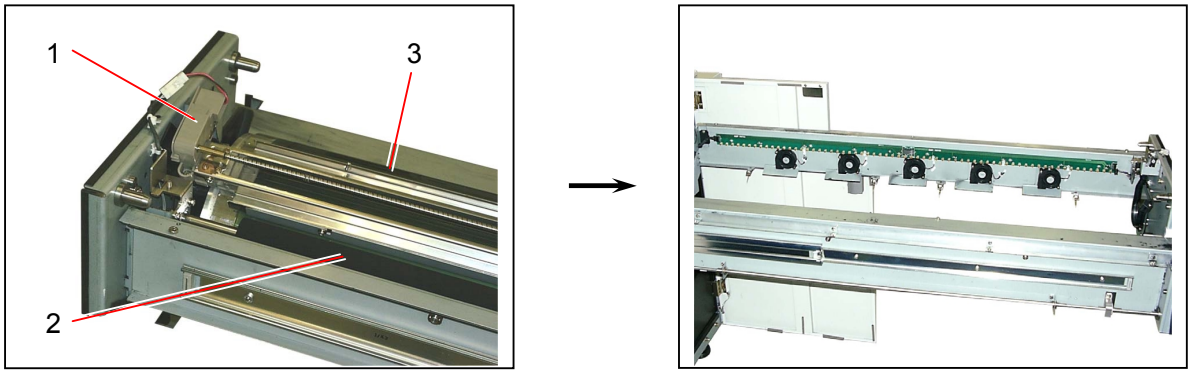
9) Holding black side plates (17) on both sides, bring up and remove the **Developer Unit** (18).





5.1.3 Replacing Eraser Lamp A & B

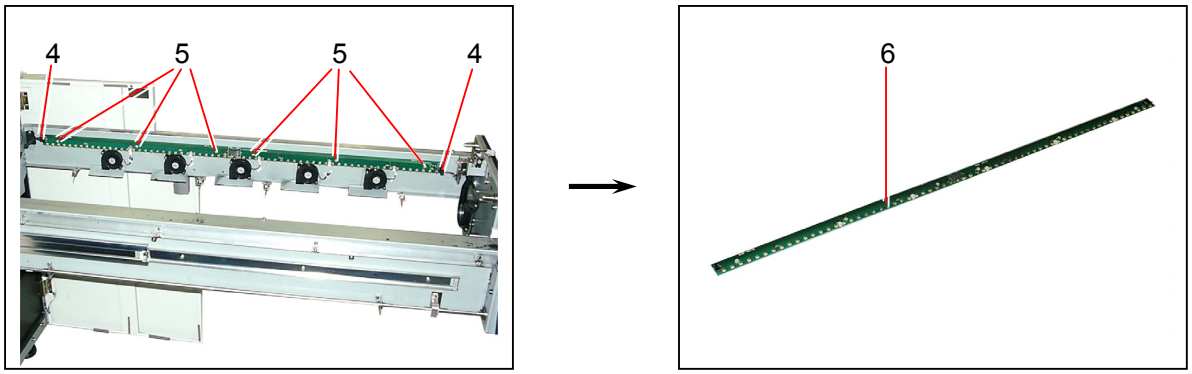
1) Remove each Image Corona (1), Cleaning Roller (2) and Drum Assembly (3) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



NOTE

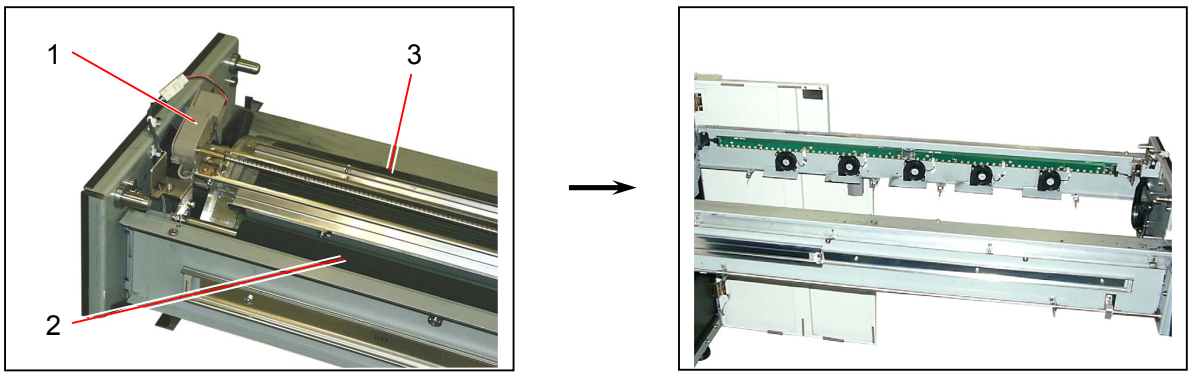
Do not put the Cleaning Roller (2) temporarily on the Process Unit, but please remove it completely and put it on the paper.

2) Disconnect 2 connectors (4), remove 6 pieces of bind head screws (5) and remove both **Eraser Lamps A & B** (6).
Replace Eraser Lamps A & B (6) with the new ones.



5.1.4 Replacing Separation Assist Blowers (BL12 to BL16)

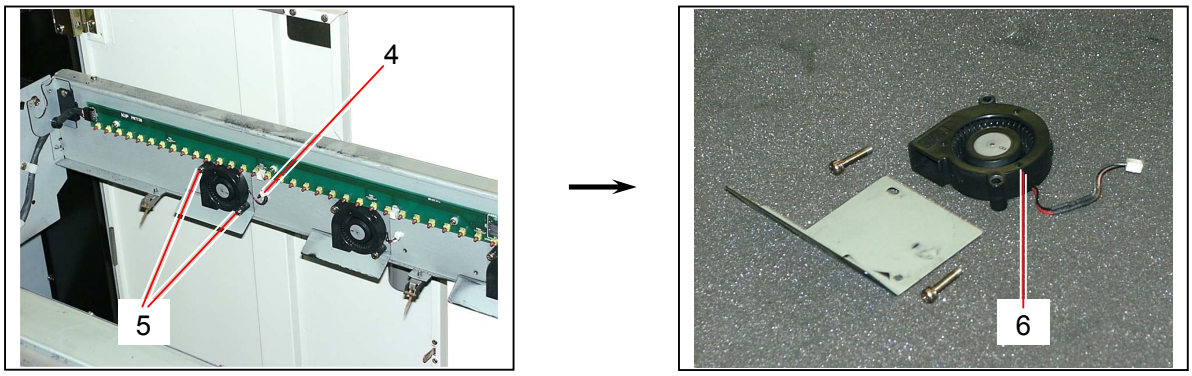
1) Remove each Image Corona (1), Cleaning Roller (2) and Drum Assembly (3) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



NOTE

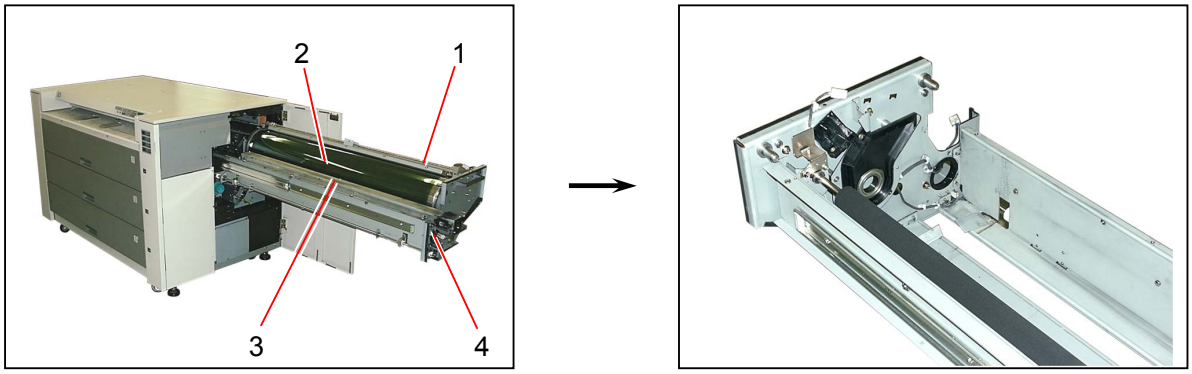
Do not put the Cleaning Roller (2) temporarily on the Process Unit, but please remove it completely and put it on the paper.

2) Disconnect the connector (4), remove 2 pieces of bind head screws (5) and remove each **Separation Assist Blower** (6).
Replace the Separation Assist Blower (6) with the new one.

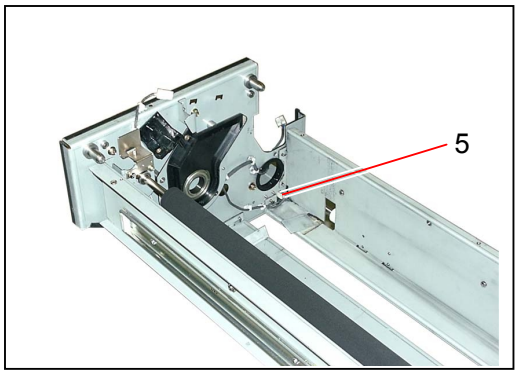


5.1.5 Replacing Developer Unit Position Sensor (PH25)

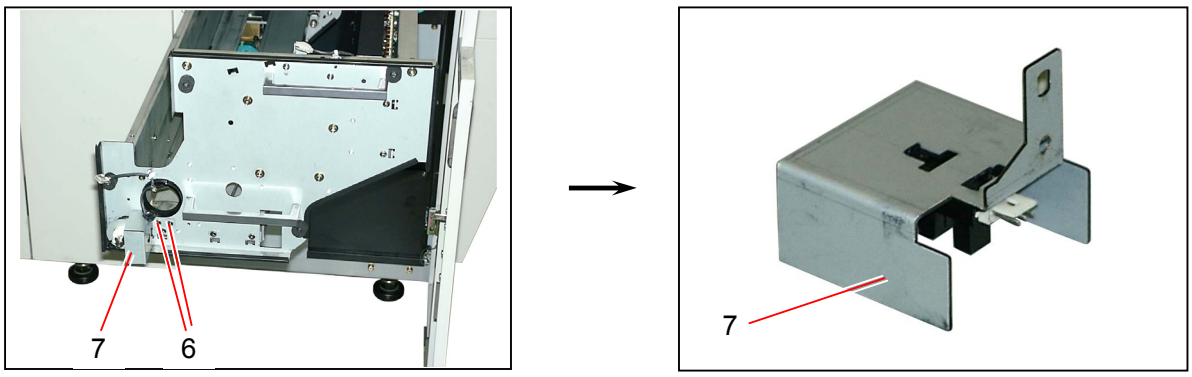
1) Remove each Image Corona (1), Drum Assembly (2), Toner Hopper (3) and Developer Unit (4) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



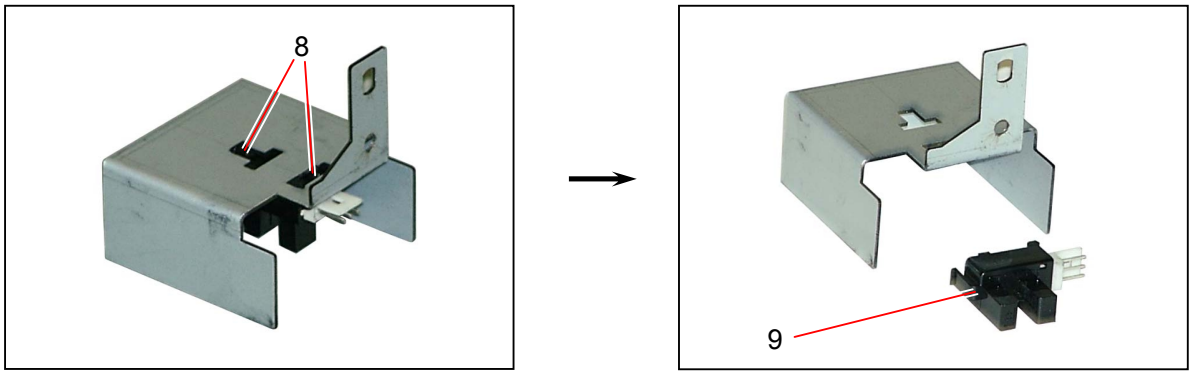
2) Disconnect the connector (5) in the Process Unit.



3) Remove 2 pieces of tooth washer screws (6) out of the Process Unit to remove the Bracket 102 (7) with the sensor.



4) Press and release the Stoppers (8), and then remove the **Developer Unit Position Sensor** (9). Replace the Developer Unit Position Sensor (9).



5.2 Image Corona

5.2.1 Replacing each Periodical Replacement Part of the Image Corona (Corona Wire 1 Assembly, Grid Plate & Wire Cleaning Units)

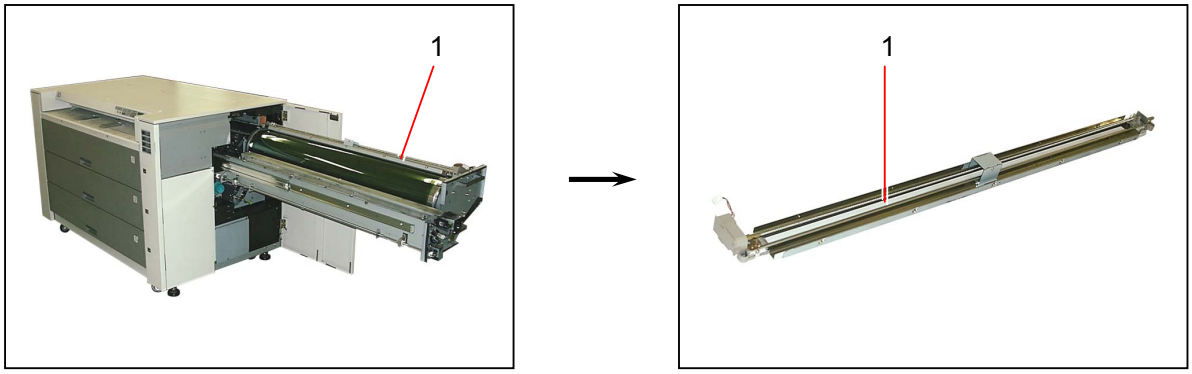
NOTE

Image Corona has the following Periodical Replacement parts.

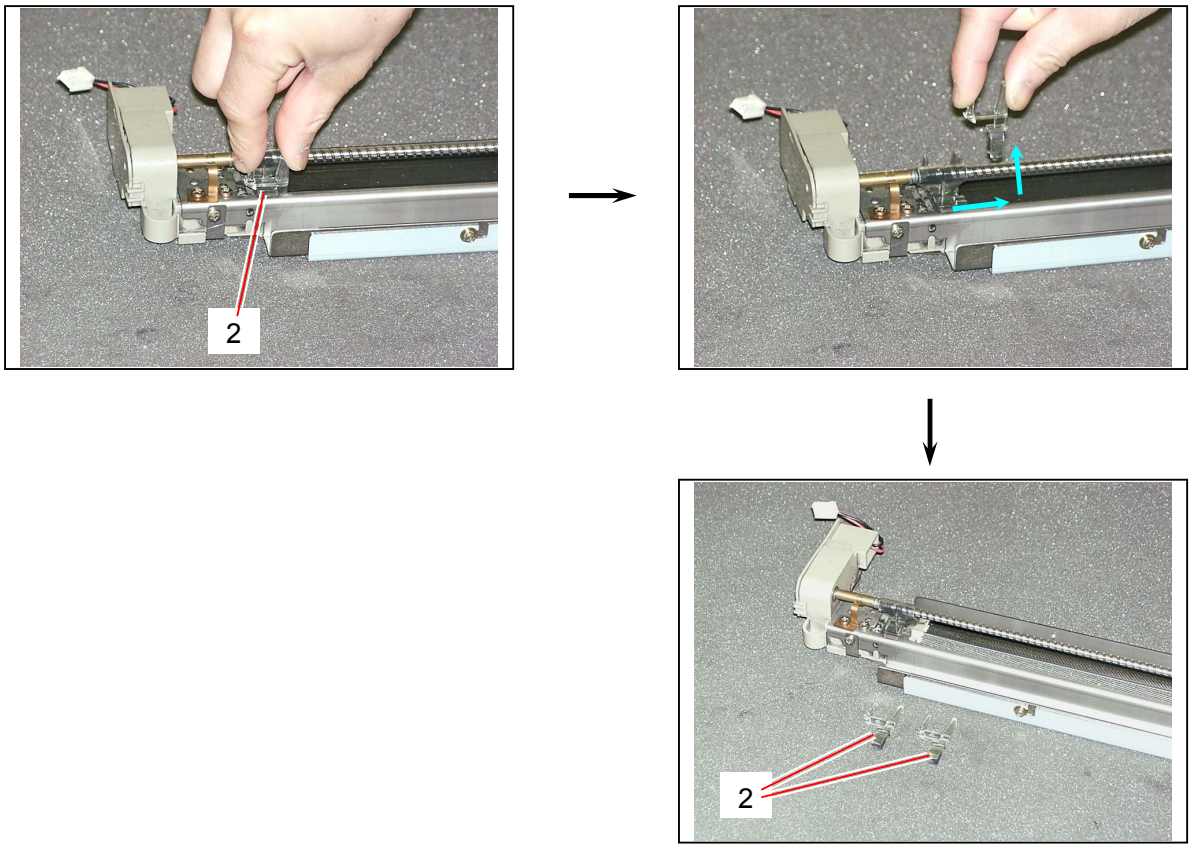
Corona Wire 1 Assembly (2 pieces)	100,000m
Grid Plate (1 piece)	100,000m
Wire Cleaning Unit (2 pieces)	100,000m

This section instructs you to replace all of these parts as one sequent work.

1) Remove the Image Corona (1) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.

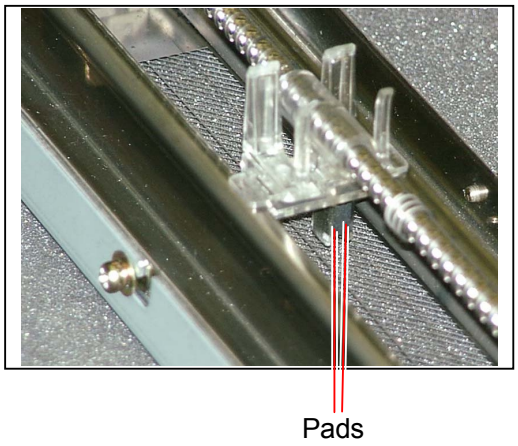


2) Pick the lever of each **Wire Cleaning Unit** (2) to release, move the unit as the arrow mark and remove from the Image Corona.
Replace the Wire Cleaning Units (2) with the new ones.

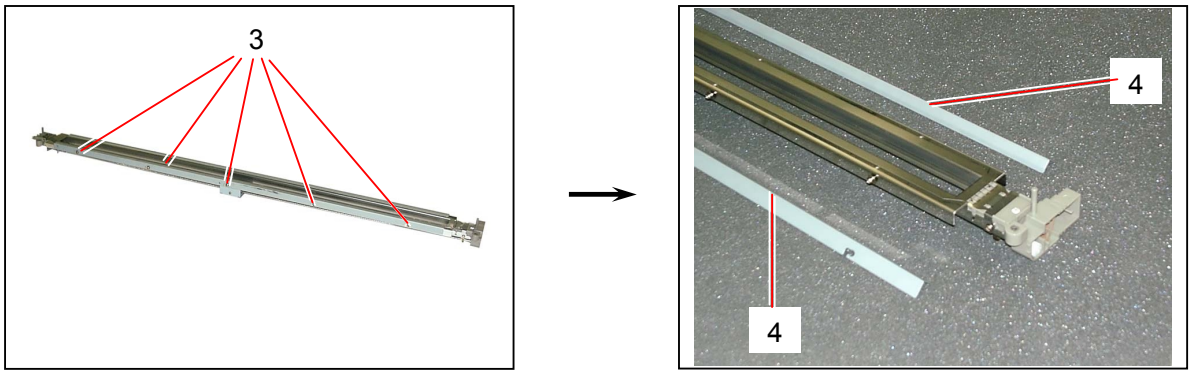


NOTE

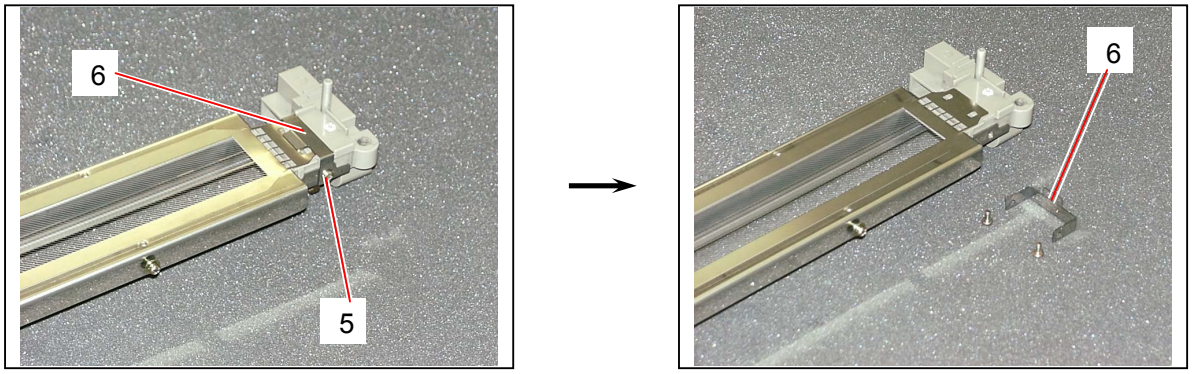
After installing the new Wire Cleaning Unit, confirm the Corona Wire is caught between pads of Wire Cleaning Unit, and also the Corona Wire is straight. If the Corona Wire is out of pads or if it is bent, it will exert a bad effect on the image quality as the height of Corona Wire is not correct.



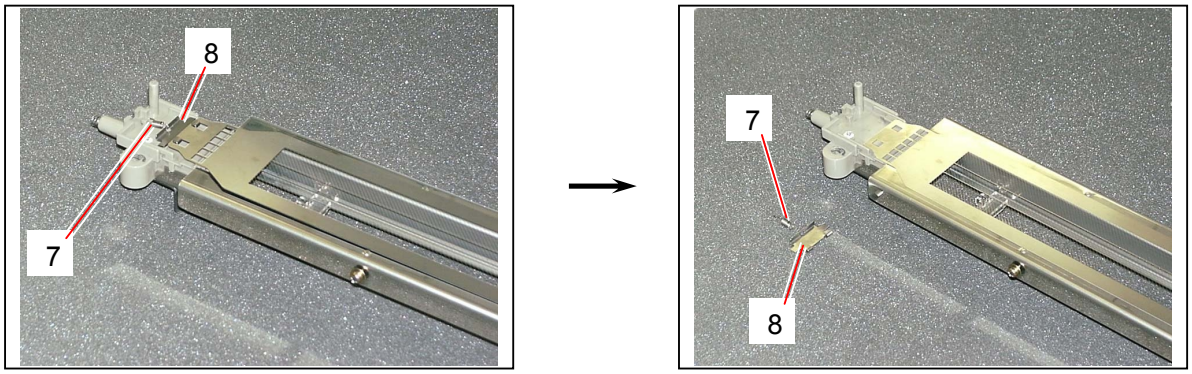
3) Loosen 5 pieces of screws (3) to remove each Bracket 220 (4).



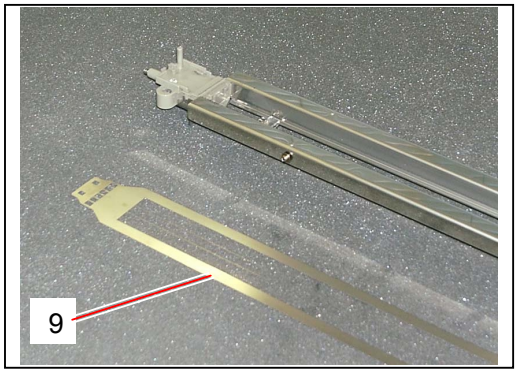
4) Remove 2 pieces of bind head screws (5) on the motor side to remove the Electrode Plate (6).



5) Remove the Grid Spring (7) to remove the Hook (8).

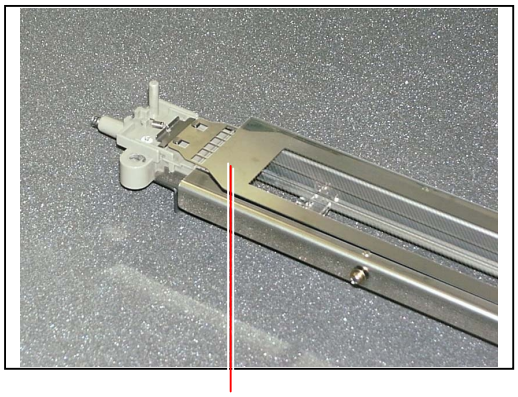


6) Remove the **Grid Plate** (9) and replace it with the new one

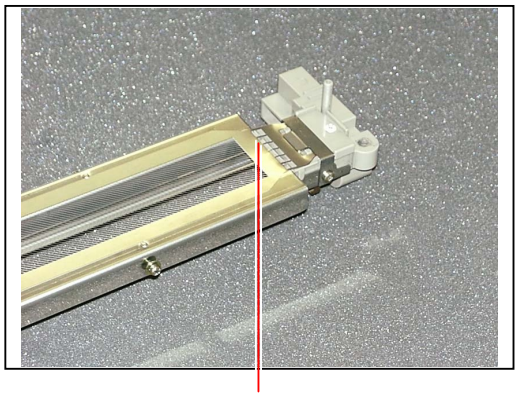


⚠ NOTE

Grid Plate has flat plate areas at both sides, and one side is wider than the other side.
This wider side must be installed on the spring side of the Image Corona.
(You do not have to care about front / back.)

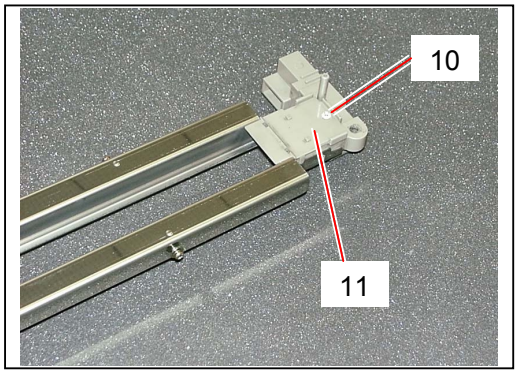


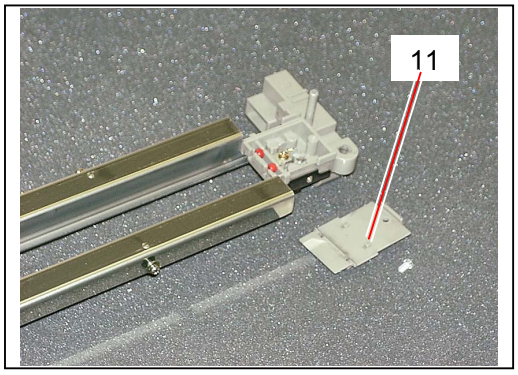
Wide



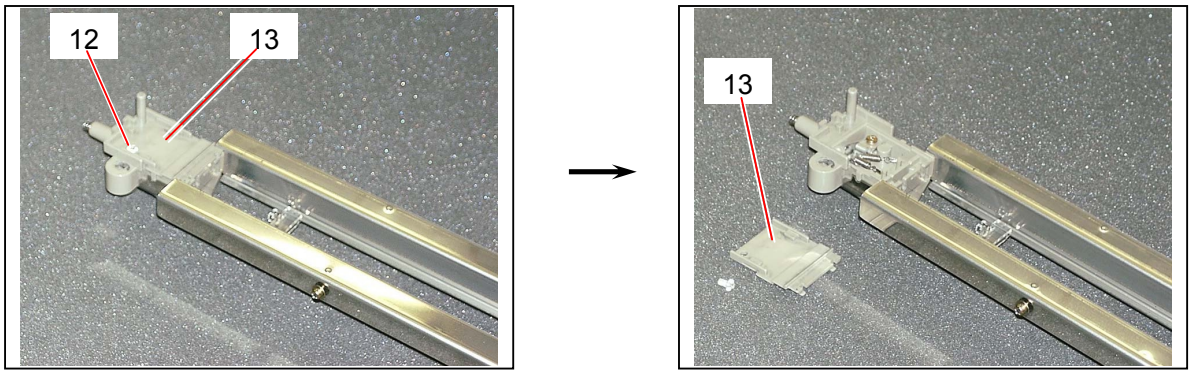
Narrow

7) Remove the Pan Head Screw (10) to remove the Front Housing Cover (11) on the motor side.

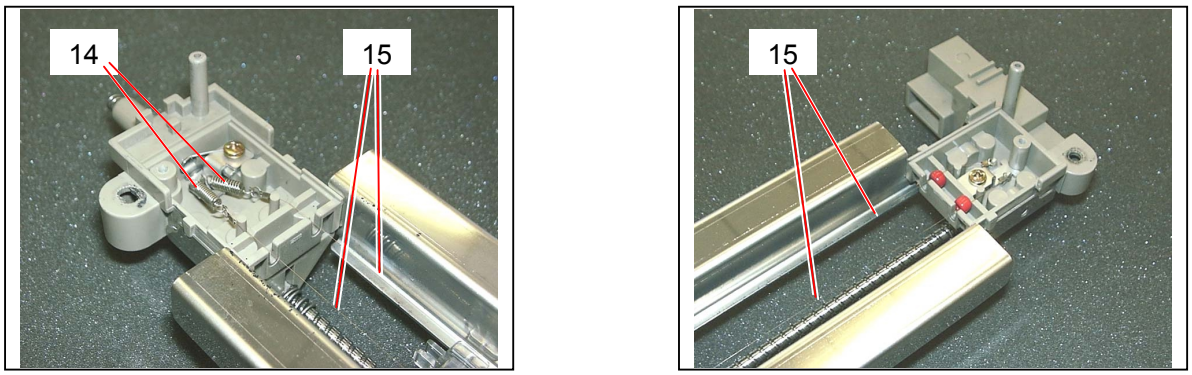




8) Remove the Pan Head Screw (12) to remove the Rear Housing Cover (13).

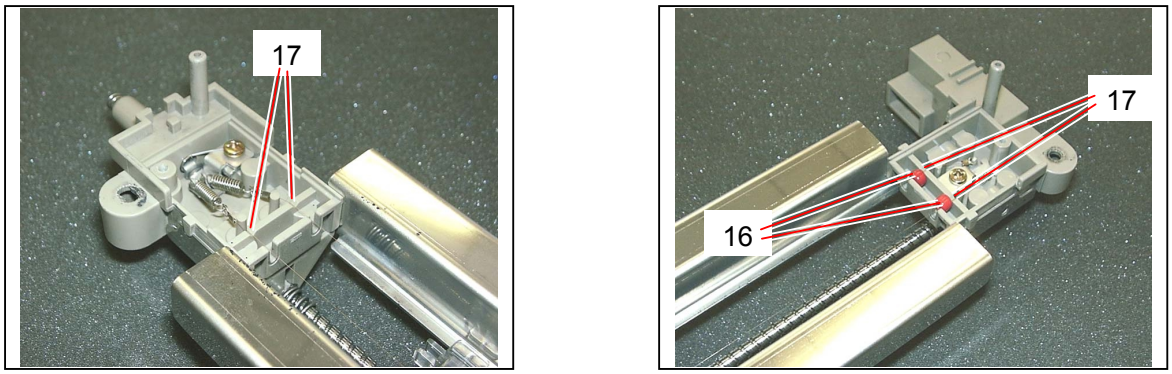


9) Remove Springs (14), and then remove each **Corona Wire 1 Assembly** (15).
Replace the Corona Wire 1 Assemblies (20) with the new ones.



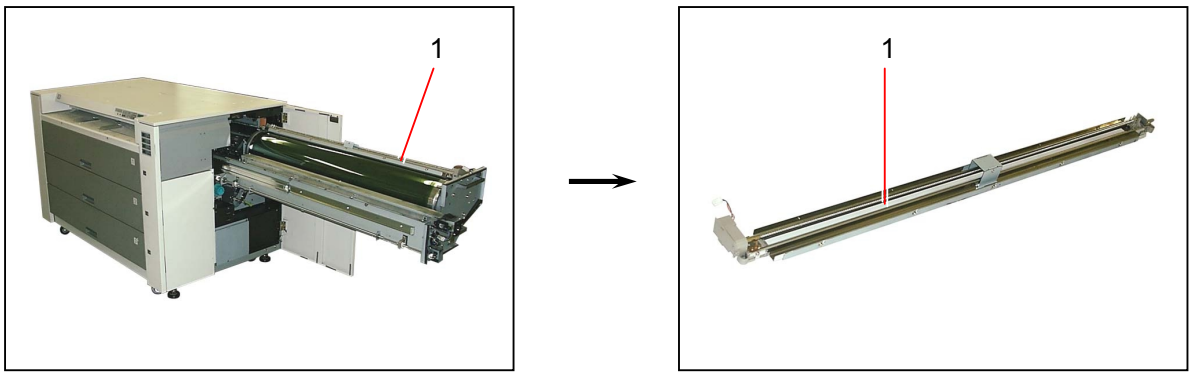
NOTE

When you stretch the new Corona Wire 1 Assembly, make sure to fit its anti-vibration bead (16) into the necessary space in the Corona Heads, and also make sure to fit the wire into the grooves (17).

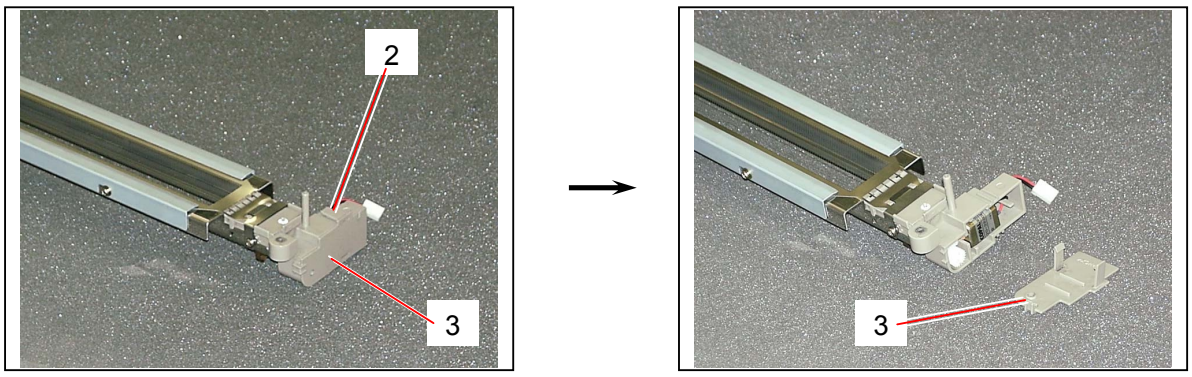


5.2.2 Replacing Wire Cleaning Motor (M9)

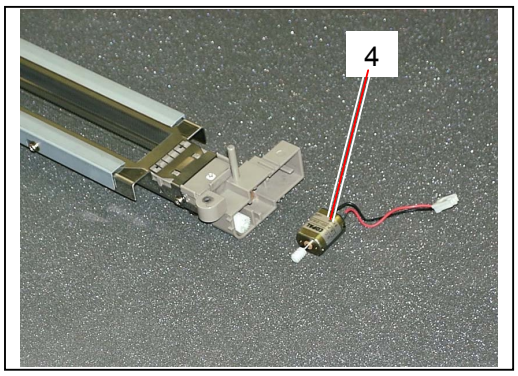
1) Remove the Image Corona (1) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



2) Expanding the Hooks (2) outward, remove the Motor Cover (3).



3) Remove the Wire Cleaning Motor (4).



⚠ NOTE

Please direct the label face outward when you put back the Wire Cleaning Motor.

5.3 Drum Assembly

5.3.1 Replacing each Periodical Replacement Part of the Drum Assembly (Photo Conductive Drum & 178T Gear)

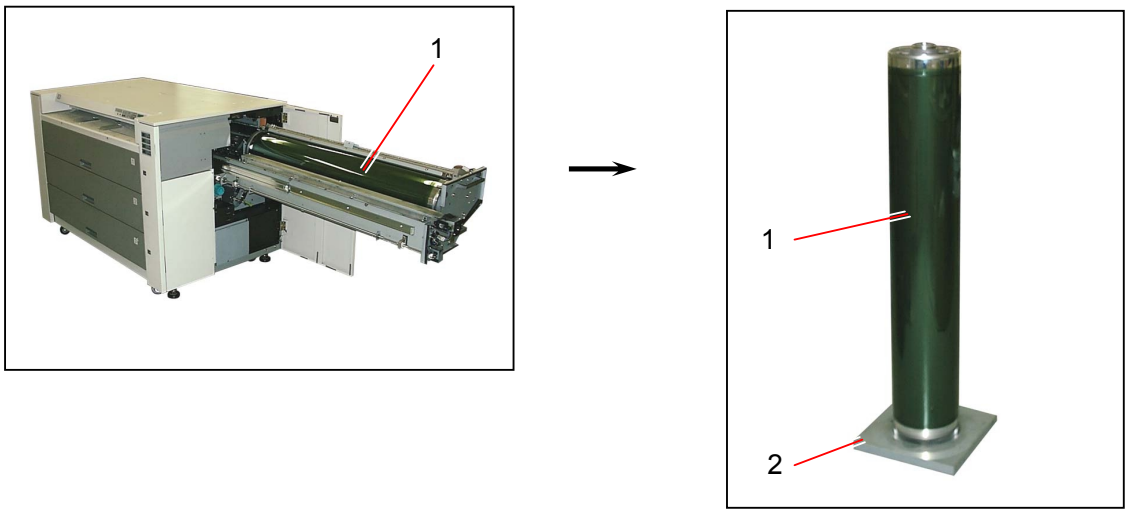
⚠ NOTE

Drum Assembly has the following Periodical Replacement parts.

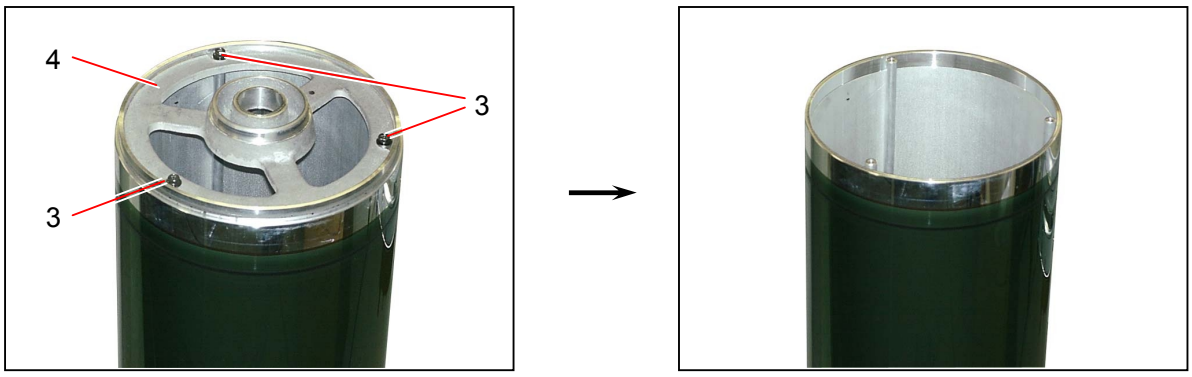
Photo Conductive Drum (1 piece)	200,000m
178T Gear (1 piece)	500,000m

This section instructs you to replace all of these parts as one sequent work.

1) Remove the Drum Assembly (1) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.
Stand the removed Drum Assembly on the attached Drum Stand (2) with its gear side down.

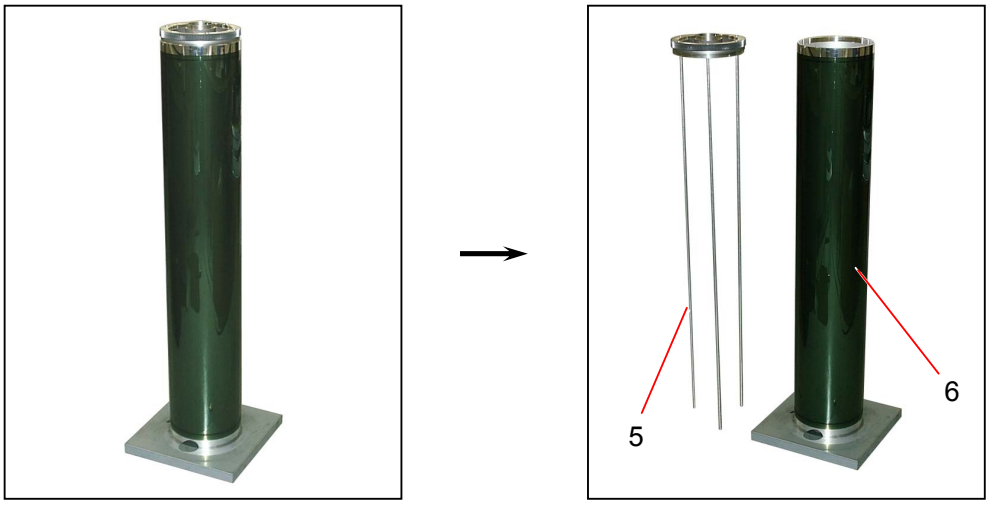


2) Remove 3 pieces of hexagon head bolt (3) to remove the Flange B (4).

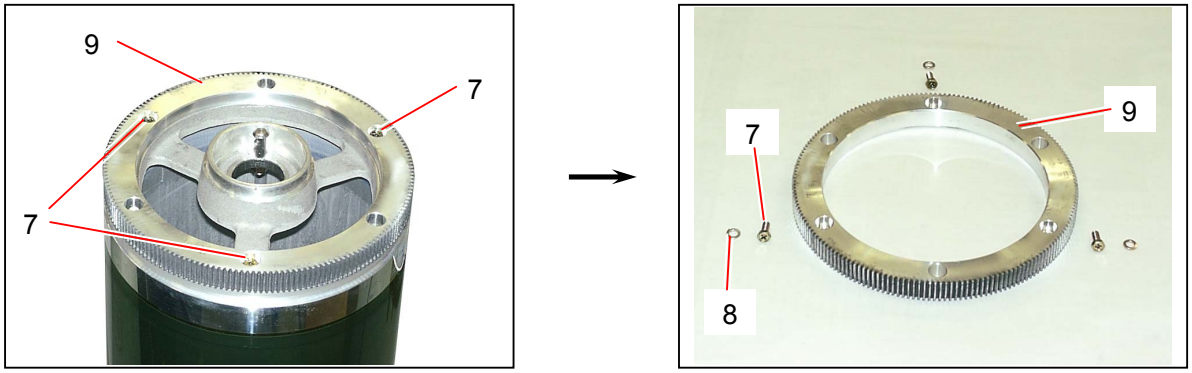


3) Turn over the Drum Assembly to make the gear side up.

4) Pull out the Stay Assembly (5) from the **Photo Conductive Drum** (6).
Replace the Photo Conductive Drum (6) with the new one.



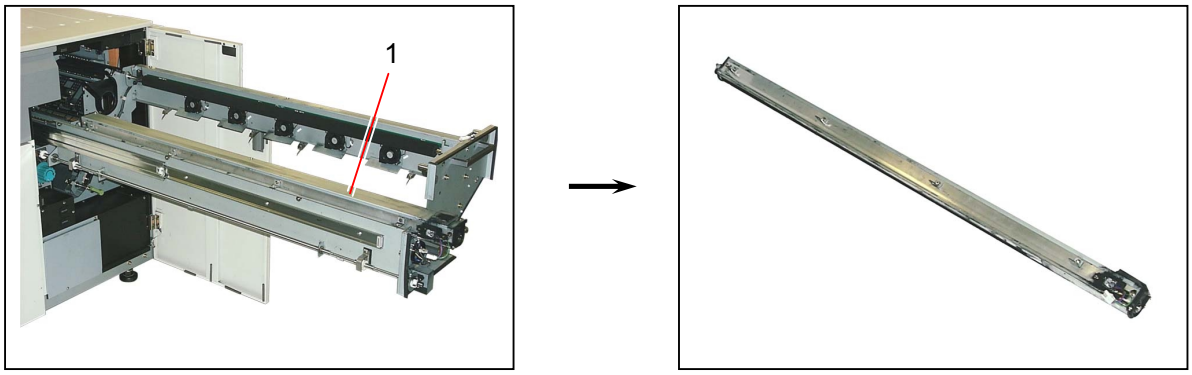
5) Remove 3 pieces of each hexagon head cap screw (7) and spring washer (8) to remove the **178T Gear** (9).
Replace the 178T Gear with the new one.



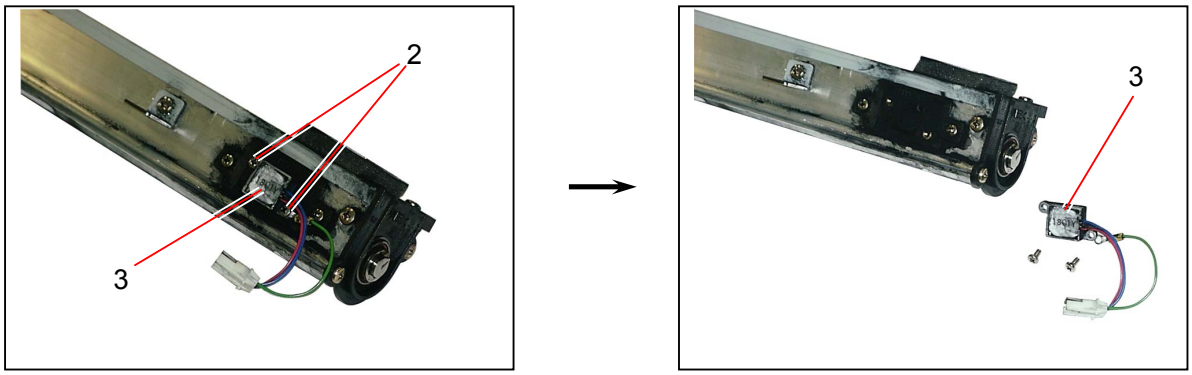
5.4 Toner Hopper

5.4.1 Replacing Hopper Toner Sensor (TLS1)

1) Remove the Toner Hopper (1) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



2) Remove 2 pieces of bind head screw (2) to remove the **Hopper Toner Sensor** (3). Replace the Hopper Toner Sensor (3) with the new one.



5.5 Developer Unit

5.5.1 Replacing each Periodical Replacement Part of the Developer Unit (Rollers, Counter Rollers, Blades & Seals)

NOTE

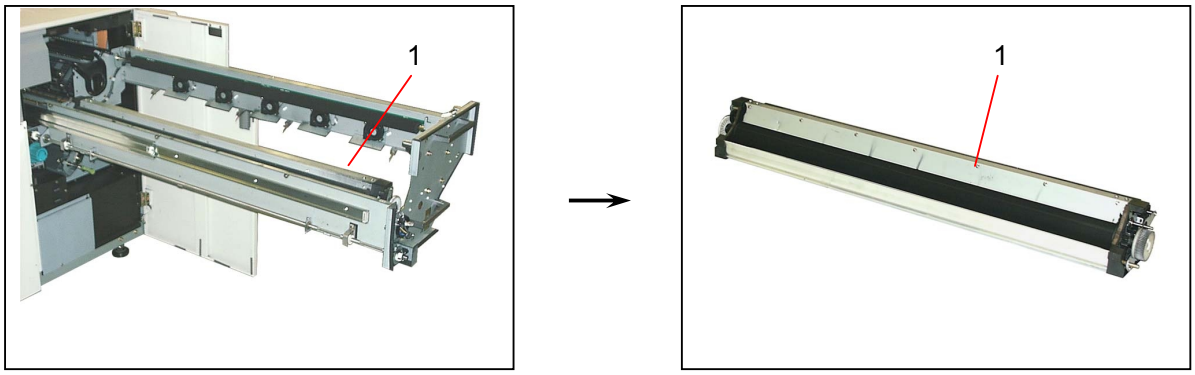
(1) The following Periodical Replacement Parts are included in the Developer Unit.

Toner Supply Roller	1 piece
Development Roller	1
Counter Roller	2
Seal 130	2
Seal 553	1
Seal 558	1
Seal 555	2
Seal 557	2
Seal 550	2
Seal 551	2
Seal 554	1
Seal 559	1
Side Seal 491	2
Bracket 581	1
Bracket 582	1
Double Gear 39-23	1
30T Gear	1

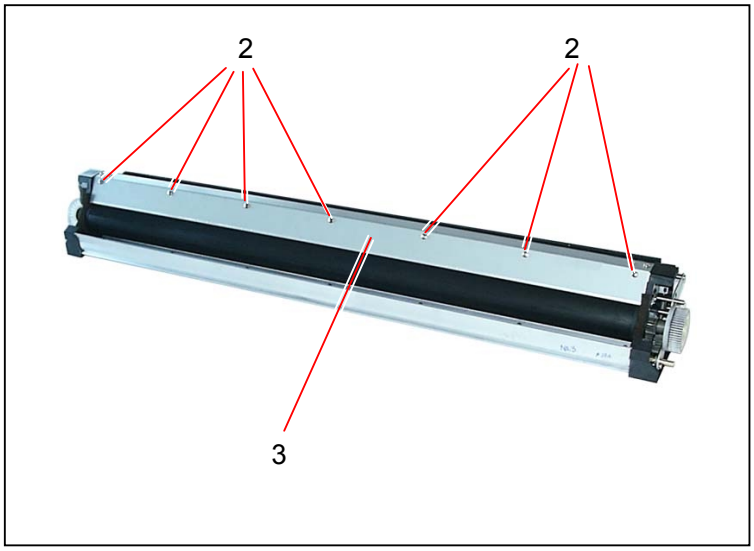
The replacement term of all of the above parts are 200,000m.
This section instructs you to replace all of these parts as one sequent work.

(2) Please remove all the toner from the Developer Unit before replacing the above parts.

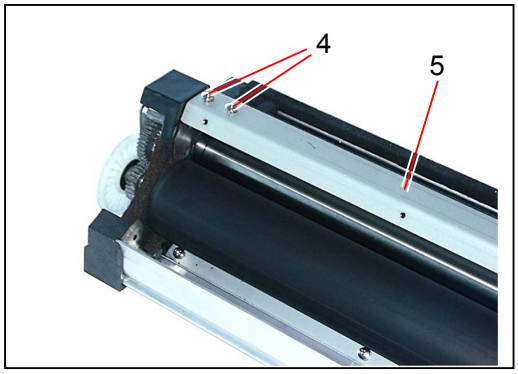
1) Remove the Developer Unit (1) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.

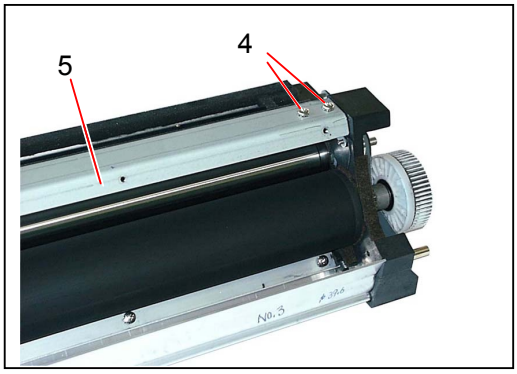


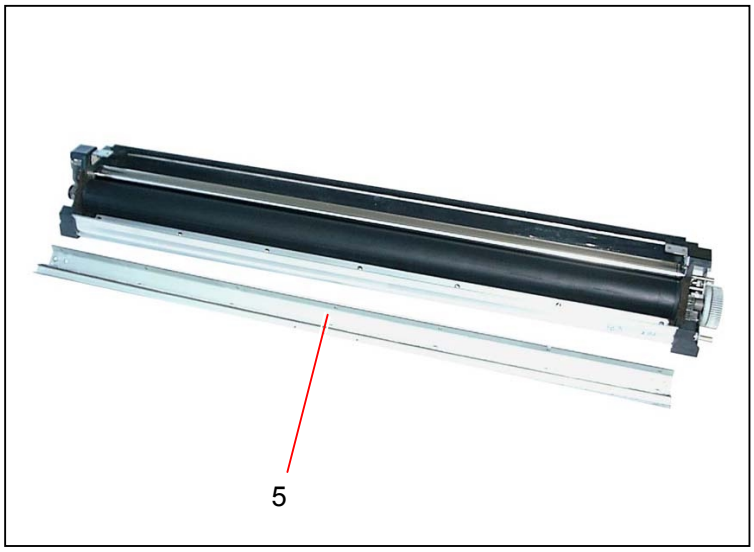
2) Remove 7 pieces of screw (2) to remove the Cover (3).



3) Remove 4 pieces of tooth washer screw (4) to remove the Stay 1 (5).

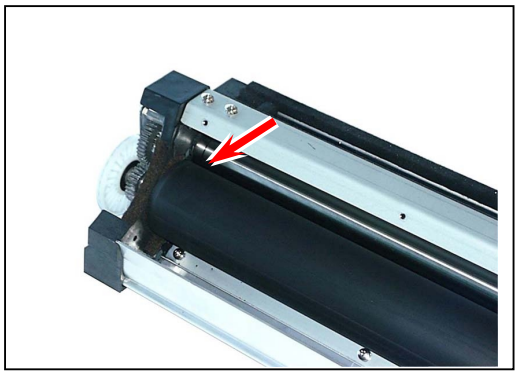


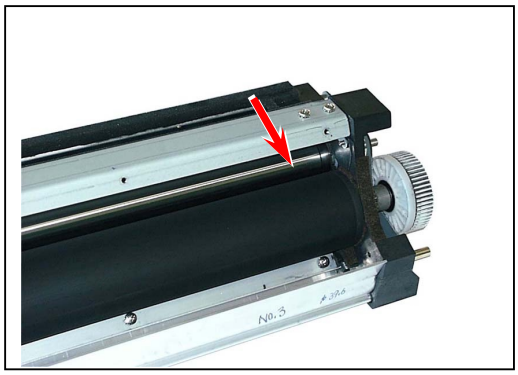




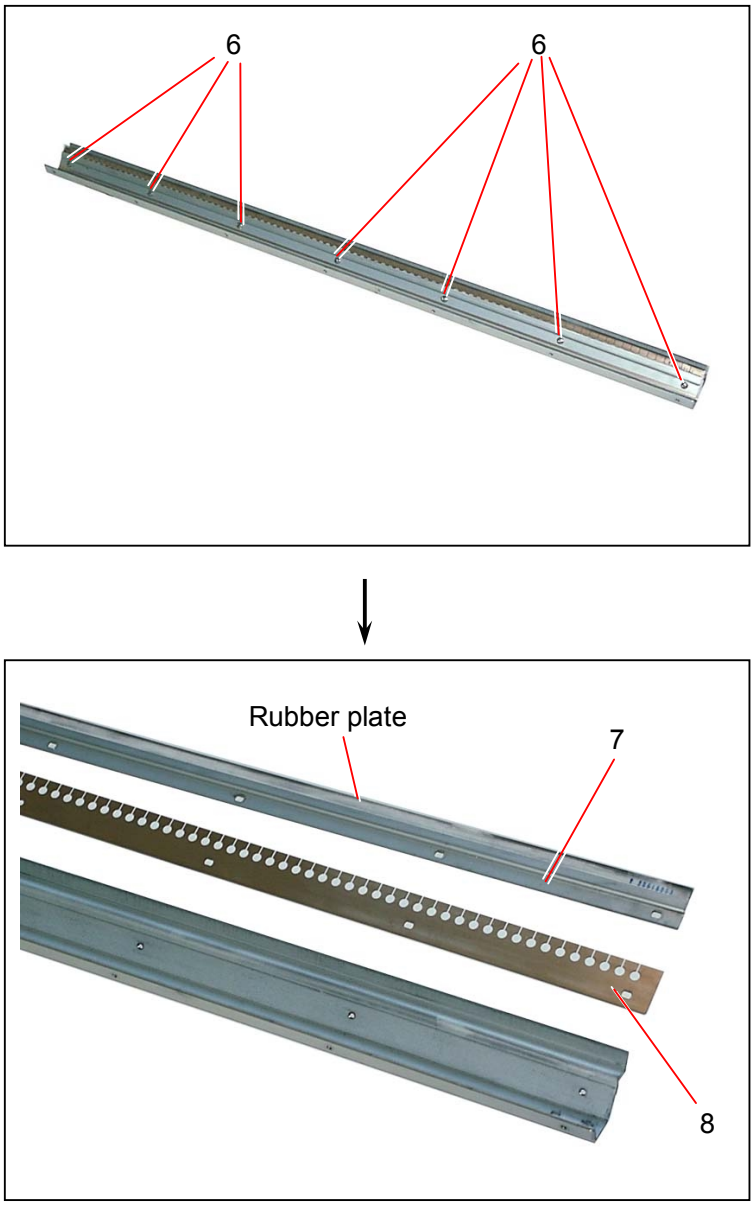
NOTE

When putting back the Stay 1 (5) to the Developer Unit, tighten tooth washer screws (4) pressing the Stay 1 (5) toward the arrow mark to eliminate the gap between Cleaning Blade and Development Roller.





4) Remove 7 pieces of screw (6) to remove the **Bracket 581** (7) and the Holder Spring (8).
Replace the **Bracket 581** (7) with the new one.



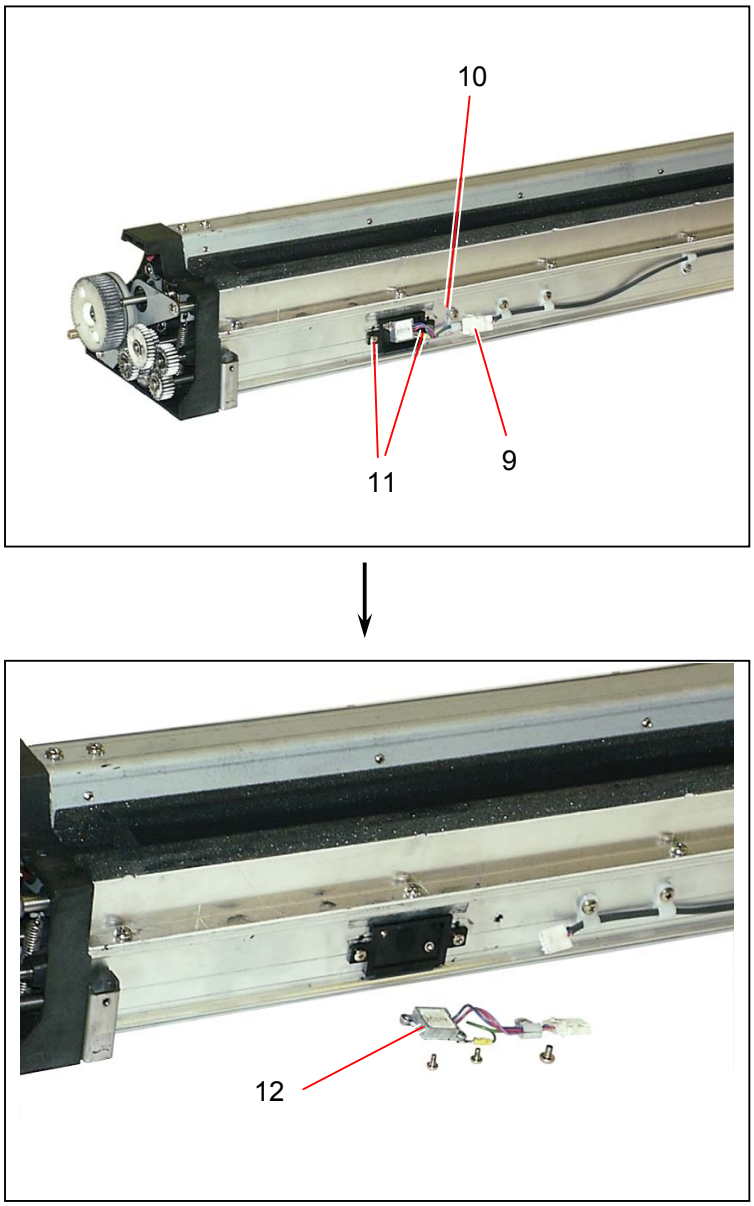
⚠ NOTE

(1) The rubber plate of the Bracket 581 (7) touches the Regulation Roller and scrapes off the toner.
Please provide a little toner onto the edge of rubber plate when you install the new Bracket 581 (7), as it can reduce the friction between rubber plate and Regulation Roller.
If you do not, the rubber plate may be turned over by the friction and may be broken.

(2) Screw holes of the Bracket 581 (7) are oval.
Please tighten the screws (6) at the center of each oval hole.
If not tightened at the center (Bracket 581 is shifted to either side), the rubber plate may be bent because it touches the Developer Side Plate, which results in a poor cleaning.

(3) Before putting back the Developer Unit to the Process Unit, please confirm that the rubber plate of Bracket 581 (7) surely scrapes off the toner from the Regulation Roller.
Also, please confirm the rubber plate is not turned over by the friction even if you rotate the Regulation Roller.

5) Disconnect the connector (9), remove the screw (10) to make the harness free, and then remove 2 pieces of bind head screw (11) to remove the Toner Sensor (12).



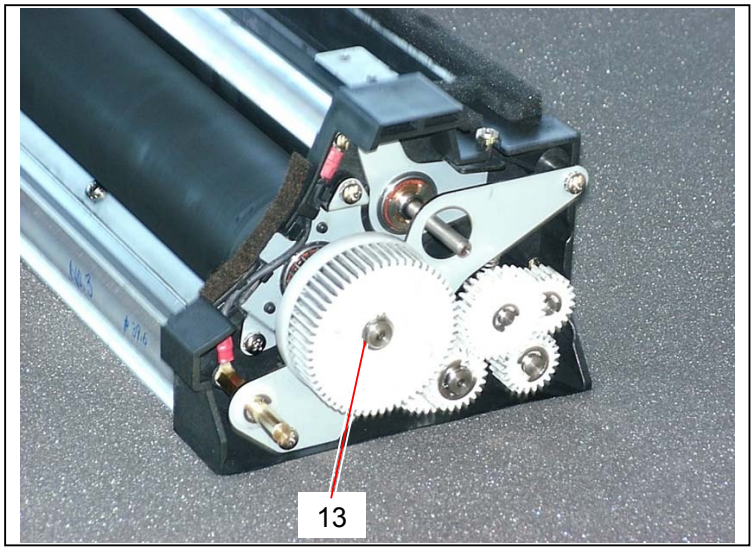
NOTE

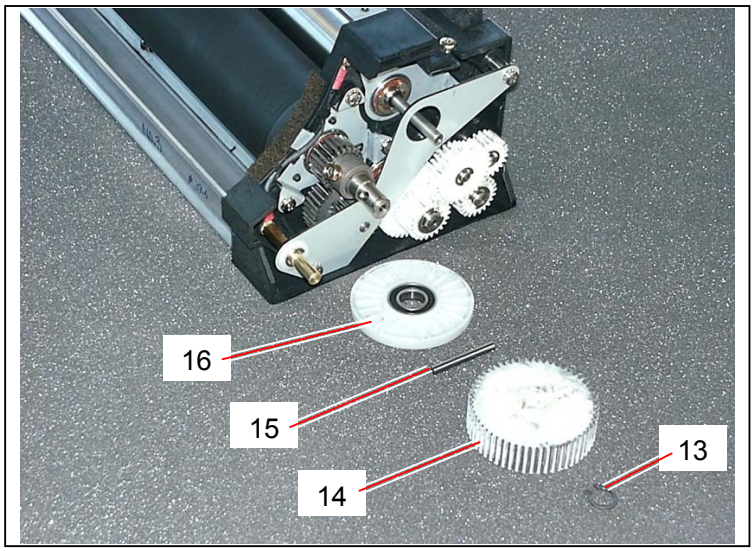
Make sure to remove the Toner Sensor (12) at this time!
You will remove all the toner from the Developer Unit with a vacuum cleaner in the next step.
If you clean the unit with the vacuum cleaner without removing the Toner Sensor, it may be broken by a static electricity.

6) Remove all the toner from the Developer Unit.
(Put the Developer Unit on a large paper, turn over the unit and remove the toner as far as possible. Then, vacuum the remainder of toner with a vacuum cleaner.)

7) Remove the Retaining Ring-C (13) on the driving side to remove 56T Gear (14), Parallel Pin (15) and **Counter Roller** (16).
Replace the **Counter Roller** (16) with the new one.

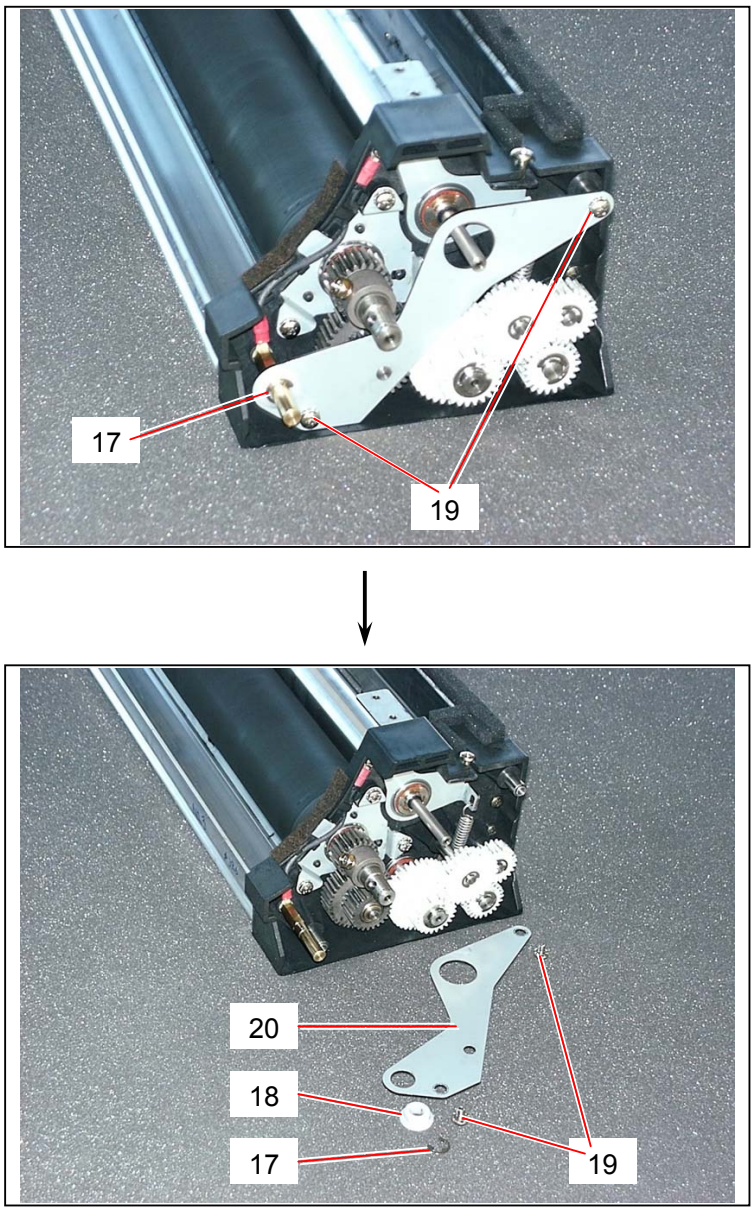
(Driving side)





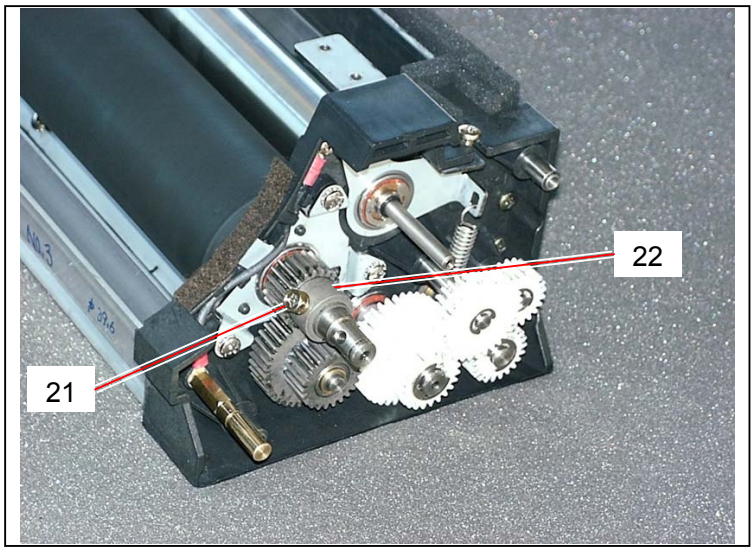
8) Remove the Retaining Ring-E (E5) (17) to remove the Collar (18).
Remove 2 pieces of screw (19) to remove the Bracket 576 (20).

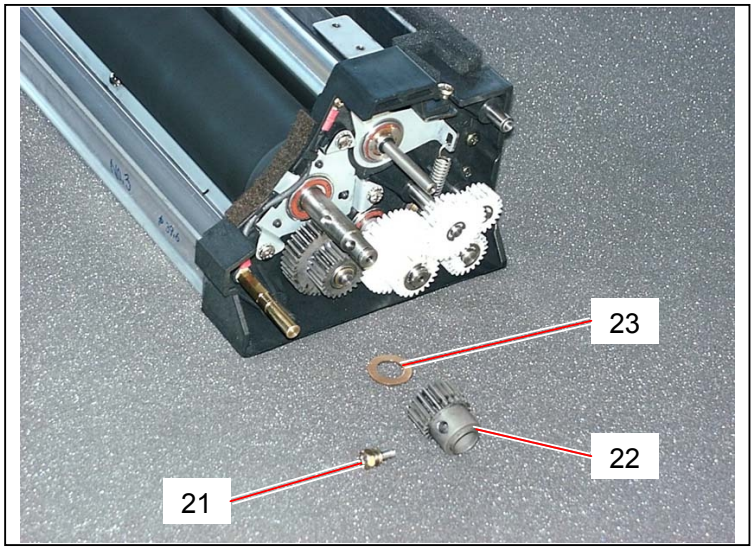
(Driving side)



9) Remove the Hex. Head Bolt (21) to remove 22T Gear (22) and Thrust Washer (12.1x20x1) (23).

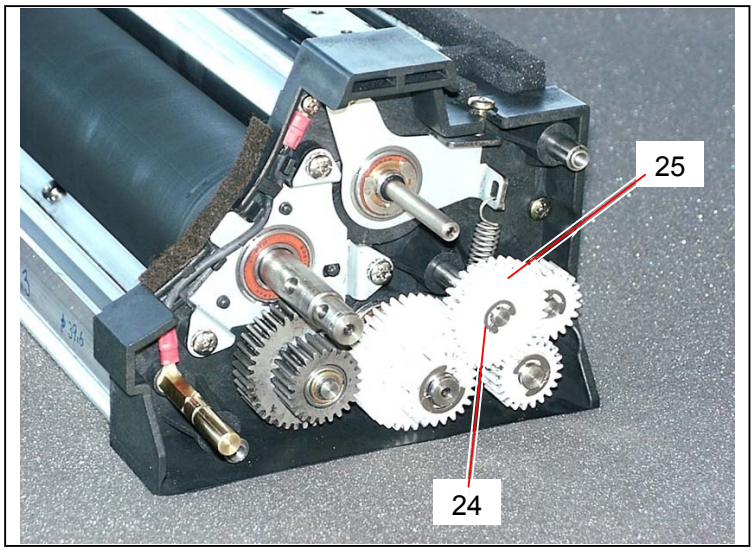
(Driving side)

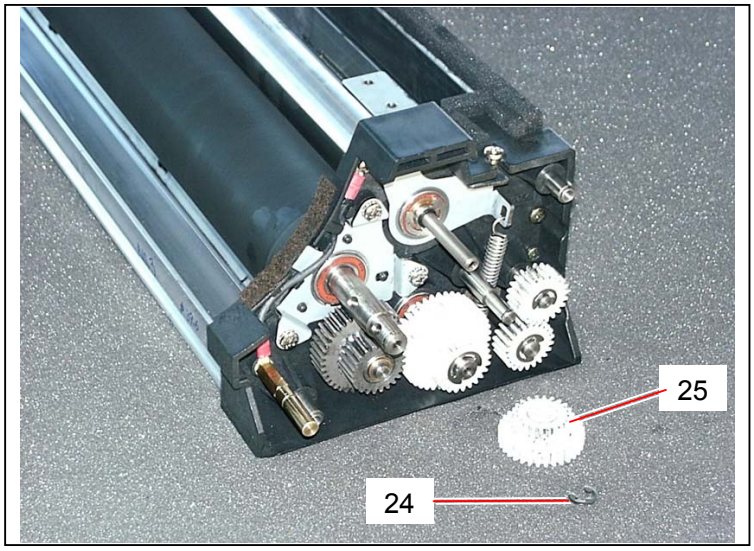




10) Remove the Retaining Ring-E (E5) (24) to remove the Double Gear 32-22 (25).

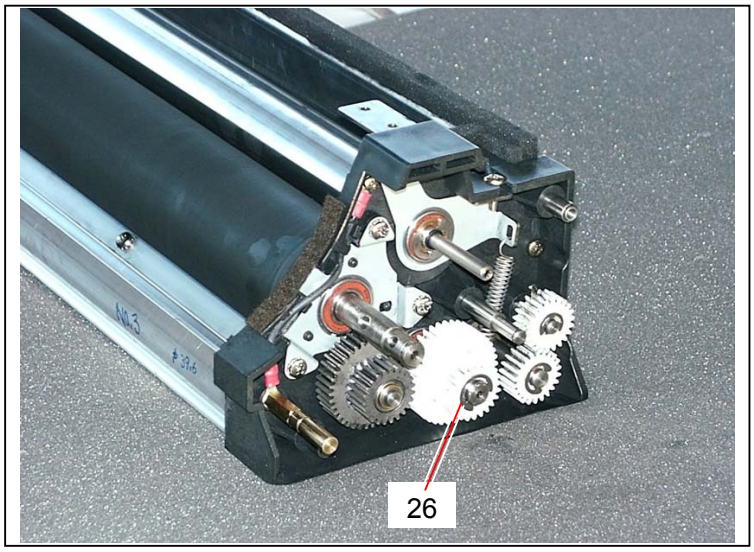
(Driving side)

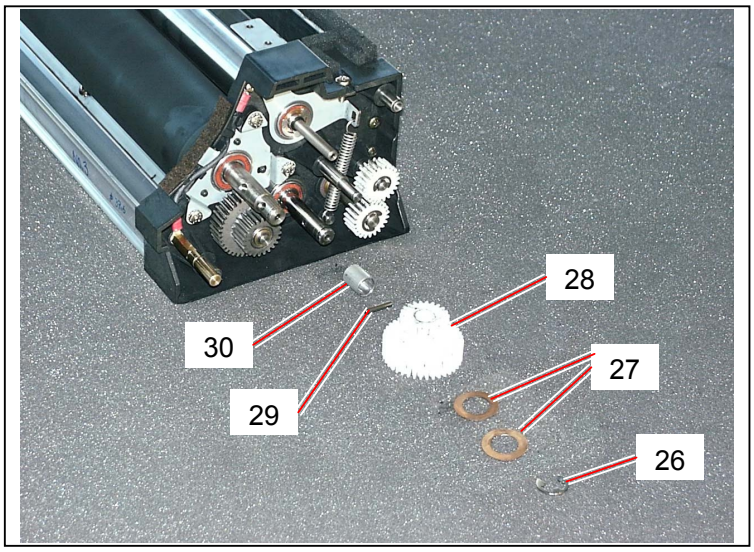




11) Remove the Retaining Ring-E (E8) (26) to remove Thrust Washers (10.1x16x0.2) (27), **Double Gear 39-23** (28), Parallel Pin (29) and Spacer (30).

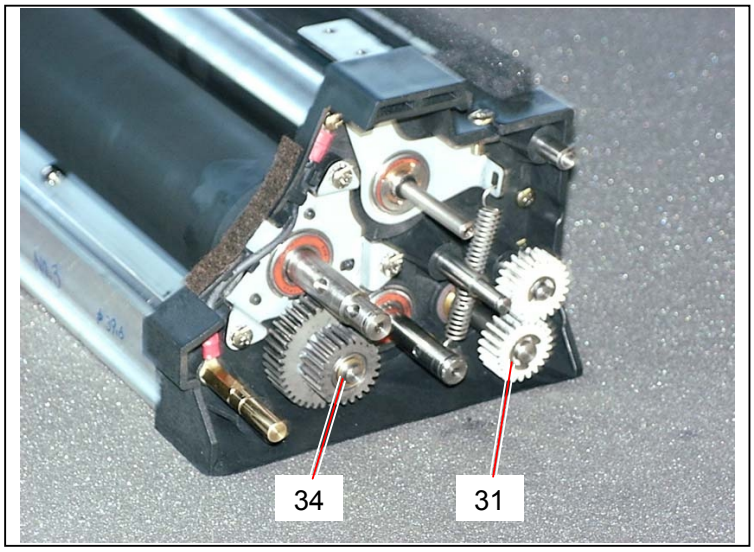
(Driving side)

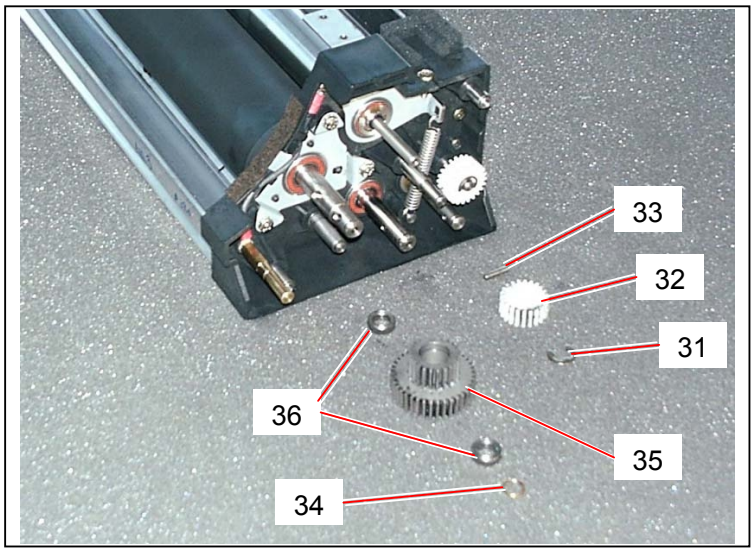




12) Remove the Retaining Ring-E (E7) (31) to remove 22T Gear (32) and Parallel Pin (33). Remove Collar (34), Double Gear-39-23 (35) and Ball Bearings (8x14x4.0) (36).

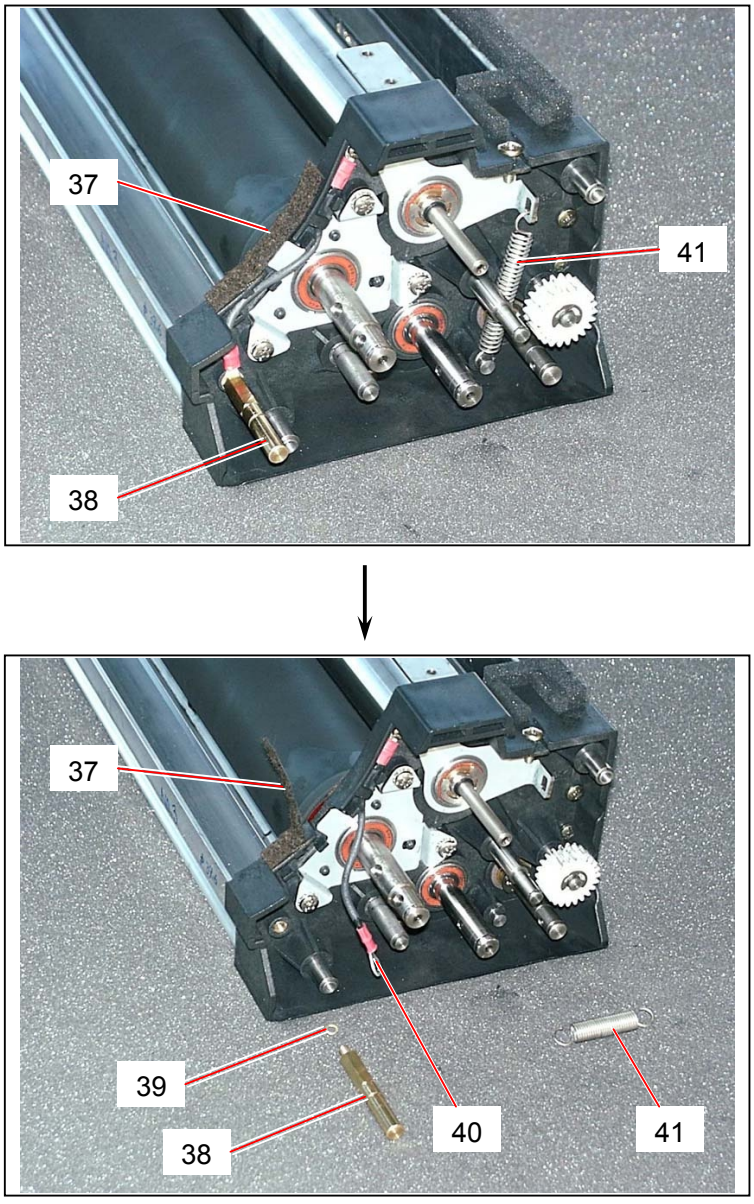
(Driving side)





13) Sprit off the **Side Seal 491** (37), and then remove Bias Stud (38) and Spring Washer (39) to make the Bias Terminal Lead (40) free. (As the entrance of guide of the Developer Side Plate is opened, it becomes possible to remove Development Roller and Regulation Roller.)
Remove the Spring 507 (41)

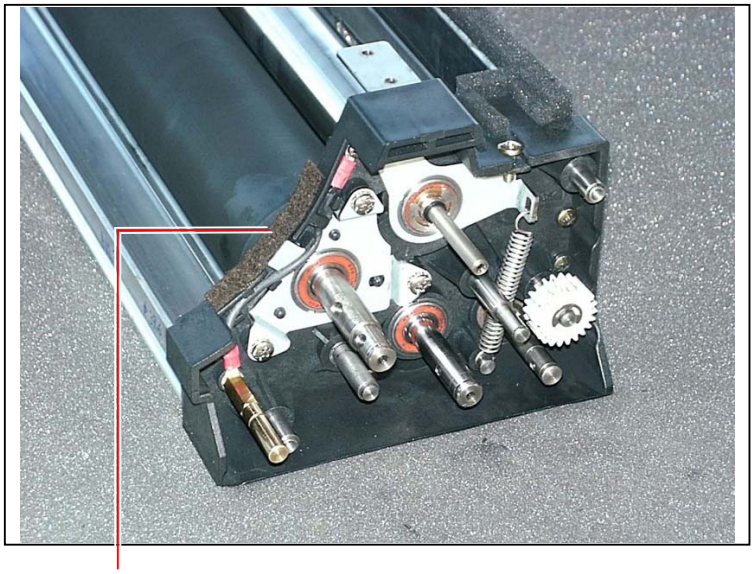
(Driving side)



⚠ NOTE

(1) Do not paste the new **Side Seal 491** (37) to the Developer Side Plate at this time because the entrance of guide for Regulation Roller and Developer Roller must be opened.
If you have installed the Regulation Roller and the new Development Roller, you can paste the new **Side Seal 491** (37).

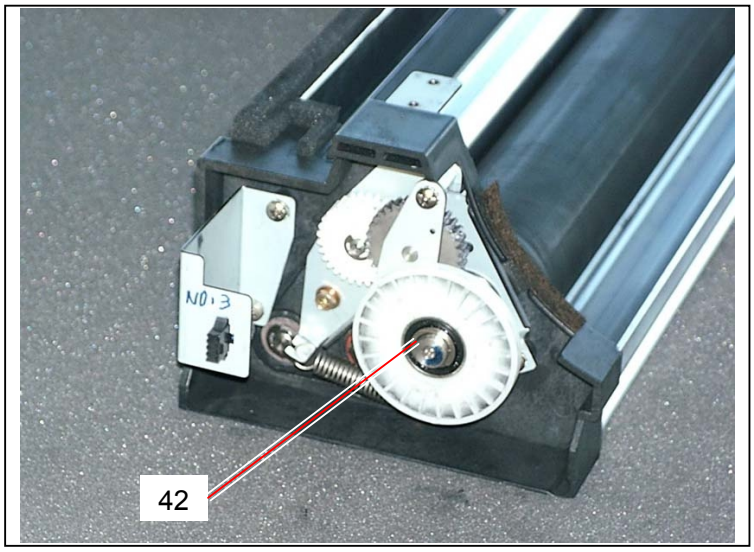
(2) There must be no space between **Side Seal 491** (37) and Development Roller.
Be careful of it when you paste the new seal.

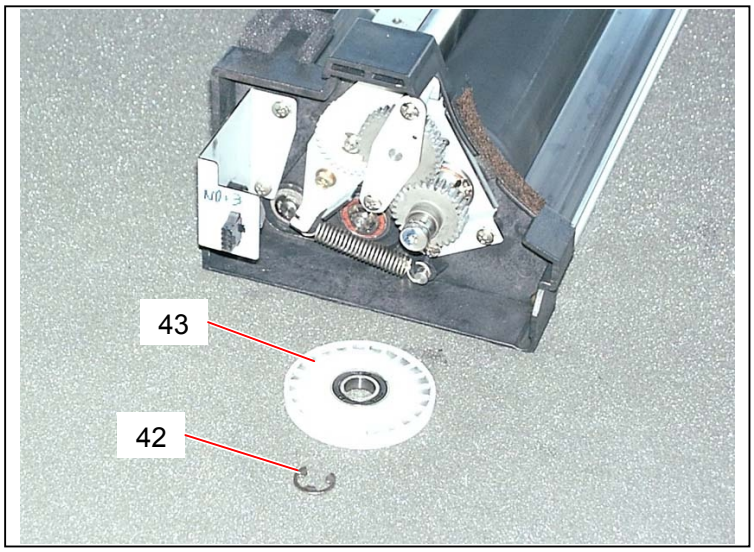


No space must exist.

14) Remove the Retaining Ring-E (E8) (42) on the driven side to remove the **Counter Roller** (43). Replace the **Counter Roller** (43) with the new one.

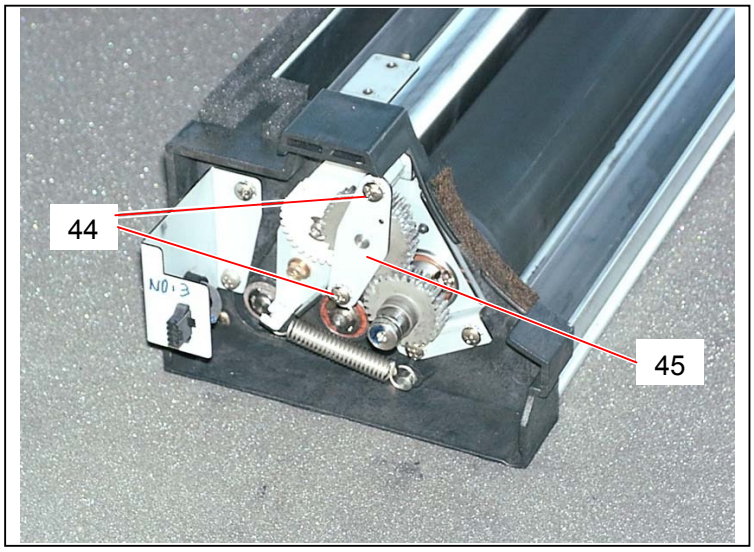
(Driven side)

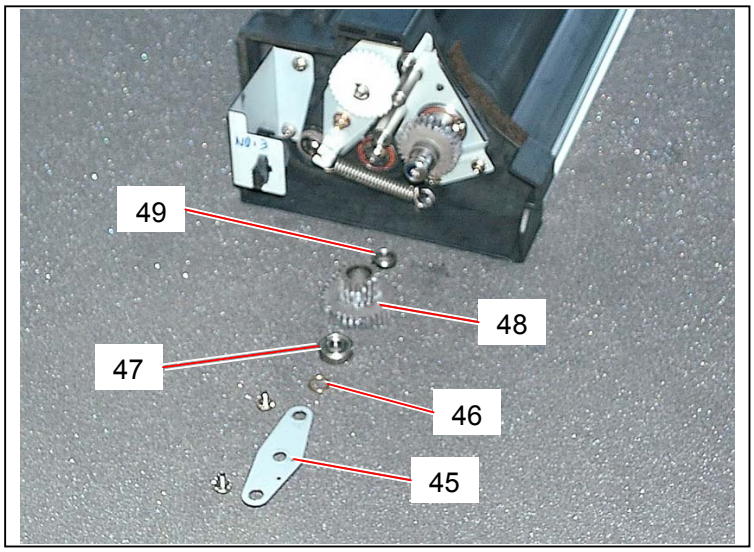




15) Remove 2 pieces of screw (44) to remove Bracket 578 (45), Collar (46), Ball Bearing (8x16x5.0) (47), Double Gear 34-18 (48) and Ball Bearing (8x12x3.5) (49).

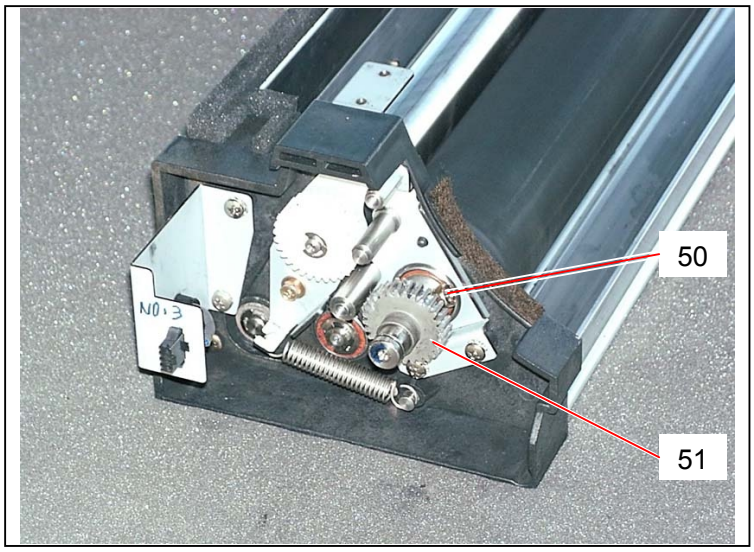
(Driven side)

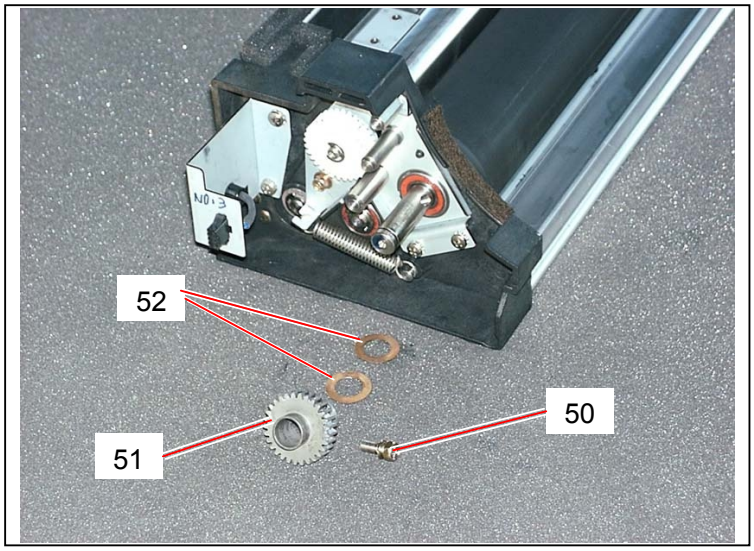




16) Remove the Hex. Head Bolt (50) to remove 29T Gear (51) and Thrust Washers (12.1x20x0.2) (52).

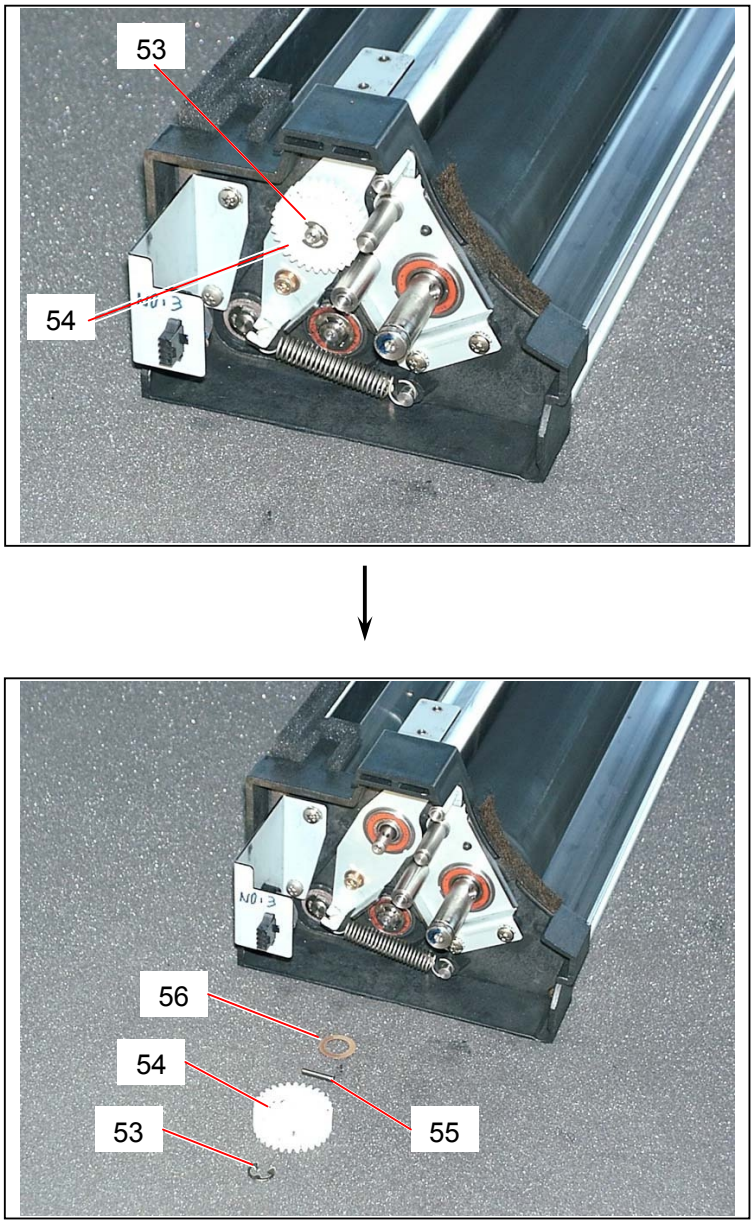
(Driven side)





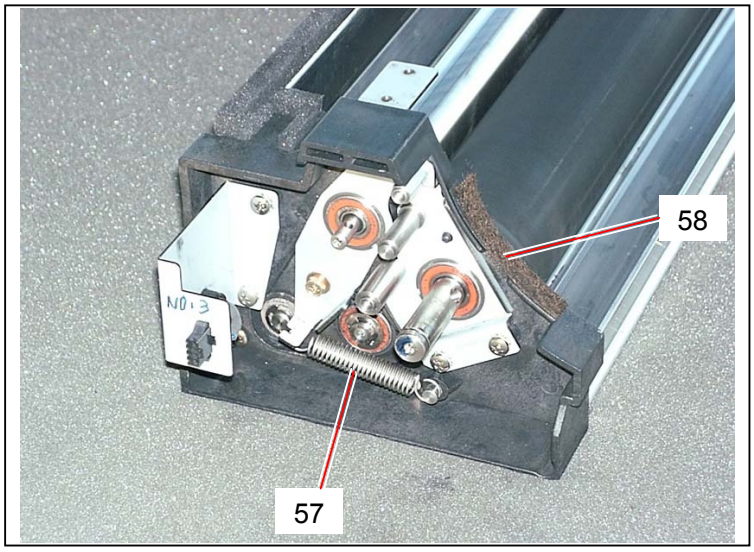
17) Remove the Retaining Ring-E (E5) (53) to remove **30T Gear** (54), Parallel Pin (55) and Thrust Washer (10.1x16x0.2) (56).

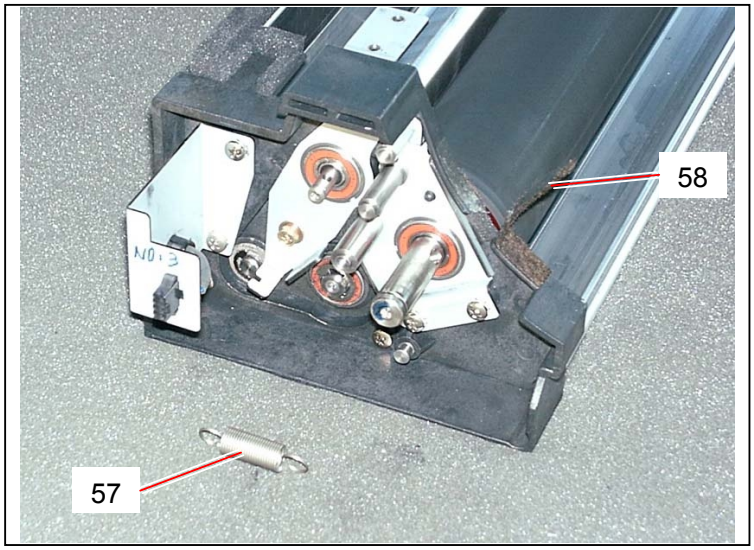
(Driven side)



18) Remove the Spring 107 (57).
Sprit off the **Side Seal 491** (58). (As the entrance of guide of the Developer Side Plate is opened, it becomes possible to remove Development Roller and Regulation Roller.)

(Driven side)

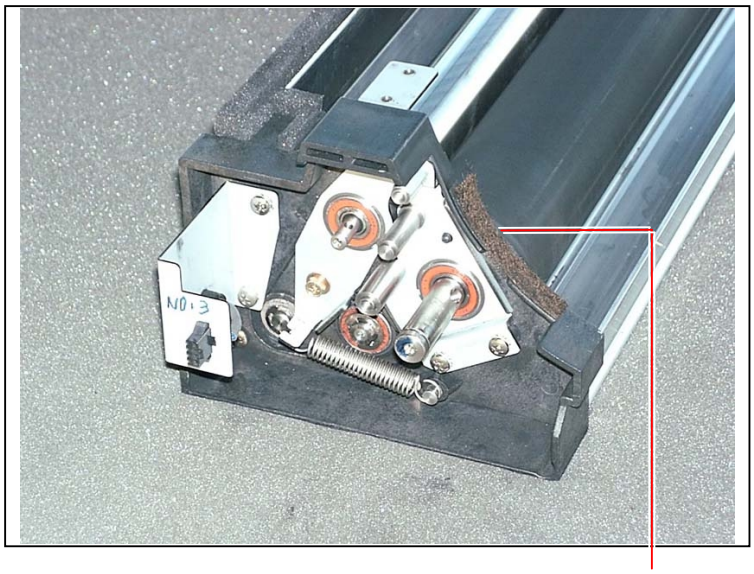




⚠ NOTE

(1) Do not paste the new **Side Seal 491** (58) to the Developer Side Plate at this time because the entrance of guide for Regulation Roller and Developer Roller must be opened.
If you have installed the Regulation Roller and the new Development Roller, you can paste the new **Side Seal 491** (58).

(2) There must be no space between **Side Seal 491** (58) and Development Roller.
Be careful of it when you paste the new seal.

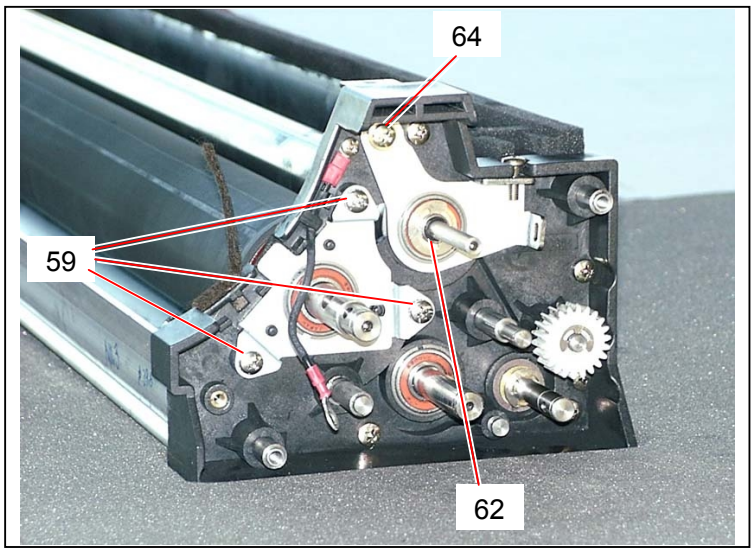


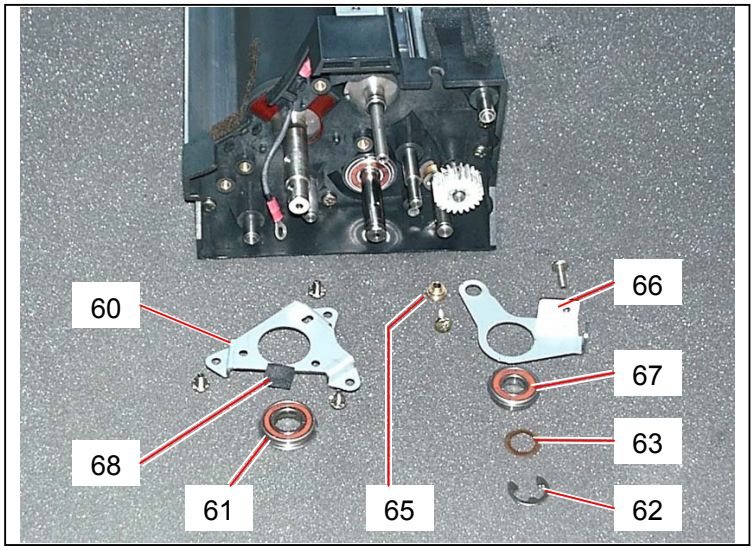
No space must exist.

19) Remove 3 pieces of screw (59) to remove Bracket 574 (60) and Ball Bearing (12x24x6.0) (61) on the driving side.
Remove the Retaining Ring-E (E9) (62) to remove the Thrust Washer (10.1x16x0.2) (63).
Remove a bind head screw (64), and then remove Collar (65), Blade Arm A (66) and Ball Bearing (10x22x6.0) (67).

Sprit off the **Seal 555** (68) from the Bracket 574 (60), and then paste the new one.

(Driving side)

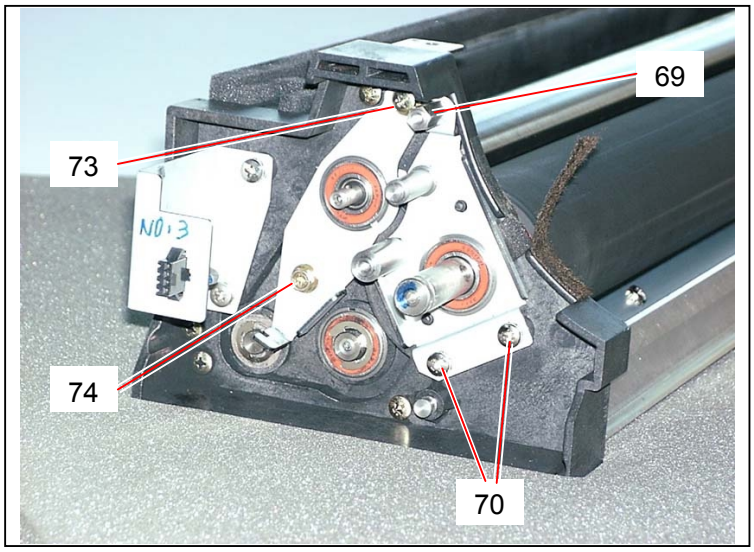


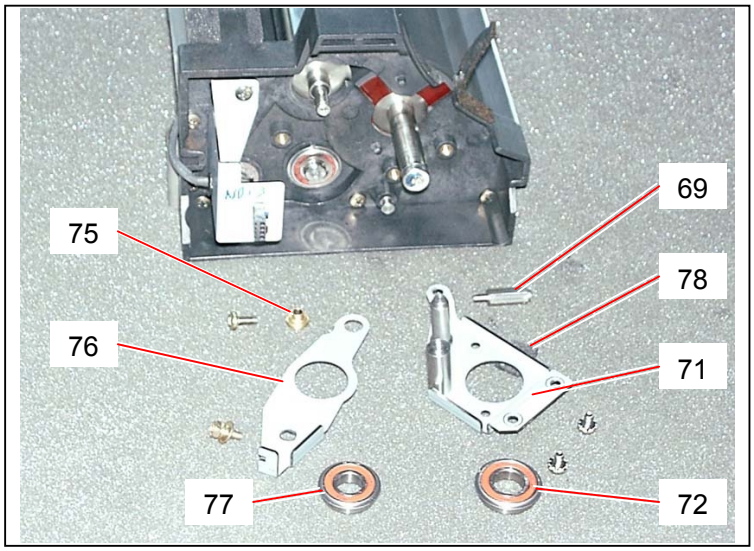


20) Remove Stud (69) and 2 pieces of screw (70) to remove Bracket 577 (71) and Ball Bearing (12x24x6.0) (72).
Remove bind head screw (73) and Hex. Head Bolt (74) to remove Collar (75), Blade Arm B (76) and Ball Bearing (10x22x6.0) (77).

Sprit off the **Seal 555** (78) from the Bracket 577 (71), and then paste the new one.

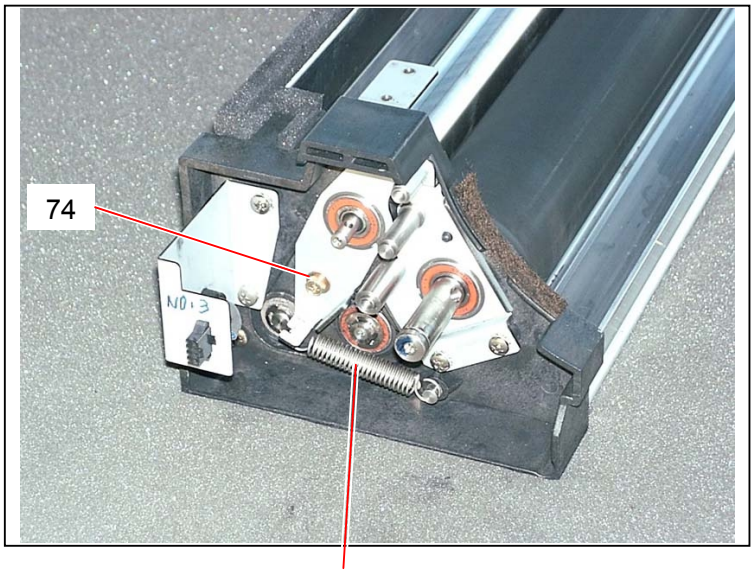
(Driven side)



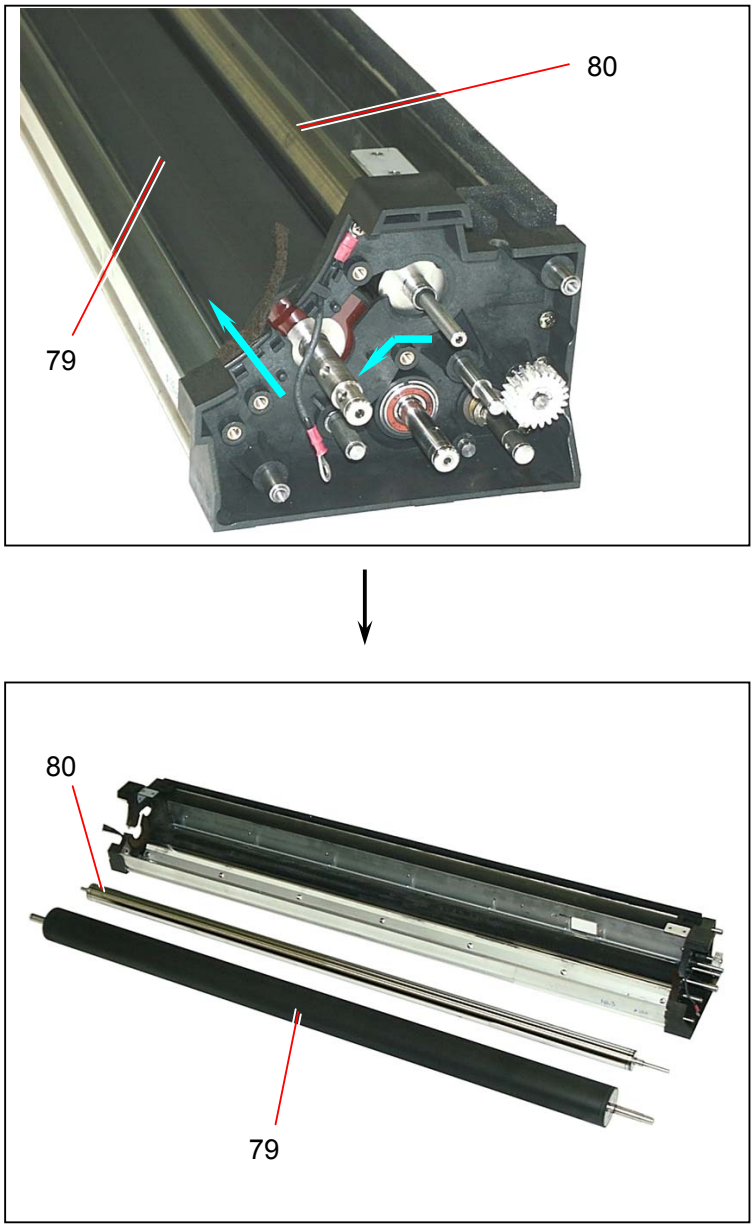


NOTE

When you re-assemble, put back the Spring 107 first to press the Regulation Roller to the Development Roller, and then tighten the Hex. Head Bolt (74).



21) Holding the shaft on both sides, remove each **Development Roller** (79) and Regulation Roller (80).



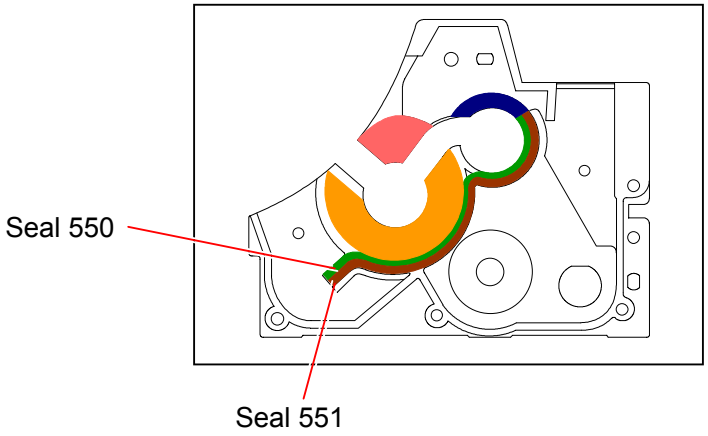
⚠ NOTE

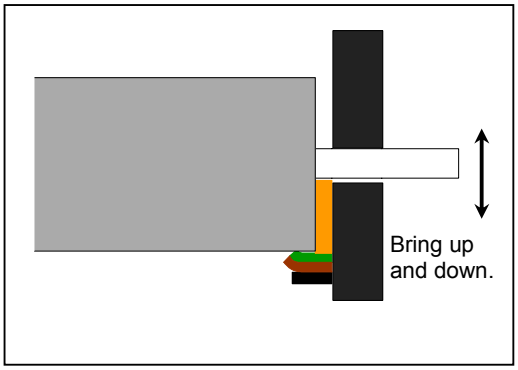
(1) Be careful of the direction of Development Roller when you install.
There are holes for Parallel Pin on one side of shaft, and are screw hole on another side.
Parallel Pin side must be on the driving side.

(2) Be careful of the direction of Regulation Roller when you install.
One shaft is longer than the other one.
This longer shaft must be on the driving side.

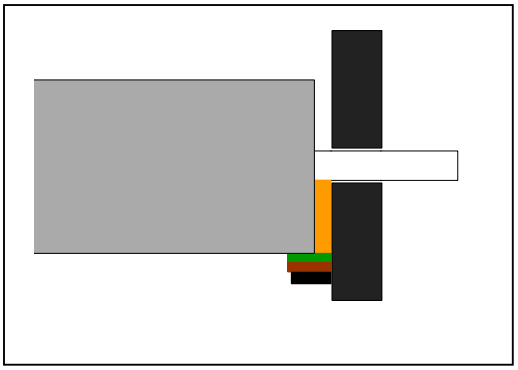
NOTE

If the installation condition of Development Roller or Regulation Roller is not correct, both the Seal 550 and the Seal 551 on the Developer Side Plate may be transformed.
The toner may spill out from the Developer Unit if they are transformed.
To avoid this problem, once set each roller to the installation position, and then bring up and down it.



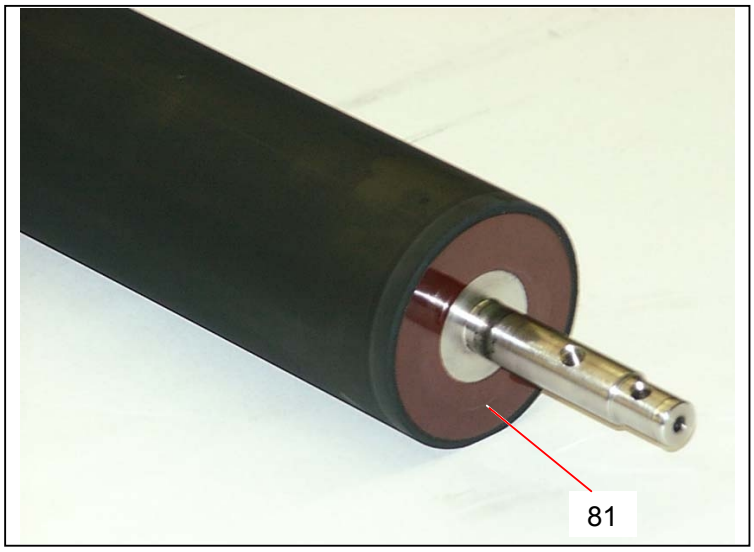


No good (Seals are transformed.)



Good

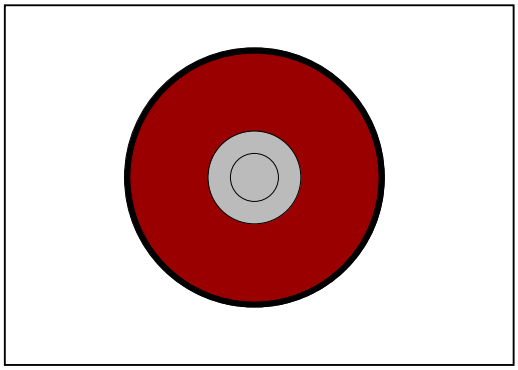
22) Paste the **Seals 130** (81) to both side faces of new **Development Roller**.



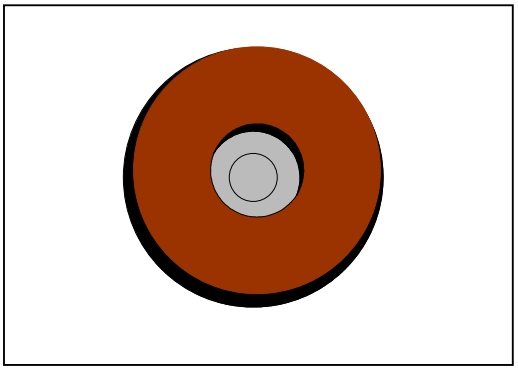
NOTE

(1) Remove dirt or oil from the side face before pasting the **Seals 130** (81).

(2) Paste the **Seal 130** (81) at the center of side face.
If it is out of the side face, it may damage the Drum.



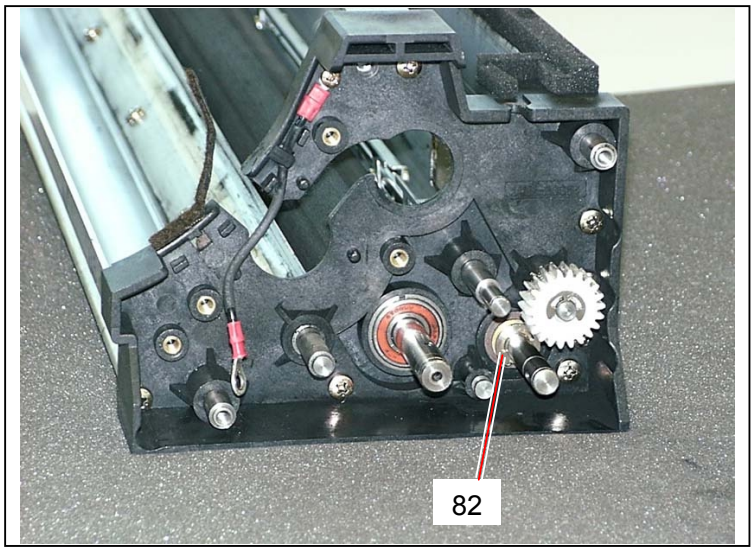
Good

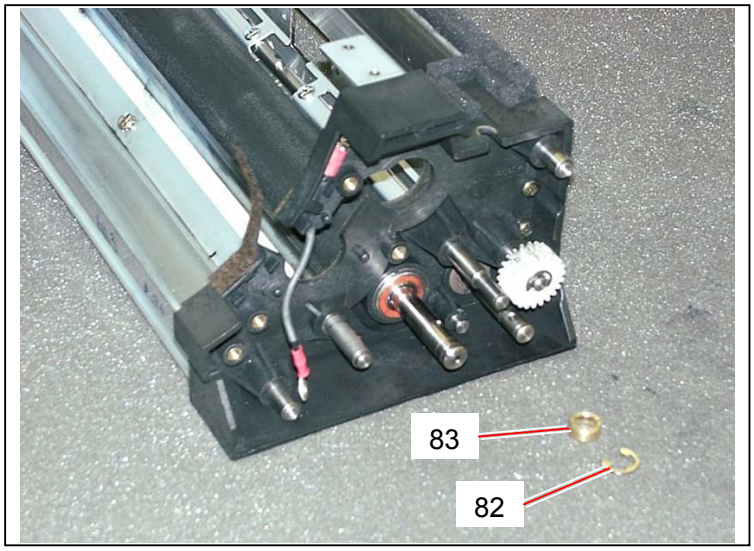


No good

23) Remove the Retaining Ring-E (E7) (82) on the driving side to remove the Collar (83).

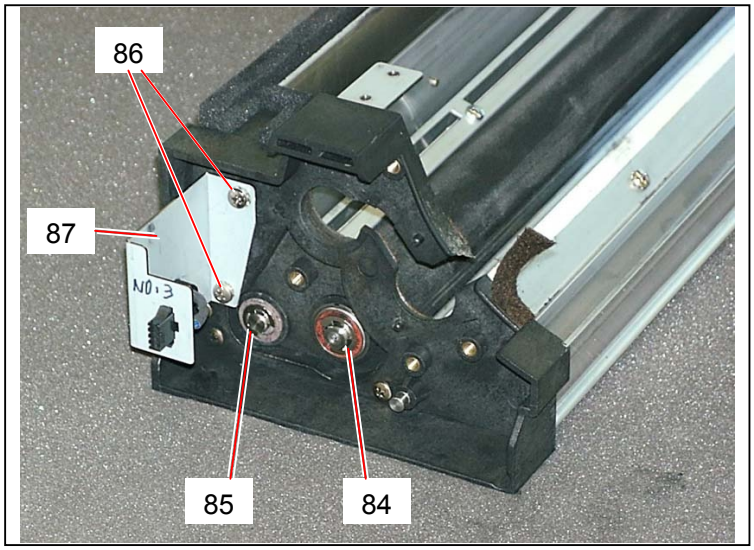
(Driving side)





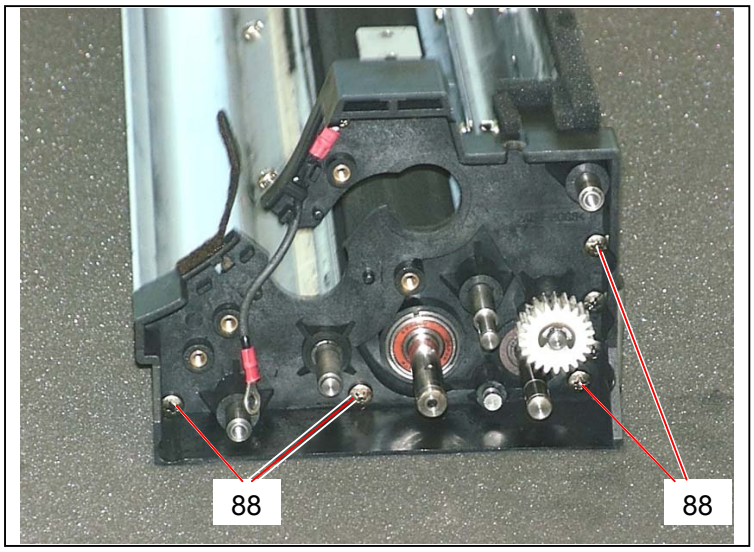
24) Remove Retaining Ring-E (E8) (84) and Retaining Ring-E (E7) (85) on the driven side. Also, remove 2 pieces of screw (86) to make the Bracket 580 (87) free.

(Driven side)



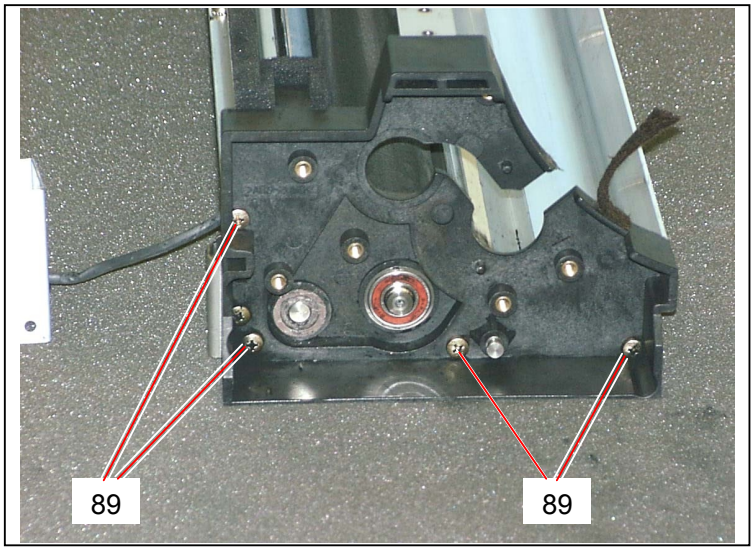
25) Remove 4 pieces of bind head screw (88) on the driving side, which fix the Developer Side Plate.

(Driving side)

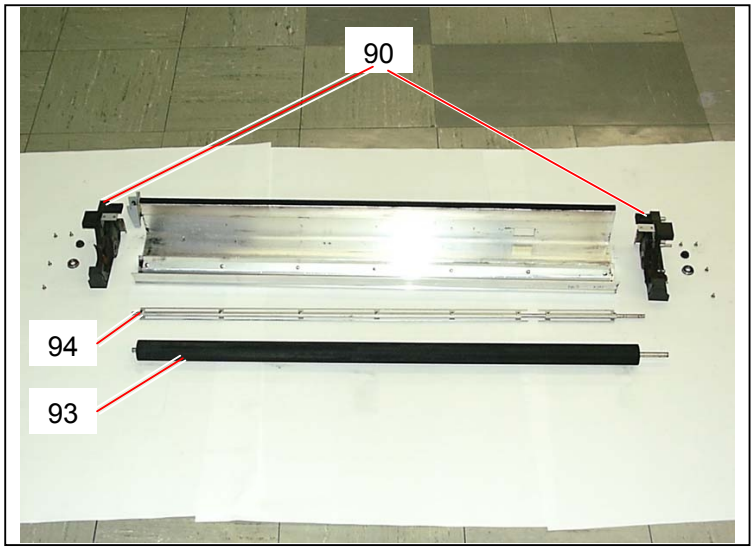


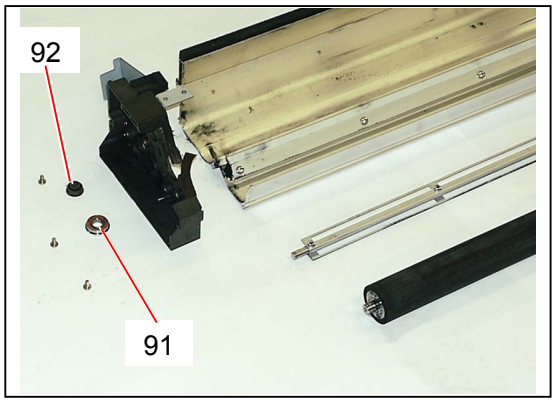
26) Remove 4 pieces of bind head screw (89) on the driven side, which fix the Developer Side Plate.

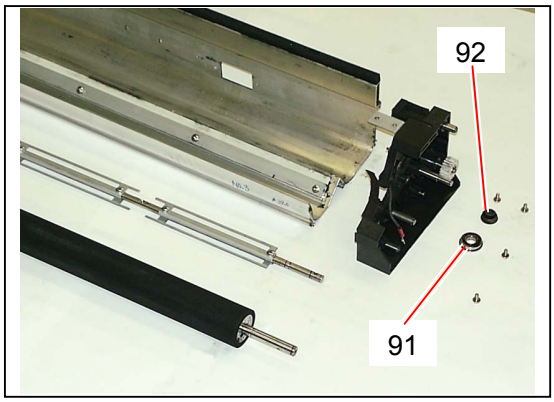
(Driven side)



27) Sliding both Developer Side Plates (90) outward, pull out Ball Bearings (10x22x6.0) (91) and F8x16x5 Bearing (92) from the shafts.
You will be able to remove **Toner Supply Roller** (93) and Agitator Assembly (94).
Replace the **Toner Supply Roller** (93) with the new one.







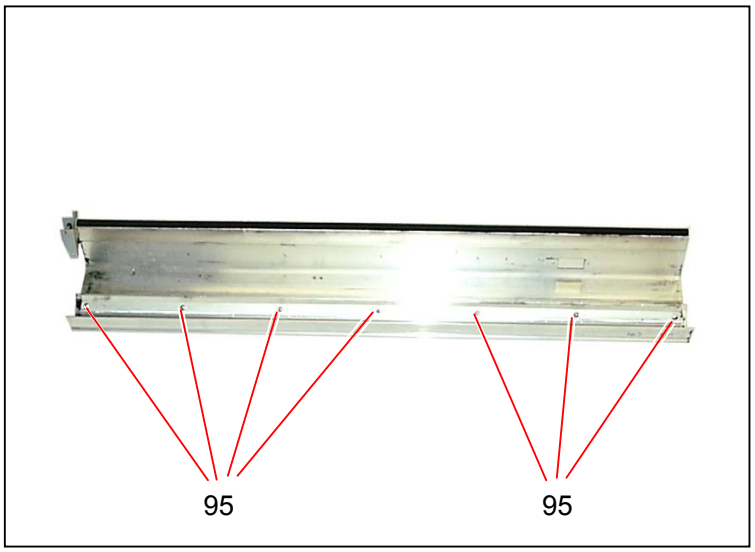
⚠ NOTE

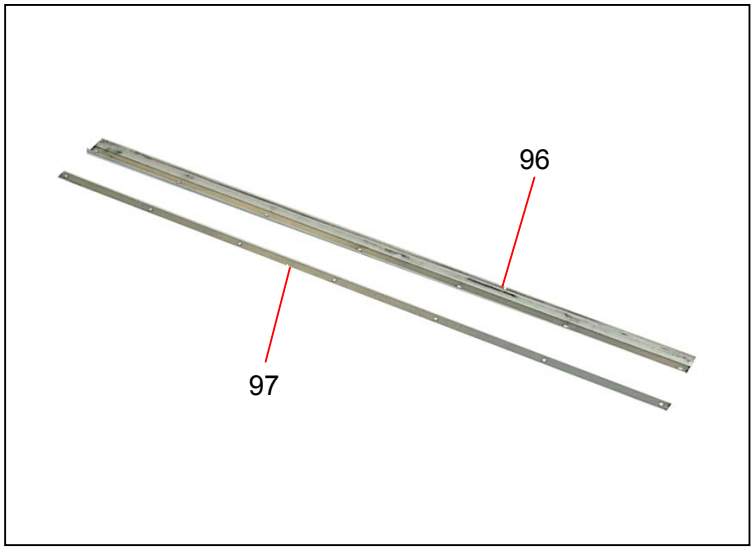
(1) Be careful of the direction of Toner Supply Roller (93) when you install it.
One shaft is longer than the other one.
This longer shaft must be on the driving side.

(2) Be careful of the direction of Agitator Assembly (94) when you install it.
One shaft is longer than the other one.
This longer shaft must be on the driving side.

(3) Assemble the Frame and Developer Side Plate on a flat table as far as possible.
Toner may spill out if the unit is distorted.

28) Remove 7 pieces of screw (95) to remove **Bracket 582** (96) and Spacer (97).
Replace the **Bracket 582** (96) with the new one.



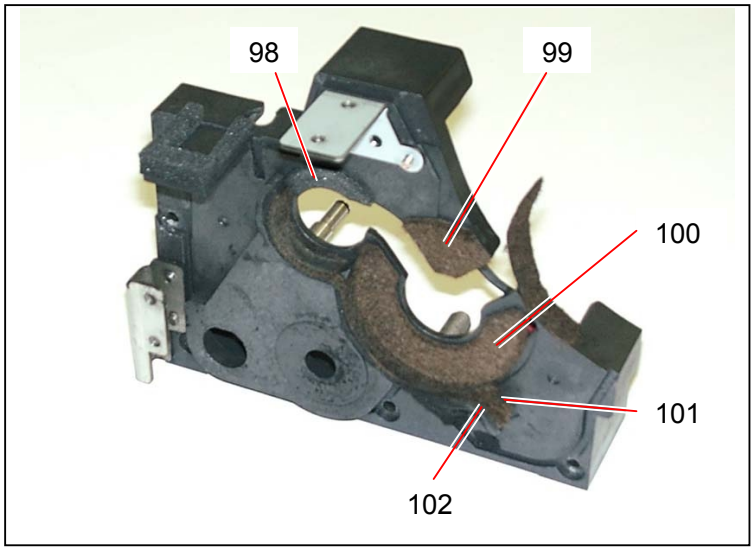


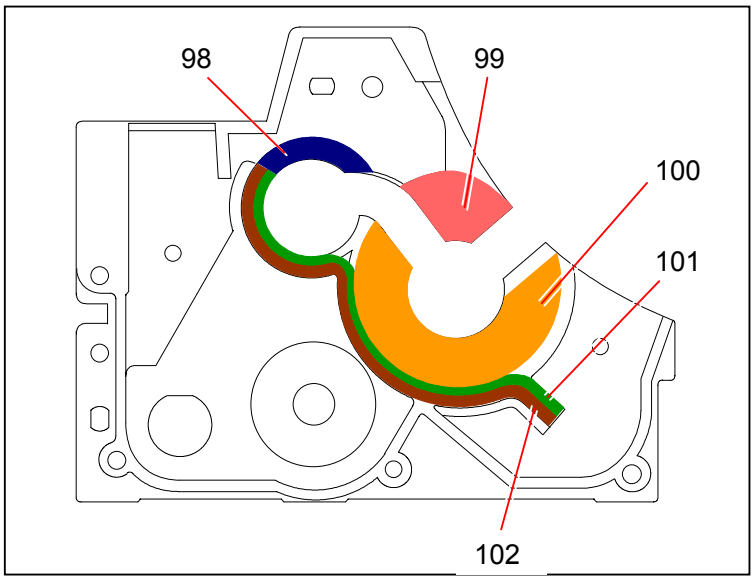
NOTE

The screw holes of **Bracket 582** (96) and Spacer (97) are oval type.
Make sure to tighten each screw at the center of each screw hole.
If not tightened at the center, (Bracket 582 is shifted to either side), its mylar part may be folded.

29) Strip off each Seals from the Developer Side Plate of driving side, clean the surface you will paste the new ones, and then paste the new ones as they were.
Please refer to NOTE on and after the page 5-54 as there are some matters to be cared when you paste the new seals.

Seal 553 (98)
Seal 558 (99)
Seal 557 (100)
Seal 550 (101)
Seal 551 (102)

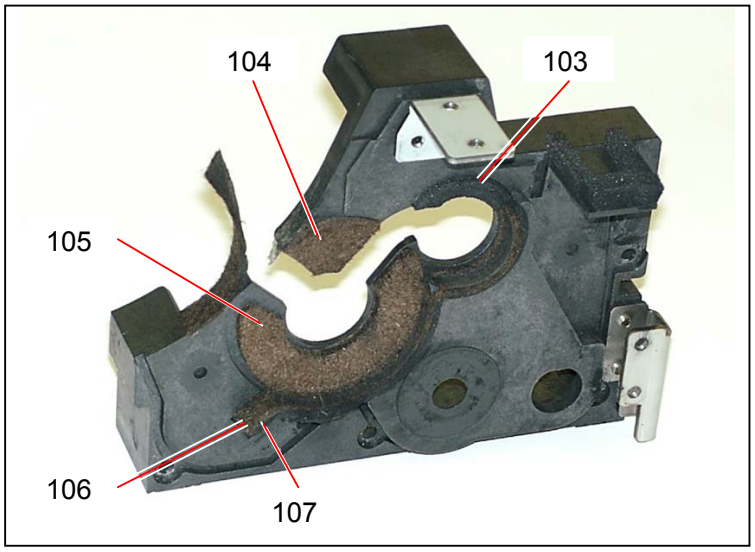


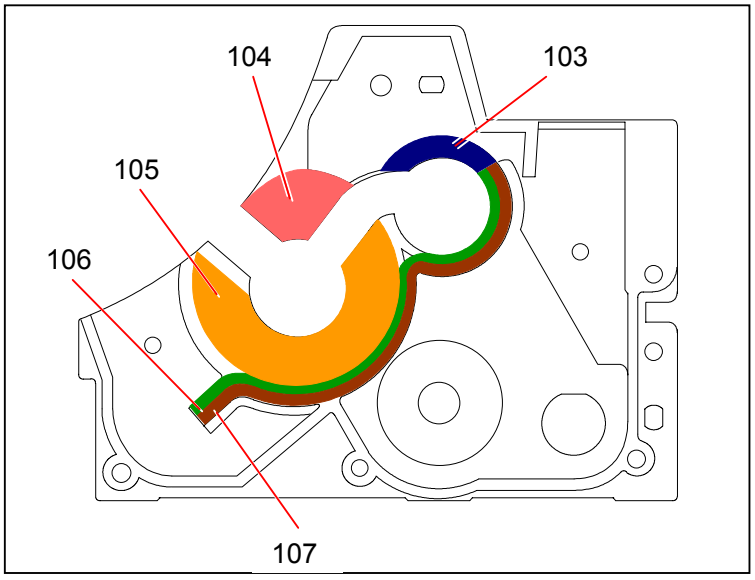


30) Strip off each Seals from the Developer Side Plate of driven side, clean the surface you will paste the new ones, and then paste the new ones as they were.
Please refer to NOTE on and after the page 5-54 as there are some matters to be cared when you paste the new seals.

Seal 554 (103)
Seal 559 (104)
Seal 557 (105)

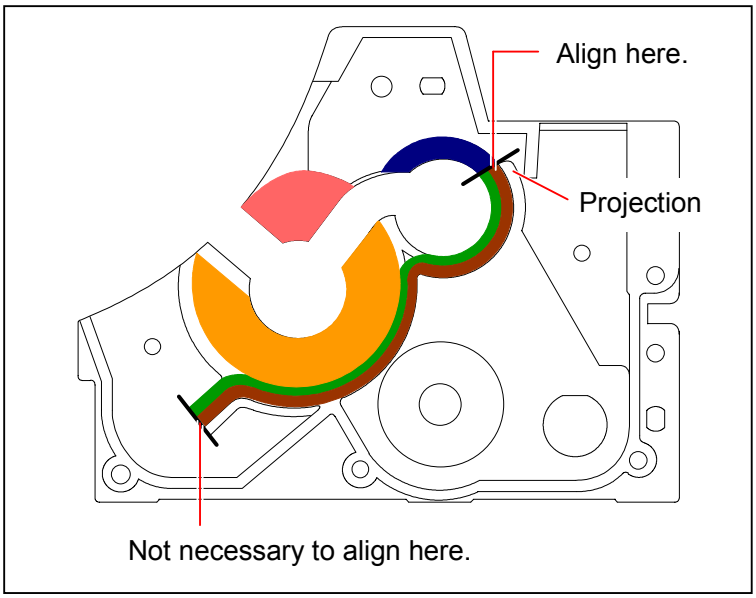
Seal 550 (106)
Seal 551 (104)



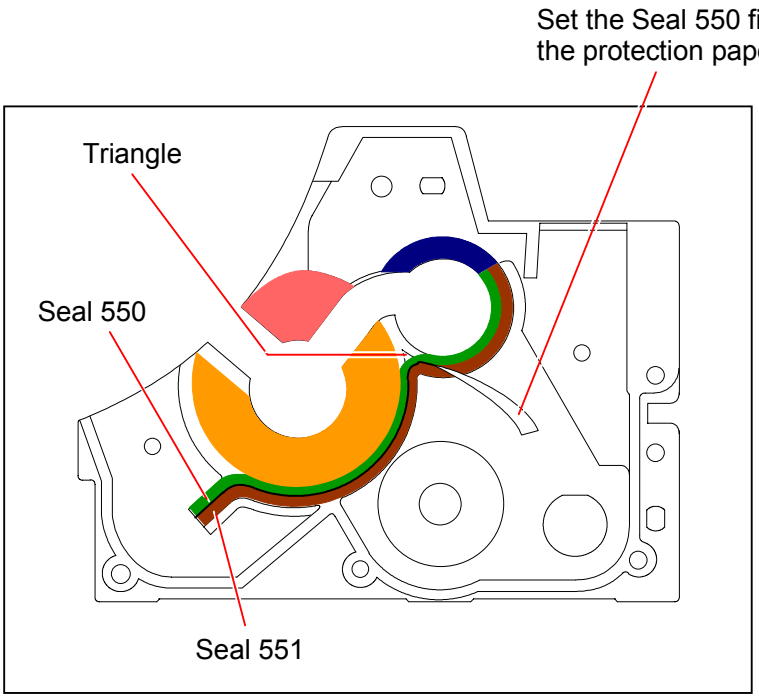


⚠ NOTE

(1) There is a projection beside the installation place of Regulation Roller.
Align one end of each Seal 550 and Seal 551 with the head of this projection.
You do not have to care about the alignment of another end.

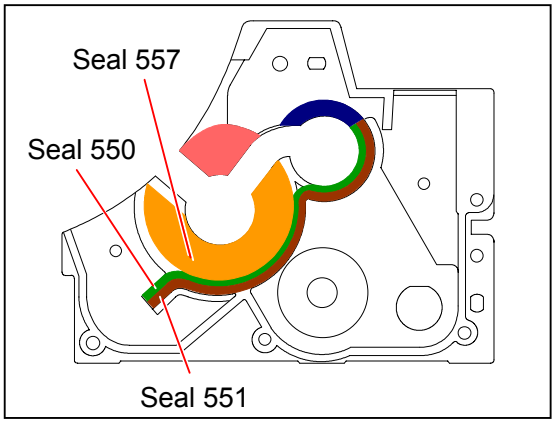


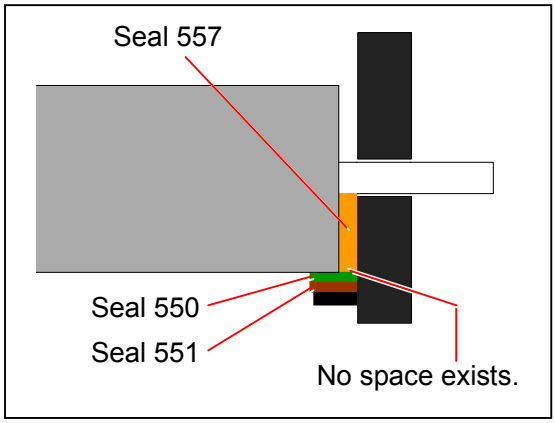
(2) Set the Seal 550 onto the Seal 551 without stripping off the protection paper, place the Seal 550 properly, and then strip off the protection paper.
(There is very small space between triangle and Seal 551. If you strip off the protection paper first then set the Seal 550, it will be very difficult to place the Seal 550 because the tape on the back of seal sticks to the Seal 551.)



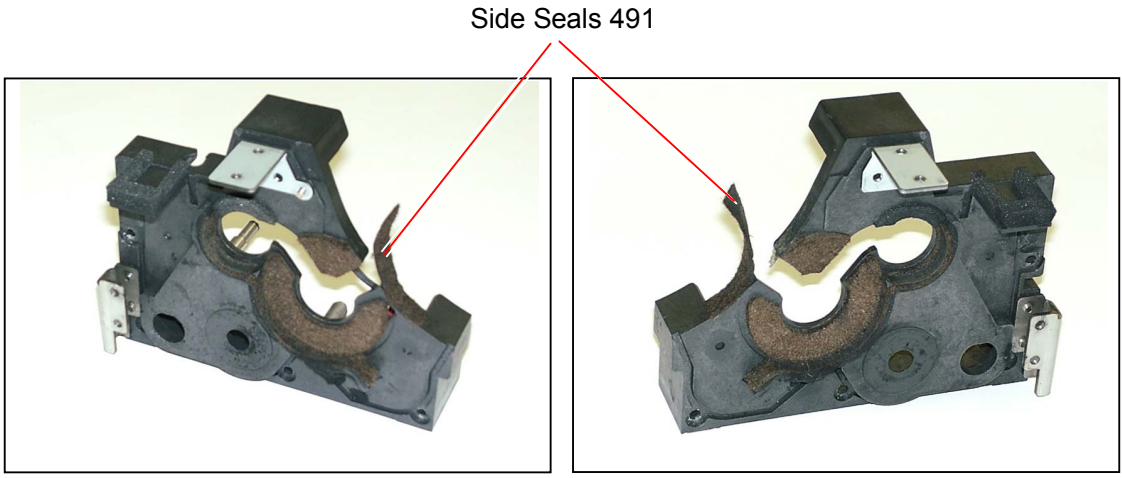
NOTE

(3) Paste both the Seal 550 and Seal 551 first, then paste the Seal 557 so that no space should exit between Seal 550 and Seal 557.



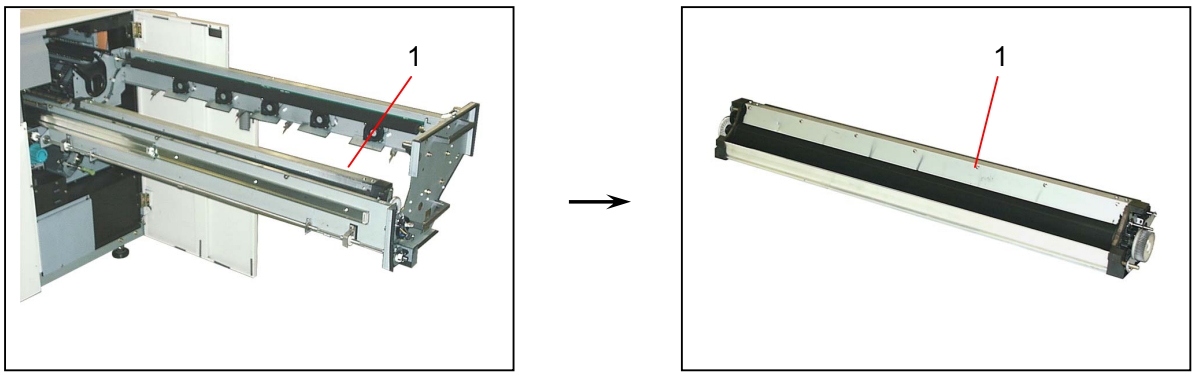


Wait to paste the new **Side Seals 491** until you install both the Development Roller and Regulation Roller at the step 21.

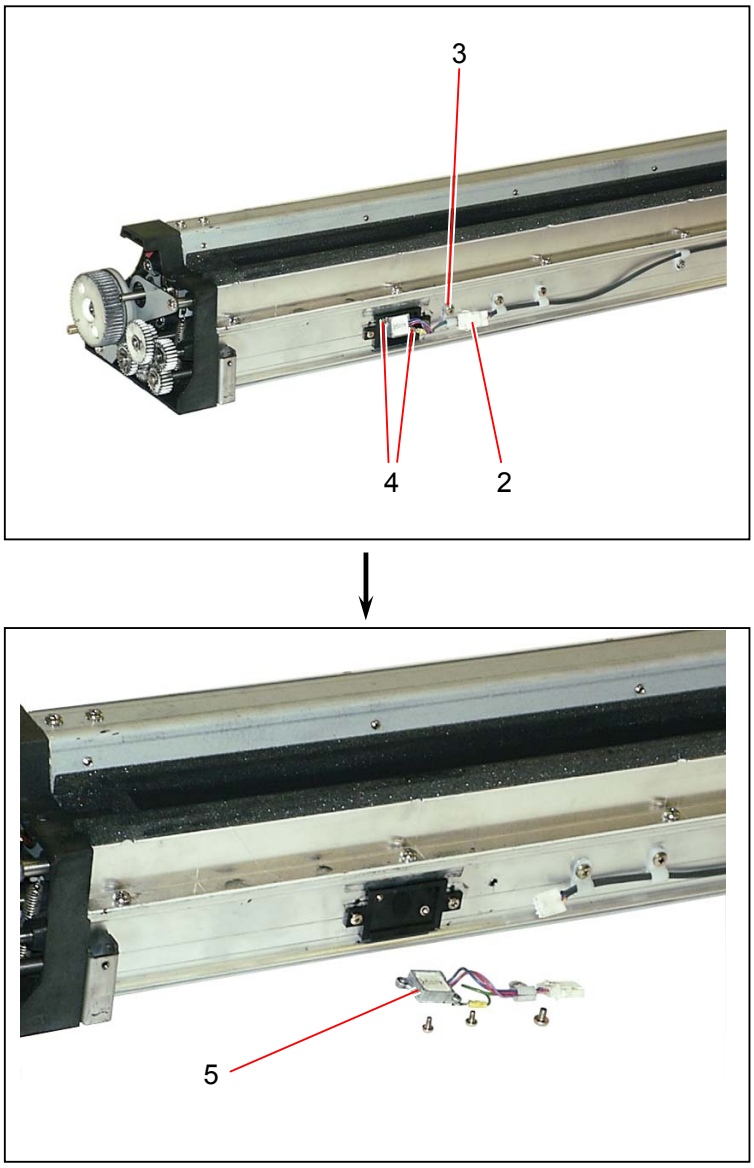


5.5.2 Replacing Developer Toner Sensor (TLS2)

1) Remove the Developer Unit (1) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



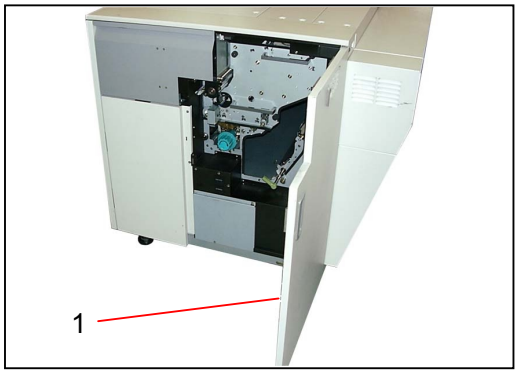
2) Disconnect the connector (2), remove the screw (3) to make the harness free, and then remove 2 pieces of bind head screw (4) to remove the Toner Sensor (5).



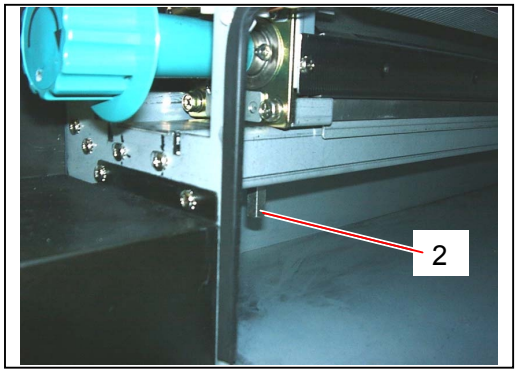
5.6 Cutter Unit

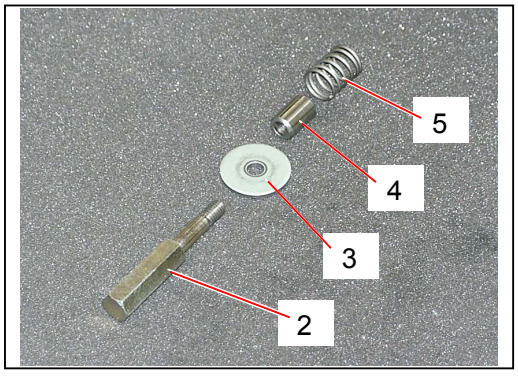
5.6.1 Removing Cutter Unit

1) Open the Right Side Door.

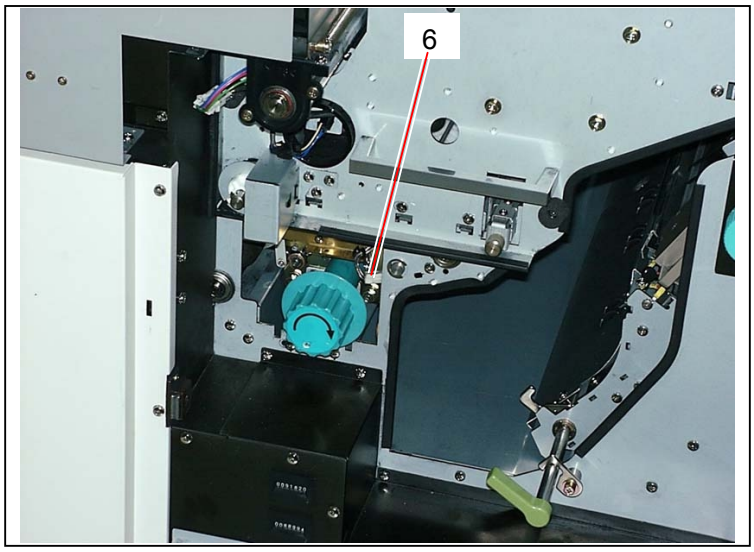


2) Remove the Bolt (2) which fixes the Cutter Unit from the bottom, and also remove Washer (3), Collar (4) and Spring (5).

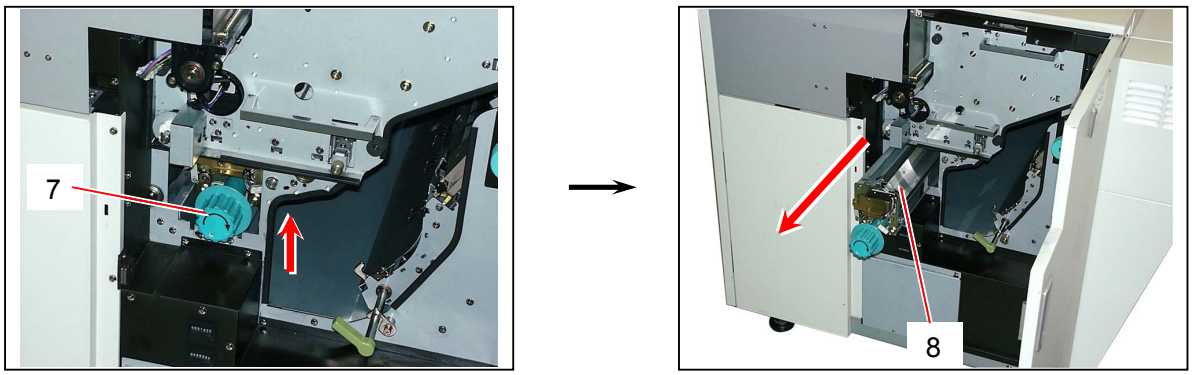


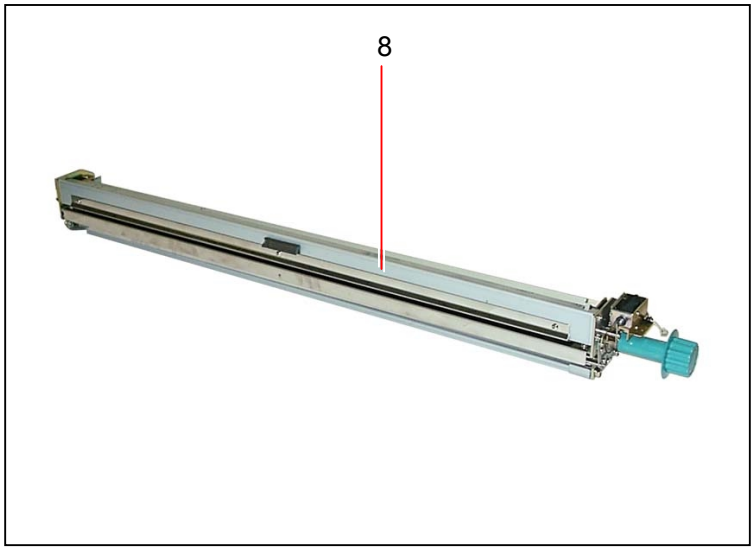


3) Disconnect the connector (6) of the Solenoid.



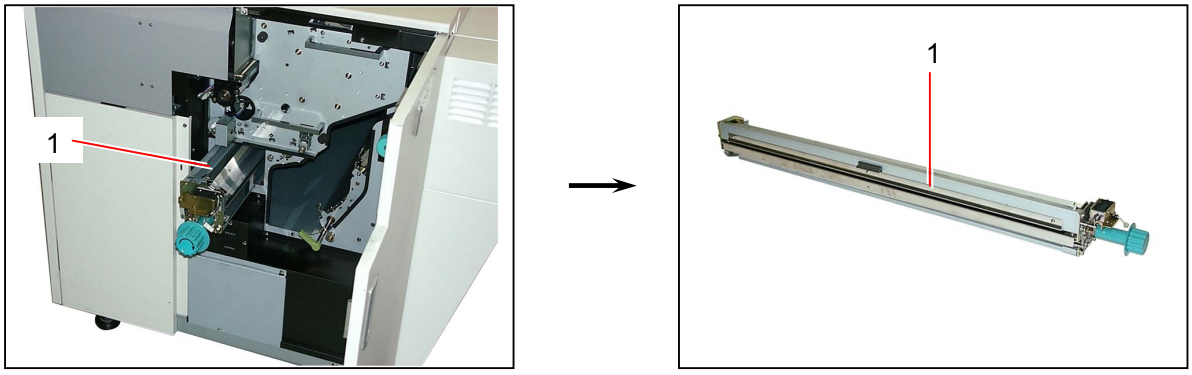
4) Catching the Cutter Handle (7), bring up the **Cutter Unit** (8) a little and pull it out from the machine.



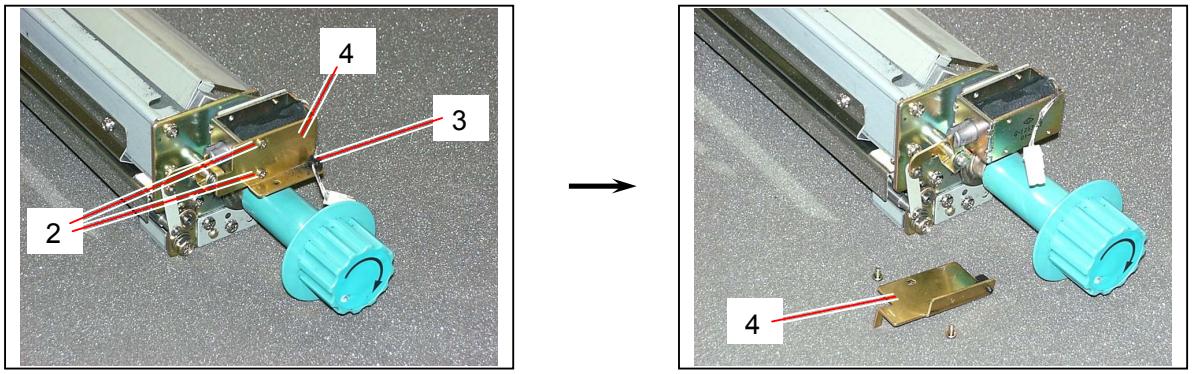


5.6.2 Replacing Cutter Oil Supply Solenoid (SL2)

1) Remove the Cutter Unit (1) from the machine making reference to [5.6.1 Removing Cutter Unit] on the page 5-57.

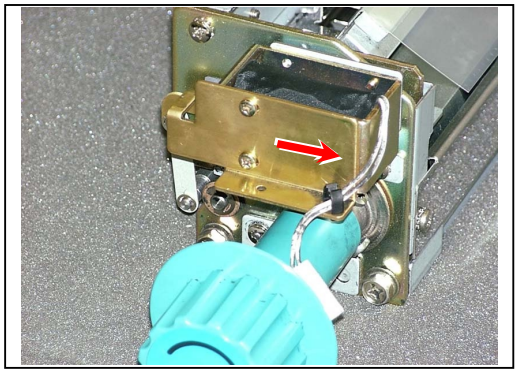


2) Remove 2 pieces of bind head screw (2), release the wire from the Mini Clamp (3), and remove the Stopper (4).

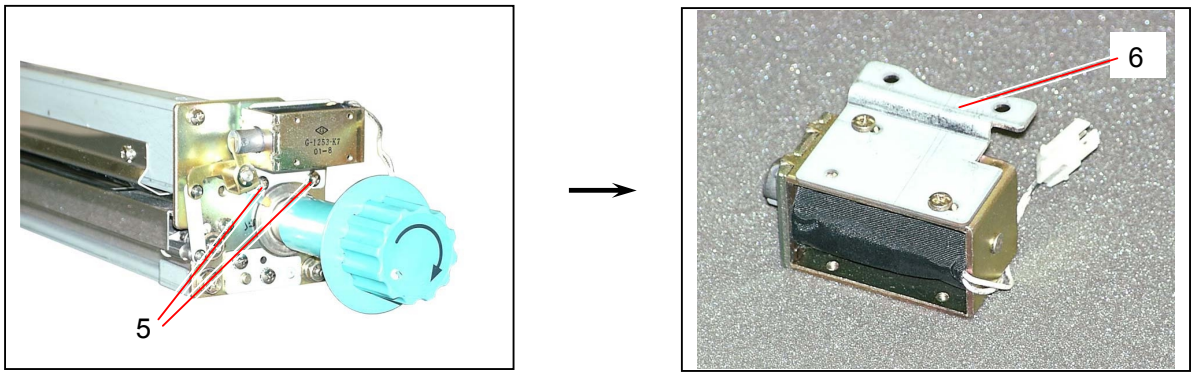


NOTE

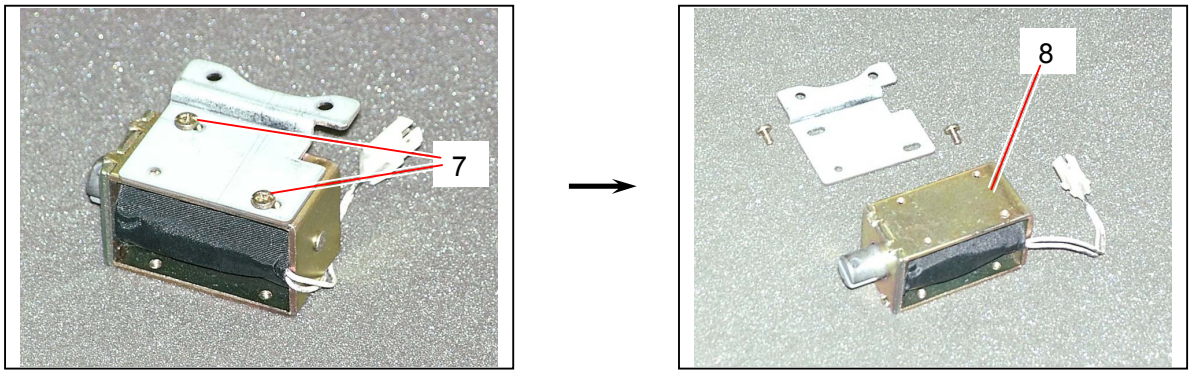
When you put back the Stopper (4), tighten the screws (2) pressing the Stopper (4) toward the arrow mark.



3) Remove 2 pieces of tooth washer screw (5) to remove the Solenoid Mount Plate (6).

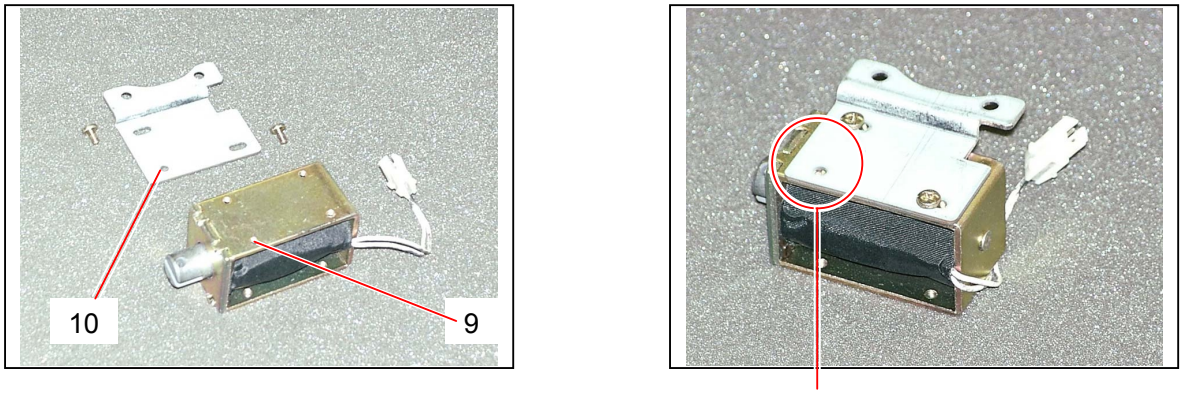


4) Remove 2 pieces of bind head screw (7) to remove the **Cutter Oil Supply Solenoid** (8).
Replace the Cutter Oil Supply Solenoid (8) with the new one.



⚠ NOTE

Fit the boss (9) of the Cutter Oil Supply Solenoid to the hole (10) of the Solenoid Mount Plate.

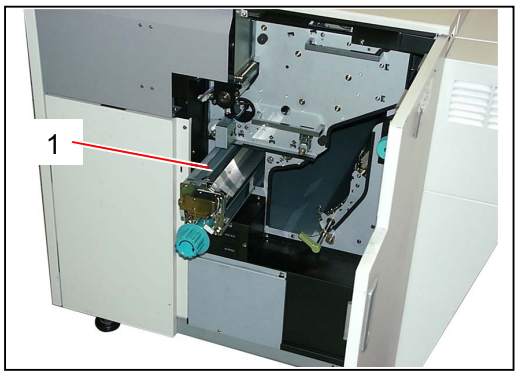


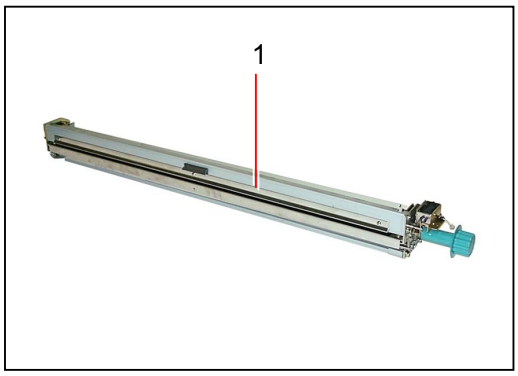
Fit the boss to the hole.

5.6.3 Lubrication / Replacement of Stay Assembly

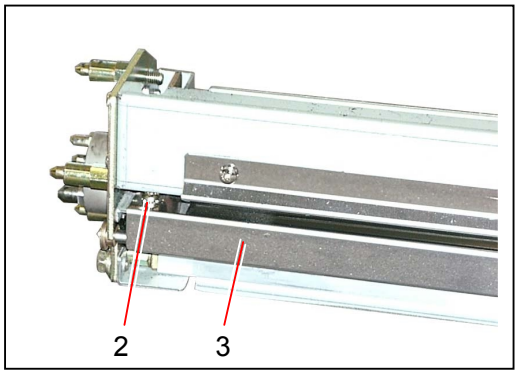
> **NOTE**
>
> Lubricate the Stay Assembly every 6 months.
> Use the sewing machine oil for lubrication.

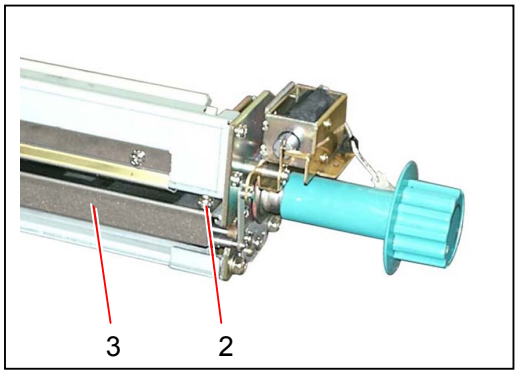
1) Remove the Cutter Unit (1) from the machine making reference to [5.6.1 Removing Cutter Unit] on the page 5-57.

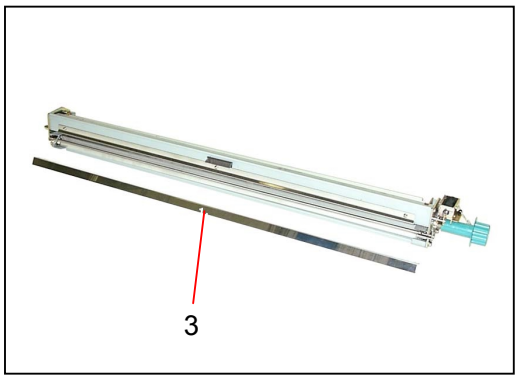




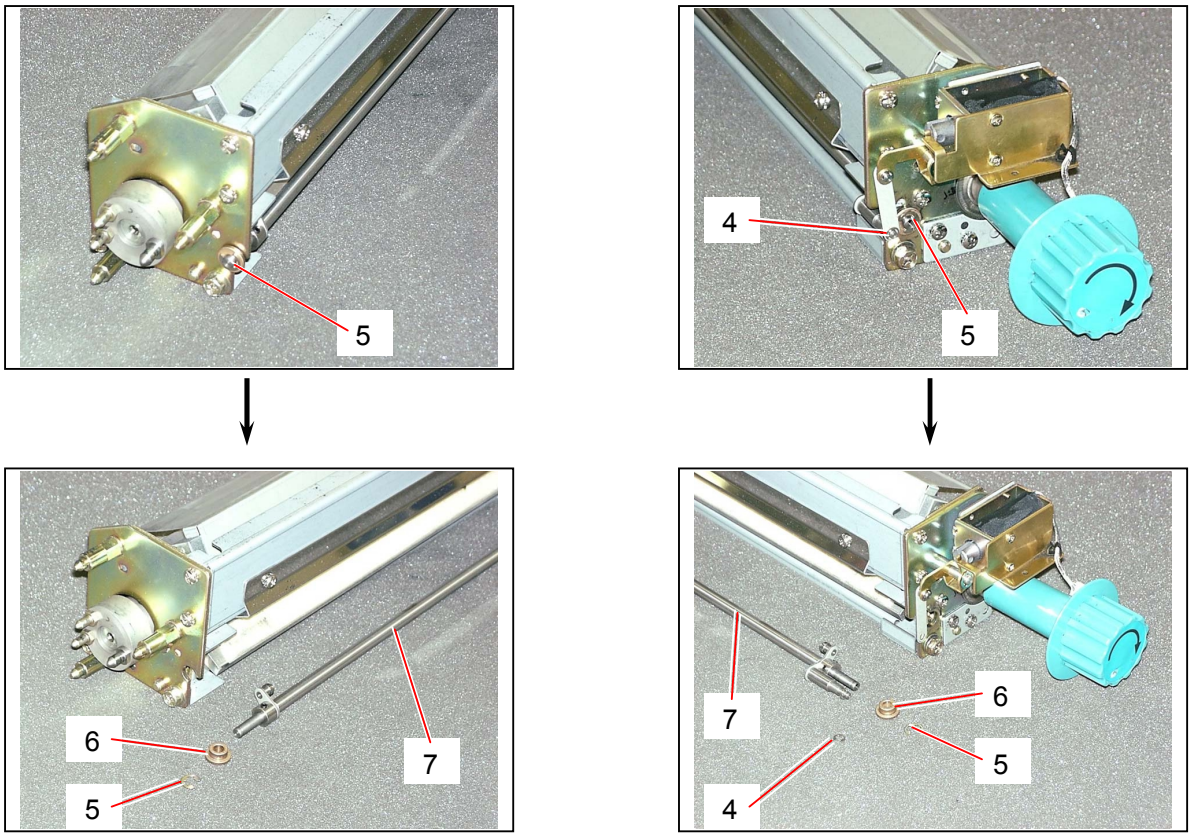
2) Remove 2 pieces of bind head screw (2) to remove the Lower Paper Guide Plate (3).



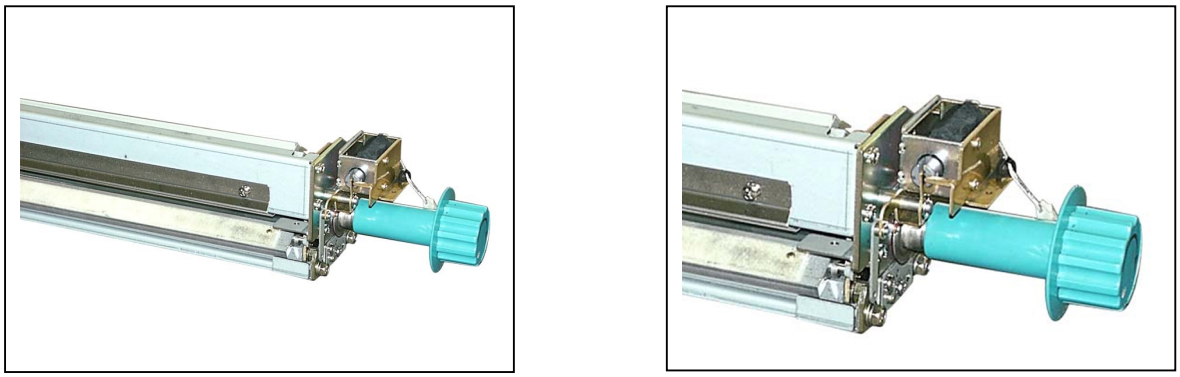




3) Remove 1 piece of E Ring (E3) (4) on the handle side.
Remove E Ring (E5) (5) and Oilless Metals (6) at both sides to remove the Supporting Shaft 1 (7).
As you will find the Stay Assembly, lubricate it at this time.
If you will replace the Stay Assembly, go to the next step.



4) Remove E Ring (E5) (8) and Oilless Metals (9) at both sides, remove the Spring (10) on the handle side, and then remove the **Stay Assembly** (11).
Replace the Stay Assembly (11) with the new one.



⚠ NOTE

Do not remove the Side Plates of Cutter Unit when you remove the Stay Assembly.
If you remove Side Plates, it is necessary to re-adjust the home position of Cutter Blade.

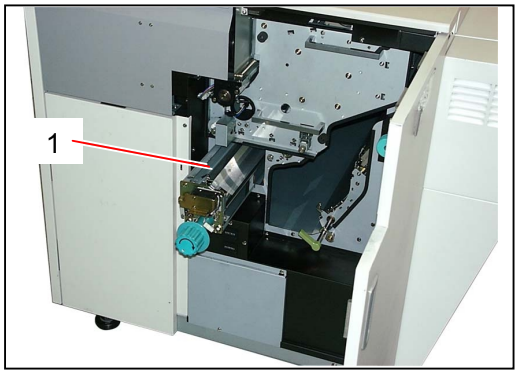
5.6.4 Adjusting Home Position of Cutter Blade

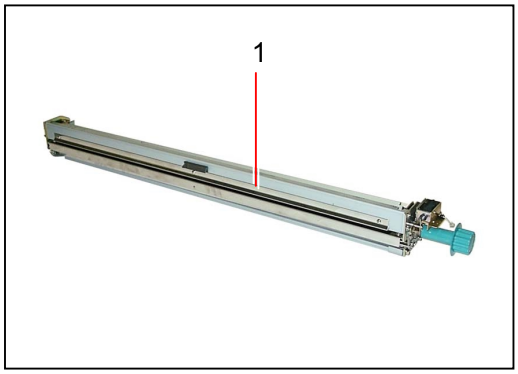
NOTE

If you have “Cutter Jam” frequently, please check whether the home position of Cutter Blade is properly adjusted or not.
And if necessary, please adjust in the following way.
You need the following exclusive tools to check and adjust.

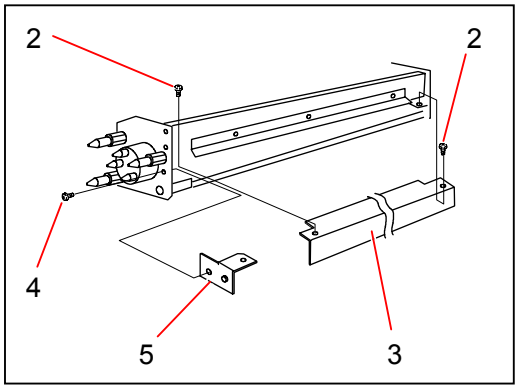
HP Adjustment Assembly (3508560021)
HP Adjustment tool 2 (3108500020)

1) Remove the Cutter Unit (1) from the machine making reference to [5.6.1 Removing Cutter Unit] on the page 5-57.

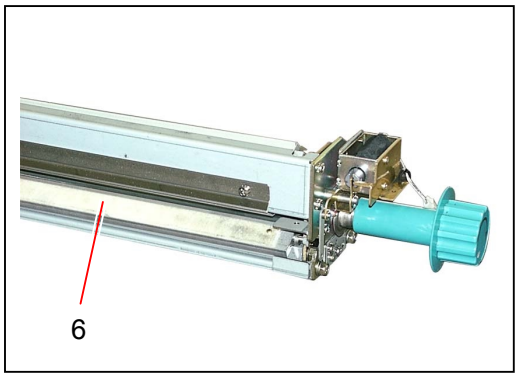




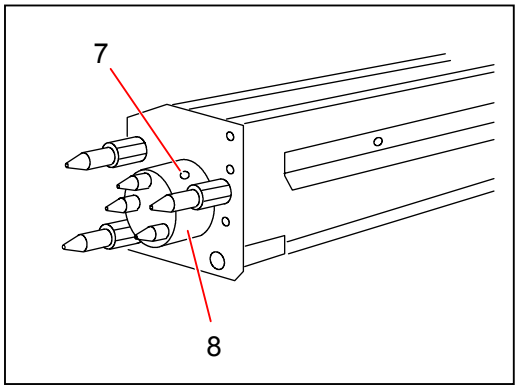
2) Remove 2 pieces of bind head screw (2) to remove the Lower Paper Guide Plate (3).
Remove a screw (4) on the pin side to remove the Paper Exit Guide Plate 2 (5).



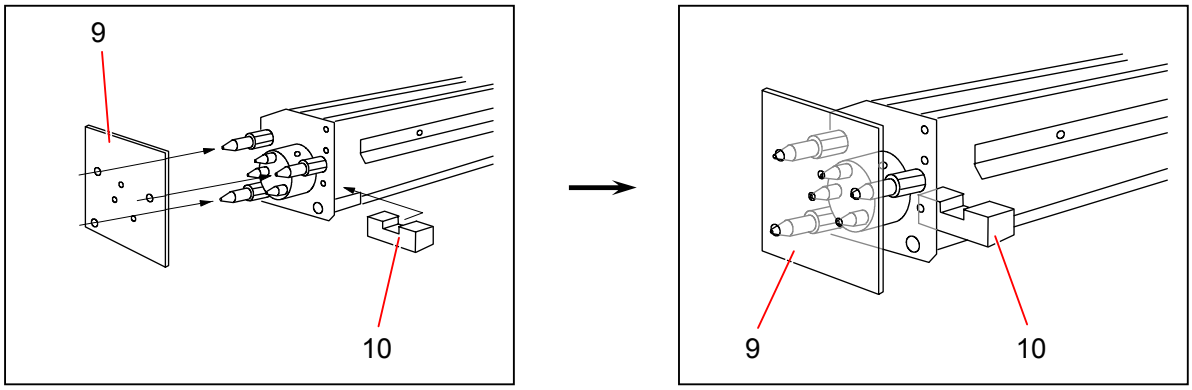
3) Remove the Stay Assembly (6) making reference to [5.6.3 Lubrication / Replacement of Stay Assembly] on the page 5-61.



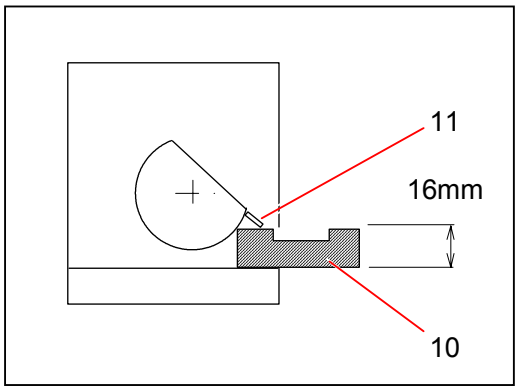
4) Loosen 2 pieces of Set Screw (7) which fix the Joint A (8).

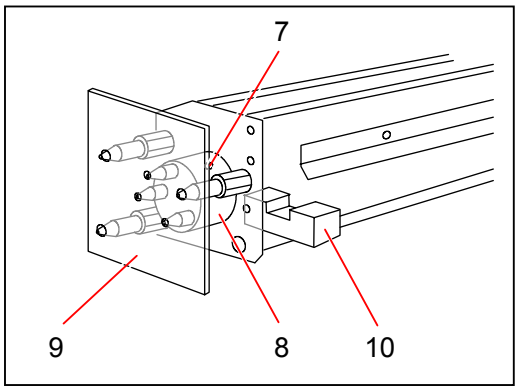


5) Fit the HP Adjustment Assembly (9) firmly to 3 Pins of the Cutter Side Plate.
Insert the HP Adjustment tool 2 (10) under the Cutter Blade and place it at the nearest position to the Cutter Side Plate.

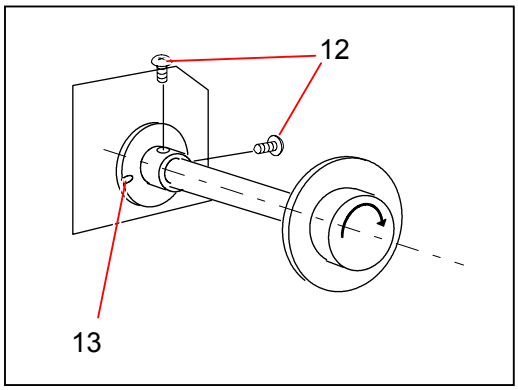


6) Rotate the Cutter Handle until the cutting point (11) of Cutter Blade touches the HP Adjustment tool 2 (10).
When the cutting point (11) touches the HP Adjustment tool 2 (10), fix the Joint A (8) tightening Set Screws (7).
The gap between cutting point and base of Cutter Unit becomes 16mm by this operation.
When you have tightened the Set Screws (7), remove only the HP Adjustment tool 2 (10).
(Leave the HP Adjustment Assembly (9) as it is.)





7) Loosen 2 pieces of bind head screw (12) which fix the Cutter Handle.
Rotate the Cutter Handle until the green area can be seen in the notch (13).
When the green area can be seen in the notch (13), tighten the bind head screws (12).

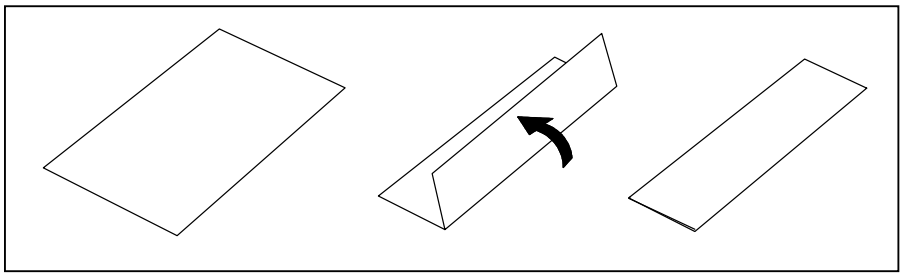


8) Remove the HP Adjustment Assembly (9).
Then, reassemble the Cutter Unit in the reversed order.

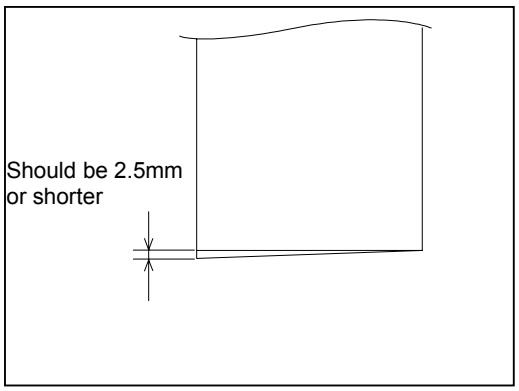
5.6.5 Adjusting angle of Cutter Unit

> **⚠ NOTE**
>
> If you replace the Cutter Unit with the new one, make sure to check whether or not the paper can be cut in a right angle.
> If not, please adjust in the following way.

1) Print out an A0 paper, and then fold it at the central line.

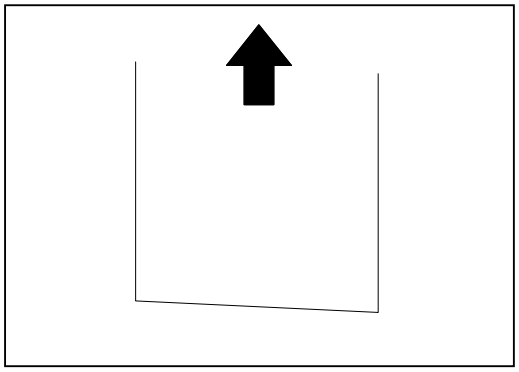


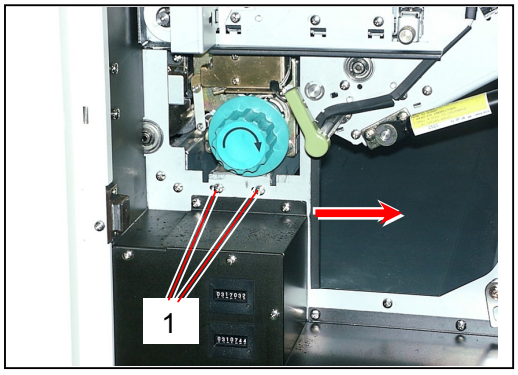
2) Measure the difference of paper length between left and right.
   It must be 2.5mm or shorter.



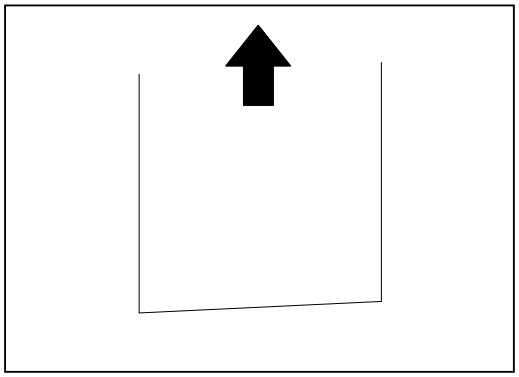
3) It is necessary to adjust the angle of Cutter Unit if the difference is longer than 2.5mm.
If you loosen 2 pieces of screw (1), you can shift the Cutter Unit left or right.

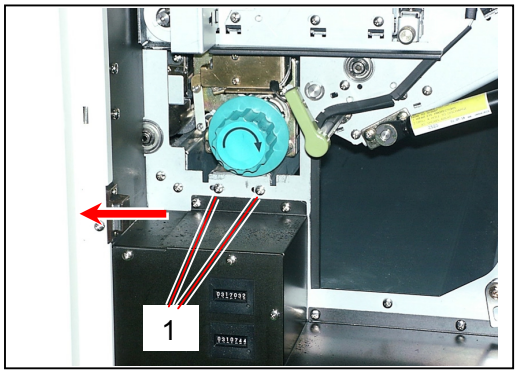
If the right side of print is longer than left side, slide the whole Cutter Unit to the right.





If the left side of print is longer than right side, slide the whole Cutter Unit to the left.



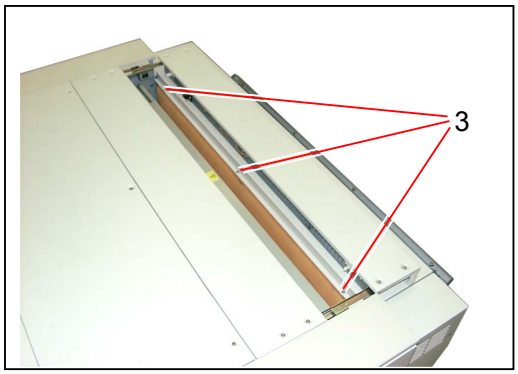


5.7 Fuser

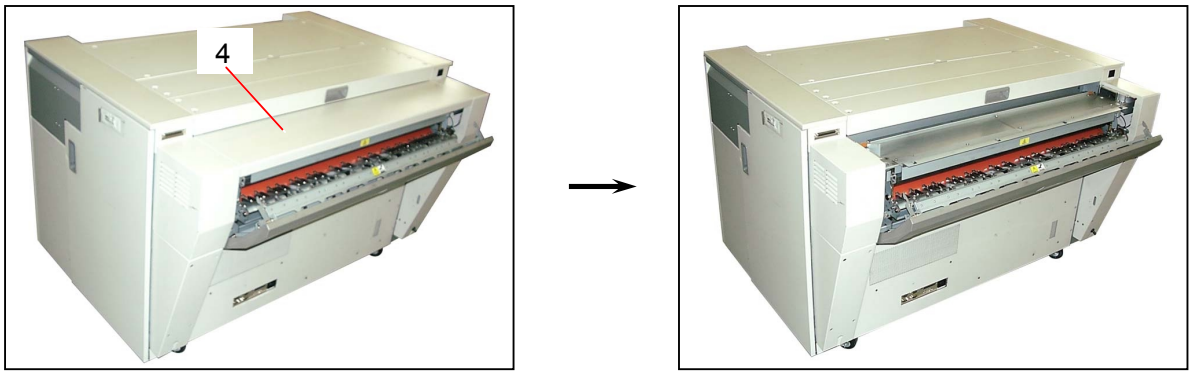
5.7.1 Removing Fuser Unit

1) Open both the Rear Upper Cover (1) and Exit Cover (2).

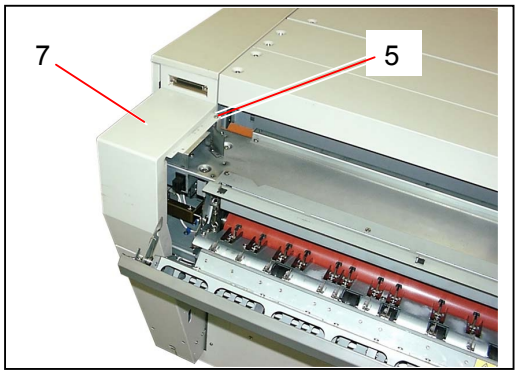
2) Loosen 3 pieces of tooth washer screw (3).

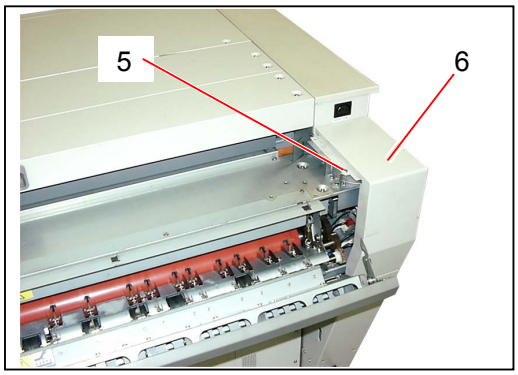


3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

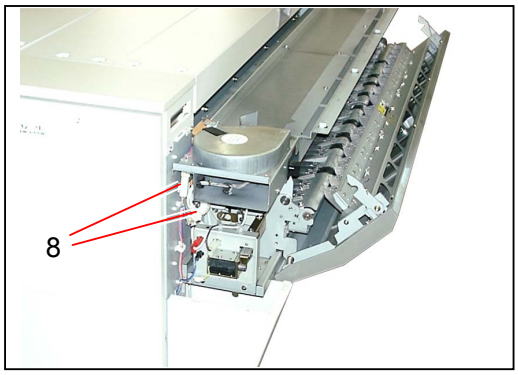


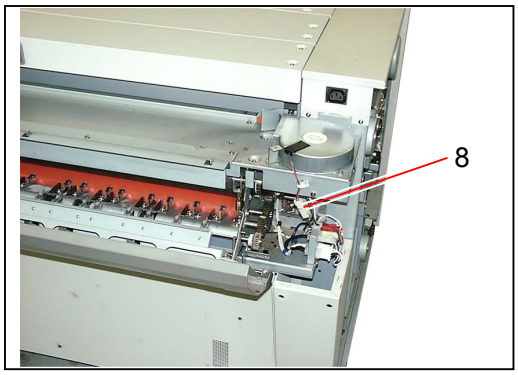
4) Remove a tooth washer screw (5) to remove each Cover 3 (6) and Cover 4 (7).



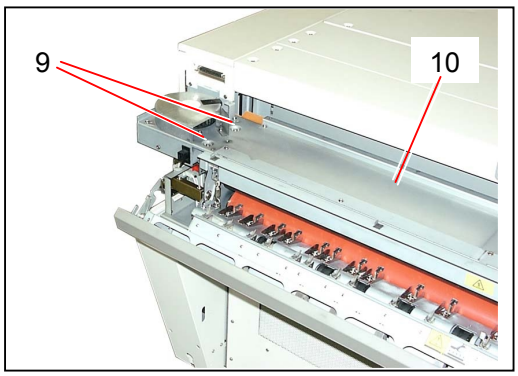


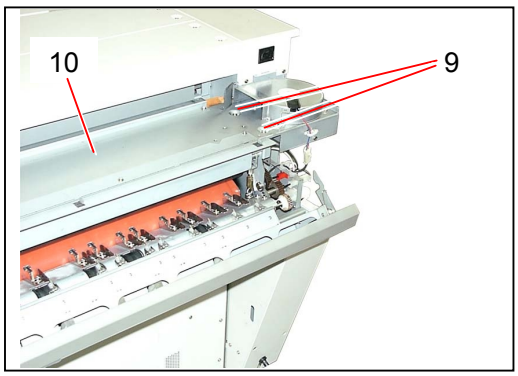
5) Disconnect 3 connectors (8).

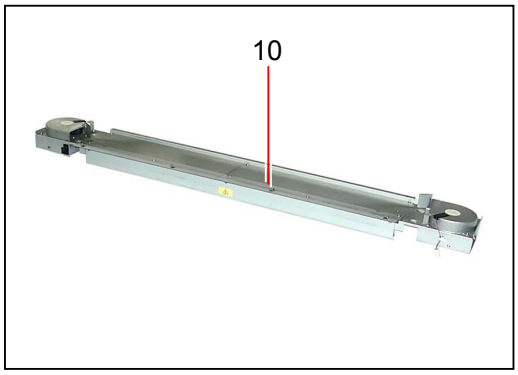




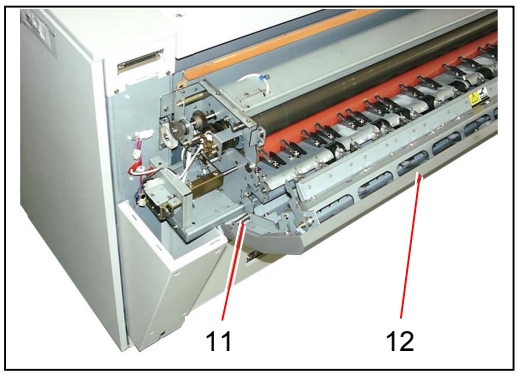
6) Remove 4 pieces of tooth washer screw (9) to remove the Cover 2 Assembly (10).

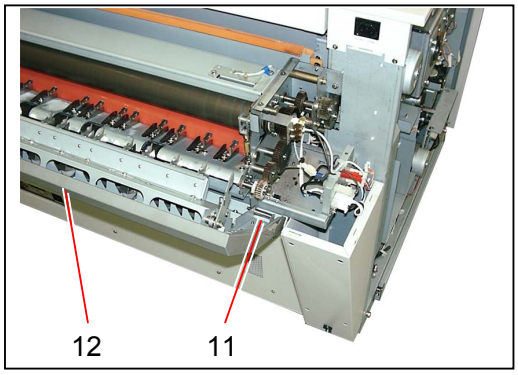


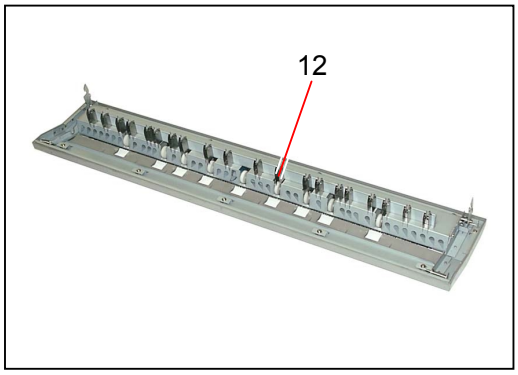




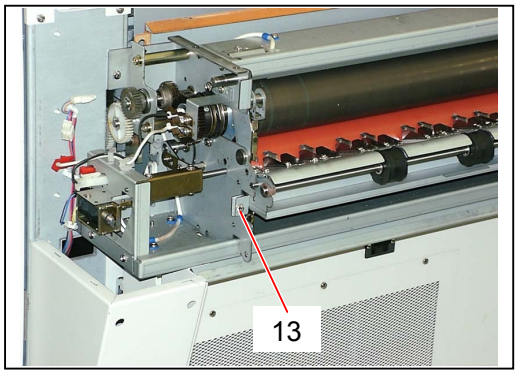
7) Slide both the Shaft 4 (11) inward to release from the hole, and then remove the Exit Cover Assembly (12)

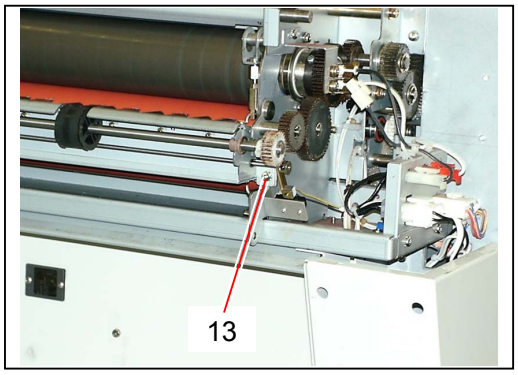


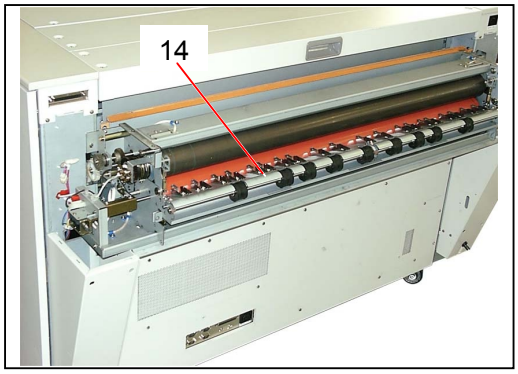


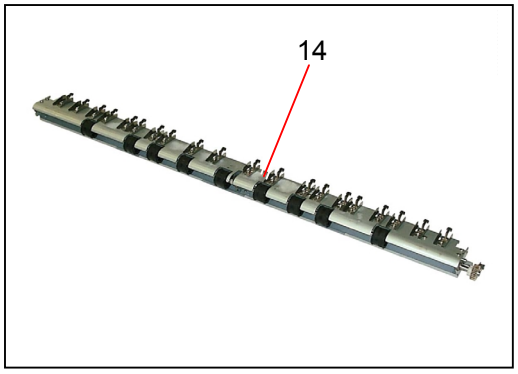


8) Remove tooth washer screws (13) at both sides to remove the Frame Assembly (14).

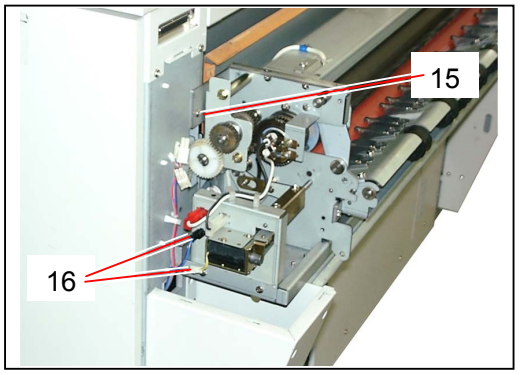


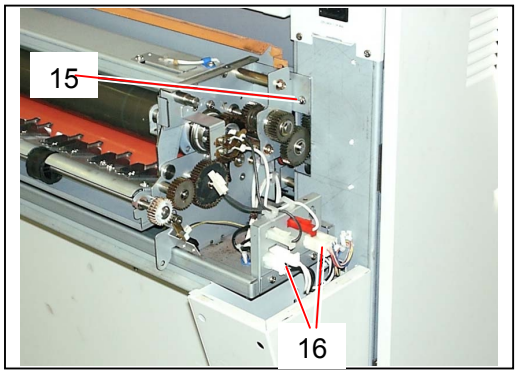




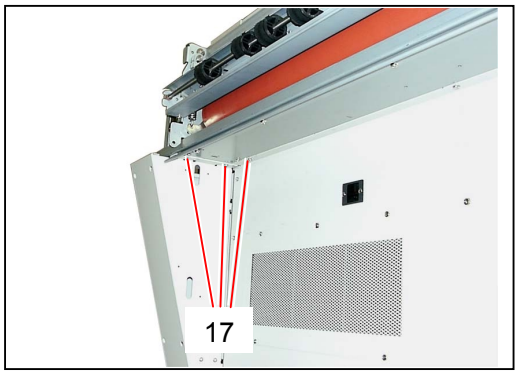


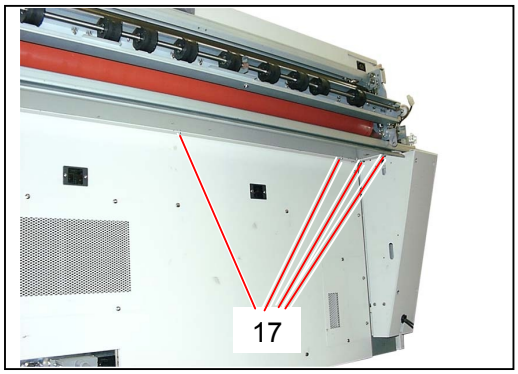
9) Remove Hexagon Head Bolts (15) at both sides which fix the Fuser Unit.
Also, disconnect 4 connectors (16).



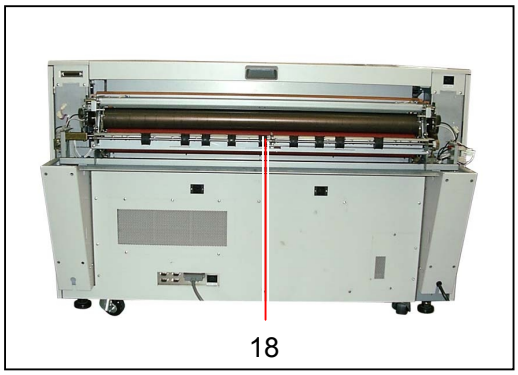


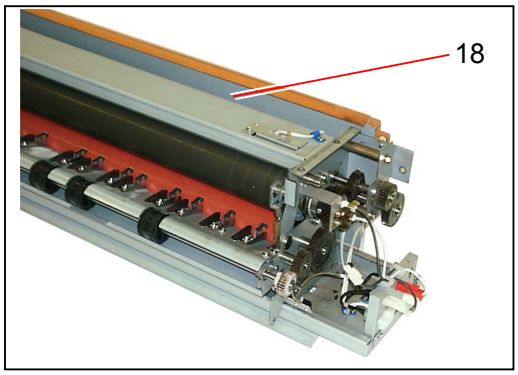
10) Remove 7 pieces of tooth washer screw (17) which fix the Fuser Unit from the bottom.





11) Remove the Fuser Unit (18) from the machine.

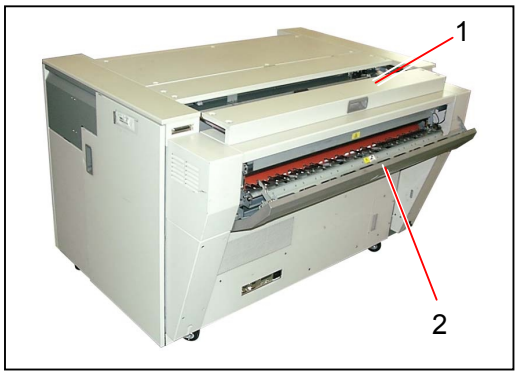




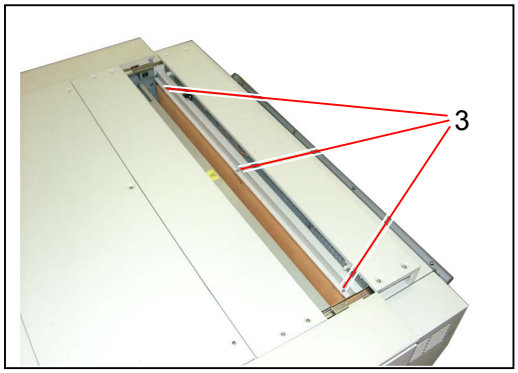
5.7.2 Replacing IR Lamps & Fuser Roller

> **NOTE**
>
> Fuser Roller is the Periodical Replacement Part, and its life is 200,000m.

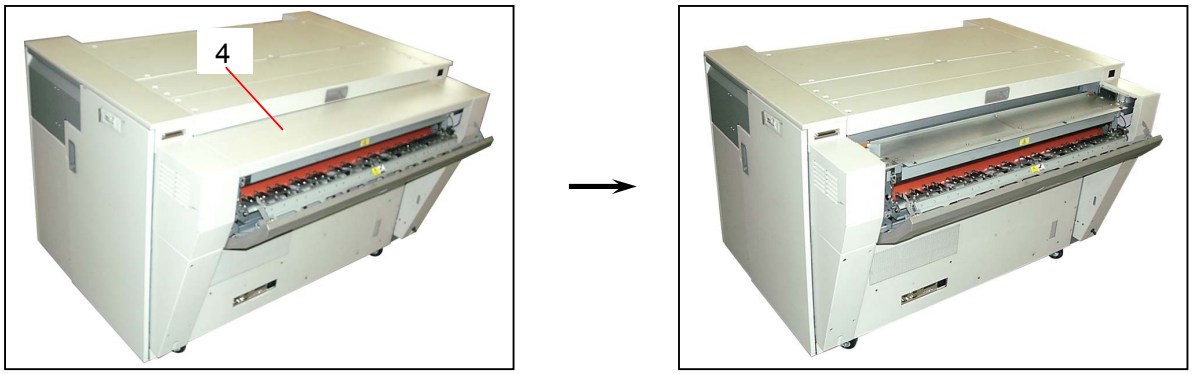
1) Open both the Rear Upper Cover (1) and Exit Cover (2).



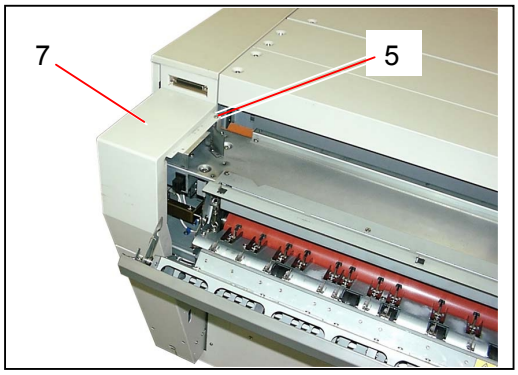
2) Loosen 3 pieces of tooth washer screw (3).

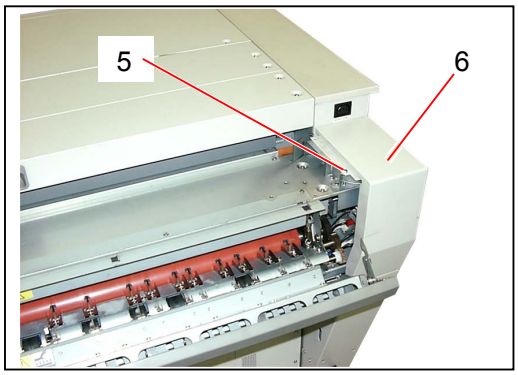


3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

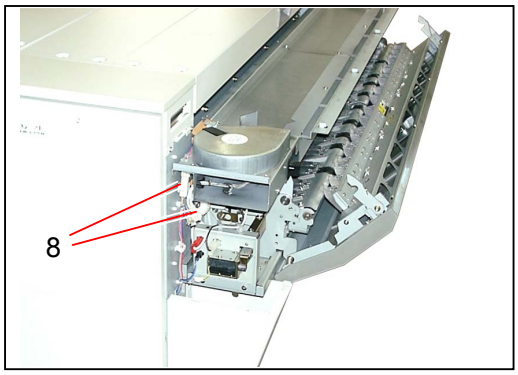


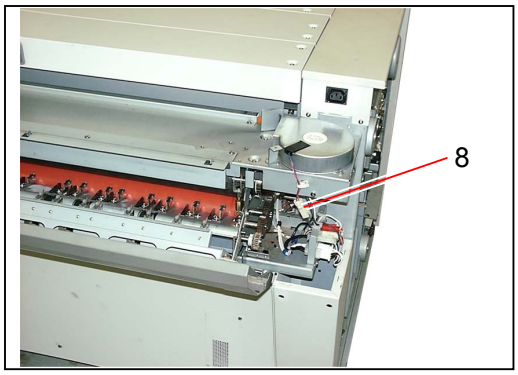
4) Remove a tooth washer screw (5) to remove each Cover 3 (6) and Cover 4 (7).



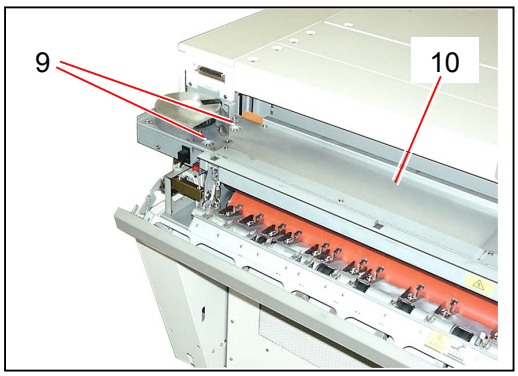


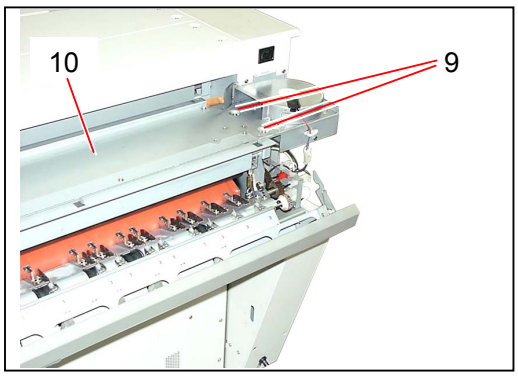
5) Disconnect 3 connectors (8).

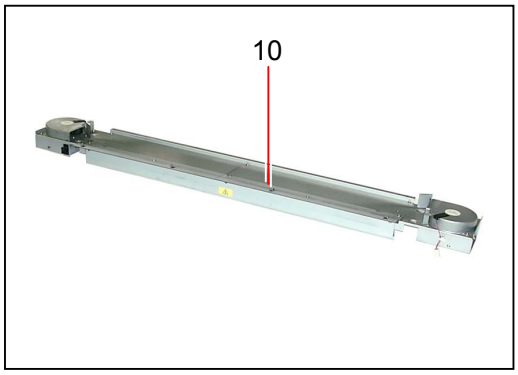




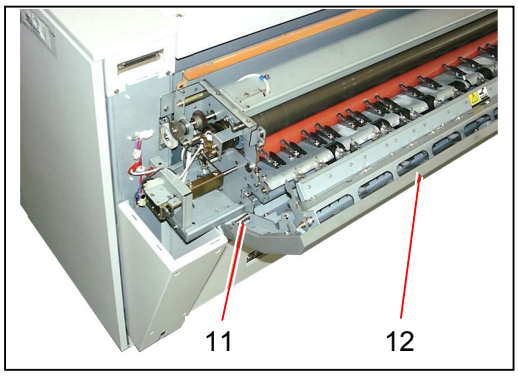
6) Remove 4 pieces of tooth washer screw (9) to remove the Cover 2 Assembly (10).

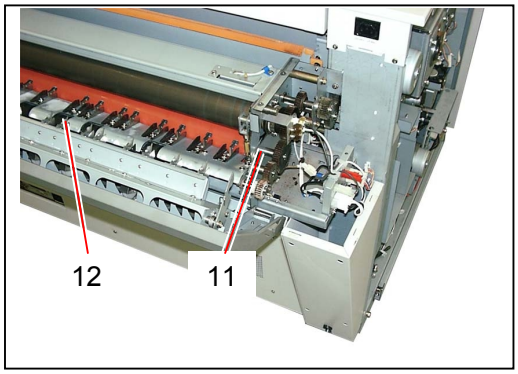


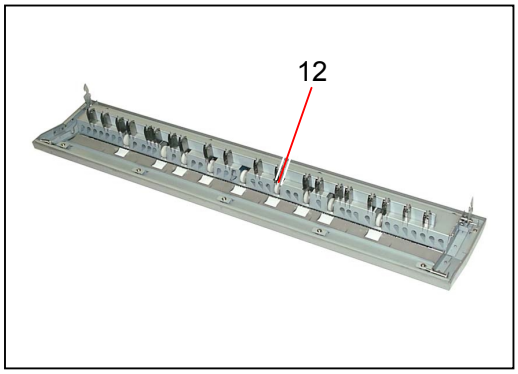




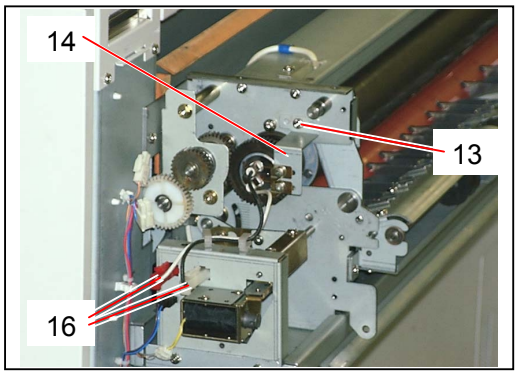
7) Slide both the Shaft 4 (11) inward to release from the hole, and then remove the Exit Cover Assembly (12)

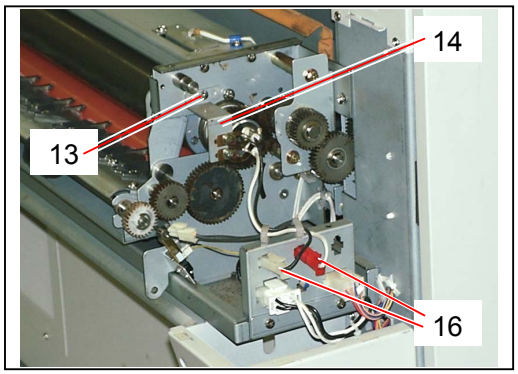


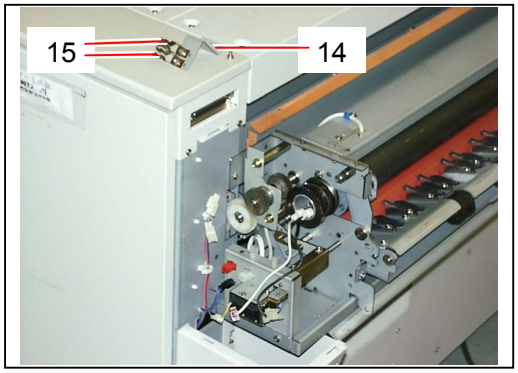


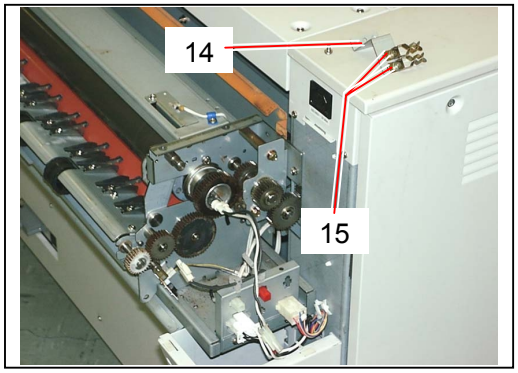


8) Remove a tooth washer screw (13) to remove each Lamp GP (14) with Lamp Mounts (15) at both sides to make the IR Lamps free.
Also, disconnect 4 connectors (16) of IR Lamps.

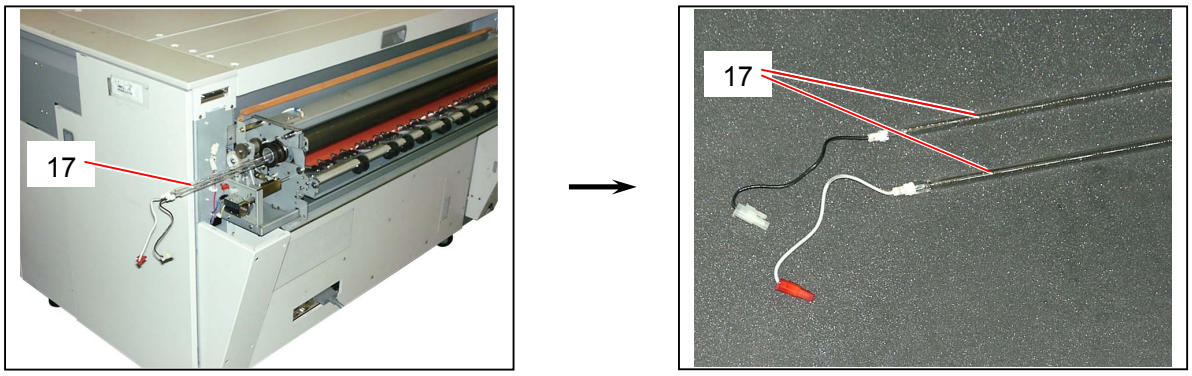






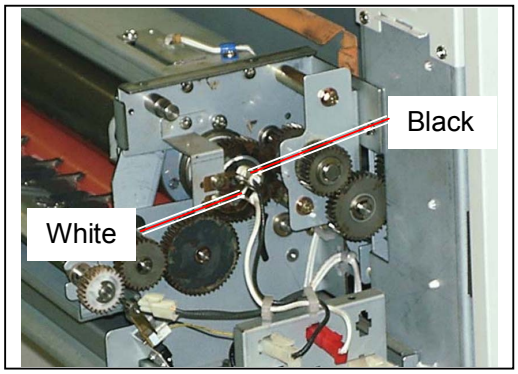


9) Pull out the **IR Lamps** (17) gently.
Replace the IR Lamps (17) with the new ones.

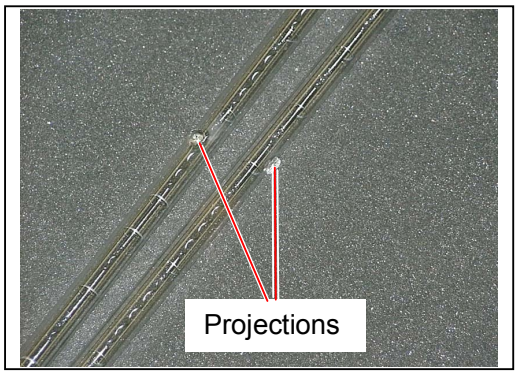


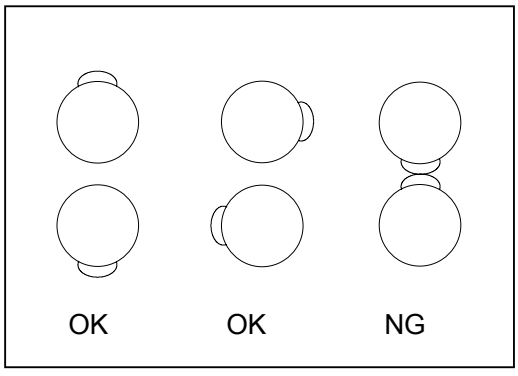
⚠ NOTE

(1) There are 2 kinds of IR Lamp.
One has a black wire and another has a white one.
Make sure to install the black one to the upper position.

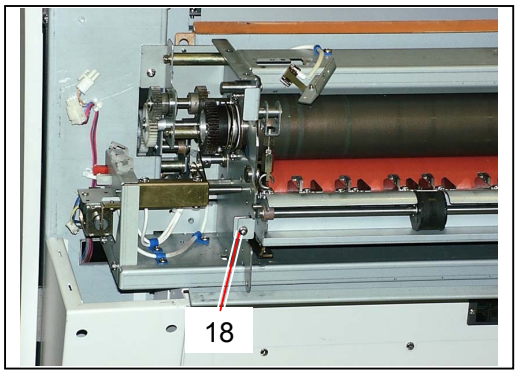


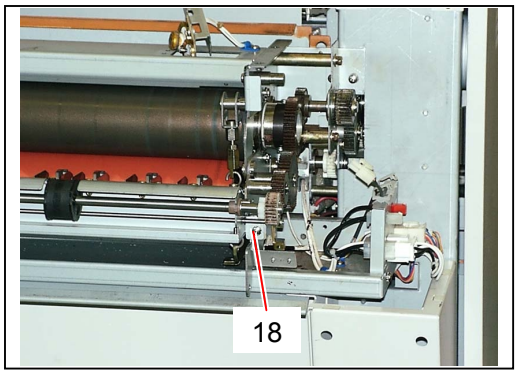
(2) There is a projection on the mid glass part of each IR Lamp.
When the projections of both IR Lamps touch each other, IR Lamps will be broken because of the vibration.
Make sure to direct these projections to the other directions when you install the IR Lamps.

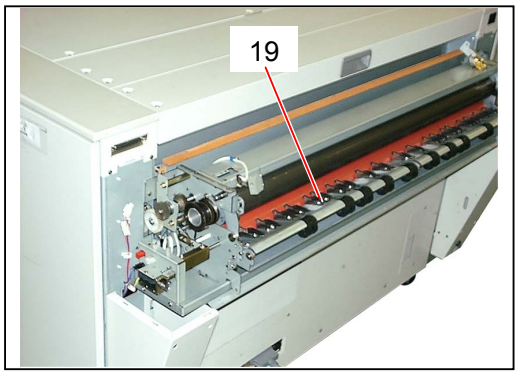


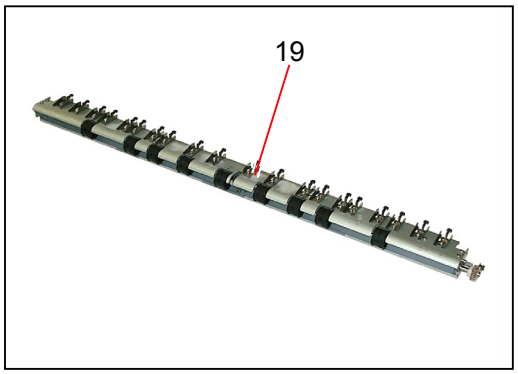


10) Remove tooth washer screws (18) at both sides to remove the Frame Assembly (19).

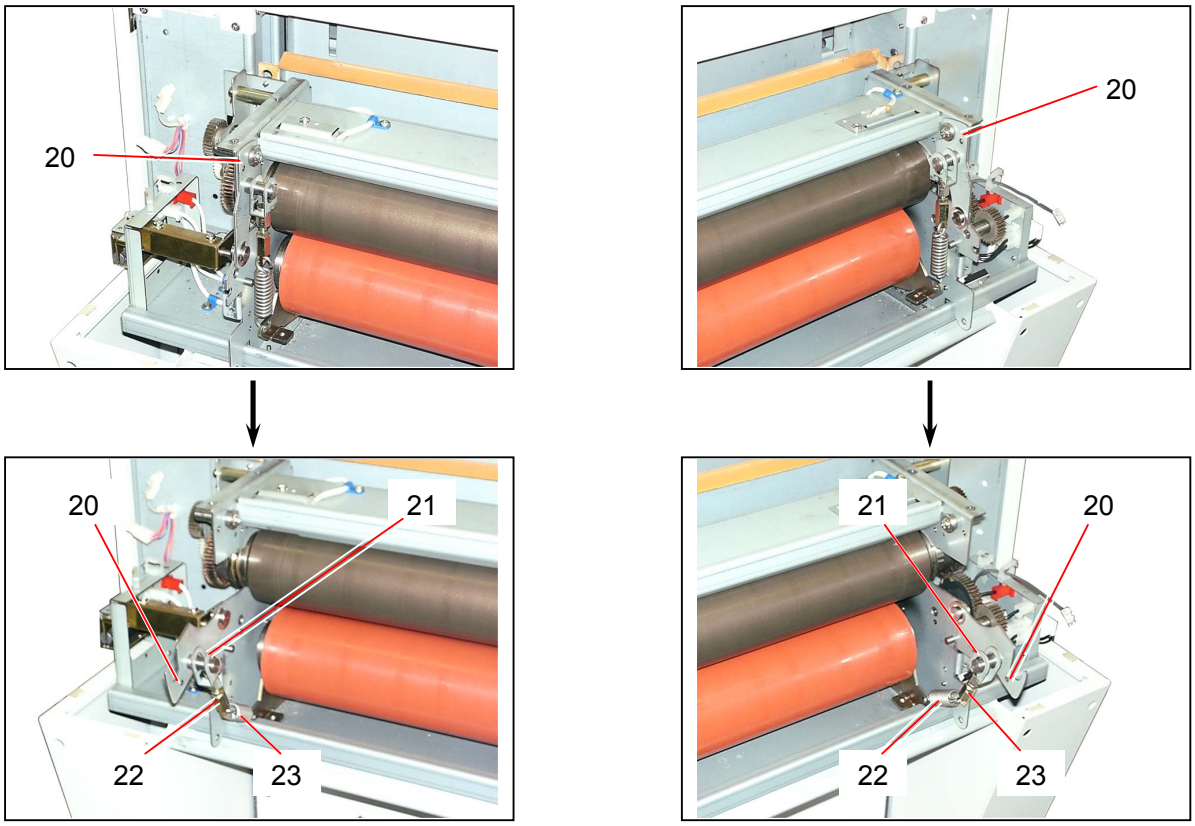


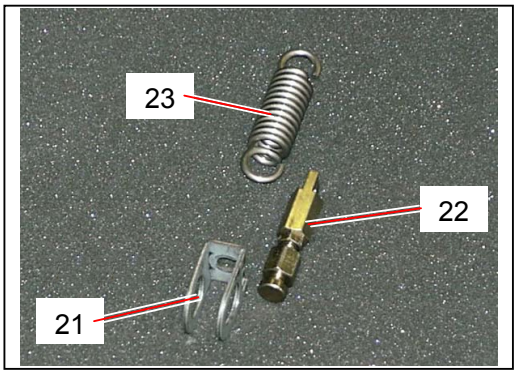






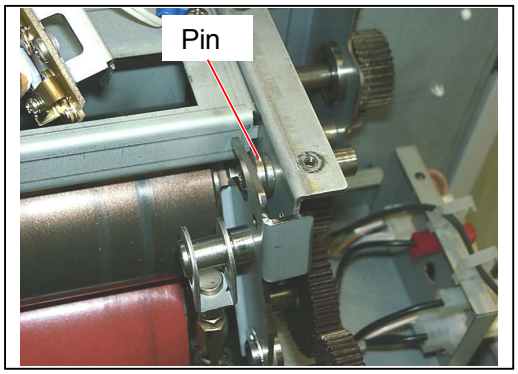
11) Pull the Levers L/R (20) at both sides to decompress the Fuser Roller.
Then, remove Spring Hooks 3 (21), Spring Hooks 1/2 Assembly (22) and Extension Springs A (23) at both sides.



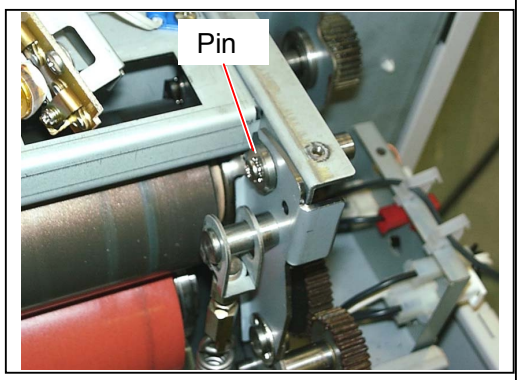


NOTE

When you pressurize the Fuser Roller, confirm the Levers L/R are fitted to the inside of Pin.

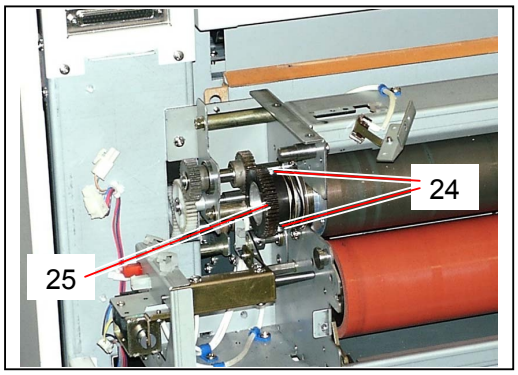


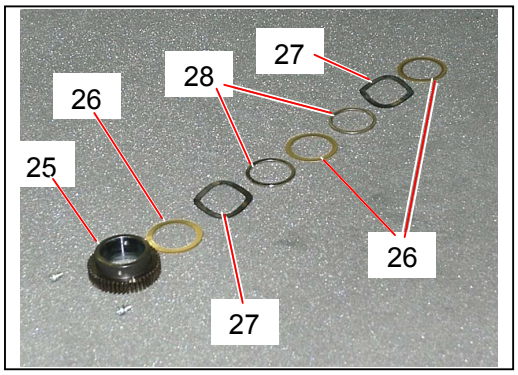
No good (Lever is out of the Pin.)



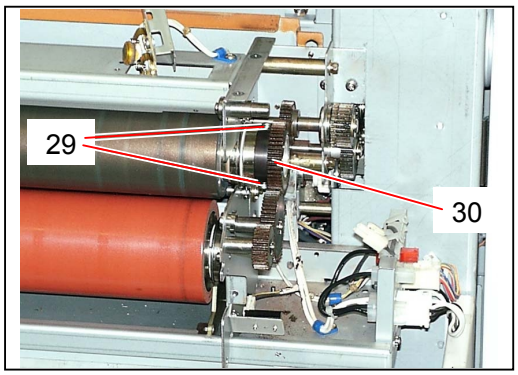
Good (Lever is inside of the Pin.)

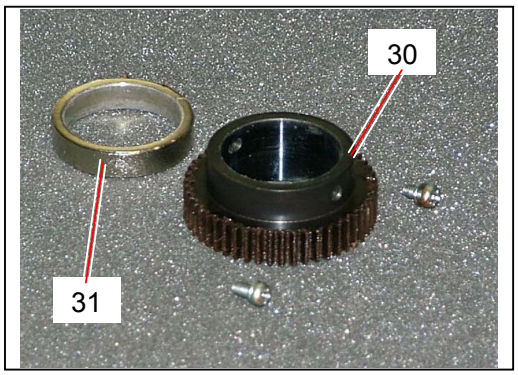
12) Remove 2 pieces of Pan Head Screw (24) to remove 50T Spur Gear (25), 3 pieces of Spacer (26), 2 pieces of Wave Washer (27) and 2 pieces of Collar (28).



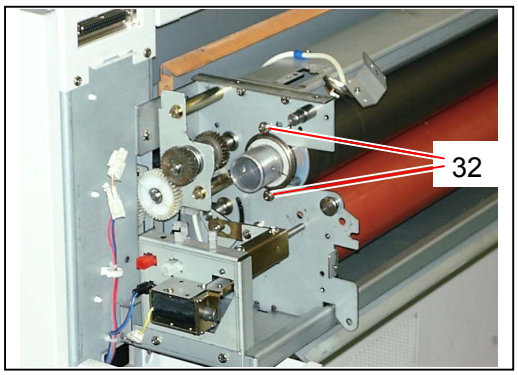


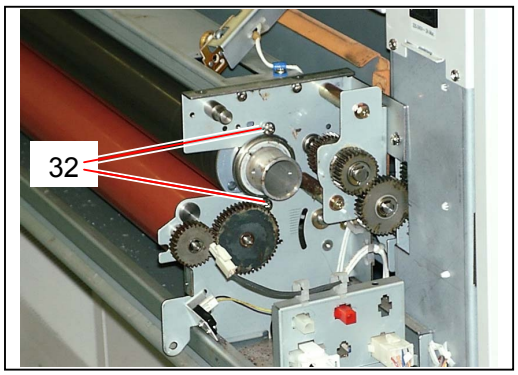
13) Remove 2 pieces of Pan Head Screw (29) to remove 50T Spur Gear (30) and Collar 1 (31).

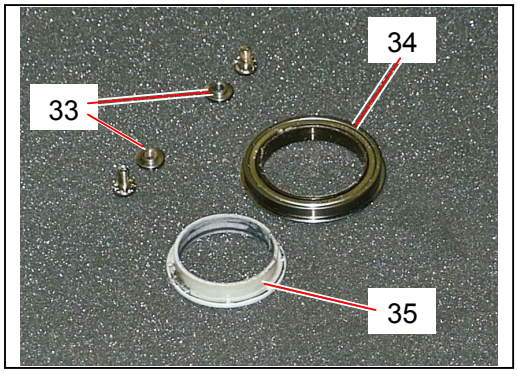




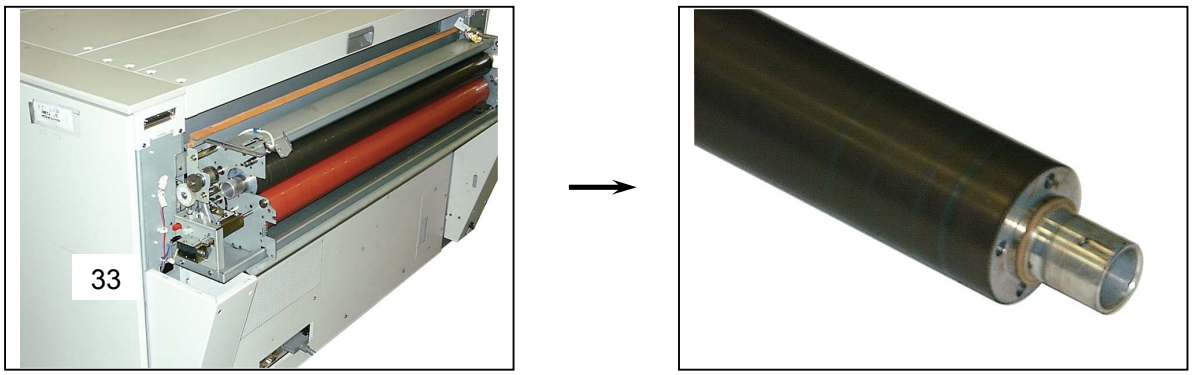
14) Remove 4 pieces (2 pieces on each side) of tooth washer screw (32) to remove Collars (33), Ball Bearings (34) and Isolate Bushings (35) at both sides







15) Remove the **Fuser Roller** (36) pulling out to your side.
Remove both the **Collar E** (37) and Collar 4 (38) from one side (driving side of machine) of the Fuser Roller.
Replace both the Fuser Roller (36) and the Collar E (37) with the new ones.



⚠ NOTE

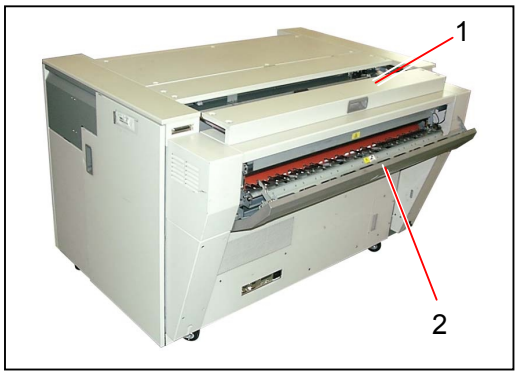
(1) You do not have to be care about the direction (left or right) of the Fuser Roller when you install the new one.
However, please install the side having Collar E and Collar 4 to the driving side of machine.

(2) Collar E (37) is not a Periodical Replacement Part, so basically you do not have to replace if it is not broken.
But the Collar E will be strongly fixed to the Fuser Roller after a long term of usage, so it will be broken in many cases if you try to remove from the Fuser Roller.
Please replace with the new one if it is broken.

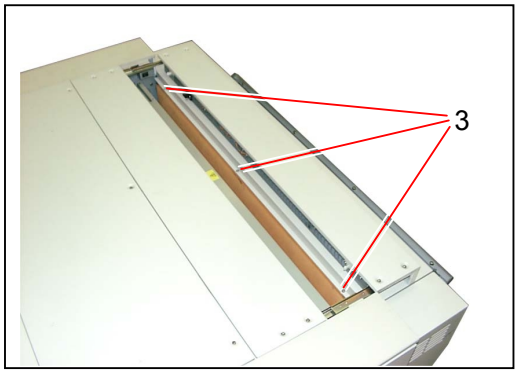
5.7.3 Replacing Pressure Roller

> **NOTE**
>
> Pressure Roller is the Periodical Replacement Part, and its life is 200,000m.

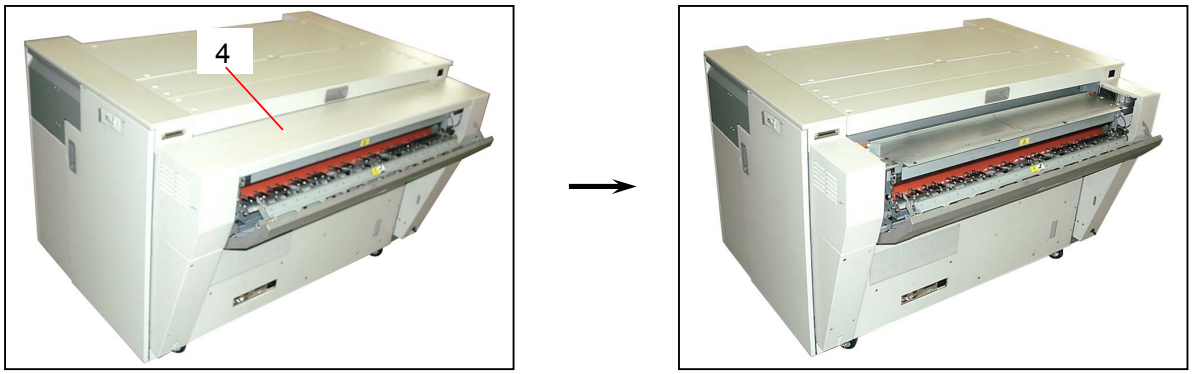
1) Open both the Rear Upper Cover (1) and Exit Cover (2).



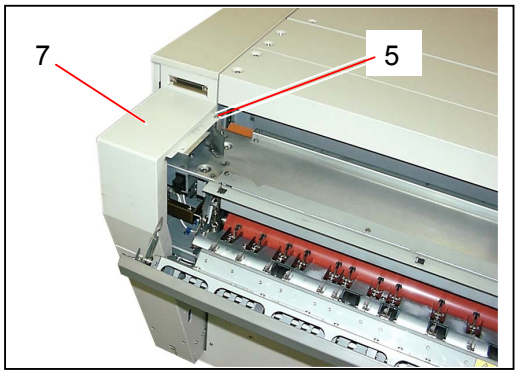
2) Loosen 3 pieces of tooth washer screw (3).

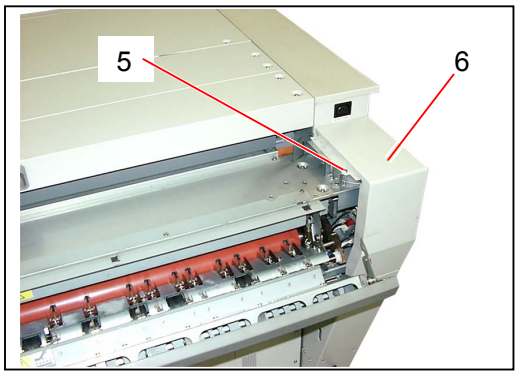


3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

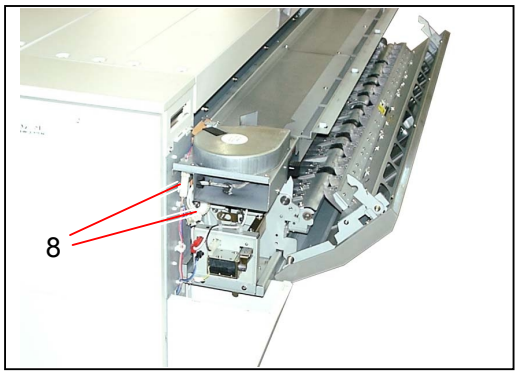


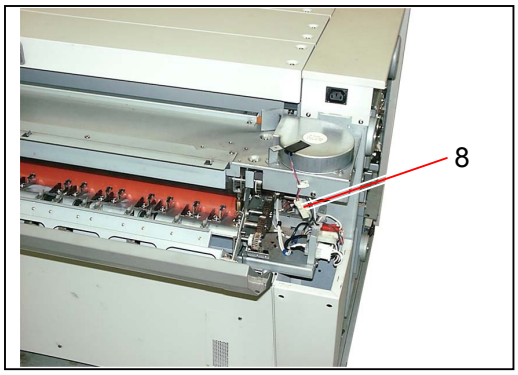
4) Remove a tooth washer screw (5) to remove each Cover 3 (6) and Cover 4 (7).



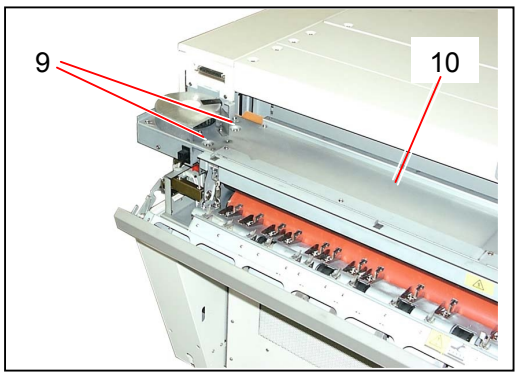


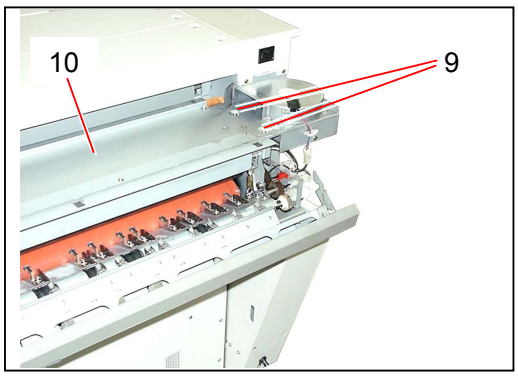
5) Disconnect 3 connectors (8).

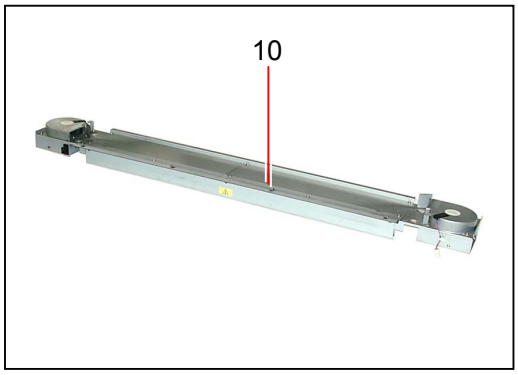




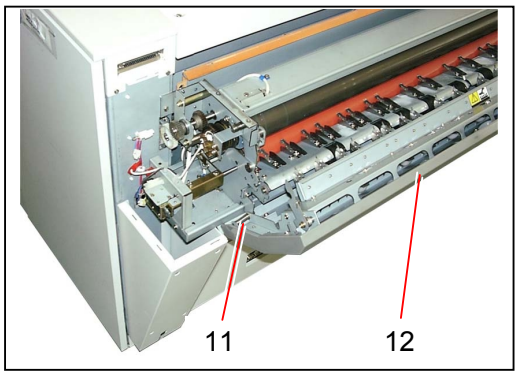
6) Remove 4 pieces of tooth washer screw (9) to remove the Cover 2 Assembly (10).

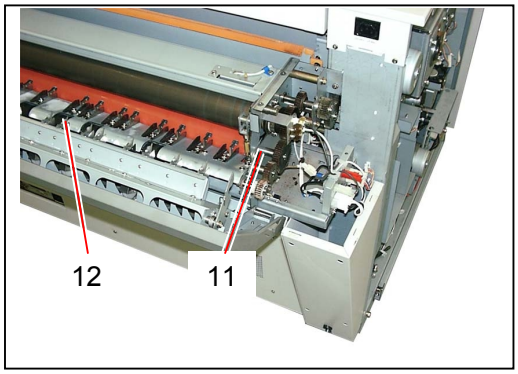


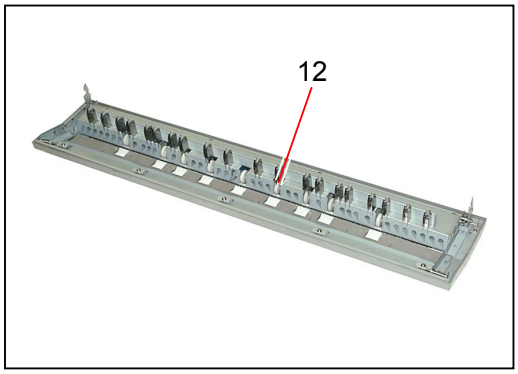




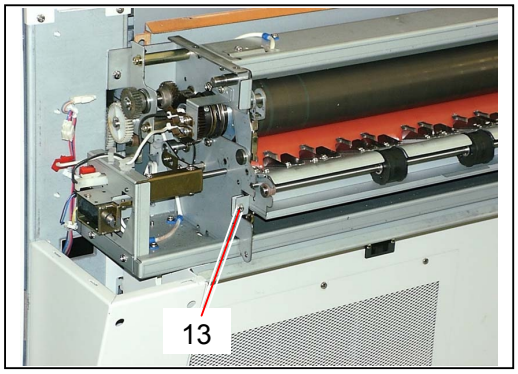
7) Slide both the Shaft 4 (11) inward to release from the hole, and then remove the Exit Cover Assembly (12)

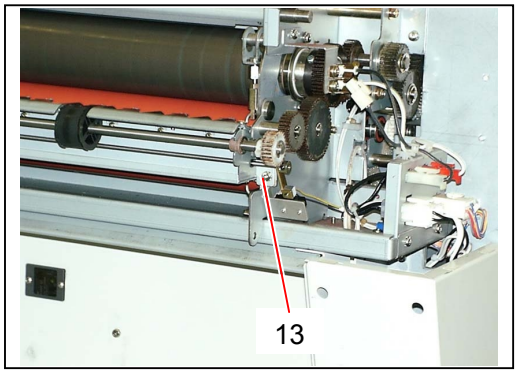


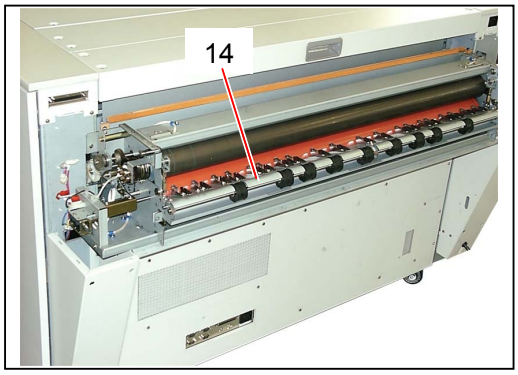


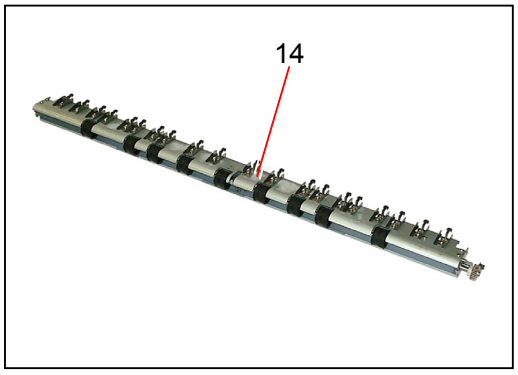


8) Remove tooth washer screws (13) at both sides to remove the Frame Assembly (14).

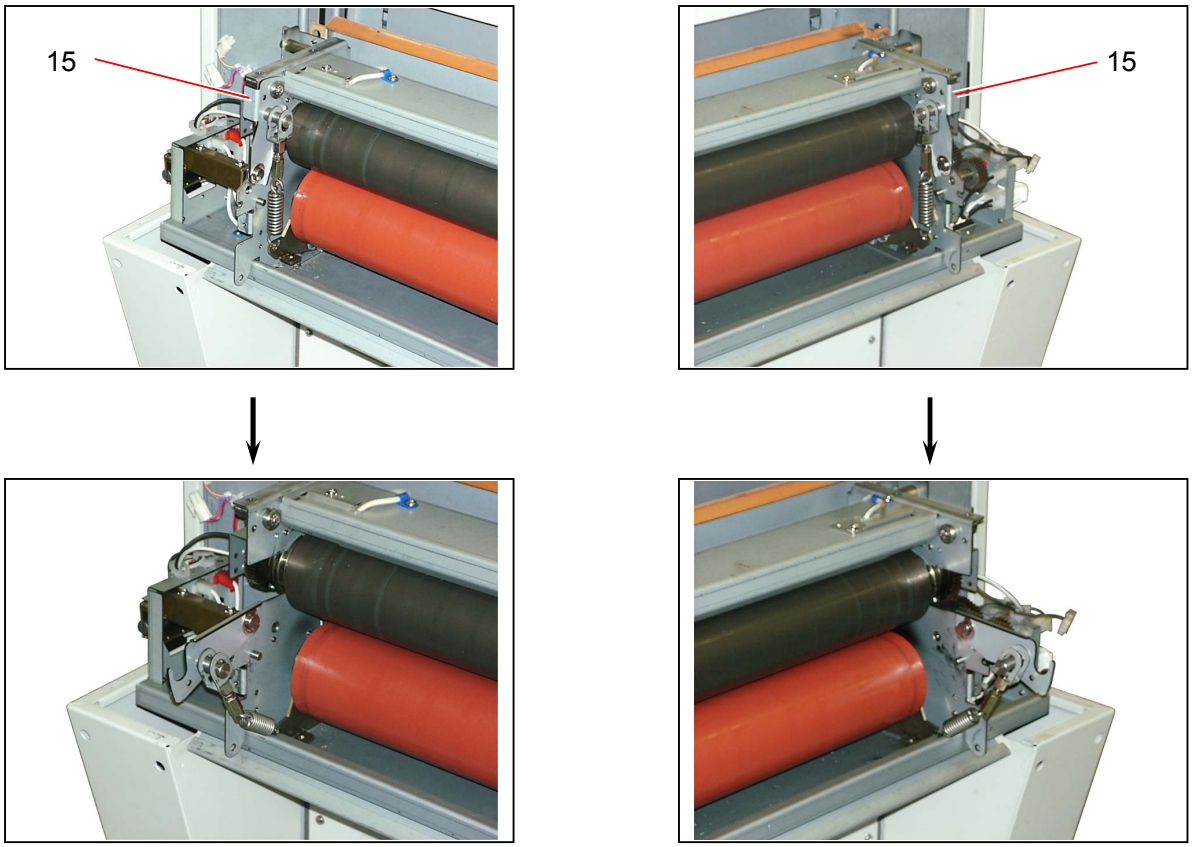






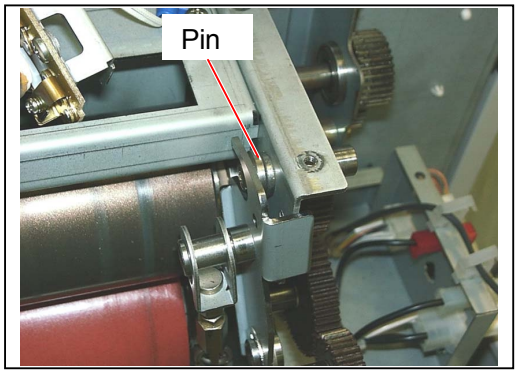


9) Pull the Levers L/R (15) at both sides to decompress the Fuser Roller.

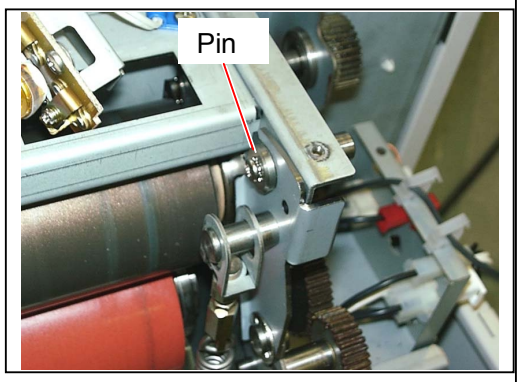


NOTE

When you pressurize the Fuser Roller, confirm the Levers L/R are fitted to the inside of Pin.

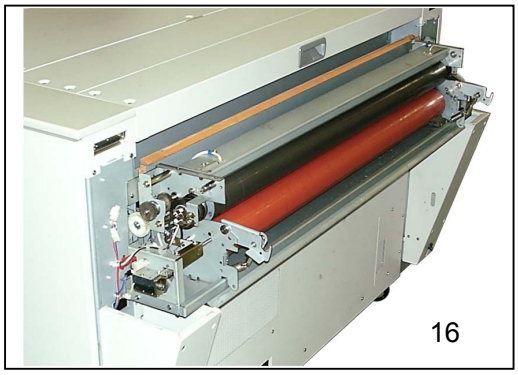


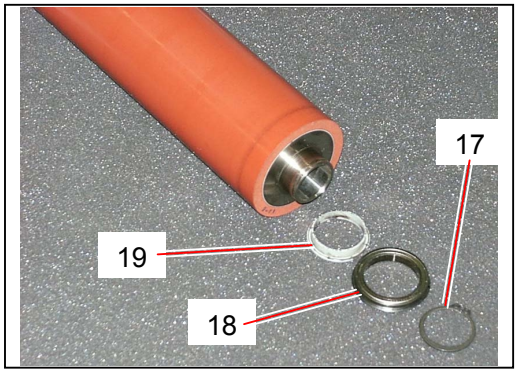
No good (Lever is out of the Pin.)



Good (Lever is inside of the Pin.)

10) Remove the **Pressure Roller** (16) pulling out to your side.
Remove C rings (17), Ball Bearings (18) and Isolate Bushing (19) from both sides of the Pressure Roller.
Replace the Pressure Roller (16) with the new one.

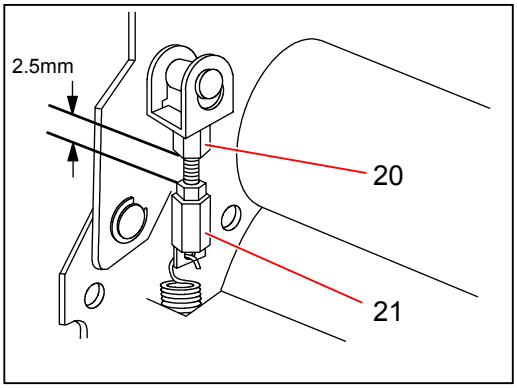


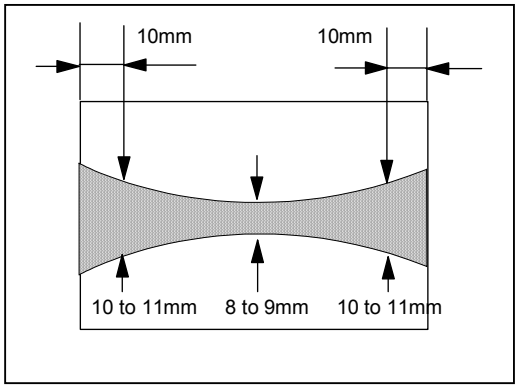


⚠ NOTE

(1) You do not have to be care about the direction (left or right) of the Pressure Roller when you install the new one.

(2) You can adjust the fusing pressure by adjusting the gap between Spring Hook 1 (20) and Spring Hook 2 (21).
It is 2.5mm in usual case.
The width of “Nip” is 8 to 9mm at the center and 10 to 11mm at both sides (10mm from side edges of A0 or 36” paper).

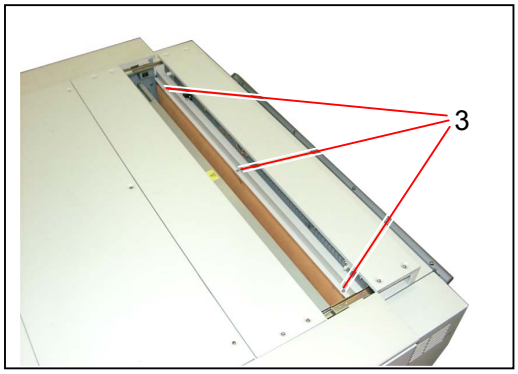




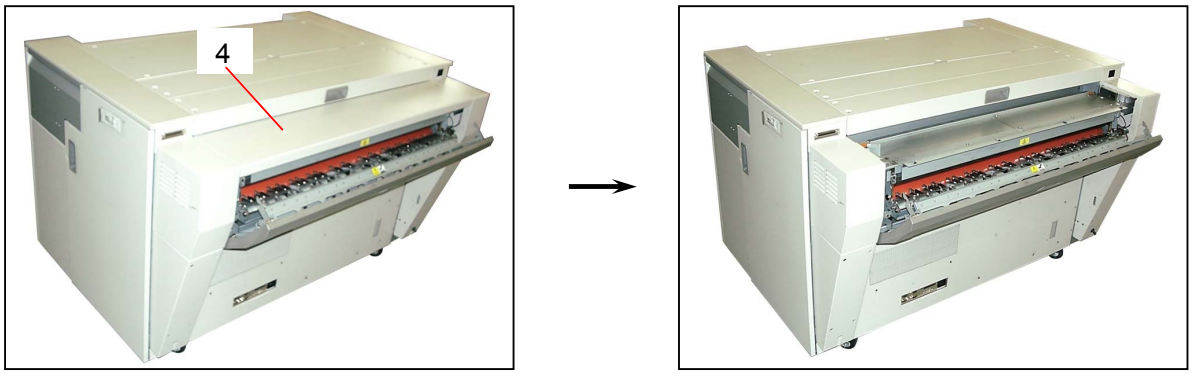
5.7.4 Replacing Exhaust Blowers (BL2 & BL3)

1) Open both the Rear Upper Cover (1) and Exit Cover (2).

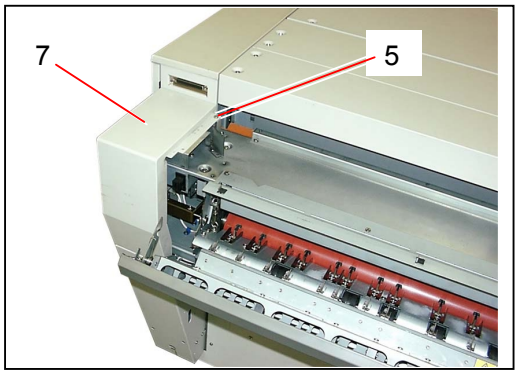
2) Loosen 3 pieces of tooth washer screw (3).

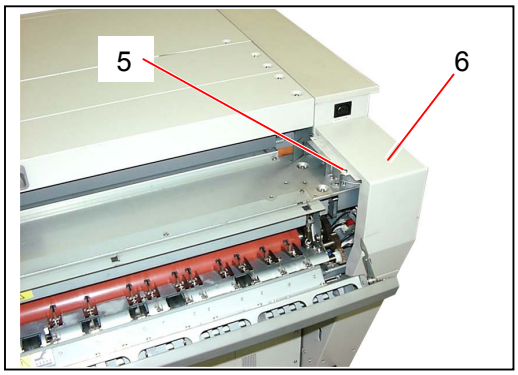


3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

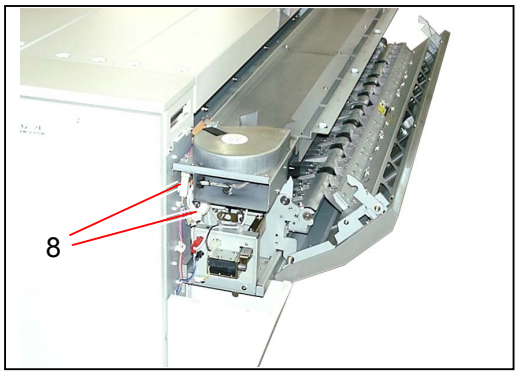


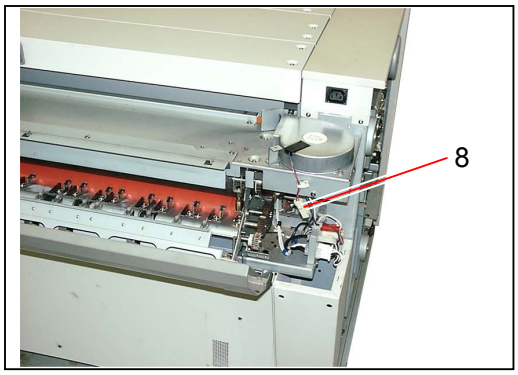
4) Remove a tooth washer screw (5) to remove each Cover 3 (6) and Cover 4 (7).



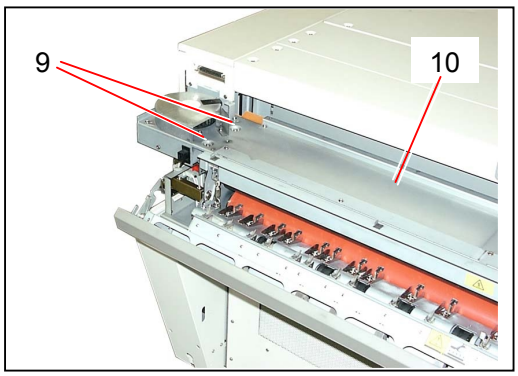


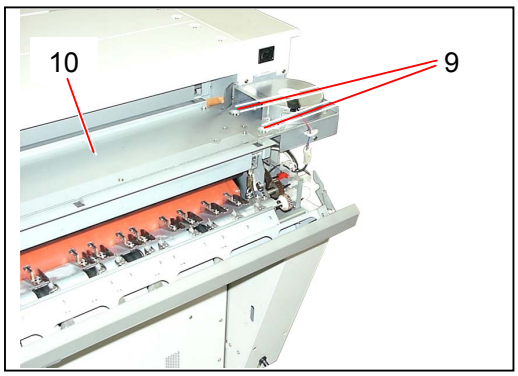
5) Disconnect 3 connectors (8).

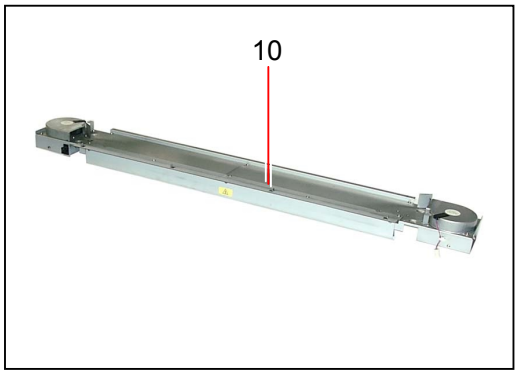




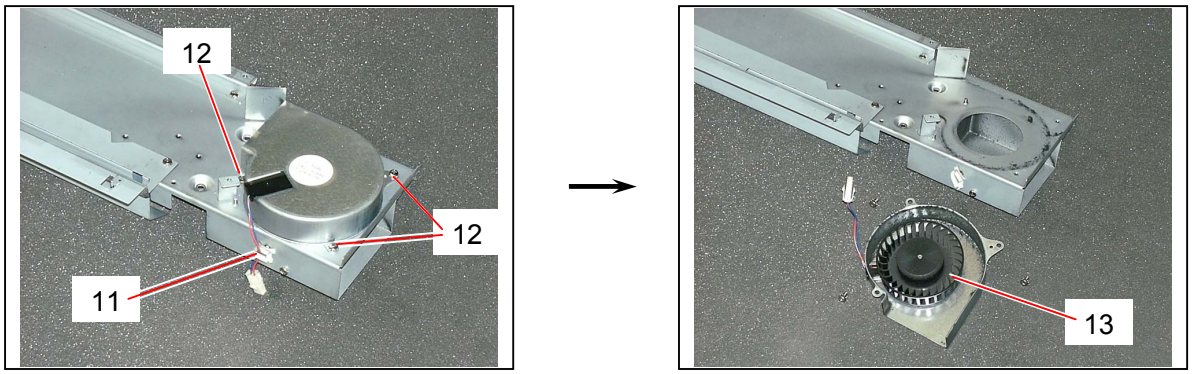
6) Remove 4 pieces of tooth washer screw (9) to remove the Cover 2 Assembly (10).





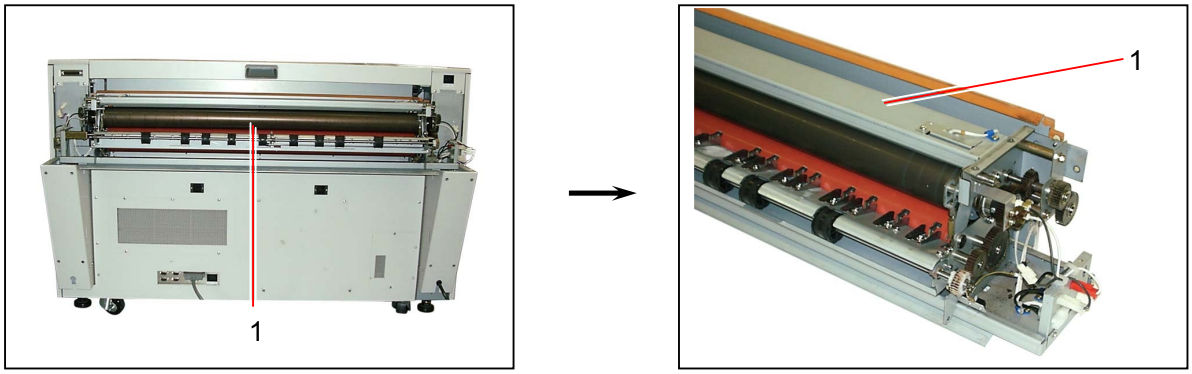


7) Open the Licking Wire Saddle (11) to release the wire, and then remove 3 pieces of tooth washer screws (12) to remove each **Exhaust Blower** (13).
Replace the Exhaust Blower (13) with the new one.

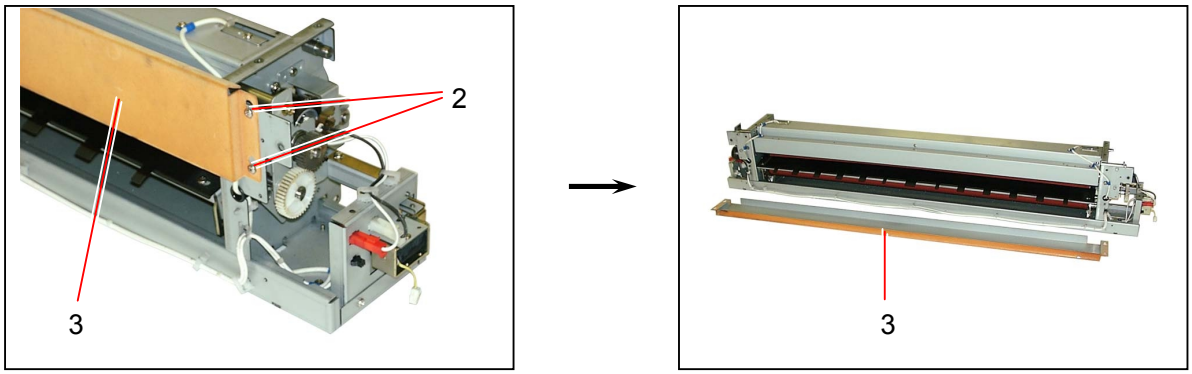


5.7.5 Replacing Thermistor

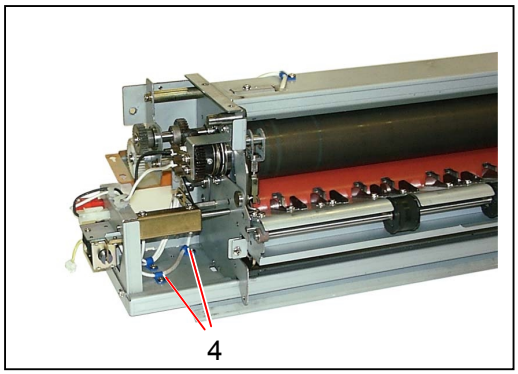
1) Remove the Fuser Unit from the machine making reference to [5.7.1 Removing Fuser Unit] on the page 5-68.

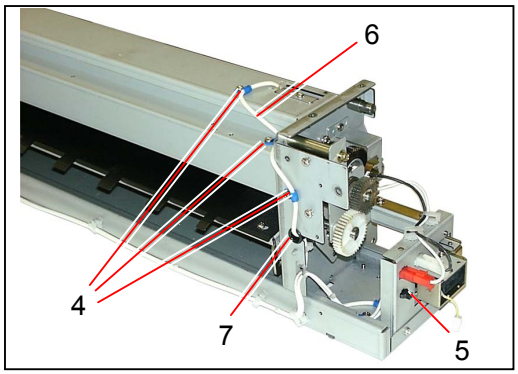


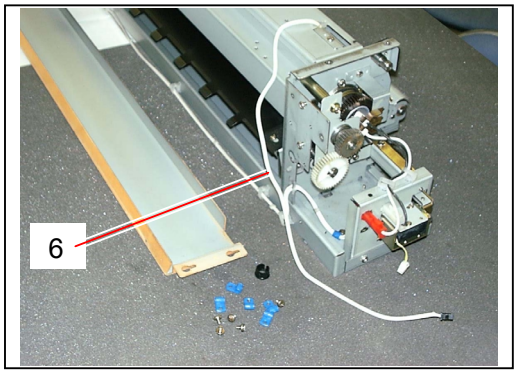
2) Loosen 4 tooth washer screws (2), and then remove the Cover 5 (3).



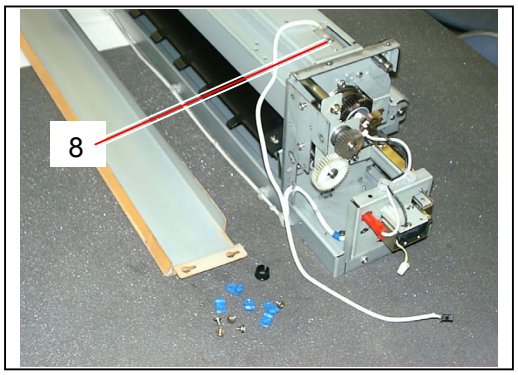
3) Remove 5 pieces of bind head screws to remove Nylon Clamps (4) which fix the wire of Thermistor.
Pull out the connector (5) from the installation hole of plate, and then pull out the wire (6) from the hole (7).

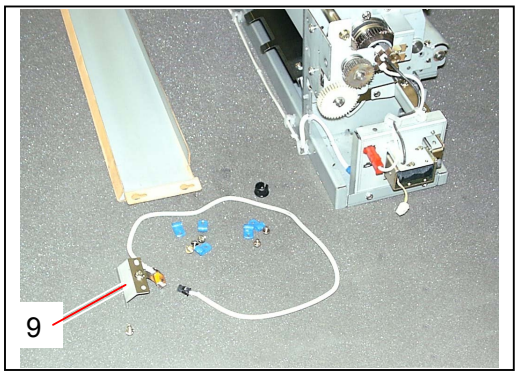




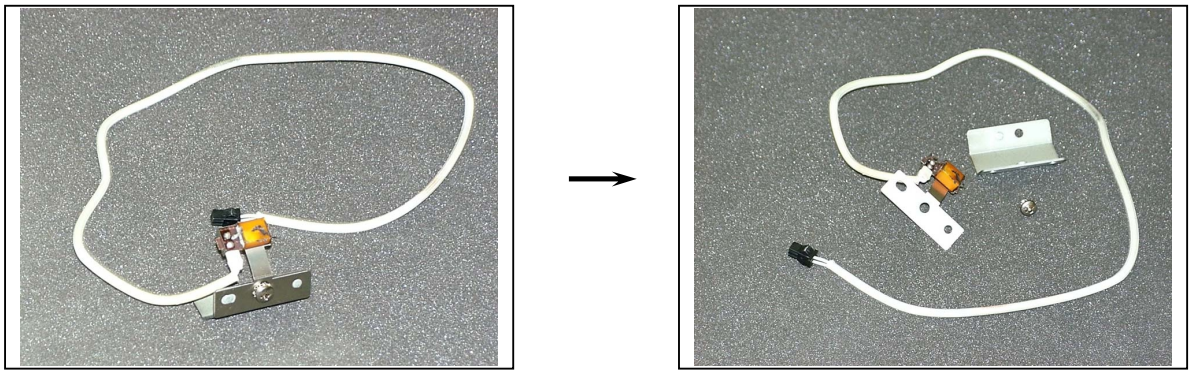


4) Remove the tooth washer screw (8) to remove the Fitting Plate 1 (9) with the Thermistor.





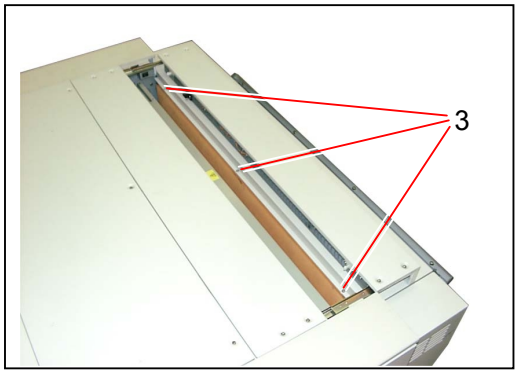
5) Remove the tooth washer screw (10) to remove the **Thermistor** (11).
Replace the Thermistor (11) with the new one.



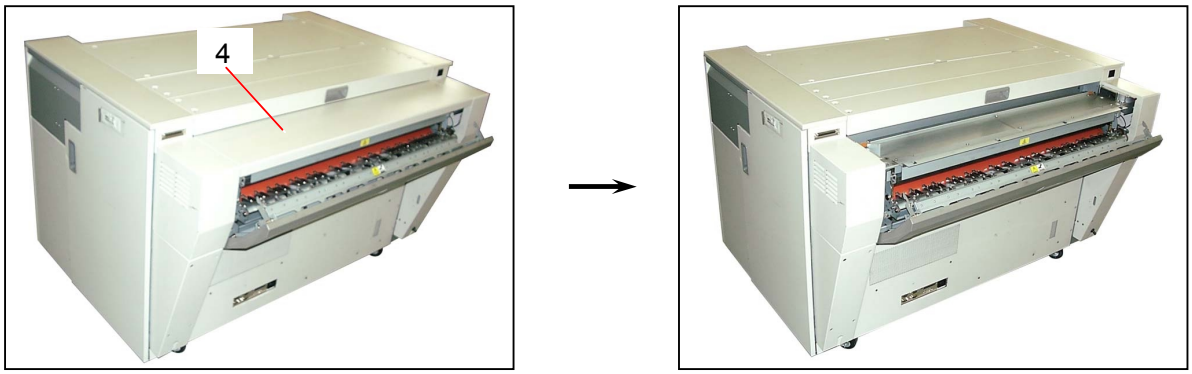
5.7.6 Replacing Thermostat

1) Open both the Rear Upper Cover (1) and Exit Cover (2).

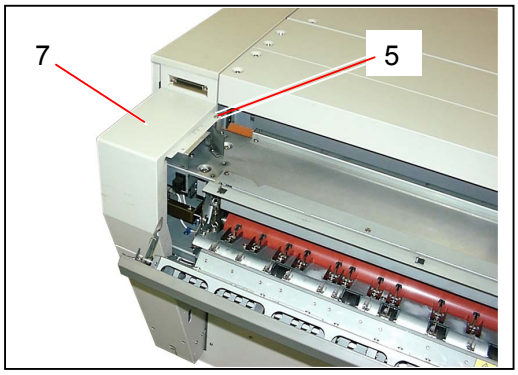
2) Loosen 3 pieces of tooth washer screw (3).

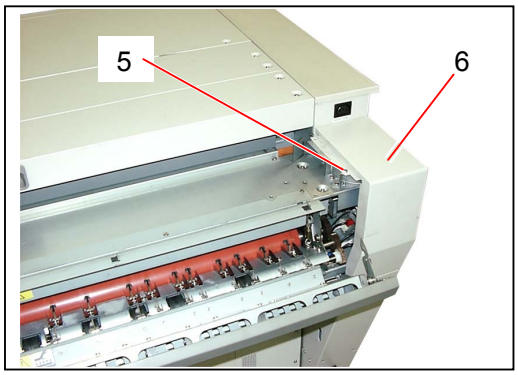


3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

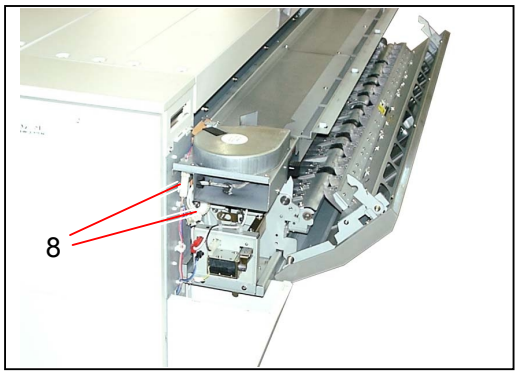


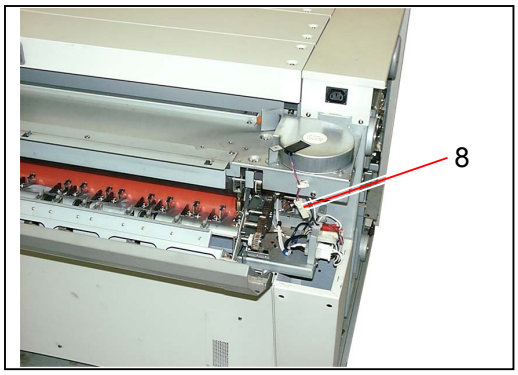
4) Remove a tooth washer screw (5) to remove each Cover 3 (6) and Cover 4 (7).



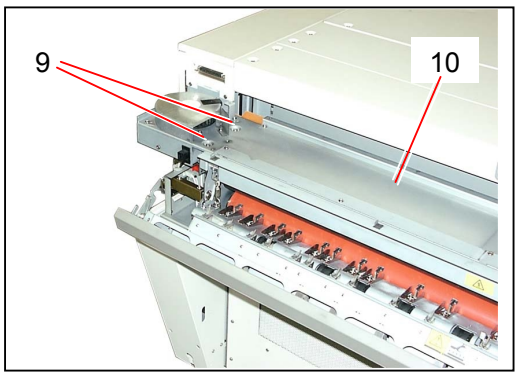


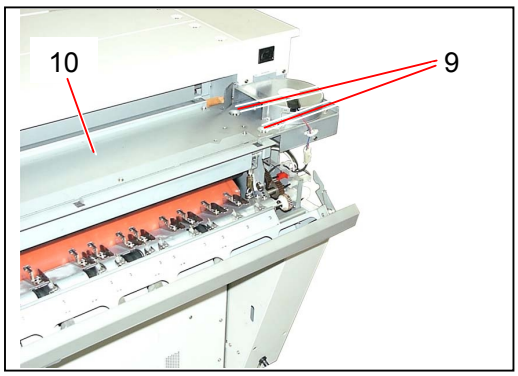
5) Disconnect 3 connectors (8).

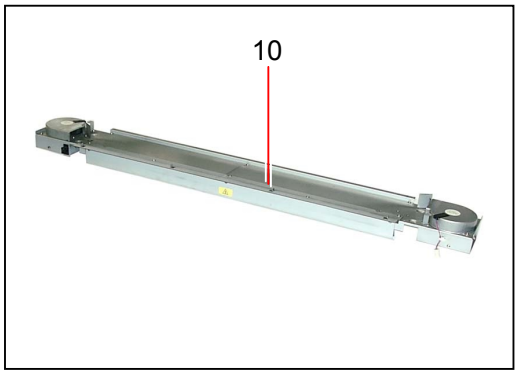




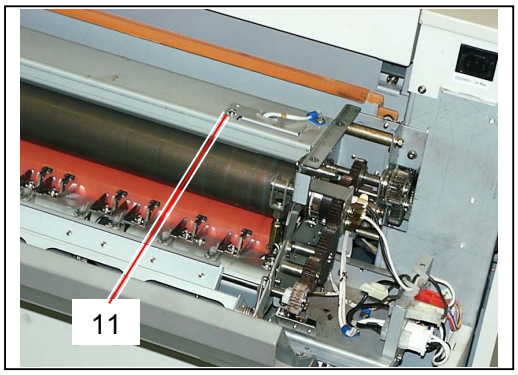
6) Remove 4 pieces of tooth washer screw (9) to remove the Cover 2 Assembly (10).

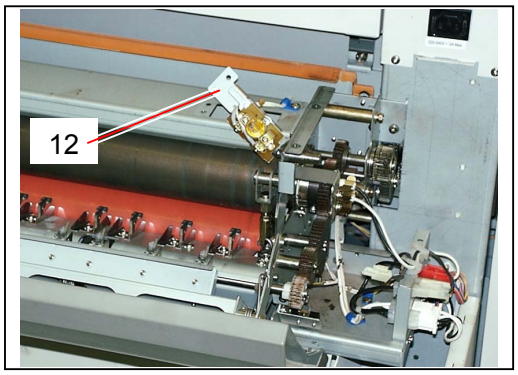




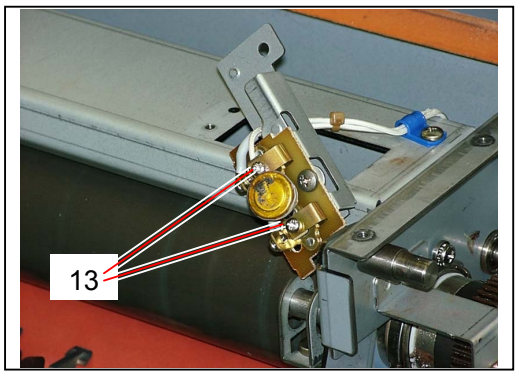


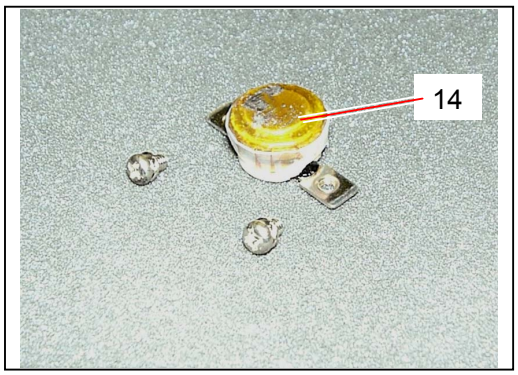
7) Remove the tooth washer screw (11), and then pull out the Fitting Plate 2 (12).





8) Remove 2 pieces of tooth washer screws (13) to remove the **Thermostat** (14).
Replace the Thermostat (14) with the new one.

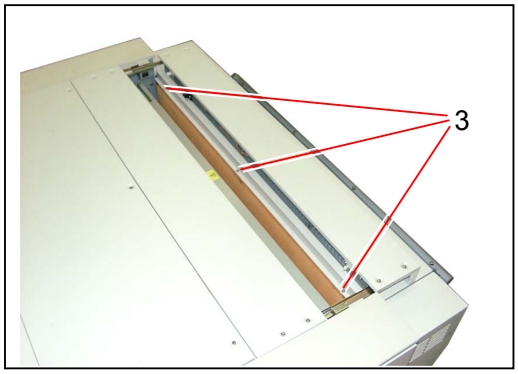




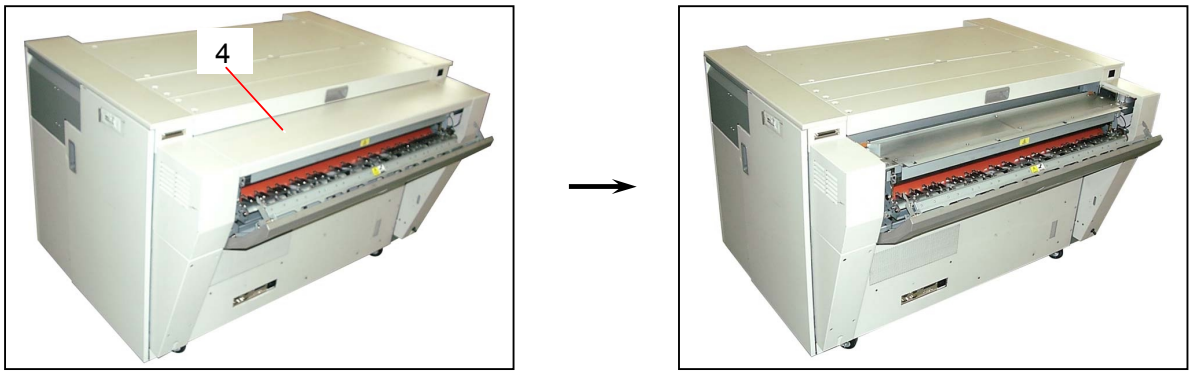
5.7.7 Replacing Stripper Finger Assemblies

1) Open both the Rear Upper Cover (1) and Exit Cover (2).

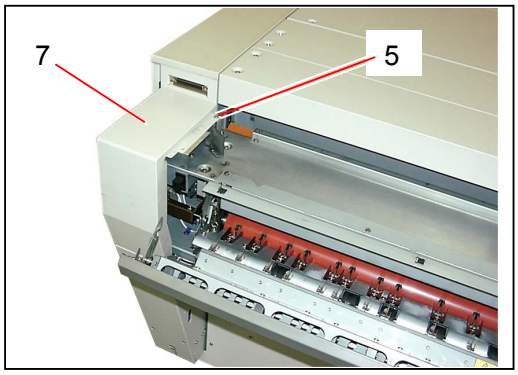
2) Loosen 3 pieces of tooth washer screw (3).

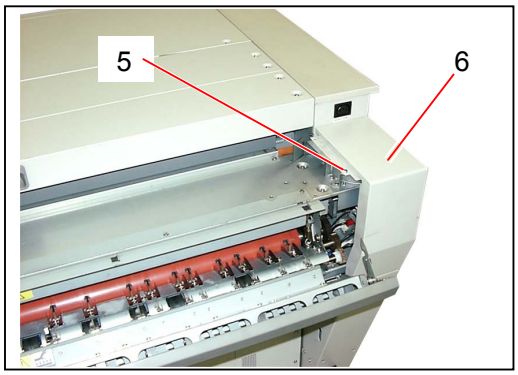


3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

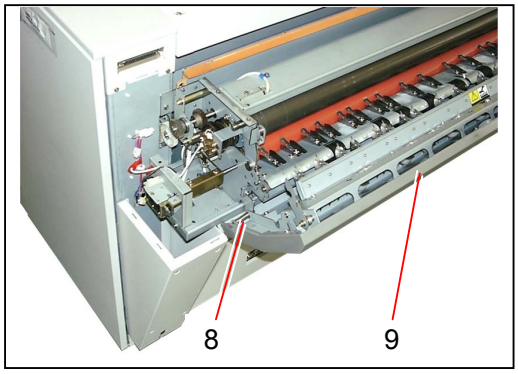


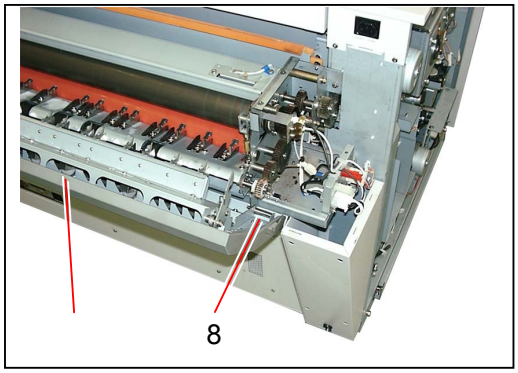
4) Remove a tooth washer screw (5) to remove each Cover 3 (6) and Cover 4 (7).

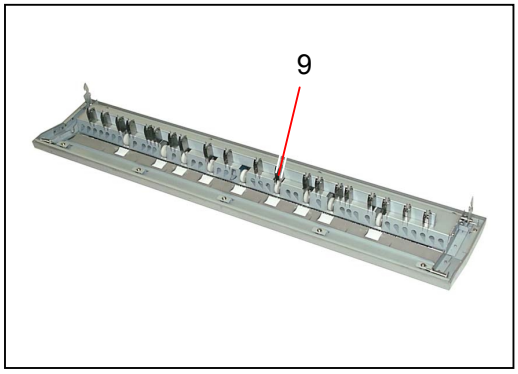




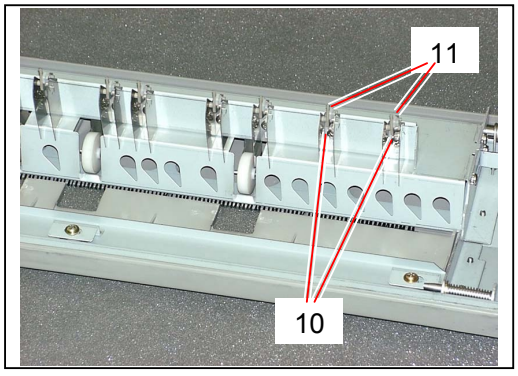
5) Slide both the Shaft 4 (8) inward to release from the hole, and then remove the Exit Cover Assembly (9)

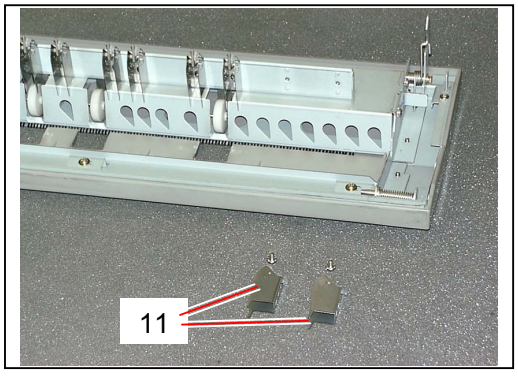






6) Remove the screw (10) to remove each **Stripper Finger Assembly** (11).
Replace the Stripper Finger Assembly (11) with the new one.

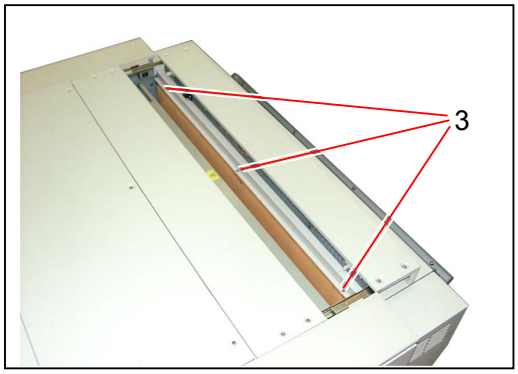




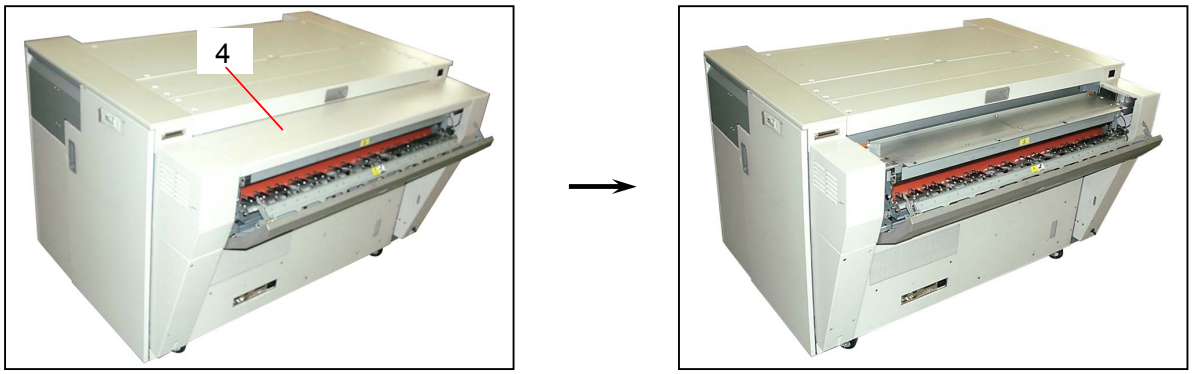
5.7.8 Replacing Separation Fingers

1) Open both the Rear Upper Cover (1) and Exit Cover (2).

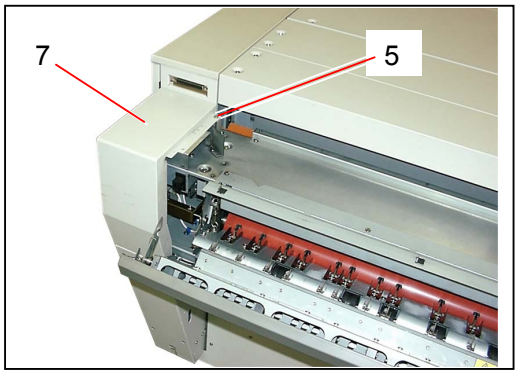
2) Loosen 3 pieces of tooth washer screw (3).

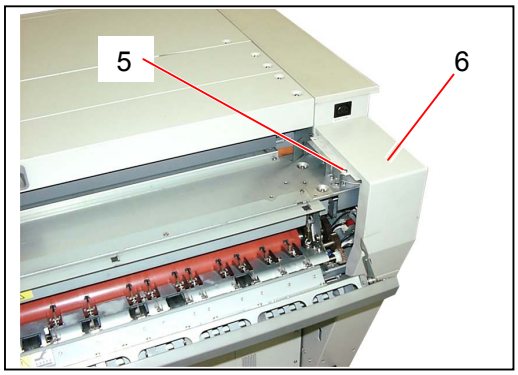


3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

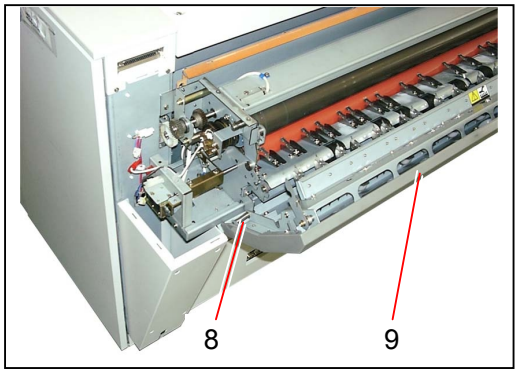


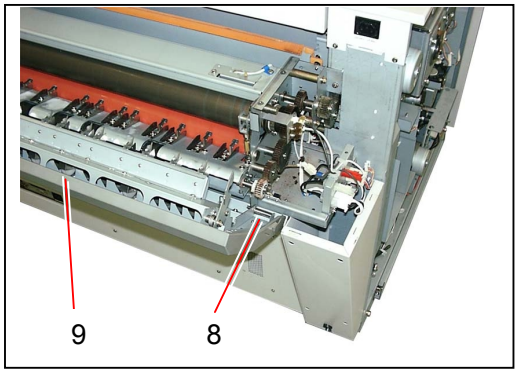
4) Remove a tooth washer screw (5) to remove each Cover 3 (6) and Cover 4 (7).

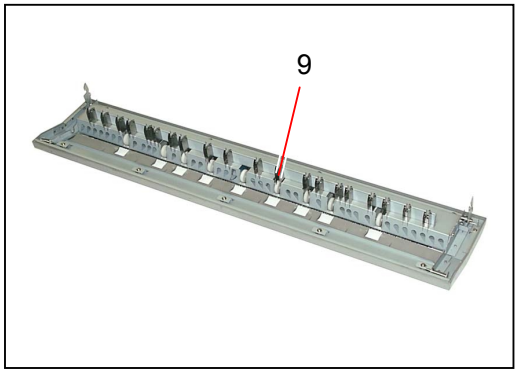




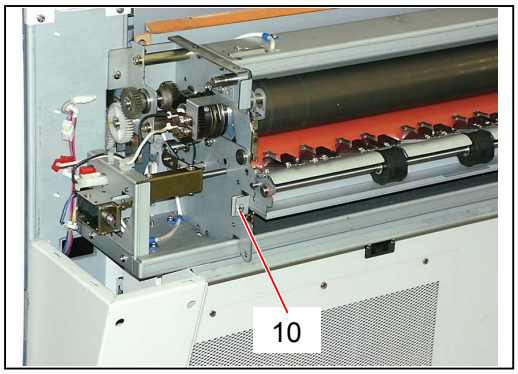
5) Slide both the Shaft 4 (8) inward to release from the hole, and then remove the Exit Cover Assembly (9)

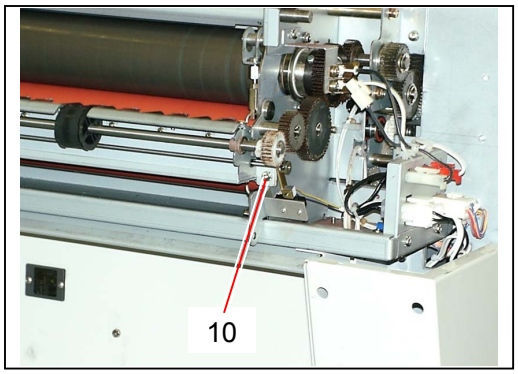


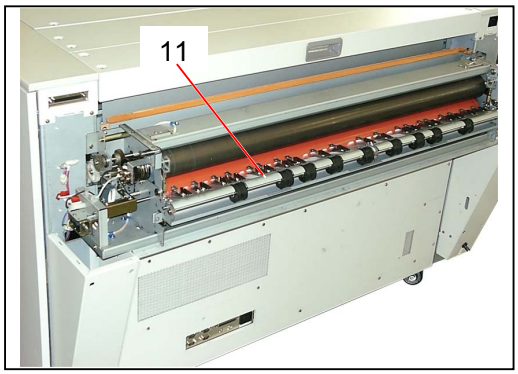


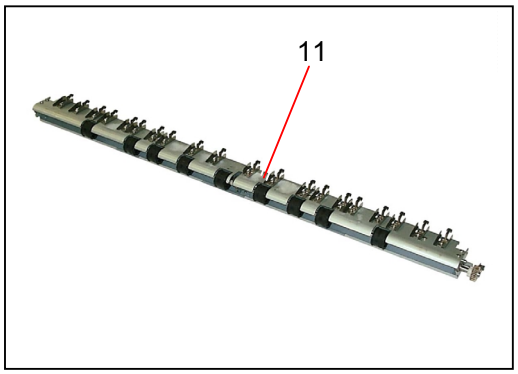


6) Remove tooth washer screws (10) at both sides to remove the Frame Assembly (11).

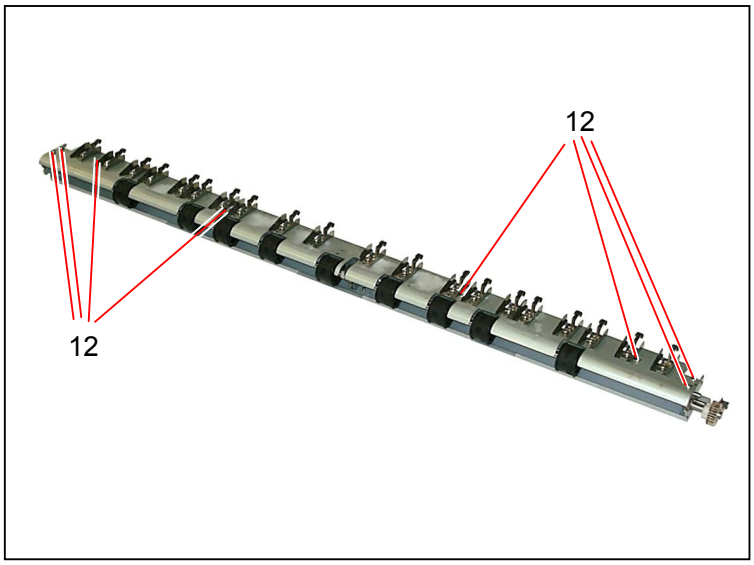


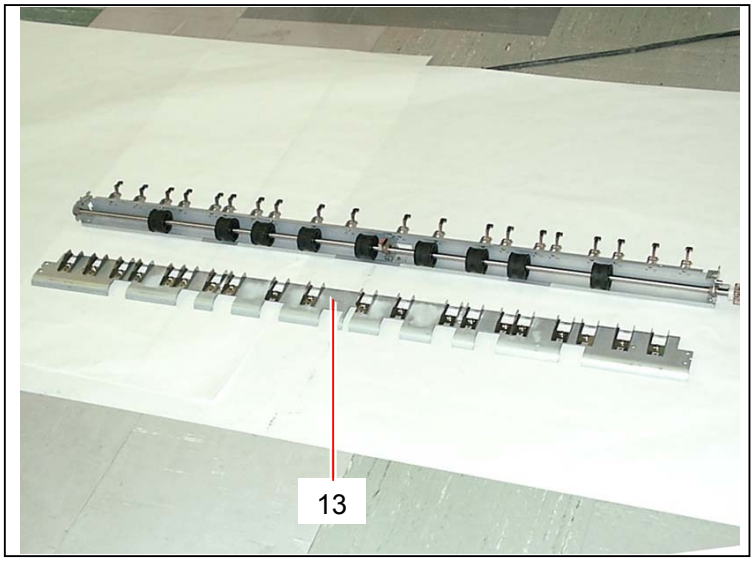




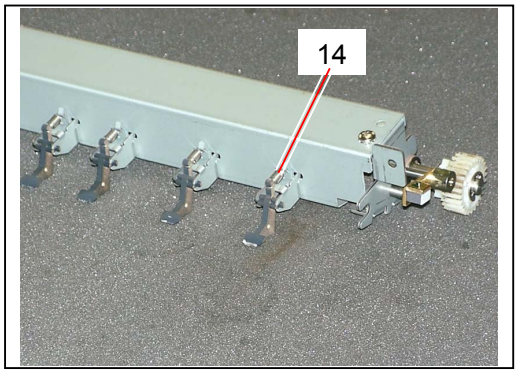


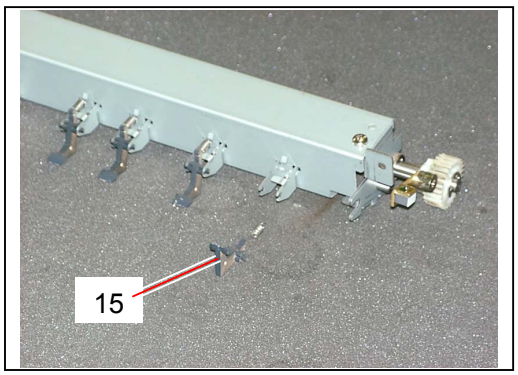
7) Remove 8 pieces of tooth washer screws (12) to remove the Frame (13).





9) Remove the Extension Spring (14) to remove each **Separation Finger** (15).
Replace the Separation Finger (15) with the new one.

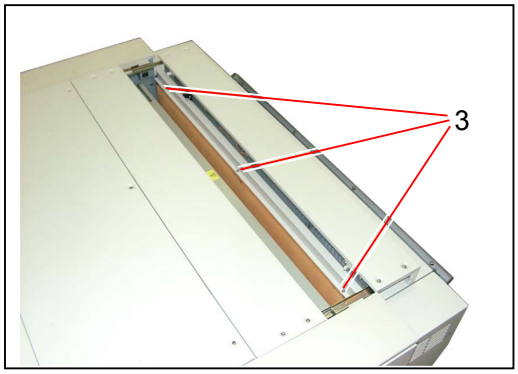




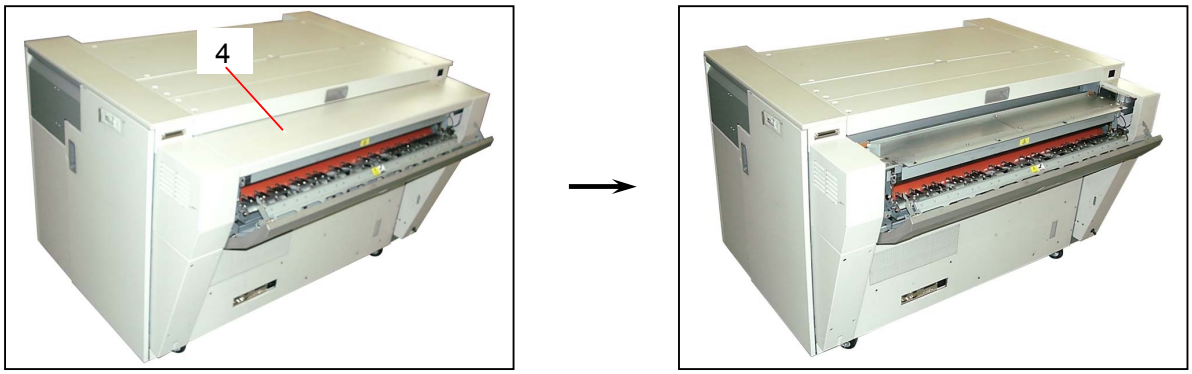
5.7.9 Replacing Exit Sensor (LS2)

1) Open both the Rear Upper Cover (1) and Exit Cover (2).

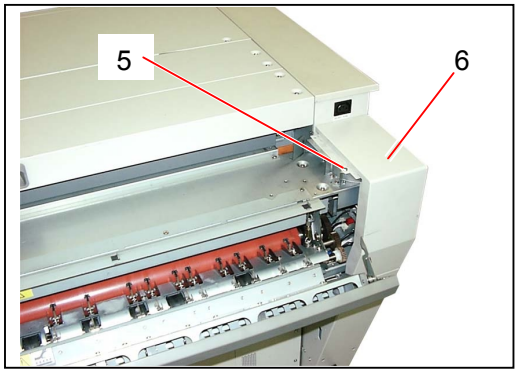
2) Loosen 3 pieces of tooth washer screw (3).



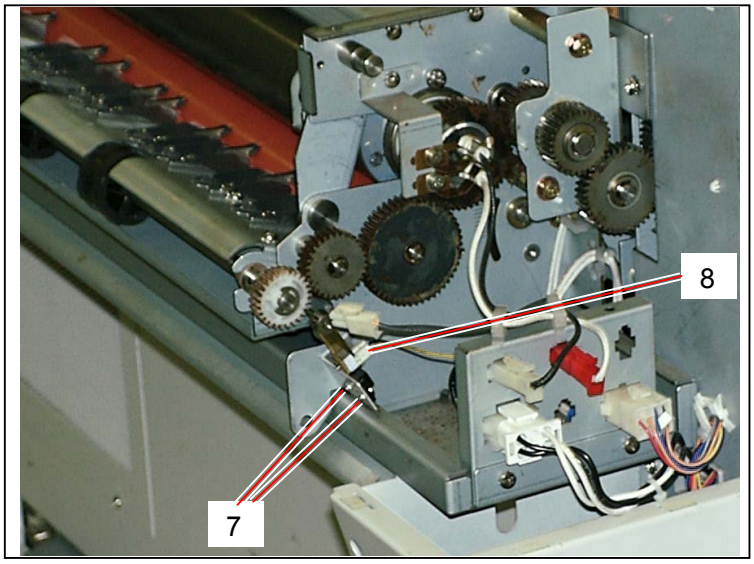
3) Close the Rear Upper Cover (1), and then remove the Cover 7 (4).

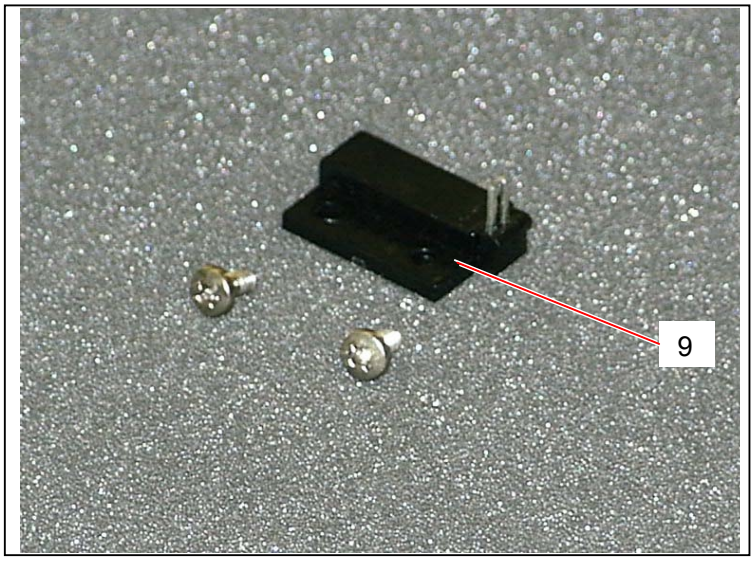


4) Remove a tooth washer screw (5) to remove the Cover 3 (6).



5) Remove 2 pieces of screw (7), disconnect the connector (8) and remove the **Exit Sensor** (9). Replace the Exit Sensor with the new one.

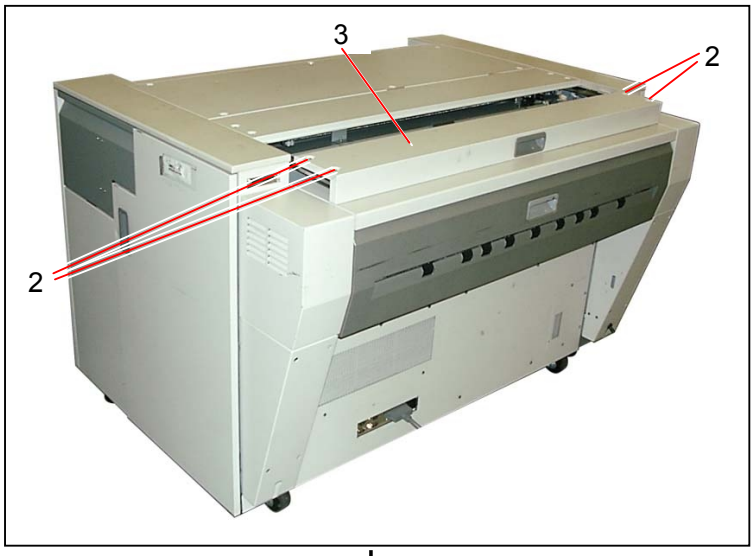


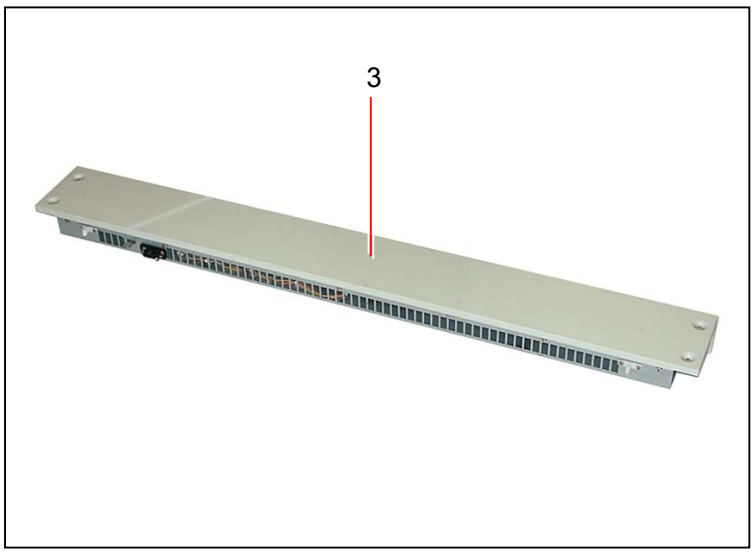


5.7.10 Replacing Pressure Blowers (BL4 to BL7)

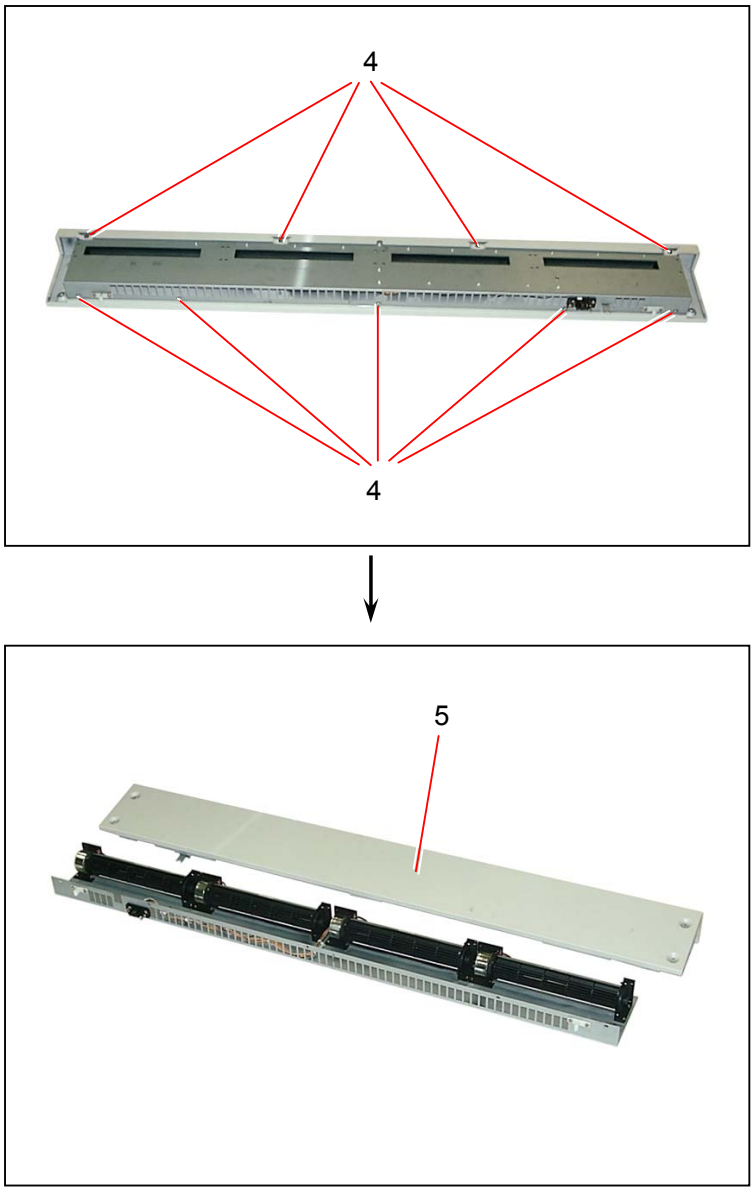
1) Open the Rear Upper Cover (1).

2) Remove 4 pieces of tooth washer screws (2) to remove the Cover 2 Assembly (3).

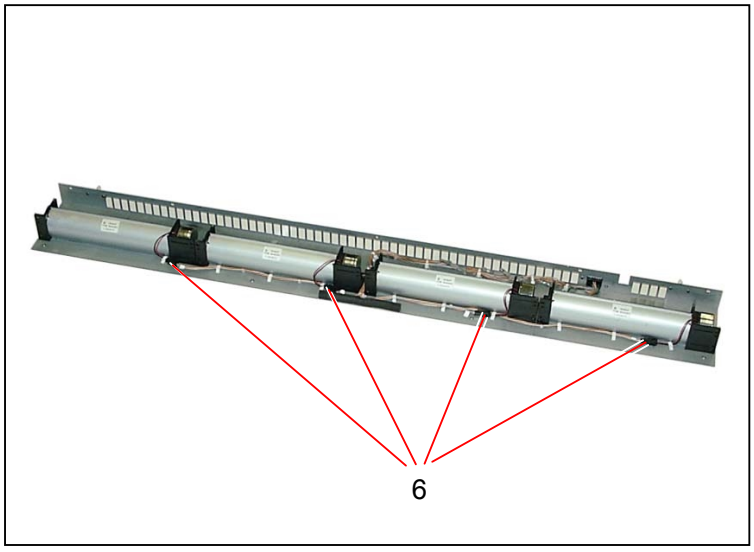




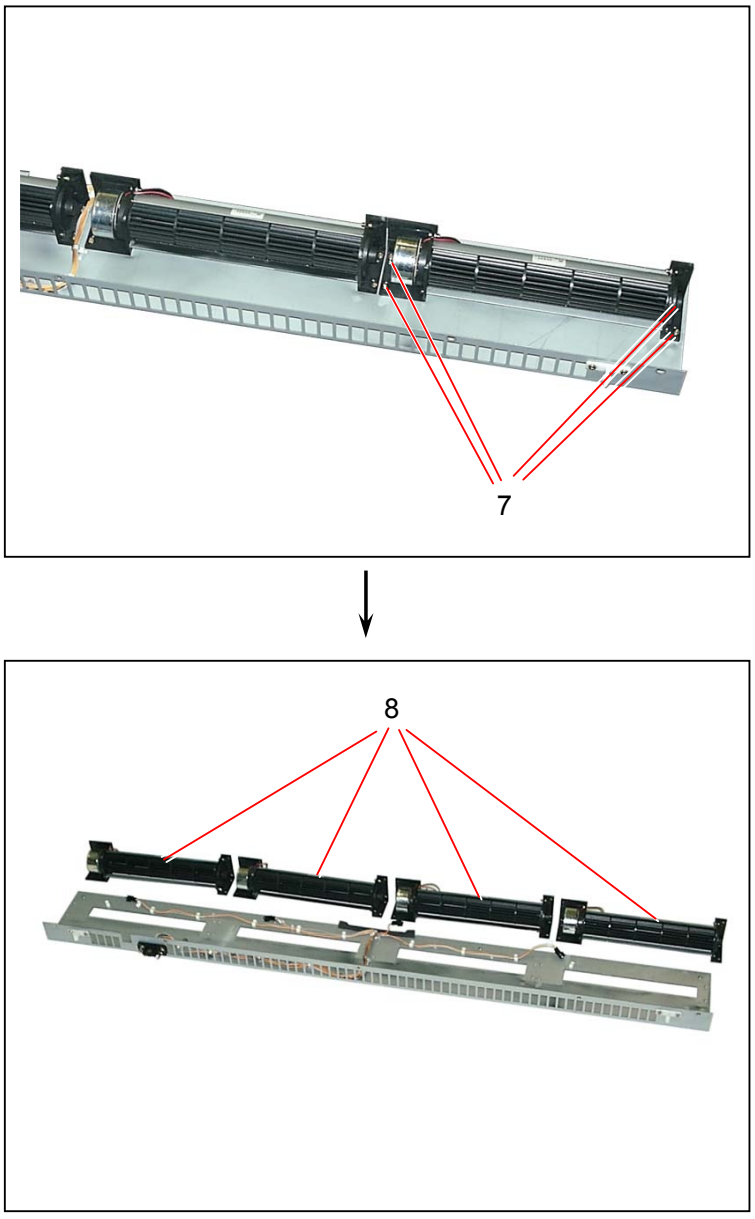
3) Remove 9 pieces of tooth washer screws (4) to remove the Cover 2 (5).



4) Disconnect each connector (6).



5) Remove 4 pieces of screw (7) to remove each **Pressure Blower** (8).
Replace the Pressure Blower with the new one.



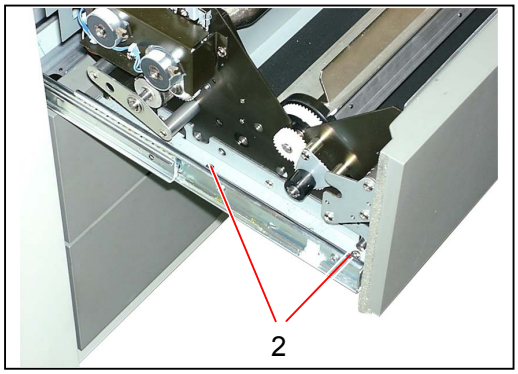
5.8 Roll Decks

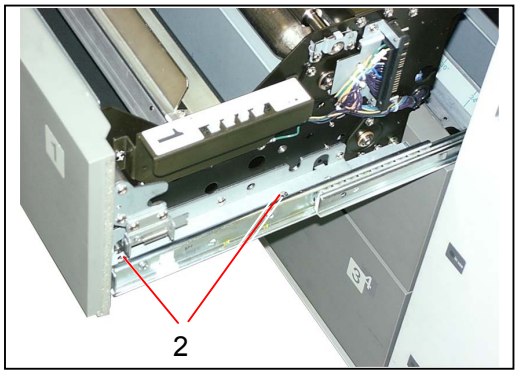
5.8.1 Removing each Roll Deck

> **NOTE**
>
> You can remove all Roll Decks in the same way.

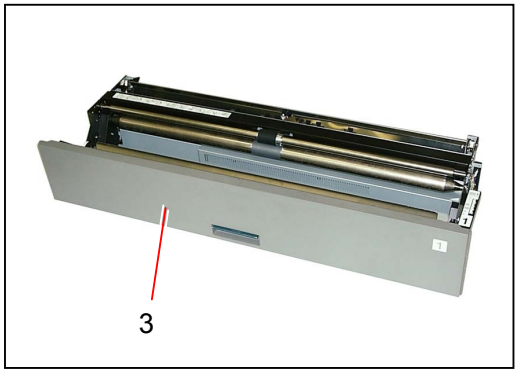
1) Draw out the necessary Roll Deck (1).

2) Remove 4 pieces of tooth washer screws (2) which fix the Roll Deck to the Rails.





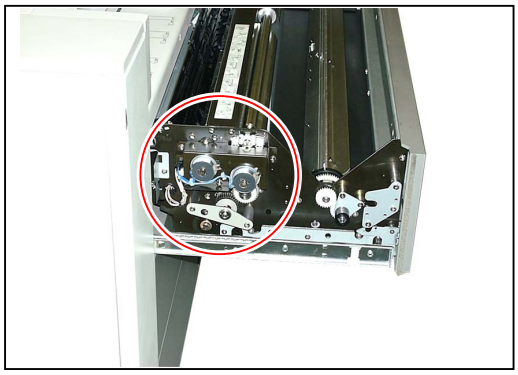
3) Remove the **Roll Deck** (3).

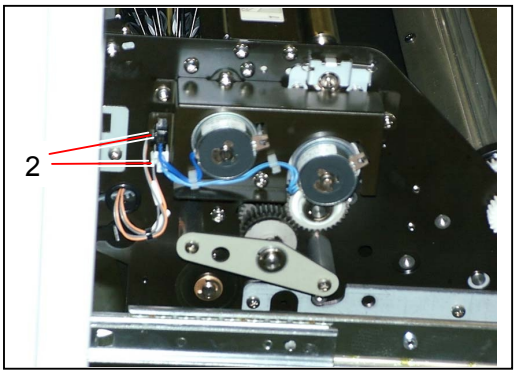


5.8.2 Replacing Bypass Feed Clutch (MC7) & Roll Deck 1 Feed Clutch (MC8) (1st Roll Deck)

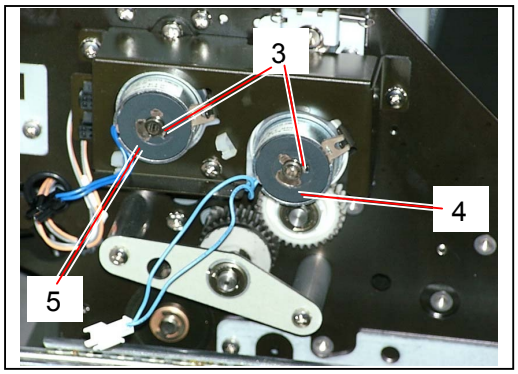
1) Draw out the Top Roll Deck (1).

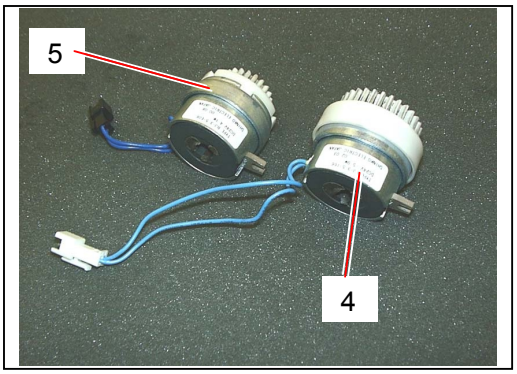
2) Disconnect each connector (2).





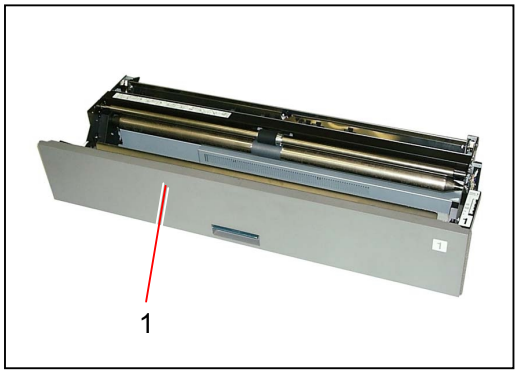
3) Expanding the stopper lever (3) outward, pull out each **Roll Deck 1 Feed Clutch** (4) and Bypass Feed Clutch (5) from the shaft.
Replace each Roll Deck 1 Feed Clutch (4) and Bypass Feed Clutch (5) with the new one.



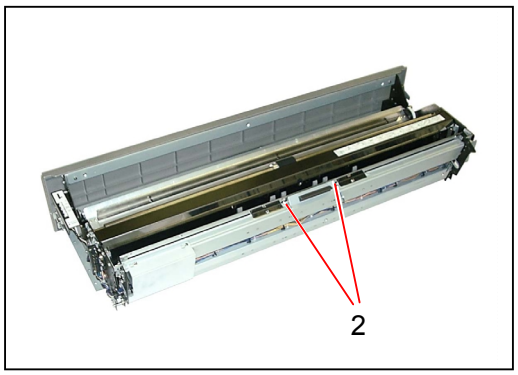


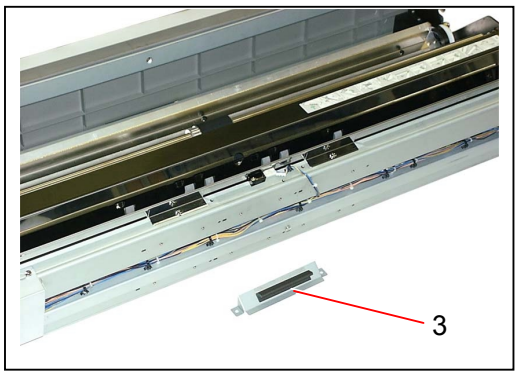
5.8.3 Replacing Roll Set Sensor 1 (PH1), Paper Size Sensors (PH5A to PH11A) & Bypass Start Sensor (PH20) (1st deck)

1) Remove the Top Roll Deck (1) from the machine making reference to [5.8.1 Removing each Roll Deck] on the page 5-105.

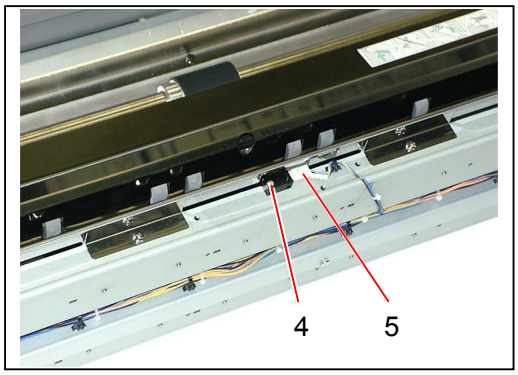


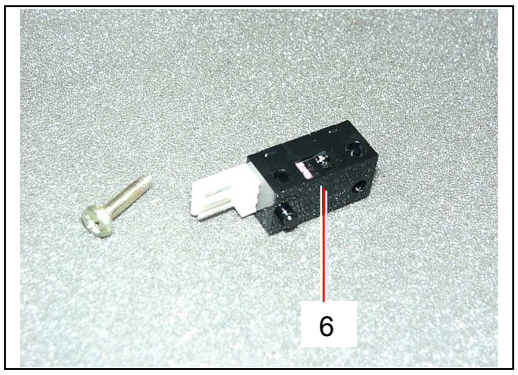
2) Remove 2 pieces of tooth washer screw (2) to remove the Harness Cover (3).



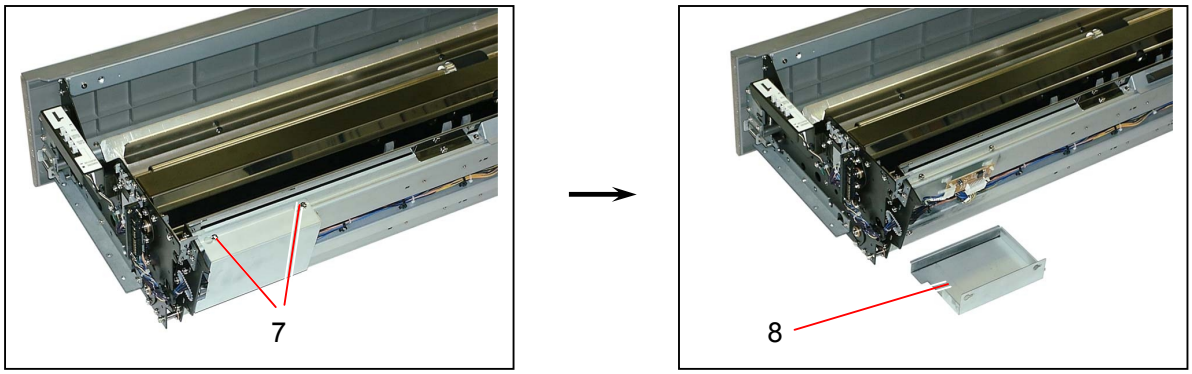


3) Remove the bind head screw (4), disconnect the connector (5) and remove the **Bypass Start Sensor** (6).
Replace the Bypass Start Sensor (6) with the new one.

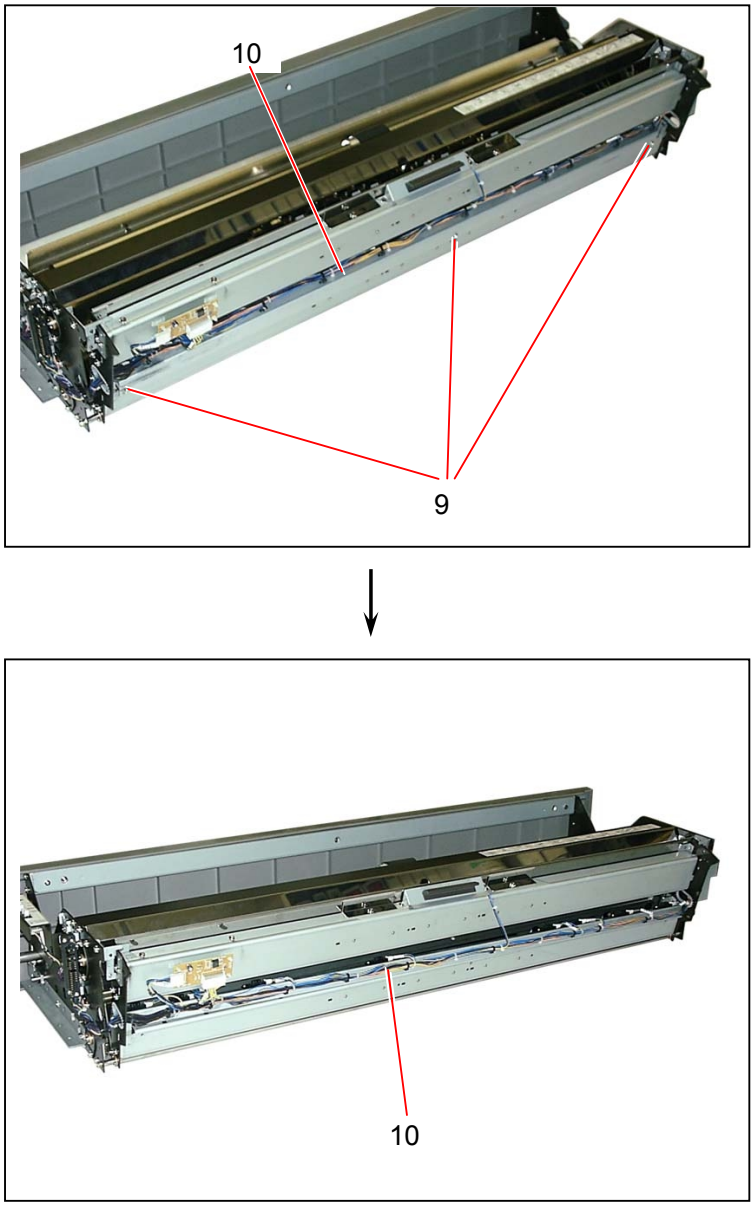




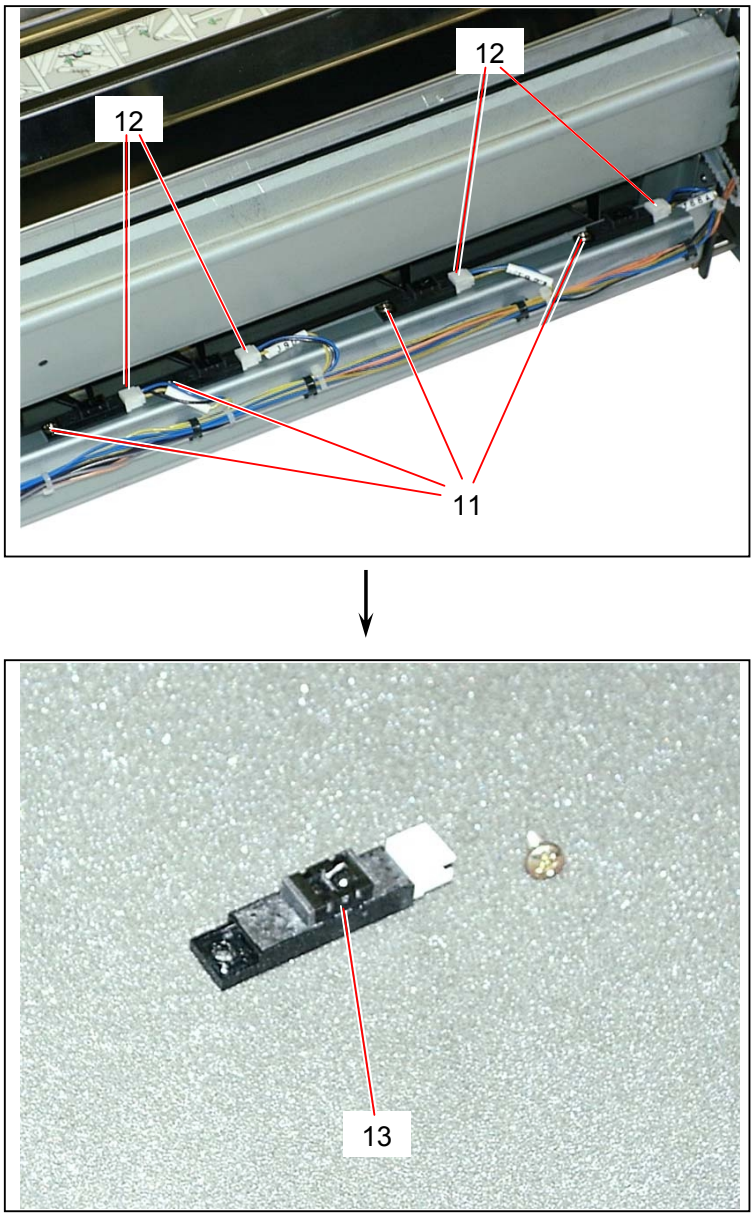
4) Loose 2 pieces of tooth washer screws (7) to remove the Cover 370 (8).



5) Remove 3 pieces of tooth washer screws (9), and then turn over the Stay 344 (10).



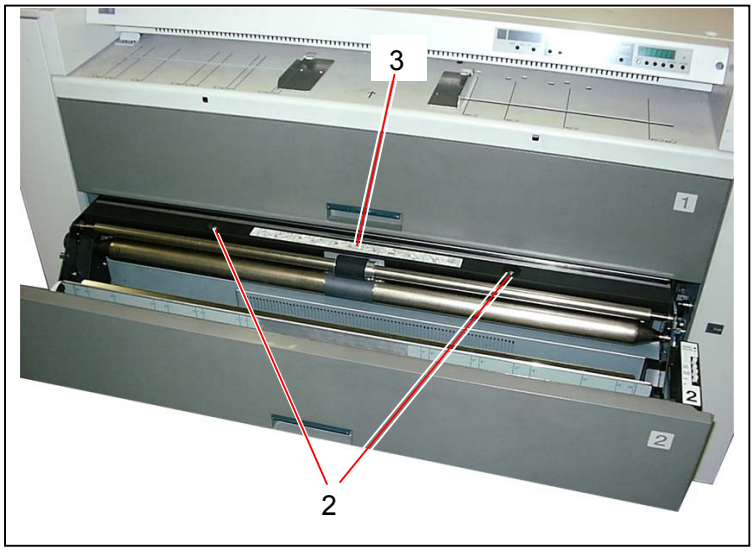
6) Remove the bind head screw (11), disconnect the connector (12), and remove each **Roll Set Sensor 1** and **Paper Size Sensors** (13).
Replace each Roll Set Sensor 1 and Paper Size Sensors (13) with the new one.



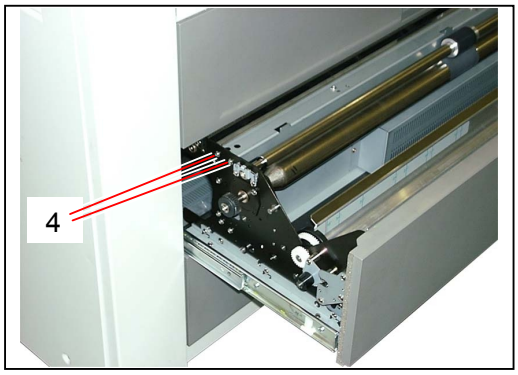
5.8.4 Replacing Roll Set Sensor 2 (PH2) & Paper Size Sensors (PH5B to PH11B) (2nd deck)

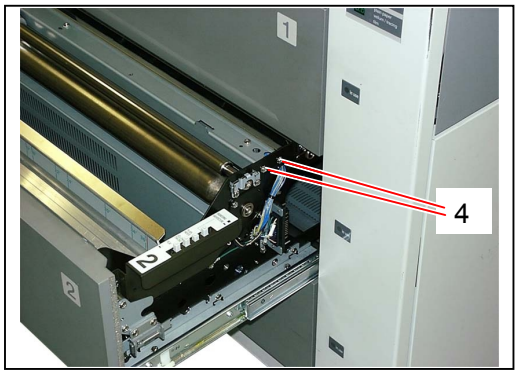
1) Draw out the Middle Roll Deck (1).

2) Remove 2 pieces of tooth washer screw (2) to remove the Sensor Cover (3).

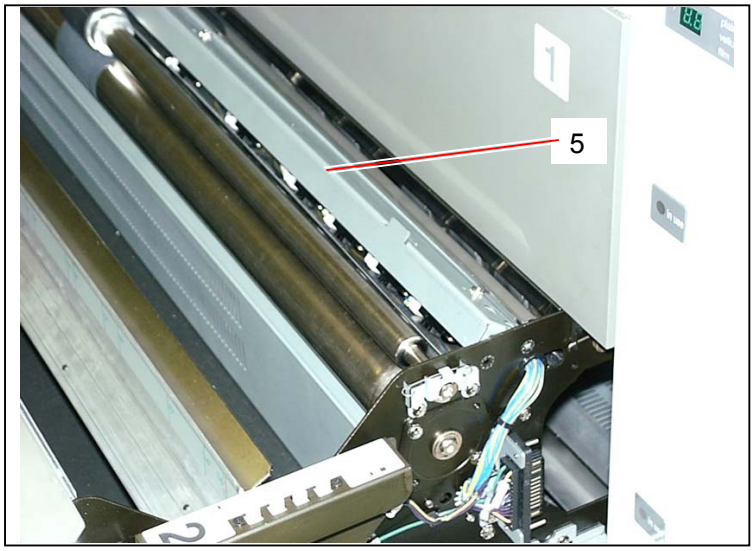


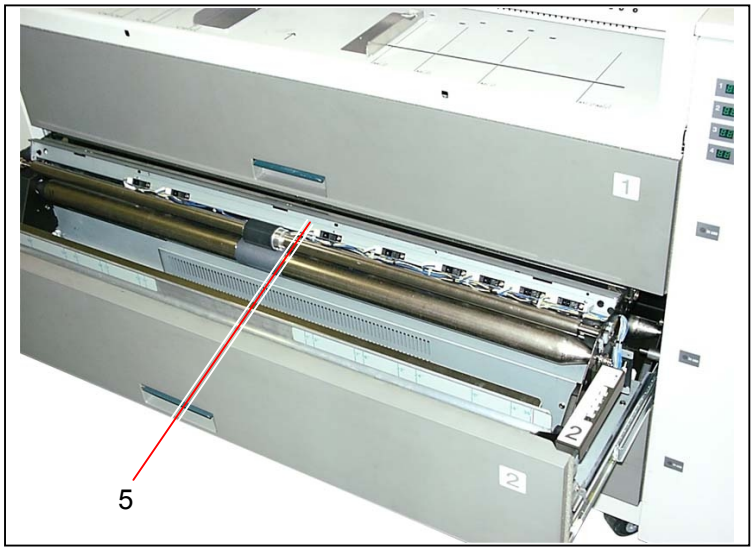
3) Remove 4 pieces of tooth washer screw (4).



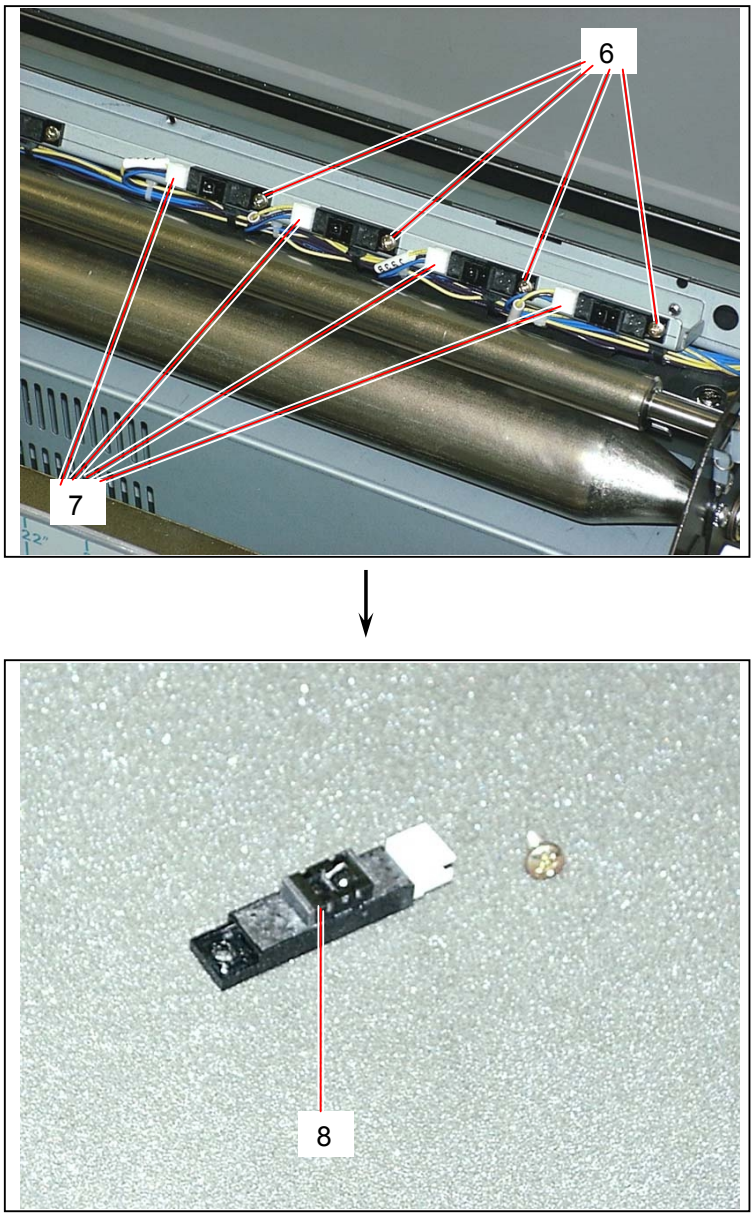


4) Turn over the Bracket (5), and you will find the sensors.



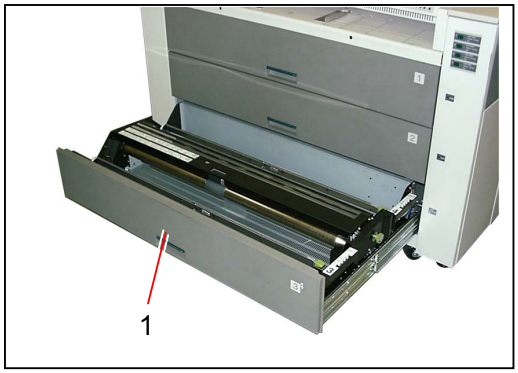


5) Remove the bind head screw (6), disconnect the connector (7), and remove each **Roll Set Sensor 2** and **Paper Size Sensors** (8).
Replace each Roll Set Sensor 2 and Paper Size Sensors (8) with the new one.

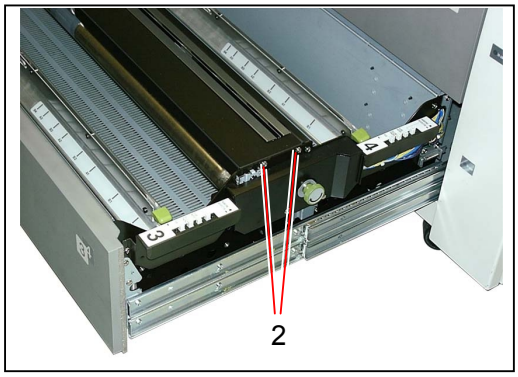


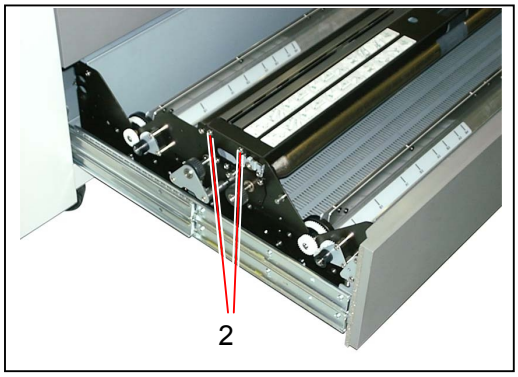
5.8.5 Replacing Roll Set Sensor 3 (PH3) & Paper Size Sensors (PH5C to PH11C) (3rd deck)

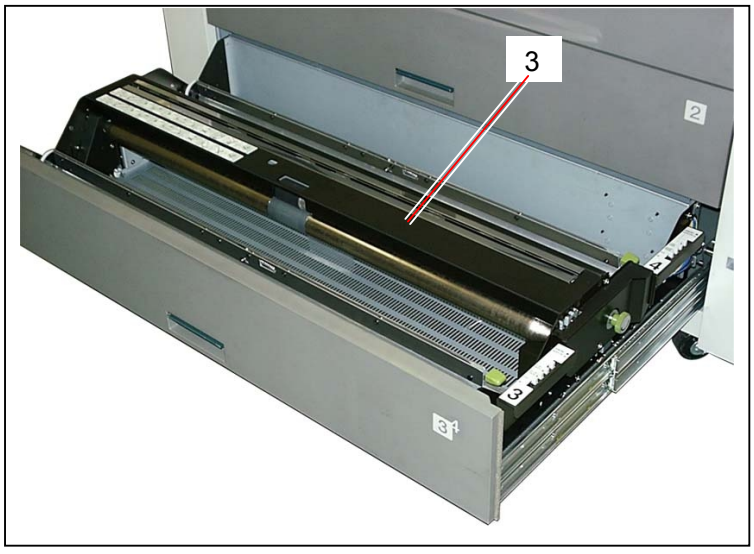
1) Draw out the Bottom Roll Deck (1).



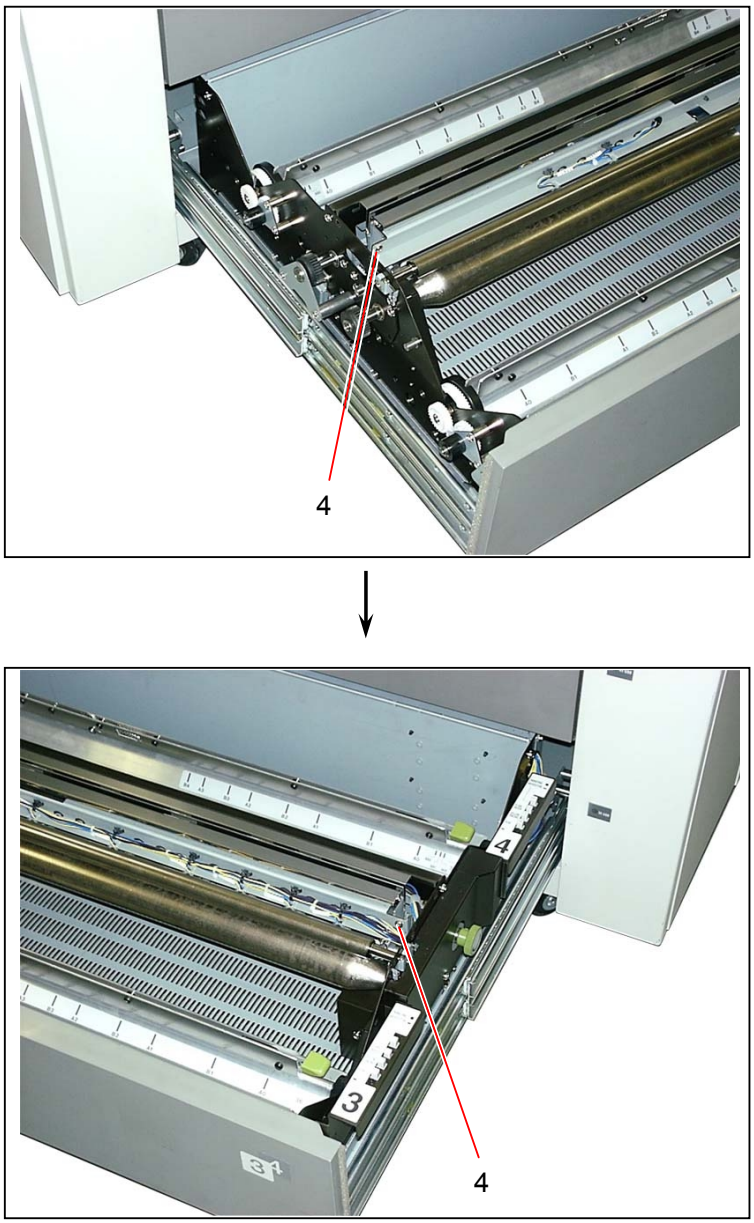
2) Remove 4 pieces of tooth washer screws (2) to remove the Lower Cover (3).



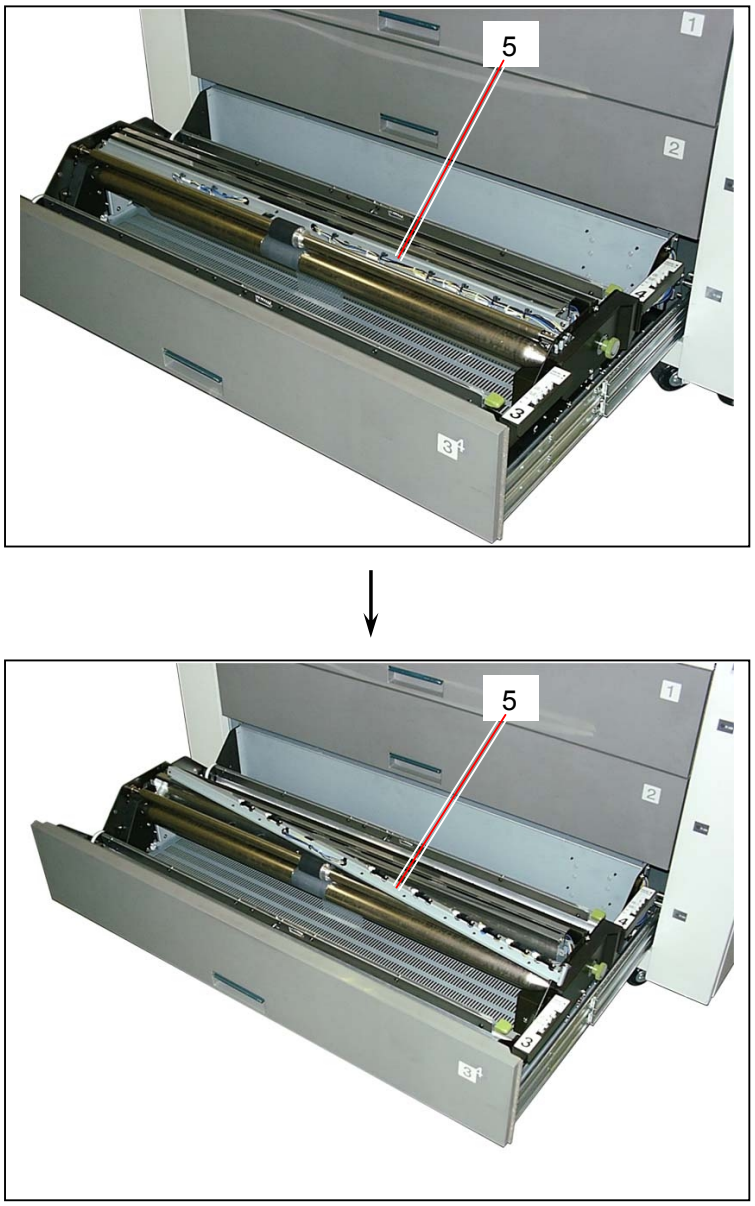




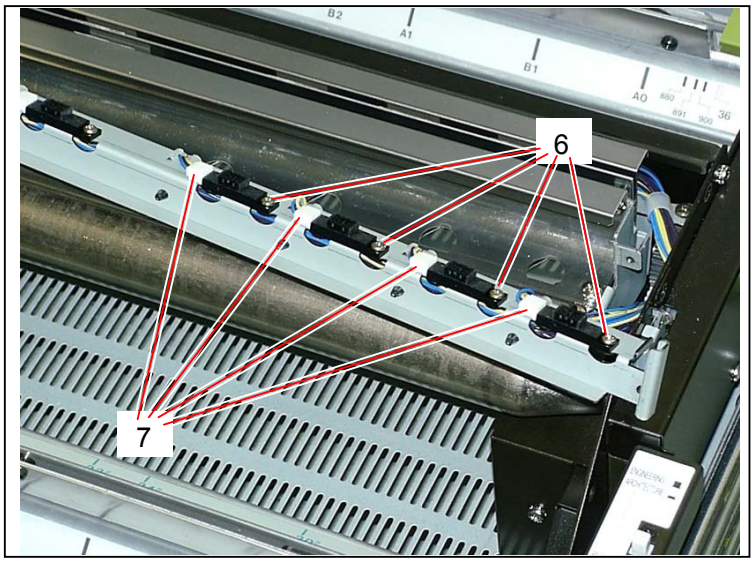
3) Remove 2 pieces of tooth washer screw (4).

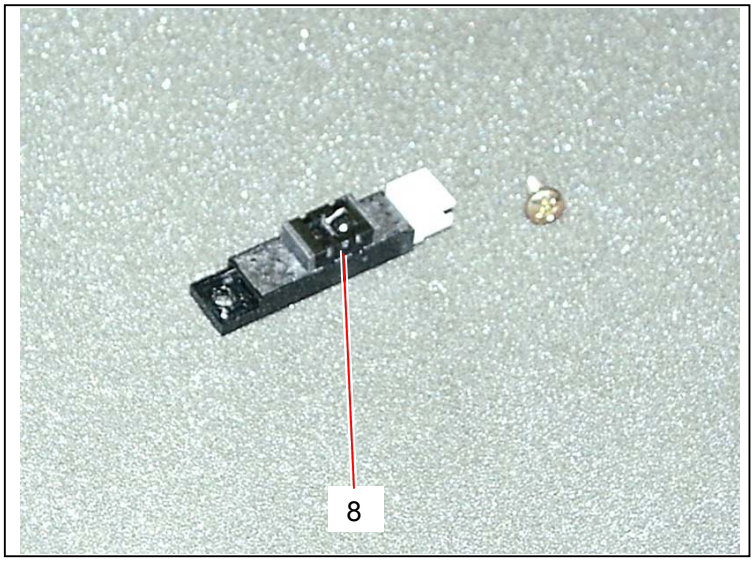


4) Turn over the Stay 346 (5), and you will find the sensors.



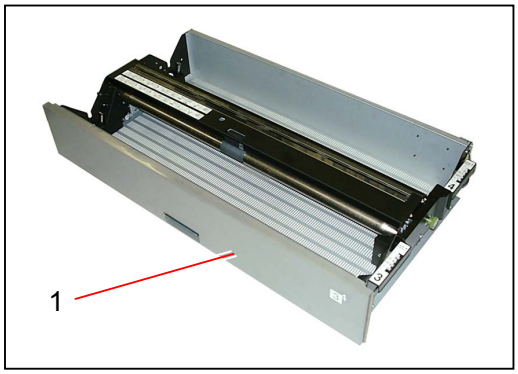
5) Remove the bind head screw (6), disconnect the connector (7), and remove each **Roll Set Sensor 3** and **Paper Size Sensors** (8).
Replace each Roll Set Sensor 3 and Paper Size Sensors (8) with the new one.



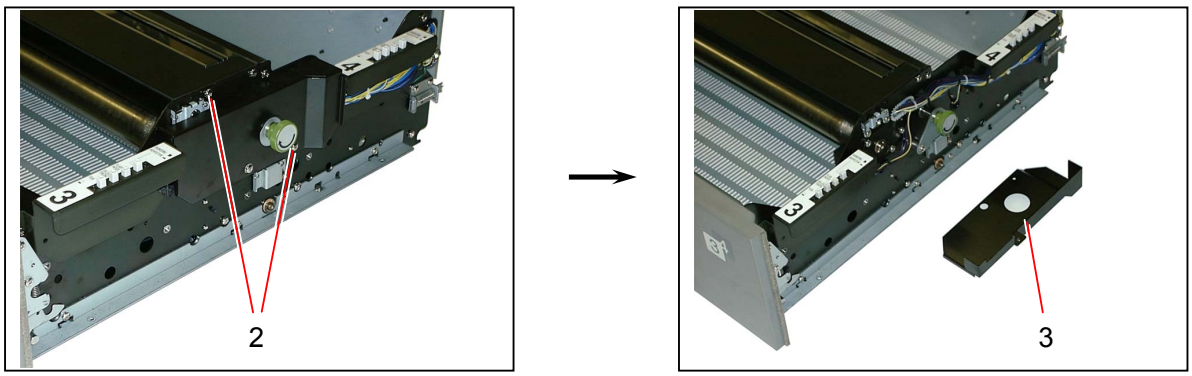


5.8.6 Replacing Roll Set Sensor 4 (PH4) & Paper Size Sensors (PH5D to PH11D) (4th deck)

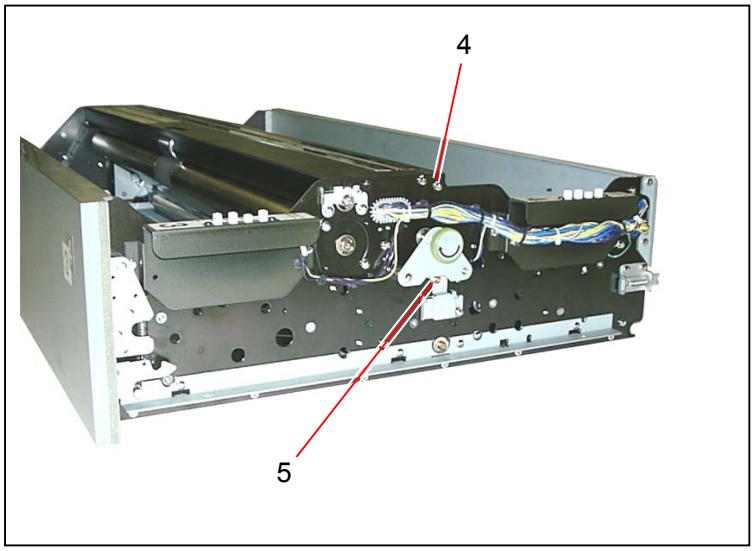
1) Remove the Bottom Roll Deck (1) from the machine making reference to [5.8.1 Removing each Roll Deck] on the page 5-105.

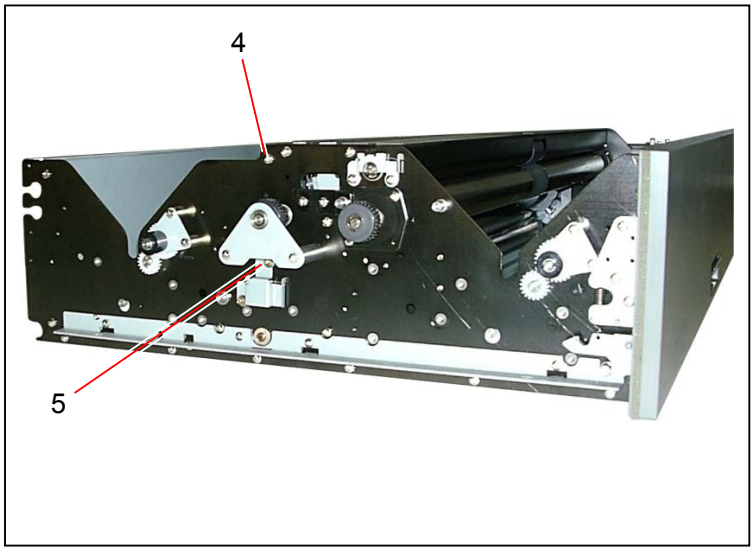


2) Remove 2 pieces of tooth washer screw (2) to remove the Lower Harness Cover (3).

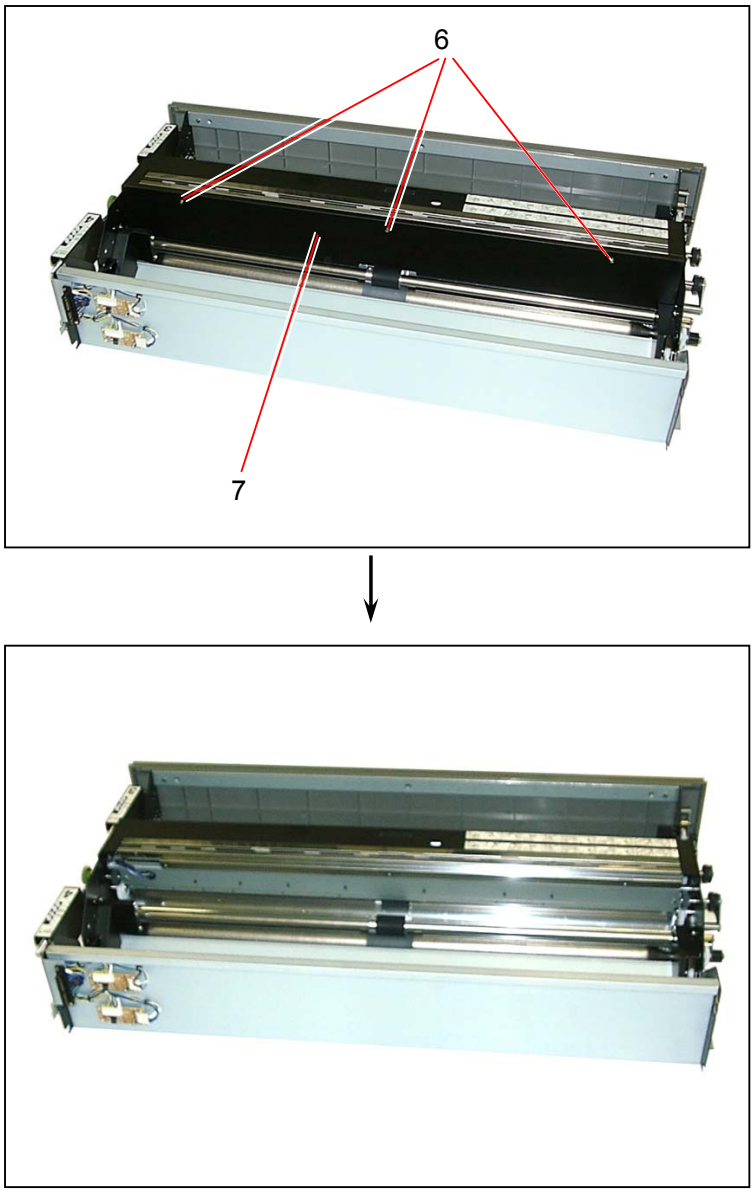


3) Remove 2 pieces of tooth washer screw (4) and 2 pieces of Hexagon Head Bolt (5).

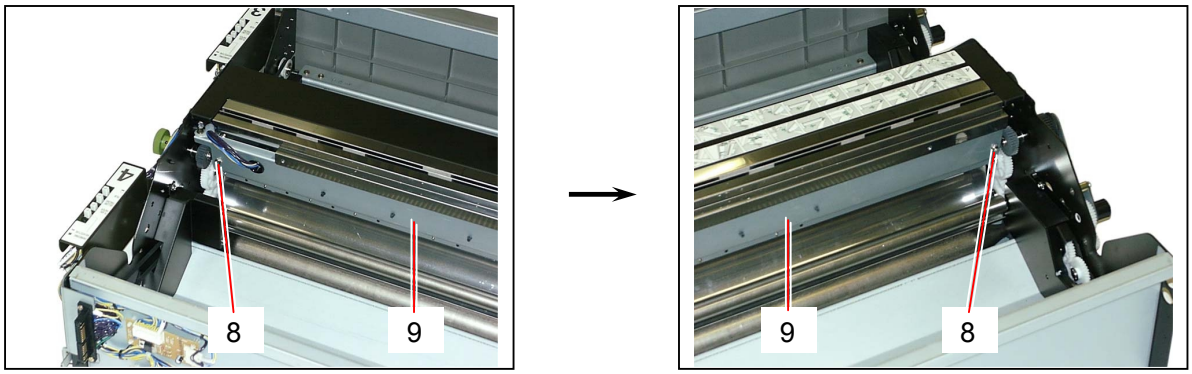


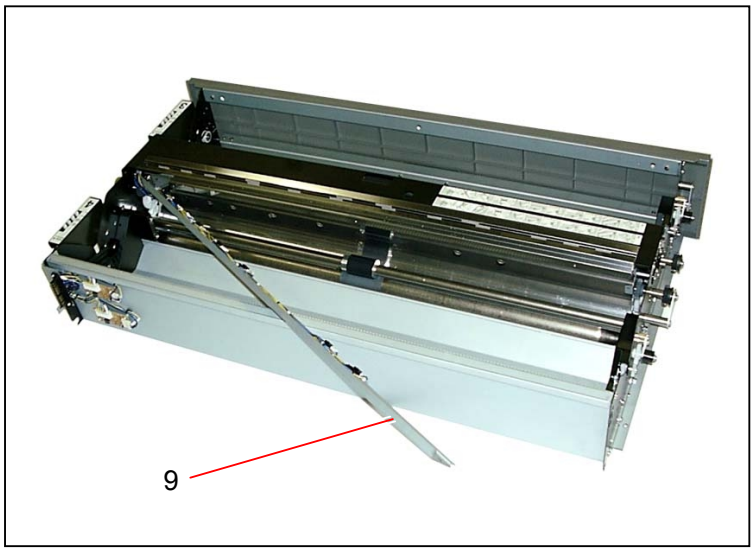


4) Remove 3 pieces of tooth washer screw (6) to remove the Rear Cover (7).

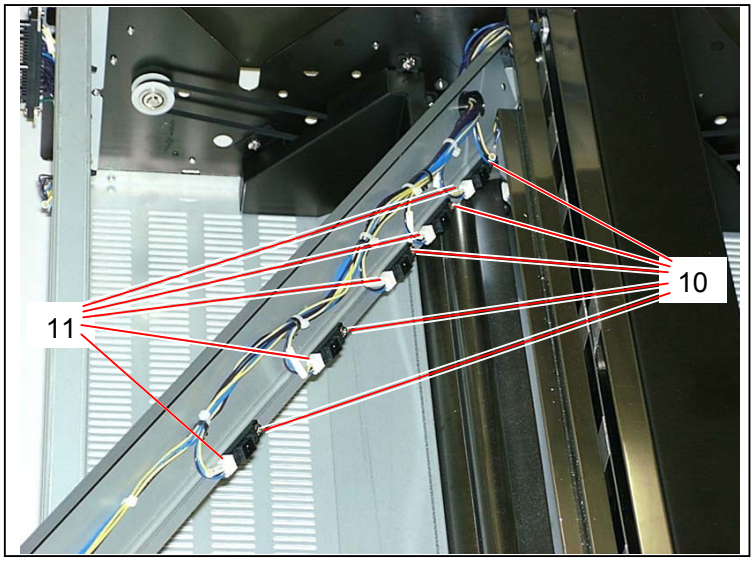


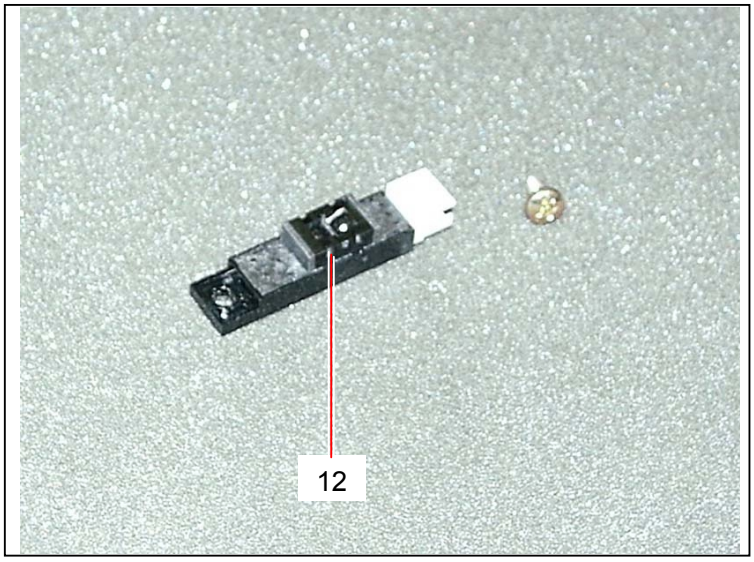
5) Remove 2 pieces of tooth washer screw (8), and then turn over the Stay 346 (9).





6) Remove the bind head screw (10), disconnect the connector (11), and remove each **Roll Set Sensor 4** and **Paper Size Sensors** (12).
Replace each Roll Set Sensor 4 and Paper Size Sensors (12) with the new one



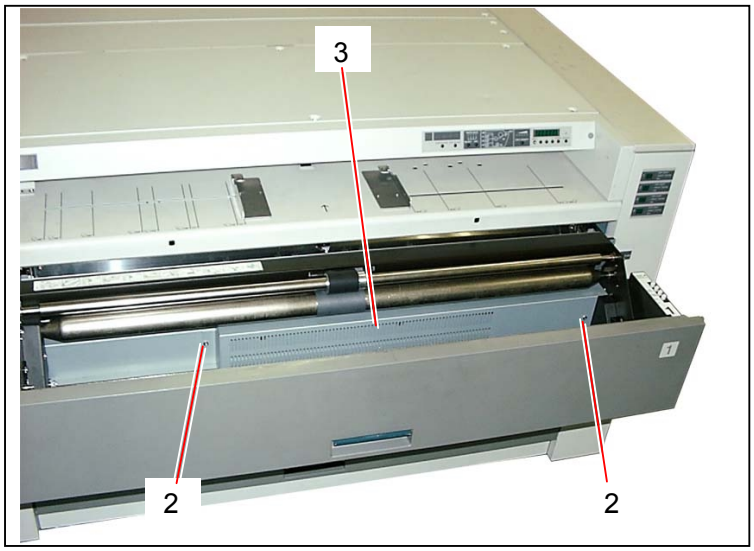


5.8.7 Replacing Paper Feed Clock Sensors (PH13 to PH16) (Common for all decks)

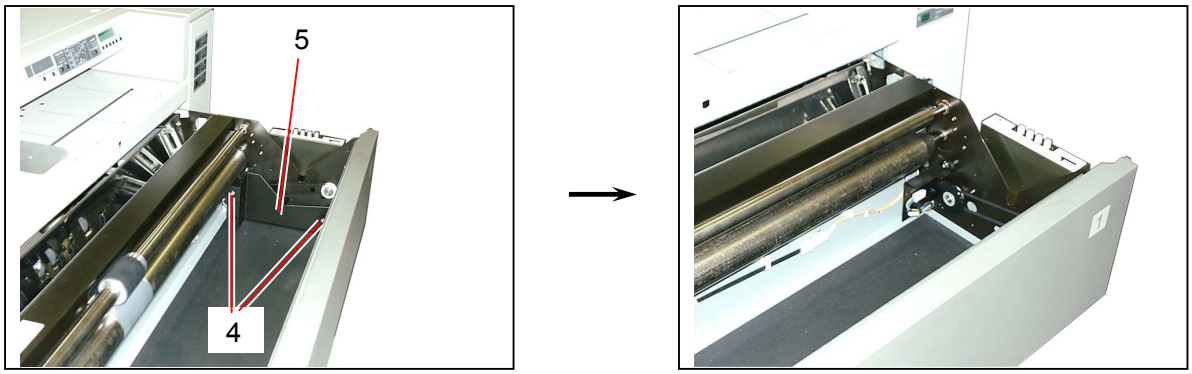
> **NOTE**
>
> You can remove the Paper Feed Clock Sensor in each Roll Deck in almost same way. This section shows you how to remove the Paper Feed Clock Sensor 1 in the Top Roll Deck as an example.

1) Draw out the Top Roll Deck 1 (1).

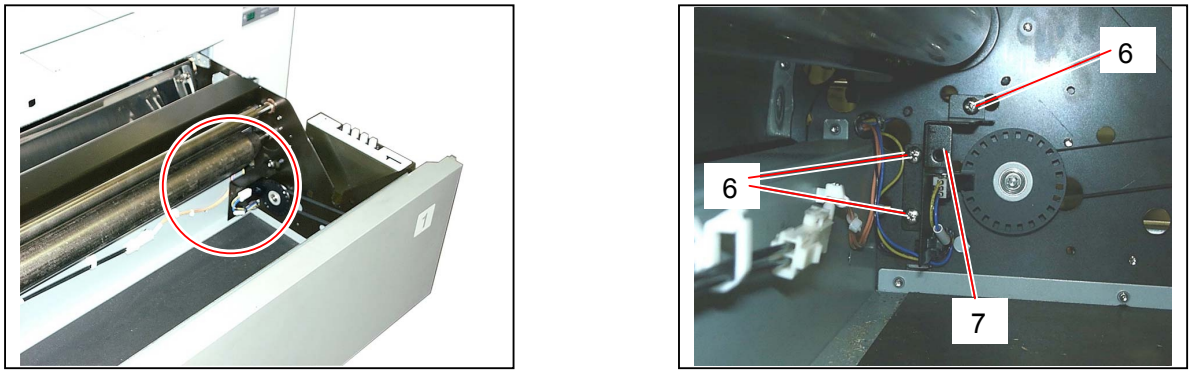
2) Remove 2 pieces of tooth washer screw (2) to remove the Heater Cover (3).

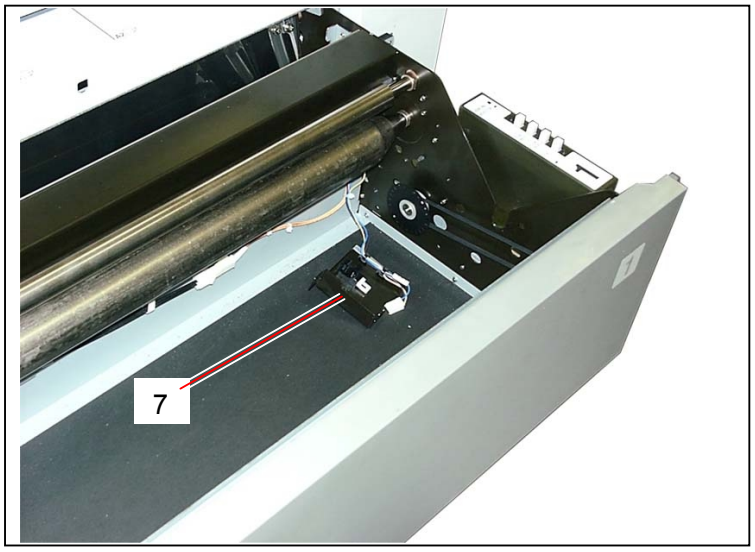


3) Remove 2 pieces of tooth washer screw (4) to remove the Cover 1 (5).

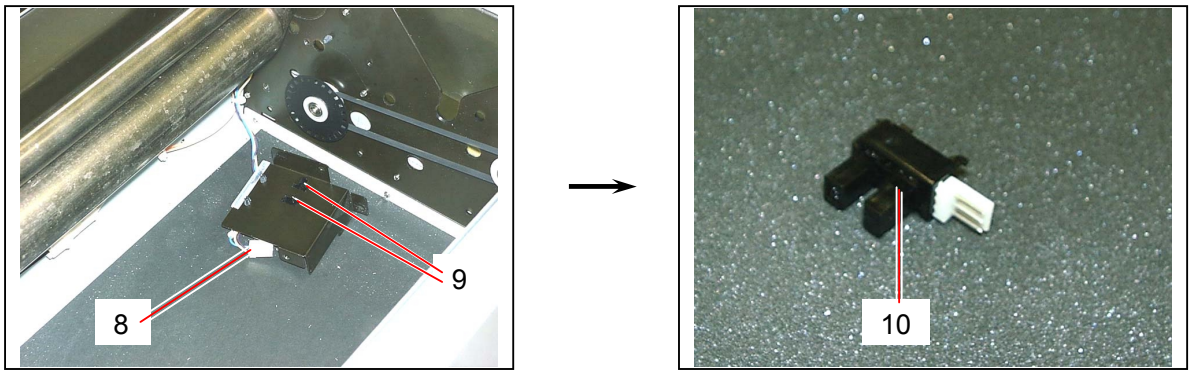


6) Remove 3 pieces of tooth washer screw (6) to remove the Upper Sensor Mount (7).





7) Disconnect the connector (8), and then press the stopper hooks (9) inward to remove the **Paper Feed Clock Sensor 1** (10) from the Mount.
Replace the Paper Feed Clock Sensor 1 (10) with the new one.

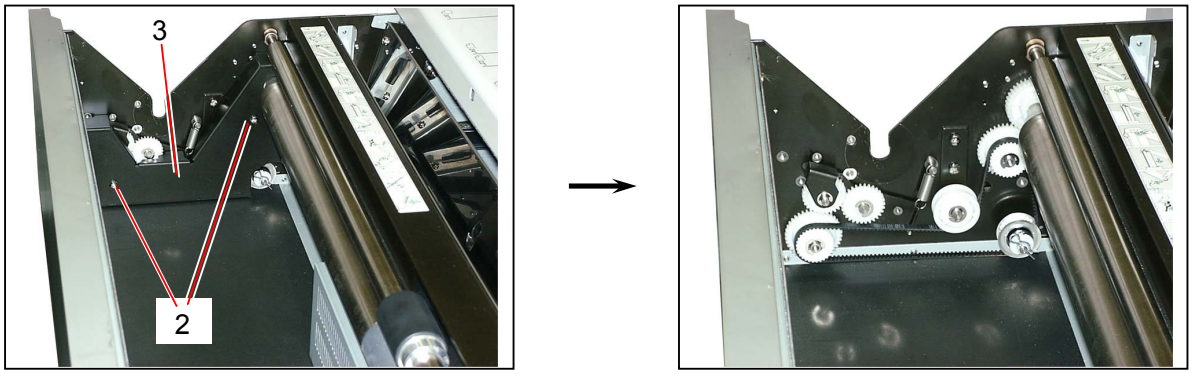


5.8.8 Replacing 501-3M Belt (Common for all decks)

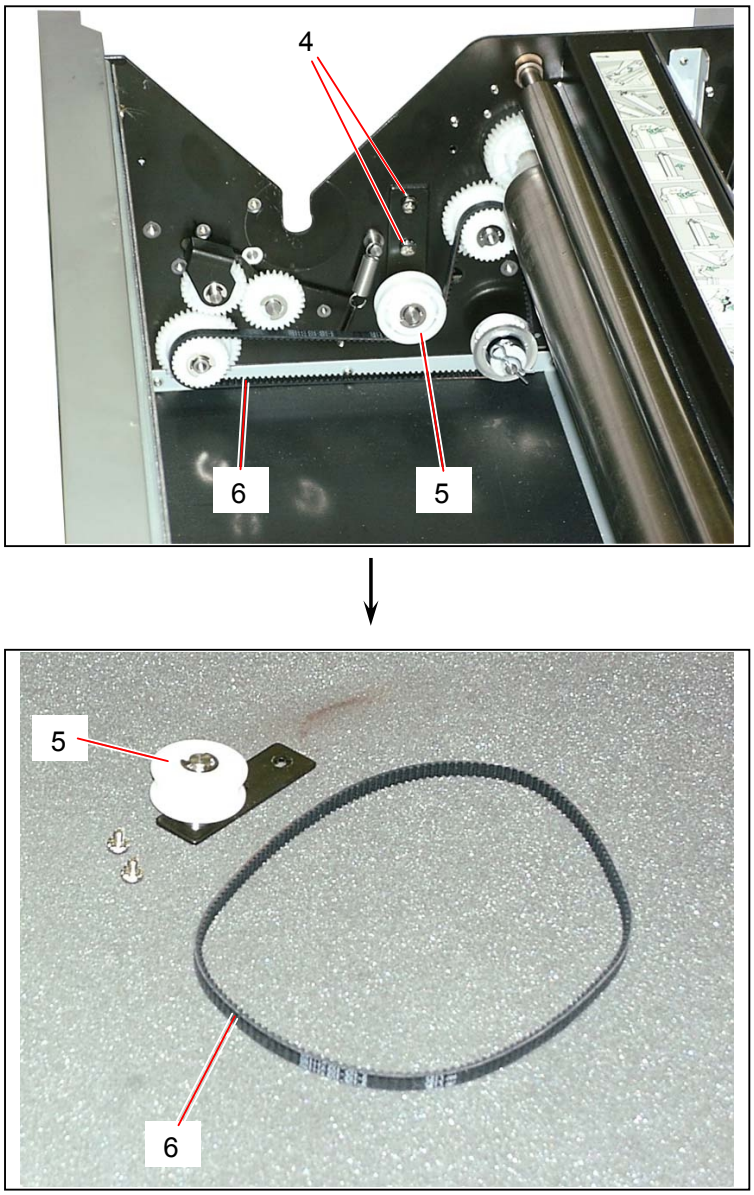
> **NOTE**
>
> You can remove the 501-3M Belt in each Roll Deck in almost same way.
> This section shows you how to remove the 501-3M Belt in the Top Roll Deck as an example.

1) Draw out the Top Roll Deck 1 (1).

2) Remove 2 pieces of tooth washer screw (2) to remove the Gear Cover 384 (3).

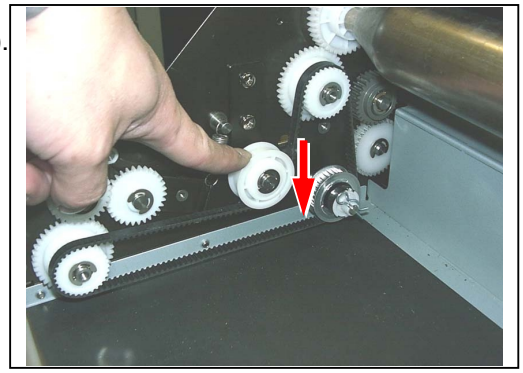


3) Remove 2 pieces of tooth washer screw (4) to remove the Pulley (5) with its plate.
Then, remove the **501-3M Belt** (6).
Replace the 501-3M Belt (6) with the new one.



⚠ NOTE

Tighten the tooth washer screws (4) pressing down the Pulley (5) to give a tension to the 501-3M Belt (6).

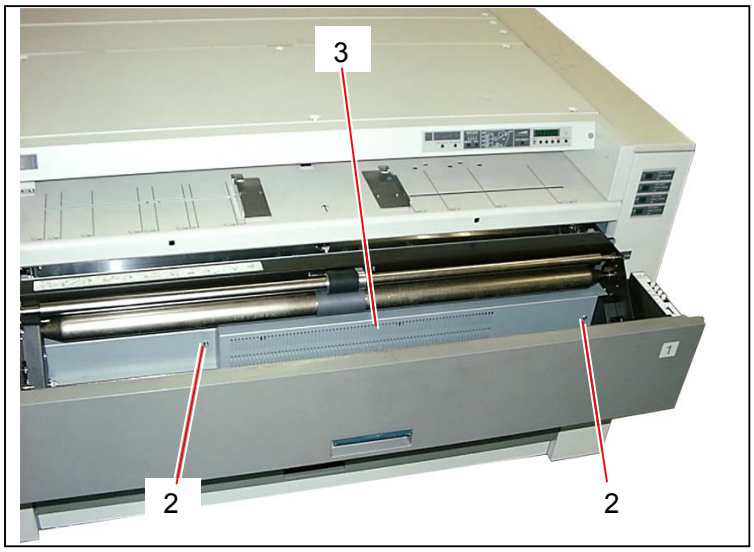


5.8.9 Replacing Dehumidify Heaters (1st & 2nd decks)

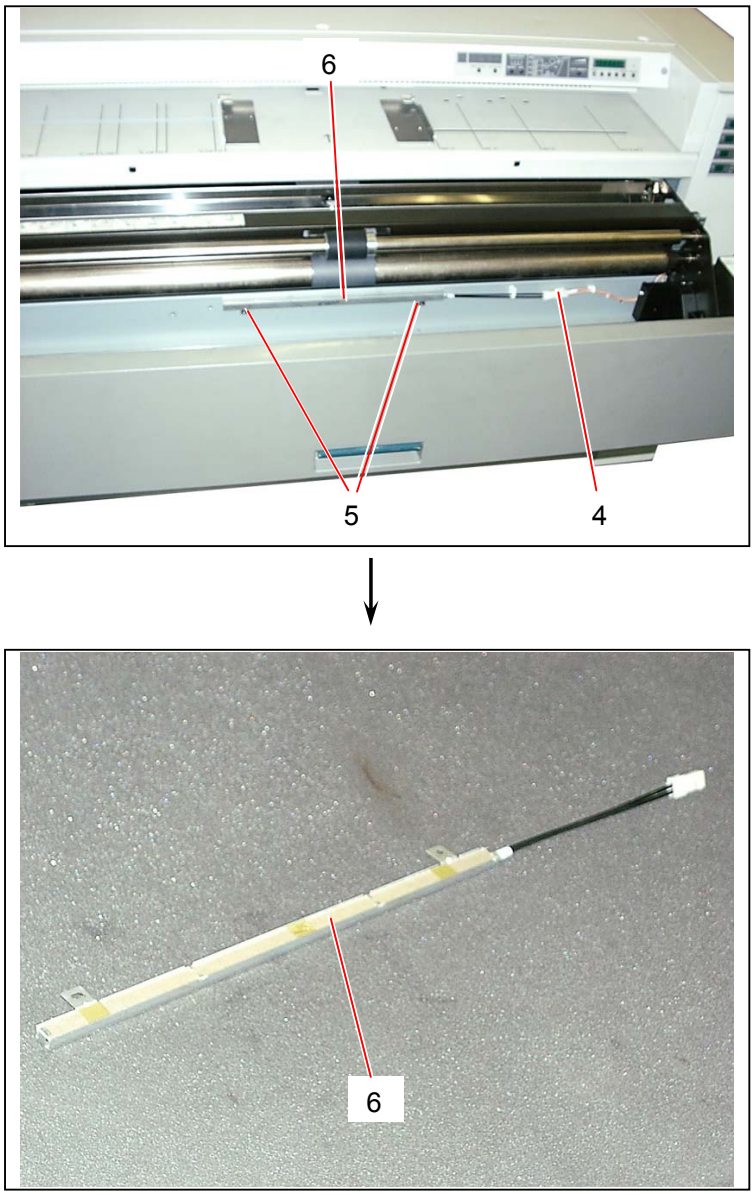
> **NOTE**
>
> You can remove both the Dehumidify Heaters (H8 : Roll 1 & H7 : Roll 2) in the same way. This section shows you how to remove the Dehumidify Heater (H8) for the Top Roll Deck as an example.

1) Draw out the Top Roll Deck 1 (1).

2) Remove 2 pieces of tooth washer screw (2) to remove the Heater Cover (3).



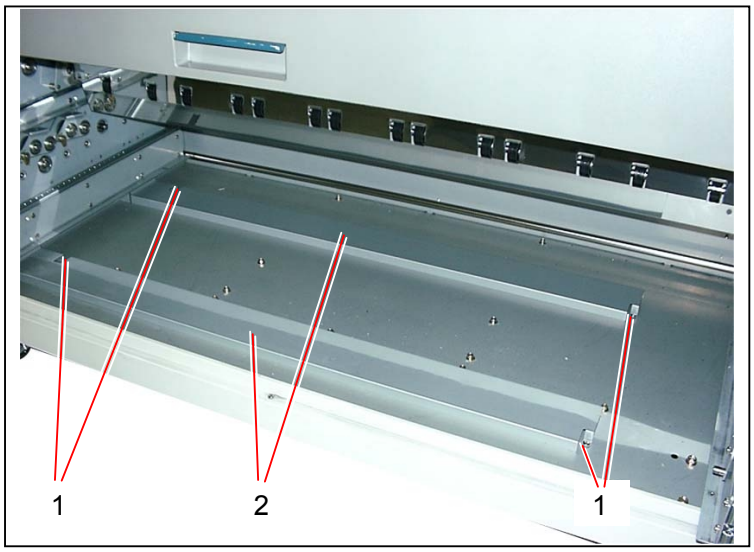
3) Disconnect the connector (4), remove 2 pieces of screw (5), and then remove the **Dehumidify Heater** (6).
Replace the Dehumidify Heater (6) with the new one.



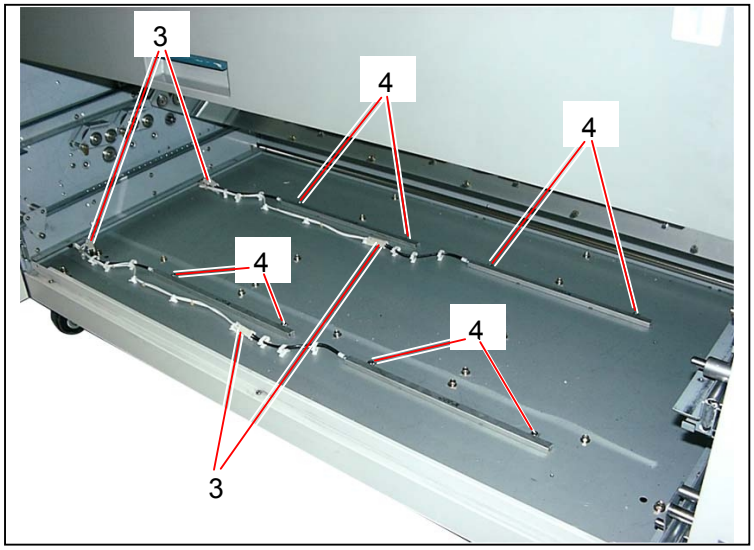
5.8.10 Replacing Dehumidify Heaters (3rd & 4th decks)

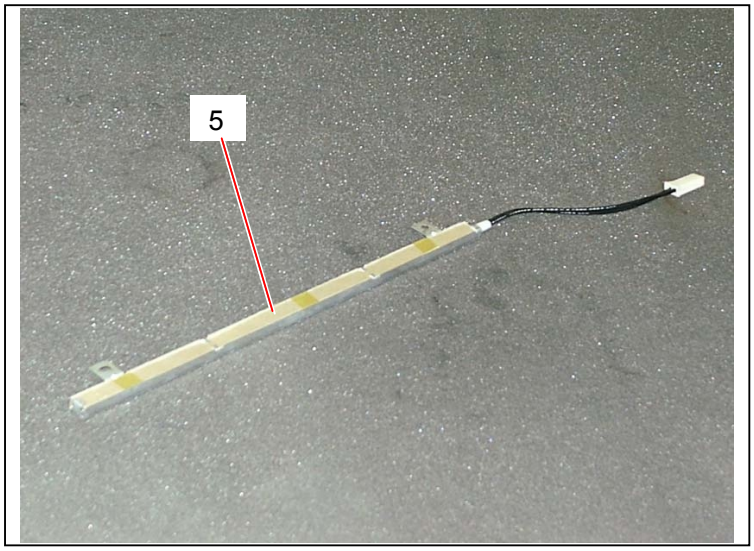
1) Remove both the Middle Roll Deck and the Bottom Roll Deck making reference to [5.8.1 Removing each Roll Deck] on the page 5-105.

2) Remove 2 pieces of tooth washer screw (1) to remove each Cover 341 (2).



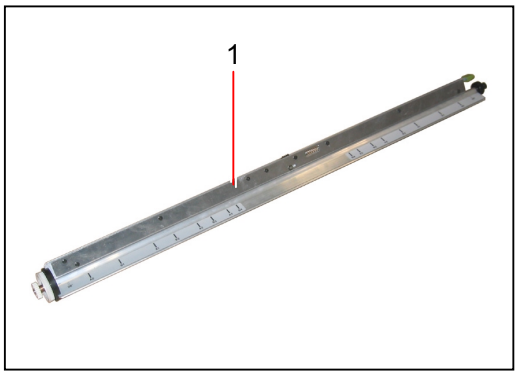
3) Disconnect the connector (3), remove 2 pieces of screw (4), and then remove each **Dehumidify Heater** (5).
Replace the Dehumidify Heater (5) with the new one.



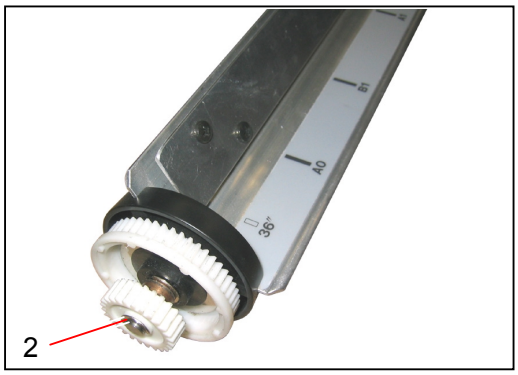


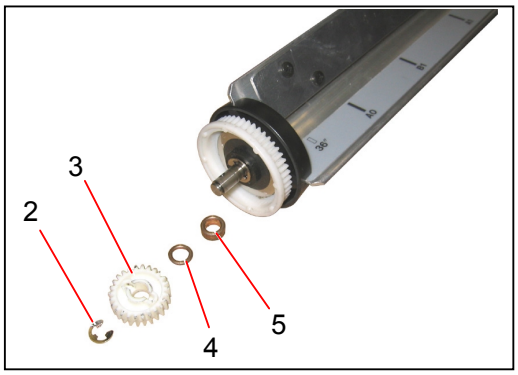
5.8.11 Replacing Spool Brake

1) Remove the Roll Spool (1) from each Roll Deck.

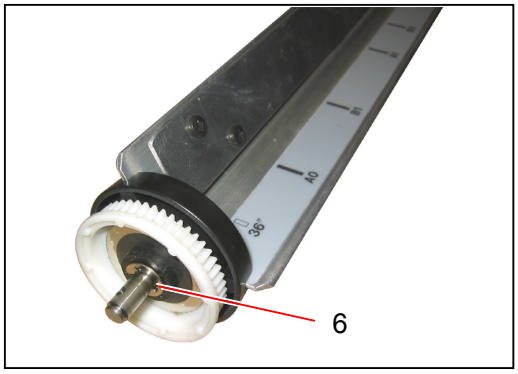


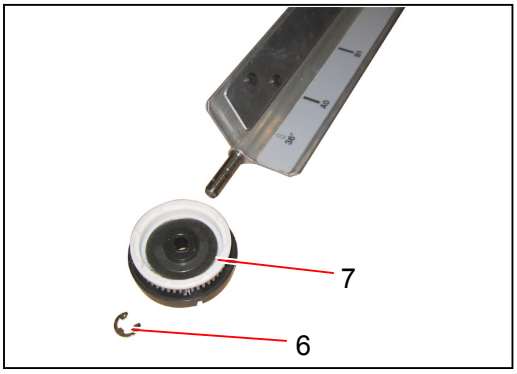
2) Remove E Ring (2), Gear 454 (3), Thrust Washer (4) and Oil-less Bearing (5).





3) Remove E Ring (6) and **Spool Brake** (7).
Replace the Spool Brake (7) with the new one.



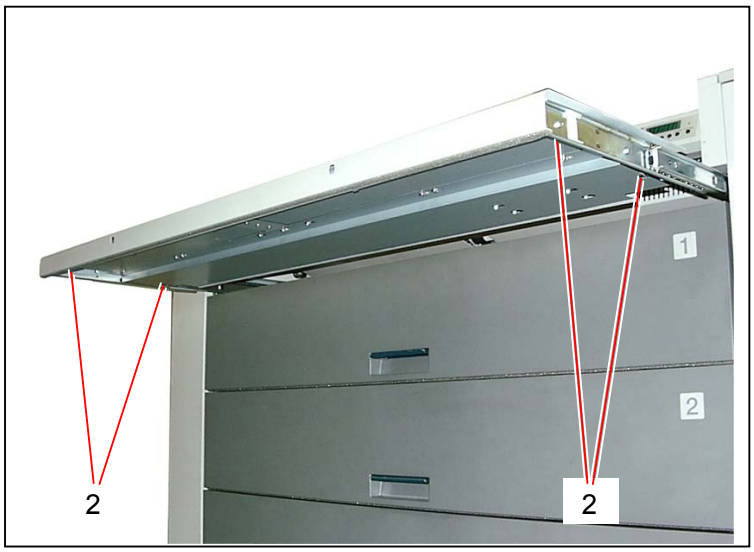


5.9 Bypass Feeder

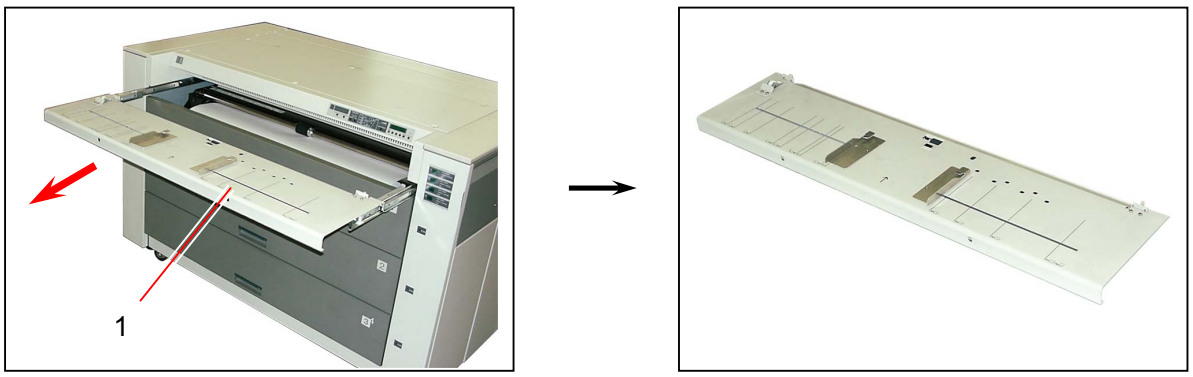
5.9.1 Removing Bypass Feeder Unit

1) Draw out the Bypass Feeder Unit (1).

2) Remove 4 pieces of tooth washer screw (2) which fix the Bypass Feeder Unit from the bottom.

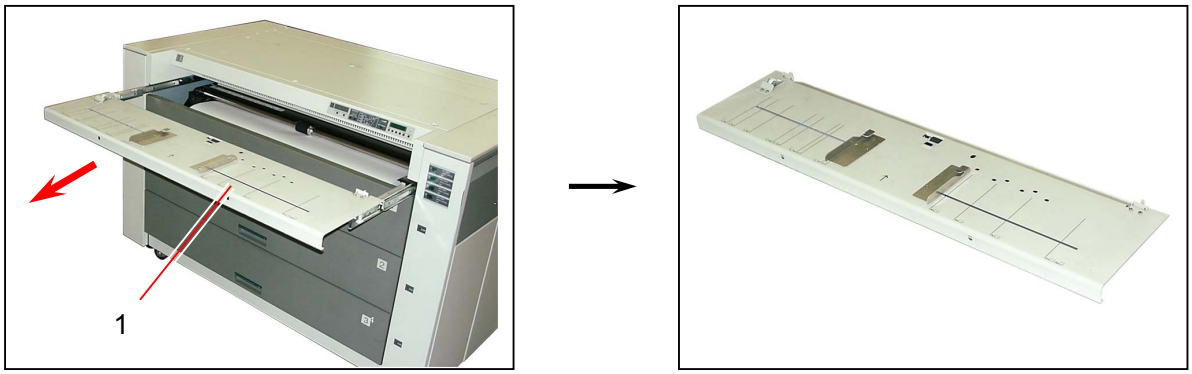


3) Slide the **Bypass Feeder** (1) along the Rails and remove it.

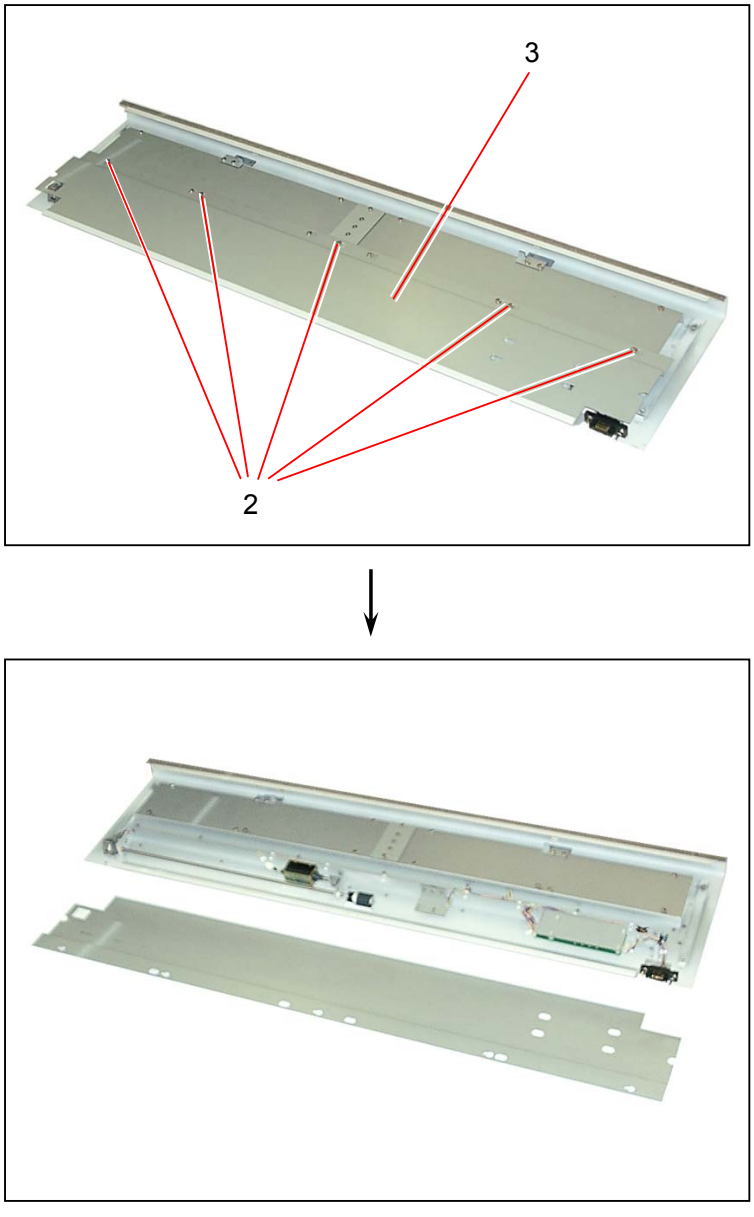


5.9.2 Replacing Bypass Reversal Roller Down Solenoid (SL4)

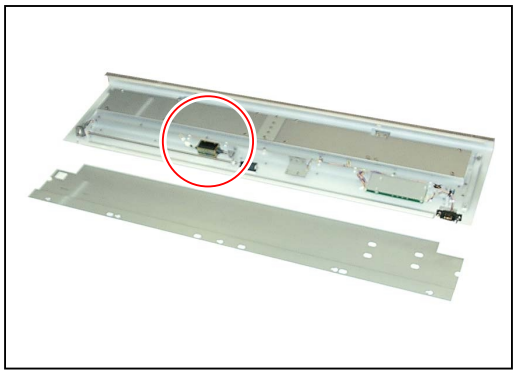
1) Remove the Bypass Feeder Unit (1) from the machine making reference to [5.9.1 Removing Bypass Feeder Unit] on the page 5-132.

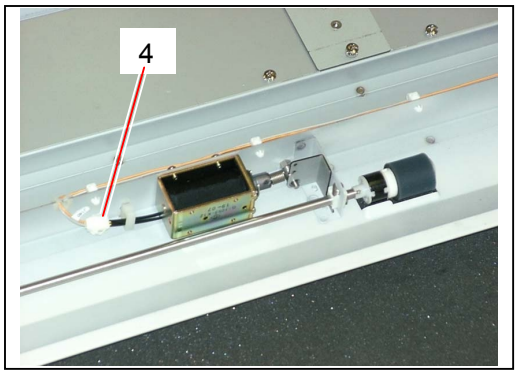


2) Loosen 5 pieces of tooth washer screws (2), and then slide and remove the Cover 2 (3).

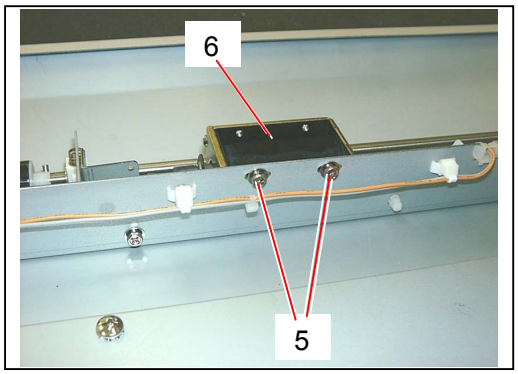


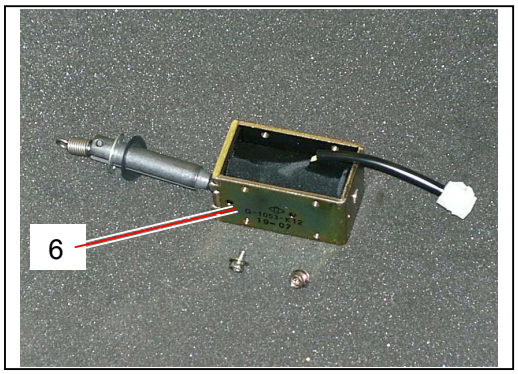
3) Disconnect the connector (4).





4) Remove 2 pieces of screw (5) to remove the **Bypass Reversal Roller Down Solenoid** (6). Replace the Bypass Reversal Roller Down Solenoid (6) with the new one.



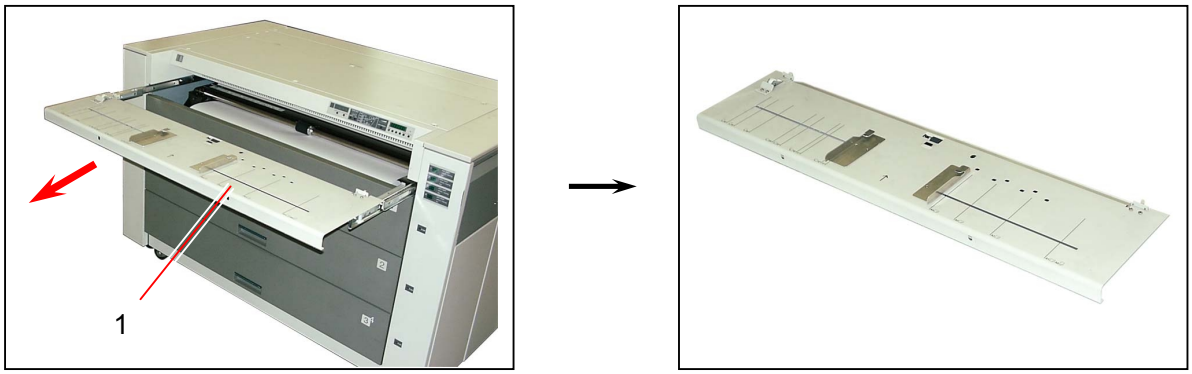


NOTE

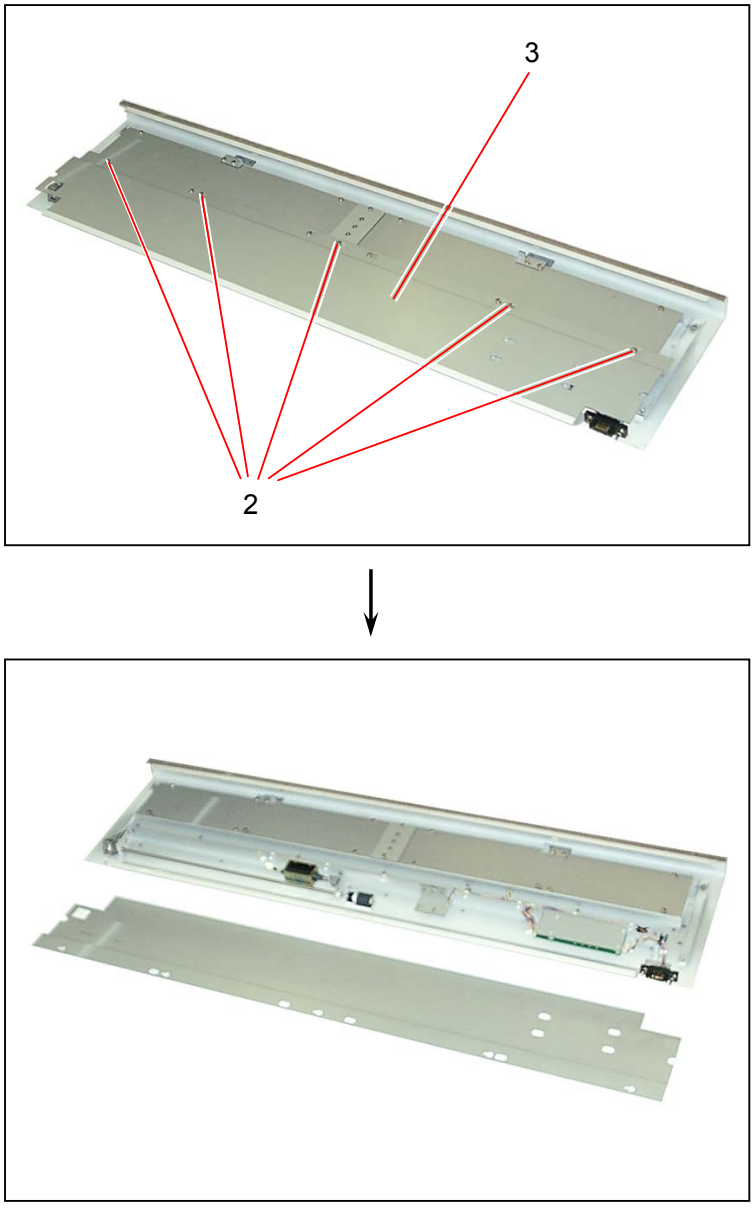
Tighten the screws (5) at the center of oval holes.

5.9.3 Replacing Cut Sheet Set Sensor (PH31) & Cut Sheet Size Sensors (PH32 to PH37)

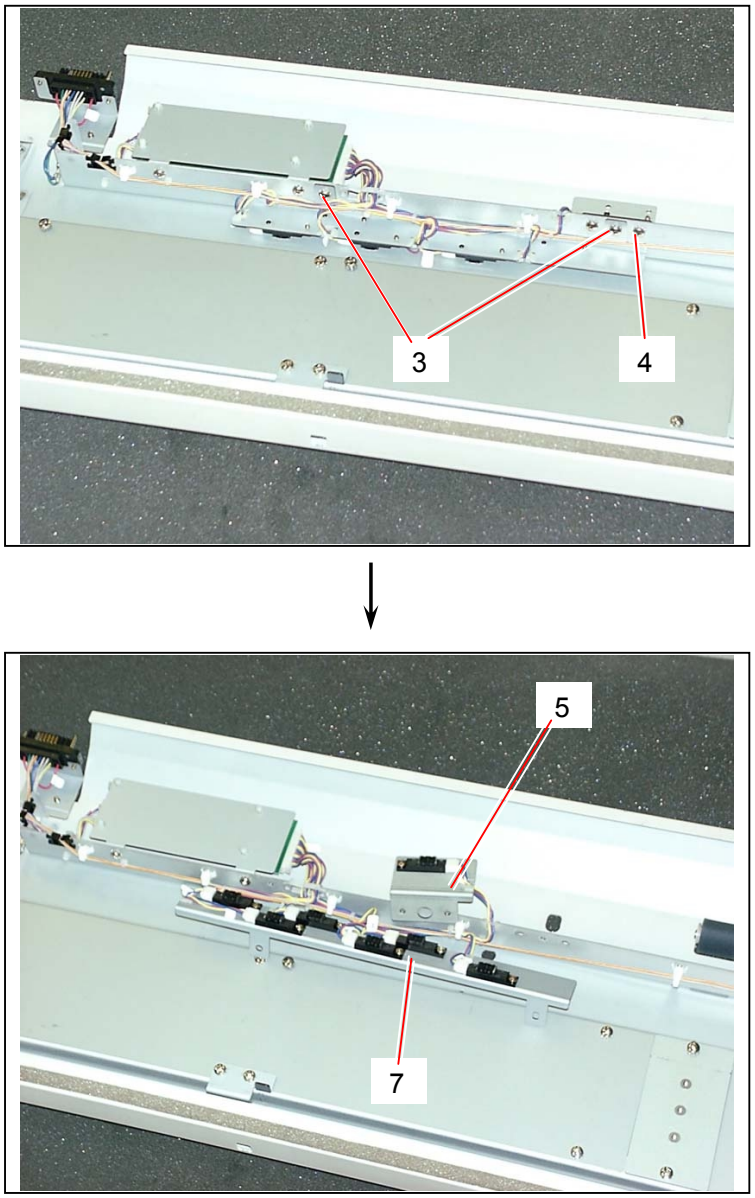
1) Remove the Bypass Feeder Unit (1) from the machine making reference to [5.9.1 Removing Bypass Feeder Unit] on the page 5-132.



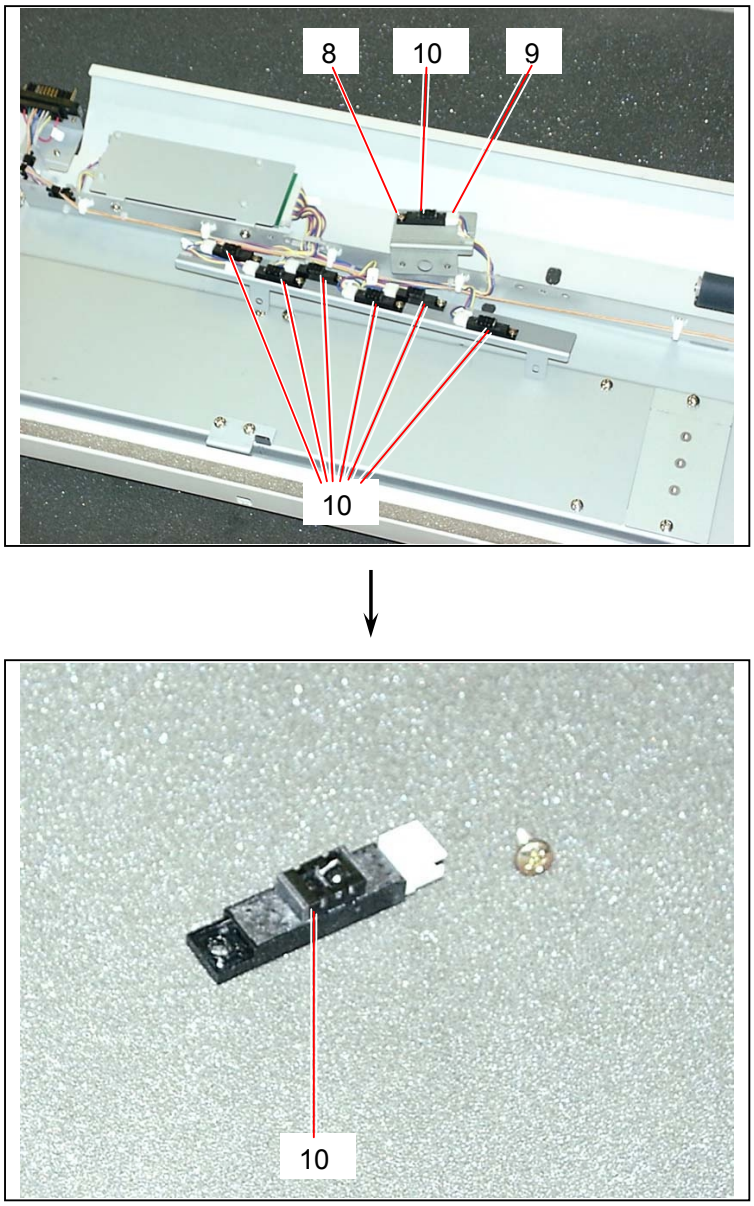
2) Loosen 5 pieces of tooth washer screws (2), and then slide and remove the Cover 2 (3).



3) Remove the screw (4) to remove the Bracket 239 (5), and also remove 2 pieces of screw (6) to remove the Bracket 232 (7).

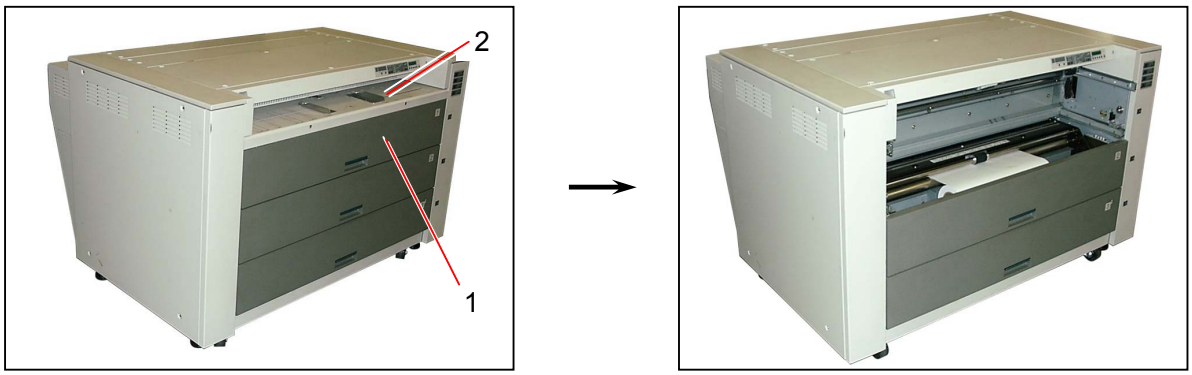


4) Remove the screw (8) and disconnect the connector (9) to remove each **Cut Sheet Set Sensor** and **Cut Sheet Size Sensors** (10).
Replace each Cut Sheet Set Sensor and Cut Sheet Size Sensors (10) with the new one.

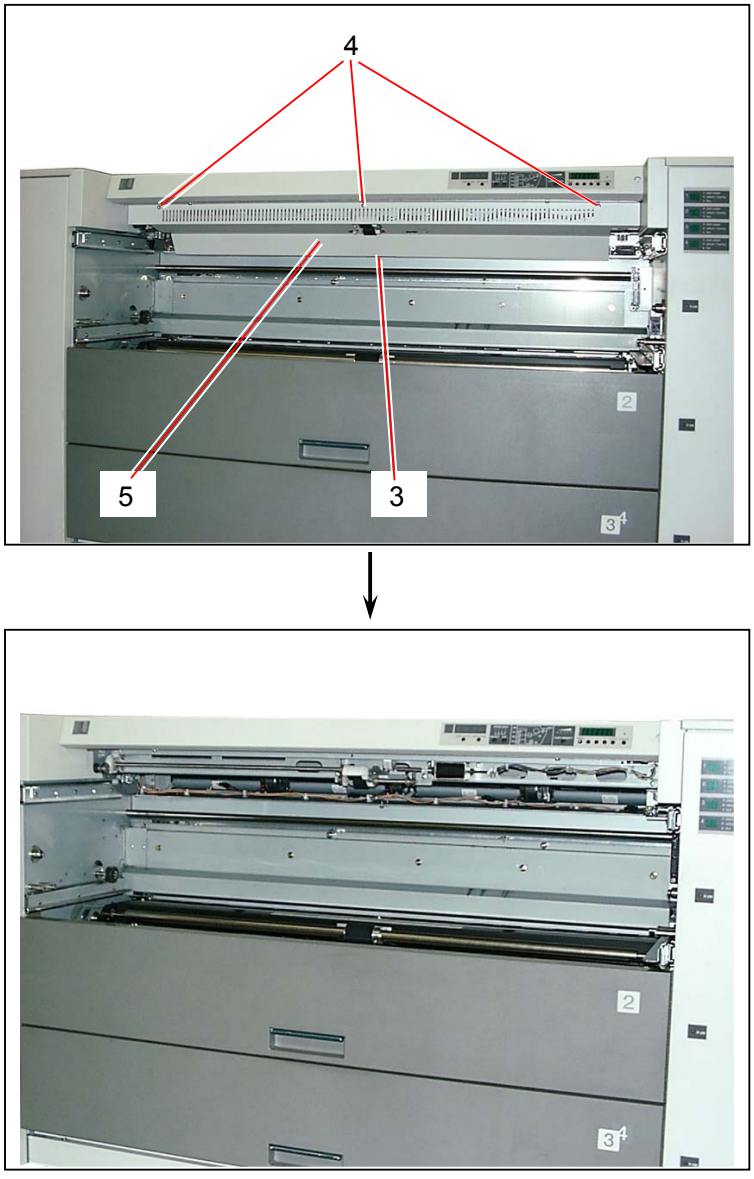


5.9.4 Replacing Bypass Feeding Roller Down Solenoid (SL3)

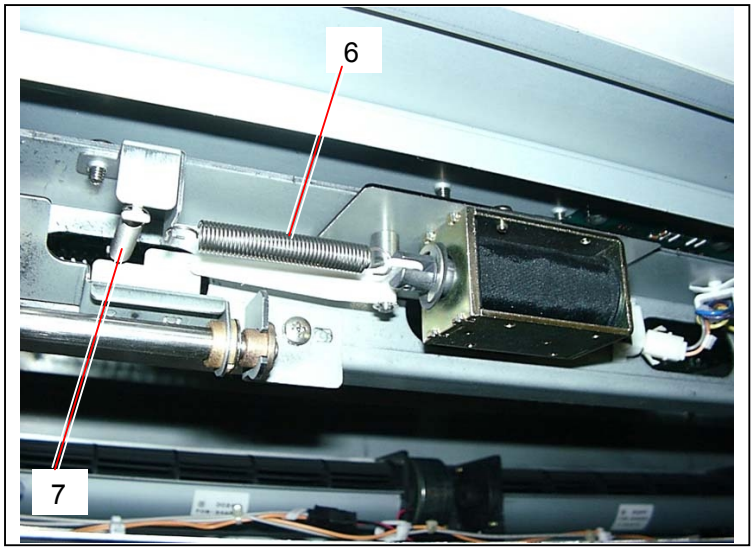
1) Open both the Top Roll Deck (1) and the Bypass Feeder Unit (2).
(They are removed in the later procedure.)



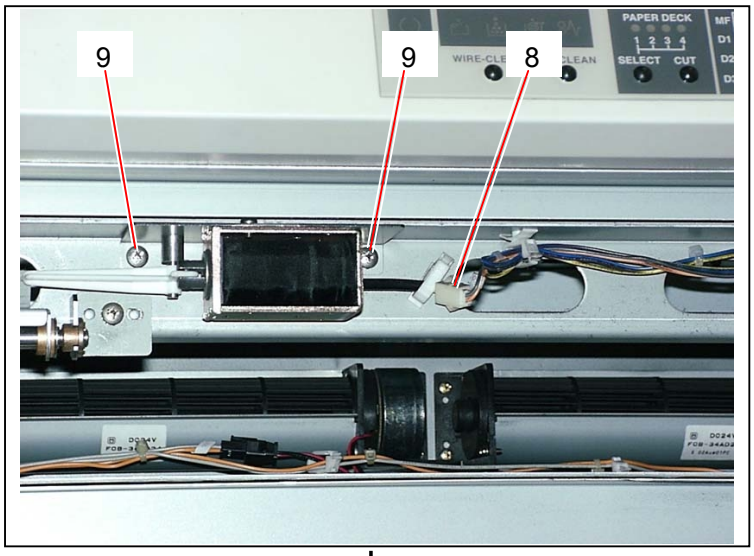
2) Loosen the tooth washer screw (3) on the bottom, and remove 3 pieces of tooth washer screw (4) to remove the Cover (5).

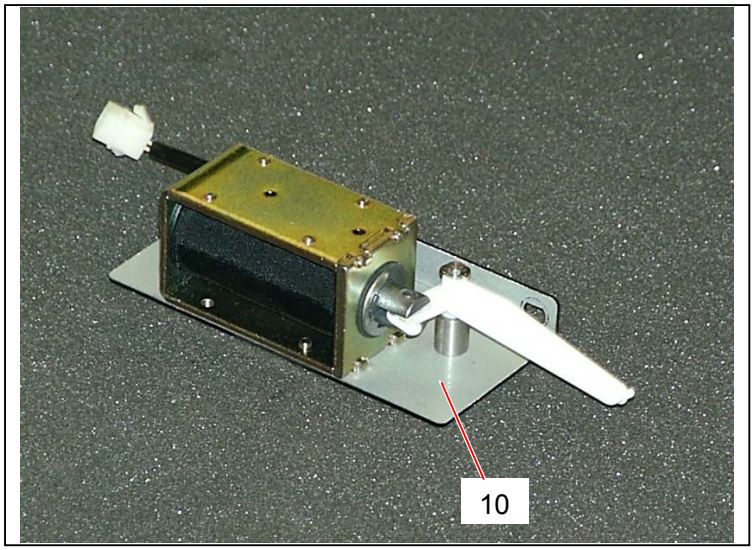


3) Remove the Tension Spring (6).
As the Spring (7) easily drops off, remove it for the safety.

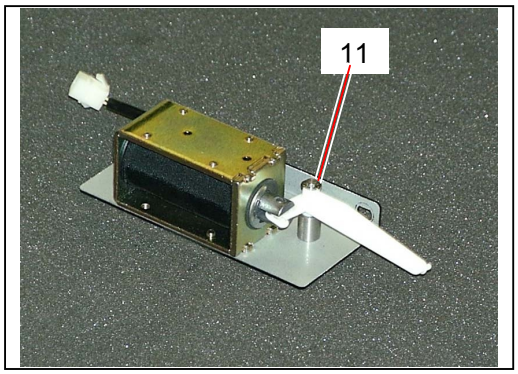


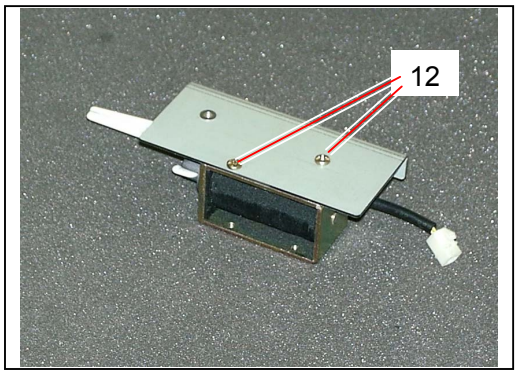
4) Disconnect the connector (8), remove 2 pieces of screw (9), and remove the Bracket 557 (10) with the solenoid.

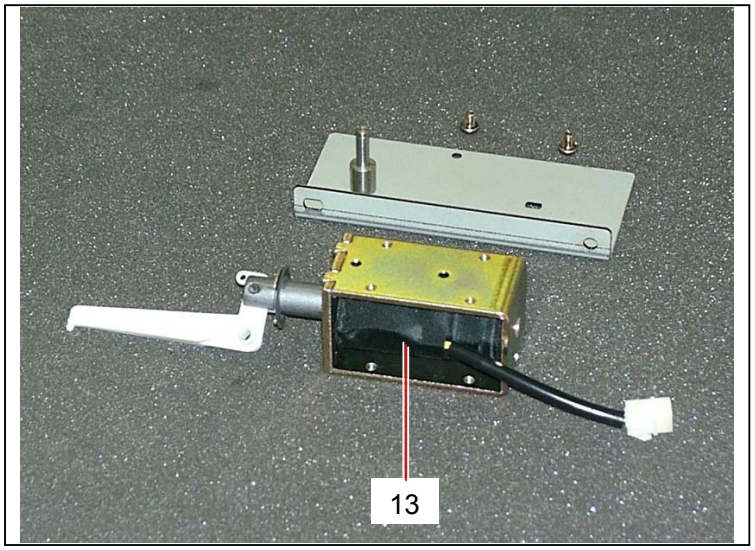




5) Remove the E Ring (E5) (11) and 2 pieces of screw (12) to remove the **Bypass Feeding Roller Down Solenoid** (13) from the Bracket.
Replace the Bypass Feeding Roller Down Solenoid (13) with the new one.







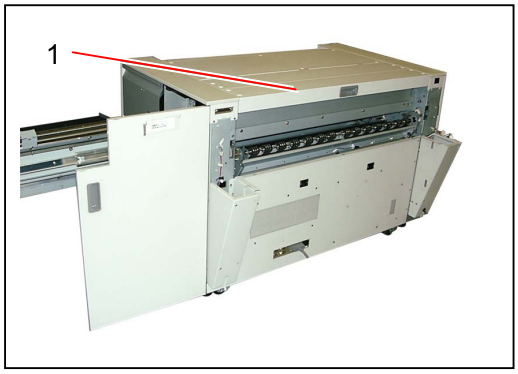
5.10 Internal Transportation Unit

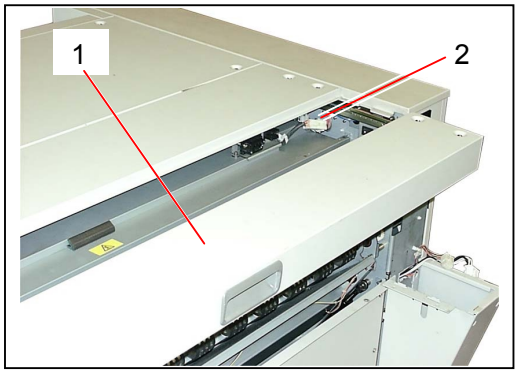
5.10.1 Replacing Belt 2

1) Draw out the Process Unit making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1. Remove the Drum Assembly and keep it in the box to avoid the light.

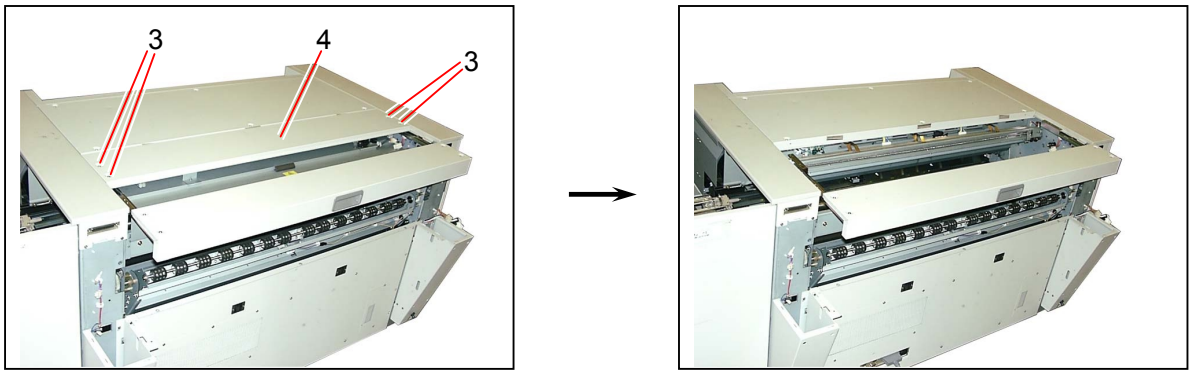
2) Remove the Fuser Unit from the machine making reference to [5.7.1 Removing Fuser Unit] on the page 5-68.

3) Open the Rear Upper Cover (1), and disconnect the connector (2).

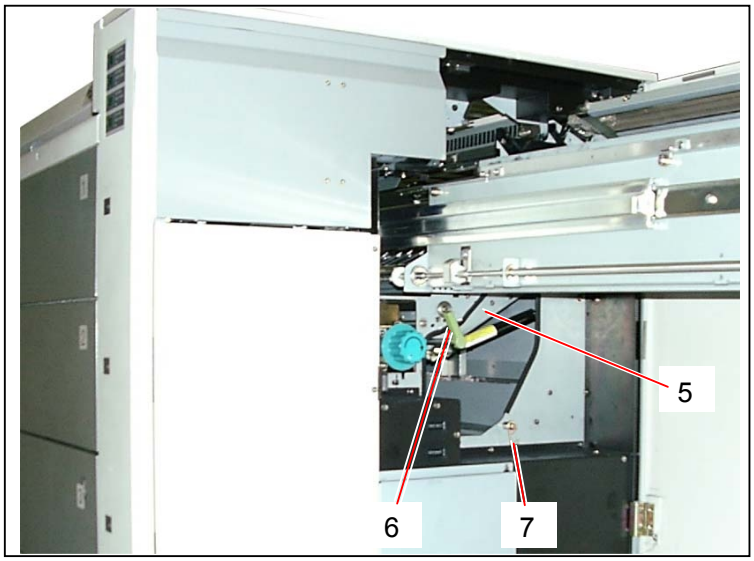


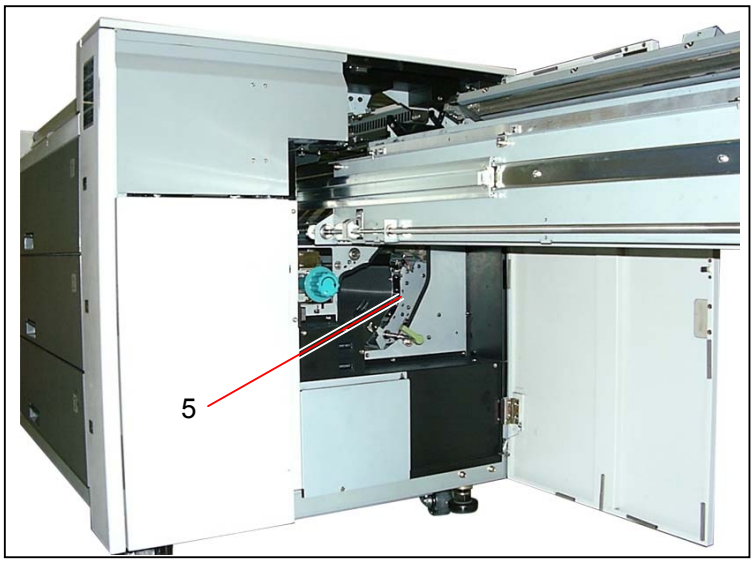


4) Remove 4 pieces of tooth washer screw (3) to remove the Cover 305 Assembly (4).

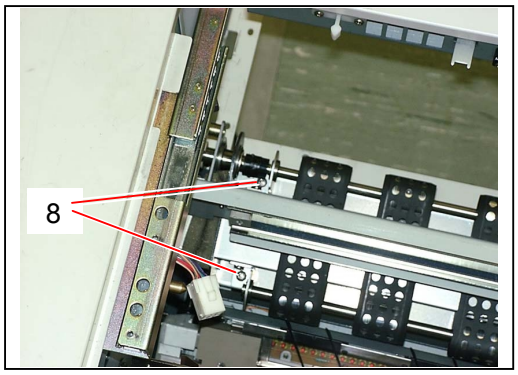


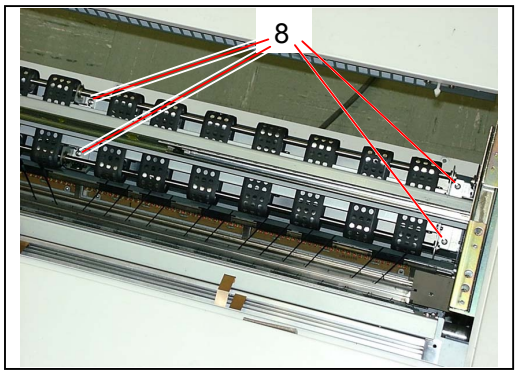
5) Unlock the Internal Transportation Unit (5) rotating the Internal Transportation Unit Lever (6) counter-clockwise, bring down the unit and then lock the shaft of lever with the Hook (7).



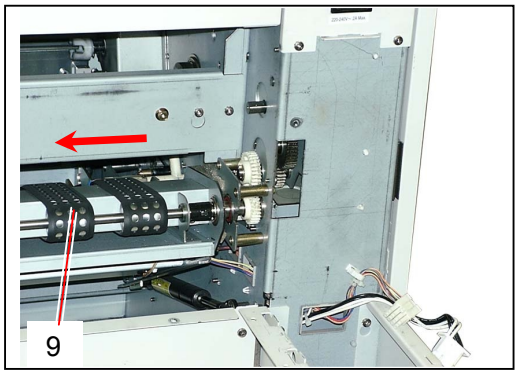


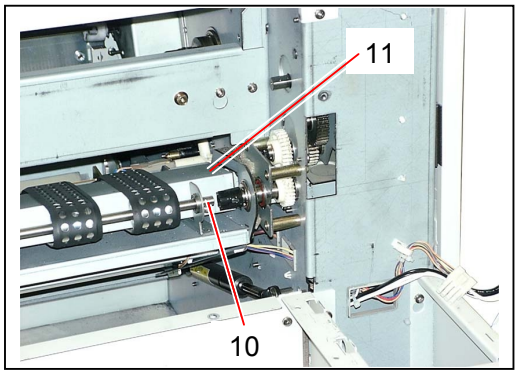
6) Remove 6 pieces of tooth washer screw (8) which fix the Belt Unit.

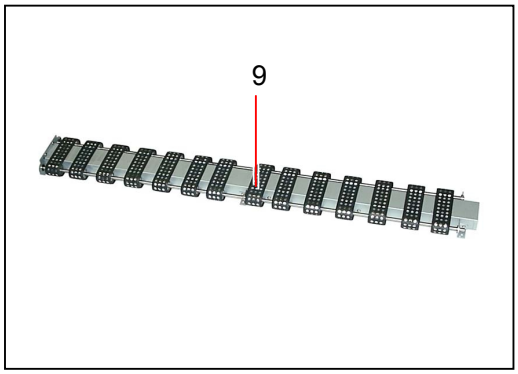




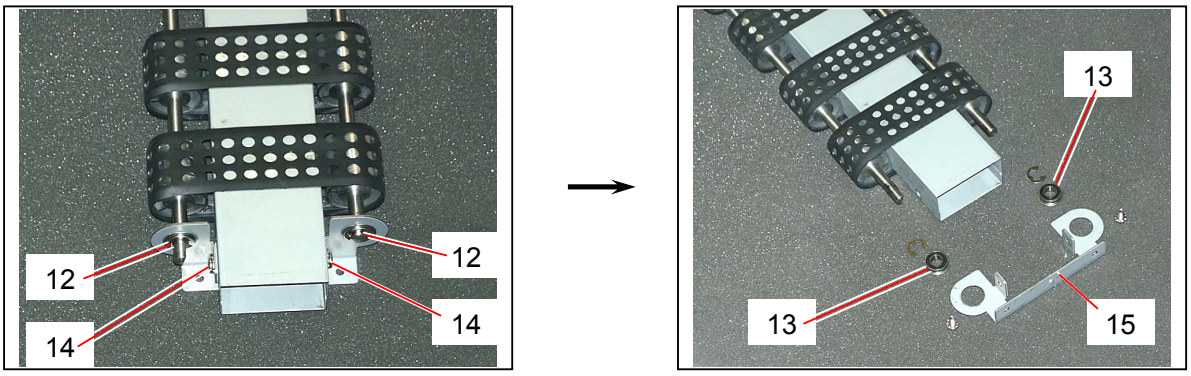
7) Slide the Belt Unit (9) from the driving side to the driven side to pull out both the roller shaft (10) and Duct (11), and then remove the Belt Unit (9) from the machine.



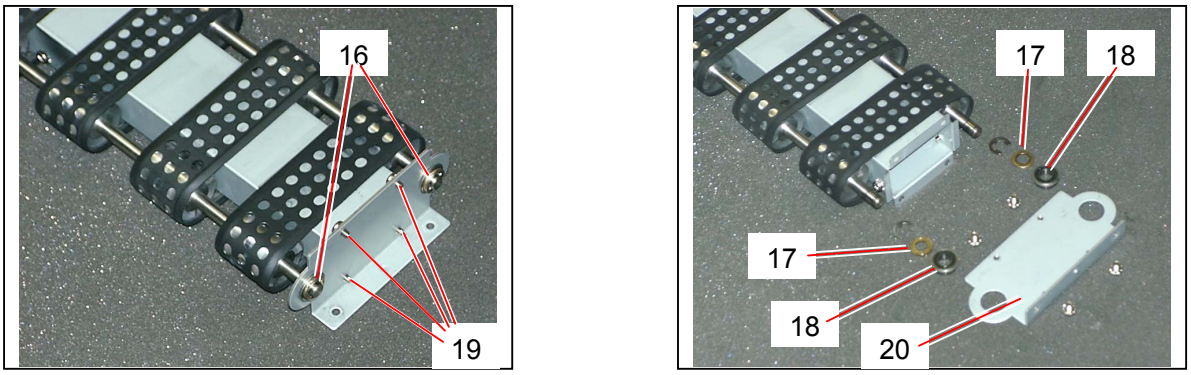




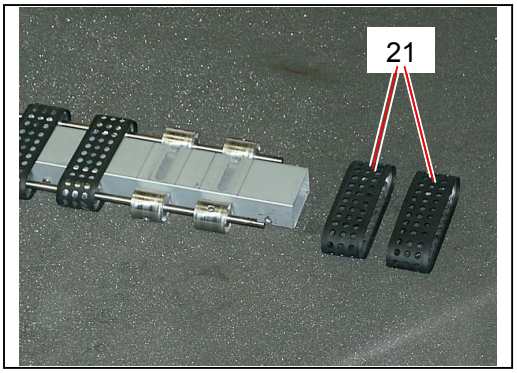
8) Remove 2 pieces of each E Ring (E10) (12) and Ball Bearing (13), and then remove 2 pieces of tooth washer screw (14) to remove the Bracket 1 (15).



9) Remove 2 pieces of each E Ring (E7) (16), Washer (17) and Ball Bearing (18), and then remove 4 pieces of tooth washer screw (19) to remove the Bracket 2 (20).



10) Slide each **Belt 2** (21) outward to remove from the unit. Replace the Belt 2 (21) with the new one.

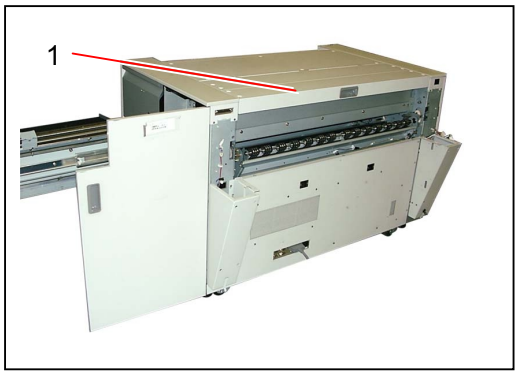


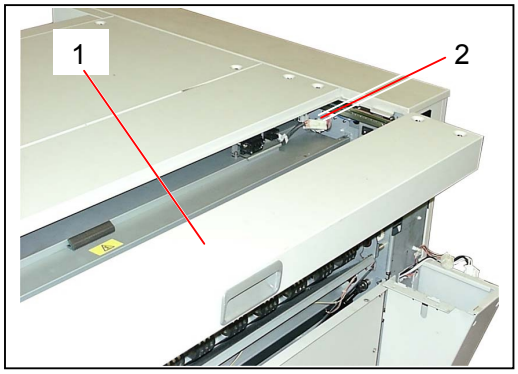
5.10.2 Replacing Separation Sensor (PH18)

1) Draw out the Process Unit making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1. Remove the Drum Assembly and keep it in the box to avoid the light.

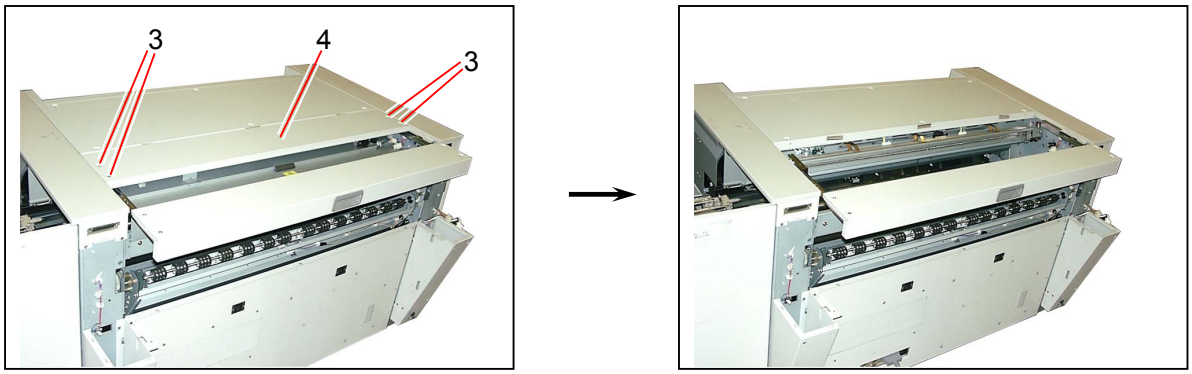
2) Remove the Fuser Unit from the machine making reference to [5.7.1 Removing Fuser Unit] on the page 5-68.

3) Open the Rear Upper Cover (1), and disconnect the connector (2).

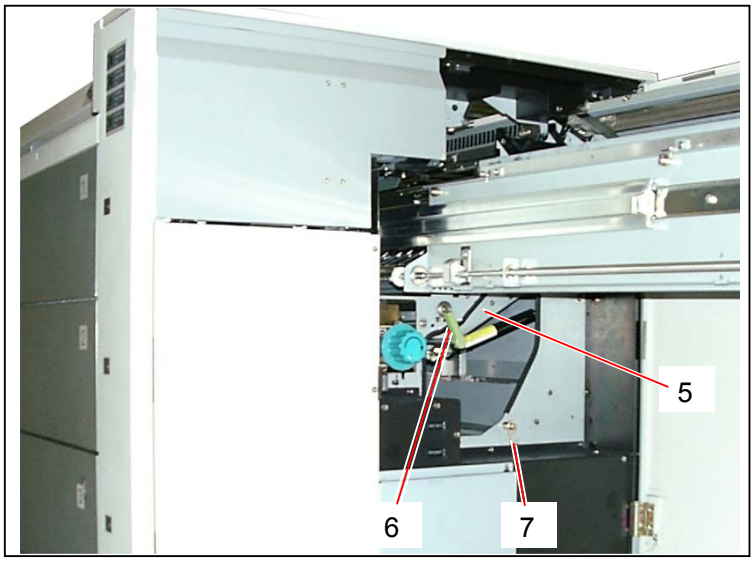


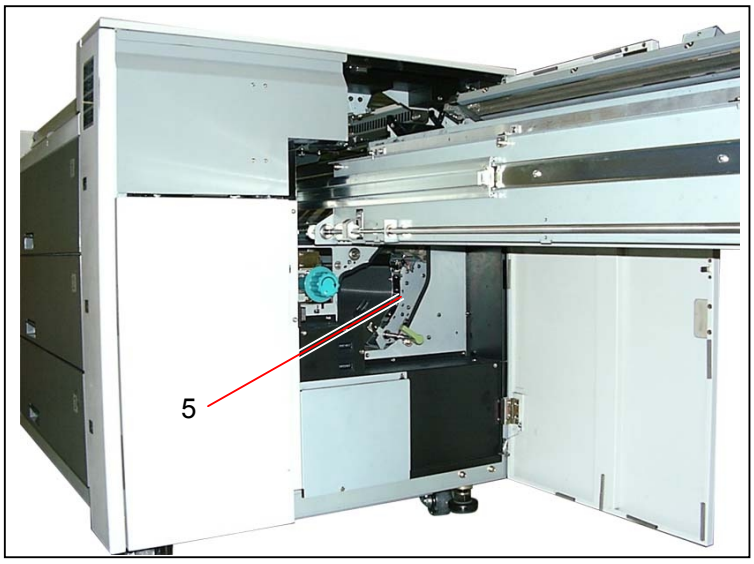


4) Remove 4 pieces of tooth washer screw (3) to remove the Cover 305 Assembly (4).

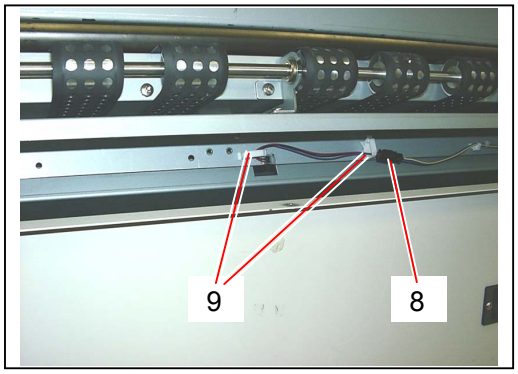


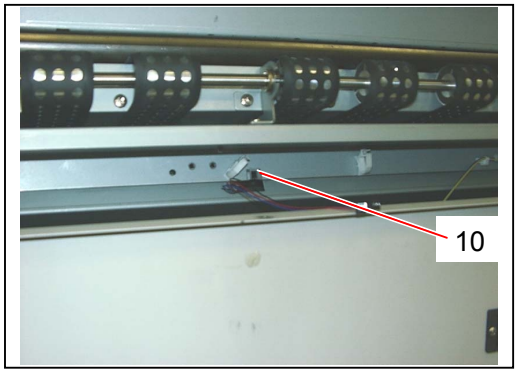
5) Unlock the Internal Transportation Unit (5) rotating the Internal Transportation Unit Lever (6) counter-clockwise, bring down the unit and then lock the shaft of lever with the Hook (7).



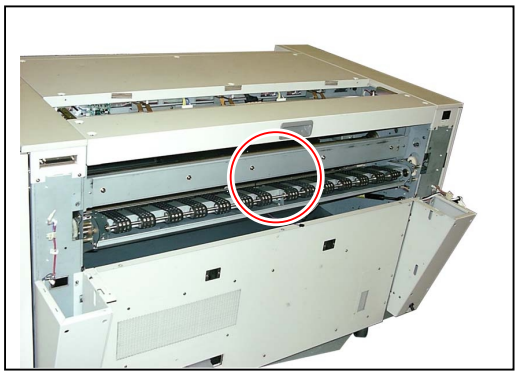


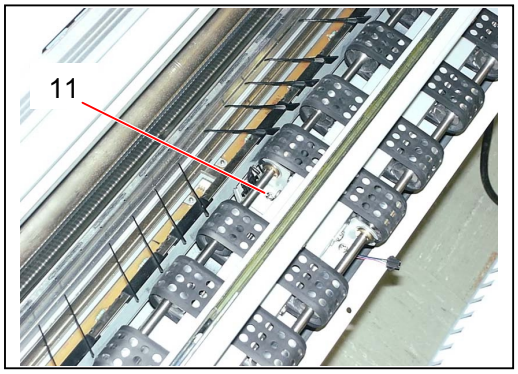
6) Disconnect the connector (8), and then remove the wire from Wire Saddle (9) and Edge Saddle (10).

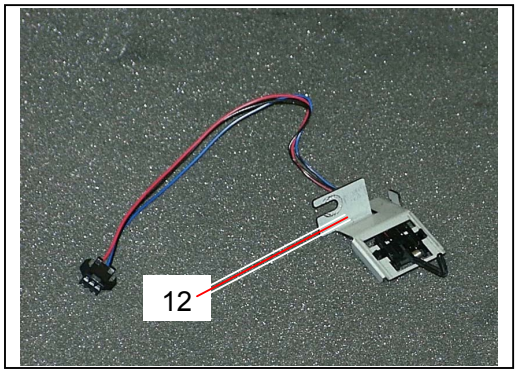




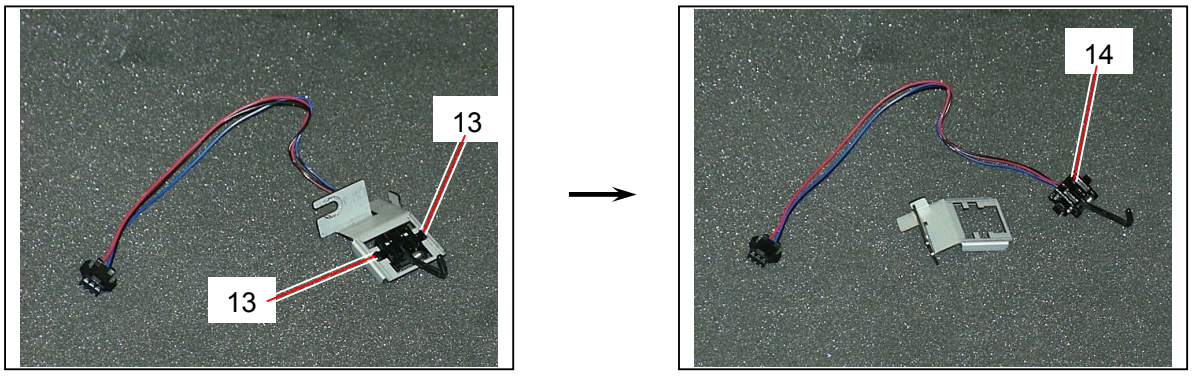
7) Loosen the screw (11), and the remove the Bracket 228 (12) with the sensor.





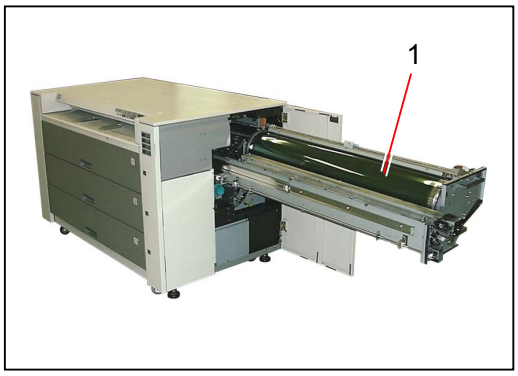


8) Pressing the Stopper Hooks (13) inward, remove the **Separation Sensor** (14) from the bracket. Replace the Separation Sensor (14) with the new one.

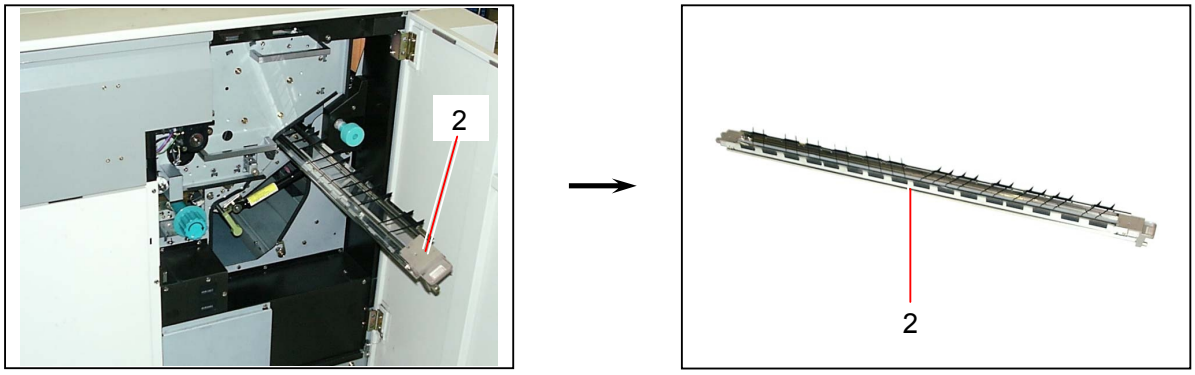


5.10.3 Removing Internal Transportation Unit

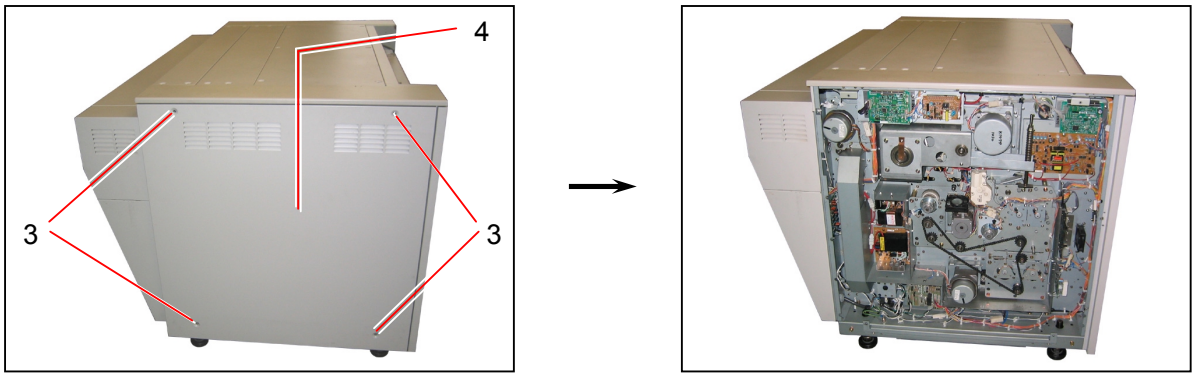
1) Remove the Drum Assembly (1) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



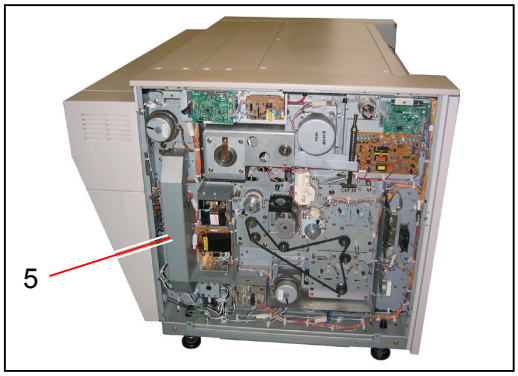
2) Remove the Transfer / Separation Corona (1) from the machine making reference to [5.11.1 Removing Transfer / Separation Corona] on the page 5-161.



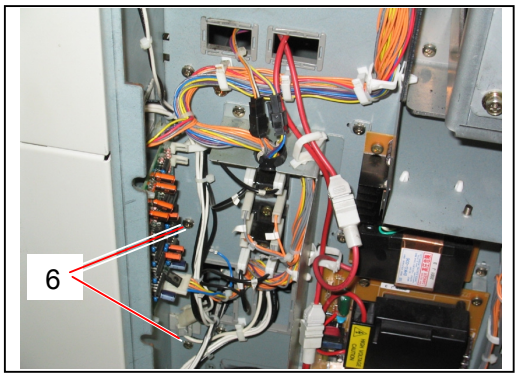
3) Remove 2 pieces of tooth washer screw (3), and then remove the Left Side Cover (4).



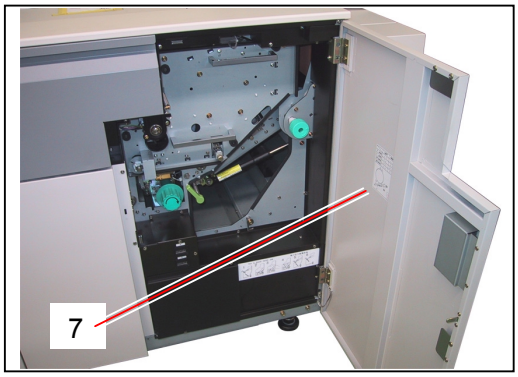
4) Remove the Duct (5) removing 8 pieces of tooth washer screw.



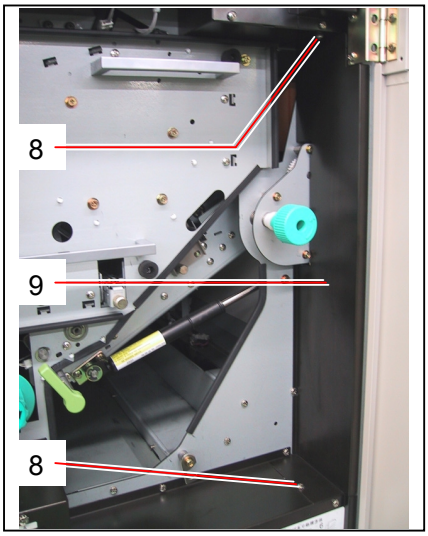
5) Remove 2 pieces of tooth washer screw (6).



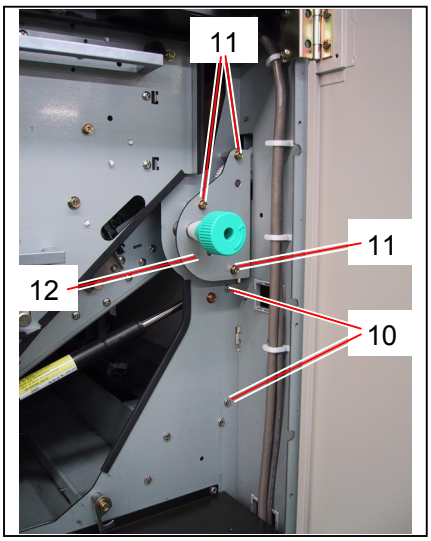
6) Open the Right Side Door (7).



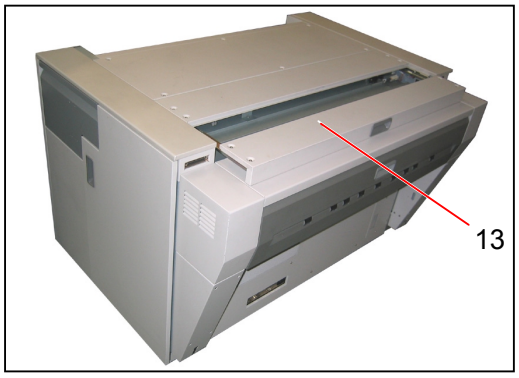
7) Remove 2 pieces of tooth washer screw (8), and then remove the Cover (9).

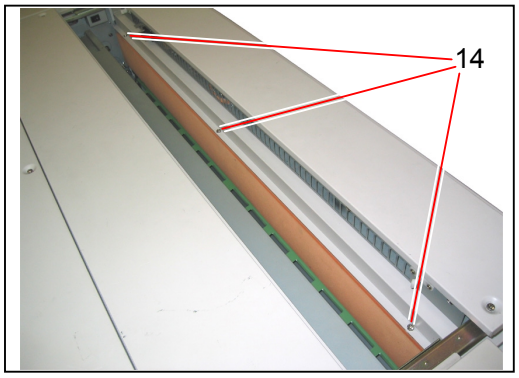


8) Remove 2 pieces of tooth washer screw (10).
Remove 3 pieces of tooth screws (11) to remove the Gear Assembly (12).

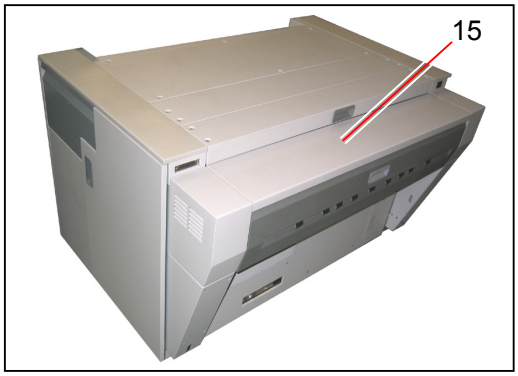


9) Open the Top Rear Cover (13), and then loosen 3 pieces of tooth washer screw (14).

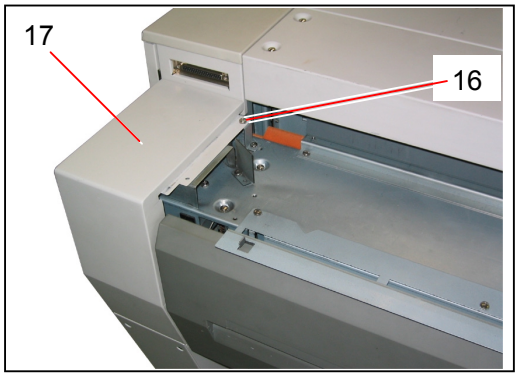


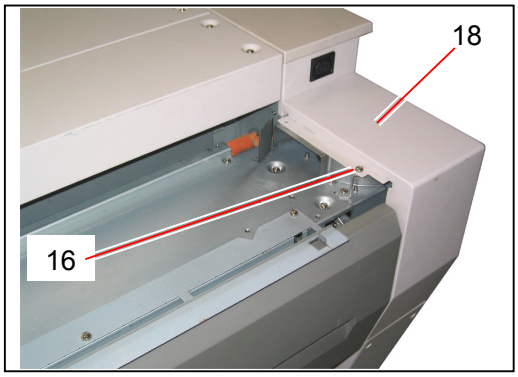


10) Close the Top Rear, and then remove the Fuser Cover (15).

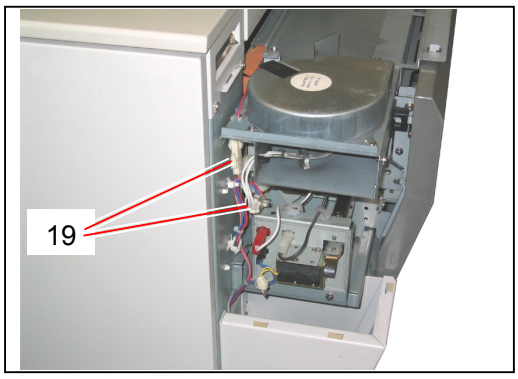


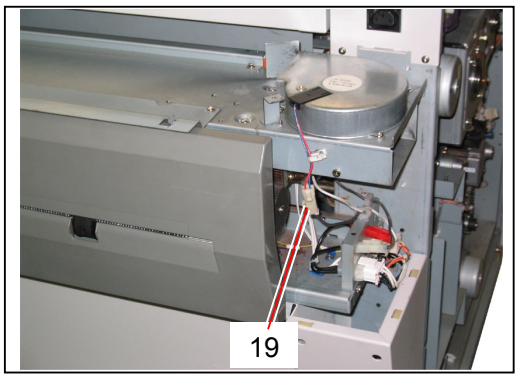
11) Remove a tooth washer screw (16) from each Cover, and then remove Cover 3 (17) and Cover 4 (18).



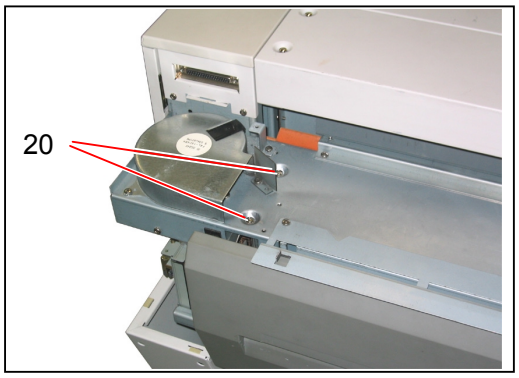


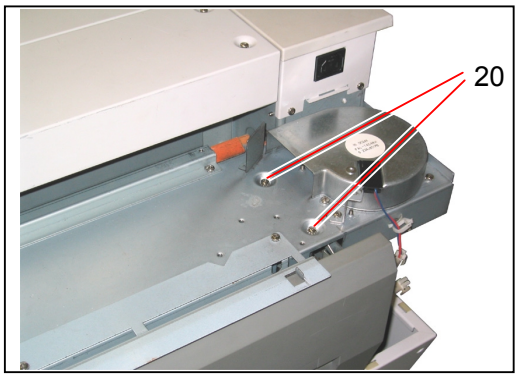
12) Disconnect 3 connectors (19).

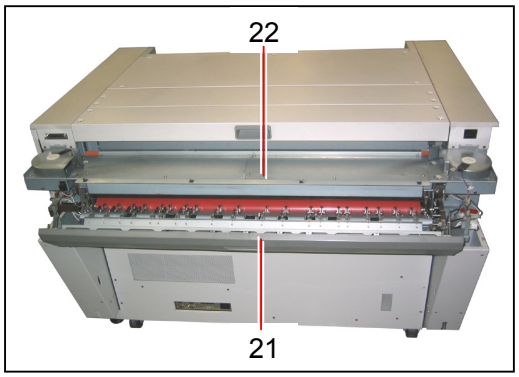


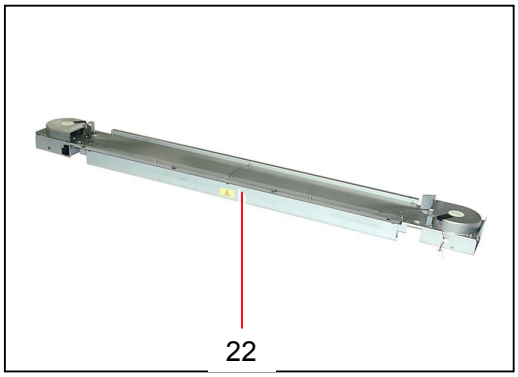


13) Remove 4 pieces of tooth washer screw (20), open the Exit Cover (21), and then remove the Cooling Fan Unit (22).

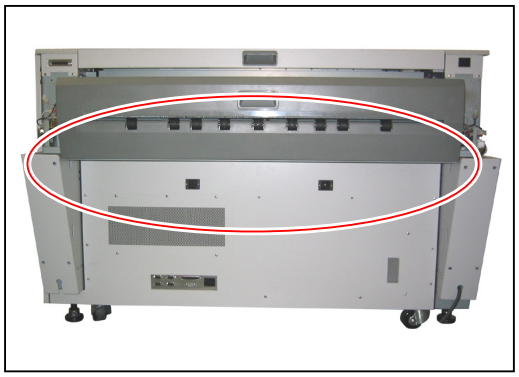


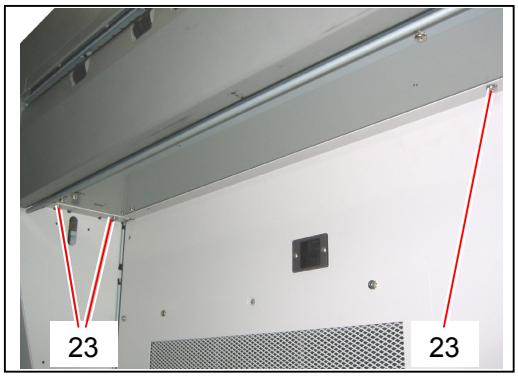


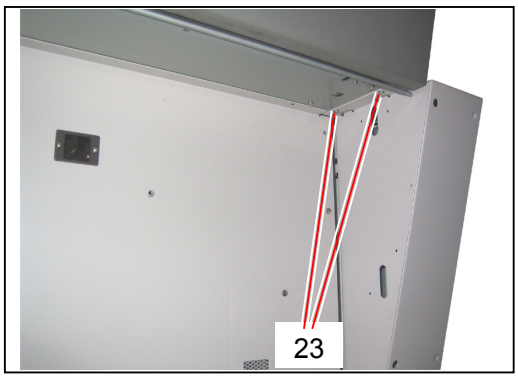




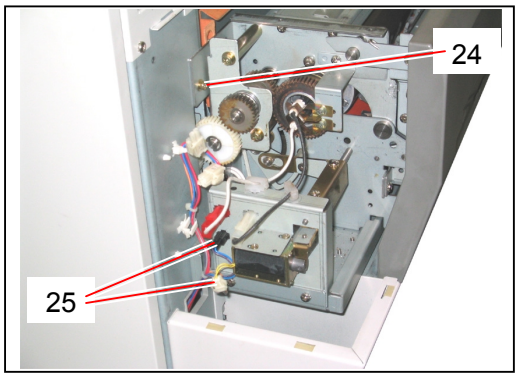
14) Remove 5 pieces of tooth washer screw (23) which fix the Fuser Unit from the bottom.

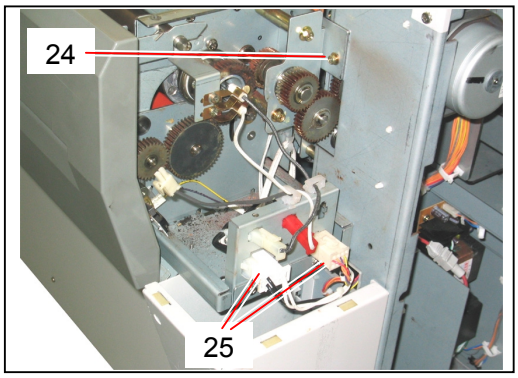




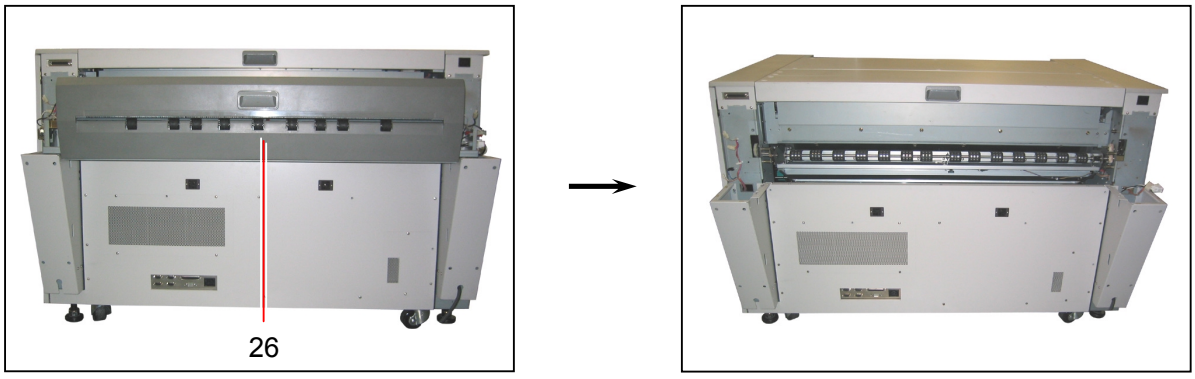


15) Remove Hexagon Head Bolts (24) at both sides which fix the Fuser Unit.
Also, disconnect 4 connectors (25).

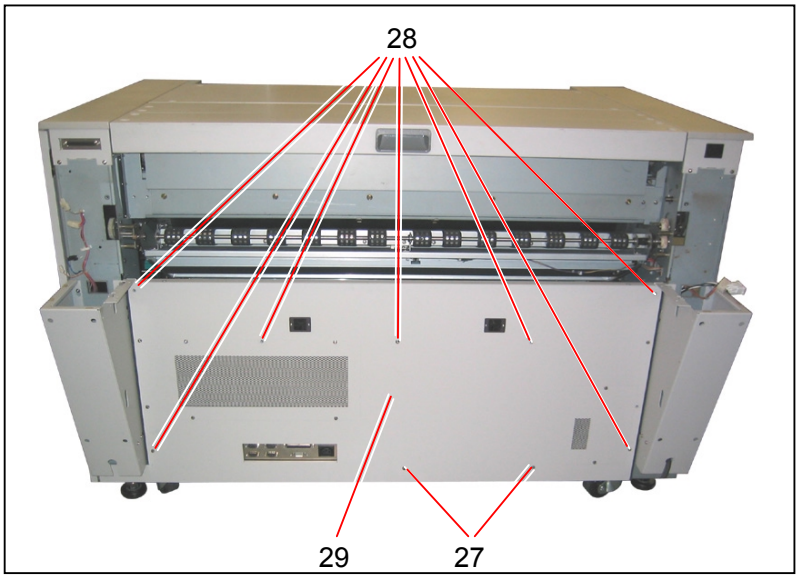




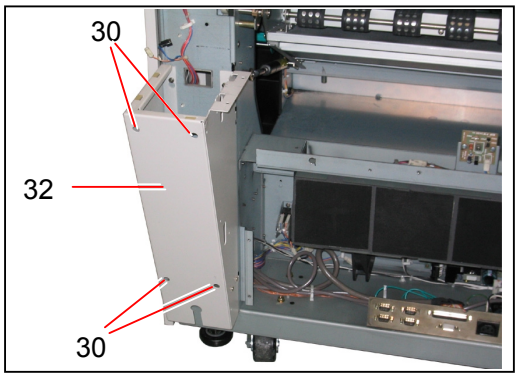
16) Remove the Fuser Unit (26) from the machine.

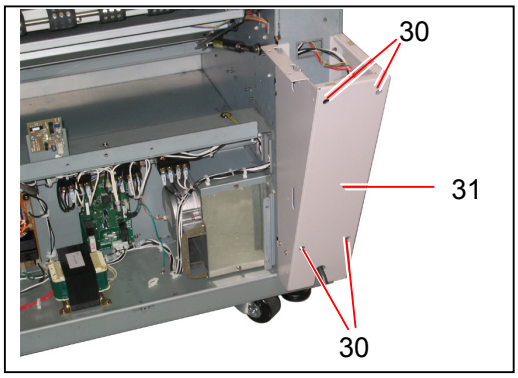


17) Remove 2 pieces of bind head screw (27) and 7 pieces of tooth washer screw (28) to remove the Rear Cover (29).
(Fixing Brackets inside the Rear Cover will be removed also.)

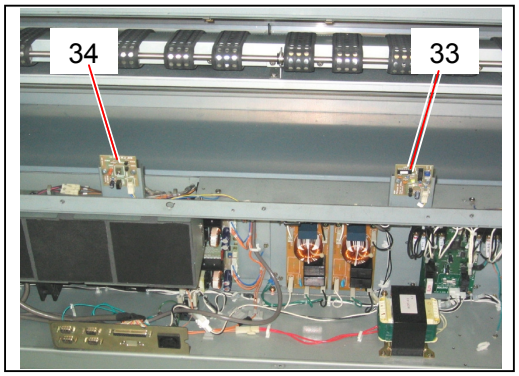


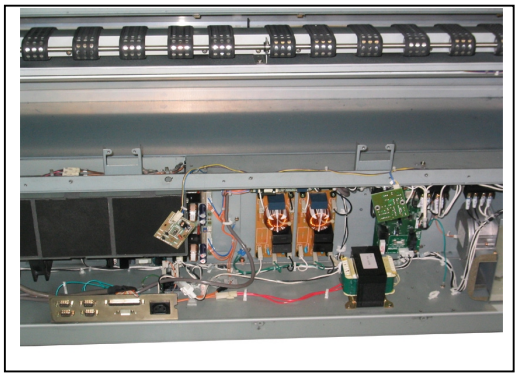
18) Loosen 4 pieces of tooth washer screw inserting a screwdriver from the holes (30), and remove each Base 2 (31) and Base 3 (32).



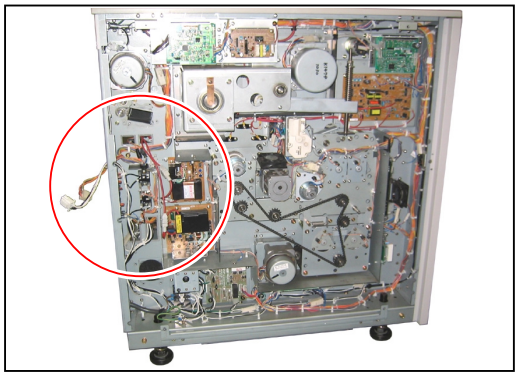


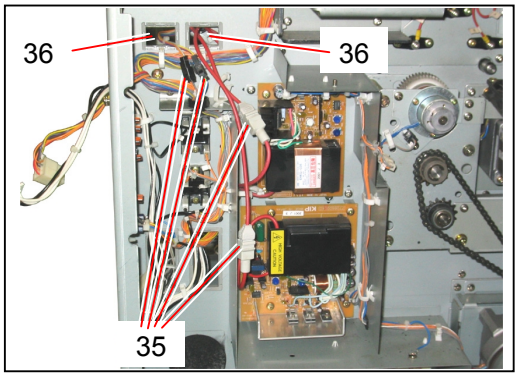
19) Remove Transmission PCB (33) and Reception PCB (34).
(Put them aside as the following right photo, otherwise you will break them when you remove the Inner Transport Assembly.)



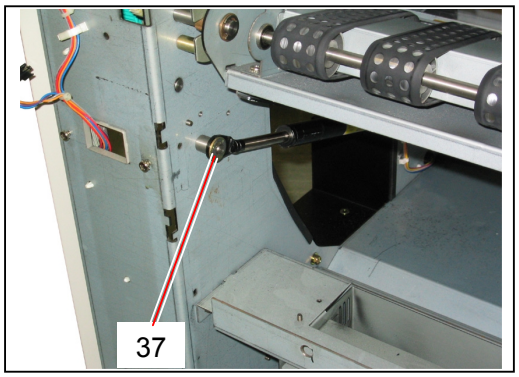


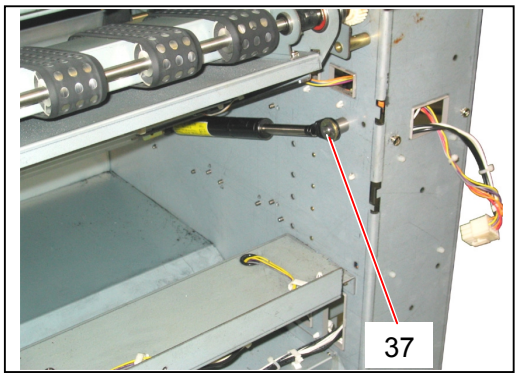
20) Disconnect 4 connectors (35) on the Left Side Plate.
Then, pull the harnesses from the windows (36) into the machine.





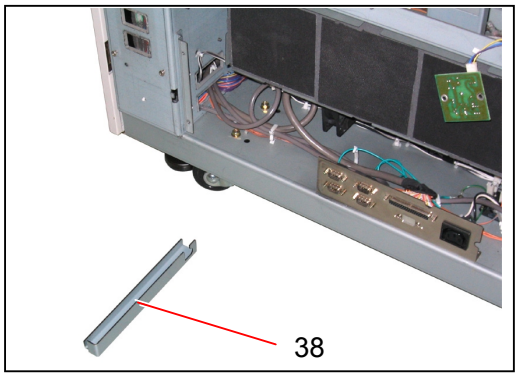
21) Remove Retaining Ring K and Flat Washers (37) at both sides.

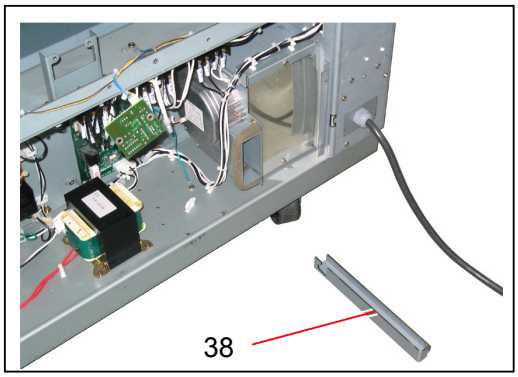




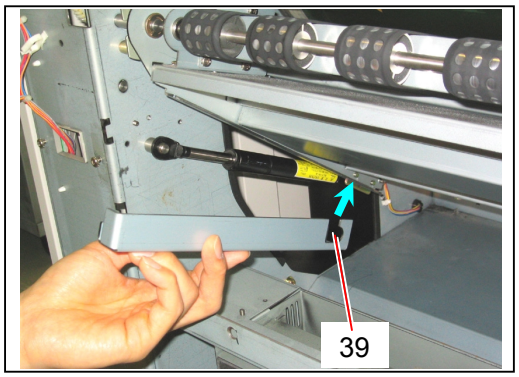
22) Prepare the Gas Spring Jigs (38).

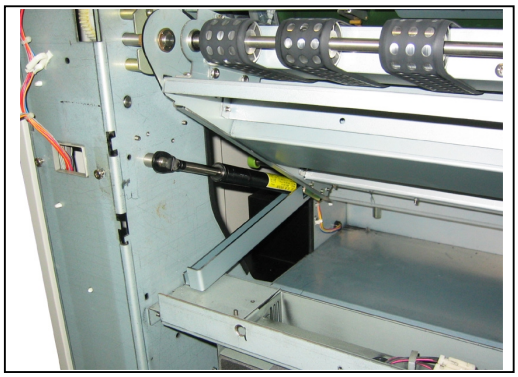
Gas Spring Jigs : 7708560070



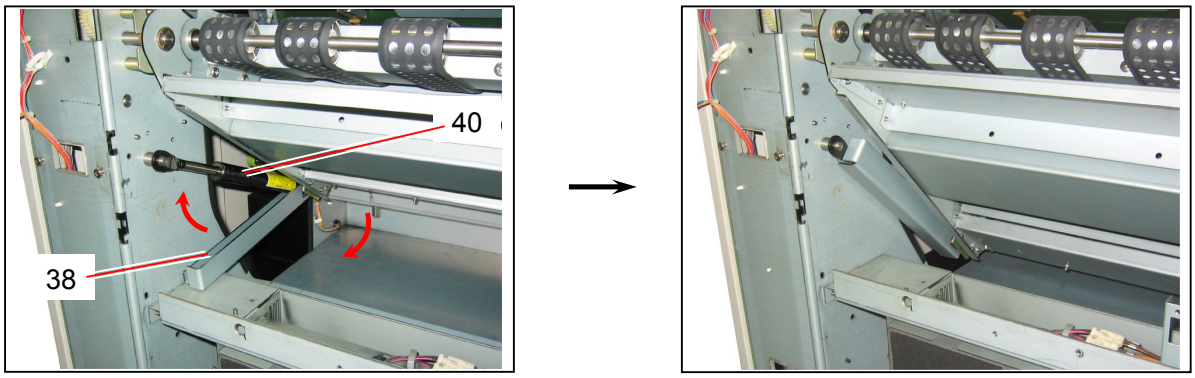


23) Fit the notch (39) of each Gas Spring Jig to the shaft of Inner Transport Lock Lever.





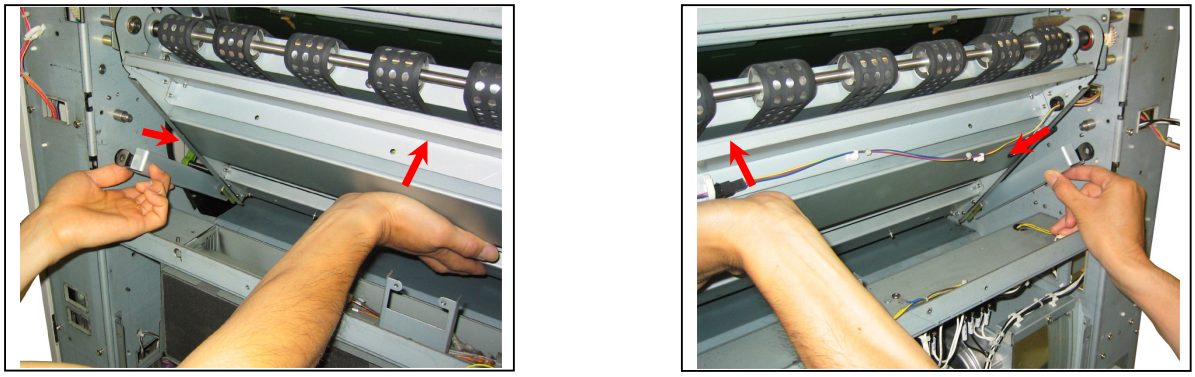
24) Bring down the Inner Transport Assembly to shorten the Gas Spring Hinges (40), and then bring up the Gas Spring Jigs (38) to cover the Gas Spring Hinges.



NOTE

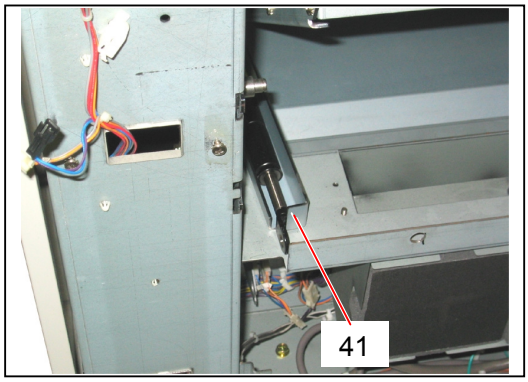
Gas Spring Hinges will not extend more than required because the Gas Spring Jigs restrict their extension, so it will be easy to set the hinges when you reassemble.
If you do not use the jigs, hinges will extend fully and it will be very hard to set them again.

25) Pull out each Gas Spring Hinge from the shaft while bringing up the Inner Transport Assembly a little.

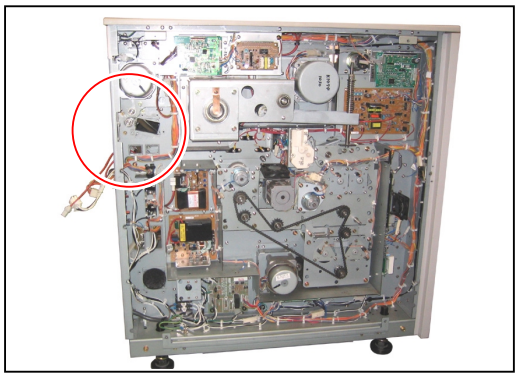


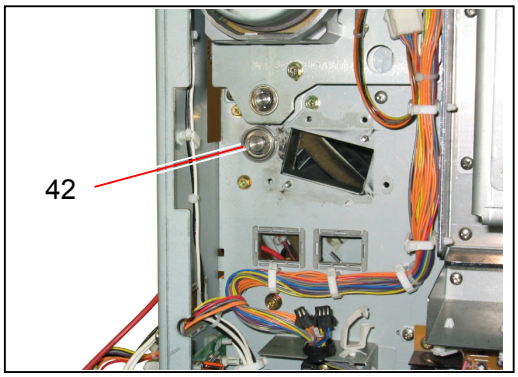
NOTE

Be careful not to make the Gas Spring Hinge come out from the stopper plate (41) of Gas Spring Jig. It will be very dangerous because the Gas Spring Hinge extends momentarily.

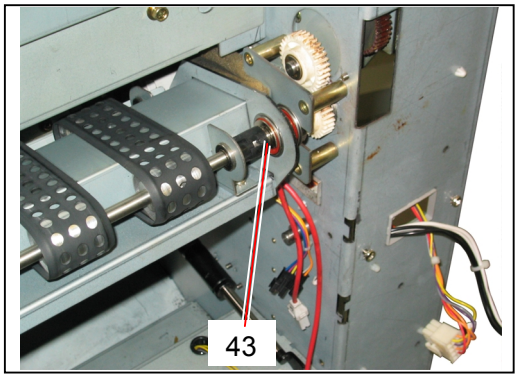


26) Remove the Retaining Ring E and Ball Bearing (42) on the Left Side Plate.

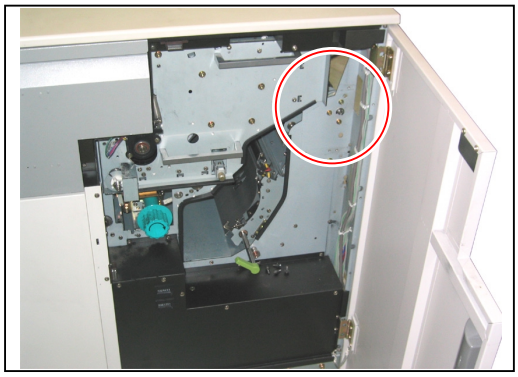


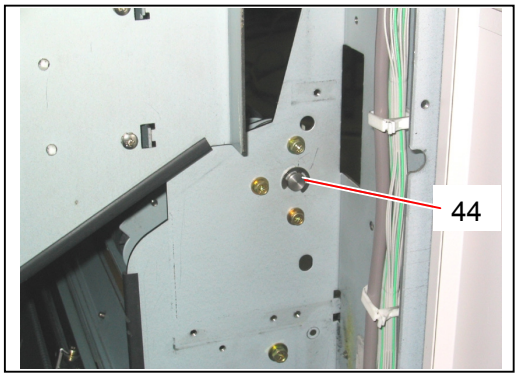


27) Remove the Retaining Ring E (43).

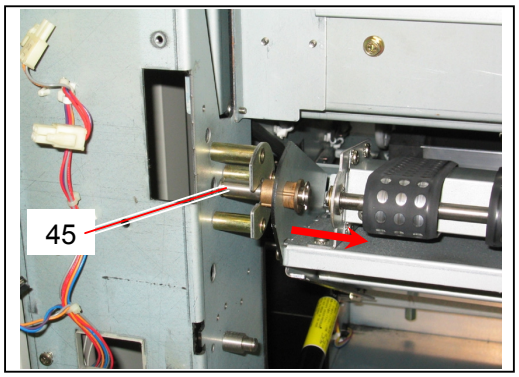


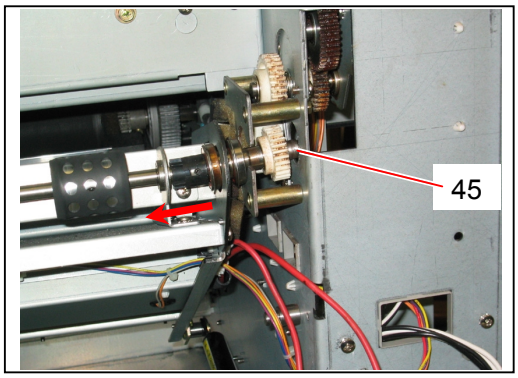
28) Remove Retaining Ring E (44).



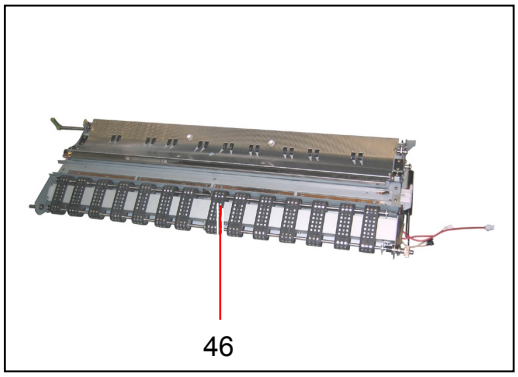


29) Shift the Shafts (45) inward until they are pulled out from the Side Plates.





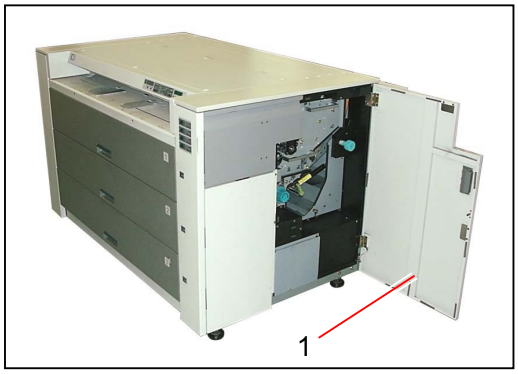
30) Remove the Inner Transport Assembly (46) from the machine.



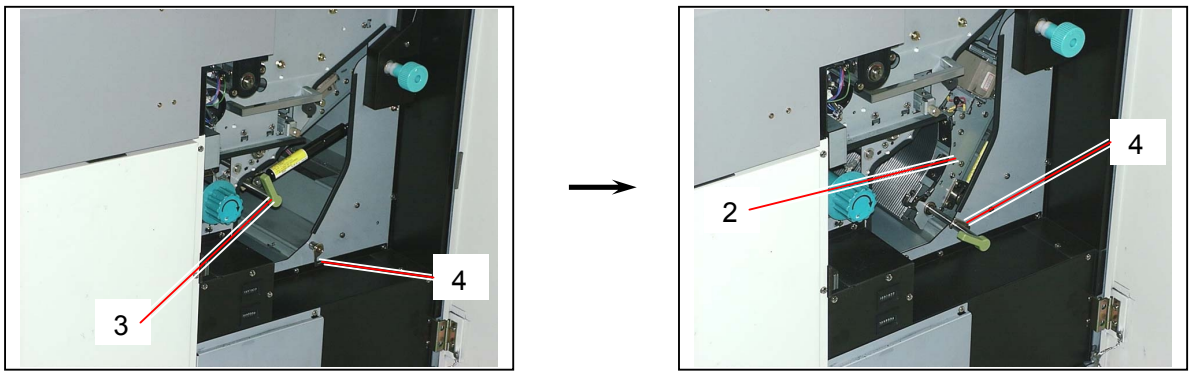
5.11 Transfer / Separation Corona

5.11.1 Removing Transfer / Separation Corona

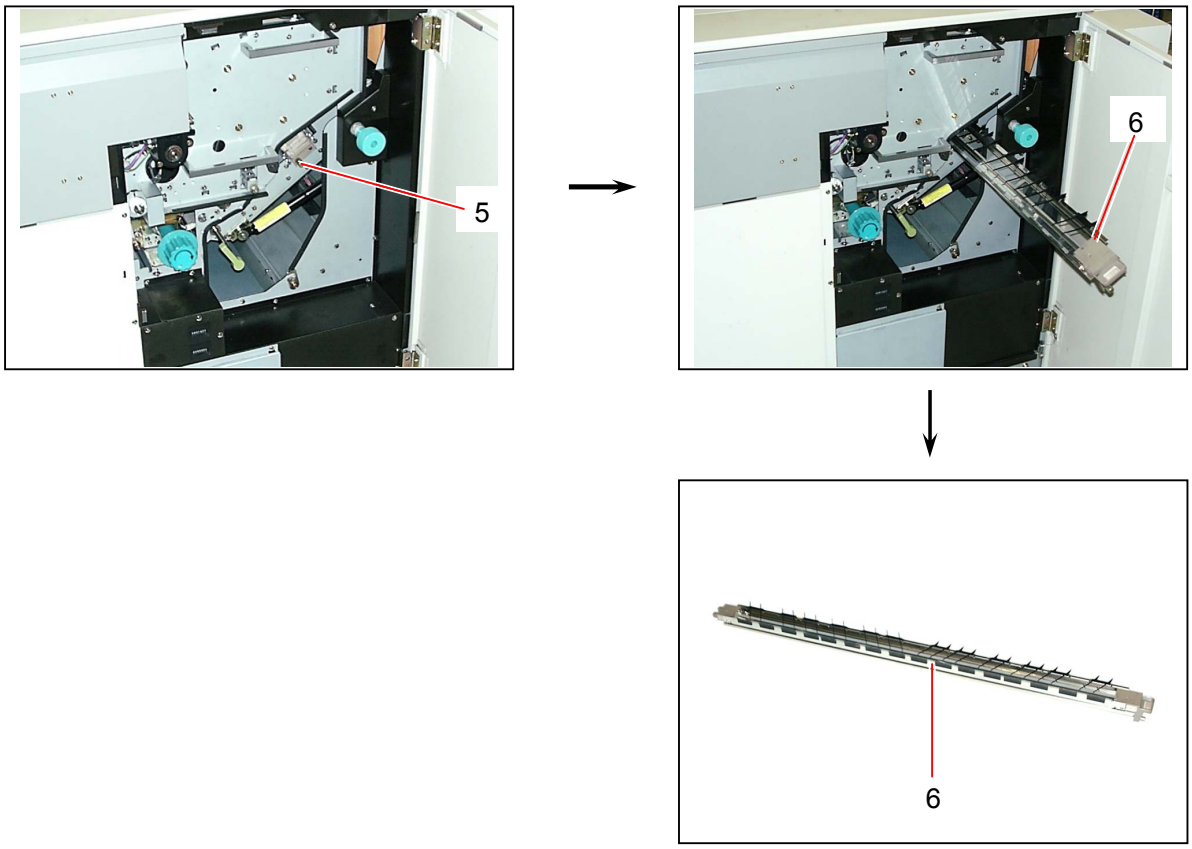
1) Open the Right Side Door (1).



2) Unlock the Internal Transportation Unit (2) rotating the Internal Transportation Unit Lever (3) counter-clockwise, bring down the unit and then lock the shaft of lever with the Hook (4).



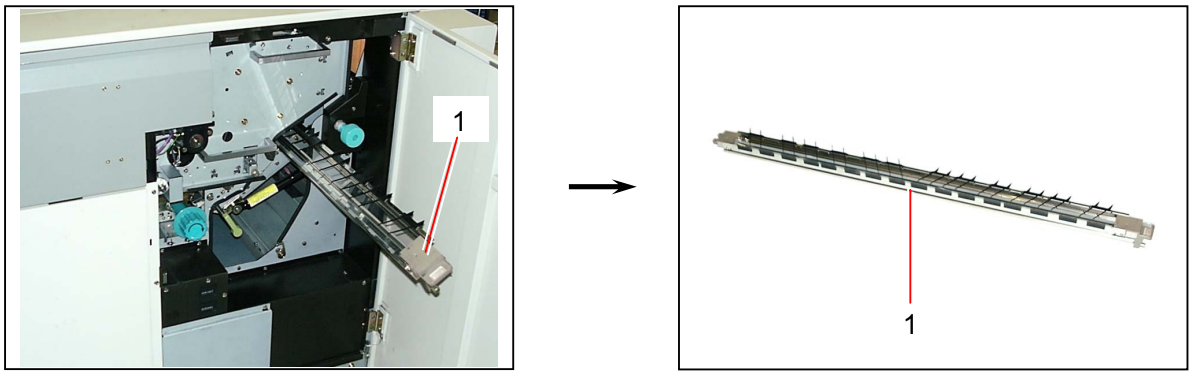
3) Rotate the Knob (5) counter-clockwise to unlock, and then pull out the **Transfer / Separation Corona** (6) from the machine.



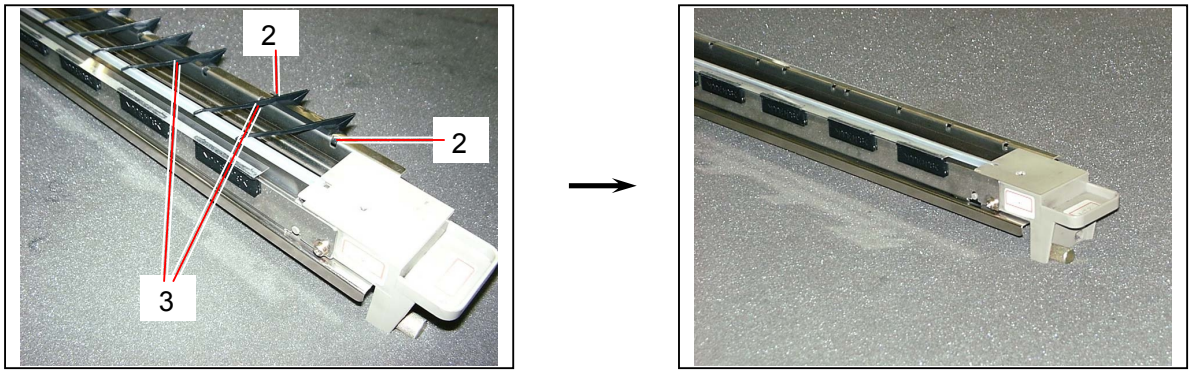
5.11.2 Replacing Corona Wire 2 Assemblies

> **NOTE**
>
> Corona Wire 2 Assembly is the Periodical Replacement Part, and its life is 100,000m.

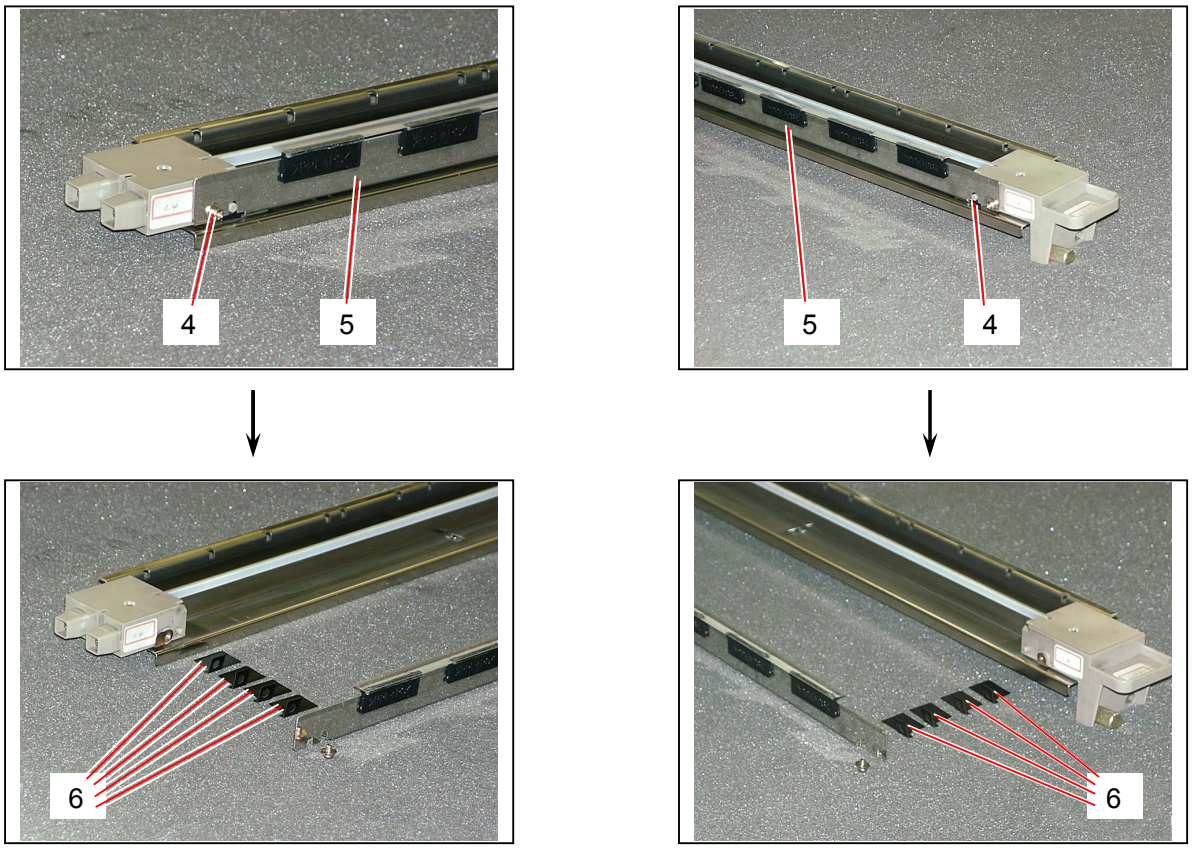
1) Remove the Transfer / Separation Corona (1) from the machine making reference to [5.11.1 Removing Transfer / Separation Corona] on the page 5-161.



2) If you press down the Stopper Hooks (2), you can remove each Corona Guards A/B (3). Remove all Corona Guards A/B (3) from the housing.



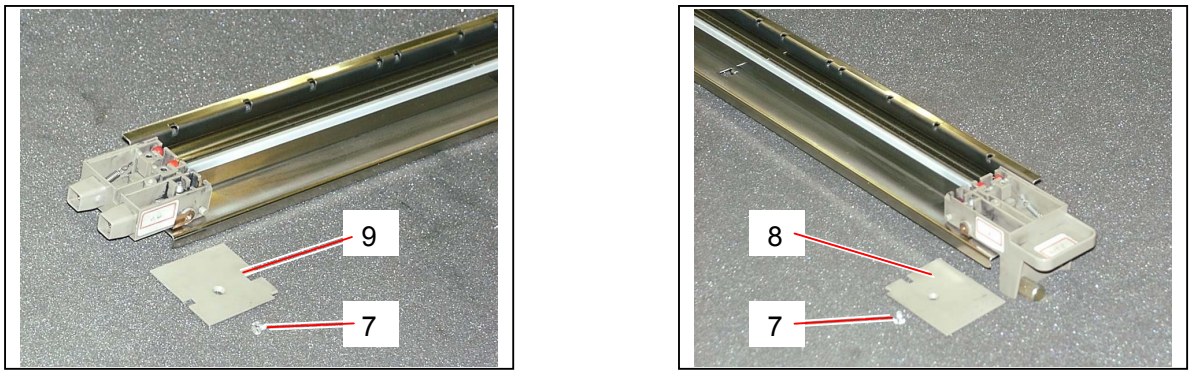
3) Remove 2 pieces of screw (4) at both sides, and remove the Corona Housing 5 (5) and several sheets of Spacers 1 (6) from both sides.



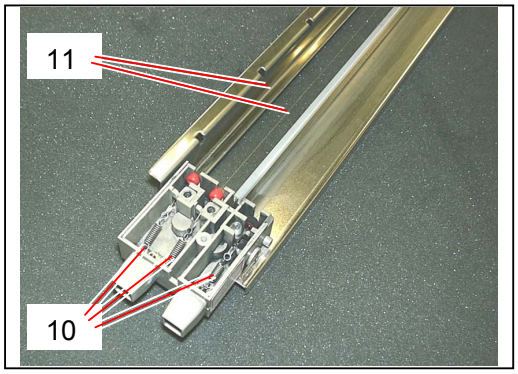
NOTE

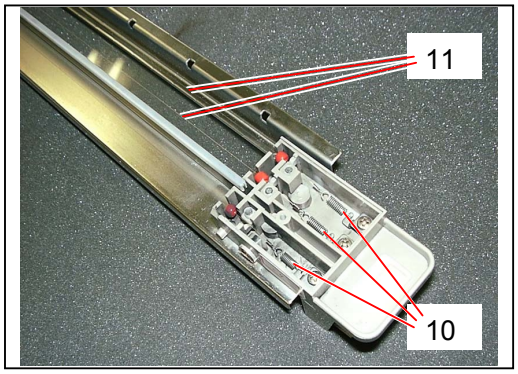
As the Spacers 1 (6) adjust the height of Corona Housing 5 (5), the number of them used is different among unit.
Do not lose or add them without any reason as the height will change.
Also, please remember how many sheets were used on each side because the number may be different between both sides.

4) Remove the Flash Head Screw (7) to remove each Head Cover 3 (8) and Head Cover 4 (9).



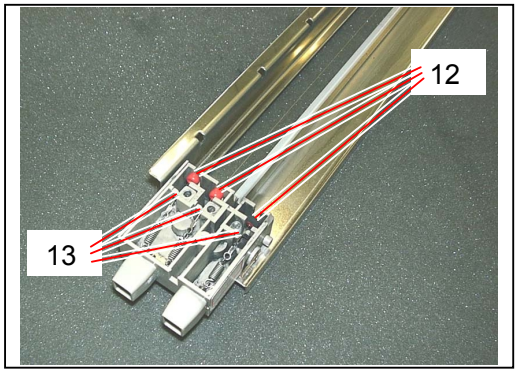
5) Removing the Extension Springs (10) on each Corona Block, remove each **Corona Wire 2 Assembly** (11).
Replace the Corona Wire 2 Assembly (11) with the new one.

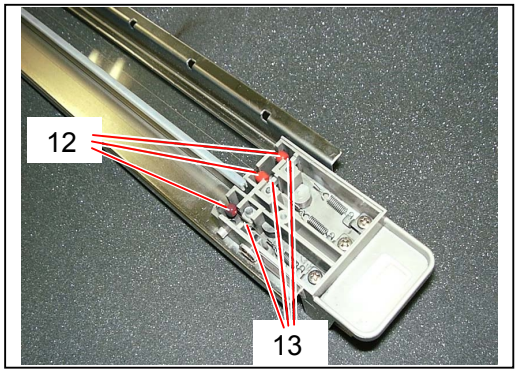




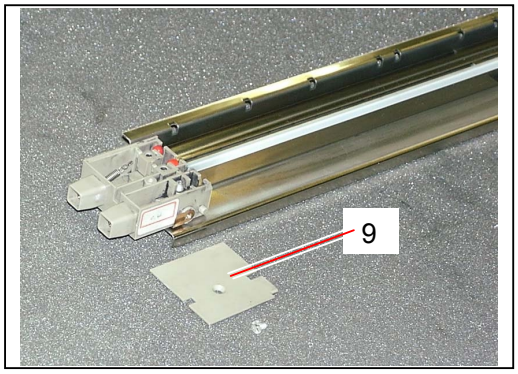
NOTE

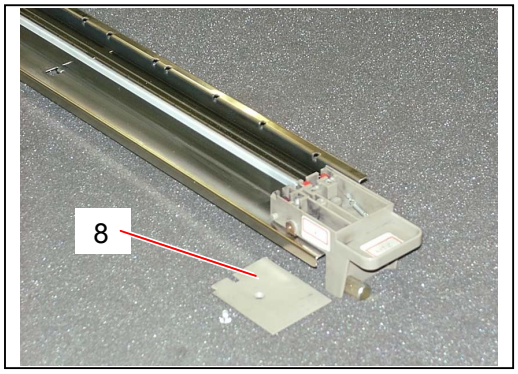
When you stretch the new Corona Wire 2 Assembly, make sure to fit its anti-vibration bead (12) into the necessary space in the Corona Heads, and also make sure to fit the wire into the grooves (13) of the Height Adjuster.



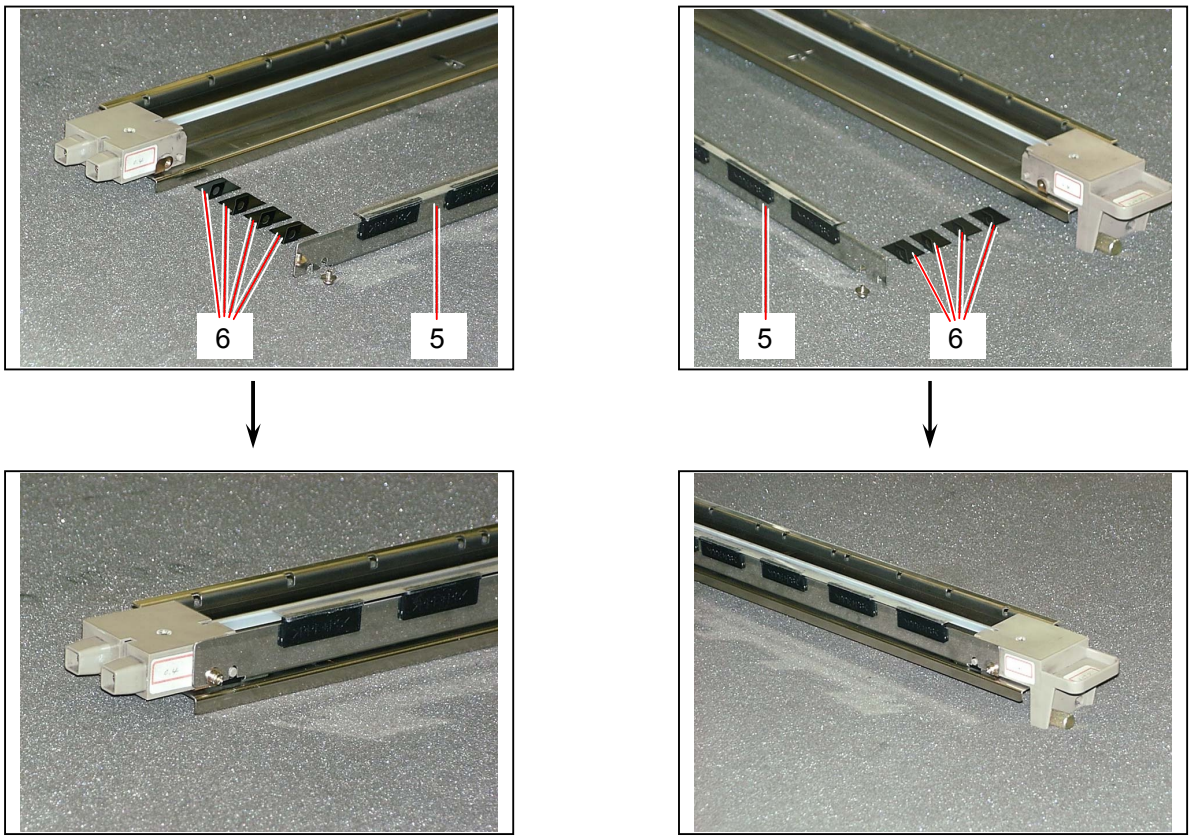


6) Put back both Cover 3 (8) and Cover 4 (9).





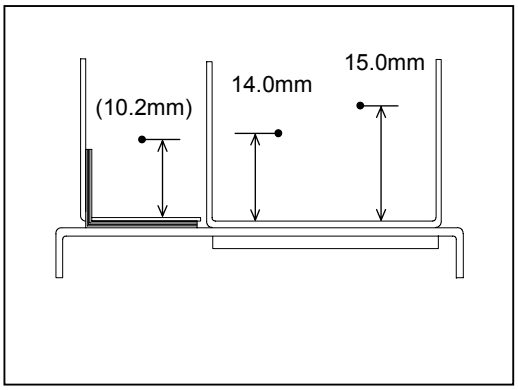
7) Put back both Spacers 1 (6) and Corona Housing 5 (5).



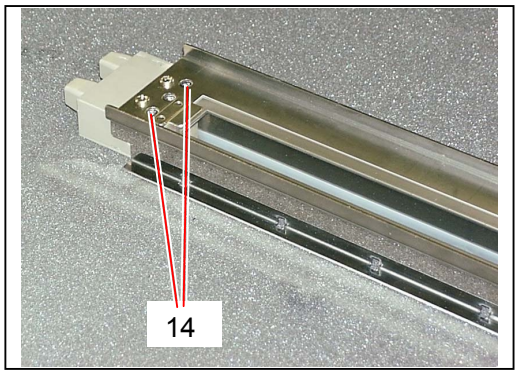
NOTE

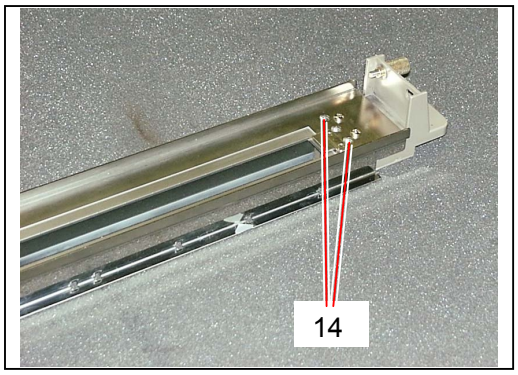
It is necessary to put back both Spacers 1 (6) and Corona Housing 5 (5) before adjusting the height of Transfer Corona Wire.

8) Measure the height of each Corona Wire 2 Assembly, and compare with the values written in the label which is pasted inside the Right Side Door. (The values in the right figure are simply the standards.)



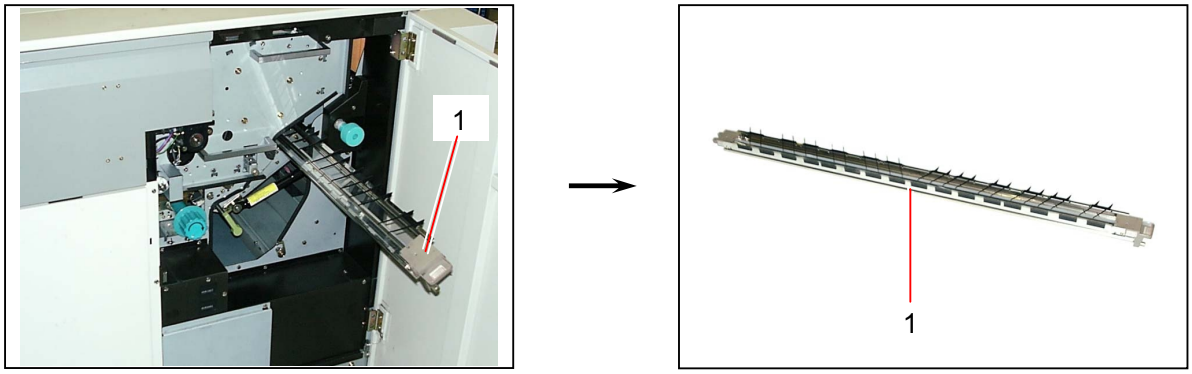
9) If the height is not proper, adjust it rotating the screws (14) on the back of the Corona.



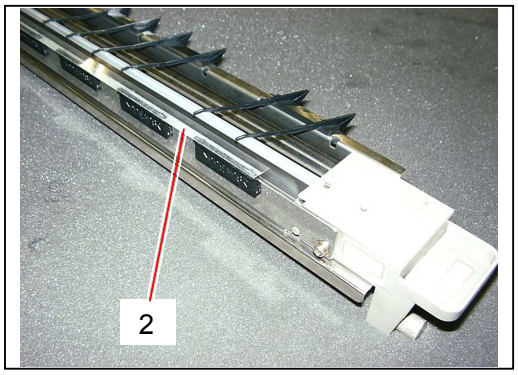


5.11.3 Replacing Mylar

1) Remove the Transfer / Separation Corona (1) from the machine making reference to [5.11.1 Removing Transfer / Separation Corona] on the page 5-161.

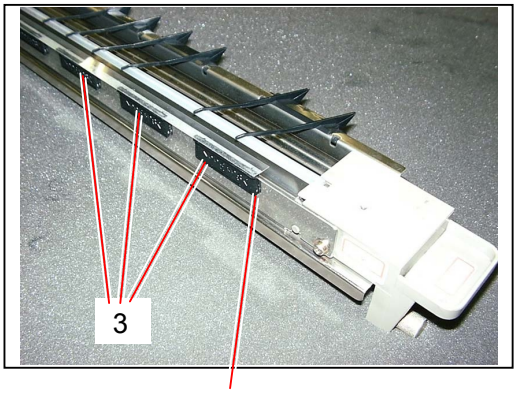


2) Strip off the Mylar (2) from the Corona Housing 5. Replace the new Mylar (2) with the new one

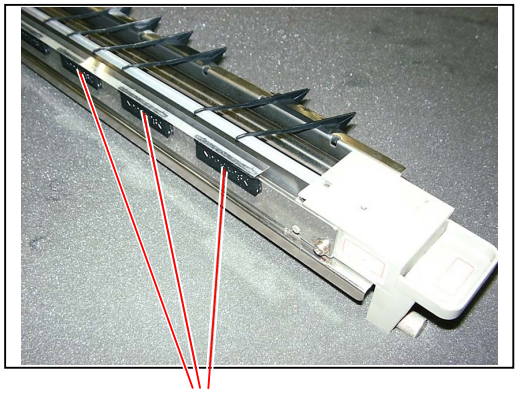


NOTE

Align the edges of Mylar with the front face and side faces of TR Guides B (3).



Align the short edge with this side face.

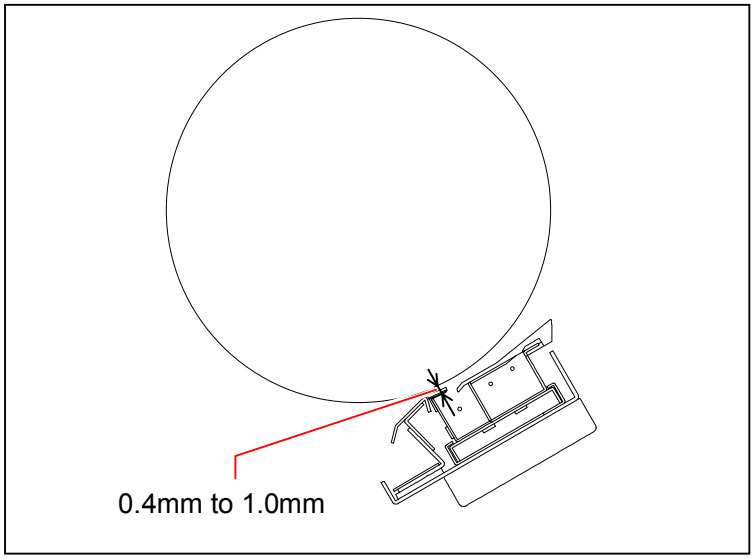


Align the long edge with these front faces.

5.11.4 Adjustment of gap between Drum & Corona Housing 5

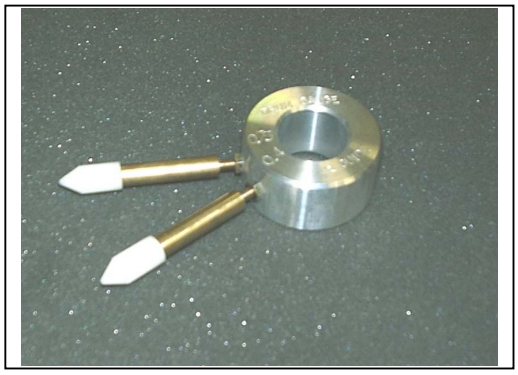
NOTE

In case you have replaced the Transfer / Separation Corona Unit with the new one, make sure to check the gap between Drum and Corona Housing 5 using an exclusive Jig.
And adjust the gap properly if necessary.
The proper gap between Drum and Corona Housing 5 is **0.4mm to 1.0mm**.

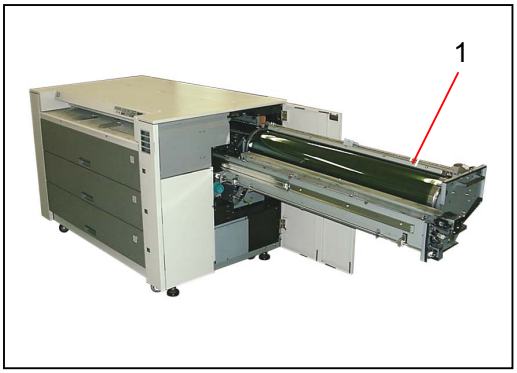


To measure the gap, use the exclusive Jig shown in the right photo.

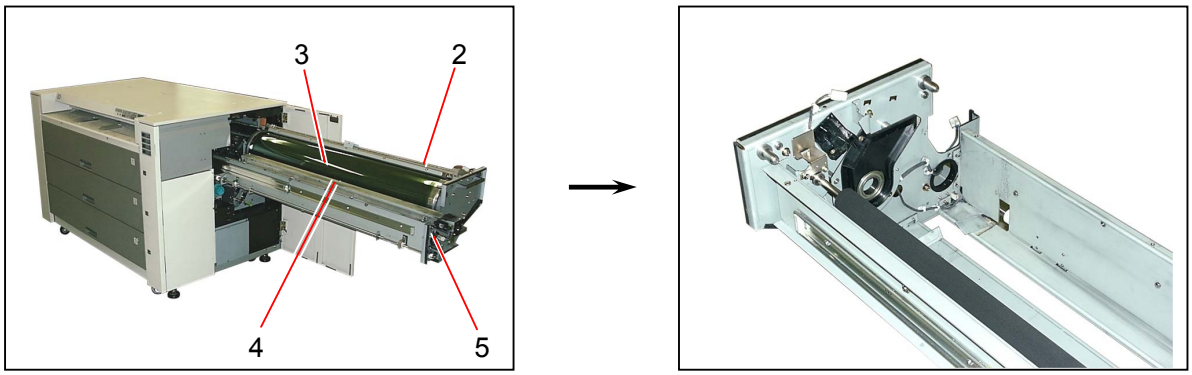
Drum Gauge for Transfer Corona (7708560021)



1) Draw out the Process Unit (1) from the machine making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1.



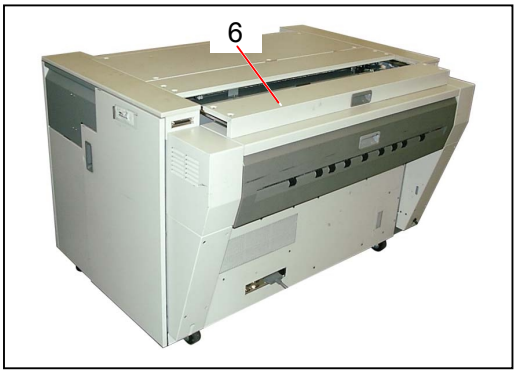
2) Remove each Image Corona (2), Drum Assembly (3), Toner Hopper (4) and Developer Unit (5) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



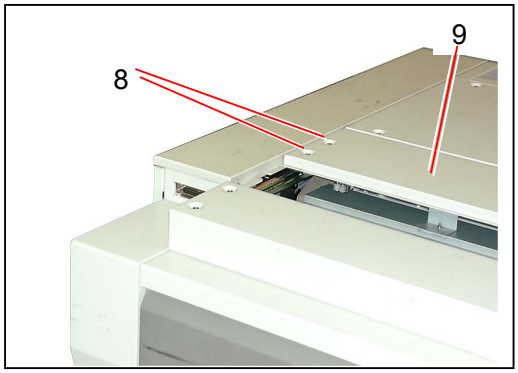
NOTE

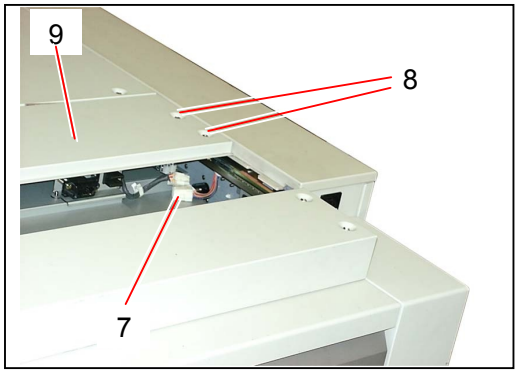
If you take checking or adjustment of gap without removing the Developer Unit, you may damage the surface of Development Roller with the tip of Pin of the Drum Gauge

3) Open the Rear Upper Cover (6).

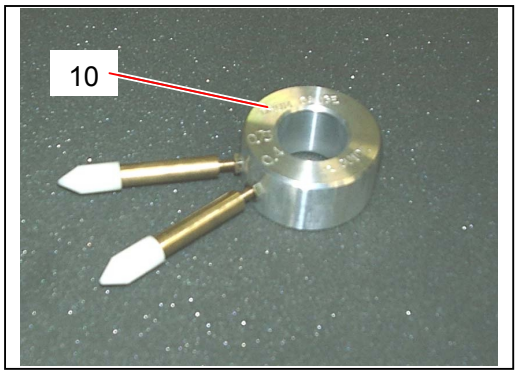


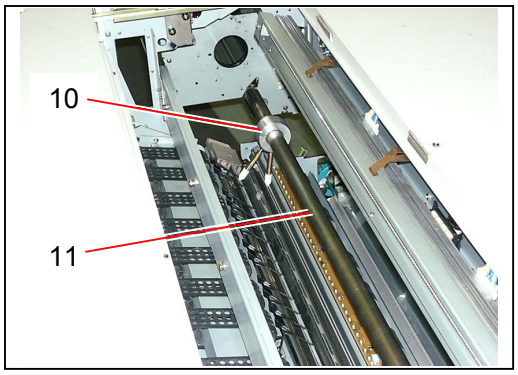
4) Disconnect the connector (7), remove 4 pieces of tooth washer screw (8), and then remove the Cover 305 Assembly (9).



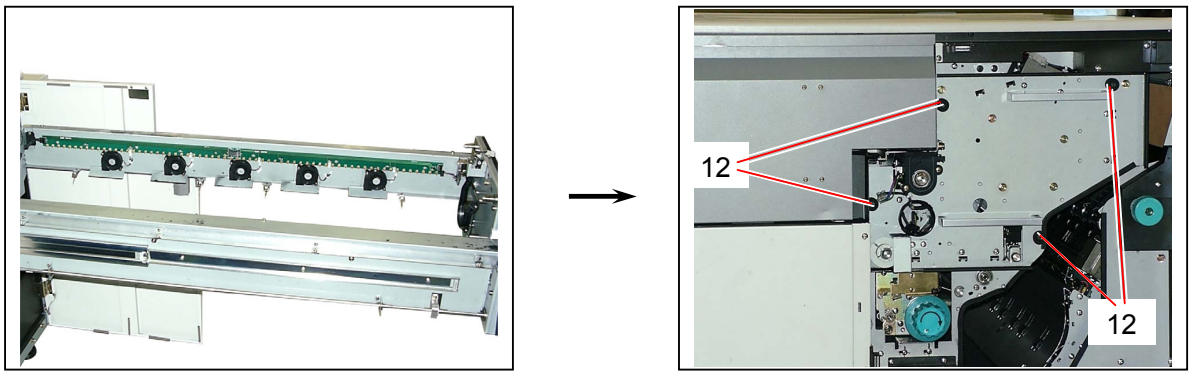


5) Fit the “Drum Gauge for Transfer Corona” (10) into the Drum Shaft (11).

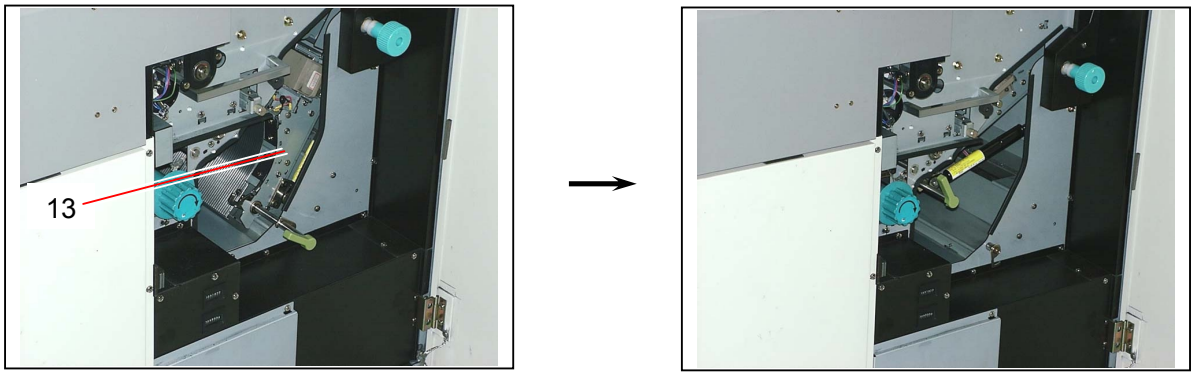




6) Close the Process Unit, and then fix it with 4 pieces of screw (12).



7) Bring up the Internal Transportation Unit (13) and lock it at the operation position.



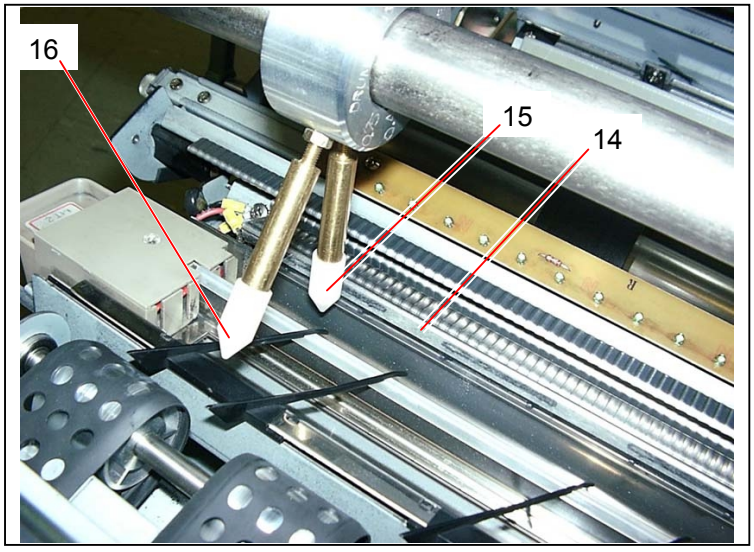
NOTE

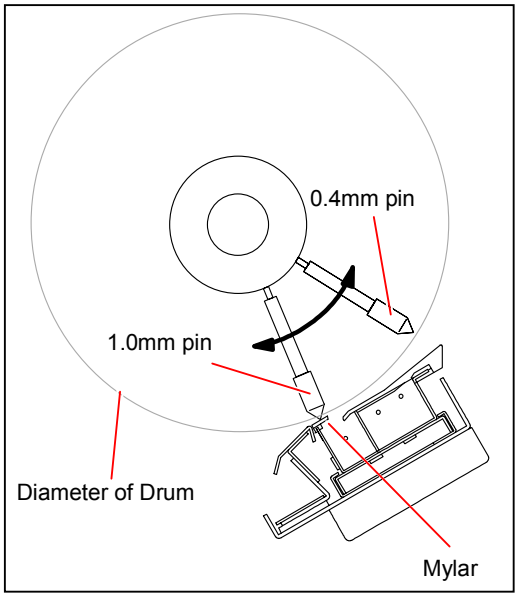
Make sure to close and lock both the Process Unit and the Internal Transportation Unit before measurement.
If these units are not locked at the correct positions, it is impossible to measure the gap correctly.

8) Swing the “Drum Gauge for Transfer Corona” forward and backward to check whether or not its pins touch the Mylar (14) on the Corona Housing 5.

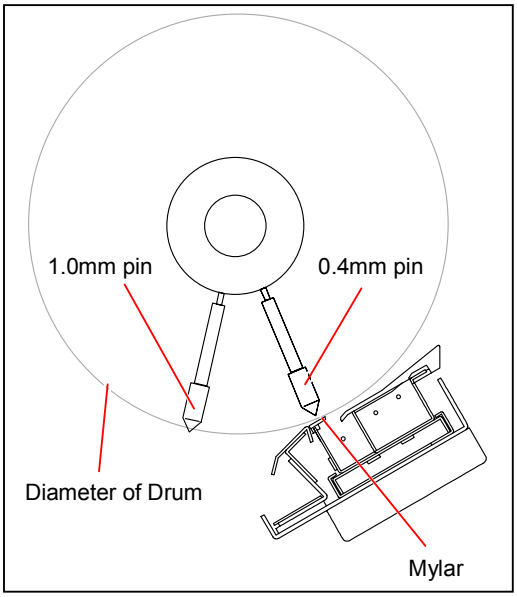
One of 2 pins marked with 0.4mm (15) should not touch the Mylar (14).
Another pin marked with 1.0mm (16) should touch the Mylar (14) slightly.

If the above conditions are satisfied, the gap is between 0.4mm and 1.0mm.





1.0mm pin should touch the Mylar slightly.



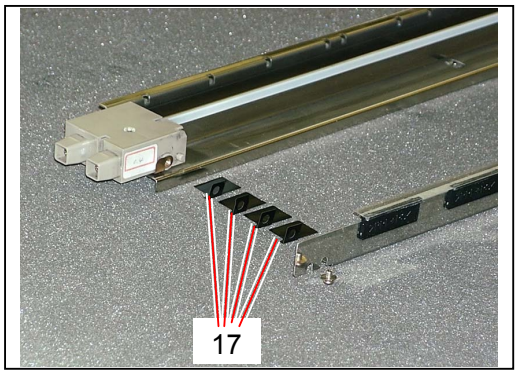
0.4mm pin should not touch the Mylar.

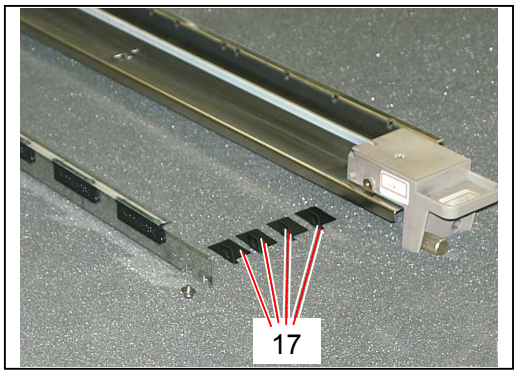
NOTE

Please check not at one point but entirely along the Drum Shaft.

9) If the gap is out of the correct range, adjust the height of Corona Housing 5 by adding or removing Spacer 1 (17).
If you add 1 sheet of Spacer 1, the height of Corona Housing 5 gets 0.2mm higher.

Spacer 1 (7705104090)

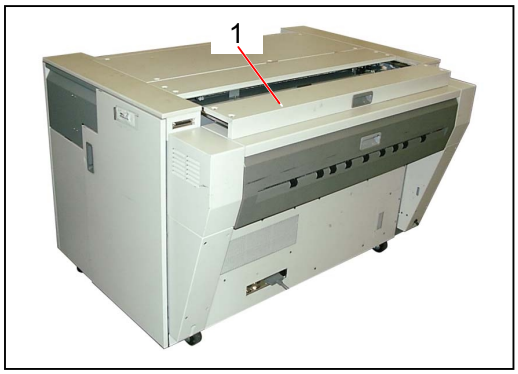




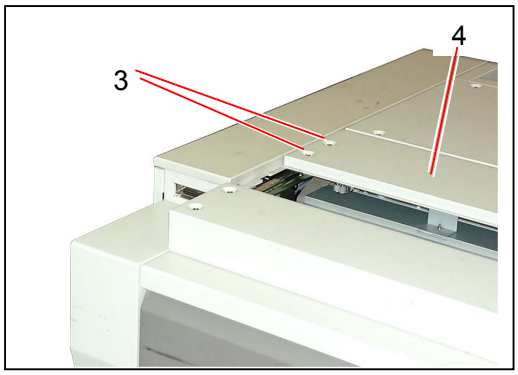
5.12 LED Head

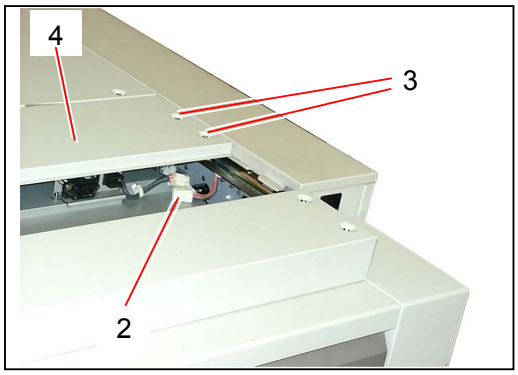
5.12.1 Removing LED Head

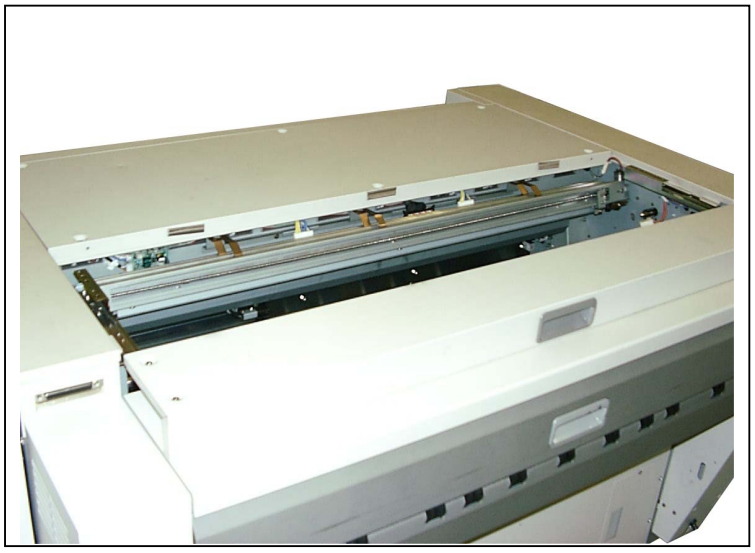
1) Open the Rear Upper Cover (1).



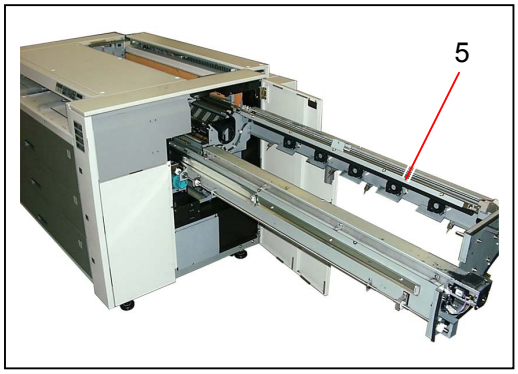
2) Disconnect the connector (2), remove 4 pieces of tooth washer screw (3), and then remove the Cover 305 Assembly (4).



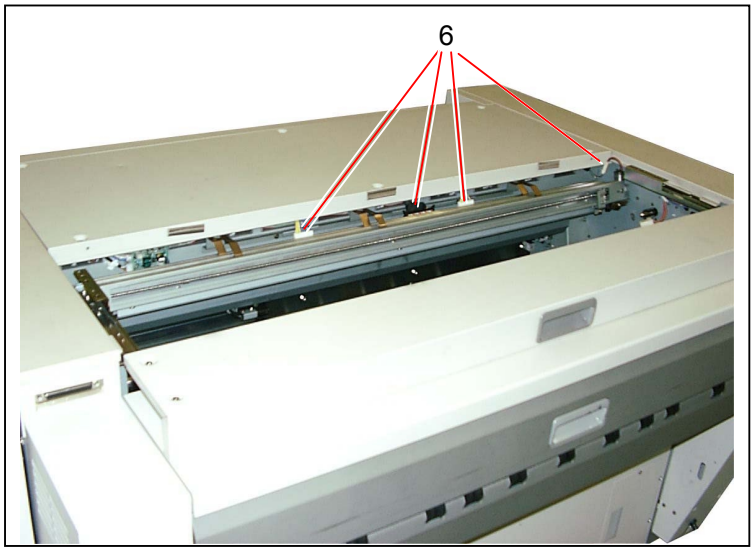




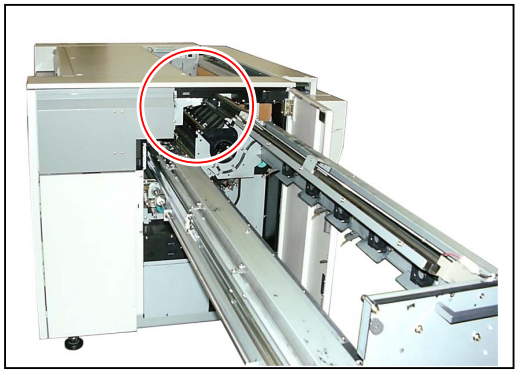
3) Draw out the Process Unit (5) from the machine making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1.
Remove the Drum Assembly and keep it in the box to avoid the light.

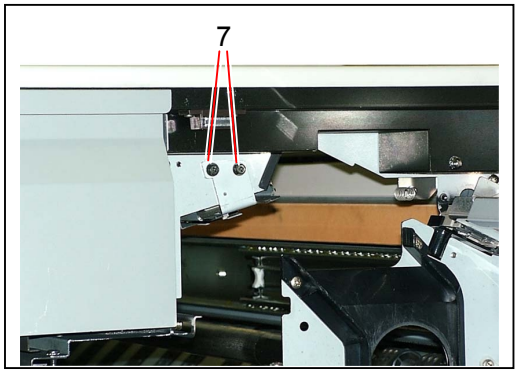


4) Disconnect 4 connectors (6).

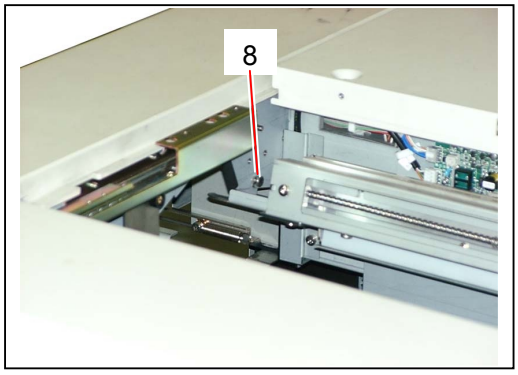


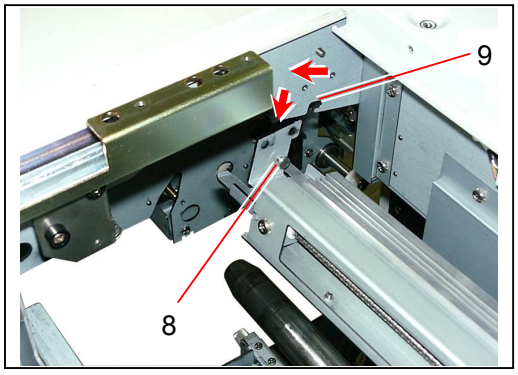
5) Remove 2 pieces of M4x10 black screws (7).



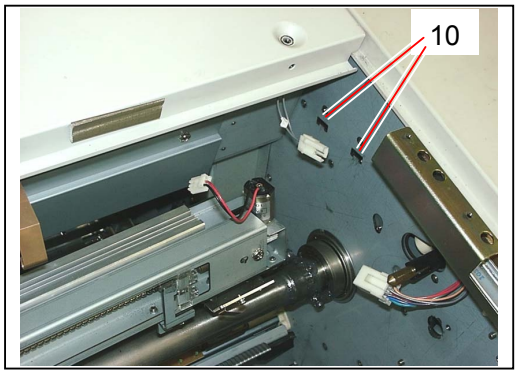


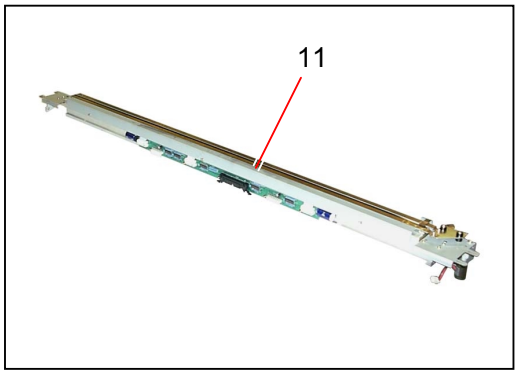
6) Catch both sides of the LED Head, and then move the driven side of it as the arrow marks in the photo show in order to make the Pin (8) comes out from the Slit (9) of the Side Plate.





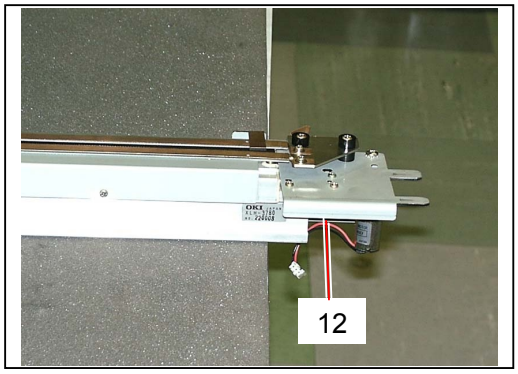
7) Pull out the Positioning Pins on the driving side from the Positioning Slits (10), and then remove the LED Head (11) from the machine.





NOTE

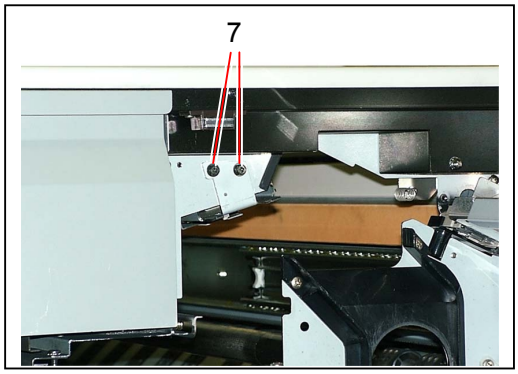
(1) The wire (12) of LED Cleaning Motor may be broken if it is loaded.
Please put the LED Head on the table as the right figure shows so as not to give a load to the wire.



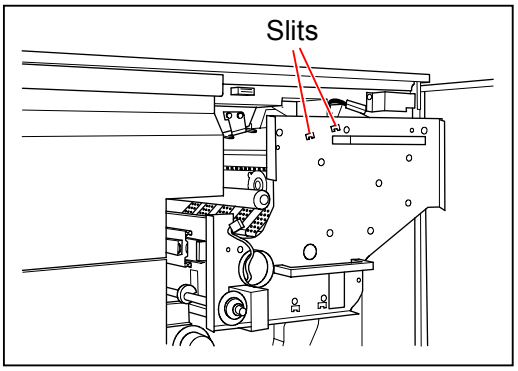
Please read the next page as some more notes are mentioned.

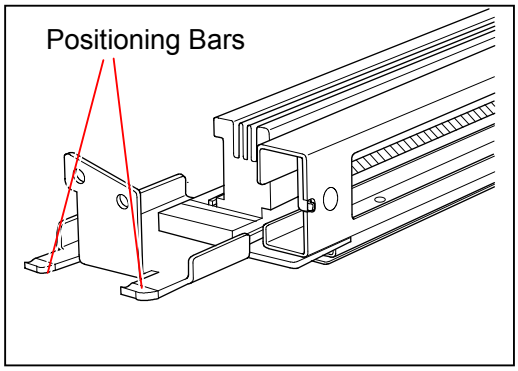
NOTE

Make sure to close the Process Unit without tightening the M4x10 screws (7).

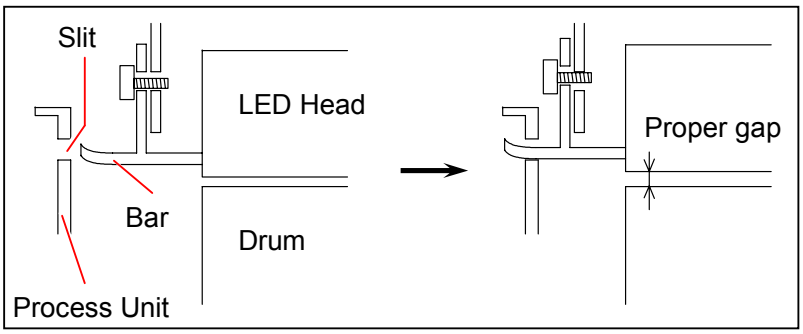


The Positioning Bars of the LED Head are fitted into the slits of the Process Unit.

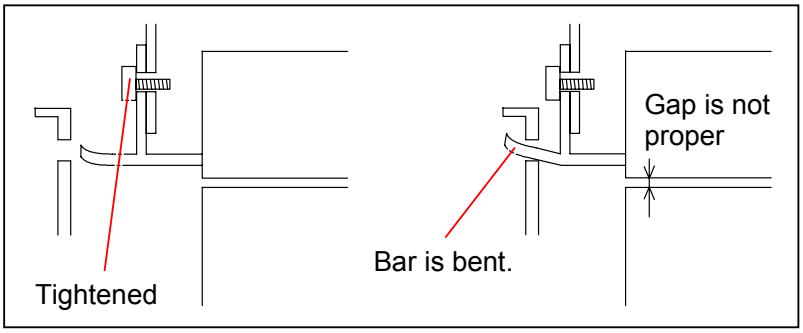




These Positioning Bars are curved upward, and the LED Head is smoothly moved up when the bars are fitted into the slits. By this, a proper gap can be kept between LED Head and Drum.

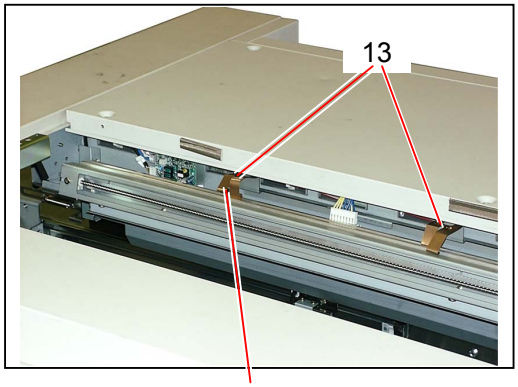


If you close the Process Unit when the LED Head is not movable being fixed with the M4x10 screws, the gap between LED Head and Drum is not adjusted properly. Or you may bend the Positioning Bars in the worst case.

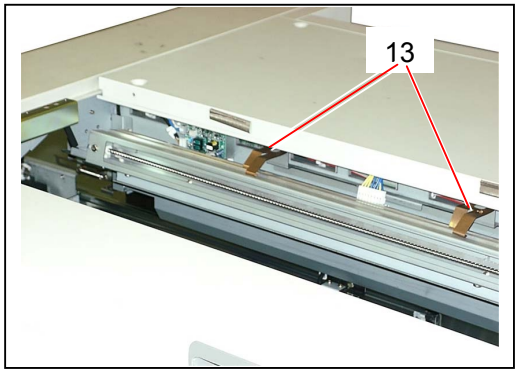


NOTE

After installing the LED Head, please check the Ground Plates (13) are not deformed.
Because they easily hook somewhere on the LED Head and are deformed.



No Good (Ground Plate is bent.)

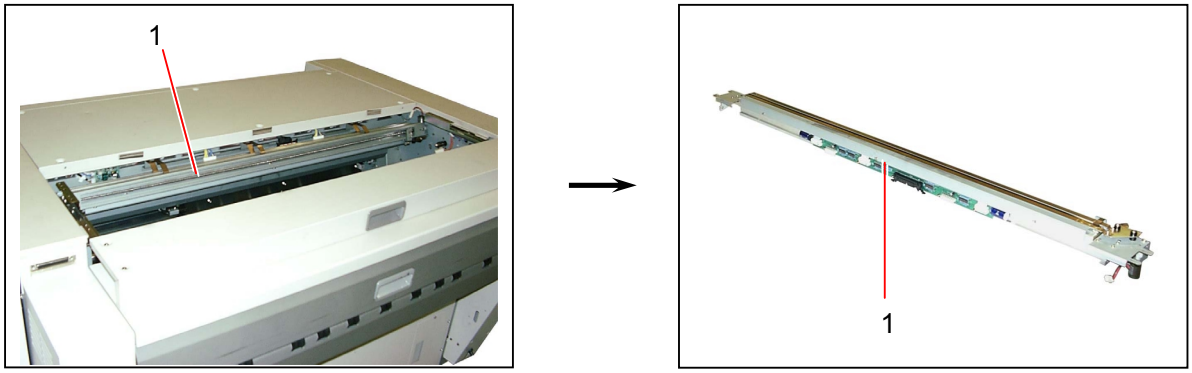


Good

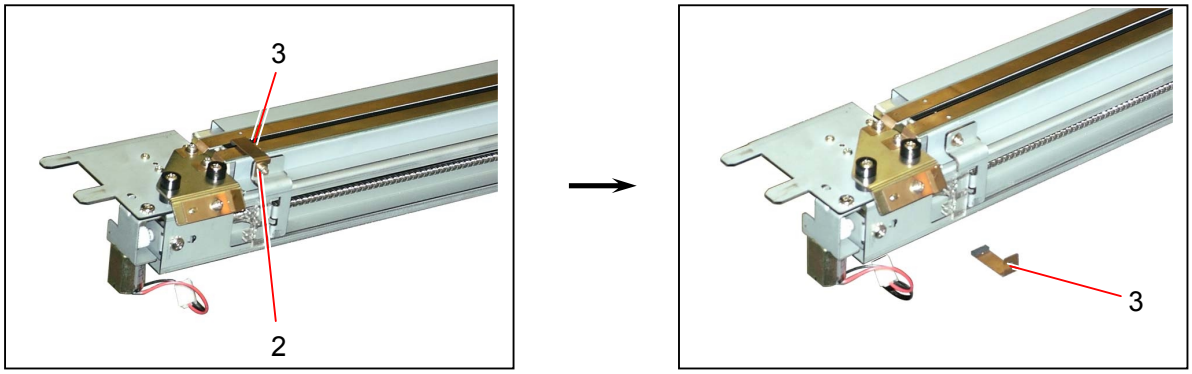
5.12.2 Replacing Pad Assembly 2

> **NOTE**
>
> Pad Assembly 2 is the Periodical Replacement Part, and its life is 100,000m.

1) Remove the LED Head (1) from the machine making reference to [5.12.1 Removing LED Head] on the page 5-175.

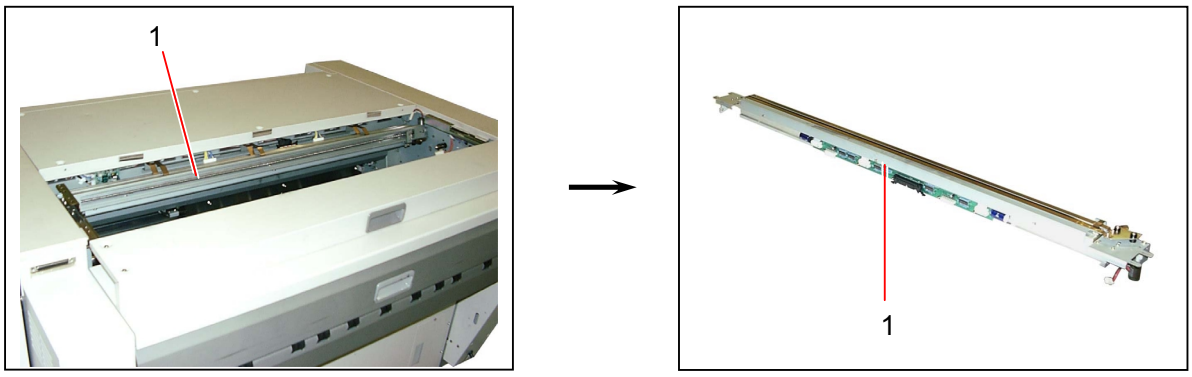


2) Loosen the screw (2) and remove the **Pad Assembly 2** (3).
Replace the Pad Assembly 2 (3) with the new one.

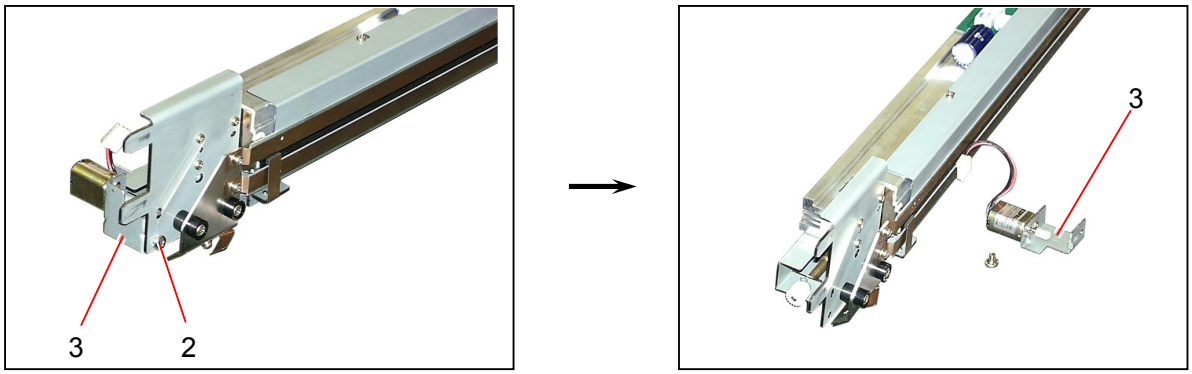


5.12.3 Replacing LED Cleaning Motor (M8)

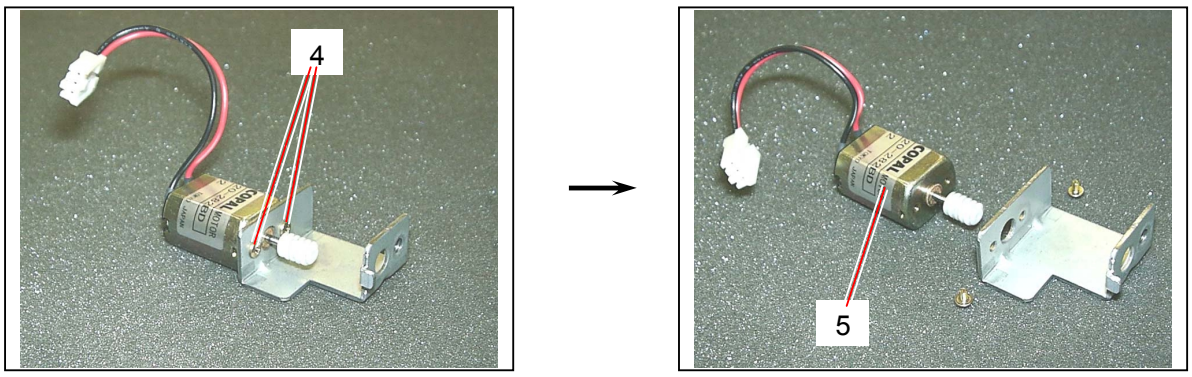
1) Remove the LED Head (1) from the machine making reference to [5.12.1 Removing LED Head] on the page 5-175.



2) Remove the screw (2) and remove the Bracket 222 (3) with the motor.



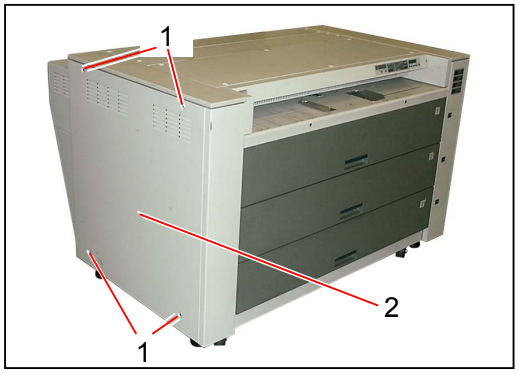
3) Remove 2 pieces of screw (4) to remove the **LED Cleaning Motor** (5).
Replace the LED Cleaning Motor (5) with the new one.



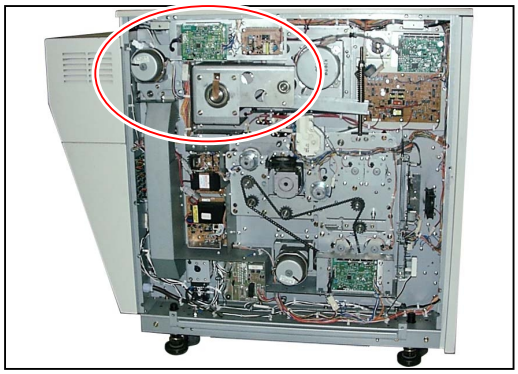
5.13 Main Frame

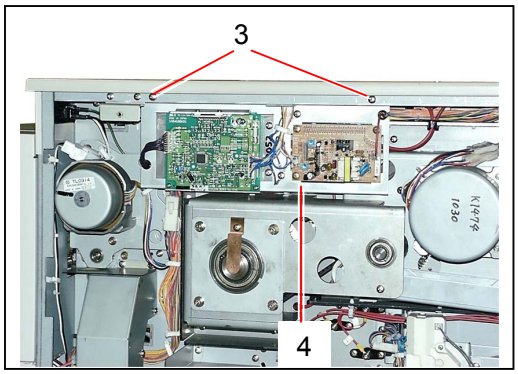
5.13.1 Replacing Drum Motor (M1) & Timing Belt 565-5GT-40

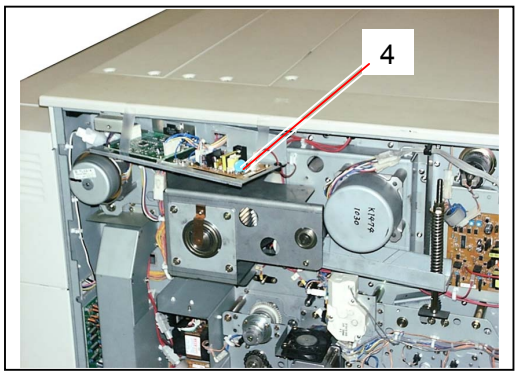
1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).



2) Remove 2 pieces of tooth washer screw (3) to make the Bracket 316 (4) with PCB free.
As the Bracket 316 (4) is preventative for the later works, tape it as the photo shows.

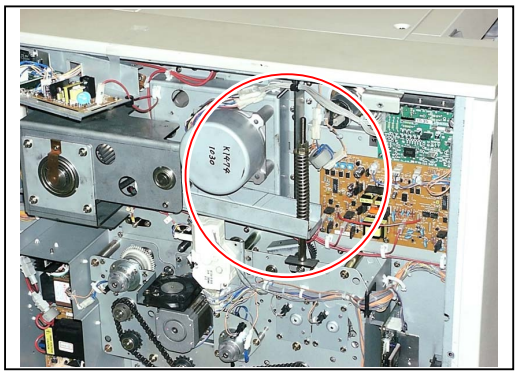


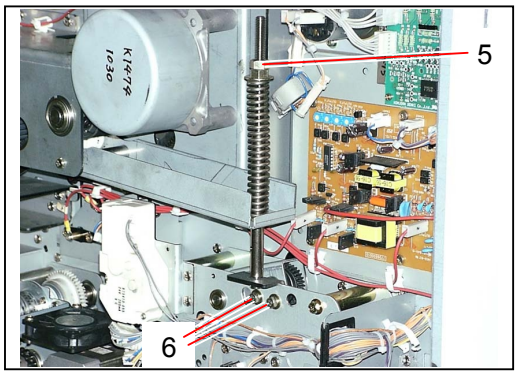


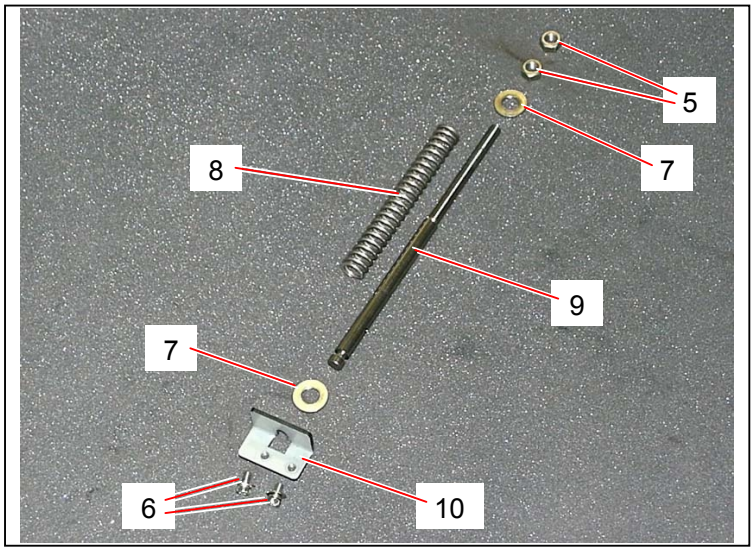


Tape the Bracket 316.

3) Remove 2 pieces of Nuts (5), remove 2 pieces of Hexagon Head Bolt (6), and remove 2 pieces of Flat Washer (7), Tension Spring (8), Shaft 207 (9) and Bracket 217 (10).

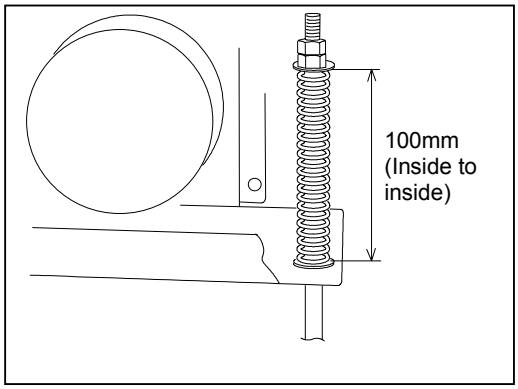




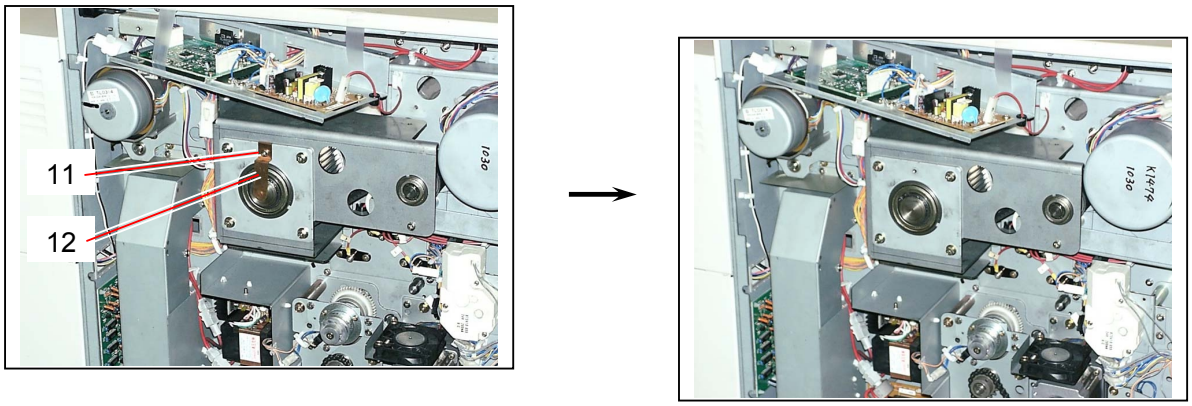


NOTE

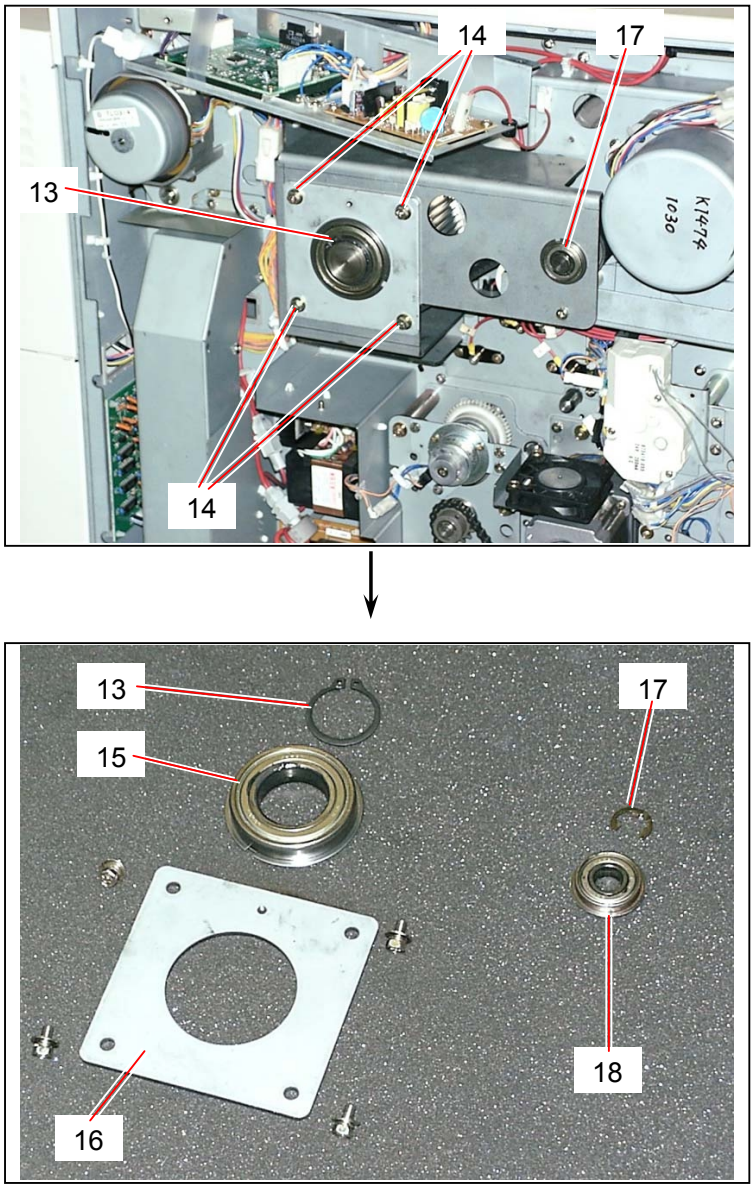
You can adjust the tension of Timing Belt 565-5GT-40 by measuring the distance between both Flat Washers (7).
Keep 100mm between both inside of Flat Washers (7).



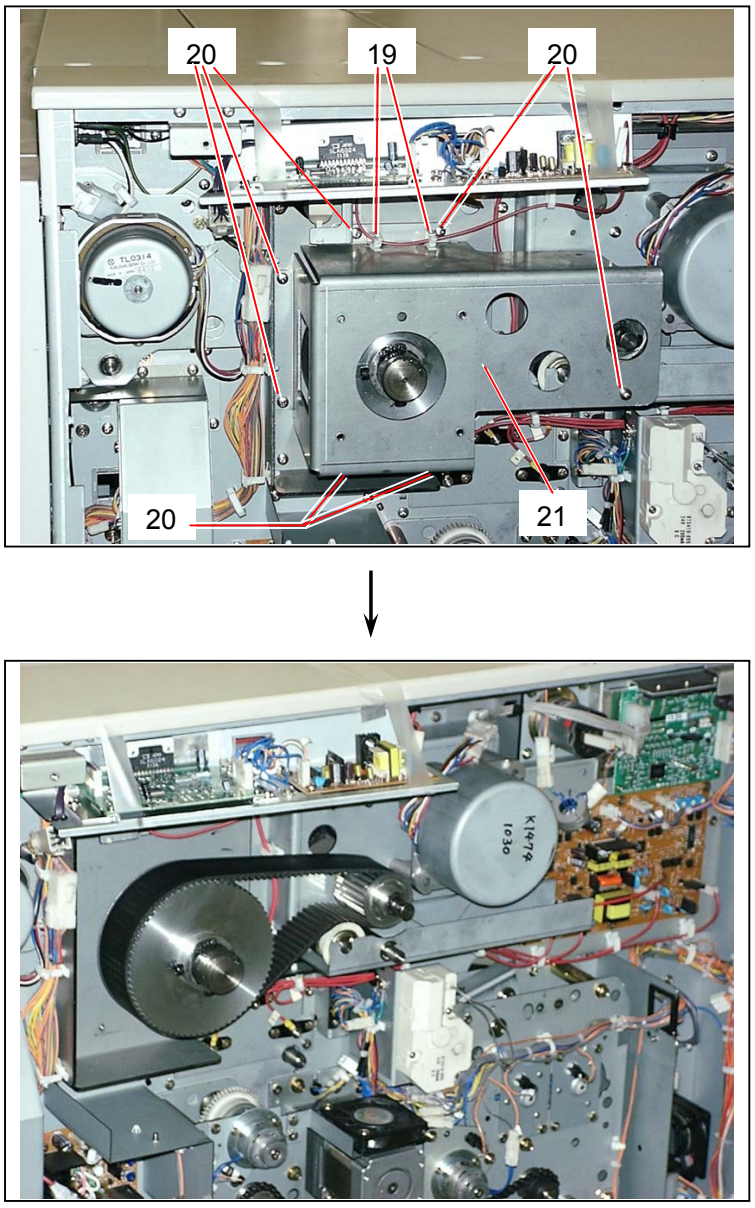
4) Remove the tooth washer screw (11) to remove the Contact Plate (12).



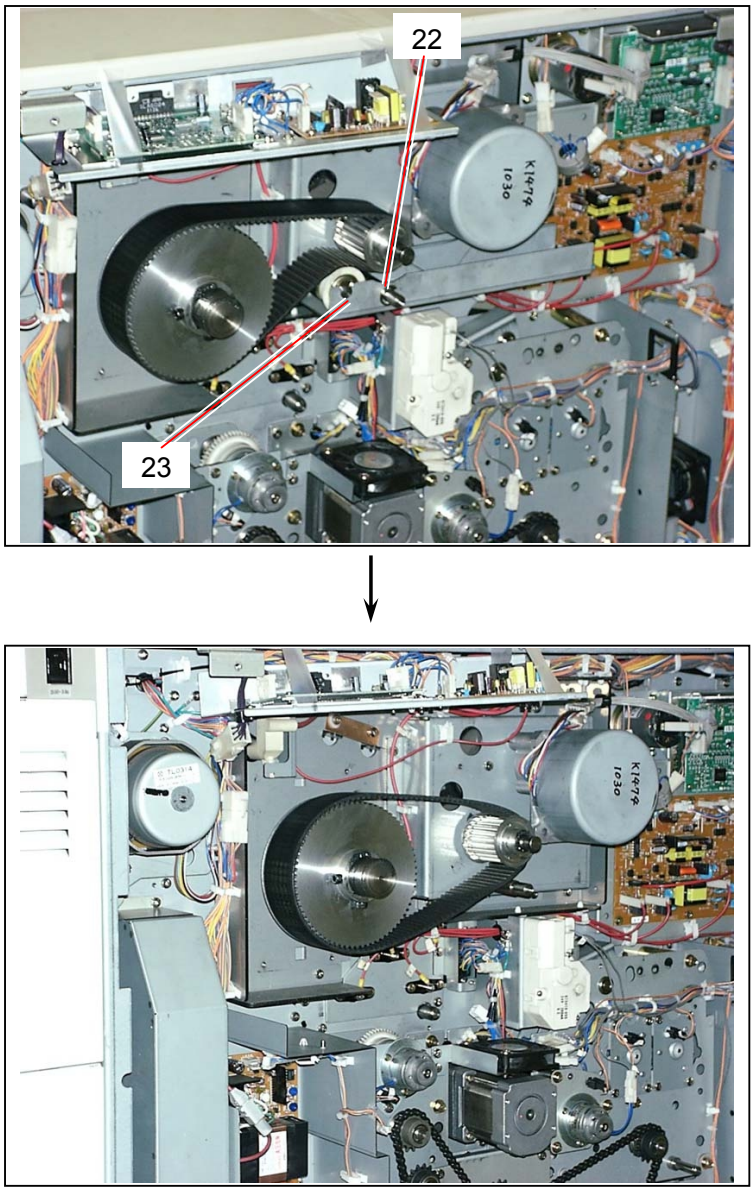
5) Remove the C Ring (13), and then remove 4 pieces of Hexagon Head Bolt (14) to remove both Ball Bearing (30x55x13) (15) and Holder (16).
Remove the E Ring (E9) (17) to remove the Ball Bearing (12x28x8) (18).



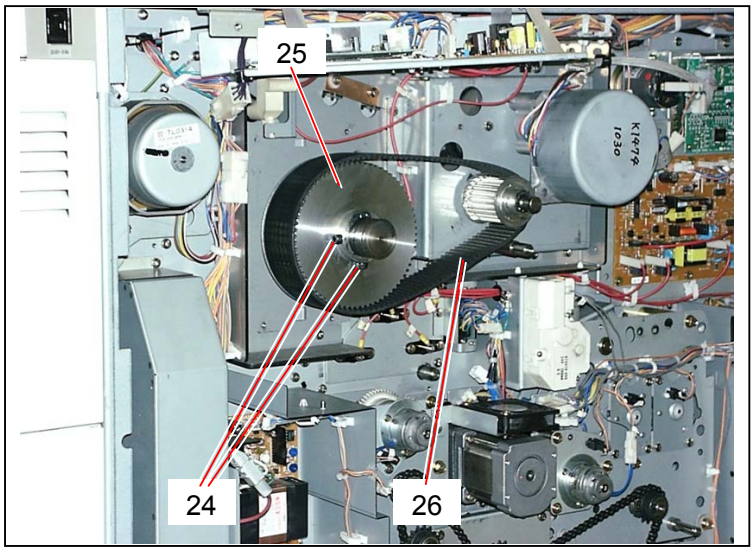
6) Open 2 pieces of Locking Wire Saddle (19) to make the harness free, and then remove 7 pieces of tooth washer screw (20) to remove the Bracket (21).

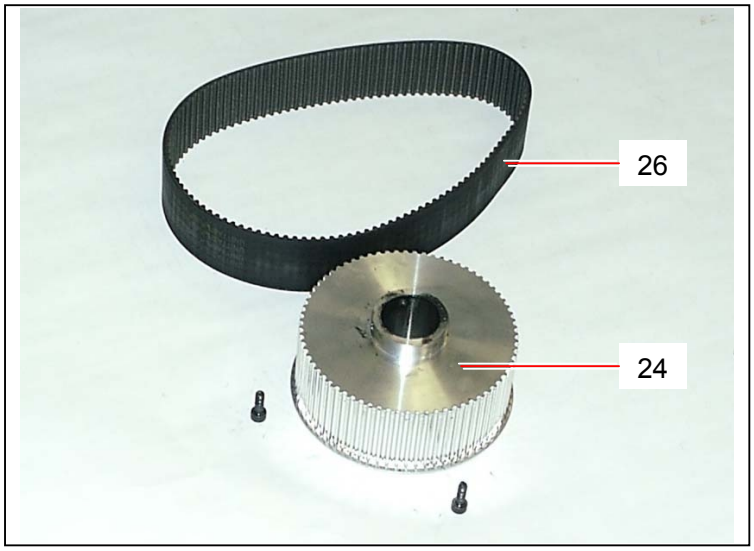


7) Remove the E Ring (E8) (22), and remove the Idler Assembly (23).

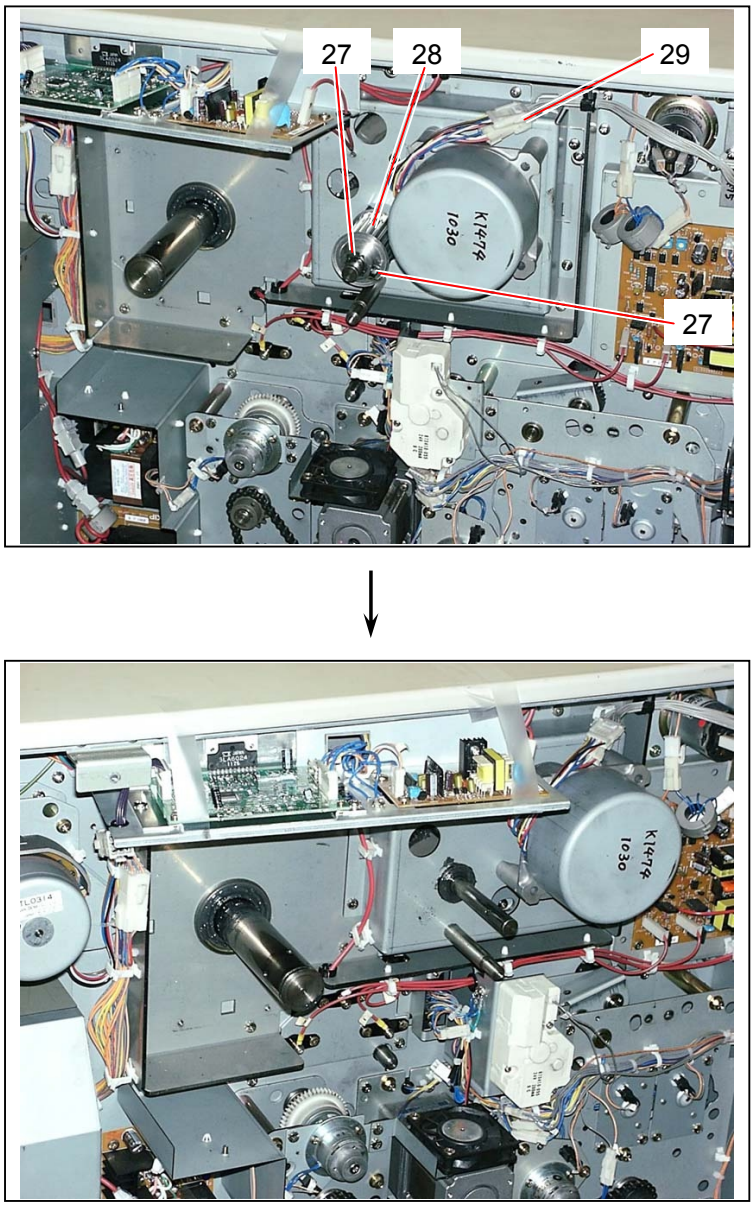


8) Remove 2 pieces of Hexagon Head Cap Screw (24), and then remove both 72T Pulley (25) and **Timing Belt 565-5GT-40** (26).
Replace the Timing Belt 565-5GT-40 (26) with the new one.



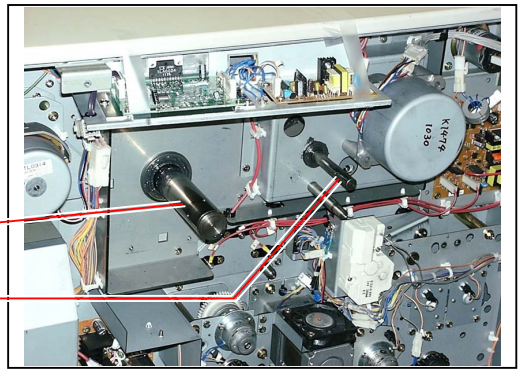


9) Remove 2 pieces of Hexagon Head Cap Screw (27), and then remove the 24T Pulley (28). Disconnect the connector (29).

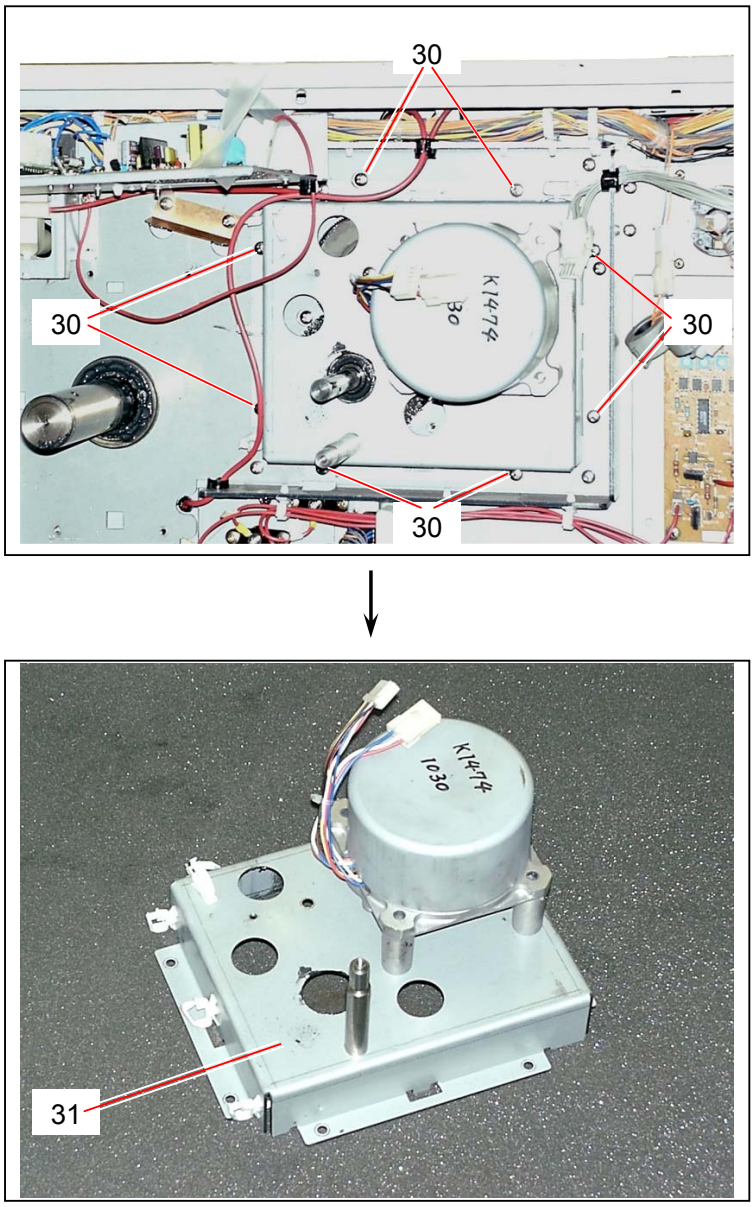


NOTE

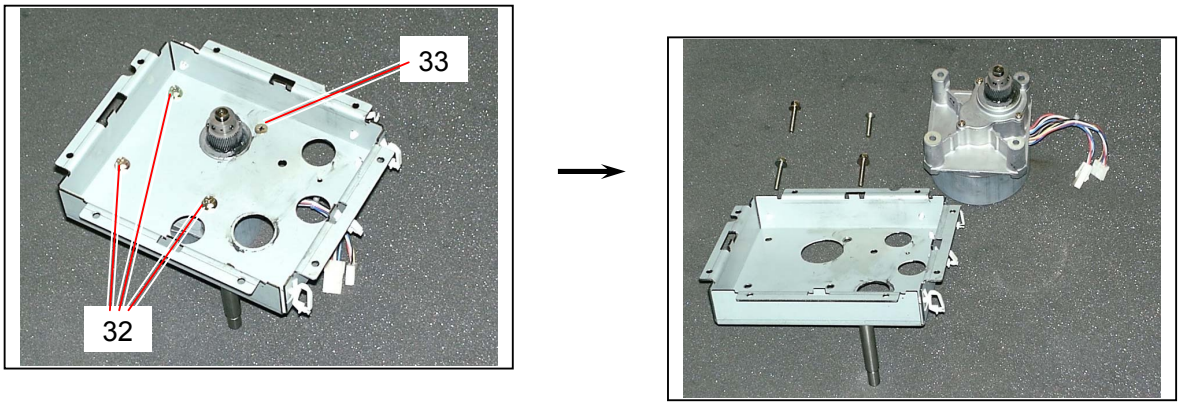
There may be the case that some abnormal sound is generated during operation if the Drum Shaft or Shaft 204 is short of grease.
If you feel they are not greased enough when you re-assembly, please grease them.



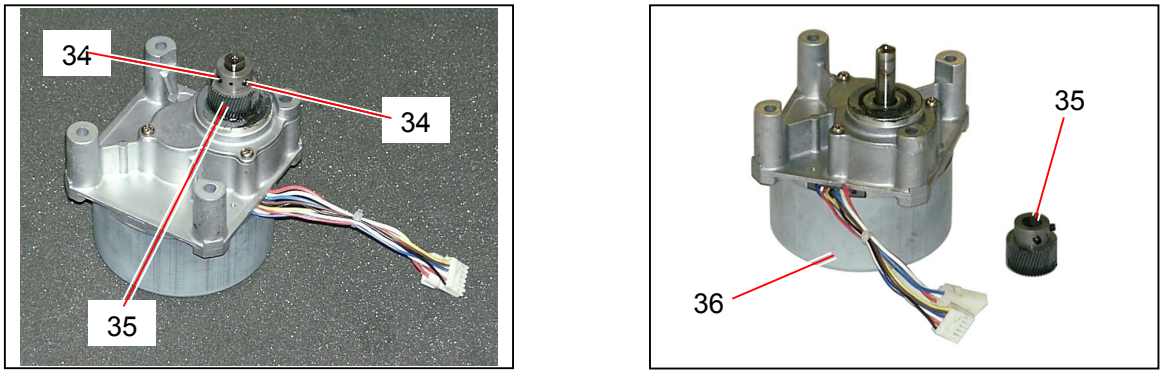
10) Remove 8 pieces of tooth washer screw (30) to remove the Motor Bracket (31) with motor.



11) Remove 3 pieces of Hexagon Head Bolt (32) and 1 piece of Flush Head Screw (33) to remove the Motor Assembly.

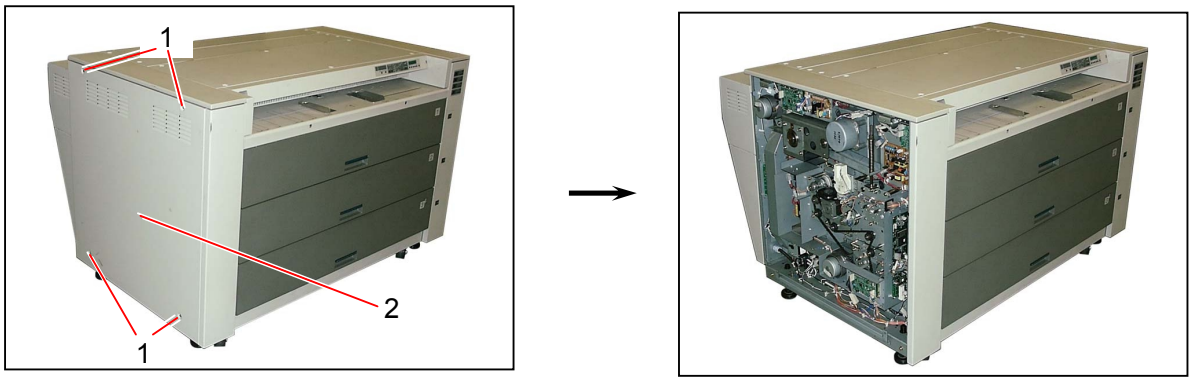


12) Loosen 2 pieces of Set Screw (34), and then pull out the 50T Gear (35) from the shaft of **Drum Motor** (36).
Replace the Drum Motor (36) with the new one.

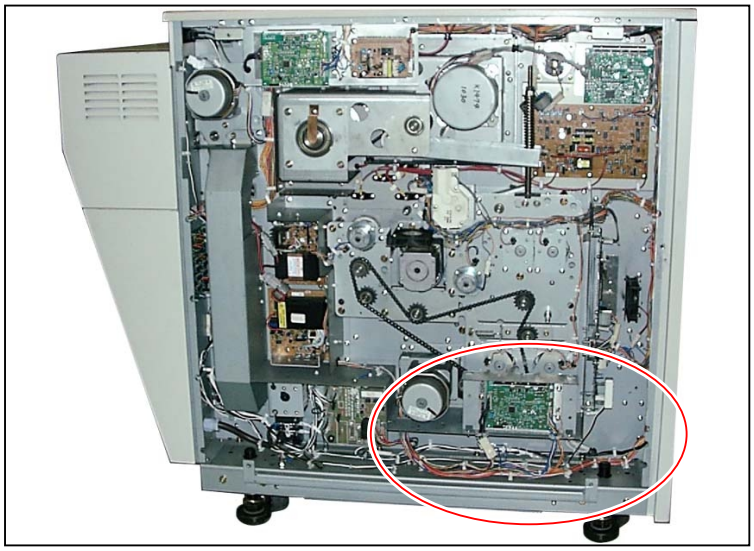


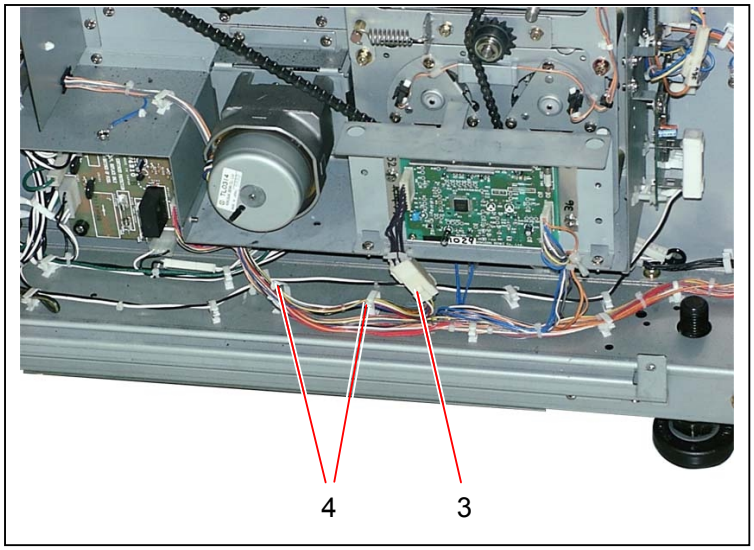
5.13.2 Replacing Paper Feed Motor (M2)

1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).

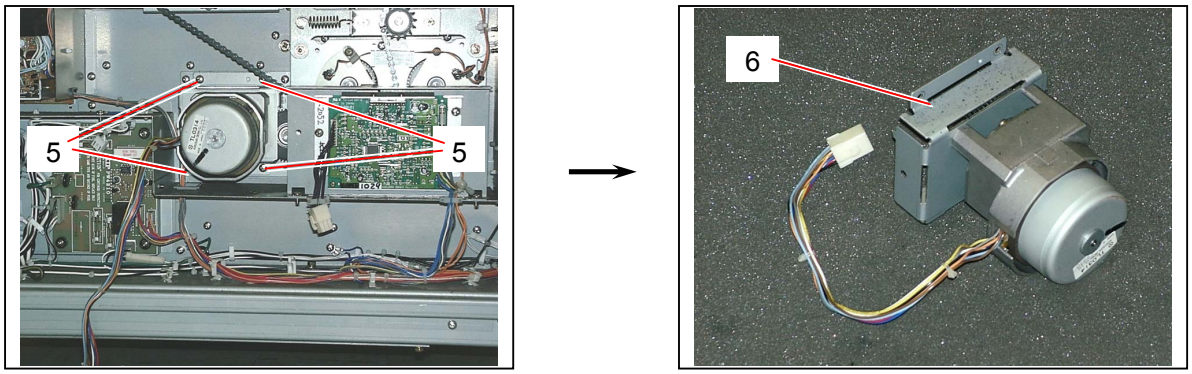


2) Disconnect the connector (3), and open the Wire Saddles (4) to make the wires free.

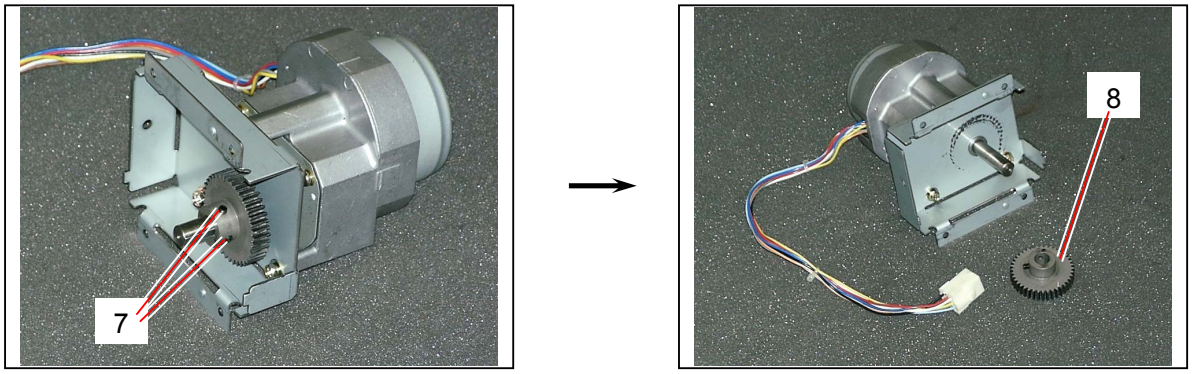




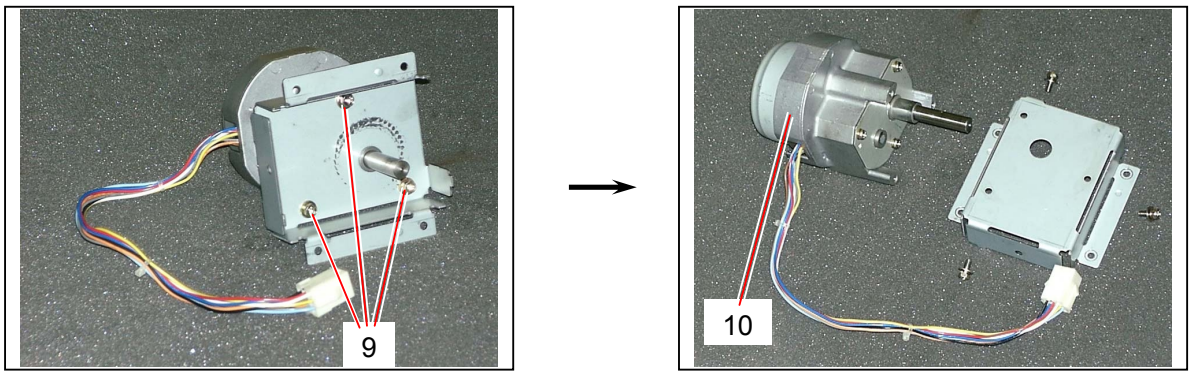
3) Remove 4 pieces of tooth washer screw (5) to remove the Motor Base (6) with motor.



4) Loosen 2 pieces of Set Screw (7), and then pull out the 40T Gear (8).

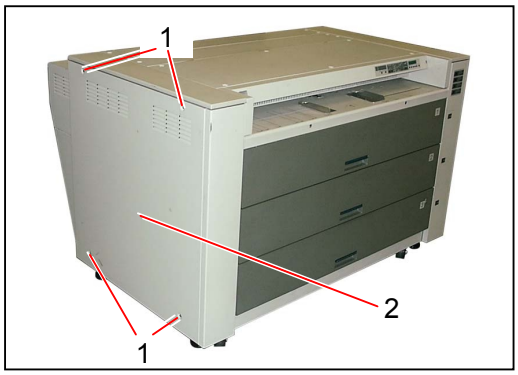


5) Remove 3 pieces of Hexagon Head Bolt (9) to remove the **Paper Feed Motor** (10).
Replace the paper Feed Motor (10) with the new one.

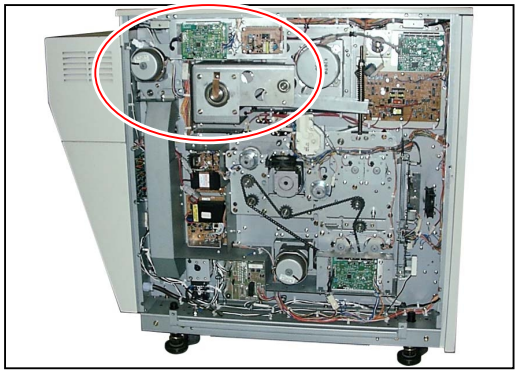


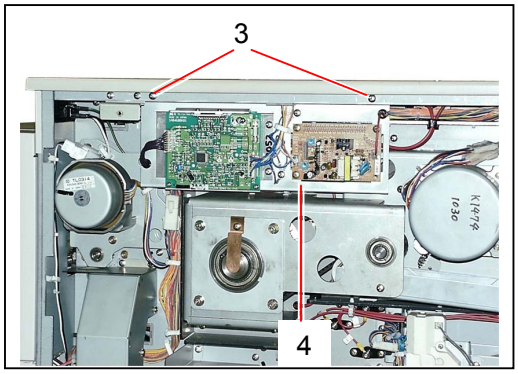
5.13.3 Replacing Fuser Motor (M5)

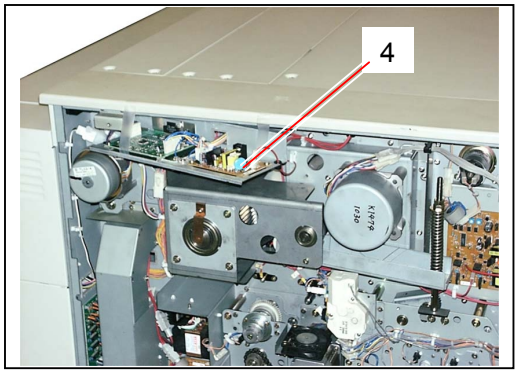
1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).



2) Remove 2 pieces of tooth washer screw (3) to make the Bracket 316 (4) with PCB free.
As the Bracket 316 (4) is preventative for the later works, tape it as the photo shows.

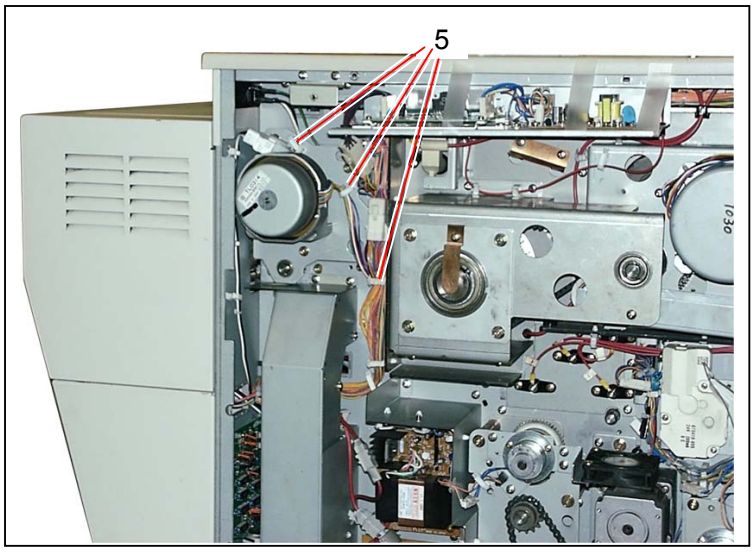




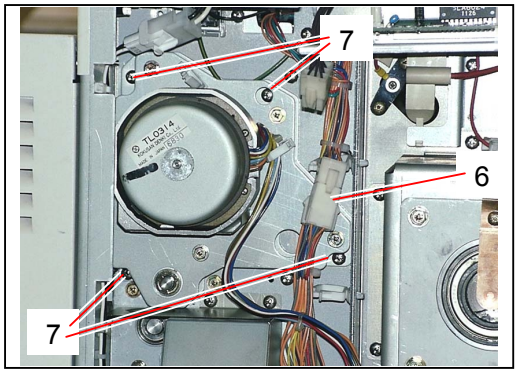


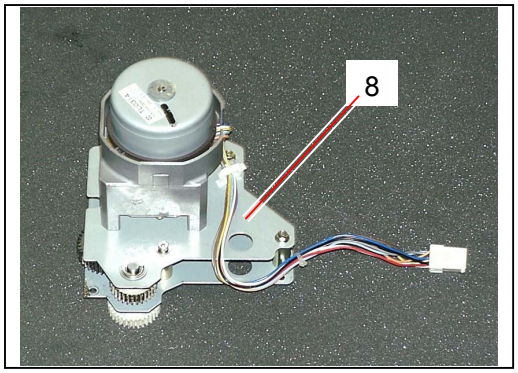
Tape the Bracket 316.

3) Open 3 pieces of Wire Saddle (5) to make the wires free.

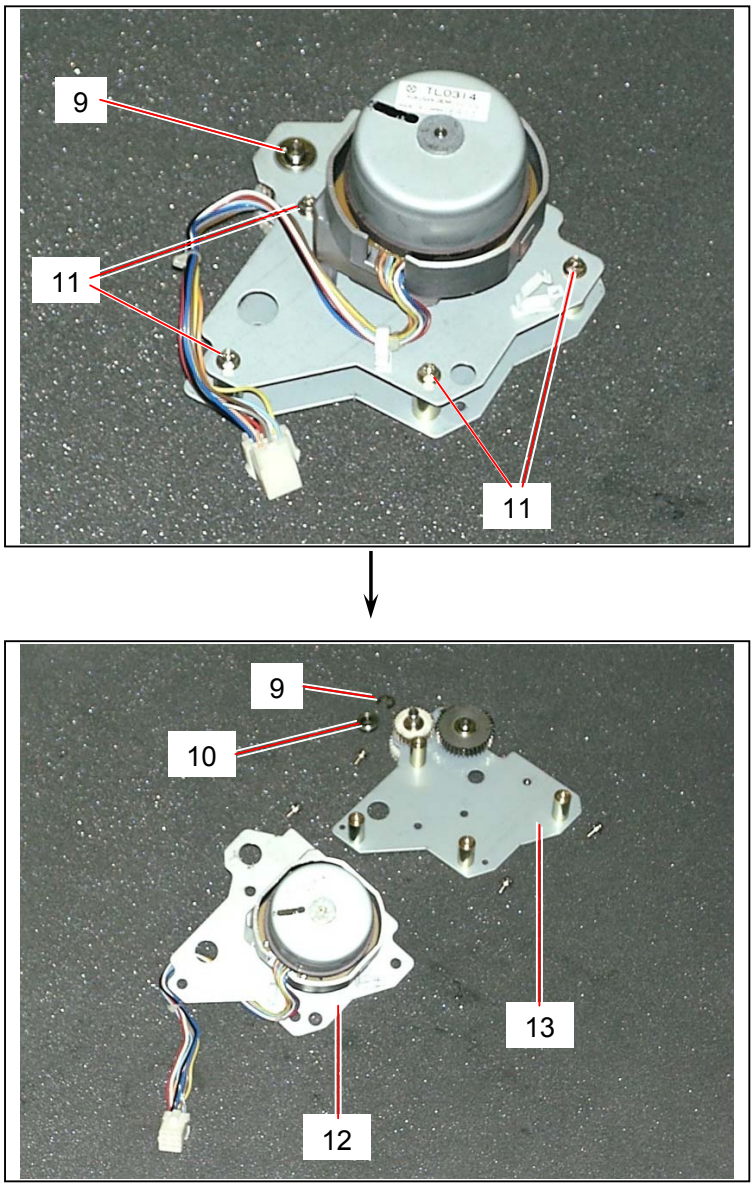


4) Disconnect the connector (6), and then remove 4 pieces of tooth washer screw (7) to remove the Side Plate Assembly (8) with motor.

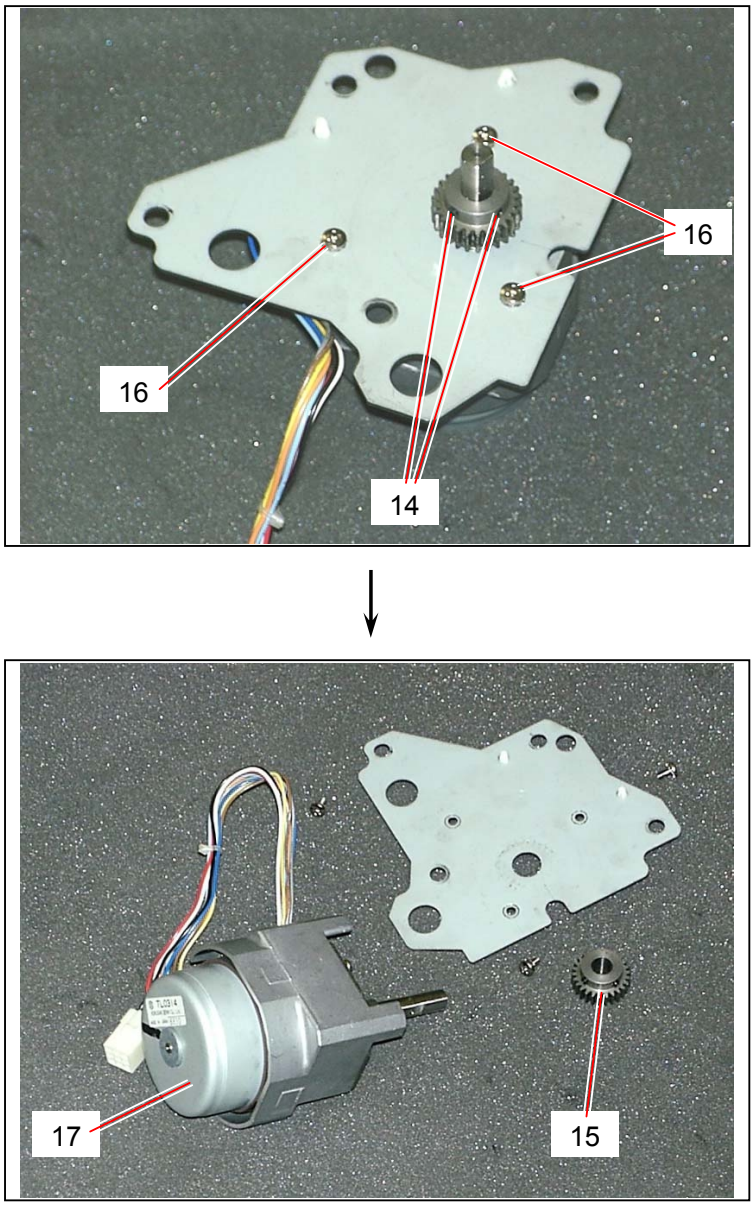




5) Remove the E Ring (E7) (9) to remove the Ball Bearing (10).
Remove 4 pieces of Hexagon Head Bolt (11) to divide the Side Plate Assembly into Side Plate 1 (13) and Side Plate 2 (14).

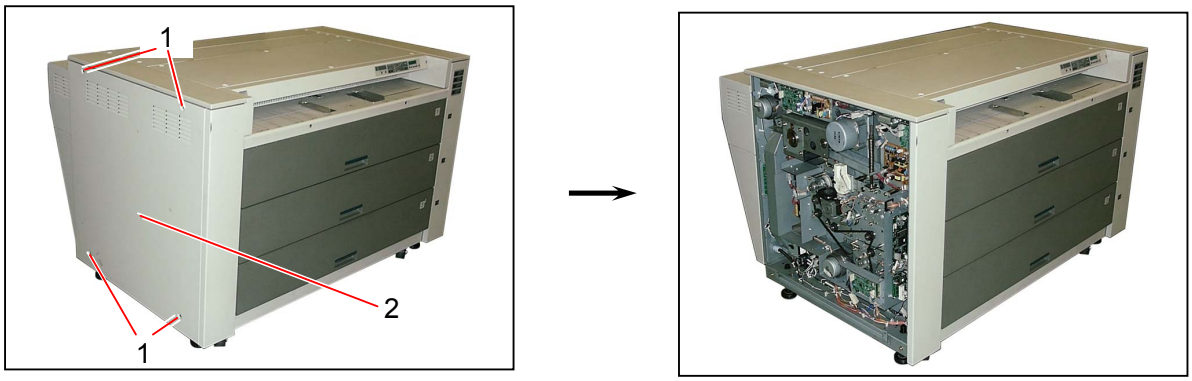


6) Loosen 2 pieces of Set Screw (14), and remove the 26T Spur Gear (15).
Remove 3 pieces of tooth washer screw (16) to remove the **Fuser Motor** (17).
Replace the Fuser Motor (17) with the new one.

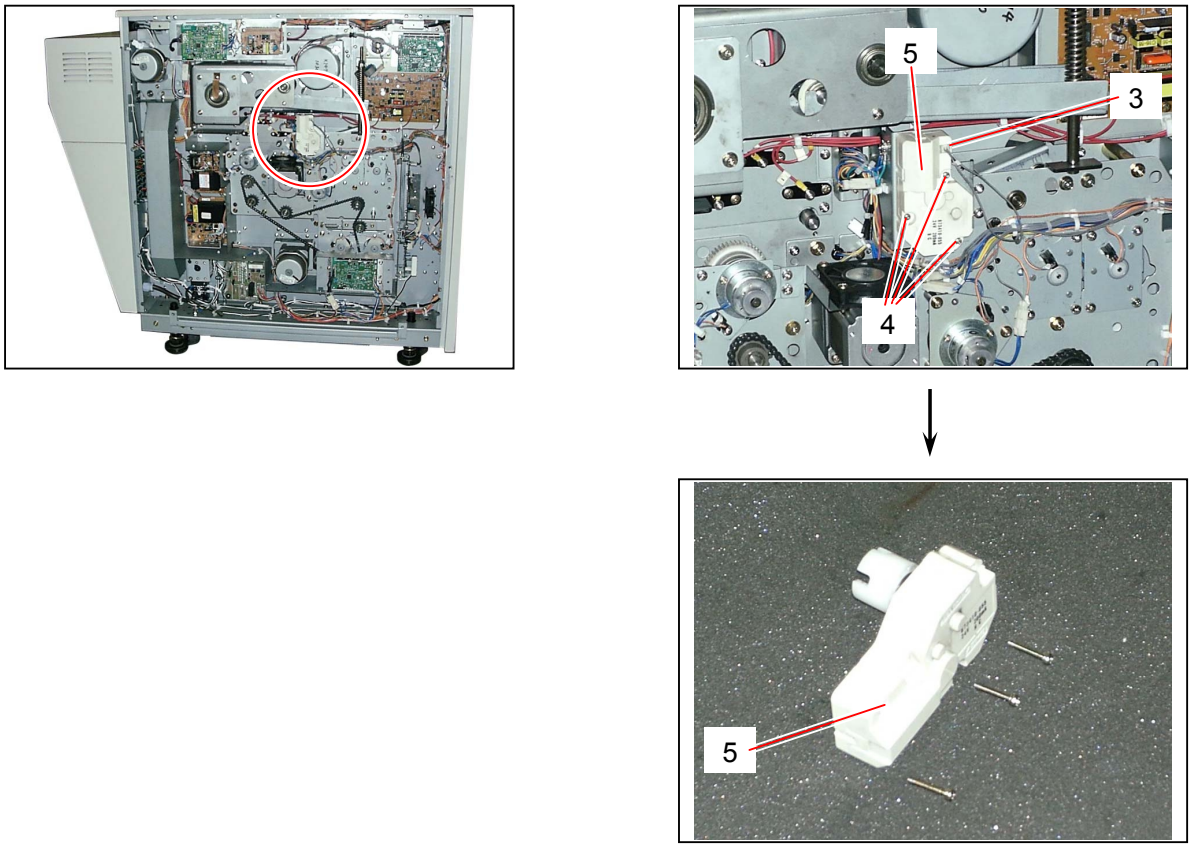


5.13.4 Replacing Developer Positioning Motor (M4)

1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).

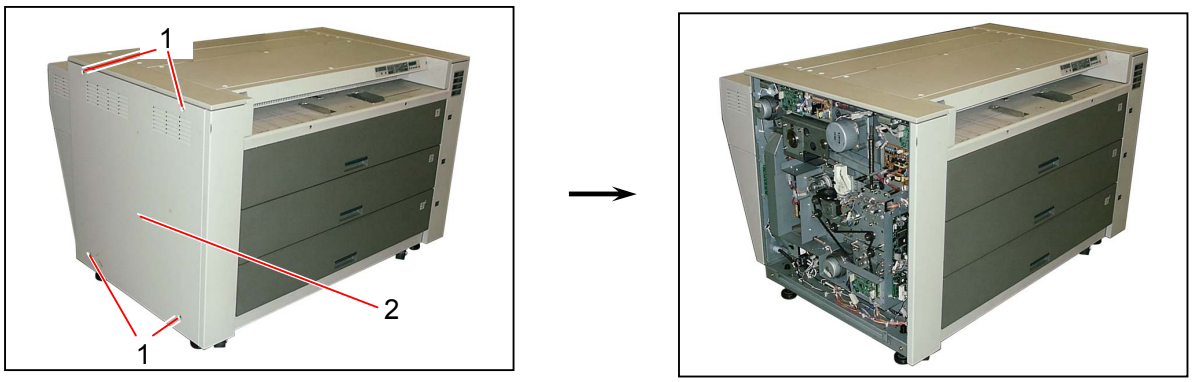


2) Disconnect the connector (3), and then remove 3 pieces of Pan Head Screw (4) to remove the **Developer Positioning Motor** (5).
Replace the Developer Positioning Motor (5) with the new one.

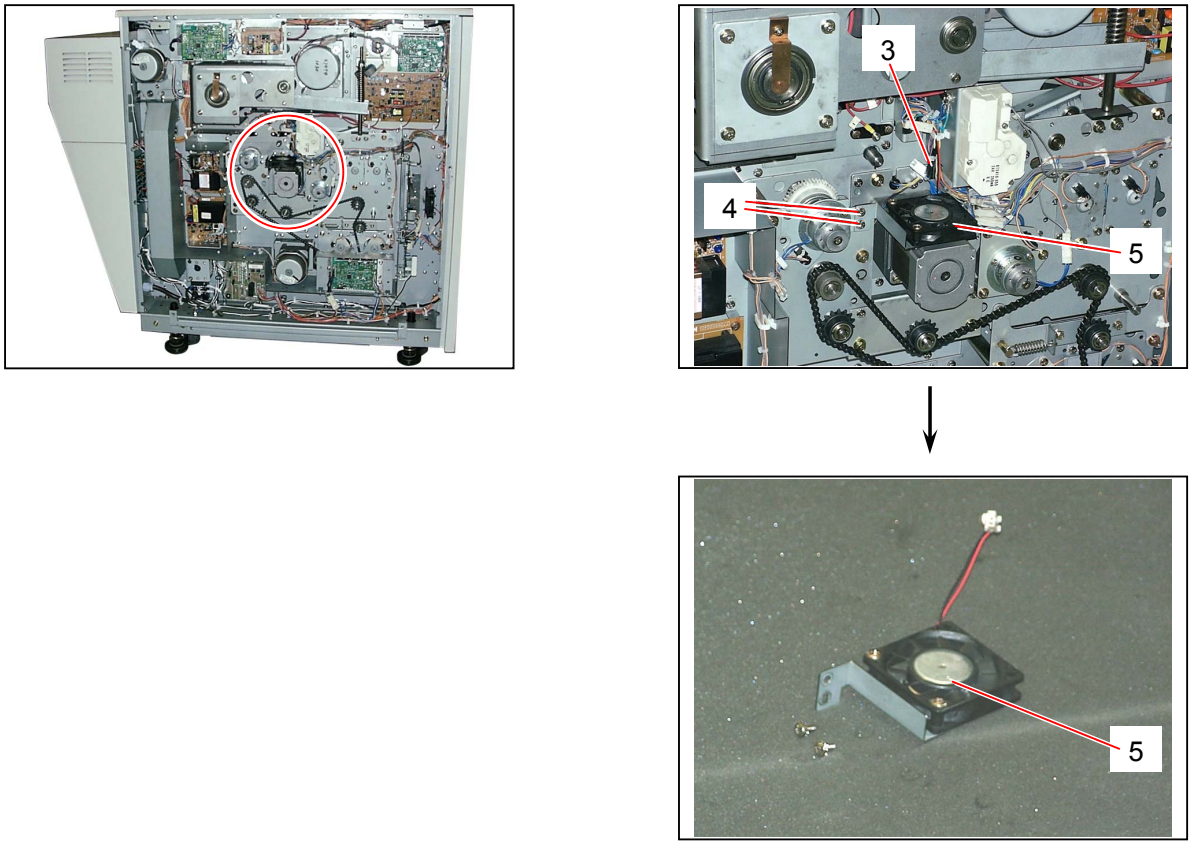


5.13.5 Replacing Cutter Motor (M3), Cutter Home Position Sensor (PH22) & Internal Transportation Unit Set Sensor (PH24)

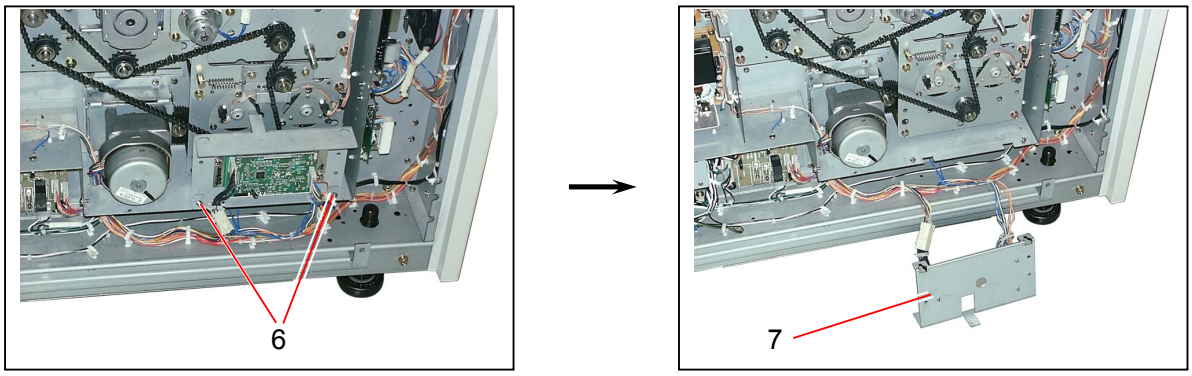
1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).



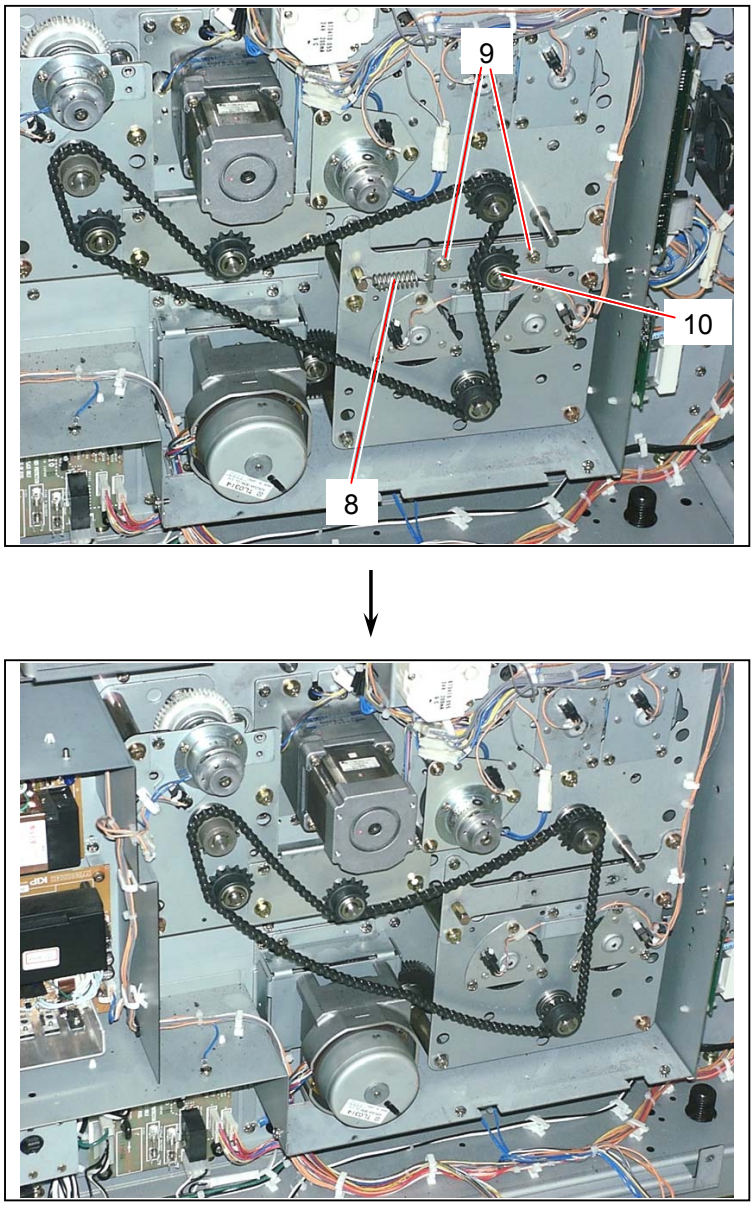
2) Disconnect the connector (3), and then remove 2 pieces of tooth washer screw (4) to remove the Cooling Fan 4 (5) with its bracket.



3) Loosen 2 pieces of screw (6), and put the Bracket (7) with PCB aside as it is preventative for later works.

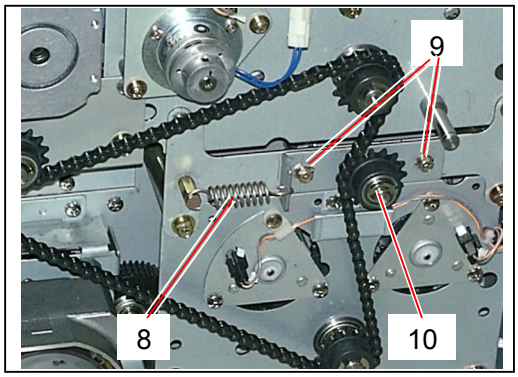


4) Remove the Spring 211 (8), and then remove 2 pieces of Hexagon Head Bolt (9) to remove the 15T Sprocket Assembly (10).

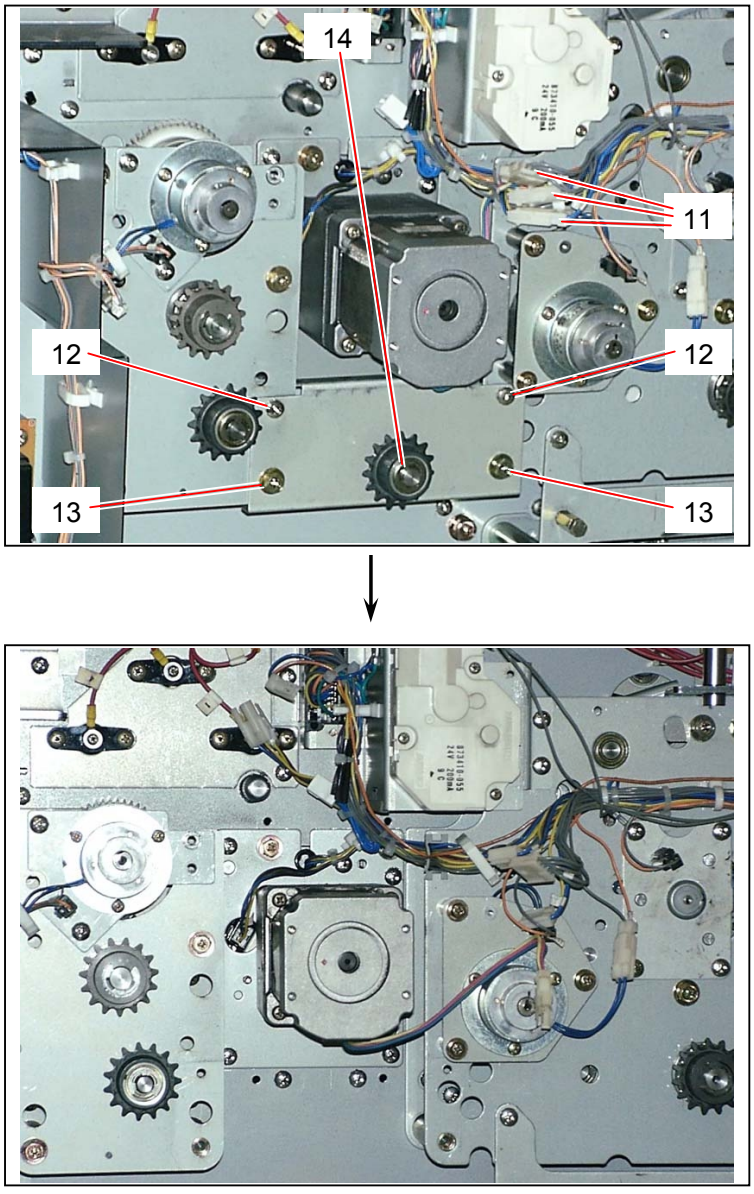


⚠ NOTE

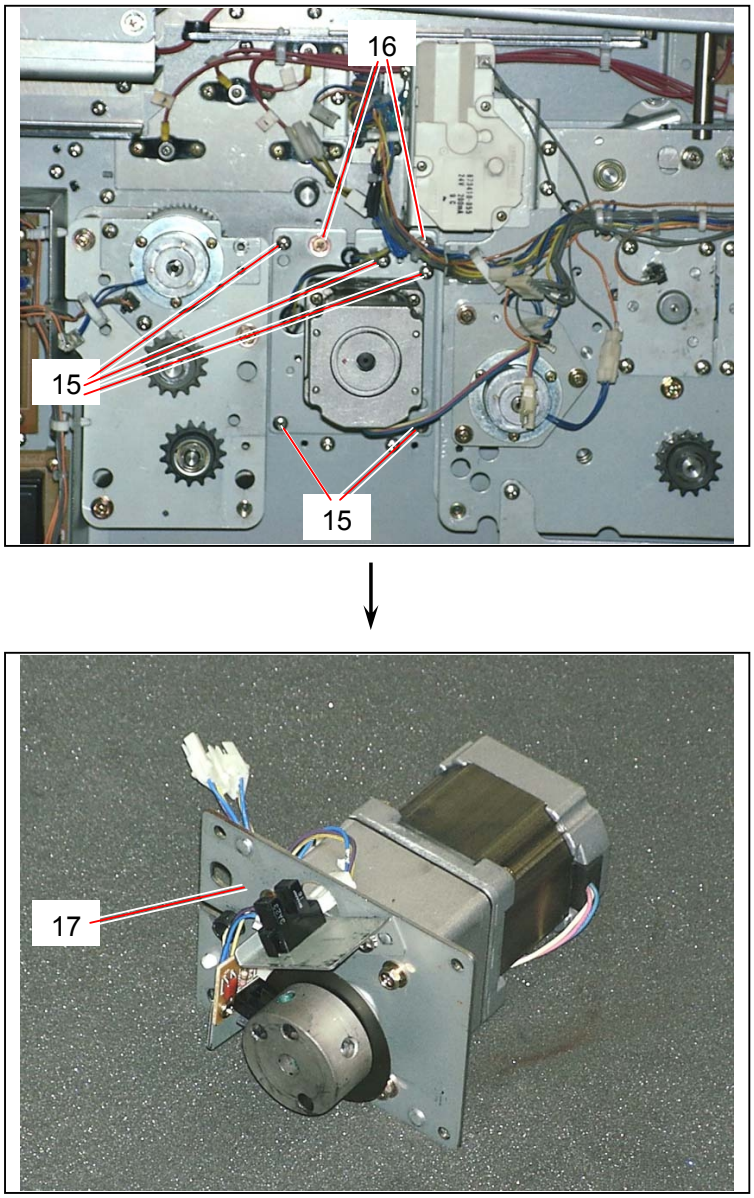
When reassembly, put back the 15T Sprocket Assembly (10) with the Hexagon Head Bolts (9) loosed, hook the Spring 211 (8) as it was, then tighten the Hexagon Head Bolts (9).
You do not have to give any tension to the Roller Chain especially but only the tension of Spring 211 (8) is enough.



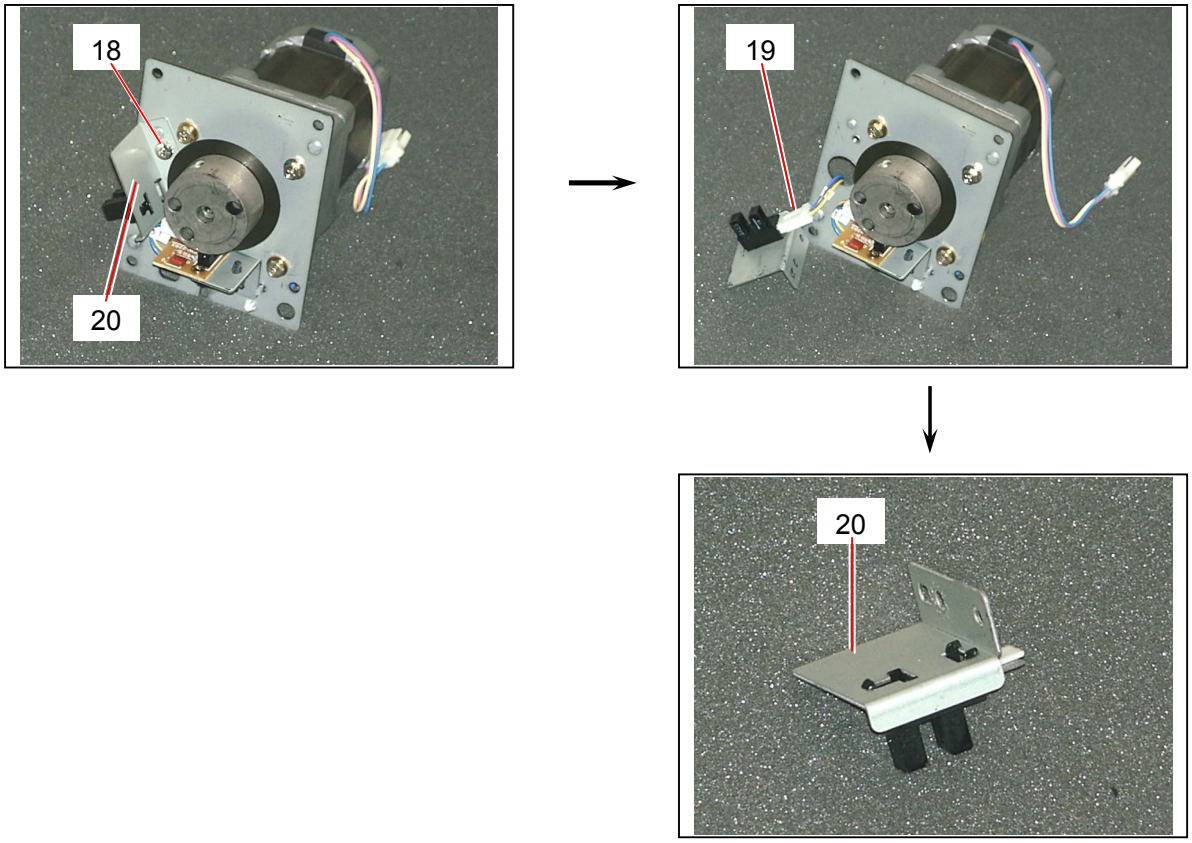
5) Disconnect 3 connectors (11), and then remove 2 pieces of each tooth washer screw (12) and Hexagon Head Bolt (13) to remove the 15T Sprocket Assembly (14).



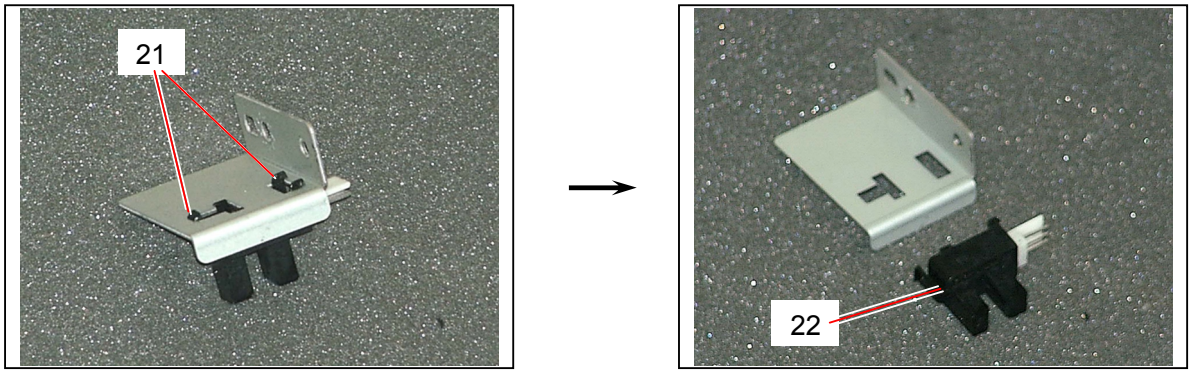
6) Remove 5 pieces of tooth washer screw (15) and 2 pieces of Hexagon Head Bolt (16) to remove the Motor Bracket (17) with motor.



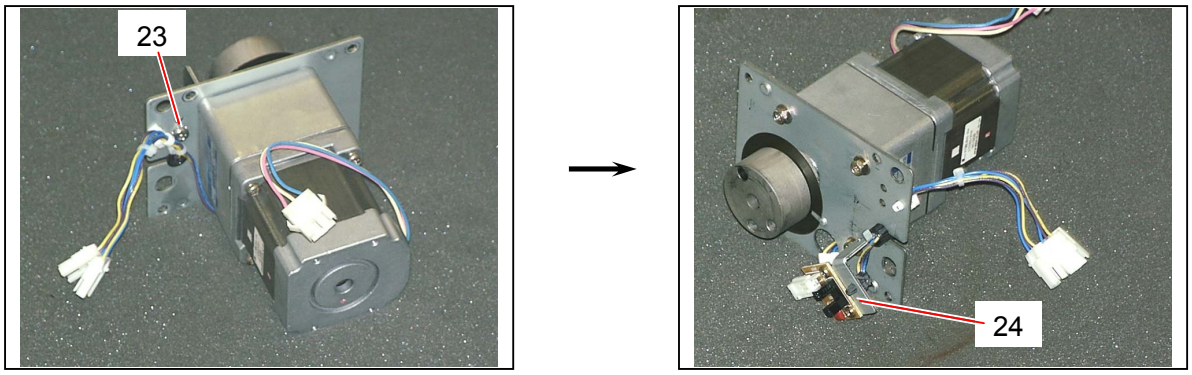
7) Remove the tooth washer screw (18), disconnect the connector (19), and remove the Bracket 14 (20) with sensor.



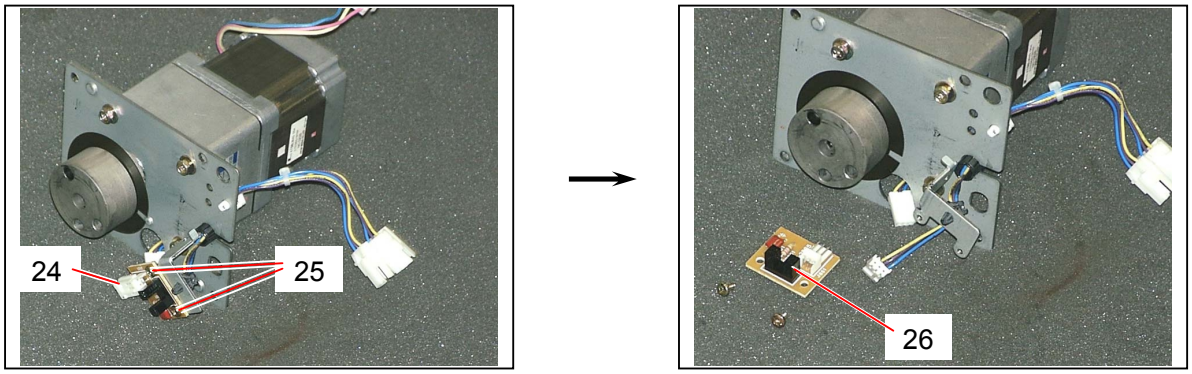
8) Pressing the Stopper Hooks (21) inward, remove the **Internal Transportation Unit Set Sensor** (22) from the bracket.
Replace the Internal Transportation Unit Set Sensor (22) with the new one.



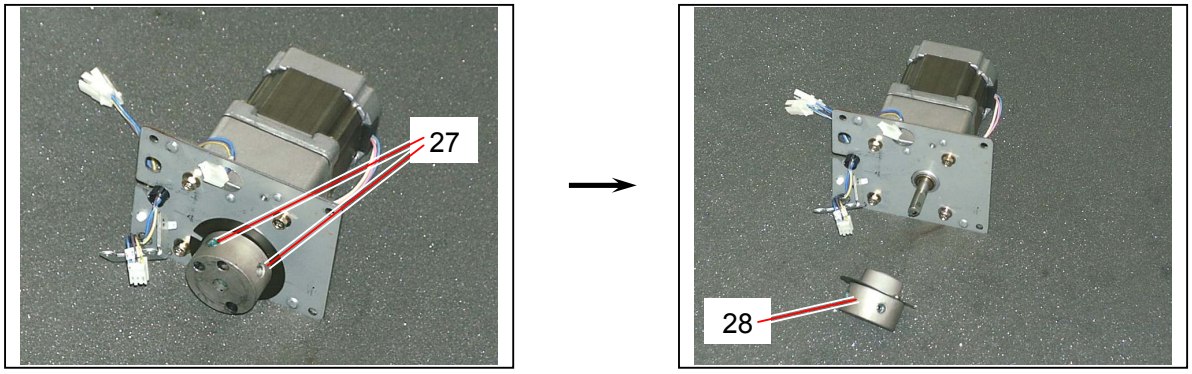
9) Remove the tooth washer screw (23) to remove the Mount (24).



10) Disconnect the connector (25), and then remove 2 pieces of bind head screw (26) to remove the **Cutter Home Position Sensor** (27).
Replace the Cutter Home Position Sensor (27) with the new one.



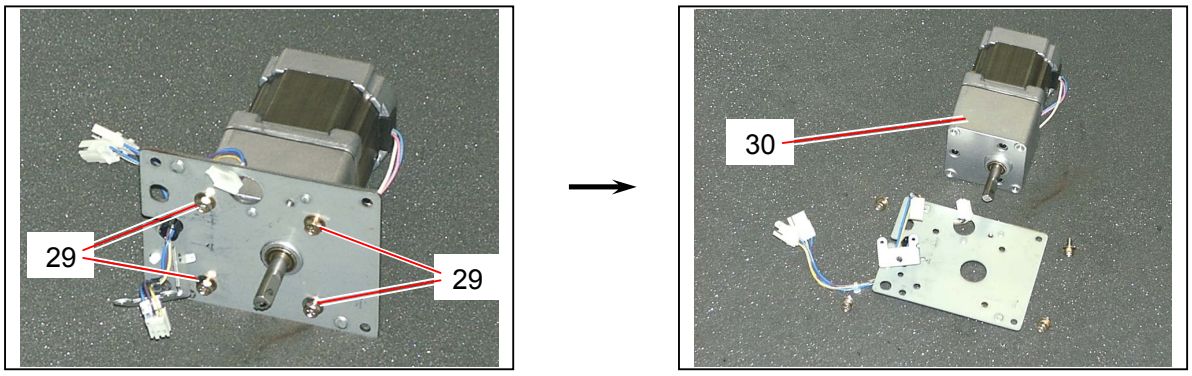
11) Loosen 2 pieces of Set Screw (27) to remove the Joint B (28).



NOTE

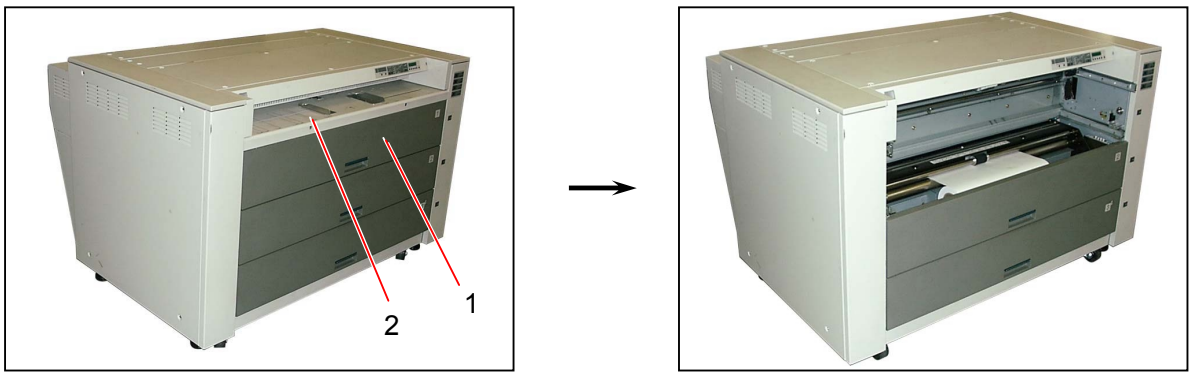
Lock the Set Screws (27) with the locking paint when you reassemble.

12) Remove 4 pieces of Hexagon Head Bolt (29) to remove the **Cutter Motor** (30).
Replace the Cutter Motor (30) with the new one.

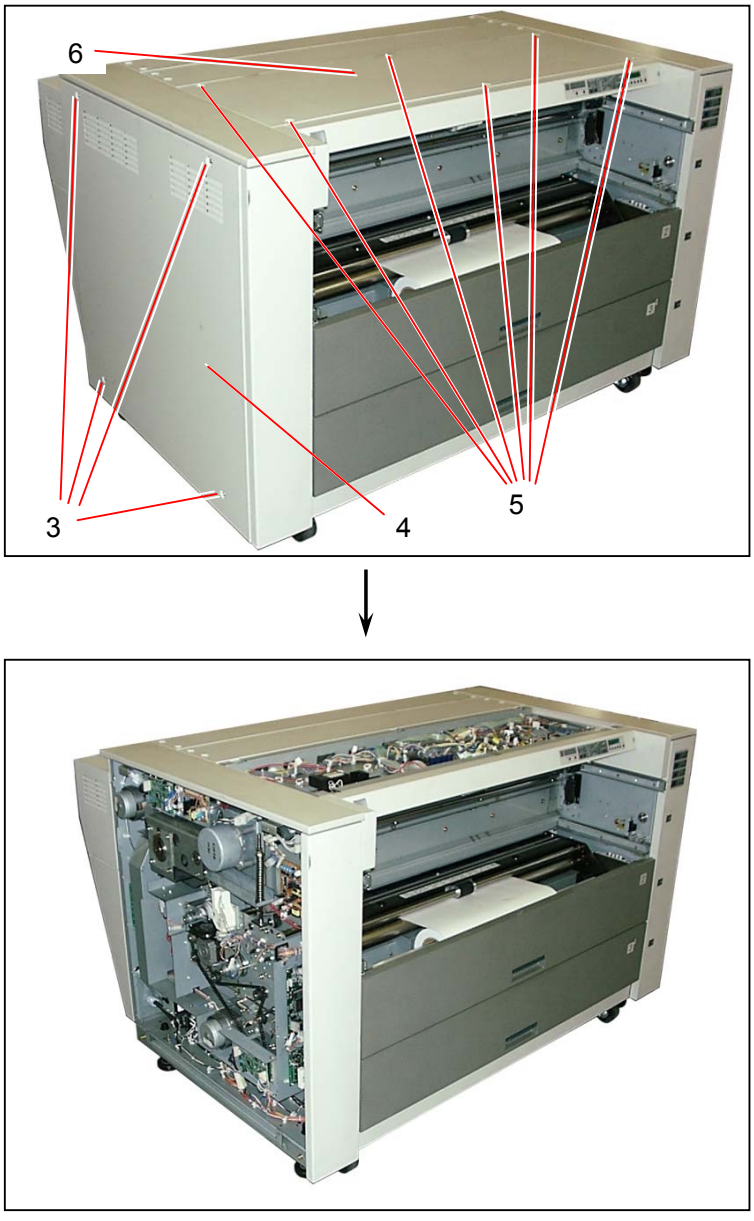


5.13.6 Replacing Bypass Feeding Motor (M10)

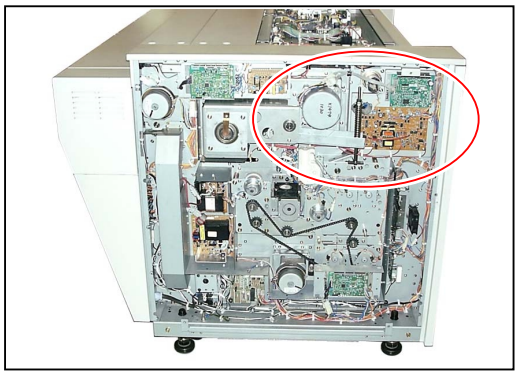
1) Remove both the Top Roll Deck (1) and the Bypass Feeder Unit (2) making reference to [5.8.1 Removing each Roll Deck] on the page 5-105 and [5.9.1 Removing Bypass Feeder Unit] on the page 5-132.

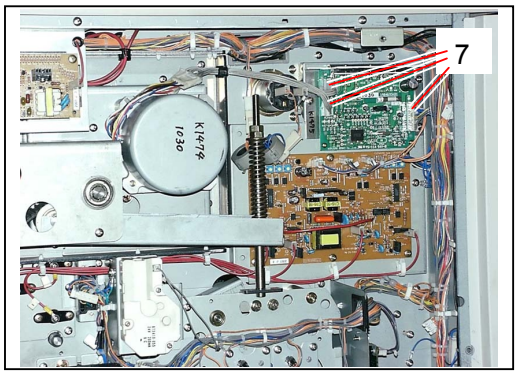


2) Remove 4 pieces of tooth washer screw (3) to remove the Side Cover L (4).
Remove 6 pieces of tooth washer screw (5) to remove the Cover 324 (6).

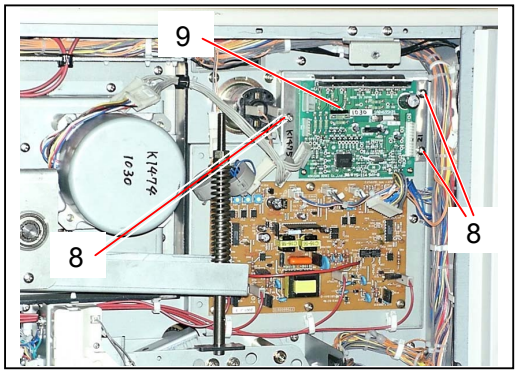


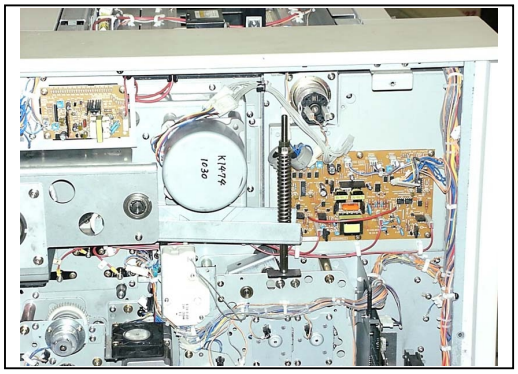
3) Disconnect 3 connectors (7).



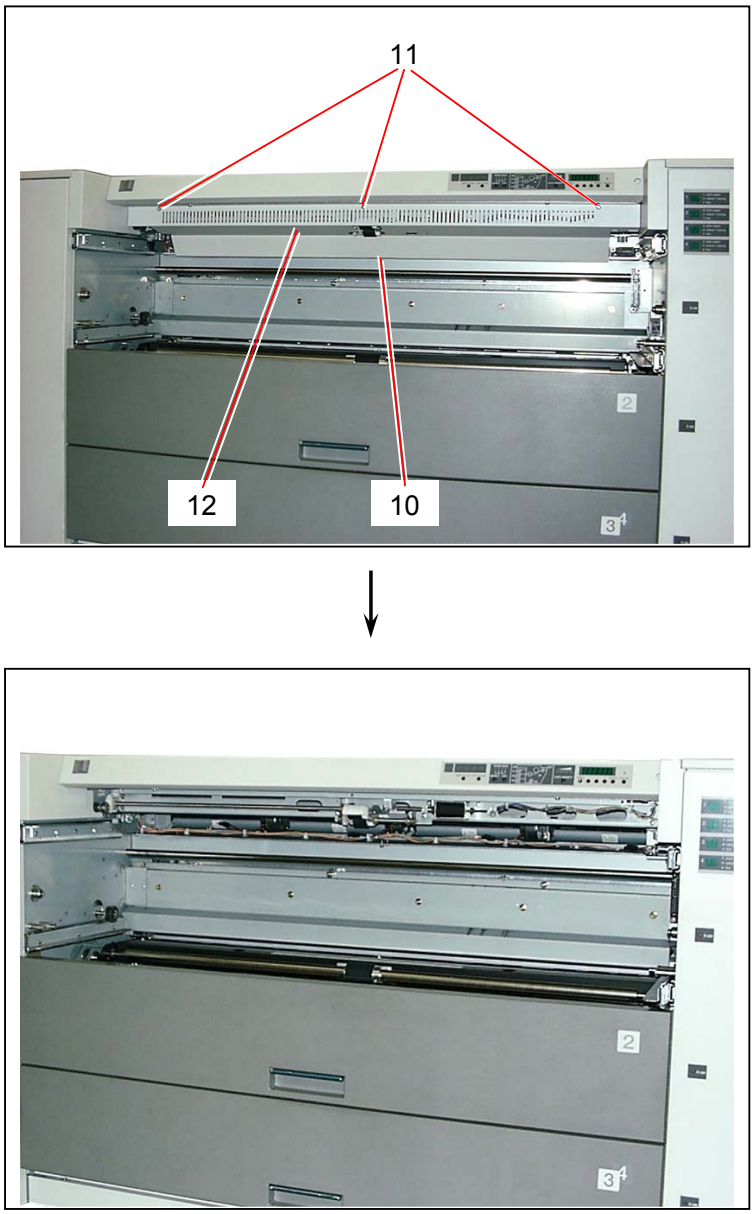


4) Remove 3 pieces of tooth washer screw (8) to remove the Drum Motor Controller PCB (9).

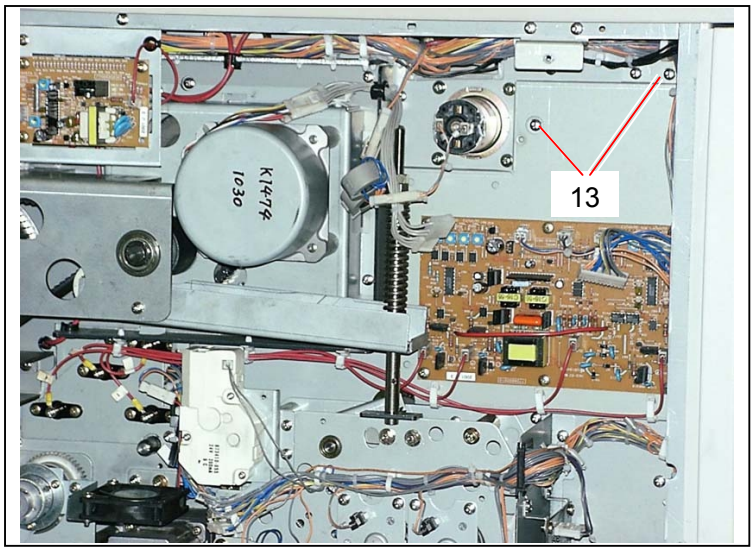


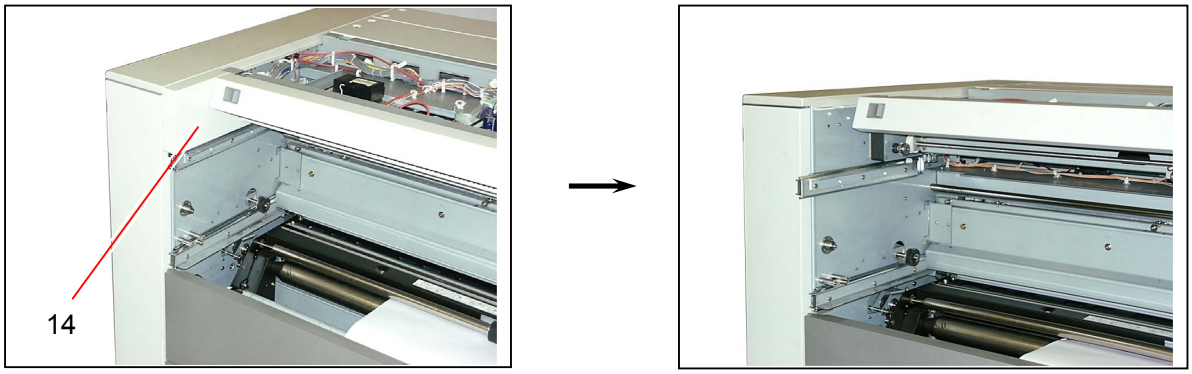


5) Loosen the tooth washer screw (10) on the bottom, and remove 3 pieces of tooth washer screw (11) to remove the Cover (12).

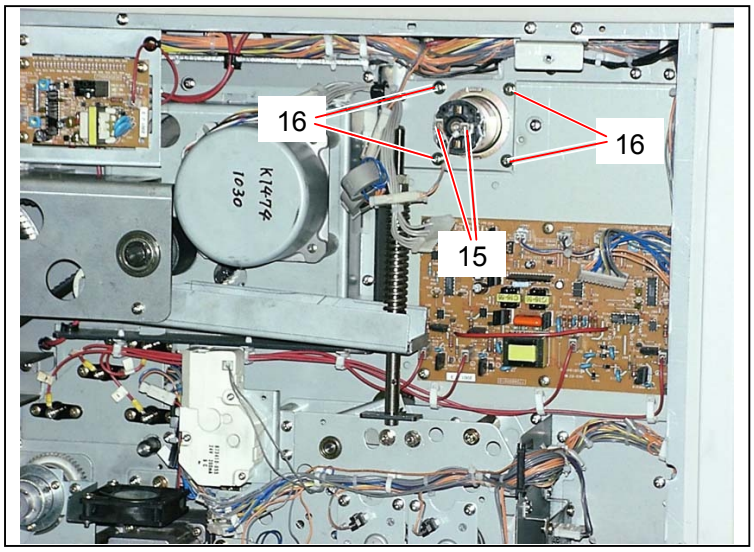


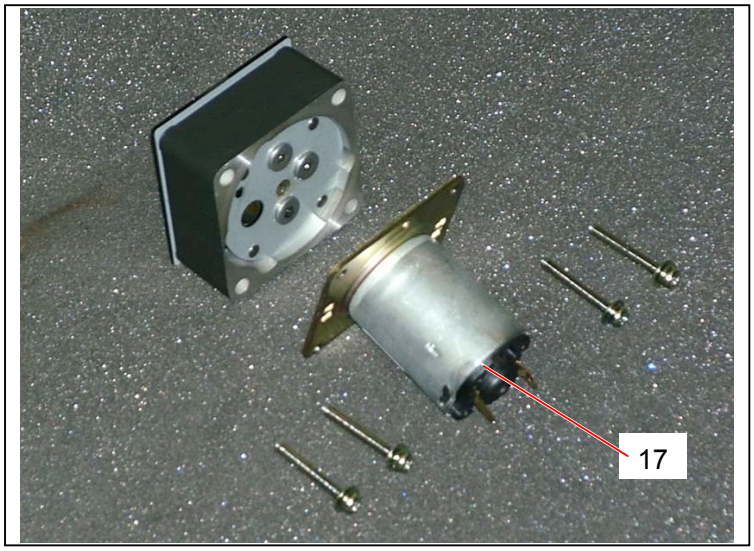
6) Remove 2 pieces of tooth washer screw (13) to remove the Cover 308 (14).





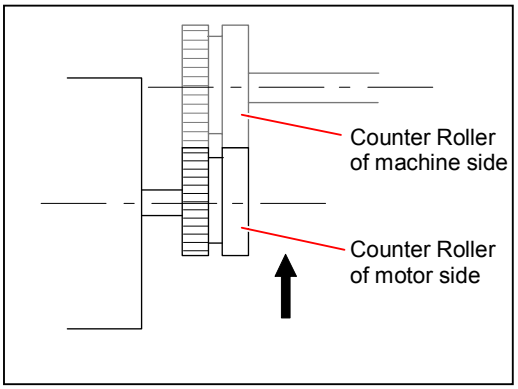
7) Disconnect 2 connectors (15), remove 4 pieces of screw (16), and then pull out the **Bypass Feeding Motor** (17) to the inside of machine.
Replace the Bypass Feeding Motor (17) with the new one.



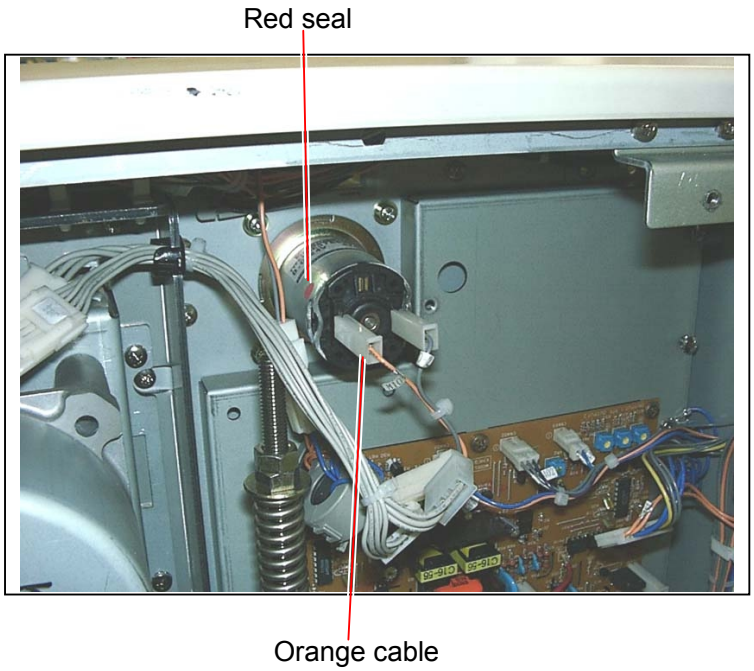


NOTE

(1) When reinstalling the Bypass Feeding Motor, tighten the screws while pressing the motor so that there exists no space between Counter Rollers of motor side and that of machine side.



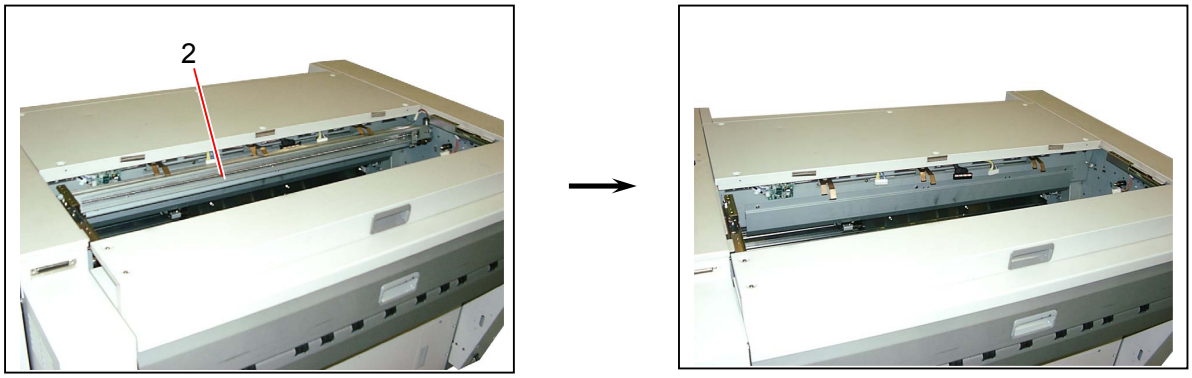
(2) A red circular seal is pasted on the Bypass Feeding Motor. Connect the connector of orange cable to this red seal side.



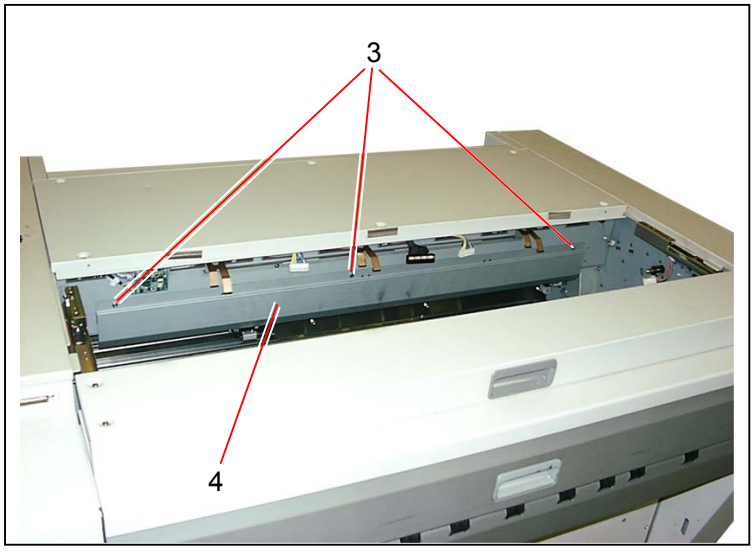
5.13.7 Replacing Toner Supply Motor 2 (M6)

1) Draw out the Process Unit (1) making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1. Remove the Drum Assembly and keep it in the box to avoid the light.

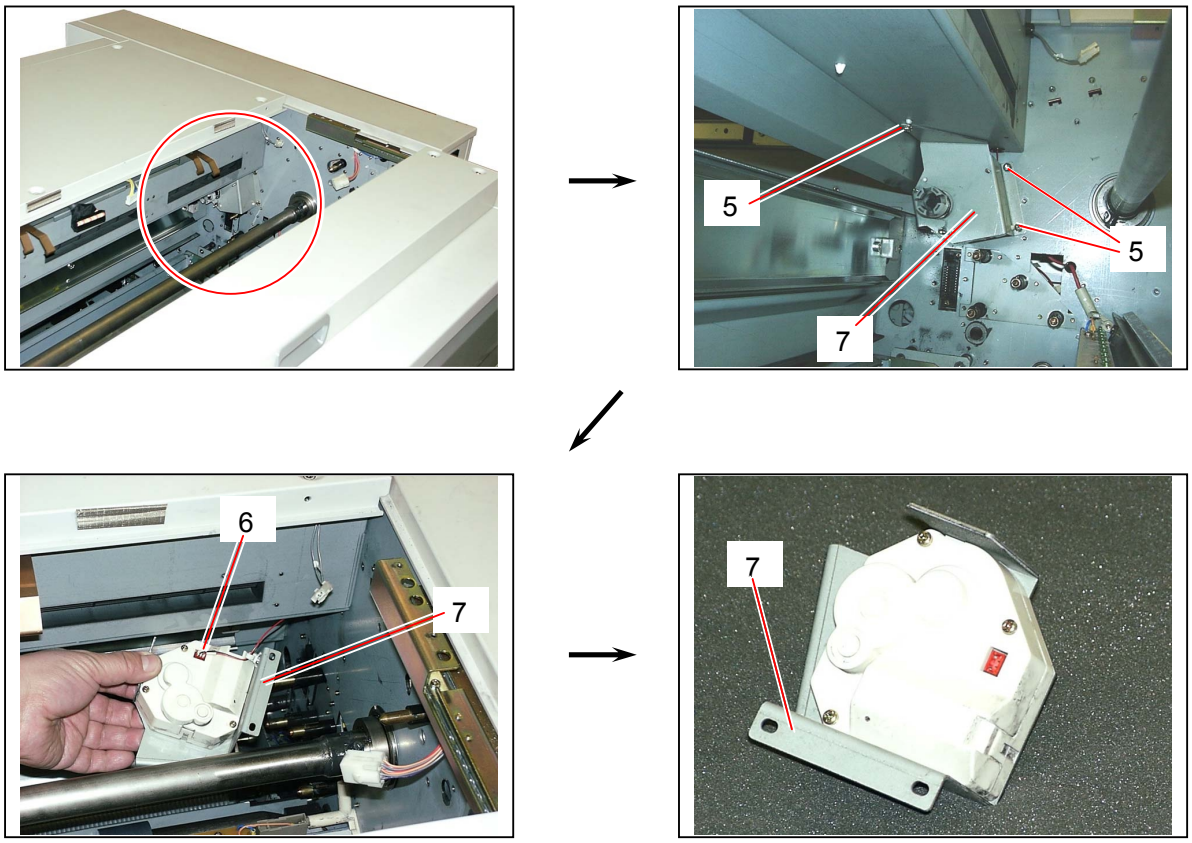
2) Remove the LED Head (2) from the machine making reference to [5.12.1 Removing LED Head] on the page 5-175.



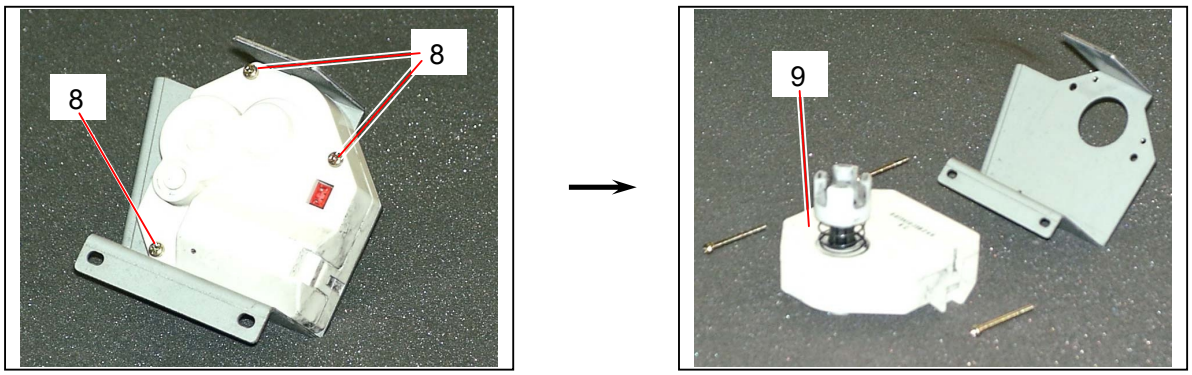
3) Remove 3 pieces of tooth washer screw (3) to remove the Bracket 69 (4).



4) Remove 3 pieces of tooth washer screw (5), disconnect the connector (6), and then take out the Motor Bracket (7) with motor from the machine.

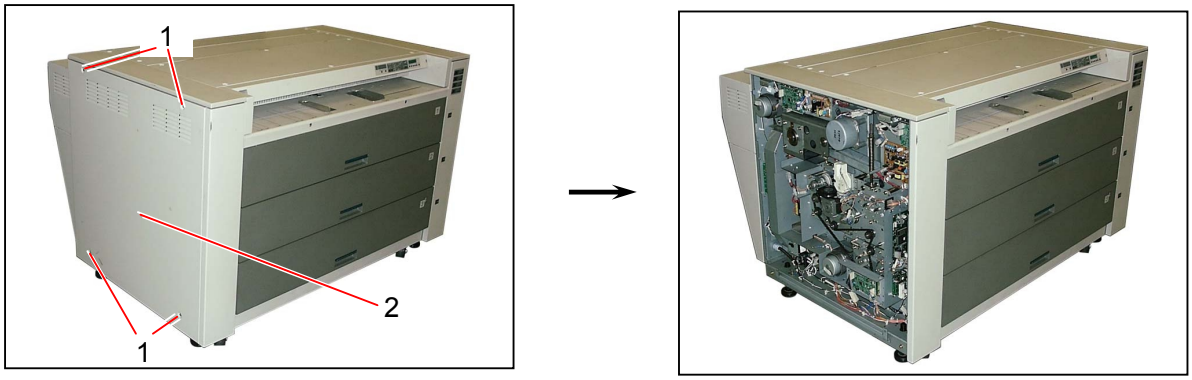


5) Remove 3 pieces of Pan Head Screw (8) to remove the **Toner Supply Motor 2** (9). Replace the Toner Supply Motor 2 (9) with the new one.

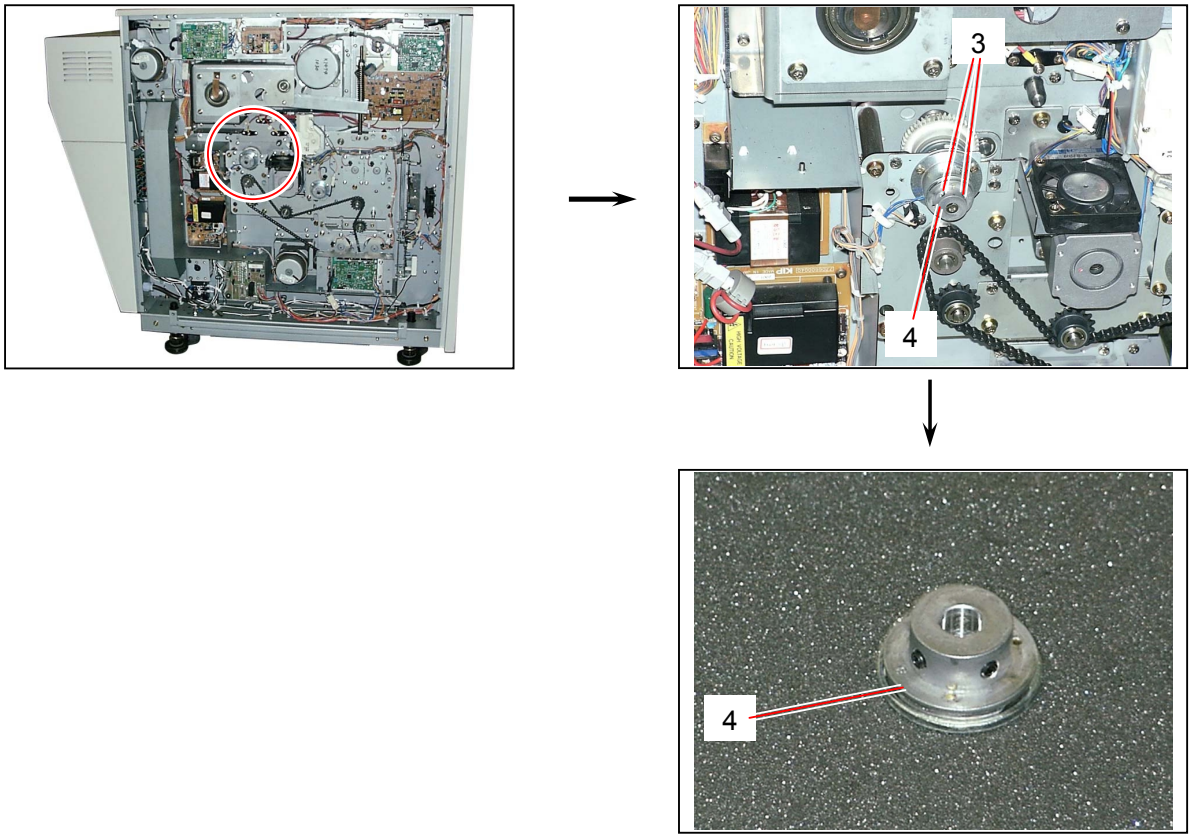


5.13.8 Replacing Paper Gate Clutch (MC5) & Paper Gate Brake (MC10)

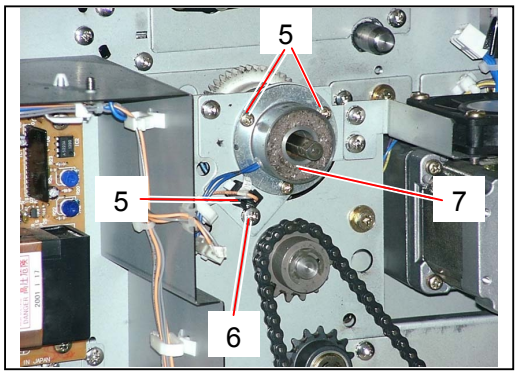
1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).

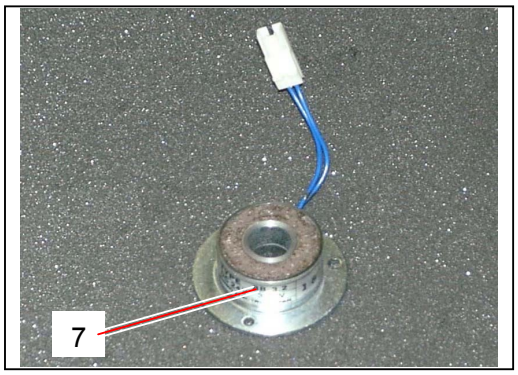


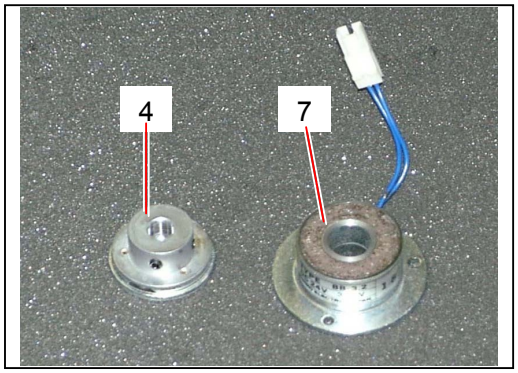
2) Loosen 2 pieces of Set Screw (3), and remove the **rotary side of Paper Gate Brake** (4).



3) Remove the connector (5), and then remove 3 pieces of screw (6) to remove the **fixed side of Paper Gate Brake** (7).
Replace the Paper Gate Brake (both rotary side and fixed side) (4 &7) with the new one.

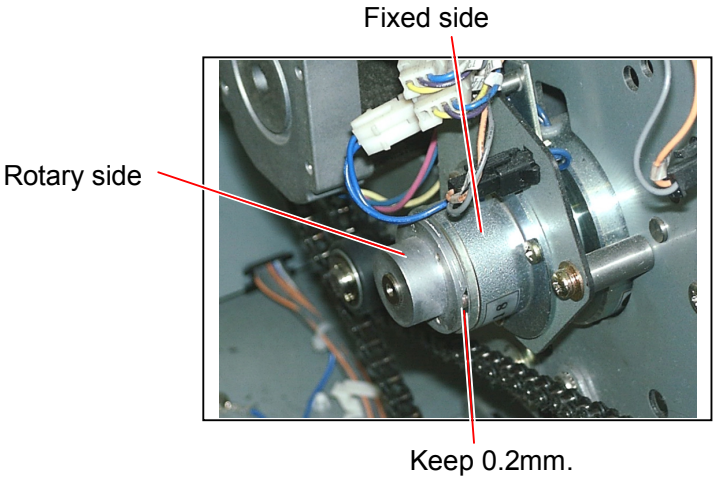




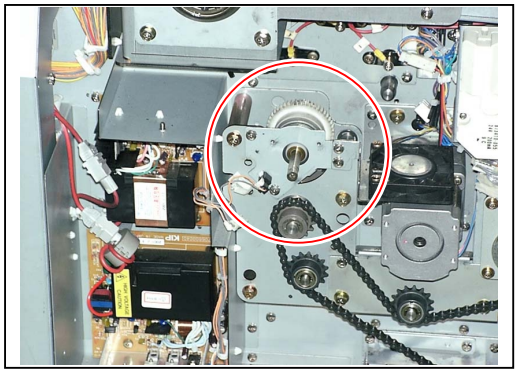


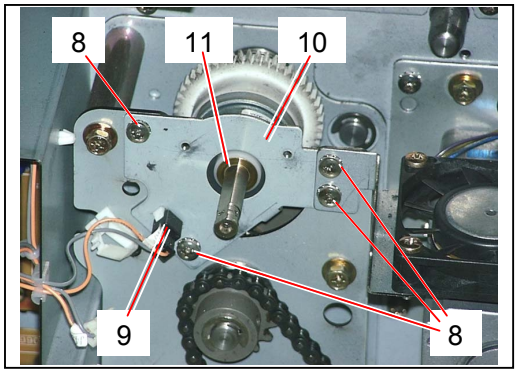
NOTE

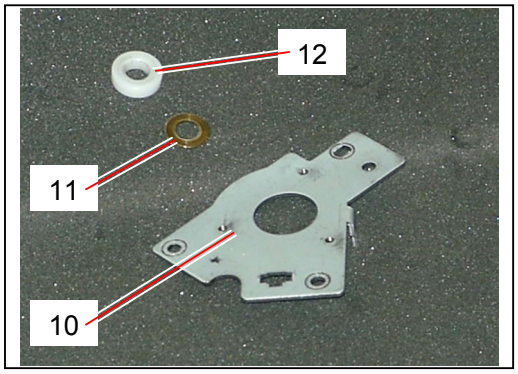
When you install the new Paper Gate Brake, keep 0.2mm of space between rotary side and fixed side.



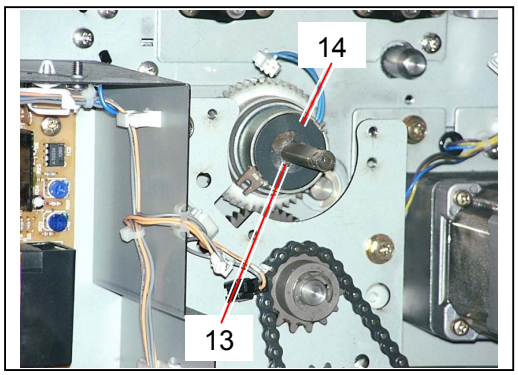
4) Remove 4 pieces of tooth washer (8), disconnect the connector (9), and then remove the Clutch Plate (10).
Pull out both the Thrust Washer (11) and Spacer (12) from the shaft.

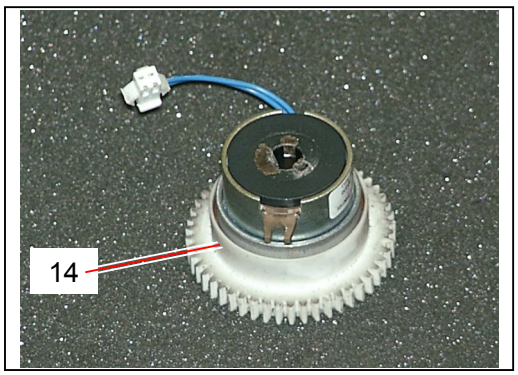






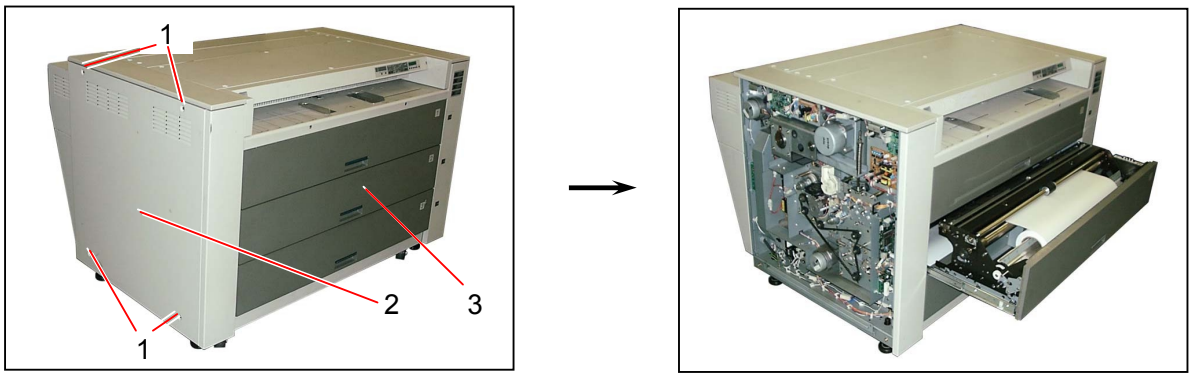
5) Expanding the stopper lever (13) outward, pull out the **Paper Gate Clutch** (14) from the shaft.
Replace the paper Gate Clutch (14) with the new one.



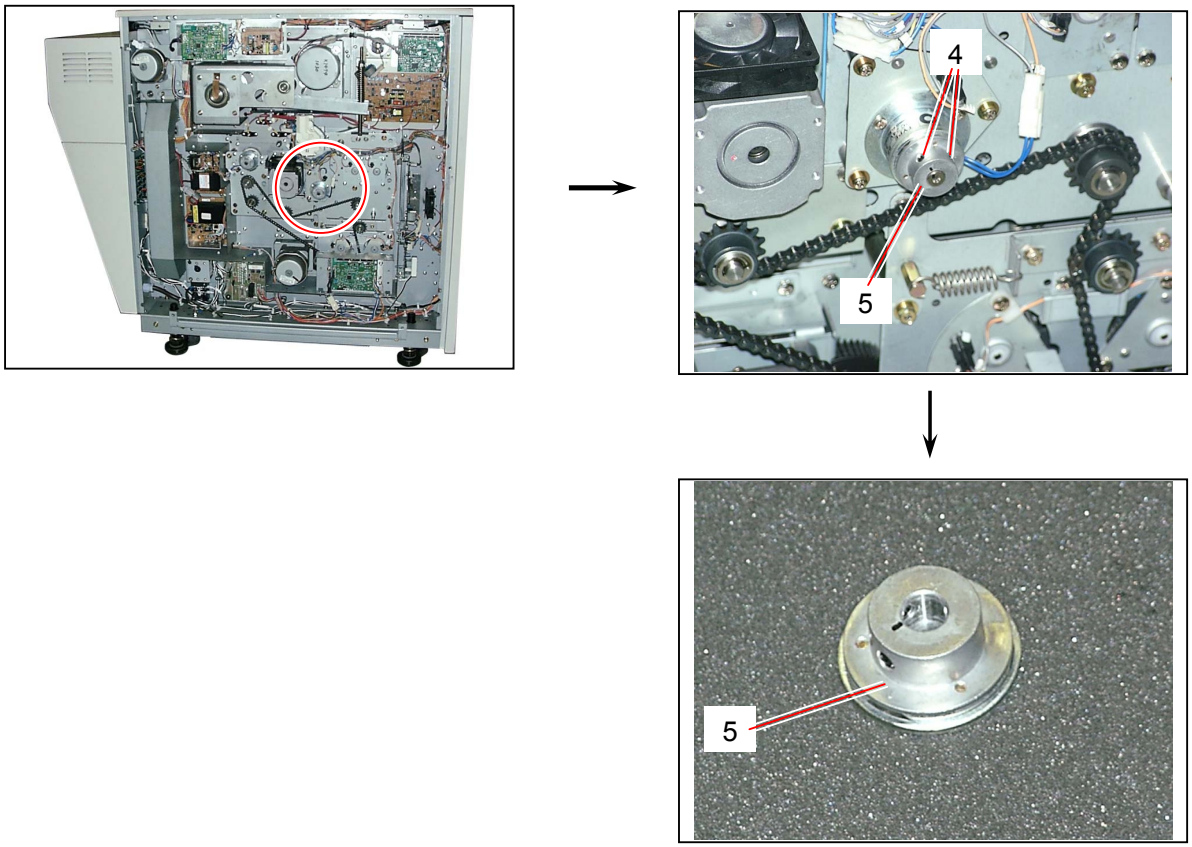


5.13.9 Replacing Paper Feed Clutch (MC6) & Paper Feed Brake (MC9)

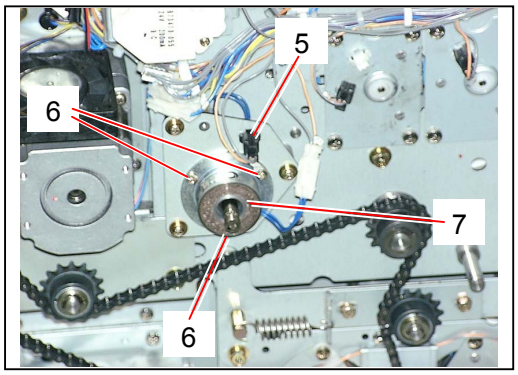
1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).
Draw out the Middle Roll Deck (3).

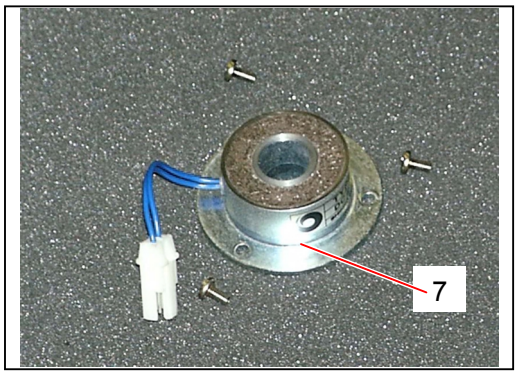


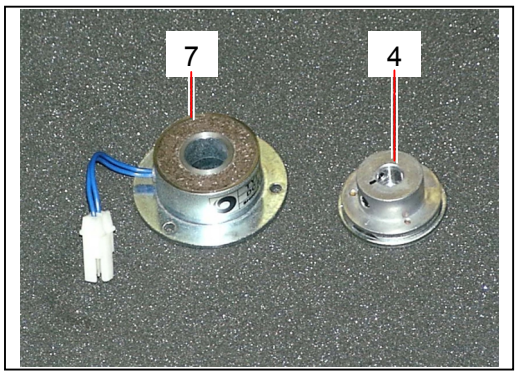
2) Loosen 2 pieces of Set Screw (4), and remove the **rotary side of Paper Feed Brake** (5).



3) Disconnect the connector (5), and then remove 3 pieces of screw (6) to remove the **fixed side of Paper Feed Brake** (7).
Replace the Paper Feed Brake (both rotary side and fixed side) (4 &7) with the new one.

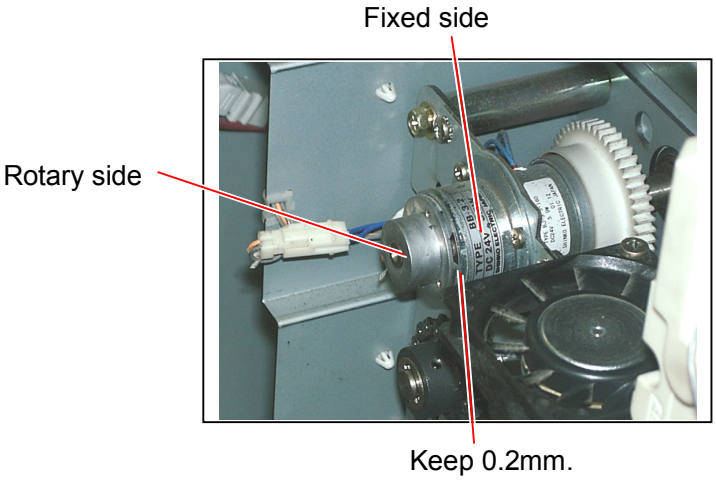




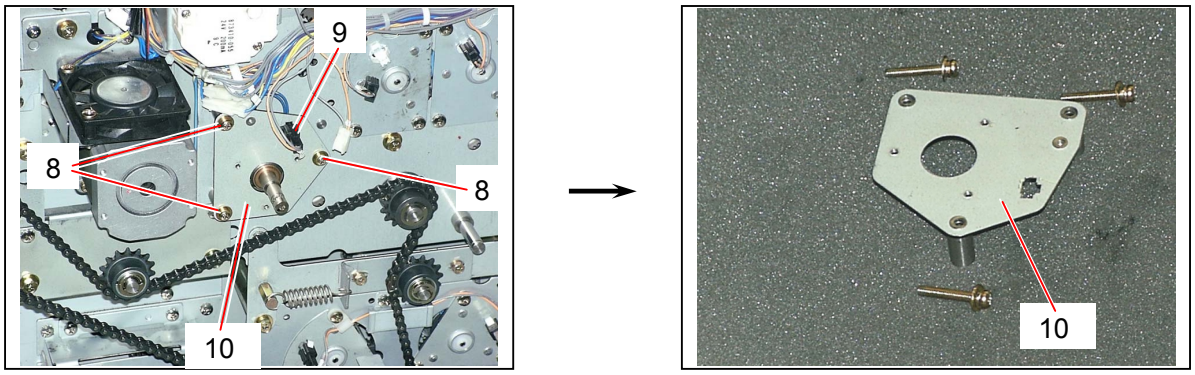


⚠ NOTE

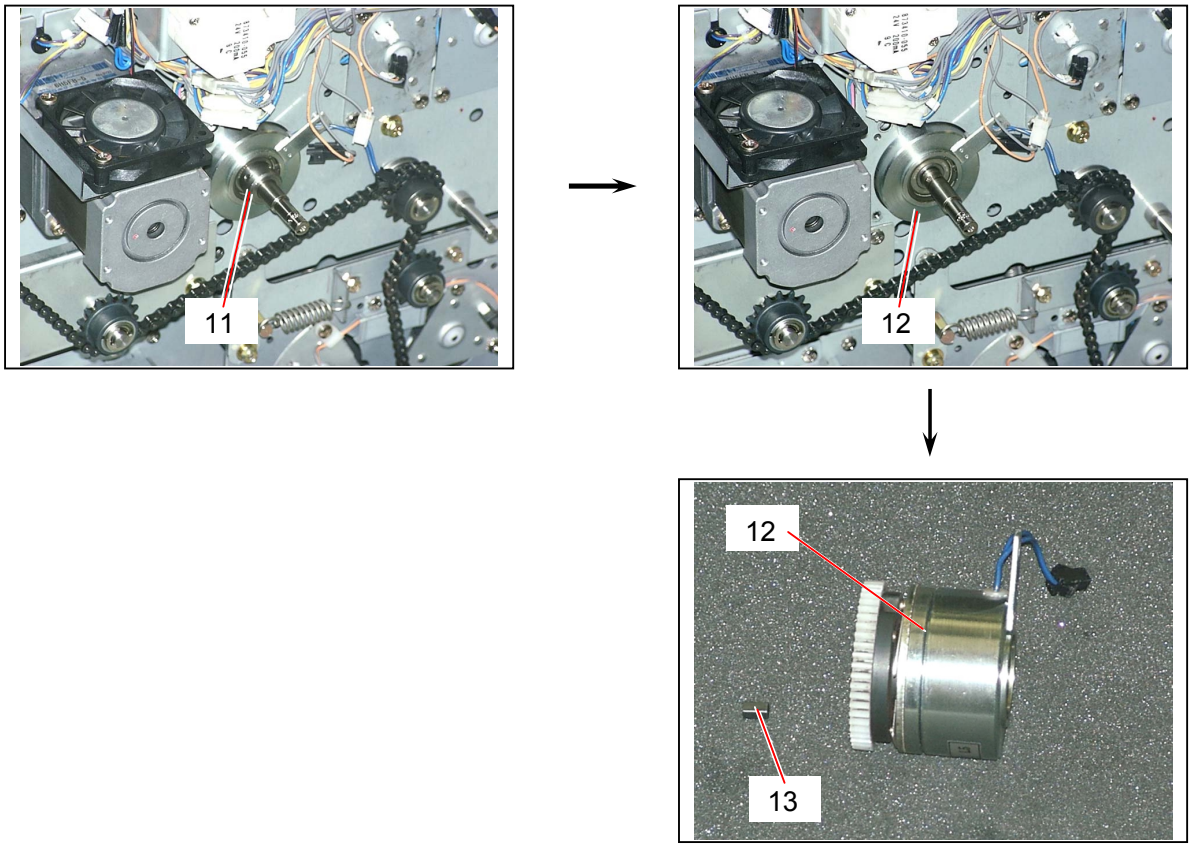
When you install the new Paper Feed Brake, keep 0.2mm of space between rotary side and fixed side.



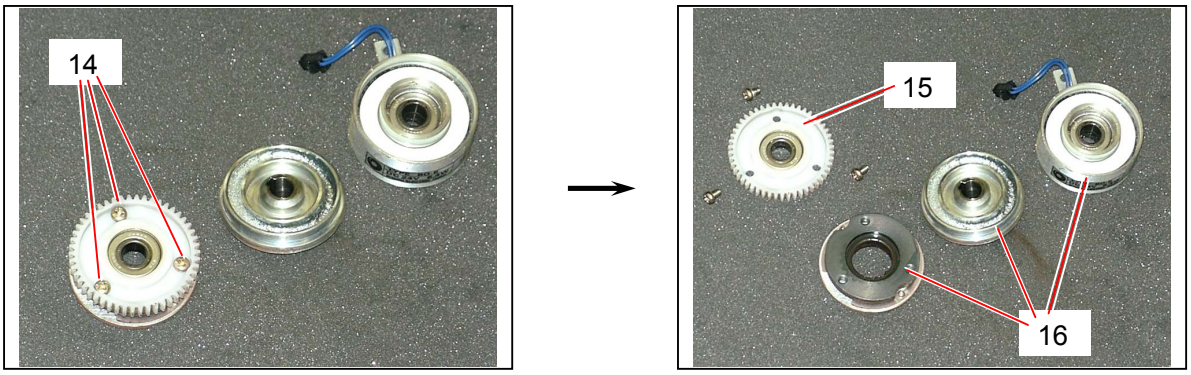
4) Remove 3 pieces of screw (8), disconnect the connector (9), and then remove the Mount 1 (10).



5) Pull out the Collar (11), and then pull out the Paper Feed Clutch Assembly (12) from the shaft and remove the Sliding Key (13).



6) Remove 3 pieces of screw (14) to remove the 50T Spur Gear (15) from the **Paper Feed Clutch** (16).
Replace the Paper Feed Clutch (16) with the new one.



⚠ NOTE

Please check whether or not the Paper Feed Clutch is properly installed or not in the following ways.

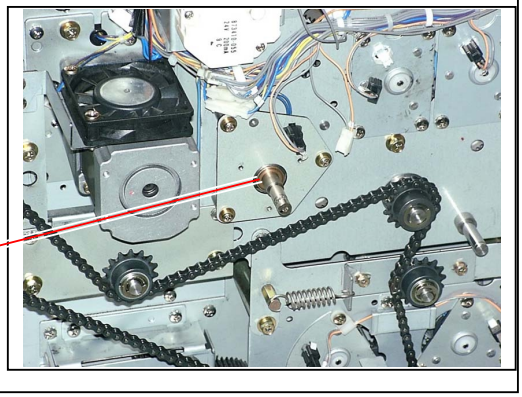
(1) Draw out the Middle Roll Deck, and then try to move the Paper Feed Roller left and right by hand whether or not there is a play.
If there is a play, please put the Thrust Washer between Paper Feed Clutch and Paper Feed Brake. (If you do not remove the play, it will cause improper cut length.)
(2) Rotate the Paper Feed Roller by hand. If you feel it is heavy to rotate, remove the Thrust Washer.

Use the following kinds of Thrust Washer according to the necessity.

10.1 x 16 x 0.2
10.1 x 16 x 0.5
10.1 x 16 x 1.0

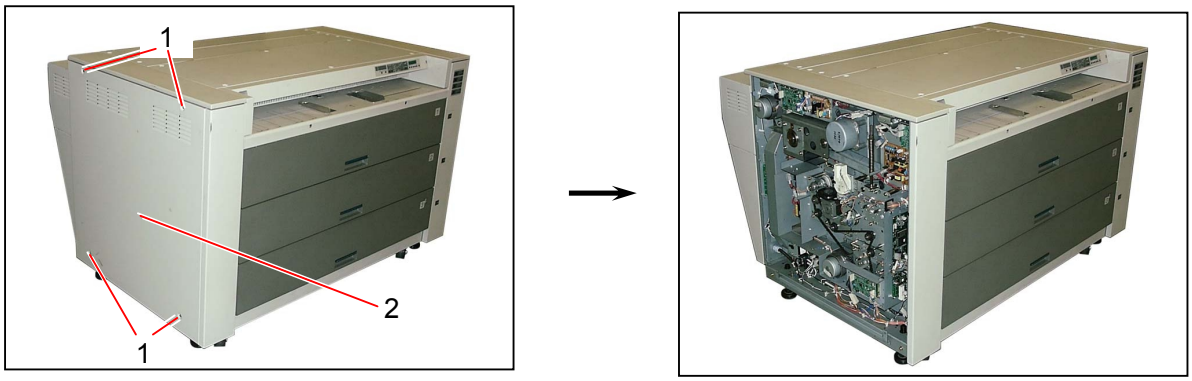
Paper Feed Roller

Thrust Washer

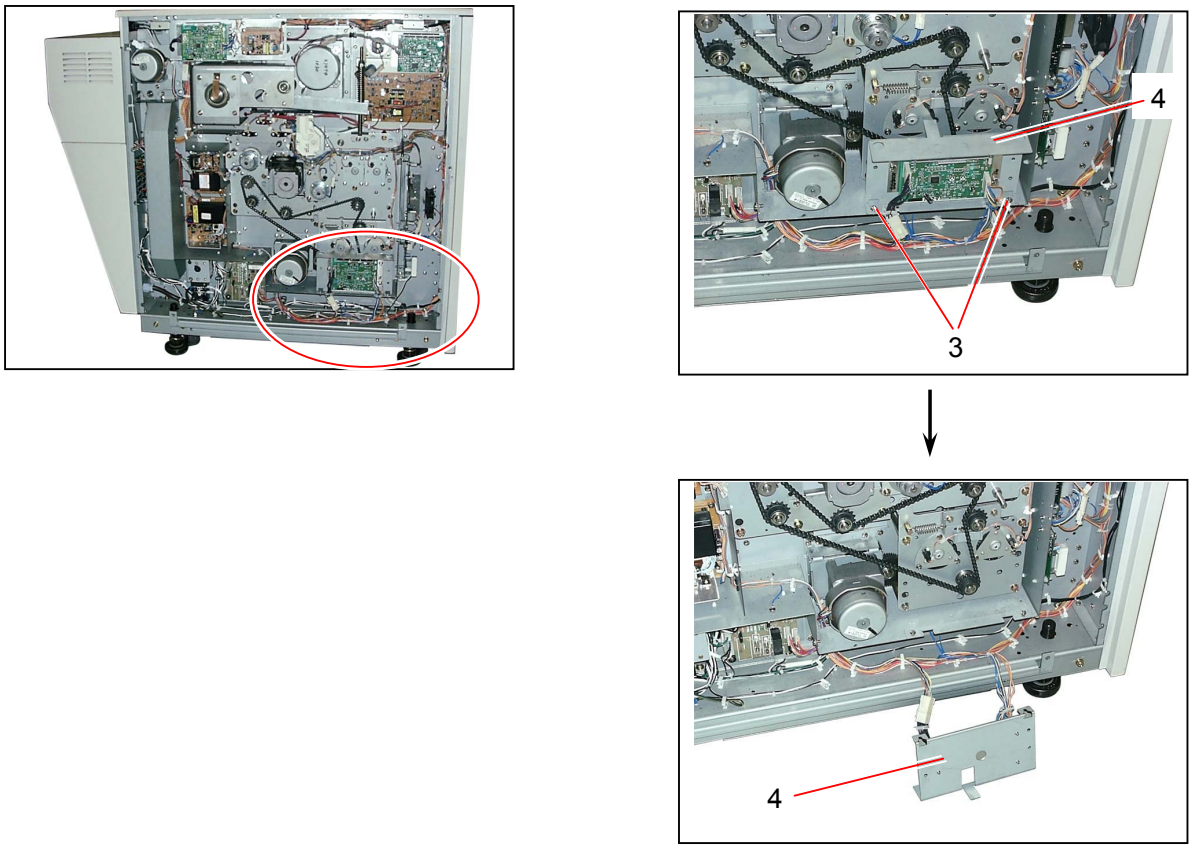


5.13.10 Replacing Roll Paper Feed Clutches (MC1 to MC4)

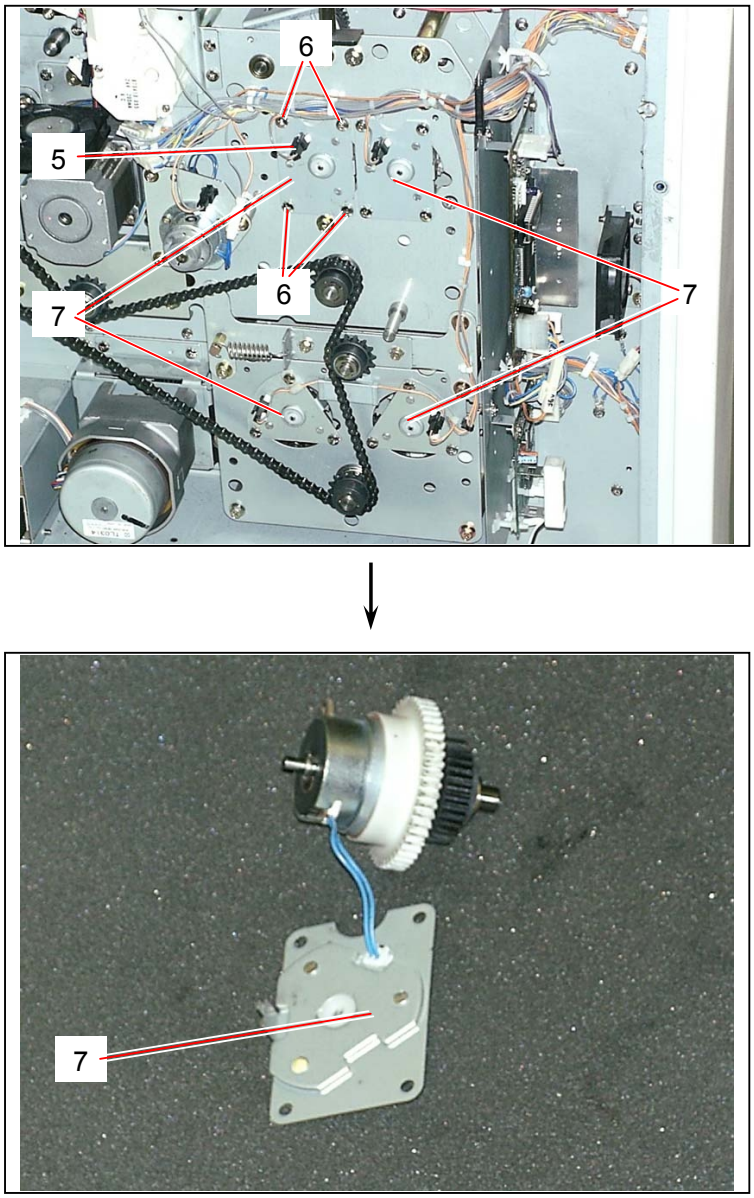
1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).



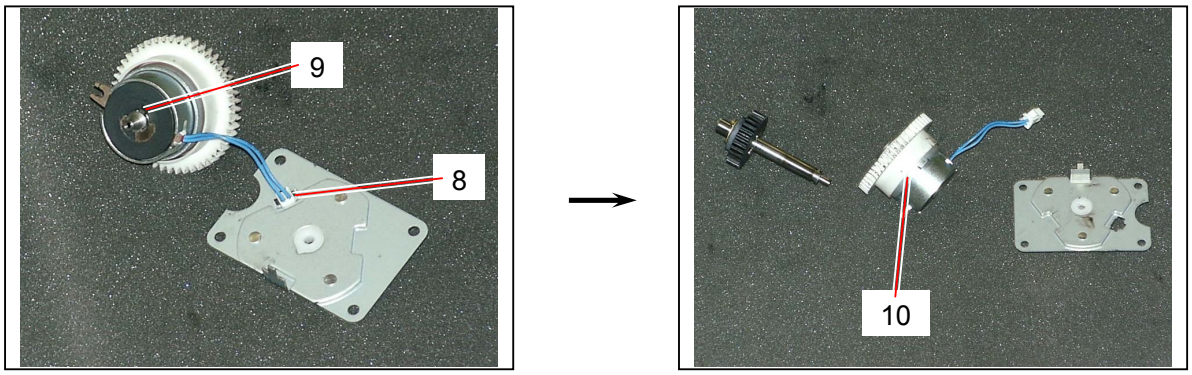
2) If you will replace either Roll Paper Feed Clutch 3 or Roll paper Feed Clutch 4, loosen 2 pieces of screw (3), and put the Bracket (4) with PCB aside as it is preventative for later works.



3) Disconnect the connector (5), remove 4 pieces of tooth washer screw (6), and then remove each Clutch Mount (7) with clutch.

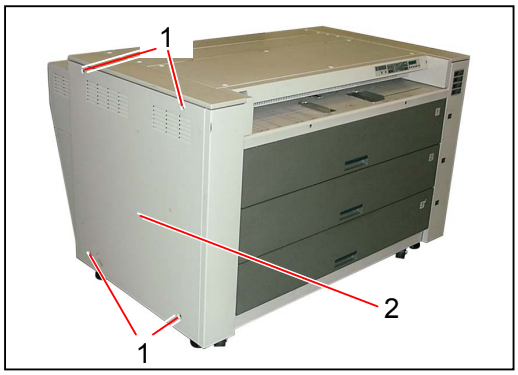


4) Pull out the connector (8) from the Clutch Mount.
Expanding the stopper lever (9) outward, pull out the **Roll Paper Feed Clutch** (9) from the shaft.
Replace the Roll Paper Feed Clutch (10) with the new one.

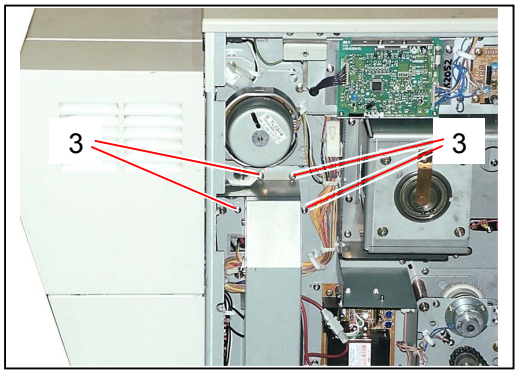


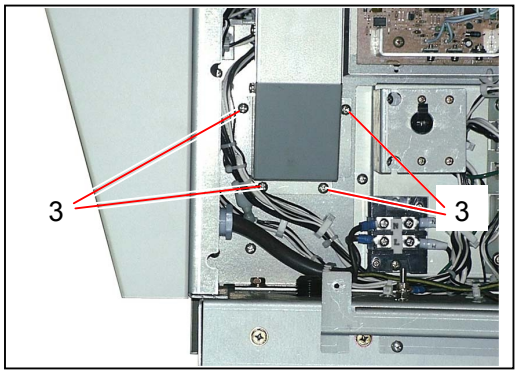
5.13.11 Replacing SSR1 and SSR2

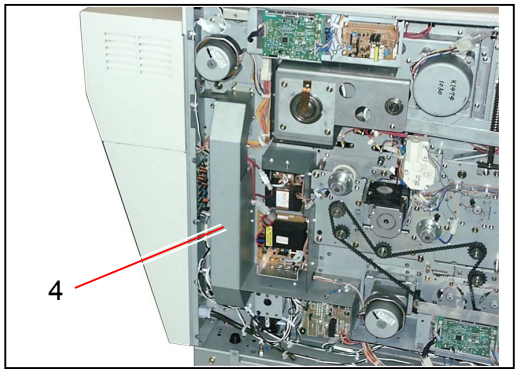
1) Remove 4 pieces of tooth washer screw (1) to remove the Side Cover L (2).



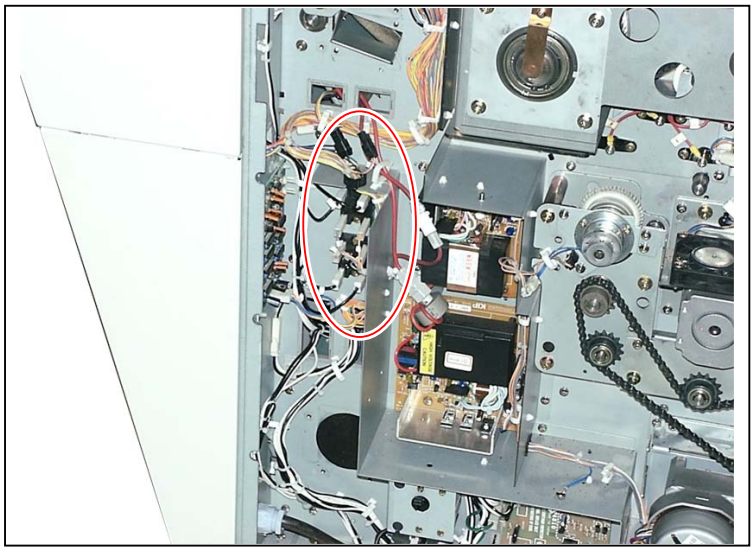
2) Remove 8 pieces of tooth washer screw (3) to remove the Duct Assembly (4).

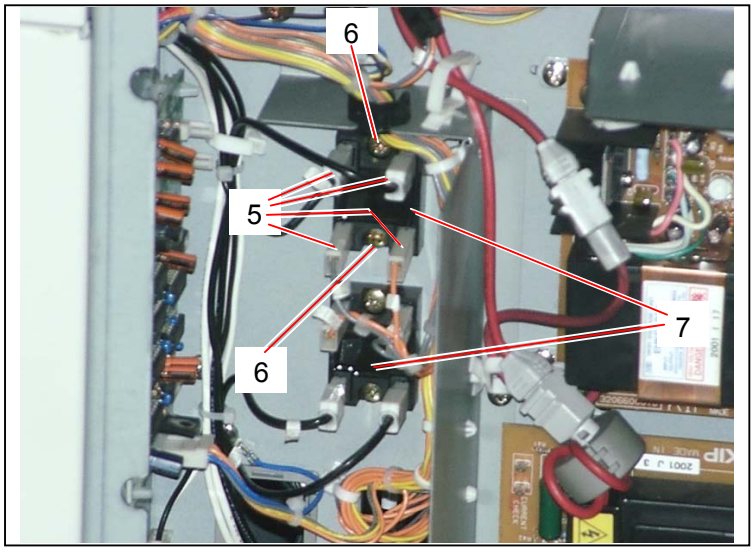






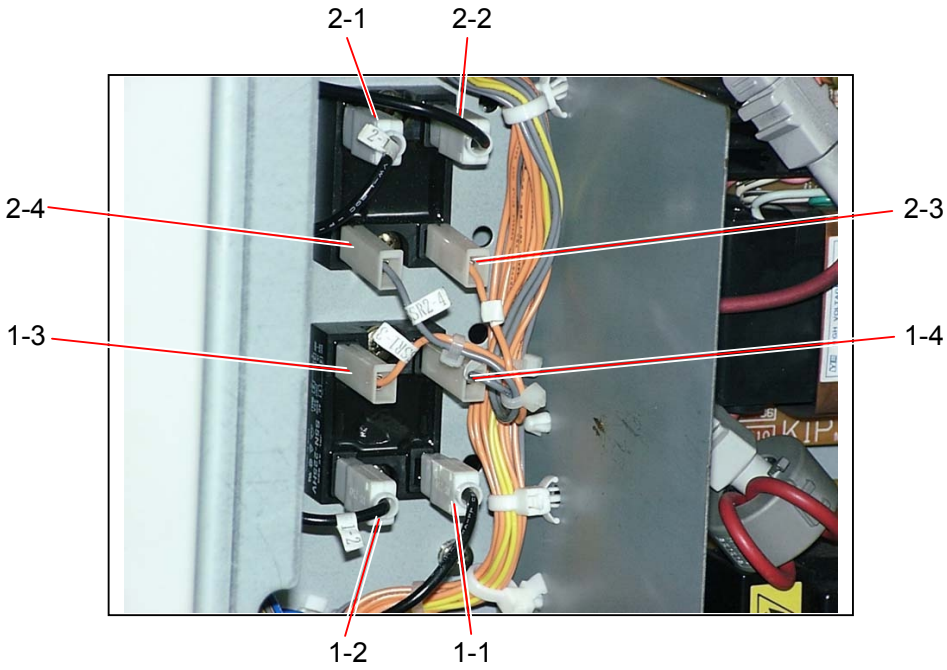
3) Disconnect 4 connectors (5), remove 2 pieces of screw (6), and then remove each SSR (7). Replace the SSR with the new one,.





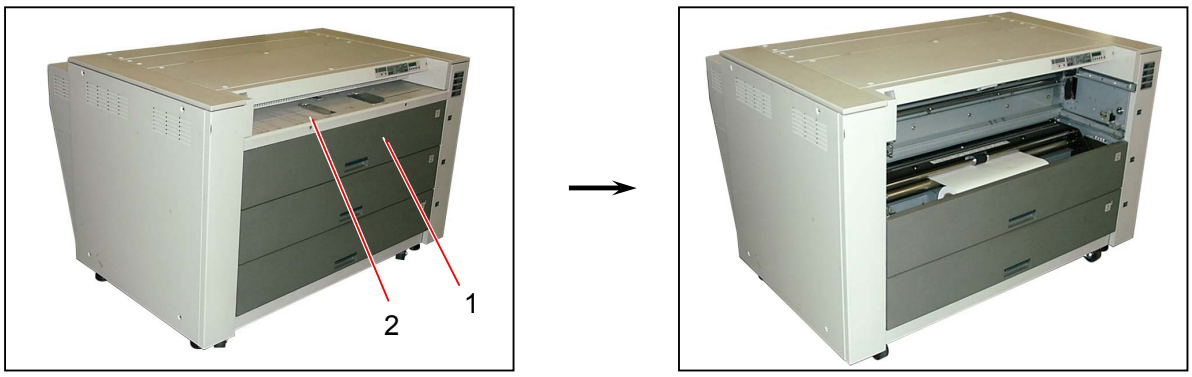
NOTE

Each connector of SSR is labelled independently.
Connect them to the correct position making reference to the following photo.

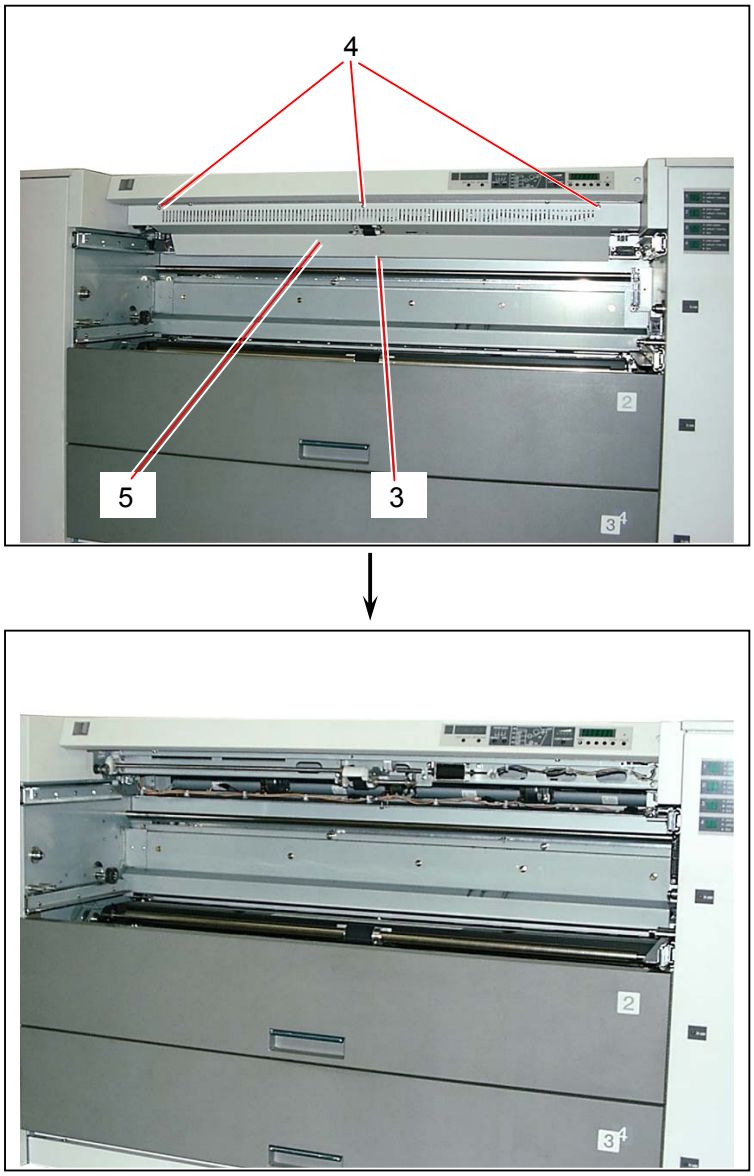


5.13.12 Replacing LED Cooling Fans (BL8 to BL11)

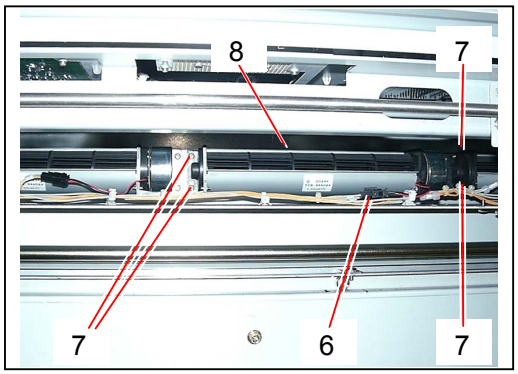
1) Remove both the Top Roll Deck (1) and the Bypass Feeder Unit (2) making reference to [5.8.1 Removing each Roll Deck] on the page 5-105 and [5.9.1 Removing Bypass Feeder Unit] on the page 5-132.

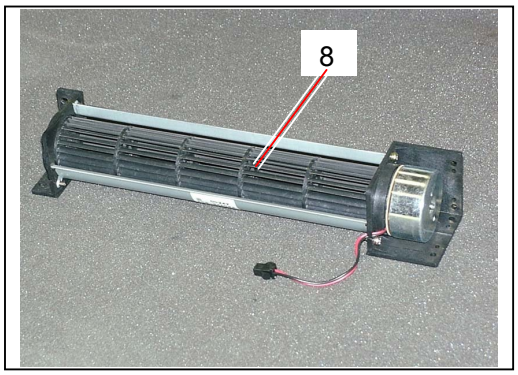


2) Loosen the tooth washer screw (3) on the bottom, and remove 3 pieces of tooth washer screw (4) to remove the Cover (5).



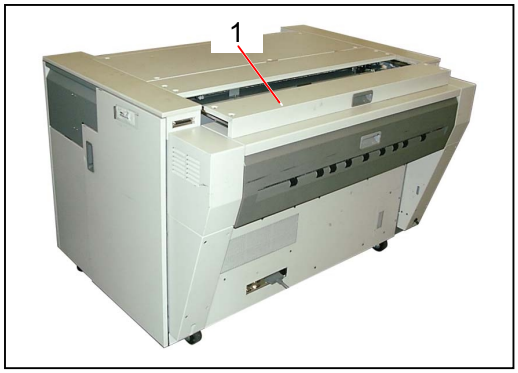
3) Remove the connector (6), remove 4 pieces of screw (7), and then remove each **LED Cooling Fan** (8).
Replace the LED Cooling Fan (8) with the new one.



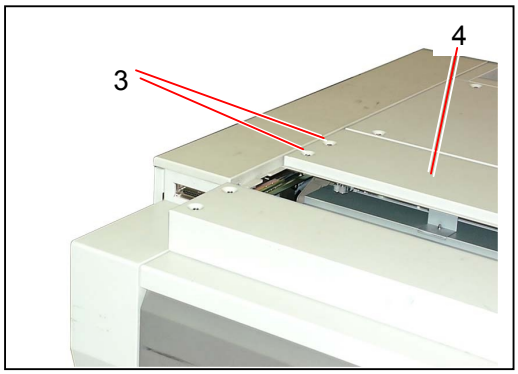


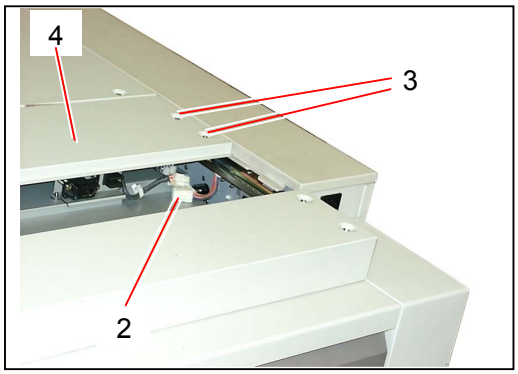
5.13.13 Replacing Leading Edge Sensor (PH12)

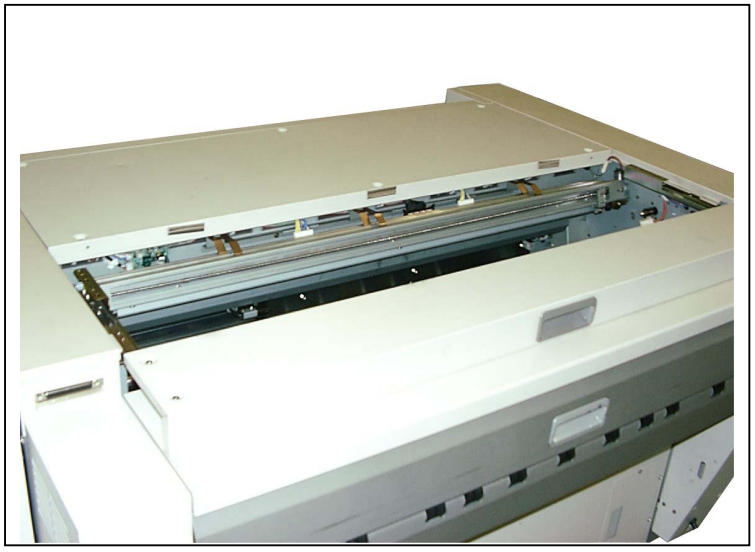
1) Open the Rear Upper Cover (1).



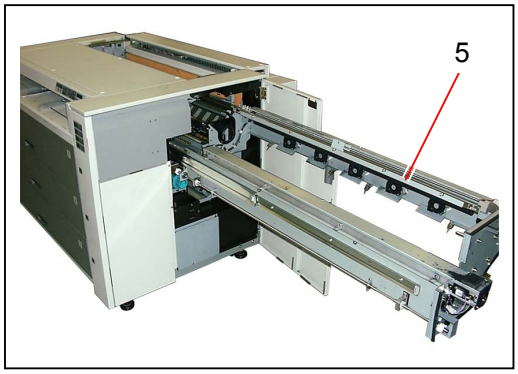
2) Disconnect the connector (2), remove 4 pieces of tooth washer screw (3), and then remove the Cover 305 Assembly (4).



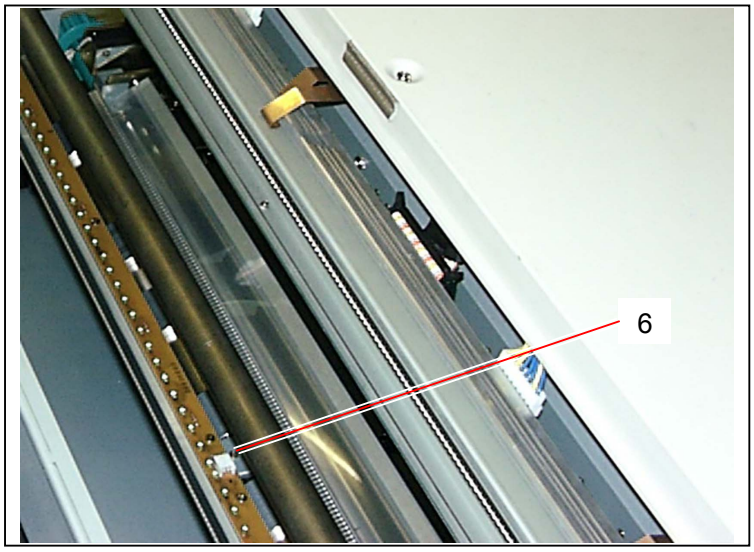


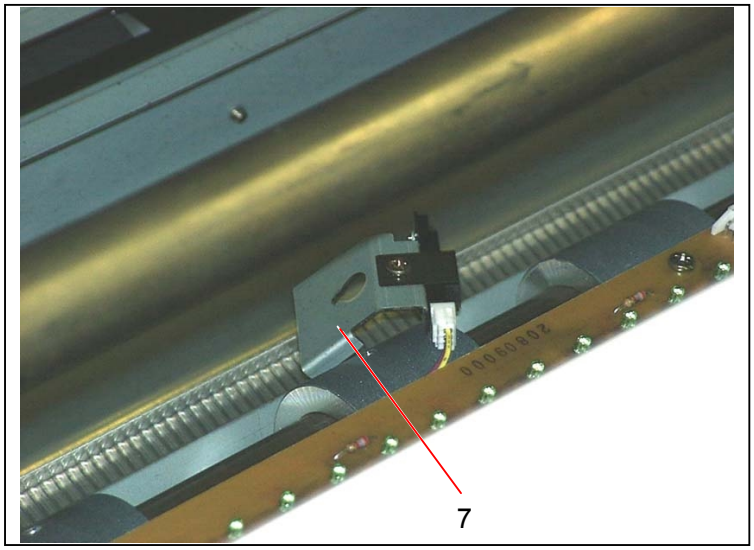


3) Draw out the Process Unit (5) from the machine making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1.
Remove the Drum Assembly and keep it in the box to avoid the light.

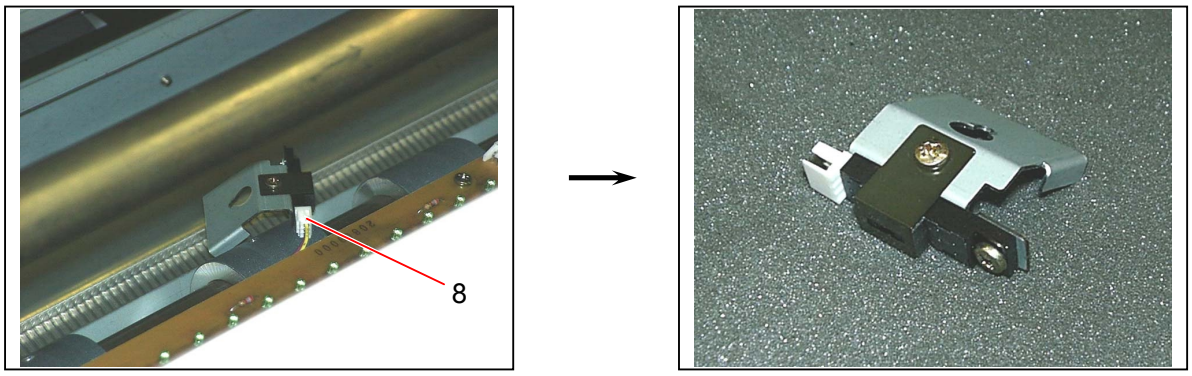


4) Loosen the screw (6) to make the Bracket 207 (7) free.

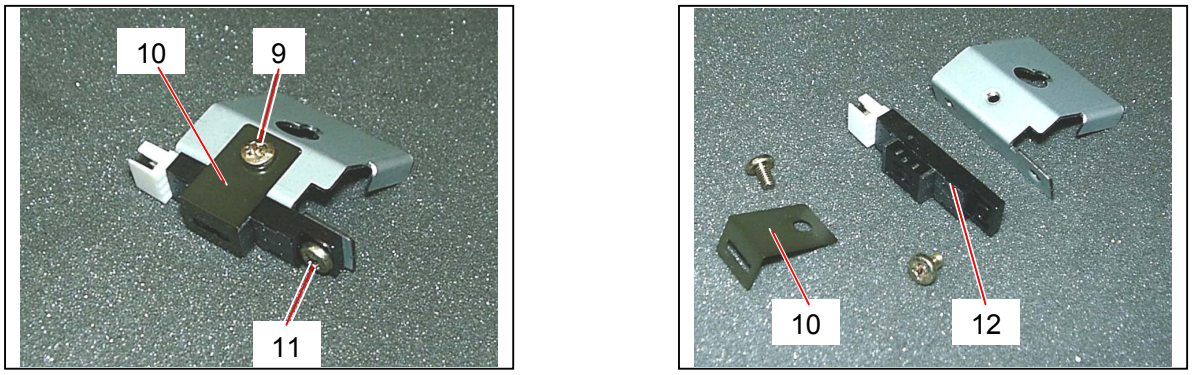




5) Disconnect the connector (8), and remove the bracket with sensor.

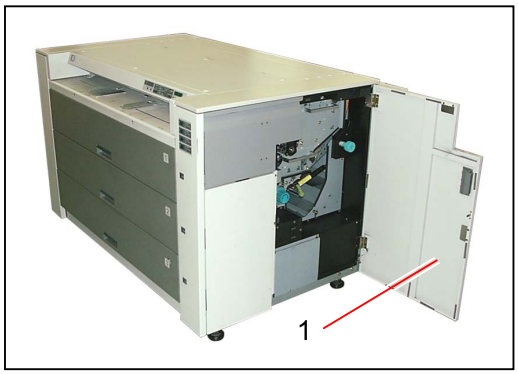


6) Remove the screw (9) top remove the Slit Plate (10).
Remove the screw (11) to remove the **Leading Edge Sensor** (12).
Replace the Leading Edge Sensor (12) with the new one.

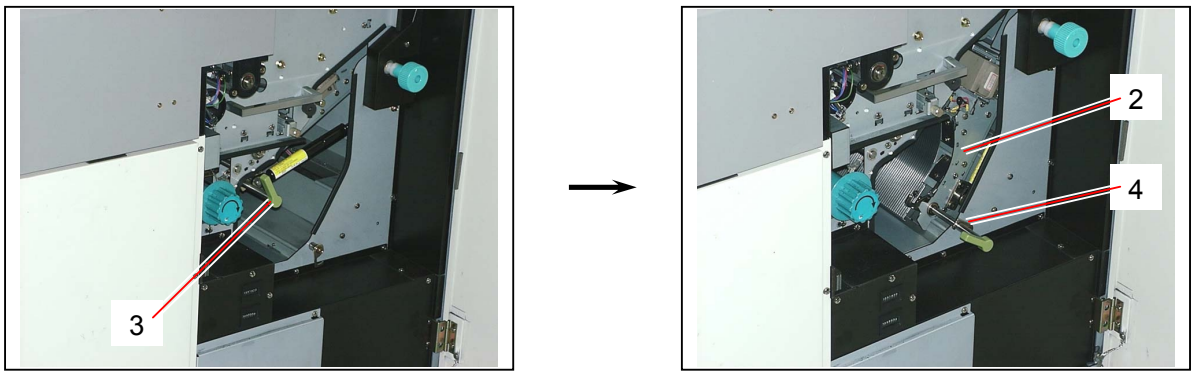


5.13.14 Replacing Pre-transfer LED

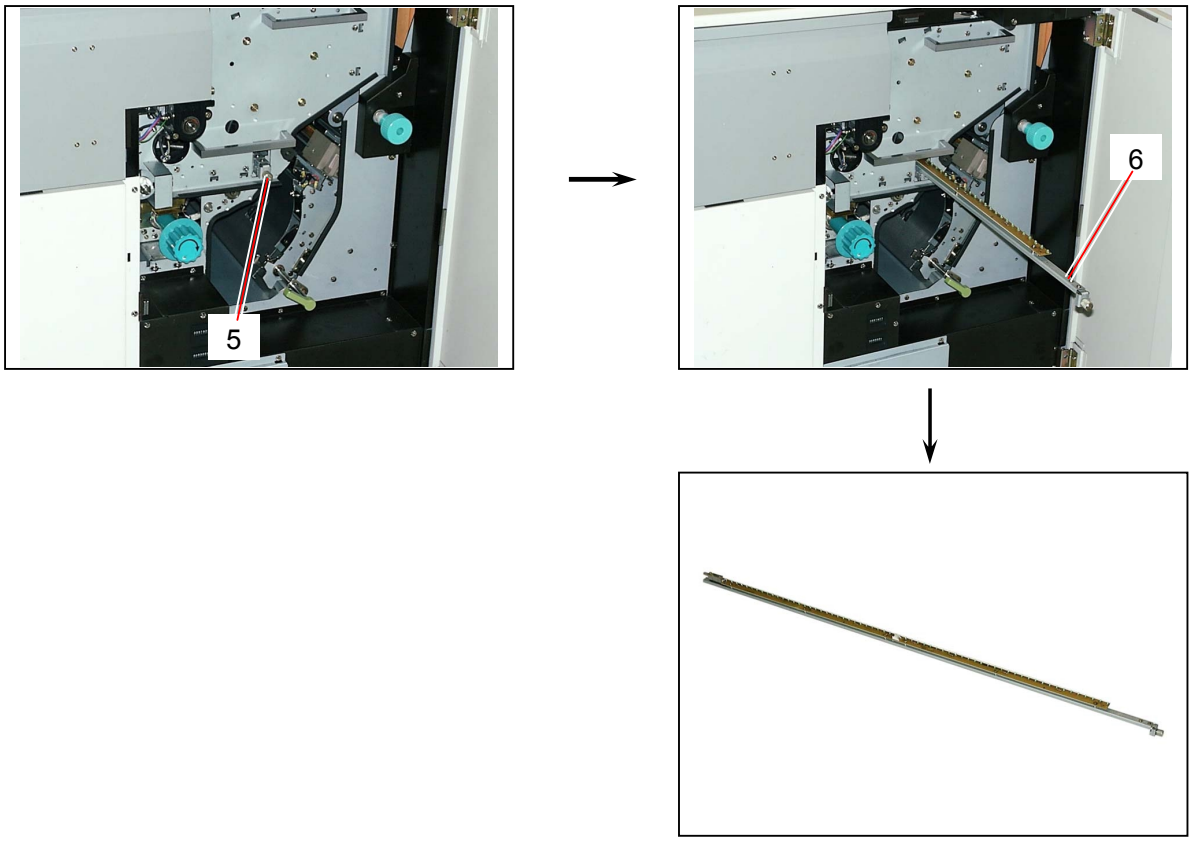
1) Open the Right Side Door (1).



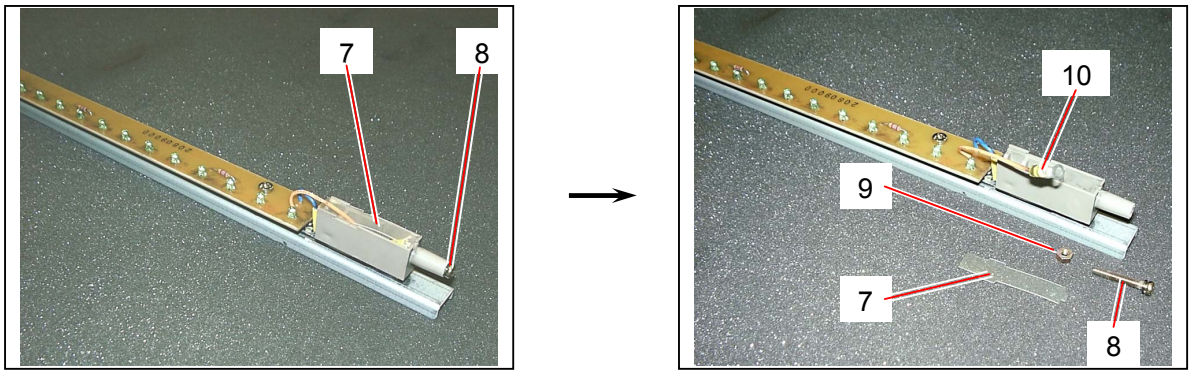
2) Unlock the Internal Transportation Unit (2) rotating the Internal Transportation Unit Lever (3) counter-clockwise, bring down the unit and then lock the shaft of lever with the Hook (4).



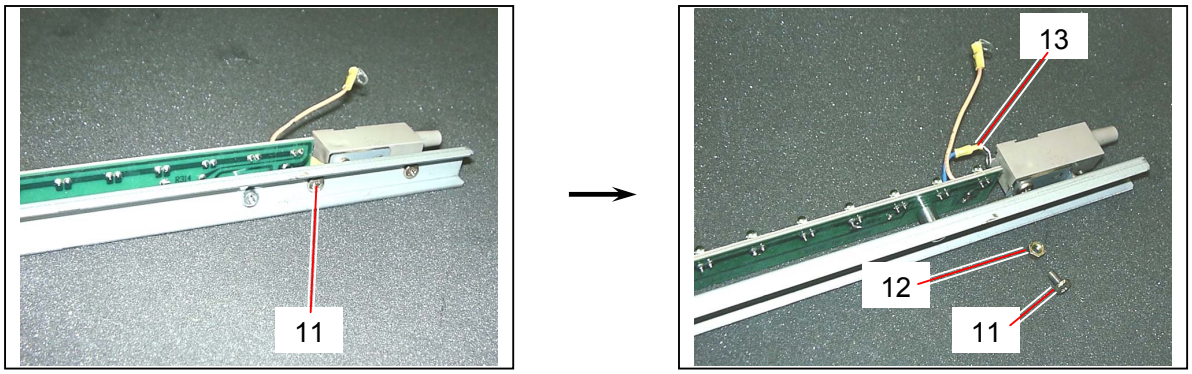
3) Rotate the Knob (5) counter-clockwise to unlock, and then pull out the Bracket (6) with Pre-transfer LED.



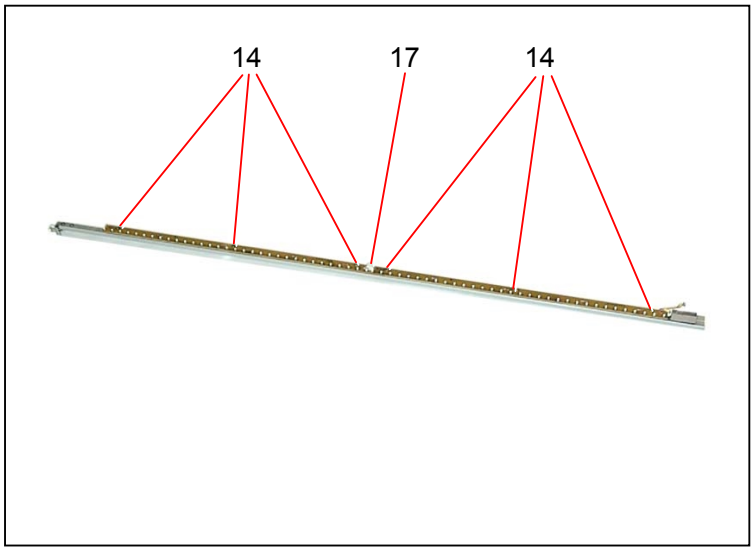
4) Remove the Cover 6 (7), and then remove both screw (8) and nut (9) to make the wire (10) free.

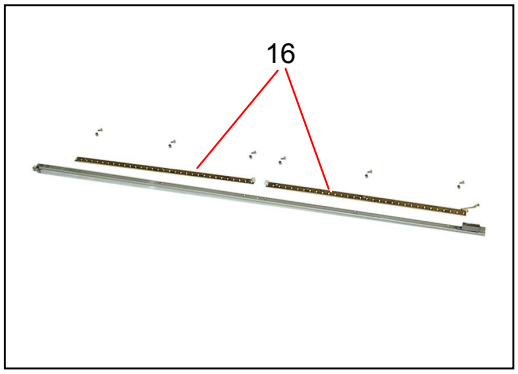


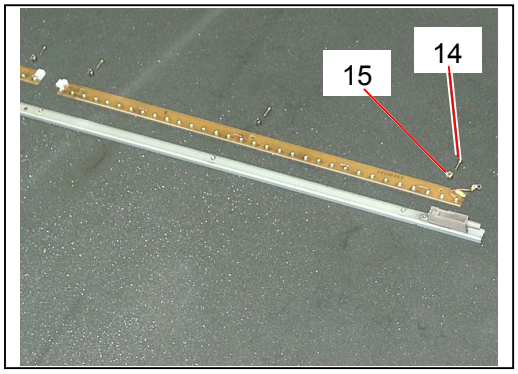
5) Remove both screw (11) and nut (12) to make one more wire (13) free.



6) Remove 6 pieces of each bind head screw (14) and Collar (15), and then divide the lamp into 2 pieces of **Pre-Transfer LED PCB** (16) disconnecting the connector (17).
Replace the Pre-transfer LED PCB (16) with the new one.



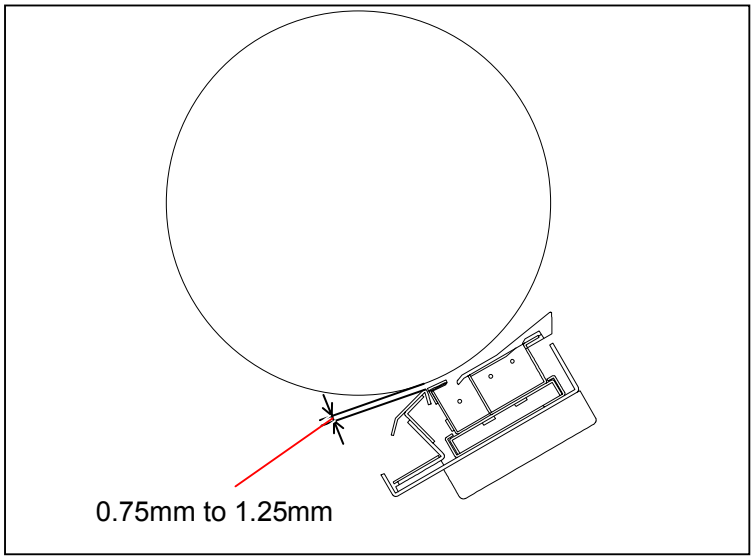




5.13.15 Adjustment of gap between Drum & Transfer Guide Plate

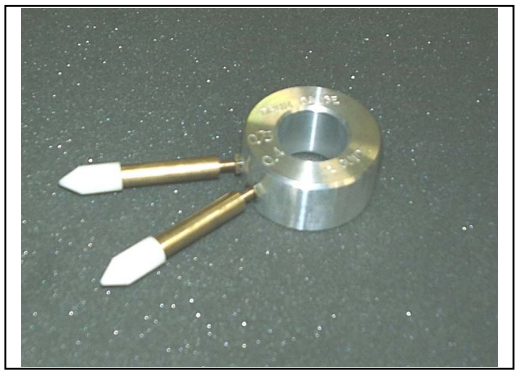
NOTE

In case you have replaced or removed the Transfer Guide Plate for some reason, make sure to check the gap between Drum and Transfer Guide Plate using an exclusive Jig.
And adjust the gap properly if necessary.
The proper gap between Drum and Transfer Guide Plate is **0.75mm to 1.25mm**.

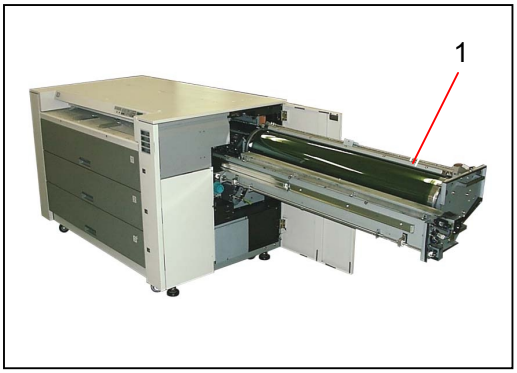


To measure the gap, use the exclusive Jig shown in the right photo.

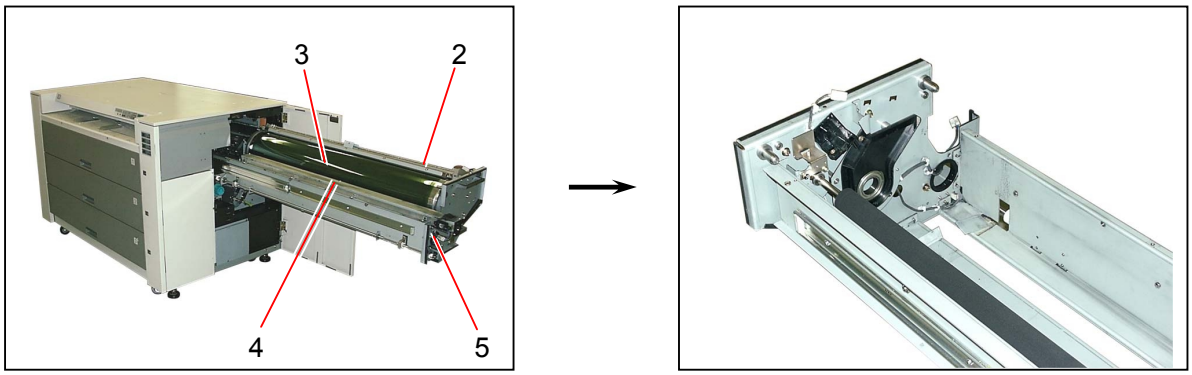
Drum Gauge for Transfer Guide (7708560011)



1) Draw out the Process Unit (1) from the machine making reference to [5.1.1 Drawing out the Process Unit] on the page 5-1.



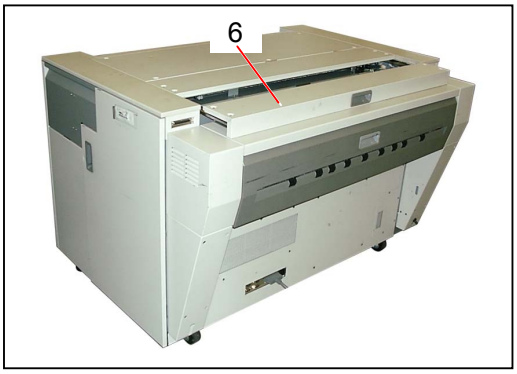
2) Remove each Image Corona (2), Drum Assembly (3), Toner Hopper (4) and Developer Unit (5) from the Process Unit making reference to [5.1.2 Removing Image Corona, Drum Assembly, Toner Hopper & Developer Unit] on the page 5-4.



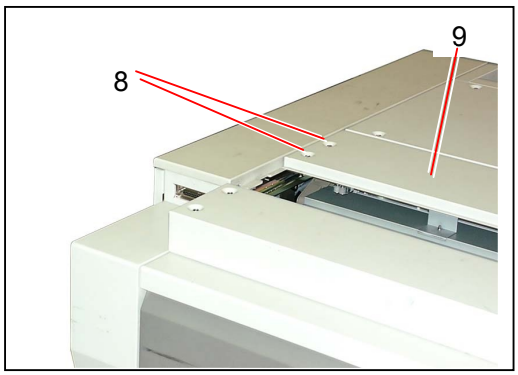
NOTE

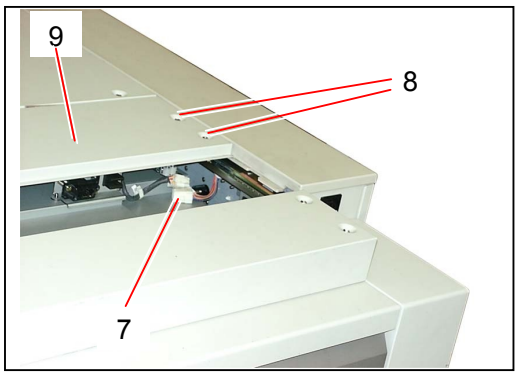
If you take checking or adjustment of gap without removing the Developer Unit, you may damage the surface of Development Roller with the tip of Pin of the Drum Gauge

3) Open the Rear Upper Cover (6).

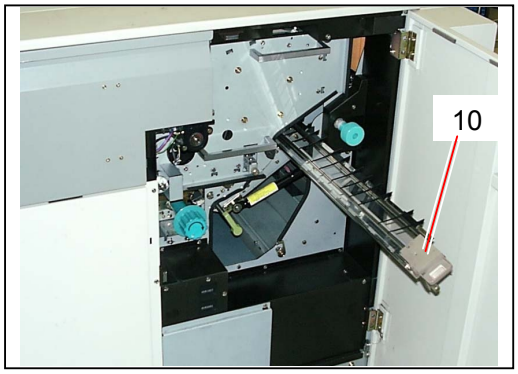


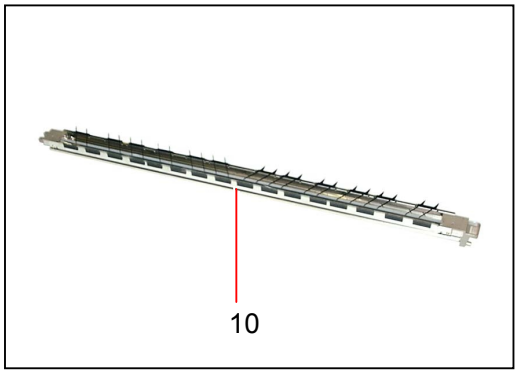
4) Disconnect the connector (7), remove 4 pieces of tooth washer screw (8), and then remove the Cover 305 Assembly (9).



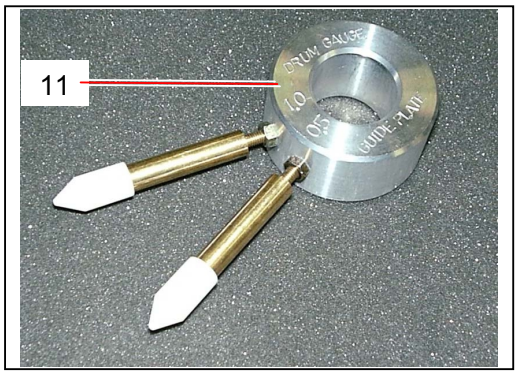


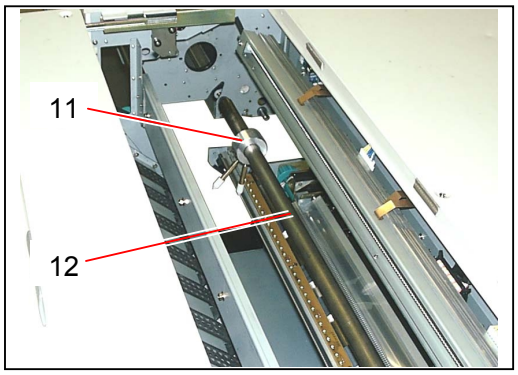
5) Remove the Transfer / Separation Corona (10) from the machine making reference to [5.11.1 Removing Transfer / Separation Corona] on the page 5-161.



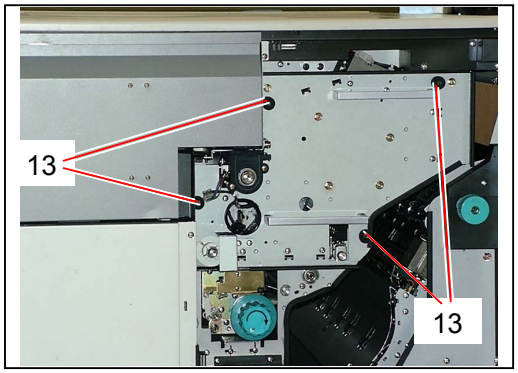


6) Fit the “Drum Gauge for Transfer Guide” (11) into the Drum Shaft (12).

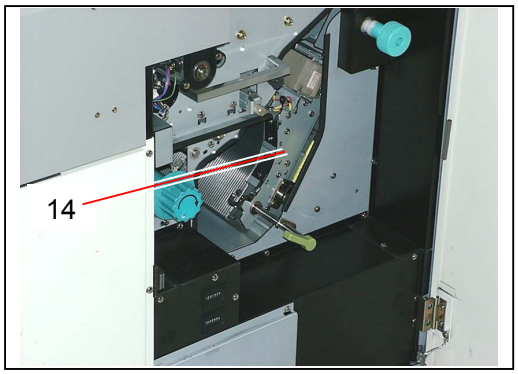


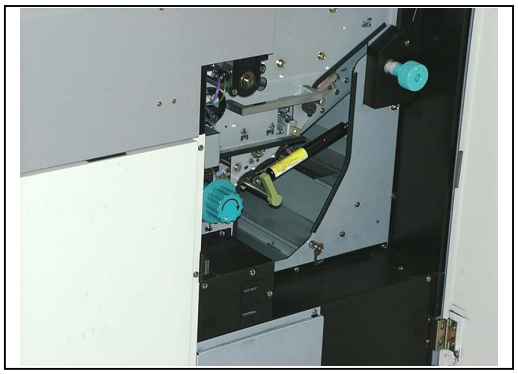


7) Close the Process Unit, and then fix it with 4 pieces of screw (13).



8) Bring up the Internal Transportation Unit (14) and lock it at the operation position.





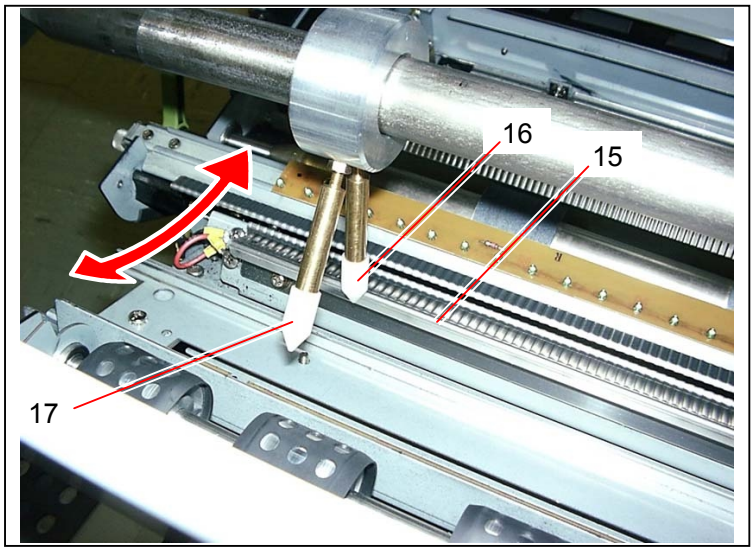
NOTE

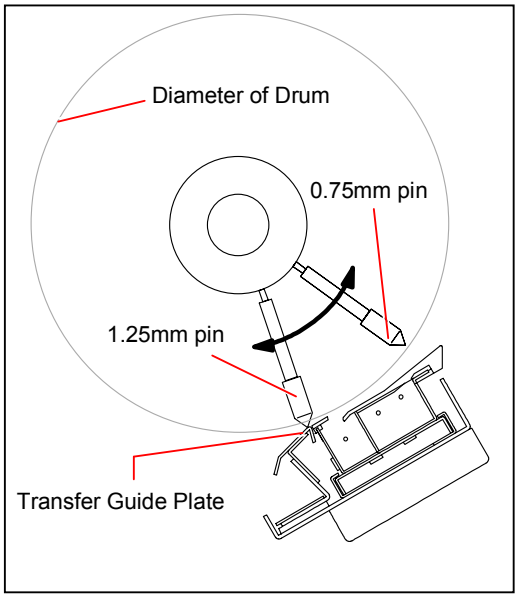
Make sure to close and lock both the Process Unit and the Internal Transportation Unit before measurement.
If these units are not locked at the correct positions, it is impossible to measure the gap correctly.

9) Swing the “Drum Gauge for Transfer Guide” forward and backward to check whether or not its pins touch the Transfer Guide Plate (15).

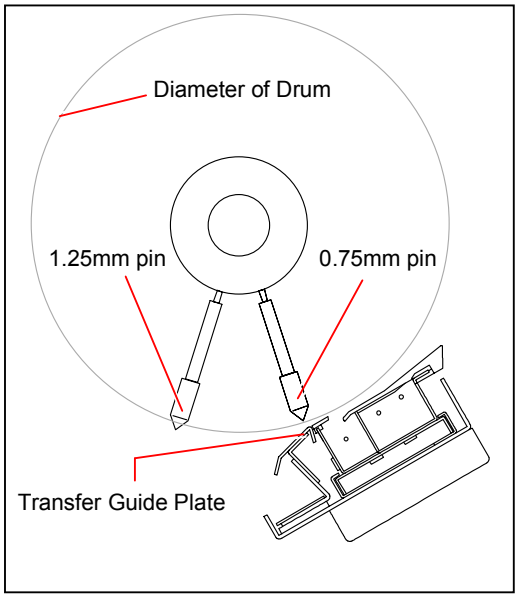
One of 2 pins marked with 0.75mm (16) should not touch the Transfer Guide Plate (15).
Another pin marked with 1.25mm (17) should touch the Transfer Guide Plate (15) slightly.

If the above conditions are satisfied, the gap is between 0.75mm and 1.25mm.





1.25mm pin should touch the Transfer Guide Plate slightly.

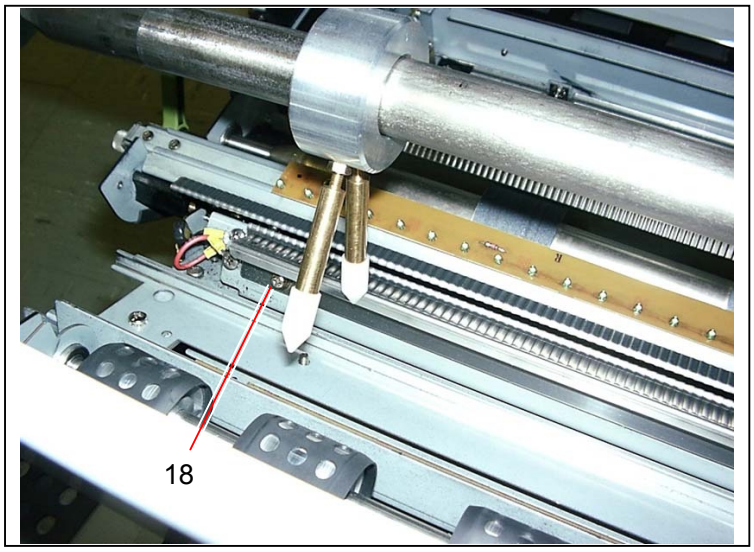


0.75mm pin should not touch the Transfer Guide Plate.

NOTE

Please check not at one point but entirely along the Drum Shaft.

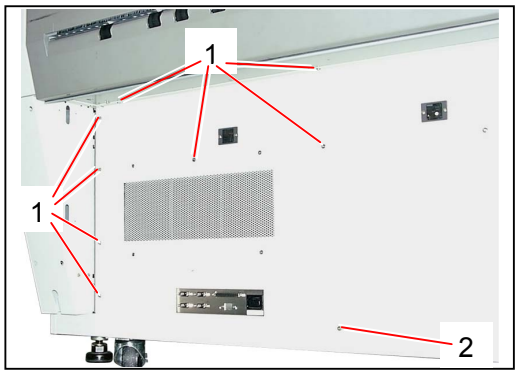
10) If the gap is out of the correct range, loosen 5 pieces of screw (18) one by one and move the Transfer Guide Plate up or down.

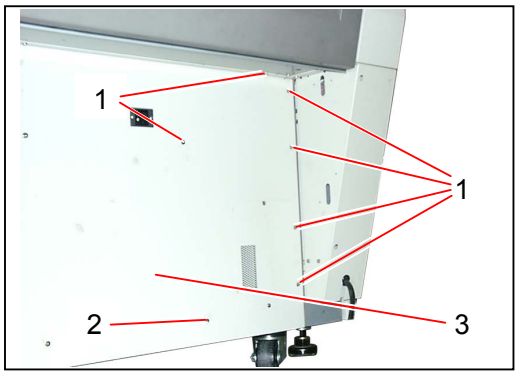


5.13.16 Replacing Ozone Filters

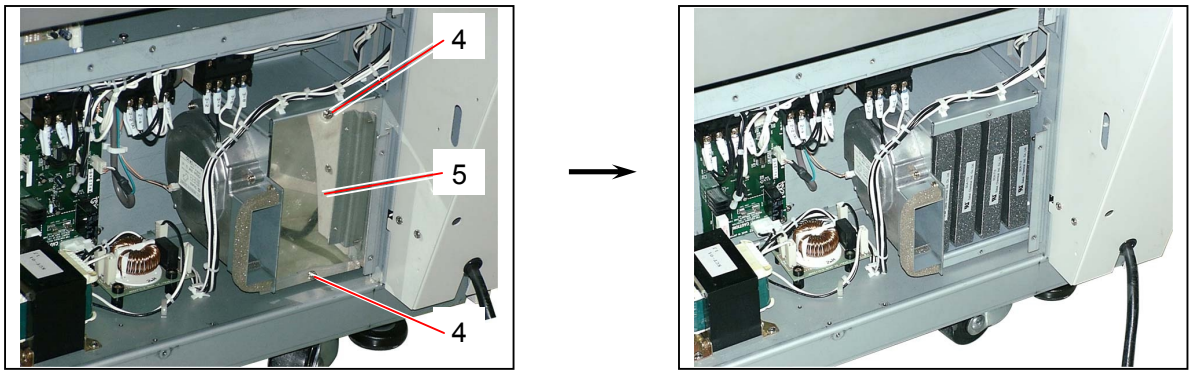
> **NOTE**
>
> Ozone Filters are Periodical Replacement Parts, and their life are 200,000m or 1 year.

1) Remove 14 pieces of tooth washer screw (1) and 2 pieces of bind head screw (2) to remove the Cover 1 (3).

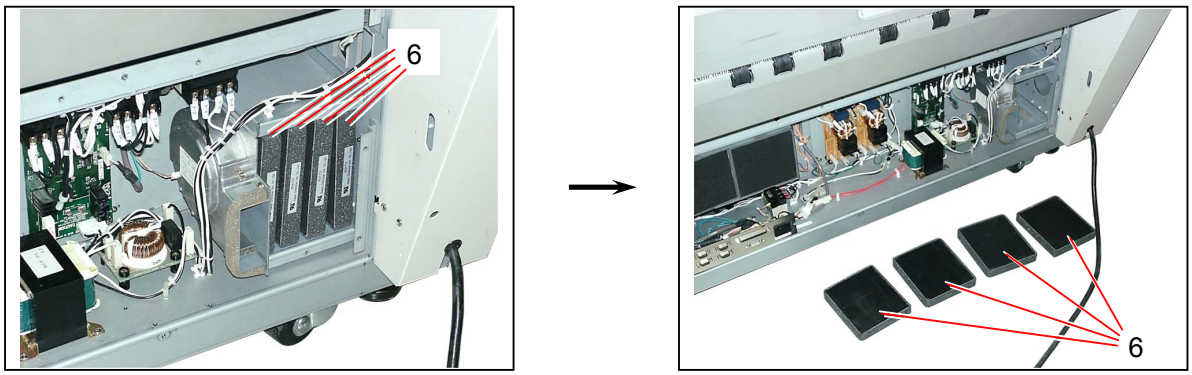




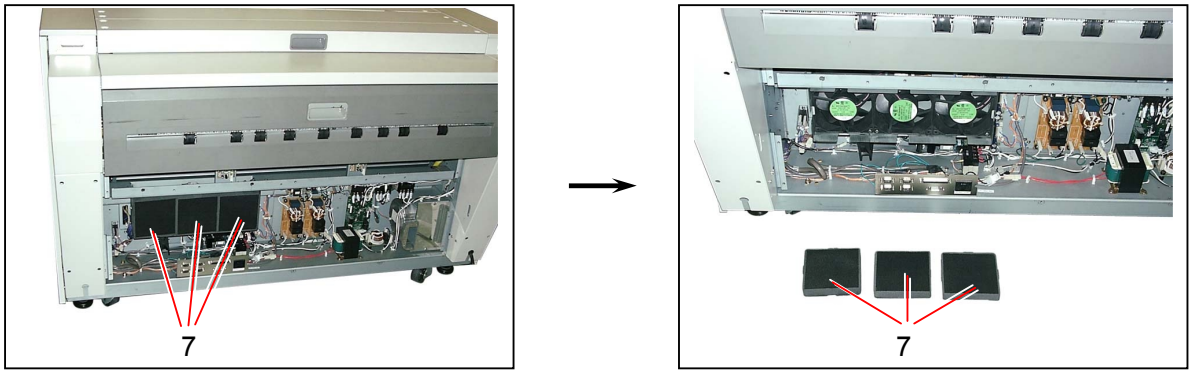
2) Remove 2 pieces of screw (4) to remove the Cover 2 (5).



3) Remove 4 pieces of **Ozone Filter** (6).
Replace the Ozone Filters (6) with the new ones.

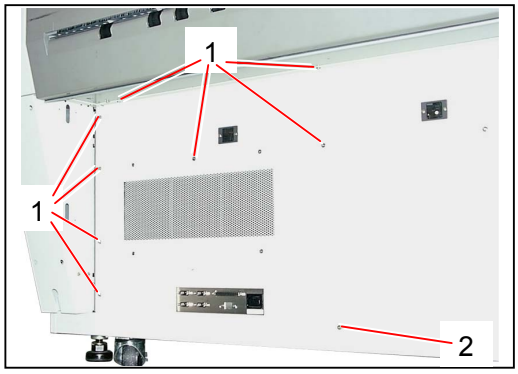


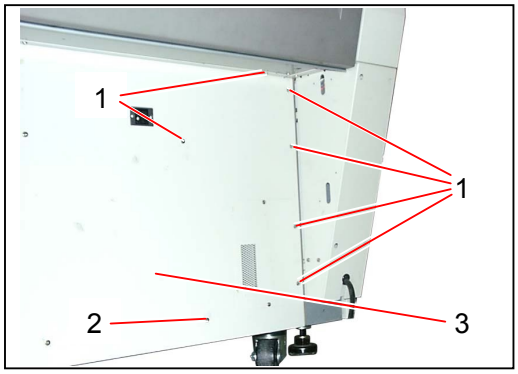
4) Remove 3 pieces of **Ozone Filter** (7).
Replace the Ozone Filters (7) with the new ones.



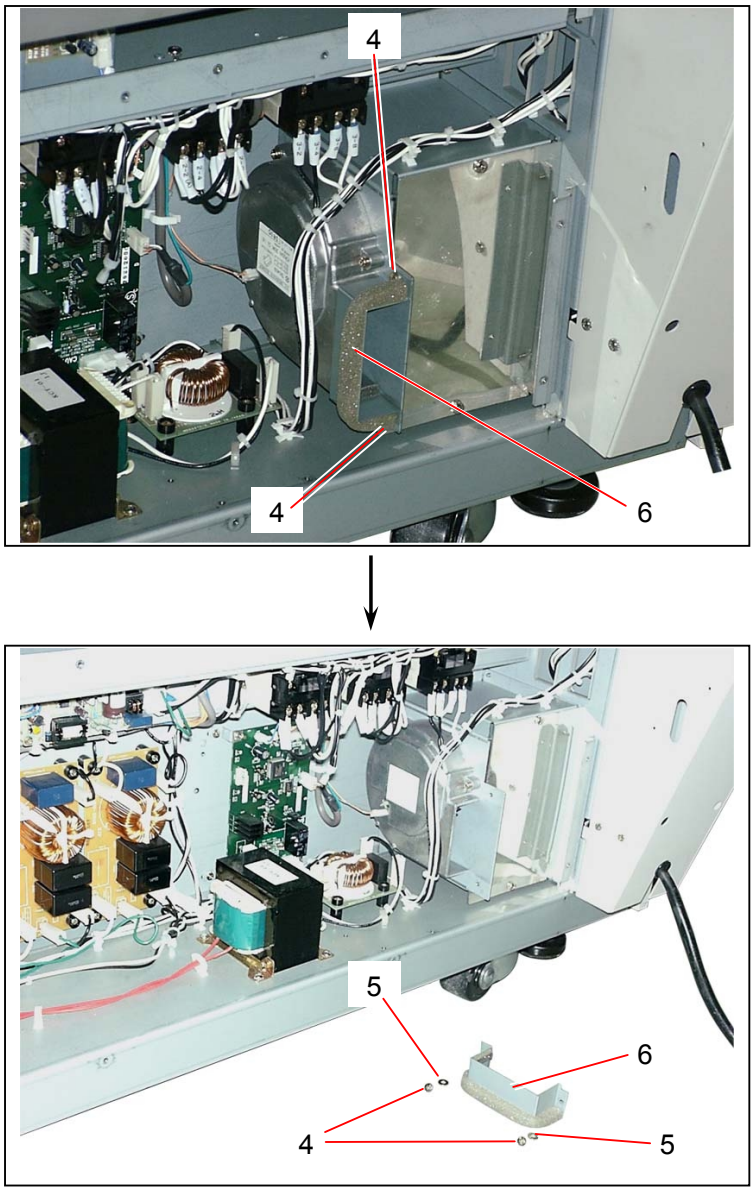
5.13.17 Replacing Separation Fan (BL1)

1) Remove 14 pieces of tooth washer screw (1) and 2 pieces of bind head screw (2) to remove the Cover 1 (3).

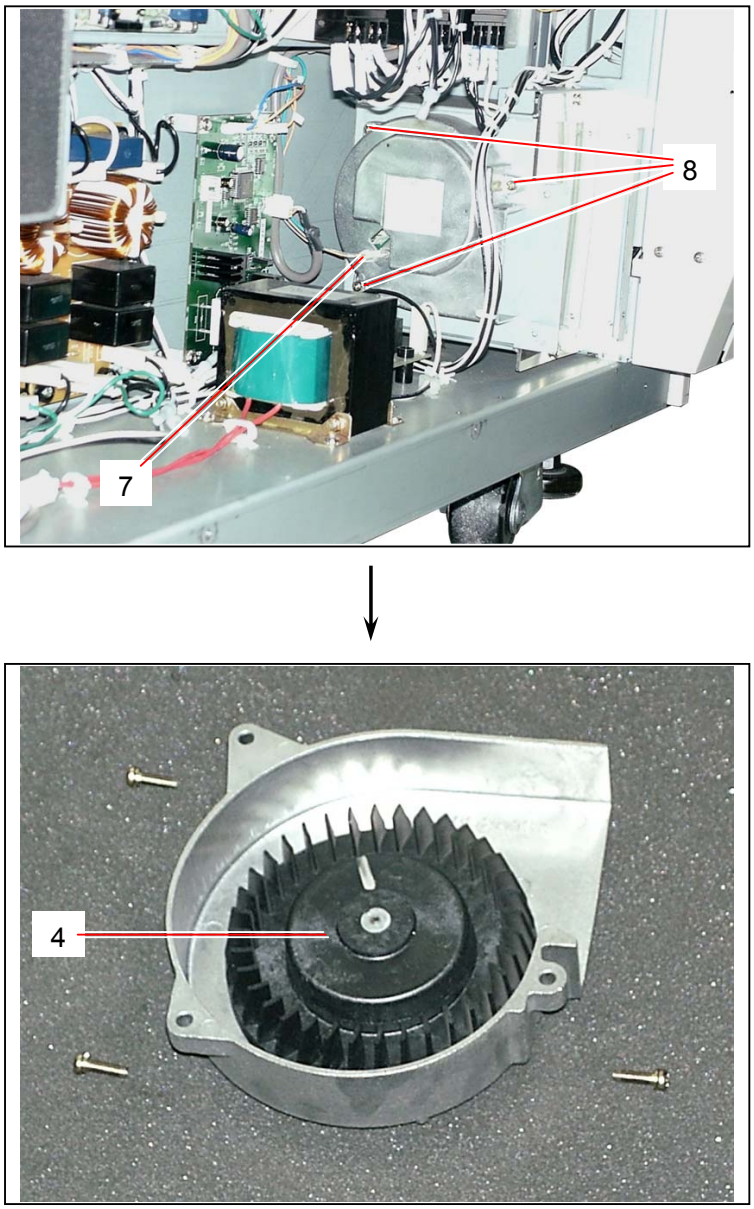




2) Remove 2 pieces of each screw (4) and Flat Washer (5) to remove the Cover 1 (6).



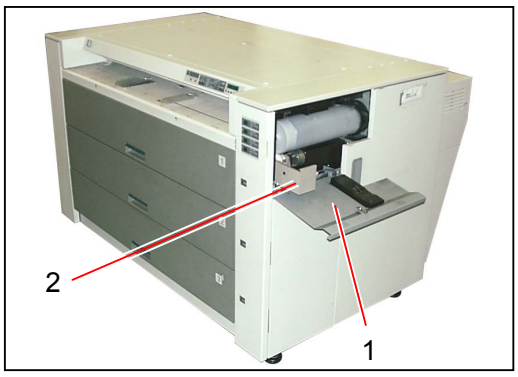
3) Disconnect the connector (7), and then remove 3 pieces of screw (8) to remove the Separation Fan (9).
Replace the Separation Fan (9) with the new one.



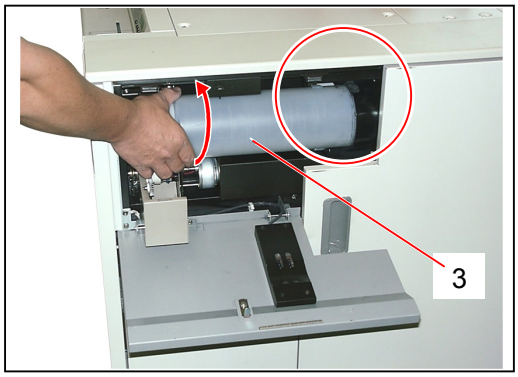
5.14 Toner Cartridge Driving Part

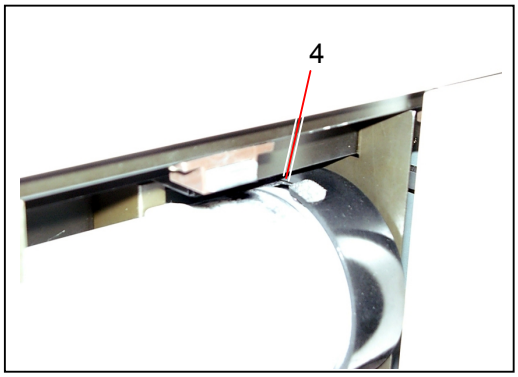
5.14.1 Replacing Transmission PCB (PW7750) & Receiver PCB (PW7751)

1) Open the Toner Cover (1) and the Toner Cartridge Cover (2).

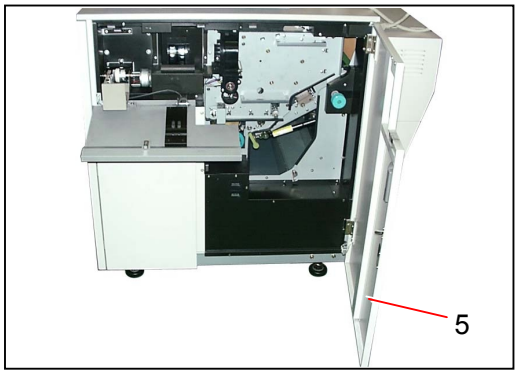


2) Rotate the Toner Cartridge (3) half revolution to move the opening (4) to the top position. Then, remove the Toner Cartridge (3).

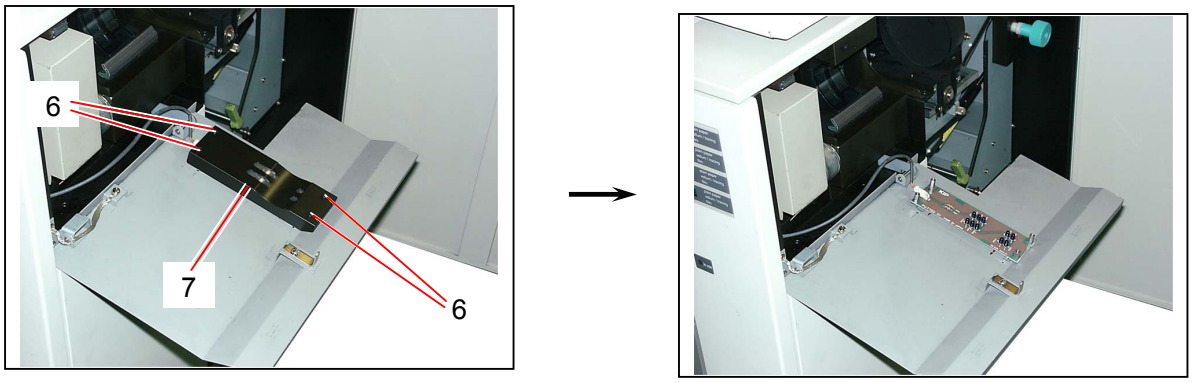




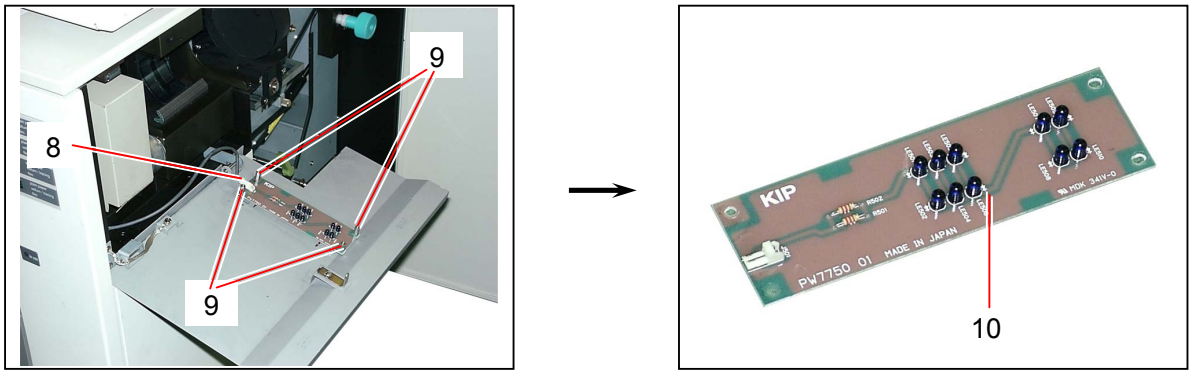
3) Open the Right Side Door (5).



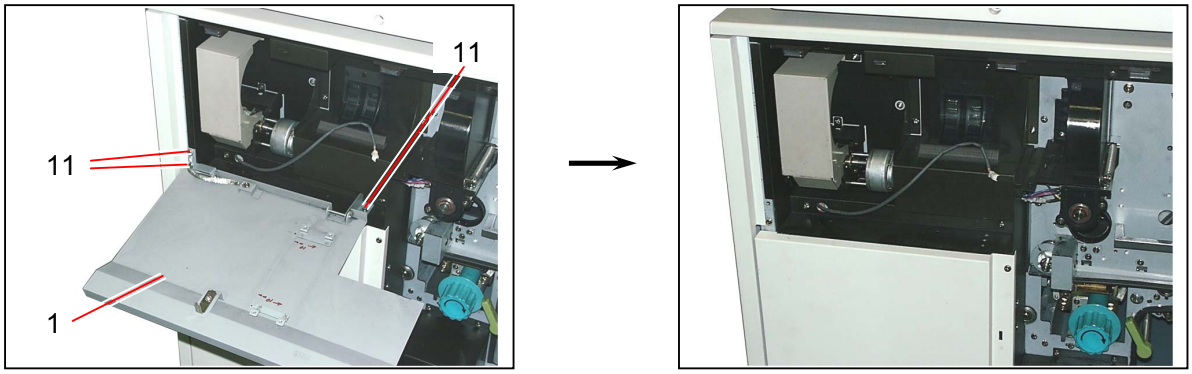
4) Remove 4 pieces of screw (6) to remove the Cover (7).



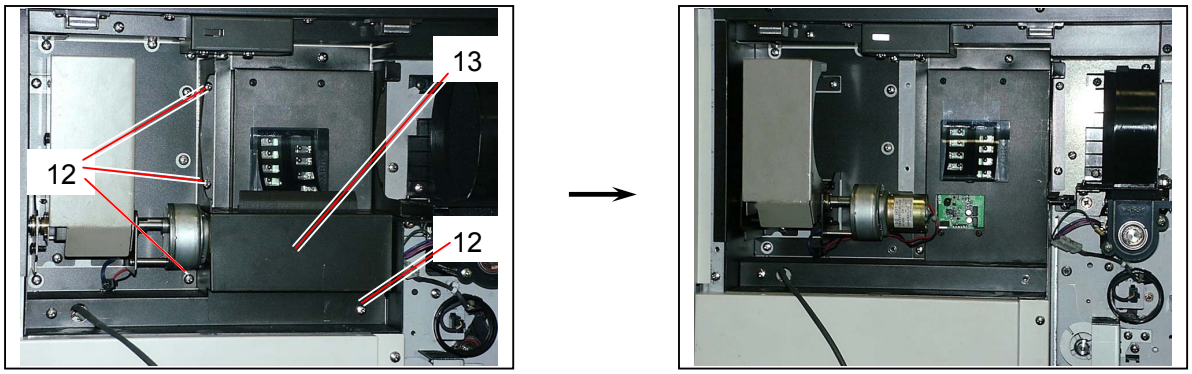
5) Disconnect the connector (8), and then remove 4 pieces of Hexagon Screw (9) to remove the **Transmission PCB** (10).
Replace the Transmission PCB (10) with the new one.



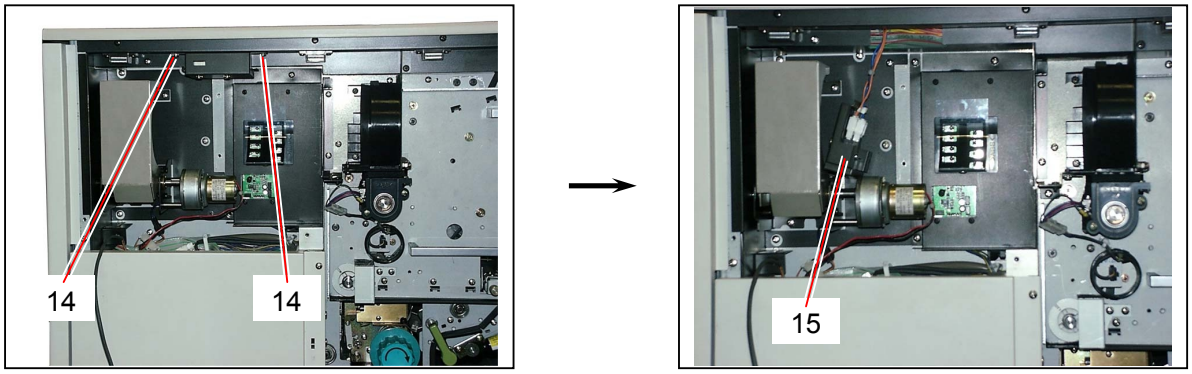
6) Remove 3 pieces of tooth washer screw (11) to remove the Toner Cover (1).



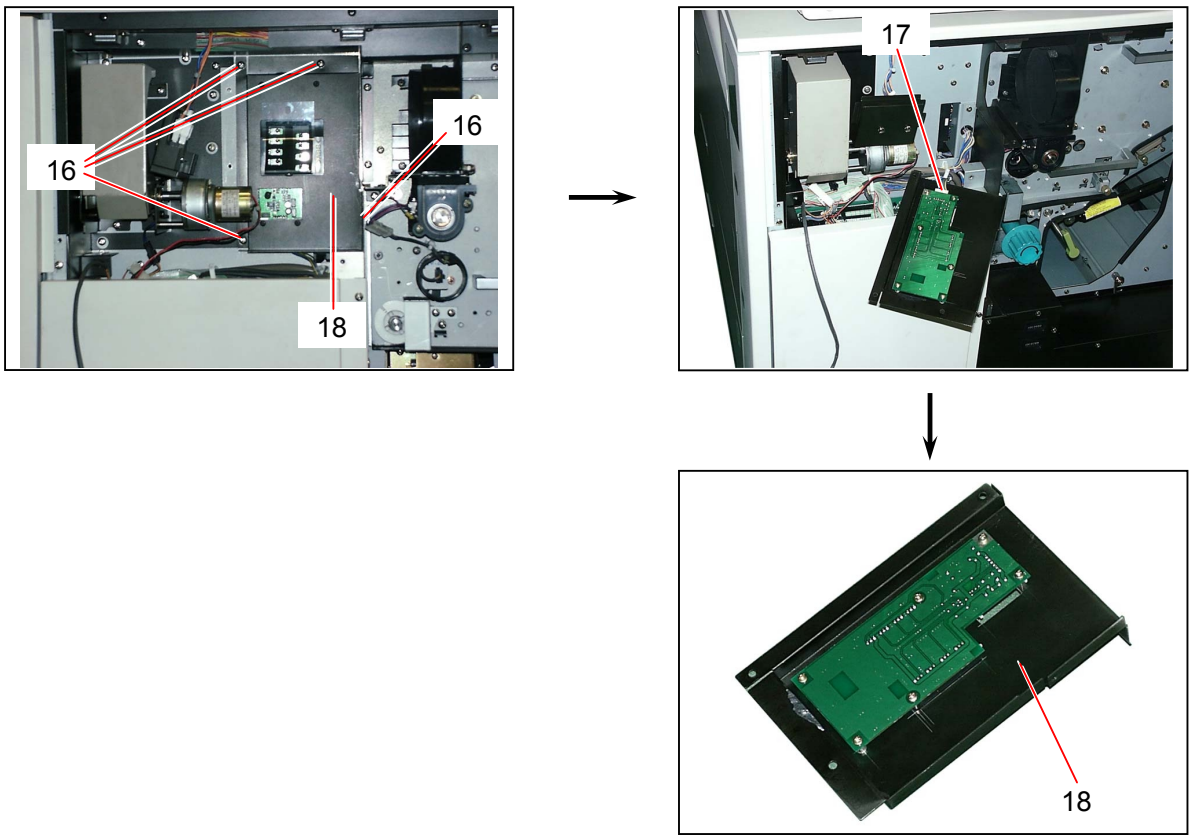
7) Remove 4 pieces of tooth washer screw (12) to remove the Bracket 562 (13).



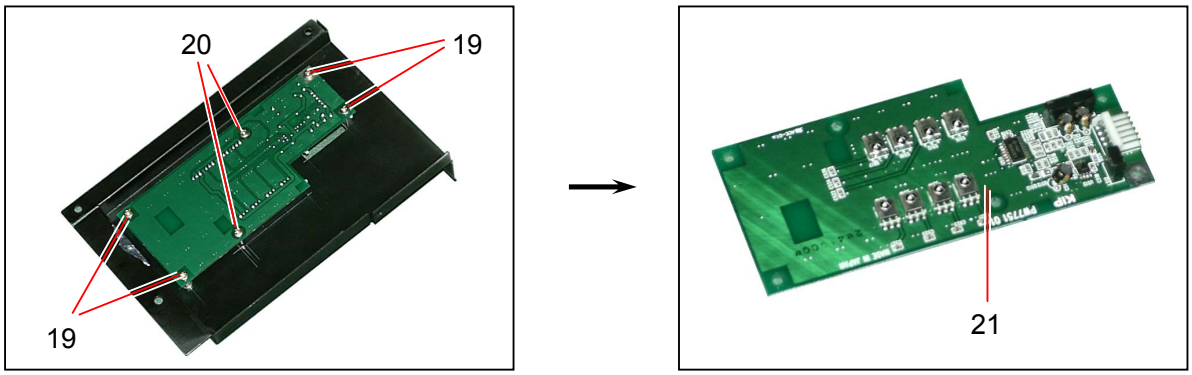
8) Remove 2 pieces of tooth washer screw (14) to make the Switch (15) free.



9) Remove 4 pieces of tooth washer screws (16), disconnect the connector (17), and remove the Bracket (18).

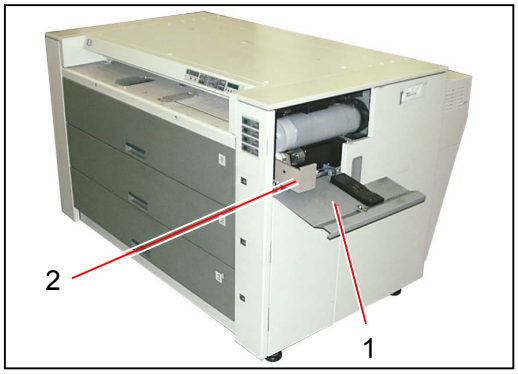


10) Remove 4 pieces of screw (19) and 2 pieces of self-tapping screw (20) to remove the **Receiver PCB** (21).
Replace the Receiver PCB (20) with the new one.

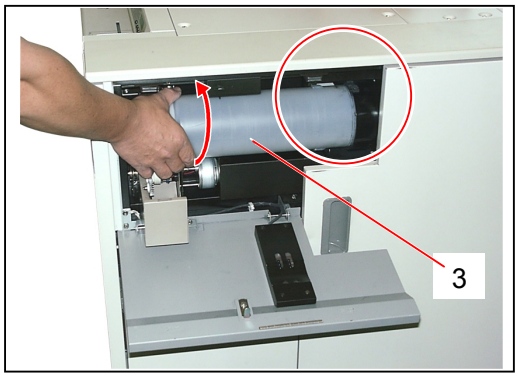


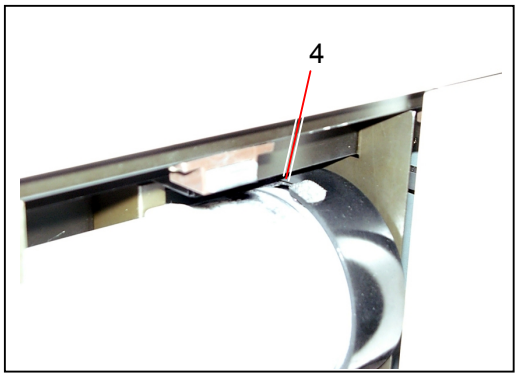
5.14.2 Replacing Toner Supply Motor 1 (M7) & Toner Supply Clutch (MC11)

1) Open the Toner Cover (1) and the Toner Cartridge Cover (2).

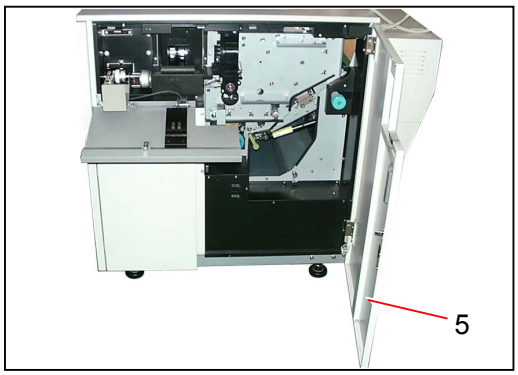


2) Rotate the Toner Cartridge (3) half revolution to move the opening (4) to the top position. Then, remove the Toner Cartridge (3).

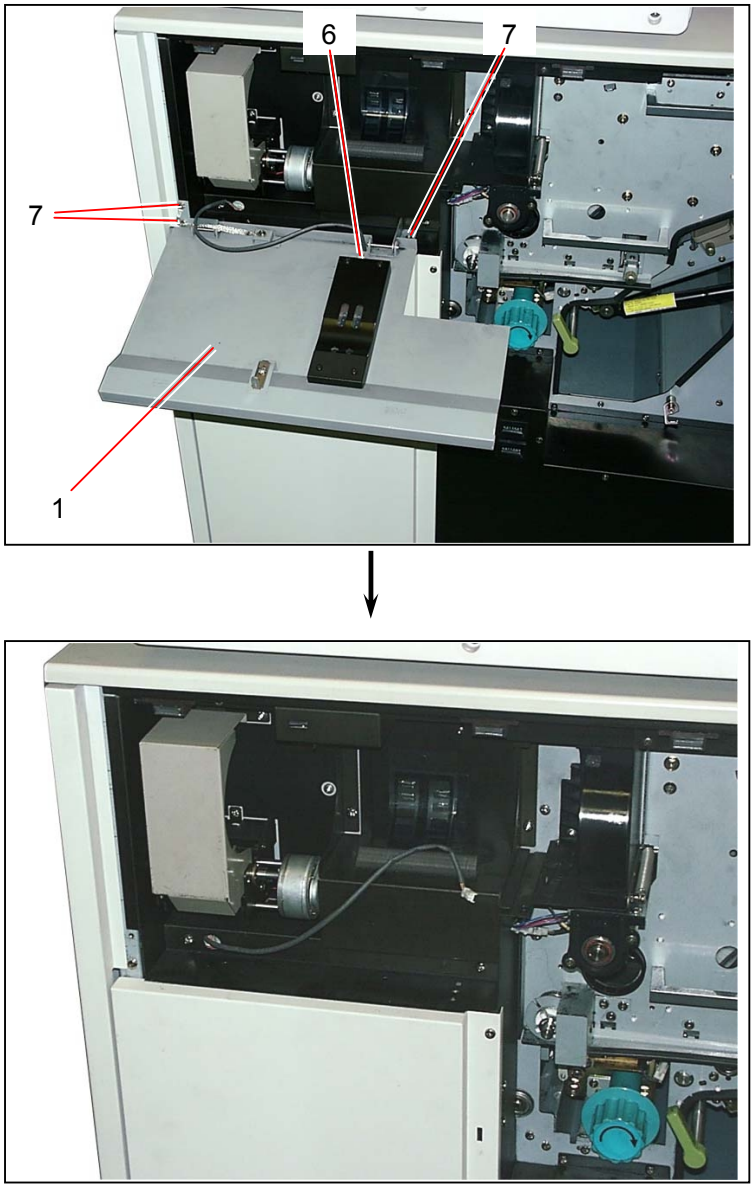




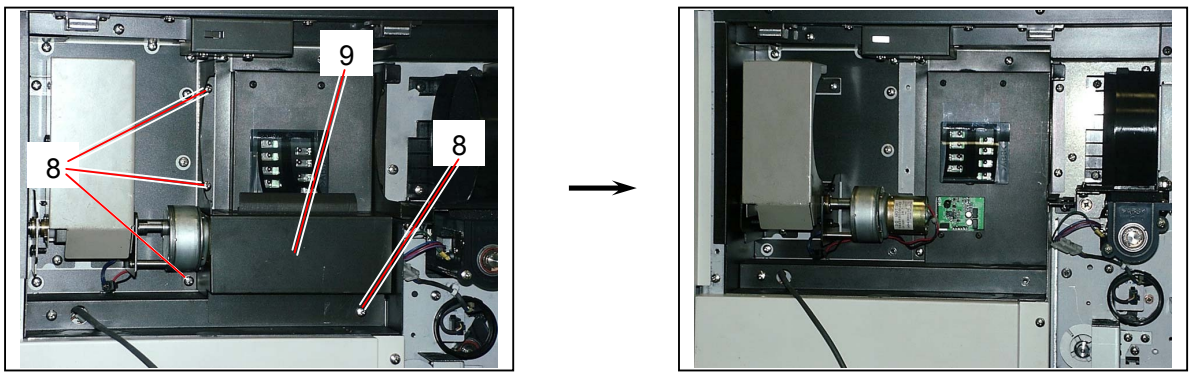
3) Open the Right Side Door (5).



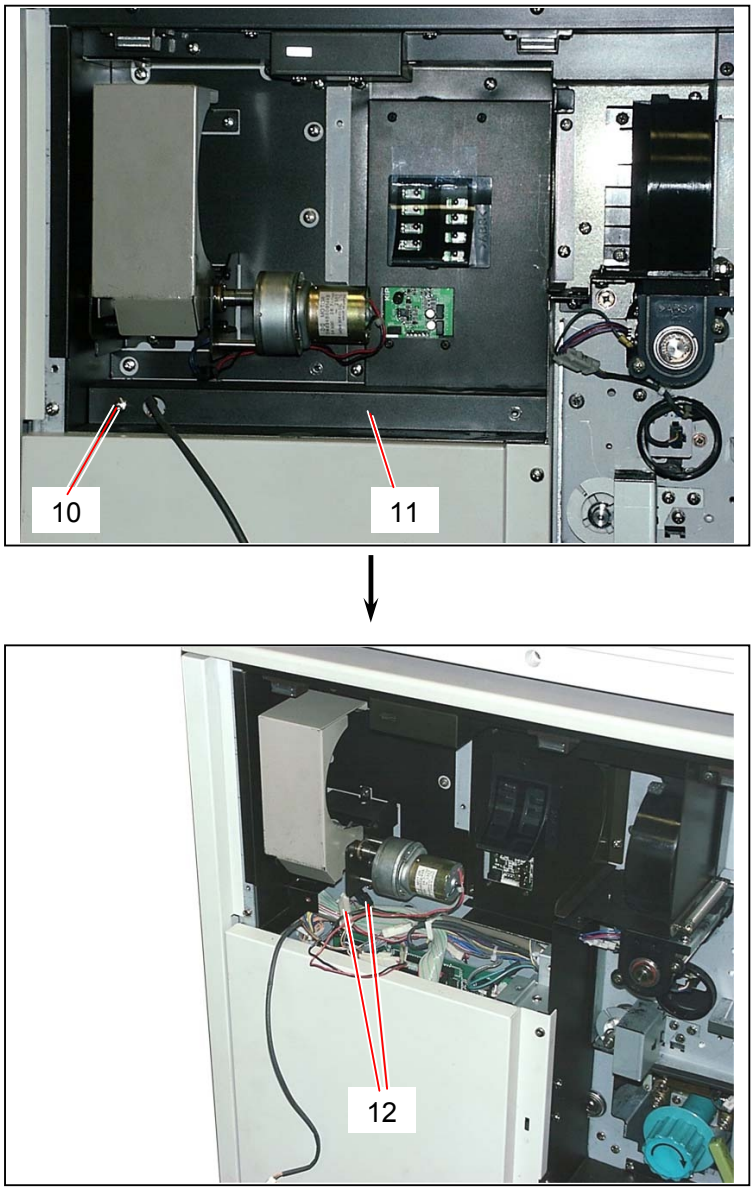
4) Disconnect the connector (6), and then remove 3 pieces of tooth washer screw (7) to remove the Toner Cover (1).



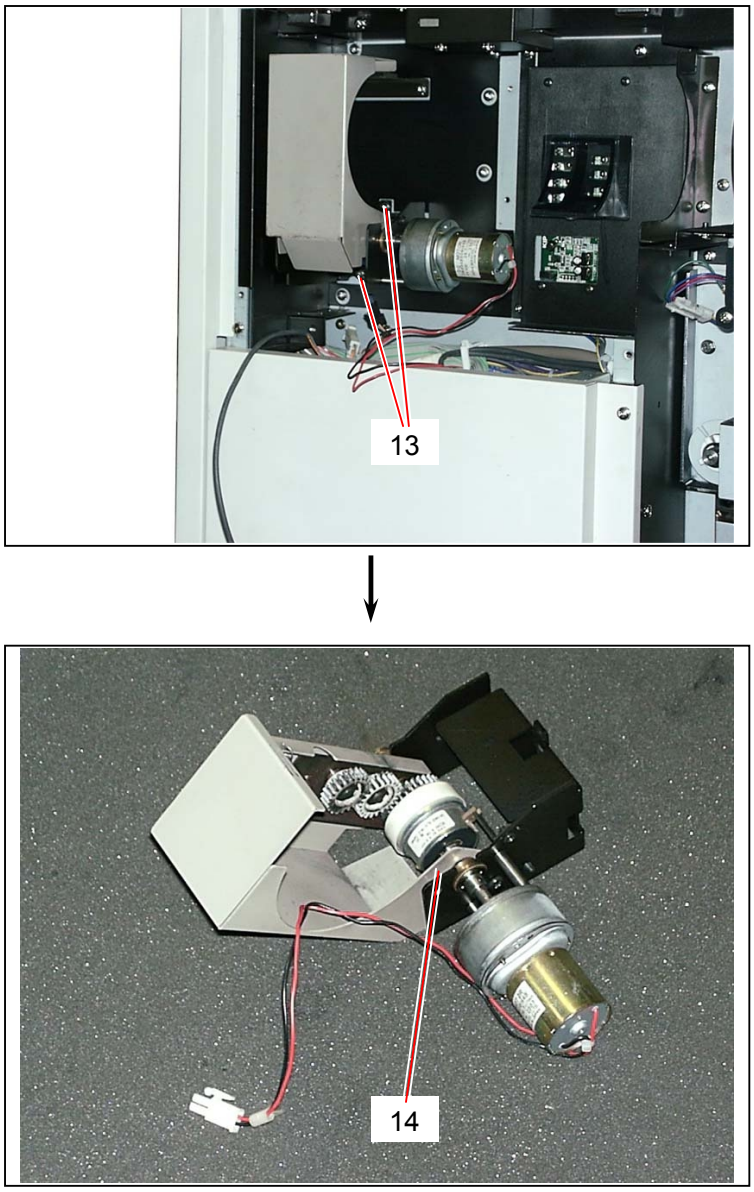
5) Remove 4 pieces of tooth washer screw (8) to remove the Bracket 562 (9).



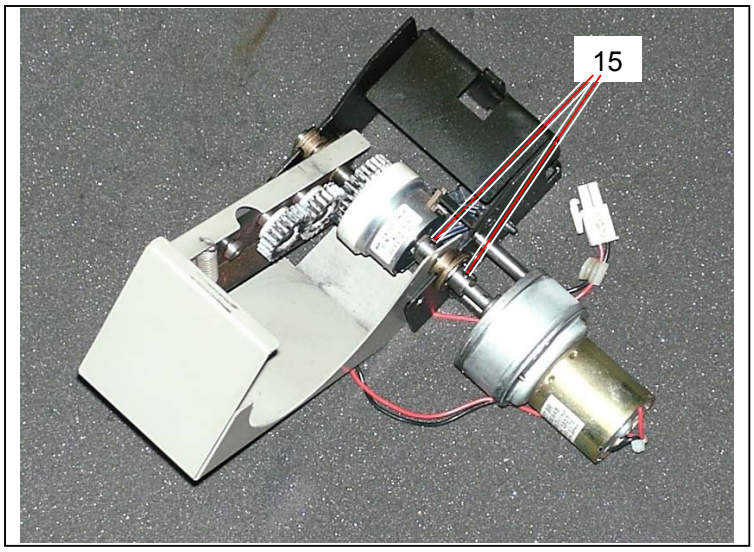
6) Remove the screw (10) to remove the Cover (11).
Disconnect 2 connectors (12).



7) Remove 2 pieces of tooth washer screw (13) to remove the Cartridge Driving Unit (14).

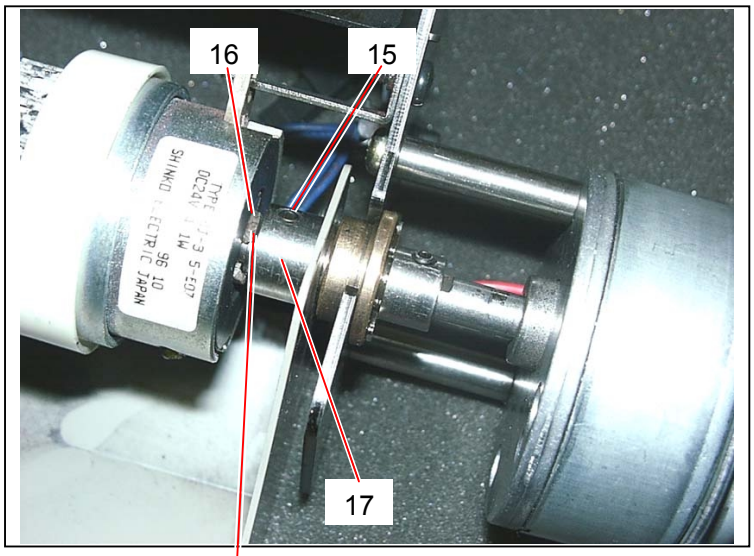


8) Remove 2 pieces of Set Screw (15).



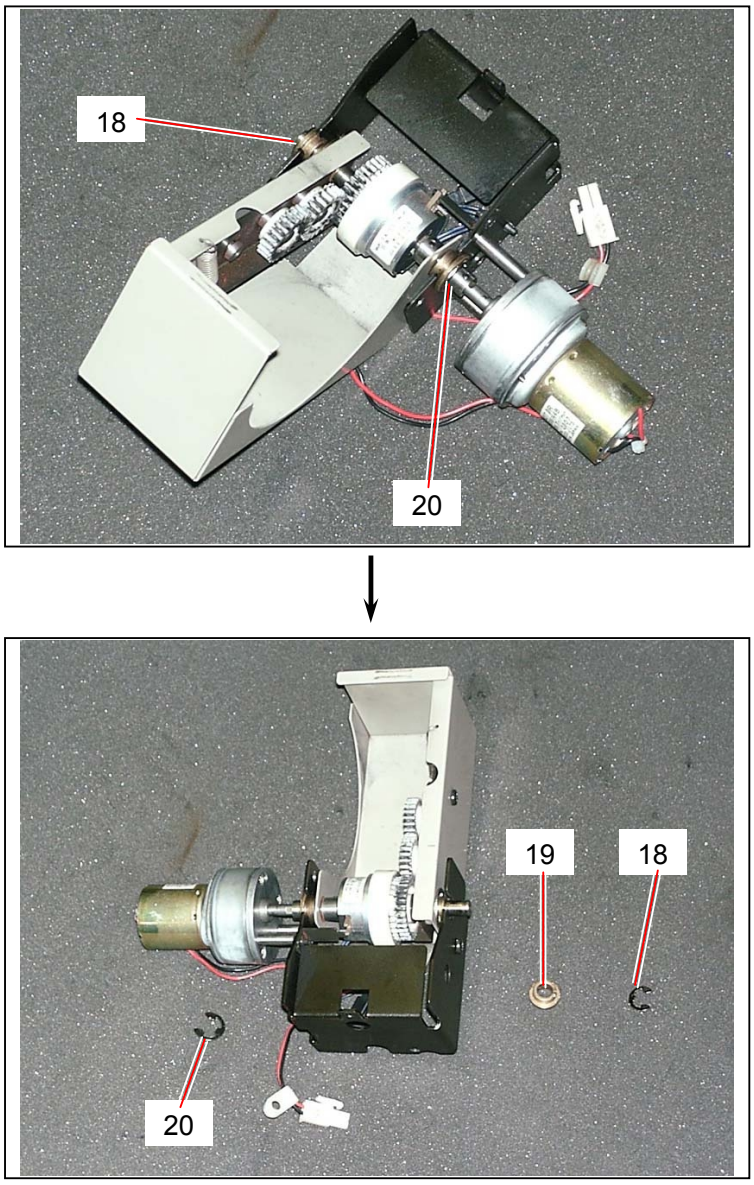
NOTE

When reassemble, keep a 0.5mm of space between plastic part (16) of clutch and Pin (17), and then tighten the Set Screw (15).

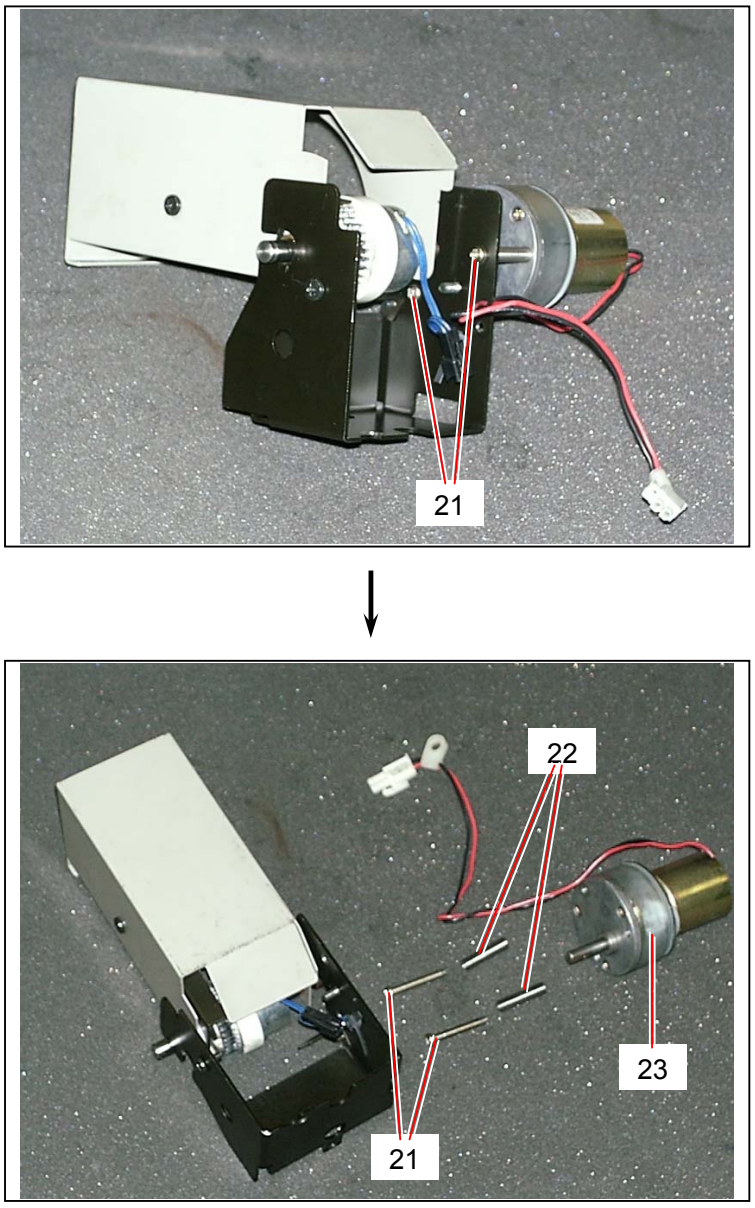


Keep 0.5mm of space.

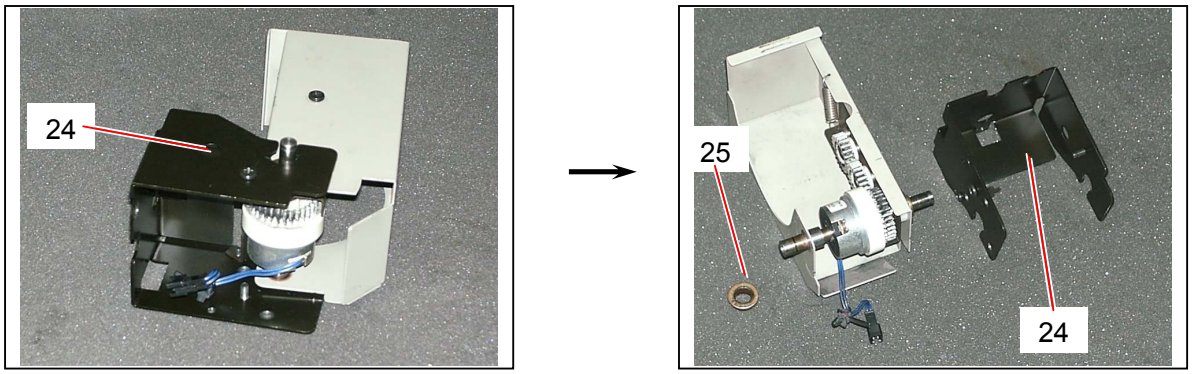
9) Remove the E Ring (E7) (18) to remove the Oilless Metal (19).
Remove the E Ring (E8) (20).



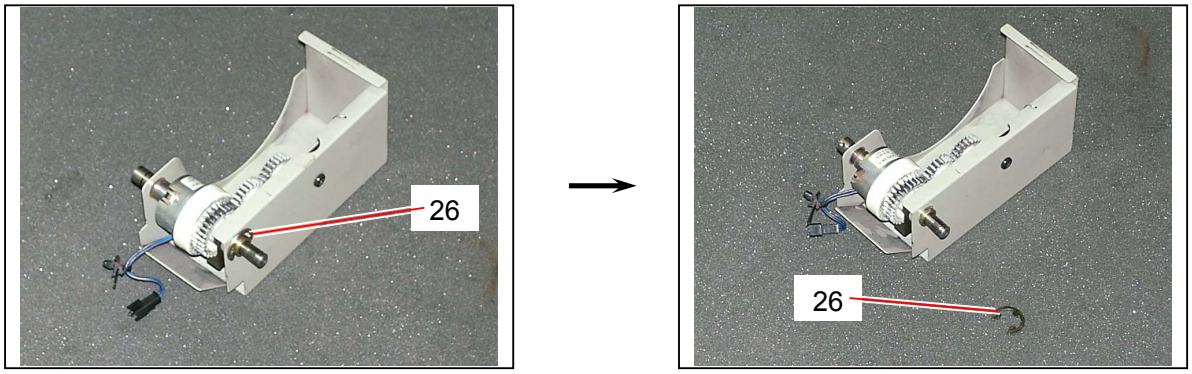
10) Remove 2 pieces of each screw (21) and Stud (22), and remove the **Toner Supply Motor 1** (23). Replace the Toner Supply Motor 1 (23) with the new one.



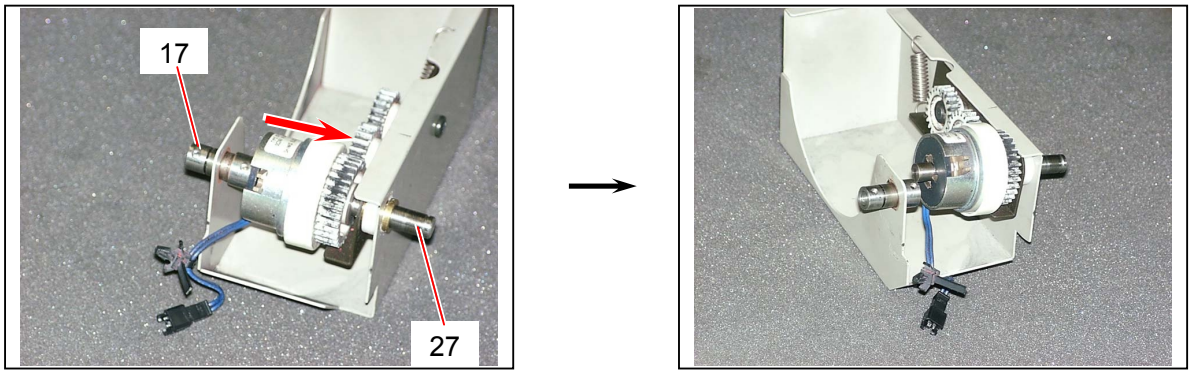
11) Remove the Bracket 511 (24) and the Oilless Metal (25).



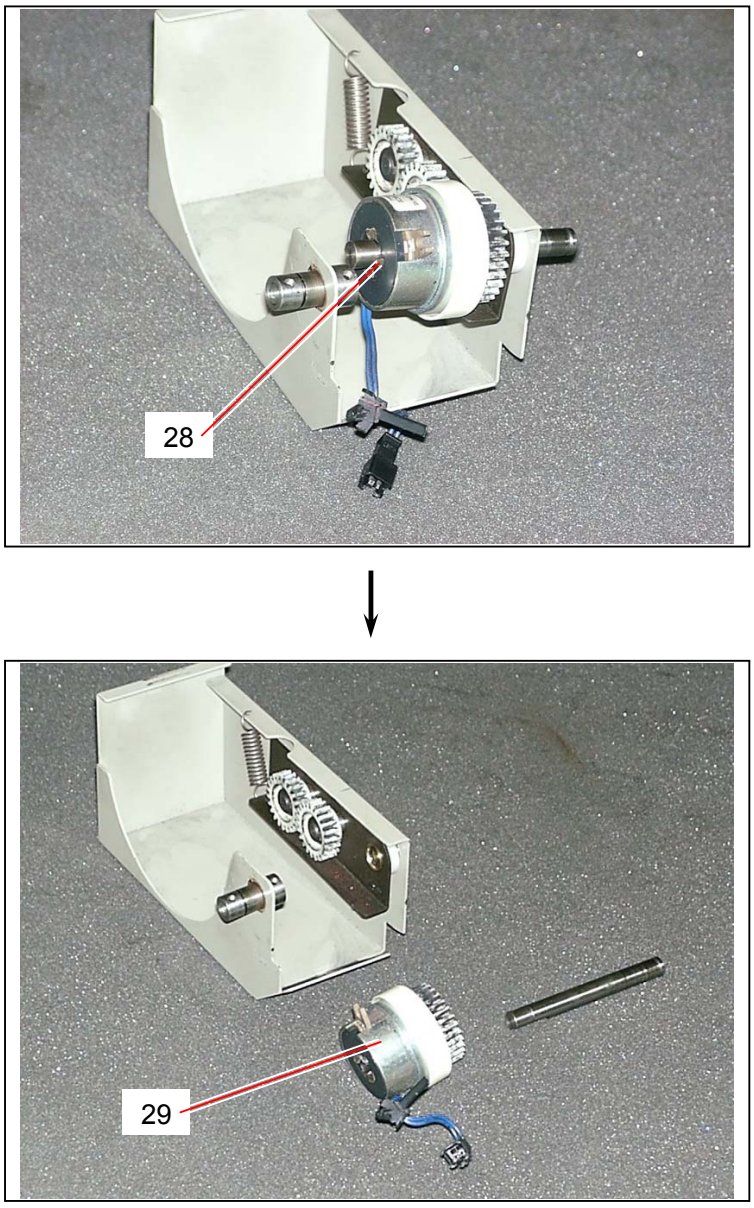
12) Remove the E Ring (E10) (26).



13) Pull the Shaft (27) toward the arrow mark to pull out from the Pin (17).



14) Expanding the stopper lever (28) outward, pull out the shaft from the **Toner Supply Clutch** (29). Replace the Toner Supply Clutch (29) with the new one.



Chapter 6

Maintenance/Checking

R4

KIP 8000 PM Schedule

-Please keep this form with the KIP 8000 ; Please perform PMs as scheduled
-As the PM comes due and items replaced or cleaned, please denote with an "X" in the Confirmation box. Please note nomenclature below.

Part / Description	Qty	Part Number	Linear Feet X 1000											
			Code	80	Confirmation	160	Confirmation	240	Confirmation	320	Confirmation	400	Confirmation	480	Confirmation
Document Glass (if with K-75)			#	C		C		C		C		C		C	
Exposure Lamps (if with K-75)			#							C					
Reflector Roller (if with K-75)			#	C		C		C		C		C		C	
Original Document Rollers (if with K-75)			#							C					
Photoreceptor	1	SUP8000-101													
Drum Gear	1	7704700190													
Main Charge Wire	2	SUP8000-104	#	C		C		C		R		C		C	
Grid Screen	1	7705100150	#	C		C		C		C		C		C	
Wire Clean Pad	2	7705120010								R					
Pre Transfer Wire	1	SUP9810-104	#	C		C		C		R		C		C	
Transfer Wire	1	SUP9810-105T	#	C		C		C		R		C		C	
Separation Wire	2	SUP9810-105S	#	C		C		C		R		C		C	
Developer Space Discs			#							C					
Development Unit	1	7704690010								I					
Developer Gears		all		L		L		L		L		L		L	
LED Head			#	C		C		C		C		C		C	
LED Head Pad	1	7706920010				I				R				I	
Paper Supply Rollers		all								C					
Vacuum (clean) Interior			@	C		C		C		C		C		C	
Paper Compartment			@	C		C		C		C		C		C	
Paper Drive Gears (metal collar)		see parts man				L				R				L	
Ozone Filters	3	6601101740	@	C		C		C		R		C		C	
Ozone Filters B	4	7701101950	@	C		C		C		R		C		C	
Fuser Roller	1	7704400390								I					
Pressure Roller	1	2210440011								I					
Upper Fuser Nail	20	7704460070		C / A		C / A		C / A		C / A		C / A		C / A	
Lower Fuser Nails	20	7104403290	#			C				C				C	
Fuser Gears		all required		L		L		L		R		L		L	
Thermostat	1	2210441970													
Thermistor	1	9000290069													
Knife			@							C					
Knife Clean / Oil Pad		3504020070								L					
Exterior Covers			#	C		C		C		C		C		C	

# = Clean with glass cleaner and wipe dry	C = Clean	R = Replace	L = Lubricate
@ = Clean with vacuum, carefully	I = Inspect	A = Adjust position	

R4

KIP 8000 PM Schedule

-Please keep this form with the KIP 8000 ; Please perform PMs as scheduled
-As the PM comes due and items replaced or cleaned, please denote with an "X" in the Confirmation box. Please note nomenclature below.

Part / Description	Qty	Part Number	Linear Feet X 1000											
			Code	560	Confirmation	640	Confirmation	720	Confirmation	800	Confirmation	880	Confirmation	960	Confirmation
Document Glass (if with K-75)			#	C		C		C		C		C		C	
Exposure Lamps (if with K-75)			#			C								C	
Reflector Roller (if with K-75)			#	C		C		C		C		C		C	
Original Document Rollers (if with K-75)			#			C								C	
Photoreceptor	1	SUP8000-101				R									
Drum Gear	1	7704700190				I									
Main Charge Wire	2	SUP8000-104	#	C		R		C		C		C		R	
Grid Screen	1	7705100150	#	C		R		C		C		C		C	
Wire Clean Pad	2	7705120010				R								R	
Pre Transfer Wire	1	SUP9810-104	#	C		R		C		C		C		R	
Transfer Wire	1	SUP9810-105T	#	C		R		C		C		C		R	
Separation Wire	2	SUP9810-105S	#	C		R		C		C		C		R	
Developer Space Discs			#											C	
Development Unit	1	7704690010				R								I	
Developer Gears		all		L		L		L		L		L		L	
LED Head			#	C		C		C		C		C		C	
LED Head Pad	1	7706920010				R				I				R	
Paper Supply Rollers		all				C								C	
Vacuum (clean) Interior			@	C		C		C		C		C		C	
Paper Compartment			@	C		C		C		C		C		C	
Paper Drive Gears (metal collar)		see parts man				R				L				L	
Ozone Filters	3	6601101740	@	C		R		C		C		C		R	
Ozone Filters B	4	7701101950	@	C		R		C		C		C		R	
Fuser Roller	1	7704400390				R									
Pressure Roller	1	2210440011				R									
Upper Fuser Nail	20	7704460070		C / A		R		C / A		C / A		C / A		C / A	
Lower Fuser Nails	20	7104403290	#			R				C				C	
Fuser Gears		all required		L		R		L		L		L		L	
Thermostat	1	2210441970				R									
Thermistor	1	9000290069				R									
Knife			@			C								C	
Knife Clean / Oil Pad		3504020070				R								L	
Exterior Covers			#	C		C		C		C		C		C	

# = Clean with glass cleaner and wipe dry	C = Clean	R = Replace	L = Lubricate
@ = Clean with vacuum, carefully	I = Inspect	A = Adjust position	

R4

KIP 8000 PM Schedule

-Please keep this form with the KIP 8000 ; Please perform PMs as schedule(
-As the PM comes due and items replaced or cleaned, please denote with an "X" in th(
Confirmation box. Please note nomenclature below

Part / Description	Qty	Part Number	Linear Feet X 1000											
			Code	1040	Confirmation	1120	Confirmation	1200	Confirmation	1280	Confirmation	1360	Confirmation	1440	Confirmation
Document Glass (if with K-75)			#	C		C		C		C		C		C	
Exposure Lamps (if with K-75)			#							C					
Reflector Roller (if with K-75)			#	C		C		C		C		C		C	
Original Document Rollers (if with K-75)			#							C					
Photoreceptor	1	SUP8000-101								R					
Drum Gear	1	7704700190								R					
Main Charge Wire	2	SUP8000-104	#	C		C		C		R		C		C	
Grid Screen	1	7705100150	#	C		C		C		R		C		C	
Wire Clean Pad	2	7705120010								R					
Pre Transfer Wire	1	SUP9810-104	#	C		C		C		R		C		C	
Transfer Wire	1	SUP9810-105T	#	C		C		C		R		C		C	
Separation Wire	2	SUP9810-105S	#	C		C		C		R		C		C	
Developer Space Discs			#												
Development Unit	1	7704690010								R					
Developer Gears		all		L		L		L		L		L		L	
LED Head			#	C		C		C		C		C		C	
LED Head Pad	1	7706920010				I				R				I	
Paper Supply Rollers		all								C					
Vacuum (clean) Interior			@	C		C		C		C		C		C	
Paper Compartment			@	C		C		C		C		C		C	
Paper Drive Gears (metal collar)		see parts man				L				R				L	
Ozone Filters	3	6601101740	@	C		C		C		R		C		C	
Ozone Filters B	4	7701101950	@	C		C		C		R		C		C	
Fuser Roller	1	7704400390								R					
Pressure Roller	1	2210440011								R					
Fuser Bearings Upper	2									R					
Fuser Bearings Lower	2									R					
Upper Fuser Nail	20	7704460070		C / A		C / A		C / A		R		C / A		C / A	
Lower Fuser Nails	20	7104403290	#			C				R				C	
Fuser Gears		all required		L		L		L		R		L		L	
Thermostat	1	2210441970								R					
Thermistor	1	9000290069								R					
Knife			@							C					
Knife Clean / Oil Pad		3504020070								L					
Exterior Covers			#	C		C		C		C		C		C	

# = Clean with glass cleaner and wipe dry	C = Clean	R = Replace	L = Lubricate
@ = Clean with vacuum, carefully	I = Inspect	A = Adjust position	

Chapter 7

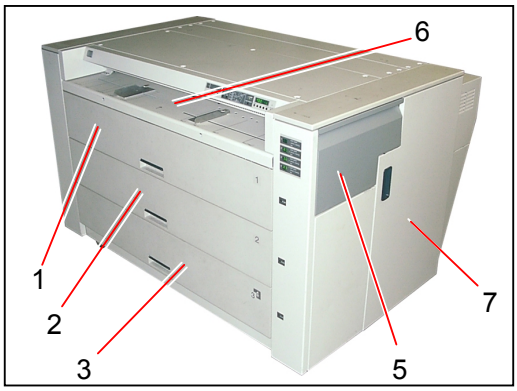
Troubleshooting

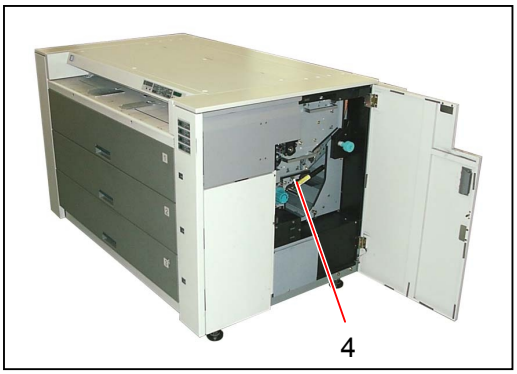
7.1 Error Codes

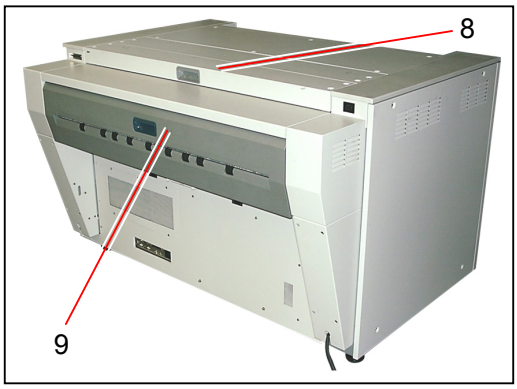
7.1.1 Door Open Errors

The followings are Door Open Errors which can be fixed by the user.

Error Codes	Name of error	Condition that the error occurs
U-01	Top Roll Deck Open	Top Roll Deck is open.
U-02	Middle Roll Deck Open	Middle Roll Deck is open.
U-03	Bottom Roll Deck Open	Bottom Roll Deck is open.
U-04	Internal Transportation Unit Open	Internal Transportation Unit is open, or it is not locked firmly.
U-06	Toner Cover Open	Toner Cover is open.
U-11	Bypass Feeder Open	Bypass Feeder is open.
U-12	Right Side Door Open	Right Side Door is open.
U-13	Top Rear Cover Open	Top Rear Cover is open.
U-14	Exit Cover Open	Exit Cover is open.





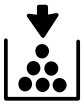


1 : Top Roll Deck
2 : Middle Roll Deck
3 : Bottom Roll Deck
4 : Internal Transportation Unit
5 : Toner Cover
6 : Bypass Feeder
7 : Right Side Door
8 : Top Rear Cover
9 : Exit Cover

7.1.2 Operator Call Errors

The followings are Operator Call Errors which can be fixed by the user.

Error Codes	Name of error	Condition that the error occurs
J-01	Paper jam of Roll 1	1. Roll Set Sensor 1 Signal (RP_SET1) does not change from H to L within a decided time since the printer has started to transport the Roll 1 from the wait position. 2. Roll Set Sensor 1 Signal (RP_SET1) does not change from L to H within a decided time since the printer has started to rewind the Roll 1 to the wait position.
J-02	Paper jam of Roll 2	1. Roll Set Sensor 2 Signal (RP_SET2) does not change from H to L within a decided time since the printer has started to transport the Roll 2 from the wait position. 2. Roll Set Sensor 2 Signal (RP_SET2) does not change from L to H within a decided time since the printer has started to rewind the Roll 2 to the wait position.
J-03	Paper jam of Roll 3	1. Roll Set Sensor 3 Signal (RP_SET3) does not change from H to L within a decided time since the printer has started to transport the Roll 3 from the wait position. 2. Roll Set Sensor 3 Signal (RP_SET3) does not change from L to H within a decided time since the printer has started to rewind the Roll 3 to the wait position.
J-04	Paper jam of Roll 4	1. Roll Set Sensor 4 Signal (RP_SET4) does not change from H to L within a decided time since the printer has started to transport the Roll 4 from the wait position. 2. Roll Set Sensor 4 Signal (RP_SET4) does not change from L to H within a decided time since the printer has started to rewind the Roll 4 to the wait position.
J-05	Paper jam in Bypass Feeder	Bypass Start Sensor Signal (MPSRT) does not change from H to L within a decided time since the printer has started to transport the cut sheet media from the setting position.
J-11	Paper jam between Cutter and Drum	1. Leading Edge Sensor Signal (PA_ENT) does not change from H to L within a decided time since the printer has started to transport the media from any of wait positions. (Wait positions mean any of PH1, PH2, PH3, PH4 and PH20). 2. Leading Edge Sensor Signal (PA_ENT) does not change from L to H within a decided time since the Cutter has worked.

Error Codes	Name of error	Condition that the error occurs
J-12	Paper jam at Separation Area	1. Separation Sensor Signal (P_SEPR) is L at the time you turn on the printer. 2. Separation Sensor Signal (P_SEPR) does not change from H to L within a decided time since the printer has started to transport the media from any of wait positions. (Wait positions mean any of PH1, PH2, PH3, PH4 and PH20).
J-13	Paper jam before Fuser Unit	1. Exit Sensor Signal (P_EXIT) is L at the time you turn on the printer. 2. Exit Sensor Signal (P_EXIT) does not change from H to L within a decided time since the printer has started to transport the media from any of wait positions. (Wait positions mean any of PH1, PH2, PH3, PH4 and PH20).
J-14	Paper jam after Fuser Unit	Exit Sensor Signal (P_EXIT) had changed from H to L during print, but it does not change from H to L within a decided time although the Leading Edge Sensor Signal (PA_ENT) has changed from L to H.
	Toner empty	The quantity of toner is smaller than the requirement. LED is lighting : No more print is available. LED is flashing : Some more print is available.
	Roll empty	1. Roll media is not installed in the selected Roll Deck. 2. Selected roll media is emptied in the middle of printing or when the printer is checking the roll size.

7.1.3 Service Call Errors

The followings are Service Call Errors which have to be fixed by the service personnel.

Error Codes	Name of error	Condition that the error occurs
E-01	Fuser Temperature Rising Error	1. Fusing temperature does not rise up to 120°C within a decided time since you have turned on the printer. 2. Fusing temperature falls down to 70°C after the printer has been ready.
E-02	Fuser Over-heating Error	Fusing temperature rises over 200°C.
E-05	Drum Motor Error	Drum Motor Control Signal (DRMTR) and Drum Motor Synchronous Signal (DRMTR_LD) do not synchronize each other for a decided time.
E-06	Counter A/B Error	1. Counter Control Signal Feed Back (IN_CNT_A or IN_CNT_B) continues to be L for 1 second or longer when the Counter should count up. 2. Counter Control Signal Feed Back (IN_CNT_A or IN_CNT_B) continues to be H for 1 second or longer when the Counter is not counting up.
E-07	Cutter Motor Error	1. Cutter is still at the home position although 0.3 seconds has passed since the Cutter Motor had started to work. 2. Cutter does not come back to the home position although 1 second has passed since the Cutter Motor had started to work. 3. Home position can not be detected within 2 seconds during cutter cleaning.
E-13	Paper Feed Motor Error	Paper Feed Motor Control Signal (PFMTR) and Paper Feed Motor Synchronous Signal (PFMTR_LD) do not synchronize each other for a decided time.
E-14	Fuser Motor Error	Fuser Motor Control Signal (FUMTR) and Fuser Motor Synchronous Signal (FUMTR_LD) do not synchronize each other for a decided time.
E-16	Wire Cleaning Error	Over-current can not be detected although 90 seconds has passed since the Wire Cleaning Motor had started to work.
E-21	Fuser Thermostat Error	Thermostat is open-circuited.
E-23	LED Head Cleaning Error	Over-current can not be detected although 90 seconds has passed since the LED Cleaning Motor had started to work.
E-49	Developer Positioning Motor Error	Home position of Developer Unit can not be detected although 60 seconds has passed since the Developer Positioning Motor had started to work.
E-F0	Folder Error	1. Communication between printer and Folder is abnormal. 2. Folder has any error other than jam.
E-Fb	Flash ROM Error	Writing to the Flash ROM is failed.

7.2 Treatments against Errors

7.2.1 Treatments against Door Open Errors

7.2.1.1 "U-01" Top Roll Deck Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Top Roll Deck	1	Is the Top Roll Deck closed firmly?	No	Close the Top Roll Deck firmly.
Roll Deck Switch 1 (DS1)	2	Is the Roll Deck Switch 1 pressed firmly by the actuator when you close the Top Roll Deck?	Yes	Replace the switch with the new one.
			No	Remove the switch, and then install it again properly.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.2 "U-02" Middle Roll Deck Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Middle Roll Deck	1	Is the Middle Roll Deck closed firmly?	No	Close the Middle Roll Deck firmly.
Roll Deck Switch 2 (DS2)	2	Is the Roll Deck Switch 2 pressed firmly by the actuator when you close the Middle Roll Deck?	Yes	Replace the switch with the new one.
			No	Remove the switch, and then install it again properly.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.3 "U-03" Bottom Roll Deck Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Bottom Roll Deck	1	Is the Bottom Roll Deck closed firmly?	No	Close the Bottom Roll Deck firmly.
Roll Deck Switch 3 (DS3)	2	Is the Roll Deck Switch 3 pressed firmly by the actuator when you close the Bottom Roll Deck?	Yes	Replace the switch with the new one.
			No	Remove the switch, and then install it again properly.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.4 “U-04” Internal Transportation Unit Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Internal Transportation Unit	1	Is the Internal Transportation Unit closed firmly?	No	Close the Internal Transportation Unit firmly. (Confirm the Lever is clicked into place.)
Internal Transportation Unit Sensor (PH24)	2	Is the light of Photo Interrupter surely interrupted when you close the Internal Transportation Unit?	No	Remove the sensor, and then install it again properly.
			Yes	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.5 “U-06” Toner Cover Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Toner Cover	1	Is the Toner Cover closed firmly?	No	Close the Toner Cover firmly.
Toner Cover Switch (DS8)	2	Check the voltage at J202-3 on the DC Controller PCB with the multi-meter. Is it 5VDC when the cover is open, and also is it 0VDC when the cover is closed?	No	1. Check whether or not the harness between switch and DC Controller has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the switch with the new one.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.6 “U-11” Bypass Feeder Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Bypass Feeder	1	Is the Bypass Feeder closed firmly?	No	Close the Bypass Feeder firmly.
DC Controller PCB (PW7720)	2	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.7 “U-12” Right Side Door Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Right Side Door	1	Is the Right Side Door closed firmly?	No	Close the Right Side Door firmly.
Right Side Door Switch (DS7)	2	Check the voltage at J202-2 on the DC Controller PCB with the multi-meter. Is it 5VDC when the door is open, and also is it 0VDC when the door is closed?	No	1. Check whether or not the harness between switch and DC Controller has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the switch with the new one.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.8 “U-13” Top Rear Cover Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Top Rear Cover	1	Is the Top Rear Cover closed firmly?	No	Close the Top Rear Cover firmly.
Top Rear Cover Switch (DS6)	2	Check the voltage at J202-1 on the DC Controller PCB with the multi-meter. Is it 5VDC when the cover is open, and also is it 0VDC when the cover is closed?	No	1. Check whether or not the harness between switch and DC Controller has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the switch with the new one.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.1.9 “U-14” Exit Cover Open

Cause	Order	Checking matter	Result	Treatment
Setting condition of Exit Cover	1	Is the Exit Cover closed firmly?	No	Close the Exit Cover firmly.
Exit Cover Switch (DS5)	2	Check the voltage at J204-16 on the DC Controller PCB with the multi-meter. Is it 5VDC when the cover is open, and also is it 0VDC when the cover is closed?	No	1. Check whether or not the harness between switch and DC Controller has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the switch with the new one.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2 Treatments against Operator Call Errors

7.2.2.1 "J-01" Paper jam of Roll 1

Cause	Order	Checking matter	Result	Treatment
Roll Set Sensor 1 (PH1)	1	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code "04". Check the input signal from the Roll Set Sensor 1. Is it "L" when the media is on the sensor, and also is it "H" when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Roll Paper Feed Clutch 1 (MC1) Roll Deck 1 Feed Clutch (MC8)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate each of following clutches. (Parenthesized are Signal Code.) Roll Paper Feed Clutch 1 (92) Roll Deck 1 Feed Clutch (9C) Does each of the above clutches operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Check whether or not the harness of clutch has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch with the new one.
DC Driver PCB (PW7755)	3	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	4	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.2 “J-02” Paper jam of Roll 2

Cause	Order	Checking matter	Result	Treatment
Roll Set Sensor 2 (PH2)	1	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “05”. Check the input signal from the Roll Set Sensor 2. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Roll Paper Feed Clutch 2 (MC2)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Roll Paper Feed Clutch 2. (Parenthesized is Signal Code.) Roll Paper Feed Clutch 2 (93) Does the clutch operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Check whether or not the harness of clutch has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch with the new one.
DC Driver PCB (PW7755)	3	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	4	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.3 “J-03” Paper jam of Roll 3

Cause	Order	Checking matter	Result	Treatment
Roll Set Sensor 3 (PH3)	1	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “06”. Check the input signal from the Roll Set Sensor 3. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Roll Paper Feed Clutch 3 (MC3)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Roll Paper Feed Clutch 3. (Parenthesized is Signal Code.) Roll Paper Feed Clutch 3 (94) Does the clutch operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Check whether or not the harness of clutch has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch with the new one.
DC Driver PCB (PW7755)	3	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	4	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.4 “J-04” Paper jam of Roll 4

Cause	Order	Checking matter	Result	Treatment
Roll Set Sensor 4 (PH4)	1	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “07”. Check the input signal from the Roll Set Sensor 4. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Roll Paper Feed Clutch 4 (MC4)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Roll Paper Feed Clutch 4. (Parenthesized is Signal Code.) Roll Paper Feed Clutch 4 (95) Does the clutch operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Check whether or not the harness of clutch has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch with the new one.
DC Driver PCB (PW7755)	3	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	4	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.5 “J-05” Paper jam in Bypass Feeder

Cause	Order	Checking matter	Result	Treatment
Bypass Feed Clutch (MC7)	1	Enter the Service Mode and select the Function Checking Mode. Try to operate the Bypass Feed Clutch. (Parenthesized is Signal Code.) Bypass Feed Clutch (95) Does the clutch operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Check whether or not the harness of clutch has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch with the new one.
Bypass Feeding Motor (M10)	2	Try to operate the Bypass Feeding Motor in the Function Checking Mode. Bypass Feeding Motor (3C) Does the motor operate properly?	No	1. Check whether or not the harness of motor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the motor with the new one.
Bypass Feeding Roller Down Solenoid (SL3)	3	Try to operate the Bypass Feeding Roller Down Solenoid in the Function Checking Mode. Bypass Feeding Roller Down Solenoid (3A) Does the solenoid operate properly?	No	1. Check whether or not the harness of solenoid has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the solenoid with the new one.
Bypass Start Sensor (PH20)	4	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “03”. Check the input signal from the Bypass Start Sensor. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
DC Driver PCB (PW7755)	5	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	6	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.6 “J-11” Paper jam between Cutter and Drum

Cause	Order	Checking matter	Result	Treatment
Leading Edge Sensor (PH12)	1	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “EE”. Check the input signal from the Leading Edge Sensor. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Paper Feed Clutch (MC6) Paper Feed Brake (MC9)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the following clutch or brake. (Parenthesized are Signal Code.) Paper Feed Clutch (91) Paper Feed Brake (9E) Does the above clutch or brake operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Check whether or not the harness of clutch or brake has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch or brake with the new one.
Paper Gate Clutch (MC5) Paper Gate Brake (MC10)	3	Try to operate the following clutch or brake in the Function Checking Mode. Paper Gate Clutch (90) Paper Gate Brake (9D) Does the above clutch or brake operate properly?	No	1. Check whether or not the harness of clutch or brake has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch or brake with the new one.
DC Driver PCB (PW7755)	4	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	5	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.7 “J-12” Paper jam at Separation Area

Cause	Order	Checking matter	Result	Treatment
Separation Sensor (PH18)	1	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “2E”. Check the input signal from the Separation Sensor. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Separation Corona	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Separation Corona. (Parenthesized is Signal Code.) Separation Corona (A1) Does the Separation Corona operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Clean both Corona Housing and Corona Wires, and check the height of wires. 2. Replace the Corona Wires with the new ones. 3. Replace the High Voltage Power Supply PCB (HVP4) with the new one.
Separation Lamp	3	Try to operate the Separation Lamp in the Function Checking Mode. Separation Lamp (7B) Does the Separation Lamp operate properly?	No	1. Check whether or not the harness of Separation Lamp has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Separation Lamp with the new one.
Pre-transfer LED	4	Try to operate the Pre-transfer LED in the Function Checking Mode. Pre-transfer LED (A3) Does the Pre-transfer LED operate properly?	No	1. Check whether or not the harness of Pre-transfer LED has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Pre-transfer LED with the new one.
Separation Fan (BL1)	5	Try to operate the Separation Fan in the Function Checking Mode. Separation Fan (7D) Does the Separation Fan operate properly?	No	1. Check whether or not the harness of Separation Fan has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Separation Fan with the new one.
Separation Assist Blowers (BL12, BL13, BL14, BL15 & BL16)	6	Try to operate the Separation Assist Blowers in the Function Checking Mode. Separation Assist Blower (3E : BL12 & BL16) (3F : BL13 & BL15) (99 : BL14) Do Separation Assist Blowers operate properly?	No	1. Check whether or not the harness of each blower has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace each blower with the new one.
DC Driver PCB (PW7755)	7	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	8	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.8 “J-13” Paper jam before Fuser Unit

Cause	Order	Checking matter	Result	Treatment
Exit Sensor (LS2)	1	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “2F”. Check the input signal from the Exit Sensor. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Separation Corona	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Separation Corona. (Parenthesized is Signal Code.) Separation Corona (A1) Does the Separation Corona operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Clean both Corona Housing and Corona Wires, and check the height of wires. 2. Replace the Corona Wires with the new ones. 3. Replace the High Voltage Power Supply PCB (HVP4) with the new one.
Separation Lamp	3	Try to operate the Separation Lamp in the Function Checking Mode. Separation Lamp (7B) Does the Separation Lamp operate properly?	No	1. Check whether or not the harness of Separation Lamp has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Separation Lamp with the new one.
Pre-transfer LED	4	Try to operate the Pre-transfer LED in the Function Checking Mode. Pre-transfer LED (A3) Does the Pre-transfer LED operate properly?	No	1. Check whether or not the harness of Pre-transfer LED has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Pre-transfer LED with the new one.
Separation Fan (BL1)	5	Try to operate the Separation Fan in the Function Checking Mode. Separation Fan (7D) Does the Separation Fan operate properly?	No	1. Check whether or not the harness of Separation Fan has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Separation Fan with the new one.
Separation Assist Blowers (BL12, BL13, BL14, BL15 & BL16)	6	Try to operate the Separation Assist Blowers in the Function Checking Mode. Separation Assist Blower (3E : BL12 & BL16) (3F : BL13 & BL15) (99 : BL14) Do Separation Assist Blowers operate properly?	No	1. Check whether or not the harness of each blower has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace each blower with the new one.
Pressure Blowers (BL4, BL5, BL6 & BL7)	7	Try to operate the Pressure Blowers in the Function Checking Mode. Pressure Blowers (6D or 6F) Do Pressure Blowers operate properly?	No	1. Check whether or not the harness of the Pressure Blower has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Pressure Blower with the new one.

Cause	Order	Checking matter	Result	Treatment
DC Driver PCB (PW7755)	8	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	9	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.9 “J-14” Paper jam after Fuser Unit

Cause	Order	Checking matter	Result	Treatment
Stripper Finger Ass’y Or Separation Finger	1	Is the tip of each Stripper Finger Ass’y or Separation Finger dirty?	Yes	Clean the tip of them.
Exit Sensor (LS2)	2	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “2F”. Check the input signal from the Exit Sensor. Is it “L” when the media is on the sensor, and also is it “H” when the media is not on the sensor? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.10 Toner Empty

Cause	Order	Checking matter	Result	Treatment
Setting condition of Toner Cartridge	1	Is the opening of Toner Cartridge directed downward?	No	Direct it downward.
Toner Supply Motor 1 (M7)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Toner Supply Motor 1. (Parenthesized is Signal Code.) Toner Supply Motor 1 (A7) Does the Toner Supply Motor 1 operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	1. Check whether or not the harness of motor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the motor with the new one.
Toner Supply Motor 2 (M6)	3	Try to operate the Toner Supply Motor 2 in the Function Checking Mode. Toner Supply Motor 2 (98) Does the Toner Supply Motor 2 operate properly?	No	1. Check whether or not the harness of motor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the motor with the new one.
Toner Supply Clutch (MC11)	4	Try to operate the Toner Supply Clutch in the Function Checking Mode. Toner Supply Clutch (79) Does the Toner Supply Clutch operate properly?	No	1. Check whether or not the harness of clutch has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the clutch with the new one.
Hopper Toner Sensor (TLS1)	5	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “1d”. Confirm that the Hopper Toner Sensor is under the toner, and then check the input signal from the Hopper Toner Sensor. Is “H” (toner exists) indicated? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
Developer Toner Sensor (TLS2)	6	Select the Signal Code “1C” in the Input/Output Checking Mode. Confirm that the Developer Toner Sensor is under the toner, and then check the input signal from the Hopper Toner Sensor. Is “H” (toner exists) indicated?	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
DC Driver PCB (PW7755)	7	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	8	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.2.11 Roll Empty

Cause	Order	Checking matter	Result	Treatment
Rubber belt in the Roll Deck	1	Is the rubber belt on the right of each Roll Deck surely touches the roller of Roll Spool? (If it touches surely, it is driven obeying the rotation of Roll Spool.)	No	Install the Roll Spool correctly.
Paper Feed Clock Sensors (PH13, PH14, PH15 & PH16)	2	Enter the Service Mode, select the Input/Output Checking Mode, and select each of the following Signal Code. Paper Feed Clock Sensor 1 (08) Paper Feed Clock Sensor 2 (09) Paper Feed Clock Sensor 3 (0A) Paper Feed Clock Sensor 4 (0b) Then check the input signal from each sensor. Is “H” and “L” alternately indicated when the paper is transported? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	1. Check whether or not the harness of sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the sensor with the new one.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3 Treatments against Service Call Errors

7.2.3.1 "E-01" Fuser Temperature Rising Error

If you would like to make the printer ignore "E-01" because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for "E-01" is "00".
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to each IR Lamps (H1 & H2), SSR (SSR1 & SSR2) and Thermistor (TH1)?	No	Connect the harness correctly.
IR Lamps (H1 & H2)	2	Plug out the printer, and then check the resistance of each IR Lamp. Is there any resistance?	No	Replace the IR Lamps with the new ones.
Thermistor 1 (TH1)	3	Enter the Service Mode, select the Data Monitoring Mode, and select the Data Number "00". Fuser Temperature (00) Is the indicated temperature almost same with the setting value of the following Setting Items in the Adjustment Mode 0? 4-10: Fusing temperature (PPC) 4-11: Fusing temperature (Tracing) 4-12: Fusing temperature (Film) **Please refer to [8.1.3 Data Monitoring Mode (Sub Mode 2)] on the page 8-16 as for the detail of operation.**	No	1. Remove the Thermistor 1, clean the surface well, and then re-install it correctly. 2. If the problem can not be fixed by the above 1., replace the Thermistor with the new one.
Interlock	4	Check the voltage between Terminals 0 and 1 on each Relay 2 and Relay 3. Is it 24V?	No	Check whether or not the interlock correctly open and close.
Temperature Detect PCB (PW7740) Or Thermistor 2 (TH2)	5	Check the voltage at the Terminal 1 on each Relay 2 and Relay 3. Is it 0V?	No	1. Try to replace the Temperature Detect PCB. 2. If the problem can not be fixed even if you replace the Temperature Detect PCB, try to replace the Thermistor 2.
DC Driver PCB (PW7755)	6	Check the voltage of each gray lead wire and orange one on the coil side of Relay 2. Is the voltage as follows? Gray line : 24V Orange line : 0V	No	Replace the DC Driver PCB.
Relay 2 (RY2)	7	Check the voltage between Terminals 4 and 8 on the IR Lamp side of Relay 2. Is it 230VAC?	No	Replace the Relay 2.
Phase Control PCB C (PW6125C) Or SSR (SSR1)	8	Check the voltage at both J253-1 and J253-3 on the Phase Control PCB C. Is the voltage of J253-3 0V when that of J253-1 is 0V?	No	Replace the Phase Control PCB C.
			Yes	Replace the SSR1

Cause	Order	Checking matter	Result	Treatment
Relay 3 (RY3)	9	Check the voltage between Terminals 4 and 8 on the IR Lamp side of Relay 3. Is it 230VAC?	No	Replace the Relay 3.
Phase Control PCB C (PW6125C) Or SSR (SSR2)	10	Check the voltage at both J253-2 and J253-4 on the Phase Control PCB C. Is the voltage of J253-4 0V when that of J253-2 is 0V?	No	Replace the Phase Control PCB C.
			Yes	Replace the SSR2
DC Controller PCB (PW7720)	11	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.2 “E-02” Fuser Over-heating Error

If you would like to make the printer ignore “E-02” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-02” is “01”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to each IR Lamps (H1 & H2), SSR (SSR1 & SSR2) and Thermistor (TH1)?	No	Connect the harness correctly.
SSR1	2	Enter the Service Mode, select the Data Monitoring Mode, and select the Data Number “00” to check the fuser temperature. Fuser Temperature (00) At the same time, check the voltage at J253-3 on the Phase Control PCB C (PW6125C). Does the temperature gradually rise up when the J253-3 is 24V? **Please refer to [8.1.3 Data Monitoring Mode (Sub Mode 2)] on the page 8-16 as for the detail of operation.**	Yes	Replace the SSR1.
SSR2	3	Check the fuser temperature in the Data Monitoring Mode. Fuser Temperature (00) At the same time, check the voltage at J253-4 on the Phase Control PCB C (PW6125C). Does the temperature gradually rise up when the J253-4 is 24V?	Yes	Replace the SSR2
Thermistor 1 (TH1)	4	Check the fuser temperature in the Data Monitoring Mode. Fuser Temperature (00) Is the indicated temperature almost same with the setting value of the following Setting Items in the Adjustment Mode 0? 4-10: Fusing temperature (PPC) 4-11: Fusing temperature (Tracing) 4-12: Fusing temperature (Film)	No	Replace the Thermistor 1 with the new one.
Phase Control PCB C (PW6125C)	5	1. Check the voltage at both J253-2 and J253-4 on the Phase Control PCB C. Is the voltage of J253-4 24V when that of J253-2 is 5V? 2. Check the voltage at both J253-1 and J253-3 on the Phase Control PCB C. Is the voltage of J253-3 24V when that of J253-1 is 5V?	No	Replace the Phase Control PCB C.
DC Controller PCB (PW7720)	6	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.3 “E-05” Drum Motor Error

If you would like to make the printer ignore “E-05” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-05” is “04”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to each Drum Motor, Drum Motor Controller PCB and DC Driver PCB?	No	Connect the harness correctly.
Drum Motor (M1) Or Drum Motor Controller PCB (TP1142)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Drum Motor. (Parenthesized is Signal Code.) Drum Motor (85) Does the Drum Motor operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	Replace either Drum Motor or Drum Motor Controller PCB.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.4 “E-06” Counter A/B Error

If you would like to make the printer ignore “E-06” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-06” is “08 (Counter A)” or “09 (Counter B)”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Are the harnesses correctly connected among Counter A, Counter B and DC Controller PCB?	No	Connect the harnesses correctly.
Counter A	2	Check the voltage at J209-4 on the DC Controller PCB while printing. Does it momently change from 24V to 0V every about 1m print out?	Yes	Replace the Counter A.
Counter B	3	Check the voltage at J209-3 on the DC Controller PCB while printing. Does it momently change from 24V to 0V every about 1m print out?	Yes	Replace the Counter B.
DC Controller PCB (PW7720)	4	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.5 “E-07” Cutter Motor Error

If you would like to make the printer ignore “E-07” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-07” is “07”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to each Cutter Motor, Cutter Motor Controller PCB, Cutter Home Position Sensor and DC Driver PCB?	No	Connect the harness correctly.
Cutter Home Position Sensor (PH22)	2	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “43”. Check the input signal from the Cutter Home Position Sensor while taking Test Print or Initial Cut. Does the status momently change From “L” to “H” when the Cutter operates? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	Replace the Cutter Home Position Sensor.
Cutter Motor (M3) Or Cutter Motor Controller PCB (PW7756)	3	Enter the Service Mode and select the Function Checking Mode. Try to operate the Cutter Motor. (Parenthesized is Signal Code.) Cutter Motor (69) Does the Cutter Motor operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	Replace either Cutter Motor or Cutter Motor Controller PCB.
Cutter Oil Supply Solenoid (SL2)	4	Try to operate the Cutter Oil Supply Solenoid in the Function Checking Mode. Cutter Oil Supply Solenoid (9F) Does the Cutter Oil Supply Solenoid operate properly?	No	Replace the Cutter Oil Supply Solenoid.
Oil Pad	5	Is the Oil Pad of Cutter Unit impregnated with enough oil?	No	Supply the Oil Pad with oil.
DC Controller PCB (PW7720)	6	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.6 “E-13” Paper Feed Motor Error

If you would like to make the printer ignore “E-13” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-13” is “03”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to each Paper Feed Motor, Paper Feed Motor Controller PCB and DC Driver PCB?	No	Connect the harness correctly.
Paper Feed Motor (M2) Or Paper Feed Motor Controller PCB (TP0362)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Paper Feed Motor. (Parenthesized is Signal Code.) Paper Feed Motor (84) Does the Paper Feed Motor operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	Replace either Paper Feed Motor or Paper Feed Motor Controller PCB.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.7 “E-14” Fuser Motor Error

If you would like to make the printer ignore “E-14” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-14” is “05”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to each Fuser Motor, Fuser Motor Controller PCB and DC Driver PCB?	No	Connect the harness correctly.
Fuser Motor (M5) Or Fuser Motor Controller PCB (TP0362)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Fuser Motor. (Parenthesized is Signal Code.) Fuser Motor (87) Does the Fuser Motor operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	Replace either Fuser Motor or Fuser Motor Controller PCB.
DC Controller PCB (PW7720)	3	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.8 "E-16" Wire Cleaning Error

If you would like to make the printer ignore "E-16" because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for "E-16" is "0A".
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected between Wire Cleaning Motor, and DC Driver PCB?	No	Connect the harness correctly.
Wire Cleaning Motor (M9)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Wire Cleaning Motor. (Parenthesized is Signal Code.) Wire Cleaning Motor (6C) Does the Wire Cleaning Motor operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	Replace the Wire Cleaning Motor.
Screw Shaft of Image Corona	3	Is the Screw Shaft of Image Corona dirty or transformed? (In these cases an over load is detected.)	Yes	Clean or replace the Screw Shaft.
DC Driver PCB (PW7755)	4	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	5	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.9 "E-21" Fuser Thermostat Error

If you would like to make the printer ignore "E-21" because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for "E-21" is "02".
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to each Thermostat, AC Circuit Board B and DC Controller PCB?	No	Connect the harness correctly.
Thermostat	2	Is the Thermostat open circuited?	Yes	Replace the Thermostat.
AC Circuit Board B (PW4210)	3	Is the voltage at J107-1 on the AC Circuit Board B 24V? And is the voltage at J106-7 on the AC Circuit Board 0V?	No	Replace the AC Circuit Board B.
DC Controller PCB (PW7720)	4	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.10 “E-23” LED Head Cleaning Error

If you would like to make the printer ignore “E-23” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-23” is “0b”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected between LED Cleaning Motor and DC Driver PCB?	No	Connect the harness correctly.
LED Cleaning Motor (M8)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the LED Cleaning Motor. (Parenthesized is Signal Code.) LED Cleaning Motor (83) Does the LED Cleaning Motor operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	Replace the LED Cleaning Motor.
Screw Shaft of LED Head	3	Is the Screw Shaft of LED Head dirty or transformed? (In these cases an over load is detected.)	Yes	Clean or replace the Screw Shaft.
DC Driver PCB (PW7755)	4	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
DC Controller PCB (PW7720)	5	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.11 “E-49” Developer Positioning Motor Error

If you would like to make the printer ignore “E-49” because you will operate the printer to find the cause of error, mask it in the Error Check Masking Mode.
The Mask Code for “E-49” is “06”.
Please refer to [8.1.8 Error Check Masking Mode (Sub Mode 7)] on the page 8-108 as for the detail of operation.

Cause	Order	Checking matter	Result	Treatment
Harness	1	Is the harness correctly connected to the Developer Positioning Motor?	No	Connect the harness correctly.
Developer Positioning Motor (M4)	2	Enter the Service Mode and select the Function Checking Mode. Try to operate the Developer Positioning Motor. (Parenthesized is Signal Code.) Developer Positioning Motor (68) Does the Developer Positioning Motor operate properly? **Please refer to [8.1.4 Function Checking Mode (Sub Mode 3)] on the page 8-29 as for the detail of operation.**	No	Replace the Developer Positioning Motor.
			Yes	Remove each Developer Unit Position Sensor, Sensor Disc and Cam, and then re-install them correctly.
DC Driver PCB (PW7755)	3	Try to replace the DC Driver PCB. Is the problem fixed?	Yes	OK
Developer Unit Position Sensor (PH25)	4	Enter the Service Mode, select the Input/Output Checking Mode, and select the Signal Code “2b”. Is the status “L” when the Developer Unit is at the Home Position? And is it “H” when the unit is not at the Home Position? **Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on the page 8-6 as for the detail of operation.**	No	Replace the Developer Unit Position Sensor.
DC Controller PCB (PW7720)	5	Try to replace the DC Controller PCB. Is the problem fixed?	Yes	OK

7.2.3.12 “E-F0” Folder Error

Cause	Order	Checking matter	Result	Treatment
Communication error	1	Is any error message indicated on the Operation Panel of Folder?	No	This is a communication error. 1. Turn off both printer and folder, and then turn them on. 2. Check the cables. 3. Replace the DC Controller PCB.
Error of Folder	2	Is any error message indicated on the Operation Panel of Folder?	Yes	This is an error of Folder. Turn off / on the Folder. If the error is not fixed, ask the service for the Folder.

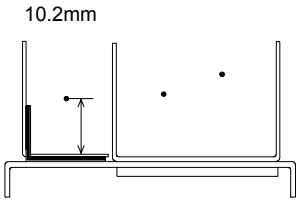
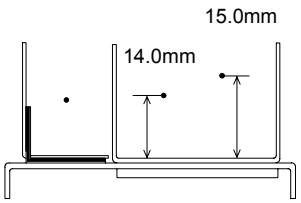
7.2.3.13 “E-Fb” Flash ROM Error

Cause	Order	Checking matter	Result	Treatment
Defect of Flash ROM	1	Can you fix the problem if you replace the Flash ROM?	Yes	OK.

7.3 Treatments against Image Defects

7.3.1 Standard settings of each part relating to image quality

The following list shows standard values of voltage and current supplied to each unit that is related with image creation.
When an image defect occurs, check whether or not the following standard values are satisfied on each unit.
As for the way of check or adjustment, please refer to the reference page written in the list.

Item	Standard		Reference page
Voltage for Grid Plate	-780 +/-20V		4-46
Current for Image Corona Wire	-2.0 +/-0.05mA		4-35
Current for Transfer Corona	1.4 +/-0.02mA 		4-37
DC Component for Separation Corona	-250 +/-3V : Plain paper -300 +/-3V : Tracing -10 +/-3V : Film 		4-40
Developer Bias (Negative Bias)	Development Roller	-250 +/-3V against Ground	4-51
	Toner Supply Roller	-500 +/-3V against Development Roller voltage	4-54
	Regulation Roller (Center)	-100 +/-3V against Development Roller voltage	4-57
	Regulation Roller (Both sides)	+365 +/-3V against Development Roller voltage	4-60

7.3.2 Treatments against each image defect

7.3.2.1 Too light halftone

Cause	Order	Checking matter	Result	Treatment
Dirt on LED Head	1	Is the LED Head dirty?	Yes	1. Clean the LED Head pressing the [EXP CLEAN] Key. 2. Check the Pad Ass'y 2 of the LED Head. Is it clean or is its life ended?
Printing media	2	Can you fix the problem if you use the media that is newly unpacked?	Yes	Advise the user to keep the media avoiding the humidity.
		Can you fix the problem if you use the media that satisfies the specification of KIP?	Yes	Explain to the user that the best image quality may not be performed if the media is out of KIP specification.
Image Corona	3	Is the Image Corona dirty?	Yes	Clean each Corona Wire, Corona Housing and Grid Plate. If too dirty, replace each Corona Wire and Grid Plate.
		Is the Corona Wire surely fitted into the V shape groove of Corona Heads? Or is the Corona Wire correctly caught between cleaning pads?(	No	The height of Corona Wire is not correct. Correct it properly.
		Is the current supplied from the HVP1 to the Image Corona satisfies -2.0 +/-0.05mA?	No	Adjust the current making reference to [4.3.2 Checking & Adjustment of HVP1 (For Image Corona)] on the page 4-35.
Grid voltage	4	Is the voltage supplied from the HVP6 to the Grid Plate satisfies -780 +/-20V?	No	Adjust the voltage making reference to [4.3.6 Checking & Adjustment of HVP6 (For Grid Plate of Image Corona)] on the page 4-46.
Eraser Lamp	5	Does the Eraser Lamp lights correctly?	No	1. Check whether or not the harness of Eraser Lamp has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Eraser Lamp with the new one.
Transfer / Separation Corona	6	Is the Transfer / Separation Corona dirty?	Yes	Clean each Corona Wire and Corona Housing. If too dirty, replace each Corona Wire.
		Is the current supplied from the HVP3 to the Transfer Corona satisfies -1.4 +/-0.02mA?	No	Adjust the current making reference to [4.3.3 Checking & Adjustment of HVP3 (For Transfer Corona)] on the page 4-37.
Contact of Bias Pins and Bias Plate	7	Are the Bias Pins on the Side Plate surely contacted to the Bias Plate of the Developer Unit? And are Bias Pins and Bias Plate provided with enough conductive grease?	No	1. Correct the installation of Bias Pins so that they should touch the Bias Plate. 2. Provide both the Bias Pins and Bias Plate with conductive grease.
Position of Developer Unit against Drum	8	Are the Pushing Cams staying at the correct position to press the Developer Unit to the Drum?	No	Check both the Developer Positioning Motor and pushing mechanism.
Developer Unit	9	Is the Development Roller covered with the toner evenly?	No	Disassemble the Developer Unit and find the cause.
Bias Power Supply	10	Are the output voltages from the Bias Power Supply satisfy the following conditions? Development Roller : -250 +/-3V Toner Supply Roller : -500 +/-3V Reg. Roller Center : -100 +/-3V Reg. Roller Both sides : +365 +/-3V	No	Adjust the each output properly making reference to the following pages. Development Roller : Page 4-51 Toner Supply Roller : Page 4-54 Reg. Roller Center : Page 4-57 Reg. Roller Both sides : Page 4-60
DC Controller PCB (PW7720)	11	Was it impossible to change the output voltages from Bias Power Supply at the above 10.? (Were the output voltages constant even if you rotated the volumes?)	Yes	Replace the DC Controller PCB.
Drum	12	Can you fix the problem if you replace the Drum?	Yes	OK

7.3.2.2 Too light halftone and solid black

Cause		Order	Checking matter	Result	Treatment
		1	Turn off the printer in the middle of print, draw out the Process Unit, and then check the toner image on the Drum. Is the toner image normal between Developer Unit and Transfer Corona?	Yes	This light image seems to be caused by the defect of transfer. Go to the following 2.
				No	This light image seems to be caused by the defect of development. Go to the following 9.
Transfer Defect	Printing media	2	Can you fix the problem if you use the media that is newly unpacked?	Yes	Advise the user to keep the media avoiding the humidity.
		3	Can you fix the problem if you use the media that satisfies the specification of KIP?	Yes	Explain to the user that the best image quality may not be performed if the media is out of KIP specification.
	Transfer / Separation Corona	4	Is the Transfer / Separation Corona properly installed?	No	Install it properly.
		5	Is the Transfer Corona leaking?	Yes	Clean the whole Transfer Corona. If too dirty, replace the Corona Wire.
	High Voltage Lead Line	6	Is the resistance of High Voltage Lead Line between HVP3 and Transfer Corona about 10 ohms?	No	Replace the High Voltage Lead Line as it is broken.
	HVP3	7	Is the current supplied from the HVP3 to the Transfer Corona satisfies -1.4 +/-0.02mA?	No	Adjust the current making reference to [4.3.3 Checking & Adjustment of HVP3 (For Transfer Corona)] on the page 4-37.
	DC Controller PCB (PW7720)	8	Was it impossible to change the output current from HVP3 at the above 7.? (Was the output current constant even if you rotated the volumes?)	Yes	Replace the DC Controller PCB.
Development defect	Contact of Bias Pins and Bias Plate	9	Are the Bias Pins on the Side Plate surely contacted to the Bias Plate of the Developer Unit? And are Bias Pins and Bias Plate provided with enough conductive grease?	No	1. Correct the installation of Bias Pins so that they should touch the Bias Plate. 2. Provide both the Bias Pins and Bias Plate with conductive grease.
	Developer Unit	10	Is the Development Roller covered with the toner evenly?	No	Disassemble the Developer Unit and find the cause.
		11	Are the Counter Rollers at both sides of Developer Unit contacted to the correct positions at both sides of Drum?	No	Install the Developer Unit correctly.
	Position of Developer Unit against Drum	12	Are the Pushing Cams staying at the correct position to press the Developer Unit to the Drum?	No	Check both the Developer Positioning Motor and pushing mechanism.
	Toner Sensor	13	Is there enough toner in the Developer Unit?	No	1. Check whether or not the harness of Toner Sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Toner Sensor with the new one.

Cause		Order	Checking matter	Result	Treatment
Development defect	Bias Power Supply	14	Are the output voltages from the Bias Power Supply satisfy the following conditions? Development Roller : -250 +/-3V Toner Supply Roller : -500 +/-3V Reg. Roller Center : -100 +/-3V Reg. Roller Both sides : +365 +/-3V	No	Adjust the each output properly making reference to the following pages. Development Roller : Page 4-51 Toner Supply Roller : Page 4-54 Reg. Roller Center : Page 4-57 Reg. Roller Both sides : Page 4-60
	DC Controller PCB (PW7720)	15	Was it impossible to change the output voltages from Bias Power Supply at the above 14.? (Were the output voltages constant even if you rotated the volumes?)	Yes	Replace the DC Controller PCB.
	Drum	16	Can you fix the problem if you replace the Drum?	Yes	OK

7.3.2.3 Every image is too light

Cause		Order	Checking matter	Result	Treatment
		1	Turn off the printer in the middle of print, draw out the Process Unit, and then check the toner image on the Drum. Is the toner image normal between Developer Unit and Transfer Corona?	Yes	This light image seems to be caused by the defect of transfer. Go to the following 2.
				No	This light image seems to be caused by the defect of development. Go to the following 9.
Transfer Defect	Printing media	2	Can you fix the problem if you use the media that is newly unpacked?	Yes	Advise the user to keep the media avoiding the humidity.
		3	Can you fix the problem if you use the media that satisfies the specification of KIP?	Yes	Explain to the user that the best image quality may not be performed if the media is out of KIP specification.
	Transfer / Separation Corona	4	Is the Transfer / Separation Corona properly installed?	No	Install it properly.
		5	Is the Transfer Corona leaking?	Yes	Clean the whole Transfer Corona. If too dirty, replace the Corona Wire.
	High Voltage Lead Line	6	Is the resistance of High Voltage Lead Line between HVP3 and Transfer Corona about 10 ohms?	No	Replace the High Voltage Lead Line as it is broken.
	HVP3	7	Is the current supplied from the HVP3 to the Transfer Corona satisfies -1.4 +/-0.02mA?	No	Adjust the current making reference to [4.3.3 Checking & Adjustment of HVP3 (For Transfer Corona)] on the page 4-37.
	DC Controller PCB (PW7720)	8	Was it impossible to change the output current from HVP3 at the above 7.? (Was the output current constant even if you rotated the volumes?)	Yes	Replace the DC Controller PCB.
Development defect	Contact of Bias Pins and Bias Plate	9	Are the Bias Pins on the Side Plate surely contacted to the Bias Plate of the Developer Unit? And are Bias Pins and Bias Plate provided with enough conductive grease?	No	1. Correct the installation of Bias Pins so that they should touch the Bias Plate. 2. Provide both the Bias Pins and Bias Plate with conductive grease.
	Developer Unit	10	Is the Development Roller covered with the toner evenly?	No	Disassemble the Developer Unit and find the cause.
		11	Are the Counter Rollers at both sides of Developer Unit contacted to the correct positions at both sides of Drum?	No	Install the Developer Unit correctly.
	Position of Developer Unit against Drum	12	Are the Pushing Cams staying at the correct position to press the Developer Unit to the Drum?	No	Check both the Developer Positioning Motor and pushing mechanism.
	Toner Sensor	13	Is there enough toner in the Developer Unit?	No	1. Check whether or not the harness of Toner Sensor has some abnormality as breakage of wire or disconnection of connector. 2. If the harness is OK, replace the Toner Sensor with the new one.

Cause		Order	Checking matter	Result	Treatment
Development defect	Bias Power Supply	14	Are the output voltages from the Bias Power Supply satisfy the following conditions? Development Roller : -250 +/-3V Toner Supply Roller : -500 +/-3V Reg. Roller Center : -100 +/-3V Reg. Roller Both sides : +365 +/-3V	No	Adjust the each output properly making reference to the following pages. Development Roller : Page 4-51 Toner Supply Roller : Page 4-54 Reg. Roller Center : Page 4-57 Reg. Roller Both sides : Page 4-60
	DC Controller PCB (PW7720)	15	Was it impossible to change the output voltages from Bias Power Supply at the above 14.? (Were the output voltages constant even if you rotated the volumes?)	Yes	Replace the DC Controller PCB.
	Drum	16	Can you fix the problem if you replace the Drum?	Yes	OK

7.3.2.4 Uneven density between left and right

Cause	Order	Checking matter	Result	Treatment
Image Corona	1	Is the Image Corona dirty?	Yes	Clean each Corona Wire, Corona Housing and Grid Plate. If too dirty, replace each Corona Wire and Grid Plate.
	2	Is the Corona Wire surely fitted into the V shape groove of Corona Heads? Or is the Corona Wire correctly caught between cleaning pads?(	No	The height of Corona Wire is not correct. Correct it properly.
Developer Unit	3	Are the Counter Rollers at both sides of Developer Unit contacted to the correct positions at both sides of Drum?	No	Install the Developer Unit correctly.
	4	Is the Development Roller covered with the toner evenly?	No	Disassemble the Developer Unit and find the cause.
	5	Is the toner evenly accumulating in the Developer Unit?	No	Check whether or not the printer is installed evenly.
Dirt of LED Head	6	Is the LED Head dirty?	Yes	1. Clean the LED Head pressing the [EXP CLEAN] Key. 2. Check the Pad Ass'y 2 of the LED Head. Is it clean or is its life ended?
Eraser Lamp	7	Are all LED of the Eraser Lamp light?	No	Replace the Eraser Lamp.
DC Controller PCB (PW7720)	8	Can you fix the problem if you replace the DC Controller PCB?	Yes	OK
LED Head	9	Can you fix the problem if you replace the LED Head?	Yes	OK

7.3.2.5 Foggy background

Cause	Order	Checking matter	Result	Treatment
Developer Unit	1	Is there any foreign substance on the shaft of Development Roller, or on the Bias Pins and Bias Plate? (If this foreign substance also touches the ground, Bias will escape to the ground.)	Yes	Remove the foreign substance.
	2	Is there more (or less) toner than required around the Agitator in the Developer Unit?	Yes	Check whether or not the Toner Sensor has some abnormality.
Image Corona	3	Try to print out the Test Pattern 4 (White print). Does this print also have the foggy background?	Yes	1. Adjust the voltage supplied from HVP6 to Grid Plate making reference to [4.3.6 Checking & Adjustment of HVP6 (For Grid Plate of Image Corona)] on the page 4-46. 2. Adjust the current supplied from HVP1 to Image Corona making reference to [4.3.2 Checking & Adjustment of HVP1 (For Image Corona)] on the page 4-35.
Developer Bias	4	Are the output voltages from the Bias Power Supply satisfy the following conditions? Development Roller : -250 +/-3V Toner Supply Roller : -500 +/-3V Reg. Roller Center : -100 +/-3V Reg. Roller Both sides : +365 +/-3V	No	Adjust the each output properly making reference to the following pages. Development Roller : Page 4-51 Toner Supply Roller : Page 4-54 Reg. Roller Center : Page 4-57 Reg. Roller Both sides : Page 4-60
DC Controller PCB (PW7720)	5	Was it impossible to change the output from HVP1 or HVP6 at the above 3 or 4? (Were the outputs constant even if you rotated the volumes?)	Yes	Replace the DC Controller PCB.
LED Head	6	Can you fix the problem if you replace the LED Head?	Yes	OK

7.3.2.6 Foggy thick black lines from leading edge toward trailing edge

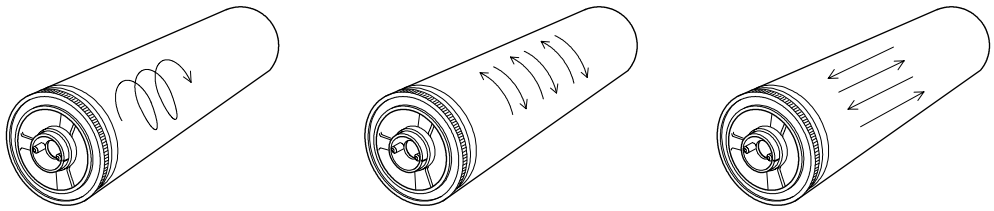
Cause	Order	Checking matter	Result	Treatment
Image Corona	1	Is the Image Corona dirty?	Yes	Clean each Corona Wire, Corona Housing and Grid Plate. If too dirty, replace each Corona Wire and Grid Plate.
	2	Is the Cleaning Pad staying at the home position? (Home position is the end on Wire Cleaning Motor side.)	No	1. Check the Wire Cleaning Motor. 2. Check the cleaning mechanism.
	3	Is the wire cleaning operation completed for about 90 seconds?	No	1. Check the Wire Cleaning Motor. 2. Check the cleaning mechanism. 3. Replace the DC Driver PCB (PW7755).
Developer Unit	4	Is the Development Roller covered with the toner evenly?	No	Disassemble the Developer Unit and find the cause.

7.3.2.7 Clear thin black line from leading edge toward trailing edge

Cause	Order	Checking matter	Result	Treatment
Image Corona	1	Is there something like filament on the Grid Plate, which touches the Drum also.	Yes	Remove it.
	2	Is the Image Corona dirty?	Yes	Clean each Corona Wire, Corona Housing and Grid Plate. If too dirty, replace each Corona Wire and Grid Plate.
Existence of foreign substance	3	Is there any foreign substance on any part like Corona or LED Head that is very close to the Drum? And does this foreign substance also touché the Drum?	Yes	Remove the foreign substance.
Drum	4	Can you find any black line or any scratch mark on the Drum, which runs to the rounding direction and coincides with the line on the print.	Yes	1. In case of black line, remove it with the dry cloth or attached Drum Cleaning Blade. 2. In case of the scratch mark, replace the Drum. But please find the cause of scratch mark before installing the new Drum. Please check such part as Stripper Finger, Corona, Transfer Guide and so on as some foreign substance may exist.

⚠ NOTE

When you wipe the Drum with the cloth be careful of the direction to move the cloth.



OK OK No good

7.3.2.8 White lines from leading edge toward trailing edge

Cause	Order	Checking matter	Result	Treatment
Image Corona	1	Is there something like filament on the Grid Plate, which touches the Drum also.	Yes	Remove it.
Dirt of LED Head	2	Is the LED Head dirty?	Yes	1. Clean the LED Head pressing the [EXP CLEAN] Key. 2. Check the Pad Ass'y 2 of the LED Head. Is it clean or is its life ended?
Transfer / Separation Corona	3	Is the Transfer / Separation Corona dirty?	Yes	Clean each Corona Wire and Corona Housing. If too dirty, replace each Corona Wire.
Entrance of Fuser Unit	4	Is there any foreign substance around the entrance of Fuser Unit, which touches the upper side of print media?	Yes	Remove the foreign substance.
Drum	5	Can you find any scratch mark on the Drum, which runs to the rounding direction and coincides with the line on the print.	Yes	Replace the Drum. But please find the cause of scratch mark before installing the new Drum. Please check such part as Stripper Finger, Corona, Transfer Guide and so on as some foreign substance may exist.
LED Head	6	Can you fix the problem if you replace the LED Head?	Yes	OK

7.3.2.9 Void of image

Cause	Order	Checking matter	Result	Treatment
Printing media	1	Can you fix the problem if you use the media that is newly unpacked?	Yes	Advise the user to keep the media avoiding the humidity.
Developer Unit	2	Does the void of image appear on the print repeatedly from leading edge to trailing edge keeping a constant interval? Is the interval 173mm?	Yes	The surface of Development Roller may get dirt or be damaged. 1. In case of dirt, wipe it off with the dry cloth. 2. In case of damage, replace the Development Roller.
	3	Does the void of image appear on the print not keeping a constant interval?	Yes	Check the quantity of toner in the Developer Unit. If it is too small, check the Toner Sensor.
Drum	4	Does the void of image appear on the print repeatedly from leading edge to trailing edge keeping a constant interval? Is the interval 565mm?	Yes	The surface of Drum may get dirt or be damaged. 1. In case of dirt, wipe it off with the dry cloth. 2. In case of the damage, replace the Drum. But please find the cause of damage before installing the new Drum. Please check such part as Stripper Finger, Corona, Transfer Guide and so on as some foreign substance may exist.

⚠ NOTE

When you wipe the Drum with the cloth be careful of the direction to move the cloth.
Please read NOTE on the page 7-37.

7.3.2.10 Dirt on the backside of print

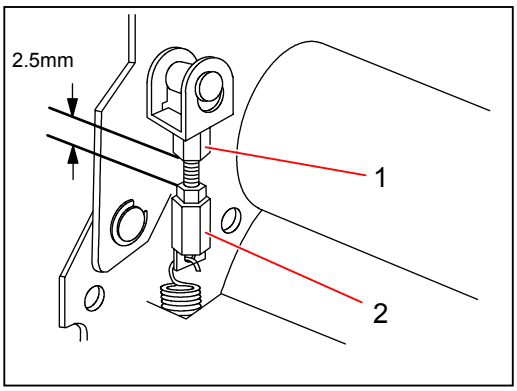
Cause	Order	Checking matter	Result	Treatment
Toner Receiver of Developer Unit	1	Is the Toner Receiver under the Development Roller fully filled with the toner?	Yes	Remove the toner from the Toner Receiver. As the toner might spill into the machine, check the inside of machine also.
Transfer Guide Plate	2	Is the Transfer Guide Plate dirty?	Yes	Clean the Transfer Guide. Also, check whether or not the gap between Drum and Transfer Guide Plate is proper making reference to [5.13.15 Adjustment of gap between Drum & Transfer Guide Plate] on the page 5-233.
Roll Deck or Bypass Feeder	3	Is there any dirt on the Roll Decks or Bypass Feeder, which might cause the dirt on the backside?	Yes	Wipe off the dirt. Also, find the cause of dirt.
Fuser	4	Is the Guide Plate at the entrance of Fuser dirty?	Yes	Wipe off the dirt.
	5	Is the melted toner sticking around the exit part (Fuser Roller, Pressure Roller, Stripper Fingers and so on)?	Yes	Remove the melted toner.

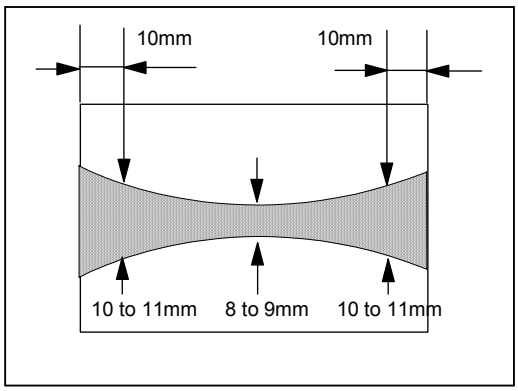
7.3.2.11 Poor fusing

Cause	Order	Checking matter	Result	Treatment
Printing media	1	Are the selected type of media on the Media Selector and the type of media actually installed same with each other?	No	Select the correct type of media on the Media Selector.
	2	Can you fix the problem if you use the media that is newly unpacked?	Yes	Advise the user to keep the media avoiding the humidity.
	3	Can you fix the problem if you use the media that satisfies the specification of KIP?	Yes	Explain to the user that the best image quality may not be performed if the media is out of KIP specification.
Fuser	4	Turn on the printer, then enter the Service Mode, select the Data Monitoring Mode, and select the Data Number “00”. Fuser Temperature (00) Does the temperature rise up normally during warm up? **Please refer to [8.1.3 Data Monitoring Mode (Sub Mode 2)] on the page 8-16 as for the detail of operation.**	No	Find the cause of problem making reference to [7.2.3.1 “E-01” Fuser Temperature Rising Error] on the page 7-20.
	5	Enter the Service Mode, select the Adjustment Mode 0, and then select each of the following Item Numbers. 10: Fusing temperature (PPC) 11: Fusing temperature (Tracing) 12: Fusing temperature (Film) Is the setting value too low? **Please refer to [8.1.5 Adjustment Mode 0 (Sub Mode 4)] on the page 8-33 as for the detail of operation.**	Yes	Change the setting value properly.
	6	Is the pressure of Pressure Roller proper?	No	Adjust the pressure properly.

NOTE

You can adjust the fusing pressure by adjusting the gap between Spring Hook 1 (1) and Spring Hook 2 (2).
It is 2.5mm in usual case.
The width of “Nip” is 8 to 9mm at the center and 10 to 11mm at both sides (10mm from side edges of A0 or 36” paper).





7.3.2.12 Leading margin defect (No leading margin)

Cause	Order	Checking matter	Result	Treatment
Setting value of leading margin	1	Enter the Service Mode, select each Adjustment Mode 0 (Sub Mode No.4) and Adjustment Mode 1 (Sub Mode No.5), and then select each of the following Item Numbers. 4-bb : Image placement (For 2nd and later copies during multi-print) 5-00 to 0b : Image placement for cut sheet media 5-0C to 17: Image placement for Roll 1 5-18 to 23 : Image placement for Roll 2 5-24 to 2F : Image placement for Roll 3 5-30 to 3b : Image placement for Roll 4 Is the proper setting value specified in each Item Number? **Please refer to [8.1.5 Adjustment Mode 0 (Sub Mode 4)] on the page 8-33 as for the detail of operation.**	No	Change the setting value properly.
Feeding rollers in the Roll Deck	2	Is the surface of feeding rollers worn away as a result of long term use?	Yes	Replace the feeding rollers.
Paper Gate Clutch (MC5)	3	Is the Paper Gate Clutch slipping?	Yes	Replace the Paper Gate Clutch.

7.3.2.13 Jitter

Cause	Order	Checking matter	Result	Treatment
Drum and Drum Driving Part	1	Does the jitter appear on the print repeatedly from leading edge to trailing edge keeping a constant interval? Is the interval about 565mm?	Yes	1. Check whether or not there exists any foreign substance between 178T Gear and 72T Pulley which drive the Drum. 2. Check whether not there exists any foreign substance between Counter Rollers of Developer Unit and side ends of Drum.
Development Roller	2	Does the jitter appear on the print repeatedly from leading edge to trailing edge keeping a constant interval? Is the interval about 173mm?	Yes	The surface of Development Roller may get dirt or be damaged. 1. In case of dirt, wipe it off with the dry cloth. 2. In case of damage, replace the Development Roller.
Developer Unit	3	Does the jitter appear on the print repeatedly from leading edge to trailing edge keeping a constant interval? Is the interval about 6mm?	Yes	Check whether or not the 30T Gear of Developer Unit is damaged. And also check whether or not there exists any foreign substance on the 30T gear.
Drum Motor (M1)	4	Can you fix the problem if you replace the Drum Motor?	Yes	OK

7.3.2.14 Lack of sharpness

Cause	Order	Checking matter	Result	Treatment
Dirt of LED Head	1	Is the LED Head dirty?	Yes	1. Clean the LED Head pressing the [EXP CLEAN] Key. 2. Check the Pad Ass'y 2 of the LED Head. Is it clean or is its life ended?
Installation of LED Head	2	Is the gap between LED Head and Drum proper? (The gap will not be proper if the Positioning Pins of the LED Head are bent.)	No	Adjust the gap properly.
Transfer / Separation Corona	3	Is the Transfer / Separation Corona dirty?	Yes	Clean each Corona Wire and Corona Housing. If too dirty, replace each Corona Wire.

7.3.2.15 Uneven density between front and rear

Cause	Order	Checking matter	Result	Treatment
Dirt of Image Corona	1	Is the Image Corona dirty?	Yes	Clean each Corona Wire, Corona Housing and Grid Plate. If too dirty, replace each Corona Wire and Grid Plate.
Transfer / Separation Corona	2	Is the Transfer / Separation Corona dirty?	Yes	Clean each Corona Wire and Corona Housing. If too dirty, replace each Corona Wire.
LED Head	3	Is the LED Head firmly fixed with the screws?	No	Fix the LED Head firmly.
	4	Does the uneven density appear on the print repeatedly from leading edge to trailing edge keeping a constant interval? Is the interval about 6mm?	Yes	Replace the LED Head.

7.3.2.16 Totally white

Cause	Order	Checking matter	Result	Treatment
Position of Developer Unit against Drum	1	Are the Pushing Cams staying at the correct position to press the Developer Unit to the Drum?	No	Check both the Developer Positioning Motor and pushing mechanism.
Contact of Bias Pins and Bias Plate	2	Are the Bias Pins on the Side Plate surely contacted to the Bias Plate of the Developer Unit? And are Bias Pins and Bias Plate provided with enough conductive grease?	No	1. Correct the installation of Bias Pins so that they should touch the Bias Plate. 2. Provide both the Bias Pins and Bias Plate with conductive grease.
Connector of LED Head	3	Is any connector of LED Head disconnected?	Yes	Connect the connector.
Transfer / Separation Corona	4	Is the Corona Wire of Transfer Corona broken?	Yes	Replace the Corona Wire.
	5	Is the Transfer / Separation Corona Unit properly installed?	No	Install the Transfer / Separation Corona Unit properly.
	6	Is the Transfer Corona leaking?	Yes	Clean the whole Transfer Corona. If too dirty, replace the Corona Wire.
High Voltage Lead Line	7	Is the High Voltage Lead Line connected between HVP3 and Transfer Corona properly?	No	Connect the High Voltage Lead Line properly.
	8	Is the resistance of High Voltage Lead Line between HVP3 and Transfer Corona about 10 ohms?	No	Replace the High Voltage Lead Line as it is broken.
DC Controller PCB (PW7720)	9	Can you fix the problem if you replace the DC Controller PCB?	Yes	OK
LED Head	10	Can you fix the problem if you replace the LED Head?	Yes	OK

7.3.2.17 Totally black

Cause	Order	Checking matter	Result	Treatment
Image Corona	1	Is the Corona Wire of Image Corona broken? Or is the tension of Corona Wire too weak? (If the tension is weak, the Corona Wire may be extended.)	Yes	1. Replace the Corona Wire. 2. Check whether or not the Tension Springs in the Corona Block are transformed.
	2	Is the Grid Plate dirty?	Yes	Clean the Grid Plate. If too dirty, replace it.
	3	Is the Grid Plate installed properly?	No	Install the Grid Plate properly.
HVP1	4	Is the current supplied from the HVP1 to the Image Corona satisfies -2.0 +/-0.05mA?	No	Adjust the current making reference to [4.3.2 Checking & Adjustment of HVP1 (For Image Corona)] on the page 4-35.
DC Controller PCB (PW7720)	5	Can you fix the problem if you replace the DC Controller PCB?	Yes	OK

Chapter 8

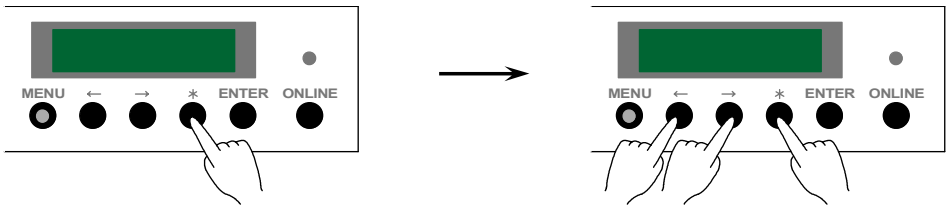
Service Mode & User Mode

8.1 Service Mode

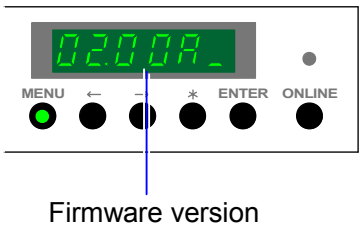
8.1.1 General Operation

8.1.1.1 Entering the Service Mode

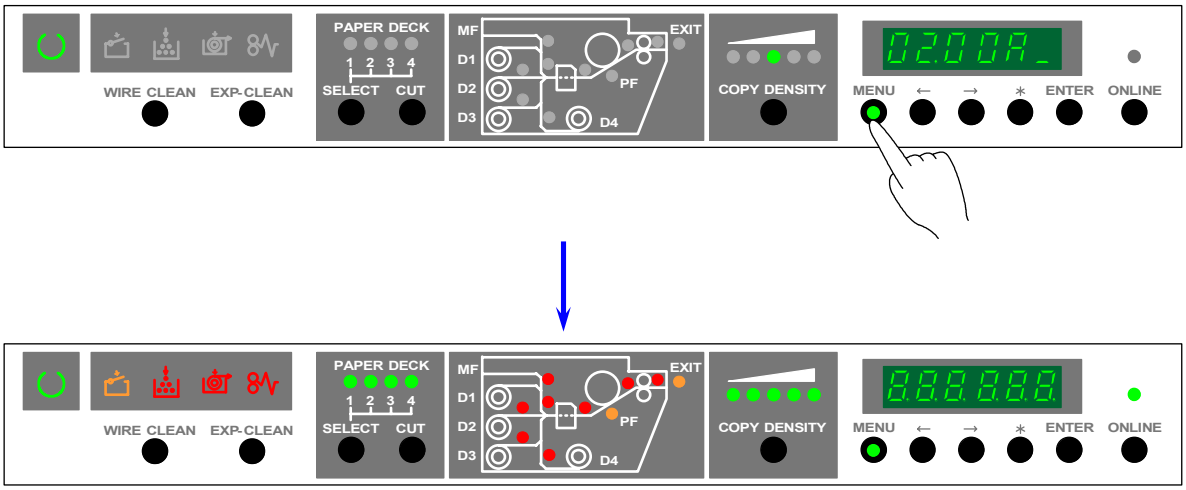
1) Press and hold the [*] key on the Operation Panel, and then press switches in the order of [←], [→], [←] and [←] to enter the Service Mode.



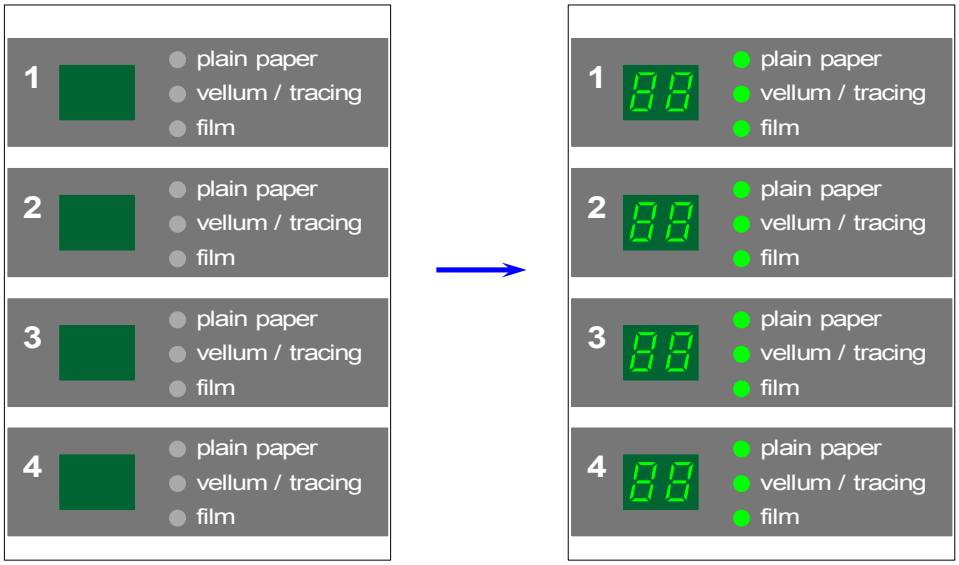
3) The [MENU] key lights green and the Status Display indicates the version of present Firmware when you enter the Service Mode.



4) Press the [MENU] key once.
All LEDs and segments of the Operation Panel light.

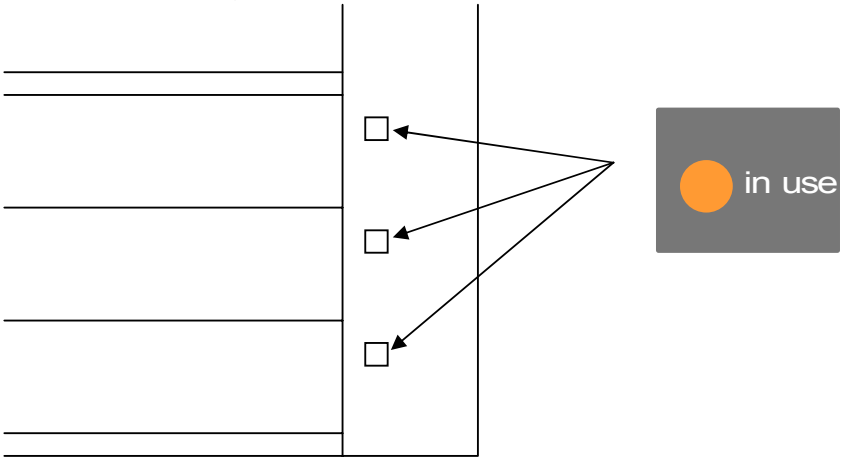


And all LEDs and segments of the Media Indicator light also.

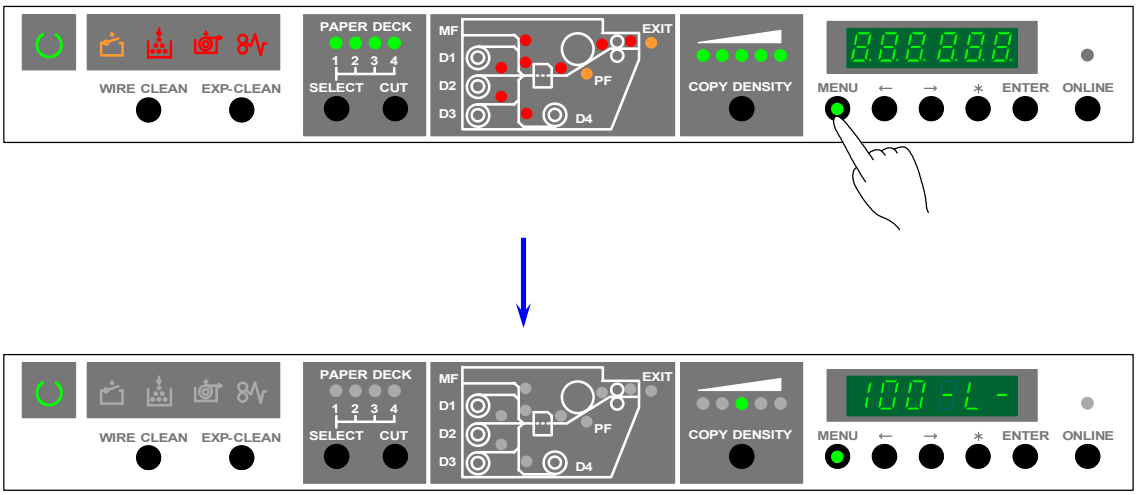


(Media Indicator)

And all “in use” Indicators light also.



5) Press the [MENU] key once more.
Unnecessary LEDs and segments are put out, and it becomes possible to select each Sub Mode. (The Input / Output Checking Mode is selected firstly at this time. So its Sub Mode Number “1” is indicated on the 1st digit from the left.)



6) Making reference to [8.1.1.2 Selecting each Sub Mode in the Service Mode] on the page 8-4, select the Sub Mode you require.

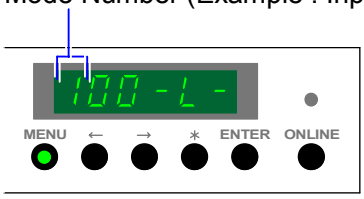
8.1.1.2 Selecting each Sub Mode in the Service Mode

The Service Mode consists of 9 kinds of Sub Mode, and each of them has its own Sub Mode Number as follows.
It is possible to access the necessary Sub Mode by indicating its Sub Mode Number on the Status Display.

Sub Mode Number	Name of the Sub Mode
1	Input / Output Checking Mode
2	Data Monitoring Mode
3	Function Checking Mode
4	Adjustment Mode 0
5	Adjustment Mode 1
6	Factory Mode
7	Error Check Masking Mode
8	Test Print Mode
9	Special Mode

There are 6 digits on the Status Display.
The 1st digit from the left indicates the Sub Mode Number presently selected. (From 1 to 9)

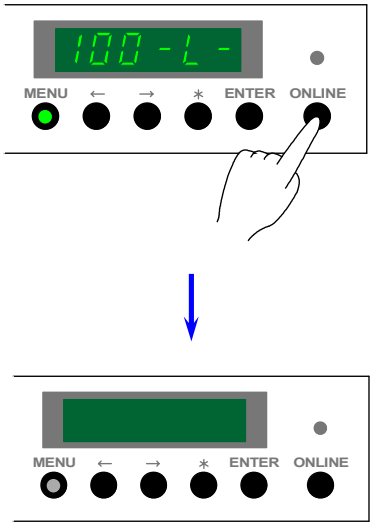
Sub Mode Number (Example : Input / Output Checking Mode)



Press the [MENU] Key to indicate another Sub Mode Number.

8.1.1.3 Canceling the Service Mode

Press the [ONLINE] Key to cancel the Service Mode.
The LED of the [MENU] Key is put out.



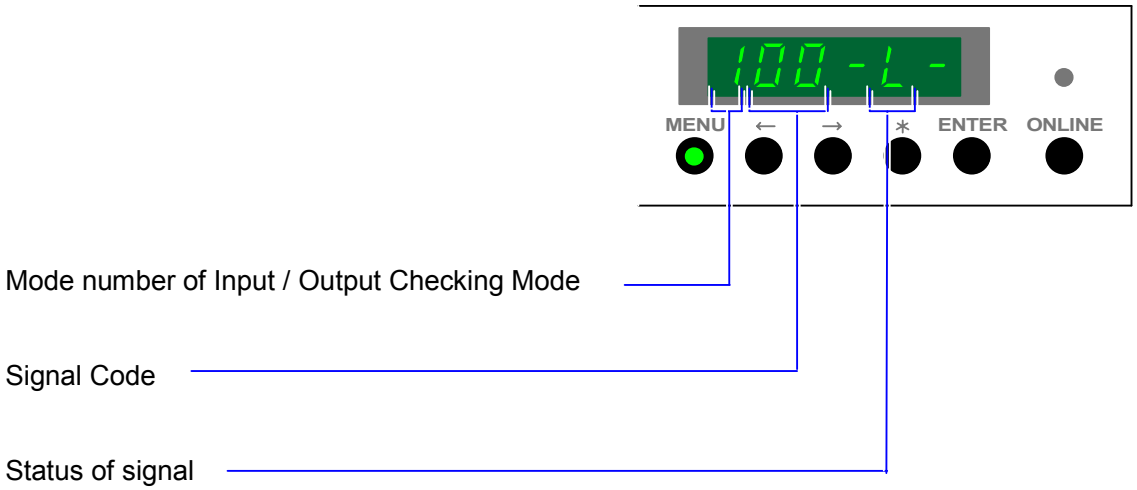
8.1.2 Input / Output Checking Mode (Sub Mode 1)

8.1.2.1 Function

It is possible to observe the status of each signal inputted to the DC Controller PCB and outputted from it.
Observation can be done while printing as usual.
Refer to [8.1.2.4 Input / Output Signal List] on and after the page 8-8 as for Signal Codes, Signal Names and the contents of each Signal.

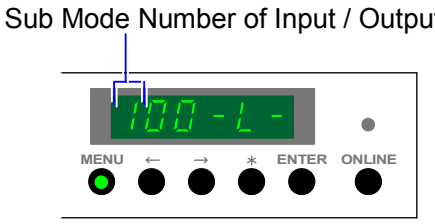
8.1.2.2 Indication of the Operation Panel

The 1st digit from the left indicates “1” which is the mode number of “Input / Output Checking Mode”.
2nd and 3rd digits from the left indicate the Signal Code presently selected.
The 5th digit from the left indicates the status of selected signal.



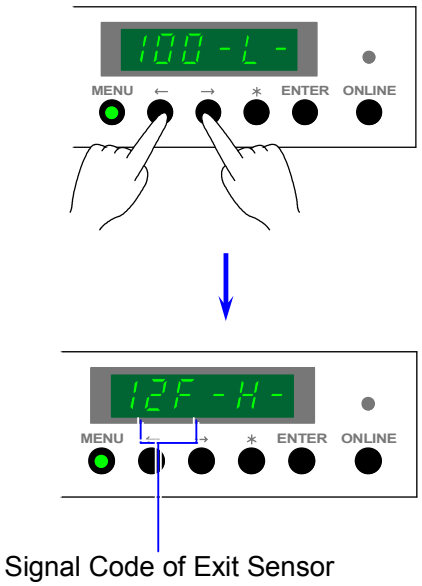
8.1.2.3 Operation (Example of usage)

1) Enter the Service Mode, and then indicate the Sub Mode Number “1” on the 1st digit from the left of the Status Display pressing the [MENU] Key.

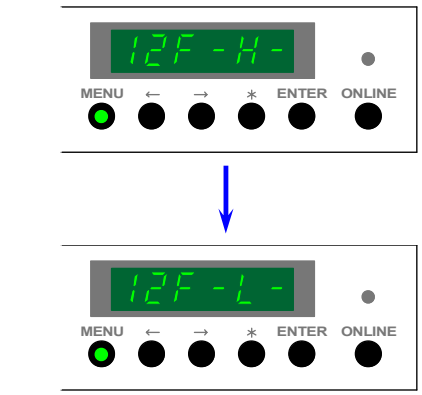


2) Both 2nd and 3rd digits from the left indicate the Signal Code presently selected.
As you can indicate another Signal Code pressing [⩽] Key (increment) and [⩾] Key (decrement), indicate the Signal Code of which status you would like to observe.
Please refer to [8.1.2.4 Input / Output Signal List] on and after the page 8-8.

Example : We will check the input signal from the Exit Sensor.
Its Signal Code is “2F”.



3) Print some image from the outer device. (Or print out some Test Pattern.)
The 5th digit indicates the status of signal by either “L” or “H”.
The status of input signal sent from the Exit Sensor is “H” normally, but it changes “L” when the sensor detects the paper.



8.1.2.4 Input / Output Signal List

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
00	UPPER_SW	U202	43	J202-1	Top Rear Cover Signal	Top Rear Cover Switch (DS6) detects door open when “H”.	I	NO
01	RIGHT_SW1	U202	42	J202-2	Right Side Door Signal	Right Side Door Switch (DS7) detects door open when “H”.	I	NO
02	RIGHT_SW2	U202	41	J202-3	Toner Cover Signal	Toner Cover Switch (DS8) detects door open when “H”.	I	NO
03	MP_SRT	U202	40	J202-4	Bypass Start Sensor Signal	Bypass Start Sensor (PH20) detects the media when “L”.	I	NO
04	RP_SET1	U202	39	J202-5	Roll Set Sensor 1 Signal	Roll Set Sensor 1 (PH1) detects the media when “L”.	I	NO
05	RP_SET2	U202	38	J202-6	Roll Set Sensor 2 Signal	Roll Set Sensor 2 (PH2) detects the media when “L”.	I	NO
06	RP_SET3	U202	37	J202-7	Roll Set Sensor 3 Signal	Roll Set Sensor 3 (PH3) detects the media when “L”.	I	NO
07	RP_SET4	U202	36	J202-8	Roll Set Sensor 4 Signal	Roll Set Sensor 4 (PH4) detects the media when “L”.	I	NO
08	RF_CLK1	U202	14	J202-9	Paper Feed Clock Sensor 1 Signal	Paper Feed Clock Sensor 1 (PH13) generates the clock pulse when the media is fed.	I	NO
09	RF_CLK2	U202	15	J202-10	Paper Feed Clock Sensor 2 Signal	Paper Feed Clock Sensor 2 (PH14) generates the clock pulse when the media is fed.	I	NO
0A	RF_CLK3	U202	16	J202-11	Paper Feed Clock Sensor 3 Signal	Paper Feed Clock Sensor 3 (PH15) generates the clock pulse when the media is fed.	I	NO
0b	RF_CLK4	U202	18	J202-12	Paper Feed Clock Sensor 4 Signal	Paper Feed Clock Sensor 4 (PH16) generates the clock pulse when the media is fed.	I	NO
0C	PSEL_DT0	U202	19	J202-13	Media Selection Signal 0 (Plain paper)	“Plain Paper” of Media Selector is pressed down when “H”.	I	NO
0d	PSEL_DT1	U202	20	J202-14	Media Selection Signal 1 (Tracing paper)	“Tracing Paper” of Media Selector is pressed down when “H”.	I	NO
0E	PSEL_DT2	U202	21	J202-15	Media Selection Signal 2 (Film)	“Film” of Media Selector is pressed down when “H”.	I	NO
0F	PSEL_DT3	U202	22	J202-16	Inch Media Switch Signal (ENG. / ARCH.)	“Engineering” when “L”. “Architecture” when “H”.	I	NO
10	SZDATA0	U202	10	J202-17	Paper Size Sensor Signal 0	Paper Size Sensor 0 (PH5A, 5B, 5C & 5D) detects the media when “L”.	I	NO
11	SZDATA1	U202	11	J202-18	Paper Size Sensor Signal 1	Paper Size Sensor 1 (PH6A, 6B, 6C & 6D) detects the media when “L”.	I	NO
12	SZDATA2	U202	12	J202-19	Paper Size Sensor Signal 2	Paper Size Sensor 2 (PH7A, 7B, 7C & 7D) detects the media when “L”.	I	NO
13	SZDATA3	U202	13	J202-20	Paper Size Sensor Signal 3	Paper Size Sensor 3 (PH8A, 8B, 8C & 8D) detects the media when “L”.	I	NO
14	SZDATA4	U202	9	J202-21	Paper Size Sensor Signal 4	Paper Size Sensor 4 (PH9A, 9B, 9C & 9D) detects the media when “L”.	I	NO
15	SZDATA5	U202	8	J202-22	Paper Size Sensor Signal 5	Paper Size Sensor 5 (PH10A, 10B, 10C & 10D) detects the media when “L”.	I	NO
16	SZDATA6	U202	7	J202-23	Paper Size Sensor Signal 6	Paper Size Sensor 6 (PH11A, 11B, 11C & 11D) detects the media when “L”.	I	NO
17	-------	U202	6	J202-24				

NOTES

1. I / O means input signal or output signal.

2. F.C. means Function Checking (Mode).
   If the signal is provided with “OK”, concerning target (motors, blowers and so on) is operatable in the Function Checking Mode. (Refer to [8.1.4 Function Checking Mode] on and after the page 8-29.)
   If the signal is provided with “NO”, it is not operatable.

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
18	PFMTR_LD	U203	43	J204-9	Paper Feed Motor Synchronous Signal	Paper Feed Motor (M2) is rotating when “L”.	I	NO
19	TNR_BTL	U203	42	J204-10	Toner Remaining Level Detection Signal	Toner Remaining Level Sensor detects “No toner” when “L”. (Receives the light)	I	NO
1A	FUMTR_LD	U203	41	J204-11	Fuser Motor Synchronous Signal	Fuser Motor (M5) is rotating when “L”.	I	NO
1b	-------	U203	40	J204-12				
1C	DEV_TNR2	U203	39	J204-13	Toner Detection Signal 2 (Developer Toner Sensor)	Developer Toner Sensor (TLS2) detects “No toner” when “L”.	I	NO
1d	DEV_TNR1	U203	38	J204-14	Toner Detection Signal 1 (Hopper Toner Sensor)	Hopper Toner Sensor (TLS1) detects “No toner” when “L”.	I	NO
1E	MP_SW	U203	37	J204-15	Bypass Feeder Switch Signal	Bypass Feeder is open when “H”.	I	NO
1F	EXIT_SW	U203	36	J204-16	Exit Cover Switch Signal	Exit Cover Switch (DS5) detects door open when “H”.	I	NO
20	-------	U203	14	J203-1				
21	SW_DATA0	U203	15	J203-2	Switch Data Signal 0		I	NO
22	SW_DATA1	U203	16	J203-3	Switch Data Signal 1		I	NO
23	SIG_IN	U203	18	J203-4	Reception PCB input Signal	Communicating : Pulse Not communicating : H	I	NO
24	-------	U203	19	J203-5				
25	DECK_SW1	U203	20	J203-6	Roll Deck Switch Signal 1	Roll Deck Switch 1 (DS1) detects “Top Roll Deck open” when “H”.	I	NO
26	DECK_SW2	U203	21	J203-7	Roll Deck Switch Signal 2	Roll Deck Switch 2 (DS2) detects “Middle Roll Deck open” when “H”.	I	NO
27	DECK_SW3	U203	22	J203-8	Roll Deck Switch Signal 3	Roll Deck Switch 3 (DS3) detects “Bottom Roll Deck open” when “H”.	I	NO
28	-------	U203	10	J203-9				
29	-------	U203	11	J203-10				
2A	T_SIZE0	U203	12	J203-11	Cut Sheet Size Sensor 0 Signal	Cut Sheet Size Sensor 0 (PH31, 33, 35 & 37) detects the media when “L”.	I	NO
2b	DEVE_HP	U203	13	J203-12	Developer Unit Position Sensor Signal	Developer Unit Position Sensor (PH25) detects the Developer Unit is pressed to the Drum when “L”.	I	NO
2C	PFUT_ST	U203	9	J203-13	Internal Transportation Unit Set Sensor Signal	Internal Transportation Unit Set Sensor (PH24) detects the Internal Transportation Unit is set when “H”.	I	NO
2d	T_SIZE1	U203	8	J203-14	Cut Sheet Size Sensor 1 Signal	Cut Sheet Size Sensor 0 (PH32, 34 & 36) detects the media when “L”.	I	NO
2E	P_SEPR	U203	7	J203-15	Separation Sensor Signal	Separation Sensor (PH18) detects the media when “L”.	I	NO
2F	P_EXIT	U203	6	J203-16	Exit Sensor Signal	Exit Sensor (LS2) detects the media when “L”.	I	NO
30	-------	U204	43	J205-1 J205-2				
31	-------	U204	42	J205-3 J205-4				
32	IN_CNT_B	U204	41		Counter A (Upper) Control Signal Feed Back		I	NO
33	IN_CNT_A	U204	40		Counter B (Lower) Control Signal Feed Back		I	NO

NOTES

1. I / O means input signal or output signal.

2. F.C. means Function Checking (Mode).
   If the signal is provided with “OK”, concerning target (motors, blowers and so on) is operatable in the Function Checking Mode. (Refer to [8.1.4 Function Checking Mode] on and after the page 8-29.)
   If the signal is provided with “NO”, it is not operatable.

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
34	-------	U204	39	J205-9				
35	-------	U204	38	J205-10				
36	-------	U204	37	J205-11				
37	-------	U204	36	J205-12				
38	SW_R	U204	14	J208-A35	Power Switch OFF Control Signal	Power Switch (S1) is turned OFF when “H” is outputted.	O	OK
39	PF_SPH	U204	15	J208-B35	Paper Feed Motor Speed Change Signal	Paper Feed Motor (M2) rotates fast when “H”. It rotates slowly when “L”.	O	OK
3A	T_SL1	U204	16	J208-A36	Bypass Feeding Roller Down Solenoid Control Signal	Bypass Feeding Roller Down Solenoid (SL3) operates when “H”.	O	OK
3b	T_SL2	U204	18	J208-B36	Bypass Reversal Roller Down Solenoid Control Signal	Bypass Reversal Roller Down Solenoid (SL4) operates when “H”.	O	OK
3C	T_MTR	U204	19	J208-A37	Bypass Feeding Motor Control Signal	Bypass Feeding Motor (M10) rotates when “H”.	O	OK
3d	-------	U204	20	J208-B37				
3E	SEPBLW4	U204	21	J208-A38	Separation Assist Blower 4 Control Signal	Separation Assist Blower 4 (BL12 & 16) rotate when “H”.	O	OK
3F	SEPBLW3	U204	22	J208-B38	Separation Assist Blower 3 Control Signal	Separation Assist Blower 3 (BL13 & 15) rotate when “H”.	O	OK
40	INT1	U204	10	J204-1	Interlock Signal 1 (Thermostat)	Thermostat (TS1) is open when “H”.	I	NO
41	INT2	U204	11	J204-2	Interlock Signal 2 (Door / Thermostat)	Thermostat (TS1) or some door is open when “H”.	I	NO
42	WCMTR_OC	U204	12	J204-3	Wire Cleaning Motor Over Current Detection Signal	Over current flows when “L”.	I	NO
43	CUTHP_O	U204	13	J204-4	Cutter Home Position Signal	Cutter Home Position Sensor (PH22) detects the Cutter is at the Home Position when “L”.	I	NO
44	BIAS_ST	U204	9	J204-5	Developer Bias Output 2 Detection Signal	Bias is normally supplied when “H”.	I	NO
45	PWR_ST	U204	8	J204-6	Power Switch Detection Signal	Power Switch (S1) is ON when “L”.	I	NO
46	DRMTR_LD	U204	7	J204-7	Drum Motor Synchronous Signal	Drum Motor (M1) rotates when “L”.	I	NO
47	LEDMTR_OC	U204	6	J204-8	LED Head Cleaning Motor Over Current Detection Signal	Over current flows when “L”.	I	NO
48	DISP_DT24	U238	43	J214-1	Indication Data Signal 24		O	NO
49	DISP_DT25	U238	42	J214-2	Indication Data Signal 25		O	NO
4A	DISP_DT26	U238	41	J214-3	Indication Data Signal 26		O	NO
4B	DISP_DT27	U238	40	J214-4	Indication Data Signal 27		O	NO
4C	DISP_DT28	U238	39	J214-5	Indication Data Signal 28		O	NO
4D	DISP_DT29	U238	38	J214-6	Indication Data Signal 29		O	NO
4E	DISP_DT30	U238	37	J214-7	Indication Data Signal 30		O	NO
4F	DISP_DT31	U238	36	J214-8	Indication Data Signal 31		O	NO
50	DISP_DT8	U238	14	J214-9	Indication Data Signal 8		O	NO
51	DISP_DT9	U238	15	J214-10	Indication Data Signal 9		O	NO

NOTES

1. I / O means input signal or output signal.

2. F.C. means Function Checking (Mode).
   If the signal is provided with “OK”, concerning target (motors, blowers and so on) is operatable in the Function Checking Mode. (Refer to [8.1.4 Function Checking Mode] on and after the page 8-29.)
   If the signal is provided with “NO”, it is not operatable.

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
52	DISP_DT10	U238	16	J214-11	Indication Data Signal 10		O	NO
53	DISP_DT11	U238	18	J214-12	Indication Data Signal 11		O	NO
54	DISP_DT12	U238	19	J214-13	Indication Data Signal 12		O	NO
55	DISP_DT13	U238	20	J214-14	Indication Data Signal 13		O	NO
56	DISP_DT14	U238	21	J214-15	Indication Data Signal 14		O	NO
57	DISP_DT15	U238	22	J214-16	Indication Data Signal 15		O	NO
58	DISP_DT16	U238	10	J214-17	Indication Data Signal 16		O	NO
59	DISP_DT17	U238	11	J214-18	Indication Data Signal 17		O	NO
5A	DISP_DT18	U238	12	J214-19	Indication Data Signal 18		O	NO
5B	DISP_DT19	U238	13	J214-20	Indication Data Signal 19		O	NO
5C	DISP_DT20	U238	9	J214-21	Indication Data Signal 20		O	NO
5D	DISP_DT21	U238	8	J214-22	Indication Data Signal 21		O	NO
5E	DISP_DT22	U238	7	J214-23	Indication Data Signal 22		O	NO
5F	DISP_DT23	U238	6	J214-24	Indication Data Signal 23		O	NO
60	RY6	U205	43	J208-B28	Rylay6 (RY6) Control Signal	36V is controlled when “H”.	O	NO
61	U219 CLK	U205	42		Shift Lock of M62362P CLK		-	NO
62	U219 DI	U205	41		Serial Data of M62362P DI		-	NO
63	U219 BS	U205	40		BS of M62362P		-	NO
64	U209 A	U205	39		Selector A of 74HC4051		-	NO
65	U209 B	U205	38		Selector B of 74HC4051		-	NO
66	U209 C	U205	37		Selector C of 74HC4051		-	NO
67	WD	U205	36				-	
68	DPMTR	U205	14	J208-A29	Developer Positioning Motor Control Signal	Developer Positioning Motor (M4) rotates when “H”.	O	OK
69	CUTMTR	U205	15	J208-B29	Cutter Motor Control Signal	Cutter Motor (M3) rotates when “H”.	O	OK
6A	DP_CHG	U205	16	J208-A30	Developer Release Power Charge Control Signal	Power for releasing the Developer Unit is charged when “H”.	O	OK
6B	CMTR_RST	U205	18	J208-B30	Cutter Motor Reset Signal	Cutter is reset when “H”.	O	OK
6C	WCMTR	U205	19	J208-A31	Wire Cleaning Motor Control Signal	Wire Cleaning Motor (M9) rotates when “H”.	O	OK
6D	PRESBLW_H	U205	20	J208-B31	Paper Pressure Blower (High Speed)	Pressure Blowers (BL4, 5, 6 &7) rotate in a high speed when “H”.	O	OK
6E	WCMTR_DIR	U205	21	J208-A32	Wire Cleaning Motor Reverse Signal	Wire Cleaning Motor (M9) rotates oppositely when “H”.	O	OK
6F	PRESBLW_L	U205	22	J208-B32	Paper Pressure Blower (Low Speed)	Pressure Blowers (BL4, 5, 6 &7) rotate in a low speed when “H”.	O	OK
70	PFMTR_DIR	U205	10	J208-A33	Paper Feed Motor Reverse Control Signal	Paper Feed Motor (M2) rotates oppositely when “H”.	O	OK
71	-------	U205	11	J208-B33				

NOTES

1. I / O means input signal or output signal.

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   If the signal is provided with “OK”, concerning target (motors, blowers and so on) is operatable in the Function Checking Mode. (Refer to [8.1.4 Function Checking Mode] on and after the page 8-29.)
   If the signal is provided with “NO”, it is not operatable.

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
72	DRMTR_DIR	U205	12	J208-A34	Drum Motor Reverse Control Signal	Drum Motor (M1) rotates oppositely when “H”.	O	OK
73	EXBLW3	U205	13	J208-B34	Exhaust Fan 3 Control Signal	Exhaust Fan 3 (BL17, 18 & 19) rotate when “H”.	O	OK
74	HV5	U205	9	J209-1	Cleaning Roller Bias Control Signal	Bias is supplied when “H”.	O	OK
75	HV5_SEL	U205	8	J209-2	Cleaning Roller Bias Polarity Switch Control Signal	Negative when “H”. Positive when “L”.	O	OK
76	COUNTER_B	U205	7	J209-3	Counter B Control Signal (Lower : 3 pins)	Counter B (CNTB) takes 1 count when “H”.	O	OK
77	COUNTER_A	U205	6	J209-4	Counter A Control Signal (Upper : 2 pins)	Counter A (CNT A) takes 1 count when “H”.	O	OK
78	E_LAMP	U206	43	J208-A14	Eraser Lamp Control Signal	Eraser Lamp lights when “H”.	O	OK
79	HOP_CL	U206	42	J208-B14	Toner Supply Clutch Control Signal	Toner Supply Clutch (MC11) is ON when “H”.	O	OK
7A	-------	U206	41	J208-A15				
7B	S_LAMP	U206	40	J208-B15	Separation Lamp Control Signal	Separation Lamp lights when “H”.	O	OK
7C	EXBLW_L	U206	39	J208-A16	Exhaust Blower Control Signal (Low Speed)	Exhaust Blowers (BL2 & 3) rotate in a low speed when “H”.	O	OK
7D	SEPBLW1	U206	38	J208-B16	Separation Fan Control Signal	Separation Fan (BL1) rotates when “H”.	O	OK
7E	D_BIAS	U206	37	J208-A17	Developer Bias Control Signal	Bias is supplied when “H”.	O	OK
7F	EXBLW_H	U206	36	J208-B17	Exhaust Blower Control Signal (High Speed)	Exhaust Blowers (BL2 & 3) rotate in a high speed when “H”.	O	OK
80	SIG_OUT	U206	14	J208-A24	Transmission PCB Output Signal	Communicating : Pulse Not communicating : H	O	OK
81	LEDMTR_DIR	U206	15	J208-A25	LED Cleaning Motor Reverse Control Signal	LED Cleaning Motor (M8) rotates oppositely when “H”.	O	OK
82	BIAS_SEL	U206	16	J208-B25	Developer Bias Polarity Switch Control Signal	Negative when “H”. Positive when “L”.	O	OK
83	LEDMTR	U206	18	J208-A26	LED Cleaning Motor Control Signal	LED Cleaning Motor (M8) rotates when “H”.	O	OK
84	PFMTR	U206	19	J208-B26	Paper Feed Motor Control Signal	Paper Feed Motor (M2) rotates when “H”.	O	OK
85	DRMTR	U206	20	J208-A27	Drum Motor Control Signal	Drum Motor (M1) rotates when “H”.	O	OK
86	DRMTR_SP	U206	21	J208-B27	Drum Motor Speed Switch Control Signal	213.5rpm when “H”. 427 rpm when “L”.	O	OK
87	FUMTR	U206	22	J208-A28	Fuser Motor Control Signal	Fuser Motor (M5) rotates when “H”.	O	OK
88	SLCT_0	U206	10		Print Condition Data Select Signal 0		-	NO
89	SLCT_1	U206	11		Print Condition Data Select Signal 1		-	NO
8A	SLCT_2	U206	12		Print Condition Data Select Signal 2		-	NO
8B	SLCT_3	U206	13		Print Condition Data Select Signal 3		-	NO
8C	SLCT_4	U206	9		Print Condition Data Select Signal 4		-	NO
8D	DEV_CLR	U206	8		Device Clear Signal	Clear when “L”.	O	NO
8E	SLCT_WE	U206	7		Select Write Enable Signal		-	NO
8F	BUS_DIR	U206	6		DIR Signal Control of 74HC245	Output when “H”. Input when “L”.	-	NO
90	P_GATE	U207	43	J208-A2	Paper Gate Clutch Control Signal	Paper Gate Clutch (MC5) is ON when “H”.	O	OK

NOTES

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   If the signal is provided with “NO”, it is not operatable.

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
91	RP_FEED	U207	42	J208-B2	Paper Feed Clutch Control Signal	Paper Feed Clutch (MC6) is ON when “H”.	O	OK
92	RP_CL	U207	41	J208-A3	Roll Paper Feed Clutch 1 Control Signal	Roll Paper Feed Clutch 1 (MC1) is ON when “H”.	O	OK
93	RP_CL2	U207	40	J208-B3	Roll Paper Feed Clutch 2 Control Signal	Roll Paper Feed Clutch 2 (MC2) is ON when “H”.	O	OK
94	RP_CL3	U207	39	J208-A4	Roll Paper Feed Clutch 3 Control Signal	Roll Paper Feed Clutch 3 (MC3) is ON when “H”.	O	OK
95	RP_CL4	U207	38	J208-B4	Roll Paper Feed Clutch 4 Control Signal	Roll Paper Feed Clutch 4 (MC4) is ON when “H”.	O	OK
96	FU_SL	U207	37	J208-A5	Fuser Solenoid Control Signal	Fuser Solenoid (SL1) is ON when “H”.	O	OK
97	DEHUM	U207	36	J208-B5	Dehumidify Heater Control Signal	Dehumidify Heaters (H3, 4, 5, 6, 7 & 8) are OFF when “H”.	O	OK
98	HOP_MTR2	U207	14	J208-A6	Toner Supply Motor 2 Control Signal (Hopper to Developer)	Toner Supply Motor 2 (M6) rotates when “H”.	O	OK
99	SEPBLW2	U207	15	J208-B6	Separation Assist Blower 2 Control Signal	Separation Assist Blower 2 (BL14) rotates when “H”.	O	OK
9A	SAFE_RY	U207	16	J208-A7	Relay Control Signal	Fuser is normal when “H”. Fuser is abnormal when “L”.	O	OK
9B	MF_CL	U207	18	J208-B7	Bypass Feed Clutch Control Signal	Bypass Feed Clutch (MC7) is ON when “H”.	O	OK
9C	RP_CL1	U207	19	J208-A8	Roll Deck 1 Feed Clutch Control Signal	Roll Deck 1 Feed Clutch (MC8) is ON when “H”.	O	OK
9D	PG_BK	U207	20	J208-B8	Paper Gate Brake Control Signal	Paper Gate Brake (MC10) is ON when “H”.	O	OK
9E	PF_BK	U207	21	J208-A9	Paper Feed Brake Control Signal	Paper Feed Brake (MC9) is ON when “H”.	O	OK
9F	CT0_SL	U207	22	J208-B9	Cutter Oil Supply Solenoid Control Signal	Cutter Oil Supply Solenoid (SL2) supplies the oil when “H”.	O	OK
A0	HV1	U207	10	J208-A10	Image Corona Control Signal	High Voltage is supplied to the Image Corona Wire when “H”.	O	OK
A1	HV_AC	U207	11	J208-B10	Separation Corona Control Signal	High Voltage is supplied to the Separation Corona Wire when “H”.	O	OK
A2	HV_TR	U207	12	J208-A11	Transfer Corona Control Signal	High Voltage is supplied to the Transfer Corona Wire when “H”.	O	OK
A3	TR_LAMP	U207	13	J208-B11	Pre-Transfer LED Control Signal	Pre-Transfer LED lights when “H”.	O	OK
A4	COOL_FAN1	U207	9	J208-A12	LED Head Cooling Fan 1 Control Signal	LED Cooling Fans (BL8 & 9) rotate when “H”.	O	OK
A5	COOL_FAN2	U207	8	J208-B12	LED Head Cooling Fan 2 Control Signal	LED Cooling Fans (BL10 & 11) rotate when “H”.	O	OK
A6	HV6	U207	7	J208-A13	Grid Bias Control Signal	High Voltage is supplied to the Image Corona Grid Wire when “H”.	O	OK
A7	HOP_MTR1	U207	6	J208-B13	Toner Supply Motor 1 Control Signal (Cartridge to Hopper)	Toner Supply Motor 1 (M7) rotates when “H”.	O	OK
A8	DIGIT0 PSEL_DG0	U208	43	J207-2 J207-1	Digit Signal 0		O	NO
A9	DIGIT1 PSEL_DG1	U208	42	J207-4 J207-3	Digit Signal 1		O	NO
AA	DIGIT2 PSEL_DG2	U208	41	J207-6 J207-5	Digit Signal 2		O	NO
AB	DIGIT3 PSEL_DG3	U208	40	J207-8 J207-7	Digit Signal 3		O	NO
AC	DIGIT4	U208	39	J207-10 J207-9	Digit Signal 4		O	NO
AD	DIGIT5	U208	38	J207-12 J207-11	Digit Signal 5		O	NO
AE	DIGIT6	U208	37	J207-14 J207-13	Digit Signal 6		O	NO
AF	DIGIT7	U208	36	J207-16 J207-15	Digit Signal 7		O	NO

NOTES

1. I / O means input signal or output signal.

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   If the signal is provided with “NO”, it is not operatable.

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
B0	DISP_DT0	U208	14	J207-17	Indication Data Signal 0		O	NO
B1	DISP_DT1	U208	15	J207-18	Indication Data Signal 1		O	NO
B2	DISP_DT2	U208	16	J207-19	Indication Data Signal 2		O	NO
B3	DISP_DT3	U208	18	J207-20	Indication Data Signal 3		O	NO
B4	DISP_DT4	U208	19	J207-21	Indication Data Signal 4		O	NO
B5	DISP_DT5	U208	20	J207-22	Indication Data Signal 5		O	NO
B6	DISP_DT6	U208	21	J207-23	Indication Data Signal 6		O	NO
B7	DISP_DT7	U208	22	J207-24	Indication Data Signal 7		O	NO
B8	SEL_A	U208	10	J207-25	Toner Remaining Level Sensor Selection Signal A		O	NO
B9	SEL_B	U208	11	J207-26	Toner Remaining Level Sensor Selection Signal B		O	NO
BA	SEL_C	U208	12	J207-27	Toner Remaining Level Sensor Selection Signal C		O	NO
BB	EXIT_OUTA	U208	13	J801-35	Exit Sensor Output Signal (Ach)	"H" is outputted when P_EXIT Signal is "L".	O	NO
BC	BUZZER	U208	9	J207-29	Buzzer Control Signal	Buzzer sounds when "H".	O	OK
BD	EXIT_OUTB	U208	8	J802-35	Exit Sensor Output Signal (Bch)	"H" is outputted when P_EXIT Signal is "L".	O	NO
BE	F_LAMP1	U208	7	J208-A1	Fuser Lamp 1 Control Signal	Fuser Lamp 1 (H1) lights when "H".	O	NO
BF	F_LAMP2	U208	6	J208-B1	Fuser Lamp 2 Control Signal	Fuser Lamp 2 (H2) lights when "H".	O	NO
C0	DISP_DT32	U244	43	J216-22	Indication Data Signal 32		O	NO
C1	DISP_DT33	U244	42	J216-21	Indication Data Signal 33		O	NO
C2	DISP_DT34	U244	41	J216-20	Indication Data Signal 34		O	NO
C3	DISP_DT35	U244	40	J216-19	Indication Data Signal 35		O	NO
C4	DISP_DT36	U244	39	J216-18	Indication Data Signal 36		O	NO
C5	DISP_DT37	U244	38	J216-17	Indication Data Signal 37		O	NO
C6	DISP_DT38	U244	37	J216-16	Indication Data Signal 38		O	NO
C7	DISP_DT39	U244	36	J216-15	Indication Data Signal 39		O	NO
C8	-------	U244	14	J216-14				
C9	-------	U244	15	J216-13				
CA	-------	U244	16	J216-12				
CB	-------	U244	18	J216-11				
CC	-------	U244	19	J216-10				
CD	-------	U244	20	J216-9				
CE	FREQ	U244	21		Image Size Switch Signal	100% when "H". 99.8% when "L".	O	OK
CF	STR / STP	U244	22		Start / Stop Signal of HD64610		O	NO

NOTES

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   If the signal is provided with "NO", it is not operatable.

Signal Code	Signal name	IC	Pin	Connector	Contents of signal	Condition	I / O	F.C.
D0	-------	U244	10	J216-8				
D1	-------	U244	11	J216-7				
D2	-------	U244	12	J216-6				
D3	-------	U244	13	J216-5				
D4	-------	U244	9	J216-4				
D5	-------	U244	8	J216-3				
D6	-------	U244	7	J216-2				
D7	-------	U244	6	J216-1				
D8	D100	U201	122		Input Data Bus 0		I	NO
D9	D101	U201	121		Input Data Bus 1		I	NO
DA	D102	U201	120		Input Data Bus 2		I	NO
DB	D103	U201	119		Input Data Bus 3		I	NO
DC	D104	U201	118		Input Data Bus 4		I	NO
DD	D105	U201	117		Input Data Bus 5		I	NO
DE	D106	U201	116		Input Data Bus 6		I	NO
DF	D107	U201	115		Input Data Bus 7		I	NO
E0	IPRDY0	U201	79		Printer Ready Signal	Printer is ready when “L”.	O	NO
E1	IPREQ1	U201	78		Print Request Signal	“L” is outputted when the printer is available to receive the Print Signal.	O	NO
E2	LED_TR	U201	77	J208-A18	Toner Remaining Level Detection LED Control Signal	Toner Remaining Level Detection LED light when “H”.	O	OK
E3	-------	U201	76	J208-B18				
E4	-------	U201	75	J208-A19				
E5	GATE0	U201	74		Gate 0 of PD71054		O	NO
E6	GATE1	U201	73		Gate 1 of PD71054		O	NO
E7	GATE2	U201	72		Gate 2 of PD71054		O	NO
E8	PAGEBL	U201	97		Page Enable Signal	Print when “L”.	O	NO
E9	IBUSY1	U201	98		Data Output Busy Signal	Busy when “H”.	O	NO
EA	IPRNT0	U201	101		Print Start Signal	Print is requested when “L”.	I	NO
EB	TSTPRT	U201	102		Test Pattern Print Signal	Test Paint is requested when “L”.	O	NO
EC	IPCUT0	U201	38		Paper Cut Request Signal	Paper Cut is requested when “L”.	I	NO
ED	COMSTB	U201	37		Command Reception Signal	“L” is outputted when the printer receives the command.	O	NO
EE	PA_ENT	U201	34		Leading Edge Sensor Signal	Leading Edge Sensor (PH12) detects the media when “L”.	I	NO

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   If the signal is provided with “NO”, it is not operatable.

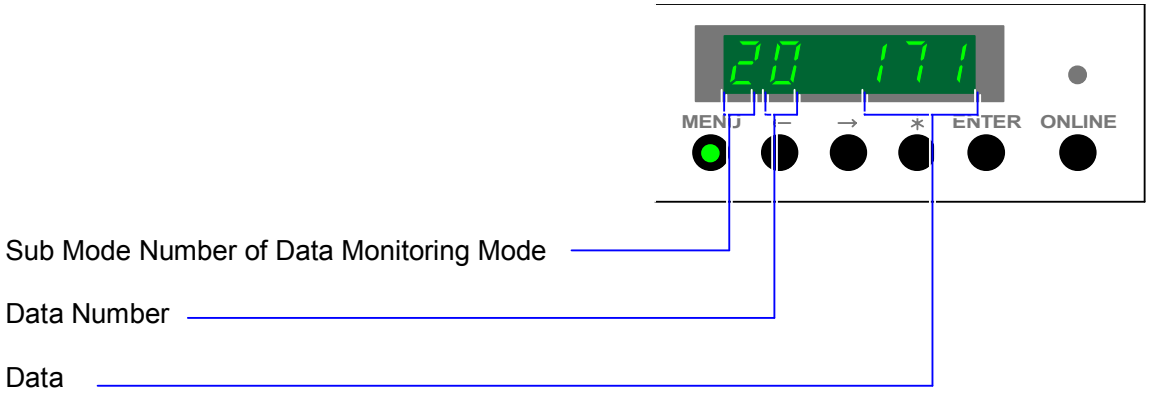
8.1.3 Data Monitoring Mode (Sub Mode 2)

8.1.3.1 Function

It is possible to monitor several data as the input voltage to the DC Controller PCB or the temperature of Fuser.

8.1.3.2 Indication of the Operation Panel

The 1st digit from the left indicates “2” which is the Sub Mode number of “Data Monitoring Mode”.
2nd digit from the left indicates the Data Number.
4th, 5th and 6th digits indicate the data.



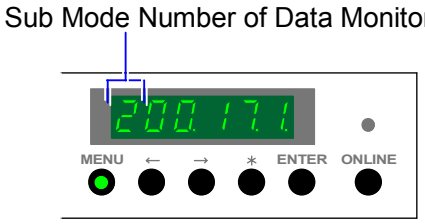
The contents of Data Number are as follows.

Data Number	Contents	Unit of the indicated data	Remarks
00	Fuser Temperature	Centigrade	
01	Input from Paper Size Sensors in the Roll Deck 1	Hexadecimal	0: Paper is detected. 1: Paper is not detected.
02	Input from Paper Size Sensors in the Roll Deck 2	Hexadecimal	0: Paper is detected. 1: Paper is not detected.
03	Input from Paper Size Sensors in the Roll Deck 3	Hexadecimal	0: Paper is detected. 1: Paper is not detected.
04	Input from Paper Size Sensors in the Roll Deck 4	Hexadecimal	0: Paper is detected. 1: Paper is not detected.
05	Input from Cut Sheet Size Sensors	Hexadecimal	0: Paper is detected. 1: Paper is not detected.
06	Roll 1 remaining level		Every 1/8 is indicated.
07	Roll 2 remaining level		
08	Roll 3 remaining level		
09	Roll 4 remaining level		
0A	Humidity of Inside the Machine	%	
0b	Input Voltage from Humidity Sensor	V	
0C	Drum Surface Potential	V	
0d	Input Voltage from SPS	V	
0E	Temperature of inside the machine	Centigrade	
0F	(Reserved)		

Data Number	Contents	Unit of the indicated data	Remarks
10	Toner remaining level Data 1 (1st checking)	X / 8 Hexadecimal	0: Toner is not detected. 1: Toner is detected.
11	Toner remaining level Data 2 (2nd checking)	X / 8 Hexadecimal	0: Toner is not detected. 1: Toner is detected.
12	Toner remaining level Data 3 (3rd checking)	X / 8 Hexadecimal	0: Toner is not detected. 1: Toner is detected.

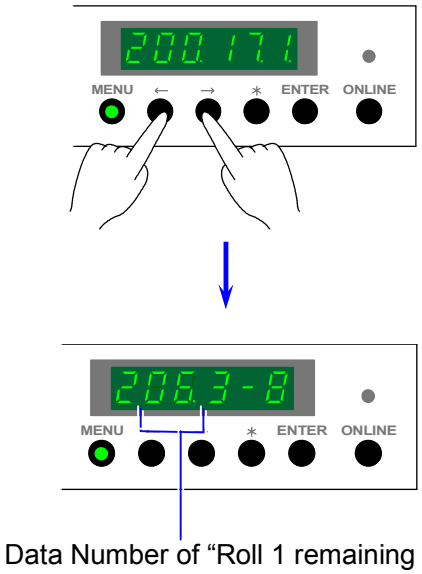
8.1.3.3 Operation (Example of usage)

1) Enter the Service Mode, and then indicate the Sub Mode Number “2” on the 1st digit from the left of the Status Display pressing the [MENU] Key.



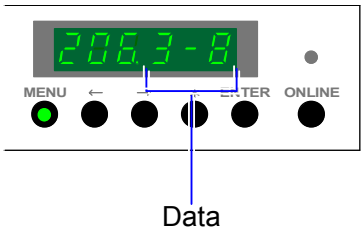
2) The 2nd digit from the left indicates the Data Number presently selected.
As you can indicate another Data Number pressing [⩽] Key (increment) and [⩾] Key (decrement), indicate the Data Number of which data you would like to monitor.
Please refer to the list on the page 8-16 and this page to know the contents of Data Number.

Example : We will monitor “Roll 1 remaining level”.
Its Data Number is “06”.



3) 4th, 5th and 6th digits indicate the data of the selected Data Number.
To know the meaning of Data in each Data Number, refer to [8.1.3.4 Meaning of each Data] on and after the page 8-19.

Example : 3/8 of roll media is still remaining.

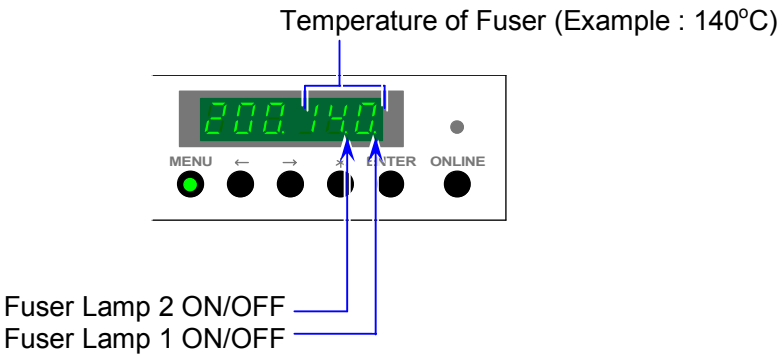


Data

8.1.3.4 Meaning of each Data

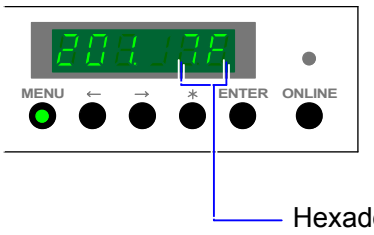
(1) Fuser Temperature (00)

Actual temperature of Fuser is indicated on 4th, 5th and 6th digits from the left.
The unit is "°C".
Dot of the 6th digit lights when the Fuser Lamp 1 is ON, and that of 5th one lights when the Fuser Lamp 2 is ON.



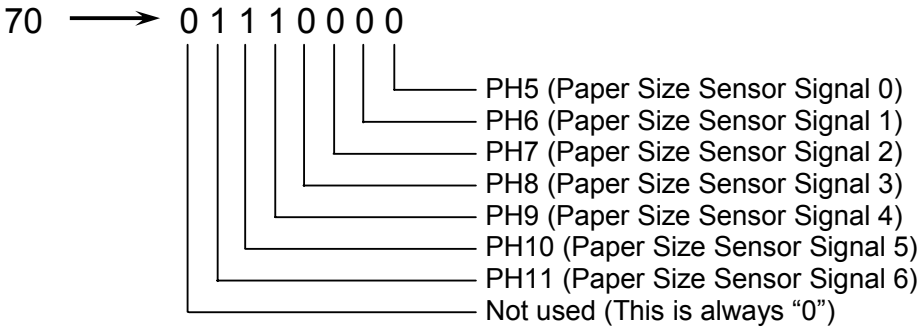
(2) Input from Paper Size Sensors (01 to 04)

Input from Paper Size Sensors (for roll media) is shown by the hexadecimal data.



Convert the hexadecimal into binary if you would like to know the input condition.
Each of 8 digits of binary data is related with size sensors as follows.

Example) When “70” is indicated.



“0” means “Paper is detected”, and “1” means “Paper is not detected”.
Therefore, PH5, 6, 7 and 8 detect the paper (ON) while PH9, 10 and 11 do not detect (OFF).

Reference

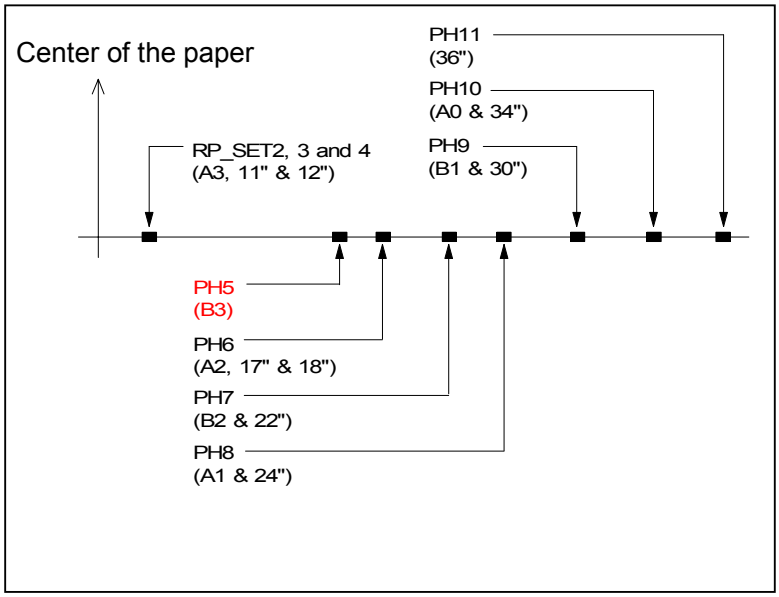
It is possible to check whether the size sensor is broken or not in this mode.
Supposing you use the A0 roll (841mm wide) of the 2nd Roll Deck then check the input condition.
If “50” is indicated, PH9 may be broken because it means “0 1 0 1 0 0 0 0”.
(“40” will be indicated if the PH9 works properly, which means “0 1 0 0 0 0 0 0”)

NOTE

The arrangement of sensors of the Roll Deck 1 is different from that of other decks.
The indicated hexadecimal data of Roll Deck 1 will be different from that of other decks therefore.
Please refer to the explanation on and after the next page so as not to misunderstand that the sensor is broken.

(1) Roll 2, 3 & 4

PH5 is arranged at the most inside to detect B3 paper.



Paper width	Paper Sensors							Hexadecimal
	PH11	PH10	PH9	PH8	PH7	PH6	PH5	
36”	0	0	0	0	0	0	0	00
841	1	0	0	0	0	0	0	40
728	1	1	0	0	0	0	0	60
594	1	1	1	0	0	0	0	70
515	1	1	1	1	0	0	0	78
420	1	1	1	1	1	0	0	7C
364	1	1	1	1	1	1	0	7E
297	1	1	1	1	1	1	1	7F
Weight of bits	2^2 (4)	2^1 (2)	2^0 (1)	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	
	Upper Digit (x10)			Lower Digit (x1)				

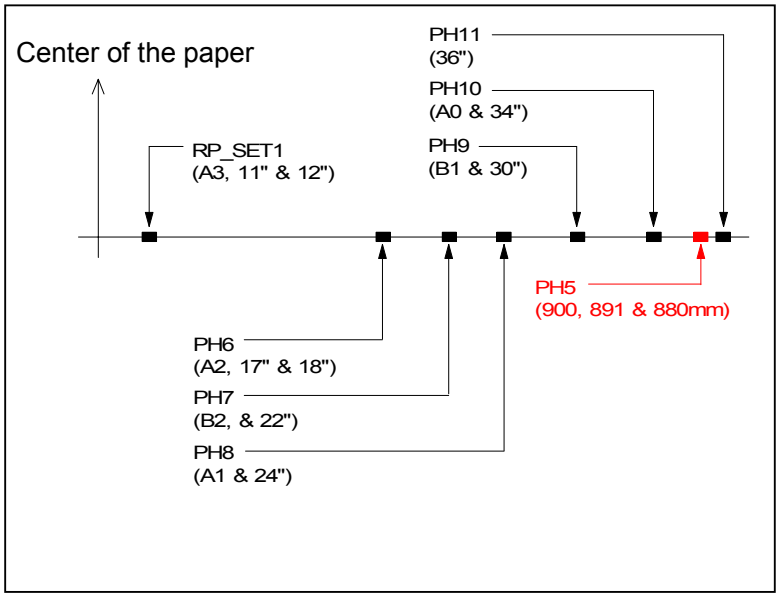
Paper width	Paper Sensors							Hexadecimal
	PH11	PH10	PH9	PH8	PH7	PH6	PH5	
36”	0	0	0	0	0	0	0	00
34”	1	0	0	0	0	0	0	40
30”	1	1	0	0	0	0	0	60
24”	1	1	1	0	0	0	0	70
22”	1	1	1	1	0	0	0	78
18” / 17”	1	1	1	1	1	0	0	7C
11” / 12”	1	1	1	1	1	1	1	7F
Weight of bits	2^2 (4)	2^1 (2)	2^0 (1)	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	
	Upper Digit (x10)			Lower Digit (x1)				

Reference : Relationship between Decimal and Hexadecimal numeric system

Decimal	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Hexa-decimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

(2) Roll 1

PH5 is arranged between PH10 and PH11 to detect 900mm, 891mm and 880mm paper.



Paper width	Paper Sensors							Hexadecimal
	PH11	PH10	PH9	PH8	PH7	PH6	PH5	
36”	0	0	0	0	0	0	0	00
900/891 /880	1	0	0	0	0	0	0	40
841	1	0	0	0	0	0	1	41
728	1	1	0	0	0	0	1	61
594	1	1	1	0	0	0	1	71
515	1	1	1	1	0	0	1	79
420	1	1	1	1	1	0	1	7d
364 (No detect)	-	-	-	-	-	-	-	-
297	1	1	1	1	1	1	1	7F
Weight of bits	2^2 (4)	2^1 (2)	2^0 (1)	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	
	Upper Digit (x10)			Lower Digit (x1)				

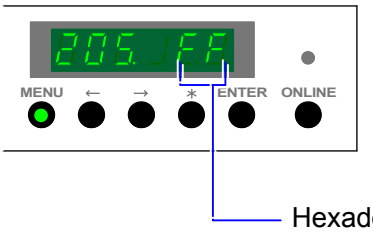
Paper width	Paper Sensors							Hexadecimal
	PH11	PH10	PH9	PH8	PH7	PH6	PH5	
36”	0	0	0	0	0	0	0	00
34”	1	0	0	0	0	0	1	41
30”	1	1	0	0	0	0	1	61
24”	1	1	1	0	0	0	1	71
22”	1	1	1	1	0	0	1	79
18” / 17”	1	1	1	1	1	0	1	7d
11” / 12”	1	1	1	1	1	1	1	7F
Weight of bits	2^2 (4)	2^1 (2)	2^0 (1)	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	
	Upper Digit (x10)			Lower Digit (x1)				

Reference : Relationship between Decimal and Hexadecimal numeric system

Decimal	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Hexa-decimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

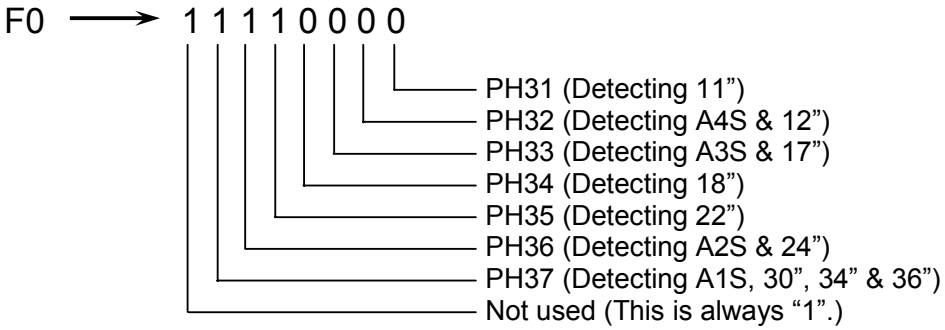
(3) Input from Cut Sheet Size Sensors (05)

Input from Cut Sheet Size Sensors is shown by the hexadecimal data.



Convert the hexadecimal into binary if you would like to know the input condition.
Each of 8 digits of binary data is related with size sensors as follows.

Example) When “F0” is indicated.

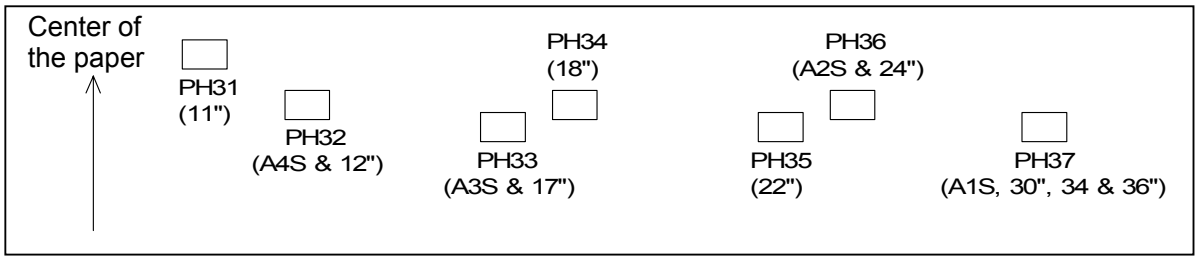


“0” means “Paper is detected”, and “1” means “Paper is not detected”.
Therefore, PH31, 32, 33 and 34 detect the paper (ON) while PH35, 36 and 37 do not detect (OFF).

Reference

It is possible to check whether the size sensor is broken or not in this mode.
Supposing you set the A1S cut sheet media (841mm wide) on the Bypass Feeder then check the input condition.
If “90” is indicated, PH35 may be broken because it means “1 0 0 1 0 0 0 0”.
(“80” will be indicated if the PH35 works properly, which means “1 0 0 0 0 0 0 0”)

Refer to the explanation on the next page.



Paper width	Cut Sheet Size Sensors							Hexadecimal
	PH37	PH36	PH35	PH34	PH33	PH32	PH31	
36"/841mm (A0 orA1S)	0	0	0	0	0	0	0	80
594mm (A2)	1	0	0	0	0	0	0	C0
420mm (A3S)	1	1	1	1	0	0	0	F8
297mm (A4S)	1	1	1	1	1	0	0	FC
Weight of bits	2^2 (4)	2^1 (2)	2^0 (1)	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	
	Upper Digit (x10)			Lower Digit (x1)				

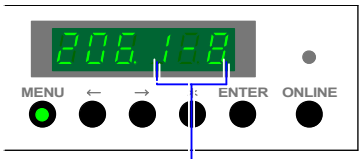
Paper width	Cut Sheet Size Sensors							Hexadecimal
	PH37	PH36	PH35	PH34	PH33	PH32	PH31	
36"/34"/30"	0	0	0	0	0	0	0	80
24"	1	0	0	0	0	0	0	C0
22"	1	1	0	0	0	0	0	E0
18"	1	1	1	0	0	0	0	F0
17"	1	1	1	1	0	0	0	F8
12"	1	1	1	1	1	0	0	FC
11""	1	1	1	1	1	1	0	FF
Weight of bits	2^2 (4)	2^1 (2)	2^0 (1)	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	
	Upper Digit (x10)			Lower Digit (x1)				

Reference: Relationship between Decimal and Hexadecimal numeric system

Decimal	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Hexa-decimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

(4) Roll remaining level (06 to 09)

The volume of roll media remaining in each Roll Deck is divided into 8 levels.
4th, 5th and 6th digits indicate X/8.
(8/8 means the maximum level, and 1/8 means the minimum.)

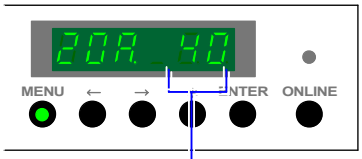


Remaining level (Example : 1/8)

> **NOTE**
>
> Roll remaining level is not indicated if the Roll Deck is opened or if the printer is checking roll size right after closing the Roll Deck.
> "- -" will be indicated in these cases.

(5) Humidity of inside the machine (0A)

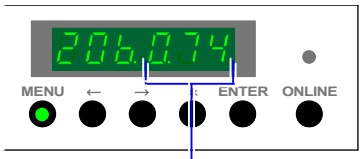
Actual humidity of inside the machine is indicated.
The unit is "%".



Humidity (Example : 40%)

(6) Input Voltage from Humidity Sensor (0b)

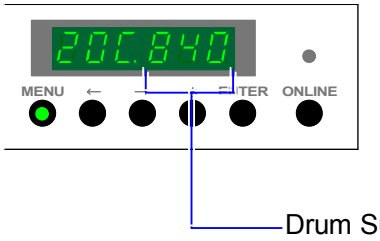
Input voltage from Humidity Sensor is indicated.
The unit is "V".



Input voltage (Example : 0.74V)

(7) Drum Surface Potential (0C)

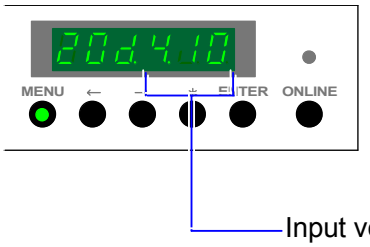
The Potential of Drum surface detected by the Surface Potential Sensor (SPS) is indicated.
The unit is “V”.



Drum Surface Potential (Example : 840V)

(8) Input Voltage from SPS (0d)

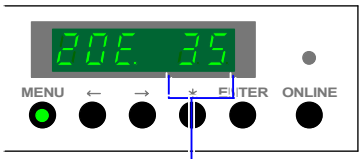
The input voltage from the Surface Potential Sensor (SPS) is indicated.
The unit is “V”.



Input voltage (Example : 4.10V)

(9) Temperature of inside the machine (0E)

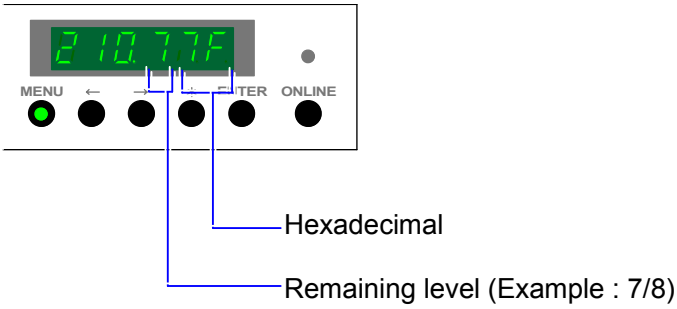
The actual temperature of inside the machine is indicated.
The unit is “^{o}C”.



Temperature (Example : 35^{o}C)

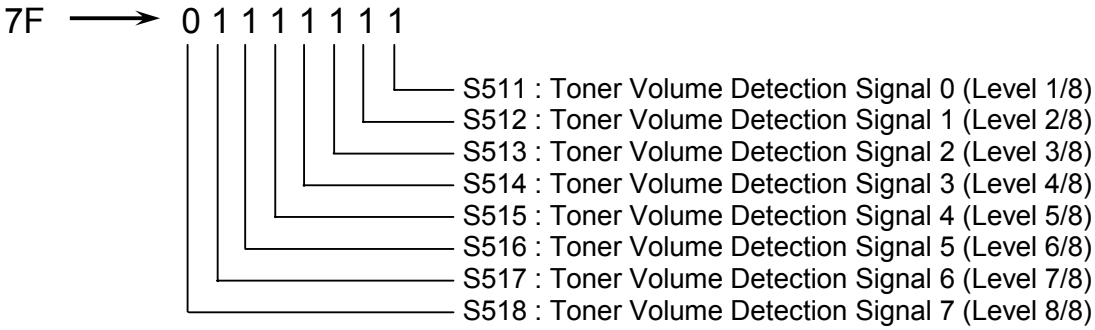
(10) Toner remaining level Data (10 to 12)

The volume of toner remaining in the Toner Cartridge is divided into 8 levels.
The 4th digit indicates the remaining level "X/8". (Only "X" is indicated.)
And the input from Toner Remaining Level Sensors (8 pieces) is shown by the hexadecimal data on 5th and 6th digits.



Convert the hexadecimal into binary if you would like to know the input condition.
Each of 8 digits of binary data is related with toner sensors as follows.

Example) When "7F" is indicated.



"0" means "Toner is not detected", and "1" means "Toner is detected".
Therefore, the machine judges the remaining level of toner as "7/8".

Toner Remaining volume (Level)	Paper Sensors								Hexadecimal
	S518	S517	S516	S515	S514	S513	S512	S511	
8/8	1	1	1	1	1	1	1	1	FF
7/8	0	1	1	1	1	1	1	1	7F
6/8	0	0	1	1	1	1	1	1	3F
5/8	0	0	0	1	1	1	1	1	1F
4/8	0	0	0	0	1	1	1	1	0F
3/8	0	0	0	0	0	1	1	1	07
2/8	0	0	0	0	0	0	1	1	03
1/8	0	0	0	0	0	0	0	1	01
Weight of bits	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	2^3 (8)	2^2 (4)	2^1 (2)	2^0 (1)	
	Upper Digit (x10)				Lower Digit (x1)				

Reference : Relationship between Decimal and Hexadecimal numeric system

Decimal	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Hexa-decimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

⚠ NOTE

The printer will check the remaining level of toner in the following 3 cases.

1. When the printer is turned on.
2. When the Toner Cover is opened then closed.
3. Every 30m print

Checking is done 3 times having some interval. (Toner Cartridge is driven during the interval.)

Motor ON → 1st Checking → Interval (Motor ON) → 2nd Checking → Interval (Motor ON) → 3rd Checking

The printer will take the intermediate value of 3 checking as the remaining level of toner.

Example) 1st checking 7/8
2nd checking ..... 2/8 → Printer takes 4/8 as the remaining level.
3rd checking 4/8

Data No. “10” memorizes the remaining level detected in the 1st checking.
Data No. “11” memorizes the remaining level detected in the 2nd checking.
Data No. “12” memorizes the remaining level detected in the 3rd checking.

8.1.4 Function Checking Mode (Sub Mode 3)

8.1.4.1 Function

Many parts such as motors and clutches are connected to the DC Controller PCB.
It is possible to operate such part alone in the Function Checking Mode.
Refer to [8.1.2.4 Input / Output Signal List] on and after the page 8-8 as for Signal Codes and operated objects.

⚠ NOTES

(1) Only 1 object is available to operate at one time, except for the Image Corona.
When you select [Image Corona Control Signal (Signal Code : A0)] and make it operate, [Grid Bias Control Signal (A6)] is automatically operated at the same time.
However, when you select [Grid Bias Control Signal] and make it operate, [Image Corona Control Signal] does not operate.
Do not remain ON for a long time.

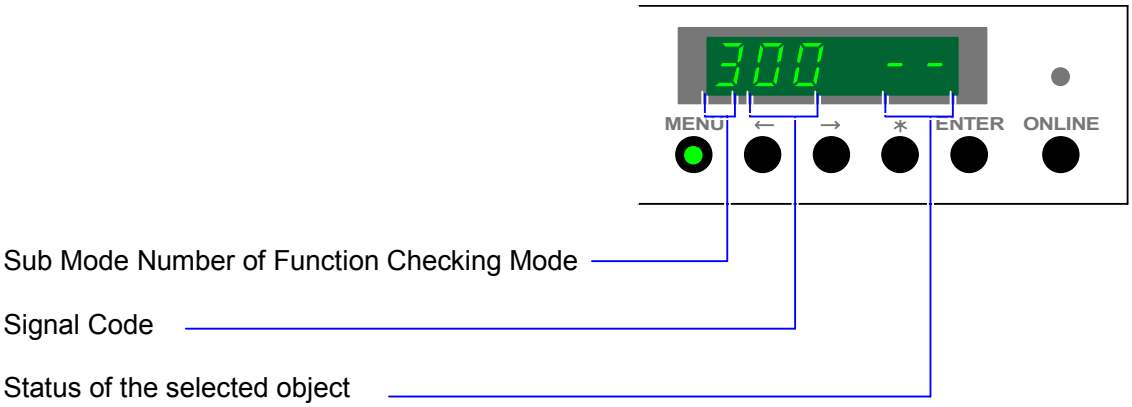
(2) **Do not operate the following Coronas so long!**
Drum is not moved while the Corona is discharging.
It will result in the damage of Drum because only 1 point of Drum surface is charged strongly.
- Image Corona Control Signal (Signal Code : A0)
- Grid Bias Control Signal (A6)
- Transfer Corona Control Signal (A2)
- Separation Corona Control Signal (A1)

(3) **Do not operate the following lamps so long!**
Cooling fans do not operate while the lamp is lighting.
It will result in the breakage of lamp as it will become so hot.
- Eraser Lamp Control Signal (Signal Code : 78)
- Separation Lamp Control Signal (7b)
- Pre-Transfer LED Control Signal (A3)

(4) **Do not operate the Fuser Lamps so long!**
Fuser Roller and several parts near it will become so hot and may be broken.
- Fuser Lamp 1 Control Signal (Signal Code : BE)
- Fuser Lamp 2 Control Signal (Signal Code : BF)

8.1.4.2 Indication on the Operation Panel

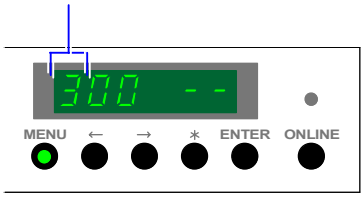
The 1st digit from the left indicates “3” which is the Sub Mode number of “Function Checking Mode”.
2nd and 3rd digits from the left indicate the Signal Code presently selected.
5th and 6th digits indicate the status of the selected object.



8.1.4.3 Operation (Example of usage)

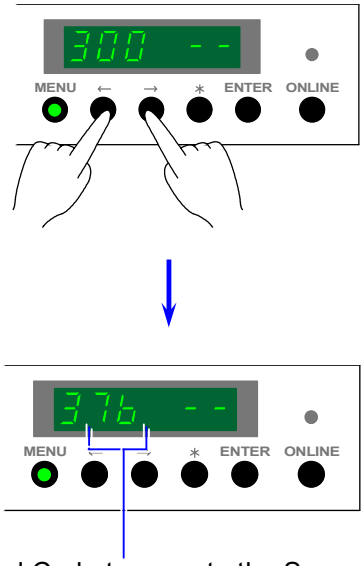
1) Enter the Service Mode, and then indicate the Sub Mode Number “3” on the 1st digit from the left of the Status Display pressing the [MENU] Key.

Sub Mode Number of Function Checking Mode



2) 2nd and 3rd digits from the left indicate the Signal Code presently selected.
As you can indicate another Signal Code pressing [≪] Key (increment) and [≫] Key (decrement), indicate the Signal Code of which object you would like to operate.
Refer to [8.1.2.4 Input / Output Signal List] on and after the page 8-8 as for Signal Codes and objects which are operated.

Example : We will make the Separation Lamp light alone.
Its Signal Code is “7b”.

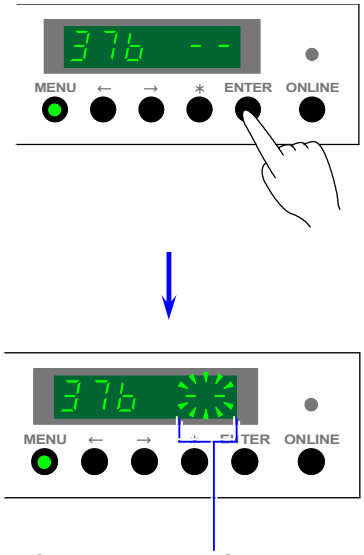


Signal Code to operate the Separation Lamp

There are many Signal Codes of which object is not operatable. (Input signal for example)
If you select such kind of signal, 5th and 6th digits indicate nothing.
(If the object of the selected Signal Code is operatable, hyphens are indicated on 5th and 6th digits.)

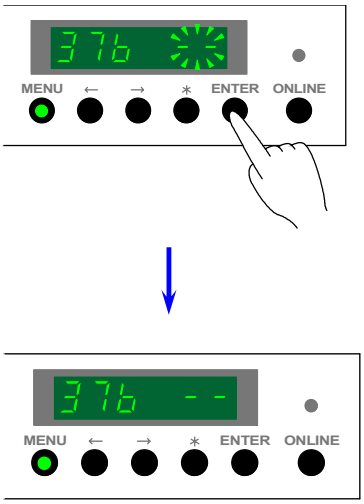
> **⚠ NOTE**
>
> There are many Signal Codes of which object is not operatable. (Input signal for example)
> If you select such kind of signal, 5th and 6th digits indicate nothing.
> If the object of the selected Signal Code is operatable, hyphens are indicated on 5th and 6th digits.)
> Please check the column [F.C.] in the Input / Output Signal List. If the Signal Code is provided with “OK”, it is possible to operate its object.

3) If you press the [ENTER] Key, the selected object starts operating.
Hyphens on 5th and 6th digits flash when the object is operating.



Hyphens flash when the Separation Lamp is lighting.

4) If you press the [ENTER] Key again, the selected object stops operating.
Hyphens on 5th and 6th digits stop flashing also.



⚠ NOTES

Once you start operating some object in the Function Checking Mode, it is impossible to cancel the Service Mode unless you stop operating it.

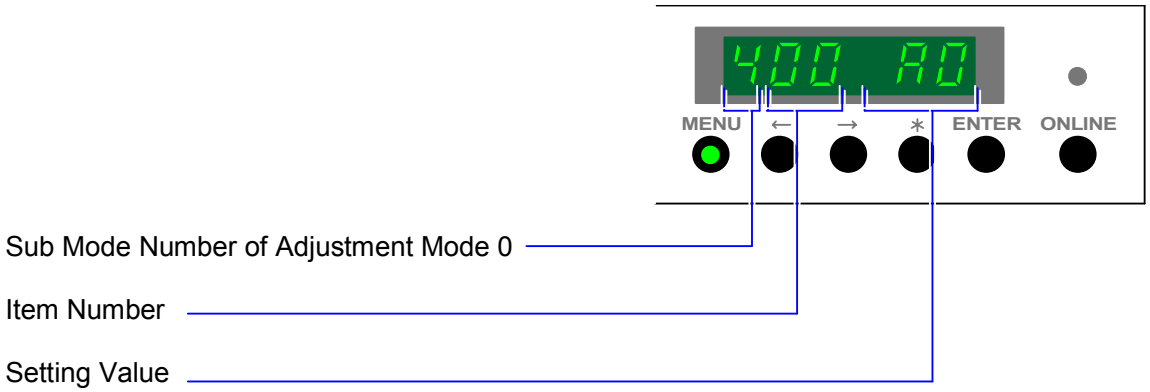
8.1.5 Adjustment Mode 0 (Sub Mode 4)

8.1.5.1 Function

It is possible to adjust several setting items.
Please refer to [8.1.5.4 Setting item list] on and after the page 8-37 as for the brief information of the setting items.
And please refer to [8.1.5.5 Explanation for each setting item] on and after the page 8-43 as for the details for the setting items.

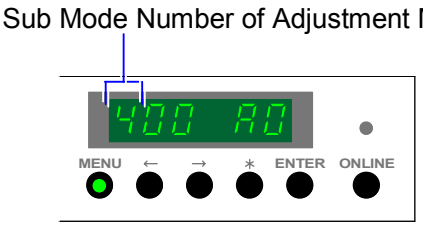
8.1.5.2 Indication on the Operation Panel

The 1st digit from the left indicates “4” which is the Sub Mode Number of “Adjustment Mode 0”.
2nd and 3rd digits from the left indicate the Item Number.
4th, 5th and 6th digits indicate the setting value of the selected Item Number.



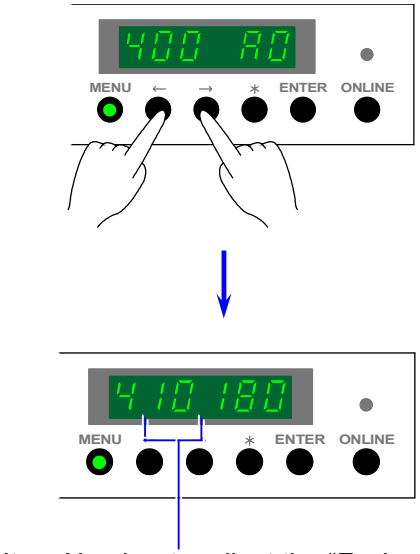
8.1.5.3 Operation (Example of usage)

1) Enter the Service Mode, and then indicate the Sub Mode Number “4” on the 1st digit from the left of the Status Display pressing the [MENU] Key.

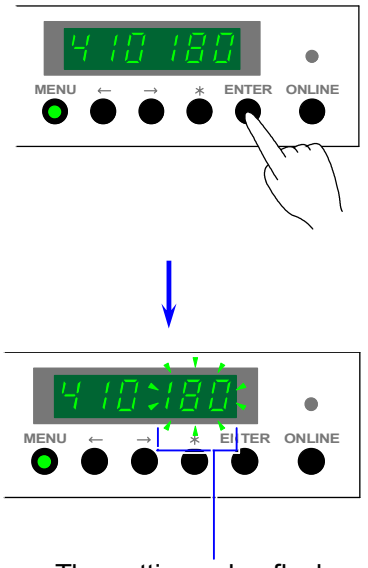


2) 2nd and 3rd digits from the left indicate the Item Number presently selected.
As you can indicate another Item Number pressing [≪] Key (increment) and [≫] Key (decrement), indicate the Item Number of which setting you would like to change.
Please refer to [8.1.5.4 Setting item list] on and after the page 8-37 to know the contents of setting.

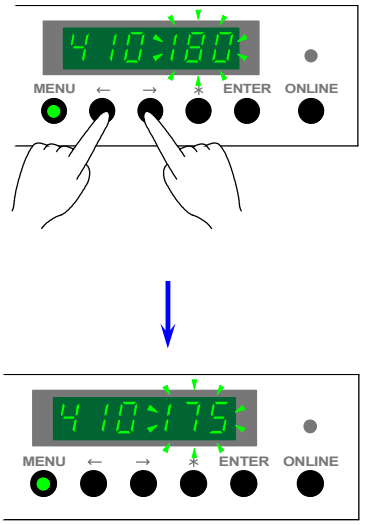
Example : We will adjust the fusing temperature for the plain paper.
Its Item Number is “10”.



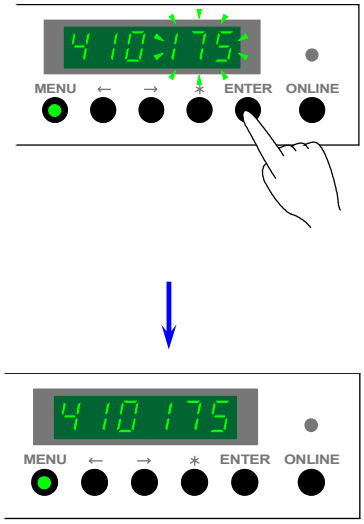
3) After selecting the necessary Item Number, press the [ENTER] Key.
The setting value indicated on 4th, 5th and 6th digits starts flashing and it becomes possible to change the setting value.



4) Change the setting value pressing [≪] Key (increment) and [≫] Key (decrement).

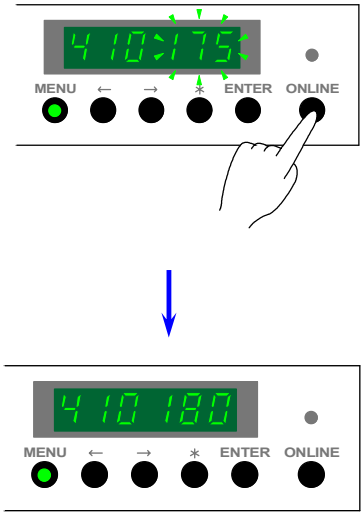


5) Press the [ENTER] Key to decide the new setting value.
The setting value stops flashing after the decision.



⚠ NOTE

If you press the [ONLINE] Key when the setting value is flashing (before the decision), new setting value is not decided and the old setting value is recovered.



(Old setting value is recovered.)

8.1.5.4 Setting item list

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
00	Metric or inch	A0	NO	A0 or 36		8-43
01	Operation of Interface	0	NO	0 to 2		8-43
02	Maximum cut length	6	NO	6 or 24	m	8-44
03	Trailing margin for long print	OFF	NO	On or OFF		8-44
04	Special paper size	900	NO	900/891/880	mm	8-45
05	Counting unit of Counter A	0	NO	0 to 3		8-46
06	Counting unit of Counter B	0	NO	0 to 3		8-46
07	Operation of Dehumidify Heater	0	NO	0 or 1		8-47
08	Cut length of Test Print	A0	NO	A0 to b5 48 to 8.5		8-47
09	Standard Setting Value / Special Setting Value Changing Mode (PPC)	0	NO	0 or 1		8-48
0A	Standard Setting Value / Special Setting Value Changing Mode (Tracing paper)	0	NO	0 or 1		8-48
0b	Standard Setting Value / Special Setting Value Changing Mode (Film)	0	NO	0 or 1		8-48
0C	Reserved		NO			
0d	Reserved		NO			
0E	Reserved		NO			
0F	Reserved		NO			
10	Fusing temperature (PPC)	170	OK	150 to 190	1°C	8-54
11	Fusing temperature (Tracing)	170	OK	150 to 190	1°C	8-54
12	Fusing temperature (Film)	170	OK	150 to 190	1°C	8-54
13	LED strobe time for Main Pixel	34	NO	0 to 42	1 micro-sec.	8-55
14	LED strobe time for Supplemental Pixel	22	NO	0 to 50	%	8-55
15	Pre-Transfer LED / Separation Corona OFF timing (PPC)	1	NO	0 or 1		8-57
16	Pre-Transfer LED ON / OFF	1	NO	0 or 1		8-58
17	Separation Lamp ON / OFF (PPC)	1	NO	0 or 1		8-58
18	Separation Lamp ON / OFF (Tracing)	1	NO	0 or 1		8-59
19	Developer Bias	(4A)	NO	000 to 0FF	Hex.	8-60
1A	Intensity of current on the Corona Wire (Image Corona)	56	NO	000 to 0FF	Hex.	8-61
1b	Intensity of current on the Grid Plate (Image Corona)	26b	NO	000 to 500	Hex.	8-61
1C	Intensity of current (Transfer Corona : PPC)	3C2	OK	000 to 500	Hex.	8-62
1d	Intensity of current (Transfer Corona : Tracing)	3C2	OK	000 to 500	Hex.	8-62
1E	Intensity of current (Transfer Corona : Film)	3C2	OK	000 to 500	Hex.	8-62
1F	DC component (Separation Corona : PPC)	392	OK	000 to 500	Hex.	8-62
20	DC component (Separation Corona : Tracing)	35A	OK	000 to 500	Hex.	8-62
21	DC component (Separation Corona : Film)	4A0	OK	000 to 500	Hex.	8-62
22	Paper Feed Motor speed (Bypass feed)	0.00	NO	-1.0% to 1.0%	0.05%	8-63
23	Paper Feed Motor speed (Roll 1)	0.00	NO	-1.0% to 1.0%	0.05%	8-63
24	Paper Feed Motor speed (Roll 2)	0.00	NO	-1.0% to 1.0%	0.05%	8-63
25	Paper Feed Motor speed (Roll 3)	0.00	NO	-1.0% to 1.0%	0.05%	8-63
26	Paper Feed Motor speed (Roll 4)	0.00	NO	-1.0% to 1.0%	0.05%	8-63
27	Fuser Motor speed (Bypass feed / PPC / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
28	Fuser Motor speed (Bypass feed / PPC / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
29	Fuser Motor speed (Bypass feed / PPC / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
2A	Fuser Motor speed (Bypass feed / PPC / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
2b	Fuser Motor speed (Bypass feed / Tracing / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
2C	Fuser Motor speed (Bypass feed / Tracing / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
2d	Fuser Motor speed (Bypass feed / Tracing / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
2E	Fuser Motor speed (Bypass feed / Tracing / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
2F	Fuser Motor speed (Bypass feed / Film / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
30	Fuser Motor speed (Bypass feed / Film / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
31	Fuser Motor speed (Bypass feed / Film / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
32	Fuser Motor speed (Bypass feed / Film / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-64
33	Fuser Motor speed (Roll 1 / PPC / Large size / 0 to 2m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
34	Fuser Motor speed (Roll 1 / PPC / Large size / 2 to 3m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
35	Fuser Motor speed (Roll 1 / PPC / Large size / 3 to 4m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
36	Fuser Motor speed (Roll 1 / PPC / Large size / 4 to 5m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
37	Fuser Motor speed (Roll 1 / PPC / Large size / 5 to 6m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
38	Fuser Motor speed (Roll 1 / PPC / Large size / 6 to 7m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
39	Fuser Motor speed (Roll 1 / PPC / Large size / 7 to 8m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
3A	Fuser Motor speed (Roll 1 / PPC / Large size / 8 to 9m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
3b	Fuser Motor speed (Roll 1 / PPC / Large size / 9 to 10m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
3C	Fuser Motor speed (Roll 1 / PPC / Large size / 10 to 11m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
3d	Fuser Motor speed (Roll 1 / PPC / Large size / 11 to 12m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
3E	Fuser Motor speed (Roll 1 / PPC / Large size / 12 to 13m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
3F	Fuser Motor speed (Roll 1 / PPC / Large size / 13 to 14m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
40	Fuser Motor speed (Roll 1 / PPC / Large size / 14 to 15m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
41	Fuser Motor speed (Roll 1 / PPC / Large size / 15 to 16m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
42	Fuser Motor speed (Roll 1 / PPC / Large size / 16 to 17m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
43	Fuser Motor speed (Roll 1 / PPC / Large size / 17 to 18m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
44	Fuser Motor speed (Roll 1 / PPC / Large size / 18 to 19m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
45	Fuser Motor speed (Roll 1 / PPC / Large size / 19 to 20m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
46	Fuser Motor speed (Roll 1 / PPC / Large size / 20 to 21m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
47	Fuser Motor speed (Roll 1 / PPC / Large size / 21 to 22m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
48	Fuser Motor speed (Roll 1 / PPC / Large size / 22 to 23m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
49	Fuser Motor speed (Roll 1 / PPC / Large size / 23 to 24m)	0.00	OK	-1.0% to 1.0%	0.05%	8-65

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
4A	Fuser Motor speed (Roll 1 / PPC / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
4b	Fuser Motor speed (Roll 1 / PPC / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
4C	Fuser Motor speed (Roll 1 / PPC / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
4d	Fuser Motor speed (Roll 1 / Tracing / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
4E	Fuser Motor speed (Roll 1 / Tracing / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
4F	Fuser Motor speed (Roll 1 / Tracing / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
50	Fuser Motor speed (Roll 1 / Tracing / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
51	Fuser Motor speed (Roll 1 / Film / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
52	Fuser Motor speed (Roll 1 / Film / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
53	Fuser Motor speed (Roll 1 / Film / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
54	Fuser Motor speed (Roll 1 / Film / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-65
55	Fuser Motor speed (Roll 2 / PPC / Large size / 0 to 2m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
56	Fuser Motor speed (Roll 2 / PPC / Large size / 2 to 3m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
57	Fuser Motor speed (Roll 2 / PPC / Large size / 3 to 4m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
58	Fuser Motor speed (Roll 2 / PPC / Large size / 4 to 5m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
59	Fuser Motor speed (Roll 2 / PPC / Large size / 5 to 6m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
5A	Fuser Motor speed (Roll 2 / PPC / Large size / 6 to 7m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
5b	Fuser Motor speed (Roll 2 / PPC / Large size / 7 to 8m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
5C	Fuser Motor speed (Roll 2 / PPC / Large size / 8 to 9m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
5d	Fuser Motor speed (Roll 2 / PPC / Large size / 9 to 10m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
5E	Fuser Motor speed (Roll 2 / PPC / Large size / 10 to 11m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
5F	Fuser Motor speed (Roll 2 / PPC / Large size / 11 to 12m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
60	Fuser Motor speed (Roll 2 / PPC / Large size / 12 to 13m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
61	Fuser Motor speed (Roll 2 / PPC / Large size / 13 to 14m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
62	Fuser Motor speed (Roll 2 / PPC / Large size / 14 to 15m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
63	Fuser Motor speed (Roll 2 / PPC / Large size / 15 to 16m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
64	Fuser Motor speed (Roll 2 / PPC / Large size / 16 to 17m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
65	Fuser Motor speed (Roll 2 / PPC / Large size / 17 to 18m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
66	Fuser Motor speed (Roll 2 / PPC / Large size / 18 to 19m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
67	Fuser Motor speed (Roll 2 / PPC / Large size / 19 to 20m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
68	Fuser Motor speed (Roll 2 / PPC / Large size / 20 to 21m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
69	Fuser Motor speed (Roll 2 / PPC / Large size / 21 to 22m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
6A	Fuser Motor speed (Roll 2 / PPC / Large size / 22 to 23m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
6b	Fuser Motor speed (Roll 2 / PPC / Large size / 23 to 24m)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
6C	Fuser Motor speed (Roll 2 / PPC / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
6d	Fuser Motor speed (Roll 2 / PPC / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
6E	Fuser Motor speed (Roll 2 / PPC / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
6F	Fuser Motor speed (Roll 2 / Tracing / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
70	Fuser Motor speed (Roll 2 / Tracing / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
71	Fuser Motor speed (Roll 2 / Tracing / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
72	Fuser Motor speed (Roll 2 / Tracing / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
73	Fuser Motor speed (Roll 2 / Film / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
74	Fuser Motor speed (Roll 2 / Film / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
75	Fuser Motor speed (Roll 2 / Film / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
76	Fuser Motor speed (Roll 2 / Film / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-66
77	Fuser Motor speed (Roll 3 / PPC / Large size / 0 to 2m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
78	Fuser Motor speed (Roll 3 / PPC / Large size / 2 to 3m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
79	Fuser Motor speed (Roll 3 / PPC / Large size / 3 to 4m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
7A	Fuser Motor speed (Roll 3 / PPC / Large size / 4 to 5m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
7b	Fuser Motor speed (Roll 3 / PPC / Large size / 5 to 6m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
7C	Fuser Motor speed (Roll 3 / PPC / Large size / 6 to 7m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
7d	Fuser Motor speed (Roll 3 / PPC / Large size / 7 to 8m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
7E	Fuser Motor speed (Roll 3 / PPC / Large size / 8 to 9m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
7F	Fuser Motor speed (Roll 3 / PPC / Large size / 9 to 10m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
80	Fuser Motor speed (Roll 3 / PPC / Large size / 10 to 11m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
81	Fuser Motor speed (Roll 3 / PPC / Large size / 11 to 12m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
82	Fuser Motor speed (Roll 3 / PPC / Large size / 12 to 13m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
83	Fuser Motor speed (Roll 3 / PPC / Large size / 13 to 14m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
84	Fuser Motor speed (Roll 3 / PPC / Large size / 14 to 15m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
85	Fuser Motor speed (Roll 3 / PPC / Large size / 15 to 16m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
86	Fuser Motor speed (Roll 3 / PPC / Large size / 16 to 17m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
87	Fuser Motor speed (Roll 3 / PPC / Large size / 17 to 18m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
88	Fuser Motor speed (Roll 3 / PPC / Large size / 18 to 19m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
89	Fuser Motor speed (Roll 3 / PPC / Large size / 19 to 20m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
8A	Fuser Motor speed (Roll 3 / PPC / Large size / 20 to 21m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
8b	Fuser Motor speed (Roll 3 / PPC / Large size / 21 to 22m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
8C	Fuser Motor speed (Roll 3 / PPC / Large size / 22 to 23m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
8d	Fuser Motor speed (Roll 3 / PPC / Large size / 23 to 24m)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
8E	Fuser Motor speed (Roll 3 / PPC / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
8F	Fuser Motor speed (Roll 3 / PPC / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
90	Fuser Motor speed (Roll 3 / PPC / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
91	Fuser Motor speed (Roll 3 / Tracing / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
92	Fuser Motor speed (Roll 3 / Tracing / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
93	Fuser Motor speed (Roll 3 / Tracing / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
94	Fuser Motor speed (Roll 3 / Tracing / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
95	Fuser Motor speed (Roll 3 / Film / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
96	Fuser Motor speed (Roll 3 / Film / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
97	Fuser Motor speed (Roll 3 / Film / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
98	Fuser Motor speed (Roll 3 / Film / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-67
99	Fuser Motor speed (Roll 4 / PPC / Large size / 0 to 2m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
9A	Fuser Motor speed (Roll 4 / PPC / Large size / 2 to 3m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
9b	Fuser Motor speed (Roll 4 / PPC / Large size / 3 to 4m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
9C	Fuser Motor speed (Roll 4 / PPC / Large size / 4 to 5m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
9d	Fuser Motor speed (Roll 4 / PPC / Large size / 5 to 6m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
9E	Fuser Motor speed (Roll 4 / PPC / Large size / 6 to 7m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
9F	Fuser Motor speed (Roll 4 / PPC / Large size / 7 to 8m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A0	Fuser Motor speed (Roll 4 / PPC / Large size / 8 to 9m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A1	Fuser Motor speed (Roll 4 / PPC / Large size / 9 to 10m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A2	Fuser Motor speed (Roll 4 / PPC / Large size / 10 to 11m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A3	Fuser Motor speed (Roll 4 / PPC / Large size / 11 to 12m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A4	Fuser Motor speed (Roll 4 / PPC / Large size / 12 to 13m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A5	Fuser Motor speed (Roll 4 / PPC / Large size / 13 to 14m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A6	Fuser Motor speed (Roll 4 / PPC / Large size / 14 to 15m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A7	Fuser Motor speed (Roll 4 / PPC / Large size / 15 to 16m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A8	Fuser Motor speed (Roll 4 / PPC / Large size / 16 to 17m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
A9	Fuser Motor speed (Roll 4 / PPC / Large size / 17 to 18m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
AA	Fuser Motor speed (Roll 4 / PPC / Large size / 18 to 19m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
Ab	Fuser Motor speed (Roll 4 / PPC / Large size / 19 to 20m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
AC	Fuser Motor speed (Roll 4 / PPC / Large size / 20 to 21m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
Ad	Fuser Motor speed (Roll 4 / PPC / Large size / 21 to 22m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
AE	Fuser Motor speed (Roll 4 / PPC / Large size / 22 to 23m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
AF	Fuser Motor speed (Roll 4 / PPC / Large size / 23 to 24m)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b0	Fuser Motor speed (Roll 4 / PPC / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b1	Fuser Motor speed (Roll 4 / PPC / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b2	Fuser Motor speed (Roll 4 / PPC / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b3	Fuser Motor speed (Roll 4 / Tracing / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b4	Fuser Motor speed (Roll 4 / Tracing / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b5	Fuser Motor speed (Roll 4 / Tracing / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b6	Fuser Motor speed (Roll 4 / Tracing / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b7	Fuser Motor speed (Roll 4 / Film / Large size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b8	Fuser Motor speed (Roll 4 / Film / Medium size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
b9	Fuser Motor speed (Roll 4 / Film / Small size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
bA	Fuser Motor speed (Roll 4 / Film / Smallest size)	0.00	OK	-1.0% to 1.0%	0.05%	8-68
bb	Image placement (For 2nd and later prints during multi-print)	0	NO	0 to 100	0.1mm	8-69
bC	Paper Feed Clutch (MC6) ON timing	20	NO	1 to 30	1 msec	8-69
bd	Roll Paper Feed Clutches (MC1 to MC4) and Bypass Feed Clutch (MC7) ON timing	1	NO	1 to 20	1 msec	8-70
bE	Paper Gate Brake (MC10) ON timing	15	NO	1 to 20	1 msec	8-71
bF	Sub Separation Blower ON / OFF (PPC)	0	NO	0 or 1		8-72
C0	Sub Separation Blower ON / OFF (Tracing)	1	NO	0 or 1		8-72
C1	Sub Separation Blower ON / OFF (Film)	1	NO	0 or 1		8-72
C2	Trailing Margin compensation (Roll 1)	0	NO	0 to 3		8-73
C3	Trailing Margin compensation (Roll 2)	0	NO	0 to 3		8-73
C4	Trailing Margin compensation (Roll 3)	0	NO	0 to 3		8-73
C5	Trailing Margin compensation (Roll 4)	0	NO	0 to 3		8-73
C6	Separation Lamp ON / OFF (Film)	1	NO	0 or 1		8-75
C7	Dot Enhancement Level	3	NO	0 to 3		8-76
C8	Pre-Transfer LED / Separation Corona OFF timing (Tracing)	1	NO	0 or 1		8-77
C9	Pre-Transfer LED / Separation Corona OFF timing (Film)	1	NO	0 or 1		8-78
CA	Constant / Variable control of Developer Bias	1	NO	0 or 1		8-79
Cb	Developer Bias at 10°C or colder (When Developer Bias is controlled variably)	056	NO	0 to 0FF	Hex.	8-80
CC	Developer Bias at 20°C or hotter (When Developer Bias is controlled variably)	04A	NO	0 to 0FF	Hex.	8-80

8.1.5.5 Explanation for each setting item

(1) Metric or Inch (Item No.00)

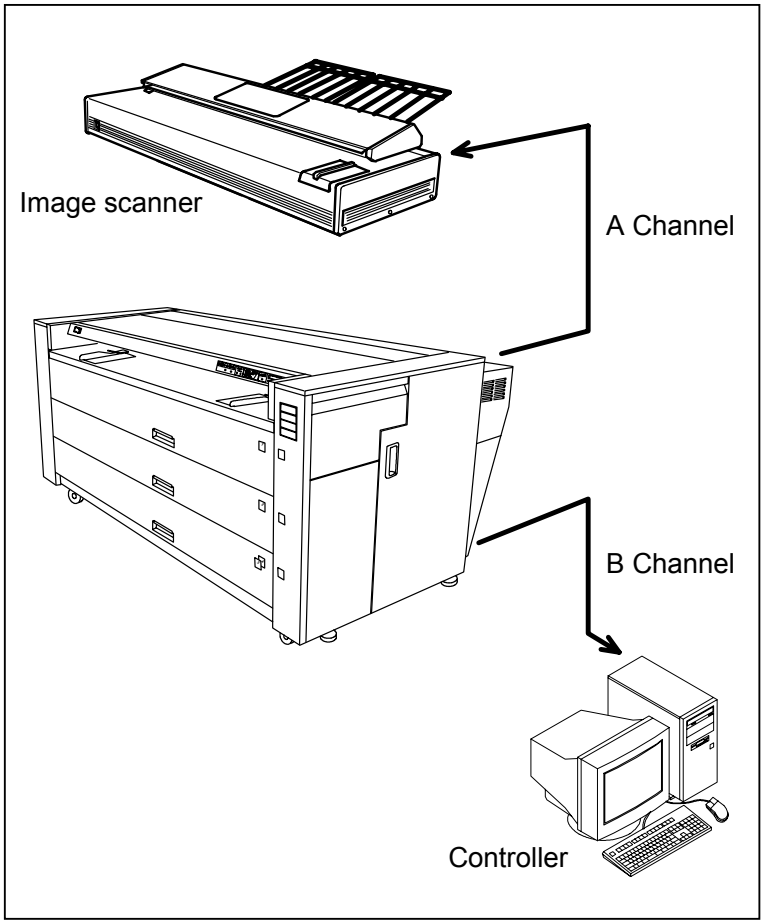
It is possible to select either metric (ISO) or inch (ANSI) as the size format of paper.
Selectable setting values are “A0” and “36”.
Select “A0” (Metric) if you use the metric (ISO) paper, and select “36” if you use the inch (ANSI) one.

Setting value	Format of paper
A0	Metric (ISO)
36	Inch (ANSI)

(2) Operation of Interface (Item No.01)

It is possible to specify how the Interface operates.
Selectable setting values are “0”, “1” and “2”.

Setting value	Interface Operation Setting
0	Interface communicates with both the scanner and the controller alternately through both Channels A and B.
1	Interface communicates with the scanner through only the Channel A. (Channel B is not used.)
2	Interface communicates with the controller through only the Channel B. (Channel A is not used.)



(3) Maximum cut length (Item No.02)

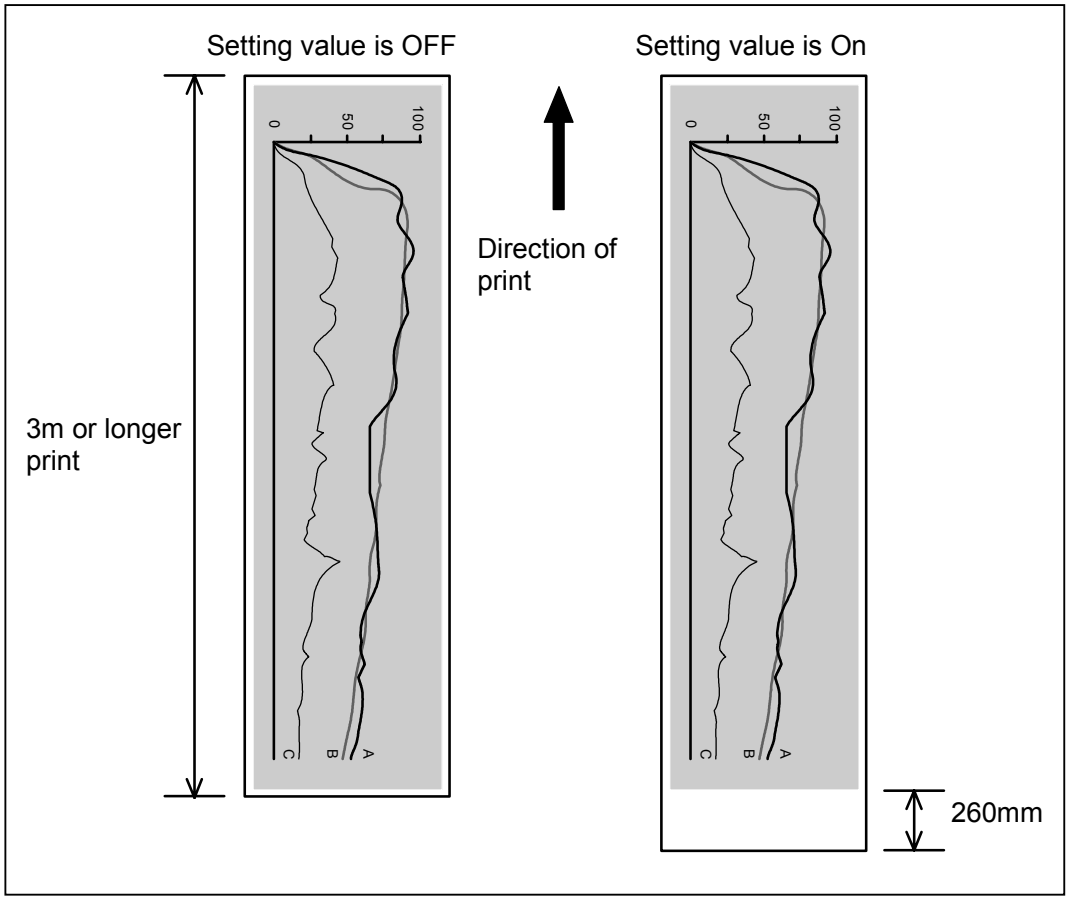
It is possible to specify the maximum cut length.
Selectable setting values are “06” and “24”.

Setting value	Maximum cut length
06	6m is the maximum cut length.
24	24m is the maximum cut length.

(4) Trailing margin for long print (Item No.03)

This is the setting to provide a trailing margin of 260mm long if the print is 3m or longer.
Selectable setting values are “On” and “OFF”.

Setting value	Contents
On	If the print is 3m or longer, it is provided with a margin of 260mm long on the trailing edge.
OFF	Margin of 260mm long is not provided even if the print is 3m or longer.



(5) Special Paper Size Setting (Item No.04)

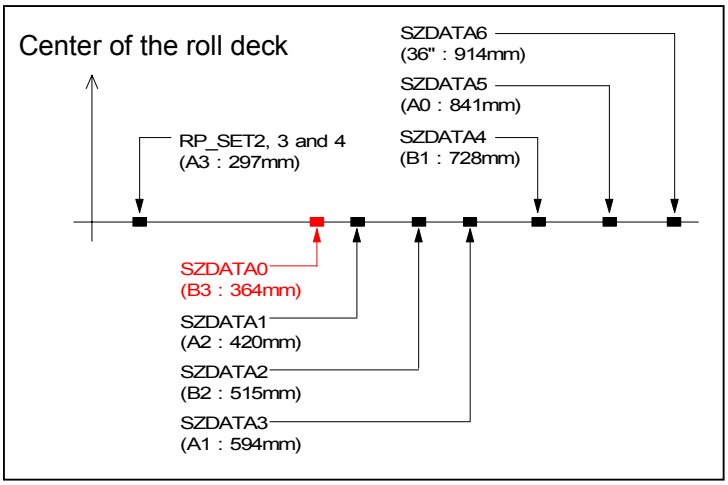
This is a mode to make it possible for the printer to recognize such special paper size as 900mm, 891mm and 880mm. (Sensor “SZDATA0” is used to detect these special sizes.)
Selectable setting values are “900”, “891” and “880”.
These special roll papers must be installed in the Roll Deck 1 because only it is corresponded to such special size.
The contents of setting values are as follows.

Setting value	Contents
900	If you set a special width of roll paper on the Roll Deck 1, the printer will recognize it as 900mm wide roll.
891	If you set a special width of roll paper on the Roll Deck 1, the printer will recognize it as 891mm wide roll.
880	If you set a special width of roll paper on the Roll Deck 1, the printer will recognize it as 880mm wide roll.

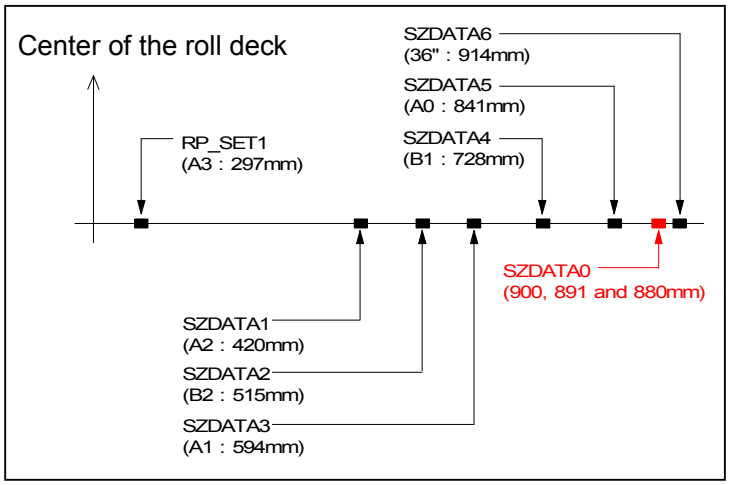
⚠ NOTE

Only the Roll Deck 1 has the sensor (SZDATA0) between SZDATA5 (For A0) and SZDATA6 (For 36”) to detect 900mm, 891mm and 880mm wide roll media, while other roll decks has it between RP_SET (For A3) and SZDATA1 (For A2) to detect B3 roll media.

Sensor arrangement (Roll Decks 2, 3 and 4)



Sensor arrangement (Roll Deck 1 only)



(6) Counting unit of Counter A (Item No.05)

This is a mode to specify the counting unit of the Counter A (Upper Counter).
Selectable setting values rely on “metric / inch setting (Item No.00)”.
If you selected “metric (ISO)”, selectable setting values in this Item No.5 are “0”, “1”, “2” and “3”
If you selected inch (ANSI), selectable setting values are “0” or “1”.
The contents of setting values are as follows.

In case “meter (ISO)” is selected :

Setting value	Counting unit
0	Linear counter: 1m / count
1	Linear counter: 0.1m / count
2	Area counter: $1m^2$ / count
3	Area counter: $0.1m^2$ / count

In case “inch (ANSI)” is selected :

Setting value	Counting unit
0	Linear counter: 1foot / count
1	Area counter: $1foot^2$ / count

⚠ NOTE

Before shipment, we have selected “0 (1 $foot^2$/count)” as the counting unit for the inch model that is destined for USA.
And we have selected “0 (1m/count)” for the metric model that is destined for all other countries.

(7) Counting unit of Counter B (Item No.06)

This is a mode to specify the counting unit of the Counter B (Lower Counter).
Selectable setting values rely on “metric / inch setting (Item No.00)”.
If you selected “metric (ISO)” there, selectable setting values are “0”, “1”, “2” and “3”
If you selected inch (ANSI), selectable setting values are “0” or “1”.
The contents of setting values are as follows.

In case “meter (ISO)” is selected :

Setting value	Counting unit
0	Linear counter: 1m / count
1	Linear counter: 0.1m / count
2	Area counter: $1m^2$ / count
3	Area counter: $0.1m^2$ / count

In case “inch (ANSI)” is selected :

Setting value	Counting unit
0	Linear counter: 1foot / count
1	Area counter: $1foot^2$ / count

⚠ NOTE

Before shipment, we have selected “0 (1foot/count)” as the counting unit for the inch model that is destined for USA.
And we have selected “0 (1m/count)” for the metric model that is destined for all other countries.

(8) Operation of Dehumidify Heater (Item No.07)

It is possible to decide when the Dehumidify Heater should operate.
Selectable setting values are “00” and “01”.
The contents of setting values are as follows.

Setting value	Contents
0	Dehumidify Heater operates only when the Power Switch is OFF.
1	Dehumidify Heater operates always.

(9) Cut length of Test Print (Item No.08)

It is possible to specify the length of Test Print.
Selectable setting values rely on “metric / inch setting (Item No.00)”.

In case “meter (ISO)” is selected :

Setting value	Cut length
A0	1189mm
A1	841mm
A2	594mm
A3	420mm
A4	197mm
A5	210mm
b1	1030mm
b2	728mm
b3	515mm
b4	364mm
b5	257mm

In case “inch (ANSI)” is selected :

Setting value	Cut length
48	48”
44	44”
36	36”
34	34”
30	30”
24	24”
22	22”
18	18”
17	17”
12	12”
11	11”
8.5	8.5”

⚠ NOTE

This cut length is effective only when you make Test Print from the User Mode.
Note that this is not effective when you make Test Print from the Service Mode (Sub Mode No.8).

(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)

In the items No.09, 0A and 0b, it is possible to change the setting conditions of both [Standard Print Mode] and the [Special Print Mode], either of which can be selected in the User Modes 8, 9 and A according to the necessity.

Each 09, 0A and 0b has its own target of setting as follows based on the type of media.

Item No.	Target of setting
09	You can change the setting conditions of [Standard Print Mode] and [Special Print Mode] applied when you print with a **plain paper**.
0A	You can change the setting conditions of [Standard Print Mode] and [Special Print Mode] applied when you print with a **tracing paper**.
0b	You can change the setting conditions of [Standard Print Mode] and [Special Print Mode] applied when you print with a **film**.

Selectable setting values in each mode are “0” or “1”, and the contents are as follows.

Setting value	Contents
0	You can change the **[Standard Setting Value]** of each setting item included in Adjustment Mode 0 and Adjustment Mode 1.
1	You can change the **[Special Setting Value]** of each setting item included in Adjustment Mode 0 and Adjustment Mode 1.

[Detailed explanation]

There are many setting items in both the Adjustment Mode 0 (Sub Mode No.4) and the Adjustment Mode 1 (Sub Mode No.5 : Refer to page 8-81 and after.).
Normally you are able to specify **only 1 setting value** in each setting item, which is called **[Standard Setting Value]**.
However, there are many setting items in which you are able to specify not only [Standard Setting Value] but also **1 more setting value** which is called **[Special Setting Value]**.
The following list shows just some examples of setting item that are able to have both [Standard Setting Value] and [Special Setting Value]. (All items are related with plain paper in this example.)

	Item No.	Contents of setting	Standard Setting Value (Example)	**Special Setting Value (Example)**
Adjustment Mode 0 (Sub Mode No.4)	10	Fuser temperature (PPC)	170	**190**
	1C	Transfer corona current (PPC)	242	**265**
	1F	DC component for Separation Corona (PPC)	319	**310**
	33	Fuser Motor speed (Roll 1 /PPC /Large size /0 to 2m)	-10	**-07**
Adjustment Mode 1 (Sub Mode No.5)	0C	Image placement (Roll 1 /PPC /Large size)	11.0	**9.5**
	3C	Length of trailing margin (Roll 1 /PPC /Large size)	11.0	**10.0**
	6C	Length of image (Roll 1 /PPC /Large size)	0.05	**-0.15**

[Standard Setting Value] normally means the factory setting value.
It has been specified to each setting item before shipment so as to produce the best print quality if only the user follows our usage specification.
If you select the [Standard Print Mode] in User Modes 8, 9 and A, all of [Standard Setting Values] become effective and print operation obeys them.

[Special Setting Value] means the setting value specified to each setting item by the service personnel. In case the user can not follow our usage specification sometimes or always (paper is too thick or too thin, temperature or humidity is too high or too low, and etc.), the print quality may be not satisfactory if you print with the [Standard Print Mode].

Please specify the [Special Setting Value] to the necessary setting items optionally in this case, so as to produce a satisfactory print quality even in such special usage condition.
If you select the [Special Print Mode] in User Modes 8, 9 and A, all of [Special Setting Values] become effective and print operation obeys them.
(Same value is specified as [Standard Setting Value] and [Special Setting Value] at the time of shipment.)

⚠ NOTE

(1) It is possible to change not only the [Special Setting Value] but also the [Standard Setting Value] optionally in these setting items No.09, 0A and 0b.
But we do not recommend you to change the [Standard Setting Value] as it is the best factory setting.
If it is necessary to change, please change the [Special Setting Value] as far as possible.

(2) To use these Items No.09, 0A and 0b effectively, you need to know how to specify the [Standard Setting Value] and the [Special Setting Value] on each setting item, and also you need to know which setting item is available to specify both setting values.
Please refer to [Operation] on and after the page 8-50 to know how to specify [Standard Setting Value] and [Special Setting Value].
And to know which setting value is available to have these setting values, refer to the following ;

[8.1.5.4 Setting item list] on and after the page 8-37
[8.1.6.4 Setting item list] on and after the page 8-85

Please check the column “Standard / Special setting” in each list.
If “OK” is provided, it is available to specify both the [Standard Setting Value] and the [Special Setting Value] to that setting item.
If “NO”, only the [Standard Setting Value] can be specified.

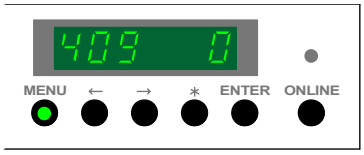
(3) If you select the [Standard Print Mode], print operation obeys all of [Standard Setting Values].
If you select the [Special Print Mode], print operation obeys all of [Special Setting Values].
You can switch between [Standard Print Mode] and [Special Print Mode] in the User Modes 8, 9, A.
Refer to the following pages.

[8.2.8 User Mode 8] (Page 8-169) ..... When a plain paper is used.
[8.2.9 User Mode 9] (Page 8-173) ..... When a tracing paper is used.
[8.2.10 User Mode A] (Page 8-177) ..... When a film is used.

[Operation]

As an example, we will introduce how to specify the [Special Setting Value] to some setting item that is related with the “plain paper”.

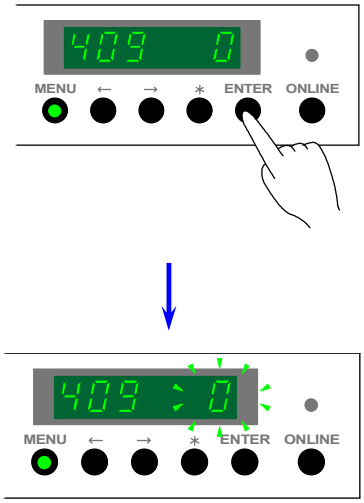
1) Indicate the Item Number “09”.



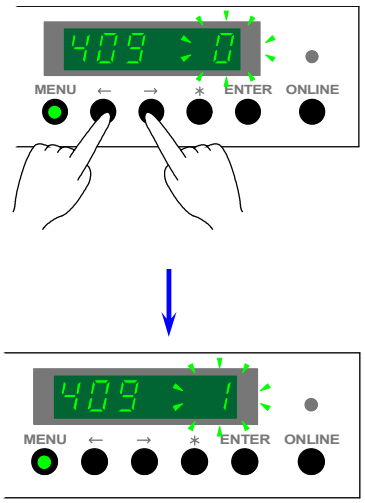
NOTE

Please indicate “0A” or “0b” when you will specify [Standard Setting Value] or [Special Setting Value] to the setting value related with the “tracing paper” or “film”.

2) Press the [ENTER] Key.
The setting value on the 6th digits flashes and it becomes possible to change the setting value.



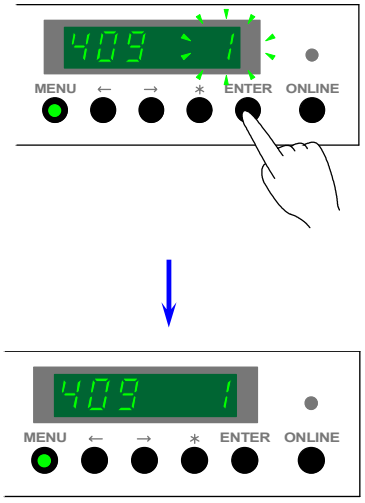
3) Indicate the setting value “1” pressing [≺] Key and [≻] Key.



NOTE

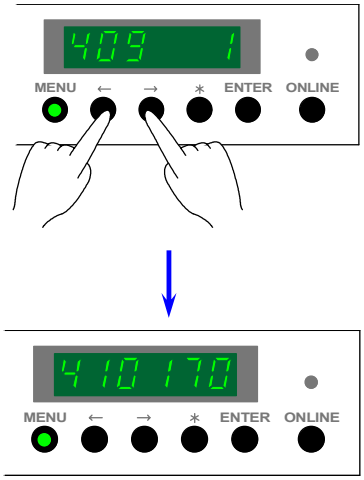
If you will change and specify the [Standard Setting Value], indicate “0” this time.

4) Press the [ENTER] Key to decide the setting value “1”.
The setting value “1” stops flashing.
It becomes possible to specify the [Special Setting Value] to each setting item by this operation.



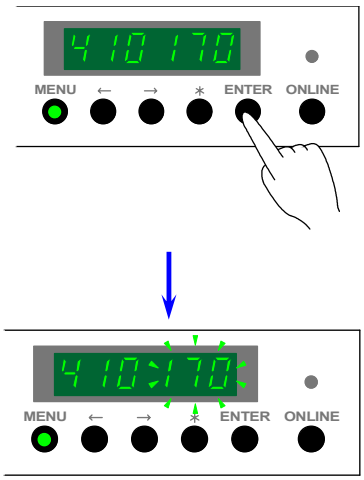
5) Pressing [≤] Key and [≥] Key, indicate the Item Number on which you would like to specify the [Special Setting Value].

Example : We will specify the [Special Setting Value] to “Fuser temperature (PPC)”
Indicate its Item Number “10”.

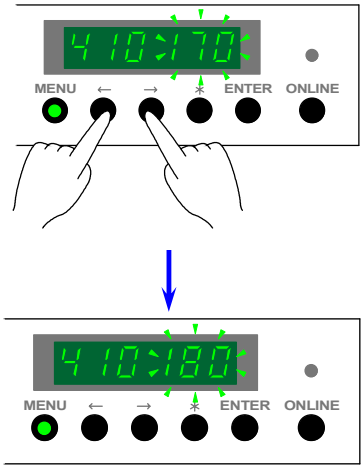


> **⚠ NOTE**
>
> Refer to the following pages to know which setting value is available to have both [Standard Setting Value] and [Special Setting Value].
>
> [8.1.5.4 Setting item list] on and after the page 8-37
> [8.1.6.4 Setting item list] on and after the page 8-85
>
> Please check the column “Standard / Special setting” in each list.
> If “OK” is provided, it is available to specify both the [Standard Setting Value] and the [Special Setting Value] to that setting item.
> If “NO”, only the [Standard Setting Value] can be specified.

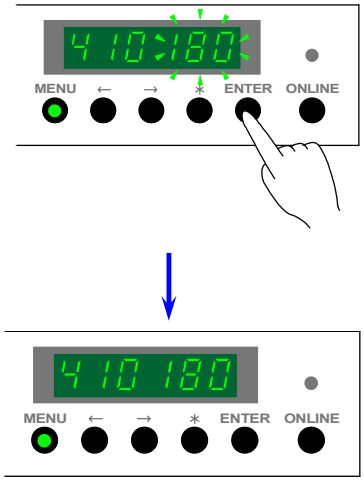
6) Press the [ENTER] Key.
The setting value on the 6th digits flashes and it becomes possible to change the setting value.



7) Pressing [⩽] Key and [⩾] Key, indicate the setting value which you would like to specify as the [Special Setting Value].



8) Press the [ENTER] Key to specify the selected setting value as the [Special Setting Value]. The setting value stops flashing when it is decided.



> **⚠ NOTE**
>
> You will not lose the [Standard Setting Value] even if you specify the [Special Setting Value].

9) If required, select another Item Number and specify the [Special Setting Value] in the same way. It is possible to specify the [Special Setting Value] to as many setting items as you need.

10) Cancel the Service Mode.

(11) Fusing temperature (Items No.10, 11 & 12)

It is possible to change the fusing temperature.
The setting unit is “degree centigrade”, and the adjustment range is from 150 to 190.
Each Item Number has the target of setting based on the type of media as follows.

Item No.	Target of setting
09	Fusing temperature applied when you print with a plain paper.
0A	Fusing temperature applied when you print with a tracing paper.
0b	Fusing temperature applied when you print with a film.

⚠ NOTE

These Item No.10, 11, and 12 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

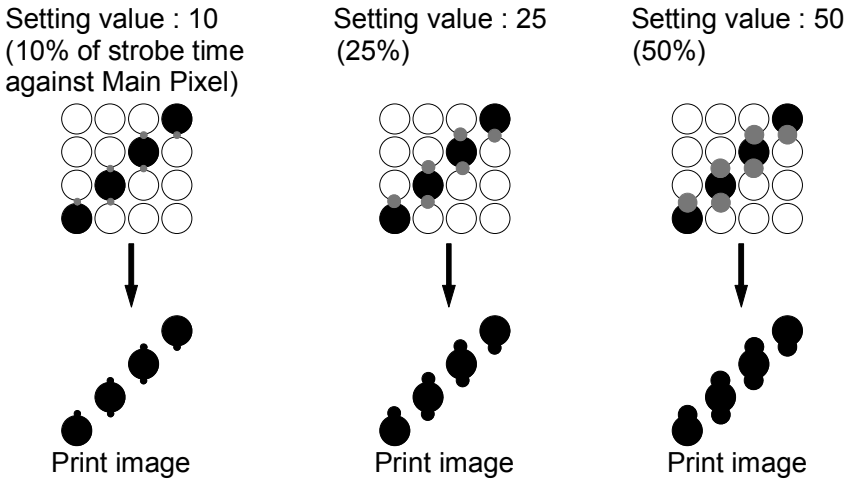
(12) LED strobe time for Main Pixel (Item No.13)

It is possible to adjust the strobe time of LED Head.
This setting is effective for the Main Pixel of printed image.
The adjustment unit is “1micro second”, and the adjustment range is from 0 to 42micro seconds.
Main Pixels get darker if you increase the setting value.

> **⚠ NOTE**
>
> (1) When KIPCON E or KIP2000 Series Scanner is connected to the KIP8000 Printer, the image density of normal print will not change even if you change the LED strobe time in this item No.13, because these devices has a priority against the printer to decide the LED strobe time through a density command. (Only Test Print density is changed in this case.) Please adjust the LED strobe time in case you wish to change the image density but it is unable to adjust it from the connected outer device.
>
> (2) Please read [REFERENCE] on the next page as for the Main Pixel.

(13) LED strobe time for Supplemental Pixel (Item No.14)

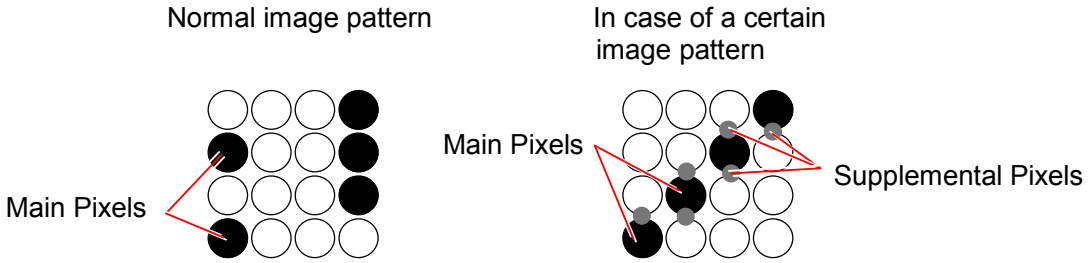
It is possible to adjust the strobe time of LED Head.
This setting is effective for the Supplemental Pixel of printed image.
The setting unit is “1%”, and the adjustment range is from 0 to 50%.
The meaning of setting value is “X% of strobe time against [LED strobe time for Main Pixel].
The Supplemental Pixel gets darker if you increase the setting value.



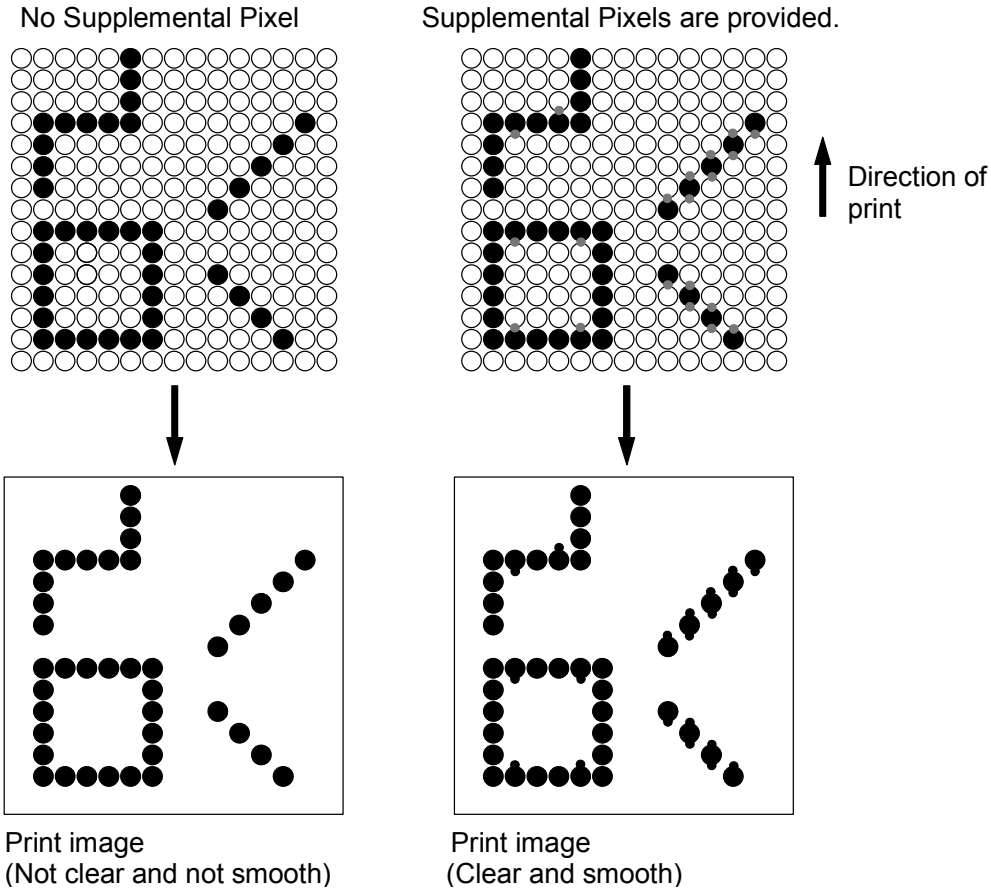
> **⚠ NOTE**
>
> (1) When KIPCON E or KIP2000 Series Scanner is connected to the KIP8000 Printer, the density command sent from these devices will become a basis to decide the LED strobe time for the Supplemental Image.
> But if you connect some special outer device and it can not send the density command, the basis for the decision is [LED strobe time for Main Pixel] decided in the above item No.13
>
> (2) Please read [REFERENCE] on the next page as for the Supplemental Pixel
>
> (3) The image quality will become worse if you increase the setting value so much.
> The best LED strobe time for the Supplemental Pixel is about 20% against Main Pixel.

Reference

Normally the KIP8000 Printer makes 400 times of image exposure against the vertical direction as its resolution is 400DPI. Image pixels created by this normal timing is called [Main Pixel].
When a certain image pattern (like a diagonal line) is printed, however, the KIP8000 will make additional image exposure between Main Pixels only for the vertical direction. This additional image exposure is completed within a very short time. The image pixel created by this process is called [Supplemental Pixel].



Supplemental Pixels are provided so as to fill the space between Main Pixels.
When we compare a vertical / horizontal 1 dot line and a diagonal 1 dot line, for example, the diagonal one looks not clear and not smooth although the vertical / horizontal one looks clear and smooth.
This is because the diagonal line has a wider space between Main Pixels than the vertical / horizontal one.
If this space is filled with the Supplemental Pixel, diagonal line comes to look smoother and clearer.



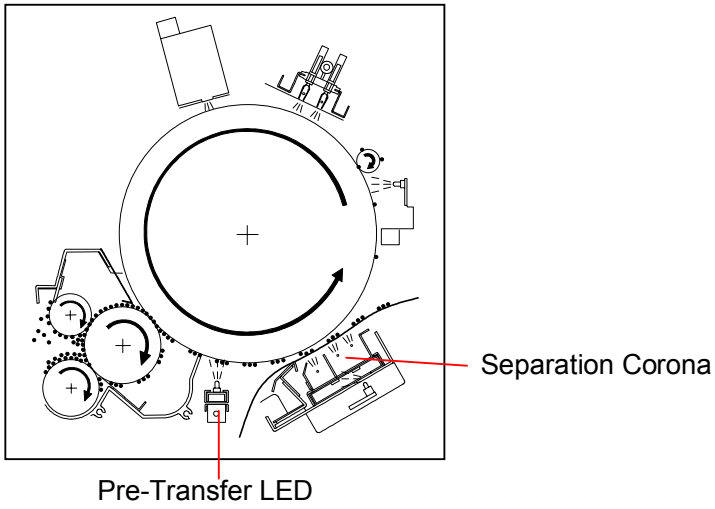
(14) Pre-Transfer LED / Separation Corona OFF timing (PPC) (Item No.15)

It is possible to decide when both the Separation Corona and the Pre-Transfer LED are turned OFF during the print cycle.
This setting is applied when you print with a plain paper.
Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Both Separation Corona and Pre-Transfer LED turn OFF normally.
1	When you use the plain paper, both Separation Corona and Pre-Transfer LED turn OFF 0.12 seconds earlier than the normal timing. For tracing paper and film, they turn OFF normally.

⚠ NOTE

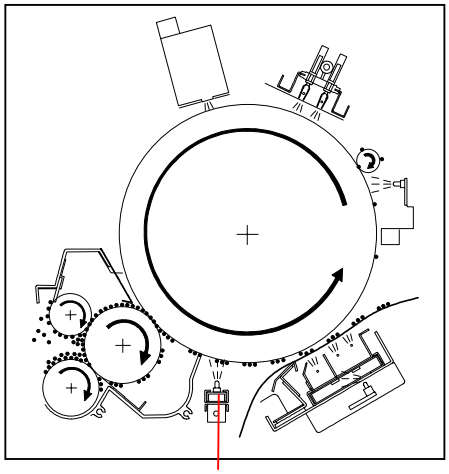
Transfer defect may occur on the trailing edge of the print if you use a thick and strongly curled plain paper.
You may be able to fix this problem if you select the setting value “1”.
(Transfer defect means that the toner remains on the Drum not transferred onto the print media.)



(15) Pre-Transfer LED ON / OFF (Item No.16)

It is possible to decide whether or not the Pre-Transfer LED turns ON during the print cycle.
Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Pre-Transfer LED does not turn ON during the print cycle.
1	Pre-Transfer LED turns ON during the print cycle.

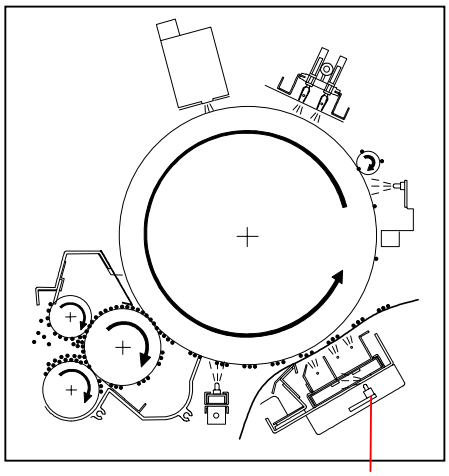


Pre-Transfer LED

(16) Separation Lamp ON / OFF (PPC) (Item No.17)

It is possible to decide whether or not the Separation Lamp lights during the print cycle.
This setting is effective when you print with a plain paper.
Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Separation Lamp does not light during the print cycle.
1	Separation Lamp lights during the print cycle.

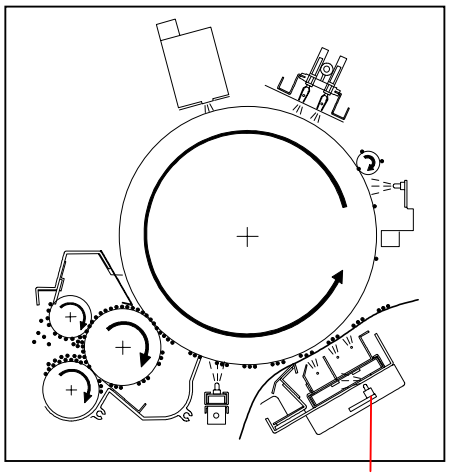


Separation Lamp

(17) Separation Lamp ON / OFF (Tracing) (Item No.18)

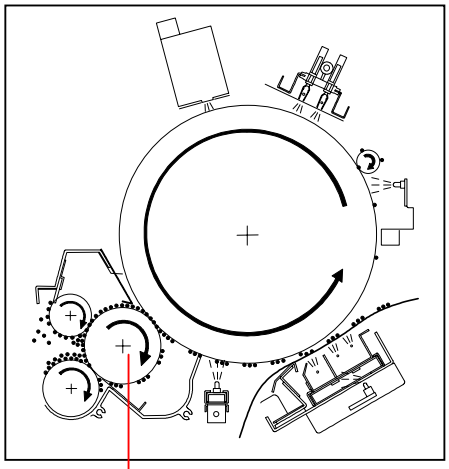
It is possible to decide whether or not the Separation Lamp lights during the print cycle.
This setting is effective when you print with a tracing paper.
Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Separation Lamp does not light during the print cycle.
1	Separation Lamp lights during the print cycle.



(18) Developer Bias (Item No.19)

It is possible to adjust the Developer Bias supplied to the Developer Roller.
The setting unit is hexadecimal, and the setting range is from 000 to 0FF.
The Developer Bias decreases (minus side) if you increase the setting value.



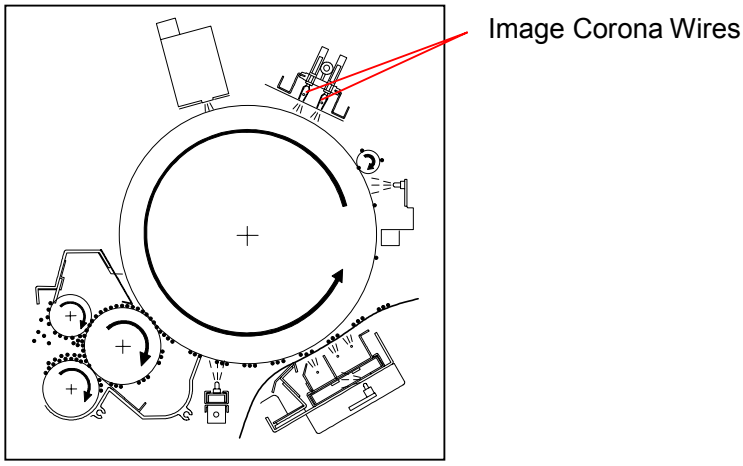
⚠ NOTE

(1) Make sure to adjust the Developer Bias in this item No.19.
Do not adjust the Bias moving the volumes on the Bias Board, as they have been adjusted and locked in the factory.

(2) There are not only the Developer Roller but also Regulation Roller and Toner Supply Roller in the Developer Unit, which are also supplied with the individual voltages.
The difference of voltage between the Developer Roller and each of these rollers should be also same.
Once you change the Developer Bias, therefore, the voltages supplied to these rollers are automatically changed same degree.

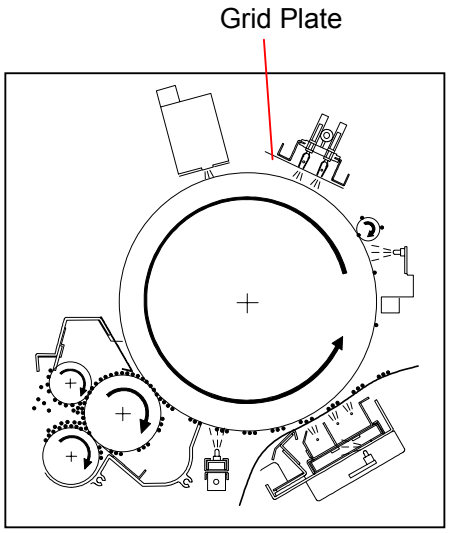
(19) Intensity of current on the Corona Wire (Image Corona) (Item No.1A)

It is possible to adjust the intensity of current that flows on the Corona Wires of Image Corona.
The setting unit is hexadecimal, and the setting range is from 000 to 0FF.
Drum will be charged more negative as more current flows on the Image Corona Wires if you increase the setting value.



(20) Intensity of current on the Grid Plate (Image Corona) (Item No.1b)

It is possible to adjust the intensity of current that flows on the Grid Plate of Image Corona.
The setting unit is hexadecimal, and the setting range is from 000 to 500.
Drum will be charged more negative as more current flows on the Grid Plate if you increase the setting value.

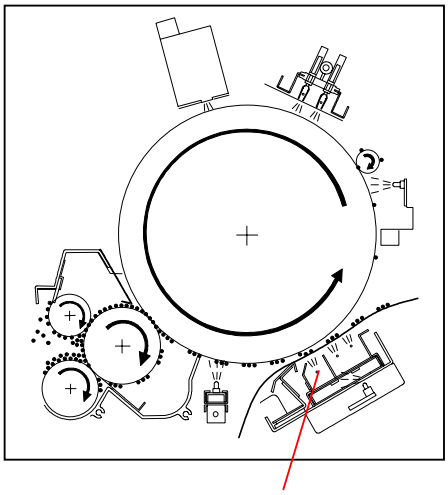


(21) Intensity of current on the Corona Wire (Transfer Corona) (Item No.1C, 1d & 1E)

It is possible to adjust the intensity of current that flows on the Corona Wire of Transfer Corona.
The setting unit is hexadecimal, and the setting range is from 000 to 500.
Toner will tend to be more attracted onto the media as more current flows on the Transfer Corona Wires if you increase the setting value.

Each Item No. has its own target media.
Please adjust the proper item.

Item No.	Target media
1C	Plain paper
1d	Tracing paper
1E	Film

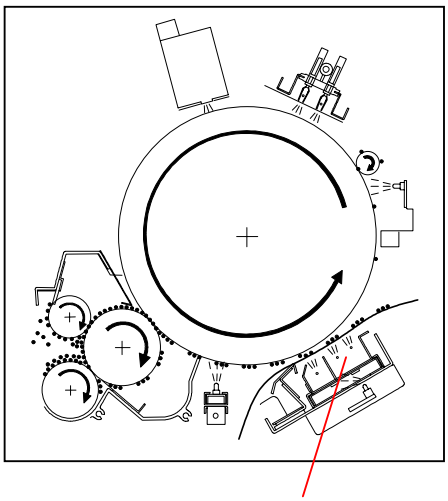


(22) DC component (Separation Corona) (Item No.1F, 20 & 21)

It is possible to adjust the DC component that is supplied to the Separation Corona.
The setting unit is hexadecimal, and the setting range is from 000 to 500.
More amount of negative electric charges will be provided if you increase the setting value.

Each Item No. has its own target for media type.
Please adjust the proper item.

Item No.	Target media
1F	Plain paper
20	Tracing paper
21	Film



(23) Paper Feed Motor Speed (Item No.22, 23, 24, 25 & 26)

It is possible to adjust the rotational speed of Paper Feed Motor by changing the motor clock.
The adjustment unit is “0.05%”, and the adjustment range is from -1.0% to +1.0%.
The Paper Feed Motor rotates faster when you increase the setting value.

Each Item No. has its own target for media source.
Please adjust the proper item.

Item No.	Media source
22	Bypass feed
23	Roll 1
24	Roll 2
25	Roll 3
26	Roll 4

(24) Fuser Motor Speed (Bypass feed) (Items from No.27 to 32)

It is possible to adjust the rotational speed of Fuser Motor by changing the motor clock.
This setting is effective when the print media is fed from the Bypass Feeder.
The adjustment unit is “0.05%”, and the adjustment range is from -1.0% to +1.0%.
The Paper Feed Motor rotates faster when you increase the setting value.

Each Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size
27	Plain paper	Large
28	Plain paper	Medium
29	Plain paper	Small
2A	Plain paper	Smallest
2b	Tracing paper	Large
2C	Tracing paper	Medium
2d	Tracing paper	Small
2E	Tracing paper	Smallest
2F	Film	Large
30	Film	Medium
31	Film	Small
32	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 27 to 32 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(25) Fuser Motor Speed (Roll 1) (Items from No.33 to 54)

It is possible to adjust the rotational speed of Fuser Motor by changing the motor clock.
This setting is effective when the print media is fed from the Roll Deck 1.
The adjustment unit is “0.05%”, and the adjustment range is from -1.0% to +1.0%.
The Paper Feed Motor rotates faster when you increase the setting value.

Each Item No. has its own target for media type and media size.
And in case of the large size of plain paper, you can specify the motor speed for each range of media length.
Please adjust the proper item.

Item No.	Media type	Media size (Range of media length)	Item No.	Media type	Media size (Range of media length)
33	Plain paper	Large (0 to 2m)	44	Plain paper	Large (18 to 19m)
34	Plain paper	Large (2 to 3m)	45	Plain paper	Large (19 to 20m)
35	Plain paper	Large (3 to 4m)	46	Plain paper	Large (20 to 21m)
36	Plain paper	Large (4 to 5m)	47	Plain paper	Large (21 to 22m)
37	Plain paper	Large (5 to 6m)	48	Plain paper	Large (22 to 23m)
38	Plain paper	Large (6 to 7m)	49	Plain paper	Large (23 to 24m)
39	Plain paper	Large (7 to 8m)	4A	Plain paper	Medium
3A	Plain paper	Large (8 to 9m)	4b	Plain paper	Small
3b	Plain paper	Large (9 to 10m)	4C	Plain paper	Smallest
3C	Plain paper	Large (10 to 11m)	4d	Tracing paper	Large
3d	Plain paper	Large (11 to 12m)	4E	Tracing paper	Medium
3E	Plain paper	Large (12 to 13m)	4F	Tracing paper	Small
3F	Plain paper	Large (13 to 14m)	50	Tracing paper	Smallest
40	Plain paper	Large (14 to 15m)	51	Film	Large
41	Plain paper	Large (15 to 16m)	52	Film	Medium
42	Plain paper	Large (16 to 17m)	53	Film	Small
43	Plain paper	Large (17 to 18m)	54	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 33 to 54 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(26) Fuser Motor Speed (Roll 2) (Items from No.55 to 76)

It is possible to adjust the rotational speed of Fuser Motor by changing the motor clock.
This setting is effective when the print media is fed from the Roll Deck 2.
The adjustment unit is “0.05%”, and the adjustment range is from -1.0% to +1.0%.
The Paper Feed Motor rotates faster when you increase the setting value.

Each Item No. has its own target for media type and media size.
And in case of the large size of plain paper, you can specify the motor speed for each range of media length.
Please adjust the proper item.

Item No.	Media type	Media size (Range of media length)	Item No.	Media type	Media size (Range of media length)
55	Plain paper	Large (0 to 2m)	66	Plain paper	Large (18 to 19m)
56	Plain paper	Large (2 to 3m)	67	Plain paper	Large (19 to 20m)
57	Plain paper	Large (3 to 4m)	68	Plain paper	Large (20 to 21m)
58	Plain paper	Large (4 to 5m)	69	Plain paper	Large (21 to 22m)
59	Plain paper	Large (5 to 6m)	6A	Plain paper	Large (22 to 23m)
5A	Plain paper	Large (6 to 7m)	6b	Plain paper	Large (23 to 24m)
5b	Plain paper	Large (7 to 8m)	6C	Plain paper	Medium
5C	Plain paper	Large (8 to 9m)	6d	Plain paper	Small
5d	Plain paper	Large (9 to 10m)	6E	Plain paper	Smallest
5E	Plain paper	Large (10 to 11m)	6F	Tracing paper	Large
5F	Plain paper	Large (11 to 12m)	70	Tracing paper	Medium
60	Plain paper	Large (12 to 13m)	71	Tracing paper	Small
61	Plain paper	Large (13 to 14m)	72	Tracing paper	Smallest
62	Plain paper	Large (14 to 15m)	73	Film	Large
63	Plain paper	Large (15 to 16m)	74	Film	Medium
64	Plain paper	Large (16 to 17m)	75	Film	Small
65	Plain paper	Large (17 to 18m)	76	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 55 to 76 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(27) Fuser Motor Speed (Roll 3) (Items from No.77 to 98)

It is possible to adjust the rotational speed of Fuser Motor by changing the motor clock.
This setting is effective when the print media is fed from the Roll Deck 3.
The adjustment unit is “0.05%”, and the adjustment range is from -1.0% to +1.0%.
The Paper Feed Motor rotates faster when you increase the setting value.

Each Item No. has its own target for media type and media size.
And in case of the large size of plain paper, you can specify the motor speed for each range of media length.
Please adjust the proper item.

Item No.	Media type	Media size (Range of media length)	Item No.	Media type	Media size (Range of media length)
77	Plain paper	Large (0 to 2m)	88	Plain paper	Large (18 to 19m)
78	Plain paper	Large (2 to 3m)	89	Plain paper	Large (19 to 20m)
79	Plain paper	Large (3 to 4m)	8A	Plain paper	Large (20 to 21m)
7A	Plain paper	Large (4 to 5m)	8b	Plain paper	Large (21 to 22m)
7b	Plain paper	Large (5 to 6m)	8C	Plain paper	Large (22 to 23m)
7C	Plain paper	Large (6 to 7m)	8d	Plain paper	Large (23 to 24m)
7d	Plain paper	Large (7 to 8m)	8E	Plain paper	Medium
7E	Plain paper	Large (8 to 9m)	8F	Plain paper	Small
7F	Plain paper	Large (9 to 10m)	90	Plain paper	Smallest
80	Plain paper	Large (10 to 11m)	91	Tracing paper	Large
81	Plain paper	Large (11 to 12m)	92	Tracing paper	Medium
82	Plain paper	Large (12 to 13m)	93	Tracing paper	Small
83	Plain paper	Large (13 to 14m)	94	Tracing paper	Smallest
84	Plain paper	Large (14 to 15m)	95	Film	Large
85	Plain paper	Large (15 to 16m)	96	Film	Medium
86	Plain paper	Large (16 to 17m)	97	Film	Small
87	Plain paper	Large (17 to 18m)	98	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 77 to 98 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(28) Fuser Motor Speed (Roll 4) (Items from No.99 to bA)

It is possible to adjust the rotational speed of Fuser Motor by changing the motor clock.
This setting is effective when the print media is fed from the Roll Deck 4.
The adjustment unit is “0.05%”, and the adjustment range is from -1.0% to +1.0%.
The Paper Feed Motor rotates faster when you increase the setting value.

Each Item No. has its own target for media type and media size.
And in case of the large size of plain paper, you can specify the motor speed for each range of media length.
Please adjust the proper item.

Item No.	Media type	Media size (Range of media length)	Item No.	Media type	Media size (Range of media length)
99	Plain paper	Large (0 to 2m)	AA	Plain paper	Large (18 to 19m)
9A	Plain paper	Large (2 to 3m)	Ab	Plain paper	Large (19 to 20m)
9b	Plain paper	Large (3 to 4m)	Ac	Plain paper	Large (20 to 21m)
9C	Plain paper	Large (4 to 5m)	Ad	Plain paper	Large (21 to 22m)
9d	Plain paper	Large (5 to 6m)	AE	Plain paper	Large (22 to 23m)
9E	Plain paper	Large (6 to 7m)	AF	Plain paper	Large (23 to 24m)
9F	Plain paper	Large (7 to 8m)	b0	Plain paper	Medium
A0	Plain paper	Large (8 to 9m)	b1	Plain paper	Small
A1	Plain paper	Large (9 to 10m)	b2	Plain paper	Smallest
A2	Plain paper	Large (10 to 11m)	b3	Tracing paper	Large
A3	Plain paper	Large (11 to 12m)	b4	Tracing paper	Medium
A4	Plain paper	Large (12 to 13m)	b5	Tracing paper	Small
A5	Plain paper	Large (13 to 14m)	b6	Tracing paper	Smallest
A6	Plain paper	Large (14 to 15m)	b7	Film	Large
A7	Plain paper	Large (15 to 16m)	b8	Film	Medium
A8	Plain paper	Large (16 to 17m)	b9	Film	Small
A9	Plain paper	Large (17 to 18m)	bA	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

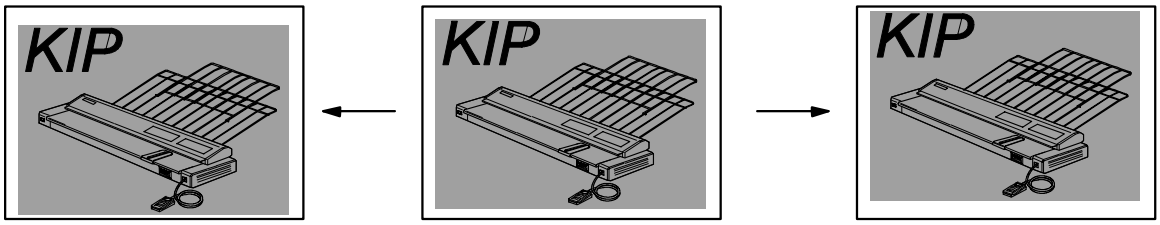
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 99 to bA are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(29) Image placement (For 2nd and later copies during multi-print) (Item No.bb)

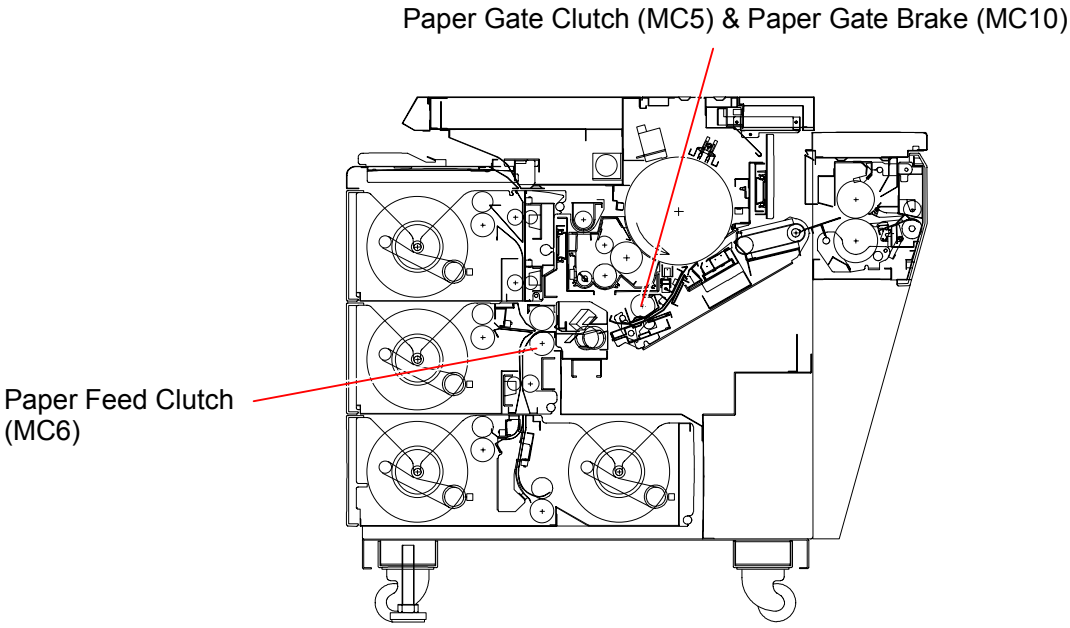
It is possible to adjust the vertical position of print image on the media.
This setting is effective when you take a multi-print with a roll media, and applied on the 2nd and later prints.
The setting unit is 0.1mm, and the setting range is from 0 to 100 (0 to 10.0mm).
If you increase the setting value, the whole image is shifted to the leading edge side, namely the leading margin on the print becomes narrower.

Setting value is decreased. Setting value is increased.



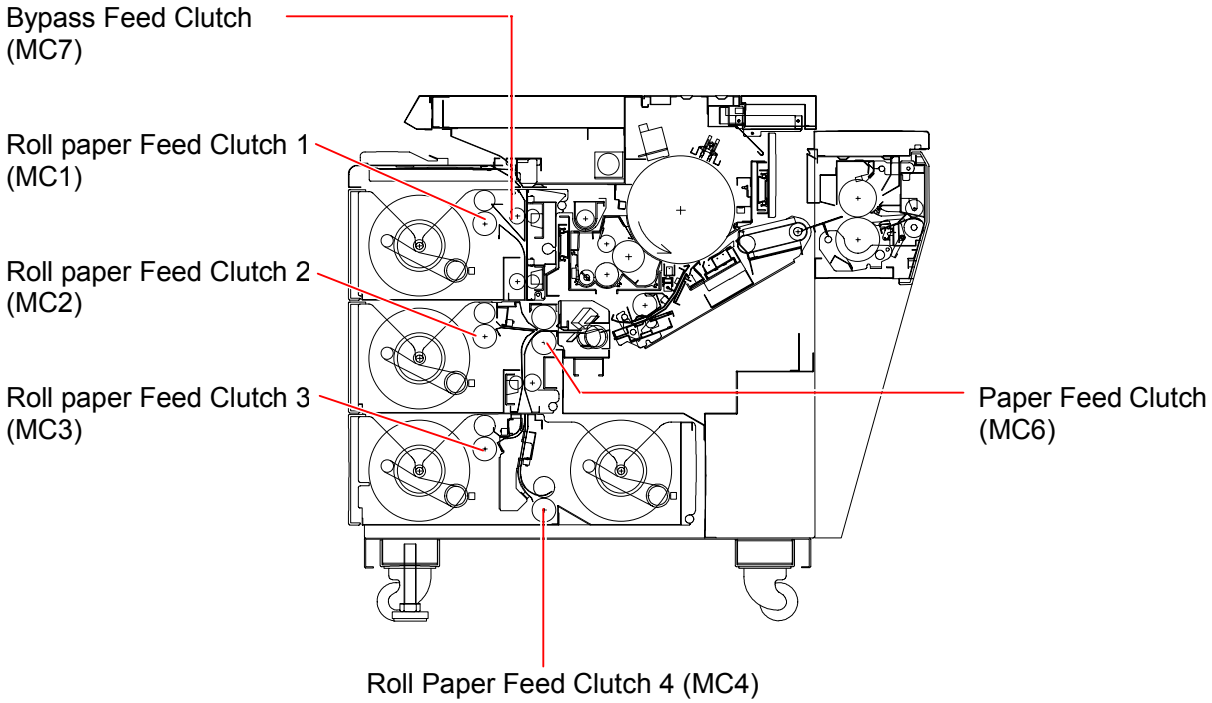
(30) Paper Feed Clutch (MC6) ON timing (Item No.bC)

It is possible to adjust when the Paper Feed Clutch (MC6) should operate.
The setting unit is 1 millisecond, and the setting range is from 1 to 30 milliseconds.
The ON timing of Paper Feed Clutch (MC6) can be decided taking the ON timing of Paper Gate Clutch (MC5) as the standard.
If you select “20 milliseconds” as the setting value in this No.bC, the Paper Feed Clutch (MC6) operates (ON) 20 milliseconds earlier than the Paper Gate Clutch (MC5) operates (ON).



(31) Roll Paper Feed Clutches (MC1 to MC4) and Bypass Feed Clutch (MC7) ON timing (Item No.bd)

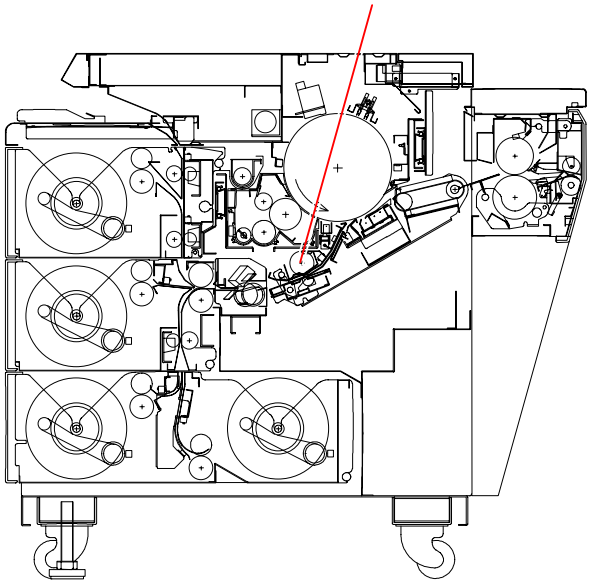
It is possible to adjust when the Roll Paper Feed Clutches 1, 2, 3 and 4 (MC1 to MC4) and the Bypass Feed Clutch (MC7) should operate.
The setting unit is 1 millisecond, and the setting range is from 1 to 20 milliseconds.
The ON timing of these clutches (MC1, MC2, MC3, MC4 and MC7) can be decided taking the ON timing of Paper Feed Clutch (MC6) as the standard.
If you select “10 milliseconds” as the setting value in this No.bd, these clutches operate (ON) 10 milliseconds earlier than the Paper Feed Clutch (MC6) operates (ON).



(32) Paper Gata Brake (MC10) ON timing (Item No.bE)

It is possible to adjust when the Paper Gate Brake (MC10) should operate.
The setting unit is 1 millisecond, and the setting range is from 1 to 20 milliseconds.
The ON timing of Paper Gate Brake (MC10) can be decided taking the OFF timing of Paper Gate Clutch (MC5) as the standard.
If you select “10 milliseconds” as the setting value in this No.bE, the Paper Gate Brake (MC10) operates (ON) 10 milliseconds earlier than the Paper Gate Clutch (MC5) operates (OFF).

Paper Gate Clutch (MC5) & Paper Gate Brake (MC10)



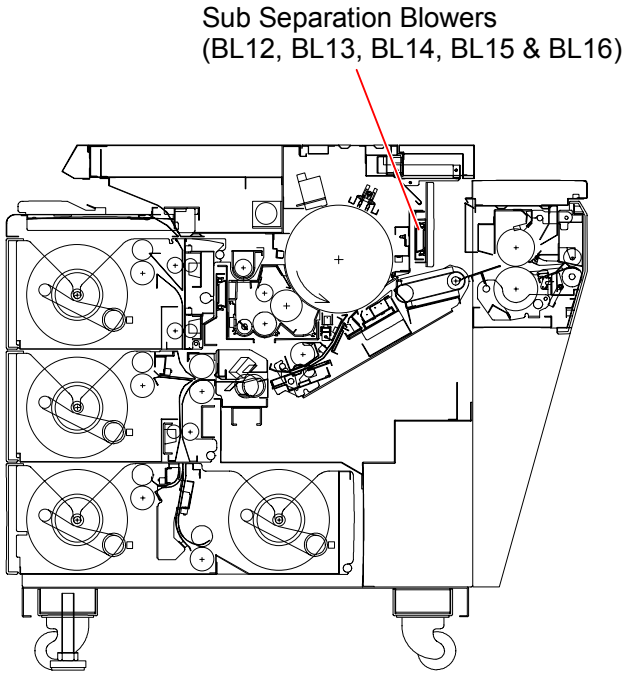
(33) Sub Separation Blower ON / OFF (Items No. bF, C0 & C1)

It is possible to decide whether or not the Sub Separation Blower operates during the print cycle.
Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Sub Separation Blower does not operate during the print cycle.
1	Sub Separation Blower operates during the print cycle.

Each Item No. has its own target for media type.
Please adjust the proper item.

Item No.	Target media
bF	Plain paper
C0	Tracing paper
C1	Film



NOTE

If the media is not separated well from the Drum and the Separation Area Jam (J-12) occurs often, you may fix this problem if you make the Separation Blowers operate during the print cycle.
But it may be required to clean the inside machine occasionally because the toner may fly in the machine when the Separation Blower operate.

(34) Trailing Margin Compensation (Items from No. C2 to C5)

It is possible to compensate the length of trailing margin based on the diameter of roll media.
Selectable setting values are 0, 1, 2 and 3.

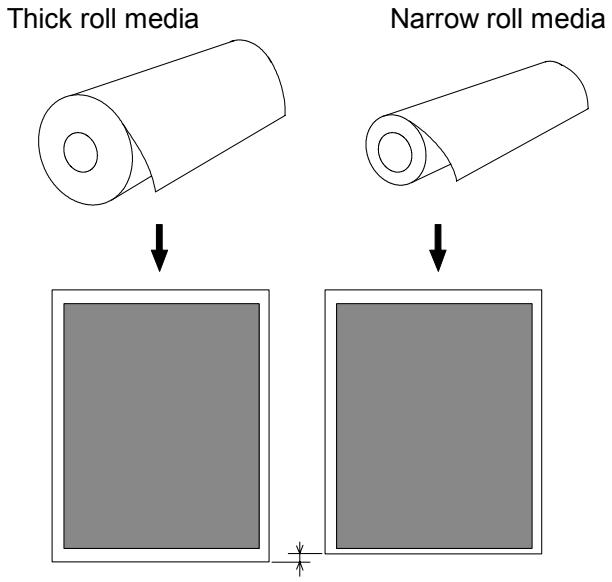
Setting value	Amount of compensation							
	1/8	2/8	3/8	4/8	5/8	6/8	7/8	8/8
0	0.0mm	0.0mm	0.0mm	0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
1	0.0mm	+0.2mm	+0.4mm	+0.6mm	+0.8mm	+1.0mm	+1.2mm	+1.4mm
2	0.0mm	+0.4mm	+0.8mm	+1.2mm	+1.6mm	+2.0mm	+2.4mm	+2.8mm
3	0.0mm	+0.6mm	+1.2mm	+1.8mm	+2.4mm	+3.0mm	+3.6mm	+4.2mm

Each Item No. has its own target for Roll Deck.
Please adjust the proper item.

Item No.	Target Roll Deck
C2	Roll 1
C3	Roll 2
C4	Roll 3
C5	Roll4

[Detailed explanation]

If you print with a thick (new) roll media and a narrow (near empty) one, the lengths of trailing margin may be a little different between 2 printouts. This is because the diameters of these roll media are different. Generally, the trailing margin will be shorter if you print with a narrower roll media.

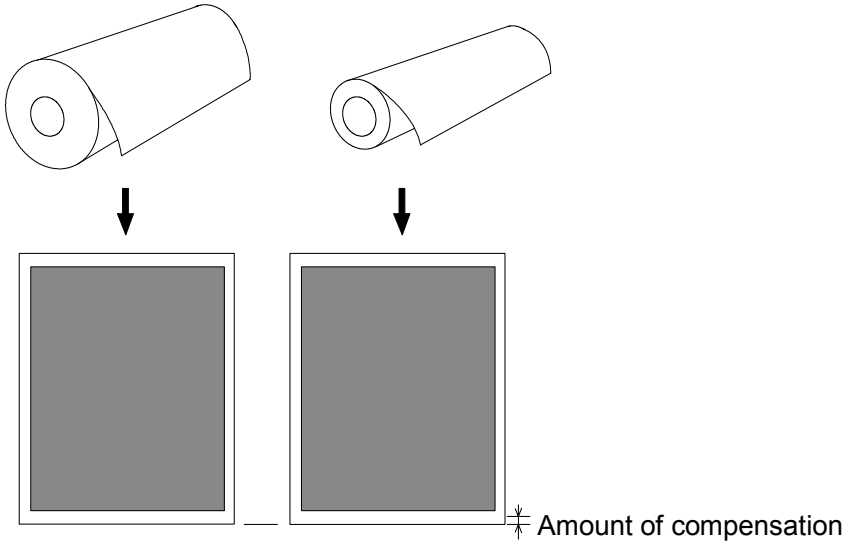


Difference of trailing margin

In the items from C2 to C5 it is possible to make the trailing margin always even regardless of the diameter of roll media.
You can select the best level of compensation by changing the setting value.
See the next page.

The diameter of roll media is divided into 8 levels as 8/8 to 1/8 (Level is decided according to the clock sent from the Paper Feed Clock Sensor.). 8/8 is the thickest (like a new roll media) and 1/8 is the narrowest.
When the compensation is done, bigger compensation is done (namely longer trailing margin is provided) for narrower level.
And also, bigger compensation is done if you select a larger setting value. (If you select “0”, no compensation is done.)

Diameter Level of roll media	Amount of compensation			
	Setting value : 0	Setting value : 1	Setting value : 2	Setting value : 3
8/8	0.0mm	0.0mm	0.0mm	0.0mm
7/8	0.0mm	+0.2mm	+0.4mm	+0.6mm
6/8	0.0mm	+0.4mm	+0.8mm	+1.2mm
5/8	0.0mm	+0.6mm	+1.2mm	+1.8mm
4/8	0.0mm	+0.8mm	+1.6mm	+2.4mm
3/8	0.0mm	+1.0mm	+2.0mm	+3.0mm
2/8	0.0mm	+1.2mm	+2.4mm	+3.6mm
1/8	0.0mm	+1.4mm	+2.8mm	+4.2mm



Trailing margin is same.

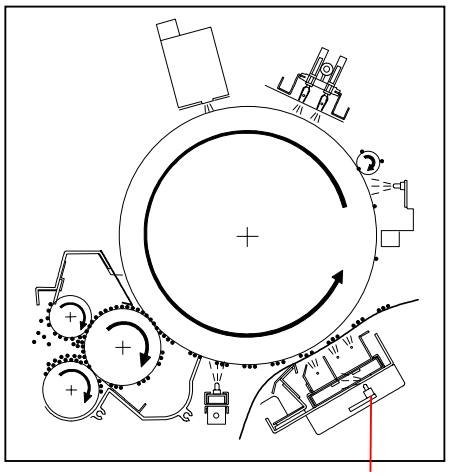
⚠ NOTE

The best amount of compensation differs according to the thickness of paper.

(35) Separation Lamp ON / OFF (Film) (Item No.C6)

It is possible to decide whether or not the Separation Lamp lights during the print cycle.
This setting is effective when you print with a film.
Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Separation Lamp does not light during the print cycle.
1	Separation Lamp lights during the print cycle.



⚠ NOTE

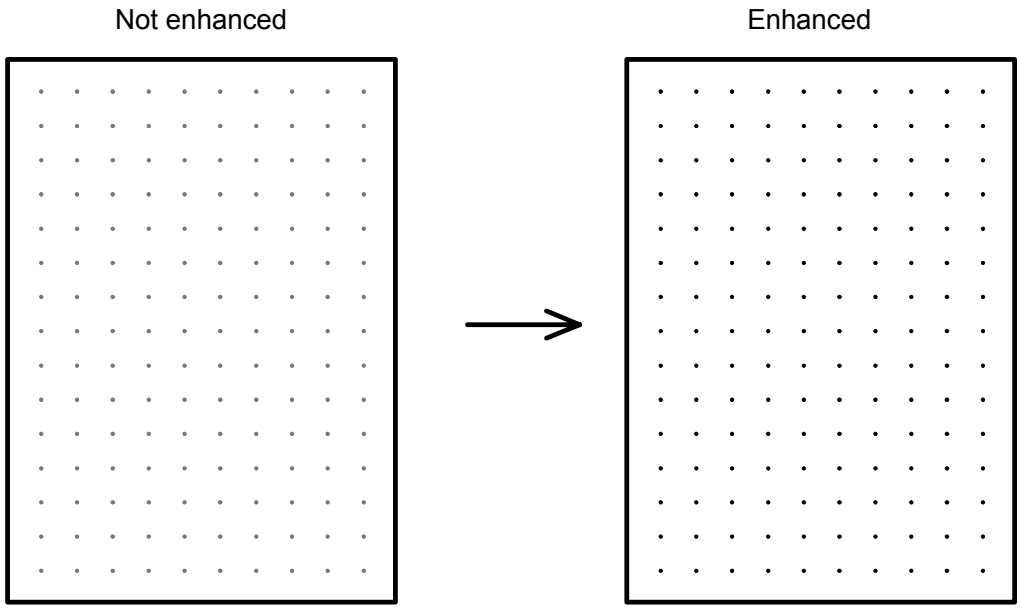
(1) In the factory, we select the setting value “0” (Lamp does not light) as the default setting only for the film.
But if you use some specific kind of film, you may be able to gain a better print image if you make the Separation Lamp light.

(2) Selection of Separation Lamp ON / OFF **only for film** can be done also in the User Mode B.
Refer to [8.2.6 User Mode 6 (Transfer Support LED ON/OFF [Film])] on the page 8-163.
ON or OFF finally you selected in either Service Mode or User Mode is effective as neither of them has the priority of setting.
(Transfer Support LED is the part name for the user, and it means Separation Lamp.)

(36) Dot Enhancement Level (Item No.C7)

If an isolated small dot image (like 1 dot) looks weak, it is possible to make it clearer by the Dot Enhancement Process.
Select any of 4 kinds of Dot Enhancement Levels.

Setting value	Enhancement level	Contents
0	Dot Enhancement Level 0	Not enhanced.
1	Dot Enhancement Level 1	Enhanced.
2	Dot Enhancement Level 2	More enhanced.
3	Dot Enhancement Level 3	Most enhanced.



⚠ NOTE

Selection of Dot Enhancement Level can be done also in the User Mode B.
Refer to [8.2.11 User Mode B (Enhancement of isolated dot image)] on the page 8-181.
The Dot Enhancement Level finally you selected in either Service Mode or User Mode is effective as neither of them has the priority of setting.

(37) Pre-Transfer LED / Separation Corona OFF timing (Tracing) (Item No.C8)

It is possible to decide when both the Separation Corona and the Pre-Transfer LED are turned OFF during the print cycle.

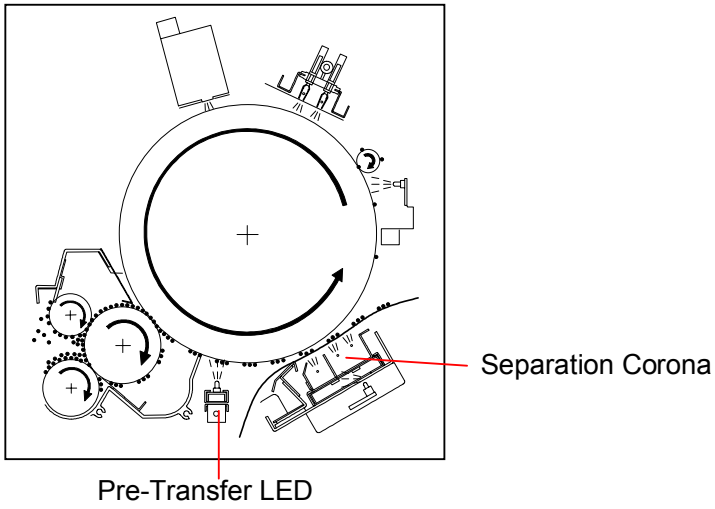
This setting is applied when you print with a tracing paper.

Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Both Separation Corona and Pre-Transfer LED turn OFF normally.
1	When the tracing paper is used, both Separation Corona and Pre-Transfer LED turn OFF 0.12 seconds earlier than the normal timing. For tracing paper and film, they turn OFF normally.

⚠ NOTE

Transfer defect may occur on the trailing edge of the print if you use a thick and strongly curled tracing paper.
You may be able to fix this problem if you select the setting value “1”.
(Transfer defect means that the toner remains on the Drum not transferred onto the print media.)



(38) Pre-Transfer LED / Separation Corona OFF timing (Film) (Item No.C9)

It is possible to decide when both the Separation Corona and the Pre-Transfer LED are turned OFF during the print cycle.

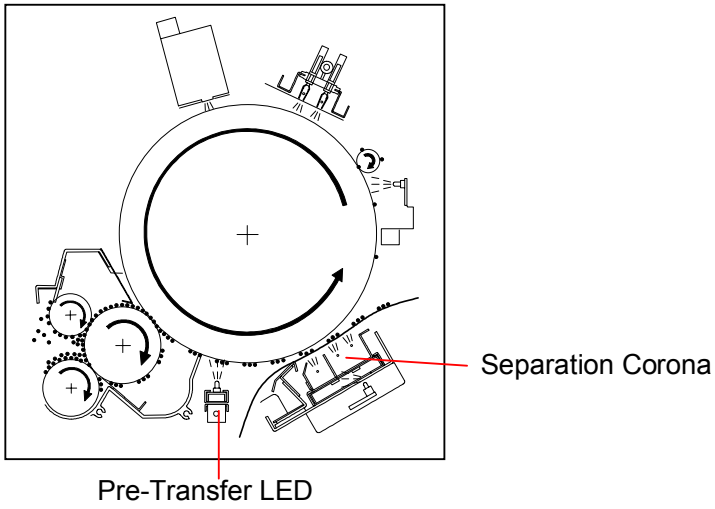
This setting is applied when you print with a film.

Selectable setting values are “0” or “1”, and the contents of them are as follows.

Setting value	Contents
0	Both Separation Corona and Pre-Transfer LED turn OFF normally.
1	When the film is used, both Separation Corona and Pre-Transfer LED turn OFF 0.12 seconds earlier than the normal timing. For tracing paper and film, they turn OFF normally.

⚠ NOTE

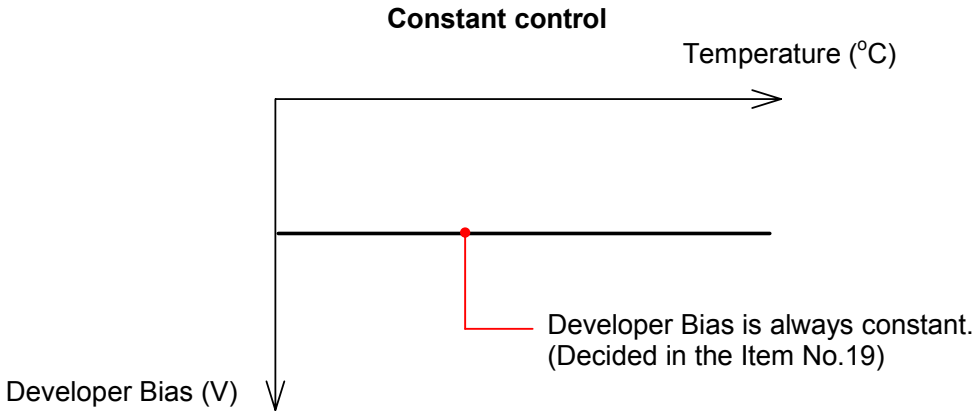
Transfer defect may occur on the trailing edge of the print if you use a thick and strongly curled film.
You may be able to fix this problem if you select the setting value “1”.
(Transfer defect means that the toner remains on the Drum not transferred onto the print media.)

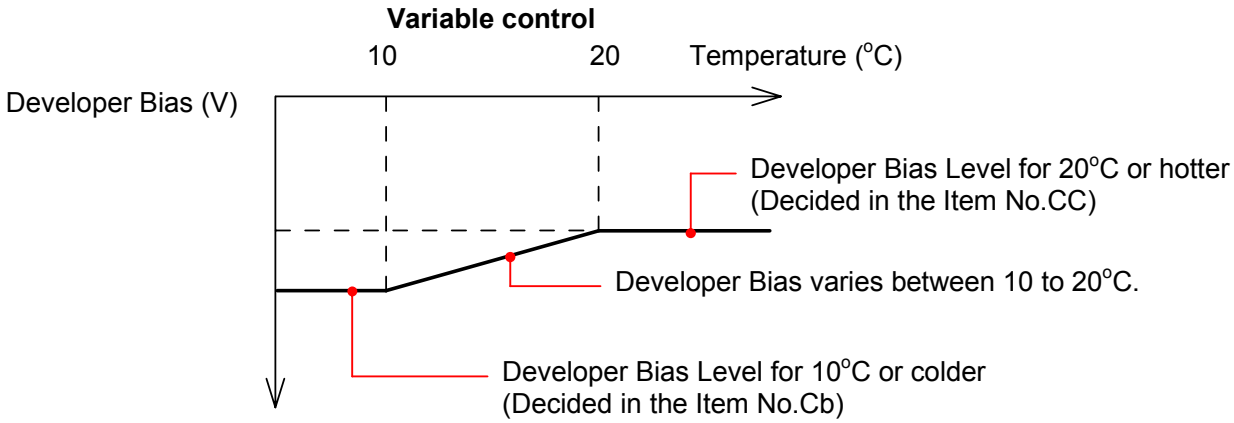


(39) Constant / Variable control of Developer Bias (Item No.CA)

It is possible to control the Developer Bias constantly or variably.
Selectable setting values are “0” or “1”.

Setting value	Control of Developer Bias
0	Constant control (Bias is always constant regardless of the temperature.)
1	Variable control (Bias varies according to the temperature of inside machine.)





Reference

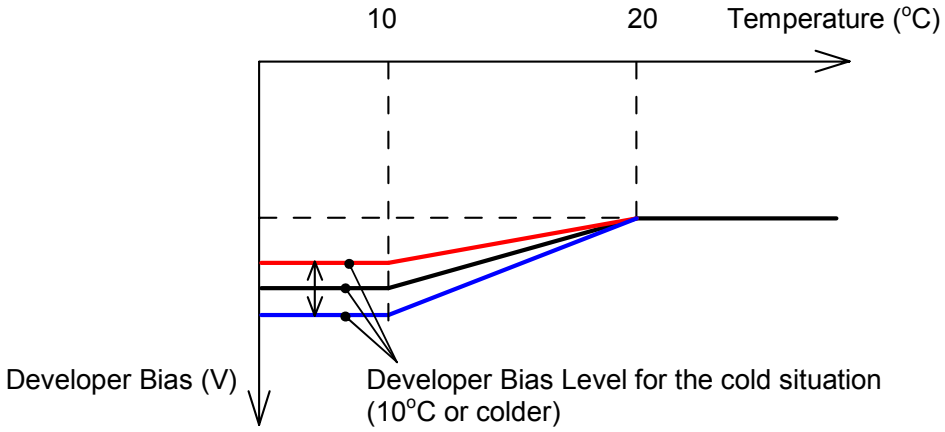
Density of print tends to become lighter if the temperature of inside machine is colder.
So it is better for getting an even image density to make the Developer Bias higher if the temperature is colder.
You will specify each Developer Bias Level for the cold situation (10°C or colder) in the Item No.Cb and for the hot situation (20°C or hotter) in the Item No.CC.
Between 10°C and 20°C, the Developer Bias is automatically calculated considering the Developer Bias Levels specified in these Item No.

⚠ NOTE

Default setting value is “1” (Variable control) and you do not have to change in the usual case.
Please select “0” (Constant control) only when you check and adjust the BIAS PCB.

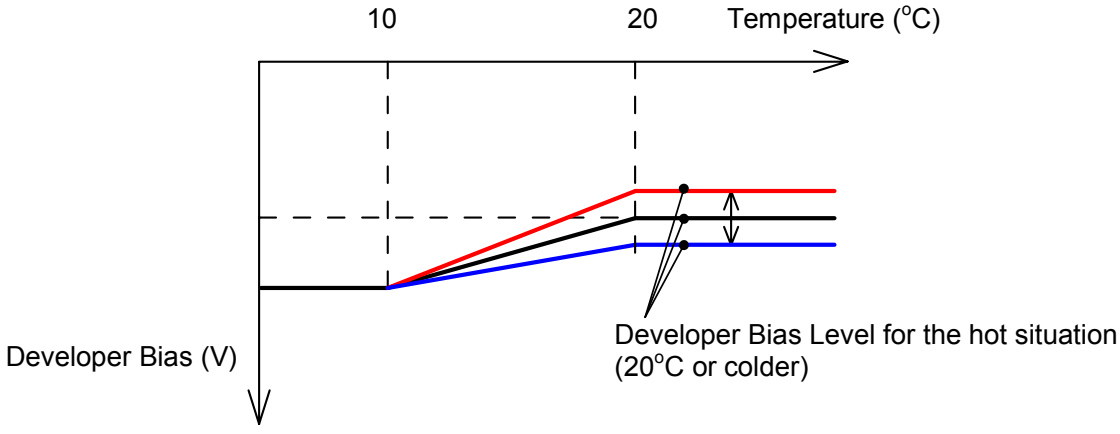
(40) Developer Bias at 10°C or colder
(When Developer Bias is controlled variably) (Item No.Cb)

It is possible to change the Developer Bias Level for the cold situation (10°C or colder), which is applied when the Developer Bias is controlled variably.
If the temperature of inside machine is 10°C or colder, the Developer Bias is kept constantly according to the value specified in this Item No.Cb.
And between 10°C and 20°C, the Developer Bias is automatically calculated considering this level.
The setting unit is hexadecimal, and the setting range is from 000 to 0FF.
If you increase the value, the density of print tends to get darker.



(41) Developer Bias at 20°C or hotter
(When Developer Bias is controlled variably) (Item No.CC)

It is possible to change the Developer Bias Level for the hot situation (20°C or hotter), which is applied when the Developer Bias is controlled variably.
If the temperature of inside machine is 20°C or hotter, the Developer Bias is kept constantly according to the value specified in this Item No.CC.
And between 10°C and 20°C, the Developer Bias is automatically calculated considering this level.
The setting unit is hexadecimal, and the setting range is from 000 to 0FF.
If you increase the value, the density of print tends to get darker.



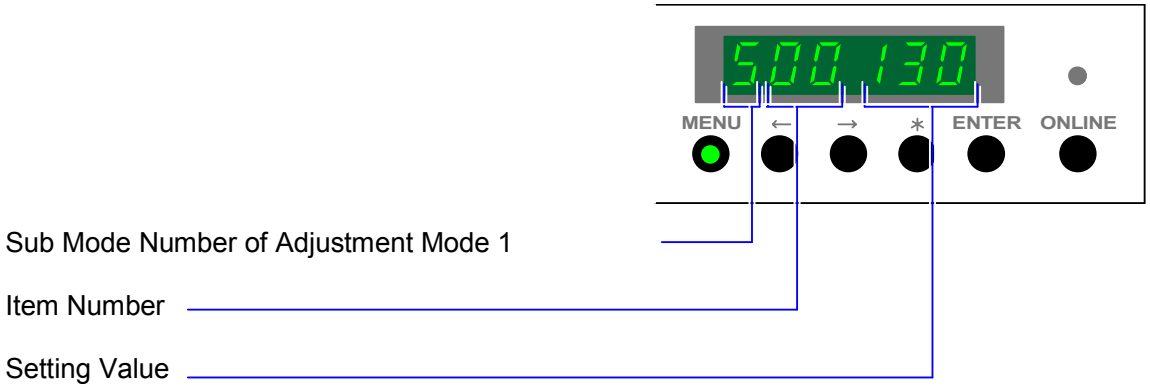
8.1.6 Adjustment Mode 1 (Sub Mode 5)

8.1.6.1 Function

It is possible to adjust several setting items.
Please refer to [8.1.6.4 Setting item list] on and after the page 8-85 as for the brief information of the setting items.
And please refer to [8.1.6.5 Explanation for each setting item] on and after the page 8-92 as for the details for the setting items.

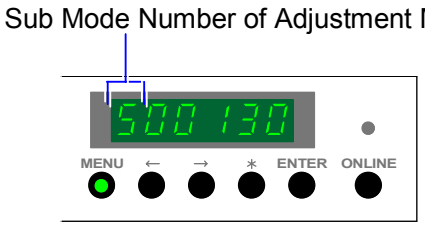
8.1.6.2 Indication on the Operation Panel

The 1st digit from the left indicates “5” which is the Sub Mode Number of “Adjustment Mode 1”.
2nd and 3rd digits from the left indicate the Item Number.
4th, 5th and 6th digits indicate the setting value of the selected Item Number.



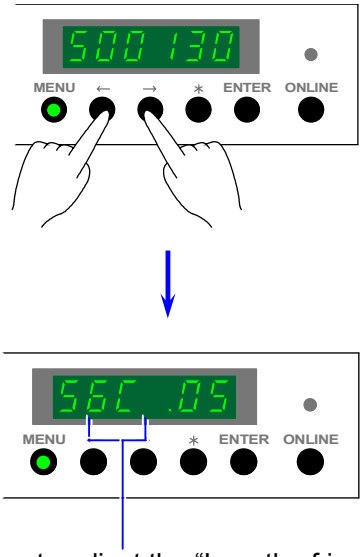
8.1.6.3 Operation (Example of usage)

1) Enter the Service Mode, and then indicate the Sub Mode Number “5” on the 1st digit from the left of the Status Display pressing the [MENU] Key.

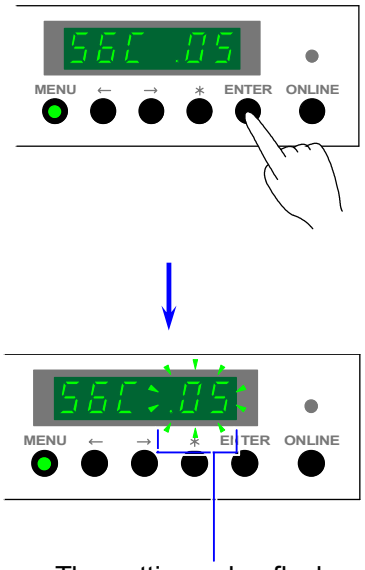


2) 2nd and 3rd digits from the left indicate the Item Number presently selected.
As you can indicate another Item Number pressing [∢] Key (increment) and [∣>] Key (decrement), indicate the Item Number of which setting you would like to change.
Please refer to [8.1.6.4 Setting item list] on and after the page 8-85 to know the contents of setting.

Example : We will adjust “Length of image for Roll (Roll 1 / PPC / Large size).
Its Item Number is “6C”.

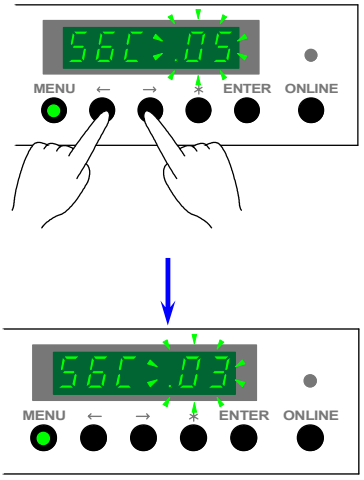


3) After selecting the necessary Item Number, press the [ENTER] Key.
The setting value indicated on 4th, 5th and 6th digits starts flashing and it becomes possible to change the setting value.

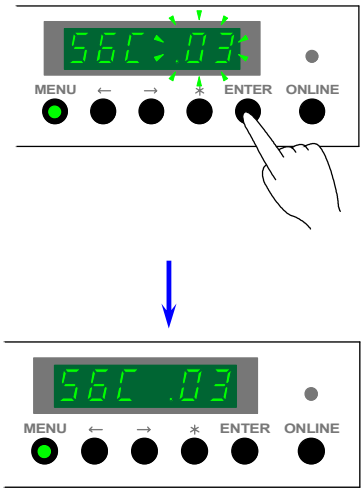


The setting value flashes.

4) Change the setting value pressing [≪] Key (increment) and [≫] Key (decrement).

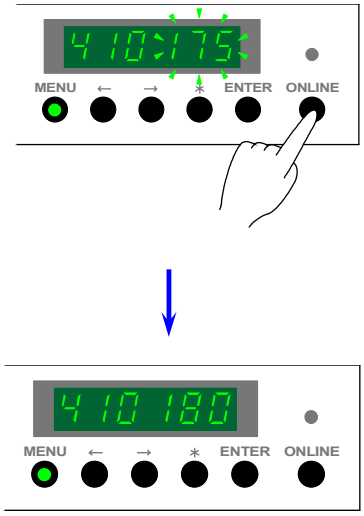


5) Press the [ENTER] Key to decide the new setting value.
The setting value stops flashing after the decision.



NOTE

If you press the [ONLINE] Key when the setting value is flashing (before the decision), new setting value is not decided and the old setting value is recovered.



(Old setting value is recovered.)

8.1.6.4 Setting item list

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
00	Image placement for cut sheet media (PPC / Large size)	100	OK	0 to 200	0.1mm	8-92
01	Image placement for cut sheet media (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-92
02	Image placement for cut sheet media (PPC / Small size)	100	OK	0 to 200	0.1mm	8-92
03	Image placement for cut sheet media (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-92
04	Image placement for cut sheet media (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-92
05	Image placement for cut sheet media (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-92
06	Image placement for cut sheet media (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-92
07	Image placement for cut sheet media (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-92
08	Image placement for cut sheet media (Film / Large size)	100	OK	0 to 200	0.1mm	8-92
09	Image placement for cut sheet media (Film / Medium size)	100	OK	0 to 200	0.1mm	8-92
0A	Image placement for cut sheet media (Film / Small size)	100	OK	0 to 200	0.1mm	8-92
0b	Image placement for cut sheet media (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-92
0C	Image placement for Roll 1 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-93
0d	Image placement for Roll 1 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-93
0E	Image placement for Roll 1 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-93
0F	Image placement for Roll 1 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-93
10	Image placement for Roll 1 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-93
11	Image placement for Roll 1 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-93
12	Image placement for Roll 1 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-93
13	Image placement for Roll 1 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-93
14	Image placement for Roll 1 (Film / Large size)	100	OK	0 to 200	0.1mm	8-93
15	Image placement for Roll 1 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-93
16	Image placement for Roll 1 (Film / Small size)	100	OK	0 to 200	0.1mm	8-93
17	Image placement for Roll 1 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-93

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
18	Image placement for Roll 2 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-94
19	Image placement for Roll 2 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-94
1A	Image placement for Roll 2 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-94
1b	Image placement for Roll 2 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-94
1C	Image placement for Roll 2 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-94
1d	Image placement for Roll 2 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-94
1E	Image placement for Roll 2 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-94
1F	Image placement for Roll 2 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-94
20	Image placement for Roll 2 (Film / Large size)	100	OK	0 to 200	0.1mm	8-94
21	Image placement for Roll 2 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-94
22	Image placement for Roll 2 (Film / Small size)	100	OK	0 to 200	0.1mm	8-94
23	Image placement for Roll 2 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-94
24	Image placement for Roll 3 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-95
25	Image placement for Roll 3 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-95
26	Image placement for Roll 3 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-95
27	Image placement for Roll 3 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-95
28	Image placement for Roll 3 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-95
29	Image placement for Roll 3 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-95
2A	Image placement for Roll 3 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-95
2b	Image placement for Roll 3 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-95
2C	Image placement for Roll 3 (Film / Large size)	100	OK	0 to 200	0.1mm	8-95
2d	Image placement for Roll 3 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-95
2E	Image placement for Roll 3 (Film / Small size)	100	OK	0 to 200	0.1mm	8-95
2F	Image placement for Roll 3 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-95

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
30	Image placement for Roll 4 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-96
31	Image placement for Roll 4 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-96
32	Image placement for Roll 4 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-96
33	Image placement for Roll 4 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-96
34	Image placement for Roll 4 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-96
35	Image placement for Roll 4 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-96
36	Image placement for Roll 4 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-96
37	Image placement for Roll 4 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-96
38	Image placement for Roll 4 (Film / Large size)	100	OK	0 to 200	0.1mm	8-96
39	Image placement for Roll 4 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-96
3A	Image placement for Roll 4 (Film / Small size)	100	OK	0 to 200	0.1mm	8-96
3b	Image placement for Roll 4 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-96
3C	Trailing margin for Roll 1 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-97
3d	Trailing margin for Roll 1 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-97
3E	Trailing margin for Roll 1 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-97
3F	Trailing margin for Roll 1 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-97
40	Trailing margin for Roll 1 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-97
41	Trailing margin for Roll 1 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-97
42	Trailing margin for Roll 1 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-97
43	Trailing margin for Roll 1 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-97
44	Trailing margin for Roll 1 (Film / Large size)	100	OK	0 to 200	0.1mm	8-97
45	Trailing margin for Roll 1 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-97
46	Trailing margin for Roll 1 (Film / Small size)	100	OK	0 to 200	0.1mm	8-97
47	Trailing margin for Roll 1 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-97

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
48	Trailing margin for Roll 2 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-98
49	Trailing margin for Roll 2 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-98
4A	Trailing margin for Roll 2 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-98
4b	Trailing margin for Roll 2 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-98
4C	Trailing margin for Roll 2 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-98
4d	Trailing margin for Roll 2 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-98
4E	Trailing margin for Roll 2 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-98
4F	Trailing margin for Roll 2 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-98
50	Trailing margin for Roll 2 (Film / Large size)	100	OK	0 to 200	0.1mm	8-98
51	Trailing margin for Roll 2 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-98
52	Trailing margin for Roll 2 (Film / Small size)	100	OK	0 to 200	0.1mm	8-98
53	Trailing margin for Roll 2 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-98
54	Trailing margin for Roll 3 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-99
55	Trailing margin for Roll 3 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-99
56	Trailing margin for Roll 3 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-99
57	Trailing margin for Roll 3 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-99
58	Trailing margin for Roll 3 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-99
59	Trailing margin for Roll 3 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-99
5A	Trailing margin for Roll 3 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-99
5b	Trailing margin for Roll 3 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-99
5C	Trailing margin for Roll 3 (Film / Large size)	100	OK	0 to 200	0.1mm	8-99
5d	Trailing margin for Roll 3 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-99
5E	Trailing margin for Roll 3 (Film / Small size)	100	OK	0 to 200	0.1mm	8-99
5F	Trailing margin for Roll 3 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-99

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
60	Trailing margin for Roll 4 (PPC / Large size)	100	OK	0 to 200	0.1mm	8-100
61	Trailing margin for Roll 4 (PPC / Medium size)	100	OK	0 to 200	0.1mm	8-100
62	Trailing margin for Roll 4 (PPC / Small size)	100	OK	0 to 200	0.1mm	8-100
63	Trailing margin for Roll 4 (PPC / Smallest size)	100	OK	0 to 200	0.1mm	8-100
64	Trailing margin for Roll 4 (Tracing / Large size)	100	OK	0 to 200	0.1mm	8-100
65	Trailing margin for Roll 4 (Tracing / Medium size)	100	OK	0 to 200	0.1mm	8-100
66	Trailing margin for Roll 4 (Tracing / Small size)	100	OK	0 to 200	0.1mm	8-100
67	Trailing margin for Roll 4 (Tracing / Smallest size)	100	OK	0 to 200	0.1mm	8-100
68	Trailing margin for Roll 4 (Film / Large size)	100	OK	0 to 200	0.1mm	8-100
69	Trailing margin for Roll 4 (Film / Medium size)	100	OK	0 to 200	0.1mm	8-100
6A	Trailing margin for Roll 4 (Film / Small size)	100	OK	0 to 200	0.1mm	8-100
6b	Trailing margin for Roll 4 (Film / Smallest size)	100	OK	0 to 200	0.1mm	8-100
6C	Length of image for Roll 1 (PPC / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
6d	Length of image for Roll 1 (PPC / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
6E	Length of image for Roll 1 (PPC / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
6F	Length of image for Roll 1 (PPC / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
70	Length of image for Roll 1 (Tracing / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
71	Length of image for Roll 1 (Tracing / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
72	Length of image for Roll 1 (Tracing / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
73	Length of image for Roll 1 (Tracing / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
74	Length of image for Roll 1 (Film / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
75	Length of image for Roll 1 (Film / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
76	Length of image for Roll 1 (Film / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-101
77	Length of image for Roll 1 (Film / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-101

Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
78	Length of image for Roll 2 (PPC / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
79	Length of image for Roll 2 (PPC / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
7A	Length of image for Roll 2 (PPC / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
7b	Length of image for Roll 2 (PPC / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
7C	Length of image for Roll 2 (Tracing / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
7d	Length of image for Roll 2 (Tracing / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
7E	Length of image for Roll 2 (Tracing / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
7F	Length of image for Roll 2 (Tracing / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
80	Length of image for Roll 2 (Film / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
81	Length of image for Roll 2 (Film / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
82	Length of image for Roll 2 (Film / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
83	Length of image for Roll 2 (Film / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-102
84	Length of image for Roll 3 (PPC / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
85	Length of image for Roll 3 (PPC / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
86	Length of image for Roll 3 (PPC / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
87	Length of image for Roll 3 (PPC / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
88	Length of image for Roll 3 (Tracing / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
89	Length of image for Roll 3 (Tracing / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
8A	Length of image for Roll 3 (Tracing / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
8b	Length of image for Roll 3 (Tracing / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
8C	Length of image for Roll 3 (Film / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
8d	Length of image for Roll 3 (Film / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
8E	Length of image for Roll 3 (Film / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-103
8F	Length of image for Roll 3 (Film / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-103

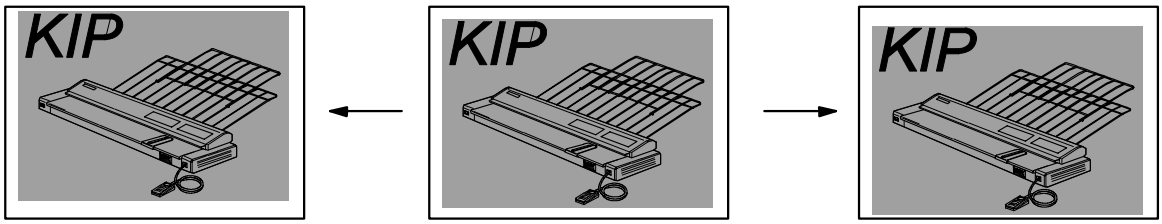
Item No.	Contents of the setting	Default value	Standard / Special setting	Adjustable Range	Unit of setting value	Refer to page;
90	Length of image for Roll 4 (PPC / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
91	Length of image for Roll 4 (PPC / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
92	Length of image for Roll 4 (PPC / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
93	Length of image for Roll 4 (PPC / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
94	Length of image for Roll 4 (Tracing / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
95	Length of image for Roll 4 (Tracing / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
96	Length of image for Roll 4 (Tracing / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
97	Length of image for Roll 4 (Tracing / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
98	Length of image for Roll 4 (Film / Large size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
99	Length of image for Roll 4 (Film / Medium size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
9A	Length of image for Roll 4 (Film / Small size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
9b	Length of image for Roll 4 (Film / Smallest size)	0.00	OK	-1.00 to 1.00	0.01%	8-104
9C	Trailing margin for cut sheet media (Large size)	100	NO	0 to 200	0.1mm	8-105

8.1.6.5 Explanation for each setting item

(1) Image placement for cut sheet media (Items from No.00 to 0b)

It is possible to adjust the vertical position of print image on the media.
These settings are effective when you print with a cut sheet media.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the whole image is shifted to the trailing edge side, namely the leading margin on the print becomes wider.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
00	Plain paper	Large	06	Tracing paper	Small
01	Plain paper	Medium	07	Tracing paper	Smallest
02	Plain paper	Small	08	Film	Large
03	Plain paper	Smallest	09	Film	Medium
04	Tracing paper	Large	0A	Film	Small
05	Tracing paper	Medium	0b	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

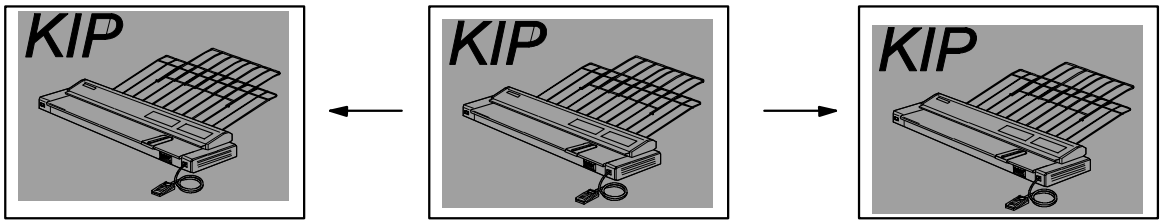
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 00 to 0b are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(2) Image placement for Roll 1 (Items from No.0C to 17)

It is possible to adjust the vertical position of print image on the media.
These settings are effective when you print with a roll media fed from the Roll Deck 1.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the whole image is shifted to the trailing edge side, namely the leading margin on the print becomes wider.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
0C	Plain paper	Large	12	Tracing paper	Small
0d	Plain paper	Medium	13	Tracing paper	Smallest
0E	Plain paper	Small	14	Film	Large
0F	Plain paper	Smallest	15	Film	Medium
10	Tracing paper	Large	16	Film	Small
11	Tracing paper	Medium	17	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

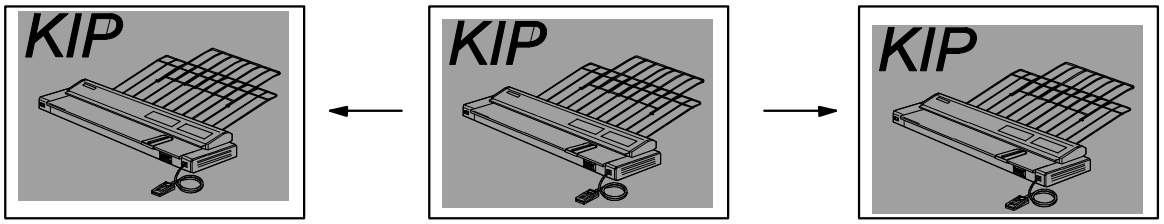
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 0C to 17 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(3) Image placement for Roll 2 (Items from No.18 to 23)

It is possible to adjust the vertical position of print image on the media.
These settings are effective when you print with a roll media fed from the Roll Deck 2.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the whole image is shifted to the trailing edge side, namely the leading margin on the print becomes wider.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
18	Plain paper	Large	1E	Tracing paper	Small
19	Plain paper	Medium	1F	Tracing paper	Smallest
1A	Plain paper	Small	20	Film	Large
1b	Plain paper	Smallest	21	Film	Medium
1C	Tracing paper	Large	22	Film	Small
1d	Tracing paper	Medium	23	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

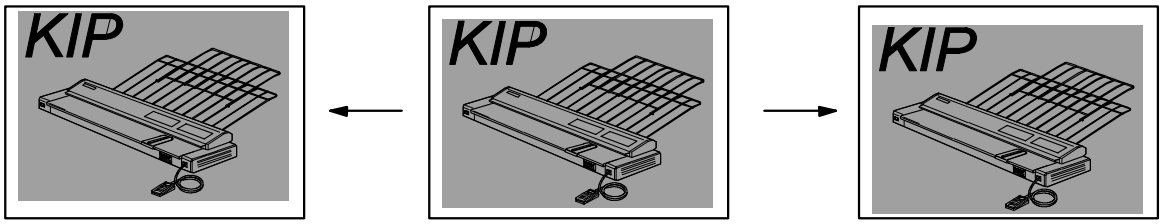
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 18 to 23 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(4) Image placement for Roll 3 (Items from No.24 to 2F)

It is possible to adjust the vertical position of print image on the media.
These settings are effective when you print with a roll media fed from the Roll Deck 3.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the whole image is shifted to the trailing edge side, namely the leading margin on the print becomes wider.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
24	Plain paper	Large	2A	Tracing paper	Small
25	Plain paper	Medium	2b	Tracing paper	Smallest
26	Plain paper	Small	2C	Film	Large
27	Plain paper	Smallest	2d	Film	Medium
28	Tracing paper	Large	2E	Film	Small
29	Tracing paper	Medium	2F	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

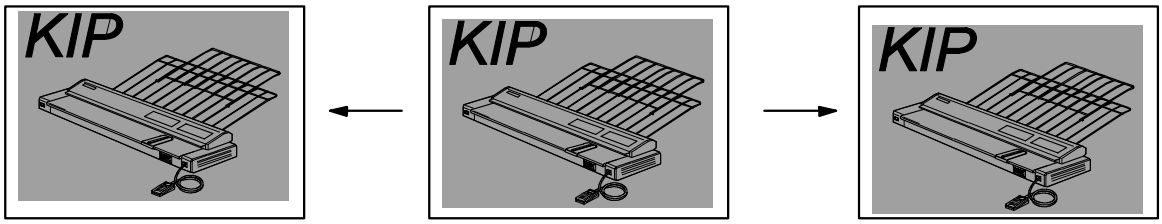
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 24 to 2F are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(5) Image placement for Roll 4 (Items from No.30 to 3b)

It is possible to adjust the vertical position of print image on the media.
These settings are effective when you print with a roll media fed from the Roll Deck 4.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the whole image is shifted to the trailing edge side, namely the leading margin on the print becomes wider.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
30	Plain paper	Large	36	Tracing paper	Small
31	Plain paper	Medium	37	Tracing paper	Smallest
32	Plain paper	Small	38	Film	Large
33	Plain paper	Smallest	39	Film	Medium
34	Tracing paper	Large	3A	Film	Small
35	Tracing paper	Medium	3b	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

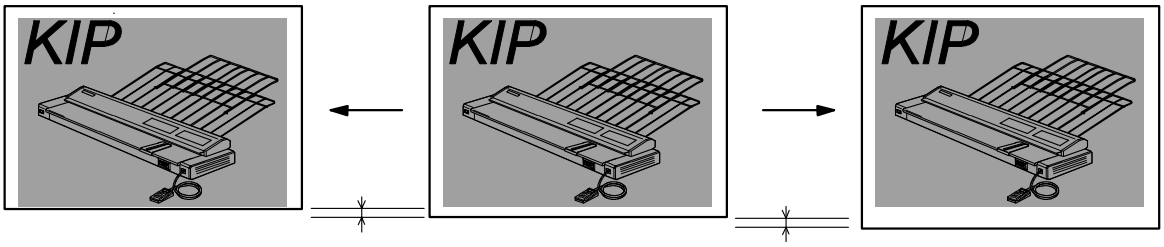
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 30 to 3b are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(6) Trailing margin for Roll 1 (Items from No.3C to 47)

It is possible to adjust the length of margin on the trailing edge of print.
These settings are effective when you print with a roll media fed from the Roll Deck 1.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the print comes to have a longer margin.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
3C	Plain paper	Large	42	Tracing paper	Small
3d	Plain paper	Medium	43	Tracing paper	Smallest
3E	Plain paper	Small	44	Film	Large
3F	Plain paper	Smallest	45	Film	Medium
40	Tracing paper	Large	46	Film	Small
41	Tracing paper	Medium	47	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

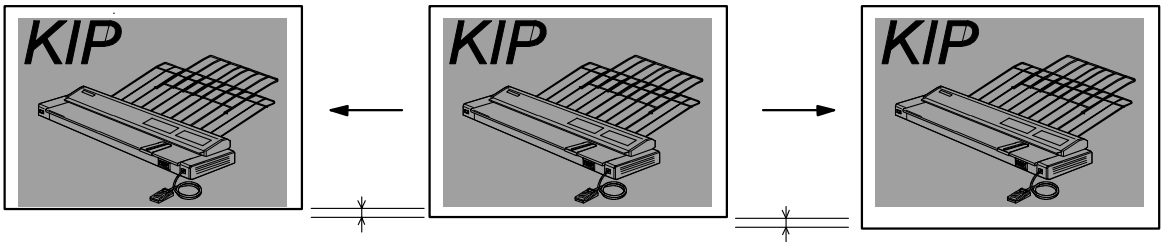
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 3C to 47 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(7) Trailing margin for Roll 2 (Items from No.48 to 53)

It is possible to adjust the length of margin on the trailing edge of print.
These settings are effective when you print with a roll media fed from the Roll Deck 2.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the print comes to have a longer margin.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
48	Plain paper	Large	4E	Tracing paper	Small
49	Plain paper	Medium	4F	Tracing paper	Smallest
4A	Plain paper	Small	50	Film	Large
4b	Plain paper	Smallest	51	Film	Medium
4C	Tracing paper	Large	52	Film	Small
4d	Tracing paper	Medium	53	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

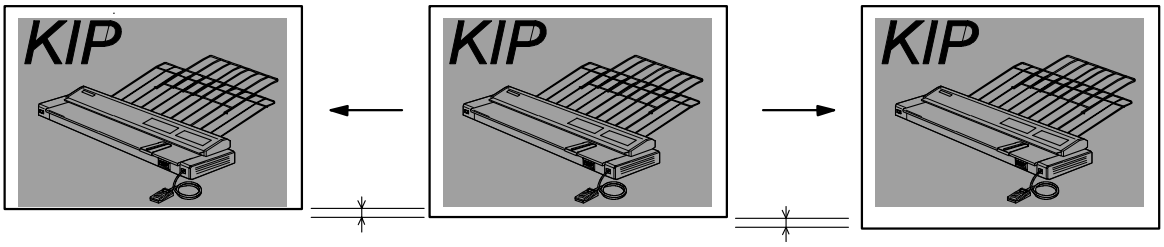
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 48 to 53 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(8) Trailing margin for Roll 3 (Items from No.54 to 5F)

It is possible to adjust the length of margin on the trailing edge of print.
These settings are effective when you print with a roll media fed from the Roll Deck 3.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the print comes to have a longer margin.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
54	Plain paper	Large	5A	Tracing paper	Small
55	Plain paper	Medium	5b	Tracing paper	Smallest
56	Plain paper	Small	5C	Film	Large
57	Plain paper	Smallest	5d	Film	Medium
58	Tracing paper	Large	5E	Film	Small
59	Tracing paper	Medium	5F	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

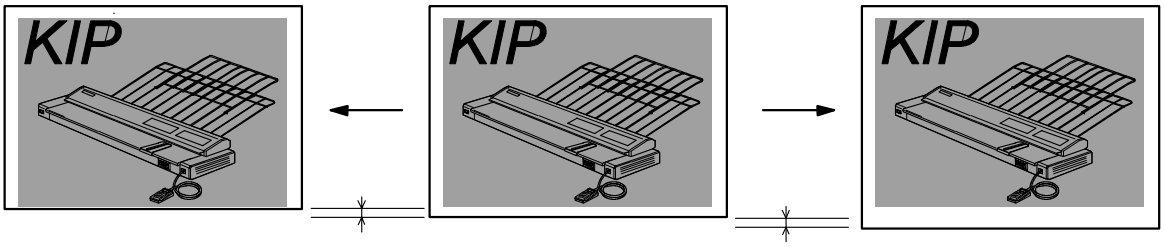
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 54 to 5F are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(9) Trailing margin for Roll 4 (Items from No.60 to 6b)

It is possible to adjust the length of margin on the trailing edge of print.
These settings are effective when you print with a roll media fed from the Roll Deck 4.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm) in all items.
If you increase the setting value, the print comes to have a longer margin.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
60	Plain paper	Large	66	Tracing paper	Small
61	Plain paper	Medium	67	Tracing paper	Smallest
62	Plain paper	Small	68	Film	Large
63	Plain paper	Smallest	69	Film	Medium
64	Tracing paper	Large	6A	Film	Small
65	Tracing paper	Medium	6b	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

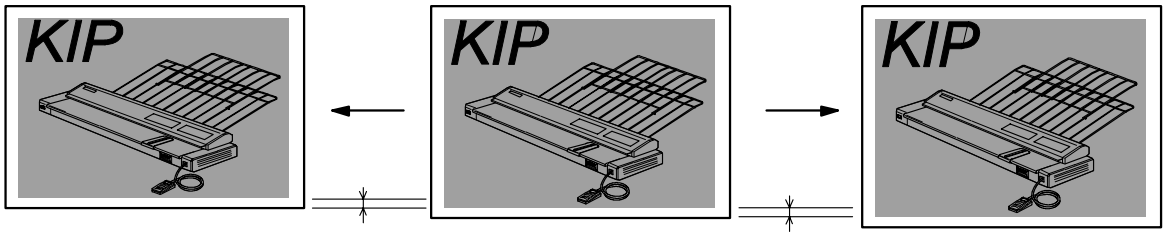
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 60 to 6b are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(10) Length of image for Roll 1 (Items from No.6C to 77)

It is possible to adjust the length of print image.
These settings are effective when you print with a roll media fed from the Roll Deck 1.
The setting unit is 0.01%, and the setting range is from -1.00% to +1.00% in all items.
If you increase the setting value, the print image comes to be longer.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
6C	Plain paper	Large	72	Tracing paper	Small
6d	Plain paper	Medium	73	Tracing paper	Smallest
6E	Plain paper	Small	74	Film	Large
6F	Plain paper	Smallest	75	Film	Medium
70	Tracing paper	Large	76	Film	Small
71	Tracing paper	Medium	77	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

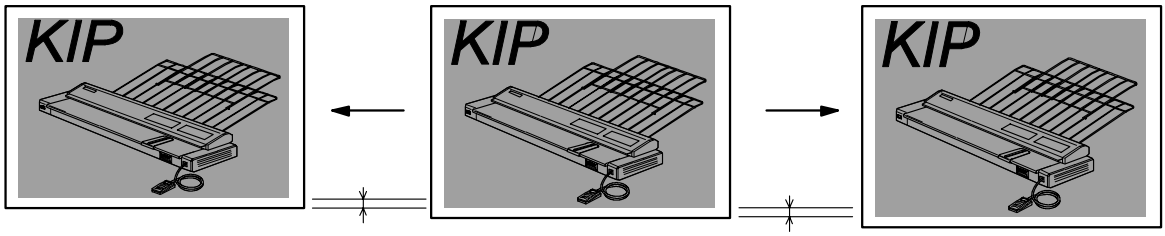
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 6C to 77 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(11) Length of image for Roll 2 (Items from No.78 to 83)

It is possible to adjust the length of print image.
These settings are effective when you print with a roll media fed from the Roll Deck 2.
The setting unit is 0.01%, and the setting range is from -1.00% to +1.00% in all items.
If you increase the setting value, the print image comes to be longer.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
78	Plain paper	Large	7E	Tracing paper	Small
79	Plain paper	Medium	7F	Tracing paper	Smallest
7A	Plain paper	Small	80	Film	Large
7b	Plain paper	Smallest	81	Film	Medium
7C	Tracing paper	Large	82	Film	Small
7d	Tracing paper	Medium	83	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

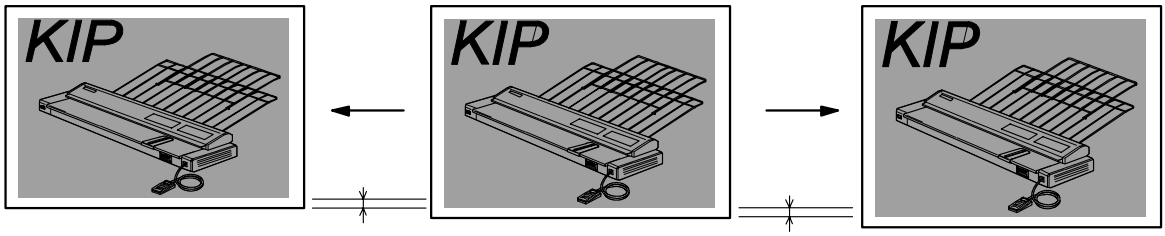
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 78 to 83 are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(12) Length of image for Roll 3 (Items from No.84 to 8F)

It is possible to adjust the length of print image.
These settings are effective when you print with a roll media fed from the Roll Deck 3.
The setting unit is 0.01%, and the setting range is from -1.00% to +1.00% in all items.
If you increase the setting value, the print image comes to be longer.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
84	Plain paper	Large	8A	Tracing paper	Small
85	Plain paper	Medium	8b	Tracing paper	Smallest
86	Plain paper	Small	8C	Film	Large
87	Plain paper	Smallest	8d	Film	Medium
88	Tracing paper	Large	8E	Film	Small
89	Tracing paper	Medium	8F	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

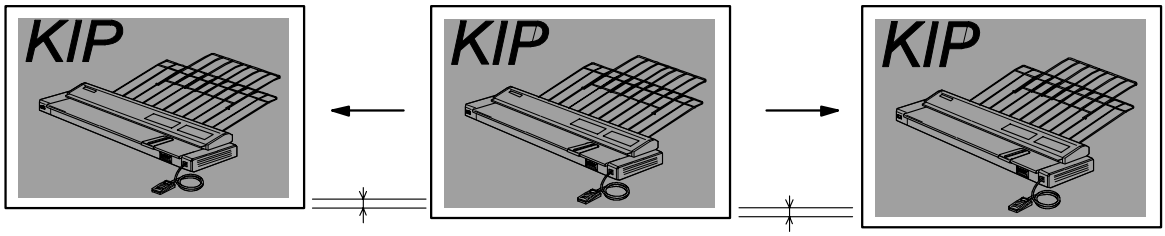
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 84 to 8F are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(13) Length of image for Roll 4 (Items from No.90 to 9b)

It is possible to adjust the length of print image.
These settings are effective when you print with a roll media fed from the Roll Deck 4.
The setting unit is 0.01%, and the setting range is from -1.00% to +1.00% in all items.
If you increase the setting value, the print image comes to be longer.

Setting value is decreased. Setting value is increased.



Exch Item No. has its own target for media type and media size.
Please adjust the proper item.

Item No.	Media type	Media size	Item No.	Media type	Media size
90	Plain paper	Large	96	Tracing paper	Small
91	Plain paper	Medium	97	Tracing paper	Smallest
92	Plain paper	Small	98	Film	Large
93	Plain paper	Smallest	99	Film	Medium
94	Tracing paper	Large	9A	Film	Small
95	Tracing paper	Medium	9b	Film	Smallest

⚠ NOTE

(1) The meanings of media sizes “large”, “medium”, “small” and “smallest” are as follows.

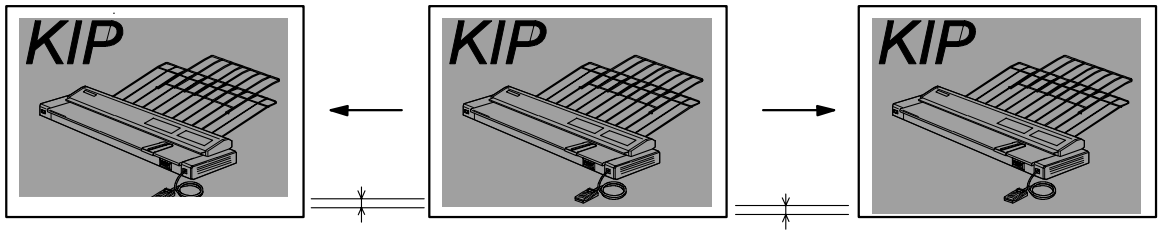
	Metric (Width)	Inch (Width)
Large	A0 and B1	36”, 34” and 30”
Medium	A1 and B2	24” and 22”
Small	A2 and B3	18” and 17”
Smallest	A3	12” and 11”

(2) Item Numbers from 90 to 9b are available to specify both the [Standard Setting Value] and the [Special Setting Value].
Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on and after the page 8-48.

(14) Trailing margin for cut sheet media (Large) (Item No.9C)

It is possible to adjust the length of margin on the trailing edge of print.
This setting is effective when you print with a large size of cut sheet media.
The setting unit is 0.1mm, and the setting range is from 0 to 200 (0mm to 20.0mm).
If you increase the setting value, the print comes to have a shorter margin.

Setting value is decreased. Setting value is increased.



⚠ NOTE

(1) Media sizes “large” are A0, 36”, 34” and 30”.

(2) The length of trailing margin is adjusted by deleting or adding the image on the trailing edge area.

8.1.7 Factory Mode (Sub Mode 6) (Do not use)

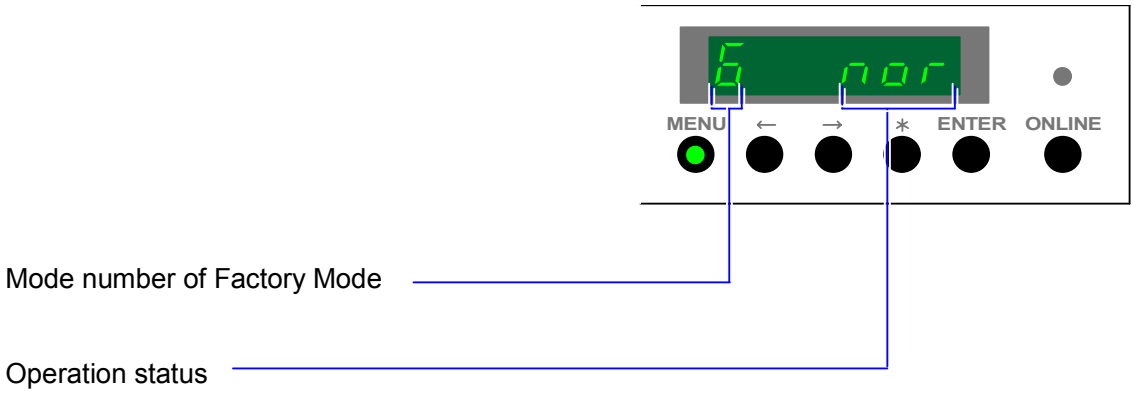
8.1.7.1 Function

It is possible to make the printer operate as usual even without any print media.
(If the media is set on any Roll Deck or Bypass Feeder and it is selected as the source of media, the printer will print as usual using that media.)

> **NOTE**
>
> This function is beneficial only in the machine test on manufacturer's site.
> Do not make any operation in this mode in the service field as it is not beneficial for you.

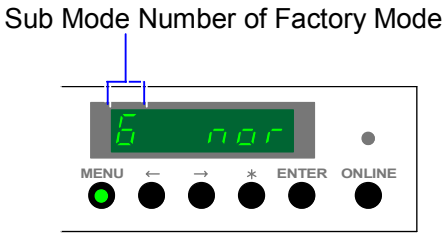
8.1.7.2 Indication of the Operation Panel

The 1st digit from the left indicates "6" which is the mode number of "Factory Mode".
4th, 5th and 6th digits from the left indicate the operation status.



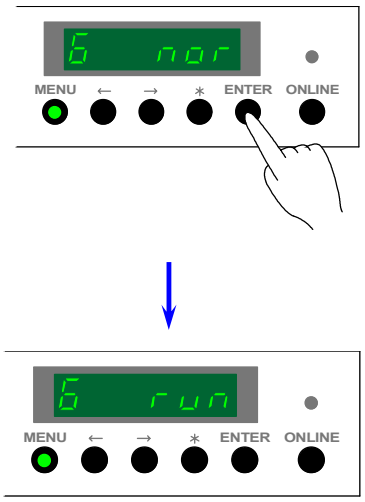
8.1.7.3 Operation

1) Enter the Service Mode, and then indicate the Sub Mode Number “6” on the 1st digit from the left of the Status Display pressing the [MENU] Key.



2) 4th, 5th and 6th digits indicate either “nor” or “run” showing the operation status presently selected. Select either of them according to your requirement pressing the [ENTER] Key.
The meanings of “nor” and “run” are as follows.

Indication	Meaning
nor	Normal mode (Print is not available if no media is set.)
run	Running mode (Print is available even if no media is set.)



⚠ NOTE

All you can do in this mode is to switch between Normal Mode and Ruuning Mode.
If you will make the operation of printer, print from the Test Print Mode.

8.1.8 Error Check Masking Mode (Sub Mode 7)

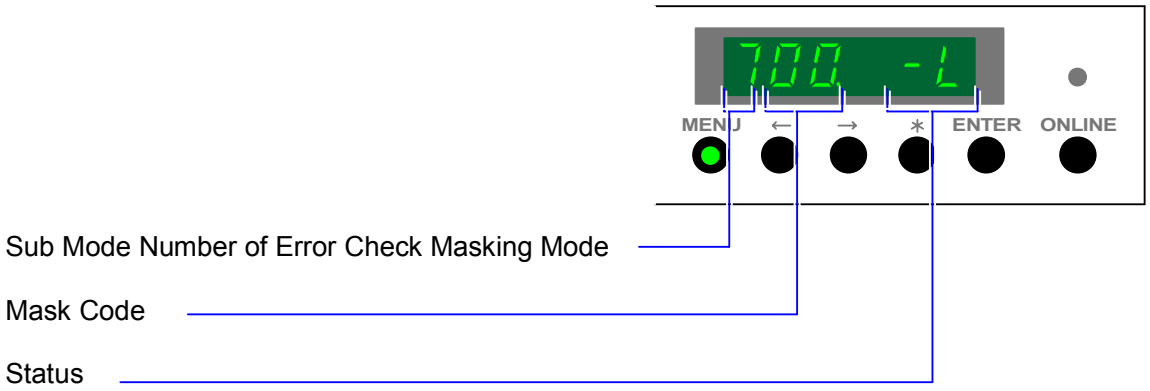
8.1.8.1 Function

You can make it possible for the printer to ignore several errors by masking them in this mode.
The following list shows each Mask Code and its target to mask (Name of error and Error Code).

Mask Code	Name of error	Error Code
00	Fuser Temperature Rising Error	E-01
01	Fuser Over Temperature Error	E-02
02	Fuser Thermostat Error	E-21
03	Paper Feed Motor Error	E-13
04	Drum Motor Error	E-05
05	Fuser Motor Error	E-14
06	Developer Positioning Motor Error	E-49
07	Cutter Motor Error	E-07
08	Counter A Error	E-06
09	Counter B Error	E-06
0A	Wire Cleaning Error	E-16
0b	LED Head Cleaning Error	E-23
0C	Unused	
0d	Unused	
0E	Unused	
0F	Unused	
10	Unused	
11	Unused	
12	Unused	
13	Unused	
14	Unused	
15	Unused	
16	Unused	
17	Unused	
18	Unused	
19	Unused	
1A	Unused	
1b	Unused	
1C	Unused	
1d	Unused	
1E	Unused	
1F	Unused	

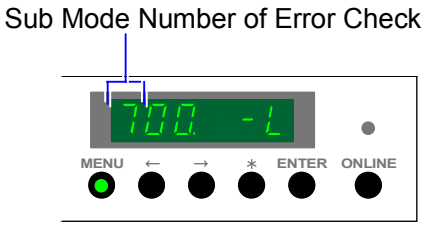
8.1.8.2 Indication of the Operation Panel

The 1st digit from the left indicates “7” which is the Sub Mode number of “Error Check Masking Mode”.
2nd and 3rd digits from the left indicate the Mask Code presently selected.
5th and 6th digits indicate the status (either “-L” or “-H”) showing whether or not the selected item is masked.



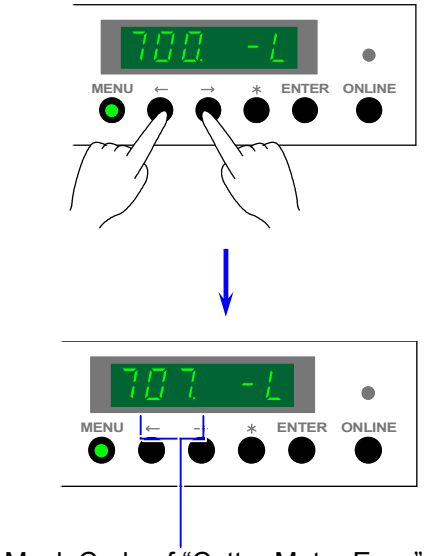
8.1.8.3 Operation (Example of usage)

1) Enter the Service Mode, and then indicate the Sub Mode Number “7” on the 1st digit from the left of the Status Display pressing the [MENU] Key.

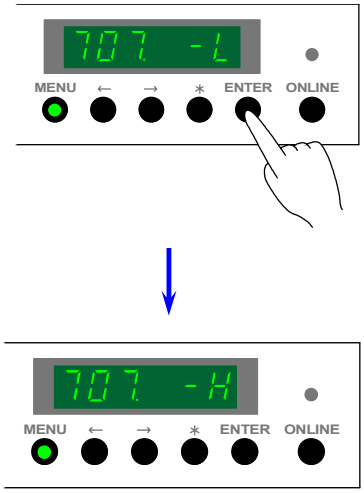


2) 2nd and 3ed digits from the left indicate the Mask Code presently selected.
As you can indicate another Mask Code pressing [≪] Key (increment) and [≫] Key (decrement), indicate the Mask Code of which target item you would like to mask.
Please refer to the list on the page 8-108 to know each Mask Code and its target item.

Example : We will mask the “Cutter Motor Error”.
Its Mask Code is “07”.



3) “-L” is indicated on the 5th and the 6th digits showing that the target item of the selected Mask Code is not masked presently.
Press the [ENTER] Key to mask the target item.
“-H” is indicated when masked.
Even if this error is detected during the later printing, it will be ignored and the printer will continue to print.



> **NOTE**
>
> It is possible to mask not only one item but also some items at once.

4) You have 3 ways to cancel error check masking.

1. Indicate “-L” again pressing the [ENTER] Key.
2. Cancel the Service Mode.
3. Turn off the machine.

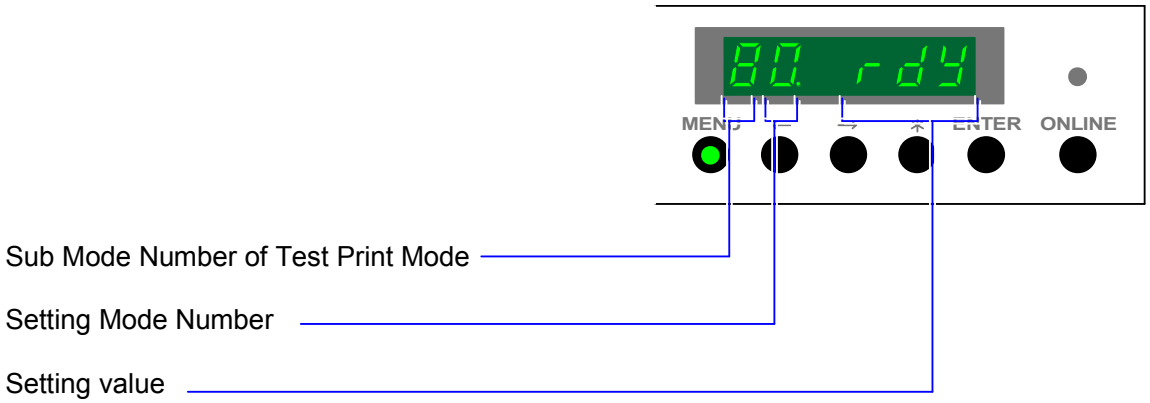
8.1.9 Test Print Mode (Sub Mode 8)

8.1.9.1 Function

Even if no output device is connected to the printer, it is possible to print out the test pattern that is memorized in the circuit.
You can change several settings as number of print, print size, media source and test pattern according to the necessity.

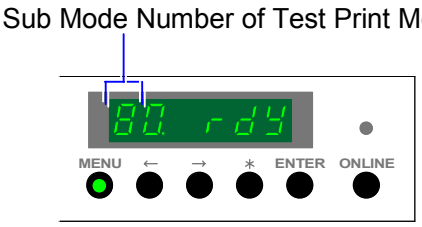
8.1.9.2 Indication of the Operation Panel

The 1st digit from the left indicates “8” which is the Sub Mode number of “Test Print Mode”.
The 2nd digit indicates any Setting Mode Number (from 0 to 8) presently selected.
4th, 5th and 6th digits indicate the setting value of the selected Setting Mode.



8.1.9.3 Operation (Example of usage)

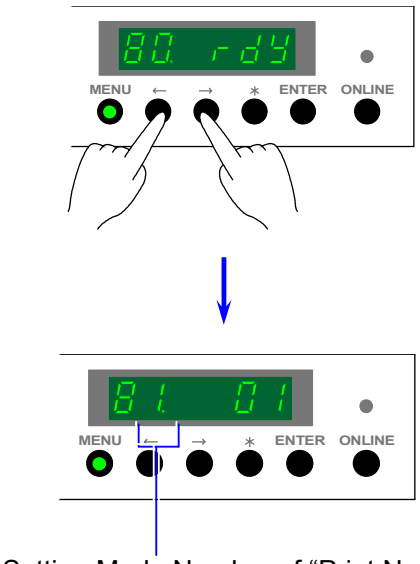
1) Enter the Service Mode, and then indicate the Sub Mode Number “8” on the 1st digit from the left of the Status Display pressing the [MENU] Key.



2) The 2nd digit from the left indicates the Setting Mode Number presently selected.
As you can indicate another Setting Mode Number pressing [⩽] Key (increment) and [⩾] Key (decrement), indicate the Setting Mode Number of which setting value you would like to change.

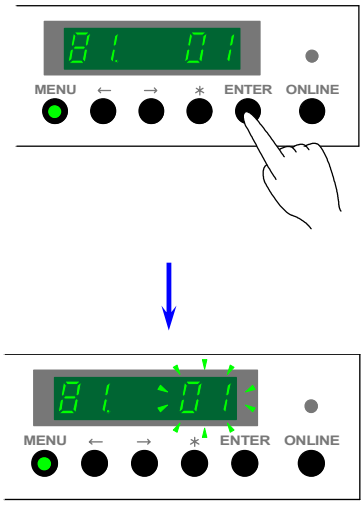
Please refer to the following list to know the contents of each Setting Mode Number. And please refer to the reference page shown in the list to know the detail of each Setting Mode.

Example : We will change the number of print so we select “Print Number Setting Mode”.
Its Setting Mode Number is “1”.



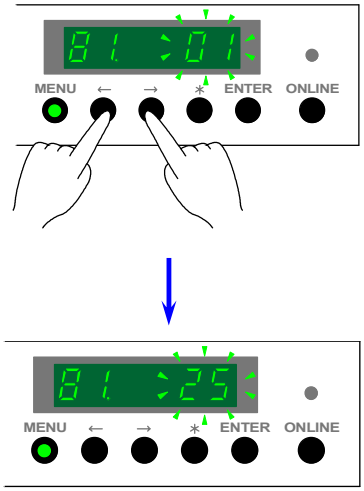
Setting Mode No.	Contents of setting	Reference page
0	Print Mode	8-117
1	Print Number Setting Mode	8-118
2	Test Pattern Selection Mode	8-119
3	Media Source Selection Mode	8-120
4	Cut Length Selection Mode	8-121
5	Media Type Selection Mode (Bypass Feed only)	8-122
6	Interval Print Setting Mode	8-122
7	Negative Image Setting Mode	8-123
8	Mirror Image Setting Mode	8-123

3) Press the [ENTER] Key.
The setting value on 4th, 5th and 6th digits start flashing.
You can change the setting value when it is slashing.

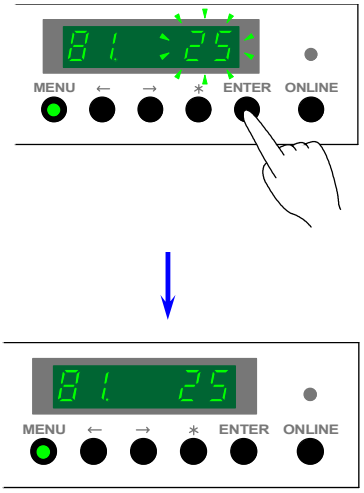


4) Change the setting value pressing [⩽] Key (increment) and [⩾] Key (decrement).

Example : We will print 25 sheets.
So we select “25”.

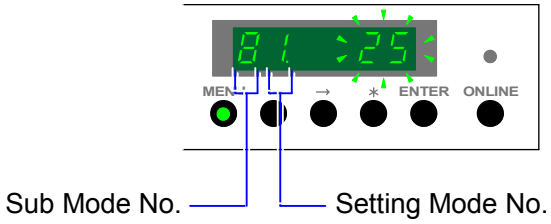


5) Press the [ENTER] Key to decide the setting value.
The setting value on 4th, 5th and 6th digits stops flashing when decided.

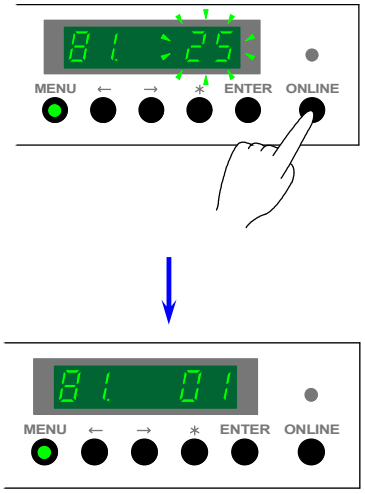


NOTE

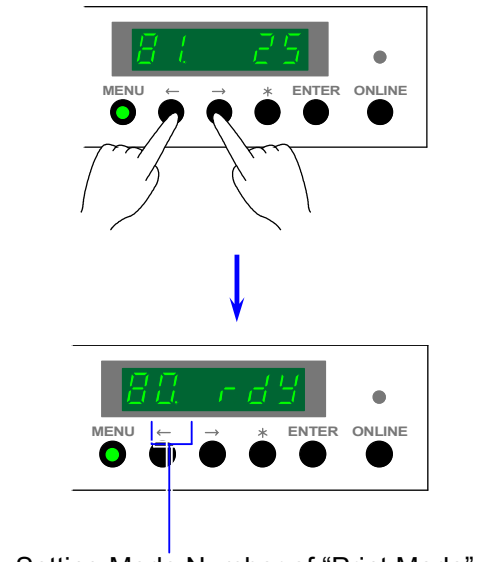
(1) It is impossible to select other Sub Mode Numbers or other Setting Mode Numbers before you decide the setting value.



(2) If you press the [ONLINE] Key before you decide the setting value, the setting value you changed is cleared and the setting value stops flashing returning to the former value.

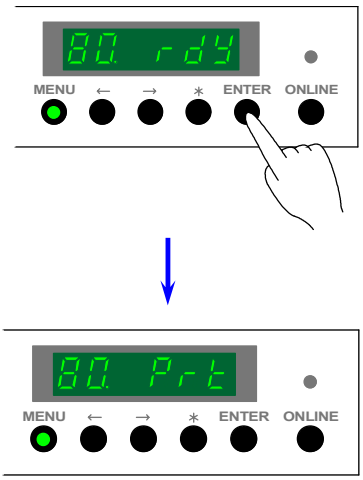


6) If you would like to change other settings, change them repeating the former procedures from 2) to 5).
When you have finished changing all necessary settings, select the Print Mode indicating the Setting Mode Number “0” on the 2nd digit pressing [≤] Key and [≥] Key.



Setting Mode Number of “Print Mode”

7) Confirm that “rdy” is indicated, then press the [ENTER] Key to start printing.
Test Print will be performed obeying your settings.
“Prt” will be indicated during the Test Print.



⚠ NOTE

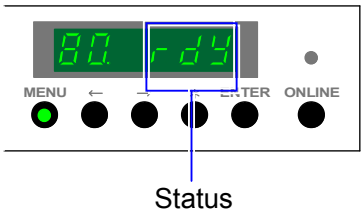
If you would like to stop printing in the middle, press the [ENTER] Key again.

8.1.9.4 Explanation for each Setting Mode

(1) Print Mode (Setting Mode No.0)

This is a mode to start and to stop the Test Print.
To start printing, press the [ENTER] Key when “rdy” is indicated on the Status Display.
To stop (cancel) printing in the middle, press the [ENTER] Key also.

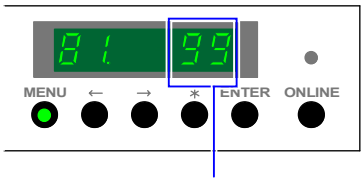
It is also possible in the Print Mode to know the status of printer.
Status Codes are indicated on 4th, 5th and 6th digits.
The meaning of each Status Code is as follows.



Status Code	Meaning
	Printer is ready to print.
	An error occurs.
	A Jam occurs.
	Any door is open.
	No media is set on the selected media source.
	Waiting
	During print.

(2) Print Number Setting Mode (Setting Mode No.1)

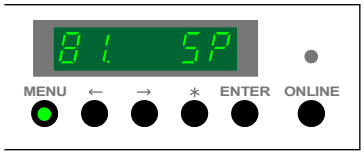
It is possible to decide how many sheets of print should be printed.
The setting range is from 1 to 99.



Number of print (Example : 99 sheets)

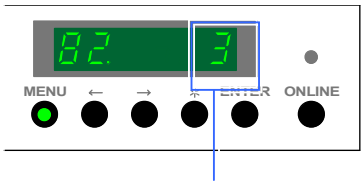
NOTE

You can also select “SP” as the setting value, but it is not for service use but for manufacturer’s use.
(If you select “SP”, 30,000 sheets of print will be printed out.)

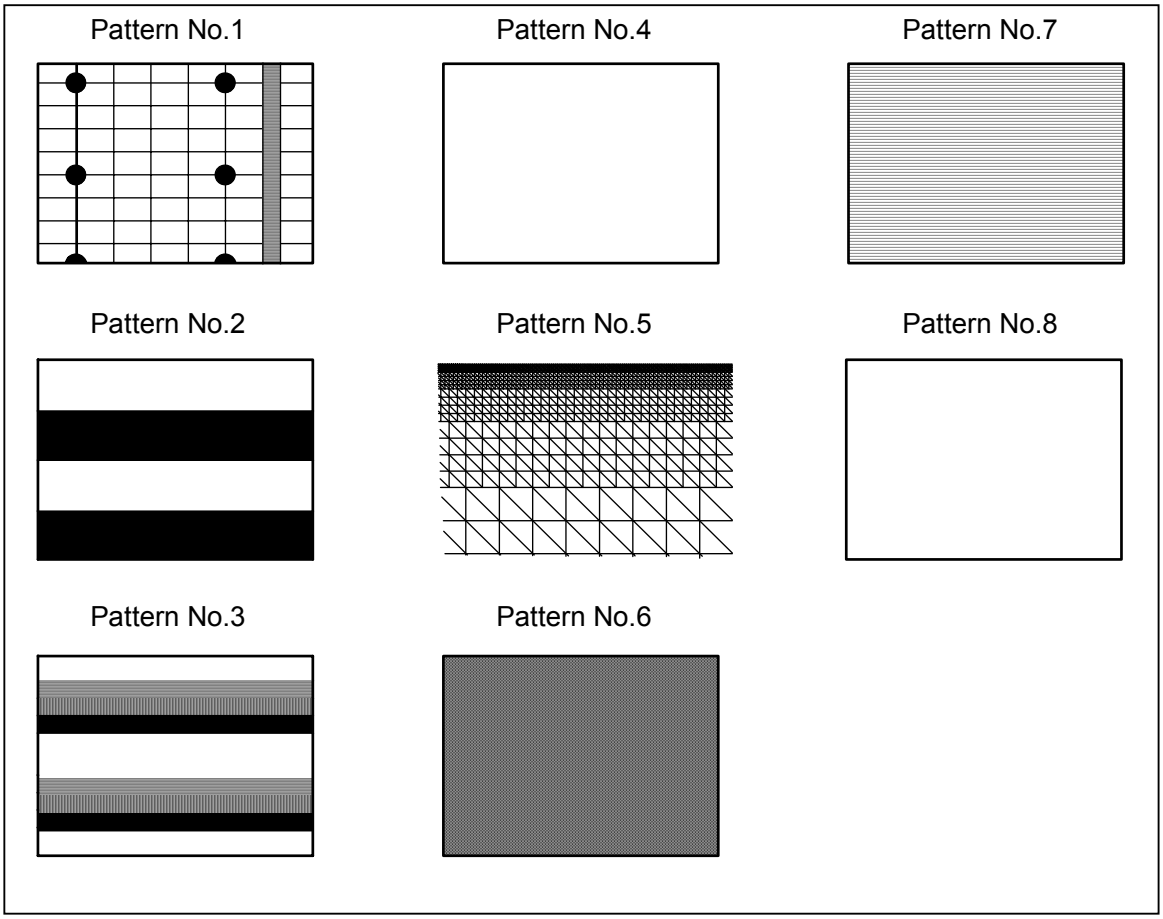


(3) Test Pattern Selection Mode (Setting Mode No.2)

It is possible to select your necessary test pattern.
The following 8 kinds of test pattern are selectable.
Since each test pattern has its own pattern number, please indicate the necessary number.

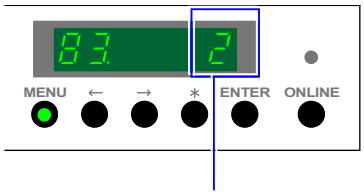


Pattern No. (Example : Pattern No.3)



(4) Media Source Selection Mode (Setting Mode No.3)

It is possible which media source should supply the media for the test print.
Each media source has its own media source number.

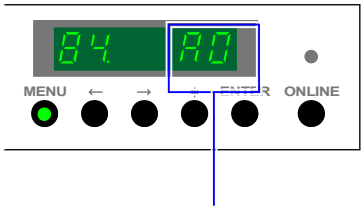


Media source No. (Example : Roll Deck 2)

Media source No.	Media source
0	Bypass Feeder
1	Roll Deck 1
2	Roll Deck 2
3	Roll Deck 3
4	Roll Deck 4

(5) Cut Length Selection Mode (Setting Mode No.4)

It is possible to decide how long the print media should be cut.



Cut length (Example : A0)

Selectable setting values are as follows.

Metric format

Setting value	Cut length
A0	1189mm
A1	841mm
A2	594mm
A3	420mm
A4	297mm
A5	210mm
b1	1030mm
b2	728mm
b3	515mm
b4	364mm
b5	257mm
SC	As required

Inch format

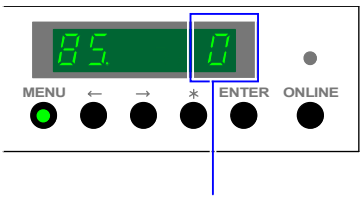
Setting value	Cut length
48	48”
44	44”
36	36”
34	34”
30	30”
24	24”
22	22”
18	18”
17	17”
12	12”
11	11”
8.5	8.5”
SC	As required

NOTE

If you select “SC”, you can send the cutting signal in order to cut the media in a required length.
Start printing, then press the [ENTER] Key at the time you would like to cut the media.
If you do not press the [ENTER] Key, the media will be cut in 6m long or 24m long.

(6) Media Type Selection Mode (Bypass Feed only) (Setting Mode No.5)

If the cut sheet media is used for test printing, it is necessary to change several print settings according to the type of media.
Please select the proper media type number.

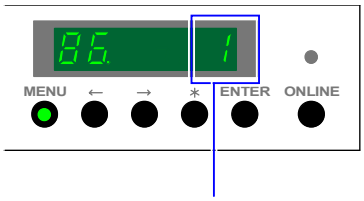


Media type No. (Example : Plain paper)

Media type No.	Media type
0	Plain paper
1	Tracing paper
2	Film

(7) Interval Print Selection Mode (Setting Mode No.6)

It is possible to make interval print.
Selectable setting values are “0” or “1”.



Setting value (Example : Interval print is selected.)

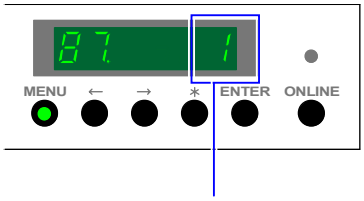
Setting value	Media source
0	Normal print
1	Interval print

Reference

If you make a multiple number of prints in the normal print condition, printer will continuously supply the media, create the print image and eject prints from the exit unit, and it will last without any stop until the last sheet of print is ejected.
But in the interval print, printer will stop every printing action completely after ejecting each sheet of print and goes into the ready condition, then start printing the next sheet

(8) Negative Image Selection Mode (Setting Mode No.7)

It is possible to make a negative image print.
Selectable setting values are “0” or “1”.

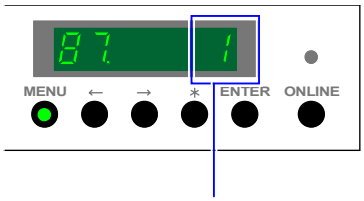


Setting value (Example : Negative image is selected.)

Setting value	Media source
0	Normal image
1	Negative image

(9) Mirror Image Selection Mode (Setting Mode No.8)

It is possible to make a mirror image print.
Selectable setting values are “0” or “1”.



Setting value (Example : Mirror image is selected.)

Setting value	Media source
0	Normal image
1	Mirror image

8.1.10 Special Mode (Sub Mode 9)

8.1.10.1 Function

This is a mode to make the following matters mainly.

1. Cleaning some parts
2. Adjusting some parts related with image creation
3. Clearing Backup Data
4. Software counter setting

The followings are setting items included in the Special Mode.
Please refer to [8.1.10.3 Operation and explanation for each item] on and after the page 8-126 to know the detail of each setting item.

Item No.	Contents	Permission for the operation	Refer to page ;
0	Image Corona Wire Cleaning Mode		8-127
1	Cutter Cleaning Mode		8-128
2	LED Head Cleaning Mode		8-129
3	Image Corona Adjustment Mode	Do not operate.	8-130
4	Pre-Transfer LED Adjustment Mode	Do not operate.	8-131
5	Transfer Corona Adjustment Mode	Do not operate.	8-132
6	Separation Corona Adjustment Mode	Do not operate.	8-133
7	Developer Bias (Positive) Adjustment Mode (Toner Collection Process)	Do not operate.	8-134
8	Developer Bias (Negative) Adjustment Mode (Print Process)	Do not operate.	8-135
9	Toner Supplying Mode		8-136
A	Backup Data Clearing Mode	Do not operate.	8-137
b	Software Counter A Setting Mode (Lower 4 digits)		8-139
C	Software Counter A Setting Mode (Upper 3 digits)		8-139
d	Software Counter B Setting Mode (Lower 4 digits)		8-139
E	Software Counter B Setting Mode (Upper 3 digits)		8-139
F	Long print interval applied in the continuous long printing		8-141

⚠ CAUTION

Do not clear Backup Data because all data will be initialized!
It means you will lose all fundamental setting values individually specified for each machine.

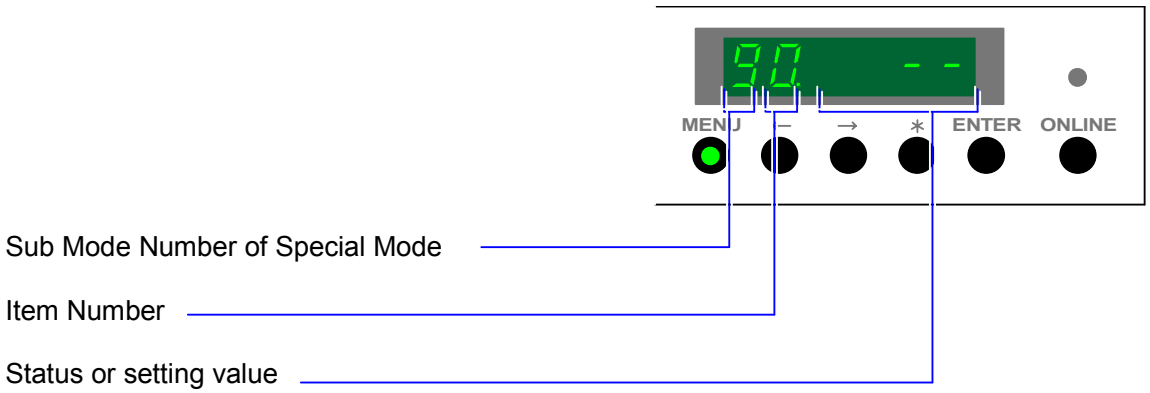
Do not make any operation in the Backup Data Clearing Mode (Item No.A) please!

⚠ NOTE

Adjustment modes (Item No. from 2 to 9) are not for service use but for manufacturer's use to make machine inspection before shipment.
We recommend you not to make any operation in these modes because it will not be beneficial.

8.1.10.2 Indication of the Operation Panel

The 1st digit from the left indicates “9” which is the Sub Mode number of “Special Mode”.
The 2nd digit indicates any Item Number presently selected.
3rd, 4th, 5th and 6th digits indicate either status or setting value.

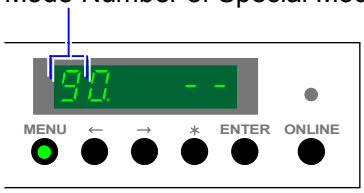


8.1.10.3 Operation and explanation for each item

(1) How to select each item

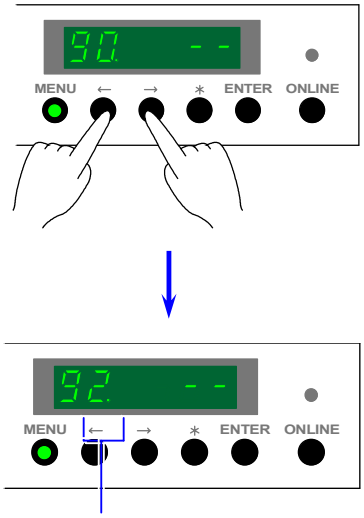
1) Enter the Service Mode, and then indicate the Sub Mode Number “9” on the 1st digit from the left of the Status Display pressing the [MENU] Key.

Sub Mode Number of Special Mode



2) The 2nd digit from the left indicates the Item Number presently selected.
As you can indicate another Item Number pressing [≪] Key (increment) and [≫] Key (decrement), indicate the Item Number.

Example : We will clean the LED Head so we select “LED Head Cleaning Mode”.
Its Item Number is “2”.



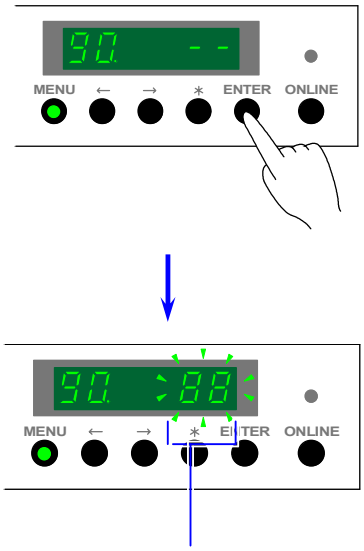
Item Number of “LED Head Cleaning Mode”

Item No.	Contents
0	Image Corona Wire Cleaning Mode
1	Cutter Cleaning Mode
2	LED Head Cleaning Mode
3	Image Corona Adjustment Mode
4	Pre-Transfer LED Adjustment Mode
5	Transfer Corona Adjustment Mode
6	Separation Corona Adjustment Mode
7	Developer Bias (Positive) Adjustment Mode (Toner Collection Process)
8	Developer Bias (Negative) Adjustment Mode (Print Process)
9	Toner Supplying Mode
A	Backup Data Clearing Mode
b	Software Counter A Setting Mode (Lower 4 digits)
C	Software Counter A Setting Mode (Upper 3 digits)
d	Software Counter B Setting Mode (Lower 4 digits)
E	Software Counter B Setting Mode (Upper 3 digits)
F	Long print interval applied in the continuous long printing

(2) Image Corona Wire Cleaning Mode (Item No.0)

It is possible to clean the Corona Wire of Image Corona.

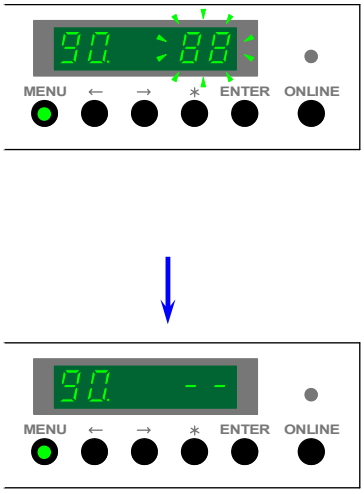
1) Indicate the Item Number “0” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start cleaning the Image Corona Wire.
5th and 6th digits indicate “8 8” in flashing during cleaning.



“8 8” keeps on flashing during cleaning.

> **NOTE**
>
> It is impossible to clean the Image Corona Wire even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

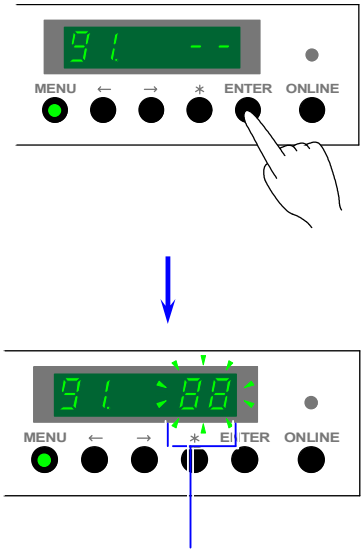
2) When the printer finishes cleaning, “- -” will light on 5th and 6th digits again.



(3) Cutter Cleaning Mode (Item No.1)

It is possible to clean the Cutter.

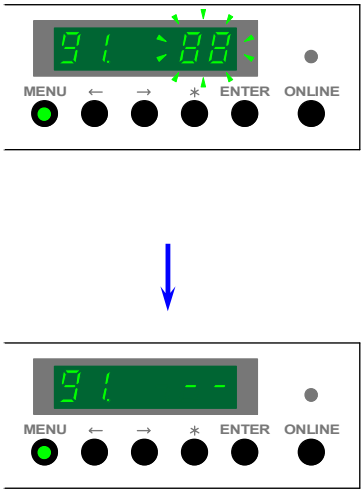
1) Indicate the Item Number “1” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start cleaning the Cutter.
5th and 6th digits indicate “8 8” in flashing during cleaning.



“8 8” keeps on flashing during cleaning.

> **NOTE**
>
> It is impossible to clean the Cutter even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

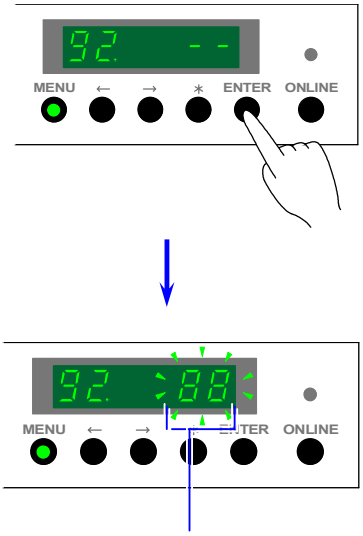
2) When the printer finishes cleaning, “- -” will light on 5th and 6th digits again.



(4) LED Head Cleaning Mode (Item No.2)

It is possible to clean the LED Head.

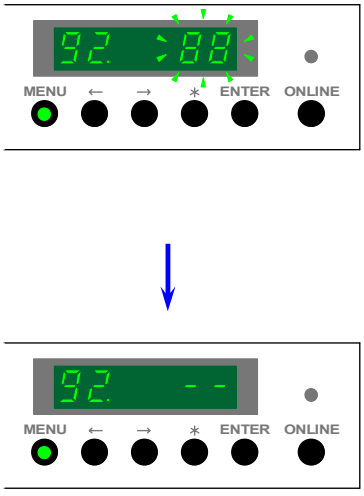
1) Indicate the Item Number “2” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start cleaning the LED Head.
5th and 6th digits indicate “8 8” in flashing during cleaning.



“8 8” keeps on flashing during cleaning.

> **NOTE**
>
> It is impossible to clean the LED Head even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

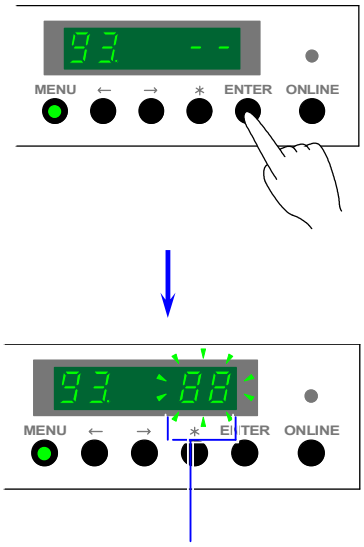
2) When the printer finishes cleaning, “- -” will light on 5th and 6th digits again.



(5) Image Corona Adjustment Mode (Item No.3)

It is possible to make the Image Corona discharge.
The Drum rotates in a 330 degrees arc during discharge.

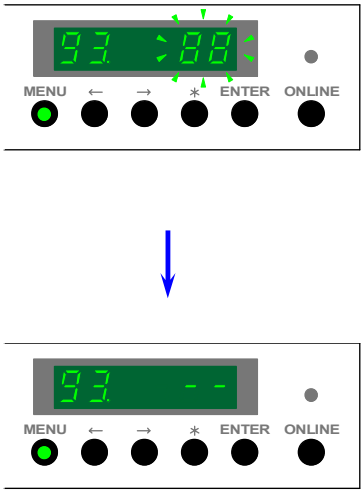
1) Indicate the Item Number “3” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start discharging.
5th and 6th digits indicate “8 8” in flashing during discharge.



“8 8” keeps on flashing during discharge.

> **⚠ NOTE**
>
> It is impossible to make the Image Corona discharge even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

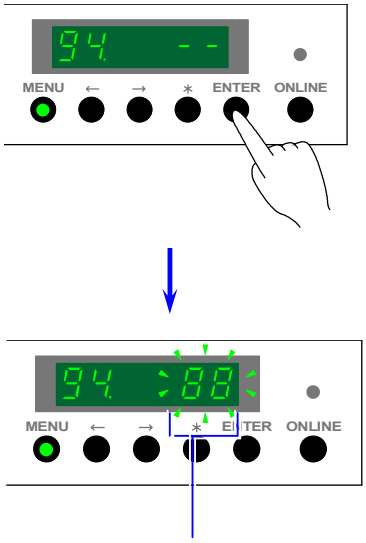
2) When the Image Corona finishes discharging, “- -” will light on 5th and 6th digits again.



(6) Pre-Transfer LED Adjustment Mode (Item No.4)

It is possible to make the Pre-Transfer LED light.
The Drum rotates in a 330 degrees arc when the Pre-Transfer LED is lighting.

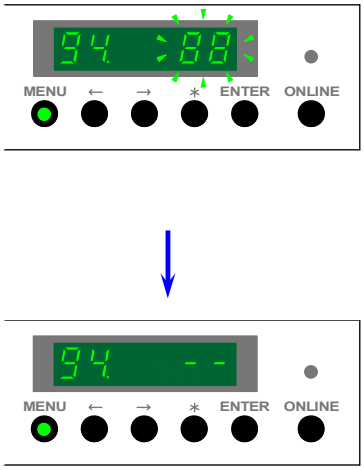
1) Indicate the Item Number “4” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to make the Pre-Transfer LED light.
5th and 6th digits indicate “8 8” in flashing when the LED is lighting.



“8 8” keeps on flashing during discharge.

> **NOTE**
>
> It is impossible to make the Pre-Transfer LED light even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

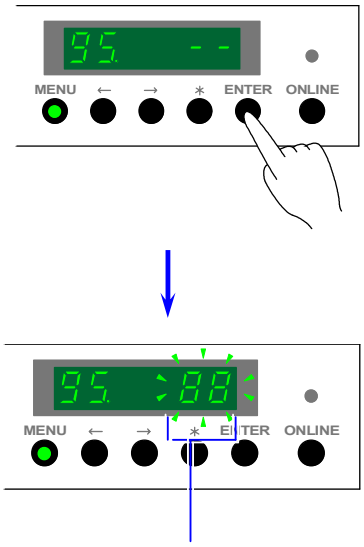
2) When the LED stops lighting, “- -” will light on 5th and 6th digits again.



(7) Transfer Corona Adjustment Mode (Item No.5)

It is possible to make the Transfer Corona discharge.
The Drum rotates in a 330 degrees arc during discharge.

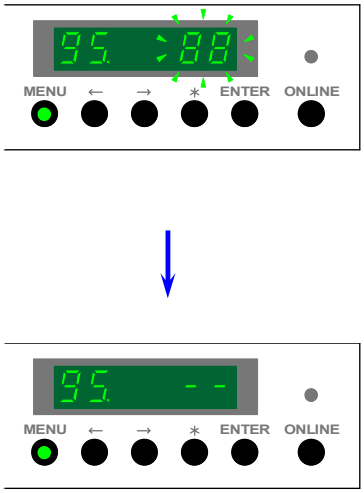
1) Indicate the Item Number “5” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start discharging.
5th and 6th digits indicate “8 8” in flashing during discharge.



“8 8” keeps on flashing during discharge.

> **NOTE**
>
> It is impossible to make the Transfer Corona discharge even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

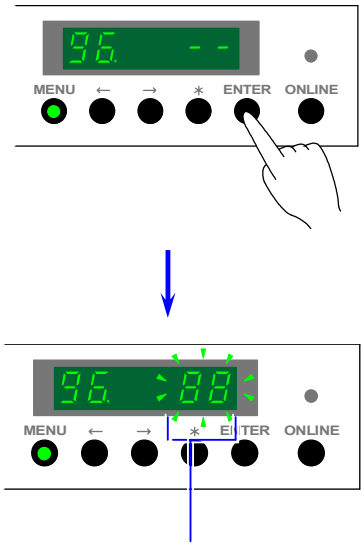
2) When the Transfer Corona finishes discharging, “- -” will light on 5th and 6th digits again.



(8) Separation Corona Adjustment Mode (Item No.6)

It is possible to make the Separation Corona discharge.
The Drum rotates in a 330 degrees arc during discharge.

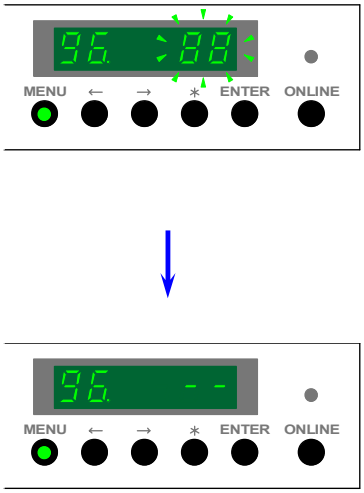
1) Indicate the Item Number “6” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start discharging.
5th and 6th digits indicate “8 8” in flashing during discharge.



“8 8” keeps on flashing during discharge.

> **NOTE**
>
> It is impossible to make the Separation Corona discharge even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

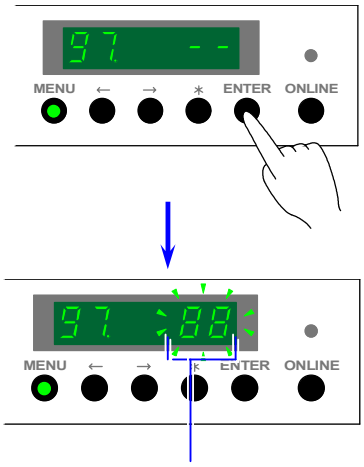
2) When the Separation Corona finishes discharging, “- -” will light on 5th and 6th digits again.



(9) Developer Bias (Positive) Adjustment Mode (Toner Collection Process) (Item No.7)

It is possible to output the Positive Developer Bias that is supplied to the Developer Roller in the Toner Collection Process.

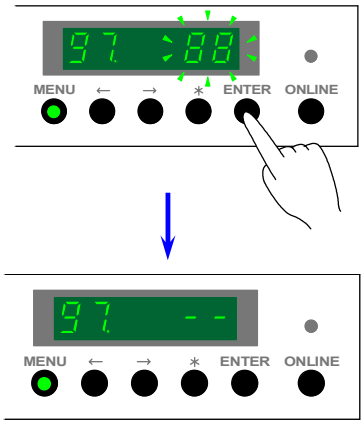
1) Indicate the Item Number “7” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start outputting the positive Bias.
5th and 6th digits indicate “8 8” in flashing during output.



“8 8” keeps on flashing during output.

> **⚠ NOTE**
>
> It is impossible to output the positive Bias even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

2) Press the [ENTER] Key again to stop outputting.
“- -” will light on 5th and 6th digits again when the output is stopped.

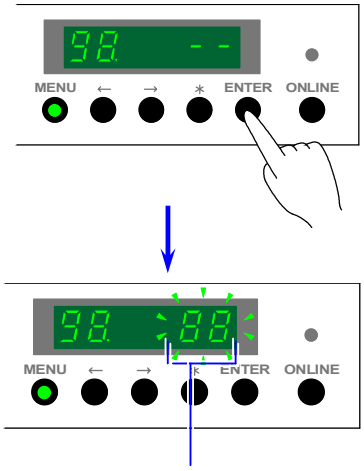


> **⚠ NOTE**
>
> Make sure to stop outputting manually pressing the [ENTER] key as it does not stop automatically.

(10) Developer Bias (Negative) Adjustment Mode (Print Process) (Item No.8)

It is possible to output the Negative Developer Bias that is supplied to the Developer Roller in the Print Process.

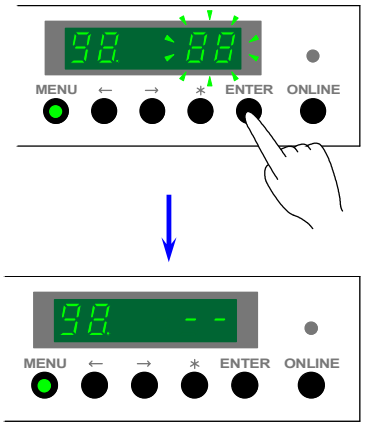
1) Indicate the Item Number “8” on the 2nd digit.
Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start outputting the negative Bias.
5th and 6th digits indicate “8 8” in flashing during output.



“8 8” keeps on flashing during output.

> **⚠ NOTE**
>
> It is impossible to output the negative Bias even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

2) Press the [ENTER] Key again to stop outputting.
“- -” will light on 5th and 6th digits again when the output is stopped.

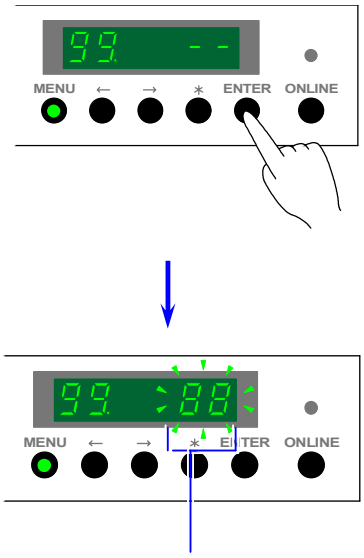


> **⚠ NOTE**
>
> Make sure to stop outputting manually pressing the [ENTER] key as it does not stop automatically.

(11) Toner Supplying Mode (Item No.9)

It is possible to supply the toner from the Hopper to the Developer Unit.
You will use this mode at the time of machine installation.

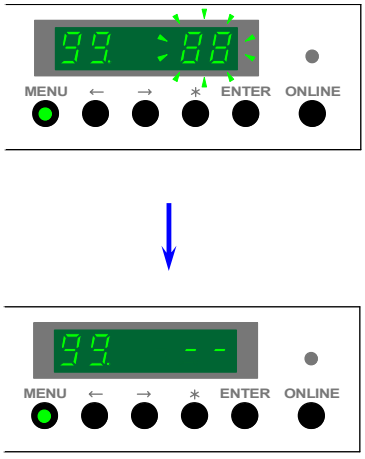
1) Indicate the Item Number “9” on the 2nd digit.
   Confirm that “- -” on 5th and 6th digits is lighting, then press the [ENTER] Key to start supplying the toner.
   5th and 6th digits indicate “8 8” in flashing during toner supply.



“8 8” keeps on flashing during toner supply.

> **NOTE**
>
> It is impossible to supply the toner even if you press the [ENTER] Key when “- -” on 5th and 6th digits is flashing.

2) When the printer detects “toner full”, it stops automatically and “- -” will light on 5th and 6th digits again.

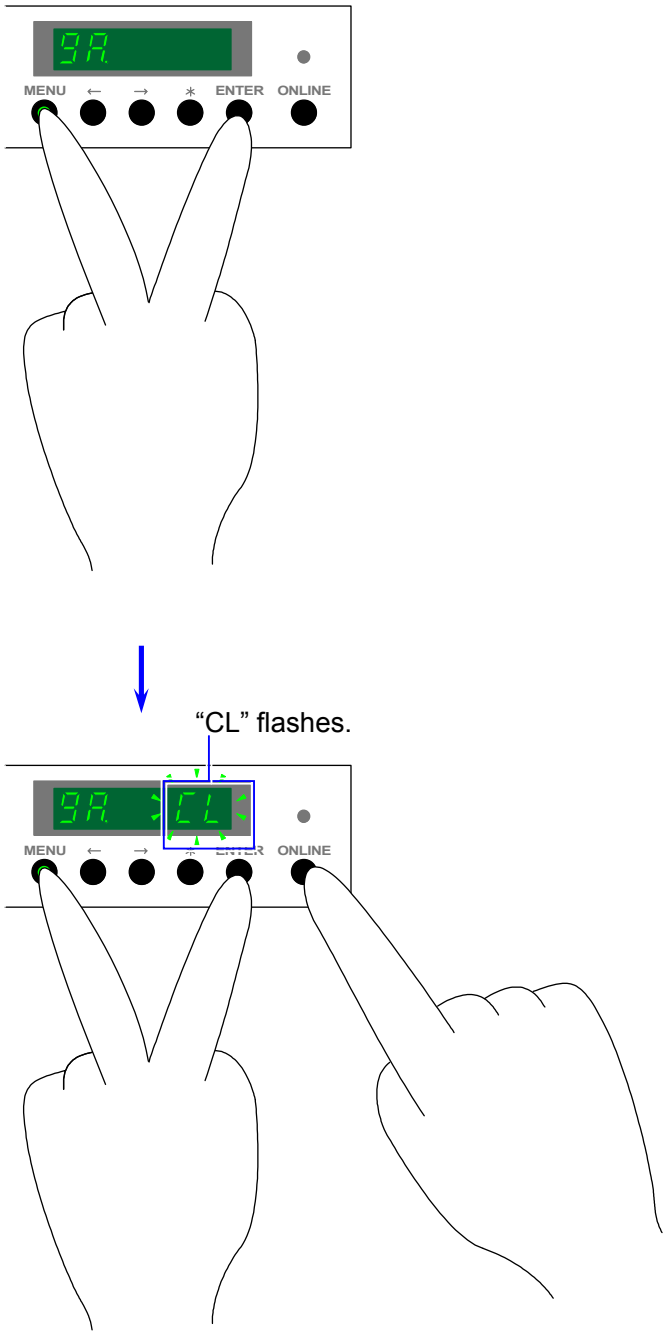


(12) Backup Data Clearing Mode (Item No.A)

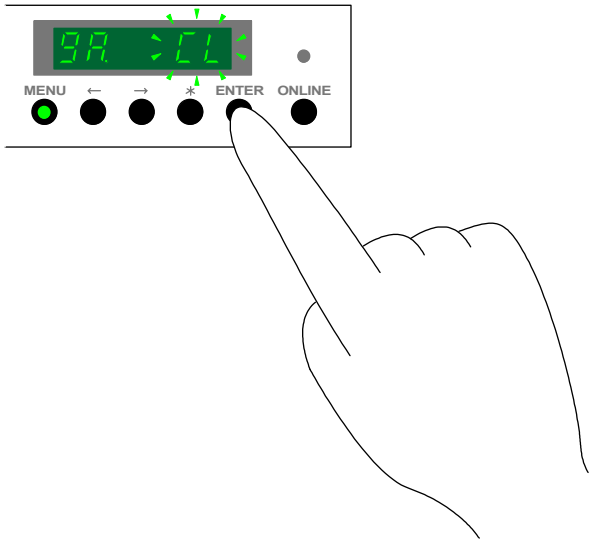
It is possible to clear all Backup Data values.
After the clearance, all values will become factory default.

> **⚠ CAUTION**
>
> Do not clear Backup Data because all data will be initialized!
> It means you will lose all fundamental setting values individually specified for each machine.
>
> **Do not make any operation in this Backup Data Clearing Mode please!**

1) After indicating the Item Number “10” on the 2nd digit, press and hold both [ENTER] Key and [MENU] Key, and then press and hold the [ONLINE] Key.
“CL” will flash on 5th and 6th digits.



2) Press the [ENTER] key when “CL” is flashing.
All backup Data are initialized and the printer is turned off automatically.



(13) Software Counter Setting Modes (Item No. from b to E)

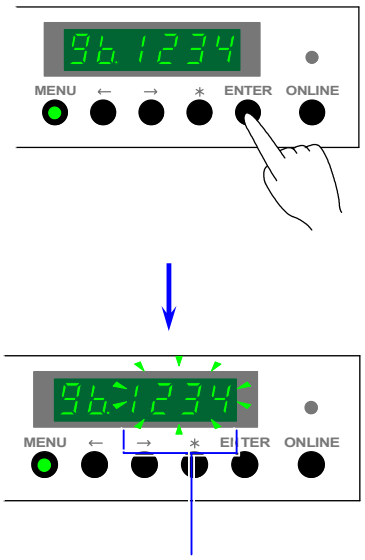
The printer has 2 software counters (A and B) which work similar with the hardware counters (A and B). It is possible to change the counted value in these modes.

The counted value of each counter consists of 7 digits, and it is divided into 2 groups as upper 3 digits and lower 4 digits.

Item No.	Contents of setting
b	Lower 4 digits of Software Counter A
C	Upper 3 digits of Software Counter A
d	Lower 4 digits of Software Counter B
E	Upper 3 digits of Software Counter B

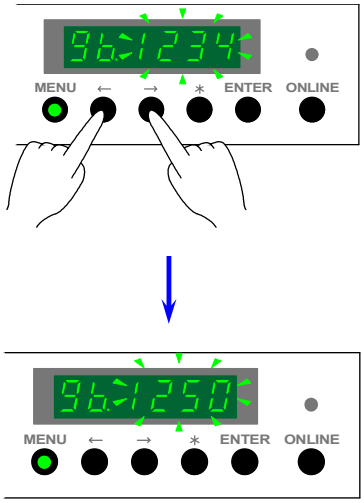
Example) The Software Counter A counts 0001234 presently but we will correct it to 0001250.
Since the value you will correct is included in the lower 4 digits, we select the Item No.b.

1) After indicating the Item Number “b” on the 2nd digit, press the [ENTER] Key.
The setting value on 3rd, 4th, 5th and 6th digits flashes and it becomes possible to change the value.

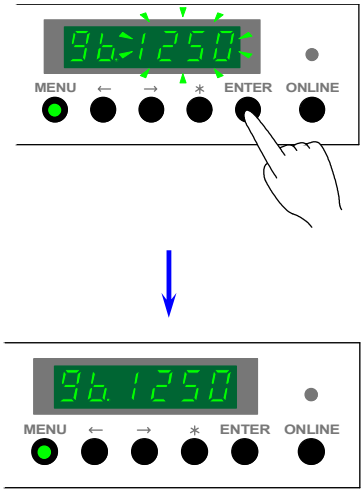


Setting value flashes.

2) Change the setting value pressing [≤] Key (increment) and [≥] Key (decrement).



3) Decide the setting value pressing the [ENTER] Key.
The setting value stops flashing when decided.

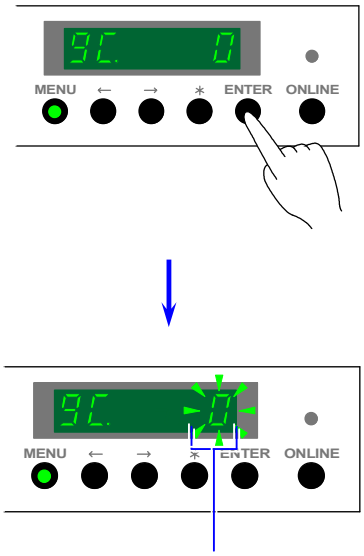


(14) Long print interval applied in the continuous long printing (Item No.F)

When you make some sheets of long print (longer than 2m) continuously, it is possible to have a longer interval between prints.
The interval between prints will become about 10 seconds longer than usual if you select the setting value “1”.

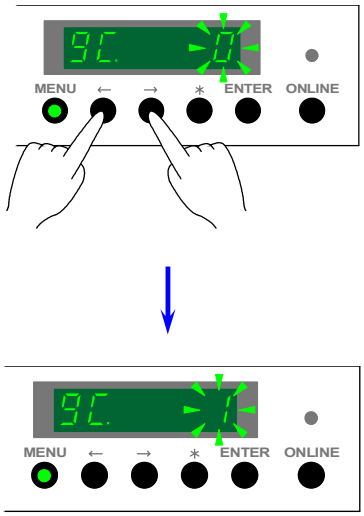
Setting value	Contents
0	Normal interval is kept between prints in the continuous long printing.
1	Longer interval (10 seconds longer than usual) is kept between prints in the continuous long printing.

1) After indicating the Item Number “C” on the 2nd digit, press the [ENTER] Key.
The setting value on the 6th digit flashes and it becomes possible to change the value.

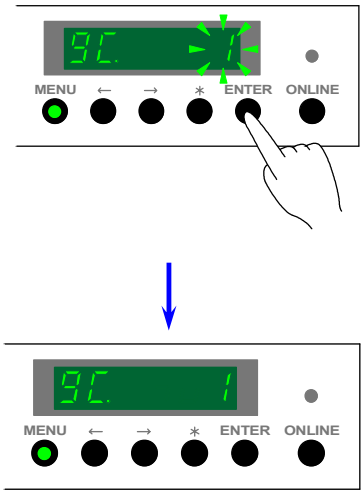


Setting value flashes.

2) Change the setting value pressing [≪] Key (increment) and [≫] Key (decrement).



3) Decide the setting value pressing the [ENTER] Key.
The setting value stops flashing when decided.



8.2 User Modes

KIP8000 has 11 kinds of User Mode.
It is possible to make the following operations in these modes.

Name of User Mode	Setting matter	User Mode Code
User Mode 1	Test print	U1.
User Mode 2	Calendar setting	U2.
User Mode 3	Warm Sleep Mode ON / OFF & timer setting	U3.
User Mode 4	Cold Sleep Mode ON / OFF & timer setting	U4.
User Mode 5	Automatic paper cut at power on	U5.
User Mode 6	Transfer Support LED ON/OFF [Film]	U6.
User Mode 7	Alarm ON / OFF	U7.
User Mode 8	Choice of Standard Print Mode / Special Print Mode [Plain paper]	U8.
User Mode 9	Choice of Standard Print Mode / Special Print Mode [Tracing paper]	U9.
User Mode A	Choice of Standard Print Mode / Special Print Mode [Film]	UA.
User Mode B	Enhancement of isolated dot image	Ub.
User Mode C	Enlargement of trailing image area	UC.

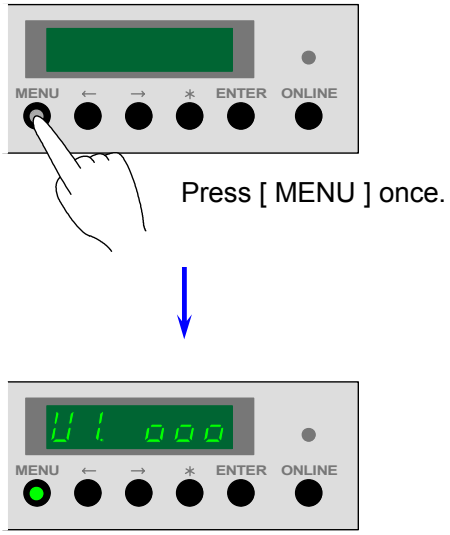
8.2.1 User Mode 1 (Test Print)

[Function]

A test print image memorized in the KIP8000 can be printed out.
Used print media is selected automatically, and the cutting length can be changed in the Service Mode.
(Refer to [(9) Cut length of Test Print (Item No.08)] on the page 8-47.)

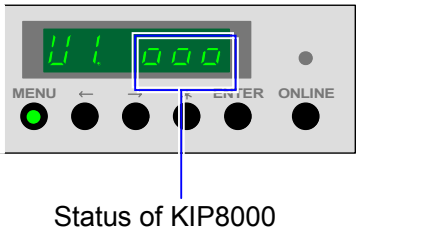
[Operation]

1) Press the [MENU] Key once when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “U1.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 1 presently.

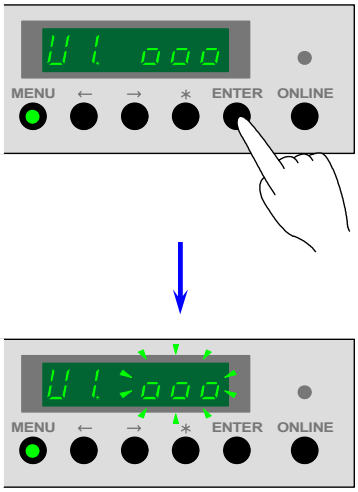


2) The 4th, 5th and 6th digits of the Status Display inform you of the status of KIP8000.

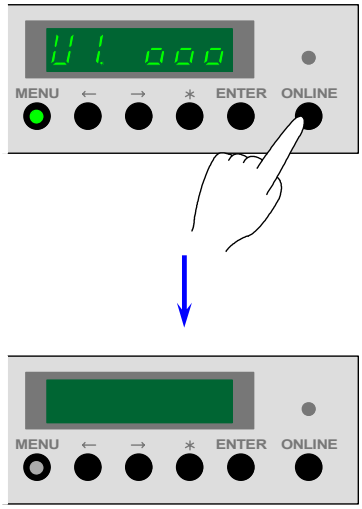
- - - (flashing) : Test print is not available.
ooo (staying) : Test print is available.
ooo (flashing) : On test printing



3) Press the [ENTER] Key when “ooo” on the Status Display is staying.
The KIP8000 starts test printing and “ooo” on the Status Display flashes.
Print media is selected automatically and its cutting length is also decided automatically.



4) When the KIP8000 finishes test printing, “ooo” on the Status Display stops flashing.
Press the [ONLINE] Key to cancel the User Mode 1.



8.2.2 User Mode 2 (Calendar setting)

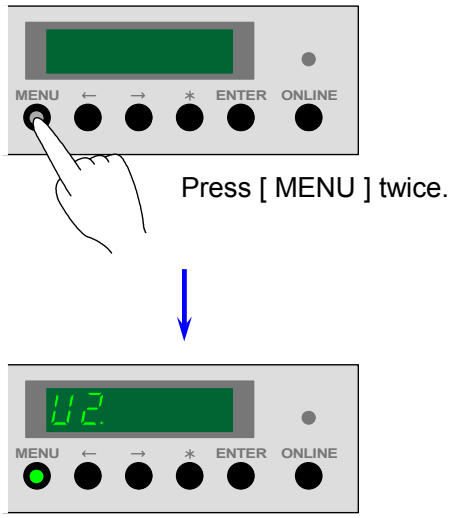
[Function]

It is possible to correct the calendar memorized in the circuit.

> **⚠ NOTE**
>
> Even if the calendar is not adjusted properly, the KIP8000 will operate without any problem.
> But if some error or mis-feed occurs, its history is recorded in the circuit with date and time information based on this calendar setting.
> This record may be effective for the service personnel to find the cause of problem and fix it as soon as possible.
> Therefore please correct the calendar occasionally to get the most precise information.

[Operation]

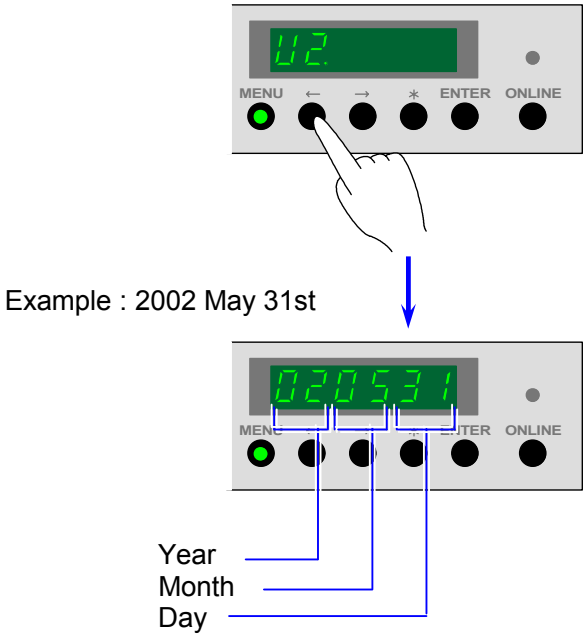
1) Press the [MENU] Key twice when the KIP8000 is in the normal condition.
   [MENU] Key lights green and the Status Display indicates “U2.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 2 presently.



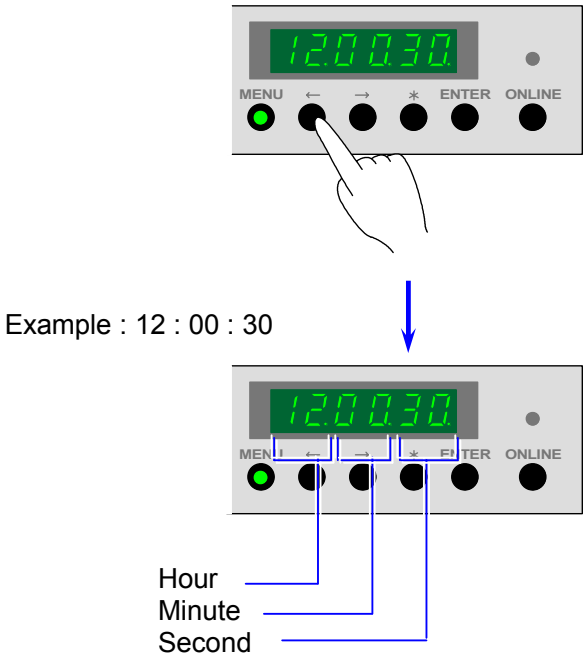
2) You can indicate the following 8 kinds of Sub Mode orderly if you press [←] Key or [→] Key.
(2 kinds of Confirmation Mode and 6 kinds of Correction Mode are included.)
When you press the [←] Key several times, Sub Modes are selected in the following order.

Order of selection	Name of Sub Mode	Example of indication
1	Date Confirmation Mode	0 2 0 5 3 1
2	Time Confirmation Mode	1 2.0 0.3 0
3	Year Correction Mode	C 1 0 2
4	Month Correction Mode	C 2 0 5
5	Day Correction Mode	C 3 3 1
6	Hour Correction Mode	C 4 1 2
7	Minute Correction Mode	C 5 0 0
8	Second Correction Mode	C 6 3 0

3) Select the Date Confirmation Mode at first pressing the [←] Key.
The Status Display indicates “Year”, “Month” and “Day” presently decided.
Please check whether or not they are right.



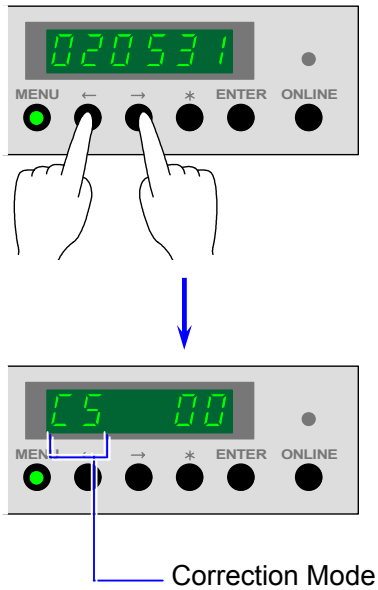
4) Select the Time Confirmation Mode next pressing the [←] Key once again.
The Status Display indicates “Hour”, “Minute” and “Second” presently decided.
Please check whether or not they are right.



5) Select the necessary Correction Mode pressing [←] Key and [→] Key if you would like to correct some item.
There are 6 kinds of Correction Modes which are shown by the Correction Mode No. as C1, C2, C3, C4, C5 and C6.
These Correction Mode No. are indicated on 1st and 2nd digits.
Refer to the following list for the target you will correct in each Sub Mode.

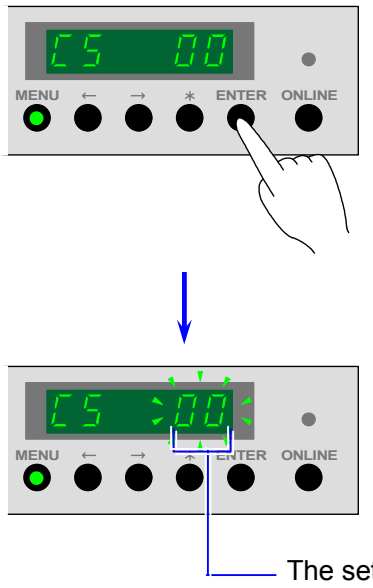
Correction Mode No.	Name of Correction Mode
C1	Year Correction Mode
C2	Month Correction Mode
C3	Day Correction Mode
C4	Hour Correction Mode
C5	Minute Correction Mode
C6	Second Correction Mode

Example : We will correct “minute”.
So we indicate “C5”.



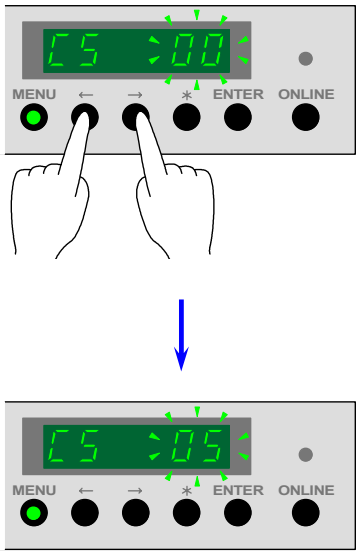
Correction Mode No. of the Minute Correction Mode

6) Press the [MENU] Key.
The setting value on 5th and 6th digits flashes and it becomes possible to change the setting value.

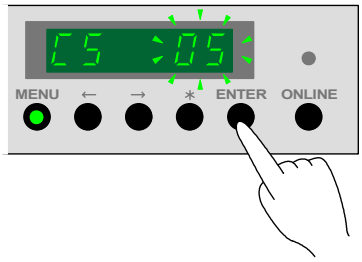


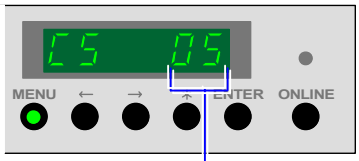
7) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).

Example : We will correct “minute” from 00 to 05.



8) Decide the new setting value pressing the [ENTER] Key.
The setting value stops flashing when decided.

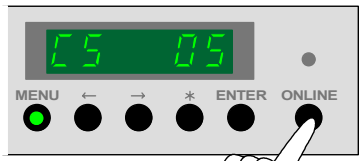


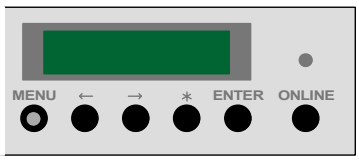


The setting value stops flashing.

9) If you would like to correct other setting items, make the same operation repeating from 5) to 8).

10) When you have finished changing and deciding all the necessary setting items, press the [ONLINE] Key to cancel the User Mode 2.





8.2.3 User Mode 3 (Warm Sleep Mode ON / OFF & timer setting)

[Function]

It is possible to select whether or not the Warm Sleep Mode should work.
If you make it work, it is also possible to set the timer.
If the KIP8000 does not receive any print job or copy job for the time decided in this mode, it will go into the Warm Sleep Mode to save the power consumption.

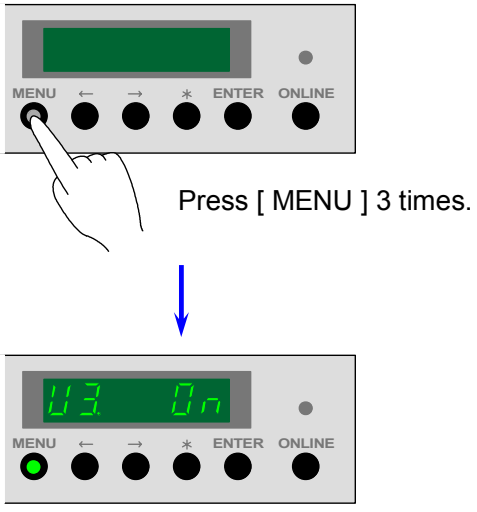
Reference

The purpose of Warm Sleep Mode is to reduce the power consumption by falling down the temperature of Fuser some degrees.
The temperature of the Fuser Unit is about 180 degrees centigrade when the KIP8000 is ready. But if no print job or copy job is sent for a long time, it is better for saving the power to fall down the temperature of Fuser. (Temperature is kept about 145 degrees centigrade.)

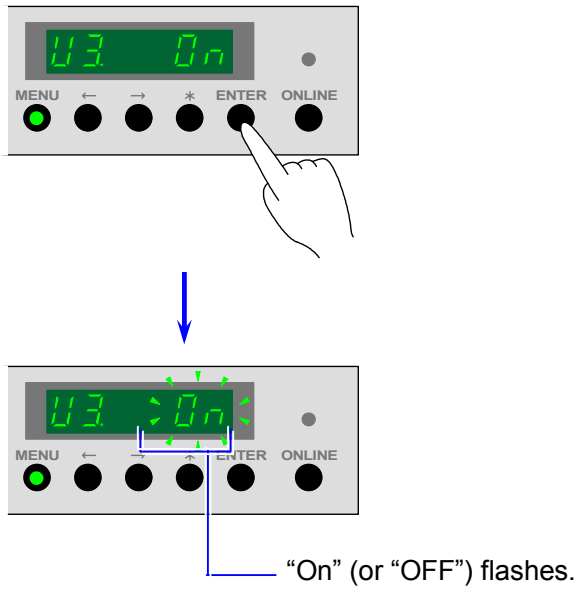
The Warm Sleep Mode will be cancelled automatically if only you send a print job or a copy job from the outer device.
However, please understand it takes some minutes to recover from the Warm Sleep Mode because it is necessary to raise the temperature again up to about 180 degrees.
(Print does not start until the KIP8000 gets ready.)

[Operation]

1) Press the [MENU] Key 3 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “U3.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 3 presently.

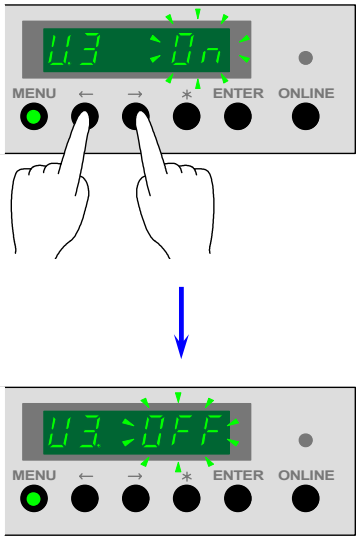


2) The Status Display indicates either “OFF” or “On”
Press the [MENU] Key.
“On” or “OFF” flashes and it becomes possible to change the setting.



3) You can switch “OFF” and “On” pressing [←] Key and [→] Key.
Select “On” to make the Warm Sleep Mode work, and select “OFF” to cancel it.

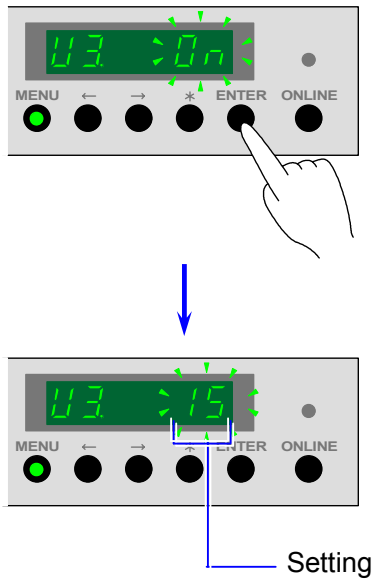
Setting value	Meaning
0	Warm Sleep Mode works when a decided time has passed. (You will set the timer in the later step if you select this setting.)
1	Warm Sleep Mode does not work.



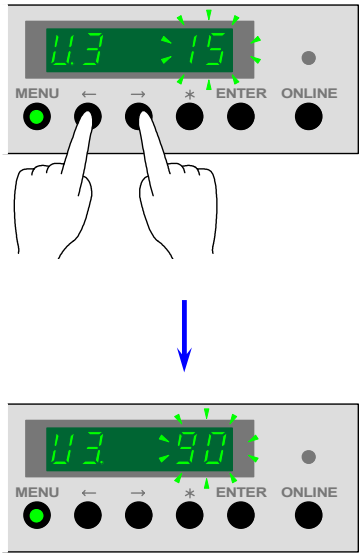
4) Press the [ENTER] Key to decide the setting you selected.

If you decide “On“, the setting value for timer setting will flash automatically. Go to the following step 5).

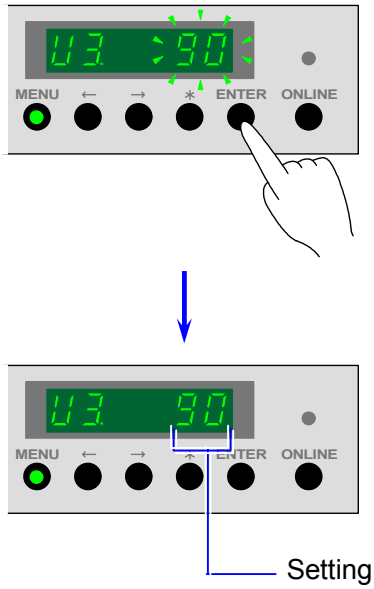
If you decide “OFF”, it stops flashing simply. Skip the steps 5) and 6) and go to 7).



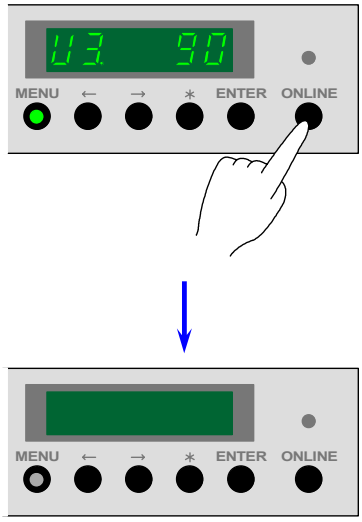
5) Change the timer pressing [＜] Key (increment) and [＞] Key (decrement).
Setting unit is “minute”, and the selectable setting values are 10, 15, 20, 30, 40, 50, 60, 90, 120, 180 and 240.



6) Press the [ENTER] Key to decide the timer setting you selected.
The setting value stops flashing when decided.



7) Press the [ONLINE] Key to cancel the User Mode 3.



8.2.4 User Mode 4 (Cold Sleep Mode ON / OFF & timer setting)

[Function]

It is possible to select whether or not the Cold Sleep Mode should work.
If you make it work, it is also possible to set the timer.
If the KIP8000 does not receive any print job or copy job for the time decided in this mode, it will go into the Cold Sleep Mode to save the power consumption.

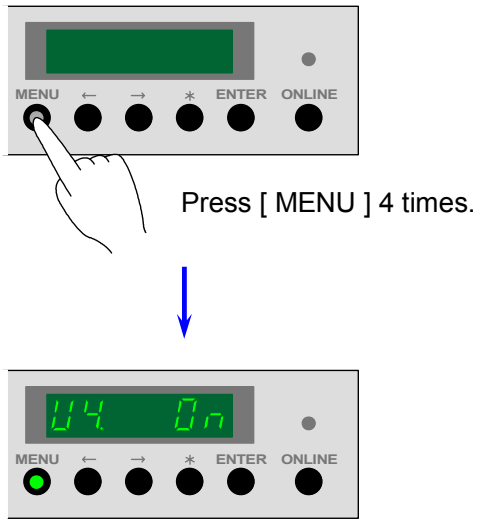
Reference

The purpose of Cold Sleep Mode is to reduce the power consumption by shutting off to supply the power to the Fuser Unit.
It can save more power than Warm Sleep Mode.
The temperature of the Fuser Unit is about 180 degrees centigrade when the KIP8000 is ready. But if no print job or copy job is sent for a long time, it is best for saving the power to stop supplying the power to the Fuser Unit completely.

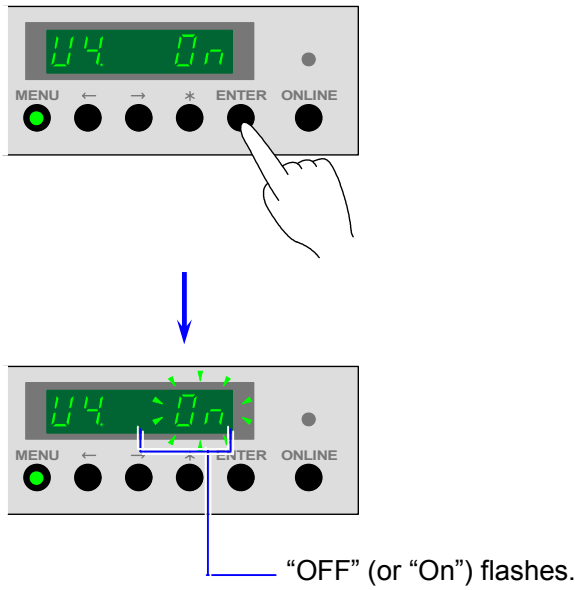
The Cold Sleep Mode will be cancelled automatically if only you send a print job or a copy job from the outer device.
However, please understand it takes a little long time to recover from the Cold Sleep Mode because it is necessary to raise the temperature again up to about 180 degrees.
(Print does not start until the KIP8000 gets ready.)

[Operation]

1) Press the [MENU] Key 4 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “U4.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 4 presently.

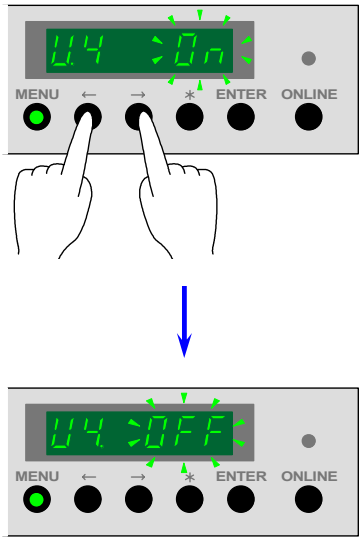


2) The Status Display indicates either “OFF” or “On”
Press the [MENU] Key.
“OFF” or “On” flashes and it becomes possible to change the setting.



3) You can switch “OFF” and “On” pressing [←] Key and [→] Key.
Select “On” to make the Cold Sleep Mode work, and select “OFF” to cancel it.

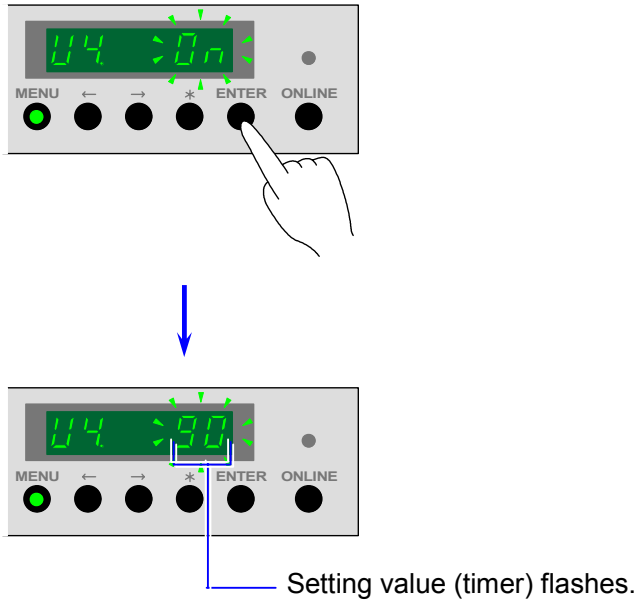
Setting value	Meaning
0	Cold Sleep Mode works when a decided time has passed. (You will set the timer in the later step if you select this setting.)
1	Cold Sleep Mode does not work.



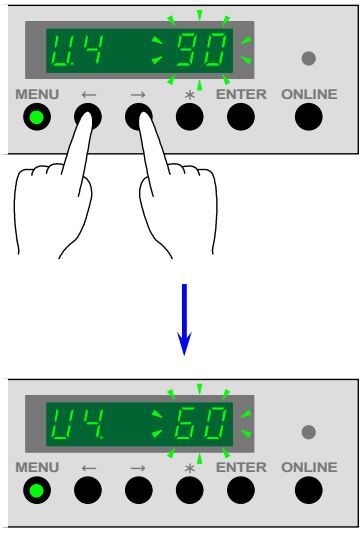
4) Press the [ENTER] Key to decide the setting you selected.

If you decide “On“, the setting value for timer setting will flash automatically. Go to the following step 5).

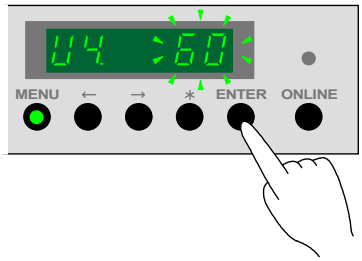
If you decide “OFF”, it stops flashing simply. Skip the steps 5) and 6) and go to 7).

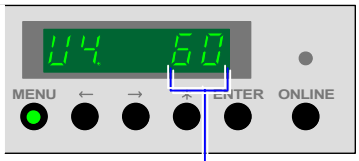


5) Change the timer pressing [＜] Key (increment) and [＞] Key (decrement).
Setting unit is “minute”, and the selectable setting values are 10, 15, 20, 30, 40, 50, 60, 90, 120, 180 and 240.



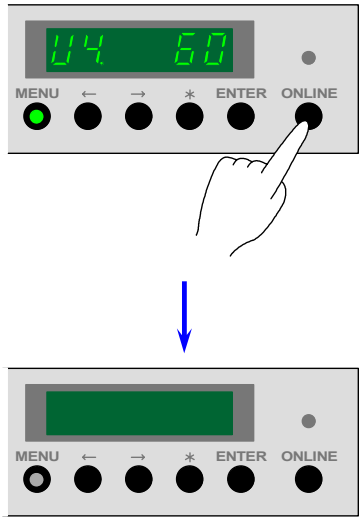
6) Press the [ENTER] Key to decide the timer setting you selected.
The setting value stops flashing when decided.





Setting value (timer) stops flashing.

7) Press the [ONLINE] Key to cancel the User Mode 3.



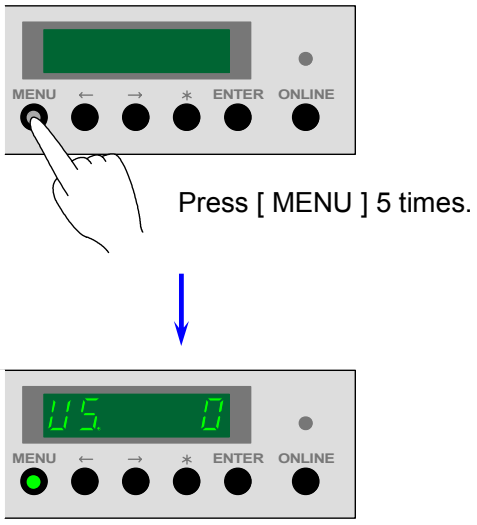
8.2.5 User Mode 5 (Automatic paper cut at power ON)

[Function]

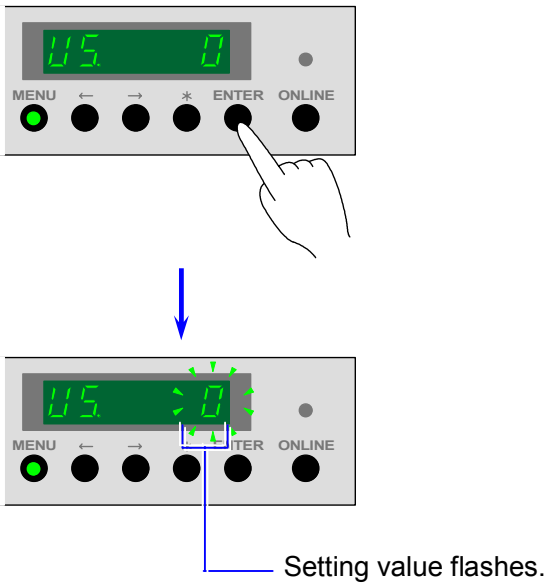
It is possible to cut all roll media in 240mm long at the time you turn on the KIP8000.
(In another word, the KIP8000 makes Initial Cut automatically for all roll media whenever you turn it on. Refer to [2.7 Initial Cut] for the detail.)

[Operation]

1) Press the [MENU] Key 5 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “U5.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 5 presently.

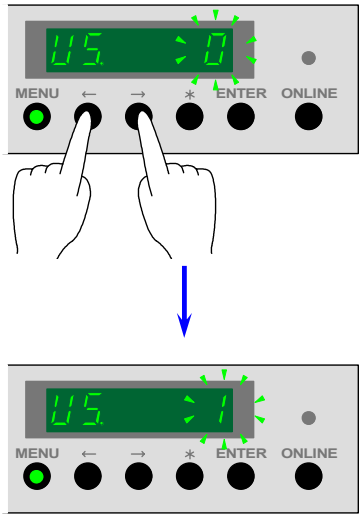


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

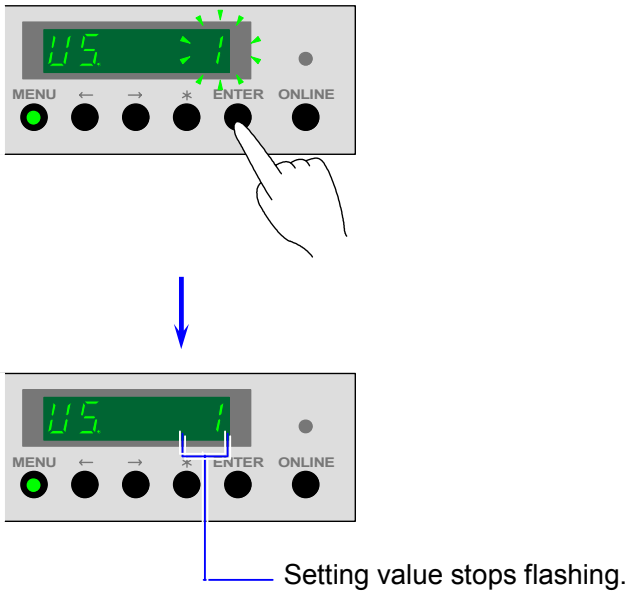


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are “0” and “1”, and the meanings are as follows.

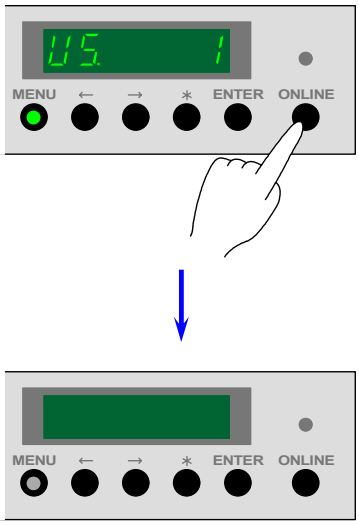
Setting value	Meaning
0	KIP8000 will not make Initial Cut at turning ON.
1	KIP8000 will make Initial Cut automatically for all roll media at turning ON.



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



5) Press the [ONLINE] Key to cancel the User Mode 5.



8.2.6 User Mode 6 (Transfer Support LED ON/OFF [Film])

[Function]

To make the print image clearer, it is possible to let the Transfer Support LED work when you print with a film media.
(Transfer Support LED is what we call “Separation Lamp” which exists below Separation Corona.)

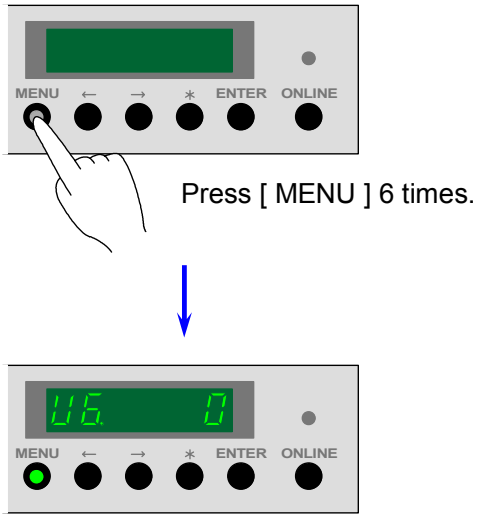
Reference

(1) The Printed image may not be so clear if you use some kinds of film, because it is difficult to transfer the toner image onto such film.
The Transfer Support LED helps to transfer the toner image.
Please try to let it work as you may be able to make the image clearer.

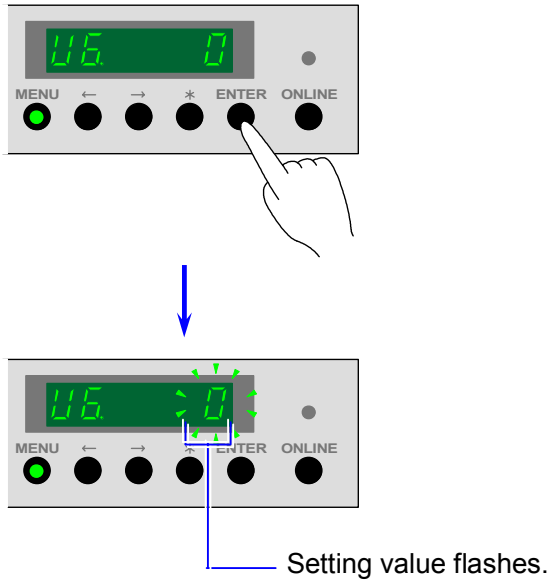
(2) Selection of Separation Lamp ON / OFF **only for film** can be done also in the Service Mode.
Refer to [(35) Separation Lamp ON / OFF (Film) (Item No.C6)] on the page 8-75.
ON or OFF finally you selected in either Service Mode or User Mode is effective as neither of them has the priority of setting.

[Operation]

1) Press the [MENU] Key 6 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “U6.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 6 presently.

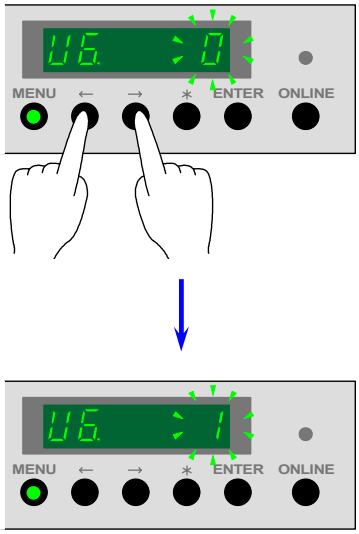


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

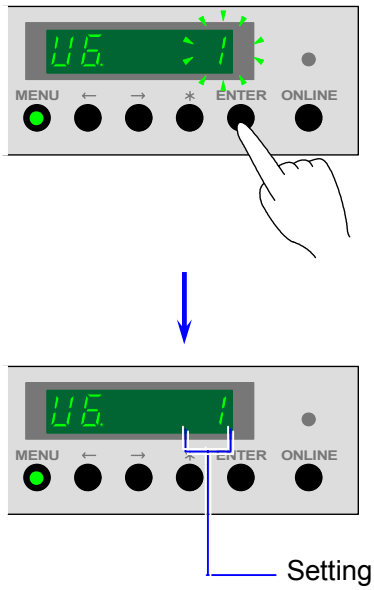


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are “0” and “1”, and the meanings are as follows.

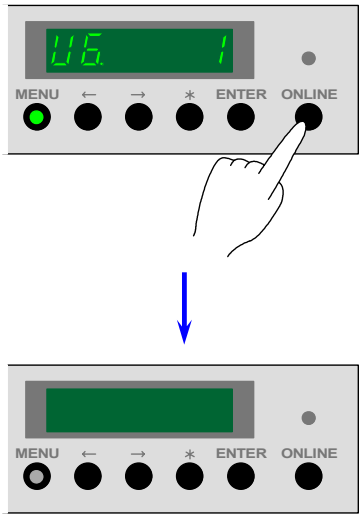
Setting value	Meaning
0	Transfer Support LED does not work even if you use a film media.
1	Transfer Support LED works if you use a film media.



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



5) Press the [ONLINE] Key to cancel the User Mode 6.



8.2.7 User Mode 7 (Alarm ON / OFF)

[Function]

It is available to sound the alarm.
Pips will sound to let you know the following errors when the alarm is ON.

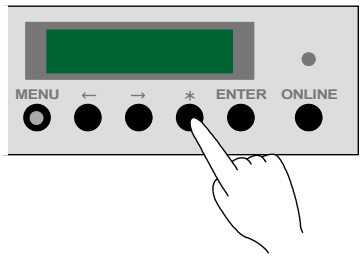
(1) Toner empty
(2) Toner near empty (Toner Cartridge is empty but a little more print is still available.)
(3) Roll empty

Reference

The alarm will continue to sound if nothing is done.
You can stop it in the following 2 ways.

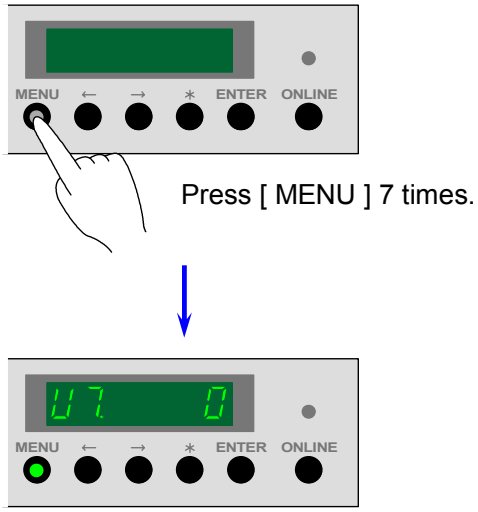
1. Clear the cause of the error.
   (Replace the Toner Cartridge or load a new roll media.)

2. Or press the [✳] Key if you wish to stop the alarm without clearing the error.

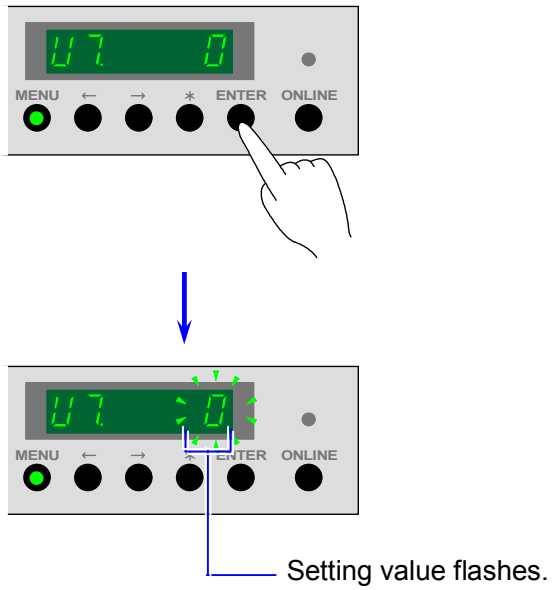


[Operation]

1) Press the [MENU] Key 7 times when the KIP8000 is in the normal condition.
   [MENU] Key lights green and the Status Display indicates “U7.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 7 presently.

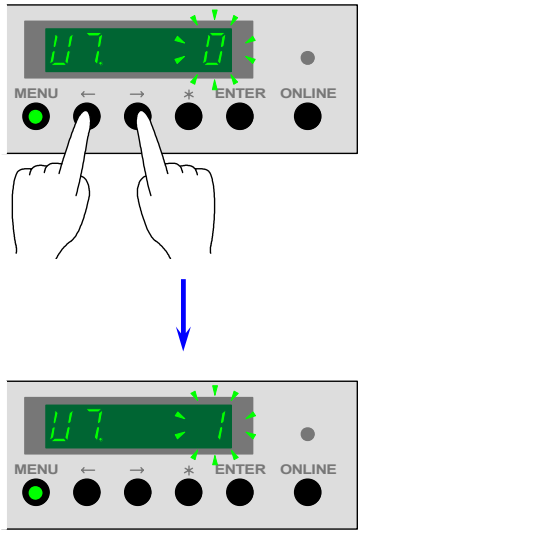


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

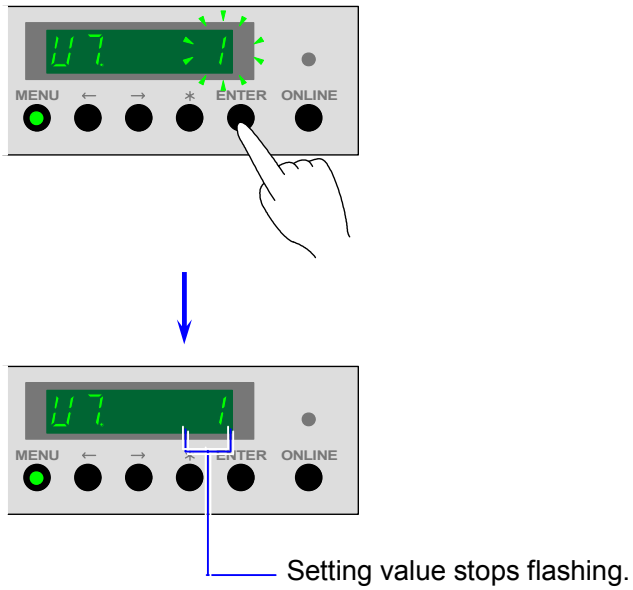


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are “0” and “1”, and the meanings are as follows.

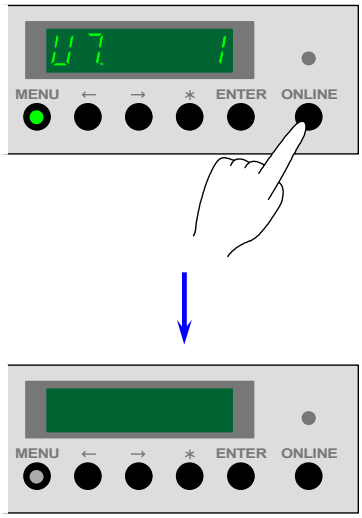
Setting value	Meaning
0	Alarm does not sound.
1	Alarm sounds if “toner empty”, “toner near empty” or “roll empty” occurs.



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



5) Press the [ONLINE] Key to cancel the User Mode 7.



8.2.8 User Mode 8 (Choice of Standard Print Mode / Special Print Mode [Plain paper])

[Function]

It is possible to select either [Standard Print Mode] or [Special Print Mode] according to the necessity.
This setting is effective when you print with a plain paper.
Print operation of KIP8000 obeys either of print modes presently selected.

Reference

If you select the [Standard Print Mode], all of [Standard Setting Values] become effective, which you have specified in the Item Number **"09" (corresponded to PPC)** of the Adjustment Mode 0 of the Service Mode. Print operation obeys these [Standard Setting Values].

If you select the [Special Print Mode], all of [Special Setting Values] similarly you have specified to these setting items become effective, and the print operation obeys these [Special Setting Values].

Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on the page 8-48 if you will change [Standard Setting Value] or [Special Setting Value].

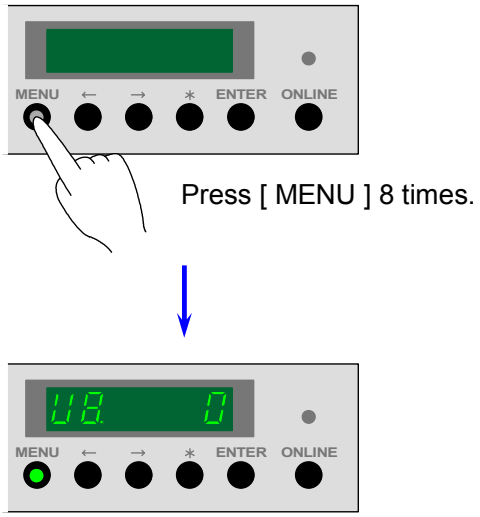
⚠ NOTE

Both the [Standard Print Mode] and the [Special Print Mode] can be specified separately to each plain paper, tracing paper and film.
User Modes 8, 9 and A can switch between [Standard Print Mode] and [Special Print Mode] similarly but the corresponded print media is different among them.
Be careful not to select in the wrong User Mode.

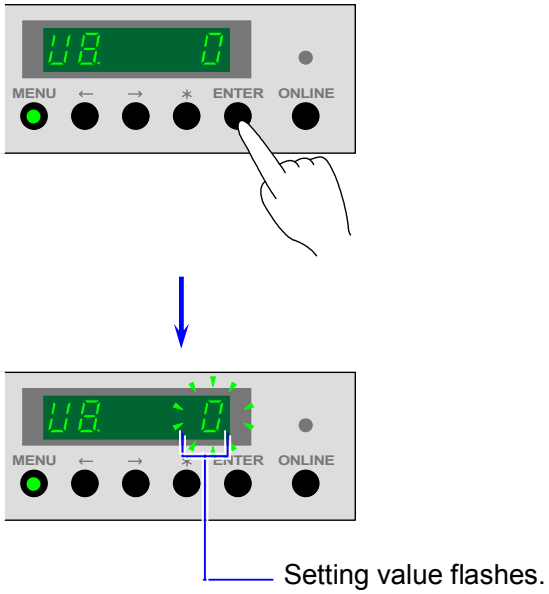
User Mode 8 : Corresponded to the plain paper
User Mode 9 : Corresponded to the tracing paper
User Mode A : Corresponded to the film

[Operation]

1) Press the [MENU] Key 8 times when the KIP80008000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “U8.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 8 presently.

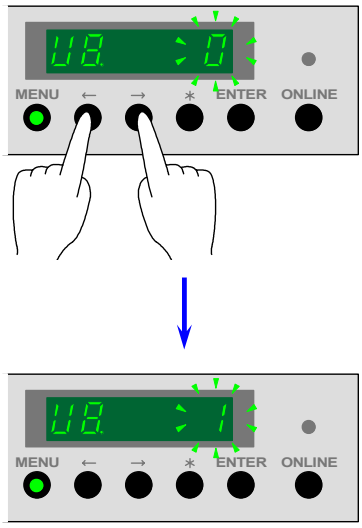


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

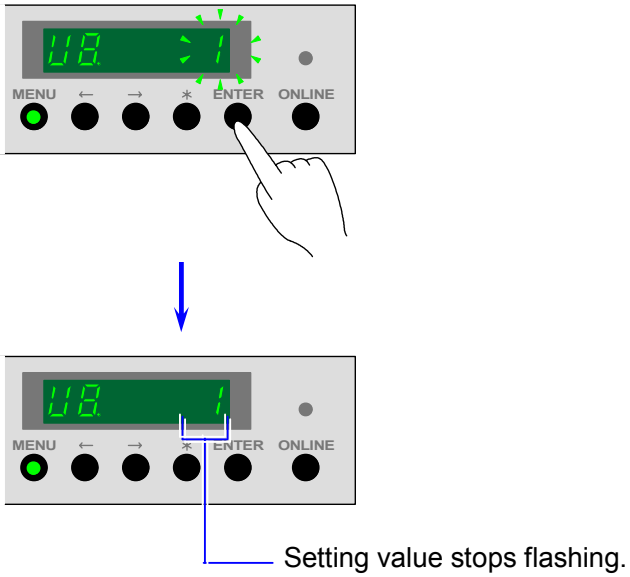


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are “0” and “1”, and the meanings are as follows.

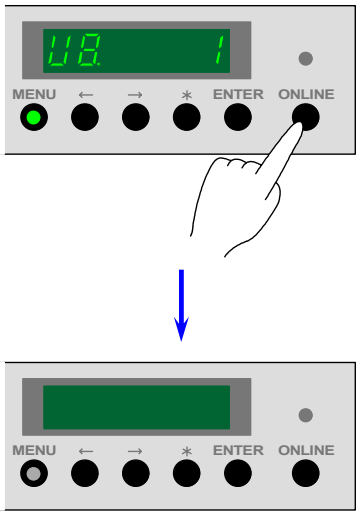
Setting value	Meaning
0	Standard Print Mode is applied in printing. (When plain paper is used.)
1	Special Print Mode is applied in printing. (When plain paper is used.)



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



5) Press the [ONLINE] Key to cancel the User Mode 8.



8.2.9 User Mode 9 (Choice of Standard Print Mode / Special Print Mode [Tracing paper])

[Function]

It is possible to select either [Standard Print Mode] or [Special Print Mode] according to the necessity.
This setting is effective when you print with a tracing paper.
Print operation of KIP8000 obeys either of print modes presently selected.

Reference

If you select the [Standard Print Mode], all of [Standard Setting Values] become effective, which you have specified in the Item Number **"0A" (corresponded to tracing paper)** of the Adjustment Mode 0 of the Service Mode. Print operation obeys these [Standard Setting Values].

If you select the [Special Print Mode], all of [Special Setting Values] similarly you have specified to these setting items become effective, and the print operation obeys these [Special Setting Values].

Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on the page 8-48 if you will change [Standard Setting Value] or [Special Setting Value].

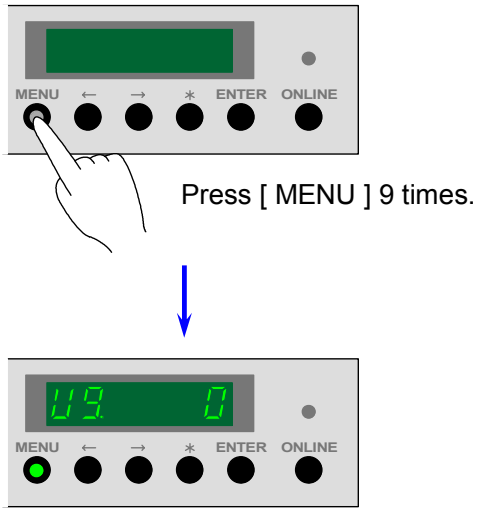
⚠ NOTE

Both the [Standard Print Mode] and the [Special Print Mode] can be specified separately to each plain paper, tracing paper and film.
User Modes 8, 9 and A can switch between [Standard Print Mode] and [Special Print Mode] similarly but the corresponded print media is different among them.
Be careful not to select in the wrong User Mode.

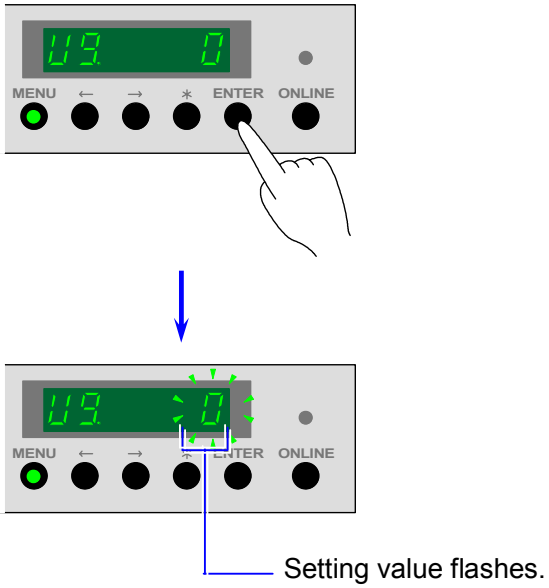
User Mode 8 : Corresponded to the plain paper
User Mode 9 : Corresponded to the tracing paper
User Mode A : Corresponded to the film

[Operation]

1) Press the [MENU] Key 9 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “U9.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode 9 presently.

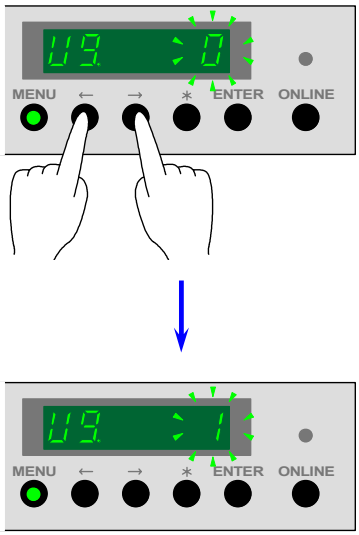


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

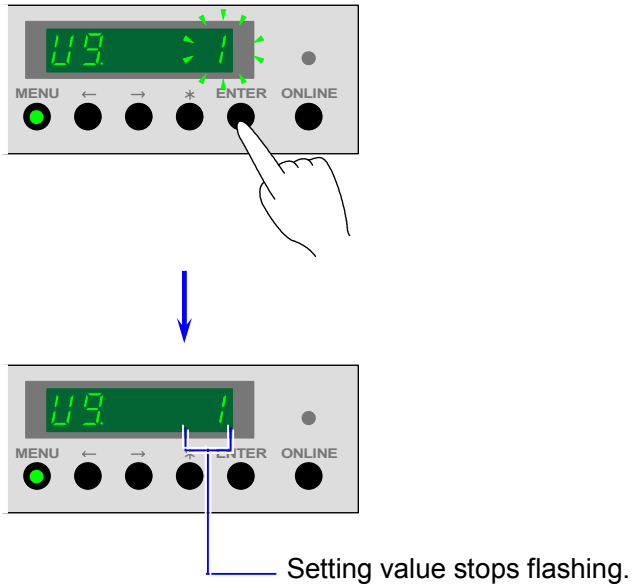


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are “0” and “1”, and the meanings are as follows.

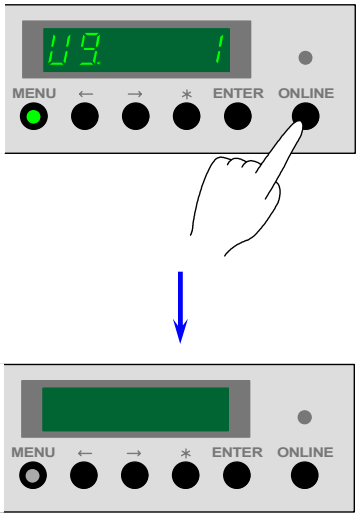
Setting value	Meaning
0	Standard Print Mode is applied in printing. (When tracing paper is used.)
1	Special Print Mode is applied in printing. (When tracing paper is used.)



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



5) Press the [ONLINE] Key to cancel the User Mode 9.



8.2.10 User Mode A (Choice of Standard Print Mode / Special Print Mode [Film])

[Function]

It is possible to select either [Standard Print Mode] or [Special Print Mode] according to the necessity.
This setting is effective when you print with a film.
Print operation of KIP8000 obeys either of print modes presently selected.

Reference

If you select the [Standard Print Mode], all of [Standard Setting Values] become effective, which you have specified in the Item Number **"0b" (corresponded to film)** of the Adjustment Mode 0 of the Service Mode. Print operation obeys these [Standard Setting Values].

If you select the [Special Print Mode], all of [Special Setting Values] similarly you have specified to these setting items become effective, and the print operation obeys these [Special Setting Values].

Refer to [(10) Standard Setting Value / Special Setting Value Changing Modes (Items No.09, 0A & 0b)] on the page 8-48 if you will change [Standard Setting Value] or [Special Setting Value].

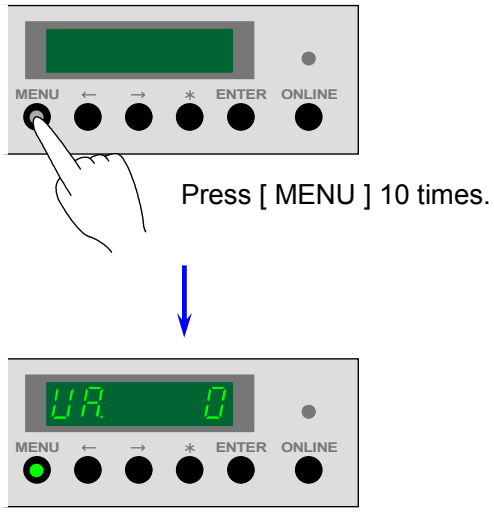
⚠ NOTE

Both the [Standard Print Mode] and the [Special Print Mode] can be specified separately to each plain paper, tracing paper and film.
User Modes 8, 9 and A can switch between [Standard Print Mode] and [Special Print Mode] similarly but the corresponded print media is different among them.
Be careful not to select in the wrong User Mode.

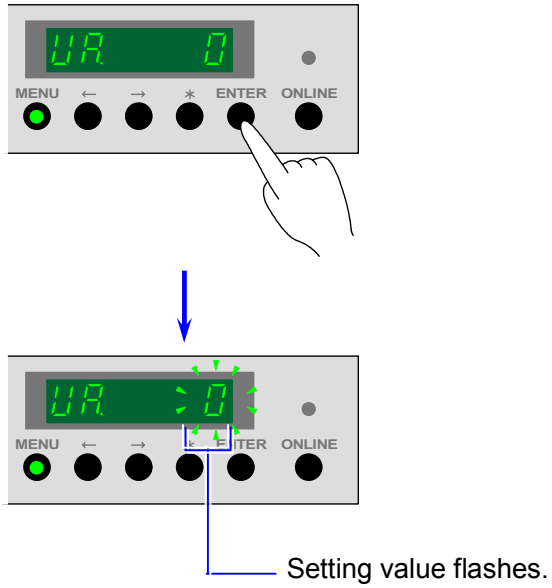
User Mode 8 : Corresponded to the plain paper
User Mode 9 : Corresponded to the tracing paper
User Mode A : Corresponded to the film

[Operation]

1) Press the [MENU] Key 10 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “UA.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode A presently.

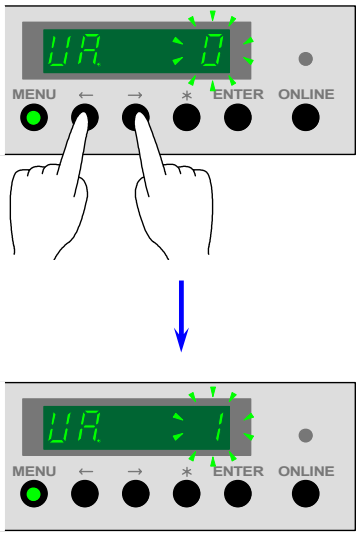


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

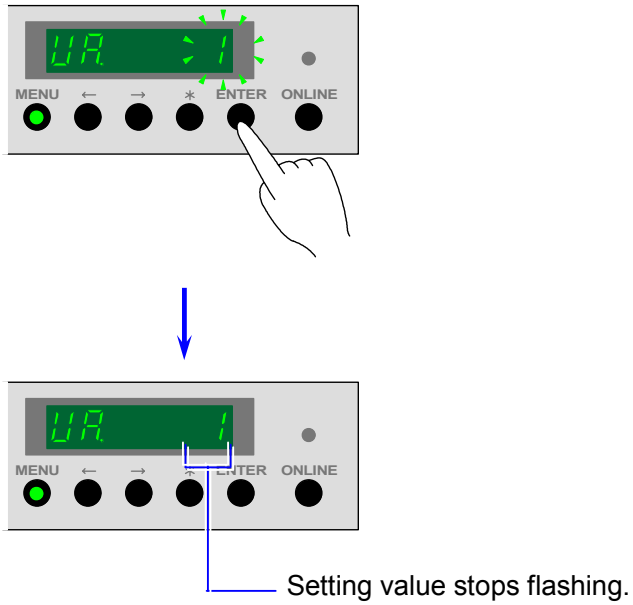


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are “0” and “1”, and the meanings are as follows.

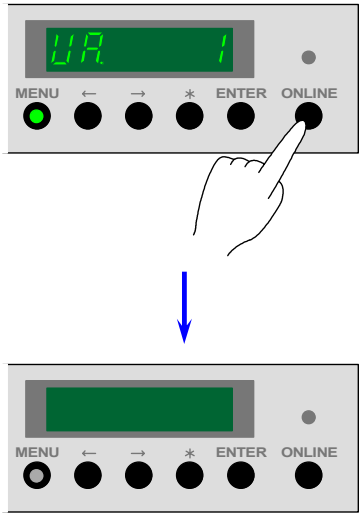
Setting value	Meaning
0	Standard Print Mode is applied in printing. (When film is used.)
1	Special Print Mode is applied in printing. (When film is used.)



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



5) Press the [ONLINE] Key to cancel the User Mode A.

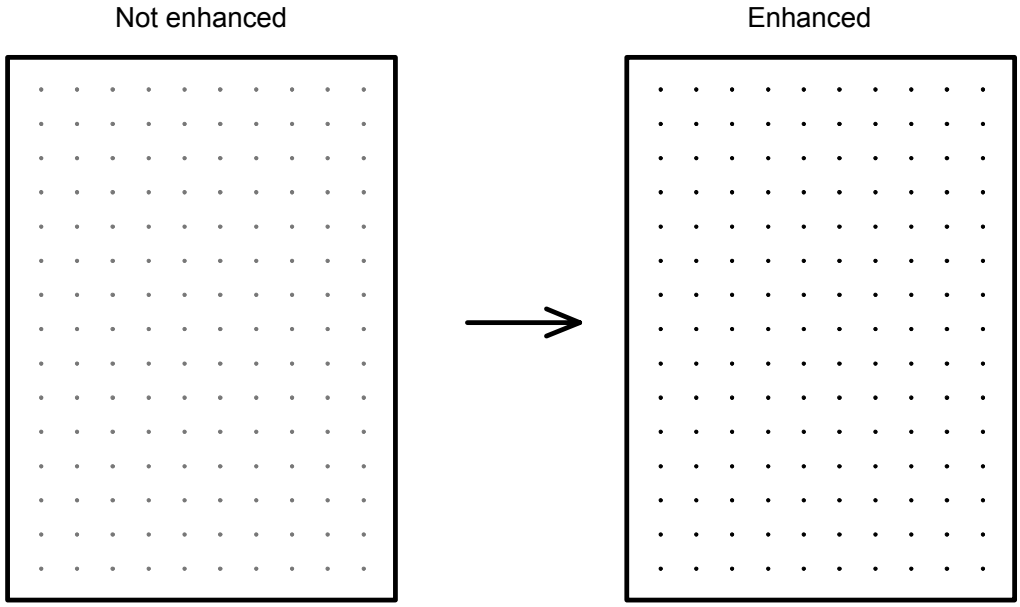


8.2.11 User Mode B (Enhancement of isolated dot image)

[Function]

If an isolated small dot image (like 1 dot) looks weak, it is possible to make it clearer by the Dot Enhancement Process.
Select any of 4 kinds of Dot Enhancement Levels.

Dot Enhancement Level 0 : Not enhanced.
Dot Enhancement Level 1 : Isolated dot image is enhanced.
Dot Enhancement Level 2 : Isolated dot image is more enhanced.
Dot Enhancement Level 3 : Isolated dot image is most enhanced.

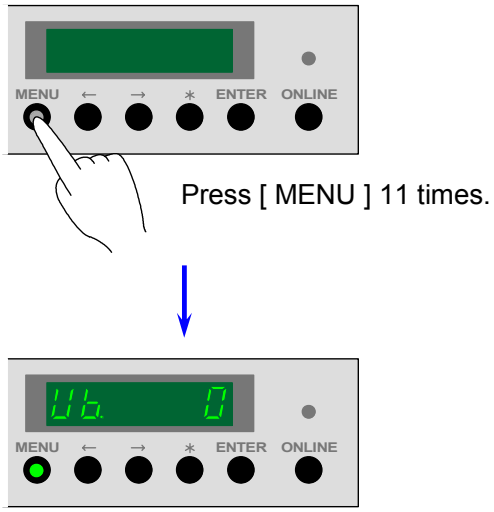


NOTE

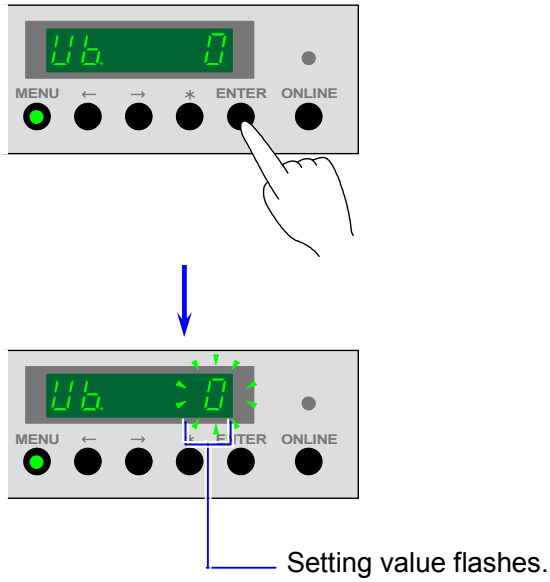
Selection of Dot Enhancement Level can be done also in the Service Mode.
Refer to [(36) Dot Enhancement Level (Item No.C7)] on the page 8-76.
The Dot Enhancement Level finally you selected in either Service Mode or User Mode is effective as neither of them has the priority of setting.

[Operation]

1) Press the [MENU] Key 11 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “Ub.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode B presently.

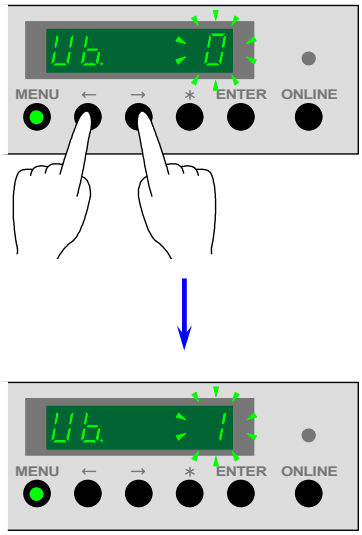


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

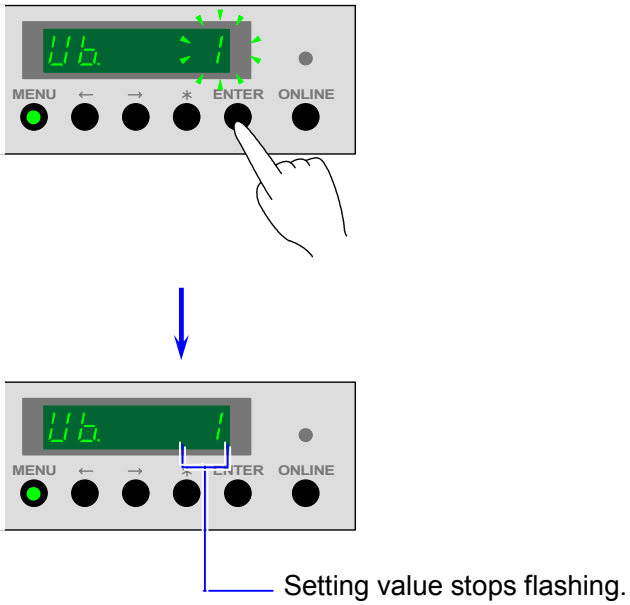


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are from “0” to “3”, and the meanings are as follows.

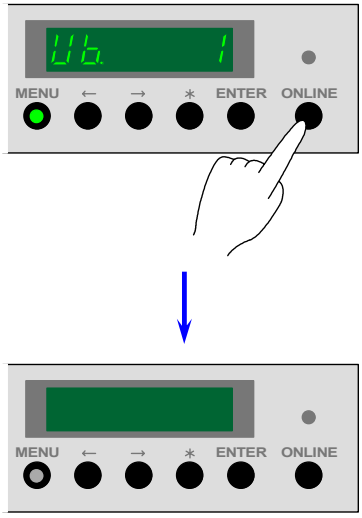
Setting value	Enhancement level	Contents
0	Dot Enhancement Level 0	Not enhanced.
1	Dot Enhancement Level 1	Enhanced.
2	Dot Enhancement Level 2	More enhanced.
3	Dot Enhancement Level 3	Most enhanced.



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



5) Press the [ONLINE] Key to cancel the User Mode B.



8.2.12 User Mode C (Enlargement of trailing image area)

[Function]

A normal print has a trailing margin as the image area is finished purposely before trailing edge of printing media.
But it is possible to print the image fully up to the trailing edge (no trailing margin is provided) if you enlarge the image area in this User Mode C.

The following 3 settings are selectable in the User Mode C.

Normal setting : Image area is not enlarged. (Default)
Enlargement setting 1 : Image area is enlarged. Interval between prints becomes longer.
Enlargement setting 2 : Image area is enlarged. Interval between prints is as usual.

⚠ NOTE

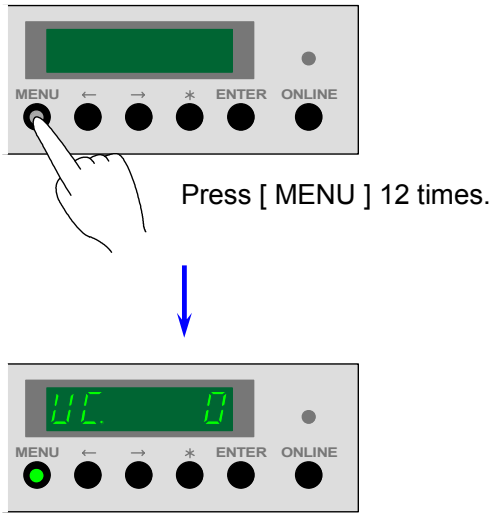
If you print some sheets continuously with enlarging the image area, the image on the trailing edge of former sheet tends to be printed weakly on the next sheet. (It is called “ghost image”.)

If you select the Enlargement Setting 1, the interval between prints becomes longer and the printer makes a special process to remove the ghost image during this interval.
Although the print productivity (sheet / time) is reduced, you can get a better print quality.

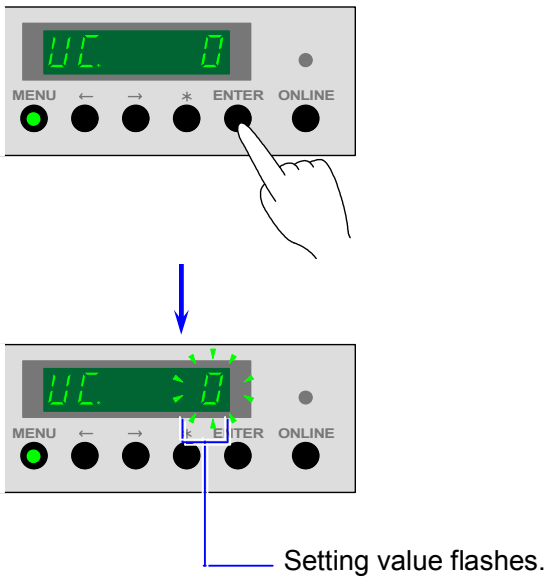
If you select the Enlargement Setting 2, the interval is as usual and the printer does not make the special process.
Although the ghost image tends to appear, large number of prints can be finished earlier.

[Operation]

1) Press the [MENU] Key 12 times when the KIP8000 is in the normal condition.
[MENU] Key lights green and the Status Display indicates “UC.” on its 1st and 2nd digits from the left showing that you are selecting the User Mode C presently.

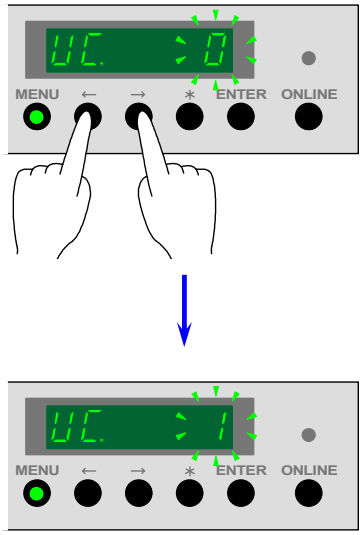


2) The Status Display indicates the setting value on the 6th digits from the left.
Press the [MENU] Key.
The setting value flashes and it becomes possible to change.

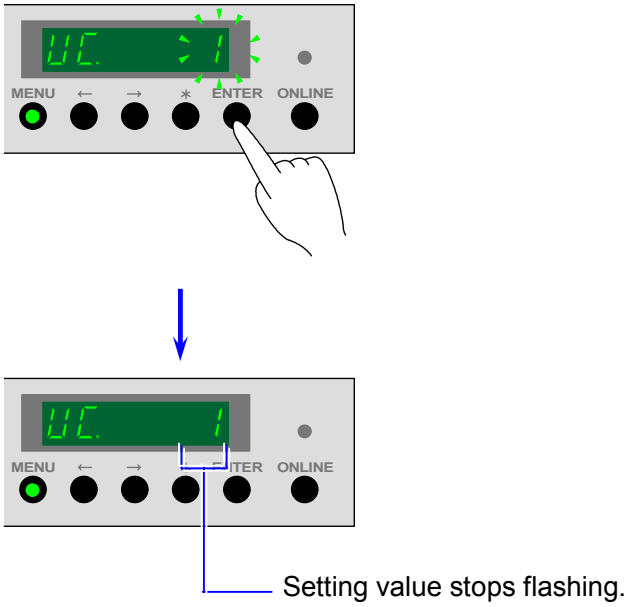


3) Change the setting value pressing [←] Key (increment) and [→] Key (decrement).
Selectable setting values are from “0” to “2”, and the meanings are as follows.

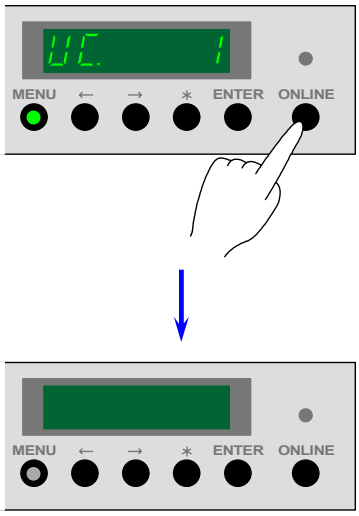
Setting value	Selected setting	Contents
0	Normal setting	Image area is not enlarged. (Default)
1	Enlargement setting 1	Image area is enlarged. Interval between prints becomes longer.
2	Enlargement setting 2	Image area is enlarged. Interval between prints is as usual.



4) Press the [ENTER] Key to decide the setting value you selected.
The setting value stops flashing when decided.



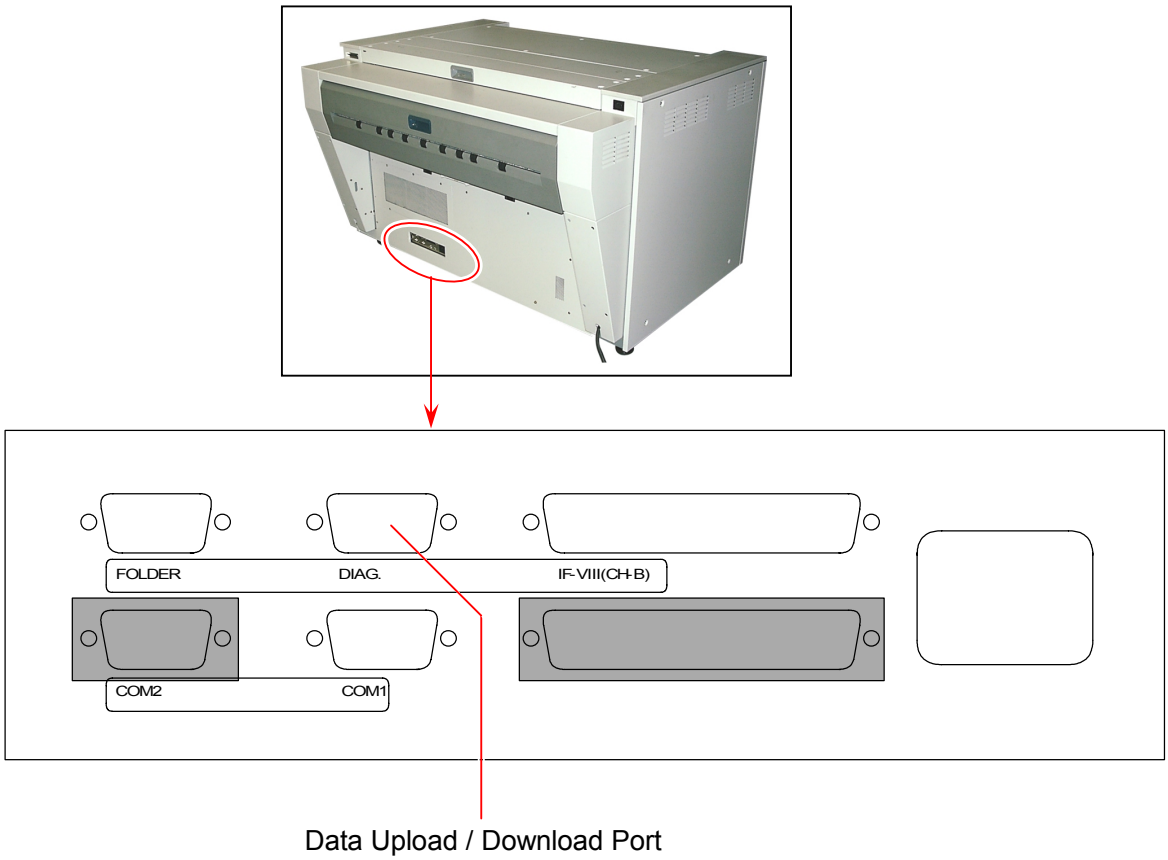
5) Press the [ONLINE] Key to cancel the User Mode C.



8.3 Operational Explanations for KIP Diagnostics

8.3.1 Connection of PC and printer, and communication settings

1) Confirm both the PC and the printer are turned off.
Connect the COM1 terminal of PC and the Data Upload / Download Port of printer with the RS232C cross cable.

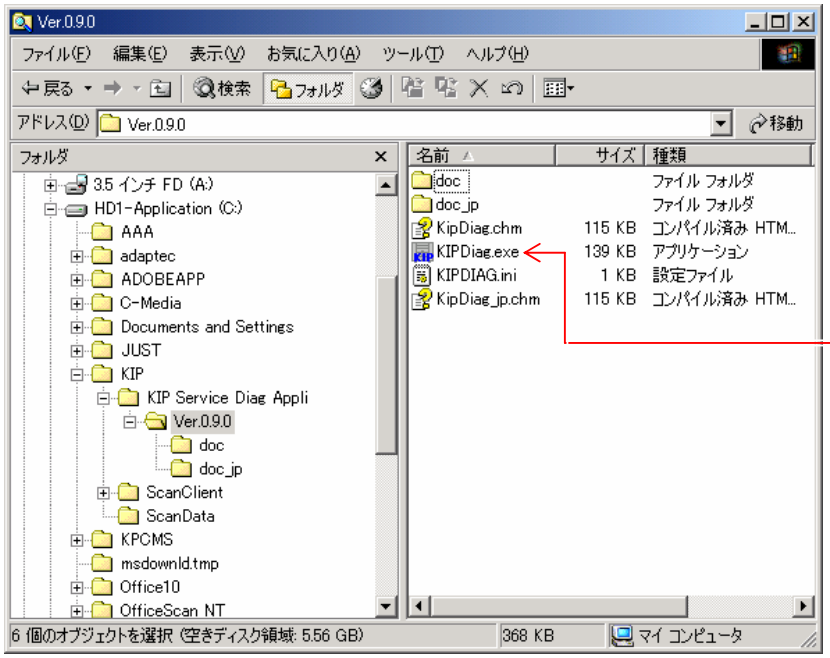


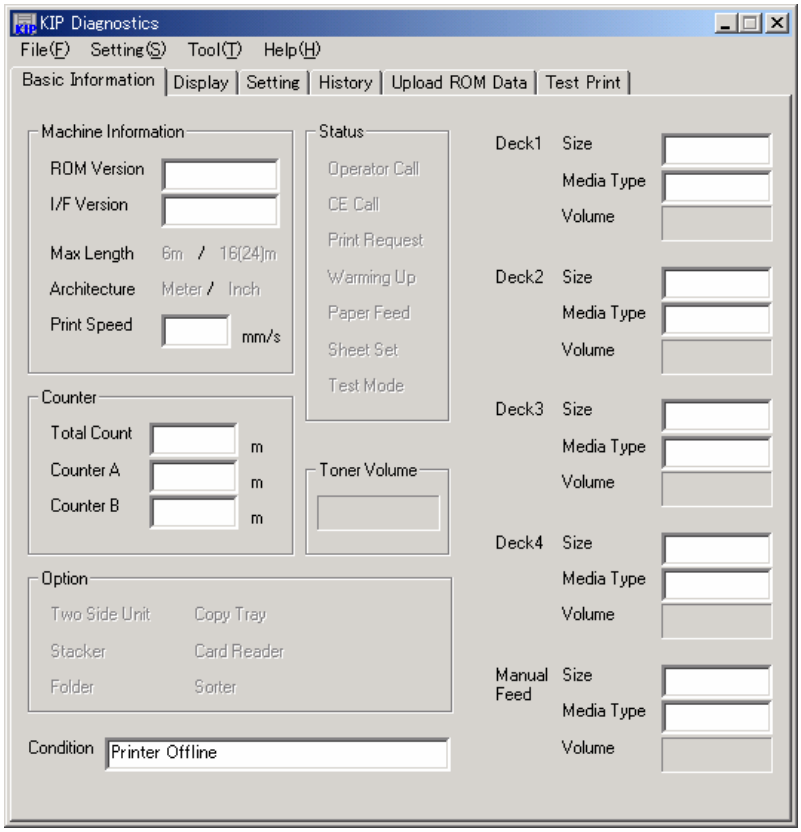
Use the following type of RS232C cable.

Printer (D-Sub 9 pins female type)		PC (D-Sub 9 pins female type)
2 RxD	―	2 RxD
3 TxD	―	3 TxD
5 SG	―	5 SG

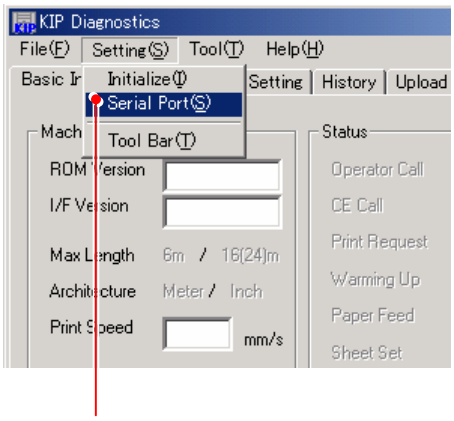
2) Turn on both the PC and the printer.
(You do not have to be care about the order to turn them on.)

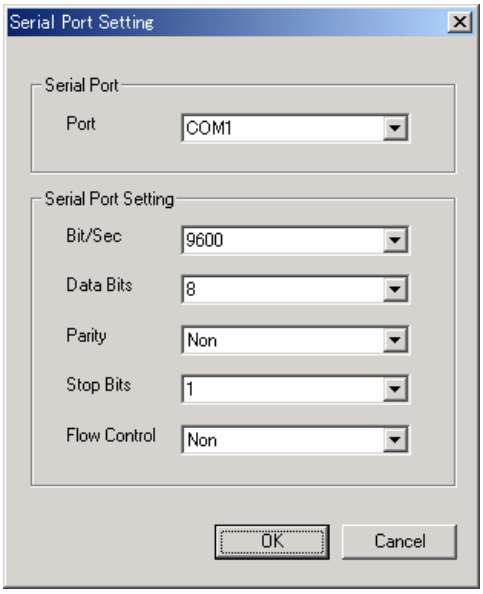
3) Double-click [KIPDiag.exe] to start the KIP Diagnostics.
(Please put [KIPDiag.exe], [KipDiag.chm] and [KipDiag_JP.chm] in the same folder.)



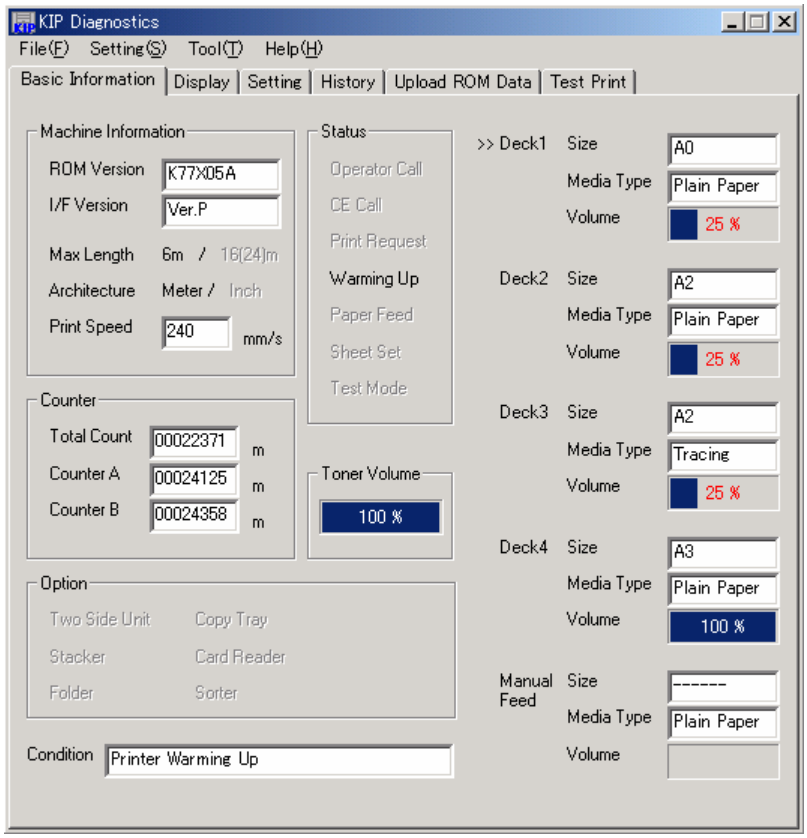


4) Select [Serial Port] from the pull down menu of [Setting].
Change each setting value in the [Serial Port Dialog] as follows, and then click [OK].
(These setting values will be indicated as the default values. Therefore, you do not have to change any value but simply click [OK].)



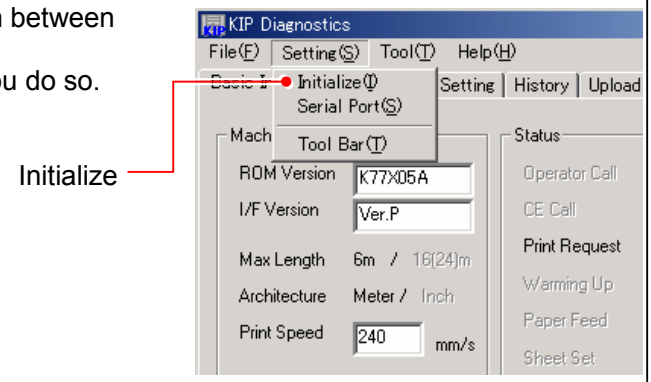


5) KIP Diagnostics starts communicating with the printer, and the information sent from the printer is indicated.



NOTE

Please click [Initialize] if the communication between KIP Diagnostics and printer is interrupted.
Their communication will be recovered if you do so.



8.3.2 Selection of Indication Tab

KIP Diagnostics has 6 kinds of Indication Tab.
If you click any Tab under the Menu Bar, concerning information is indicated.
What you can confirm and what you can do in each Tab are as follows.

Basic Screen Tab ..... You can check the basic information about printer such as ROM version or counter value.

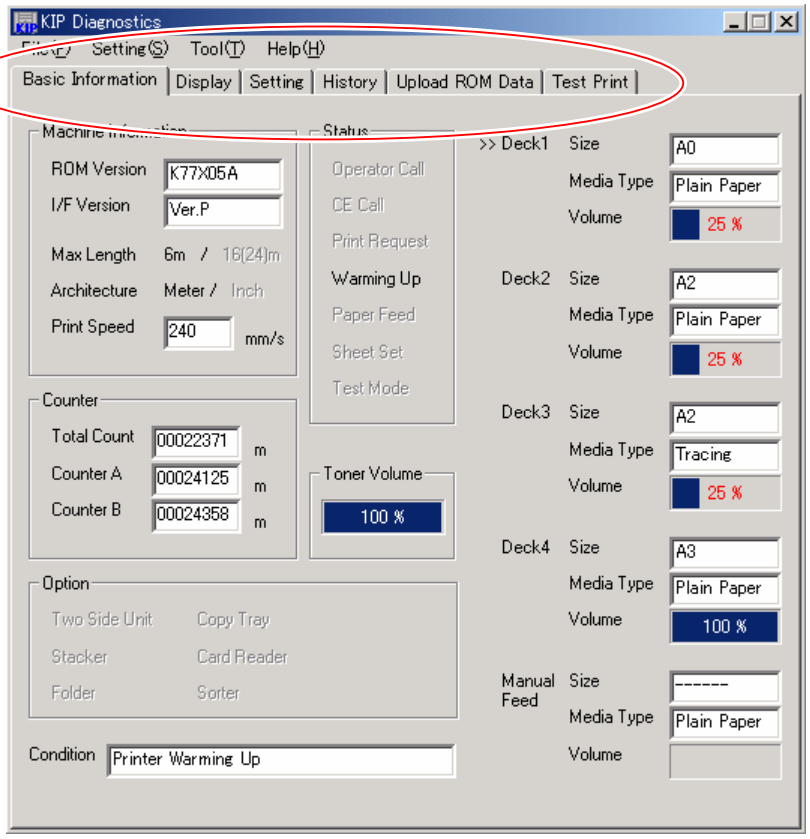
Display Tab ..... You can check or monitor the Input / output signal status and several input data.
(Display Tab covers what you can do in the Input / Output Checking Mode [Sub Mode No.1 of the Service Mode] and Data Monitoring Mode [Sub Mode No.2].)

Setting Tab ..... It is possible to change the setting value of several setting items, and it is also possible to download or upload the backup RAM file.
(Setting Tab covers what you can do in the Adjustment Mode 0 [Sub Mode No.4] and the Adjustment Mode 1 [Sub Mode No.5].)

History Tab ..... Histories of errors and jams are indicated.
Each error and jam is listed with Error/Jam Code, Date/Time and counter value.

Upload ROM Data Tab ..... You can upload the new version of firmware.

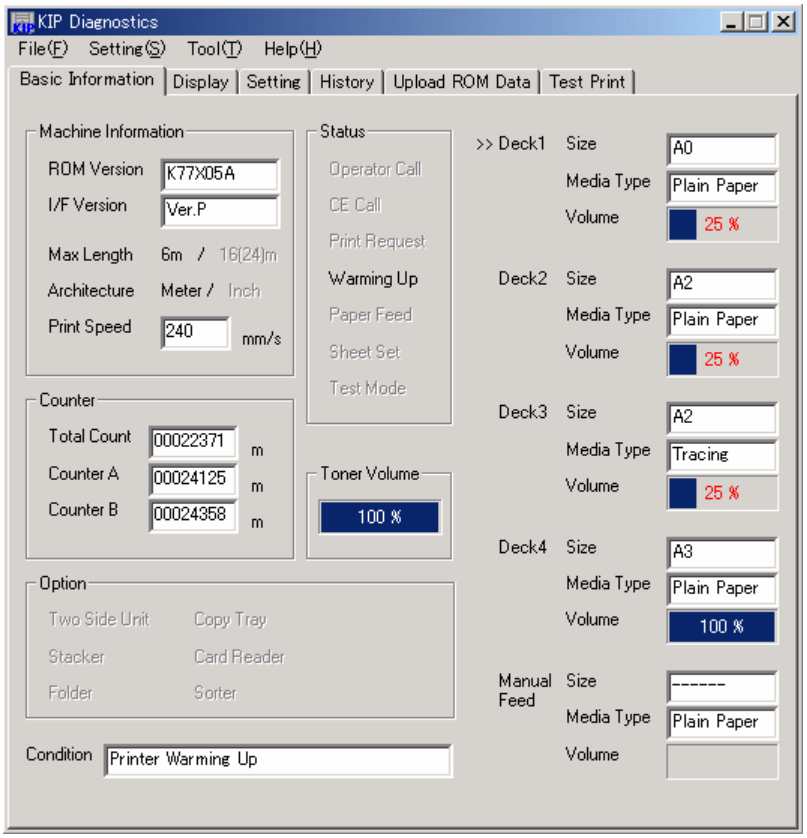
Test Print Tab ..... You can make a Test Print.
(Test Print Tab covers what you can do in the Test Print Mode [Sub Mode No.8].)



8.3.3 Explanation for each Indication Tab

8.3.3.1 Basic Information Tab

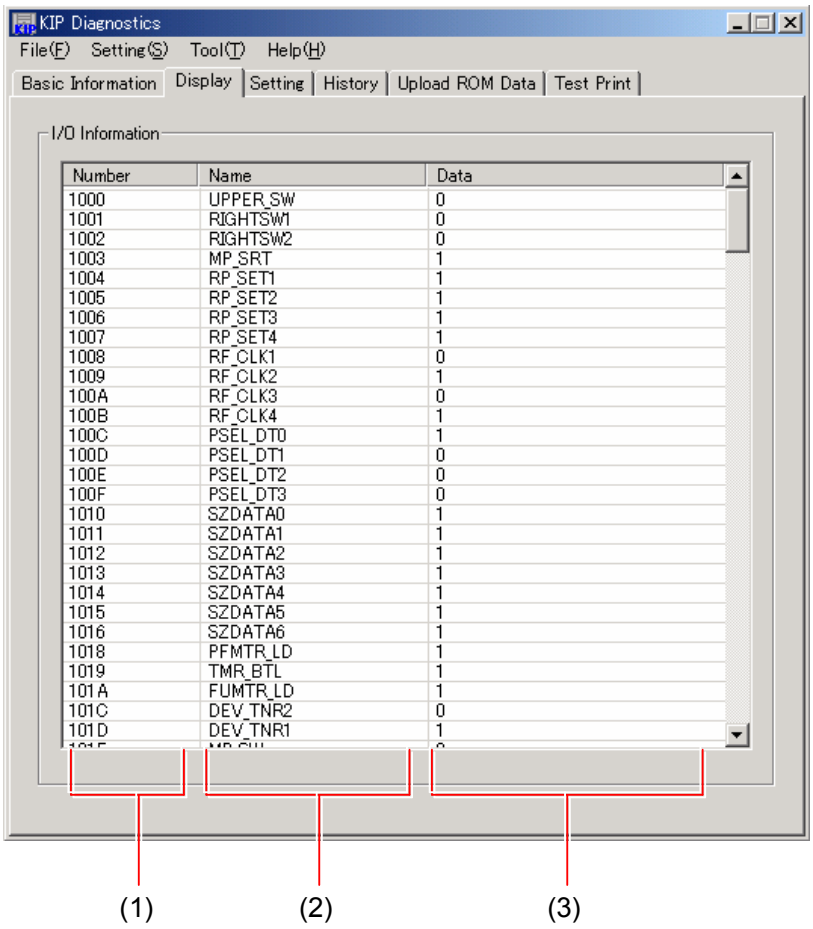
Basic Screen Tab indicates general information about the connected printer, such as firmware version and counter value.



Machine Information	ROM Version	Version of the current firmware is indicated.
	I/F Version	Version of the Interface 8 is indicated
	Max Length	Maximum available print length is shown.
	Architecture	Selected print format (metric or inch) is indicated.
	Print Speed	Speed of the connected printer is indicated.
Counter	Total Counter	Total length of print is indicated. Counting Unit is always metric (1m) regardless of Counter A/B settings.
	Counter A	Count value of the Counter A is indicated.
	Counter B	Count value of the Counter B is indicated.
Status		Printer's status is shown precisely.
Toner Volume		It shows how much percent of toner remains in the Cartridge.
Option		When some optional device is connected to the printer, it is shown.
Condition		Printer's status is shown.
Deck / Manual Feed		The following paper information is shown for each paper source. Size (Paper width) Media type Remaining volume Presently selected paper source is provided with [>>].

8.3.3.2 Display Tab

You can check or monitor the Input / output signal status and several input data.
(Display Tab covers what you can do in the Input / Output Checking Mode [Sub Mode No.1 of the Service Mode] and Data Monitoring Mode [Sub Mode No.2].)



(1) [Number] column shows several kinds of 4 digits code.
The left 2 digits of the code are either “10” or “20” which show the Sub Mode Number of Service Mode.
(“10” means the Input / Output Checking Mode and “20” means the Data Monitoring Mode.)
The right 2 digits of the code are either Signal Code (in case of Input / Output Checking Mode) or Data Number (Data Monitoring Mode).

(Examples)

1 0 1 5
- Signal Code
- Sub Mode Number of Input / Output Checking Mode

2 0 0 A
- Data Number
- Sub Mode Number of Data Monitoring Mode

(2) [Name] column shows either Signal Name (Input / Output Checking Mode) or the contents of data (Data Monitoring Mode).

(3) [Data] column shows the status of signal (Input / Output Checking Mode) or the input data (Data Monitoring Mode).

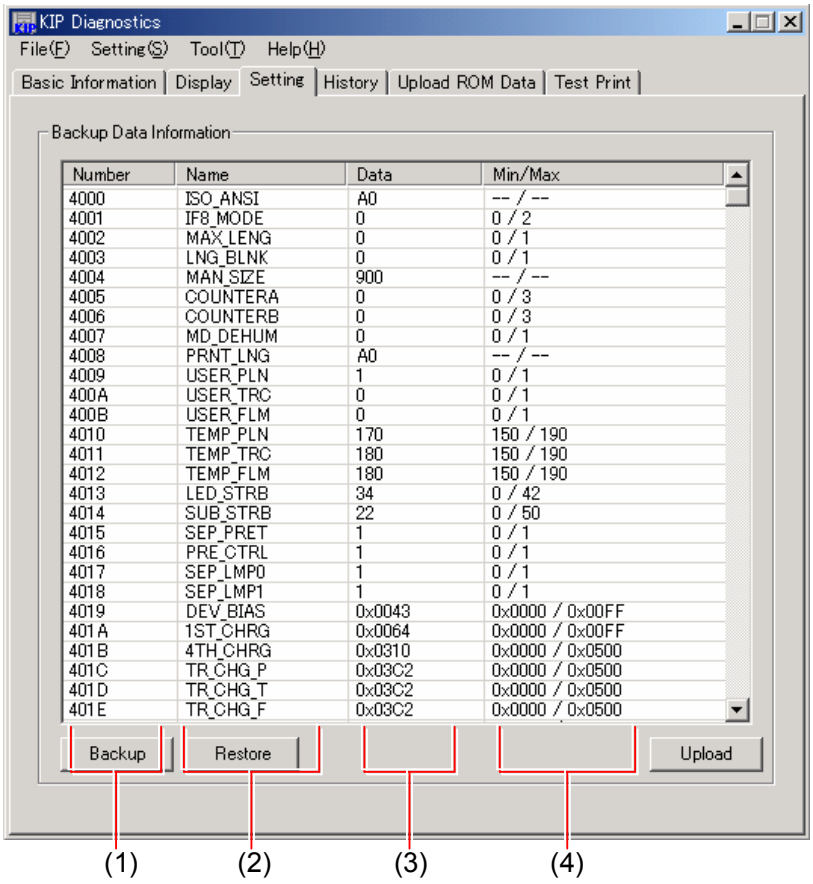
⚠ NOTE

Display Tab covers what you can do in the Input / Output Checking Mode [Sub Mode No.1 of the Service Mode] and Data Monitoring Mode [Sub Mode No.2].
So we recommend you to understand these modes deeply.

Please refer to [8.1.2 Input / Output Checking Mode (Sub Mode 1)] on and after the page 8-6 to know the contents of Signal Codes or signal status.
Please refer to [8.1.3 Data Monitoring Mode (Sub Mode 2)] on and after the page 8-16 to know the contents of Data Number or meaning of each data.

8.3.3.3 Setting Tab

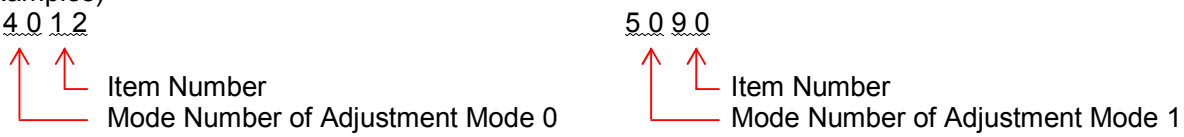
It is possible to change the setting value of several setting items included in the Adjustment Modes 0 and 1 of the Service Mode.
In addition, all these setting values can be downloaded and saved in a Backup RAM file, and this Backup RAM file can be uploaded to the printer again.



Number	Name	Data	Min/Max
4000	ISO_ANSI	A0	-- / --
4001	IF8_MODE	0	0 / 2
4002	MAX_LENG	0	0 / 1
4003	LNG_BLNK	0	0 / 1
4004	MAN_SIZE	900	-- / --
4005	COUNTERA	0	0 / 3
4006	COUNTERB	0	0 / 3
4007	MD_DEHUM	0	0 / 1
4008	PRNT_LNG	A0	-- / --
4009	USER_PLN	1	0 / 1
400A	USER_TRC	0	0 / 1
400B	USER_FLM	0	0 / 1
4010	TEMP_PLN	170	150 / 190
4011	TEMP_TRC	180	150 / 190
4012	TEMP_FLM	180	150 / 190
4013	LED_STRB	34	0 / 42
4014	SUB_STRB	22	0 / 50
4015	SEP_PRET	1	0 / 1
4016	PRE_CTRL	1	0 / 1
4017	SEP_LMP0	1	0 / 1
4018	SEP_LMP1	1	0 / 1
4019	DEV_BIAS	0x0043	0x0000 / 0x00FF
401A	1ST_CHRG	0x0064	0x0000 / 0x00FF
401B	4TH_CHRG	0x0310	0x0000 / 0x0500
401C	TR_CHG_P	0x03C2	0x0000 / 0x0500
401D	TR_CHG_T	0x03C2	0x0000 / 0x0500
401E	TR_CHG_F	0x03C2	0x0000 / 0x0500

(1) [Number] column shows several kinds of 4 digits code.
The left 2 digits of the code are either “40” or “50” which show the Sub Mode Number of Service Mode. (“40” means the Adjustment Mode 0 and “50” means the Adjustment Mode 1.)
The right 2 digits of the code are Item Number.

(Examples)



(2) [Name] column shows the subject of each Item Number.

(3) [Data] column shows the setting value presently specified to each Item Number.

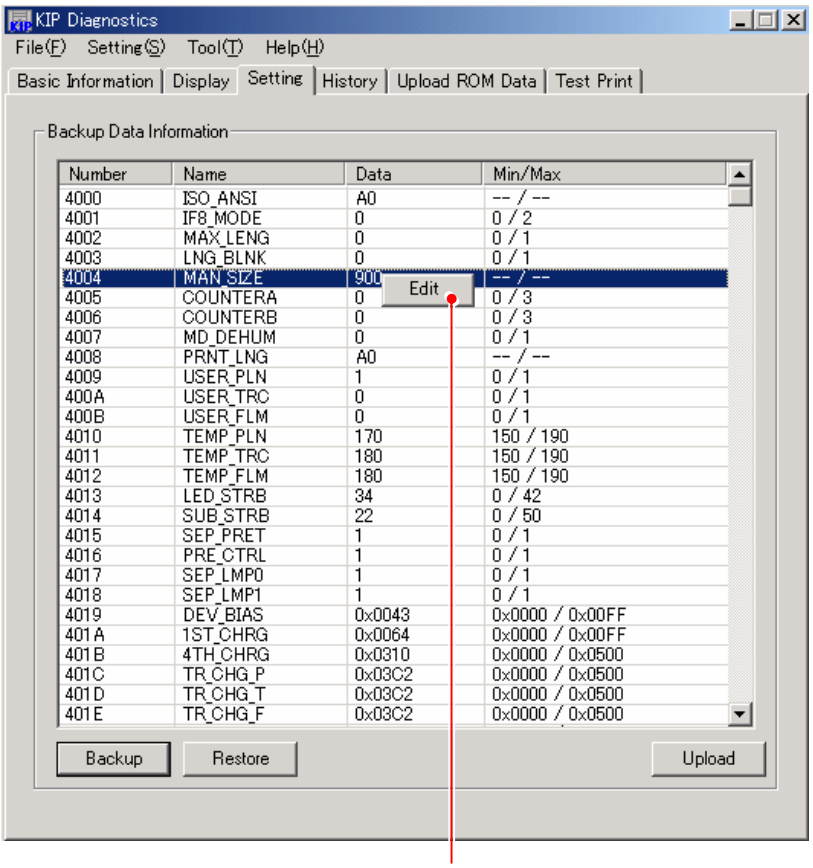
(4) [Min/Max] column shows the selectable setting values or the changeable range.

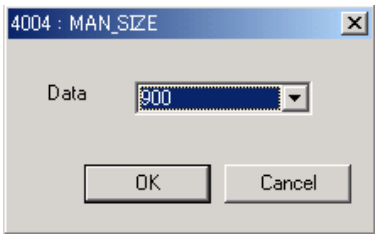
> **NOTE**
>
> Please refer to the following pages to know the details about Item Number, subjects, default setting values and the changeable range.
>
> [8.1.5 Adjustment Mode 0 (Sub Mode 4)] (On and after the page 8-33)
> [8.1.6 Adjustment Mode 1 (Sub Mode 5)] (On and after the page 8-81)

(1) How to change the setting value of each Item Number

> **NOTE**
>
> Please save all the present setting values in the Backup RAM file before changing each setting value.
> As for the way to save, refer to [(2) Saving all present setting values in the Backup RAM file (Download)] on the page 8-201.

1) Move the pointer of the mouse onto the setting value (in [Data] column) you will change, and then click the right button of the mouse.
As [Edit] is indicated, click it.
The Edit Dialog will be indicated, in which you can change the setting value.





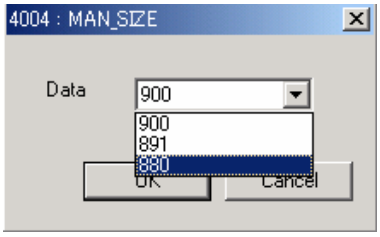
Edit Diagram

Indicate [Edit] by right clicking.

> **NOTE**
>
> You can indicate the Edit Diagram in other 2 ways.
>
> (1) Double-click on the setting value you will change.
> (2) Select the setting value by single-click, and then press the [Enter] Key of the Keyboard.

2) Change the setting value in the Edit Diagram, and then click [OK].

Example) You will change the setting value from “900” to “880”.

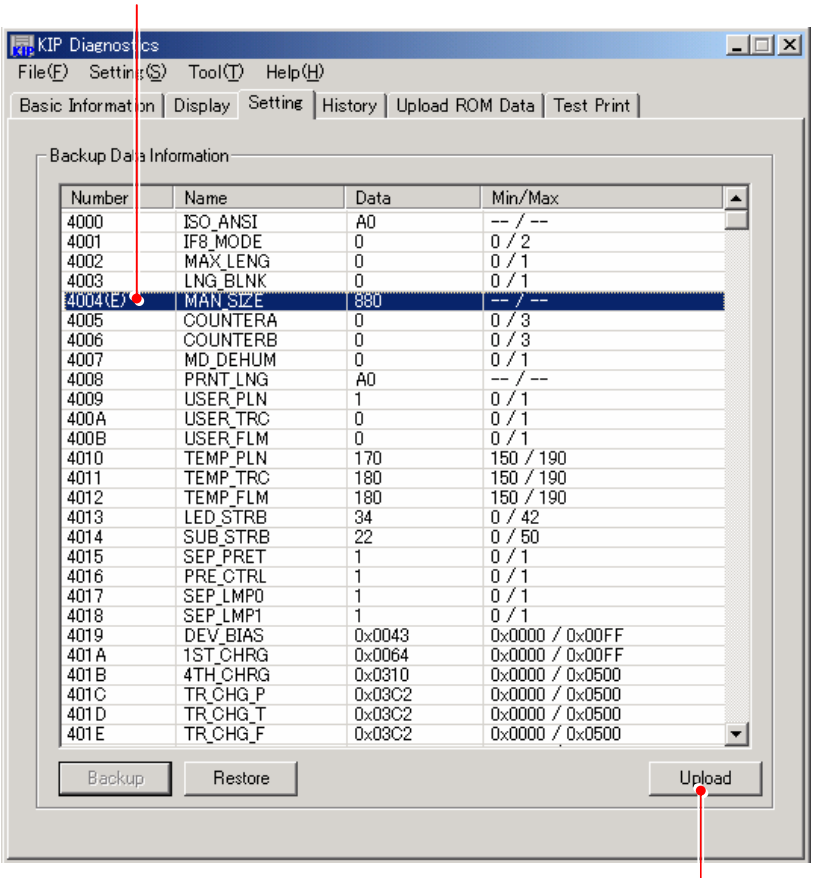


Reference

You have 2 ways to change the setting value.
One is to select any setting value from the preliminary arranged values like this example.
Another is to input some optional value through the keyboard. (Setting value must be within the changeable range.)

3) After changing the setting value, the concerning code (Item No.) is provided with [(E)] showing that its setting value (Data) has been changed.
If necessary, please change other setting values in the same way.
When you have finished changing all the necessary values, click [Upload] to transfer these changes to the printer.

[(E)] is provided after changing the setting value.



Click [Upload] to transfer the changed setting values to the printer.

4) When the new setting values have been transferred and they have become effective, [Complete] is indicated as the right picture.
Click [OK] to finish the operation to change the setting value.

(2) Saving all present setting values in the Backup RAM file (Download)

It is possible to download the setting values from the printer, which are presently specified to all Item Numbers of Adjustment Modes 0 and 1.
These downloaded setting values are saved in the Backup RAM file.

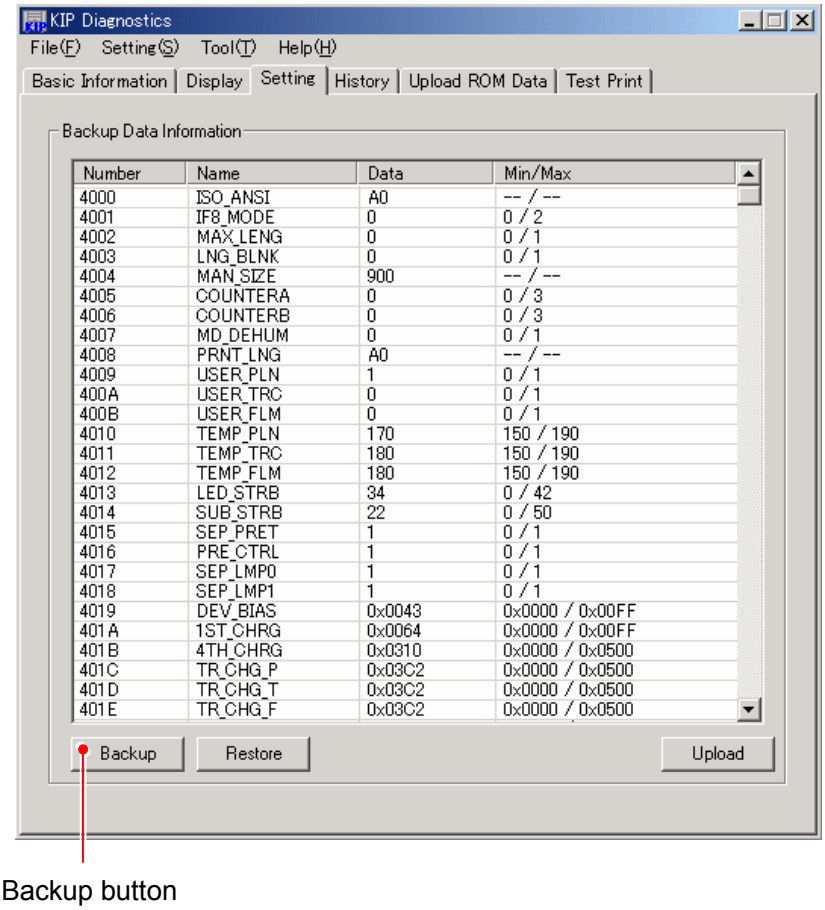
Reference

If you upload the Backup RAM file to the printer, you can recover all previous setting values which had been so at the time you saved them in the Backup RAM file.

If you will change the setting value of some Item Number, therefore, please save all present setting values in the Backup RAM file before you change.
You may lose your way when you are changing many setting items, but please upload the Backup RAM file in this case. Every previous setting value will be recovered.

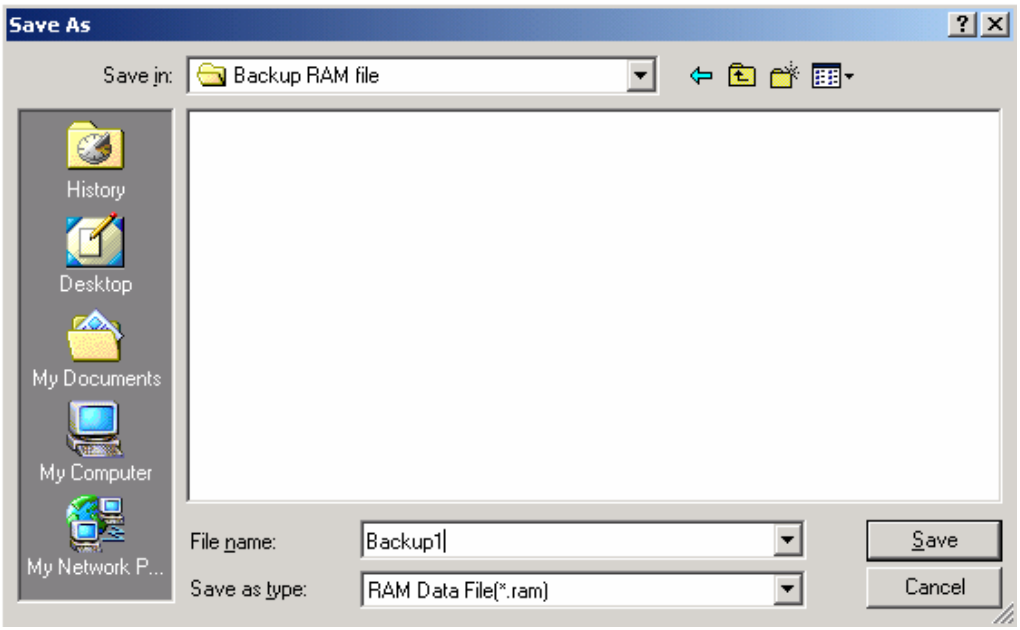
Please refer to [(3) Uploading the Backup RAM file to the printer] on the page 8-203 for the way to upload.

1) Click the [Backup] button.



Backup button

2) The following diagram is indicated.
Input a filename for the Backup RAM file, select the folder you will save it, and then click [Save].
Present setting values of all Item Numbers are downloaded from the printer and saved in the Backup RAM file.



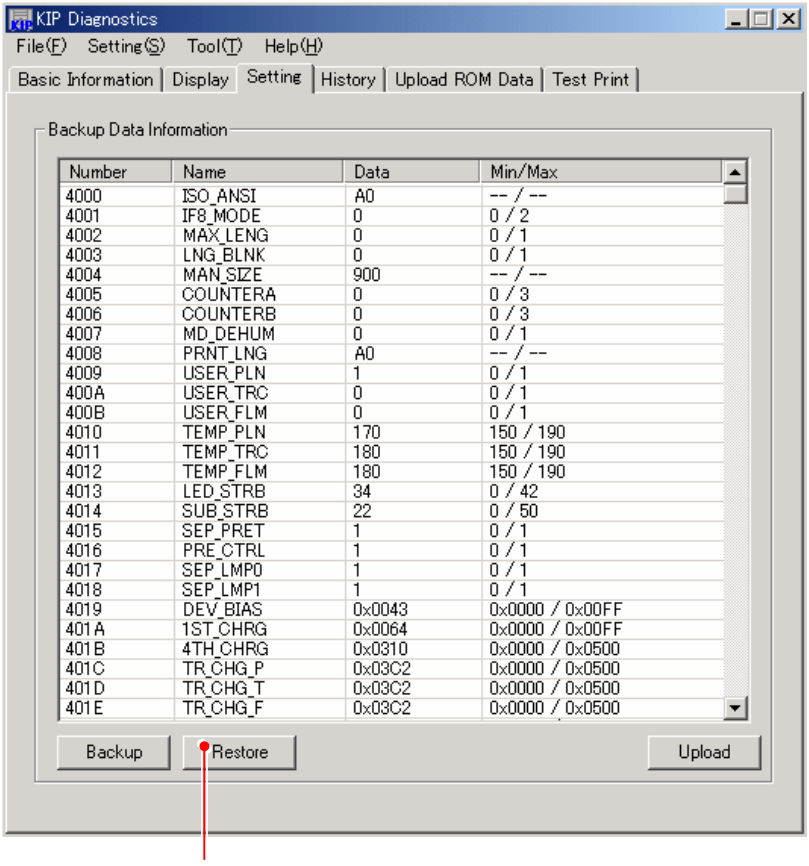
(3) Uploading the Backup RAM file to the printer

It is possible to upload (return) the Backup RAM file to the printer.
If you make upload, all setting values included in the Adjustments Mode 0 and 1 will become same with the values saved in the Backup RAM file.
Please do it in the following cases.

(1) In case you have lost all setting values by some reason unfortunately, and you would like to recover them.
(2) In case you would like to share completely same setting condition between 2 individual machines (You will download the setting values from one machine and then upload them to another one.)

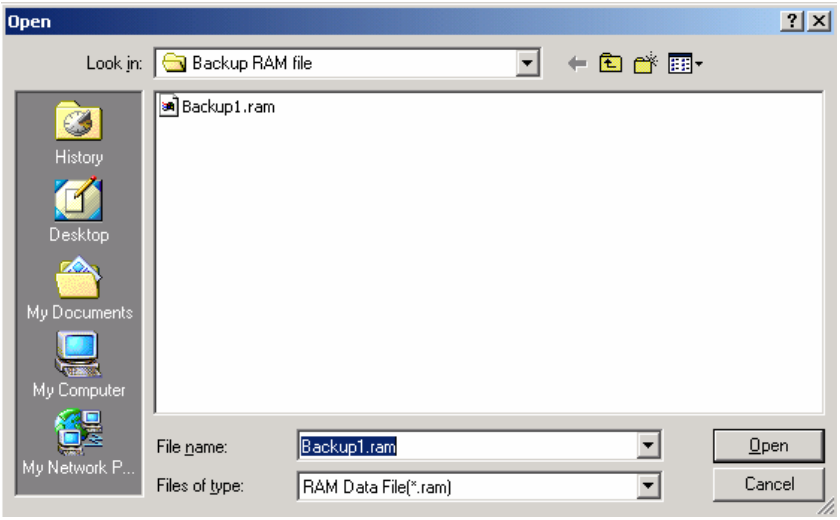
Please upload the Backup RAM file in the following way.

1) Click the [Restore] button.



Restore button

2) The following diagram is indicated.
Please select the Backup RAM file you will upload to the printer, and then click [Open].



3) KIP Diagnostics reads the save condition in the Backup RAM file.
If the present setting value of some Item Number is different from the saved one, present one is replaced with the saved one. (Indication in [Data] column changes from the present value to the saved one.)
[Complete!] will be indicated when all setting values have been changed according to the save conditions.

Backup Data Information

Number	Name	Data	Min/Max
4000	ISO_ANSI	A0	-- / --
4001	IF8_MODE	0	0 / 2
4002	MAX_LENG	0	0 / 1
4003	LNG_BLNK	0	0 / 1
4004	MAN_SIZE	900	-- / --
4005	COUNTERA	0	0 / 3
4006	COUNTERB	0	0 / 3
4007	MD_DEHUM	0	0 / 1
4008	PRNT_LNG	A0	-- / --
4009	USER_PLN	1	0 / 1
400A	USER_TRC	0	0 / 1
400B	USER_FLM	0	0 / 1
4010	TEMP_PLN	170	150 / 190
4011	TEMP_TRC	180	150 / 190
4012	TEMP_FLM	180	150 / 190
4013	LED_STRB	34	0 / 42
4014	SUB_STRB	22	0 / 50
4015	SEP_PRET	1	0 / 1

↓ Present setting values are replaced with the saved ones.

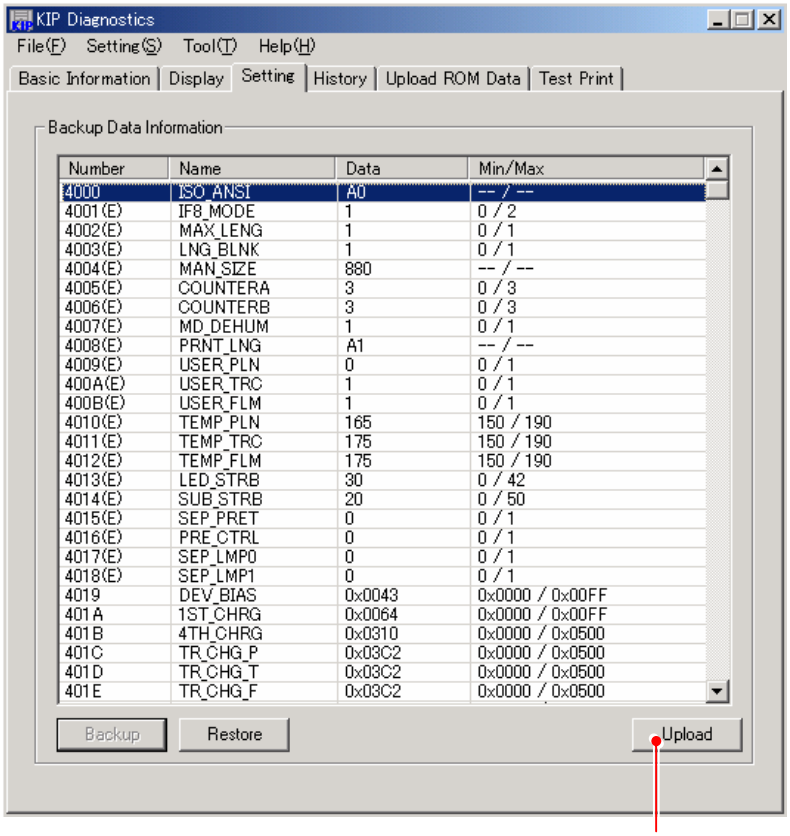
Backup Data Information

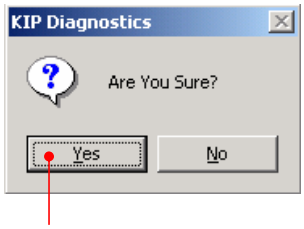
Number	Name	Data	Min/Max
4000	ISO_ANSI	A0	-- / --
4001(E)	IF8_MODE	1	0 / 2
4002(E)	MAX_LENG	1	0 / 1
4003(E)	LNG_BLNK	1	0 / 1
4004(E)	MAN_SIZE	880	-- / --
4005(E)	COUNTERA	3	0 / 3
4006(E)	COUNTERB	3	0 / 3
4007(E)	MD_DEHUM	1	0 / 1
4008(E)	PRNT_LNG	A1	-- / --
4009(E)	USER_PLN	0	0 / 1
400A(E)	USER_TRC	1	0 / 1
400B(E)	USER_FLM	1	0 / 1
4010(E)	TEMP_PLN	165	150 / 190
4011(E)	TEMP_TRC	175	150 / 190
4012(E)	TEMP_FLM	175	150 / 190
4013(E)	LED_STRB	30	0 / 42
4014(E)	SUB_STRB	20	0 / 50
4015(E)	SEP_PRET	0	0 / 1

NOTE

The contents of the Backup RAM file have not been effective yet on printer's side at this time. (Please understand that only the indication of setting values on the application is changed.) To make them effective on printer's side, it is necessary to transfer them to the printer in the next step 4).

4) Click the [Upload] button, and the confirmation dialog will be indicated.
If you click [Yes] in the confirmation dialog, all the setting values indicated on the application are transferred to the printer.



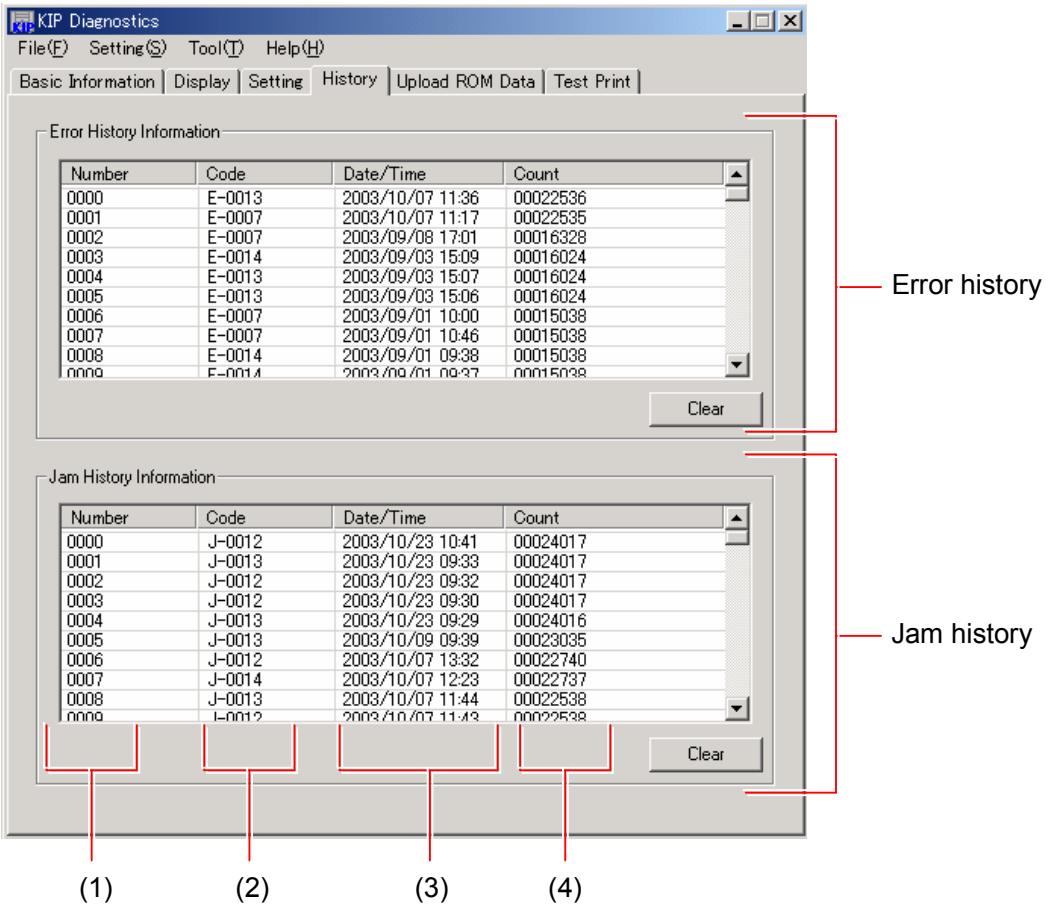


Click [Yes] to transfer the setting values.

5) When all the setting values have been transferred and they have become effective, [Complete!] will be indicated.
Click [OK] to finish the upload operation.

8.3.3.4 History Tab

History Tab indicates every error (Service Call Error) and jam recorded in printer's memory. (It is possible to clear the record of them.)



(1) [Number] column shows the order that the error or jam occurred.
Smaller number shows more recently occurred error or jam.

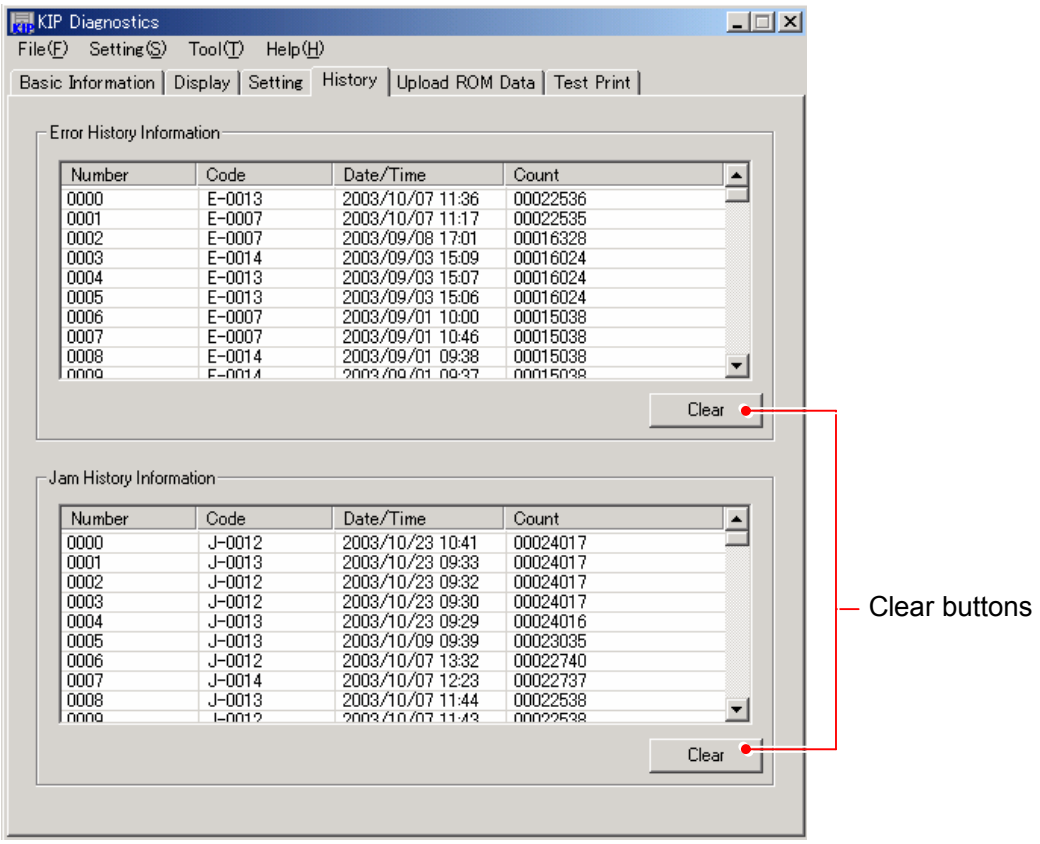
(2) [Code] column shows either Error Code (E-00XX) or Jam Code (J-00XX).

(3) [Date/Time] column shows the date and time the error or jam occurred.

(4) [Count] column shows the counter value at the time the error or jam occurred.

(1) Clearing error / jam histories

1) There are 2 [Clear] buttons on the History Tab.
One is for clearing the record of error and another is for clearing that of jam.
Click either of [Clear] buttons according to the necessity.



2) The record of every error or jam will be deleted.
When [Complete!] is indicated, click [OK].

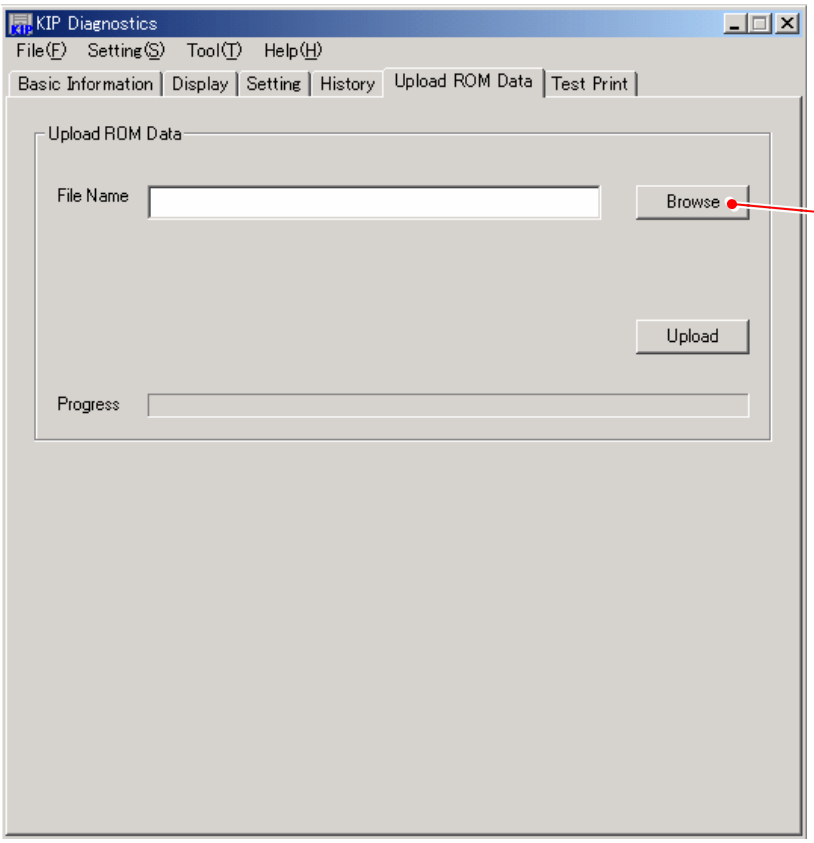
8.3.3.5 Upload ROM Data Tab

It is possible to update the firmware by uploading the new ROM file to the printer.
(ROM file will be supplied from the manufacturer.)

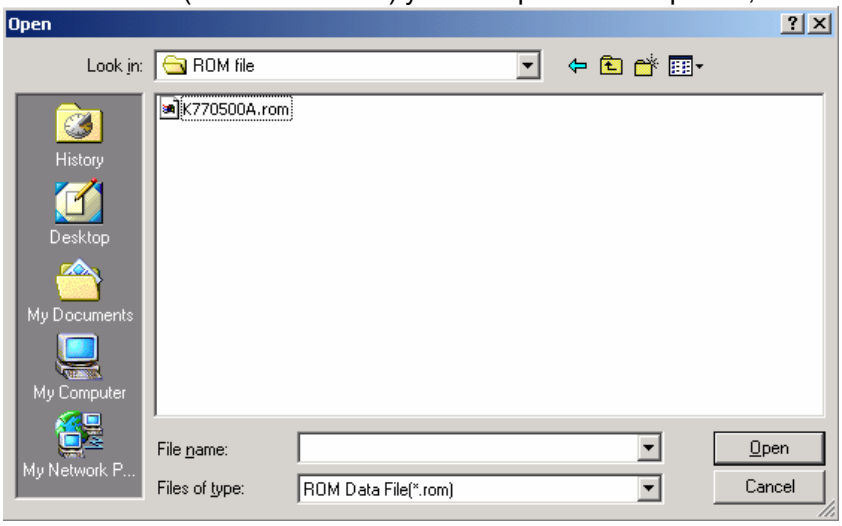
> **NOTE**
>
> The present setting values specified to all setting items in the Adjustment Modes 0 and 1 will be kept surely even if you make firmware update. (For the brand-new setting items, setting values will become default.)
> However, please save the present setting values in the Backup RAM file for the safety before firmware update.

(1) How to update the firmware

1) Click [Browse] button on the Upload ROM Data Tab.



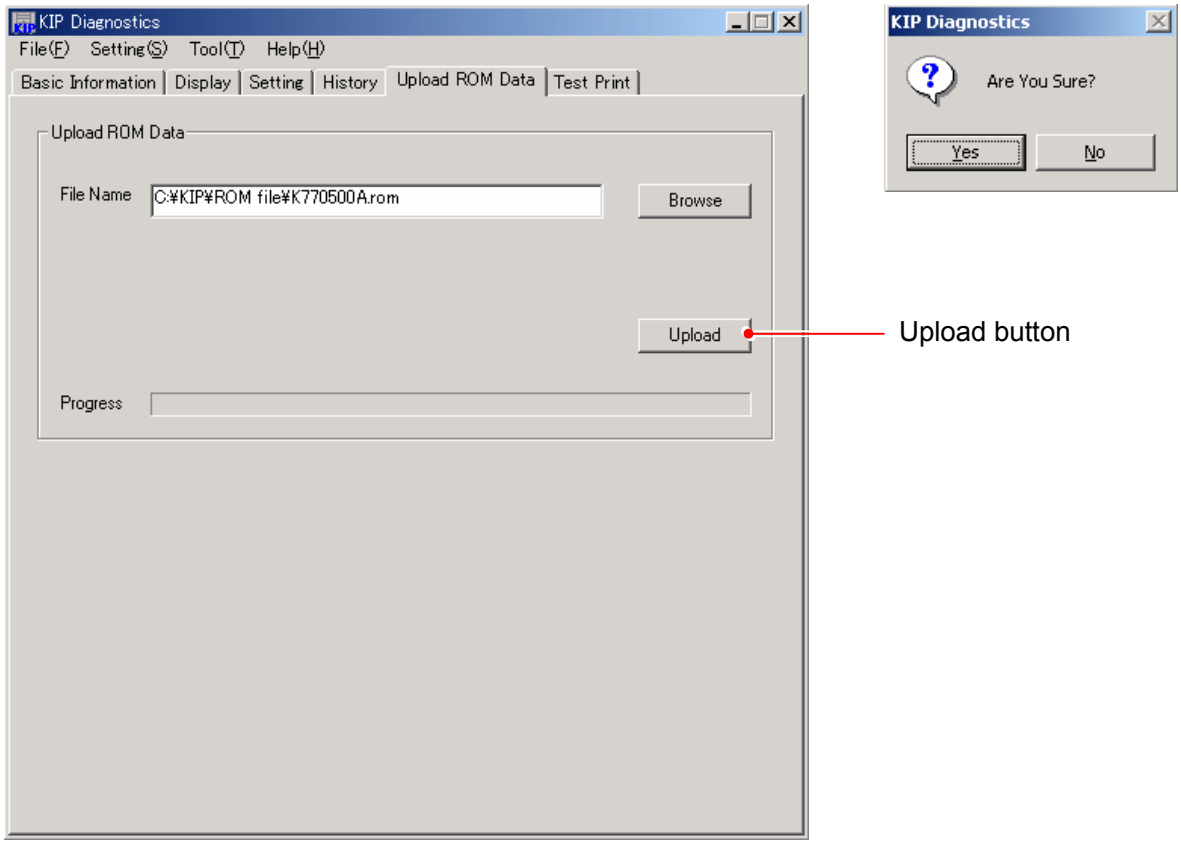
2) The following diagram is indicated.
Please select the firmware (ROM file : *.rom) you will upload to the printer, and then click [Open].



NOTE

Firmware (ROM file) will be supplied from the manufacturer.

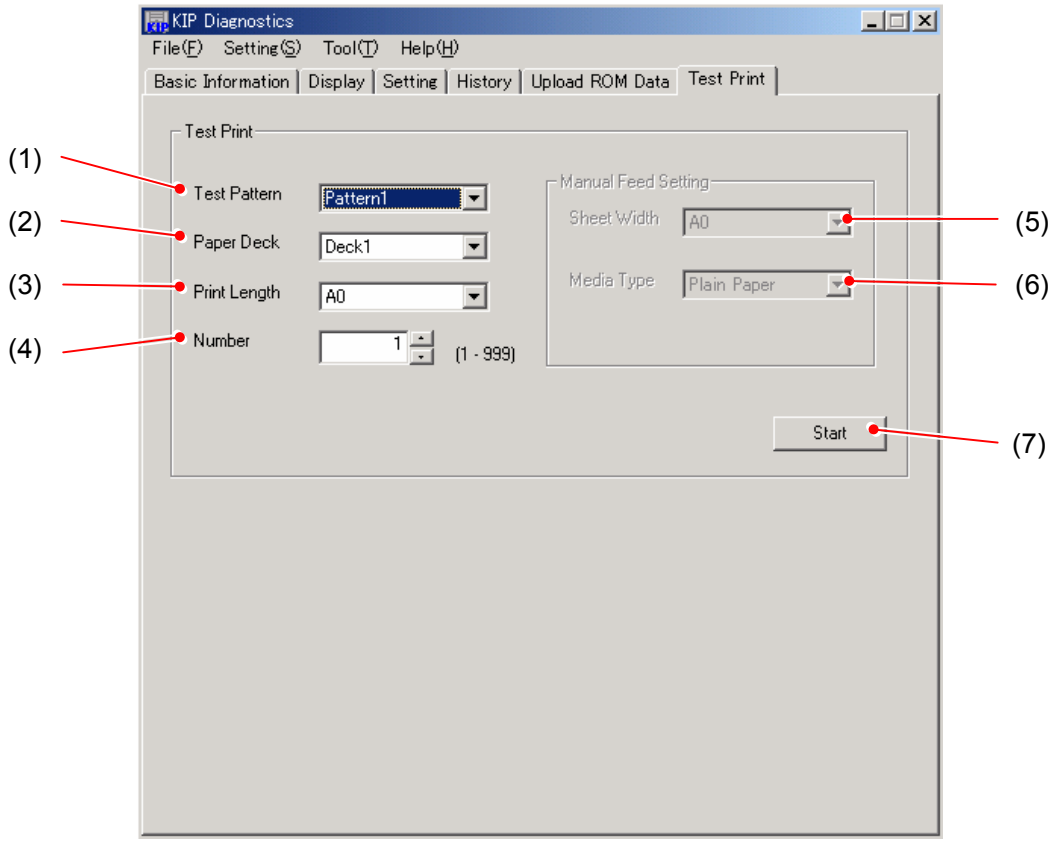
3) Confirm that the filename of ROM file and its path are indicated in [Filename], and then click [Upload] button.
As the confirmation dialog is indicated, click [Yes].
KIP Diagnostics starts transferring the ROM file to the printer.
It will take some minutes until file transfer is finished, and [Progress] shows how much task has been finished.



4) Printer is restarted automatically when file transfer has been finished, and [Complete!] is indicated on the application side.
Click [OK] to finish firmware update operation.

8.3.3.6 Test Print Tab

It is possible to make Test Print specifying test pastern, cut length, number of print and media type. (Test Print Tab covers what you can do in the Test Print Mode [Sub Mode No.8].)



(1) Select any of preliminary arranged 8 kinds of test pattern.

(2) Specify any of Roll Decks 1, 2, 3, 4 and Bypass Feeder as the paper source.

(3) Select any of preliminary arranged cut lengths.

(4) Specify how many sheets you will print. Maximum is 999 sheets.

(7) Click [Start] to start printing.

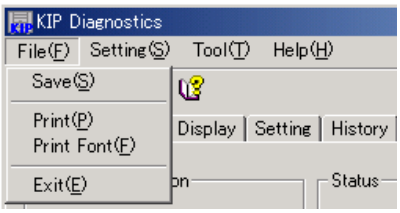
[Manual Feed Setting] area becomes changeable if you specify “Manual Feed” to [Paper Deck].

(5) Select any of preliminary arranged paper widths according to the used cut sheet paper.

(6) Select any of “Plain Paper”, “Tracing Paper” and “Film” according to the type of used cut sheet paper.

8.3.4 Explanation for Menu Bar and Tool Bar

8.3.4.1 File



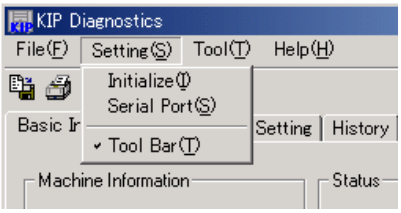
Save ..... You can save the indicated information of each Tab in the text file format. (Basic Information, Display, Setting and History Tabs can be saved.)

Print ..... You can print out the indicated information of each Tab through the Windows Printer Driver. (Basic Information, Display, Setting and History Tabs can be printed out.)

Print Font ..... You can change the print font that is applied when you print out the information of each Tab.

Exit ..... You can finish the KIP Diagnostics.

8.3.4.2 Setting

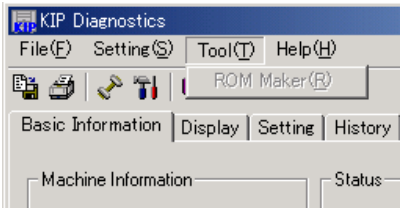


Initialize ..... When the communication between KIP Diagnostics and printer is interrupted, you can initialize the communication and reconnect them each other.

Serial Port ..... You can specify some communication settings between KIP Diagnostics and printer.

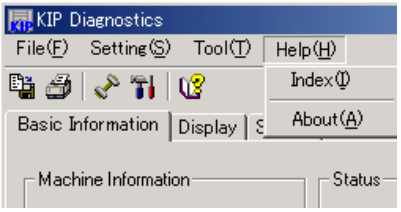
Tool Bar ..... Tool Bar is indicated when checked.

8.3.4.3 Tool



ROM Maker ..... Only the firmware engineer on manufacturer side can use [ROM Maker]. No one on service side can access it therefore.

8.3.4.4 Help

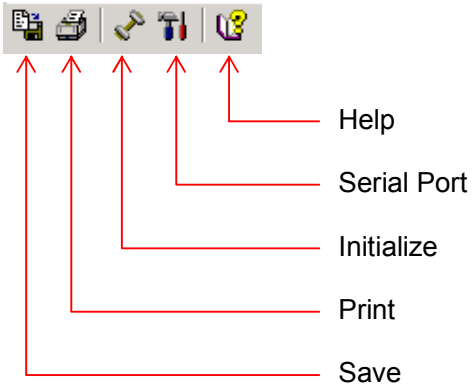


Index ..... You can search several functional explanations of KIP Diagnostics following [Contents] or [Index].

About ..... Some information like the version of KIP Diagnostics is indicated.

8.3.4.5 Tool bar

The meaning of each icon is as follows.



Chapter 9

Appendices

Timing Chart

Schematic Electronic Diagram

KIP8000 Timing Chart

Condition : 1 sheet of A0 (L:1189mm x W:841mm) with Roll 1
Service Mode (Adjustment Mode) settings : 4-15 is 0.
4-16 is 1.
4-17 is 1.
4-bF is 1.

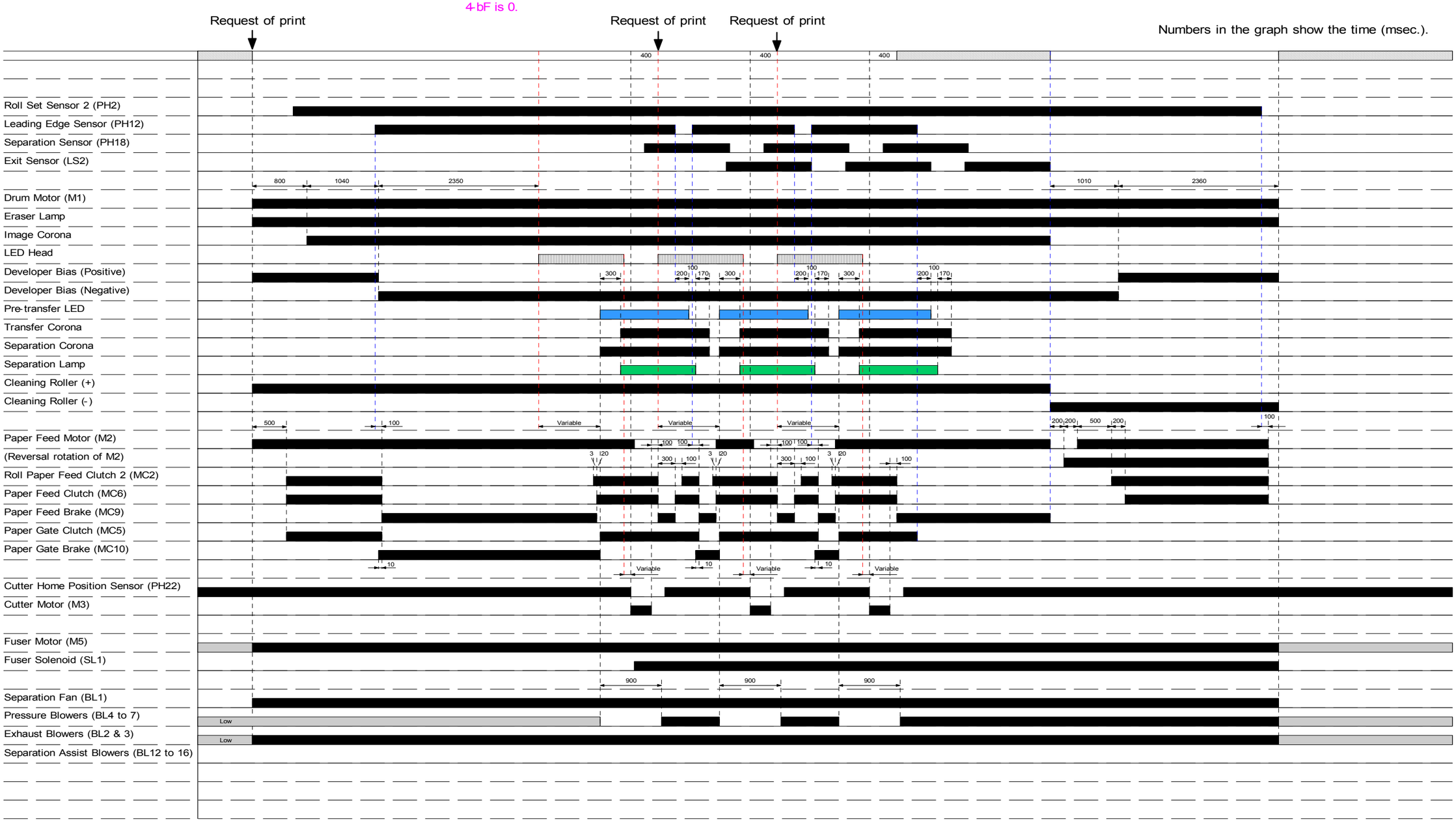
A0, B1, 36", 34" & 30"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :ON
BL12 & 16 (SEPBLW4) :ON

A1, B2, A2, B3, 24", 22", 18" & 17"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :ON
BL12 & 16 (SEPBLW4) :OFF

A3, 12" & 11"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :OFF
BL12 & 16 (SEPBLW4) :OFF

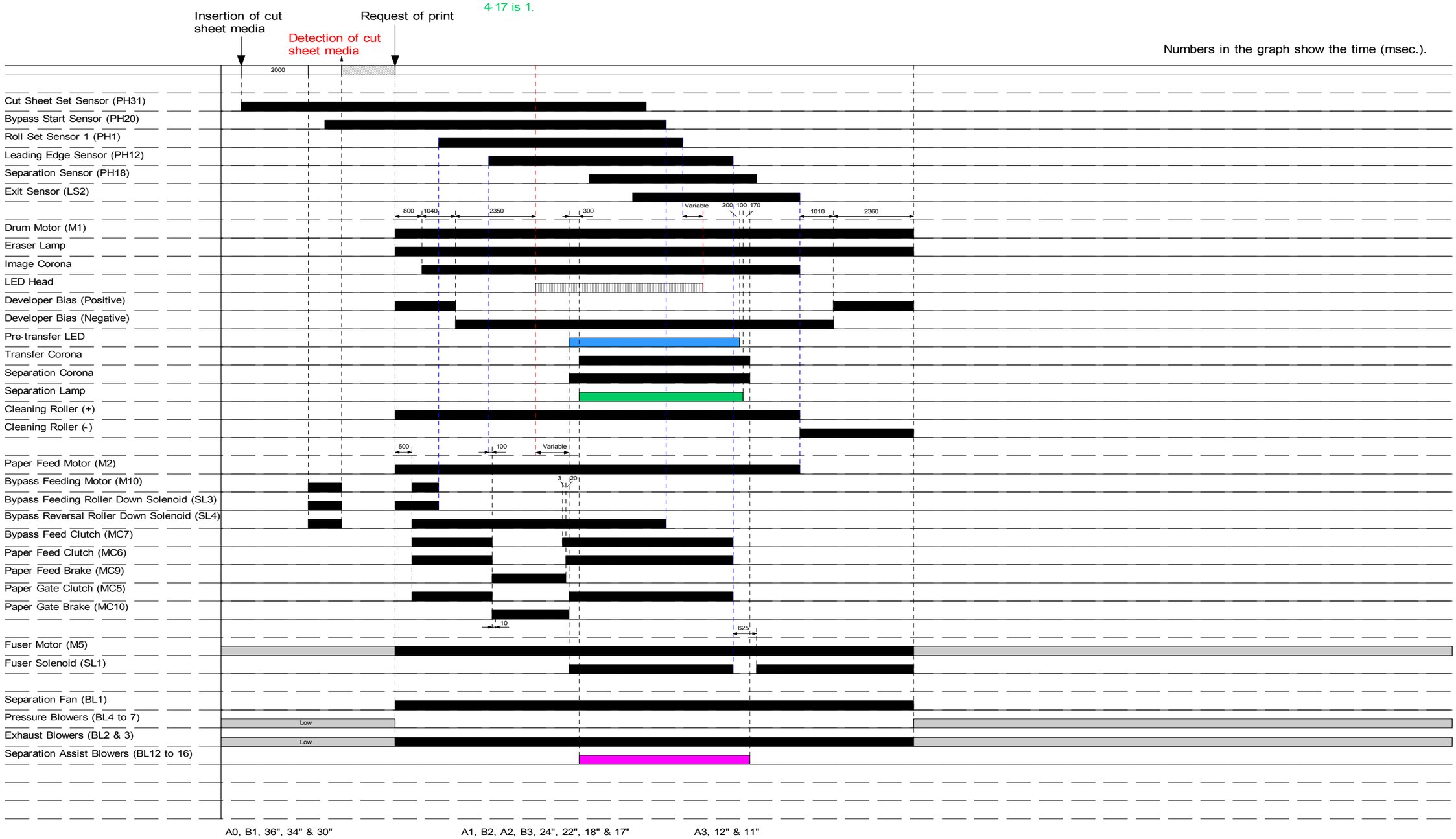
KIP8000 Timing Chart

Condition : 3 sheets of A3 (L:297mm x W:210mm) with Roll 2
Service Mode (Adjustment Mode) settings : 4-15 is 0.
4-16 is 1.
4-17 is 1.
4-bF is 0.



KIP8000 Timing Chart

Condition : 1 sheet of A0 (L:841mm x W:1189mm) from Bypass Feeder
Service Mode (Adjustment Mode) settings : 4-15 is 0.
4-16 is 1.
4-17 is 1.



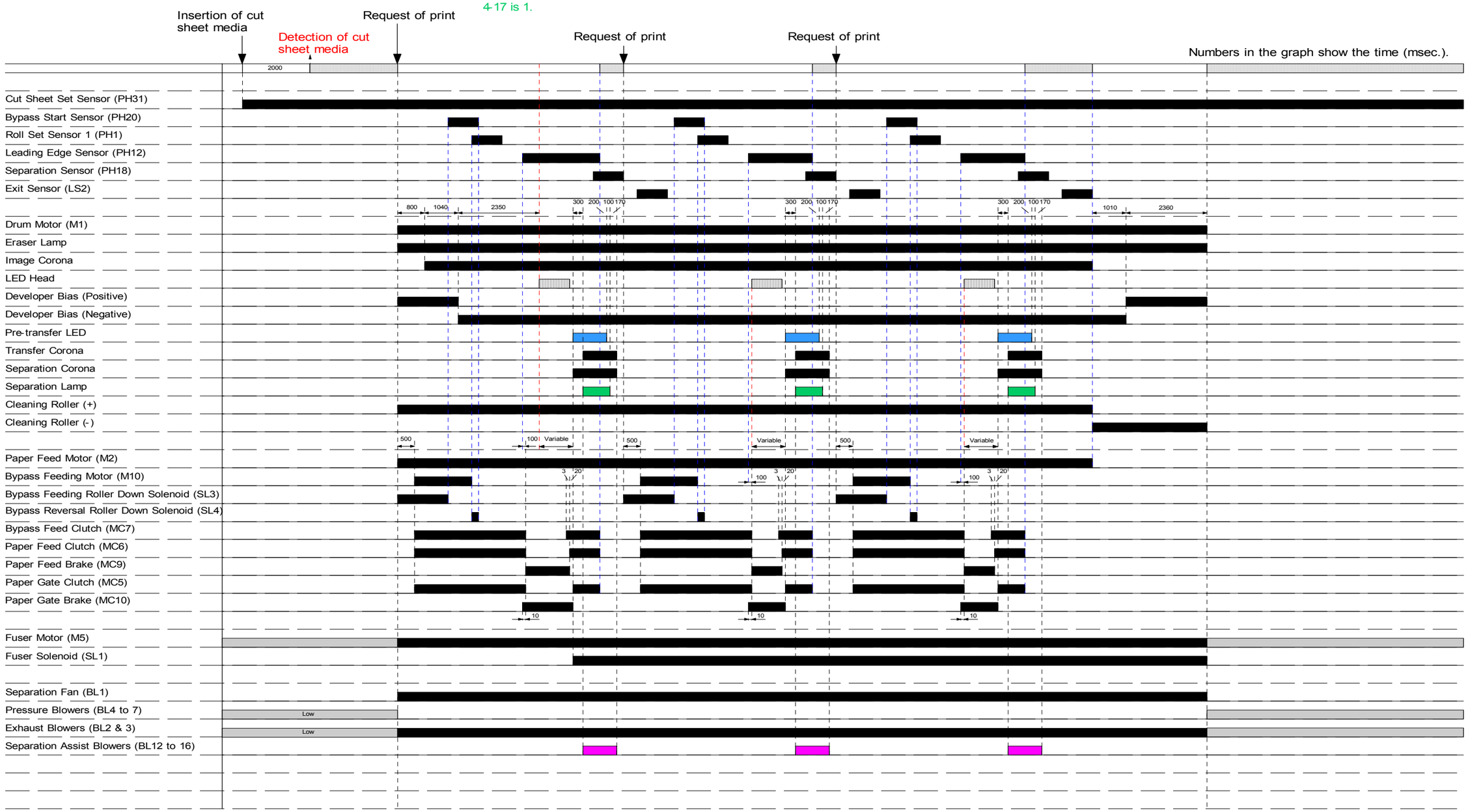
A0, B1, 36", 34" & 30"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :ON
BL12 & 16 (SEPBLW4) :ON

A1, B2, A2, B3, 24", 22", 18" & 17"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :ON
BL12 & 16 (SEPBLW4) :OFF

A3, 12" & 11"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :OFF
BL12 & 16 (SEPBLW4) :OFF

KIP8000 Timing Chart

Condition : 3 sheet of A4 (L:210mm x W:297mm) from Bypass Feeder by multiple feeding
Service Mode (Adjustment Mode) settings : 4-15 is 0.
4-16 is 1.
4-17 is 1.



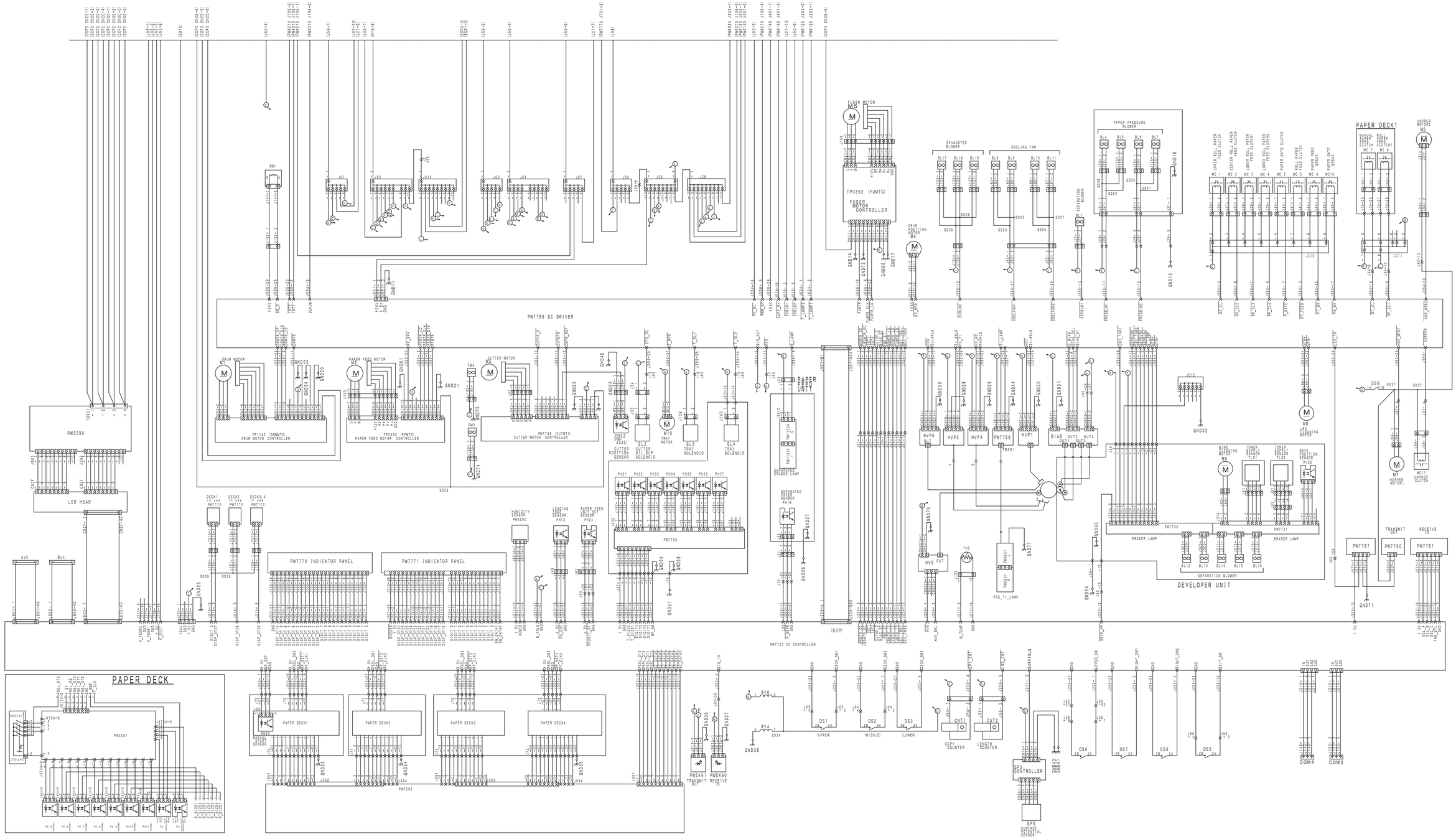
A0, B1, 36", 34" & 30"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :ON
BL12 & 16 (SEPBLW4) :ON

A1, B2, A2, B3, 24", 22", 18" & 17"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :ON
BL12 & 16 (SEPBLW4) :OFF

A3, 12" & 11"
BL14 (SEPBLW2) :ON
BL13 & 15 (SEPBLW3) :OFF
BL12 & 16 (SEPBLW4) :OFF

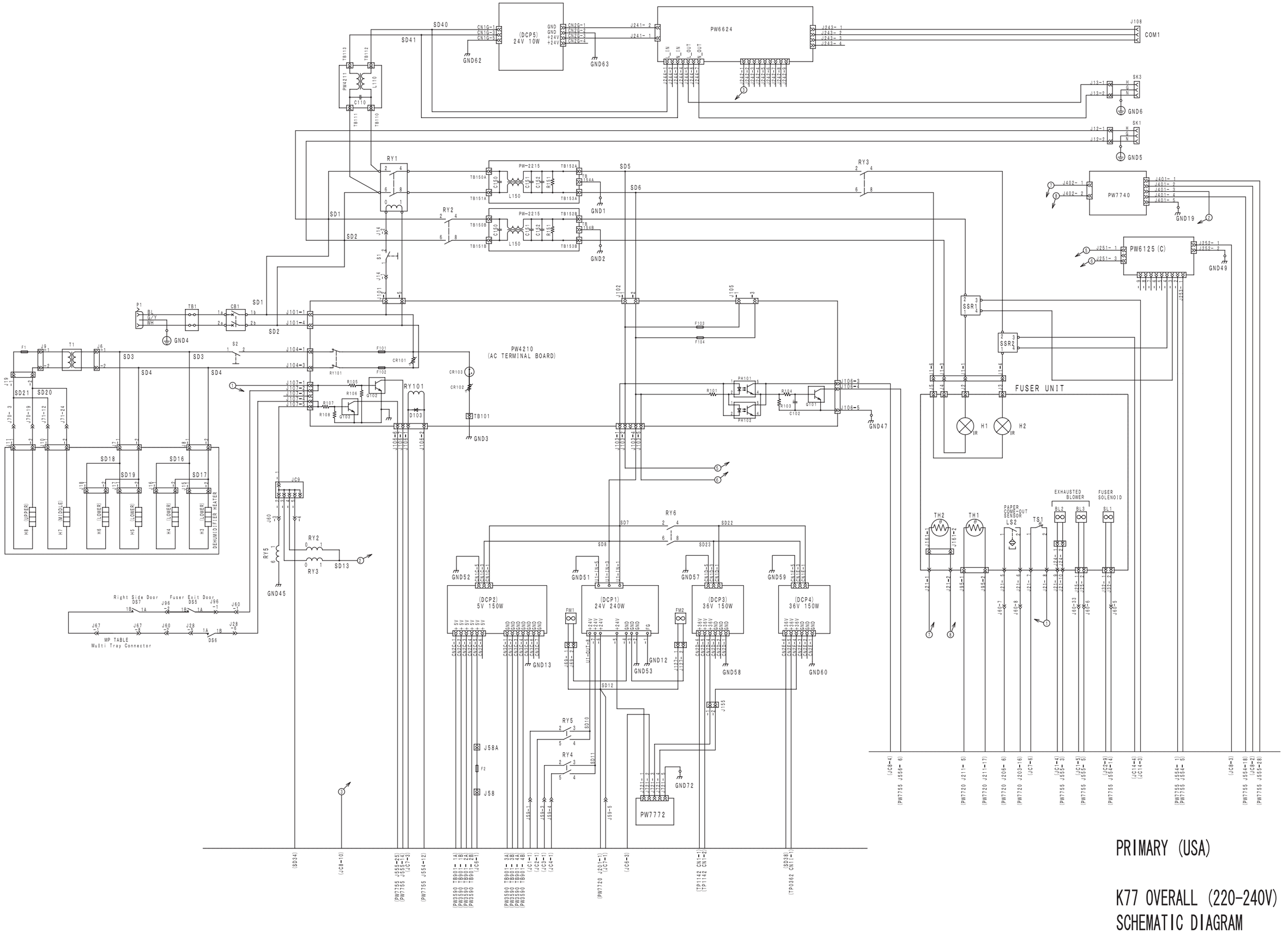
PRIMARY (EUR)

K77 OVERALL (220-240V)
SCHEMATIC DIAGRAM



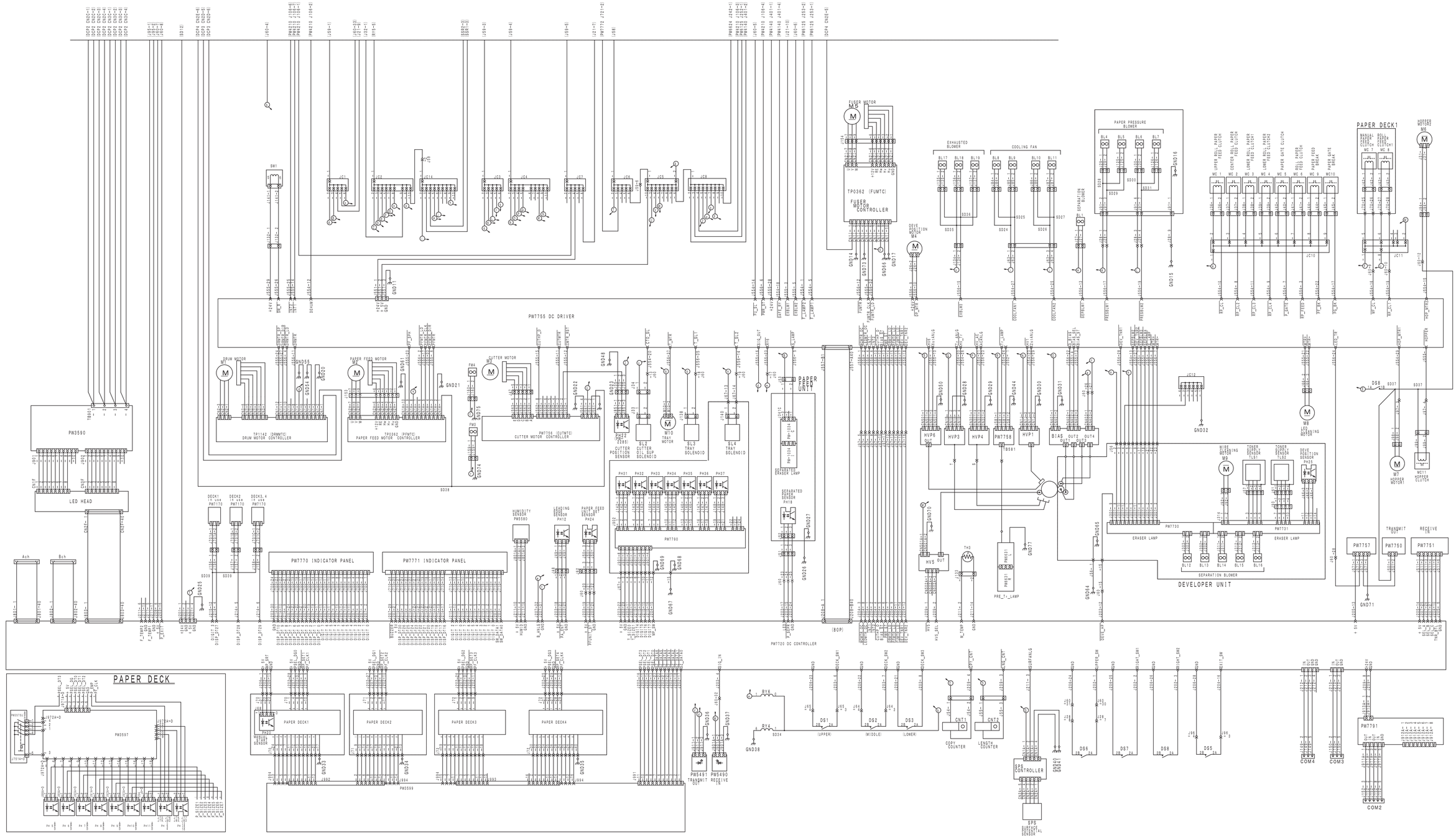
SECONDARY (EUR)

K77 OVERALL (220-240V)
SCHEMATIC DIAGRAM



PRIMARY (USA)

K77 OVERALL (220-240V)
SCHEMATIC DIAGRAM



SECONDARY (USA)

K77 OVERALL (220-240V)
SCHEMATIC DIAGRAM