



KIP 770K Service Manual

Version A.1



Chapter 1

Introduction

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1.1 Features

- (1) KIP 770 is a Multi-Function Printer for scan, copy and print large format documents. Some of these features may be optional.
- (2) Front loading - front delivery structure saves the installation space.
- (3) Various media source; roll media feeding (1 roll), cut sheet manual feeding, Paper Tray multiple cut sheet feeder (option).
- (4) A dedicated printer stand offers easy print handling with the print basket. The KIP 770 is also suitable for your office layout as a desktop MFP.
- (5) The operation speed is 40mm/s (2.9 D landscape / 2.8 A1 landscape per minute).
- (6) The maximum print width is 914mm / 36" wide, and the minimum one is 210mm or 8.5". The maximum print length is 2,400mm (for A0 / 36" wide media), and the minimum one is 297mm or 11".
- (7) Up to 600dpi print resolutions with an enhanced scanning system produces the highest quality images controlled by an advanced KIP Image Process System.
- (8) The combination of KIP Contact Development System and mono-component minute toner can produce a high definition line, distinctive grayscale and consistent solid black. The KIP HDP process generates no Waste Toner.
- (9) Easy access to USB port allows users to provide efficient productivity by using "File to Print" / "Scan to USB" (option).
- (10) KIP 770 adopts 12.1 inch screen for the UI, wider than 8.5 for our old products. The capacitive multi-touch screen offers smooth, various and intuitive user operation that a pressure sensing device lacks.

1.2 Specifications

1.2.1 General

Subject	Specification
Model	KIP 770
Configuration	Console
Power consumption (Maximum)	1500w (US model) 1600w (Europe/Asia model) (Including Scanner & Controller Unit)
Power consumption (Low power mode)	Conformity with International Energy Star Program
Acoustic noise	Idling Max. 51db Printing Max. 60db (impulse sound excluded) EN ISO 7779
Ozone	Max. 0.05ppm (Measurement method under UL Standard)
Dimensions	1450mm (Width) x 833mm (Depth) x 1330mm (Height) (w/ Stand) 1450mm (Width) x 691mm (Depth) x 788mm (Height) (w/o Stand)
Weight	About 180kg / 397lb (w/ Stand) About 147kg / 324lb (w/o Stand)
Environmental condition for usage	Temperature: 10 to 32 degrees Centigrade / 50 to 89.6 F Humidity: 15 to 85% RH
Interface	Network Interface (10 BASE-T / 100 BASE-TX / 1000 BASE-T)
Rating input power	In the US : 120V plus/minus 10%, 50/60Hz, 12A In Europe : 220-240V plus 6% or minus 10%, 50/60Hz, 6.5A

-The above specifications are subject to change without notice.

Subject	Specification
Media source	1 Roll Deck (3" / 2" core roll*) Manual Feeder (single cut sheet) Paper Tray (multiple cut sheet, option)
Media	(Recommended Roll Media) - US model: Bond : 64g/m ² to 80g/m ² , US Bond (20# Bond) Vellum : US Vellum (20# Vellum) Film : 4MIL (4Mil-2 Xero Film) - Europe/Asia model: Plain Paper : 64g/m ² to 80g/m ² , Diamond (80g/m ²) Tracing Paper : Gateway (73g/m ²) Film : NSF 4 MIL - 2" roll core* : Universal Bond Paper (Cut sheet) Plain Paper / Bond
Storage of consumables	(Toner cartridge) Store the cartridge within the temperature range from 0 to 40 degrees Centigrade and within the humidity range from 10 to 85% RH.

* Need the optional flange (2 inches).

-The above specifications are subject to change without notice.

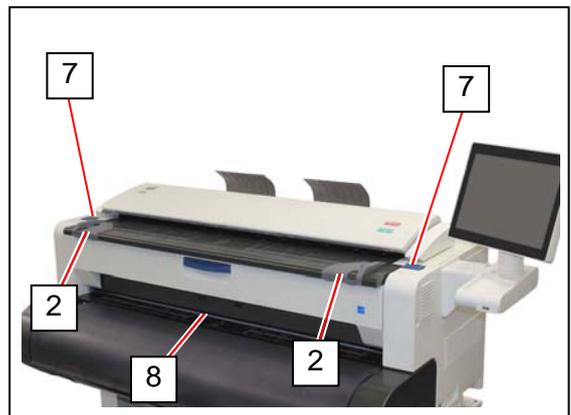
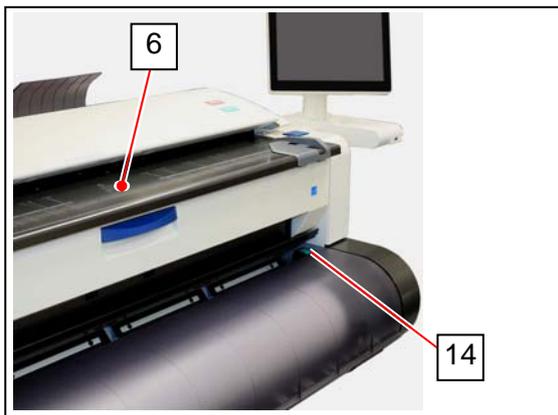
1. 2. 3 Scanner part

Subject	Specification
Scanning method	Contact Image Sensor (CIS) (5 pieces of A4 sized CIS)
Light source	LED (R/G/B)
Setting of original	Face up
Starting point of scan	Center
Scan width	Max: 914.4mm / 36" Min : 210mm
Scan length	Max: 6,000mm / 19.7ft (Including the margin area) (If the print is longer than 6,000mm, its image quality or the reliability of paper feeding is not guaranteed.) Min : 210mm / 8.5" (Including the margin area)
Margin area	3mm from leading, trailing and both side edges
Optical resolution	600dpi
Digital resolution	200 / 300 / 400 / 600 dpi
Original transportation	Sheet through type
Transportable original thickness	Max: 1.60mm Min : 0.05mm <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>⚠ NOTE</p> <p>Image quality for an original with 0.25mm or thicker is guaranteed only in a standard size even the scanner physically accepts it.</p> </div>
Scanning speed	Monochrome : 65mm/s (mono 600dpi max) Grayscale : 65mm/s Color : 22mm/s The actual speed may vary by the scan software.

-The above specifications are subject to change without notice.

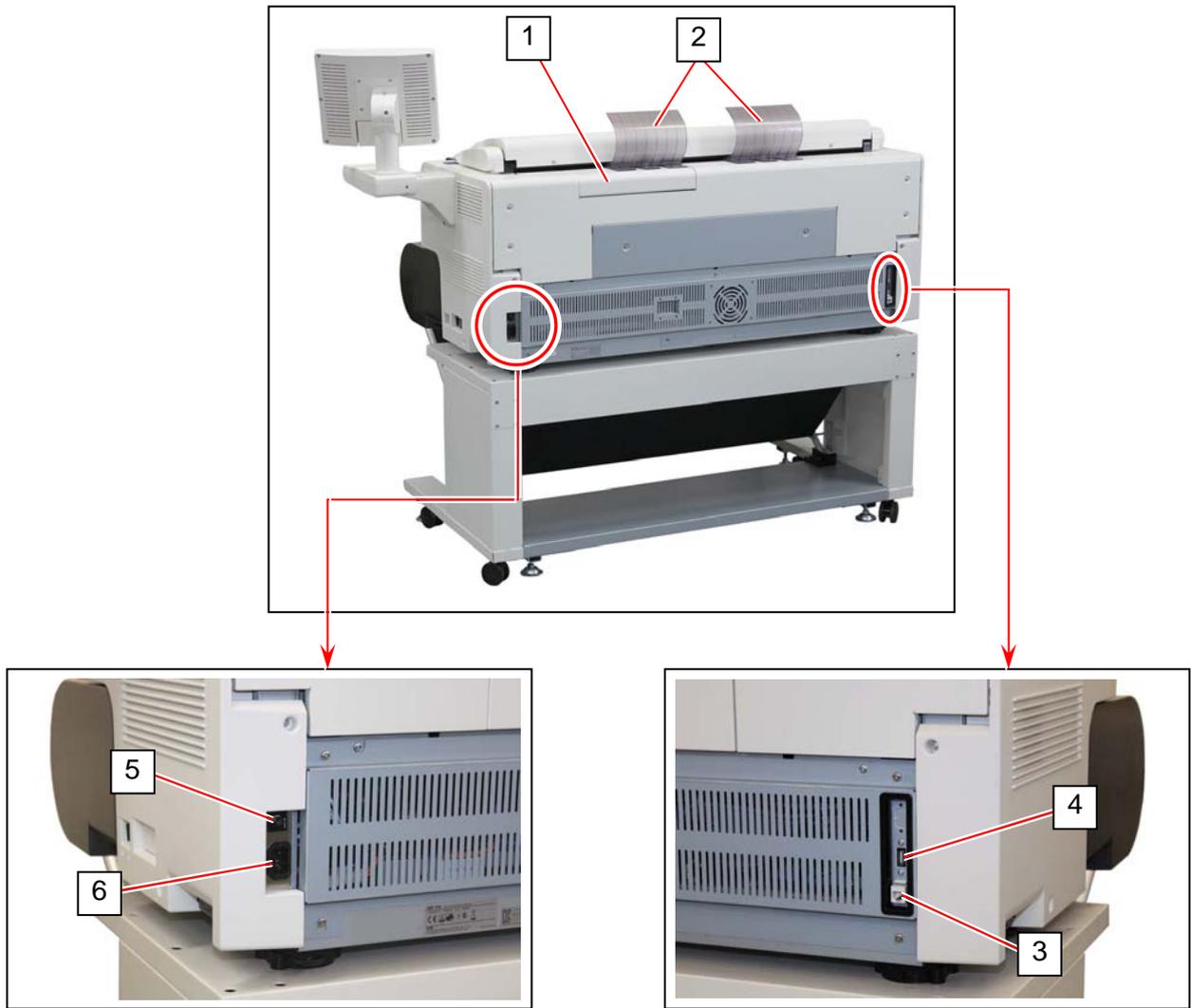
1.3 Appearance

1.3.1 Front view



No.	Name	Function
1	Main Switch	You can turn on/off the KIP 770.
2	Original Guides	Feed the original under the Scanner Unit along the Original Guides.
3	User Interface	This is a Touch Screen, and many kinds of user operation are available. PLEASE DO NOT push the LCD area too strong.
4	USB port	Your USB flash memory storage can be installed here. 5VDC max.
5	Scanner Unit	Read the original with this unit when you make scan or copy.
6	Original Table	Place the original here and then feed it into the Scanner Unit when you make scan or copy.
7	Engine Unit Open Lever	Push down these blue levers when you open the Engine Unit.
8	Bypass Feeder	Feed a cut sheet paper from the Bypass Feeder. Open here to access Initial Cut Button.
9	Roll Deck Cover	Lift up to open the Roll Deck. A roll media can be loaded in the Roll Deck.
10	Print Basket	Receives ejected printed.
11	Scan Abort Button	While scanning: emergency stop At Standby position: eject
12	Start Button	Starts scanning if the controlling software requires user intervention.
13	Print Exit Cover	Can access a mis-feed print inside the Fuser Unit.
14	Initial Cut Button	Push this button to trim the leading edge of the loaded roll media.

1. 3. 2 Rear view



No.	Name	Function
1	Toner Cover	Open here to access toner supply system.
2	Original Guide	These trays catch the original ejected from the Scanner Unit.
3	LAN Port	Connect the LAN Cable to connect the KIP 770 to the network. (Do not connect a telephone line)
4	USB Port	Service Use, 5VDC max.
5	Breaker	It is possible to shut off supplying the AC power.
6	Inlet Socket	Connect the Power Cord here.

1.4 Specifications for the Scan Original

A scan original must satisfy the following specifications.

Thickness	0.05mm to 1.6mm *1
Width	210mm to 914.4mm
Length	210mm to 6000mm *2

*1. Image quality for an original with 0.25mm or thicker is guaranteed only in a standard size even the scanner physically accepts it.

*2. Image quality for an original over 6,000mm in length is not guaranteed.

1.4.1 Original Standards

- (1) The width of original must range from 8.5" to 36" (210mm to 914.4mm).
- (2) The length of original must range 8.5" (210mm) to 25,000mm
- (3) The thickness of original must range from 0.05mm to 0.25mm.
- (4) The shape of original must be square, and it must be standard sized.
- (5) The type of original must belong to any of the followings.
 - Plain paper
 - Coated paper (High or middle class plain paper is coated with the paint.)
 - Tracing paper
 - Pansy Trace Paper (Both sides of the film is sandwiched between Tracing paper.)
 - Film
 - Newspaper
 - Cardboard paper

1.4.2 Special Documents

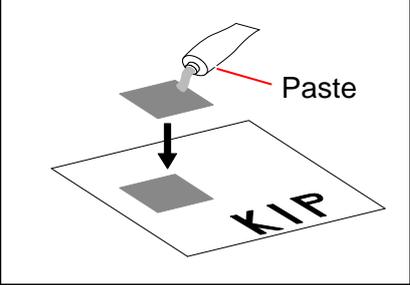
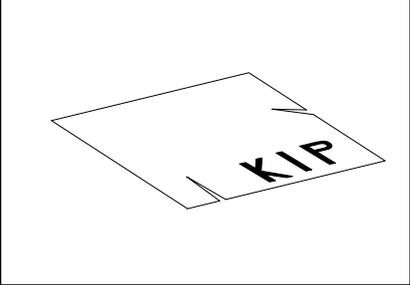
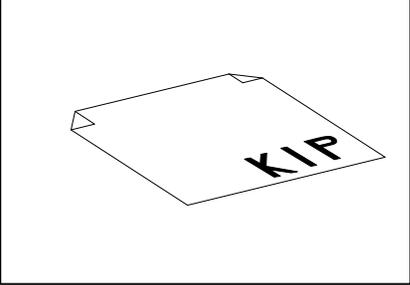
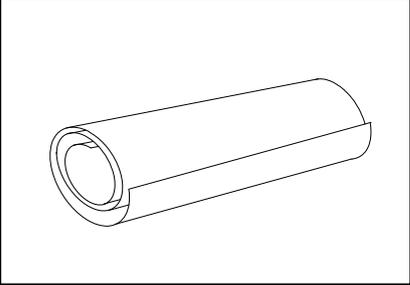
The following kinds of originals are "special". It is possible to scan them, **but the image quality and feed reliability are not guaranteed.**

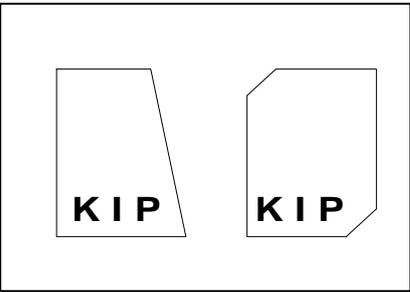
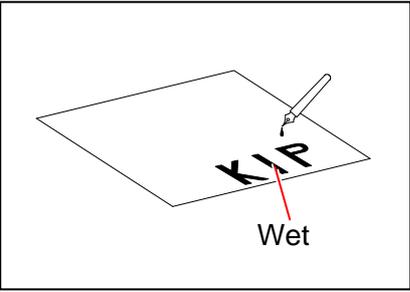
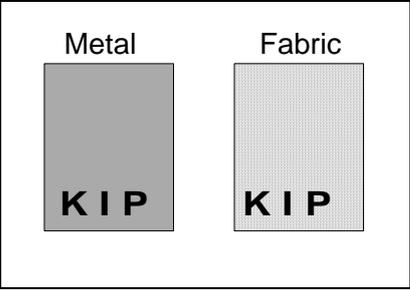
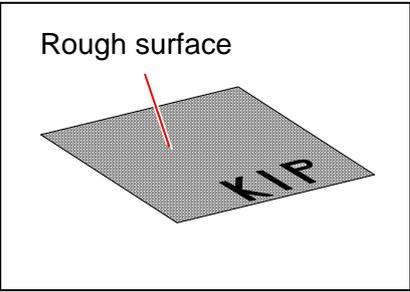
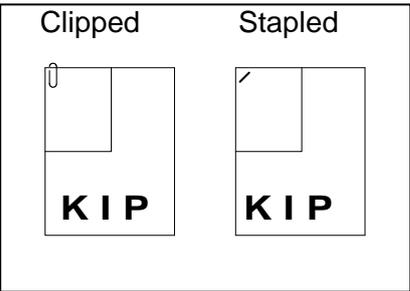
- (1) The type of original is acceptable, but the thickness and type may not be:
 - Booklets
 - Original with a Hanger
 - Cut and Pasted originals
- (2) These original may not damage the scanner, but these types are NOT recommended: following ones.
 - Cloth
 - Aluminium Kent Paper

1. 4. 3 “Do Not Scan” Originals

It is impossible to use the following types of originals because they are likely to damage the scanner.

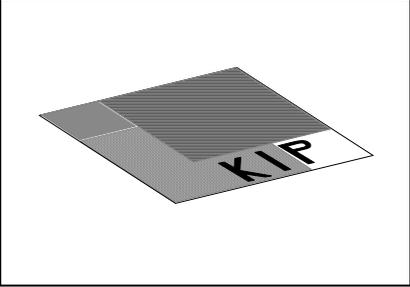
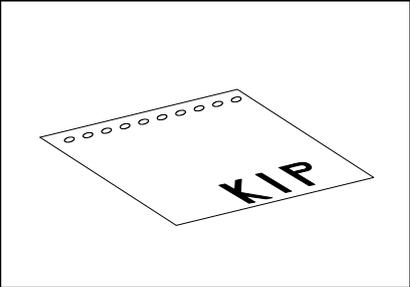
Do not scan the following kinds of originals. The original or the scanner may damage.

Sticked with paste	
Torn	
Folded (Leading edge)	
Excessively curled (a diameter of 80 mm or less)	

Not square	
Wet	
Metal or fabric material	
Rough surface (Carbon paper for example)	
Clipped or stapled	

The following kinds of originals can be read with using a carrier sheet.

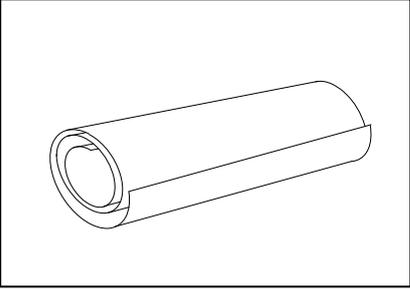
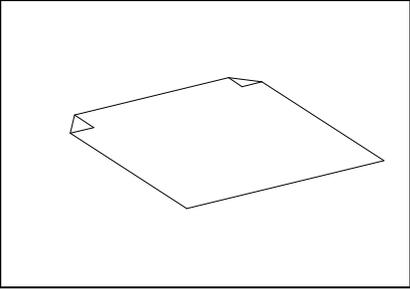
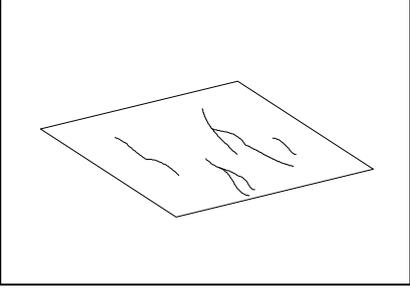
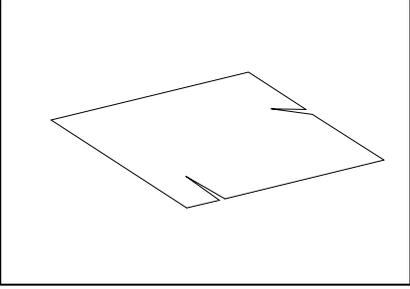
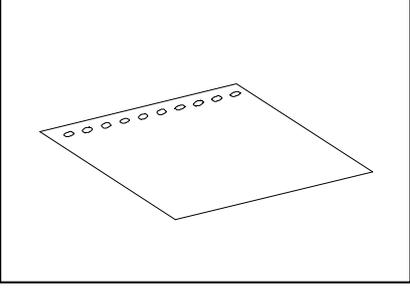
However, the image quality and feed reliability are not guaranteed.

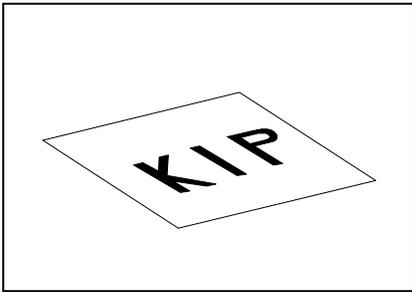
Patched	
Punched	

1.5 Specifications for the Printing Media

1.5.1 Papers not available to use

Do not use the following kinds of printing media. Doing so may damage the print engine.

Excessively curled (a diameter of 80 mm or less)	
Folded	
Creased	
Torn	
Punched	

Pre-printed	
Extremely slippery	
Extremely sticky	
Extremely thin and soft	
OHP Film	

⚠ CAUTION

Do not use the paper with staple, or do not use such conductive paper as aluminum foil and carbon paper. The above may result in a danger of fire.

⚠ NOTE

- (1) Print image may become light if printed on a rough surface of the paper.
- (2) Print image may become defective if the print paper has an excess curl.
- (3) It will cause paper mis-fed, poor print image or creasing if you use a paper that does not satisfy the specifications.
- (4) Do not use a paper of which surface is very special, such as thermal paper, art paper, aluminum foil, carbon paper or conductive paper.
- (5) Vellum exposed to air over a long period tends to cause a defective printing.
It is recommended to remove one round on the surface of the vellum roll from the beginning.
- (6) Remove fully any adhesive from the roll that may remain due to tape placed by the media supplier.
- (7) Do not use papers with unpacked (exposed in high / low temperature & humidity) in a long period. Such papers may result in mis-feed, defective image or paper creasing.
- (8) It is recommended to trim the leading edge by using Initial Cut Key on the User Interface (UI) before making a long print.
For trimming the leading edge.

1. 5. 2 Keeping the paper in the custody

Keep the paper in the custody taking care of the following matters.

1. Do not expose the paper to the direct sunlight.
2. Keep the paper away from high humidity. (It must be less than 70%)
3. Put the paper on a flat place
4. If you will keep the paper in the custody, which you have already unpacked, put it into the polyethylene bag to avoid the humidity.

1. 5. 3 Treatment against environmental condition

Take a necessary treatment according to the environmental condition as shown below.

Humidity(%)	Possible problem	Necessary treatment
Low ↑	“Void of image”, “crease of paper” and other problems occurs when you print with plain paper and tracing paper.	1. Install an humidifier in the room, and humidify the room air. 2. Remove the paper from the machine right after the completion of print, and keep it in a polyethylene bag.
40%	“Void of image” occurs when you print with tracing paper.	If you will not make print soon, remove the tracing paper from the machine and keep it in a polyethylene bag.
70%		Remove the paper from the machine after everyday use, and keep it in a polyethylene bag.
↓ High	“Void of image”, “crease of paper” and other problems occurs when you print with plain paper and tracing paper.	1. Use a dehumidifier or such equipment. 2. Remove the paper from the machine right after the completion of print, and keep it in a polyethylene bag.

⚠ NOTE

- (1) The built-in “Dehumidify Heater” is an option.
Using a dehumidifier in high humidity environment (65% or higher) is recommended.
Refer to [2.10 Dehumidifying Roll Media].
- (2) “Void of image” and “crease of paper” will occur in case of extremely high or low humidity.

Normal Print



If the media is humidified;



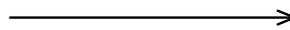
Crease of paper



Normal Print



If the media is humidified;



Void of image



Chapter 2

Installation

Please refer the “KIP 770 - Setup Guides” for most current procedures for the installation of the KIP 770.

The Setup Guides are:

- a) included with each new printer (hardcopy)
- b) posted on the KIP website for download (PDF format)

Chapter 3

Print / Scan Process

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3. 1 Print Process

3. 1. 1 Characteristic of toner

The toner used for KIP 770 has a characteristic to be charged “negative”, which tends to be attracted to a more “positive” object.

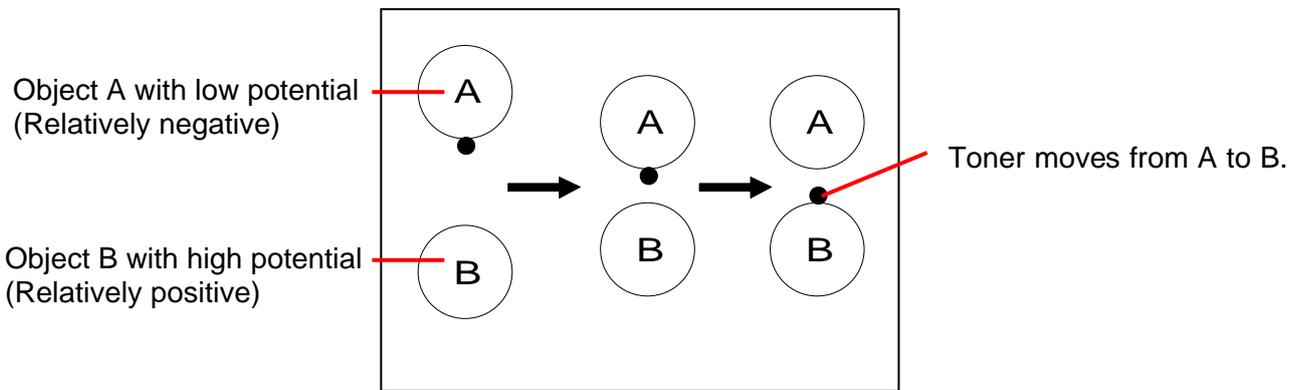
Suppose that there are objects A and B, and the situation is as follows.

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.)

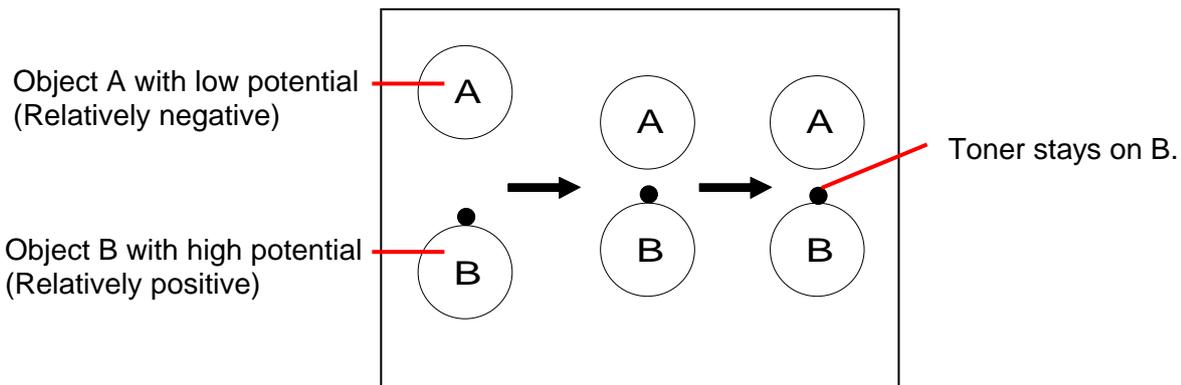
As the toner is “negative”, it is attracted to the object B that is more “positive”.

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 control the electric potentials, 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 an unwanted place.

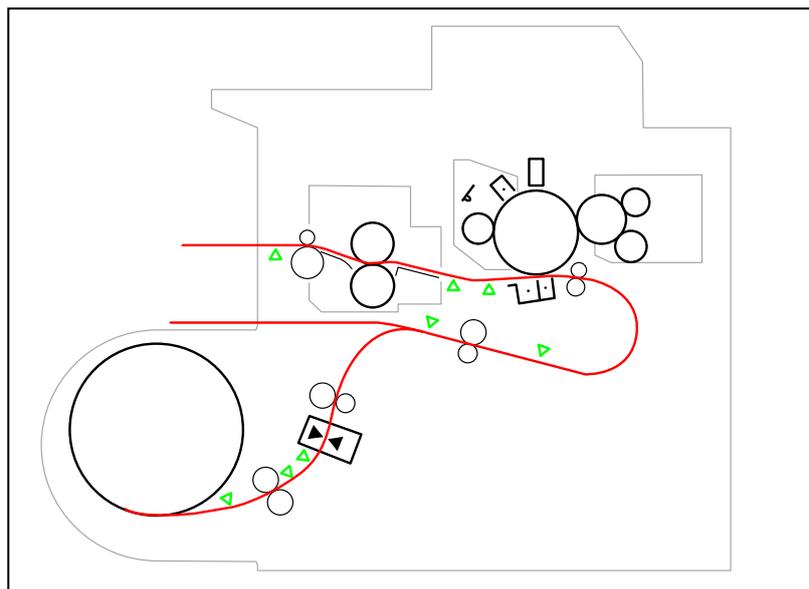
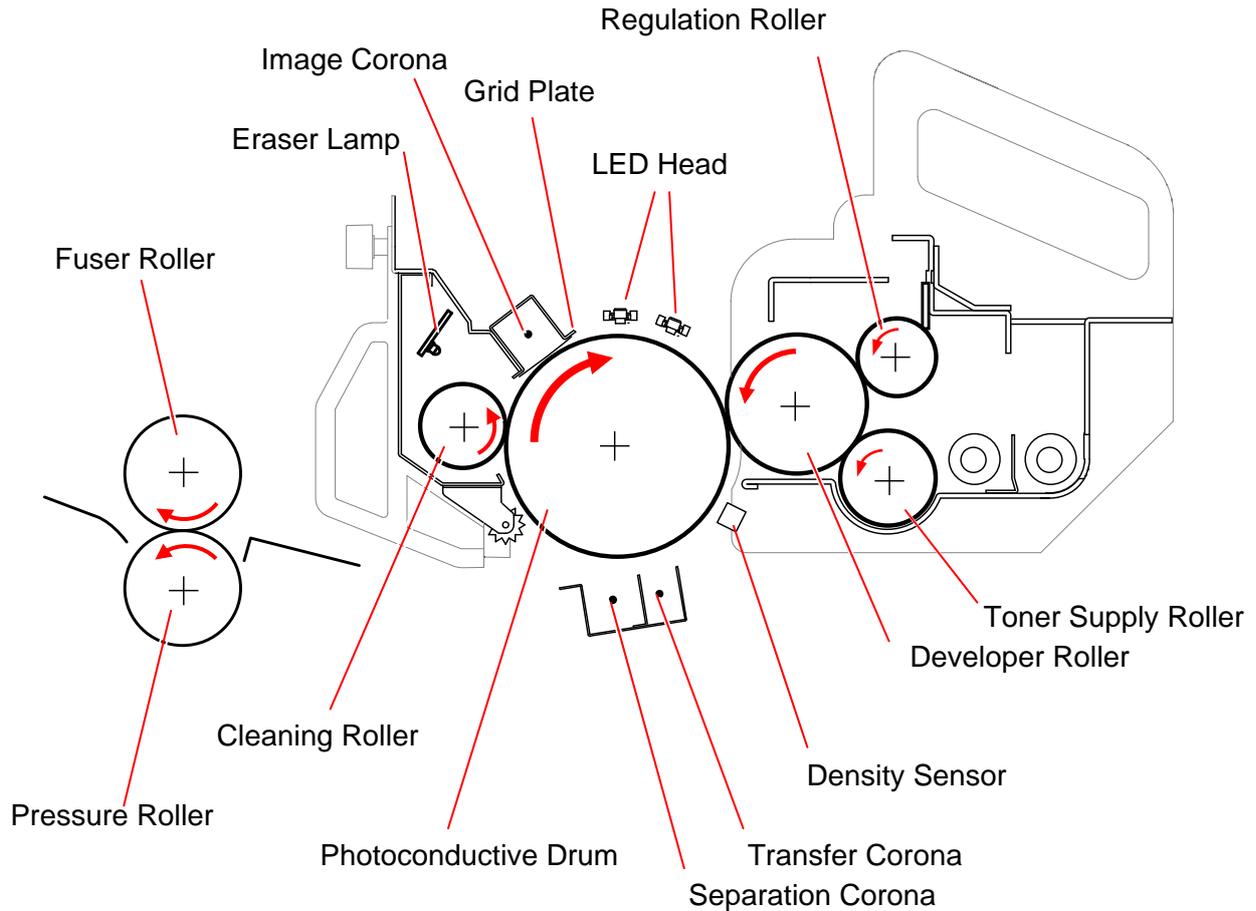
KIP 770 controls the electric potentials properly working each part as Drum, Corona Units, Lamps, Developer Unit and Cleaning Roller.

The movement of toner is controlled correctly and several processes as Development, Toner Transfer, Drum Cleaning and etc. are performed.

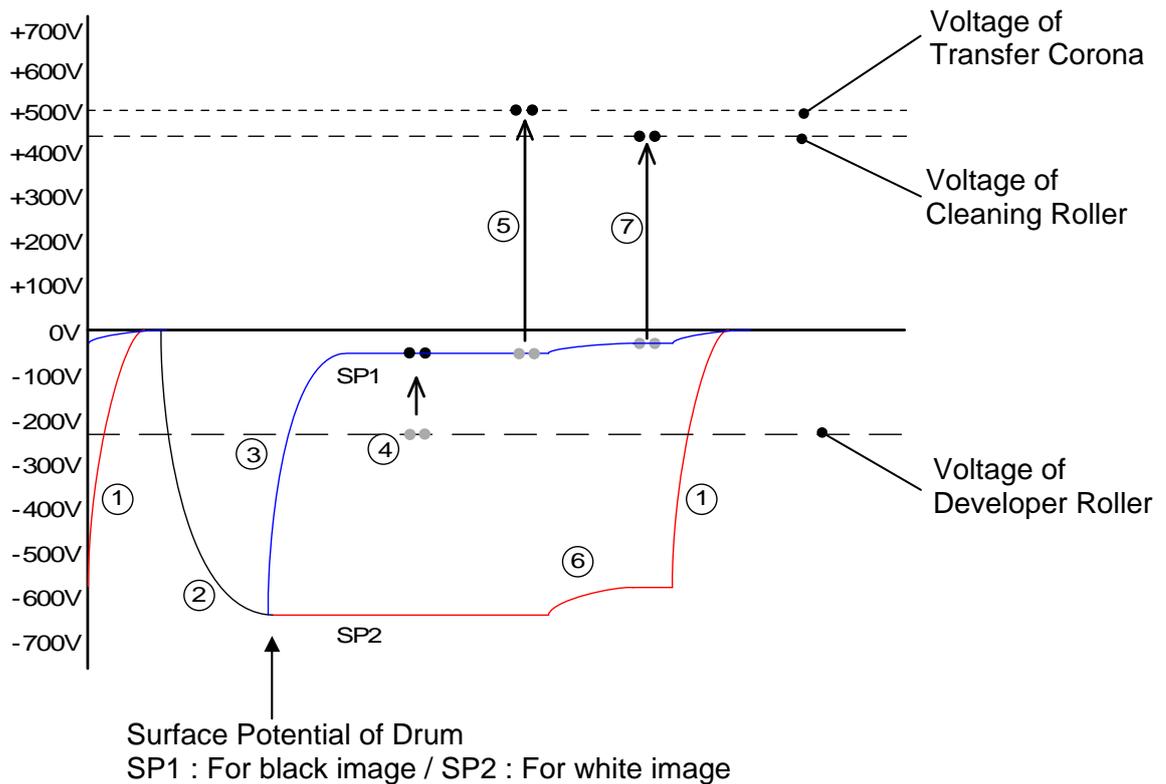
3. 1. 2 Each step of print process

One cycle of print consists of the following 8 processes.

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



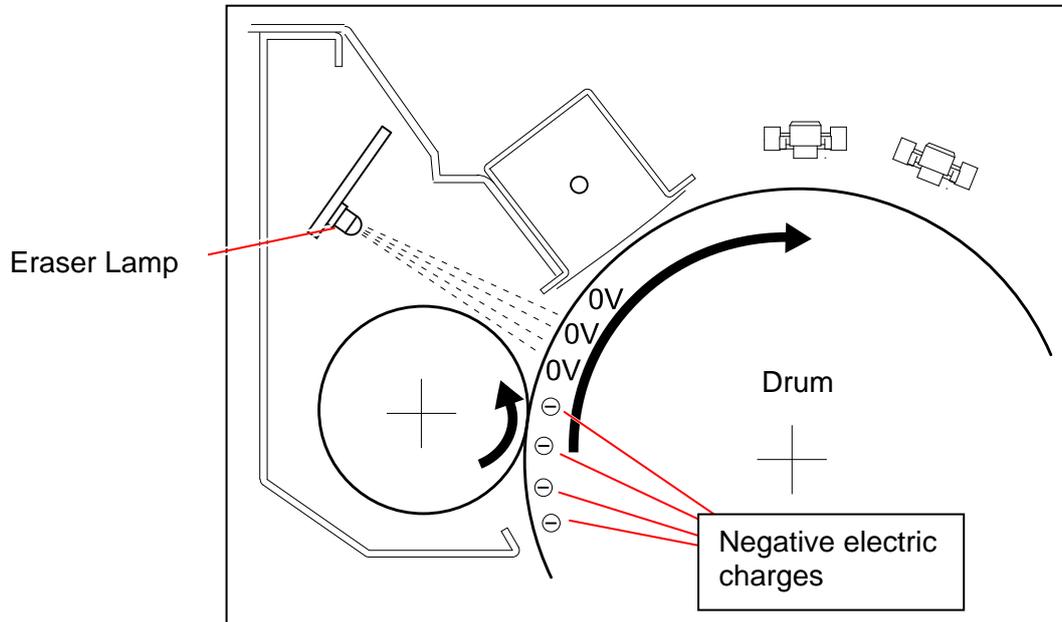
Name of part	Voltage (Current) during Print Cycle	Voltage during Toner Collection Process
Image Corona Wire	-1.3mA +/-0.05mA	-
Grid Plate	-630V +/-30V	-
Developer Roller	-230V +/-5V	+350V +/-5V
Regulation Roller (Center)	-80V +/-5V against the Developer Roller Bias	-80V +/-5V against the Developer Roller Bias
Regulation Roller (Both sides)	0V (Connected to the ground)	0V (Connected to the ground)
Toner Supply Roller	The same voltage with Developer Roller Bias	The same voltage with Developer Roller Bias
Transfer Corona	+1.0mA +/-0.05mA	-
Separation Corona	AC (5.0KV) + DC (-250V +/-5V)	-
Cleaning Roller	+450V +/-5V	-550V +/-5V

Reference

When the printer is going to stop after printing, or when the used Roll Deck is changed with other one, the KIP 770 will take the "Toner Collection Process" to remove the remained toner and place back into the Developer Unit.
 Refer to [3.1.4 Toner Collection Process].

3. 1. 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 have 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 (residual potential) by this process.



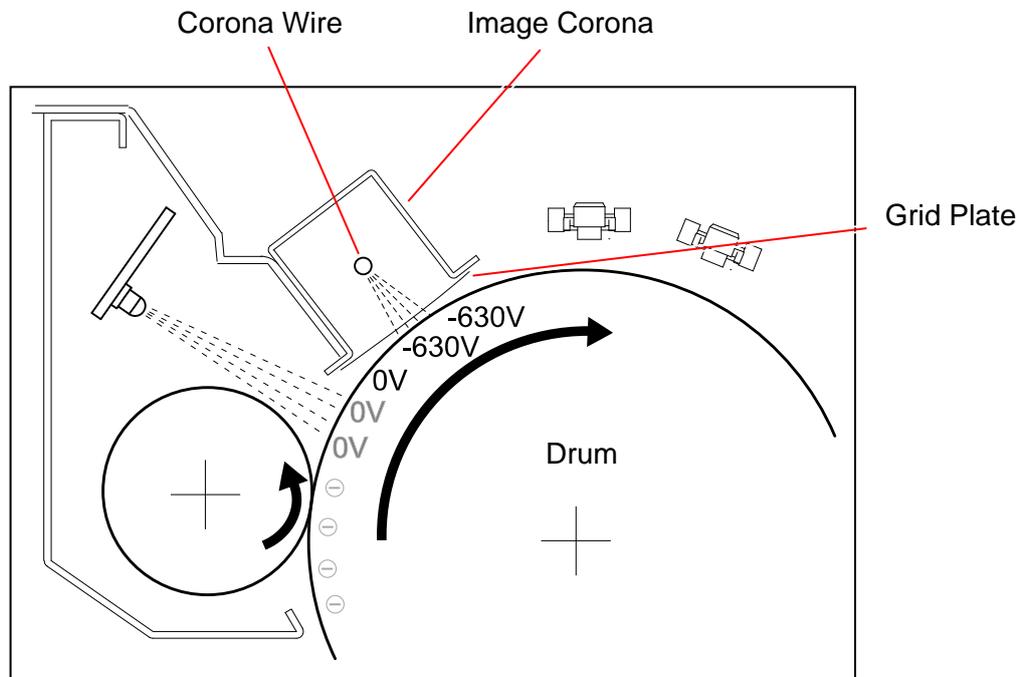
3. 1. 2 .2 Charge of Drum

The Image Corona discharges negative electric charges which are given to the Drum. The surface of Drum becomes about -630V evenly as a result, which corresponds to the white area of the printed image pattern.

The Grid Plate is also connected to the High Voltage Power Supply individually.

Current and Voltage supplied to the Image Corona Wire is as follows.

Corona Wire -1.3mA +/-0.05mA



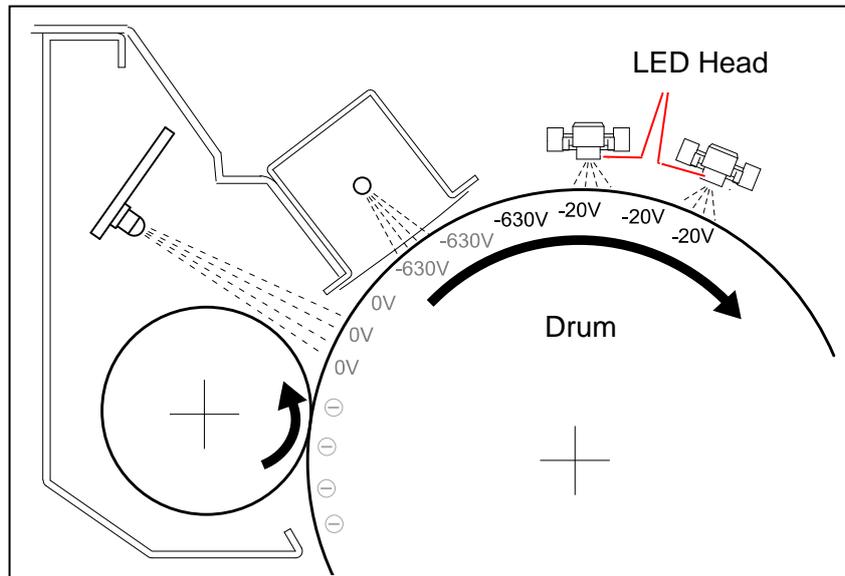
3. 1. 2. 3 Exposure

According to the printed image pattern, the LED Head throws the light (740nm) onto some part of Drum which corresponds to the black area of printed image pattern.

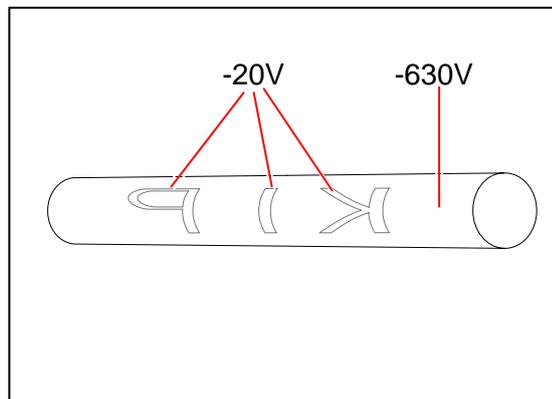
As the Drum has a characteristic to lose the negative electric charges if it is exposed to the light, this part of Drum surface loses the charges and its potential becomes about -20V. (This potential is not constant but is variable by the environment.)

The other part of Drum surface, which was not exposed to the light from the LED Head, keeps -630V of potential which the Image Corona has given.

An invisible electric image pattern that consists of -630V area and the -20V area is formed on the surface of Drum as a result. (This is called "Electrostatic Latent Image".)



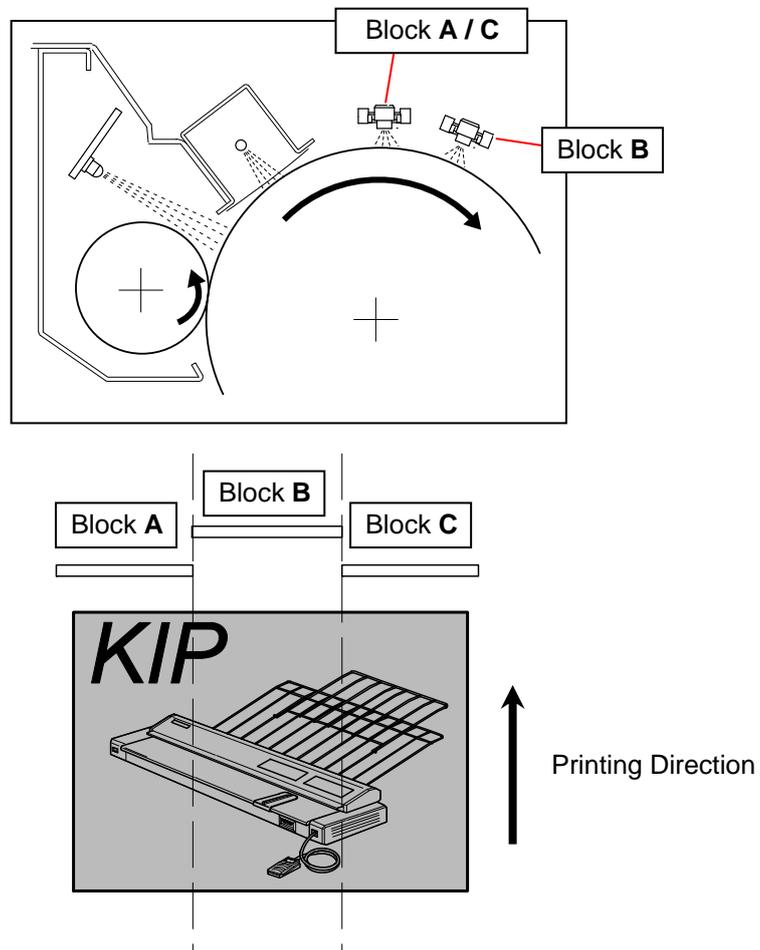
(Distribution of electric potentials after the Exposure)



(see the next page)

Reference

- (1) Even if the toner remains on the Drum, it will not block the light from the LED Head as the diameter of toner (9 micrometers) is much smaller than that (42 micrometers) of 1 pixel of LED. The electric charges on the Drum are removed as needed.
- (2) The KIP 770's LED Head Unit consists of 3 blocks.



3. 1. 2. 4 Development

The Developer Roller, which is evenly covered with the toner, is contacted to the Drum because the Developer Unit is pressed to the Drum. (The width of contact point is about 5mm.)

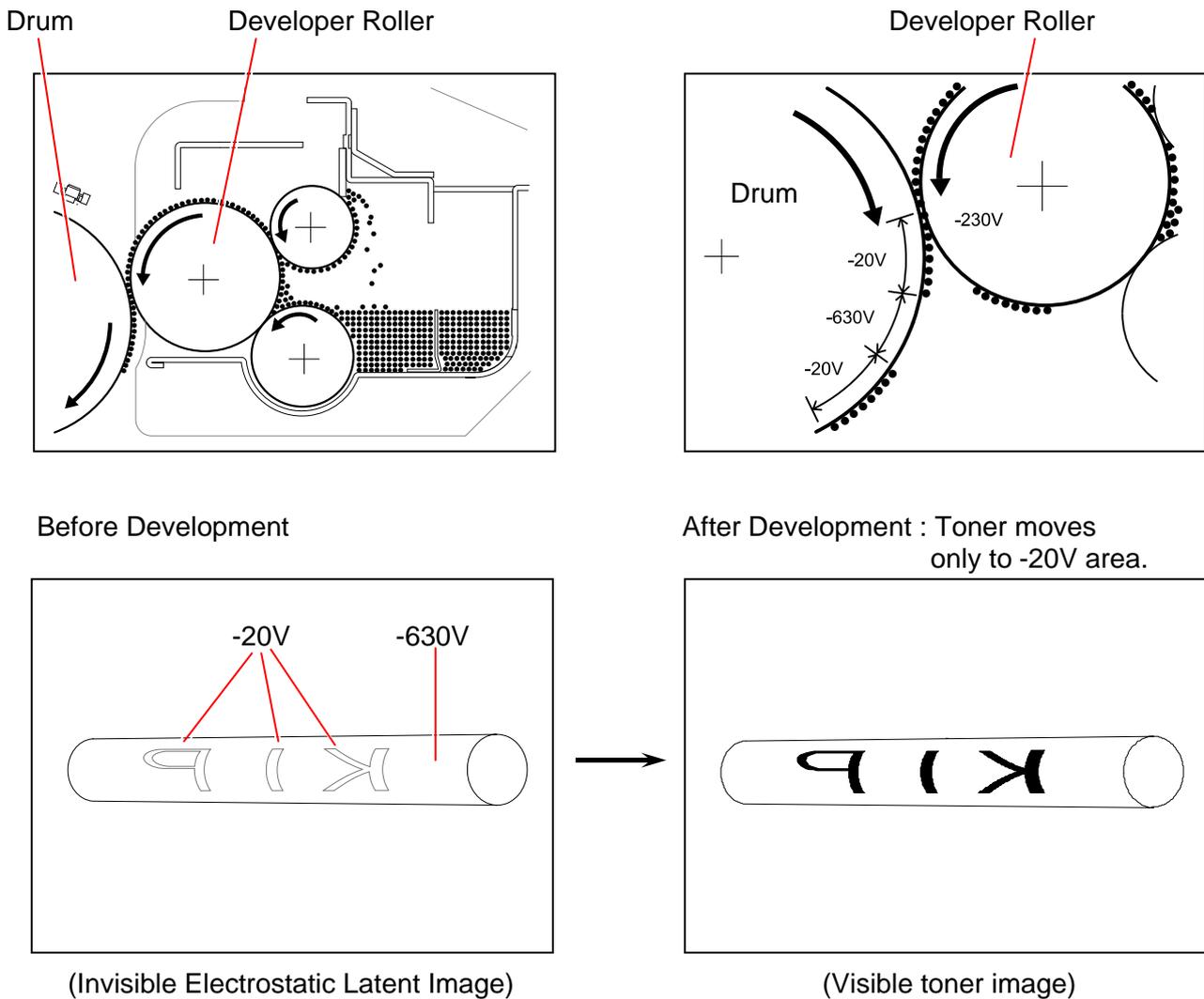
The Developer Roller is supplied with -230V during the print cycle.

And both -630V area and -20V area exist on the Drum because the Electrostatic Latent Image has been formed in the former Exposure process.

Seen from the voltage of Developer Roller Bias (-230V), the -20V area on the Drum is relatively "positive". So the toner moves from the Developer Roller to the -20V area of Drum.

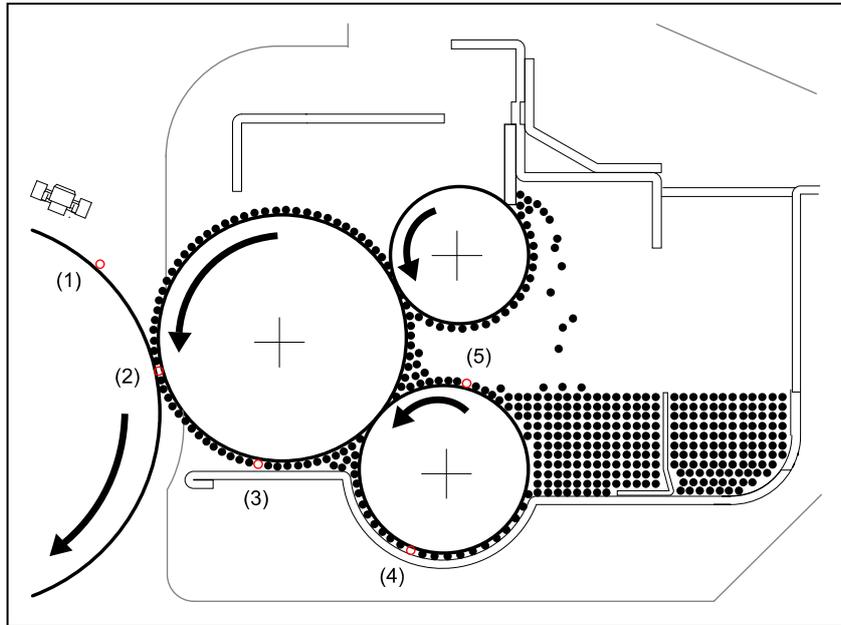
On the other hand, the -630V area is relatively "negative" seen from the Developer Roller. So the toner does not move to the -630V area but stays on the Developer Roller.

A visible toner image is formed on the Drum as a result.

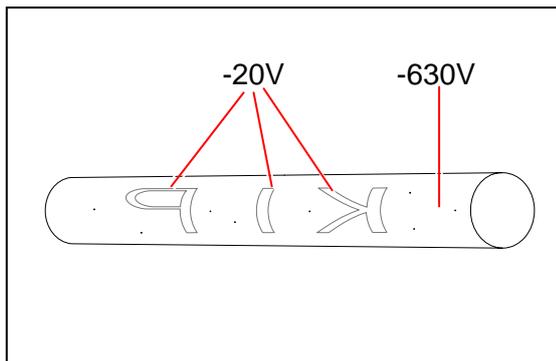


Even if some toner has not been removed by the Cleaning Roller but remained on the -630V area of Drum (It corresponds to the white area of the print) in the later [3.1.2.7 Drum Cleaning], this toner is removed at the time of Development because it moves to the Developer Roller of which potential (-230V) is higher than that of Drum (-630V). So there will be no case that unnecessary black spot is printed on the white area of the print. The remained toner that moved to the Developer Roller is carried into the Toner Supply Roller. The remained toner that moved to the Developer Roller is carried into the Developer Unit and then reused.

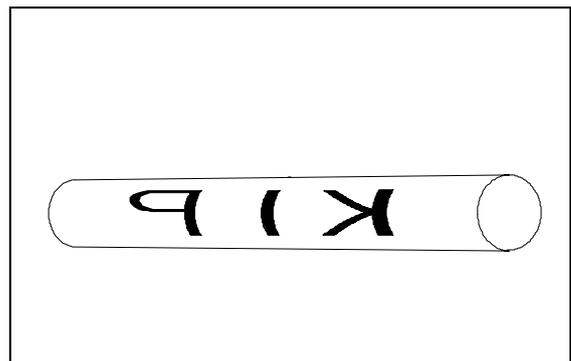
1. Toner remained on the Drum
2. Toner moves from the Drum to the Developer Roller.
3. Developer Roller carries the toner toward the Toner Supply Roller
4. Toner is shifted to the inside of the Developer Unit by the revolution of Toner Supply Roller.
5. Toner is reused.



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



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



Reference

The Developer Unit has not only the Developer Roller but also 2 more rollers inside which are also supplied with the individual voltages.

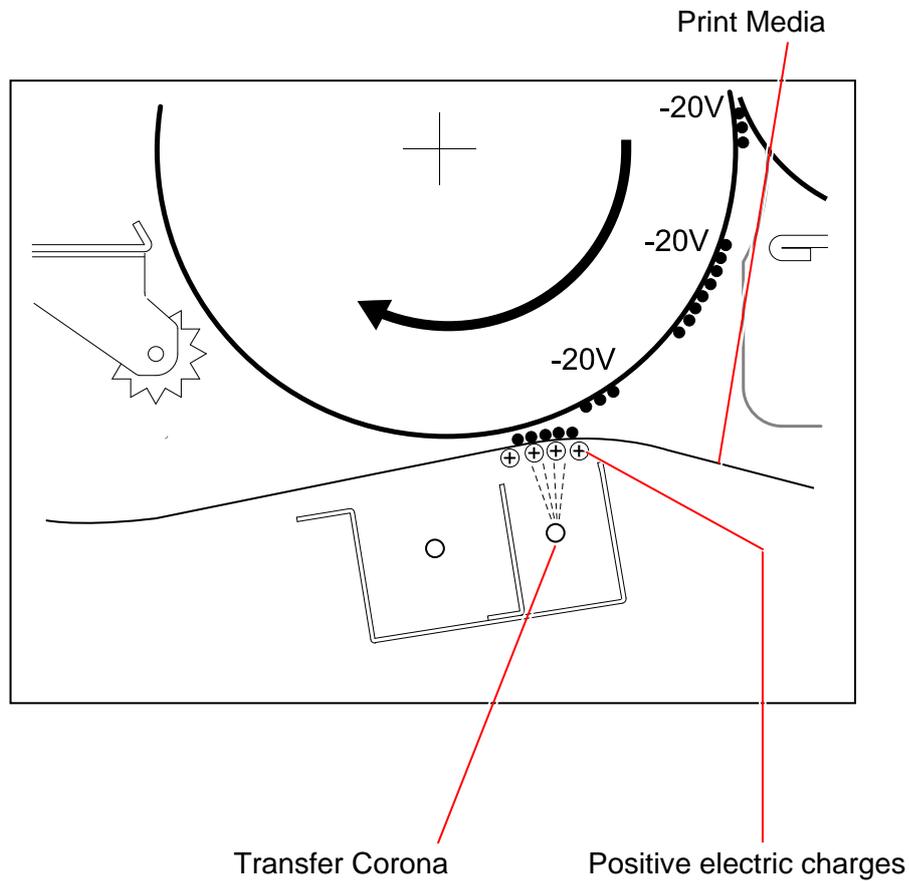
The Developer Unit controls the movement of toner in the unit taking advantage of the difference of potentials among these rollers, and covers the Developer Roller with the toner in the end.

Refer to [3. 1. 3 Controlling the Movement of Toner in the Developer Unit] to know how the Developer Unit controls the movement.

3. 1. 2. 5 Transfer

The printing paper is charged positively as the Transfer Corona discharges positive electric charges from under the paper.
The toner existing on the -20V area on the Drum will move to the printing paper because the potential of the paper 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: +1.0mA +/-0.05mA
(When the Insulated Drum is used.)



3. 1. 2. 6 Separation

The printing paper is attracted to the Drum after the Transfer because the potential of paper is positive and that of Drum is negative.

It is necessary for avoiding the jam to separate the paper from the Drum by removing the static force between them.

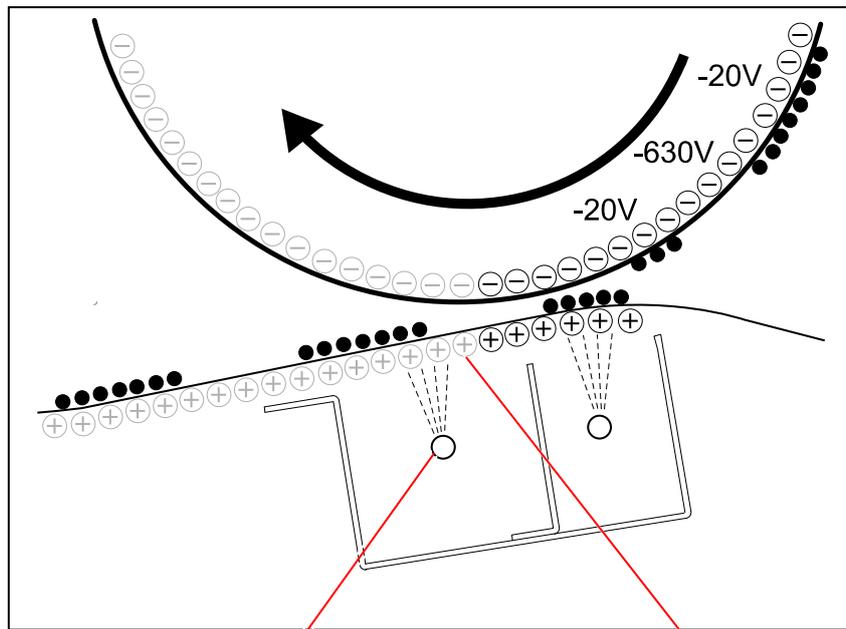
The Separation Corona takes AC discharge being supplied with the AC voltage and the DC voltage.

AC voltage : 5.0KV

DC voltage : -250V

As the AC voltage is compensated by the negative DC voltage, the negative charges are generated more than positive ones, which mainly results in removing the positive charges of the printing paper.

The static force between the printing paper and the Drum is reduced as a result, and the paper is separated from the Drum by its weight.



Separation Corona

Positive charges of the paper are removed by the AC discharge.

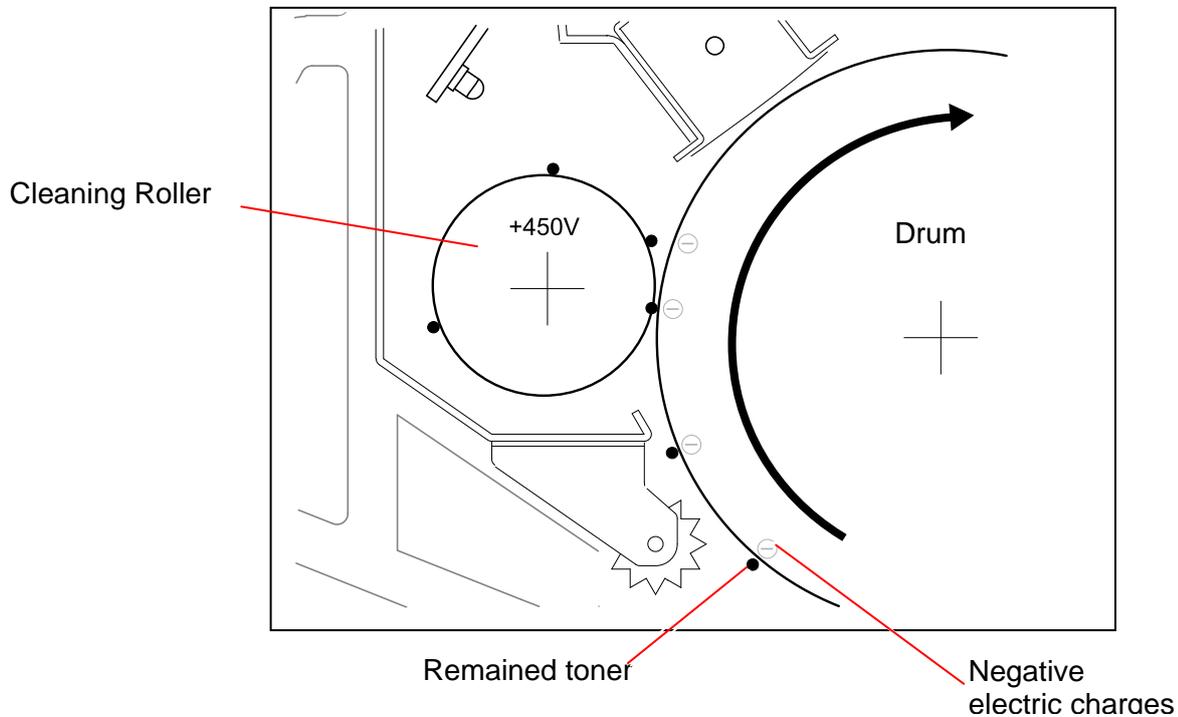
3. 1. 2. 7 Drum Cleaning (Removal of remained toner)

Some amount of toner that has not been transferred onto the printing paper is remaining on the Drum.

This remained toner will be removed by the Cleaning Roller.

The Cleaning Roller is supplied with +450V (+/-5V), and there are some negative electric charges on the Drum at this time.

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 Development Process.

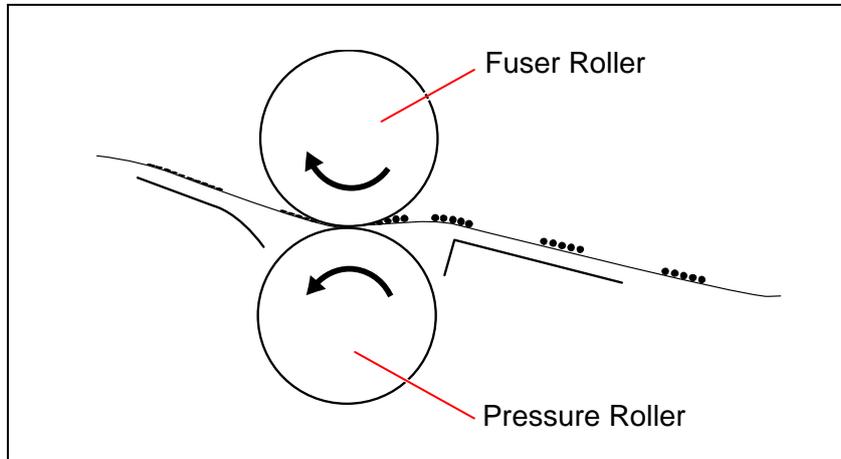
3. 1. 2. 8 Fusing

After Transfer / Separation Processes, the printing paper is transported to the Fuser 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 paper by the heat and the pressure when the paper passes through between these rollers.

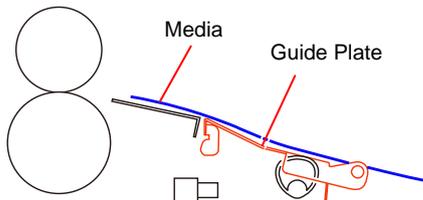


Reference

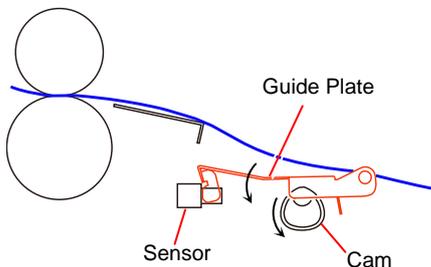
There is a "Guide Plate" in front of the fuser unit.

When the media is entered into the fuser unit, this Guide Plate moves down and it produces a slight media slack.

This behavior prevents the effect on the image, which is produced by transmitting the small vibration on the fuser unit to the media.

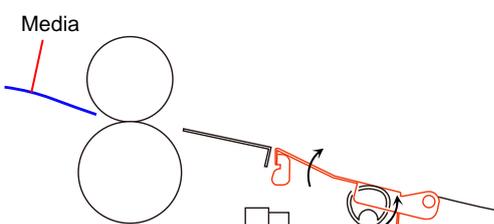


The Guide Plate keeps in the up-position before the media is entered into the fuser unit.



When the media is entered into the fuser unit, a Cam starts to rotate and the Guide Plate moves down to make the media slack. A sensor under the Guide Plate detects that the Guide Plate is lowered.

In case that the Guide Plate does not move down for some reason, it stops feeding the media.



When the media is passed through the fuser unit, the Guide Plate moves up to the original position. In case of the multiple prints, this behavior is repeated.

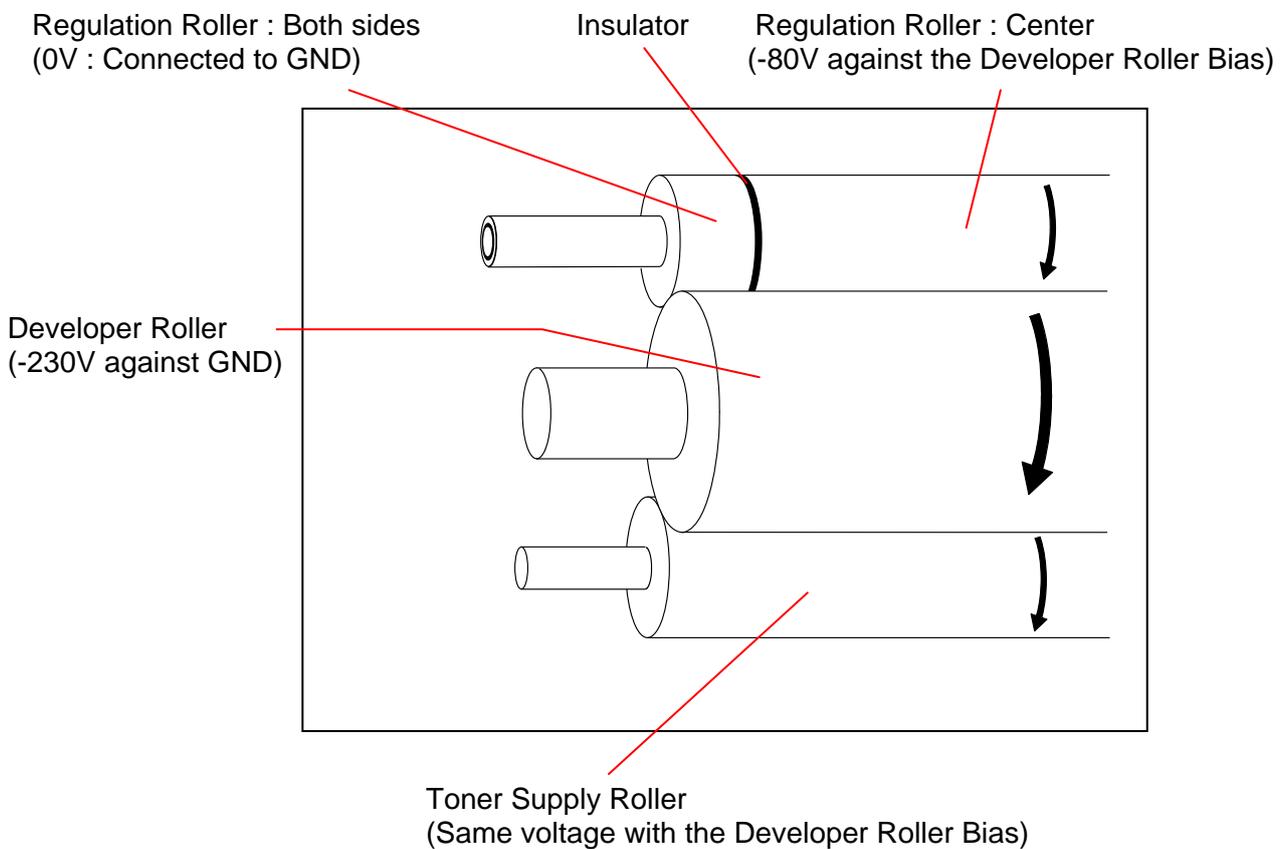
3. 1. 3 Controlling the movement of toner in the Developer Unit

There are 3 kinds of rollers called “Developer 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 Developer Roller (-230V) is measured against the ground. The other voltages mean the difference against the voltage of Developer Roller Bias.

Name of roller	Supplied voltage
Developer Roller	-230V +/-5V against the ground
Regulation Roller (Center)	-80V +/-5V against the Developer Roller Bias
Regulation Roller (Both sides)	0V (Connected to the ground)
Toner Supply Roller	The same voltage with the Developer Roller Bias (Developer Roller and Toner Supply Roller are short circuited being connected with the plate.)

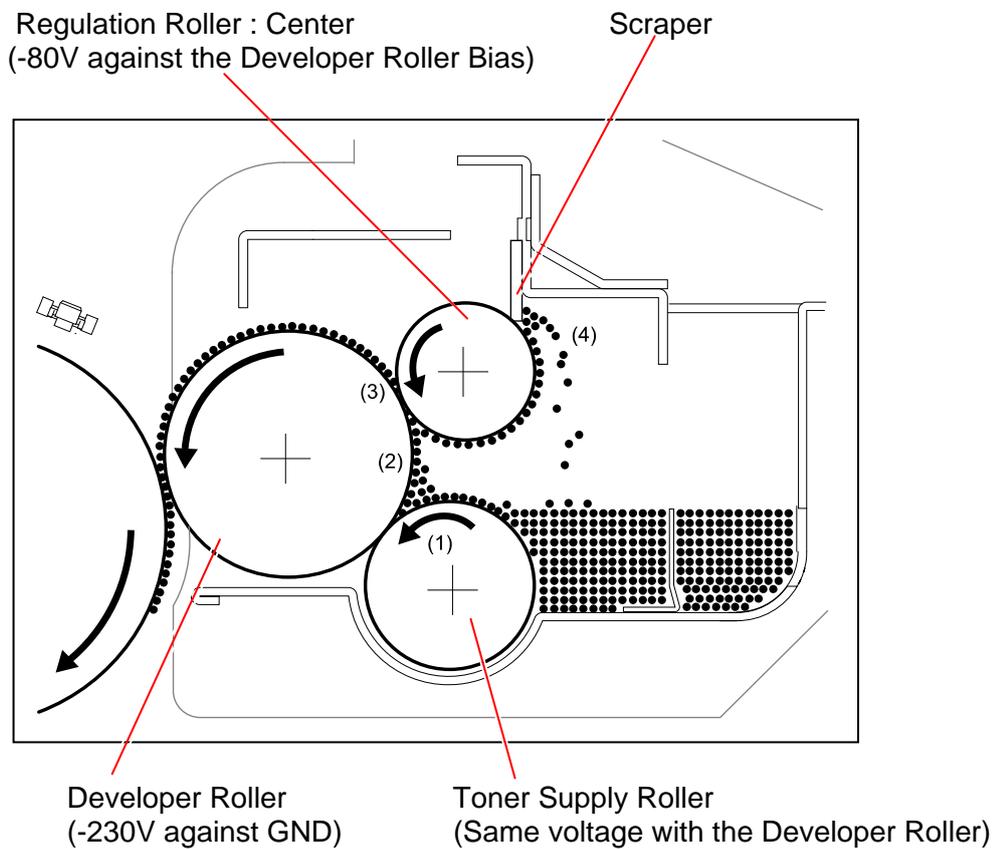


NOTE

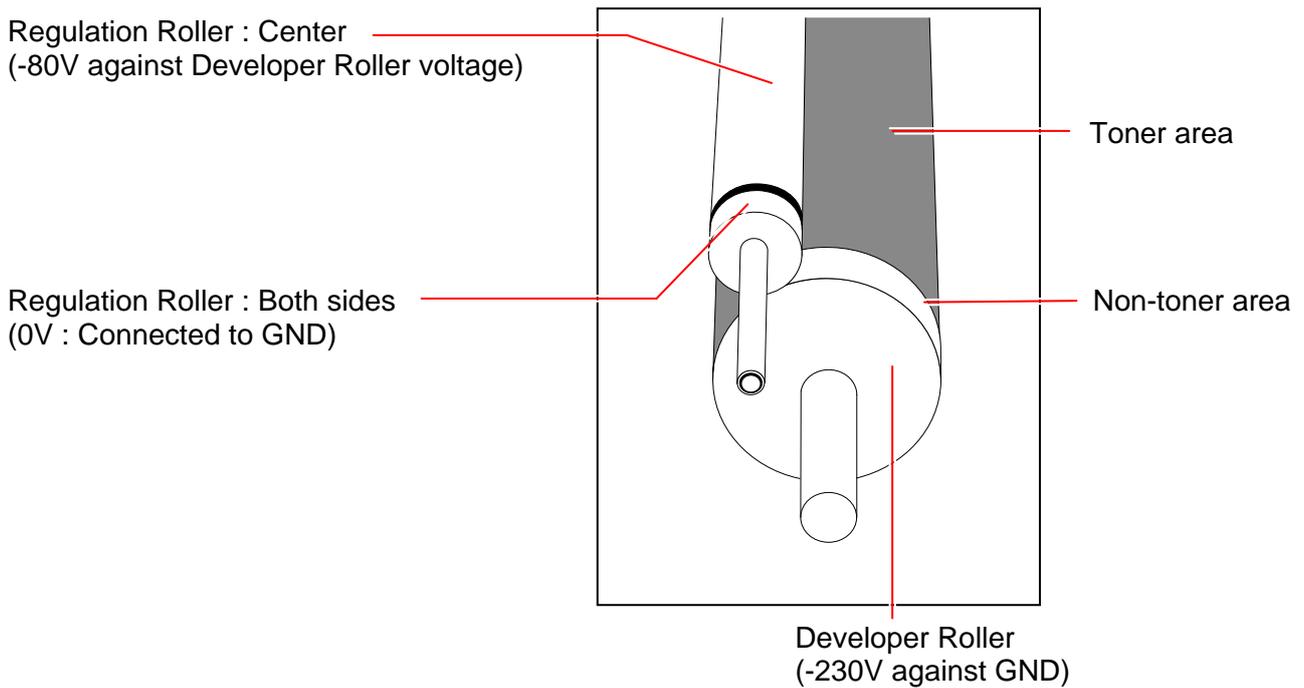
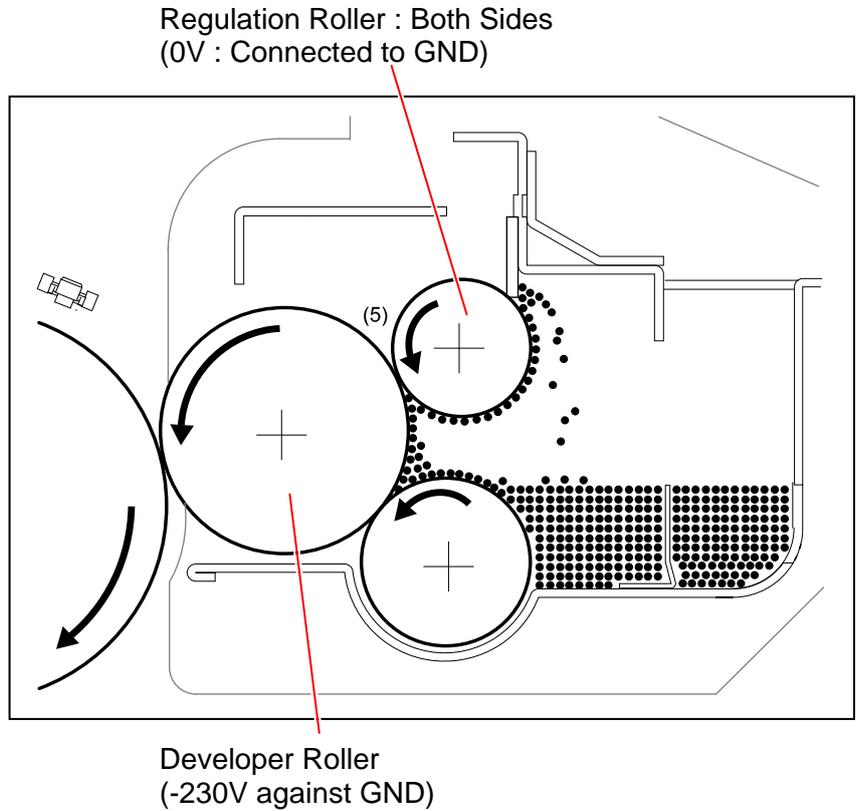
The Regulation Roller is divided into central area and both side areas by the insulator, and individual voltage is supplied to each area.

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 Developer Roller.
2. When the toner reaches the contact point of these rollers, therefore, it moves onto the Developer Roller.
Then the Developer Roller carries the toner toward the Regulation Roller.
3. The Regulation Roller is strongly pressed to the Developer 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 Developer Roller is 80V higher than that of Regulation Roller (Center), the toner which has passed through between rollers is firmly attracted to the Developer Roller.
Very thin layer of toner is evenly formed on the surface of Developer 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.



- The voltage of both sides of Regulation Roller is 0V as these parts are connected to the ground.
It is higher than that of Developer Roller (-230V).
When the toner reaches the contact point of these rollers, therefore, it moves onto the Regulation Roller.
The side areas of the Developer 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. 1. 4 Toner Collection Process

As explained in [3.1.2.7 Drum Cleaning], the Cleaning Roller is supplied with +450V to remove the remained toner from the Drum during the print cycle.

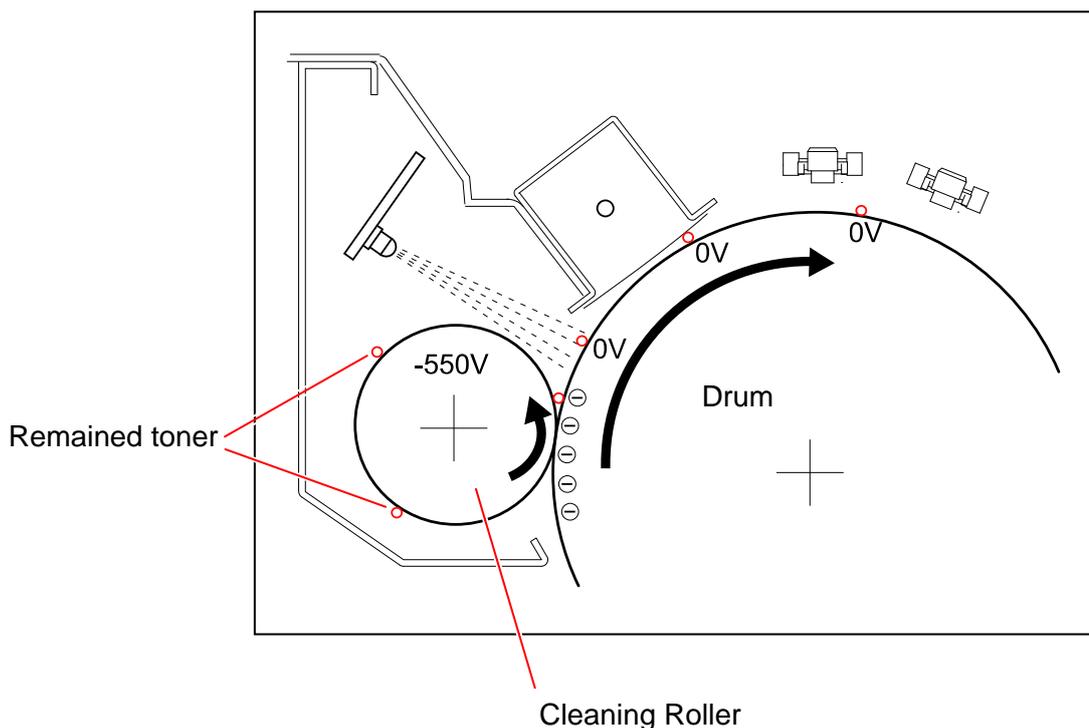
This toner gathered by the Cleaning Roller is returned to the Developer Unit in the following 3 cases.

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

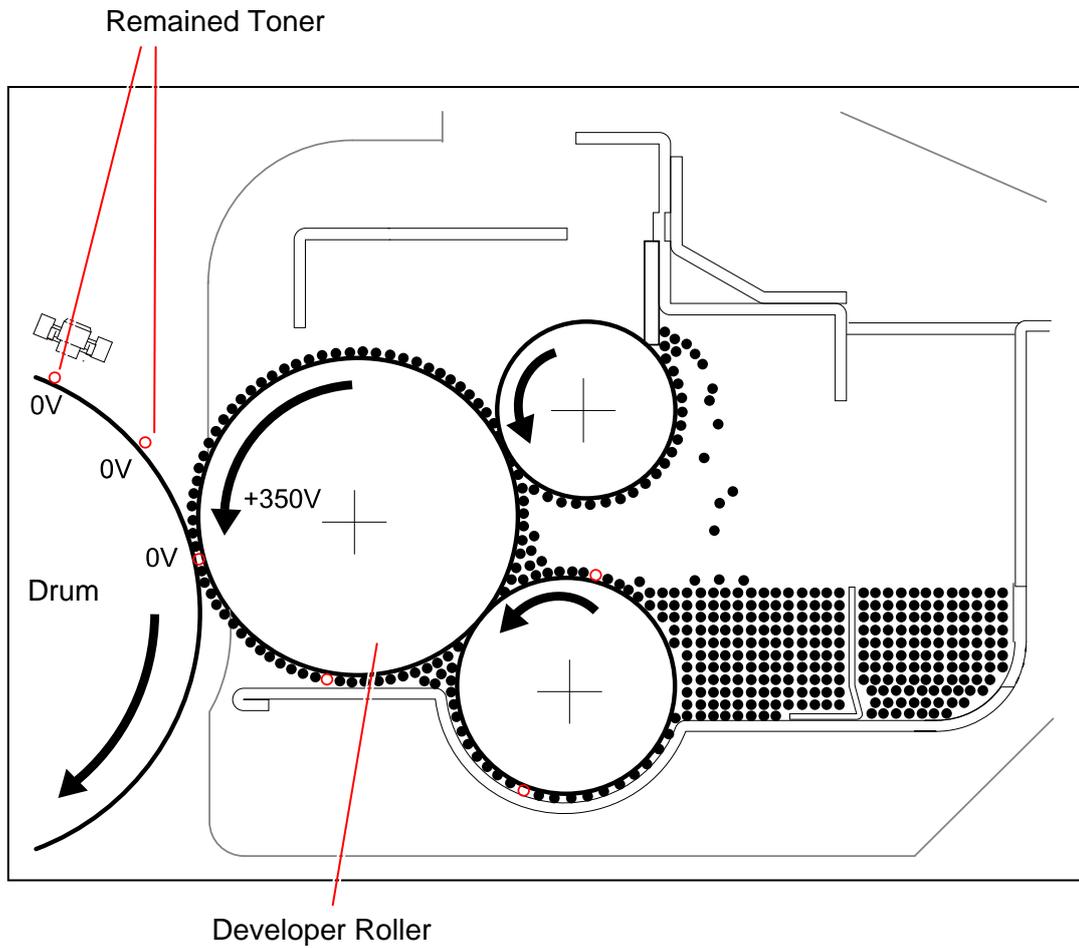
This process to return the toner is called "Toner Collection Process".

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 -550V 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 Developer Roller is also changed to +350V (+/-5V) in the Toner Collection Process.
As the potential of Developer Roller becomes higher than that of Drum, toner on the Drum moves onto the Developer Roller.
Then the toner is carried into the Developer Unit by both the Developer Roller and the Toner Supply Roller.



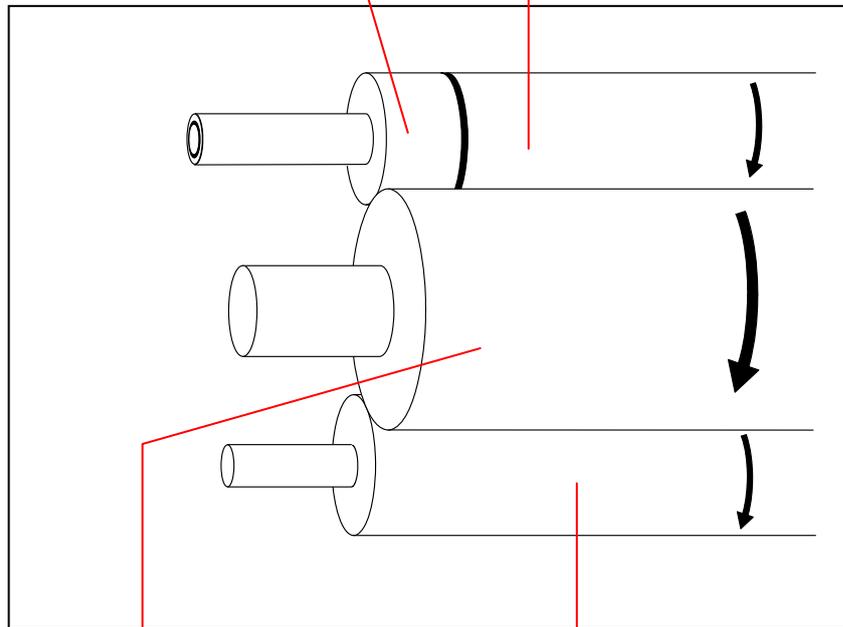
Reference

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

Name of roller	Supplied voltage
Developer Roller	+350V +/-5V against the ground
Regulation Roller (Center)	-80V +/-5V against the Developer Roller Bias
Regulation Roller (Both sides)	0V (Ground)
Toner Supply Roller	Same voltage with the Developer Roller Bias

Regulation Roller : Both sides
(0V : Connected to GND)

Regulation Roller : Center
(-80V against the Developer Roller Bias)



Developer Roller
(+350V against GND)

Toner Supply Roller
(Same voltage with the Developer Roller Bias)

3. 1. 5 Density Compensation Process

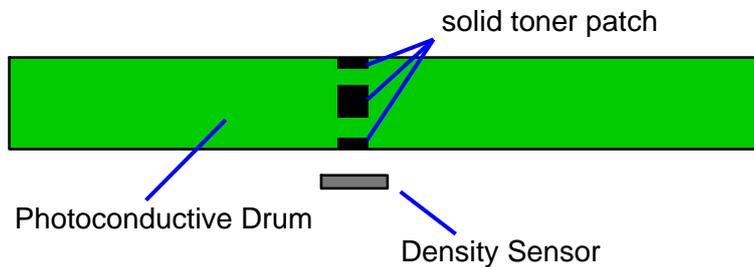
On rare occasion, loss of image density may occur under a special usage. KIP 770 has the ability to reduce such loss of image density and this enables to maintain a satisfactory image quality regardless of the machine usage.

Density Compensation Process will adjust Regulation (Developer) Bias according to their condition to reduce loss of image density in such situation.

In Density Compensation Process, toner density on the surface of Photoconductive Drum is measured by Density Sensor at regular time intervals. According to the result, Regulation (Developer) Bias will be automatically adjusted to compensate image density.

Density Measure starts at regular intervals of 2 hours of Main Motor operating time, after the completion of the current print queue.

1. Several solid toner patches are created on the surface of Photoconductive Drum as follows.



2. Density of all the patches is measured by Density Sensor (Density Measure). The average of the patches (Density Value) is calculated.
3. If the Density Value does not meet Target Density, Regulation (Developer) Bias will be automatically adjusted based on the current Adjustment Level.
 - If the current Density Value is judged “not enough” (lighter than required), the next level will be applied.
 - If the current Density Value is judged “adequate”, the current level remains.
 - There is possibility for the Density Value to be judged “too much enough” (darker than required), then the previous level will be applied.

	Adjustment Level 0	Adjustment Level 1 (default)	Adjustment Level 2	Adjustment Level 3
Developer Bias (Negative)	-180V	-230V	-230V	-230V
Regulation Bias against Developer Bias	-80V	-80V	-120V	-160V

4. The adjustment allows image density to stabilize for a satisfactory image quality regardless of the machine usage.

NOTE

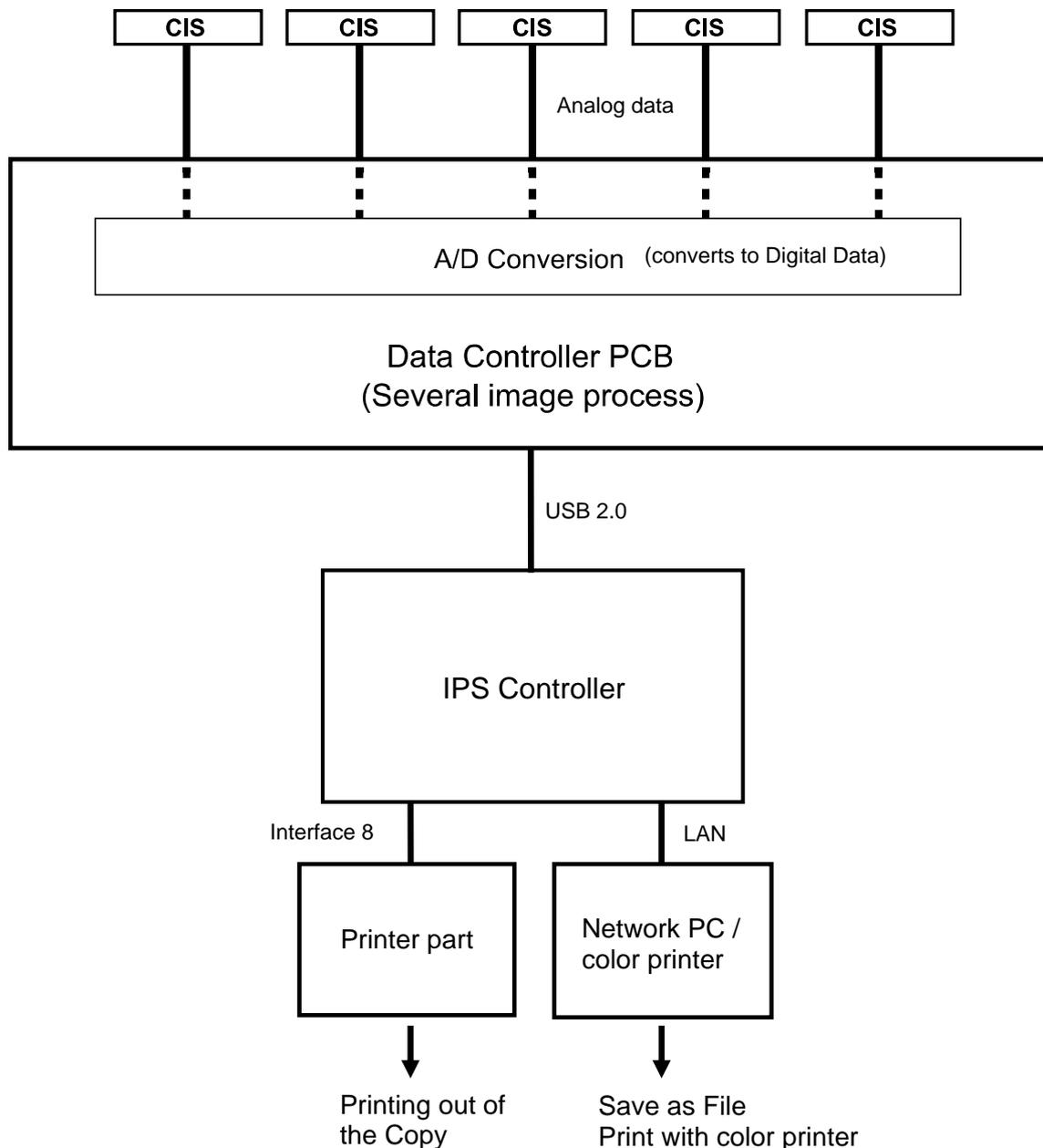
An applied Adjustment Level should be set to “1” every after replacing Developer Unit. For further information, see [5.1.4 Developer Unit] [8.11 Special Operation Mode].

3. 2 Scan Process

3. 2. 1 Data flow in scan and copy

The scanner unit has 5 CIS devices and the Main Board (PW12920).

1. CIS reads the image pattern of original and then send the analog data to the Main Board.
2. The Main Board converts the analog data into digital data.
3. Main Board takes a proper image process according to the settings configured with K129 Diag.. It outputs the image data to the IPS or PC through the USB 2.0.
4. IPS outputs the image data to the KIP printer through the Interface 8 on copy, or it outputs to the Network PC through the LAN cable on Scan to File.



3. 2. 2 Positioning process of Image Block

The scanner part of KIP 770 reads the image of original with 5 - CIS (Contact Image Sensor). As these CIS are arranged in 2 rows, there occurs a vertical gap of image among the image blocks. So it is necessary to remove this gap by vertical positioning process (Y offset). Also the reading area of these 5 pieces of CIS overlaps each other some degree. It means some image pixels are commonly included in the neighboring two Image Blocks. It is very hard to recognize the image because many images are duplicated. To prevent this kind of problem, it is necessary to remove the duplication of image pixels by horizontal positioning process (X overlap). The Main Board performs these positioning processes.

! NOTE

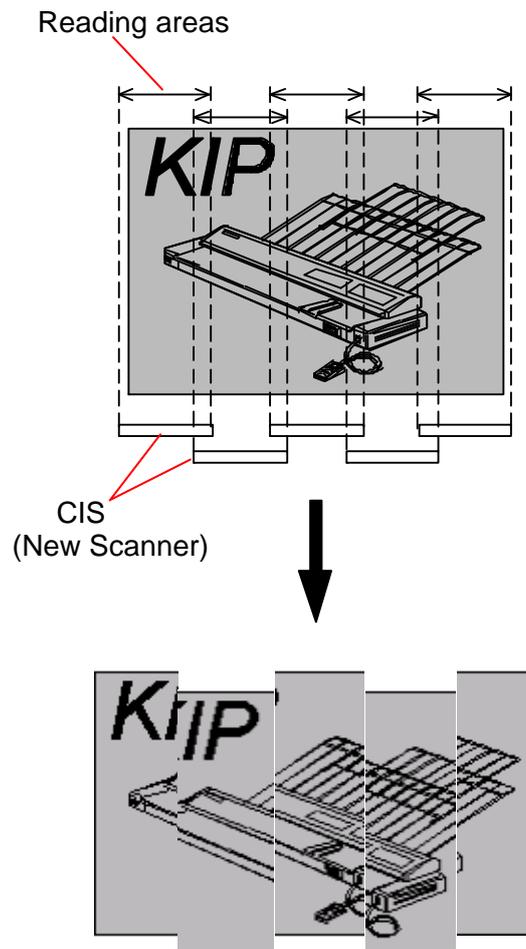
The KIP 770 performs these positioning processes (X overlap & Y offset) according to the setting specified through KIP Scanner Utility.

[Explanation]

5 pieces of CIS are arranged in 2 rows as the following illustration, with some amount of their reading area overlapping each other.

So the reading data initially inputted to the Main Board is as follows.

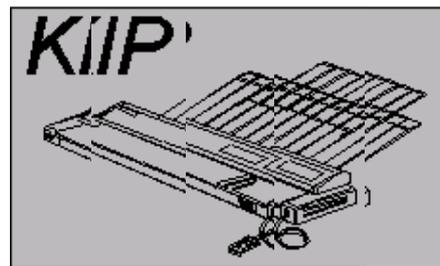
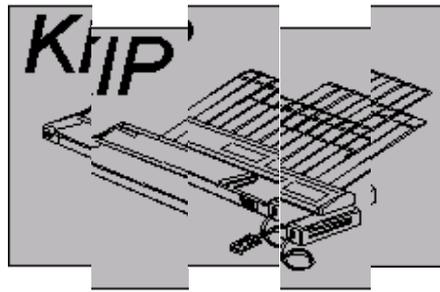
- (1) There occurs a vertical gap of image among the image blocks.
- (2) Some image pixels are commonly included (duplicating) in the neighboring two Image Blocks.



The image data before the positioning process

The Main Board removes the vertical gap among the Image Block according to the positioning setting (Y offset) specified through KIP Scanner Utility.

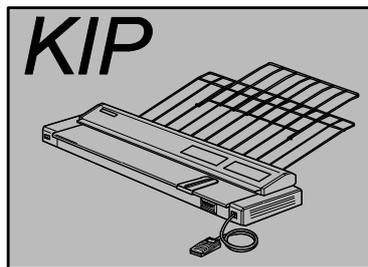
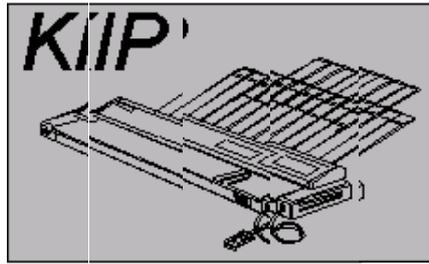
The image data before the positioning process



The image data after the positioning process (Y offset)

Also the Main Board removes the duplication of image pixels among the Image Blocks according to the positioning setting (X overlap) specified through KIP Scanner Utility.

The image data after the positioning process (Y offset)



The image data after the positioning process (X overlap)

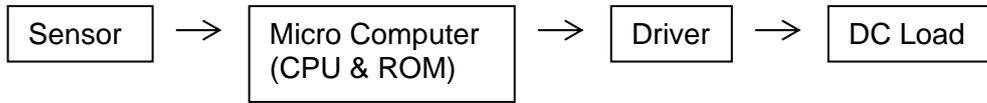
Chapter 4

Electrical

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4. 1 General Information

This machine is mainly controlled by a microcomputer, which is located on DC Controller. This microcomputer reads input signals from sensors, and outputs the operation signals to 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
5VDC	Yellow
12VDC	Brown
24VDC	Orange
Signal in to DC Controller (sensors)	Purple
Signal out from DC Controller	Gray

CAUTION

There is a battery (CR2032) on the Motherboard of the controller.

Danger of explosion if battery is incorrectly replaced.

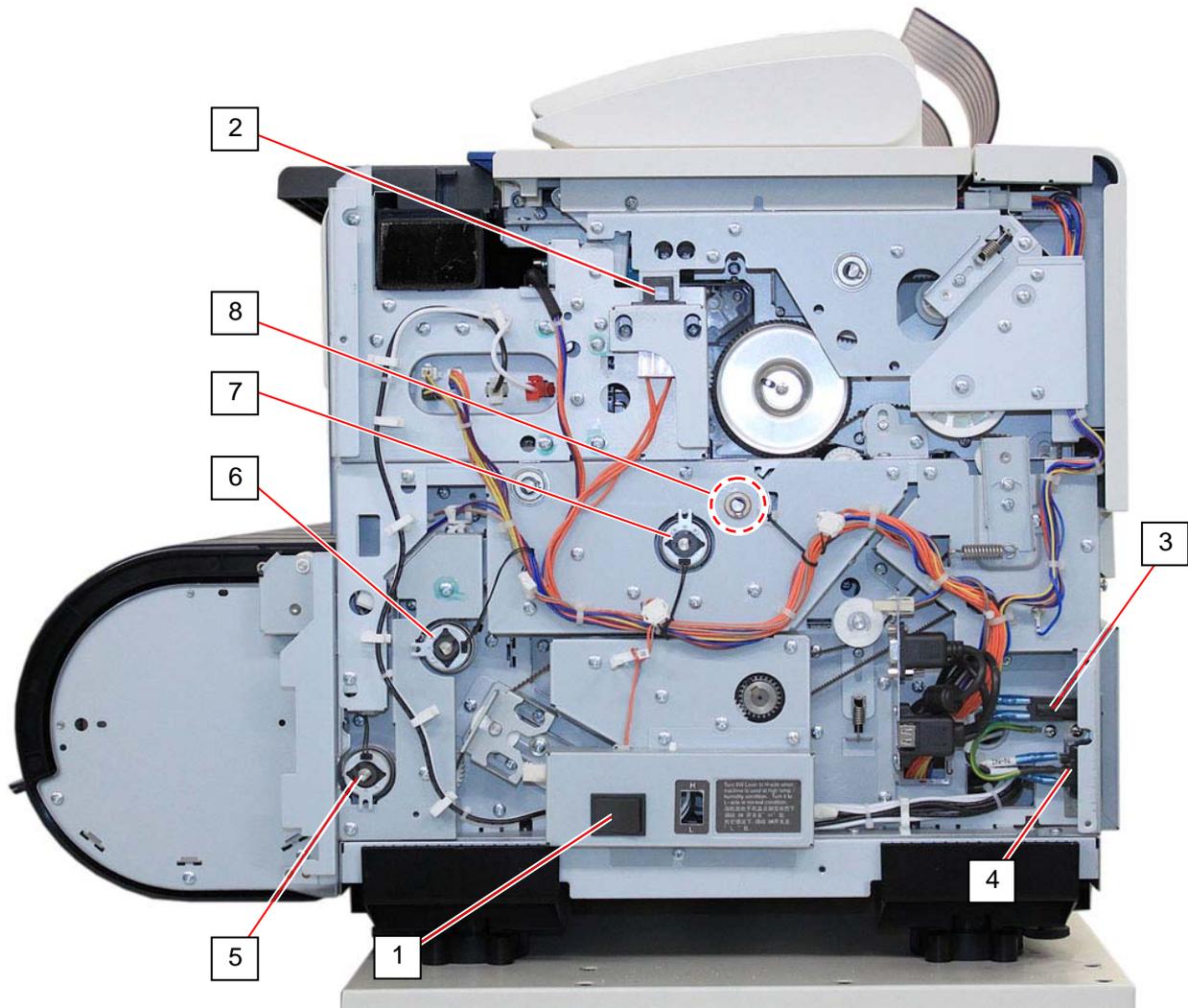
Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

As for the waste disposal of battery, dispose in accordance with local state and federal relations.

4. 2 Electrical Component Location

4. 2. 1 Right



Item	Symbol	Signal name	Name	Type	Function
1	SW1	-	Switch (Power Switch)	AJ8R2004BBCF	Switches ON/OFF the machine
2	MS1	-	Switch (Upper Unit Switch)	FA1L-CA22	Detects Upper Unit open
3	CB1	-	Breaker	X28-XQ1A-15 (for 120V model) X28-XQ1A-10 (for 230V model)	Protects the AC line from the over-current
4	INLET	-	Noise Filter Assy Inlet Assy	120V model 230V model	Inputs the AC Power from a wall outlet
5	CL3	R1FD_CL	Clutch (Roll Feed Clutch)	MCA-30A	Picks up the roll media's leading edge to wait position
6	CL2	FEED_CL	Clutch (Feed Clutch)	MCA-30A	Feeds the roll media
7	CL1	REGIST_CL	Clutch (Registration Clutch)	MCA-30A	Meets the image head and the leading edge of media
8	CL4	GUIDE_CL	Clutch (Guide Clutch)	DSTC-40G	Pushes up the guide plate (just after Tr/Sp) to control the LE approach to Fuser Entrance Plate.

4. 2. 2 Left

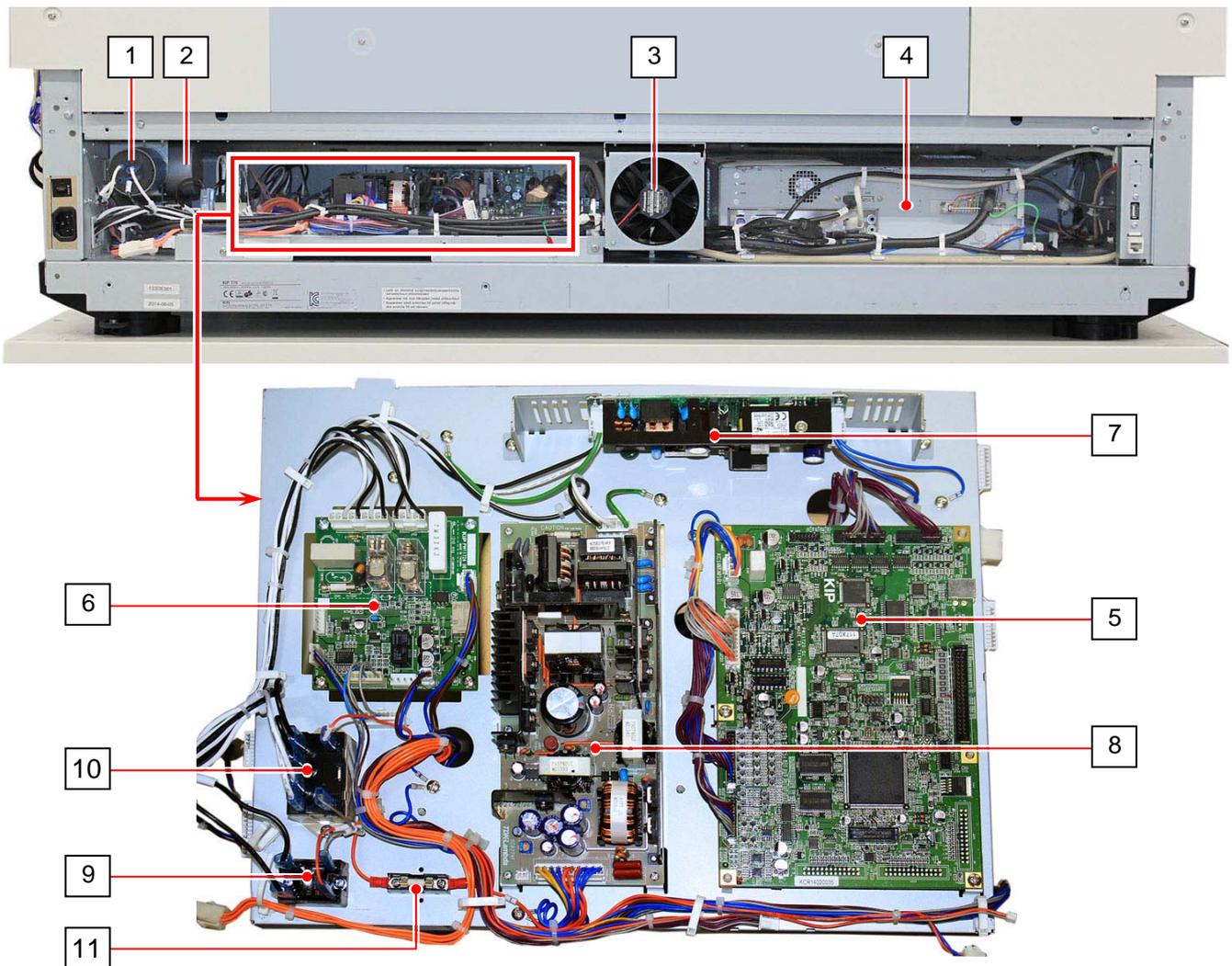


Item	Symbol	Signal name	Name	Type	Function
1	BL3	FEED_BL (EXT_FAN)	Fan (Feed Blower)	ASFN60372	Assists to transport media
2	HV1 HV2 HV3 HVP4 OUTPUT2 OUTPUT3 OUTPUT5	HV_IM HV_TR HV_AC ----- BIAS_TRG BIAS_SW	HV Power Supply	EUK1MGA60HA	Outputs the high voltage to each of the following components. (1) Image Corona (HV1) (2) Transfer Corona (HV2) (3) Separation Corona (HV3) (4) Developer Roller (OUTPUT2) (5) Regulation Roller (OUTPUT3) (6) Cleaning Roller (OUTPUT5)

! NOTE

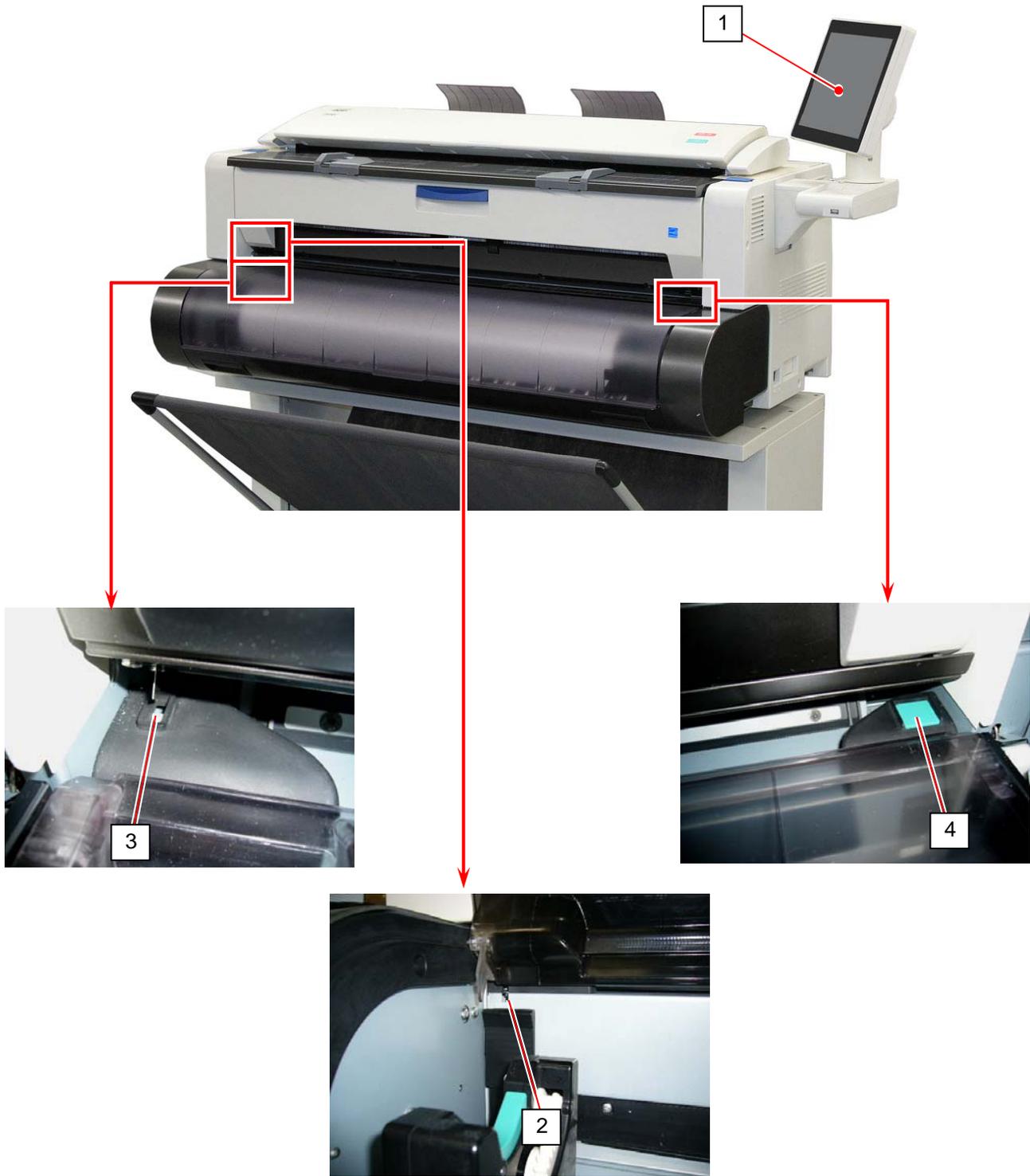
Developer Bias (OUTPUT 2, 3) is outputted (or stopped) by the signal "BIAS_TRG".
The polarity of Bias is decided by the signal "BIAS_SW"

4. 2. 3 Rear



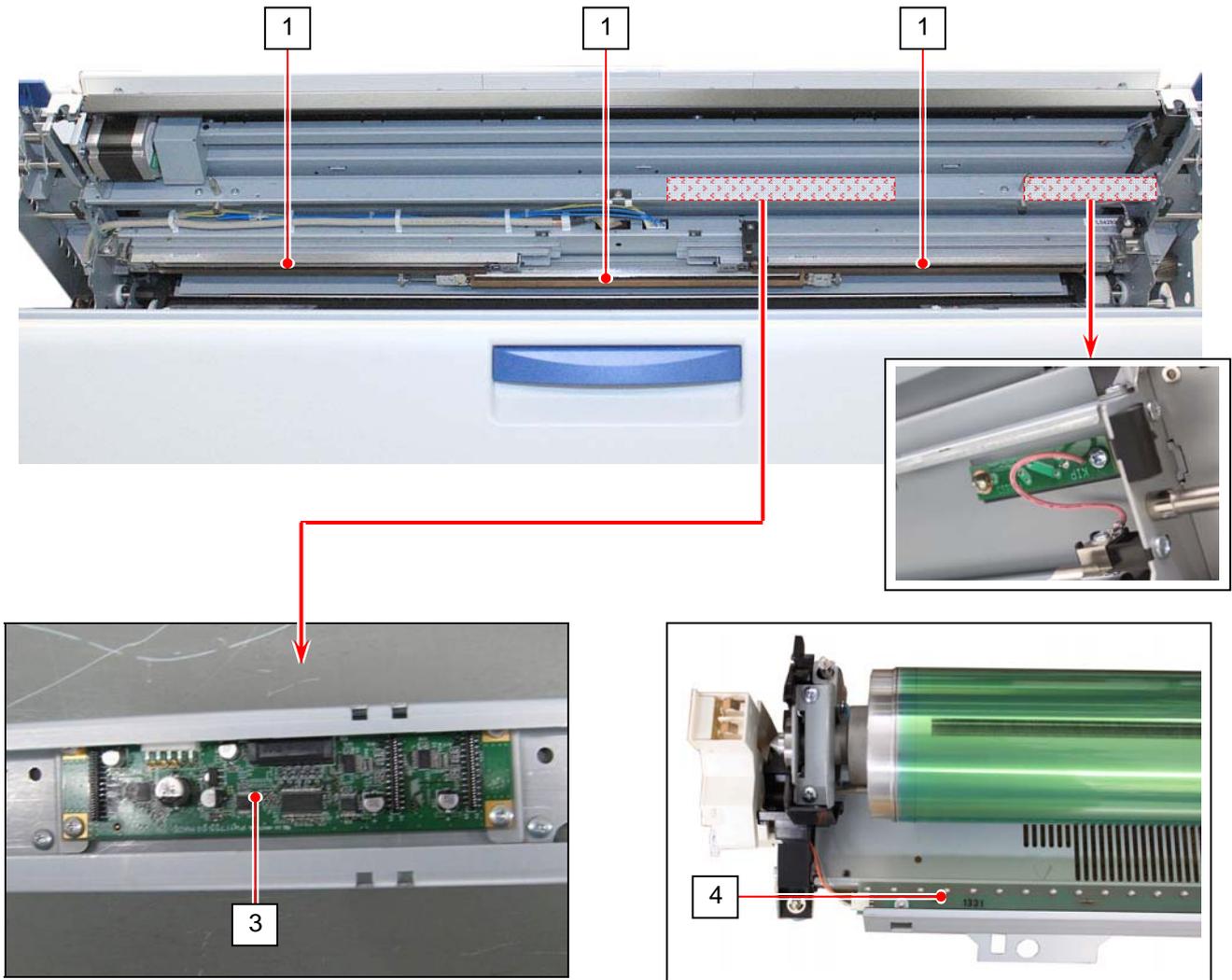
Item	Symbol	Signal name	Name	Type	Function
1	LF1	-	Line Filter	RG-208F2	Removes the noise from the AC line 230V model only
2	M1	MAIN_TRG	DC Motor (Main Motor)	DRG-6236-226	Drives the Drum, Developer Unit, Fuser Unit and media feeding section
3	BL4	-	Fan (Controller Cooling Fan)	ASFN90372	Cools the Controller and other components near the Controller
4	Image Process Assembly	-	Controller		Image Process System for copy / STF / plot
5	PW13320	-	PW13320 PCB Assy	PW13320	Overall sequence control
6	PW11724	-	PC Controller PCB	PW11724	- Lightning surge protector - Shuts down the IPS
7	DCP1	-	DC Power Supply	ZWS75BAF-12	Outputs 24VDC, 5VDC, 0VDC
8	DCP2	-	DC Power Supply	ZWS75AF-12/J	Supplies 12VDC to the UI and the PW11724
9	SSR1	HEAT1	Solid State Relay	AQJ416V (120V) AQJ426V (230V)	ON / OFF control of the Fuser (H1)
10	RY1	HEAT-RY	Relay	G7L-2A-TUB (DC24V)	- Supplies power to the Lamp (H1) - Stops power supply to the Lamp when Thermostat (TS1) is open
11	F1	-	Fuse	Walter TSC3.15AH	Protects the 24VDC from the over-current Use the designated fuse only.

4. 2. 4 Front



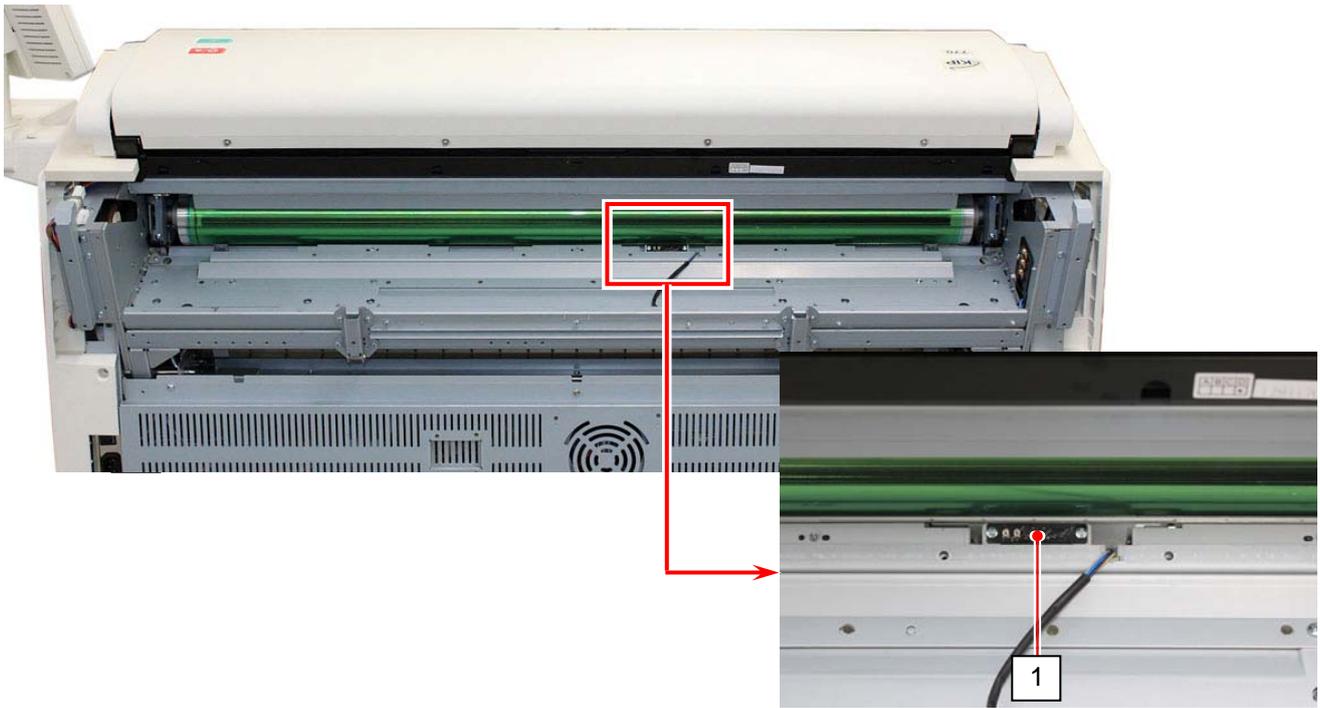
Item	Symbol	Signal name	Name	Type	Function
1	Touch Screen LCD	-	Touch Panel LCD Unit (UI)	SLP1262-ETB-A01	Touch Screen (12.1 inch) User Interface
2	MS5	DOOR_OPN	Switch (Roll Deck Cover open)	AM51612C53 N-A	Detects Roll Deck Cover open
3	MS6	HAND_DOOR	Switch (Manual Feed Table open)	CS1A-B2CA	Detects Manual Feeder Table open
4	MS7	SAMP_CUT	Switch (Initial Cut Switch)	CS1A-B2CA	- Starts an initial cut by a short press - Starts a test print by a press in 3 seconds or more

4. 2. 5 Process Frame / LED Head

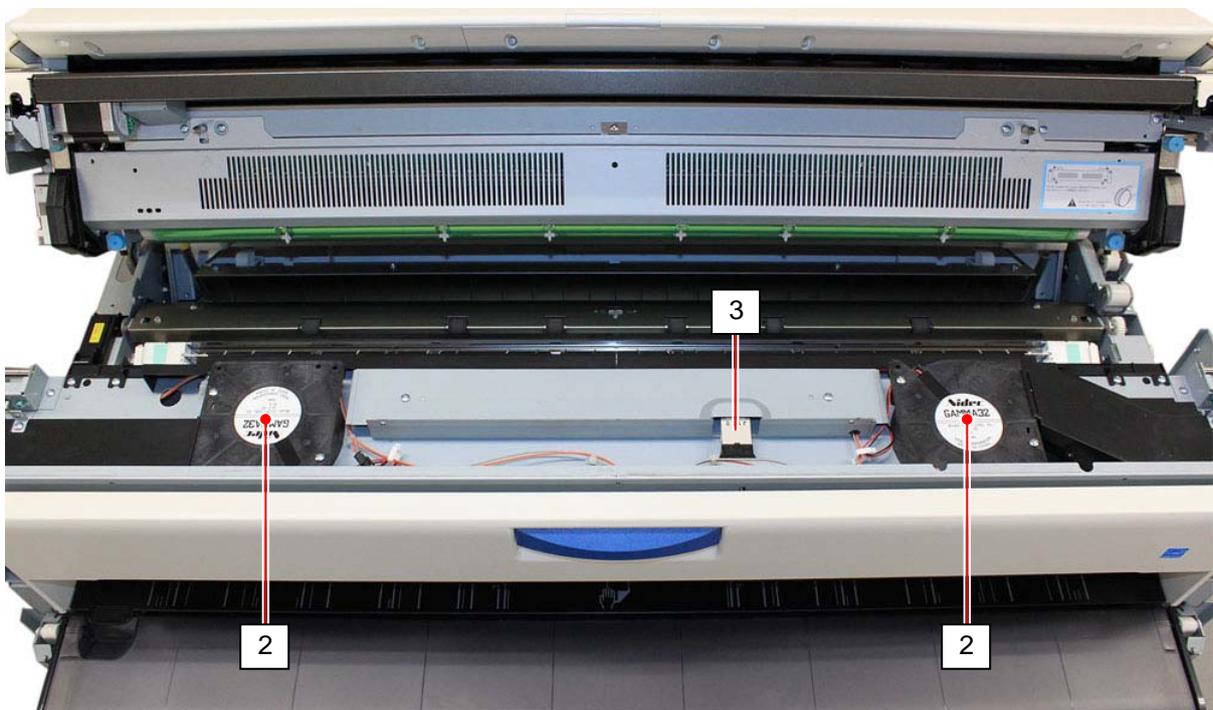


Item	Symbol	Signal name	Name	Type	Function
1	LED HEAD	-	LED HEAD UNIT	53TRC	Creates latent Images on Drum
2	PW6693	-	HV-ZD Assy	PW6693	- Keeps the Grid Voltage constant - Controls the surface potential of Drum
3	PW11755	-	PW11755 Assy	PW11755	Interface of LED Head Cable from PW13320
4	PW6631	ER1	Eraser PCB A	PW6631	Lights LED lamps to remove the negative electric charges from the Drum at the beginning of the Print Process

4. 2. 6 Main Frame

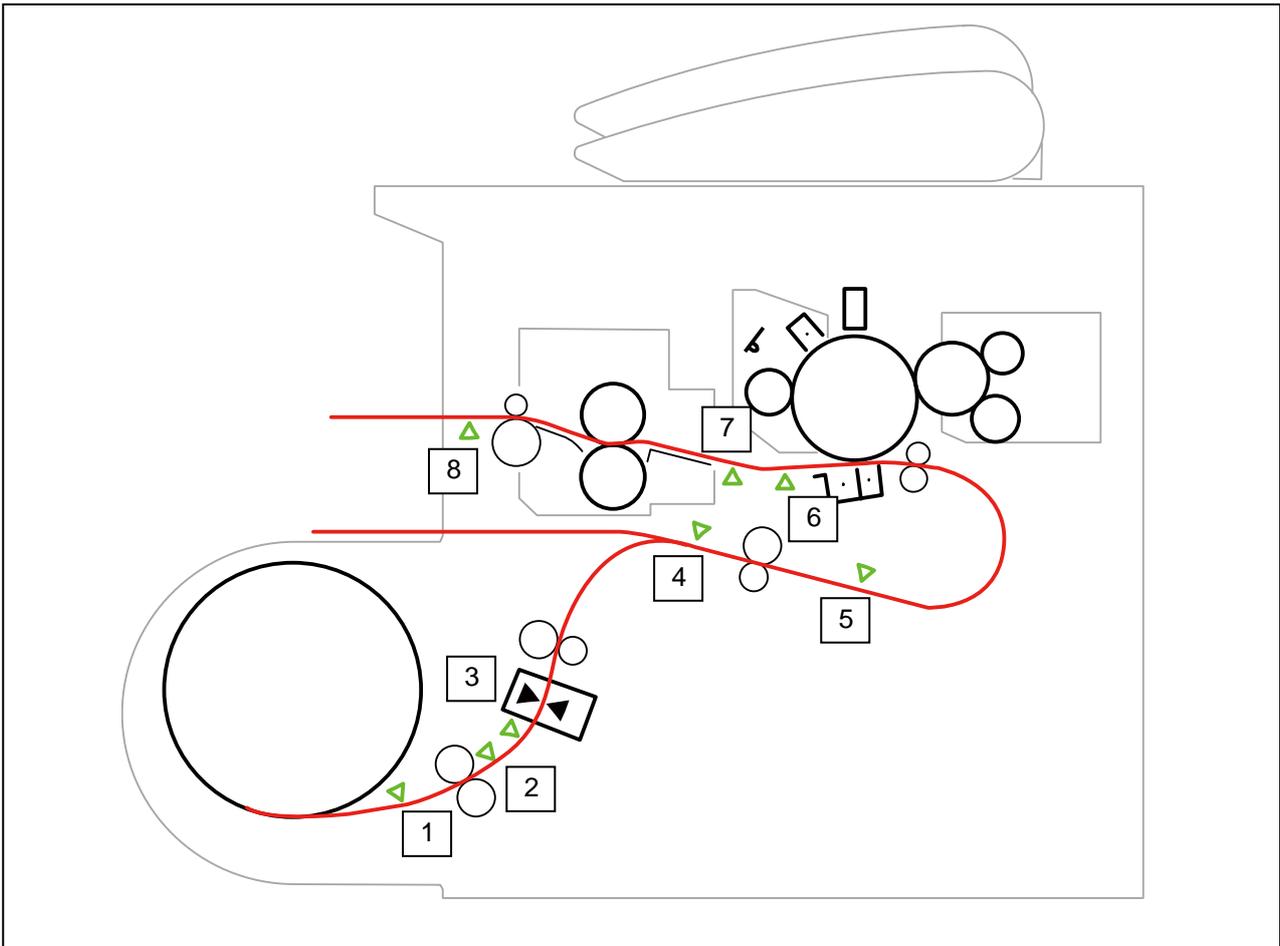


Item	Symbol	Signal name	Name	Type	Function
1	PH8	DENS_S	Sensor (Toner Density Sensor)	GP2Y40010K0 F	Detects the toner density on the drum surface Outputs analog voltage to PW13320



Item	Symbol	Signal name	Name	Type	Function
2	BL1 / BL2	HEAT_BL	Blower	D12F-24BL 05	Exhausts the inside air (equipped with the Ozone Filters)
3	MS2	-	Switch (Exit Cover Switch)	FAIL-CA22	Detects Exit Cover open

4. 2. 7 Sensor on Media Path



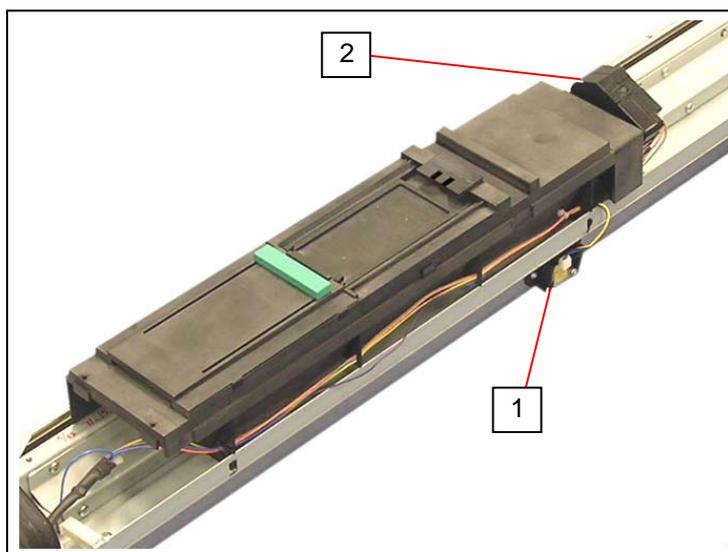
Item	Symbol	Signal name	Name	Type	Function
1	PH5	R1_SET_S	Sensor (Roll Set Sensor)	PS119ED1	Detects whether the leading edge is at set position
2	PH4	RENC_S	Sensor (Feed Encoder)	LG248NL1	Detects the distance of the roll media feeding
3	PH6	R_EDGE	Sensor (Feed Sensor)	PS117ED1	Detects roll media feeding at the Roll Deck region
4	PH7	MANIN_S	Sensor (Manual Feed Sensor)	PS117ED1	Detects a cut sheet set
5	PH1	REGIST_S	Sensor (Registration Sensor)	PS117ED1	Detects media feeding at the Registration region
6	PH2	SEPS_S	Sensor (Strip / Separation Sensor)	LG248NL1	Detects media feeding at the Separation region
7	PH9	GUIDE_S	Sensor (Guide Plate Sensor)	LG248NL1	Detects the Guide Plate's position
8	PH3	HEAT_EXIT	Sensor (Exit Sensor)	LG248NL1	Detects media feeding at the Fuser region

4. 2. 8 Cutter Unit



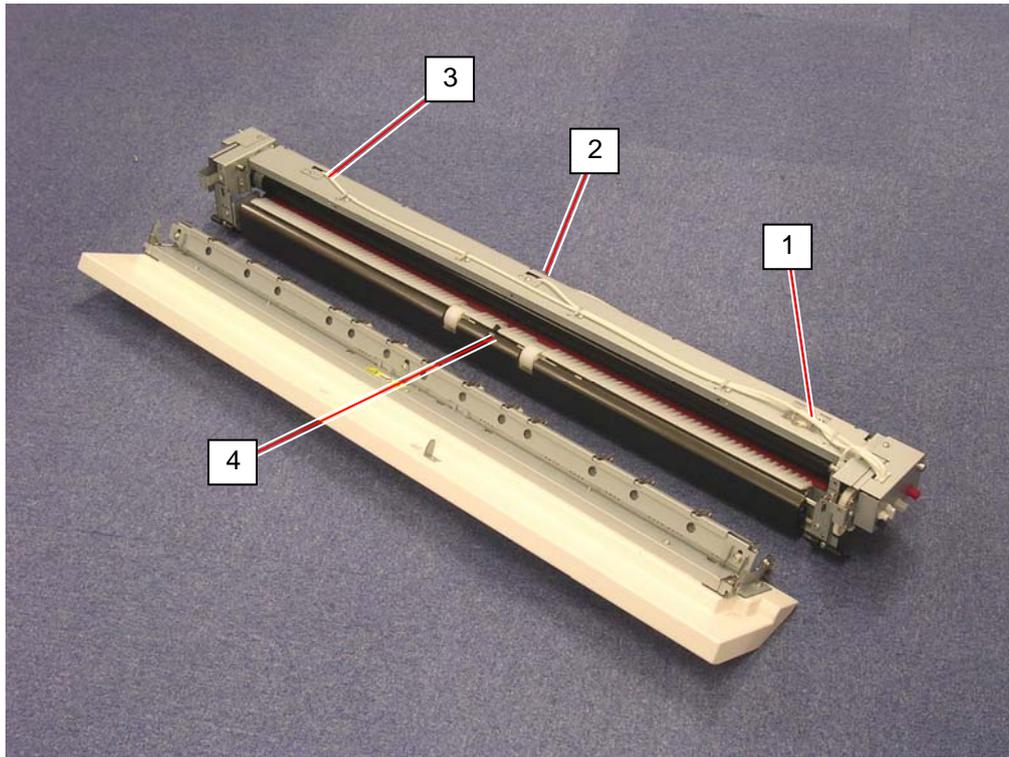
Item	Symbol	Signal name	Name	Type	Function
1	M4	MCUTL MCUTR	Motor (Cutter Motor)	-	Slides the cutter blade
2	MS8 MS9	MSCUTL MSCUTR	Switch (Cutter Home Position Sensor)	-	Detects whether the cutter blade exists at the home position

4. 2. 9 Developer Unit

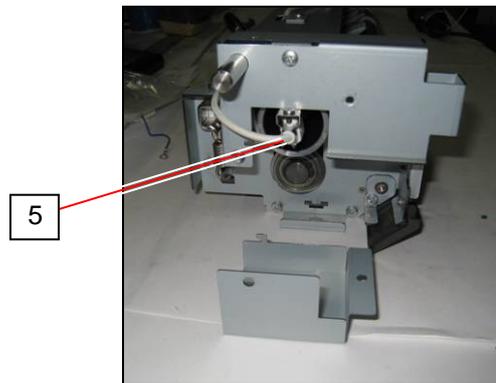


Item	Symbol	Signal name	Name	Type	Function
1	TLS1	TONER_S	Sensor (Toner Sensor)	TSP15DA10C-01	Detects whether the toner exists in the Developer Unit
2	M3	TONER_M	DC Motor (Toner Supply Motor)	DMA-3150A	Drives the Toner Hopper to supply the toner to the Developer Unit

4. 2. 10 Fuser Unit

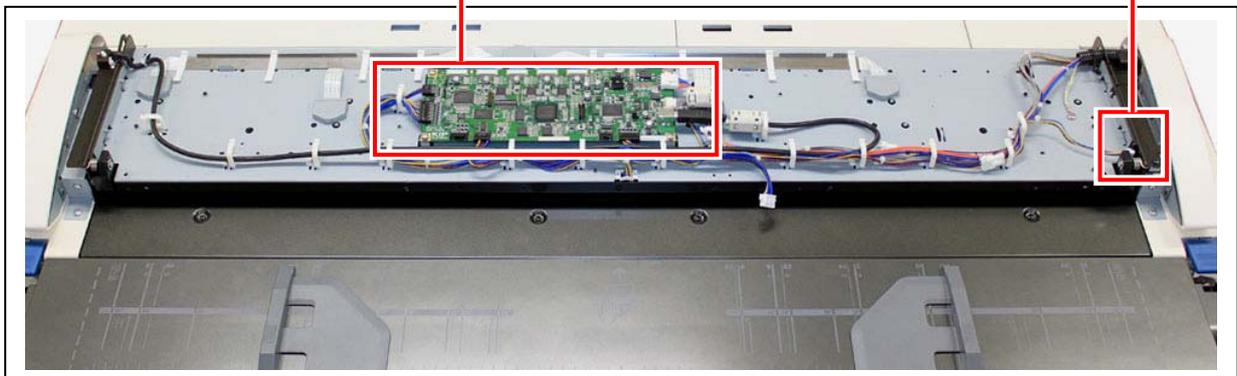
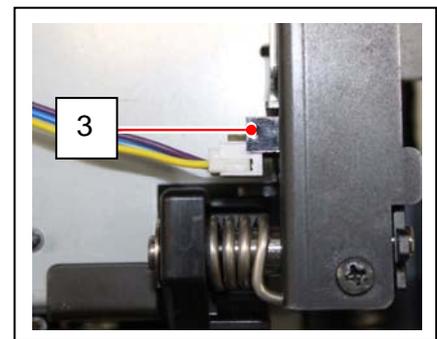
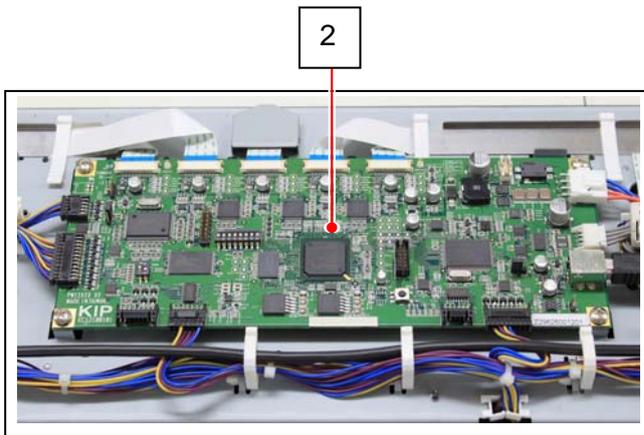
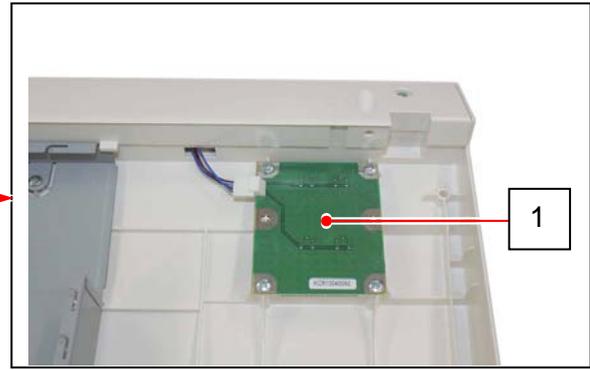
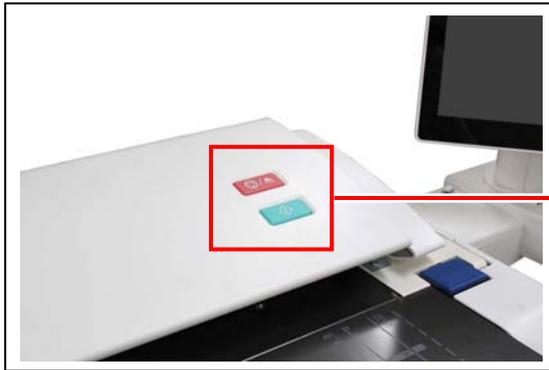


Item	Symbol	Signal name	Name	Type	Function
1	TS1	-	Thermostat	CH-152-35-170	Prevents over-heat
2	TH1	TH1	Thermistor 1	FS-K0120	Detects the temperature on the central area of Fuser Roller
3	TH2	TH2	Thermistor 2	FS-K0121	Detects the temperature on the Fuser Roller on the left
4	PH3	HEAT_EXIT	Sensor (Exit Sensor)	LG248NL1	Detects the media at the exit area

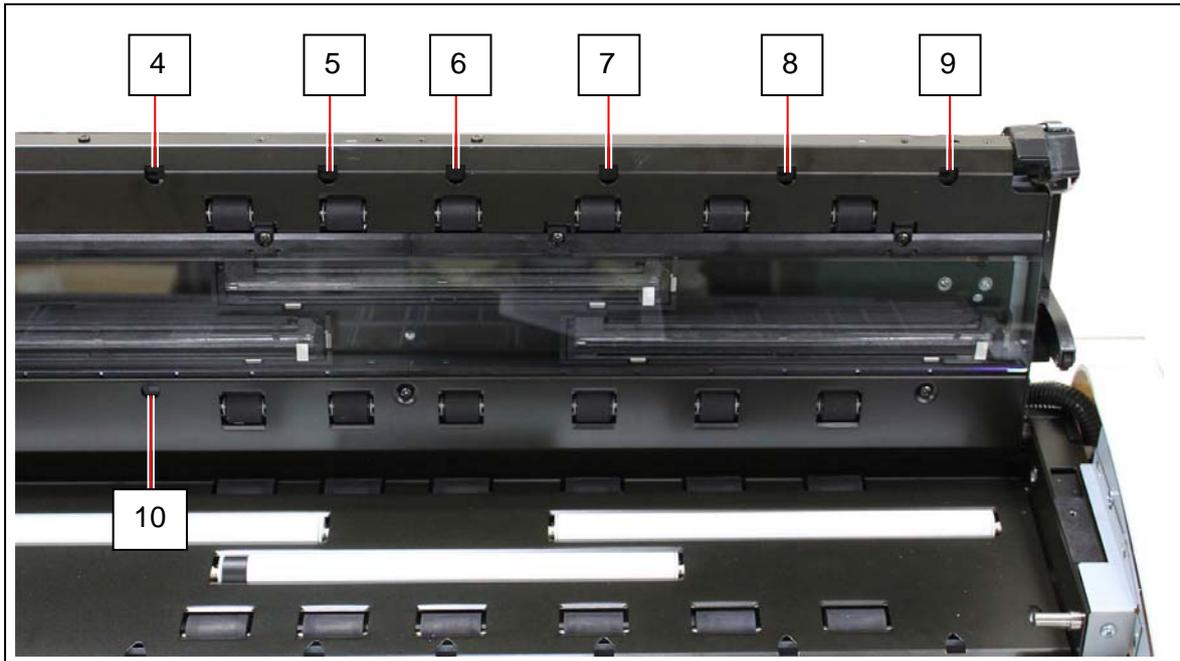
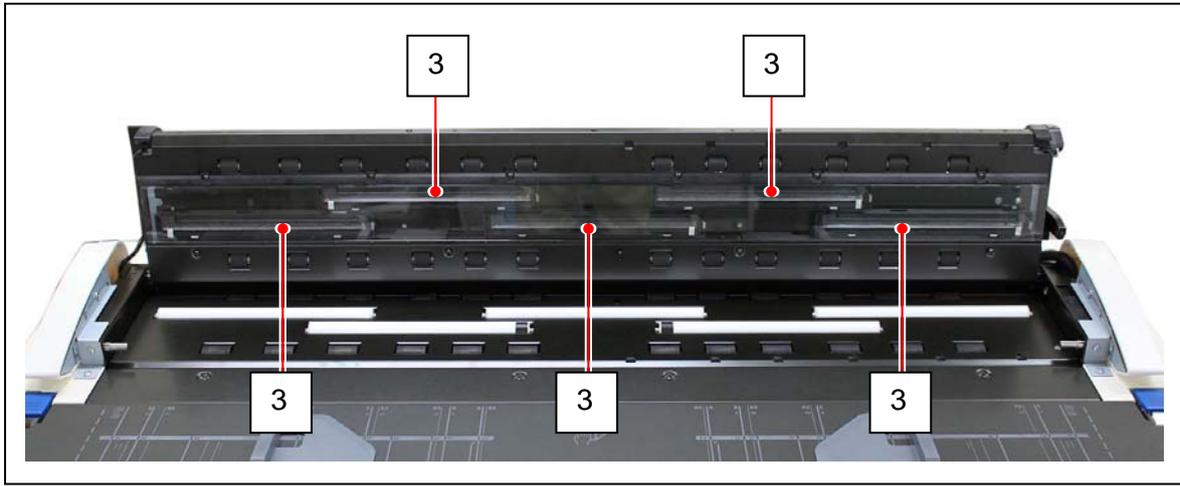


Item	Symbol	Signal name	Name	Type	Function
5	H1	-	Lamp	US: 120V 1300w EU: 230V 1300w	Heats up the central part of Fuser Roller

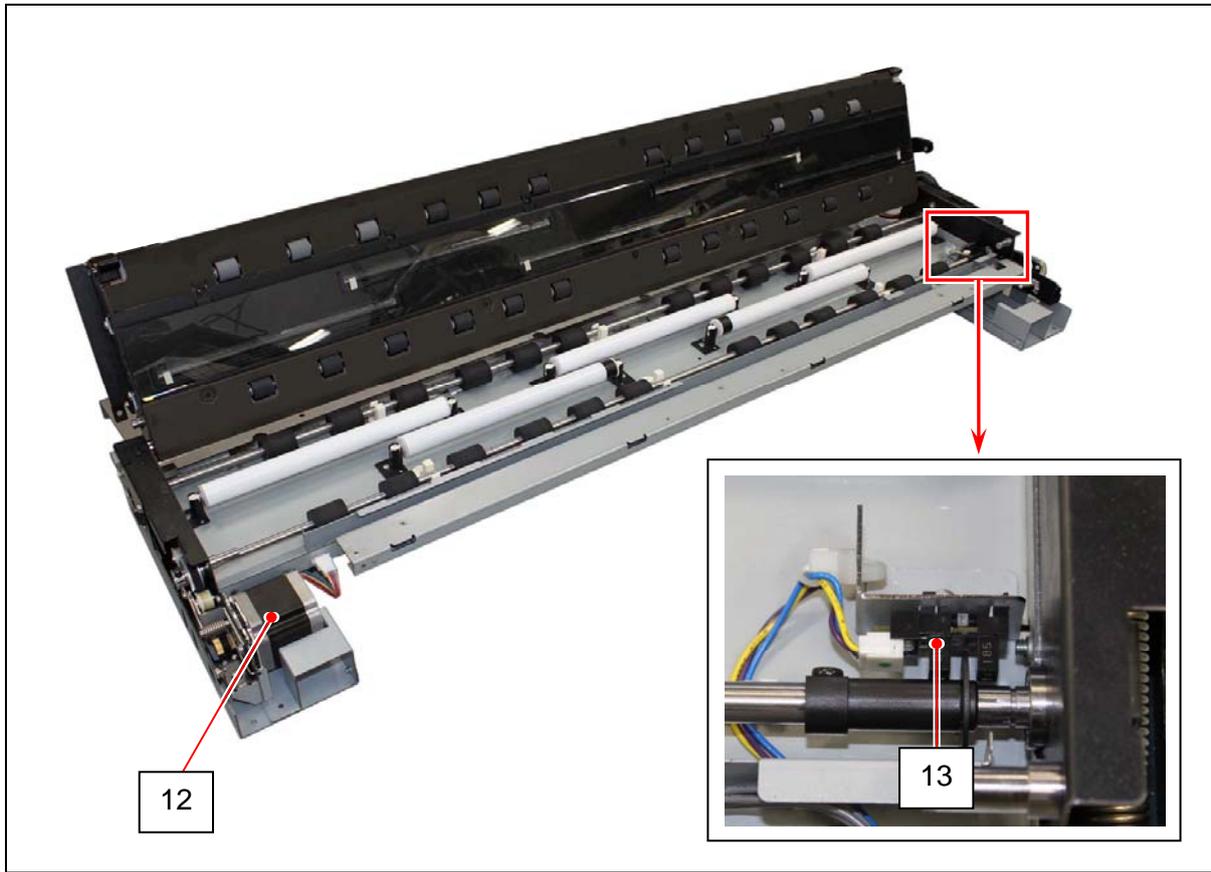
4. 2. 11 Scanner Unit



Item	Symbol	Signal name	Name	Type	Function
1	PW12975-01		SW CONTROL BOARD ASSY	PW12975 01	Has 2 switches for user Intervention "Stop/Eject" and "Start".
2			D CON (Data Controller PCB)	PW12920-02	Makes image processes to the digital data sent from CIS, and then sends the processed image data to KIP Printer. Converts the analog data read by the CIS to the digital data
3	S_PH8		Sensor	LG248BL1	Detects whether Upper Unit is opened.



Item	Symbol	Signal name	Name	Type	Function
4			CIS Sensor	FL06G-W07	Reads the image of original, and then send the analog data to D CON (Data Controller PCB).
5	S_PH1		Sensor	PS122GD4-A	Detects the original to be inserted. Detects original width A4 (Portrait)
6	S_PH2		Sensor	PS122GD4-A	Detects original widths A4 (Landscape), A3, 11" and 12".
7	S_PH3		Sensor	PS122GD4-A	Detects original widths A2, 17" and 18".
8	S_PH4		Sensor	PS122GD4-A	Detects original widths A1, 22" and 24".
9	S_PH5		Sensor	PS122GD4-A	Detects original widths A0, 30", 34".
10	S_PH6		Sensor	PS122GD4-A	Detects original widths 36".
11	S_PH7		Sensor	PS122GD4-A	Detects the original mis-feed.



Item	Symbol	Signal name	Name	Type	Function
12	M6		Motor	103H7123-5746	Transports the original.
13	S_PH9		Sensor	LG248BL1	Detects rotations of FEED ROLLER

4. 3 Check & Adjustment of Analog Output from HV Power Supply

4. 3. 1 Situations necessary to check the analog output

It is necessary to check the analog output from High Voltage Power Supply after replacing the following parts.

PW13320 PCB (DC Controller)
HV Power Supply PCB (EUK1MGA60HA)

Please check the analog output for each of the following part, and please adjust if it is out of the specified range.

Each "Reference page" in the list shows how to check and adjust each item.

Check Item	Reference page
Analog Voltage to Image Corona	4-15
Analog Voltage to Transfer Corona	4-17
AC Component to Separation Corona	4-19
DC Component to Separation Corona	4-21
Negative Developer Bias to the Developer Roller	4-23
Positive Developer Bias to the Developer Roller	4-25
Bias gap between Developer Roller and Regulation Roller	4-27
Positive Cleaning Roller Bias (Print Cycle)	4-29
Negative Cleaning Roller Bias (Toner Collection Process)	4-31

Reference

Please try to replace the PW13320 PCB or HV Power Supply PCB if you have the following kinds of problem.

PW13320 PCB

- (1) When the UI indicates abnormal indication although the UI has no problem.
- (2) When the electric component such as motor or lamp does not work properly although such component has no problem.

HV Power Supply PCB (EUK1MGA60HA)

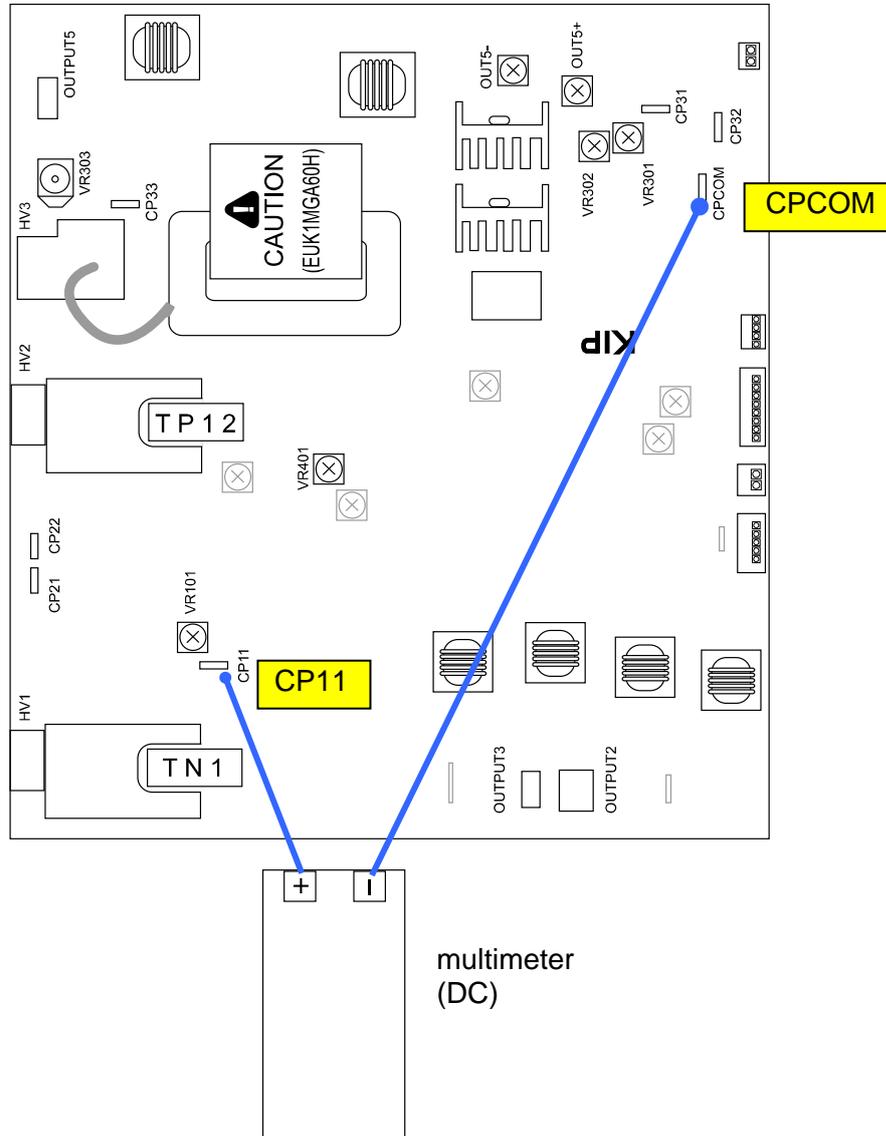
When the output to Image Corona / Transfer Corona / Separation Corona / Developer Roller / Toner Supply Roller / Regulation Roller / Cleaning Roller is abnormal.

4. 3. 2 Analog Voltage to Image Corona

The standard value of the voltage outputted from the HV Power Supply PCB to the Image Corona is **1.30 +/-0.05V**.

Check and adjust the output current in the following way.

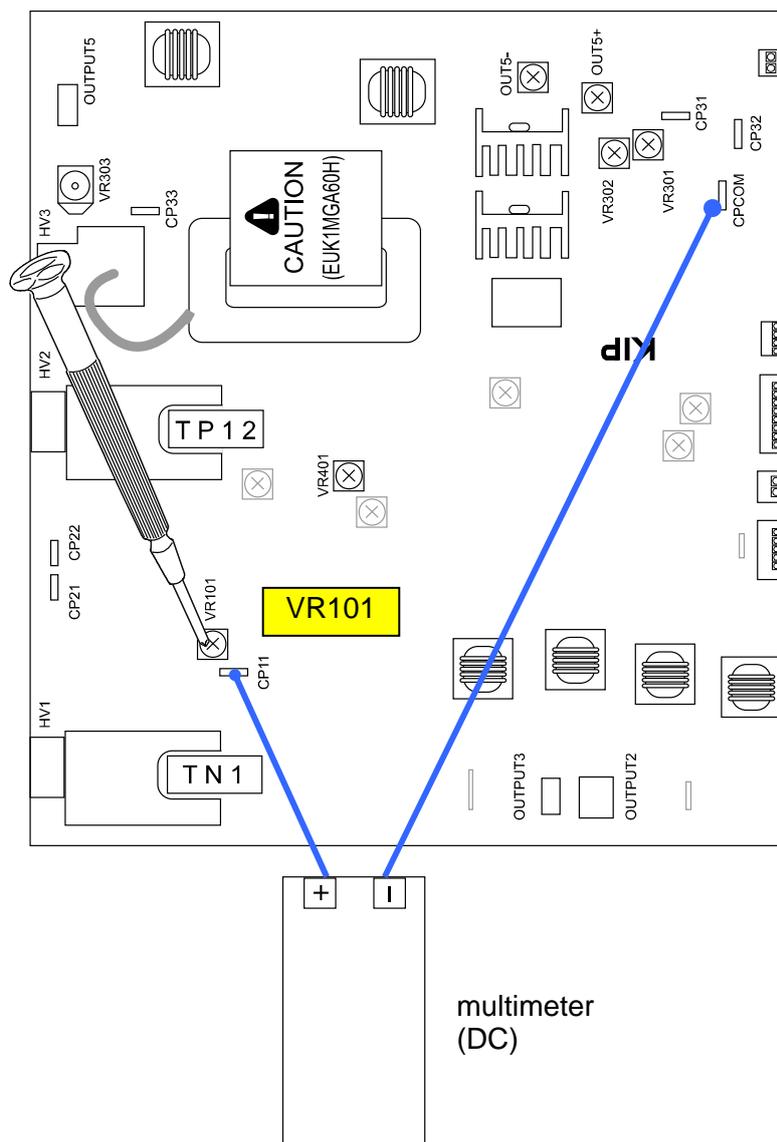
1. Connect the “+” cable of the multi-meter to the “CP11” pin on the HV Power Supply PCB (EUK1MGA60HA).
Also connect the “-” one to the “CPCOM”.
And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 3 Pattern Print].
As the high voltage is supplied to the Image Corona during the Test Print, check the voltage with the multi-meter.

Standard value of the output voltage to the Image Corona is **1.30 +/-0.05V**.

3. Adjust the output voltage if it does not satisfy **1.30 +/-0.05V**.
To adjust it, rotate the VR101 with a screwdriver.



4. 3. 3 Analog Voltage to Transfer Corona

The standard value of the voltage outputted from the HV Power Supply PCB to the Transfer Corona is specified as follows.

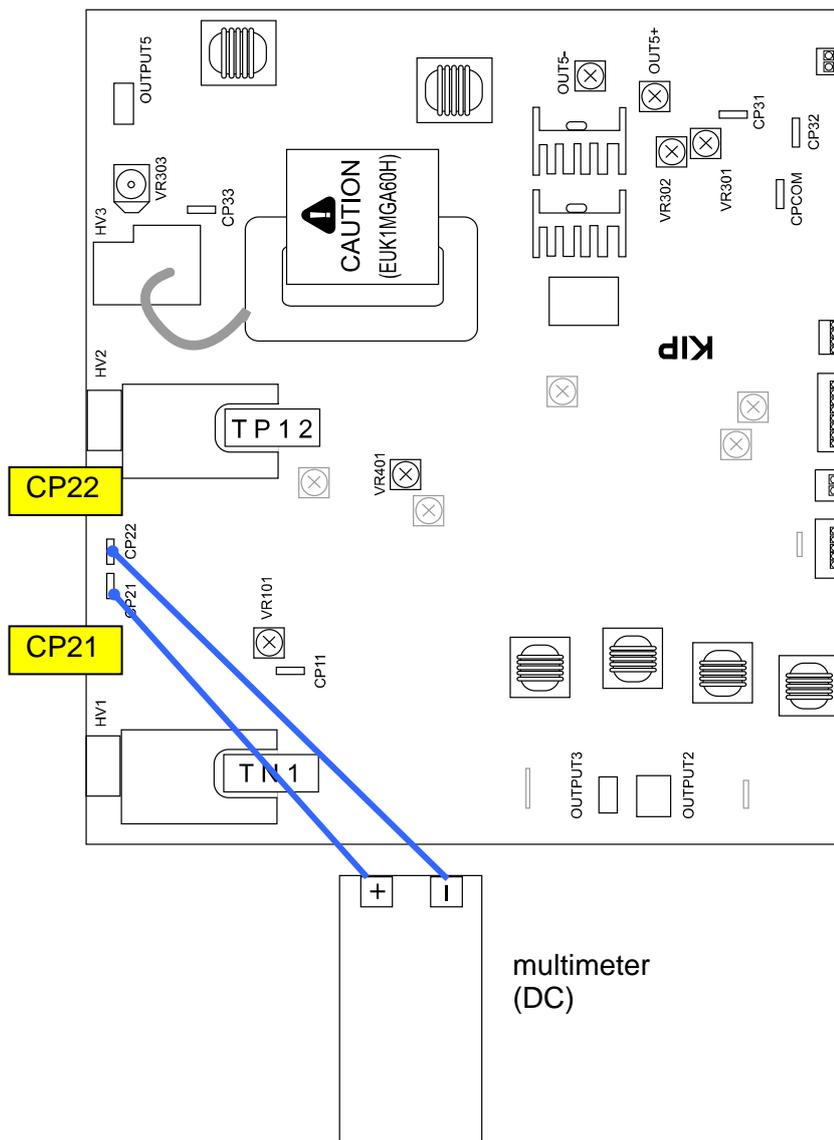
Plain paper	1.00 +/-0.05V
Tracing paper	1.00 +/-0.05V
Film	1.00 +/-0.05V

Check and adjust the output current in the following way.

! NOTE

The above values are just the standard values we have adjusted at the time of shipment. Of course you may change these values according to the usage condition.

1. Connect the “+” cable of the multi-meter to the “CP21” pin on the HV Power Supply PCB (EUK1MGA60HA).
Also connect the “-” one to the “CP22” pin.
And then, select the DC volt range on the multi-meter.



2. Select the Test Print Mode, and make a test print using each type of paper (plain paper, tracing paper & Film) making reference to [8. 3 Pattern Print].
As the high voltage is supplied to the Transfer Corona during the Test Print, check the voltage with the multi-meter.

Standard values of the output voltages to the Transfer Corona are:

Plain paper	1.00 +/-0.05V
Tracing paper	1.00 +/-0.05V
Film	1.00 +/-0.05V

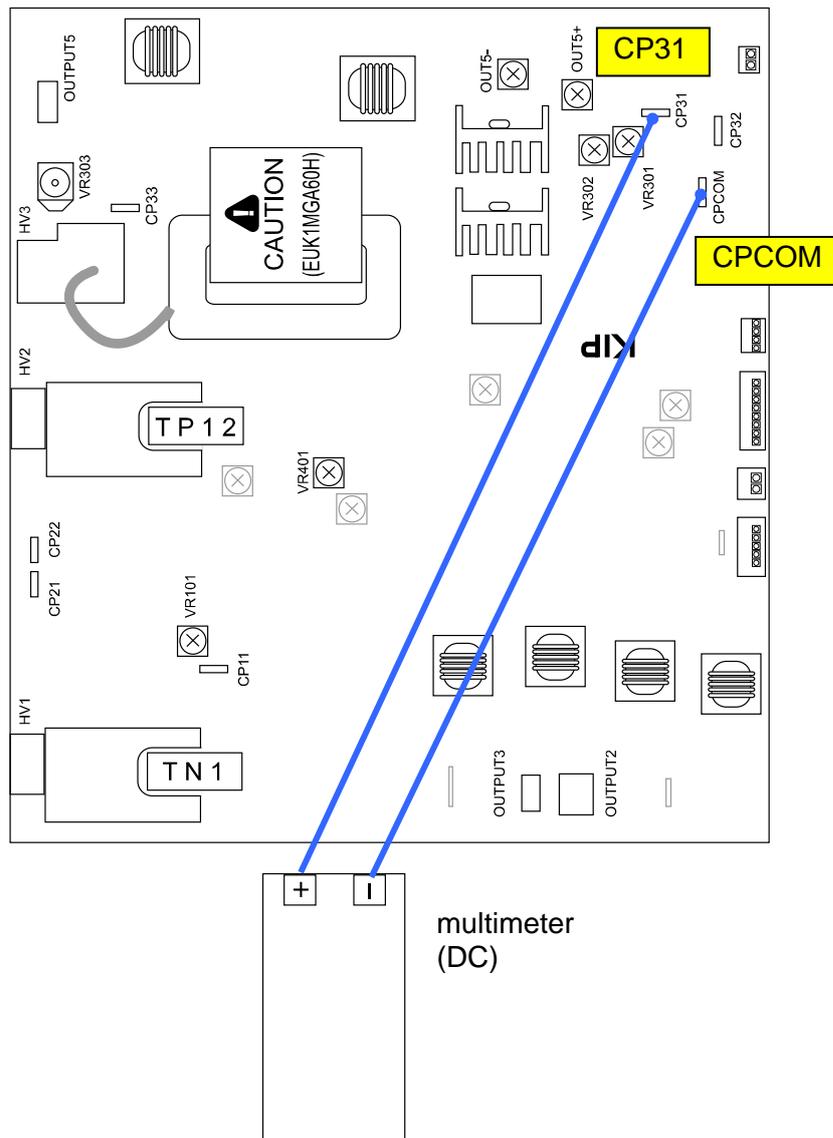
3. Adjust the output voltage if it does not satisfy the above specifications.
Select the Adjustment Mode, select each of following Sub Mode Numbers, and change the setting value so that the output voltage satisfies the above specifications.
Refer to [8.4.3 029 to 034 Transfer Voltage] for the detail.

Sub Mode No.	Contents
029	Transfer Voltage (Plain paper)
030	Transfer Voltage (Tracing paper)
031	Transfer Voltage (Film)
032	Transfer Voltage (Plain paper : Special)
033	Transfer Voltage (Tracing paper : Special)
034	Transfer Voltage (Film : Special)

4. 3. 4 AC Component to Separation Corona

The standard value of the AC Component outputted from the HV Power Supply PCB to the Separation Corona is **5.00 +/-0.05V**.
Check and adjust the AC Component in the following way.

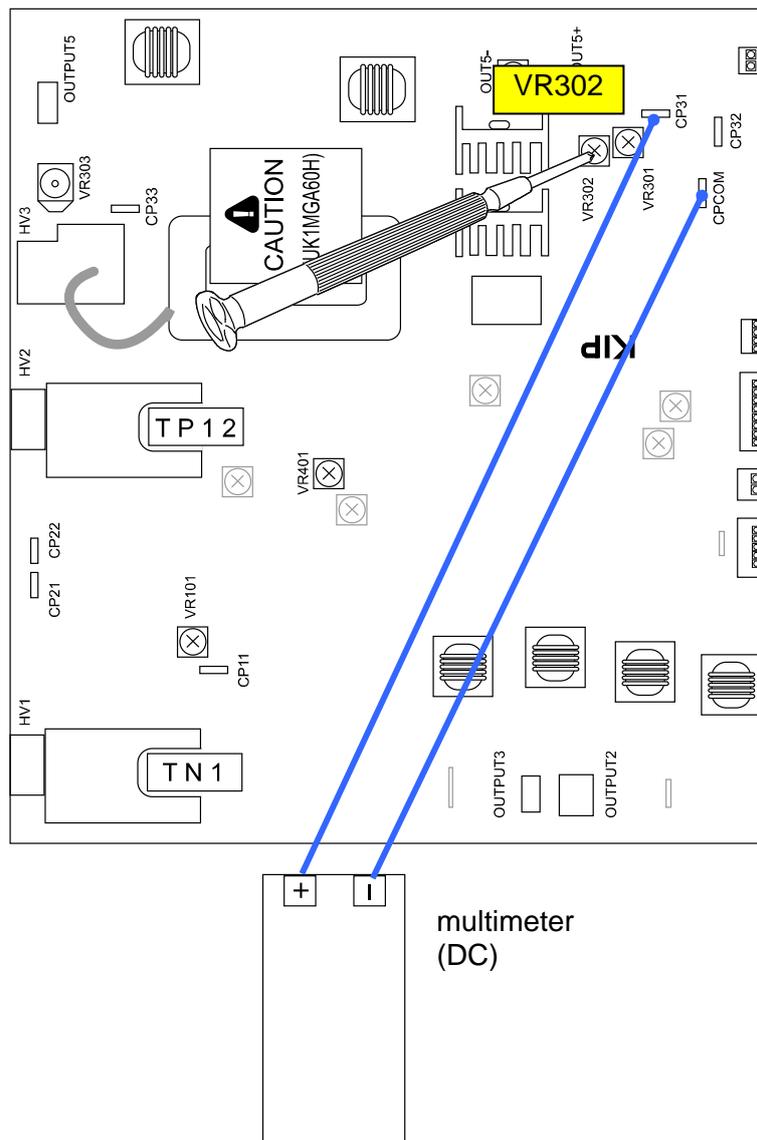
1. Connect the “+” cable of the multi-meter to the “CP31” pin on the HV Power Supply PCB (EUK1MGA60HA).
Also connect the “-” one to the “CPCOM” pin.
And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 3 Pattern Print].
As the high voltage is supplied to the Image Corona during the Test Print, check the voltage with the multi-meter.

Standard value of the AC Component to the Separation Corona is **5.00 +/-0.05V**.

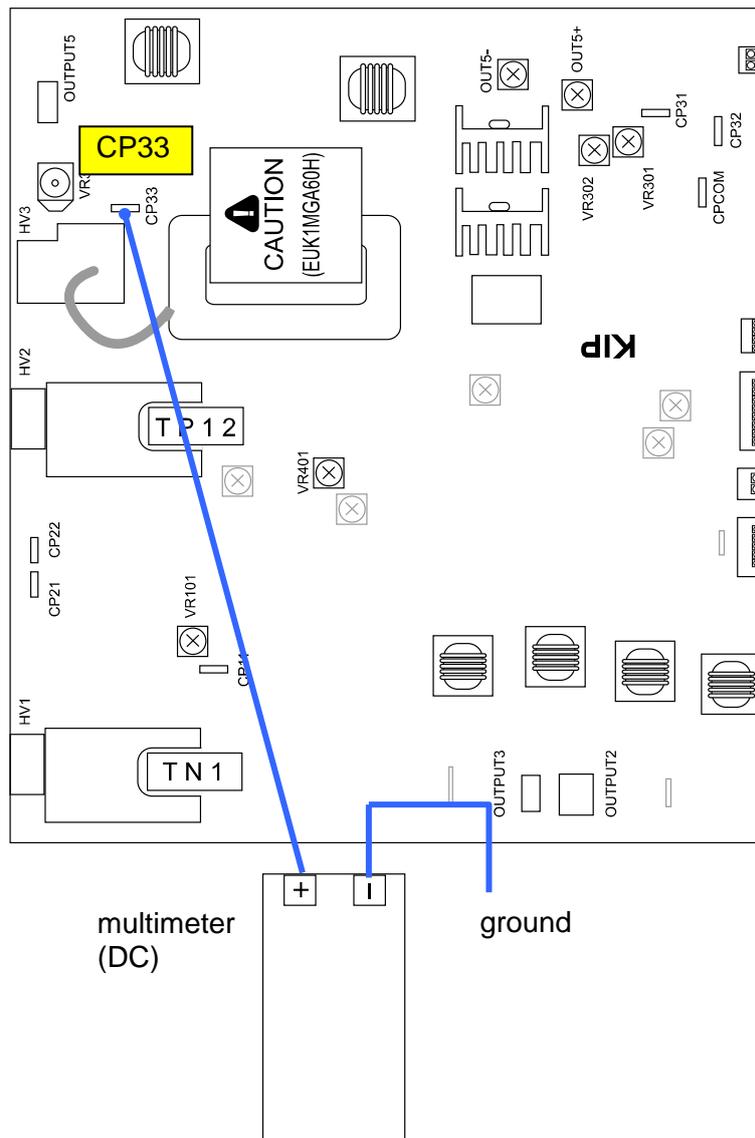
3. Adjust the AC Component if it does not satisfy **5.00 +/-0.05V**.
To adjust it, rotate the VR302 with a screwdriver.



4. 3. 5 DC Component to Separation Corona

The standard value of the DC Component outputted from the HV Power Supply PCB to the Separation Corona is **-250 +/-5V**.
Check and adjust the DC Component in the following way.

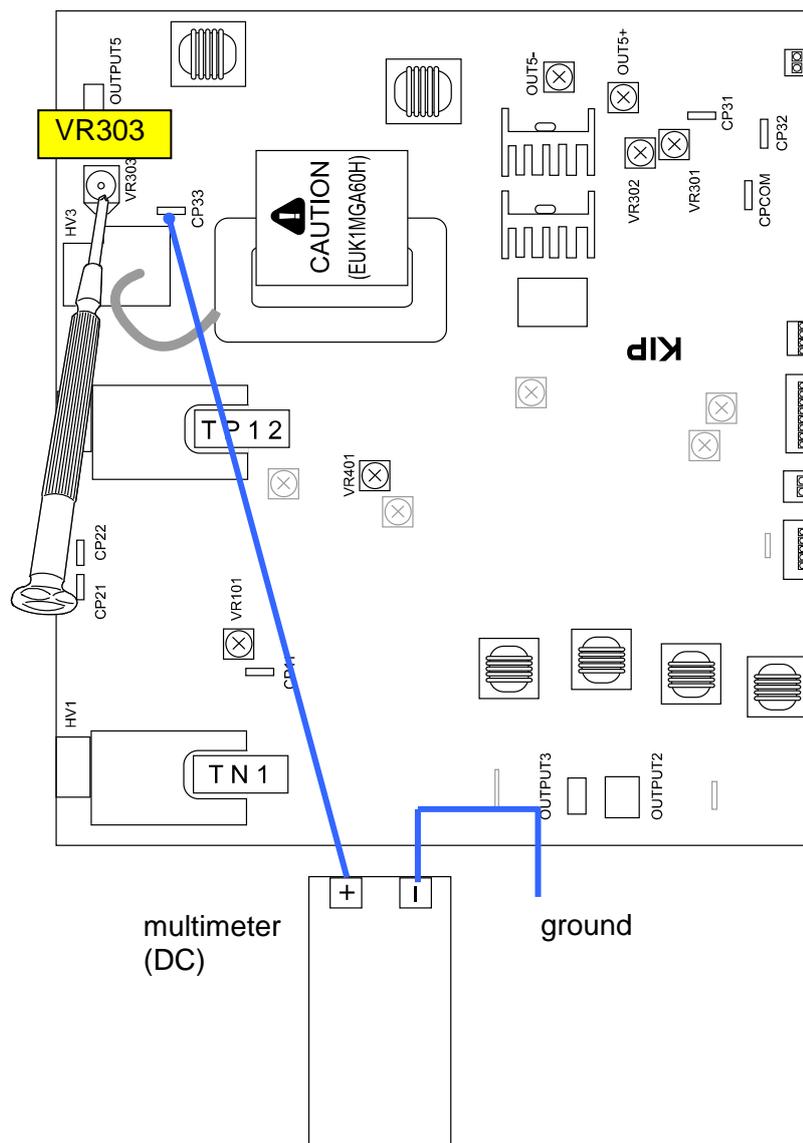
1. Connect the “+” cable of the multi-meter to the “CP33” pin on the HV Power Supply PCB (EUK1MGA60HA).
Also connect the “-” one to the ground.
And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 3 Pattern Print].
As the high voltage is supplied to the Image Corona during the Test Print, check the voltage with the multi-meter.

Standard value of the DC Component to the Separation Corona is **-250 +/-5V**.

3. Adjust the DC Component if it does not satisfy **-250 +/-5V**.
To adjust it, rotate the VR303 with a screwdriver.



4. 3. 6 Negative Developer Bias to Developer Roller

The Negative Developer Bias means the voltage supplied to the Developer Roller during the Print Cycle.

The standard value of the Negative Developer Bias is as follows for each type of paper.

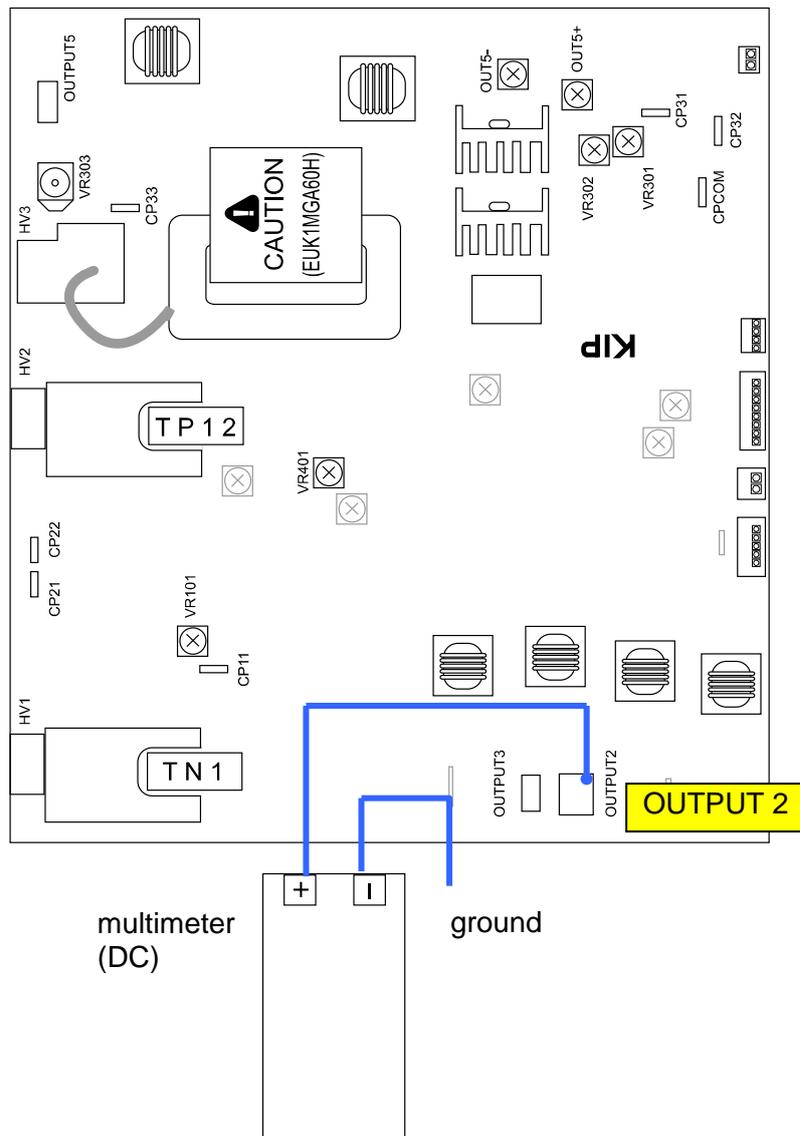
Plain paper	-230 +/-5V against the ground
Tracing paper	-230 +/-5V against the ground
Film	-230 +/-5V against the ground

Check and adjust the Negative Developer Bias in the following way.

! NOTE

The above values are just the standard values we have adjusted at the time of shipment. Of course you may change these values according to the usage condition.

1. Connect the "+" cable of the multi-meter to the "OUTPUT2" pin on the HV Power Supply PCB (EUK1MGA60HA).
Also connect the "-" one to the ground.
And then, select the DC volt range on the multi-meter.



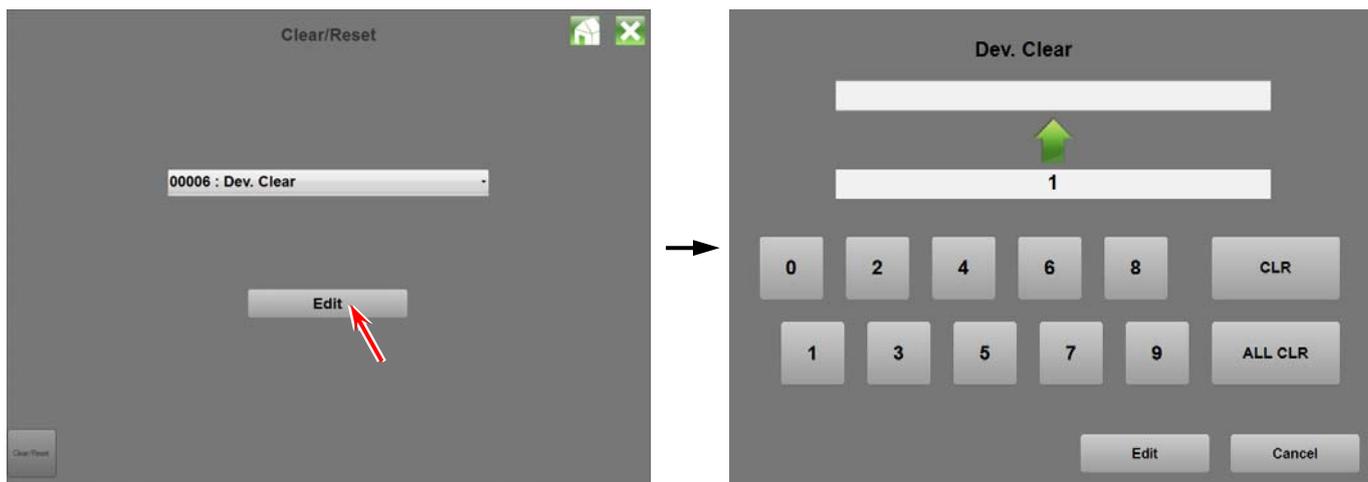
2. Make a Test Print making reference to [8. 3 Pattern Print].
As the Negative Developer Bias is supplied to the Developer Roller during the Test Print, check the voltage with the multi-meter.

The standard value of the Negative Developer Bias for each type of media is:

Plain paper	-230 +/-5V against the ground
Tracing paper	-230 +/-5V against the ground
Film	-230 +/-5V against the ground

If the above values are not satisfied, go to the next step.

3. If the value (voltage) is **-180 +/- 5V**, Developer Bias may be automatically adjusted by Density Compensation Process. (normal operation in such a case)
Enter [Clear/Reset] → “0006 Dev. Clear”.



The voltage “-180V +/- 5V” is correct when the above value shows “0”.

current Auto Adjustment Level	Supposed Developer Bias
0	-180 +/-5V
1 / 2 / 3	-230 +/-5V

If not satisfied, go to the next step for manual Developer Bias adjustment.

4. Select the Adjustment Mode, select each of following Sub Mode Numbers, and change the setting value so that the output voltage satisfies **-230 +/-5V against the ground**. Refer to [8.4.3 022 to 027 Developer Bias] for the detail.

Sub Mode No.	Contents
022	Developer Bias (Plain paper)
023	Developer Bias (Tracing paper)
024	Developer Bias (Film)
025	Developer Bias (Plain paper : Special)
026	Developer Bias (Tracing paper : Special)
027	Developer Bias (Film : Special)

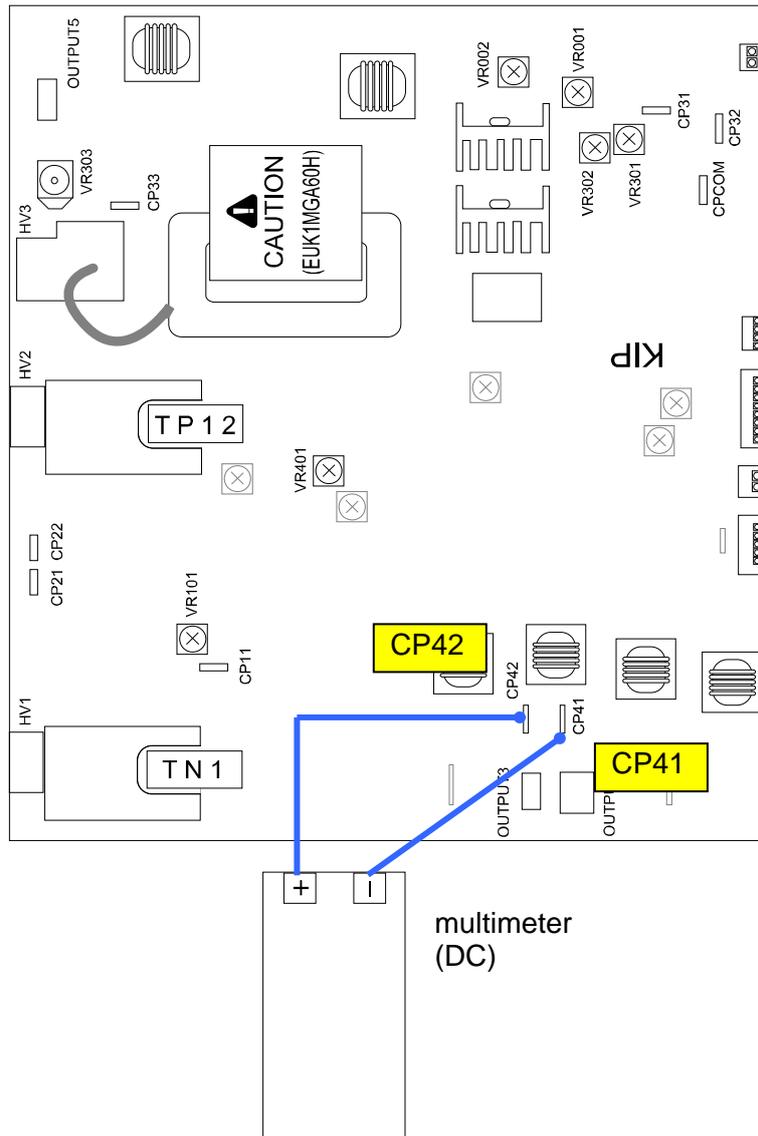
4. 3. 7 Positive Developer Bias to Developer Roller

The Positive Developer Bias means the voltage supplied to the Developer Roller during the Cleaning Cycle.

The standard value of the Positive Developer Bias is **0.350 +/-0.005V against the CP42**.

Check and adjust the Negative Developer Bias in the following way.

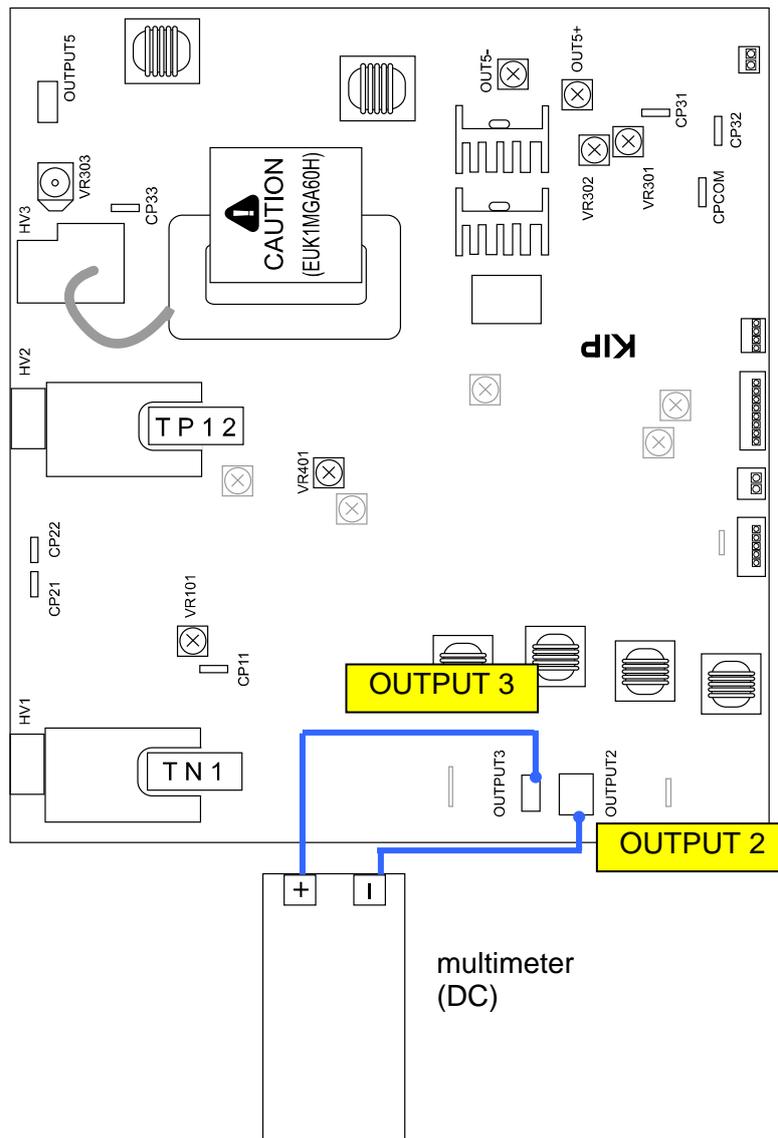
1. Connect the “+” cable of the multi-meter to “CP41” pin on the HV Power Supply PCB (EUK1MGA60HA).
Also connect the “-” one to “CP42”.
And then, select the DC volt range on the multi-meter.



4. 3. 8 Bias gap between Developer Roller and Regulation Roller

The standard value of the Bias gap between Developer Roller and Regulation Roller is **30 +/-5V**. Check and adjust it in the following way.

1. Connect the “+” cable of the multi-meter to the “OUTPUT3” pin on the HV Power Supply PCB (EUK1MGA60HA).
Also connect the “-” one to the “OUTPUT2” pin.
And then, select the DC volt range on the multi-meter.

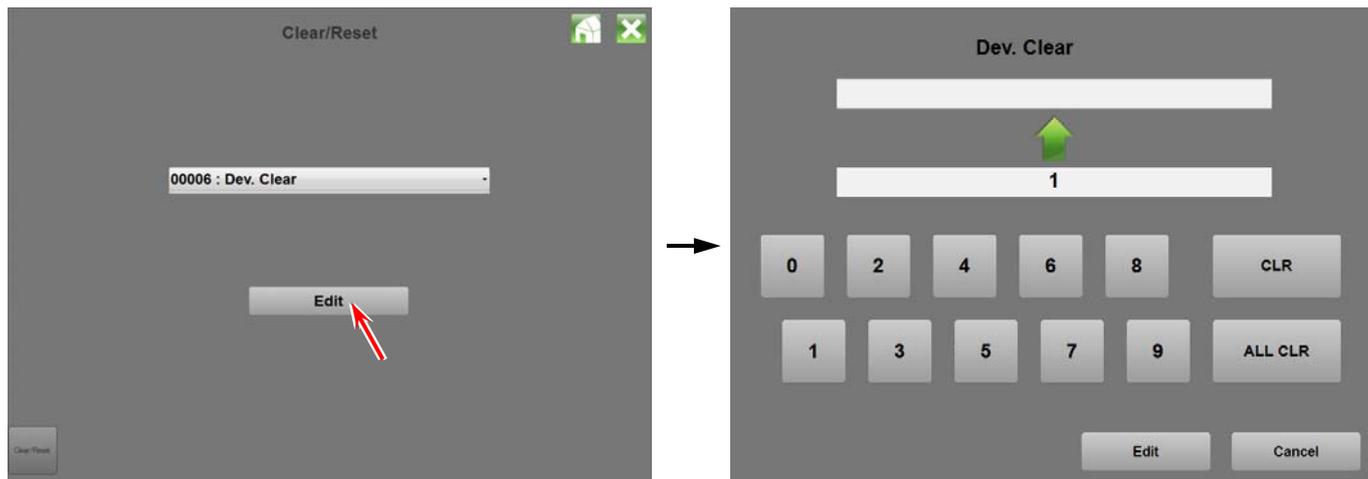


2. Make a Test Print making reference to [8. 3 Pattern Print].
As the Bias is supplied to both the Developer Roller and the Regulation Roller, check the Bias gap between them with the multi-meter.

The standard value of the Bias gap between Developer Roller and Regulation Roller is **30 +/-5V**.

If the above value is not satisfied, go to the next step 3 for the adjustment.

- If the value (voltage) is “120 +/-5V” or “160 +/- 5V”, Regulation Bias may be automatically adjusted by Density Compensation Process.
Enter [Clear/Reset] → “0006 Dev. Clear”.



The voltage “120V +/- 5V” is correct when the above value shows “2”.
The voltage “160V +/- 5V” is correct when the above value shows “3”.

current Auto Adjustment Level	Supposed Bias Gap
0 / 1	80 +/-5V
2	120 +/-5V
3	160 +/-5V

If not satisfied, go to the next step for manual Regulation Bias adjustment.

- Select the Adjustment Mode, select Sub Mode No.622, and change the value so that the output voltage satisfies **80 +/-5V**.
Refer to [8.4.3 622 Regulation Bias] for the detail.

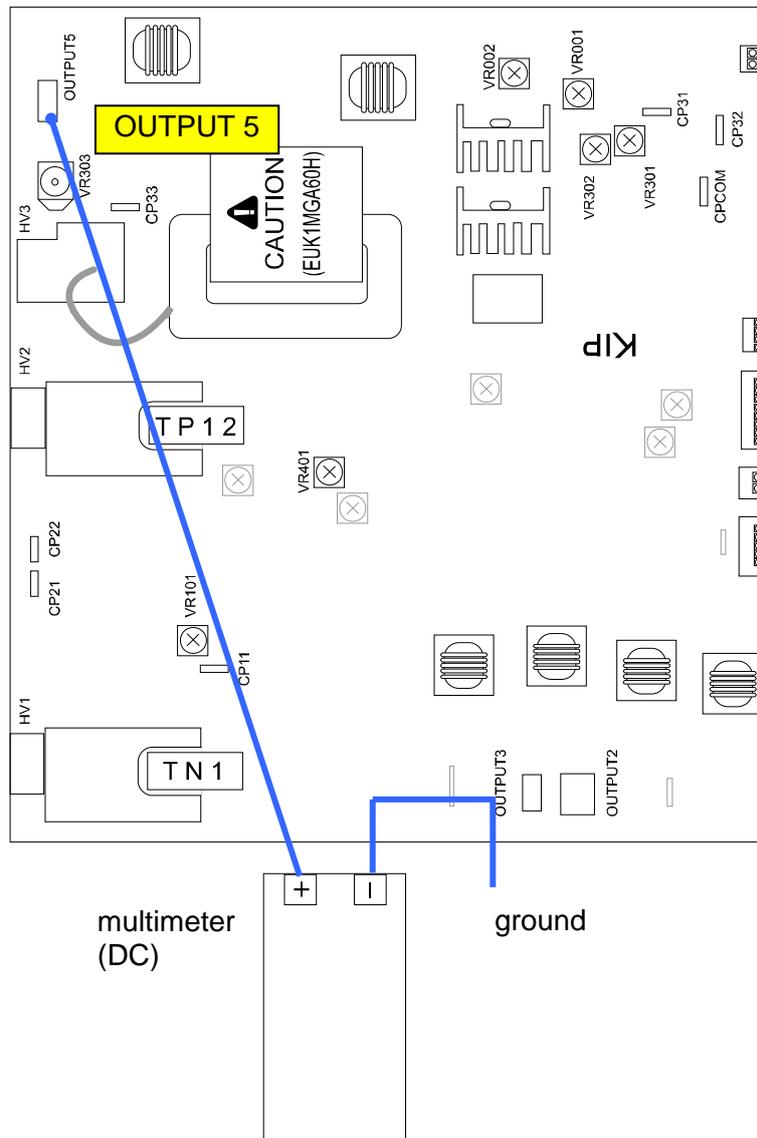
4. 3. 9 Positive Cleaning Roller Bias (Print Cycle)

The Positive Cleaning Roller Bias means the voltage supplied to the Cleaning Roller during the Print Process.

The standard value of the Positive Cleaning Roller Bias is **+450 +/-5V**.

Check and adjust it in the following way.

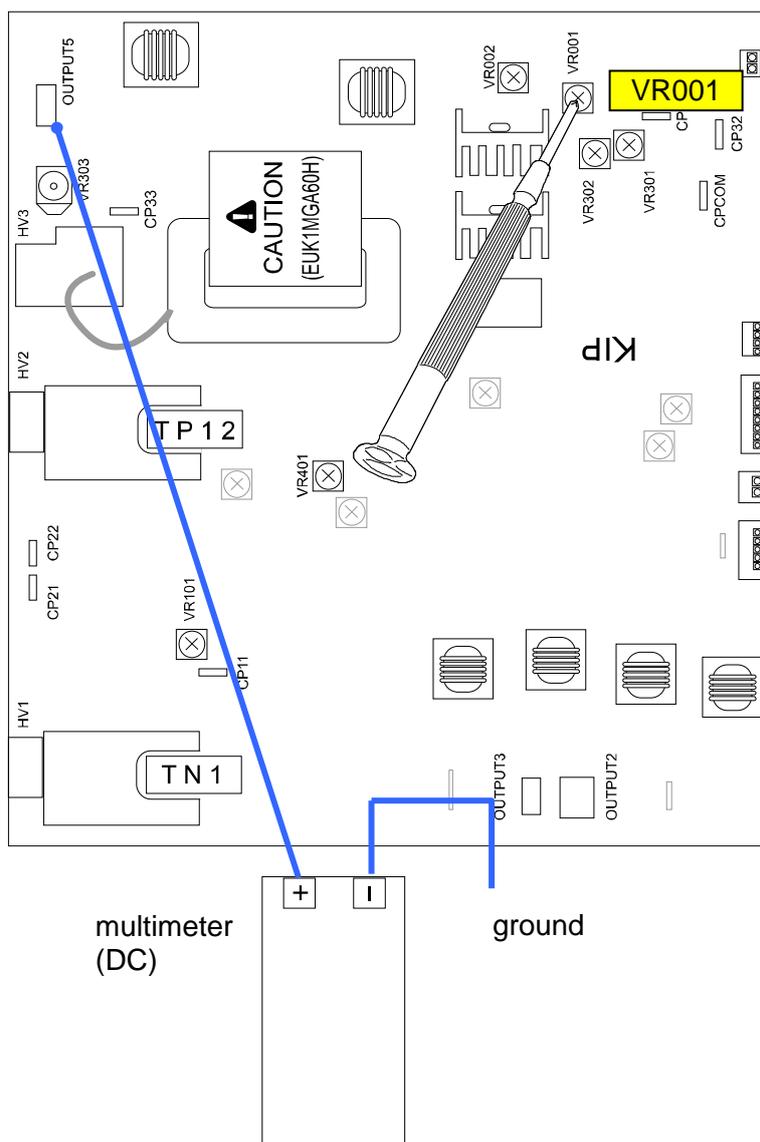
1. Connect the “+” cable of the multi-meter to the “OUTPUT 5” pin on the HV Power Supply PCB
Also connect the “-” one to the ground.
And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 3 Pattern Print].
As the Positive Cleaning Roller Bias is supplied during the Test Print, check the voltage value with the multi-meter.

Standard value of the Positive Cleaning Roller Bias is **+450 +/-5V**.

3. Adjust the Positive Cleaning Roller Bias if it does not satisfy **+450 +/-5V**.
To adjust it, rotate the VR001 with a screwdriver.



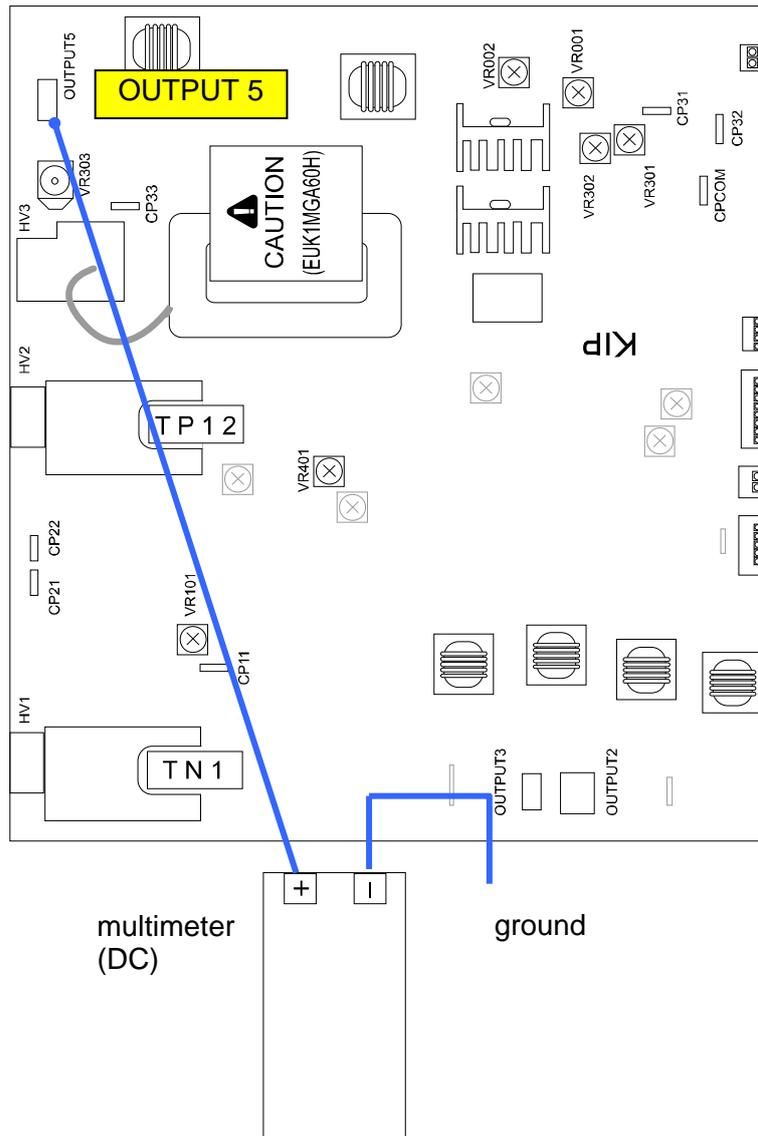
4. 3.10 Negative Cleaning Roller Bias (Toner Collection Process)

The Negative Cleaning Roller Bias means the voltage supplied to the Cleaning Roller during the Toner Collection Process, which is done after the completion of Print Process.

The standard value of the Negative Cleaning Roller Bias is **-550 +/-5V**.

Check and adjust it in the following way.

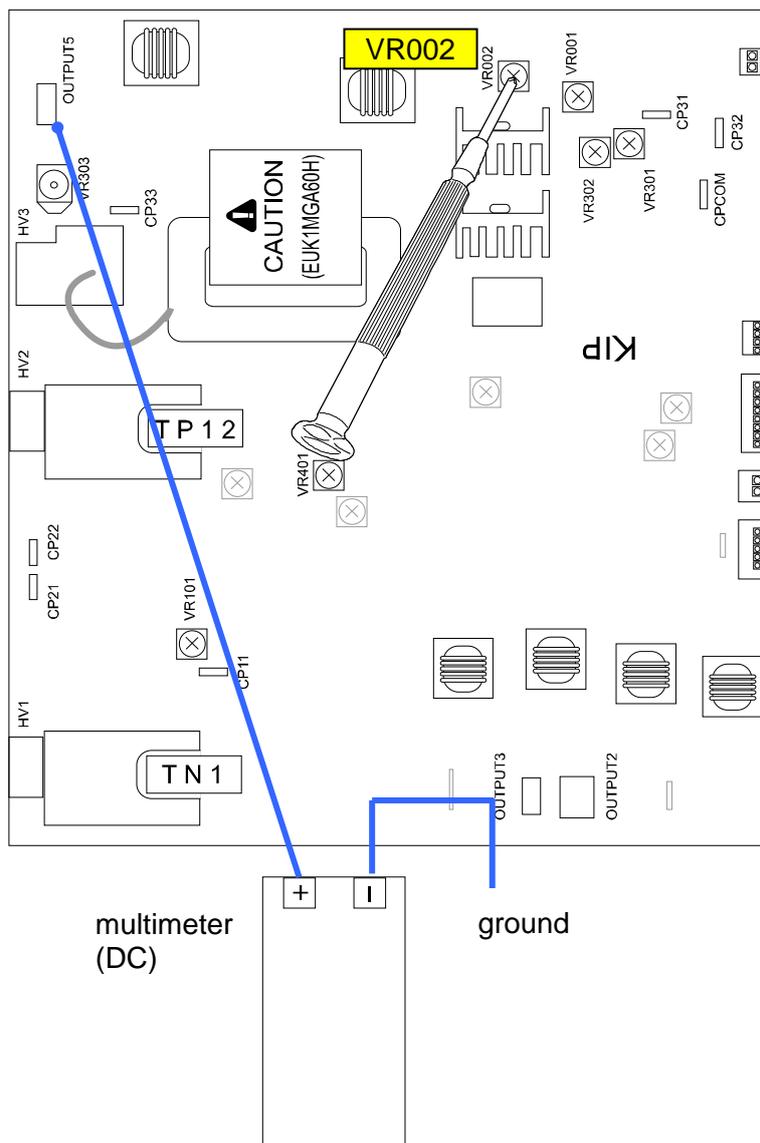
1. Connect the “+” cable of the multi-meter to the “OUTPUT 5” pin on the HV Power Supply PCB
Also connect the “-” one to the ground.
And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 3 Pattern Print].
The Toner Collection Process works for some seconds after the printed paper has been ejected.
Check the voltage value with the multi-meter during that period.

Standard value of the Negative Cleaning Roller Bias is **-550 +/-5V**.

3. Adjust the Negative Cleaning Roller Bias if it does not satisfy **-550 +/-5V**.
To adjust it, rotate the VR002 with a screwdriver.

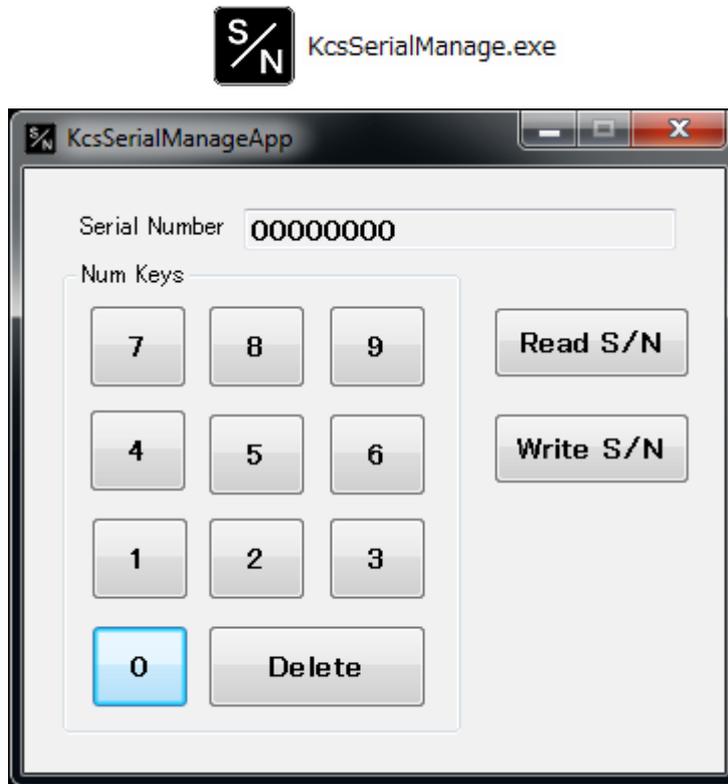


4. 4 Serial Manager

4. 4. 1 Kcs Serial Manager (Printer Main Control PCB)

The Printer Main Control PCB stores its serial number (same with the machine S/N). As a service part Printer Main Control PCB has no S/N information on it, you will have to write the serial number (with 8 digits) to the Printer Main Control PCB.

For writing a serial number, use “KcsSerialManager.exe”.



NOTE

A Main Board with no S/N written or with a wrong S/N would be detected as an incorrect hardware configuration. Some license key codes may not be accepted.

You cannot enter another S/N any more once registered, including correction of a wrong entry.

4. 4. 1. 1 Kcs Serial Manager System Requirements

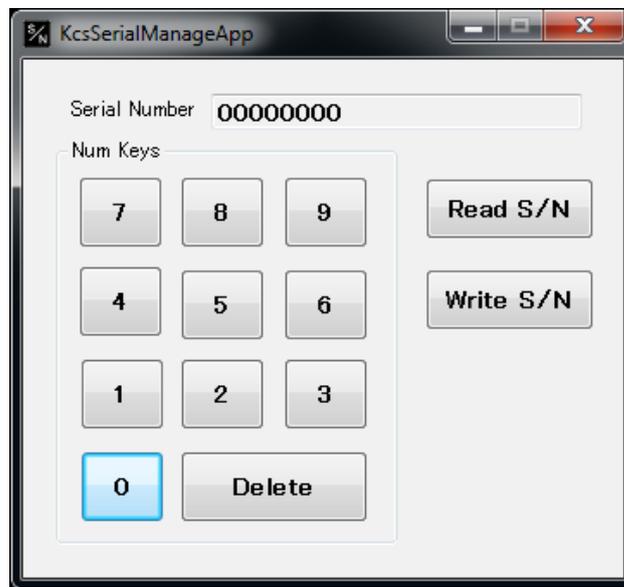
- Microsoft Windows XP / Vista 32 bit, Windows 7 64 bit / 32 bit or Windows 8 64 bit / 32 bit Operating System
- USB 2.0 hardware support

Get the latest (or the proper version of) **KcsSerialManager.exe** and save it to removable storage or System K controller.

4. 4. 1. 2 Starting Kcs Serial Manager

Double-click "KcsSerialManager.exe" to run "Kcs Serial Manager".
Installing operation is not required.

When "Kcs Serial Manager" recognizes the MAIN CONTROL PCB ASSY which the serial number is not written in, "00000000" is displayed on the screen.



When "Kcs Serial Manager" recognizes the MAIN CONTROL PCB ASSY which the serial number is already written in, the written serial number is displayed on the screen.

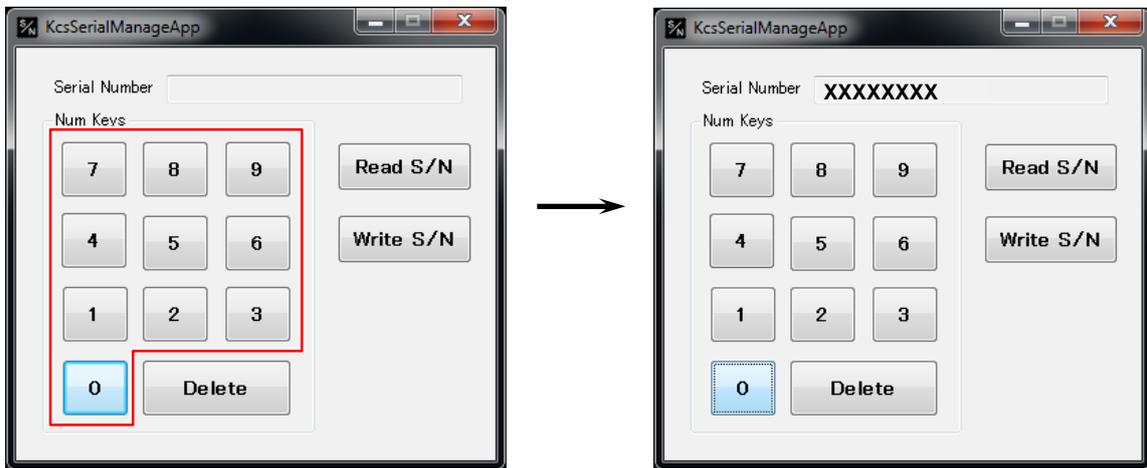


4. 4. 1. 3 Registration S/N to Printer Main Control PCB

1. Run Kcs Serial Manager.
2. Press [Del] to delete the existing "00000000" for a new entry.

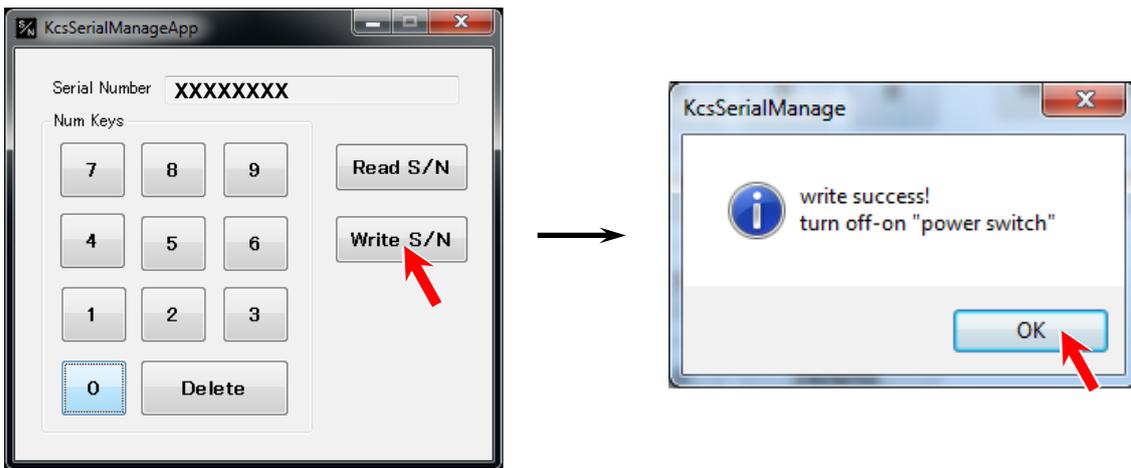


3. Enter the correct serial number (8 digits)

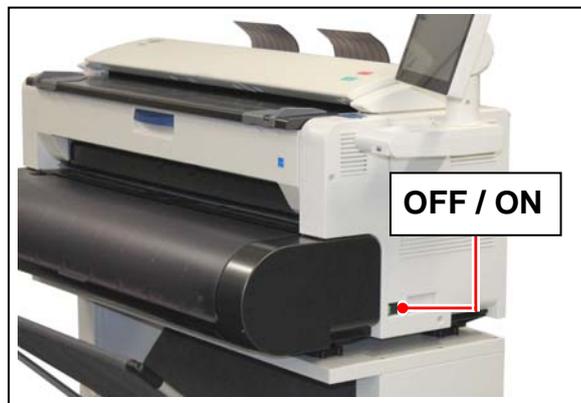


4. Press [Write] to finalize the entry.

When the message to prompt turning off/on the printer is displayed, press [OK].



5. Turn off the Printer. Wait 3 seconds and then turn it on.



6. **Double-check that the entered correct serial number is correct.**

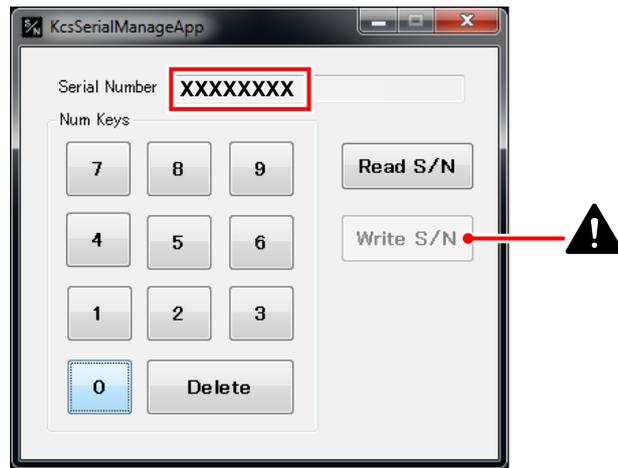
After that, press [X] button to close "Kcs Serial Manager".



NOTE

Please make sure to double-check the entered serial number, because it is not possible to change the written contents from the next starting time after "Kcs Serial Manager" is once closed. If the written contents are incorrect (the entered serial number is wrong), please redo the works from the step 2 without closing "Kcs Serial Manager".

7. Run "Kcs Serial Manager" again, and then confirm that the correct serial number is written on the Main Control PCB Assy.



! NOTE

[Write S/N] button is gray-out display and it is not possible to write the serial number.

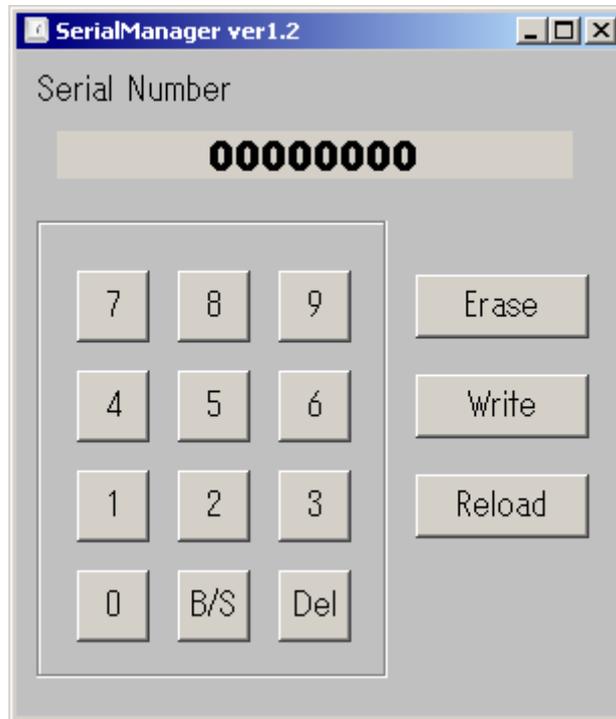
4. 4. 2 Serial Manager (Scanner D Con (Main Borad))

The Scanner D Con stores its serial number (same with the machine S/N). As a service part Scanner D Con has no S/N information on it, you will have to write the serial number (with 8 digits) to the Scanner D Con.

For writing a serial number, use "Serial manager.exe".



SerialManager.exe



NOTE

A D Con with no S/N written or with a wrong S/N would be detected as an incorrect hardware configuration. Some license key codes may not be accepted.

You cannot enter another S/N any more once registered, including correction of a wrong entry.

4. 4. 2. 1 Serial Manager System Requirements

- Microsoft Windows XP / Vista 32 bit, or Windows 7 64 bit / 32 bit Operating System
- USB 2.0 hardware support

NOTE

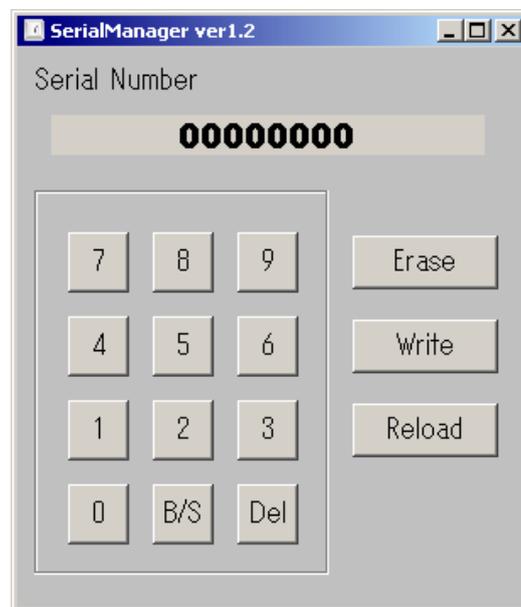
Get the latest (or the proper version of) **SerialManager*.exe** and save it to any available storage on your PC / removable storage. (no change to the registry required)

4. 4. 2. 2 Starting Serial Manager

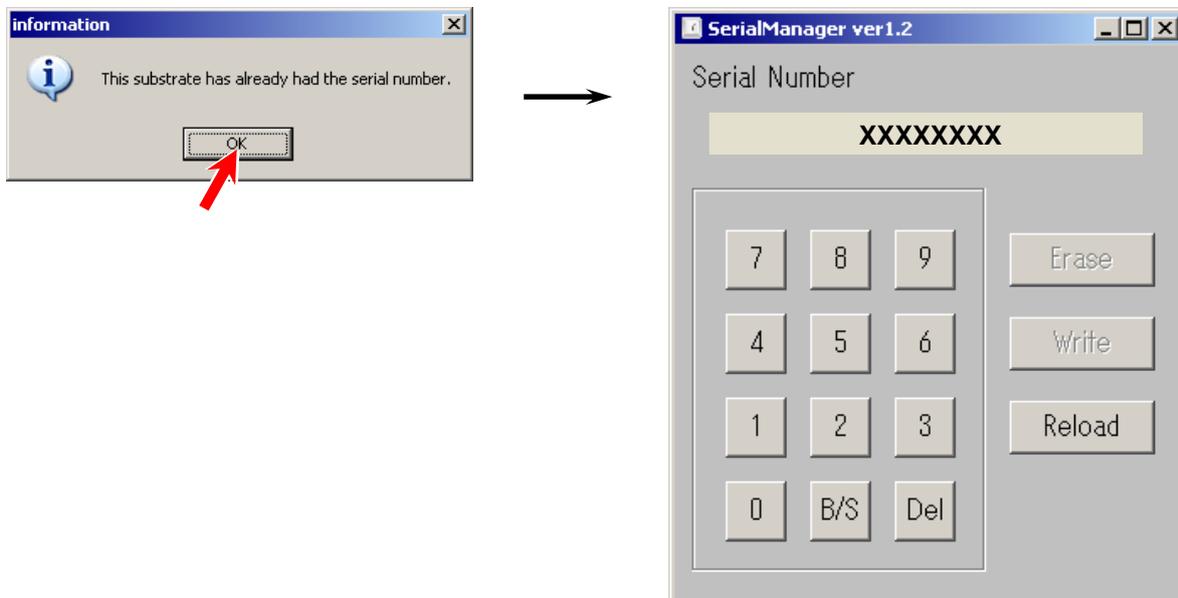
Just run “SerialManager.exe.” on your PC



When your PC connects to a scanner with the **D Con service part**, Serial Manager shows “00000000” in the Serial Number field.

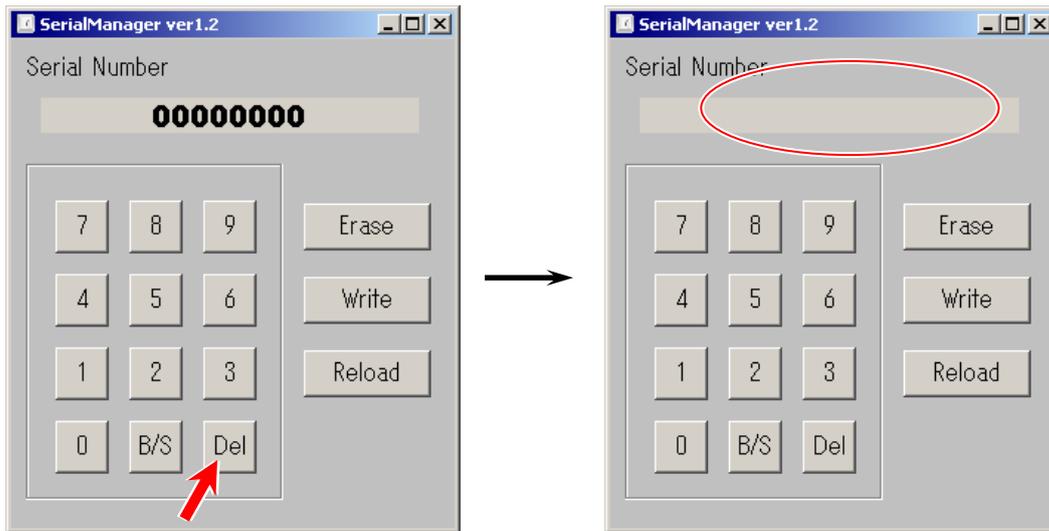


When your PC connects to a scanner with the D Con having its serial number written already, a notification pops up, and then Serial Manager shows the written serial number.

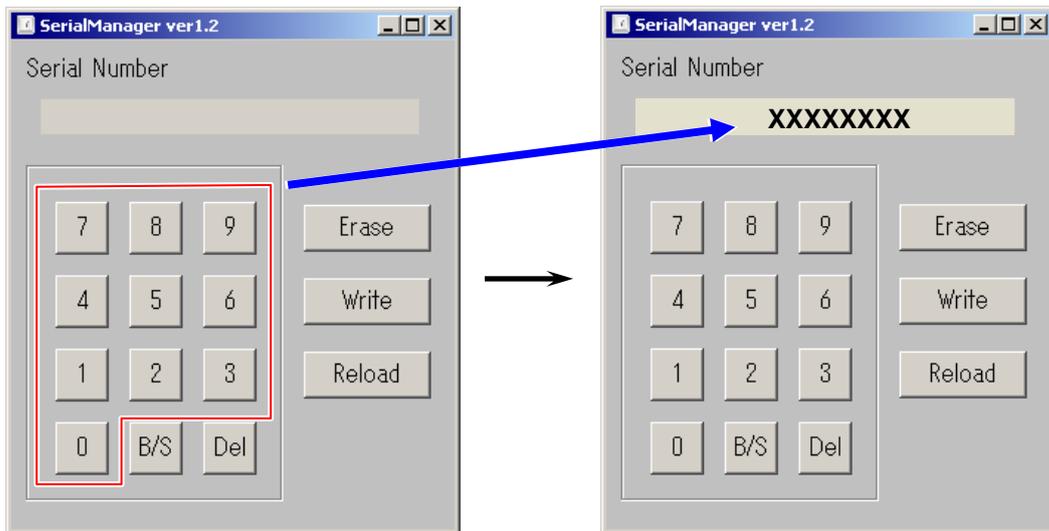


4. 4. 2. 3 Registration S/N to Scanner D Con

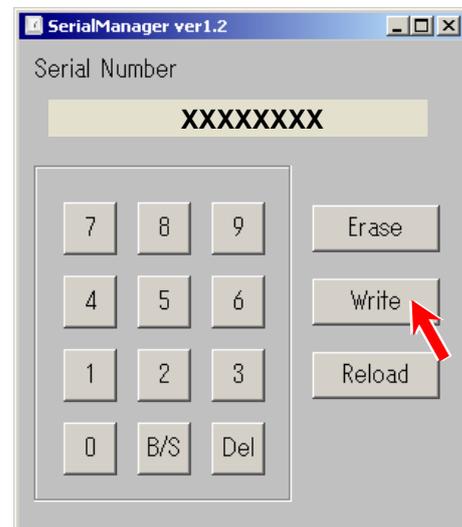
1. Run Serial Manager.
2. Press [Del] to delete the existing "00000000" for a new entry.



3. Enter the correct serial number (8 digits)

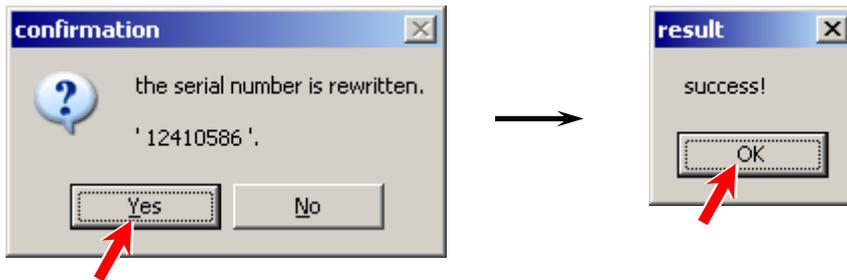


4. Press [Write] to finalize the entry.



NOTE
At this time the entry is not validated yet.

5. Confirmation dialogs pop up.
Making sure of entering the correct S/N, press [Yes], and then [OK].



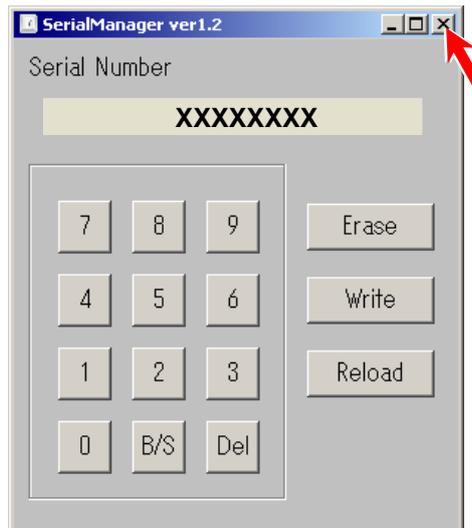
! NOTE

- (1) In case you wrote a wrong number, **DO NOT** close Serial Manager and go back to step 2.
- (2) At this time the entered S/N has just been sent to the D Con, but is not validated yet.

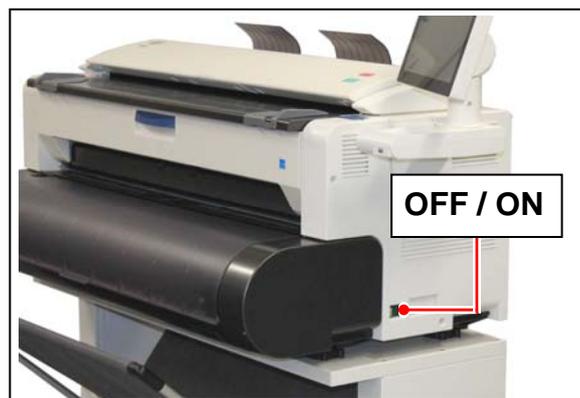
6. To close Serial Manager, press the X button on the top right corner.

! NOTE

Once you close Serial Manager, [Write] button will turns gray after that.



7. Turn off the Printer. Wait 3 seconds and then turn it on.
Now the entered S/N is written to the D Con.



Chapter 5

Mechanical

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5. 1 Recommended Periodic Replacement

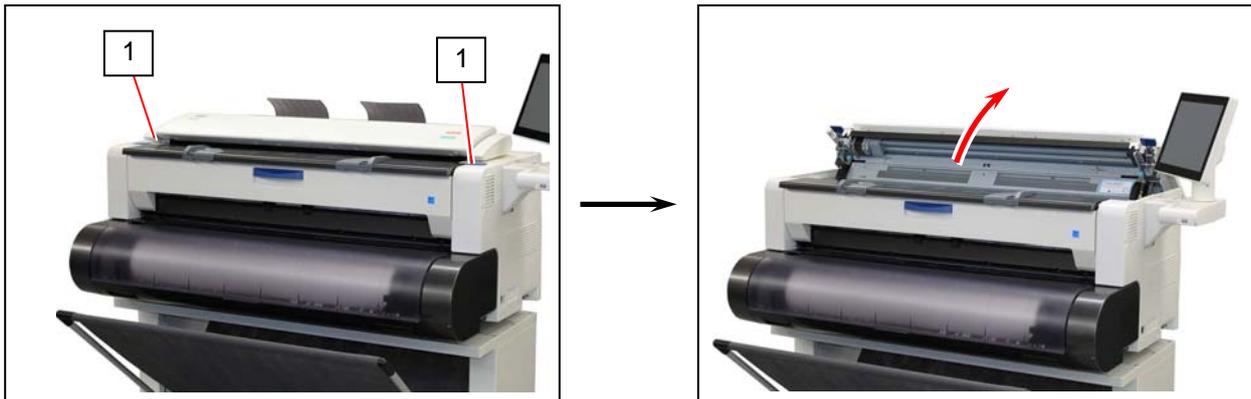
This section describes the procedure of replacing some units that are recommended replacement for preventive maintenance.

There are “light blue” stickers that show the “access point” for Periodic Replacement.

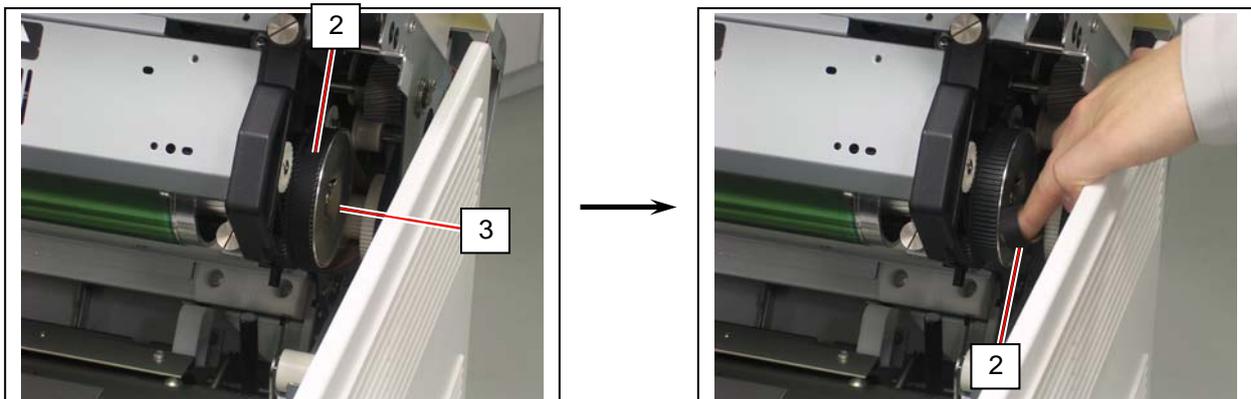
For detailed information of the Service Kit contents, see Chapter 6.

5. 1. 1 Image Corona Unit

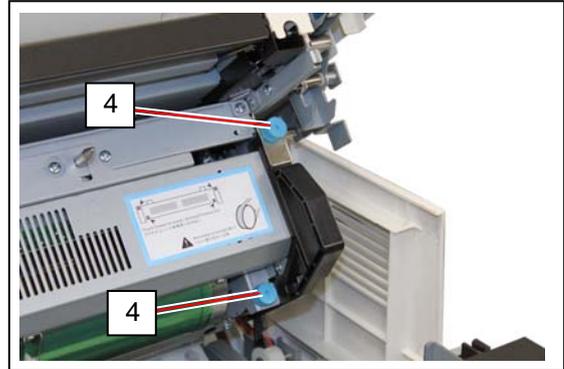
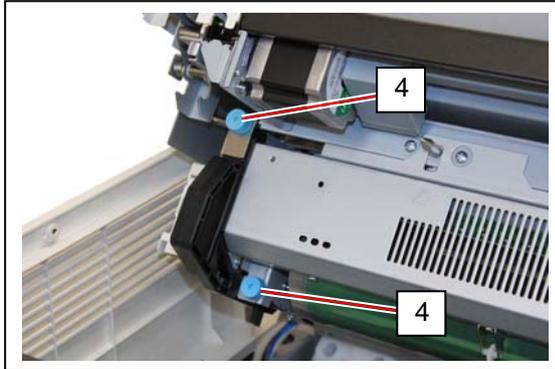
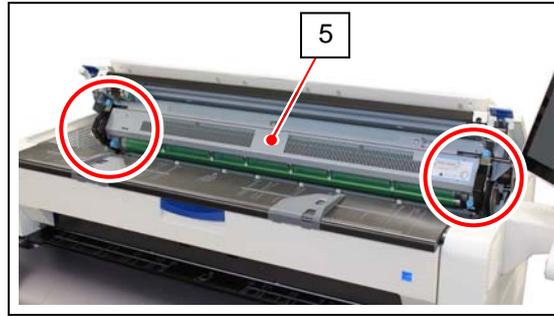
1. Press the blue lever (1) on both sides to open the Upper Unit.



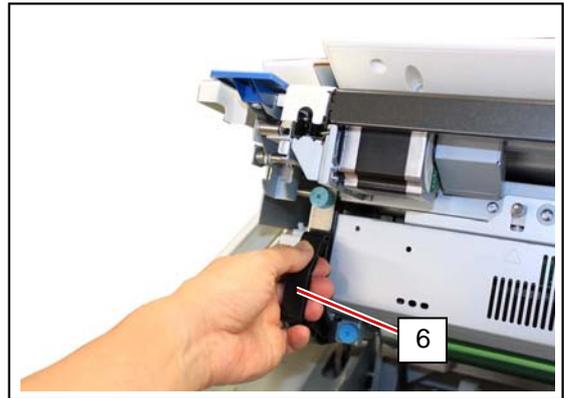
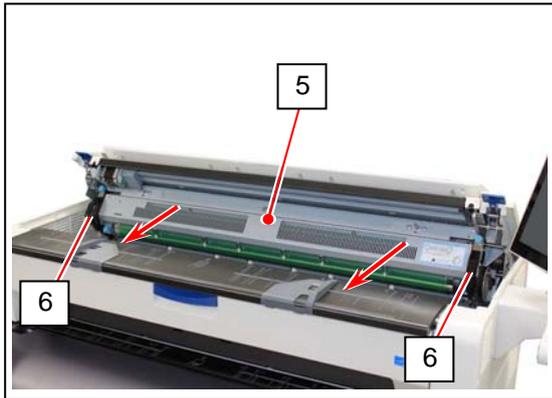
2. Release the belt (2) from the pulley (3).



3. Loosen 4 thumb screws (4) to release the Process Unit (5).

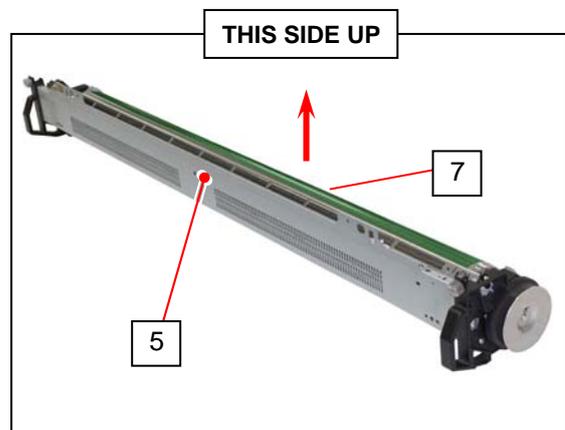


4. Hold the handgrip (6) on both sides. Pull the Process Unit (5) to the arrow direction to remove it from the machine.



NOTE

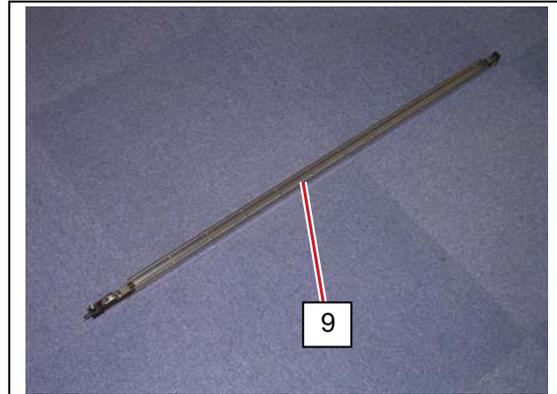
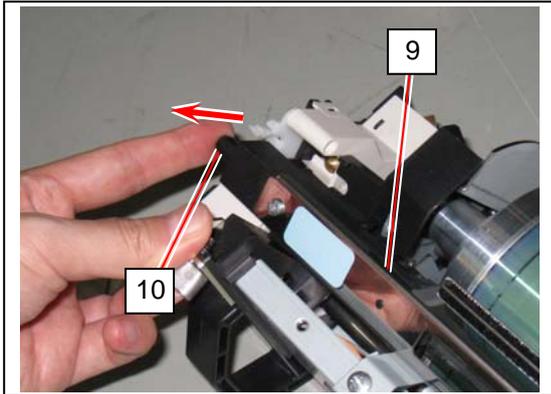
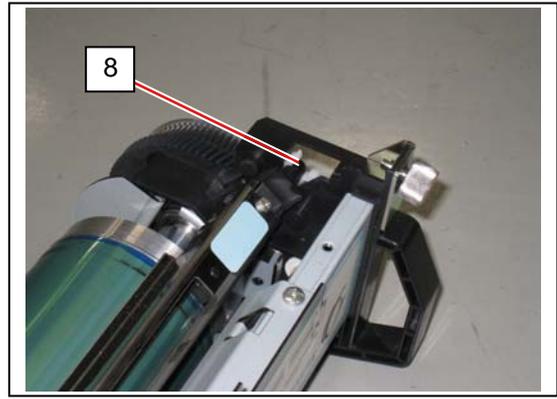
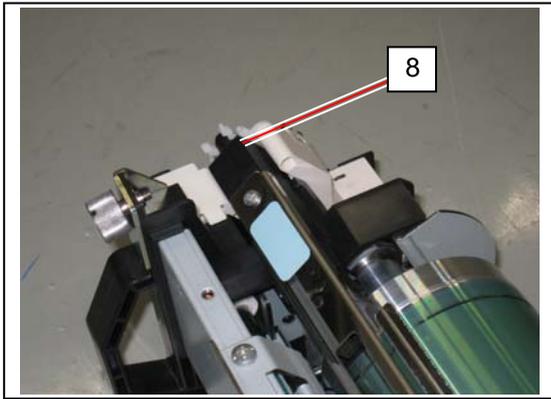
(1) Gently place the Process Unit (5) on a flat surface in the correct direction. Not doing so may damage the Photoconductive Drum (7) (shiny green cylinder).



(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.

- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process Unit with a piece of plain bond roll paper.

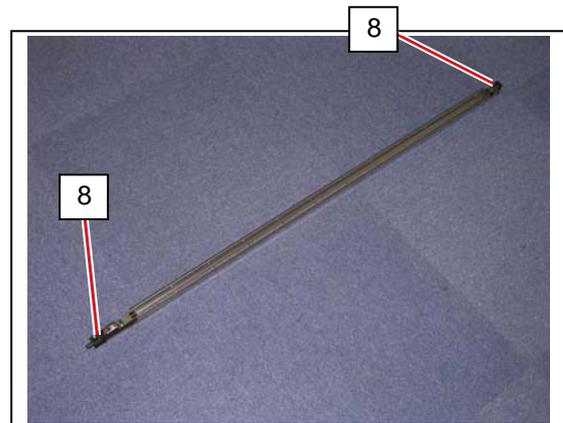
5. Pick the plastic area (8) on both sides. Release the pins (10) from the hook. Pull and remove the Image Corona Unit (9) from the Process Unit.



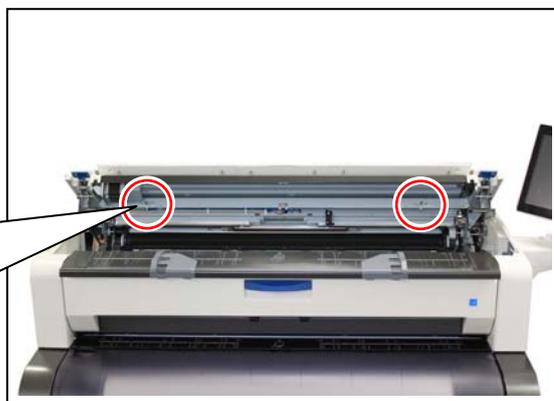
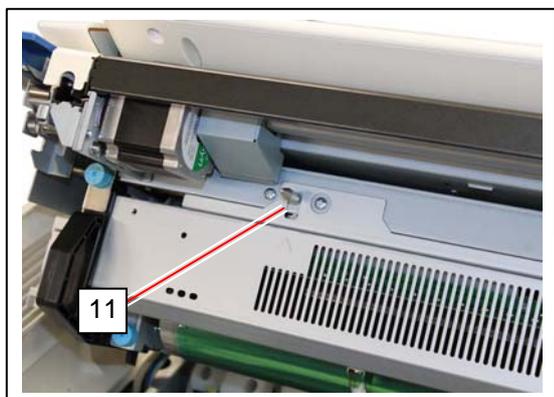
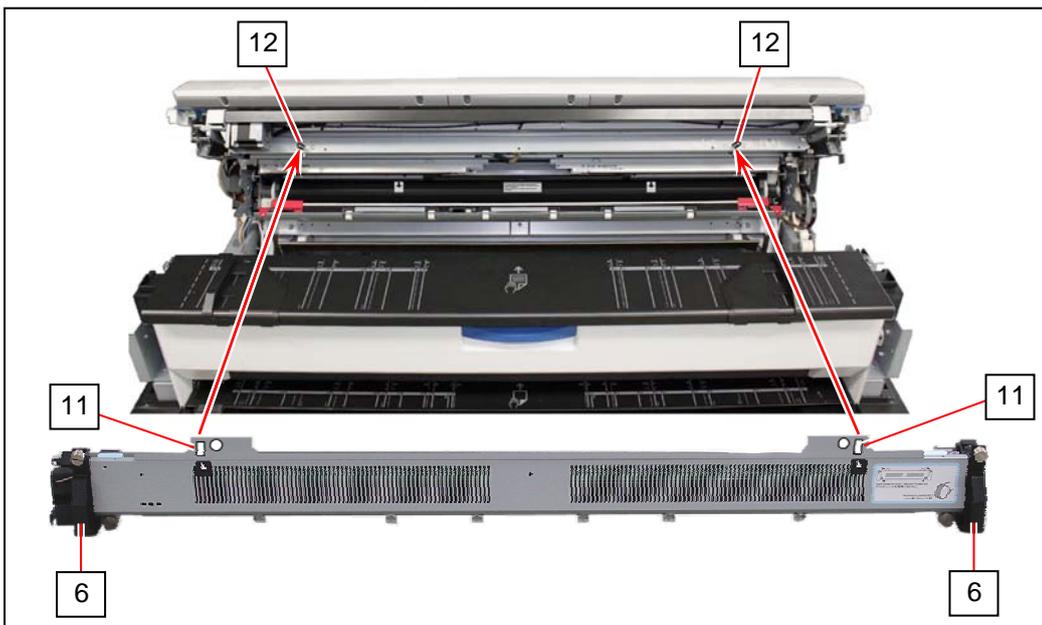
6. Install both the pins (10) to the hooks to seat the new **Image Corona Unit** in position.

! NOTE

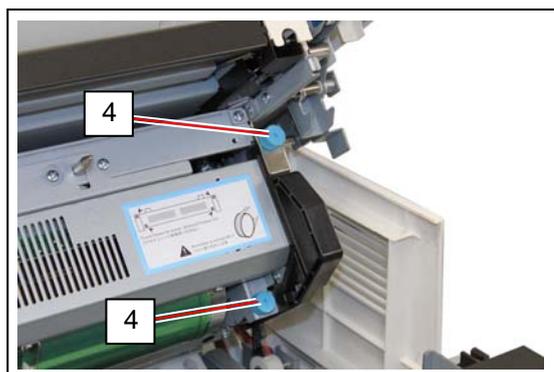
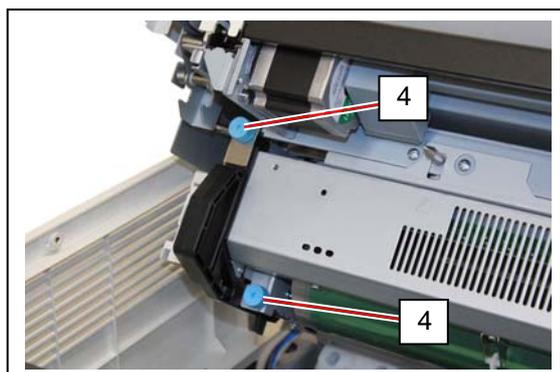
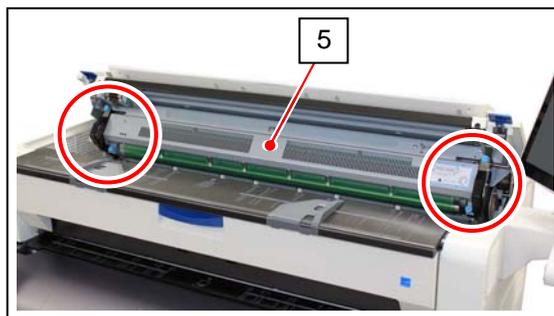
Again hold the plastic area (8) on both ends to carry the Image Corona Unit. Grabbing in the middle may deform the housing and cause image defect.



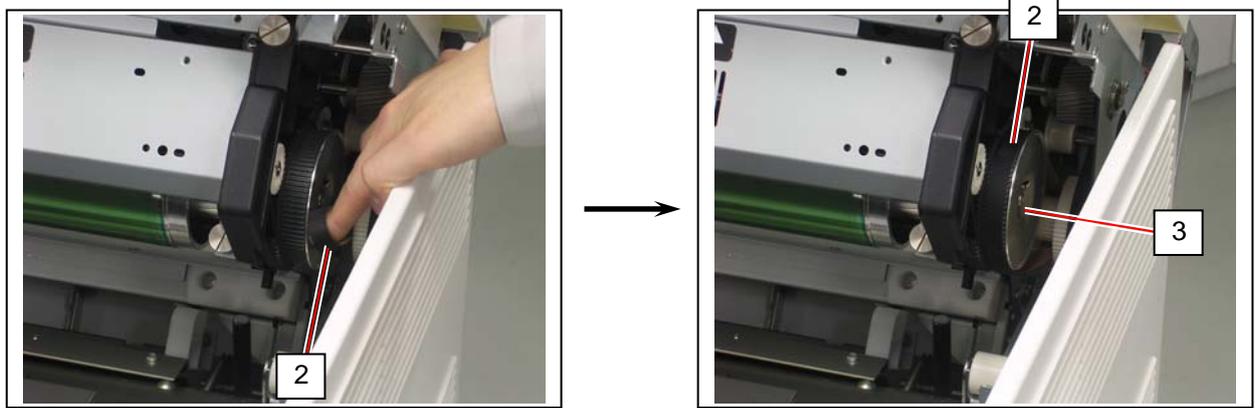
7. Hold the handgrip (6) on both sides. Slightly tilt the Process Unit downward. Put the square holes (11) onto the tapered edges of the positioning pins (12). Before inserting completely, pivot the unit upward to face each other. Finally push the unit into the machine



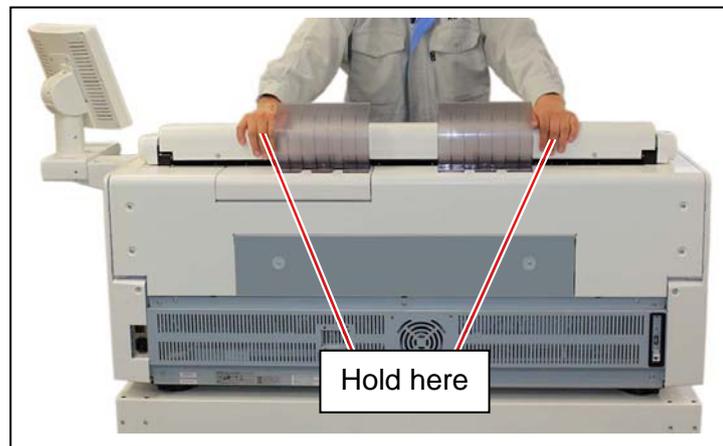
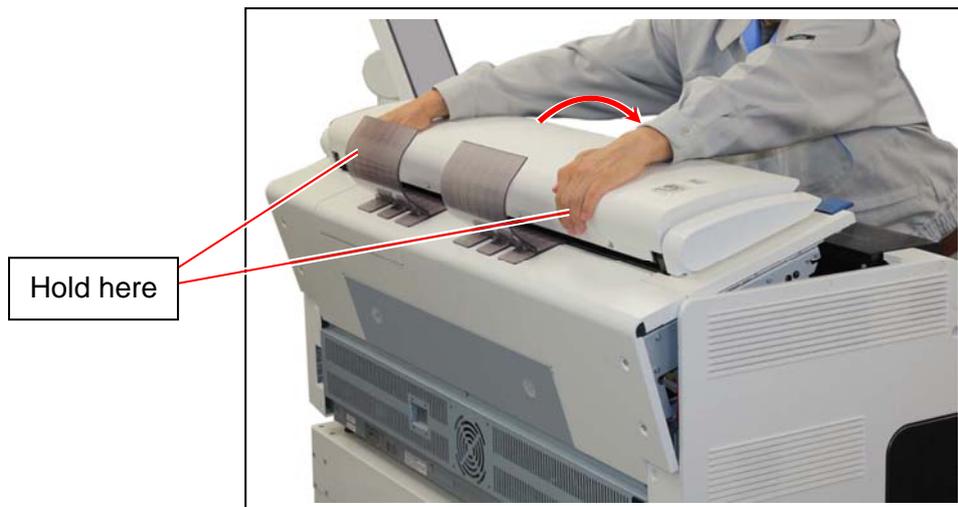
8. Completely push the Process Unit (5) in the machine to be reseated in position. Then secure the thumb screws (4) to fix the Process Unit to the machine.



9. Return the belt (2) to the pulley (3).

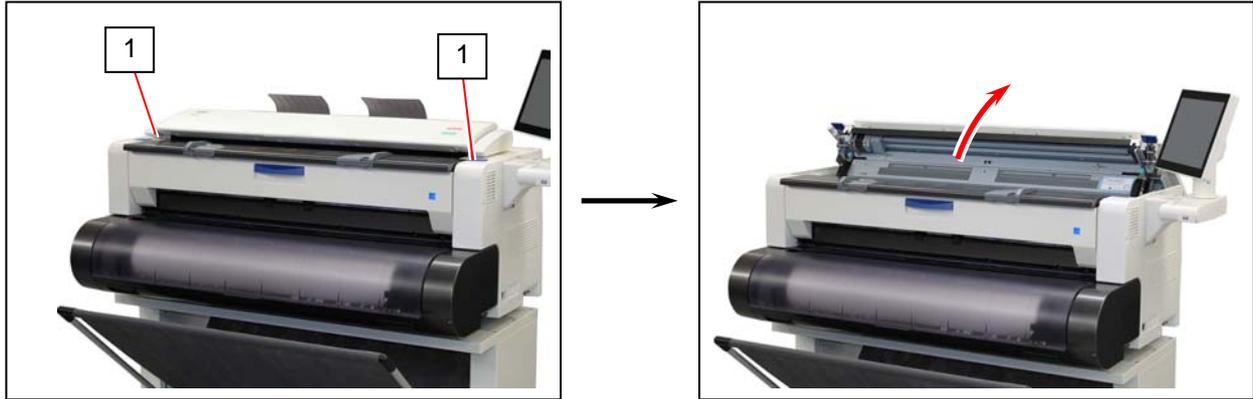


10. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit. Push the entire unit down to the arrow direction.

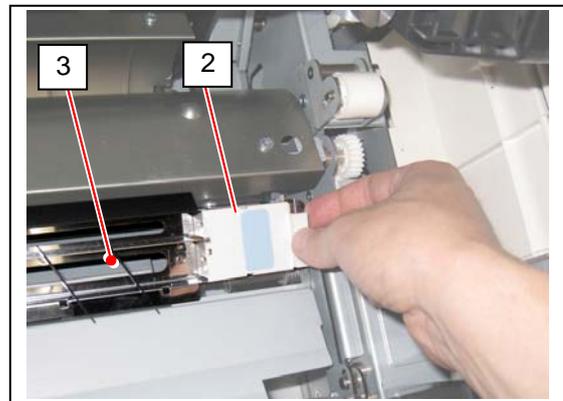
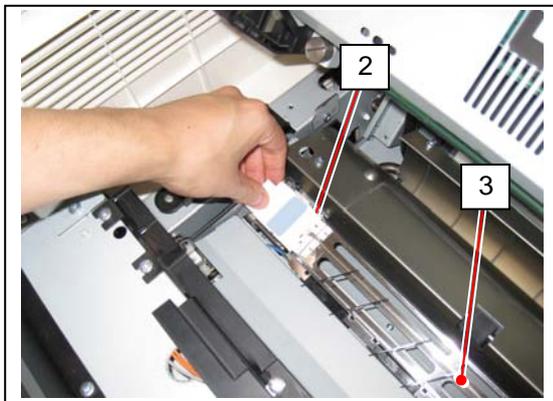


5. 1. 2 Transfer / Separation Corona Unit

1. Press the blue lever (1) on both sides to open the Upper Unit.



2. Pick the plastic area (2) on both sides.
Pull and remove the Transfer / Separation Corona Unit (3) from the machine.

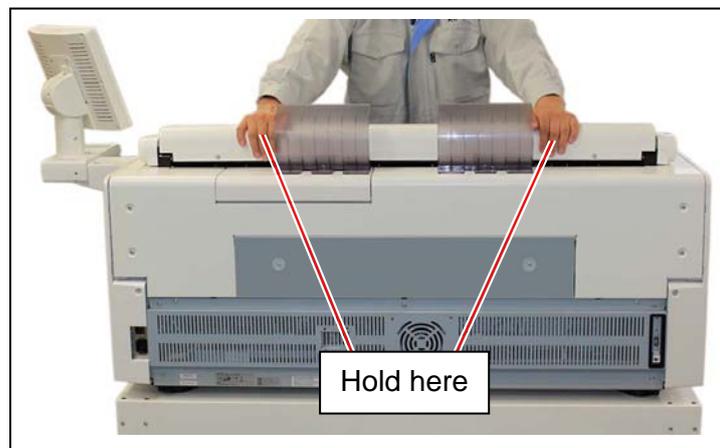
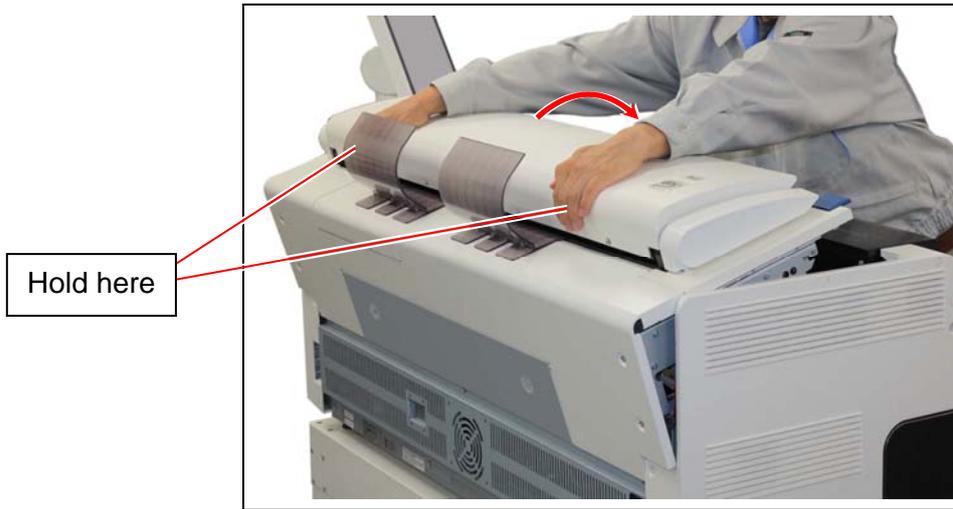


3. Pick the plastic area (2) on both sides of the new **Transfer / Separation Corona Unit**.
Lower it in the machine and place it in position.

NOTE

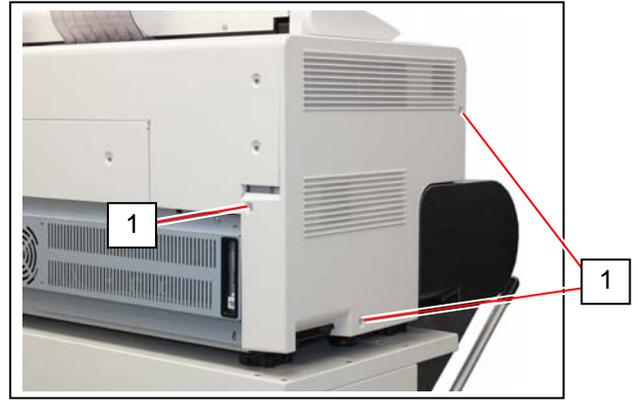
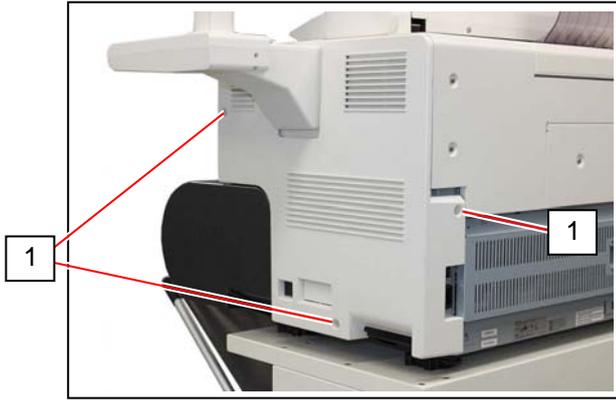
Again hold the plastic area (2) on both ends to carry the Transfer / Separation Corona Unit. Grabbing in the middle may deform the housing and cause image defect.

- Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit. Push the entire unit down to the arrow direction.

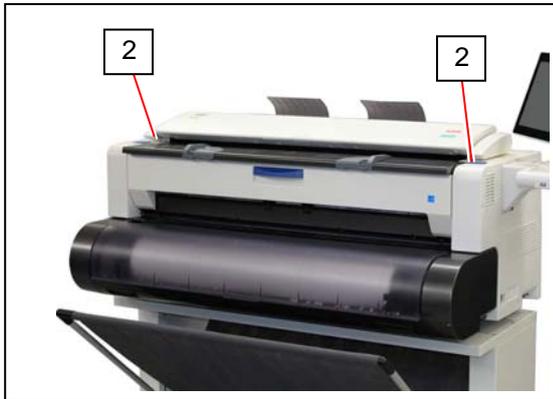


5. 1. 3 Filters

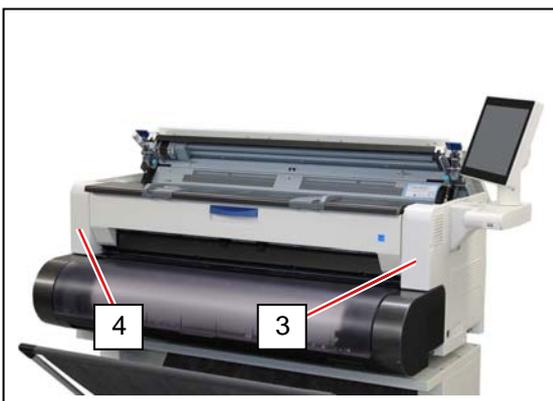
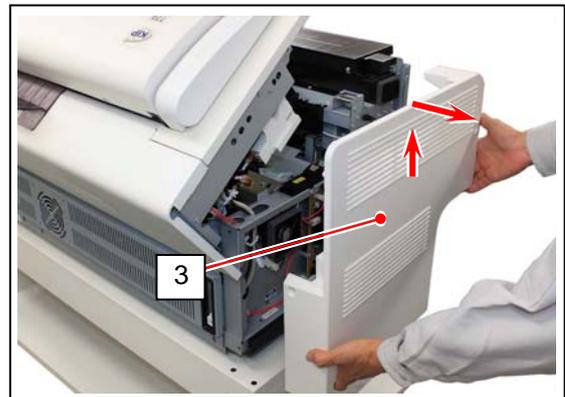
1. Remove 3 Bind Head Screws (M4x6) (1) on each side.



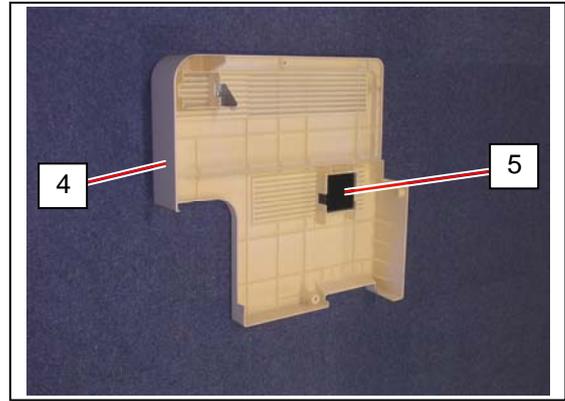
2. Press the blue lever (2) on both sides to open the Upper Unit.



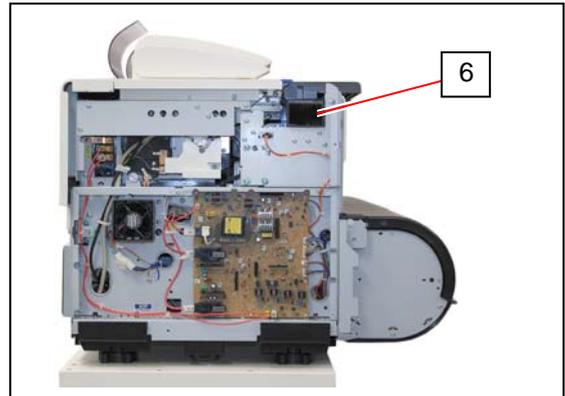
3. Slightly lift Side Cover R (3) / Side Cover L (4) up to the arrow direction to remove them from the machine.



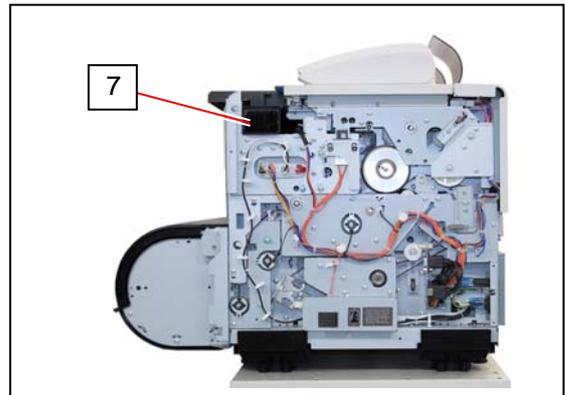
4. Replace Filter A (5) in Side Cover L (4) with a new one.



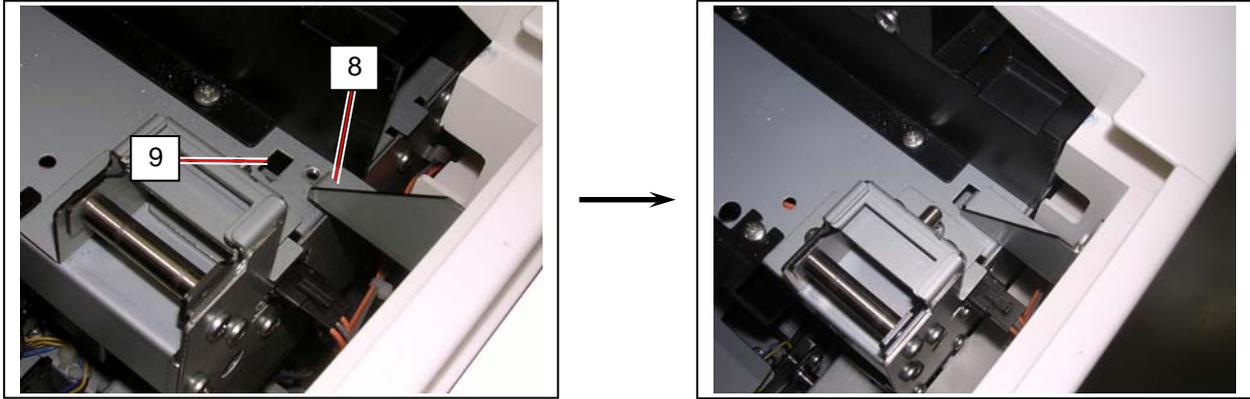
5. Replace Filter B (6) in the duct of the machine with a new one.



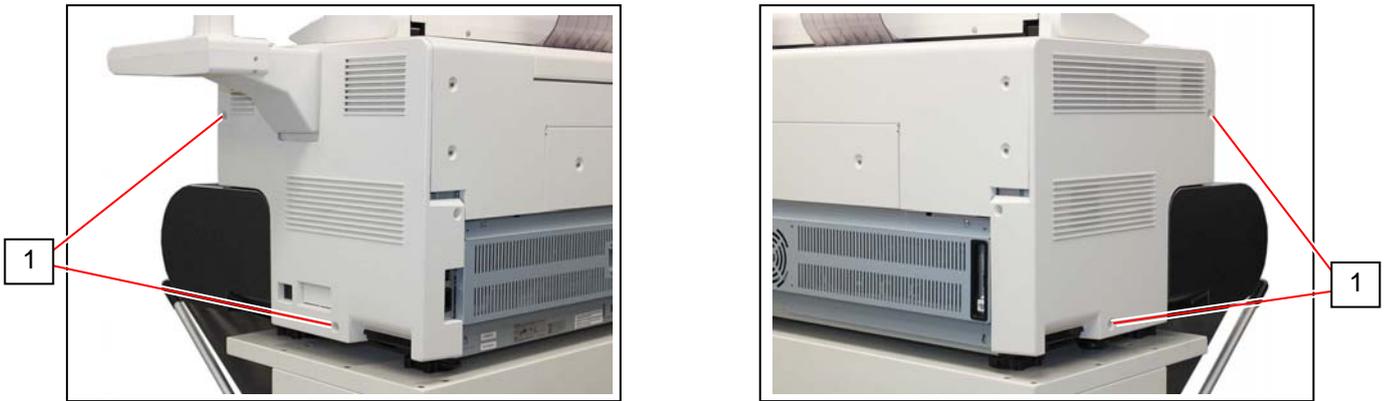
6. Replace Filter C (7) in the duct of the machine with a new one.



7. Make sure that the Upper Unit is open.
Return Side Cover R (3) and Side Cover L (4) to the machine.
Note that the hook part (8) should be seated in the square hole (9) of the machine.



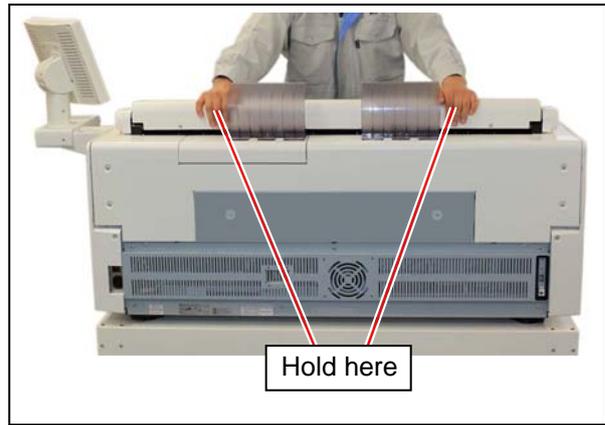
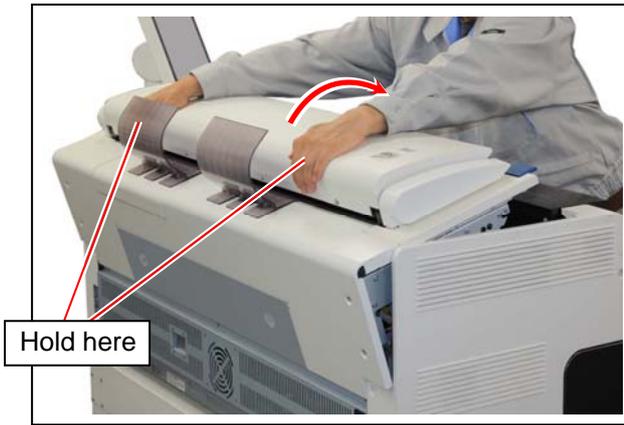
8. Reinstall 4 of 6 screws (1) to loosely fix Side Cover R (3) and Side Cover L (4).



! NOTE

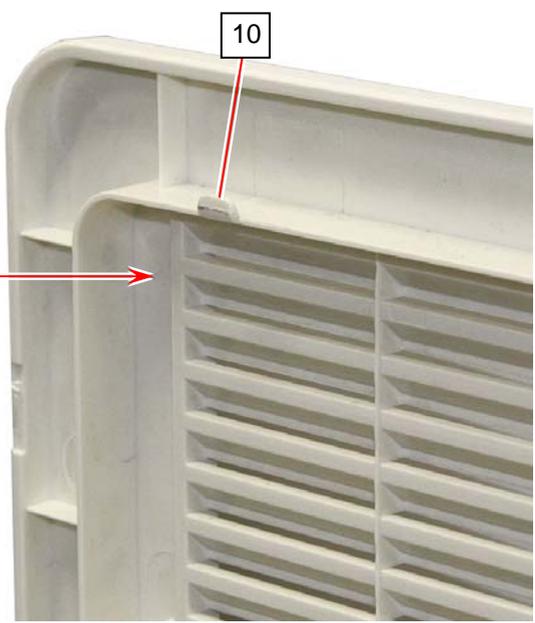
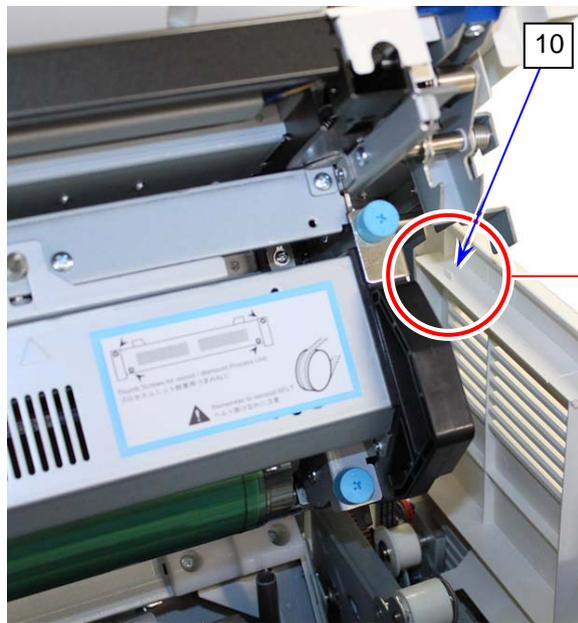
Do not tighten the 4 screws (1) completely at this time.

9. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit.
Push the entire unit down to the arrow direction.

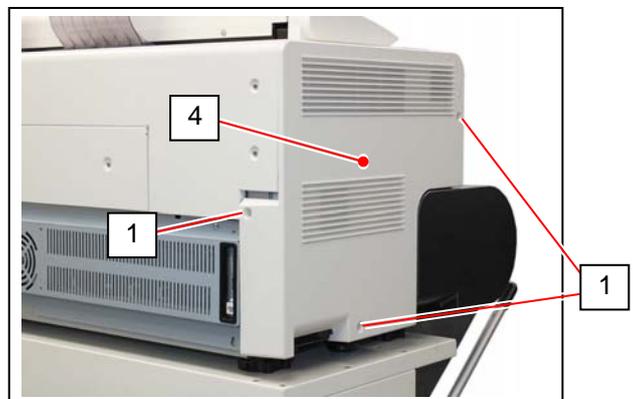
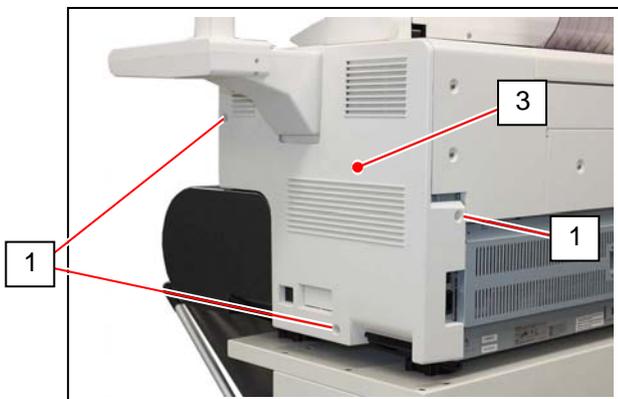


! NOTE

The small top tab parts (10) should fit inside of Side Cover R (3) and Side Cover L (4).



10. Reinstall the rest 2 screws (1) and tighten all the screws (1) to secure Side Cover R (3) and Side Cover L (4).



5. 1. 4 Developer Unit

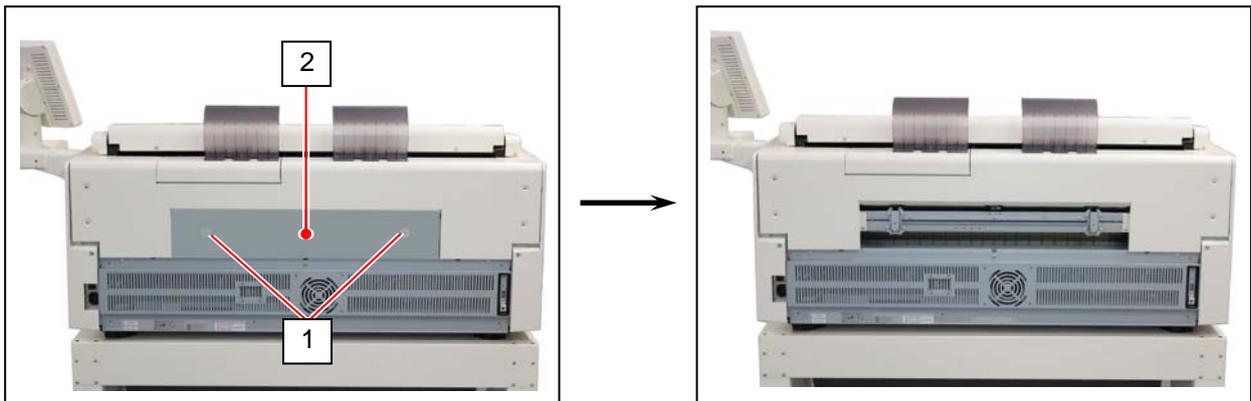
Reference

You can check what to do in step by step with using “Developer Replacement Wizard” on the touch screen. For better understanding, first please read [5.1.4.1 Replacement Procedure] before running the wizard.

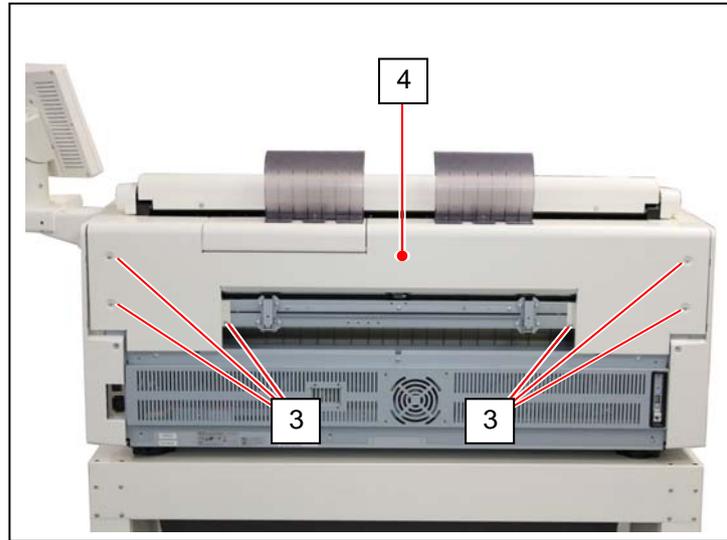
Example of use of the wizard is shown on [5.1.4.2 Using Wizard].

5. 1. 4. 1 Replacement Procedure

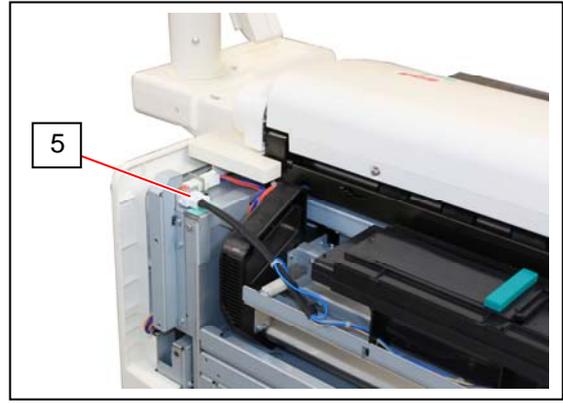
1. Remove 2 Bind Head Screws (M4x6) (1) to remove Cover 31 (2).



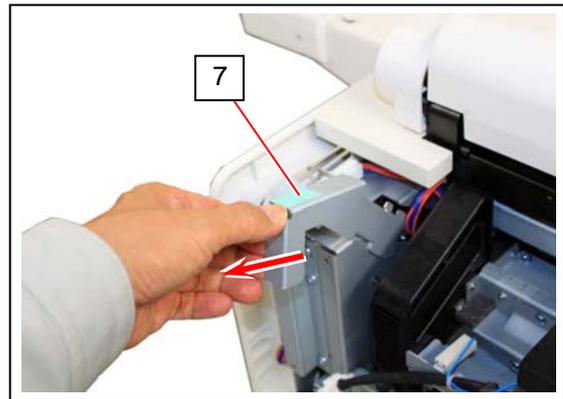
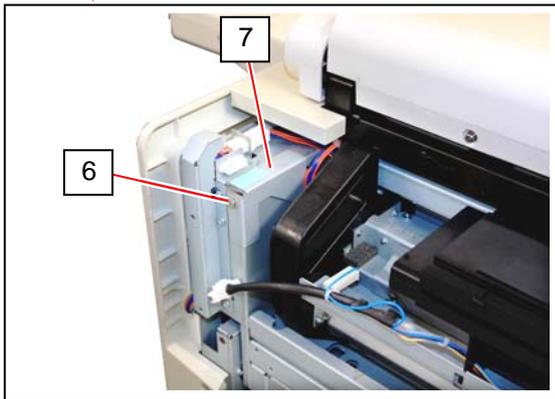
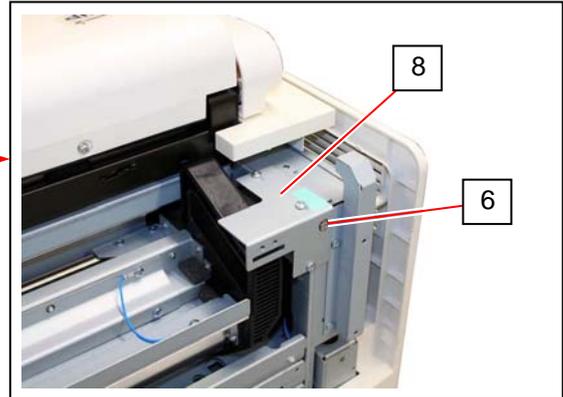
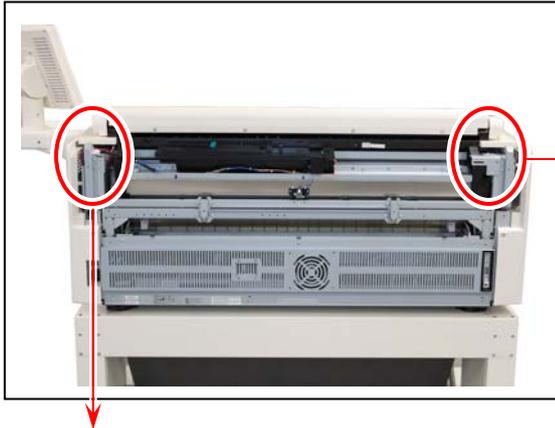
2. Remove 6 Bind Head Screws (M4x6) (3) to remove Cover 32 (4).



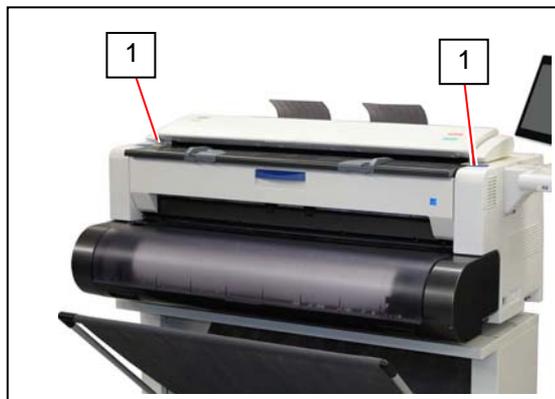
3. Disconnect 1 connector (5).



4. Remove 1 Bind Head Screw (6) on each side to remove the rail blocker R (7) / L (8).



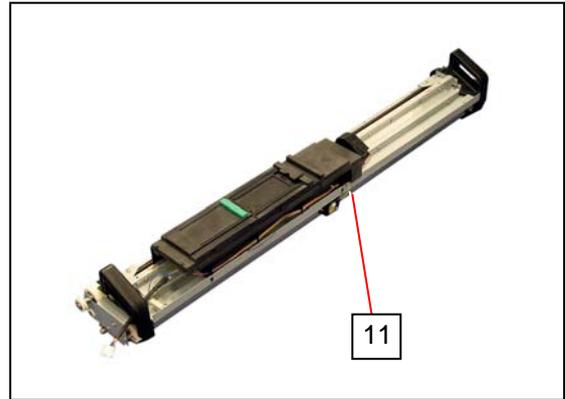
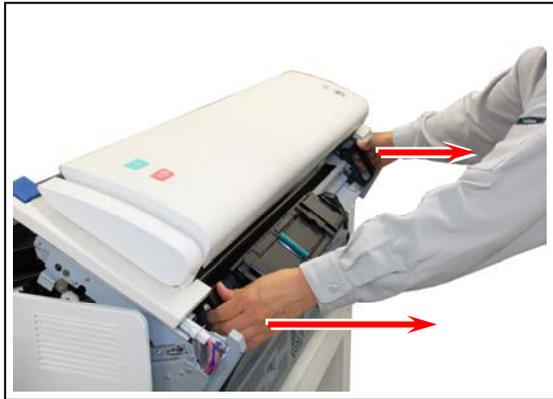
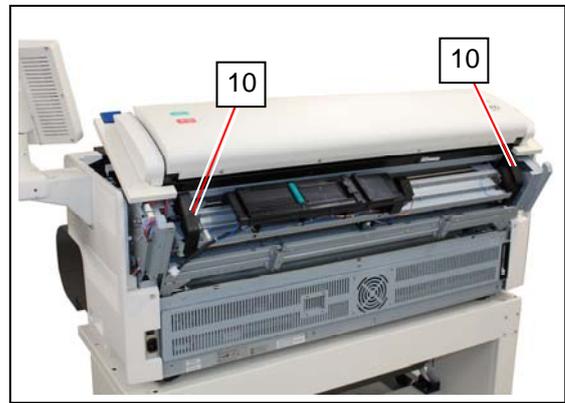
5. Press the blue lever (9) on both sides to open the Upper Unit.



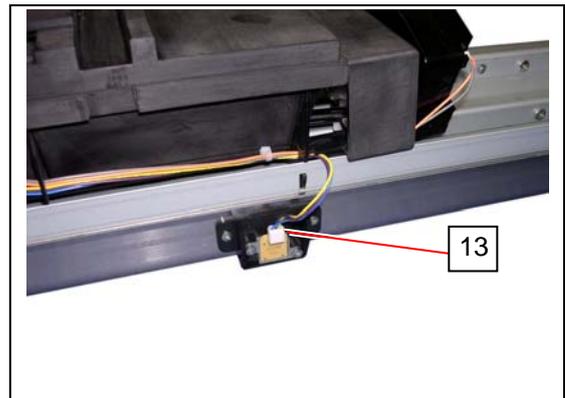
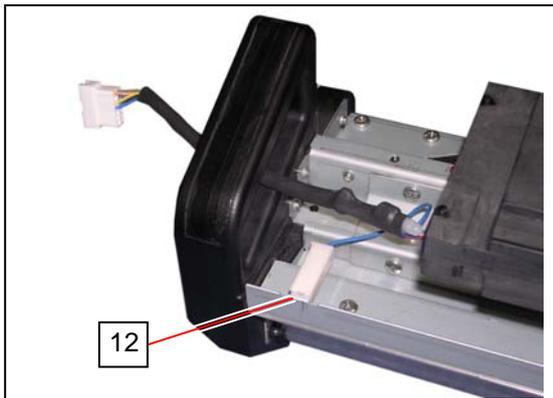
⚠ NOTE

Be sure to open the Upper Unit. This will release the engagement between the Developer Unit and the driving system. Removing the Developer Unit with the Upper Unit closed may damage the drive gears.

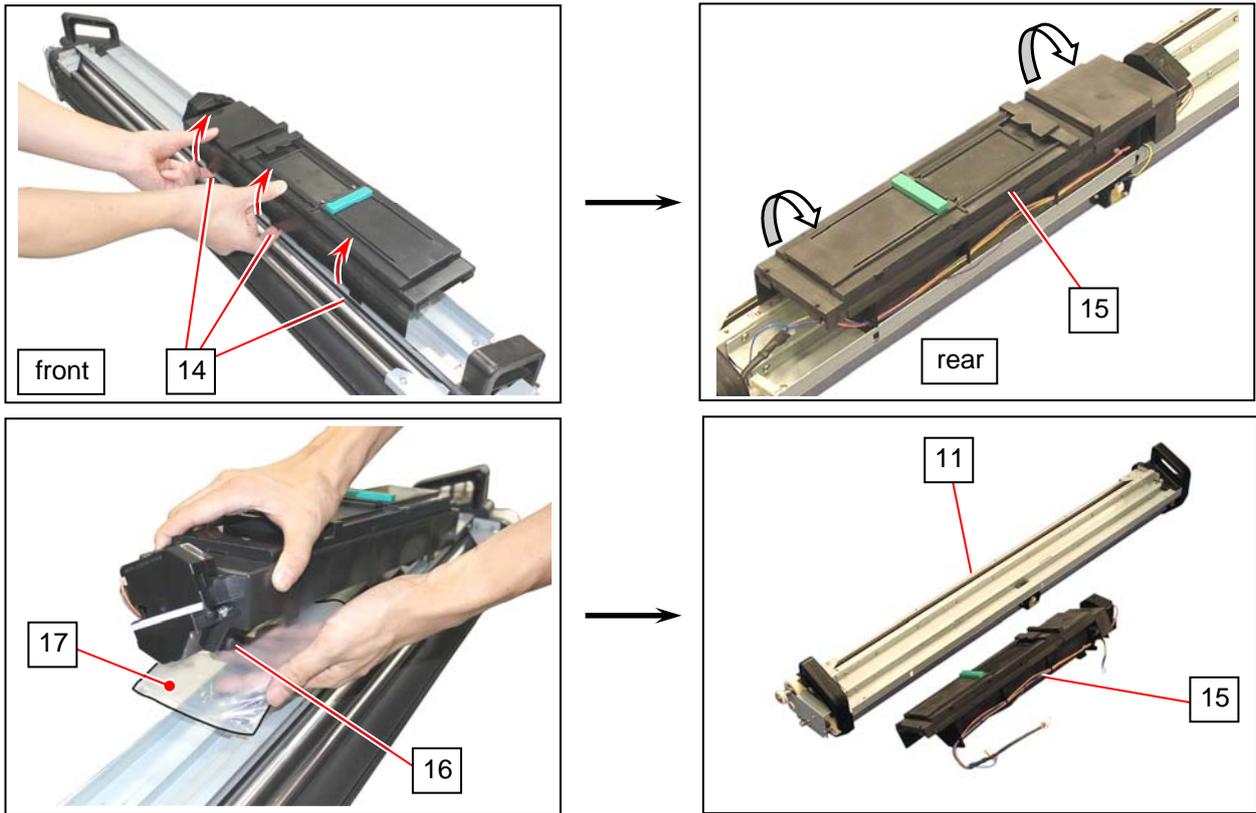
6. Hold the handgrip (10) on both sides.
Pull the Developer Unit (11) to the arrow direction
to remove it from the machine.



7. Disconnect the ground wire (12) and 1 connector (13).

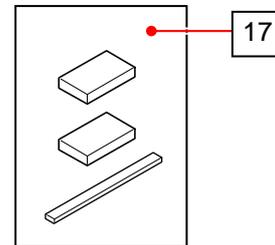


8. Release 3 tabs (14) on the front. Turn the Hopper Unit (15) to the arrow direction to remove it from the DEVELOPER ASSY (11). Cover the toner supply hole (16) on the Hopper Unit with a plastic bag (17) at this time to avoid scattering toner. Replace the **Developer Unit** with a new one.



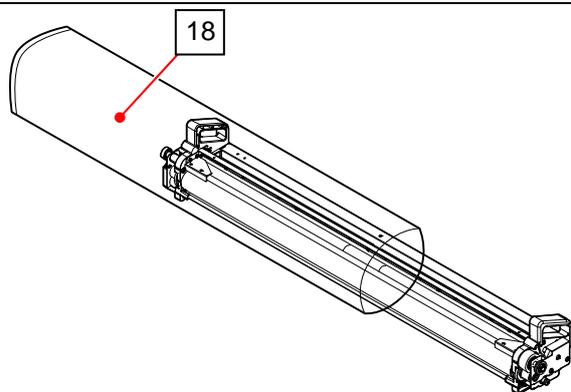
Reference

The plastic bag that contains the Pads and the Nail Cleaning Jig can be used as a cover (17).

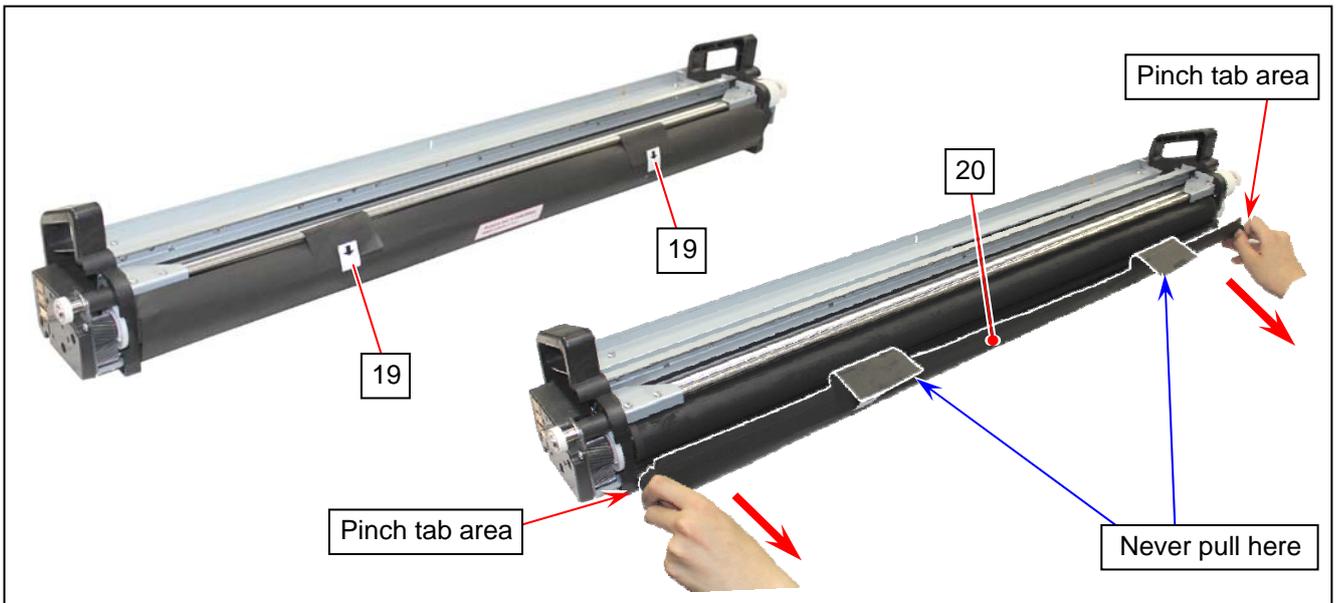


NOTE

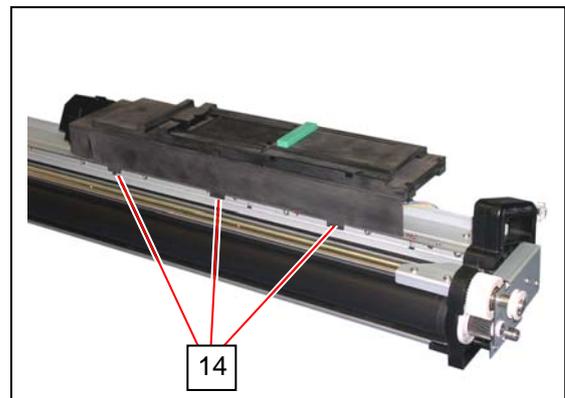
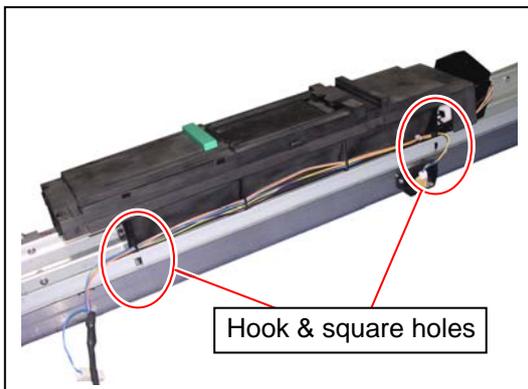
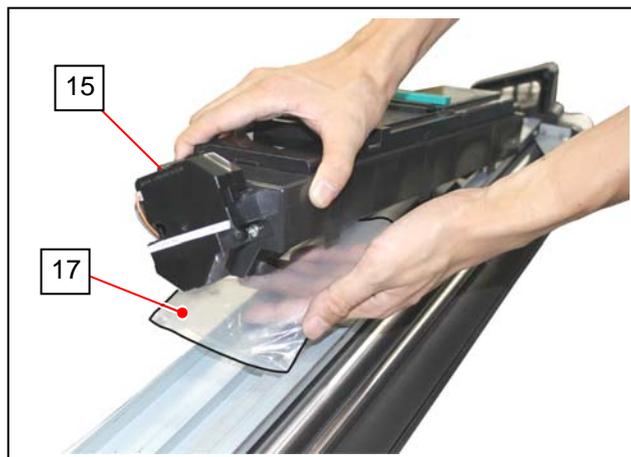
The old Developer Unit should be packed with the empty plastic bag (18) included in the kit. Dispose of the unit according to local regulations.



9. Remove the sticker (19) and the protection sheet (20) from the new Developer Unit.



10. Return the Hopper Unit (15). Again, cover the toner supply hole (16) on the Hopper Unit with a plastic bag (17) to avoid scattering toner. Insert the hook parts of the Hopper Unit into the square holes of the DEVELOPER ASSY. Make sure that the Hopper Unit (15) is held on the DEVELOPER ASSY by the tab parts (14).

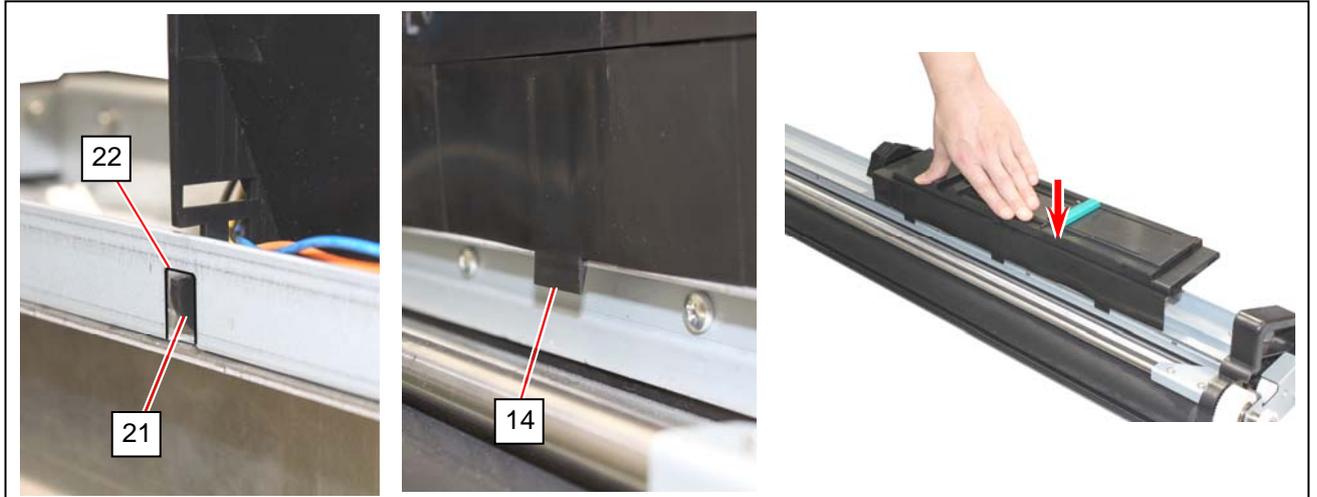


(See the next page)

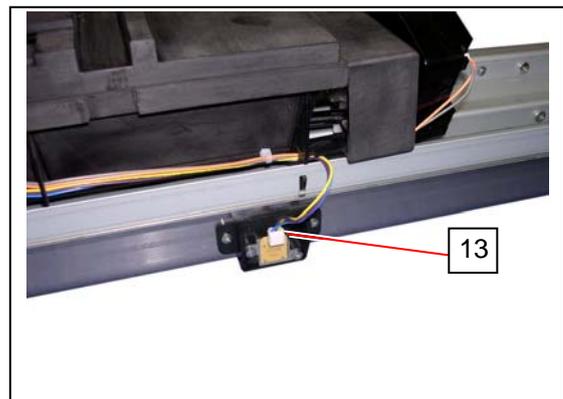
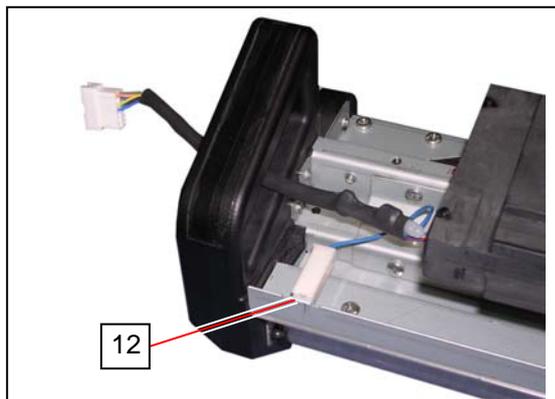
⚠ NOTE

Be sure to confirm the followings after reinstalling the Hopper Unit to the Developer Unit.

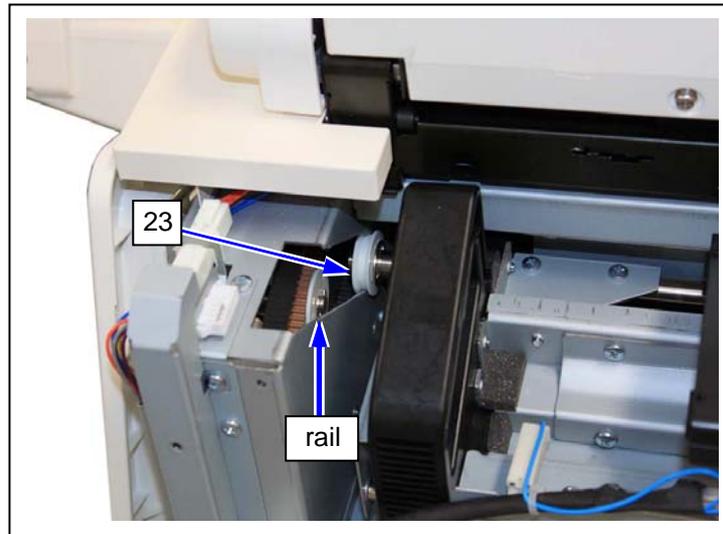
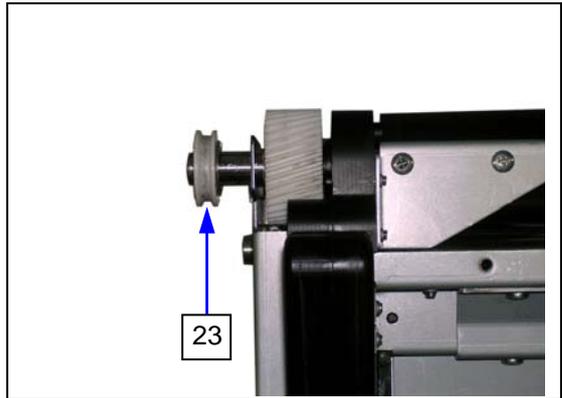
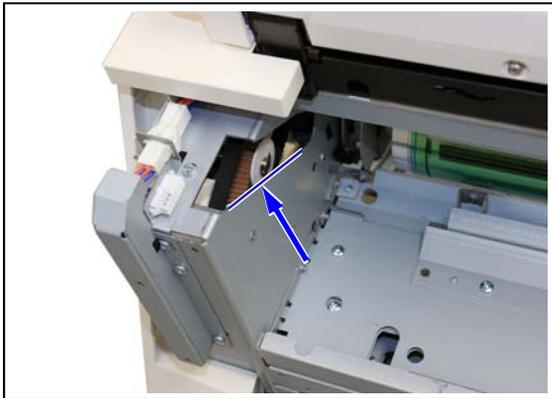
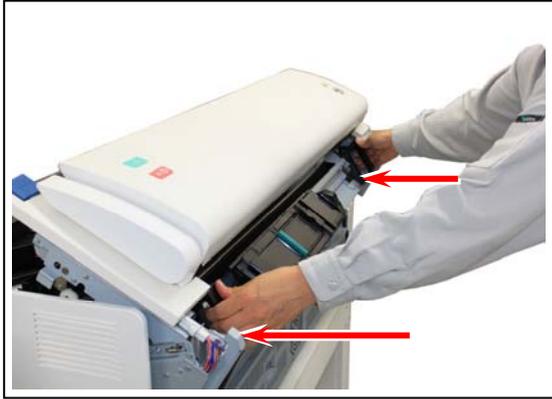
- The hook parts (21: 2pcs) fit in the square holes (22).
- The tab parts (14: 3pcs) catch the frame's rim. (Press the entire Hopper Unit)



11. Reconnect the ground wire (12) and the connector (13).



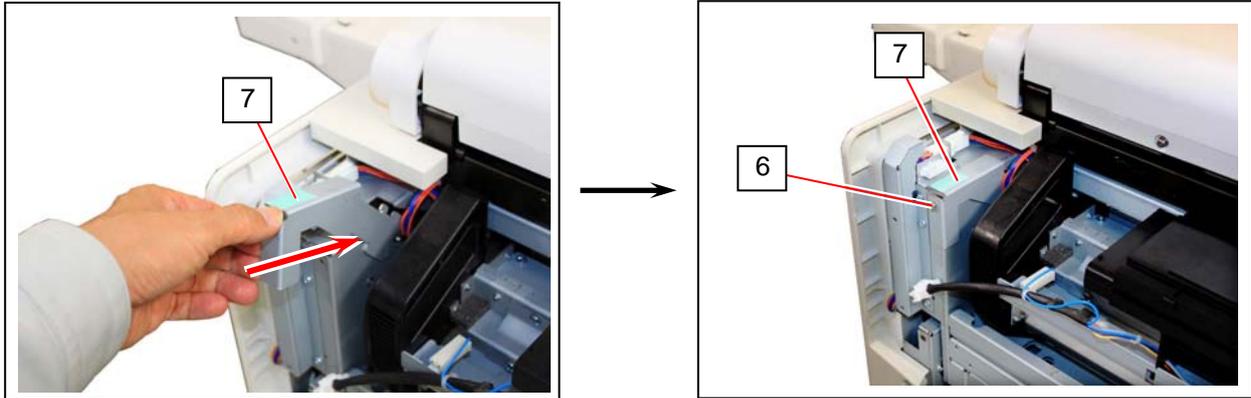
12. The Upper Unit should be open.
Hold the handgrip on both sides. Place the wheel (23) on the rail of the drive side (left hand).
Push the Developer Unit in the machine until it stops.



13. Slide the Developer Unit to the arrow direction (to your right hand).

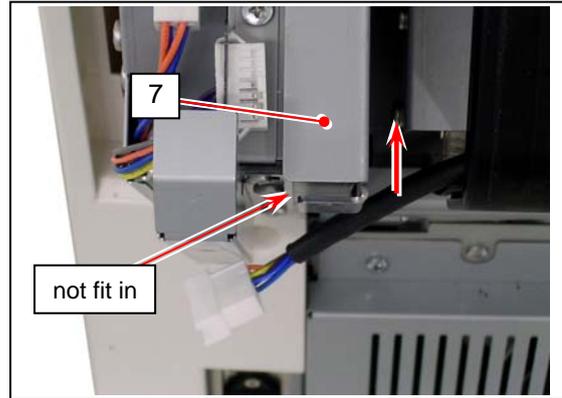


14. Secure the rail blocker R (7) to the rail opening with the screw (6).

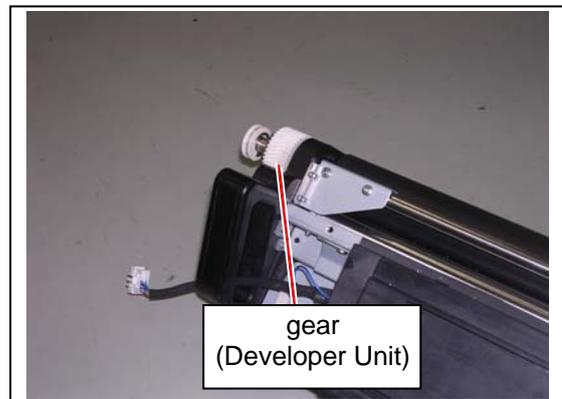
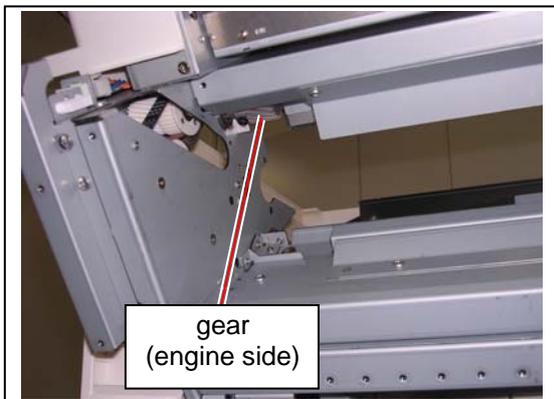


! NOTE

Fully insert the rail blocker R (7). If it does not go into the opening completely, please follow the instruction(s) below to seat the Developer Unit in position.

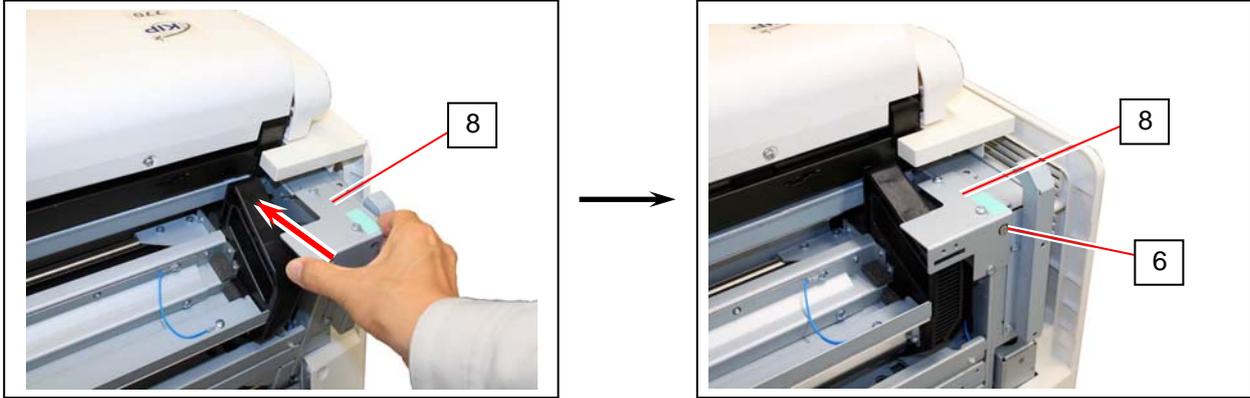


1. Swing the Developer Unit up and down. This allows the gears between the engine and the Developer Unit to be engaged.

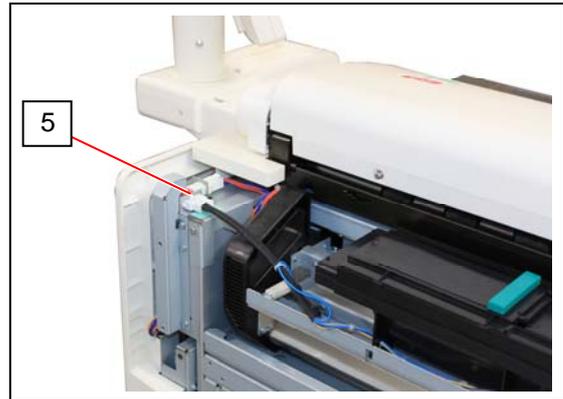


2. Hold the handles on both sides of the Developer Unit to slide it to your right hand.

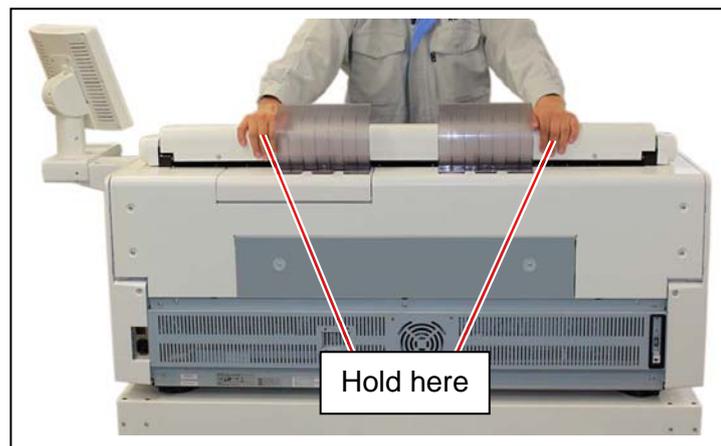
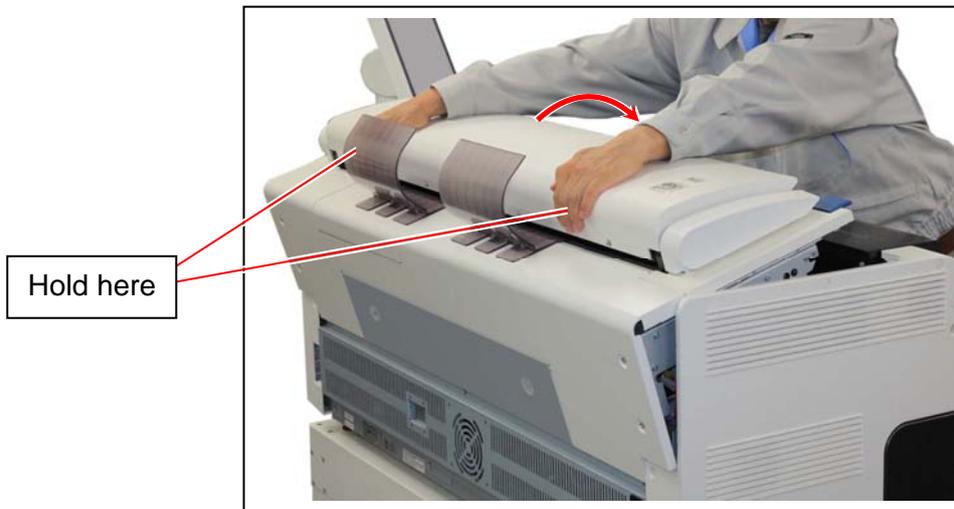
15. Secure the rail blocker L (8) to the rail opening with the screw (6).



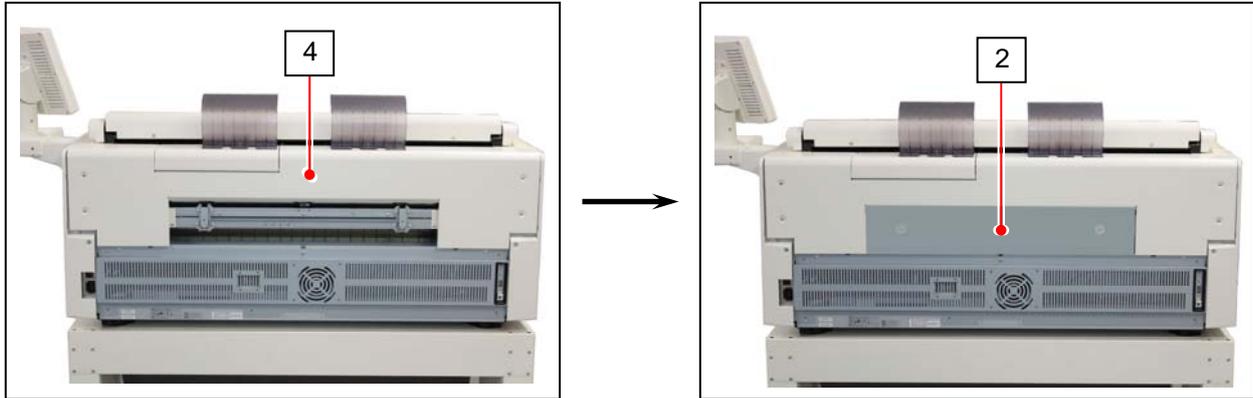
16. Reconnect the connector (5).



17. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit. Push the entire unit down to the arrow direction.



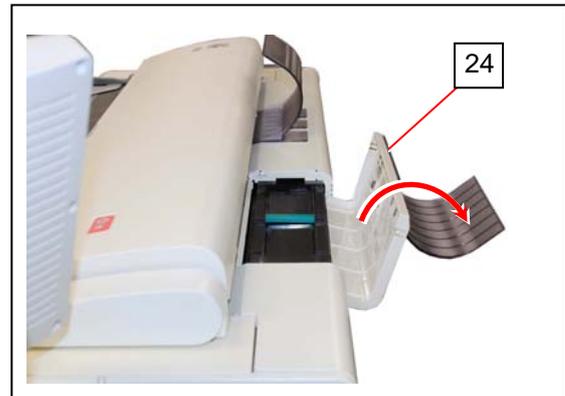
18. Return Cover 32 (4) and Cover 31 (2).



! NOTE

After replacing Developer Unit, you must set bias adjustment by Density Compensation Process to "1".
Otherwise a darker image appears because the adjusted values are too high voltage for the refreshed Developer Unit.

19. Open the Toner Hatch (24) on the rear top.
You do not have to remove the Original Guide.



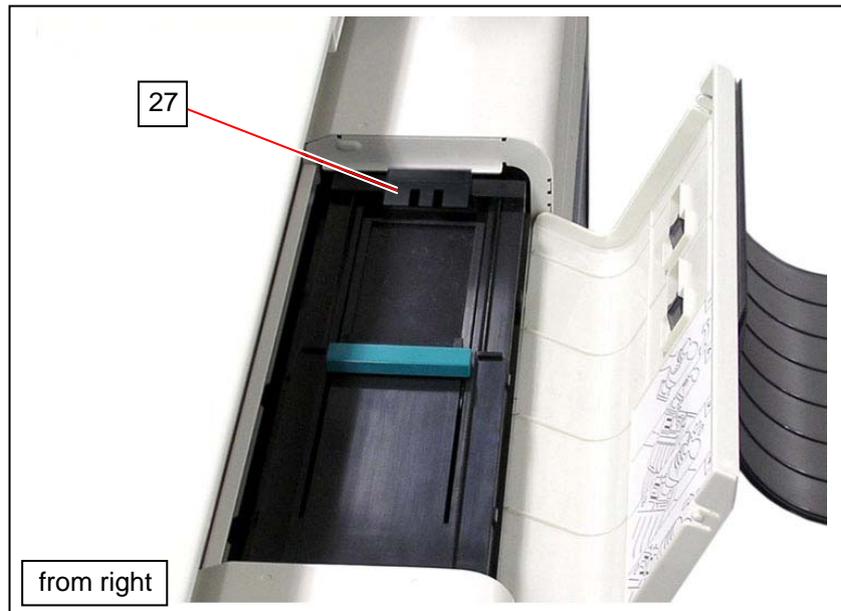
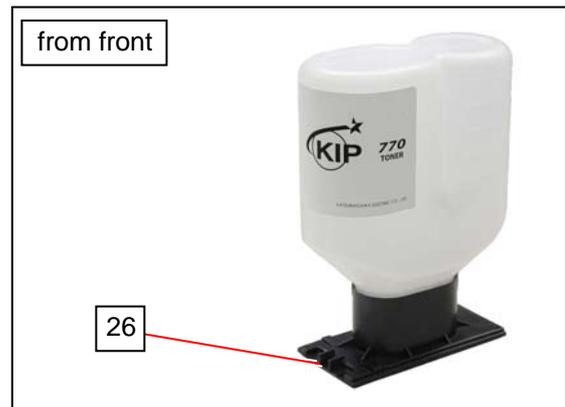
20. Shake the Toner Bottle (25) several times to loosen the toner.



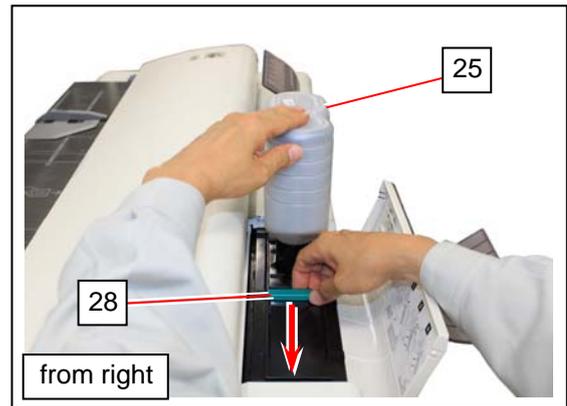
! NOTE

After you shake the Toner Bottle well, proceed the later steps as soon as possible.
Having a pause after this may reduce smoothness of the toner. This would disturb a smooth toner supply from the Toner Bottle to the printer.

21. Put the dent area (26) under the holder (27) to firmly seat the bottom plate of the Toner Bottle (2) to the toner supply position.



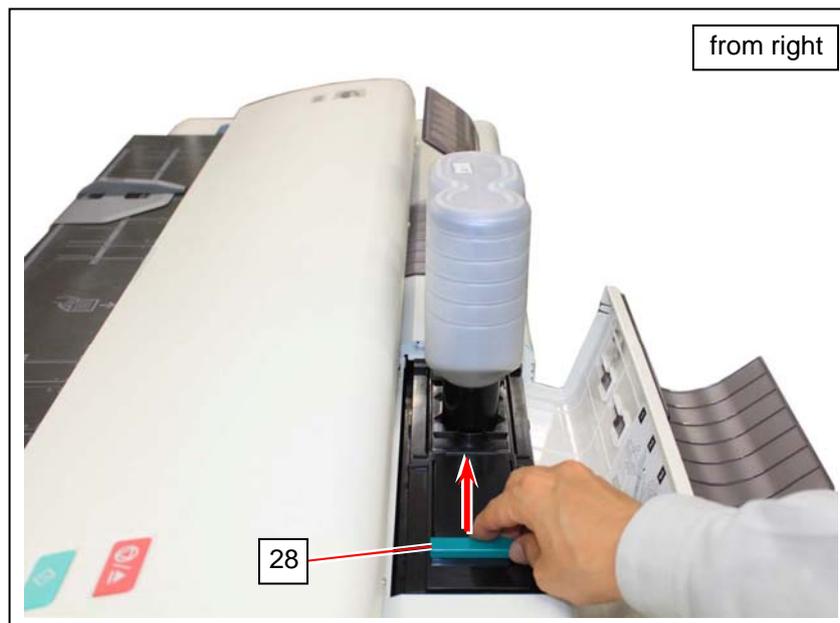
22. With pressing down the Toner Bottle (25), slide the green lever (28) to the arrow direction until it stops. When it stops, wait 10 seconds as it is.
Gently tap the top of the Toner Bottle several times.



! NOTE

Gently press down the Toner Bottle. Pressing too much makes the lever (28) much heavier.

23. Slide the green lever (28) to the original position. Remove the Toner Bottle.



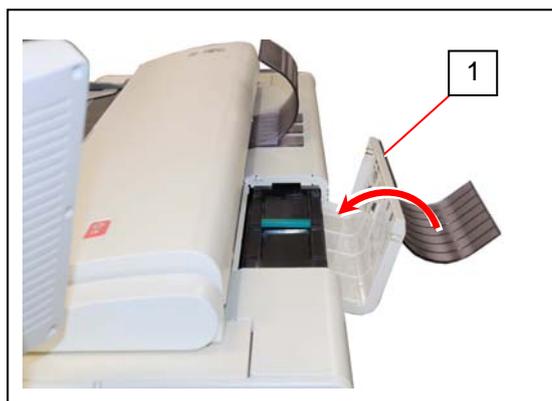
! NOTE

It is impossible to remove the Toner Bottle unless the lever (5) completely moves to the original position.
Do not attempt to remove the Toner Bottle by force if the lever is not at the original position.
Doing so may damage toner supply system.

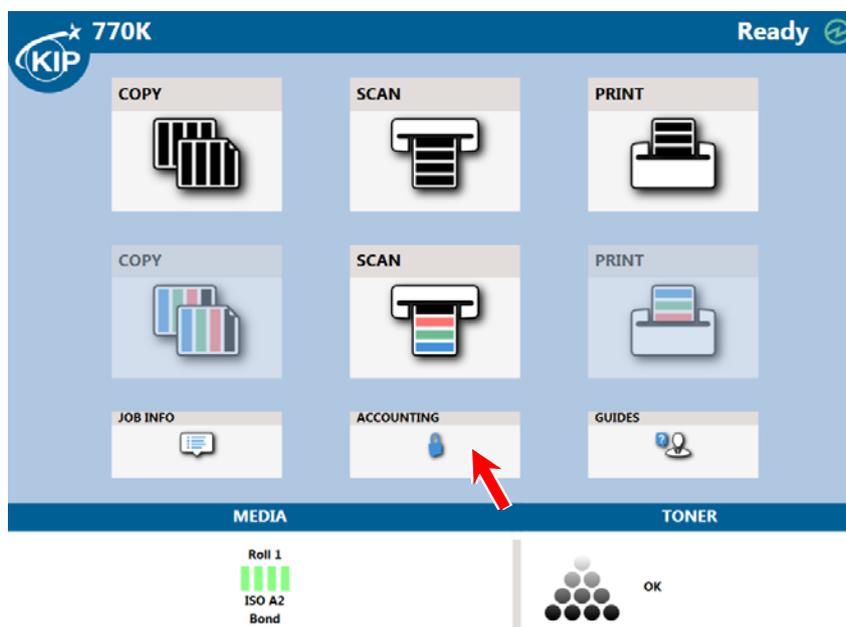
24. Add toner with the other spare Toner Bottle.



25. Close the Toner Hatch (1).



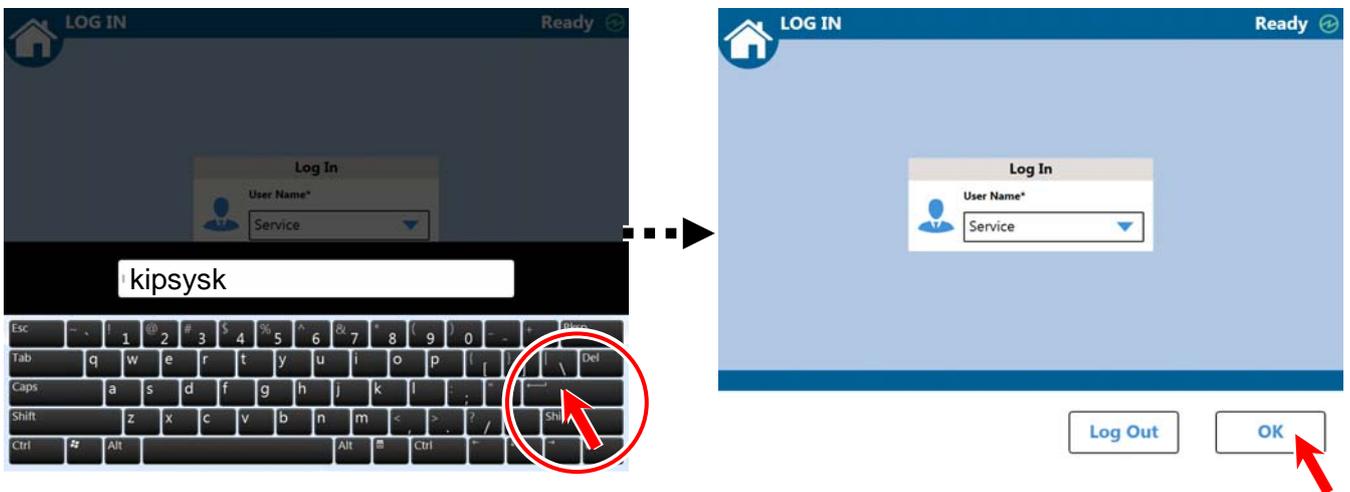
26. Press [ACCOUNTING]



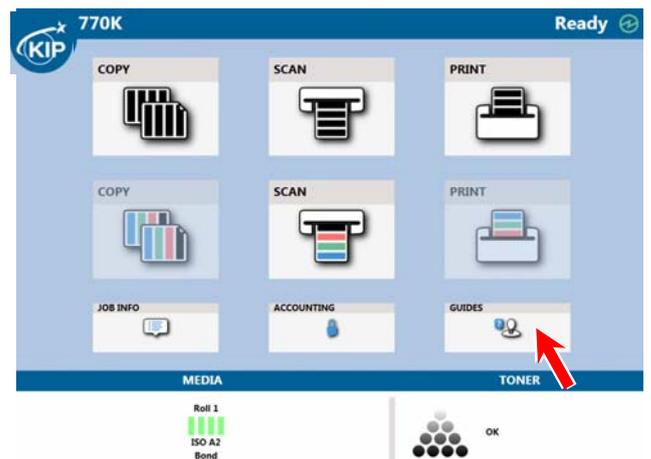
5. Touch the entry field of "User Name", and then select "Service" from the pull-down menu.



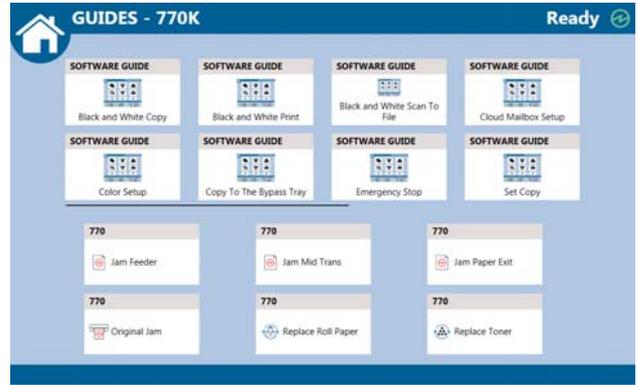
6. Enter "kipsysk" in the password field, press the ENTER key, and then press [OK] in the LOG IN screen to log in with the administrative right.



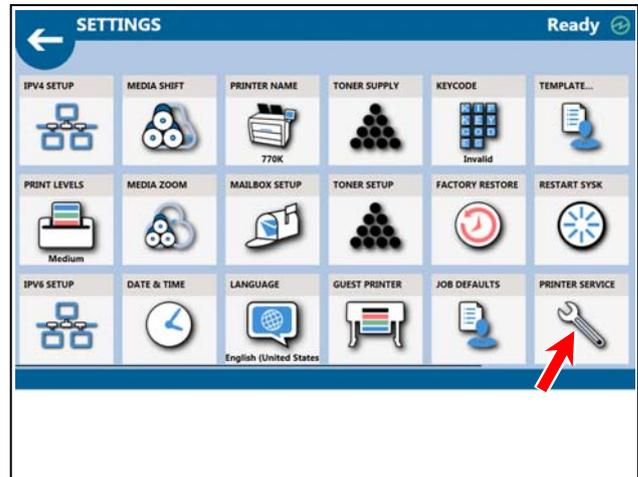
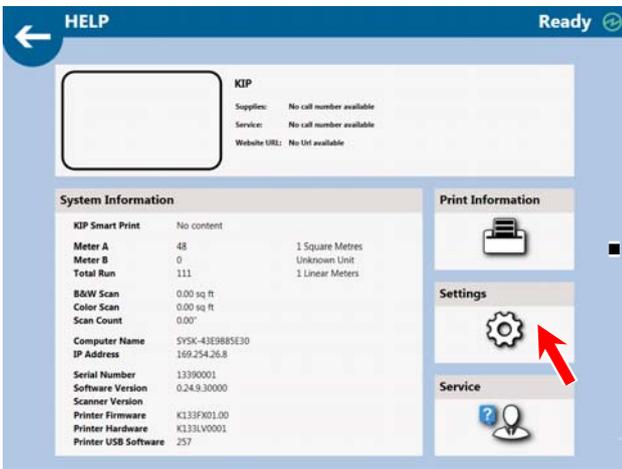
7. Press [GUIDES].



8. Press [Help].



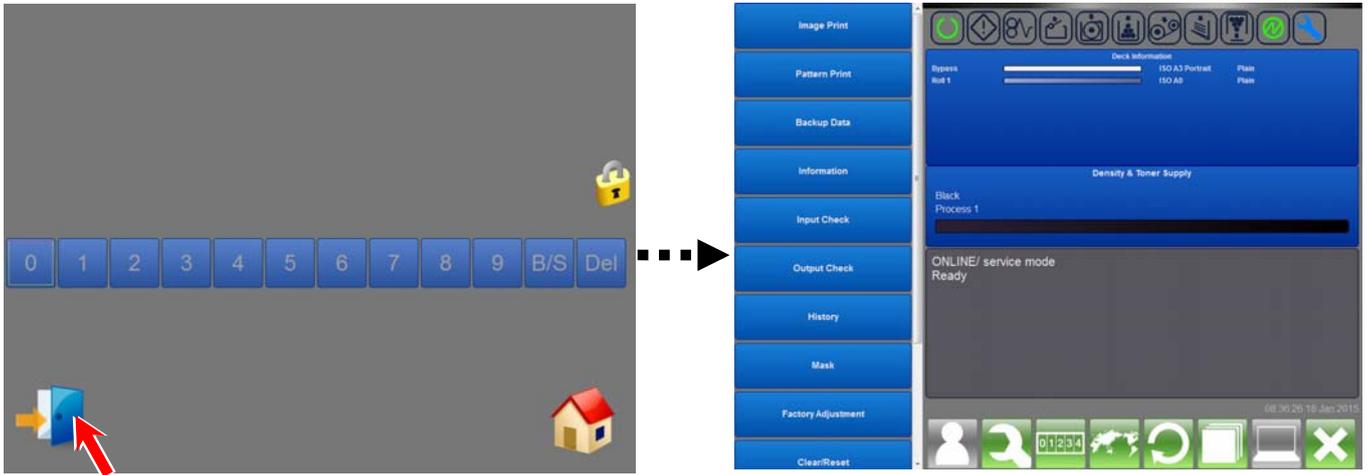
9. Press [Settings]. "SETTINGS" screen appears.



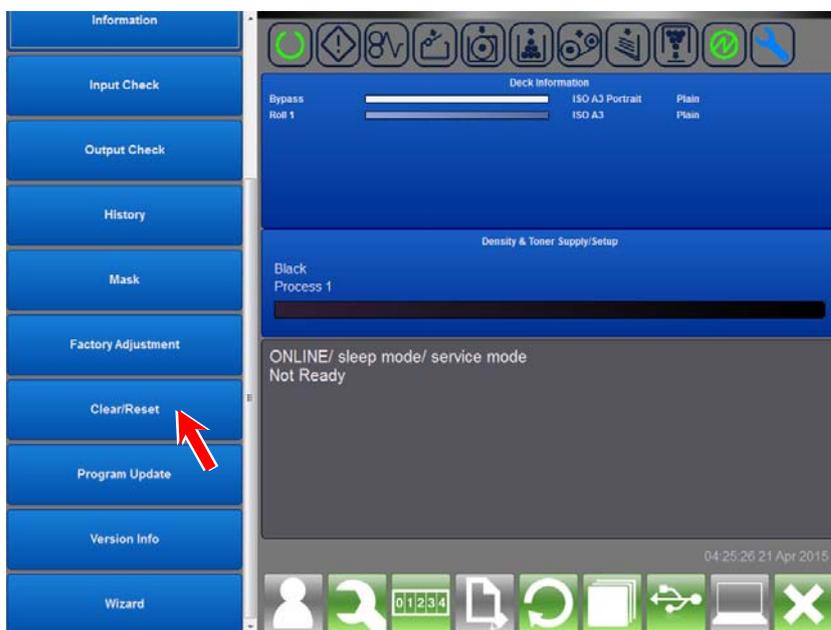
10. Press [LAUNCH].



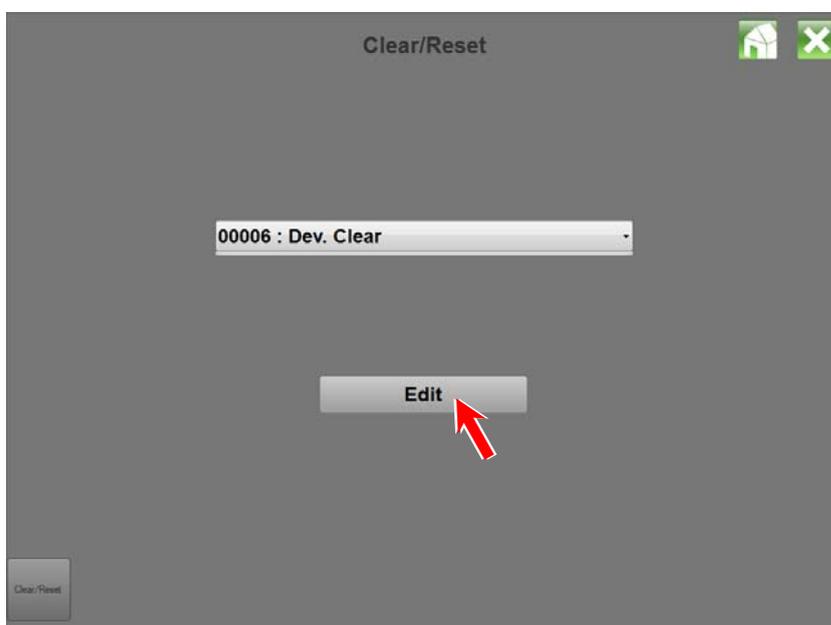
11. Press "Door Icon" to log in Maintenance GUI Home.



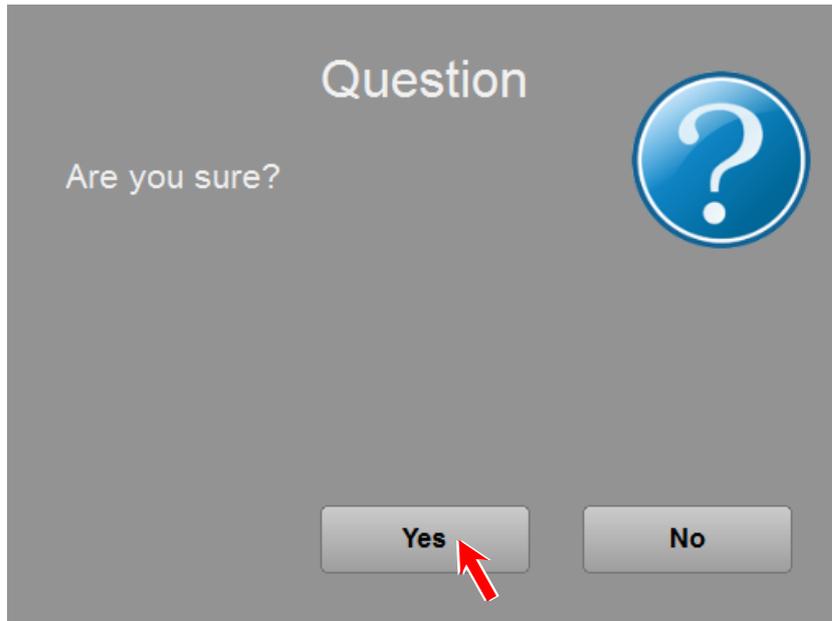
12. Press [Clear/Reset].



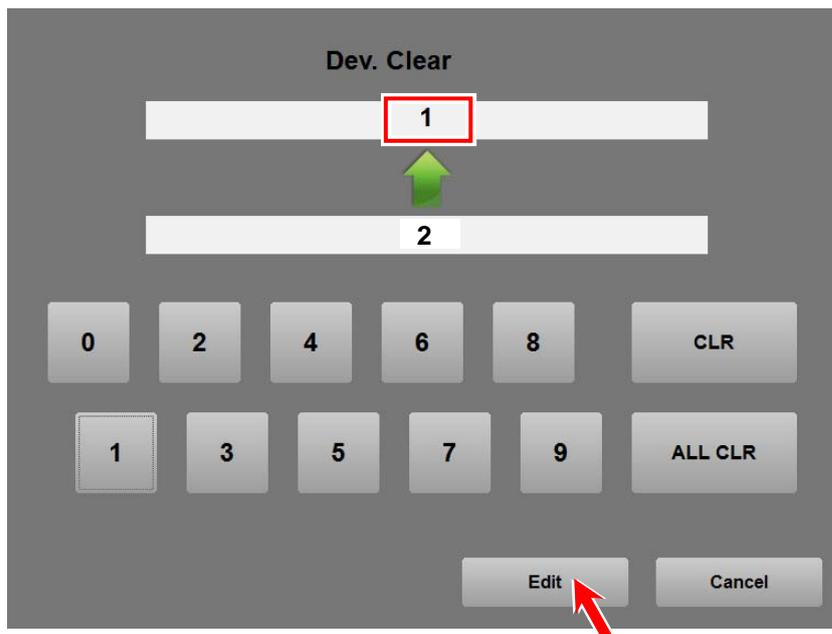
13. Select [00006 Dev. Clear] from Name of mode menu. Press [Edit].



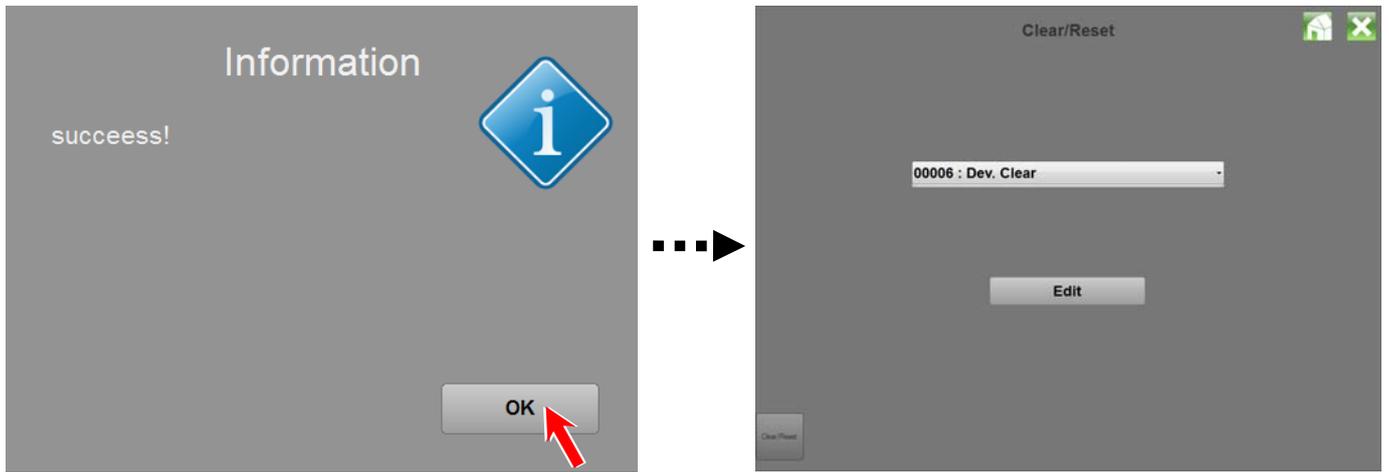
14. Confirmation screen appears.
Press [Yes] to enter the input screen.



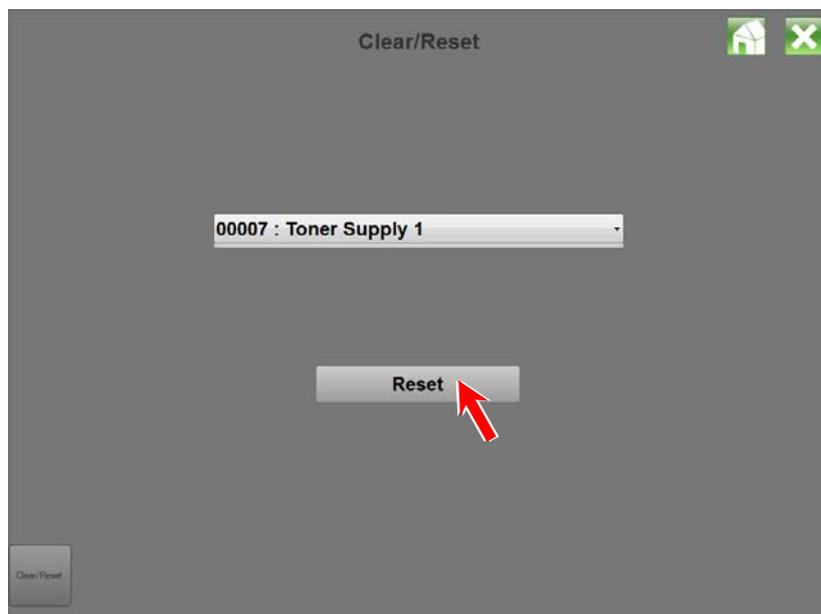
15. Input screen appears.
Input "1" with On-screen Keypad. Press [Edit]



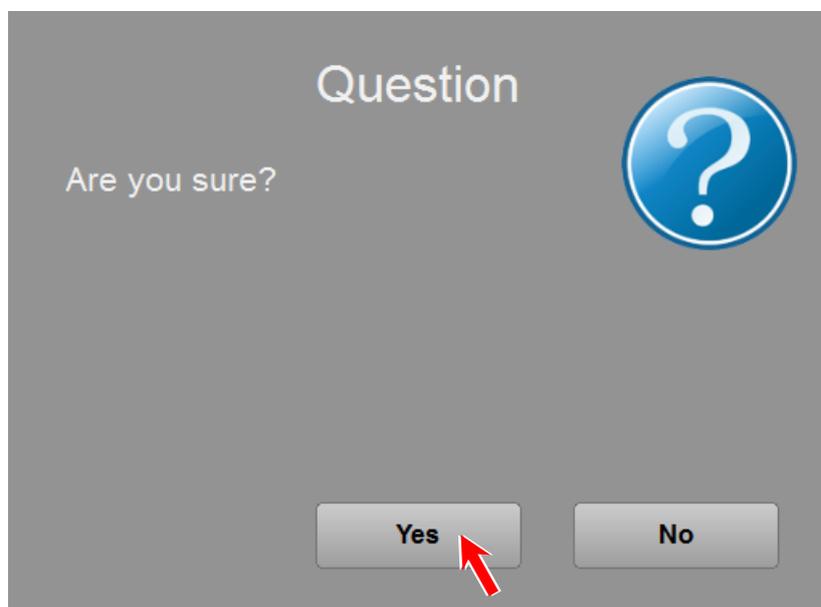
16. Press [OK] to go back to Operation Target screen.



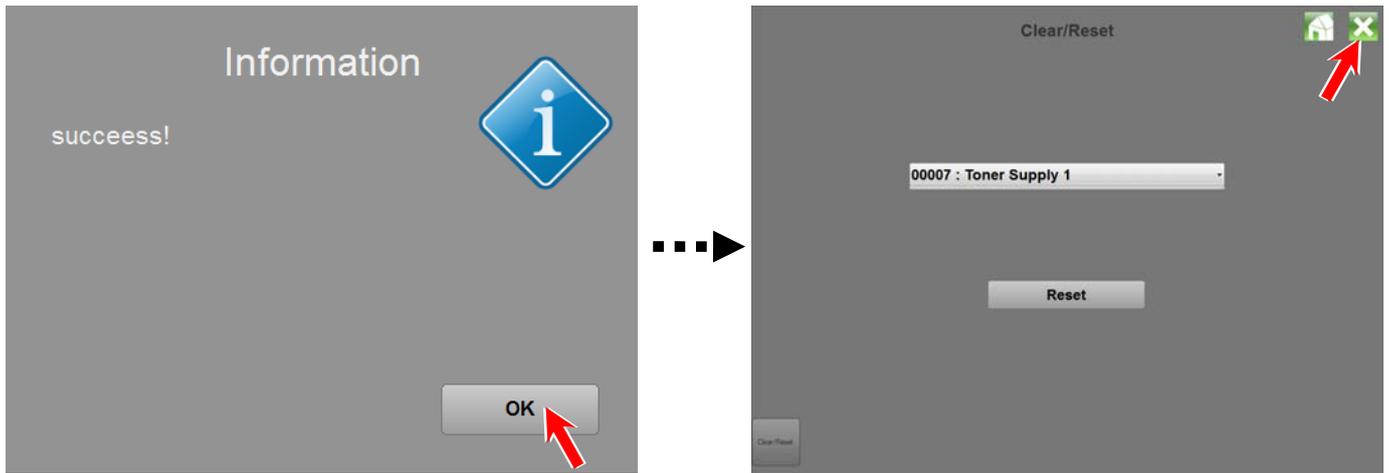
17. Select [00007 Toner Supply1] and press [Reset].



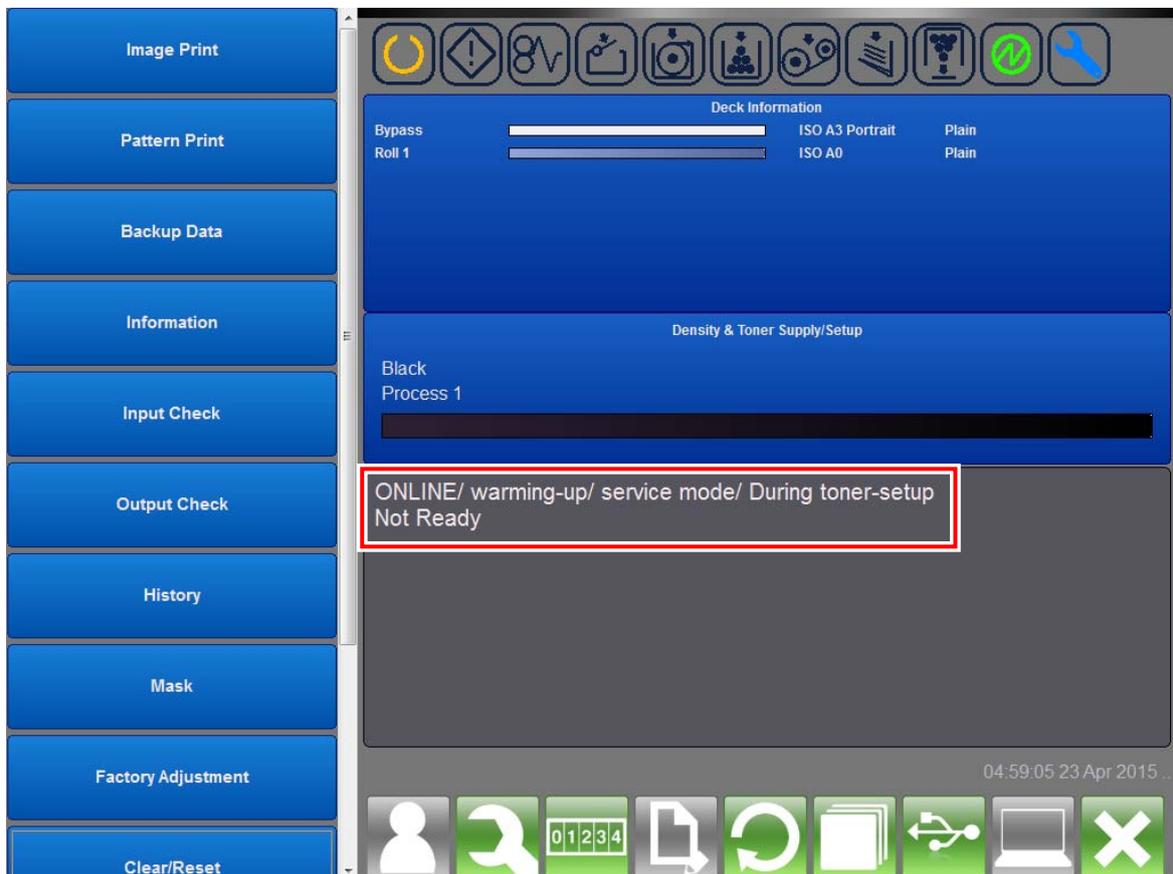
18. Confirmation screen appears. Press [Yes].
Toner supply / agitation starts. This will take 10 minutes to complete.



19. Press [OK] to go back to Operation Target screen.
Press [X] button.



20. Maintenance GUI Home screen appears.
The status window shows “warm up” during toner-setup / agitation.
After the completion, it changes to “standby”.

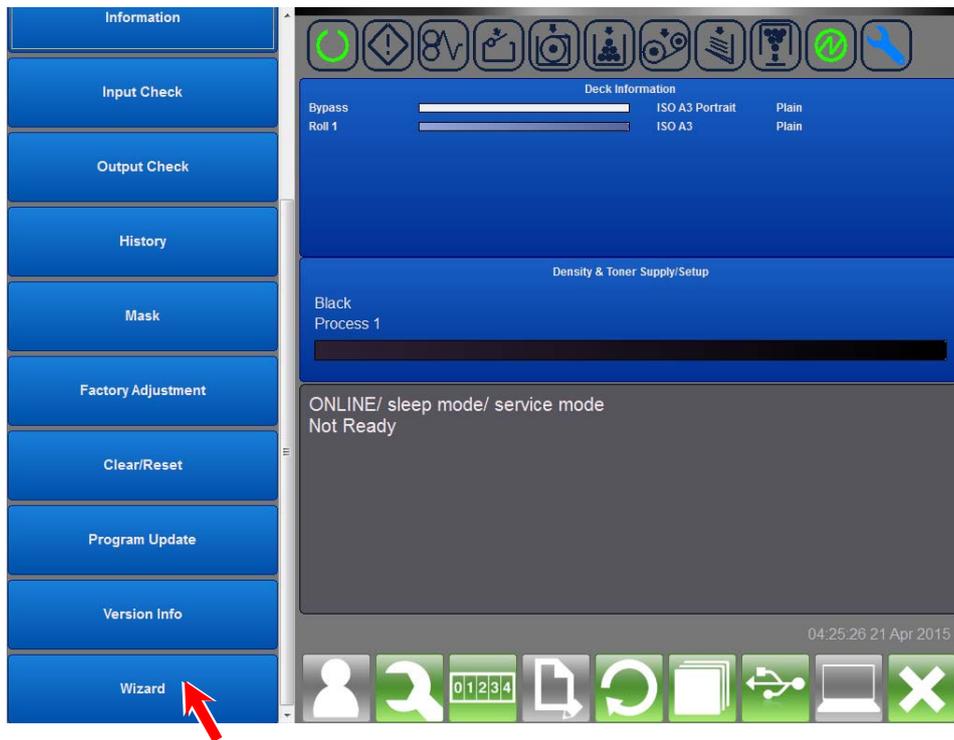


21. Do the same way on step 17 to 19. (twice in a row for 2 Toner Bottles)

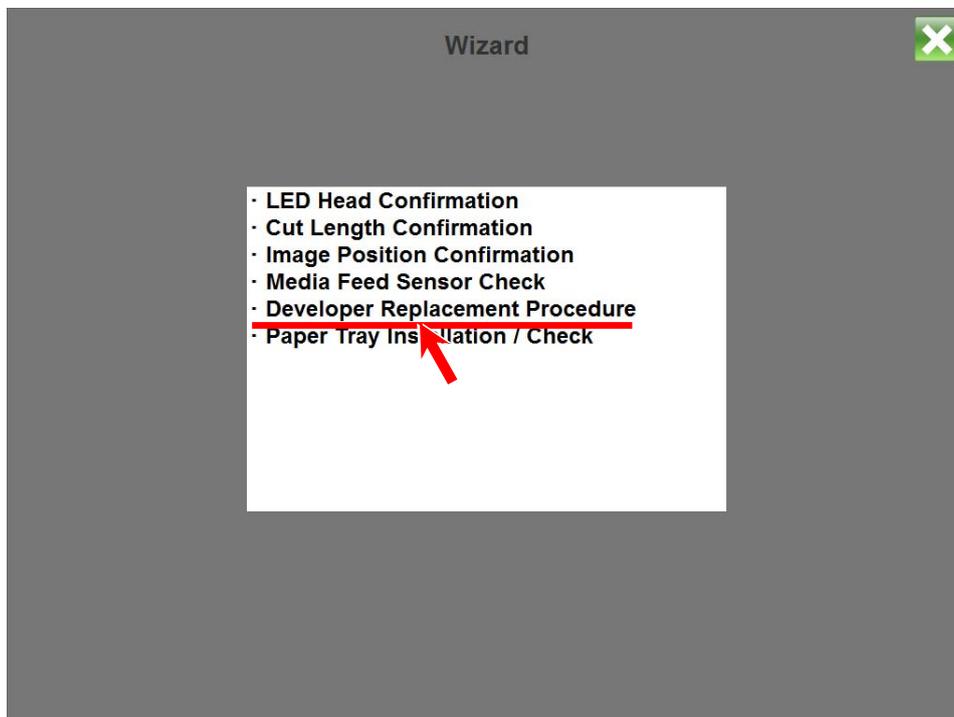
5. 1. 4. 2 Using Wizard

This subsection describes only the summary of replacing procedure of Developer Unit. For further details, see [5.1.4.1 Replacement Procedure].

1. Press [Wizard] on the Maintenance GUI Home screen.



2. Select "Developer Replacement Procedure".



3. The screen shows the procedure step by step. Press [▶] button to turn the pages. Follow the instructions and replace Developer Unit.



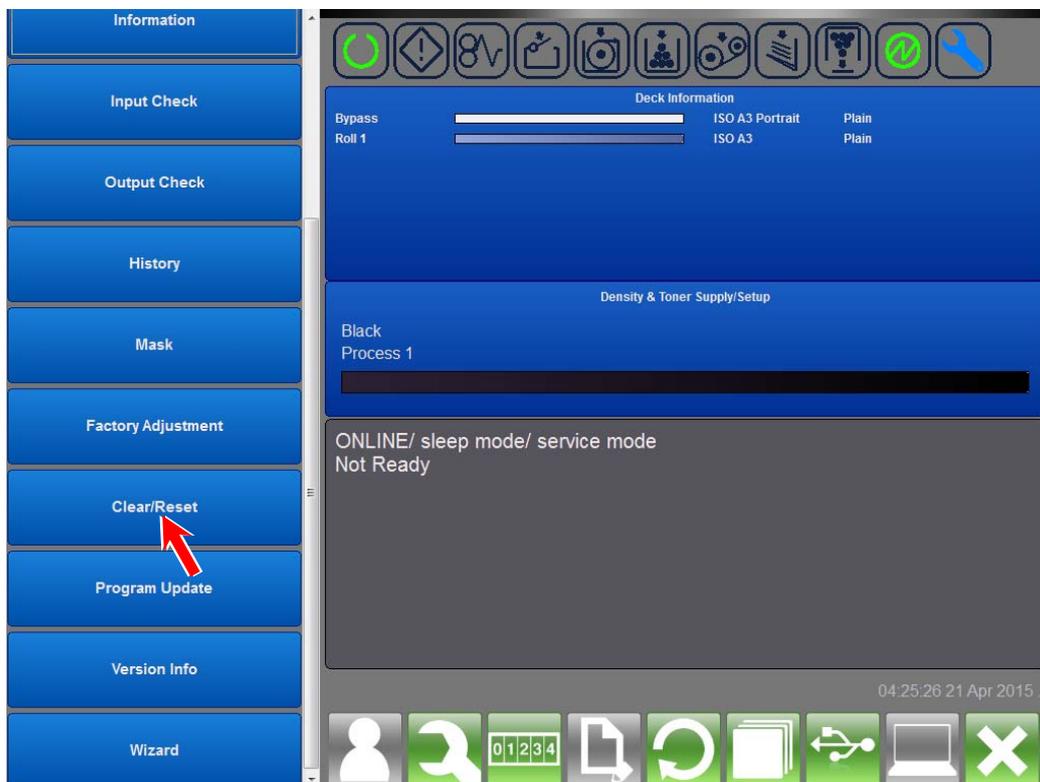
4. Page 23/23 is the end of the procedure. Press [Reset] on the left. Press [OK].



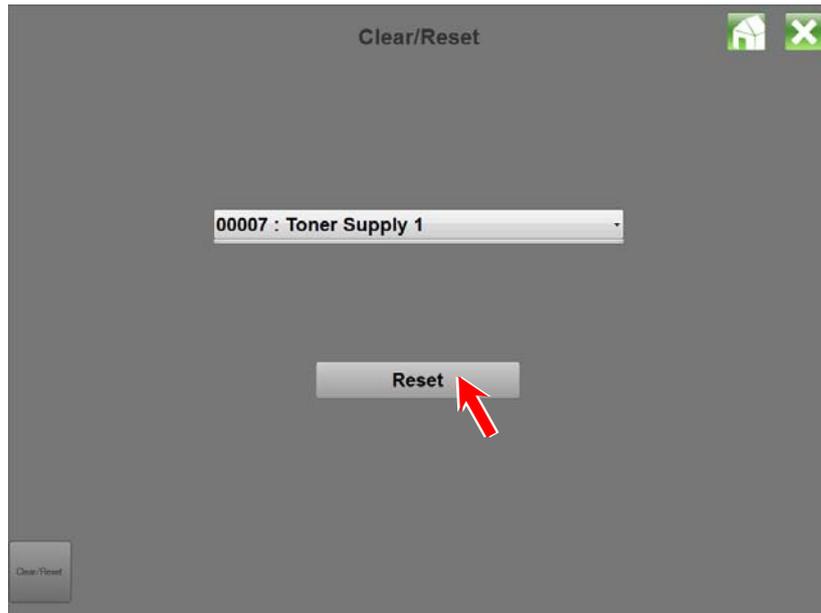
5. Supply toner in 2 Toner Bottle in the kit.



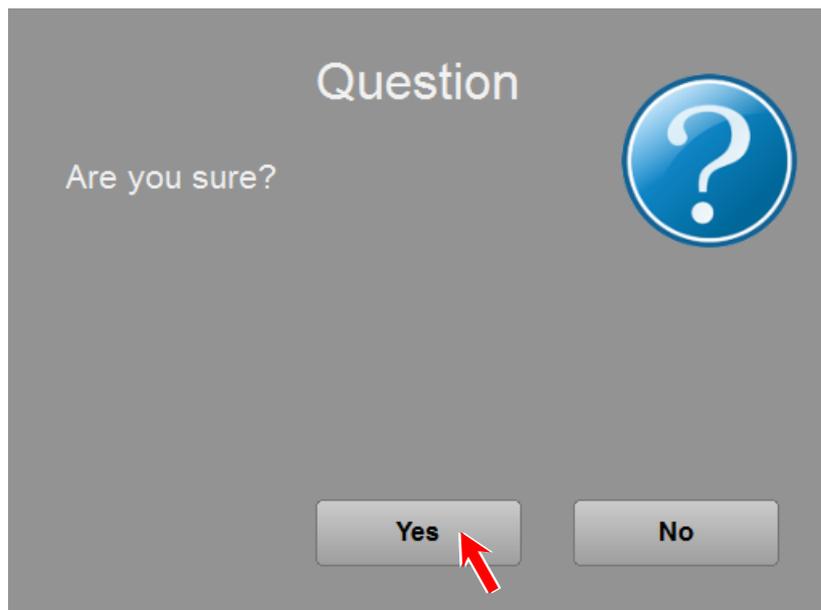
6. Press [Clear/Reset] on Maintenance GUI Home screen.



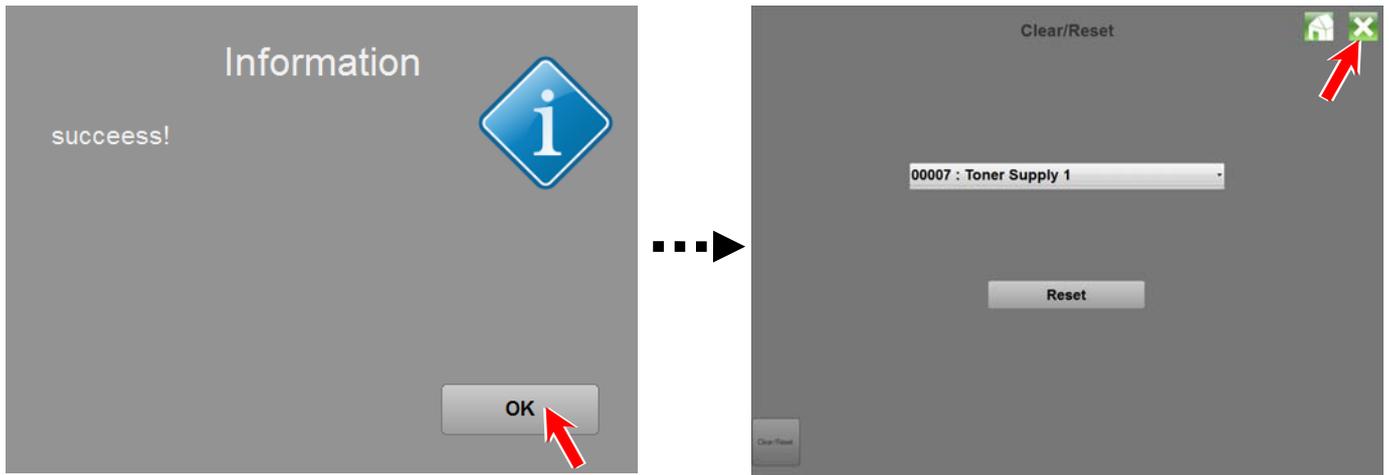
7. Select [00007 Toner Supply1] and press [Reset].



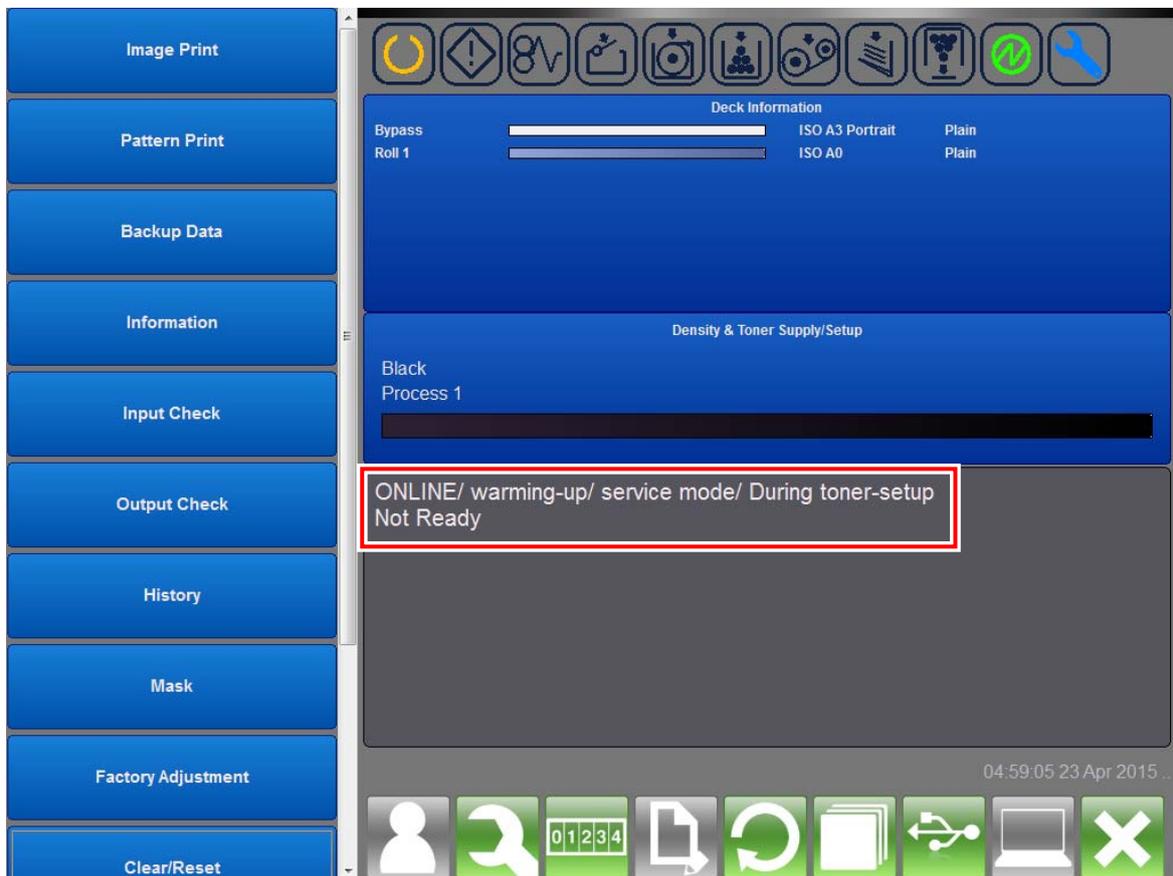
8. Confirmation screen appears. Press [Yes].
Toner supply / agitation starts. This will take 10 minutes to complete.



- Press [OK] to go back to Operation Target screen.
Press [X] button.



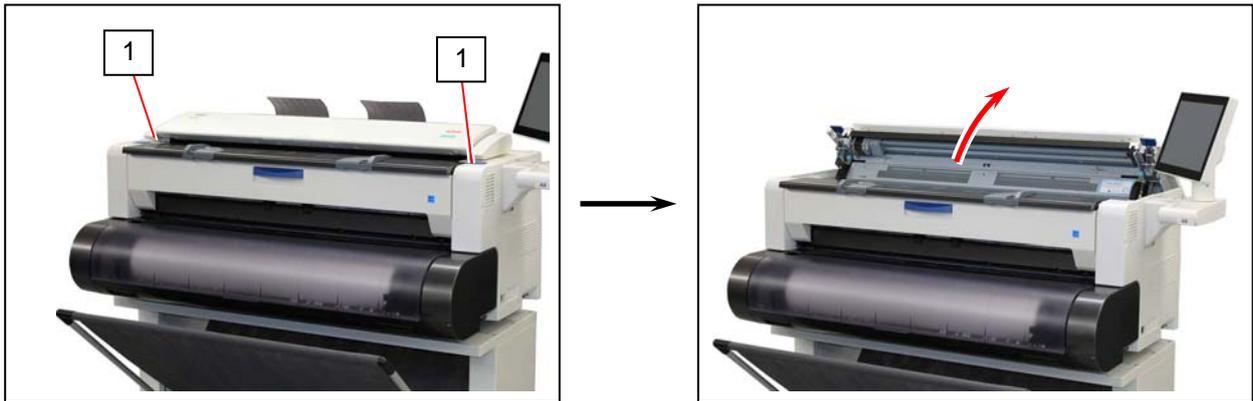
- Maintenance GUI Home screen appears.
The status window shows “warm up” during toner-setup / agitation.
After the completion, it changes to “standby”.



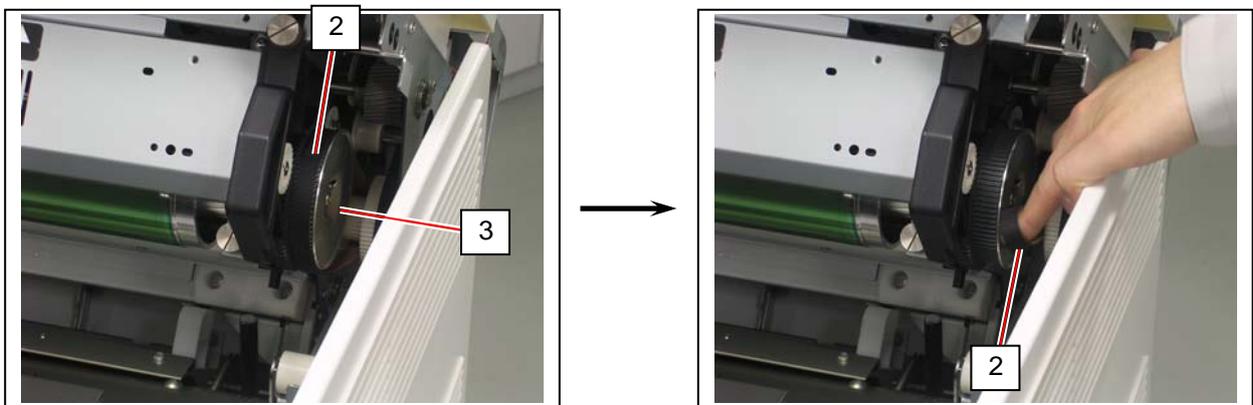
- Do the same way on step 17 to 19. (twice in a row for 2 Toner Bottles)

5. 1. 5 Process Unit

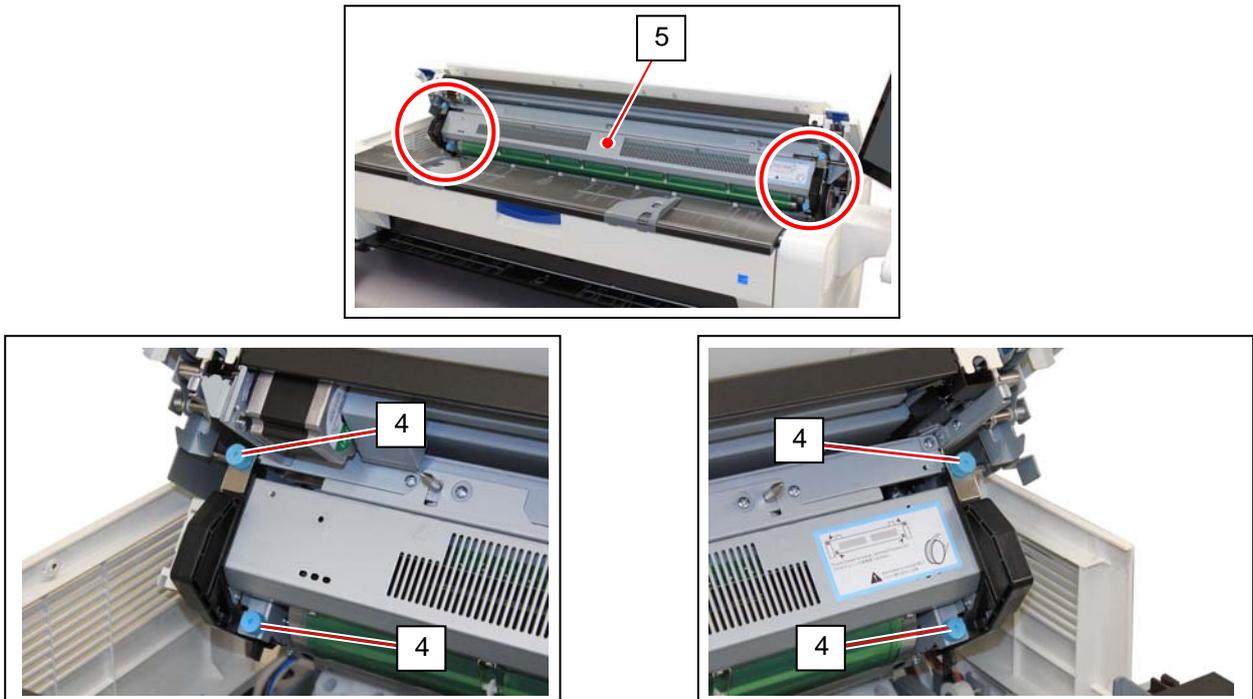
1. Press the blue lever (1) on both sides to open the Upper Unit.



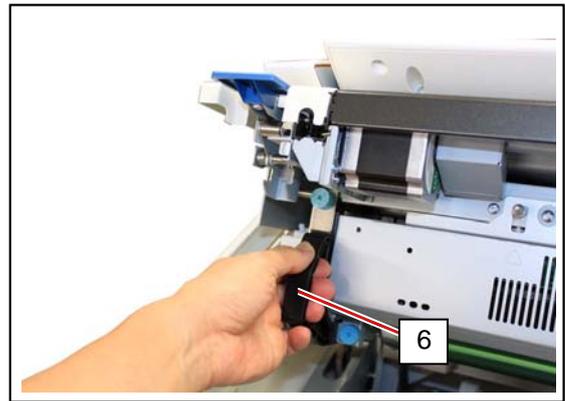
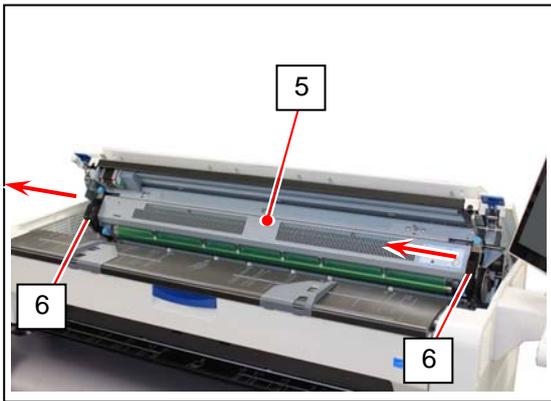
2. Release the belt (2) from the pulley (3).



3. Loosen 4 thumb screws (4) to release the Process Unit (5).

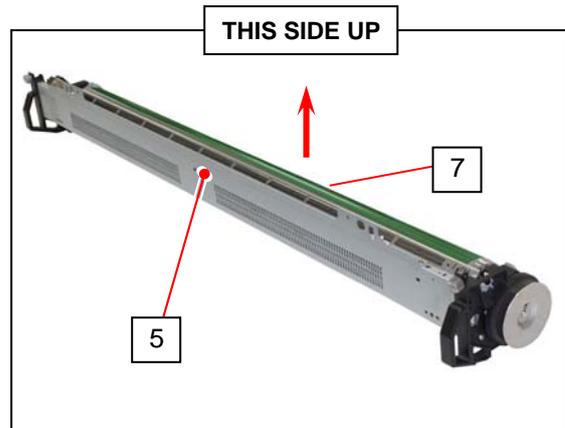


4. Hold the handgrip (6) on both sides. Pull the Process Unit (5) to the arrow direction to remove it from the machine.



! NOTE

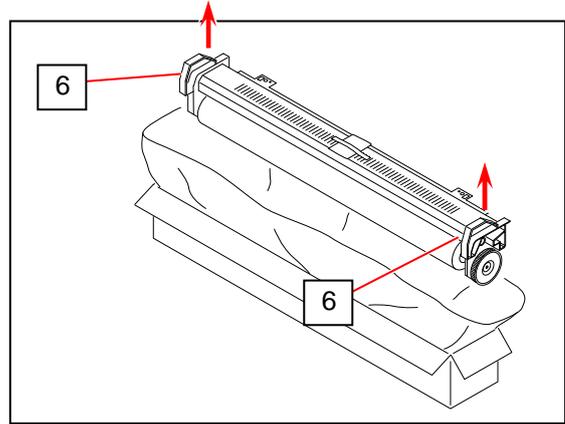
(1) Gently place the Process Unit (5) on a flat surface in the correct direction. Not doing so may damage the Photoconductive Drum (7) (shiny green cylinder).



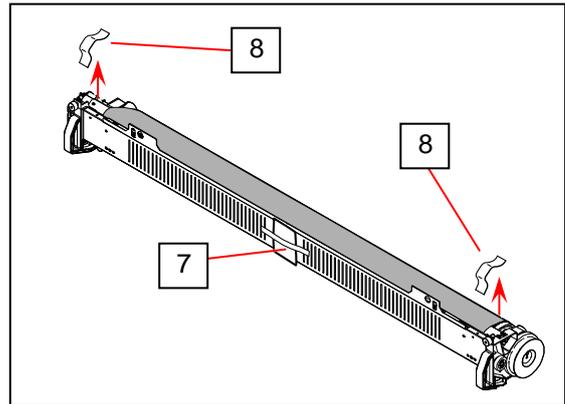
(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.

- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process Unit with a piece of plain bond roll paper.

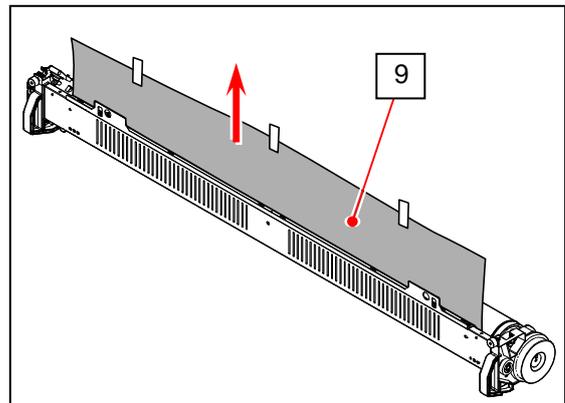
5. Hold the handgrip (6) on both sides to take out the new **Process Unit** from the container.



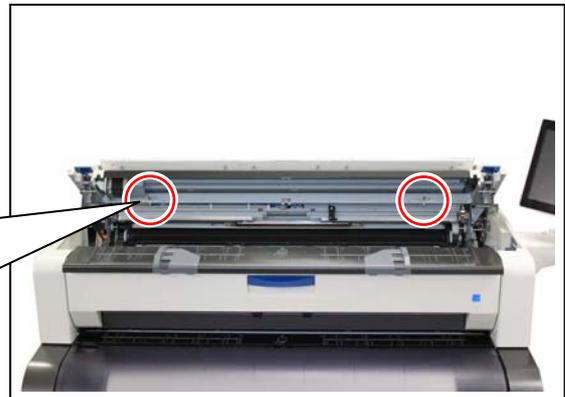
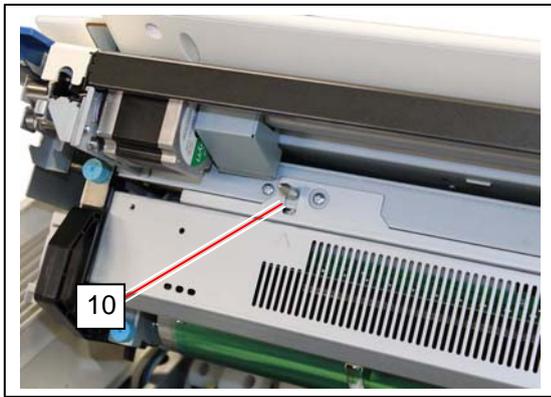
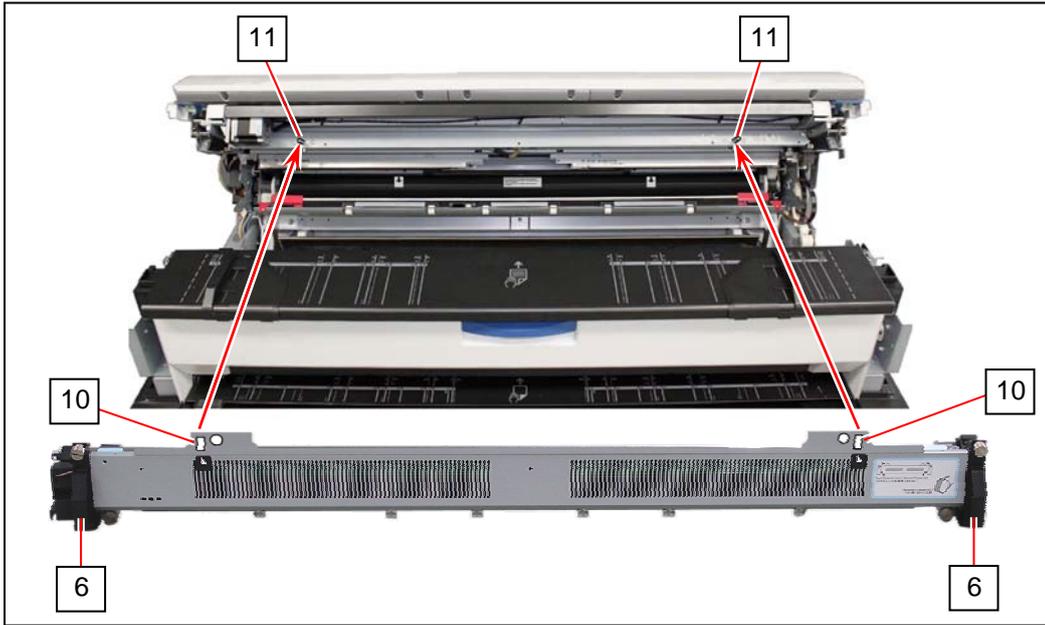
6. Put the Process Unit on a flat surface.
Remove the desiccant (7) and the tapes (8).



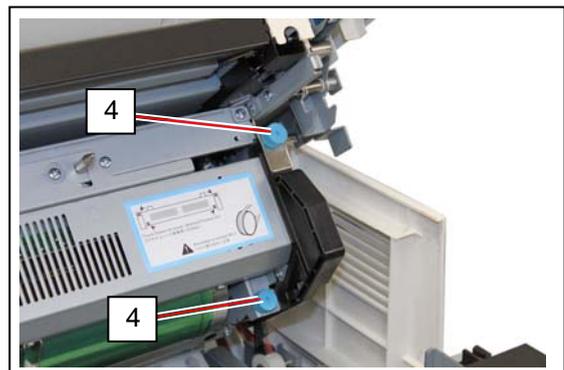
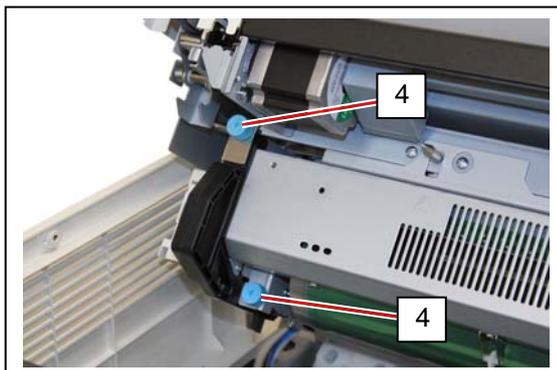
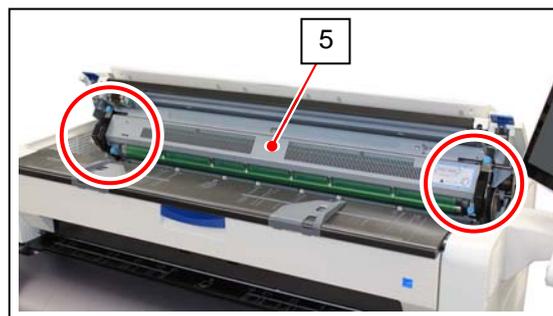
7. Remove the black shading paper (9).



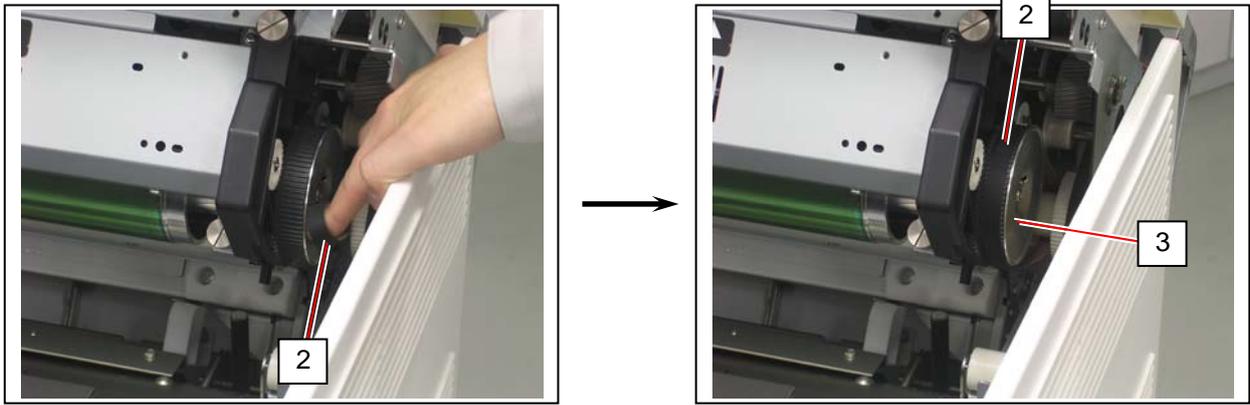
8. Hold the handgrip (6) on both sides. Slightly tilt the Process Unit downward. Put the square holes (10) onto the tapered edges of the positioning pins (11). Before inserting completely, pivot the unit upward to face each other. Finally push the unit into the machine



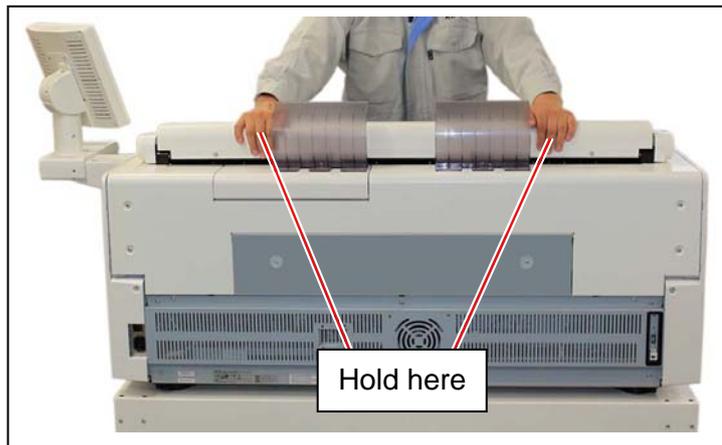
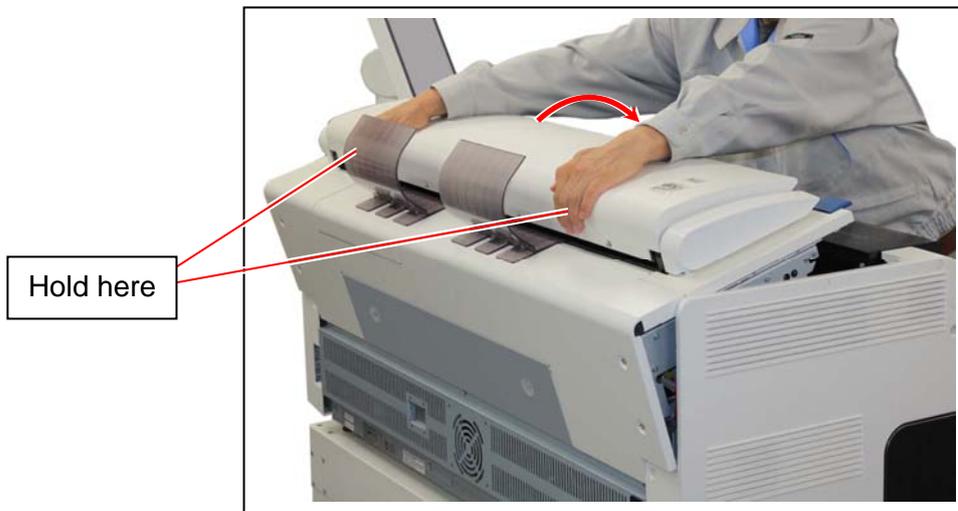
9. Completely push the Process Unit (5) in the machine to be reseted in position. Then secure the thumb screws (4) to fix the Process Unit to the machine.



10. Return the belt (2) to the pulley (3).



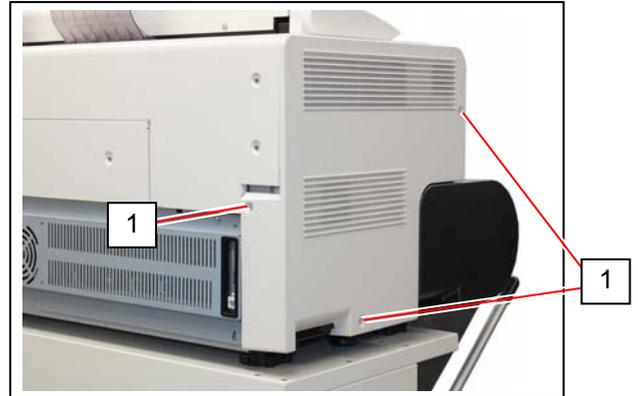
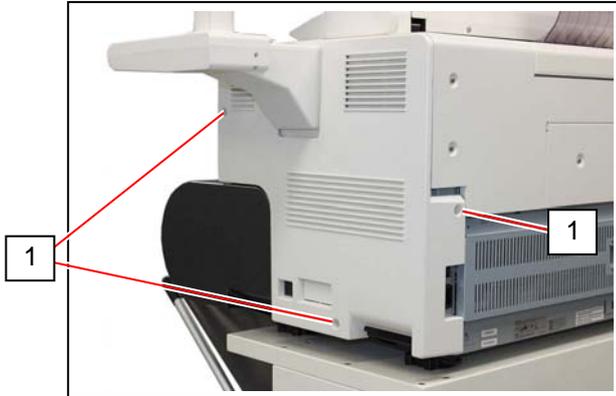
11. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit. Push the entire unit down to the arrow direction.



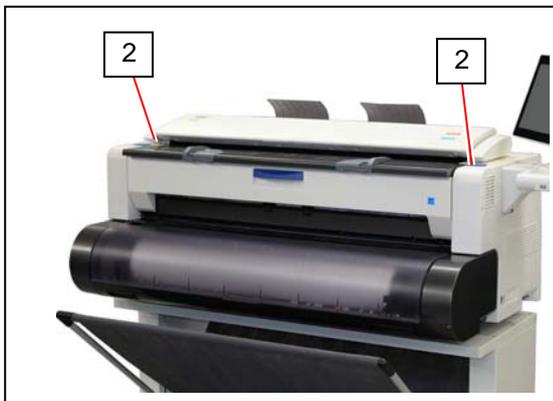
5. 2 Fuser Unit

5. 2. 1 Removing Fuser Unit

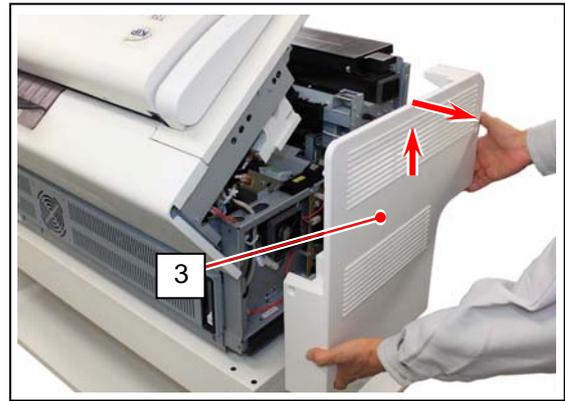
1. Remove 3 Bind Head Screws (M4x6) (1) on each side.



2. Press the blue lever (2) on both sides to open the Upper Unit.



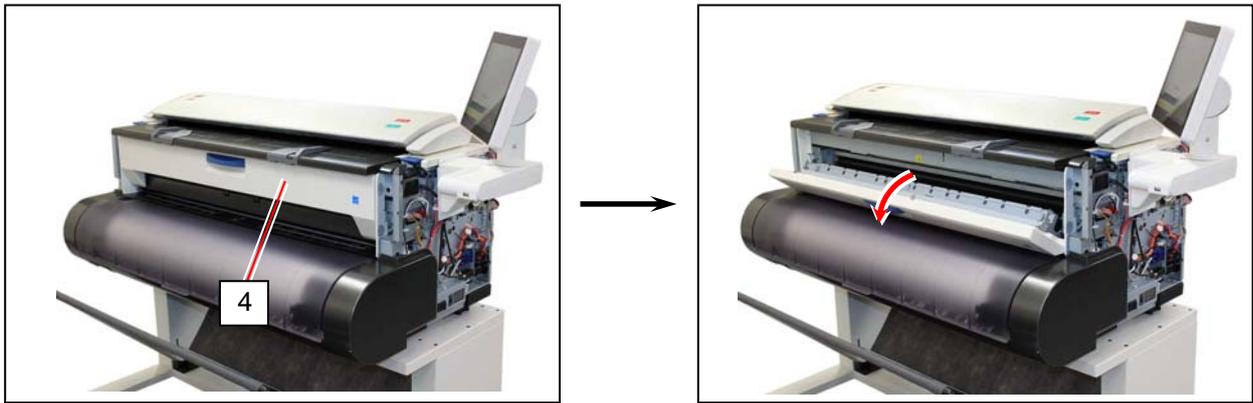
3. Slightly lift Side Cover R (3) / Side Cover L (4) up to the arrow direction to remove them from the machine.



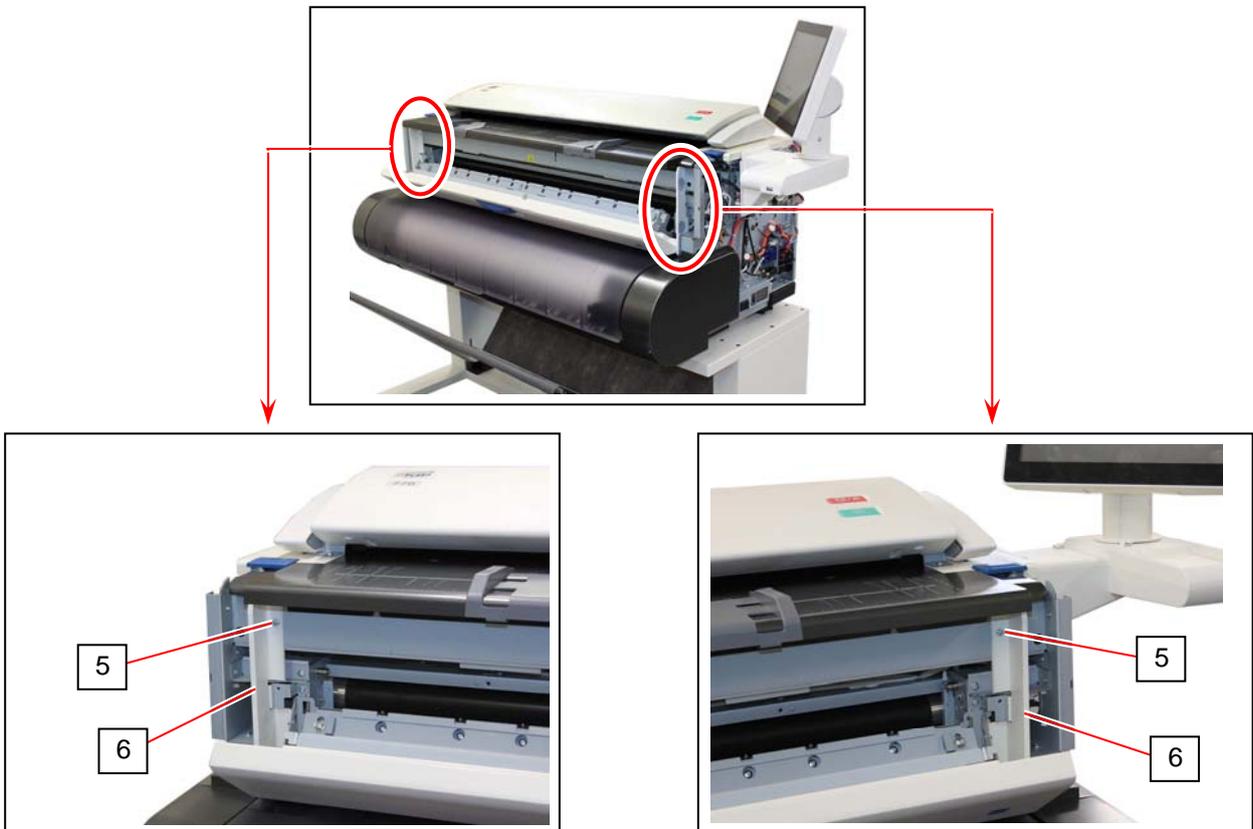
4. Close the Upper Unit.



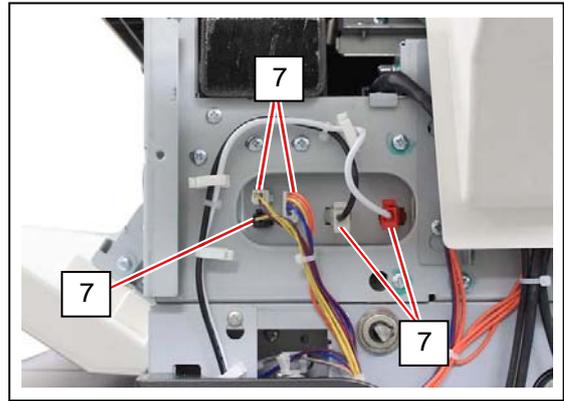
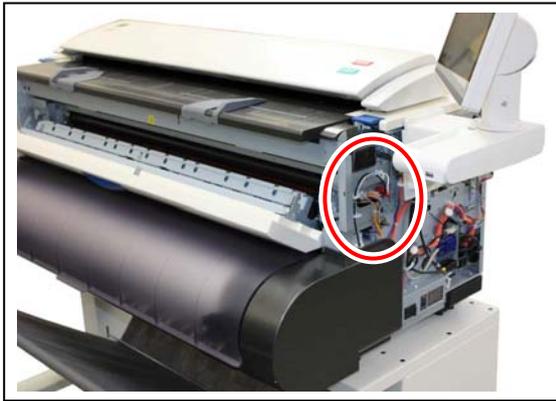
5. Open the Exit Cover (4).



6. Remove 2 screws (5) on each side to remove the face plate R / L (6).



7. Remove 5 connectors (7) on the right side.

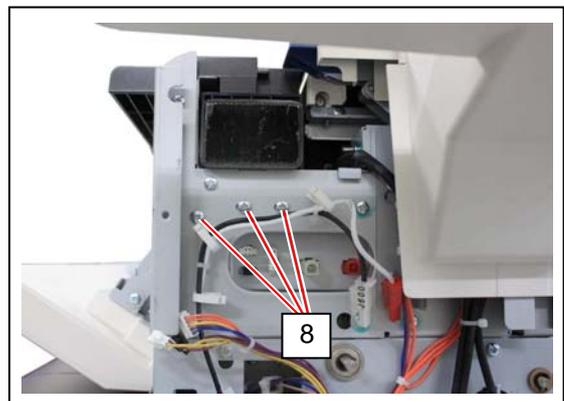
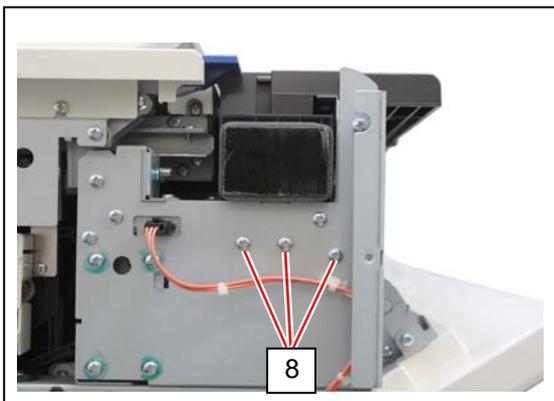
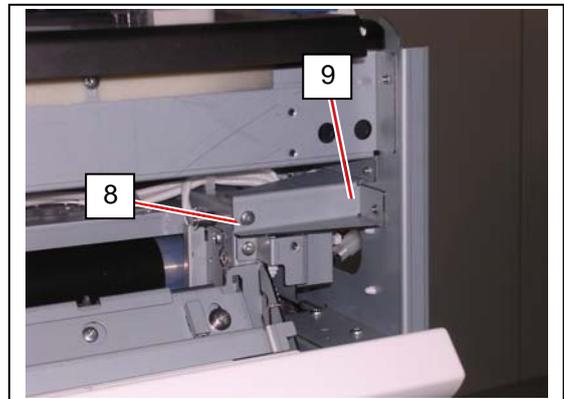
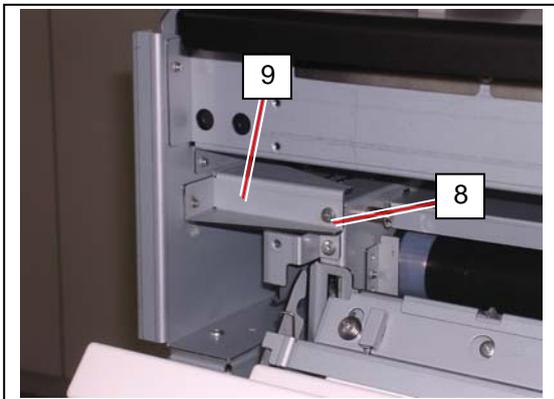


8. Remove 4 screws (8) on each side to remove the Fuser Bracket L / R (9).



Front Left

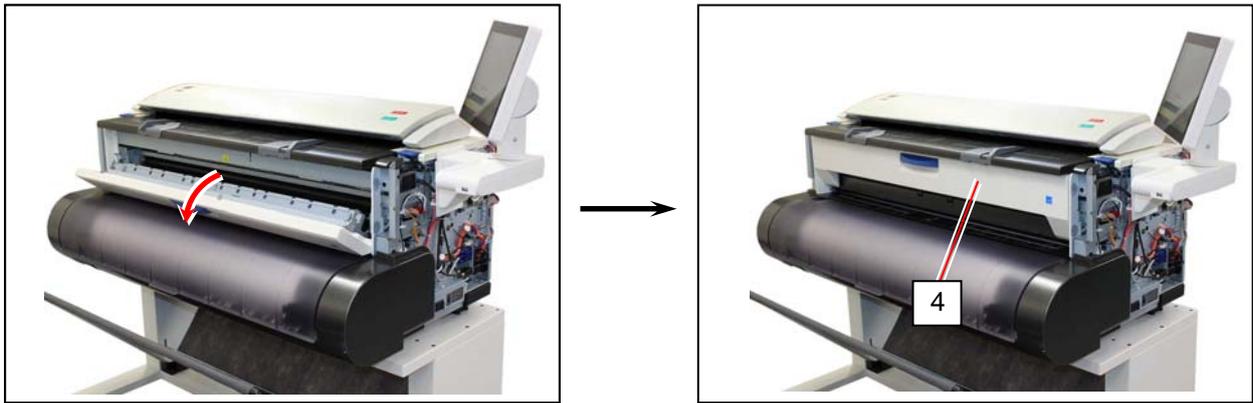
Front Right



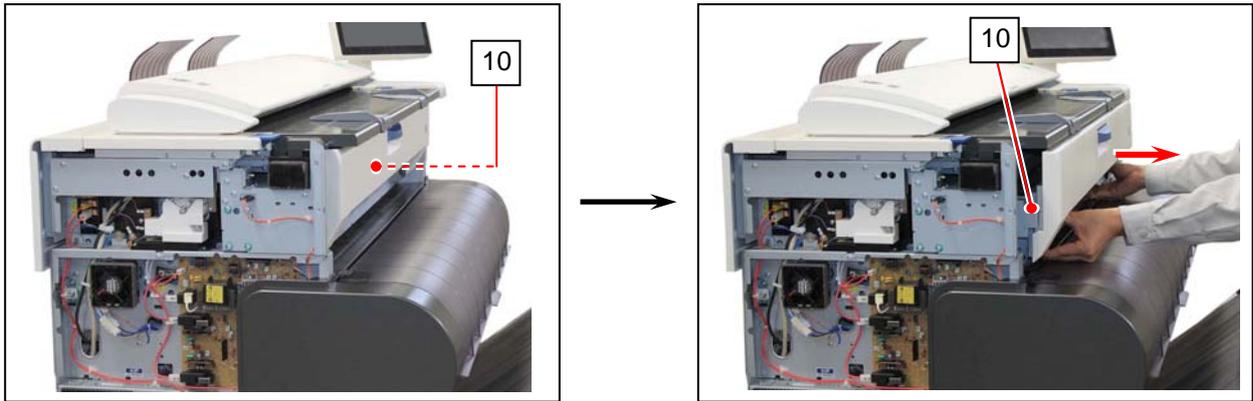
Left Side

Right Side

9. Close the Exit Cover (4).

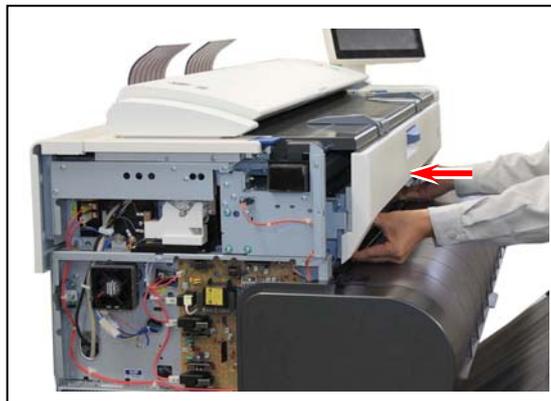


10. Put your hands under the bottom of the Fuser Unit.
Pull and remove the Fuser Unit (10) from the machine.

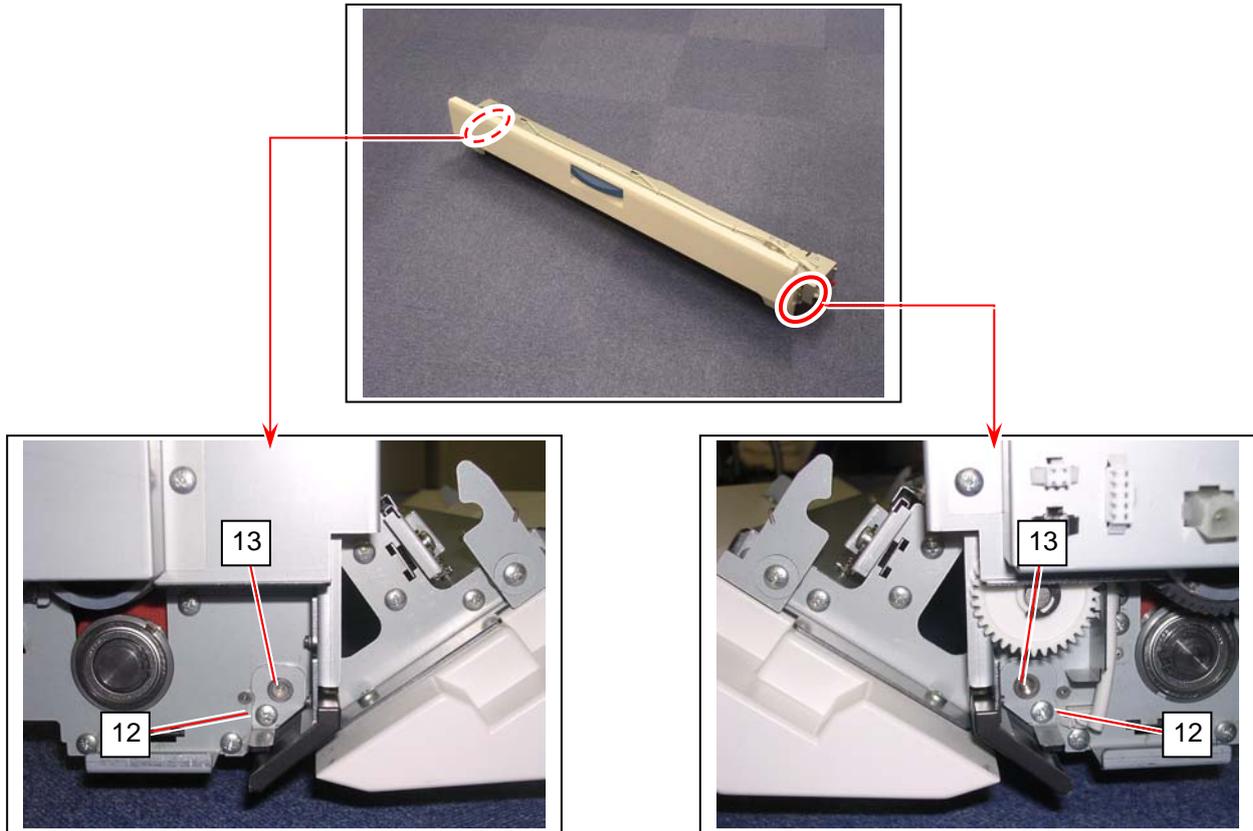


⚠ NOTE

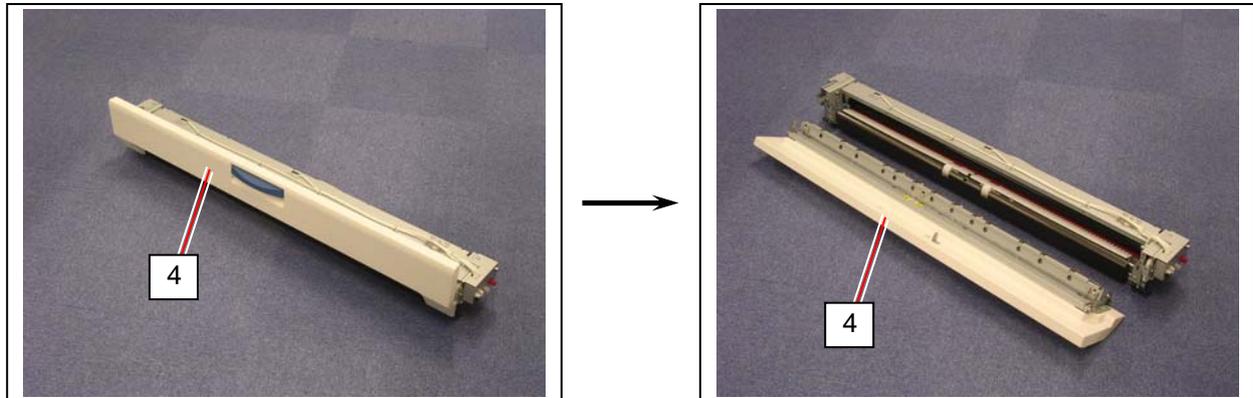
When you remount the Fuser Unit, fully push it in the machine.



11. Remove 1 screw (12) on each side to remove the hinge plate L / R (13).



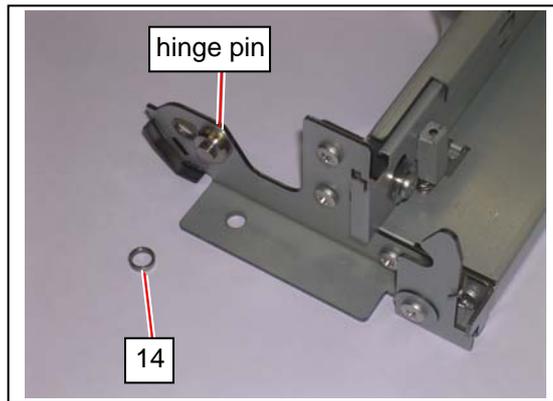
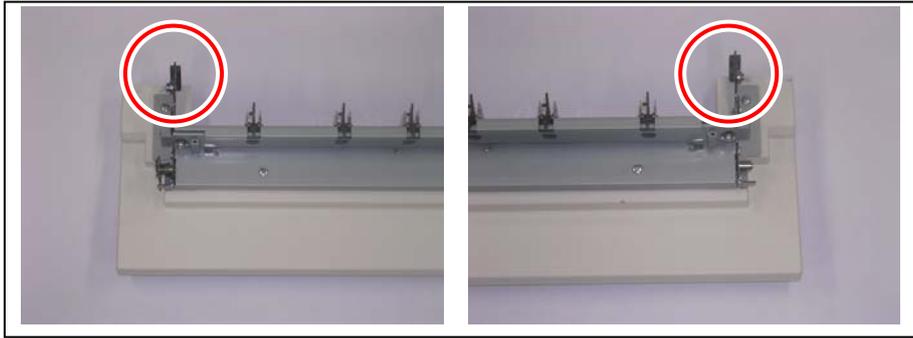
12. Remove the Exit Cover (4) from the Fuser Unit.



(Continued on the next page)

! NOTE

There is a metal collar (14) on each hinge pin of the Exit Cover. This works as a bearing.

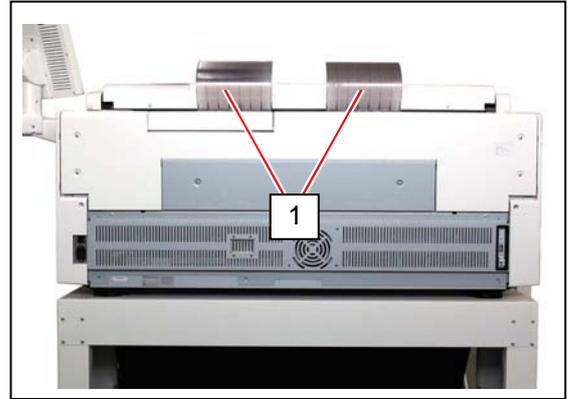


5.3 Scanner Unit

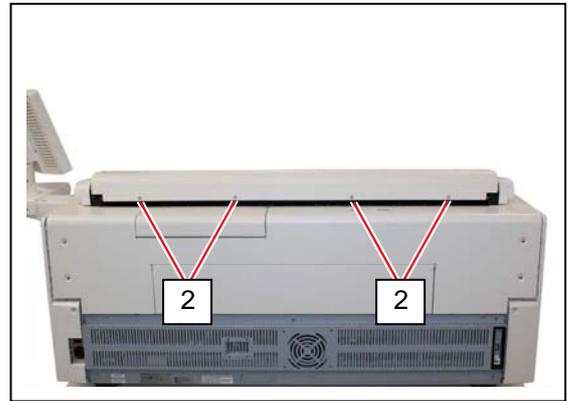
This section describes the procedure of replacing the individual components of the Scanner Unit.

5.3.1 Scan Glass Assy

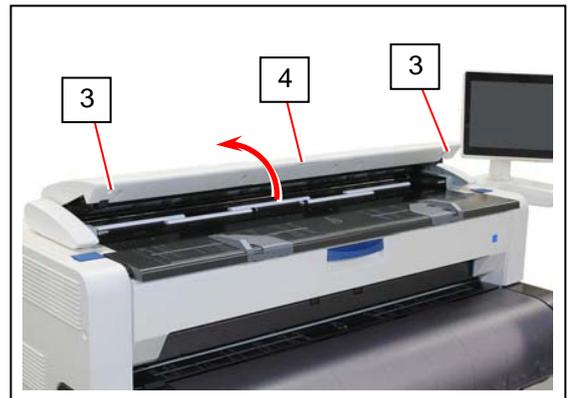
1. Remove 2 pieces of Exit Tray (1).



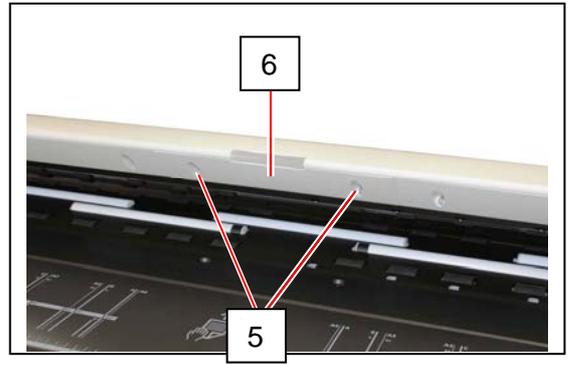
2. Remove 4 screws (2) on the back.



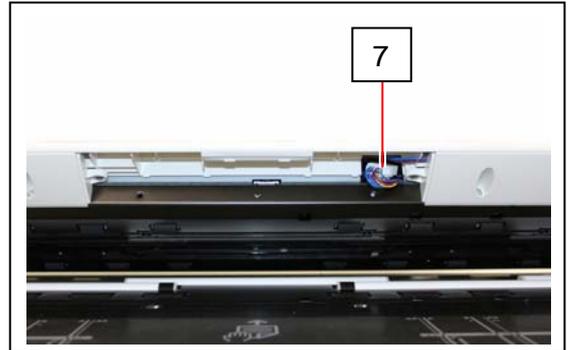
3. Lift up both sides (3) of the Scanner Unit (4).



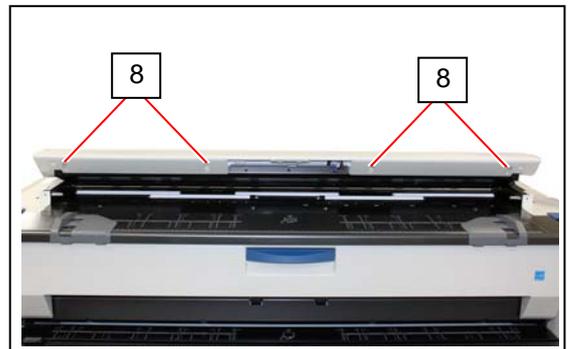
4. Remove 2 screws (5) to remove the Front Cover (6: middle).



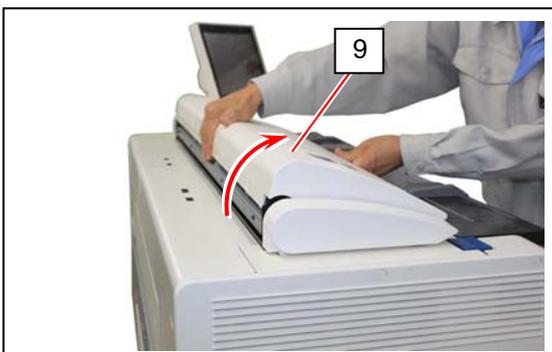
5. Disconnect 1 connector (7).



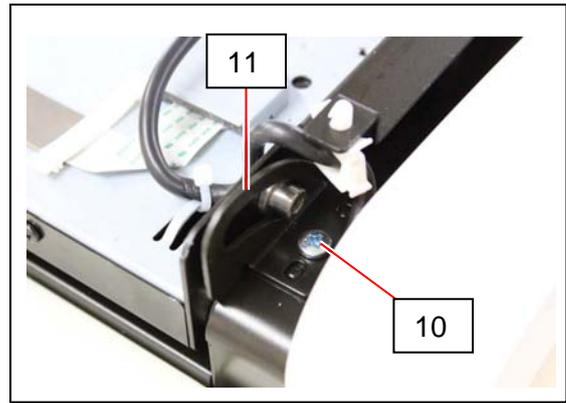
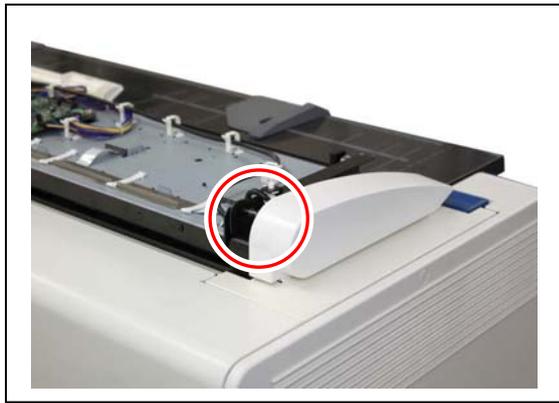
6. Remove 4 screws (8) on the front.



7. Remove the Top Cover (9).



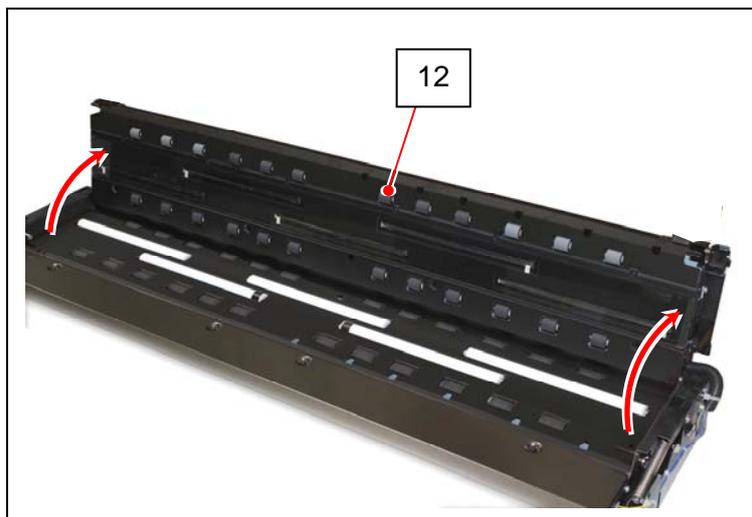
8. Remove 1 screw (10) to remove Stopper Plate (11).



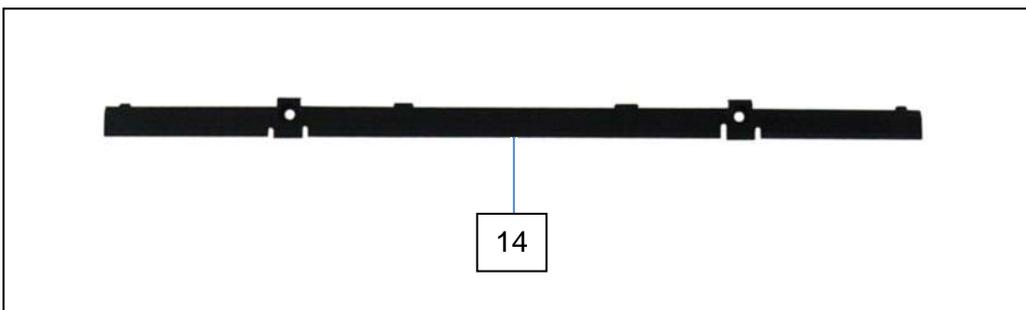
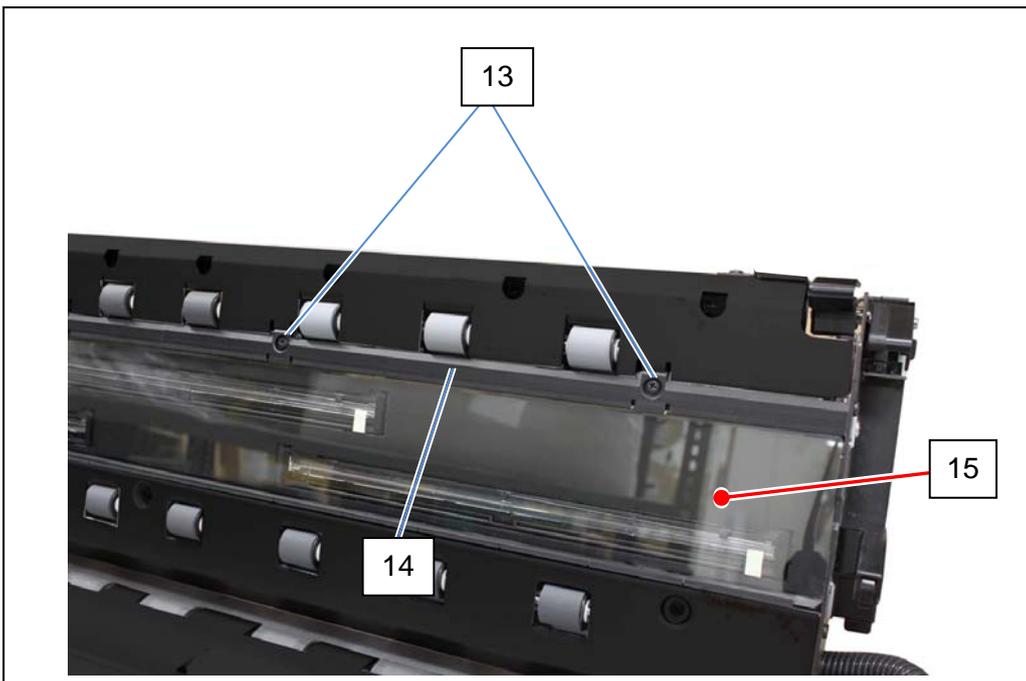
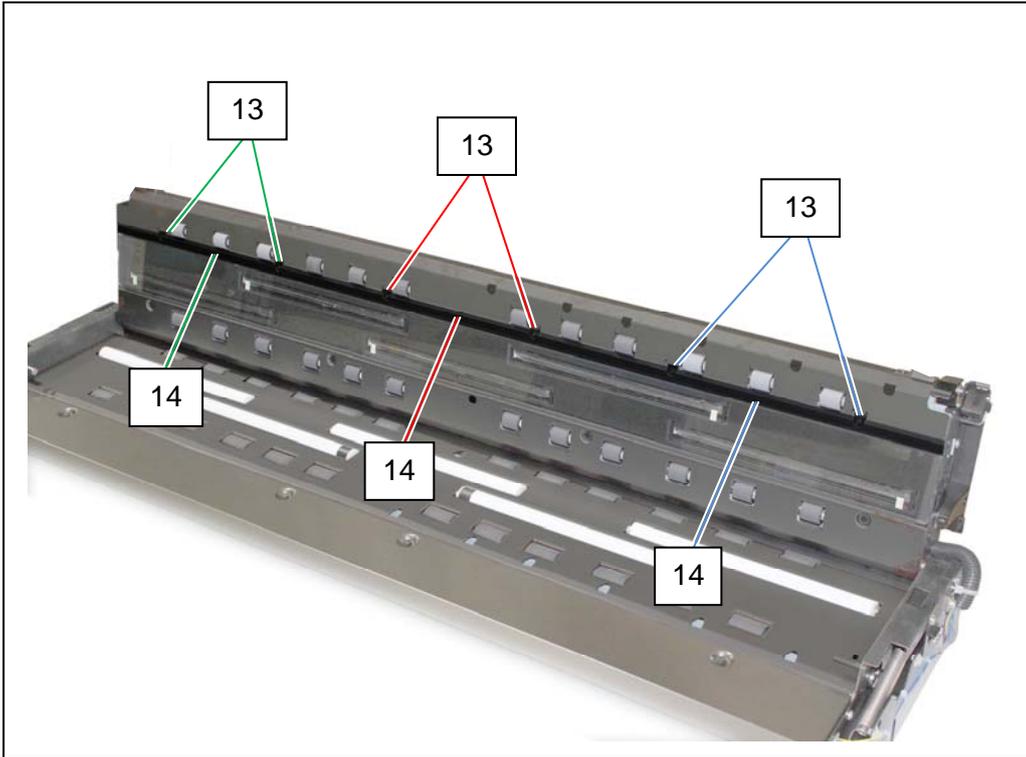
Reference

The Stopper Plate (11) is a safety to limit the motion range of the Upper Unit at “operation position 40 degrees”. In this section, another safety at “service position 100 degrees” works.

9. Fully open the Upper Unit (12).

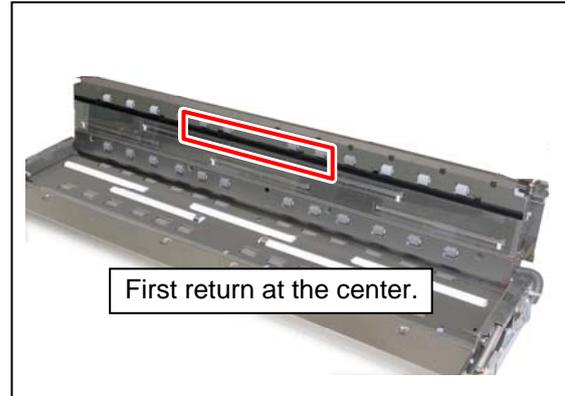


10. Remove 6 screws (13) to remove 3 Glass Holders (14).
As the Upper Unit is now open at 100 degrees, the Glass DCMNT (15) will stay without supporting.

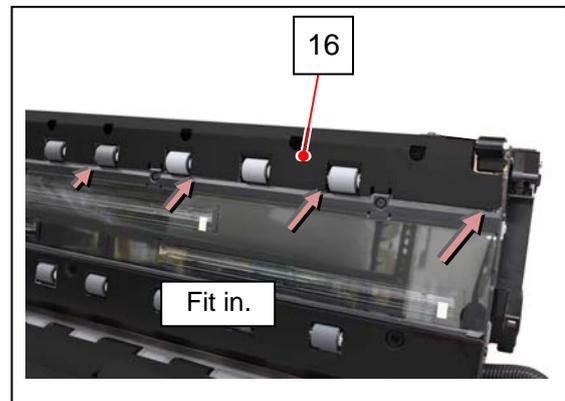
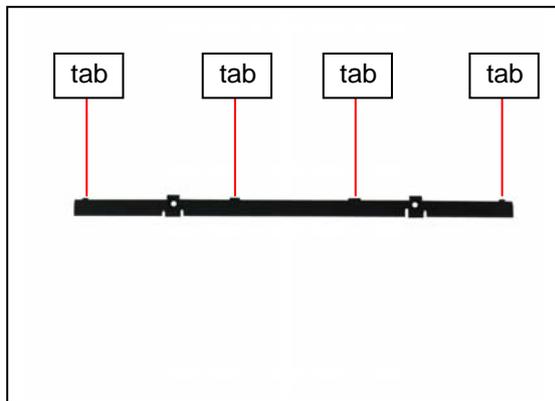


NOTE

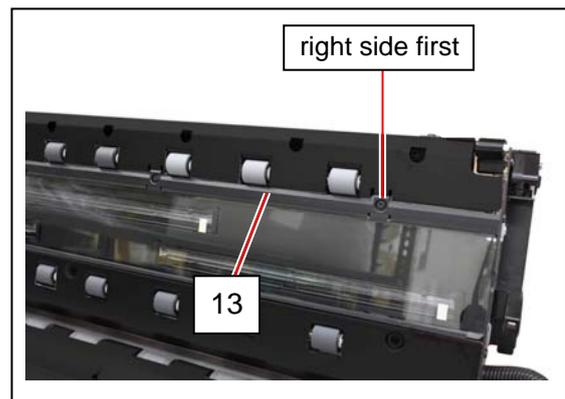
- (1) Keep in mind that there is no fixation on the Glass DCMNT at this point. It may fall if you close the Upper Unit.
- (2) For reassembling, first reinstall the Glass Holder at the center.



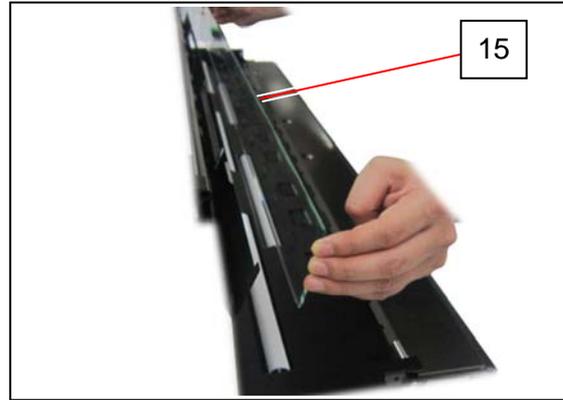
- (3) For reassembling, fit the 4 tab parts under the Upper Front Guide Plate (16).



- (4) For reassembling, first tighten the screw (13) on the right side.

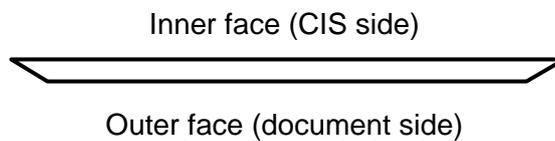


11. Remove the Glass DCMNT (15).

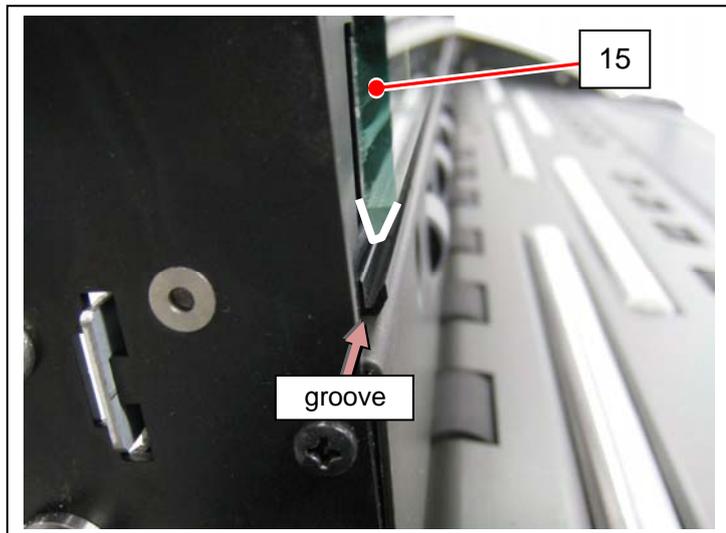


! NOTE

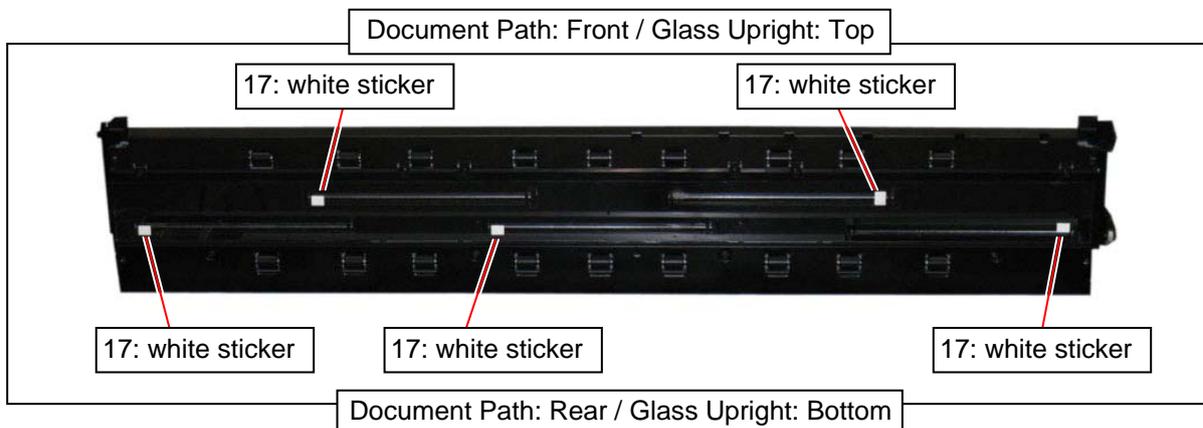
- (1) The wider face with 5 stickers should be the inner face. (CIS side)
The narrower face should be the outer face. (document side)



- (2) For reassembling, fit the glass's edge in the groove.



- (3) There are 5 portions of the white sticker (17) on the Glass DCMNT's inner face.
This is for self calibration (white level).
For reassembling, 2-sticker row should correspond to the front CIS row as follows.



- (4) For reassembling, press the Glass DCMNT against the left side.

5.3.2 CIS

⚠ NOTE

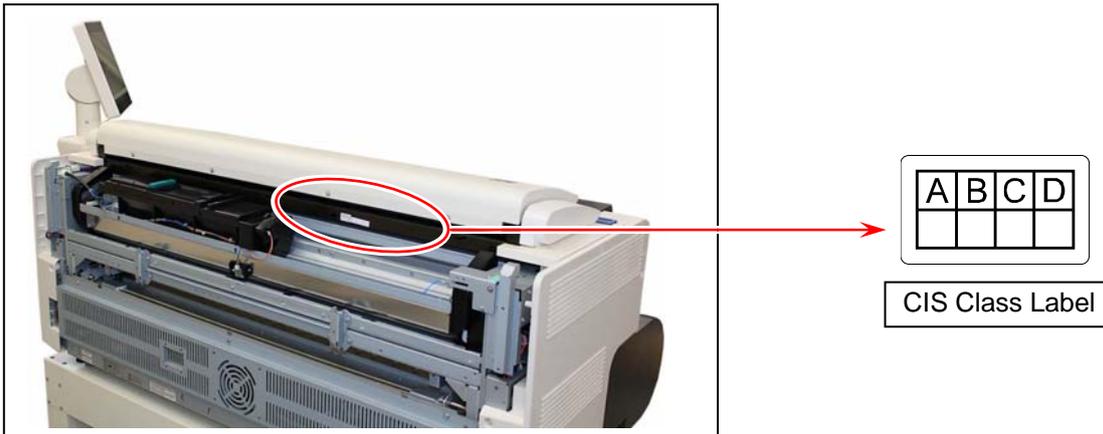
1. Please take re-calibration after the replacement of CIS by performing **Shading, Stitching and Black Brightness Correct.** (See [8.13. 6 Motion].)

2. CIS Sensor is classified into classes according to wavelength variations of their LED.

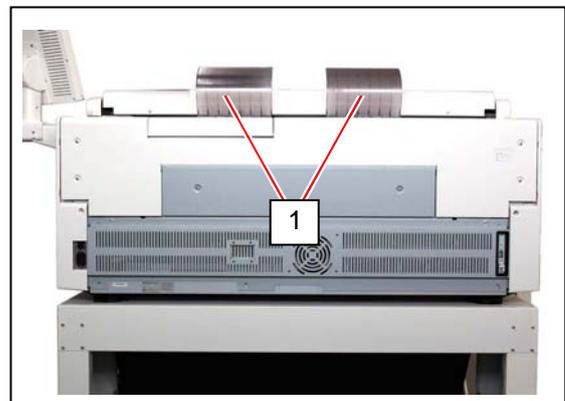
All 5 pieces of CIS on a certain scanner should belong in the identical class to assure even image quality (brightness, color quality and etc) among image blocks.

Be sure to check which CIS class is used to the scanner before replacing to avoid class mixing. Otherwise even image quality cannot be expected.

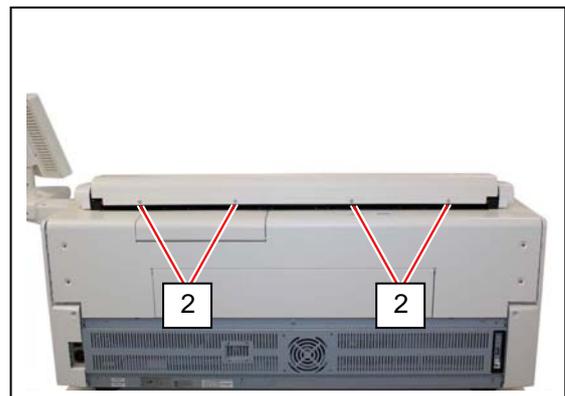
Equipped CIS class can be checked with the label on CIS itself or the label at the rear of the scanner.



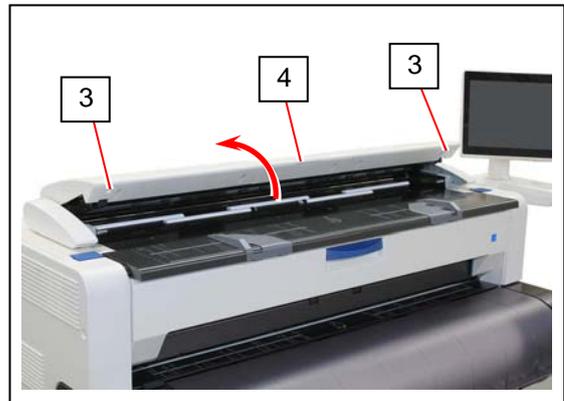
1. Remove 2 pieces of Exit Tray (1).



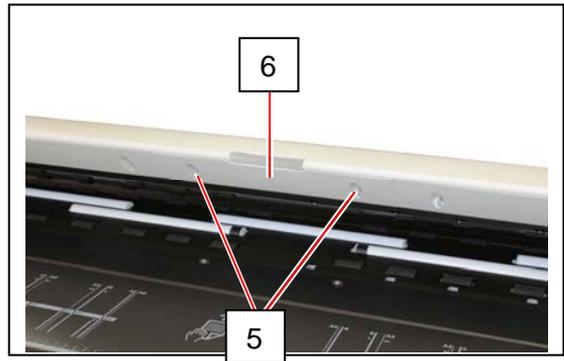
2. Remove 4 screws (3) on the back.



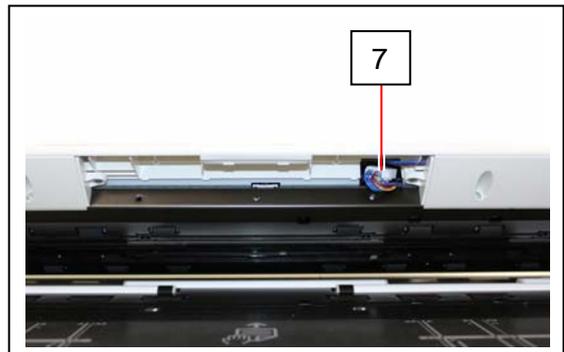
3. Lift up both sides (3) of the Scanner Unit (4).



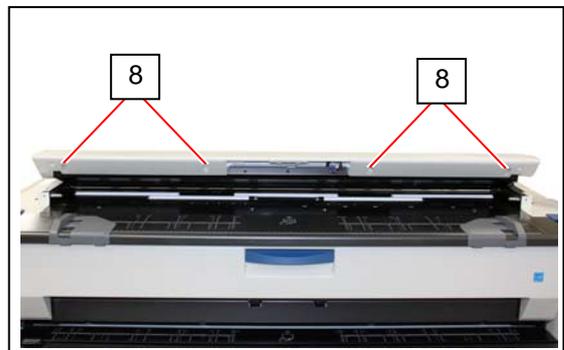
4. Remove 2 screws (5) to remove the Front Cover (6: middle).



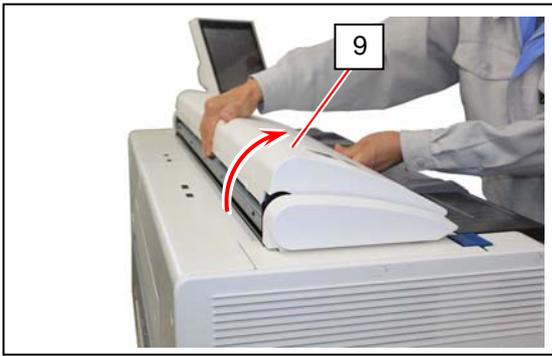
5. Disconnect 1 connector (7).



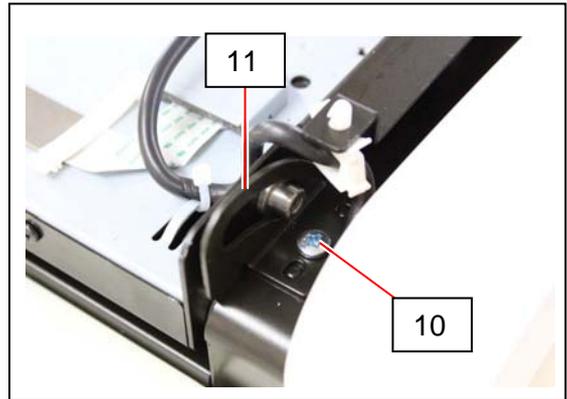
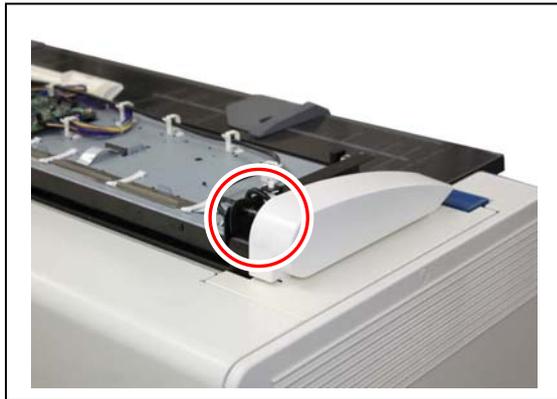
6. Remove 4 screws (8) on the front.



7. Remove the Top Cover (9).



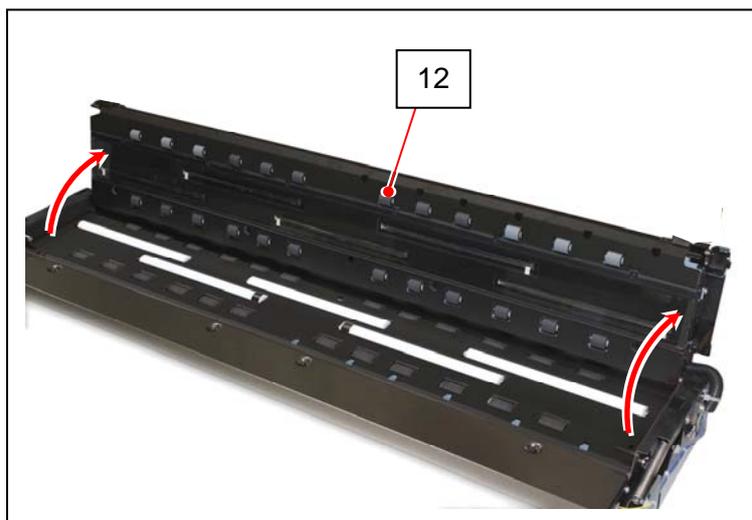
8. Remove 1 screw (10) to remove Stopper Plate (11).



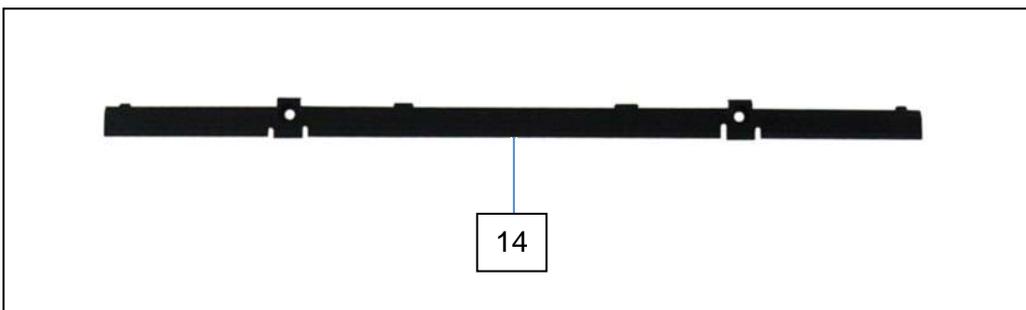
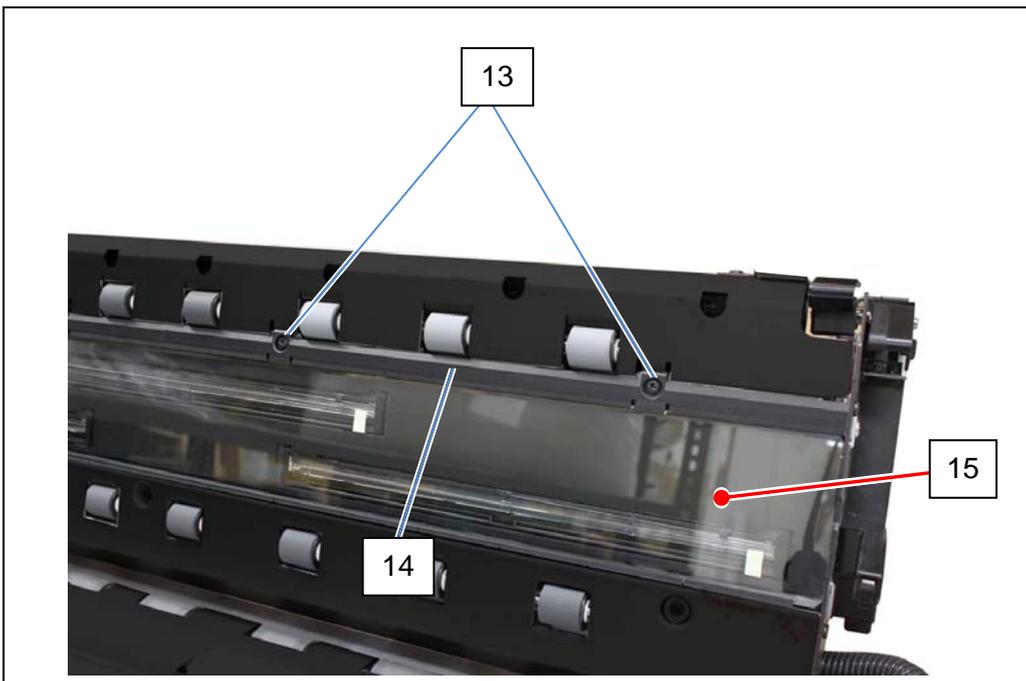
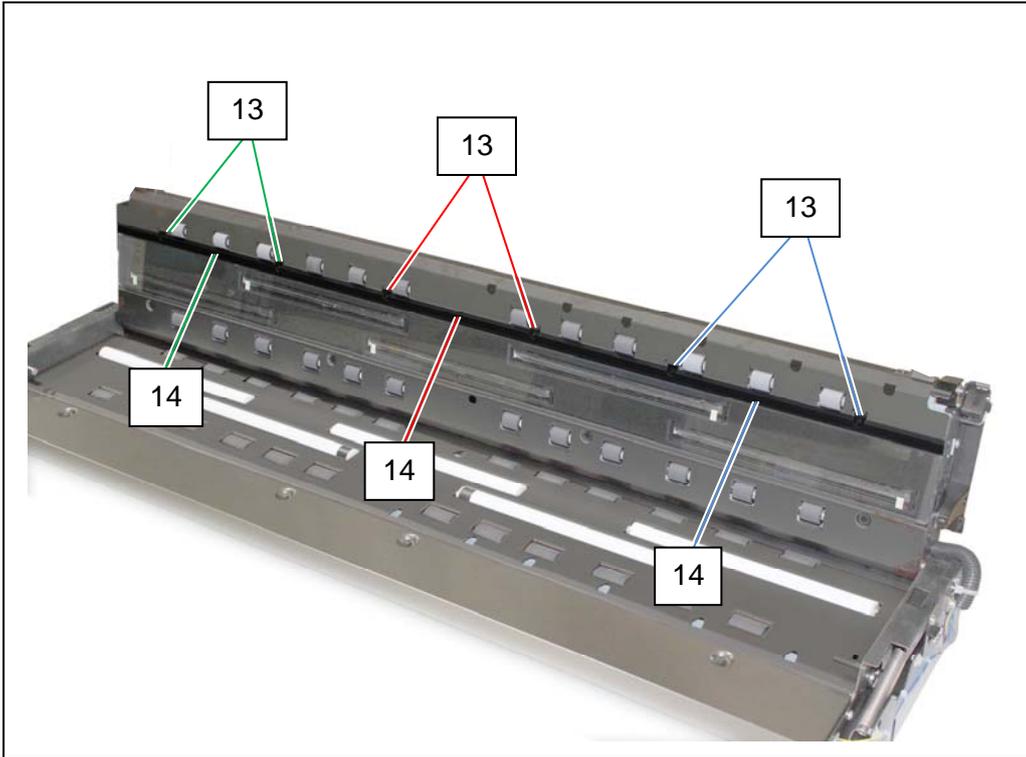
Reference

The Stopper Plate (11) is a safety to limit the motion range of the Upper Unit at “operation position 40 degrees”. In this section, another safety at “service position 100 degrees” works.

9. Fully open the Upper Unit (12).

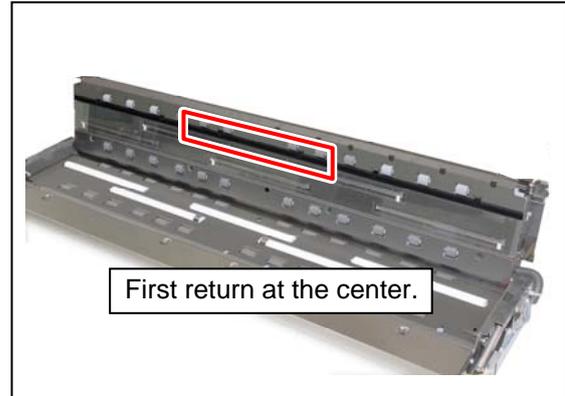


10. Remove 6 screws (13) to remove 3 Glass Holders (14).
As the Upper Unit is now open at 100 degrees, the Glass DCMNT (15) will stay without supporting.

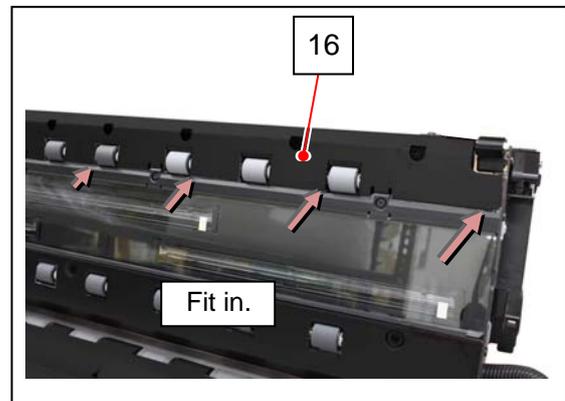
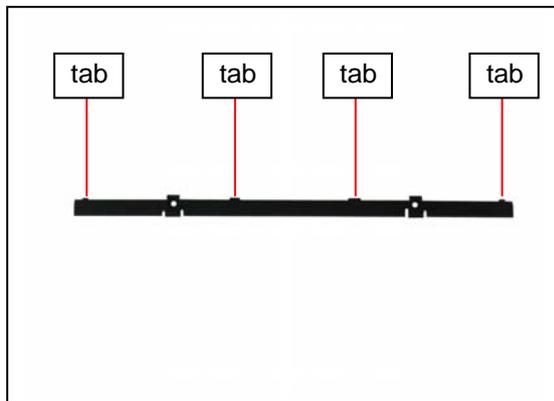


NOTE

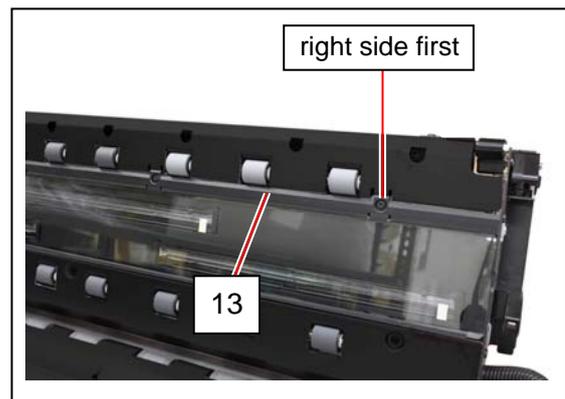
- (1) Keep in mind that there is no fixation on the Glass DCMNT at this point. It may fall if you close the Upper Unit.
- (2) For reassembling, first reinstall the Glass Holder at the center.



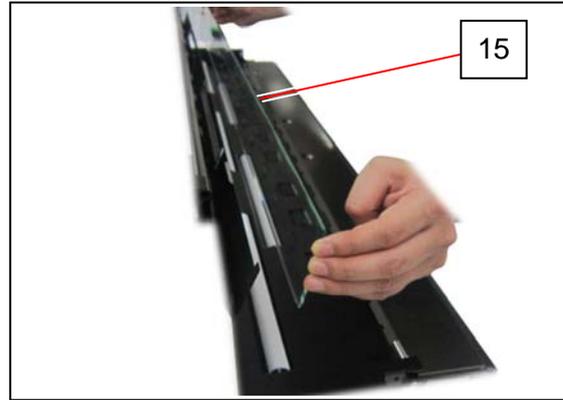
- (3) For reassembling, fit the 4 tab parts under the Upper Front Guide Plate (16).



- (4) For reassembling, first tighten the screw (13) on the right side.

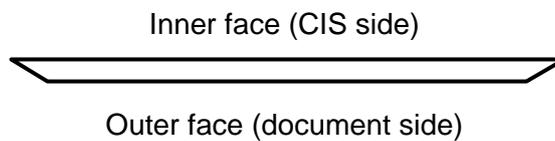


11. Remove the Glass DCMNT (15).

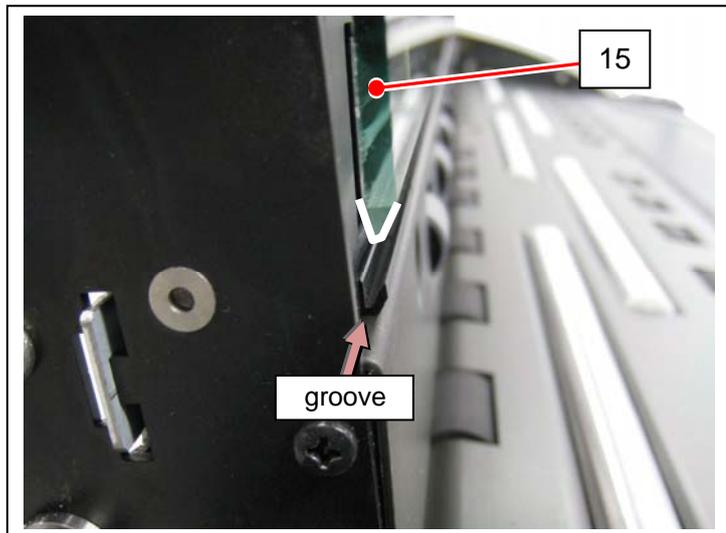


! NOTE

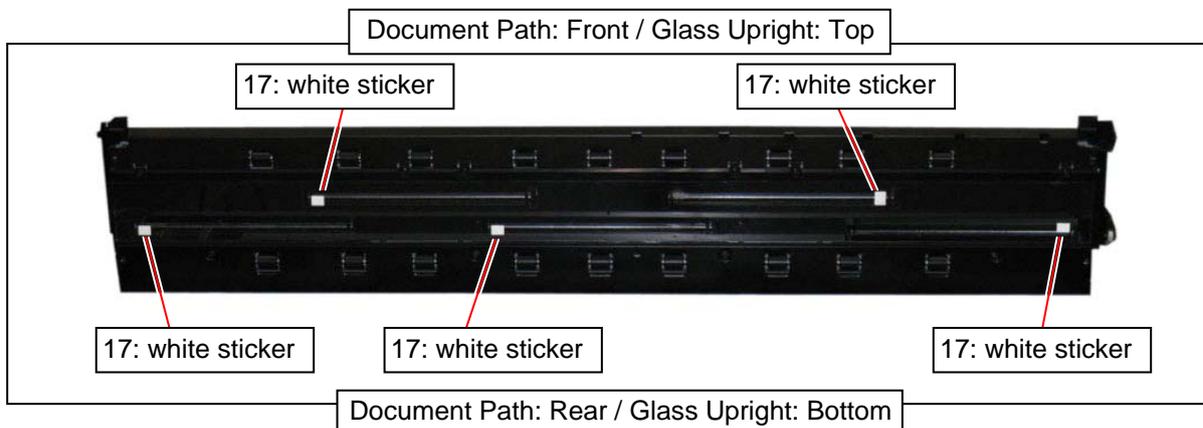
- (1) The wider face with 5 stickers should be the inner face. (CIS side)
The narrower face should be the outer face. (document side)



- (2) For reassembling, fit the glass's edge in the groove.

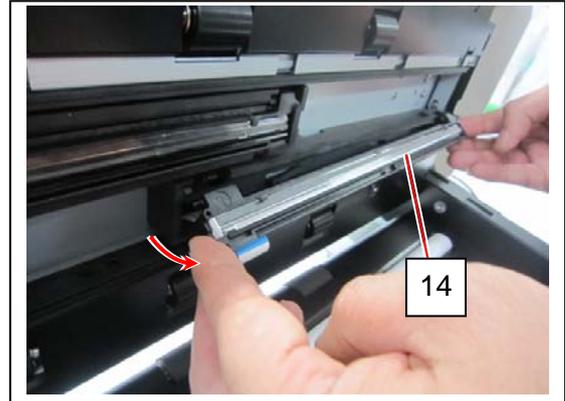
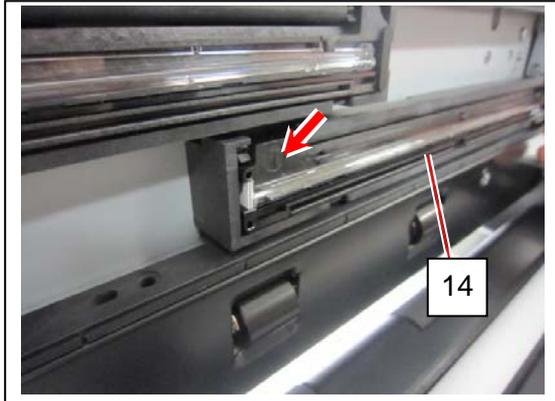
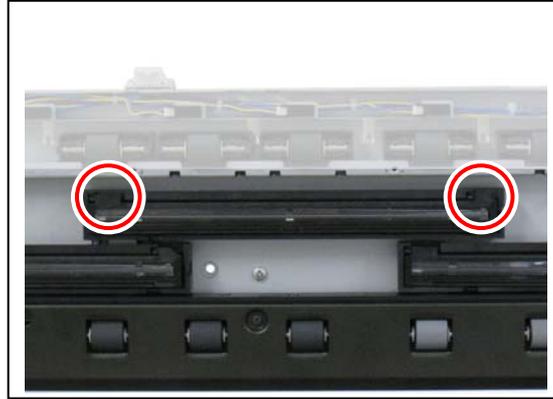


- (3) There are 5 portions of the white sticker (17) on the Glass DCMNT's inner face.
This is for self calibration (white level).
For reassembling, 2-sticker row should correspond to the front CIS row as follows.



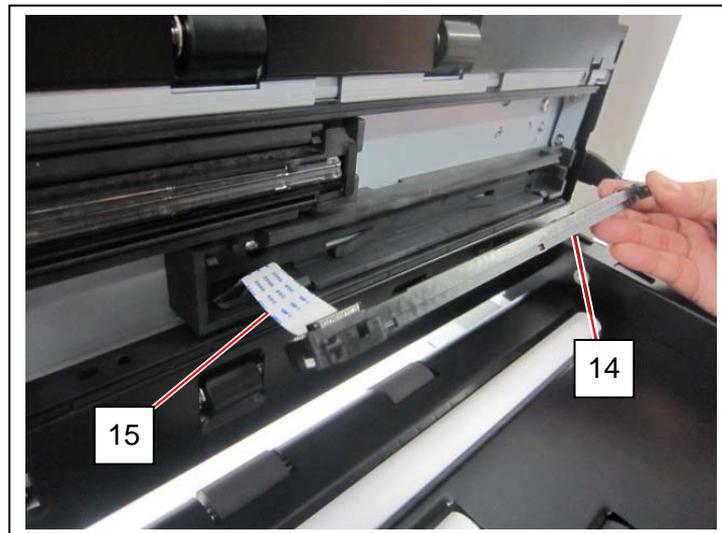
- (4) For reassembling, press the Glass DCMNT against the left side.

12. Press the flat areas on both sides to pivot the CIS (14).



! NOTE

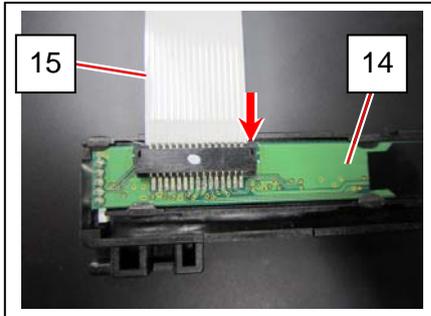
(1) At this point, just release the CIS (14) from the CIS Holder. The CIS is still connected with the flat cable (15). Never pull the CIS by force.



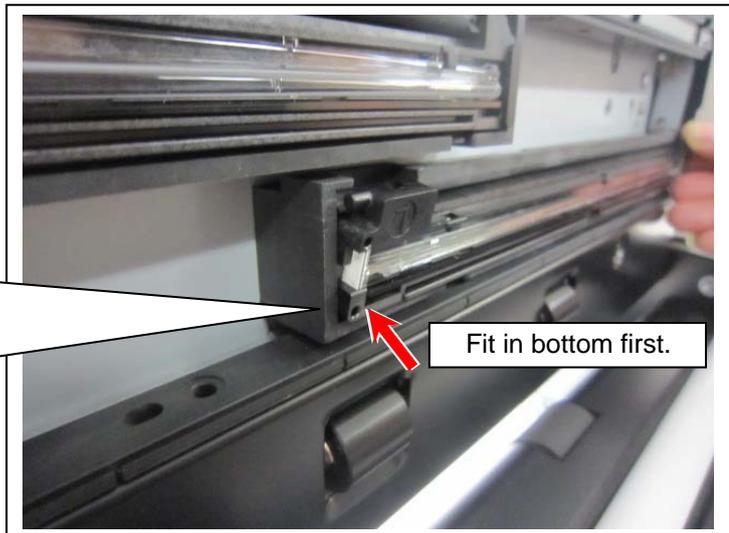
NOTE

(2) For reassembling, follow the instruction below.

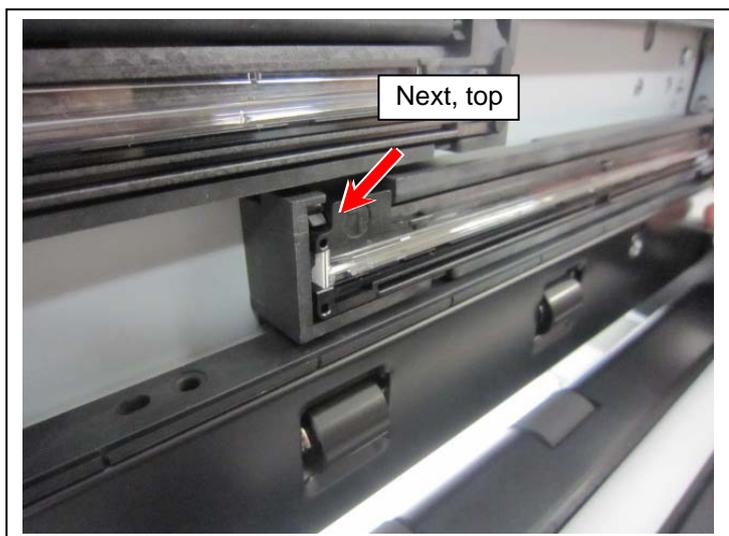
1. Insert the flat cable (15) to the CIS (14).



2. Return the CIS's bottom to the CIS Holder first.

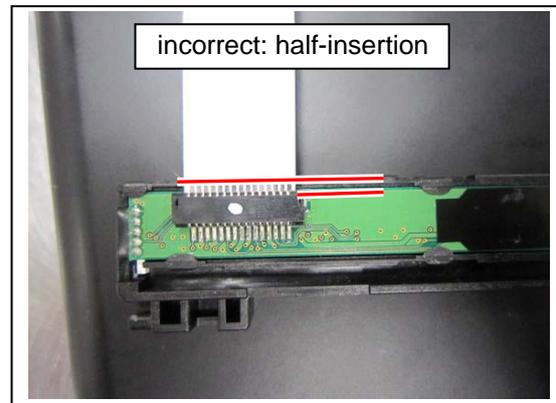
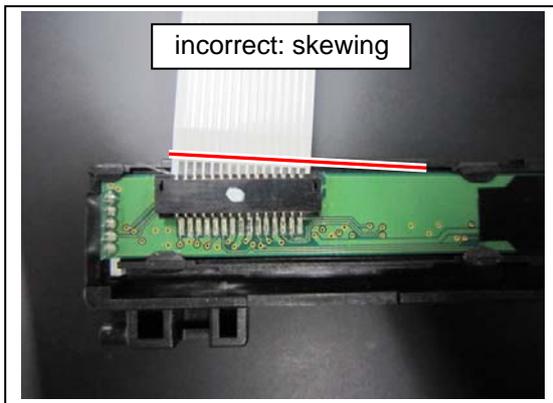
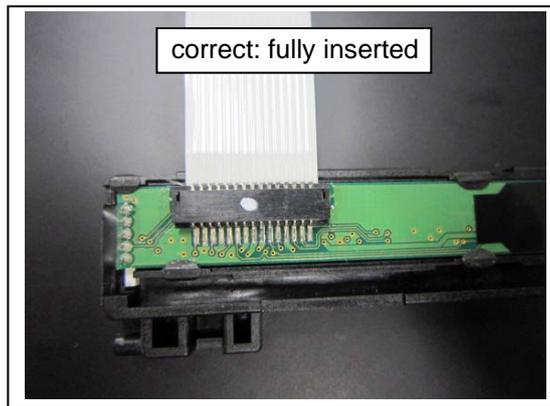


3. Return the CIS's top to the CIS Holder until the Holder's latch surely catches the CIS.

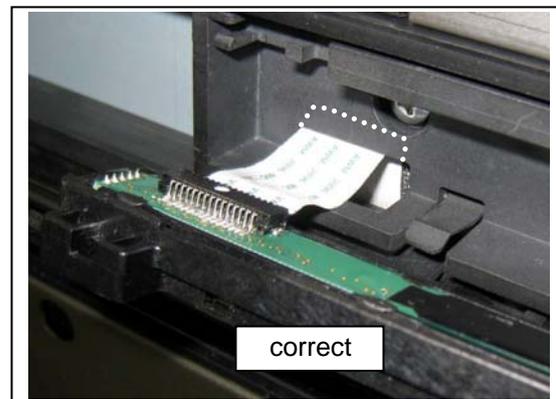
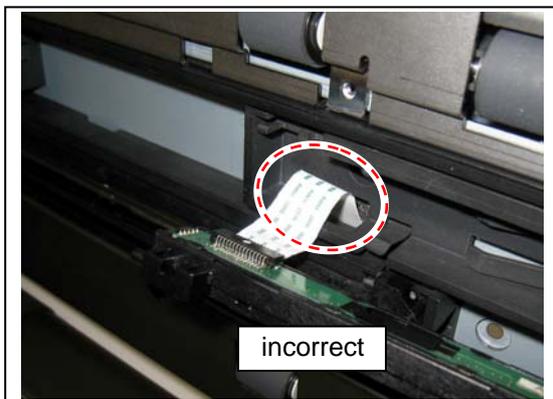


! NOTE

(3) For the flat cables, avoid skewing or half-insertion.



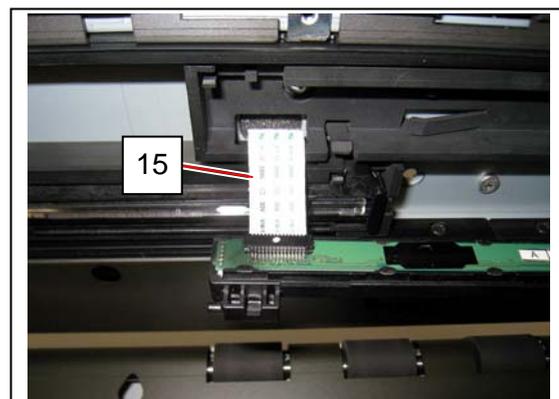
(4) For the flat cables, tuck the excess stretch under the CIS Holder.



13. Carefully disconnect the flat cable (15).

! NOTE

After replacement, the CIS requires Shading / Stitch Adjustments / Black Brightness Correct.

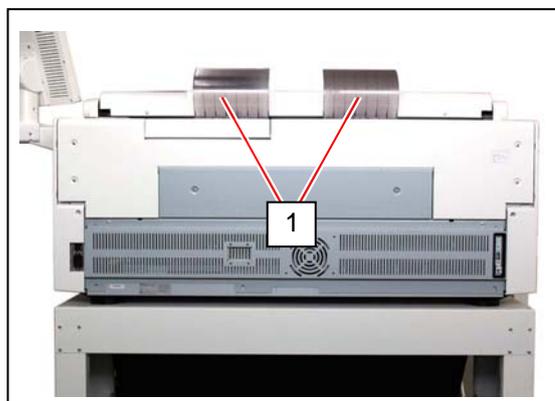


5. 3. 3 Main Board (PW12920)

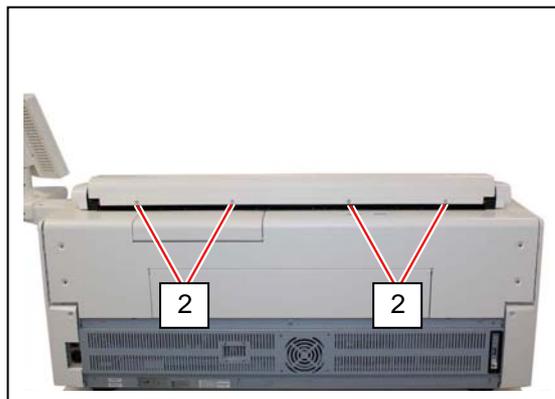
⚠ NOTE

- (1) After replacement, the Main Board requires importing a backup data.
You have to **save the current backup data and shading data** to utilize the spare Main Board without any fail. Otherwise you will be requested to get the factory backup from the manufacturer.
- (2) The scanner's Main Board stores its serial number (same with the machine S/N). As a service part Main Board has no S/N information on it, you will have to write the serial number (with 8 digits) to the scanner's Main Board.
(See [8.13. 11 Serial Manager])

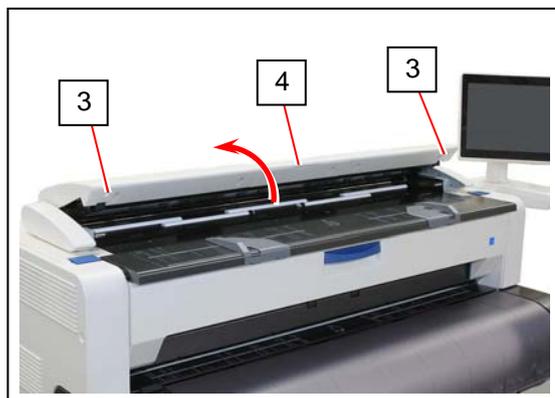
1. Remove 2 pieces of Exit Tray (1).



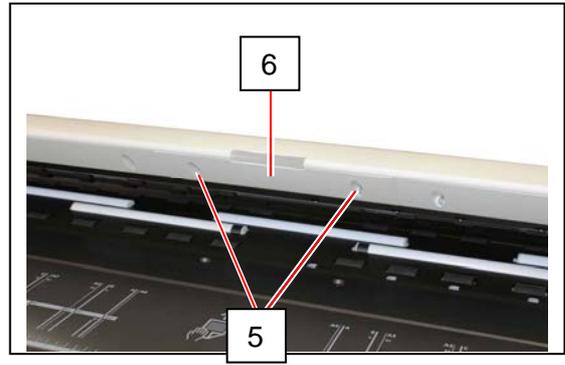
2. Remove 4 screws (3) on the back.



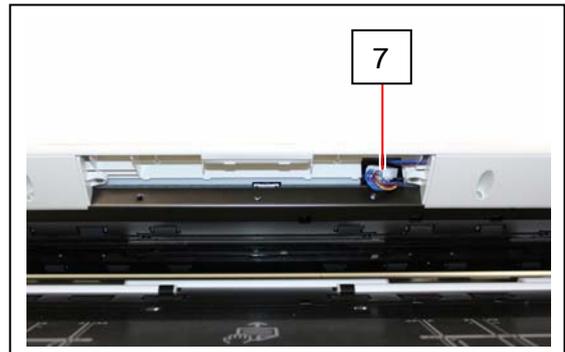
3. Lift up both sides (3) of the Scanner Unit (4).



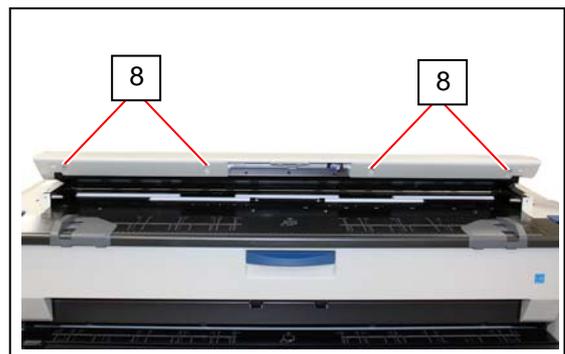
4. Remove 2 screws (5) to remove the Front Cover (6: middle).



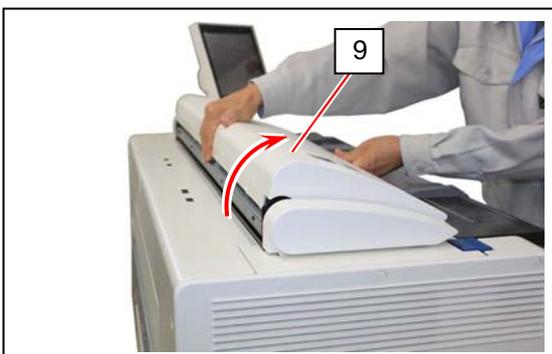
5. Disconnect 1 connector (7).



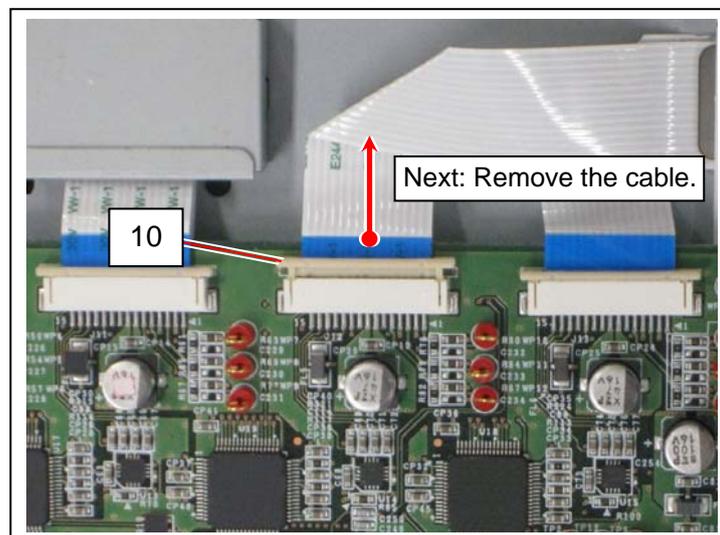
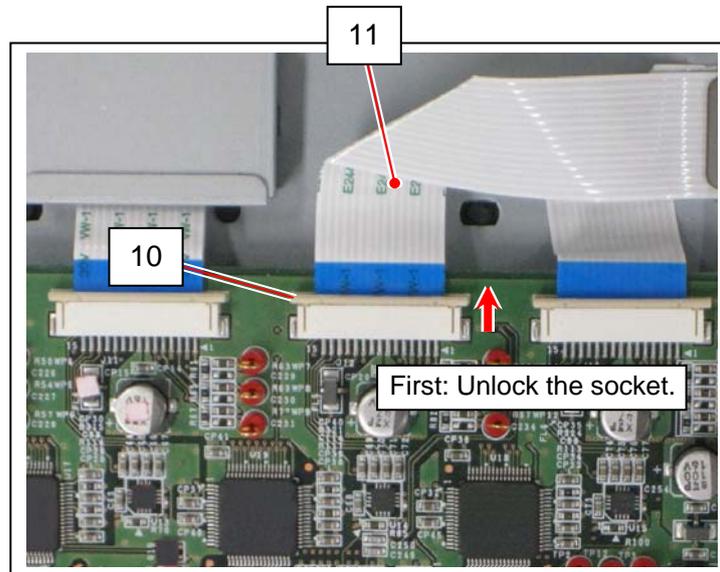
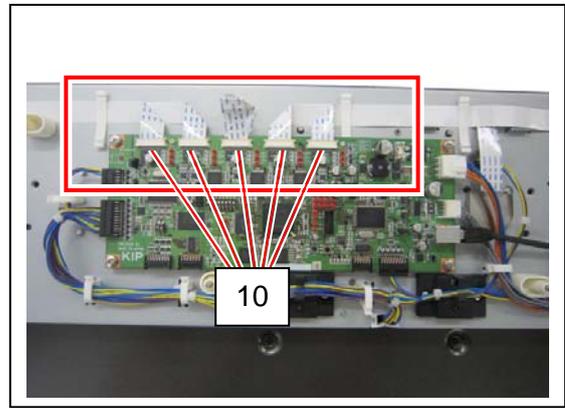
6. Remove 4 screws (8) on the front.



7. Remove the Top Cover (9).



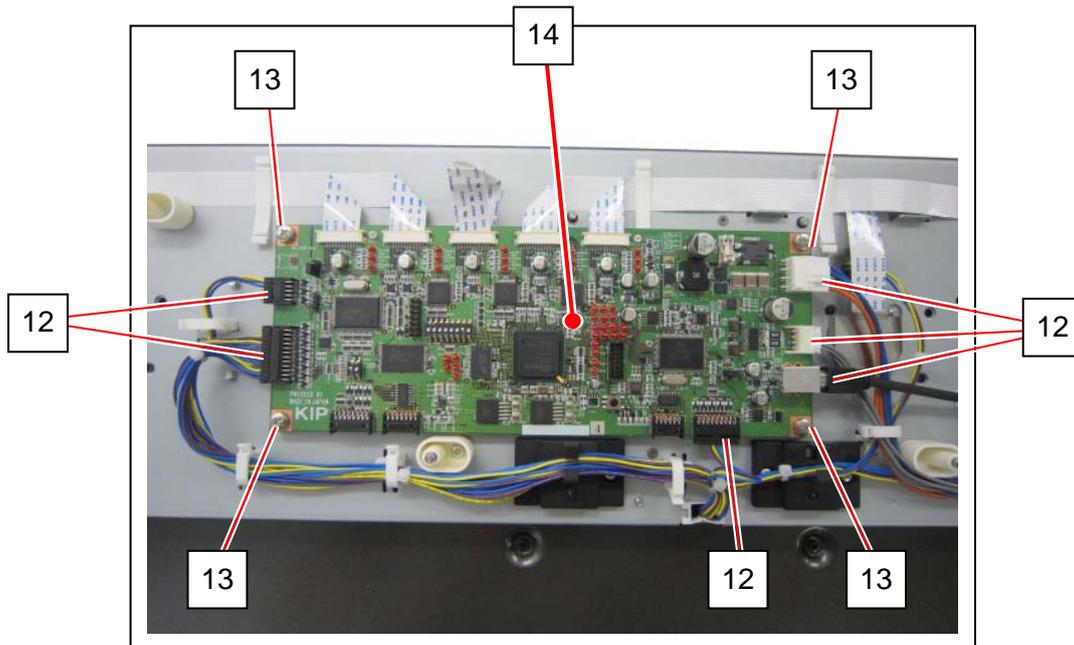
8. Unlock all the 5 flat cable's terminal socket (10), and then gently remove 5 flat cables (11).



NOTE

- (1) **FRAGILE.** Handle the flat cables with great care.
- (2) For reassembling, first confirm that the terminal socket has been released. Next gently insert the flat cable's end to the terminal correctly. Reassembling incorrectly would lead abnormal scan image, for example the concerning area of the scanned image turns solid black.

9. Disconnect all the other cables (12), remove 4 screws (13) on every corner, and then replace the Main Board (14) with a new one.



! NOTE

- (1) The scanner's Main Board stores its serial number (same with the machine S/N). As a service part Main Board has no S/N information on it, you will have to write the serial number (with 8 digits) to the scanner's Main Board. (See [8.13. 11 Serial Manager])
- (2) After replacement, the Main Board requires importing backup data and Shading Adjustments.

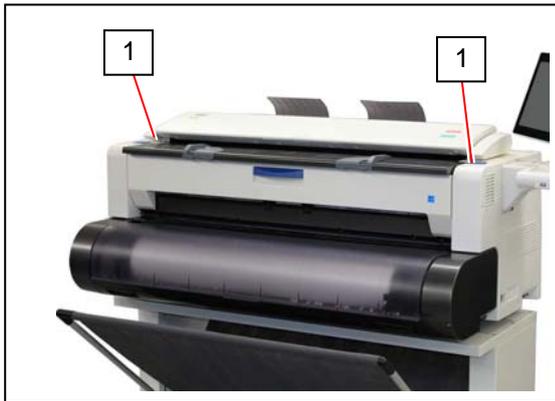
5.4 LED Head Unit

5.4.1 Replacing LED Head Unit

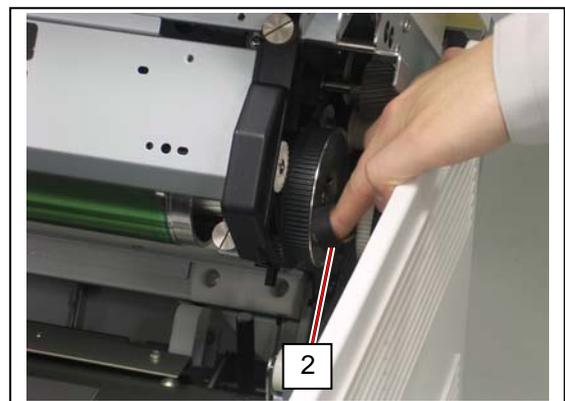
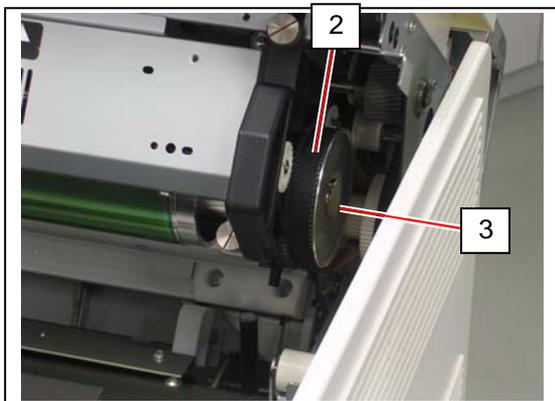
Reference

To obtain enough clearance to remove / install the LED Head Unit, it is recommended to remove the Developer Unit.

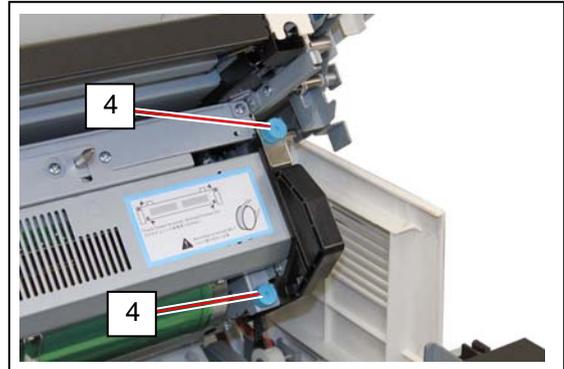
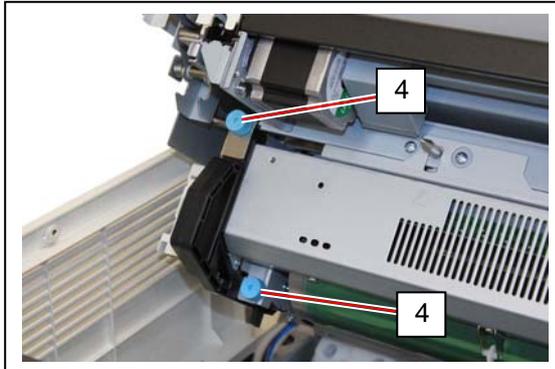
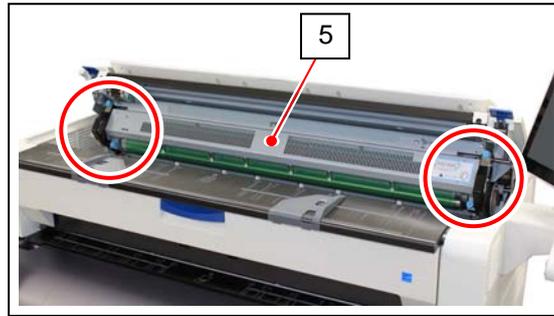
1. Press the blue lever (1) on both sides to open the Upper Unit.



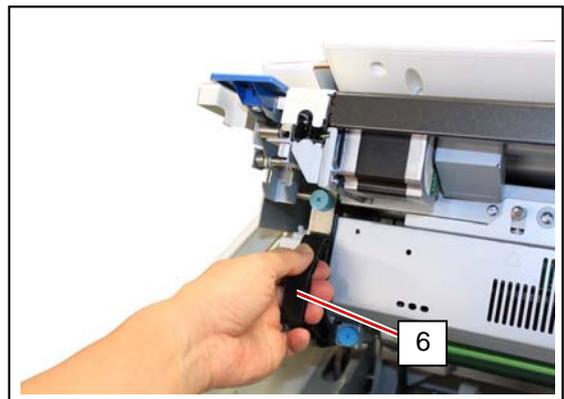
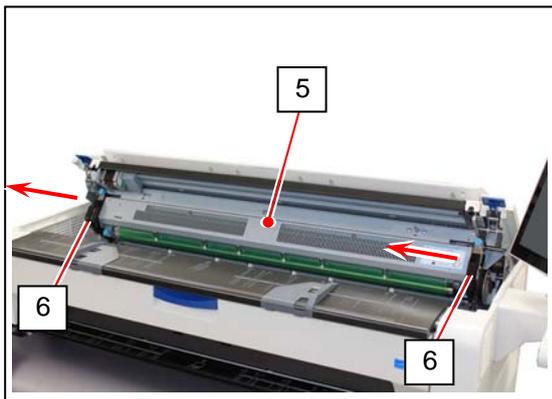
2. Release the belt (2) from the pulley (3).



3. Loosen 4 thumb screws (4) to release the Process Unit (5).

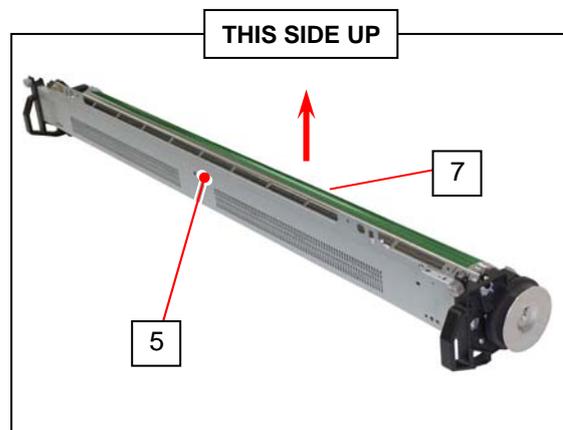


4. Hold the handgrip (6) on both sides. Pull the Process Unit (5) to the arrow direction to remove it from the machine.



NOTE

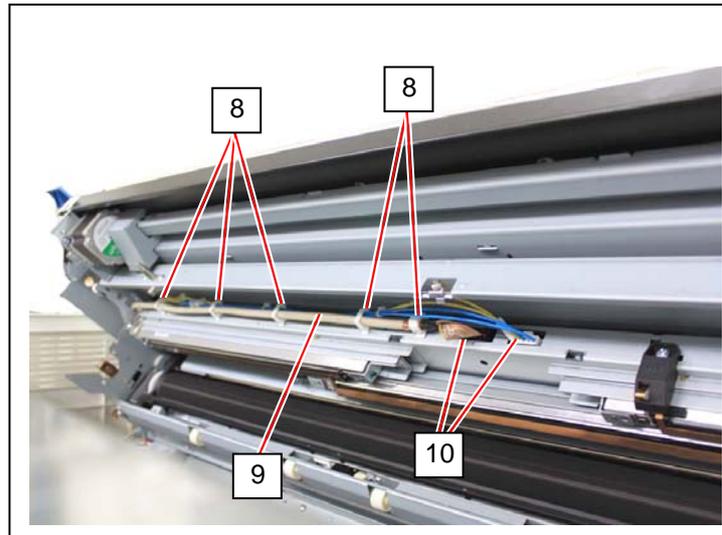
(1) Gently place the Process Unit (5) on a flat surface in the correct direction. Not doing so may damage the Photoconductive Drum (7) (shiny green cylinder).



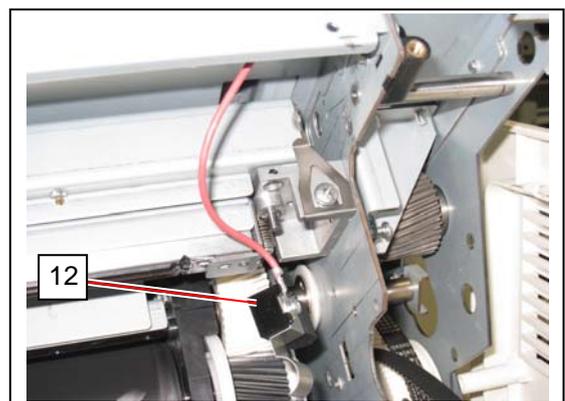
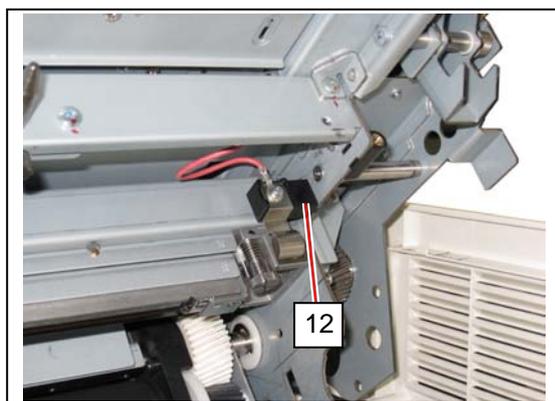
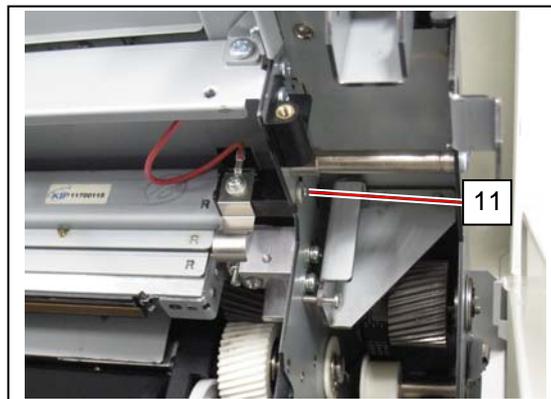
(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.

- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process Unit with a piece of plain bond roll paper.

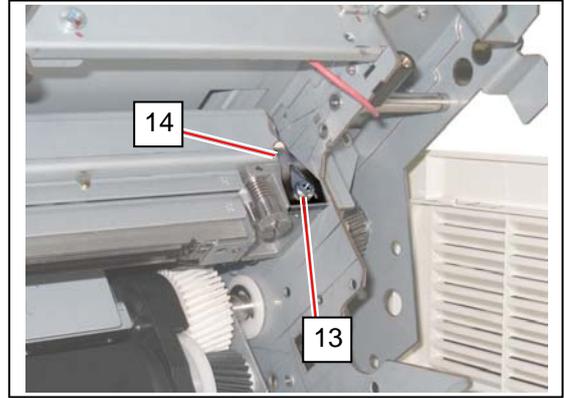
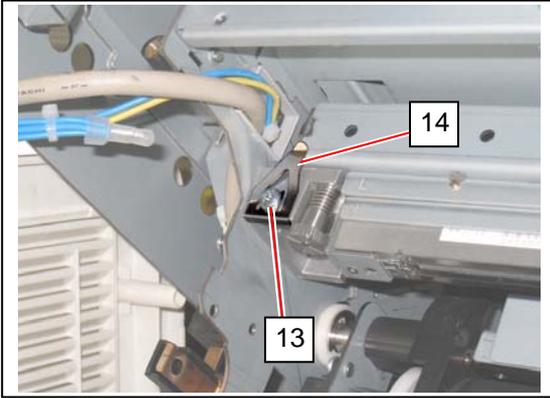
5. Open 5 wire clamps (8) to release the harnesses (9).
Disconnect 2 connectors (10).



6. On the right side, remove 1 screw (11) to release the bias terminal for Image Corona (12).

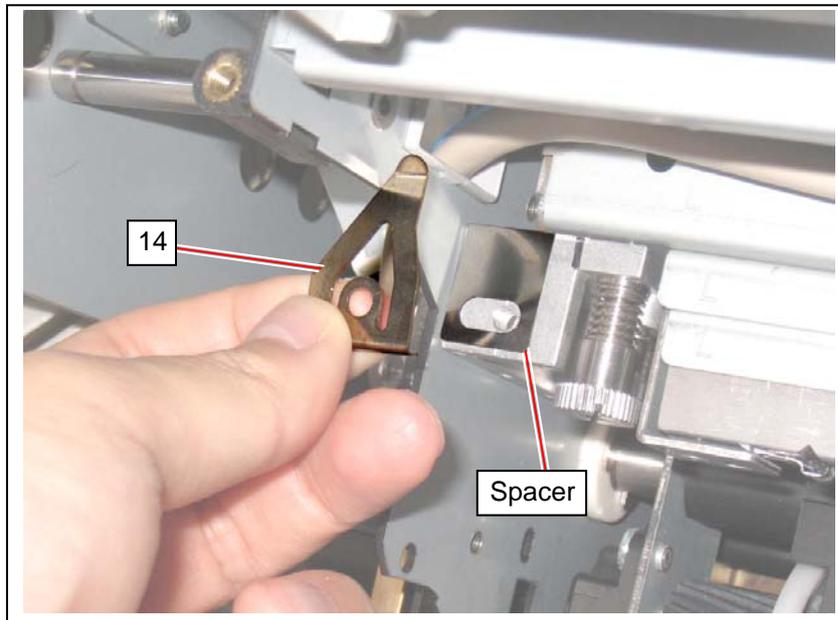


7. On the both sides, remove 1 screw each (13) to remove Spring Plates (14).

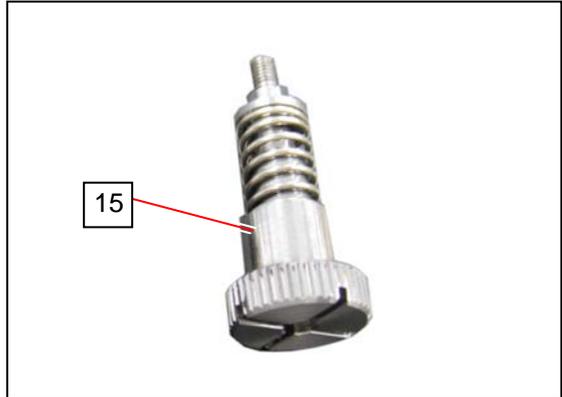
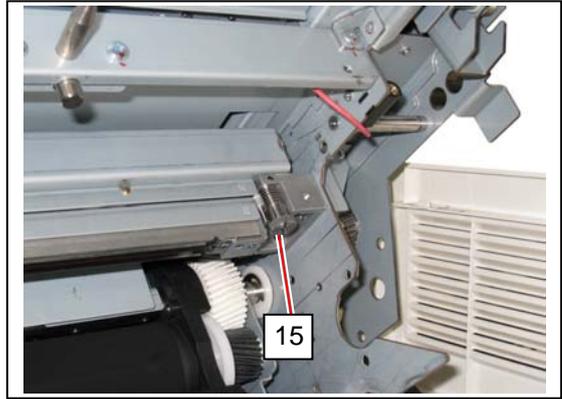
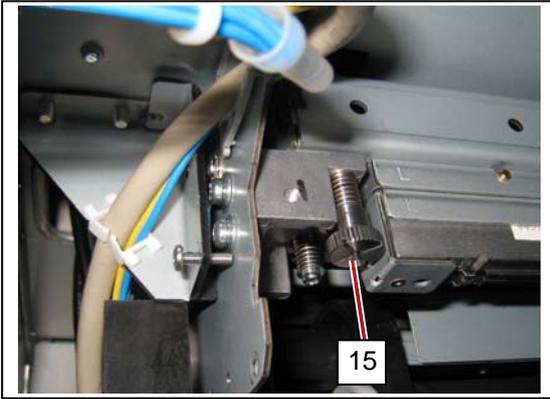


! NOTE

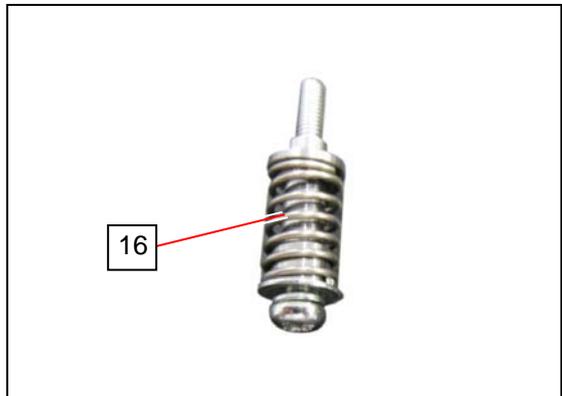
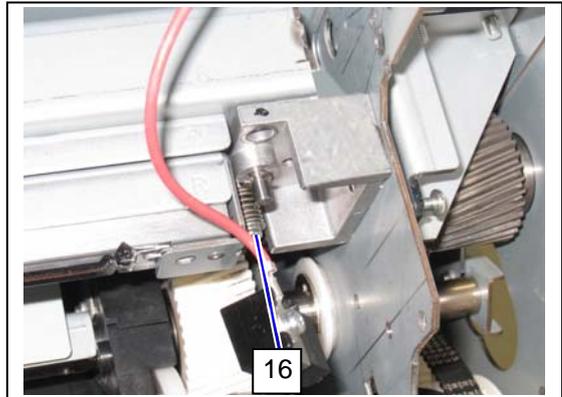
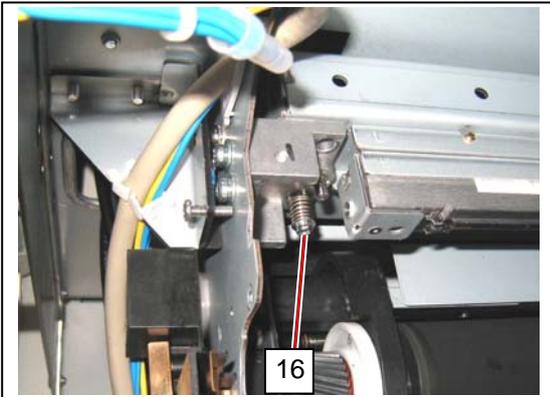
There may be Spacer(s) under Sprint Plate (14).
This is for tolerance of Upper Unit. Be sure to remain / reinstall Spacer(s) to the original position.



8. On both sides, remove the front Thumb Screws (15).
Be careful that the spring on the screws does not drop in the machine.



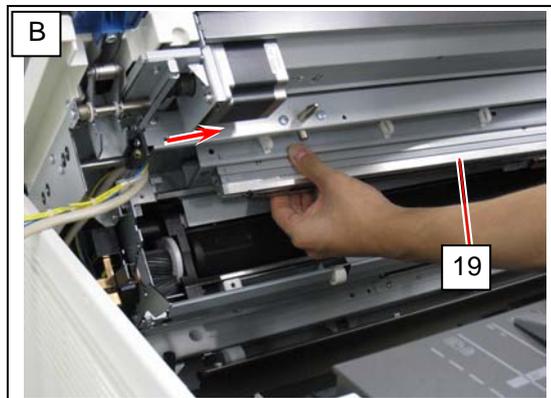
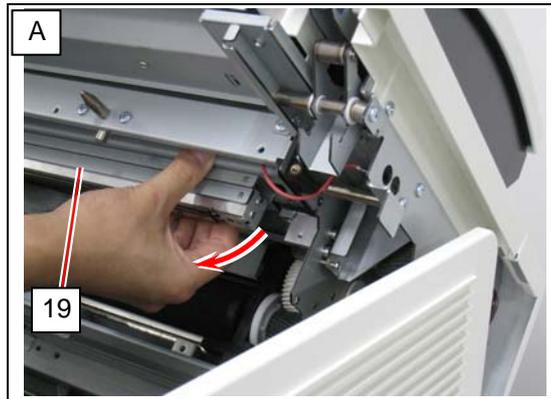
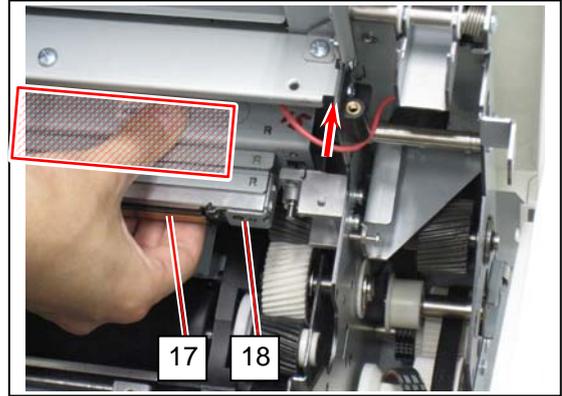
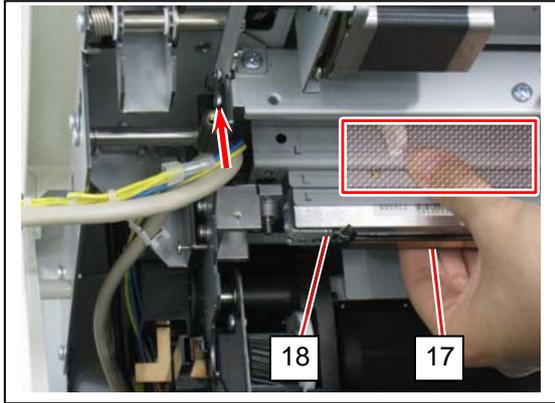
9. On both sides, remove the rear screws (16).
Again be careful that the spring on the screws does not drop in the machine.



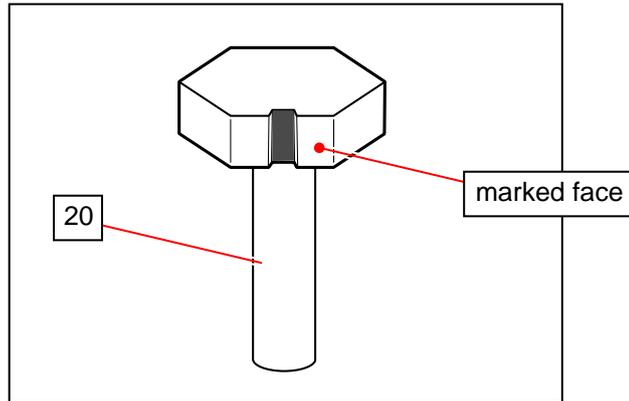
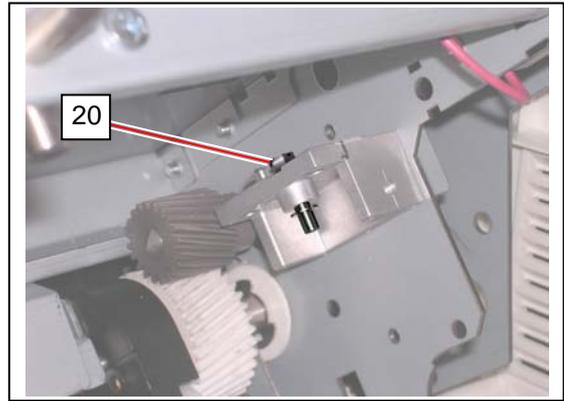
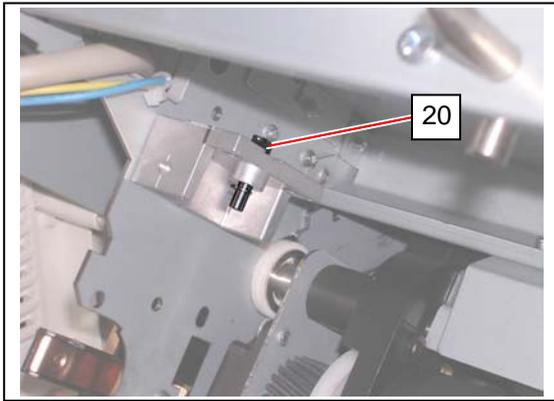
10. Pinch and hold the shaded area in the picture on both sides.

NEVER touch the LED Array (17) and the LED Head Bracket (18).

Slightly lift up the entire LED Head Unit (19). Pull the right side to outside first (A), and next move the LED Head Unit to the arrow direction (B).

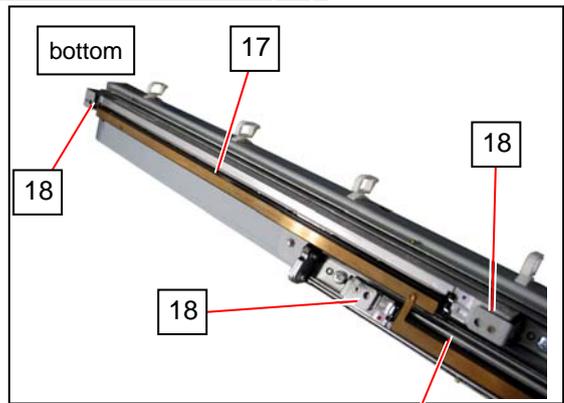
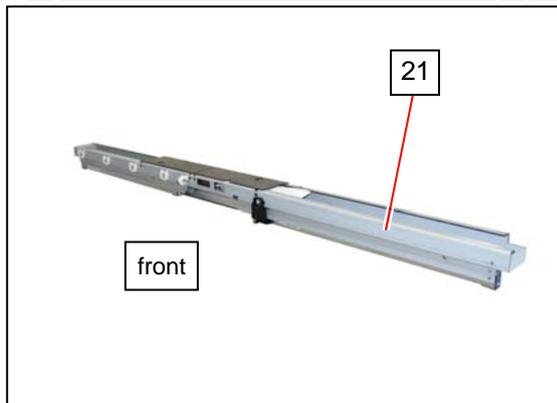


11. In the Upper Unit, there is the “hex. head pin” (20) on the rest (steel) of the LED Head Unit. Check that the “marked face” comes to front. If not, turn the pin (20).



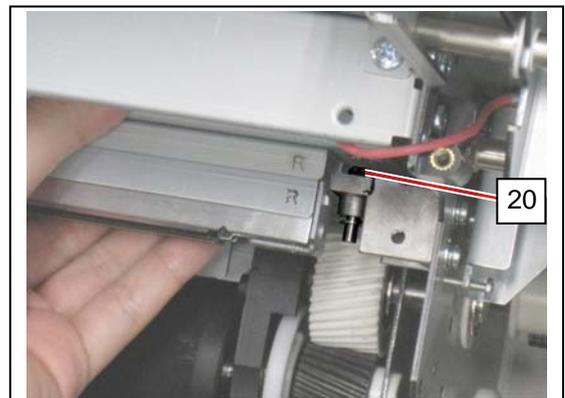
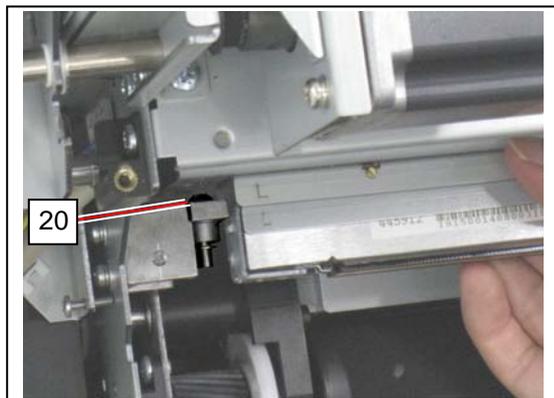
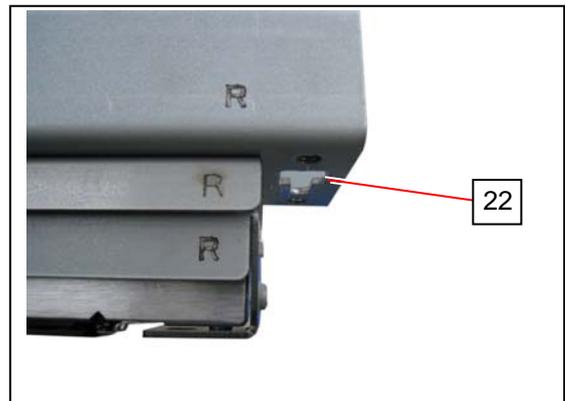
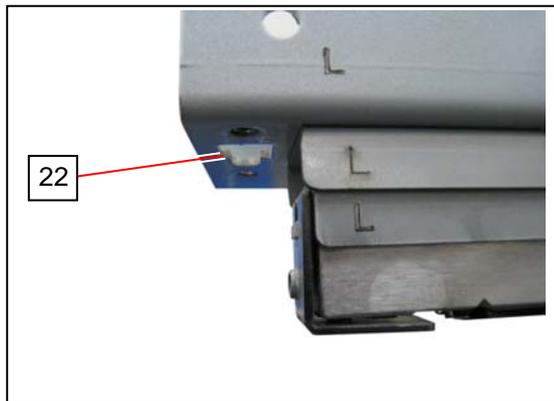
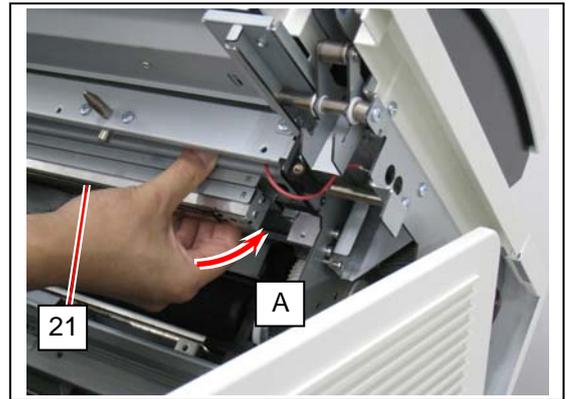
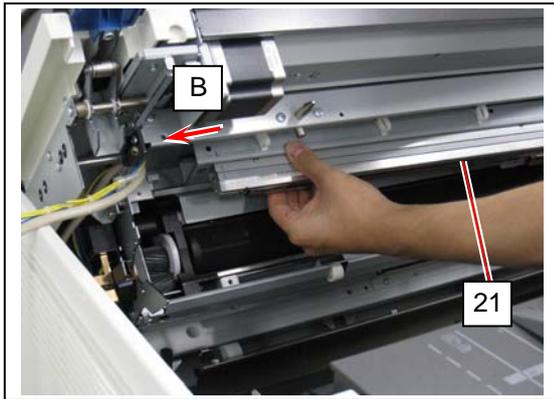
12. Take away the new LED Head Unit (21) from its container.

Again NEVER touch the LED Array (17) and the LED Head Bracket (18).

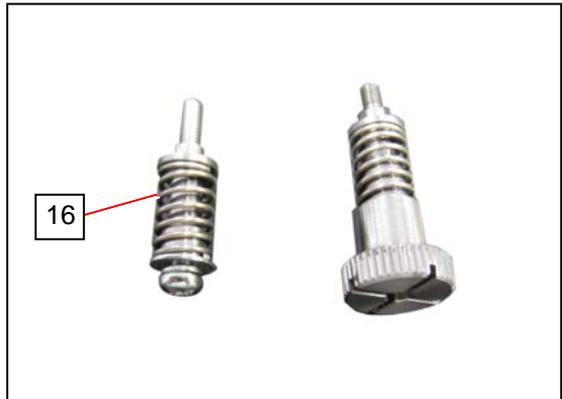
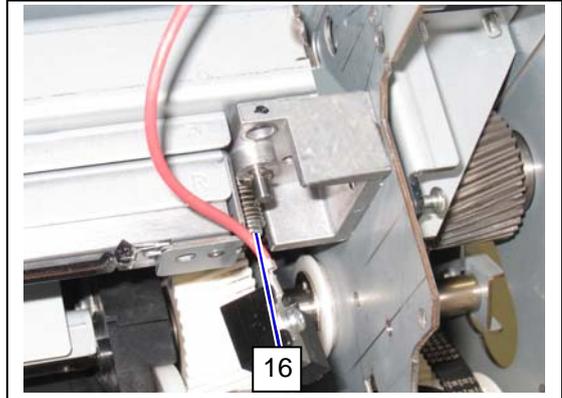
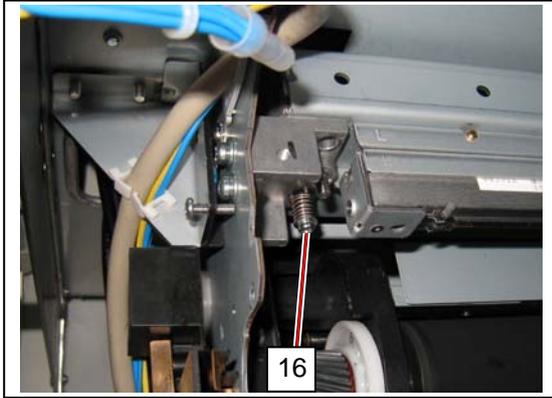


13. **Again NEVER touch the LED Array and the LED Head Bracket.**

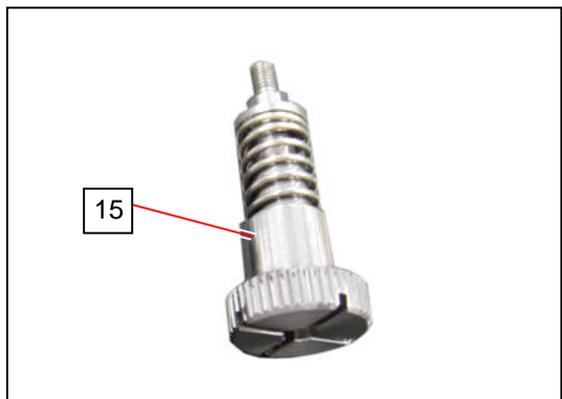
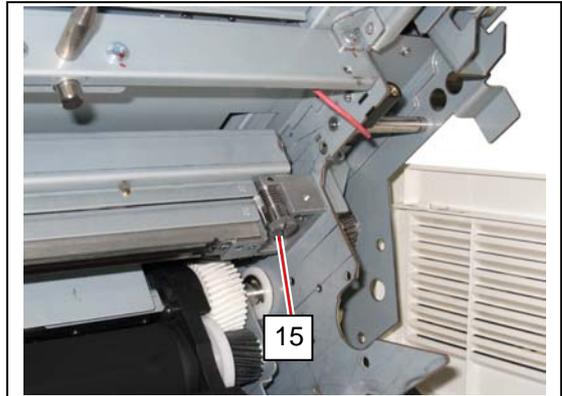
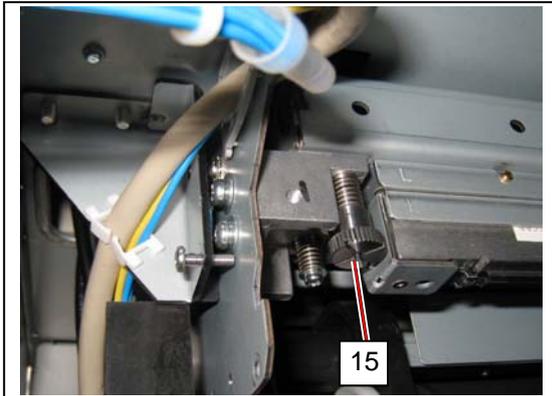
Put the left side of the LED Head Unit (21) in the Upper Unit first (B), and then the right side (A).
Seat the unit so that the hex. head pin (20) goes into the square hole (22) on the LED Head Unit.



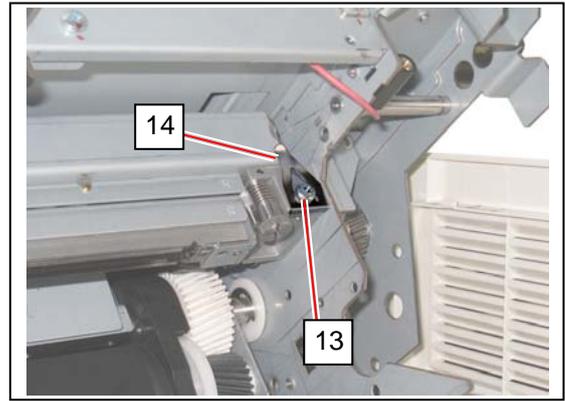
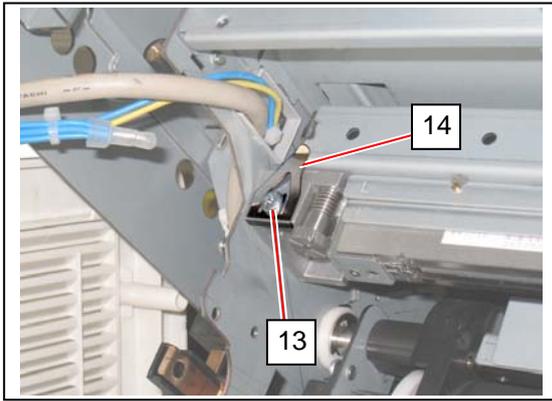
14. On both sides, reinstall the rear screws (16: w/ spring).



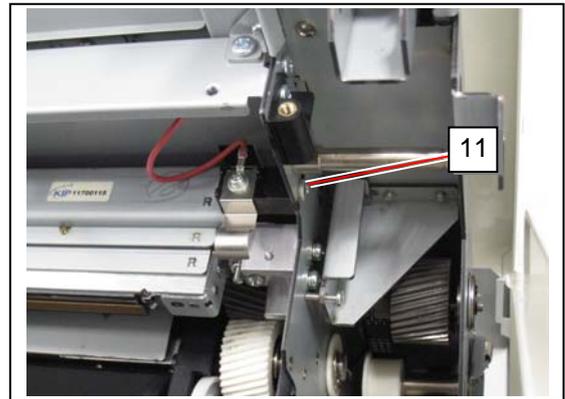
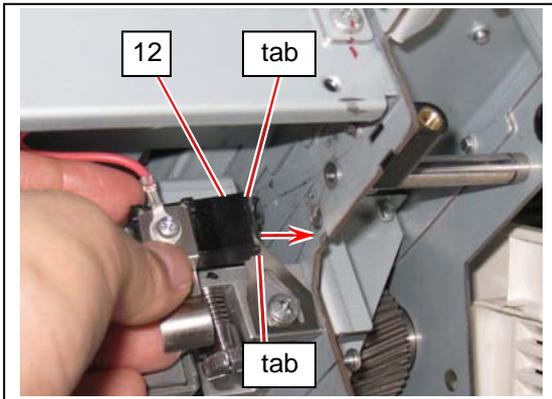
15. On both sides, reinstall the front Thumb Screws (15: w/ spring).



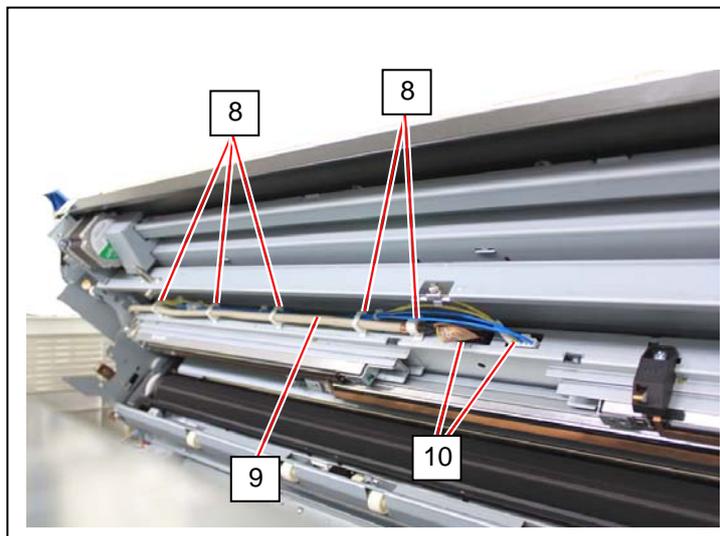
16. On both sides, reinstall the Spring Plates (14) with the screws (13).
If there is Spacer(s), fix them together.



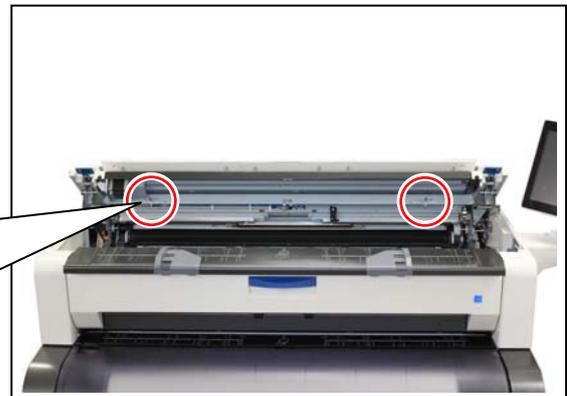
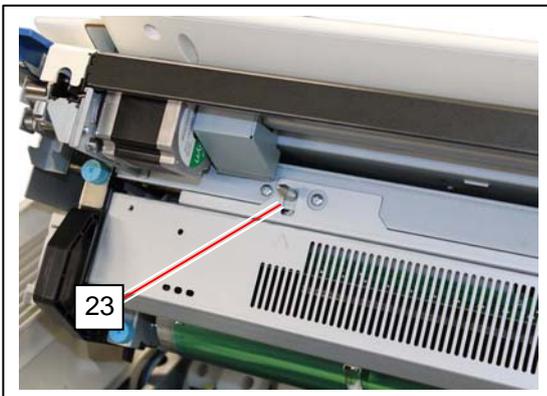
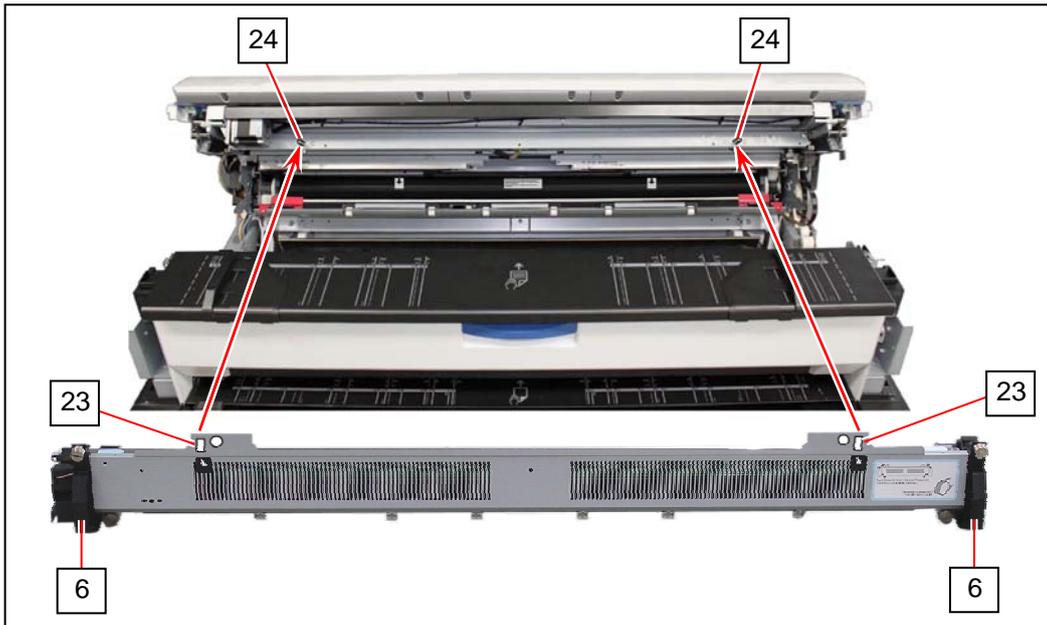
17. On the right side, reinstall the terminal plate (12) with the screw (11).
The tab parts should fit in the notch on the frame.



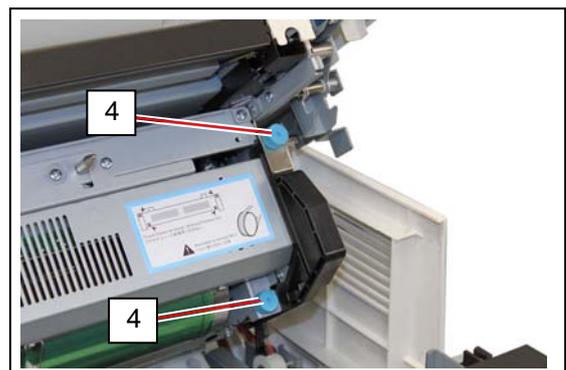
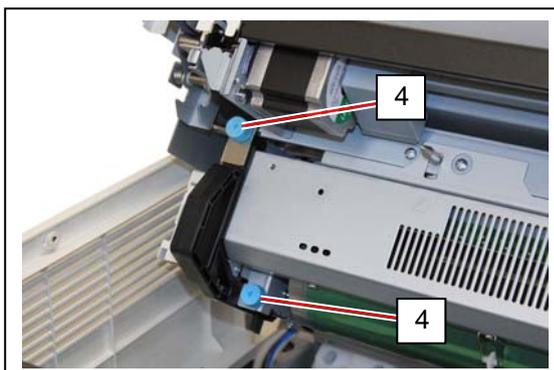
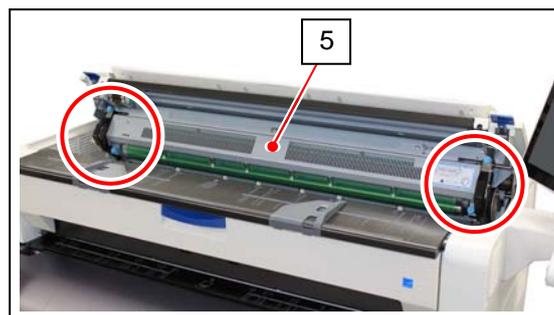
18. Reconnect 2 connectors (10). Put the harnesses (9) in the wire saddles (8).



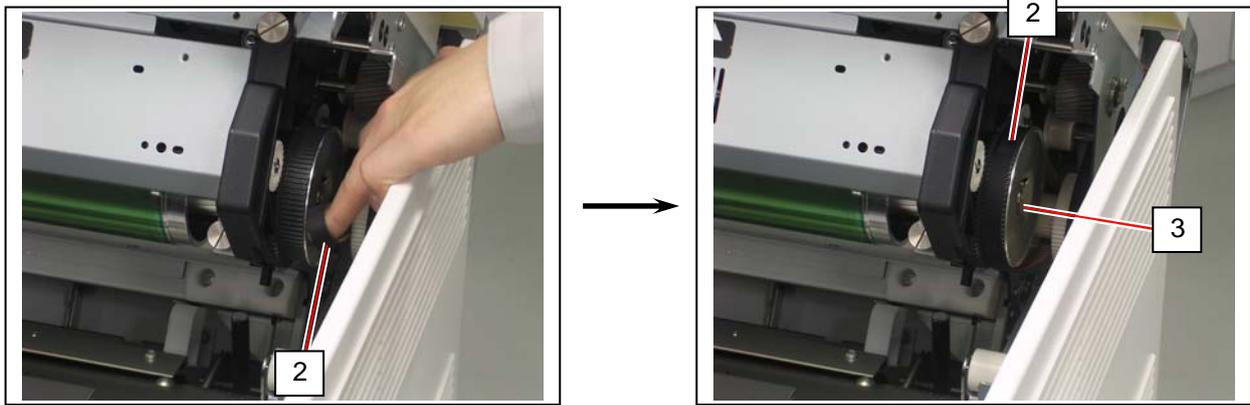
19. Hold the handgrip (6) on both sides. Slightly tilt the Process Unit downward. Put the square holes (23) onto the tapered edges of the positioning pins (24). Before inserting completely, pivot the unit upward to face each other. Finally push the unit into the machine



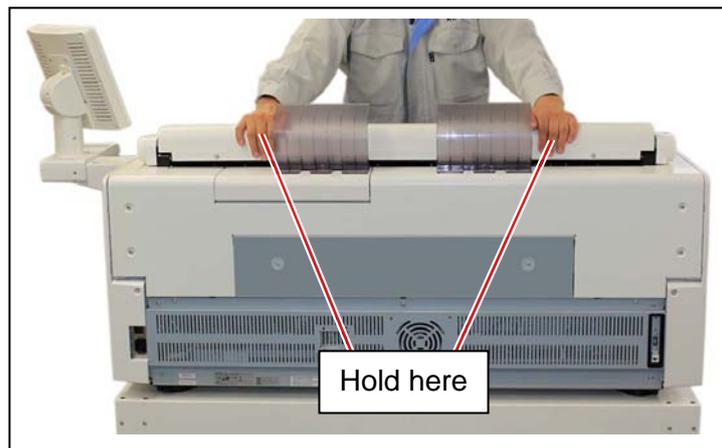
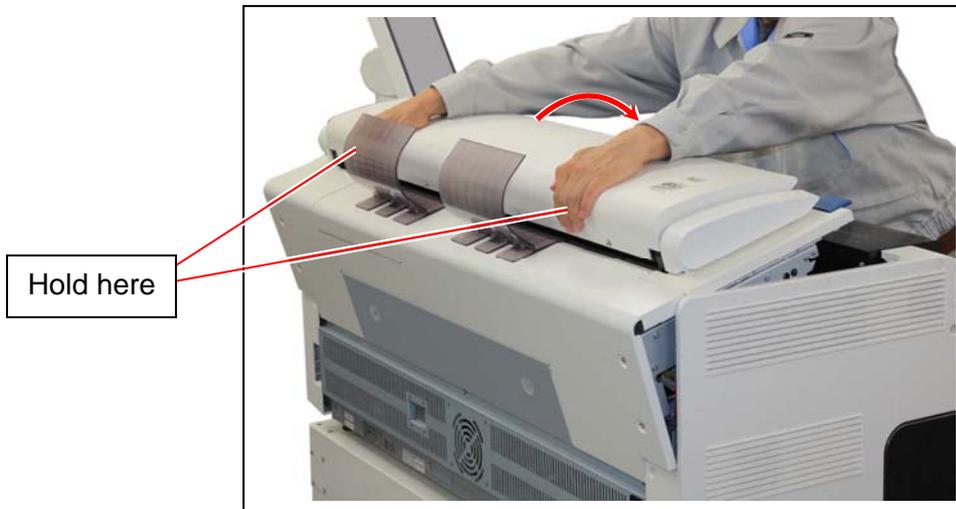
20. Completely push the Process Unit in the machine to be reseted in position. Then secure the thumb screws (4) to fix the Process Unit to the machine.



21. Return the belt (2) to the pulley (3).



22. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit. Push the entire unit down to the arrow direction.

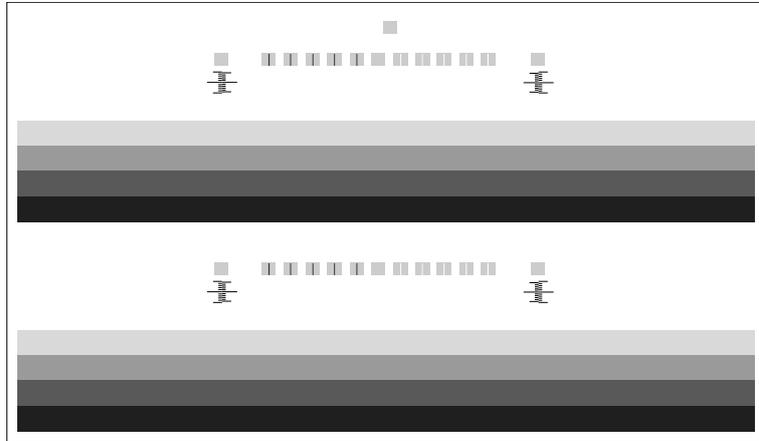


23. Run LED Confirmation wizard in KIP Service Software.
A 36 inch / A0 / 914mm wide roll media (plain paper / bond) is required.
For further details, see [8.14 Confirmation Wizard]

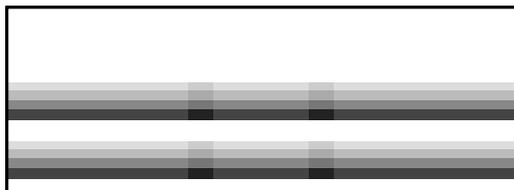
5. 4. 2 Focus Adjustment

Reference

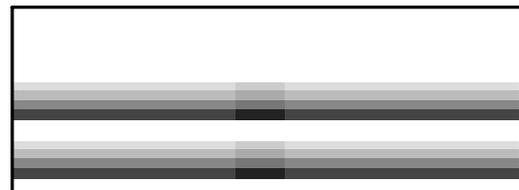
After replacing the LED Head Unit according to [5.4.1 Replacing LED Head Unit], an uneven halftone bands may appear on the test print sheet.



Test Pattern #9 Size Code 3

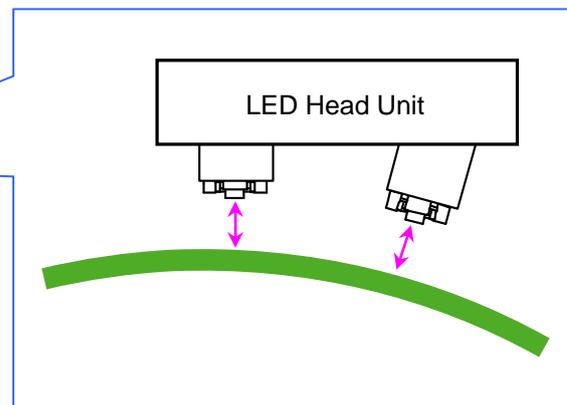
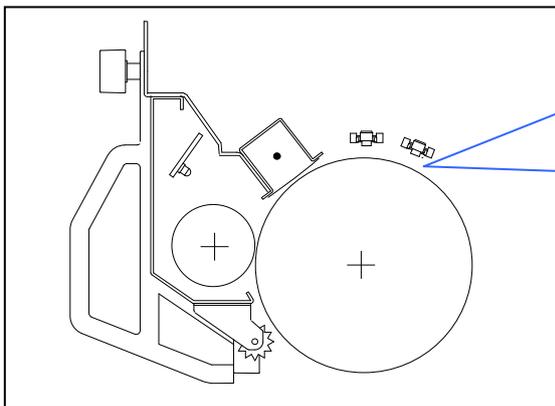


darker areas in the middle



darker area at the center

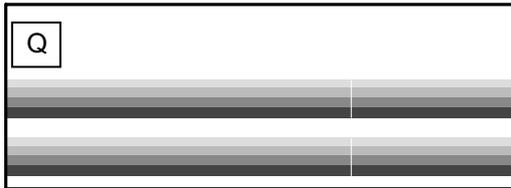
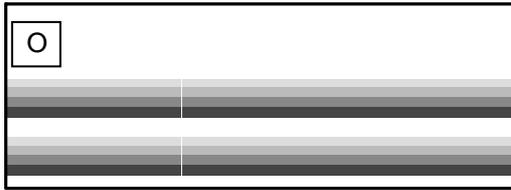
This requires a special adjustment to obtain a proper distance between the LED Head Unit and the Photoconductive Drum (focus).



Should keep a proper distance to achieve the designated focus

! NOTE

A thin black or white line may appear on the test print sheet. This is not by the focus (hardware) but the stitch adjustment (software).



white line at LED Block border

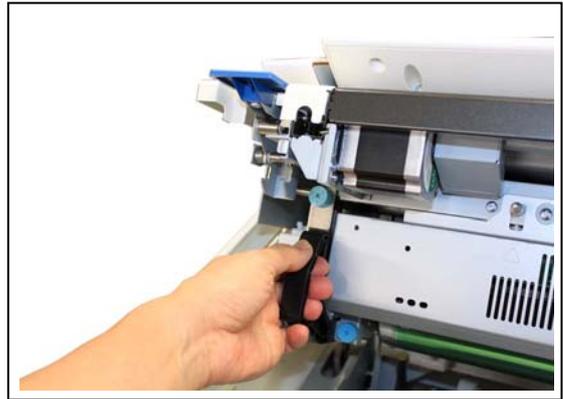
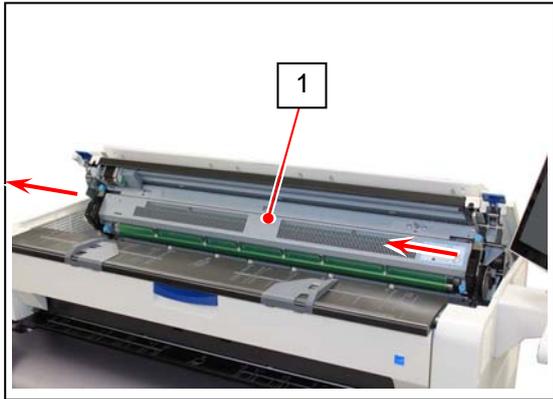
black line at LED Block border

- O: Block A (left block) should move right to touch with Block B (center, reference block).
- P: Block C (right block) should move right to keep apart from Block B.
- Q: Block C should move left to touch with Block B.
- R: Block A should move left to keep apart from Block B.

In this case, Stitch adjustment is required.

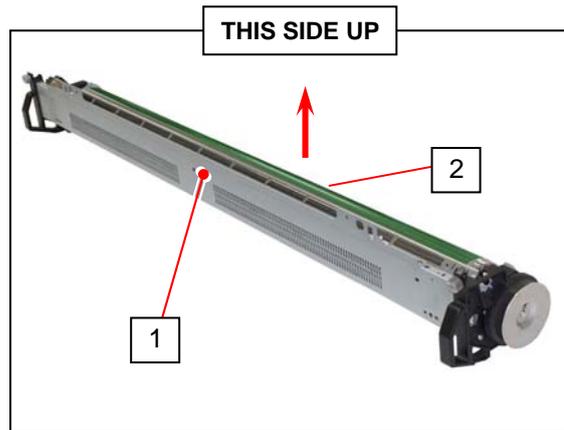
See [8.6.3 772, 773 Horizontal Alignment of LED Head Blocks].

1. Remove the Process Unit (1). For the detailed procedure, see [5.1.5 Process Unit].



! NOTE

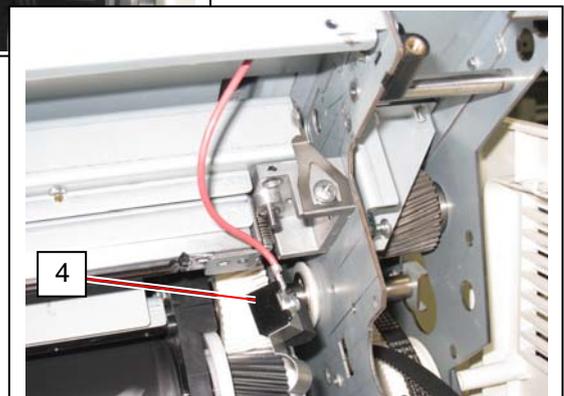
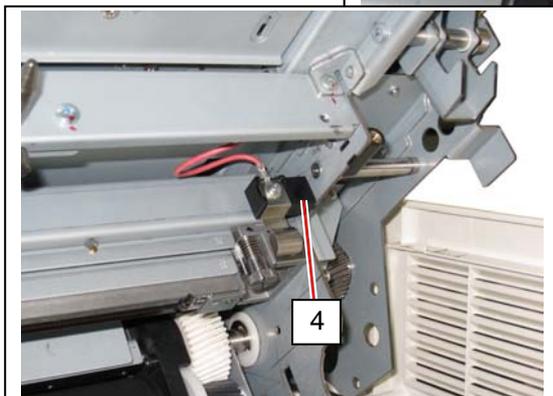
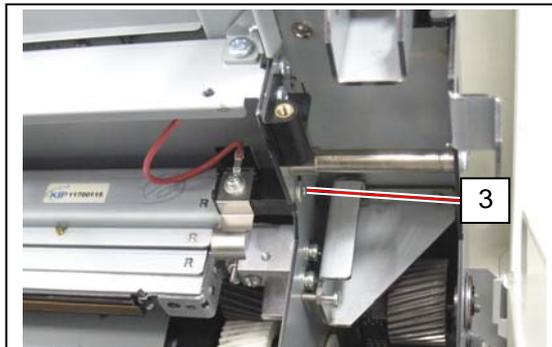
(1) Gently place the Process Unit (1) on a flat surface in the correct direction. Not doing so may damage the Photoconductive Drum (2) (shiny green cylinder).



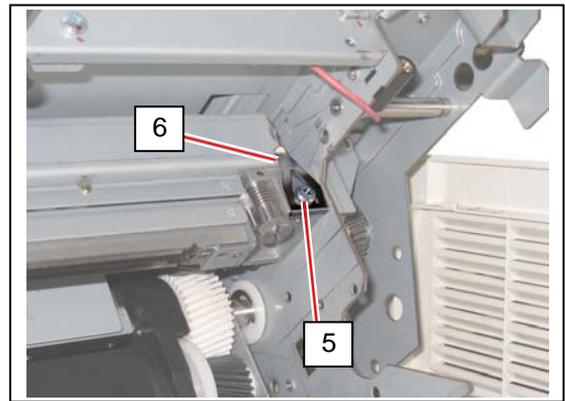
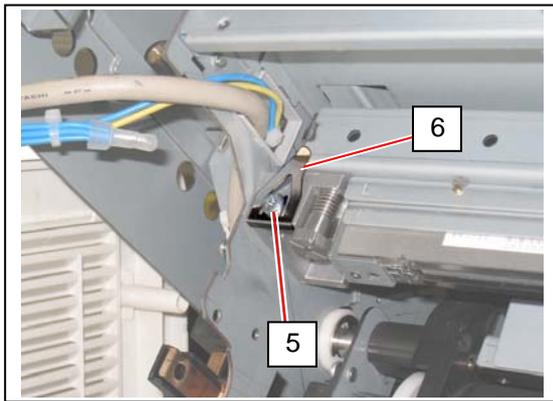
(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.

- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process Unit with a piece of plain bond roll paper.

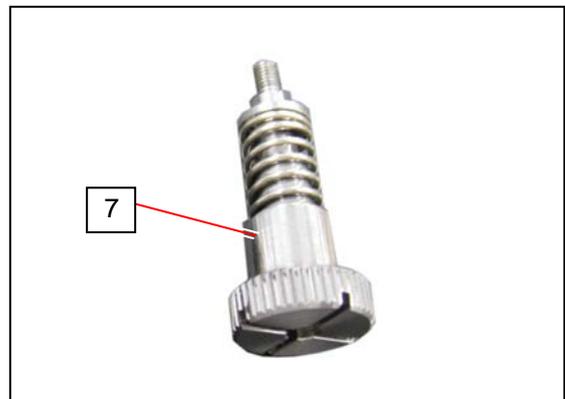
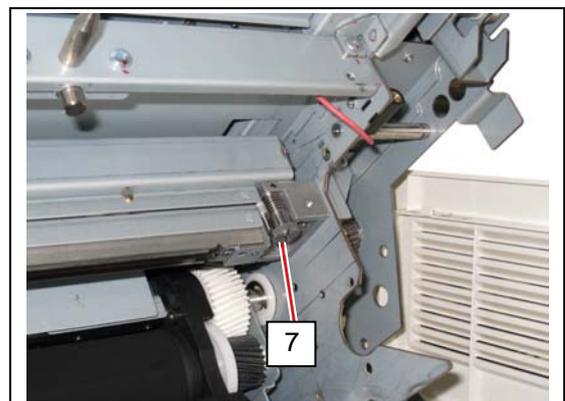
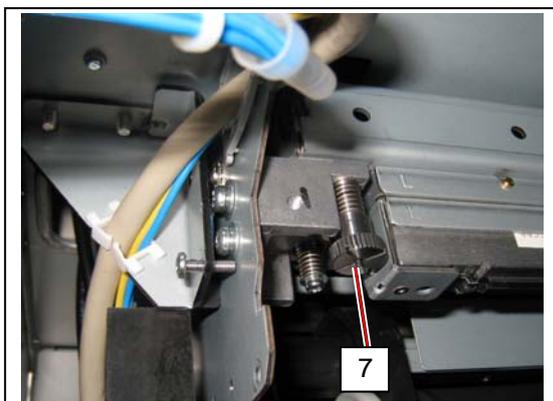
2. On the right side, remove 1 screw (3) to release the bias terminal for Image Corona (4).



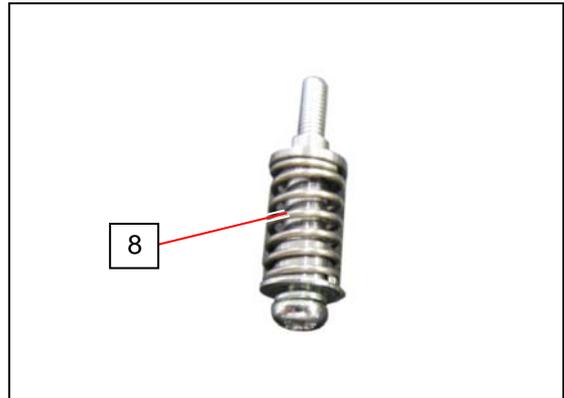
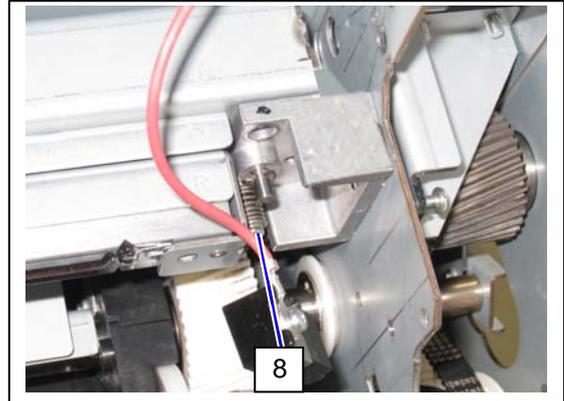
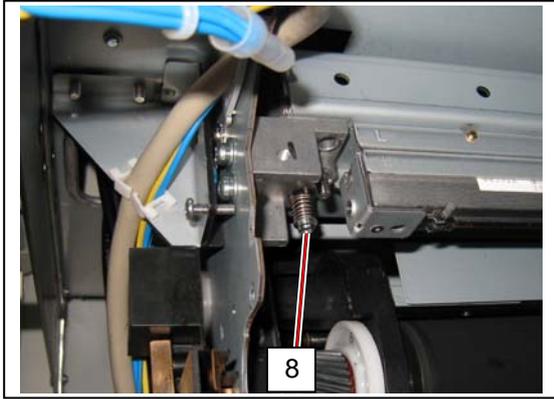
3. On the both sides, remove 1 screw each (5) to remove Spring Plates (6).



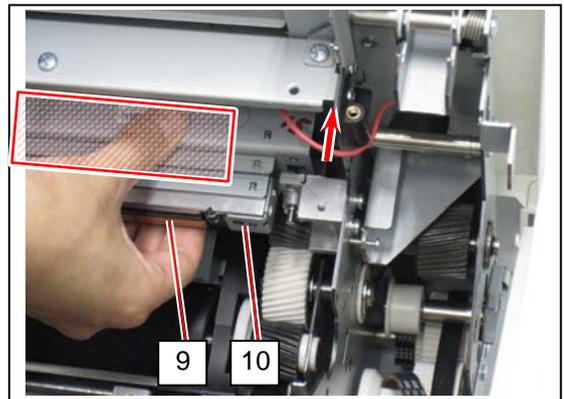
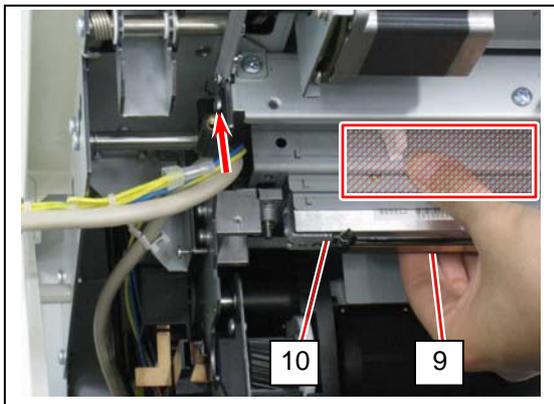
4. On both sides, remove the front Thumb Screws (7).
Be careful that the spring on the screws does not drop in the machine.



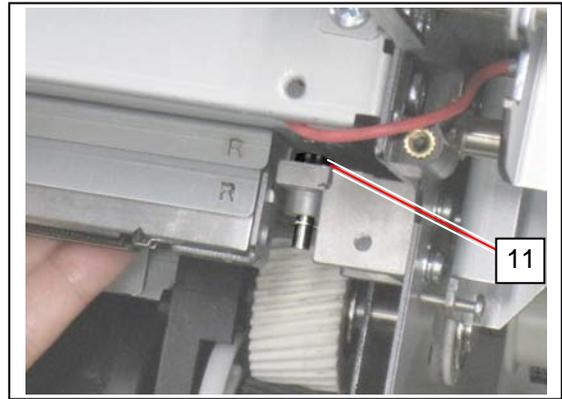
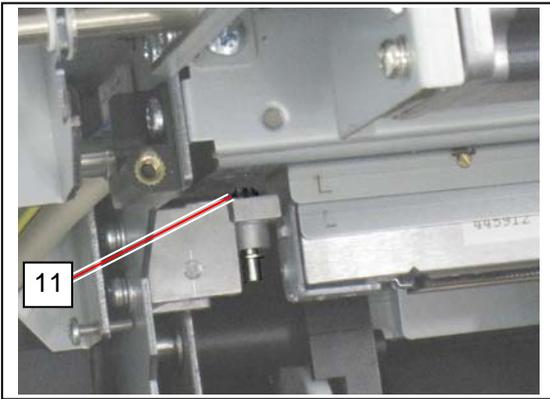
5. On both sides, remove the rear screws (8).
Again be careful that the spring on the screws does not drop in the machine.



6. Pinch and hold the shaded area in the picture on both sides.
NEVER touch the LED Array (9) and the LED Head Bracket (10).
Slightly lift up the entire LED Head Unit. Keep lifting it up.

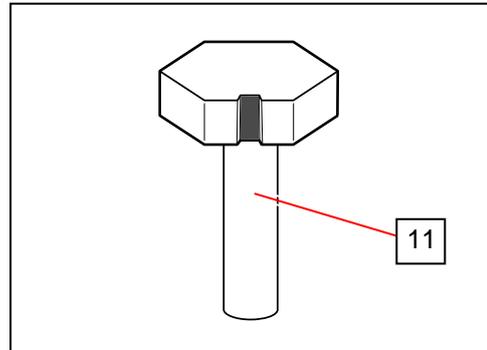
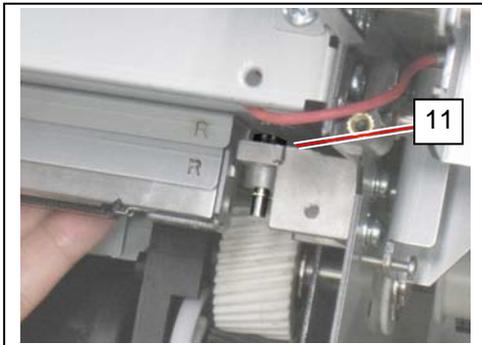


7. You can see the head of the “hex. head pin” (11) on both sides.
Specify which face comes to front. Read the column below about the pin’s head.

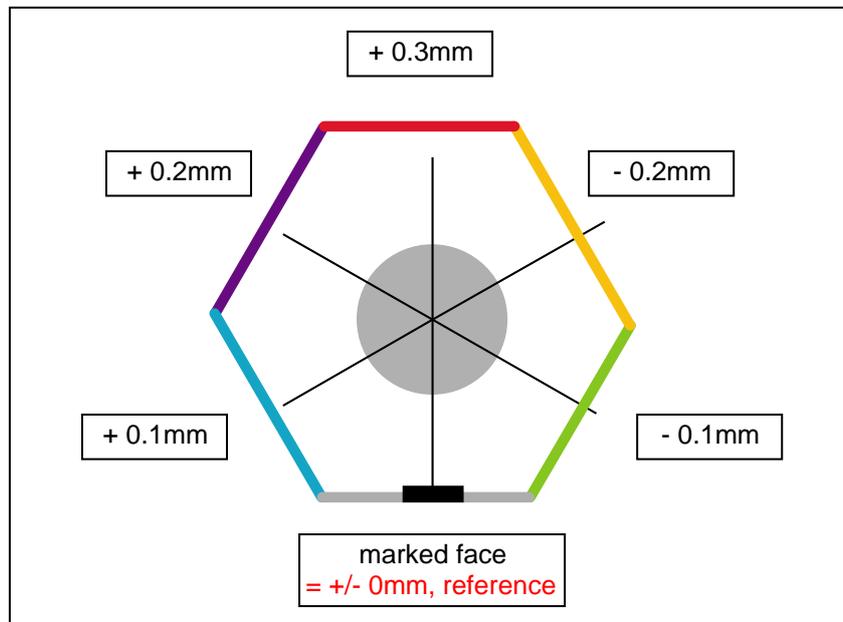


Reference

The pin’s head is a type of hexagon head. One of the six faces has a groove.
This face is called “marked face”.



Exactly, the head is NOT in regular hexagon.
Each face has different distance from the axis of the pin’s shaft.



For example, on step 7, a face in front of you is not “marked face”. Suppose you turn the pin in two faces (= 120 degrees) counter clockwise, then you can see the “marked face”.
In this case, the original front face was “-0.2mm” (yellow).

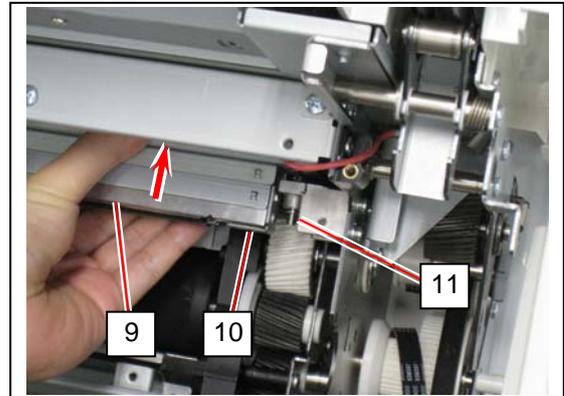
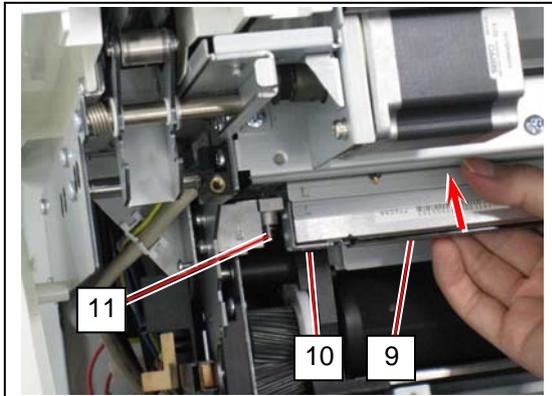
(see the next page)

NOTE

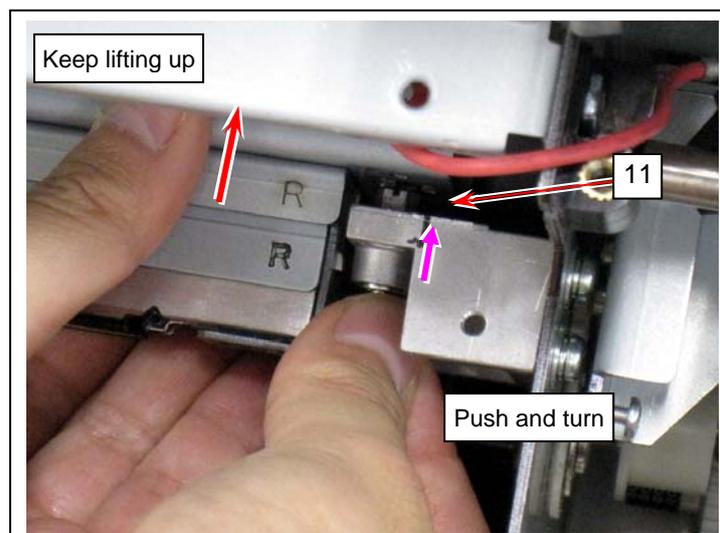
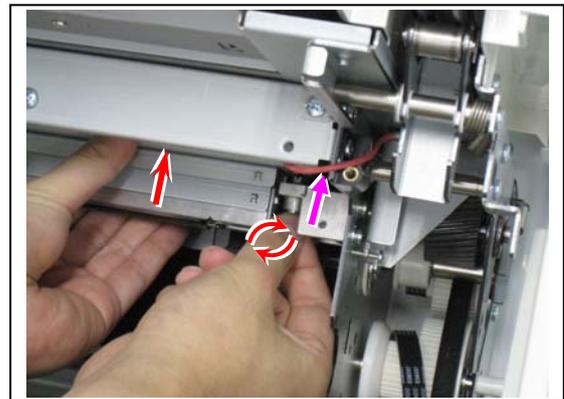
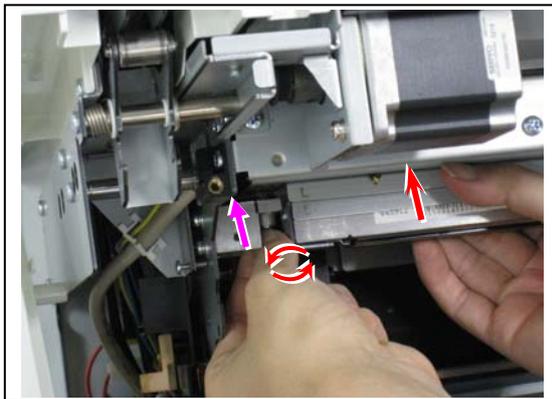
To turn the pin (11), follow the instruction below.

1. Lift up the LED Head Unit. Keep lifting it up.

Again NEVER touch the LED Array (9) and the LED Head Bracket (10).



2. Push and turn the pin (11).



(example) right side pin

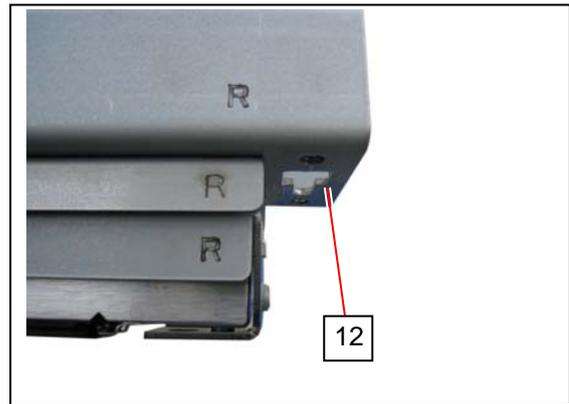
8. Which side pin / which face to be used may depend on how uneven the gray bands show.
Read the column below.

Reference

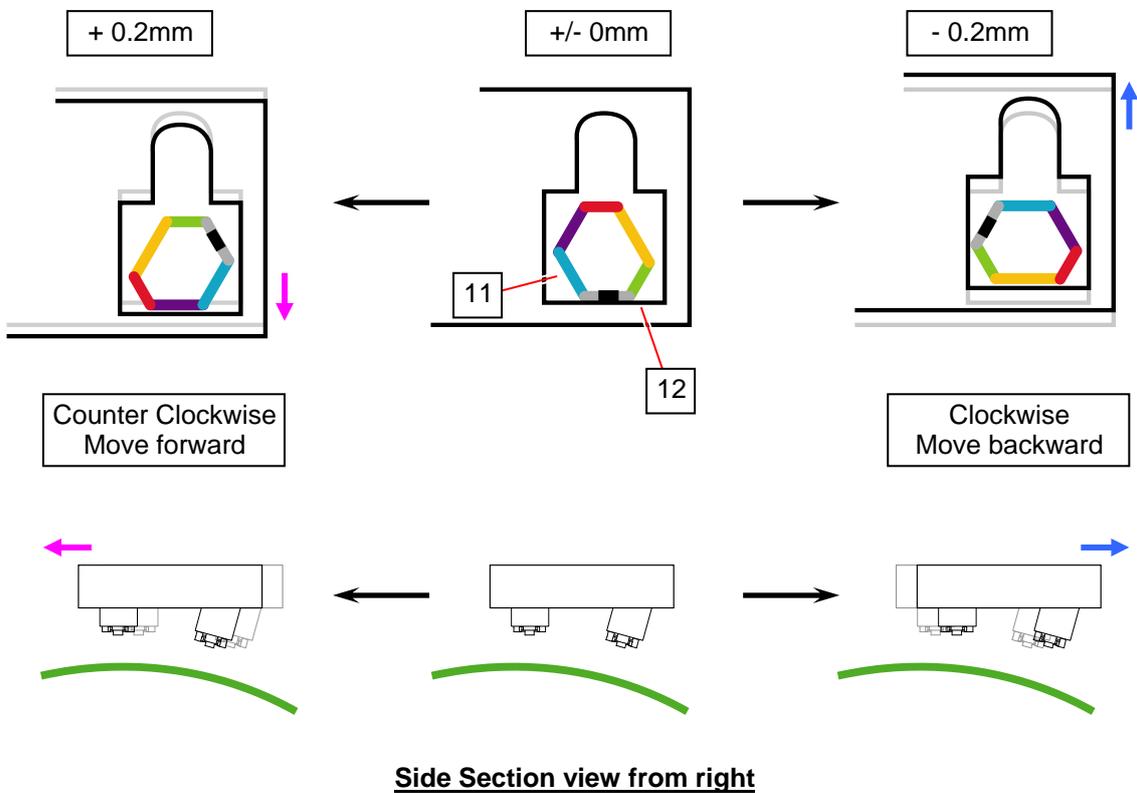
Depending on which face comes to front, the LED Head Unit is seated slightly forward / backward.

This means the LED Head Unit has the possibility to be seated in 6 different positions, determined by which face of the pin (11) touches the rim of the square hole (12).

Please read as well the NOTE column on the previous page that instructs how to turn the pin (11).



Right Side of LED Head Unit



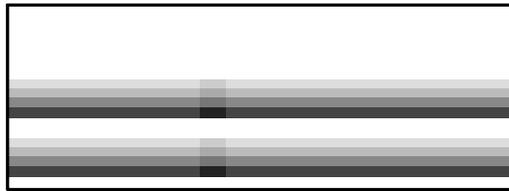
1 darker area in the middle
→ Go to step 9.



2 darker areas in the middle / 1 darker area at the center
→ Go to step 10.



9. If the gray bands get darker on one area in the middle (not the exact center), that is because the LED Head Unit is seated skew.

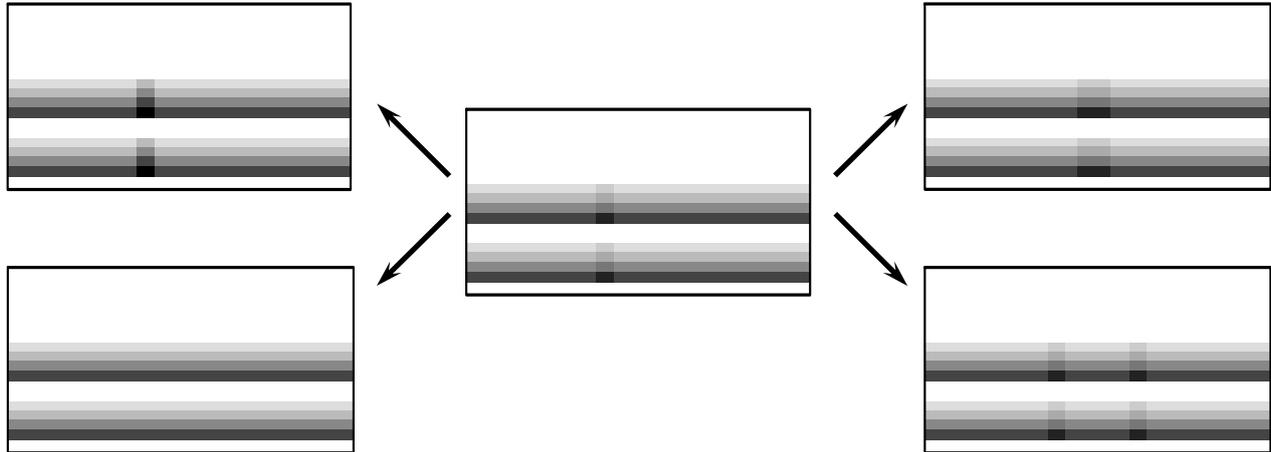


In this case, first, remove the skew. Find a face of the pin (11) on the darker side only so that unevenness of the gray bands could disappear or change as follows.

Turn the pin (11) according to the NOTE column instruction on page 5-86.

Worse: try another direction.

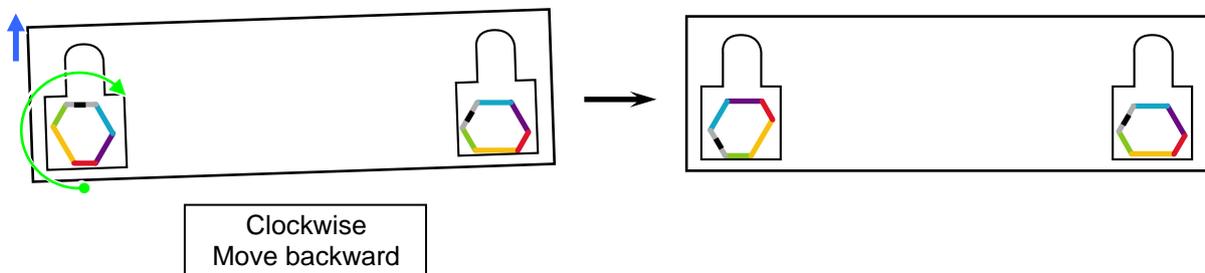
OK to proceed the next step.



Done: proper focus achieved

OK to proceed the next step.

<Example: LED Head Unit from top>



This example shows that the skew is removed by turning the left pin clockwise in 240 degrees to move the left side of the LED Head Unit backward.

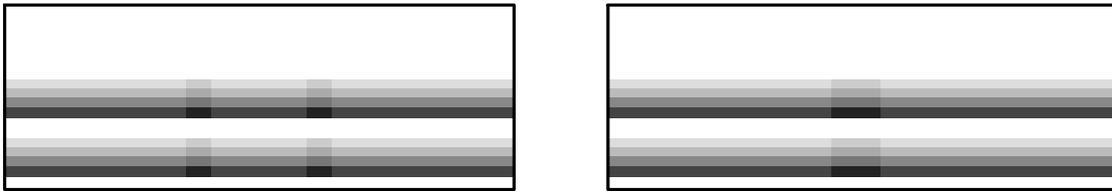
NOTE

- (1) The actual “original front face” may vary by the case.
- (2) It is not always applied that the same face of the left / right pins comes to front.
For example, “-0.2mm” (yellow) on both sides would not stand for “completely no skew”.

As which direction (clockwise or counter clockwise, in other words, the LED Head Unit to forward or backward) **to turn the pin may vary by the case, try both directions.**

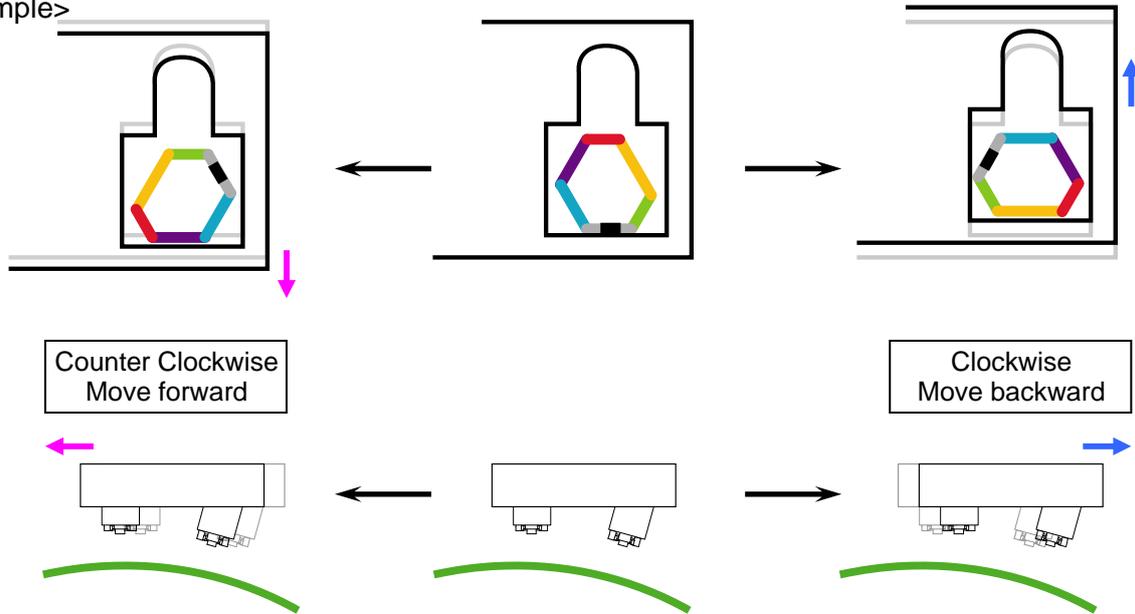
Compare the results to find the better direction.
When you remove the skew, go to the next step.

10. (A) The gray bands get darker on 2 areas in the middle (not the exact center),
 (B) The gray bands get darker on 1 area at the center,



in these cases, find a face of the pin (11) **on both sides in the same turn(s)** so that unevenness of the gray bands could disappear.

<Example>



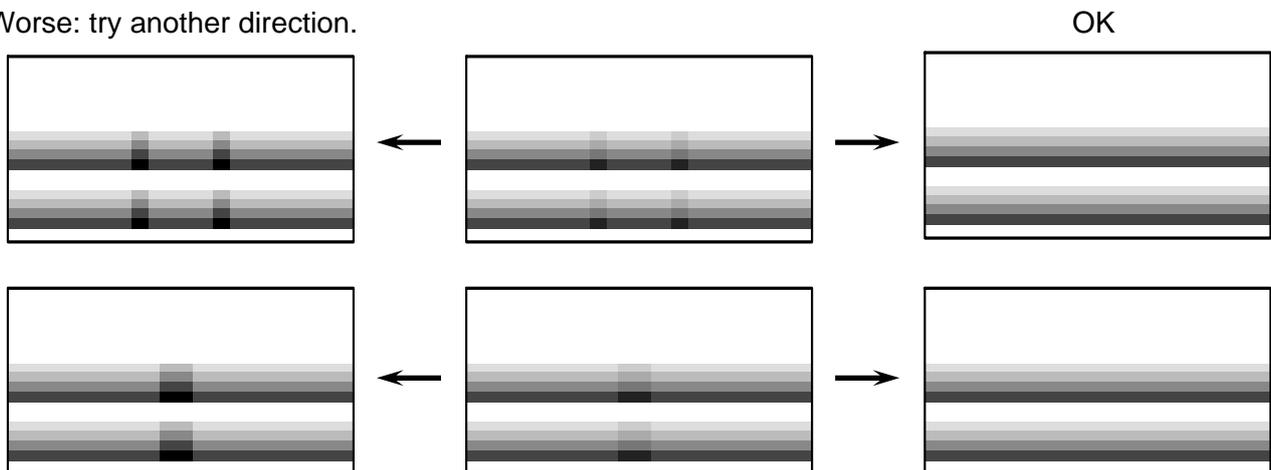
NOTE

- (1) The actual "original front face" may vary by the case.
- (2) It is not always applied that the same face of the left / right pins comes to front.
 For example, the proper focus would be achieved if "+0.1mm" (light blue) comes to front on the left pin and "+0.3mm" (red) does on the right pin at the same time.

As which direction (clockwise or counter clockwise, in other words, the LED Head Unit to frontward or backward) **to turn the pin may vary by the case, try both directions.**

Compare the results to find the better direction.

Worse: try another direction.



5.5 Developer Unit

5.5.1 Developer Maintenance Kit

NOTE

(1) This section shows how to replace all of them in one sequent operation. All of these parts are contained in "Developer Maintenance Kit" (Z178080271).

Item	Number of article	Remarks
DEVELOPER ROLLER	1	
SHEET 3	2	
SHEET 4	2	
SCRAPER	1	
BRADE ROLLER	1	Regulation Roller
SHEET	2	
SHEET 2	2	
SEAL 27	2	
SEAL 28	4	
SEAL 29	2	
SEAL 30	2	
SEAL 31	1	
SEAL 32	1	
PLATE POSITION 1 ASSY	1	Jig for Regulation Roller's correct pressure against Developer Roller
PLATE POSITION 2 ASSY	1	
Double-side Tape	1	Fixing Tape for Seal 29
Double-side Tape 2	1	

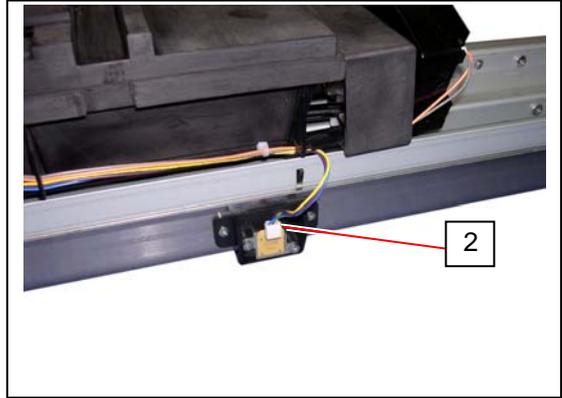
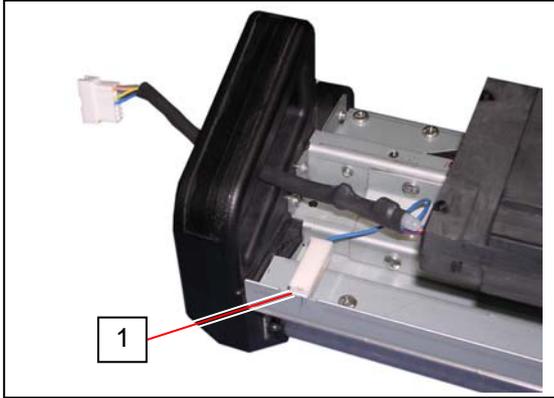
(2) Remove all the toner from Developer Unit before replacing the above parts.

(3) After replacing Developer / Blade Rollers, an applied Bias Adjustment should be reset manually with using the service software - [Wizard] - [Developer Maintenance Procedure].

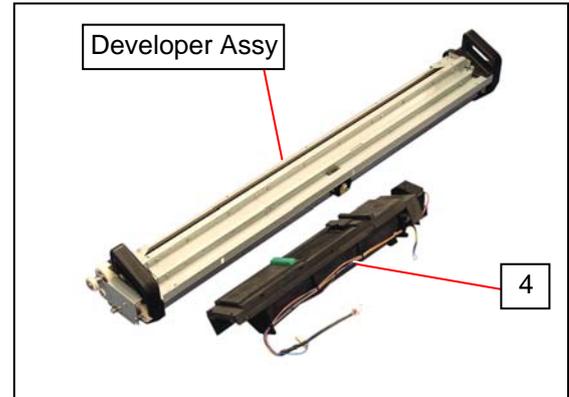
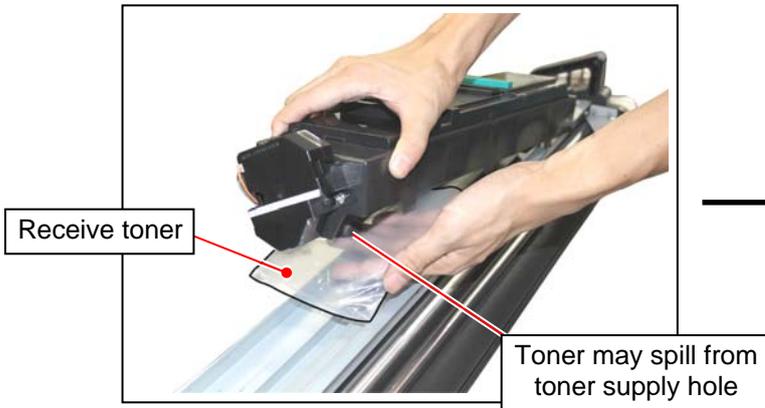
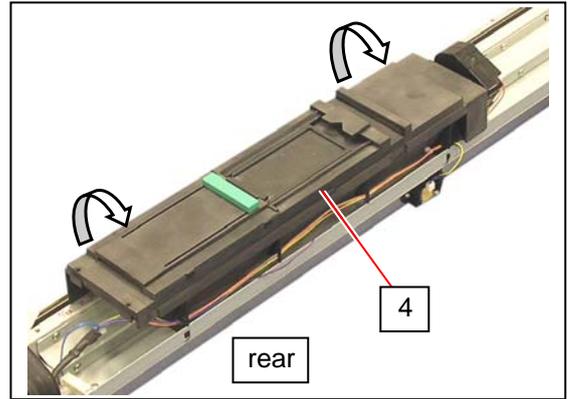
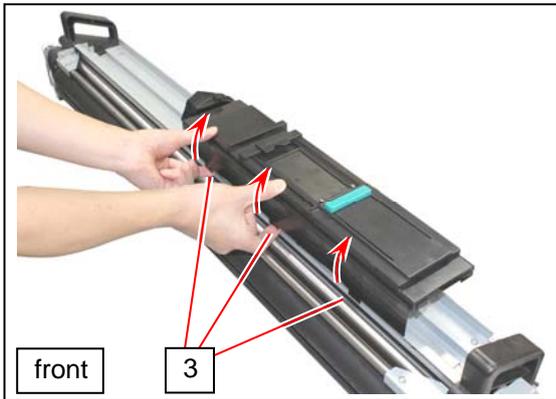
1. Remove the Developer Unit from the machine.
Refer to [5.1.4 Developer Unit].



2. Disconnect the ground wire (1) and 1 connector (2).



3. Release 3 tabs (3) on the front. Turn the Hopper Unit (4) to the arrow direction to remove it from the DEVELOPER ASSY. Place a sheet of paper or a plastic bag to receive toner spilling from the Hopper Unit.

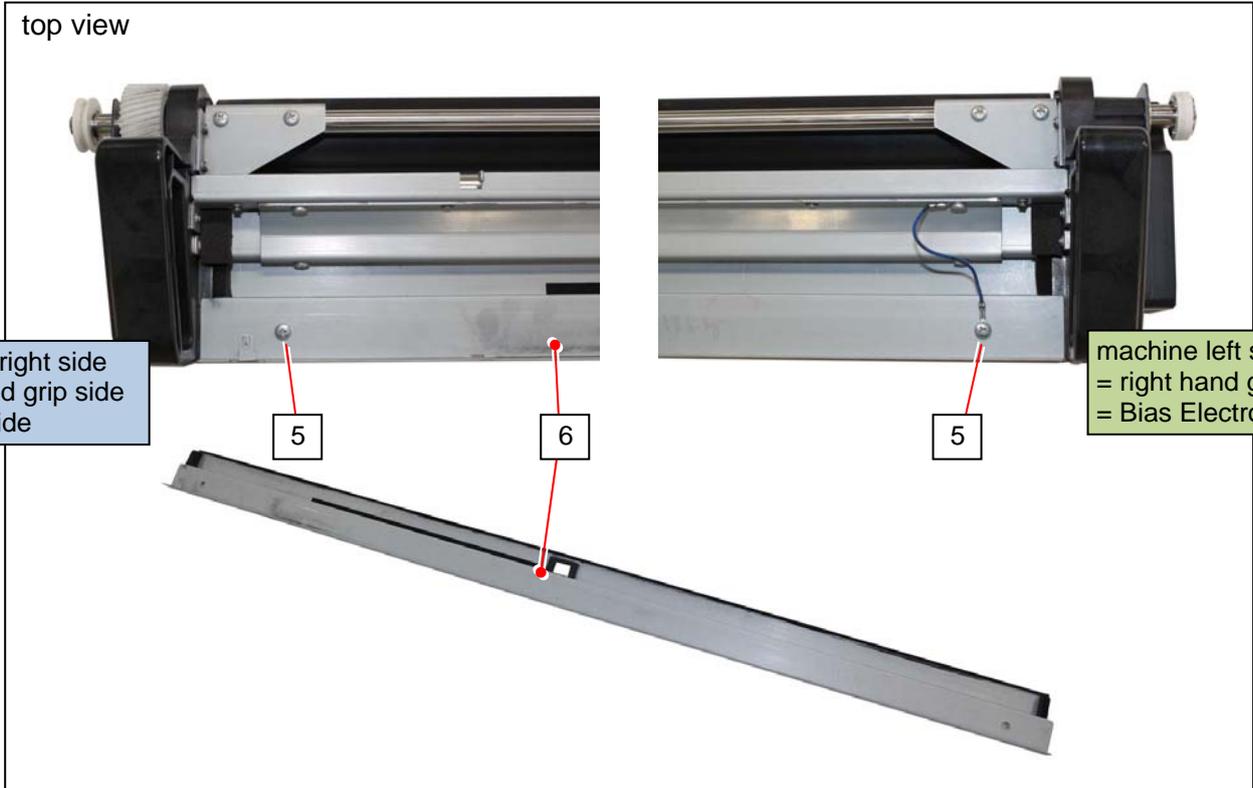


4. Remove 2 screws (5: M4x6) to remove the Cover 4 (6).

top view

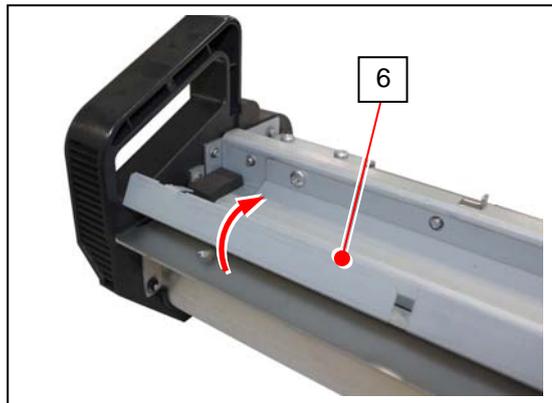
machine right side
= left hand grip side
= Drive side

machine left side
= right hand grip side
= Bias Electrode side



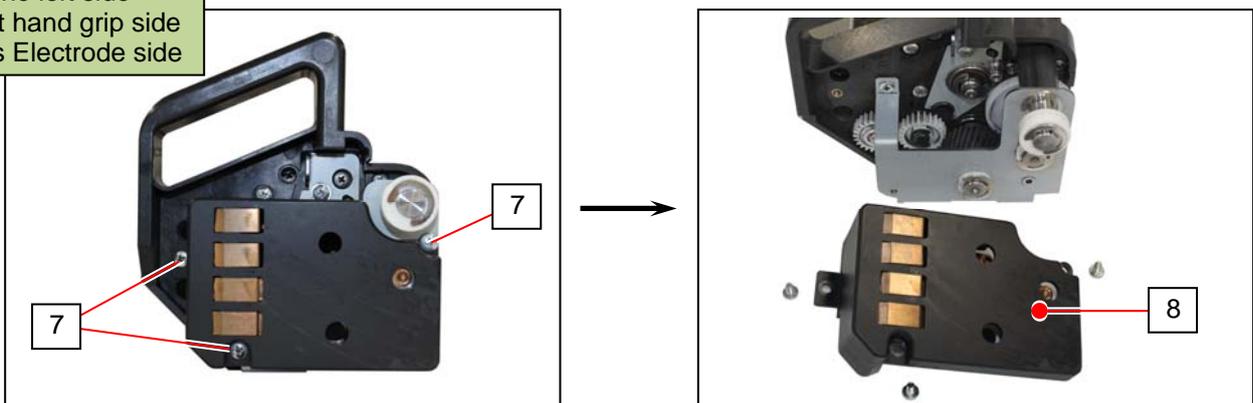
! NOTE

Flip up the rear part of the Cover (6) to remove the Cover 6 (6)..



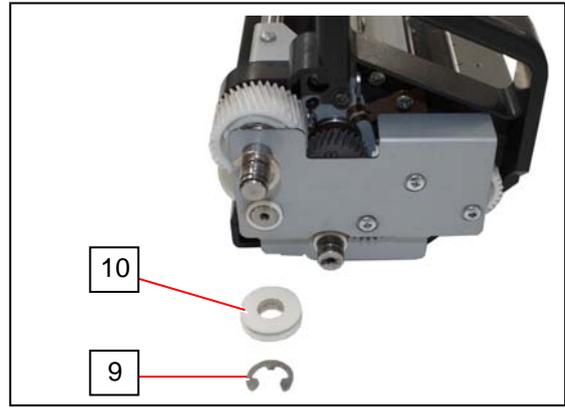
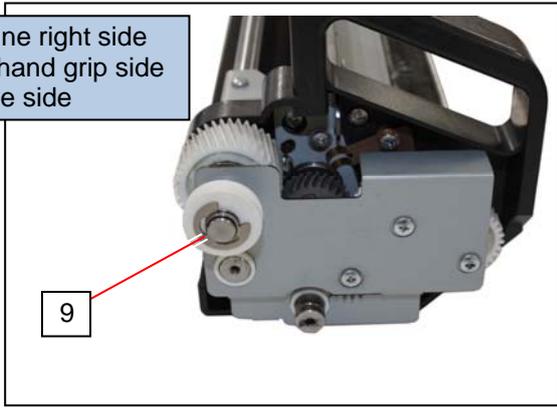
5. On the machine left side (right hand grip side), remove 3 screws (7: M4x6) to detach the Terminal Cover (8).

machine left side
= right hand grip side
= Bias Electrode side

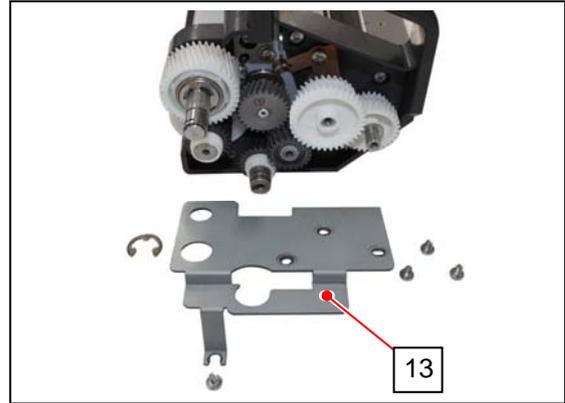
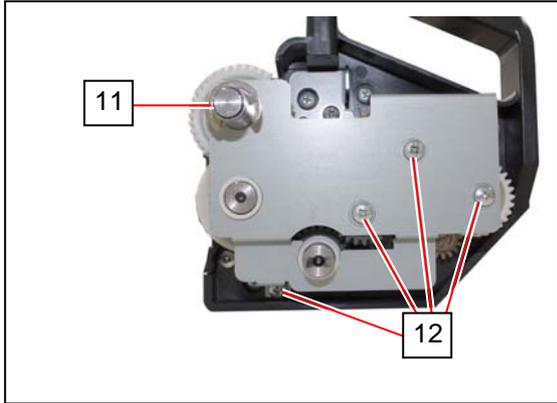


6. On the machine right side (left hand grip side), remove 1 Retaining Ring-E (9: E10) to remove the Collar 2 (10).

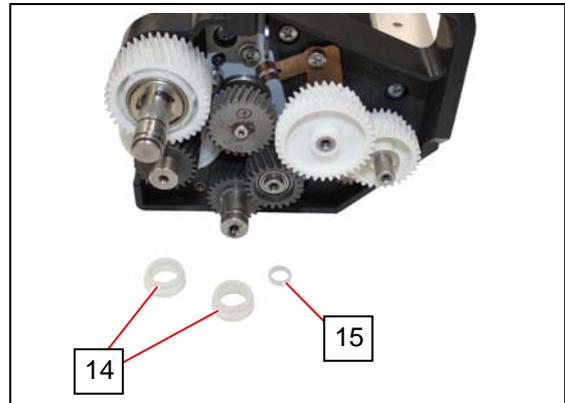
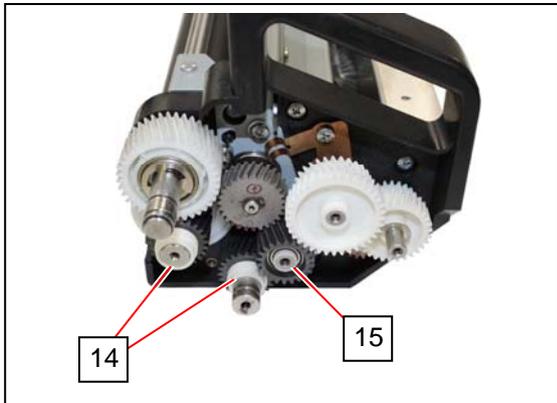
machine right side
= left hand grip side
= Drive side



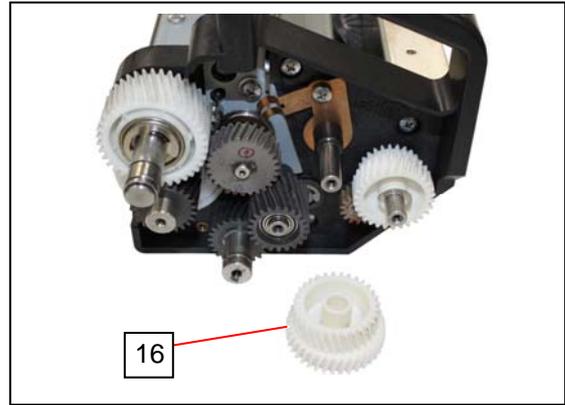
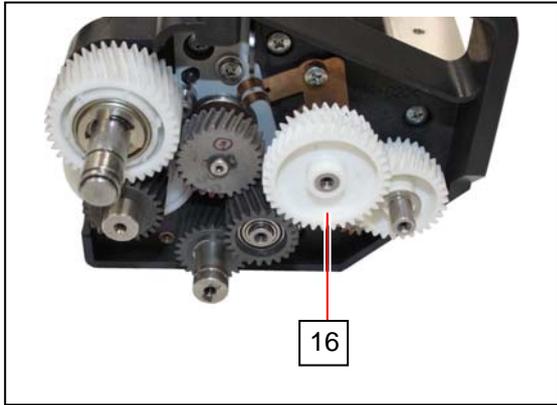
7. Remove 1 Retaining Ring-E (11: E10) and 4 screws (12: M4x6) to remove the Plate 11 (13).



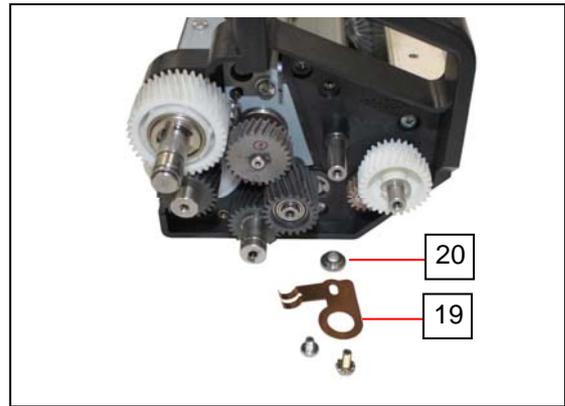
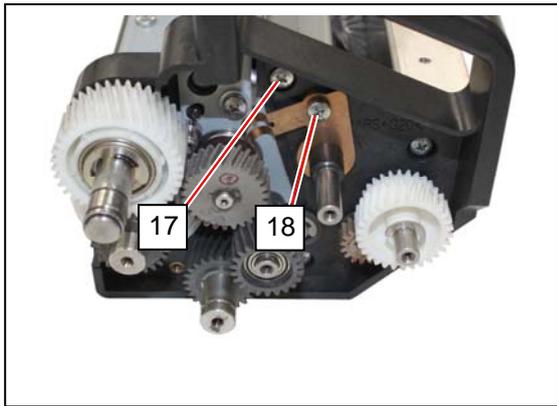
8. Remove 2 Collars (14) from the Developer Roller and the Toner Supply Roller.
Remove 1 Collar (15).



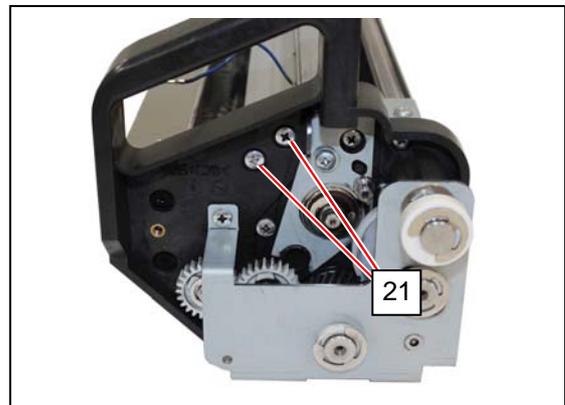
9. Remove the 31-37T Gear (16).



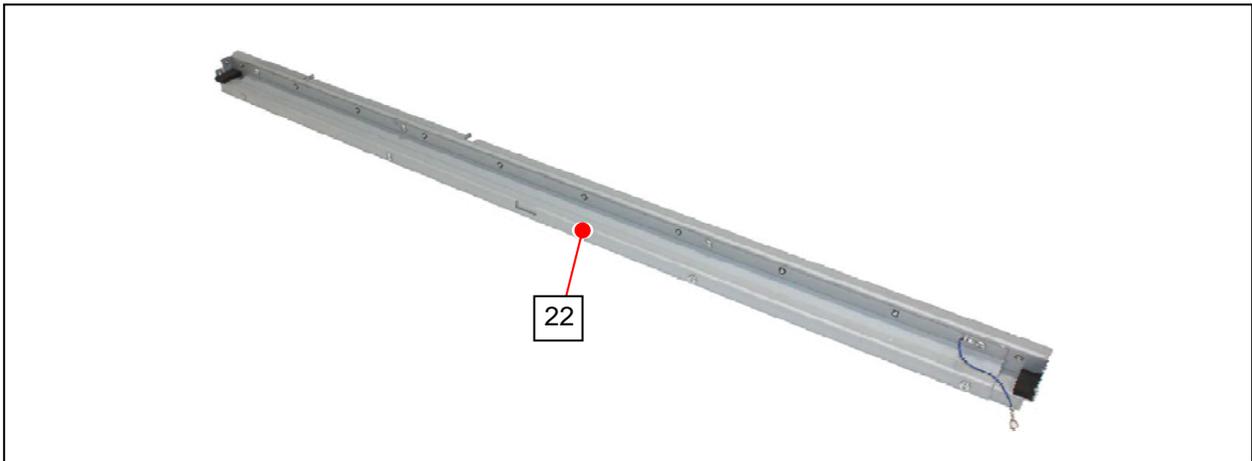
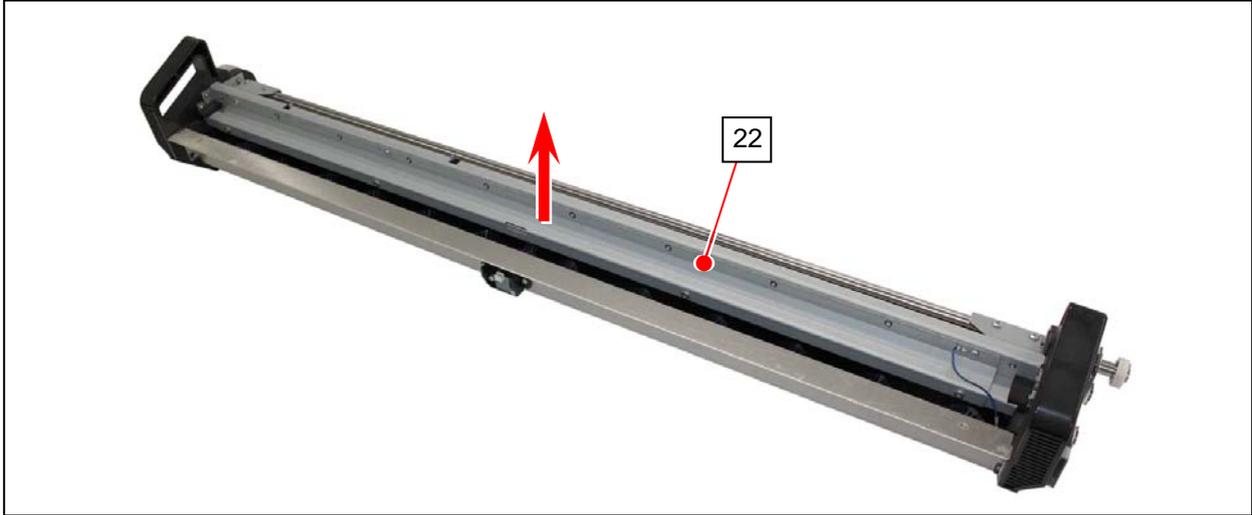
10. Remove 1 screw (17: M4x6) and 1 tooth washer screw (18: 4x10) to remove the Leaf Spring 6 (19) and the Collar (20).



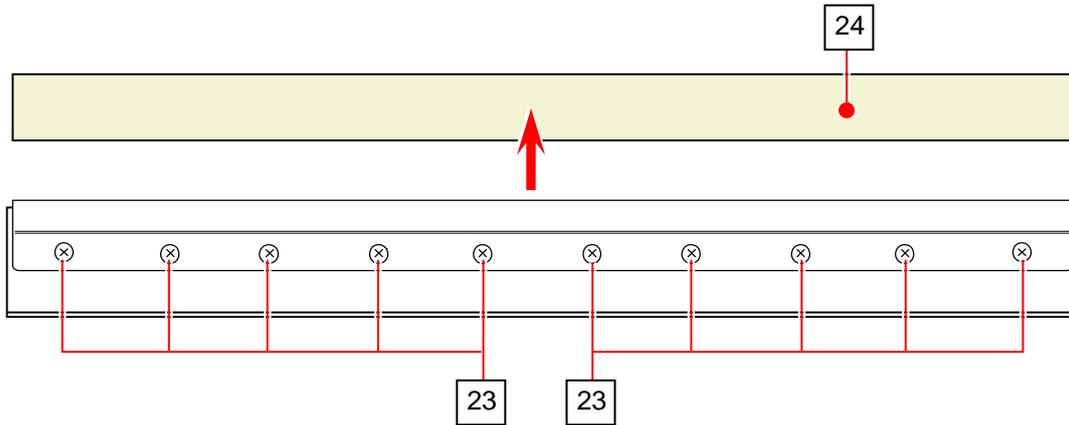
11. On the machine left side (right hand grip side), remove 2 screws (21: M4x6).



12. Remove the Scraper Assy (22) from the Developer Assy.

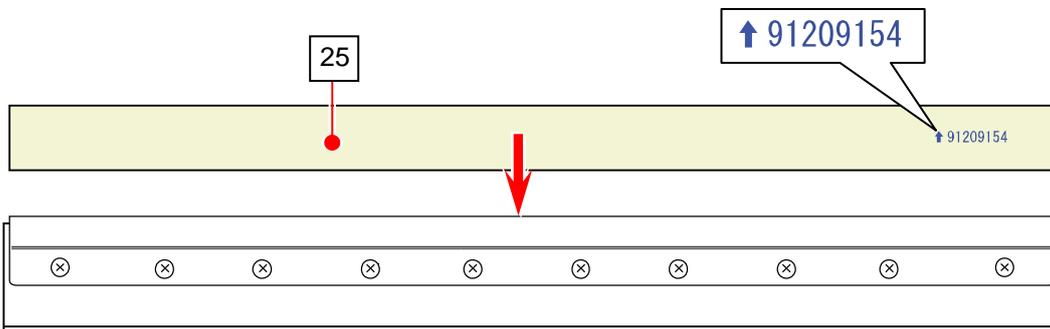


13. Loosen 10 screws (23) to remove the Scraper (24) from the Scraper Assy.

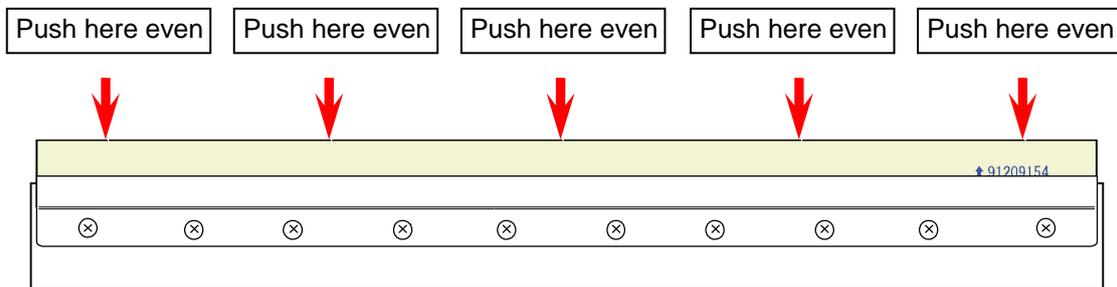


14. Put the new **Scraper** (25) to the Scraper Assy.

The Scraper (25) should be placed that the numbers printed on one side face can be read in correct orientation. (The printed number illustrated below is an example as it is a kind of the serial number)



15. Evenly push the entire Scraper (25) in the Assy.

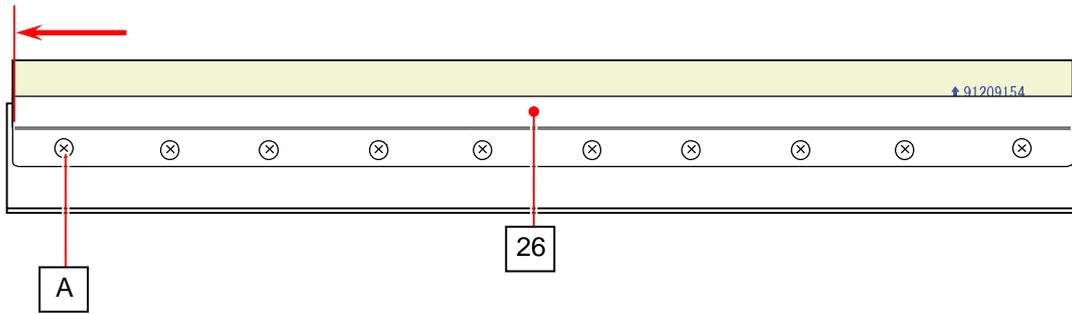


NOTE

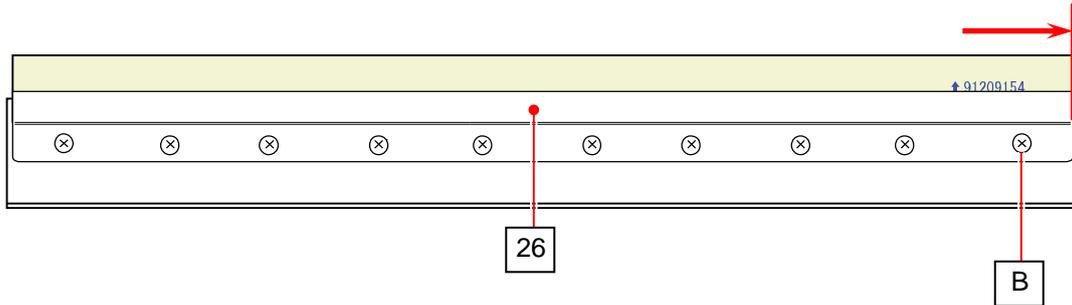
Visually check that Scraper's bottom edge touches the round bosses through the Scraper holder's opening.

25 touches the boss

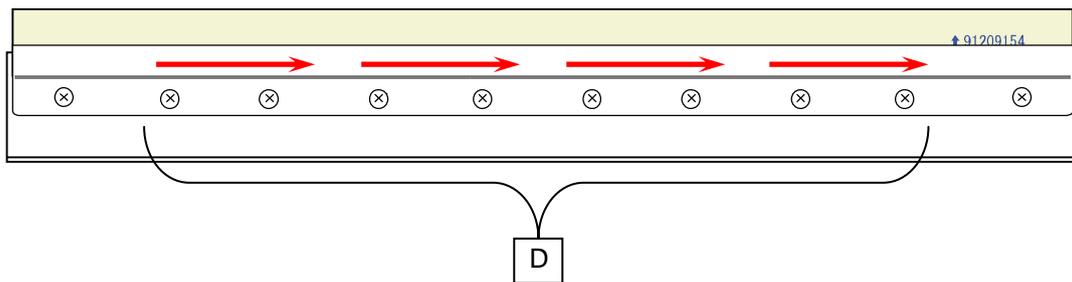
16. Align the Scraper's edge to the Blade Holder's (26) left end, and then loosely fix the Scraper with 1 screw at the left end (A).



17. Align the other edge to the Blade Holder's right end (26), and then loosely fix the Scraper with 1 screw at the right end (B).



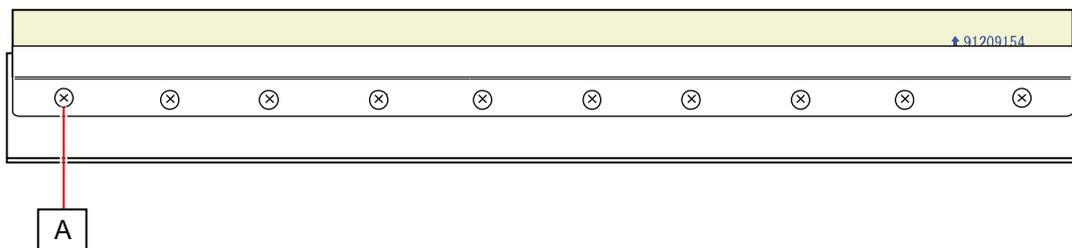
18. Gently tighten the rest screws (C) from the left to the right.



! NOTE

Be sure to check for wave on Scraper's edge. If there is, go back to step 14 to reset the Scraper again.

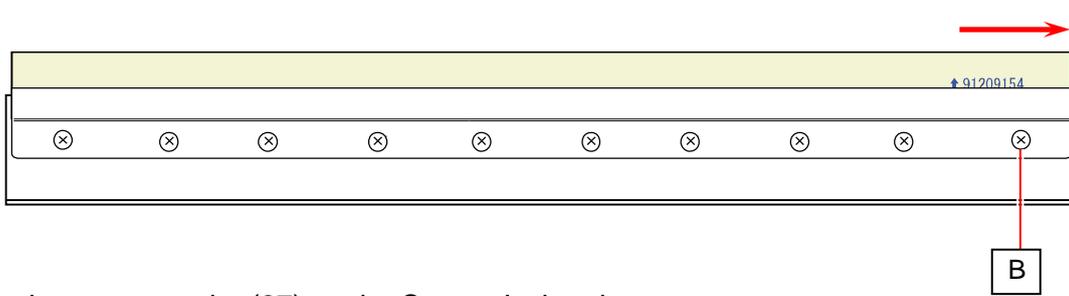
19. Gently tighten the screw (A) at the left end.



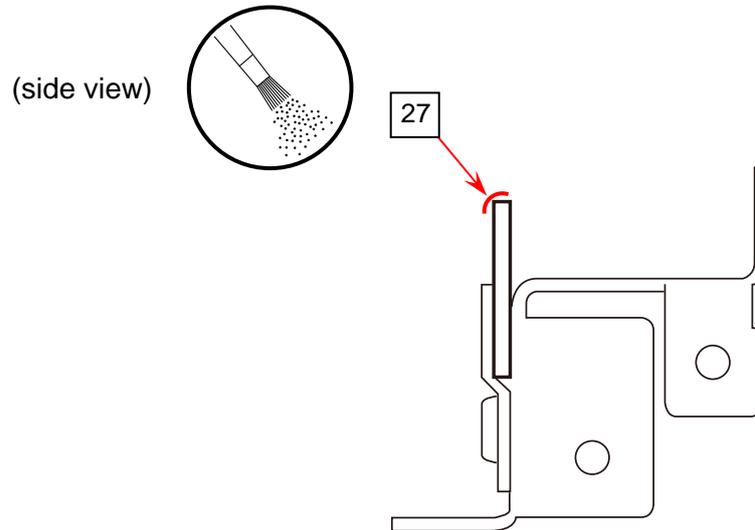
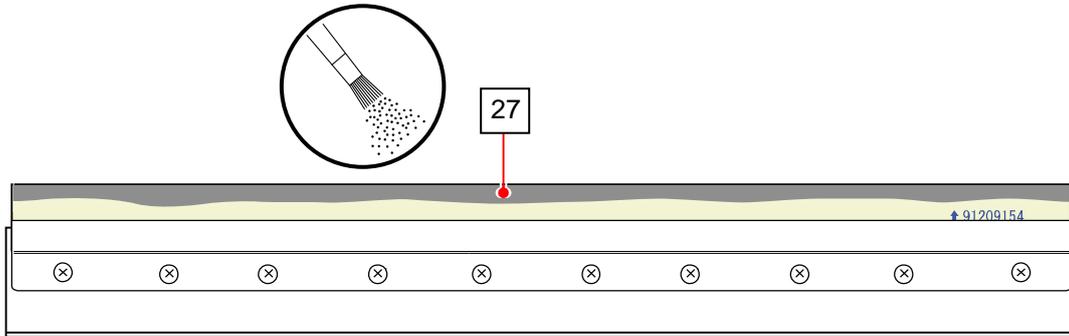
! NOTE

Be sure to check for wave on Scraper's edge. If there is, go back to step 14 to reset the Scraper again.

20. Loosen the screw (B), stretch the Scraper and align the right edge to the right end. Gently tighten the screw (B).



21. Apply the toner powder (27) on the Scraper's tip edge.

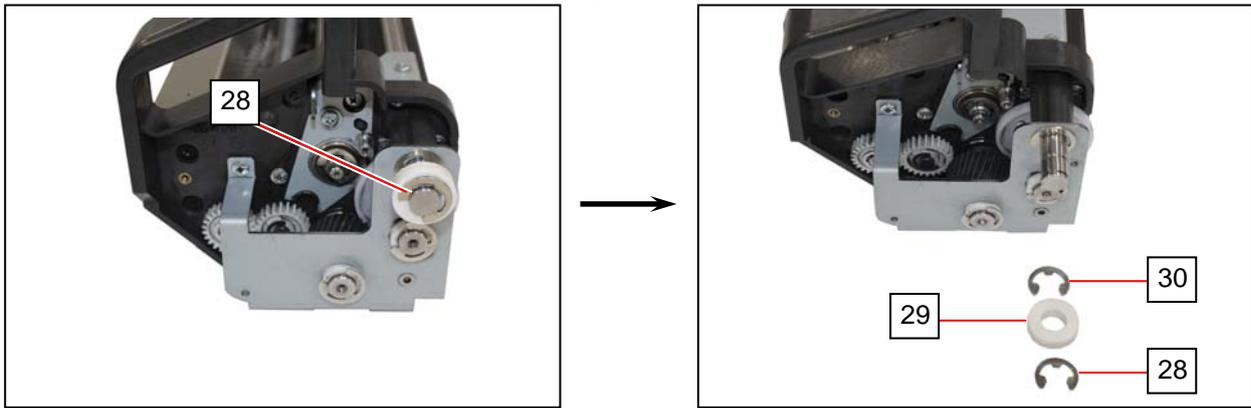


22. Remove all the toner from the Developer Assy.

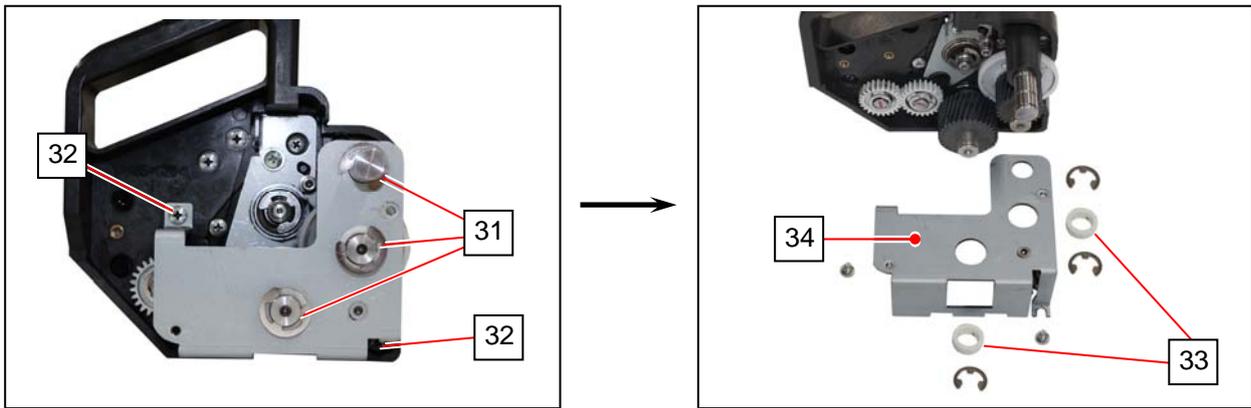
! NOTE

Do not reuse the removed toner.

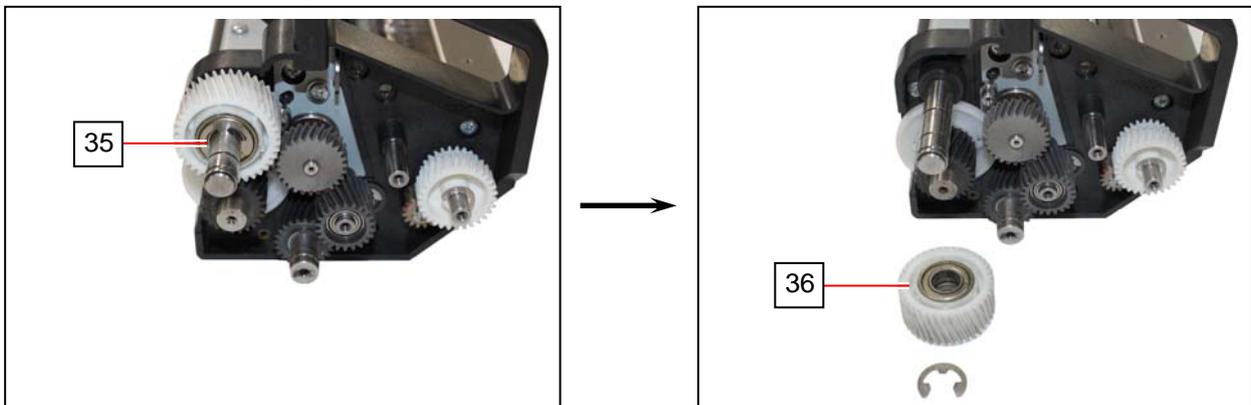
23. On the machine left side (right hand grip side), remove 1 Retaining Ring-E (28: E10) to remove the Collar 3 (29) and another Retaining Ring-E (30: E10).



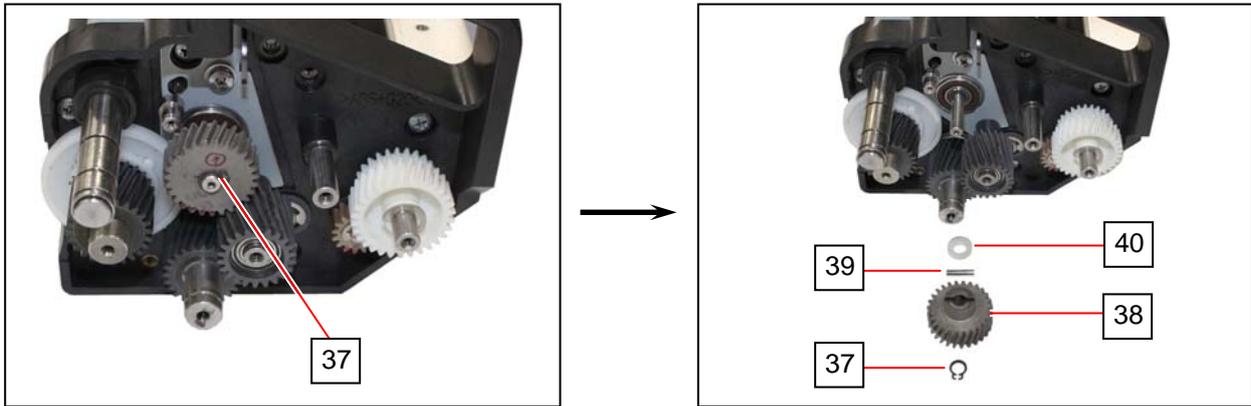
24. Remove 3 Retaining Ring-E (31: E10) and 2 screws (32: M4x6) to remove the Collar (33) and the Plate 13 (34).



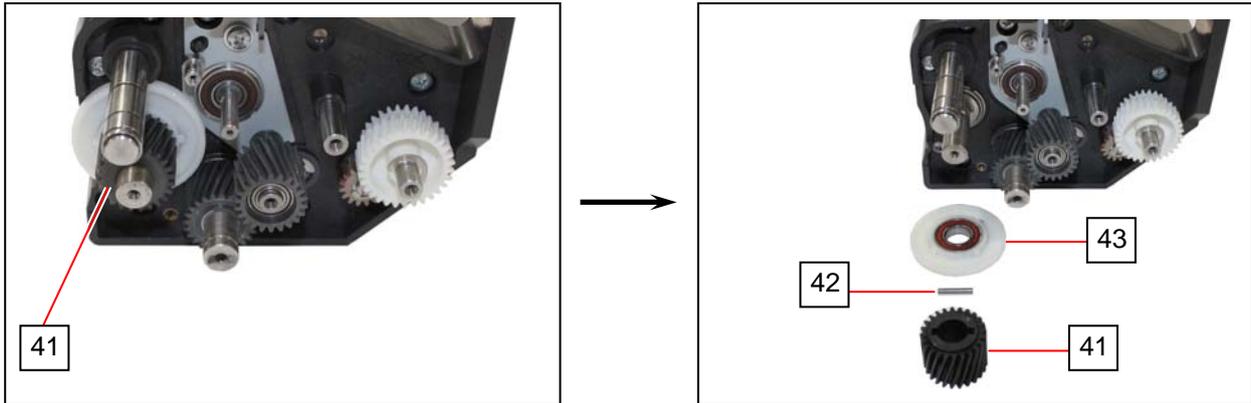
25. On the machine right side (left hand grip side), remove 1 Retaining Ring-E (35: E10) to remove the 38T Helical Gear (36).



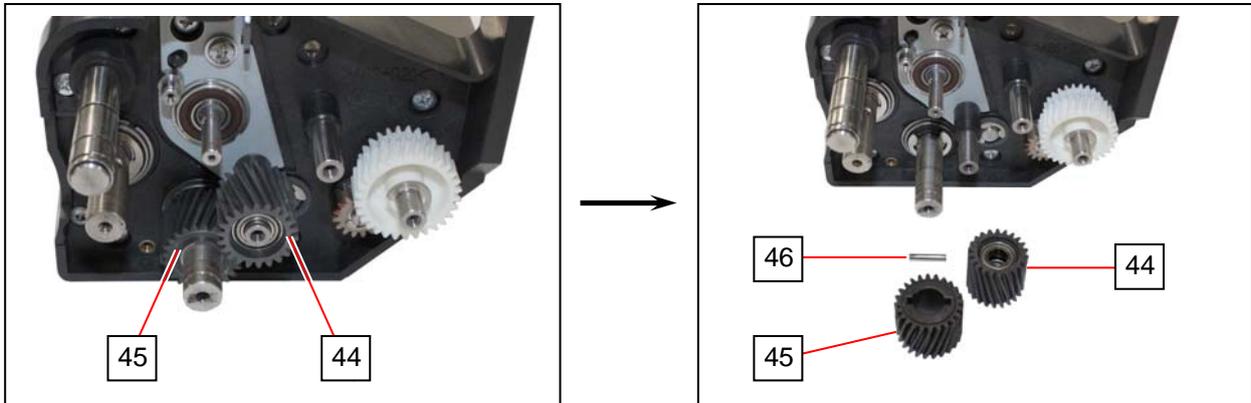
26. Remove C Ring (37: C6) to remove the 27T Helical Gear (38), the Parallel Pin (39: 2.5x10), the Collar 3 (40).



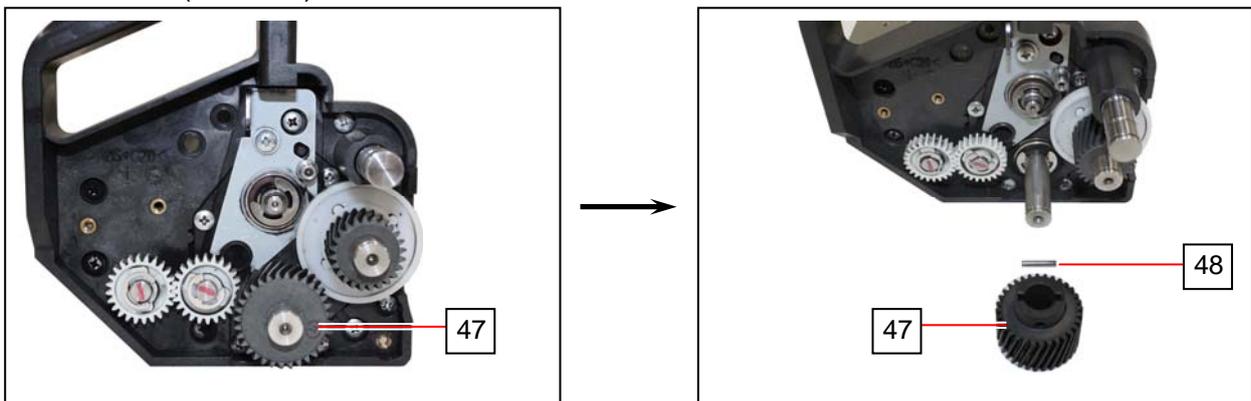
27. Remove the 24T Helical Gear (41), the Parallel Pin (42: 3x16), the Counter Roller (43).



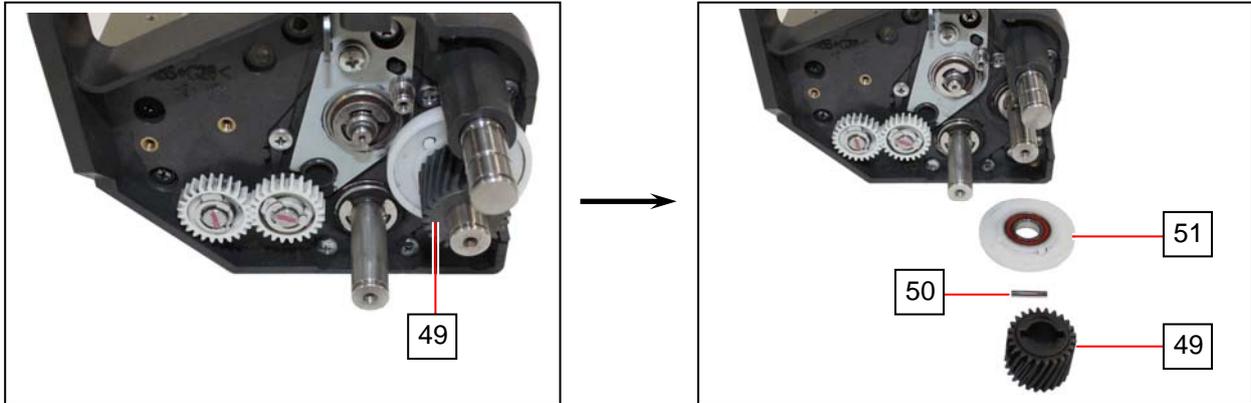
28. Remove the 22T Helical Gear (44). Remove the 24T Helical Gear (45) and the Parallel Pin (46: 3x16).



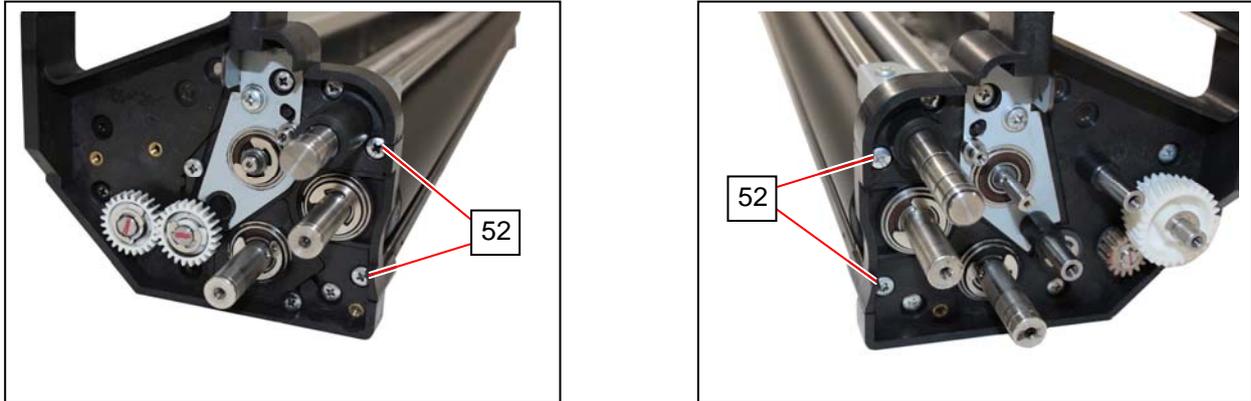
29. On the machine left side (right hand grip side), remove the 32T Helical Gear (47) and the Parallel Pin (48: 3x16).



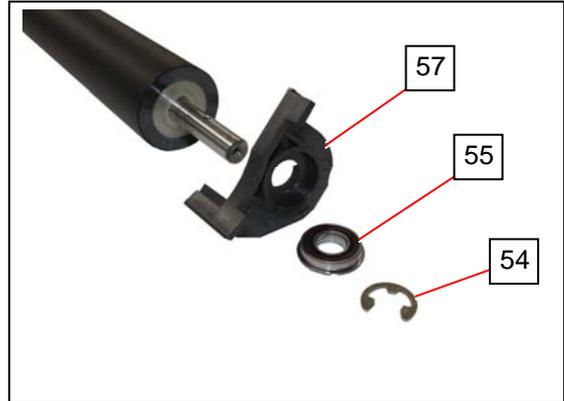
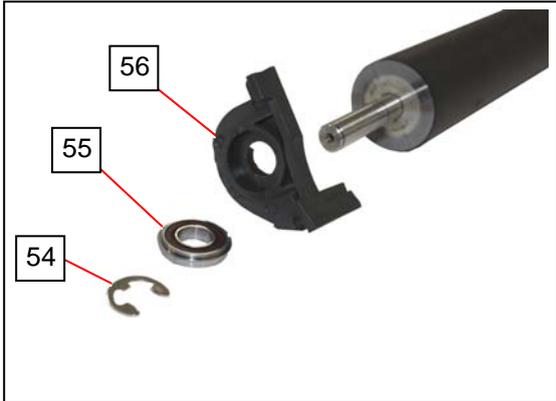
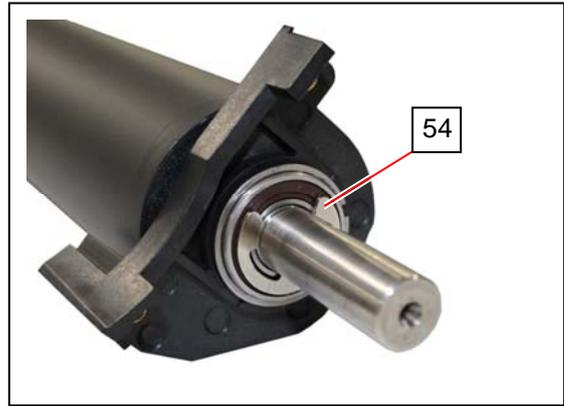
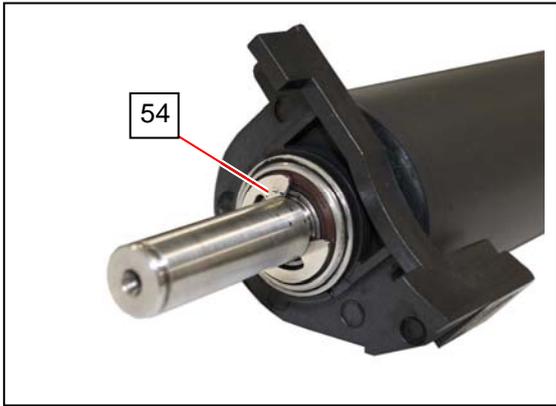
30. Remove the 24T Helical Gear (49), the Parallel Pin (50: 3x16) and the Counter Roller (51).



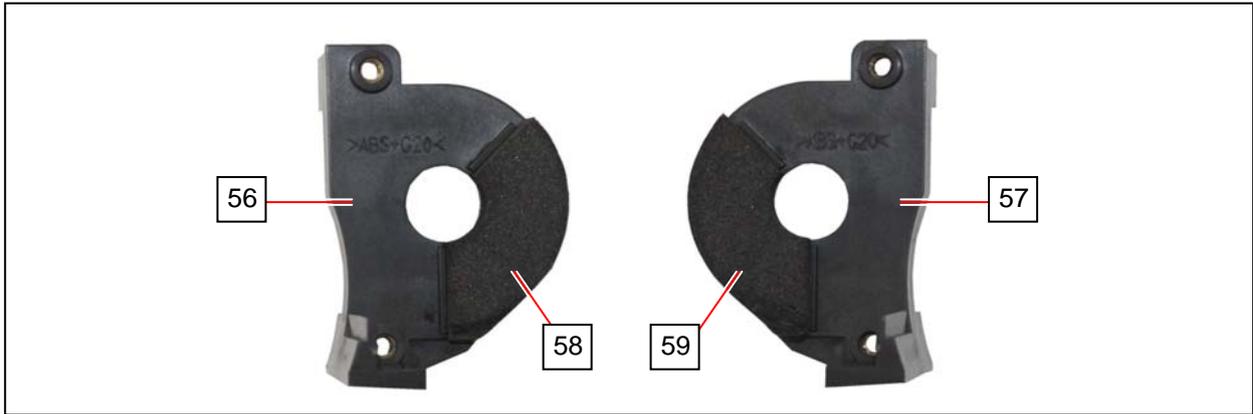
31. On both sides, remove 2 each screw (52: M4x6) to remove the Developer Roller (53).



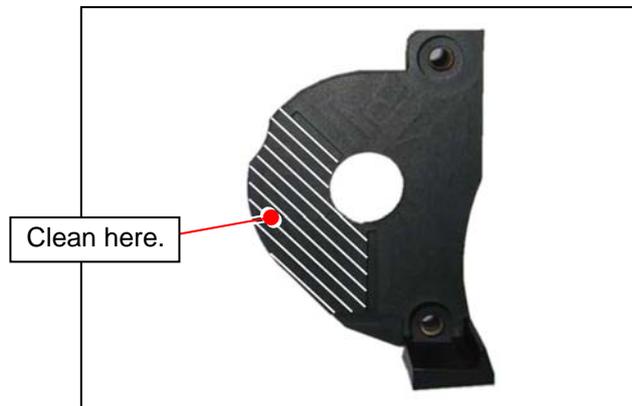
32. On both ends of the Developer Roller, remove Retaining Ring-E (54: E10) to remove the Bearing (55), the Side Plate 21 (56) and the Side Plate 19 (57).



33. Remove the Seal 32 (58) on the inner side of the Side Plate 21 (56).
Remove the Seal 31 (59) on the inner side of the Side Plate 19 (57).



34. Carefully clean off the surface where the Seals have been applied.
Apply the new **Seal 32** to the Side Plate 21 (56).
Apply the new **Seal 31** to the Side Plate 19 (57).

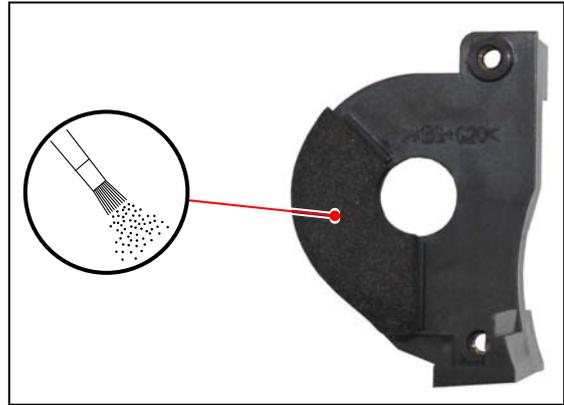


! NOTE

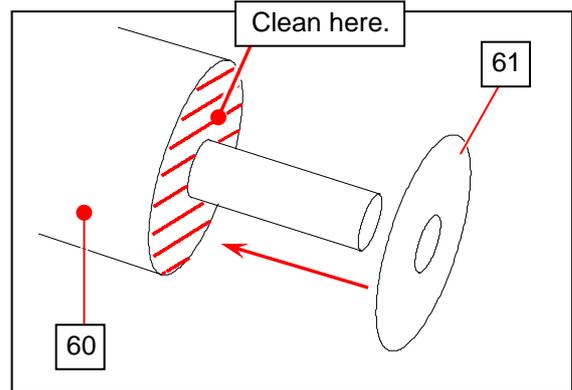
The Seal 31 and the Seal 32 should be aligned against the 3 lines as indicated below.
(The picture is an example. Do the same way on another Seal)



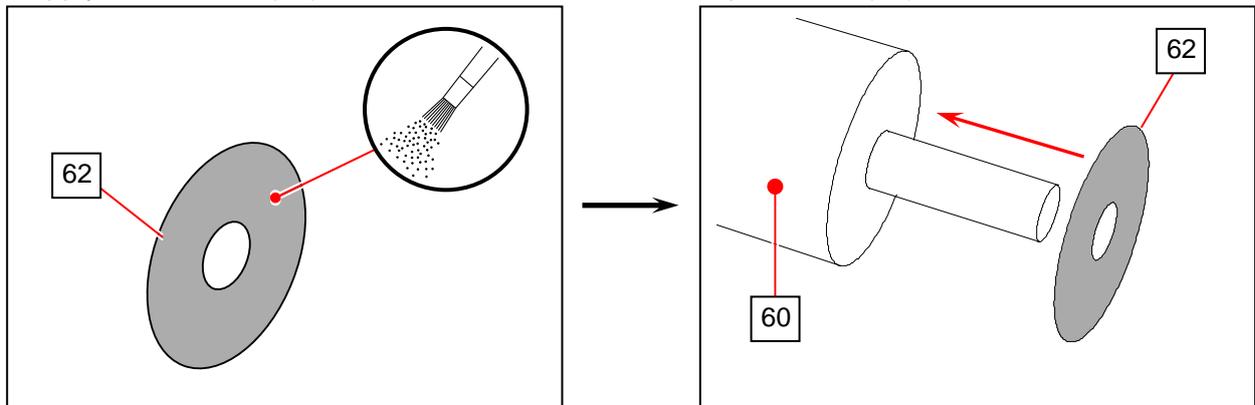
35. Rub the toner powder on the entire Seal 31 and Seal 32.



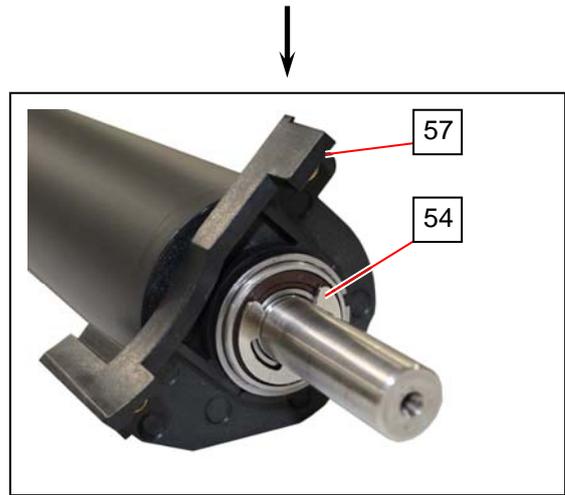
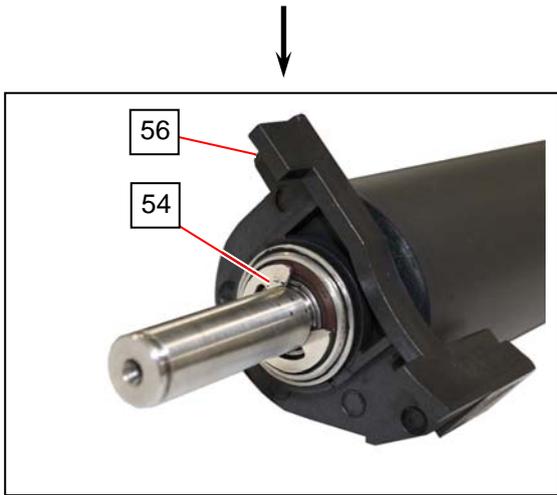
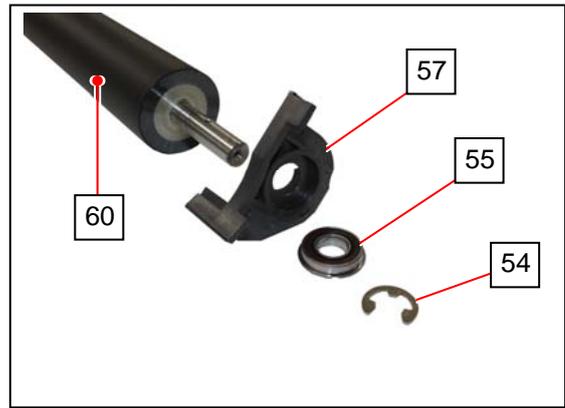
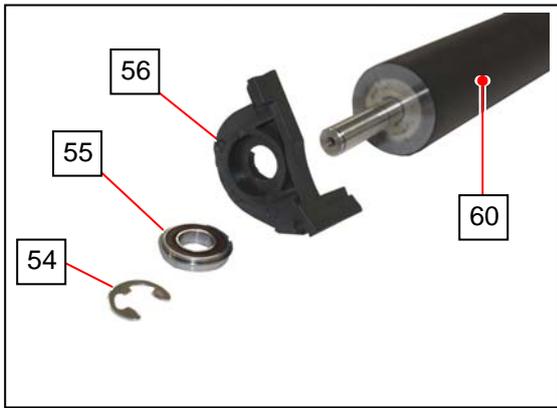
36. Clean off both the end faces of the new **Developer Roller** (60).
Apply the **Sheet 4** (61) to each end face.



37. Rub the toner powder on both faces of the **Sheet 3** (62).
Apply the Sheet 3 (62) to each end face of the Developer Roller (60).



38. Insert the Side Plate 21 (56), the Side Plate 19 (57) and the Bearing (55) on both side shafts of the new Developer Roller (60). Install Retaining Ring-E (54: E10).



NOTE

(1) Mind the direction of the roller when you return the Side Plate 21 (56) and the Side Plate 19 (57). The Side Plate 21 (56) should be installed to the shaft with a groove, the machine left side (right hand grip side).

groove

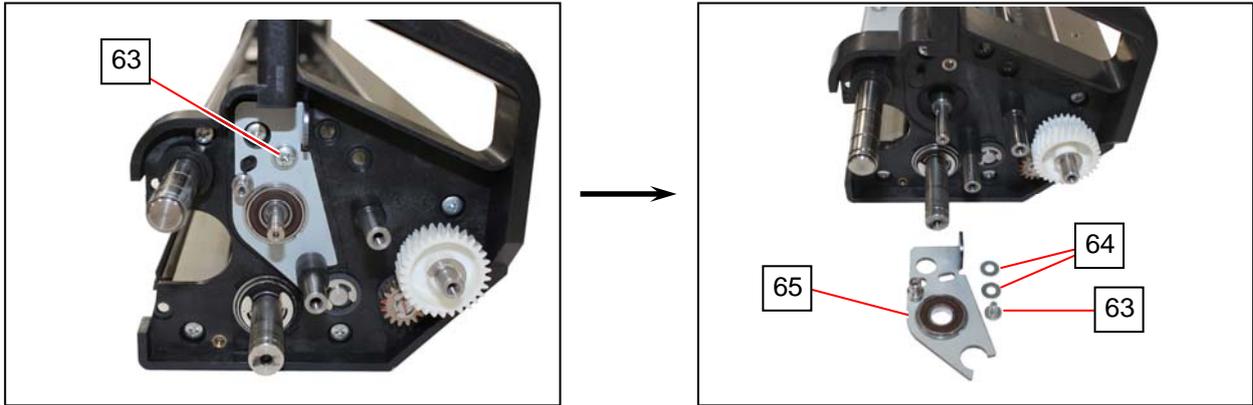


machine left side
= right hand grip side
= Bias Electrode side

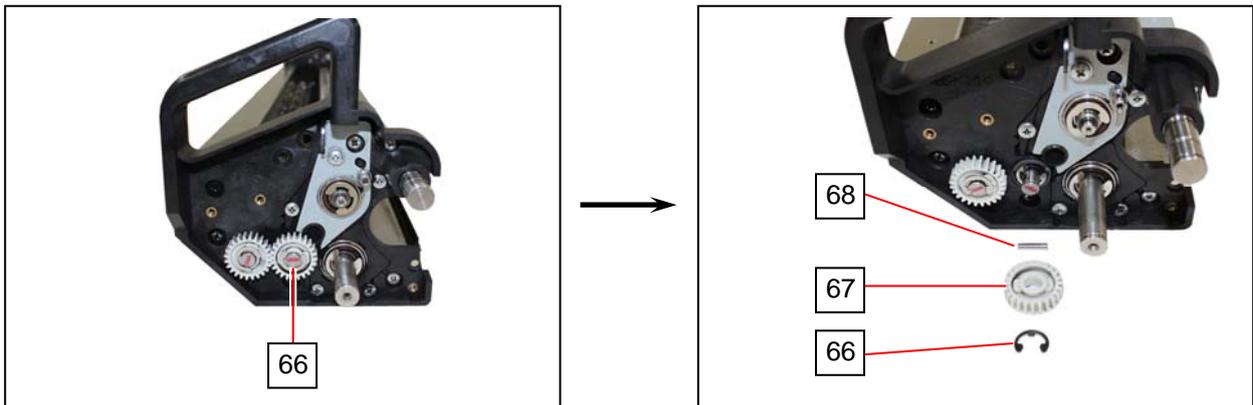
machine right side
= left hand grip side
= Drive side

(2) Do not install the Developer Roller at this time. It will be installed to the Developer Assy in the later step 69.

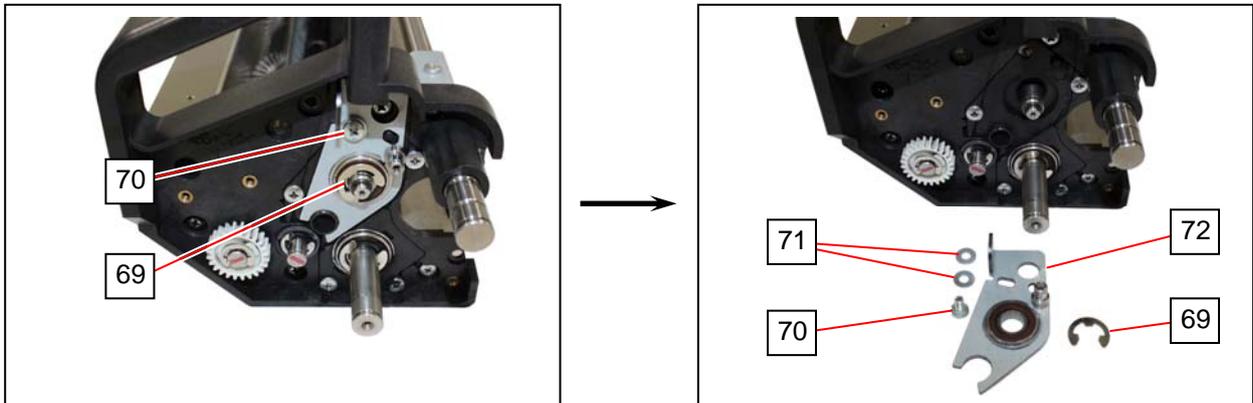
39. On the machine right side (left hand grip side), remove 1 screw (63: M4x8) to remove the Flat Washer(s) (64: M4) and the Plate 17 Assy (65).



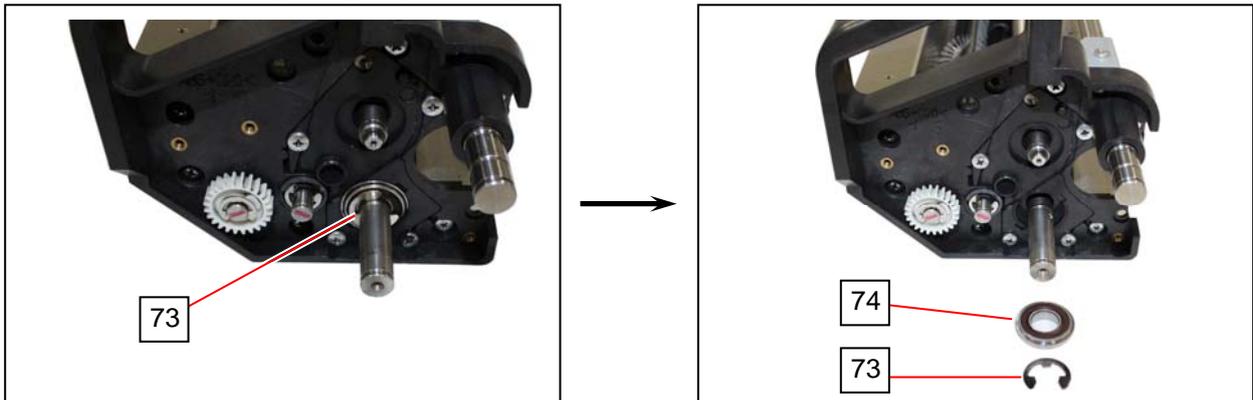
40. On the machine left side (right hand grip side), remove 1 Retaining Ring-E (66: E7) to remove the Gear 16T (67) and the Parallel Pin (68: 3x14).



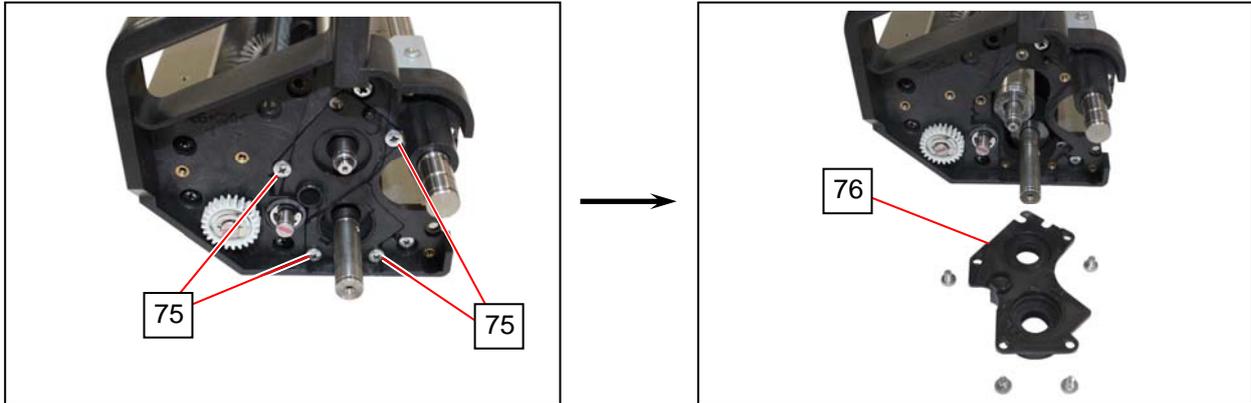
41. Remove 1 Retaining Ring-E (69: E9) and 1 screw (70: M4x8). Remove the Flat Washer(s) (71: M4) and the Plate 18 Assy (72).



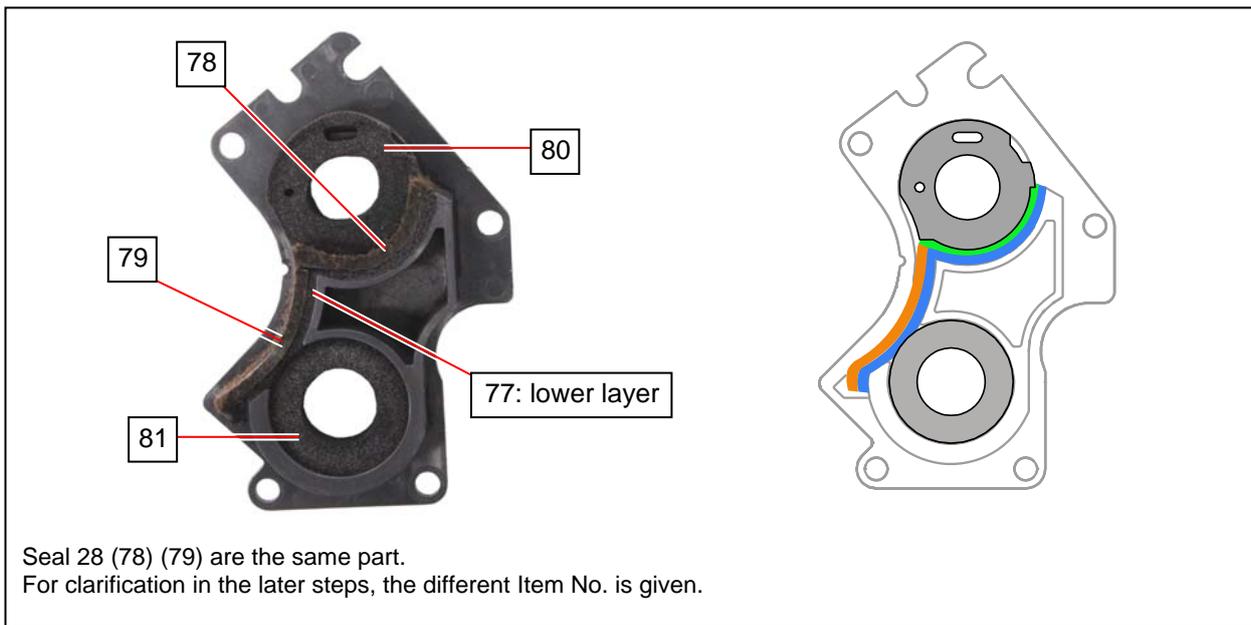
42. Remove 1 Retaining Ring-E (73: E10) to remove the Bearing (74).



43. Remove 4 screws (75: M4x6) to remove the Side Plate 16 (76).



44. Remove the Seal 27 (77), the Seal 28 (78) (79), the Seal 29 (80) and the Seal 30 (81) from the inner side of the Side Plate 16.

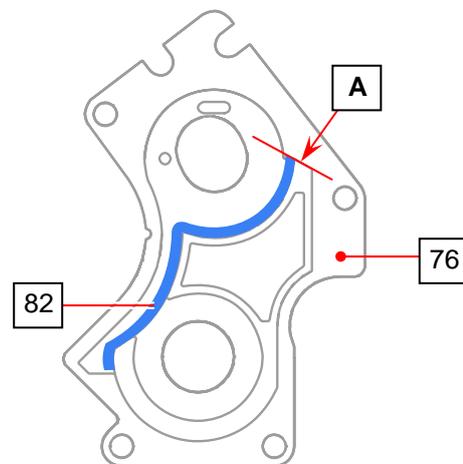


45. Completely clean glue residue off the surface where the Seals have been applied.
Apply the new **Seal 27** (82) to the Side Plate 16 (76).

NOTE

Align one end of the Seal 27 (82) with the line (A).

The Seal 27 (82) should be completely applied along the rib face of Side Plate 16 (76) without gap under the Seal 27 (82).

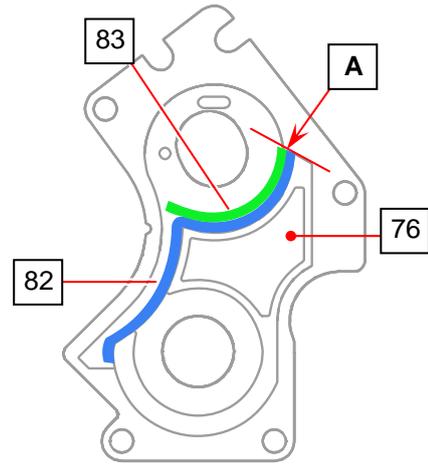


46. Apply the new **Seal 28** (83) to the Side Plate 16 (76).

NOTE

Align one end of the Seal 28 (83) with the line (A).

The Seal 28 (83) should be completely applied along the Seal 27 (82).

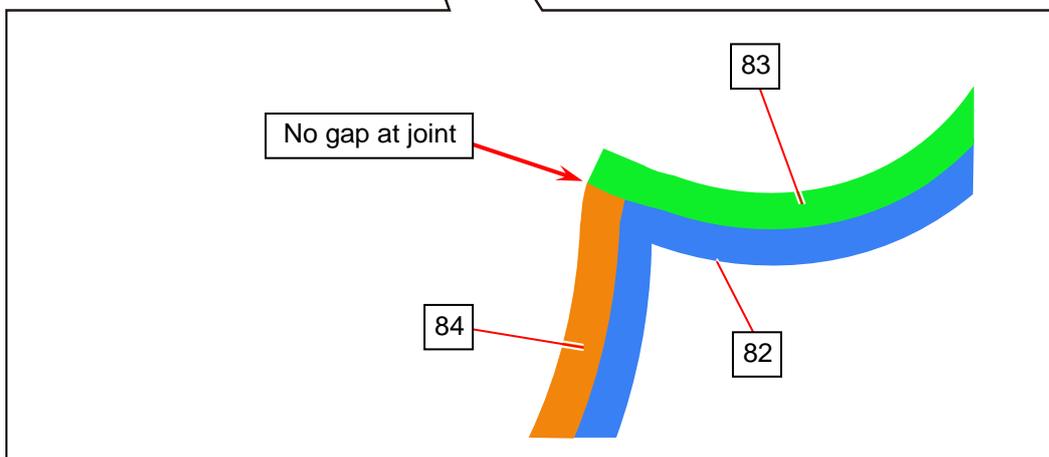
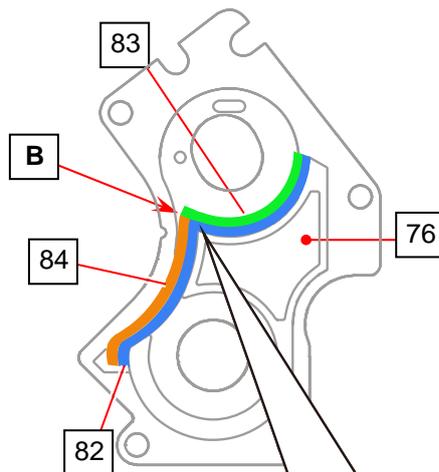


47. Apply another new **Seal 28** (84) to the Side Plate 16 (76).

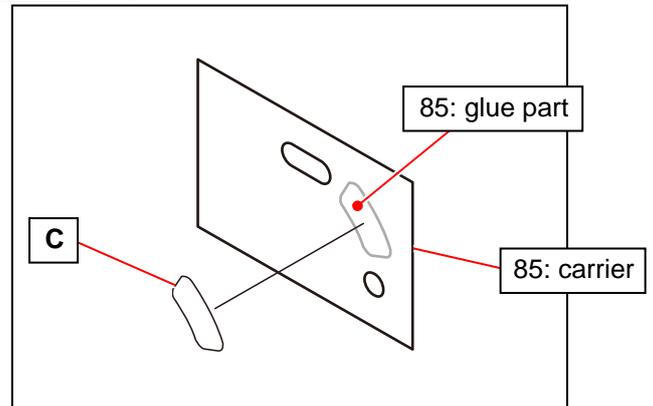
NOTE

Align one end of the Seal 28 (84) with the line (B).

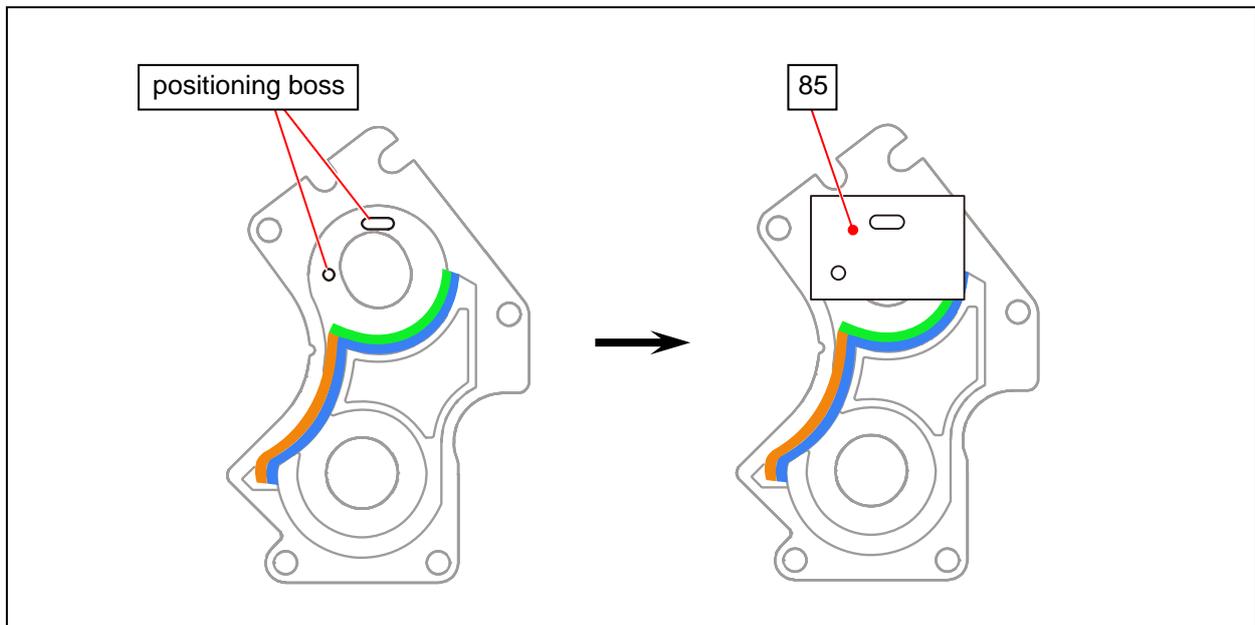
The Seal 28 (84) should be completely applied along the Seal 27 (82).



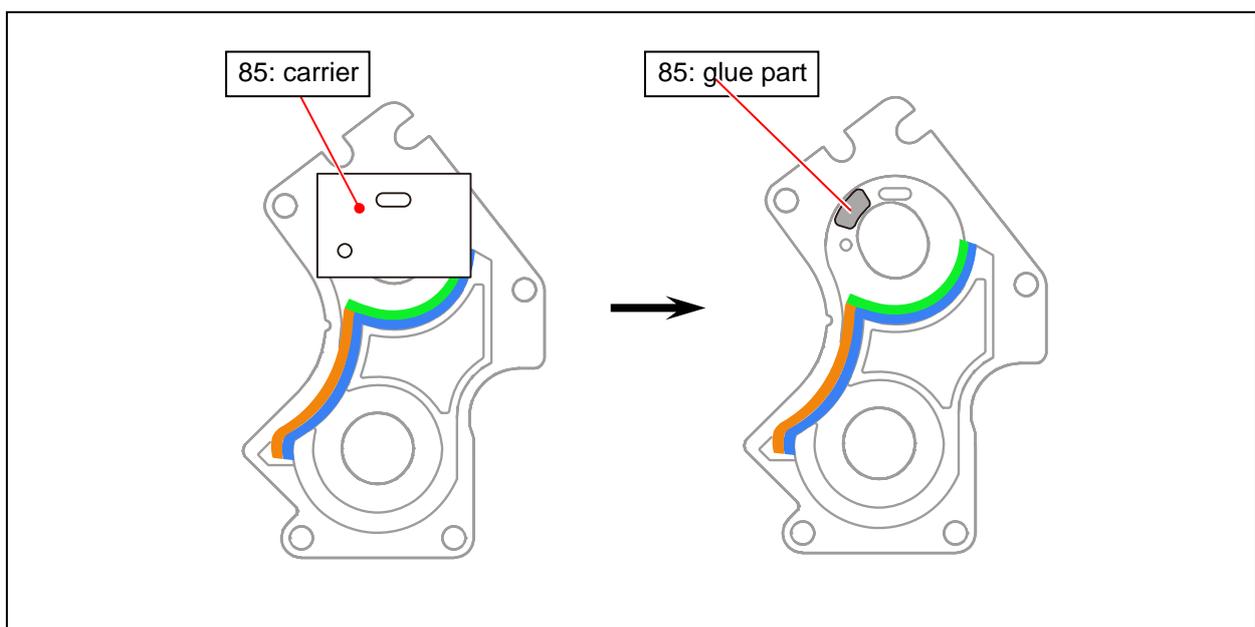
48. Peel off the release paper (C) of the **Double-sided Tape (85)**.



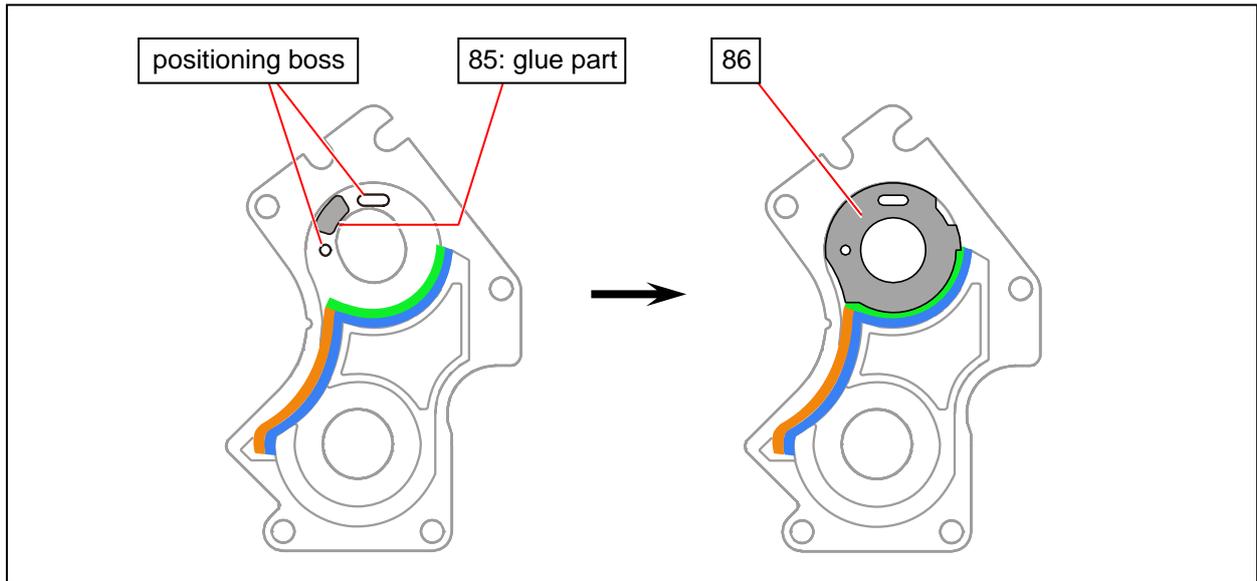
49. Apply the Double-sided Tape (85) on the Side Plate 16 so that the glue part faces the Side Plate 16, noting the positioning bosses.



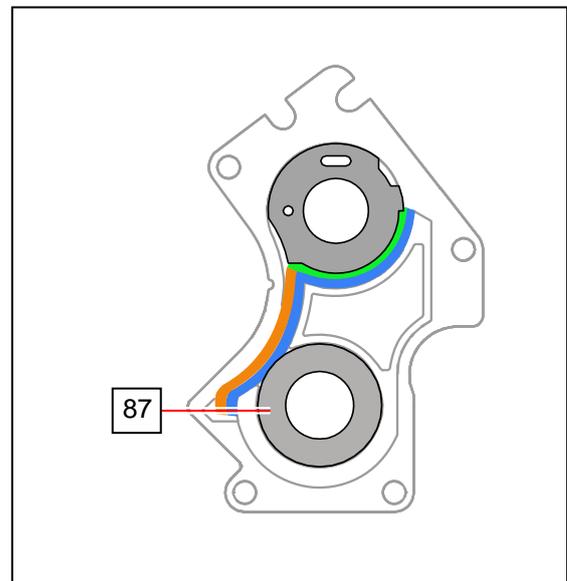
50. Peel off the carrier of the Double-sided Tape (85) so that the glue part should stay on the Side Plate 16.



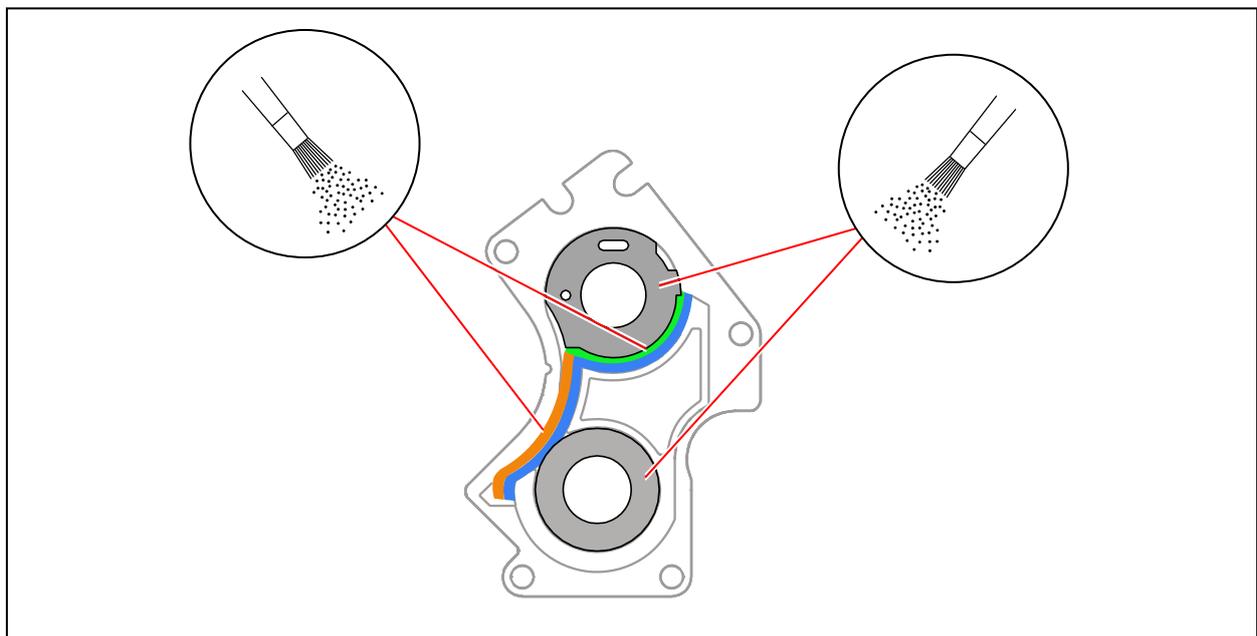
51. Attach the **Seal 29** (86) to the Side Plate 16 so that it fixes by the glue part (85), noting the positioning bosses.



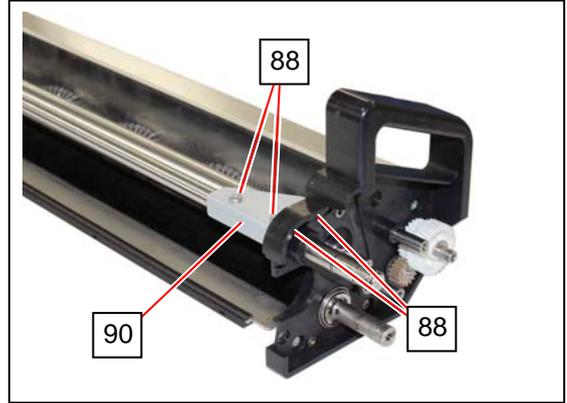
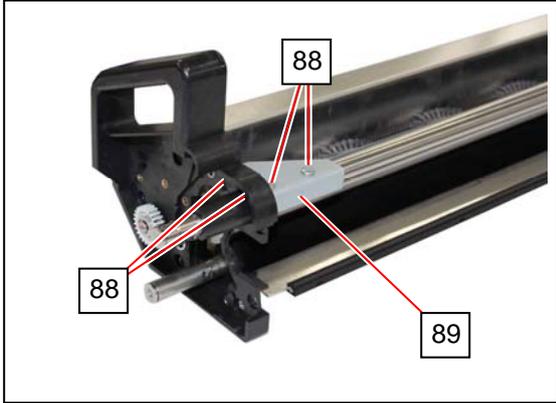
52. Attach the **Seal 30** (87) to the Side Plate 16.



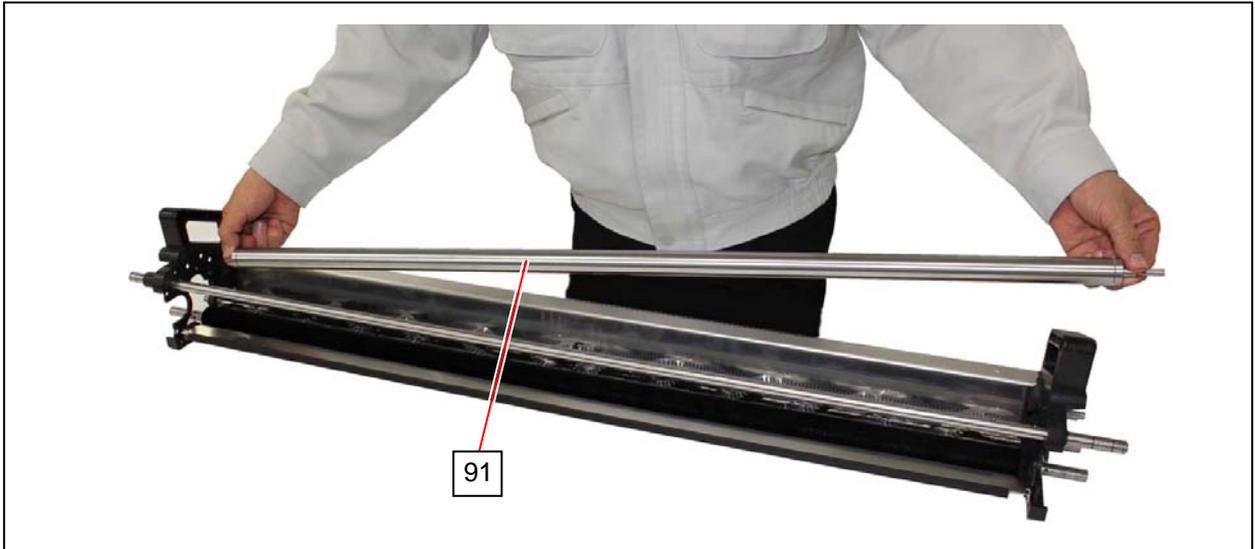
53. Rub the toner powder on the exposed surface of all the Seals.



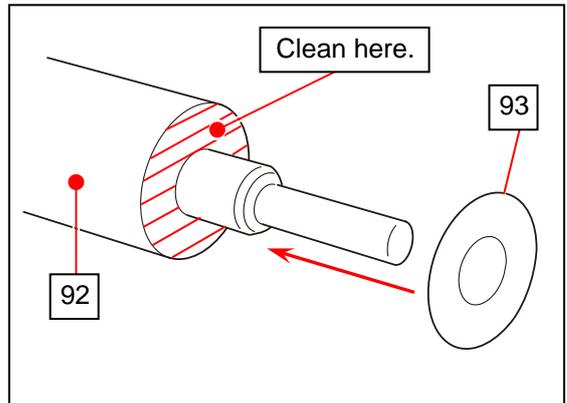
54. Remove 4 screws (88: M4x6) on each side to remove the Bracket 3 (89) and the Bracket 4 (90).



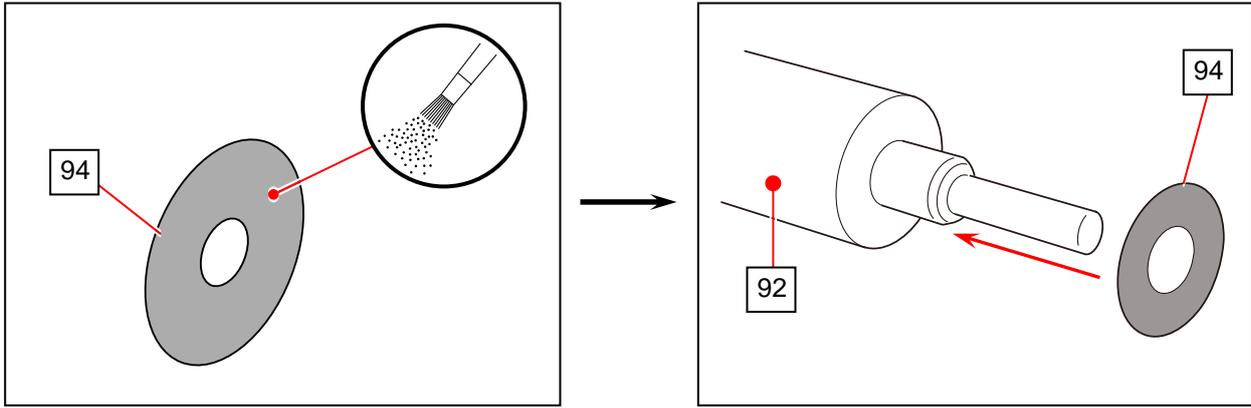
55. Remove the Regulation Roller (91).



56. Clean off both the end faces of the new **Regulation Roller** (92).
Apply the **Sheet 2** (93) to each end face.



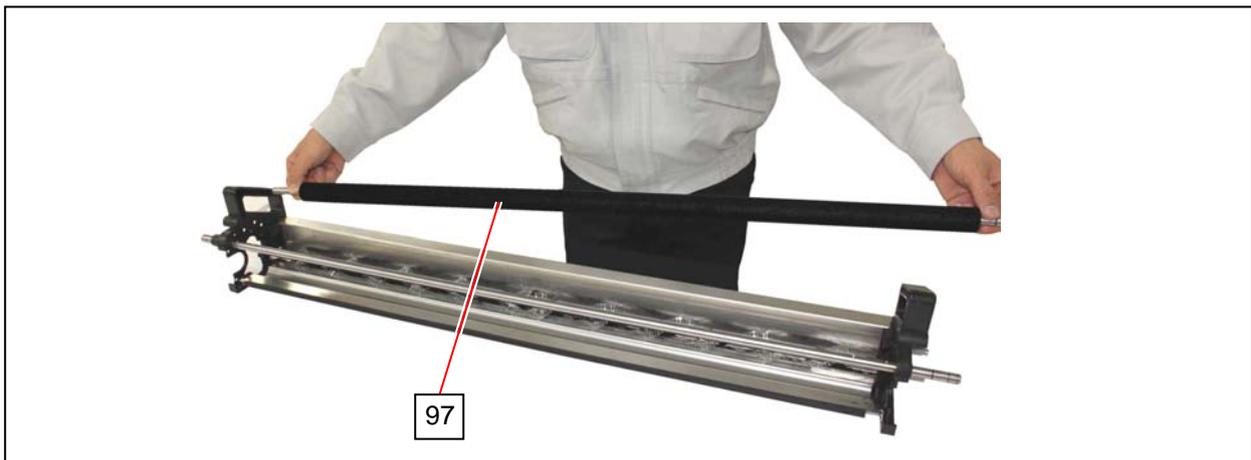
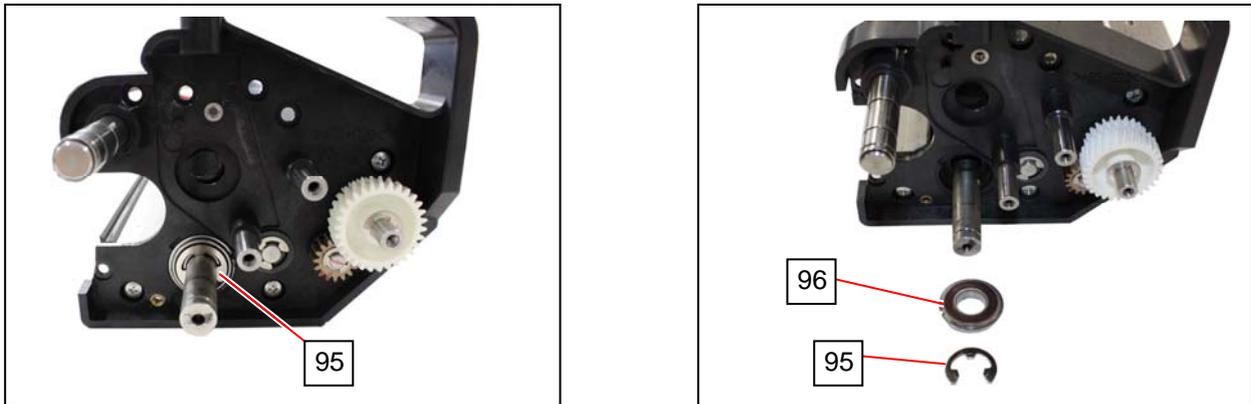
57. Rub the toner powder on both faces of the **Sheet** (94).
Apply the Sheet (94) to each end face of the Regulation Roller (92).



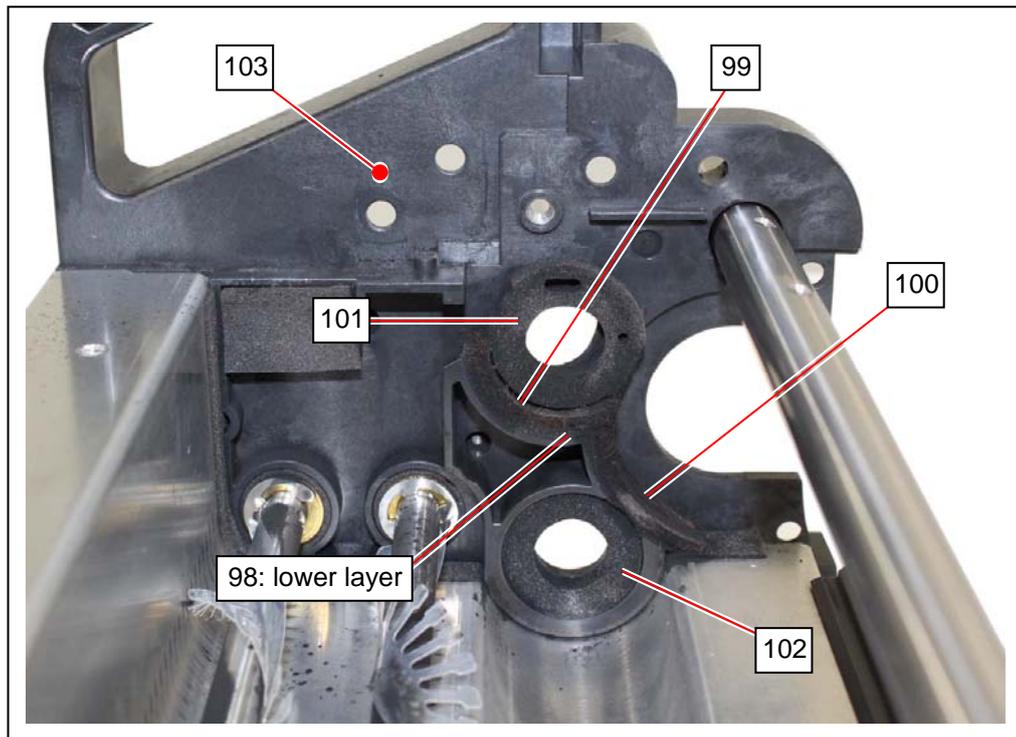
! NOTE

Do not install the Regulation Roller at this time. It will be installed to the Developer Assy in the later step 62.

58. On the machine right side (left hand grip side), remove 1 Retaining Ring-E (95: E10) to remove the Bearing (96) and the Toner Supply Roller (97).

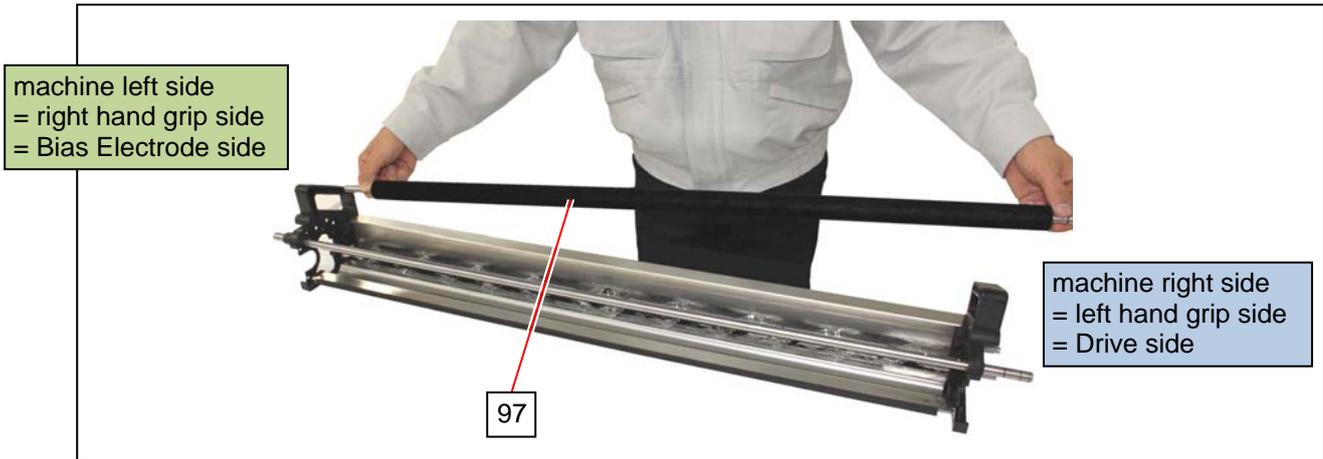


59. On the machine right side (left hand grip side), remove the Seal 27 (98), the Seal 28 (99) (100), the Seal 29 (101) and the Seal 30 (102) from the inner face of the Developer side plate (103).



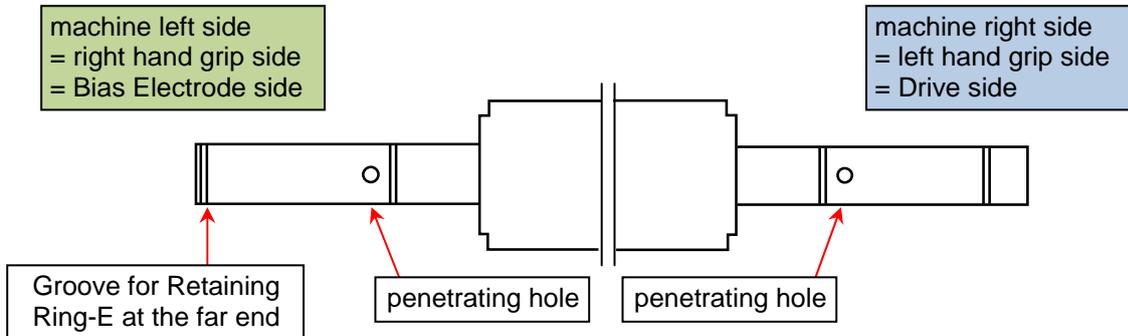
See step 44-53 for reference to apply the new **Seal 27**, **Seal 28**, **Seal 29**, **Seal 30**, **Double-sided Tape 2** onto the Side Plate 18.
(Read with replacing “right and left” in the example figures)

60. All the Seals on the Side Plate 16 and the Side Plate 18 should be replaced.
Return the Toner Supply Roller (97) to the Developer Assy.

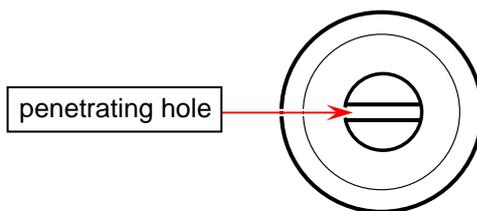


NOTE

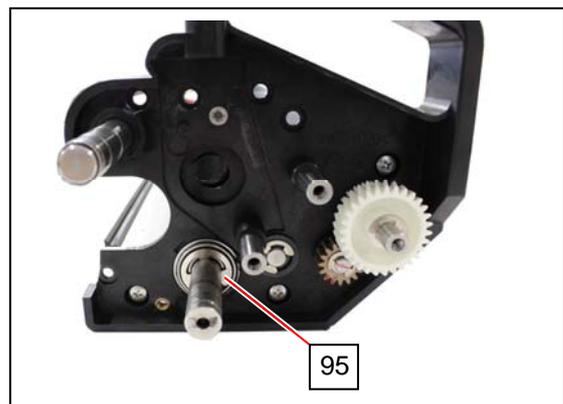
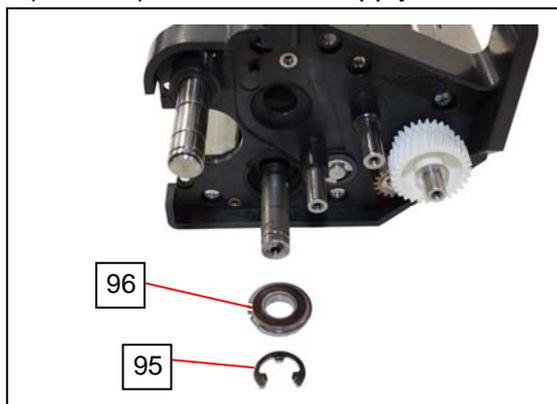
- (1) Mind the direction of the roller when you return it to the Developer Assy.
The shaft with a groove at the far end on it should be placed to the machine left side (right hand grip side).



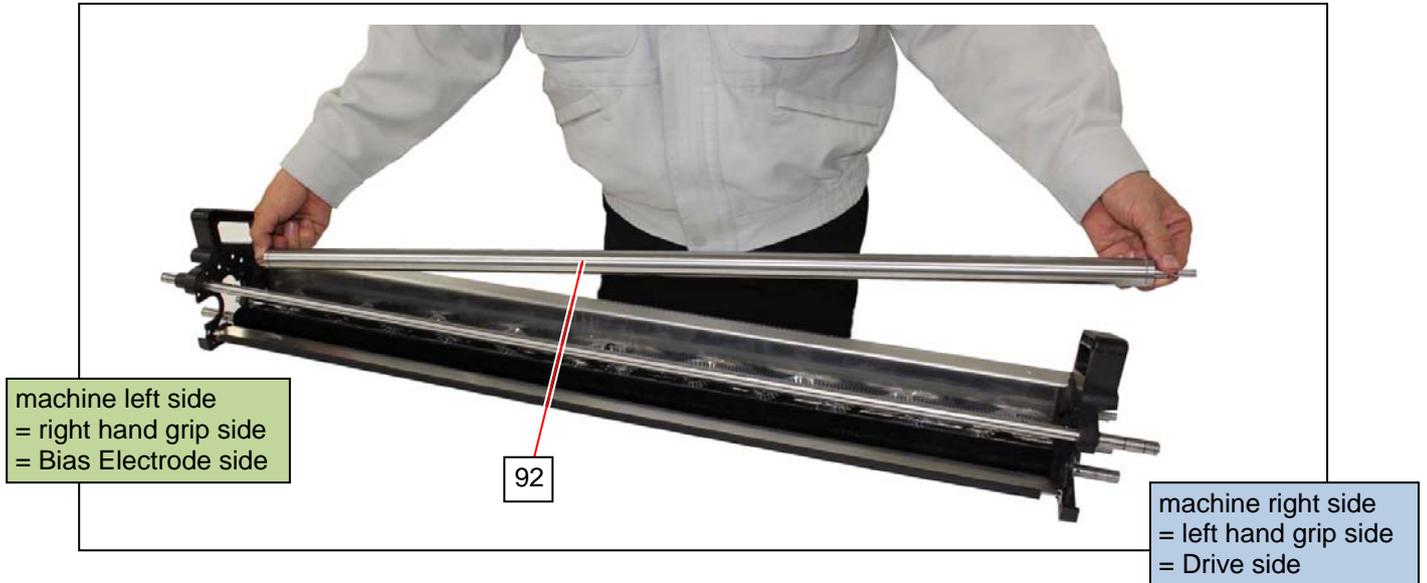
- (2) The penetrating holes for the Parallel Pins should be leveled for ease of later work.



61. On the machine right side (left hand grip side), return the Bearing (96) and 1 Retaining Ring-E (95: E10) to the Toner Supply Roller shaft.

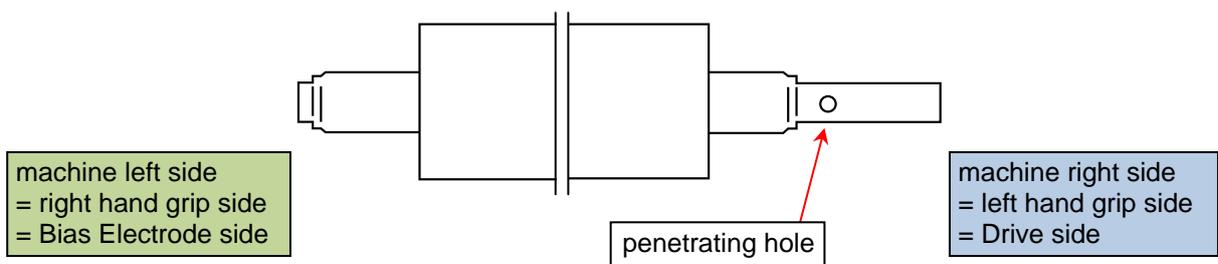


62. Install the new Regulation Roller (92) to the Developer Assy.

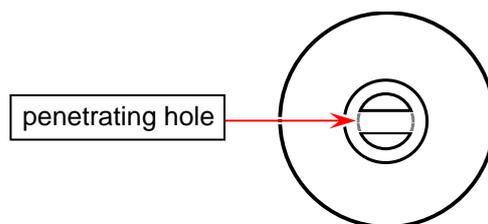


NOTE

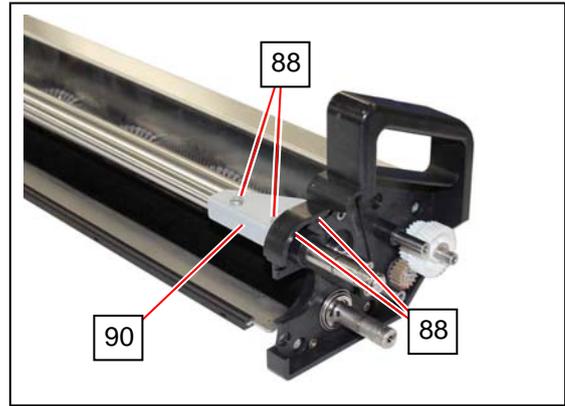
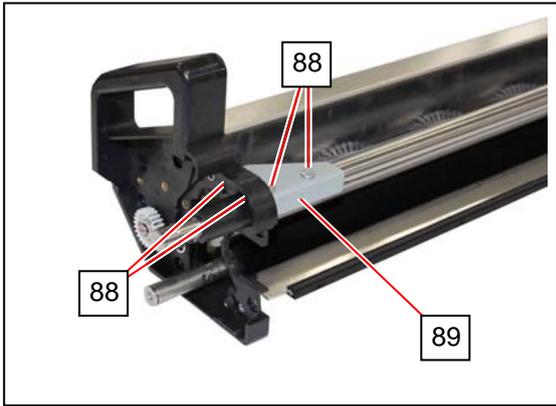
- (1) Mind the direction of the roller when you return it to the Developer Assy.
The longer side should be placed to the machine right side (left hand grip side).



- (2) The penetrating holes for the Parallel Pins should be leveled for ease of later work.

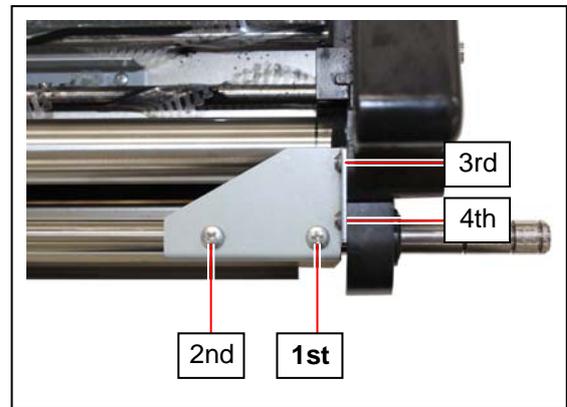
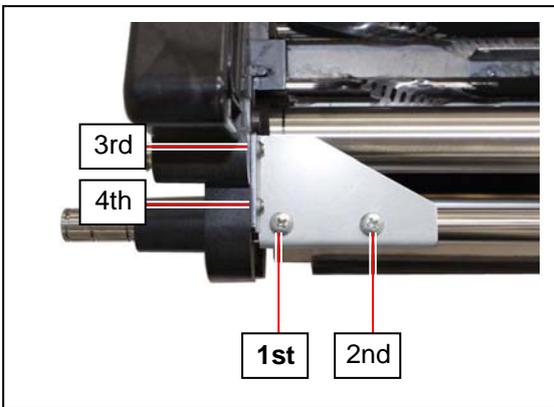


63. Return the Bracket 3 (89) and the Bracket 4 (90) with 4 screws (88: M4x6) noting the order of tightening.

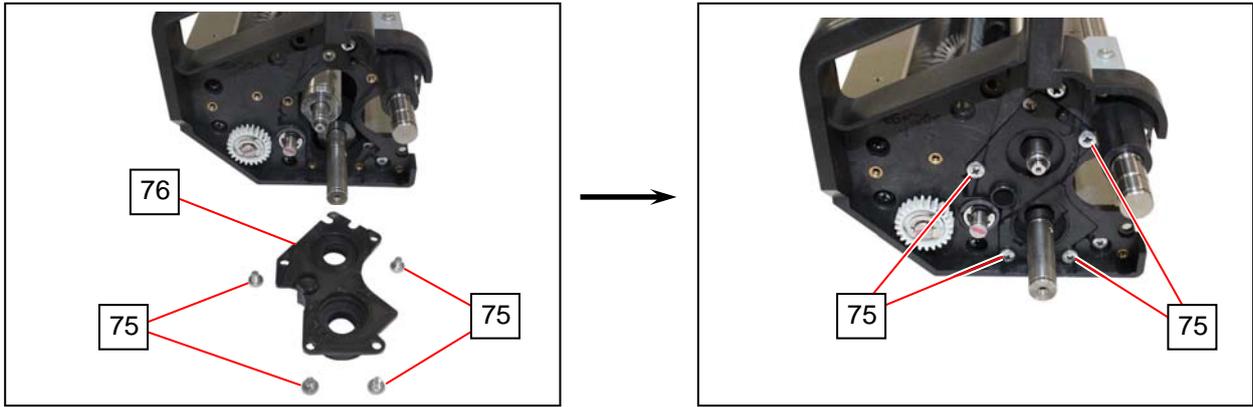


! NOTE

Order of tightening:

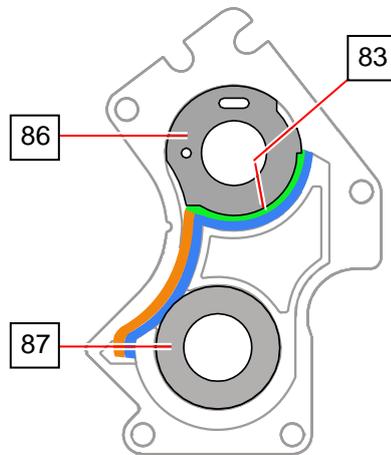


64. On the machine left side (right hand grip side), return the Side Plate 16 (76) with 4 screws (75: M4x6).

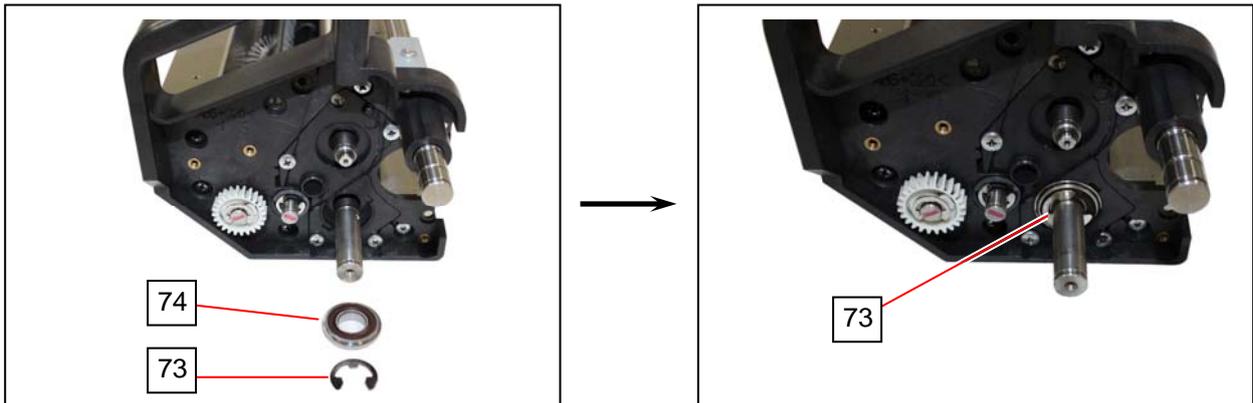


! NOTE

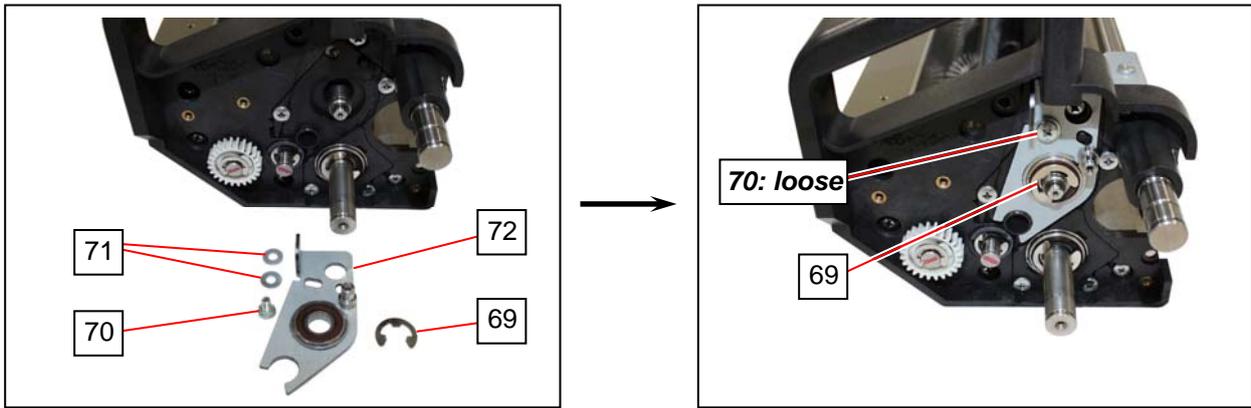
At this step, the Seal 28 (83), the Seal 29 (86) and the Seal 30 (87) should not flip or be displaced.



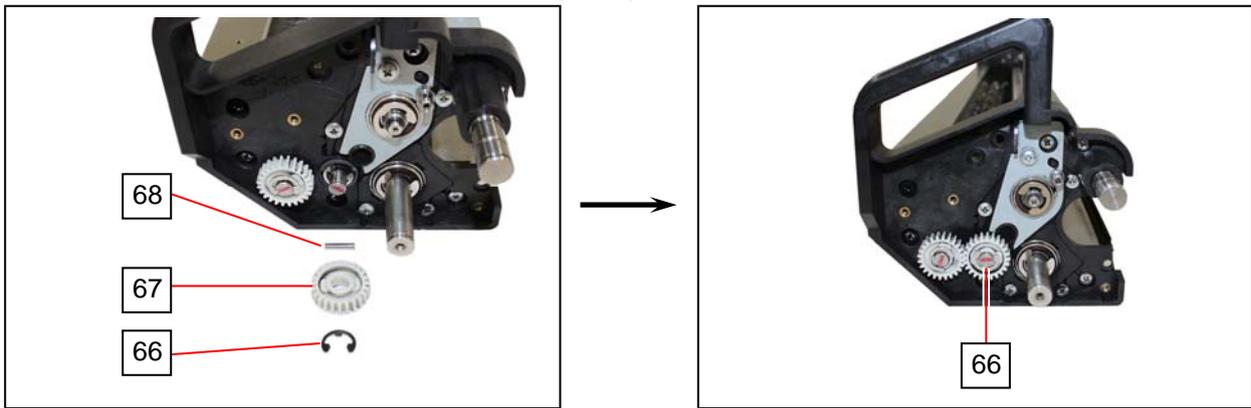
65. Return the Bearing (74) and 1 Retaining Ring-E (73: E10) to the Toner Supply Roller shaft.



66. Return the Plate 18 Assy (72), 1 Retaining Ring-E (69: E9) and the Flat Washer(s) (71: M4).
At this time, loosely Fix 1 screw (70: M4x8).



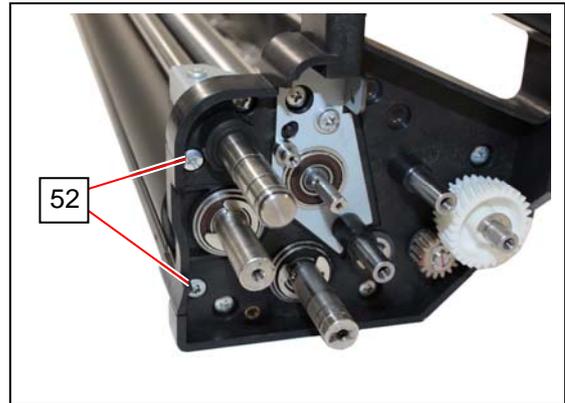
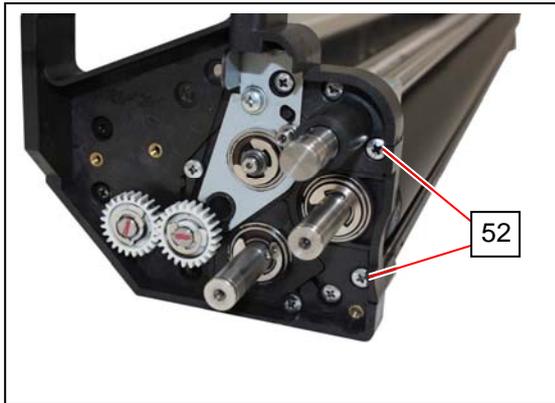
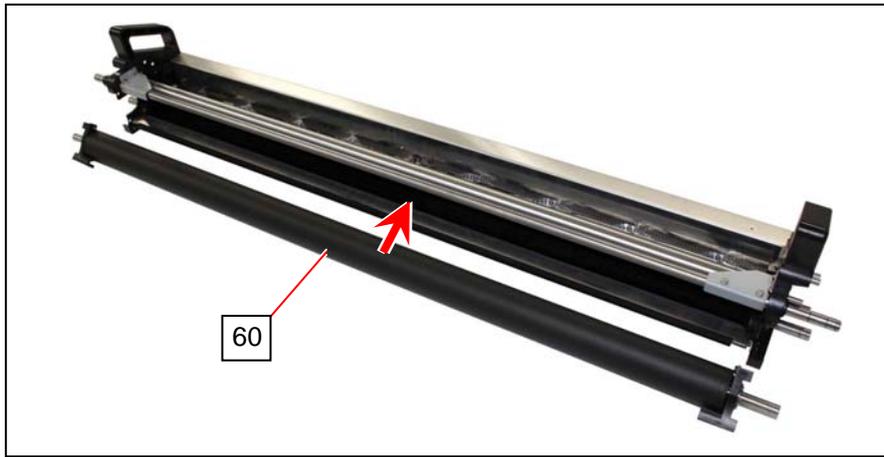
67. Insert the Parallel Pin (68: 3x14) to the toner agitator shaft.
Return the Gear 16T (67) and 1 Retaining Ring-E (66: E7).



68. On the machine right side (left hand grip side), return the Plate 17 Assy (65) and the Flat Washer(s) (64: M4). At this time, loosely fix 1 screw (63: M4x8).

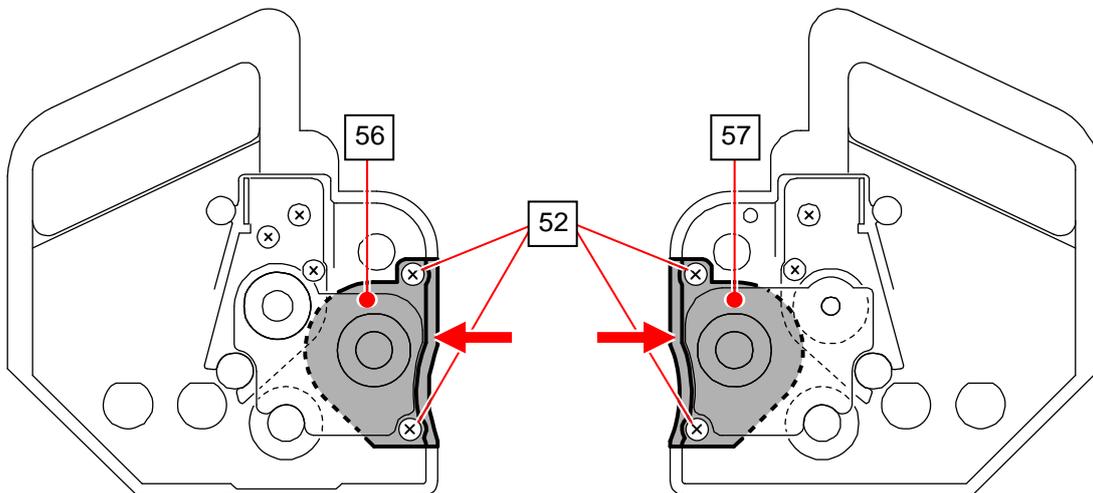


69. Install the new Developer Roller (60) and fix it with 4 screws (52: M4x6), taking care of the Note column below.

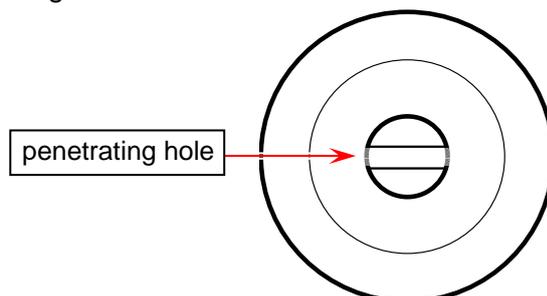


! NOTE

(1) Tighten the screws (52) with pushing the Side Plate 21 (56) or the Side Plate 19 (57) to the arrow direction.

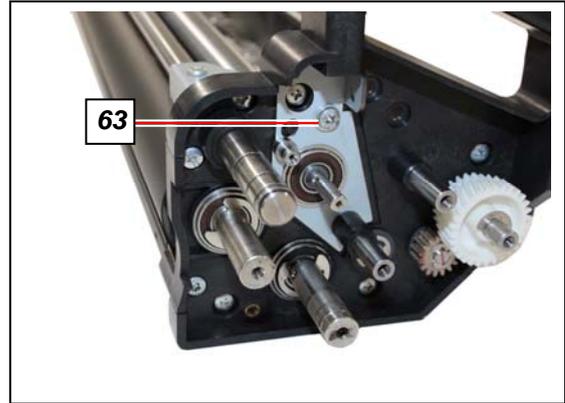
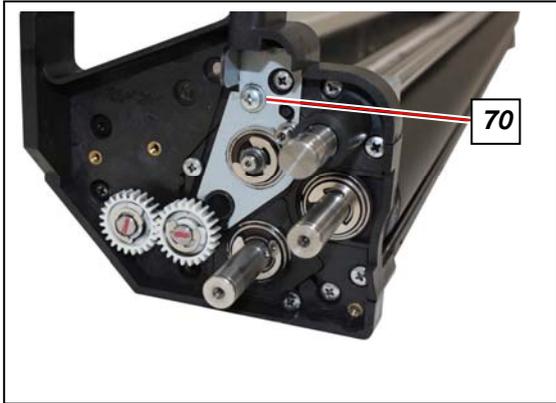


(2) The penetrating holes for the Parallel Pins should be leveled for ease of later work.



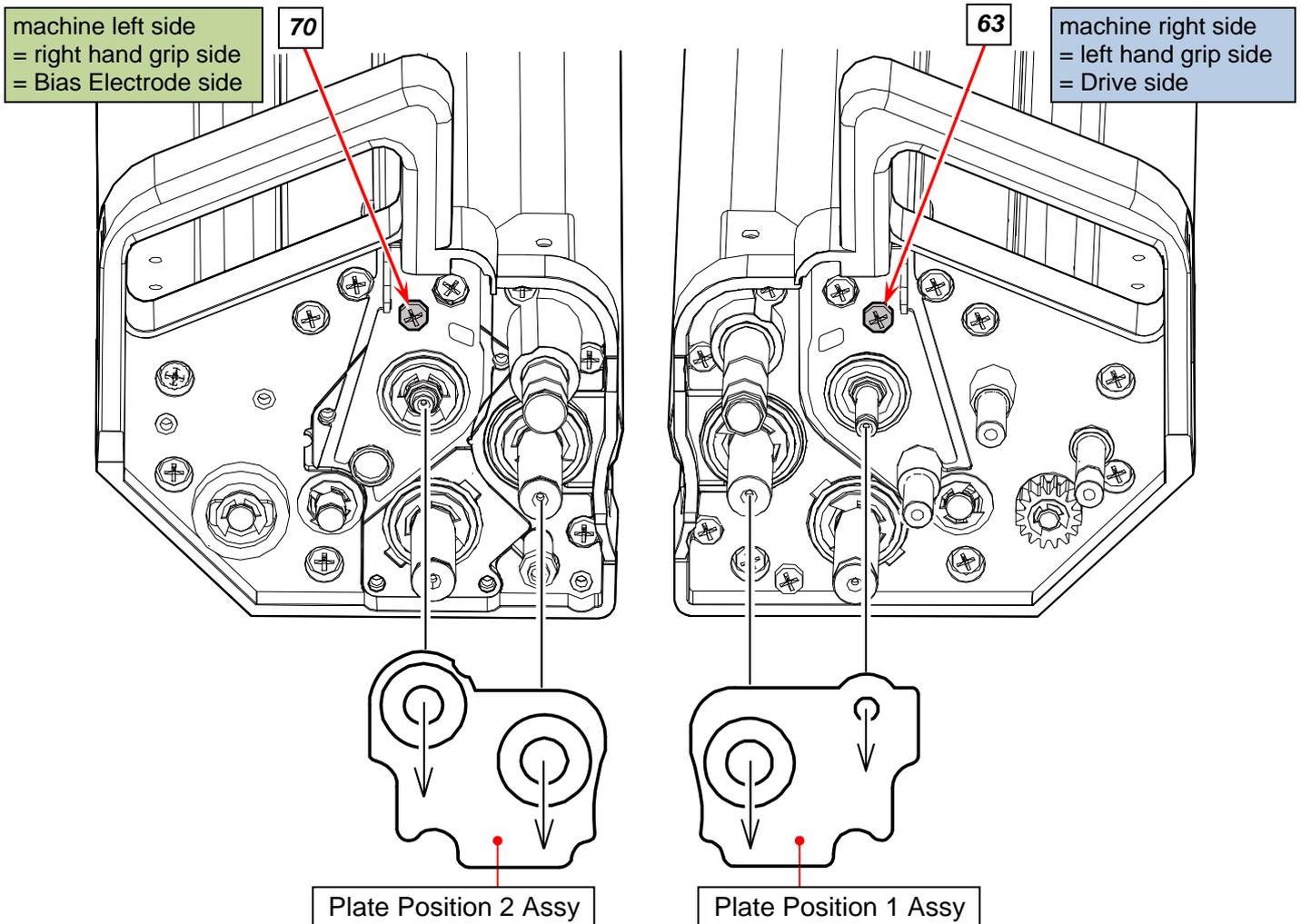
70. Follow the instruction 70-1 and after to get the correct pressure by the Regulation Roller against the Developer Roller, with using the **Plate Position 1 Assy** and the **Plate Position 2 Assy**.

70-1. Make sure that 2 screws (70) (63) is fixed loosely. If not, loosen them.



70-2. Taking care of the Note column on the next page, carefully install the Plate Position 2 Assy to the machine left side (right hand grip side).

In the same way, carefully install the Plate Position 1 Assy to the machine right side (left hand grip side).



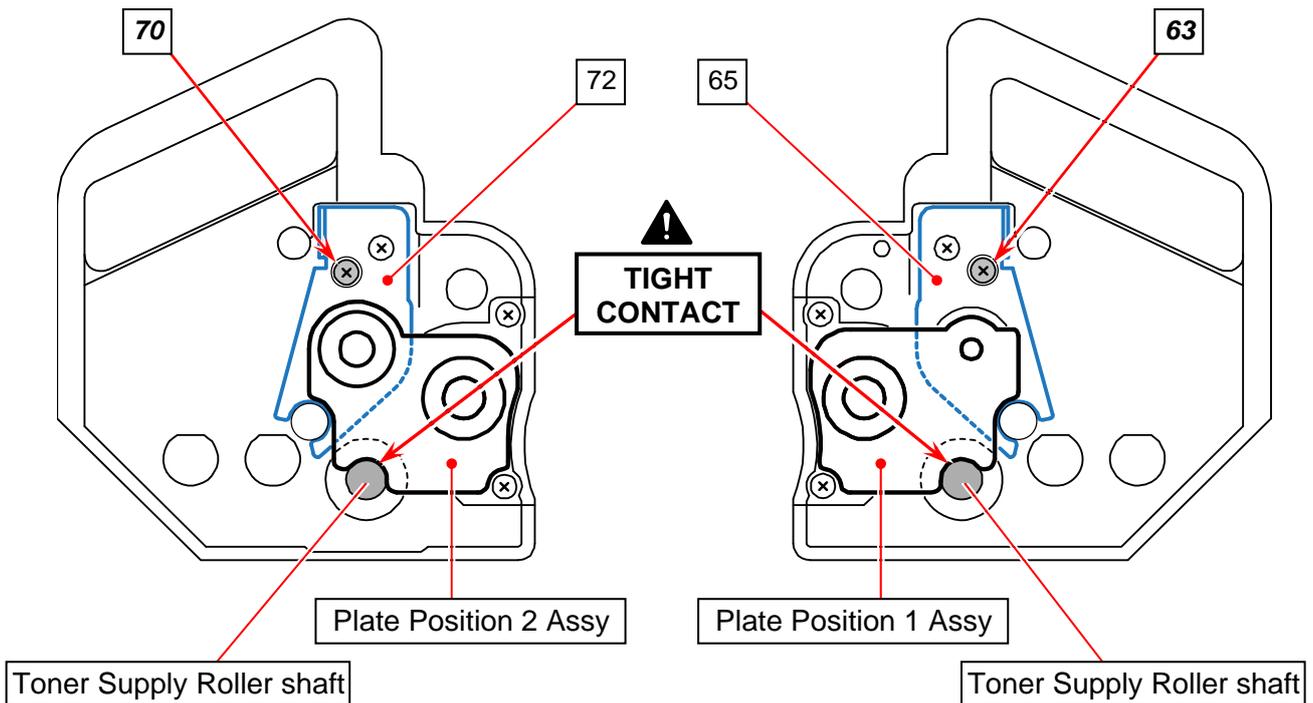
NOTE

- (1) Gently insert the Plate Position Assys onto the rollers shaft. Inserting by force may have the Plate Position Assys stuck.
- (2) Fully insert Plate Position Assys on the shaft.

70-3. Keeping tight contact (no clearance) between the round rim of the Plate Position Assys and the Toner Supply Roller shaft, gently tighten the screw (70) (63).

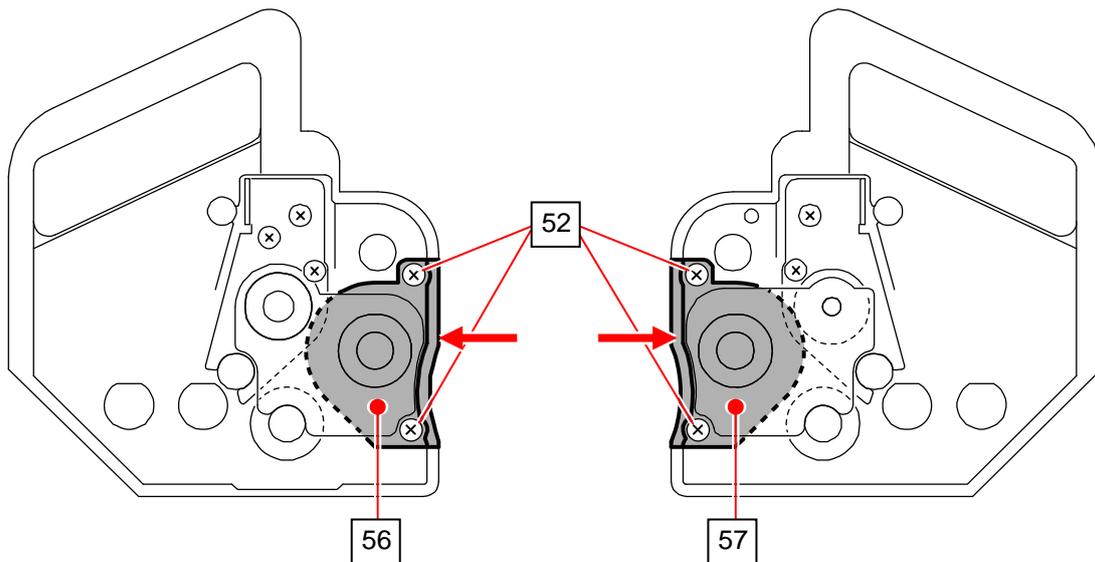
DO NOT turn the screw (70) (63) quickly.

DO NOT hold the Plate 18 Assy (72) or the Plate 17 Assy (65)

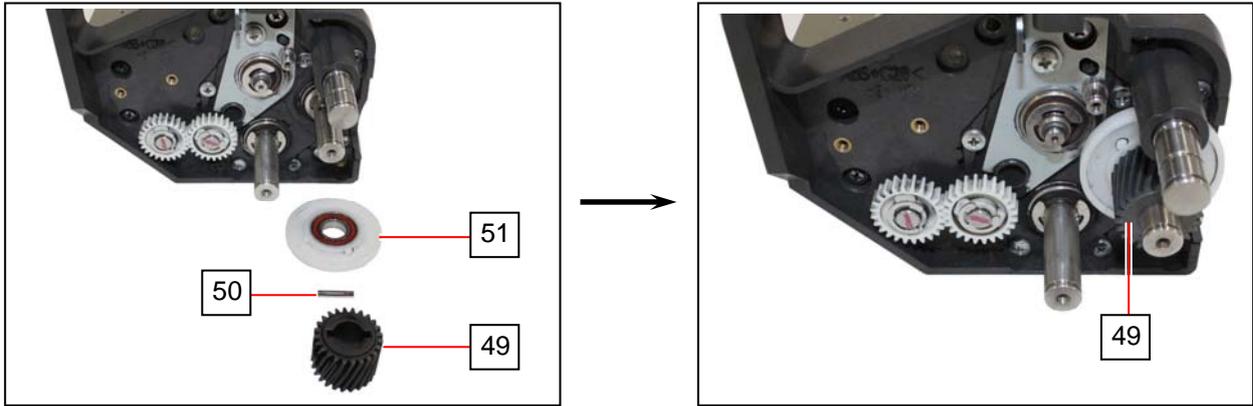


NOTE

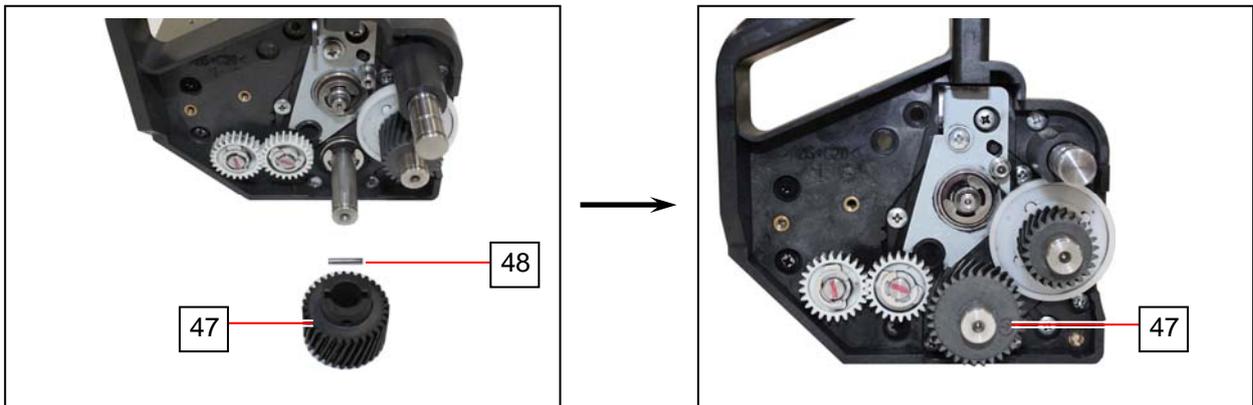
- (1) The screws should be turned with tight contact (no clearance) between the round rim of the Plate Position Assys and the Toner Supply Roller shaft. If there is clearance there (incomplete contact), it would cause improper pressure against the Developer Roller.
- (2) Such clearance would result from mechanical play as the Side Plate 21 (56) or the Side Plate 19 (57) was installed incorrectly. To remove it, first loosen the screws (52). With pushing the Side Plate 21 (56) and the Side Plate 19 (57) to the arrow direction, tighten the screws (52).



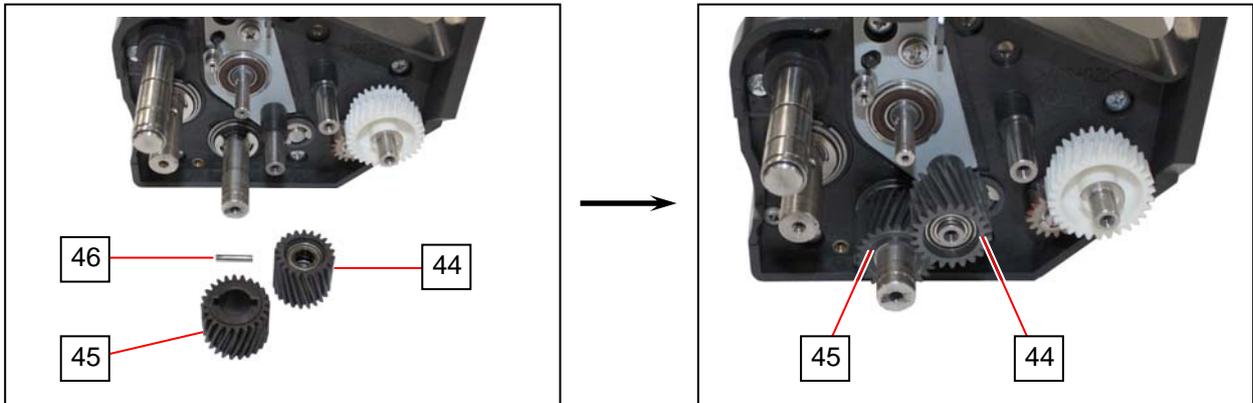
71. On the machine left side (right hand grip side), return the Counter Roller (51), the Parallel Pin (50: 3x16) and the 24T Helical Gear (49) to the Developer Roller shaft.



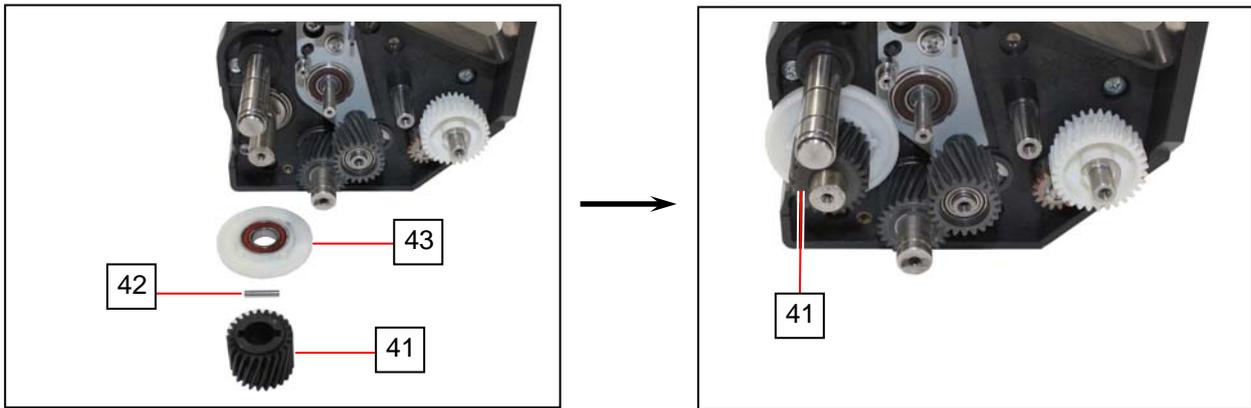
72. Return the Parallel Pin (48: 3x16) and the 32T Helical Gear (47) to the Toner Supply Roller shaft.



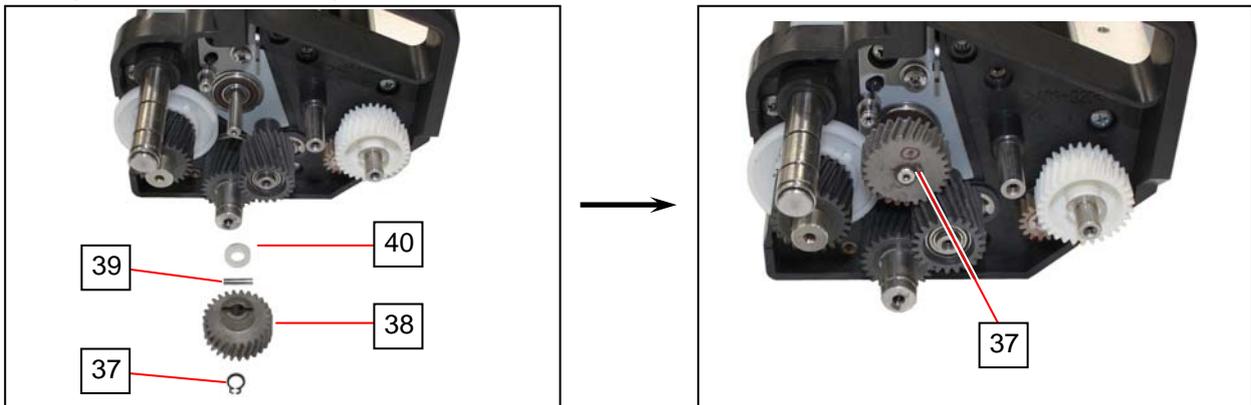
73. On the machine right side (left hand grip side), return the Parallel Pin (46: 3x16) and the 24T Helical Gear (45) to the Toner Supply Roller shaft. Next return the 22T Helical Gear (44).



74. On the machine right side (left hand grip side), return the Counter Roller (43), the Parallel Pin (42: 3x16) and the 24T Helical Gear (41) to the Developer Roller shaft.

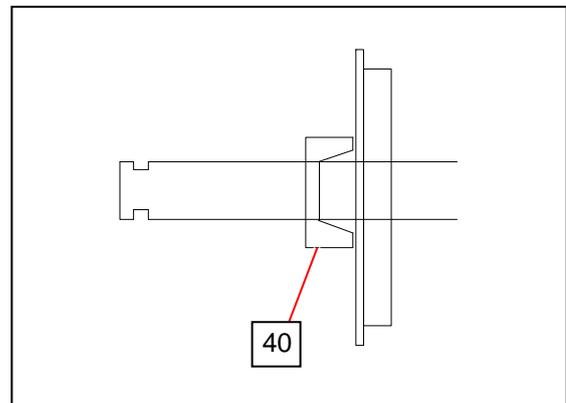


75. Return the small “Collar 3” (40), the Parallel Pin (39: 2.5x10), the 27T Helical Gear (38) and C Ring (37: C6) to the Regulation Roller shaft.

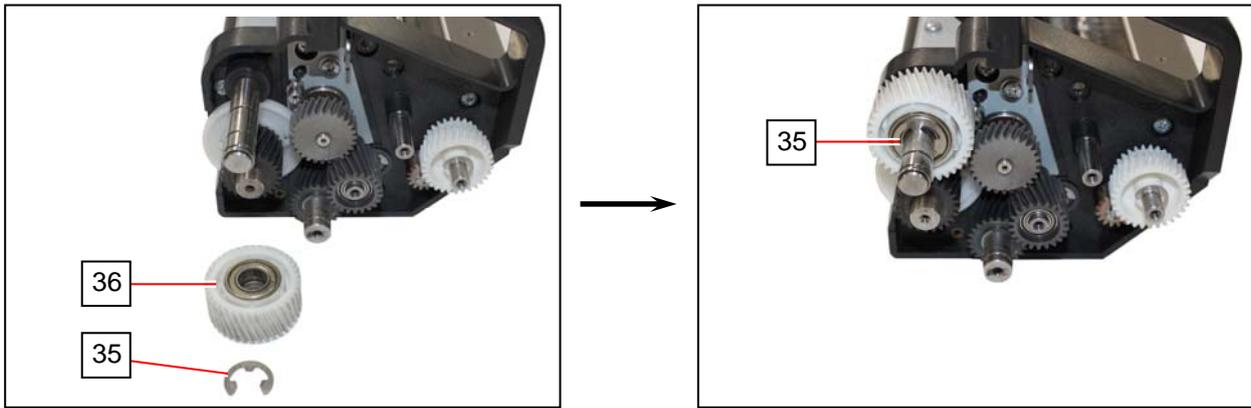


! NOTE

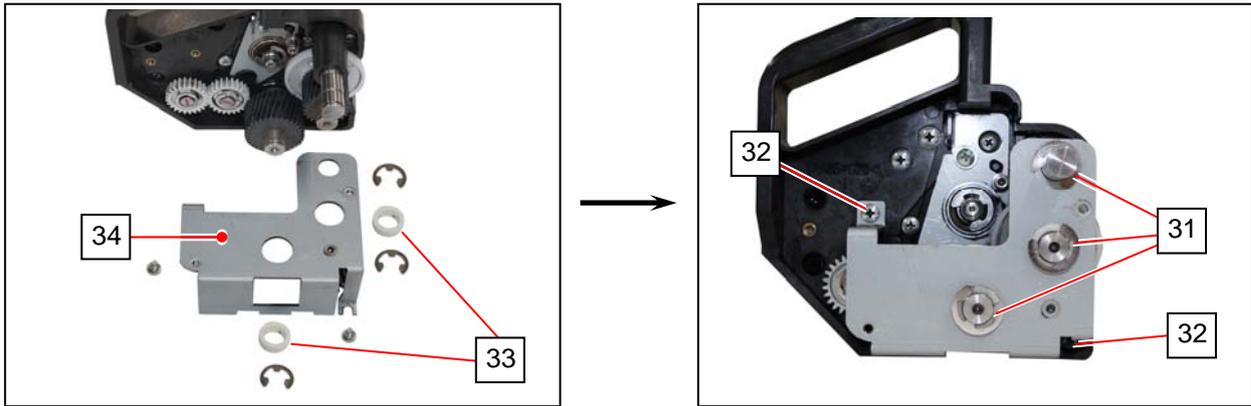
Mind the direction of the small “Collar 3” (40) as follows.



76. Return the 38T Helical Gear (36) and 1 Retaining Ring-E (35: E10) to the Developer Roller shaft.

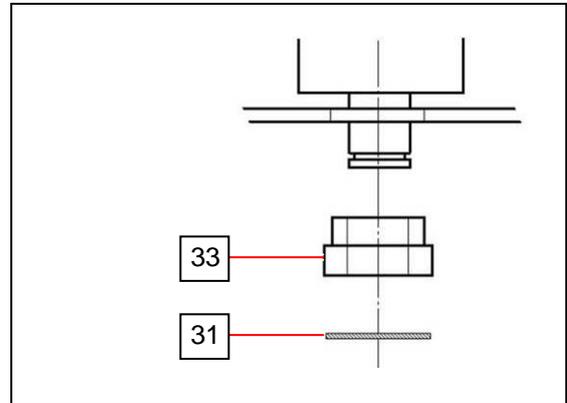


77. On the machine left side (right hand grip side), return the Plate 13 (34) and 2 Collars (33). Fix them with 3 Retaining Ring-E (31: E10) and 2 screws (32: M4x6).

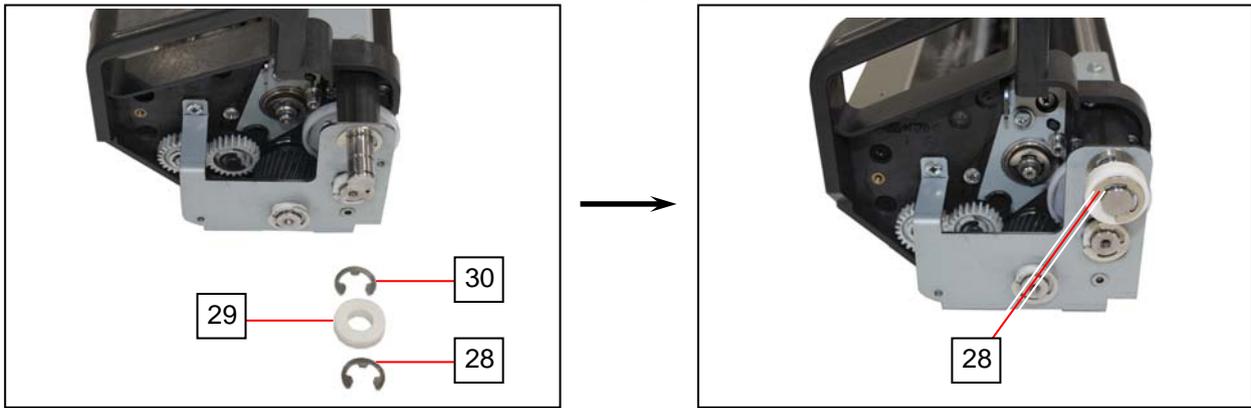


NOTE

Mind the direction of the Collars (33) as follows.



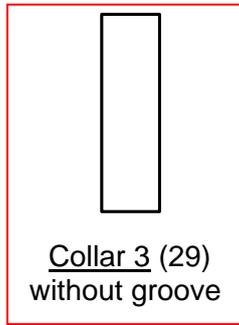
78. Return 1 Retaining Ring-E (30: E10).
 Fix the Collar 3 (29) with another Retaining Ring-E (28: E10).



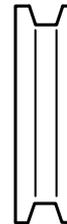
! NOTE

The Collar 3 (29: machine left side = right hand grip side) has no groove.
 The Collar 2 (to be returned later: machine right side = left hand grip side) has a groove.

The Collar 3 (29) without groove should be used on this step →



machine left side
 = right hand grip side
 = Bias Electrode side



Collar 2 with groove

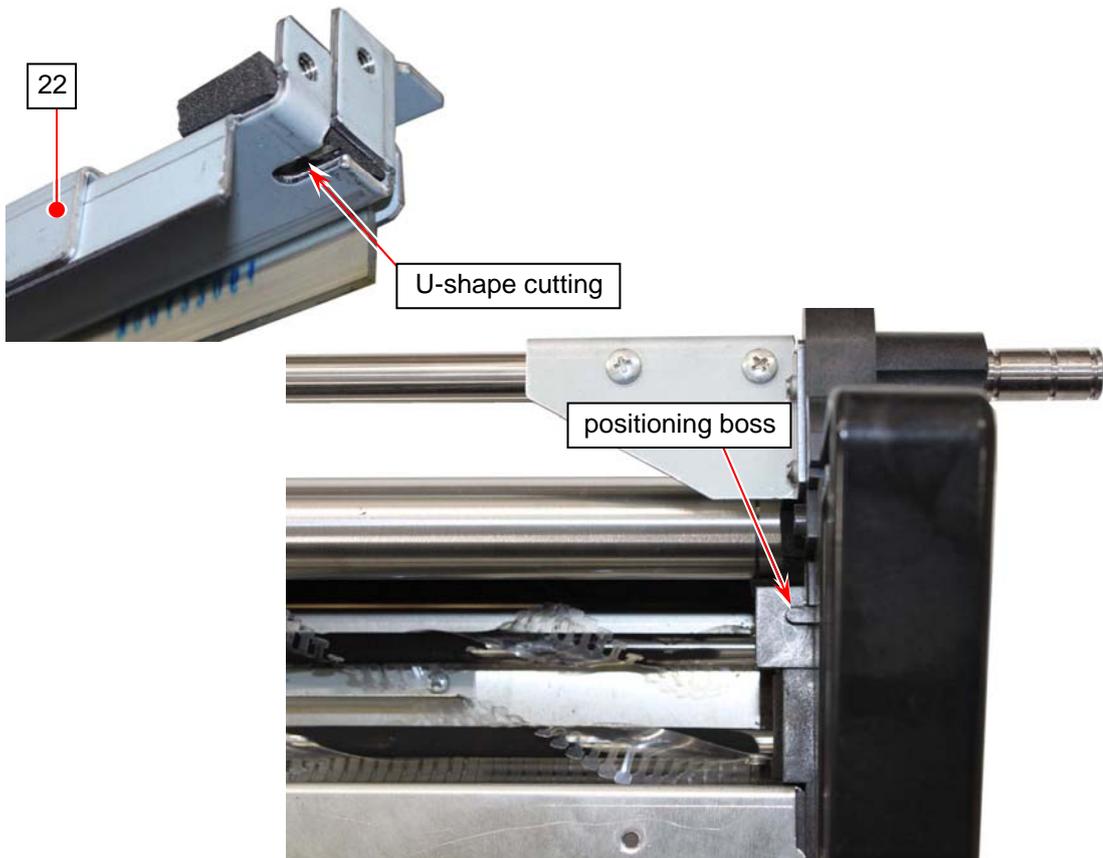
machine right side
 = left hand grip side
 = Drive side

79. Return the Scraper Assy (22) to the Developer Assy, taking care of the Note column below.

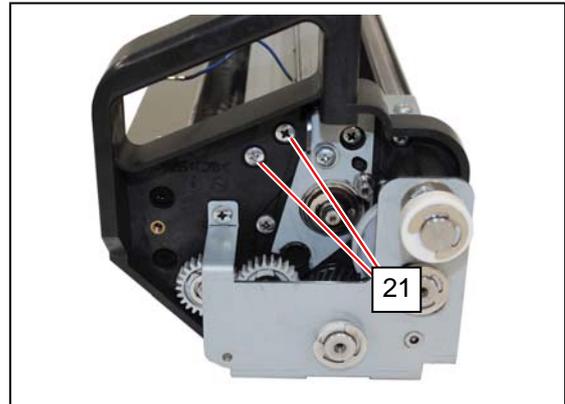


! NOTE

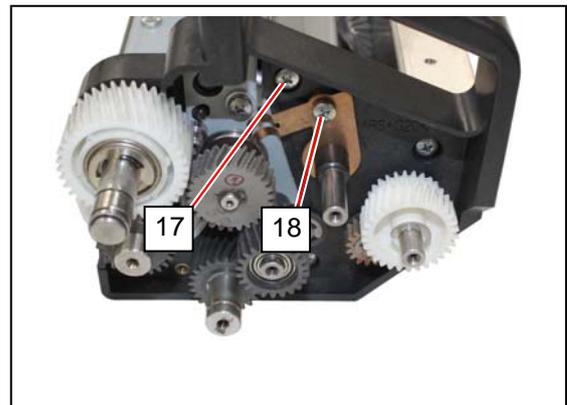
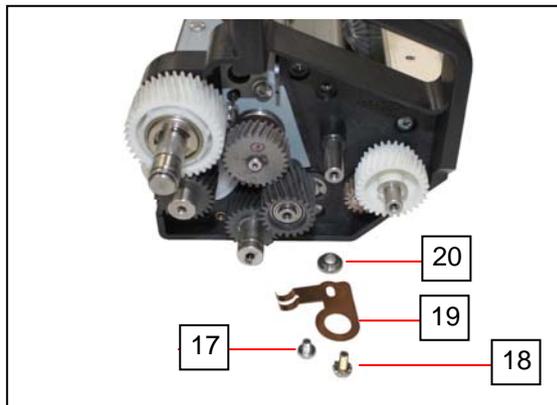
Match the U-shape cuttings on the bottom of the Scraper Assy (22) with the bosses on each inner face of the Developer side plates.
The example shown below is the machine left side (right hand grip side).



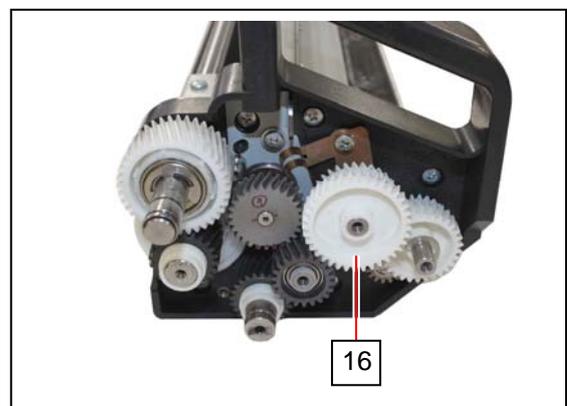
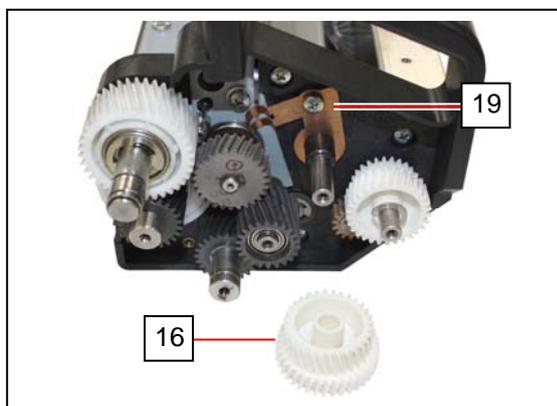
80. On the machine left side (right hand grip side), fix the Scraper Assy with 2 screws (21: M4x6).



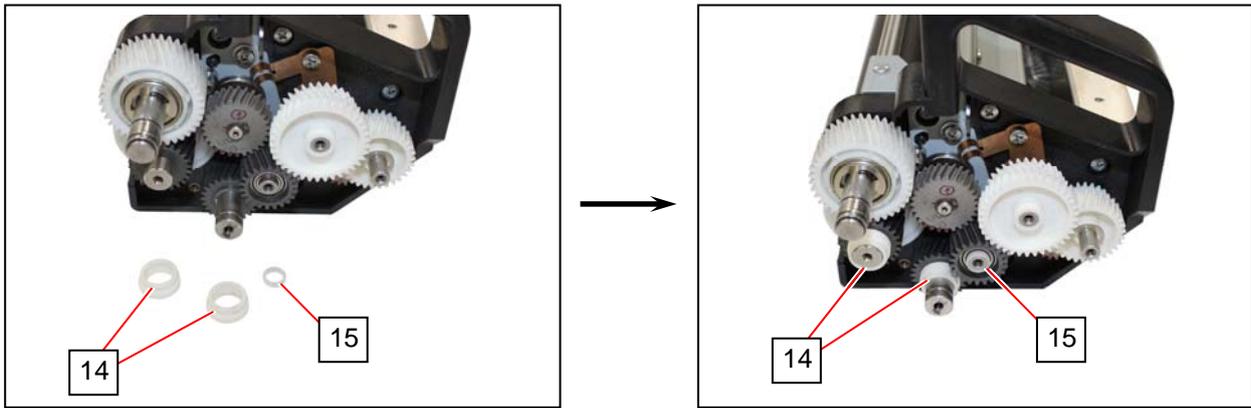
81. On the machine right side (left hand grip side), fix the Scraper Assy, the Collar (20) and the Leaf Spring 6 (19) with 1 tooth washer screw (18: 4x10).
Fix the Scraper Assy with another screw (17: M4x6).



82. Return the 31-37T Gear (16) to the Leaf Spring 6 (19) shaft.

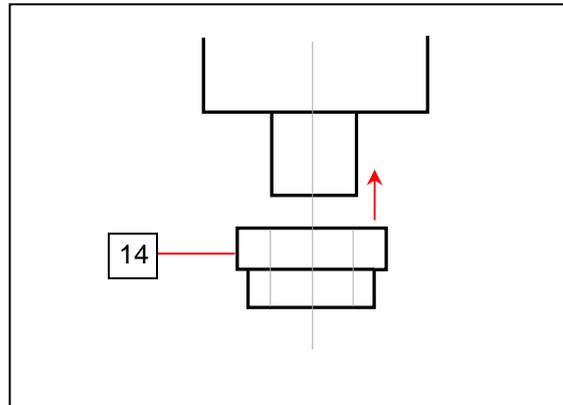


83. Return 2 Collars (14) to the Developer Roller shaft and the Toner Supply Roller shaft.
Return the Collar (15).

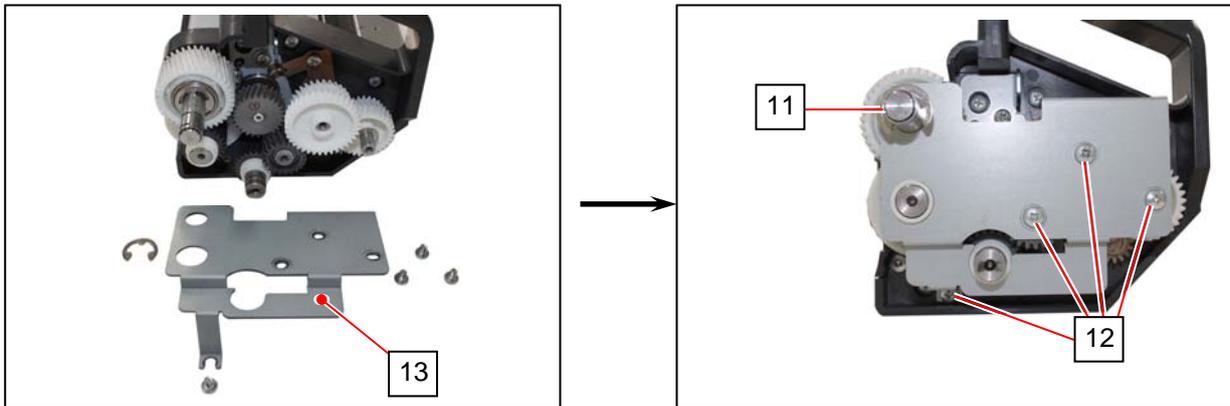


! NOTE

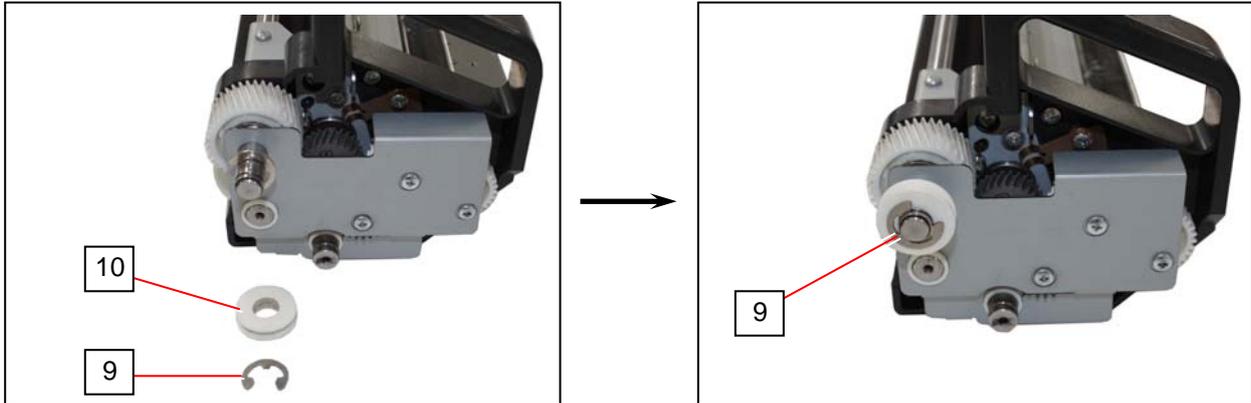
Mind the direction of the Collars (14) as follows.



84. Fix the Bracket (13) with 4 screws (12: M4x6) and 1 Retaining Ring-E (11: E10).



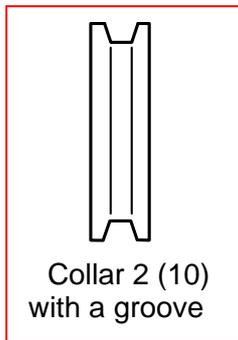
85. Fix the Collar 2 (10) with 1 Retaining Ring-E (9: E10).



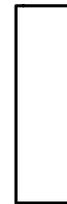
! NOTE

The Collar 2 (10: machine right side = left hand grip side) has a groove.
The Collar 3 (already reassembled: machine left side = right hand grip side) has no groove.

The Collar 2 (10) with a groove should be used on this step →



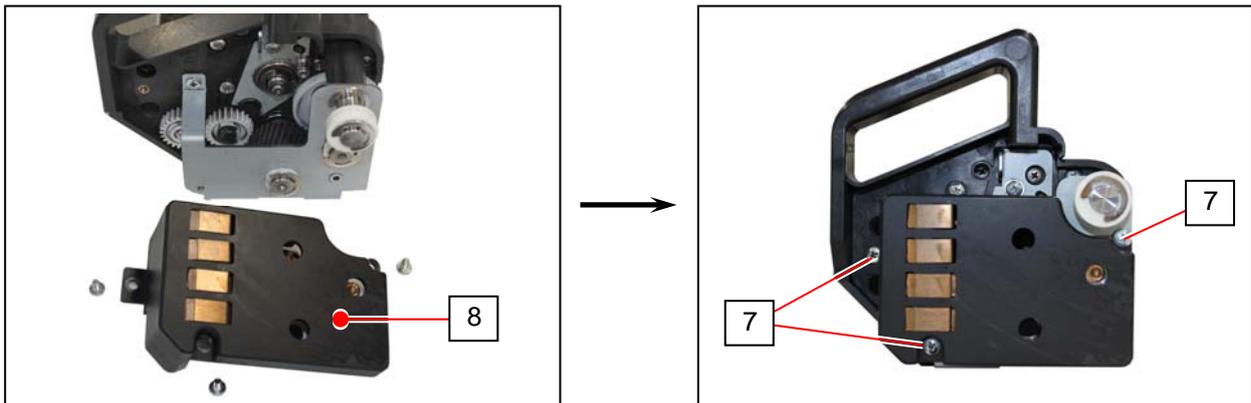
machine right side
= left hand grip side
= Drive side



Collar 3
without groove

machine left side
= right hand grip side
= Bias Electrode side

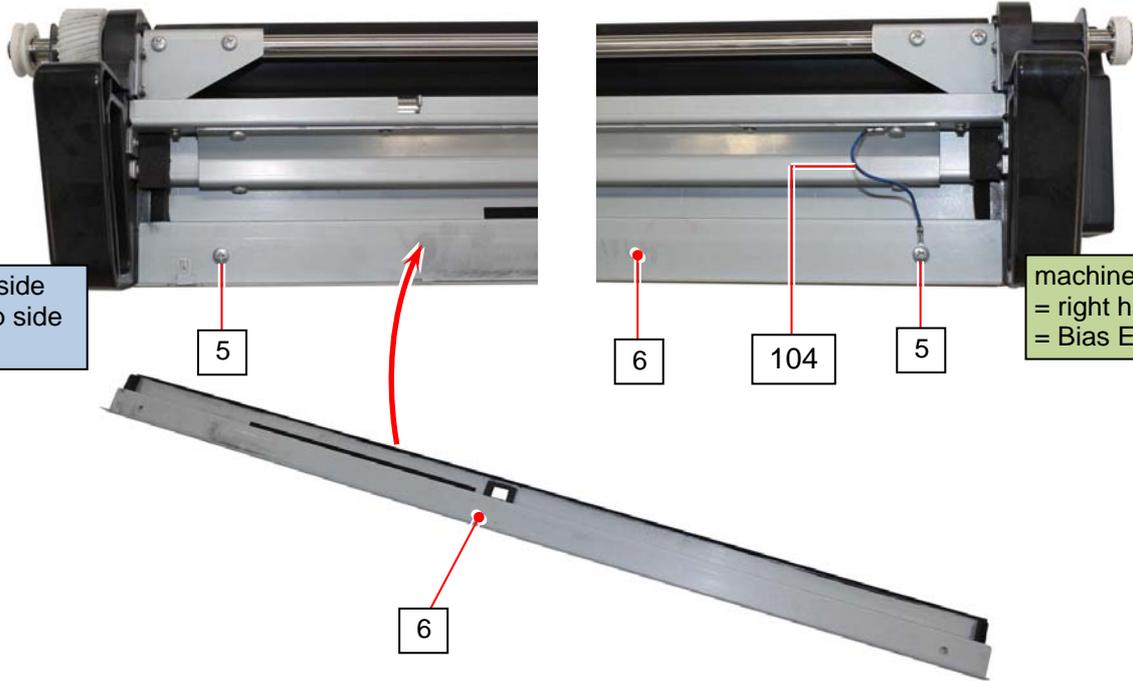
86. On the machine left side (right hand grip side), fix the Terminal Cover (8) with 3 screws (7: M4x6).



87. Return the Cover 4 (6). Fix it with 2 screws (5: M4x6).
 On the machine left side (right hand grip side), secure the ground wire (104) together.

top view

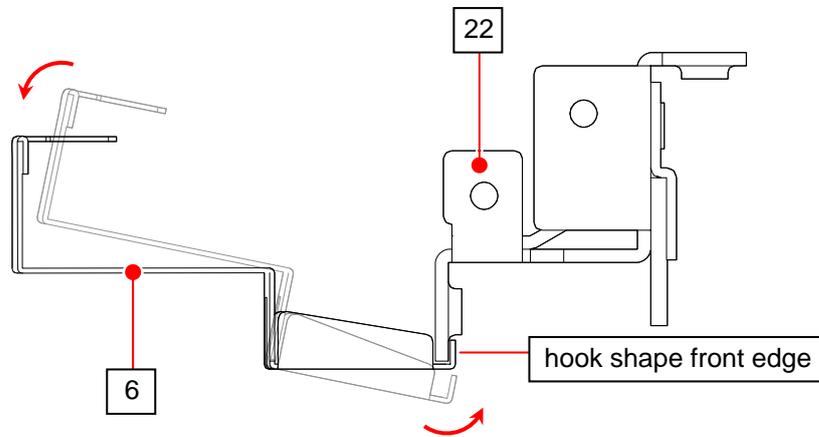
machine right side
 = left hand grip side
 = Drive side



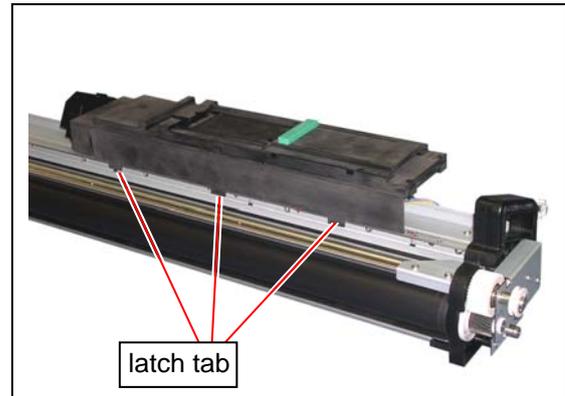
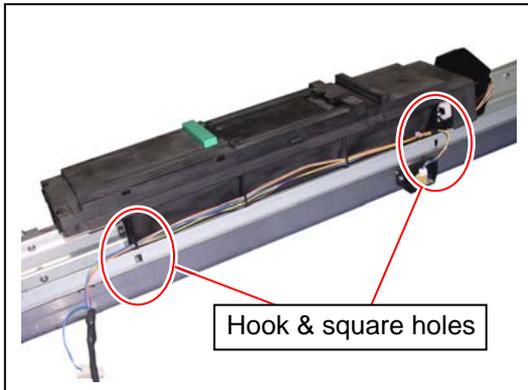
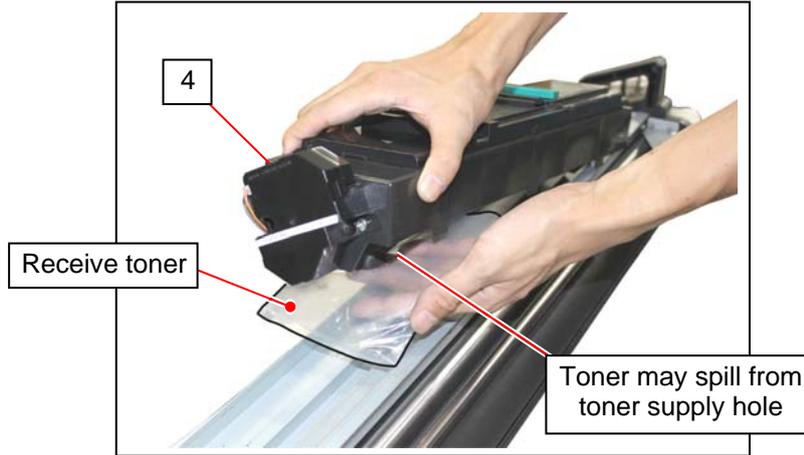
machine left side
 = right hand grip side
 = Bias Electrode side

! NOTE

The “Hook” shape front edge of the Cover 4 (6) should fit on the Scraper Assy (22).



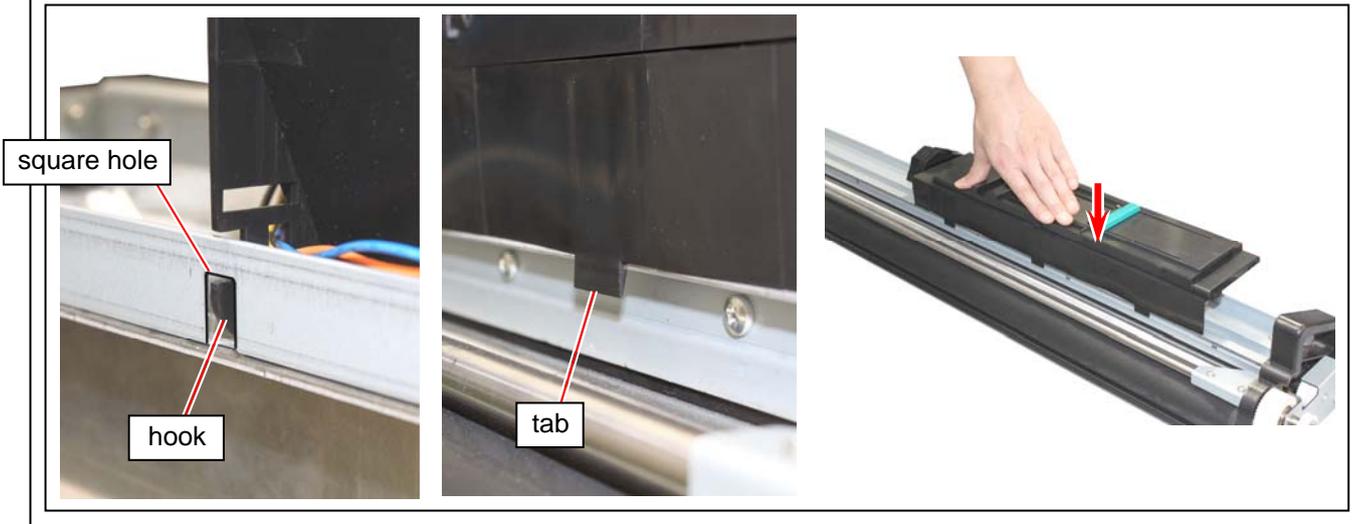
88. Return the Hopper Unit (4). Place a sheet of paper or a plastic bag on the Hopper Unit with a plastic bag to receive toner spilling from the Hopper Unit. Insert the hook parts of the Hopper Unit into the square holes of the DEVELOPER ASSY. Make sure that the Hopper Unit (4) is held on the DEVELOPER ASSY by the tab parts.



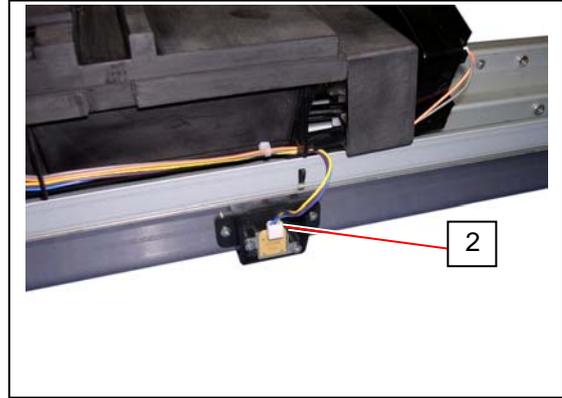
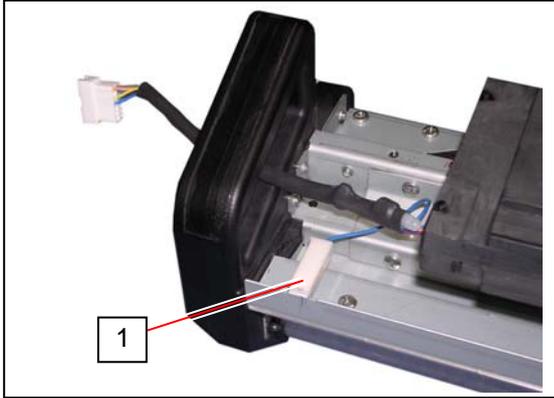
! NOTE

Be sure to confirm the followings after reinstalling the Hopper Unit to the Developer Assy.

- The hook parts (2pcs) fit in the square holes.
- The tab parts (3pcs) catch the frame's rim. (Press the entire Hopper Unit)



89. Reconnect the ground wire (1) and the connector (2).



90. Return the Developer Assy to the machine.
Refer to [5.1.4.1 Replacement Procedure].

91. Add toner (2 packages of the Toner Bottles) to the Hopper Unit.
Refer to [5.1.4.1 Replacement Procedure].

92. Launch the service software.
Press [Login] → [Wizard] → [Developer Replacement Procedure] → [Reset].
Refer to [5.1.4.1 Replacement Procedure].

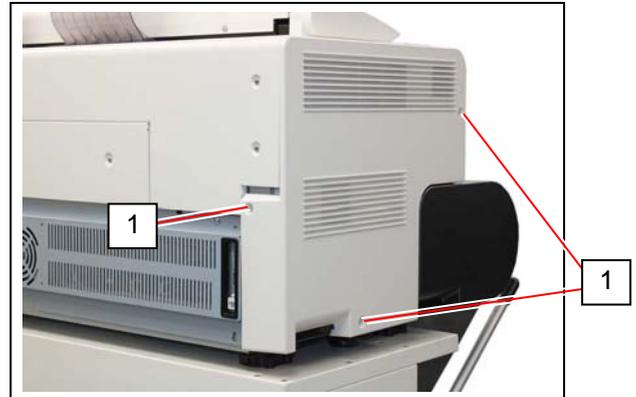
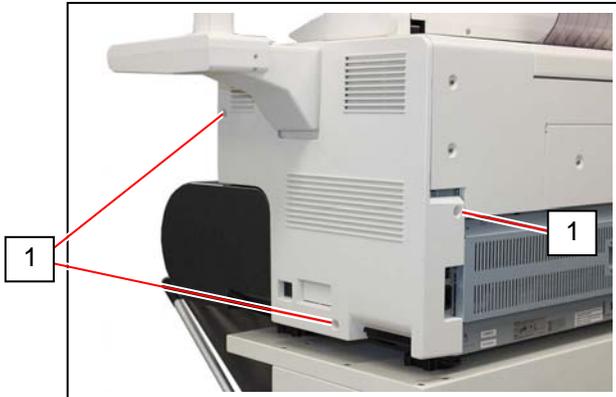
93. Go back to the Home screen.
Press [Special Operation] → [0007 Toner Supply1] in the dropdown menu → [Enter] → [Agree]. ([0007 Toner Supply1] twice in a row for 2 Toner Bottles)
Refer to [5.1.4.1 Replacement Procedure].

5. 6 Cutter Unit

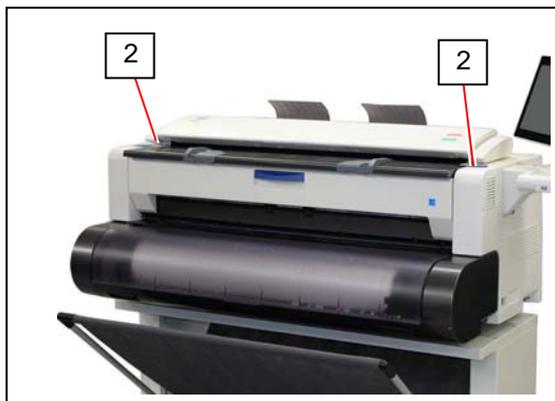
5. 6. 1 Replacement Procedure

Removal of the PAPER DECK ASSY

1. Remove 3 Screws (1) on each side.



2. Press the blue lever (2) on both sides to open the Upper Unit.



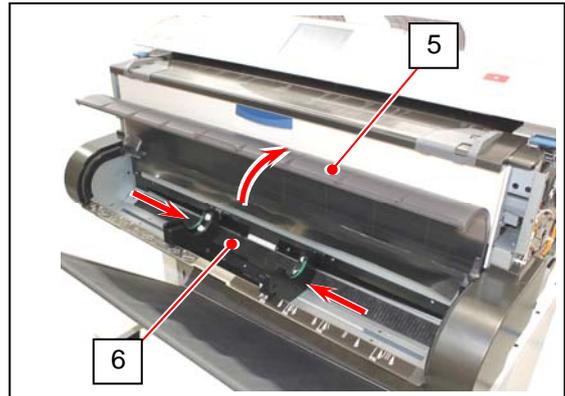
3. Remove the Side Cover R (3) and Side Cover L (4).



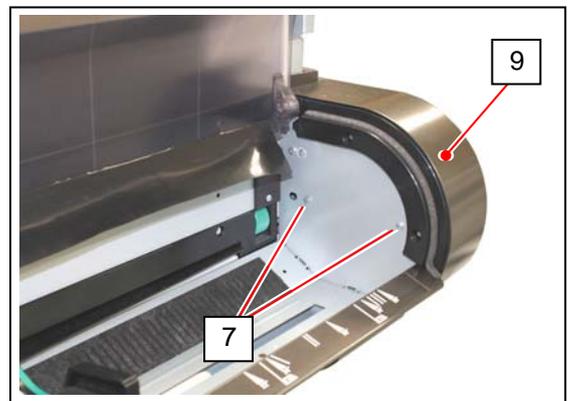
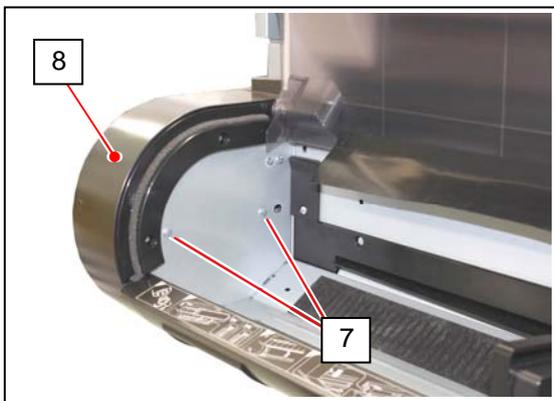
4. Close the Upper Unit.



5. Open the Roll Deck Cover (5) and move the Size Guide (6) to the center.

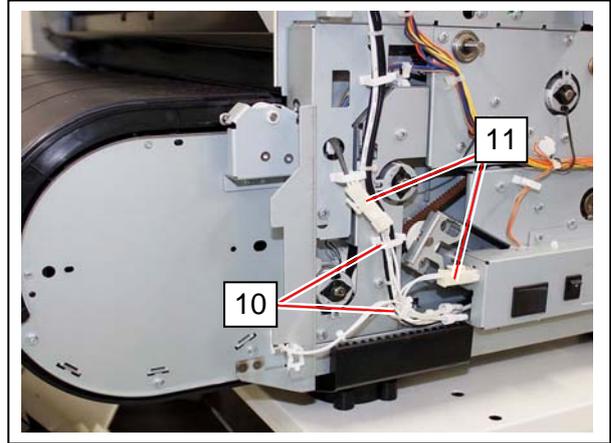


6. With supporting the Cover 20 (8) and Cover 19 (9), remove 2 screws (7) on each side to remove Cover 20 (8) and Cover 19 (9).
Never remove the Cover 20 (8) and Cover 19 (9) without supporting. Otherwise Cover may fall.

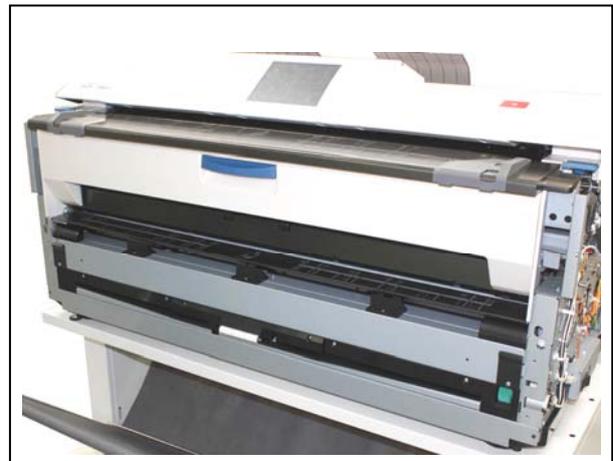
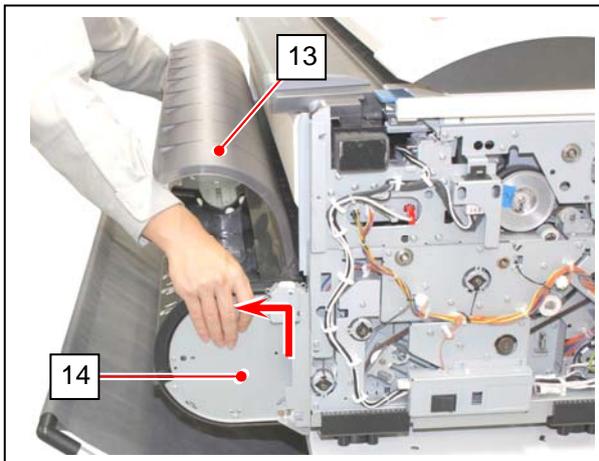
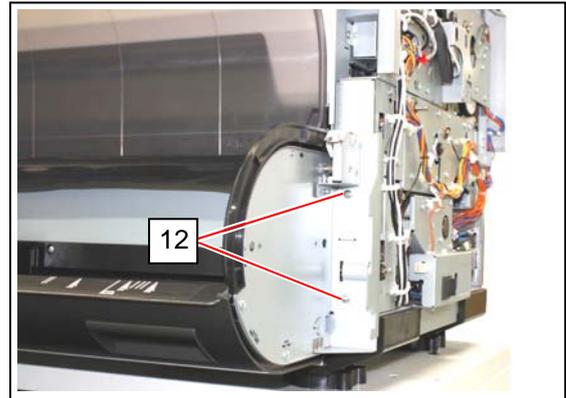
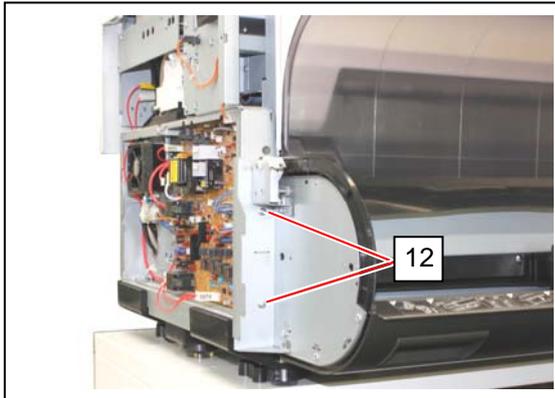


7. (This step is only for machines with Dehumidify Heater equipped)

On the right side, open the wire saddles (10) to disconnect 2 connectors.

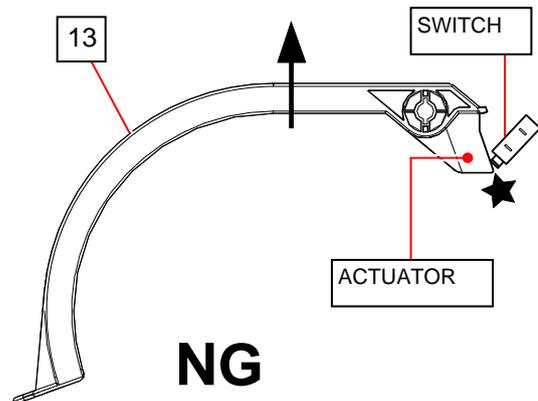


8. Remove 2 tooth washer screws (12). Keeping the Roll Deck Cover (13) open, remove the whole Roll Deck Assy (14).



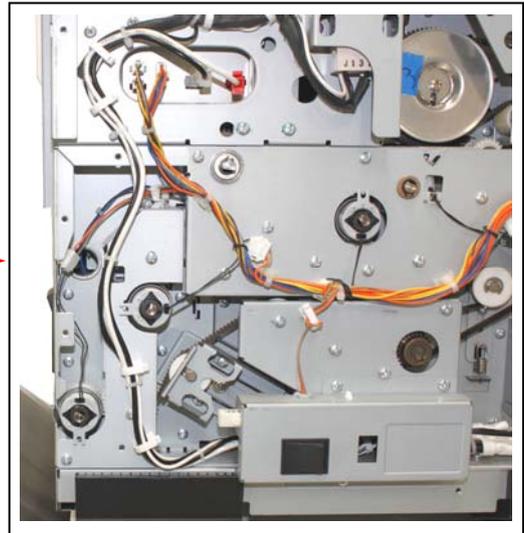
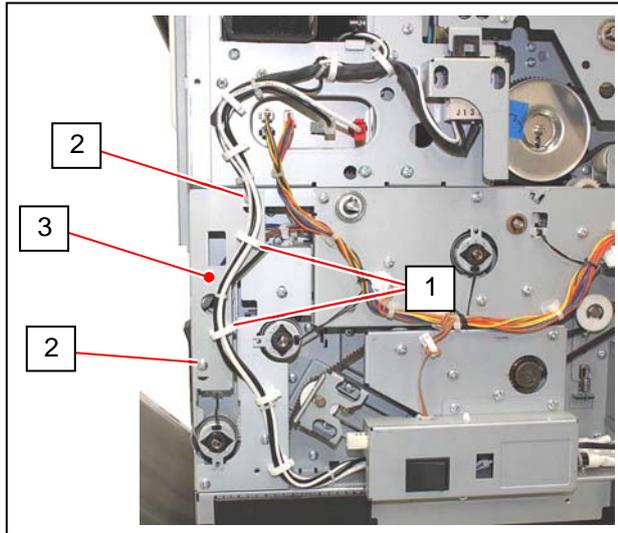
NOTE

The Roll Deck Cover (13) should be kept OPEN while removing the Roll Deck. Otherwise the actuator part would be caught by the microswitch to damage it.

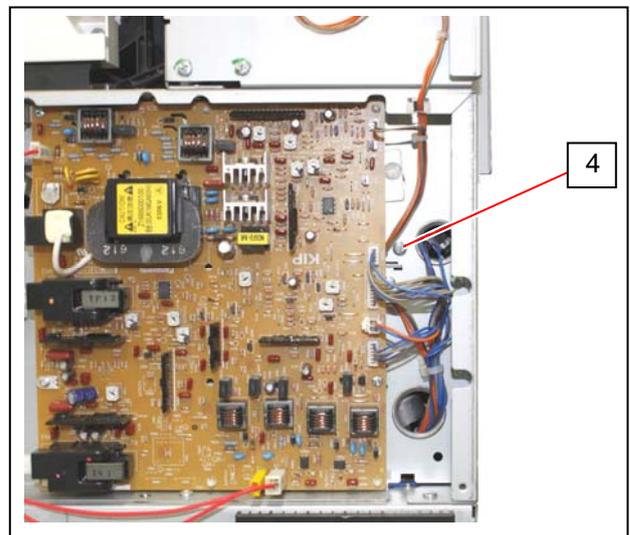


Removing Guide Plate

1. On the right side, open 2 wire saddles (1) and remove 2 screws (2) to remove the bracket (3).

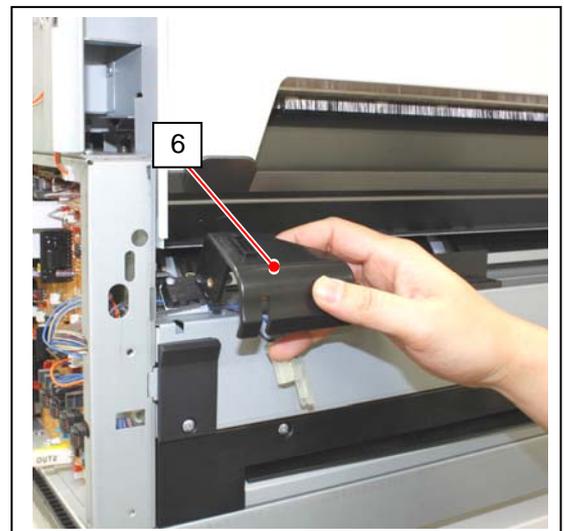
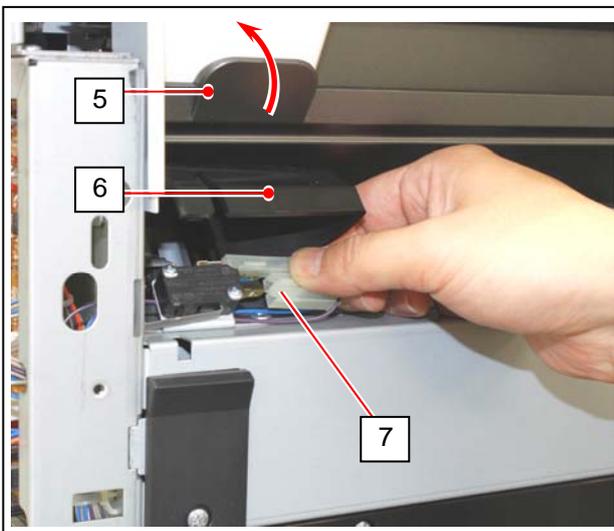


2. On the left side, remove 1 screw (4).

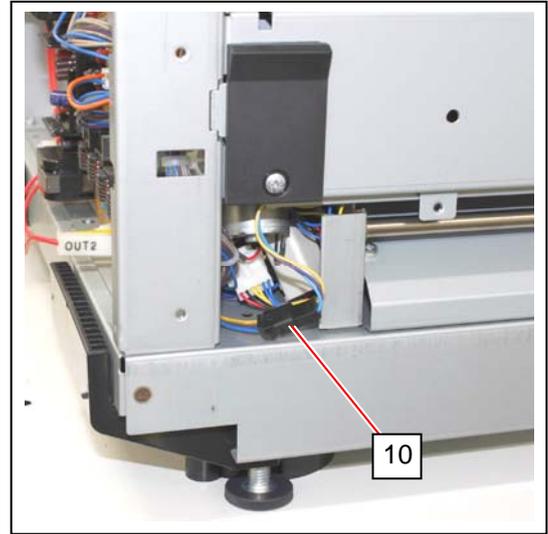
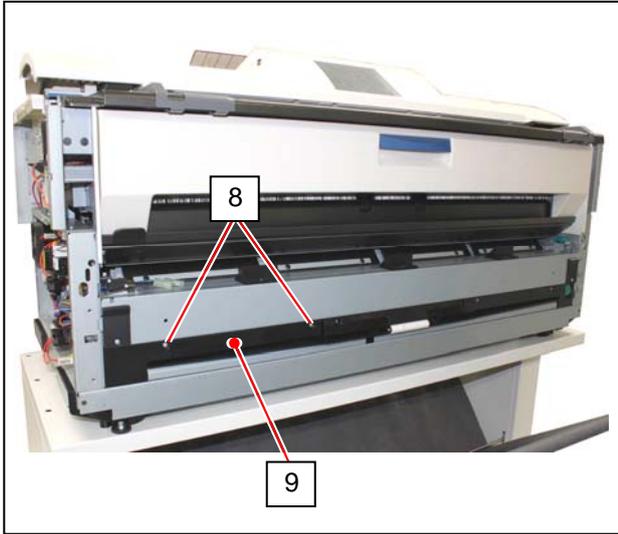


3. Open the Guide 2 (5).

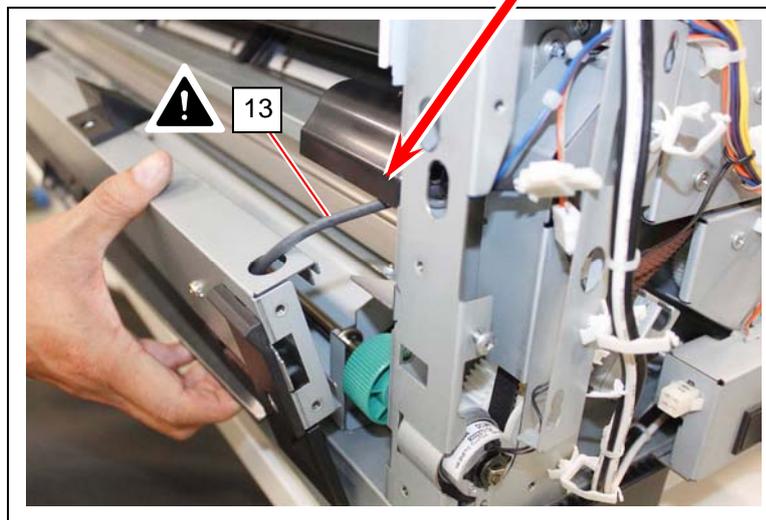
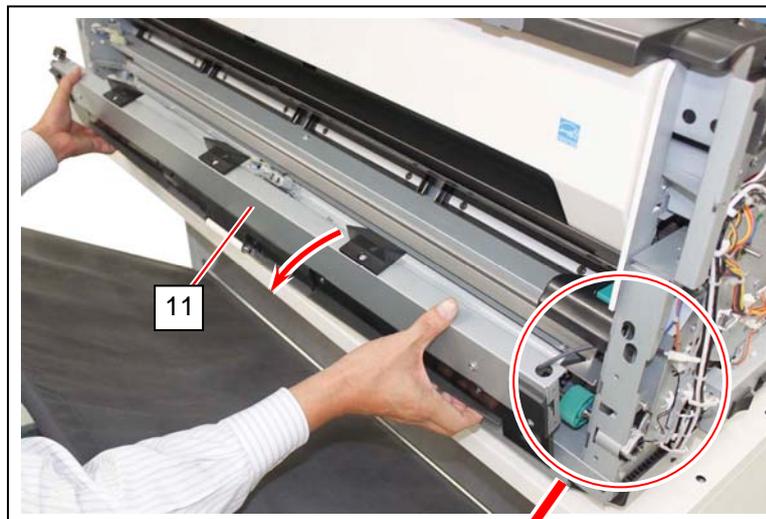
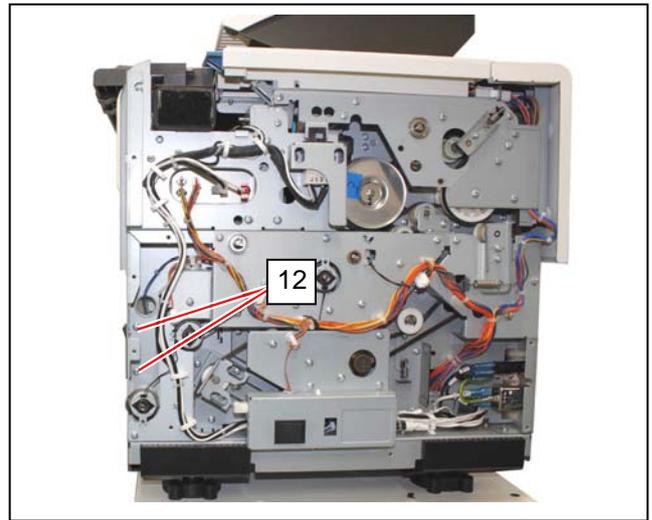
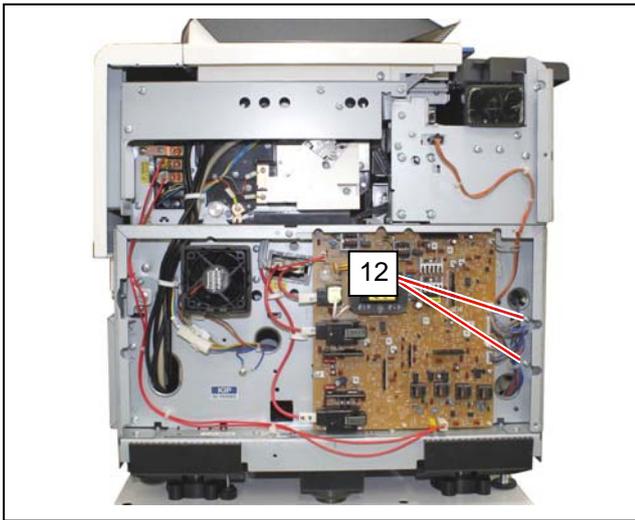
Disconnect the connector (6) in the switch cover (5), and then remove the switch cover (7).



4. Remove 2 screws (8) to remove the Guide Plate C (9). Disconnect the connector (10).



5. With supporting the Guide Plate (11), remove 2 screws (12) on each side to remove Guide Plate (11).
Never remove the Guide Plate (11) without supporting. Otherwise Guide Plate may fall.

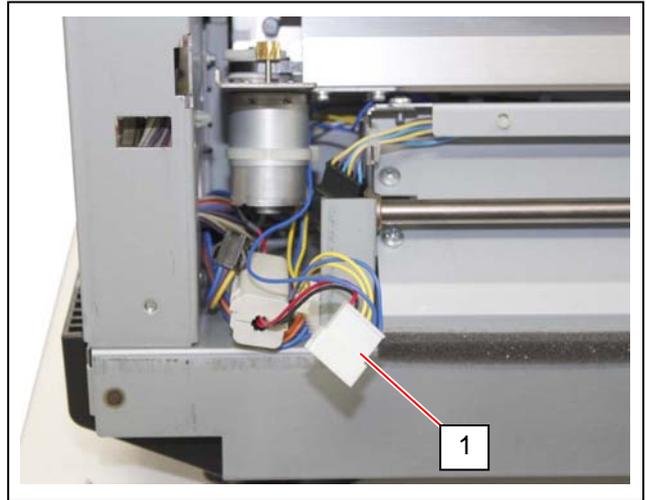
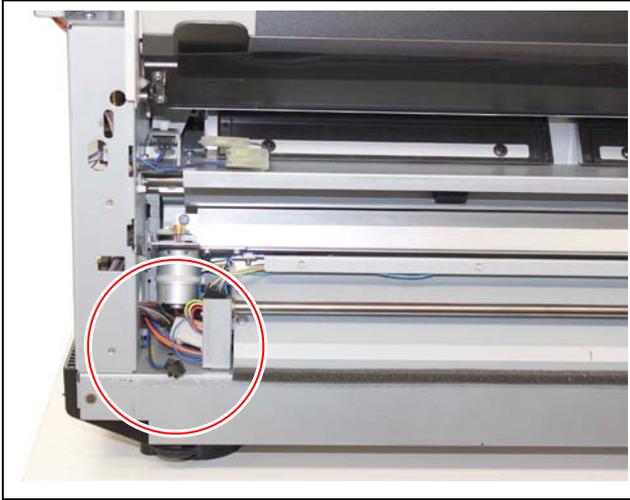


! NOTE

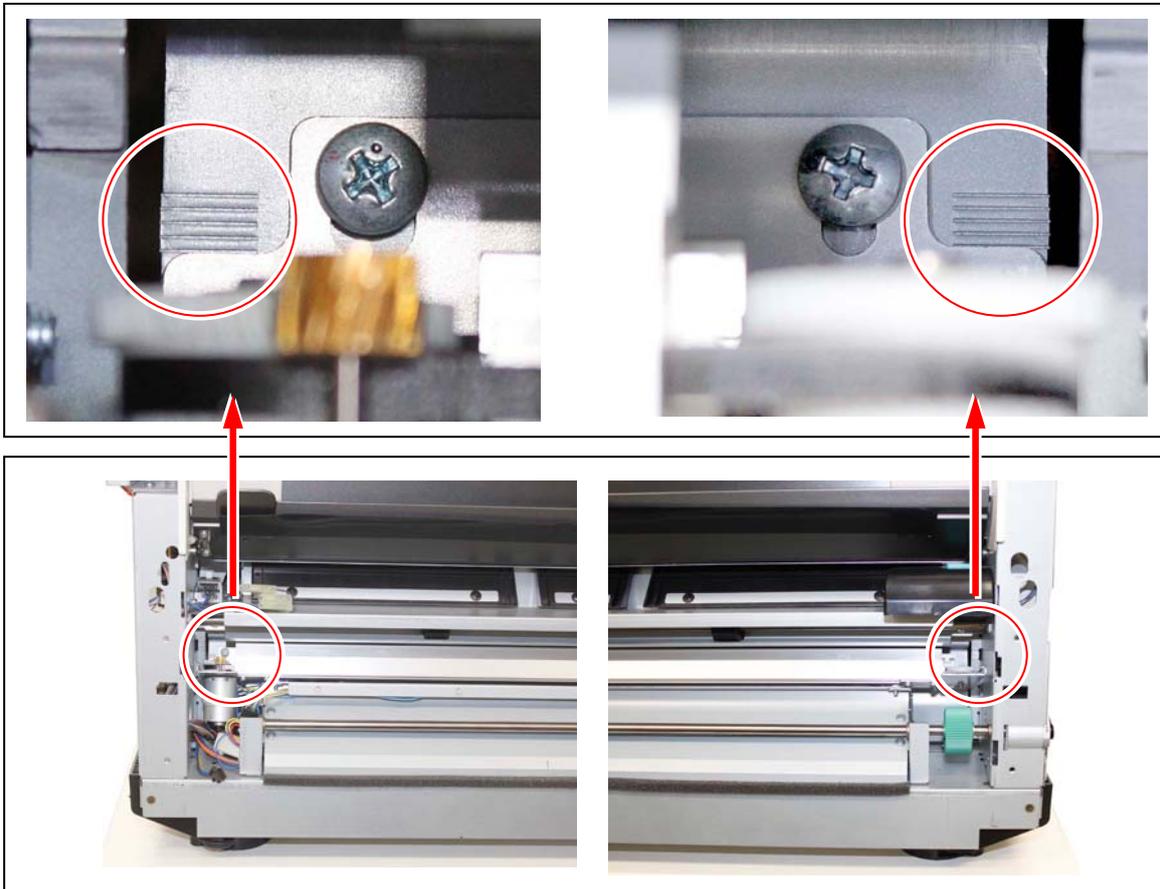
(For machines with Dehumidify Heater equipped only) Pass the Heater Harness (13) through the round hole on the right side plate to remove the Guide Plate.

Removing the Cutter Unit

1. Disconnect the connector (1) on the bottom left of the front face.



2. Keep the current scale in mind.
You will be required to install the new Cutter Unit in the original scale.

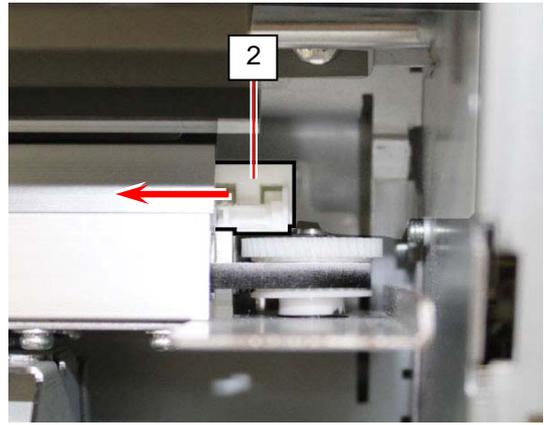


NOTE

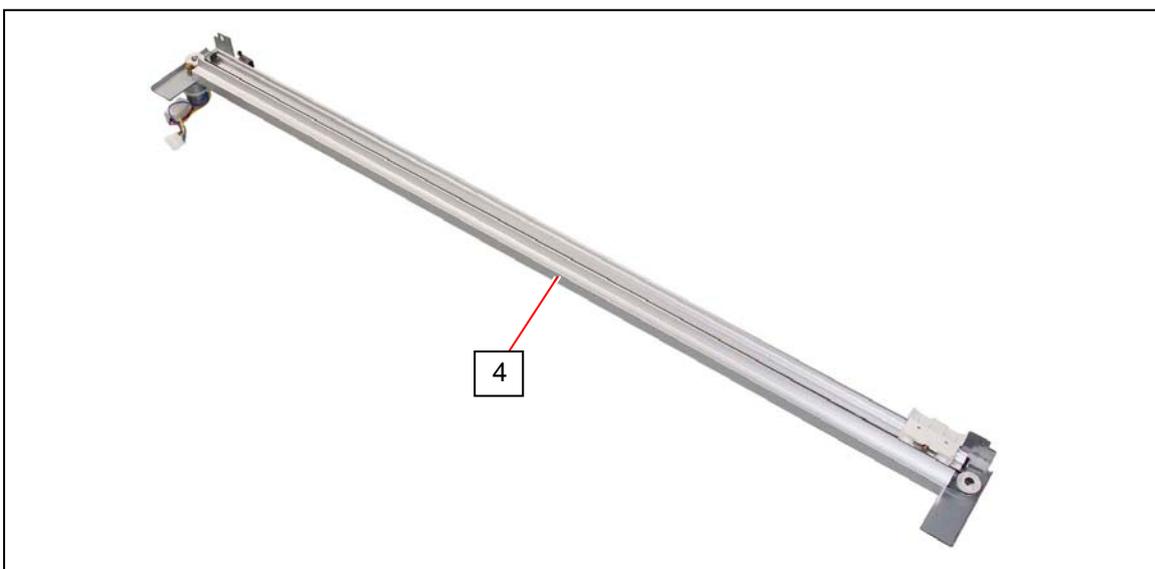
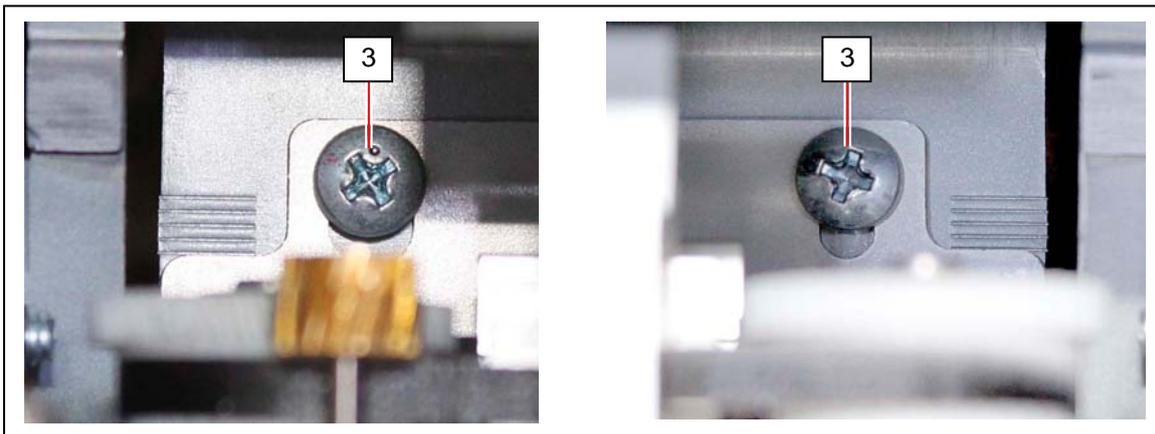
See next page

⚠ NOTE

For subsequent steps, move the cutter blade part (2) aside (inner) for clearing space.



3. Remove 1 screw (3) on each side. Hold the both ends of the Cutter Unit (4), slightly lift it up, and gently pull it toward you.

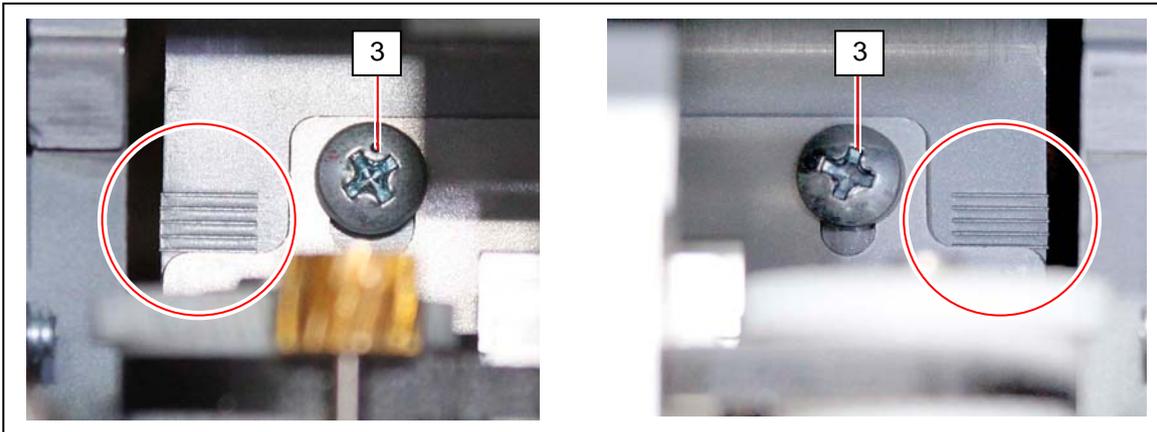


Replacing the Cutter Unit

1. Install the Cutter Unit in the original position.



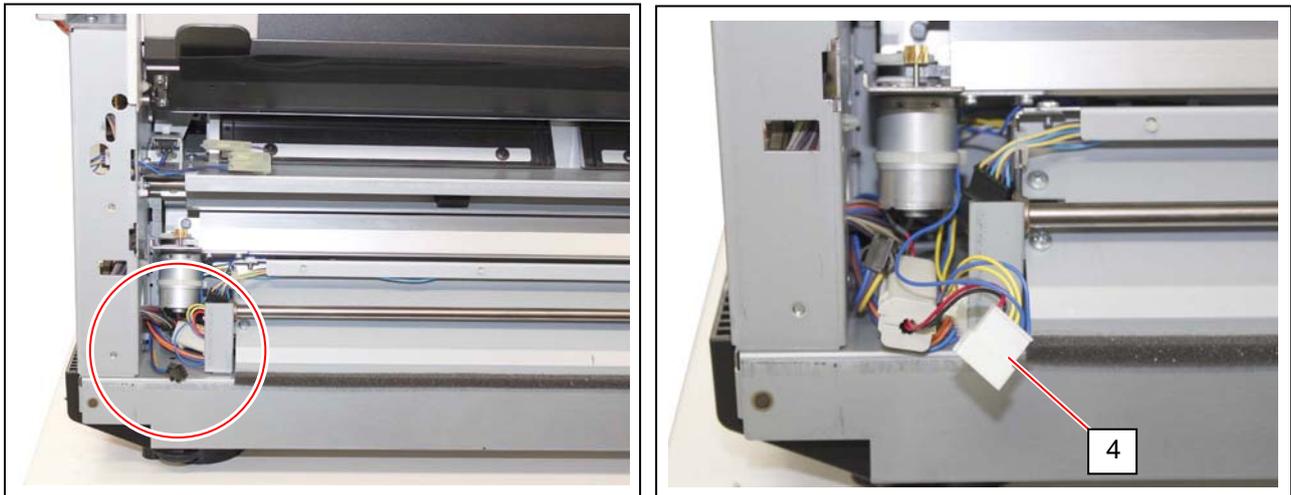
2. Fix the Cutter Unit in the original scale with 2 screws (3).



! NOTE

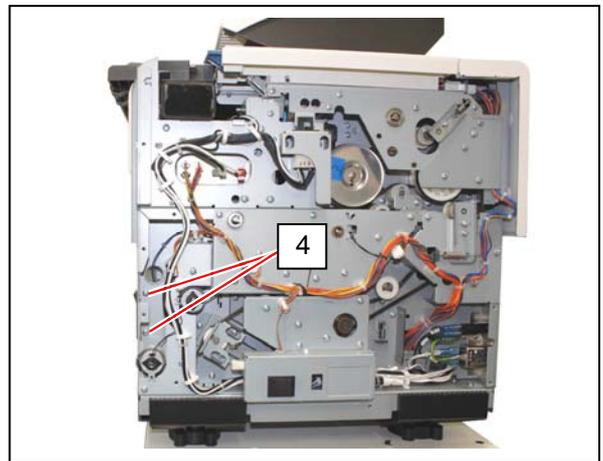
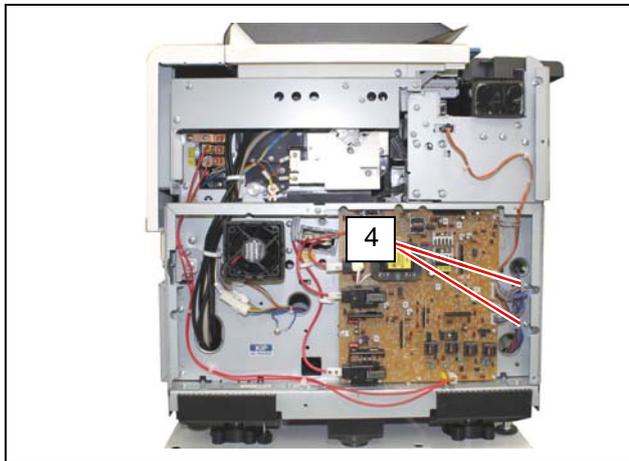
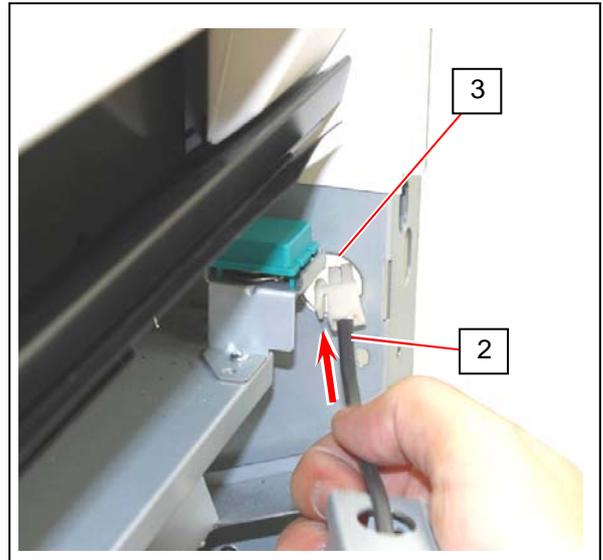
In general, the Cutter Unit should be installed at the original scale unless otherwise noted due to the Cutter Unit's tolerance. See [8 Cut Angle Adjustment].
Being installed at a different scale may lose accuracy of the cut angle.

4. Reconnect the connector (4) of the cutter harness.



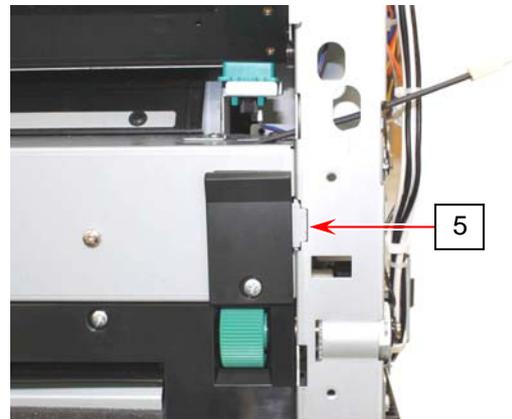
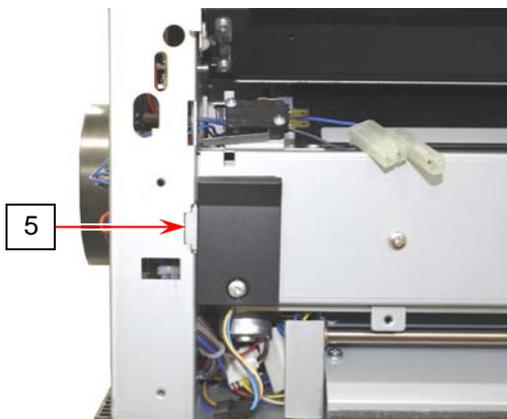
Reinstalling Guide Plate

1. Pass the harness (2) sticking out from Guide Plate (1) through the round hole (3) on the right side (this sentence is only for machines with Dehumidify Heater equipped).
Fix Guide Plate with 4 screws (4).

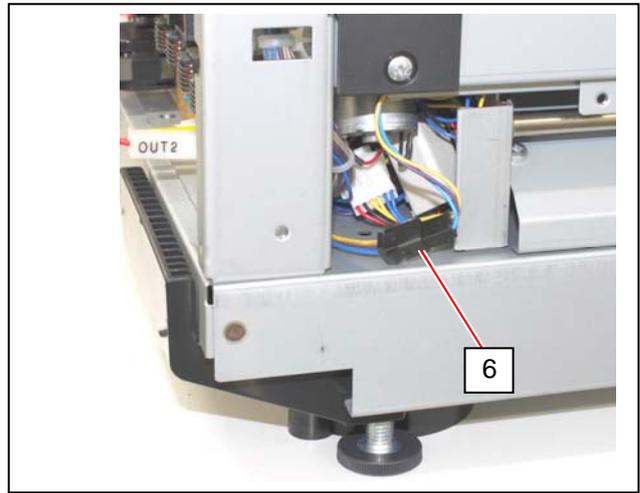


NOTE

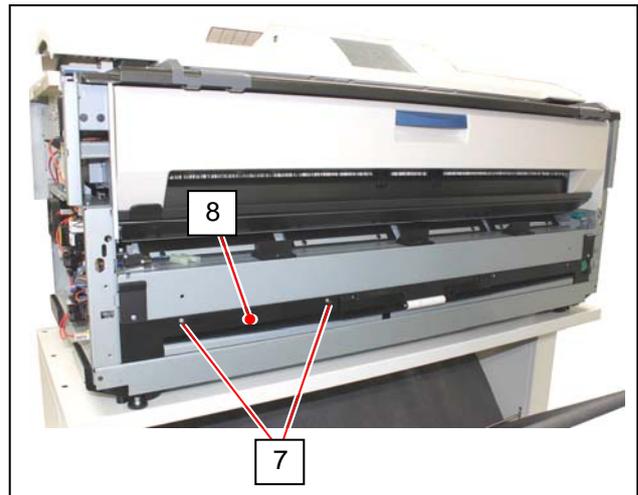
Fit the tab parts (5) on both sides in the notches so that they align with the face of the side plates.



2. Connect the connector (6).

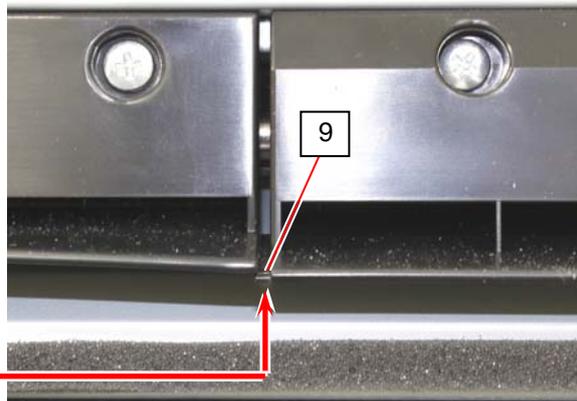
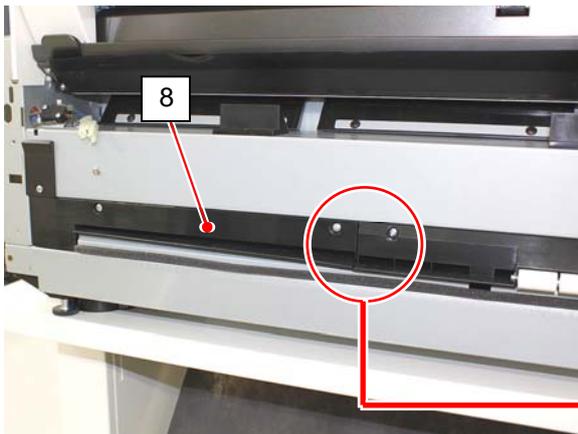


3. Fix GUIDE PLATE C (8) with 2 screws (7).



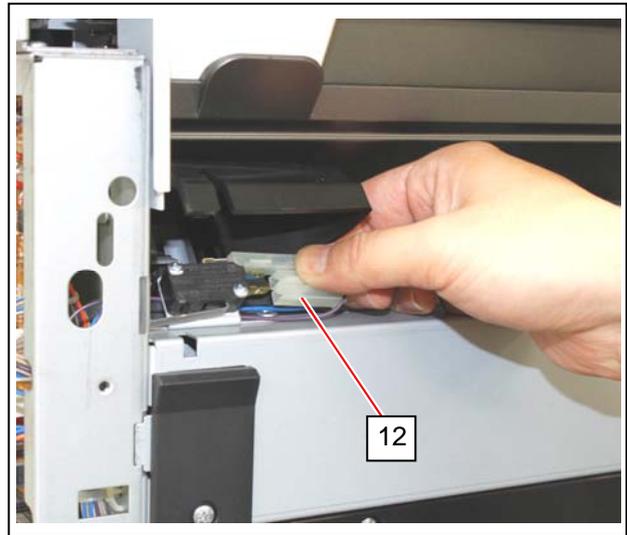
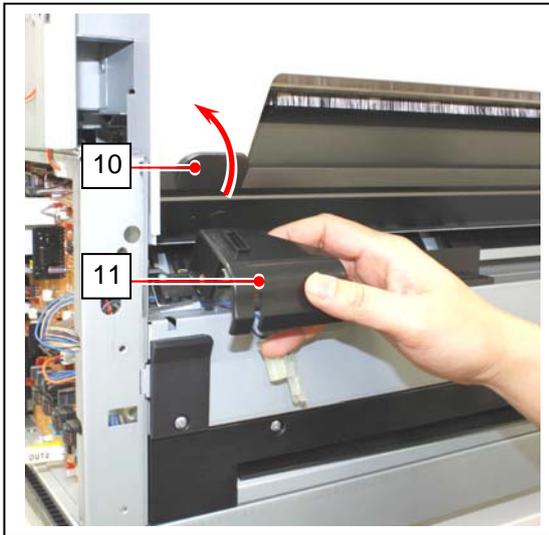
NOTE

Guide Plate C (8) should ride on the rib (9).

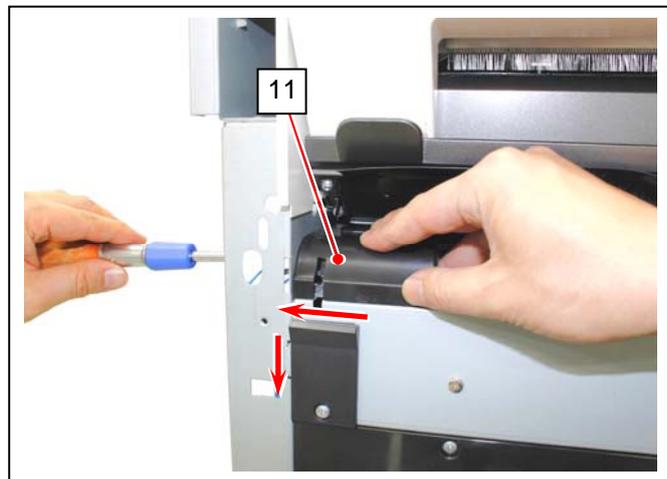
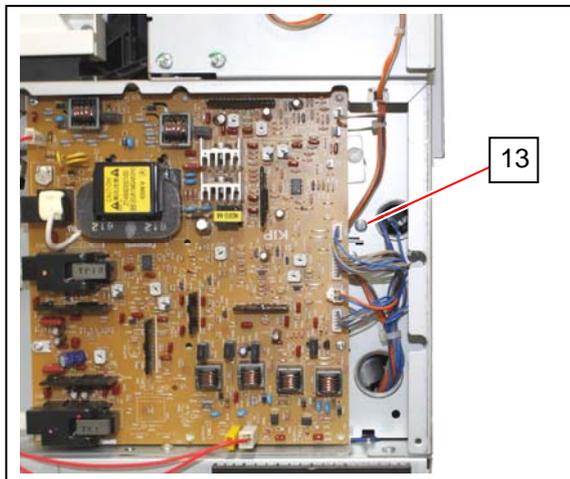


4. Open Guide 2 (10).

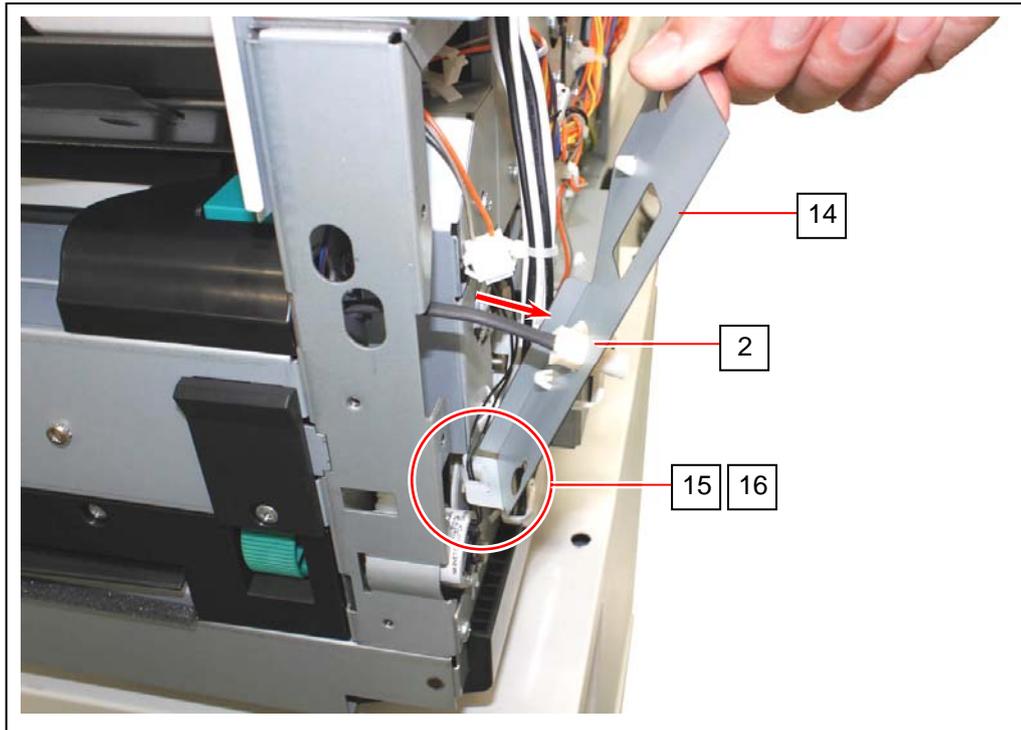
Return the switch cover (11) in the original position. Connect the connector (12).



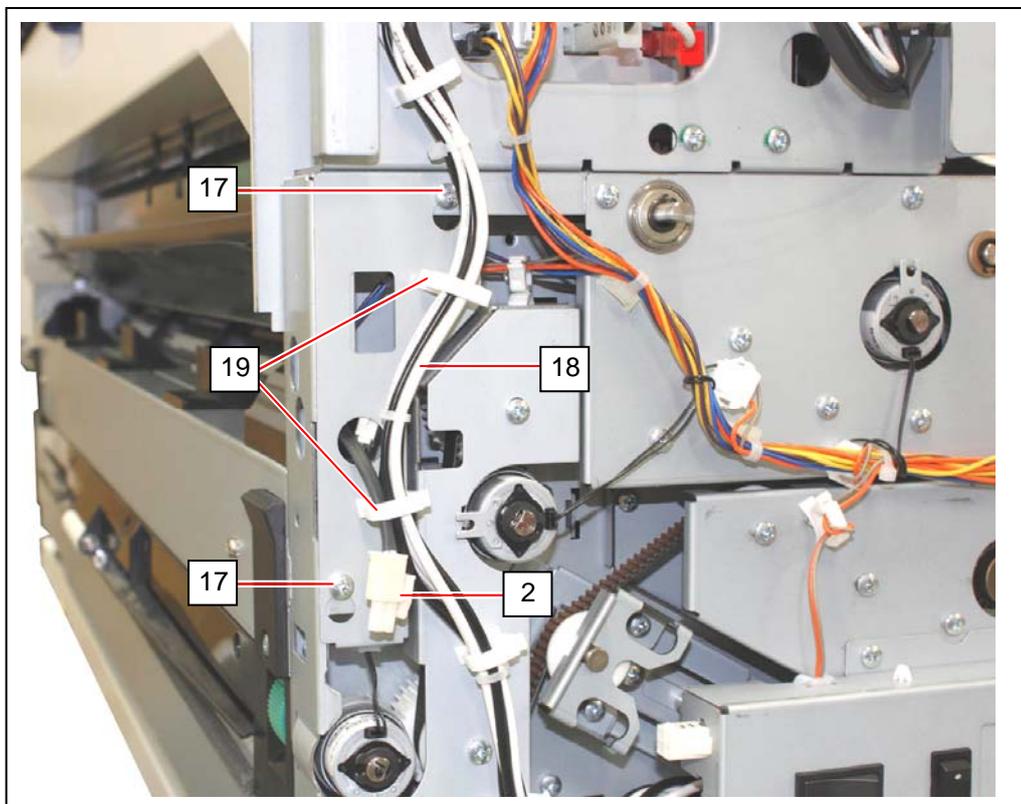
5. With pressing the switch cover (11) to the arrow direction (outward and downward), fix it with 1 screw (13).



6. Pass the harness of Dehumidify Heater Assy (2) through the round hole on the bracket (14) (this sentence is only for machines with Dehumidify Heater equipped only).
Pass the harness of Clutch (15) through the edge saddle (16).

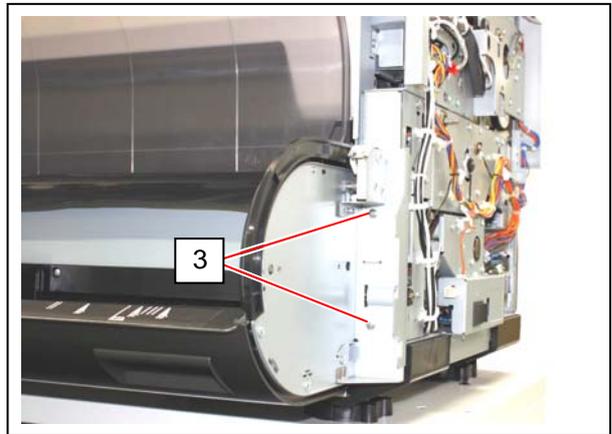
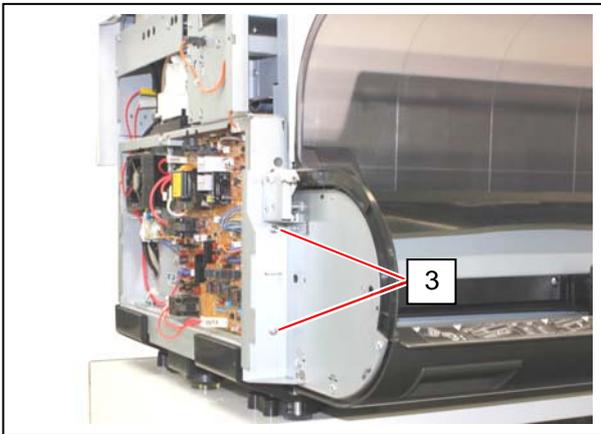
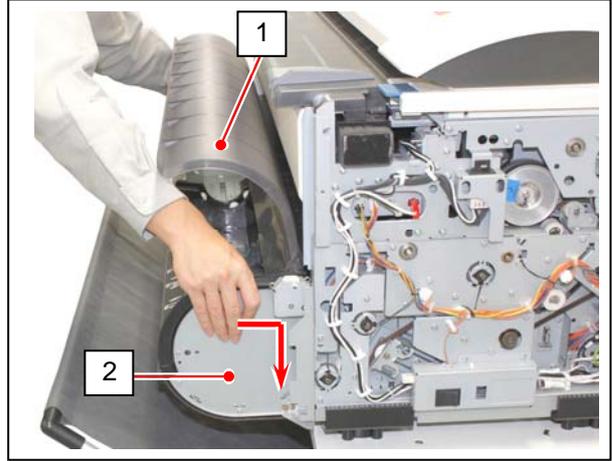


7. Fix the bracket with 2 screws (17). Secure the harness (2: for machines with Dehumidify Heater equipped only) and the AC harness (18) with the wire saddles (19).



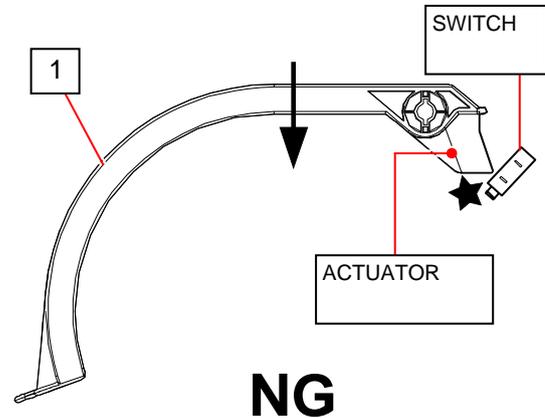
Reinstalling Roll Deck Assy

1. With the Roll Deck Cover (1) open, place the Roll Deck Assy (2) in the arrow direction. Fix it with 2 tooth washer screws (3) on each side.



! NOTE

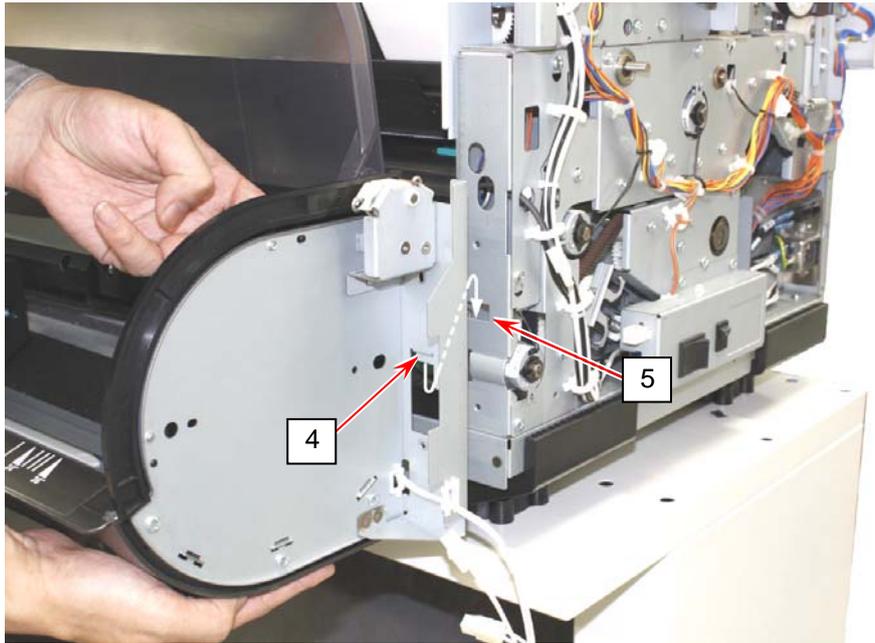
- (1) The Roll Deck Cover (1) should be kept OPEN while reinstalling the Roll Deck. Otherwise the actuator part would be caught by the microswitch to damage it.



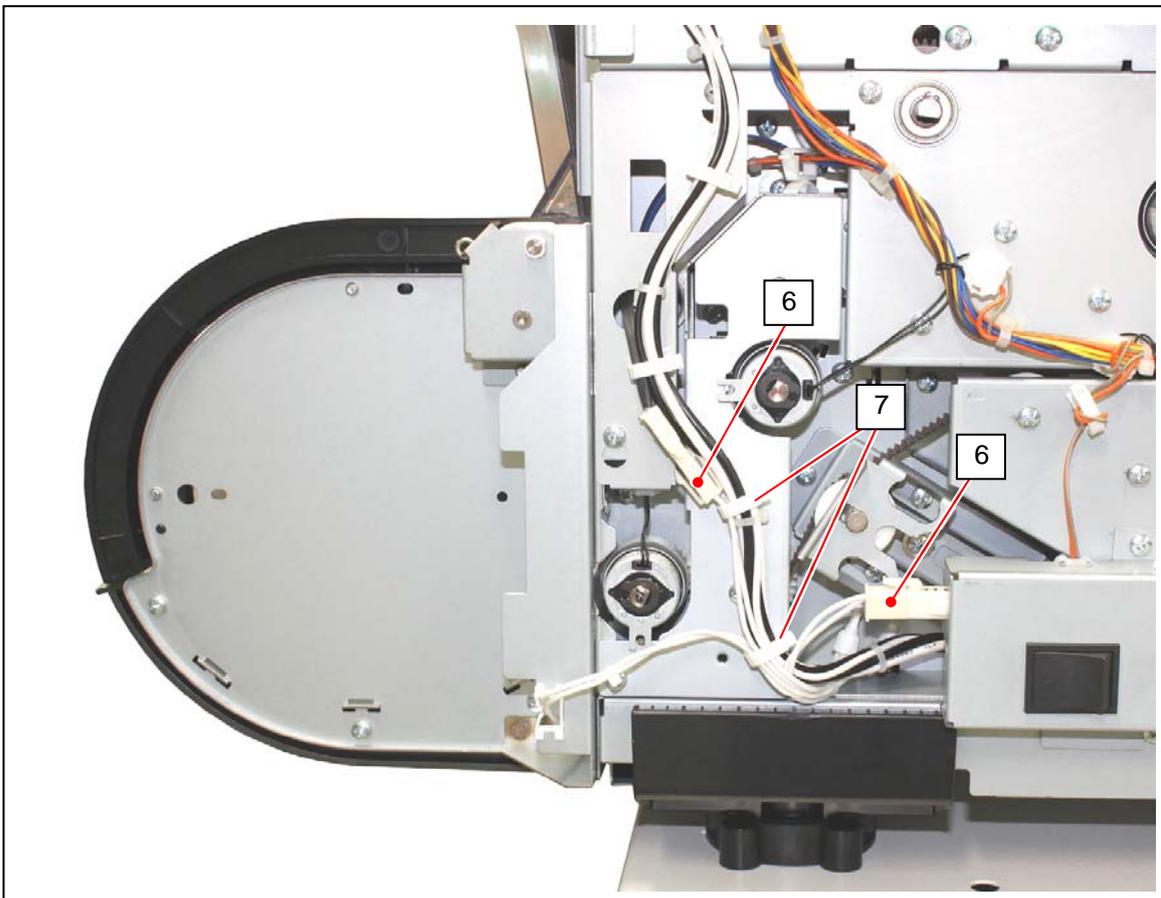
- (2) See next page

! NOTE

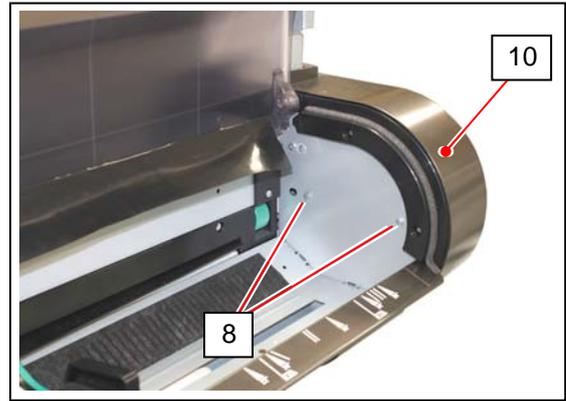
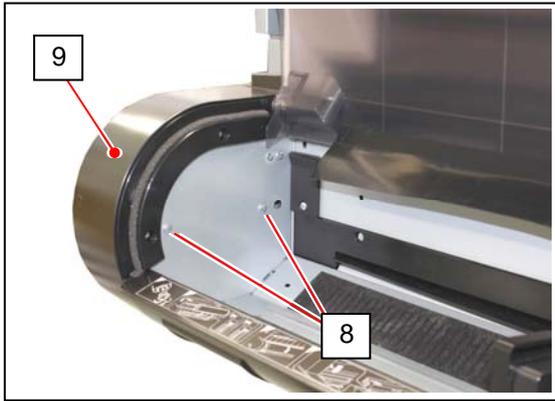
(2) Hook the tab part (4) on both sides to the notches (5).



2. (This step is only for machines with Dehumidify Heater equipped)
Connect 2 connectors (6) from the Roll Deck Assy to the connectors respectively. Secure them with the wire saddles (7).

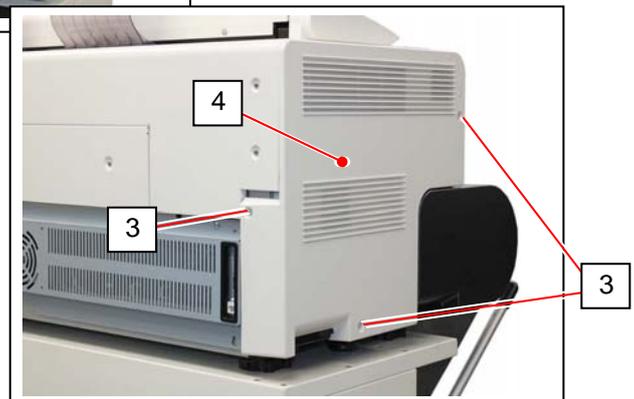
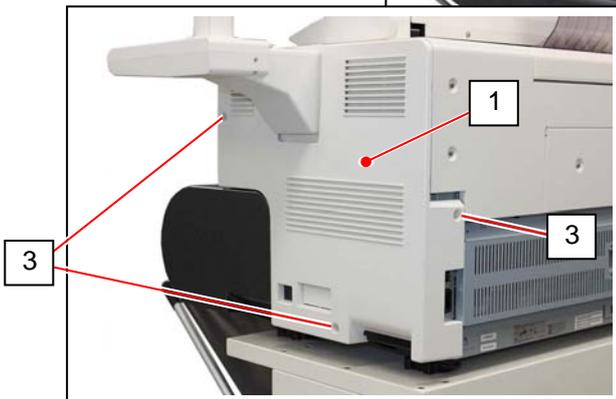


3. Reinstall the Cover 20 (9) and the Cover 19 (10) with 2 screws (8) on each side.



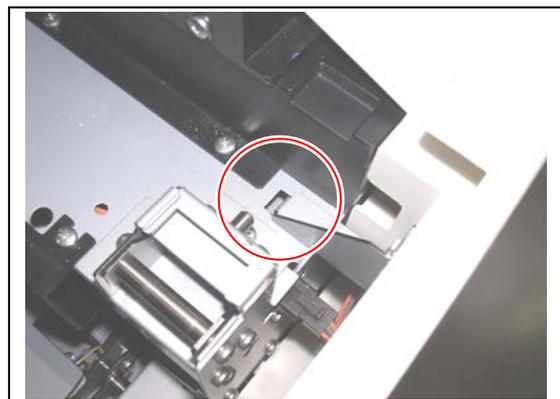
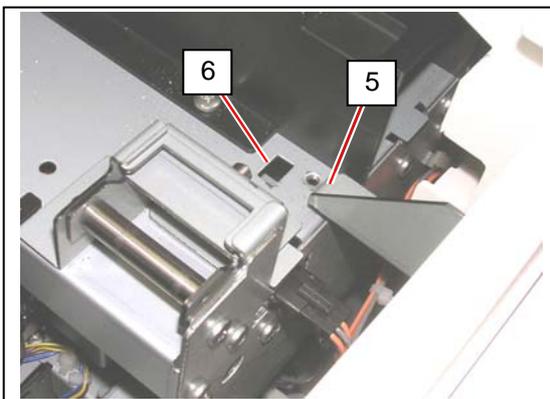
Reinstalling Side Cover

1. Open the Upper Unit. Reinstall the Side Cover R (1) and Side Cover L (4) with 3 screws (3) each.



NOTE

The hook part (5) should be seated in the rectangular hole (6) of the machine.



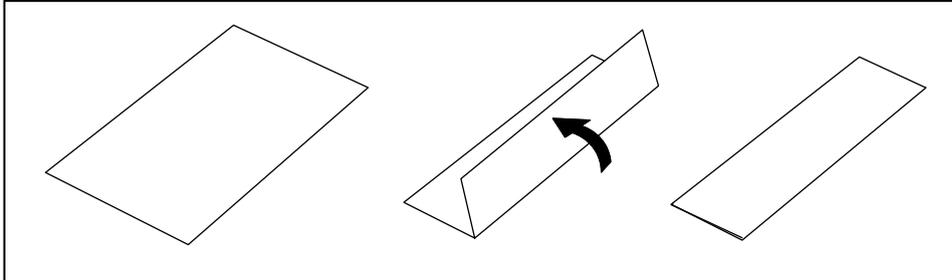
2. Close the Upper Unit.

Cut Angle Adjustment

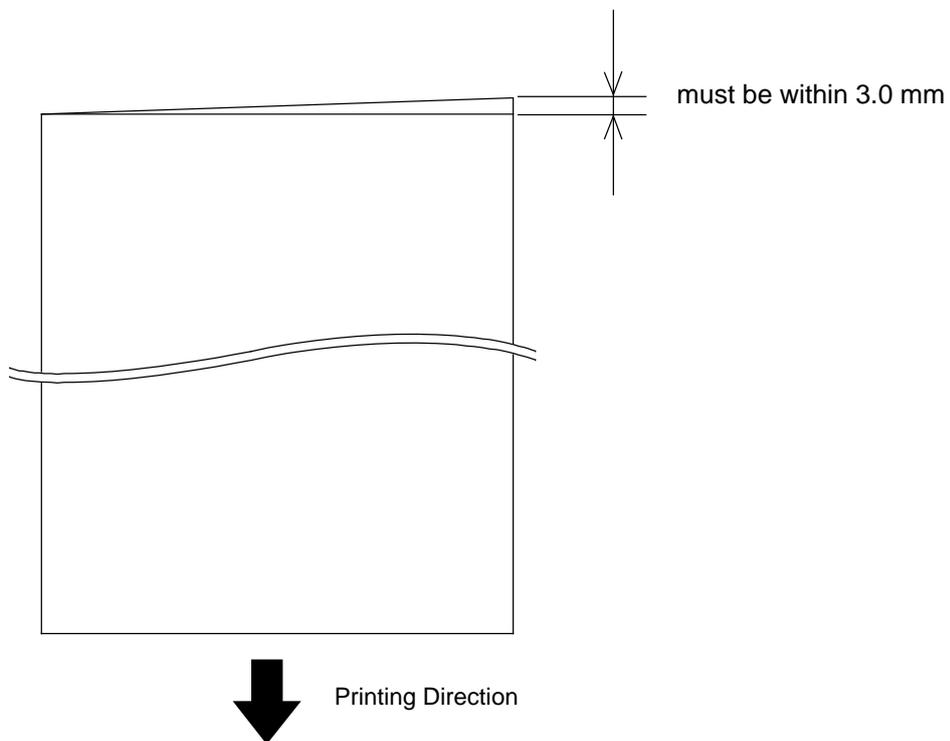
NOTE

After replacing the Cutter Unit, check for accuracy of the cut angle.
If not correct, follow the instruction below to adjust the installation angle of the Cutter Unit.

1. Make a print in A0/36" width, fold it in the center to overlap both sides each other.



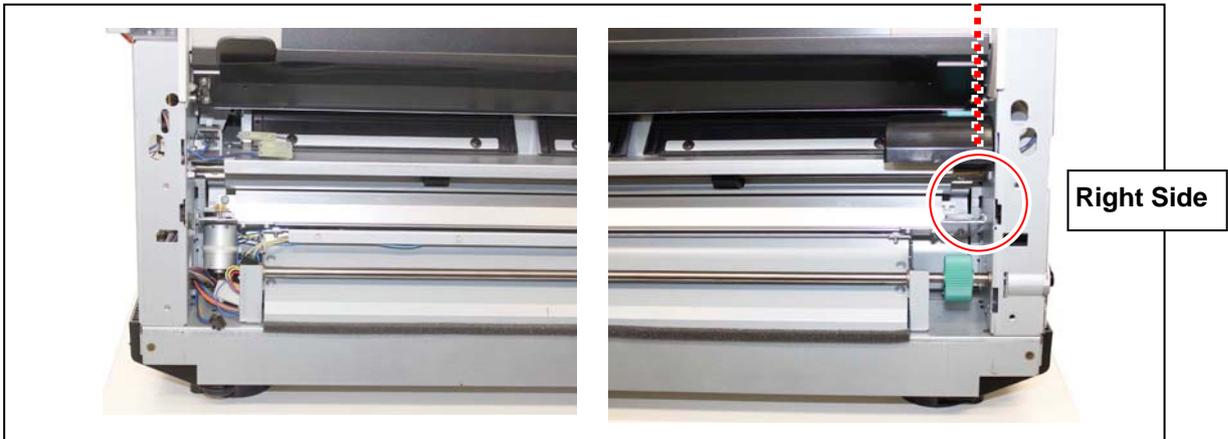
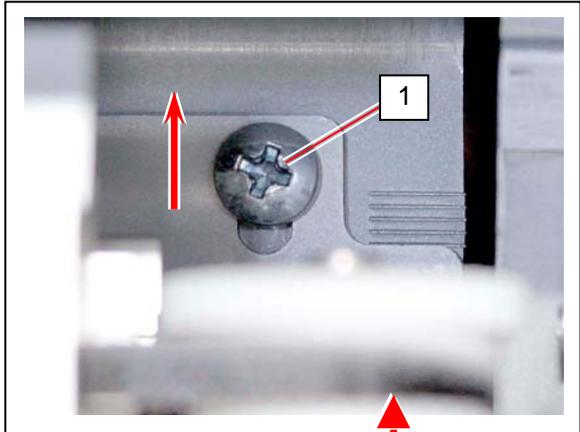
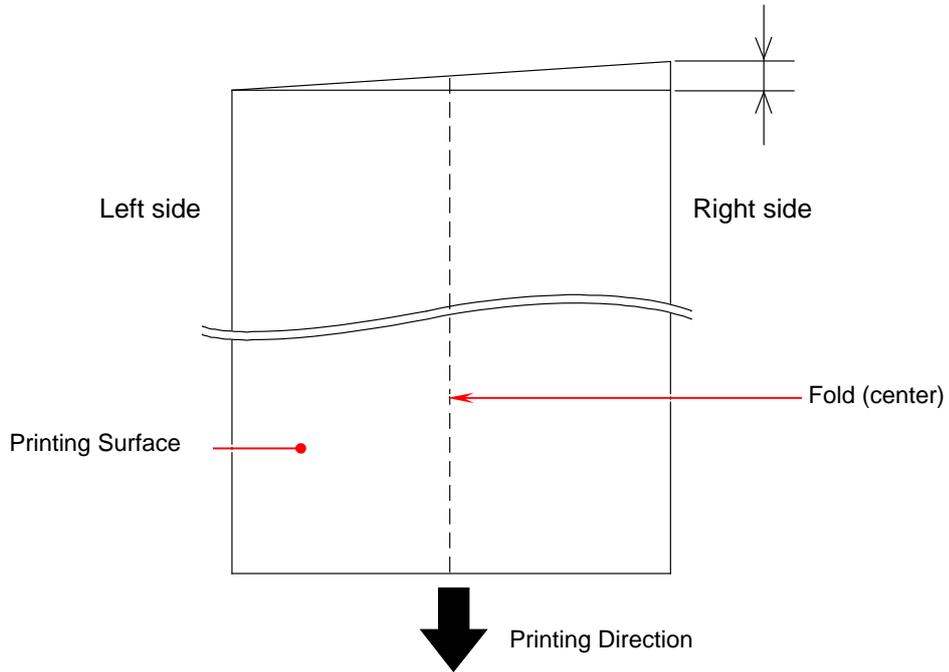
2. Measure the difference of the print length between left and right. It must be within 3.0mm.



3. It is necessary to adjust the installation angle of Cutter Unit if the difference of the print length exceeds 3.0mm.

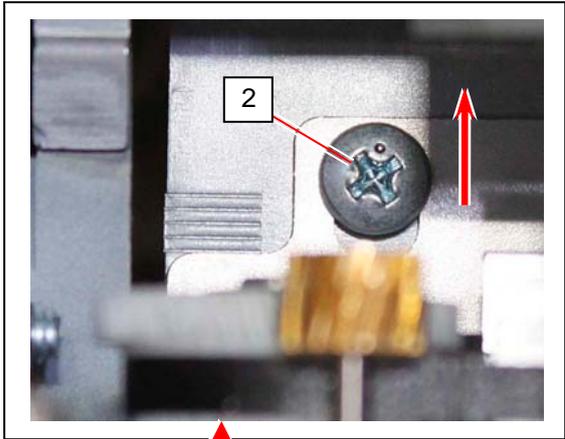
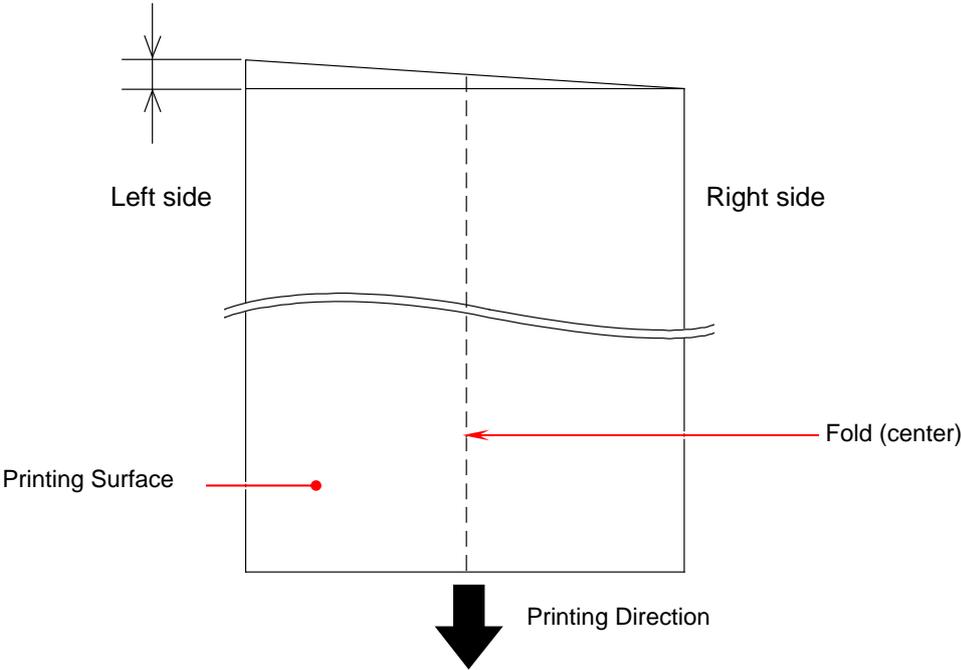
If the right side of the print is longer

Loosen 1 screw (1) on the right side, and slide the right side of Cutter Unit up to adjust its installation angle.



If the left side of the print is longer

Loosen 1 screw (2) on the left side, and slide the left side of Cutter Unit up to adjust its installation angle.



Chapter 6

Maintenance

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6.1 Recommended Periodic Replacement Parts

For keeping the machine quality in a satisfactory level, a periodic replacement for the following parts is recommended for "Preventive Maintenance (PM)".
A damaged part (even if it looks not) may result in a critical failure.

Part Name	Part Number	Remarks
Service Kit A	Z338080010	Image Corona, Transfer / Separation Corona, Filters, Pads (2 pcs), Nail Cleaning Jig
Service Kit B	Z338080020	Image Corona, Transfer / Separation Corona, Filters, Developer Unit, Pads (2 pcs), Nail Cleaning Jig, Toner Bottle (2 bottles)
Service Kit C	Z338080030	Transfer / Separation Corona, Filters, Developer Unit, Process Unit (includes Image Corona, Drum), Pads (2 pcs), Nail Cleaning Jig, Toner Bottle (2 bottles)

6. 2 Cleaning

Please make the following maintenances to keep the machine in a good condition and to get a superior image.

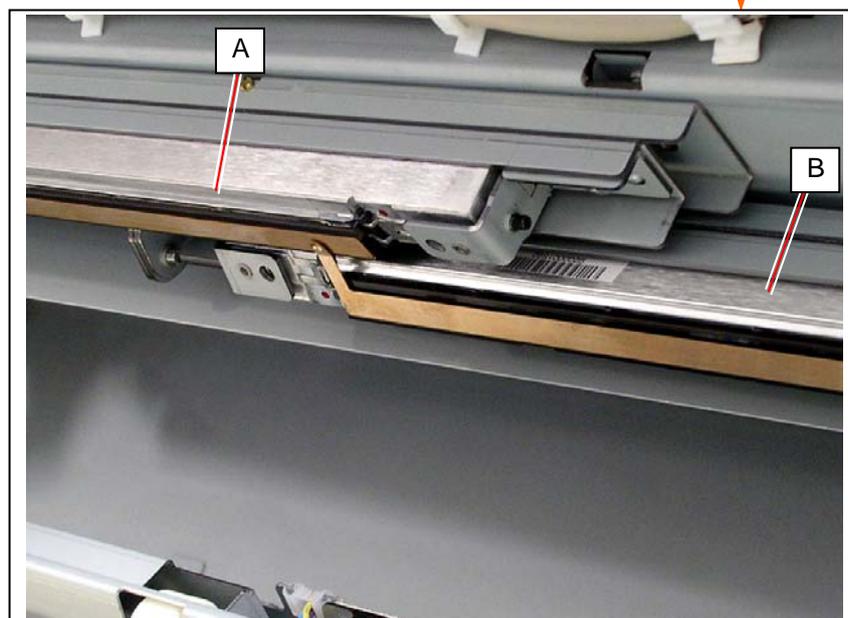
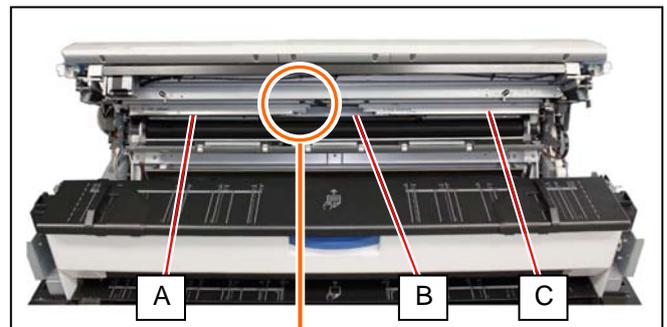
Unit / Area	Maintenance part	Way of cleaning
Main Frame	Machine inside	Clean the machine inside with a dry cloth.
Upper Unit	LED Head (Selfoc Lens) 3 blocks	Gently wipe it with a soft dry cloth. NEVER use solvents such as alcohol.
Process Unit	Photoconductive Drum	Gently wipe the green surface area with a soft dry cloth. Rotate the drive gear to turn Photoconductive Drum. NEVER scratch the surface. NEVER touch by a bare hand.
Exit Cover	Nail Stripping 12 pieces	Remove stuck substance on the top tip of the Nail Stripping. See [6.2.1 Cleaning Nail Stripping]
Scanner Unit	Between Upper / Lower scanner unit	Wipe with a dry cloth

LED Head:

See [5.1.5 Process Unit] to remove Process Unit.

Wipe LED Head Block (A) (B) (C).

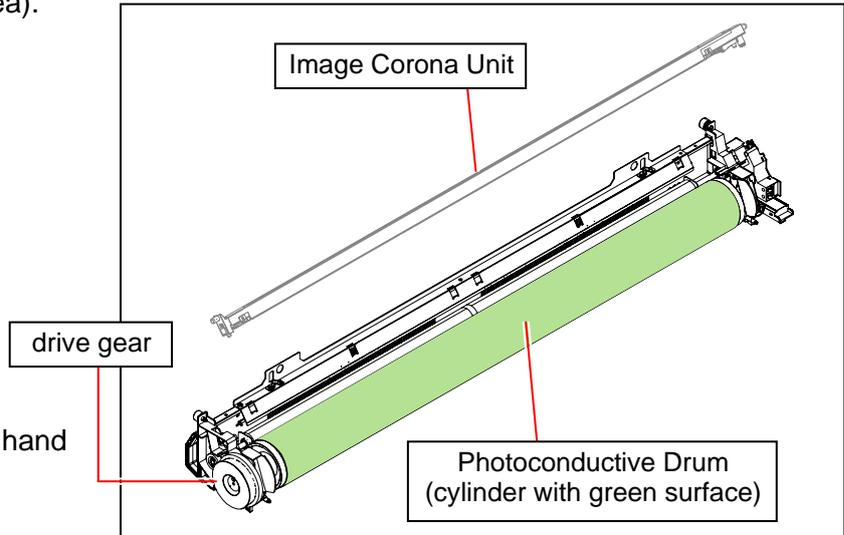
The metal plates attract possible scattering toner to prevent the LED Head Blocks from getting dirt.



Photoconductive Drum:

See [5.1.1 Image Corona Unit] to remove Image Corona Unit.

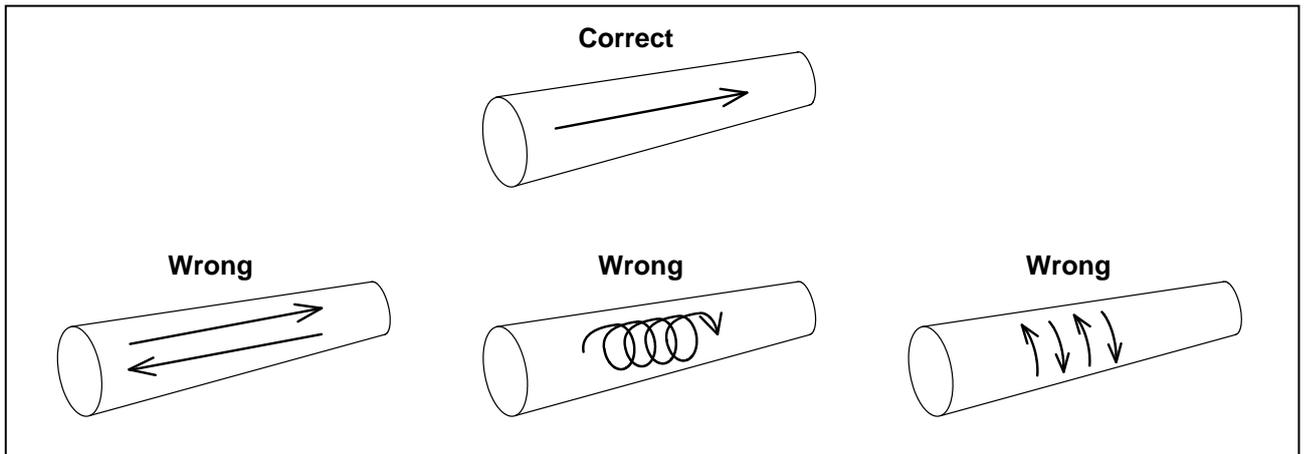
Gently wipe the surface (green area).



Rotate the drive gear (on the right hand grip side of Process Unit) to turn Photoconductive Drum. (slightly heavy load)

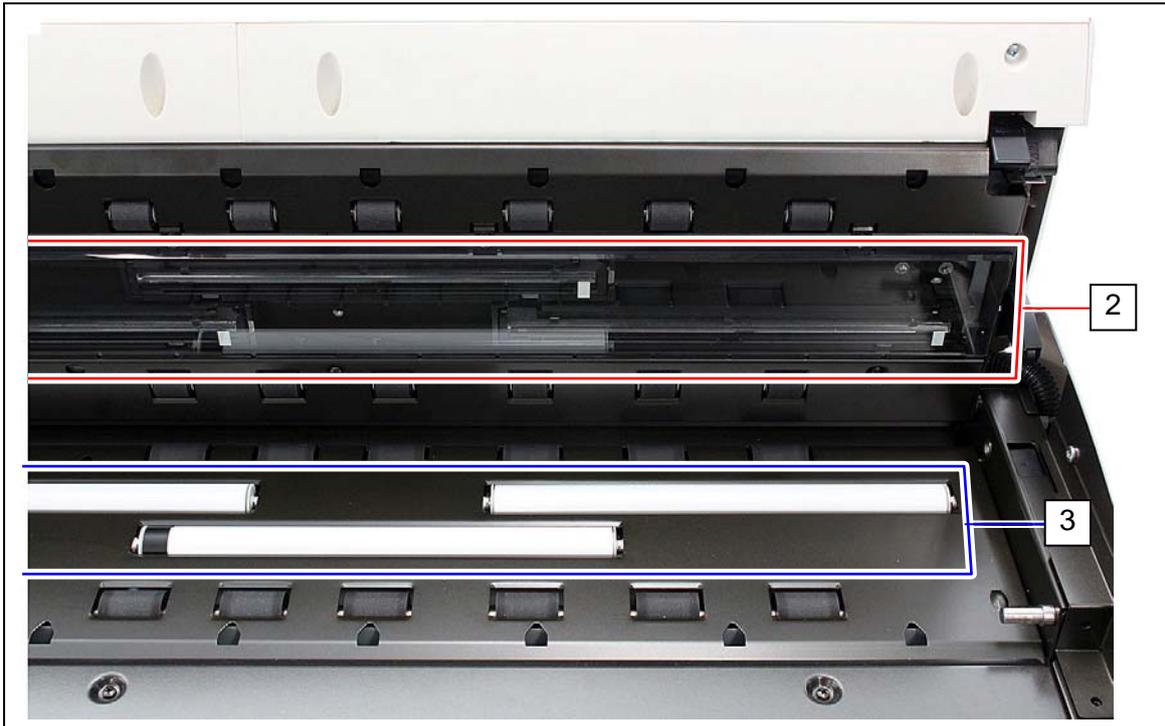
NOTE

- (1) 10 to 20 sheets just after cleaning may temporarily get lost proper image quality.
- (2) **Always wipe the surface in one direction.**
Failure to do so may damage the surface and result in defective imaging.



Scanner Unit

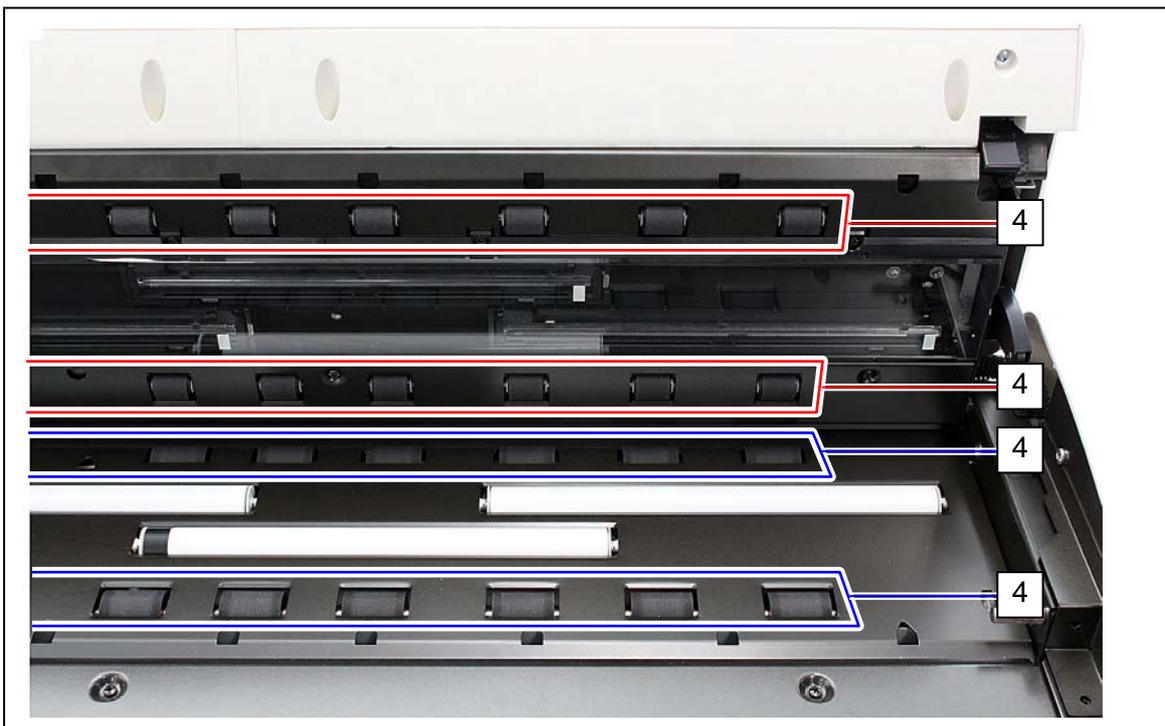
1. Gently wipe the Scan Glass (2) and Feed Rollers (white) (3) with a soft cloth. Equal mixture of water and neutral detergent can be used.



! NOTE

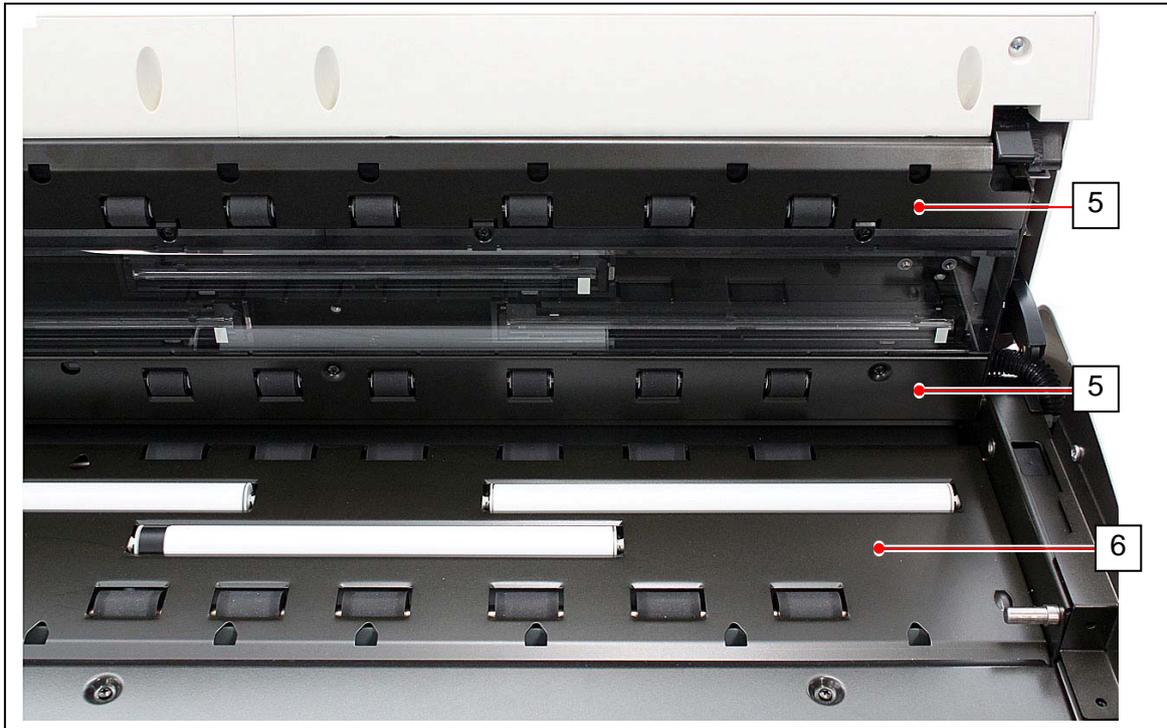
Do not use organic solvent, glass cleaner and anti-static spray for the cleaning.

2. Wipe the Feed Rollers (rubber) (4) with a dry cloth.

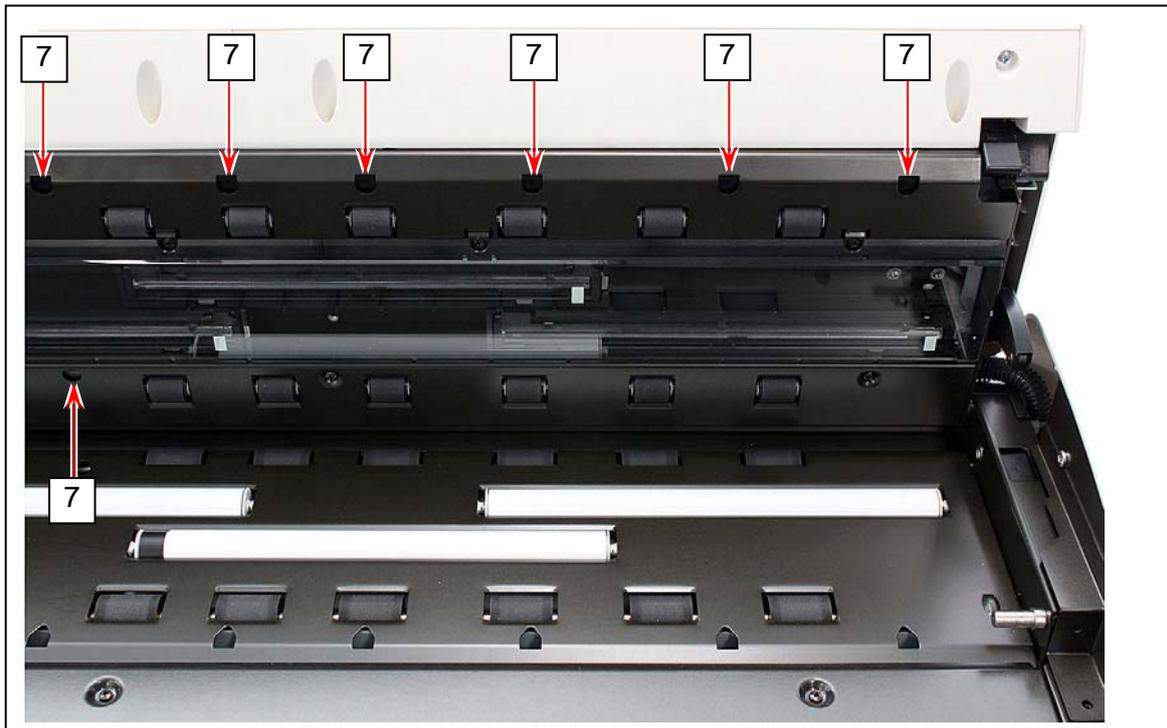


3. Wipe dry the Feeding Rollers.

4. Wipe the Upper Guide Plate (5) and the Lower Guide Plate (6) with a dry cloth.



5. Gently wipe Sensors (7) with a dry cotton bud.

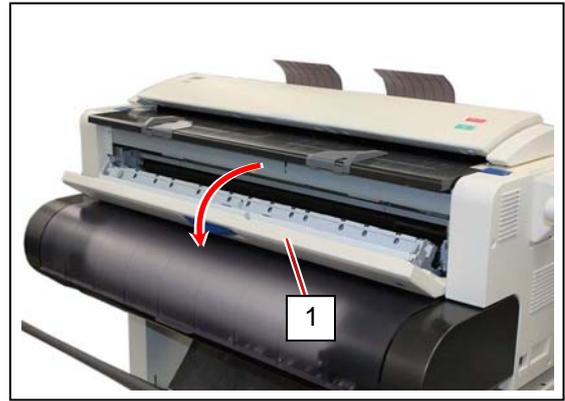


⚠ NOTE

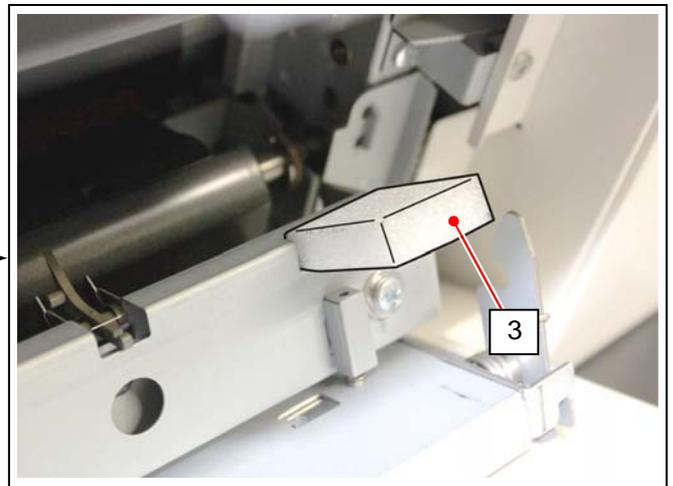
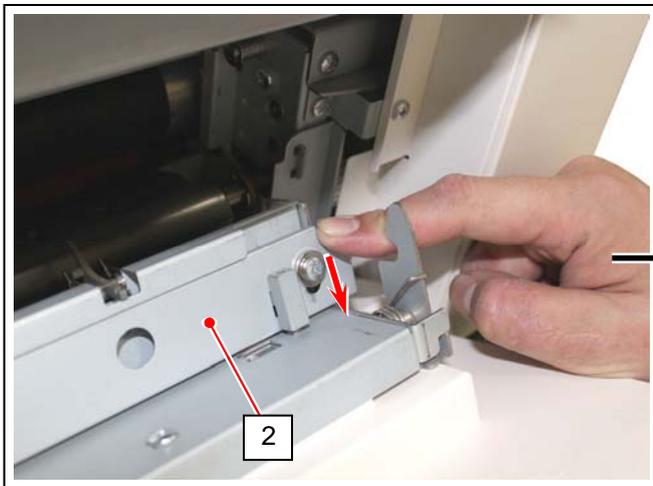
Do not use water, organic solvent, glass cleaner or antistatic spray for cleaning.

6. 2. 1 Cleaning Nail Stripping

1. Open the Exit Cover (1).



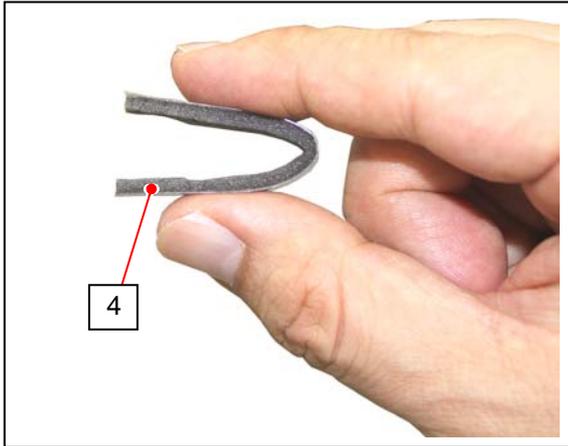
2. Press down the beam (2) on the Fuser Door, and put the Pads in the gap on both sides.



Reference

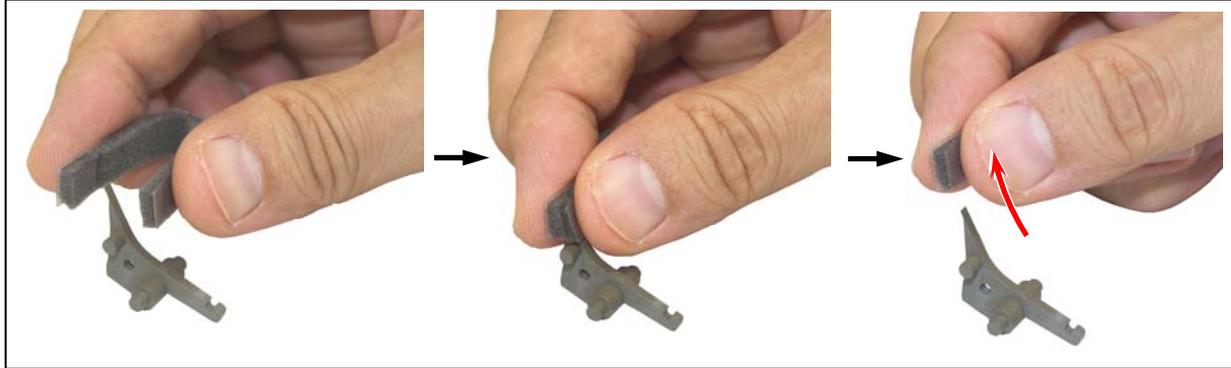
Putting the Pads raises the Nail Stripping to rise. This allows easier works in the later step.

3. Pinch the Nail Cleaning Jig as shown in the following pictures.
(Read the column below to clean the Nail Stripping.)



⚠ NOTE

- (1) There are extremely hot parts inside the Fuser Door.
Never touch any hot parts to avoid burning yourself.
- (2) Move the Nail Cleaning Jig to the arrow direction only.

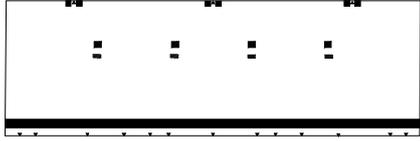
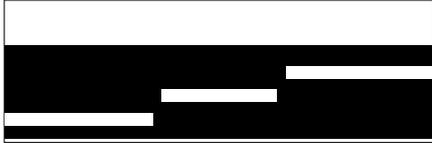
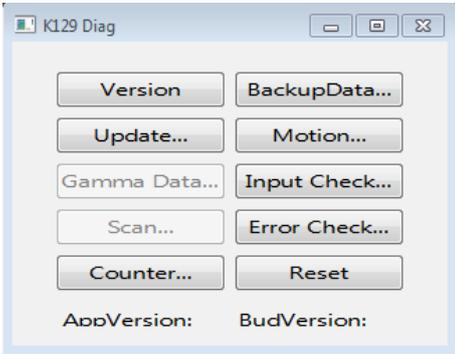


- (3) You do not have to remove Nail Stripping from the machine. The pictures above are shown for easy understanding.

6. 3 Service Tool List

Here is the table to list special tools for field service.

It is recommended to check them through in Parts Manual and Publication Bulletin for the latest information.

Part Name (Part Number)	Appearance / Usage Requirement	Related Section
SHADING SHEET (mono/color calibration) (Position) (Z298500082)		8.13.6.1 Shading 8.13.6.2 Stitching
CORRECTION CHART (Black Brightness Correct) (Z298500380)		8.13.6. 3 Black Brightness Correct
K129 Diag (Scanner adjustment)		8.13.5 Update 8.13.6.1 Shading 8.13.6.2 Stitching 8.13.6.3 Black Brightness Correct

Step #1 - Prepare Machine.

- Ask User on Printer Performance / Image Quality
- Run Test Print
- Locate the "KIP 770K PM Schedule" Form and check as each item is completed.
Replace noted items as this procedure progresses.
- Remove process unit (place into box)
- Remove side and top covers.

Step #2 - Corona Units

- Clean Grid Screen (Simple Green, then rinse with water) let dry on paper towel.
- Clean 1st Charge wires and case (Glass cleaner)
- Clean transfer / separation wires and case. (Glass cleaner)

Step #3 - LED Print Head.

- Clean LED lens. (Glass cleaner.)

Step #4 - Clean Interior of Printer.

- Separation fans / air guides.
- Transport belts.
- Transfer guide plates etc.

Step #5 - Development Unit.

- Clean spacing rollers.
- Vacuum any toner dust from ends of developer unit.
- Vacuum around toner hopper inlet.
- Clean / lube gears (only as needed with G501 grease / Lithium grease)

Step #6 - Paper Compartment.

- Vacuum paper dust.
- Inspect media spools.

Step #7 - Air Flow.

- Vacuum Ozone Filters.
- Confirm all fans and blowers are clean.

Step #8 - Fuser Section.

- Clean upper Nails.
- Clean lower Nails.
- Clean and lube gears. (as needed with High temp. grease)

Step #9 - Cutter Assembly.

- Clean paper dust.

Step #10 Run test pattern #1 and #3 and verify print quality. (save prints)

Step #11 Scanner

- Remove glass and clean both sides.
- Clean original rollers

Step #12 Clean Panels and Covers.

Step #13 Make copies / prints

Step #14 Speak with key operator on your evaluation / status.

KIP 770K - PM Schedule (Parts Method)

r1

- The Dealer may choose to use the **PM KIT** method or **PM Parts** method when performing PM service. Please use this form when using the PM Parts Method.
- Please keep this form with the KIP 770K ; 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	Square Feet X 1000													
			Code	50	Complete	100	Complete	150	Complete	200	Complete	250	Complete	300	Complete	350
Document Glass (scanner)			#	C		C		C		C		C		C		C
Document Rollers (scanner)			#	C		C		C		C		C		C		C
Photoreceptor	1	Z178080290								R						
Corona Wire Kit (includes these 3 wires)	1	Z160980200		R		R		R		R		R		R		R
Main Charge Wire (Z175101420)	1		#	R		R		R		R		R		R		R
Transfer Wire (4205100240)	1		#	R		R		R		R		R		R		R
Separation Wire (4205100240)	1		#	R		R		R		R		R		R		R
Grid Screen			#			C				C				C		
LED Head			#	C		C		C		C		C		C		C
Developer Space Discs			#			C				C				C		
Lube Gears						L				L				L		
Developer Maintenance Kit	1	Z178080271				R				R				R		
Roll Compartment & Interior			@	C		C		C		C		C		C		C
Knife			@							C						
Filters - Kit	1	Z178070010	@	R		R		R		R		R		R		R
Lube Gears						L				L				L		
Fuser Fingers				C		C		C		C		C		C		C
Fuser Roller						C				C				C		
Pressure Roller						C				C				C		
Thermostat						C				C				C		
Thermistor						C				C				C		
Exterior Covers / GUI			#	C		C		C		C		C		C		C

= Clean with glass cleaner and wipe dry
@ = Clean with vacuum

C = Clean
I = Inspect

R = Replace
A = Adjust position

L = Lubricate

Subject to change without notice
Actual intervals may vary due to customer requirements / installation location

KIP 770K - PM Schedule (Parts Method)

r1

- The Dealer may choose to use the **PM KIT** method or **PM Parts** method when performing PM service. Please use this form when using the PM Parts Method.
- Please keep this form with the KIP 770K ; 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 Meters X 1000													
			Code	6	Complete	12	Complete	18	Complete	24	Complete	30	Complete	36	Complete	42
Document Glass (scanner)			#	C		C		C		C		C		C		C
Document Rollers (scanner)			#	C		C		C		C		C		C		C
Photoreceptor	1	Z178080290								R						
Corona Wire Kit (includes these 3 wires)	1	Z160980200		R		R		R		R		R		R		R
Main Charge Wire (Z175101420)	1		#	R		R		R		R		R		R		R
Transfer Wire (4205100240)	1		#	R		R		R		R		R		R		R
Separation Wire (4205100240)	1		#	R		R		R		R		R		R		R
Grid Screen			#			C				C				C		
LED Head			#	C		C		C		C		C		C		C
Developer Space Discs			#			C				C				C		
Lube Gears						L				L				L		
Developer Maintenance Kit	1	Z178080271				R				R				R		
Roll Compartment & Interior			@	C		C		C		C		C		C		C
Knife			@							C						
Filters - Kit	1	Z178070010	@	R		R		R		R		R		R		R
Lube Gears						L				L				L		
Fuser Fingers				C		C		C		C		C		C		C
Fuser Roller						C				C				C		
Pressure Roller						C				C				C		
Thermostat						C				C				C		
Thermistor						C				C				C		
Exterior Covers / GUI			#	C		C		C		C		C		C		C

= Clean with glass cleaner and wipe dry

@ = Clean with vacuum

C = Clean

I = Inspect

R = Replace

A = Adjust position

L = Lubricate

Subject to change without notice

Actual intervals may vary due to customer requirements / installation location

Chapter 7

Troubleshooting

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7.1 Troubleshooting - Printer Errors

7.1.1 Countermeasures - Operator Call Errors

7.1.1.1 J-00000002 Jam at Paper Deck 1

Reference

Delay : Paper arrives the sensor much later than required timing.
 Stay : Paper exists on the sensor for longer time than required.
 Remained : Paper has already existed on the sensor when turning on the machine.

Cause	Checking order	Checking	Result	Treatment
Mis-feed of paper	1	Does the paper mis-fed occur between Roll Set Sensor and Feed Sensor?	Yes	Remove the mis-fed paper.
Manual Feed Sensor (PH7)	2	Check the status of Feed Sensor in the Input Check of the Service Mode. Signal Code : 00008 (Manual Feed Sensor) Is the status "L" when the paper is not passing beside the sensor? And is it "H" when the paper is passing beside the sensor?	No	1. Is there any problem with the Drawer Connector which connects the machine and the Roll Deck. 2. Check if there is any problem with the wire connected to the Feed Sensor. 3. Replace the Manual Feed Sensor if there is no problem with the wire.
Cutter Home Position Sensor (MS8 & MS9)	3	Check the status of Cutter Home Position Sensors in the Input Check of the Service Mode. Signal Code : 00094 (Cutter Home Position Right) 00095 (Cutter Home Position Left) Is the status "H" when the Cutter is at each home position? And is it "L" when the Cutter is not at the home position?	No	1. Check if there is any problem with the wire connected to the Cutter Home Position Sensor. 2. Replace the Cutter Home Position Sensors if there is no problem with the wire.
Driving mechanism	4	Check the operation of Feed Clutch in the Output Check of the Service Mode. Device Code : 00010 (Feed Clutch) Open and close Roll Deck and check if Main Motor rotates correctly. Does each Feed Clutch and Main Motor operate correctly?	No	Replace the Feed Clutch or Main Motor if it is defective.

7. 1. 1. 2 J-00000200 Registration Part Jam

Cause	Checking order	Checking	Result	Treatment
Media mis-feed	1	Does the paper mis-fed occur around the Registration Roller?	Yes	Remove the mis-fed paper.
Registration Sensor (PH1)	2	Check the status of Registration Sensor in the Input Check of the Service Mode. Signal Code : 00100 (Registration Sensor) Is the status "L" when the paper is not passing beside the sensor? And is it "H" when the paper is passing beside the sensor?	No	1. Check if there is any problem with the wire connected to the Registration Sensor. 2. Replace the Registration Sensor if there is no problem with the wire.
Upper Unit	3	Is the Upper Unit closed firmly until it is locked? (Is the pressure around the Registration Roller correct?)	No	1. Close the Upper Unit firmly. 2. Adjust the pressure around the Registration Roller.
Driving mechanism	4	Check the operation of Registration Clutch in the Output Check of the Service Mode. Device Code : 00011 (Registration Clutch) Open and close Roll Deck and check if Main Motor rotates correctly. Does each Registration Clutch and Main Motor operate correctly?	No	Replace the Registration Clutch or Main Motor if it is defective.

7. 1. 1. 3 J-00000400 Separation Part (Unit) 1

Cause	Checking order	Checking	Result	Treatment
Mis-feed of paper	1	Does the paper mis-fed occur around the separation area?	Yes	Remove the mis-fed paper.
Separation Sensor (PH2)	2	Check the status of Separation Sensor in the Input Check of the Service Mode. Signal Code : 00010 (Separation Sensor) Is the status "H" when the paper is not passing beside the sensor? And is it "L" when the paper is passing beside the sensor?	No	1. Check if there is any problem with the wire connected to the Separation Sensor. 2. Replace the Separation Sensor if there is no problem with the wire.
Transfer / Separation Corona	3	Is the Transfer / Separation Corona Unit installed to the machine correctly?	Yes	Install the Transfer / Separation Corona Unit correctly.
		Is the Corona Wire broken?	Yes	Replace the Corona Wire.
HV Power Supply	4	Is the output from the HV Power Supply to the Separation Corona correct?	No	Replace the HV Power Supply.

7. 1. 1. 4 J-01000000 Fuser unit Jam

Cause	Checking order	Checking	Result	Treatment
Mis-feed of paper	1	Does the paper mis-fed occur around the fuser area?	Yes	Remove the mis-fed paper.
Flap Guide Plate	2	Is Flap Guide Plate (just before Fuser Unit) close properly? It may catch the harness of the sensor (PH9, GUIDE_S).	No	Open it, clear its range of motion.
Exit Sensor (PH3)	3	Check the status of Exit Sensor in the Input Check of the Service Mode. Signal Code : 00011 (Exit Sensor) Is the status "H" when the paper is not passing beside the sensor? And is it "L" when the paper is passing beside the sensor?	No	1. Check if there is any problem with the wire connected to the Exit Sensor. 2. Replace the Exit Sensor if there is no problem with the wire.

7. 1. 1. 5 J-00000004 Jam at Paper Deck 2 (Jam at Paper Tray Option)

Cause	Checking order	Checking	Result	Treatment
	1		Yes	
			No	

7. 1. 1. 6 Deck Jam

Cause	Checking order	Checking	Result	Treatment
Mis-feed of paper	1	Does the paper mis-fed occur in the Roll Deck?	Yes	Remove the mis-fed paper.
Roll 1 Set Sensor (PH7) Feed Sensor (PH6)	2	Check the status of Roll Set Sensor and Feed Sensor in the Input Check of the Service Mode. Signal Code : 00105 (Roll Set Sensor) 00111 (Feed Sensor) Is the status of each sensor "H" when you set the roll paper?	No	1. Check if there is any problem with the wire connected to each sensor. 2. Replace the concerning sensor if there is no problem with the wire.

7. 1. 1. 7 Manual Set NG

Cause	Checking order	Checking	Result	Treatment
Mis-feed	1	Have you already set the cut sheet paper to the Bypass Feeder before you turned on the machine?	Yes	Remove the paper.
Manual Set Sensor	2	Check the status of Manual Feed Sensor in the Input Check of the Service Mode. Signal Code : 00008 (Manual Set Sensor) Is the status "L" when the paper is not passing beside the sensor? And is it "H" when the paper is passing beside the sensor?	No	1. Check if there is any problem with the wire connected to the Manual Set Sensor. 2. Replace the Manual Set Sensor if there is no problem with the wire.
Registration Sensor	3	Check the status of Registration Sensor in the Input Check of the Service Mode. Signal Code : 00100 (Registration Sensor) Is the status "L" when the paper is not passing beside the sensor? And is it "H" when the paper is passing beside the sensor?	No	1. Check if there is any problem with the wire connected to Registration Sensor. 2. Replace the Registration Sensor if there is no problem with the wire.
Driving mechanism	4	Check the operation of Registration Clutch in the Output Check of the Service Mode. Device Code : 00011 (Registration Clutch) Open and close Roll Deck and check if Main Motor rotates correctly. Does each Registration Clutch and Main Motor operate correctly?	No	Replace the Registration Clutch or Main Motor if it is defective.

7. 1. 1. 8 Toner Low

Cause	Checking order	Checking	Result	Treatment
Toner Hopper	1	Is there enough toner in the Toner Hopper?	No	Add toner to Toner Hopper.
Toner Supply Motor (M3)	2	Turn on the machine and check the action of Toner Supply Motor at that time. Does Toner Supply Motor operate correctly in both cases?	No	1. Check if there is any problem with the wires among Toner Supply Motor, Driver PCB B and PW11720 PCB. 2. Replace the Toner Supply Motor if there is no problem with the wire.
Toner Sensor (TLS1)	3	Confirm that the Toner Sensor is not buried in the toner. Then check the status of Toner Sensor in the Input Check of the Service Mode. Signal Code : 00104 (Toner Sensor) Is the status "H" when the Toner Sensor is covered with the toner? And is it "L" when the sensor is not covered?	No	Replace the Toner Sensor.
			Yes	Replace the PW11720 PCB.

7. 1. 1. 9 Roll Empty

Cause	Checking order	Checking	Result	Treatment
Mis-feed of paper	1	Is there a paper anywhere in the machine?	Yes	Open the Exit Cover and the Engine Unit, and then remove the paper. (Cut the paper manually if it has not been cut yet.)
Switch (MS5)	2	Check the status of the following signal in the Input Check of the Service Mode. Signal Code : 00009 (Roll Deck Open) Is the status "L" when the Roll Deck is closed? And is it "H" when the Roll Deck is opened?	No	1. Check if there is any problem with the wire connected to the Switch (MS5). 2. Replace the Switch (MS5) if there is no problem with the wire.

7. 1. 2 Countermeasures - Service Call Errors

The followings are the names of Service Call Errors and the conditions that those errors occur.
Error Code expression in Hexadecimal Number / in Decimal Number

Error Code	Error Indication	Conditions
E-0101 /E-257	Cutter Error	<ol style="list-style-type: none"> 1. The Cutter Home Sensor Signal (MSCUT_L or MSCUT_R) does not change to "H" within 100 millisecond since the Cutter has started the operation. 2. The Cutter Home Sensor Signal (MSCUT_L or MSCUT_R) does not change to "L" within 1 second since the Cutter has started the operation.
E-0310 /E-784	Out of Process 1 Developer Error	<ol style="list-style-type: none"> 1. The Connector J-253 is not connected. 2. The Switch (MS4) is "open" condition, which detects open/close of Engine Unit or Toner Hatch.
E-0320 /E-800	Abnormal output of Process 1 1st Charger	The Image Corona Output Detection Signal (IM_LD) continues to be "L" for 1 second or longer when the Image Corona is ON.
E-0321 /E-801	Abnormal output of Process 1 Transfer Charger	The Transfer Corona Output Detection Signal (TR_LD) continues to be "L" for 1 second or longer when the Transfer Corona is ON.
E-0322 /E-802	Abnormal output of Process 1 Separation Charger	The Separation Corona Output Detection Signal (AC_LD) continues to be "L" for 1 second or longer when the Separation Corona is ON.
E-0323 /E-803	Abnormal output of Process 1 Developer Bias	Bias Output Detection Signal (BIAS_LD) continues to be "L" for 1 second or longer when a specified bias is supplied to the corresponding Developer Unit components.
E-0335 /E-821	Process 1 Density Sensor Error	Density Sensor cannot be calibrated correctly before Density Measure.
E-0700 /E-1792	Paper Feed Motor Error	The Main Motor Output Detection Signal (MAINM_LD) continues to be "H" for 3 seconds or longer when the Main Motor is rotating.
E-0800 /E-2048	Counter-A Error	The Counter Connection Detection Signal (COUNT_LD) continues to be "L" for 1 second or longer after turning on.

Error Code	Error Indication	Conditions
E-0900 /E-2304	Fuser Low-Temp Error (Condition 1)	Fuser Temperature does not reach 50 °C within 120 seconds after turning on.
	(Condition 2)	<ol style="list-style-type: none"> 1. Fuser Temperature at the time of turning on was 50 to 100 °C, but it does not rise up to 120 °C within 150 seconds after that. 2. Fuser Temperature at the time of turning on was higher than 100 °C, but it does not rise up to the setting temperature within 270 seconds after that.
	(Condition 3)	The difference of temperature between center and side of fuser becomes 50 °C or more.
	(Condition 4)	Even the status of Fuser Lamp is ON (Signal HEAT1 is "H") in Ready condition, but the monitoring temperature does not rise within 30 seconds.
E-0901 /E-2305	Fuser Over-Temp Error	Fuser Temperature reaches over 200 °C.
E-0A20 /E-2592	Main Board Error	Initialization of FPGA is failed after turning on.
E-0A60 /E-2656	Fuse Error	Fuse (F1) is broken.

7. 1. 2. 1 E-0101/E-257 Cutter Error

Cause	Checking order	Checking	Result	Treatment
Wires	1	Is the wire between Cutter Unit and PW11720 PCB connected properly?	No	Connect it properly.
Cutter Home Position Sensors (MS8 & MS9)	2	Check the status of the following signals in the Input Check of the Service Mode. Signal Code : 00094 (Cutter Home Position Right) 00095 (Cutter Home Position Left) Is the status "L" when the Cutter is at each home position?	No	Replace the Cutter Home Position Sensor..
Cutter Motor (M4)	3	Check the operation of Cutter in the Output Check of the Service Mode. Device Code : 00027 (Cutter Motor 1) 00028 (Cutter Motor 2) Does the Cutter operate?	No	Replace the Cutter Unit.

7. 1. 2. 2 E-0310/E-784 Out of Process 1 Developer Error

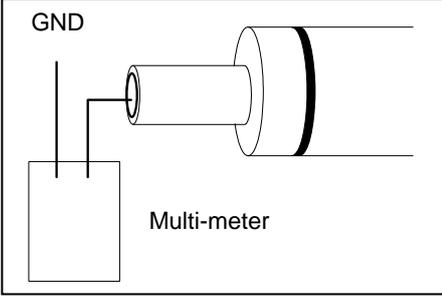
Cause	Checking order	Checking	Result	Treatment
Wires	1	Is the wire between Developer Unit and PW11720 PCB connected properly?	No	Connect it properly.

7. 1. 2. 3 E-0320 E-0321 E-0322 Abnormal output of Process 1 Errors

- E-0320/E-800 Abnormal output of Process 1 1st Charger
- E-0321/E-801 Abnormal output of Process 1 Transfer Charger
- E-0322/E-802 Abnormal output of Process 1 Separation Charger

Cause	Checking order	Checking	Result	Treatment
Wire	1	Are wires among Image Corona, HV Power Supply PCB and PW11720 PCB connected properly?	No	Connect them properly.
	2	(For Image Corona / Cleaning Roller only) Is the spring on the left bottom of the Process Unit OK?	No	Correct it properly.
Image Corona	3	Is the Image Corona dirty?	Yes	Clean each Corona Wire, Grid Plate and housing.
		Is the Corona Wire broken?	Yes	Replace the Corona Wire.
Cleaning Roller	4	Does the bias terminal plate touch to Cleaning Roller shaft properly?	No	Remove and reapply conductive grease to Cleaning Roller shaft. Relocate the bias terminal plates properly.
		Is grease applied enough?	No	Remove and reapply conductive grease to Cleaning Roller shaft.
Transfer Corona	5	Is the Transfer Corona dirty?	Yes	Clean each Corona Wire and housing.
		Is the Corona Wire broken?	Yes	Replace the Corona Wire.
Separation Corona	6	Is the Separation Corona dirty?	Yes	Clean each Corona Wire and housing.
		Is the Corona Wire broken?	Yes	Replace the Corona Wire.
HV Power Supply	7	Can you fix the problem if you replace the HV Power Supply?	Yes	OK

7. 1. 2. 4 E-0323/E-803 Abnormal output of Process 1 Developer Bias

Cause	Checking order	Checking	Result	Treatment
Wires	1	Are wires among Developer Unit, HV Power Supply PCB and PW11720 PCB connected properly?	No	Connect them properly.
Developer Unit	2	Is the toner spill out from the Developer Unit? (Or is there any similar problem?)	Yes	Clean each Corona Wire, Grid Plate and housing.
		Is the high voltage of Regulation Roller leaking? (The resistance between the central part of Regulation Roller and the Ground is 5 mega ohm or smaller if leaking.)	Yes	Replace the Regulation Roller.
				
HV Power Supply	3	Can you fix the problem if you replace the HV Power Supply?	Yes	OK

7. 1. 2. 5 E-0335/E-821 Process 1 Density Sensor Error

Cause	Checking order	Checking	Result	Treatment
Wires	1	Is the wire between Toner Density Sensor and PW11720 PCB connected properly?	No	Connect it properly.
Density Sensor (PH8)	2	Can you fix the problem if you replace Density Sensor?	No	Replace PW11720 with a new one.

7. 1. 2. 6 E-0700/E-1792 Paper Feed Motor Error

Cause	Checking order	Checking	Result	Treatment
Wires	1	Is the wire between Main Motor and PW11720 PCB connected properly?	No	Connect it properly.
DC Power Supply (DCP1) or Fuse	2	Confirm that the machine is turned on, and then check the voltage of the orange line (J220-5). Is it 24V?	No	Replace the DC Power Supply if there is no problem with the wires.
		Confirm that the machine is turned off, and then check whether or not each Fuse is broken. Is any Fuse broken?	Yes	Replace the Fuse.
Main Motor (M1)	3	Check the operation of Main Motor in the Output Check of the Service Mode. Device Code : 00000 (Main Motor) Does the Main Motor operate correctly?	No	Replace the Main Motor.

7. 1. 2. 7 E-0800/E-2048 Counter-A Error

Cause	Checking order	Checking	Result	Treatment
Service Mode	1	Has the setting of Backup Data Item No.753 set to "1"?	Yes	Set it to "0".

7. 1. 2. 8 E-0900/E-2304 Fuser Low-Temp Error (Case 1.)

(Condition 1)

(Condition 2)

(Condition 4)

Cause	Checking order	Checking	Result	Treatment
Error clearance	1	Have you cleared the fuser error in the Special Operation Mode?	Yes	Wait until the Fuser Unit is enough cooled down. Then select the Special Operation Mode and clear the concerning error.
Wires	2	Are wires among Lamp (H1), Solid State Relay (SSR1) and Thermistors (TH1 & TH2) connected properly?	No	Connect them properly.
Lamp (H1)	3	Unplug the machine, and then check the resistance of Lamp (H1) with the multi-meter. Is it 15k ohm or lower?	No	Replace the Lamp.
Thermistors (TH1 & TH2)	4	Select the Information Mode, and then check the temperature of fuser detected by Thermistors (TH1 & TH2). Item No. : 00000 (Fuser temperature 1) 00001 (Fuser temperature 2) Is each temperature normal?	No	Replace the concerning Thermistor.
DC Power Supply (DCP1) or Fuse	5	Confirm that the machine is turned on, and then check the voltage of the orange line (J220-4, 220-5, 220-6). Is it 24V?	No	Replace the DC Power Supply if there is no problem with the wires.
		Confirm that the machine is turned off, and then check whether or not each Fuse is broken. Is any Fuse broken?	Yes	Replace the Fuse.
Relay (RY1)	6	Select the Output Check, and then change the signal of the following signal to "H". Device Code : 00022 (Fuser Relay) And check the resistance between the following points. Between RY1-2 and RY1-4 Between RY1-6 and RY1-8 Is the each resistance almost 0 ohm?	No	Replace the Relay.
Solid State Relay (SSR1)	7	Select the Output Check, and then change the signal of the following signals to "H". Device Code : 00022 (Fuser Relay) 00021 (Fuser Lamp 1) Then check the voltage between J600 and J601. Is it 0V?	Yes	Replace the Solid State Relay
		CAUTION: Change the signal of "00021" (Fuser Lamp 1) to "L" after checking!	No	Replace the PW11720 PCB.

7. 1. 2. 8 E-0900/E-2304 Fuser Low-Temp Error (Case 2.)

(Condition 3)

Cause	Checking order	Checking	Result	Treatment
Error clearance	1	Have you cleared the fuser error in the Special Operation Mode?	Yes	Wait until the Fuser Unit is enough cooled down. Then select the Special Operation Mode and clear the concerning error.
Wires	2	Are wires among Lamp (H1), Solid State Relay (SSR1) and Thermistors (TH1 & TH2) connected properly?	No	Connect them properly.
Thermistors (TH1 & TH2)	3	Select the Information Mode, and then check the temperature of fuser detected by Thermistors (TH1 & TH2). Item No. : 00000 (Fuser temperature 1) 00001 (Fuser temperature 2) Is each temperature normal?	No	Replace the concerning Thermistor.

7. 1. 2. 9 E-0901/E-2305 Fuser Over-Temp Error

Cause	Checking order	Checking	Result	Treatment
Error clearance	1	Have you cleared the fuser error in the Special Operation Mode?	Yes	Wait until the Fuser Unit is enough cooled down. Then select the Special Operation Mode and clear the concerning error.
Wires	2	Are wires among Lamp (H1), Solid State Relay (SSR1) and Thermistors (TH1 & TH2) connected properly?	No	Connect them properly.
Solid State Relay (SSR1)	3	Does the error occur again even if you have cleared it in the Special Operation Mode?	Yes	Replace the Solid State Relay.
Thermistors (TH1 & TH2)	4	Select the Information Mode, and then check the temperature of fuser detected by Thermistors (TH1 & TH2). Item No. : 00000 (Fuser temperature 1) 00001 (Fuser temperature 2) Is each temperature normal?	No	Replace the concerning Thermistor.

7. 1. 2. 10 E-0A20/E-2592 Main Board Error

Cause	Checking order	Checking	Result	Treatment
PW11720 PCB	1	Can you fix the problem if you replace the PW11720 PCB?	Yes	OK

7. 1. 2. 11 E-0A60/E-2656 Fuse Error

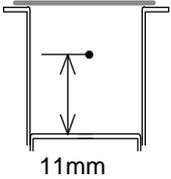
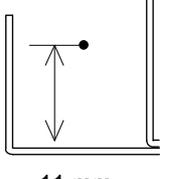
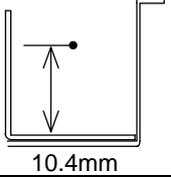
Cause	Checking order	Checking	Result	Treatment
Wires	1	Is the wire between the Fuse and PW11720 PCB connected properly?	No	Connect it properly.
DC Power Supply (DCP1) or Fuse	2	Confirm that the machine is turned OFF, and then check the Fuse. Is it OK?	No	Replace the Fuse with a new one.
	3	Confirm that the machine is turned on, and then check the voltage of the orange line (J220-5). Is it 24V?	No	Replace the DC Power Supply if there is no problem with the wires.

7.2 Troubleshooting - Image Quality Defects

7.2.1 Basic Image Adjustment

The followings are the settings specified to the image creation components.

When a defective image is printed out, please check whether or not these settings are satisfied for the beginning.

Component	Check Point (PW11720)	Designated voltage	Way of adjustment	Corona Wire Height
Image Corona	CP11 (+) CPCOM (-)	1.3 +/-0.05VDC	VR101	 11mm
Transfer Corona	CP21 (+) CP22 (-)	1.0 +/-0.05VDC	Backup Data No.00029 (Plain) No.00030 (Tracing) No.00031 (Film)	 11 mm
Separation Corona (AC)	CP31 (+) CPCOM (-)	5.0 +/-0.05V	VR302	 10.4mm
Separation Corona (DC)	CP33 (+) Ground (-)	-250 +/-5VDC	VR303	
Negative Developer Roller Bias	OUTPUT2 (+) Ground (-)	-230 +/-5VDC	Backup Data No.00022 (Plain) No.00023 (Tracing) No.00024 (Film)	
Positive Developer Roller Bias	CP41 (+) CP42 (-)	0.350 +/-0.005V	VR401	
Toner Supply Roller Bias	OUTPUT1 (+) OUTPUT2 (-)	the same voltage as Developer Bias	-	
Regulation Roller Bias	OUTPUT2 (+) OUTPUT3 (-)	-80 +/-5VDC	Backup Data No.00622	
Positive Cleaning Roller Bias	OUTPUT5 (+) Ground (-)	+450 +/-5VDC	VR001	
Negative Cleaning Roller Bias	OUTPUT5 (+) Ground (-)	-550 +/-5VDC	VR002	

NOTE: Developer / Regulation Bias may be controlled by Density Compensation Process.

7. 2. 2 Countermeasures - Image Quality Defects

7. 2. 2. 1 Halftone is too light

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #03_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
	1	Try to readjust each image creation component according to [7.2.1 Basic Image Adjustment]. Is the problem fixed?	Yes	OK
LED Head	2	Is the Lens Array of LED Head dirty?	Yes	Clean it.
Paper	3	Can you fix the problem if you use a newly unpacked paper?	Yes	1. If the paper was humidified, instruct the customer of the way store the paper. 2. If the paper was not the specified one, explain the customer that some image problem may occur in that case.
Image Corona	4	Is the Image Corona dirty?	Yes	Clean each Corona Unit, Grid Plate and housing, or replace the Corona Unit if it is too dirty.
		Is the input voltage to the Image Corona correct?	No	Readjust the input voltage. Replace the HV Power Supply PCB.
Eraser Lamp	5	Does the Eraser Lamp light properly?	No	1. Check the wire connected to the Eraser Lamp. 2. Check or replace the Eraser Lamp.
Transfer Corona	6	Is the Transfer / Separation Corona dirty?	Yes	Clean each Corona Unit, or replace the Corona Unit if it is too dirty.
		Is the input voltage to the Transfer Corona correct?	No	Readjust the input voltage. Replace the HV Power Supply PCB.
Contact points of Developer Bias	7	Is each Electrode Plate on the left of the Developer Unit surely contacted to the Electrode Plate on the machine side?	No	Try to install the Developer Unit so that they are contacted each other. And supply the conductive grease to the Electrode Plates.
HV Power Supply PCB	8	Can you fix the problem if you replace the HV Power Supply PCB?	Yes	OK
Installation of Developer Unit	9	Is the driving gear on the right of the Developer Unit surely fitted to the driving mechanism on machine side?	No	Reseat Developer Unit in position. Check the concerning gears.
Developer Unit	10	Is the Developer Roller evenly covered with the toner?	No	Check the whole Developer Unit to find the cause.
			Yes	Replace the Process Unit

7. 2. 2. 2 Halftone and solid black are too light

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #03_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
	1	Try to readjust each image creation component according to [7.2.1 Basic Image Adjustment]. Is the problem fixed?	Yes	OK
	2	Turn off the machine in the middle of printing, and then check the toner image on the Drum. Is the toner image looks normal?	Yes	Go on to the step 3.
			No	Go on to the step 7.
Process Unit	3	Is the Process Unit seated by the 4 thumb screws properly?	No	Reseat the Process Unit and fix it with the thumb screws properly. Reinstall the drive belt.
Transfer Corona	4	Is the Transfer/Separation Corona installed to the machine correctly?	No	Install it correctly.
		Is the high voltage of Transfer Corona leaking?	Yes	Clean the Transfer Corona.
Paper	5	Can you fix the problem if you use a newly unpacked paper?	Yes	1. If the paper was humidified, instruct the customer of the way store the paper. 2. If the paper was not the specified one, explain the customer that some image problem may occur in that case.
Lead Wire	6	Is the resistance of Lead Wire about 10 kilo ohm, which connects the HV Power Supply and the Transfer Corona?	No	Replace the Lead Wire.
Input voltage to the Transfer Corona	7	Is a correct voltage supplied from the HV Power Supply to the Transfer Corona?	No	Readjust the input voltage. Replace the HV Power Supply PCB.
Dirt of the LED Head	8	Is the LED Head dirty?	Yes	Clean it.
Developer Unit	9	Is the Developer Roller evenly covered with the toner?	No	Check the whole Developer Unit to find the cause.
	10	Is the Developer Unit firmly pressed toward the Drum?	No	Remove the Developer Unit, and then install it to the machine correctly.
Installation of Developer Unit	11	Is the driving gear on the right of the Developer Unit surely fitted to the driving mechanism on machine side?	No	Check the concerning gears.
Toner Sensor	12	Is there enough toner in the Developer Unit?	No	1. Check the wire or the connector connected to the Toner Sensor. 2. Check the Toner Supply Motor. 3. Check the proper amount of toner remains in the Hopper Unit. 4. Check the Toner Sensor.
			Yes	Replace the Process Unit.

7. 2. 2. 3 The whole image is extremely light

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #03_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
	1	Try to readjust each image creation component according to [7.2.1 Basic Image Adjustment]. Is the problem fixed?	Yes	OK
Paper	2	Can you fix the problem if you use a newly unpacked paper?	Yes	1. If the paper was humidified, instruct the customer of the way store the paper. 2. If the paper was not the specified one, explain the customer that some image problem may occur in that case.
Process Unit	3	Is the Process Unit seated by the 4 thumb screws properly?	No	Reseat the Process Unit and fix it with the thumb screws properly. Reinstall the drive belt.
	4	Turn off the machine in the middle of printing, and then check the toner image on the Drum.	Yes	Go on to the step 5.
		Is the toner image looks normal?	No	Go on to the step 8.
Transfer Corona	5	Is the Transfer/Separation Corona installed to the machine correctly?	No	Install it correctly.
		Is the high voltage of Transfer Corona leaking?	Yes	Clean the Transfer Corona.
Lead Wire	6	Is the resistance of Lead Wire about 10 kilo ohms, which connects HV Power Supply and the Transfer Corona?	No	Replace the Lead Wire.
Input voltage to the Transfer Corona	7	Is a correct voltage inputted from the HV Power Supply to the Transfer Corona?	No	Readjust the input voltage. Replace the HV Power Supply PCB.
Driving mechanism of Developer Unit	8	Is the Developer Unit driving normally?	No	Check the driving mechanism.
Developer Unit	9	Is the Developer Unit firmly pressed toward the Drum? (Are Counter Rollers at both sides of the Developer Roller touch the Drum)	No	Remove the Developer Unit, and then install it to the machine correctly.
Lead Wire	10	Is the Lead Wire to supply the Developer Bias correctly connected?	No	Connect the Lead Wire correctly.
Developer Bias	11	Is the Developer Unit supplied with the Developer Bias correctly?	No	Check the contact points of Developer Bias, and also check the HV Power Supply.

7. 2. 2. 4 Density is uneven

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #03_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Process Unit	1	Is the Process Unit seated by the 4 thumb screws properly?	No	Reseat the Process Unit and fix it with the thumb screws properly. Reinstall the drive belt.
Image Corona	2	Is the Image Corona dirty?	Yes	Clean the Image Corona, or replace the Corona Unit.
		Is the height of Corona Wire different between left and right?	Yes	Adjust the height properly.
Installation of Developer Unit	3	Is the Developer Unit firmly pressed toward the Drum? (Do Counter Rollers at both sides of the Developer Roller touch the Drum Unit?)	No	Remove the Developer Unit, and then install it to the machine correctly.
LED Head	4	Is the Lens Array dirty	Yes	Clean it.
Eraser Lamp	5	Are all LED of the Eraser Lamp light properly during the print?	No	1. Replace the Eraser Lamp. 2. Replace the PW11720 PCB.
Developer Unit	6	Is the Developer Roller evenly covered with the toner?	No	1. Clean Regulation Roller. 2. Reinstall Scraper.
		Is the toner accumulating evenly in the Developer Unit?	No	Level the machine correctly.

7. 2. 2. 5 Totally appeared foggy image

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #04_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Process Unit	1	Is the Process Unit seated by the 4 thumb screws properly?	No	Reseat the Process Unit and fix it with the thumb screws properly. Reinstall the drive belt.
	2	Try to readjust each image creation component according to [7.2.1 Basic Image Adjustment]. Is the problem fixed?	Yes	OK
Developer Unit	3	Is the Developer Roller insulated from the ground?	No	Check the Developer Roller and connector.
Image Corona	4	Is the foggy image printed even if you print a completely white pattern?	Yes	Check the output voltage from the HV Power Supply to the Image Corona. If it is not correct, readjust it.
Developer Bias	5	Is the Developer Unit supplied with a correct Developer Bias during the print?	No	Check the output voltage from the HV Power Supply to the Developer Unit. If it is not correct, readjust it. Or replace the HV Power Supply PCB
Photoconductive Drum	6	Have you used the Photoconductive Drum longer than its part life?	Yes	Replace the Process Unit

7. 2. 2. 6 Foggy image or blurred black wide line (vertical)

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #04_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Light from the outside	1	Is any light from the outside thrown onto the Drum?	Yes	Install the outer cover correctly.
Image Corona	2	Is the Image Corona dirty?	Yes	Clean the Image Corona, or replace the Corona Unit.
Developer Unit	3	Is the Developer Roller evenly covered with the toner?	No	Check if the Regulation Roller is fixed at the proper position. If not, fix it at the correct position.

7. 2. 2. 7 Clear black thin line (vertical)

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #04_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Image Corona	1	Is there something like filament on the Grid Plate, which is contacted to the Drum?	Yes	Remove it.
		Is the Image Corona dirty?	Yes	Clean the Image Corona, or replace the Corona Unit.
Foreign substance	2	Is there some foreign substance on each Corona Unit or LED Head, which is contacted to the Drum?	Yes	Remove it.
Photoconductive Drum	3	Is there any black line or damage on the Drum, of which position corresponds with the black line on the print?	Yes	Clean the Photoconductive Drum. Replace the Process Unit if it is damaged. Be sure to find the cause of the damage.

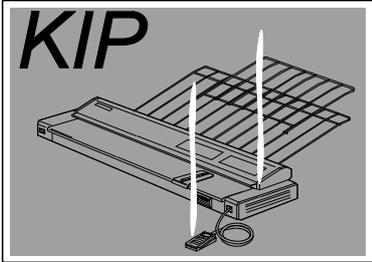
7. 2. 2. 8 White line (Vertical)

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #07_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Image Corona	1	Is there something like filament on the Grid Plate, which is contacted to the Drum?	Yes	Remove it.
Dirt of the LED Head	2	Can you fix the problem if you clean the LED Head?	Yes	OK
Transfer/Separation Corona	3	Is there any foreign substance or dirt on the Transfer/Separation Corona?	Yes	Clean the Transfer / Separation Corona.
Developer Unit	4	Is the Developer Roller evenly covered with the toner?	No	Check whether or not there is damage or foreign substance on the Regulation Roller.
Entrance of Fuser Unit	5	Is there any foreign substance or dirt around the entrance area of the Fuser Unit?	Yes	Clean it off
Photoconductive Drum	6	Is there any damage on the Drum, which runs to the direction of Drum rotation.	Yes	Clean the Photoconductive Drum. Replace the Process Unit if it is damaged. Be sure to find the cause of the damage.

7. 2. 2. 9 Void of image

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #07_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
	1	Print out the Test Patter No.7 (halftone). Can you find void of image on the print?	Yes	Go to the step 2.
Paper	2	Can you fix the problem if you use a newly unpacked paper?	Yes	<ol style="list-style-type: none"> 1. If the paper was humidified, instruct the customer of the way store the paper. 2. If the paper was not the specified one, explain the customer that some image problem may occur in that case.
Developer Unit	3	Does the void of image appear on the print constantly Keeping about 160mm of interval?	Yes	<ol style="list-style-type: none"> 1. Clean the Counter Rollers at both sides of the Developer Roller. 2. Wipe the Developer Roller with a dry cloth. 3. Replace the Developer Roller if damaged.
		Is the void of image mainly runs vertically as follows? 	Yes	<ol style="list-style-type: none"> 1. Check if there is enough toner in the Developer Unit. 2. Also select Input Check and check the Toner Sensor Signal (Device Code: 104). It must be "L" when the toner is not covering the Toner Sensor. If not, replace the Toner Sensor.
Photoconductive Drum	4	Does the void of image appear on the print constantly Keeping about 251mm of interval?	Yes	Clean the Photoconductive Drum. Replace Process Unit if damaged. Be sure to find the cause of the damage.
			No	Go to [7.2.2.18 Crease of Paper]

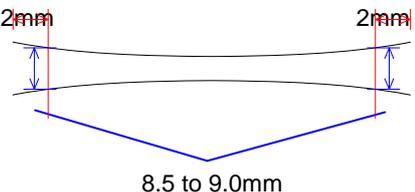
7. 2. 2.10 Dirt on the back of the print

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #04_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
	1	Try to readjust each image creation component according to [7.2.1 Basic Image Adjustment]. Is the problem fixed?	Yes	OK
Transfer Guide Plates	2	Are Transfer Guides or the black rubber area of the guide plate near Transfer / Separation Corona dirty with the toner?	Yes	Clean them. After that, check the distance between Transfer Guide and Drum. (It should be 0.5 to 0.7mm.)
Developer Unit	3	Is too much toner accumulating under the Developer Roller?	Yes	Clean the Developer Unit.
Machine inside	4	Is the inside of the machine dirty with the toner?	Yes	Clean it, and also find where the toner came.
Fuser Unit	5	Is the Guide Plate at the entrance of Fuser Unit dirty with the toner?	Yes	Clean it.
		Are Fuser Roller and Pressure Roller dirty with the toner?	Yes	Clean them

7. 2. 2.11 Defective fusing

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #03_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Fuser Unit	1	Is the Fuser Roller properly heated up after turning on the machine?	No	Refer to [7. 1. 2. 8 Fuser Error (E-0900)] to check the Fuser Unit.
Paper	2	Is the type of paper selected on the UI same with that of actually installed paper?	No	Select the correct paper type on the UI.
		Can you fix the problem if you use a newly unpacked paper?	Yes	1. If the paper was humidified, instruct the customer of the way store the paper. 2. If the paper was not the specified one, explain the customer that some image problem may occur in that case.
Fusing temperature setting	3	Does the fusing temperature specified in the Service Mode suits with the weight (gram/square meter) of paper?	Yes	Is there any part which is burnt? Replace that part if burnt.
			No	Set the fusing temperature correctly.
Fusing pressure (Nip)	4	Print from Pattern Print, pattern: #02_00 with a tracing paper (36" or A0), and turn off the machine in the middle of printing. Remove the print from the machine and check the "nip width". Is it 8.5 to 9.0mm? (Measure at 2 mm from the edge.) 	No	Adjust the fusing pressure correctly.

7. 2. 2.12 Defective image placement, No Leading Edge

Correct leading margin is 5mm (+/-2mm).

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #07_00.

If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Setting of Leading Registration	1	Is the Leading Registration or Leading Margin properly adjusted in the Service Mode?	No	Adjust it properly.
Feed rollers	2	Have you used the feeding rollers for very long term?	Yes	Replace them.
Registration Clutch	3	Does the Registration Clutch operate correctly without slipping?	No	Replace Registration Clutch.

7. 2. 2.13 Jitter

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #07_00.

If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Photoconductive Drum and its driving mechanism	1	Does the jitter appear on the print constantly keeping about 251mm of interval?	Yes	1. Check if there is any damage or foreign substance on Pulley on the drum shaft. 2. Check if there is any foreign substance between Drum and Counter Rollers of Developer Unit.
		Does the jitter appear on the print constantly keeping about 3mm of interval?	Yes	Check the engagement of Pulley Gear on the Drum with Belt 4.
Developer Unit	2	Does the jitter appear on the print constantly keeping about a certain distance of interval listed below? 9.0mm 12.0mm 16.9mm 21.1mm 31.7mm 144.0mm	Yes	Replace the Developer Unit with a new one.
Fuser Unit	3	Does the jitter appear on the print constantly keeping about 125mm of interval?	Yes	Check for Fuser Drive Gear, attached foreign substance.

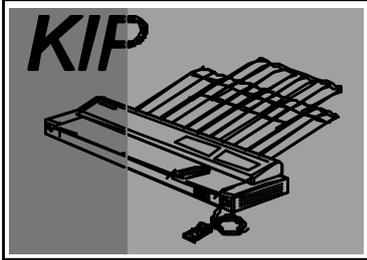
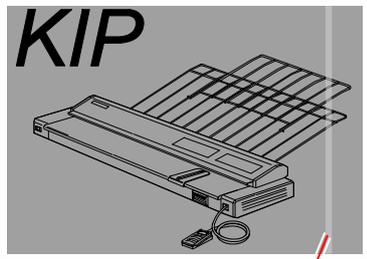
7. 2. 2.14 Image looks not sharp

Check the following matters with the Pattern Print, pattern: #01_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Dirt of the LED Head	1	Is the LED Head dirty?	Yes	Clean it.
Installation of LED Head	2	Remove the LED Head, and then re-install it to the machine. Is the problem fixed?	Yes	OK
Transfer / Separation Corona	3	Is the Transfer / Separation Corona dirty?	Yes	Clean it.

7. 2. 2.15 Uneven image density (vertical)

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #07_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Image Corona	1	Is the Image Corona dirty?	Yes	Clean it.
Transfer/Separation Corona	2	Is the Transfer/Separation Corona dirty?	Yes	Clean it.
Installation of LED Head	3	Remove the LED Head, and then re-install it to the machine. Is the problem fixed?	Yes	OK
	4	Is the density of any image block different from that of other blocks? 	Yes	Adjust the density. (See Backup Data [8.4.3 008 to 010 Strobe Time for Main Pixel]) Replace the entire LED Head Unit with a new one.
	5	Is the width of abnormal density area about 8mm as follows? 	Yes	Replace the entire LED Head Unit with a new one.

7. 2. 2.16 Completely white (No image)

Check the following matters with the Pattern Print, pattern: #01_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Developer Unit	1	Is the Developer Unit correctly pressed to the Drum?	No	Reseat the Developer Unit in position.
Driving mechanism of Developer Unit	2	Does the Developer Roller rotate during the print?	No	Check the driving mechanism of Process Unit.
Developer Bias	3	Is each Electrode Plate on the right of the Developer Unit surely contacted to the Electrode Plate on the machine side?	No	Try to install the Developer Unit so that they are contacted each other. And supply the conductive grease to the Electrode Plates.
LED Head	4	Are connectors of signal cable firmly connected to the LED Head?	No	Connect them firmly.
		Turn off the machine in the middle of printing, and then check the toner image on the Drum.	No	Replace the LED Head.
		Is there any toner image on the Drum?		
Transfer/Separation Corona	5	Is the Transfer Corona Wire broken?	Yes	Replace it.
		Is the Transfer/Separation Corona Unit correctly installed to the machine?	No	Install it correctly.
		If the high voltage leaking from the Transfer Corona?	Yes	Check the Transfer / Separation Corona to find the cause for leaking.
Lead Wire of Transfer Corona	6	Is the connection of Lead Wire correct?	No	Connect it correctly.
		Is the resistance of Lead Wire about 10 kilo ohms, which connects HV Power Supply and the Transfer Corona?	No	Replace the Lead Wire.
HV Power Supply	7	Can you fix the problem if you replace the HV Power Supply?	Yes	OK
PW11720 PCB	8	Can you fix the problem if you replace the PW11720 PCB?	Yes	OK

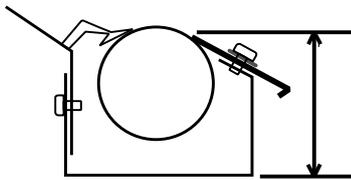
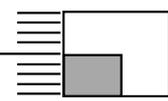
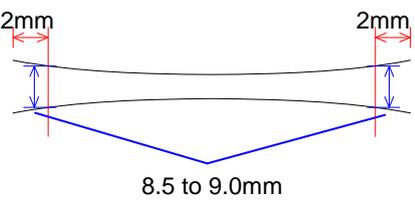
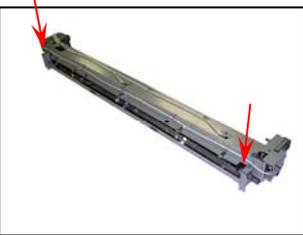
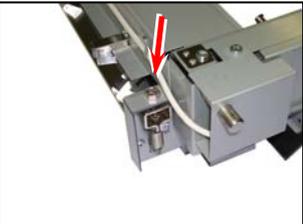
7. 2. 2.17 Completely black

Check the following matters with the Pattern Print, pattern: #01_00 and pattern: #04_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Image Corona or HV Power Supply PCB	1	Is the Image Corona Wire broken?	Yes	Replace it.
		Is the tension of the Corona Wire correct?	No	Replace it.
		Is the Corona Wire correctly stretched with the spring?	No	Check whether or not the spring is transformed.
		Is a proper high voltage supplied to the Image Corona?	No	Adjust the high voltage, or replace the HV Power Supply PCB
		Is the housing of Image Corona insulated from the ground?	No	Replace the Zener PCB.
PW11720 PCB	2	Can you fix the problem if you replace the PW11720 PCB?	Yes	OK

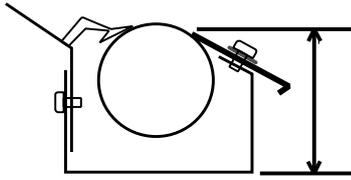
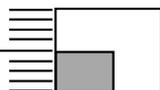
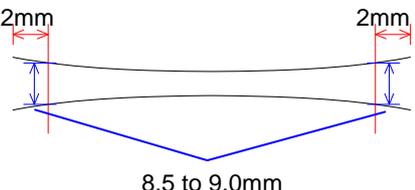
7. 2. 2.18 Crease of paper

Check the following matters with the Pattern Print, pattern: #01_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Paper	1	Is the type of paper selected on the UI same with that of actually installed paper?	No	Select the correct paper type on the UI.
		Can you fix the problem if you use a newly unpacked paper?	Yes	1. If the paper was humidified, instruct the customer of the way store the paper. 2. If the paper was not the specified one, explain the customer that some image problem may occur in that case.
		Is the Dehumidify Heater ON although the air is not humid.	Yes	Turn off the Dehumidify Heater.
Lamp (H1) of Fuser	2	Does the Lamp light correctly?	No	Replace it.
Fuser Entrance Guide	3	Is there any deform of Fuser Entrance Guide or something on the Fuser Entrance Guide?	Yes	Clean or replace it.
		Remove Pressure Roller and measure the location height of Fuser Entrance Guide. Is the height correct? From the frame bottom surface, Side : 57.0mm Middle : 61.0mm 	No	Turn the adjuster screw(s) to reach the correct height. Guide Plate Height Adjuster (to both sides)  Fuser Bottom Unit Center 
Fusing pressure (Nip)	4	Print from Pattern Print, pattern: #02_00 with a tracing paper (36" or A0), and turn off the machine in the middle of printing. Remove the print from the machine and check the "nip width". Is it 8.5 to 9.0mm? (Measure at 2 mm from the edge.) 	No	Adjust the fusing pressure correctly.  Turn the bolt to adjust. 

7. 2. 2.19 Double Image

Check the following matters with the Pattern Print, pattern: #01_00.
If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Paper	1	Is the type of paper selected on the UI same with that of actually installed paper?	No	Select the correct paper type on the UI.
		Can you fix the problem if you use a newly unpacked paper?	Yes	<ol style="list-style-type: none"> If the paper was humidified, instruct the customer of the way store the paper. If the paper was not the specified one, explain the customer that some image problem may occur in that case.
Lamp (H1) of Fuser	2	Does the Lamp light correctly?	No	Replace it.
Fuser Entrance Guide	3	Is there any deform of Fuser Entrance Guide or something on the Fuser Entrance Guide?	Yes	Clean or replace it.
		Remove Pressure Roller and measure the location height of Fuser Entrance Guide. Is the height correct? From the frame bottom surface, Side : 57.0mm Middle : 61.0mm 	No	Turn the adjuster screw(s) to reach the correct height. Guide Plate Height Adjuster (to both sides)  Fuser Bottom Unit  Center
Fusing pressure (Nip)	4	Print from Pattern Print, pattern: #02_00 with a tracing paper (36" or A0), and turn off the machine in the middle of printing. Remove the print from the machine and check the "nip width". Is it 8.5 to 9.0mm? (Measure at 2 mm from the edge.) 	No	Adjust the fusing pressure correctly.  Turn the bolt to adjust. 
Fusing Temperature	5	Does the fusing temperature specified in the Service Mode suits with the weight (gram/square meter) of paper?	Yes	Is there any part which is burnt? Replace that part if burnt.
			No	Set the fusing temperature correctly.

7. 2. 2. 20 Dirt on the print (Offset)

Check the following matters with the Pattern Print, pattern: #02_00.

If necessary use other Test Patterns.

Cause	Checking order	Checking	Result	Treatment
Paper	1	Is the type of paper selected on the UI same with that of actually installed paper?	No	Select the correct paper type on the UI.
Developer Unit or Transfer/Separation Corona	2	Does the paper have dirt before it enters the Fuser Unit?	Yes	Check the Developer Unit or Transfer/Separation Corona to find the cause.
Fuser Unit	3	Clean the Fuser Roller. Do you still have the problem even after the cleaning?	Yes	Decrease the setting value of fusing temperature (-3 to -5).
			No	OK

7. 2. 2. 21 Crease on Long Print (and image void at a time)

The following procedure may address a crease on a long print.

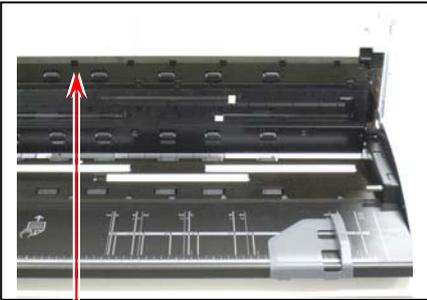
If a crease and image void can be seen at a time, follow this section.

Cause	Checking order	Checking	Result	Treatment
Fuser Unit	1	Is everything on [7.2.2.18 Crease of paper] clear?	No	Refer to [7.2.2.18 Crease of paper] and check all the points.
Developer Unit Process Unit	2	Is everything on [7.2.2.9 Void of Image] clear?	No	Refer to [7.2.2.9 Void of Image] and check all the points.

7.3 Troubleshooting - Scanner Defects

7.3.1 Countermeasures - Scanner operation

7.3.1.1 Original can not be set (Scanner does not transport)

Cause	Checking order	Checking	Result	Treatment
Document Sensor Front	1	<p>Does the Document Sensor Front detect the original correctly when you feed it in?</p>  <p>Document Sensor Front</p>	No	<ol style="list-style-type: none"> 1. Clean this sensor. (See [6.2.2 Sensor] for the way of cleaning.) 2. Check the sensor and replace it if broken. (See [7.3.9 Check of Document Sensor Front].)
Motor	2	<p>Open the Upper Unit then press the Open Sensor Switch. Does the feeding roller take any action at this time?</p>	No	<ol style="list-style-type: none"> 1. Check if the cable is surely plugged into the motor. 2. Check the motor and replace it if broken.
Home Position Sensor	3	<p>Open the Upper Unit then press the Open Sensor. Perhaps does the feeding roller rotate in the "rewinding" direction then stops at this moment?</p> <p>(If the machine correctly behaves, the feeding roller at this moment rotates in the "rewinding" direction first then feeding direction.)</p>	Yes	<ol style="list-style-type: none"> 1. Check if the cable is correctly plugged into the Home Position Sensor. 2. Check the Home Position Sensor and replace it if broken.
USB Cable	4	<p>Is the USB Cable connected correctly?</p>	No	<p>Connect it correctly.</p>
Main PCB	5	<p>Can you fix the problem if you replace Main PCB?</p>	Yes	<p>OK</p>

7. 3. 1. 2 Scanner does not start scanning from the original set position

Cause	Checking order	Checking	Result	Treatment
Foreign substance	1	Is there any foreign substance under the Upper Unit?	Yes	Remove it.
Original	2	Does the scan original have a punch hole?	Yes	Put this original in a Carrier Sheet and take scanning.
Size Sensors	3	Is the size of original correctly recognized.	No	1. Clean the sensors. 2. Check the sensors and replace if any one is broken. (See [7.3.1. 8 Check of Size Sensors].)
Motor	4	Does the Motor rotate?	No	Check the Motor, and replace it if broken.
+24VDC	5	Is +24VDC supplied to the scanner?	No	Check the DC Power Supply on the printer part. Replace it if broken.
Data Controller Board	6	Can you fix the problem if you replace the Data Controller Board?	Yes	OK

7. 3. 1. 3 Original can not be set (Original feeding does not stop)

Cause	Checking order	Checking	Result	Treatment
Sensor	1	Is any sensor broken?	Yes	Replace the broken sensor.

7. 3. 1. 4 Original is mis-fed

Cause	Checking order	Checking	Result	Treatment
Foreign substance	1	Is there any foreign substance under the Upper Unit?	Yes	Remove it.
Document Sensor Front Document Sensor Rear Size Sensor	2	Is either Document Sensor Front or Document Sensor Rear broken? (Breakage of either sensors can result in original jam.)	Yes	Replace the broken sensor.

7. 3. 1. 5 Motor rotates endlessly at the time of turning on

Cause	Checking order	Checking	Result	Treatment
Foreign substance	1	Is there any foreign substance under Upper Unit, which blocks the light of sensor?	Yes	Remove it.
Home Position Sensor	2	Is the home position correctly detected?	No	1. Check if the cable is correctly plugged into the Home Position Sensor. 2. Check the Home Position Sensor and replace it if broken.
Cables of Main PCB	3	Are cables correctly and surely plugged to the Main PCB?	No	Plug them correctly to the Main PCB. Replace the cable if it is damaged.
Main PCB	4	Can you fix the problem if you replace Main PCB?	Yes	OK

7. 3. 1. 6 Scanner is not recognized

Cause	Checking order	Checking	Result	Treatment
USB Driver	1	Does the PC recognize USB?	No	Check the USB Driver in Device Manager.
USB Cable	2	Is there any problem with the USB cable, such as breakage, short-circuit and damage of connector pin?	Yes	Replace the USB Cable.
DC Power Supply	3	Is the DC Power Supply on the printer part normal?	No	Replace the DC Power Supply.
Main PCB	4	Prepare another PC which can recognize another type of USB Scanner. Is it also impossible to recognize the Scanner with this PC?	Yes	Replace the Main PCB.

7. 3. 1. 7 Check of Size Sensors

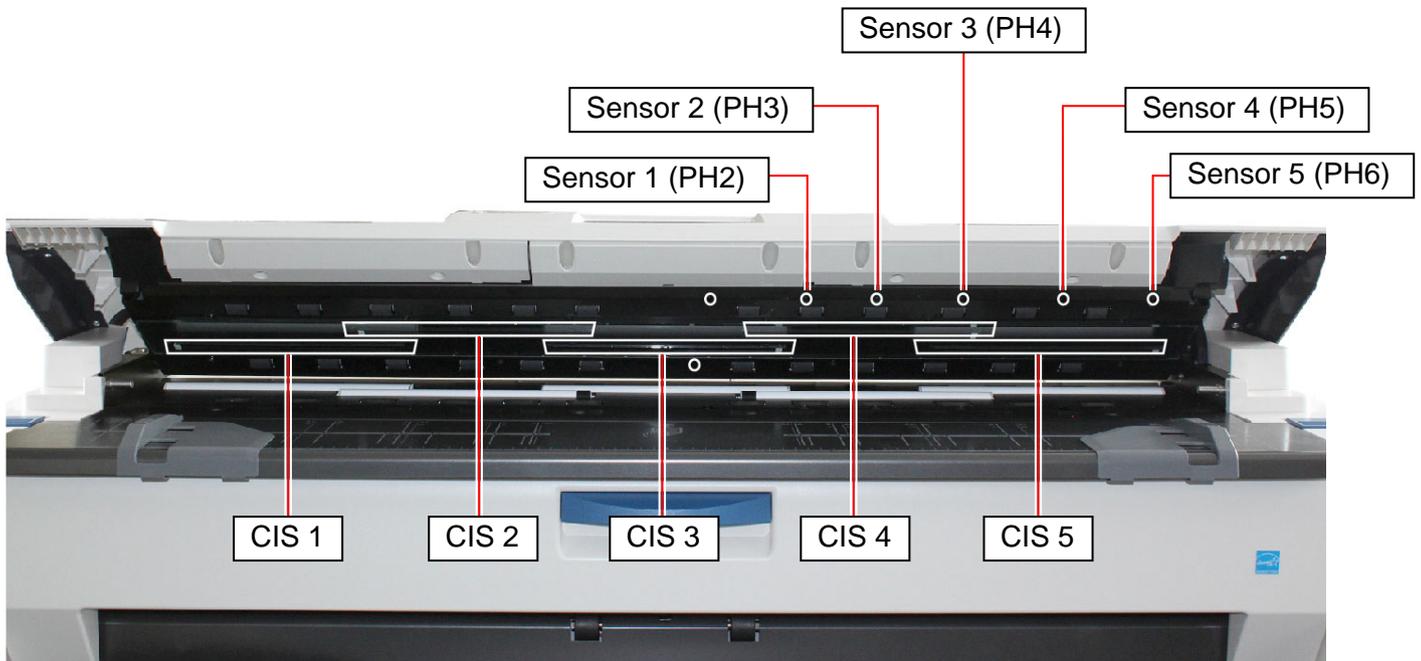
1. Open the Upper Unit when the machine is turned on.
2. Turn off the scanner then turn it on again.
3. Insert a piece of paper under each size sensor to block the sensor light.
4. It is possible to check whether the size sensor is working correctly or not by checking the LED of concerning CIS.

Size sensor and concerning harness and Main PCB are working correctly if the LED of related CIS lights **in red**.

If it does not light, any of size sensor, harness and Main PCB has any abnormality.

See the following list for the relationship of size sensor and CIS.

Block the light of Sensor 1 (PH2) → LED of CIS 1 lights in red.	Sensor 1 (PH2) is working fine.
Block the light of Sensor 2 (PH3) → LED of CIS 1 lights in red.	Sensor 2 (PH3) is working fine.
Block the light of Sensor 3 (PH4) → LED of CIS 1 lights in red.	Sensor 3 (PH4) is working fine.
Block the light of Sensor 4 (PH5) → LED of CIS 1 lights in red.	Sensor 4 (PH5) is working fine.
Block the light of Sensor 5 (PH6) → LED of CIS 1 lights in red.	Sensor 5 (PH6) is working fine.

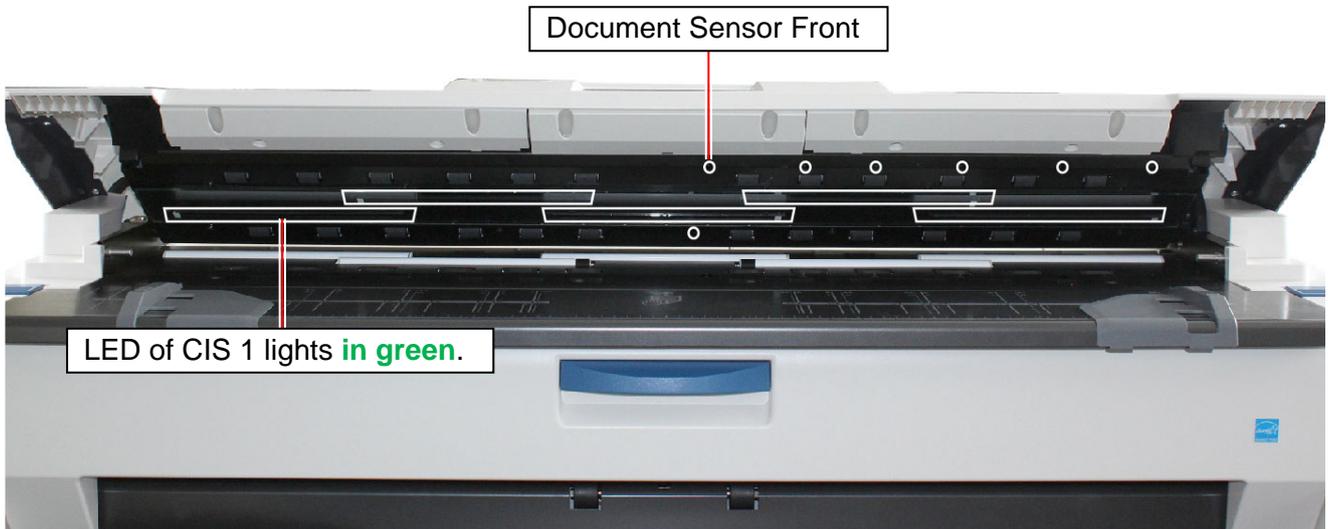


7. 3. 1. 8 Check of Document Sensor Front

1. Open the Upper Unit when the machine is turned on.
2. Turn off the scanner then turn it on again.
3. Insert a piece of paper under the Document Sensor Front to block the sensor light.
4. It is possible to check whether the Document Sensor Front is working correctly or not by checking the LED of CIS 1.

Document Sensor Front and concerning harness and Main PCB are working correctly if the LED of CIS 1 lights **in green**.

If it does not light, any of Document Sensor Front, harness and Main PCB has any abnormality.

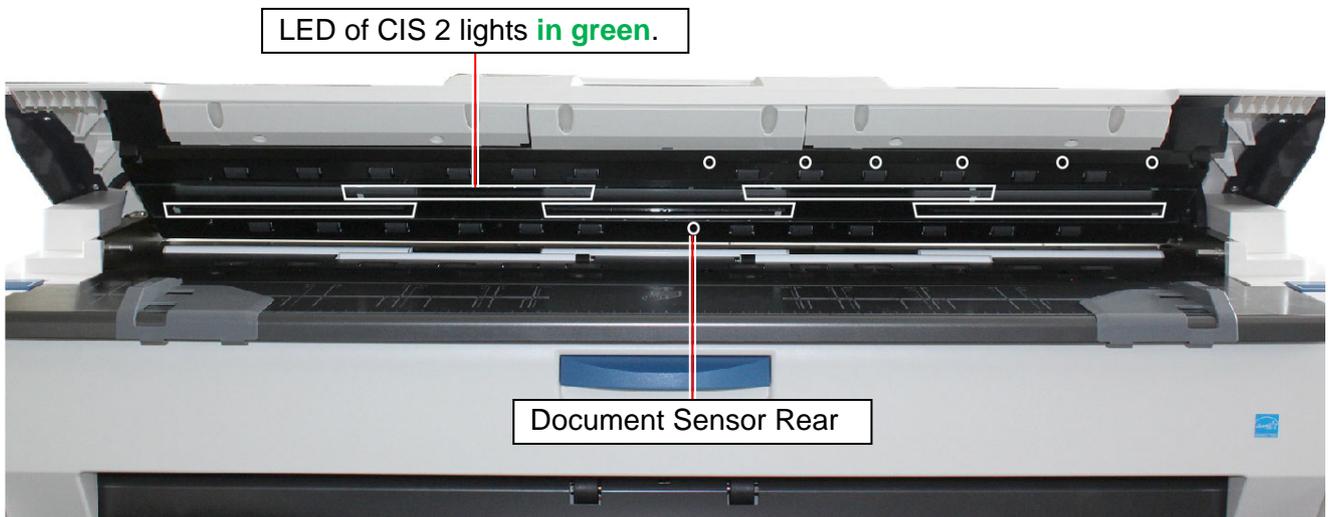


7. 3. 1. 9 Check of Document Sensor Rear

1. Open the Upper Unit when the machine is turned on.
2. Turn off the scanner then turn it on again.
3. Insert a piece of paper under the Document Sensor Rear to block the sensor light.
4. It is possible to check whether the Document Sensor Rear is working correctly or not by checking the LED of CIS 2.

Document Sensor Rear and concerning harness and Main PCB are working correctly if the LED of CIS 2 lights **in green**.

If it does not light, any of Document Sensor Rear, harness and Main PCB has any abnormality.



7. 3. 2 Countermeasures – Scan Image Quality

7. 3. 2. 1 Completely black

Cause	Checking order	Checking	Result	Treatment
Calibration	1	Can you fix the problem if you make Shading (Calibration)? (Refer to [8.13.6.1 Shading].)	Yes	OK
Cable of CIS	2	Is the cable of each CIS connected properly?	No	Connect it properly, or replace the cable if it is broken.
LED of CIS	3	Is the LED of each CIS lighting?	No	1. Check the DC Power Supply (+24V) of the printer part. Replace it if broken. 2. Replace the CIS. 3. Replace the Data Controller Board.

7. 3. 2. 2 Vertical black lines

Cause	Checking order	Checking	Result	Treatment
Scan Glass	1	Is there any dirt or damage on the Scan Glass?	Yes	Clean / replace it.
Calibration	2	Can you fix the problem if you make Shading (Calibration)? (Refer to [8.13.6.1 Shading].)	Yes	OK
Feeding rollers	3	Are feeding rollers dirty?	Yes	Clean them.
CIS	4	Can you fix the problem if you replace the CIS?	Yes	OK

7. 3. 2. 3 Vertical white lines

Cause	Checking order	Checking	Result	Treatment
Scan Glass	1	Is there any dirt or damage on the Scan Glass?	Yes	Clean / replace it.
Calibration	2	Can you fix the problem if you make Shading (Calibration)? (Refer to [8.13.6.1 Shading].)	Yes	OK
Feeding rollers	3	Are feeding rollers dirty?	Yes	Clean them.
CIS	4	Can you fix the problem if you replace the CIS?	Yes	OK

7. 3. 2. 4 Some image is lost at the boundary of Image Blocks

Cause	Checking order	Checking	Result	Treatment
Calibration	1	Can you fix the problem if you make Position? (Refer to [8.13.6.2 Stitching].)	Yes	OK

7. 3. 2. 5 Vertical image gap between Image Blocks

Cause	Checking order	Checking	Result	Treatment
Calibration	1	Can you fix the problem if you make Position? (Refer to [8.13.6.2 Stitching].)	Yes	OK

7. 3. 2. 6 Image quality is not good

Cause	Checking order	Checking	Result	Treatment
Scan Glass	1	Is there any dirt or damage on the Scan Glass?	Yes	Clean / replace it.
Resolution	2	Is the resolution setting proper?	No	Adjust it properly.

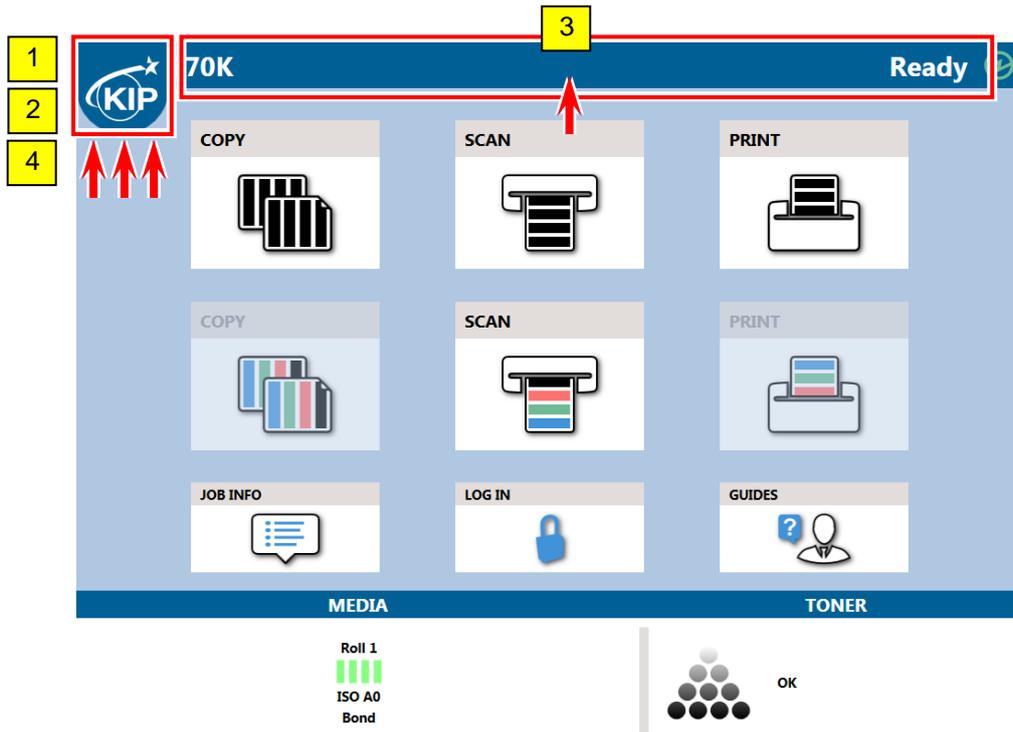
7. 3. 2. 7 Density is different between left and right

Cause	Checking order	Checking	Result	Treatment
Calibration	1	Can you fix the problem if you make Shading (Calibration)? (Refer to [8.13.6.1 Shading].)	Yes	OK
Black Brightness Correct	2	Can you fix the problem if you make Black Brightness Correct? (Refer to [8.13.6.3 Black Brightness Correct] .)	Yes	OK

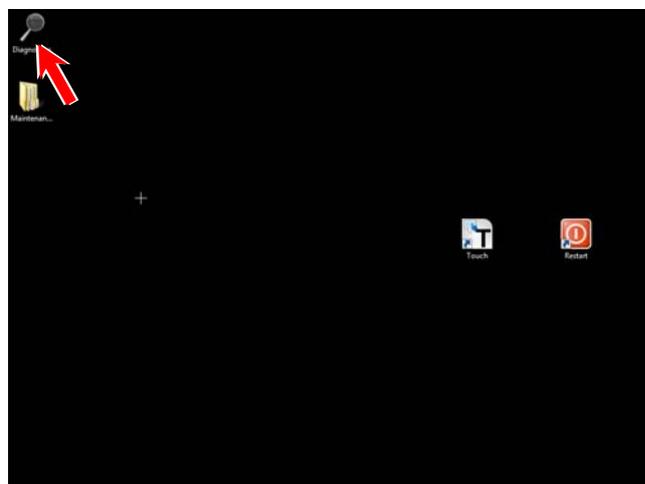
7.4 Touch Screen Calibration

If the cursor position in the screen does not correctly match the tapped position on the panel, the touch screen should be calibrated so that the cursor is located directly underneath your finger or a stylus.

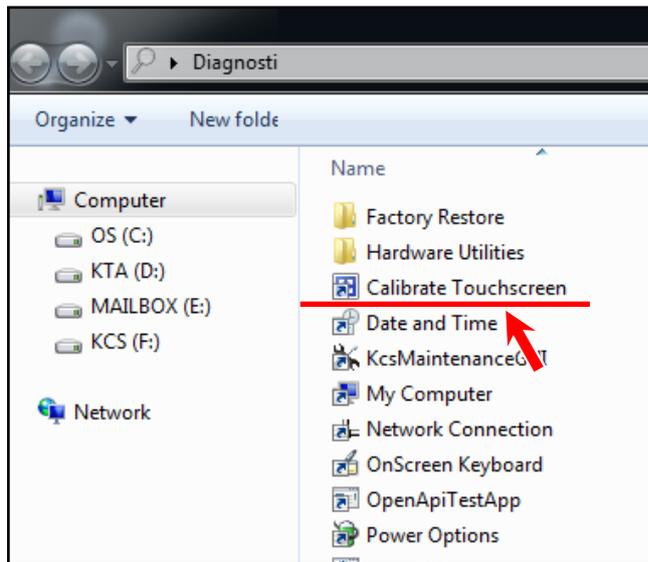
1. Close the user interface by the following operations to access the desktop of controller.
 - (1) Press the HOME icon on top-left.
 - (2) Press the HOME icon on top-left again.
 - (3) Press the indication area of [(Model name) / (status)].
 - (4) Press the HOME icon on top-left again.



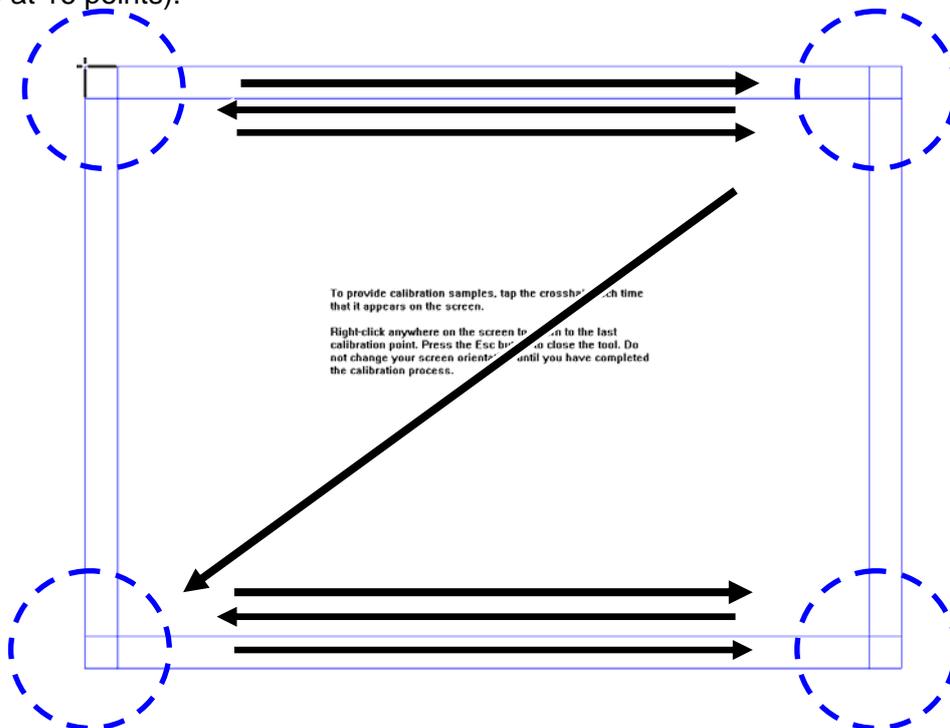
2. The Diagnostics Folder will open when double-clicking [Diagnostics Icon].



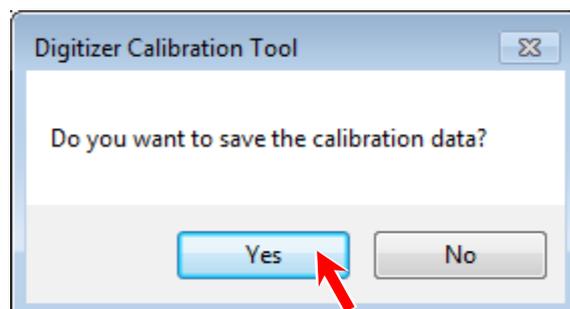
3. Double-click [Calibrate Touchscreen].



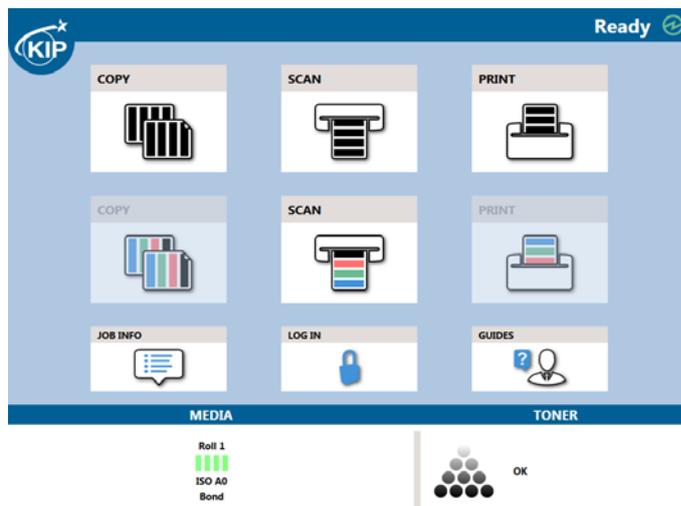
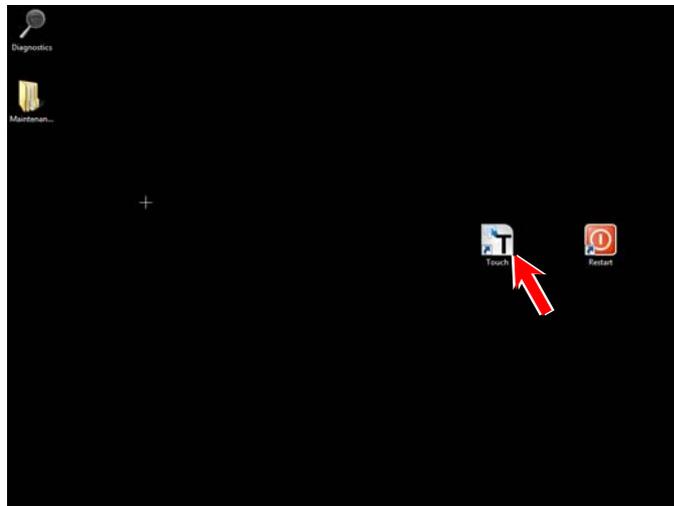
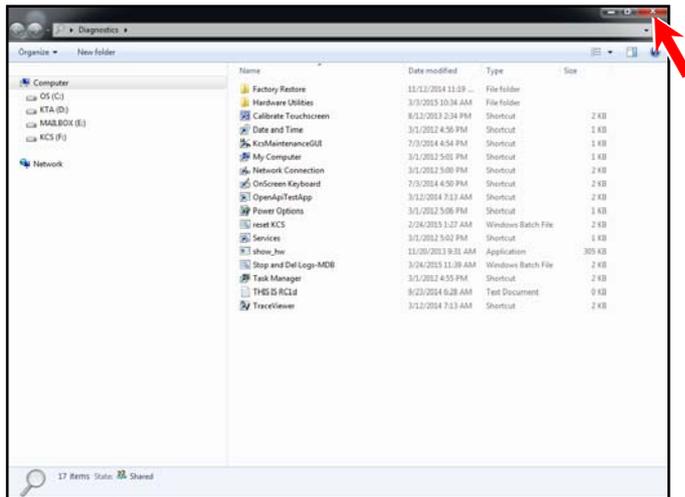
4. A Cross Mark appears on each target point around 4 corners. Whenever you tap the central point of this mark, it then appears on next target point. Repeat this operation totally 16 times (tap at 16 points).



5. Select [Yes] to save the calibration.

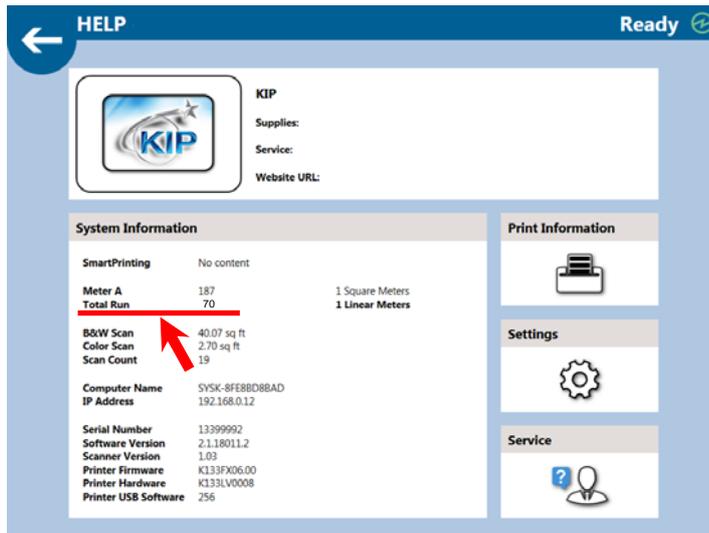


6. Close [Diagnostics folder], and then double-click [Touch Icon] to go back to UI Home Screen.

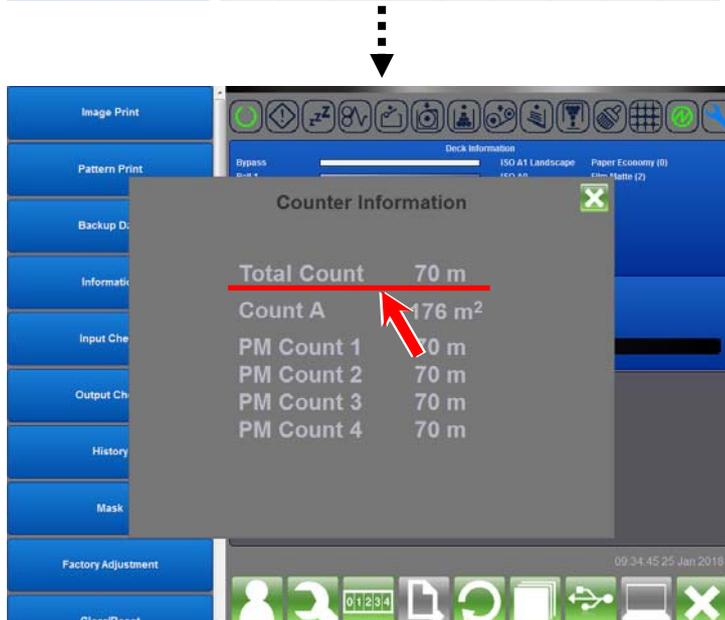
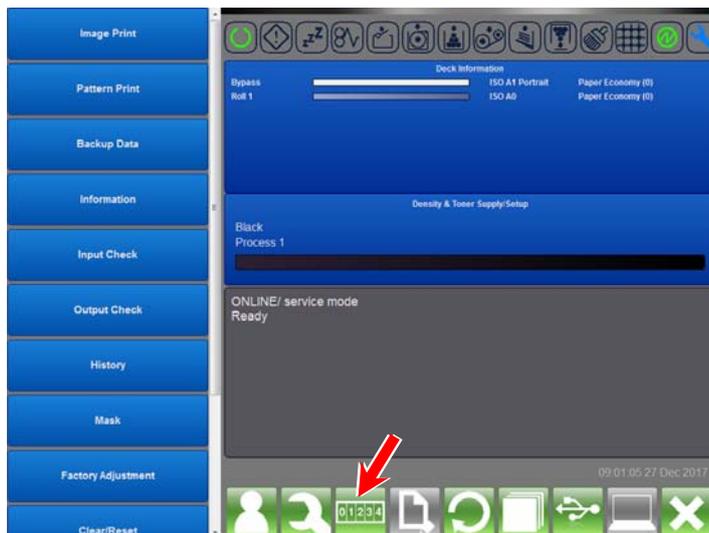


7.5 Internal Counter Error

The printer has 2 software counters that store Total Count of Print Length. One is **Total Run** shown in the **HELP** screen, which is stored in **Controller's Hard Drive**.

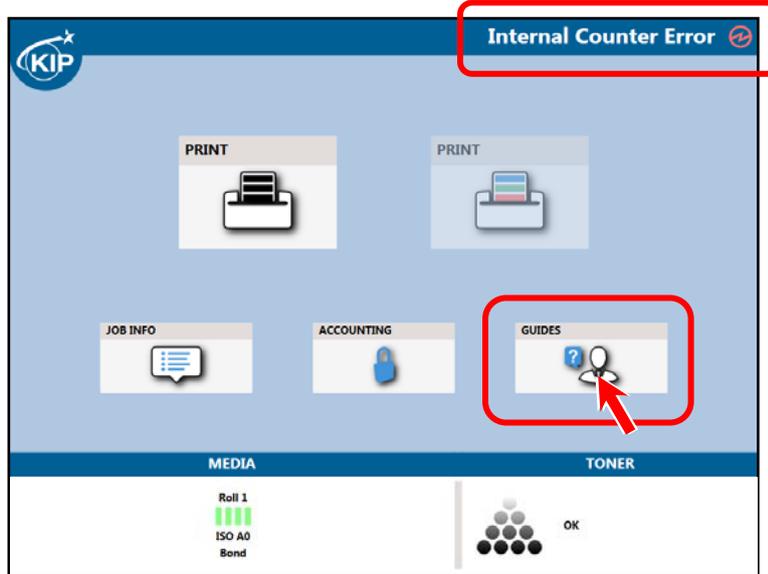


The other is **Total Count** shown in **Counter Information** screen in the **Maintenance GUI**, which is stored in **Printer's DC Controller**.

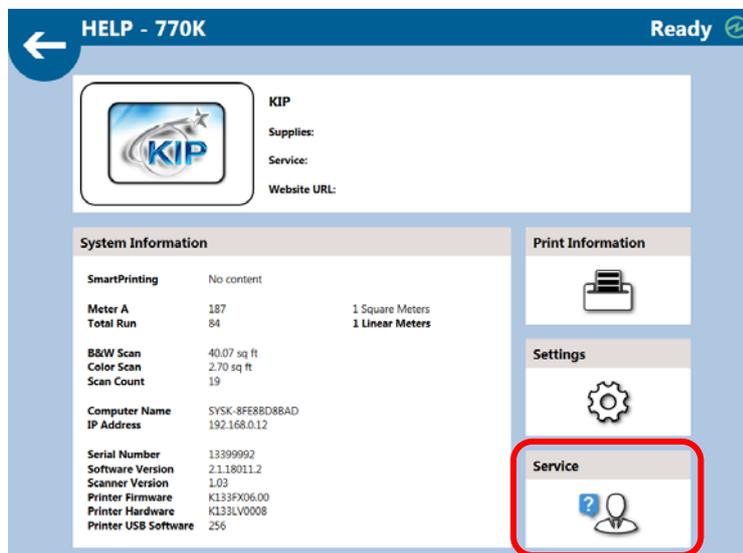
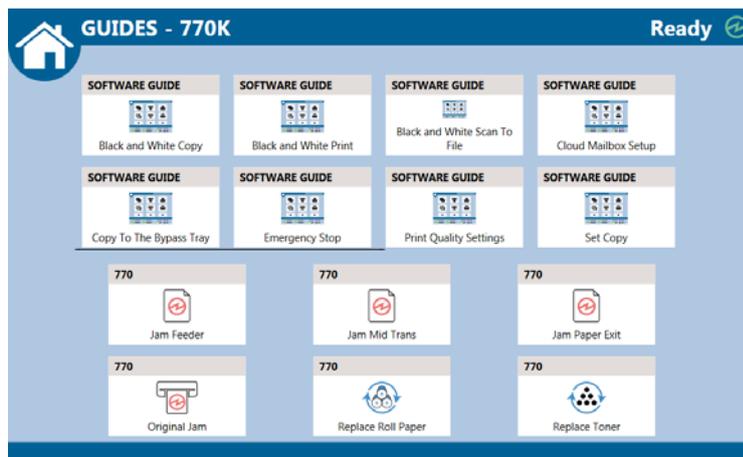


Both counter values normally count the same value each other. If there occurs a mismatch of the count value between 2 counters by some reason, Touch UI indicates "Internal Counter Error" in the status bar on upper-right. Only a service personnel who knows **Service** access account can clear this error by the steps described in below.

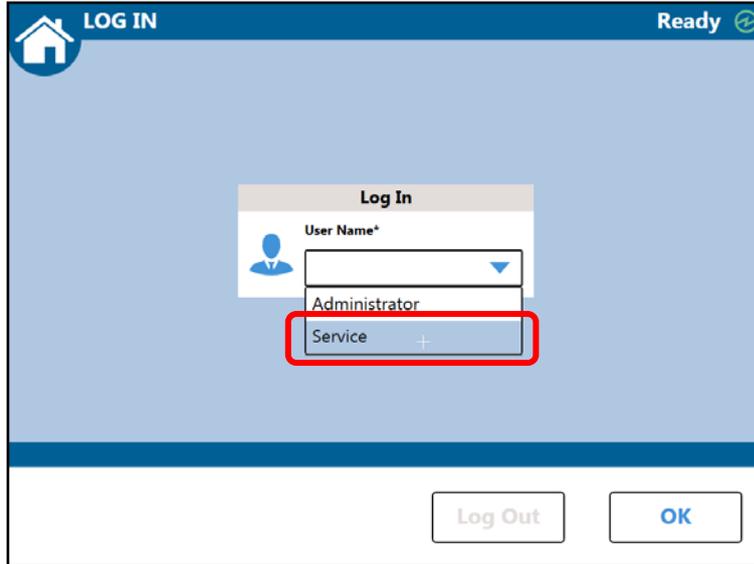
1. Select [GUIDE].



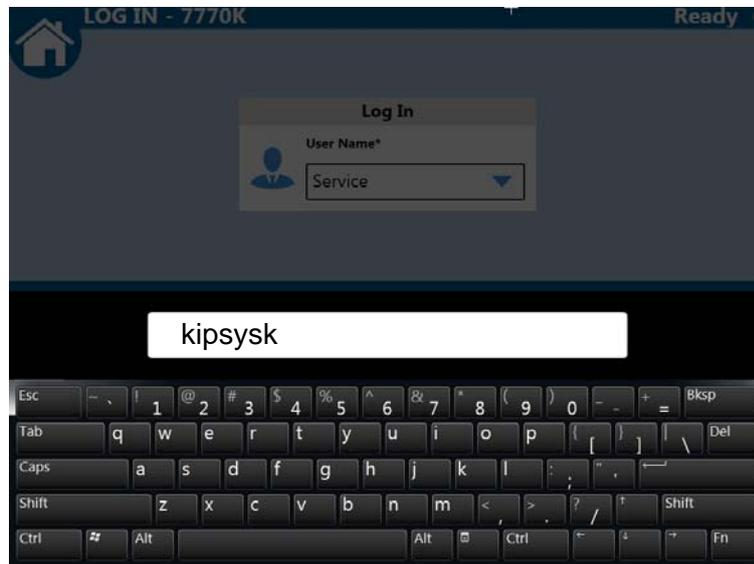
2. Select [Help], then, Select [Service].



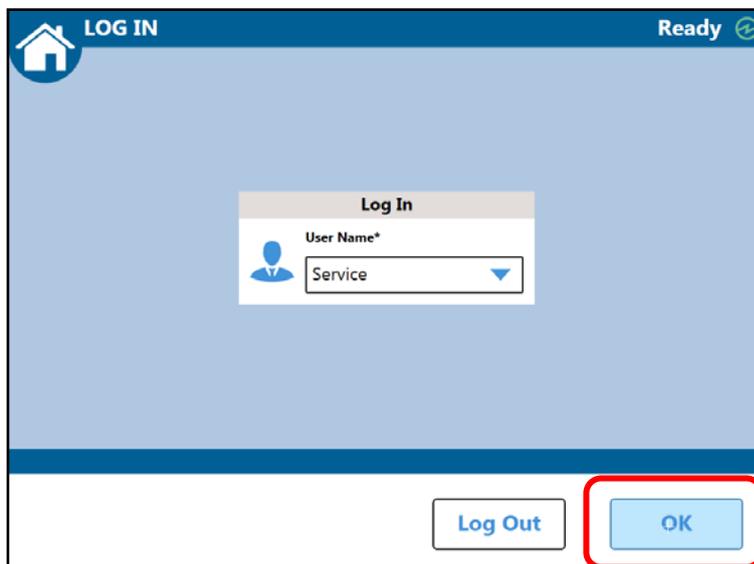
3. Choose [Service] account from pull down menu.



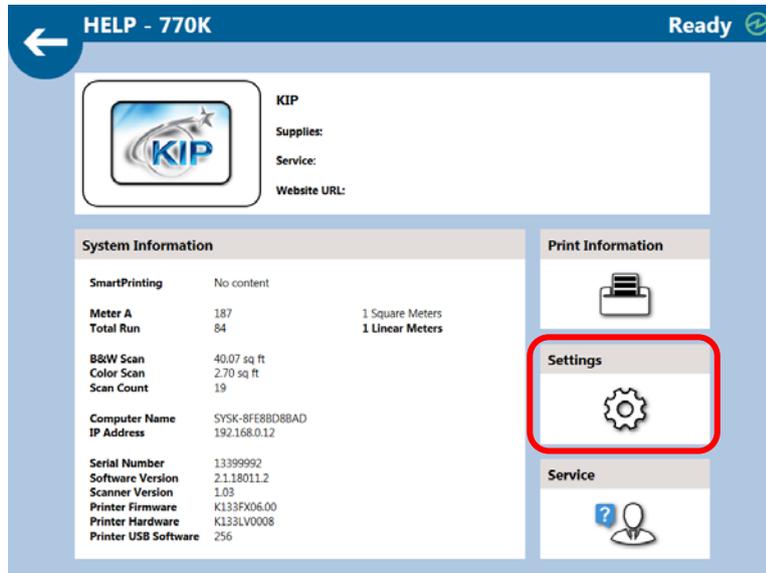
4. Input password [kipsysk] and press [Enter] key button.



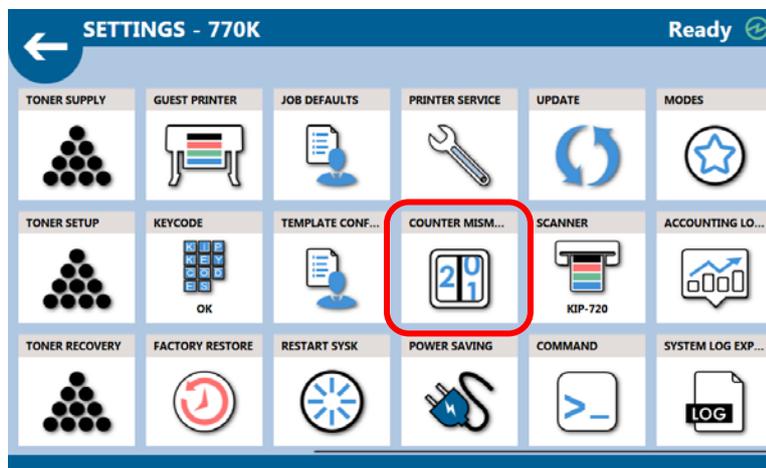
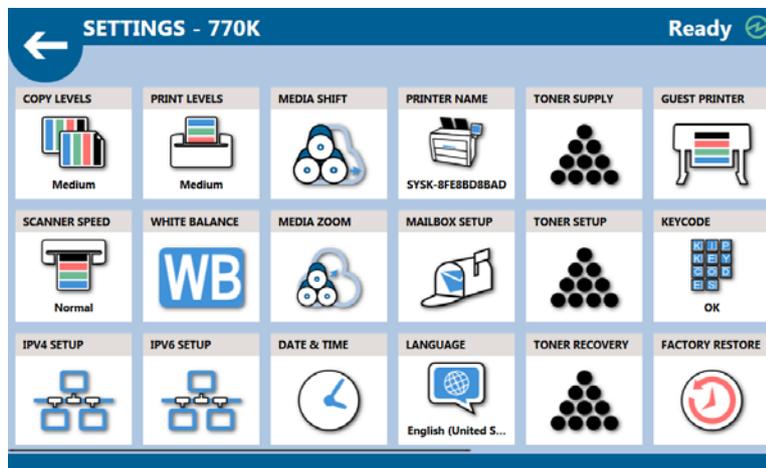
5. Press [OK] button.



6. Select [Settings].



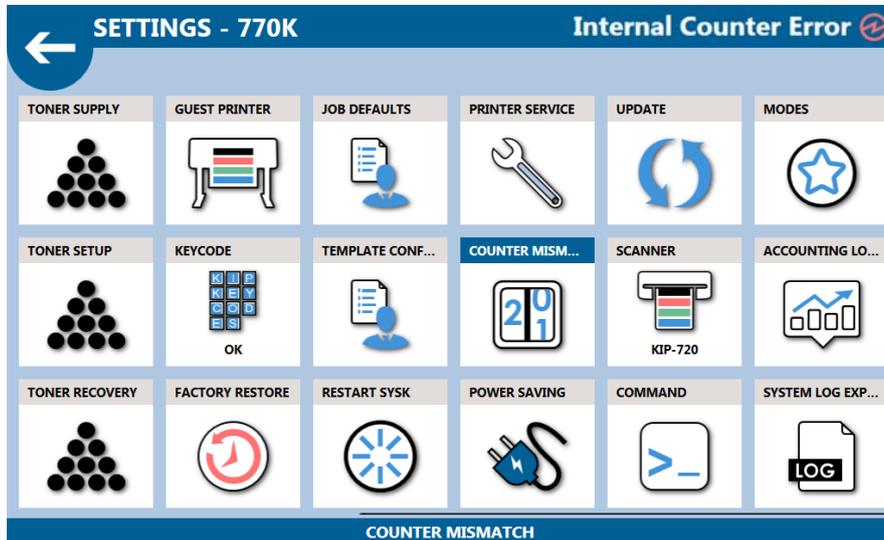
7. Scroll to right side on the screen by swiping. Find [COUNTER MISMATCH] and select it.



8. Select either of 2 buttons **Yes** or **No** according to the device that has been changed or replaced.

- Select **No** button when the **Internal Counter Error** started to appear after;
 - a) replacement of entire controller unit (or its HDD or SSD)
 - b) or after software re-ghosting.

If **No** button is pressed, the Total Count value stored in printer's DC Controller is copied to controller's hard drive, which clears the **Internal Counter Error** as both devices now have the same value each other.

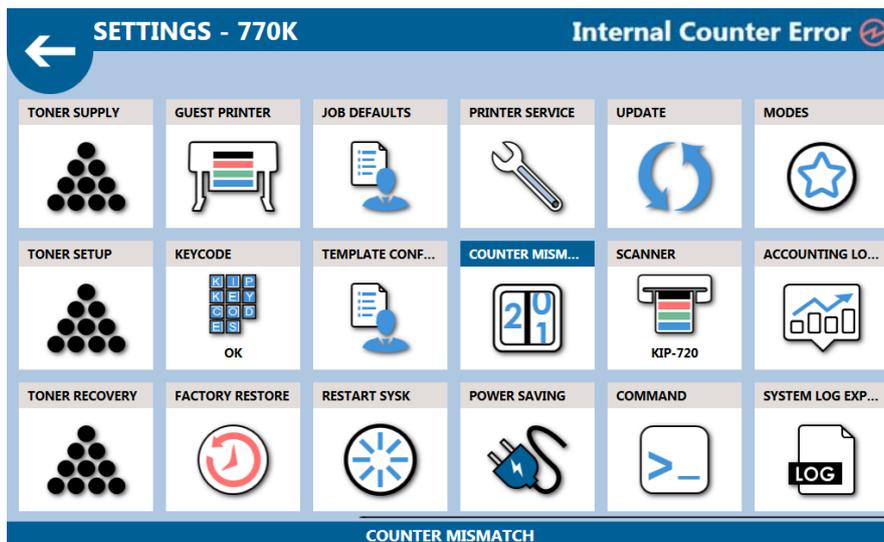


Was the Main PCB replaced in the Printer?



- Please press **Yes** button when the **Internal Counter Error** started to appear after;
 - a) replacement of printer's DC Controller
 - b) or Total Count value is lost by some reason.

If **Yes** button is pressed, the Total Run value stored in controller's Hard Drive is copied to printer's DC Controller, which clears the **Internal Counter Error** as both devices now have the same value each other.



Was the Main PCB replaced in the Printer?



Chapter 8

Maintenance GUI / Utility

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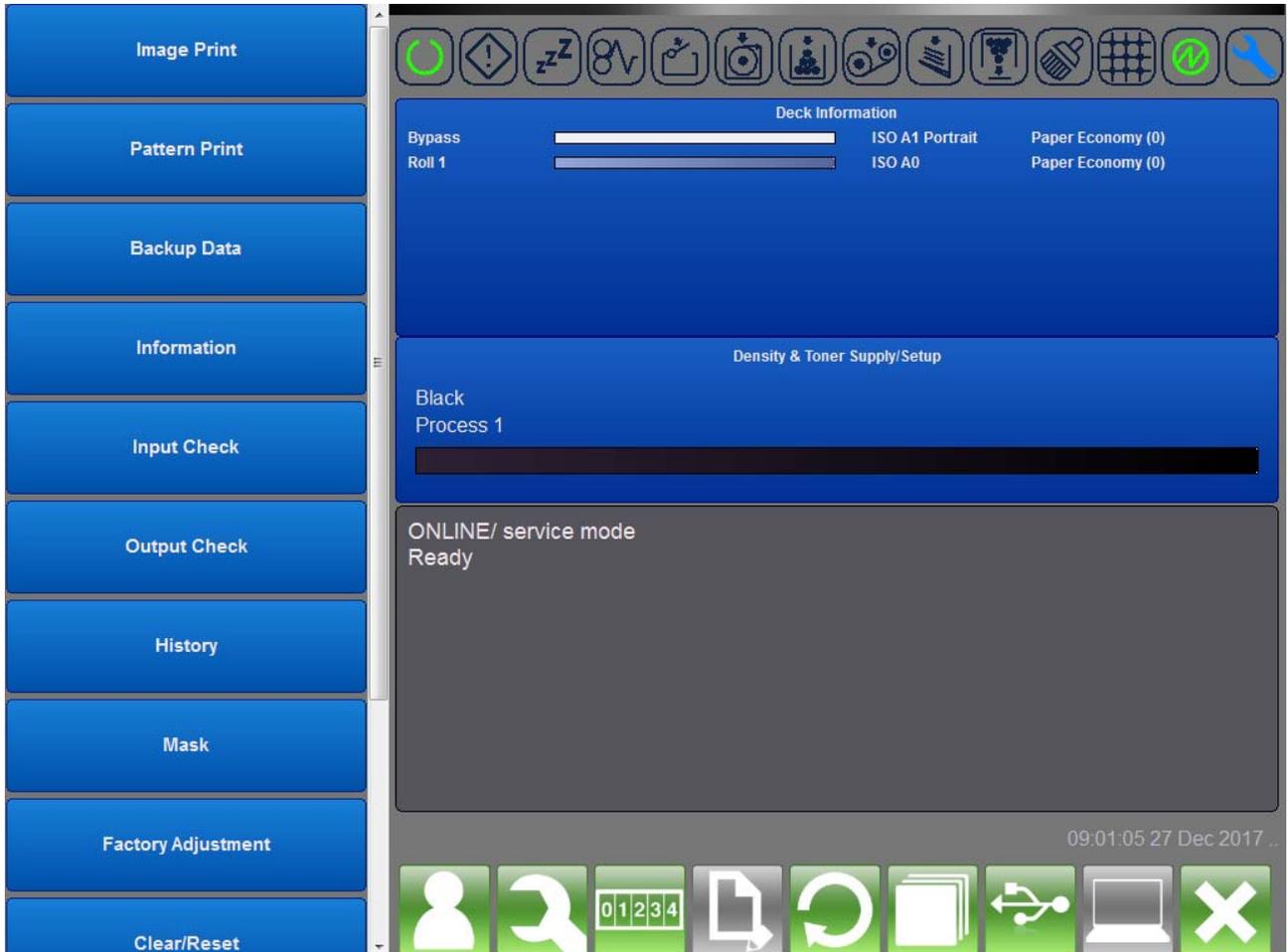
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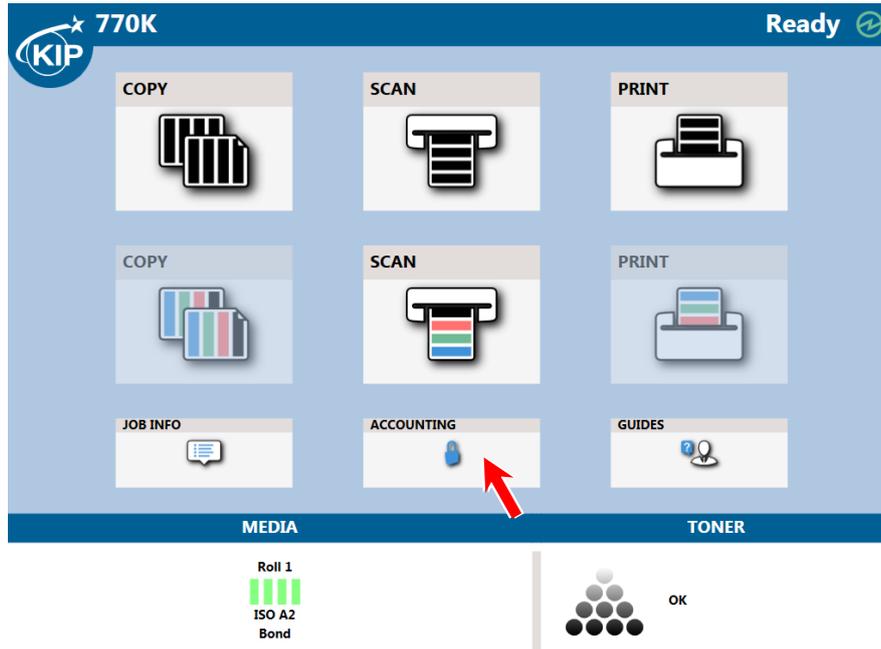
8. 1 Maintenance GUI Overview

Maintenance GUI is a software application that allows overall technical service operations for the KIP770 printer by easy touch panel operation, which is pre-installed in the control software. A service technician is able to use this software for status monitor, operation check, configuration of parameters and etc.

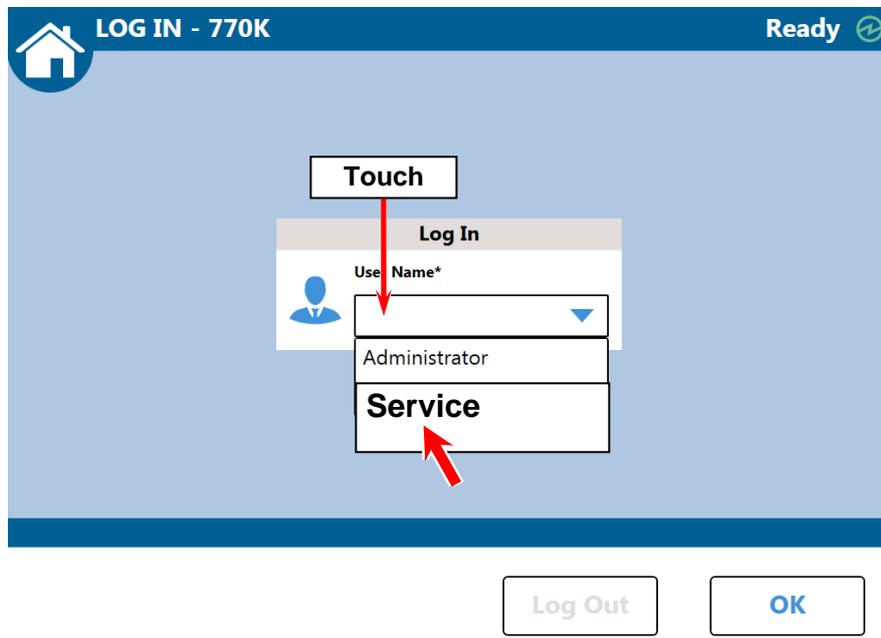


8. 1. 1 Launching Maintenance GUI

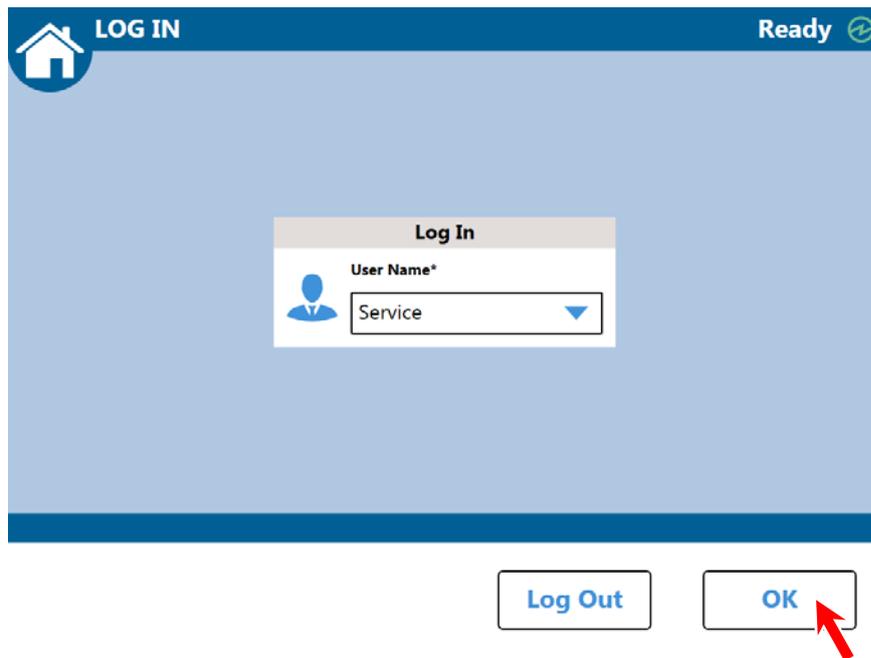
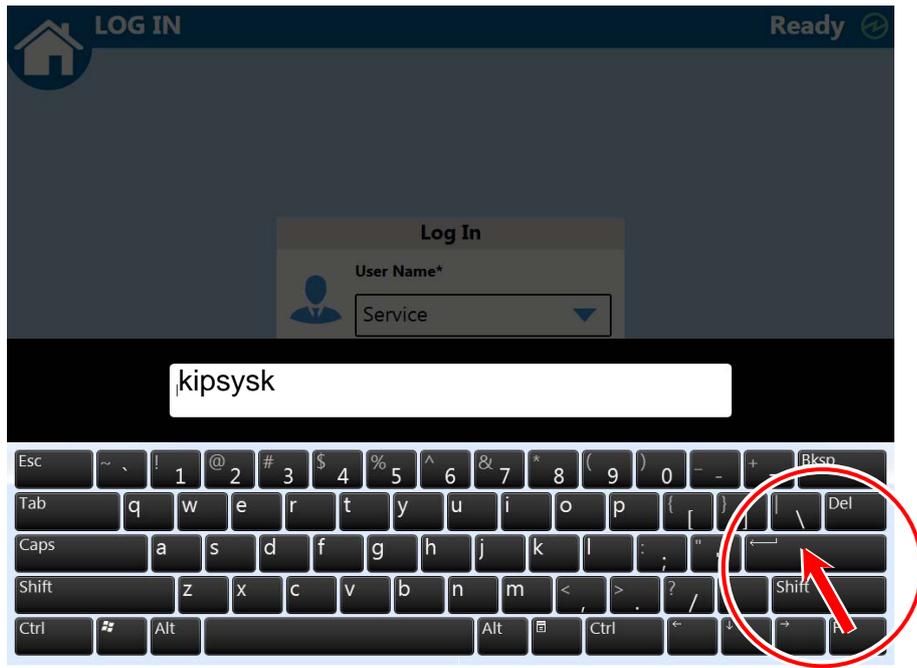
1. Press **Account** in the HOME screen of Touch Panel.



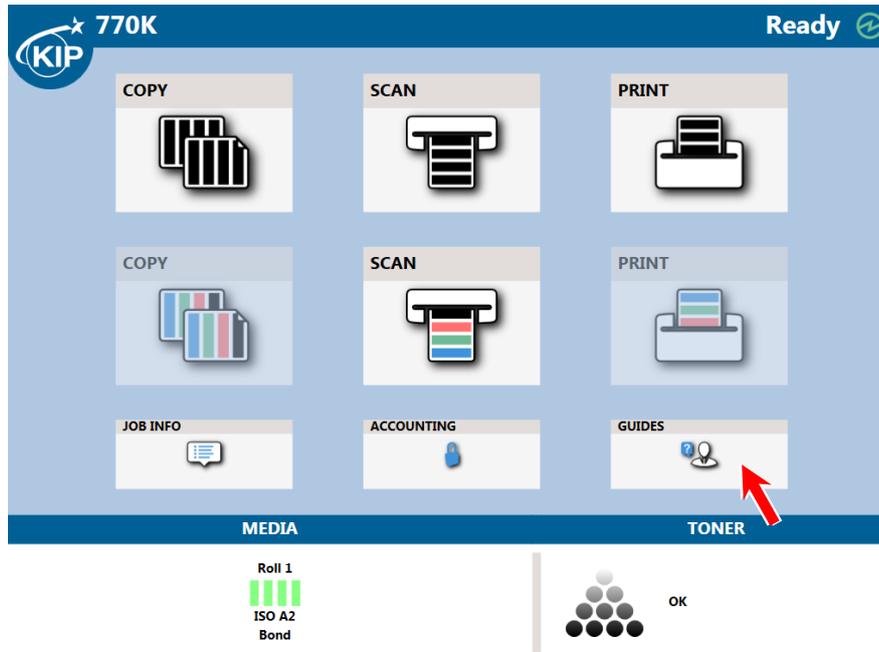
2. Touch the entry field of "User Name", and then select "Service" from the pull-down menu.



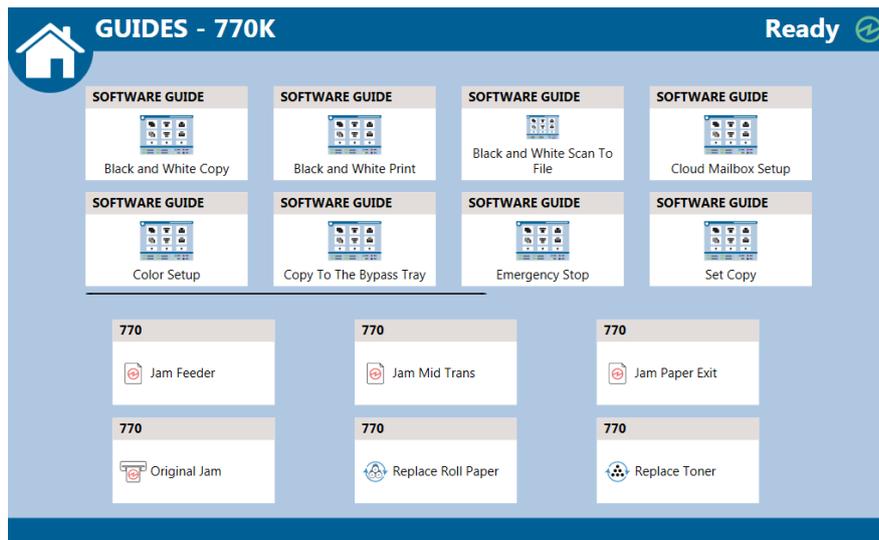
3. Enter "kipsysk" in the password field, press the ENTER key, and then press [OK] in the LOG IN screen to log in with the administrative right.



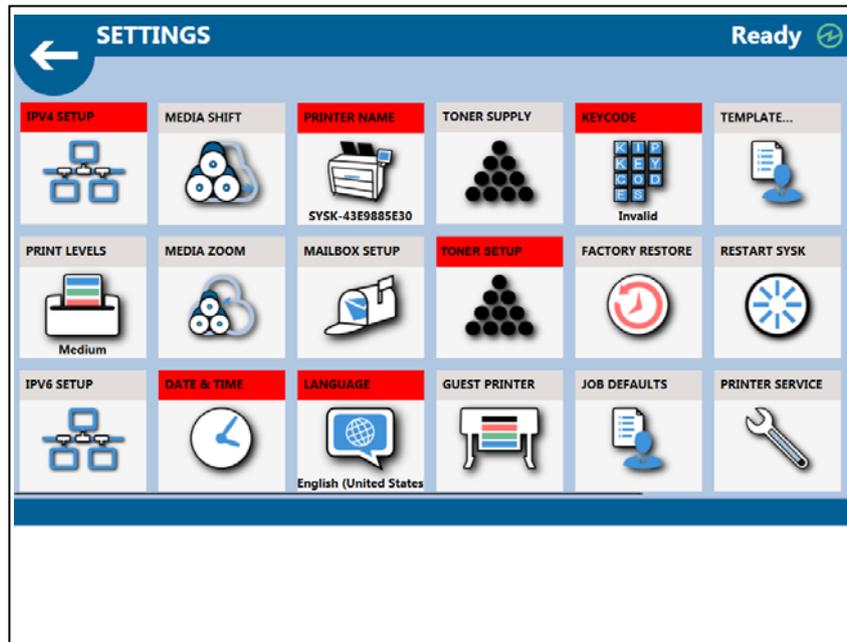
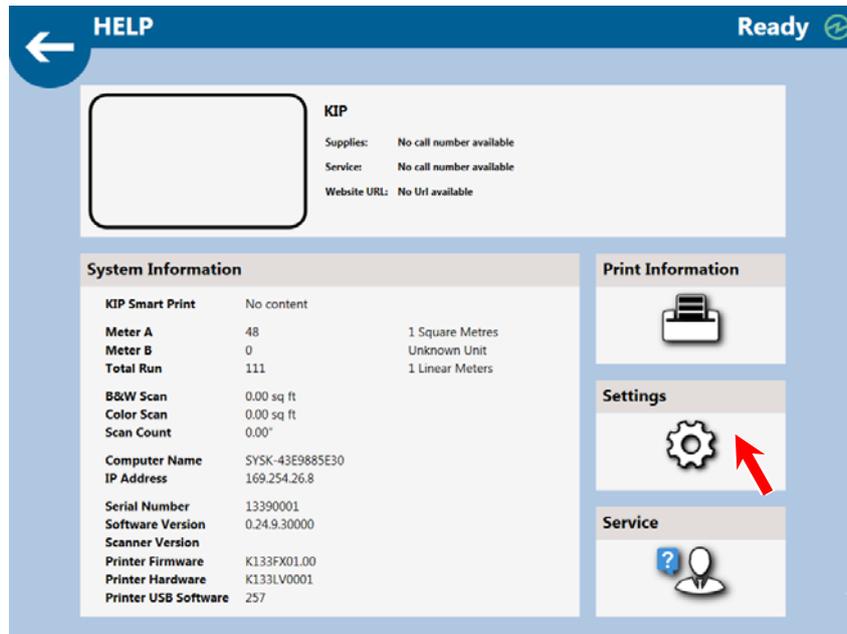
4. Press **GUIDES**.



5. Press **Help**.



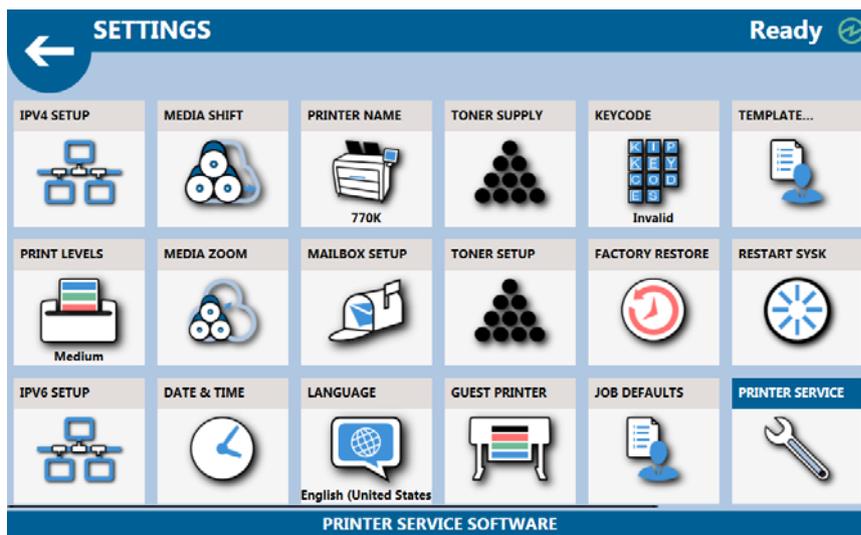
6. Press Setting to indicate SETTINGS page.



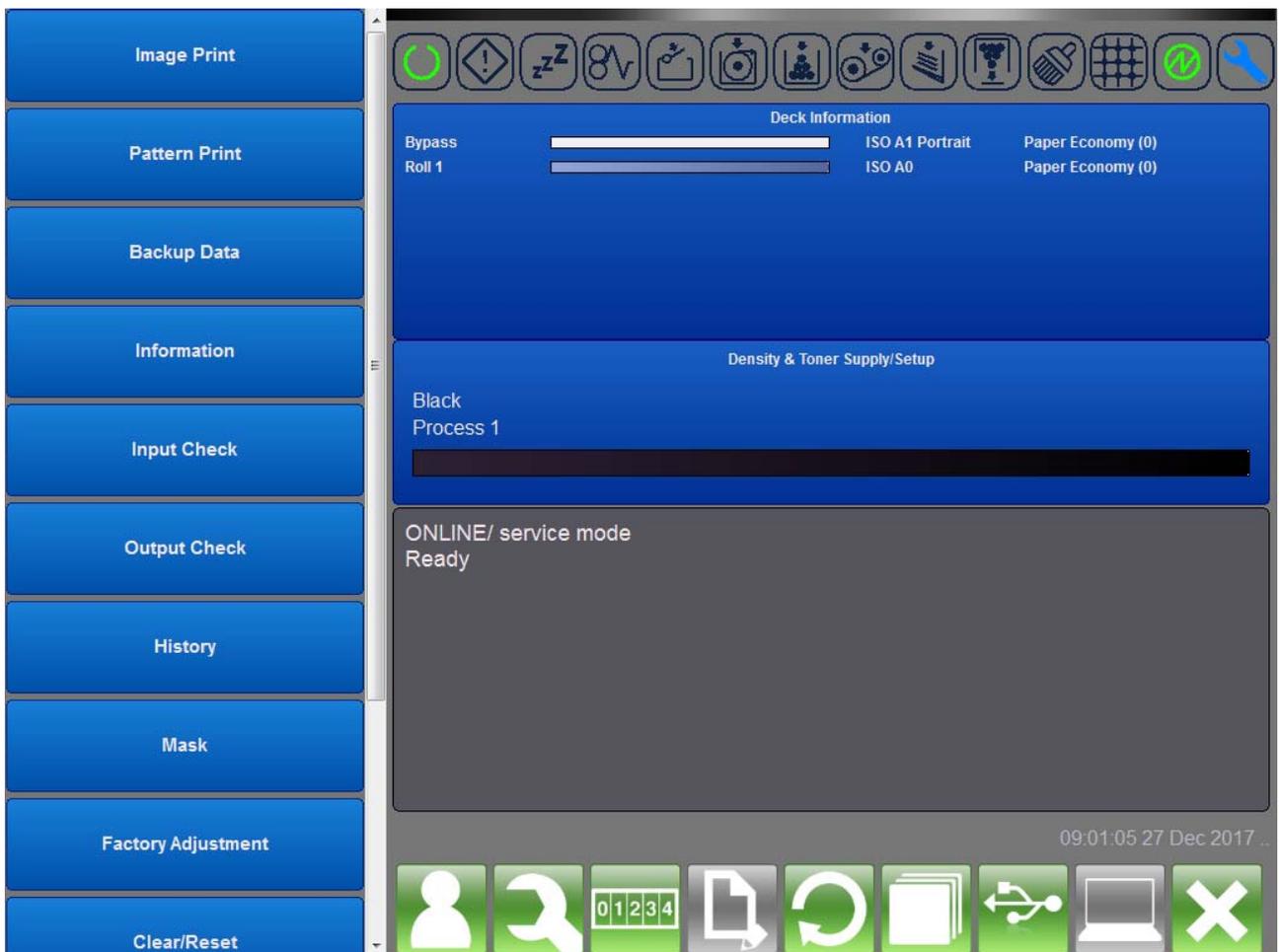
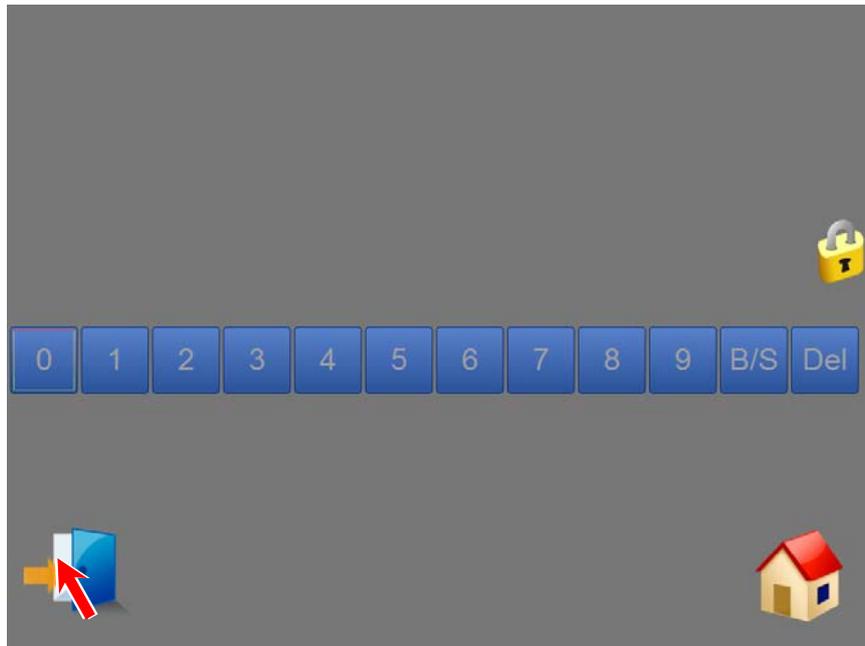
7. Press **PRINTER SERVICE** on the “SETTINGS” screen.



8. Press **LAUNCH**.



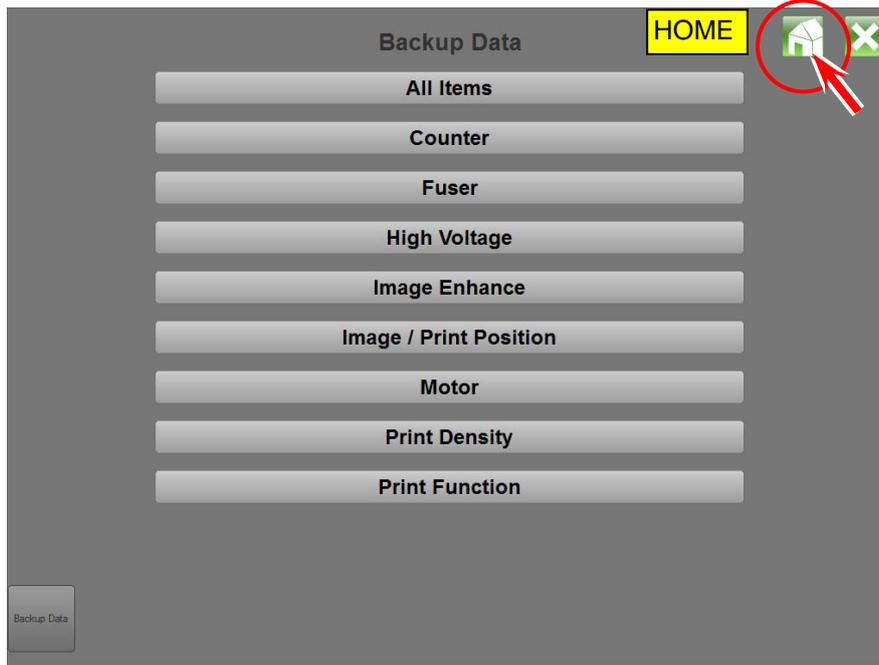
9. Press the door icon on the bottom-left to run the Maintenance GUI.



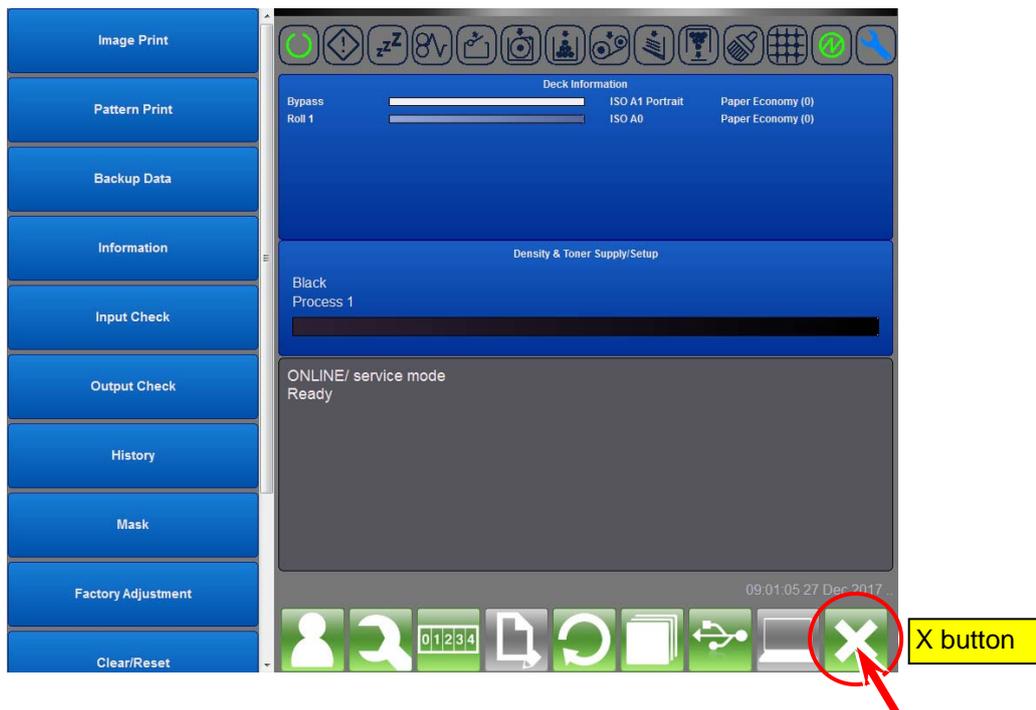
Maintenance GUI Home Screen

8. 1. 2 Closing Maintenance GUI

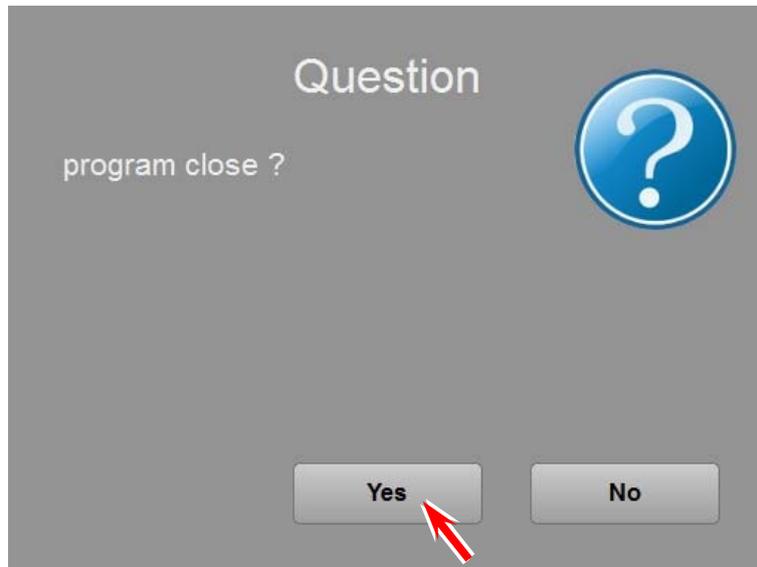
1. Press "HOME" icon in each sub page of the Maintenance GUI to indicate the home screen.



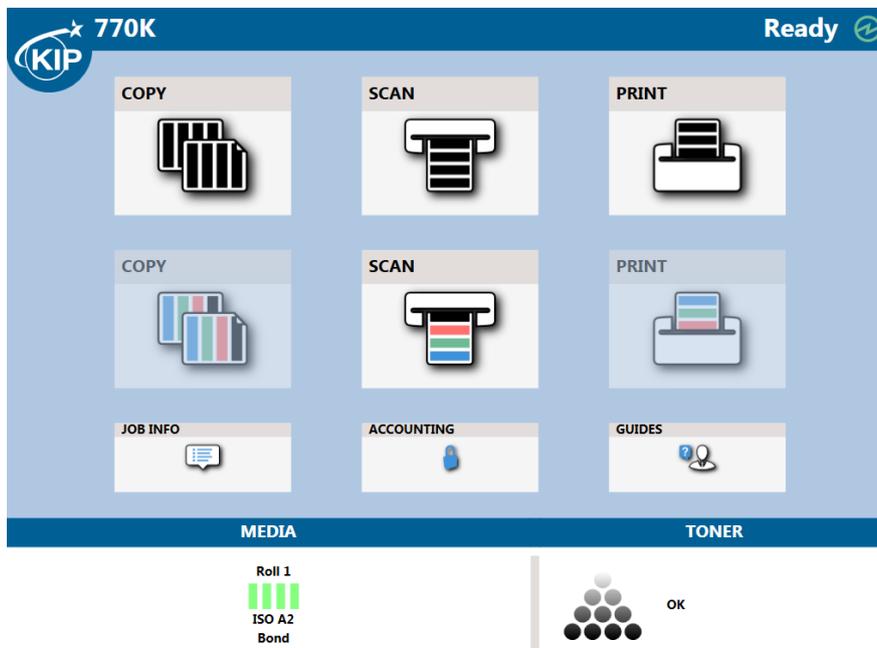
2. Press X button on bottom-right.



3. When a confirmation message is indicated, press **Yes**.



4. The Maintenance GUI closes indicating the HOME screen of user interface instead.



8. 1. 3 Update of Maintenance GUI

It is sometimes required to update the Maintenance GUI application when the printer control programs such as Firmware and FPGA are updated. See the following procedure for updating.

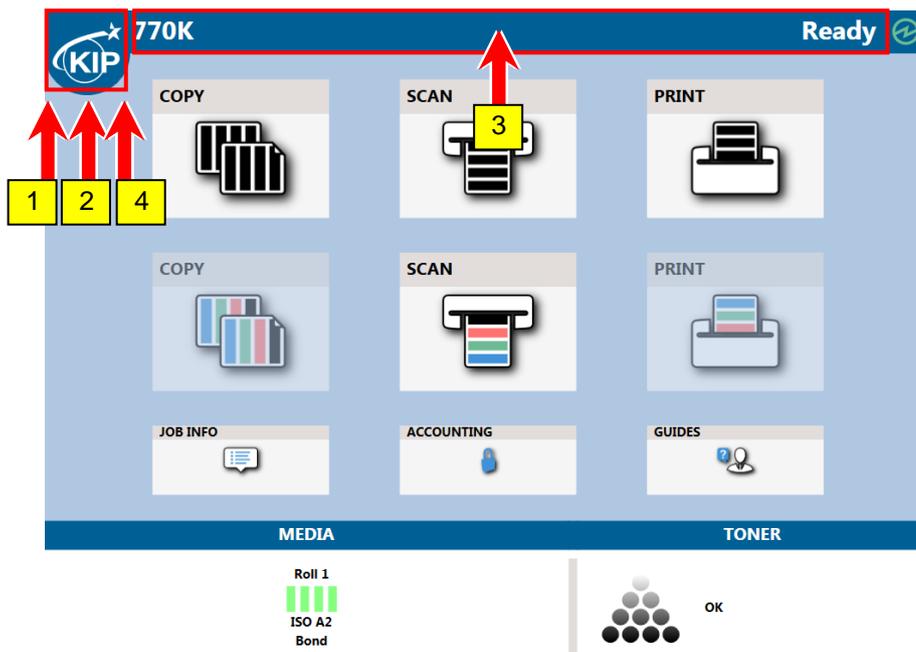
1. New version of Maintenance GUI application is provided by a zip file format. Unzip it to retrieve the following 4 files

- KcsMaintenanceGUI.exe
- KcsUpdate.dll.
- OpenApi.dll
- KcsCode.xml

Save all of them in a transportable device such as USB memory stick.

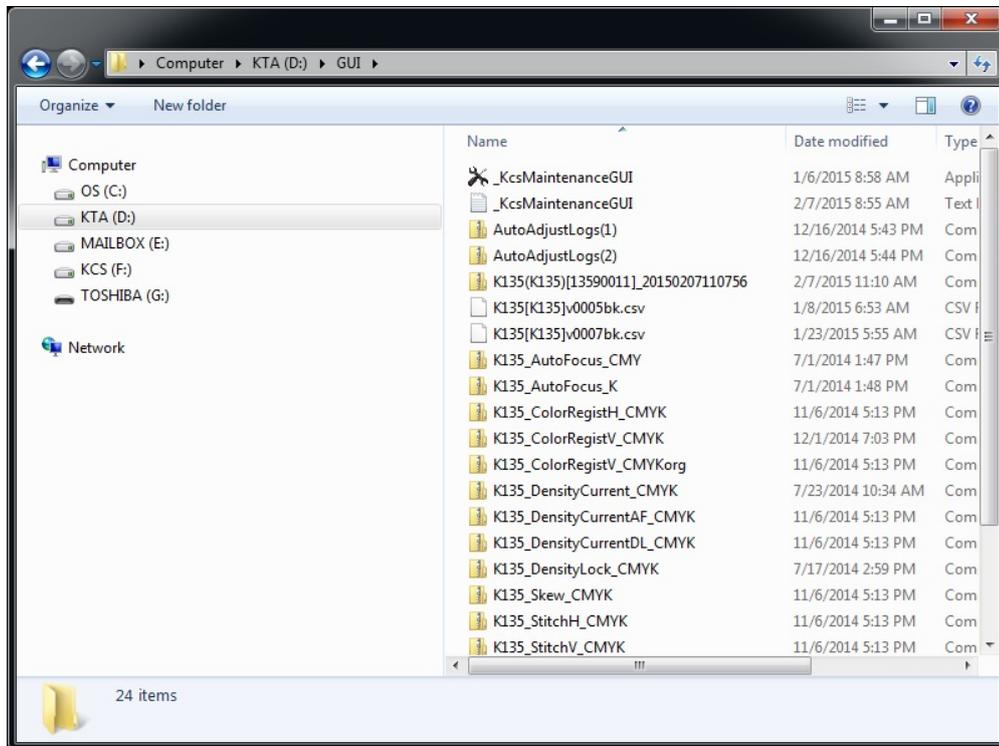
2. Close the user interface by the following operations to access the desktop of controller.

- (1) Press the HOME icon on top-left.
- (2) Press the HOME icon on top-left again.
- (3) Press the indication area of [(Model name) – (status)].
- (4) Press the HOME icon on top-left again.



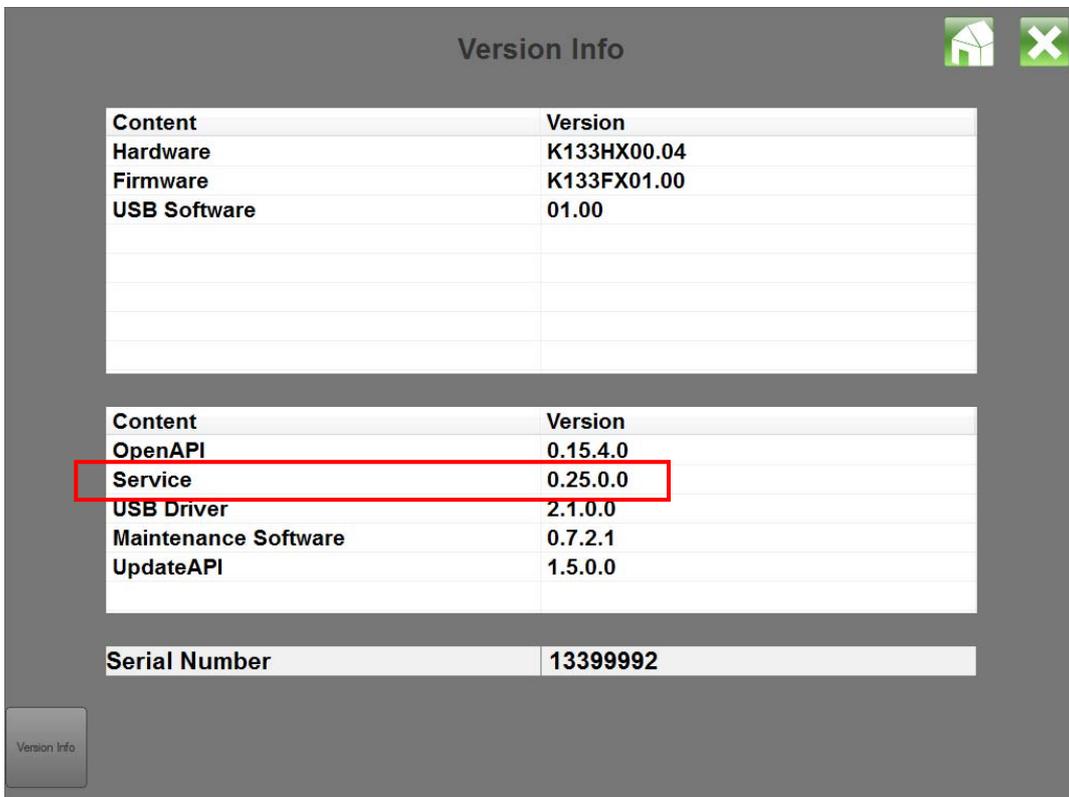
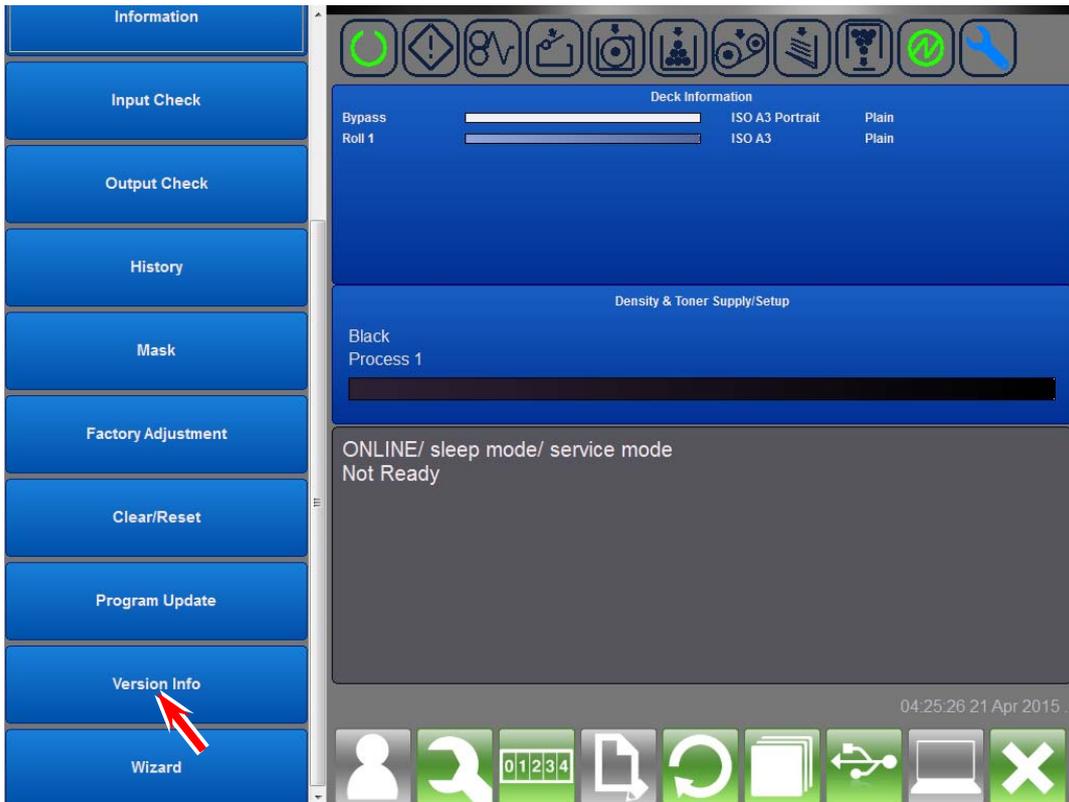
3. Browse to **D:\GUI** by such as Windows Explorer, and copy and paste the following 4 files which you retrieved at the former step 1. This will update the Maintenance GUI application.

- KcsMaintenanceGUI.exe
- KcsUpdate.dll.
- OpenApi.dll
- KcsCode.xml



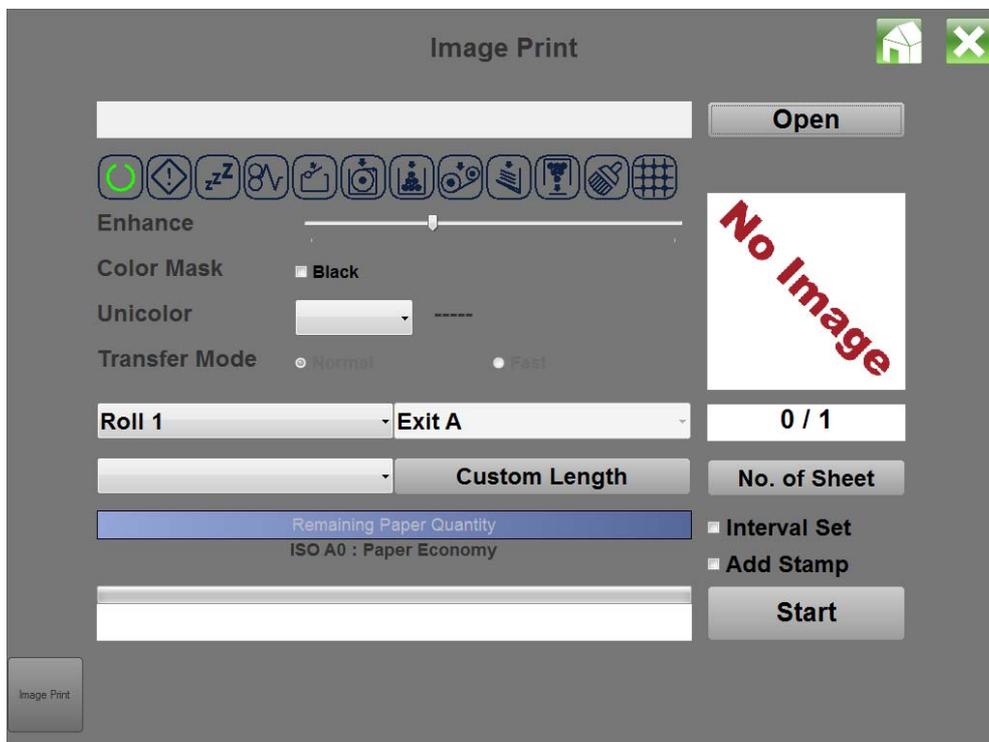
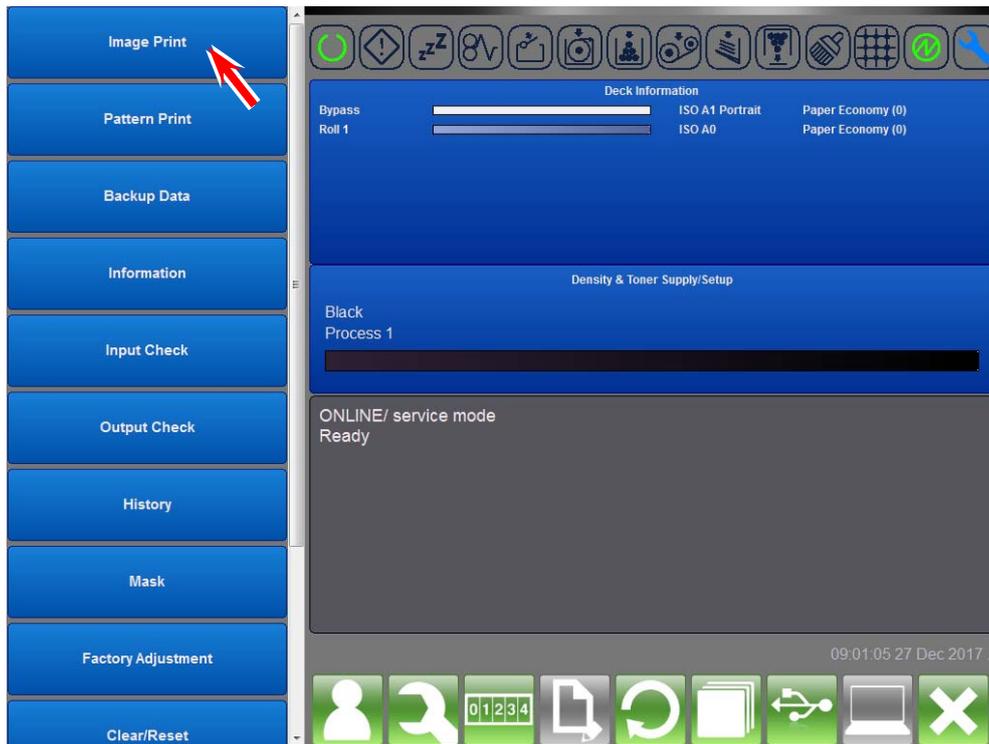
Reference

You will be able to check the current version of Maintenance GUI in **Version Info**.



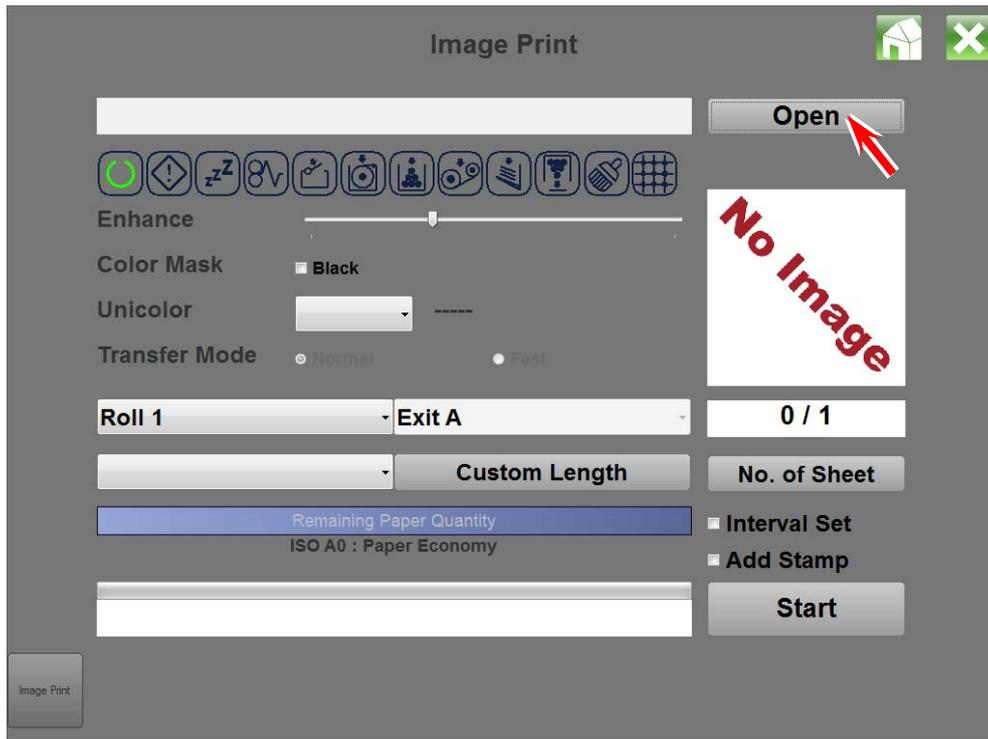
8. 2 Image Print

Image Print allows an operator to print some internal test patterns for such purposes as operation check, performance check, troubleshooting and etc.

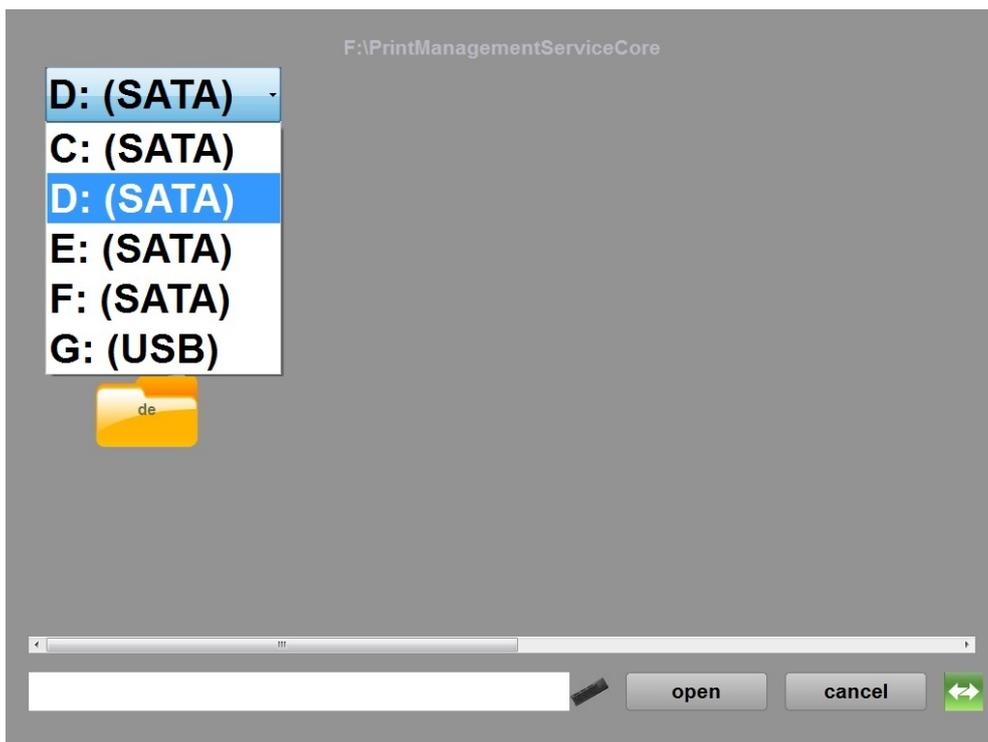


8. 2. 1 Operation procedure of test printing

1. Press **Open** in the Image Print page. A file selection page is indicated.



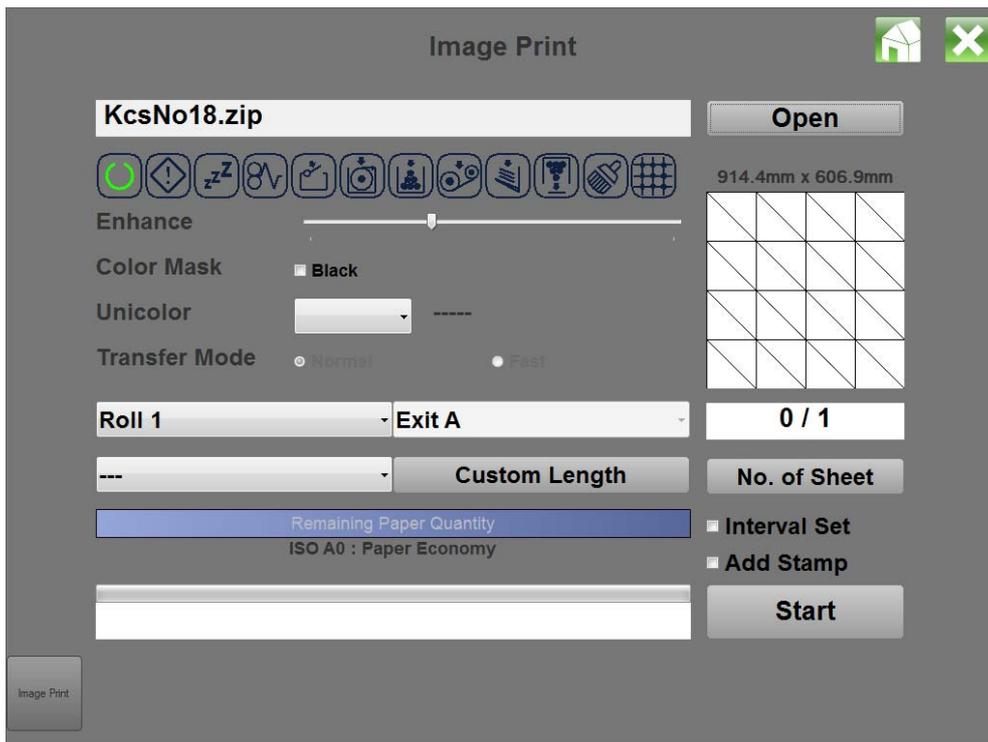
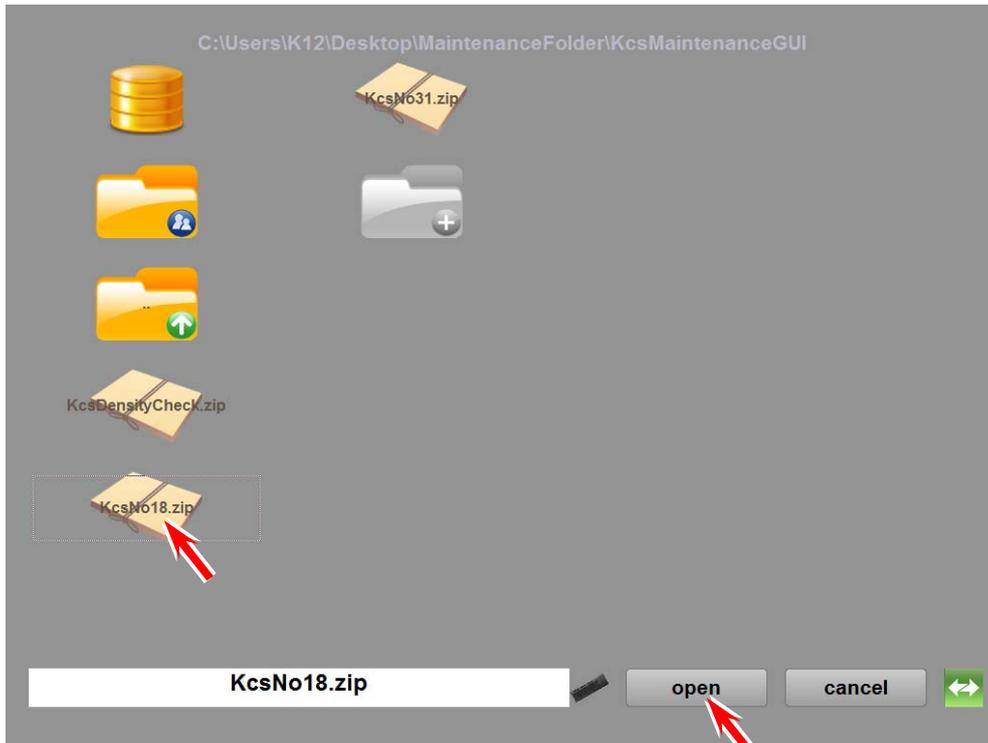
2. The top section of the page shows the path of currently selected folder. If you will select another drive, press an icon on top-left and then select the necessary folder in the list.



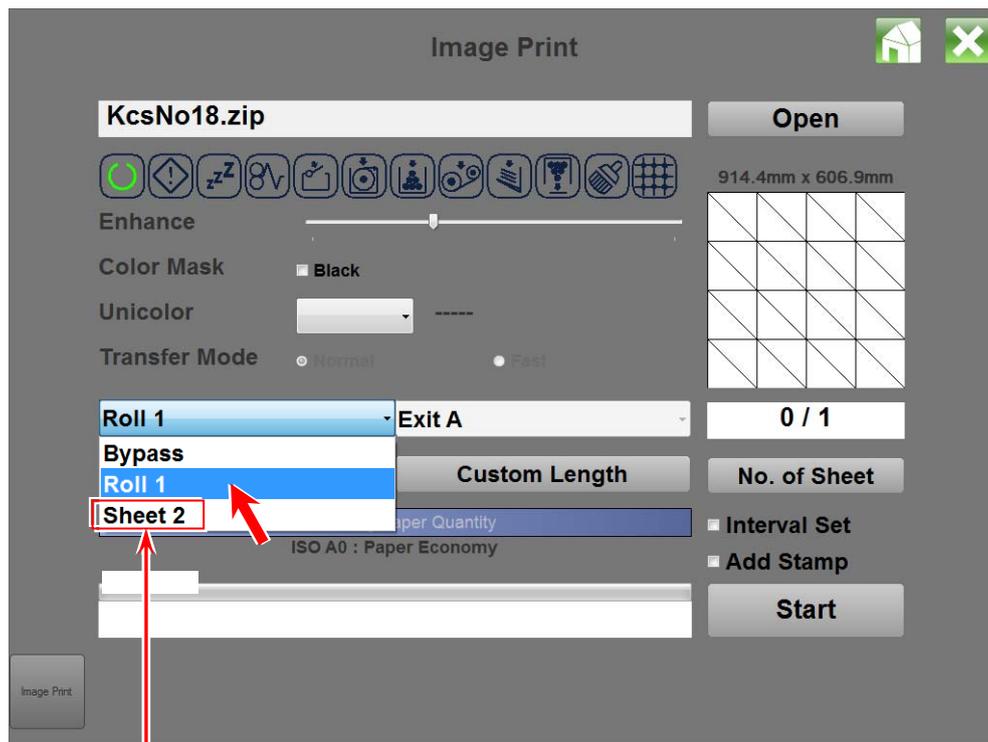
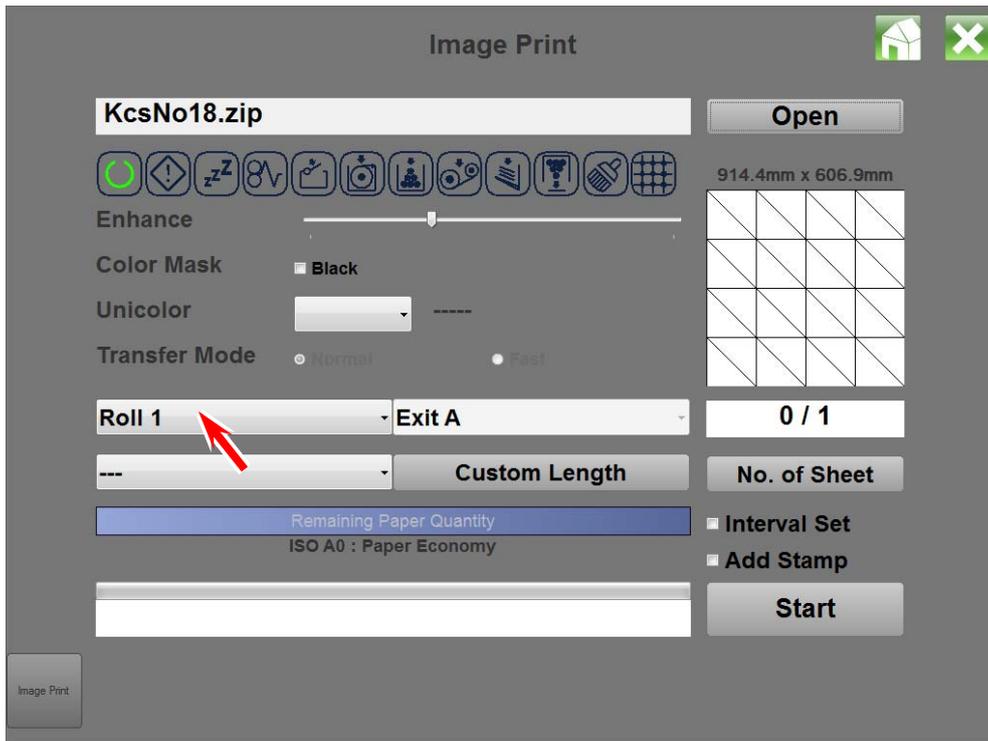
Reference

Whenever  on bottom-right is pressed, the file selection page switches between "icon indication" and "detailed text indication".

3. Internal test patterns are saved in the controller by zip file format. Select any zip file to print and then press **open**.

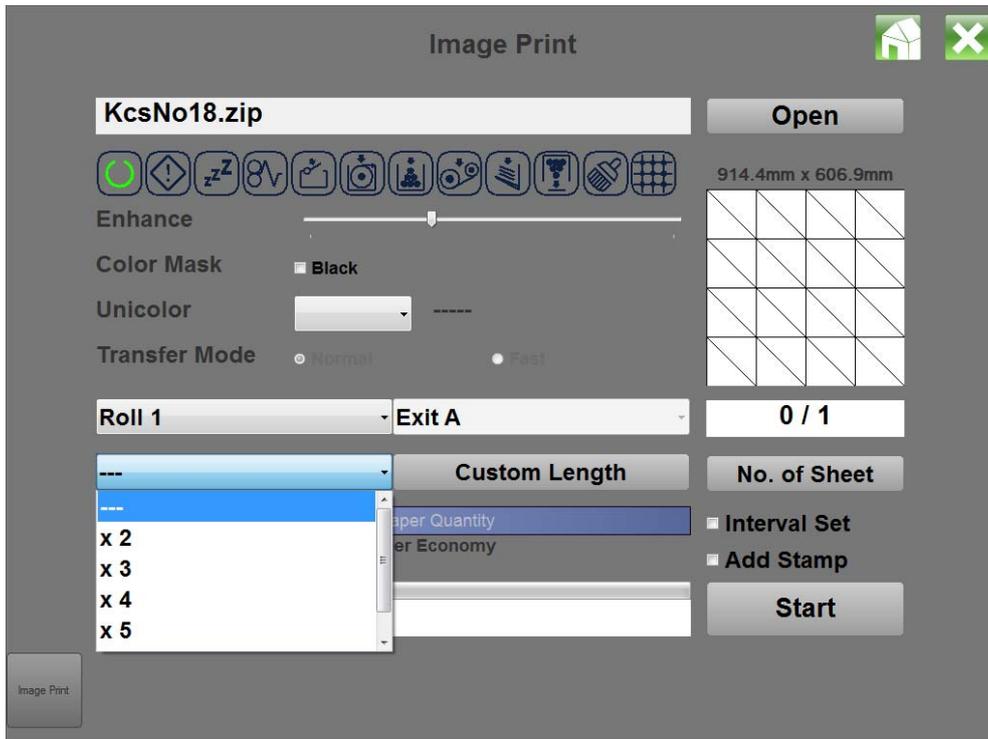
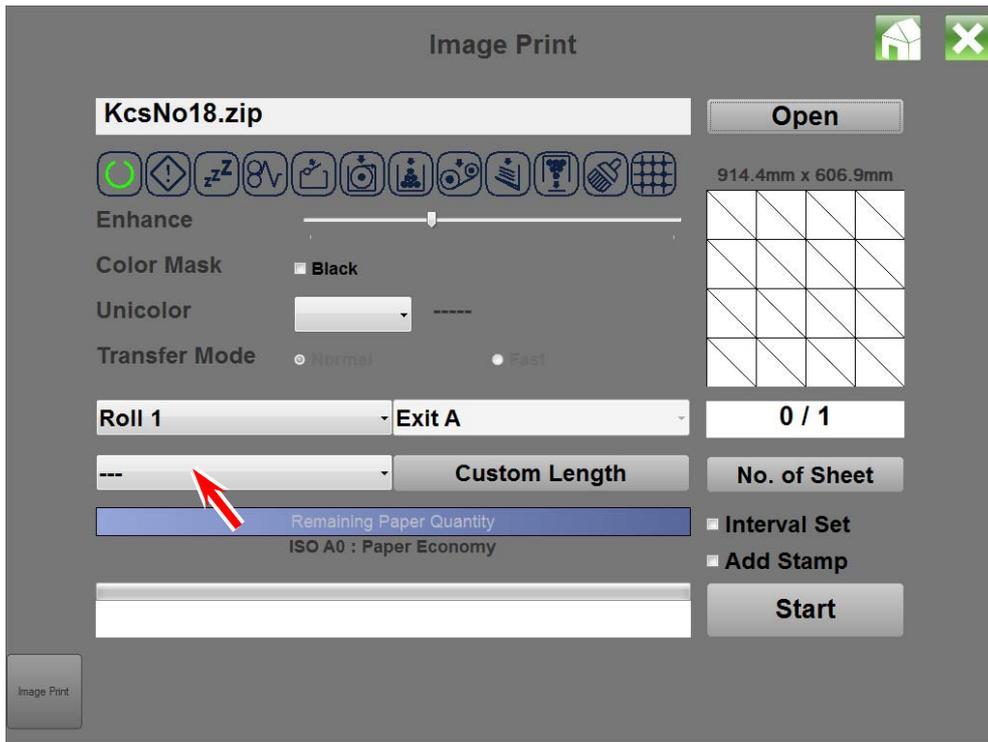


4. Press the drop down menu of media source and select a source of printing media used for test printing. Selectable items are rolls 1 to 3 and Bypass.

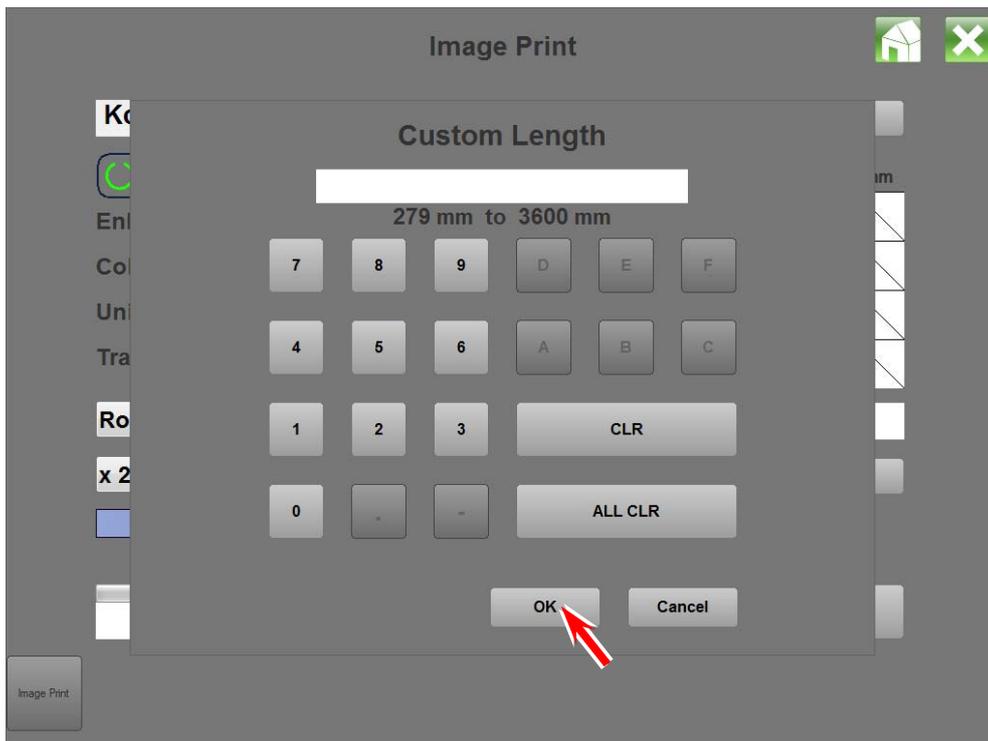
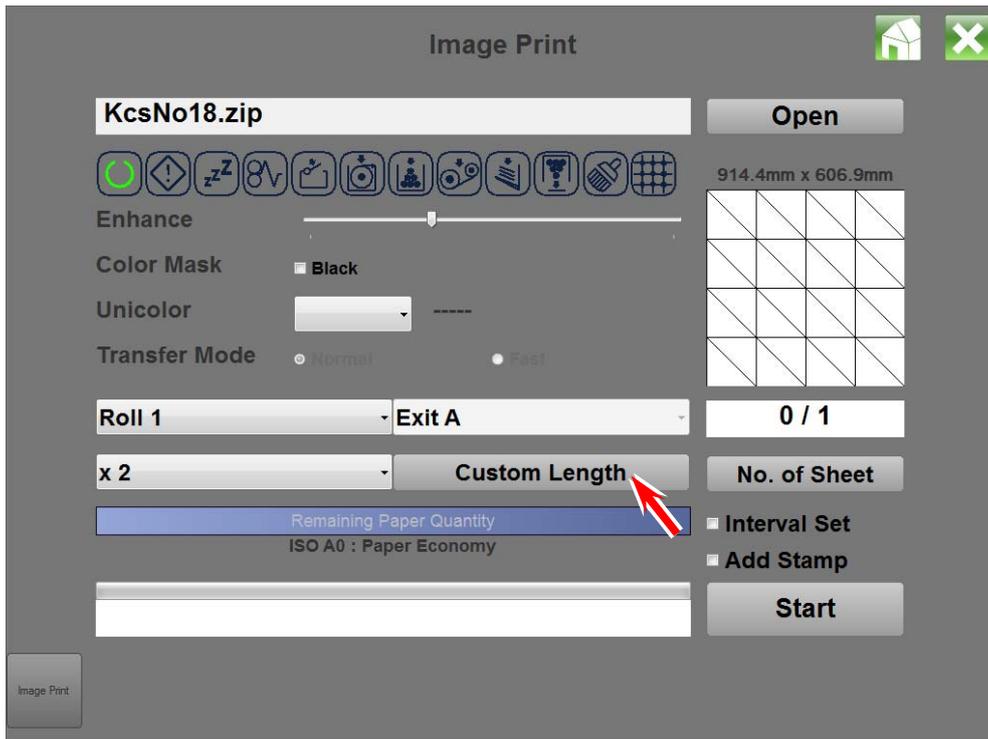


Paper Tray (Option)

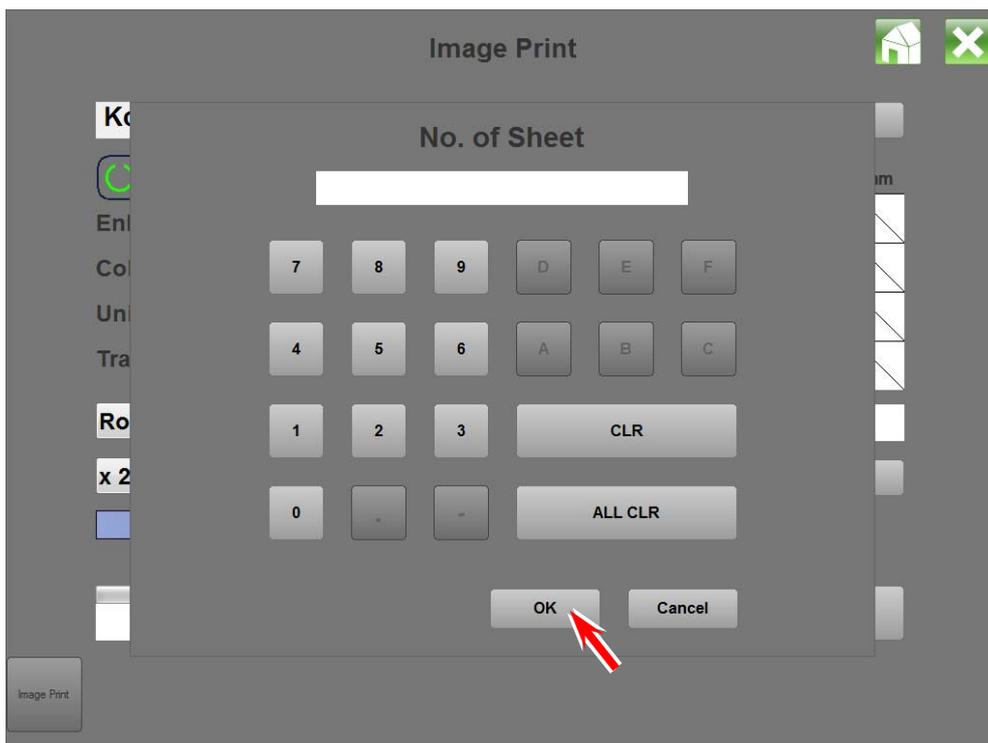
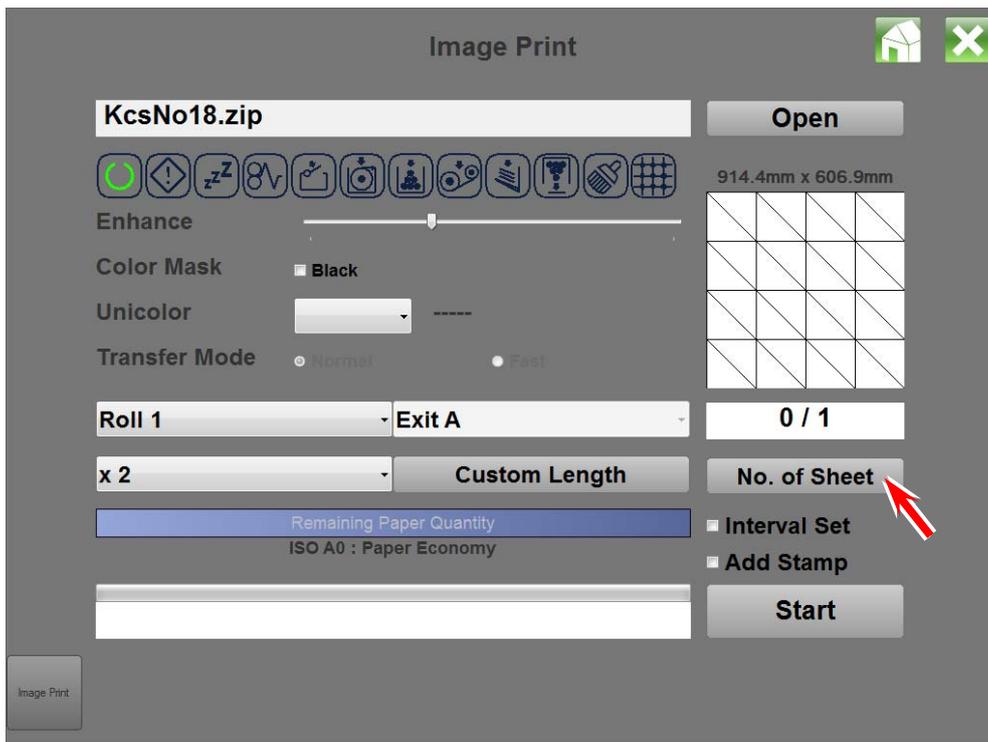
5. If necessary specify “repeat setting” that specifies how many times the selected image is printed on the same sheet of media. If you select [x2] for example, the selected image is printed twice on the same media.



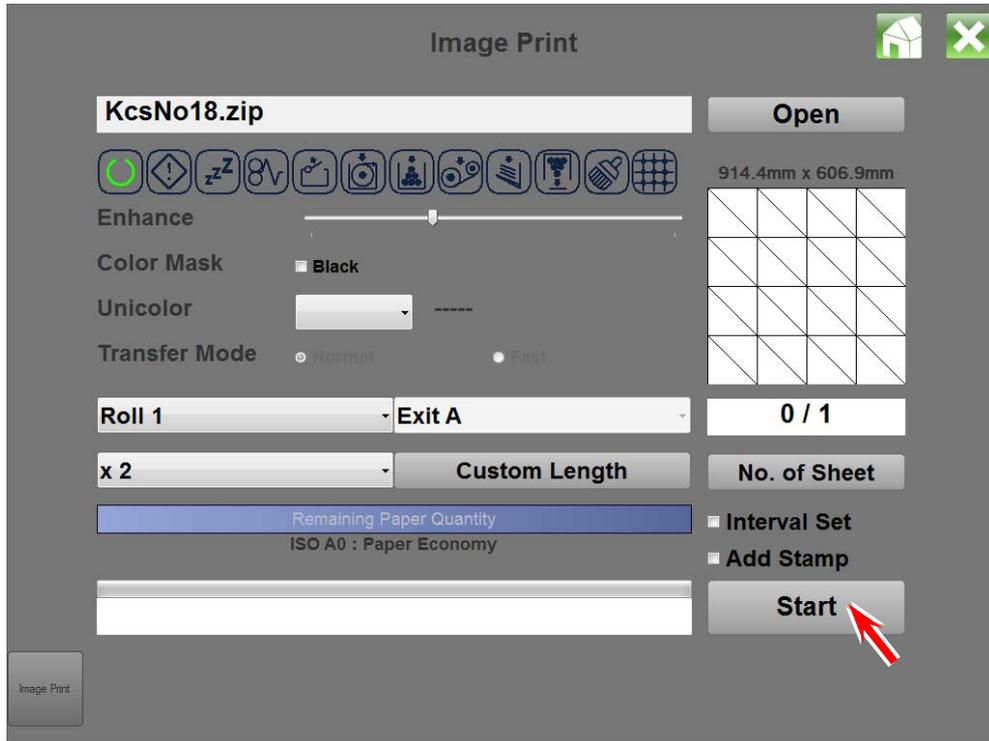
6. If necessary specify the length to cut the print media with Ten Key. Available length is from 279mm to 3600mm by 1mm increment. Press OK after entering the value.



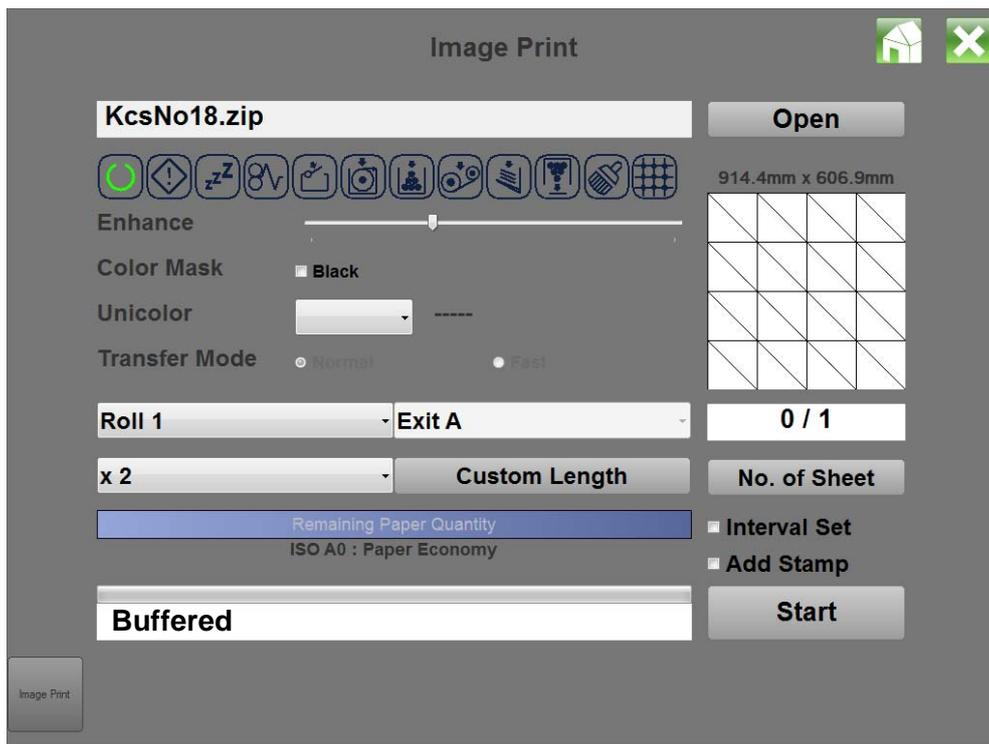
7. Press **No. of Sheet** button to indicate the Ten Key, enter the number of sheets to print, and then press **OK**.



8. Press **Start** to start printing.

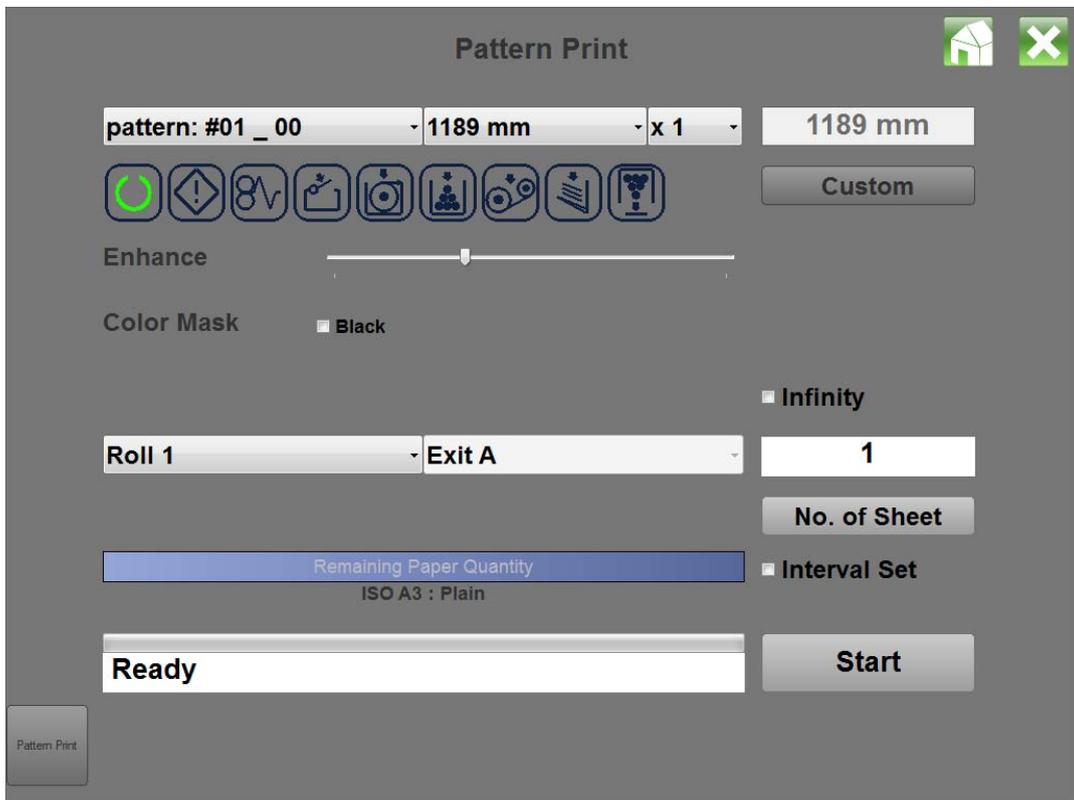
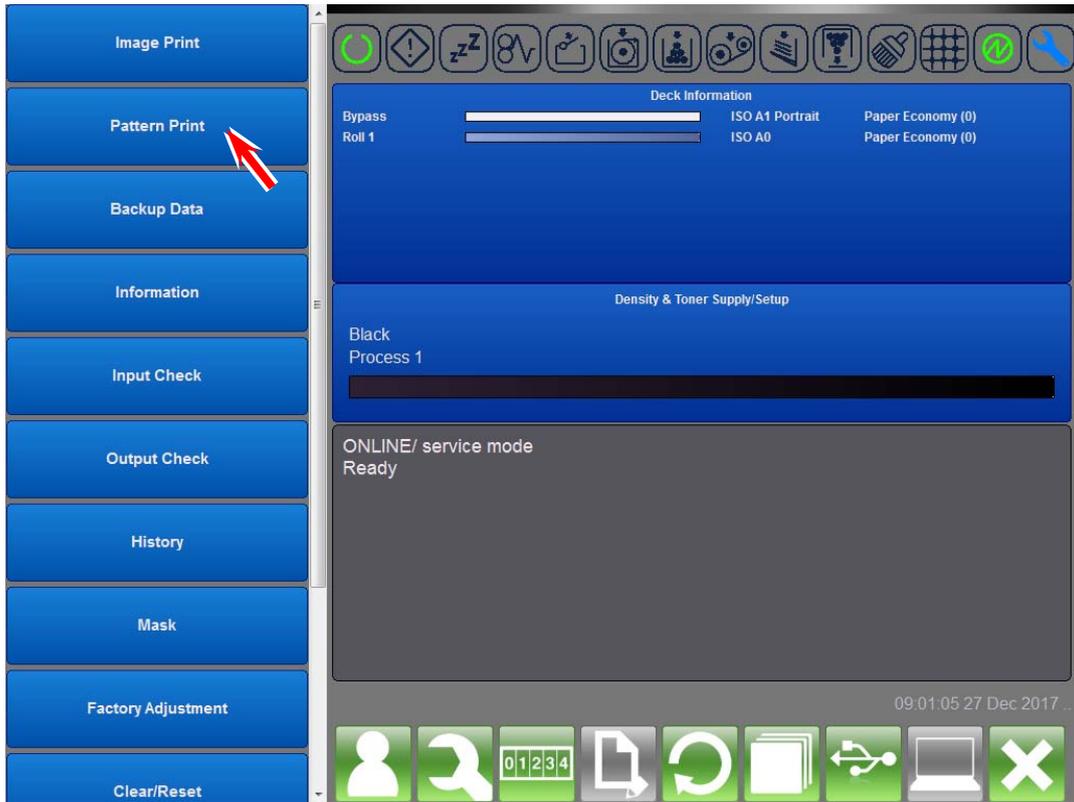


The status indication part on the bottom of the page shows the current status in real time. Press **Stop** to stop printing in the middle



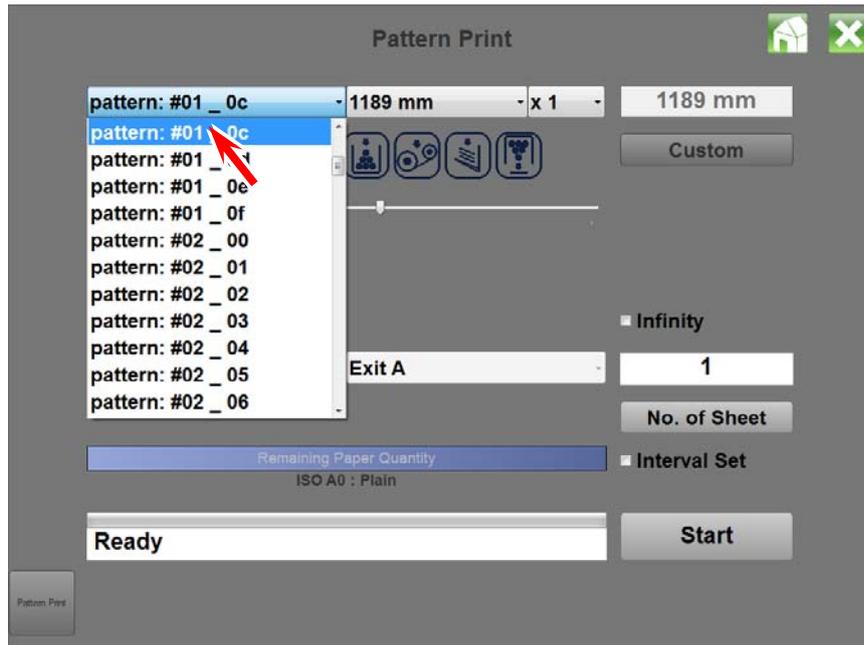
8. 3 Pattern Print

Image Print allows an operator to print some internal test patterns for such purposes as operation check, performance check, troubleshooting and etc.

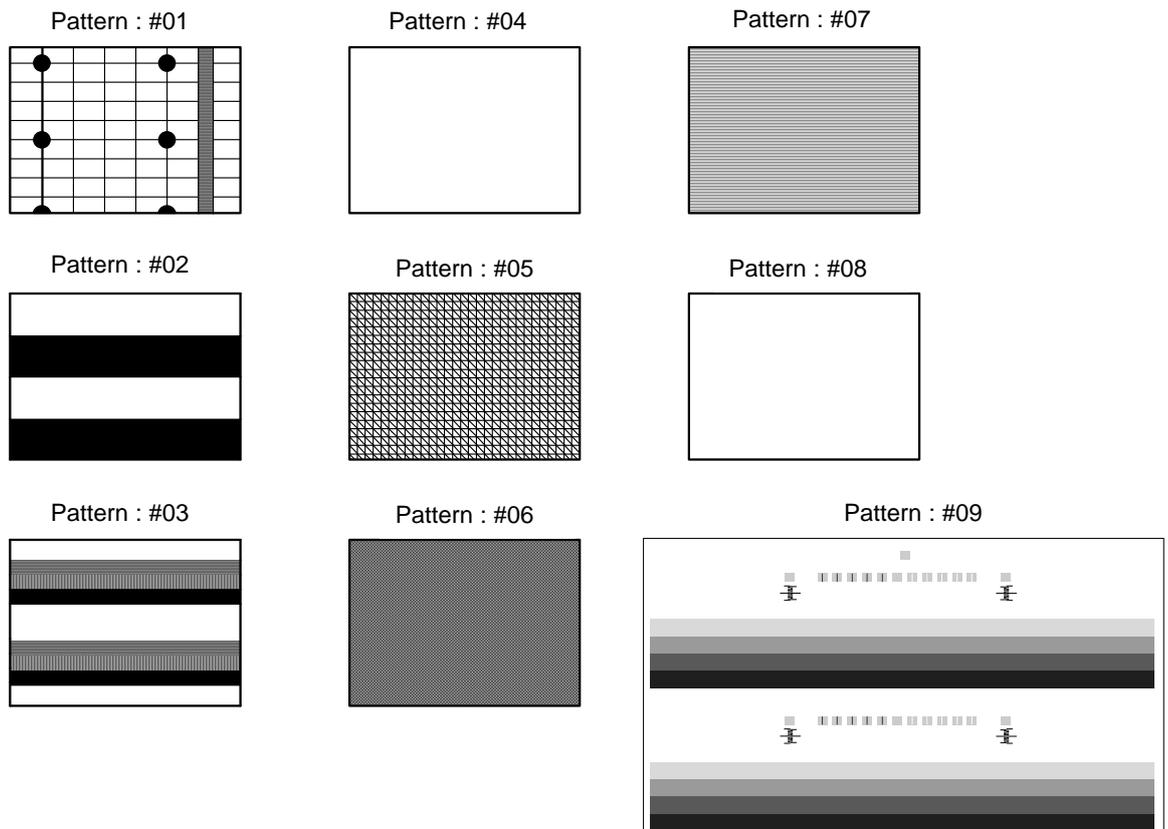


8. 3. 1 Operation procedure of test printing

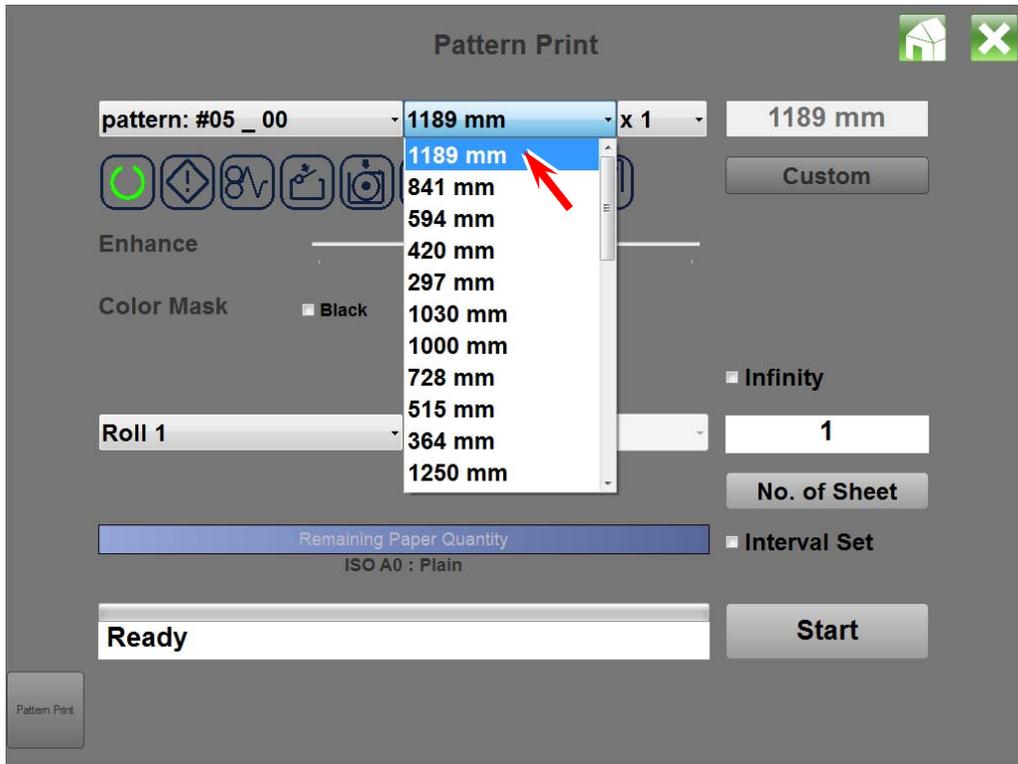
1. Select any pattern in the pull-down menu, which is to be printed out.



The followings are selectable patterns.

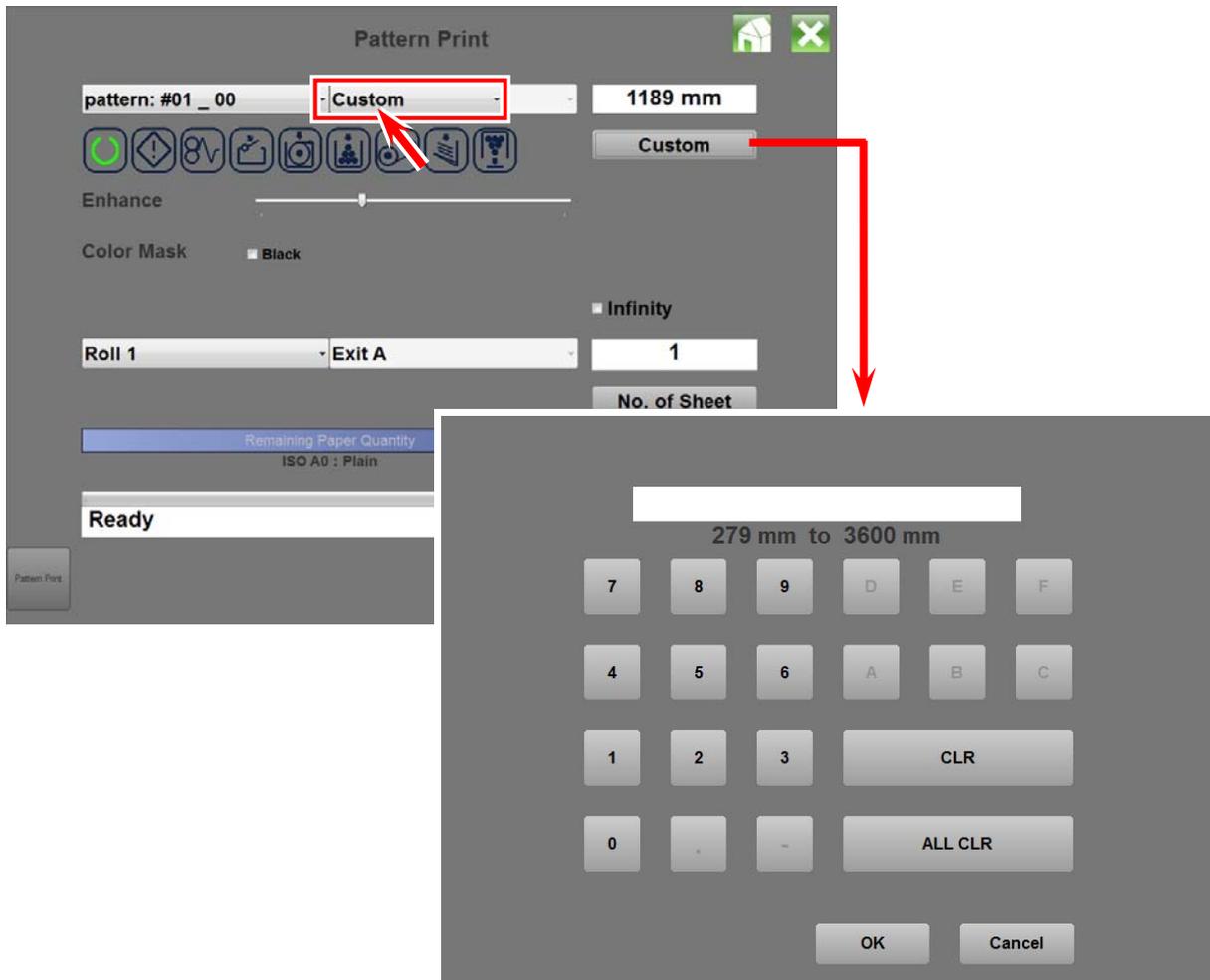


2. Select a print length in the pull-down menu.

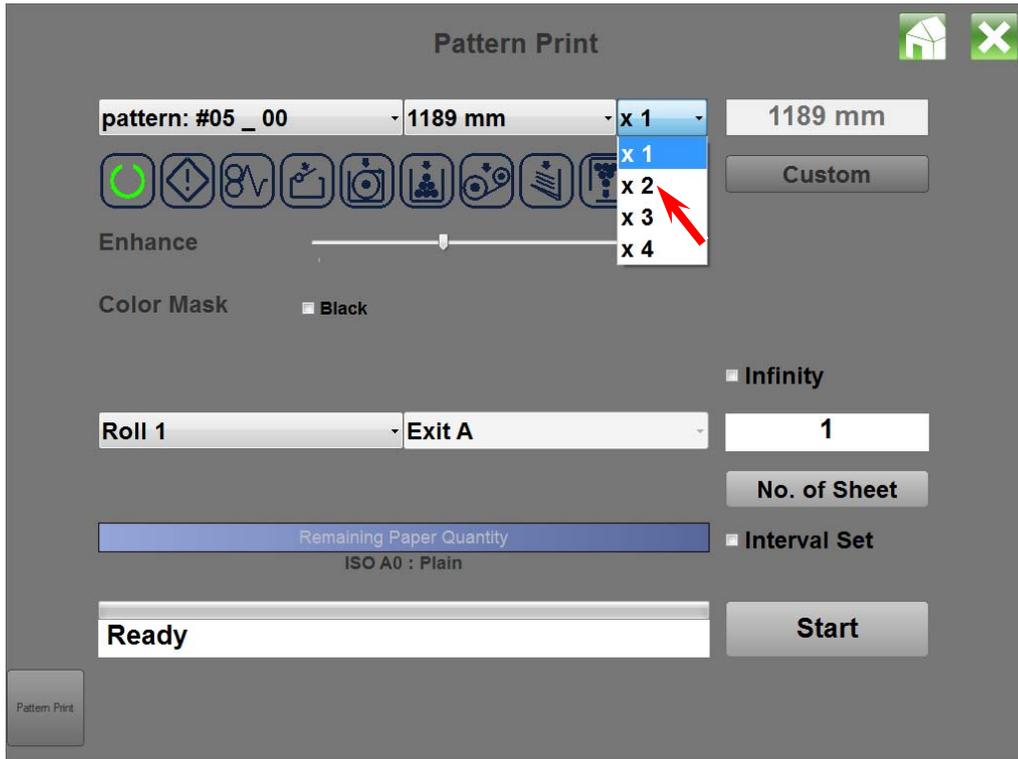


Reference

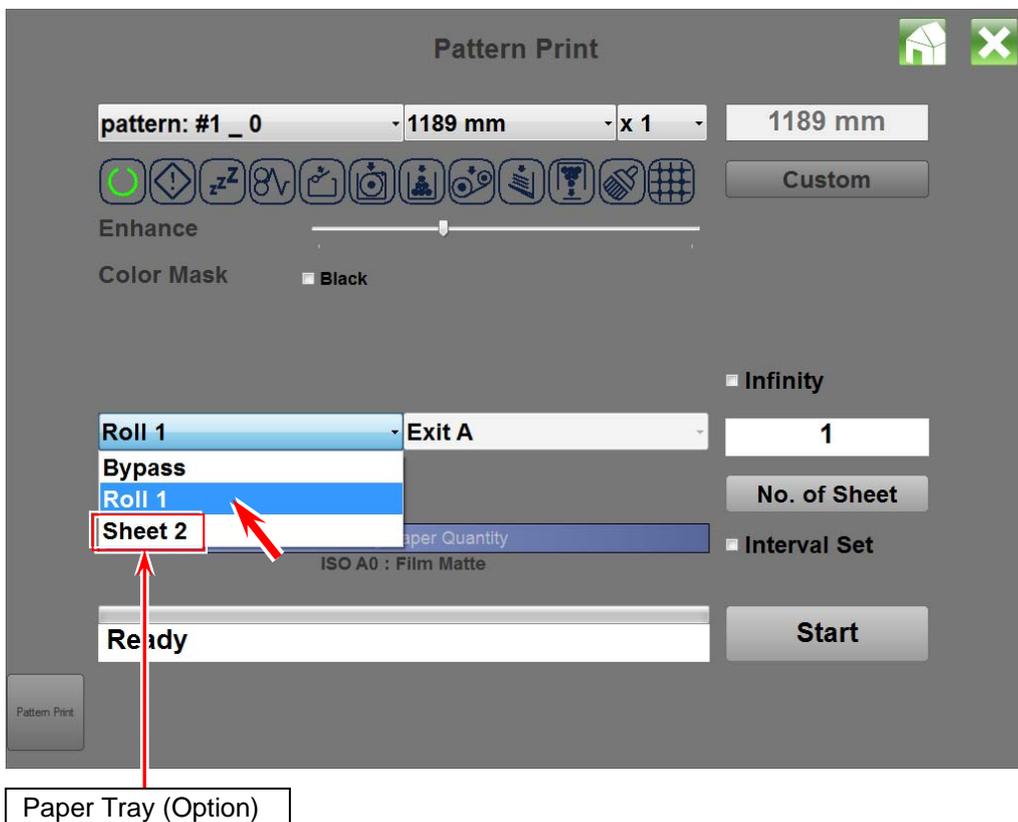
[Custom] button is enabled when the print length is set to "Custom". And pressing [Custom] button will allow for directly inputting any preferable print length. [Custom] button gets enabled only when the print length is set to "Custom".



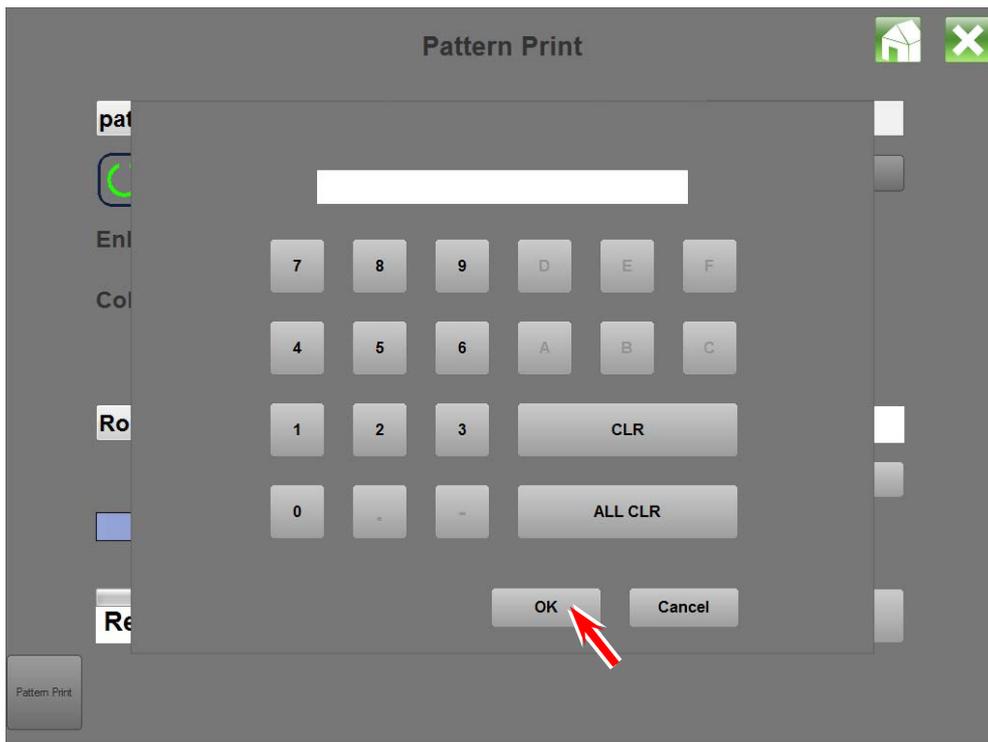
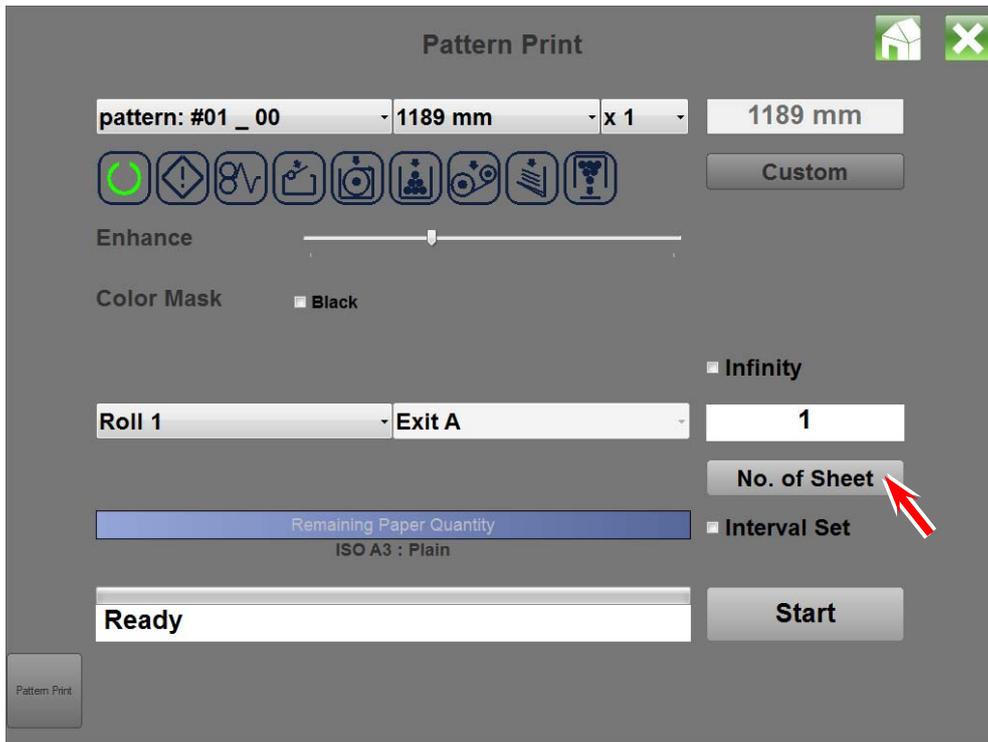
3. If necessary specify “repeat setting” that specifies how many times the selected image is printed on the same sheet of media. If you select [x2] for example, the selected image is printed twice on the same media.



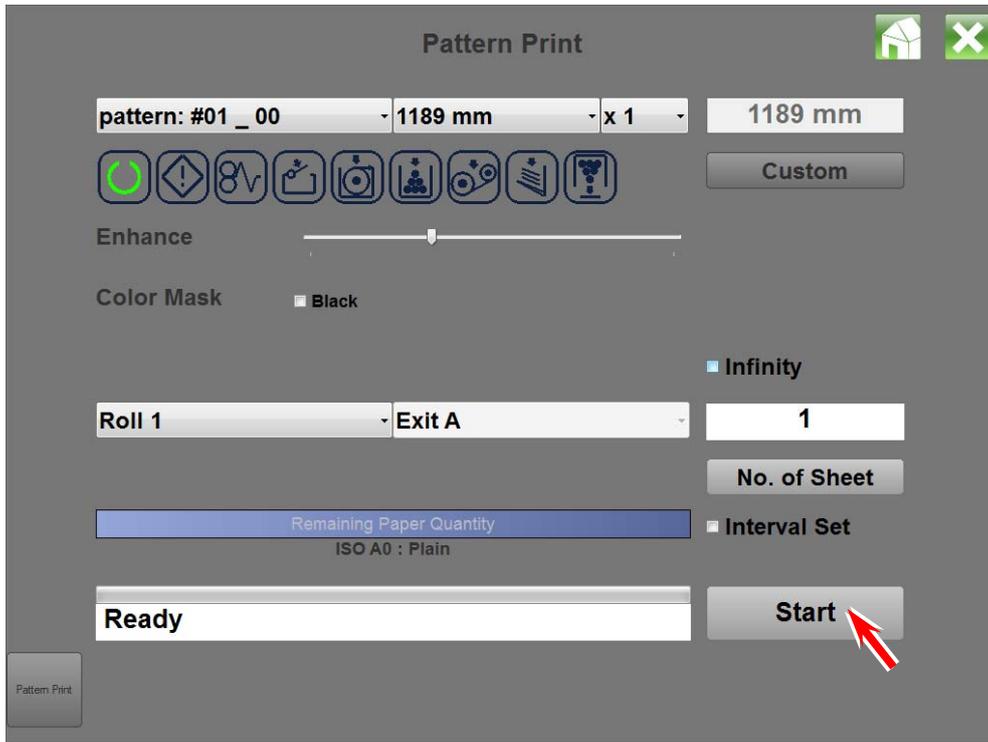
4. Press the drop down menu of media source and select a source of printing media used for test printing.



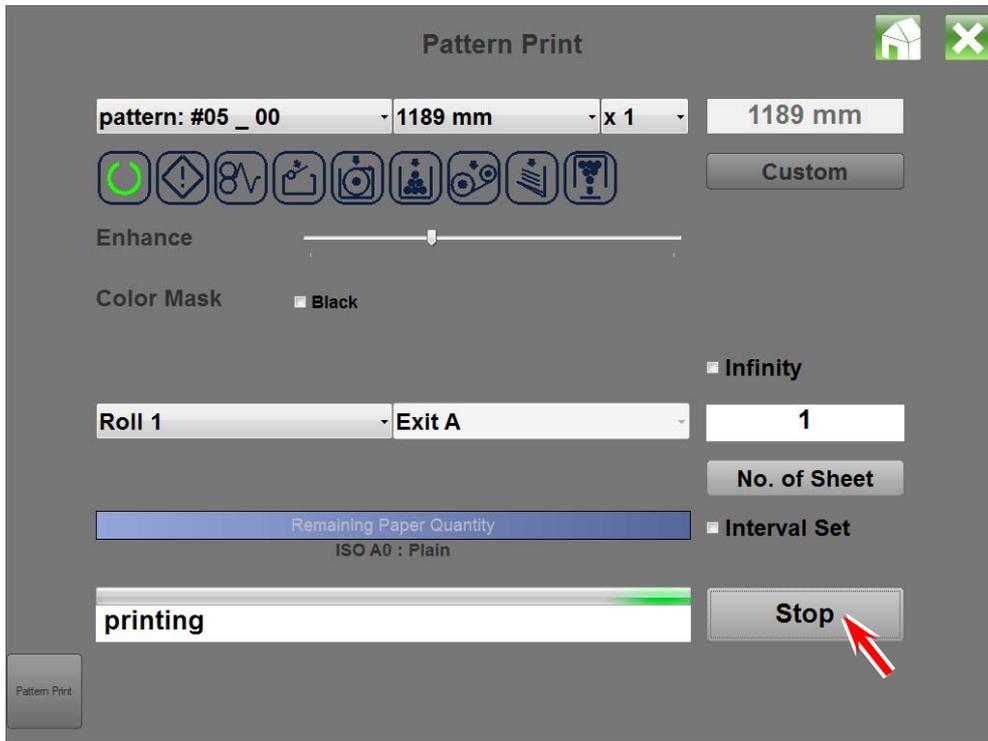
5. Press **No. of Sheet** button to indicate the Ten Key, enter the number of sheets to print, and then press **OK**.



6. Press **Start** to start printing.

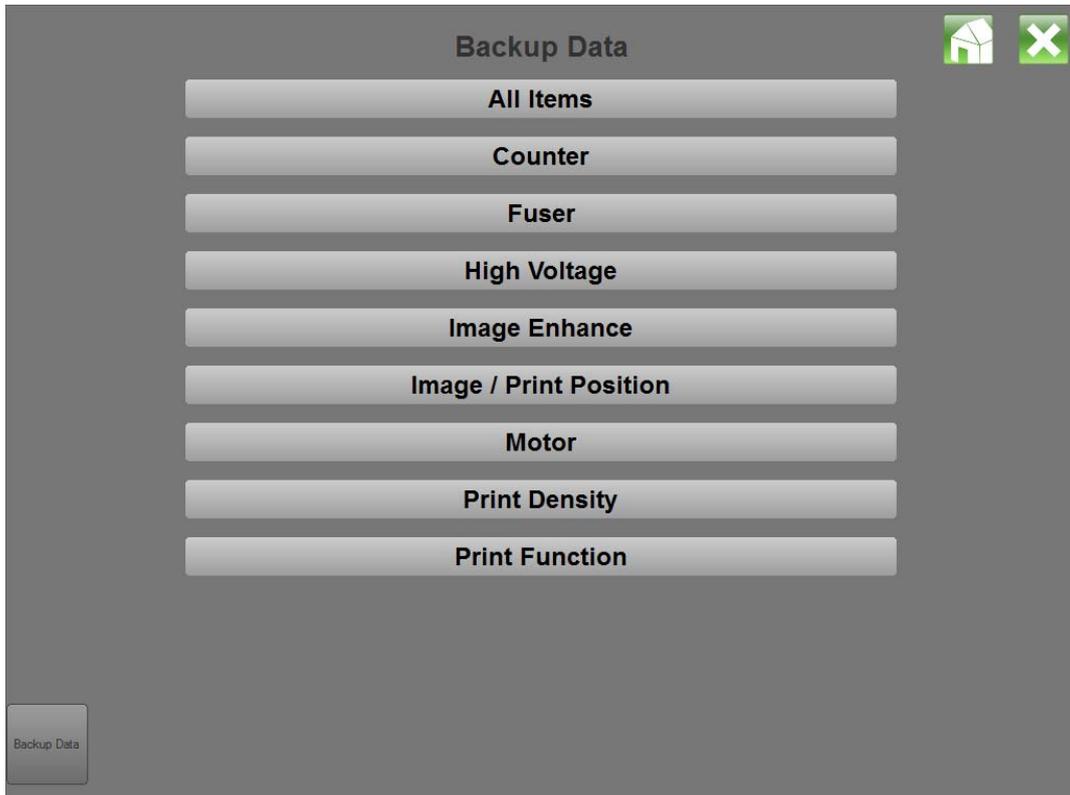
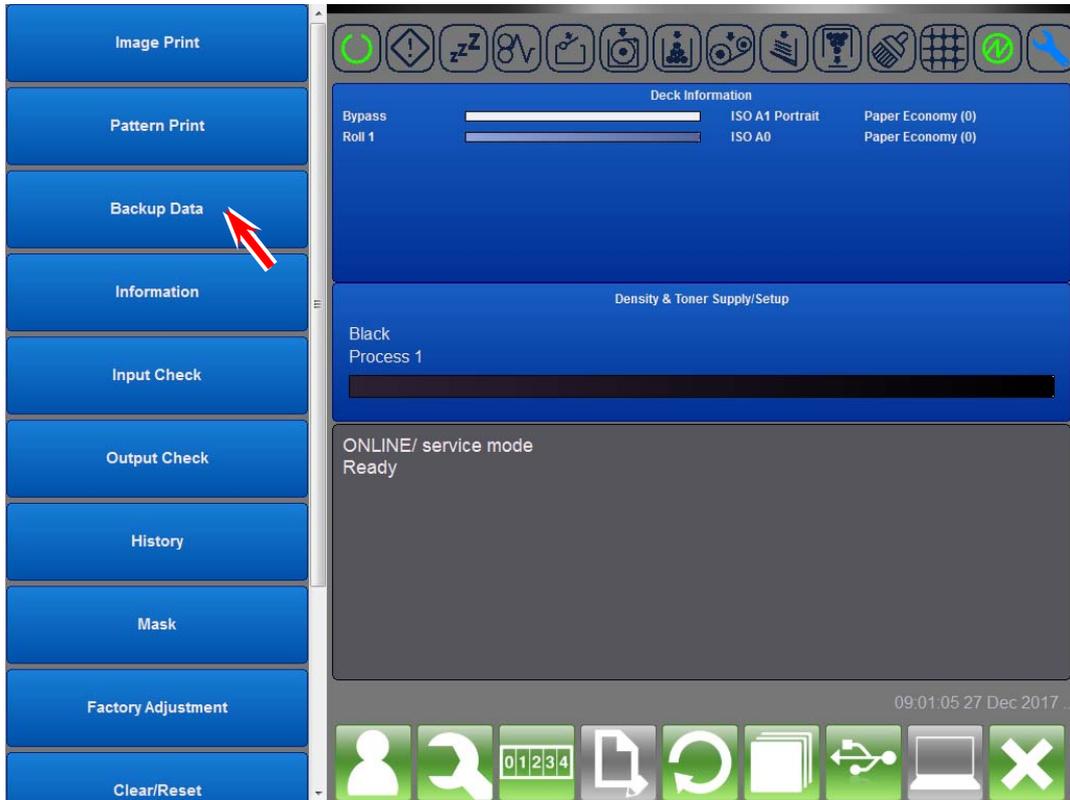


The status indication part on the bottom of the page shows the current status in real time. Press **Stop** to stop printing in the middle



8. 4 Backup Data

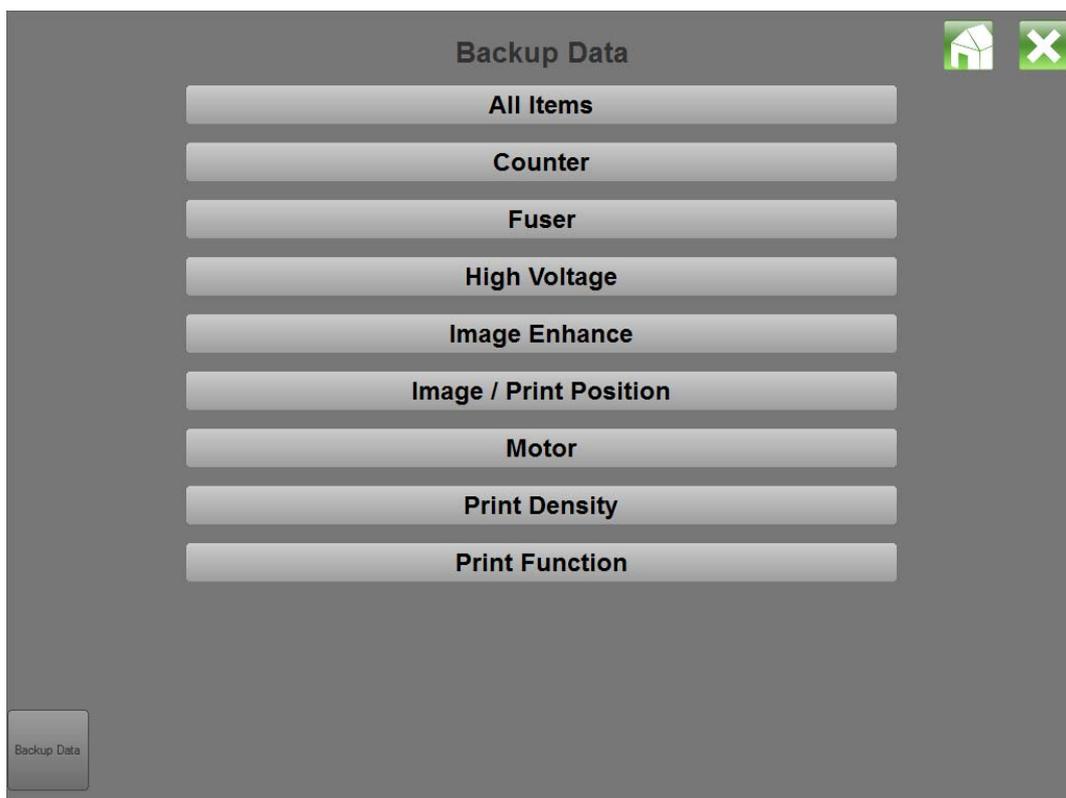
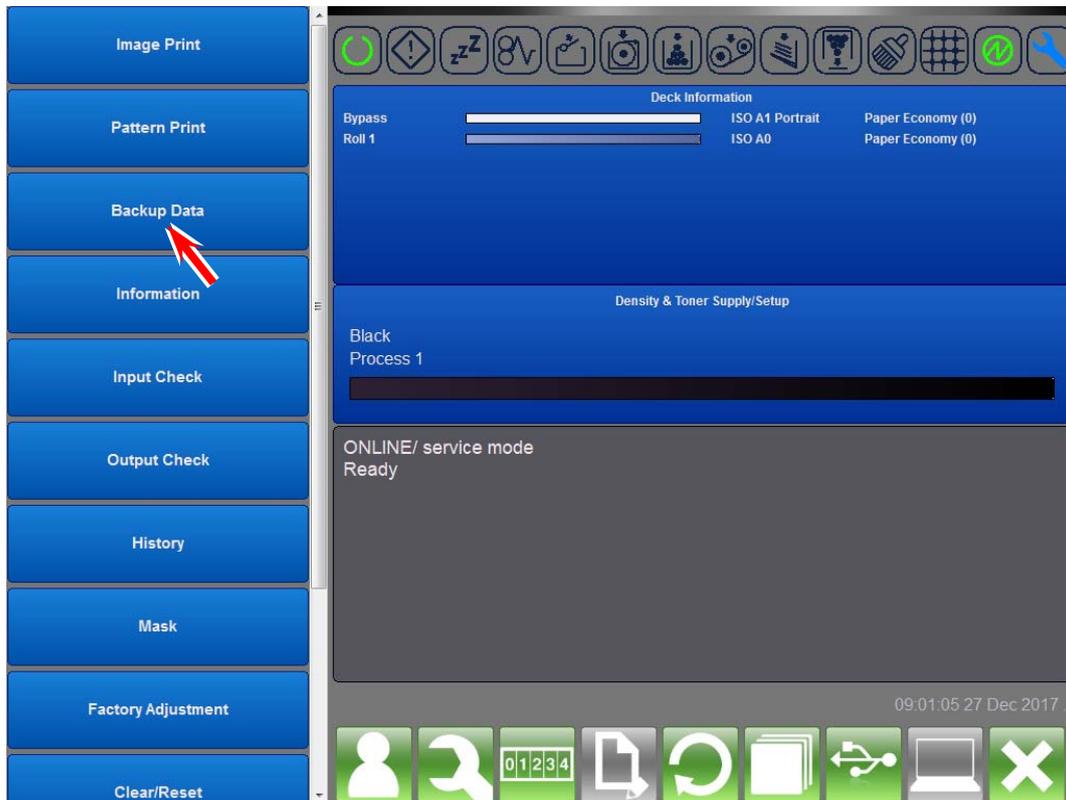
Backup Data allows a service technician to adjust or customize the values of several printer parameters in order to optimize the printer to meet the usage condition or requirement. It also allows for saving (backing up) all parameter values in a zip file as well as loading such file back to the printer.



8. 4. 1 Operations in Backup Data

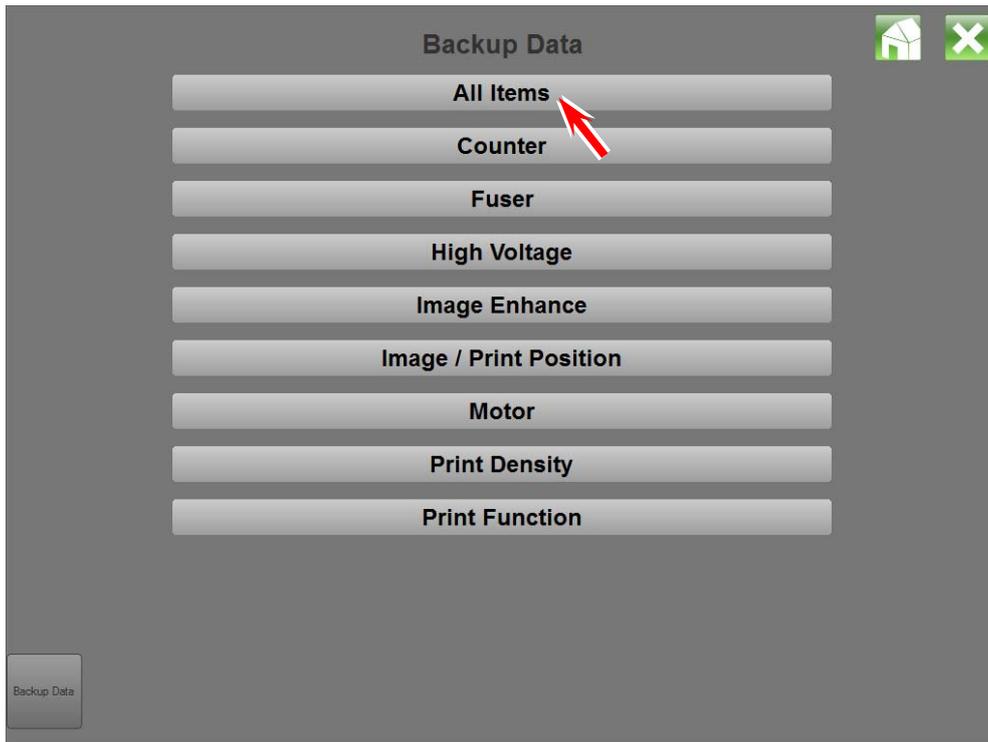
8. 4. 1. 1 Change and save of the setting values

1. Select Backup Data in the HOME of Maintenance GUI.



2. Select a button of required setting group in which your required setting item is categorized. Or if you do not know in which group your required setting is categorized, press **All Items** to access all setting items.

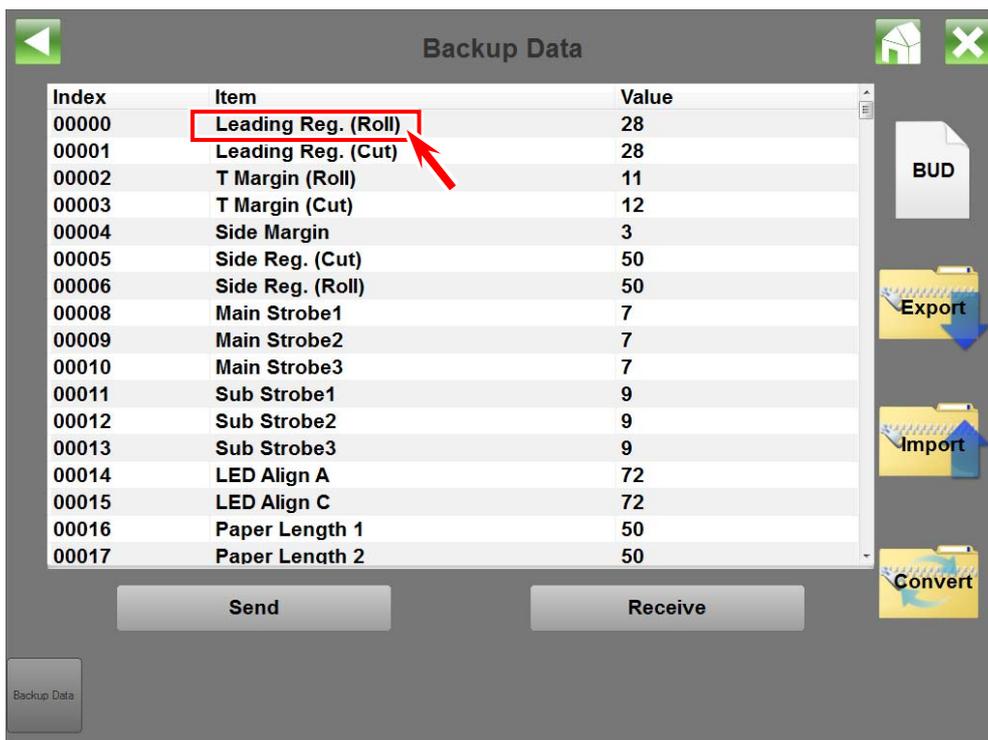
Example: **All Items** is selected.



Reference

Setting items in Backup Data are categorized into some function groups for allowing quicker searching. For example, "Motor" includes all setting items related with the motors, and "High Voltage" does all about high voltage settings.

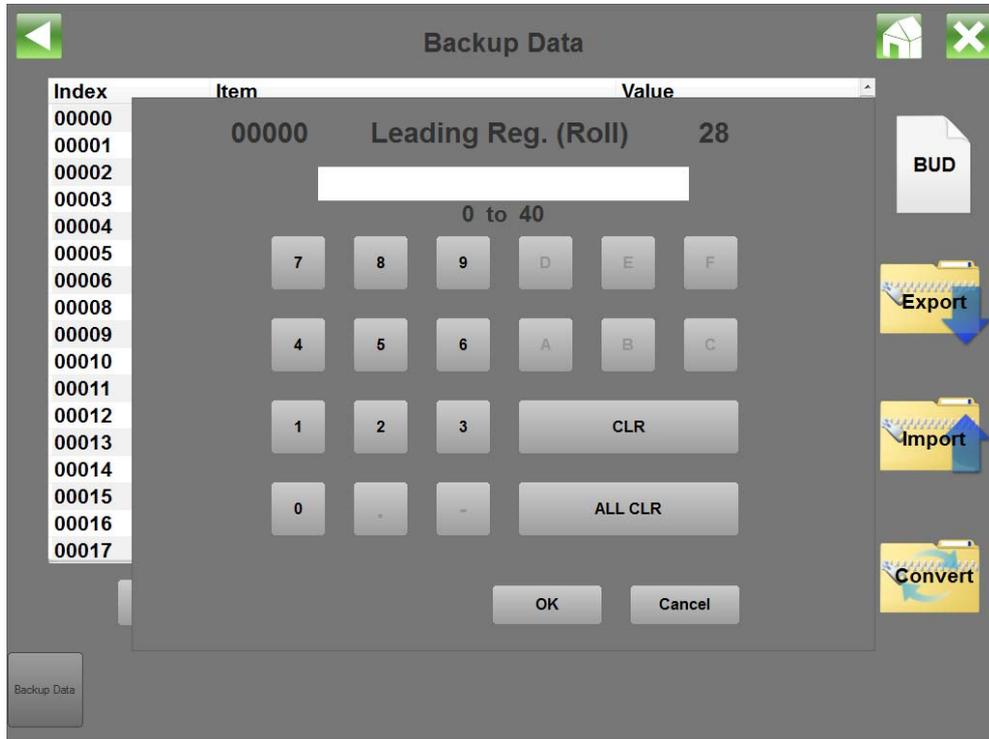
3. Select the item of which setting value you will change. (Example : Leading Reg. (Roll))



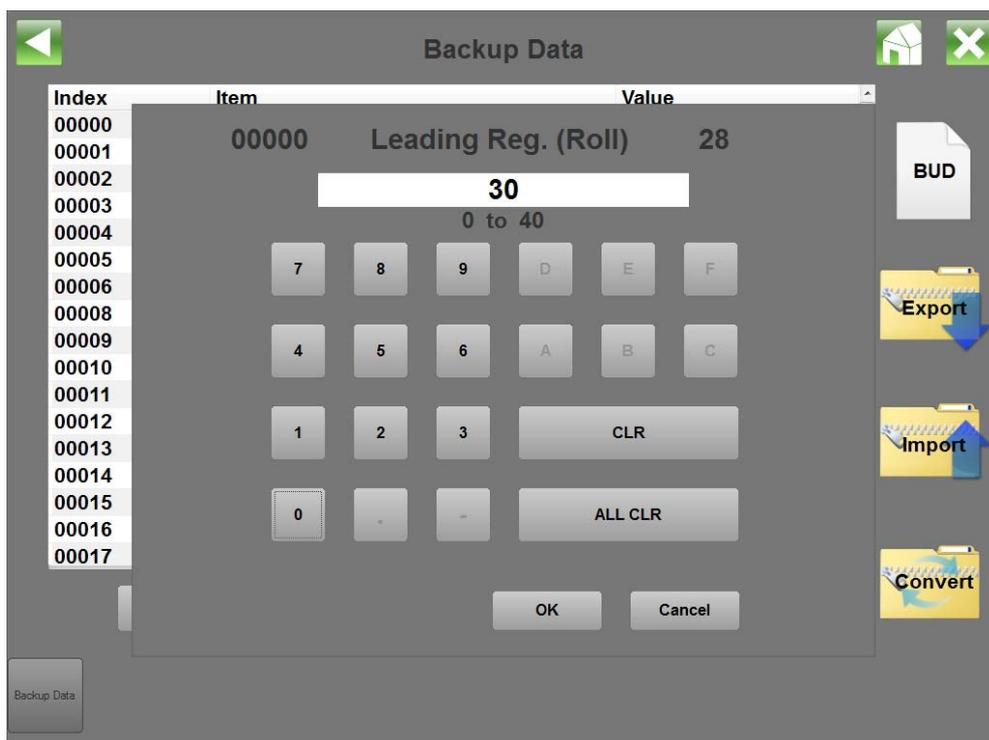
- A Ten Key Pad pops up with showing the selected “item No.” (00000), “item name” (Leading Reg. (Roll)) and “current setting value” (28) on the top line. A white rectangle area under them is the area to enter a new setting value. Enter the new requested value here with Ten Key.

! NOTE

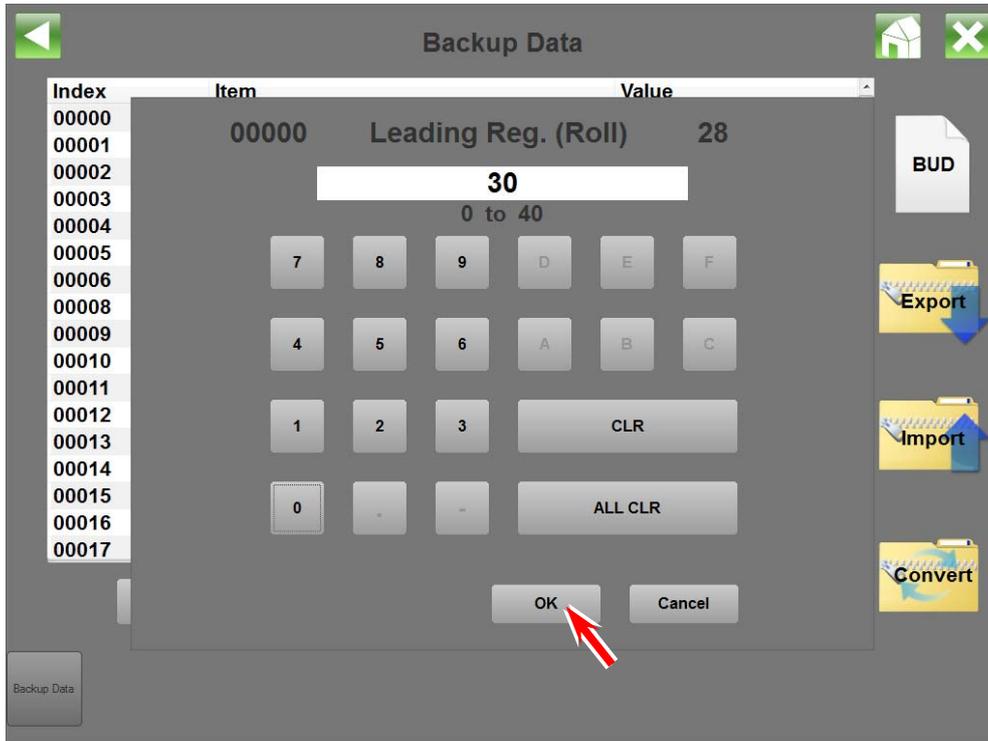
The meaning of the setting value differs item to item. Please see the concerning description page in [8.4.2 Backup Data Items List].



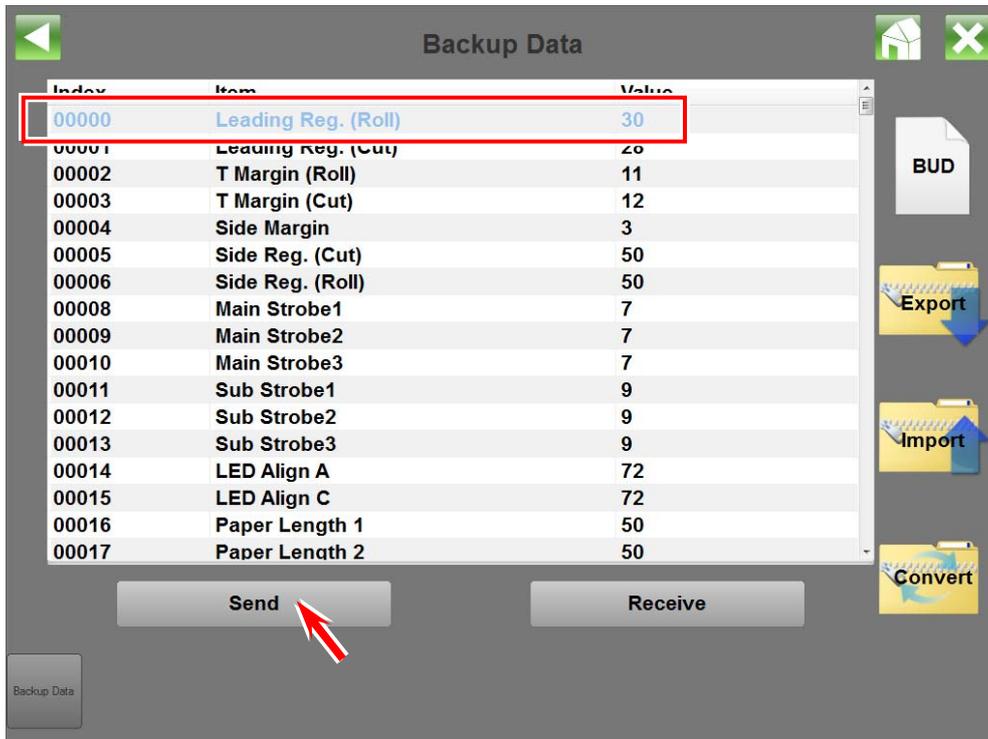
(Example : Change the value from 28 to 30.)



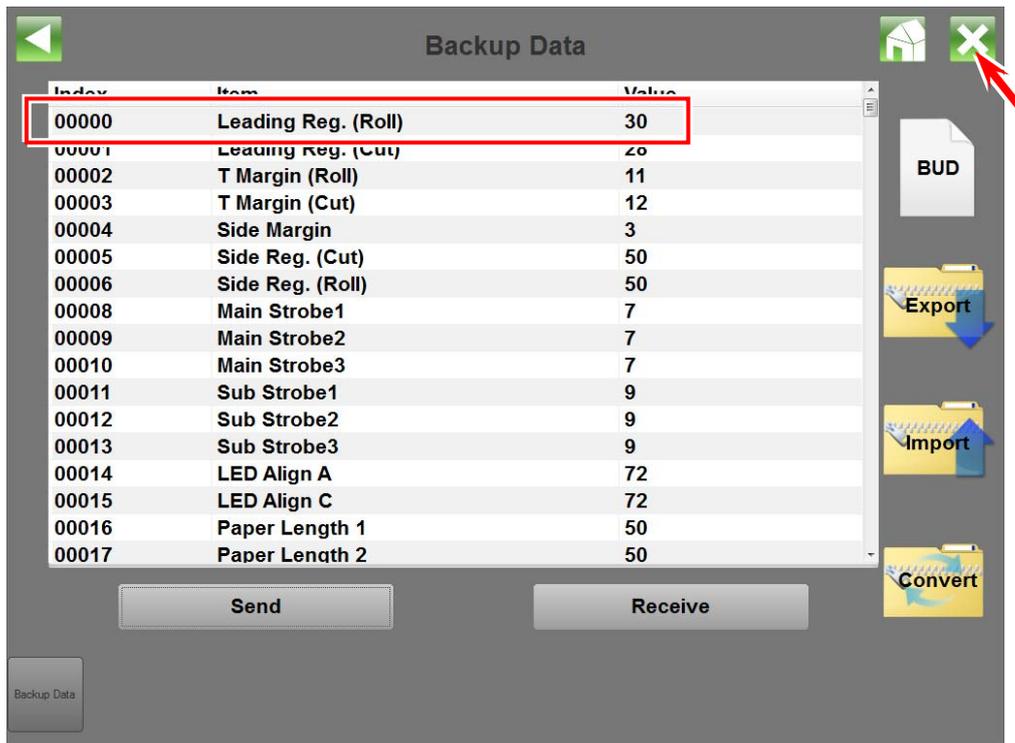
- Press **OK** to close the Ten Key Pad. The new setting value is not yet valid at this moment.



- The item name of which setting value you changed is shown by blue, meaning that the setting value was changed but it is neither saved nor valid. Press **Send**.



7. The blue item is now shown by black, meaning that the new setting value is saved. **But it is still not yet valid.** Close the Backup Data setting screen pressing **X** button on top right.



8. Turn off the printer and turn it on again, which finally validates the new setting value.

8. 4. 1. 2 Saving all parameter values into a zip file for backing up (Export)

It is possible to save important printer settings and information in a zip file for backup purpose. What saved in the zip file are all parameter values (Backup Data values), counter values, error/jam history and etc.

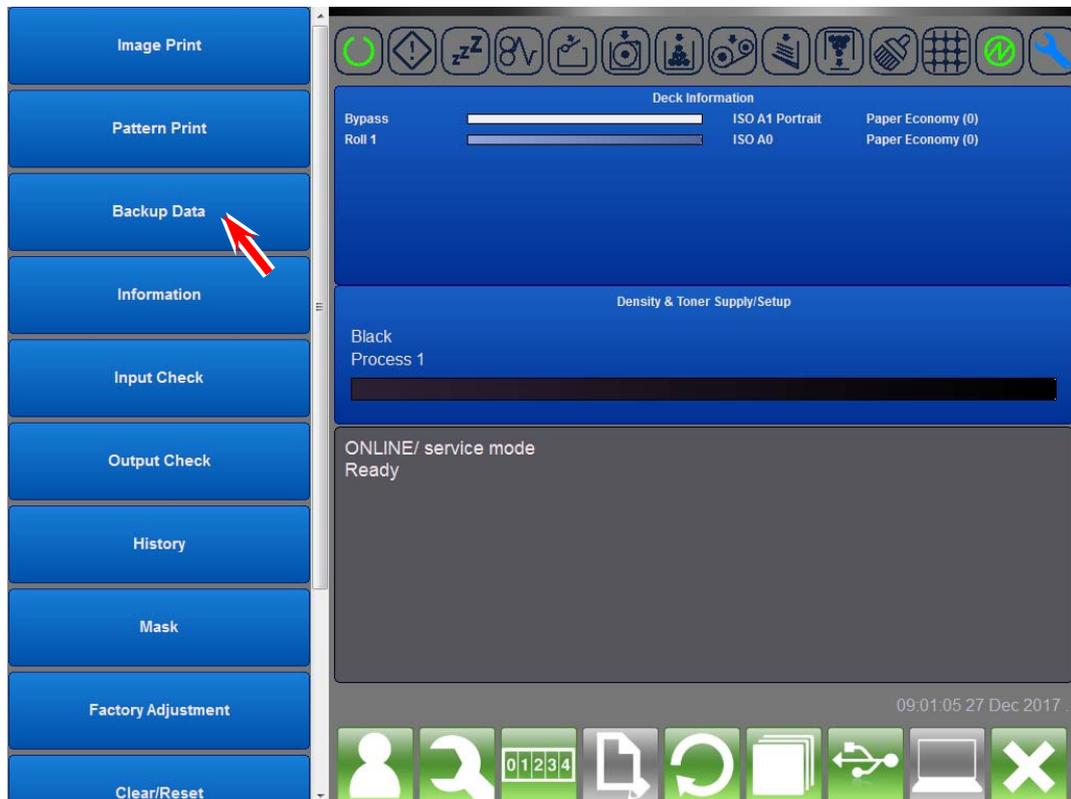
This zip file will be used for recovering all information on the printer by loading back.

Reference

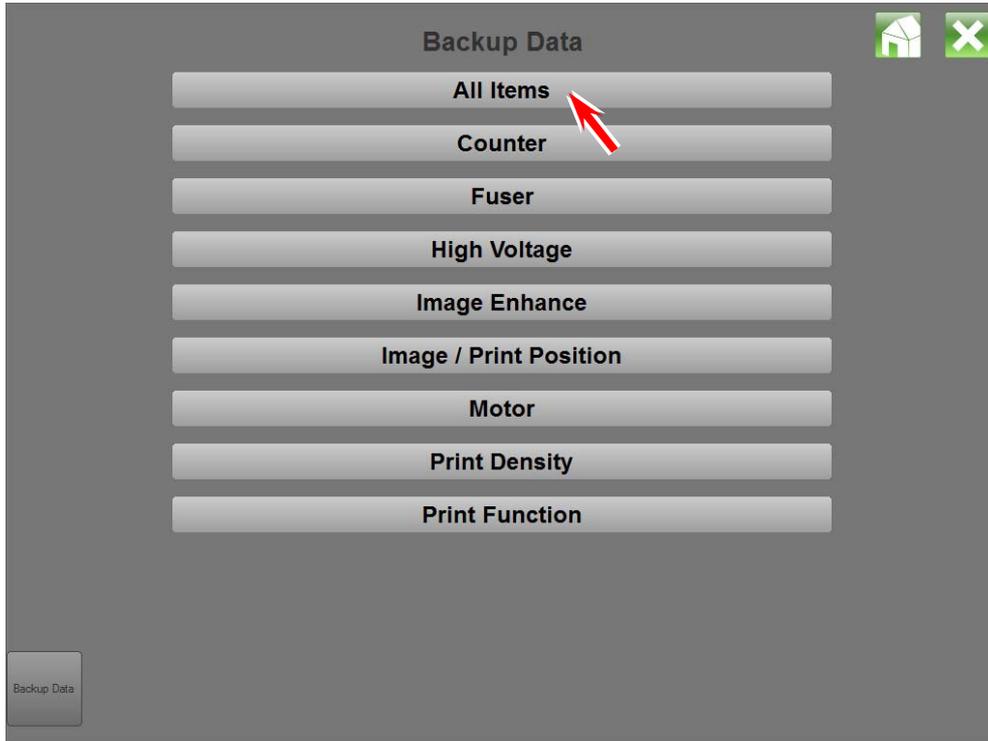
Contents of the zip file are as follows.

- Setting data of Backup Data (.bud)
- List of Backup Data values for viewing (.html)
- List of error/jam history for viewing (.html)
- Internal data (.csv)
- Log of Maintenance GUI (.log)

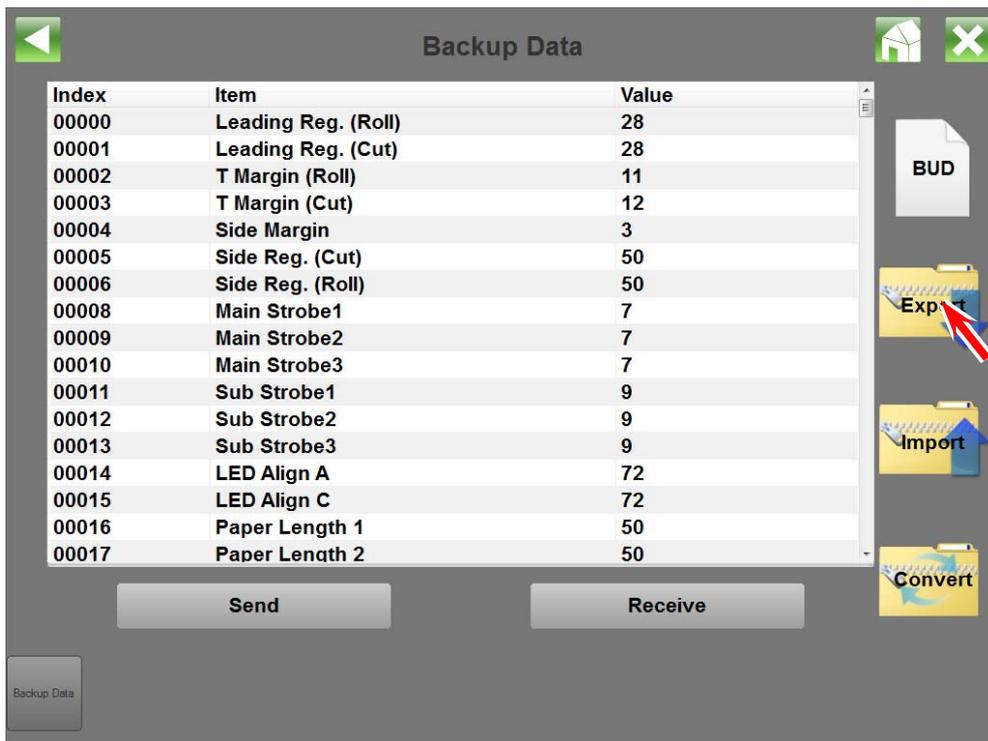
1. Select Backup Data in the HOME of Maintenance GUI.



2. Press **All Items**.



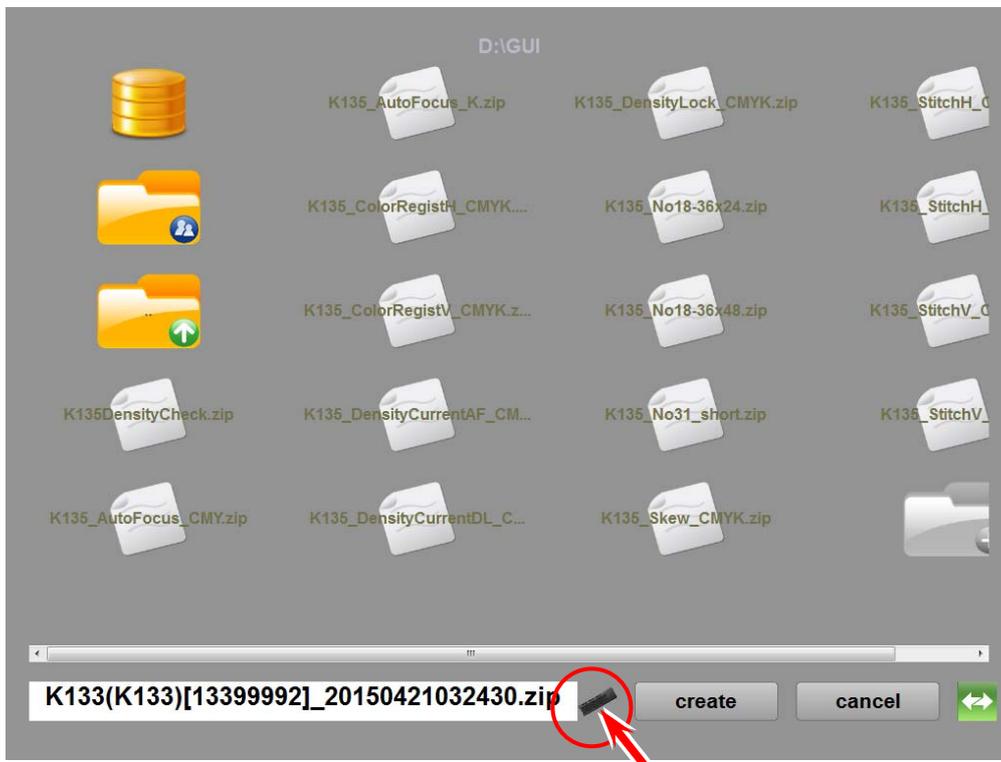
3. Press **Export**.



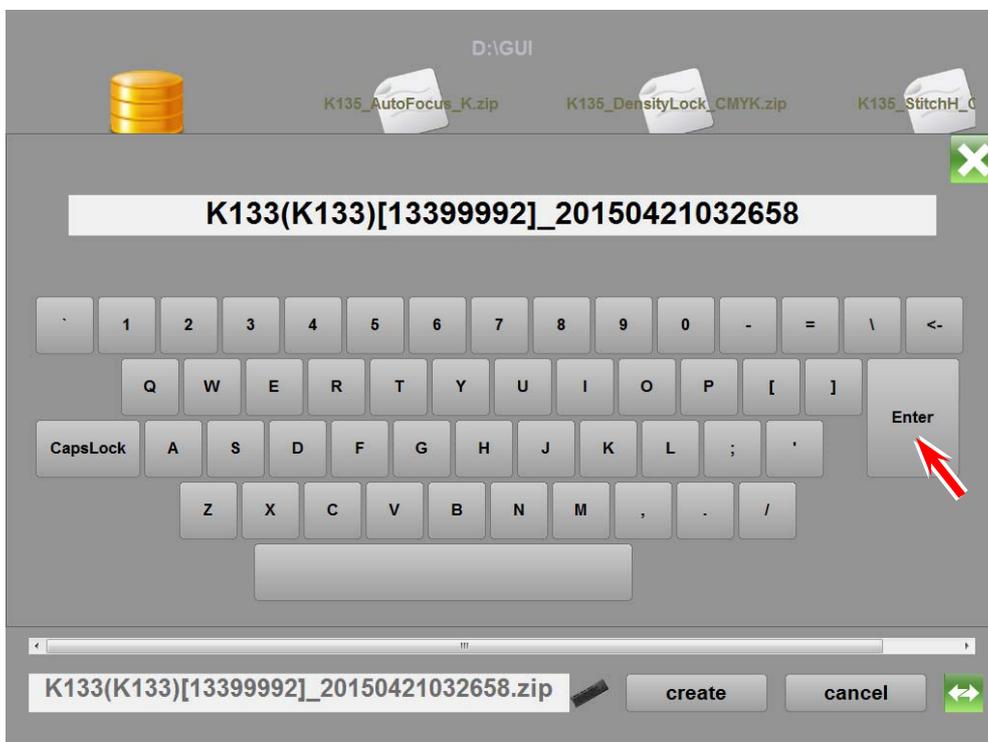
4. It is possible in the next screen to select the save location as well as changing the file name. The file name is automatically given according to the serial number and date and time as;

[K133 (K133) (serial number)_(year)(month)(day)(hour)(minute)(second).zip]

If you will like to change the file name, press the Key Board icon on the bottom to indicate the software keyboard.



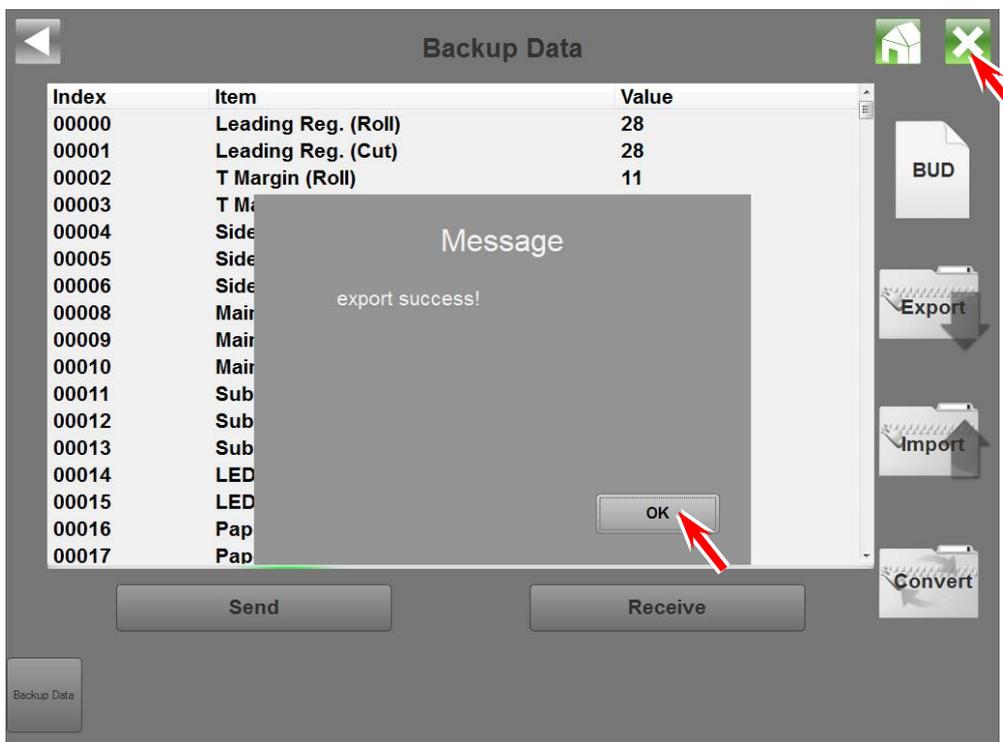
5. Enter your preferable name in the software keyboard and then press **Enter**.



6. Press **create** to save.



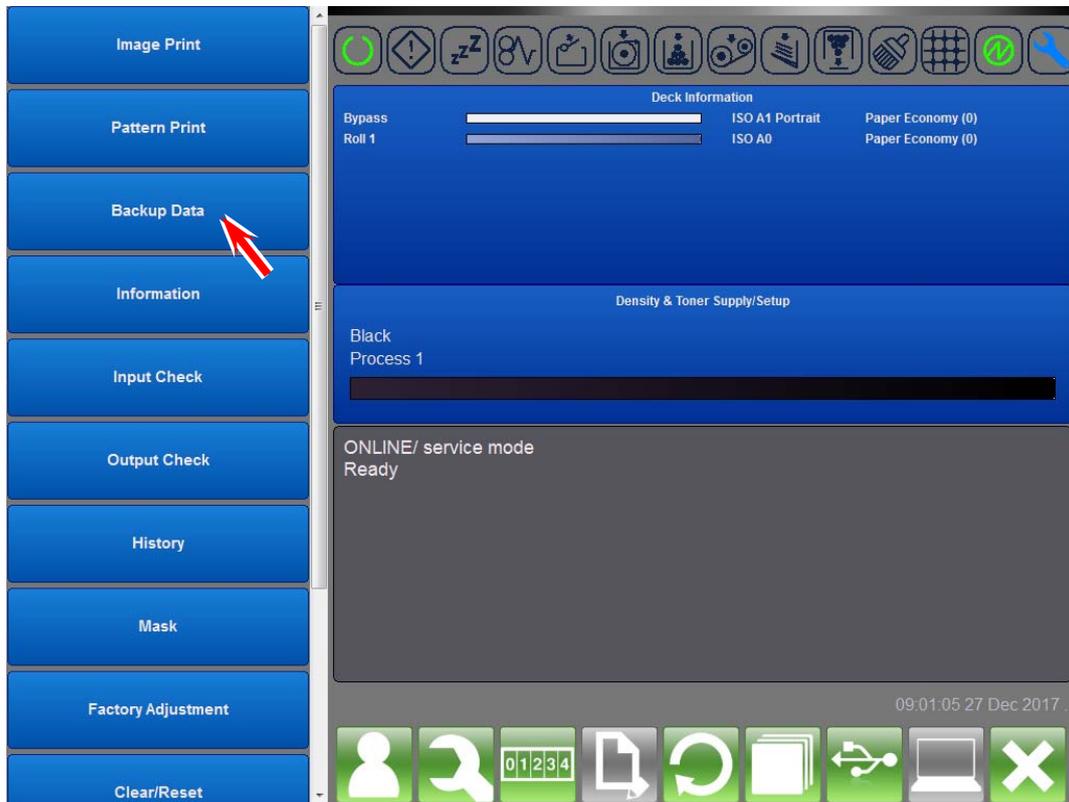
7. A dialog box notifies the completion of file saving. Press **OK** in the dialog box and then **X** on upper right.



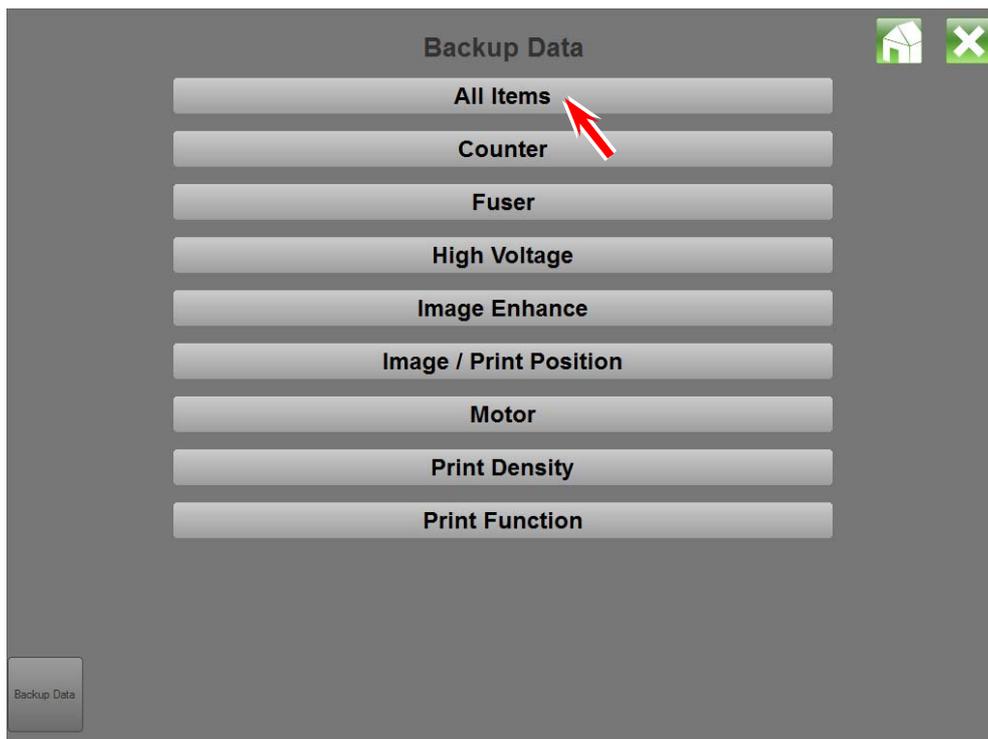
8. 4. 1. 3 Loading the backed up zip file to printer (Import)

It is possible to load the backed up zip file to the printer and applies all the contents such as printer parameter values and etc.

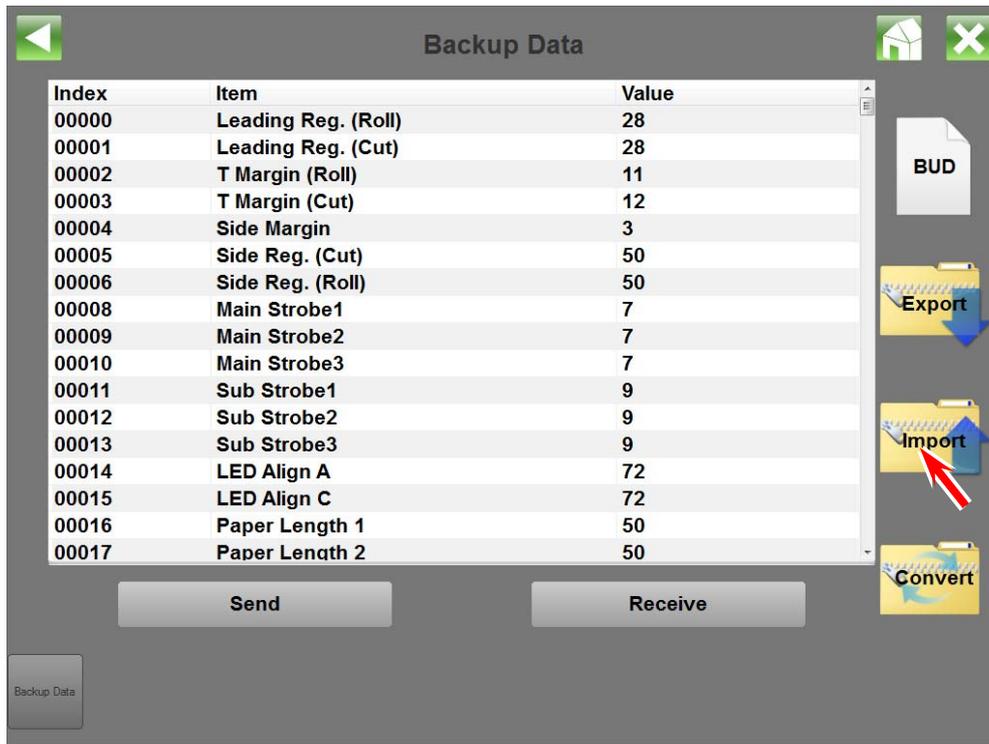
1. Select Backup Data in the HOME of Maintenance GUI.



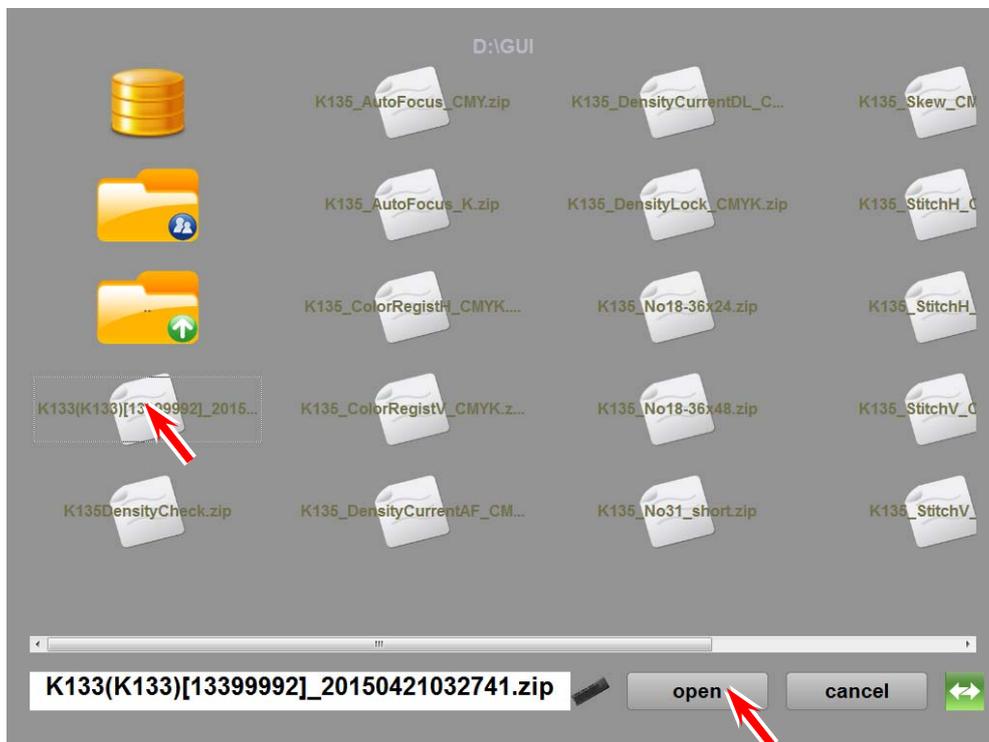
2. Press **All Items**.



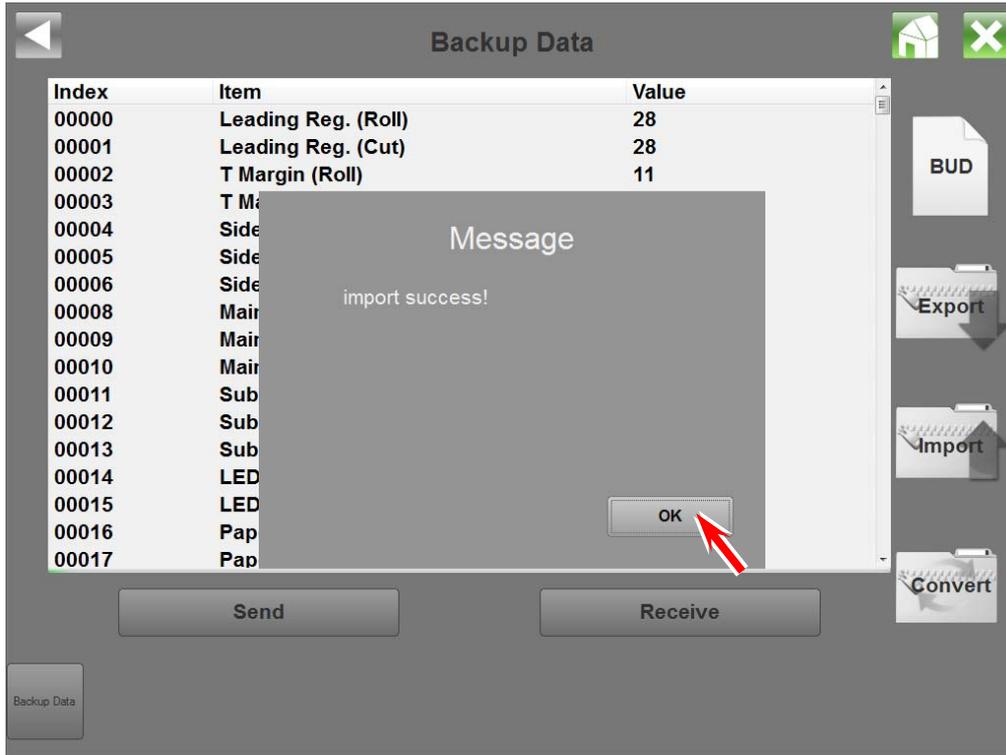
3. Press **Import**.



4. A file selection page is indicated. Select the requested zip file and then press **open**. This will load all the saved contents in the zip file and change the concerning items on printer just as saved.



5. A dialog box notifies the completion of loading. However, all loaded items such as Backup Data values have not yet been validated. Press OK to close the dialog box and then X button on upper-right.



6. Turn off the printer and turn it on again, which finally validates all the loaded items.

8. 4. 2 Backup Data Items List

Default Values may differ by individual machine. See the backup ini file or the service sheet attached inside the machine. All items grayed are not generally for field technician use

Item No.	Setting Item	Unit	setting range	Default (sample)	
				US	EU/Asia
00000	Leading Registration (Roll paper)	1mm	0 to 40	28	28
00001	Leading Registration (Cut sheet paper)	1mm	0 to 40	28	28
00002	Trailing Margin (Roll paper)	1mm	0 to 40	13	11
00003	Trailing Margin (Cut sheet paper)	1mm	0 to 40	12	12
00004	Side Margin (Left and right)	1mm	0 to 20	3	3
00005	Side Registration (Cut sheet paper)	0.1mm	0 to 100	50	50
00006	Side Registration (Roll paper)	0.1mm	0 to 100	50	50
00007	Reserved				
00008	LED Strobe Time for Main Pixel (Block A)	1 microsecond	0 to 10	7	7
00009	LED Strobe Time for Main Pixel (Block B)	1 microsecond	0 to 10	7	7
00010	LED Strobe Time for Main Pixel (Block C)	1 microsecond	0 to 10	7	7
00011	LED Strobe Time for IST (Supplemental Pixel) (Block A)	1 microsecond	0 to 18	9	9
00012	LED Strobe Time for IST (Supplemental Pixel) (Block B)	1 microsecond	0 to 18	9	9
00013	LED Strobe Time for IST (Supplemental Pixel) (Block C)	1 microsecond	0 to 18	9	9
00014	Vertical Alignment of LED Block A/B	0.5pixel	0 to 144	72	72
00015	Vertical Alignment of LED Block B/C	0.5pixel	0 to 144	72	72
00016	Cut Length 1 (length information provided)	1mm	0 to 100	50	50
00017	Cut Length 2 (length information not provided)	1mm	0 to 100	50	50
00018	Cut Length 3 (Compensation of the length of a long print)	0.1mm	1 to 999	440	440
00019	Leading Margin	0.1mm	0 to 50	30	30
00020	Reserved				
00021	Reserved				
00022	Developer Bias (Plain Paper)	(Hex.)	000 to 3FF	11B	11B
00023	Developer Bias (Tracing Paper)	(Hex.)	000 to 3FF	11B	11B
00024	Developer Bias (Film)	(Hex.)	000 to 3FF	11B	11B
00025	Developer Bias (Special Media/Plain Paper)	(Hex.)	000 to 3FF	11B	11B
00026	Developer Bias (Special Media/Tracing Paper)	(Hex.)	000 to 3FF	11B	11B
00027	Developer Bias (Special Media/Film)	(Hex.)	000 to 3FF	11B	11B
00028	Developer Bias compensation - 1st Drum revolution	-	0 to 204	0	0
00029	Transfer Voltage (Plain Paper)	(Hex.)	000 to 3FF	209	209
00030	Transfer Voltage (Tracing Paper)	(Hex.)	000 to 3FF	209	209
00031	Transfer Voltage (Film)	(Hex.)	000 to 3FF	209	209
00032	Transfer Voltage (Special Media/Plain Paper)	(Hex.)	000 to 3FF	20F	20F
00033	Transfer Voltage (Special Media/Tracing Paper)	(Hex.)	000 to 3FF	20F	20F
00034	Transfer Voltage (Special Media/Film)	(Hex.)	000 to 3FF	20F	20F
00035	Separation Corona ON Timing	1mm	0 to 100	50	50
00036	Reserved				
00037	Transfer Corona ON Timing	1mm	0 to 100	50	50
00038	Reserved				
00039	Reserved				
00040	Reserved				
00041	Reserved				
00042	Reserved				
00043	Reserved				
00044	Reserved				
00045	Fuser temperature to Start Idling	1°C	100 to 140	120	120
00046	Warm Sleep - Fuser Temperature	1°C	100 to 160	100	100
00047	Reserved				
00048	Fuser Temperature Control Range (In the print cycle)	1°C	1 to 6	1	1
00049	Fuser Temperature Control Range (Stand by)	1°C	1 to 6	2	2
00050	Reaction Time of Toner Supply Motor	1 Second	1 to 30	3	3
00051	Toner Supply Motor Time	1 Second	1 to 75	25	25
00052	Dot Enhancement Level (Dither)	-	0 to 3	1	1
00053	Reserved				
00054	Reserved				
00055	-----				
00056	Language	-	0 to 1	1	1
00057	Reserved				
00058	Reserved				
00059	Count Unit (Counter A = Print Count)	-	0 to 6	5	0
00060	Maximum Length	-	0 to 1	0	0
00061	P.Diaglog	-	0 to 1	1	1
00062	Reserved				
00063	Cut length 5 (Compensation for Tracing Paper)	-	0 to 200	100	100
00064	Cut length 6 (Compensation for Film)	-	0 to 200	100	100
00065	Drum Reverse Time	1 millisecond	10 to 100	70	70
00066 to 00213	Reserved	-			

Item No.	Setting Item	Unit	setting range	Default (sample)	
				US	EU/Asia
00214	Cut Length Compensation (Plain) (11")	1mm	30 to 70	50	50
00215	Cut Length Compensation (Tracing paper) (11")	1mm	30 to 70	50	50
00216	Cut Length Compensation (Film) (11")	1mm	30 to 70	50	50
00217	Cut Length Compensation (Special / Plain) (11")	1mm	30 to 70	50	50
00218	Cut Length Compensation (Special / Tracing) (11")	1mm	30 to 70	50	50
00219	Cut Length Compensation (Special Film) (11")	1mm	30 to 70	50	50
00220	Cut Length Compensation (Plain) (12")	1mm	30 to 70	50	50
00221	Cut Length Compensation (Tracing) (12")	1mm	30 to 70	50	50
00222	Cut Length Compensation (Film) (12")	1mm	30 to 70	50	50
00223	Cut Length Compensation (Special / Plain) (12")	1mm	30 to 70	50	50
00224	Cut Length Compensation (Special / Tracing) (12")	1mm	30 to 70	50	50
00225	Cut Length Compensation (Special Film) (12")	1mm	30 to 70	50	50
00226	Cut Length Compensation (Plain) (15")	1mm	30 to 70	50	50
00227	Cut Length Compensation (Tracing) (15")	1mm	30 to 70	50	50
00228	Cut Length Compensation (Film) (15")	1mm	30 to 70	50	50
00229	Cut Length Compensation (Special / Plain) (15")	1mm	30 to 70	50	50
00230	Cut Length Compensation (Special / Tracing) (15")	1mm	30 to 70	50	50
00231	Cut Length Compensation (Special Film) (15")	1mm	30 to 70	50	50
00232	Cut Length Compensation (Plain) (17")	1mm	30 to 70	50	50
00233	Cut Length Compensation (Tracing) (17")	1mm	30 to 70	50	50
00234	Cut Length Compensation (Film) (17")	1mm	30 to 70	50	50
00235	Cut Length Compensation (Special / Plain) (17")	1mm	30 to 70	50	50
00236	Cut Length Compensation (Special / Tracing) (17")	1mm	30 to 70	50	50
00237	Cut Length Compensation (Special Film) (17")	1mm	30 to 70	50	50
00238	Cut Length Compensation (Plain) (18")	1mm	30 to 70	50	50
00239	Cut Length Compensation (Tracing) (18")	1mm	30 to 70	50	50
00240	Cut Length Compensation (Film) (18")	1mm	30 to 70	50	50
00241	Cut Length Compensation (Special / Plain) (18")	1mm	30 to 70	50	50
00242	Cut Length Compensation (Special / Tracing) (18")	1mm	30 to 70	50	50
00243	Cut Length Compensation (Special Film) (18")	1mm	30 to 70	50	50
00244	Cut Length Compensation (Plain) (22")	1mm	30 to 70	50	50
00245	Cut Length Compensation (Tracing) (22")	1mm	30 to 70	50	50
00246	Cut Length Compensation (Film) (22")	1mm	30 to 70	50	50
00247	Cut Length Compensation (Special / Plain) (22")	1mm	30 to 70	50	50
00248	Cut Length Compensation (Special / Tracing) (22")	1mm	30 to 70	50	50
00249	Cut Length Compensation (Special Film) (22")	1mm	30 to 70	50	50
00250	Cut Length Compensation (Plain) (24")	1mm	30 to 70	50	50
00251	Cut Length Compensation (Tracing) (24")	1mm	30 to 70	50	50
00252	Cut Length Compensation (Film) (24")	1mm	30 to 70	50	50
00253	Cut Length Compensation (Special / Plain) (24")	1mm	30 to 70	50	50
00254	Cut Length Compensation (Special / Tracing) (24")	1mm	30 to 70	50	50
00255	Cut Length Compensation (Special Film) (24")	1mm	30 to 70	50	50
00256	Cut Length Compensation (Plain) (30")	1mm	30 to 70	50	50
00257	Cut Length Compensation (Tracing) (30")	1mm	30 to 70	50	50
00258	Cut Length Compensation (Film) (30")	1mm	30 to 70	50	50
00259	Cut Length Compensation (Special / Plain) (30")	1mm	30 to 70	50	50
00260	Cut Length Compensation (Special / Tracing) (30")	1mm	30 to 70	50	50
00261	Cut Length Compensation (Special Film) (30")	1mm	30 to 70	50	50
00262	Cut Length Compensation (Plain) (34")	1mm	30 to 70	50	50
00263	Cut Length Compensation (Tracing) (34")	1mm	30 to 70	50	50
00264	Cut Length Compensation (Film) (34")	1mm	30 to 70	50	50
00265	Cut Length Compensation (Special / Plain) (34")	1mm	30 to 70	50	50
00266	Cut Length Compensation (Special / Tracing) (34")	1mm	30 to 70	50	50
00267	Cut Length Compensation (Special Film) (34")	1mm	30 to 70	50	50
00268	Cut Length Compensation (Plain) (36")	1mm	30 to 70	50	50
00269	Cut Length Compensation (Tracing) (36")	1mm	30 to 70	50	50
00270	Cut Length Compensation (Film) (36")	1mm	30 to 70	50	50
00271	Cut Length Compensation (Special / Plain) (36")	1mm	30 to 70	50	50
00272	Cut Length Compensation (Special / Tracing) (36")	1mm	30 to 70	50	50
00273	Cut Length Compensation (Special Film) (36")	1mm	30 to 70	50	50
00274	Cut Length Compensation (Plain) (A3)	1mm	30 to 70	50	50
00275	Cut Length Compensation (Tracing) (A3)	1mm	30 to 70	50	50
00276	Cut Length Compensation (Film) (A3)	1mm	30 to 70	50	50
00277	Cut Length Compensation (Special / Plain) (A3)	1mm	30 to 70	50	50
00278	Cut Length Compensation (Special / Tracing) (A3)	1mm	30 to 70	50	50
00279	Cut Length Compensation (Special Film) (A3)	1mm	30 to 70	50	50
00280	Cut Length Compensation (Plain) (A2)	1mm	30 to 70	50	50
00281	Cut Length Compensation (Tracing) (A2)	1mm	30 to 70	50	50
00282	Cut Length Compensation (Film) (A2)	1mm	30 to 70	50	50
00283	Cut Length Compensation (Special / Plain) (A2)	1mm	30 to 70	50	50
00284	Cut Length Compensation (Special / Tracing) (A2)	1mm	30 to 70	50	50
00285	Cut Length Compensation (Special Film) (A2)	1mm	30 to 70	50	50
00286	Cut Length Compensation (Plain) (A1)	1mm	30 to 70	50	50
00287	Cut Length Compensation (Tracing) (A1)	1mm	30 to 70	50	50
00288	Cut Length Compensation (Film) (A1)	1mm	30 to 70	50	50
00289	Cut Length Compensation (Special / Plain) (A1)	1mm	30 to 70	50	50

Item No.	Setting Item	Unit	setting range	Default (sample)	
				US	EU/Asia
00290	Cut Length Compensation (Special / Tracing) (A1)	1mm	30 to 70	50	50
00291	Cut Length Compensation (Special Film) (A1)	1mm	30 to 70	50	50
00292	Cut Length Compensation (Plain) (A0)	1mm	30 to 70	50	50
00293	Cut Length Compensation (Tracing) (A0)	1mm	30 to 70	50	50
00294	Cut Length Compensation (Film) (A0)	1mm	30 to 70	50	50
00295	Cut Length Compensation (Special / Plain) (A0)	1mm	30 to 70	50	50
00296	Cut Length Compensation (Special / Tracing) (A0)	1mm	30 to 70	50	50
00297	Cut Length Compensation (Special Film) (A0)	1mm	30 to 70	50	50
00298	Cut Length Compensation (Plain) (B1)	1mm	30 to 70	50	50
00299	Cut Length Compensation (Tracing) (B1)	1mm	30 to 70	50	50
00300	Cut Length Compensation (Film) (B1)	1mm	30 to 70	50	50
00301	Cut Length Compensation (Special / Plain) (B1)	1mm	30 to 70	50	50
00302	Cut Length Compensation (Special / Tracing) (B1)	1mm	30 to 70	50	50
00303	Cut Length Compensation (Special Film) (B1)	1mm	30 to 70	50	50
00304	Cut Length Compensation (Plain) (880mm)	1mm	30 to 70	50	50
00305	Cut Length Compensation (Tracing) (880mm)	1mm	30 to 70	50	50
00306	Cut Length Compensation (Film) (880mm)	1mm	30 to 70	50	50
00307	Cut Length Compensation (Special / Plain) (880mm)	1mm	30 to 70	50	50
00308	Cut Length Compensation (Special / Tracing) (880mm)	1mm	30 to 70	50	50
00309	Cut Length Compensation (Special Film) (880mm)	1mm	30 to 70	50	50
00310	Main Motor Speed (Plain paper)	0.04mm/s	0 to 80	40	40
00311	Main Motor Speed (Tracing paper)	0.02mm/s	0 to 80	40	40
00312	Main Motor Speed (Film)	0.02mm/s	0 to 80	44	40
00313	Main Motor Speed (Special plain paper)	0.02mm/s	0 to 80	40	40
00314	Main Motor Speed (Special Tracing Paper)	0.02mm/s	0 to 80	40	40
00315	Main Motor Speed (Special Film)	0.02mm/s	0 to 80	40	40
00316 to 00507	Reserved	-			
00508	Transfer Voltage applied at 100mm from trailing edge (Plain paper)	(Hex.)	000 to 9FE	4FF	4FF
00509	Transfer Voltage applied at 100mm from trailing edge (Tracing paper)	(Hex.)	000 to 9FE	4FF	4FF
00510	Transfer Voltage applied at 100mm from trailing edge (Film)	(Hex.)	000 to 9FE	4FF	4FF
00511	Transfer Voltage applied at 70mm from trailing edge (Plain paper)	(Hex.)	000 to 9FE	62F	62F
00512	Transfer Voltage applied at 70mm from trailing edge (Tracing paper)	(Hex.)	000 to 9FE	69F	69F
00513	Transfer Voltage applied at 70mm from trailing edge (Film)	(Hex.)	000 to 9FE	4FF	4FF
00514 to 00612	Reserved	-			
00613	Judgment Value for Additional Cut Length for Non-standard Size Prints (36"/ 34"/ 30"/ A0 / B1)	1mm	1 to 20	1	1
00614	Judgment Value for Additional Cut Length for Non-standard Size Prints (24"/ 20"/ A1)	1mm	1 to 20	1	1
00615	Judgment Value for Additional Cut Length for Non-standard Size Prints (18"/ 17"/ 15"/ A2)	1mm	1 to 20	1	1
00616	Judgment Value for Additional Cut Length for Non-standard Size Prints (12"/ 11"/ A3)	1mm	1 to 20	1	1
00617	Additional Cut Length for Non-standard Size Prints (36"/ 34"/ 30"/ A0 / B1)	1mm	0 to 35	0	0
00618	Additional Cut Length for Non-standard Size Prints (24"/ 22"/ A2)	1mm	0 to 35	0	0
00619	Additional Cut Length for Non-standard Size Prints (18"/ 17"/ 15"/ A2)	1mm	0 to 35	0	0
00620	Additional Cut Length for Non-standard Size Prints (12"/ 11"/ A3)	1mm	0 to 35	0	0
00621	Toner Supply Roller Bias	-	0 to 800	230	230
00622	Regulation Bias	-	0 to 800	280	280
00623	Reserved				
00624	Density Sensor Analog Voltage	-	0 to 100	0	0
00625	Print - Fuser Temperature (Plain) (12"/ 11"/ A3)	1°C	120 to 180	145	145
00626	Print - Fuser Temperature (Tracing) (12"/ 11"/ A3)	1°C	120 to 180	145	145
00627	Print - Fuser Temperature (Film) (12"/ 11"/ A3)	1°C	120 to 180	165	155
00628	Print - Fuser Temperature (Special / Plain) (12"/ 11"/ A3)	1°C	120 to 180	145	145
00629	Print - Fuser Temperature (Special / Tracing) (12"/ 11"/ A3)	1°C	120 to 180	145	145
00630	Print - Fuser Temperature (Special media / Film) (12"/ 11"/ A3)	1°C	120 to 180	165	155

Item No.	Setting Item	Unit	setting range	Default (sample)	
				US	EU/Asia
00631	Print - Fuser Temperature (Plain) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
00632	Print - Fuser Temperature (Tracing) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
00633	Print - Fuser Temperature (Film) (18" / 17" / 15" / A2)	1°C	120 to 180	165	155
00634	Print - Fuser Temperature (Special / Plain) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
00635	Print - Fuser Temperature (Special / Tracing) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
00636	Print - Fuser Temperature (Special / Film) (18" / 17" / 15" / A2)	1°C	120 to 180	165	155
00637	Print - Fuser Temperature (Plain) (24" / 22" / A1)	1°C	120 to 180	145	145
00638	Print - Fuser Temperature (Tracing) (24" / 22" / A1)	1°C	120 to 180	145	145
00639	Print - Fuser Temperature (Film) (24" / 22" / A1)	1°C	120 to 180	165	155
00640	Print - Fuser Temperature (Special / Plain) (24" / 22" / A1)	1°C	120 to 180	145	145
00641	Print - Fuser Temperature (Special / Tracing) (24" / 22" / A1)	1°C	120 to 180	145	145
00642	Print - Fuser Temperature (Special / Film) (24" / 22" / A1)	1°C	120 to 180	165	155
00643	Print - Fuser Temperature (Plain) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
00644	Print - Fuser Temperature (Tracing) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
00645	Print - Fuser Temperature (Film) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	165	155
00646	Print - Fuser Temperature (Special / Plain) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
00647	Print - Fuser Temperature (Special / Tracing) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
00648	Print - Fuser Temperature (Special / Film) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	165	155
00649	Density Sensor Output Monitor	-	2 to 9	6	6
00650	Reserved				
00651	Reserved				
00652	Density Compensation On/Off	-	0 to 1	1	1
00653	Target Density	(Hex.)	000 to 400	051	051
00654	Toner Patch Adjustment	-	0 to 16	16	16
00655	Density Measure Interval	1 hour	1 to 18	2	2
00656	Reserved				
00657	Reserved				
00658	Reserved				
00659	Reserved				
00660	Ready - Fuser Temperature (Plain)	1°C	120 to 180	135	135
00661	Ready - Fuser Temperature (Tracing)	1°C	120 to 180	145	145
00662	Ready - Fuser Temperature (Film)	1°C	120 to 180	165	155
00663	Ready - Fuser Temperature (Special / Plain)	1°C	120 to 180	135	135
00664	Ready - Fuser Temperature (Special / Tracing)	1°C	120 to 180	145	145
00665	Ready - Fuser Temperature (Special / Film)	1°C	120 to 180	165	155
00666 to 00737	Reserved	-			
00738	Standby - Fuser Temperature	1°C	120 to 180	135	135
00739 to 00748	Reserved	-			
00749	Tracing Mode	-	0 to 1	0	0
00750	Reserved				
00751	Disable HV Error Detection Mode	-	0 to 1	0	0
00752	Reserved				
00753	Counter Setting	-	0 to 1	0	0
00754	Total Increment of Developer Bias Adjustment	(Hex.)	000 to 7FE	3FF	3FF
00755	Developer Bias Increment for Adjustment Level 1 and after	0.5V	0 to 300	127	127
00756	Developer Bias Limit (minimum, absolute value)	(Hex.)	000 to 3FF	102	102
00757	Developer Bias Limit (maximum, absolute value)	(Hex.)	000 to 3FF	1C9	1C9
00758	Total Increment of Regulation Bias Adjustment	-	0 to 340	160	160
00759	Regulation Bias Increment for Adjustment Level 2 and after	0.5V	10 to 200	65	65
00760	Regulation Bias Limit (minimum, absolute value)	-	0 to 399	280	280
00761	Regulation Bias Limit (maximum, absolute value)	-	400 to 800	410	410
00762	Developer Reference Bias 1	(Hex.)	000 to 3FF	04D	04D
00763	Developer Reference Bias 2	(Hex.)	000 to 3FF	0CD	0CD
00764	Developer Reference Bias 3	(Hex.)	000 to 3FF	14D	14D
00765	Developer Reference Bias 4	(Hex.)	000 to 3FF	1C9	1C9

Item No.	Setting Item	Unit	setting range	Default (sample145)	
				US	EU/Asia
00766	Developer Reference Bias 5	(Hex.)	000 to 3FF	244	244
00767	Developer Reference Bias 6	(Hex.)	000 to 3FF	2C6	2C6
00768					
00769	Wait Time of Media Feed Start	100ms	0 to 60	0	0
00770	Additional Toner Supply Time (Toner Supply Motor ON)	minute	1 to 30	9	9
00771	Additional Toner Supply Time (Agitation only)	minute	1 to 30	1	1
00772	Horizontal Alignment of LED Head (Block A/B)	1 pixel	2 to 114	58	58
00773	Horizontal Alignment of LED Head (Block B/C)	1 pixel	2 to 114	58	58
00774	Dot Light Level (Block A/B, border 1 pixel)	-	0 to 40	20	20
00775	Dot Light Level (Block B/C, border 1 pixel)	-	0 to 40	20	20
00776	Dot Light Level (Block A/B, next pixel to border)	-	0 to 40	20	20
00777	Dot Light Level (Block B/C, next pixel to border)	-	0 to 40	20	20
00778	Strobe Time Adjustment on Border Pixel (Block A/B)	-	6 to 14	10	10
00779	Strobe Time Adjustment on Border Pixel (Block B/C)	-	6 to 14	10	10
00780	----				
00781	Trailing Margin (Paper Tray)	1mm	0 to 80	30	30
00782	Side Registration (Paper Tray)	0.1mm	0 to 100	50	50
00783	Forced Initial Cut Before Print (Cut Length)	1mm	279 to 600	350	350
00784	Upper Limit Temperature of LED Stitch Compensation	1°C	30 to 50	35	35
00785	Lower Limit Temperature of LED Stitch Compensation	1°C	10 to 20	15	15
00786	Reserved				
00787	Transfer Corona ON Timing Compensation (Paper Tray)	1millisecond	1 to 999	540	540
00788	Transfer Corona OFF Timing Compensation (Paper Tray)	1millisecond	1 to 999	730	730
00789	Transfer Corona OFF Timing (Plain) (12" / 11" / A3)	1mm	0 to 100	20	20
00790	Transfer Corona OFF Timing (Tracing) (12" / 11" / A3)	1mm	0 to 100	20	35
00791	Transfer Corona OFF Timing (Film) (12" / 11" / A3)	1mm	0 to 100	35	35
00792	Transfer Corona OFF Timing (Plain) (18" / 17" / 15" / A2)	1mm	0 to 100	20	20
00793	Transfer Corona OFF Timing (Tracing) (18" / 17" / 15" / A2)	1mm	0 to 100	35	20
00794	Transfer Corona OFF Timing (Film) (18" / 17" / 15" / A2)	1mm	0 to 100	35	35
00795	Transfer Corona OFF Timing (Plain) (24" / 22" / A1)	1mm	0 to 100	20	20
00796	Transfer Corona OFF Timing (Tracing) (24" / 22" / A1)	1mm	0 to 100	35	20
00797	Transfer Corona OFF Timing (Film) (24" / 22" / A1)	1mm	0 to 100	35	35
00798	Transfer Corona OFF Timing (Plain) (36" / 34" / 30" / A0 / B1)	1mm	0 to 100	20	20
00799	Transfer Corona OFF Timing (Tracing) (36" / 34" / 30" / A0 / B1)	1mm	0 to 100	35	35
00800	Transfer Corona OFF Timing (Film) (36" / 34" / 30" / A0 / B1)	1mm	0 to 100	35	35
00801	Separation Corona OFF Timing (Plain) (12" / 11" / A3)	1mm	0 to 100	35	35
00802	Separation Corona OFF Timing (Tracing) (12" / 11" / A3)	1mm	0 to 100	35	50
00803	Separation Corona OFF Timing (Film) (12" / 11" / A3)	1mm	0 to 100	50	50
00804	Separation Corona OFF Timing (Plain) (18" / 17" / 15" / A2)	1mm	0 to 100	35	35
00805	Separation Corona OFF Timing (Tracing) (18" / 17" / 15" / A2)	1mm	0 to 100	50	35
00806	Separation Corona OFF Timing (Film) (18" / 17" / 15" / A2)	1mm	0 to 100	50	50
00807	Separation Corona OFF Timing (Plain) (24" / 22" / A1)	1mm	0 to 100	35	35
00808	Separation Corona OFF Timing (Tracing) (24" / 22" / A1)	1mm	0 to 100	50	35
00809	Separation Corona OFF Timing (Film) (24" / 22" / A1)	1mm	0 to 100	50	50
00810	Separation Corona OFF Timing (Plain) (36" / 34" / 30" / A0 / B1)	1mm	0 to 100	35	35
00811	Separation Corona OFF Timing (Tracing) (36" / 34" / 30" / A0 / B1)	1mm	0 to 100	50	50
00812	Separation Corona OFF Timing (Film) (36" / 34" / 30" / A0 / B1)	1mm	0 to 100	5	50
00813					
00814	Cut Length Compensation (Plain) (B3)	1mm	30 to 70	50	50
00815	Cut Length Compensation (Tracing) (B3)	1mm	30 to 70	50	50
00816	Cut Length Compensation (Film) (B3)	1mm	30 to 70	50	50
00817	Cut Length Compensation (Special / Plain) (B3)	1mm	30 to 70	50	50
00818	Cut Length Compensation (Special / Tracing) (B3)	1mm	30 to 70	50	50
00819	Cut Length Compensation (Special Film) (B3)	1mm	30 to 70	50	50
00820	Cut Length Compensation (Plain) (B2)	1mm	30 to 70	50	50
00821	Cut Length Compensation (Tracing) (B2)	1mm	30 to 70	50	50
00822	Cut Length Compensation (Film) (B2)	1mm	30 to 70	50	50
00823	Cut Length Compensation (Special / Plain) (B2)	1mm	30 to 70	50	50
00824	Cut Length Compensation (Special / Tracing) (B2)	1mm	30 to 70	50	50
00825	Cut Length Compensation (Special Film) (B2)	1mm	30 to 70	50	50
00826	Cut Length Compensation (Plain) (440mm)	1mm	30 to 70	50	50
00827	Cut Length Compensation (Tracing) (440mm)	1mm	30 to 70	50	50
00828	Cut Length Compensation (Film) (440mm)	1mm	30 to 70	50	50
00829	Cut Length Compensation (Special / Plain) (440mm)	1mm	30 to 70	50	50
00830	Cut Length Compensation (Special / Tracing) (440mm)	1mm	30 to 70	50	50
00831	Cut Length Compensation (Special Film) (440mm)	1mm	30 to 70	50	50
00832	Cut Length Compensation (Plain) (610mm)	1mm	30 to 70	50	50
00833	Cut Length Compensation (Tracing) (610mm)	1mm	30 to 70	50	50
00834	Cut Length Compensation (Film) (610mm)	1mm	30 to 70	50	50
00835	Cut Length Compensation (Special / Plain) (610mm)	1mm	30 to 70	50	50
00836	Cut Length Compensation (Special / Tracing) (610mm)	1mm	30 to 70	50	50
00837	Cut Length Compensation (Special Film) (610mm)	1mm	30 to 70	50	50
00838	Cut Length Compensation (Plain) (620mm)	1mm	30 to 70	50	50
00839	Cut Length Compensation (Tracing) (620mm)	1mm	30 to 70	50	50
00840	Cut Length Compensation (Film) (620mm)	1mm	30 to 70	50	50
00841	Cut Length Compensation (Special / Plain) (620mm)	1mm	30 to 70	50	50

Item No.	Setting Item	Unit	setting range	Default (sample)	
				US	EU/Asia
00842	Cut Length Compensation (Special / Tracing) (620mm)	1mm	30 to 70	50	50
00843	Cut Length Compensation (Special Film) (620mm)	1mm	30 to 70	50	50
00844	Cut Length Compensation (Plain) (700mm)	1mm	30 to 70	50	50
00845	Cut Length Compensation (Tracing) (700mm)	1mm	30 to 70	50	50
00846	Cut Length Compensation (Film) (700mm)	1mm	30 to 70	50	50
00847	Cut Length Compensation (Special / Plain) (700mm)	1mm	30 to 70	50	50
00848	Cut Length Compensation (Special / Tracing) (700mm)	1mm	30 to 70	50	50
00849	Cut Length Compensation (Special Film) (700mm)	1mm	30 to 70	50	50
00850	Cut Length Compensation (Plain) (707mm)	1mm	30 to 70	50	50
00851	Cut Length Compensation (Tracing) (707mm)	1mm	30 to 70	50	50
00852	Cut Length Compensation (Film) (707mm)	1mm	30 to 70	50	50
00853	Cut Length Compensation (Special / Plain) (707mm)	1mm	30 to 70	50	50
00854	Cut Length Compensation (Special / Tracing) (707mm)	1mm	30 to 70	50	50
00855	Cut Length Compensation (Special Film) (707mm)	1mm	30 to 70	50	50
00856	Cut Length Compensation (Plain) (891mm)	1mm	30 to 70	50	50
00857	Cut Length Compensation (Tracing) (891mm)	1mm	30 to 70	50	50
00858	Cut Length Compensation (Film) (891mm)	1mm	30 to 70	50	50
00859	Cut Length Compensation (Special / Plain) (891mm)	1mm	30 to 70	50	50
00860	Cut Length Compensation (Special / Tracing) (891mm)	1mm	30 to 70	50	50
00861	Cut Length Compensation (Special Film) (891mm)	1mm	30 to 70	50	50
00862	Cut Length Compensation (Plain) (900mm)	1mm	30 to 70	50	50
00863	Cut Length Compensation (Tracing) (900mm)	1mm	30 to 70	50	50
00864	Cut Length Compensation (Film) (900mm)	1mm	30 to 70	50	50
00865	Cut Length Compensation (Special / Plain) (900mm)	1mm	30 to 70	50	50
00866	Cut Length Compensation (Special / Tracing) (900mm)	1mm	30 to 70	50	50
00867	Cut Length Compensation (Special Film) (900mm)	1mm	30 to 70	50	50
00868	Leading Registration (Paper Tray) (A4 / 9" / 8.5")	0.5mm	0 to 80	48	48
00869	Leading Registration (Paper Tray) (A3 / 18" / 17")	0.5mm	0 to 80	47	47
00870	Leading Registration (Paper Tray) (A2 / 24" / 22")	0.5mm	0 to 80	49	49
00871	Paper Tray Motor Speed (A4 / 9" / 8.5")	0.1mm	0 to 254	138	138
00872	Paper Tray Motor Speed (A3 / 18" / 17")	0.1mm	0 to 254	138	138
00873	Paper Tray Motor Speed (A2 / 24" / 22")	0.1mm	0 to 254	135	135
00874	Transfer Corona OFF Timing (Bypass) (Plain) (12" / 11" / 9" / 8.5" / A3 / A4)	1mm	0 to 100	20	20
00875	Transfer Corona OFF Timing (Bypass) (Tracing) (12" / 11" / 9" / 8.5" / A3 / A4)	1mm	0 to 100	20	35
00876	Transfer Corona OFF Timing (Bypass) (Film) (12" / 11" / 9" / 8.5" / A3 / A4)	1mm	0 to 100	35	35
00877	Transfer Corona OFF Timing (Bypass) (Plain) (18" / 17" / A2)	1mm	0 to 100	20	20
00878	Transfer Corona OFF Timing (Bypass) (Tracing) (18" / 17" / A2)	1mm	0 to 100	35	20
00879	Transfer Corona OFF Timing (Bypass) (Film) (18" / 17" / A2)	1mm	0 to 100	35	35
00880	Transfer Corona OFF Timing (Bypass) (Plain) (24" / 22" / A1)	1mm	0 to 100	20	20
00881	Transfer Corona OFF Timing (Bypass) (Tracing) (24" / 22" / A1)	1mm	0 to 100	35	20
00882	Transfer Corona OFF Timing (Bypass) (Film) (24" / 22" / A1)	1mm	0 to 100	35	35
00883	Transfer Corona OFF Timing (Bypass) (Plain) (36" / 34" / A0)	1mm	0 to 100	20	20
00884	Transfer Corona OFF Timing (Bypass) (Tracing) (36" / 34" / A0)	1mm	0 to 100	35	35
00885	Transfer Corona OFF Timing (Bypass) (Film) (36" / 34" / A0)	1mm	0 to 100	35	35
00886	Separation Corona OFF Timing (Bypass) (Plain) (12" / 11" / 9" / 8.5" / A3 / A4)	1mm	0 to 100	35	35
00887	Separation Corona OFF Timing (Bypass) (Tracing) (12" / 11" / 9" / 8.5" / A3 / A4)	1mm	0 to 100	35	50
00888	Separation Corona OFF Timing (Bypass) (Film) (12" / 11" / 9" / 8.5" / A3 / A4)	1mm	0 to 100	50	50
00889	Separation Corona OFF Timing (Bypass) (Plain) (18" / 17" / A2)	1mm	0 to 100	35	35
00890	Separation Corona OFF Timing (Bypass) (Tracing) (18" / 17" / A2)	1mm	0 to 100	50	35
00891	Separation Corona OFF Timing (Bypass) (Film) (18" / 17" / A2)	1mm	0 to 100	50	50
00892	Separation Corona OFF Timing (Bypass) (Plain) (24" / 22" / A1)	1mm	0 to 100	35	35
00893	Separation Corona OFF Timing (Bypass) (Tracing) (24" / 22" / A1)	1mm	0 to 100	50	35
00894	Separation Corona OFF Timing (Bypass) (Film) (24" / 22" / A1)	1mm	0 to 100	50	50
00895	Separation Corona OFF Timing (Bypass) (Plain) (36" / 34" / A0)	1mm	0 to 100	35	35
00896	Separation Corona OFF Timing (Bypass) (Tracing) (36" / 34" / A0)	1mm	0 to 100	50	50
00897	Separation Corona OFF Timing (Bypass) (Film) (36" / 34" / A0)	1mm	0 to 100	5	50

8. 4. 3 Setting Item Explanation

This section describes details about each Backup Data item.

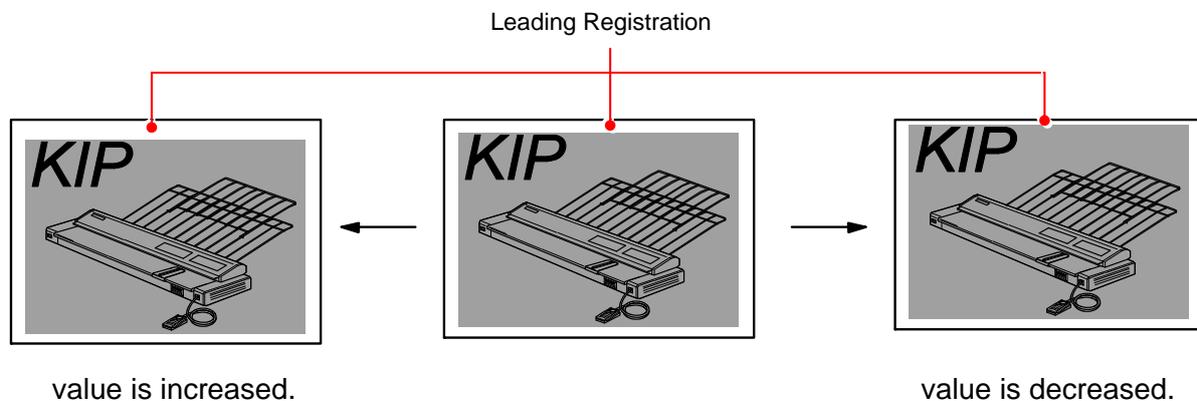
! NOTE

- (1) It is strongly requested to save all current Backup Data values into a zip file by using **Export** function before changing any value for security purpose. See [8.4.1.2 Saving all parameter values into a zip file for backing up (Export)] for detail about the Export function.
- (2) Some Backup Data items were set to particular values that were uniquely and originally set for that particular machine when shipped. It is possible to know these original values by referring to the backed up zip file which you have saved at installation.
- (3) All items **grayed** are not generally for field technician use

000, 001 Leading Registration

It is possible to specify where to start printing the image at the leading edge of the media. If you increase the setting value by "+1", the head of image is shifted 1mm downward toward the trailing edge. As a result the leading margin becomes larger.

Item No.	Setting Item	Setting range	Step of increment
000	Leading Registration (Roll paper)	0 to 40	1mm
001	Leading Registration (Cut sheet paper)	0 to 40	1mm



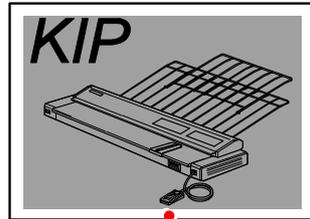
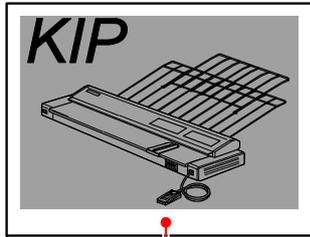
002, 003 Trailing Margin

It is possible to adjust the length of trailing margin.

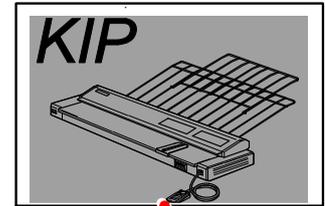
The length of trailing margin becomes 1mm longer if you Increase the setting value by "+1".

Item No.	Setting Item	Setting range	Step of increment
002	Trailing Margin (Roll paper)	0 to 40	1mm
003	Trailing Margin (Cut sheet paper)	0 to 40	1mm

Setting value is increased.



Setting value is decreased.



Trailing Margin

NOTE

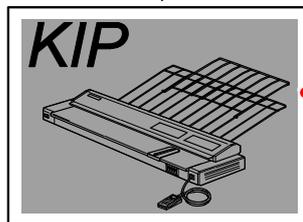
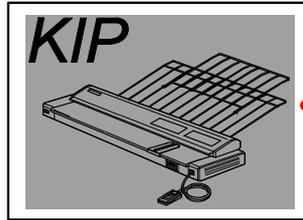
Some trailing image may be lost if you decrease the value too much.

004 Side Margin (Left & Right)

It is possible to adjust the amount of side margin. (Both left and right)
Each side margin becomes 1mm wider if you increase the setting value.
(As a result the width of print image becomes 2mm narrower.)

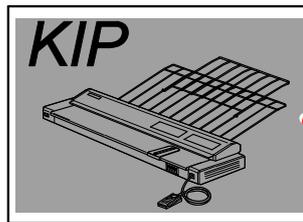
Setting Range	Step of increment
0 to 20	1mm

Setting value is increased.



Side Margin

Setting value is decreased.



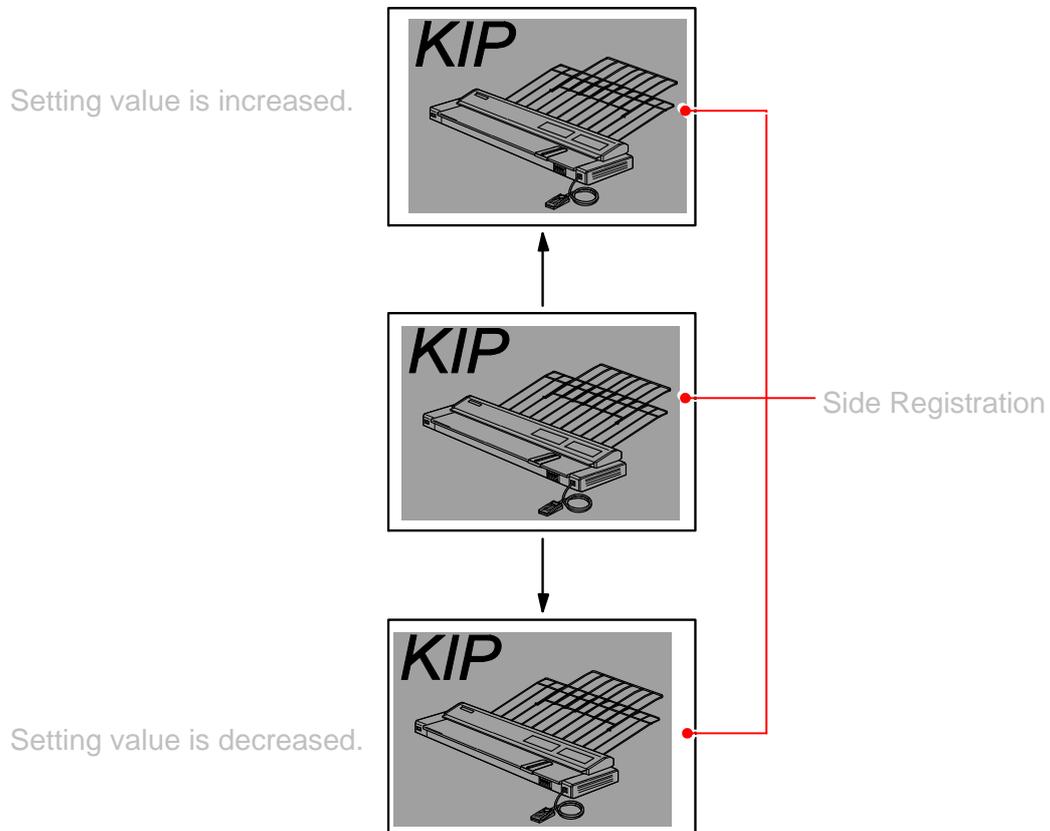
NOTE

Image quality created with a reduced side margin (less than 3 in the setting value) is not guaranteed.

005, 006 Side Registration

It is possible to specify where to start printing the image at the side edge of the media.
If you increase the setting value by "+1", image is shifted 0.1mm to the right.

Item No.	Setting Item	Setting range	Step of increment
005	Side Registration (Cutsheet)	0 to 100	0.1mm
006	Side Registration (Roll 1)	0 to 100	0.1mm



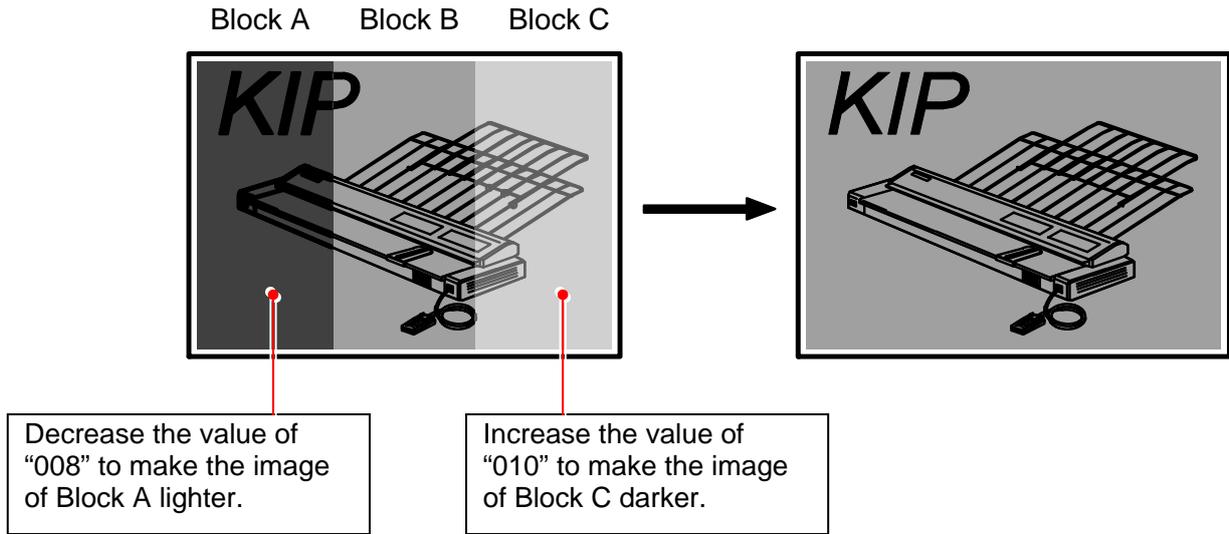
008 to 010 LED Strobe Time for Main Pixel

It is possible to make the whole image of each Image Block (A, B and C) darker or lighter independently by changing the LED Strobe Time for the Main Pixels.

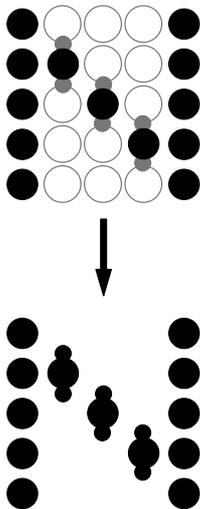
As a result an even image density can be accomplished among 3 Image Blocks.

The whole image of the concerning Image Block becomes darker if you increase the setting value.

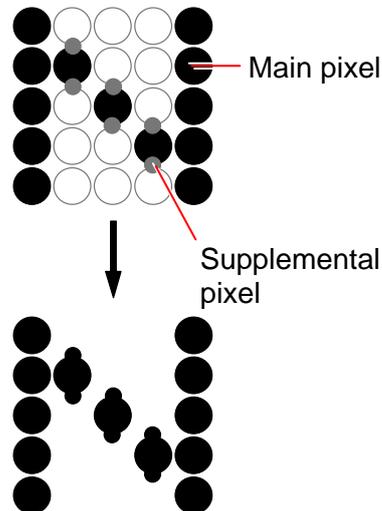
Item No.	Setting Item	Setting range	Step of increment
008	LED Strobe Time for Main Pixel (Image Block A : Left)	0 to 10	1 micro second
009	LED Strobe Time for Main Pixel (Image Block B : Center)	0 to 10	1 micro second
010	LED Strobe Time for Main Pixel (Image Block C : Right)	0 to 10	1 micro second



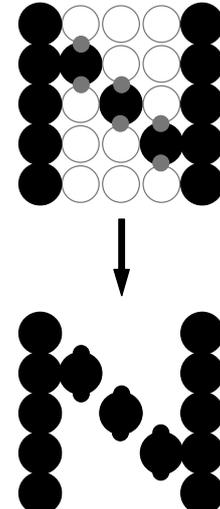
Setting value is decreased.



Default



Setting value is increased



Actual print image

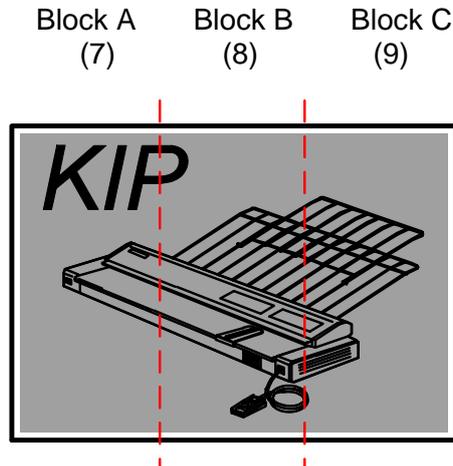
For the detail information about “Main Pixel” and “Supplemental Pixel”, see the reference column in [011 to 013 LED Strobe Time for IST (Supplemental Pixel)].

NOTE

- (1) The LED Strobe Times specified in these 008, 009 and 010 are directly applied to the Test Print.
If the setting values are 7 (for 008), 8 (for 009) and 9 (for 010), for example, the actual LED Strobe Times are also 7 (for block A), 8 (for block B) and 9 (for block C).

In case of Test Print

008: 7 microseconds
009: 8 microseconds
010: 9 microseconds

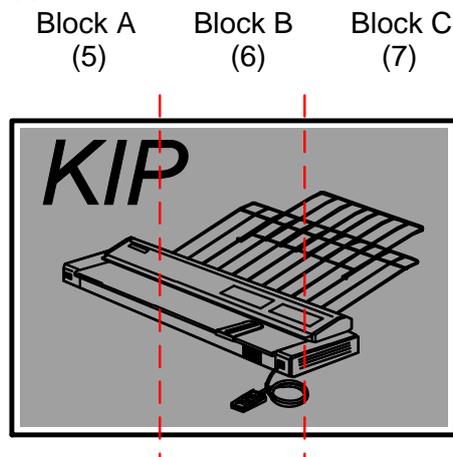


But in case of a copy or a plot, the density command (LED Strobe Time) sent from the output device (image scanner or controller) is applied to the Image Block A.
And only the difference of setting values among 008, 009 and 010 are applied to the actual LED Strobe Time.

If the density command from the output device is 5 microsecond and the setting values are 7 (for 008), 8 (for 009) and 9 (for 010), for example, the actual LED Strobe Times are 5 (for block A), 6 (for block B) and 7 (for block C).

In case of copy or plot

Density command from output device: 5 microseconds
008: 7 microseconds
009: 8 microseconds
010: 9 microseconds



- (2) If the value of density command (LED Strobe Time) sent from the output device is larger than "9 microsecond" (Max.), it is automatically corrected to "9 microsecond".
If it is smaller than "0 microsecond" (Min.), it is corrected to "0 microsecond" similarly.

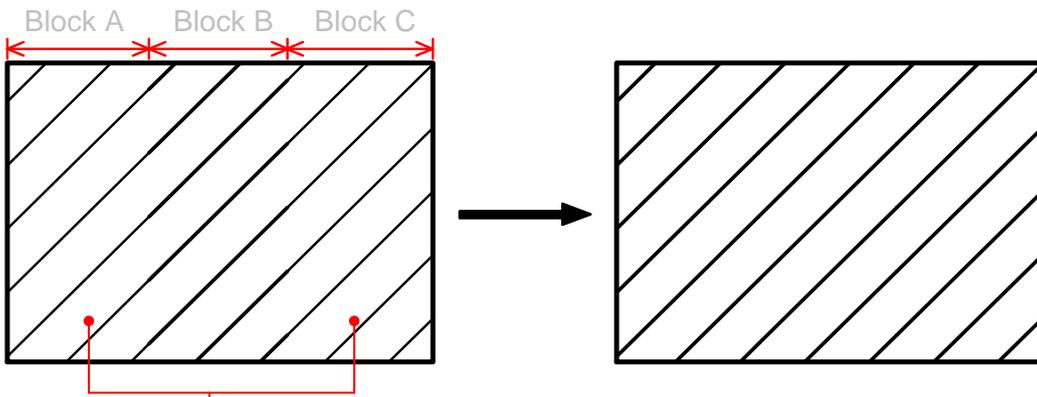
011 to 013 LED Strobe Time for IST (Supplemental Pixel)

If such image as a diagonal line looks too weak, you can make it clearer by changing the LED Strobe Time for the Supplemental Pixels.

The adjustment is available for each Image Block independently.

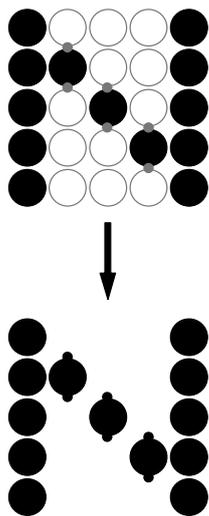
A diagonal line comes to look clearer if you increase the setting value, as the LED Strobe Time for the Supplemental Pixels becomes longer.

Item No.	Setting Item	Setting range	Step of increment
011	LED Strobe Time for Supplemental Pixel (Image Block A : Left)	0 to 18	1 micro second
012	LED Strobe Time for Supplemental Pixel (Image Block B : Center)	0 to 18	1 micro second
013	LED Strobe Time for Supplemental Pixel (Image Block C : Right)	0 to 18	1 micro second

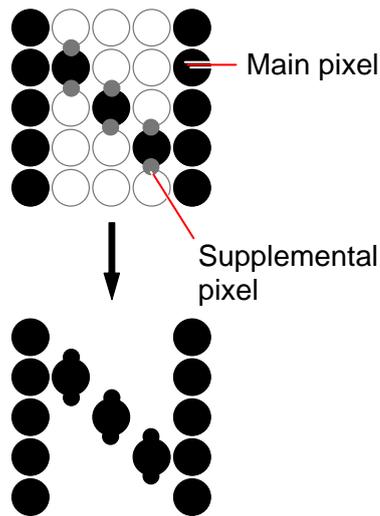


Increase the setting values of “011” and “013” to make the images of these blocks clearer.

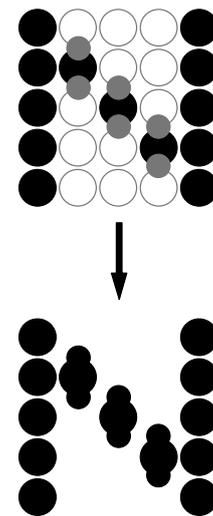
Setting value is decreased.



Default



Setting value is increased.

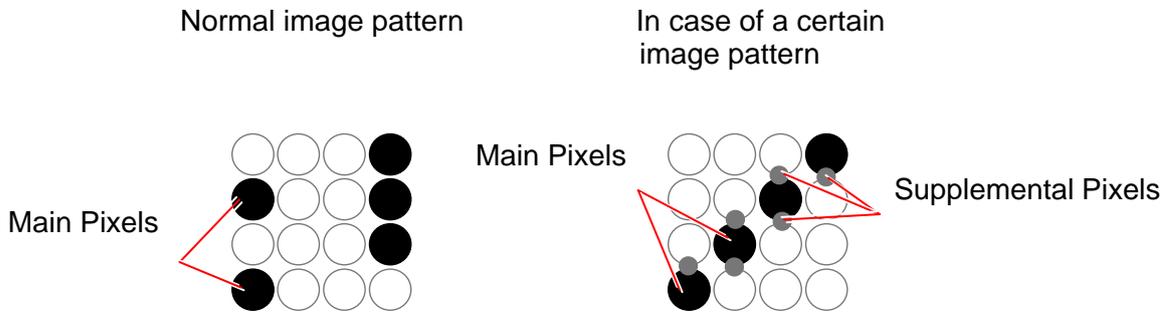


Actual print image

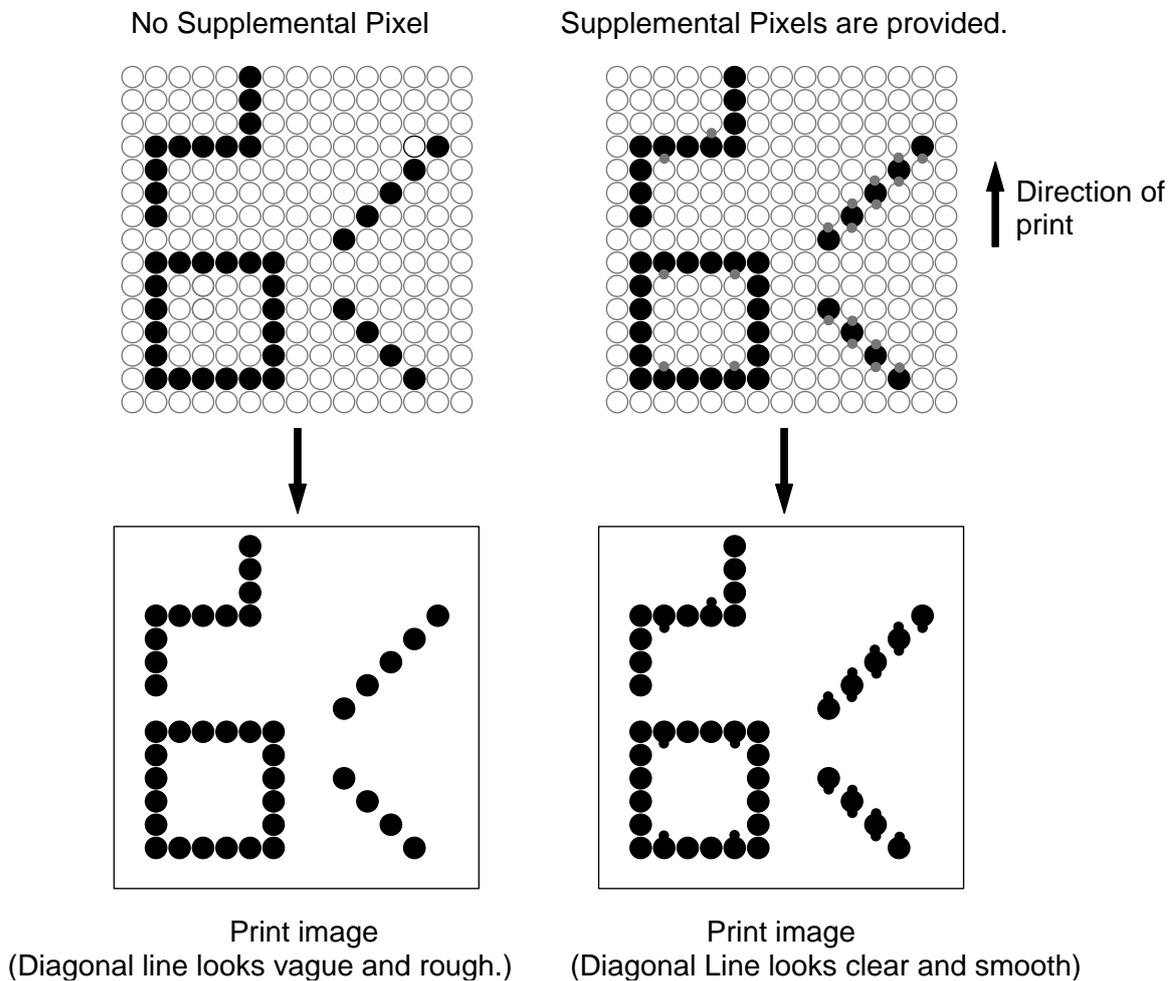
For the detail information about “Main Pixel” and “Supplemental Pixel”, see the reference column on the next page.

Reference

Normally the KIP 770 takes 600 times of image exposure per inch for the vertical direction as its resolution is 600DPI. Pixels created by this normal timing are called [Main Pixel]. When a specific image pattern (like a diagonal line) is printed, however, the KIP 770 will make additional image exposure between vertically neighboring 2 Main Pixels. This additional image exposure is completed within a very short time. The pixel created by this additional process is called [Supplemental Pixel].



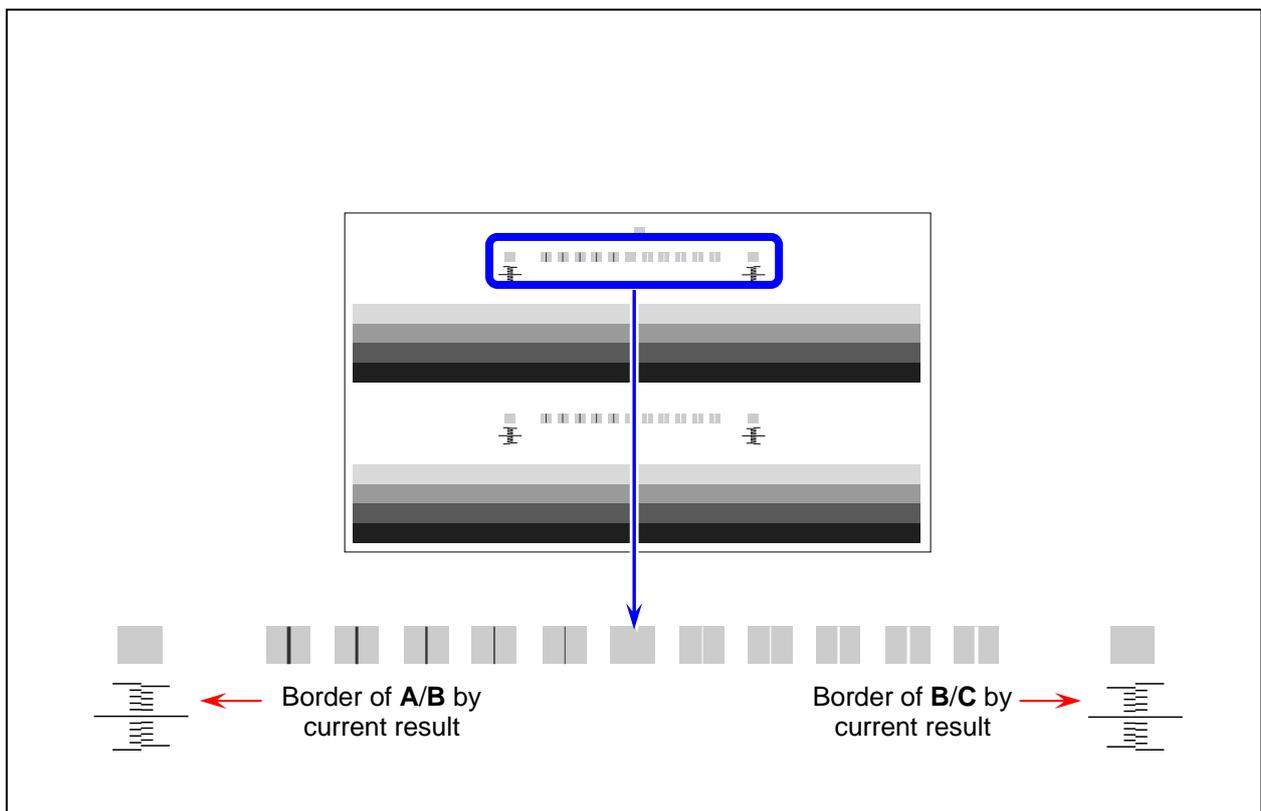
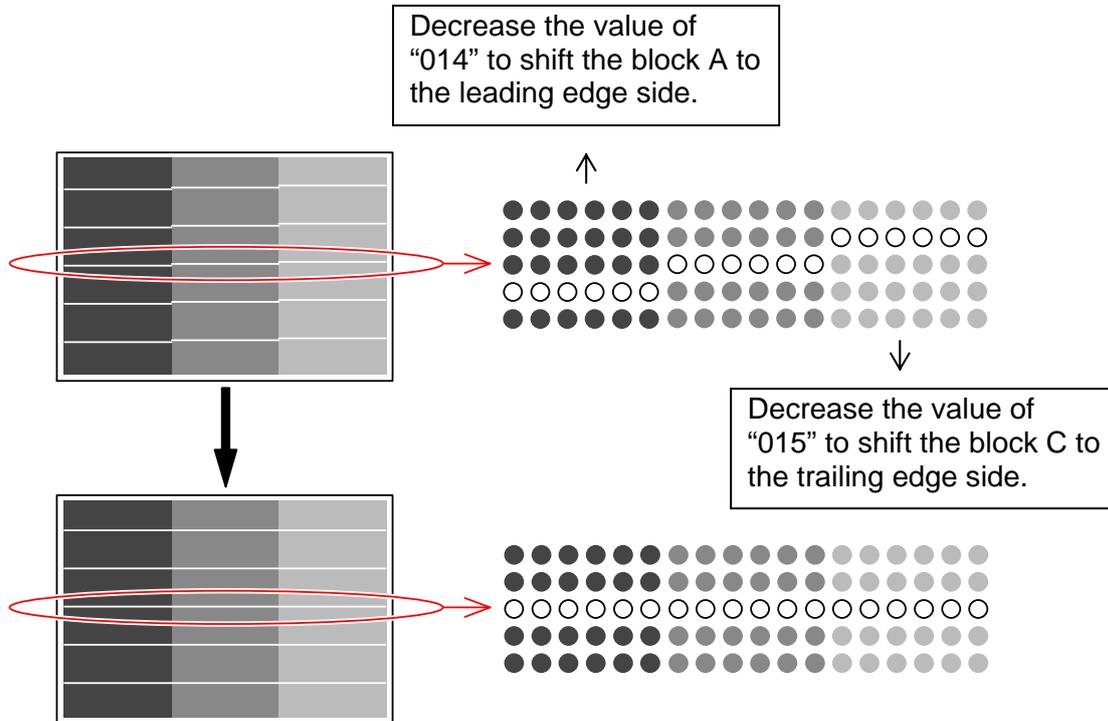
Supplemental Pixels are provided so as to fill the space between Main Pixels. When we compare a vertical / horizontal 1 dot line and a diagonal 1 dot line, for example, the diagonal one looks vague and rough although the vertical / horizontal one looks clear and smooth. This is because the diagonal line 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.



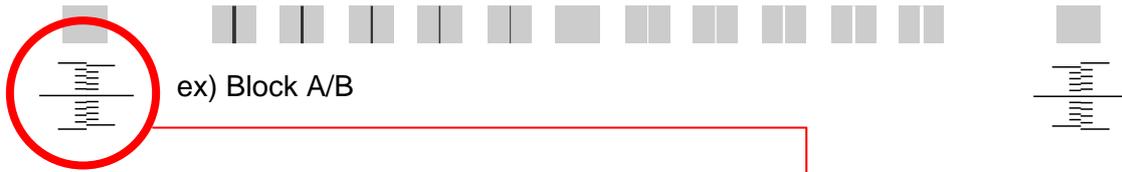
014, 015 Vertical Alignment of LED Block

It is possible to align the pixels between Image Blocks if there is a gap of pixels. The Image Block B is the standard, and both the Image Blocks A and C can be shifted vertically. If you increase the setting value by “+1”, the whole pixels of the concerning Image Block is shifted “0.5 pixel” to the trailing edge side. These can be used if a horizontal line has a step at the border of the Blocks.

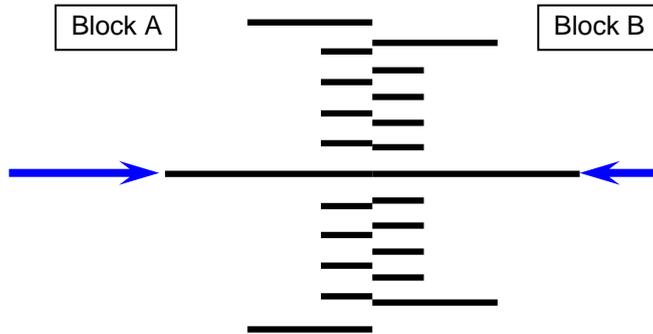
Item No.	Setting Item	Setting range	Step of increment
014	Horizontal Alignment of LED Block A/B	0 to 144	0.5 pixel
015	Horizontal Alignment of LED Block B/C	0 to 144	0.5 pixel



Check the following part of the test pattern No.9 S(3) for how many pixels Block A or Block C are shifting against Block B.

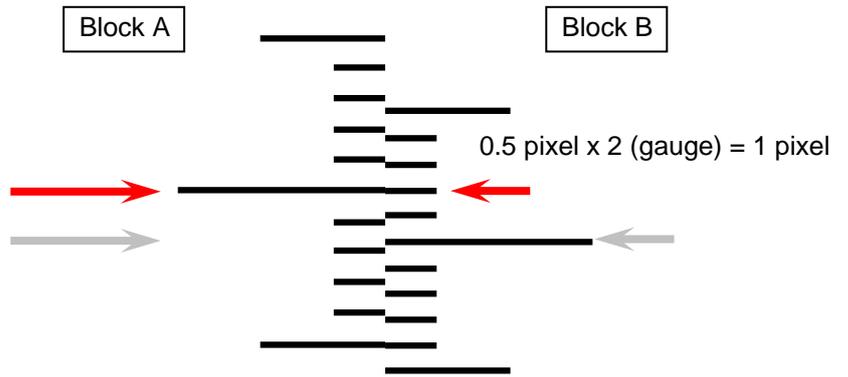


Correct:
The long center line on Block A touches the reference line on Block B.



The gauges on Block B line up in 0.5 pixel interval. If the long center line on Block A does not touch the reference line, Block A is displaced in $(0.5 \times \text{gauge number})$ pixel(s).

Wrong:
The long center line on Block A are touching the second short line from the reference line on Block B. This means that Block A is displaced in 1 pixel toward the leading edge.



In this example, increase No.014 in "2" to move Block A toward the trailing edge in 1 pixel.

018 Cut Length 3 (Compensation of the length of a long print)

When you make a long print, the actual print length may become shorter than expected because the paper is likely to shrink. It is possible in this mode to compensate the print length manually.

The length of long print is not compensated directly, but it is indirectly compensated by correcting the length of A1 print.

If you increase the setting value by "+1", the length of A1 print becomes 0.1mm longer per 10mm.

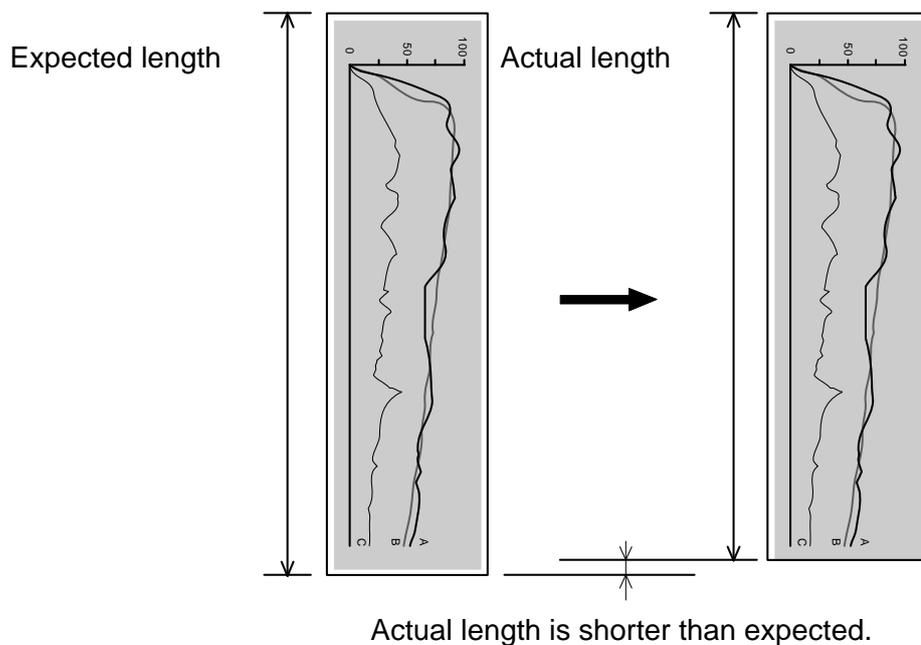
Setting Range	Step of increment
1 to 999	0.1mm

! NOTE

It is necessary to finish the adjustment of Cut Length 1 (No.016) before starting the adjustment in this Cut Length 3 (No.018).

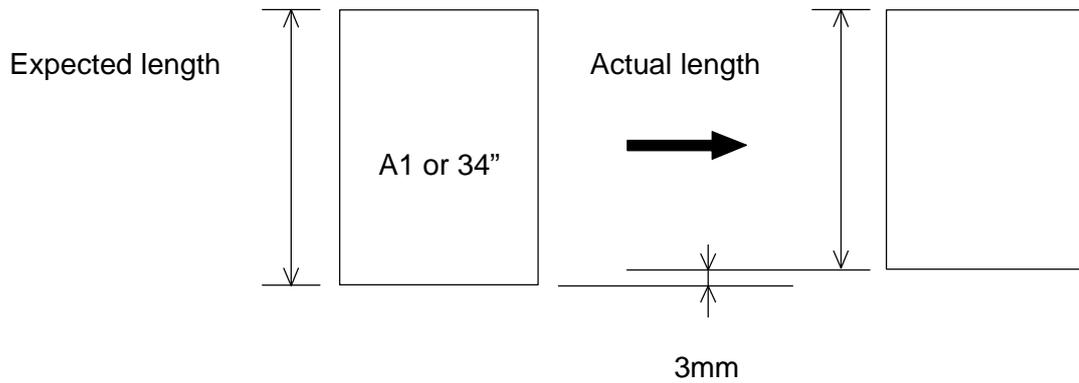
[Example of adjustment]

1. Supposing the actual length of a long print is shorter than expected.



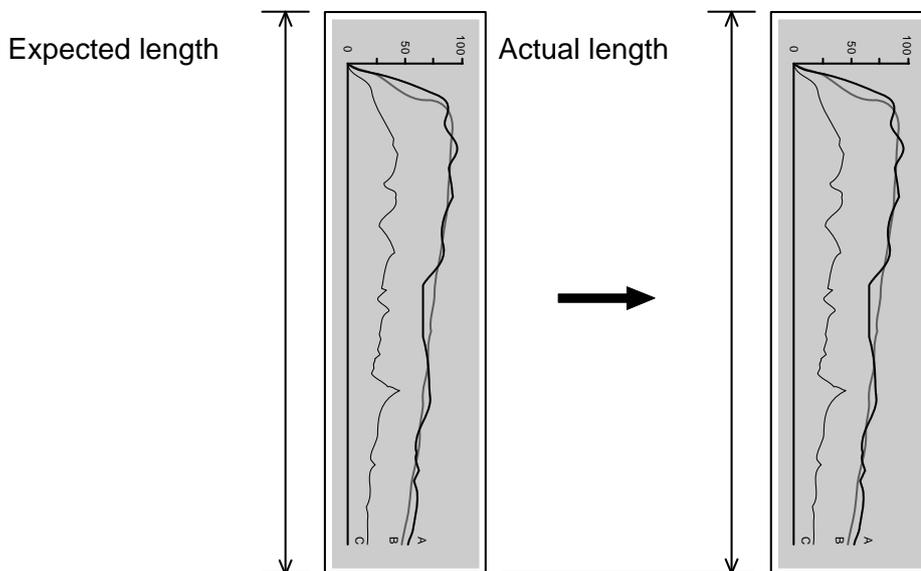
- Make an A1 (841mm long) or 34" long print.
Measure the actual length of this A1 or 34" print to know how long millimeter it is shorter than expected.

(Example: Print out is 838mm, so it is 3mm shorter than expected.)



- Necessary value for the compensation is 10 times as long as the difference between actual length and expected length.
It is "30" in this example. ($3\text{mm} \times 10 = 30$)
Specify "30" as the setting value of No.018.

- Make a long print.
The actual print out will be as long as expected.



019 Leading Margin

It is possible to adjust the length of the leading margin.

An image portion that corresponds to the given length of the leading margin is not printed.

The length of the leading margin becomes 0.1mm longer if you increase the setting value by "+1".

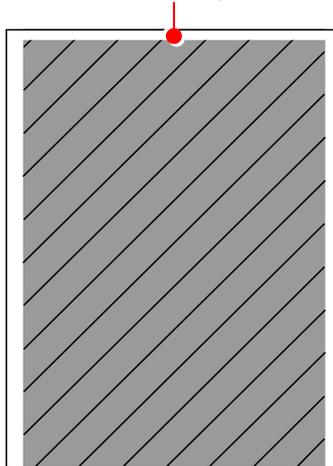
Changing the value to "0" removes whole the margin, thus a portion image on the leading edge will appear.

Setting Range	Step of increment
0 to 50	0.1mm

Default: 30

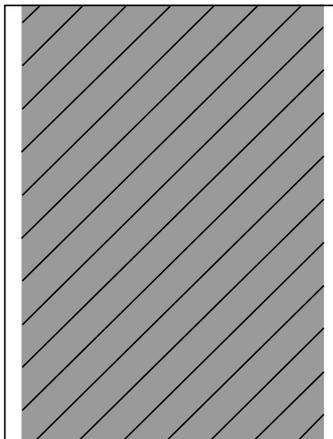
A 3mm Leading Margin added to leading edge.

Hides the corresponding part of image.



Example: 0

Leading Margin disappears.
Corresponding part of image printed.



! NOTE

There is no guarantee of proper operation and image quality with a reduced leading margin (less than 30 in the setting value).

Reference

Setting to "0" may result in a jam in Fuser Unit and a ghost image at approximately 252mm from the leading edge.

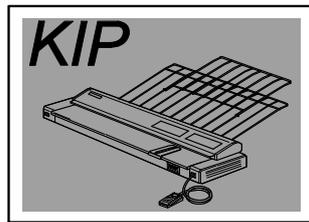
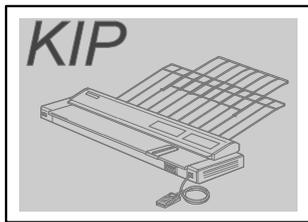
022 to 027 Developer Bias

It is possible to make the print density darker or lighter by adjusting the Developer Bias (Negative Developer Roller Bias).

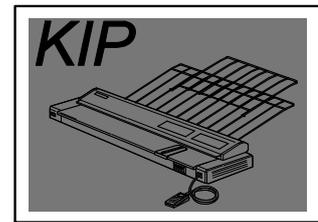
The print density becomes lighter if you increase the setting value.

Item No.	Setting Item	Setting range
022	Developer Bias (Plain paper)	0 to 3FF
023	Developer Bias (Tracing paper)	0 to 3FF
024	Developer Bias (Film)	0 to 3FF
025	Developer Bias (Special media / Plain paper)	0 to 3FF
026	Developer Bias (Special media / Tracing paper)	0 to 3FF
027	Developer Bias (Special media / Film)	0 to 3FF

Setting value is increased.



Setting value is decreased.



NOTE

Please adjust the Developer Bias while checking the actual voltage with the multi-meter.

028 Developer Bias compensation - 1st Drum revolution

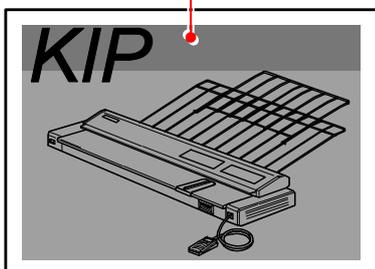
It is possible to compensate the Developer Bias only for the 1st Drum revolution.

The print density becomes lighter if you increase the setting value.

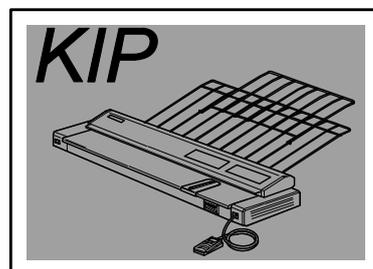
(Developer Bias is not compensated at all if the setting value is "0")

Setting Range
0 to 255

Density of leading area is darker.



Setting value is increased.
(Even density)



NOTE

There may be the case that the density of leading area, which corresponds to the 1st revolution of Drum, is darker than other area.

In this case compensate the Developer Bias to have even density on both areas.

029 to 034 Transfer Voltage

It is possible to adjust the analog voltage outputted to the Transfer Corona during the print cycle.

Item No.	Setting Item	Setting range
029	Transfer Corona Analog Voltage (Plain paper)	0 to 3FF
030	Transfer Corona Analog Voltage (Tracing paper)	0 to 3FF
031	Transfer Corona Analog Voltage (Film)	0 to 3FF
032	Transfer Corona Analog Voltage (Special media / Plain paper)	0 to 3FF
033	Transfer Corona Analog Voltage (Special media / Tracing paper)	0 to 3FF
034	Transfer Corona Analog Voltage (Special media / Film)	0 to 3FF

NOTE

Please adjust Transfer Corona Analog Voltage while checking the actual voltage with the multi-meter.

035 Separation Corona ON Timing

It is possible to adjust the timing that the Separation Corona starts discharging during the print cycle.

If you increase the setting value by "+1", the timing to start discharging is 1mm delayed.

Setting range	Step of increment
0 to 100	1mm

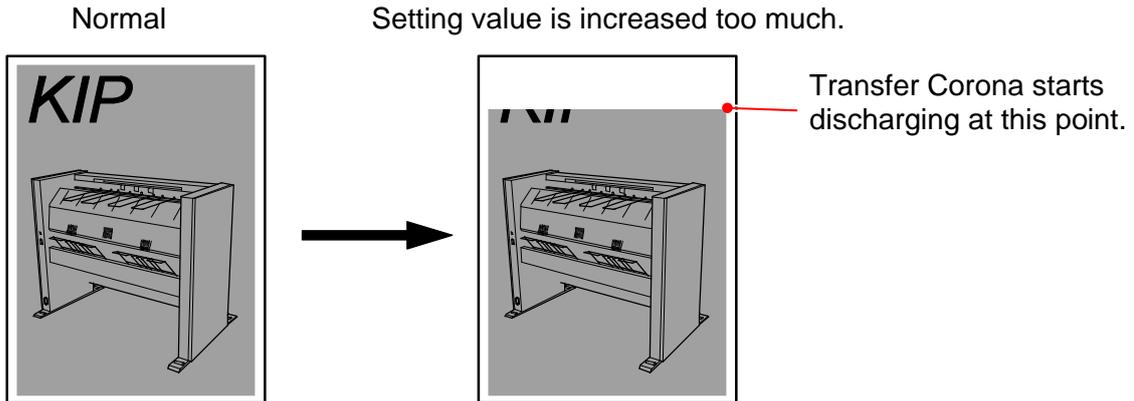
037 Transfer Corona ON Timing

It is possible to adjust the timing that the Transfer Corona starts discharging during the print cycle. If you increase the setting value by "+1", the timing to start discharging is 1mm delayed.

Setting Range	Step of increment
0 to 100	1mm

NOTE

You may lose some leading image as the following example if you increase the setting value too much, because the timing to start discharging is too much delayed.

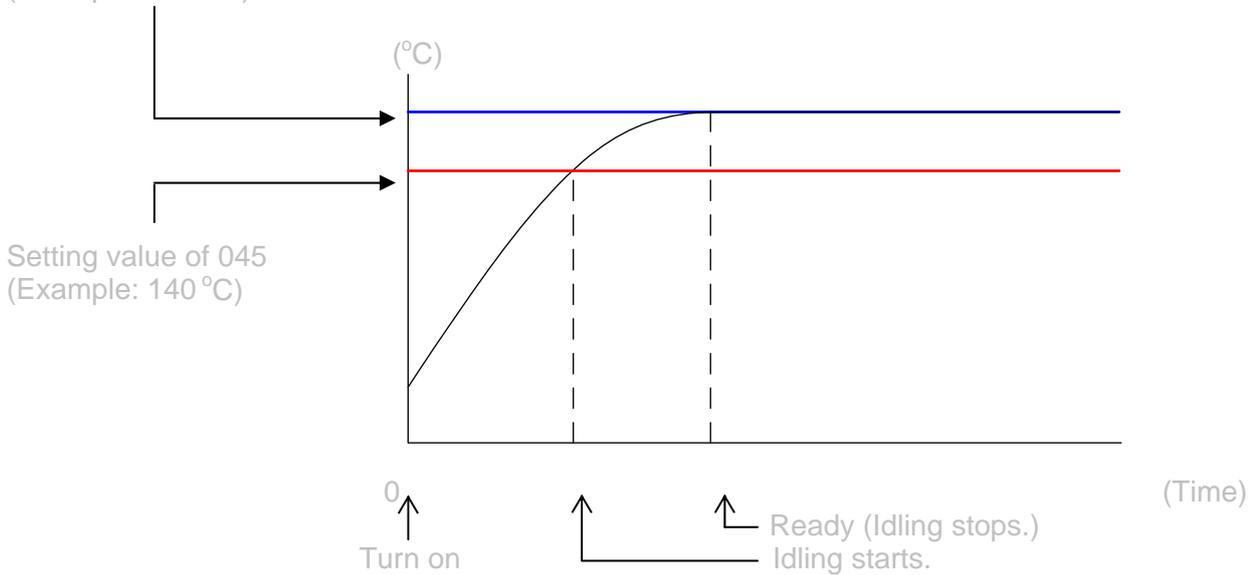


045 Fuser Temperature to start idling

It is possible to decide the temperature to start idling.
When the Fuser Temperature reaches the value specified in this No.045 during the warming up, the Fuser Motor starts rotating to drive the Fuser Roller (idling).

Setting Range	Step of increment
100 to 140	1°C

Setting value of 625 to 648
(Example : 160 °C)

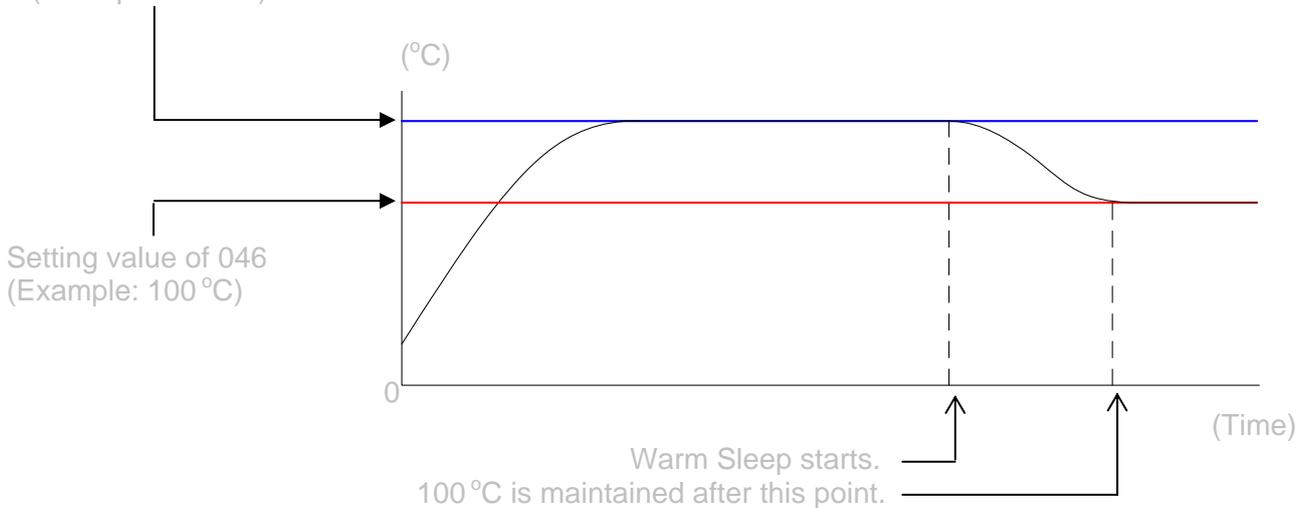


046 Warm Sleep – Fuser Temperature

It is possible to decide the temperature which is maintained in the Warm Sleep.

Setting Range	Step of increment
100 to 160	1°C

Setting value of 625 to 648
(Example: 160 °C)



048, 049 Fuser Temperature Control Range

It is possible to specify the control range of temperature of Fuser Roller.

If you specify some setting value "X" on these No.048 and 049, for example, you can decide the highest limit and the lowest one of the control range of temperature.

The highest limit is "Fuser Temperature (Decided in No.625 to 648, and 738)" plus the setting value "X".

And the lowest one is "Fuser Temperature" minus "X".

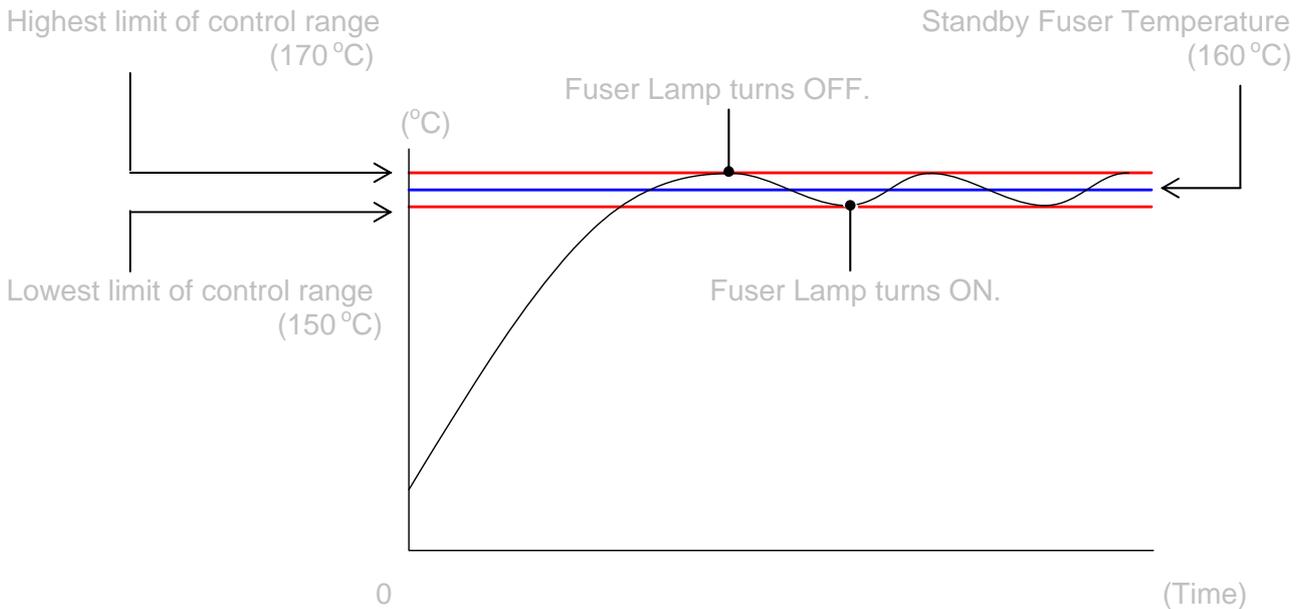
The Fuser Lamp continues to light up when the temperature of Fuser Roller is colder than the highest limit, and it is put out when the temperature reaches the highest limit.

The Fuser Roller gradually gets colder after that, and the Fuser Lamp lights again when the temperature reaches the lowest limit.

Control range can be decided separately to each condition "in the print cycle" and "stand by".

Item No.	Setting Item	Setting range	Step of increment
048	Fuser Temperature Control Range (In the print cycle)	1 to 6	1°C
049	Fuser Temperature Control Range (Stand by)	1 to 6	1°C

Example: Value of No.049 (Fuser Temperature Control Range) is "10"
Value of No.738 (Standby - Fuser Temperature) is "160"



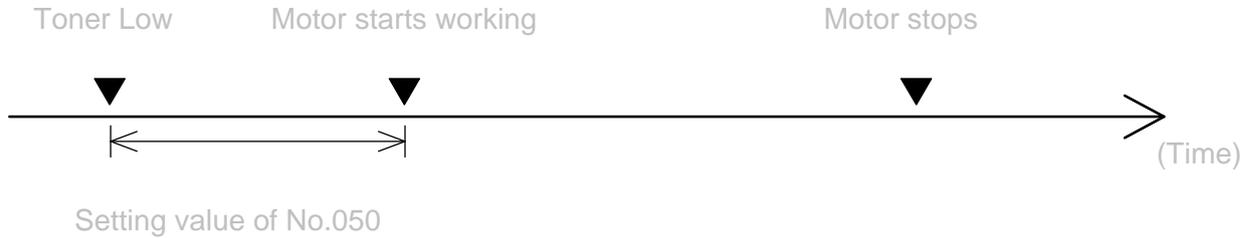
050 Reaction Time of Toner Supply Motor

It is possible to change the reaction time of Toner Supply Motor.

“Reaction time” is the time taken until the Toner Supply Motor starts working since “Toner Low” has been detected.

The reaction time becomes 1 second longer if you increase the setting value by “+1”.

Setting Range	Step of increment
1 to 30	1 second



! NOTE

The reaction time may be too long if the image gets lighter and lighter when you make large volume prints continuously.

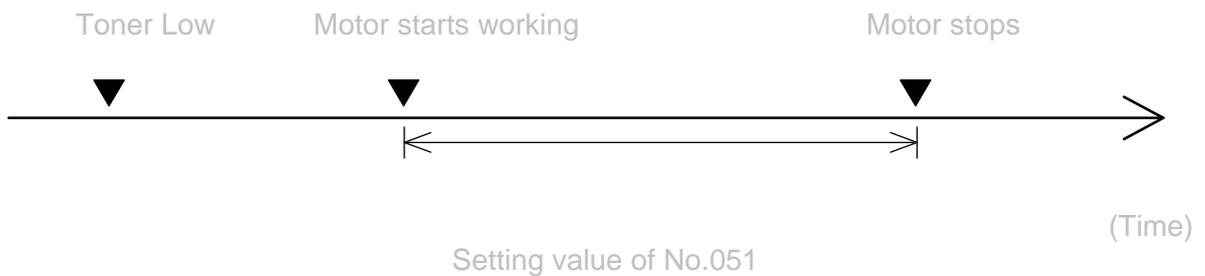
In this case try to decrease the setting value of No.050 to shorten the reaction time.

051 Toner Supply Motor ON Time

It is possible to change the time the Toner Supply Motor works (ON time).

The ON time becomes 1 second longer if you increase the setting value.

Setting Range	Step of increment
1 to 75	1 second



! NOTE

The ON time may be too short if the image gets lighter and lighter when you make large volume prints continuously.

In this case try to increase the setting value of No.051 to make the ON time longer.

052 Dot Enhancement Level (Dither)

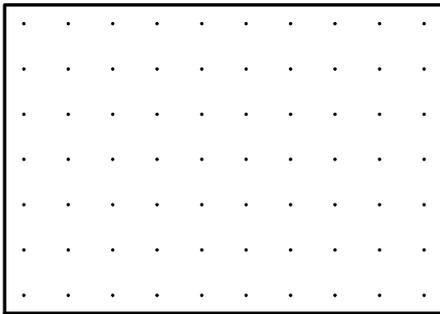
It is possible to validate the Dot Enhancement function which makes an isolated dot look clearer. An isolated dot image is more emphasized if you increase the setting value.

Setting value	Contents
1	Emphasized
2	More emphasized
3	Most emphasized

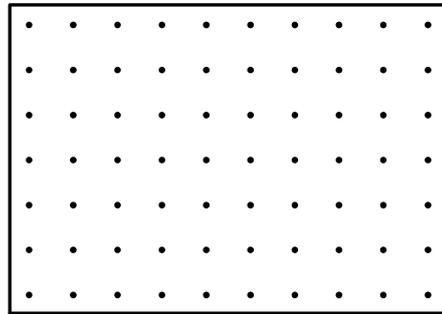
Reference

- (1) An isolated dot image tends to look so weak.
The Dot Enhancement function emphasizes the isolated dot so that it looks clear.
(Dot Enhancement function emphasizes only the isolated dot. It will not emphasize the dots coming together some degree.)

Dot Enhancement function is OFF.



Dot Enhancement function is ON.



- (2) The Dot Enhancement function can be validated in the UI screen.
It will not work if not validated.

056 Language

NOTE

This setting does not function. Keep the value unchanged.

Setting Range

0 to 1

059 Count Unit (Counter A = Print Count)

It is possible to specify the counting unit of Print Count.

Setting value	Contents
0	1 linear meter
1	0.1 linear meter
2	1 square meter
3	0.1 square meter
4	1 linear foot
5	1 square foot
6	Size Count

Reference

Size Count:

A4/A3: 1 count

A2: 2 counts

A1: 3 counts

A0: 5 counts

NOTE

No.059 is effective only to Print Count. Total Count always counts up in linear meter.

060 Maximum Length

It is possible to specify the maximum cut length.

Setting value	Contents
0	Maximum cut length is 3.6m.
1	Maximum cut length is 6m.

NOTE

We will not guarantee the print quality if the print is longer than the following sizes.

A0 / 36" plain paper	2.4m
Other sizes of plain paper	twice as long as each standard size
2 inch core plain paper	Standard size
Tracing paper	Standard size
Film	Standard size

061 P.Diaglog

It is possible to choose whether or not the media setting dialog pops up in both Maintenance GUI and the System K Controller when inserting a cut sheet media into the bypass feeder.

Setting value	Contents
0	Media setting dialog does not pop up when inserting a cut sheet media into the bypass feeder.
1	Media setting dialog pops up when inserting a cut sheet media into the bypass feeder.

063, 064 Cut Length 5 & 6

(Length Compensation for Tracing Paper / Film)

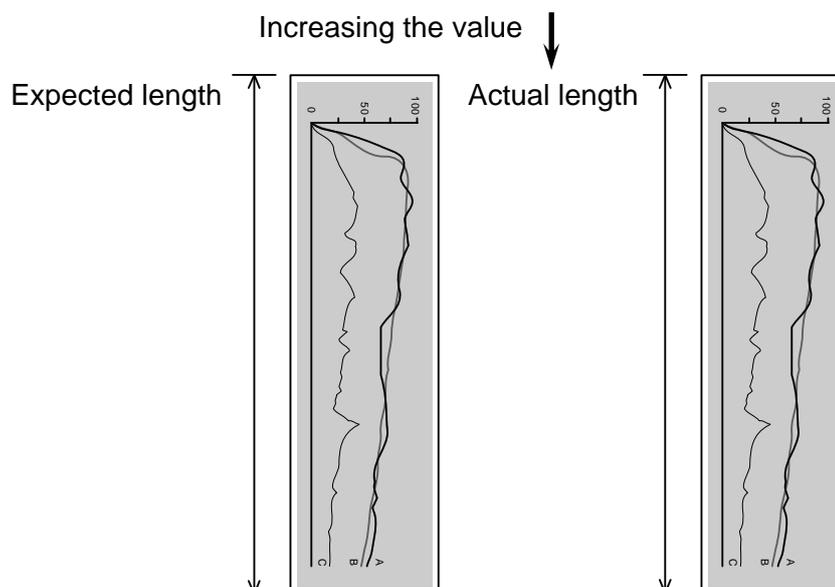
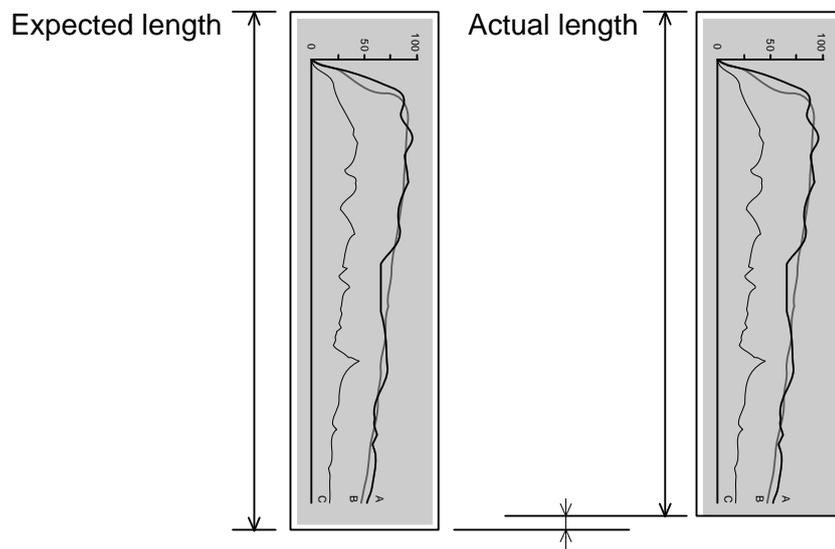
It is possible to compensate the print length for the tracing paper and film.
If you increase the setting value by "+1", the length of the print becomes longer.

Item No.	Setting Item	Setting range	Step of increment
063	Cut Length 5 (Tracing Paper)	0 to 200	depends on paper length
064	Cut Length 6 (Film)	0 to 200	depends on paper length

An amount of the length to be added / removed against "1" increment of the setting value will vary depending on the length of the media length to be printed.

"1" increment will correspond to the length listed below to be compensated.

paper length	length to be added / removed (Approx.)
A0 (1189mm)	0.16mm
A1 (841mm)	0.11mm
A2 (594mm)	0.08mm
A3 (420mm)	0.05mm
A4 (297mm)	0.04mm



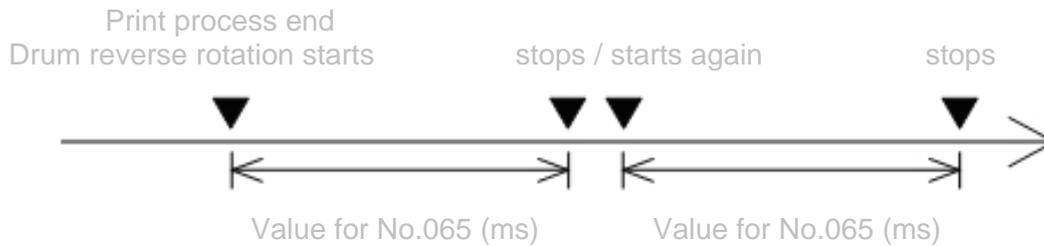
065 Drum Reverse Time

It is possible to change the period for the Drum reverse rotation.

Developer Roller is strongly pressed to the Drum and that may cause an indentation on Developer Roller's surface. The indentation may result in defective imaging. The Drum makes a reverse rotation in a given period twice after finishing a job.

Setting a bigger value for No.065 makes the reverse rotation period longer.

Setting Range	Step of increment
10 to 100	1 millisecond



Reference

- (1) Drum reverse rotations may produce a slight amount of toner sticking on Drum's surface. This causes a black line about 50mm below the leading edge on a print. Setting a smaller value will reduce such a line.
- (2) Setting an extremely small value may cause an indentation on Developer Roller.

214 to 309 Cut Length Compensation

The cut length listed below can be compensated separately based on No.016 (Cut Length 1). Increasing the setting value by 1 will set the print length 1mm longer.

Item No.	Setting Item	Setting range	Step of Increment
214	Cut Length Compensation (Plain) (11")	30 to 70	1mm
215	Cut Length Compensation (Tracing) (11")	30 to 70	1mm
216	Cut Length Compensation (Film) (11")	30 to 70	1mm
217	Cut Length Compensation (Special / Plain) (11")	30 to 70	1mm
218	Cut Length Compensation (Special / Tracing) (11")	30 to 70	1mm
219	Cut Length Compensation (Special Film) (11")	30 to 70	1mm
220	Cut Length Compensation (Plain) (12")	30 to 70	1mm
221	Cut Length Compensation (Tracing) (12")	30 to 70	1mm
222	Cut Length Compensation (Film) (12")	30 to 70	1mm
223	Cut Length Compensation (Special / Plain) (12")	30 to 70	1mm
224	Cut Length Compensation (Special / Tracing) (12")	30 to 70	1mm
225	Cut Length Compensation (Special Film) (12")	30 to 70	1mm
226	Cut Length Compensation (Plain) (15")	30 to 70	1mm
227	Cut Length Compensation (Tracing) (15")	30 to 70	1mm
228	Cut Length Compensation (Film) (15")	30 to 70	1mm
229	Cut Length Compensation (Special / Plain) (15")	30 to 70	1mm
230	Cut Length Compensation (Special / Tracing) (15")	30 to 70	1mm
231	Cut Length Compensation (Special Film) (15")	30 to 70	1mm
232	Cut Length Compensation (Plain) (17")	30 to 70	1mm
233	Cut Length Compensation (Tracing) (17")	30 to 70	1mm
234	Cut Length Compensation (Film) (17")	30 to 70	1mm
235	Cut Length Compensation (Special / Plain) (17")	30 to 70	1mm
236	Cut Length Compensation (Special / Tracing) (17")	30 to 70	1mm
237	Cut Length Compensation (Special Film) (17")	30 to 70	1mm
238	Cut Length Compensation (Plain) (18")	30 to 70	1mm
239	Cut Length Compensation (Tracing) (18")	30 to 70	1mm
240	Cut Length Compensation (Film) (18")	30 to 70	1mm
241	Cut Length Compensation (Special / Plain) (18")	30 to 70	1mm
242	Cut Length Compensation (Special / Tracing) (18")	30 to 70	1mm
243	Cut Length Compensation (Special Film) (18")	30 to 70	1mm
244	Cut Length Compensation (Plain) (22")	30 to 70	1mm
245	Cut Length Compensation (Tracing) (22")	30 to 70	1mm
246	Cut Length Compensation (Film) (22")	30 to 70	1mm
247	Cut Length Compensation (Special / Plain) (22")	30 to 70	1mm
248	Cut Length Compensation (Special / Tracing) (22")	30 to 70	1mm
249	Cut Length Compensation (Special Film) (22")	30 to 70	1mm
250	Cut Length Compensation (Plain) (24")	30 to 70	1mm
251	Cut Length Compensation (Tracing) (24")	30 to 70	1mm
252	Cut Length Compensation (Film) (24")	30 to 70	1mm
253	Cut Length Compensation (Special / Plain) (24")	30 to 70	1mm
254	Cut Length Compensation (Special / Tracing) (24")	30 to 70	1mm
255	Cut Length Compensation (Special Film) (24")	30 to 70	1mm
256	Cut Length Compensation (Plain) (30")	30 to 70	1mm
257	Cut Length Compensation (Tracing) (30")	30 to 70	1mm
258	Cut Length Compensation (Film) (30")	30 to 70	1mm
259	Cut Length Compensation (Special / Plain) (30")	30 to 70	1mm
260	Cut Length Compensation (Special / Tracing) (30")	30 to 70	1mm
261	Cut Length Compensation (Special Film) (30")	30 to 70	1mm
262	Cut Length Compensation (Plain) (34")	30 to 70	1mm
263	Cut Length Compensation (Tracing) (34")	30 to 70	1mm
264	Cut Length Compensation (Film) (34")	30 to 70	1mm
265	Cut Length Compensation (Special / Plain) (34")	30 to 70	1mm
266	Cut Length Compensation (Special / Tracing) (34")	30 to 70	1mm
267	Cut Length Compensation (Special Film) (36")	30 to 70	1mm
268	Cut Length Compensation (Plain) (36")	30 to 70	1mm
269	Cut Length Compensation (Tracing) (36")	30 to 70	1mm
270	Cut Length Compensation (Film) (36")	30 to 70	1mm
271	Cut Length Compensation (Special / Plain) (36")	30 to 70	1mm
272	Cut Length Compensation (Special / Tracing) (36")	30 to 70	1mm
273	Cut Length Compensation (Special Film) (36")	30 to 70	1mm
274	Cut Length Compensation (Plain) (A3)	30 to 70	1mm
275	Cut Length Compensation (Tracing) (A3)	30 to 70	1mm

Item No.	Setting Item	Setting range	Step of Increment
276	Cut Length Compensation (Film) (A3)	30 to 70	1mm
277	Cut Length Compensation (Special / Plain) (A3)	30 to 70	1mm
278	Cut Length Compensation (Special / Tracing) (A3)	30 to 70	1mm
279	Cut Length Compensation (Special Film) (A3)	30 to 70	1mm
280	Cut Length Compensation (Plain) (A2)	30 to 70	1mm
281	Cut Length Compensation (Tracing) (A2)	30 to 70	1mm
282	Cut Length Compensation (Film) (A2)	30 to 70	1mm
283	Cut Length Compensation (Special / Plain) (A2)	30 to 70	1mm
284	Cut Length Compensation (Special / Tracing) (A2)	30 to 70	1mm
285	Cut Length Compensation (Special Film) (A2)	30 to 70	1mm
286	Cut Length Compensation (Plain) (A1)	30 to 70	1mm
287	Cut Length Compensation (Tracing) (A1)	30 to 70	1mm
288	Cut Length Compensation (Film) (A1)	30 to 70	1mm
289	Cut Length Compensation (Special / Plain) (A1)	30 to 70	1mm
290	Cut Length Compensation (Special / Tracing) (A1)	30 to 70	1mm
291	Cut Length Compensation (Special Film) (A1)	30 to 70	1mm
292	Cut Length Compensation (Plain) (A0)	30 to 70	1mm
293	Cut Length Compensation (Tracing) (A0)	30 to 70	1mm
294	Cut Length Compensation (Film) (A0)	30 to 70	1mm
295	Cut Length Compensation (Special / Plain) (A0)	30 to 70	1mm
296	Cut Length Compensation (Special / Tracing) (A0)	30 to 70	1mm
297	Cut Length Compensation (Special Film) (A0)	30 to 70	1mm
298	Cut Length Compensation (Plain) (B1)	30 to 70	1mm
299	Cut Length Compensation (Tracing) (B1)	30 to 70	1mm
300	Cut Length Compensation (Film) (B1)	30 to 70	1mm
301	Cut Length Compensation (Special / Plain) (B1)	30 to 70	1mm
302	Cut Length Compensation (Special / Tracing) (B1)	30 to 70	1mm
303	Cut Length Compensation (Special Film) (B1)	30 to 70	1mm
304	Cut Length Compensation (Plain) (880mm)	30 to 70	1mm
305	Cut Length Compensation (Tracing) (880mm)	30 to 70	1mm
306	Cut Length Compensation (Film) (880mm)	30 to 70	1mm
307	Cut Length Compensation (Special / Plain) (880mm)	30 to 70	1mm
308	Cut Length Compensation (Special Film) (880mm)	30 to 70	1mm
309	Cut Length Compensation (Plain) (880mm)	30 to 70	1mm

310 to 315 Main Motor Speed

It is possible to adjust the speed of Main Motor for each type of paper separately.
If you increase the setting value by "+1", the motor speed becomes 0.02mm/second faster.

Item No.	Setting Item	Setting range	Step of increment
310	Main Motor Speed (Plain paper)	0 to 80	0.02mm/s
311	Main Motor Speed (Tracing paper)	0 to 80	0.02mm/s
312	Main Motor Speed (Film)	0 to 80	0.02mm/s
313	Main Motor Speed (Special plain paper)	0 to 80	0.02mm/s
314	Main Motor Speed (Special tracing paper)	0 to 80	0.02mm/s
315	Main Motor Speed (Special film)	0 to 80	0.02mm/s

CAUTION

The Main Motor Speed is the basis for many other print settings.
So you have to re-adjust all of these print settings if you change the Main Motor Speed.

508 to 510 Transfer Voltage applied at 100mm from trailing edge

It is possible to adjust the analog voltage to Transfer Corona on 100mm end of a print.

Item No.	Setting Item	Setting range
508	Transfer Voltage applied at 100mm from trailing edge (Plain)	0 to 7FE
509	Transfer Voltage applied at 100mm from trailing edge (Tracing)	0 to 7FE
510	Transfer Voltage applied at 100mm from trailing edge (Film)	0 to 7FE

511 to 513 Transfer Voltage applied at 70mm from trailing edge

It is possible to adjust the analog voltage to Transfer Corona on 70mm end of a print.

Item No.	Setting Item	Setting range
511	Transfer Voltage applied at 70mm from trailing edge (Plain)	0 to 7FE
512	Transfer Voltage applied at 70mm from trailing edge (Tracing)	0 to 7FE
513	Transfer Voltage applied at 70mm from trailing edge (Film)	0 to 7FE

613 to 616 Judgment value for Additional Cut Length for Non-standard Size Prints

It is possible to avoid the lack of trailing image on the non-standard size print, by providing additional paper length by service modes 617 to 620 (Additional Cut Length for non-standard size print).

Additional Cut Length specified by service mode 617 to 620 is not always provided.

Whether or not it is provided is judged by service mode 613 to 616 (Judgment value for "Additional Cut Length for non-standard size print".)

Item No.	Setting Item	Setting range	Step of increment
613	Judgment value for Additional Cut Length for Non-standard Size Prints (36"/ 34"/ 30"/ A0 / B1)	1 to 20	1mm
614	Judgment value for Additional Cut Length for Non-standard Size Prints (24"/ 20"/ A1)	1 to 20	1mm
615	Judgment value for Additional Cut Length for Non-standard Size Prints (18"/ 17"/ 15"/ A2)	1 to 20	1mm
616	Judgment value for Additional Cut Length for Non-standard Size Prints (12"/ 11"/ A3)	1 to 20	1mm

Reference

- (1) Which Judgement Value / Additional Cut Length setting is applied to a non-standard size print depends on the corresponding roll width.

Roll Width	Standard Size	Standard Cut Length	Judgement Value	Additional Length
36"	36"x48"	1219mm	No.613	No.617
841mm	A0	1189mm		
34"	34"x44"	1118mm		
30"	30"x42"	1067mm		
728mm	B1	1030mm		
24"	24"x36"	914mm	No.614	No.618
22"	22"x34"	864mm		
594mm	A1	841mm		
18"	18"x24"	610mm	No.615	No.619
420mm	A2	594mm		
17"	17"x22"	559mm		
15"	15"x21"	533mm		
12"	12"x18"	457mm	No.616	No.620
11"	11"x17"	432mm		
297mm	A3	420mm		

(next page)

Reference

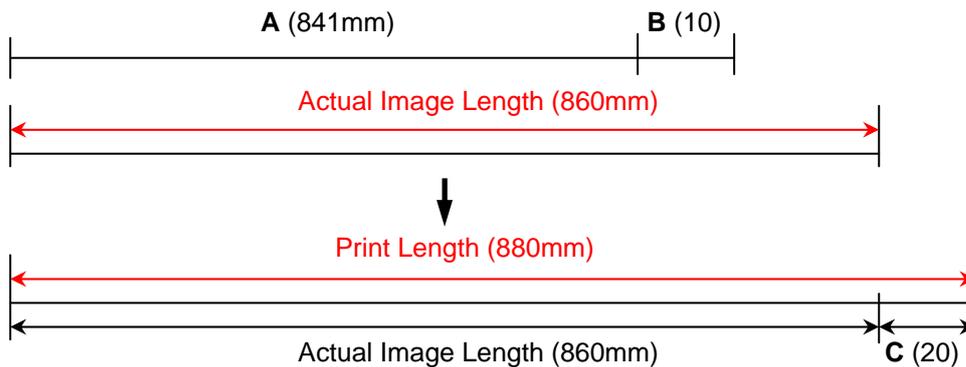
(2) If the actual image length is longer than (or equal to) “A+B”, “C” is provided to the trailing edge of non-standard size print.

A: Standard Cut Length (depends on roll width)

B: Value of “Judgement Value for “Additional Cut Length for Non-standard Size Prints”

C: Value of “Additional Cut Length for Non-standard Size Prints”

<Example> Actual Image Length: 860mm
A: 841mm (A1 roll width)
B: 10
C: 20



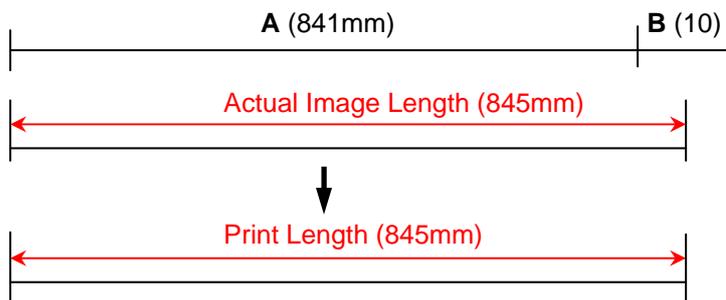
(3) If the actual image length is shorter than “A+B”, the print is cut as long as the actual image length. (“C” is not provided to the trailing edge of the print.)

A: Standard Cut Length (depends on roll width)

B: Value of “Judgement Value for “Additional Cut Length for Non-standard Size Prints”

C: Value of “Additional Cut Length for Non-standard Size Prints”

<Example> Actual Image Length: 845mm
A: 841mm (A1 roll width)
B: 10
C: 20



617 to 620 Additional Cut Length for Non-standard Size Prints

It is possible to avoid the lack of trailing image on the non-standard size print, by providing additional paper length by service modes 617 to 620 (Additional Cut Length for non-standard size print).

Additional Cut Length specified by service mode 617 to 620 is not always provided.

Whether or not it is provided is judged by service mode 613 to 616 (Judgment value for “Additional Cut Length for non-standard size print”).

Item No.	Setting Item	Setting range	Step of increment
617	Additional Cut Length for Non-standard Size Prints (36"/ 34"/ 30"/ A0 / B1)	0 to 35	1mm
618	Additional Cut Length for Non-standard Size Prints (24"/ 22"/ A2)	0 to 35	1mm
619	Additional Cut Length for Non-standard Size Prints (18"/ 17"/ 15"/ A2)	0 to 35	1mm
620	Additional Cut Length for Non-standard Size Prints (12"/ 11"/ A3)	0 to 35	1mm

621 Toner Supply Roller Bias

It is possible to make bias adjustment for Toner Supply Roller.

NOTE

This setting does not function. Change of this setting has no effect on the machine operation.

Setting Range
10 to 800

622 Regulation Bias

It is possible to make the print density darker or lighter by adjusting Regulation Bias (Center). The print density becomes darker if you increase the setting value.

NOTE

Please adjust Regulation Bias while checking the actual voltage with the multi-meter.

Setting Range
10 to 800

624 Density Sensor Analog Voltage

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

It is possible to change the default analog output of Density Sensor. “Density Sensor Standard Output” (No.623) and “Density Sensor Analog Voltage” (No.624) are used for Density Measure.

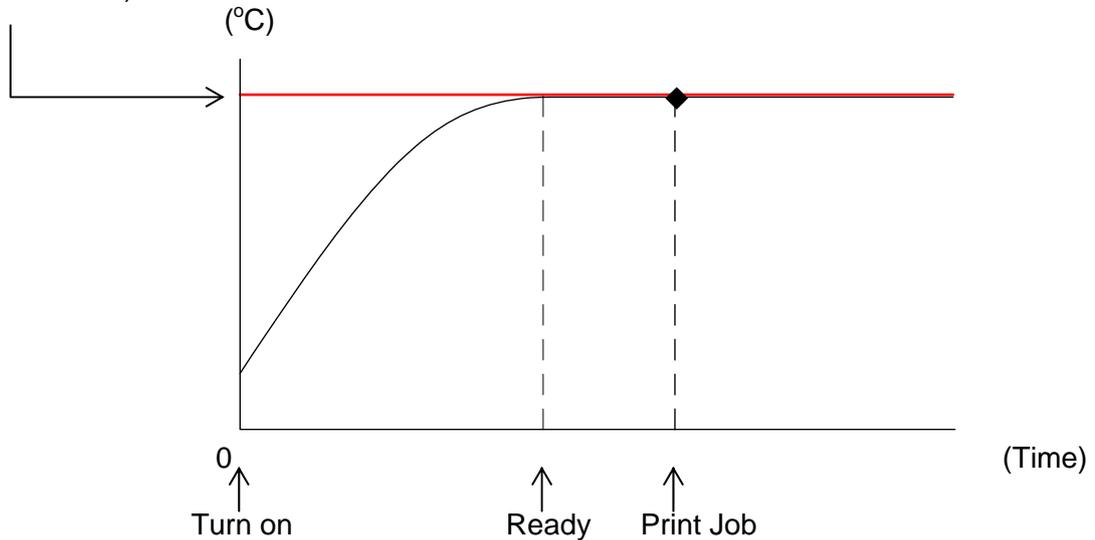
Setting Range
0 to 60

625 to 630 Print - Fuser Temperature (12"/11"/A3)

It is possible to adjust the Fuser Temperature for 12"/11"/A3 wide media in the print cycle. You can specify the temperature for each type and size of media separately. The Fuser Temperature becomes 1 degree higher if you increase the setting value by "+1".

Item No.	Setting Item	Setting range	Step of increment
625	Print - Fuser Temperature (Plain) (12" / 11" / A3)	120 to 180	1°C
626	Print - Fuser Temperature (Tracing) (12" / 11" / A3)	120 to 180	1°C
627	Print - Fuser Temperature (Film) (12" / 11" / A3)	120 to 180	1°C
628	Print - Fuser Temperature (Special / Plain) (12" / 11" / A3)	120 to 180	1°C
629	Print - Fuser Temperature (Special / Tracing) (12" / 11" / A3)	120 to 180	1°C
630	Print - Fuser Temperature (Special media / Film) (12" / 11" / A3)	120 to 180	1°C

Setting value of 625 to 630
(Example: Film 170°C)



631 to 636 Print - Fuser Temperature (18"/17"/15"/A2)

It is possible to adjust the Fuser Temperature for 8"/17"/15"/A2 wide media in the print cycle. You can specify the temperature for each type and size of media separately. The Fuser Temperature becomes 1 degree higher if you increase the setting value by "+1".

Item No.	Setting Item	Setting range	Step of increment
631	Print - Fuser Temperature (Plain) (18" / 17" / 15" / A2)	120 to 180	1°C
632	Print - Fuser Temperature (Tracing) (18" / 17" / 15" / A2)	120 to 180	1°C
633	Print - Fuser Temperature (Film) (18" / 17" / 15" / A2)	120 to 180	1°C
634	Print - Fuser Temperature (Special / Plain) (18" / 17" / 15" / A2)	120 to 180	1°C
635	Print - Fuser Temperature (Special / Tracing) (18" / 17" / 15" / A2)	120 to 180	1°C
636	Print - Fuser Temperature (Special / Film) (18" / 17" / 15" / A2)	120 to 180	1°C

637 to 642 Print - Fuser Temperature (24"/22"/A1)

It is possible to adjust the Fuser Temperature for 24"/22"/A1 wide media in the print cycle. You can specify the temperature for each type and size of media separately. The Fuser Temperature becomes 1 degree higher if you increase the setting value by "+1".

Item No.	Setting Item	Setting range	Step of increment
637	Print - Fuser Temperature (Plain) (24" / 22" / A1)	120 to 180	1°C
638	Print - Fuser Temperature (Tracing) (24" / 22" / A1)	120 to 180	1°C
639	Print - Fuser Temperature (Film) (24" / 22" / A1)	120 to 180	1°C
640	Print - Fuser Temperature (Special / Plain) (24" / 22" / A1)	120 to 180	1°C
641	Print - Fuser Temperature (Special / Tracing) (24" / 22" / A1)	120 to 180	1°C
642	Print - Fuser Temperature (Special / Film) (24" / 22" / A1)	120 to 180	1°C

643 to 648 Print - Fuser Temperature (36"/34"/30"/A0/B1)

It is possible to adjust the Fuser Temperature for 36"/34"/30"/A0/B1 wide media in the print cycle. You can specify the temperature for each type and size of media separately. The Fuser Temperature becomes 1 degree higher if you increase the setting value by "+1".

Item No.	Setting Item	Setting range	Step of increment
643	Print - Fuser Temperature (Plain) (36" / 34" / 30" / A0 / B1)	120 to 180	1°C
644	Print - Fuser Temperature (Tracing) (36" / 34" / 30" / A0 / B1)	120 to 180	1°C
645	Print - Fuser Temperature (Film) (36" / 34" / 30" / A0 / B1)	120 to 180	1°C
646	Print - Fuser Temperature (Special / Plain) (36" / 34" / 30" / A0 / B1)	120 to 180	1°C
647	Print - Fuser Temperature (Special / Tracing) (36" / 34" / 30" / A0 / B1)	120 to 180	1°C
648	Print - Fuser Temperature (Special / Film) (36" / 34" / 30" / A0 / B1)	120 to 180	1°C

649 Density Sensor Output Monitor

NOTE

This setting is factory-use only. Keep the value unchanged.

It is possible to change the mode to monitor the default analog output of Density Sensor.

Setting Range
2 to 9

652 Density Compensation ON/OFF

It is possible to decide whether Density Compensation is enabled.

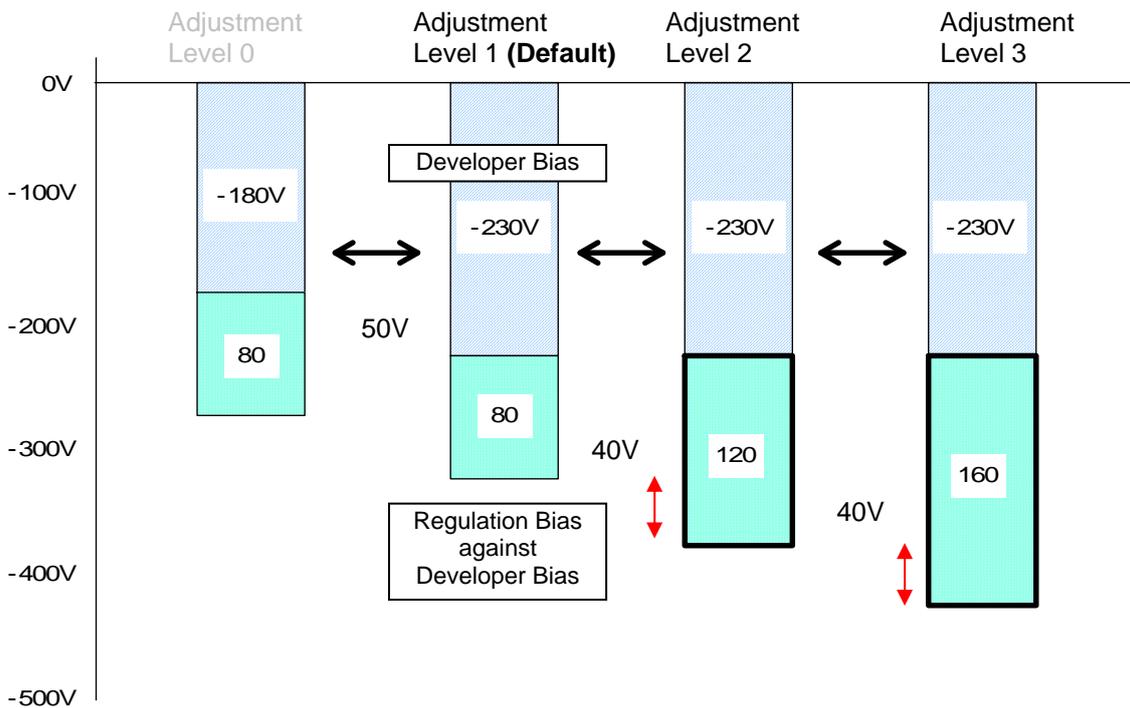
Setting value	Contents
0	Density Compensation Process is disabled
1	Density Compensation Process is enabled

Reference

Density Compensation Process is performed as follows.

- Several solid patches are created on Drum and are measured by Density Sensor at a regular interval of Main Motor operating time (No.655). This is called Density Measure.
- If the current density value (calculated based on Density Measure) does not meet Target Density (No.653), one of the Adjustment Level listed below will be applied.
- Developer Bias and Regulation Bias (No.650) will be adjusted based on the current Adjustment Level.

	Adjustment Level 0	Adjustment Level 1 (Default)	Adjustment Level 2	Adjustment Level 3
Developer Bias (Negative)	-180V	-230V	-230V	-230V
Regulation Bias against Developer Bias	-80V	-80V	-120V	-160V



NOTE

Even if Developer Unit is replaced, still the current Auto Adjustment will continue to be applied.

An applied Auto Adjustment Level should be manually set to "000001" after replacing Developer Unit.

653 Target Density

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

It is possible to change Target Density that should be achieved and maintained for consistent print density.

If the current density does not meet Target Density, Regulation (Developer) Bias will be automatically adjusted based on the current Adjustment Level.

- If the current Density Value is judged “not enough” (lighter than required), the next level will be applied.
- If the current Density Value is judged “adequate”, the current level remains.
- There is possibility for the Density Value to be judged “too much enough” (darker than required), then the previous level will be applied.

If you increase the setting value by “+1”, Target Density will rise and thus Auto Adjustment Level would be switched to the next level earlier.

Setting Range
000 to 400

654 Toner Patch Adjustment

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

Setting Range
0 to 16

655 Density Measure Interval

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

It is possible to change an interval of Density Measure.

When Bias 3 Time in Information Mode reaches a specified period in this setting, Density Measure will run.

If you increase the setting value by “+1”, the interval of Density Measure becomes 1 hour longer.

Setting Range	Step of increment
1 to 18	1 hour

660 to 665 Ready - Fuser Temperature

It is possible to specify “Ready” temperature.

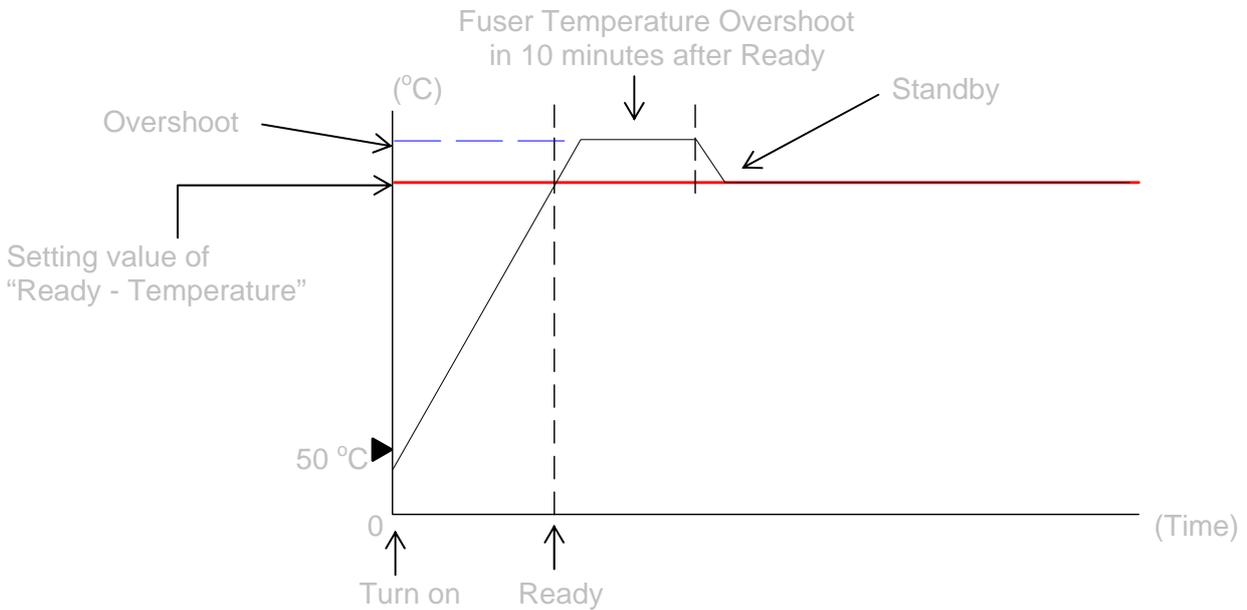
You can specify the temperature for each type of media separately.

This setting will be applied only when Fuser Temperature is below 50°C at turning on the machine.

The Fuser Temperature becomes 1 degree higher if you increase the setting value by “+1”.

Item No.	Setting Item	Setting range	Step of increment
660	Ready - Fuser Temperature (Plain)	120 to 180	1°C
661	Ready - Fuser Temperature (Tracing)	120 to 180	1°C
662	Ready - Fuser Temperature (Film)	120 to 180	1°C
663	Ready - Fuser Temperature (Special / Plain)	120 to 180	1°C
664	Ready - Fuser Temperature (Special / Tracing)	120 to 180	1°C
665	Ready - Fuser Temperature (Special / Film)	120 to 180	1°C

After reaching “Ready”, fuser temperature will rise 10 °C higher than “Ready” (Overshoot) in 10 minutes. Then it will be maintained within “Standby” temperature.



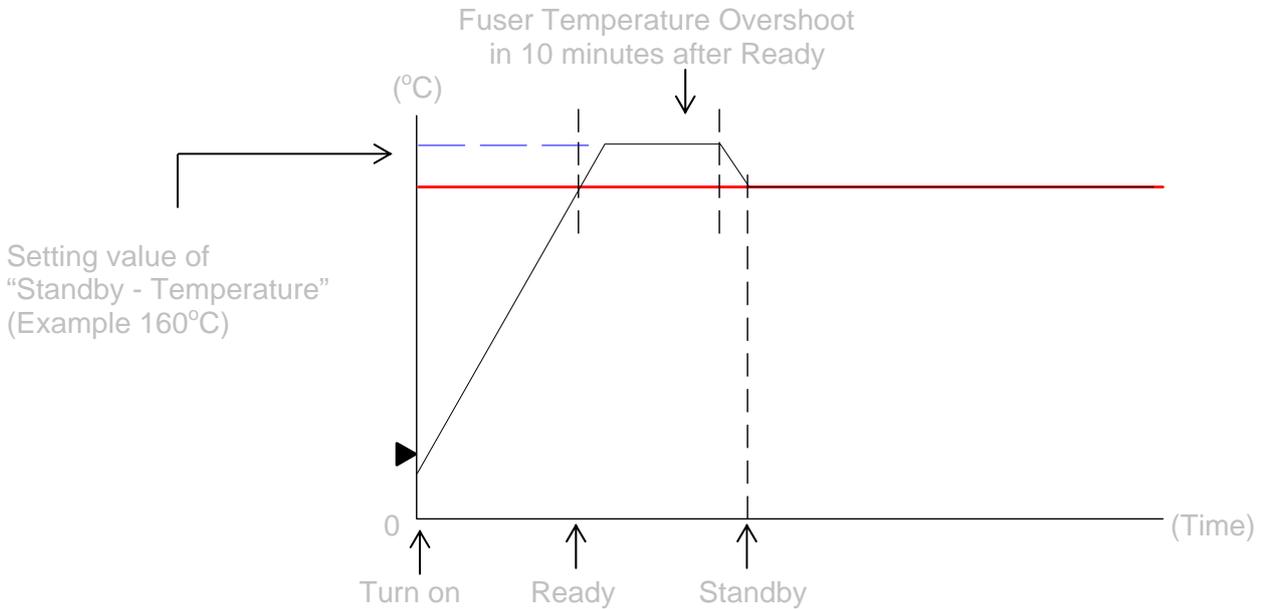
738 Standby - Fuser Temperature

It is possible to adjust the Fuser Temperature to be maintained while waiting for a print job. You can specify the temperature for the center and the sides separately.

This setting is applied after the period of Fuser Temperature Overshoot (+10°C against “Ready - Temperature” in 10 minutes).

The Fuser Temperature becomes 1 degree higher if you increase the setting value by “+1”.

Setting Range	Step of increment
120 to 800	1°C



749 Tracing Mode

Even in “ready” condition, the fuser temperature is controlled slightly lower than “Print” temperature in order to reduce inside temperature.

It quickly rises up to “Print” temperature at the same time as the printer starts printing an output job. This setting will keep media feeding wait for the completion of the fuser temperature recovery.

Note that Tracing Mode is effective only for an extremely thin tracing paper (off-specification).

Setting value	Contents
0	Fuser temperature starts recovery as soon as a print job is sent.
1	A print on tracing paper will start after recovery of fuser temperature.

751 Disable HV Error Detection Mode

“Disable HV Error Detection Mode” functions just as Error Mask Mode for high voltage errors. This allows the system to ignore service call errors regarding high voltage power supply (E-0031, E-0032, E-0033, E-0034) and prevents the concerning error code from being displayed both on the sub UI and the touch screen.

“Disable HV Error Detection Mode” ON is not canceled by turning off the machine, but remains until set to OFF manually.

Setting value	Contents
0	HV error detection works normally.
1	The system ignores any HV Error.

NOTE

TAKE GREAT CARE. The system ignores high voltage errors caused by ANY REASON while “Disable HV Error Detection Mode” is ON.
It is recommended that “Disable HV Error Detection Mode” remains OFF in the usual usage.

753 Counter Setting

NOTE

This setting does not function. Keep the value unchanged from “0”.

Setting value	Contents
0	Keep the value unchanged.
1	Never use.

754 Total Increment of Developer Bias Adjustment

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

This item only shows the conversion value of the current analog output for Developer Bias.

Setting Range
000 to 7FE

755 Developer Bias Increment for Adjustment Level 1 and after

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

It is possible to change the amount (increment) of Developer Bias Adjustment. A specified increment of Developer Bias will be applied at switching to and as of Auto Adjustment Level 1.

The default voltage value of the increment is approximately 50V (corresponding to “80” in the setting value) for switching to Auto Adjustment Level 1. The increased Developer Bias will be applied to the subsequent Auto Adjustment Level.

If you increase the setting value by “+1”, the increment of Developer Bias Adjustment becomes higher.

Setting Range	Step of increment
0 to 800	0.5V

756, 757 Developer Bias Limit

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

These items specify the minimum / maximum Developer Bias.

Item No.	Setting Item	Setting range
755	Developer Bias Limit (minimum, absolute value)	000 to 3FF
756	Developer Bias Limit (maximum, absolute value)	000 to 3FF

758 Total Increment of Regulation Bias Adjustment

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

This item only shows the conversion value of the current analog output for Regulation Bias.

Setting Range
0 to 340

759 Regulation Bias Increment for Adjustment Level 2 and after

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

It is possible to change the amount (increment) of Regulation Bias on Auto Adjustment. A specified increment of Regulation Bias will be applied at switching to Auto Adjustment Level 2 and Level 3.

The default voltage value of the increment is about 40V (corresponding to “80” in the setting value) for switching to Auto Adjustment Level 2 and 3.

If you increase the setting value by “+1”, the increment of Regulation Bias Adjustment becomes about 0.5V higher.

Setting Range	Step of increment
0 to 200	0.5V

760, 761 Regulation Bias Limit

NOTE

This setting has been factory-adjusted. Keep the value unchanged.

These items specify the minimum / maximum Regulation Bias.

Item No.	Setting Item	Setting range
760	Regulation Bias Limit (minimum, absolute value)	0 to 399
761	Regulation Bias Limit (maximum, absolute value)	400 to 800

762 to 767 Developer Reference Bias

NOTE

This setting does not function. Keep the value unchanged.

It is possible to define the 6 values for Developer Reference Bias analog voltage.

Item No.	Setting Item	Setting range
762	Developer Reference Bias 1	000 to 3FF
763	Developer Reference Bias 2	000 to 3FF
764	Developer Reference Bias 3	000 to 3FF
765	Developer Reference Bias 4	000 to 3FF
766	Developer Reference Bias 5	000 to 3FF
767	Developer Reference Bias 6	000 to 3FF

Developer Reference Bias are used only to find out the possible best output voltage of Developer Bias for the target density.

769 Wait Time of Media Feed Start

The start timing of media feeding from the Roll Deck can be adjustable. This is used just in case a horizontal, weak, black line appears on a print in 10mm of the leading edge. Decreasing the setting value will delay the start timing to feed roll media.

Setting Range	Step of increment
0 to 60	100 milliseconds

770, 771 Additional Toner Supply Time

These items specify the period of operation time of Toner Supply Motor. These are applied only to the User's "additional" Toner Supply Command on the UI screen.

NOTE

Toner Supply time for "initial toner setup" is fixed in 10 minutes and is not adjustable.

Item No.	Setting Item	Default Value	Setting range	Step of increment
770	Additional Toner Supply Time (toner supply motor ON)	9	1 to 30	min
771	Additional Toner Toner Supply Time (Agitation only)	1	1 to 30	min

772, 773 Horizontal Alignment of LED Block

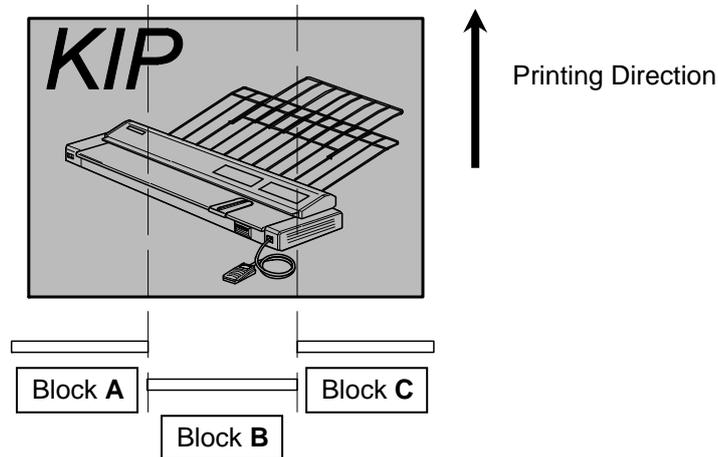
The LED Head Unit consists of 3 image blocks.

If the alignment between Block A / B or Block B / C in the horizontal direction (main scanning direction) is out of position, a black (or white) line appears at the border of the Blocks.

These are used to shift the concerning Block to right / left against Block B. Block B is the reference. No.772 for Block A, No.773 for Block C.

Increasing the setting value shifts the concerning Block (A or C) to the **right**.

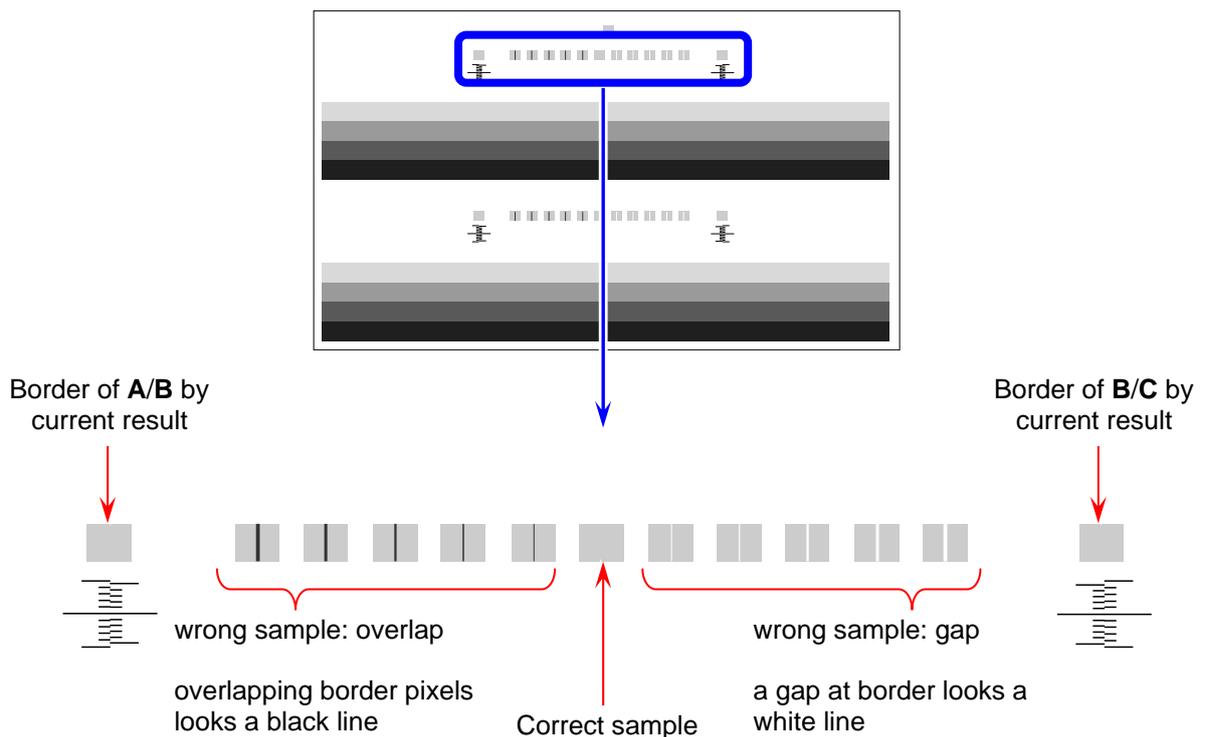
Decreasing the setting value shifts the concerning Block (A or C) to the **left**.



Item No.	Setting Item	Setting Range	Step of increment
772	Horizontal Alignment of LED Block A/B	2 to 114	pixel
773	Horizontal Alignment of LED Block B/C	2 to 114	pixel

Reference

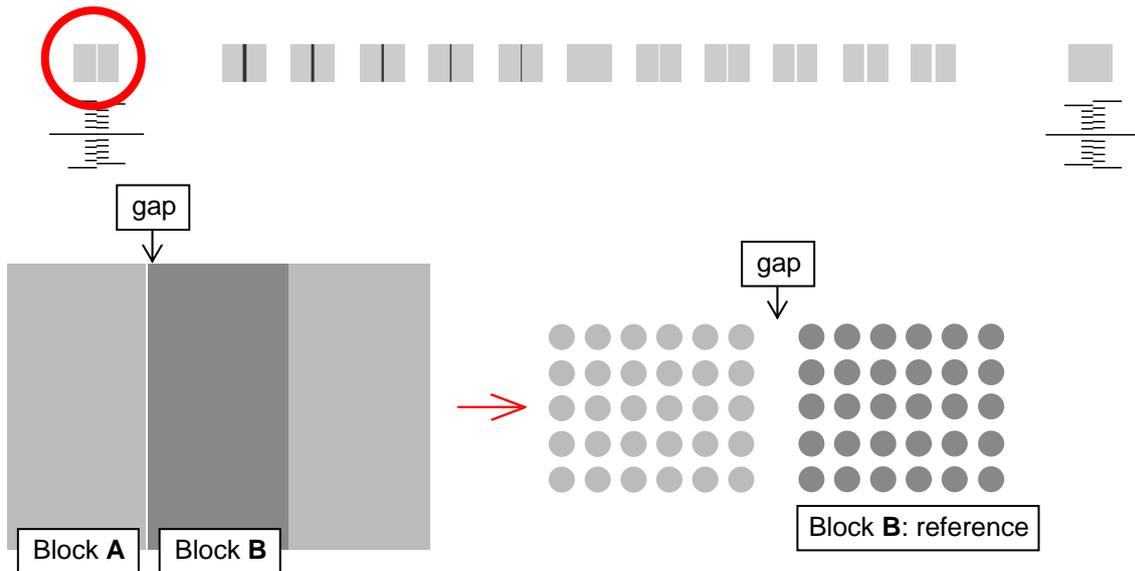
Test Pattern No.9 S(3) is an integrated test pattern image for margins at edges, focus and pixel stitch check.



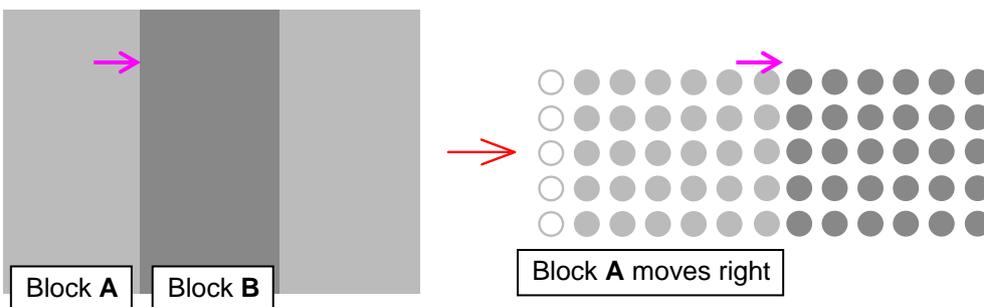
Example)

- The border between Block A/B has a white line. (= Block A displaced in left, apart from Block B)
→ Block A should move right to touch with Block B.

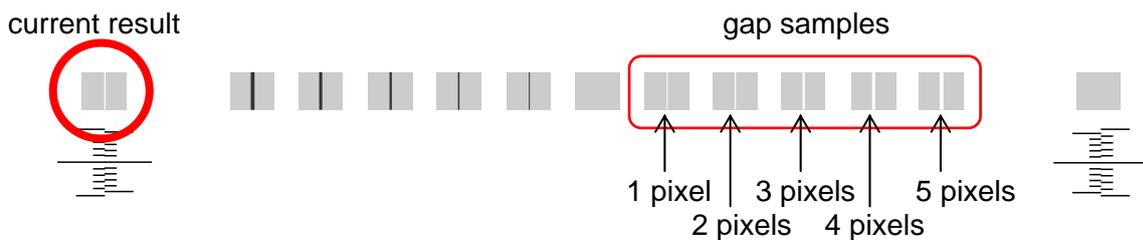
white line at Border A/B



In this case, increase No.772 to shift Block A to the right side.



Compare the current border result and the samples, and find in how many pixel(s) the gap is.



On the other hand, to remove a black line between Block A/B (= Block A displaced in left, overlapping Block B), decrease No.772 and shift Block A left to remove overlap.

NOTE

For a gap / overlap in less than 1 pixel, see [778, 779 Strobe Time Adjustment on Border Pixels].

774 to 777 Dot Light Level on Border Pixel

NOTE

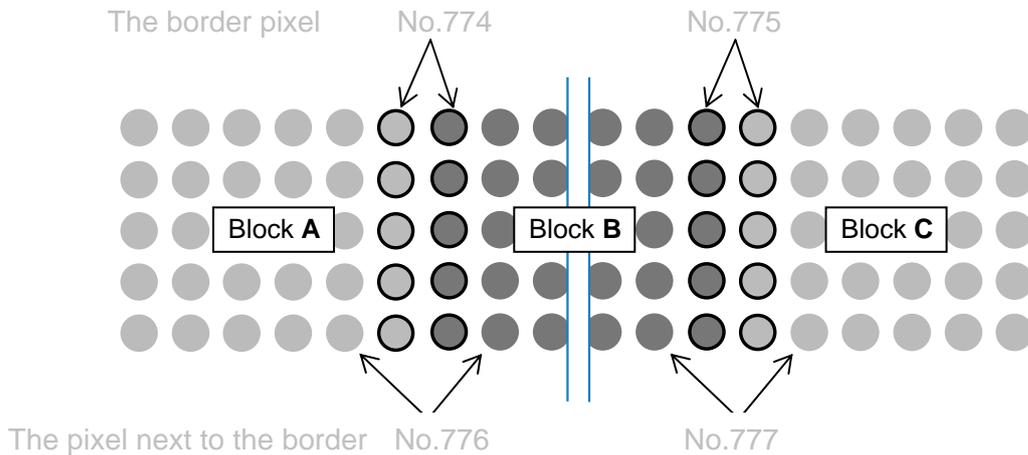
This setting has been factory-adjusted. Keep the value unchanged.

Item No.772 or 773 cannot remove a “less than 1 pixel gap / overlap”.
 No.774 to 777 can strengthen or weaken the dot light level data for the border pixels.
 These compensate the dot light level programmed the concerning LED Head, not the strobe time.

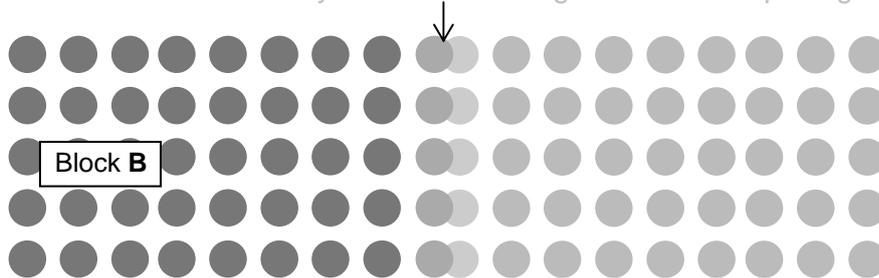
Decrease the value to weaken the dot light level for a weak black line.
 Increase the value to strengthen the dot light level for a weak white line.

Which pixels to be applied which item is as follows.

Item No.	Setting Item	Setting Range
774	Dot Light Level (Block A/B, border one pixel)	0 to 40
775	Dot Light Level (Block B/C, border one pixel)	0 to 40
776	Dot Light Level (Block A/B, the next pixel to border)	0 to 40
777	Dot Light Level (Block B/C, the next pixel to border)	0 to 40



The border B/C is overlapping in less than 1 pixel.
 A weaker border may reduce the strength of the overlap image.



778, 779 Strobe Time Adjustment on Border Pixel

The LED Head Unit consists of 3 image blocks.

If the alignment between Block A / B or Block B / C in the horizontal direction (main scanning direction) is out of position by “less than 1 pixel gap / overlap”, a weak black (or white) line appears at the border of the Blocks.

Item No.772 or 773 cannot remove a “less than 1 pixel gap / overlap”.

No.778 or 779 can lengthen or shorten the strobe time for the border pixels.

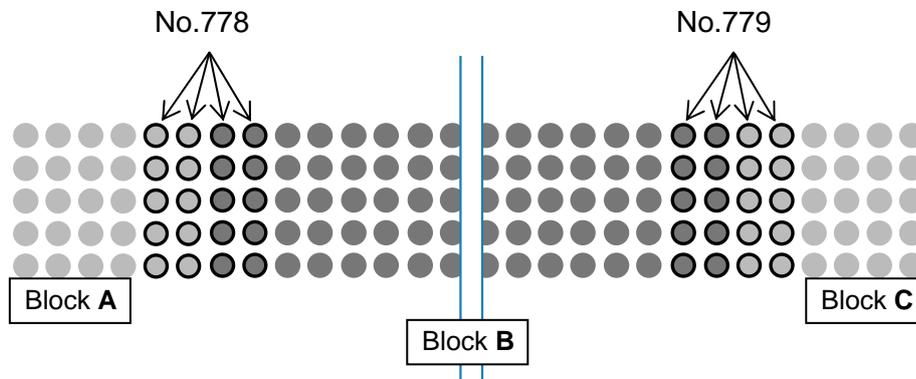
These compensate the strobe time, not the dot light level.

Decrease the value to shorten the strobe time for a weak black line.

Increase the value to lengthen the strobe time for a weak white line.

Which pixels to be applied which item is as follows.

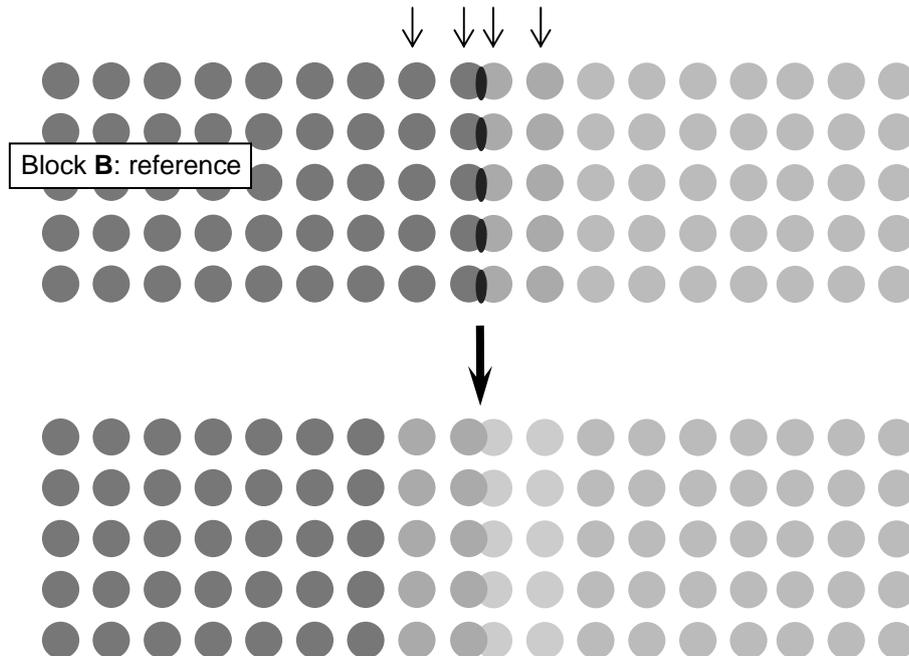
Item No.	Setting Item	Setting range
778	Strobe Time Adjustment on Border Pixel (Block A/B)	6 to 14
779	Strobe Time Adjustment on Border Pixel (Block B/C)	6 to 14



The border B/C is overlapping in less than 1 pixel.

Decrease the setting value to shorten the strobe time for these 2 pixels.

This will reduce the strength of the overlap image.

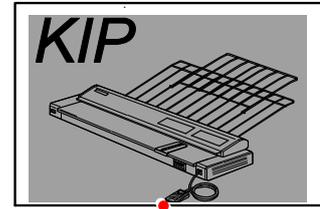
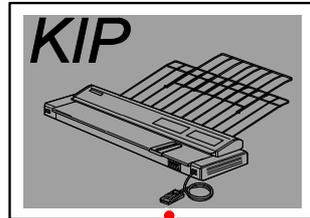
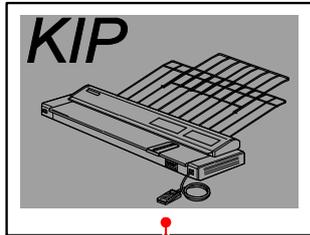


781 Trailing Margin (Paper Tray)

It is possible to adjust the length of trailing margin of a sheet from the Paper Tray.
The length of trailing margin becomes 1mm longer if you Increase the setting value by "+1".

Setting Range	Step of increment
1 to 40	1mm

Setting value is increased.



Setting value is decreased.

Trailing Margin

NOTE

Some trailing image may be lost if you decrease the value too much.

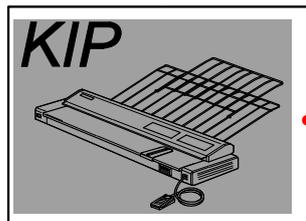
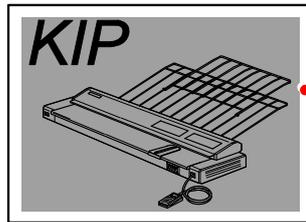
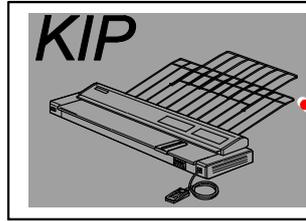
782 Side Registration (Paper Tray)

It is possible to specify where to start printing the image at the side edge of a sheet from the Paper Tray.

If you increase the setting value by “+1 “, image is shifted 0.1mm to the right.

Setting Range	Step of increment
0 to 100	0.1mm

Setting value is increased.



Setting value is decreased.

Side Registration

783 Forced Initial Cut Before Print (Cut Length)

Under a certain usage environment, the first print of a job sometimes would have a wrinkle or an image void if the prints are made with a roll media left in the deck for a long period.

“Forced Initial Cut Before Print” is a function to make an automatic initial cut in a certain amount at the leading edge before processing a job to obtain image quality and feed balance in such conditions.

No.783 specifies how long millimeters to be cut (and ejected) by “Forced Initial Cut Before Print”. Note that you can configure which media type “Forced Initial Cut Before Print” works on in the UI screen.

Setting Range	Step of increment
279 to 600	1mm

Reference

No.783 Specifies “how long” to be cut. “Forced Initial Cut Before Print” can be validated in the UI screen by media type.

784, 785 Limit Temperature of LED Stitch Compensation

! NOTE

This setting has been factory-adjusted. Keep the value unchanged.

Under an extremely hot / cold environment, LED Blocks are compensated additionally. No. 784, 785 work as a threshold of the temperature for that.

Item No.	Setting Item	Setting range
784	Upper Limint Temperature of LED Stitch Compensation	30 to 50
785	Lower Limint Temperature of LED Stitch Compensation	10 to 20

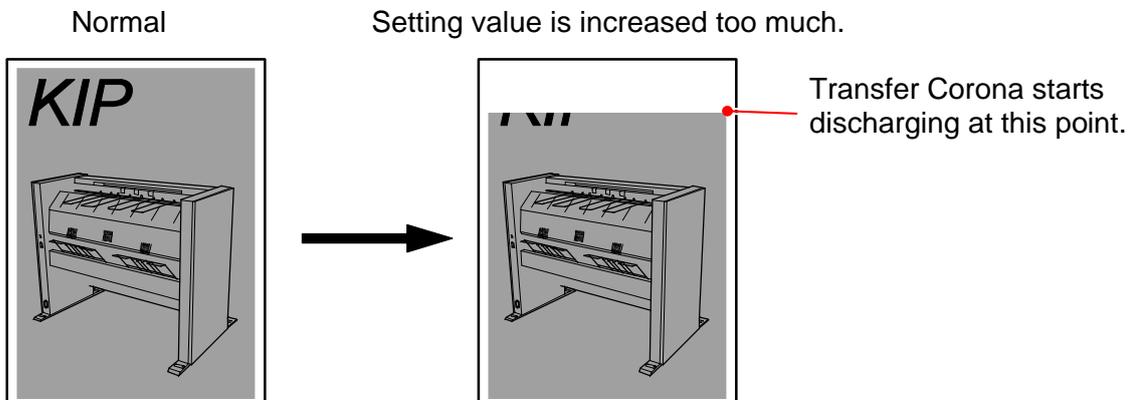
787 Transfer Corona ON Timing Compensation (Paper Tray)

It is possible to adjust the timing that the Transfer Corona starts discharging during the print cycle. If you increase the setting value by "+1", the timing to start discharging is 1ms delayed.

Setting Range	Step of increment
1 to 999	1millisecond

! NOTE

You may lose some leading image as the following example if you increase the setting value too much, because the timing to start discharging is too much delayed.



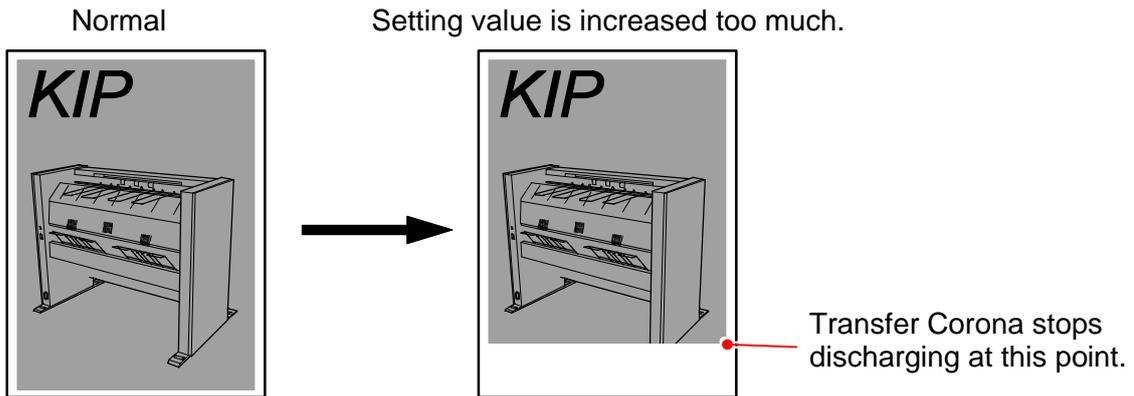
788 Transfer Corona OFF Timing (Paper Tray)

It is possible to adjust the timing that the Transfer Corona stops discharging during the print cycle. If you increase the setting value by "+1", the timing to stop discharging is 1ms delayed.

Setting Range	Step of increment
1 to 999	1millisecond

NOTE

You may lose some trailing image as the following example if you decrease the setting value too much, because the Transfer Corona stops discharging too early.



789 to 800 Transfer Corona OFF Timing (Roll)

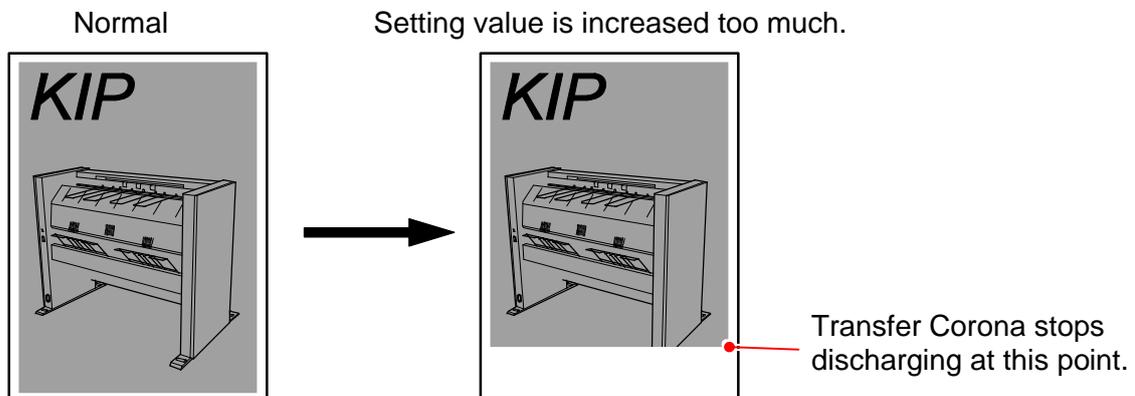
It is possible to adjust the timing that the Transfer Corona stops discharging during the print cycle. This can be configured by every media type / width. If you increase the setting value by "+1", the timing to stop discharging is 1mm delayed.

Setting Range	Step of increment
0 to 100	1mm

	Plain Paper	Tracing Paper	Film
A3, 11", 12"	No.789	No.790	No.791
A2, 15", 17", 18"	No.792	No.793	No.794
A1, 22", 24"	No.795	No.796	No.797
A0, B1, 30", 34", 36"	No.798	No.799	No.800

NOTE

You may lose some trailing image as the following example if you decrease the setting value too much, because the Transfer Corona stops discharging too early.



801 to 812 Separation Corona OFF Timing (Roll)

It is possible to adjust the timing that the Separation Corona stops discharging during the print cycle. This can be configured by every media type / width. If you increase the setting value by "+1", the timing to stop discharging is 1mm delayed.

Setting Range	Step of increment
0 to 100	1mm

	Plain Paper	Tracing Paper	Film
A3, 11", 12"	No.801	No.802	No.803
A2, 15", 17", 18"	No.804	No.805	No.806
A1, 22", 24"	No.807	No.808	No.809
A0, B1, 30", 34", 36"	No.810	No.811	No.812

814 to 867 Cut Length Compensation (Special Size)

The cut length for special sizes listed below can be compensated separately based on No.016 (Cut Length 1). Increasing the setting value by 1 will set the print length 1mm longer.

Item No.	Setting Item	Setting range	Step of Increment
814	Cut Length Compensation (Plain) (B3)	30 to 70	1mm
815	Cut Length Compensation (Tracing) (B3)	30 to 70	1mm
816	Cut Length Compensation (Film) (B3)	30 to 70	1mm
817	Cut Length Compensation (Special / Plain) (B3)	30 to 70	1mm
818	Cut Length Compensation (Special / Tracing) (B3)	30 to 70	1mm
819	Cut Length Compensation (Special Film) (B3)	30 to 70	1mm
820	Cut Length Compensation (Plain) (B2)	30 to 70	1mm
821	Cut Length Compensation (Tracing) (B2)	30 to 70	1mm
822	Cut Length Compensation (Film) (B2)	30 to 70	1mm
823	Cut Length Compensation (Special / Plain) (B2)	30 to 70	1mm
824	Cut Length Compensation (Special / Tracing) (B2)	30 to 70	1mm
825	Cut Length Compensation (Special Film) (B2)	30 to 70	1mm
826	Cut Length Compensation (Plain) (440mm)	30 to 70	1mm
827	Cut Length Compensation (Tracing) (440mm)	30 to 70	1mm
828	Cut Length Compensation (Film) (440mm)	30 to 70	1mm
829	Cut Length Compensation (Special / Plain) (440mm)	30 to 70	1mm
830	Cut Length Compensation (Special / Tracing) (440mm)	30 to 70	1mm
831	Cut Length Compensation (Special Film) (440mm)	30 to 70	1mm
832	Cut Length Compensation (Plain) (610mm)	30 to 70	1mm
833	Cut Length Compensation (Tracing) (610mm)	30 to 70	1mm
834	Cut Length Compensation (Film) (610mm)	30 to 70	1mm
835	Cut Length Compensation (Special / Plain) (610mm)	30 to 70	1mm
836	Cut Length Compensation (Special / Tracing) (610mm)	30 to 70	1mm
837	Cut Length Compensation (Special Film) (610mm)	30 to 70	1mm
838	Cut Length Compensation (Plain) (620mm)	30 to 70	1mm
839	Cut Length Compensation (Tracing) (620mm)	30 to 70	1mm
840	Cut Length Compensation (Film) (620mm)	30 to 70	1mm
841	Cut Length Compensation (Special / Plain) (620mm)	30 to 70	1mm
842	Cut Length Compensation (Special / Tracing) (620mm)	30 to 70	1mm
843	Cut Length Compensation (Special Film) (620mm)	30 to 70	1mm
844	Cut Length Compensation (Plain) (700mm)	30 to 70	1mm
845	Cut Length Compensation (Tracing) (700mm)	30 to 70	1mm
846	Cut Length Compensation (Film) (700mm)	30 to 70	1mm
847	Cut Length Compensation (Special / Plain) (700mm)	30 to 70	1mm
848	Cut Length Compensation (Special / Tracing) (700mm)	30 to 70	1mm
849	Cut Length Compensation (Special Film) (700mm)	30 to 70	1mm
850	Cut Length Compensation (Plain) (707mm)	30 to 70	1mm
851	Cut Length Compensation (Tracing) (707mm)	30 to 70	1mm
852	Cut Length Compensation (Film) (707mm)	30 to 70	1mm
853	Cut Length Compensation (Special / Plain) (707mm)	30 to 70	1mm
854	Cut Length Compensation (Special / Tracing) (707mm)	30 to 70	1mm
855	Cut Length Compensation (Special Film) (707mm)	30 to 70	1mm
856	Cut Length Compensation (Plain) (891mm)	30 to 70	1mm
857	Cut Length Compensation (Tracing) (891mm)	30 to 70	1mm
858	Cut Length Compensation (Film) (891mm)	30 to 70	1mm
859	Cut Length Compensation (Special / Plain) (891mm)	30 to 70	1mm
860	Cut Length Compensation (Special / Tracing) (891mm)	30 to 70	1mm
861	Cut Length Compensation (Special Film) (891mm)	30 to 70	1mm
862	Cut Length Compensation (Plain) (900mm)	30 to 70	1mm
863	Cut Length Compensation (Tracing) (900mm)	30 to 70	1mm
864	Cut Length Compensation (Film) (900mm)	30 to 70	1mm
865	Cut Length Compensation (Special / Plain) (900mm)	30 to 70	1mm
866	Cut Length Compensation (Special / Tracing) (900mm)	30 to 70	1mm
867	Cut Length Compensation (Special Film) (900mm)	30 to 70	1mm

868 to 870 Leading Registration (Paper Tray)

To shift the start point of printing images toward the trailing edge (wider leading margin), increase the value.

Increasing the value by 1 shifts the start point toward the trailing edge in about 0.5mm.

Item No.	Setting Item	Setting range	Step of increment
868	Leading Registration (Paper Tray) (A4 / 9" / 8.5")	0 to 80	0.5mm
869	Leading Registration (Paper Tray) (A3 / 18" / 17")	0 to 80	0.5mm
870	Leading Registration (Paper Tray) (A2 / 24" / 22")	0 to 80	0.5mm

NOTE

Reducing the value too much may result in a print jam in the exit area or a dirt image.

871 to 873 Paper Tray Motor Speed

This will compensate the motor speed of Paper Tray (option).

Increasing the value by 1 shrinks the print image in about 0.1mm per 100mm.

Item No.	Setting Item	Setting range
871	Paper Tray Motor Speed (A4 / 9" / 8.5")	0 to 254
872	Paper Tray Motor Speed (A3 / 18" / 17")	0 to 254
873	Paper Tray Motor Speed(A2 / 24" / 22")	0 to 254

874 to 885 Transfer Corona OFF Timing (Bypass)

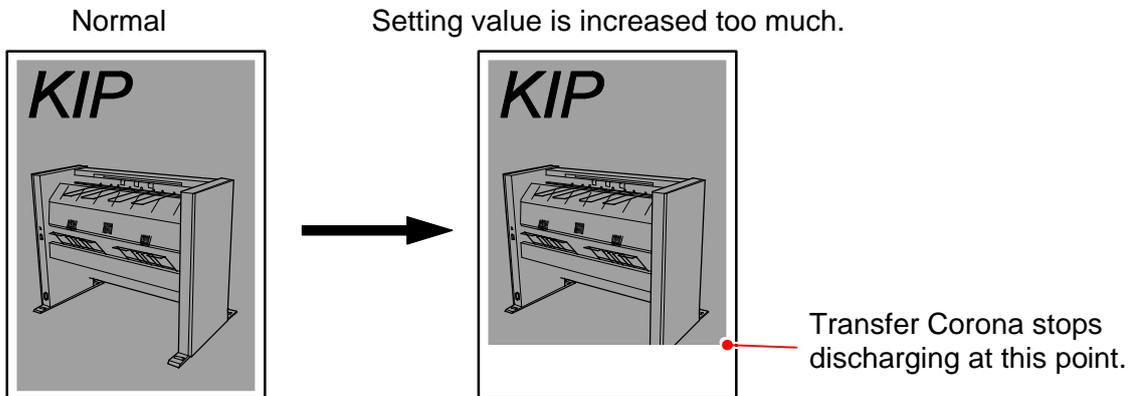
It is possible to adjust the timing that the Transfer Corona stops discharging during the print cycle. This can be configured by every media type / width. If you increase the setting value by "+1", the timing to stop discharging is 1mm delayed.

Setting Range	Step of increment
0 to 100	1mm

	Plain Paper	Tracing Paper	Film
A3, 11", 12"	No.874	No.875	No.876
A2, 15", 17", 18"	No.877	No.878	No.879
A1, 22", 24"	No.880	No.881	No.882
A0, B1, 30", 34", 36"	No.883	No.884	No.885

! NOTE

You may lose some trailing image as the following example if you decrease the setting value too much, because the Transfer Corona stops discharging too early.



886 to 897 Separation Corona OFF Timing (Bypass)

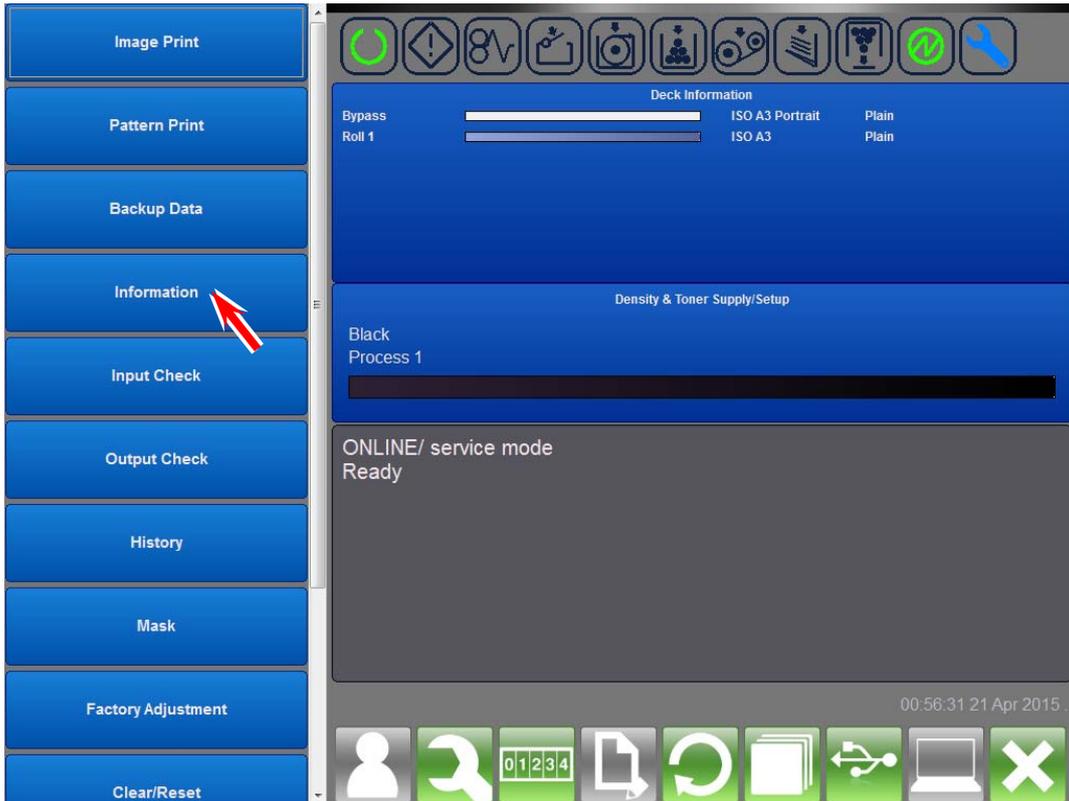
It is possible to adjust the timing that the Separation Corona stops discharging during the print cycle. This can be configured by every media type / width. If you increase the setting value by "+1", the timing to stop discharging is 1mm delayed.

Setting Range	Step of increment
0 to 100	1mm

	Plain Paper	Tracing Paper	Film
A3, 11", 12"	No.886	No.887	No.888
A2, 15", 17", 18"	No.889	No.890	No.891
A1, 22", 24"	No.892	No.893	No.894
A0, B1, 30", 34", 36"	No.895	No.896	No.897

8.5 Information

It is possible to monitor several kinds of data/information of printer.

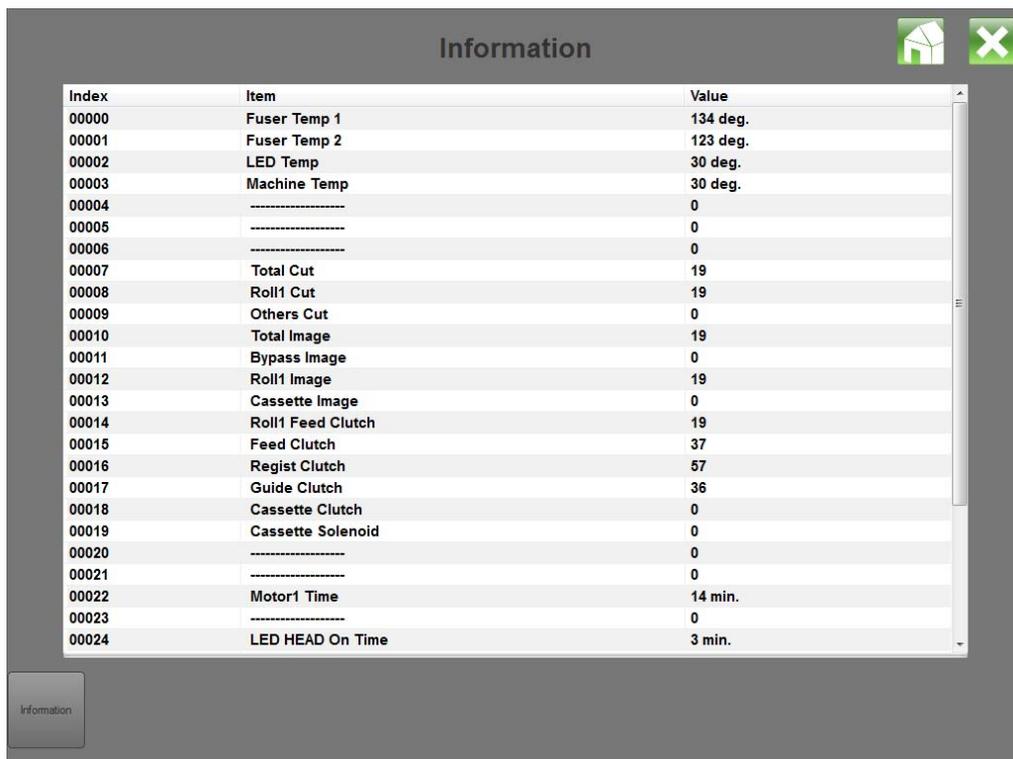


Information

Index	Item	Value
00000	Fuser Temp 1	134 deg.
00001	Fuser Temp 2	123 deg.
00002	LED Temp	30 deg.
00003	Machine Temp	30 deg.
00004	-----	0
00005	-----	0
00006	-----	0
00007	Total Cut	19
00008	Roll1 Cut	19
00009	Others Cut	0
00010	Total Image	19
00011	Bypass Image	0
00012	Roll1 Image	19
00013	Cassette Image	0
00014	Roll1 Feed Clutch	19
00015	Feed Clutch	37
00016	Regist Clutch	57
00017	Guide Clutch	36
00018	Cassette Clutch	0
00019	Cassette Solenoid	0
00020	-----	0
00021	-----	0
00022	Motor1 Time	14 min.
00023	-----	0
00024	LED HEAD On Time	3 min.

8. 5. 1 Operation in Information

Find the requested item under [Item] in the list and check the data or information for the selected item under [Value].



The screenshot shows a window titled "Information" with a table of machine parameters. The table has three columns: "Index", "Item", and "Value". The data is as follows:

Index	Item	Value
00000	Fuser Temp 1	134 deg.
00001	Fuser Temp 2	123 deg.
00002	LED Temp	30 deg.
00003	Machine Temp	30 deg.
00004	-----	0
00005	-----	0
00006	-----	0
00007	Total Cut	19
00008	Roll1 Cut	19
00009	Others Cut	0
00010	Total Image	19
00011	Bypass Image	0
00012	Roll1 Image	19
00013	Cassette Image	0
00014	Roll1 Feed Clutch	19
00015	Feed Clutch	37
00016	Regist Clutch	57
00017	Guide Clutch	36
00018	Cassette Clutch	0
00019	Cassette Solenoid	0
00020	-----	0
00021	-----	0
00022	Motor1 Time	14 min.
00023	-----	0
00024	LED HEAD On Time	3 min.

At the bottom left of the window, there is a button labeled "Information".

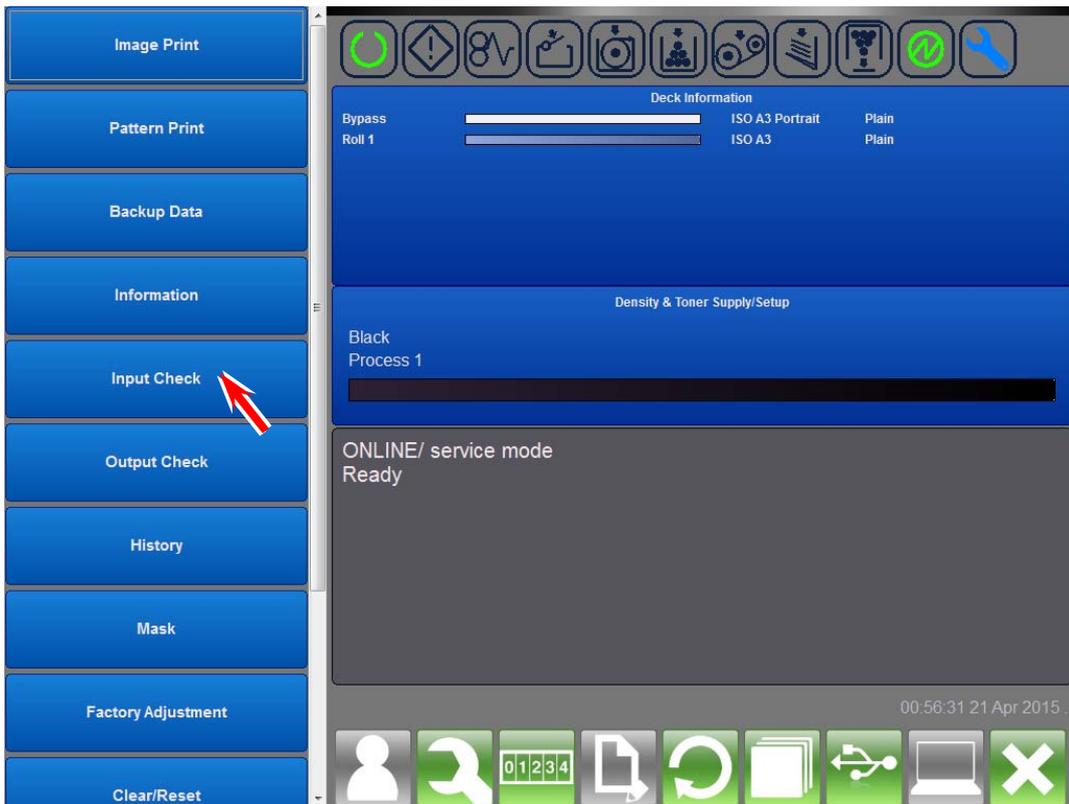
For details about [Item] and [Detail], see the next page.

8. 5. 2 List of Analog Data Monitor

No.	Item	Unit	Remarks	Contents
00000	Fuser Temp 1	deg C	Calculated Value	Fuser Heater Lamp temperature for center area
00001	Fuser Temp 2	deg C	Calculated Value	Fuser Heater Lamp temperature for side areas
00002	LED Temp	deg C	Calculated Value	temperature detected on LED Head (PW11755)
00003	Machine Temp	deg C	Calculated Value	temperature detected on PW13320
00004	-----			(Reserved)
00005	-----			(Reserved)
00006	-----			(Reserved)
00007	Total Cut			number of operation times in total for media cut with any source / situation
00008	Roll1 Cut			number of operation times for media cutting from Roll 1
00009	Others Cut			number of operation times for media cutting for trim cut
00010	Total Image			number of operation times in total for printing operation with any source
00011	Bypass Image			number of operation times for printing operation on Bypass Feeder
00012	Roll1 Image			number of operation times for printing operation on Roll 1
00013	Cassette Image			number of operation times for printing operation on Paper Tray (Option)
00014	Roll1 Feed Clutch			number of operation times of Roll 1 Clutch
00015	Feed Clutch			number of operation times of Feed Clutch
00016	Regist Clutch			number of operation times of Registration Clutch
00017	Guide Clutch			number of operation times of Guide Clutch
00018	Cassette Clutch			number of operation times of Paper Tray Clutch (Option)
00019	Cassette Solenoid			number of operation times of Pickup Solenoid (Option)
00020	-----			(Reserved)
00021	-----			(Reserved)
00022	Motor1 Time	minute		total operation time of Main Motor
00023	-----			(Reserved)
00024	LED HEAD On Time	minute		total lighting-up time of LED Head
00025	Density V0		development use	
00026	Density V1		development use	
00027	Density Vr		development use	
00028	Density DA1		development use	
00029	Bias2 Voltage	Hex		Developer Bias output
00030	Bias3 Voltage	Hex		Regulation Bias output
00031	Image Ratio	%		Coverage Rate (dot ratio) of the latest sheet

8. 6 Input Check

A service technician can check whether or not the status of input signal from each electric component is normal.



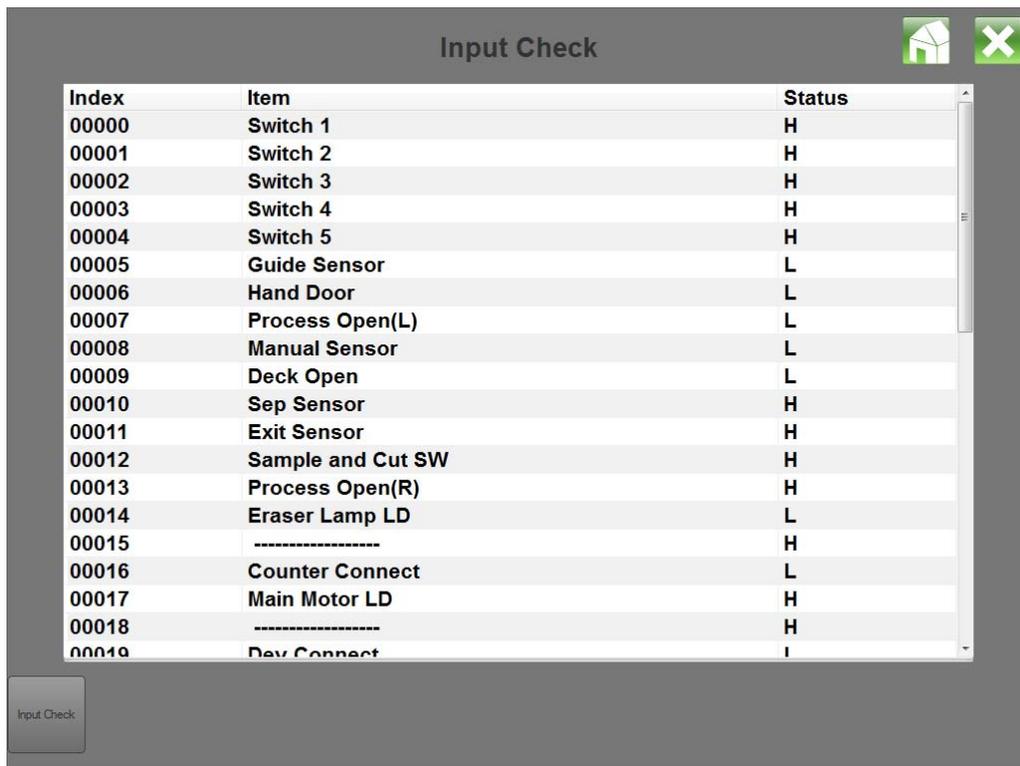
Input Check

Index	Item	Status
00000	Switch 1	H
00001	Switch 2	H
00002	Switch 3	H
00003	Switch 4	H
00004	Switch 5	H
00005	Guide Sensor	L
00006	Hand Door	L
00007	Process Open(L)	L
00008	Manual Sensor	L
00009	Deck Open	L
00010	Sep Sensor	H
00011	Exit Sensor	H
00012	Sample and Cut SW	H
00013	Process Open(R)	H
00014	Eraser Lamp LD	L
00015	-----	H
00016	Counter Connect	L
00017	Main Motor LD	H
00018	-----	H
00019	Dev Connect	L

Input Check

8. 6. 1 Operation in Input Check

Find the requested item under [Item] in the list and check the status of the input signal from the selected item under [Status]. The status is shown by H or L.



Index	Item	Status
00000	Switch 1	H
00001	Switch 2	H
00002	Switch 3	H
00003	Switch 4	H
00004	Switch 5	H
00005	Guide Sensor	L
00006	Hand Door	L
00007	Process Open(L)	L
00008	Manual Sensor	L
00009	Deck Open	L
00010	Sep Sensor	H
00011	Exit Sensor	H
00012	Sample and Cut SW	H
00013	Process Open(R)	H
00014	Eraser Lamp LD	L
00015	-----	H
00016	Counter Connect	L
00017	Main Motor LD	H
00018	-----	H
00019	Dev Connect	L

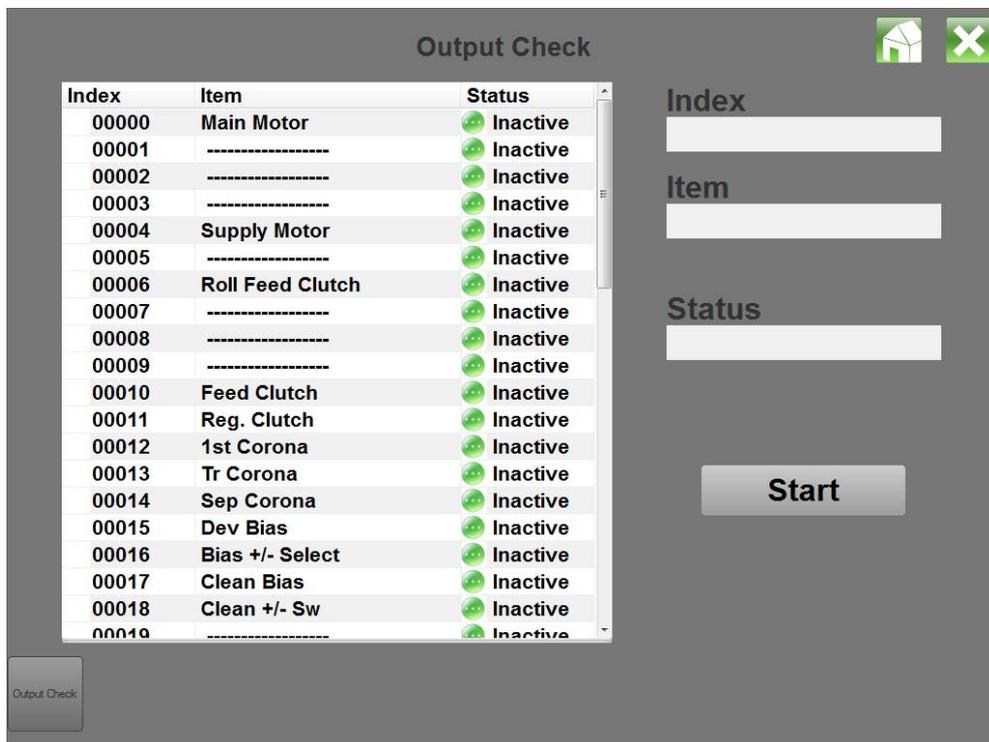
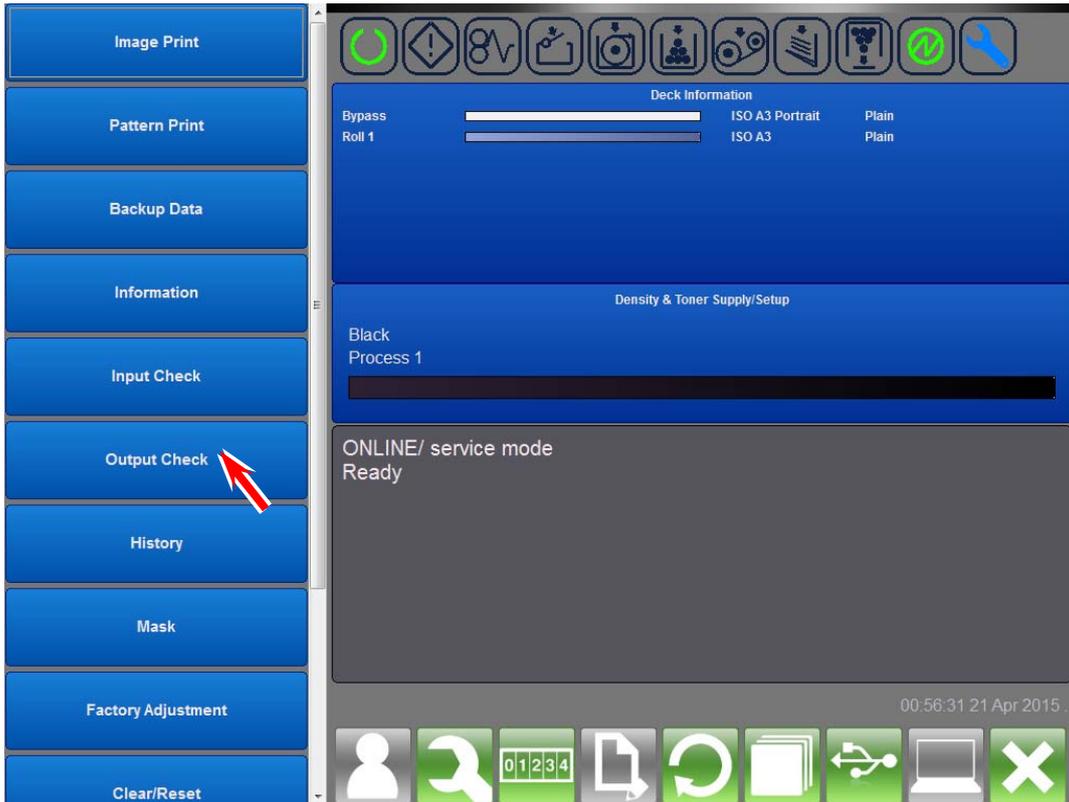
See next page to know which electric component is corresponded to the item name in the list as well as the meaning of H/L status.

8. 6. 2 Input Signal list

Signal Code*	Item name (Maintenance GUI)	Symbol name	IC Port	Connector	Signal Name	Status
00000	Switch 1	SW1	IC3-P20	J205-11	Input Switch 1	L : ON
00001	Switch 2	SW2	IC3-P21	J205-12	Input Switch 2	L : ON
00002	Switch 3	SW3	IC3-P22	J205-13	Input Switch 3	L : ON
00003	Switch 4	SW4	IC3-P23	J205-14	Input Switch 4	L : ON
00004	Switch 5	SW5	IC3-P24	J205-15	Input Switch 5	L : ON
00005	Guide Sensor	GUIDE_S	IC3-P25	J204-26	Guide Sensor	H : Detected
00006	Hand Door	HAND_DOOR	IC3-P26	J204-25	Manual Feed Table Open	H : Open
00007	Process Open(L)	PR_OPN_L	IC3-P27	J207-16	Process Open signal (Left)	H : Open
00008	Manual Sensor	MANIN_S	IC3-P40	J204-18	Manual Feed Sensor	H :Media detected
00009	Deck Open	DOOR_OPN	IC3-P41	J204-19	Roll Deck Open	H : Open
00010	Sep Sensor	SEP_S	IC3-P42	J204-20	Separation Sensor	L : Media detected
00011	Exit Sensor	HEAT_EXIT	IC3-P43	J204-21	Exit Sensor	L : Media detected
00012	Sample and Cut SW	SAMP_CUT	IC3-P44	J204-22	Initial Cut Switch	L : ON
00013	Process Open(R)	PR_OPN_R	IC3-P45	J208-20	Upper Unit Open (Right Side)	L : Open
00014	-----	---	-----	-----		
00015	-----	---	-----	-----		
00016	Counter Connect	COUNT_LD	IC3-P80	J208-4	Counter Connect	H : Connection
00017	Main Motor LD	MAINM_LD	IC3-P81	J207-18	Main Motor Output Detection	L : Detected
00018	-----	---	-----	-----		
00019	Dev Connect	DIS_CN	IC3-P83	J207-20	Developer Connection Detection	H : No connection
00020	1st LD	IM_LD	IC3-P84	J207-21	Image Corona Output Detection	L : No connection
00021	Tr LD	TR_LD	IC3-P85	J207-22	Transfer Corona Output Detection	L : No connection
00022	Sep LD	AC_LD	IC3-P86	J207-23	Separation Corona Output Detection	L : No connection
00023	Bias LD	BIAS_LD	IC3-P87	J207-24	Developer Bias Output Detection	L : No connection
00094	Cutter HP(R)	MSCUTR	IC1-P61	J204-5	Cutter Home Position Sensor (Right)	L : Staying at Home Position
00095	Cutter HP(L)	MSCUTL	IC1-P64	J204-6	Cutter Home Position Sensor (Left)	L : Staying at Home Position
00100	Reg. Sensor	REGIST_S	IC1-P65	J204-7	Registration Sensor	H :Media detected
00101	Cassette Feed Sensor	PICKUP_S	IC1-P66	J204-8	Paper Tray Pickup Sensor	H :Media detected
00102	Cassette Set Sensor	CSET_S	IC1-P67	J204-9	Paper Tray Set Sensor	L : Media detected
00104	Toner Sensor	TONER_S	IC1-PA5	J204-10	Toner Sensor	H :Toner detected
00105	Roll1 Set Sensor	R1_SET_S	IC1-PA6	J204-11	Roll 1 Set Sensor	H :Media detected
00106	Fuser Door Open	EXIT_OPN	IC1-PA7	J204-12	Fuser Door Open Detection	H : Open
00108	Cassette Motor LD	CSETM_LD	IC1-PF0	J207-17	Paper Tray Motor Output Detection	L/H alternates : Rotate
00109	Feed Encoder	RENC_S	IC1-PF1	J204-23	Feed Encoder	
00110	Cassette Connect	CSET_ON	IC1-PF2	J204-24	Paper Tray Connection Detection	L : Connection
00111	Feed Sensor	R_EDGE	IC1-PF7	J204-13	Trailing Edge Detection	H :Media detected
00112	-----	---	-----	-----		
00113	Fuse Detection	24V FUSE2		J208-16	Fuse Detection	L : No connection
00114	-----	---	-----	-----		
00115	Input Port P15			J209-1	Input Port P15	
00116	Input Port P16			J209-5	Input Port P16	
00117	Input Port P30			J209-6	Input Port P30	
00118	Input Port P32			J209-7	Input Port P32	
00119	Input Port P35			J209-8	Input Port P35	

8.7 Output Check

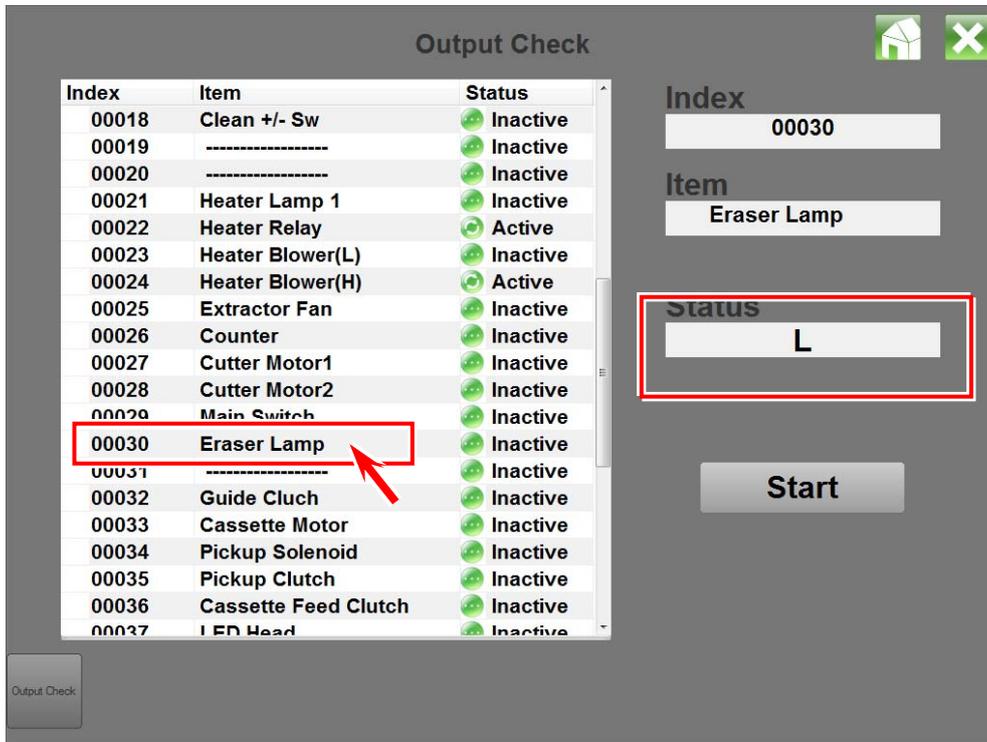
It is possible to let each single electric component function by sending an operation signal.



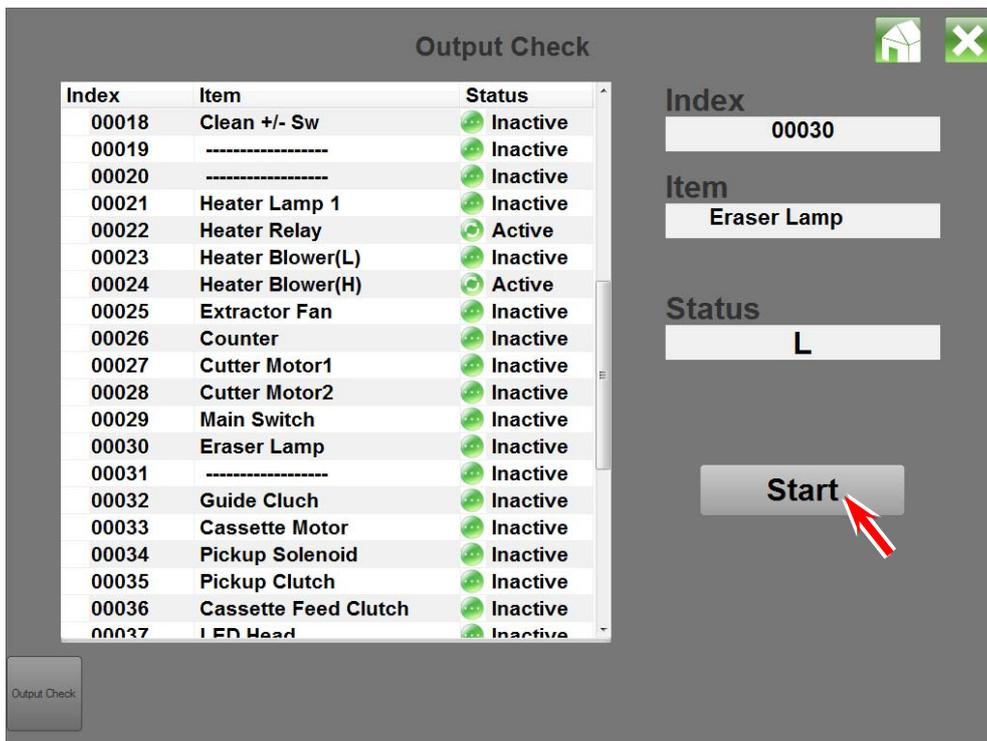
8. 7. 1 Operation in Output Check

1. Find the requested item under [Item] in the list and select it by touching on the touch panel. The **Status** area shows the current signal status of the selected item.

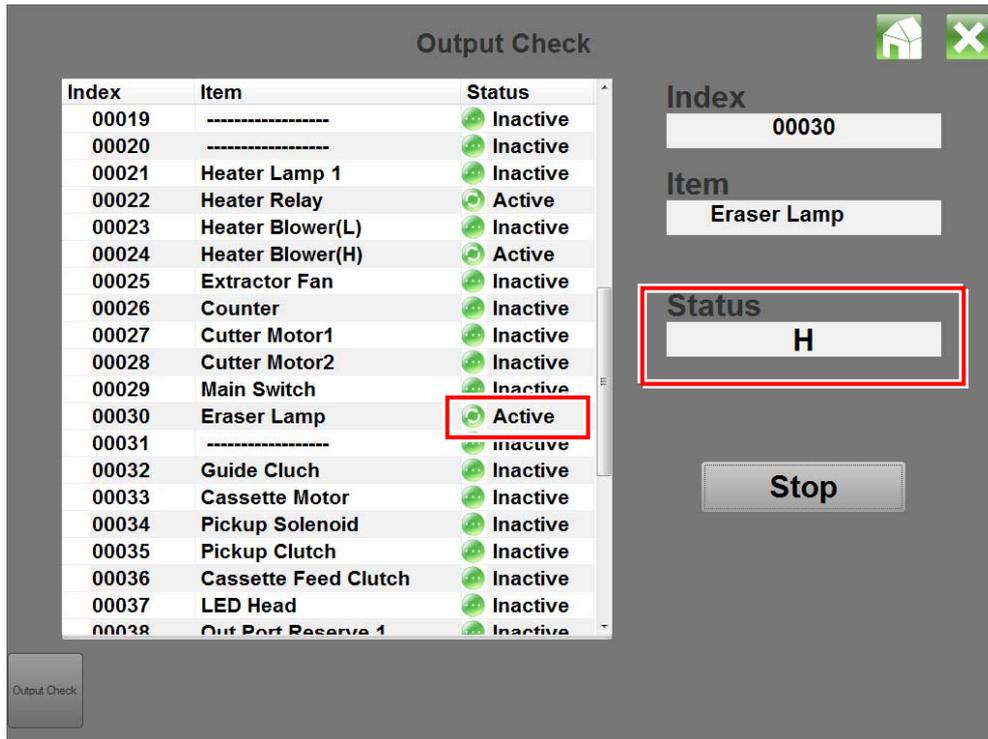
(Example : [777 Wire Cleaner to L:M] is selected. Signal status is L now.)



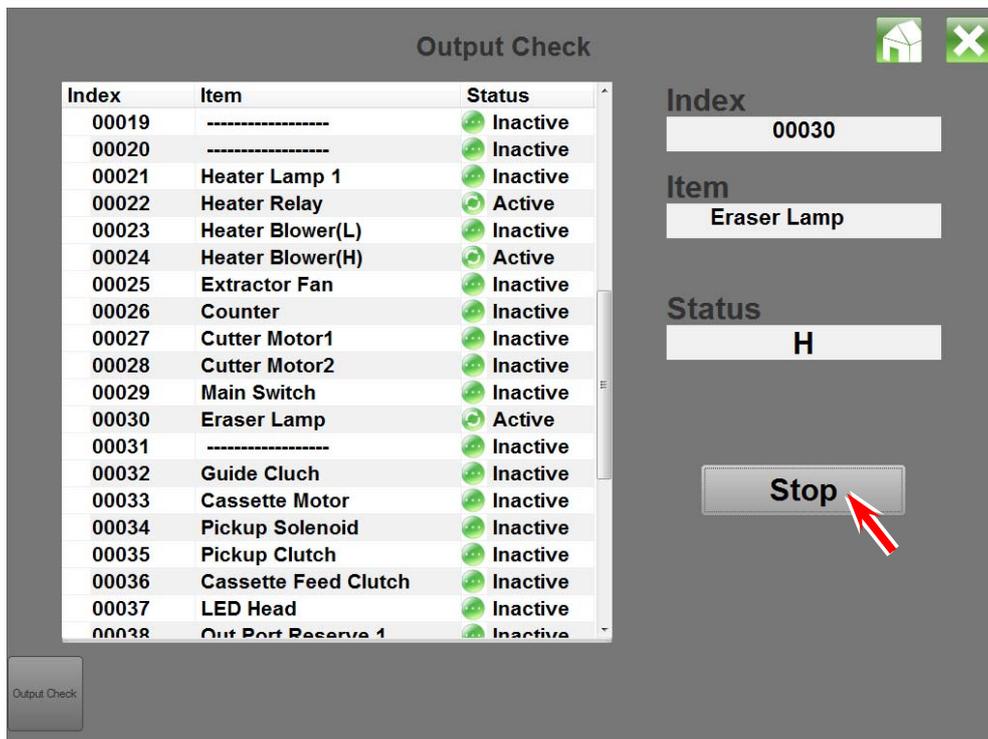
2. Press **Start** to output an operation signal.



3. When the operation signal is output the signal status in **Status** area changes and the concerning electric component operates. "Active" is shown for the selected item in the list while the electric component is operating.



4. There are 3 ways to stop the operation according to the type of selected component..
- Some components stop automatically by themselves, so just wait until they stop.
 - Some components stop automatically by themselves when particular time passes, so just wait until they stop. Or it is possible to stop them by pressing **Stop**.
 - Some components can be stopped by pressing **Stop** manually.



5. When the electric component stops operating the signal status in **Status** area changes. "Inactive" is shown for the selected item in the list also.

The screenshot shows a software interface titled "Output Check". It features a table with three columns: "Index", "Item", and "Status". The table lists various components and their current status. The component "Eraser Lamp" (Index 00030) is highlighted with a red box, and its status is "Inactive". To the right of the table, there are input fields for "Index" (00030), "Item" (Eraser Lamp), and "Status" (L). The "Status" field is also highlighted with a red box. Below these fields is a "Start" button. In the bottom left corner, there is a small "Output Check" button.

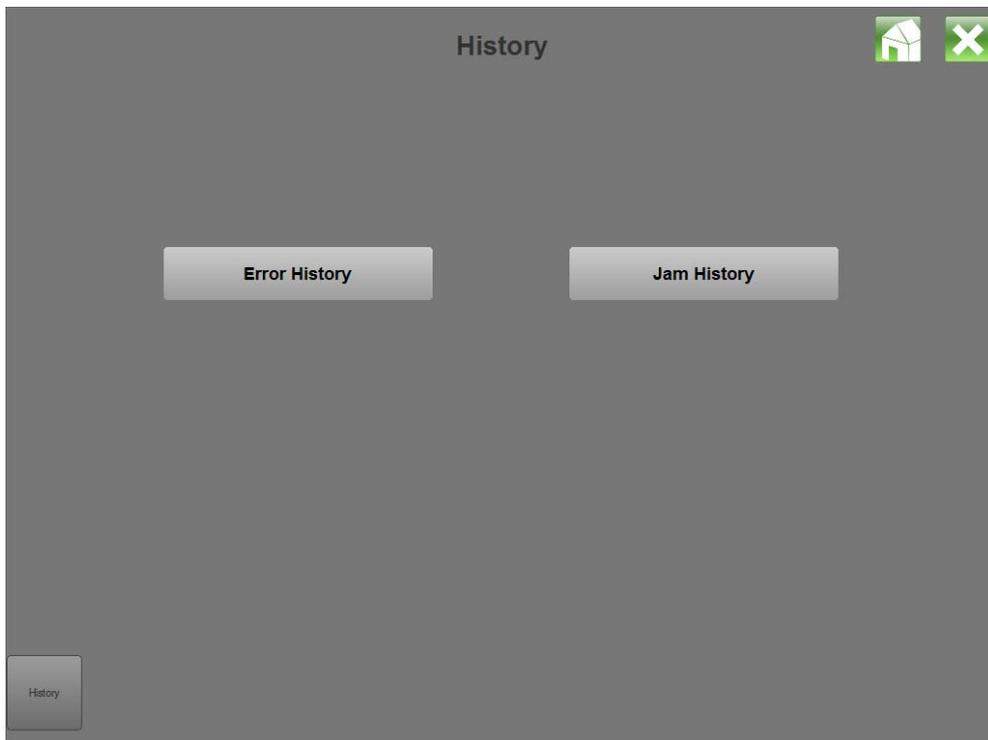
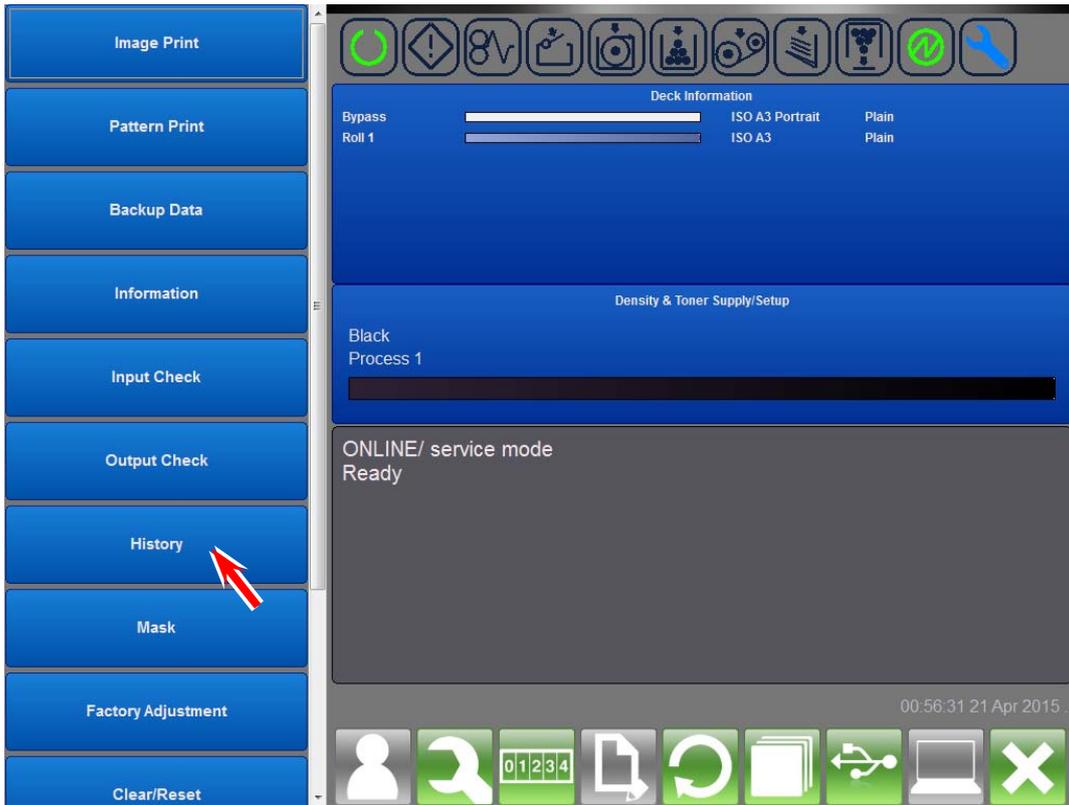
Index	Item	Status
00018	Clean +/- Sw	Inactive
00019	-----	Inactive
00020	-----	Inactive
00021	Heater Lamp 1	Inactive
00022	Heater Relay	Active
00023	Heater Blower(L)	Inactive
00024	Heater Blower(H)	Active
00025	Extractor Fan	Inactive
00026	Counter	Inactive
00027	Cutter Motor1	Inactive
00028	Cutter Motor2	Inactive
00029	Main Switch	Inactive
00030	Eraser Lamp	Inactive
00031	-----	Inactive
00032	Guide Cluch	Inactive
00033	Cassette Motor	Inactive
00034	Pickup Solenoid	Inactive
00035	Pickup Clutch	Inactive
00036	Cassette Feed Clutch	Inactive
00037	LED Head	Inactive

8.7.2 Output Signal List

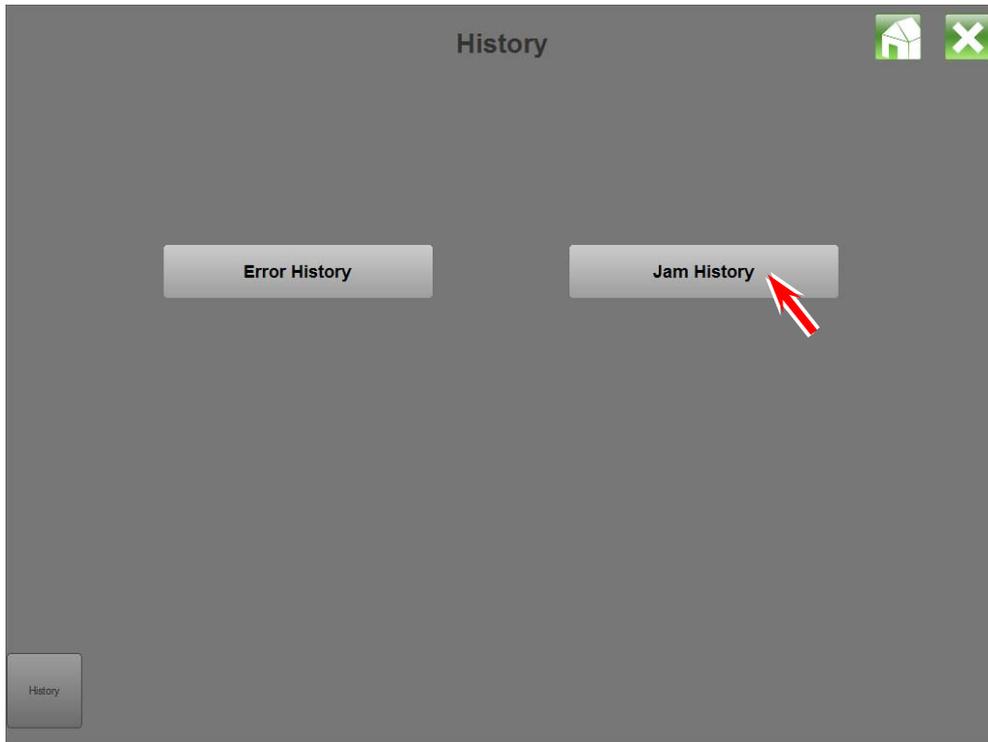
Signal Code	Item name (Maintenance GUI)	Symbol name	IC Port	Connector	Signal Name	Status
00000	Main Motor	MAIN-TRG	IC3-P10	J206-7	Main Motor	H : Rotate
00001	-----	---				
00002	-----	---				
00003	-----	---				
00004	Supply Motor	TONER-M	IC3-P77	J208-23	Toner Supply Motor	H : Rotate
00005	-----	---				
00006	Roll Feed Clutch	R1FD-CL	IC3-P60	J208-6	Roll Feed Clutch	H : ON
00007	-----	---				
00008	-----	---				
00009	-----	---				
00010	Feed Clutch	FEED-CL	IC3-P56	J208-10	Feed Clutch	H : ON
00011	Reg. Clutch	REG.-CL	IC3-P57	J208-11	Registration Clutch	H : ON
00012	1st Corona	HV-IM	IC3-P12	J206-9	Image Corona	H : Output
00013	Tr Corona	HV-TR	IC3-P13	J206-10	Transfer Corona	H : Output
00014	Sep Corona	HV-AC	IC3-P14	J206-11	Separation Corona	H : Output
00015	Dev Bias	BIAS-TRG	IC3-P15	J206-12	Developer Bias	H : Output
00016	Bias +/- Select	BIAS-SW	IC3-P16	J206-13	Developer Bias Polarity Switch	L : Positive H : Negative
00017	Clean Bias	CLEANTRG	IC3-P17	J206-28	Cleaning Bias Output	H : Output
00018	Clean +/- Select	CLEAN-SW	IC3-P33	J206-18	Cleaning Roller Voltage Polarity Switch	L : Positive H : Negative
00019	-----	---				
00020	-----	---				
00021	Heater Lamp 1	HEAT1	IC3-P35	J206-25	SSR ON/OFF Signal 1	H : Heater Lamp lights
00022	Heater Relay	HEAT-RY	IC3-P52	J208-5	Fuser Relay	H : ON
00023	Heater Blower (L)	H BLW(L)	IC3-P64	J208-12	Fuser Blower (Low)	H : ON
00024	Heater Blower (H)	H BLW(H)	IC3-P65	J208-12	Fuser Blower (High)	H : ON
00025	Extractor Fan	EXT FAN	IC3-P55	J208-21	Extractor Fan	H : ON
00026	Counter	COUNTER	IC3-P51	J208-4	Counter	H : ON
00027	Cutter Motor 1	M5_CUTL	IC3-P62	J208-2	Cutter Motor 1	H : ON
00028	Cutter Motor 2	M5_CUTR	IC3-P63	J208-1	Cutter Motor 2	H : ON
00029	Main Switch	POWER-SW	IC3-P37	J206-27	Power Switch Output	H : OFF
00030	Eraser Lamp	ER1	IC3-P76	J208-22	Eraser Lamp	H : Eraser Lamp lights
00031	-----	---				
00032	Guide Clutch	GUIDE CL	IC3-P63	J208-9	Guide Clutch	H : ON
00033	Cassette Motor	CSETM-TRG	IC3-P32	J206-17	Paper Tray Motor	H : Rotate
00034	Pickup Solenoid	PICK-SL	IC3-P53	J208-13	Pickup Solenoid	H : ON
00035	Pickup Clutch	PICKPU-CL	IC3-P61	J208-7	Paper Tray Pickup Clutch	H : ON
00036	Cassette Feed Clutch	PAPER-CL	IC3-P62	J208-8	Paper Tray Feed Clutch	H : ON
00037	LED Head	LED HEAD			LED Head (All lighting)	H : ON
00038	Out Port Reserve 1		IC3-P66	J209-9	Output Reserve	
00039	Out Port Reserve 2		IC3-P67	J209-10	Output Reserve	
00040	Out Port Reserve 3		IC3-P73	J209-11	Output Reserve	
00041	Out Port Reserve 4		IC3-P97	J204-28	Output Reserve	
00042	Out Port Reserve 5		IC3-P11	J206-8	Output Reserve	
00043	Out Port Reserve 6		IC3-P17	J206-14	Output Reserve	
00044	Out Port Reserve 7		IC3-P31	J206-16	Output Reserve	
00045	Out Port Reserve 8		IC3-P36	J206-26	Output Reserve	
00046	Out Port Reserve 9		IC3-P74	J207-3	Output Reserve	
00047	Out Port Reserve 10		IC3-P75	J207-4	Output Reserve	
00048	Out Port Reserve 11		IC3-P90	J207-5	Output Reserve	
00049	Out Port Reserve 12		IC3-P91	J207-6	Output Reserve	
00050	Out Port Reserve 13		IC3-P92	J207-7	Output Reserve	
00051	Out Port Reserve 14		IC3-P54	J208-14	Output Reserve	

8. 8 History

History shows the histories of service call errors and paper jams orderly from old to new, with the counter value of the occurrence time.

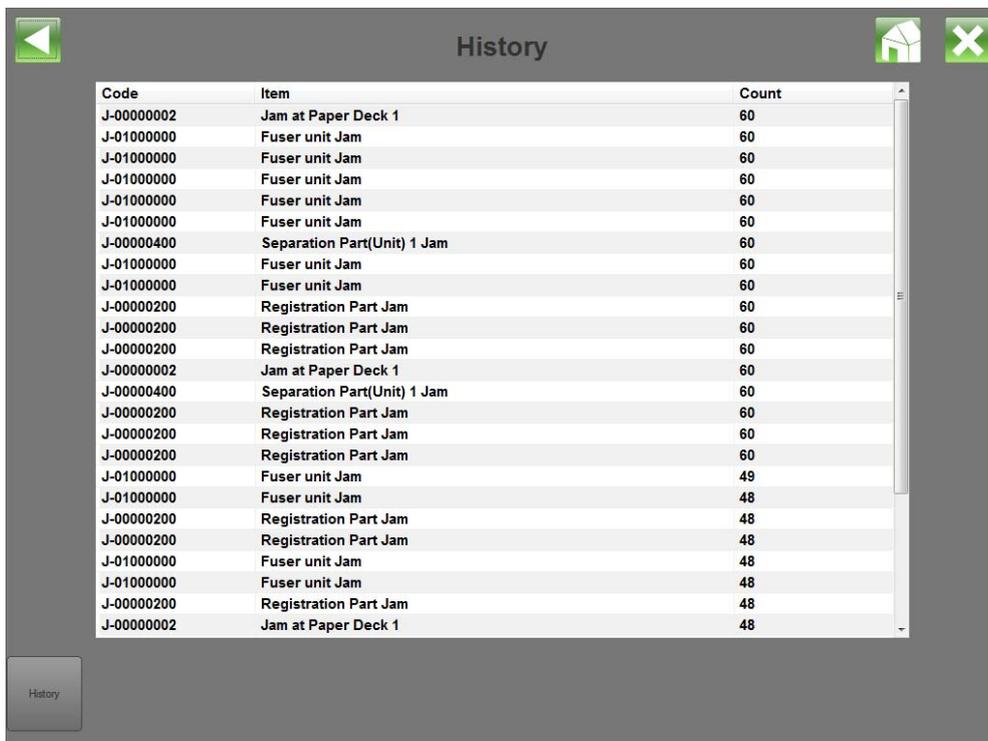


3. Press **Jam History** for checking the history of jams.



4. History of the recent jams are listed orderly. Newer jams are listed on upper section of the list.

Code	Unique jam code for the jam
Sub Code	Not used
Item	Name of error
Count	Counter value at the time of occurrence



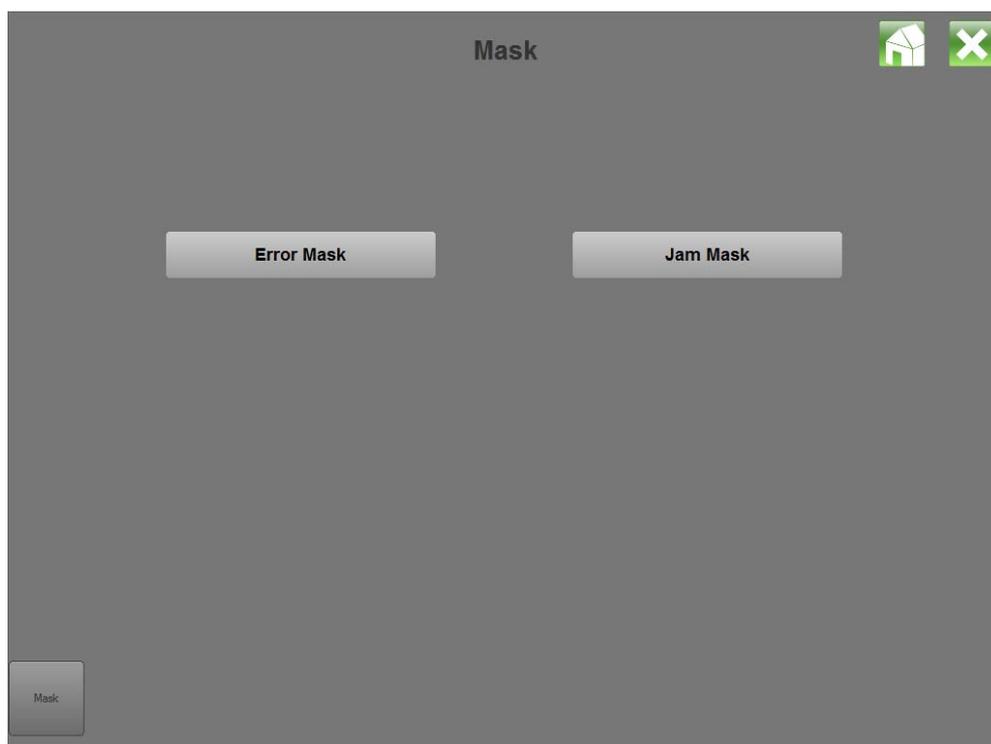
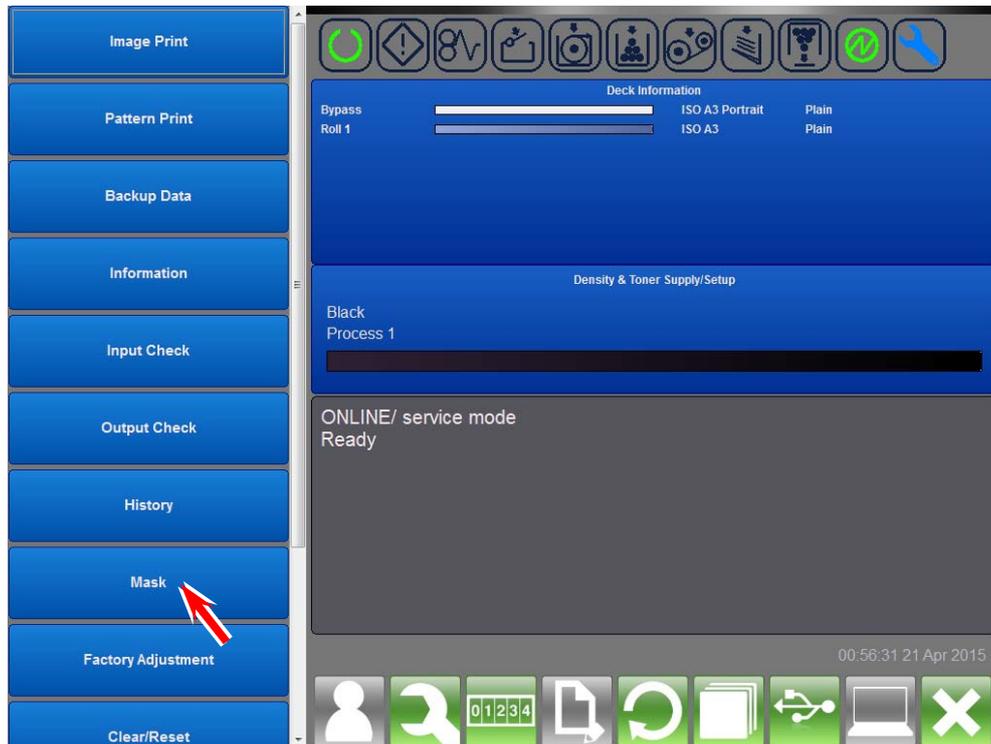
8. 9 Mask

If the printer indicates any error (J-****/E-****), it is possible to mask (ignore, not to detect) it in Mask Mode (Jam/Error). The error (J-****/E-****) you have chosen to mask will not be detected by masking. You can temporarily operate the printer as usual as normal condition even if a cause of the error is not removed yet.



NOTE

Masking condition will be automatically canceled once you quit KIP Service Software or turn off the printer.



8. 9. 1 Mask List

Error Mask

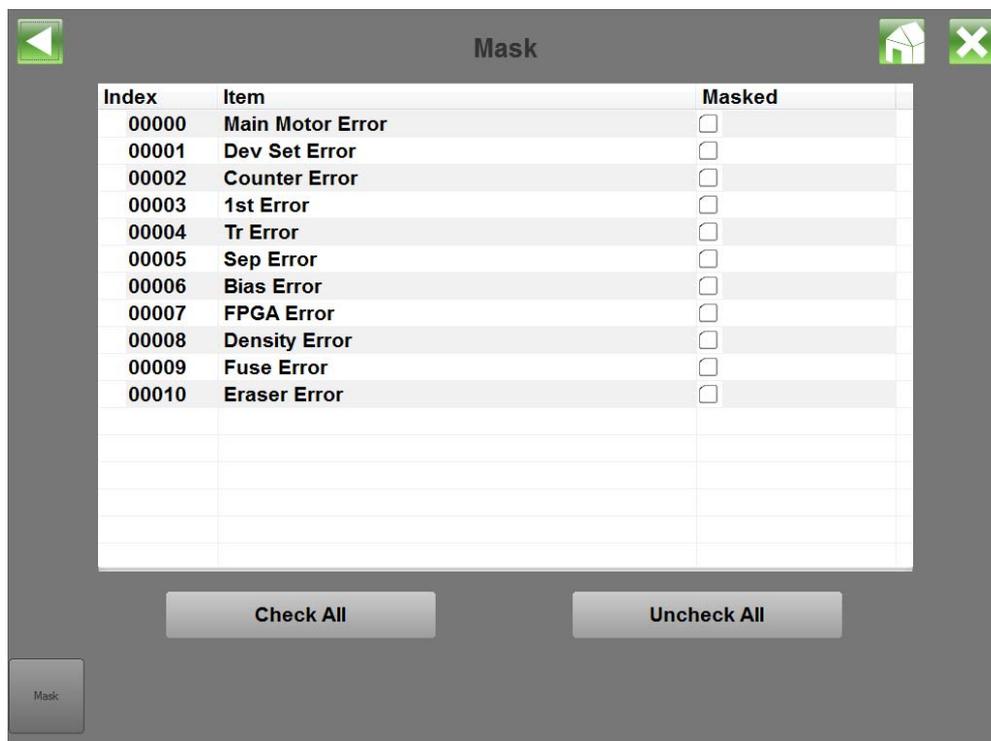
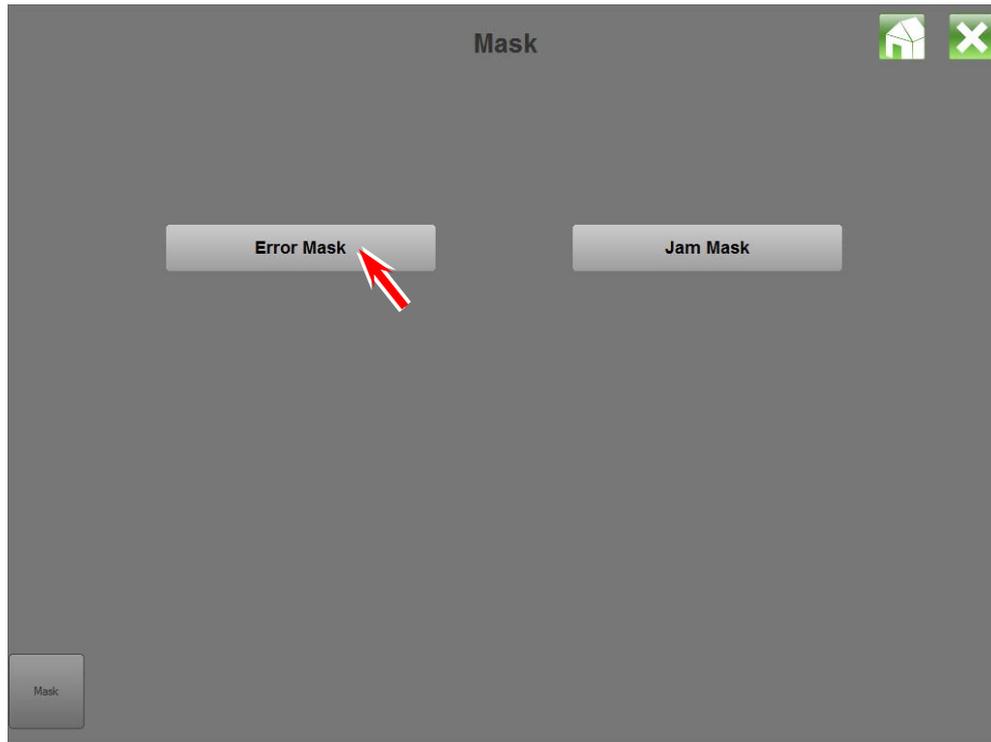
00000	Main Motor Error	E-0700
00001	Dev Set Error	E-0310
00002	Counter Error	E-0800
00003	1st Error	E-0320
00004	Tr Error	E-0321
00005	Sep Error	E-0322
00006	Bias Error	E-0323
00007	FPGA Error	E-0A20
00008	Density Error	E-0335
00009	Fuse Error	E-0A60
00010	Eraser Error (no function)	----

Jam Mask

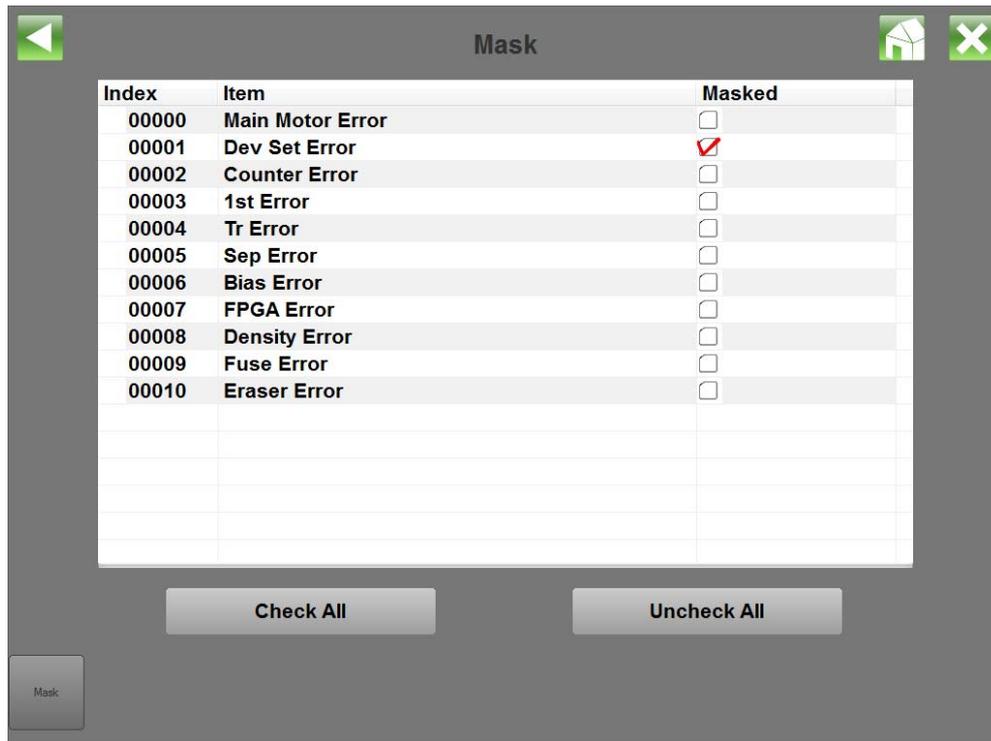
00000	Feed Sensor	Feeding Jam
00001	Manual Sensor	Manual Jam
00002	Regist Sensor	Registration Jam
00003	Sep. Sensor	Internal Jam
00004	Exit Sensor	Fuser / Exit Cover Jam
00005	Cassette Sensor	Pickup Jam (Paper Tray)

8. 9. 2 Operation in Error Mask

1. Press **Error Mask**.



2. Check items that you want to mask. Then the concerning sensor starts to ignore the checked Error.



The image shows a software window titled "Mask" with a table of error items. The table has three columns: "Index", "Item", and "Masked". The "Masked" column contains checkboxes. The "Dev Set Error" item (Index 00001) is checked. Below the table are two buttons: "Check All" and "Uncheck All".

Index	Item	Masked
00000	Main Motor Error	<input type="checkbox"/>
00001	Dev Set Error	<input checked="" type="checkbox"/>
00002	Counter Error	<input type="checkbox"/>
00003	1st Error	<input type="checkbox"/>
00004	Tr Error	<input type="checkbox"/>
00005	Sep Error	<input type="checkbox"/>
00006	Bias Error	<input type="checkbox"/>
00007	FPGA Error	<input type="checkbox"/>
00008	Density Error	<input type="checkbox"/>
00009	Fuse Error	<input type="checkbox"/>
00010	Eraser Error	<input type="checkbox"/>

Check All Uncheck All

Mask

2. Select the desired target.
Check any of "Delay" / "Remain" then the concerning sensor starts to ignore the checked jam.

The screenshot shows a software window titled "Mask" with a table of sensor configurations. The table has columns for Index, Item, Masked, Early, Delay, and Remain. The first row is highlighted, and the "Delay" checkbox is checked. A red box highlights the "Delay" and "Remain" columns, with a red arrow pointing to a callout box that says "Specifies which situation to be masked." Below the table are "Check All" and "Uncheck All" buttons.

Index	Item	Masked	Early	Delay	Remain
00000	Feed Sensor	---	---	<input checked="" type="checkbox"/>	<input type="checkbox"/>
00001	Manual Sensor	---	---	<input type="checkbox"/>	<input type="checkbox"/>
00002	Reg. Sensor	---	---	<input type="checkbox"/>	<input type="checkbox"/>
00003	Sep Sensor	---	---	<input type="checkbox"/>	<input type="checkbox"/>
00004	Exit Sensor	---	---	<input type="checkbox"/>	<input type="checkbox"/>
00005	Cassette Sensor	---	---	<input type="checkbox"/>	<input type="checkbox"/>

Specifies which situation to be masked.

Check All Uncheck All

8.10 Factory Adjustment

This mode is mainly used at factory for adjustment and product operation test.

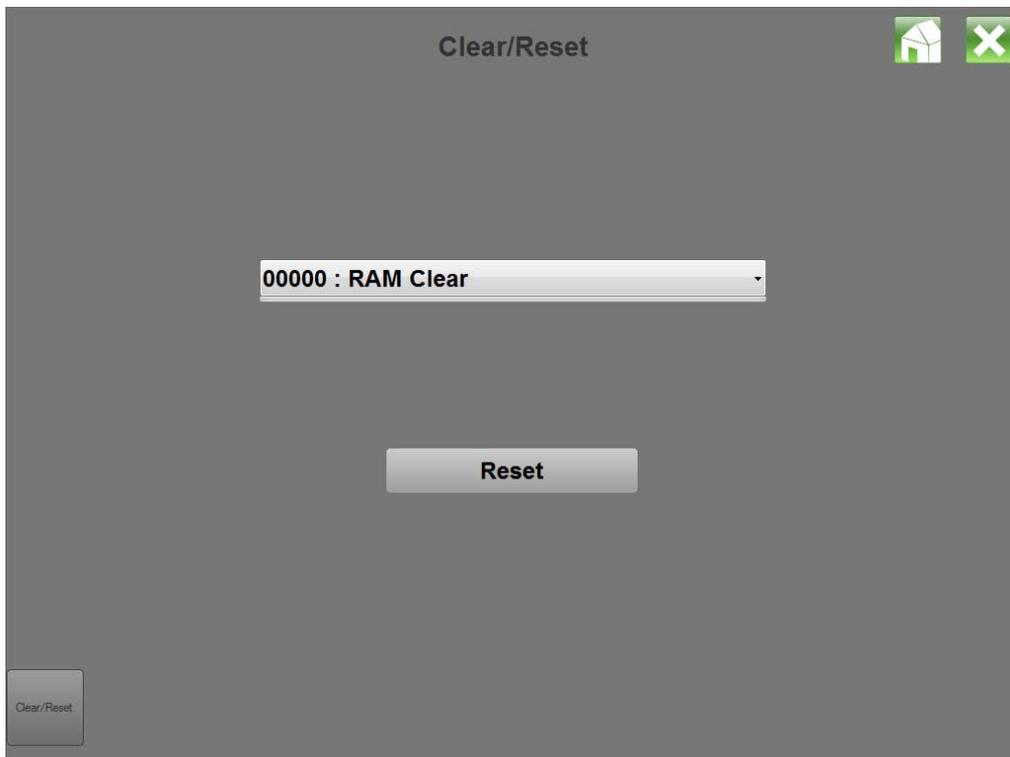
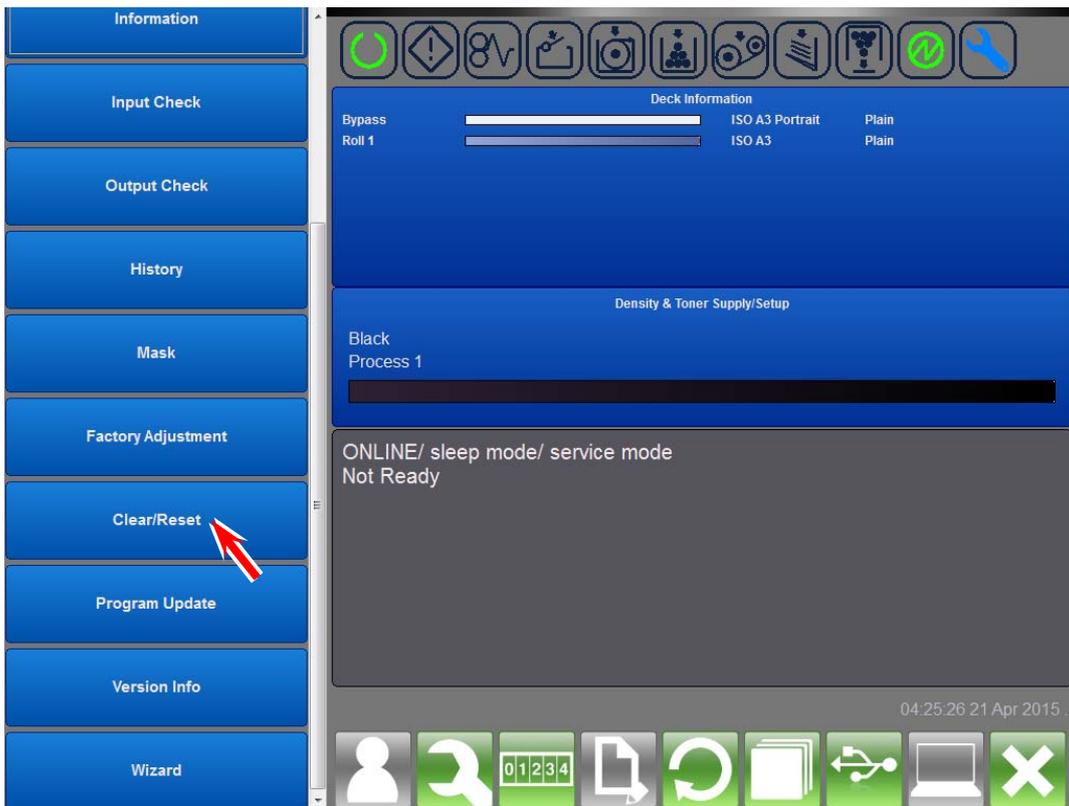


NOTE

Factory Adjustment Mode is not available in Service Mode. Factory Use Only.

8.11 Clear/Reset

This mode clears or resets several important information or data. **Please pay great attention for any operation in this mode.**



8.11.1 Operation in Clear/Reset

The followings are the available operations in Clear/Reset. **Please pay great attention for any operation in this mode as it is no longer available to recover the current information or data once cleared or reset carelessly.**

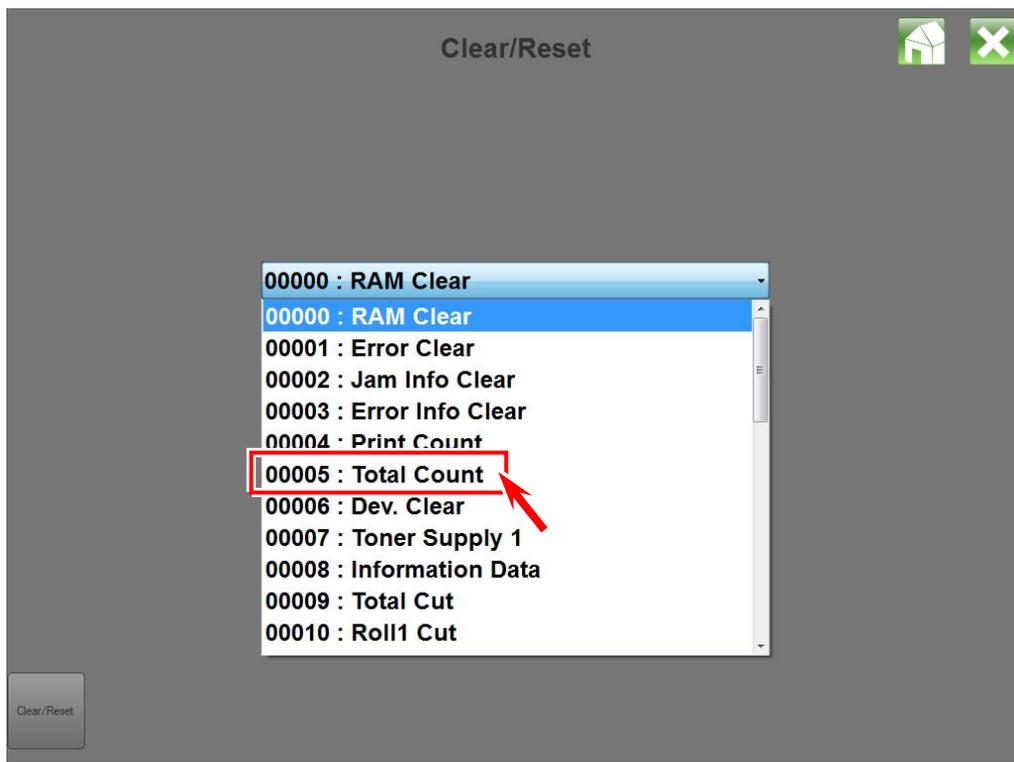
Item No.	Name	Contents	
0000	RAM Clear	Clears any stored data in the memory (PW13320 PCB)	
0001	Error Clear	Clears E-0900 / 0901 from the memory	
0002	Jam History	Clears Jam records J-**** in Jam History list	
0003	Error History	Clears Error records E-**** in Error History list	
0004	Print Count	Checks the counter value for Print Count (unit selectable)	
0005	Total Count	Checks the counter value for Total Count (linear meter)	
0006	Dev. Clear	Initializes Developer / Regulation Bias adjusted with Density Compensation Process	
0007	Toner Supply1	Starts toner supply / agitation in Developer Unit	
0008	Information Data	Clears the Items 0009 to 0027 at a time	
0009	Total Cut	Clears each Item used in Information Mode See [8.5 Information]	
0010	Roll1 Cut		
0011	Others Cut		
0012	Total Image		
0013	Manual1 Image		
0014	Roll1 Image		
0015	Cassette Image		
0016	Roll1 Feed Clutch		
0017	Feed CL		
0018	Reg. CL		
0019	Guide CL		
0020	Cassette CL		
0021	Pickup Solenoide		
0022	-----		(Reserved)
0023	-----		(Reserved)
0024	Motor1 Time		
0025			
0026	LED on Time		
0027	Image Ratio		
0028	PM Count1	Checks the remainder counter for Service Kit A	
0029	PM Count2	Checks the remainder counter for Service Kit B	
0030	PM Count3	Checks the remainder counter for Service Kit C	
0031	PM Count4	(Reserved)	
0032	Factory Clear		

NOTE

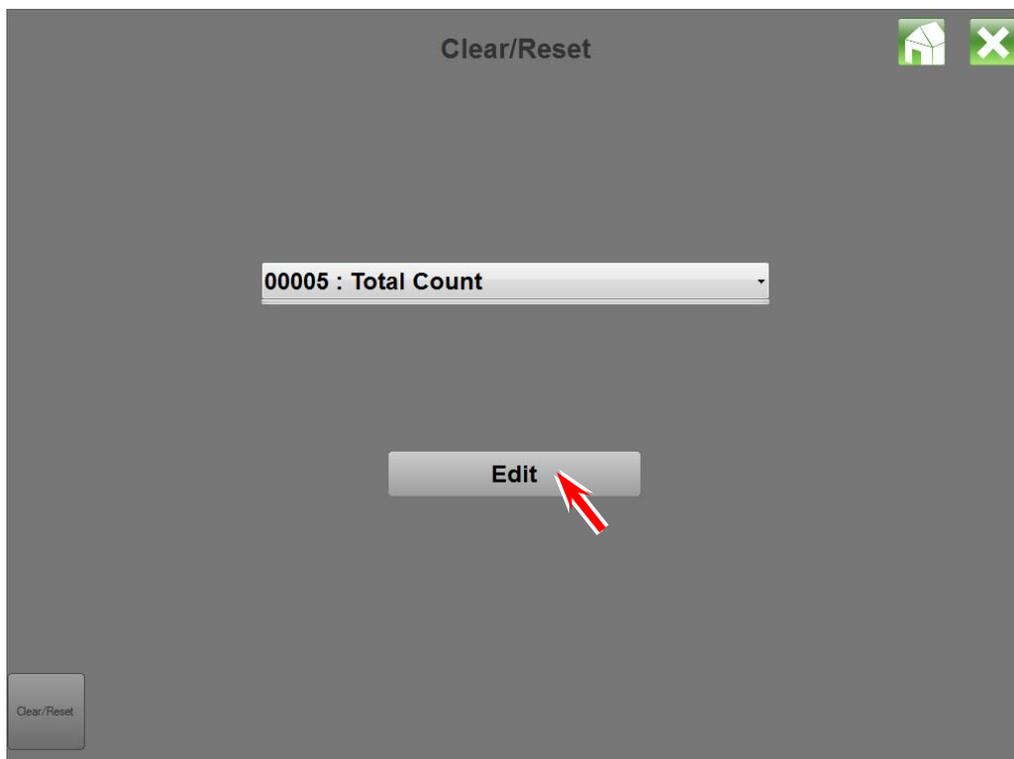
Total Count (0005) and Print Count (0004) are stored on both PW13320 and the Controller. The counting memory is always verified between them. If you replace one of them, the other will automatically override the Count memory to the replaced component.

8.11. 2 Changing Counter Value

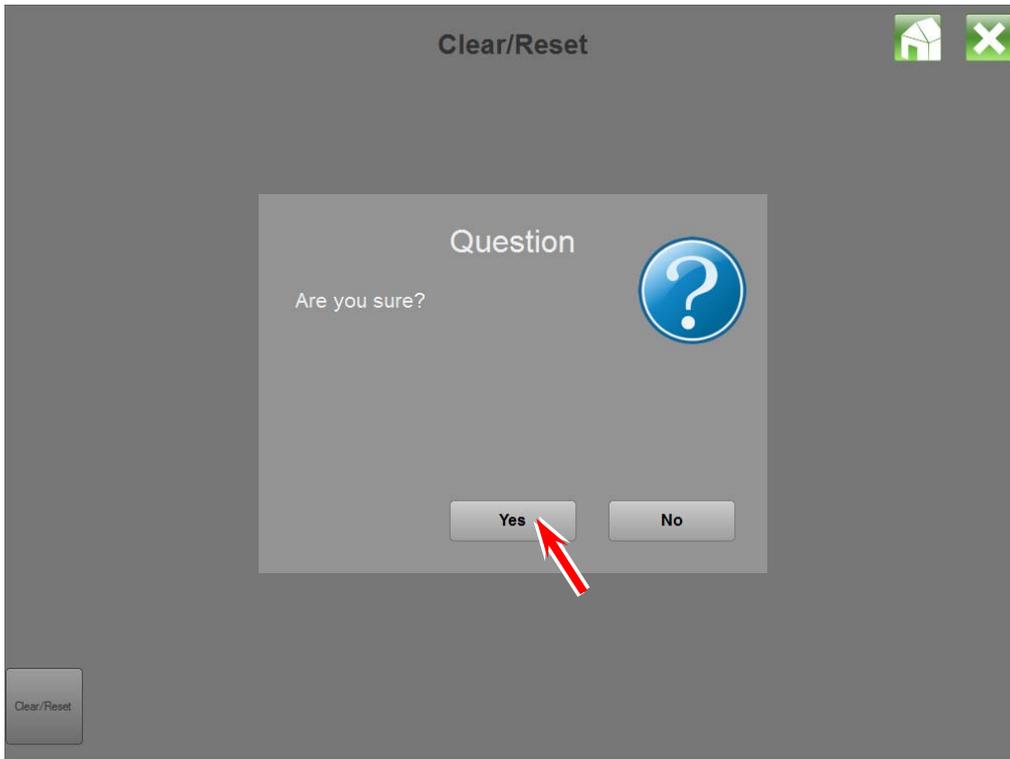
1. Press **Total Count**.



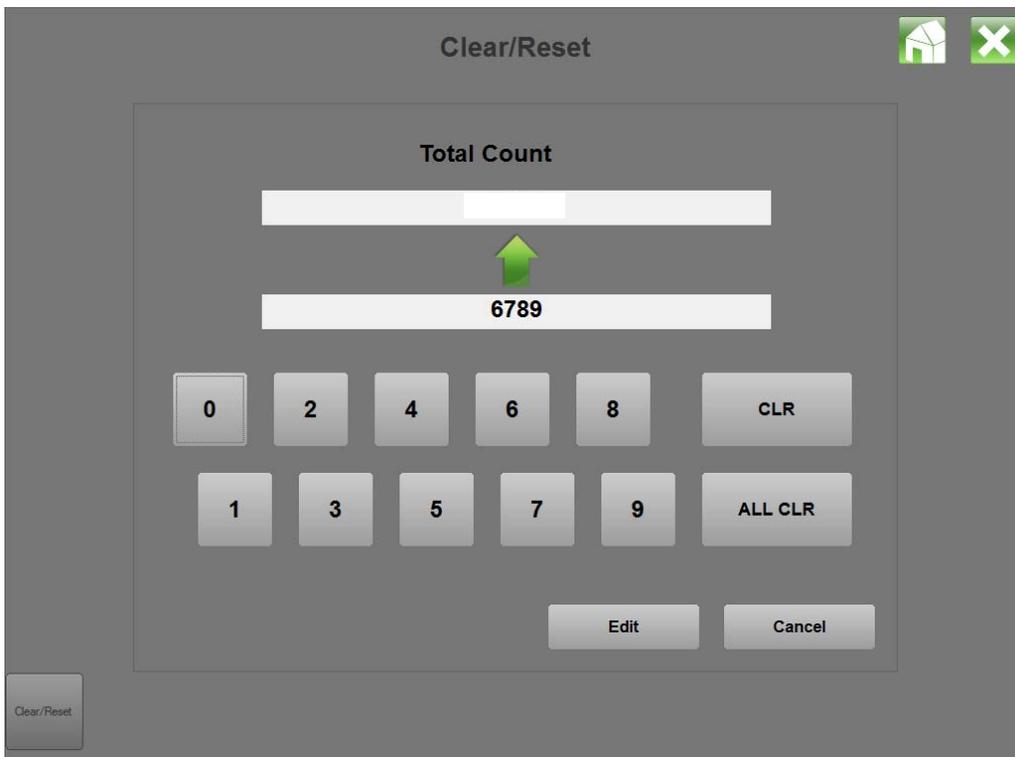
2. Press **Edit**.



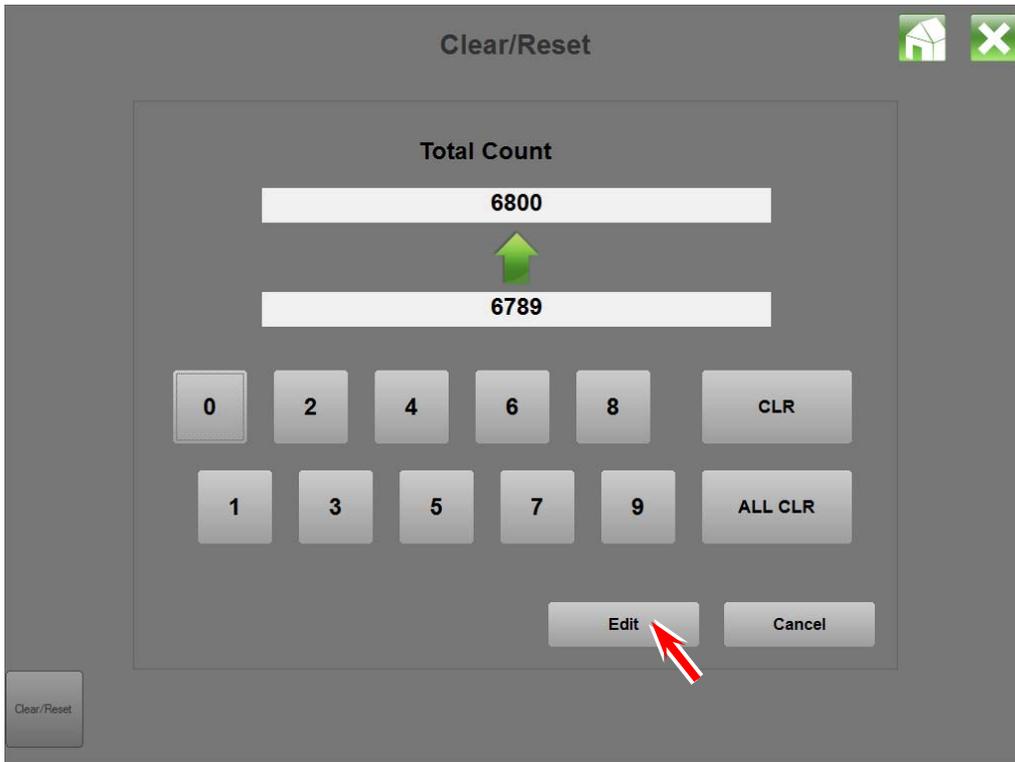
3. You are prompted if you will really clear or reset the information/data. Press **Yes** if you will do.



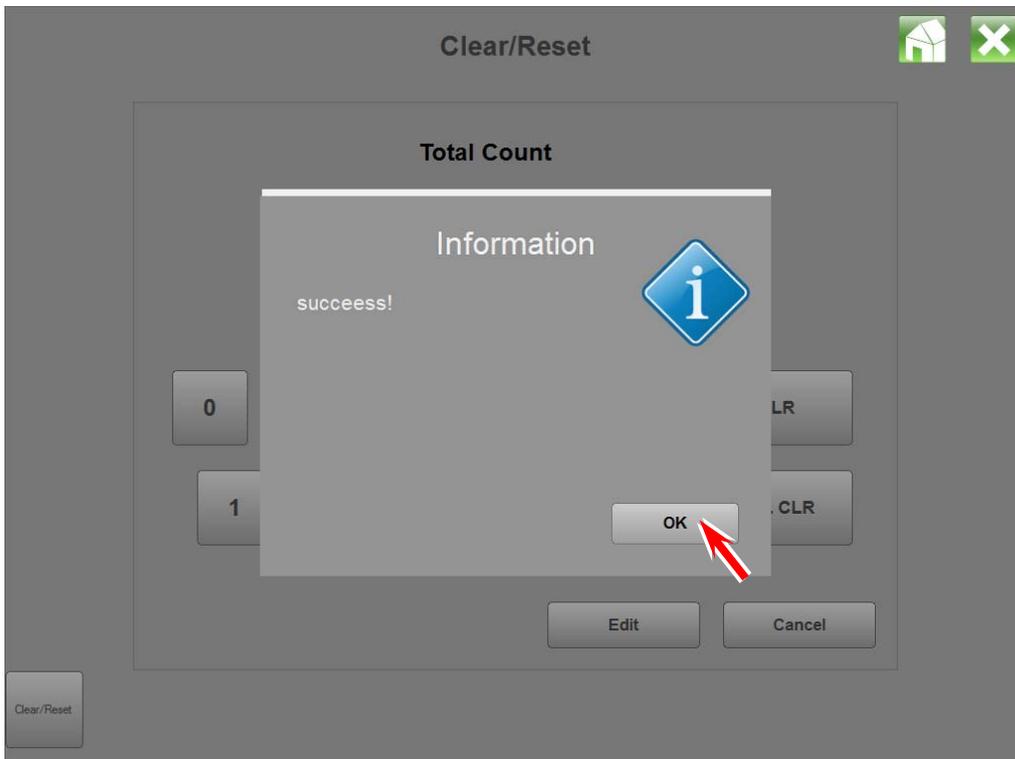
4. The lower field with some value shows the current counted value of Total Counter. Enter new value in the upper vacant field with ten keys.



5. Press **Edit** to enable new value.



6. Close the following message pressing **OK**.

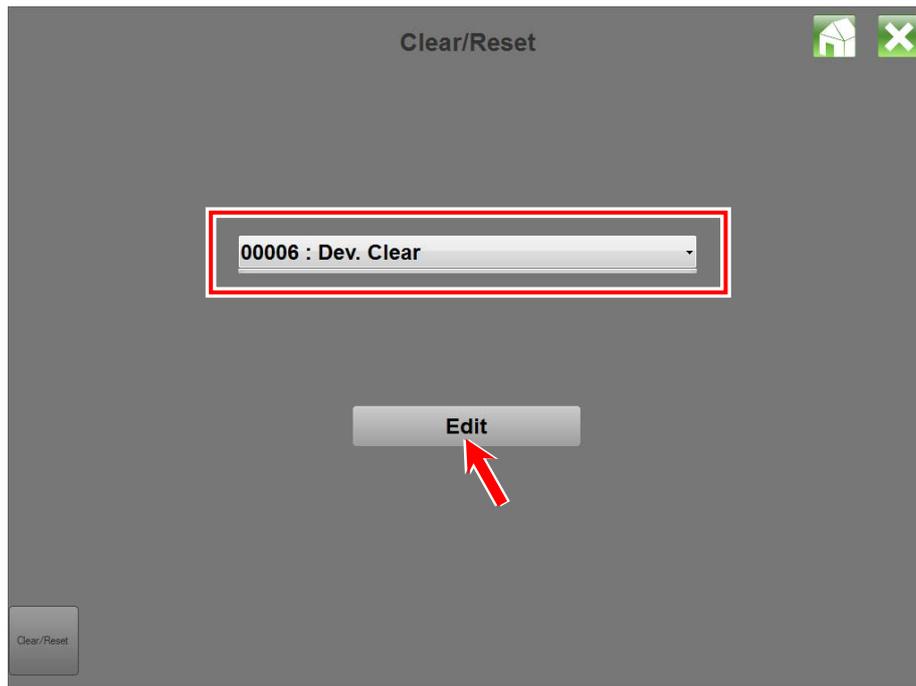


8.11.3 Reset of Bias Adjustment by Density Compensation Process

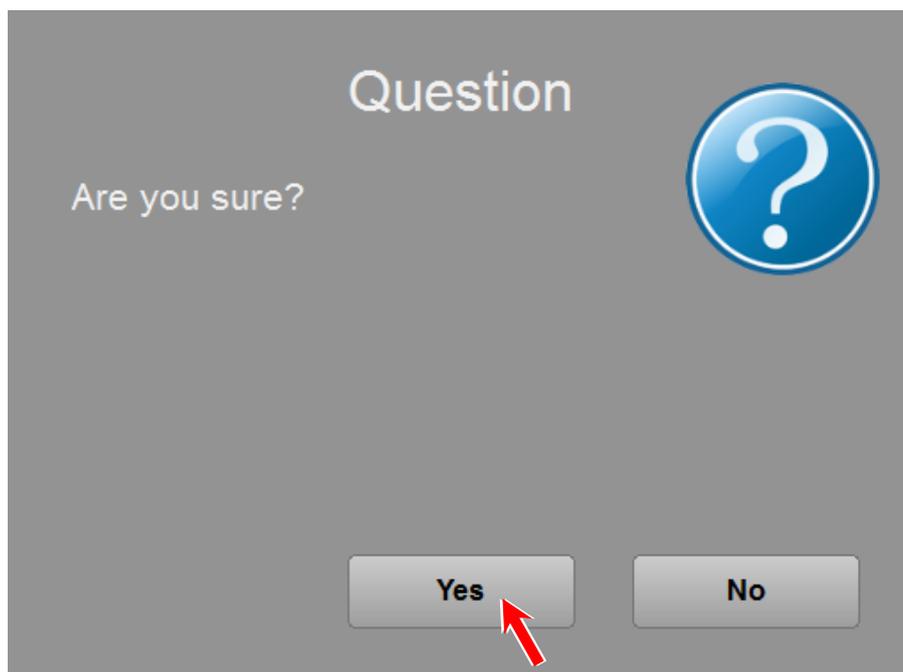
NOTE

After replacing Developer Unit / Developer Roller / toner refreshment, you must reset bias adjustment by Density Compensation Process. Otherwise a darker image appears because the adjusted values are too high voltage for the refreshed Developer Unit.

1. Select [00006 Dev. Clear] from “Clear/Reset” menu. Press [Edit].

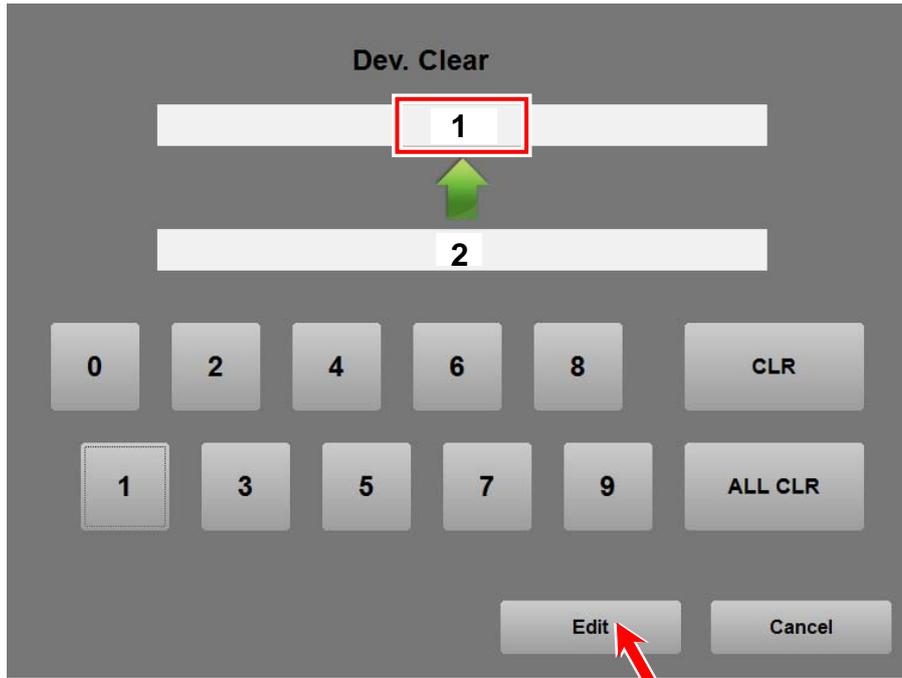


2. Confirmation screen appears. Press [Yes].

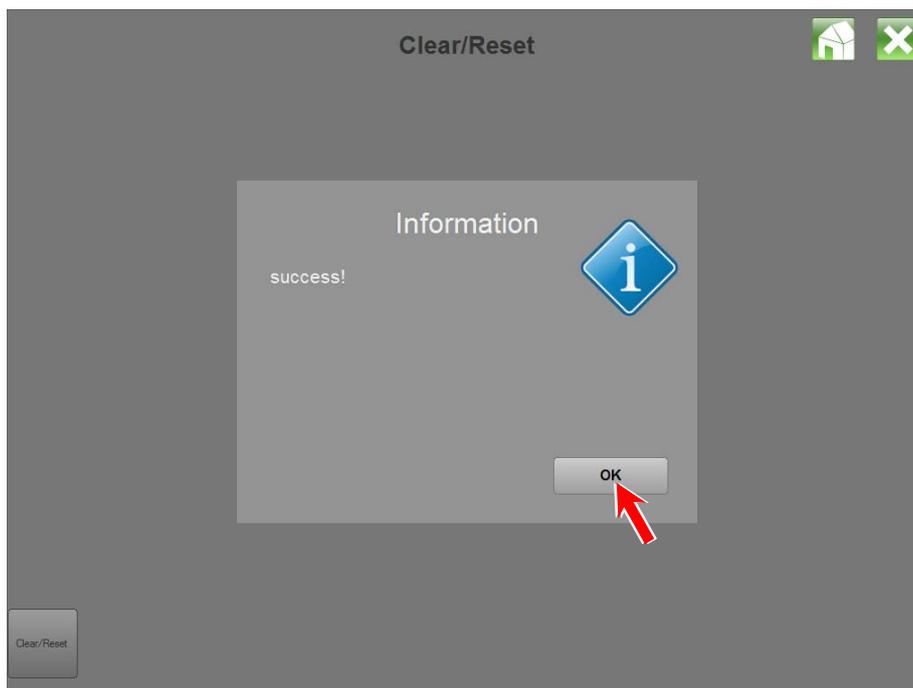


3. Input screen appears.

Input "1" with On-screen Keypad. Press [Edit].



4. "Reset of Bias Adjustment by Density Compensation Process" is completed. Press [OK].



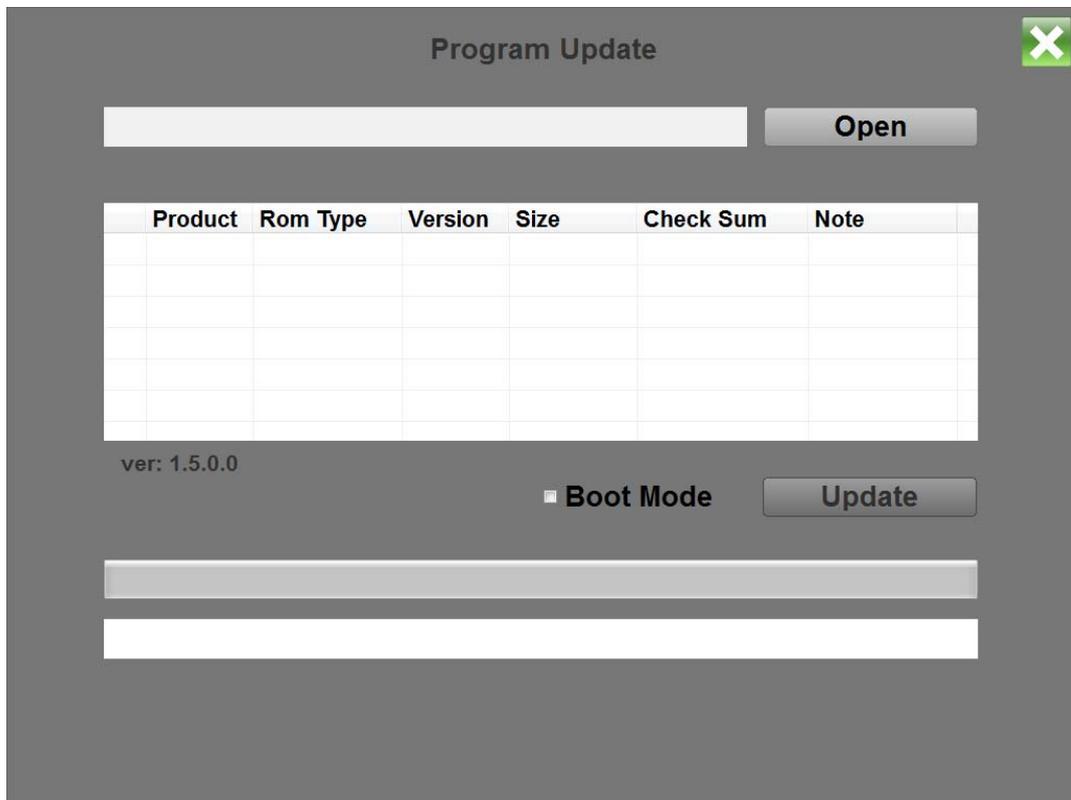
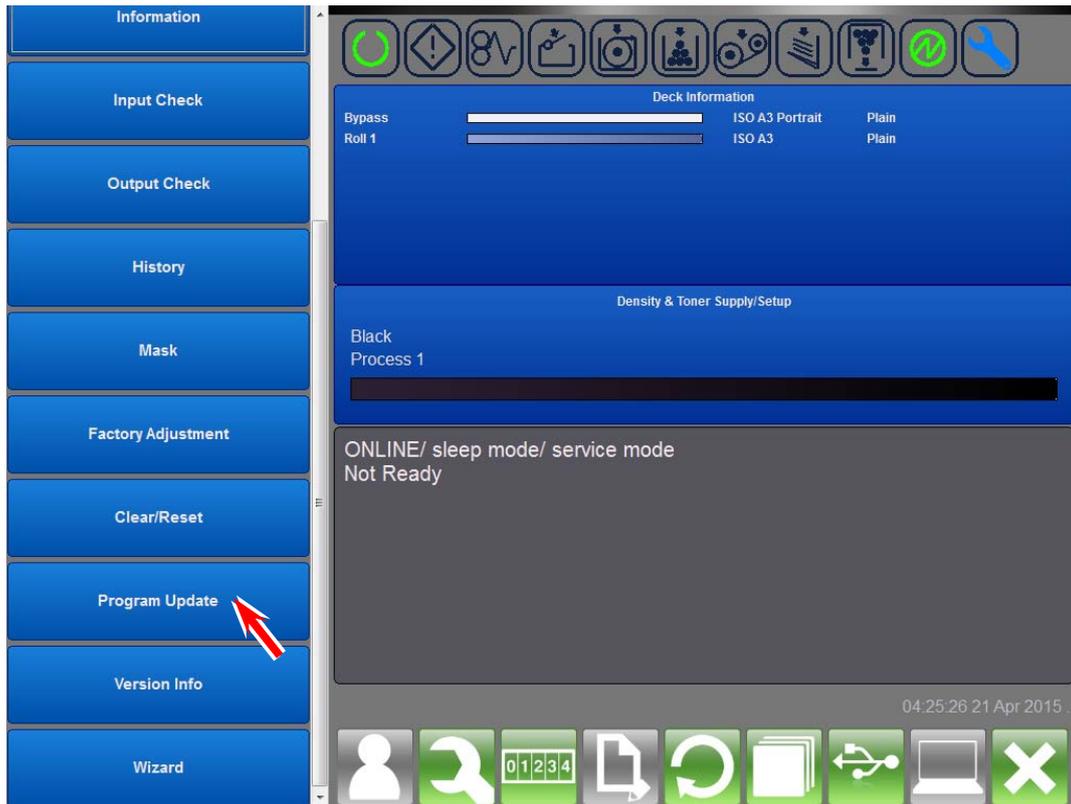
NOTE

The required value for the KIP770 to reset Bias Adjustment by Density Compensation Process is "1".

"0" to "3" correspond to the adjustment level in Density Compensation Process. For example, if you interchange the Developer Unit with your spare unit, you can manually set a certain adjustment level that would be suitable for your spare unit.

8.12 Program Update

Printer control programs such as firmware and FPGA (hardware) are updated.



8.12. 1 Operation in Program Update

1. Prepare a zip file for update, which includes printer firmware and FPGA. Copy it to any removable device as USB memory stick, and plug it into the printer.

Reference

Printer firmware and FPGA must be used by correct combination of the versions. Therefore, a zip file released to the field includes correct combination of these programs. Just use this zip file for updating without unzipping.

2. Press **Open** to indicate the file selection page.

Program Update

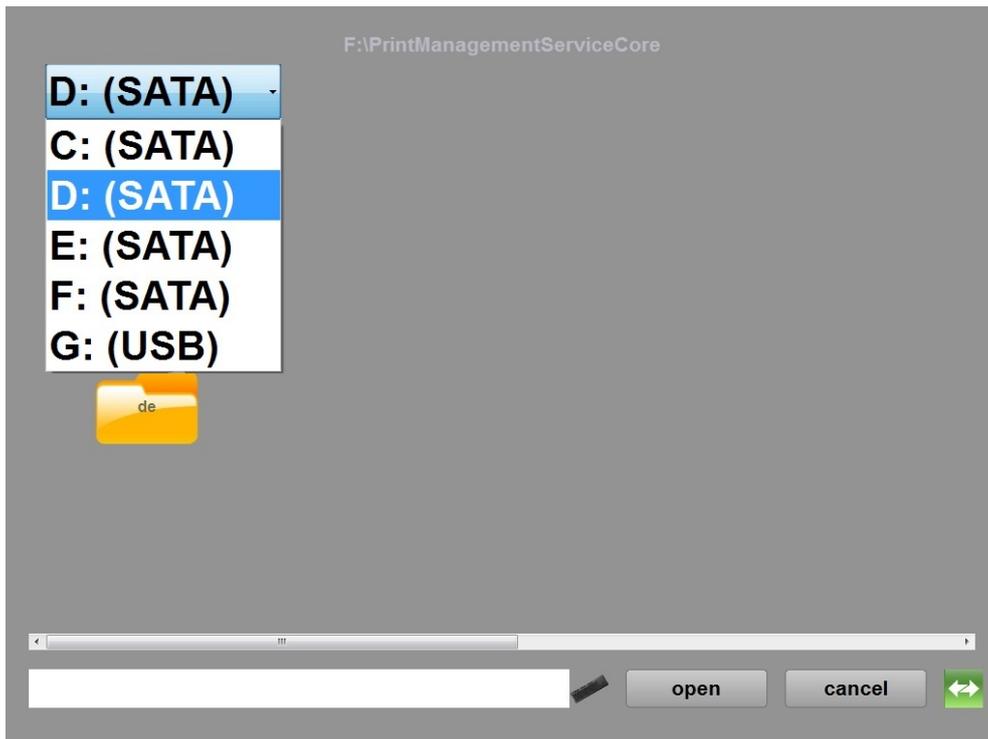
Open

Product	Rom Type	Version	Size	Check Sum	Note

ver: 1.5.0.0

Boot Mode Update

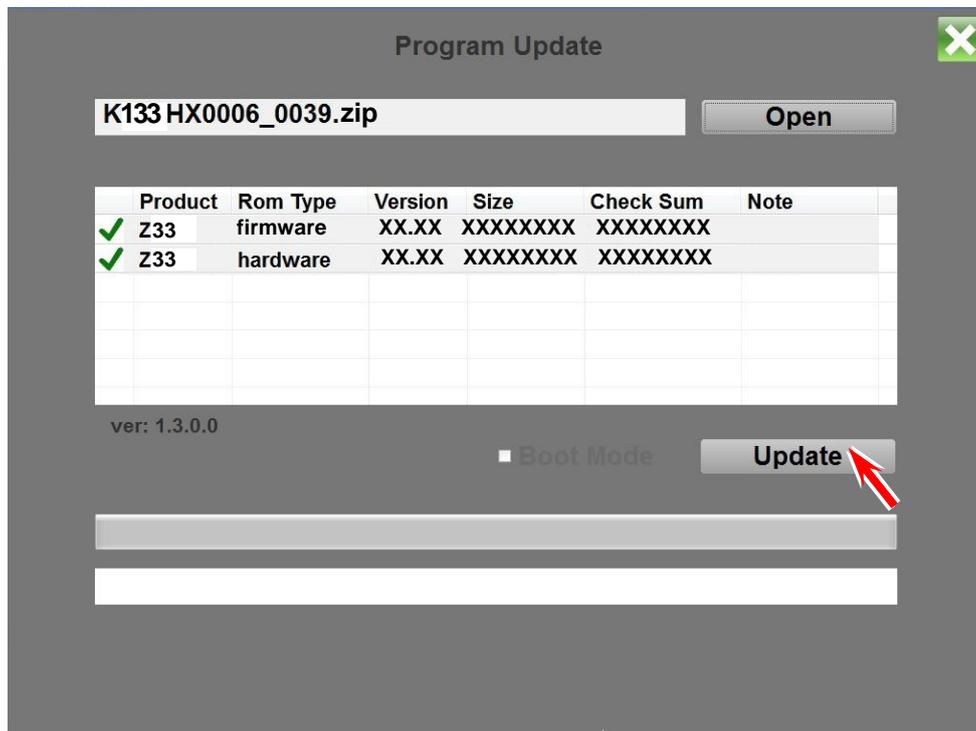
3. The path to the current folder is indicated on the top of the page. Click the drive selection icon on top-left and then choose the correct drive in the list.



4. Select the update zip file and then press **open**.



5. The firmware and FPGA in the zip file is read. Confirm that both programs are checked and then press **Update**. Wait for a while until updating completes.

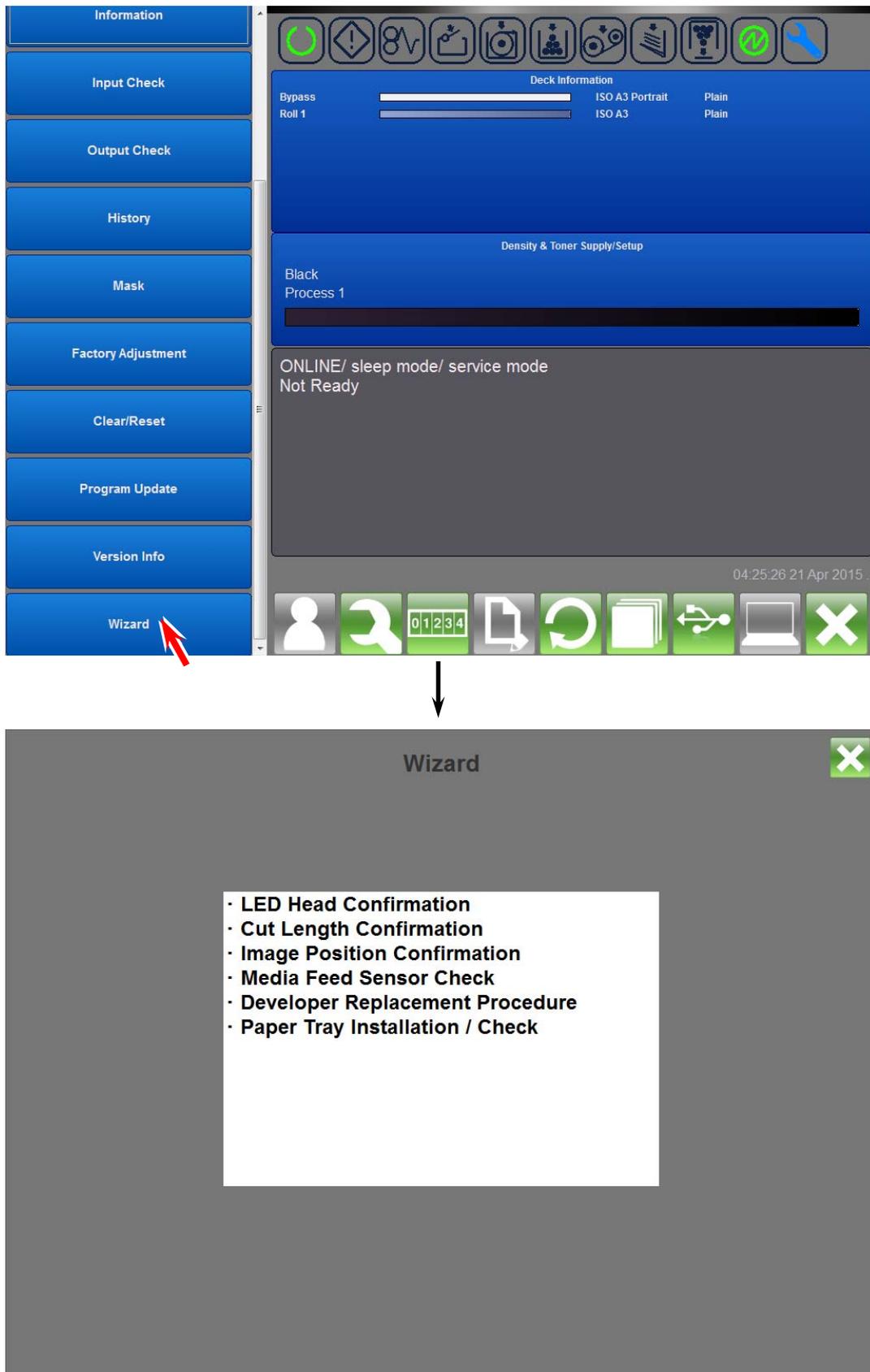


8.13. 1 Indication in Version Info

Hardware	Version of FPGA that takes media feeding control and high voltage control
Firmware	Version of Firmware that takes overall printer controls
USB Software	Version of USB program file
OpenAPI	Version of KCS communication module
Service	Version of KCS Windows Service
USB Driver	Version of USB Driver
Maintenance Software	Version of Maintenance GUI
UpdateAPI	Version of communication module for updating
Serial Number	Printer serial number

8.14 Wizard

Service Software includes “Wizard” function to confirm the printer’s operation. Press **Wizard** to start several wizard program.



Wizard has several programs to confirm the machine operation.

LED Head Confirmation	can confirm LED Head performance / adjustment
Cut Length Confirmation	can confirm the cut length performance / adjustment
Image Position Confirmation	can confirm the image position (placement)
Media Feed Sensor Check	displays the current status on feed sensors
Developer Replacement Procedure	displays the replacement procedure step by step (or slide show) includes Bias Adjustment Reset
Paper Tray Installation / Check	runs confirmation wizard for various parameters in Paper Tray

Some pages on the wizard have “test print” button to confirm the related image result on the page. The wizard offers “print & check” operability by following the instruction. You can make additional adjustment right there.

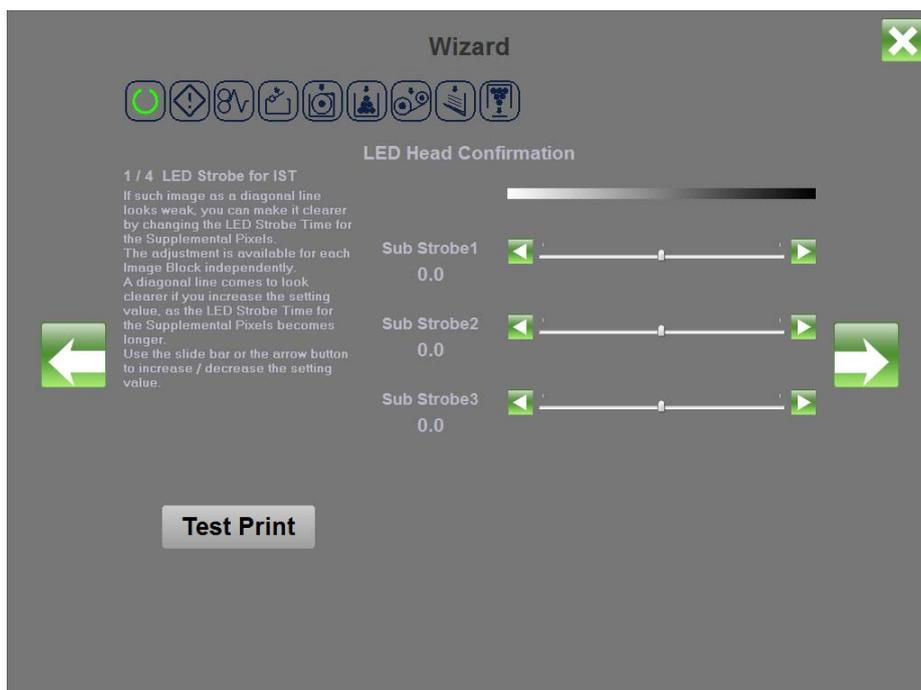
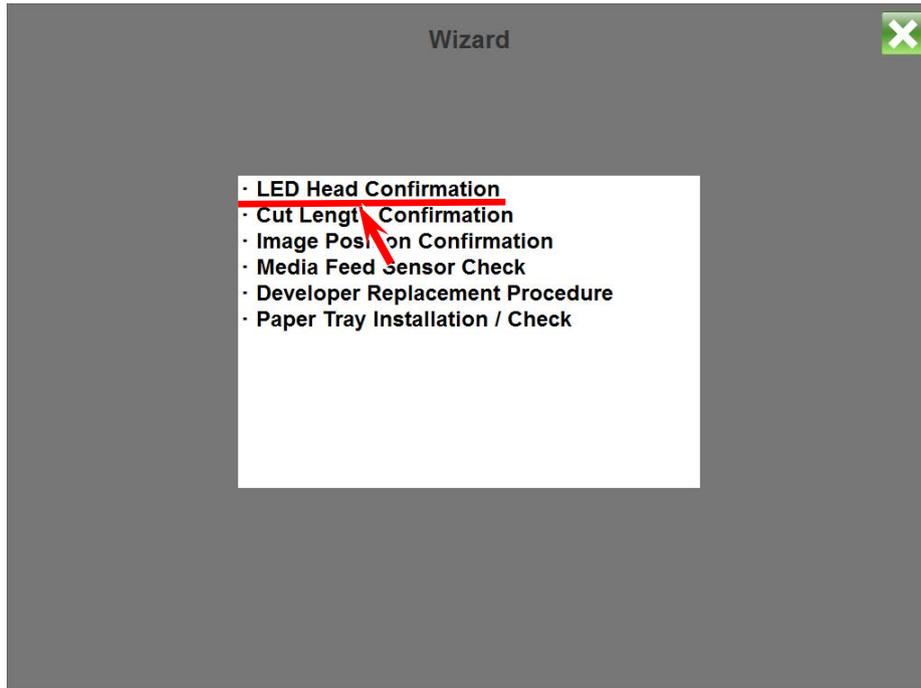
Additional adjustment will change the corresponding sub mode parameter in Adjustment Mode directly in an easy interface. For the detailed information about each sub mode, see the related subsection of [8.6.3 Setting Item Explanation].

8. 14. 1 LED Head Confirmation

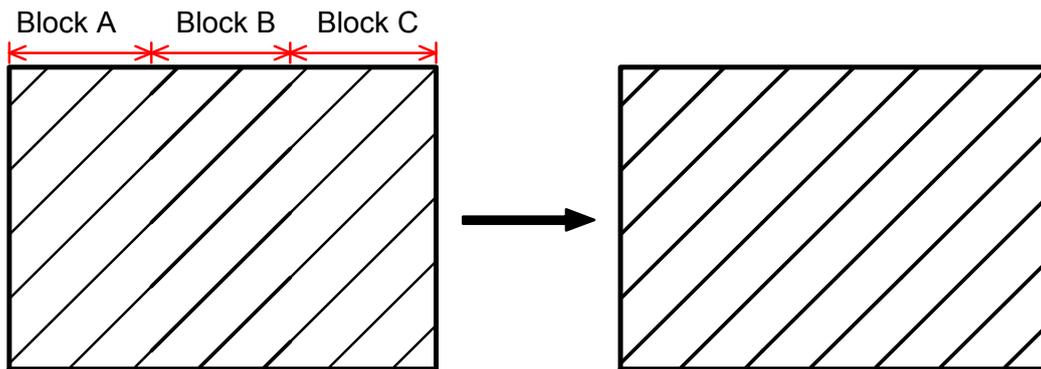
“LED Head Confirmation” can be used to confirm the current result (performance) of the following sub mode parameters.

Title of page	Concerning Sub Mode
1/4 LED Strobe Time for IST	No.011 to 013
2/4 Vertical Alignment	No.014, 015
3/4 Horizontal Alignment	No.772, 773
4/4 Strobe Time Adjustment on Border pixels	No.778, 779

1. Press [LED Head Confirmation] on the wizard menu screen.



2. [1/4 LED Strobe Time for IST] is used to confirm the image like diagonal lines.



Ex) Block A and C looks weaker than Block B

Wizard ✕



LED Head Confirmation

1 / 4 LED Strobe for IST
If such image as a diagonal line looks weak, you can make it clearer by changing the LED Strobe Time for the Supplemental Pixels. The adjustment is available for each Image Block independently. A diagonal line comes to look clearer if you increase the setting value, as the LED Strobe Time for the Supplemental Pixels becomes longer. Use the slide bar or the arrow button to increase / decrease the setting value.

Sub Strobe1   
0.0

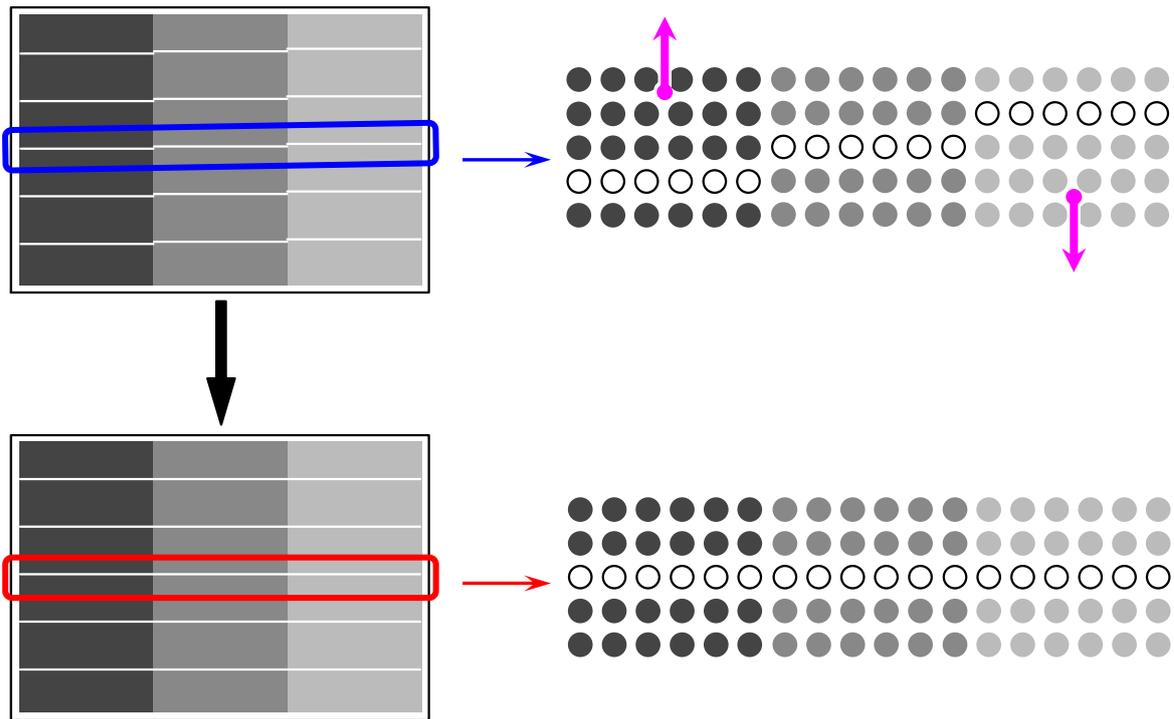
Sub Strobe2   
0.0

Sub Strobe3   
1.0

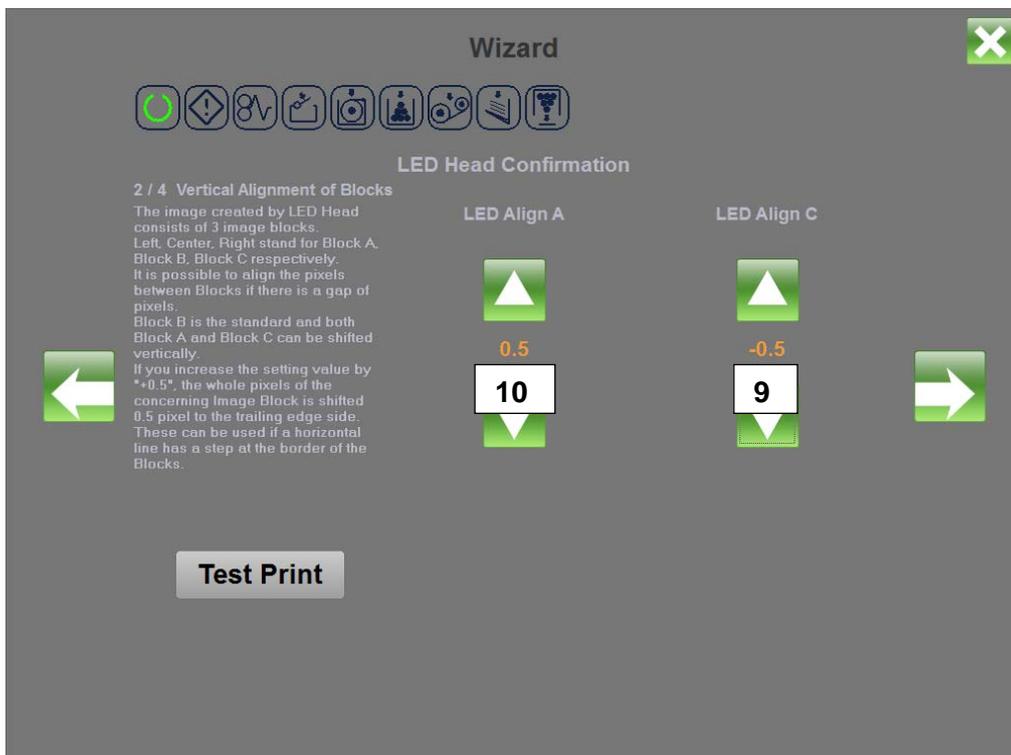
Test Print

3. [2/4 Vertical Alignment] is used to confirm vertical alignment of the Blocks.

Make a test print to confirm vertical alignment on the image. Tap $\uparrow\downarrow$ buttons to adjust the amount of shift if needed.



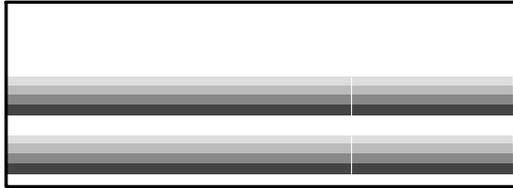
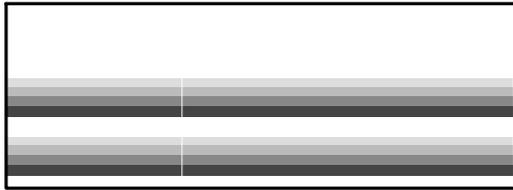
Ex) Block A is displaced toward TE against Block B. Block C toward LE.



When confirmation is done, press [Next].

4. [3/4 Horizontal Alignment] is used to confirm horizontal alignment of the Blocks.

Make a test print to confirm vertical alignment on the image. Tap   buttons to adjust the amount of shift if needed.



Ex) White line at Block border

Black line at Block Border

Wizard 











LED Head Confirmation

3 / 4 Horizontal Alignment of Blocks

If the alignment between Block A or Block C in the horizontal direction (main scanning direction) is out of position, a black (or white) line appears at the border of the Blocks. A black line may result from overlapping the Blocks. A white line may stand for an improper gap of the borders. It is possible to shift the concerning Block(left or right) to left / right against Center Block. (Center Block is the reference)

Increasing the setting value "1" shifts the concerning Block(left or right) to the right in 1 pixel.





1.5

- 6.0





0.5

- 8.0





Test Print

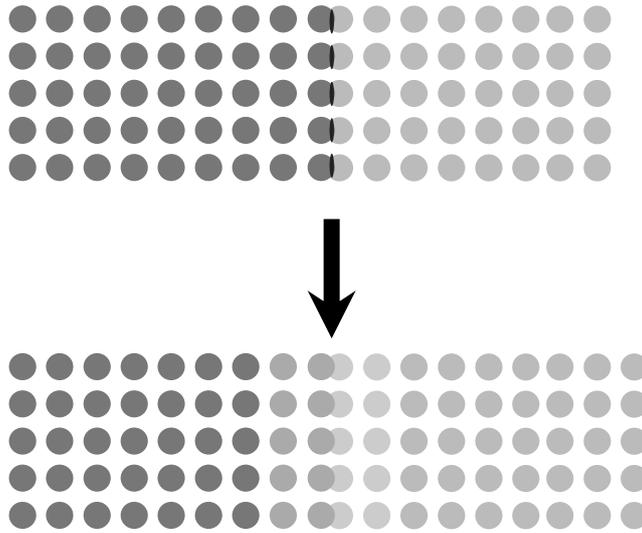
 **NOTE**

- (1) Changes on this page will shift the related Block in 1 pixel according to Sub Mode No.772, 773. For the detailed information, see [8.4.3 772, 773 Horizontal Alignment].
- (2) A gap / overlap in less than 1 pixel cannot be fixed in this page completely. Go to the next page.

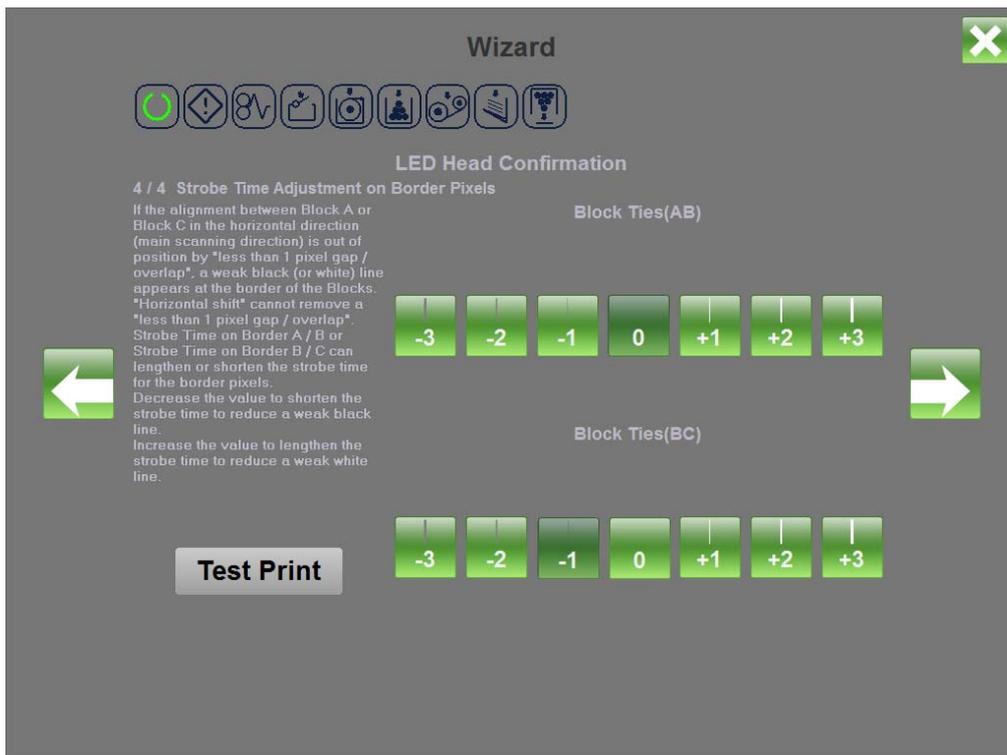
When confirmation is done, press [].

5. [4/4 Strobe Time Adjustment on Border pixels] is used to confirm a weak black / white line at Block borders.

Make a test print to confirm if there is such a line on the image. Select a button of degree of the strobe time (red is the current) if needed.



Ex) black line appears by overlap in less than 1 pixel



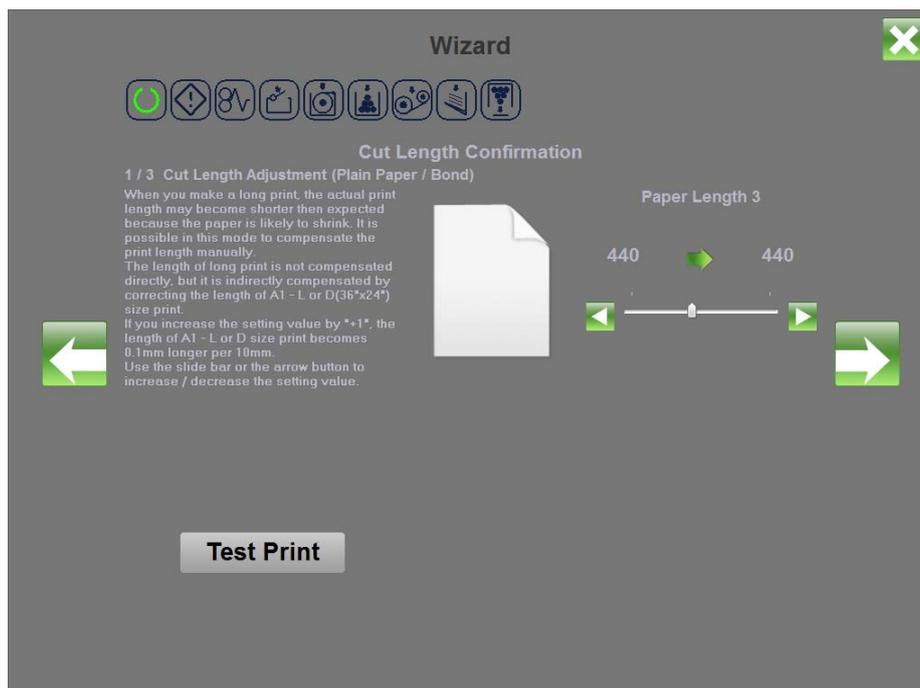
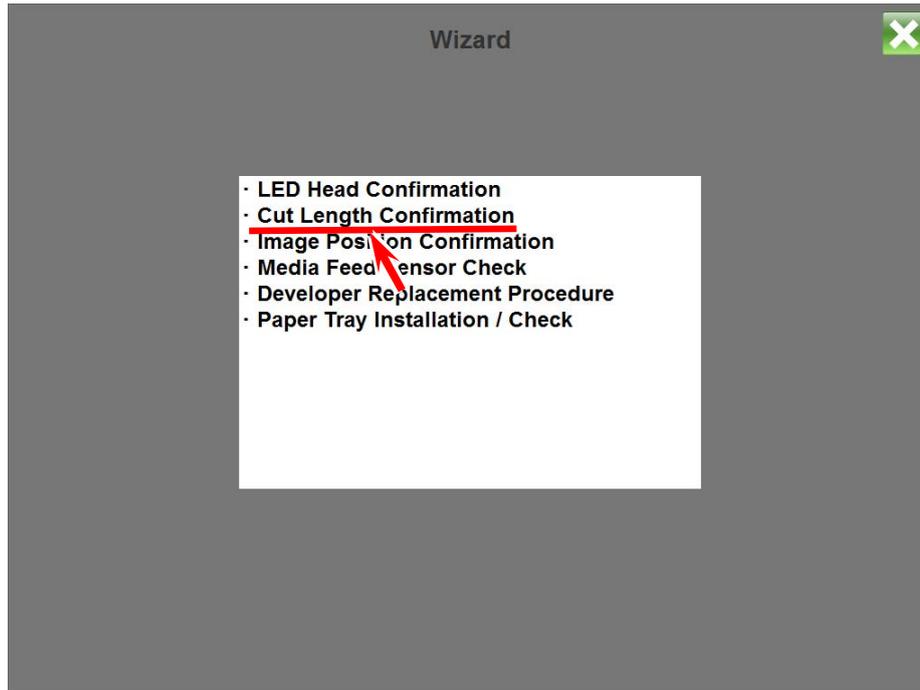
When confirmation is done, press [→].

8. 14. 2 Cut Length Confirmation

“Cut Length Confirmation” can be used to confirm the current result (performance) of the following sub mode parameters.

Title of page	Concerning Sub Mode
1/3 Cut Length Adjustment (Plain Paper)	No.018
3/3 Cut Length Adjustment (Tracing Paper)	No.063
3/3 Cut Length Adjustment (Film)	No.064

1. Press [Cut Length Confirmation] on the wizard menu screen.



2. [1/3 Cut Length Adjustment (Plain Paper)] is used to confirm the cut length on the plain paper printing.

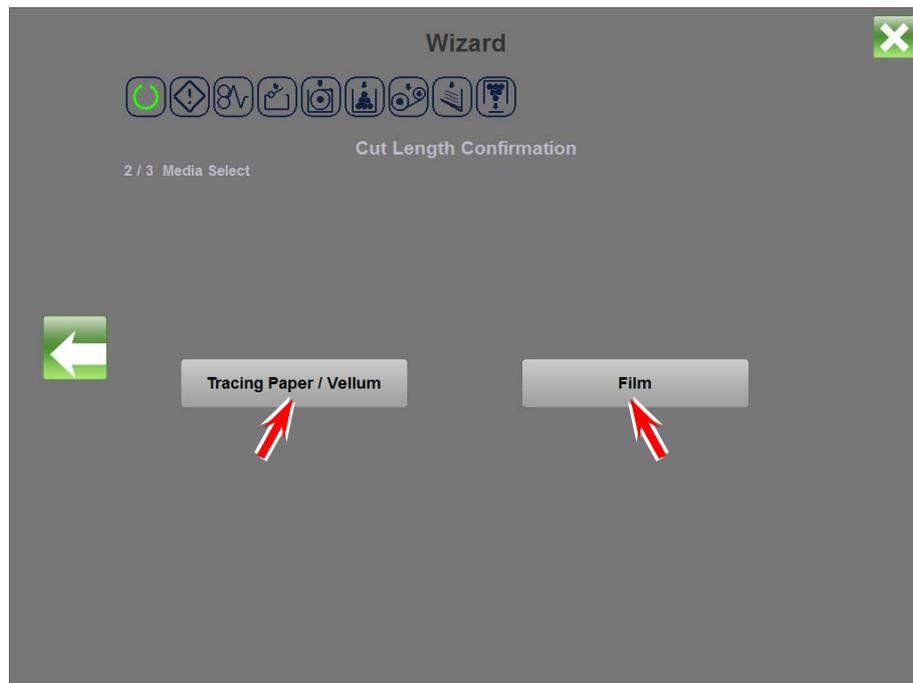
Make a test print to confirm the cut length of the print. Move the slide bar to adjust the cut length if needed.



When confirmation is done, press [→].

3. If you confirm the cut length on the tracing paper or film, press the desired media button on [2/3 Media Select].

Make a test print to confirm the cut length of the print. Move the slide bar to adjust the cut length if needed.



8. 14. 3 Image Position Confirmation

“Image Position Confirmation” can be used to confirm the current result (performance) of the following sub mode parameters.

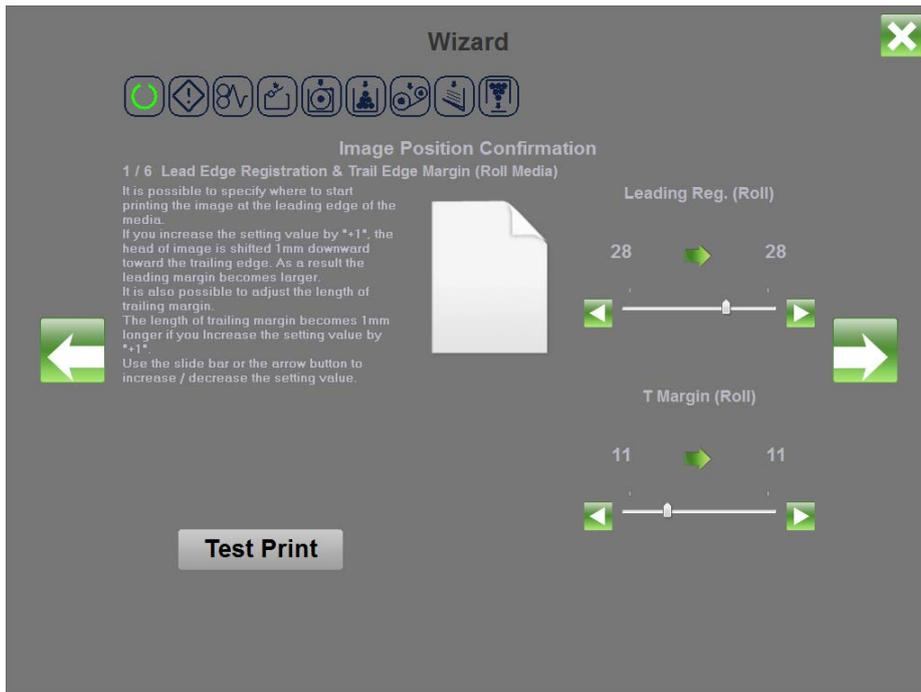
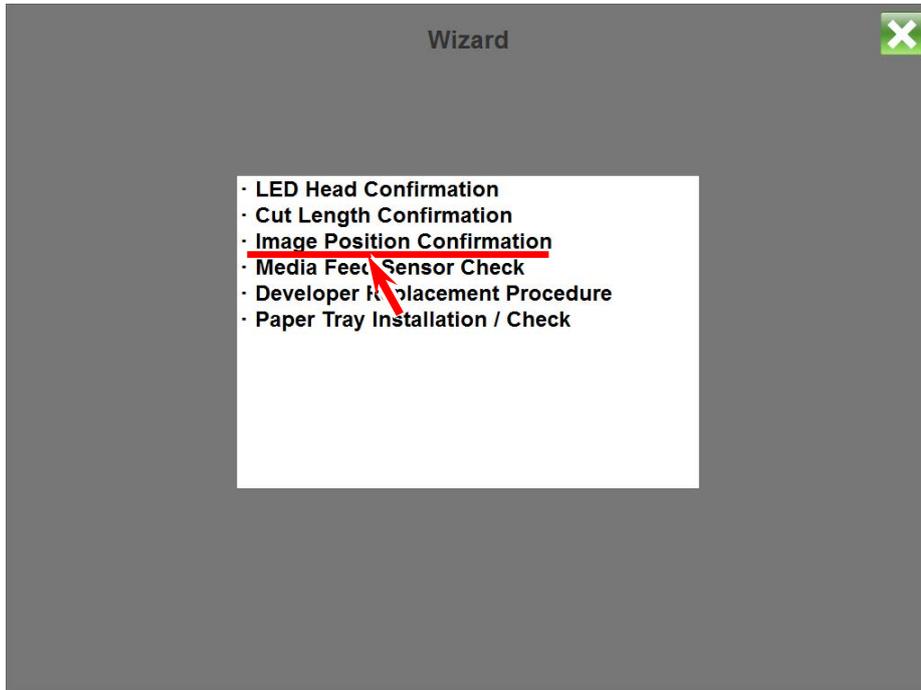
Title of page	Concerning Sub Mode
1/6 LE Registration / TE Margin (Roll Media)	No.000 / 002
2/6 Side Registration (Roll Media)	No.006
3/6 Cut Sheet select	No.001 / 003
4/6 LE Registration / TE Margin (Cut Sheet)	No.005
5/6 Side Registration (Cut Sheet)	No.780 / 781
6/6 Paper Tray (Option) select	No.782



NOTE

For cut sheets via Paper Tray, see [8.14. 6 Paper Tray Installation / Check].

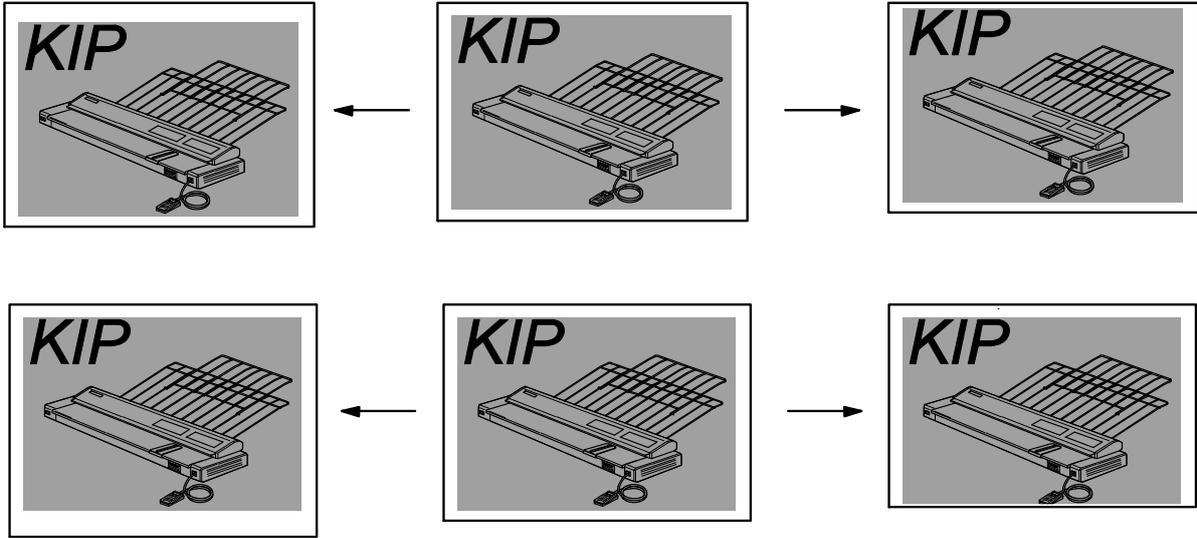
1. Press [Image Position Confirmation] on the wizard menu screen.



2. [1/6 LE Registration / TE Margin (Roll Media)] is used to confirm the image position (in the media feeding direction) on the roll media.

Make a test print to confirm the image position on the print. Move the slide bar to adjust the LE Registration or TE Margin if needed.

Ex) Shift the start point of the image by changing LE Registration



Ex) Add / remove TE Margin

Wizard ✕

🔄
⚠️
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📄
🖨️
👤
🔧
📋
🍷

Image Position Confirmation

1 / 6 Lead Edge Registration & Trail Edge Margin (Roll Media)

It is possible to specify where to start printing the image at the leading edge of the media.

If you increase the setting value by "+1", the head of image is shifted 1mm downward toward the trailing edge. As a result the leading margin becomes larger.

It is also possible to adjust the length of trailing margin.

The length of trailing margin becomes 1mm longer if you increase the setting value by "+1".

Use the slide bar or the arrow button to increase / decrease the setting value.



Leading Reg. (Roll)

28 ➡ 28

◀▶

T Margin (Roll)

11 ➡ 11

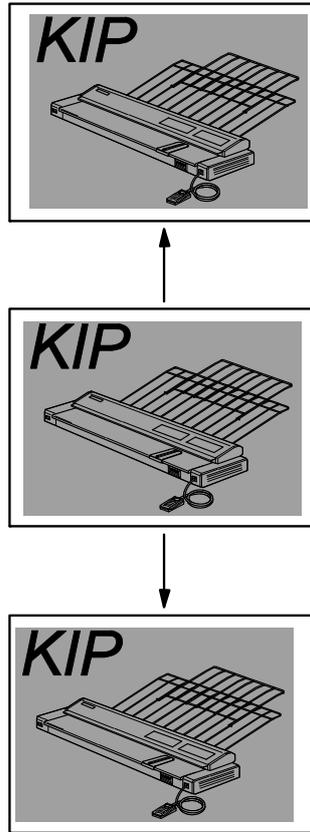
◀▶

Test Print

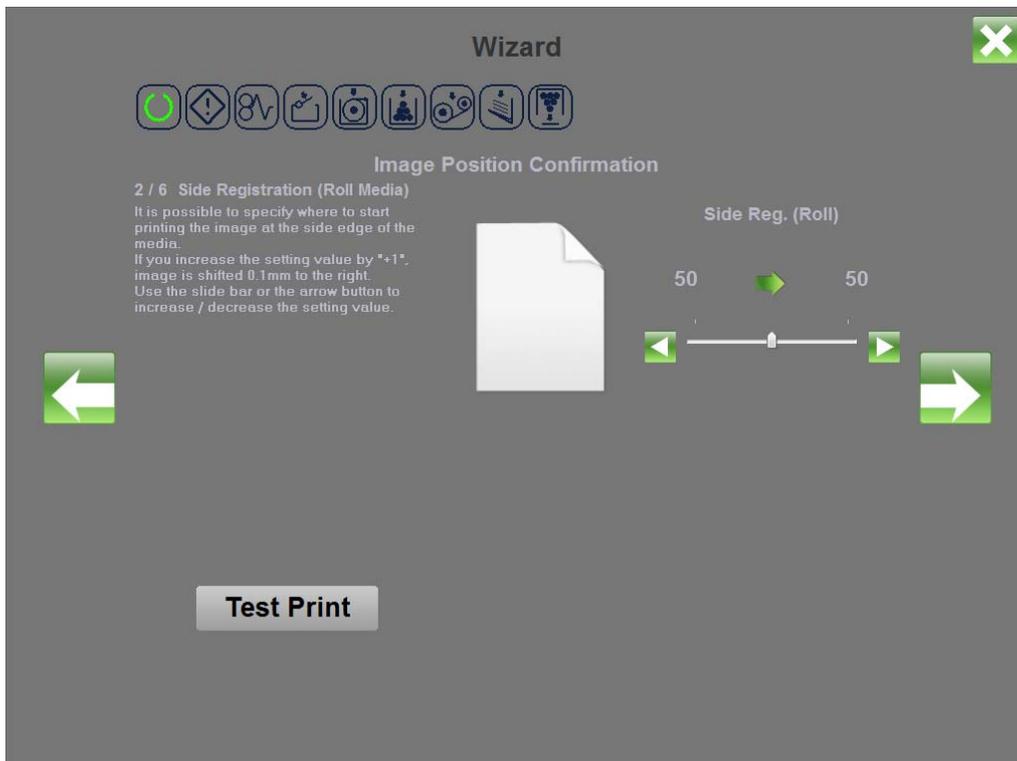
When confirmation is done, press [➡].

3. [2/6 Side Registration (Roll Media)] is used to confirm the image position (in the sideways) on the roll media.

Make a test print to confirm the image position on the print. Move the slide bar to adjust the side registration if needed.

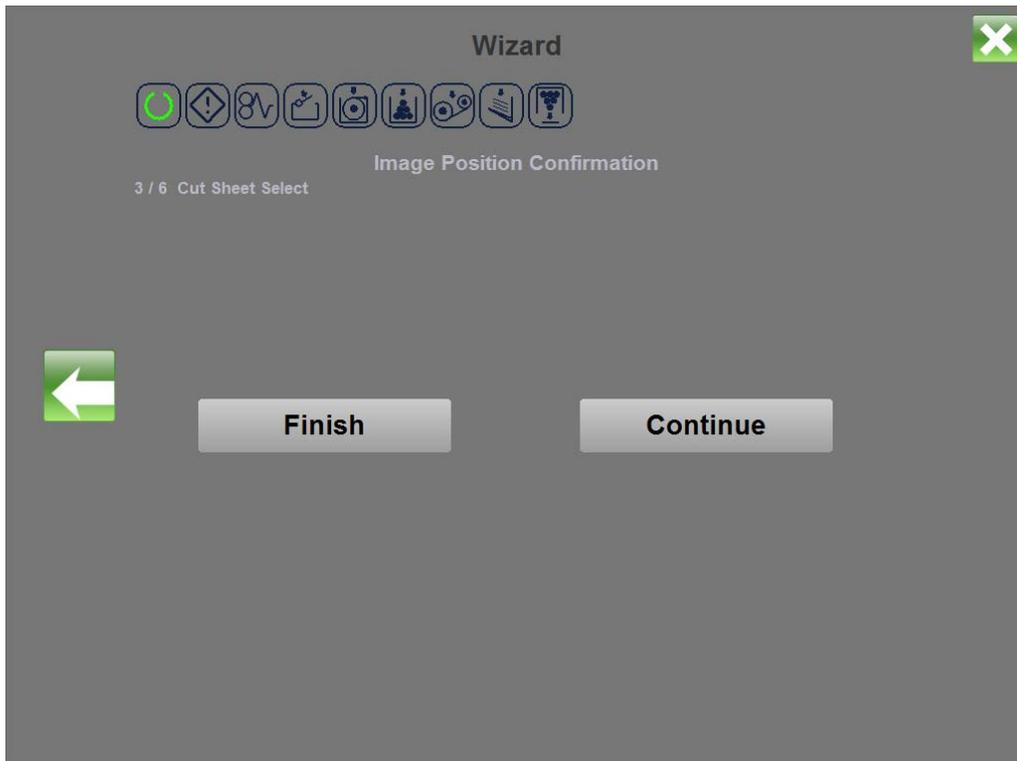


Ex) Shift the start point of the image by changing Side Registration



When confirmation is done, press [].

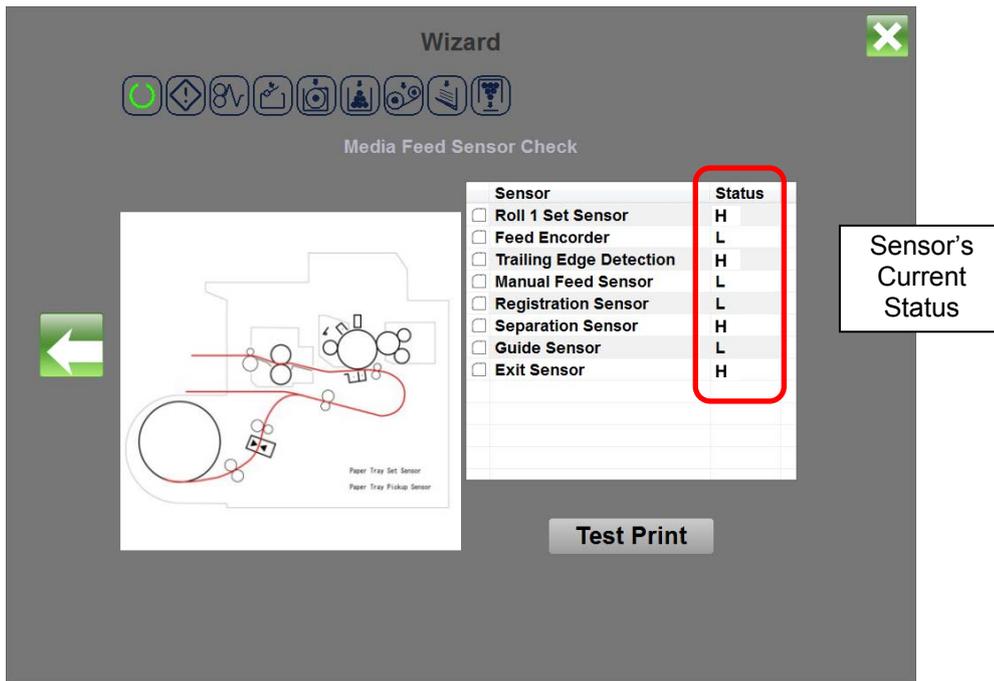
4. If you confirm the image position on the cut sheet, press [Continue] on [3/6 Cut Sheet]. Or press [Finish] to close the wizard.



5. For the cut sheet, the way to confirm the image position is the same with the roll media.

2. The screen shows the side section figure of the media path. "State" columns are displaying the current status of the sensors.

Make a check in a checkbox besides the sensor name, and the related sensor's location is illustrated as a circle in the figure. When a test print starts, the circle flashes.



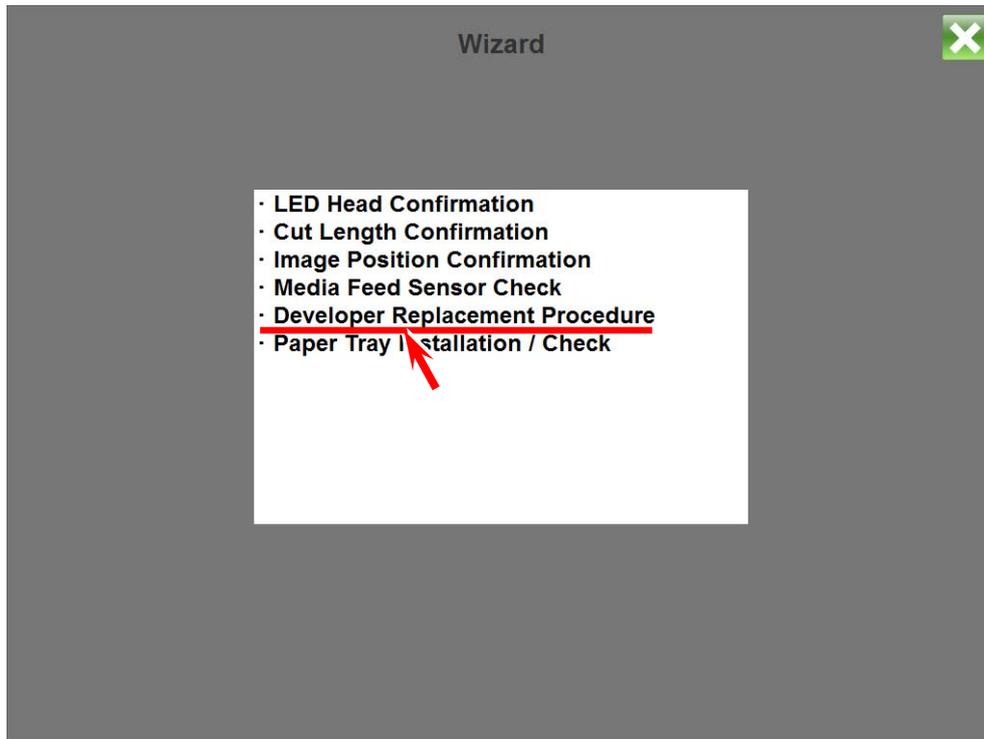
Sensor's name	Sensor's function	Corresponding Signal Status No.
Roll 1 Set Sensor	Detects whether the leading edge is at set position	No.105
Feed Encoder	Detects the distance of the roll media feeding	No.109
Trailing Edge Detection	Detects roll media feeding at the Roll Deck region	No.111
Manual Feed Sensor	Detects a cut sheet set on Manual Feed Table	No.008
Registration Sensor	Detects media feeding at the Registration region	No.100
Separation Sensor	Detects media feeding at the Separation region	No.010
Guide Sensor	Detects the Guide Plate's position	No.005
Exit Sensor	Detects media feeding at the Fuser region	No.011
Paper Tray Set Sensor	Detects a cut sheet set on Paper Tray (option)	No.102
Paper Tray Pickup Sensor	Detects cut sheet feeding via Paper Tray (option)	No.101

Press [Print] to make a test print without entering Test Print mode.

8. 14. 5 Developer Replacement Procedure

“Developer Replacement Procedure” can display the procedure with simple pictures step by step on the touch screen.

1. Press [Developer Replacement Procedure].



2. [Developer Replacement Procedure] screen appears.



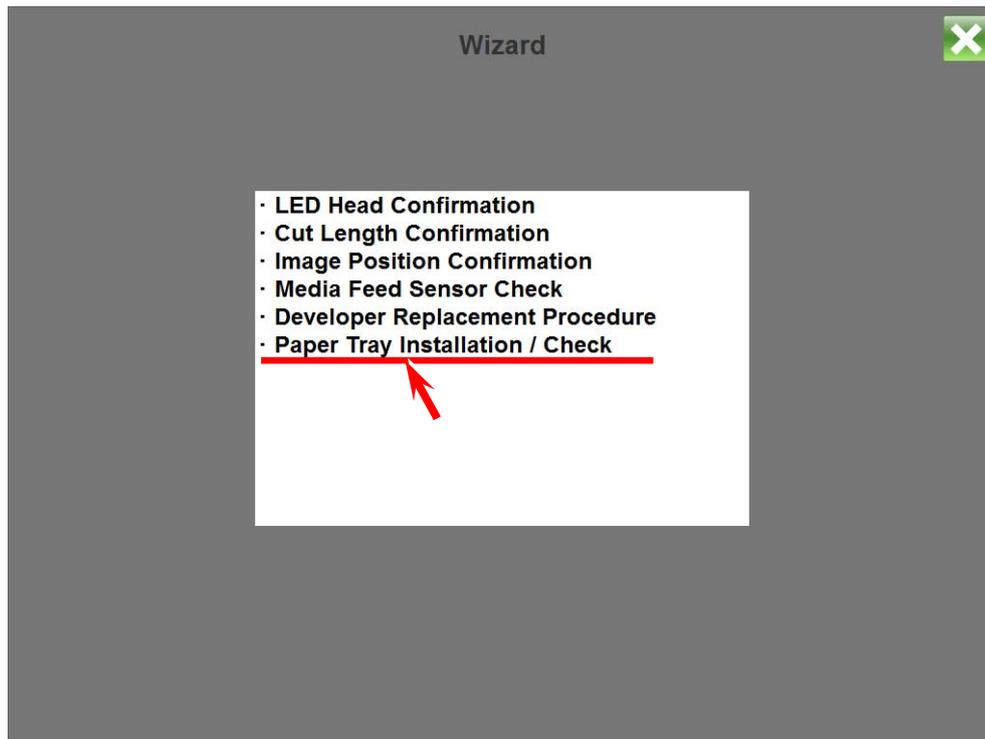
Press [] button. Turn the page forward.

Press [] button to show the procedure automatically like a slide show.

Pressing [Reset] on the left will reset Auto Bias Adjustment (change the level to 1).

8. 14. 6 Paper Tray Installation / Check

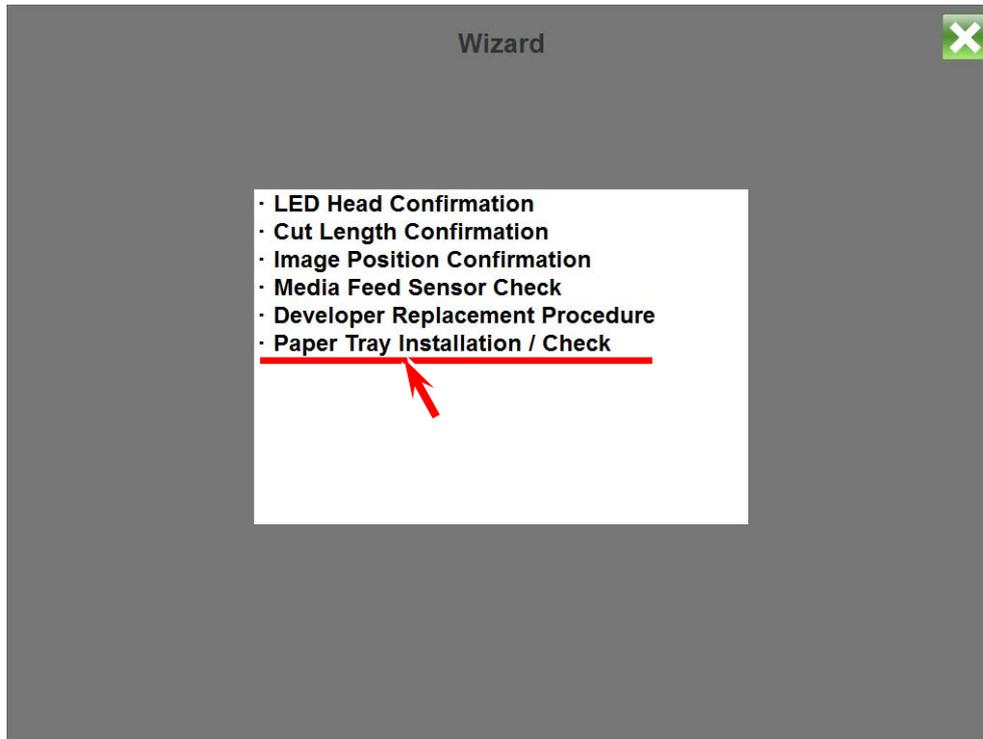
“Paper Tray Installation / Check” can be used for confirmation of Paper Tray Operation. In this section, you can confirm and make additional adjustment (if needed) of LE Registration, Side / TE margin and the motor speed for Length Sync (1:1 image).



Additional adjustments will change the related sub mode parameters as follows.

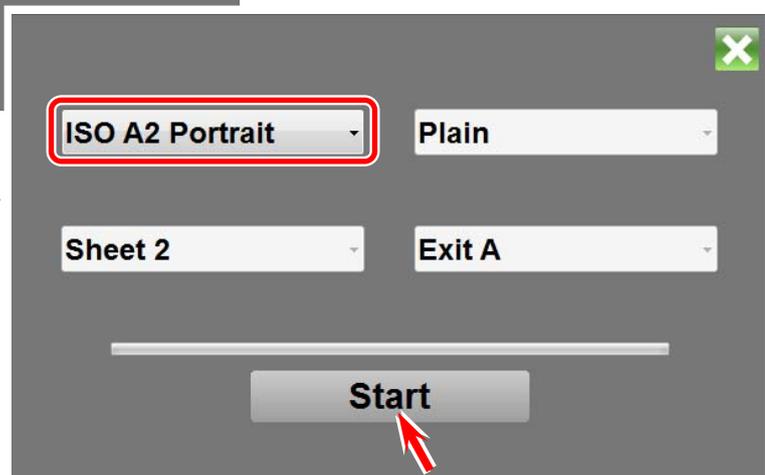
Title of page	Concerning Sub Mode
4/4 A4 Leading Edge Registration	No.868
4/4 A3 Leading Edge Registration	No.869
4/4 A2 Leading Edge Registration	No.870
4/4 Side Registration & Trail Edge Margin	No.782 No.781
4/4 A4 Length Sync	No.871
4/4 A3 Length Sync	No.872
4/4 A2 Length Sync	No.873

1. Press [Paper Tray Installation / Check].

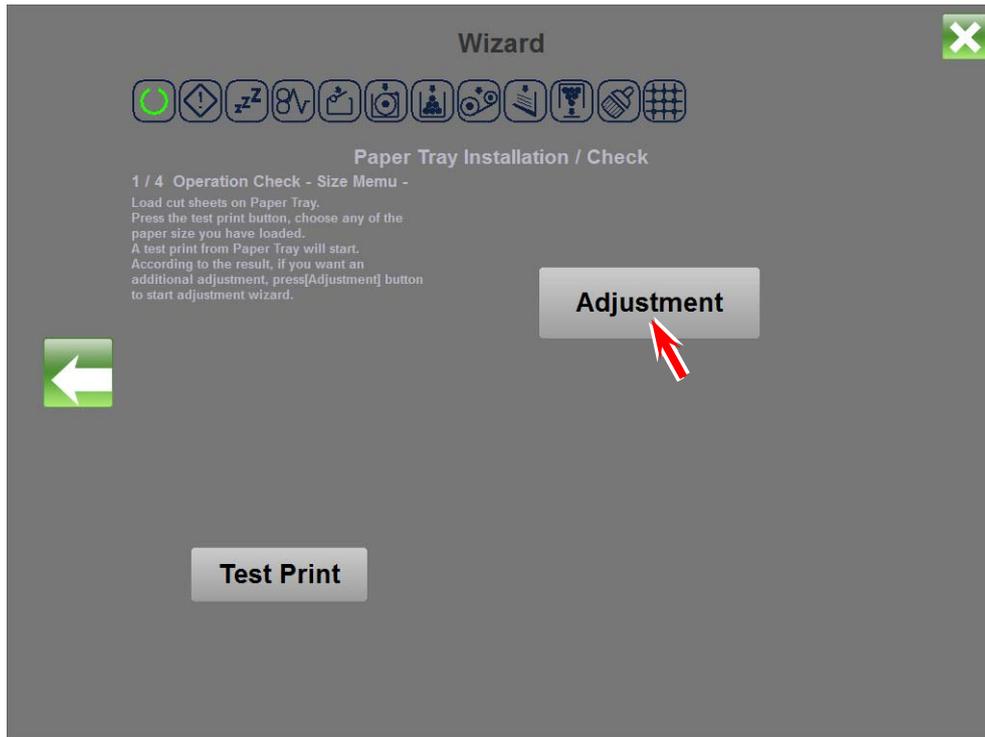


2. Press [Test Print].

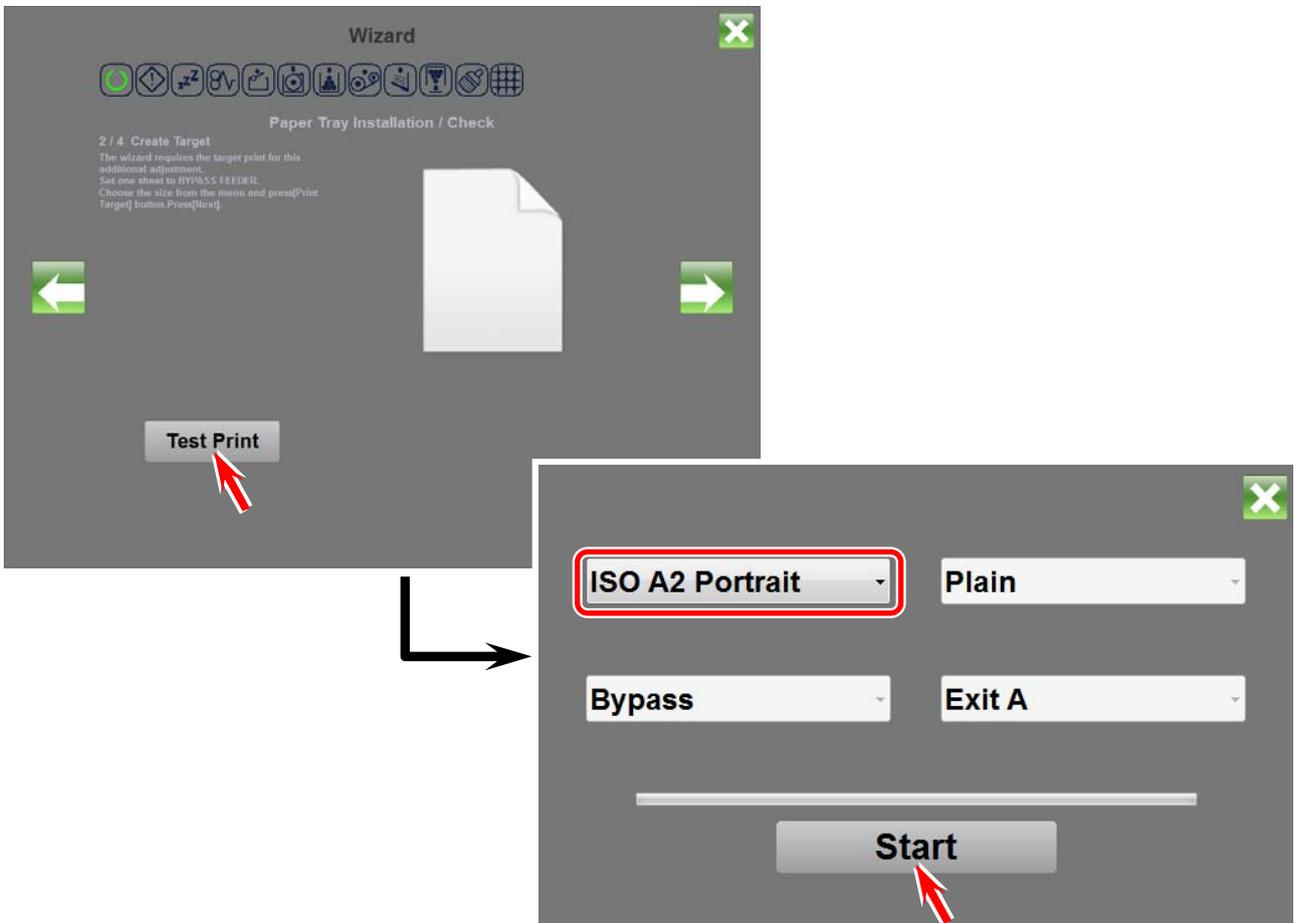
Press one of the size buttons you want to make a test print via Paper Tray. Press [Test Start].



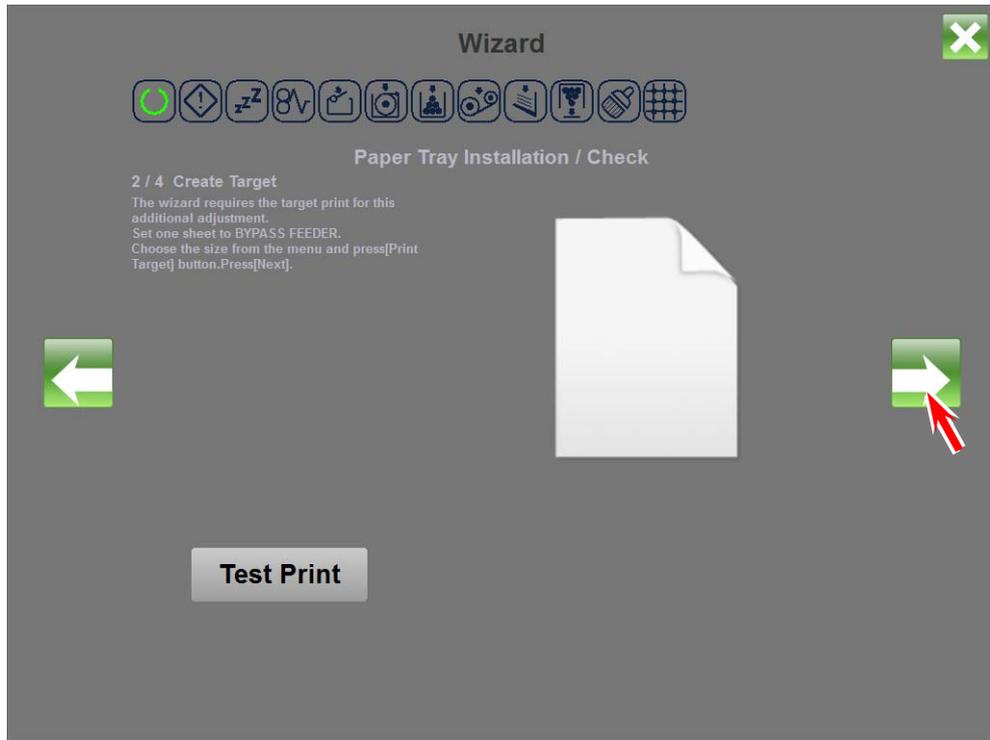
3. If the print result requires additional adjustment, press [Adjustment] for LE registration, Side / TE margin, Length Sync (1:1).



4. First select a print size that the customer will use, and set the sheet in the concerning size to Manual Feeder in Portrait direction. Press [Test Print]. Select paper size, and then press [Start]. This will create a “target” (OK sample) to compare with the actual performance by Paper Tray.



5. Press [].

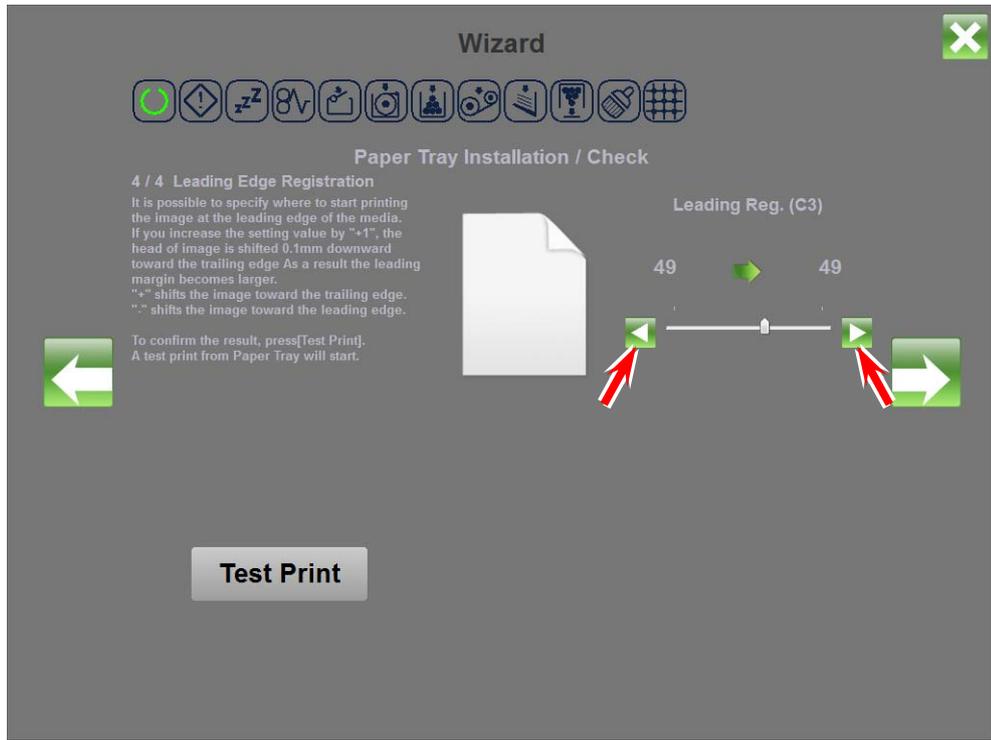


6. Select the button you want to make additional adjustment of LE registration, Side / TE margin, Length Sync (1:1).



- LE Regist : page 8-192
- Side / Trail : page 8-193
- Length Sync : page 8-195

LE Regist

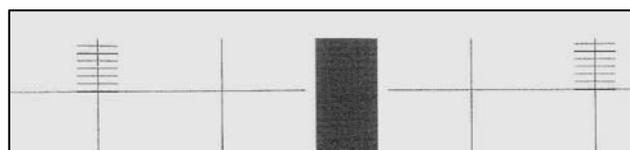
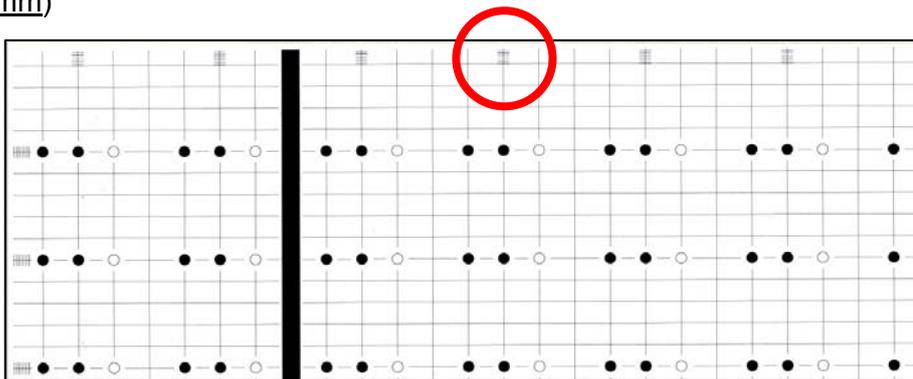


Shift the slider for Leading Registration adjustment (Paper Tray). Increasing will shift the start point for imaging toward the trailing edge. (1=0.5mm)

To check the setting change result, set the sheets in the concerning size to Paper Tray in Portrait direction, and press [Test Print] on the left.

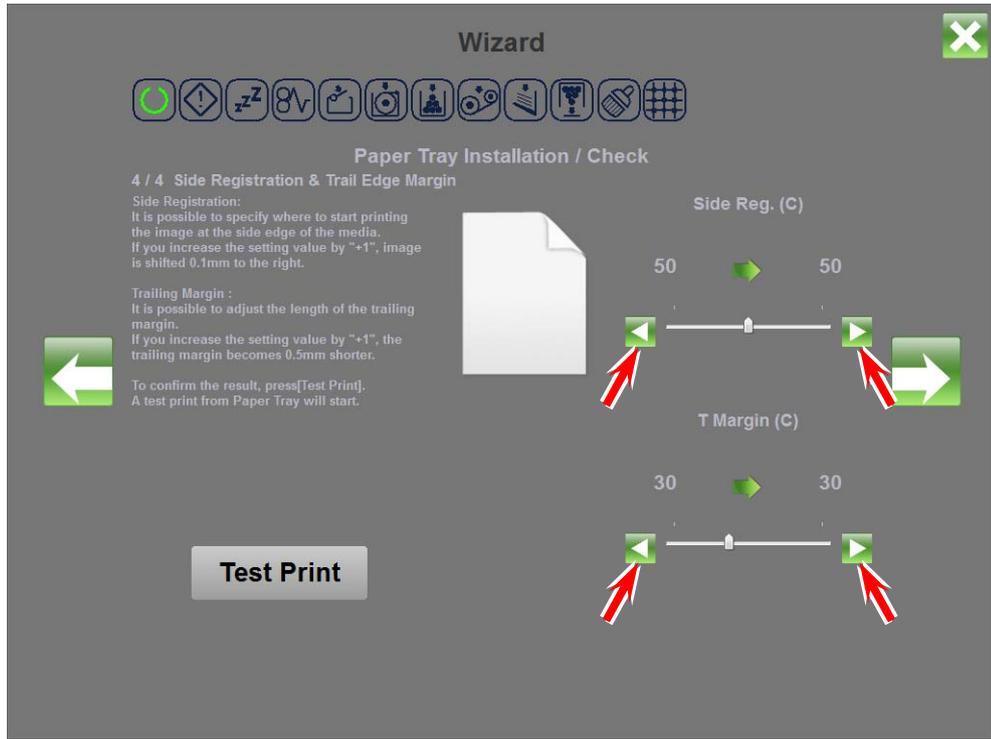
Title of page	Concerning Sub Mode
4/4 A4 Leading Registration	No.868
4/4 A3 Leading Registration	No.869
4/4 A2 Leading Registration	No.870

(3mm +2mm)



"3mm" sample

Side / Trail



Shift the slider for Side / TE margin adjustment (Paper Tray).

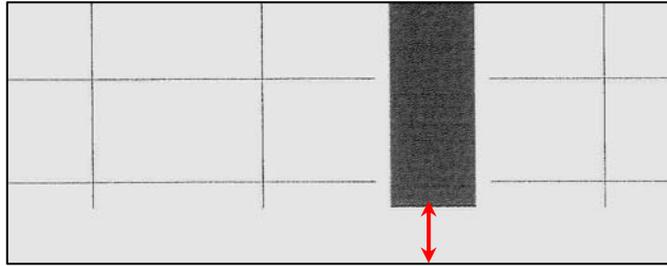
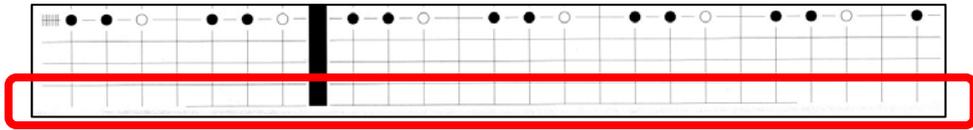
Increasing TE Margin will reduce the margin area toward the leading edge. (1=0.5mm)
 (Increasing too much may result in toner dirt)

Increasing Side Regist will shift the image to the right. (1=0.1mm)

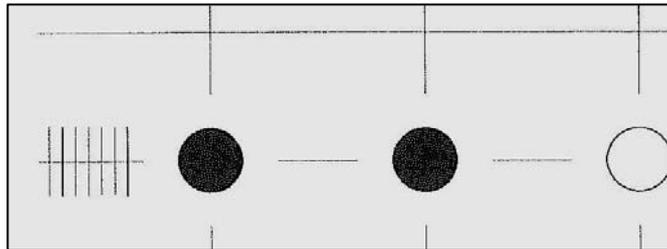
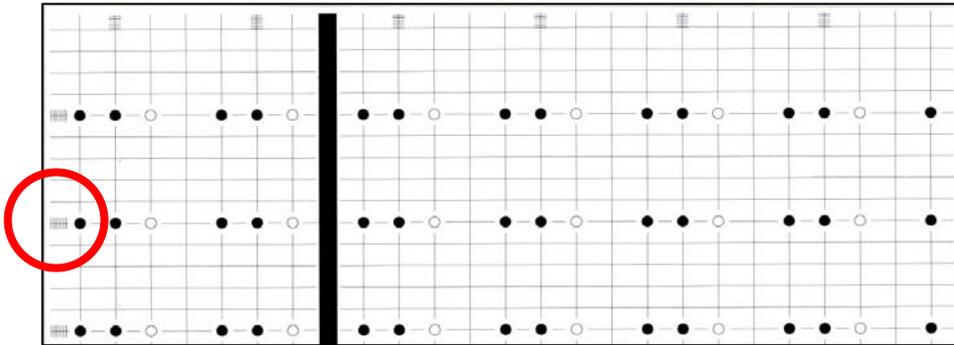
To check the setting change result, set the sheets in the concerning size to Paper Tray in Portrait direction, and press [Test Print] on the left.

Title of page	Concerning Sub Mode
4/4 TE Margin	No.781
4/4 Side Registration	No.782

(5mm +/-2mm)

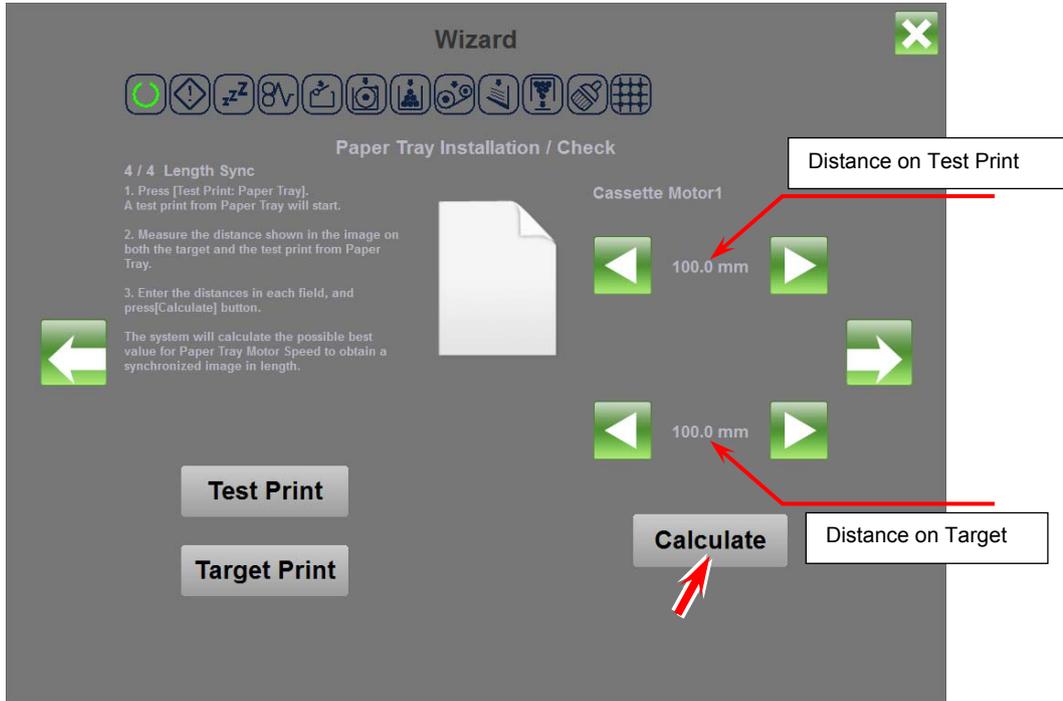


(3mm +/-2mm)

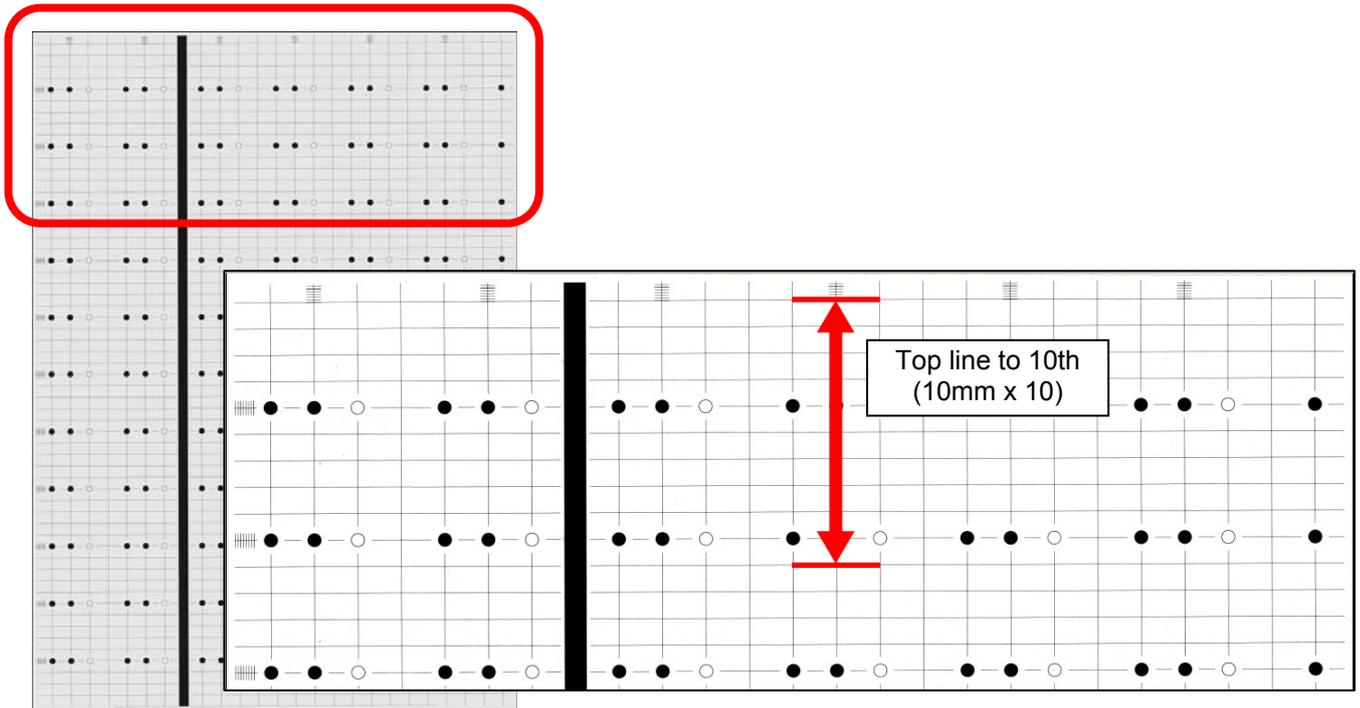


"3mm" sample

Length Sync



1. Set the sheets in the concerning size to Paper Tray in Portrait direction, and press [Test Print: Paper Tray] on the left.
2. Measure the distance (between the top line and the 10th) on the leading part of the target and the test print. (should be almost 100mm)

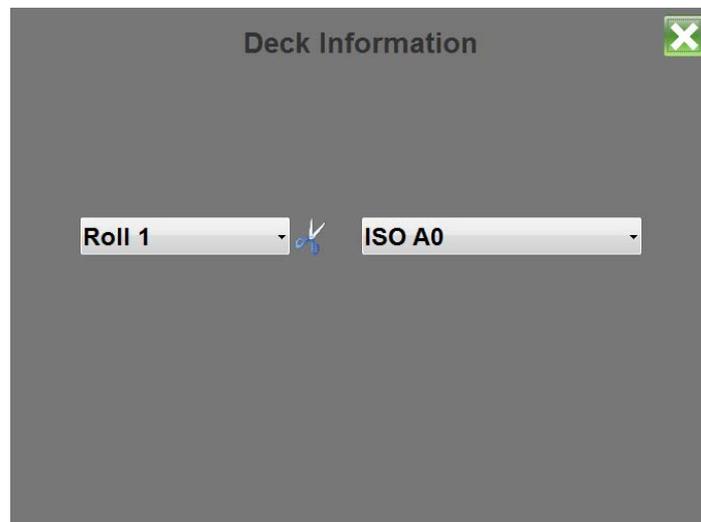
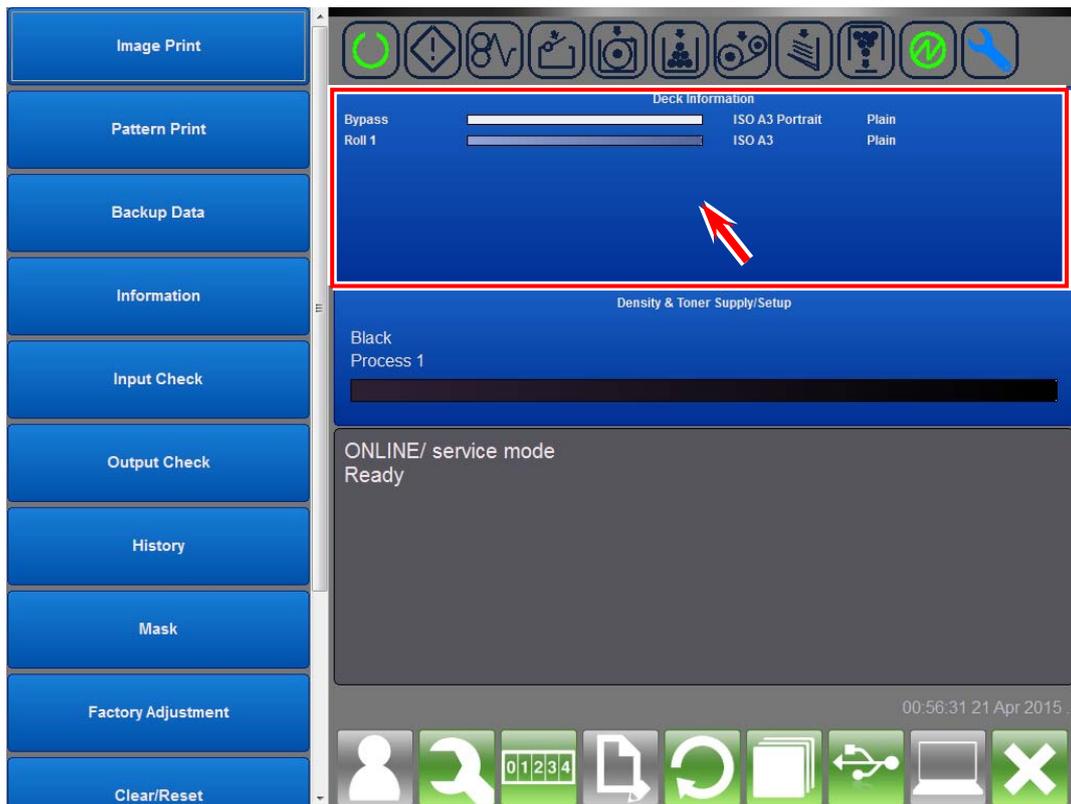


3. Input the distance on the target and the test print to the field on the screen respectively.
4. Press [Calculate].

Title of page	Concerning Sub Mode
4/4 A4 Length Sync	No.871
4/4 A3 Length Sync	No.872
4/4 A2 Length Sync	No.873

8.15 Deck Information

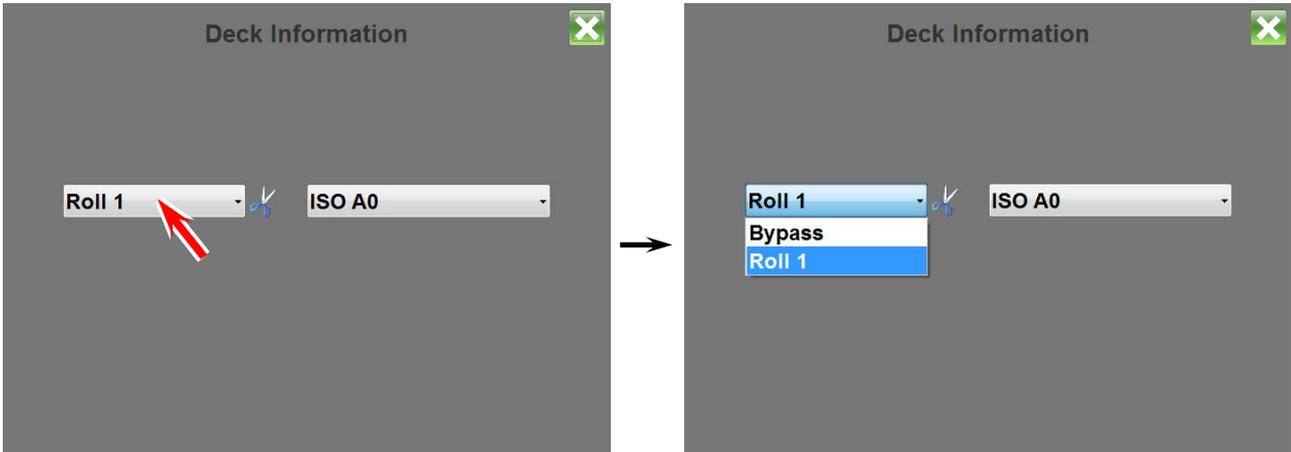
Press of Deck Information region on the home of Maintenance GUI opens a dialog for media setting.



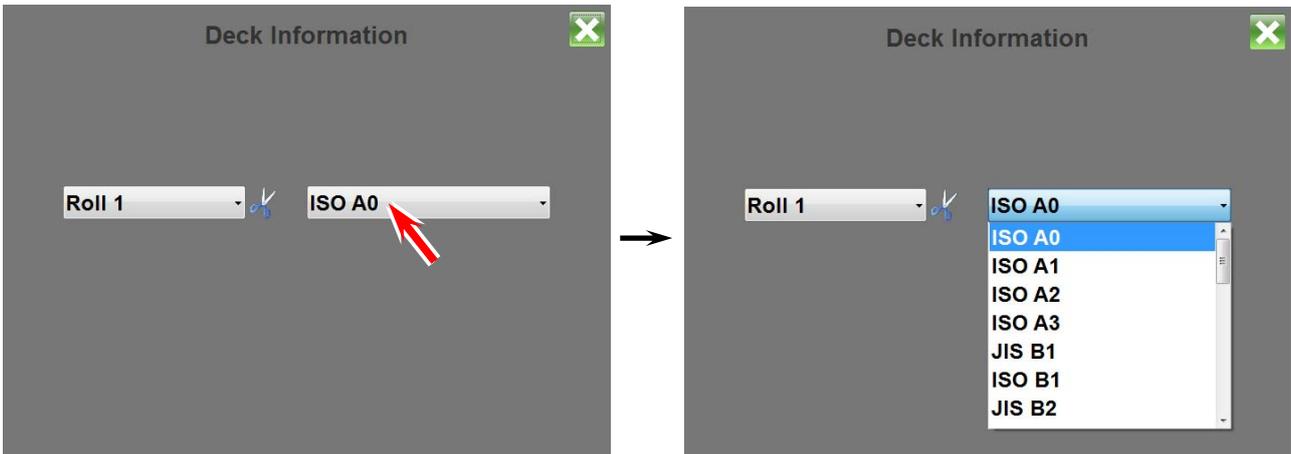
8.15.1 Operation in Deck Information

Deck Information dialog allows for entering the width of media.

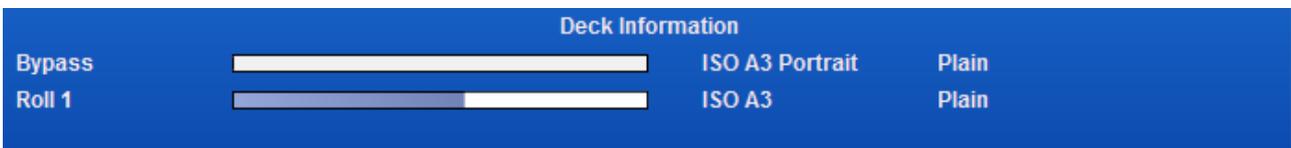
1. First, select the media source in the left list.



2. Then select the width of media in the right list.

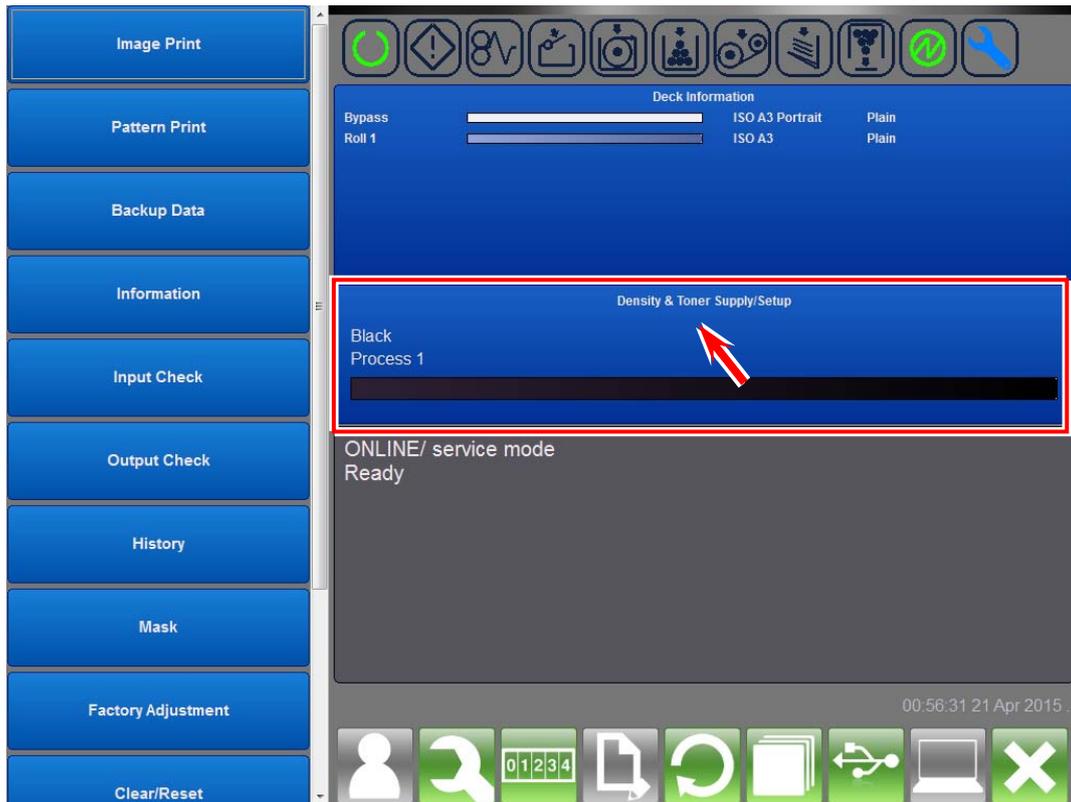


3. Selected media width is shown on the home of Maintenance GUI with the information of remaining volume of roll.



8.16 Density & Toner Supply

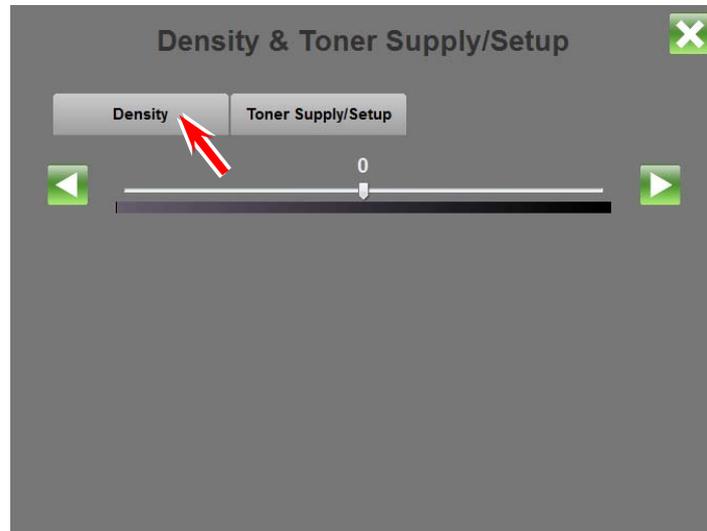
Press of Density & Toner Supply region on the home of Maintenance GUI opens a dialog for density setting and toner supply operation.



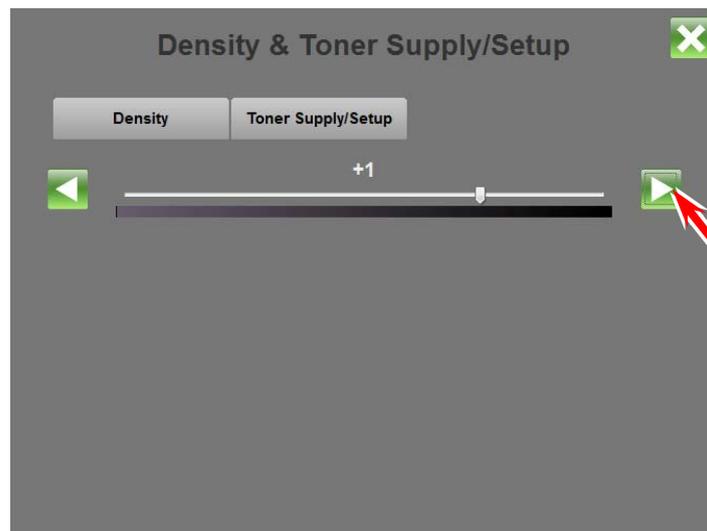
8.16. 1 Operation in Density & Toner Supply

It is possible to increase or decrease the density. It is also possible to supply additional toner to the developer unit optionally.

1. For changing the density, press **Density**.



2. Change the density level by drag the slider or pressing the triangle icons.
Density is standard level when set to 0, and increment and decrement by up to +/-2 is available.

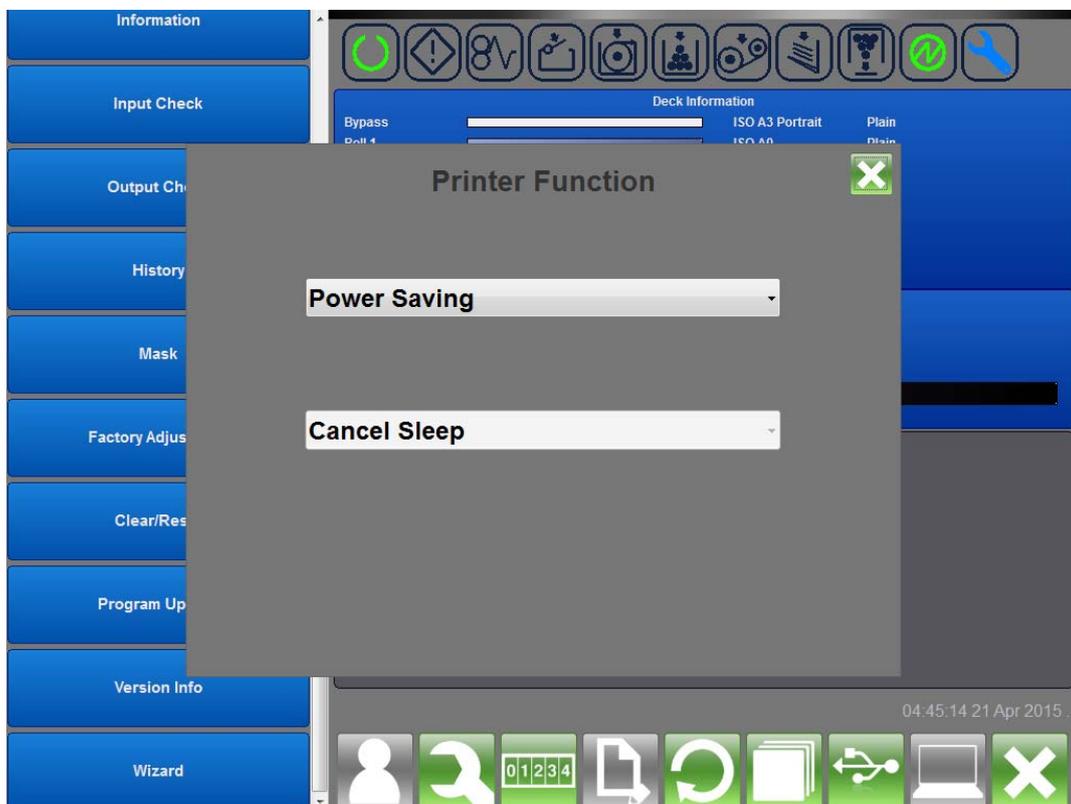
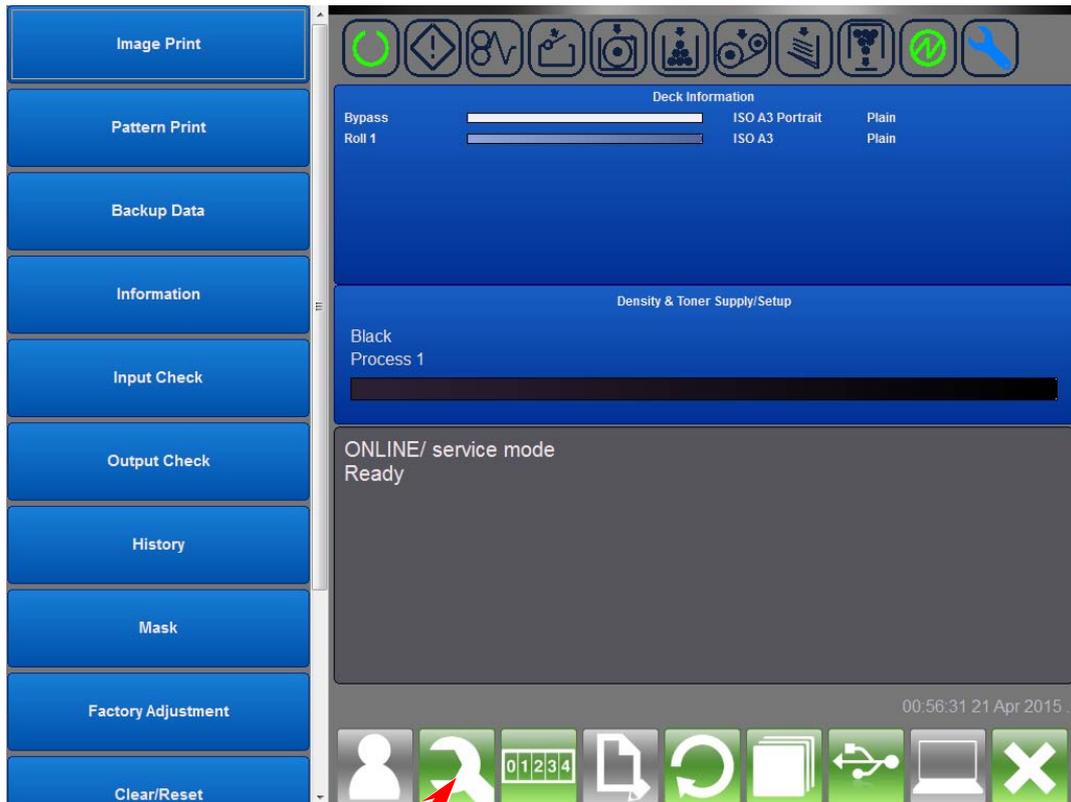


3. Press **Toner Supply/Setup** for supplying additional toner to the developer unit.



8.17 Printer Function (Wrench Icon)

Press of the Wrench icon on the bottom of Maintenance GUI opens a Printer Function dialog that allows several printer operations.



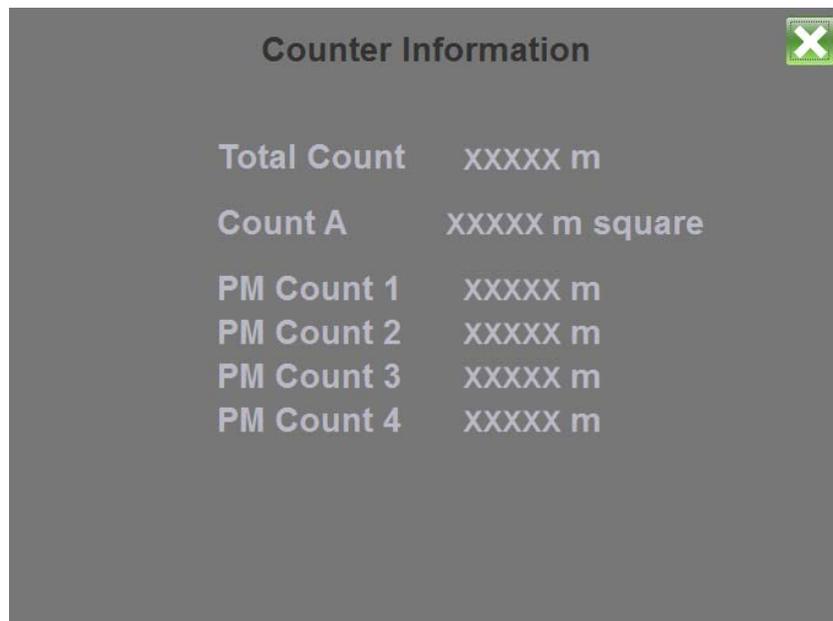
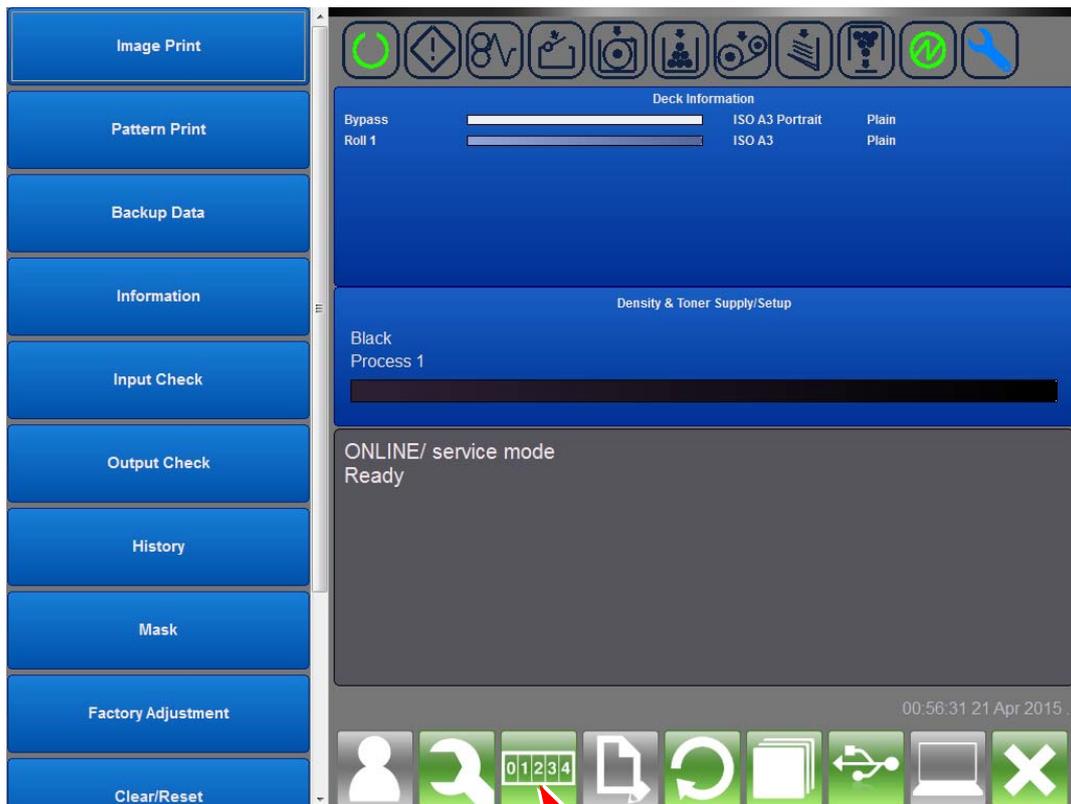
8.17.1 Operation in Printer Function

At first select required function category in the upper list and then select the required function in the lower list.

Function category	Function	Executed operation
Power Saving	Cancel Sleep	None (not supported)
Printer Cleaning	Corona Wire	None (not supported)
	LED Head	None (not supported)
Alignment	Density Adjust	None (not supported)
	LED Head Joint Adjust	None (not supported)
Toner Setup	Toner Setup	Toner Setup for initial toner supply is executed.
Toner Supply	Toner Supply	Optionally additional toner is supplied.

8.18 Counter Information

Press of the Counter icon on the bottom of Maintenance GUI opens a Counter Information dialog that allows for checking the counter values.



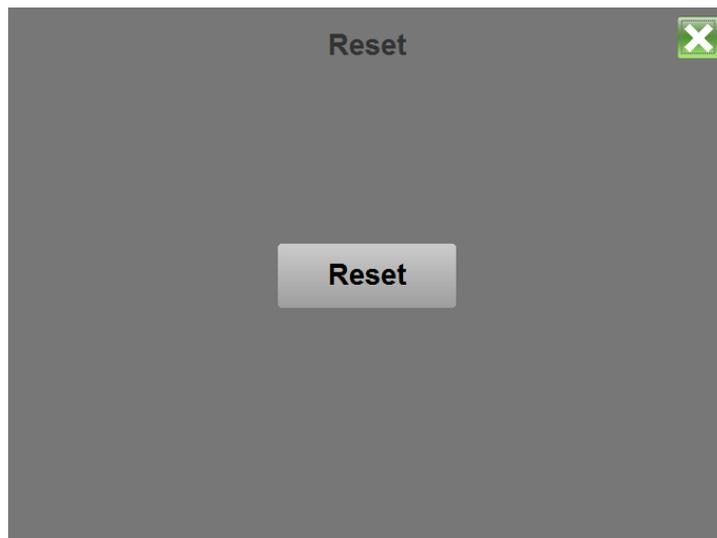
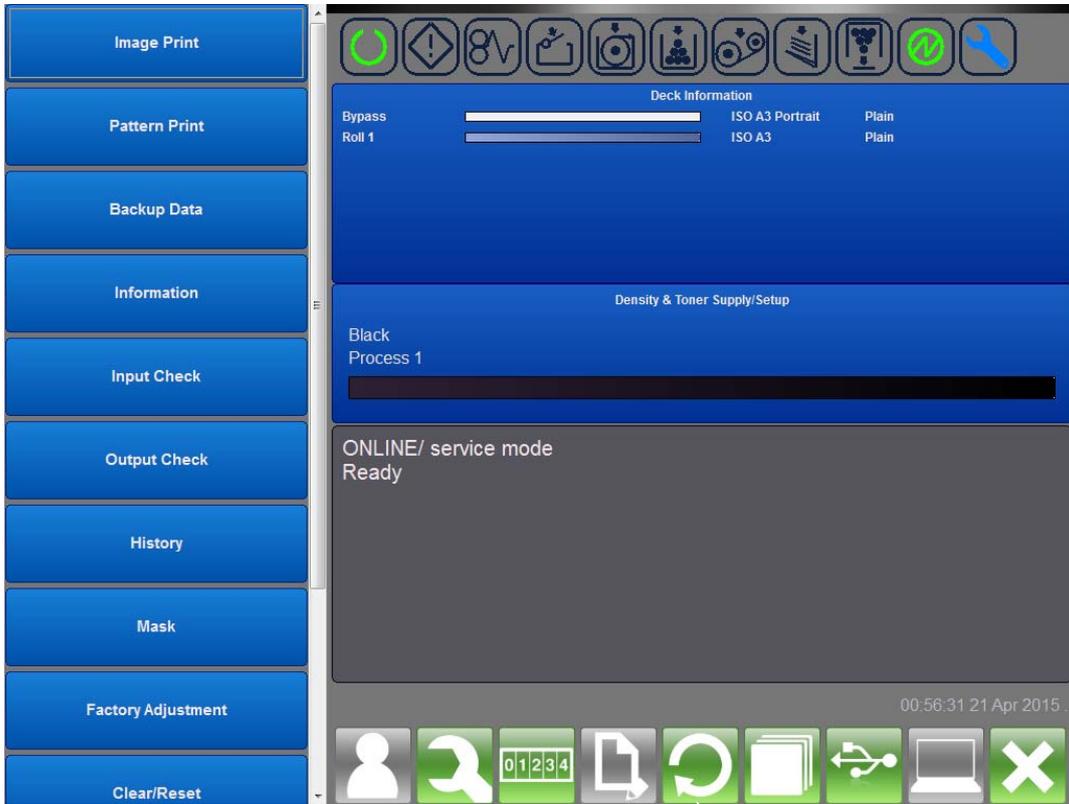
8.18. 1 Operation in Counter Information

Name of counter	Counted target
Total Count	Counting unit is always linear meter.
Count A	Print Count
PM Count 1	Checks the remainder counter for Service Kit A
PM Count 2	Checks the remainder counter for Service Kit B
PM Count 3	Checks the remainder counter for Service Kit C
PM Count 4	(Reserved)

8.19 Communication Reset

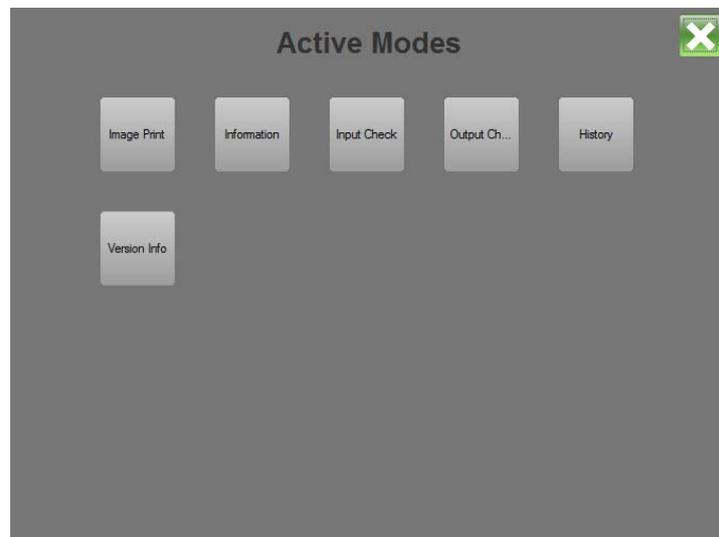
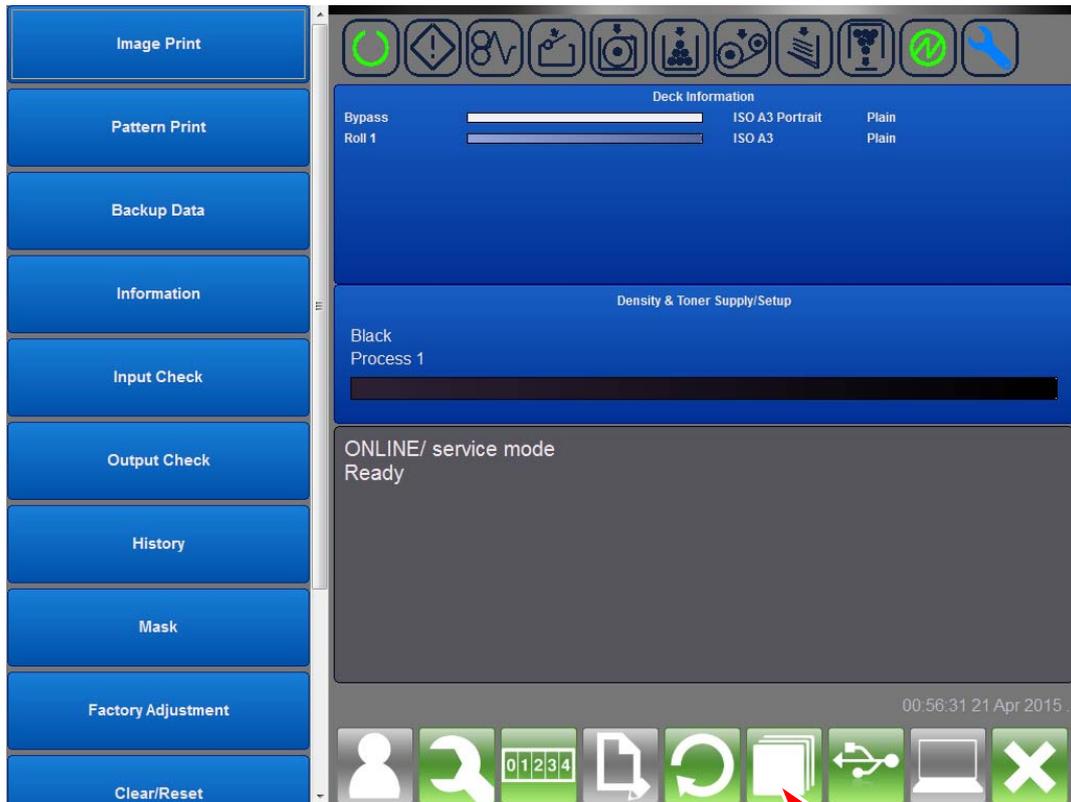
NOTE

This function is not used in the market.

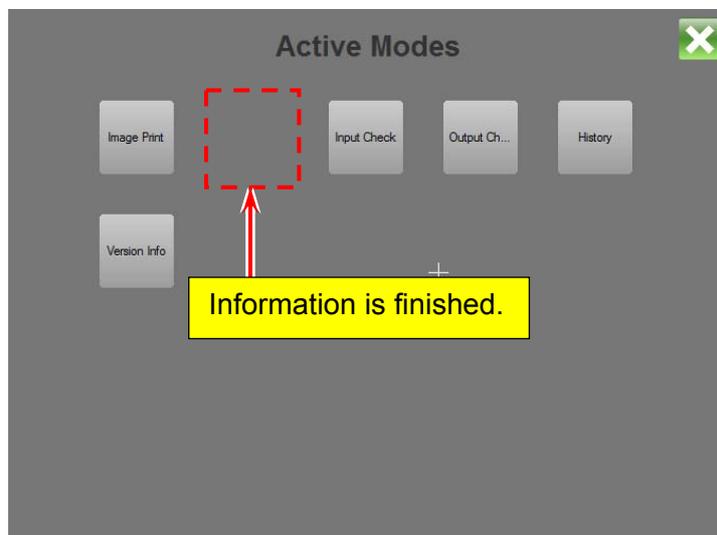
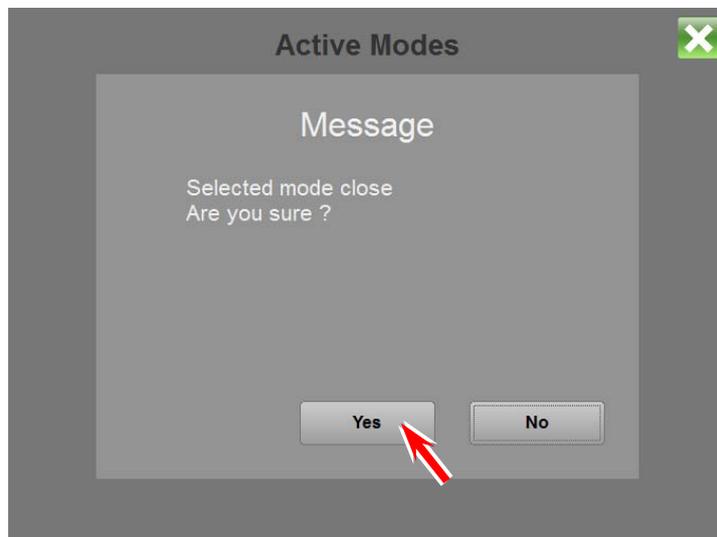
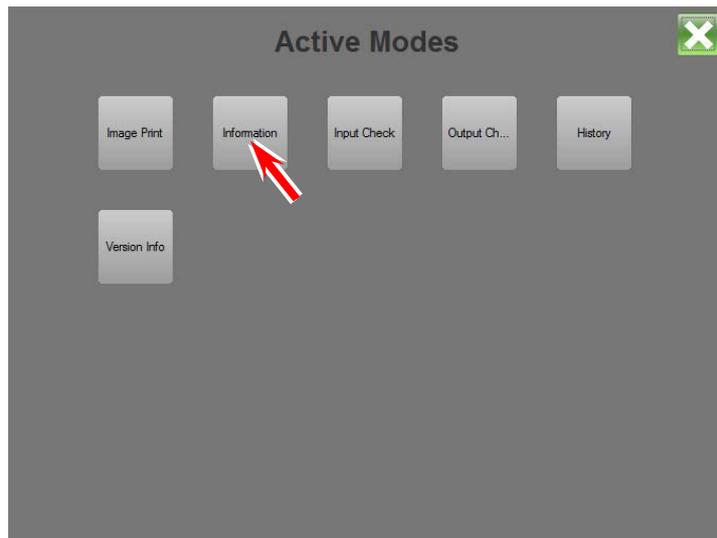


8.20 Active Modes

The Maintenance GUI can activate multiple menu functions at the same time, such as Backup Data, Input Check and etc. Active Modes allows for confirming what items are currently active, and also it allows for closing unnecessary item.

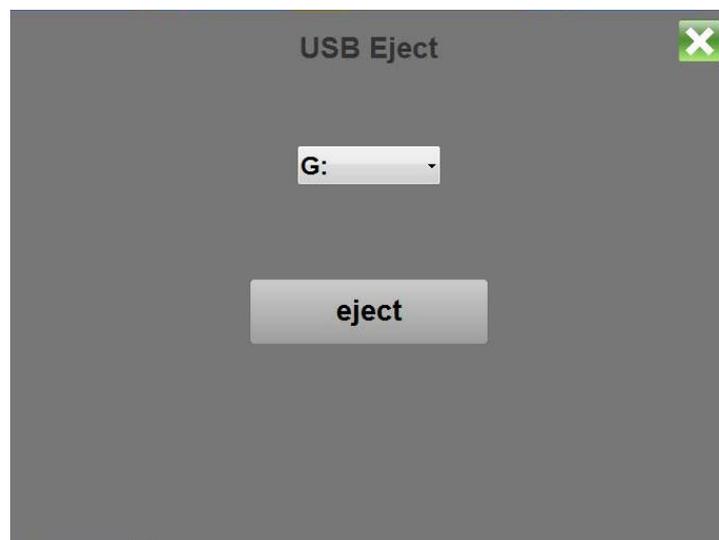
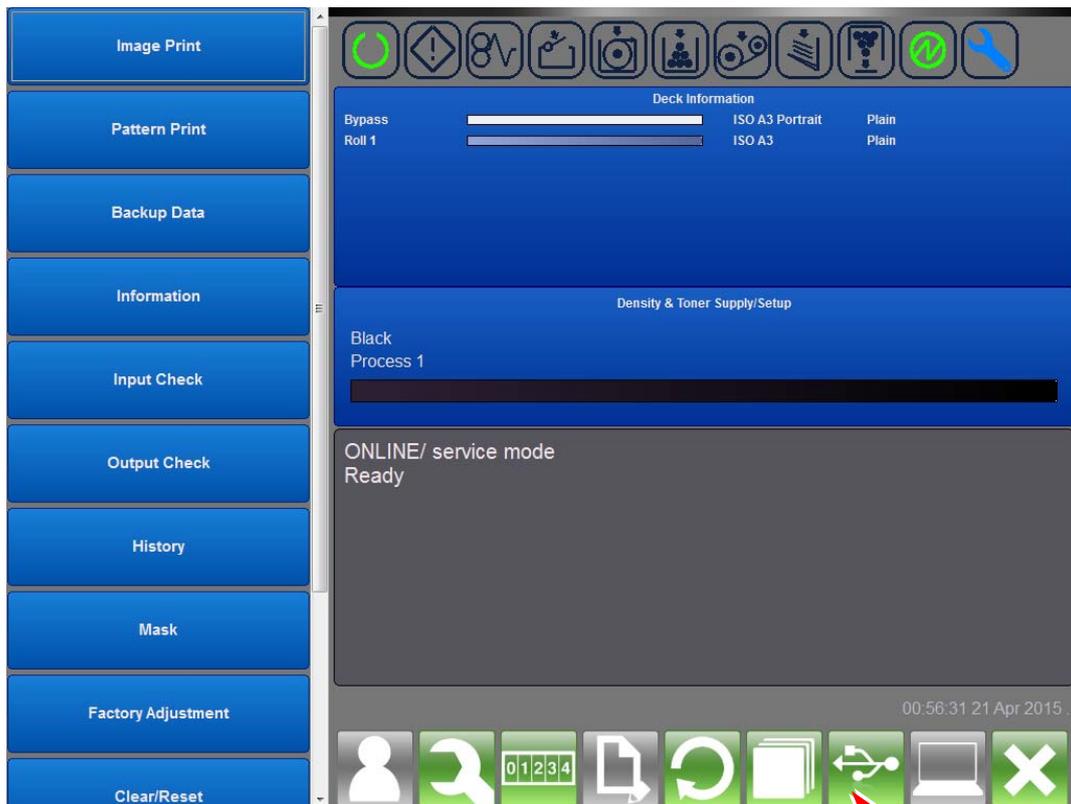


If any function button is pressed, you are asked by a message box if you will finish the concerning function. Press **Yes** to close it.



8.21 USB Eject

USB Eject safely removes a USB memory stick from the printer. Select the drive of USB memory stick and then press **eject** to remove.

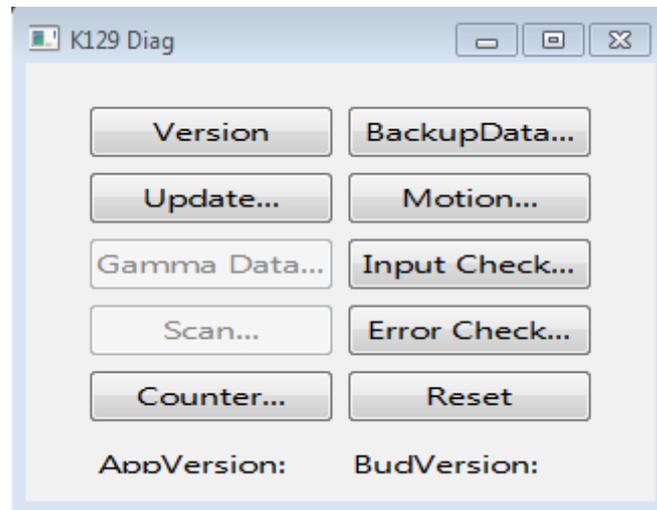


8.22 K129 Diag

8.22.1 K129 Diag Overview

“K129 Diag” is an integrated utility application that operates as an interface for monitoring, checking and setting configuration for field service.

K129 Diag can run on a service PC, the customer’s PC and the “IPS (KIP Printer’s controller) with its touchscreen” as well.



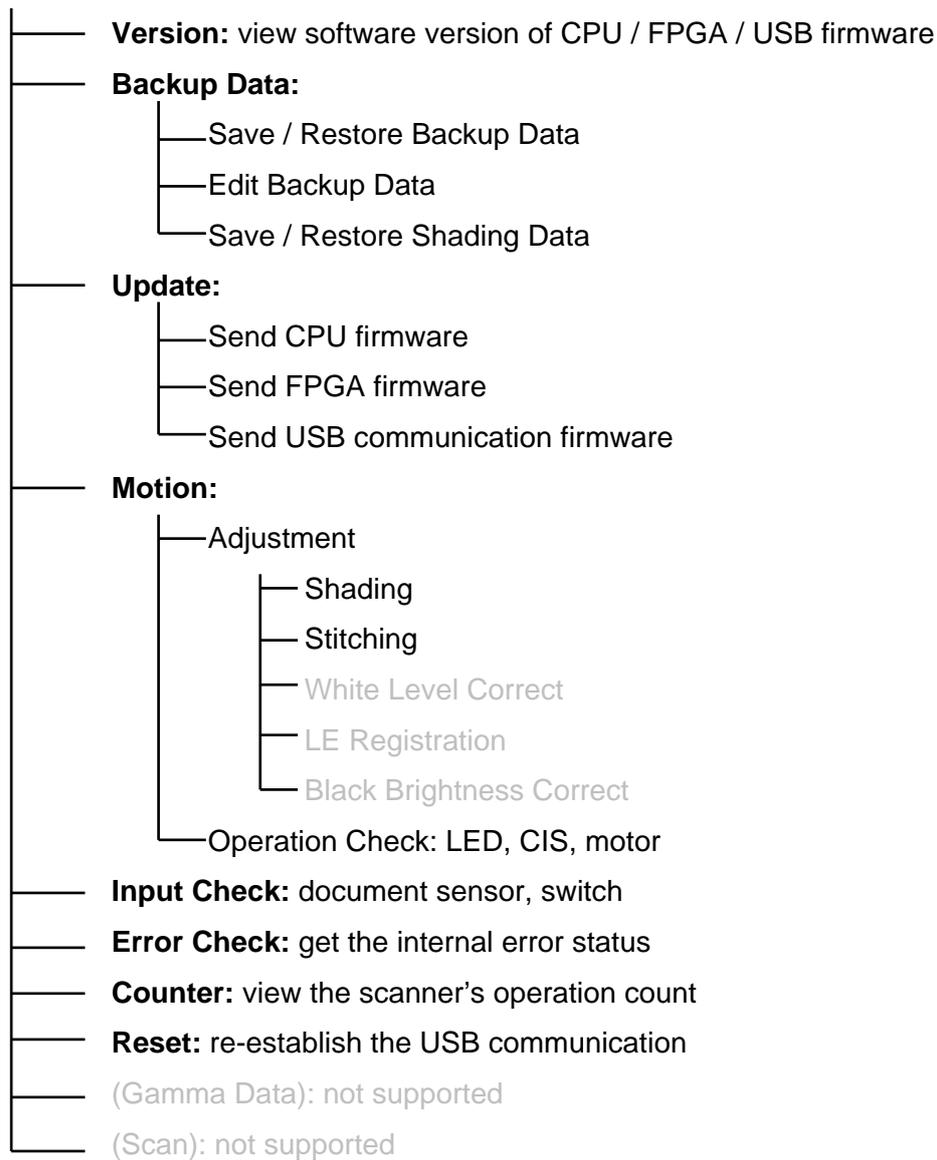
K129 Diag is required when;

- the D CON (Scanner Main Board) is replaced
- any of the CIS is replaced
- you want to create a recovery point of the parameters (= backup)
- you have to import the existing backup data to the scanner (= restore)
- you want to confirm the detailed error status
- you want to update the firmware...

8.22. 1. 1 K129 Diag Tree Diagram of Screen Hierarchy

Grayed items are not supported for field service.

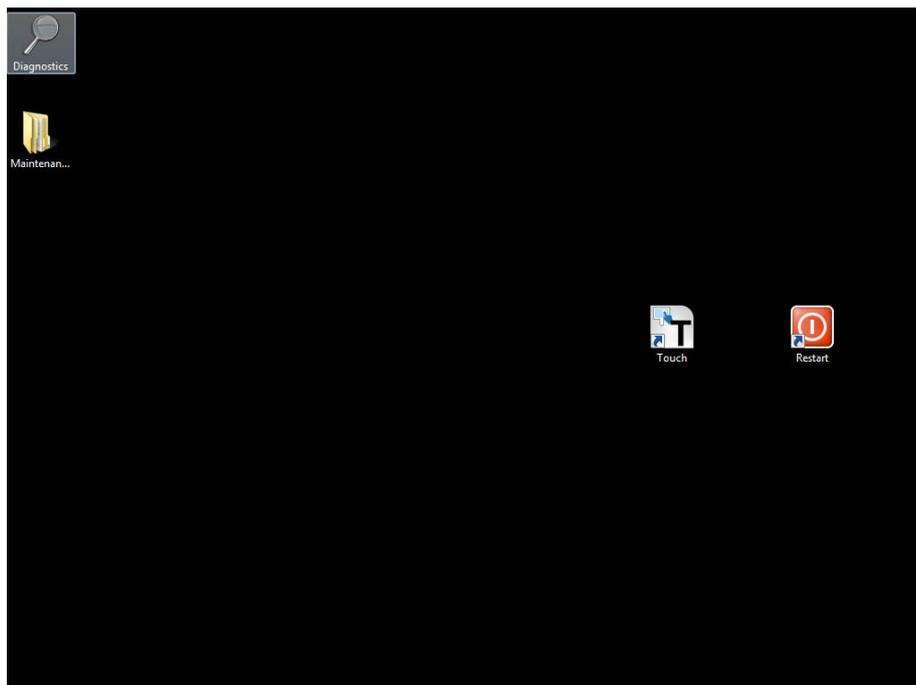
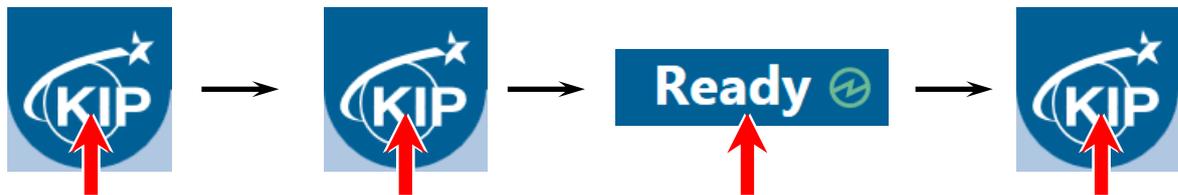
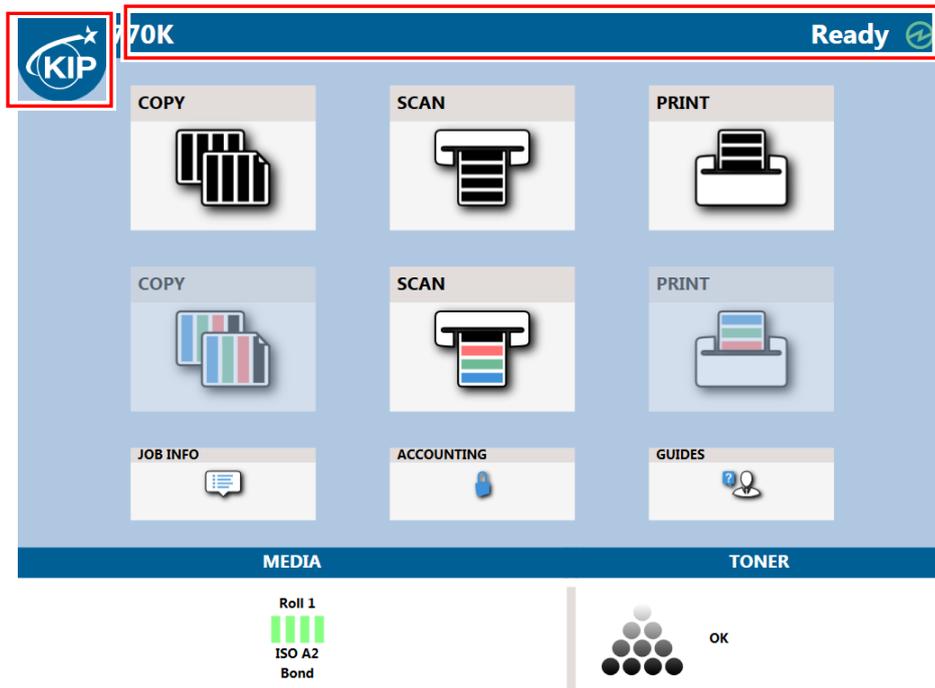
Home



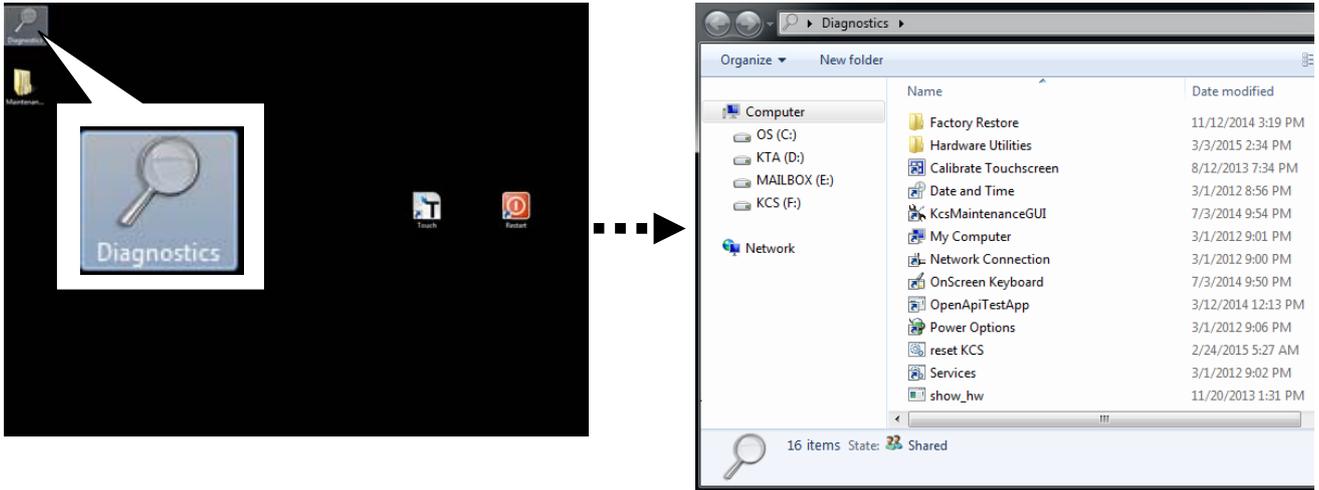
8.22. 2 Starting K129 Diag

1. On the UI Home screen, press the Home icon and the status indication quickly in the following order to indicate the desktop screen.

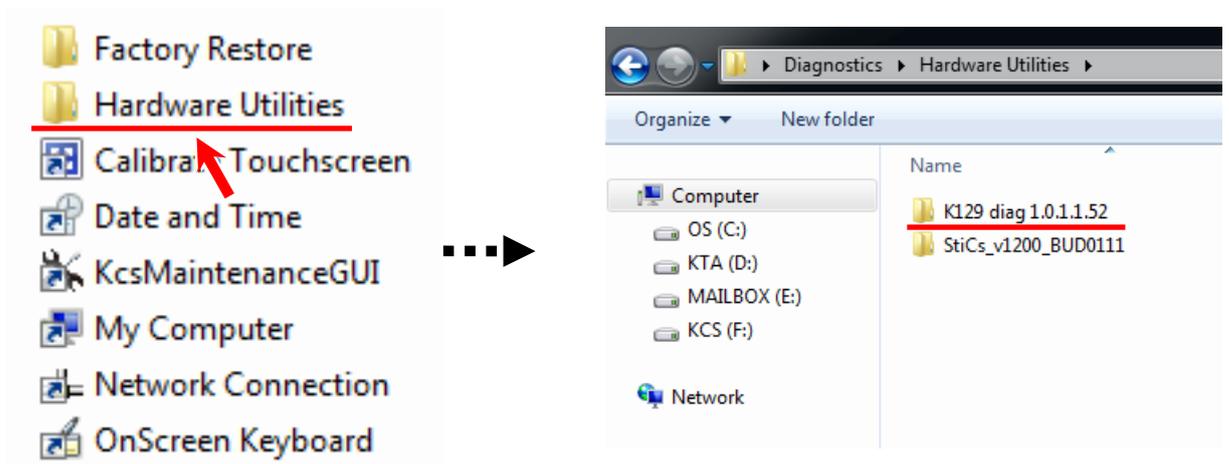
" KIP" icon (twice) → Status indication (once) → "KIP" icon (once)



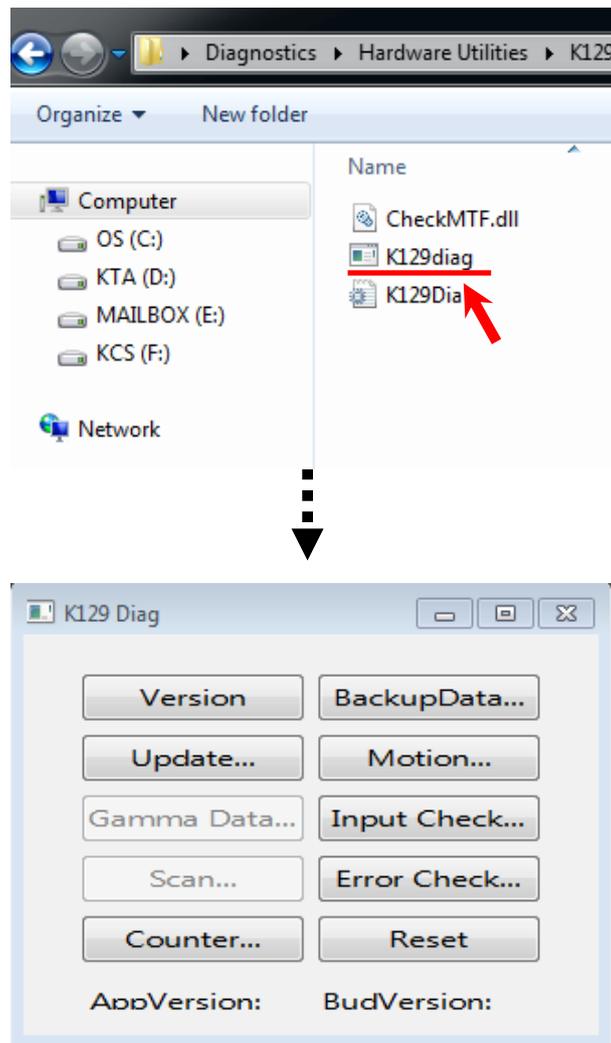
2. Open "Diagnostics" folder.



3. Double click [Hardware Utilities] and [K129 diag X.X.X.X.XX].



4. Run "K129 Diag".



Reference

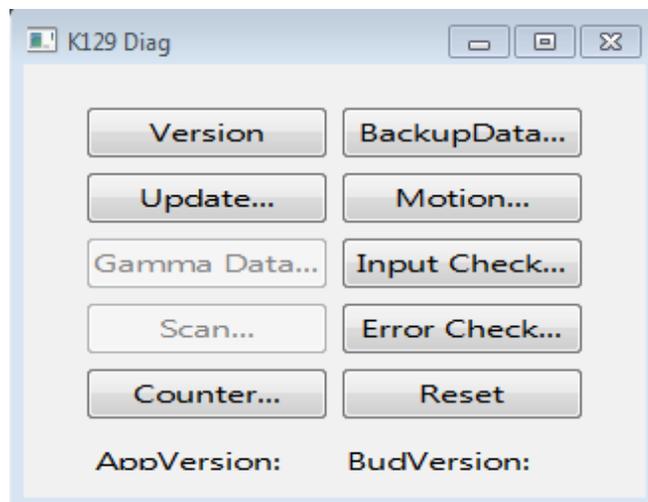
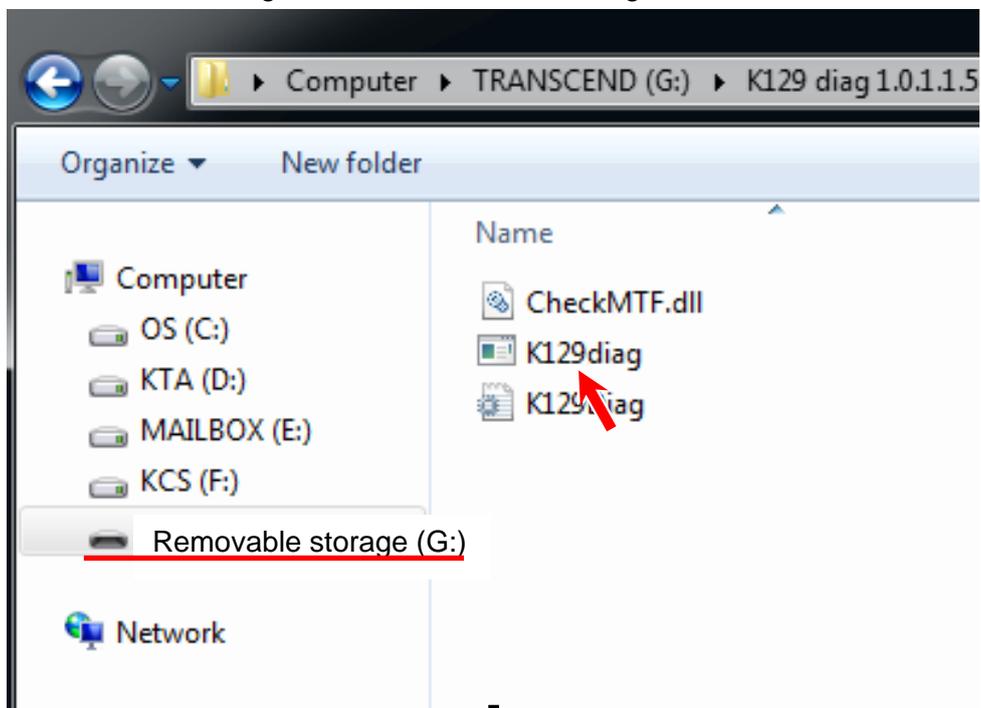
Other ways to run the "K129 Diag" are described on the next page.

Reference

1. Contact your KIP partner for K129Diag.exe and save it to any available storage on your removable storage. Connect removable storage to UI monitor's connector.

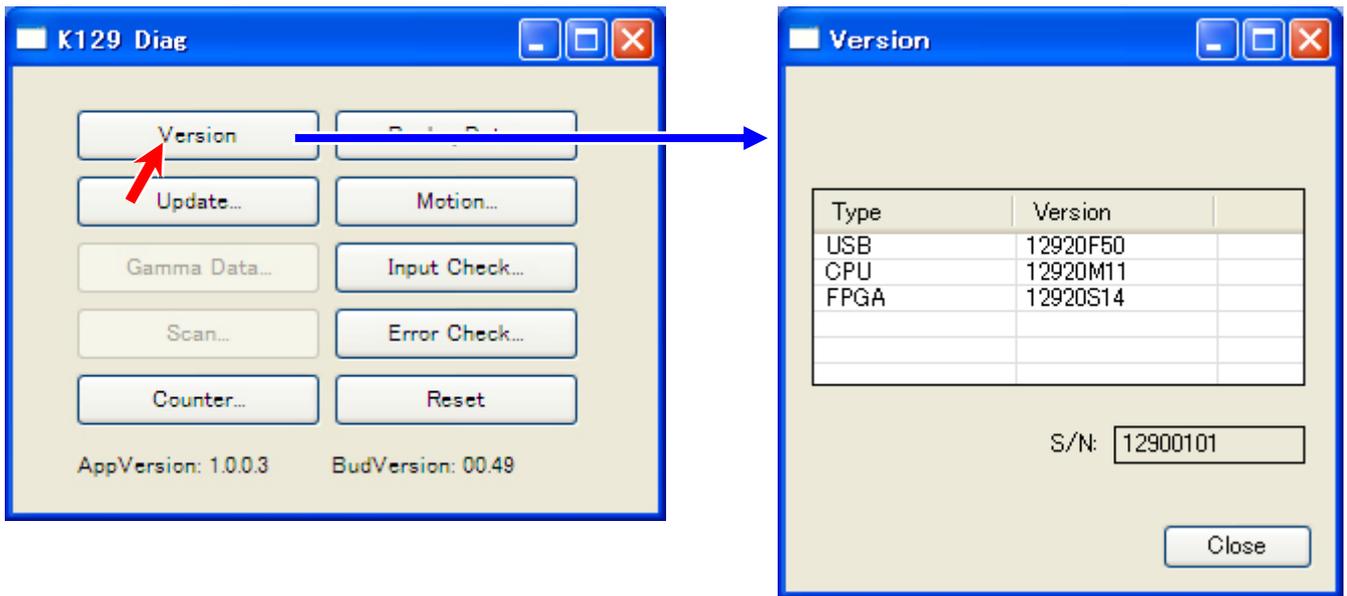


2. Select "Removable storage", and then run "K129 Diag.exe".



8.22.3 Version

Pressing [Version] recalls “Version” sub window that has a list of the current version information about 3 firmware categories.



(image may vary from the actual information)

Type	contents	version number convention
USB	USB communication firmware	12920 F **
CPU	hardware control software	12920 M **
FPGA	image processing software	12920 S **

Another information is the equipment’s serial No.

If you cannot see the serial No., some optional features on the connected IPS or a KIP Color PC may not function.

To close “Version” sub window, click the X button at the top right corner.

8.22. 4 Backup Data

Setting items regarding the scanner firmware and their setting values is called “Backup Data = BUD (BackUpData).”

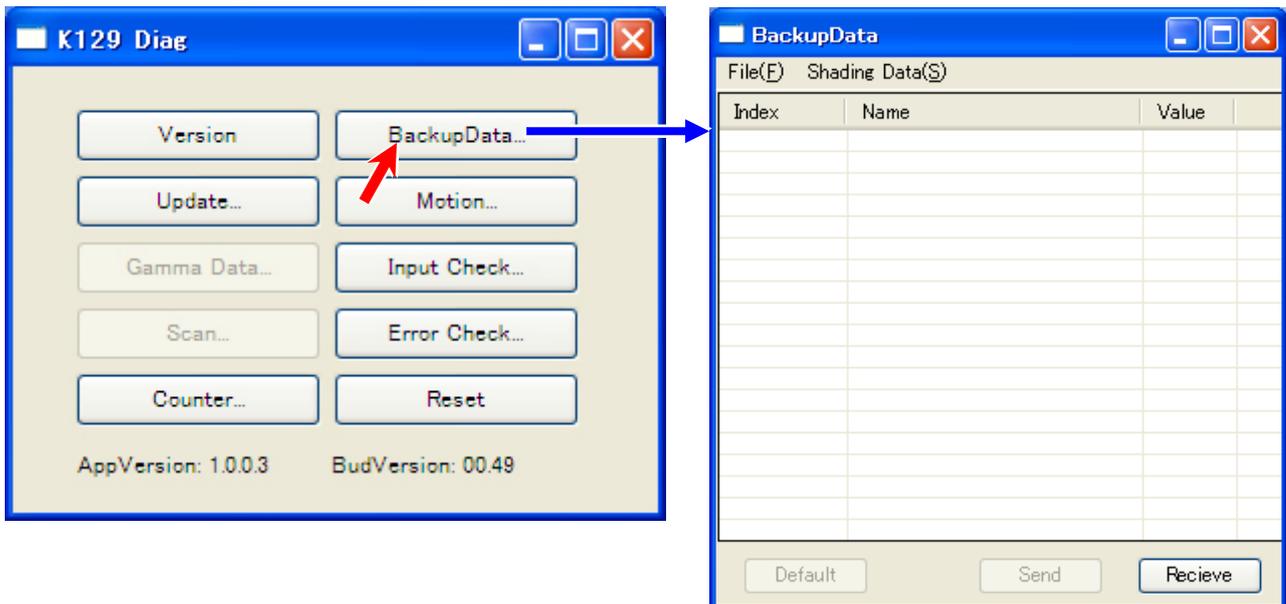
Backup Data can be changed (= can enter a setting value), saved as a backup purpose (= can create a list of the current setting value) and restored (= can import an existing setting value list).

8.22. 4. 1 Changing Backup Data

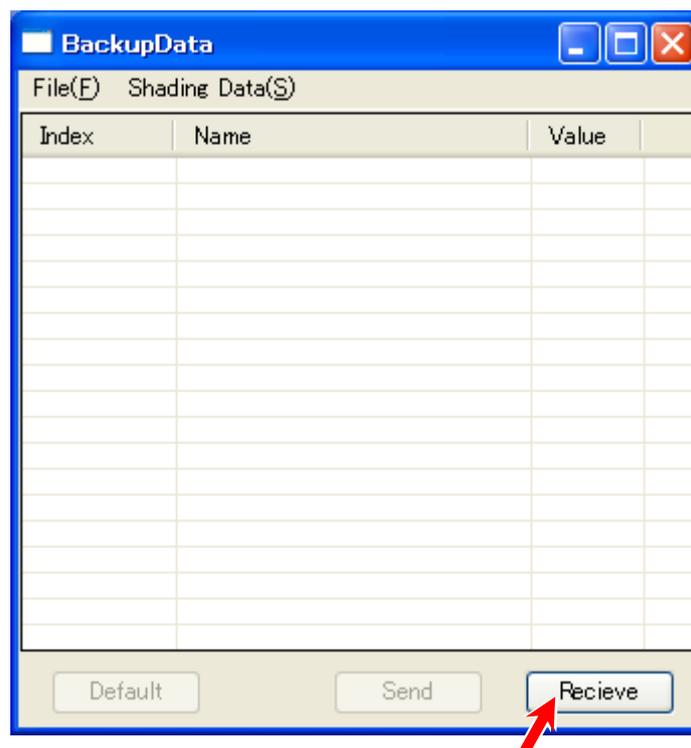
NOTE

It is highly recommended to create a backup prior to setting change.
For backup procedure, see [8.22. 4. 2 Saving the Current Backup Data].

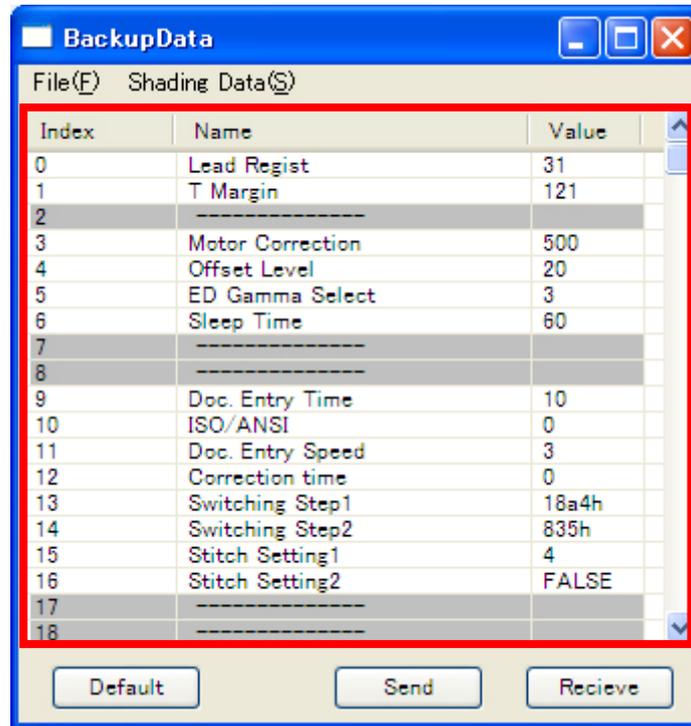
1. Click [BackupData] to recall “Backup Data” list sub window.



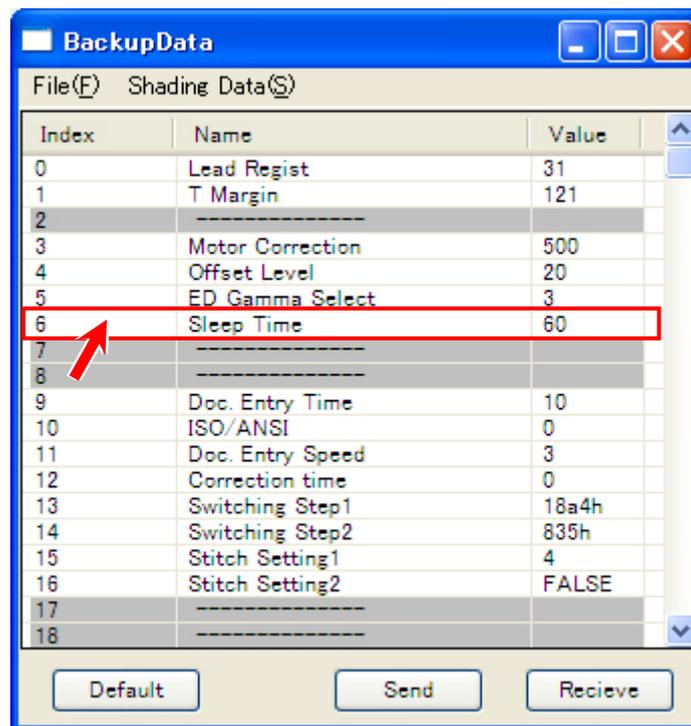
2. Click [Receive]



3. The current parameters are retrieved and displayed in the list.



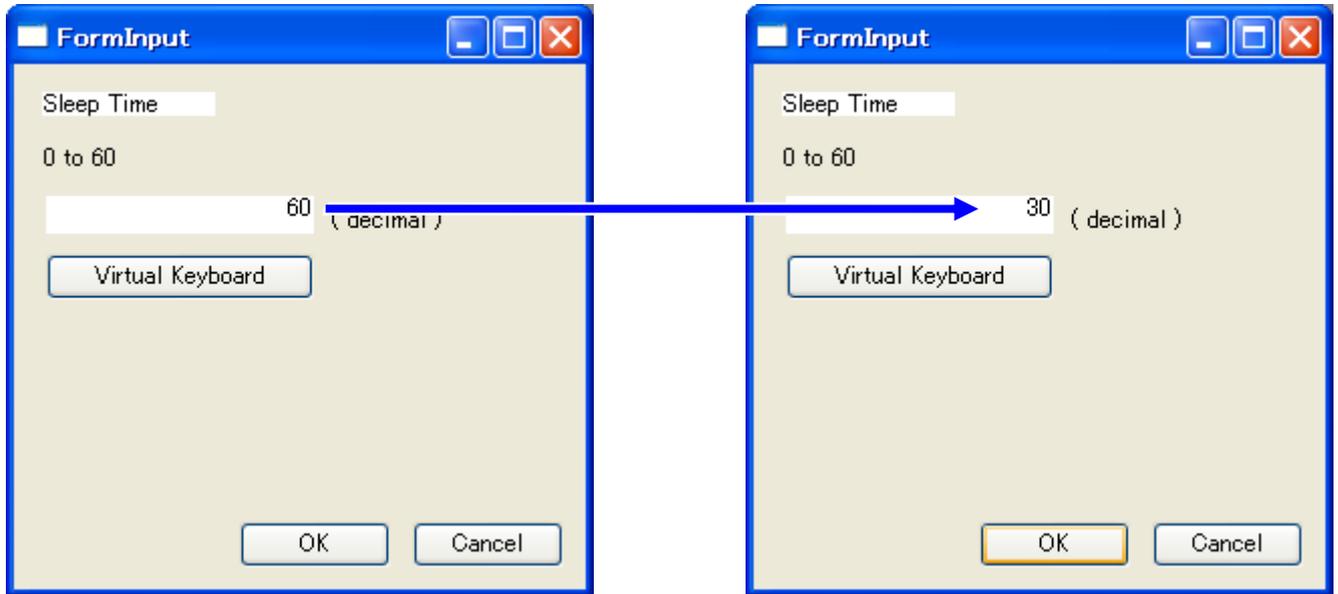
4. Double click on the row you want to change the setting value.
This section uses "6 Sleep Time 60" for example.



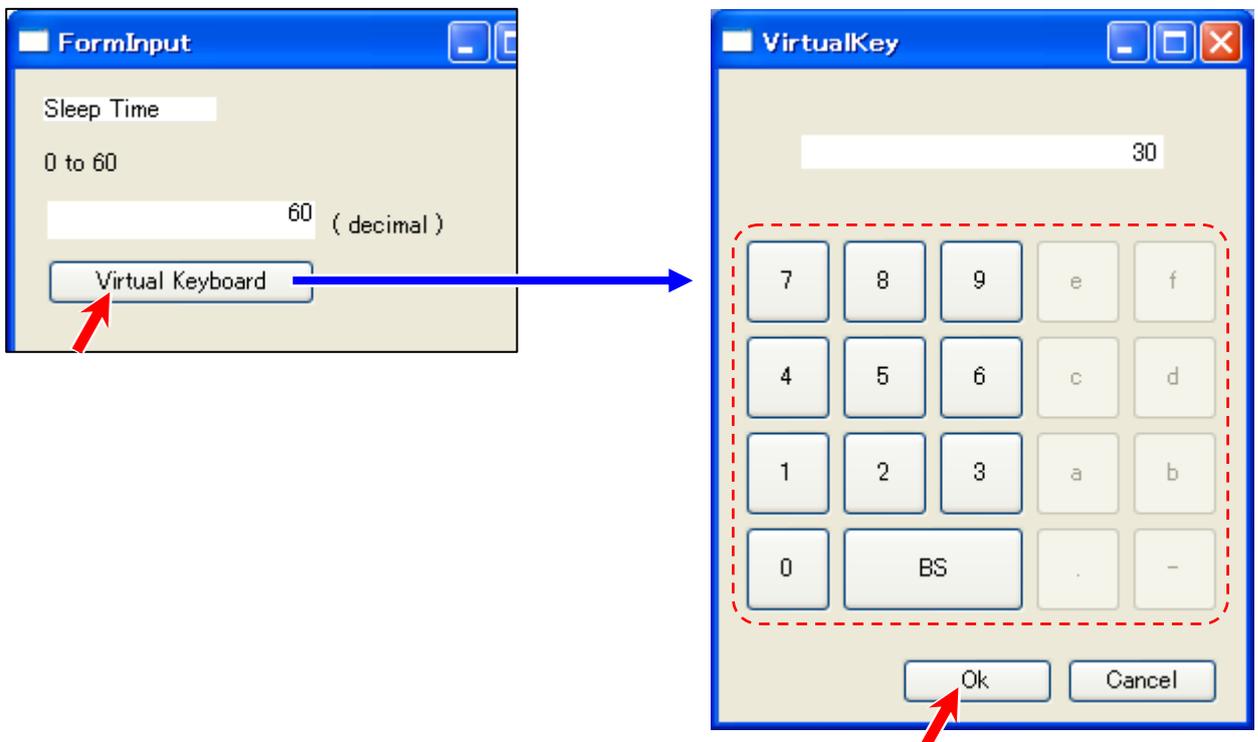
5. "Input" pad pops up. Directly type a value with your keyboard.
The following example shows a setting value change from 60 to 30.

NOTE

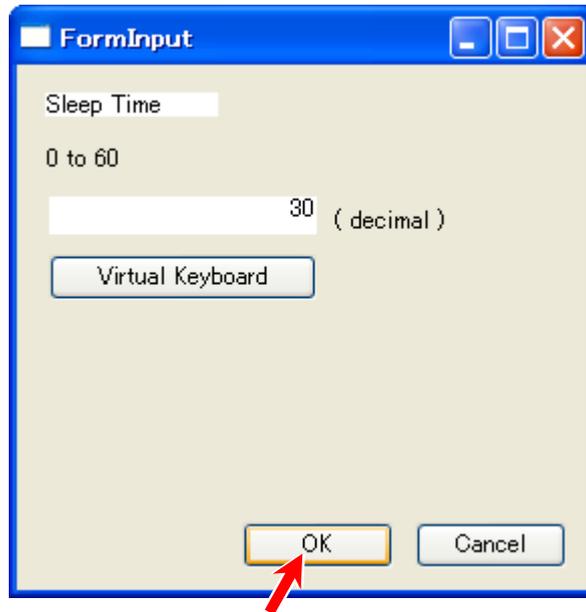
Clicking the field displays a caret (flashing " | " cursor), but while the caret is flashing, a key entry with your keyboard device is **NOT** accepted.



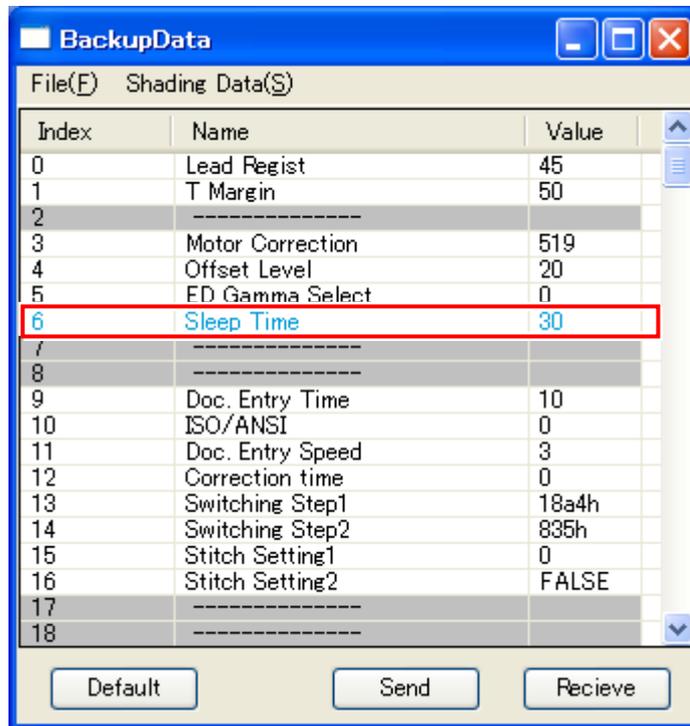
The on-screen keypad is available. Press a number you want to input on the touchscreen. To finalize the input, press [OK] on the bottom.



6. Click [OK] on the bottom.



7. The setting change you have made is reflected to the list. It will turn blue.

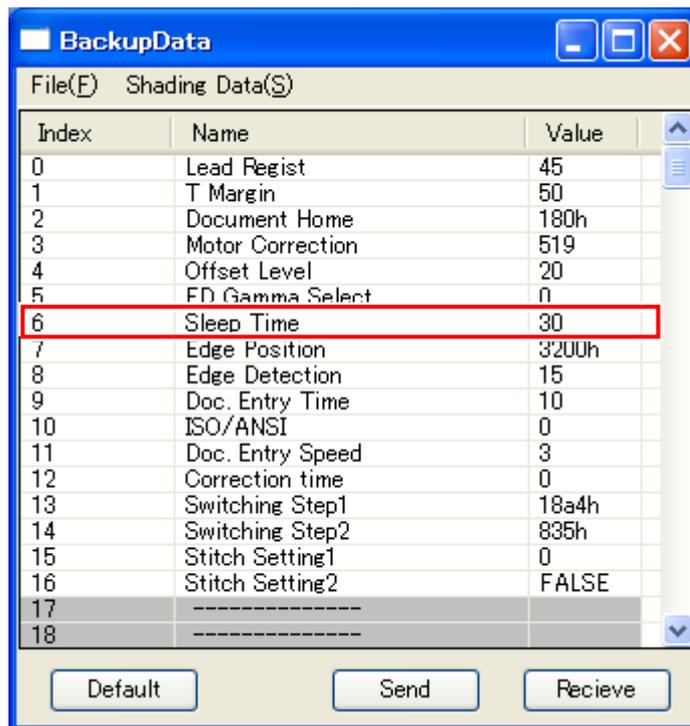
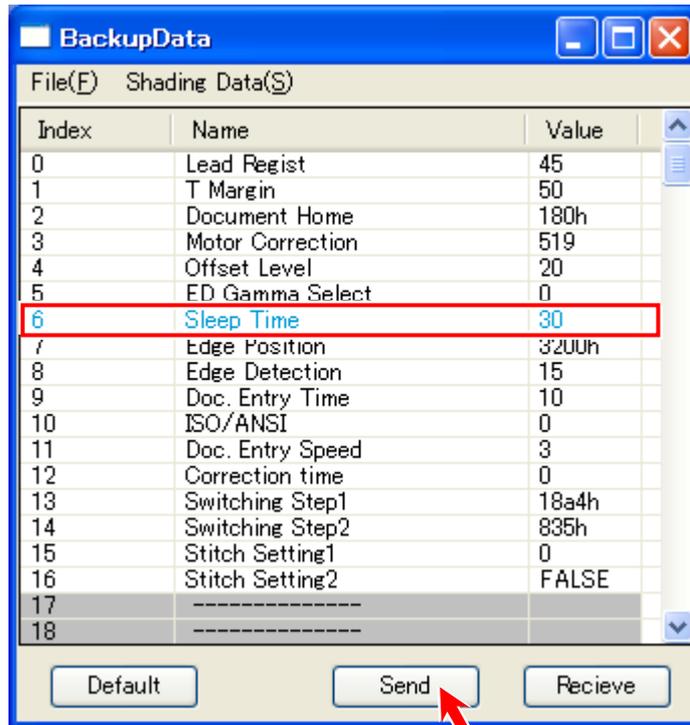


The other parameters can be changed in the same way in this period.

NOTE

At this time the setting change(s) is not validated yet.

8. Click [Send] on the bottom. The setting change(s) turns black.
Now it is sent to the D CON (Scanner Main Board).

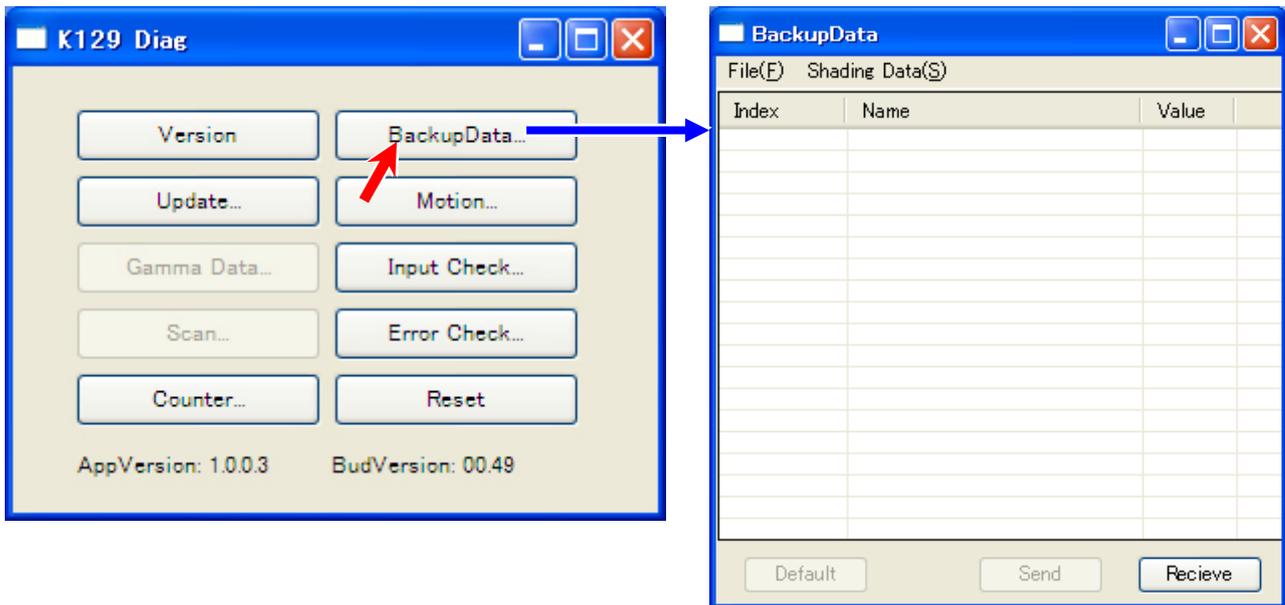


9. To close "BackupData" sub window, click the X button at the top right corner.

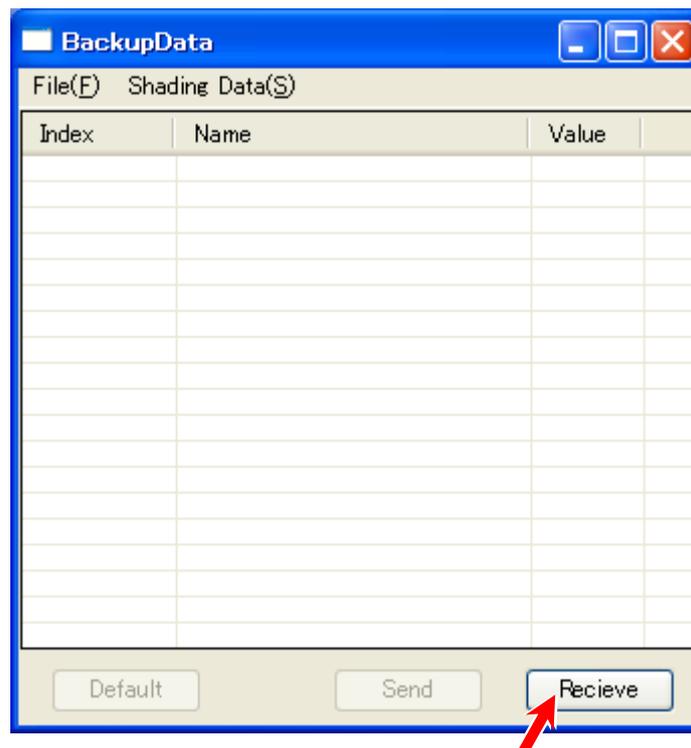
8.22. 4. 2 Saving the Current Backup Data

The current Backup Data (settings for hardware control) can be saved as a backup data file. (*.csv)
This file will be reused for restoring / replacing the scanner's Main Board.

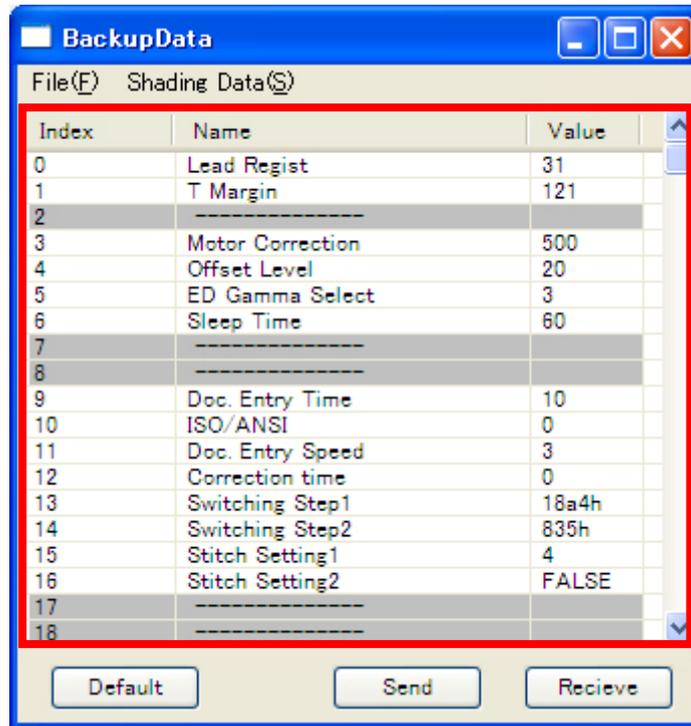
1. Click [BackupData] to recall "Backup Data" list sub window.



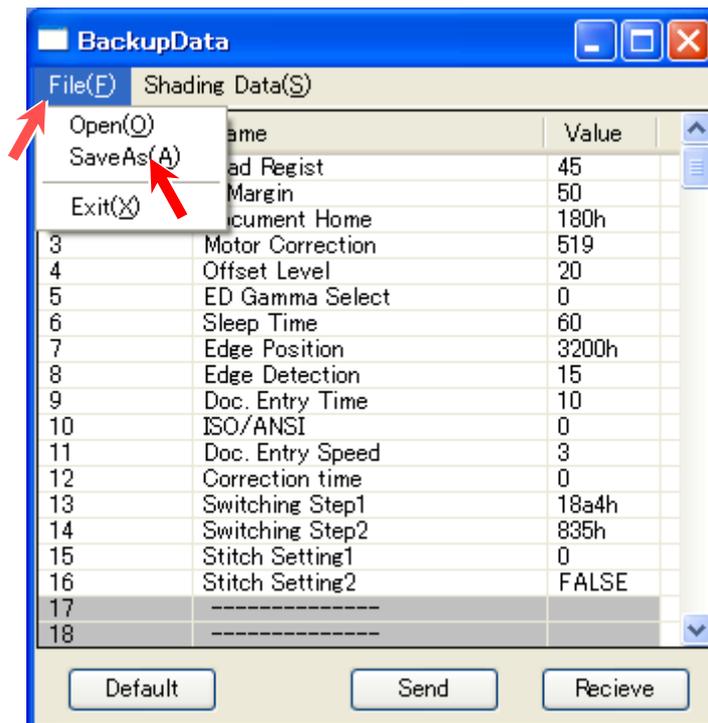
2. Click [Receive]



3. The current parameters are retrieved and displayed in the list.



4. Select [File] menu, and then click [Save As].

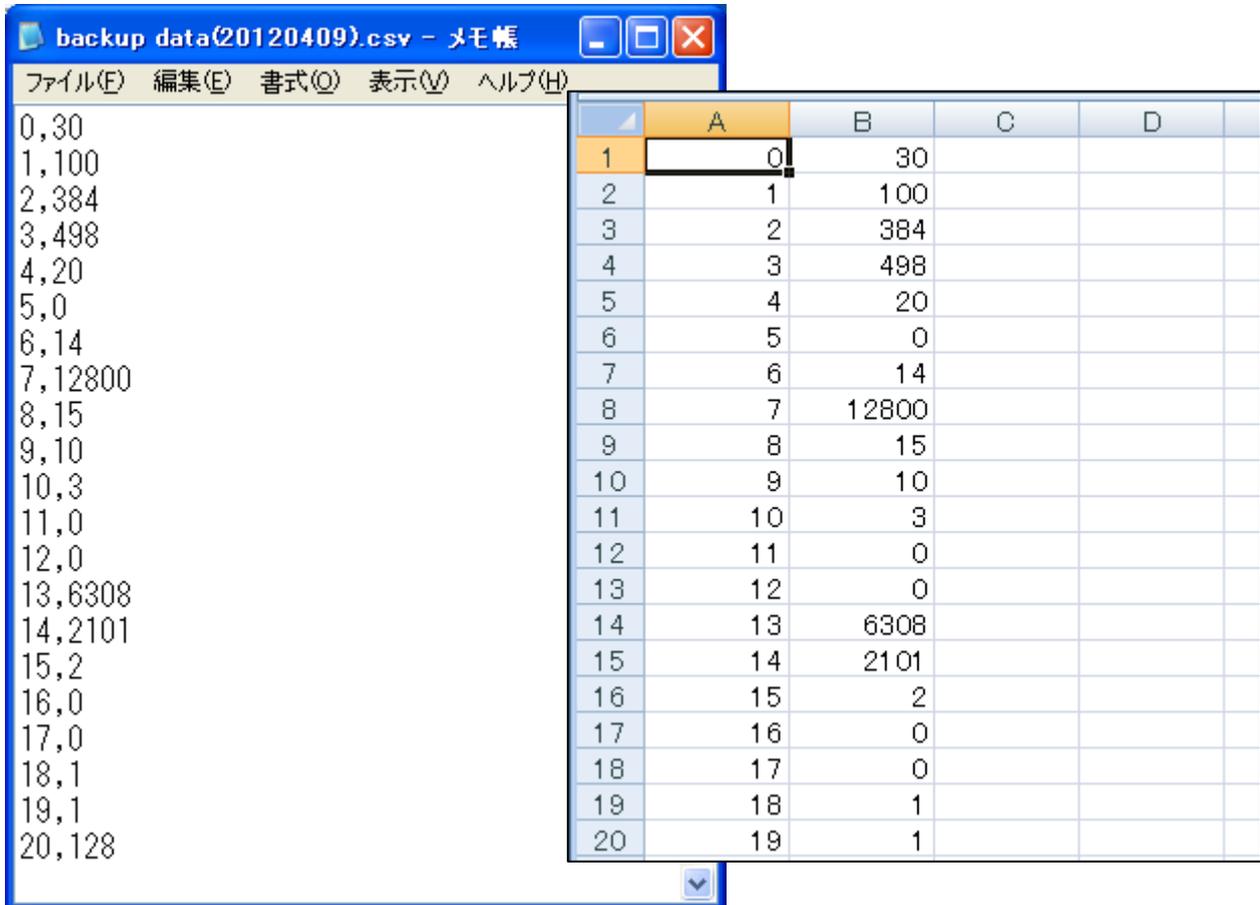


5. Specify a location to save the backup data file. (*.csv)
You can supply a file name for the csv.

8.22. 4. 3 Editing Backup Data File

You can edit a saved backup data file. (*.csv) Such an edited file can be used for restoring / setting change purpose.

1. Open the backup data file (*.csv) with Notepad or Microsoft Excel for example.
2. (Notepad) You may change the numbers to the right of comma.
(Microsoft Excel) You may change values in the second column "B".



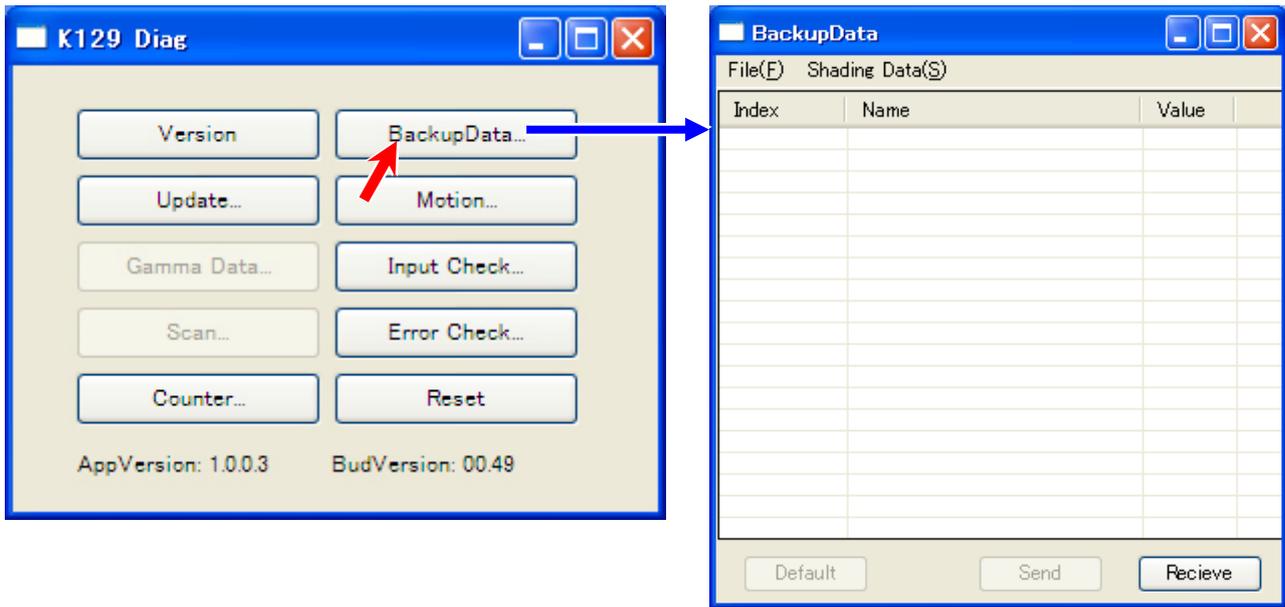
	A	B	C	D
1	0	30		
2	1	100		
3	2	384		
4	3	498		
5	4	20		
6	5	0		
7	6	14		
8	7	12800		
9	8	15		
10	9	10		
11	10	3		
12	11	0		
13	12	0		
14	13	6308		
15	14	2101		
16	15	2		
17	16	0		
18	17	0		
19	18	1		
20	19	1		

3. Save the file.
4. You can use the file for restoring / setting change purpose.
Do not delete unchanged lines.

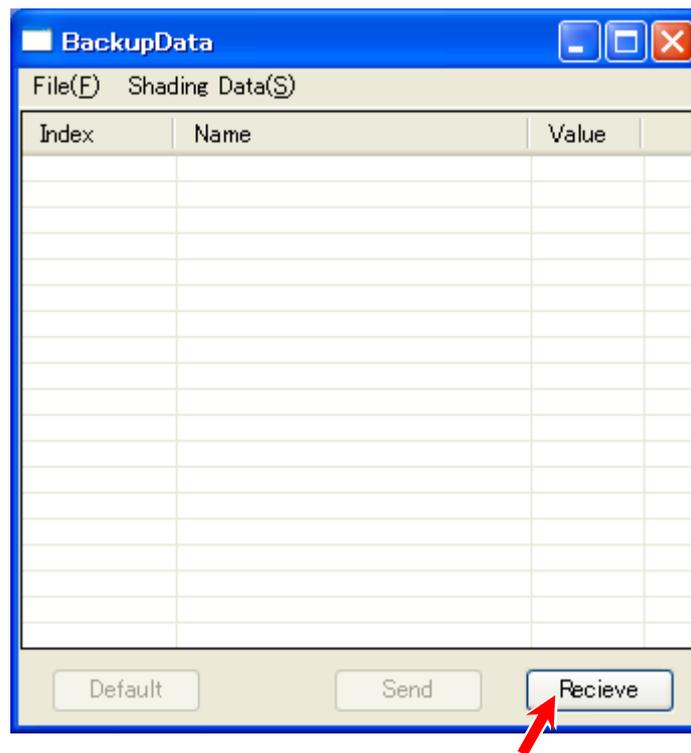
8.22. 4. 4 Restoring Backup Data

Before importing an existing backup data file (*.csv), retrieving the current parameters is required.

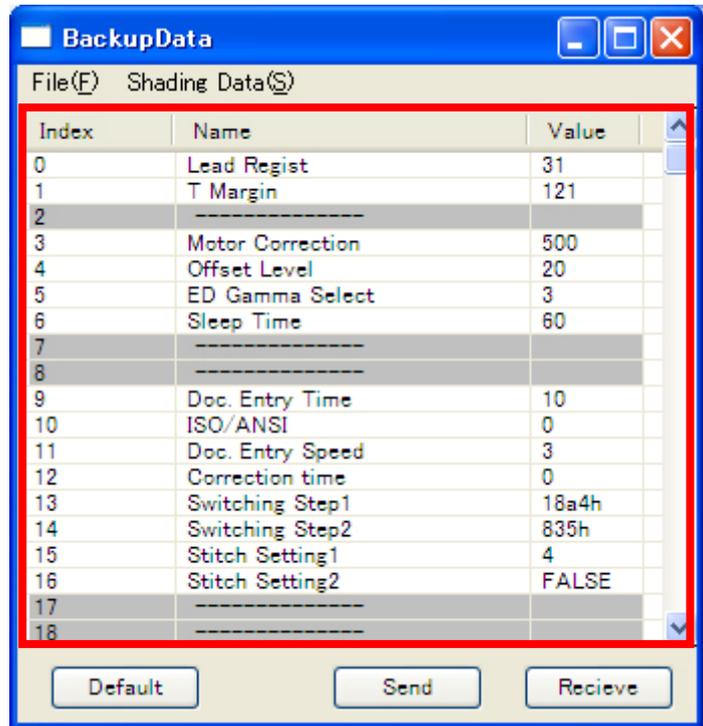
1. Click [BackupData] to recall "Backup Data" list sub window.



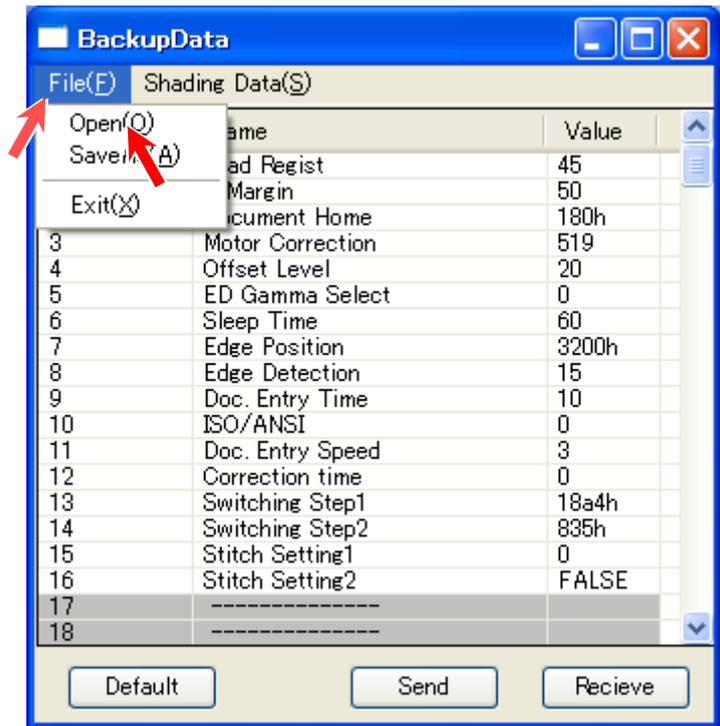
2. Click [Receive]



3. The current parameters are retrieved and displayed in the list.



4. Select [File] menu, and then click [Open].

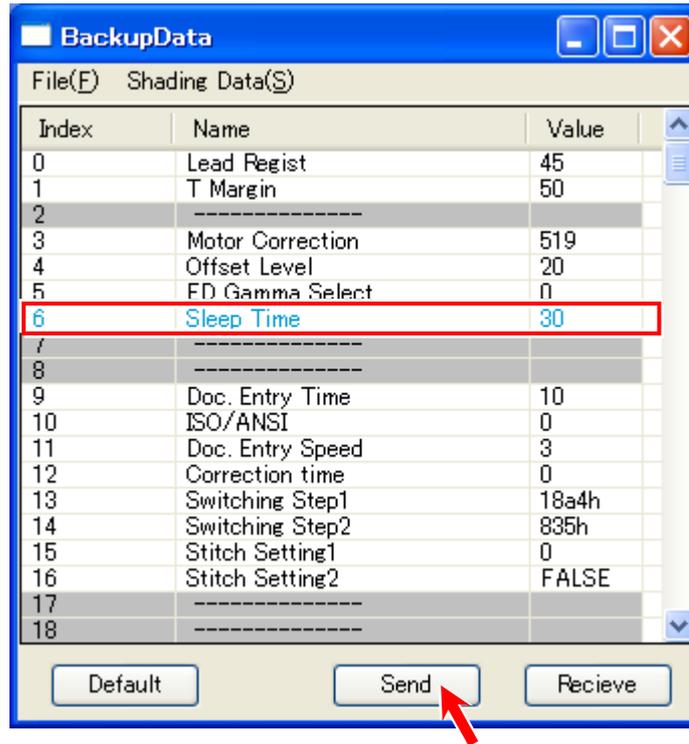


5. Specify a backup data file (*.csv) you want to import.

NOTE

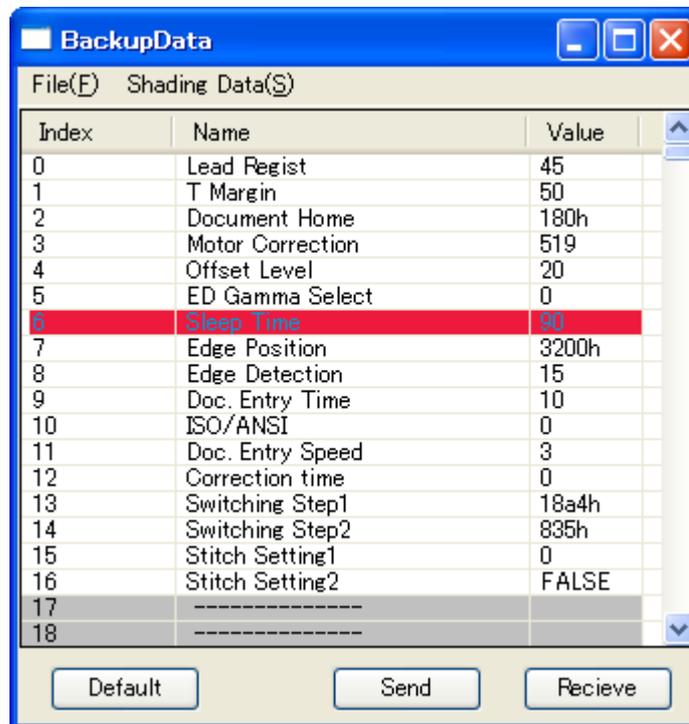
At this time the setting change(s) is not validated yet.

6. Once the backup data file is selected, setting difference(s) (between the current setting value and one from the backup data file) turns blue. Click [Send] on the bottom. The setting value(s) from the backup data file turns black. Now it is sent to the scanner's Main Board.



NOTE

If the selected backup data file includes invalid setting value(s), the concerning row in the list will turn red. The scanner does not accept the backup data currently listed in the window.



7. To close "BackupData" sub window, click the X button at the top right corner.

8.22. 4. 5 Backup Data List

Grayed items are not supposed for field usage.

No.	Subject	Setting Range	Reference	Unit
0	Lead Regist	0 - 60	30	0.1mm
1	T Margin	0 - 200	100	0.1mm
2	reserved			
3	Motor Correction	400 - 600	500	---
4	Offset Level	20 - 100	20	---
5	ED Gamma Select	0 - 4	4	(mode selector)
6	Sleep Time	0 - 60	14	1 minute
7	reserved			
8	reserved			
9	Doc. Entry Time	5 - 50	10	0.1 second
10	ISO/ANSI	0 - 3	3	(mode selector)
11	Doc. Entry Speed	0 - 9	3	(mode selector)
12	Correction Time	0 - 30	10	1 minute
13	Switching Step1	0x0000 - 0xFFFF	0x18A4	---
14	Switching Step2	0x0000 - 0xFFFF	0x0835	---
15	Stitch Setting1	0 - 3	2	(mode selector)
16	Stitch Setting2	0 - 1	1	(mode selector)
17	reserved			
18	reserved			
19	Ind. Language		1	---
20	Strobe 1(R)	1 - 255	128	---
21	Strobe 1(G)	1 - 255	128	---
22	Strobe 1(B)	1 - 255	128	---
23	Strobe 2(R)	1 - 255	128	---
24	Strobe 2(G)	1 - 255	128	---
25	Strobe 2(B)	1 - 255	128	---
26	Strobe 3(R)	1 - 255	128	---
27	Strobe 3(G)	1 - 255	128	---
28	Strobe 3(B)	1 - 255	128	---
29	Strobe 4(R)	1 - 255	128	---
30	Strobe 4(G)	1 - 255	128	---
31	Strobe 4(B)	1 - 255	128	---
32	Strobe 5(R)	1 - 255	128	---
33	Strobe 5(G)	1 - 255	128	---
34	Strobe 5(B)	1 - 255	128	---
35	Offset Block1-1	0 - 255	128	---
36	Offset Block1-2	0 - 255	128	---
37	Gain Block1-1	0 - 255	0	---
38	Gain Block1-2	0 - 255	0	---
39	Offset Block2-1	0 - 255	128	---
40	Offset Block2-2	0 - 255	128	---
41	Gain Block2-1	0 - 255	0	---
42	Gain Block2-2	0 - 255	0	---
43	Offset Block3-1	0 - 255	128	---
44	Offset Block3-2	0 - 255	128	---
45	Gain Block3-1	0 - 255	0	---
46	Gain Block3-2	0 - 255	0	---
47	Luminance 1	1 - 999	500	---
48	Luminance 2	1 - 999	500	---
49	Luminance 3	1 - 999	500	---
50	Luminance 4	1 - 999	500	---
51	Luminance 5	1 - 999	500	---
52	cis1/cis2 Main	0 - 200	100	---
53	cis2/cis3 Main	0 - 200	100	---
54	cis3/cis4 Main	0 - 200	100	---
55	cis4/cis5 Main	0 - 200	100	---
56	cis1 Sub	50 - 150	100	---
57	cis2 Sub	50 - 150	100	---

No.	Subject	Setting Range	Reference	Unit
58	cis4 Sub	50 - 150	100	---
59	cis5 Sub	50 - 150	100	---
60	Digital Gain	0 - 2	1	---
61	Platen Samp Time	5 - 50	10	---
62	cis1 Detail	0 - 7	3	---
63	cis2 Detail	0 - 7	3	---
64	cis4 Detail	0 - 7	3	---
65	cis5 Detail	0 - 7	3	---
66	Overlap Image	0 - 1	0	---
67	Special Scan	0 - 2	0	---
68	Strobe Level	0 - 9	0	---
69	Reserved			
70	Stitch Adjust1	0 - 200	100	---
71	Stitch Adjust2	0 - 200	100	---
72	Stitch Adjust3	0 - 200	100	---
73	Stitch Adjust4	0 - 200	100	---
74	Stitch Adjust5	0 - 200	100	---
75	Stitch Adjust6	0 - 200	100	---
76	Stitch Adjust7	0 - 200	100	---
77	Stitch Adjust8	0 - 200	100	---
78	Stitch Adjust9	0 - 200	100	---
79	Stitch Adjust10	0 - 200	100	---
80	Stitch Adjust11	0 - 200	100	---
81	Stitch Adjust12	0 - 200	100	---
82	Stitch Adjust13	0 - 200	100	---
83	Stitch Adjust14	0 - 200	100	---
84	Stitch Adjust15	0 - 200	100	---
85	Stitch Adjust16	0 - 200	100	---
86	Stitch Adjust17	0 - 200	100	---
87	Stitch Adjust18	0 - 200	100	---
88	Stitch Adjust19	0 - 200	100	---
89	Stitch Adjust20	0 - 200	100	---
90	Stitch Adjust21	0 - 200	100	---
91	Stitch Adjust22	0 - 200	100	---
92	Stitch Adjust23	0 - 200	100	---
93	Stitch Adjust24	0 - 200	100	---
94	Stitch Adjust25	0 - 200	100	---
95	Stitch Adjust26	0 - 200	100	---
96	Stitch Adjust27	0 - 200	100	---
97	Stitch Adjust28	0 - 200	100	---
98	Stitch Adjust29	0 - 200	100	---
99	Stitch Adjust30	0 - 200	100	---
100	Stitch Adjust31	0 - 200	100	---
101	Stitch Adjust32	0 - 200	100	---
102	Stitch Adjust33	0 - 200	100	---
103	Stitch Adjust34	0 - 200	100	---
104	Stitch Adjust35	0 - 200	100	---
105	Stitch Adjust36	0 - 200	100	---
106	Stitch Adjust37	0 - 200	100	---
107	Stitch Adjust38	0 - 200	100	---
108	Stitch Adjust39	0 - 200	100	---
109	Stitch Adjust40	0 - 200	100	---
110	Stitch Adjust41	0 - 200	100	---
111	Stitch Adjust42	0 - 200	100	---
112	Stitch Adjust43	0 - 200	100	---
113	Stitch Adjust44	0 - 200	100	---
114	Stitch Adjust45	0 - 200	100	---
115	Stitch Adjust46	0 - 200	100	---
116	Stitch Adjust47	0 - 200	100	---
117	Stitch Adjust48	0 - 200	100	---
118	Doc. Set pxl1(B)	0 - 0xFFFF	0x13A9	---

No.	Subject	Setting Range	Reference	Unit
119	Doc. Set pxl1(W)	0 - 0xFFFF	0x10F4	---
120	Doc. Set thr(B)	0 - 0xFFFF	0x0032	---
121	Doc. Set thr(W)	0 - 0xFFFF	0x0032	---
122	Doc. Set pxl2(B)	0 - 0xFFFF	0x000A	---
123	Doc. Set pxl2(W)	0 - 0xFFFF	0x02BC	---
124	White Std pxl1	0 - 0xFFFF	0x0028	---
125	White Std pxl2	0 - 0xFFFF	0x1360	---
126	Platen Data1	0 - 1024	0	---
127	Platen Data2	0 - 1024	0	---
128	Platen Data3	0 - 1024	0	---
129	Platen Data4	0 - 1024	0	---
130	Platen Data5	0 - 1024	0	---
131	Platen Data R1	0 - 1024	0	---
132	Platen Data R2	0 - 1024	0	---
133	Platen Data R3	0 - 1024	0	---
134	Platen Data R4	0 - 1024	0	---
135	Platen Data R5	0 - 1024	0	---
136	Platen Data G1	0 - 1024	0	---
137	Platen Data G2	0 - 1024	0	---
138	Platen Data G3	0 - 1024	0	---
139	Platen Data G4	0 - 1024	0	---
140	Platen Data G5	0 - 1024	0	---
141	Platen Data B1	0 - 1024	0	---
142	Platen Data B2	0 - 1024	0	---
143	Platen Data B3	0 - 1024	0	---
144	Platen Data B4	0 - 1024	0	---
145	Platen Data B5	0 - 1024	0	---
146	Cis Offset R1	0 - 64	32	---
147	Cis Offset G1	0 - 64	32	---
148	Cis Offset B1	0 - 64	32	---
149	Cis Offset K1	0 - 64	32	---
150	Cis Offset R2	0 - 64	32	---
151	Cis Offset G2	0 - 64	32	---
152	Cis Offset B2	0 - 64	32	---
153	Cis Offset K2	0 - 64	32	---
154	Cis Offset R3	0 - 64	32	---
155	Cis Offset G3	0 - 64	32	---
156	Cis Offset B3	0 - 64	32	---
157	Cis Offset K3	0 - 64	32	---
158	Cis Offset R4	0 - 64	32	---
159	Cis Offset G4	0 - 64	32	---
160	Cis Offset B4	0 - 64	32	---
161	Cis Offset K4	0 - 64	32	---
162	Cis Offset R5	0 - 64	32	---
163	Cis Offset G5	0 - 64	32	---
164	Cis Offset B5	0 - 64	32	---
165	Cis Offset K5	0 - 64	32	---
166	Sub Strobe 1(R)	1 - 255	128	---
167	Sub Strobe 1(G)	1 - 255	128	---
168	Sub Strobe 1(B)	1 - 255	128	---
169	Sub Strobe 2(R)	1 - 255	128	---
170	Sub Strobe 2(G)	1 - 255	128	---
171	Sub Strobe 2(B)	1 - 255	128	---
172	Sub Strobe 3(R)	1 - 255	128	---
173	Sub Strobe 3(G)	1 - 255	128	---
174	Sub Strobe 3(B)	1 - 255	128	---
175	Sub Strobe 4(R)	1 - 255	128	---
176	Sub Strobe 4(G)	1 - 255	128	---
177	Sub Strobe 4(B)	1 - 255	128	---
178	Sub Strobe 5(R)	1 - 255	128	---
179	Sub Strobe 5(G)	1 - 255	128	---

No.	Subject	Setting Range	Reference	Unit
180	Sub Strobe 5(B)	1 - 255	128	---
181	Cis Offset2 R1	0 - 1023	512	---
182	Cis Offset2 G1	0 - 1023	512	---
183	Cis Offset2 B1	0 - 1023	512	---
184	Cis Offset2 K1	0 - 1023	512	---
185	Cis Offset2 R2	0 - 1023	512	---
186	Cis Offset2 G2	0 - 1023	512	---
187	Cis Offset2 B2	0 - 1023	512	---
188	Cis Offset2 K2	0 - 1023	512	---
189	Cis Offset2 R3	0 - 1023	512	---
190	Cis Offset2 G3	0 - 1023	512	---
191	Cis Offset2 B3	0 - 1023	512	---
192	Cis Offset2 K3	0 - 1023	512	---
193	Cis Offset2 R4	0 - 1023	512	---
194	Cis Offset2 G4	0 - 1023	512	---
195	Cis Offset2 B4	0 - 1023	512	---
196	Cis Offset2 K4	0 - 1023	512	---
197	Cis Offset2 R5	0 - 1023	512	---
198	Cis Offset2 G5	0 - 1023	512	---
199	Cis Offset2 B5	0 - 1023	512	---
200	Cis Offset2 K5	0 - 1023	512	---
201	White Std pxl3	0 - 0xFFFF	0x03FD	---
202	White Std pxl4	0 - 0xFFFF	0x07FA	---
203	White Std pxl5	0 - 0xFFFF	0x0BF7	---
204	White Std pxl6	0 - 0xFFFF	0x0FD0	---
205	Samp Block Data	-	-	---
206	Target Gain Value	-	-	---
207	CIS Slope	-	-	---
208	Gain Threshold	-	-	---
209	Sampling Width	-	-	---
210 to 270	Reserved	-	-	---
271	Correction Block	0 - 1	1	(mode selector)
272	Block Threshold	1 - 255	100	---
273	CIS Slope2	1 - 100	35	---
274	Threshold Oset 1	-	-	---
275	Threshold Oset 2	-	-	---
276	Threshold Oset 3	-	-	---
277	Threshold Oset 4	0 - 510	185	---
278	ED Bright Oset 1	-	-	---
279	ED Bright Oset 2	-	-	---

BUD Descriptions



NOTE

Auto adjustment features uses many parameters here.
A setting change on grayed items may malfunction the auto adjustments as intended.

0 Lead Regist

BUD No.0 is to shift the start timing of reading.

Increasing the value moves the start timing to the trailing edge side. (reading starts later)

Decreasing the value moves the start timing to the leading edge side. (reading starts earlier)

setting range	step of increment
0 to 60	0.1mm

1 T Margin

BUD No.1 is to shift the stop timing of reading.

Increasing the value moves the stop timing to the trailing edge side. (reading stops later)

Decreasing the value moves the stop timing to the leading edge side. (reading stops earlier)

setting range	step of increment
0 to 200	0.1mm

3 Motor Correction



NOTE

Factory adjusted. Keep the value unchanged.

BUD No.3 is to compensate the Document Motor.

setting range
400 to 600

4 Offset Level



NOTE

Fixed value. Keep the value unchanged.

BUD No.4 is a parameter for the definition of the Black Level.

setting range
20 to 100

5 ED Gamma Select

BUD No.5 is a mode selector of which "Error Diffusion Gamma" table to be used. This is to be decided by your system configuration. Choose the correct combination.

setting value	Contents
0	Unused
1	Unused
2	Unused
3	Unused
4	When KIP 770 System K is used

6 Sleep Time

BUD No.6 is a timer setting for the scanner to run sleep mode. (Auto Power OFF)
The period of inactivity can be specified. The setting value "0" means Auto Power OFF disabled.

setting range	step of increment
0 to 60	1 minute

9 Doc. Entry Time

BUD No.9 is a timer setting for the scanner to catch an inserted original.
Decreasing the value takes longer time to catch the original's leading edge.

setting range	step of increment
5 to 50	0.1 second

10 ISO/ANSI

BUD No.10 is a table selector of the original width definition.
The definition is usually specified by the scan software.

setting range
0 to 3

11 Doc. Entry Speed

BUD No.11 is a speed selector to catch an inserted original.
Increasing the value moves the original to the standby position slower.

setting range	
0 to 9	0: fastest 9: slowest

12 Correction Time



NOTE

Fixed value. Keep the value unchanged.

BUD No.12 is a reserved parameter for “white level compensation”.

Reference

Shading defines the “black level” / “white level” for each pixel.
Shading also averages the reading level (black level / white level) for the pixels on each CIS image block borders. This is to diminish visual density gap at the borders.

BUD has several “fixed” or “factory adjusted” items for auto adjustments such as No.12.
A setting change on them may malfunction the auto adjustments as intended.

13 Switching Step1



NOTE

Factory adjusted. Keep the value unchanged.

BUD No.13 is a speed setting of the feed roller’s eccentricity compensation.

setting range

0x0000 to 0xFFFF

14 Switching Step2



NOTE

Factory adjusted. Keep the value unchanged.

BUD No.14 is a speed setting of the feed roller’s eccentricity compensation.

setting range

0x0000 to 0xFFFF

15 Stitch Setting1

BUD No.15 is a mode selector for “fade transition stitch” at CIS borders. This is to diminish visual density gap between CIS. This is effective for scanning with filters for Color, Grayscale, mono “Photo”.

setting value	Contents
0	OFF (Select “0” before starting Stitching Adjustment)
1	ON1: not supported
2	ON in combination with Correction Block (BUD No.271)
3	ON3: not supported
4	ON

NOTE

- (1) To validate BUD No. 271 “Correction Block”, the default value of BUD No. 15 “Stitch Setting 1” is changed from “4” to “2”.
- (2) When implementing FPGA 12920S21 to a KIP 720 type scanner unit having the older firmware, and without the hardware update, set BUD No. 15 “Stitching Setting 1” to “4”.
- (3) Stitching Adjustment should be done with BUD No.15 set to “zero”.
Be sure to reset it to “the original value” after Stitching Adjustment is done.

16 Stitch Setting2

NOTE

Factory adjusted. Keep the value unchanged.

BUD No.16 is a mode selector for feed speed compensation.

setting value	Contents
0	Feed speed constant
1	Feed speed compensated according to No.70 - 117.

19 Ind. Language

NOTE

Reserved. Keep the value unchanged.

BUD No.19 is a reserved setting for developers.

20 - 34 Strobe

BUD No.20 to 34 are a parameter for CIS's illuminating time in color scanning. Increasing the value gets scanned images lighter. Be noted that Shading will calibrate the possible best values for No.20 to 34.



NOTE

Shading will overwrite BUD No.20 to 34.

BUD No.	Name	Setting Range
20	Strobe 1 (R) CIS 1 light source R illuminating time for color scanning	1 to 255
21	Strobe 1 (G) CIS 1 light source G illuminating time for color scanning	
22	Strobe 1 (B) CIS 1 light source B illuminating time for color scanning	
23	Strobe 2 (R) CIS 2 light source R illuminating time for color scanning	
24	Strobe 2 (G) CIS 2 light source G illuminating time for color scanning	
25	Strobe 2 (B) CIS 2 light source B illuminating time for color scanning	
26	Strobe 3 (R) CIS 3 light source R illuminating time for color scanning	
27	Strobe 3 (G) CIS 3 light source G illuminating time for color scanning	
28	Strobe 3 (B) CIS 3 light source B illuminating time for color scanning	
29	Strobe 4 (R) CIS 4 light source R illuminating time for color scanning	
30	Strobe 4 (G) CIS 4 light source G illuminating time for color scanning	
31	Strobe 4 (B) CIS 4 light source B illuminating time for color scanning	
32	Strobe 5 (R) CIS 5 light source R illuminating time for color scanning	
33	Strobe 5 (G) CIS 5 light source G illuminating time for color scanning	
34	Strobe 5 (B) CIS 5 light source B illuminating time for color scanning	

35 - 46 Offset Block, Gain Block



NOTE

Shading will overwrite here. No manual input is recommended.

BUD No.35 to 46 are a parameter for "black level compensation". Be noted that Shading will calibrate the possible best values for No.35 to 46.

47 - 51 Luminance



NOTE

Shading will overwrite BUD No.47 to 51.

BUD No.47 to 51 are a parameter for CIS's light intensity in mono scanning. Increasing the value gets scanned images lighter. Be noted that Shading will calibrate the possible best values for No.47 to 51.

BUD No.	Name	Setting Range
47	Luminance 1 CIS 1 light intensity for mono scanning	1 to 255
48	Luminance 2 CIS 2 light intensity for mono scanning	
49	Luminance 3 CIS 3 light intensity for mono scanning	
50	Luminance 4 CIS 4 light intensity for mono scanning	
51	Luminance 5 CIS 5 light intensity for mono scanning	

52 - 55 CIS Main



NOTE

Stitch Adjustment will overwrite BUD No.52 to 55.

BUD No.52 to 55 are a parameter for pixel shift in main scanning direction. (horizontal = left/right) Increasing the value moves the concerning CIS block image (and the later blocks together) to the right in 1 pixel. CIS 1 (far left) is the reference. Be noted that Stitching Adjustment will calibrate the possible best values for No.52 to 55.

BUD No.	Name	Setting Range	Step of increment
52	cis1/cis2 Main block image horizontal shift of CIS 2 (and CIS 3/4/5 together)	0 to 200	1 pixel
53	cis2/cis3 Main block image horizontal shift of CIS 3 (and CIS 4/5 together)		
54	cis3/cis4 Main block image horizontal shift of CIS 4 (and CIS 5 together)		
55	cis4/cis5 Main block image horizontal shift of CIS 5		

56 - 59 CIS Sub



NOTE

Stitch Adjustment will overwrite BUD No.56 to 59.

BUD No.56 to 59 are a parameter for pixel shift in sub scanning direction. (vertical = top/bottom) Increasing the value moves the concerning CIS block image to the bottom in 1 pixel. CIS 3 (center) is the reference.

Be noted that Stitching Adjustment will calibrate the possible best values for No.56 to 59.

BUD No.	Name	Setting Range	Step of increment
56	cis1 Sub block image vertical shift of CIS 1	50 to 150	1 pixel
57	cis2 Sub block image vertical shift of CIS 2		
58	cis4 Sub block image vertical shift of CIS 4		
59	cis5 Sub block image vertical shift of CIS 5		

60 Digital Gain



NOTE

Fixed value. Keep the value unchanged.

BUD No.60 is a fixed setting for developers.

61 Platen Samp Time



NOTE

Reserved. Keep the value unchanged.

BUD No.61 is a reserved parameter for "white level compensation".

62 - 65 CIS Detail



NOTE

Reserved. Keep the value unchanged.

BUD No.62 to 65 are a reserved parameter for Stitching Adjustment.

66 Overlap Image

 **NOTE**

Reserved. Keep the value unchanged.

BUD No.66 is a reserved parameter for Stitching Adjustment.

67 Special Scan

 **NOTE**

Reserved. Keep the value unchanged.

BUD No.67 is a reserved parameter for Shading.

68 Strobe Level

 **NOTE**

Reserved. Keep the value unchanged.

BUD No.68 is a reserved parameter for “white level correction”.

70 - 117 Stitch Adjust

 **NOTE**

Factory adjusted. Keep the value unchanged.

BUD No.70 to 117 are a parameter for feed speed compensation.

118, 119 Doc. Set pxl1



NOTE

Fixed value. Keep the value unchanged.

BUD No.118, 119 are a parameter for the leading edge detection by CIS 2.

120, 121 Doc. Set thr1



NOTE

Fixed value. Keep the value unchanged.

BUD No.120, 121 are a parameter for the leading edge detection process.

122, 123 Doc. Set pxl2



NOTE

Fixed value. Keep the value unchanged.

BUD No.122, 123 are a parameter for the leading edge detection by CIS 4.

124, 125 White Std pxl



NOTE

Reserved. Keep the value unchanged.

BUD No.124, 125 are a reserved parameter for “white level correction”.

126 - 145 Platen Data



NOTE

Shading will overwrite BUD No.126 to 145. No manual input is recommended.

BUD No.126 to 145 are a memory for the current performance of reading white level.

There are 2 reference points;

- black level reading on Shading Chart

- white level reading on Platen Roller

The higher value gets lighter.

BUD No.	Name	Setting Range
126	Platen Data 1 current black level on CIS 1 (with Shading chart)	0 to 1024
127	Platen Data 2 current black level on CIS 2 (with Shading chart)	
128	Platen Data 3 current black level on CIS 3 (with Shading chart)	
129	Platen Data 4 current black level on CIS 4 (with Shading chart)	
130	Platen Data 5 current black level on CIS 5 (with Shading chart)	
131	Platen Data R1 (Reserved) current white level on CIS 1 in R (with Platen)	
132	Platen Data R2 (Reserved) current white level on CIS 2 in R (with Platen)	
133	Platen Data R3 (Reserved) current white level on CIS 3 in R (with Platen)	
134	Platen Data R4 (Reserved) current white level on CIS 4 in R (with Platen)	
135	Platen Data R5 (Reserved) current white level on CIS 5 in R (with Platen)	
136	Platen Data G1 current white level on CIS 1 in G (with Platen)	
137	Platen Data G2 current white level on CIS 2 in G (with Platen)	
138	Platen Data G3 current white level on CIS 3 in G (with Platen)	
139	Platen Data G4 current white level on CIS 4 in G (with Platen)	
140	Platen Data G5 current white level on CIS 5 in G (with Platen)	
141	Platen Data B1 (Reserved) current white level on CIS 1 in B (with Platen)	
142	Platen Data B2 (Reserved) current white level on CIS 2 in B (with Platen)	
143	Platen Data B3 (Reserved) current white level on CIS 3 in B (with Platen)	
144	Platen Data B4 (Reserved) current white level on CIS 4 in B (with Platen)	
145	Platen Data B5 (Reserved) current white level on CIS 5 in B (with Platen)	

146 - 165 CIS Offset



NOTE

Shading and Black Brightness Correct will overwrite BUD No.146 to 165.

BUD No.146 to 165 are a memory to store the calibrated parameters for “black level compensation”.

Increasing the value gets the concerning CIS block image lighter.

BUD No.	Name	Setting Range
146	CIS offset R1 CIS 1 calibration result for black level compensation in R	0 to 64
147	CIS offset G1 CIS 1 calibration result for black level compensation in G	
148	CIS offset B1 CIS 1 calibration result for black level compensation in B	
149	CIS offset K1 CIS 1 calibration result for black level compensation	
150	CIS offset R2 CIS 2 calibration result for black level compensation in R	
151	CIS offset G2 CIS 2 calibration result for black level compensation in G	
152	CIS offset B2 CIS 2 calibration result for black level compensation in B	
153	CIS offset K2 CIS 2 calibration result for black level compensation	
154	CIS offset R3 CIS 3 calibration result for black level compensation in R	
155	CIS offset G3 CIS 3 calibration result for black level compensation in G	
156	CIS offset B3 CIS 3 calibration result for black level compensation in B	
157	CIS offset K3 CIS 3 calibration result for black level compensation	
158	CIS offset R4 CIS 4 calibration result for black level compensation in R	
159	CIS offset G4 CIS 4 calibration result for black level compensation in G	
160	CIS offset B4 CIS 4 calibration result for black level compensation in B	
161	CIS offset K4 CIS 4 calibration result for black level compensation	
162	CIS offset R5 CIS 5 calibration result for black level compensation in R	
163	CIS offset G5 CIS 5 calibration result for black level compensation in G	
164	CIS offset B5 CIS 5 calibration result for black level compensation in B	
165	CIS offset K5 CIS 5 calibration result for black level compensation	

166 - 180 Sub Strobe



NOTE

Shading will overwrite BUD No.166 to 180. No manual input is recommended.

BUD No.166 to 180 are a parameter for “white level compensation”.

181 - 200 CIS Offset2

NOTE

Shading and Black Brightness Correct will overwrite BUD No.181 to 200.
No manual input is recommended.

BUD No.181 to 200 are a parameter for “black level compensation” and “white level compensation”.

201 - 204 White Std pxI3

NOTE

Reserved. Keep the value unchanged.

BUD No.201 to 204 are a reserved parameter for “white level compensation”.

205 Samp Block Data

NOTE

Reserved. Keep the value unchanged.

BUD No.205 is a reserved setting for developers.

206 Target Gain Value

NOTE

Reserved. Keep the value unchanged.

BUD No.206 is a reserved setting for developers.

207 CIS Slope

NOTE

Fixed value. Keep the value unchanged.

BUD No.207 is a parameter for “white level compensation”.

208 Gain Threshold

NOTE

Reserved. Keep the value unchanged.

BUD No.208 is a reserved setting for developers.

209 Sampling Width

NOTE

Reserved. Keep the value unchanged.

BUD No.209 is a reserved parameter for “white level compensation”.

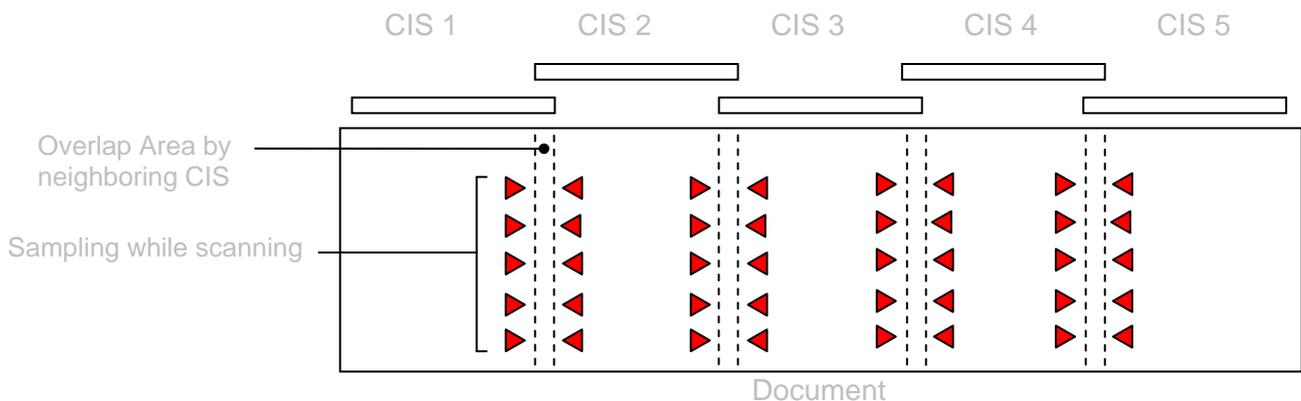
271 Correction Block

BUD No. 271 Correction Block is a feature that enables to compensate the density of scanned images among 5 CISs.

When BUD No. 271 Correction Block is set to “1” (Enabled), the system compares the density of the scanned image where overlaps the area scanned by the neighboring CIS. This is to compensate the density level of the scanned image between by the front line (CIS2, CIS4) and the rear line (CIS1, CIS3, CIS5).

Once the scanning starts, the system samples the density of the sampling area on the document. The reference density is set by CIS3.

- (1) The system compares the density that is read by CIS3 and the neighboring CIS2, CIS4. And then the density by CIS2, CIS4 will be compensated according to the result of comparison with the density by CIS3.
- (2) The system compares the density by CIS2, CIS4 and their neighboring CIS1, CIS5 respectively. And then the density by CIS1, CIS5 will be compensated according to the result of comparison with the density by CIS2, CIS4.



The advanced real time image processing with BUD No. 271 Correction Block, compensation of the density among 5 CIS, is effective for any scan / copy under either scan mode of Line, Line/Photo, Photo, Grayscale and Color.

setting value	Contents
0	“averaging block step” disabled
1 (default)	“averaging block step” enabled

NOTE

If BUD No. 15 Stitching Setting 1 is set to “4”, BUD No. 271 Correction Block will be only effective under the scan mode of Line and Line/Photo. It will not work under Photo, Grayscale or Color.

272 Block Threshold

NOTE

Fixed value. Keep the value unchanged.

BUD No.272 is a threshold (lower limit) of the reading level whether to run “averaging block step”.

273 CIS Slope2

NOTE

Fixed value. Keep the value unchanged.

BUD No.273 is a parameter for “white level compensation”.

274 - 276 Threshold Offset 1 / 2 / 3

NOTE

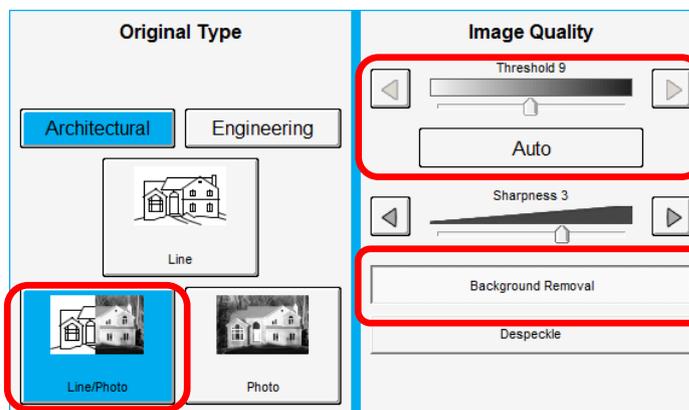
Fixed value. Keep the value unchanged.

BUD No.274 through 276 are a parameter of the image quality filter.

277 Threshold Oset 4

BUD No.277 is a parameter that adjusts scan/copy image density. This is applied when scan/copy is performed under the following conditions.

Original image type	Line / Photo
Threshold	Auto
Background Removal	Enable



Increment of the value makes the scan/copy image darker.

BUD No.	Name	Default value	Setting Range
277	Threshold Oset 4	185	0 to 510

Reference

1. Default value [185] does not enhance the image density so much, which is suitable for more faithfully reproducing the density graduations which scan/copy original has.
2. Increase the setting value for making such unclear image as "light letters written by pencil" much clearer and more visible. Recommended value is [255] for this purpose.

278 - 279 ED Bright Offset



NOTE

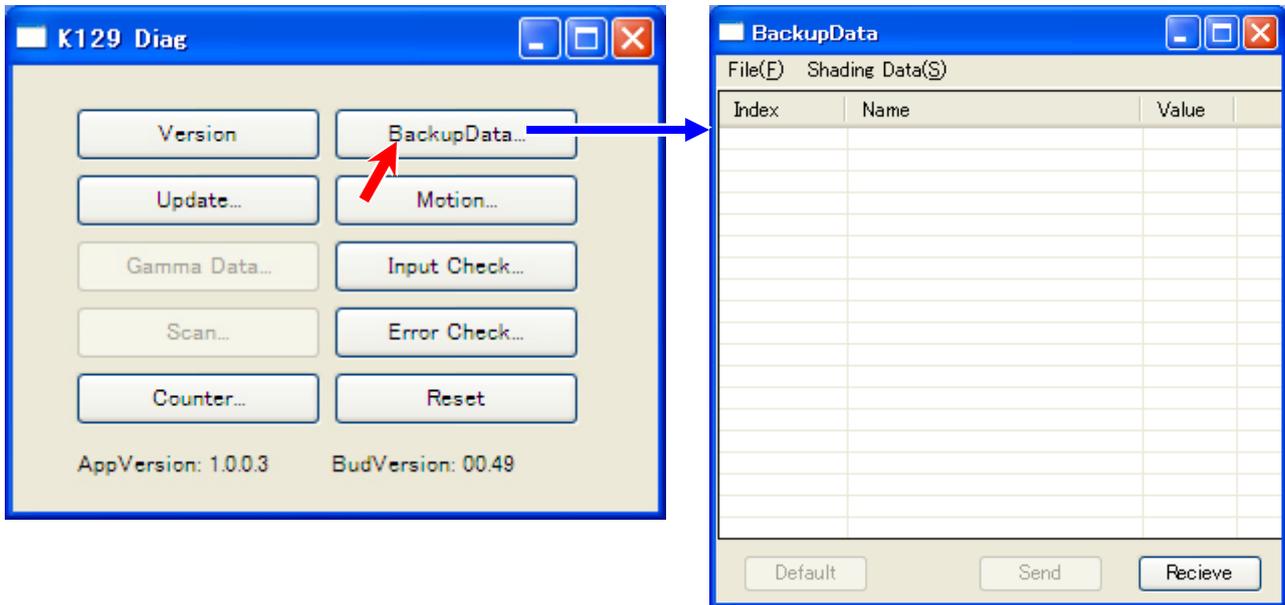
Fixed value. Keep the value unchanged.

BUD No.278 and 279 are a parameter of image quality filter.

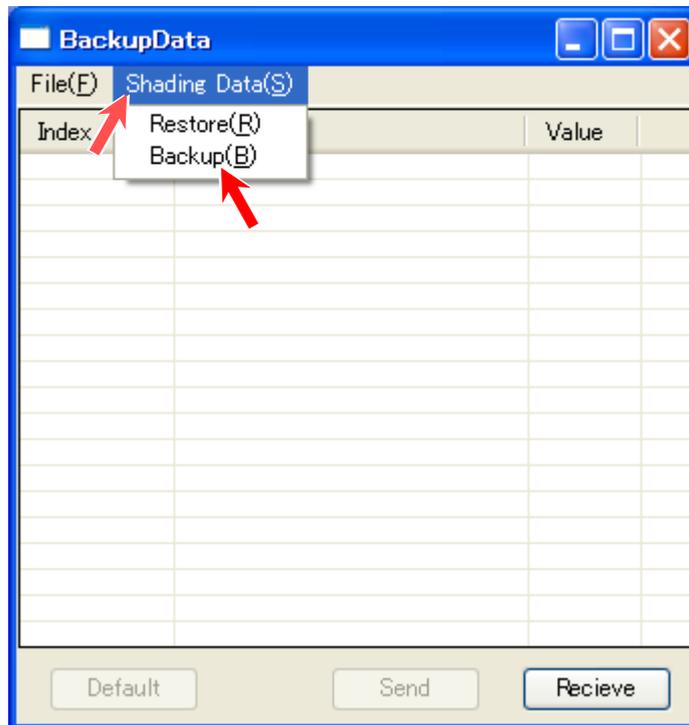
8.22. 4. 6 Saving Shading Data

The current Shading Data (internal parameters for B/W level and image processing) can be saved as a shading data file. (*.bin)
This file will be reused for restoring / replacing the scanner's Main Board.

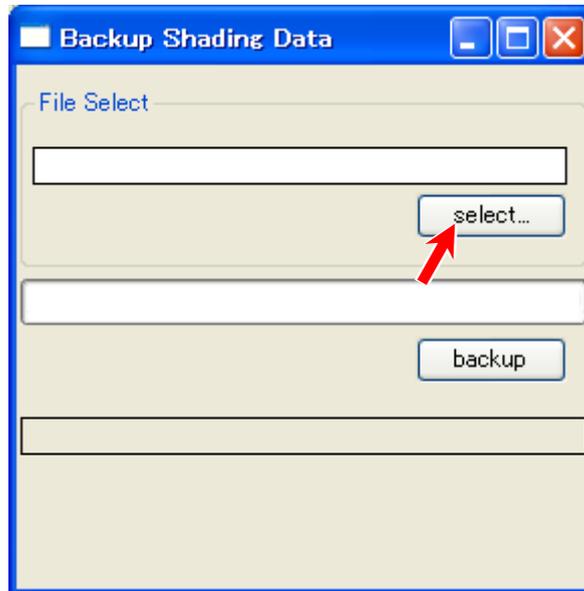
1. Click [BackupData] to recall "Backup Data" list sub window.



2. Select [Shading Data] menu, and then click [Backup] to recall "Backup Shading Data" sub window.

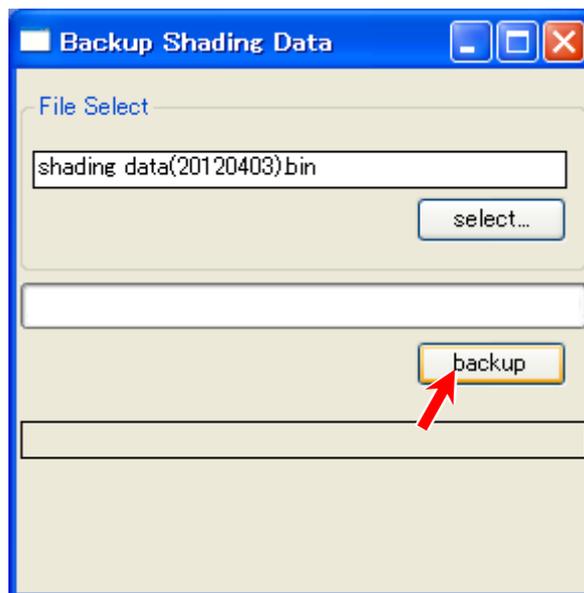


3. Click [select].



4. Specify a location to save the shading data file. (*.bin)
You can supply its file name.

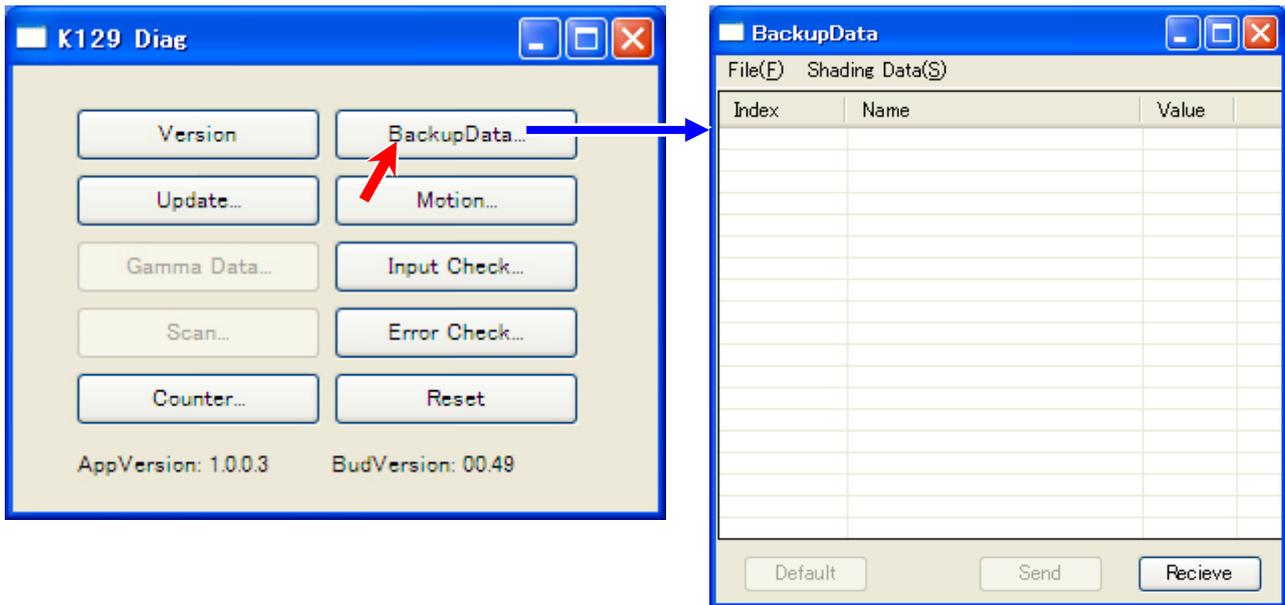
5. The given file name appears in the upper field. Click [backup].



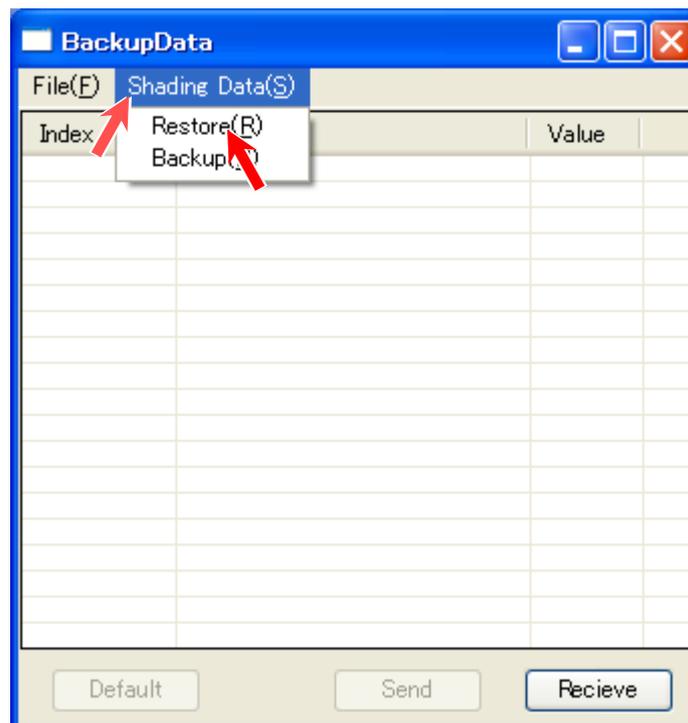
6. When "done" is displayed, saving the file is completed
Click the X button at the top right corner to close "Backup Shading Data" sub window.

8.22. 4. 7 Restoring Shading Data

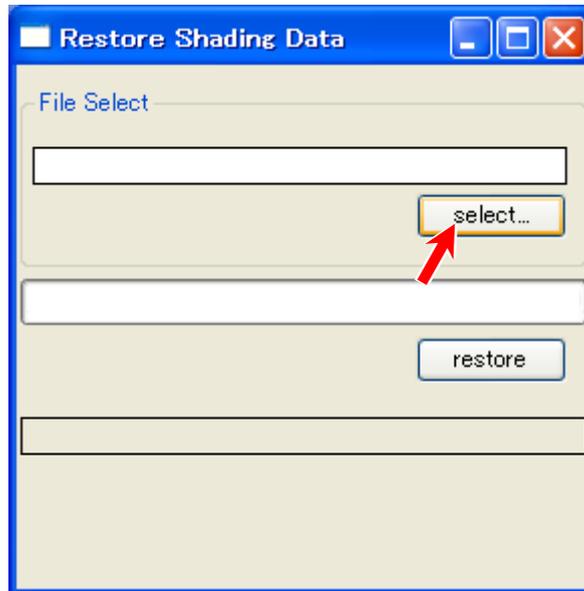
1. Click [BackupData] to recall “Backup Data” list sub window.



2. Select [Shading Data] menu, and then click [Restore] to recall “Backup Shading Data” sub window.

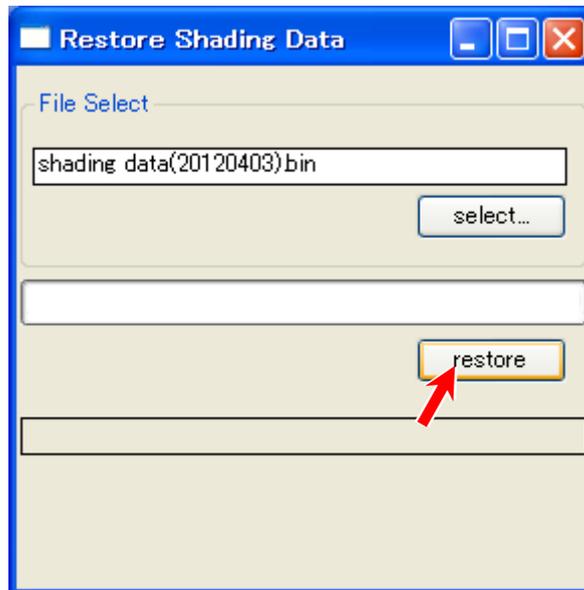


3. Click [select].



4. Specify a shading data file (*.bin) you want to import.

5. The selected file name appears in the upper field. Click [restore].



6. When “done” is displayed, sending the shading data file to the scanner is completed. Click the X button at the top right corner to close “Restore Shading Data” sub window.



NOTE

At this time the shading data has just been sent to the Main Board, but is not validated yet.

7. Turn off the scanner. Wait 3 seconds and then turn it on. Now the selected shading data file is validated.



NOTE

If you quickly turn off and on again, “The device can run faster...” balloon would pop up. This is because the scanner firmware may be loaded to the scanner’s memory incorrectly. Please wait 3 seconds before turning on again.

8.22. 5 Update

“Update” is a functionality to send a firmware file of “CPU” “FPGA” “USB” to the D CON (Scanner Main Board).

NOTE

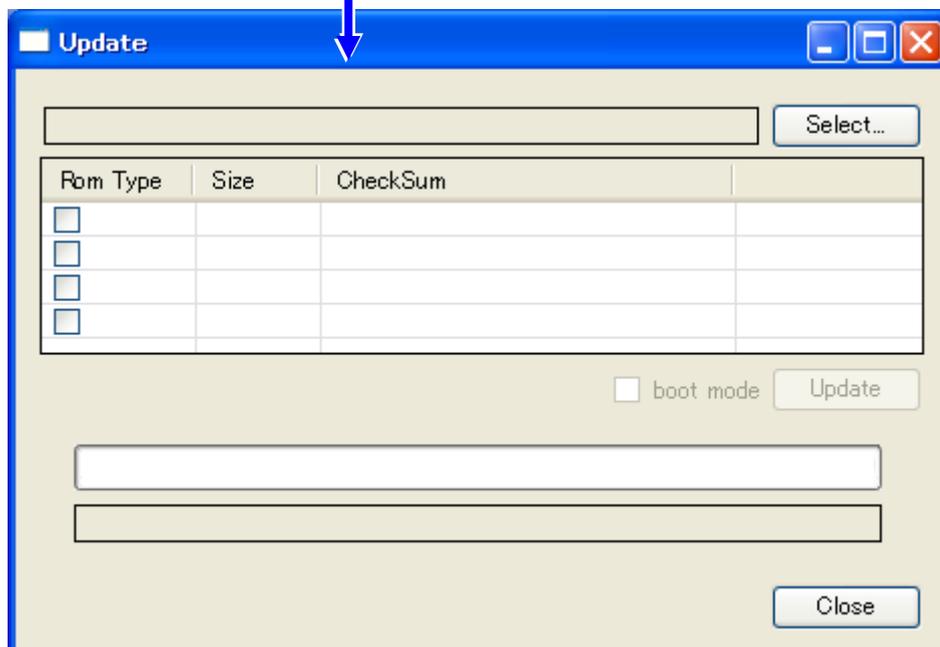
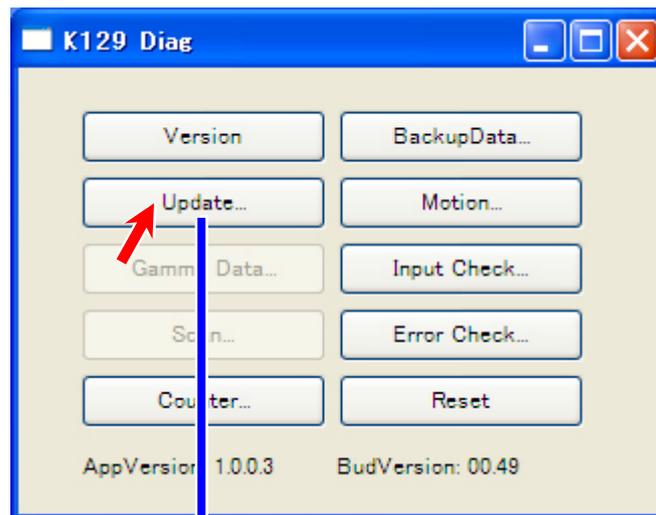
Updating “CPU” “FPGA” “USB” does not change the current parameters for “backup data”. This is applied even if an interruption occurs while updating.

8.22. 5. 1 Sending Firmware to Scanner

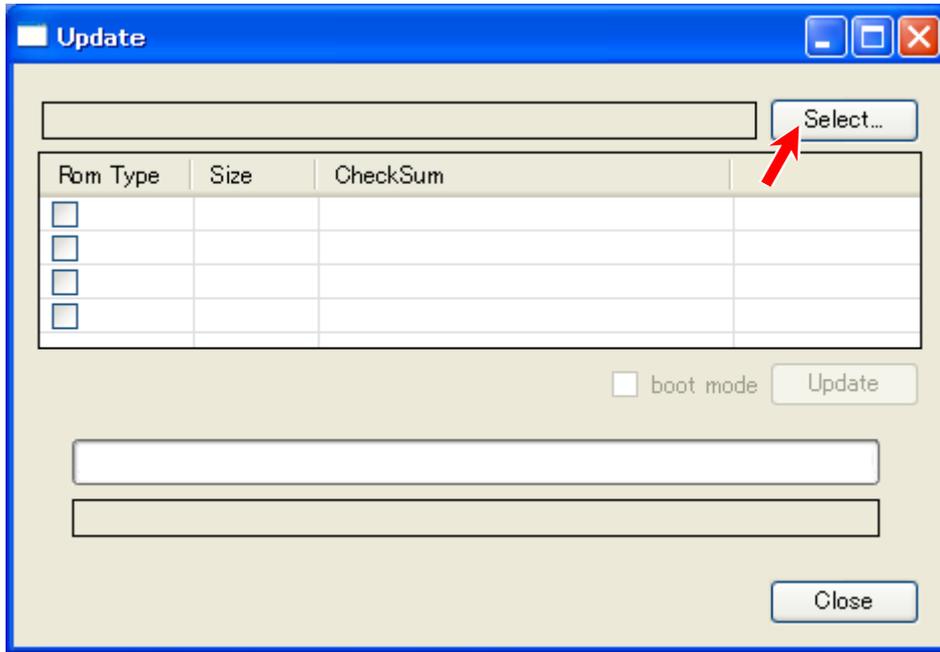
1. Save a delivered firmware file to any available storage on the PC / removable storage.
The firmware is divided to 3 types of “USB” “CPU” “FPGA”.

Type	contents	Firmware File Extension
USB	USB communication firmware	12920F** .iic
CPU	hardware control software	12920M** .mot
FPGA	image processing software	12920S** .bin

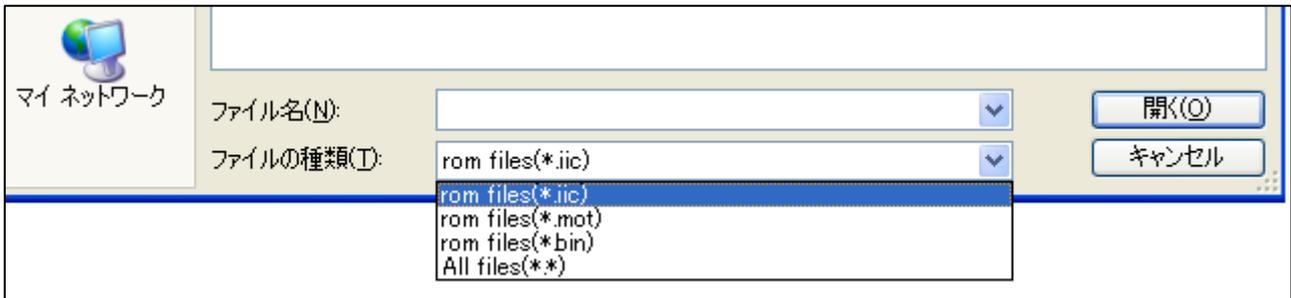
2. Run K129 Diag, and click [Update].



3. Click [Select].

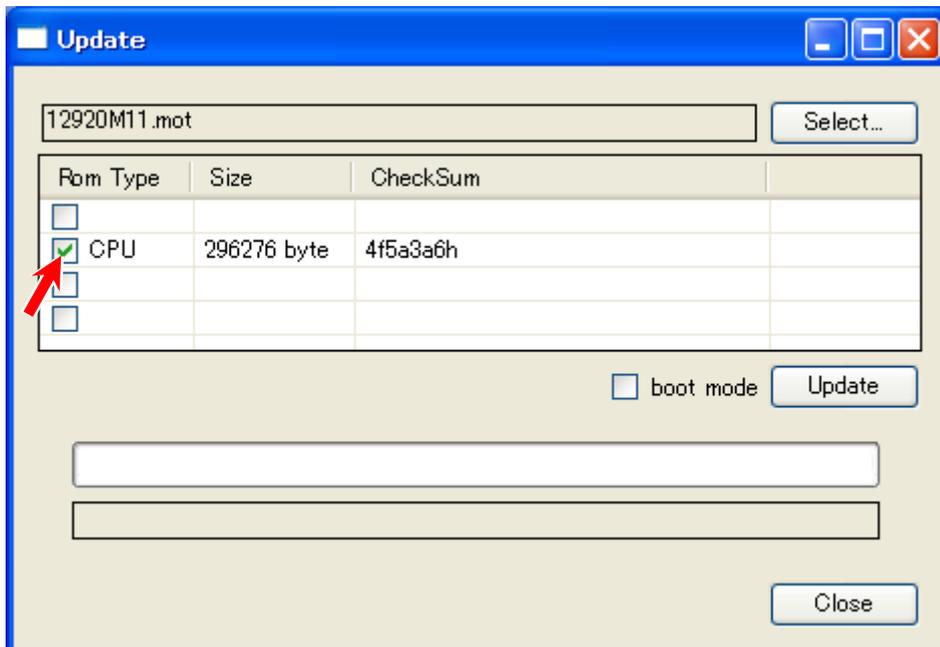


4. Specify a firmware file you want to apply.

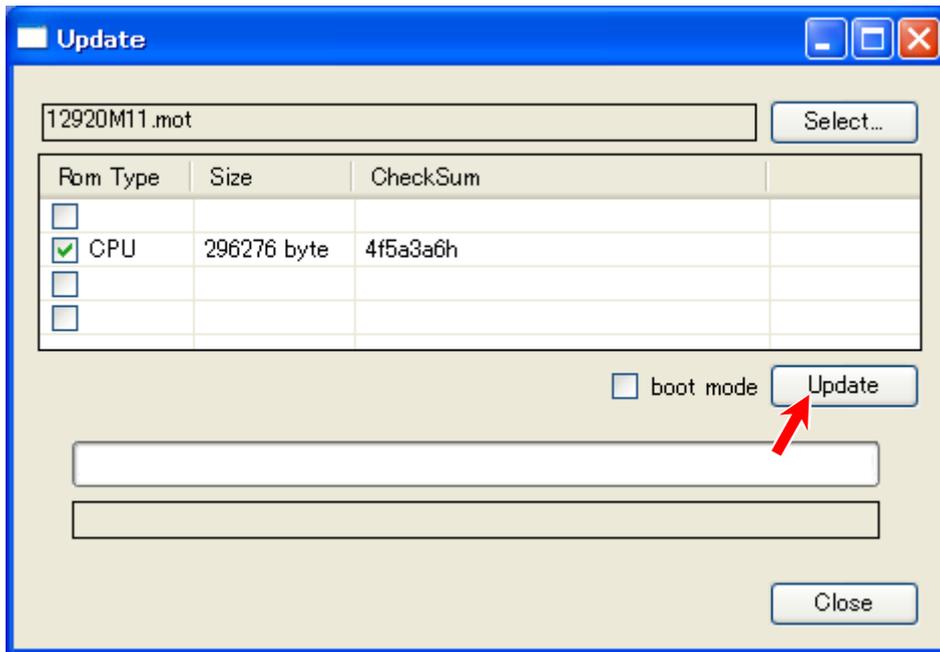


Type	contents	Firmware File Extension
USB	USB communication firmware	12920F** .iic
CPU	hardware control software	12920M** .mot
FPGA	image processing software	12920S** .bin

5. The selected file name is displayed in the list. Put a check in the checkbox beside the file.

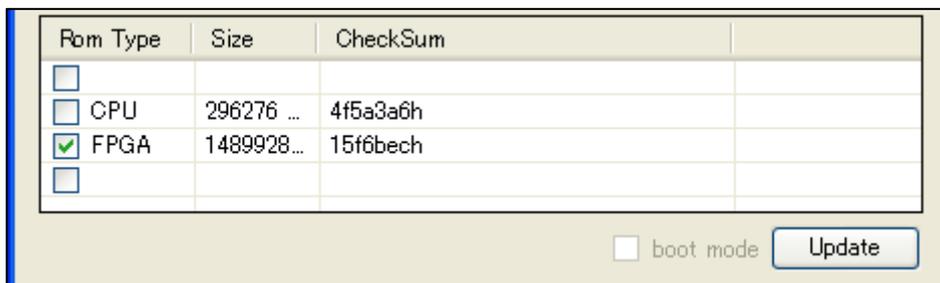


- [Upload] button in the middle-right is now activated.
Click it to send the firmware file to the scanner's Main Board.



NOTE

You may add another firmware file (for example: added CPU, and then you add FPGA) in the list, but you can send only one file that is having a check mark at a time. The following example only FPGA will be sent to the Main Board.



- When “done” is displayed, sending the firmware file to the scanner is completed
Click the X button at the top right corner to close “Update” sub window.

NOTE

At this time the firmware file has just been sent to the Main Board, but is not applied yet.

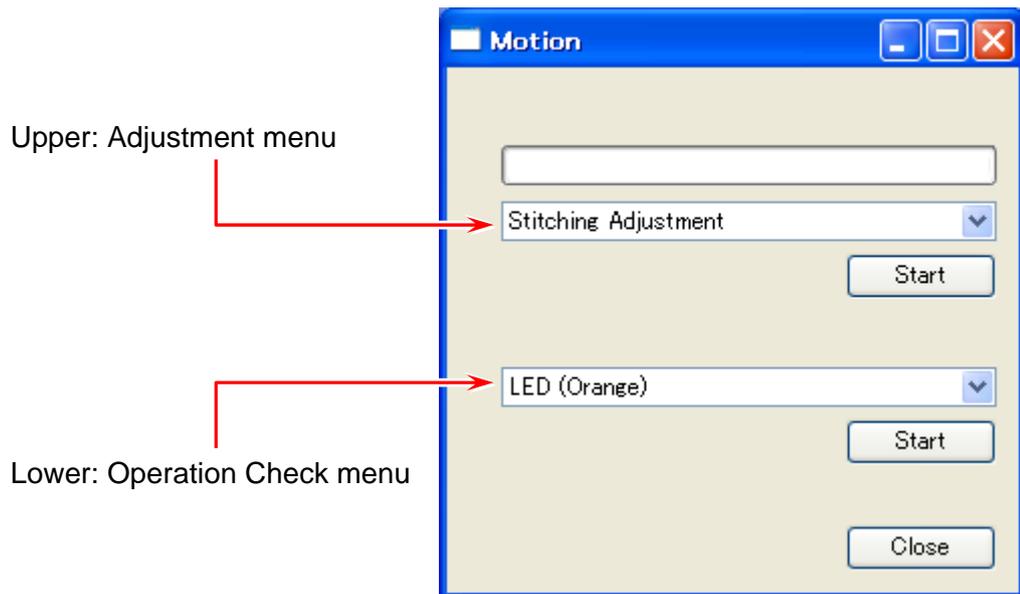
- Turn off the scanner. Wait 3 seconds and then turn it on.
Now the selected shading data file is validated.

NOTE

If you quickly turn off and on again, “The device can run faster...” balloon would pop up. This is because the scanner firmware may be loaded to the scanner’s memory incorrectly. Please wait 3 seconds before turning on again.

8.22. 6 Motion

“Motion” contains 2 major categories, Adjustment and Operation Check.



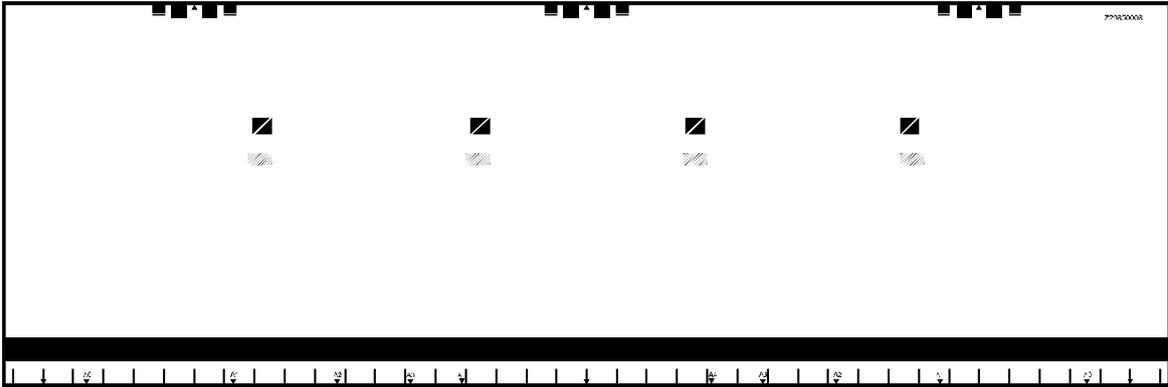
Adjustment menu:

Shading Compensation	creates shading data (defines B/W)	
Stitching Adjustment	calibrates joint coordinates at CIS borders	
* White & Black Level Correct	regular calibration for white level	not supported
* Leading Edge Adjustment	specifies the leading registration	not supported
* Black Brightness Correct	removes density difference between CIS blocks	not supported
	May be required for... - the scanners in S/N 12900097 and lower, - with the firmware M15/S17 (and later) applied for the first time, - and such scanners has a heavy density difference between CIS	

For Operation Check menu, see [8.22. 6. 5 Operation Check].

8.22. 6. 1 Shading

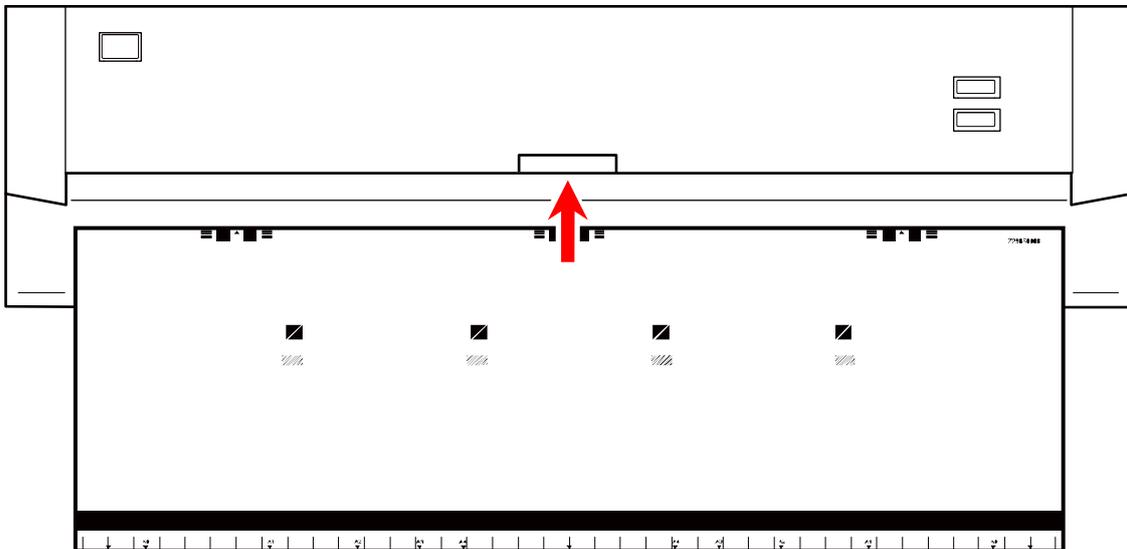
Shading Compensation is to set the target black / white level based on a designated calibration chart “Shading Sheet”. This will also even the density difference between CIS. One sheet of “Shading Sheet” is included in every scanner accessory.



NOTE

The recommended method of recovering shading data (CIS calibration) is restoring Shading Data (*.bin). Use Shading Compensation with the actual chart only for a temporary and immediate solution. See also [8.22.4.8 Restoring Shading Data].

1. Clean Glass DCMNT with a soft cloth.
2. Turn on the scanner. Set the Shading Sheet to the scanner noting the arrow direction.



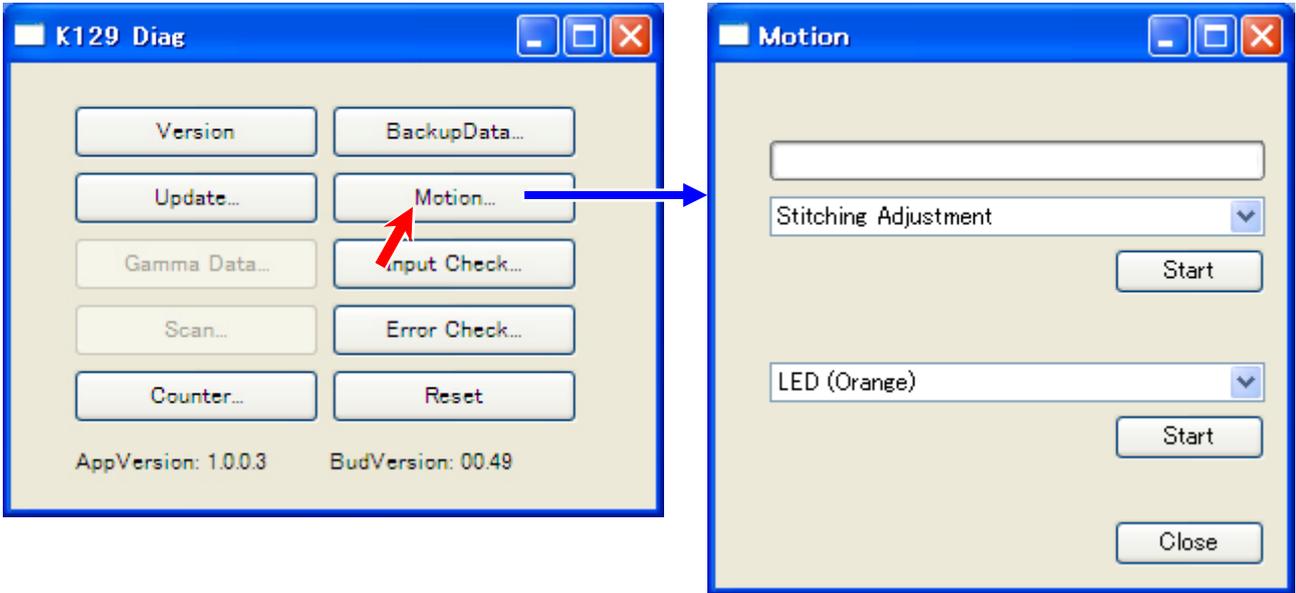
NOTE

1. No skew insertion. Doing so may cause an incorrect calibration.
2. Remove the Original Guides, when setting a Shading Sheet to a scanner.

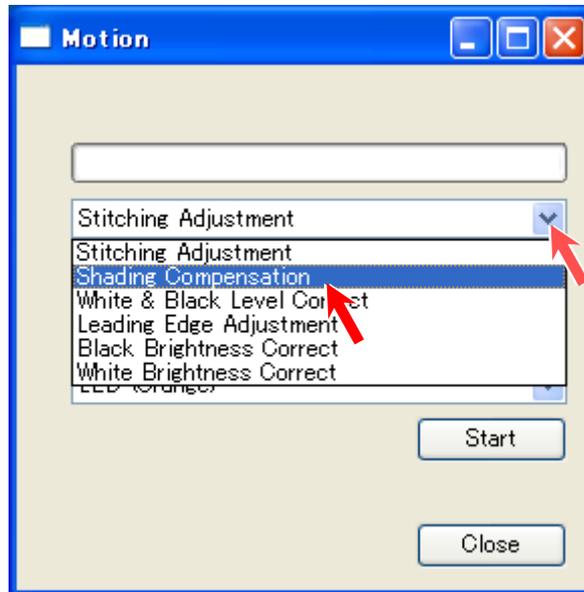


Original Guide

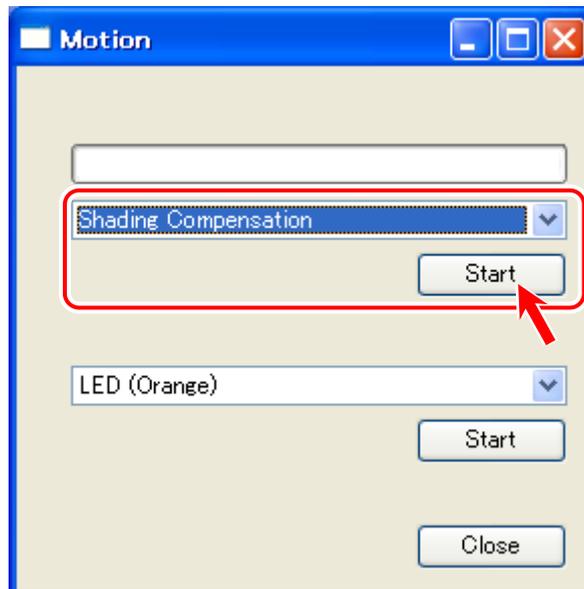
3. Click [Motion] to recall “Motion” sub window.



4. Select “Shading Compensation” in the upper drop-down menu.



5. Click [Start] beside the upper drop-down menu.



NOTE

- (1) It takes about 6 minutes to complete.
- (2) If an error message occurs;
 1. Correctly set the Shading Sheet to the scanner.
 2. Check for dirt on the Glass DCMNT and the Shading Sheet.



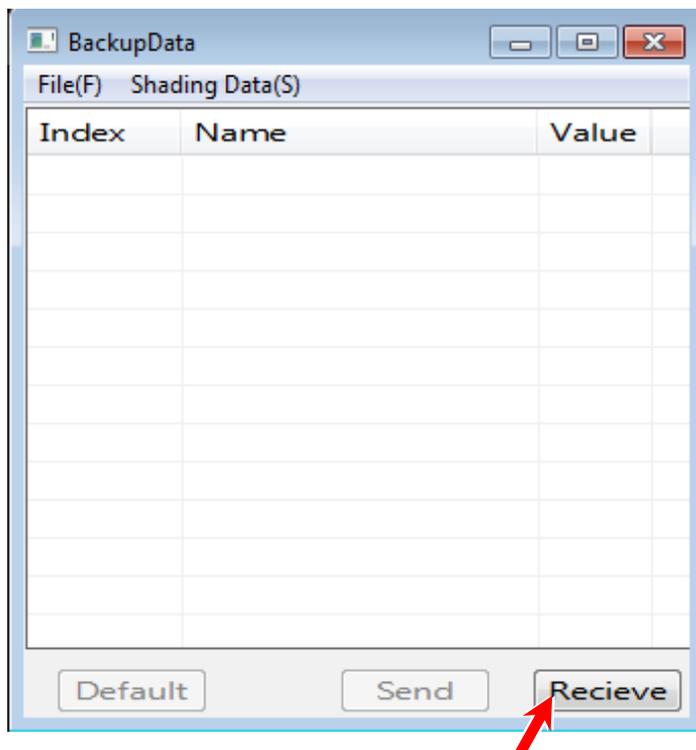
6. When Shading is finished, the system asks you whether you need confirmation.
Click No to finish Shading.

Reference

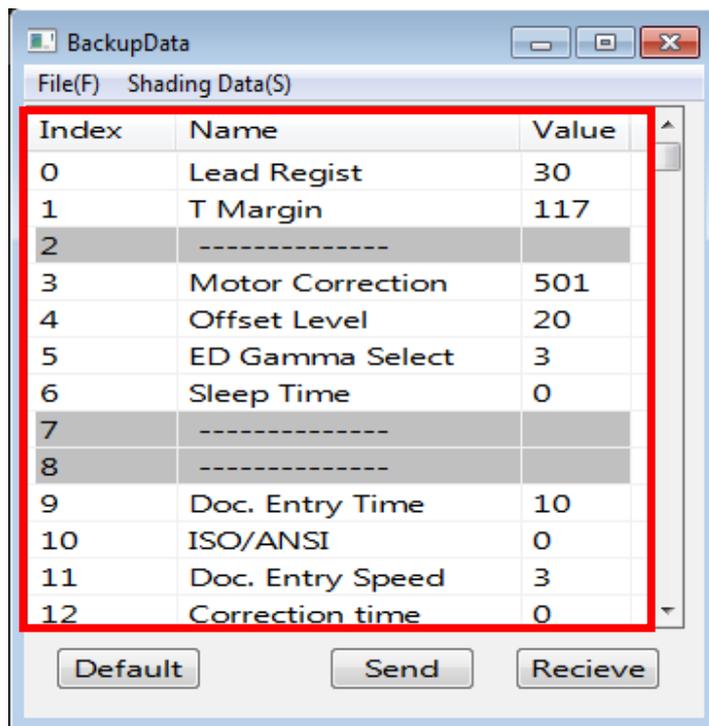
If you need confirmation, again set the Shading Sheet to the scanner, and then click [Yes]. Another window has the scanned image of Shading Sheet.



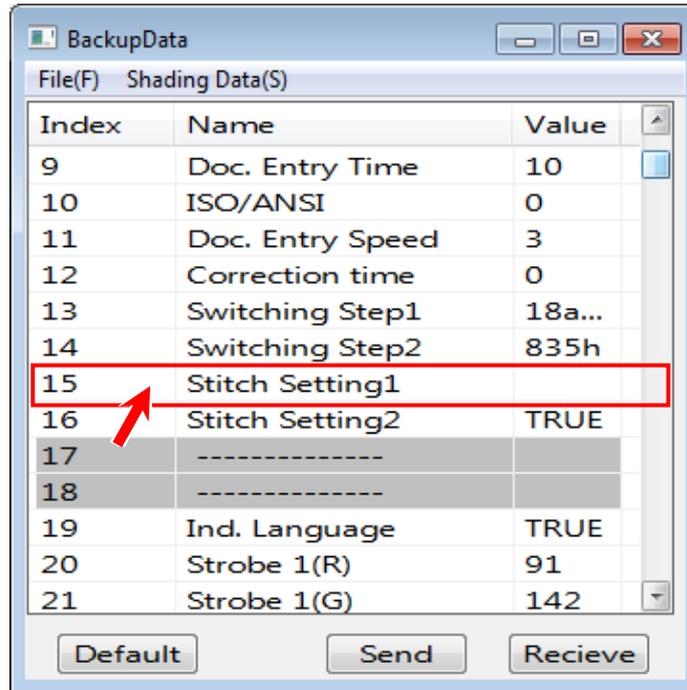
2. Click [Receive]



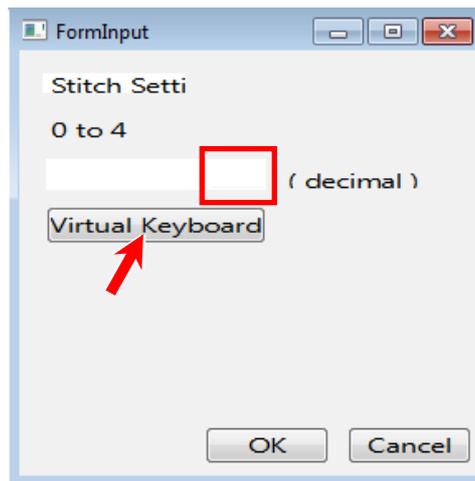
3. The current parameters are retrieved and displayed in the list.



4. Double click on the row No.15 “Stitch Setting 1”.



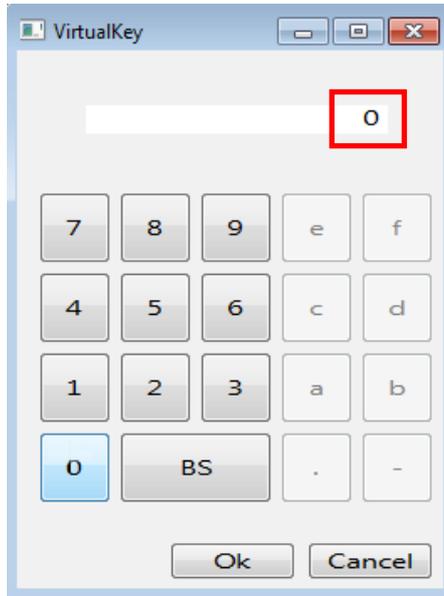
5. In “FormInput” screen, Click [Virtual Keyboard] to display the screen keypad.



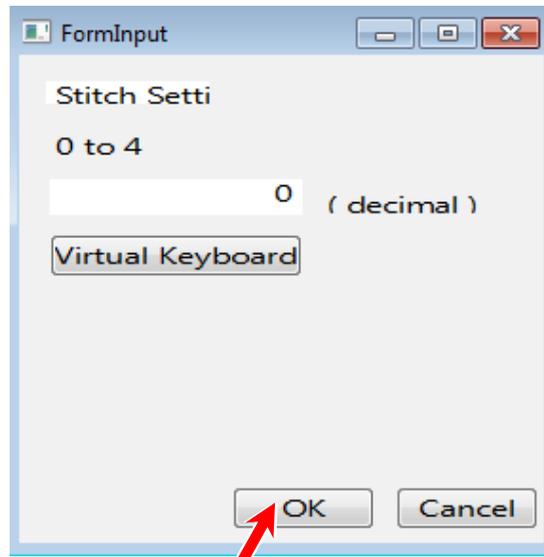
NOTE

Please write down the setting value.
This value would be entered in the step 39.

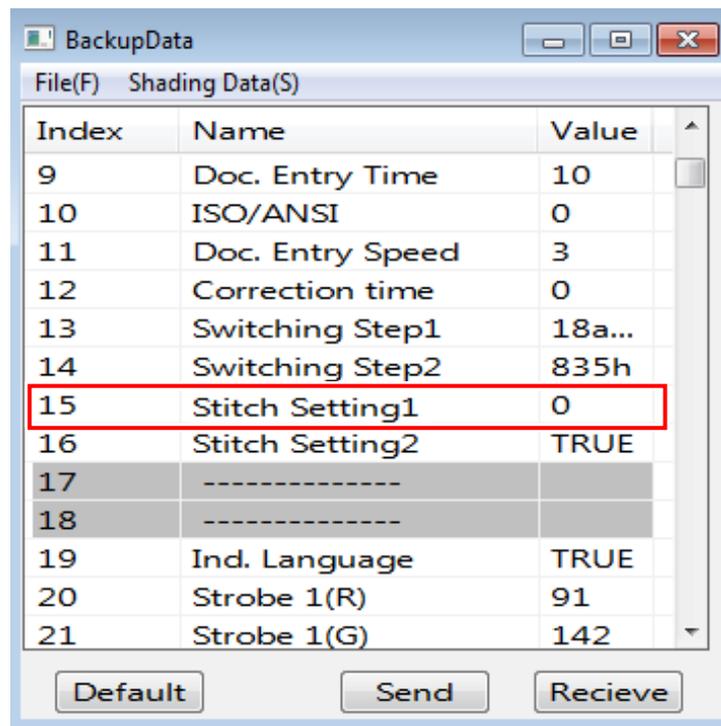
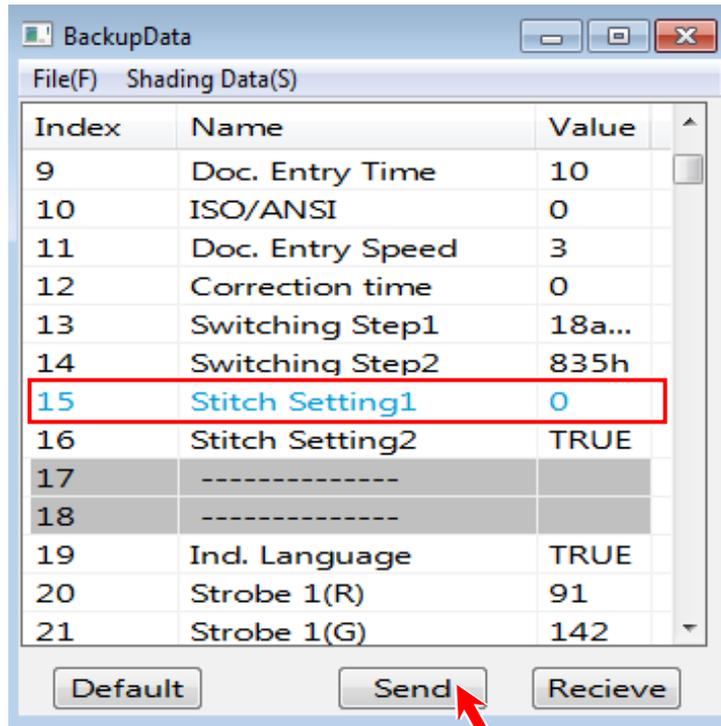
6. Type "0" with keypad, and then click [OK] on the bottom.



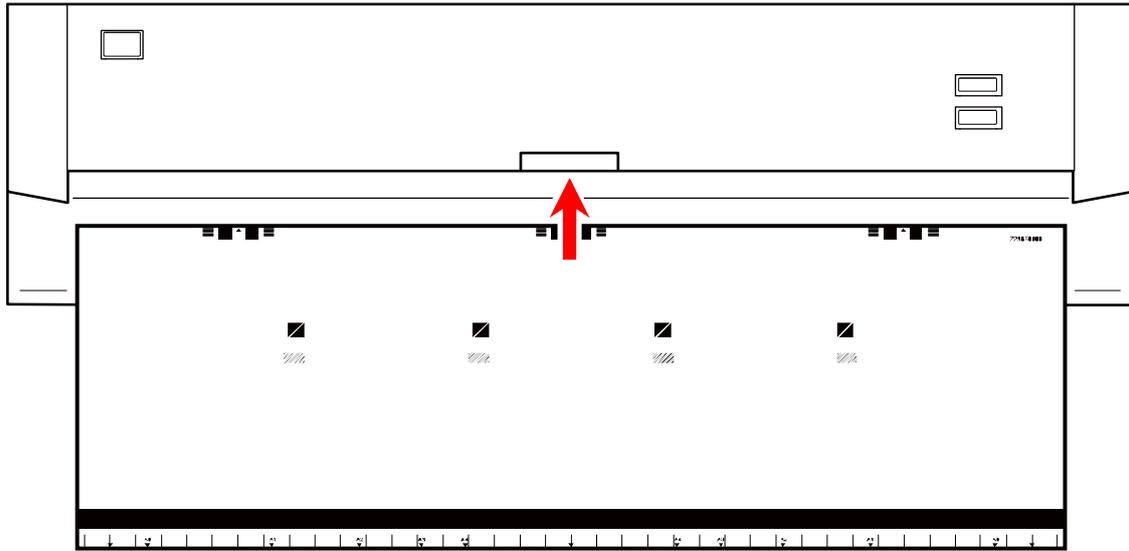
7. Click [OK] on the bottom.



8. The setting change you have made is reflected to the list. It will turn blue. Click [Send] on the bottom. The setting change turns black. Now it is sent to the Main Board.



9. To close “BackupData” sub window, click the X button at the upper right corner.
10. Clean Glass DCMNT with a soft cloth.
11. Set the Shading Sheet to the scanner noting the arrow direction.



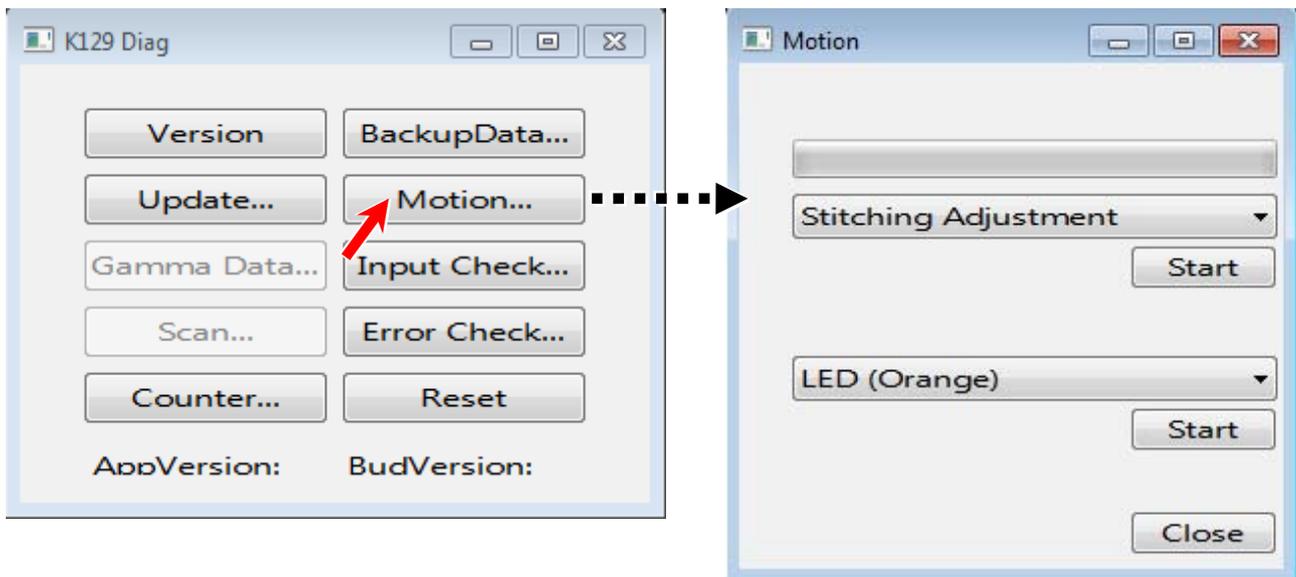
NOTE

1. No skew insertion. Doing so may cause an incorrect calibration.
2. Remove the Original Guides, when setting a Shading Sheet to a scanner.

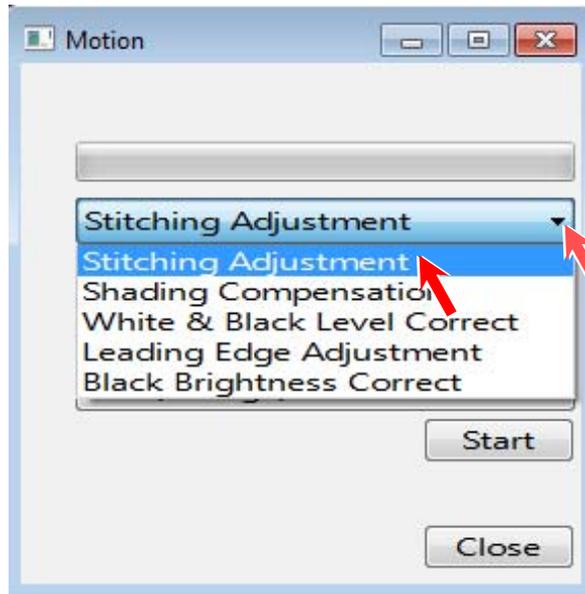


Original Guide

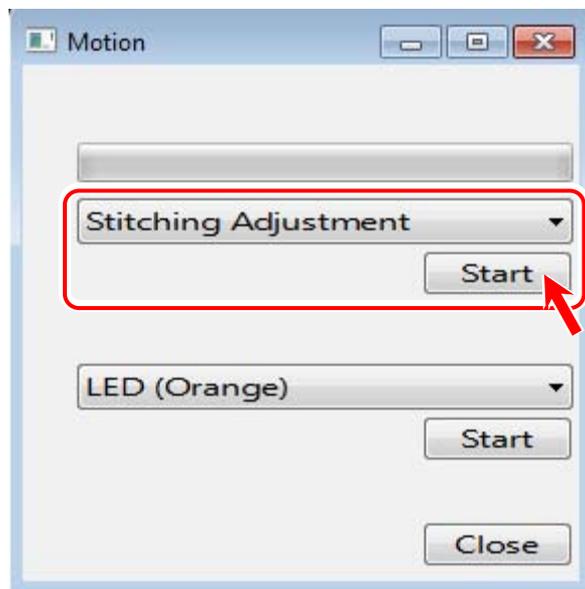
12. Click [Motion] to recall “Motion” sub window.



13. Select "Stitching Adjustment" in the upper drop-down menu.



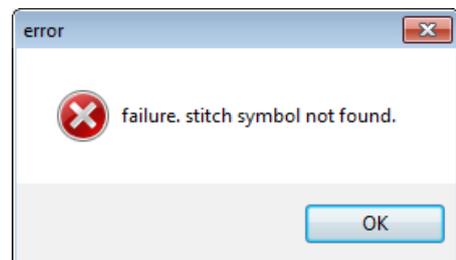
14. Click [Start] beside the upper drop-down menu.



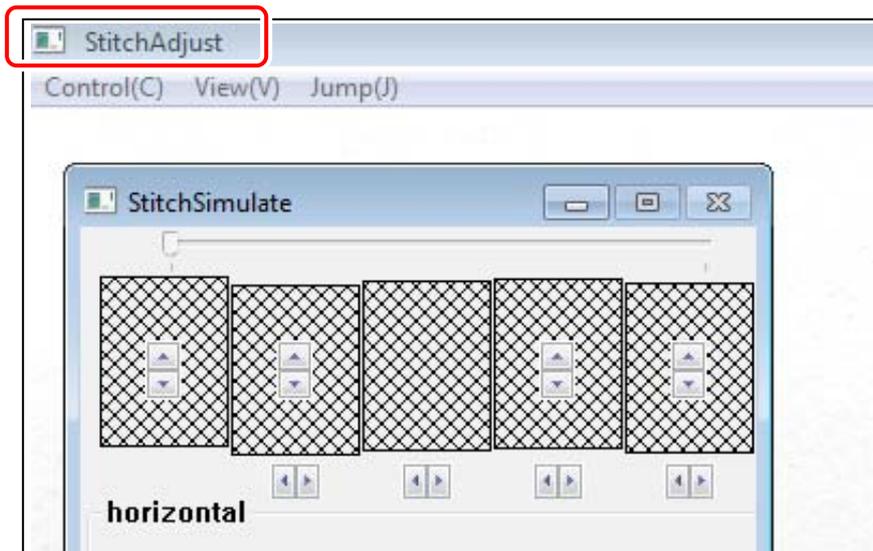
NOTE

If an error message occurs;

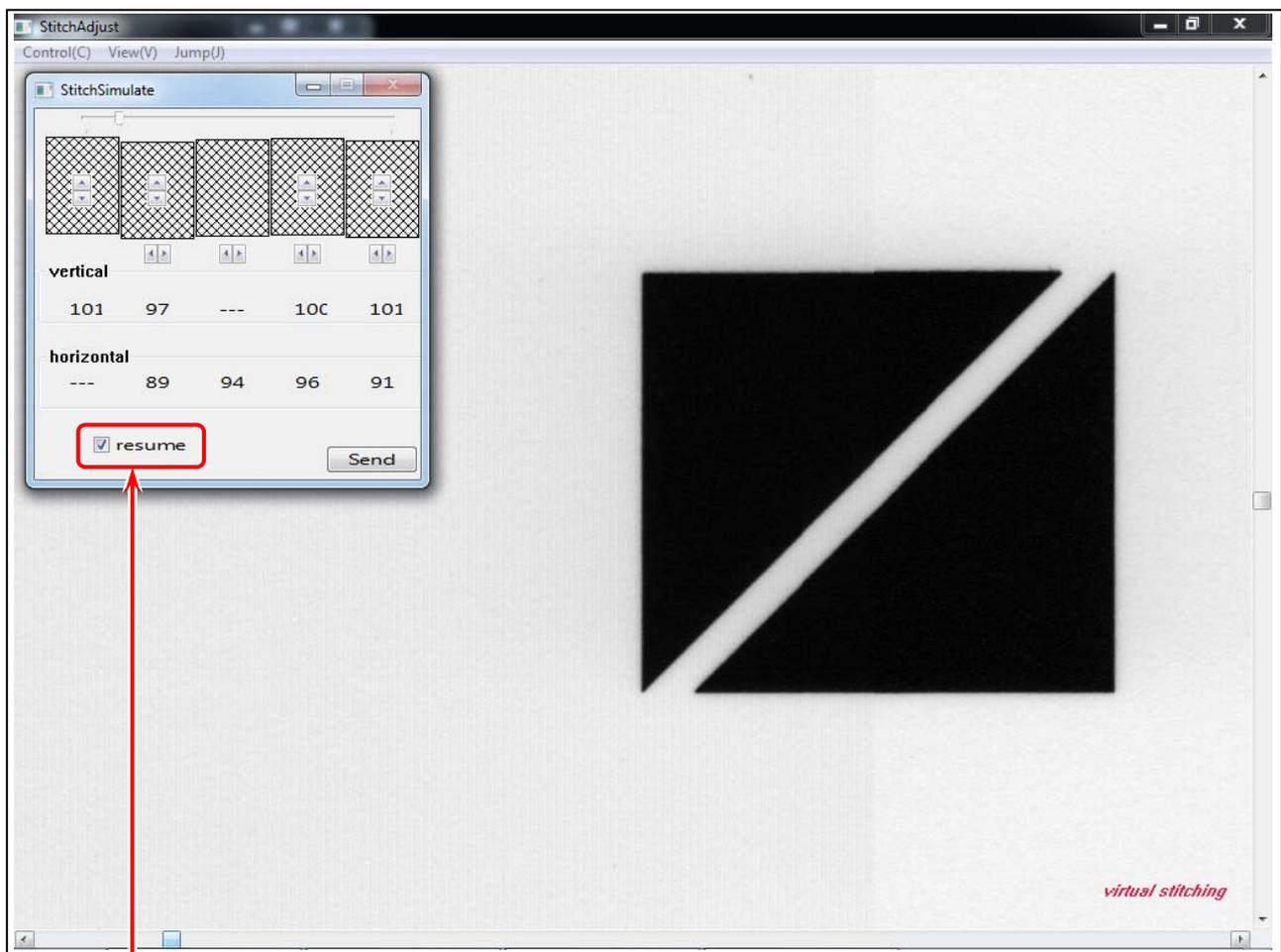
1. Correctly set the Shading Sheet to the scanner.
2. Check for dirt on the Glass DCMNT and the Shading Sheet.



15. When the scanning is finished, two sub windows "Stitch Simulate" and "Stitch Adjust" appear. Enlarge "StitchAdjust" window.

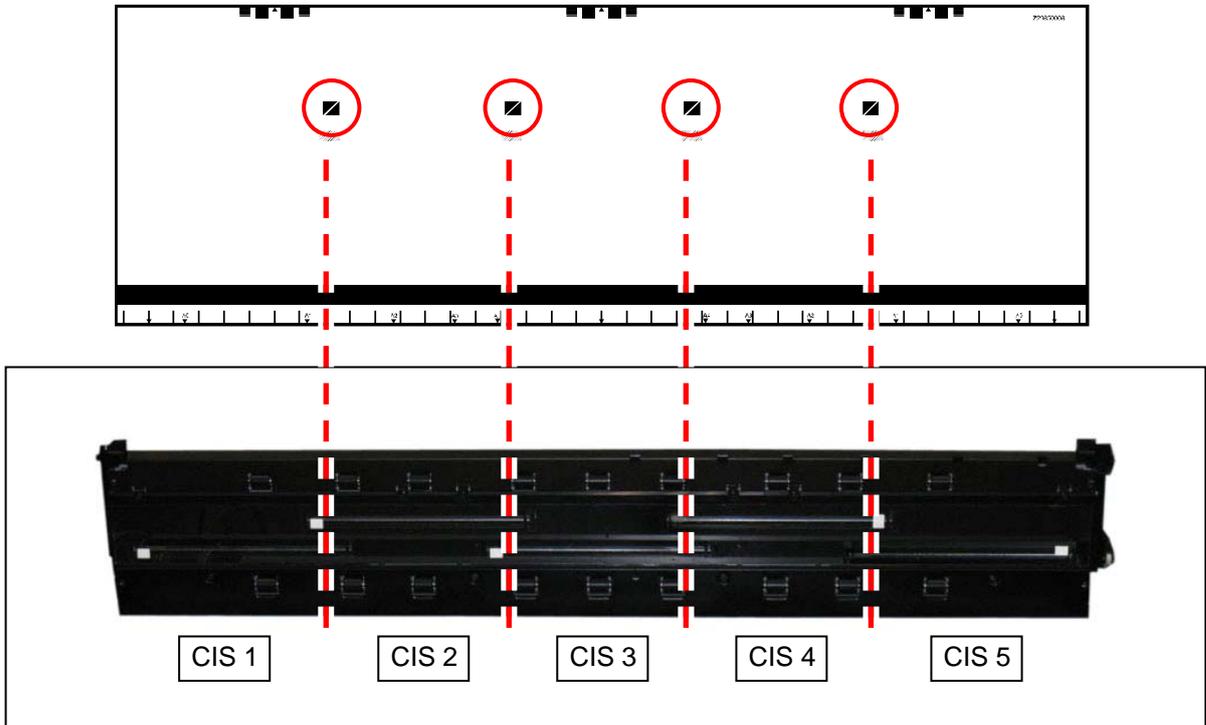


Enlarge "Stitch Adjust" window.

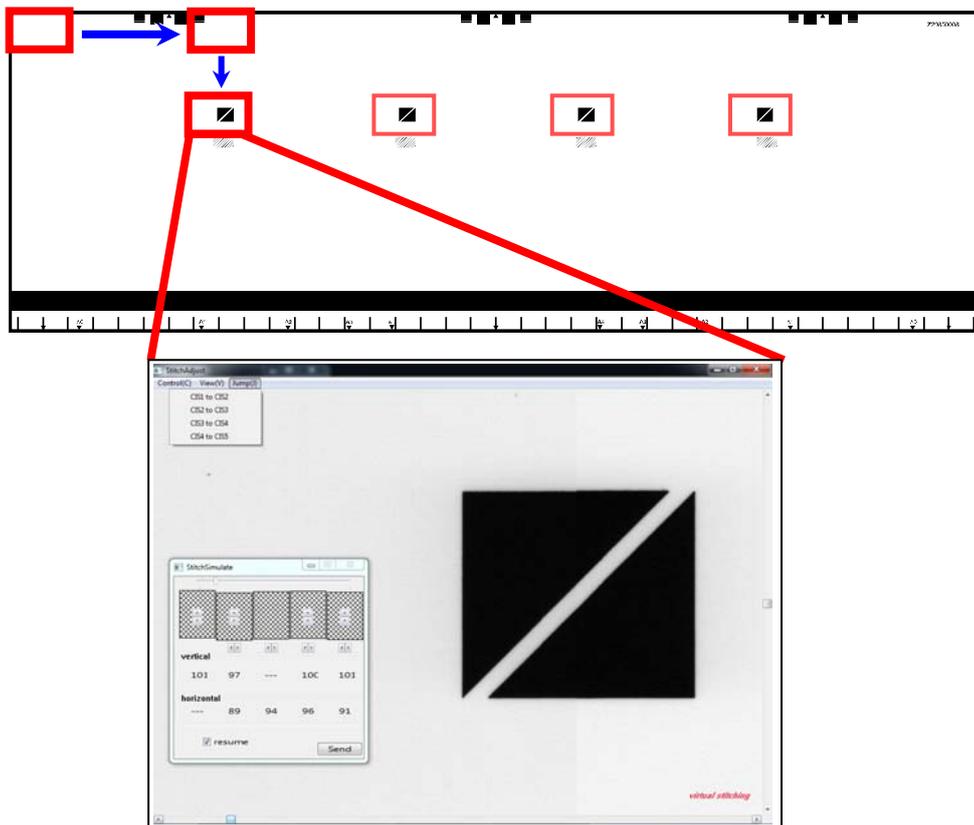
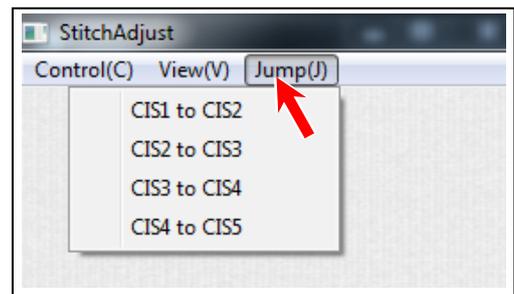


Confirm that "resume" is checked.
Then, it becomes easier to readjust the stitching.
(For more detail, please see "reference" described in the step 27)

16. There are 4 target signs at every border between the CIS.



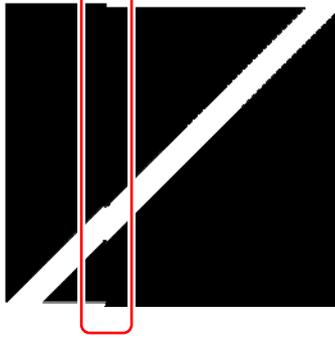
In "Stitch Adjust" window, Select [Jump] menu, and then click [CIS1 to CIS2]. The display area will jump to the corresponding area on the scanned image. If "Jump" does not move to the target exactly, manually scroll the image to catch the target in the window.



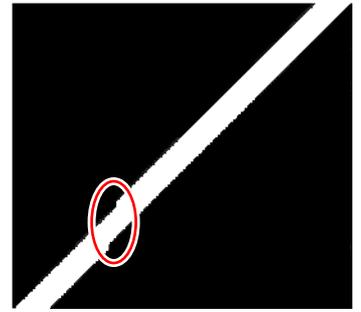
17. Confirm the Stitching Adjustment results.



no misalignment



vertical misalignment
or
this may include vertical &
horizontal misalignment
at a time



horizontal misalignment

18. Select [Jump] menu, and then click the other CIS borders to confirm the results.

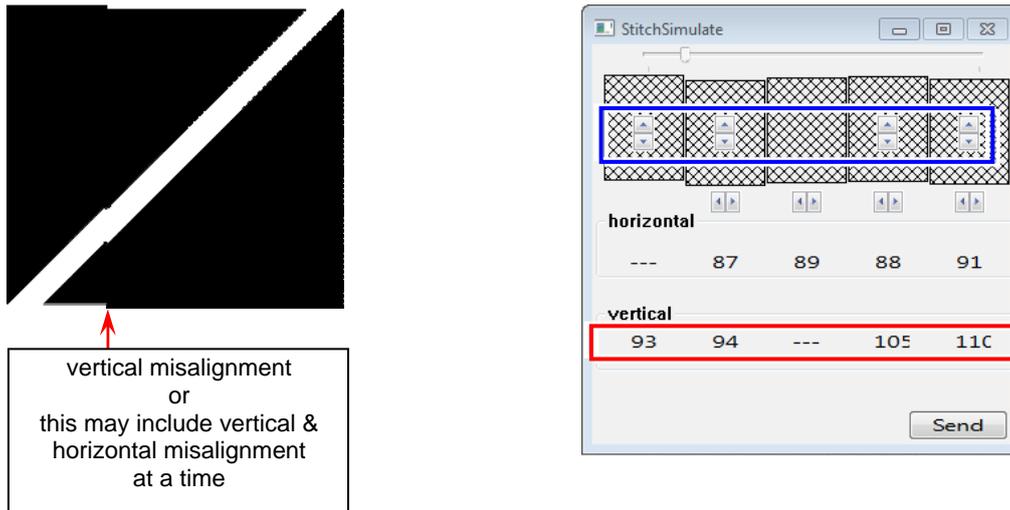
If all of the 4 targets have no misalignment, go to step 22.

If any of the targets has an misalignment, go to step 19 and after for manual correction.

- vertical → Go to step 19.
- horizontal → Go to step 20.

19. First, correct vertical misalignment as follows.

19-1. In "StitchSimulate" window, click the ▲ ▼ buttons (see below in blue frame) to change the setting value for "vertical" (see below in red frame), in order to move the image block vertically.

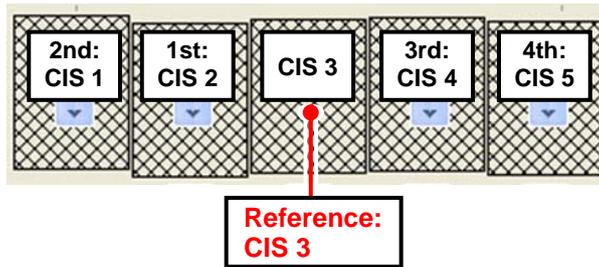


Do the same way for all the 4 targets at the borders.

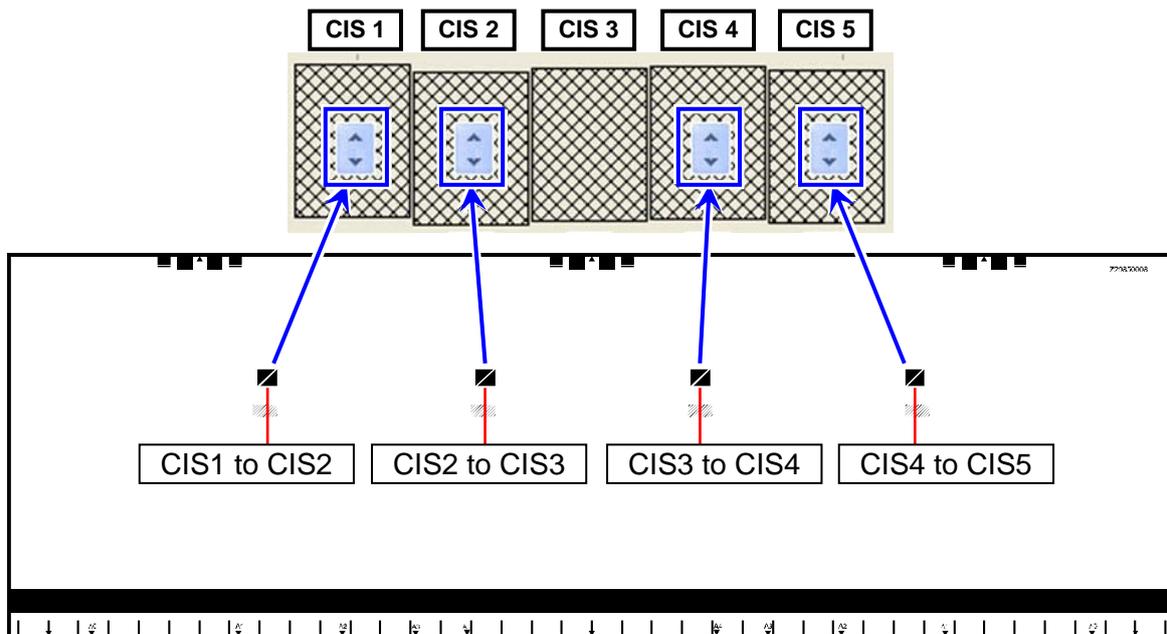
Setting values will turn red by setting changes. Setting value 1 step = 1 pixel to trailing edge

NOTE

(1) For vertical correction, **CIS 3** is the reference. You are asked to set the distance of shift for CIS 1/2/4/5 against CIS 3. First finalize the shift for CIS 2, and next CIS 1, CIS 4, CIS 5.



(2) The increase/decrease buttons correspond to the CIS border as follows.

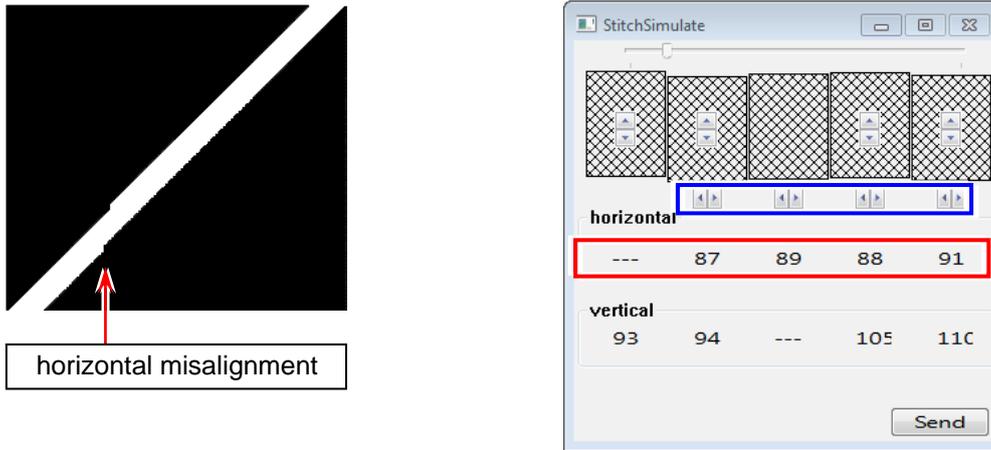


19-2. Image shifting (setting value in red) is not finalized yet. Click [Send].

Once the change is sent to the scanner's Main Board, setting values turn black.

20. Second, correct horizontal misalignment as follows.

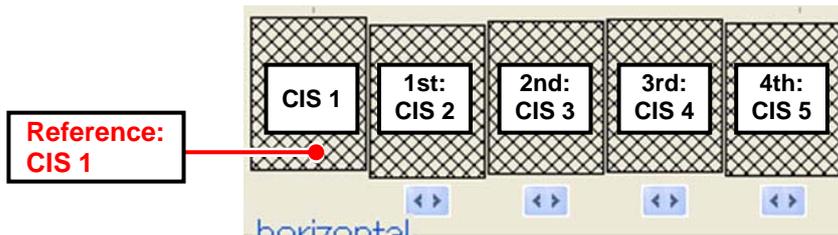
20-1. In "StitchSimulate" window, click the ◀▶ buttons (see below in blue frame) to increase / decrease the setting value for "horizontal" (see below in red frame). This moves the image block horizontally.



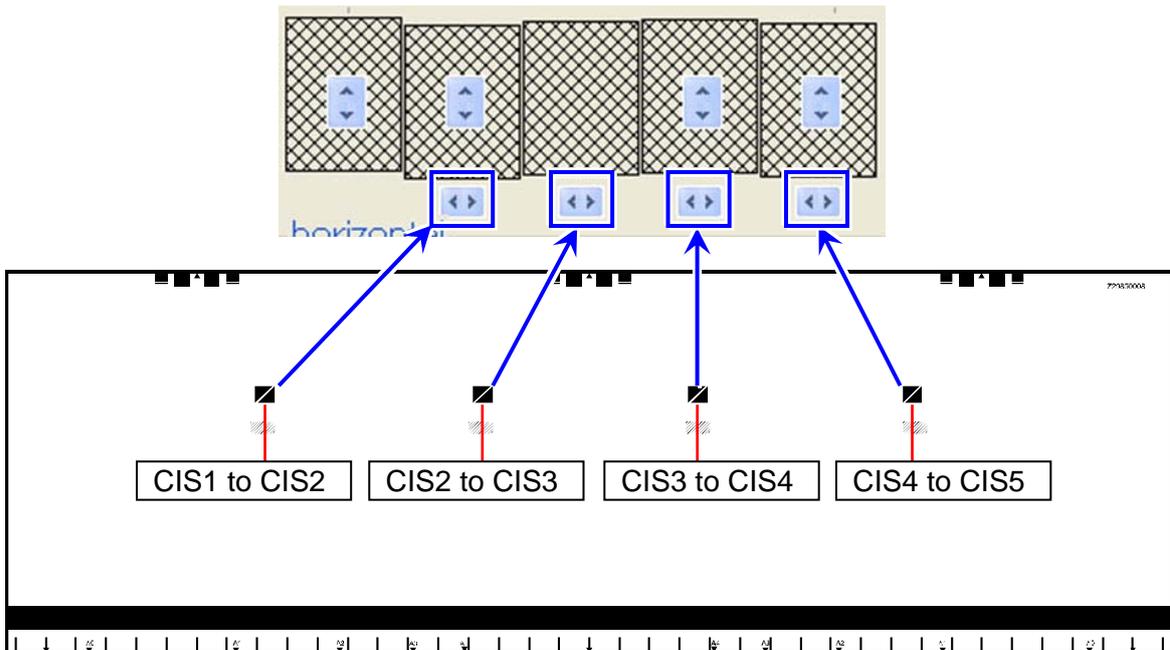
Do the same way for all the 4 targets at the CIS borders if needed. Setting values will turn red by setting changes. Setting value 1 step = 1 pixel to right

NOTE

(1) For horizontal correction, **CIS 1** is the reference. You are asked to set the distance of shift for CIS 2/3/4/5 against CIS 1. First finalize the shift for CIS 2, and next CIS 3, CIS 4, CIS 5.

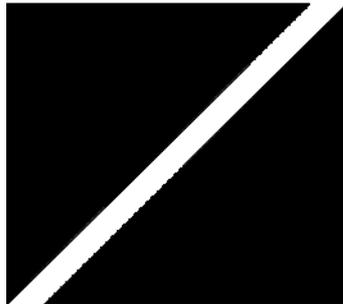


(2) The increase/decrease buttons correspond to the CIS border as follows.



20-2. Image shifting (setting value in red) is not finalized yet. Click [Send]. Once the change is sent to the scanner's Main Board, setting values turn black.

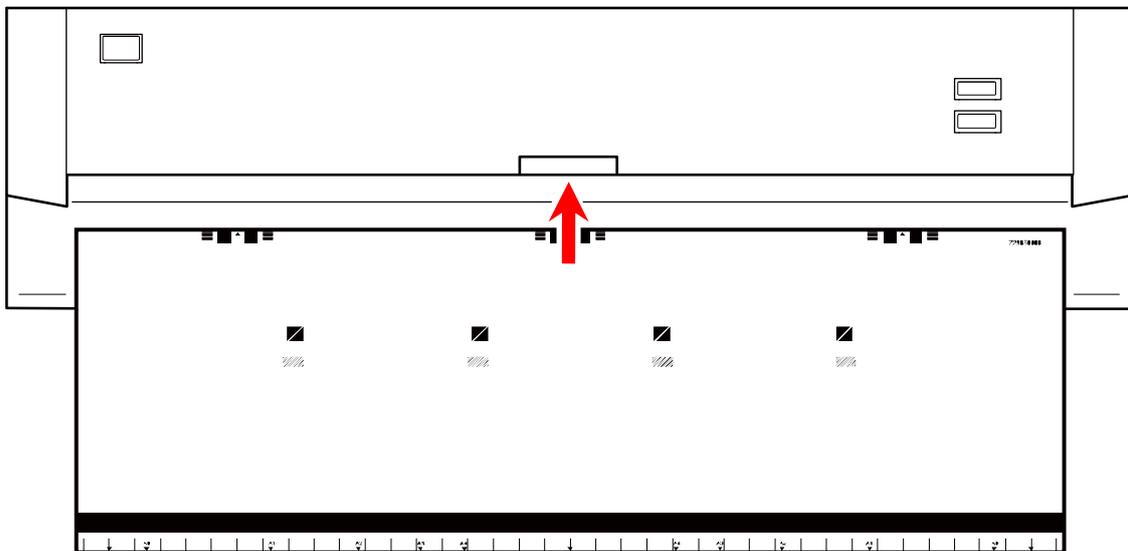
21. The manual correction is reflected to “StitchAdjust” window directly.
Reconfirm the manual correction result on the 4 targets.
If there is still misalignment, go back to step 19 and 20 to remove it.



no misalignment

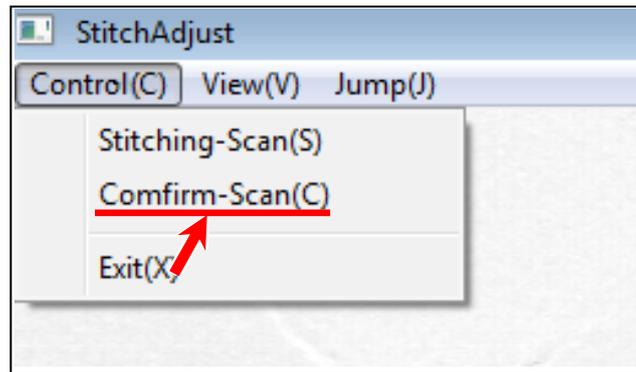
! NOTE
Be sure to reconfirm the manual correction result.

22. Set the Shading Sheet to the scanner noting the arrow direction.



! NOTE
No skew insertion. Doing so may cause an incorrect calibration.

23. In "StitchAdjust" window, select [Control] menu, and then click [Confirm-Scan] to make another scan.

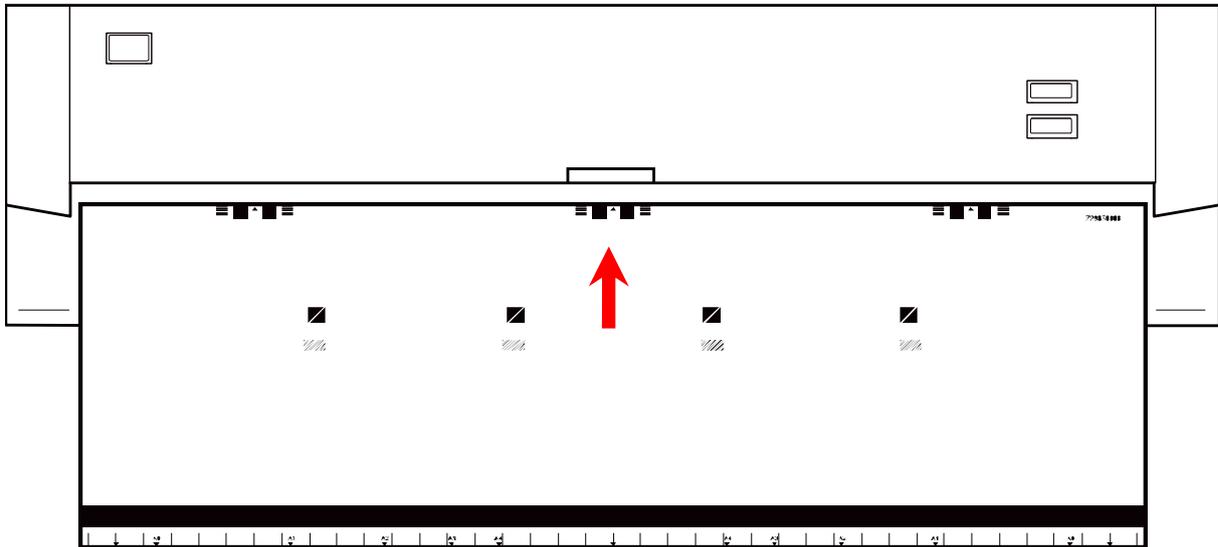


24. When the read image data is displayed in "StitchAdjust" screen, check if 4 targets are surely aligned.

In case that the targets are aligned, go to the step 33.

In case that the targets are not aligned, check which targets are misaligned and perform the work from the step 25 to the step 31.

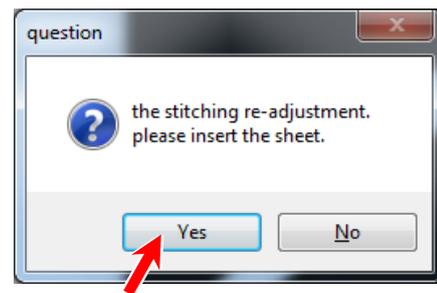
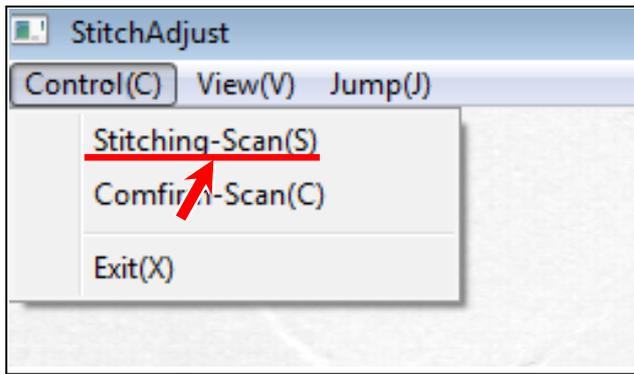
25. In case that the targets are not aligned, insert the shading sheet into the scanner again.



! NOTE

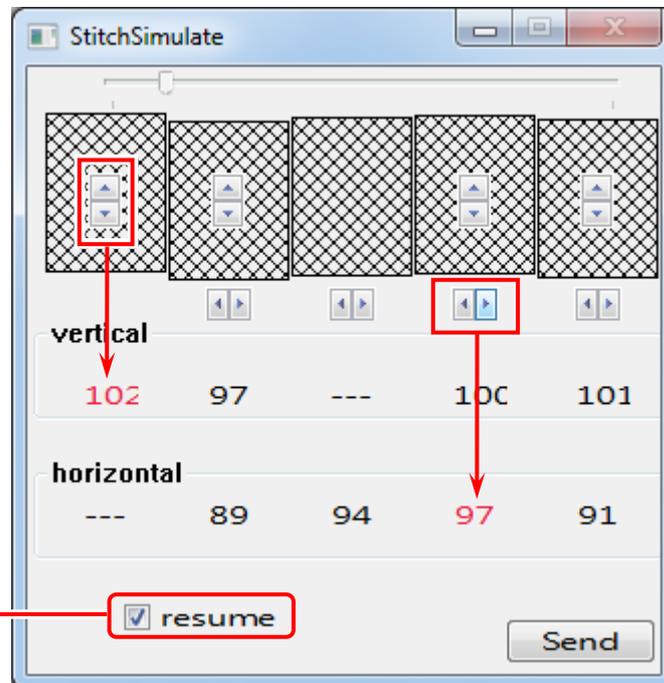
No skew insertion. Doing so may cause an incorrect calibration.

26. On "StitchAdjust" screen, select [Control] - [Stitching-Scan].
When pressing [Yes] on the confirmation screen, it starts to read the shading sheet.



27. Readjust only the targets which are not aligned with "Confirm-Scan".
It doesn't matter from which target is readjusted.

example : As the target between CIS 1 and CIS 2 is misaligned vertically and the target between CIS 3 and CIS 4 is misaligned horizontally, they are readjusted as follows.

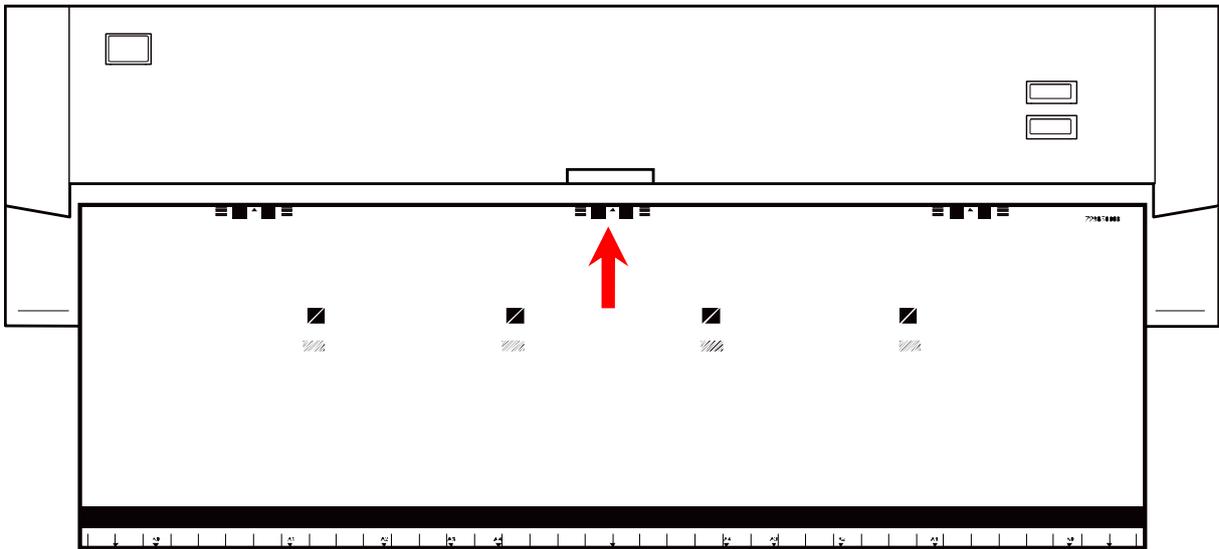


Reference

If "resume" is checked ("resume" function activates), it is possible to readjust only the misaligned target.
If "resume" is not checked ("resume" function disables), readjusting all targets with the step 19 and the step 20 is required.

28. Click [Send].
Once the change is sent to the scanner's Main Board, setting values turn black.

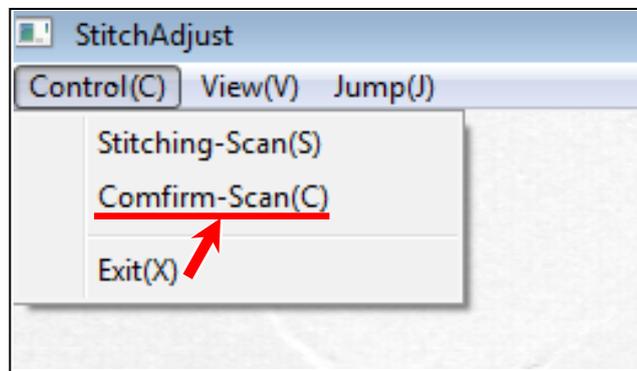
29. Set the Shading Sheet to the scanner noting the arrow direction.



! NOTE

No skew insertion. Doing so may cause an incorrect calibration.

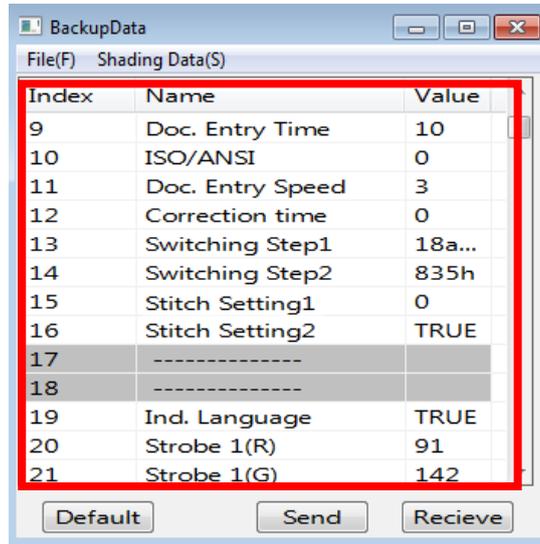
30. In “StitchAdjust” window, select [Control] menu, and then click [Confirm-Scan] to make another scan.



31. Check if 4 targets are aligned again.

32. In case that the targets are aligned, go to the step 33.
In case that the targets are not aligned, perform the work from the step 25 to the step 31 again.

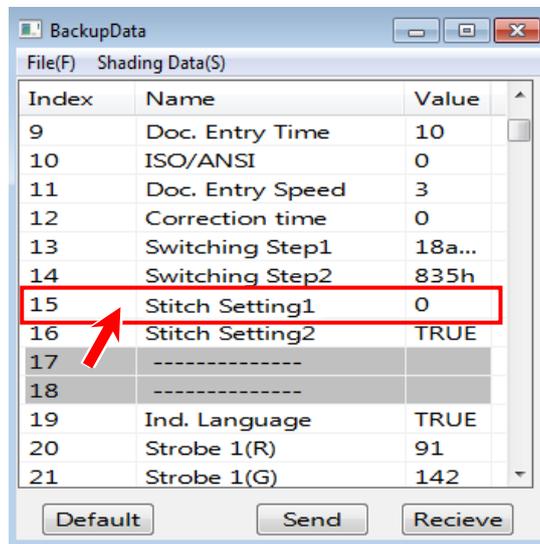
36. The current parameters are retrieved and displayed in the list.



The screenshot shows a window titled "BackupData" with a menu bar containing "File(F)" and "Shading Data(S)". Below the menu bar is a table with three columns: "Index", "Name", and "Value". The table contains 21 rows of data. A red rectangular box highlights the entire table area. At the bottom of the window are three buttons: "Default", "Send", and "Recieve".

Index	Name	Value
9	Doc. Entry Time	10
10	ISO/ANSI	0
11	Doc. Entry Speed	3
12	Correction time	0
13	Switching Step1	18a...
14	Switching Step2	835h
15	Stitch Setting1	0
16	Stitch Setting2	TRUE
17	-----	
18	-----	
19	Ind. Language	TRUE
20	Strobe 1(R)	91
21	Strobe 1(G)	142

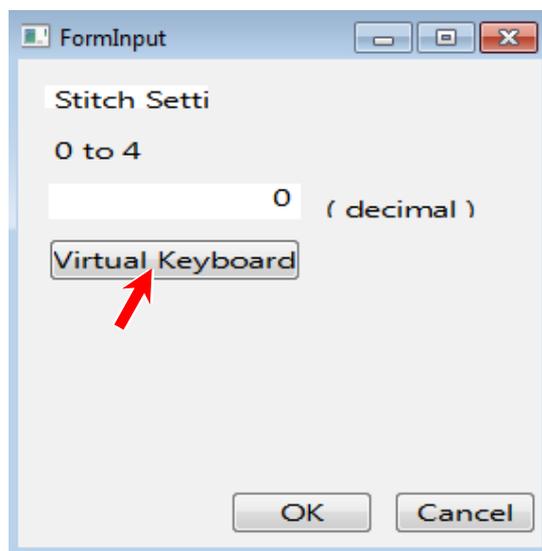
37. Double click on the row No.15 "Stitch Setting 1".



The screenshot shows the same "BackupData" window as in step 36. In this view, the row for "Stitch Setting1" (Index 15) is highlighted with a red rectangular box. A red arrow points to the "Stitch Setting1" text in the "Name" column of this row. The other elements of the window, including the menu bar and buttons, are the same as in the previous screenshot.

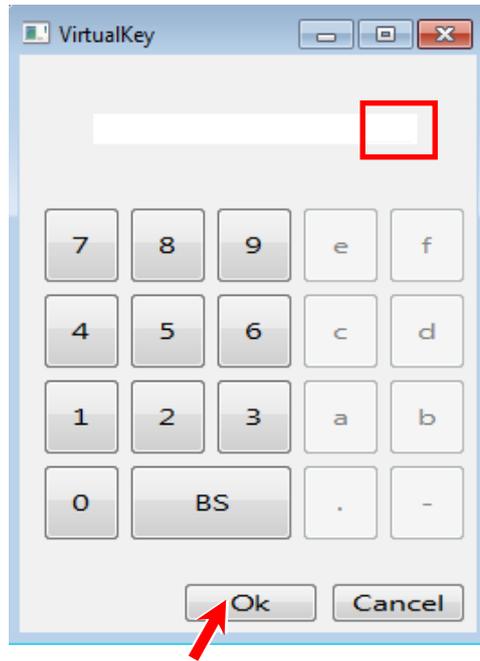
Index	Name	Value
9	Doc. Entry Time	10
10	ISO/ANSI	0
11	Doc. Entry Speed	3
12	Correction time	0
13	Switching Step1	18a...
14	Switching Step2	835h
15	Stitch Setting1	0
16	Stitch Setting2	TRUE
17	-----	
18	-----	
19	Ind. Language	TRUE
20	Strobe 1(R)	91
21	Strobe 1(G)	142

38. In "FormInput" screen, Click [Virtual Keyboard] to display the screen keypad.

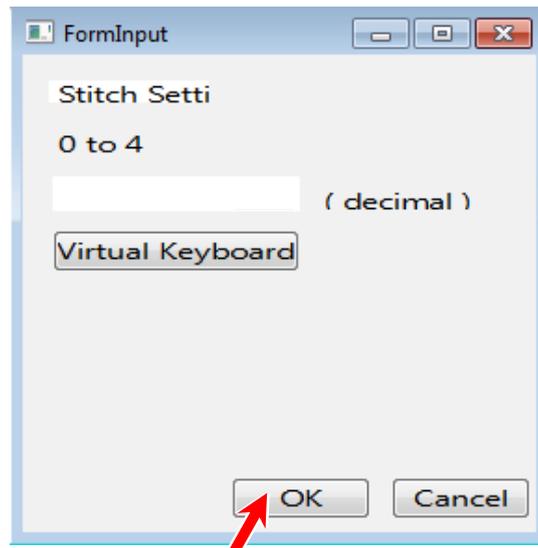


The screenshot shows a dialog box titled "FormInput". It contains a text label "Stitch Setti" followed by "0 to 4". Below this is a text input field containing the number "0" and the text "(decimal)". A red arrow points to a button labeled "Virtual Keyboard" located below the input field. At the bottom of the dialog box are two buttons: "OK" and "Cancel".

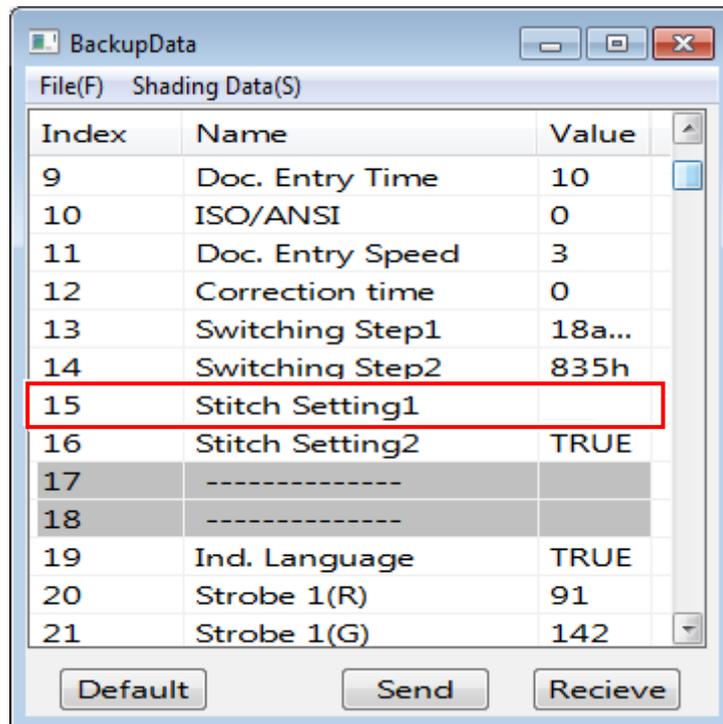
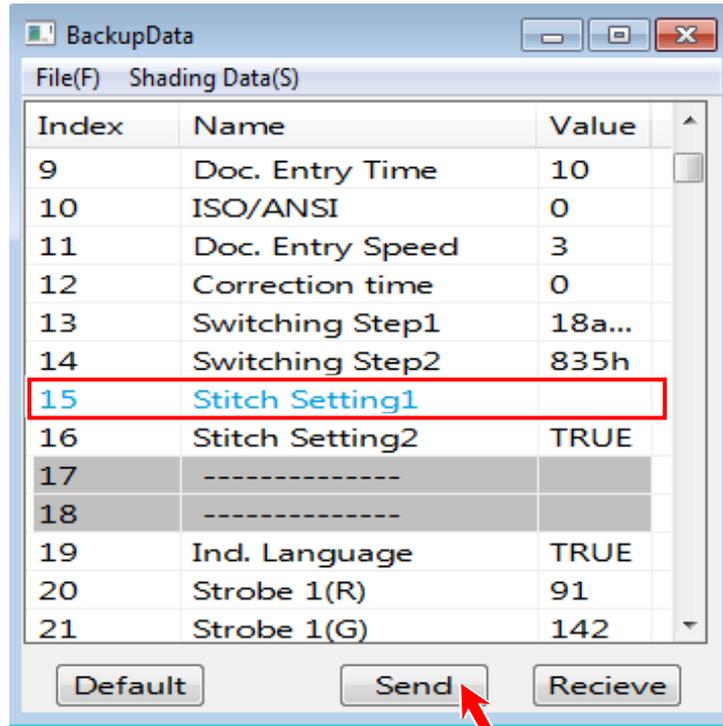
39. Enter the value which was wrote down in the step 5, and press [OK].



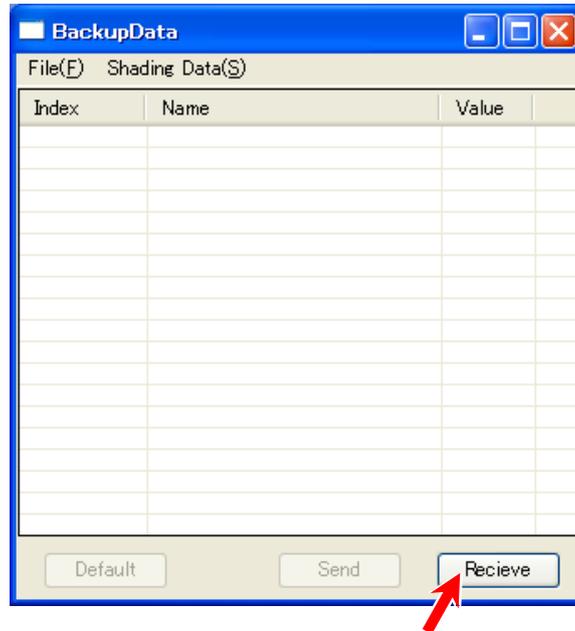
40. Click [OK] on the bottom.



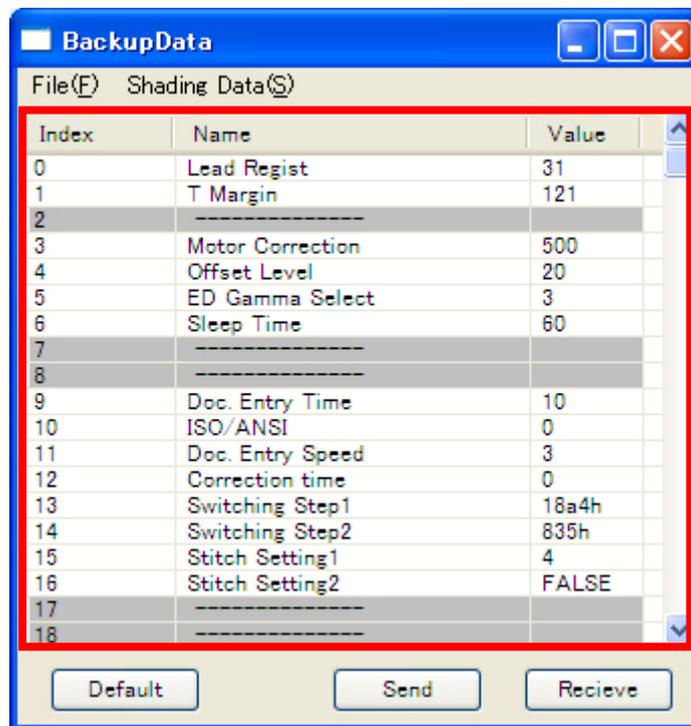
41. The setting change you have made is reflected to the list. It will turn blue. Click [Send] on the bottom. The setting change turns black. Now it is sent to the Main Board.



2. Click [Receive]



3. The current parameters are retrieved and displayed in the list.



Confirm that the following items are set to “zero”.

If not, see the next page to change setting values to “zero”.

When all the values are “zero”, go to step 9.

Index	Name	value
15	Stitch Setting1	0
60	Digital gain	0
62	cis1 Detail	0
63	cis2 Detail	0
64	cis4 Detail	0
65	cis5 Detail	0
271	Correction Block	0

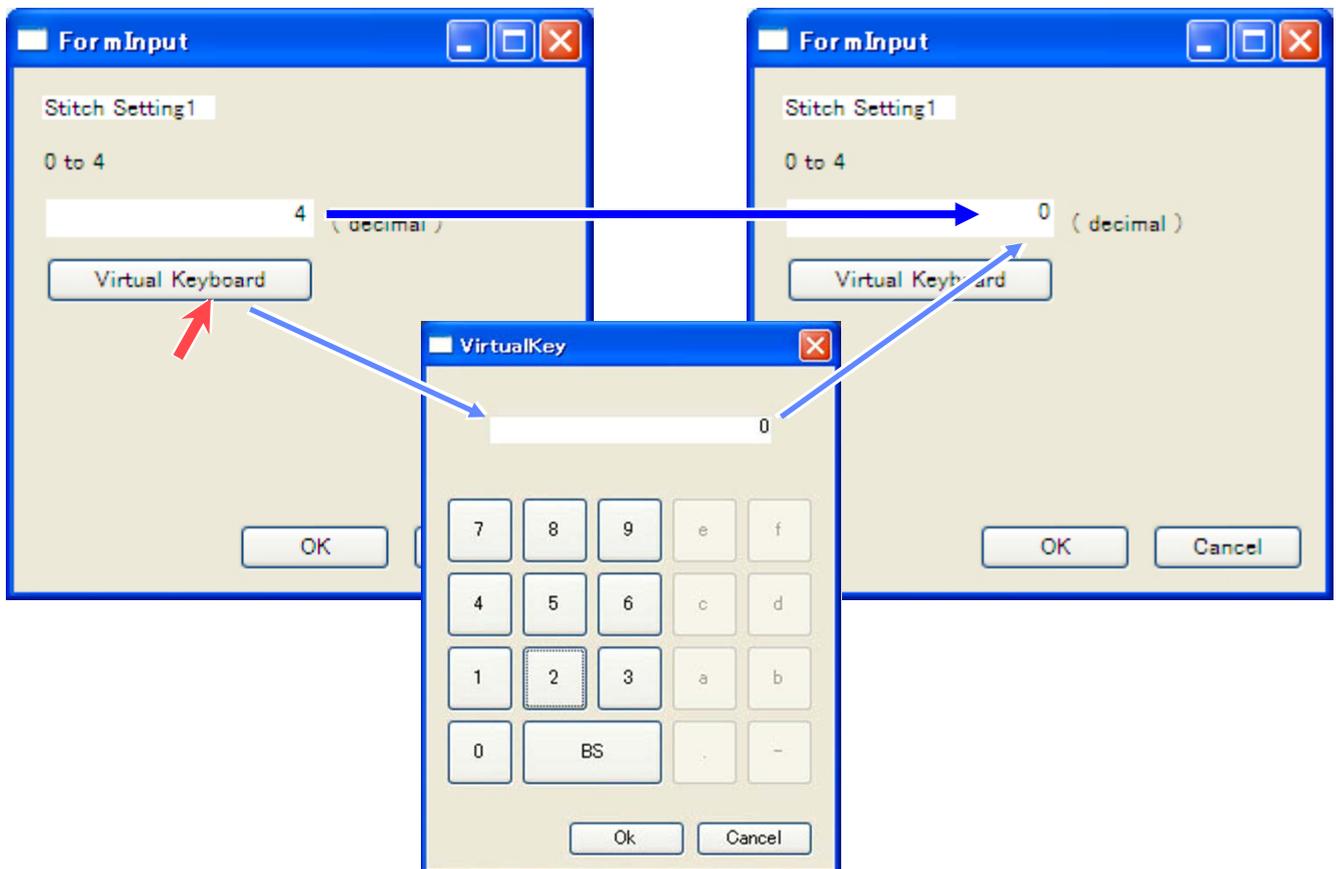
- Follow the instruction below to change the setting value.
This section uses “15 Stitch Setting1 4” for example.
Double click on the row you want to change.

Index	Name	Value
0	Lead Regist	31
1	T Margin	121
2	-----	
3	Motor Correction	500
4	Offset Level	20
5	ED Gamma Select	3
6	Sleep Time	60
7	-----	
8	-----	
9	Doc. Entry Time	10
10	ISO/ANSI	0
11	Doc. Entry Speed	3
12	Correction time	0
13	Switching Step1	18a4h
14	Switching Step2	835h
15	Stitch Setting1	4
16	Stitch Setting2	FALSE
17	-----	
18	-----	

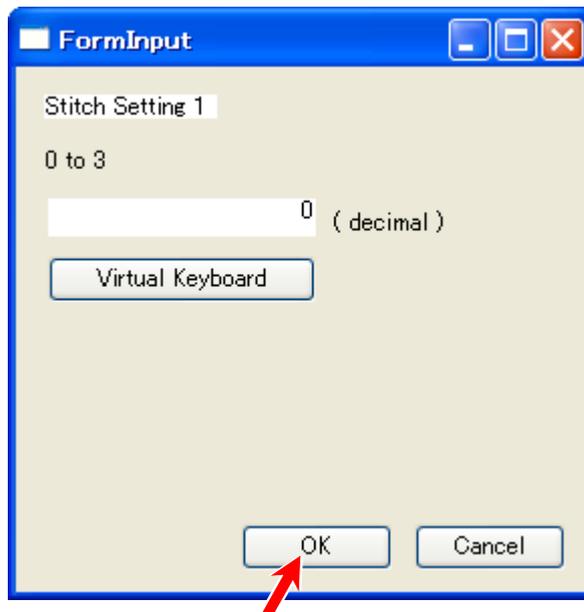
- “Input” pad pops up. Directly type “0” with your keyboard.

NOTE

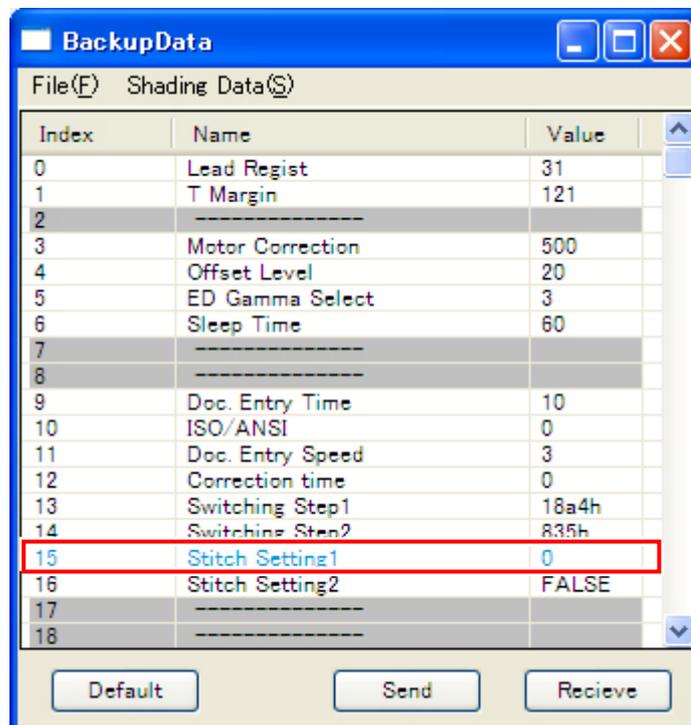
Clicking the field displays a caret (flashing “|” cursor), but while the caret is flashing, a key entry with your keyboard device is **NOT** accepted.



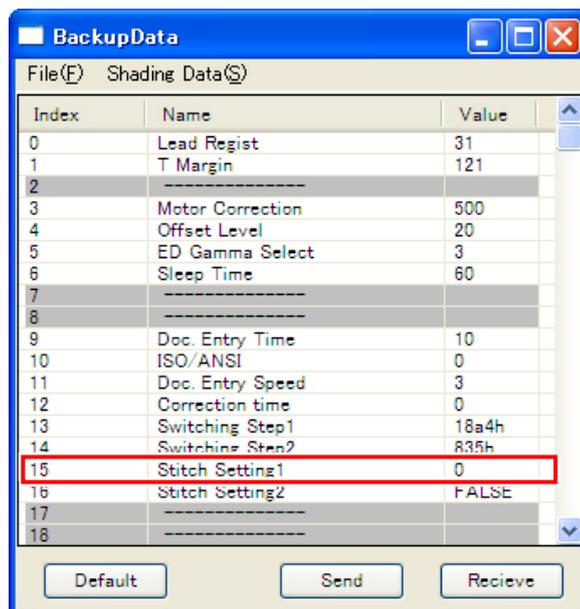
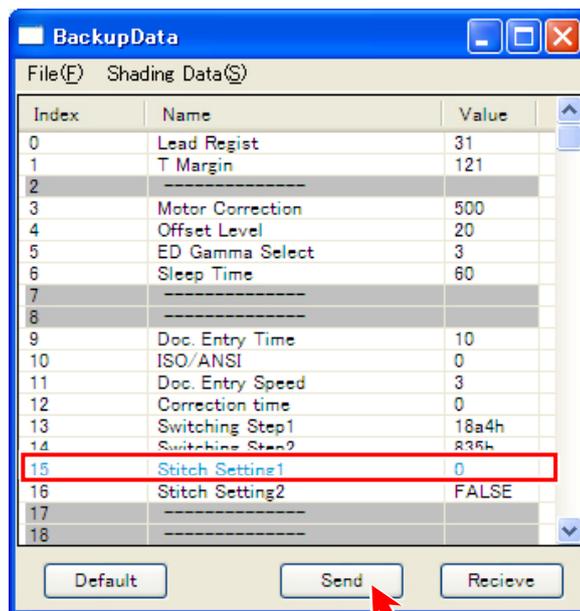
6. Click [OK] on the bottom.



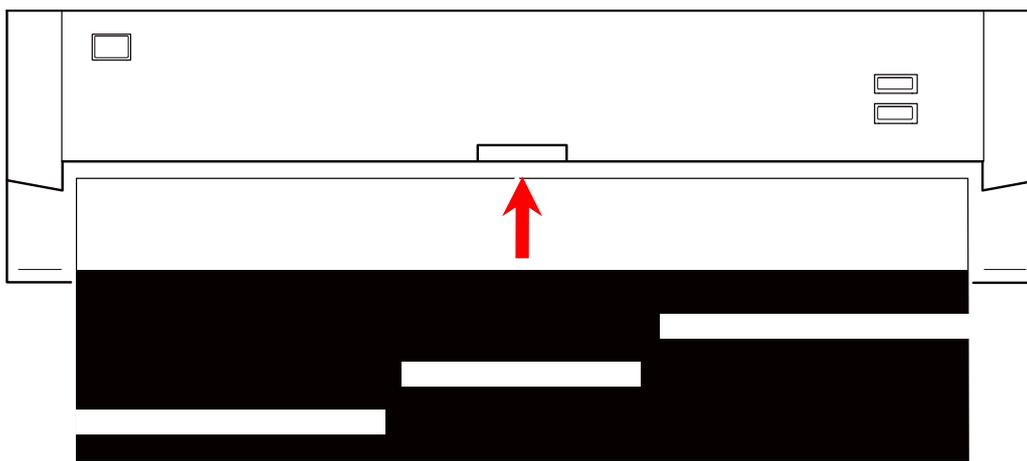
7. The setting change you have made is reflected to the list. It will turn blue.



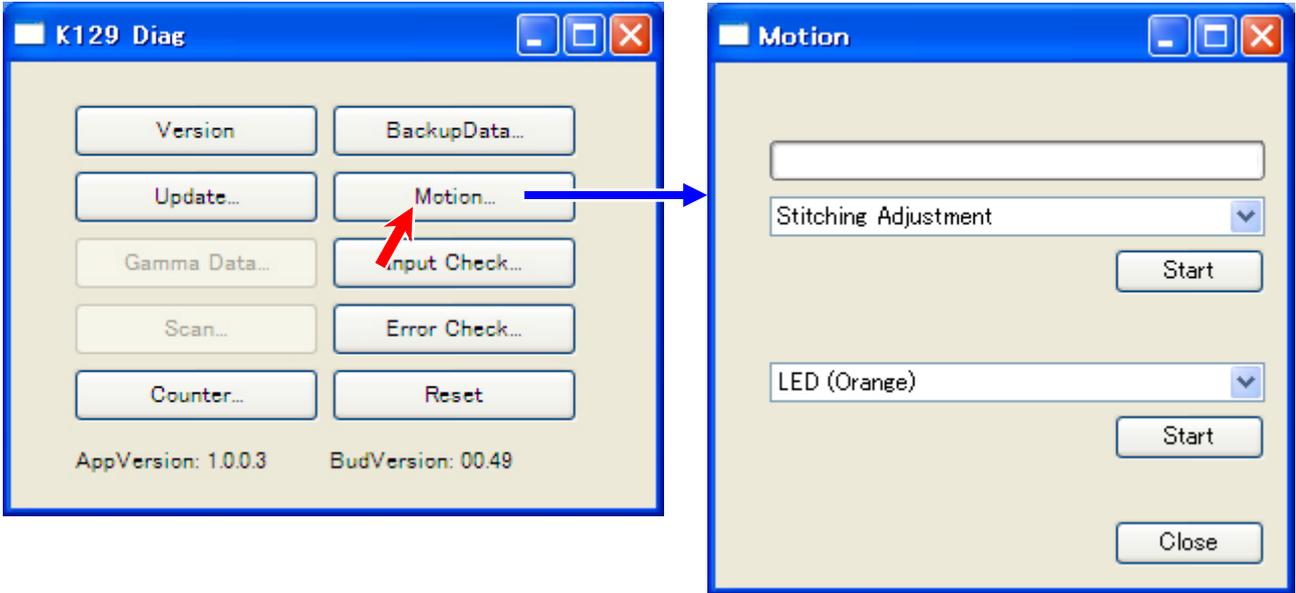
8. Click [Send] on the bottom. The setting change turns black.
Now it is sent to the scanner's Main Board.



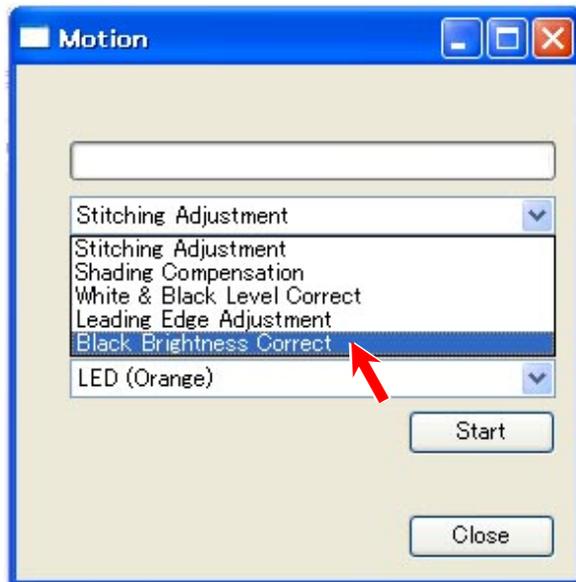
9. To close "BackupData" sub window, click the X button at the top right corner.
10. Set the Black Brightness Correction Chart to the scanner noting the arrow direction.



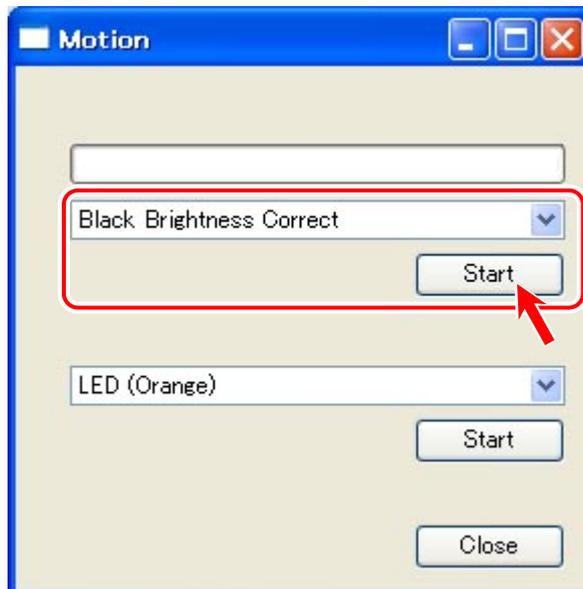
11. Click [Motion] to recall “Motion” sub window.



12. Select “Black Brightness Correct” in the upper drop-down menu.

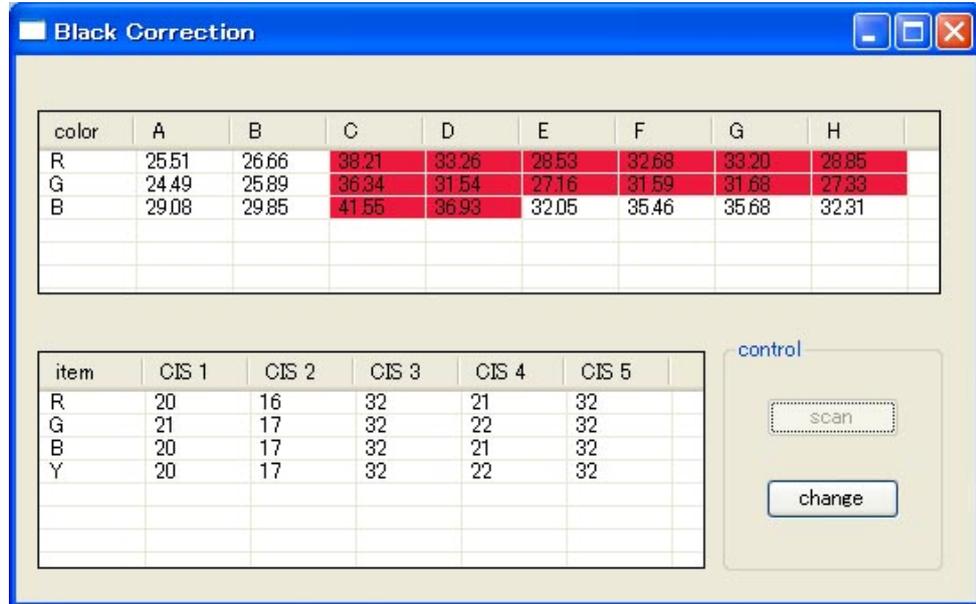


13. Click [Start] beside the upper drop-down menu.



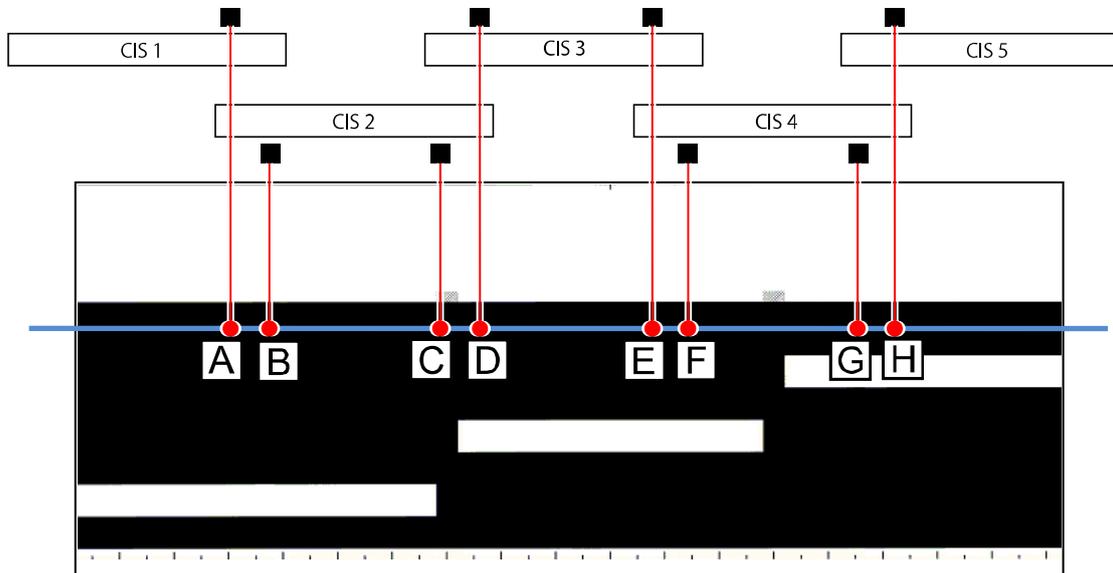
14. After the completion of the scan, "Black Correction" sub window appears. The upper table shows the measured density at the border areas of each CIS. At this time, if the values between the neighboring CIS reaches 4.00+, the concerning cell(s) will turn red.

Follow the step 15 until the red cell disappears. When all the cells turn white, go to step 16.

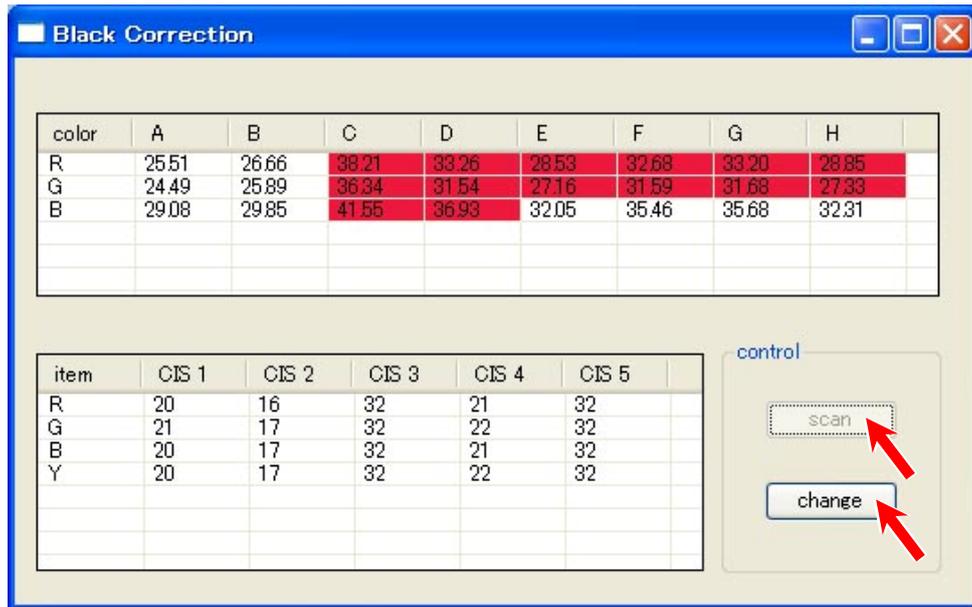


Reference

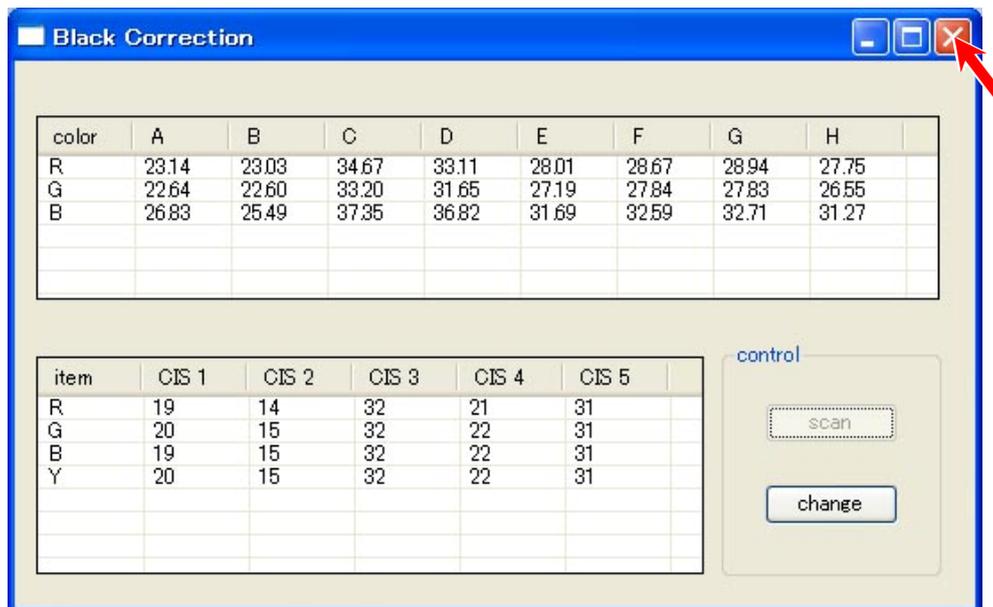
The columns A to H in the upper table correspond to the joint regions as follows.



15. If there is a cell in red, press [change] on the bottom right.
 Set the Black Brightness Correction Chart to the scanner, and then press [scan].
 Do the same way until all the cells turn white.



16. When all the cells turn white, click the X button at the top right corner to close "Black Correction" window.



Reference

The lower table, showing “CIS Offset” (calculated values based on the parameters in the upper table), is stored in the BUD No.146 to 165.

color	A	B	C	D	E	F	G	H
R	23.14	23.03	34.67	33.11	28.01	28.67	28.94	27.75
G	22.64	22.60	33.20	31.65	27.19	27.84	27.83	26.55
B	26.83	25.49	37.35	36.82	31.69	32.59	32.71	31.27

item	CIS 1	CIS 2	CIS 3	CIS 4	CIS 5
R	19	14	32	21	31
G	20	15	32	22	31
B	19	15	32	22	31
Y	20	15	32	22	31

control

scan

change

Index	Name	Value
146	Cis Offset R1	19
147	Cis Offset G1	20
148	Cis Offset B1	19
149	Cis Offset K1	20
150	Cis Offset R2	14
151	Cis Offset G2	15
152	Cis Offset B2	15
153	Cis Offset K2	15
154	Cis Offset R3	32
155	Cis Offset G3	32
156	Cis Offset B3	32
157	Cis Offset K3	32
158	Cis Offset R4	21
159	Cis Offset G4	22
160	Cis Offset B4	22
161	Cis Offset K4	22
162	Cis Offset F5	31
163	Cis Offset G5	31
164	Cis Offset B5	31

Default Send Recieve

17. Change the setting values as follows. See step 1 through 8.

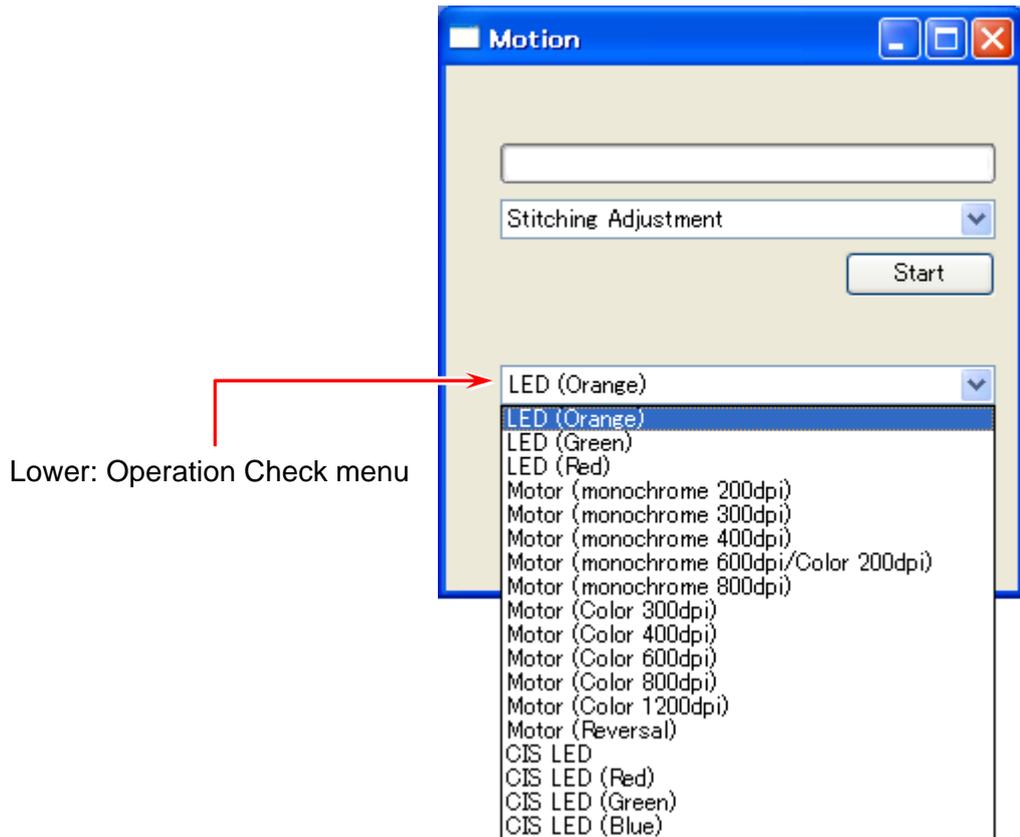
Index	Name	value
15	Stitch Setting1	4
271	Correction Block	1

18. Create a backup. See [8.22. 4. 2 Saving the Current Backup Data].

8.22. 6. 4 Other menu on Adjustment

Do not use the other options in the upper dropdown menu (for adjustment)

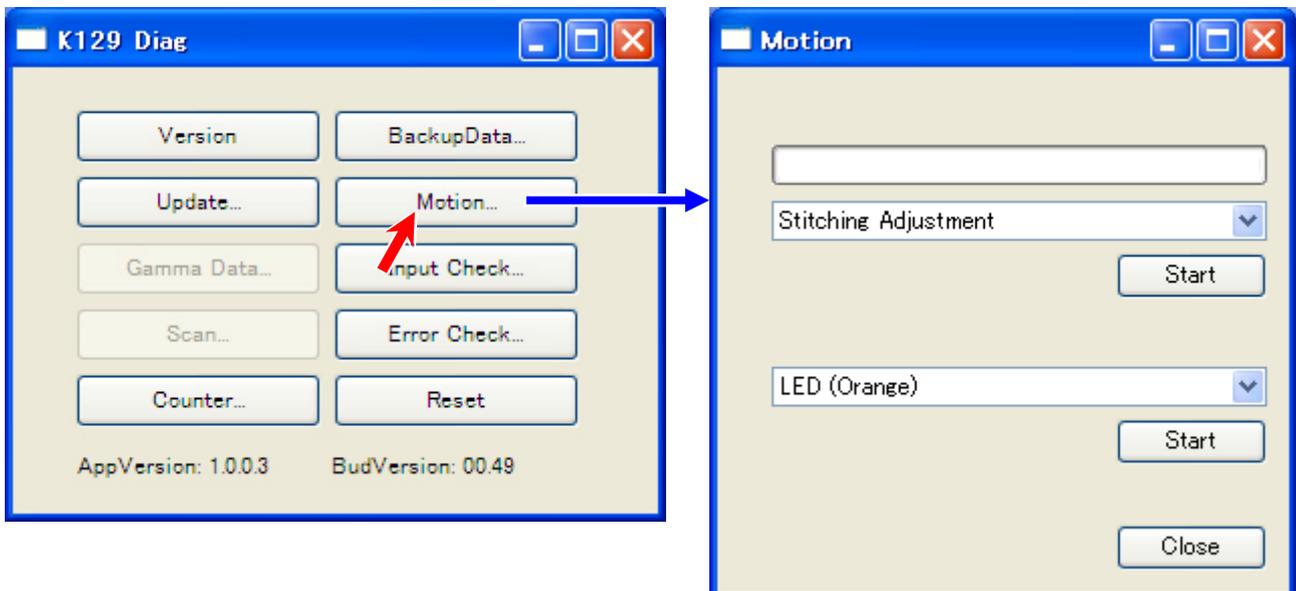
8.22. 6. 5 Operation Check



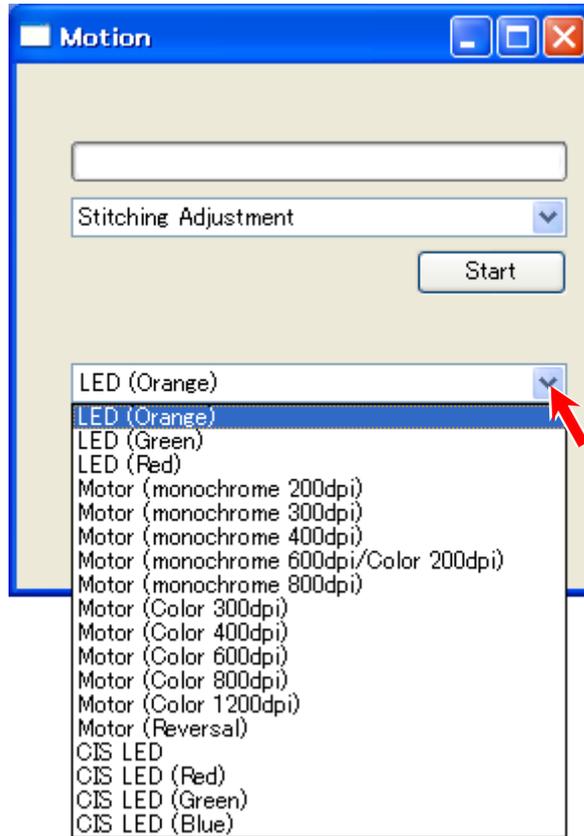
Operation Check menu:

LED (Orange)	not supported
LED (Green)	not supported
LED (Red)	not supported
Motor	operates Motor (document feed motor)
Motor (reverse)	operates Motor reverse
CIS LED	lights the R/G/B light source of the CIS
CIS LED (Red)	lights the R light source of the CIS
CIS LED (Green)	lights the G light source of the CIS
CIS LED (Blue)	lights the B light source of the CIS

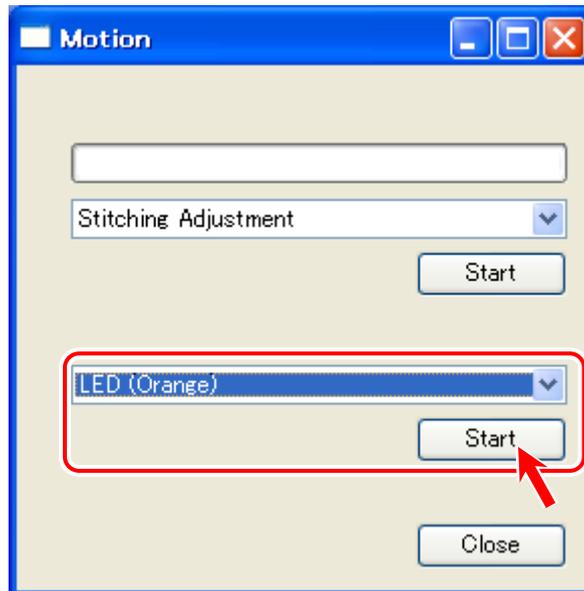
1. Click [Motion] to recall "Motion" sub window.



2. Select one of the component in the lower drop-down menu.



3. Click [Start] beside the lower drop-down menu.
The selected component operates for some seconds, and then stops.



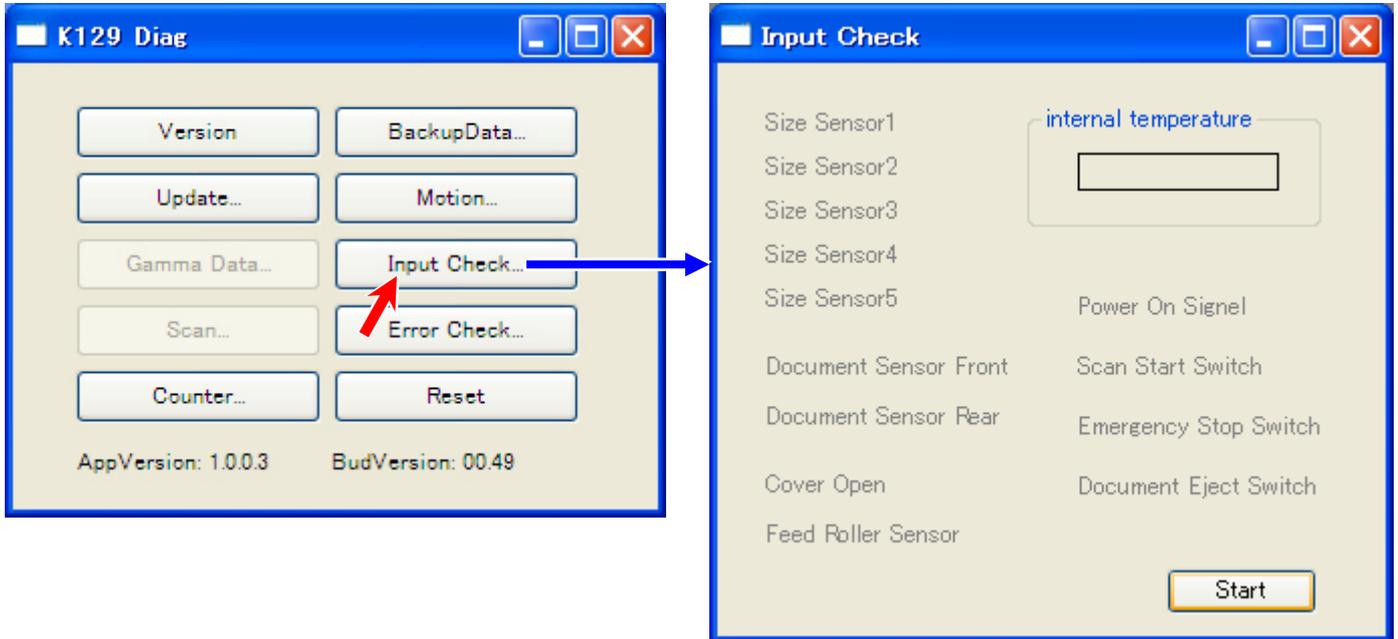
4. To close "Motion" sub window, click the X button at the top right corner.

8.22.7 Input Check

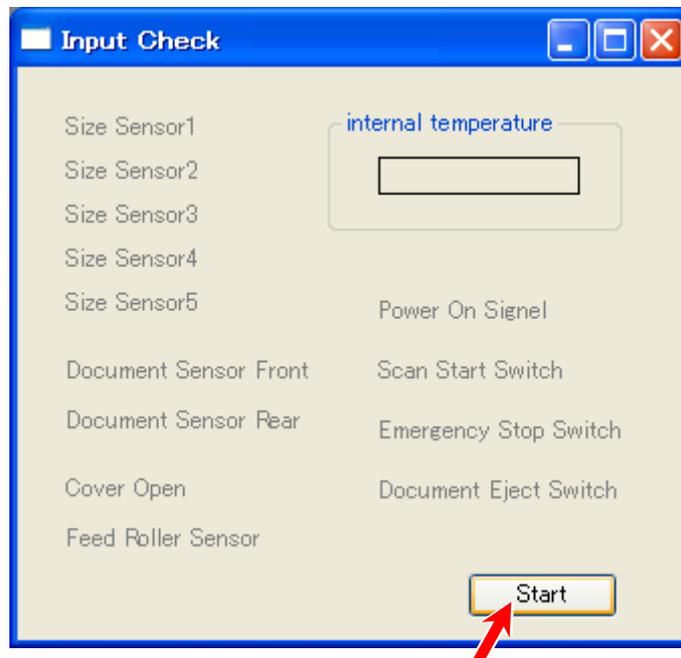
“Input Check” is to be used for I/O check. When a given component gives a correct signal, the name of the component will change the color.

8.22.7.1 Getting Input Signal

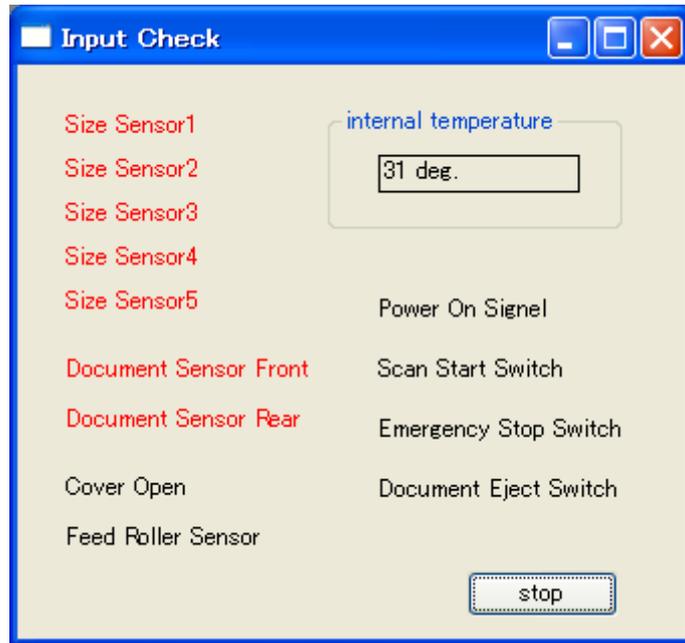
1. Click [Input Check] to recall “Input Check” sub window.



2. The names of the components are grayed at this time. Click [Start].

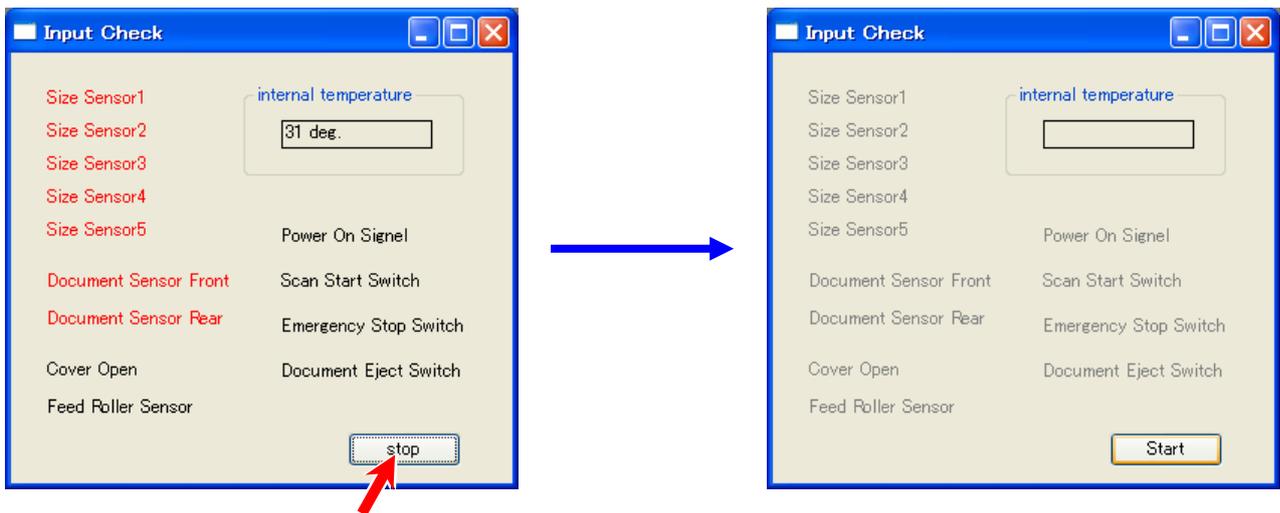


3. Now the names are active. When the status changes on a given component, the name will change the color.



For example, open the Upper Unit, "Cover Open" turns red.

4. To close "Input Check" sub window, click [Stop].



5. Click the X button at the top right corner.

8.22. 7. 2 Signal List

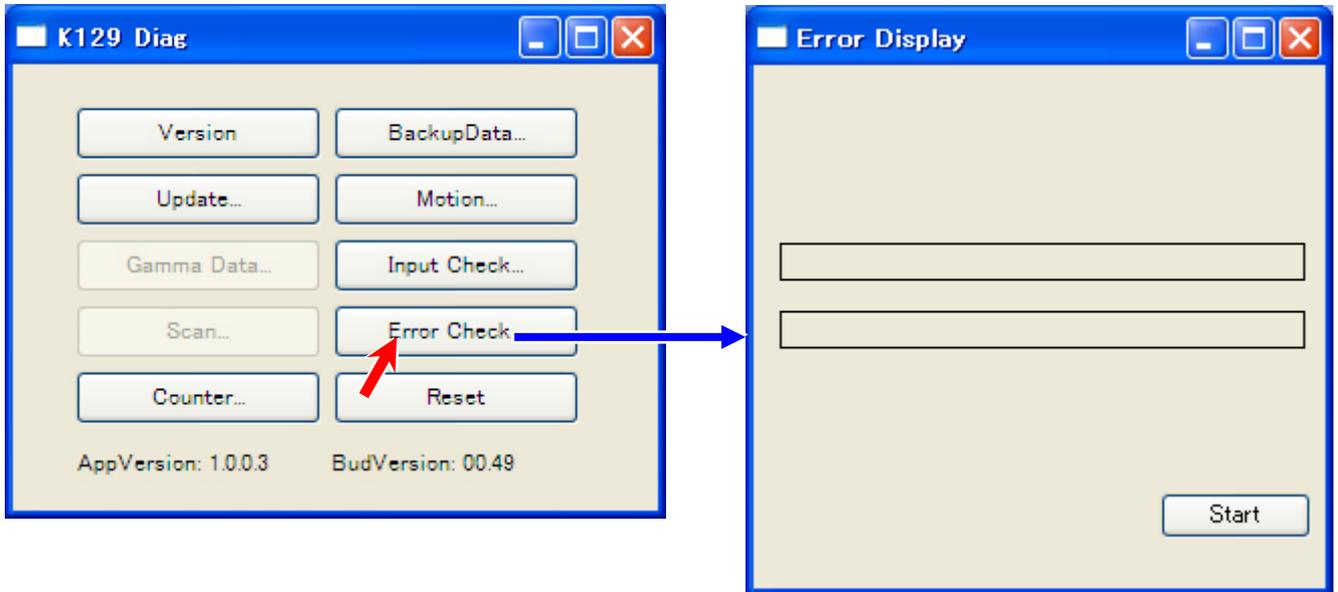
Name	Target	Symbol	default	To change status,
Size Sensor 1	size detection: A4 landscape, A3, 11", 12"	S_PH2	red	Put a sheet over the sensor.
Size Sensor 2	size detection: A2, 17", 18"	S_PH3	red	
Size Sensor 3	size detection: A1, 22", 24"	S_PH4	red	
Size Sensor 4	size detection: A0, 30"	S_PH5	red	
Size Sensor 5	size detection: 34", 36"	S_PH6	red	
Document Sensor Front	detects document insertion detects document jam size detection: A4 portrait	S_PH1	red	
Document Sensor Rear	document jam	S_PH7	red	
Cover Open	Upper Unit open	S_PH8	black	Open / close the Upper Unit.
Feed Roller Sensor	Feed Roller rotation	S_PH9	(depends)	Gently rotate the Feed Roller toward the rear.
Power ON Signal	(reserved)		black	
Scan Start Switch	(reserved)		black	
Emergency Stop Switch	Stops document feeding	S_MS1	black	Press [Emergency Stop] button.
Document Eject Switch	(reserved)		black	

8.22. 8 Error Check

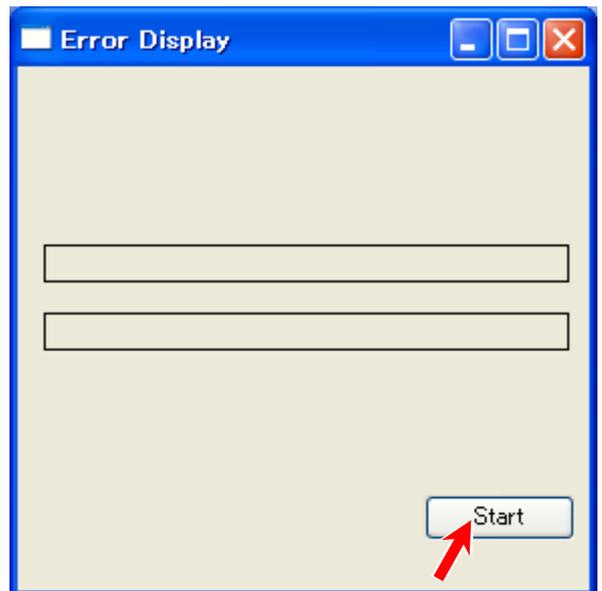
“Error Check” is used for getting the detailed error status to isolate the cause.

8.22. 8. 1 Getting Error Status

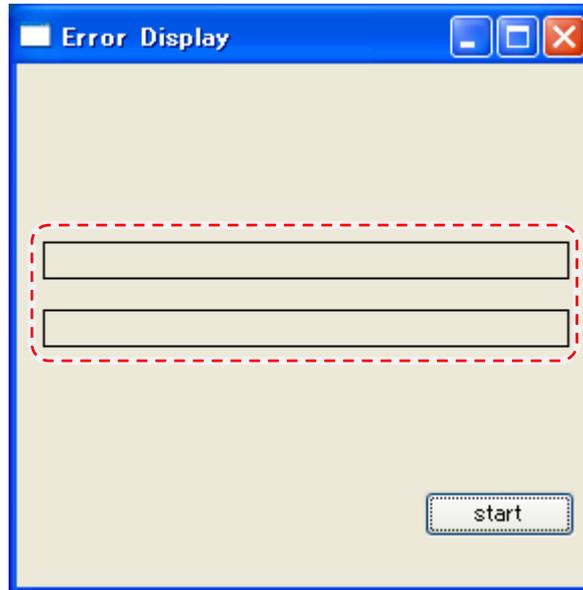
1. Click [Error Check] to recall “Error Check” sub window.



2. Click [Start] on the bottom.



3. Wait several seconds. If there is no error, the fields in the middle of the window indicate nothing.



4. To close “Error Check” sub window, click the X button at the top right corner.

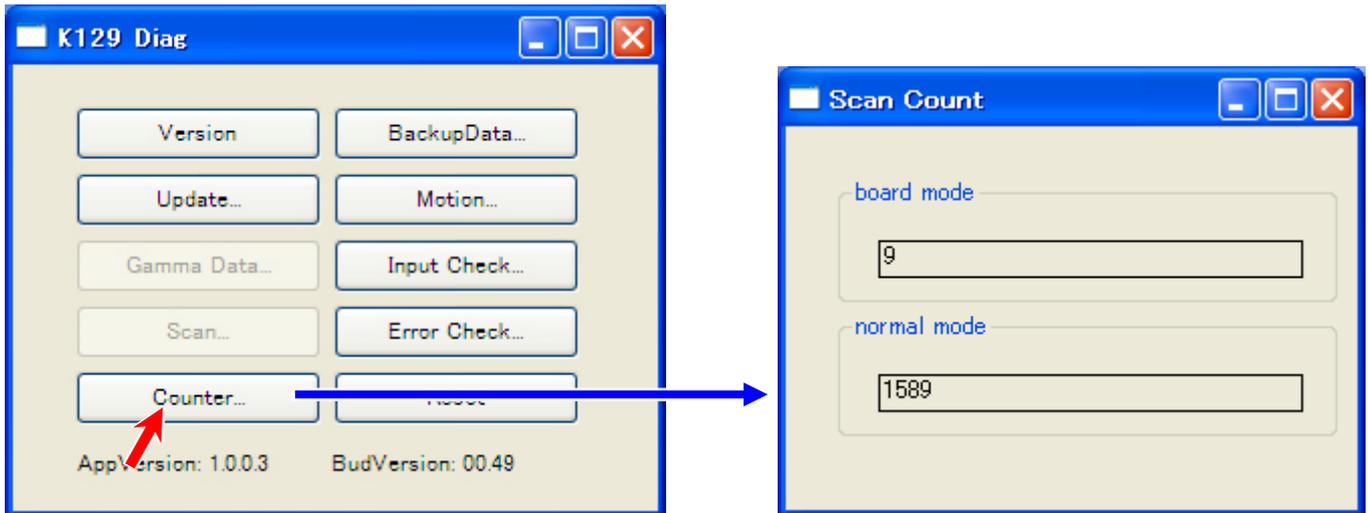
8.22. 8. 2 Error List

communication error	<p>Connection lost.</p> <ul style="list-style-type: none"> - Check for the power supply and USB port on the scanner / PC that K129 Diag runs. - Cycle the power on both the scanner / PC.
document cover open	<p>Upper Unit is not closed.</p> <ul style="list-style-type: none"> - Firmly close the Upper Unit. - Check S_PH8.
jam at document feed	<p>Document jam is detected.</p> <ul style="list-style-type: none"> - Remove the jammed document. - Check S_PH1 and S_PH7.
document feed roller HP error	<p>Error on drive system. HP is not detected in the roller’s one rotation.</p> <ul style="list-style-type: none"> - Check S_PH9. - Check drive system (gear, roller, motor).
shading sequence error	<p>Shading data is abnormal.</p> <ul style="list-style-type: none"> - Import the shading data. - Perform Shading Compensation. - Check the scanner’s Main Board.
document width error	<p>Size detection discrepancy.</p> <ul style="list-style-type: none"> - Check size sensors.

For the detailed troubleshooting procedure, see Chapter 7.

8.22. 9 Counter

Pressing [Counter] recalls “Scan Count” sub window.

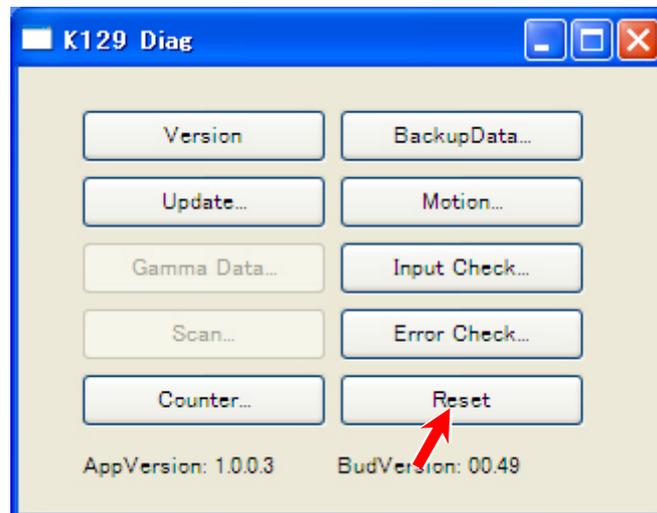


board	scan count for “slow mode” scans (“slow mode” is available on the controller / software)
normal	scan count for normal speed

To close “Scan Count” sub window, click the X button at the top right corner.

8.22. 10 Reset

Pressing [Reset] recalls a dialog. If you click [Yes], the communication will be re-established as another session.



Chapter 9

Appendix

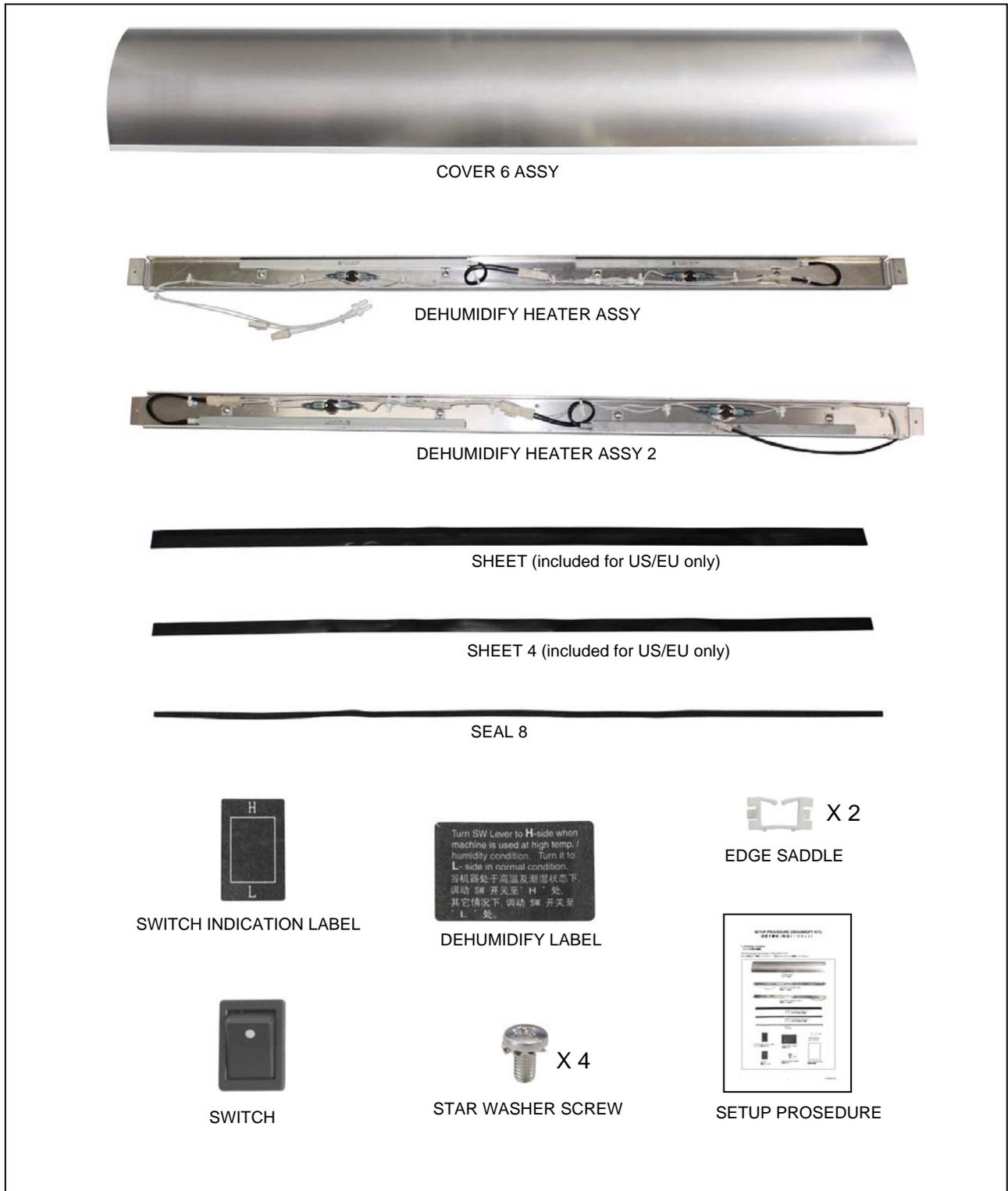
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9.1.2 Removal of the PAPER DECK ASSY	9- 2
9.1.3 Removing Guide Plate	9- 4
9.1.4 Installing Kit Components to Roll Deck Assy	9- 7
9.1.4.1 Installing Dehumidify Heater Assy	9- 7
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9. 1 Dehumidify Heater (option)

This is a common document for both KIP700m and KIP770. All the descriptions in the document are identical for both models. Photos of KIP770 are used for all the explanations.

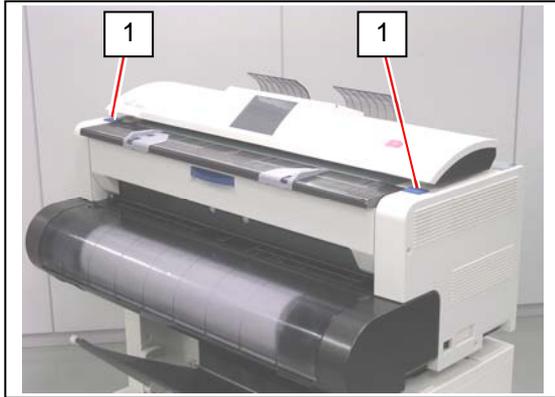
9. 1. 1 Checking Contents

The following parts are included in "DEHUMIDIFY KIT".

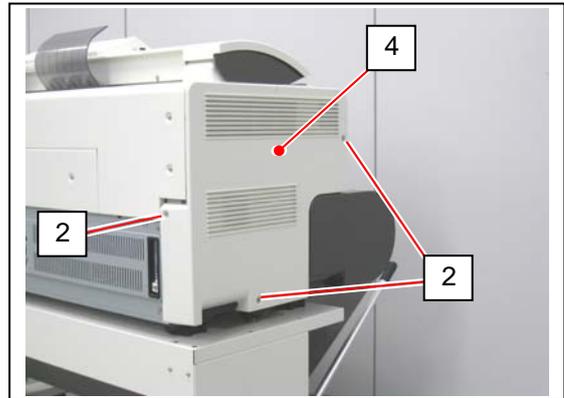
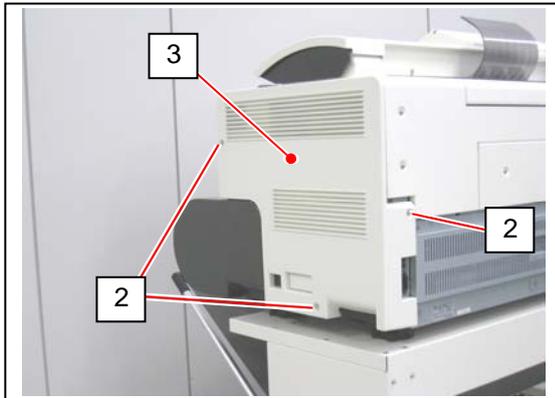


9. 1. 2 Removal of the PAPER DECK ASSY

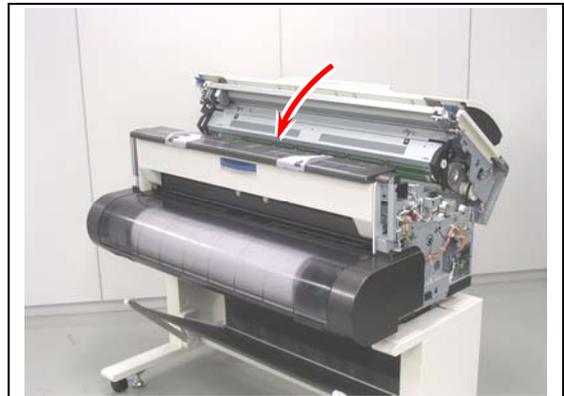
1. Press the blue lever (1) on both sides to open the Upper Unit.



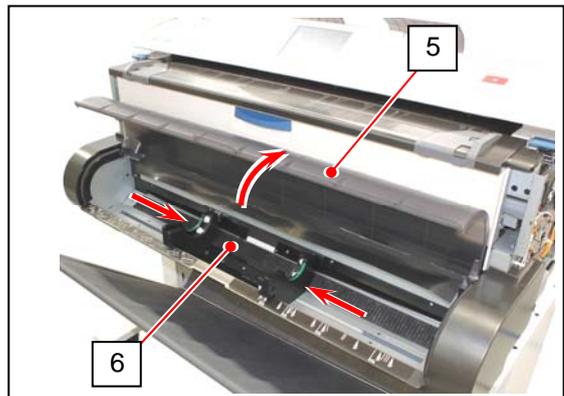
2. Remove 3 Screws (2) on each side, and then remove the Side Cover R (3) and Side Cover L (4).



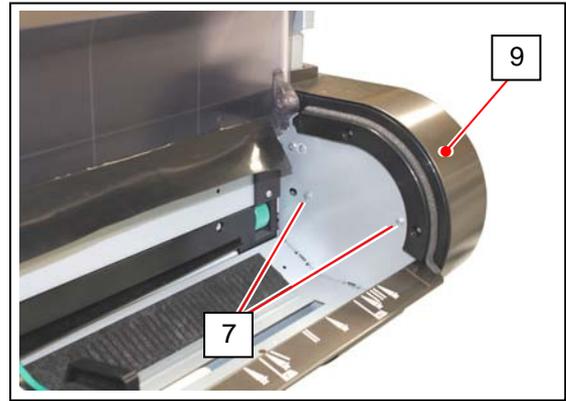
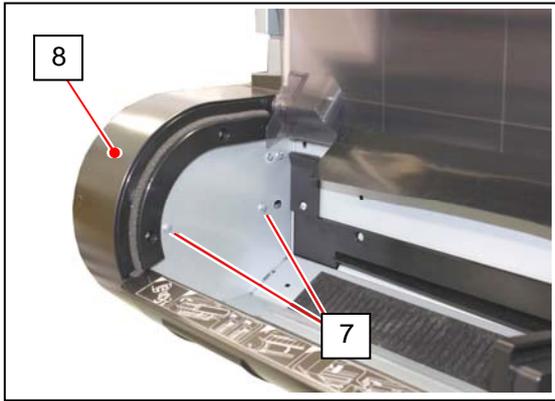
3. Close the Upper Unit.



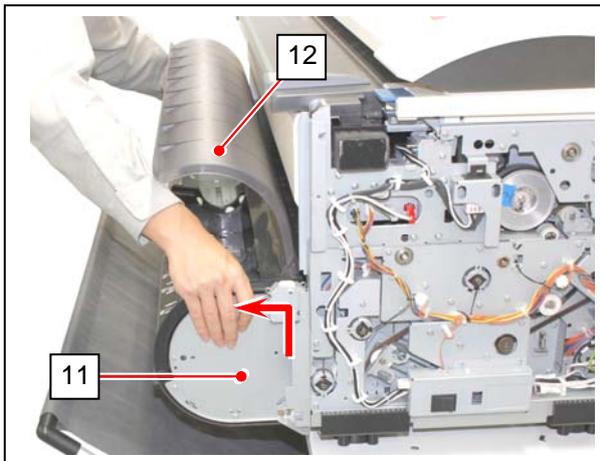
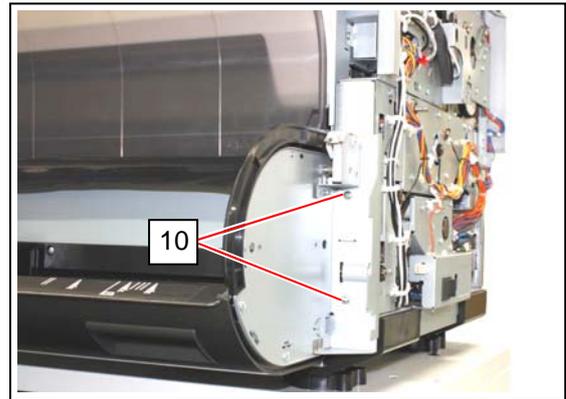
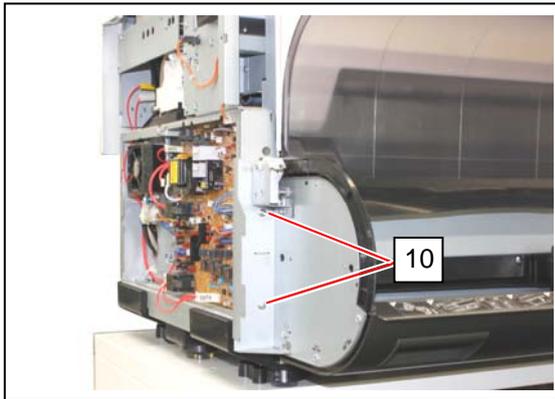
4. Open the Roll Deck Cover (5) and move the Size Guide (6) to the center.



5. Inside of the Roll Deck, remove 2 screws (7) on each side to remove Cover 20 (8) and Cover 19 (9).

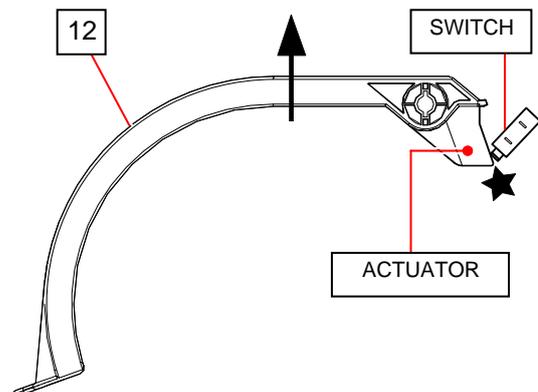


6. Remove 2 tooth washer screws (10). Keeping the Roll Deck Cover (12) open, remove the whole Roll Deck Assy (11).



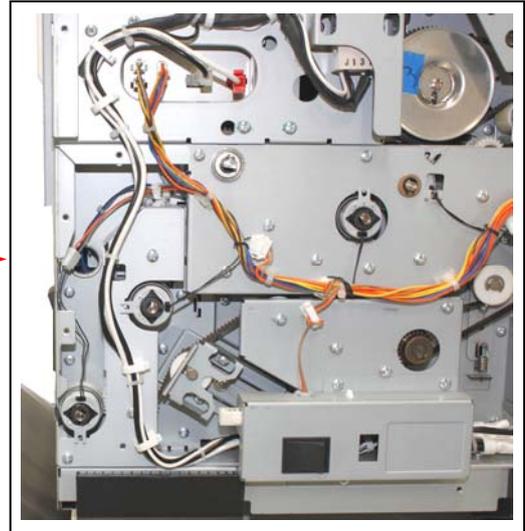
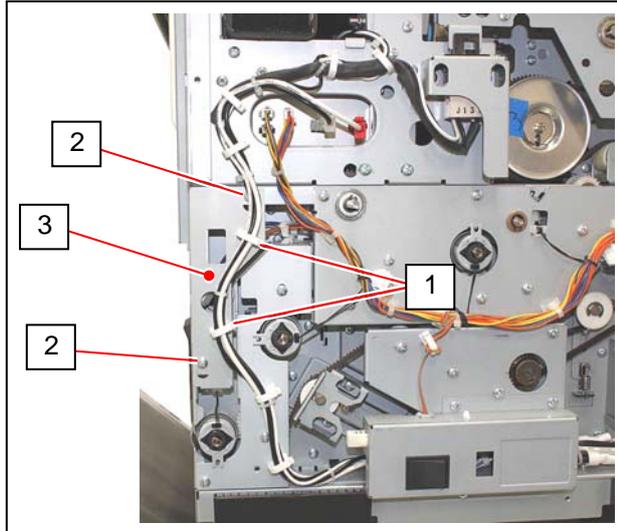
NOTE

The Roll Deck Cover (12) should be kept OPEN while removing / reinstalling the Roll Deck. Otherwise the actuator part would be caught by the microswitch to damage it.

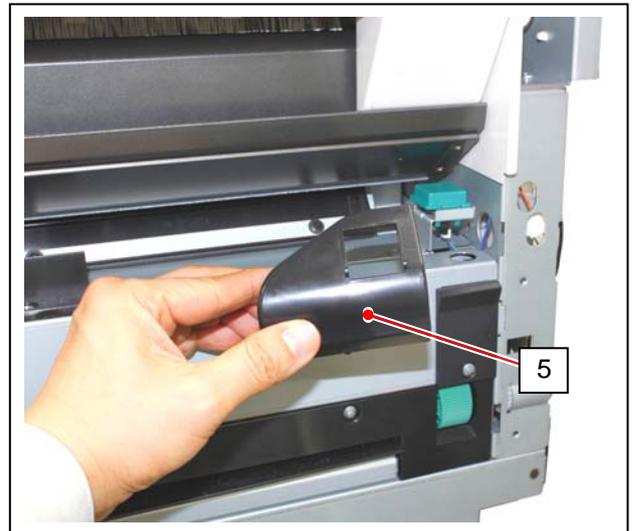
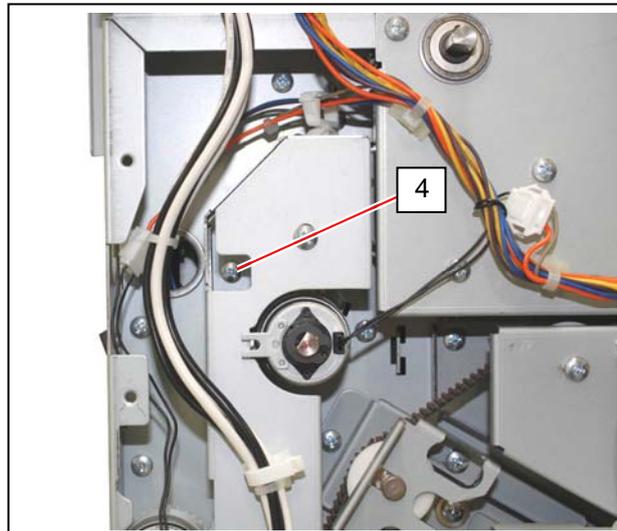


9. 1. 3 Removing Guide Plate

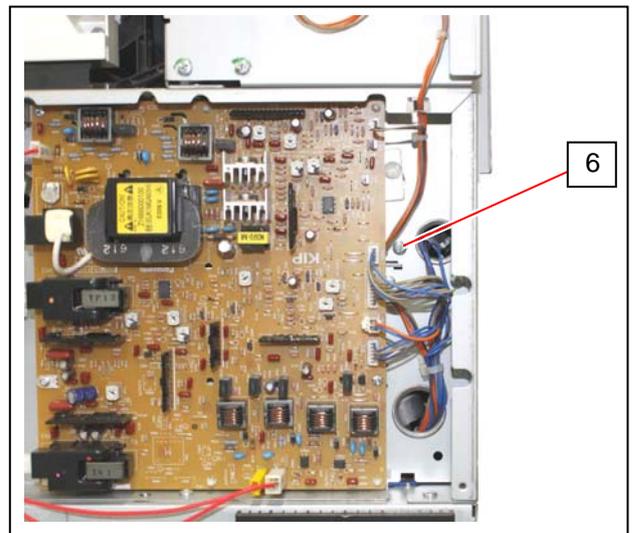
1. On the right side, open 2 wire saddles (1) and remove 2 screws (2) to remove the bracket (3).



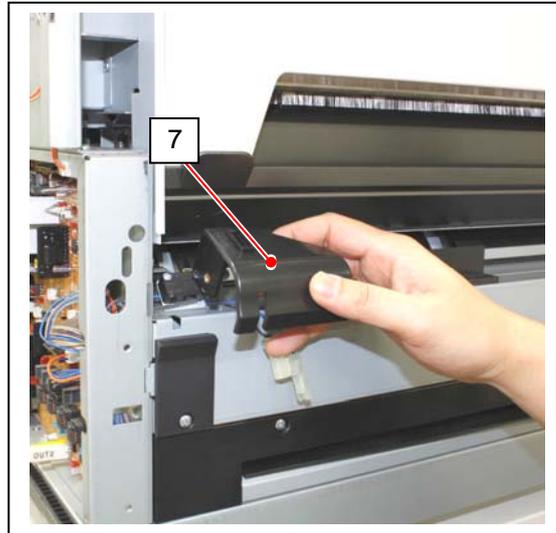
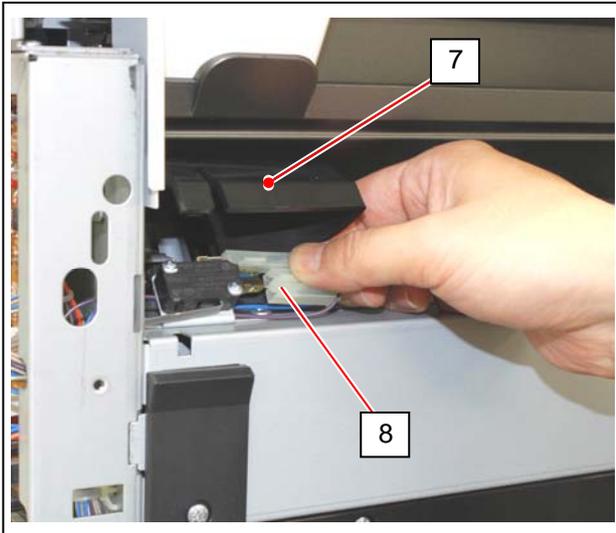
2. Remove 1 screw (4) to remove the switch cover (5).



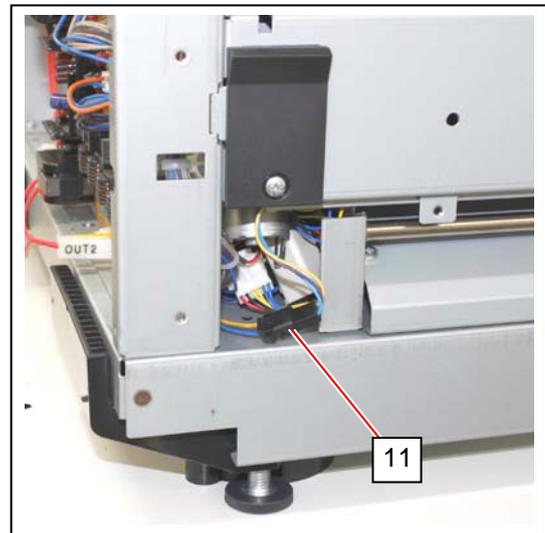
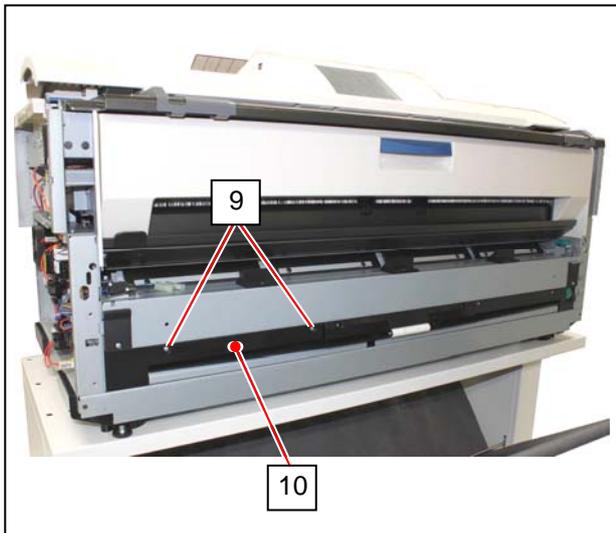
3. On the left side, remove 1 screw (6).



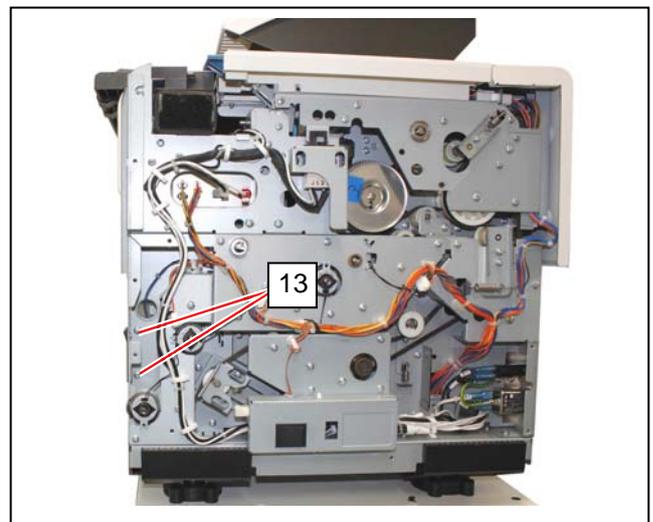
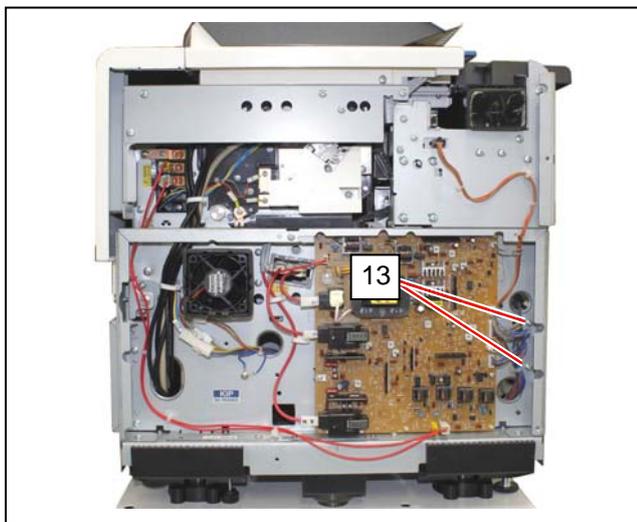
4. Disconnect the connector (8) in the switch cover (7), and then remove the switch cover (7).



5. Remove 2 screws (9) to remove the Guide Plate C (10). Disconnect the connector (11).

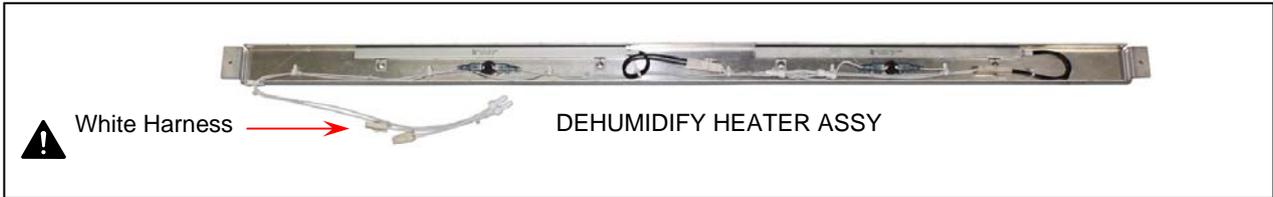


6. With supporting the Guide Plate (12), remove 2 screws (13) on each side to remove Guide Plate (12).
Never remove the Guide Plate (12) without supporting. Otherwise Guide Plate may fall.

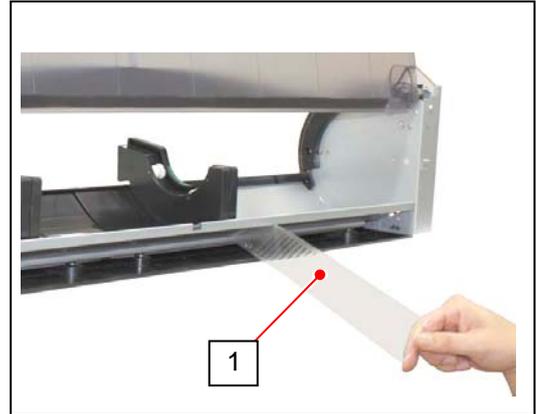
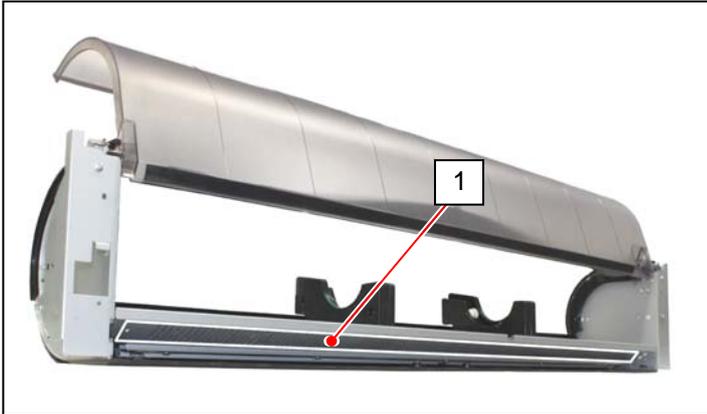


9. 1. 4 Installing Kit Components to Roll Deck Assy

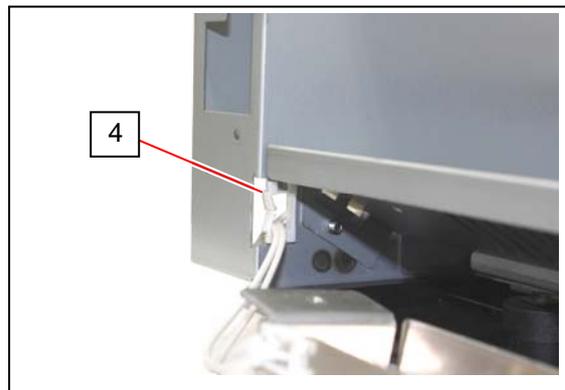
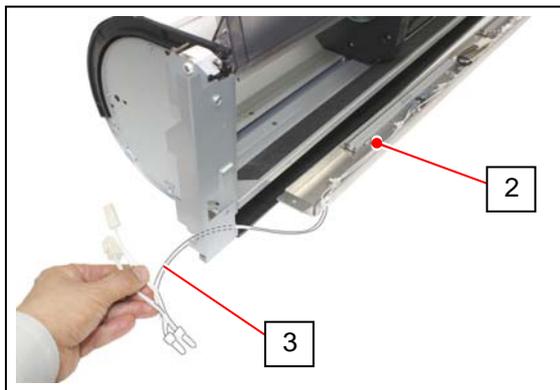
9. 1. 4. 1 Installing Dehumidify Heater Assy



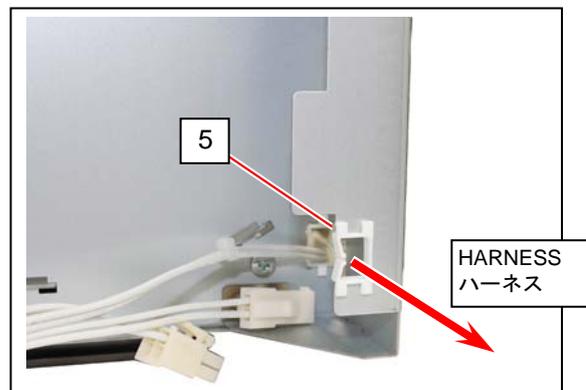
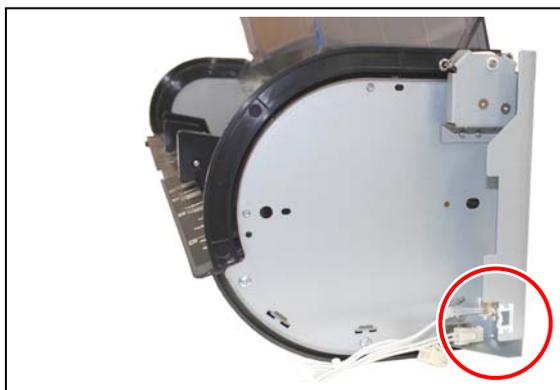
1. Remove the clear tape (1) from the back of the Roll Deck Assy.



2. Pass the harness (3) of the Dehumidify Heater Assy (2) through the rectangle hole on the bottom right of the Roll Deck Assy. Attach the Edge Saddle (4) to the hole on the right side.



3. Attach the Edge Saddle (5) to another hole on the right side. Pass the harness through the hole.

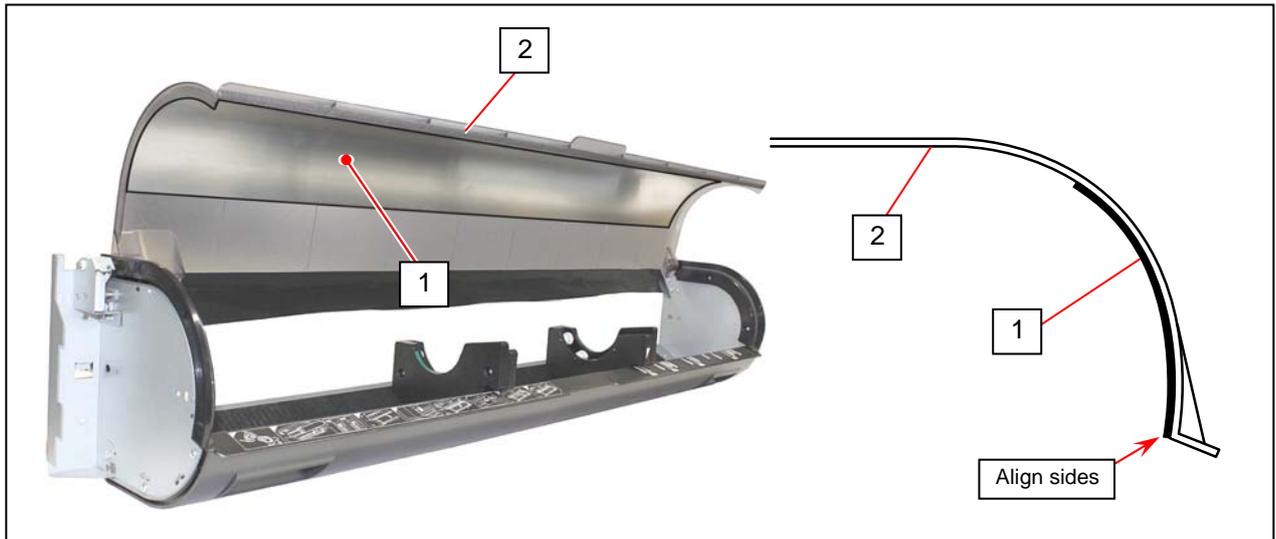


4. Attach the Dehumidify Heater Assy to the Roll Deck Assy with 2 tooth washer screws (6) of the kit.



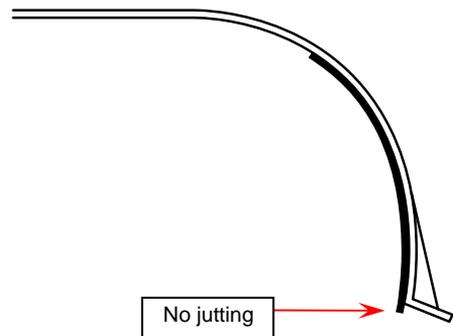
9. 1. 4. 2 Installing Cover 6 Assy

1. Apply the Cover 6 Assy (1) to the inside of the Roll Deck Cover (2).



NOTE

Match the bottom end of the Cover 6 Assy with the Roll Deck Cover's rim.



9. 1. 4. 3 Applying Sheet 4

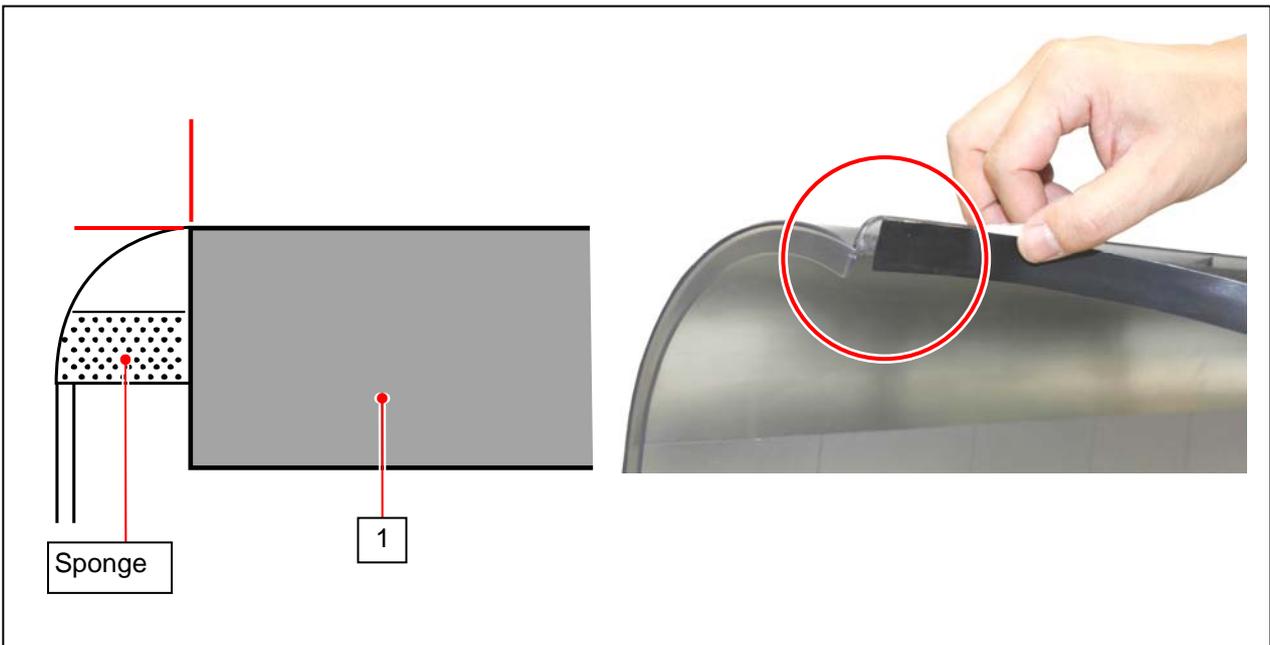
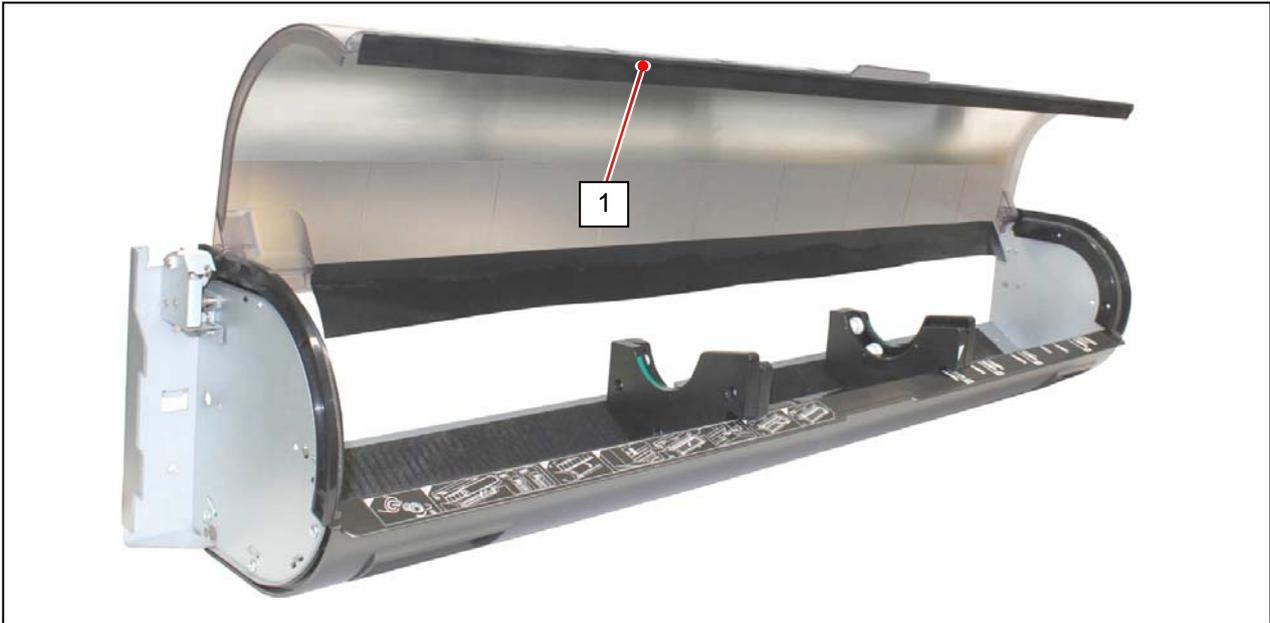
NOTE

SHEET 4 as an independent part is included in US/EU model kit only.



Width : 20mm

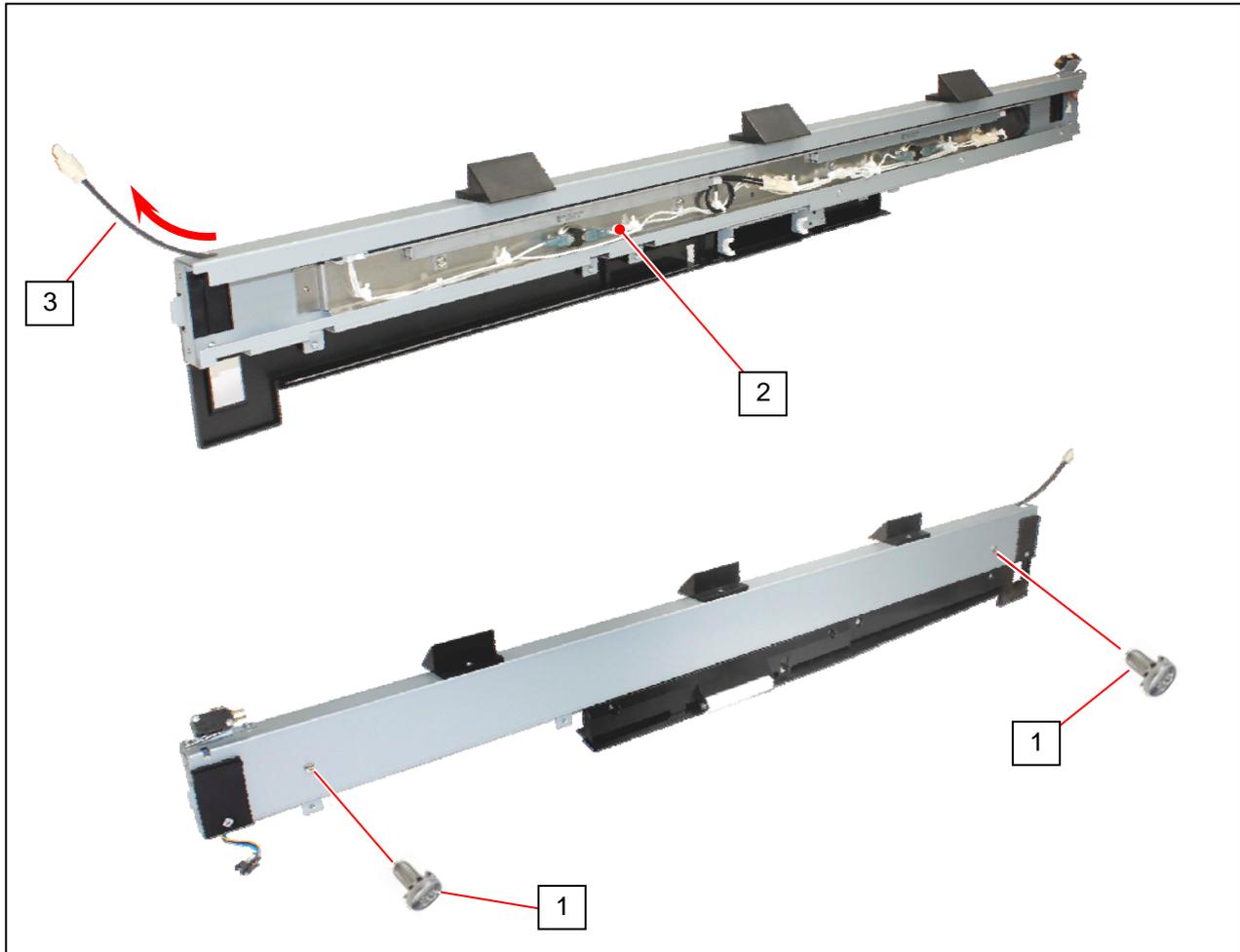
1. Noting the images below, apply the Sheet 4 (1) to the tab part of Roll Deck Cover.



9. 1. 5 Installing Dehumidify Heater Assy 2



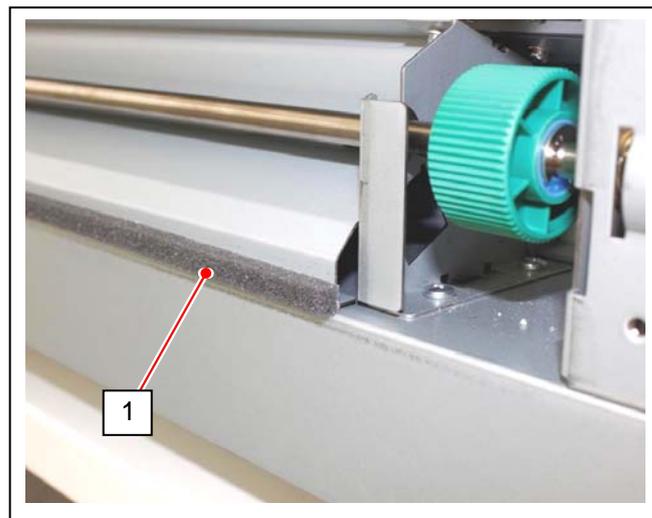
1. Fix Dehumidify Heater Assy 2 (1) to the Guide Plate with 2 tooth washer screws (2) of the kit.
Pass the harness (3) of Dehumidify Heater Assy 2 through the rectangle hole on top right of Guide Plate.



9. 1. 6 Installing the parts to the machine

9. 1. 6. 1 Applying Seal 8

1. Apply the Seal 8 (1) to the place illustrated in the pictures below.



9. 1. 6. 2 Applying Sheet

NOTE

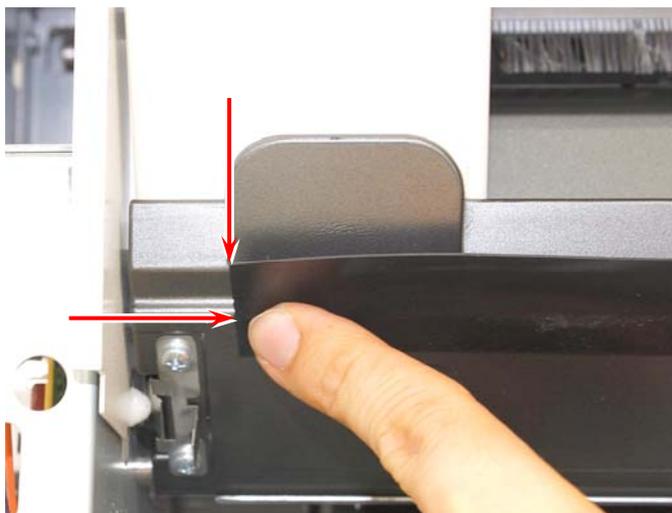
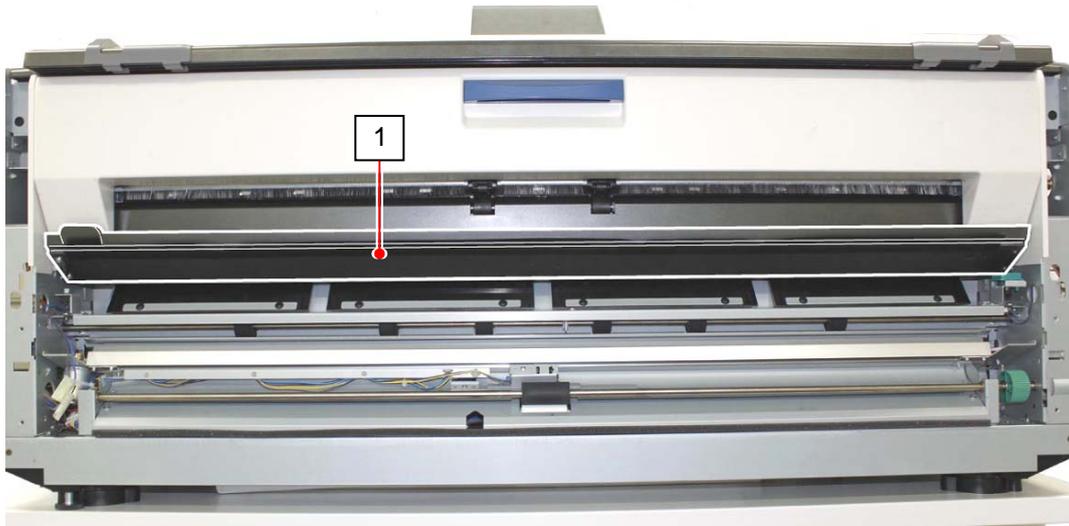
SHEET as an independent part is included in US/EU model kit only.



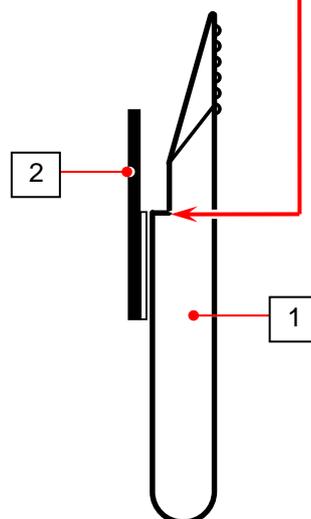
Width : 29mm

SHEET

1. Apply Sheet (2, wider) to the bottom of the Guide (1).

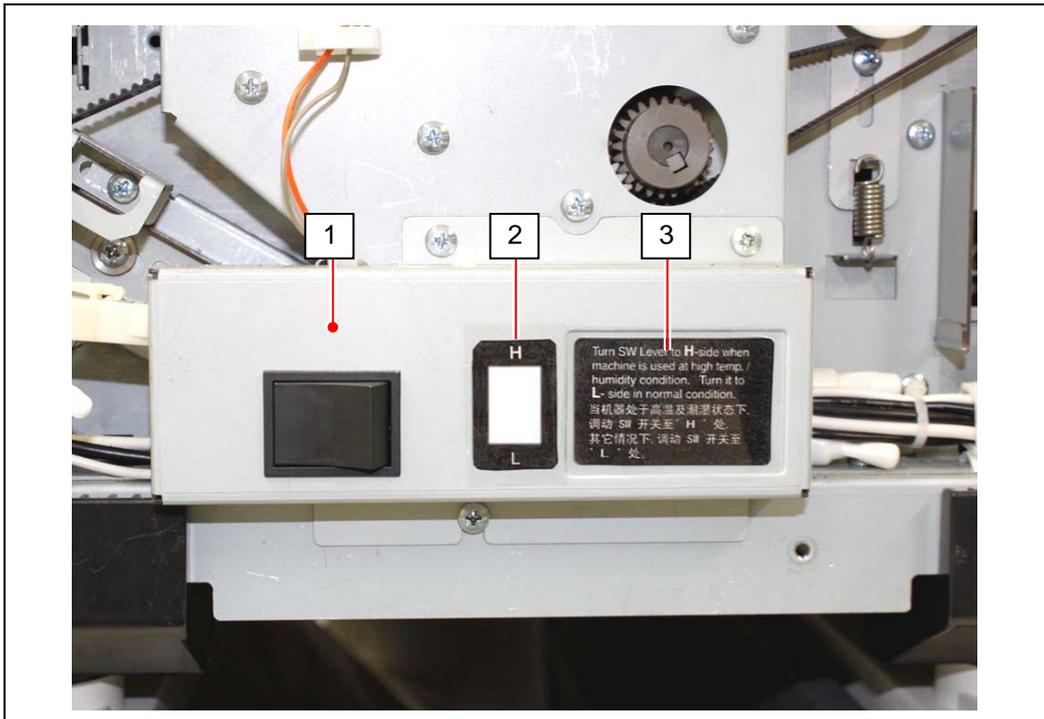


Match the double-sided tape to the step.

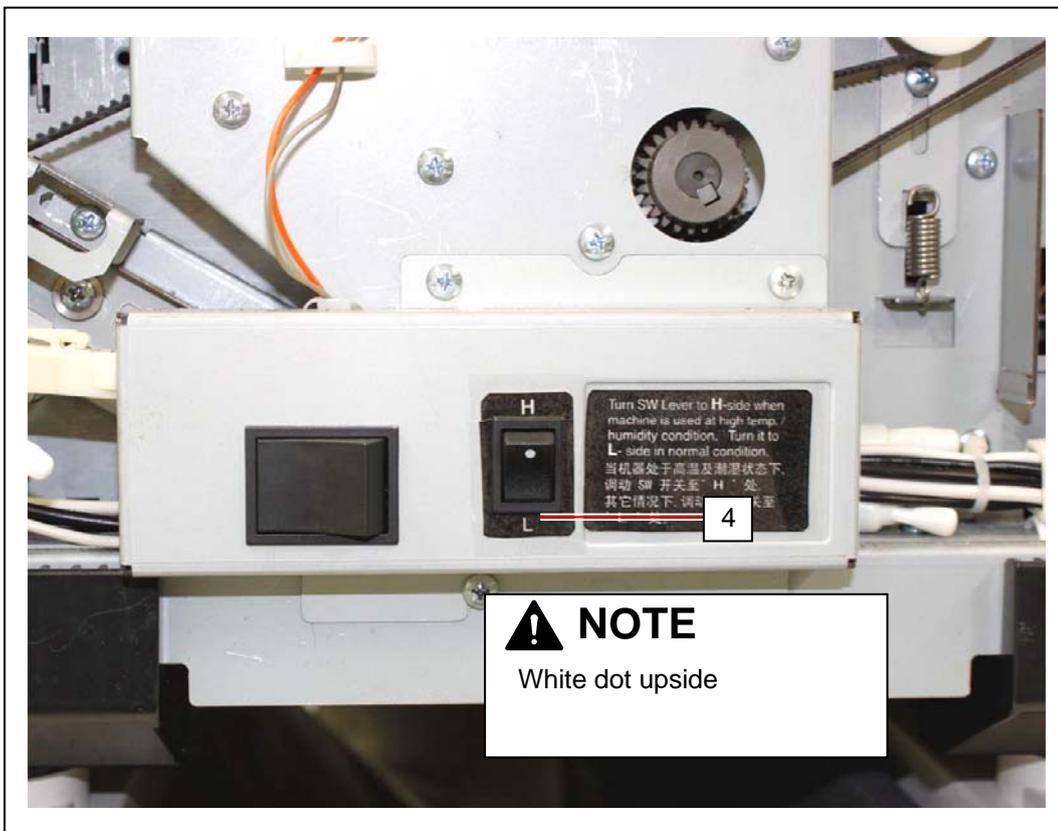


9. 1. 6. 3 Installing Switch

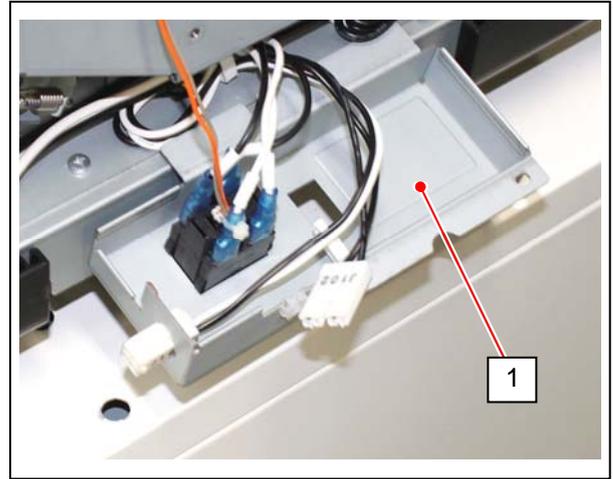
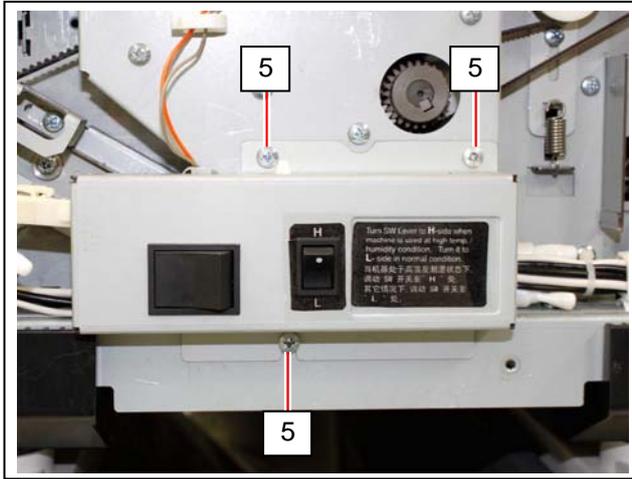
1. Apply the Switch Indication Label (2) and Dehumidify Label (3) to the switch case (1).



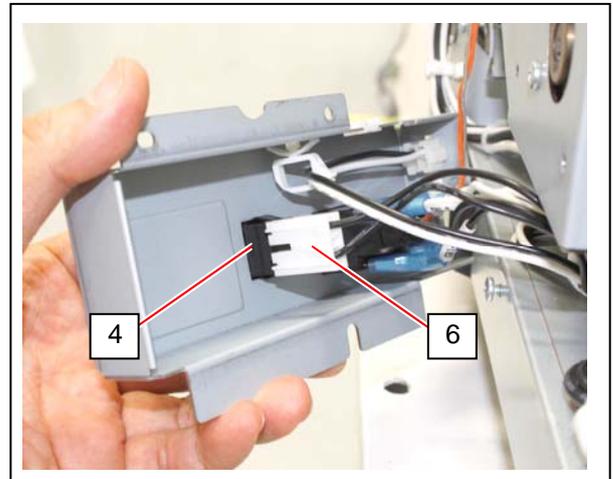
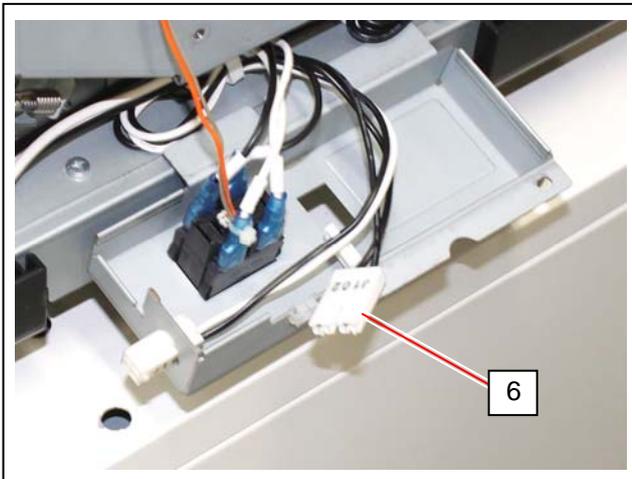
2. Install the Switch (4) to the switch case with the **white dot upside**.



3. Remove 3 screws (5) to remove the switch case (1).



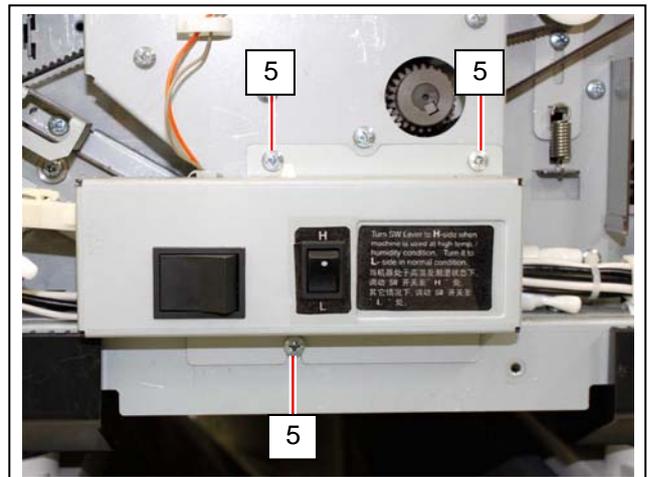
4. Connect the connector (6) in the switch case to the back of Switch (4).



NOTE

Connect the connector in either way.

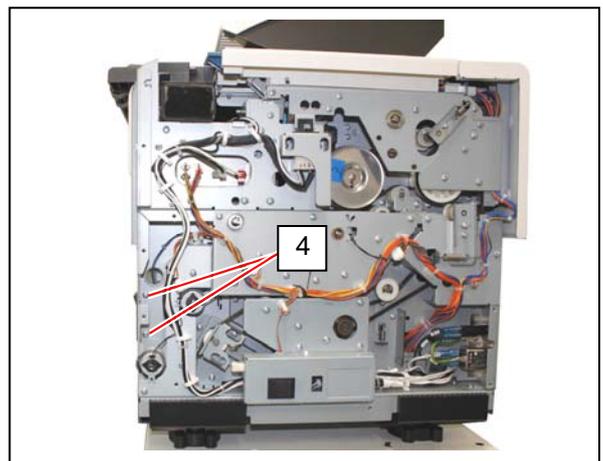
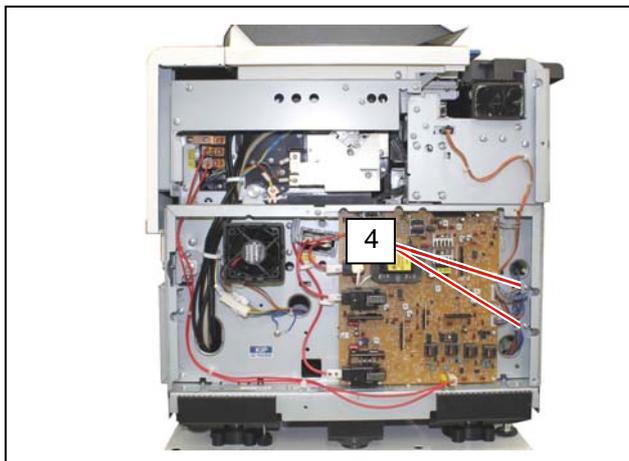
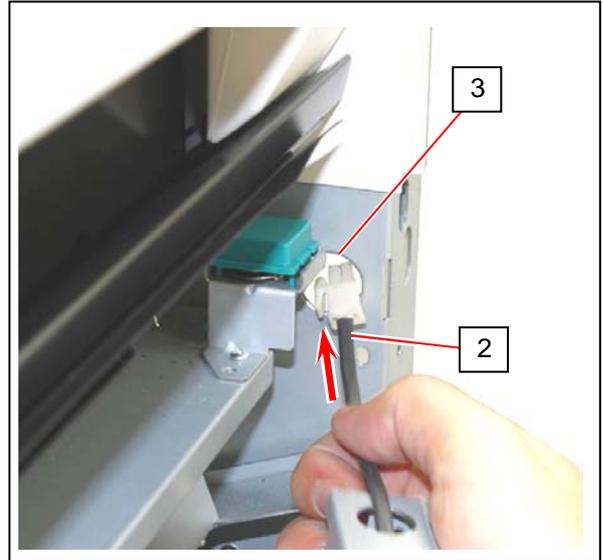
5. Reinstall the switch case with 3 screws (5).



9. 1. 7 Reinstallation of each unit

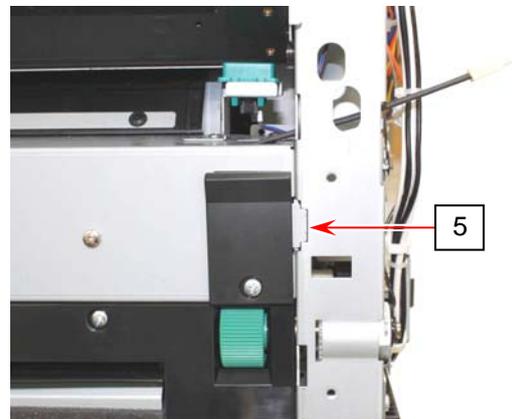
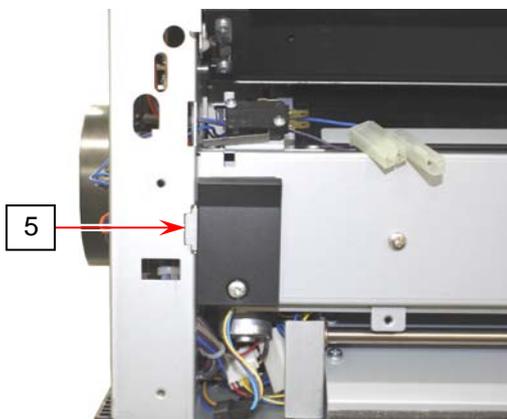
9. 1. 7. 1 Reinstalling Guide Plate

1. Pass the harness (2) sticking out from Guide Plate (1) through the round hole (3) on the right side. Fix Guide Plate with 4 screws (4).

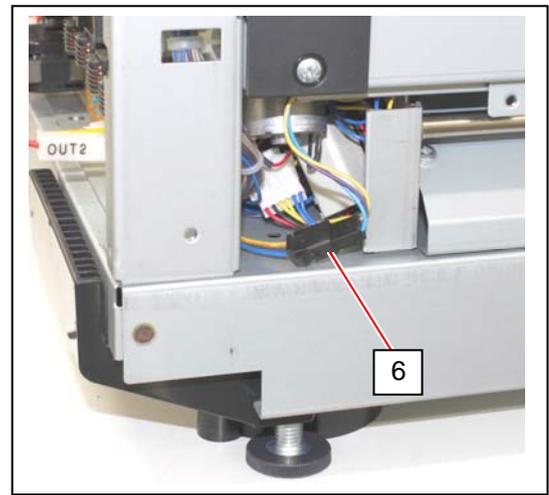


NOTE

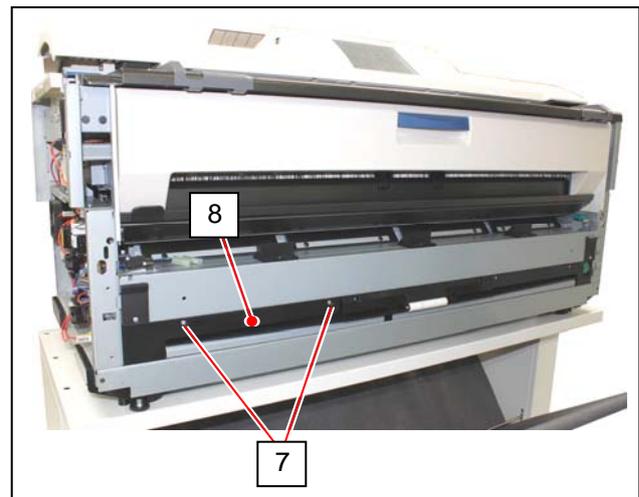
Fit the tab parts (5) on both sides in the notches.



2. Connect the connector (6).

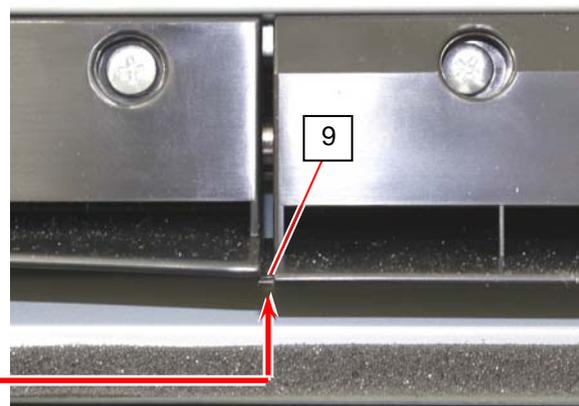
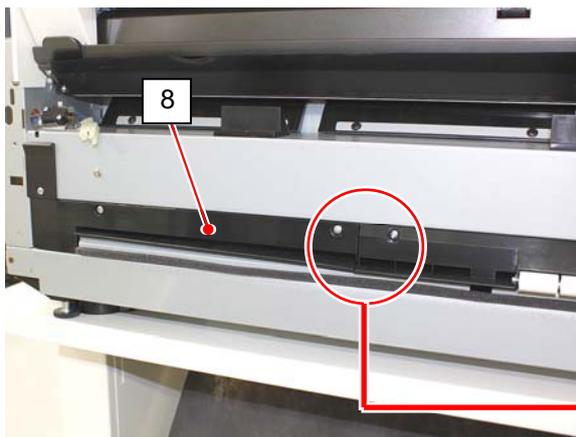


3. Fix GUDE PLATE C (8) with 2 screws (7).

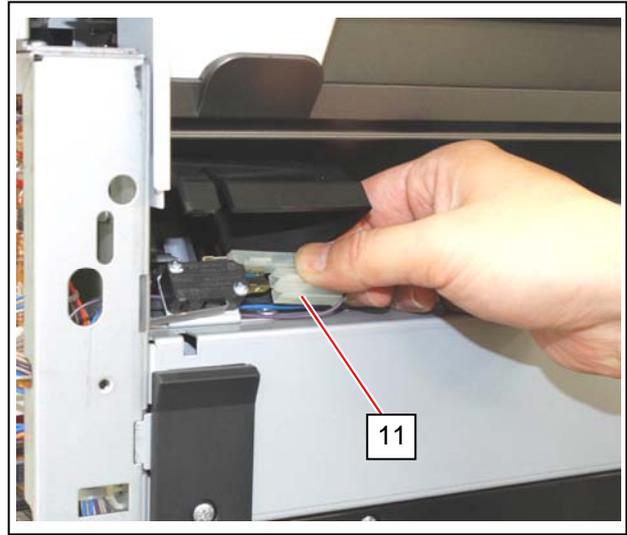
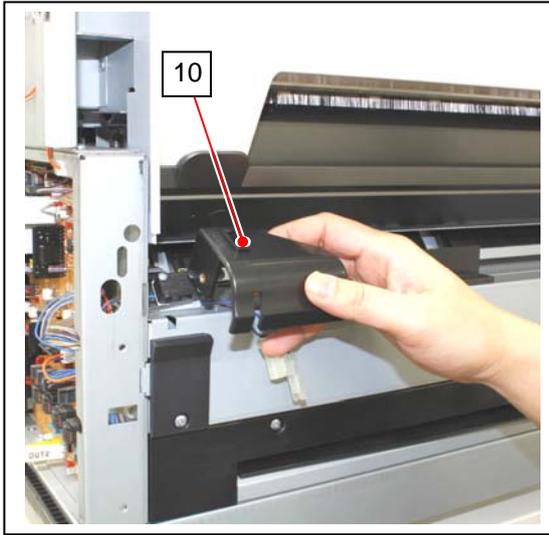


! NOTE

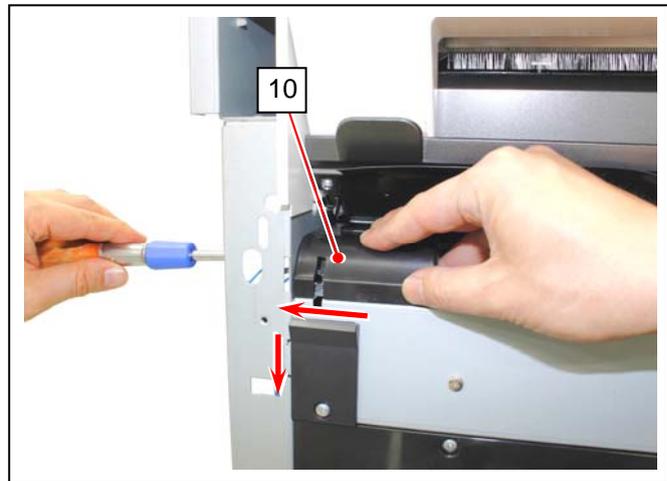
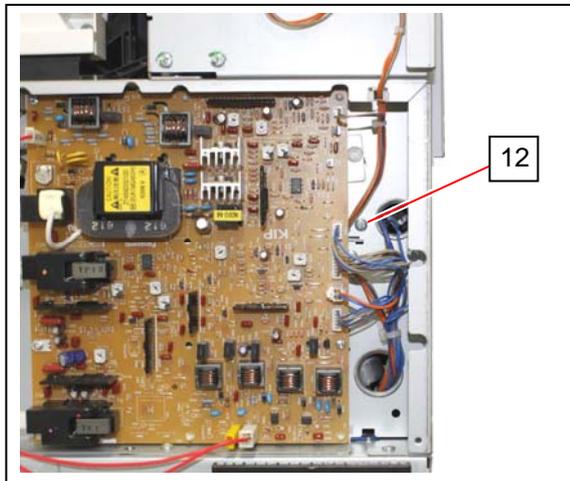
Guide Plate C (8) should ride on the rib (9).



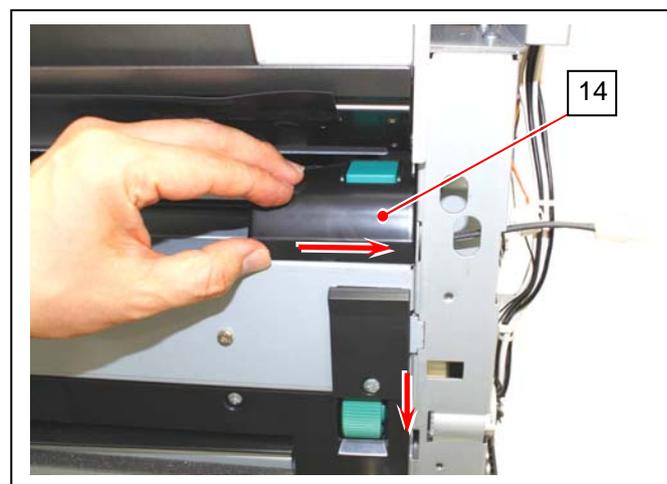
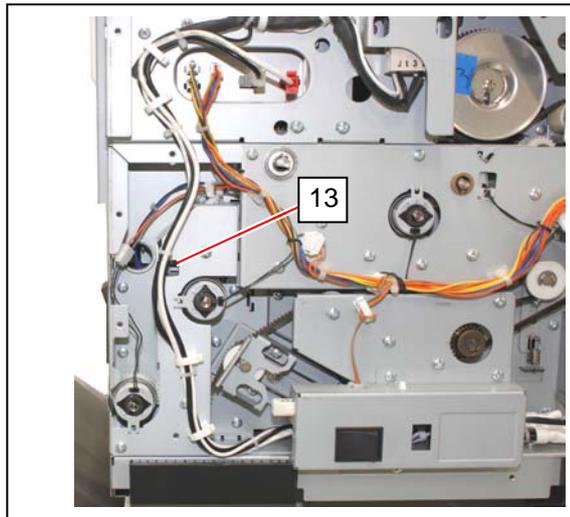
4. Return the switch cover (10) in the original position. Connect the connector (11).



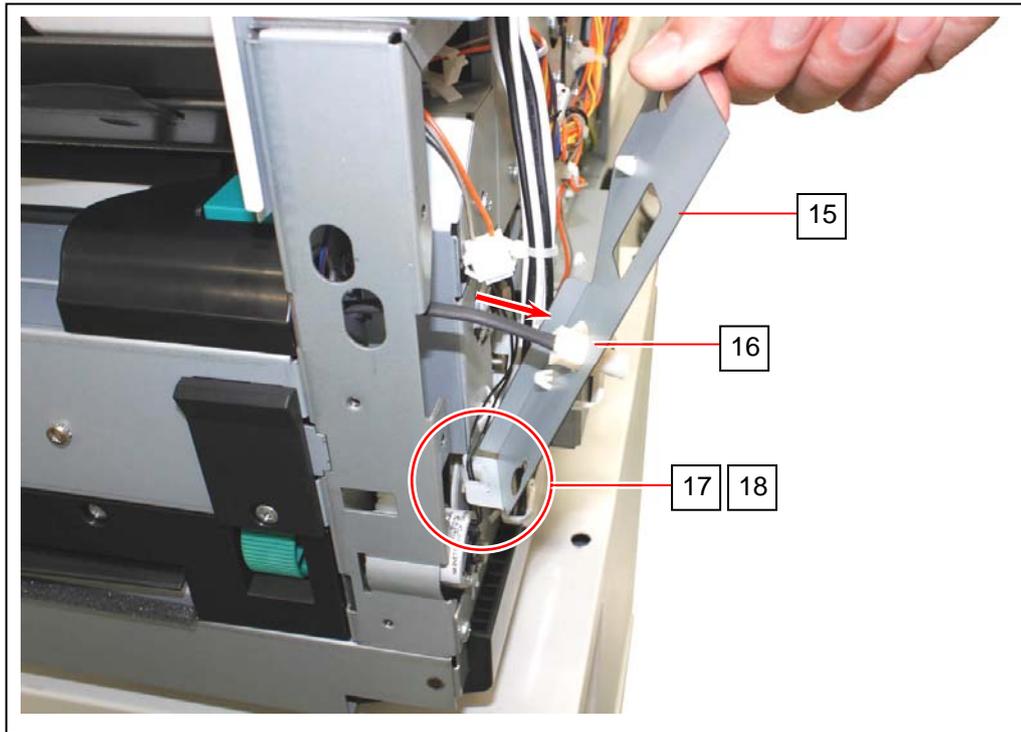
5. With pressing the switch cover (10) to the arrow direction (outward and downward), fix it with 1 screw (12).



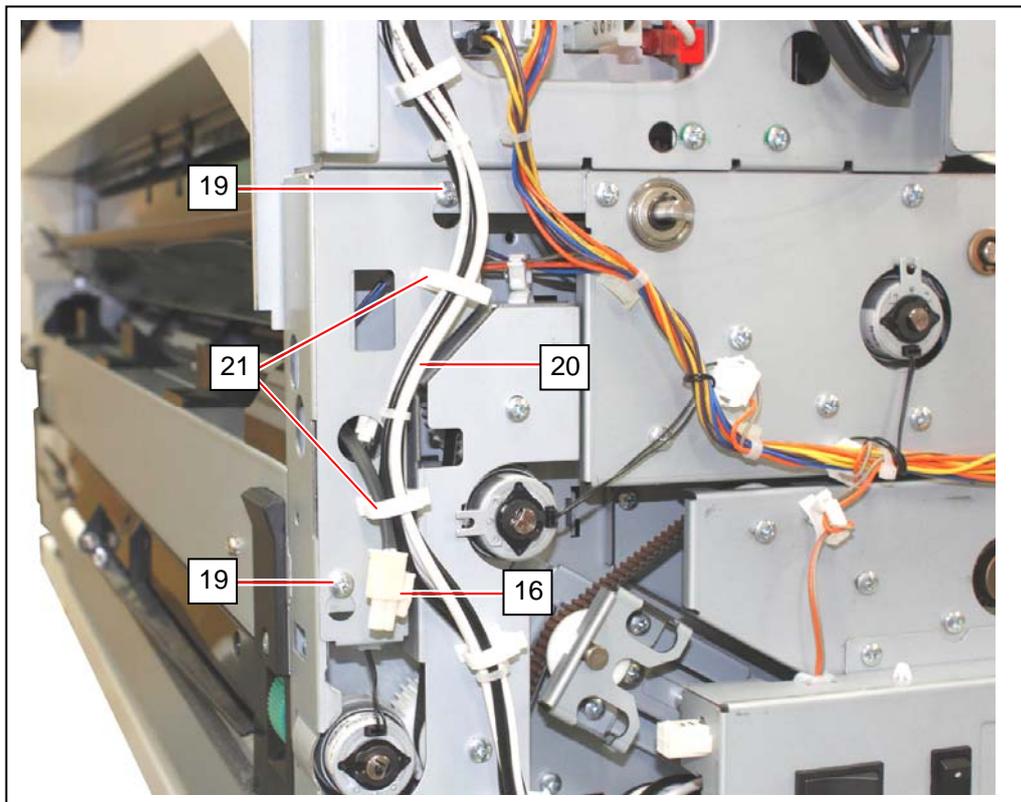
6. With pressing the switch cover (14) to the arrow direction (outward and downward), fix it with 1 screw (13).



7. Pass the harness of Dehumidify Heater Assy (16) through the round hole on the bracket (15).
Path the harness of Clutch (17) through the edge saddle (18).

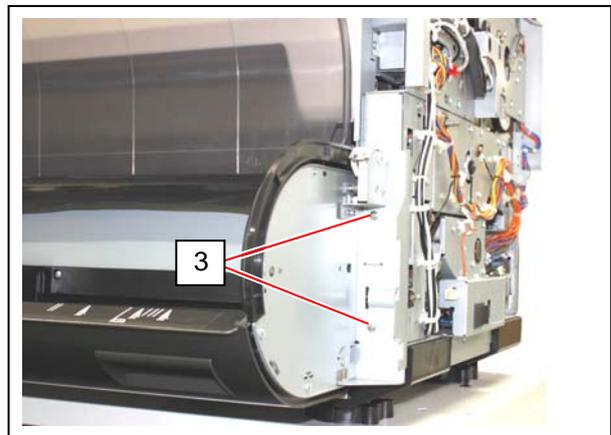
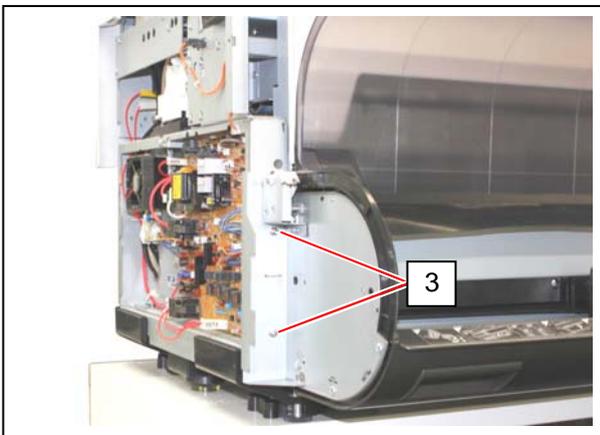
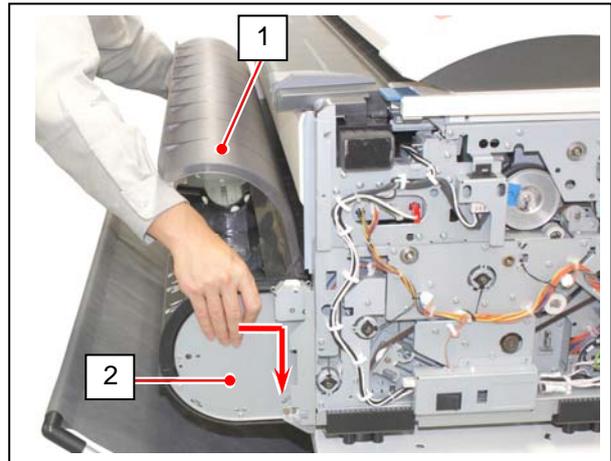


8. Fix the bracket with 2 screws (19). Secure the harness (16) and the AC harness (20) with the wire saddles (21).



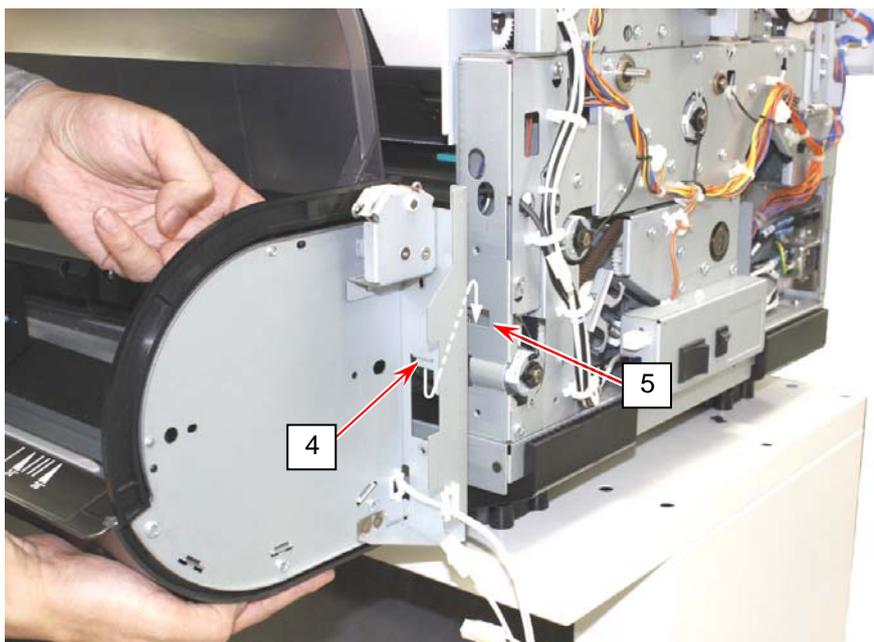
9. 1. 7. 2 Reinstalling Roll Deck Assy

1. With the Roll Deck Cover (1) open, place the Roll Deck Assy (2) in the arrow direction. Fix it with 2 tooth washer screws (3) on each side.

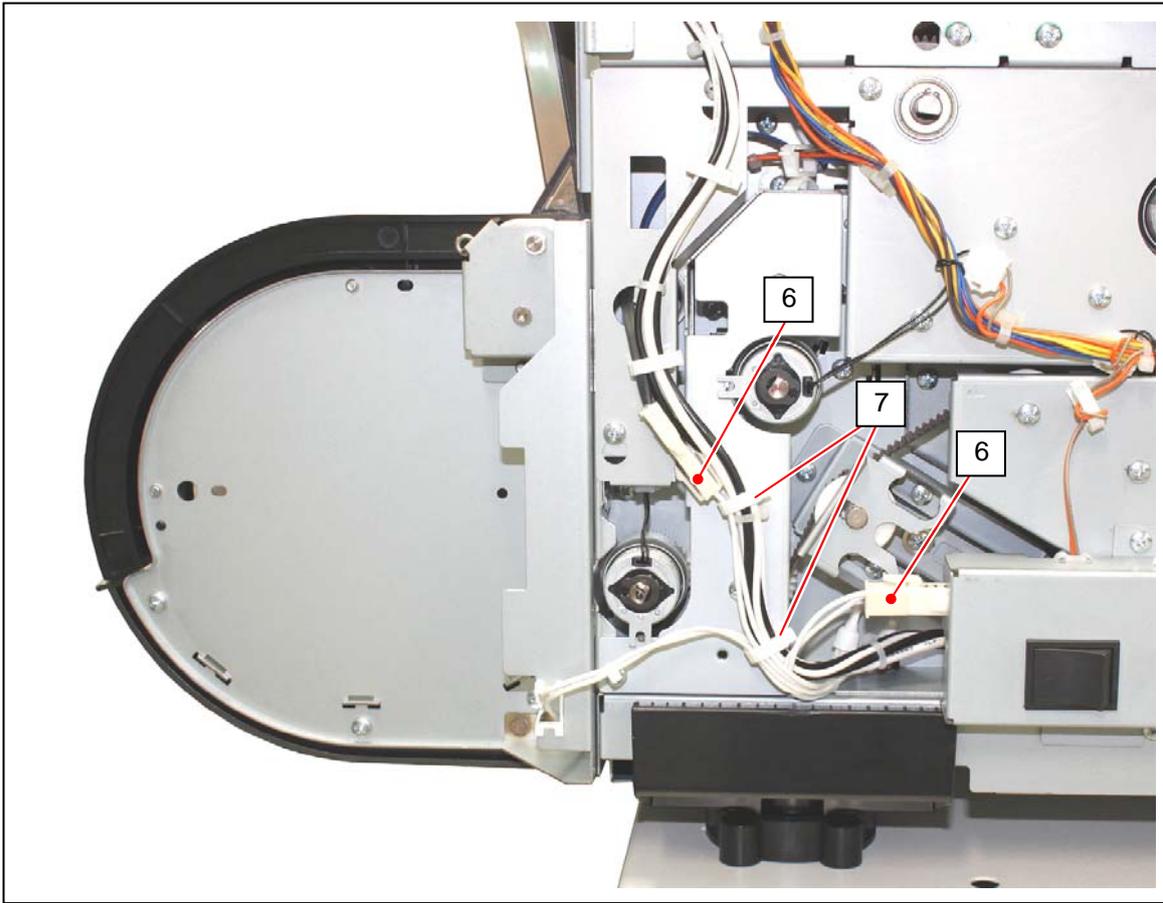


! NOTE

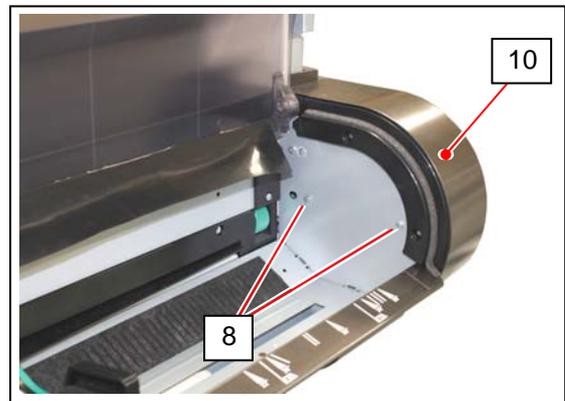
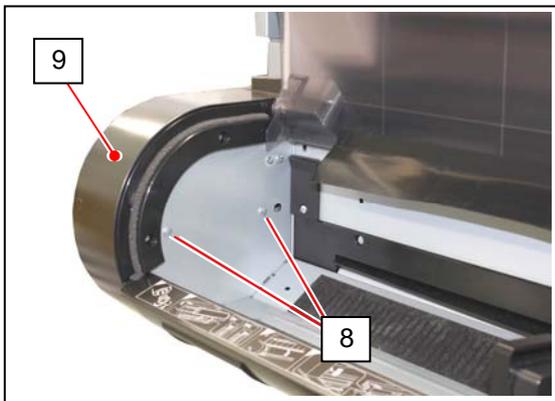
Hook the tab part (4) on both sides to the notches (5).



2. Connect 2 connectors (6) from the Roll Deck Assy to the connectors respectively. Secure them with the wire saddles (7).

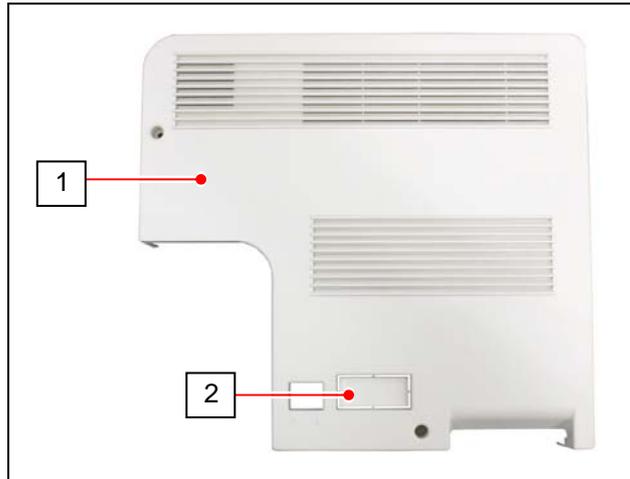


3. Reinstall the Cover 20 (9) and the Cover 19 (10) with 2 screws (8) on each side.

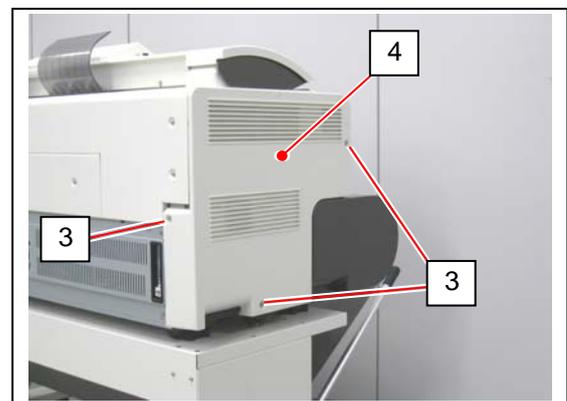
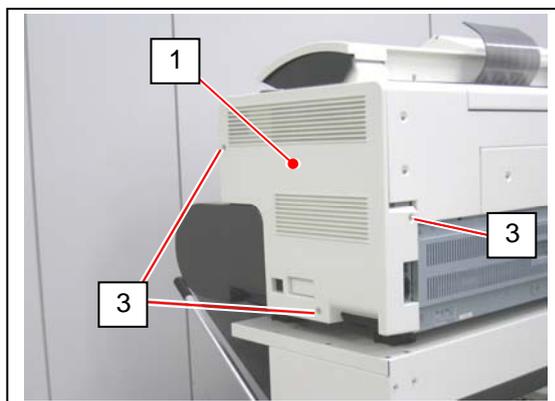
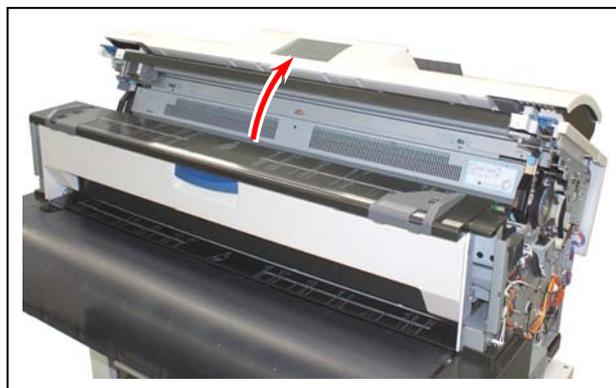


9. 1. 7. 3 Reinstalling Side Cover

1. Clip off the blinder portion (2) on the Side Cover R (1).



2. Open the Upper Unit. Reinstall the Side Cover R (1) and Side Cover L (4) with 3 screws (3) each.

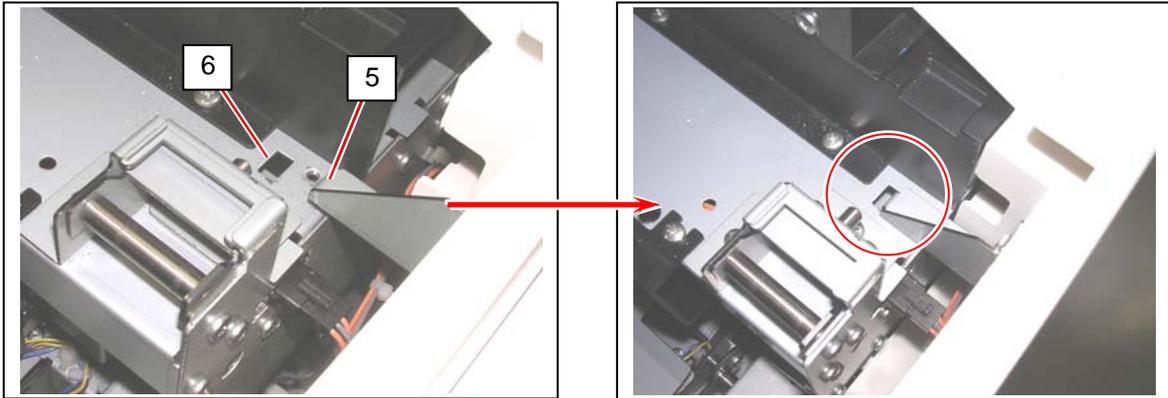


NOTE

See next page.

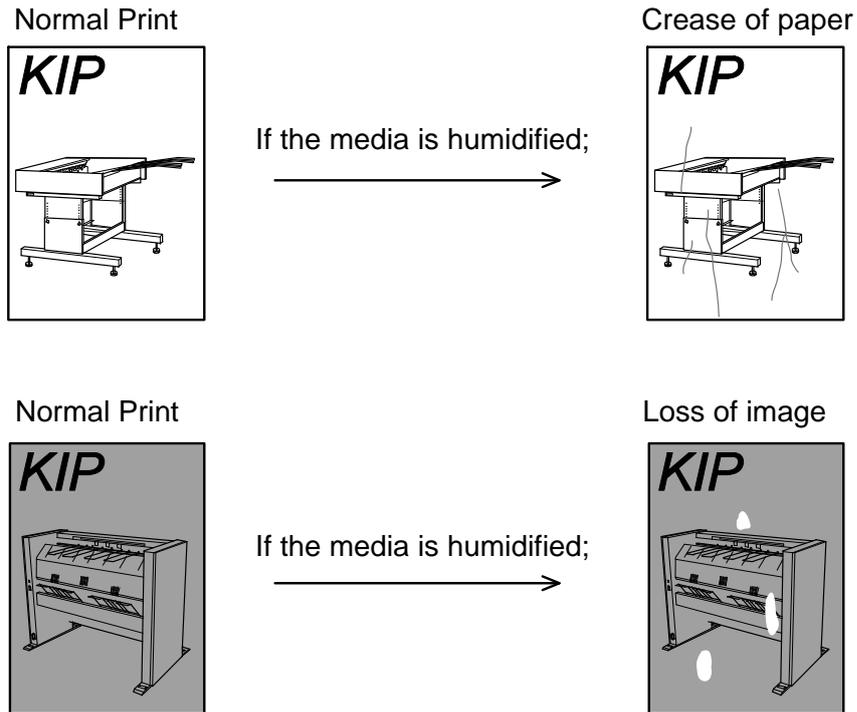
NOTE

The hook part (5) should be seated in the rectangular hole (6) of the machine.



3. This is the end of the procedure.

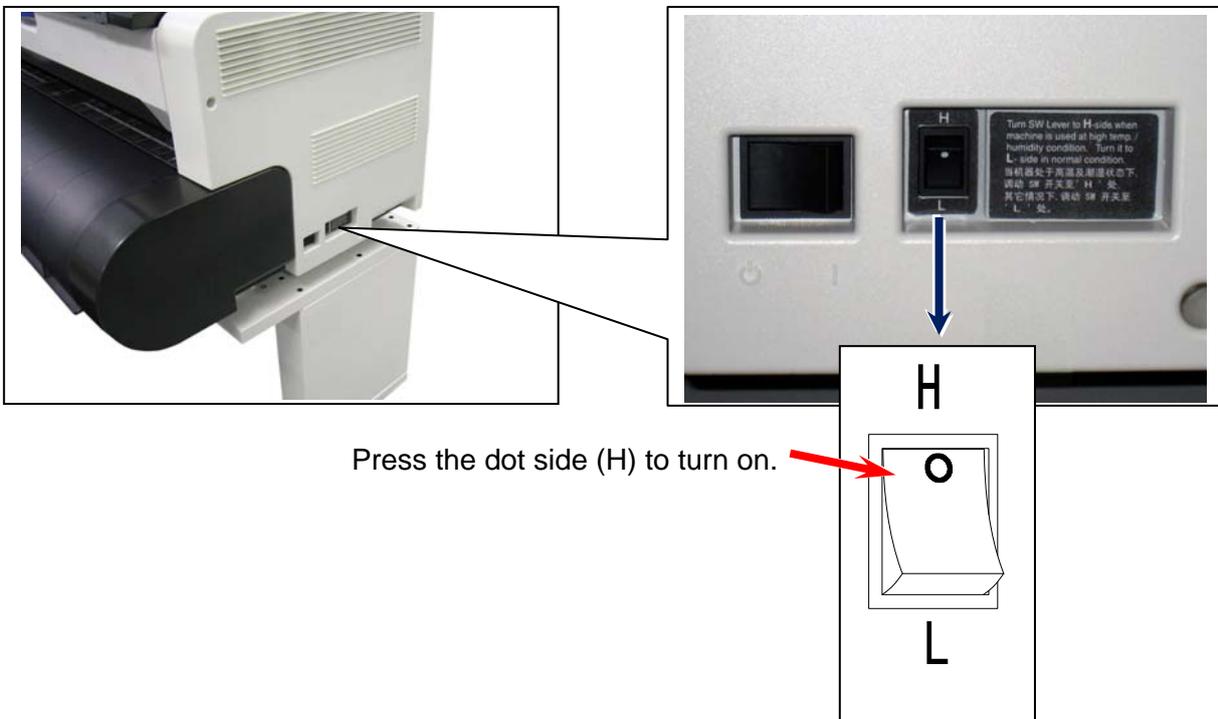
If the roll paper is extremely humidified, it may cause several kinds of defective print. Defective prints you will experience most will be “crease of paper” and “loss of image”.



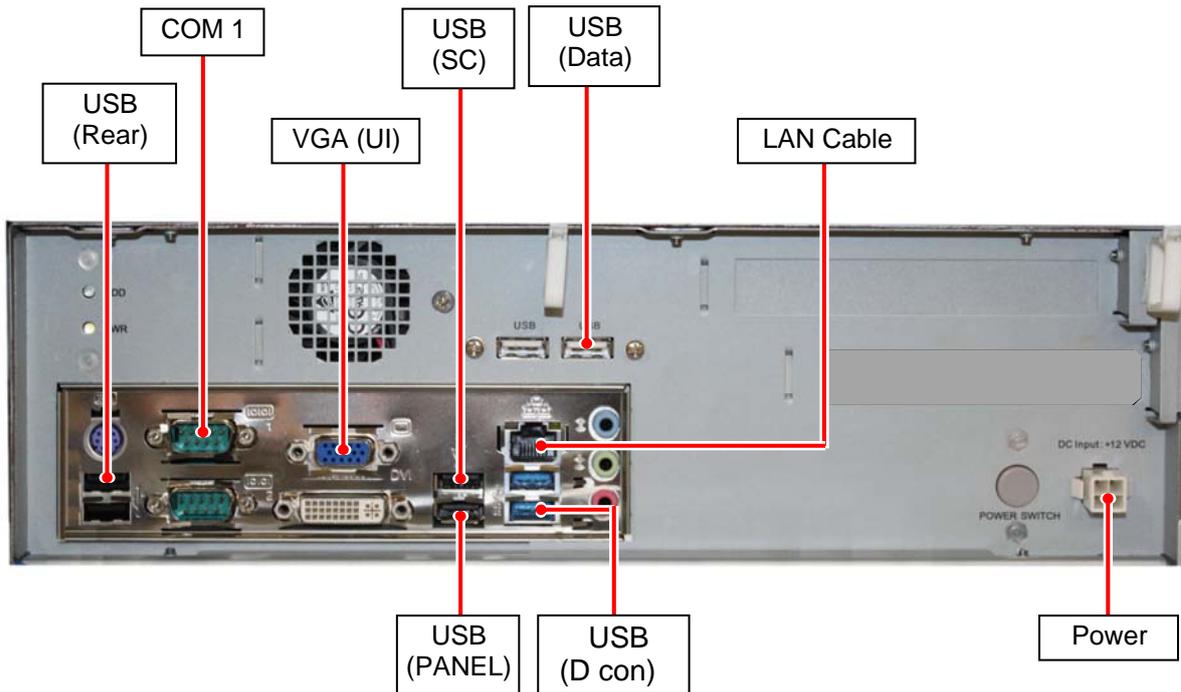
Turn on the Dehumidify Heater if the room air has too much humidity (65% or higher) to prevent the above kinds of print defect.

You may be able to fix the above kinds of problem.

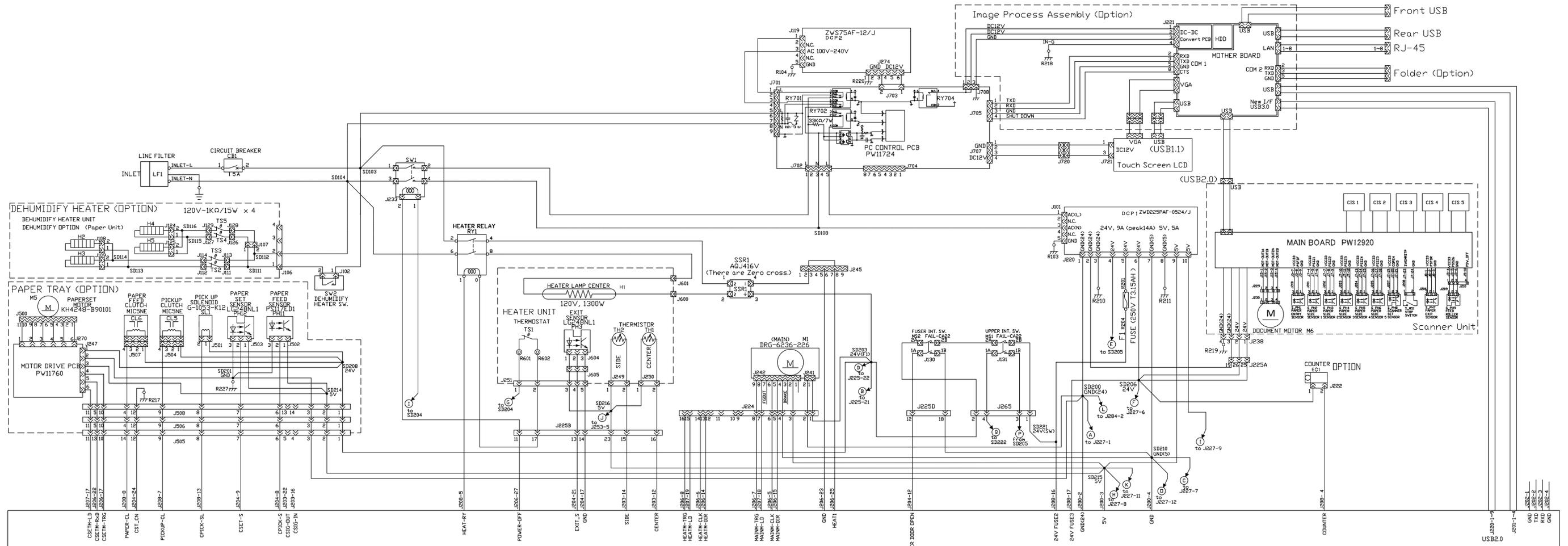
To turn on the Dehumidify Heater, press the H side of the Dehumidify Heater Switch on the rear. (Press its L side to turn off.)

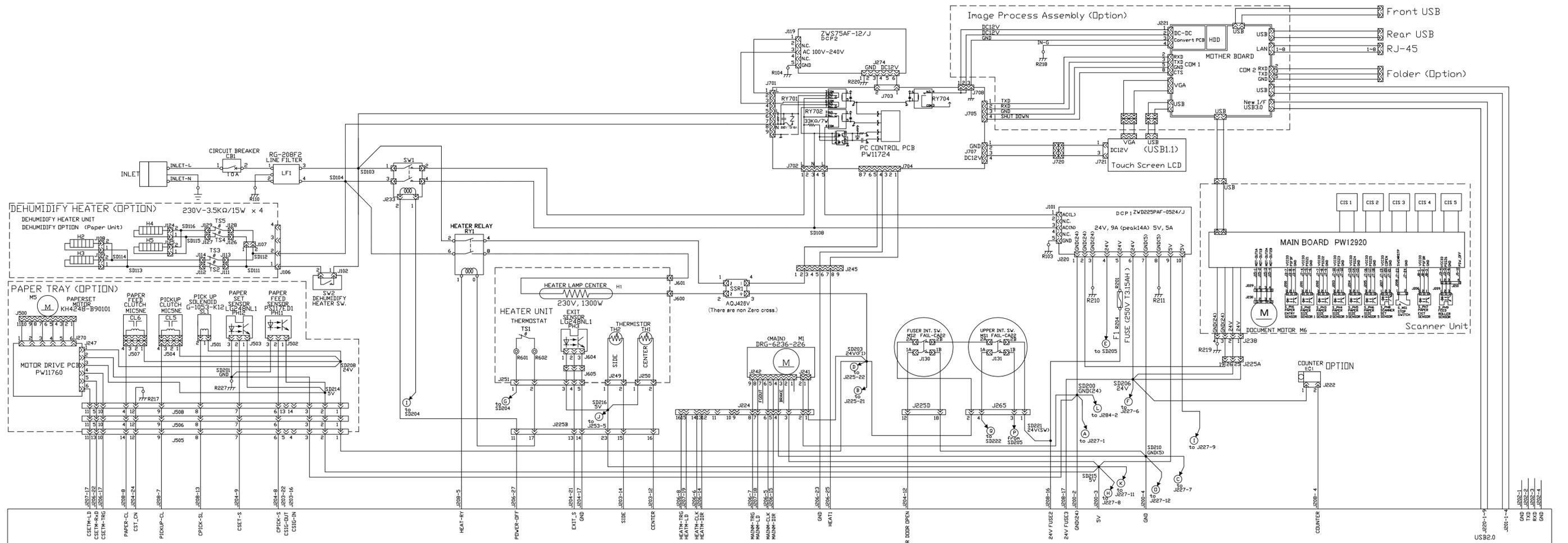


9.2 Schematic Wiring around Controller

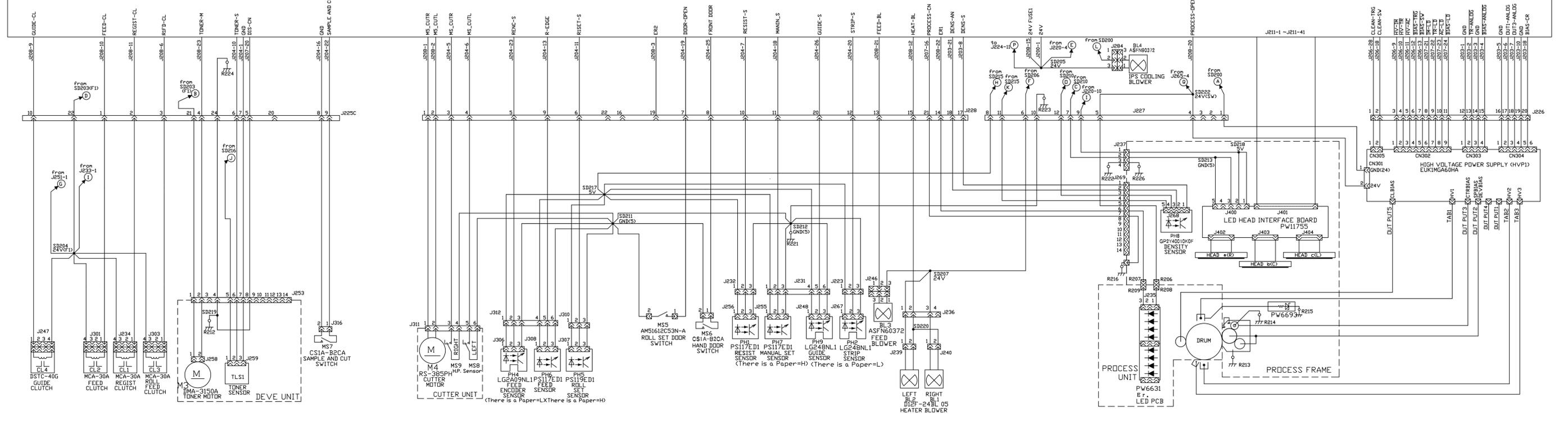


9.3 Overall Diagram





DC CONTROLLER PCB
PW13320



KIP 770 System K (K-133) Change Record of Service Manual

Version A.1 (Issued on February 13, 2018)

<Chapter 2>

All description pages are duplicated with the setup guide, so they are removed.

<Chapter 4>

[4. 4 Serial Manager] is added. (Page 4-33)

<Chapter 8>

Backup Data #61 is added. (Page 8-41, 8-68)

Backup Data List is updated based on 12920M20 & 12920S24. (Page 8-191)

The contents of BUD No. 5 (ED Gamma Select) is changed. (Page 8-196)

Description of BUD 15 "Stitch Setting 1" is updated. (Page 8-198)

Description of BUD 271 "Correction Block" is updated. (Page 8-207)

"NOTE" is added. (Page 8-218)