KIP 700m

Service Manual

Version A.2

Chapter 1

Introduction

1. 1 Features

(1) KIP 700m 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 (option) offers easy print handling with the print basket. The KIP 700m 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” inch 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) 2 inch core plain paper support

1. 2 Specifications

1. 2. 1 General

Subject	Specification
Model	KIP 700m
Configuration	Console
Power consumption (Maximum)	1500w (US model) 1600w (Europe/Asia model) (Including Scanner & Controller Unit)
Power consumption (Low power mode)	13w or less (US model) 13.5w or less (Europe/Asia model)
Acoustic noise	Idling ..... Max. 51db Printing ..... Max. 60db (impulse sound excluded) EN ISO 7779
Ozone	Max. 0.05ppm (Measurement method under UL Standard)
Dimensions	1245mm (Width) x 833mm (Depth) x 1174mm (Height) (including Stand)
Weight	About 144kg / 318lbs (Stand excluded)
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

⚠ NOTE

The above specifications are subject to change without notice.

1. 2. 2 Printer part

<table>
<tr><th>Subject</th><th>Specification</th></tr>
<tr><td>Printing method</td><td>LED Array Electro photography</td></tr>
<tr><td>Photoreceptor</td><td>Organic Photoconductive Drum</td></tr>
<tr><td>Print speed</td><td>40mm per second
(Inch) ..... 1.7ppm/E 2.9ppm/D Landscape
(Metric) ..... 1.6ppm/A0 2.8ppm/A1 Landscape</td></tr>
<tr><td>Print head</td><td>LED Array</td></tr>
<tr><td>Resolution of print head</td><td>600dpi x 600dpi</td></tr>
<tr><td>Print width</td><td>Maximum ..... 914mm / “36”
Minimum ..... 297mm / “11” for roll media
210mm / “8.5” for cut sheet</td></tr>
<tr><td>Print length</td><td>Maximum
(Standard) ..... 2,400mm for A0 / 36” wide (plain paper / bond)
or “2 x Standard length” (plain paper / bond)
“1 x Standard length” (plain paper / bond, 2” core roll)
“1 x Standard length” (vellum / tracing paper, film)
(Option) 3,600mm
Minimum ..... 297mm / 11”
⚠ NOTE
If the print is longer than 2,400mm, its image quality or the reliability of paper feeding is not guaranteed.</td></tr>
<tr><td>Print size
(from Paper Tray, option)</td><td>ISO (mm)
Length / Width
<table><tr><th></th><th>420</th><th>297</th><th>210</th></tr><tr><td>594</td><td>X</td><td></td><td></td></tr><tr><td>420</td><td></td><td>X</td><td></td></tr><tr><td>297</td><td>X</td><td></td><td>X</td></tr></table>
ANSI (inch)
Length / Width
<table><tr><th></th><th>18</th><th>17</th><th>12</th><th>11</th><th>9</th><th>8.5</th></tr><tr><td>24</td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>22</td><td></td><td>X</td><td></td><td></td><td></td><td></td></tr><tr><td>18</td><td></td><td></td><td>X</td><td></td><td></td><td></td></tr><tr><td>17</td><td></td><td></td><td></td><td>X</td><td></td><td></td></tr><tr><td>12</td><td>X</td><td></td><td></td><td></td><td>X</td><td></td></tr><tr><td>11</td><td></td><td>X</td><td></td><td></td><td></td><td>X</td></tr></table></td></tr>
<tr><td>Warm up time</td><td>Shorter than 2 minutes 30 seconds
At 23°C, 60%RH, the rated voltage, plain paper</td></tr>
<tr><td>First print time</td><td>42 seconds (D Landscape), 41 seconds (A1 Landscape)
At 23°C, 60%RH, the rated voltage, plain paper
(after submission of the concerning plot data)</td></tr>
</table>

⚠ NOTE

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, Oce Red Label Paper(75g/m^2) Tracing Paper : Oce Transparent Paper (80g/m^2) Film : Oce Polyester Film - 2” roll core : HP 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.

NOTE

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) 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 **NOTE** If the original is thicker than 0.65mm, its image quality is not guaranteed.
Scanning speed	60mm per second (mono, 600dpi max)

NOTE

The above specifications are subject to change without notice.

1. 3 Specifications for Originals

1. 3. 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 0.65mm.
(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. 3. 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

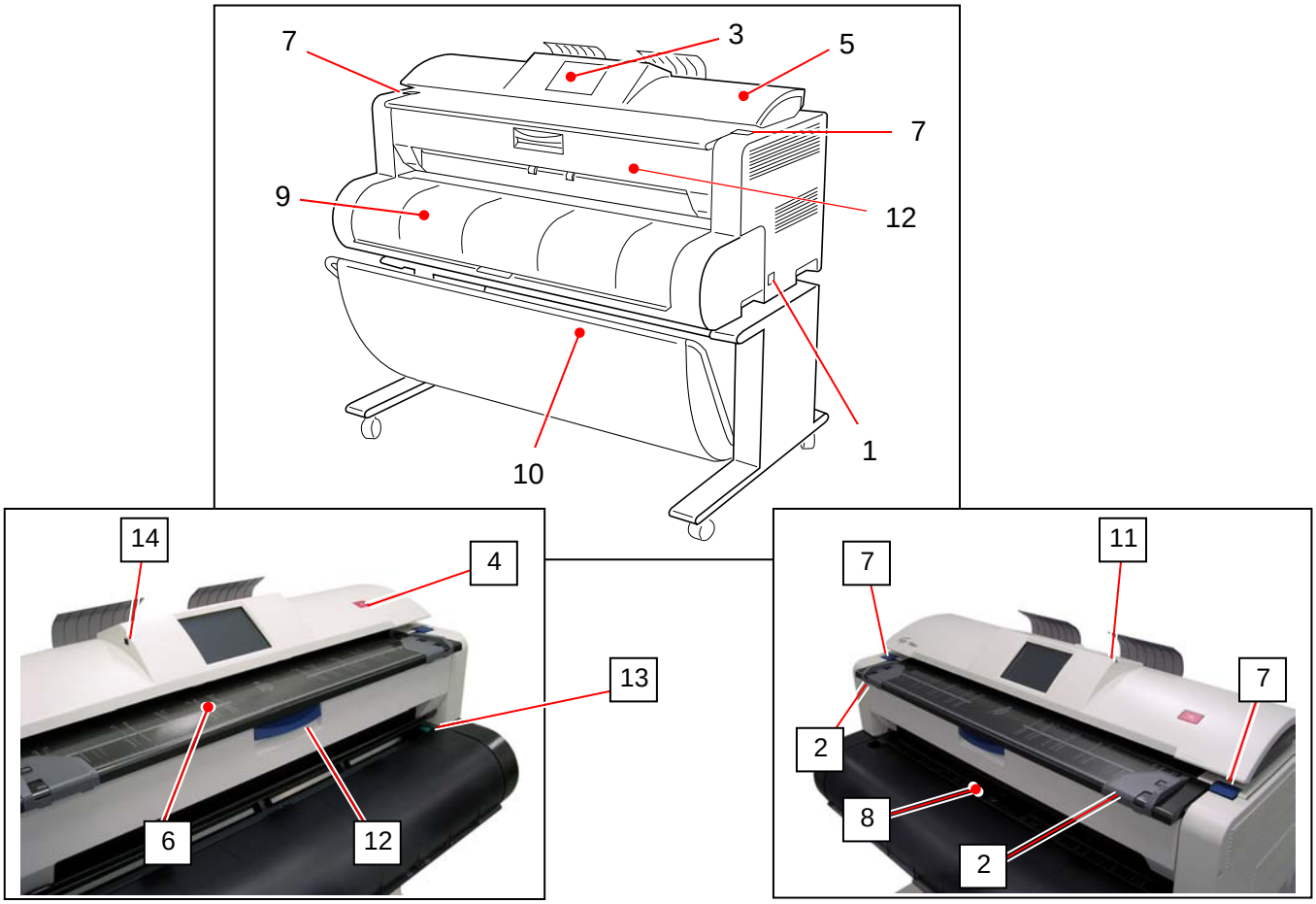
1. 3. 3 “Do Not Scan” Originals

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

(1) Metal originals (The Scan Glass may damage)
(2) Slippery originals which is difficult to transport
(3) Irregularly shaped originals (Not square in shape)
(4) Extremely curled originals (Diameter of curl is less than 50mm)
(5) Extremely creased originals
(6) Torn originals

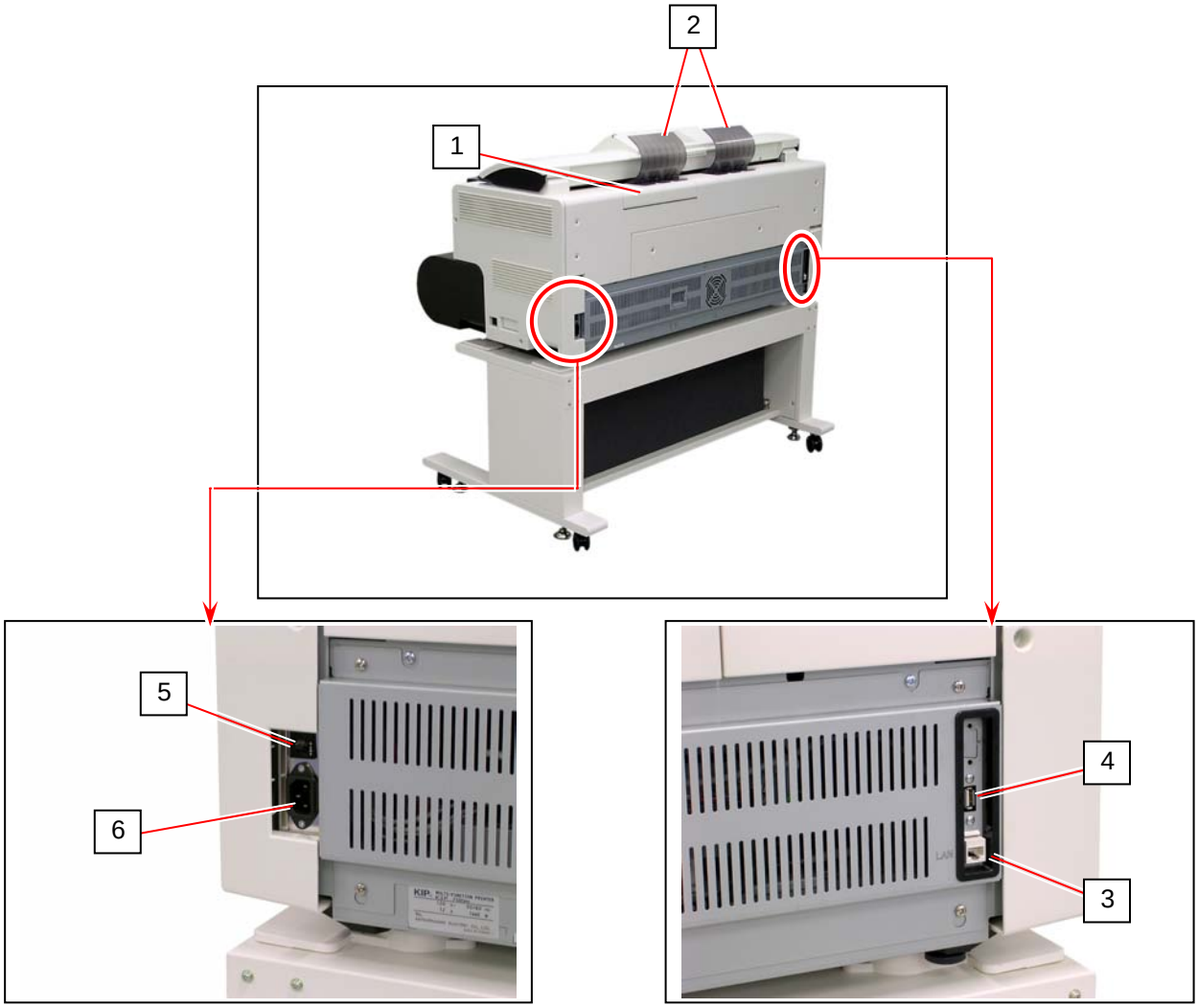
1. 4 Appearance

1. 4. 1 Front



No.	Name	Function
1	Main Switch	You can turn on/off the KIP 700m.
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	Emergent Stop Button	Press this red button when you would like to stop copying or scanning emergently.
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	Stylus	Use this to press buttons on the touch screen. **PLEASE DO NOT** use any other pointed object to tap on the UI.
12	Print Exit Cover	Can access a mis-feed print inside the Fuser Unit.
13	Initial Cut Button	Push this button to trim the leading edge of the loaded roll media.
14	USB port	Your USB flash memory storage can be installed here. 5VDC max.

1. 4. 2 Rear



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 700m 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.

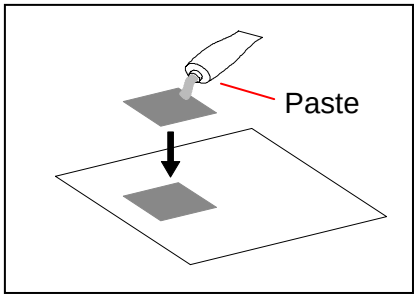
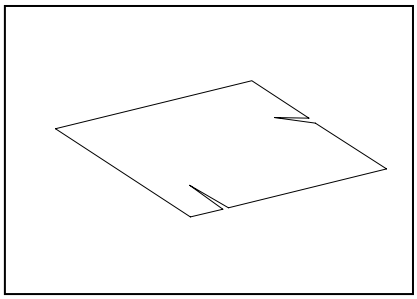
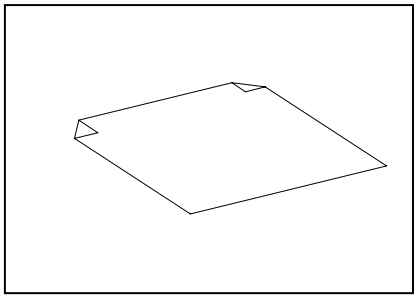
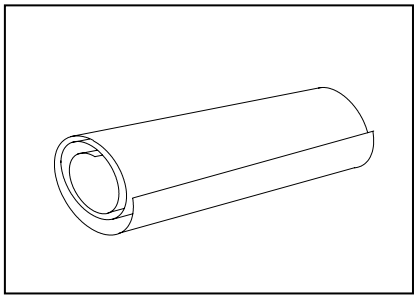
1. 5 Specifications for Scan Original

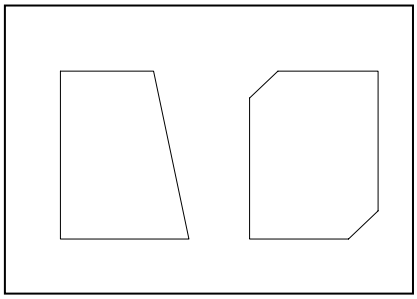
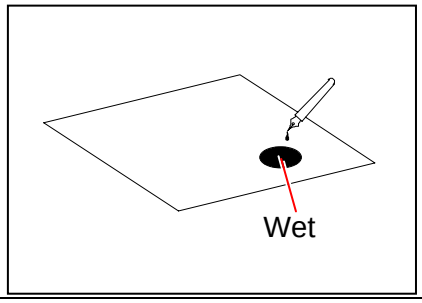
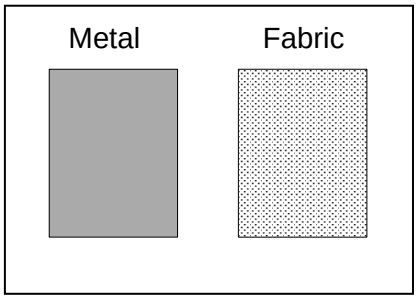
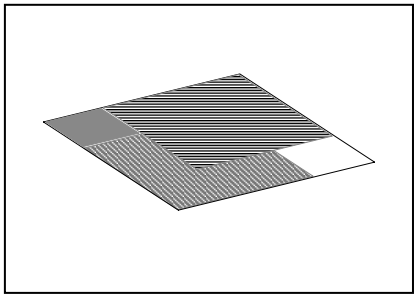
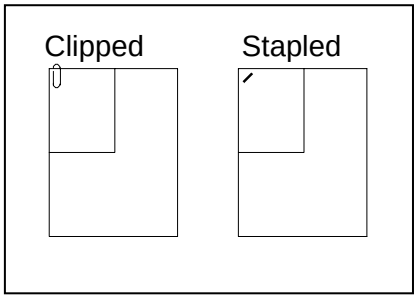
A scan original must satisfy the following specifications.

Thickness	0.05mm to 0.6mm
Width	210mm to 914.4mm
Length	210mm to 6,000mm

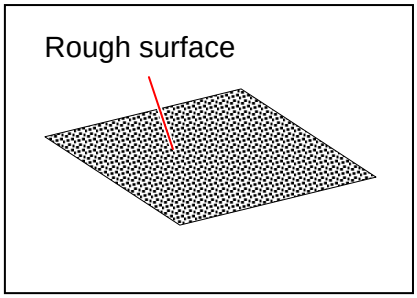
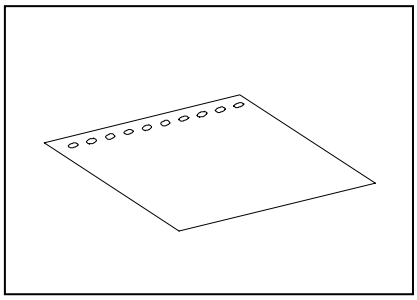
(If an original is thicker than 0.6mm, its image quality is not guaranteed even it is transported.)

Do not scan the following kinds of original, because you may damage the original or scanner itself!

Sticked with paste	
Torn	
Folded (Leading edge)	
So much curled (Diameter is smaller than 50mm.)	

Not square	
Wet image	
Made of metal or fabric	
Patched	
Clipped or stapled	

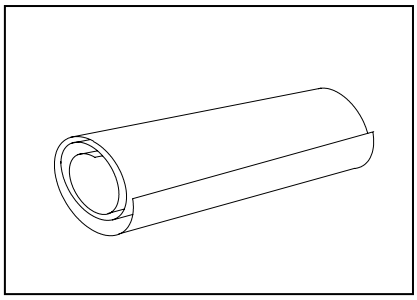
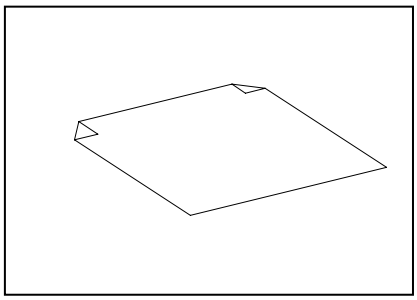
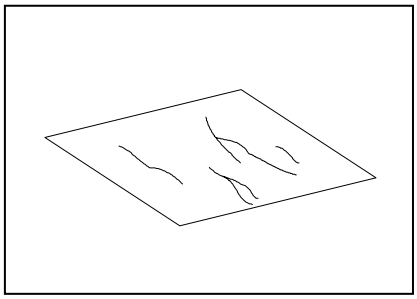
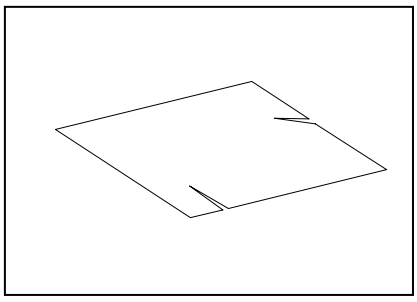
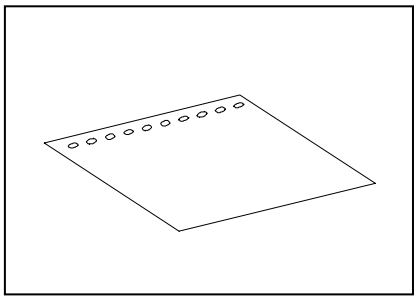
The following kinds of originals can be read with using a carrier sheet.
Image quality or the reliability of paper feeding for them is not guaranteed.

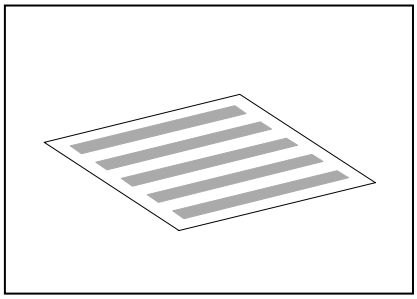
Rough surface (Carbon paper for example)	
Punched	

1. 6 Specifications for Printing Media

1. 6. 1 Papers not available to use

Do not use the following kinds of printing paper because you may damage the print engine!

Excessively curled (a diameter of 50 mm or less)	
Folded	
Creased	
Torn	
Punched	

Paper that has already been used for printing	
Extremely sticky	
Extremely thin and soft	
Extremely slippery	
OHP Film	

⚠ CAUTION

Do not use the paper with staple, or do not use such conductive paper as aluminium foil and carbon paper.
Such paper may become cause for the fire.

⚠ NOTE

(1) Print image may become light if printed on a paper of rough surface.

(2) Print image may become defective if the print paper is much curled.

(3) It will become a cause for paper mis-feed, defective print image or crease of paper if you use a paper that does not satisfy the specification.

(4) Do not use a paper of which surface is very special, such as thermal paper, art paper, aluminium foil, carbon paper and conductive paper.

(5) 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.

(6) Tracing paper exposed to air over a long period tends to defective printing.
Removing one round on the surface of the tracing roll paper from the beginning is recommended.

(7) Initial cut for the leading edge before making a long print is recommended.

1. 6. 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. 6. 3 Treatment against environmental condition

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.
	"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.
40%		Remove the paper from the machine after everyday use, and keep it in a polyethylene bag.
70%	"Void of image" occurs when you print with plain paper and tracing paper.	If you will not make print soon, remove the tracing paper from the machine 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

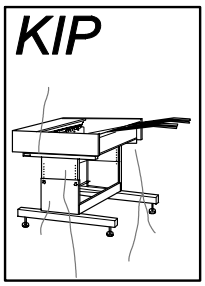
(1) Using a dehumidifier in high humidity environment (75% or higher) is recommended.

(2) "Void of image" and "crease of paper" will occur in case of extremely high or low humidity.

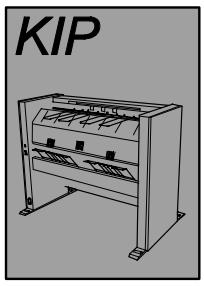
Normal Print

If the media is humidified; →

Crease of paper

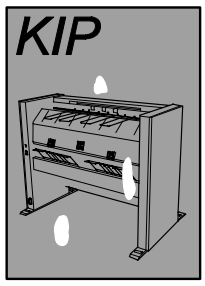


Normal Print



If the media is humidified; →

Void of image



Chapter 2

Installation

The machine had passed our strict inspection after careful adjustment in the factory, and then it was packaged and shipped. Installation is an important work to make the machine work at customer's site as same as it has passed our strict inspection before shipment.
A service engineer has to understand machine's function very well. Install the machine in a good environmental place in a correct way, and then check that it works perfectly.

2. 1 Unpack

The next page shows the unpacking procedure. This is printed on the outside of the product carton.

MULTI-FUNCTION PRINTER

KIP *700m*

Unpacking Procedure

⚠ NOTE

NEVER use a forklift to unload the machine.

⚠ NOTE

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

(2) Handle with great care when you unpack or install the printer because its net weight is about 180Kg.

(3) The printer package does not include printing paper. So ask it separately before installing the printer.

1. Cut the Bands (1), and then remove the Top Board (2).

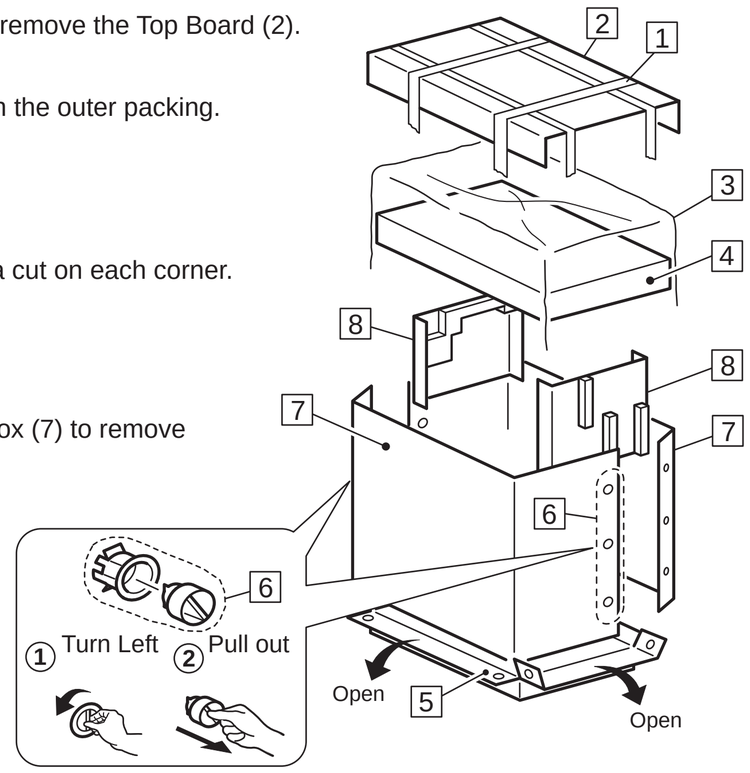
2. Open the plastic sheet (3) on the outer packing.

3. Remove Lid (4).

4. To open the Tray (5), make a cut on each corner.

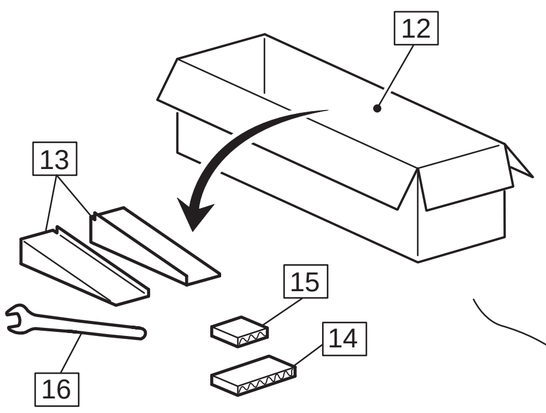
5. Remove 6 Joints (6).

6. Remove Outer Cardboard Box (7) to remove Side Pads(8).

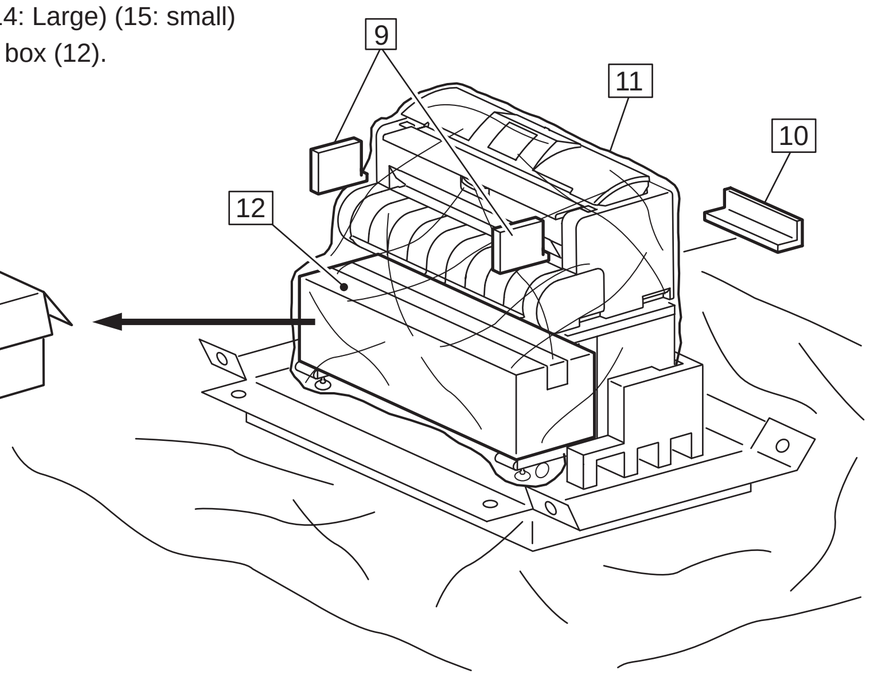


7. Remove the Front Pad (9), Rear Pad (10). Open and draw down the plastic bag (11) to the bottom.

8. Take out the Slope R/L (13), Coasters (14: Large) (15: small) and the wrench (16) from the accessory box (12).

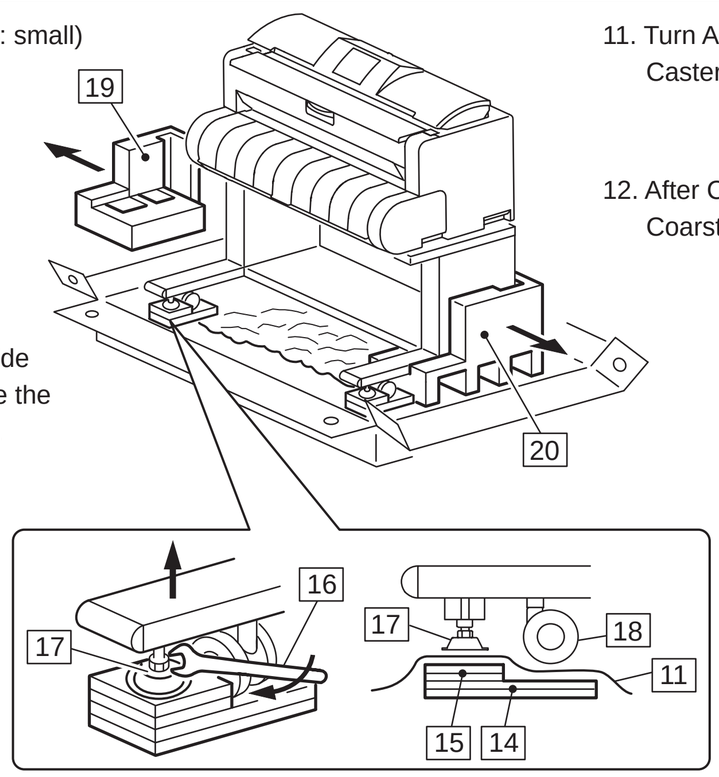


8 pieces each



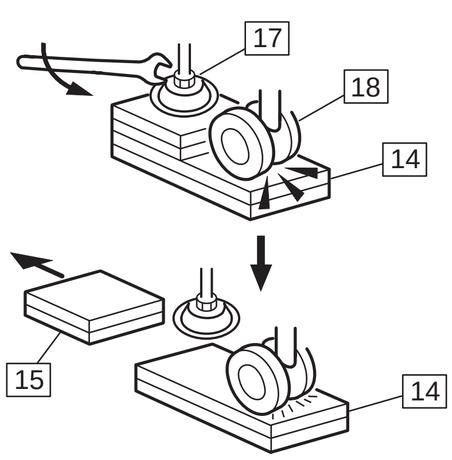
9. Put 2 pieces each of Coaster (14: large) (15: small) beneath Adjusters (17) and Casters (18). Note that the Coarsters (14) (15) should be located under the plastic bag (11).

10. Turn the front / rear Adjusters (17) on one side clockwise to lift up the machine, and remove the pad (19). Do the same way for the pad (20). (no paticular order of right / left)

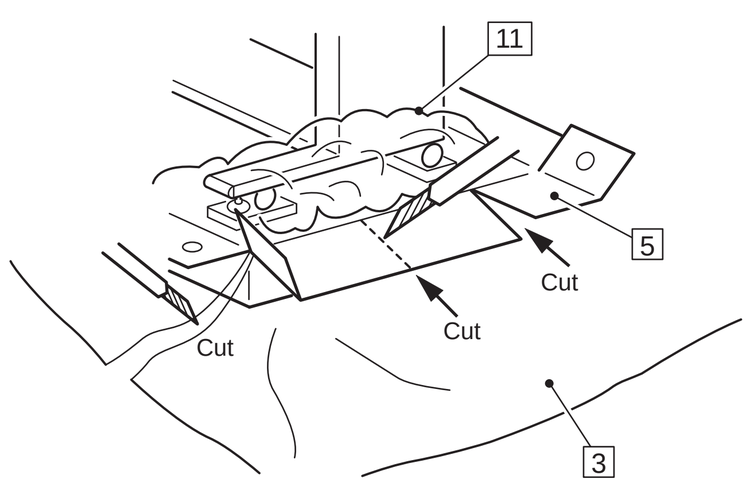


11. Turn Adjusters (17) counter-clockwise until Casters (18) touch Coarsters (14).

12. After Casters touch Coarsters (14), remove Coarsters (15).

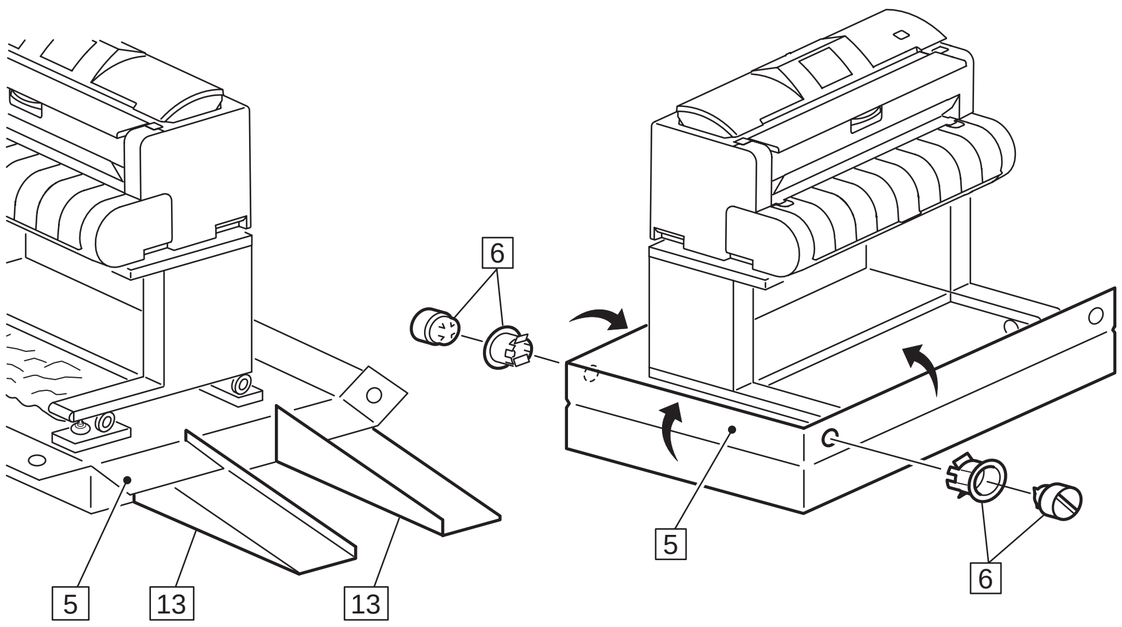


13. Cut the tray (5) along the perforation lines for Slopes. Remove excessive areas of the plastic sheet (3) / plastic bag (11) for ease of subsequent operation.
(Note that Slopes are available on either side)



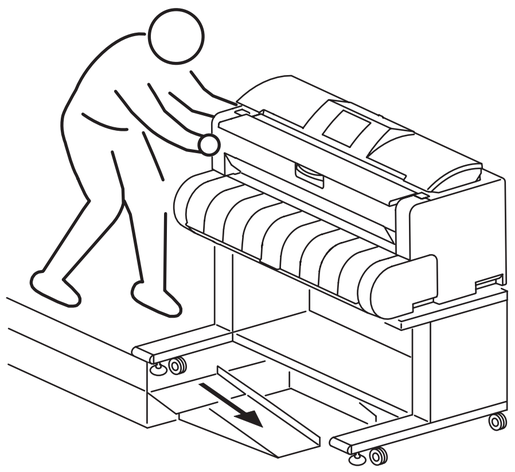
14. Attach Slopes to the tray (5) with the double-sided tapes.

15. Raise the tray (5) with Joints (6) removed on step 5.



16. Pull the machine by using Slopes until one side comes down to the floor and stop.

17. Last, push the machine to unload ot from the pallet.



⚠ NOTE

Push Carefully. Casters should keep the center of Slopes.

2. 2 Installation Requirements

The following conditions are required for the installation of the equipment.

1. **Power source** should be rated as:
   U.S.A: 120V +/-10%, 50/60Hz, 15A or higher
   Europe: 220-240V +6% or -10%, 50/60Hz, 10A or higher
2. The equipment must be on a dedicated circuit.
3. The outlet must be near the equipment and easily accessible.

1. Make sure to connect this equipment to a properly grounded outlet.
2. The outlet shall be installed near the equipment and shall be easily accessible.

Site Environmental Conditions

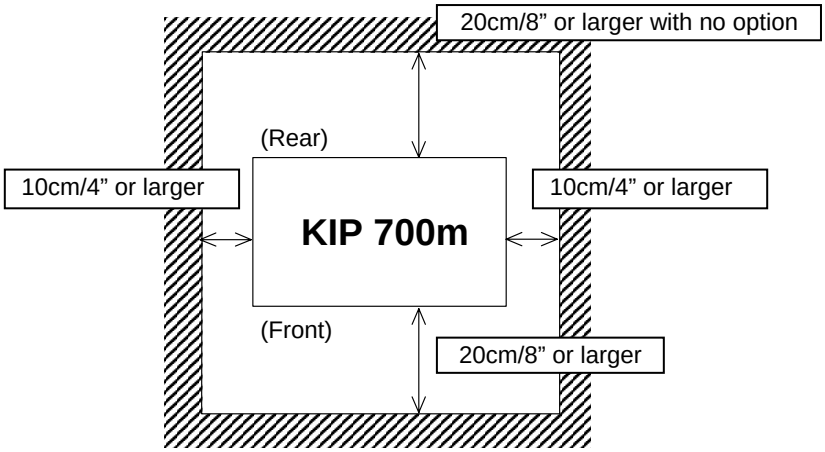
Temperature Range : 10 °C to 32 °C / 50 F to 89.6 F
Humidity Range : 15% to 85% RH. (NON CONDENSING)

Keep the printer away from water sources, boilers, humidifiers or refrigerators.

1. The installation site must not have any open flames, dust or ammonia gases.
2. The equipment must not be exposed to the air vents from heating/cooling systems.
3. The equipment should not be exposed to the direct sunlight. Please draw curtains to block any sunlight.
   When you open the printer (Upper Half), do not expose the Photoconductive Drum to strong (intense) light as this will damage the Drum.

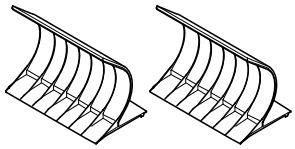
Ozone will be generated while this equipment is in use, although the quantity generated is within all safe levels. (see certifications)
Ventilate the room, if so required.

Keep ample space around the equipment to ensure comfortable operation.
The floor must be level and the strength must be ample to sustain the weight of the equipment.

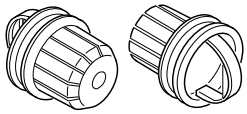


2. 3 Accessory List

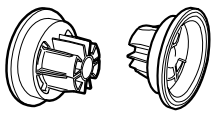
Confirm the following parts are attached to the product.



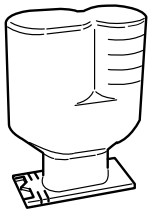
Guide



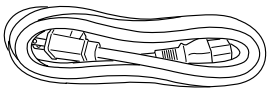
Cap Assy



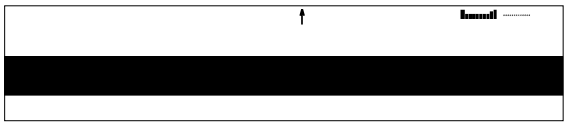
Flange



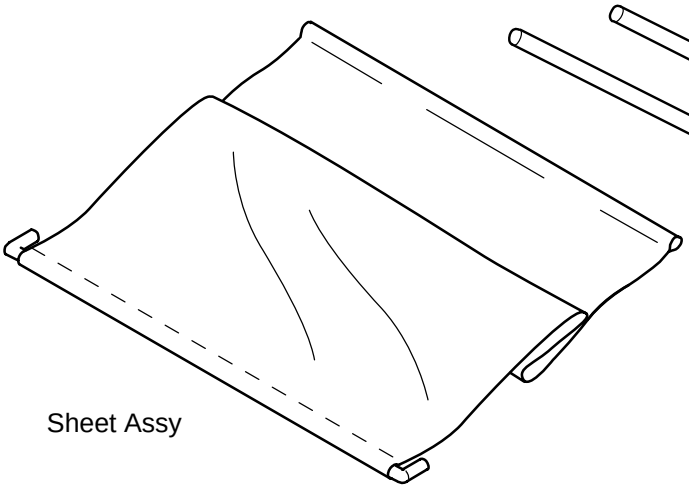
Toner Bottle
US model : 3 bottles
Europe/Asia model : 1 bottle



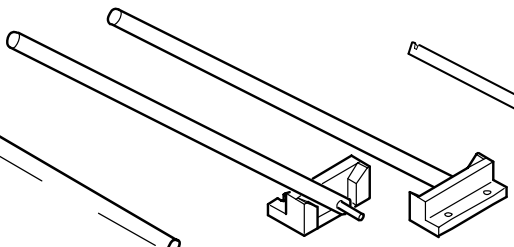
Power Cable



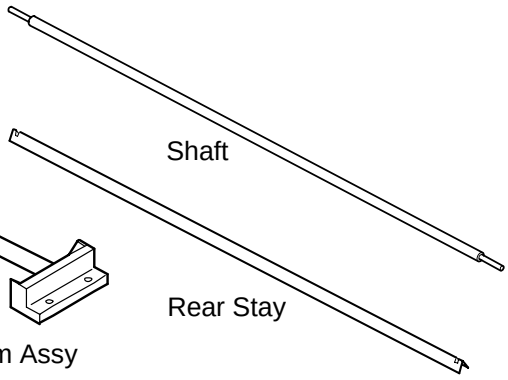
Shading Sheet



Sheet Assy

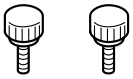


Swing Arm Assy

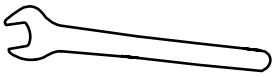


Shaft

Rear Stay



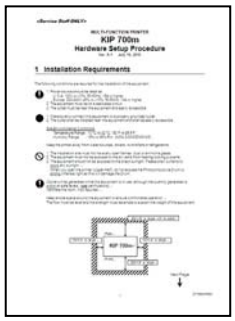
Thumb Screw



Wrench

User's Manual CD

User's Manual
Leaflet (German)
*Europe model only



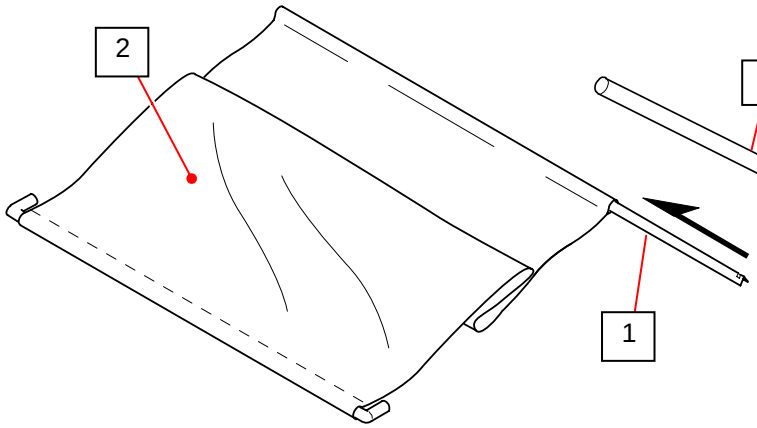
Hardware Setup
Procedure
(This leaflet)

⚠ NOTE

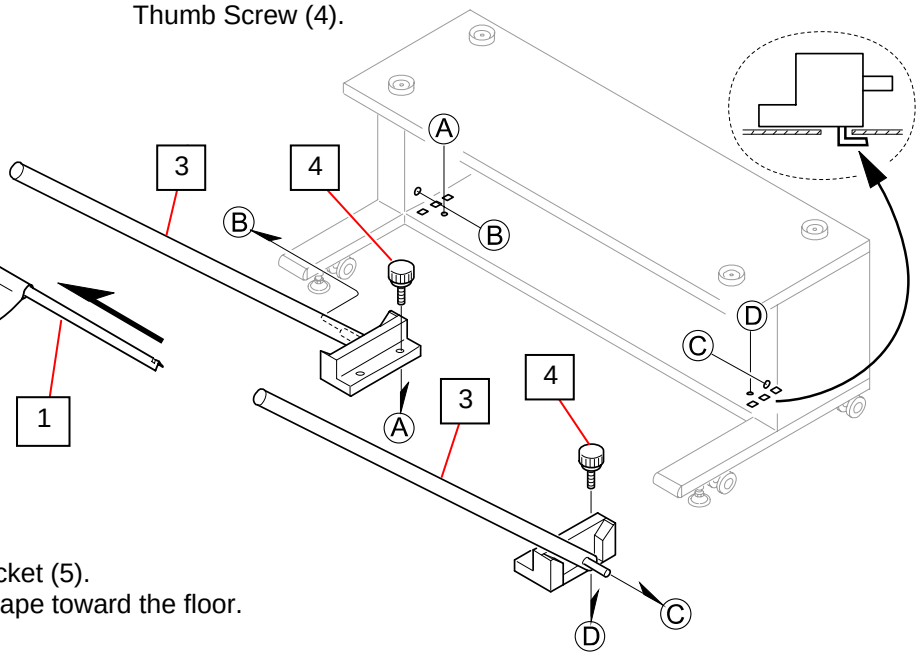
The Wrench is designed for only installing / uninstalling the KIP 700m. **Use only for intended purpose.**

2. 4 Stand Setup

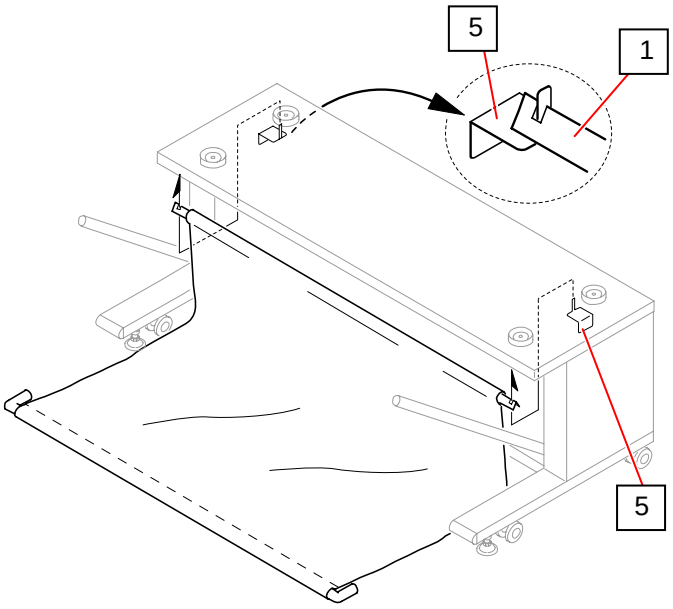
1. Pass Rear Stay (1) through the loop at the end of the cloth of Sheet Assy (2).



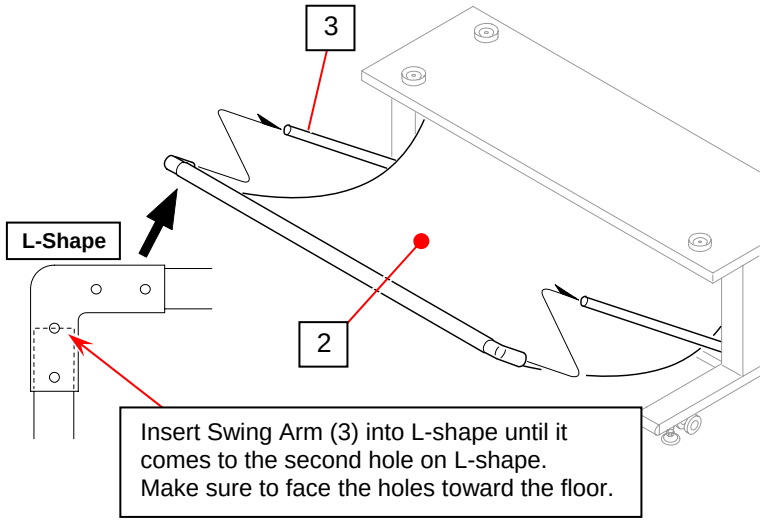
2. Fix Swing Arm Assy (3) to the bottom plate of Stand with Thumb Screw (4).



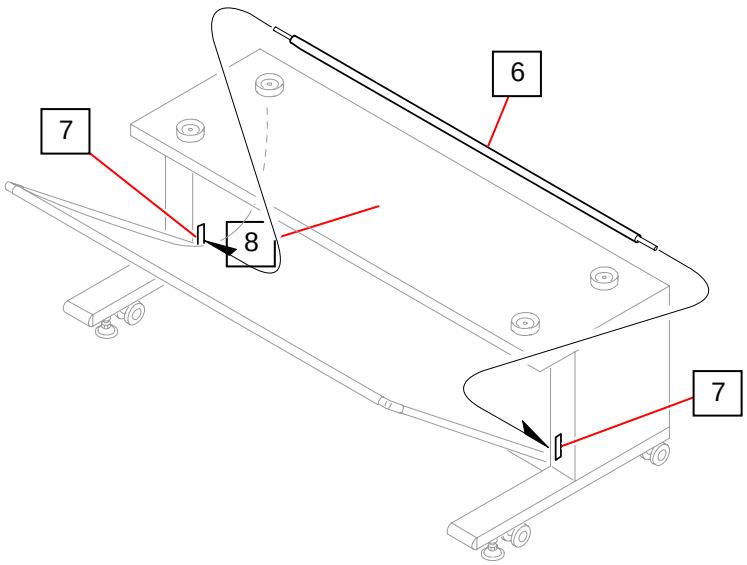
3. Put the end of Rear Stay (1) on the Bracket (5).
Make sure to face the holes on the L-shape toward the floor.



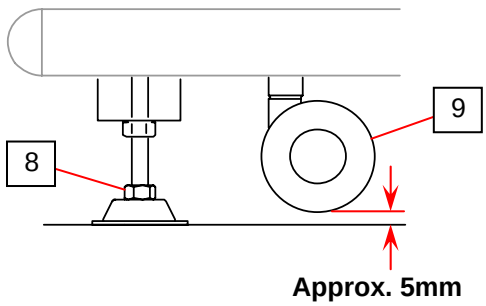
4. Insert the L-shape end of Sheet Assy (2) to Swing Arms (3).



5. Put Shaft (6) on the Sheet Assy, and insert both ends to the slits (7) on the side panel so that Shaft gives tension to the Sheet.

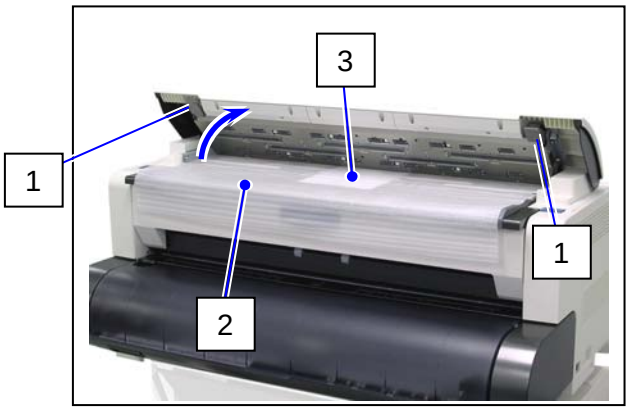


6. Rotate the Adjust Bolt (8) until the distance between the floor and Caster (9) becomes approx. 5mm.

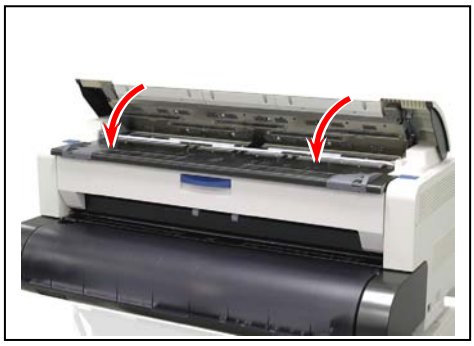


2. 5 Scanner Part

1. Press the levers (1) up to open the Scanner Unit.
2. Remove the protection mat (2) and the Protection Sheet (3).

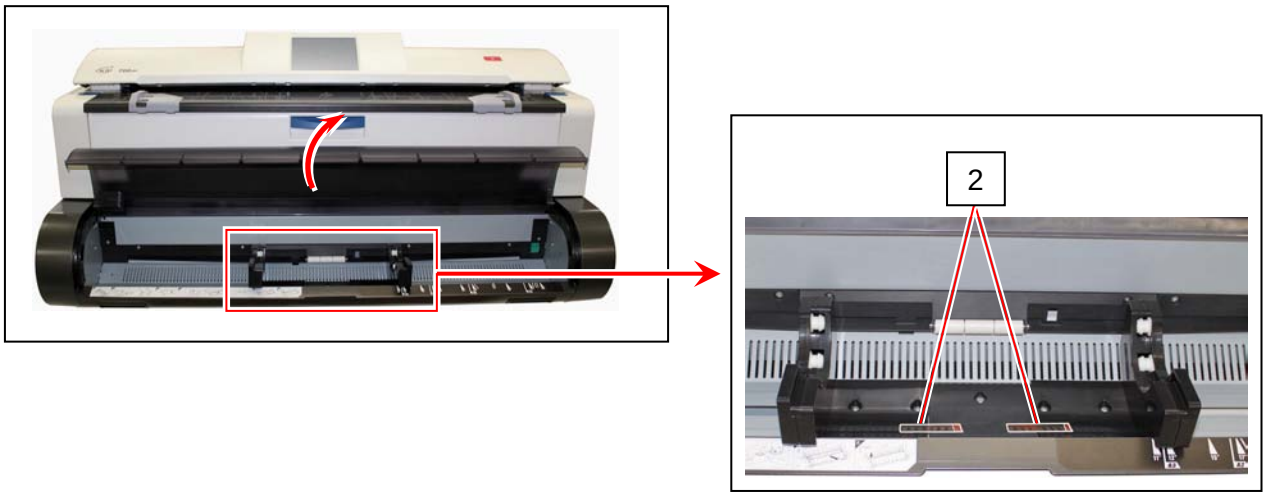


3. Gently press both sides of the Scanner Unit down to firmly close it.



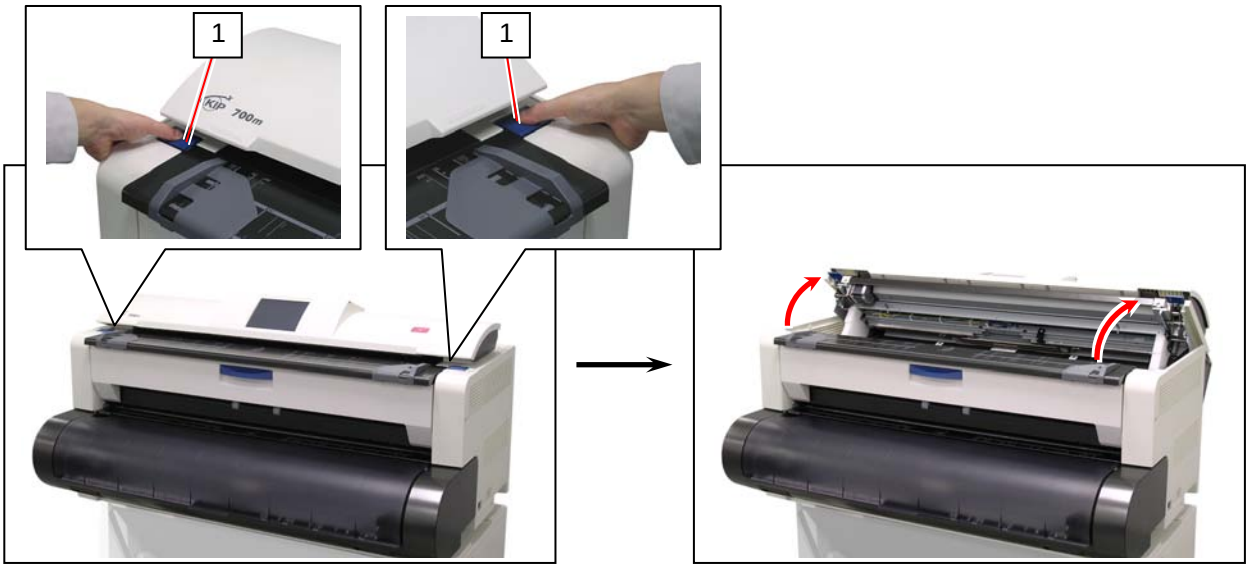
2. 6 Roll Deck

1. Remove 4 tapes (1), (2).

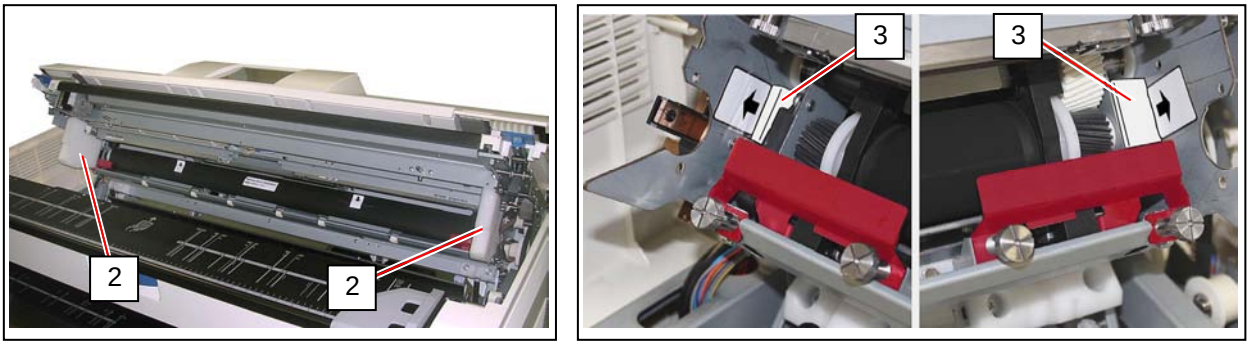


2. 7 Inner Feeder Unit Setup

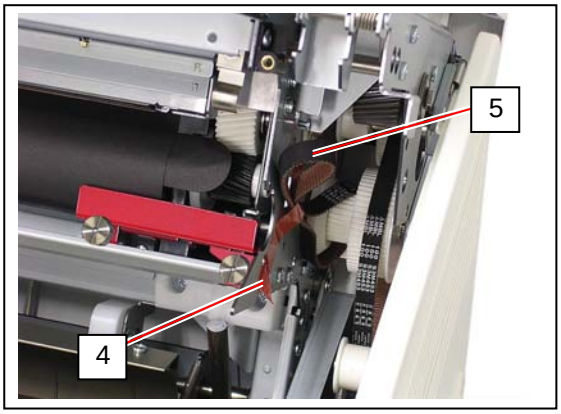
1. Press down the blue levers (1) on both sides to unlock and open the Upper Unit.



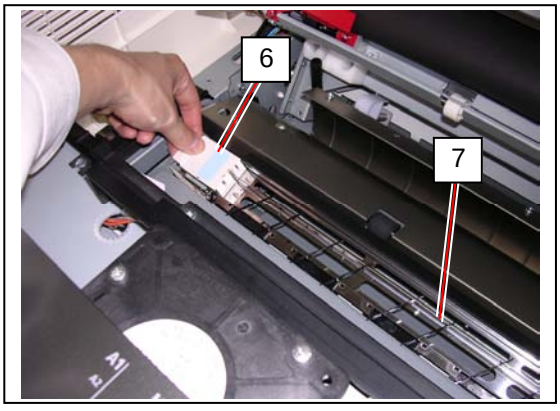
2. Remove the shock absorber (2), (3) on both sides.

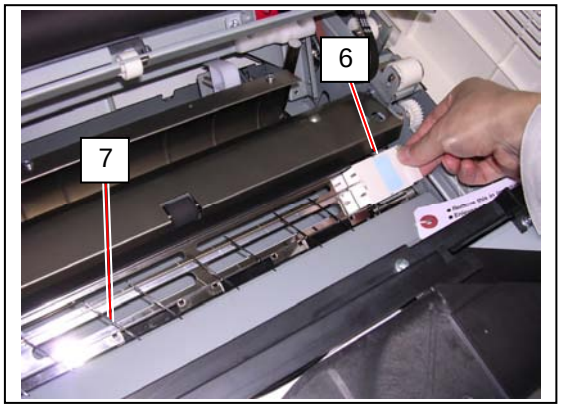


3. Remove the tape (4) to release the drive belt (5).

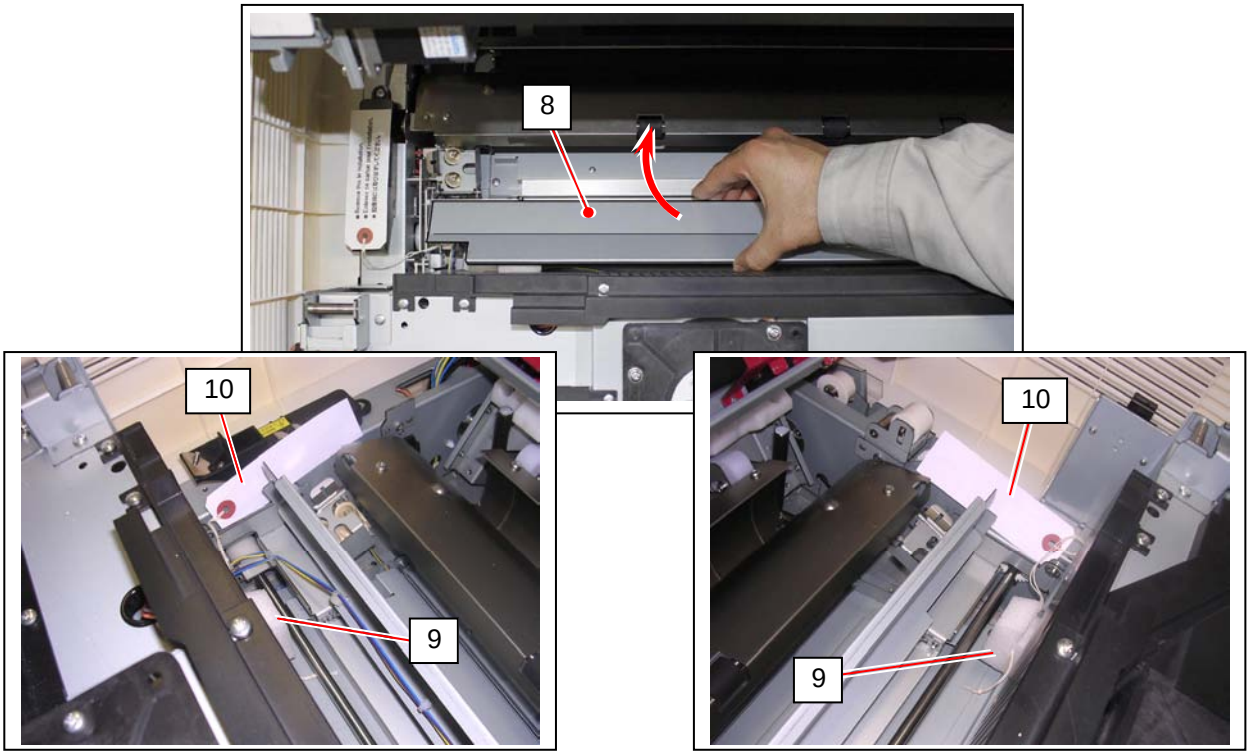


4. With holding the Corona Blocks (6) on both sides of the Transfer / Separation Corona (7), lift it up and take it out from the machine.





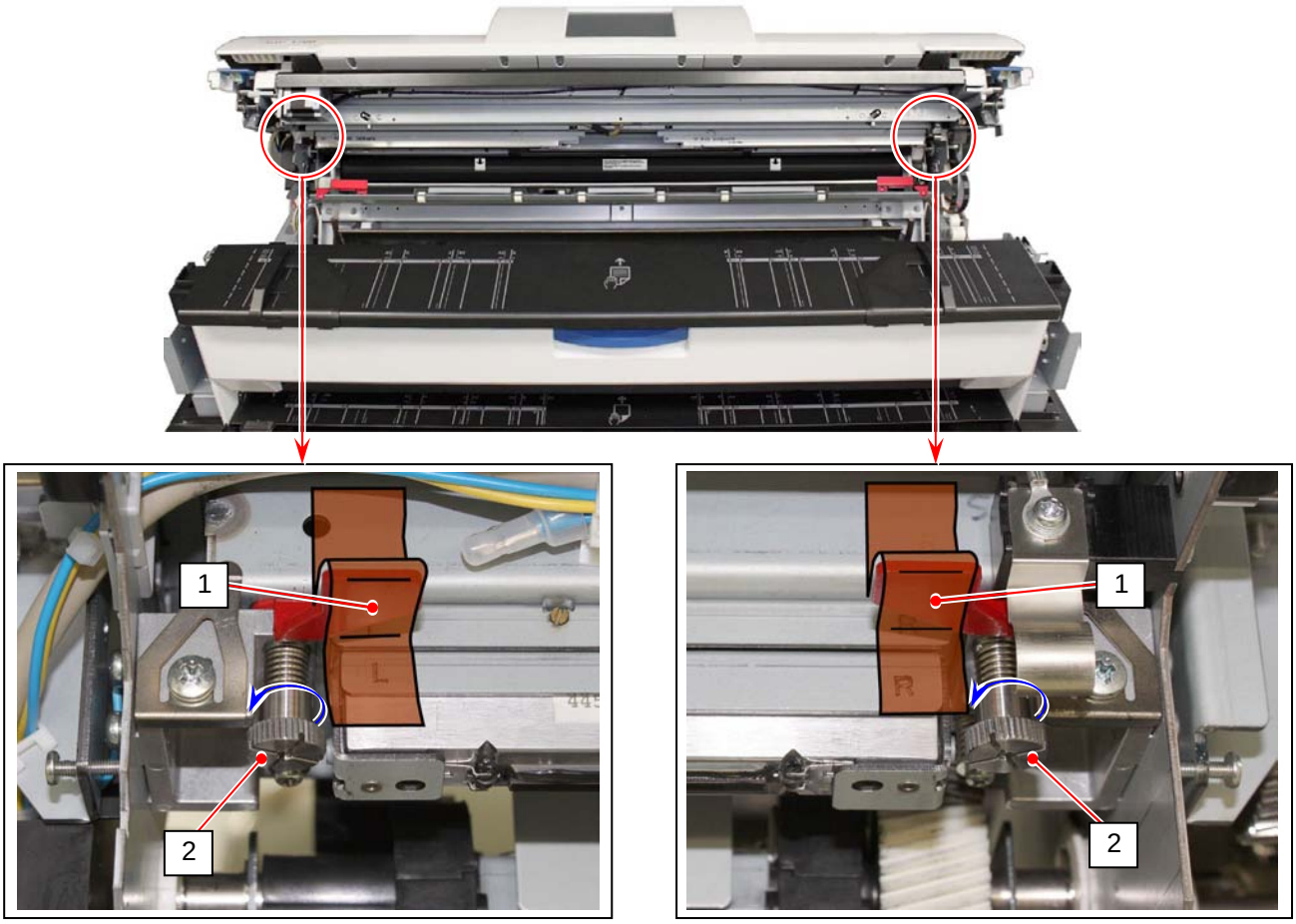
5. Open the Guide Plate (8), and remove the shock absorbers (9) and tags (10) on both sides.



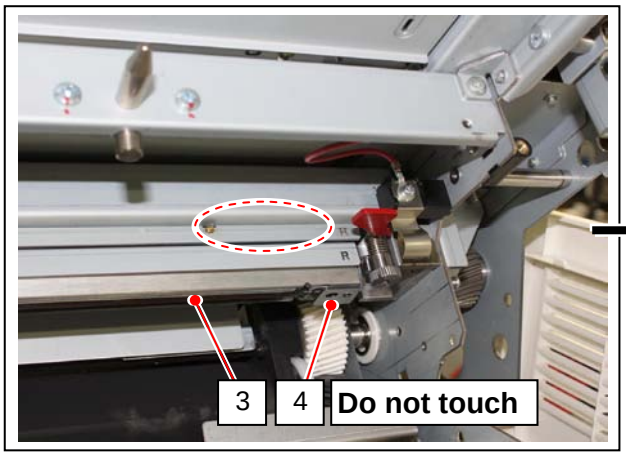
6. Close the Guide Plate (8). Return the Transfer / Separation Corona (7) in position.

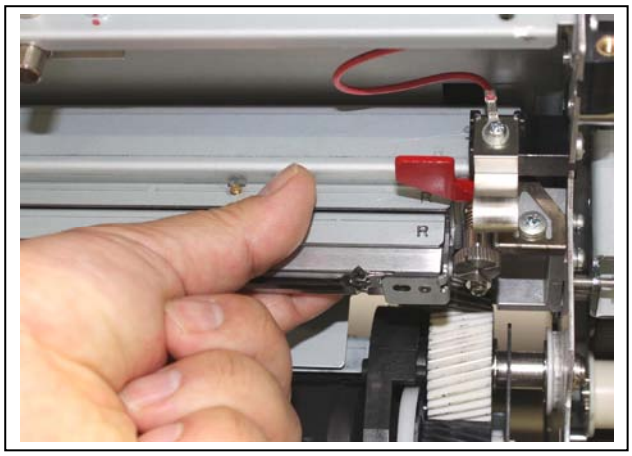
2. 8 LED Head Assy Setup

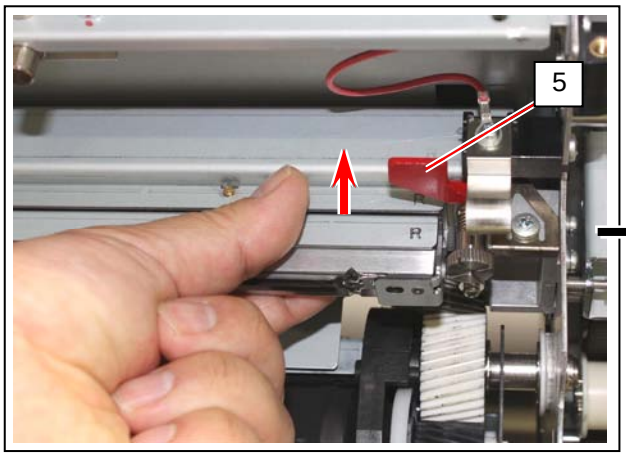
1. Remove 2 tapes. (1)
2. Loosen the thumb screws (2) on both sides to release LED Head Assy.

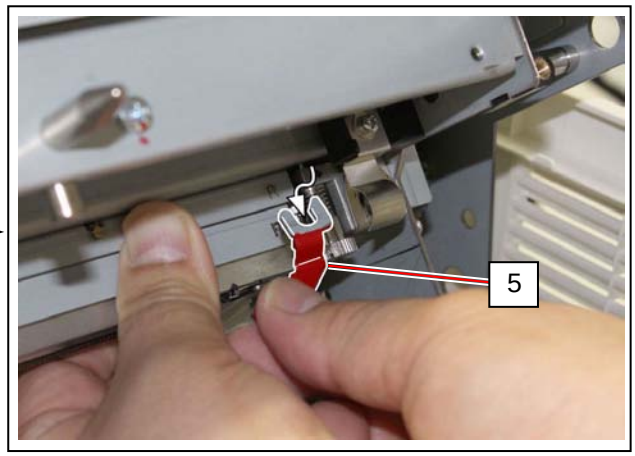


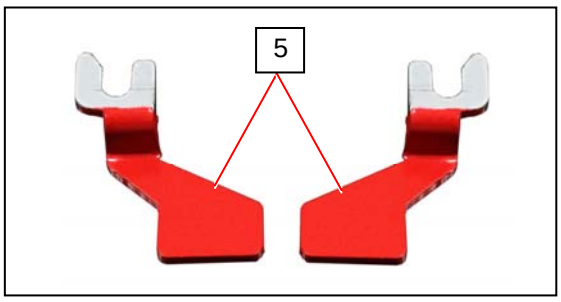
3. Pinch and hold the dotted area in the picture. **NEVER touch the LED Array (3) and the LED Head Bracket (4).** Slightly lift up the LED Head Assy to remove Fixing Plate (5).
The pictures on this step show the right side. Please do the same way for the left side too.



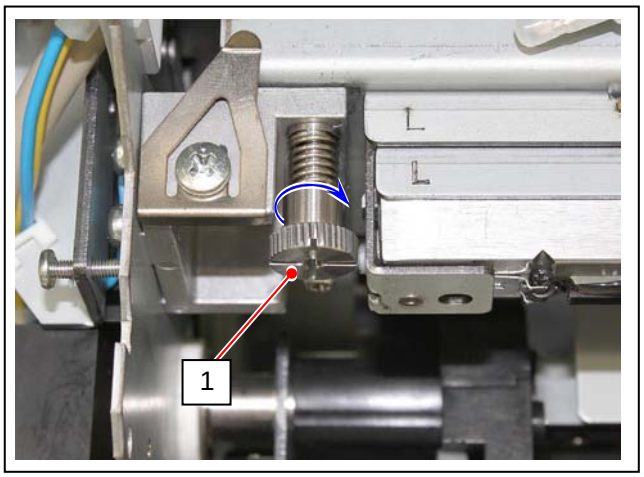


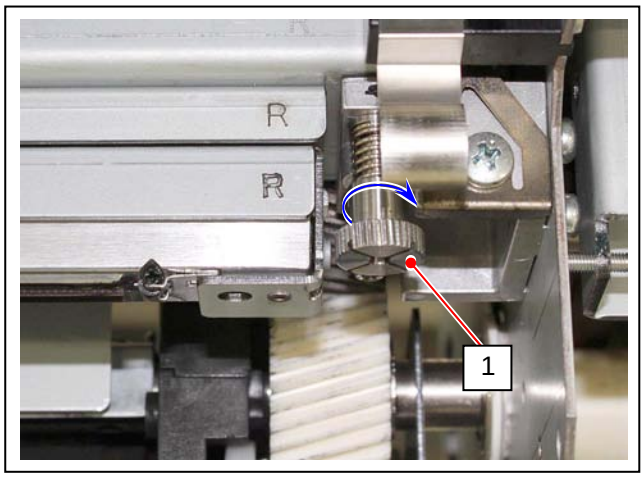






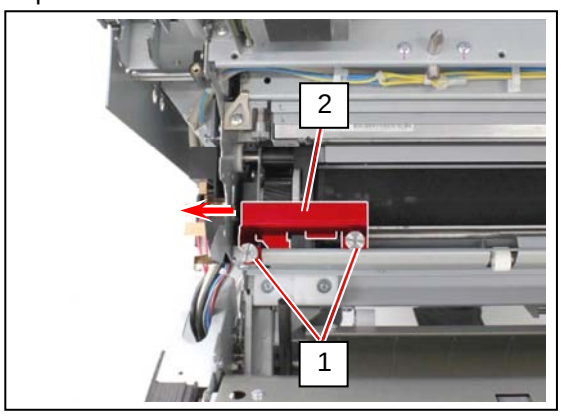
4. Firmly tighten the thumb screws (1) loosened on step 2.

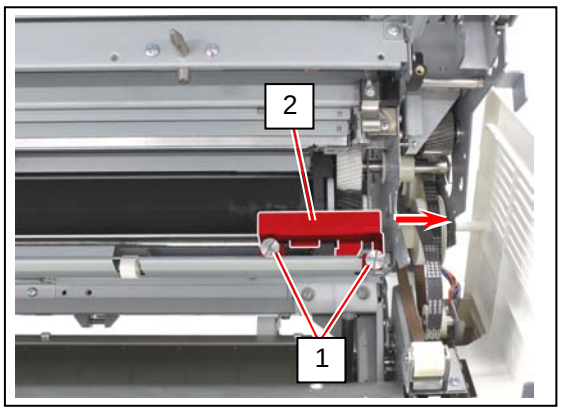




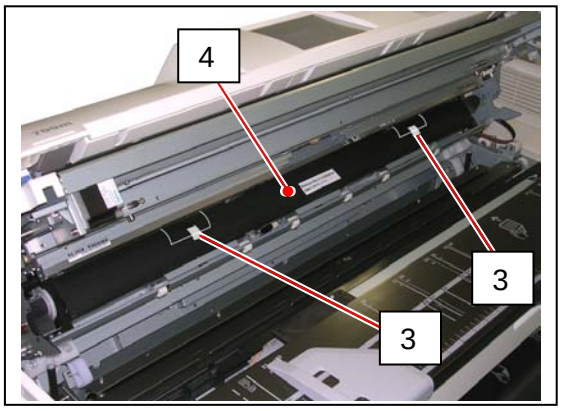
2. 9 Developer Unit Setup

1. Remove 2 thumb screws (1) to remove the red brackets (2) on each side. The brackets (2) are no longer required.

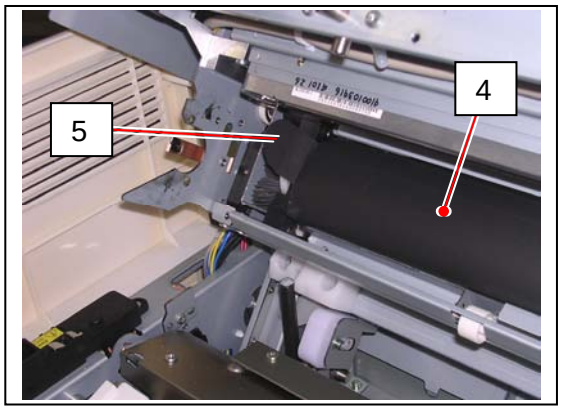


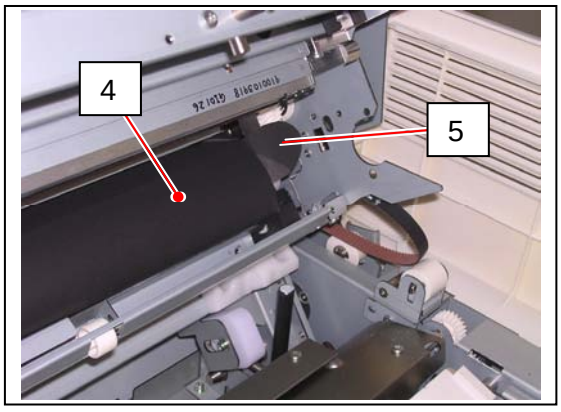


2. Remove the stickers (3) on the “flap areas” on the top of the black sheet (4).



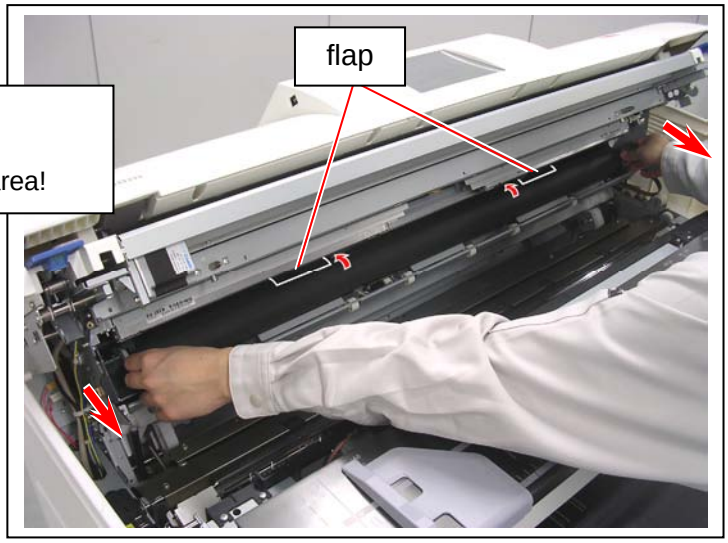
3. Pinch the side tabs (5) of the sheet (4) on both sides, and gently pull it to the front.
First, only the flap areas should go back and front again, then next the bottom part.





NOTE

Never pull the flap area!

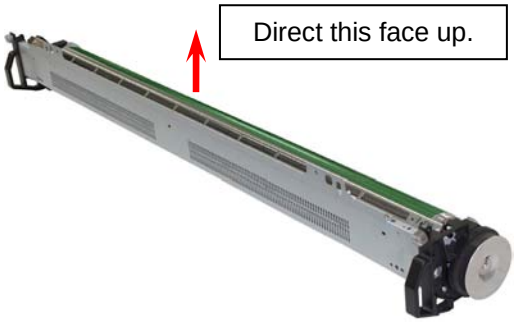


2. 10 Process Unit Setup

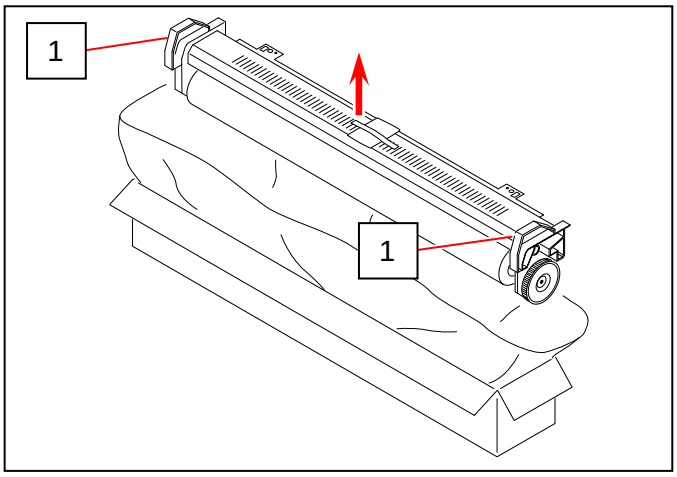
NOTE

1. Please handle the Process Unit with great care as it is equipped with the Drum. Rough handling may damage the Drum.

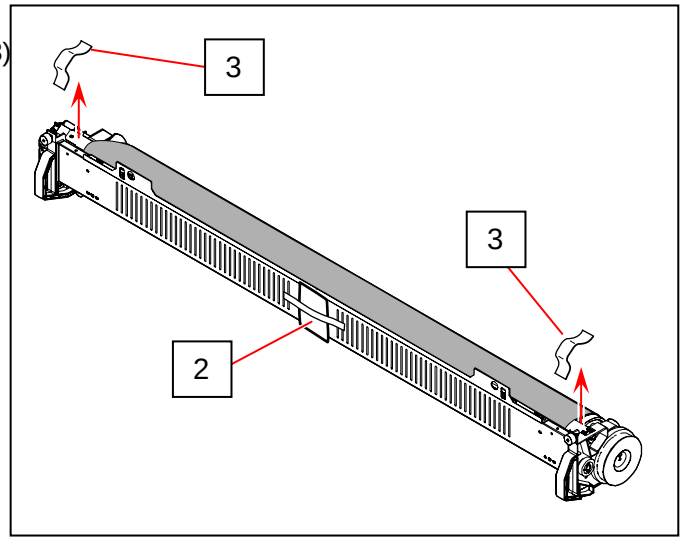
2. Please confirm the table is flat when you put the Process Unit on it. And be sure to put it by correct direction as the following photo.



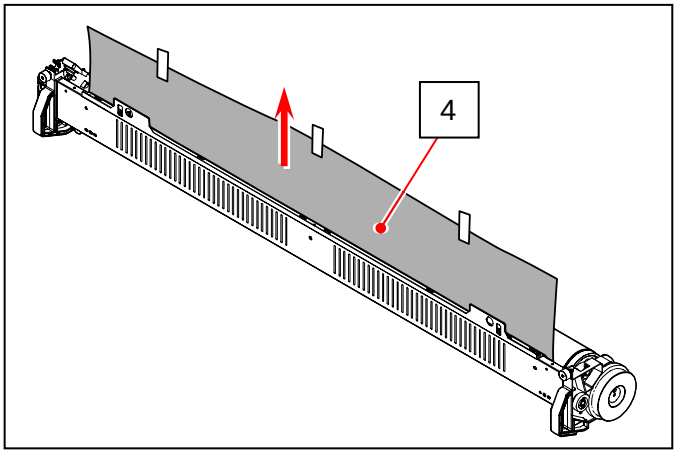
1. With holding both handgrips (1), take out the Process Unit from the packaging box.



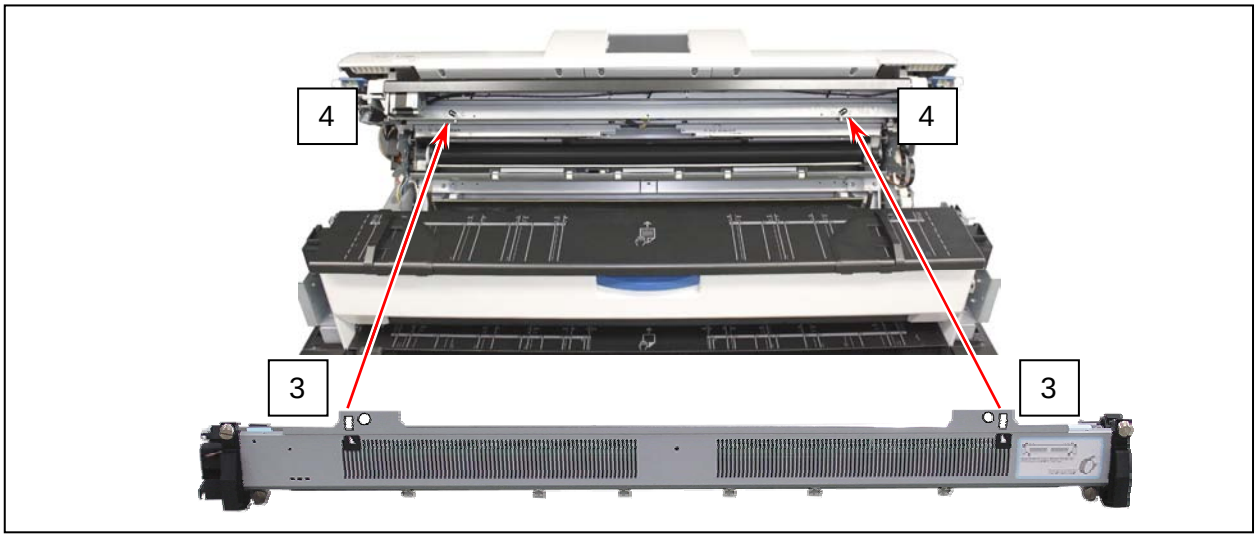
2. Put the Process unit on a flat table.
Remove Dry Silica Gel (2), and remove 2 tapes (3) on the corona.

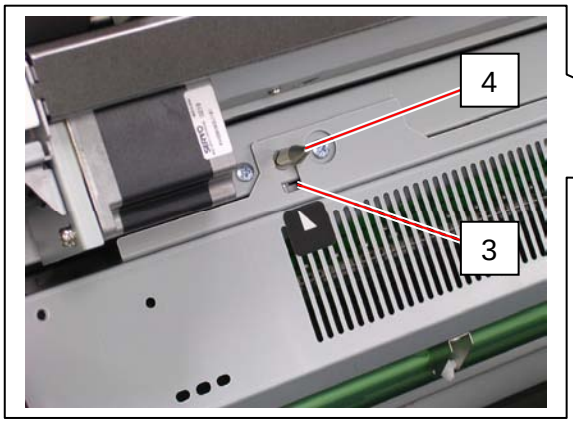


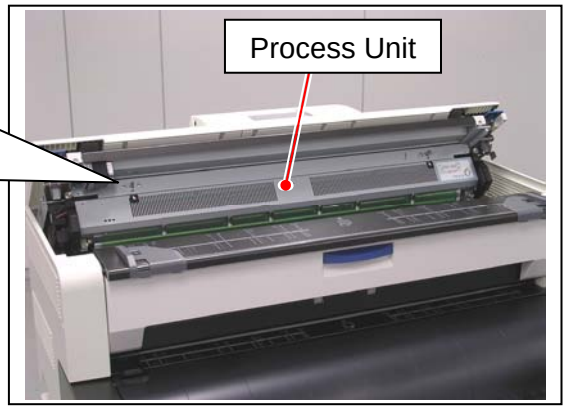
3. Remove the black shading paper (4).



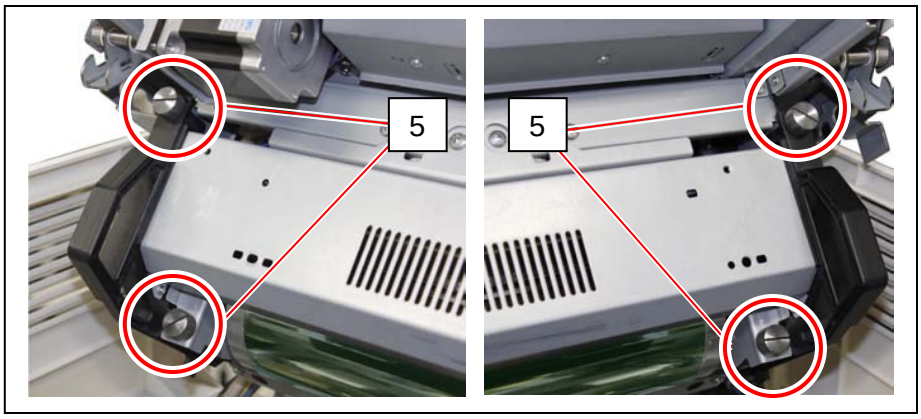
4. With fitting the square holes (3) to the pins (4), install the Process Unit to the Upper Unit of printer.



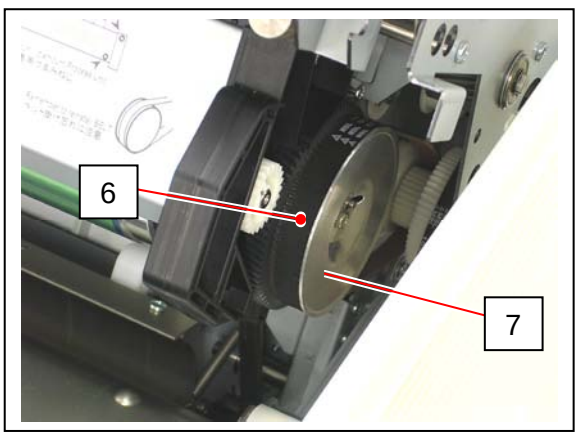




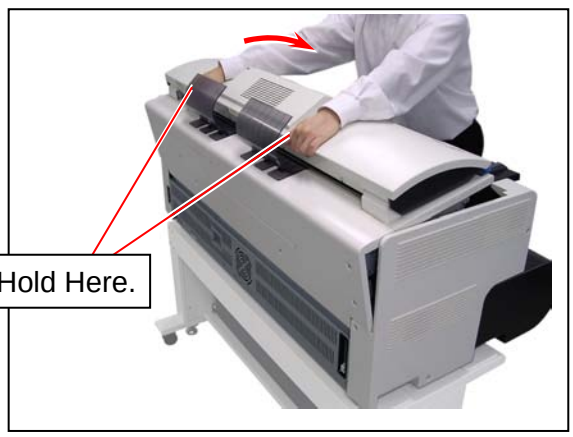
5. Secure the Process Unit by tightening 4 thumb screws (5).



6. Fit the belt (6) into the pulley (7) for engagement.

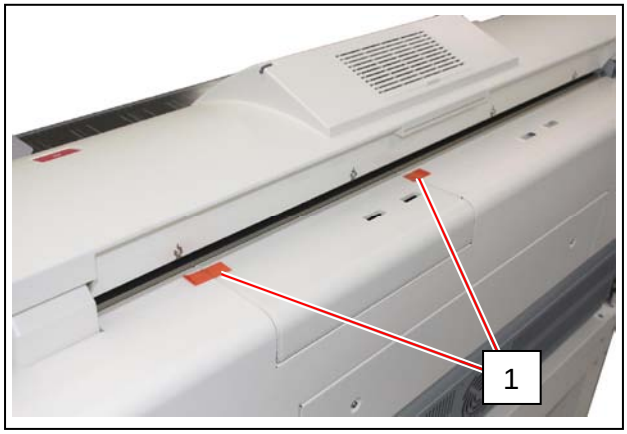


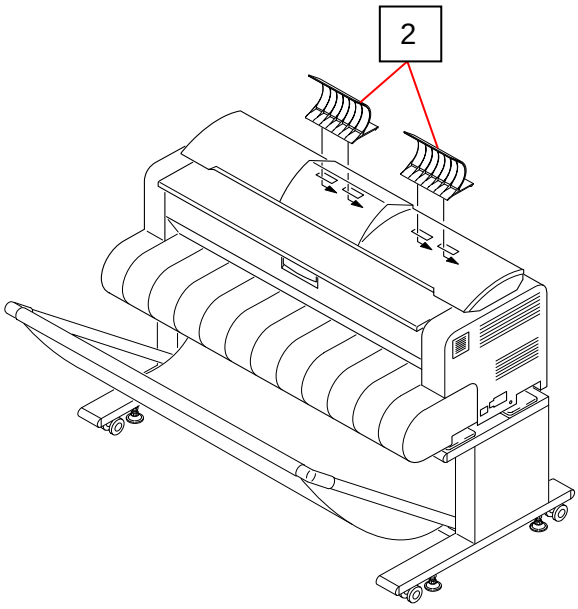
7. Finish the setup of Process Unit by closing the Upper Unit.



2. 11 Installing Accessory

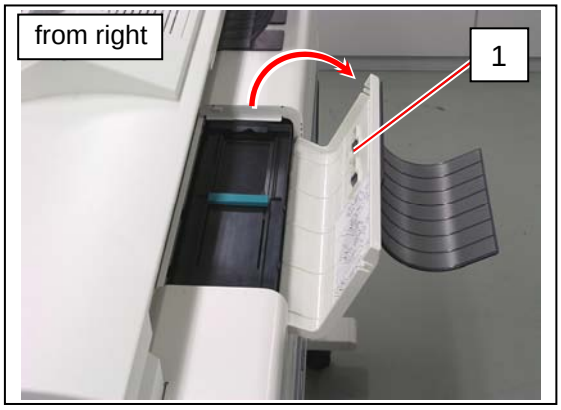
Remove 2 tapes (1).
Fit 2 Guides (2) into the slots on the rear cover of printer.





2. 12 Supplying Initial Toner

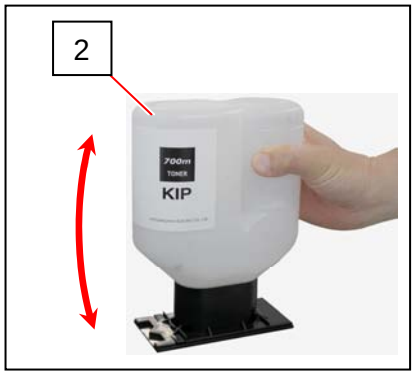
1. Open the Toner Hatch (1) on the rear cover of the printer.
   (Not necessary to remove the Guide)



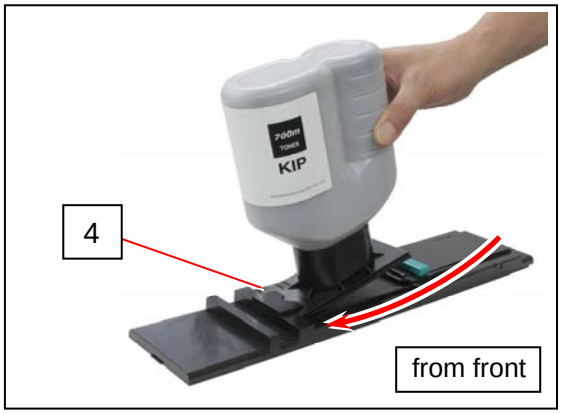
2. Shake the Toner Bottle (2) several times to loosen the toner.

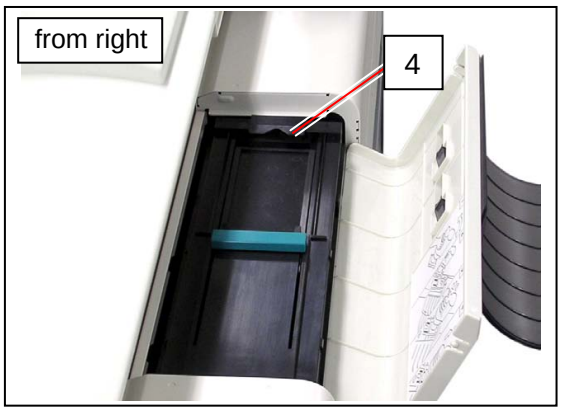
NOTE

After you shake the Toner Bottle well, proceed the later step 3 and 4 as soon as possible.
Having a pause after step 2 may reduce smoothness of the toner. This would disturb a smooth toner supply from the Toner Bottle to the printer.



3. Put the dent area (3) under the holder (4) to firmly seat the bottom plate of the Toner Bottle to the toner supply position.

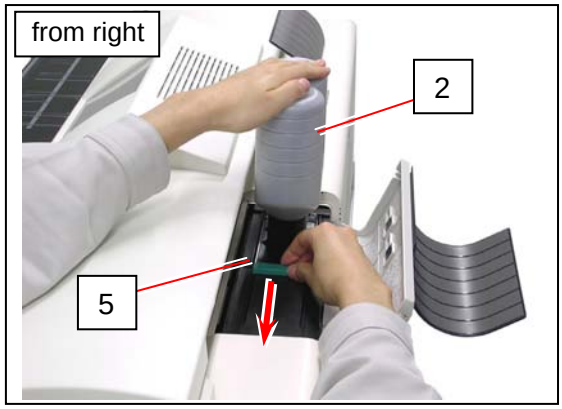




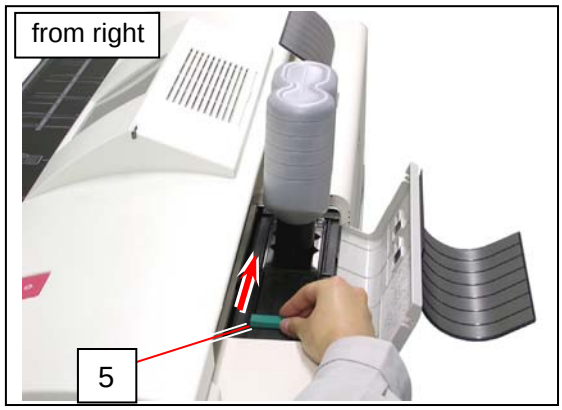
4. With pressing down the Toner Bottle, slide the green lever (5) to the arrow direction until it stops. When it stops, wait 10 seconds as it is.

NOTE

Gently press down the Toner Bottle. Pressing too much makes the lever (5) much heavier.



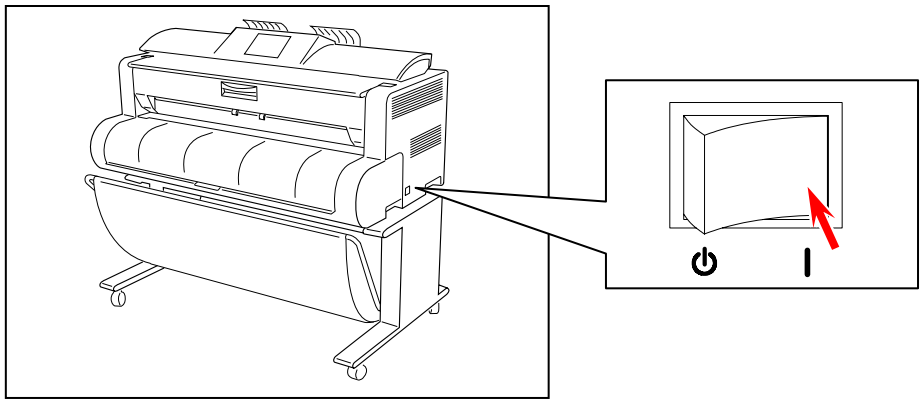
5. Slide the lever (4) back to its original position, and remove the Toner Bottle.



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.

6. Connect the Power Cable and turn on the printer.
   For power source requirements, see page 1.

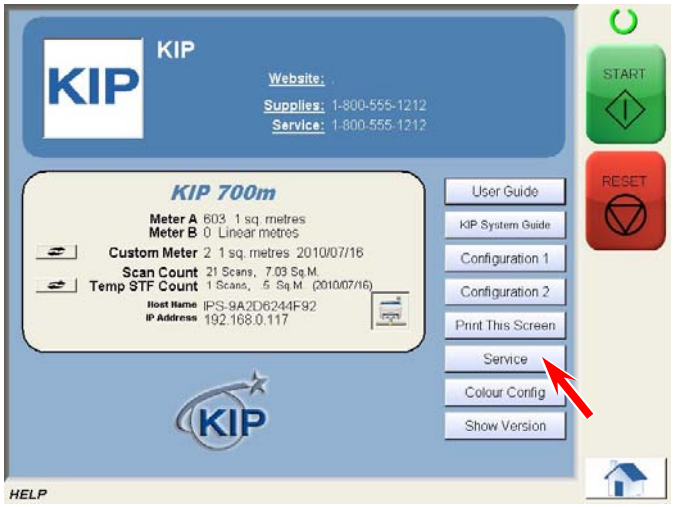


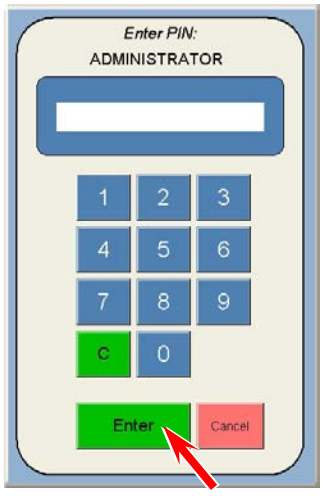
The UI screen shows “Setup Wizard”.
It will prompt you to enter several settings.
Follow the wizard for the rest of the setup.

2. 13 Creating Backup

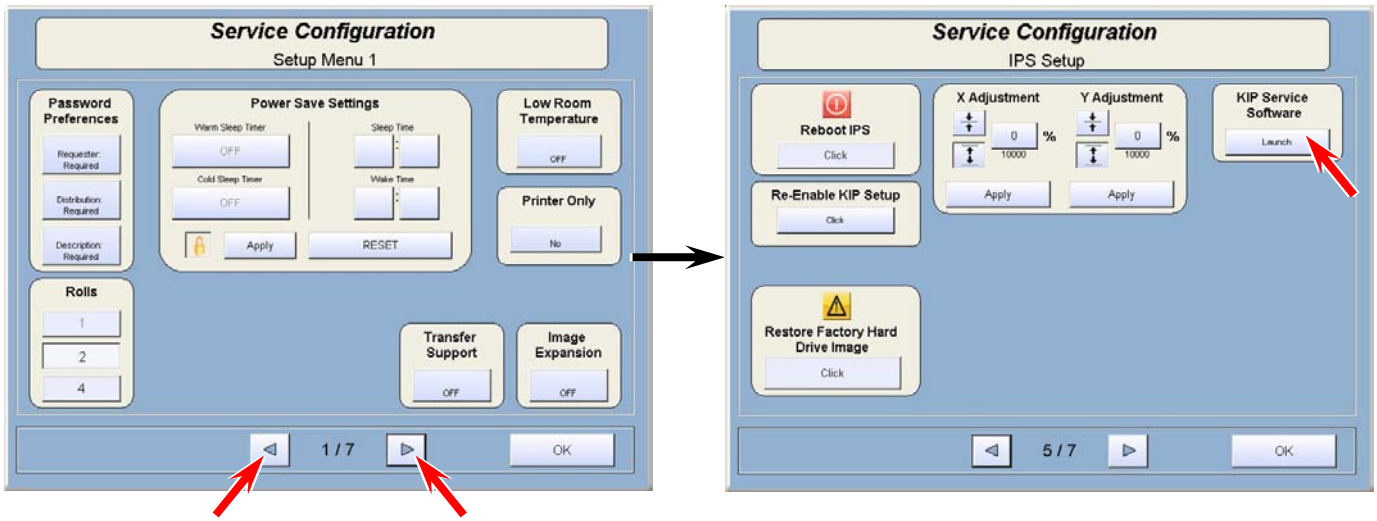
1. Press [? HELP] on the Home screen.

2. Press [Service]. Input “8495107” and press [Enter].

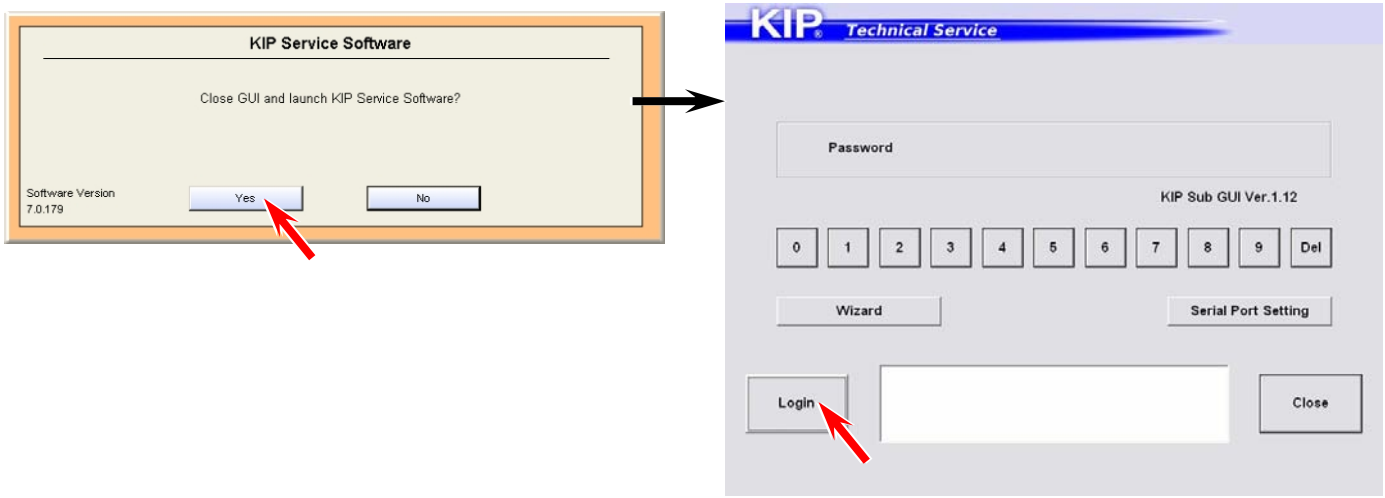




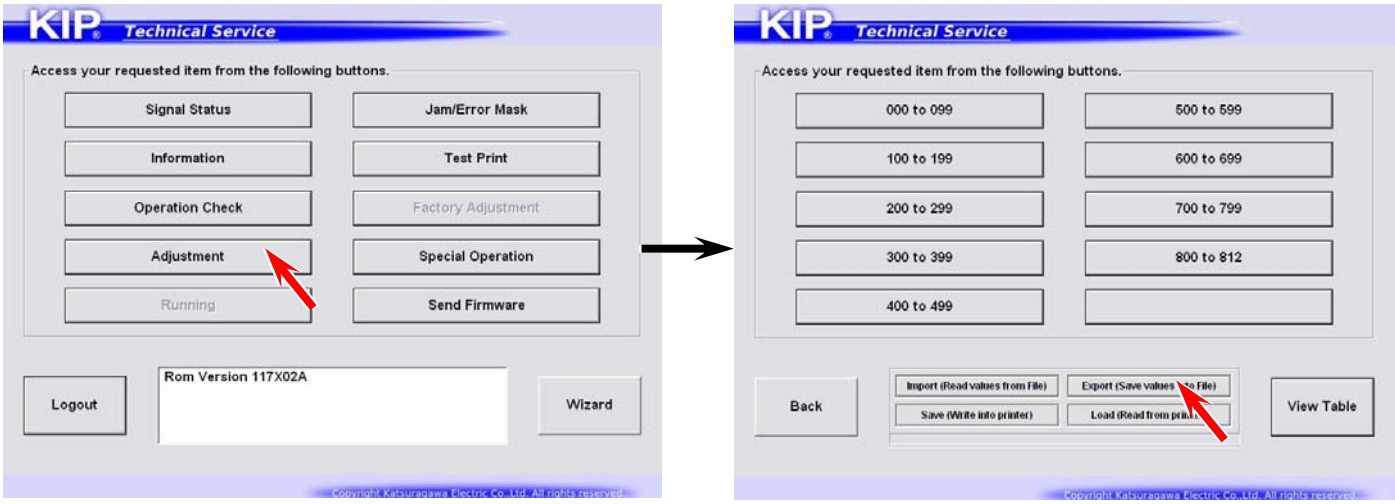
3. Service Configuration screen will appear. Press the arrow keys to move to page 5/7.
On 5/7 page, press [Launch]. Use the arrow keys to open [5/7 IPS Setup].



4. A confirmation dialog appears. Press [Yes].
Press [Login] to log in Service Mode.

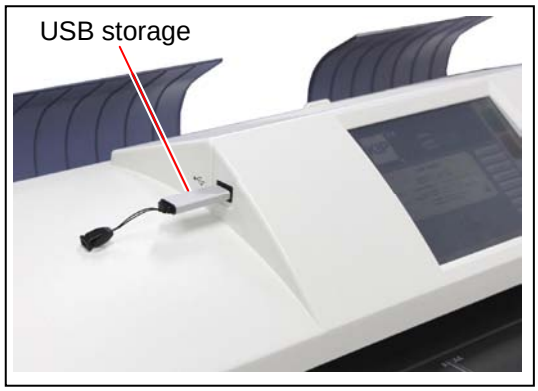


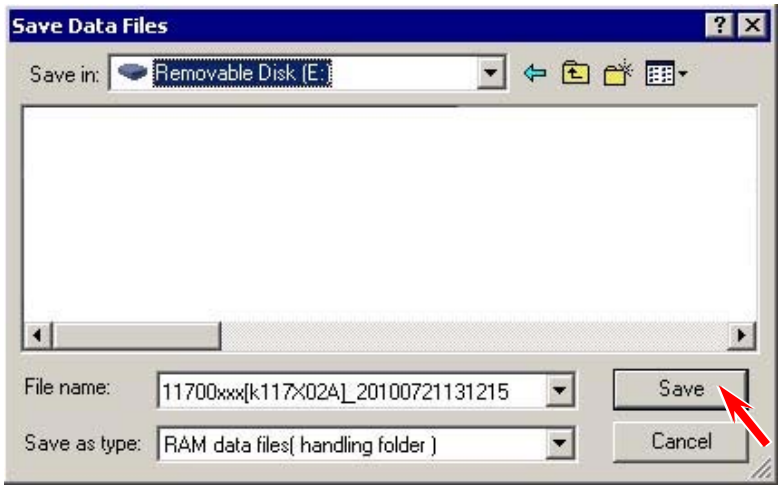
5. Press [Adjustment] in Service Mode Home.
Press [Export].



6. Entry Serial Number screen will appear.
   Input the serial number and press [Enter].

7. Install a USB storage device to the printer. Locate “Removable Disk” and press [Save].
   The current setting parameters are saved as *.RAM and *.txt in a folder (automatically created) at this time.
   If you do not have one, please locate a folder in the HDD of the controller.





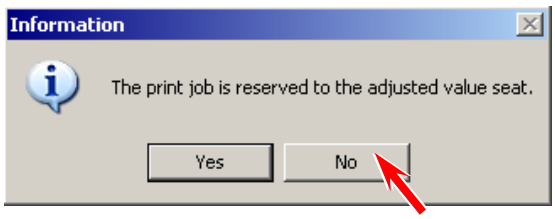
NOTE

IMPORTANT: The created RAM file can be used as a **BACKUP** of the initial configuration of this machine.
Store the RAM file in the event of an attempt to restore the initial configuration.
You can check the contents (setting values) in the TXT file as understandable texts.

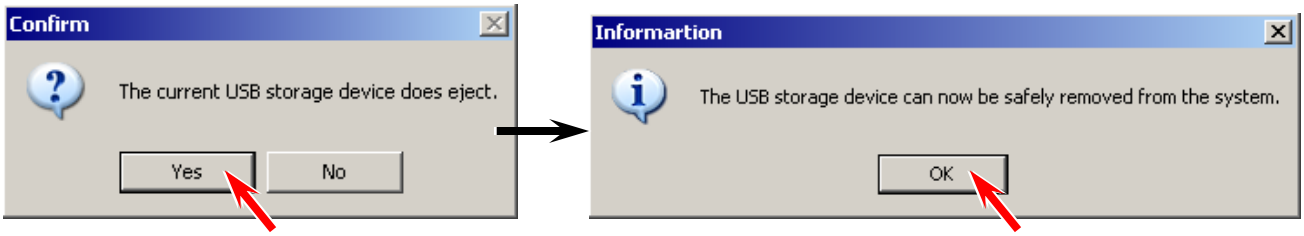
Reference

It is better to create RAM file in both USB storage and the HDD just in case.

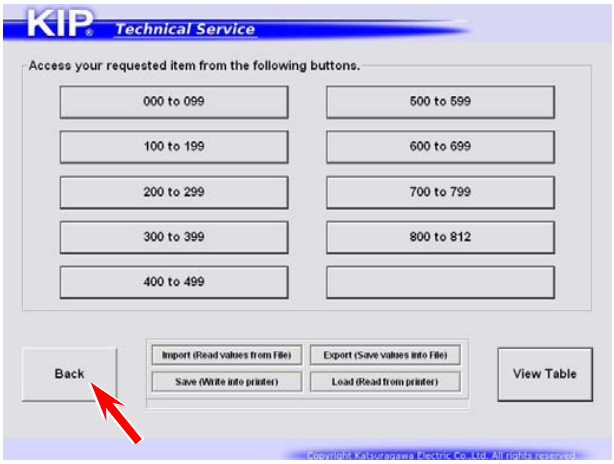
8. A dialog appears. Press [No] this time.

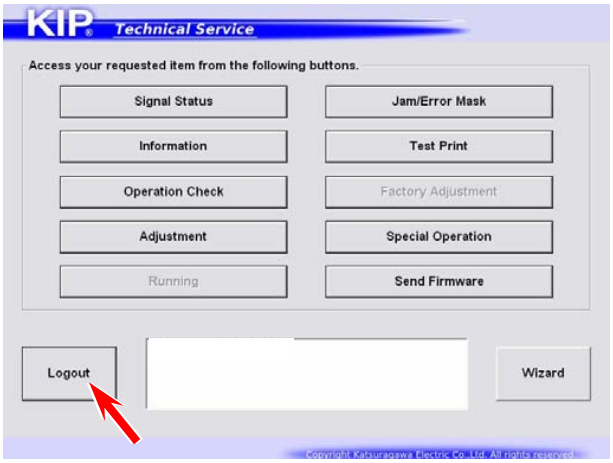


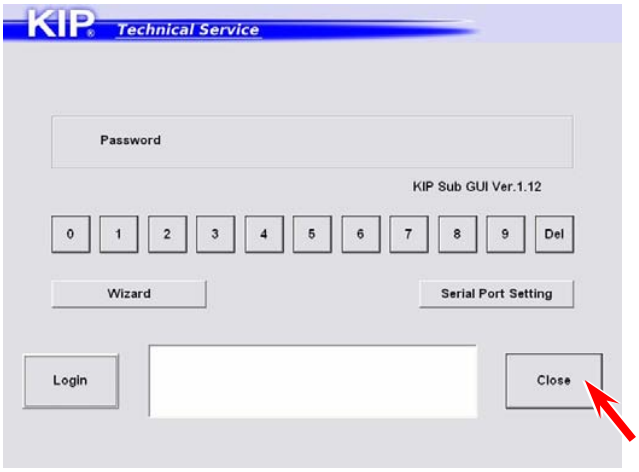
9. When RAM file is created in a USB storage, follow the instruction in another dialog.
   Press [Yes] and [OK] before you remove it.



10. Press [Back], [Logout] then [Close] to cancel Service Mode.







11. UI screen will display Home screen in a short time.

Chapter 3

Print / Scan Process

3. 1 Print Process

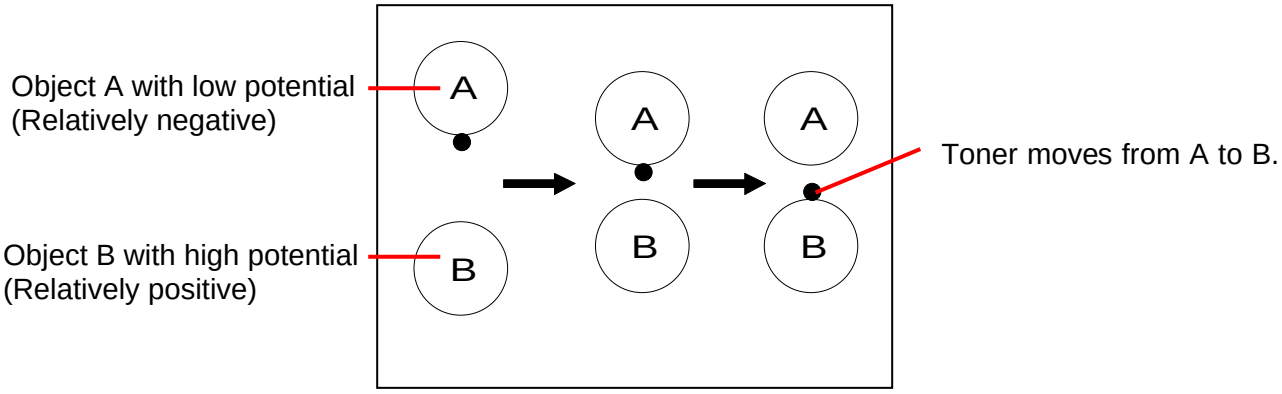
3. 1. 1 Characteristic of toner

The toner used for KIP 700m has a characteristic to be charged “negative”, which tends to be attracted to a more “positive” object.

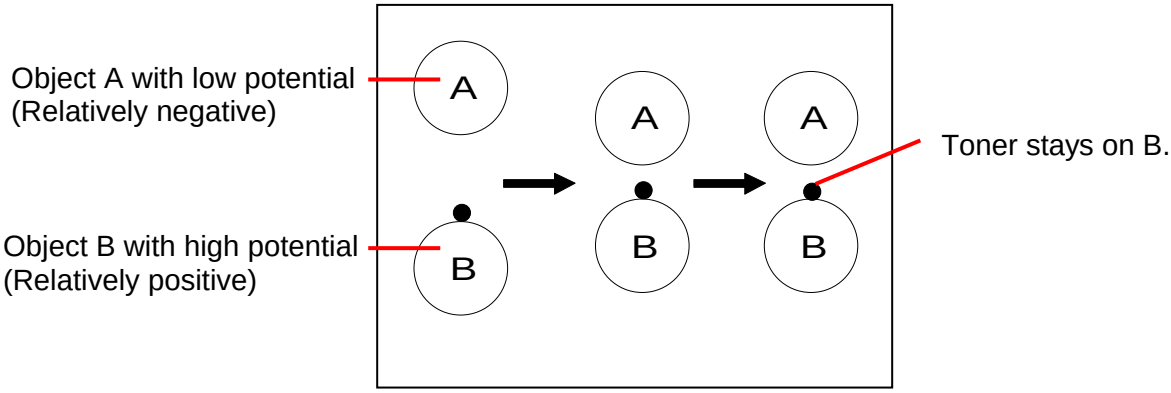
Suppose that there are objects A and B, and the situation is as follows.

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.

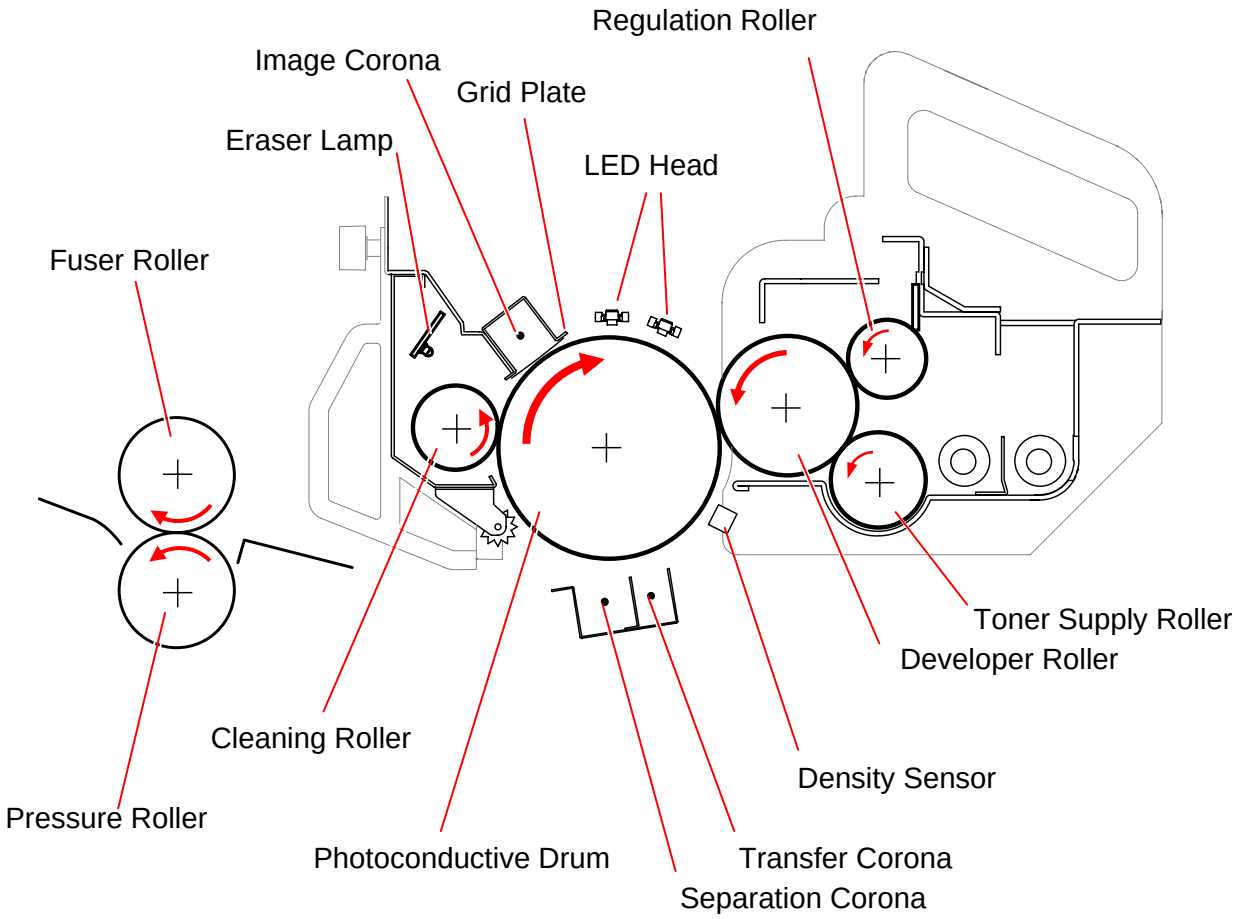


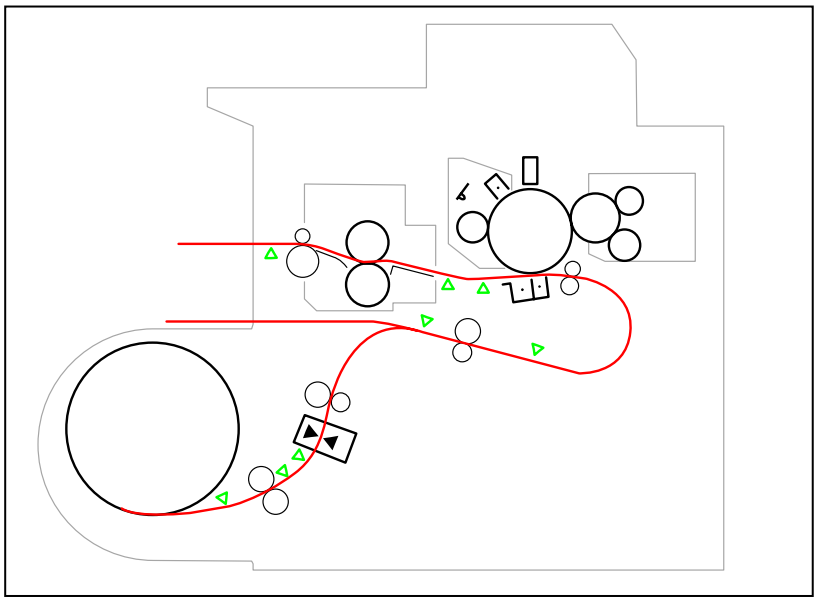
Thus, the toner has a characteristic to move from one place with a lower potential to another place with a higher potential.
If we control the electric potentials, it is possible to move the toner from one place to another as we intend, or it is also possible to remove the toner from an unwanted place.
KIP 700m 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

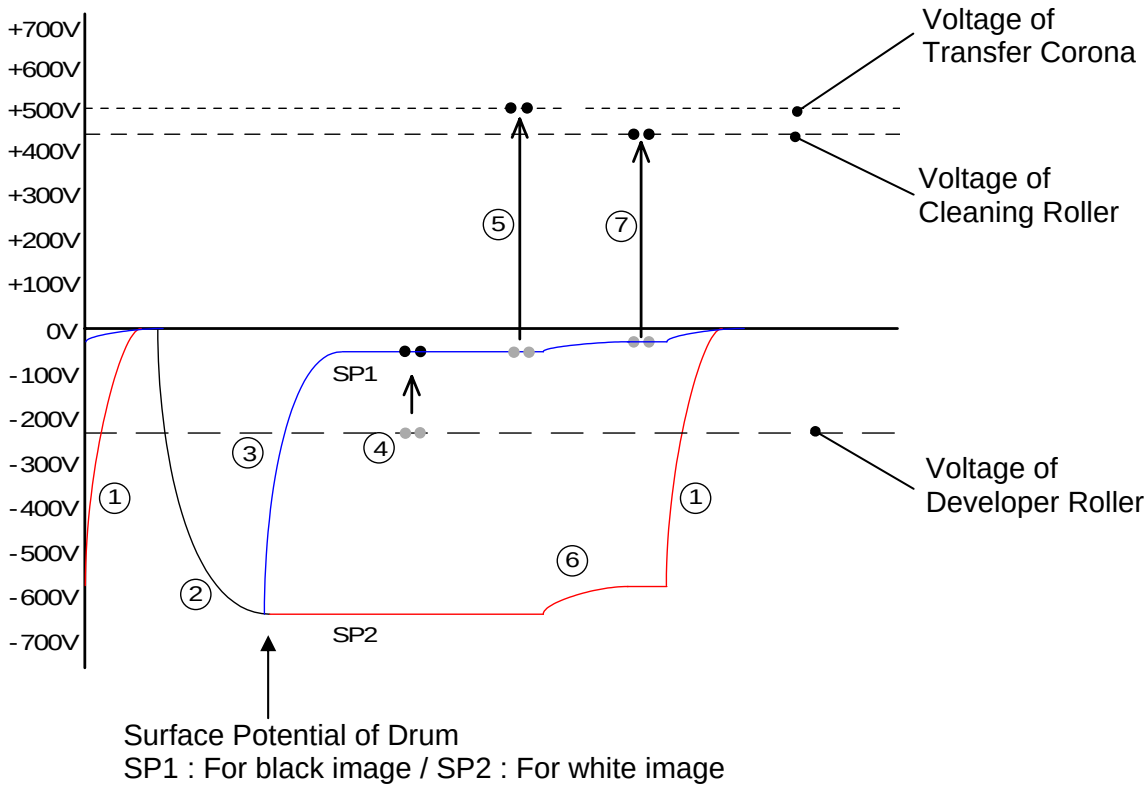
One cycle of print consists of the following 8 processes.

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.



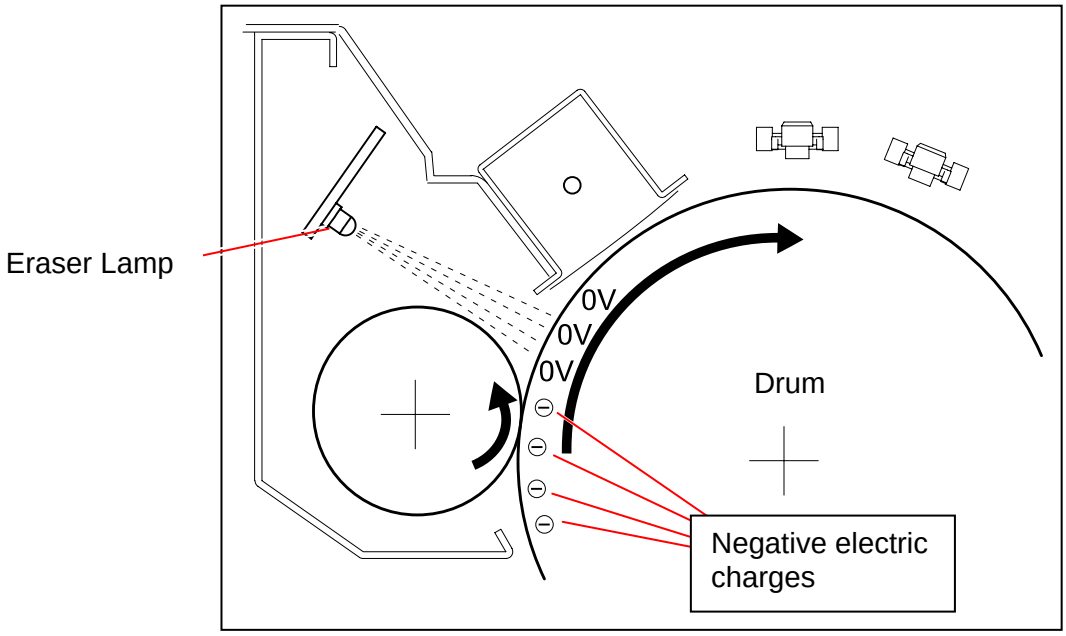
Name of part	Voltage (Current) during Print Cycle	Voltage during Toner Collection Process
Image Corona Wire	-1.3mA +/-0.05mA	-
Grid Plate	-630V +/-30V	-
Developer Roller	-230V +/-5V	+350V +/-5V
Regulation Roller (Center)	-80V +/-5V against the Developer Roller Bias	-80V +/-5V against the Developer Roller 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 700m 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.

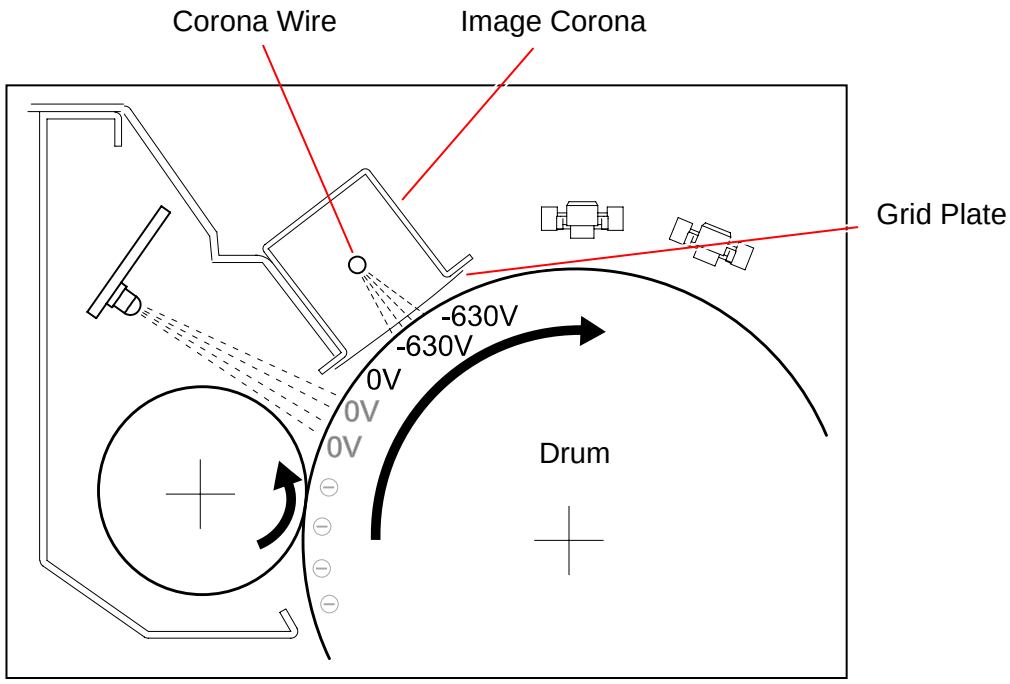


3. 1. 2 .2 Charge of Drum

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.

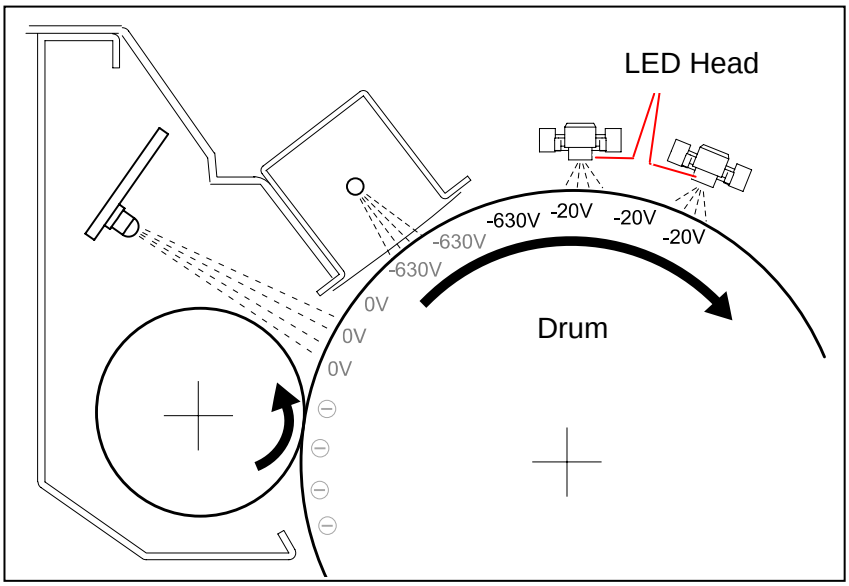
Current and Voltage supplied to the Image Corona Wire is as follows.

Corona Wire ..... -1.3mA +/-0.05mA

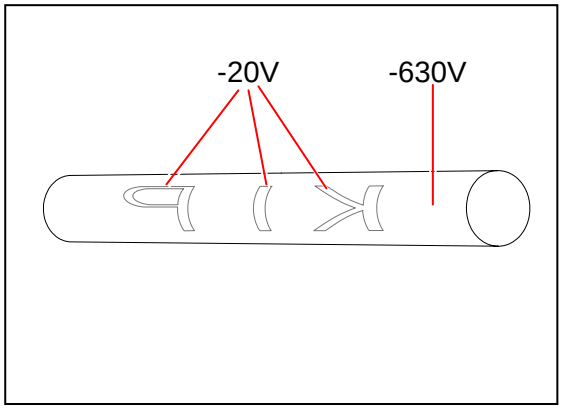


3. 1. 2. 3 Exposure

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)

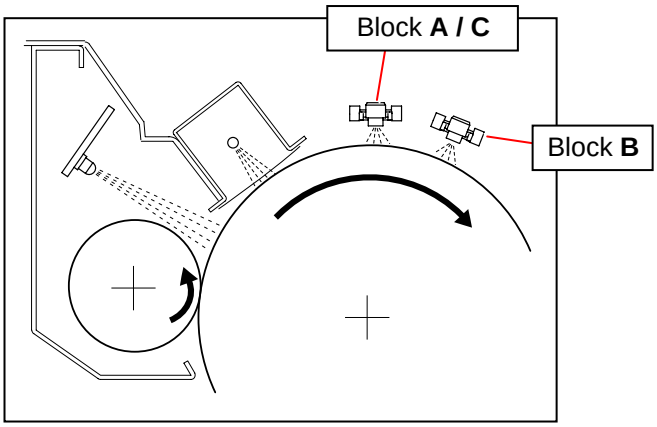


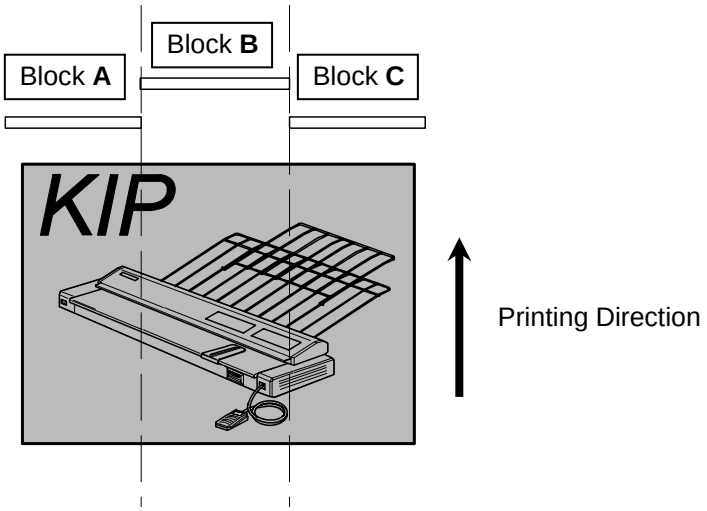
(see the next page)

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 700m's LED Head Unit consists of 3 blocks.





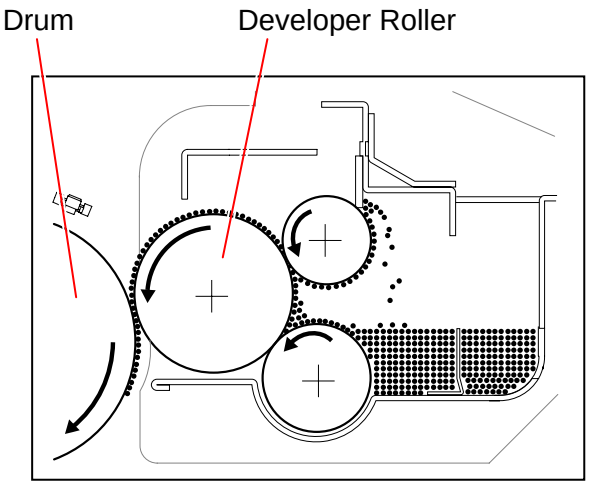
3. 1. 2. 4 Development

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.

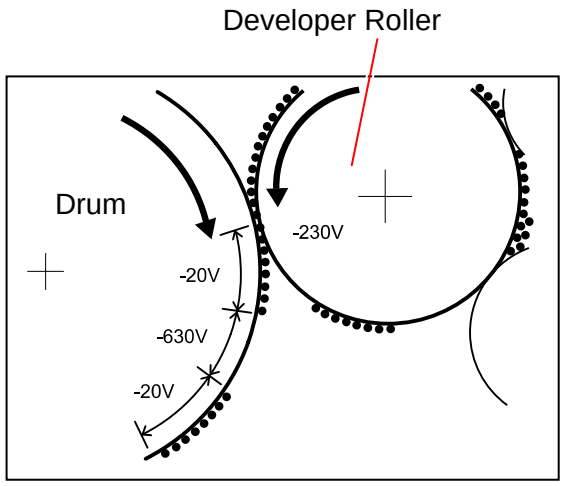
Seen from the voltage of Developer Roller Bias (-230V), the -20V area on the Drum is relatively "positive". So the toner moves from the Developer Roller to the -20V area of Drum.

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.

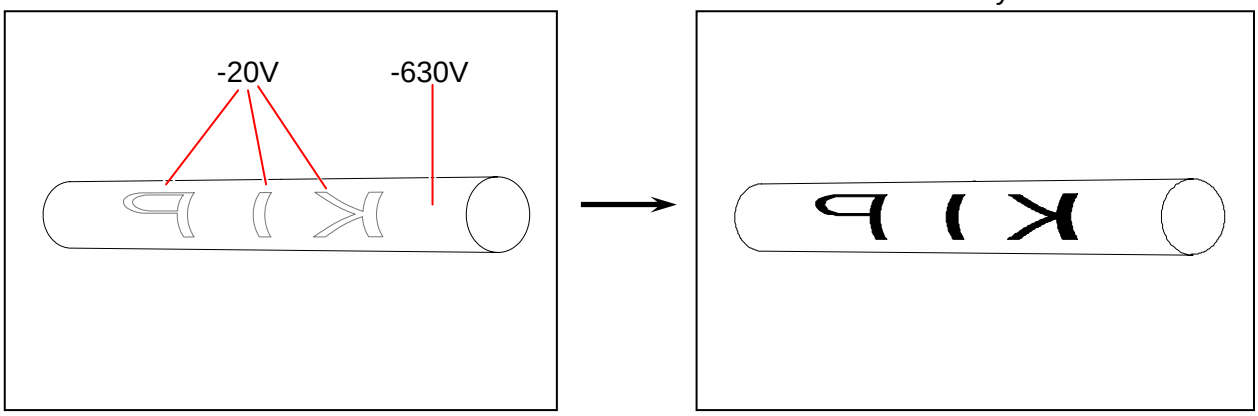
A visible toner image is formed on the Drum as a result.



Before Development



After Development : Toner moves only to -20V area.

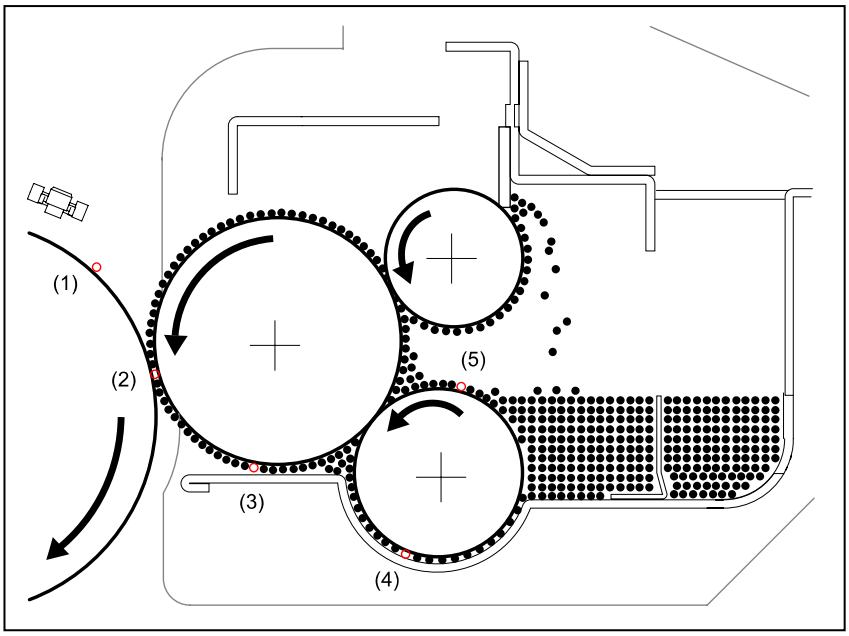


(Invisible Electrostatic Latent Image)

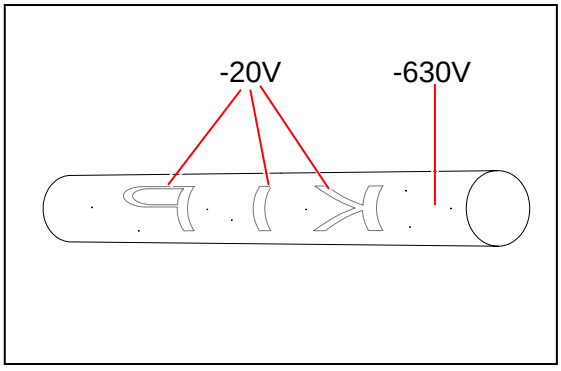
(Visible toner image)

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 Developer Unit and then reused.

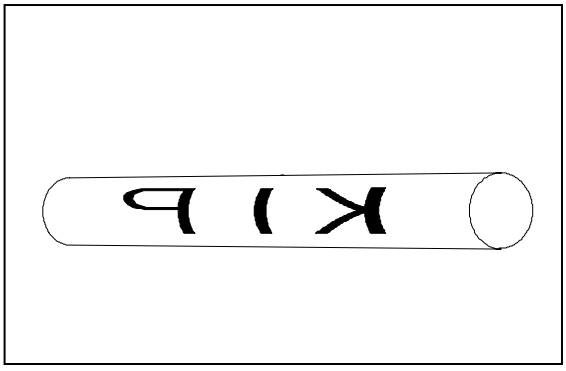
1. Toner remained on the Drum
2. Toner moves from the Drum to the Developer Roller.
3. Developer Roller carries the toner toward the Toner Supply Roller
4. Toner is shifted to the inside of the Developer Unit by the revolution of Toner Supply Roller.
5. Toner is reused.



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



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



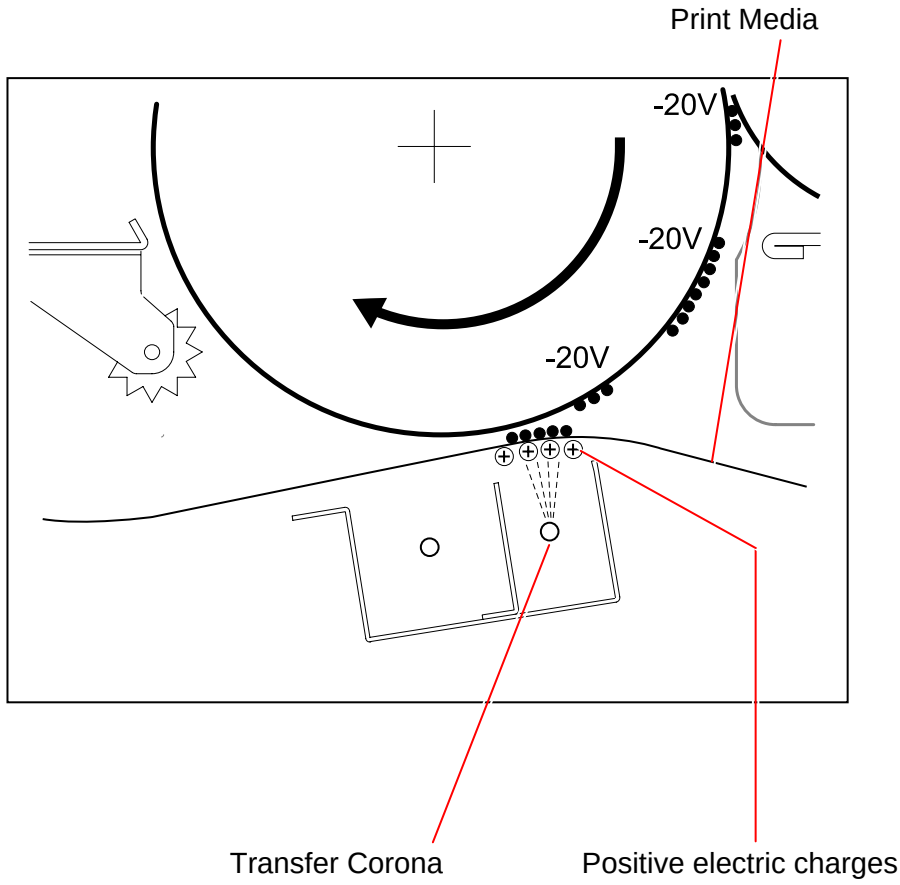
Reference

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.)

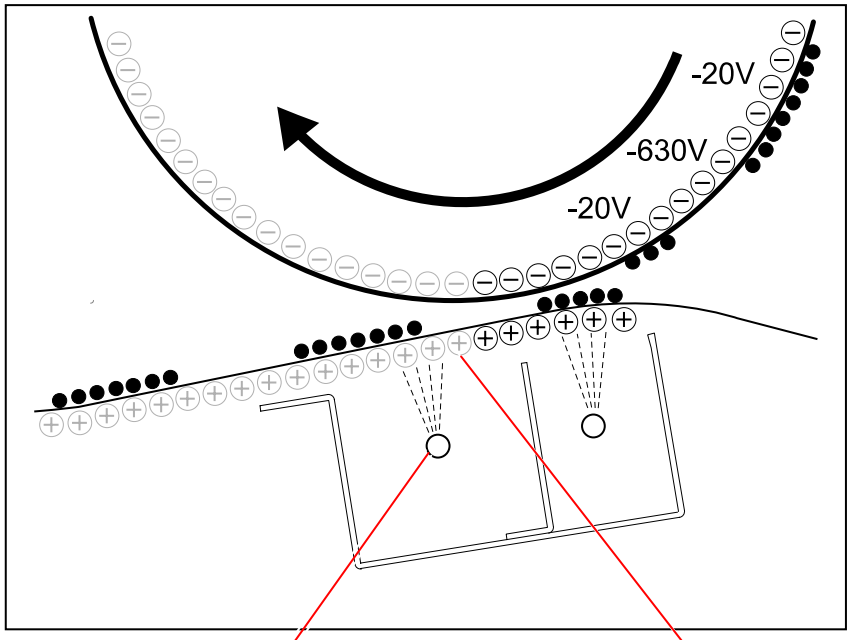


3. 1. 2. 6 Separation

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.

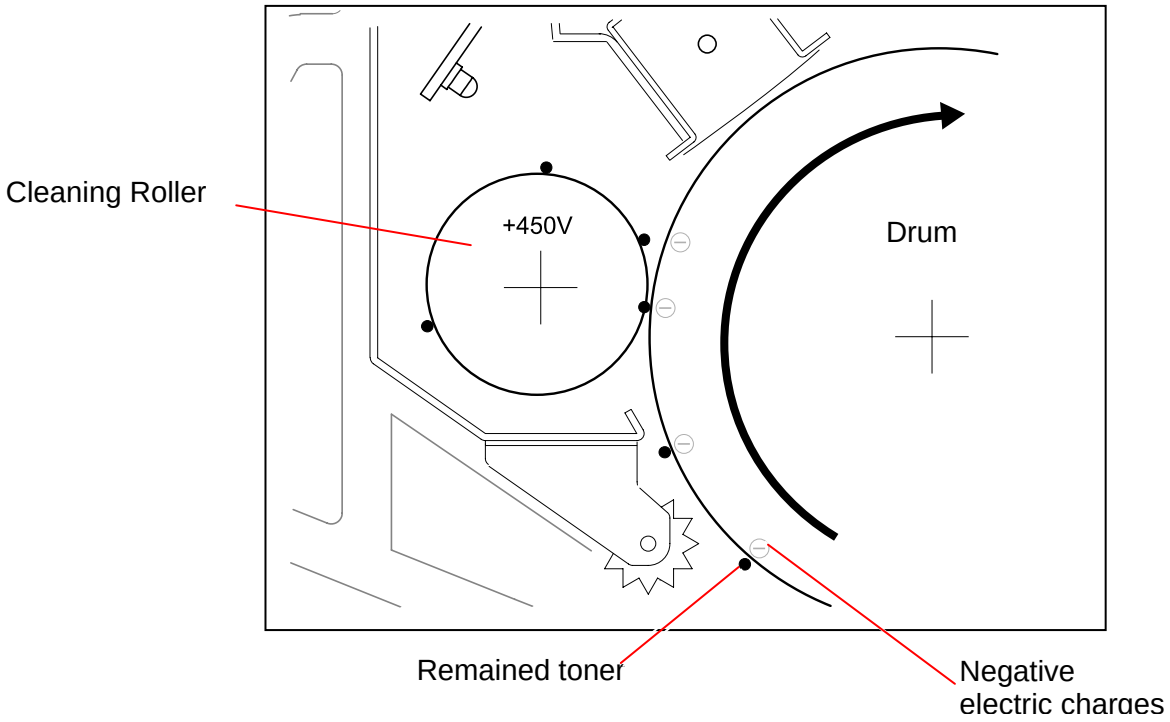
AC voltage : 5.0KV
DC voltage : -250V

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.



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.

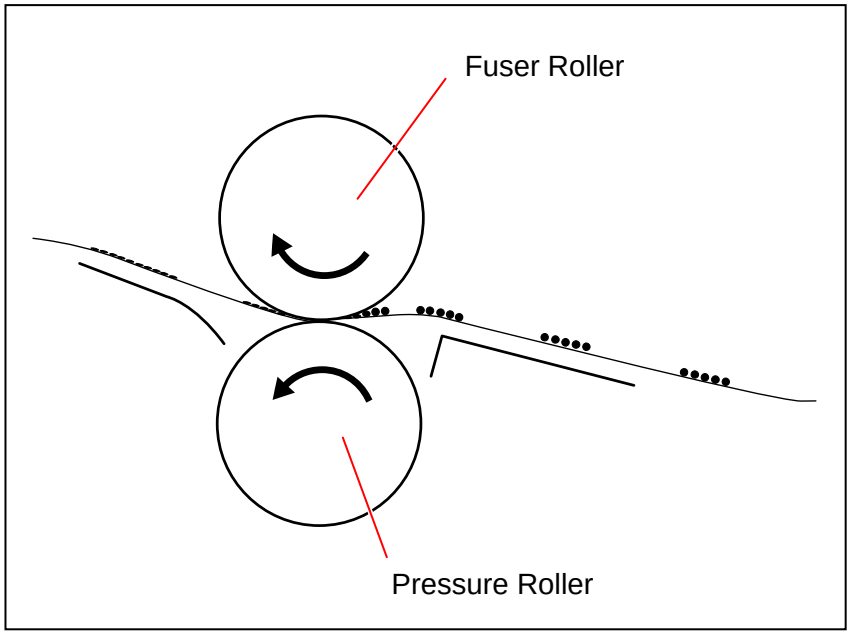


NOTE

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

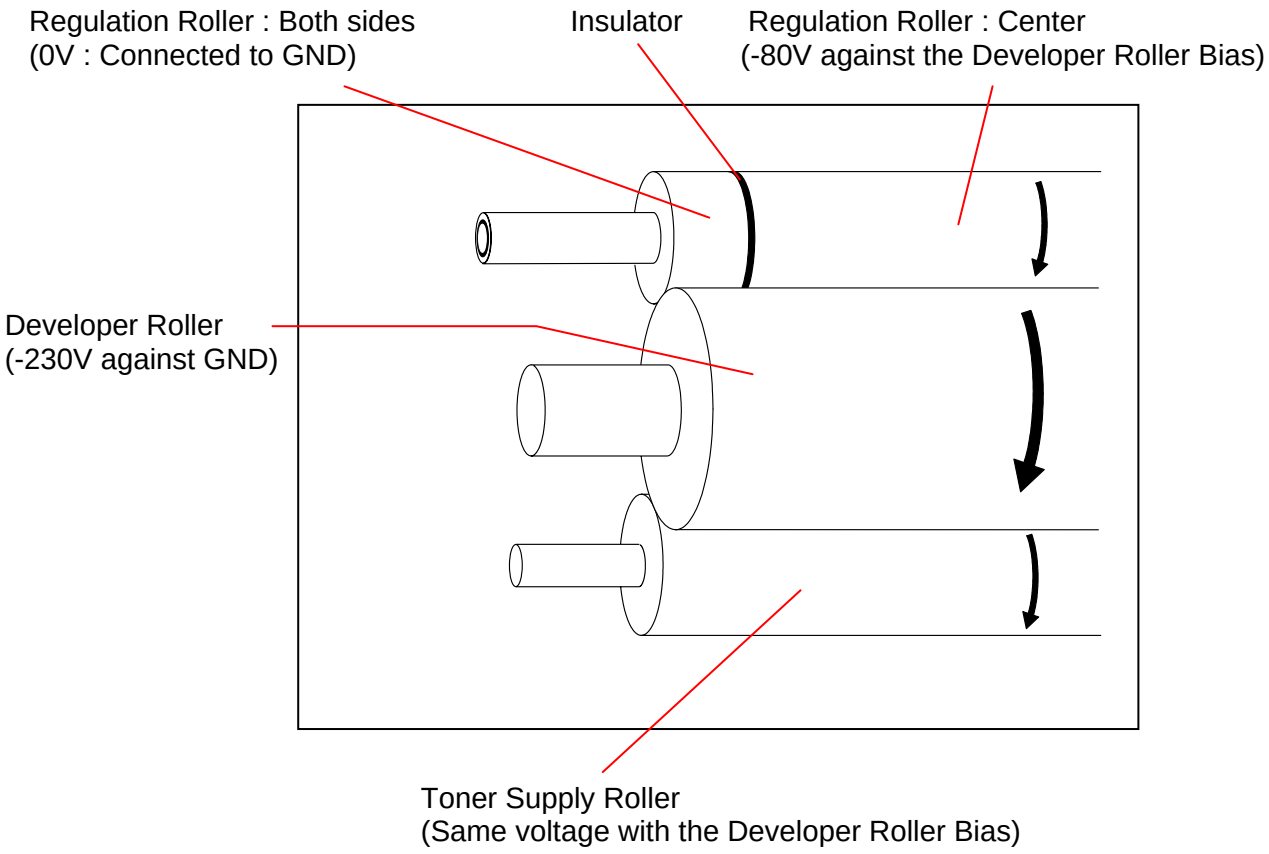
After Transfer / Separation Processes, the printing paper is transported to the Fuser Unit.
The Fuser Unit mainly consists of the Fuser Roller and the Pressure Roller.
The Fuser Roller is very hot, and the Pressure Roller is strongly pressed to the Fuser Roller by the spring.
The toner is firmly fused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



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.

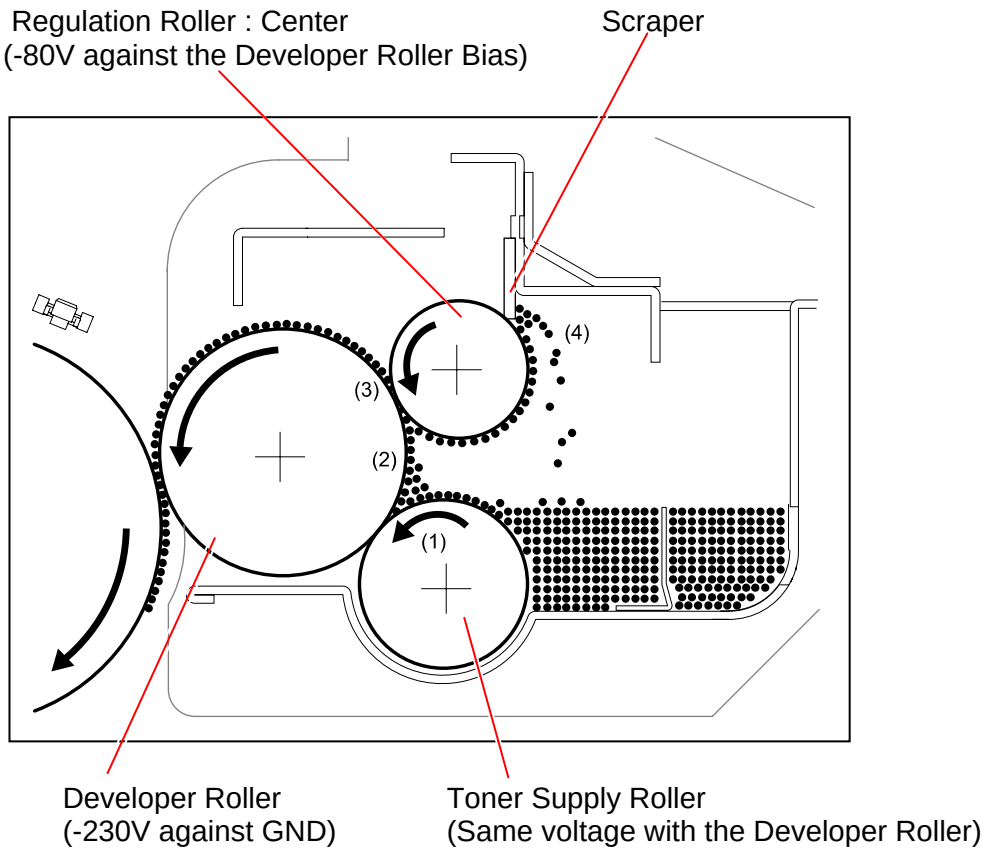
Taking advantage of the difference of potentials among these rollers, the movement of toner is controlled in the Developer Unit as follows.

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

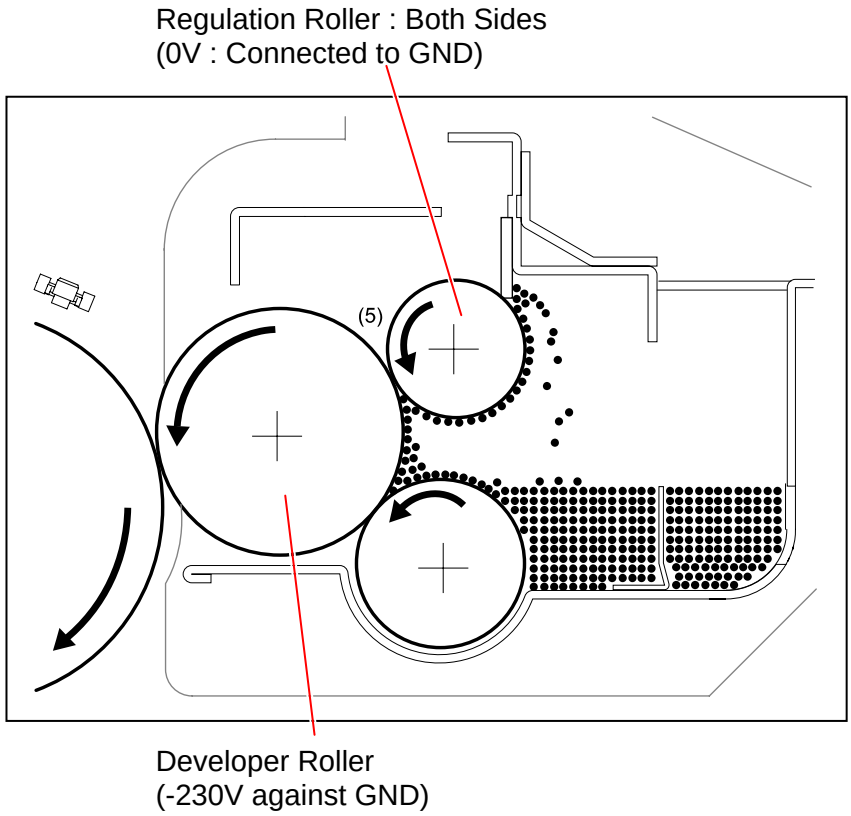
2. When the toner reaches the contact point of these rollers, therefore, it moves onto the Developer Roller.
   Then the Developer Roller carries the toner toward the Regulation Roller.

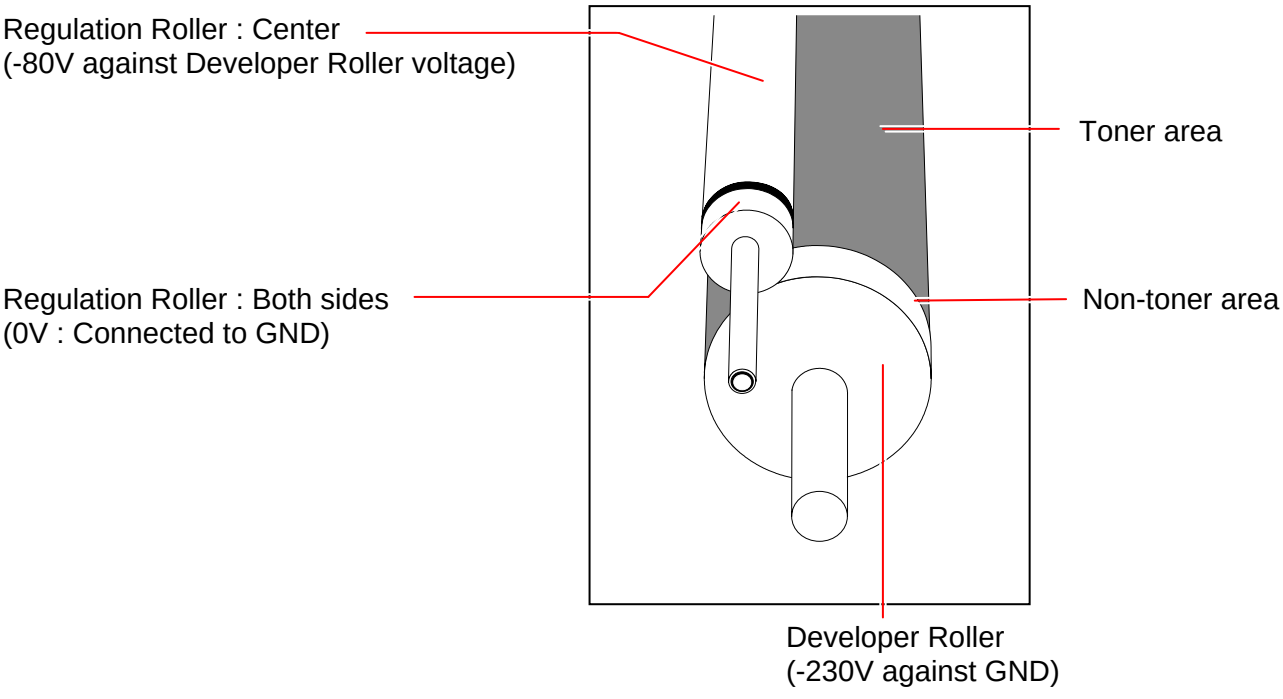
3. The Regulation Roller is strongly pressed to the Developer Roller by the spring, and these 2 rollers move to the opposite direction each other at the contact point.
   Even if the Developer Roller carries more toner than required, the Regulation Roller limits the amount of toner that can pass through 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.



5. 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

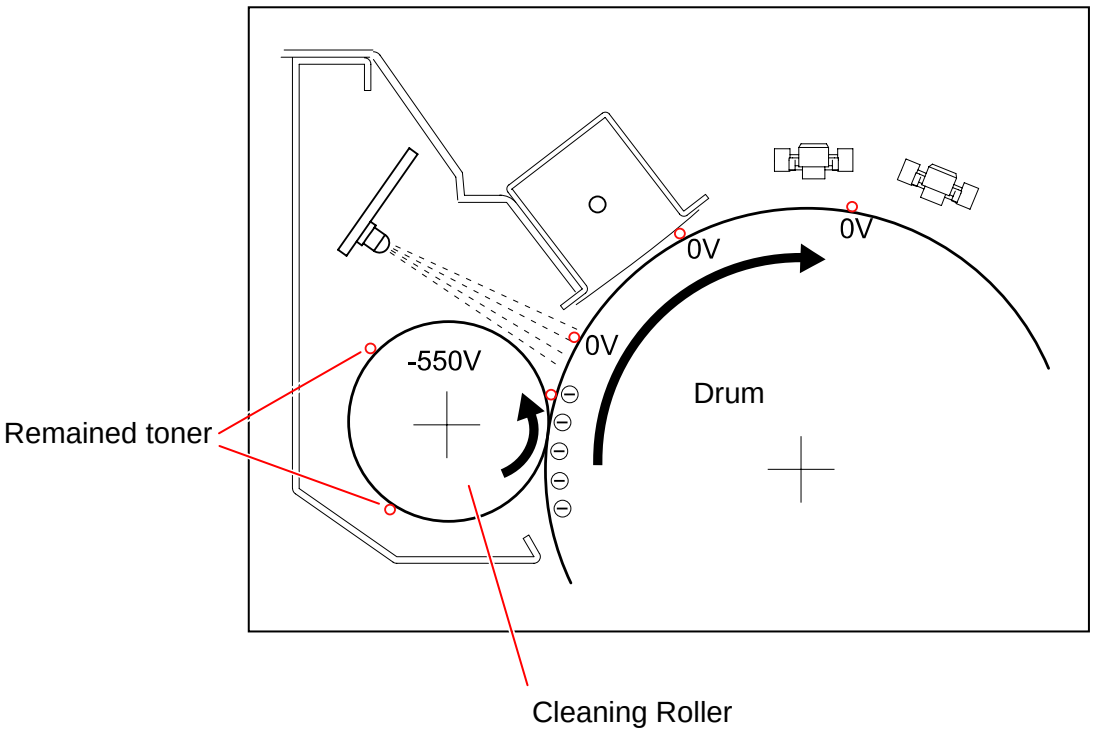
As explained in [3.1.2.7 Drum Cleaning], the Cleaning Roller is supplied with +450V to remove the remained toner from the Drum during the print cycle.
This toner gathered by the Cleaning Roller is returned to the Developer Unit in the following 3 cases.

(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.

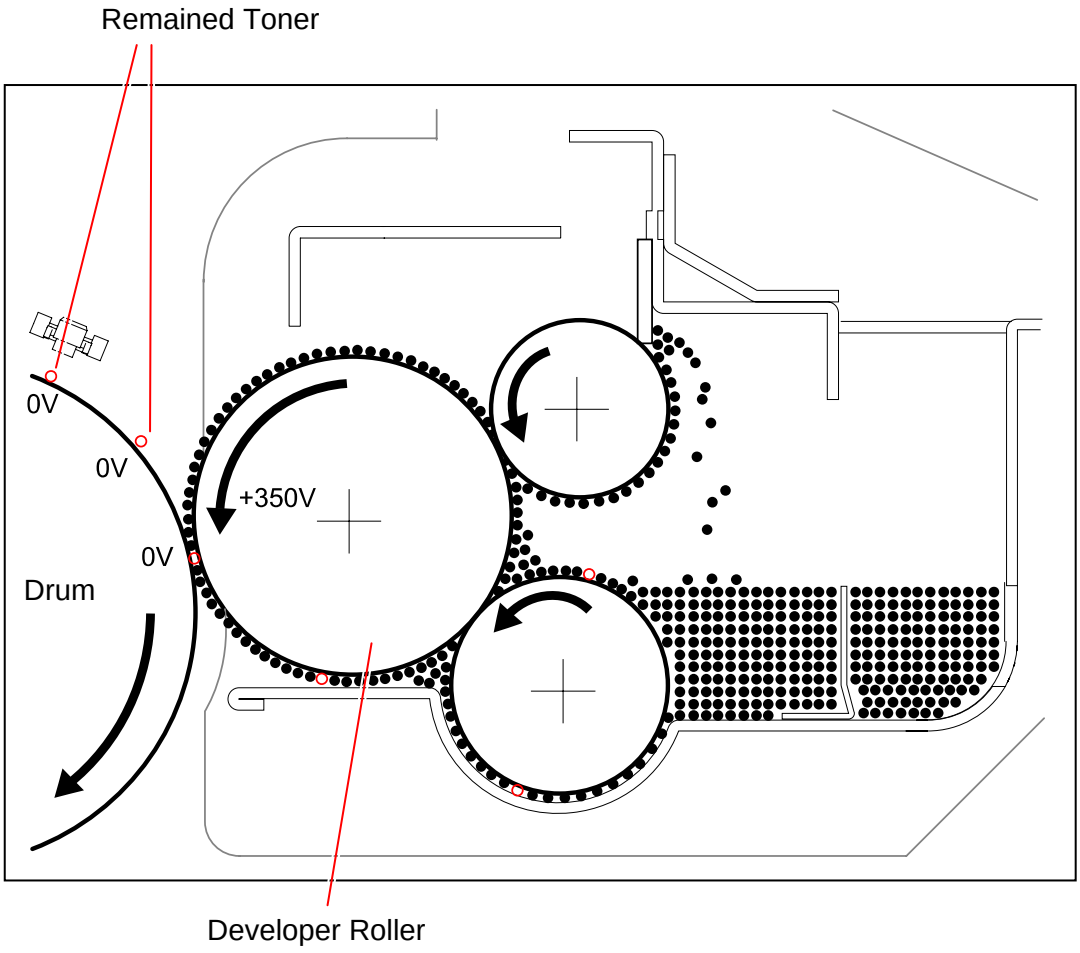
This process to return the toner is called “Toner Collection Process”.
When the trailing edge of the last sheet passes over the Separation Area, the printer will take the Toner Collection Process as follows rotating the Drum for 2 revolutions.

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.



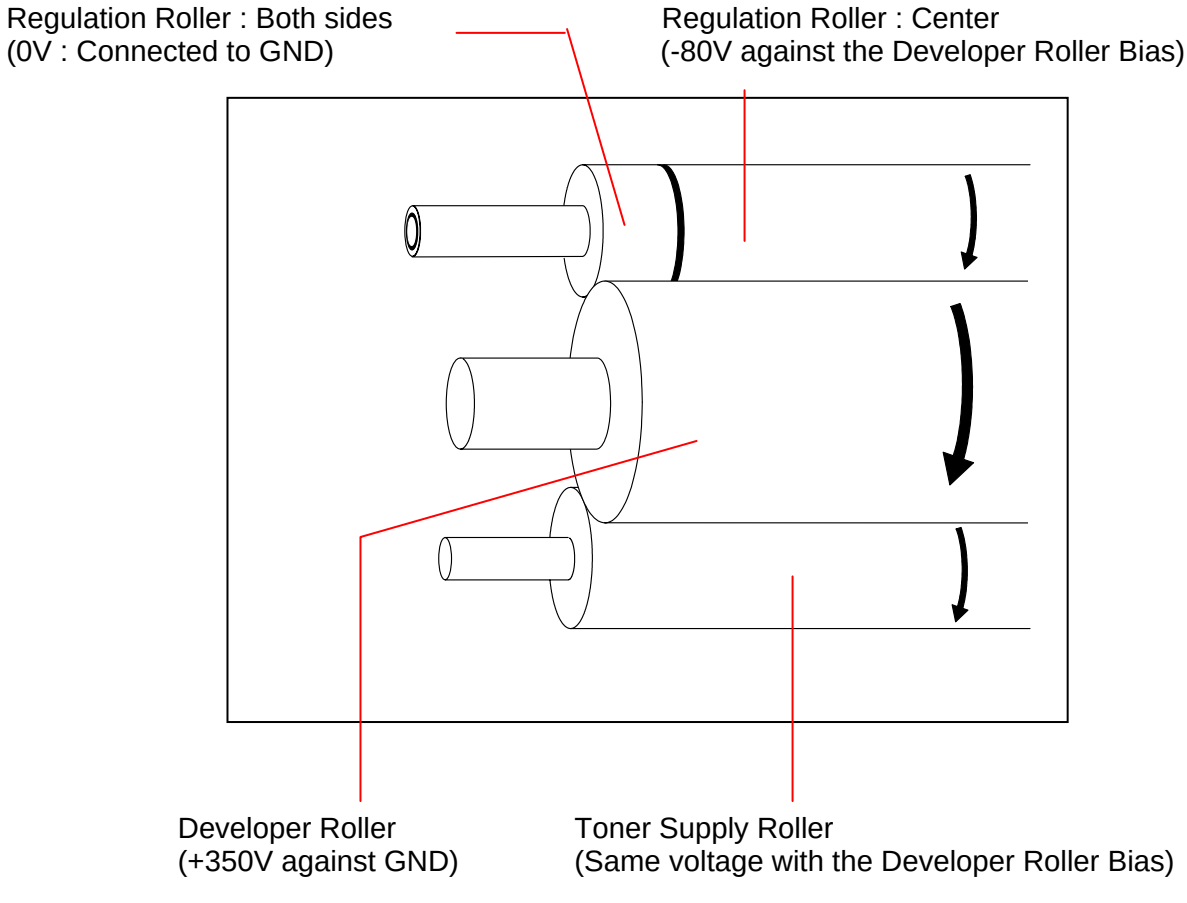
3. The voltage supplied to the Developer Roller is also changed to +350V (+/-5V) in the Toner Collection Process.
   As the potential of Developer Roller becomes higher than that of Drum, toner on the Drum moves onto the Developer Roller.
   Then the toner is carried into the Developer Unit by both the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



3. 1. 5 Density Compensation Process

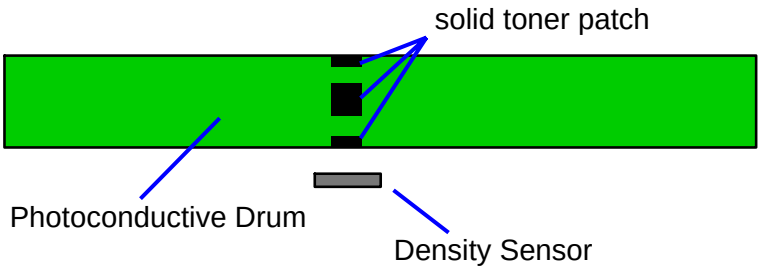
On rare occasion, loss of image density may occur under a special usage. KIP 700m has the ability to reduce such loss of image density and this enables to maintain a satisfactory image quality regardless of the machine usage.

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

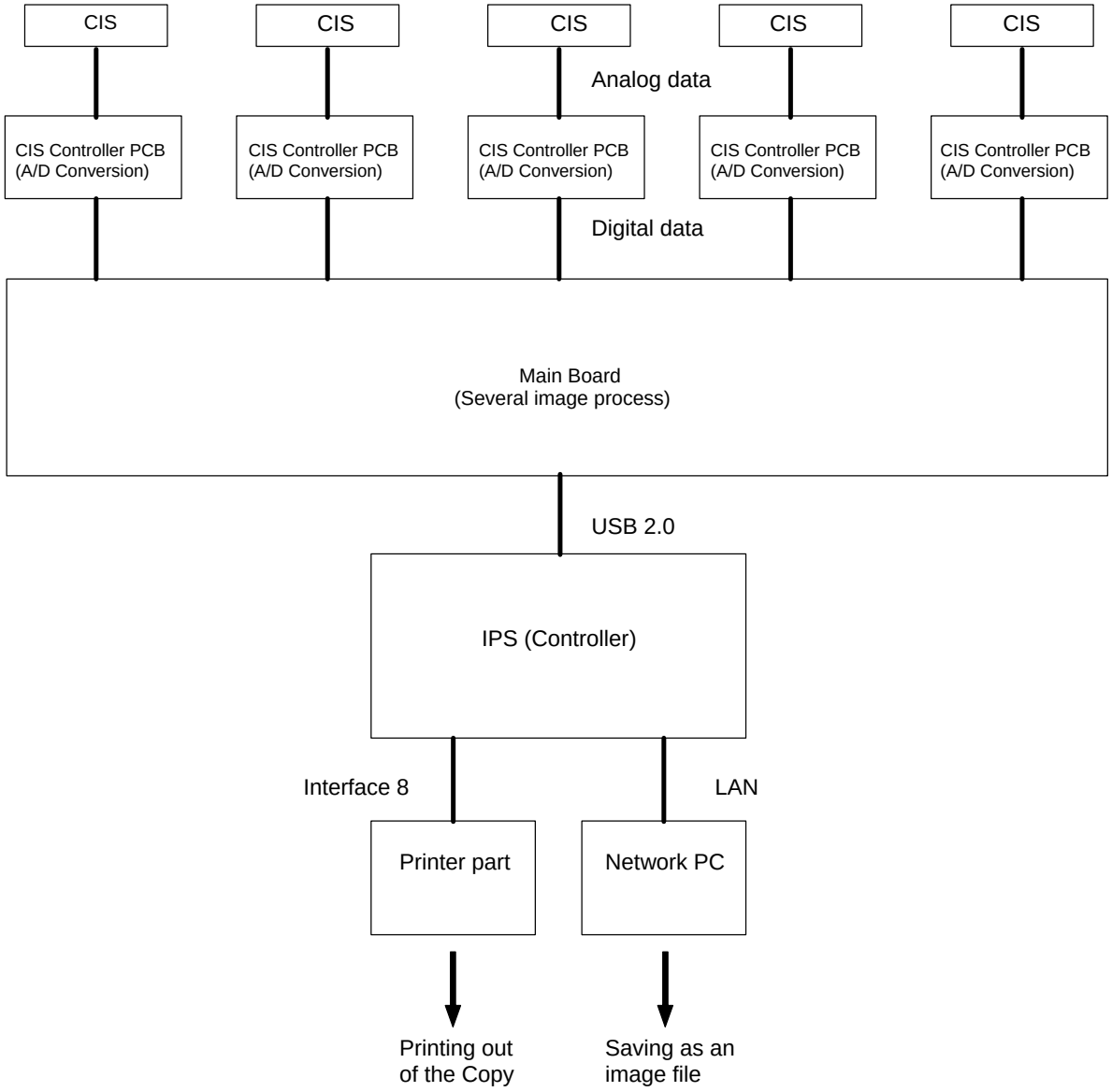
There are CIS Units, CIS Controller PCB (SVC CIS BD) and Main Board (SVC Main BD K) in the scanner unit, which take image reading and processes the data.

1. The CIS Units read the image pattern of original, and then send the analog data to the CIS Controller PCB.

2. The CIS Controller Boards converts the analog data into digital data, and then send to the Data Controller PCB.

3. The Main Board takes the correct image process according to the UI setting.
   Then it outputs the image data to the IPS through the USB 2.0.

4. The IPS output the image data to the printer part of KIP 700m through the Interface 8 in case of “copy”, or it outputs to the Network PC through the LAN cable in case of “scan to file”.



3. 2. 2 Positioning process of Image Block

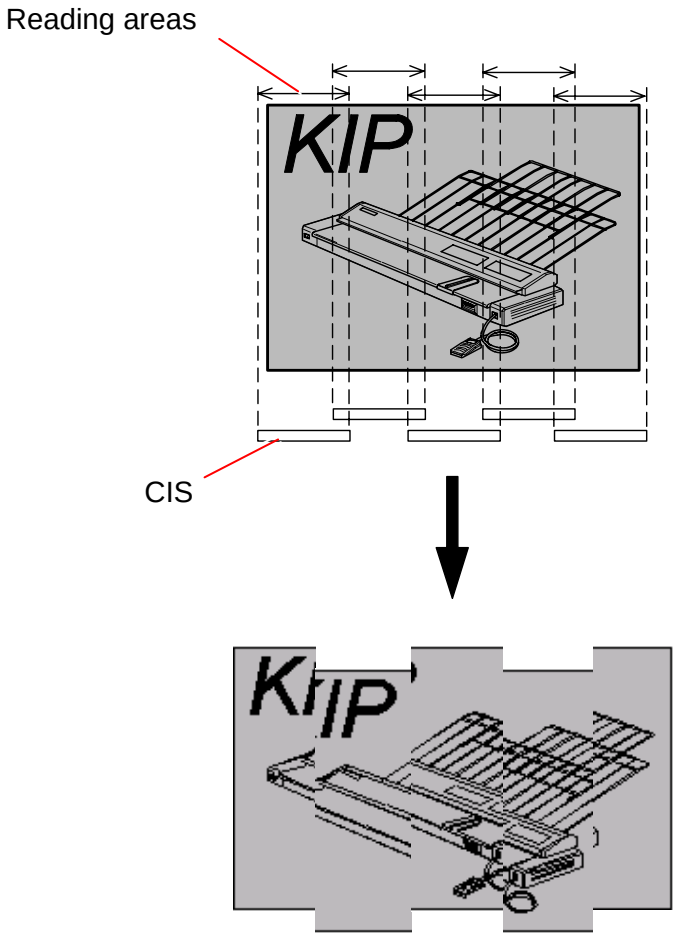
The scanner part of KIP 700m reads the image of original with 5 - CIS (Contact Image Sensor).
As these CIS are arranged in 2 rows, there occurs a vertical gap of image among the image blocks. So it is necessary to remove this gap by vertical positioning process (Y offset).
Also the reading area of these 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 700m 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.

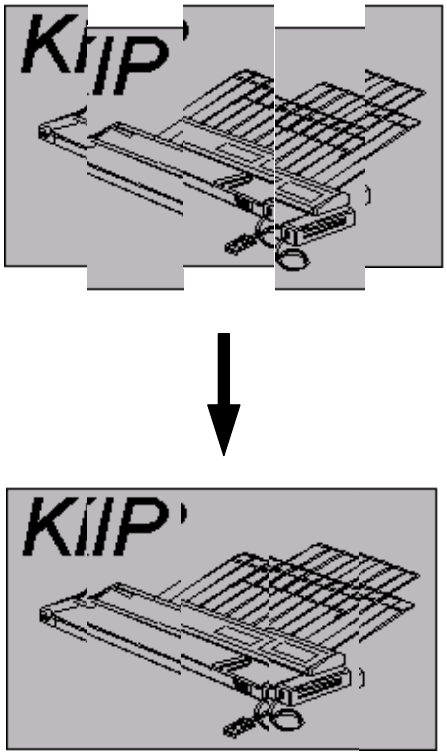
(1) There occurs a vertical gap of image among the image blocks.
(2) Some image pixels are commonly included (duplicating) in the neighboring two Image Blocks.



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.

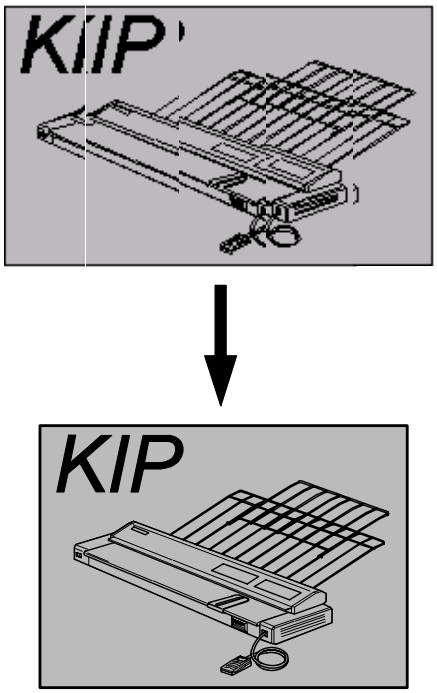
The image data before the positioning process



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)



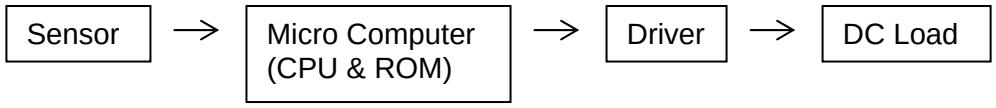
The image data after the positioning process (X overlap)

Chapter 4

Electrical

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

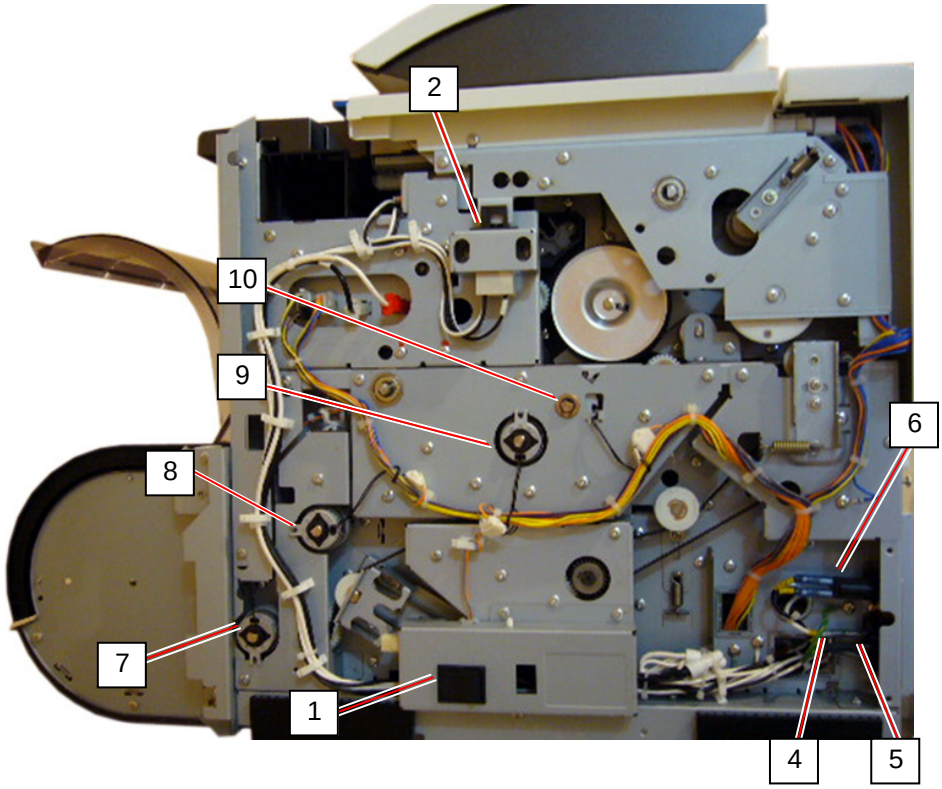
⚠ CAUTION

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.

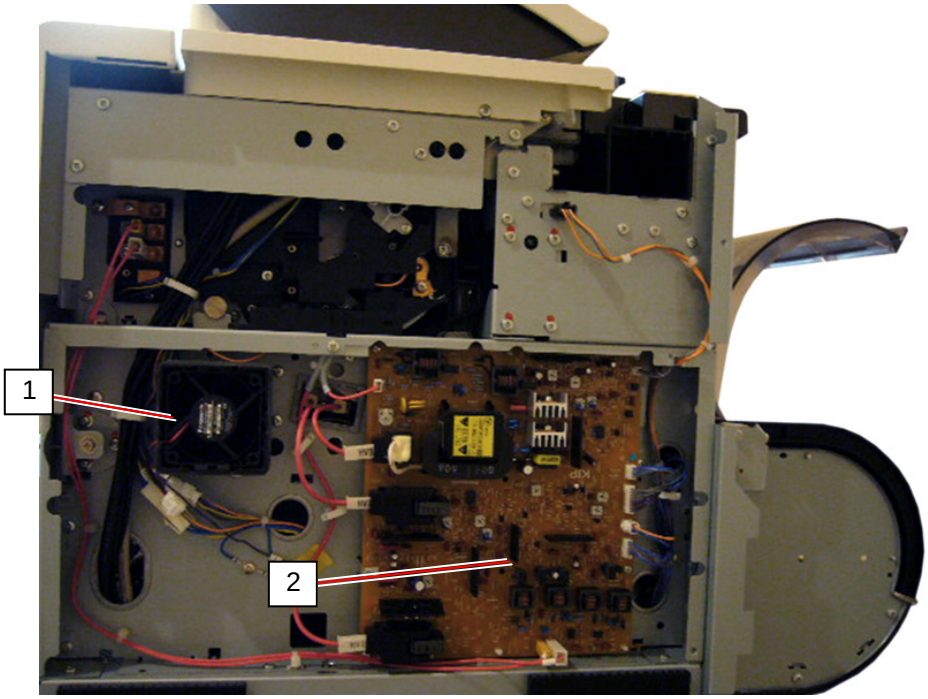
4. 2 Electrical Component Location

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	Shuts off the AC power to the DCP1 when the Upper Unit is open
4	LF1	-	Noise Filter		Removes the noise from the AC line **120V model only**
5	CB1	-	Breaker	X28-XQ1A-15 (for 120V model) X28-XQ1A-10 (for 230V model)	Protects the AC line from the over-current
6	INLET	-	Noise Filter Assy	120V model	Inputs the AC Power from a wall outlet
			Inlet Assy	230V model	
7	CL3	R1FD_CL	Clutch (Roll Feed Clutch)	MCA-30A	Picks up the roll media's leading edge to wait position
8	CL2	FEED_CL	Clutch (Feed Clutch)	MCA-30A	Feeds the roll media
9	CL1	REGIST_CL	Clutch (Registration Clutch)	MCA-30A	Meets the image head and the leading edge of media
10	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

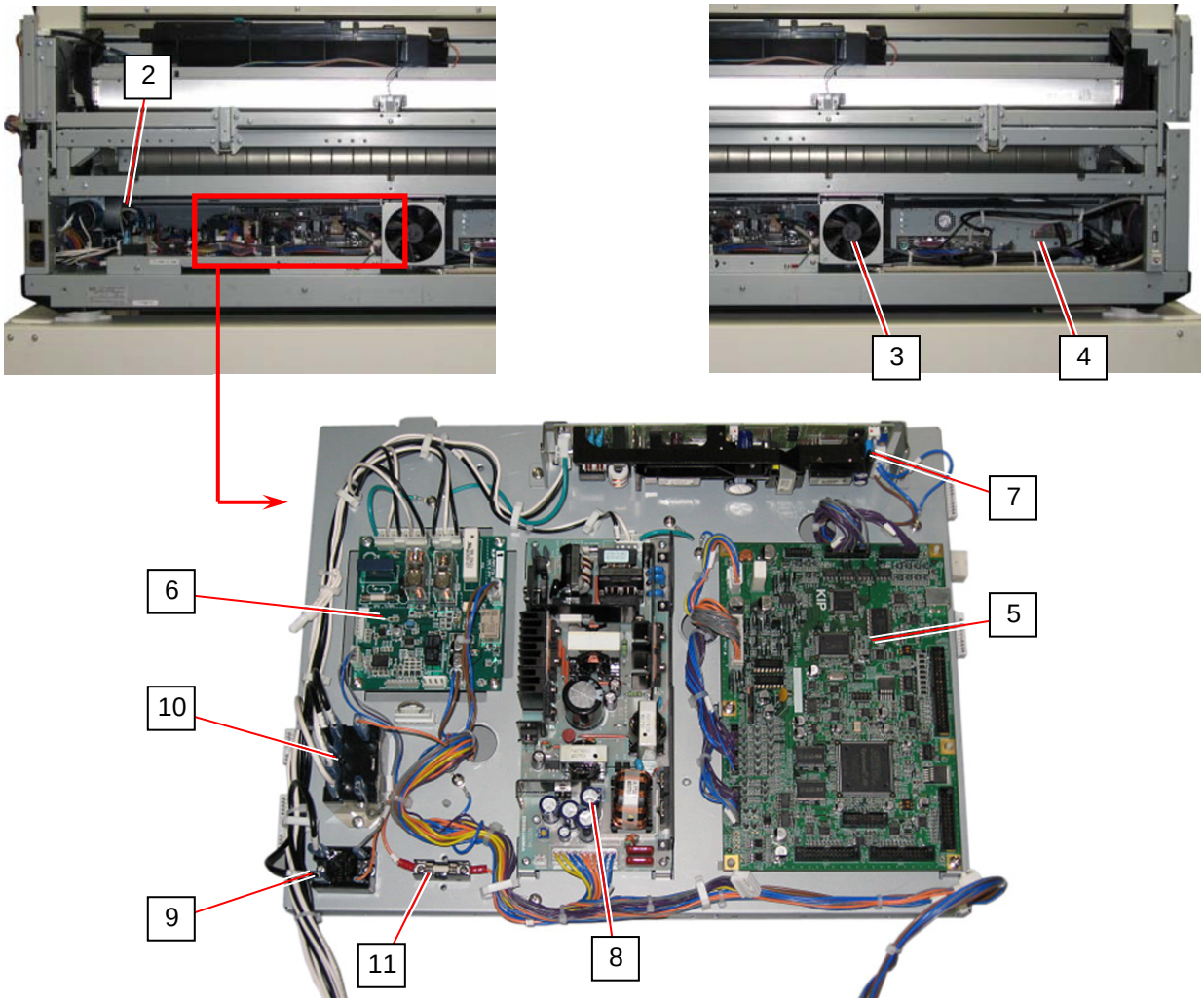


Item	Symbol	Signal name	Name	Type	Function
1	BL3	FEED_BL (EXT_FAN)	Fan (Feed Blower)	ASFN60372	Assists to transport media
2	HV1 HV2 HV3 HVP4 --- OUTPUT2 OUTPUT3 OUTPUT5	HV_IM HV_TR HV_AC --- BIAS_TRG BIAS_SW	HV Power Supply	EUK1MGA60HA	Outputs the high voltage to each of the following components. (1)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

NOTE

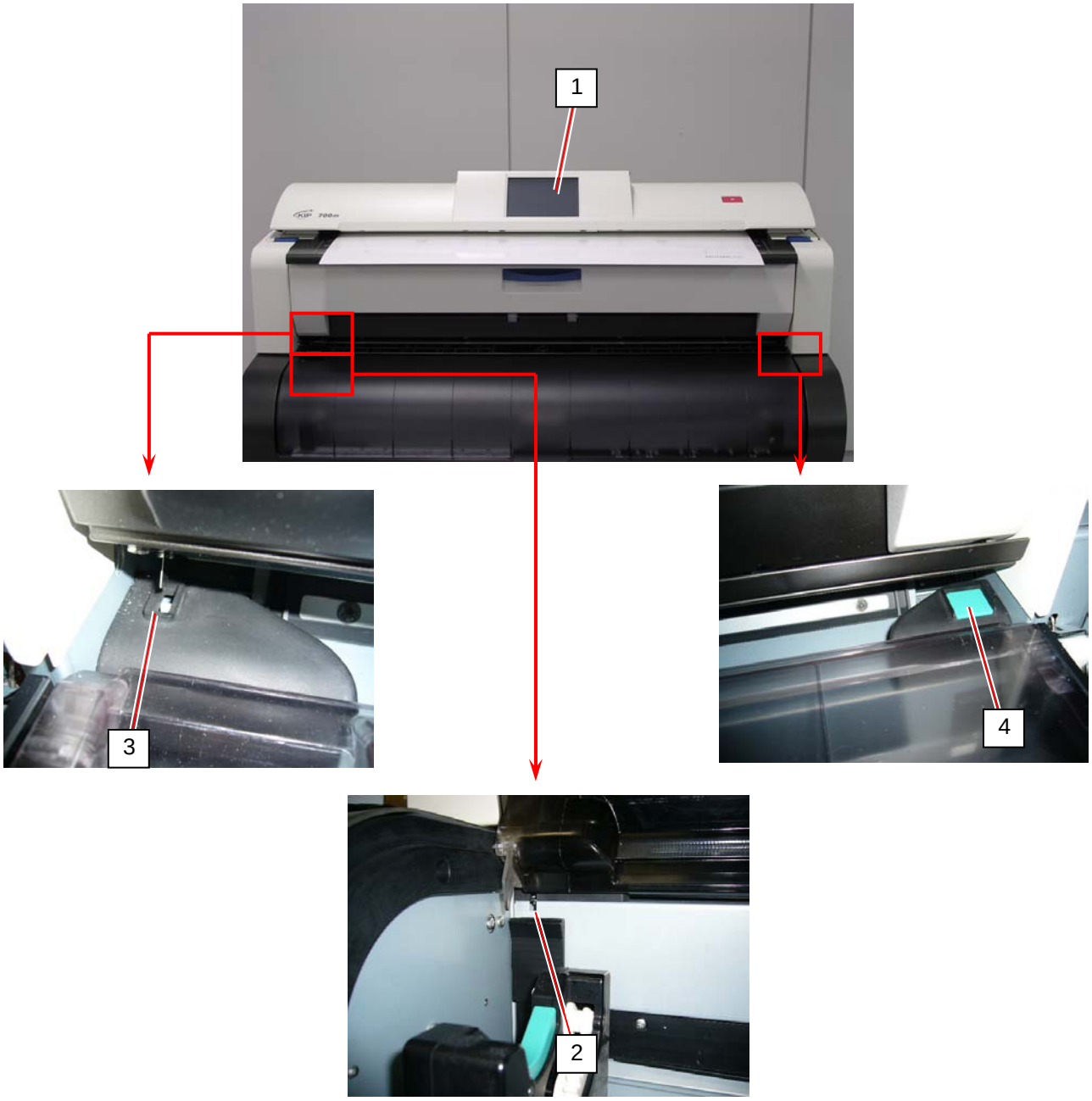
Developer Bias (OUTPUT 2, 3) is outputted (or stopped) by the signal “BIAS_TRG”.
The polarity of Bias is decided by the signal “BIAS_SW”

4. 2. 3 Rear



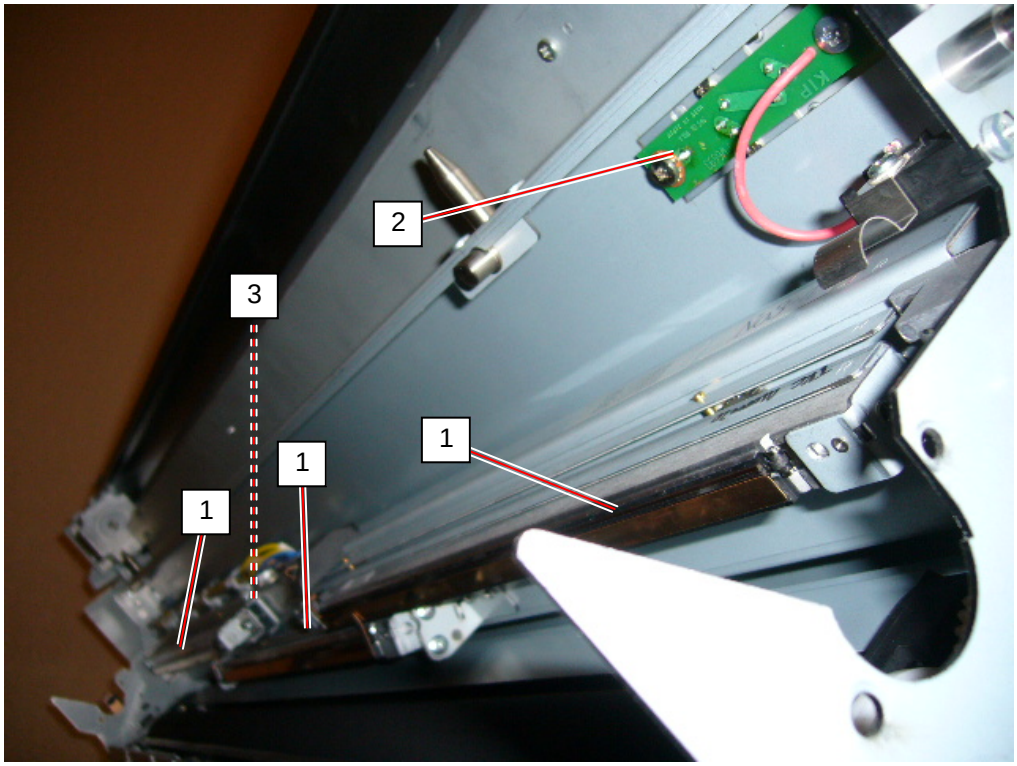
Item	Symbol	Signal name	Name	Type	Function
1	LF1	-	Line Filter	RG-208F2	Removes the noise from the AC line **230V model only**
2	M1	MAIN_TRG	DC Motor (Main Motor)	DRG-6236-226	Drives the Drum, Developer Unit, Fuser Unit and media feeding section
3	BL4	-	Fan (IPS Cooling Fan)	ASFN90372	Cools the IPS and other components near the IPS
4	Image Process Assembly	-	IPS		Image Process System for copy / STF / plot
5	PW11720	-	PW11720 PCB Assy	PW11720	Overall sequence control
6	PW11724	-	PC Controller PCB	PW11724	- Lightning surge protector - Shuts down the IPS
7	DCP1	-	DC Power Supply	ZWD225PAF-0524/J	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.***

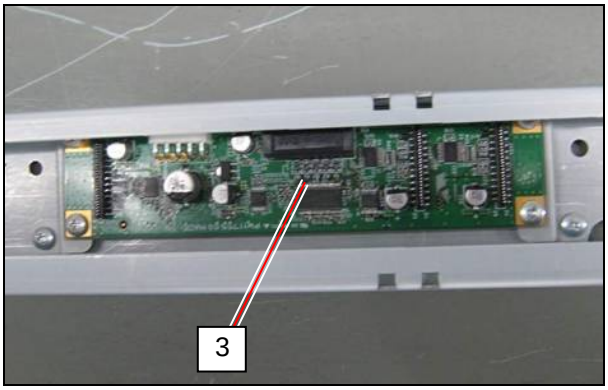
4. 2. 4 Front

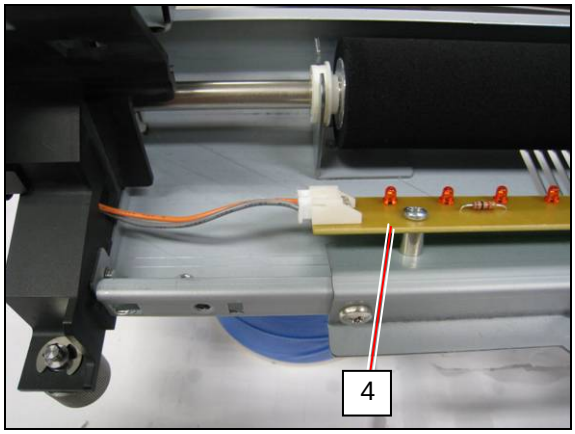


Item	Symbol	Signal name	Name	Type	Function
1	Touch Screen LCD	-	Touch Panel LCD Unit (UI)	SLP0832-ETT-A02	Touch Screen User Interface
2	MS5	DOOR_OPN	Switch (Roll Deck Cover open)	AM51612C53 N-A	Detects Roll Deck Cover open
3	MS6	HAND_DOOR	Switch (Manual Feed Table open)	CS1A-B2CA	Detects Manual Feeder 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

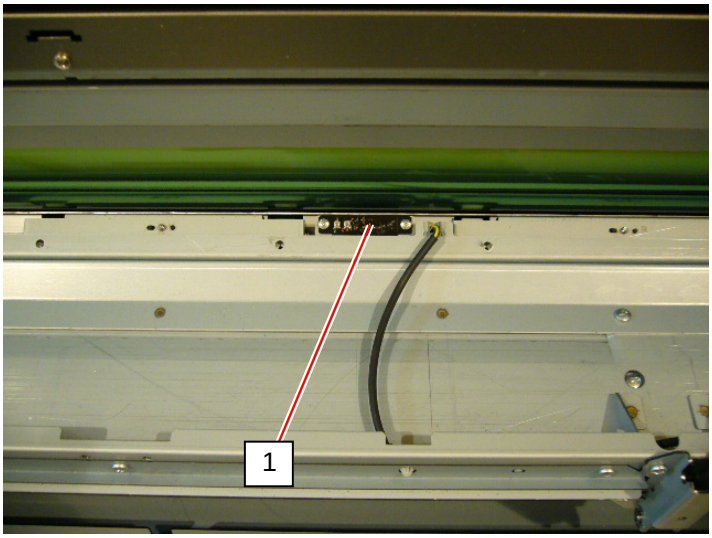




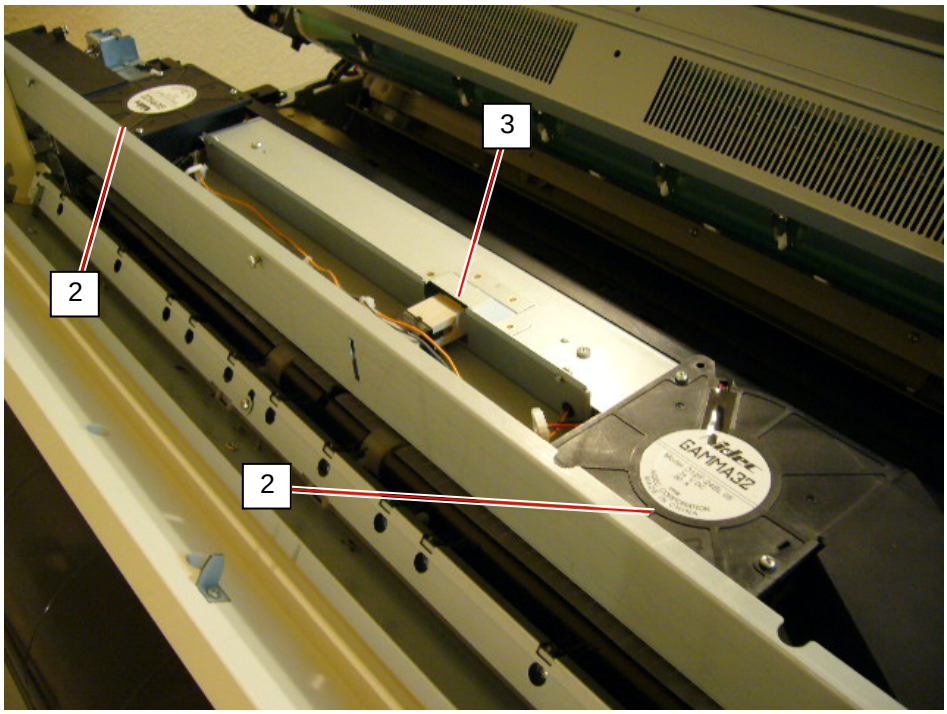


Item	Symbol	Signal name	Name	Type	Function
1	LED HEAD	-	LED HEAD UNIT	53TRC	Creates latent Images on Drum
2	PW6693	-	HV-ZD Assy	PW6693	- Keeps the Grid Voltage constant - Controls the surface potential of Drum
3	PW11755	-	PW11755 Assy	PW11755	Interface of LED Head Cable from PW11720
4	PW6631	ER1	Eraser 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

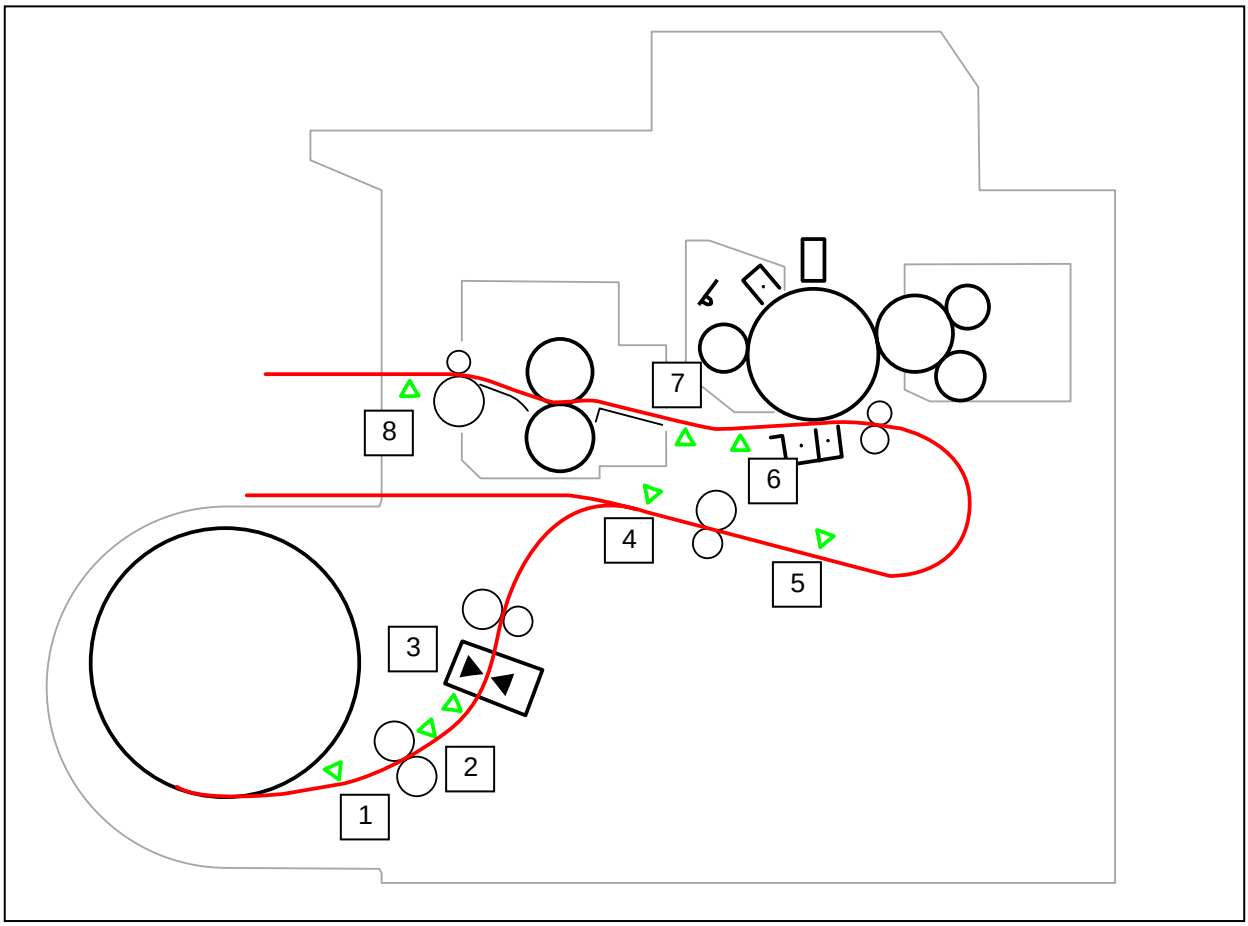


Item	Symbol	Signal name	Name	Type	Function
1	PH8	DENS_S	Sensor (Toner Density Sensor)	GP2Y40010K0F	Detects the toner density on the drum surface Outputs analog voltage to PW11720



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	Shuts off the AC power to the DCP1 when the Exit Cover is open

4. 2. 7 Sensor on Media Path

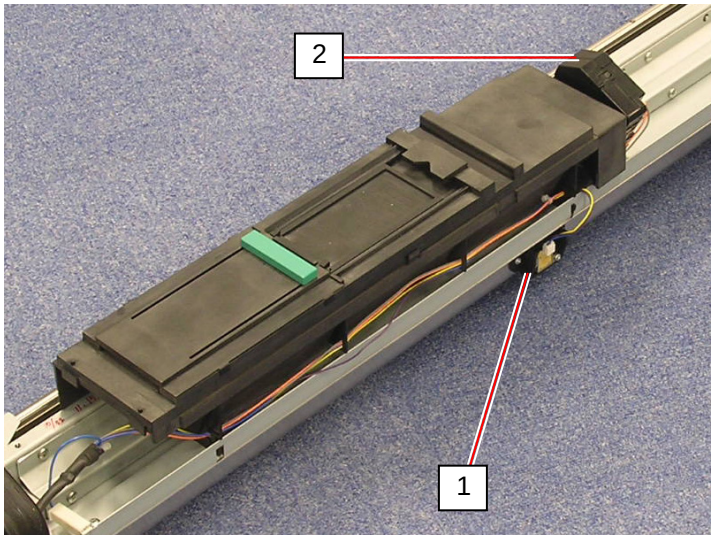


Item	Symbol	Signal name	Name	Type	Function
1	PH5	R1_SET_S	Sensor (Roll Set Sensor)	PS119ED1	Detects whether the leading edge is at set position
2	PH4	RENC_S	Sensor (Feed Encoder)	LG248NL1	Detects the distance of the roll media feeding
3	PH6	R_EDGE	Sensor (Feed Sensor)	PS117ED1	Detects roll media feeding 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

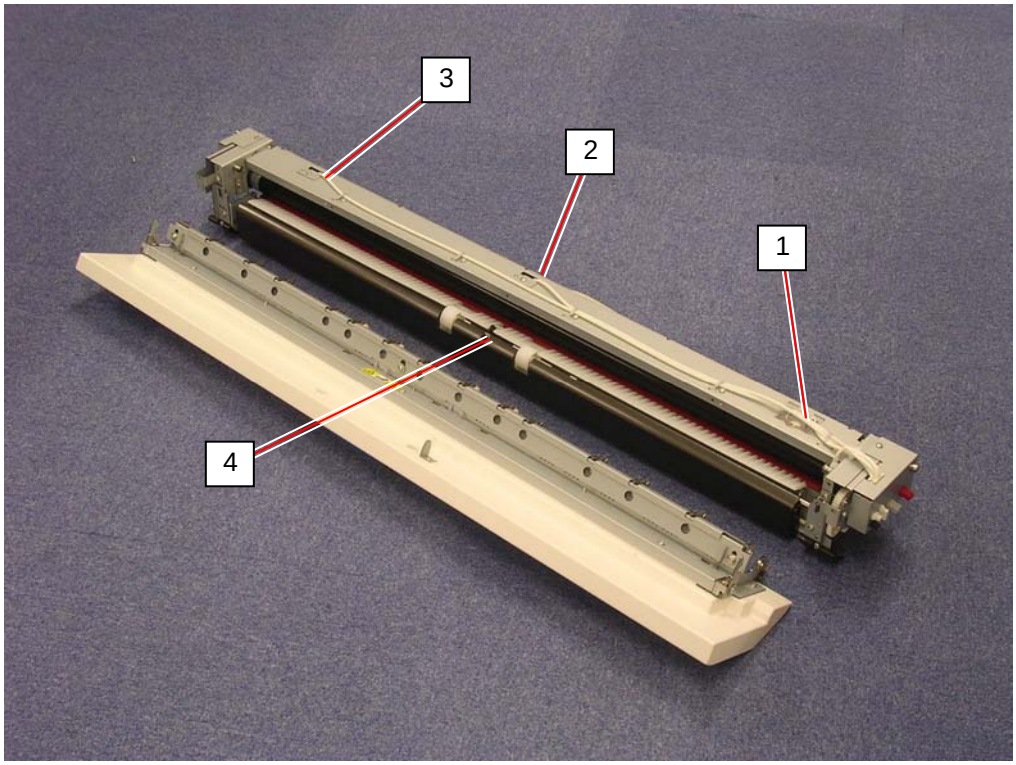
Item	Symbol	Signal name	Name	Type	Function
1	M5	MCUTL MCUTR	Motor (Cutter Motor)	-	Slides the cutter blade
2	MS8 MS9	MSCUTL MSCUTR	Switch (Cutter Home Position Sensor)	-	Detects whether the cutter blade exists at the home position

4. 2. 9 Developer Unit

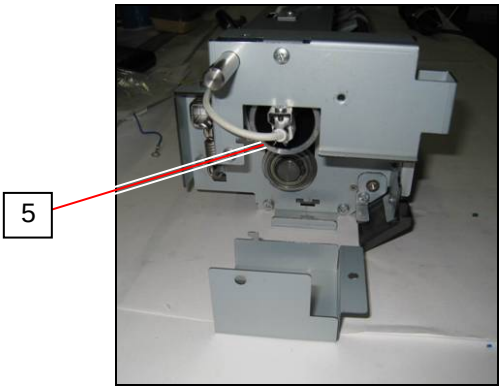


Item	Symbol	Signal name	Name	Type	Function
1	TLS1	TONER_S	Sensor (Toner Sensor)	TSP15DA10C-01	Detects whether the toner exists in the Developer Unit
2	M3	TONER_M	DC Motor (Toner Supply Motor)	DMA-3150A	Drives the Toner Hopper to supply the toner to the Developer Unit

4. 2. 10 Fuser Unit

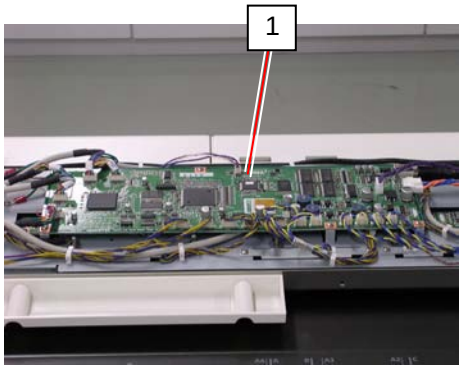


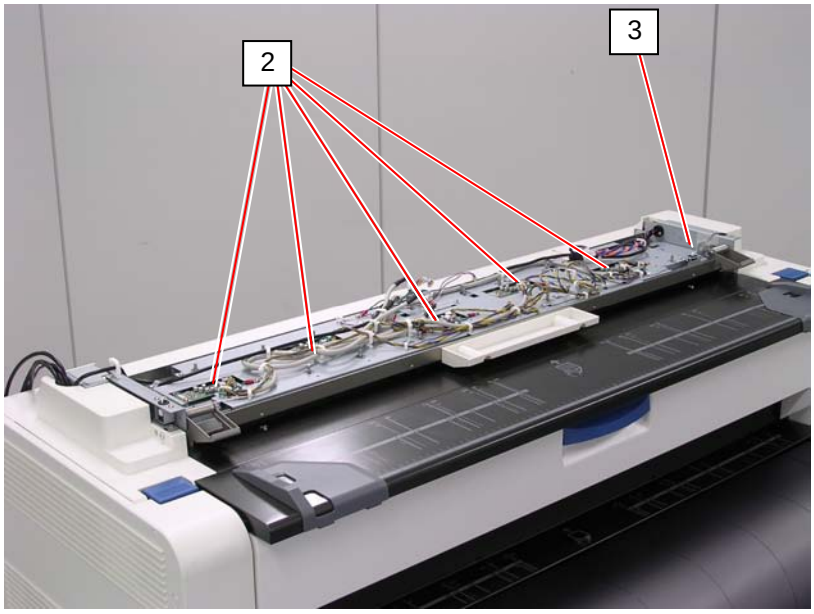
Item	Symbol	Signal name	Name	Type	Function
1	TS1	-	Thermostat	CH-152-35-170	Prevents over-heat
2	TH1	TH1	Thermistor 1	FS-K0120	Detects the temperature on the central area of Fuser Roller
3	TH2	TH2	Thermistor 2	FS-K0121	Detects the temperature on the Fuser Roller on the left
4	PH3	HEAT_EXIT	Sensor (Exit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



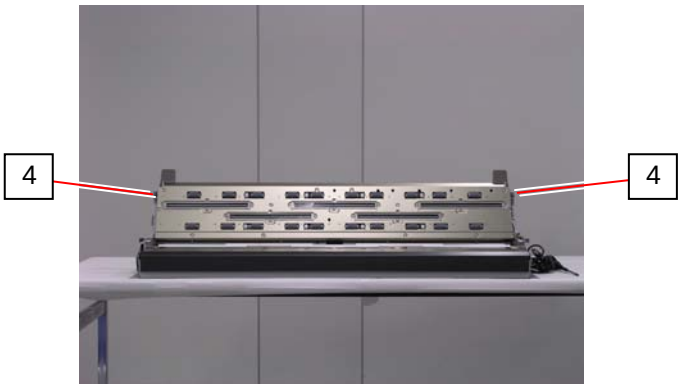
Item	Symbol	Signal name	Name	Type	Function
5	H1	-	Lamp	US: 120V 1300w EU: 230V 1300w	Heats up the central part of Fuser Roller

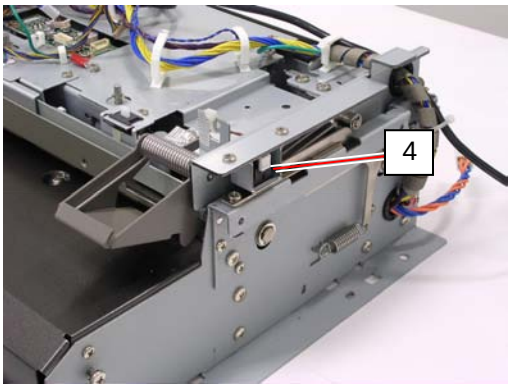
4. 2. 11 Scanner Unit



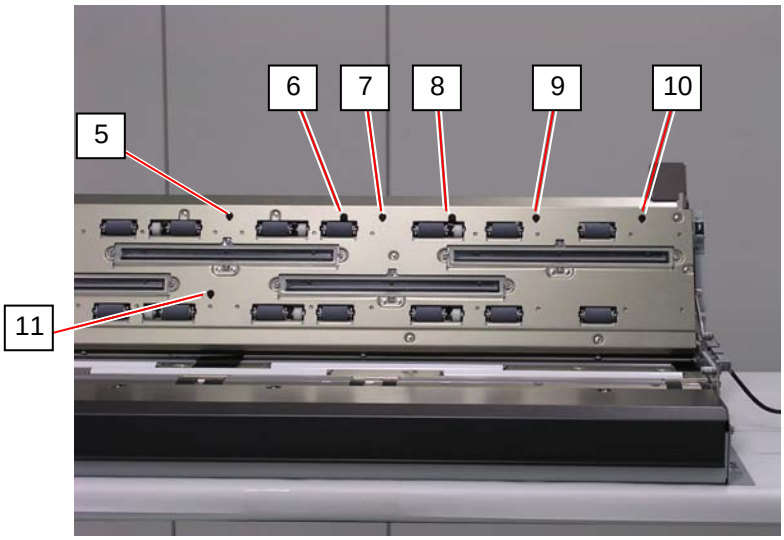


Item	Symbol	Signal name	Name	Type	Function
1	-	-	Main Board (117) (data controller)	-	Makes image processes to the digital data sent from SVC CIS BD And then it sends the processed image data to the controller
2	-	-	CIS Board (117) (CIS controller)	-	Converts the analog data read by the CIS to the digital data
3	-	-	Switch	CS1A-B2CA	Emergency stop button

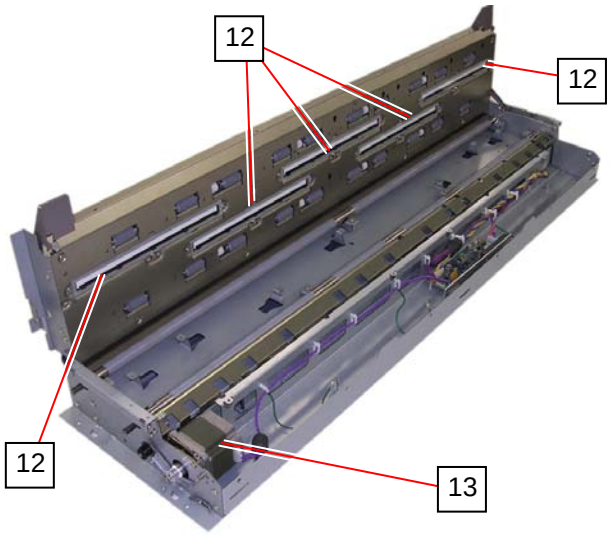




Item	Symbol	Signal name	Name	Type	Function
4	-	-	Switch (Scanner Open Switch)	-	Detects whether the Scanner Upper Unit is open



Item	Symbol	Signal name	Name	Type	Function
5	-	-	Sensor (Original Set Sensor) (Size Sensor A4)	PS117ED1	- Detects the insertion of original - Detects original widths A4 (Portrait), 8.5”, 9”
6	-	-	Sensor (Size Sensor A3)	PS117ED1	Detects original widths A4 (Landscape), A3, 11”, 12”
7	-	-	Sensor (Size Sensor A2)	PS117ED1	Detects original widths A2, 17”, 18”
8	-	-	Sensor (Size Sensor A1)	PS117ED1	Detects original widths A1, 22”, 24”
9	-	-	Sensor (Size Sensor A0)	PS117ED1	Detects original widths A0, 30”
10	-	-	Sensor (Size Sensor 914)	PS117ED1	Detects original widths 34”, 36”
11	-	-	Sensor (Original Sensor)	PS117ED1	- Detects the original mis-feed - Detects the original’s leading edge when the original is returned.



Item	Symbol	Signal name	Name	Type	Function
12	-	-	CIS Unit (CIS Class A/B/C/D)	-	(1) Reads the image of original (2) Sends the analog data to the SVC CIS BD
13	M6	-	Motor Assembly (Scanner Motor)	-	Transports originals
14	-	-	Power Board (Scanner Power Supply)	-	- Converts the 24VDC to 12VDC, 5VDC, 3.3VDC. - Driver Circuit of the Motor.

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.

PW11720 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 the Image Corona	4-15
Analog Voltage to the Transfer Corona	4-17
AC Component to the Separation Corona	4-19
DC Component to the 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 PW11720 PCB or HV Power Supply PCB if you have the following kinds of problem.

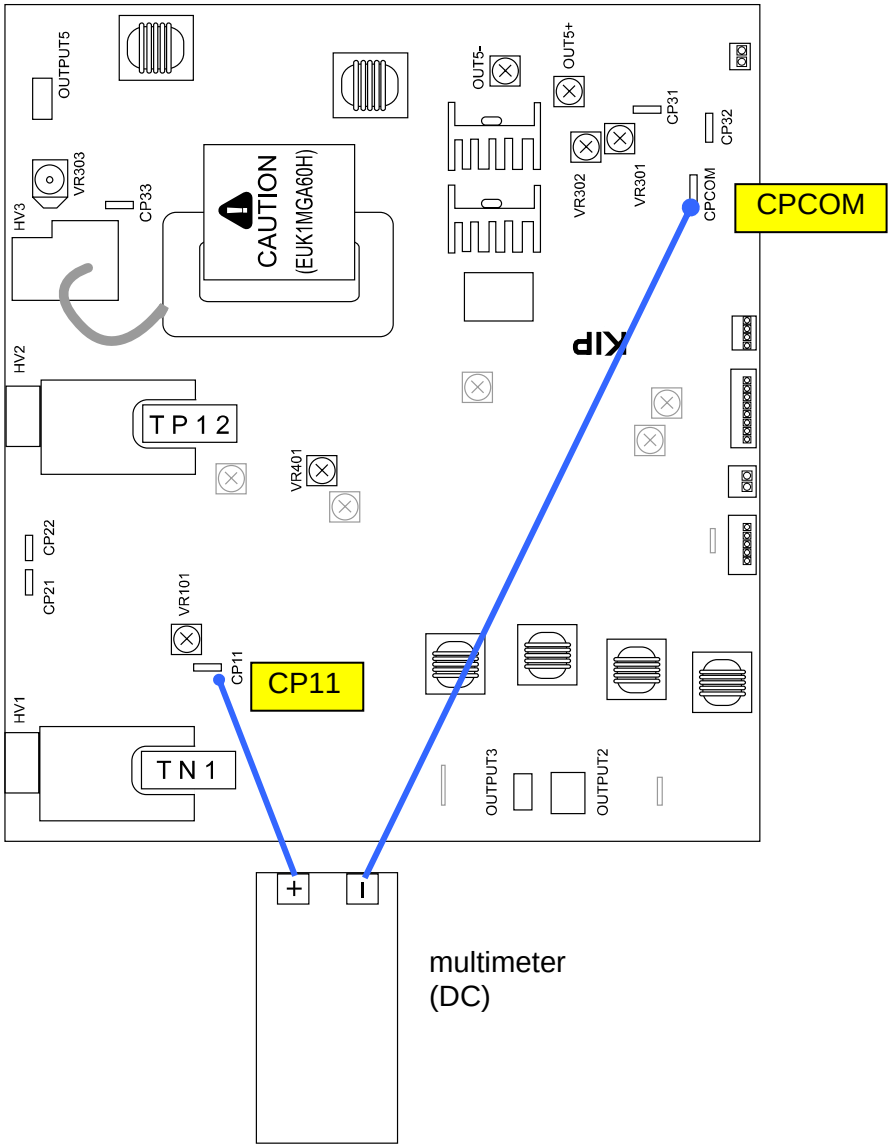
PW11720 PCB
(1) When the UI indicates abnormal indication although the UI has no problem.
(2) When the electric component such as motor or lamp does not work properly although such component has no problem.

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.

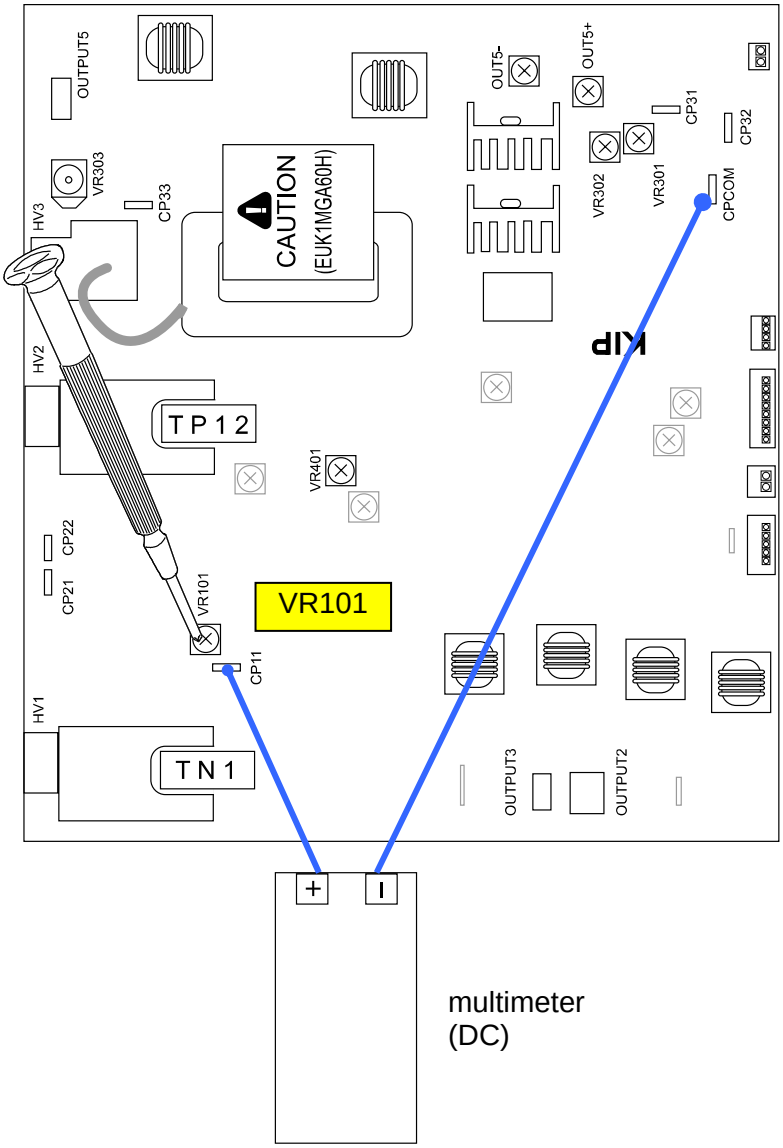
1. Connect the “+” cable of the multi-meter to the “CP11” pin on the HV Power Supply PCB (EUK1MGA60HA).
   Also connect the “-” one to the “CPCOM”.
   And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 9 Test Print Mode] .
   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

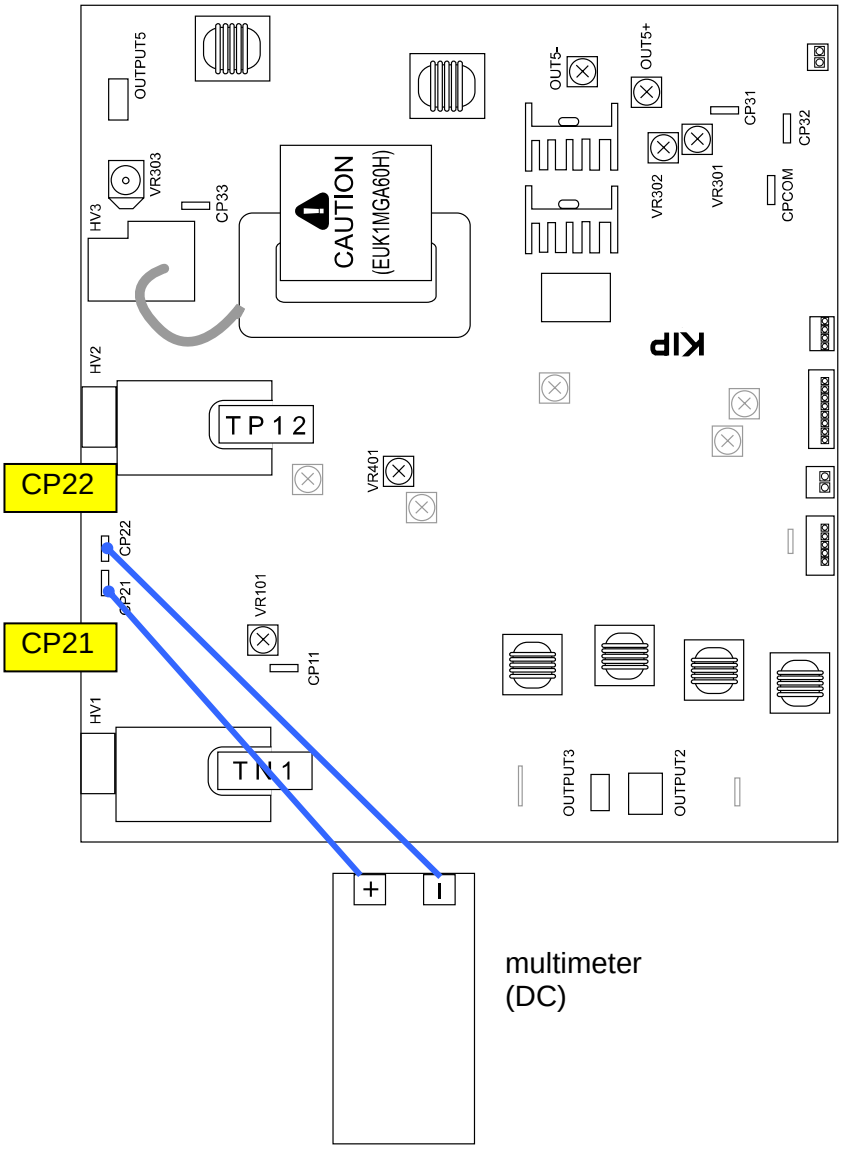
The standard value of the voltage outputted from the HV Power Supply PCB to the Transfer Corona is specified as follows.

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. 9 Test Print Mode].
   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**

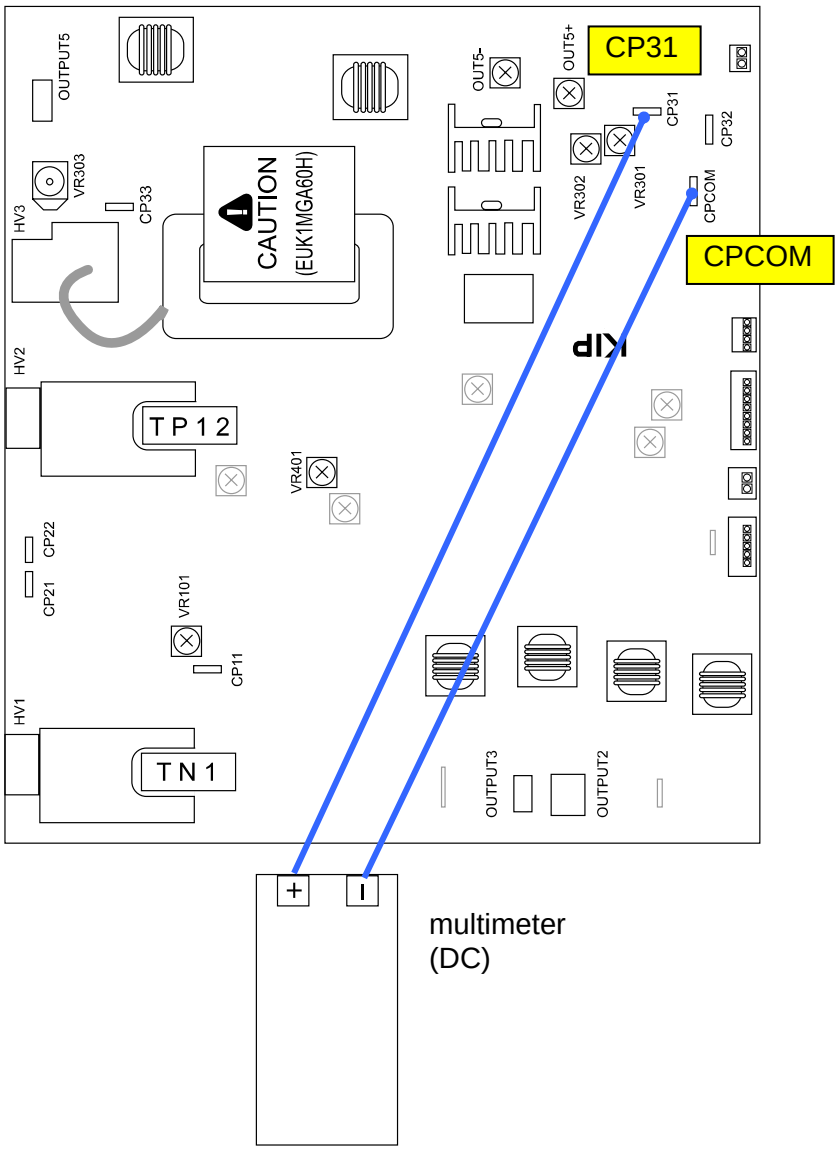
3. Adjust the output voltage if it does not satisfy the above specifications.
   Select the Adjustment Mode, select each of following Sub Mode Numbers, and change the setting value so that the output voltage satisfies the above specifications.
   Refer to [8.6.3 029 to 034 Transfer Voltage] for the detail.

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.

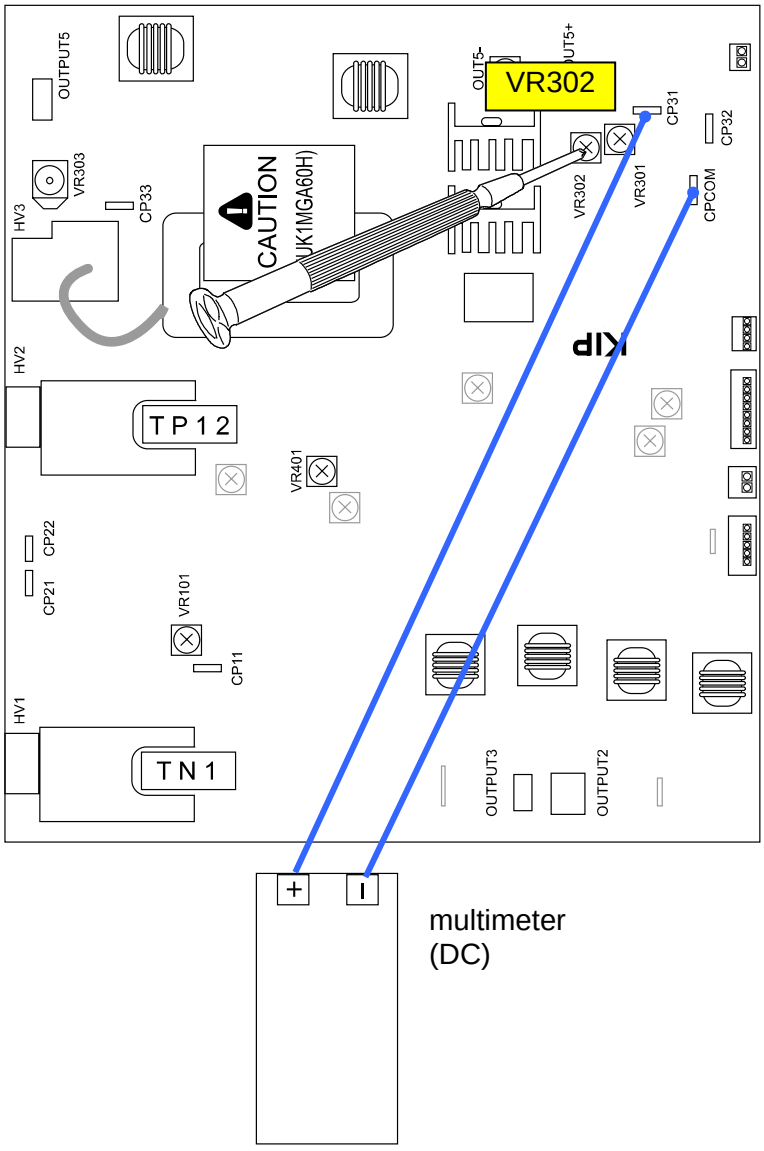
1. Connect the “+” cable of the multi-meter to the “CP31” pin on the HV Power Supply PCB (EUK1MGA60HA).
   Also connect the “-” one to the “CPCOM” pin.
   And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 9 Test Print Mode].
   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**.

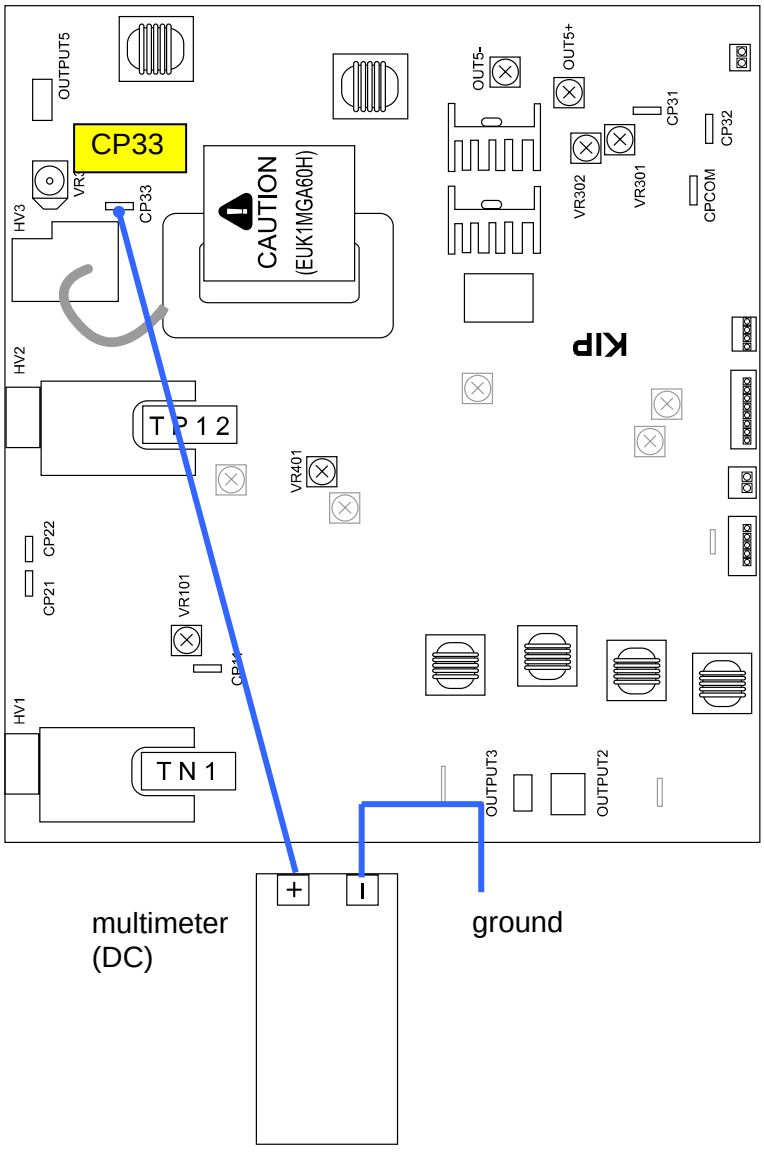
3. Adjust the AC Component if it does not satisfy **5.00 +/-0.05V**.
   To adjust it, rotate the VR302 with a screwdriver.



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.

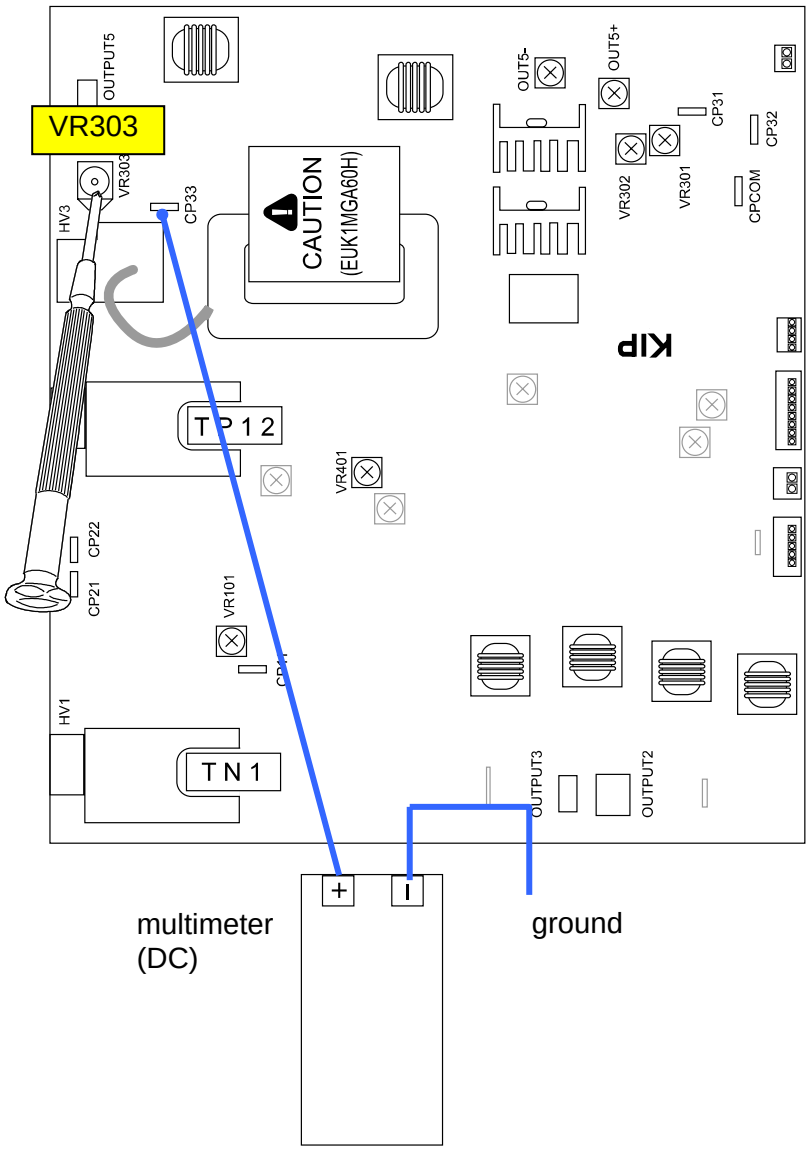
1. Connect the “+” cable of the multi-meter to the “CP33” pin on the HV Power Supply PCB (EUK1MGA60HA).
   Also connect the “-” one to the ground.
   And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 9 Test Print Mode].
   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

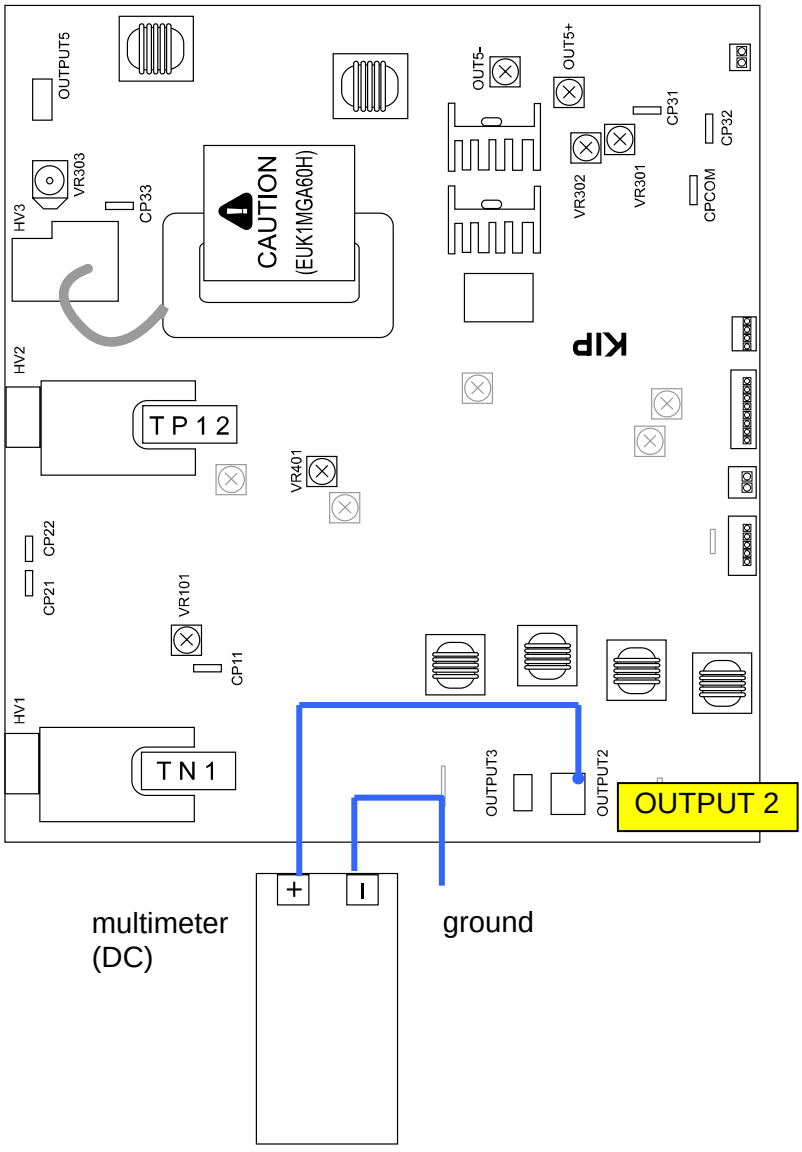
The Negative Developer Bias means the voltage supplied to the Developer Roller during the Print Cycle.
The standard value of the Negative Developer Bias is as follows for each type of paper.

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.



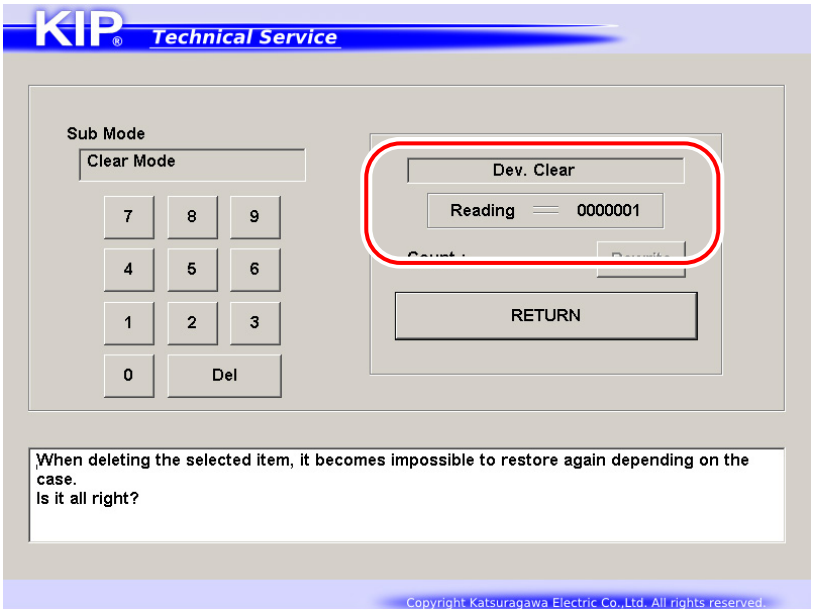
2. Make a Test Print making reference to [8. 9 Test Print Mode].
   As the Negative Developer Bias is supplied to the Developer Roller during the Test Print, check the voltage with the multi-meter.

   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 Special Operation Mode and then "0006 Dev. Clear".



   The voltage "-180V +/- 5V" is correct when the above 7-digit value shows "0000000".

7 digits (current Auto Adjustment Level)	Supposed Developer Bias
000000**0**	-180 +/-5V
000000**1** / 000000**2** / 000000**3**	-230 +/-5V

   Refer to [8.11.3 Reset of Bias Adjustment by Density Compensation Process] for checking the current Auto Adjustment Level.

   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 [8.6.3 022 to 027 Developer Bias] for the detail.

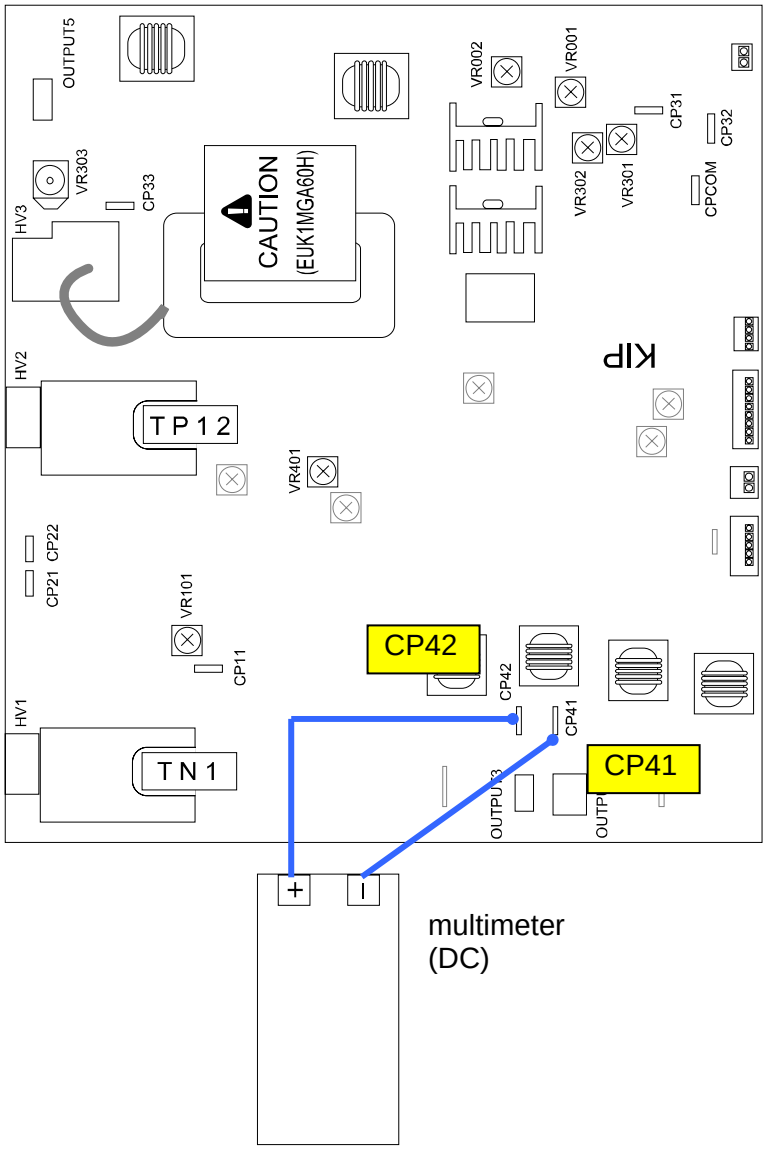
Sub Mode No.	Contents
022	Developer Bias (Plain paper)
023	Developer Bias (Tracing paper)
024	Developer Bias (Film)
025	Developer Bias (Plain paper : Special)
026	Developer Bias (Tracing paper : Special)
027	Developer Bias (Film : Special)

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.

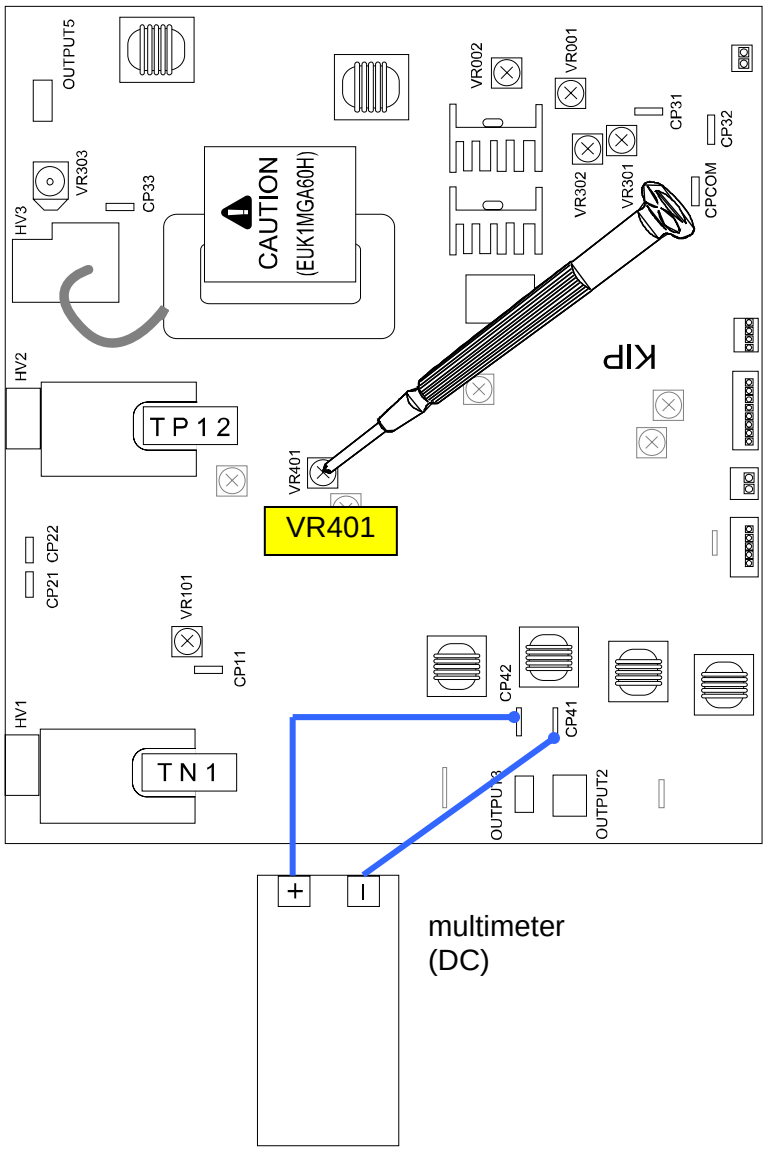
1. Connect the “+” cable of the multi-meter to “CP41” pin on the HV Power Supply PCB (EUK1MGA60HA).
   Also connect the “-” one to “CP42”.
   And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 9 Test Print Mode].
   The Positive Developer Bias is supplied to the Developer Roller for some seconds after the printed paper has been ejected.
   Check the voltage with the multi-meter during that period.

   The standard value of the Positive Developer Bias is **0.350 +/-0.005V against the CP42**.
   If this is not satisfied, go to the next step for the adjustment.

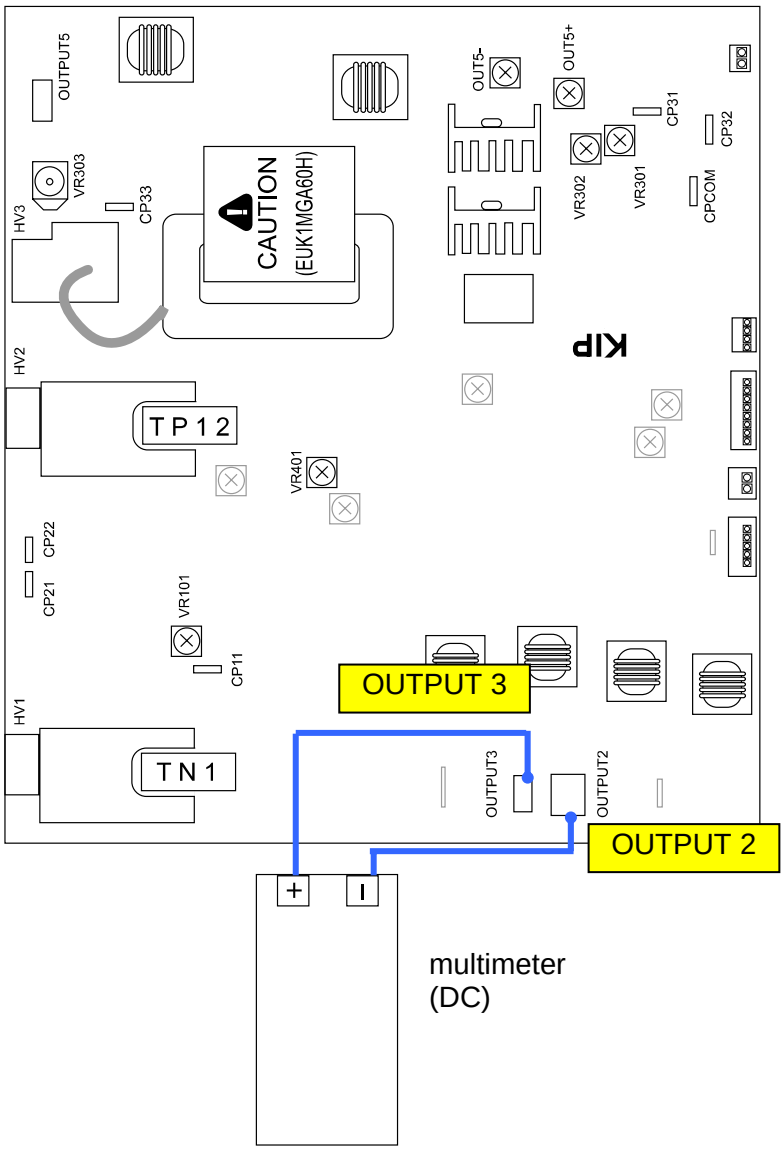
3. Adjust the Positive Developer Bias rotating the VR401, so that it should satisfy **0.350 +/-0.005V against the CP42**.



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 **80 +/-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.

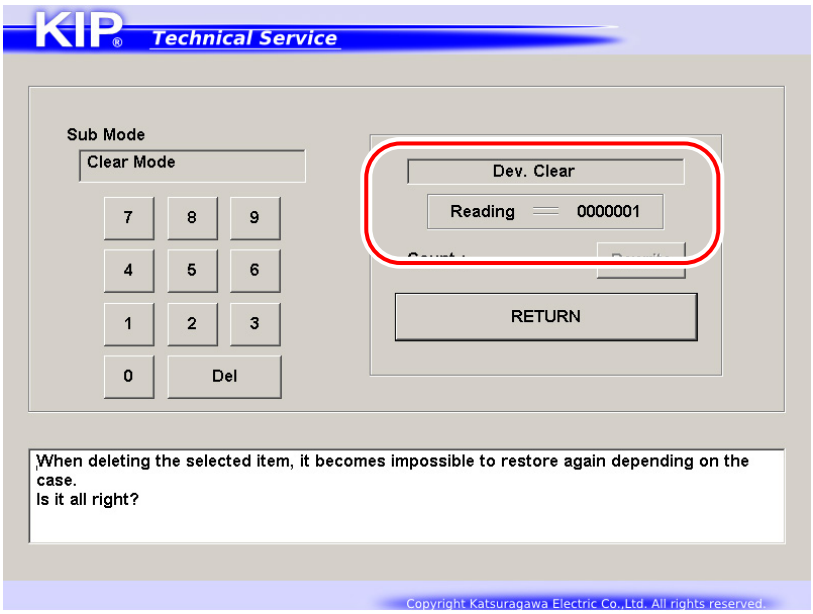


2. Make a Test Print making reference to [8. 9 Test Print Mode].
   As the Bias is supplied to both the Developer Roller and the Regulation Roller, check the Bias gap between them with the multi-meter.

   The standard value of the Bias gap between Developer Roller and Regulation Roller is **80 +/-5V**.

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

3. If the value (voltage) is “120 +/-5V” or “160 +/- 5V”, Regulation Bias may be automatically adjusted by Density Compensation Process.
   Enter Special Operation Mode and then “0006　Dev. Clear”.



The voltage “120V +/- 5V” is correct when the above 7-digit value shows “0000002”.
The voltage “160V +/- 5V” is correct when the above 7-digit value shows “0000003”.

7 digits (current Auto Adjustment Level)	Supposed Bias Gap
000000**0** / 000000**1**	80 +/-5V
000000**2**	120 +/-5V
000000**3**	160 +/-5V

Refer to [8.11.3　Reset of Bias Adjustment by Density Compensation Process] for checking the current Auto Adjustment Level.

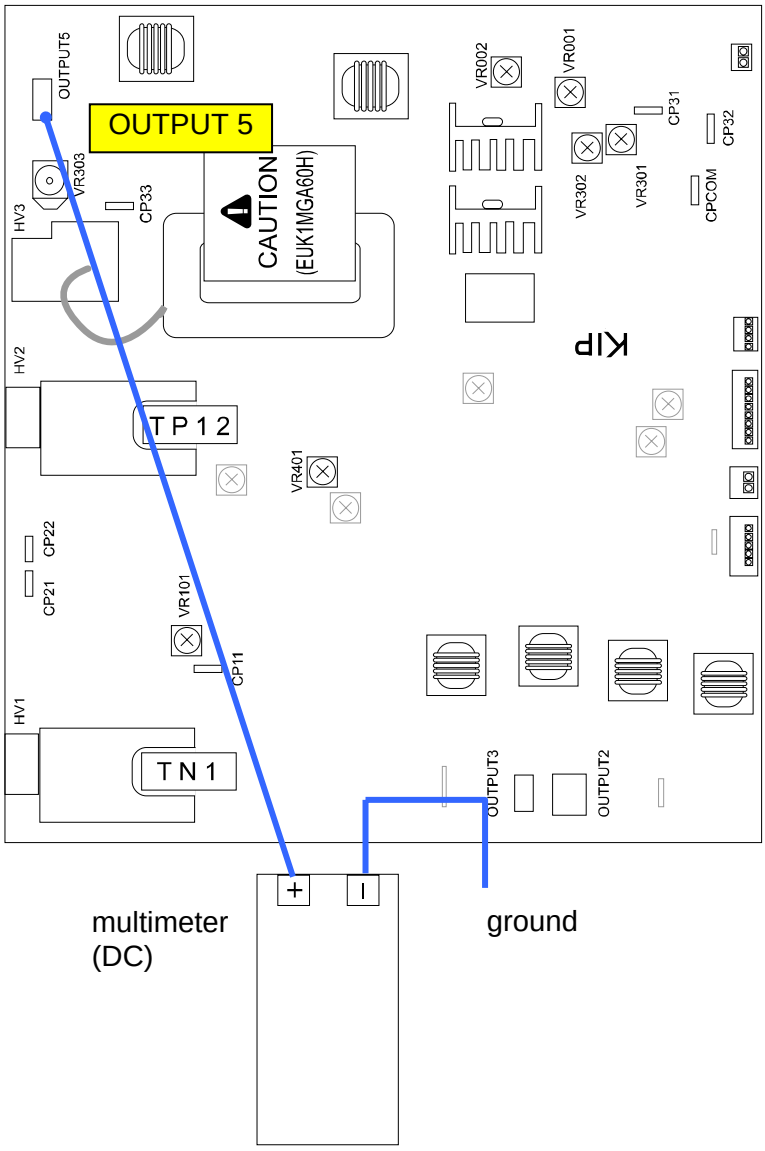
If not satisfied, go to the next step for manual Regulation Bias adjustment.

4. Select the Adjustment Mode, select Sub Mode No.622, and change the value so that the output voltage satisfies **80 +/-5V**.
   Refer to [8.6.3　622　　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.

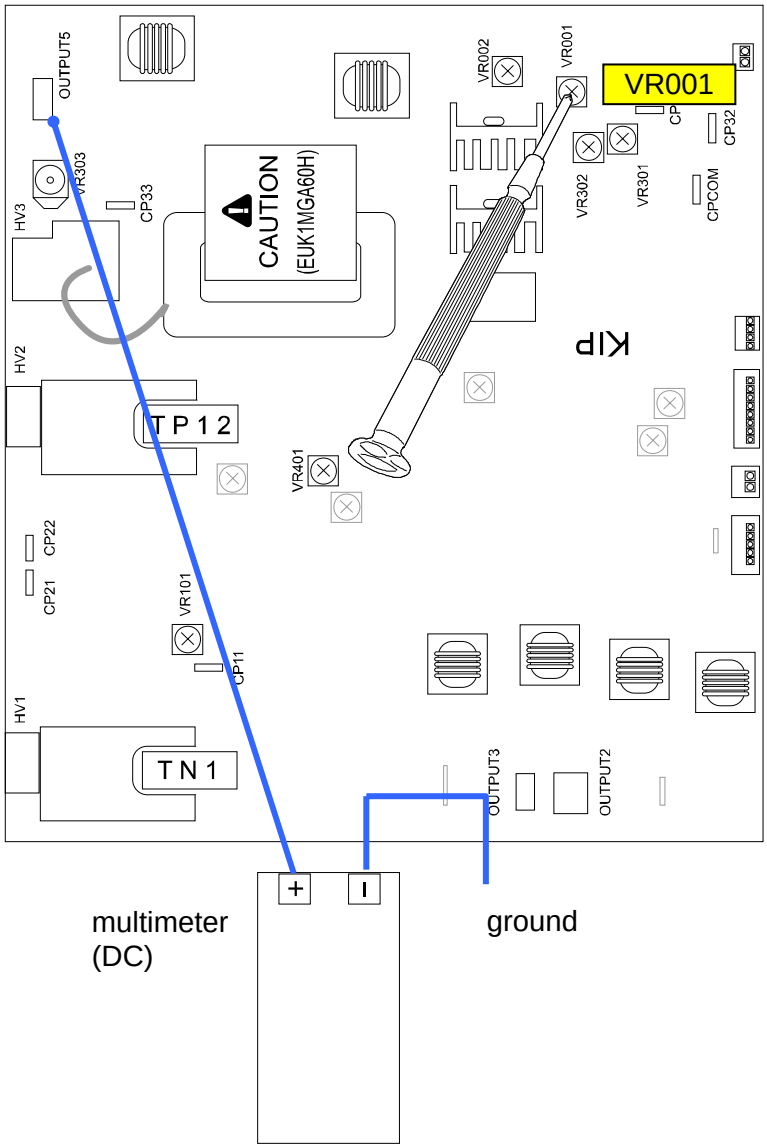
1. Connect the “+” cable of the multi-meter to the “OUTPUT 5” pin on the HV Power Supply PCB
   Also connect the “-” one to the ground.
   And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 9 Test Print Mode].
   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**.

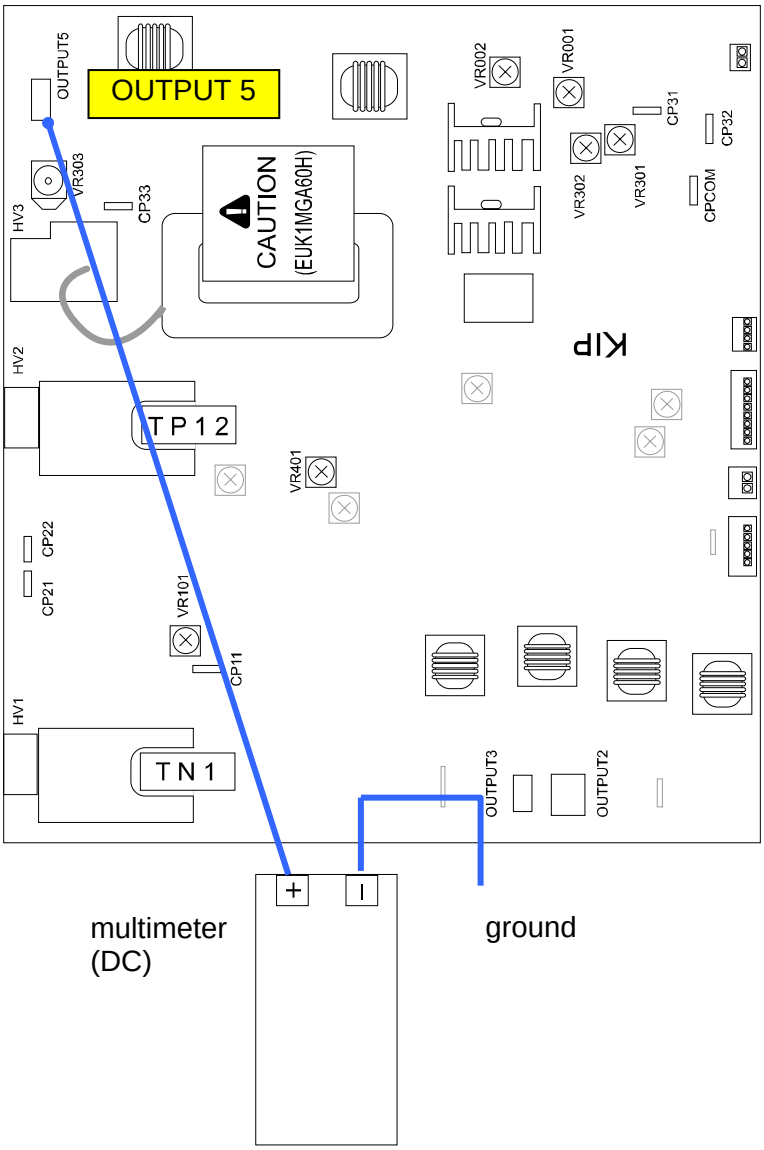
3. Adjust the Positive Cleaning Roller Bias if it does not satisfy **+450 +/-5V**.
   To adjust it, rotate the VR001 with a screwdriver.



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.

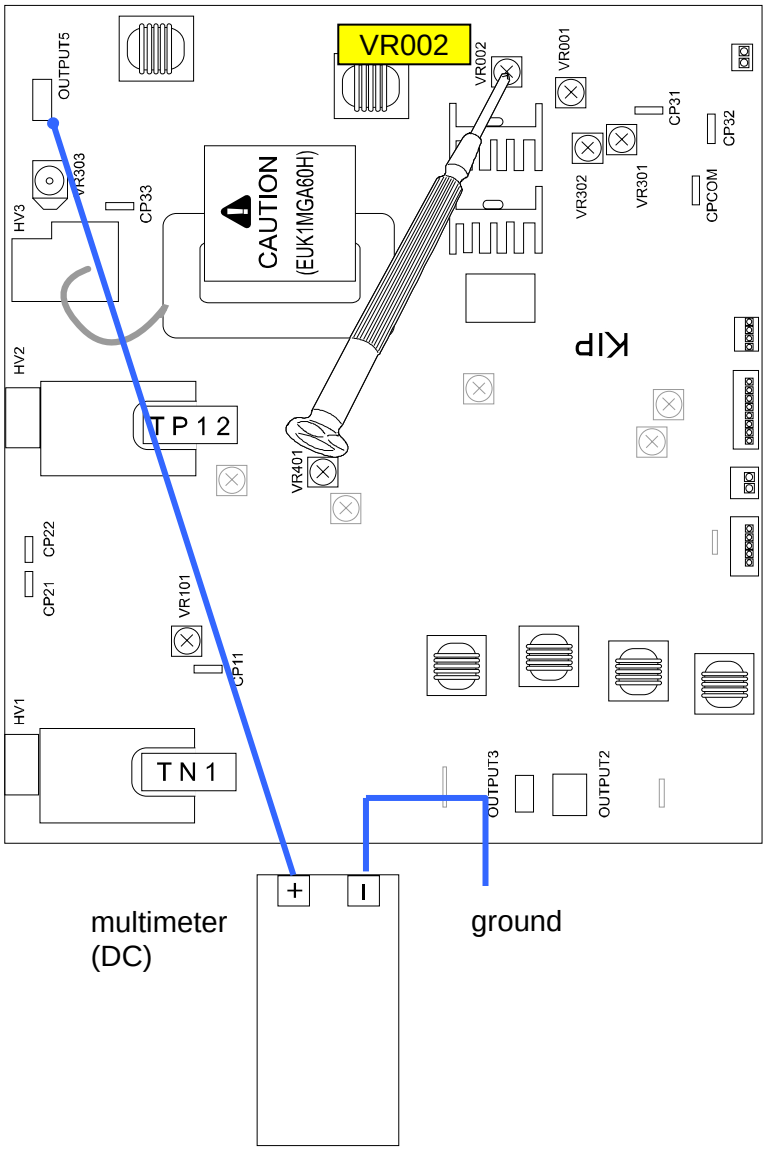
1. Connect the "+" cable of the multi-meter to the "OUTPUT 5" pin on the HV Power Supply PCB
   Also connect the "-" one to the ground.
   And then, select the DC volt range on the multi-meter.



2. Make a Test Print making reference to [8. 9 Test Print Mode].
   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.



Chapter 5

Mechanical

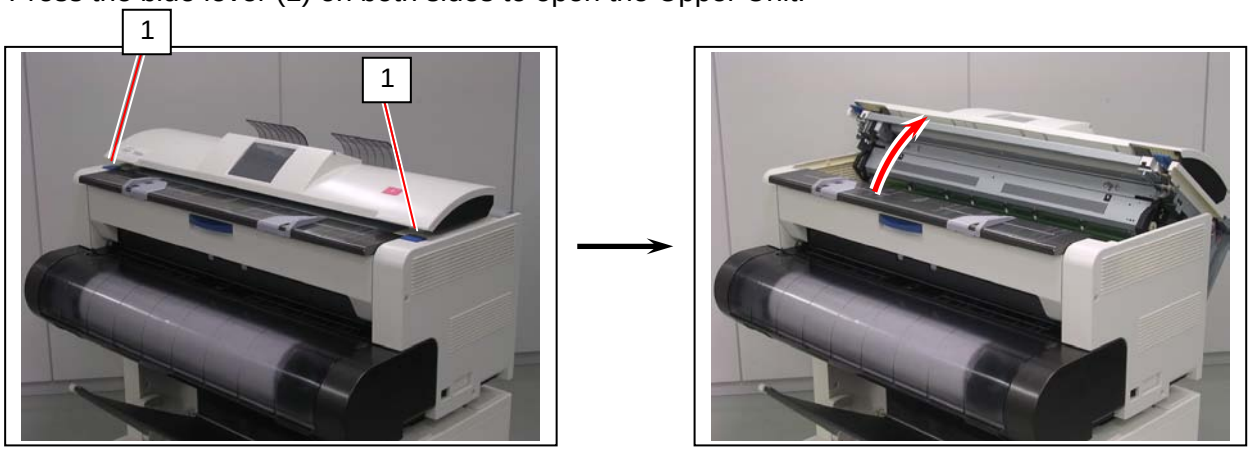
5. 1 Recommended Periodic Replacement

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.

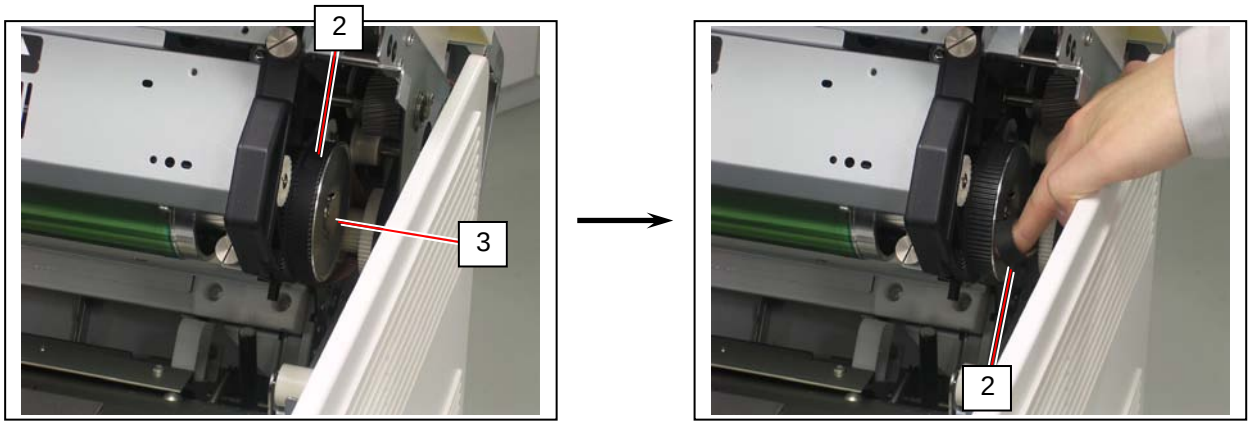
For detailed information of the Service Kit contents, see Chapter 6.

5. 1. 1 Image Corona Unit

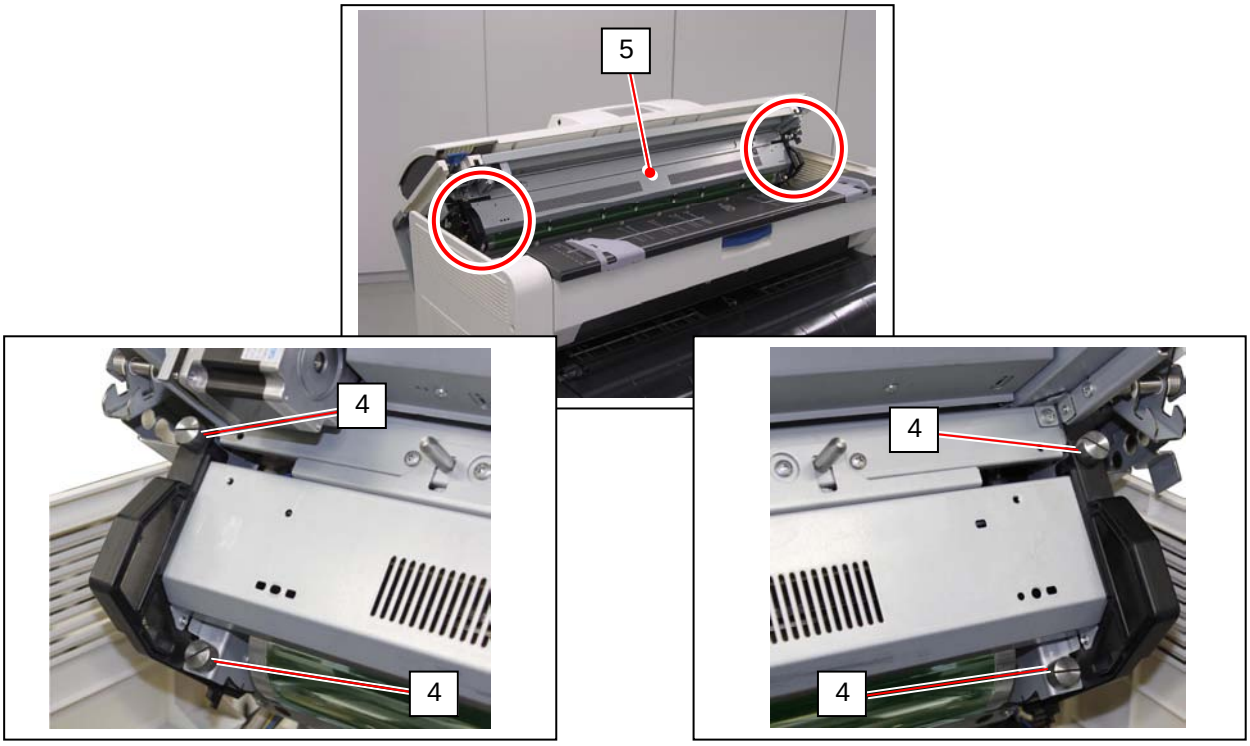
1. Press the blue lever (1) on both sides to open the Upper Unit.



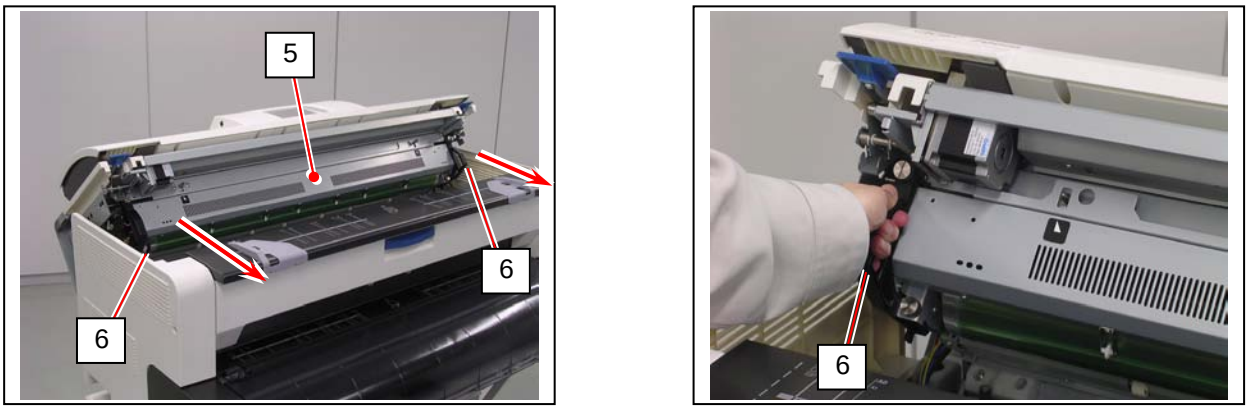
2. Release the belt (2) from the pulley (3).



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

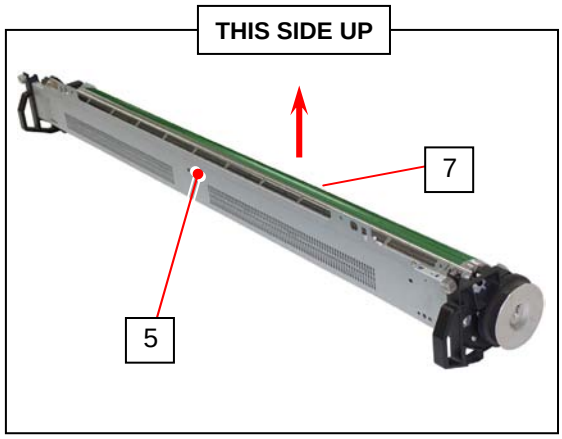


4. Hold the handgrip (6) on both sides. Pull the Process Unit (5) to the arrow direction to remove it from the machine.



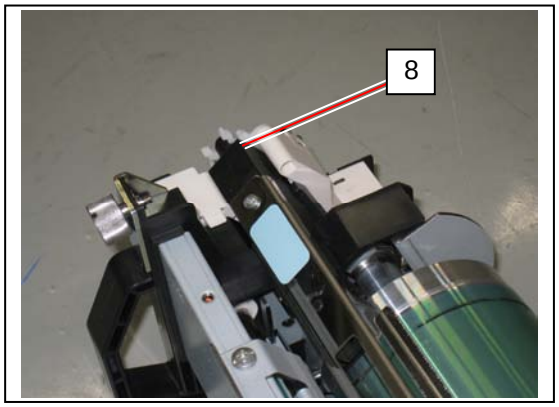
NOTE

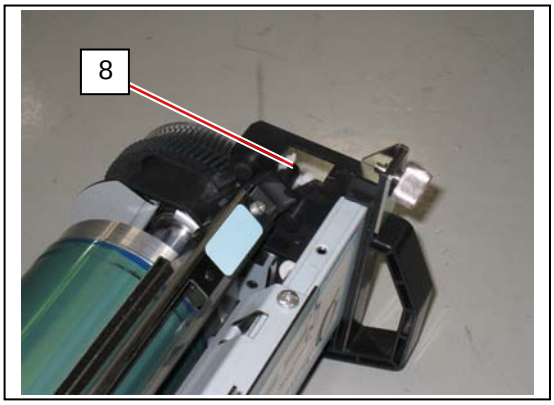
(1) Gently place the Process Unit (5) on a flat surface in the correct direction. Not doing so may damage the Photoconductive Drum (7) (shiny green cylinder).

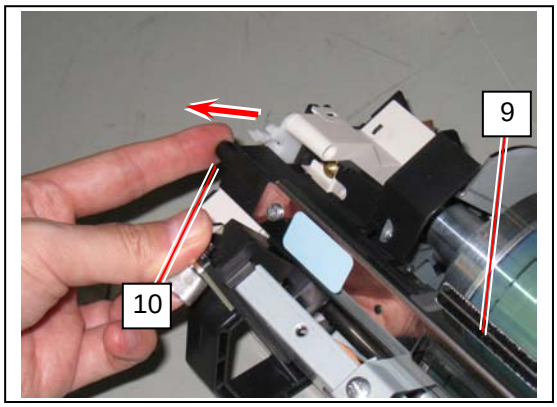


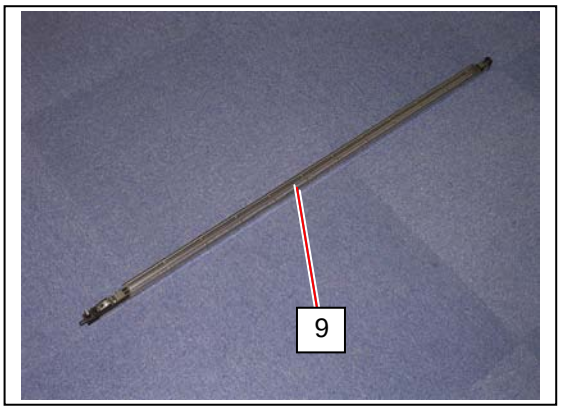
(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.
- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process 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.





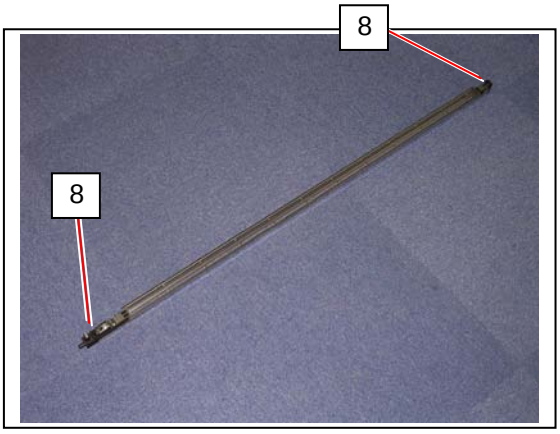




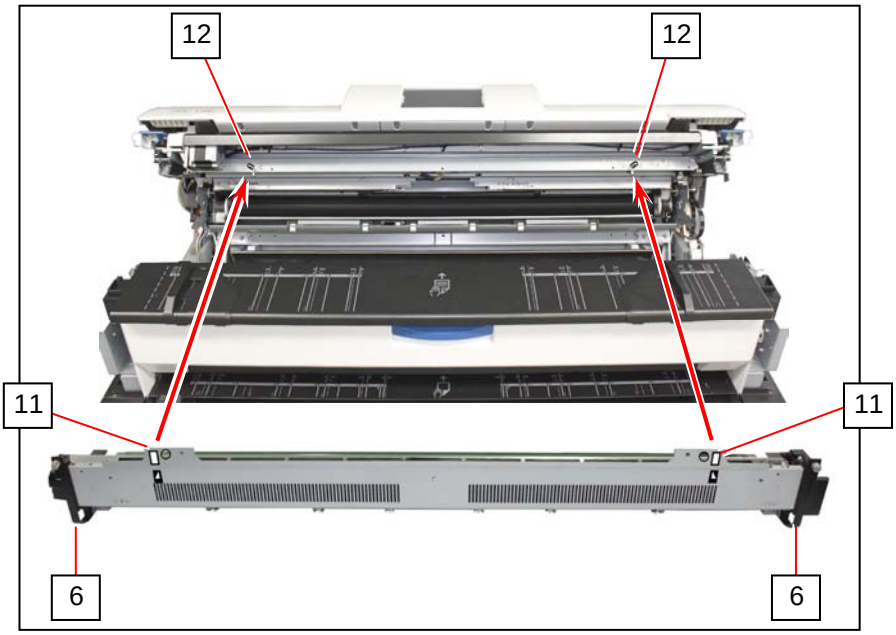
6. Install both the pins (10) to the hooks to seat the new **Image Corona Unit** in position.

NOTE

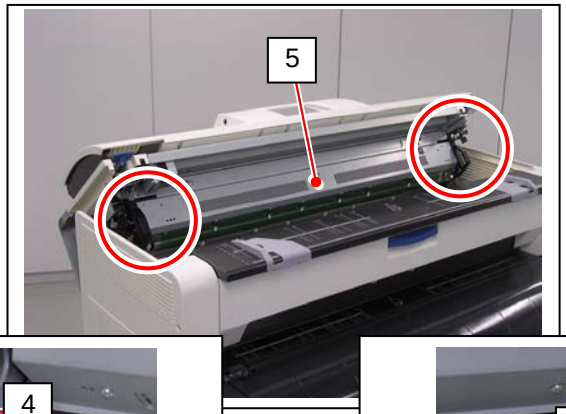
Again hold the plastic area (8) on both ends to carry the Image Corona Unit.
Grabbing in the middle may deform the housing and cause image defect.

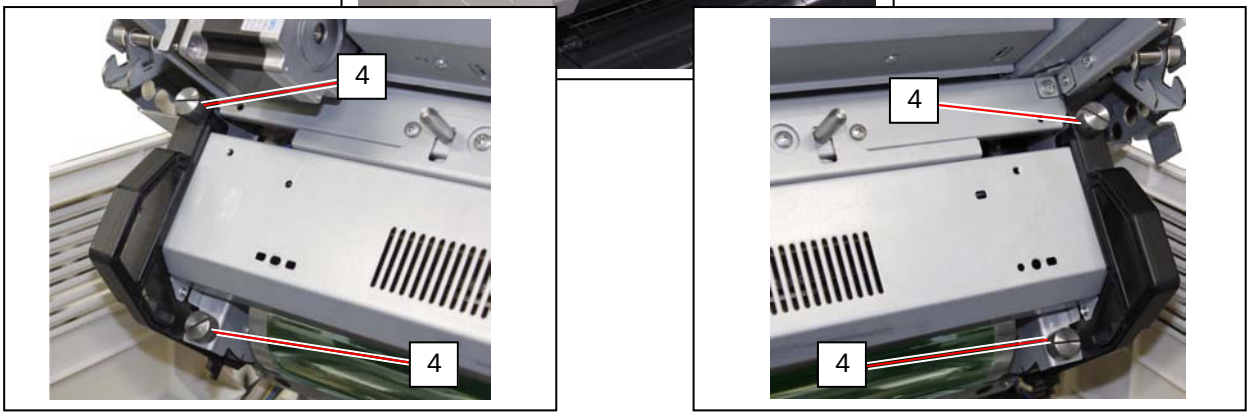


7. Hold the handgrip (6) on both sides. Slightly tilt the Process Unit downward. Put the square holes (11) onto the tapered edges of the positioning pins (12). Before inserting completely, pivot the unit upward to face each other. Finally push the unit into the machine

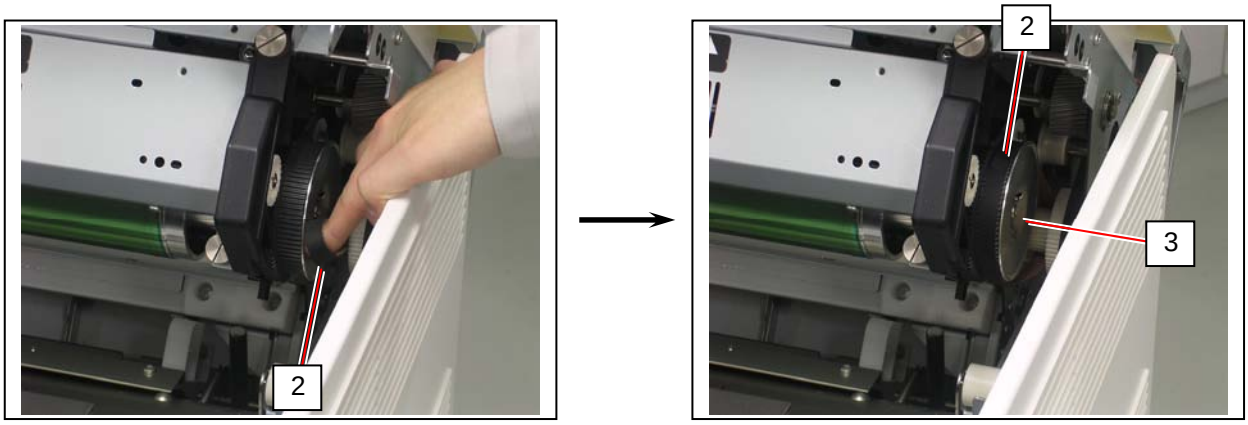


8. Completely push the Process Unit in the machine to be reseated in position.
Then secure the thumb screws (4) to fix the Process Unit to the machine.

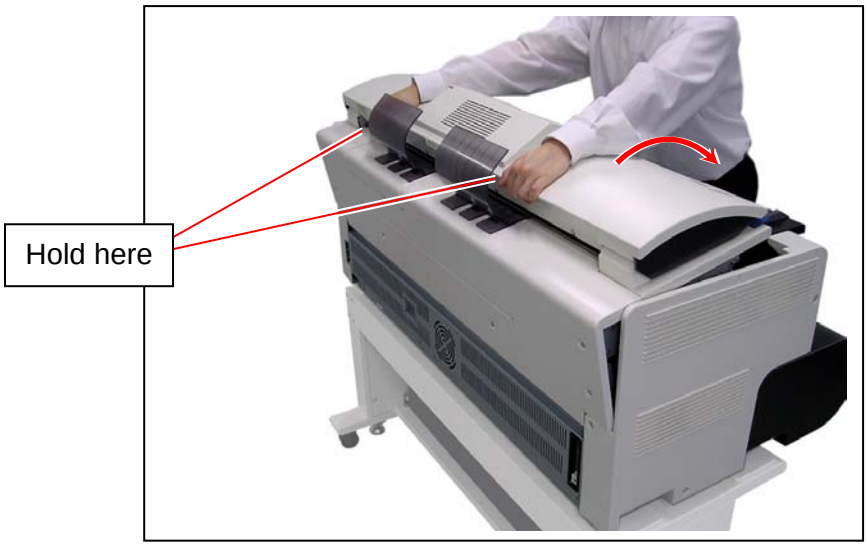


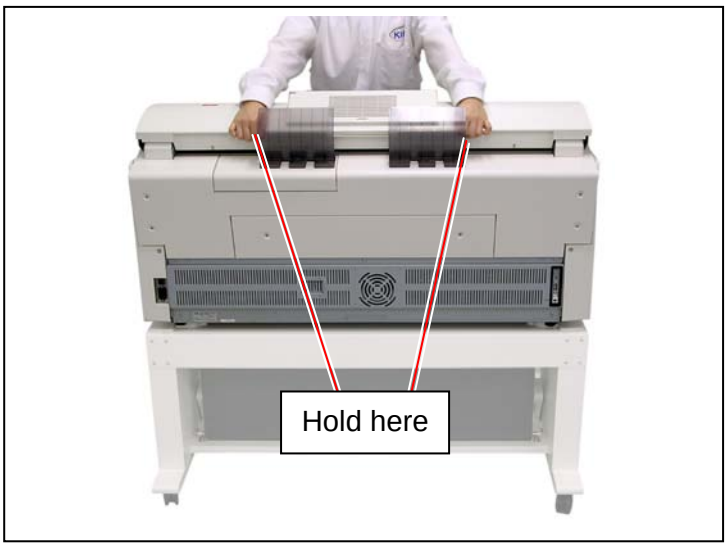


9. Return the belt (2) to the pulley (3).



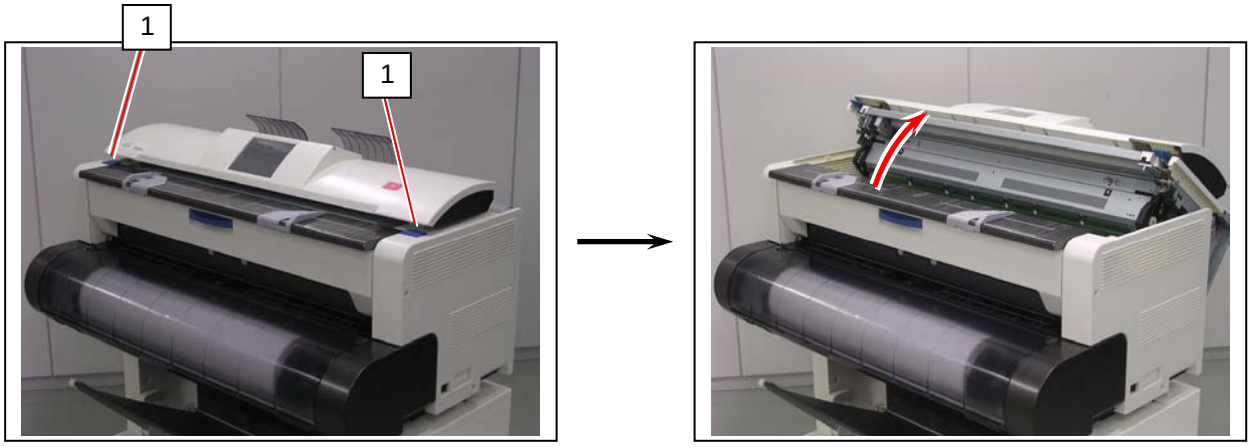
10. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit.
Push the entire unit down to the arrow direction.



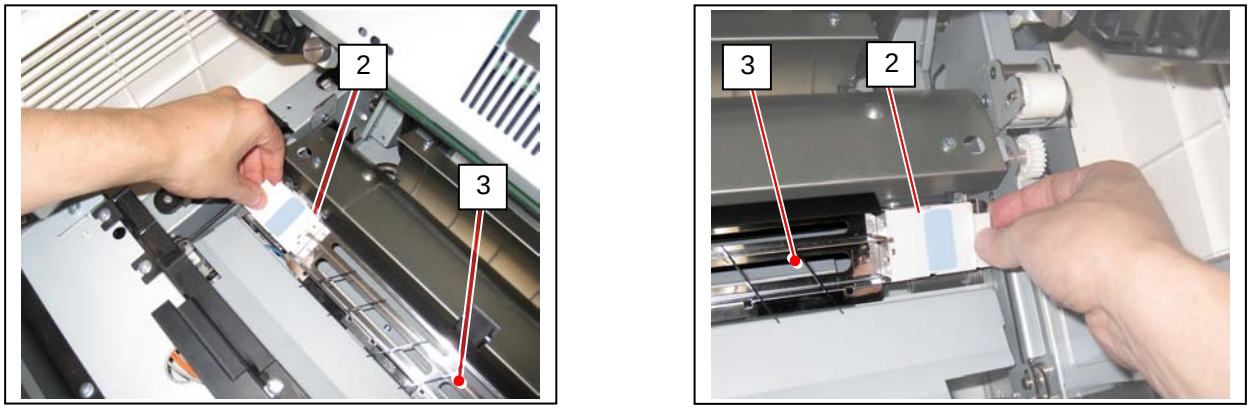


5. 1. 2 Transfer / Separation Corona Unit

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



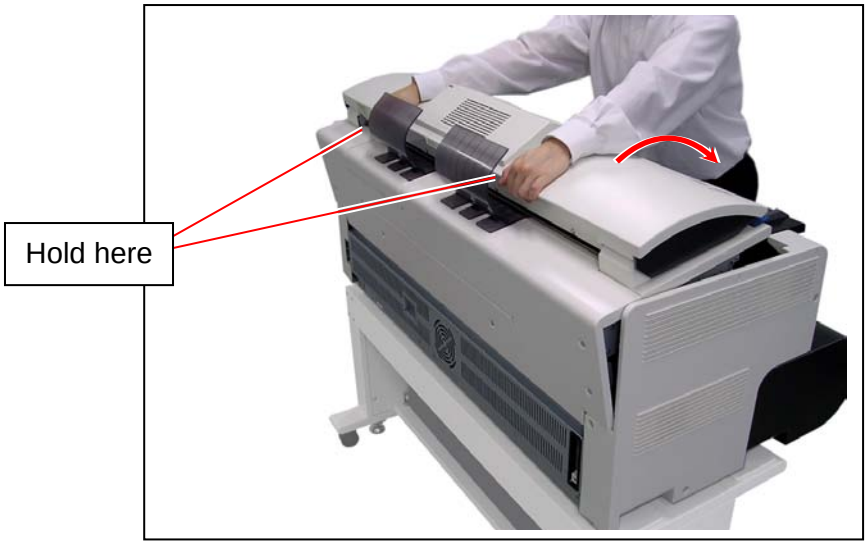
2. Pick the plastic area (2) on both sides.
   Pull and remove the Transfer / Separation Corona Unit (3) from the machine.

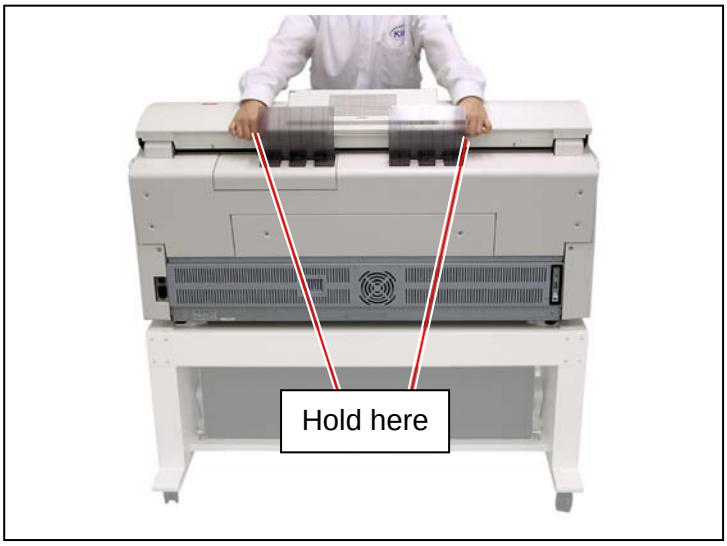


3. Pick the plastic area (2) on both sides of the new **Transfer / Separation Corona Unit**.
   Lower it in the machine and place it in position.

> **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.

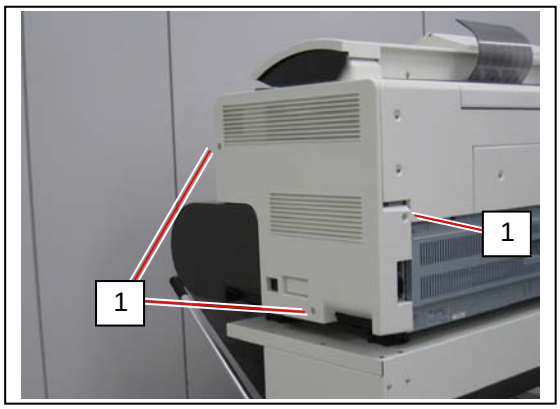
4. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit. Push the entire unit down to the arrow direction.

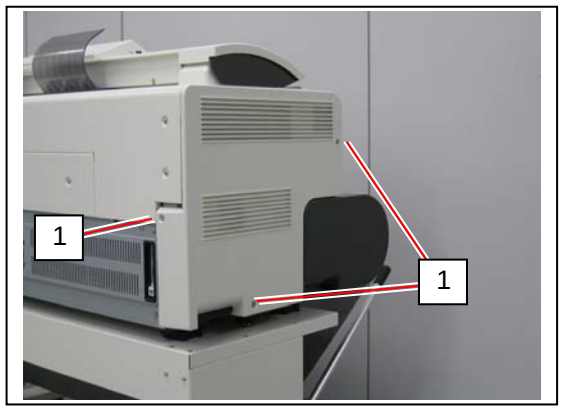




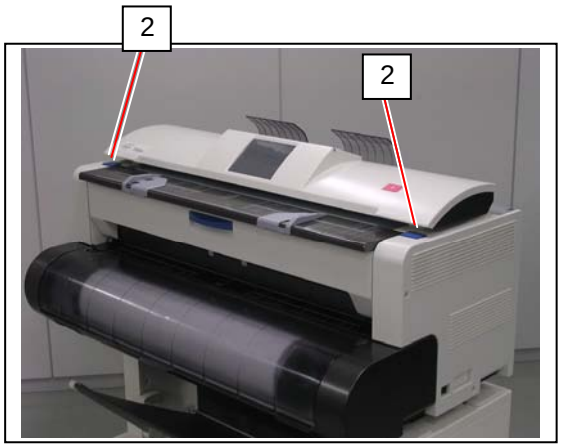
5. 1. 3 Filters

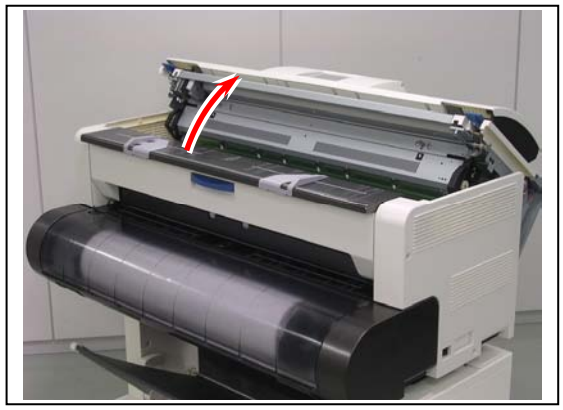
1. Remove 3 Bind Head Screws (M4x6) (1) on each side.



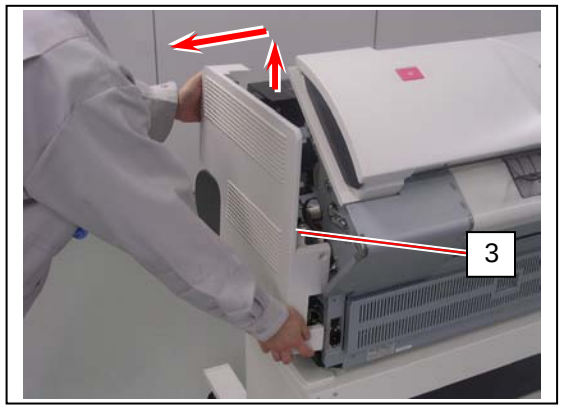


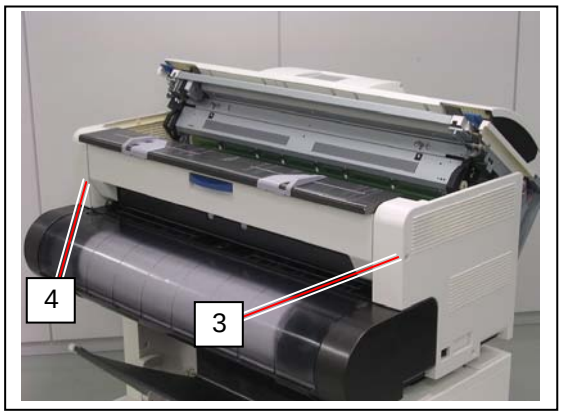
2. Press the blue lever (2) on both sides to open the Upper Unit.



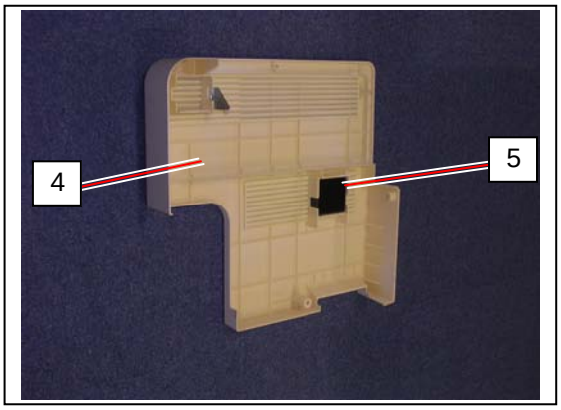


3. Slightly lift Side Cover R (3) / Side Cover L (4) up to the arrow direction to remove then from the machine.

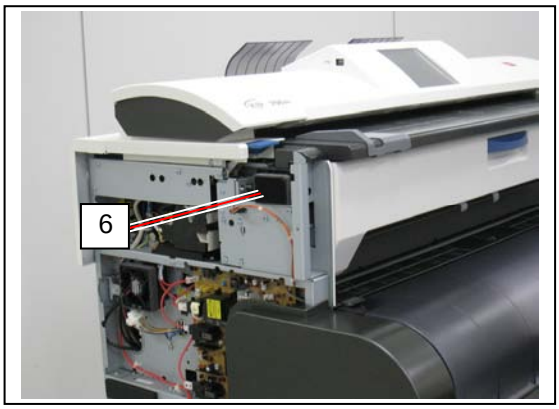




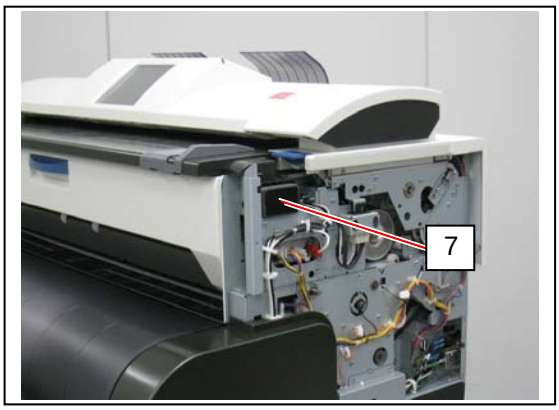
4. Replace Filter A (5) in Side Cover L (4) with a new one.



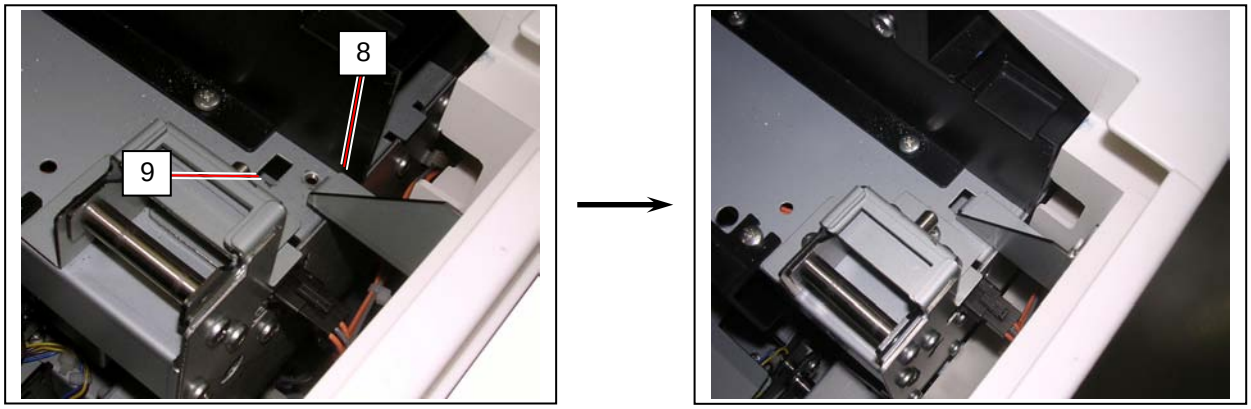
5. Replace Filter B (6) in the duct of the machine with a new one.



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.

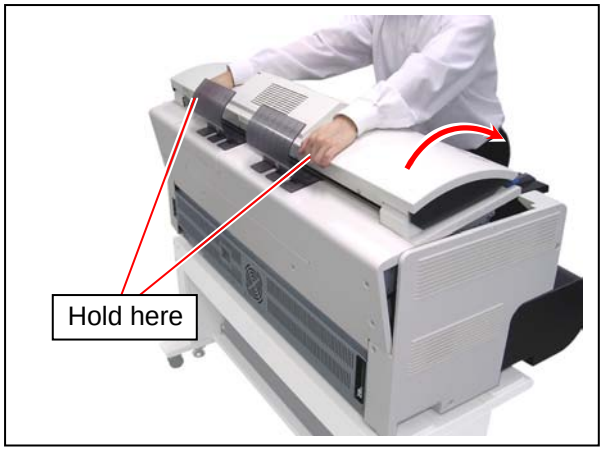


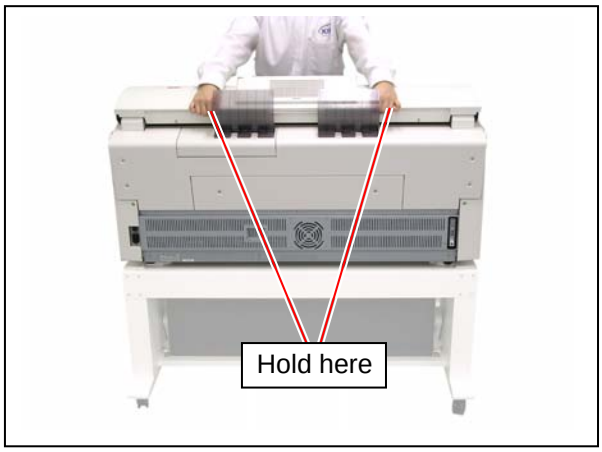
8. Reinstall 4 of 6 screws (1) to loosely fix Side Cover R (3) and Side Cover L (4).

NOTE

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

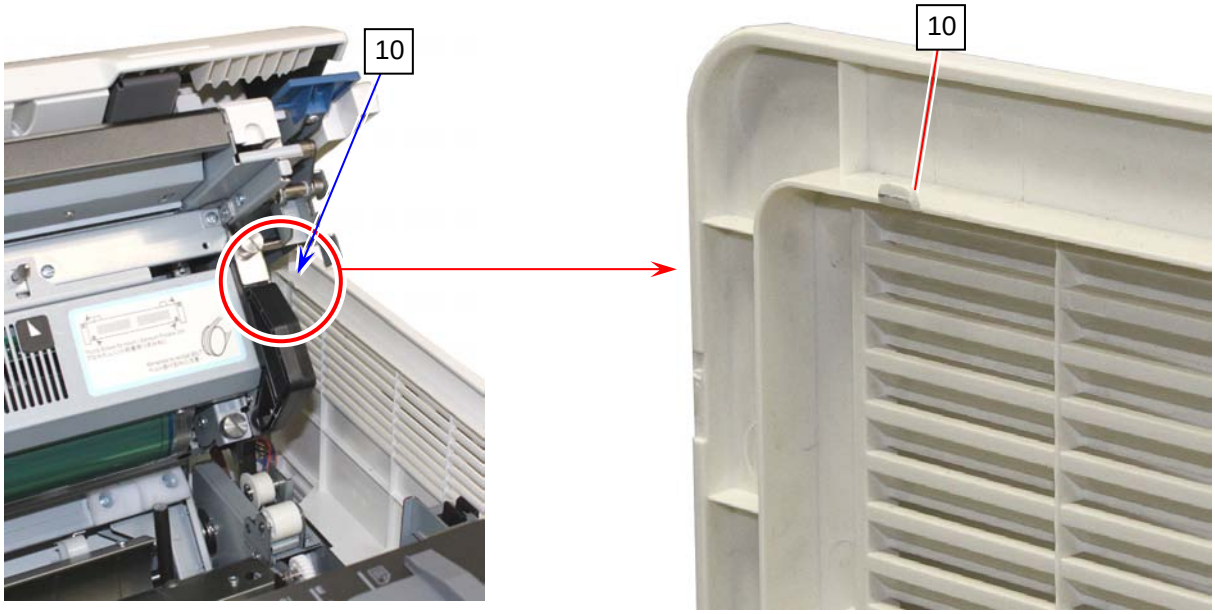
9. Put your hands on the rear rim of the scanner unit just as you hold the Upper Unit.
   Push the entire unit down to the arrow direction.



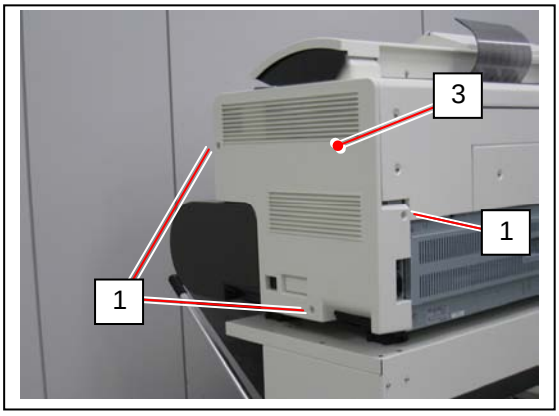


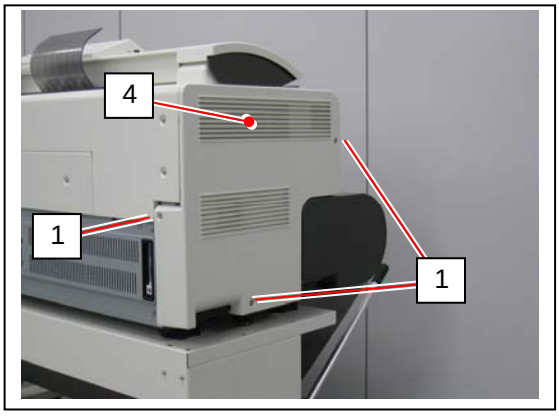
NOTE

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

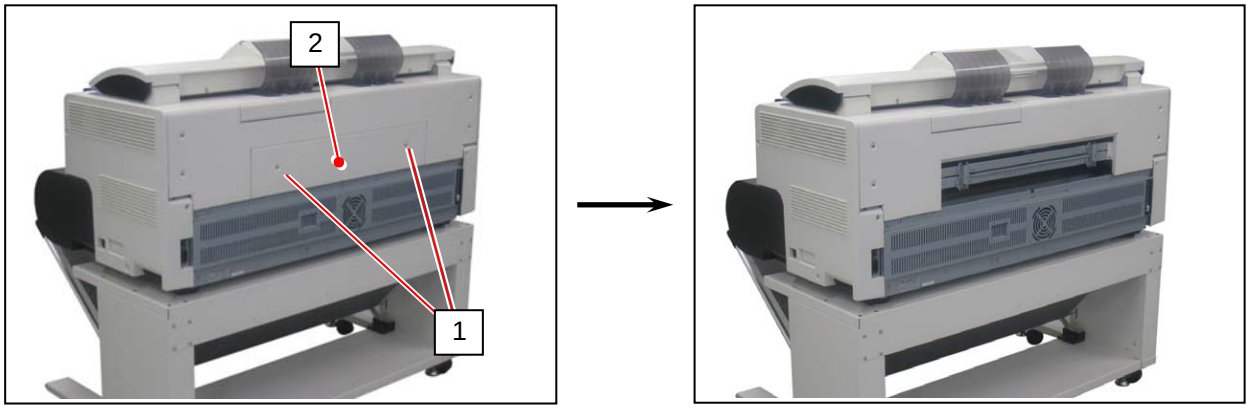
Reference

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.

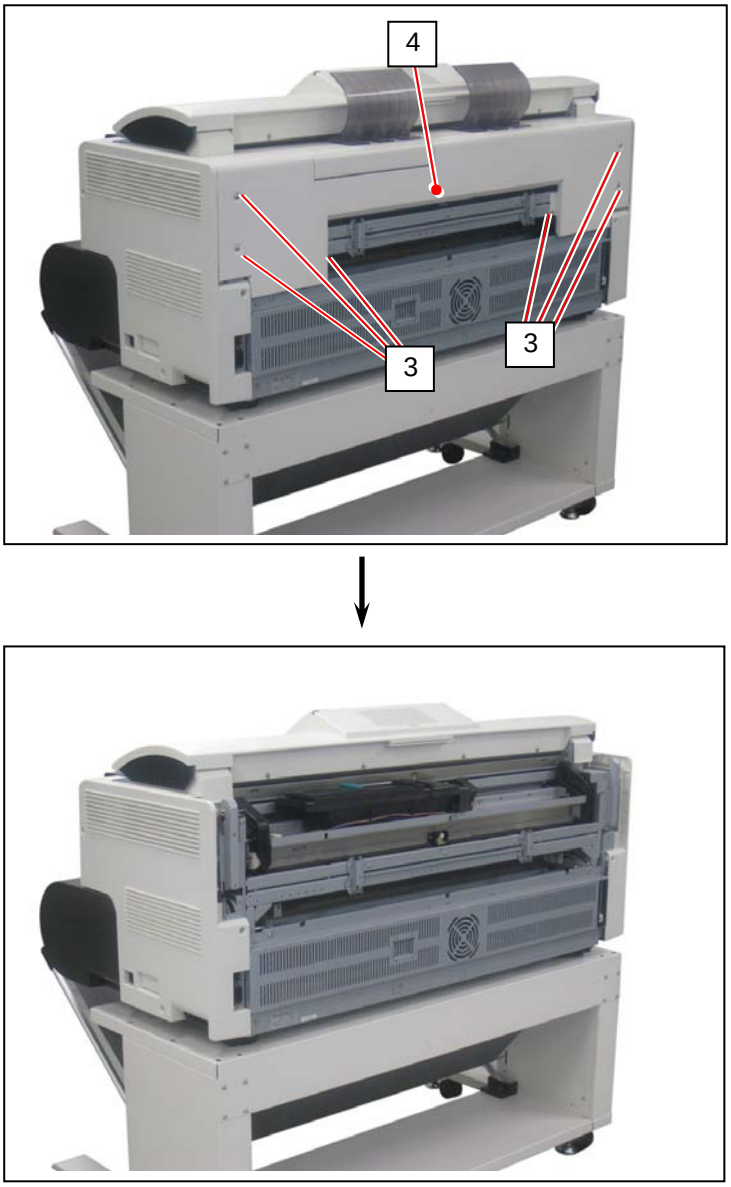
Example of use of the wizard is shown on [5.1.4.2 Using Wizard].

5. 1. 4. 1 Replacement Procedure

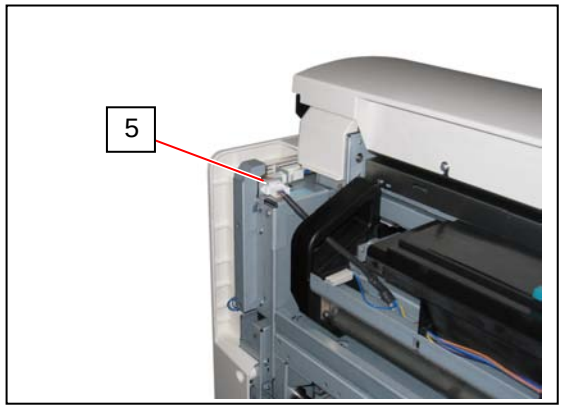
1. Remove 2 Bind Head Screws (M4x6) (1) to remove Cover 31 (2).



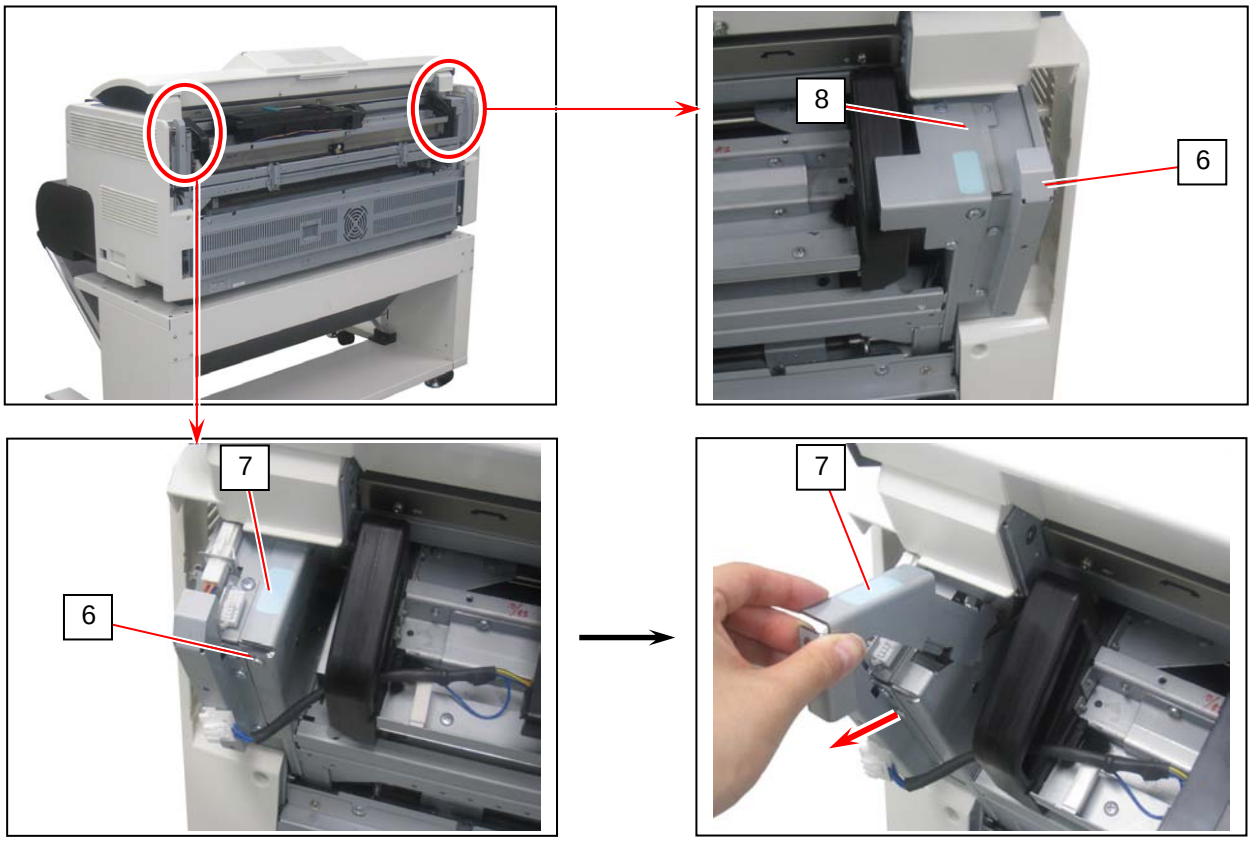
2. Remove 6 Bind Head Screws (M4x6) (3) to remove Cover 32 (4).



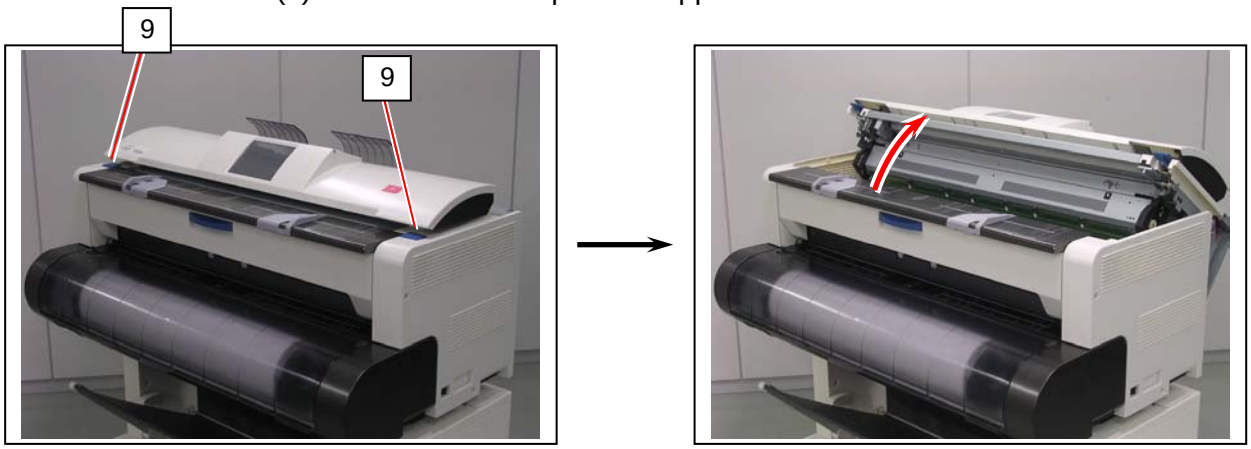
3. Disconnect 1 connector (5).



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



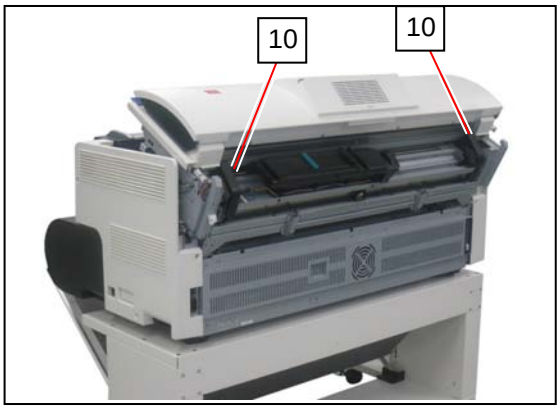
5. Press the blue lever (9) on both sides to open the Upper Unit.

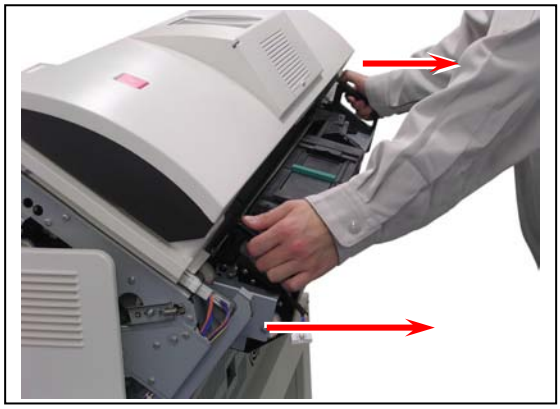


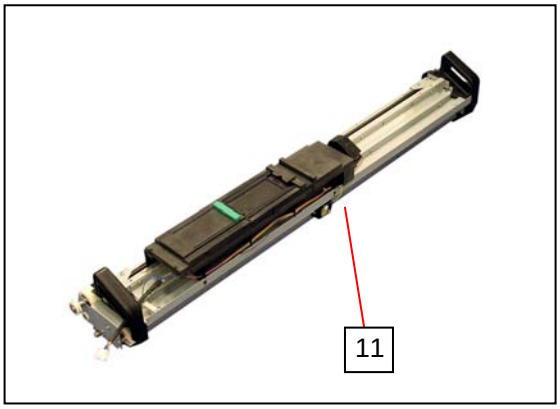
NOTE

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.

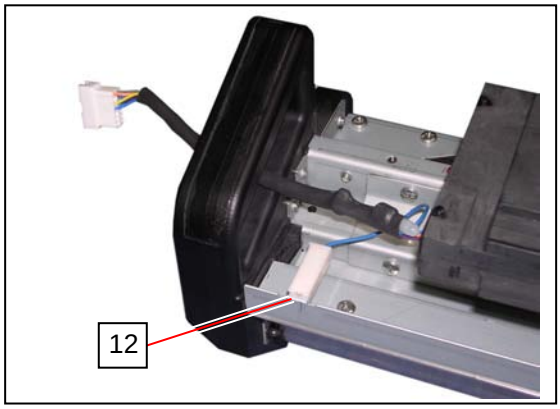
6. Hold the handgrip (10) on both sides.
   Pull the Developer Unit (11) to the arrow direction
   to remove it from the machine.

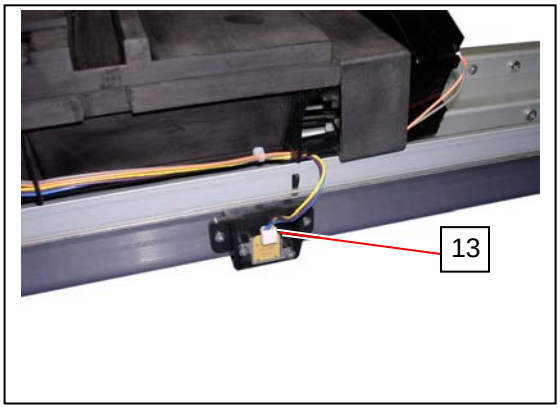




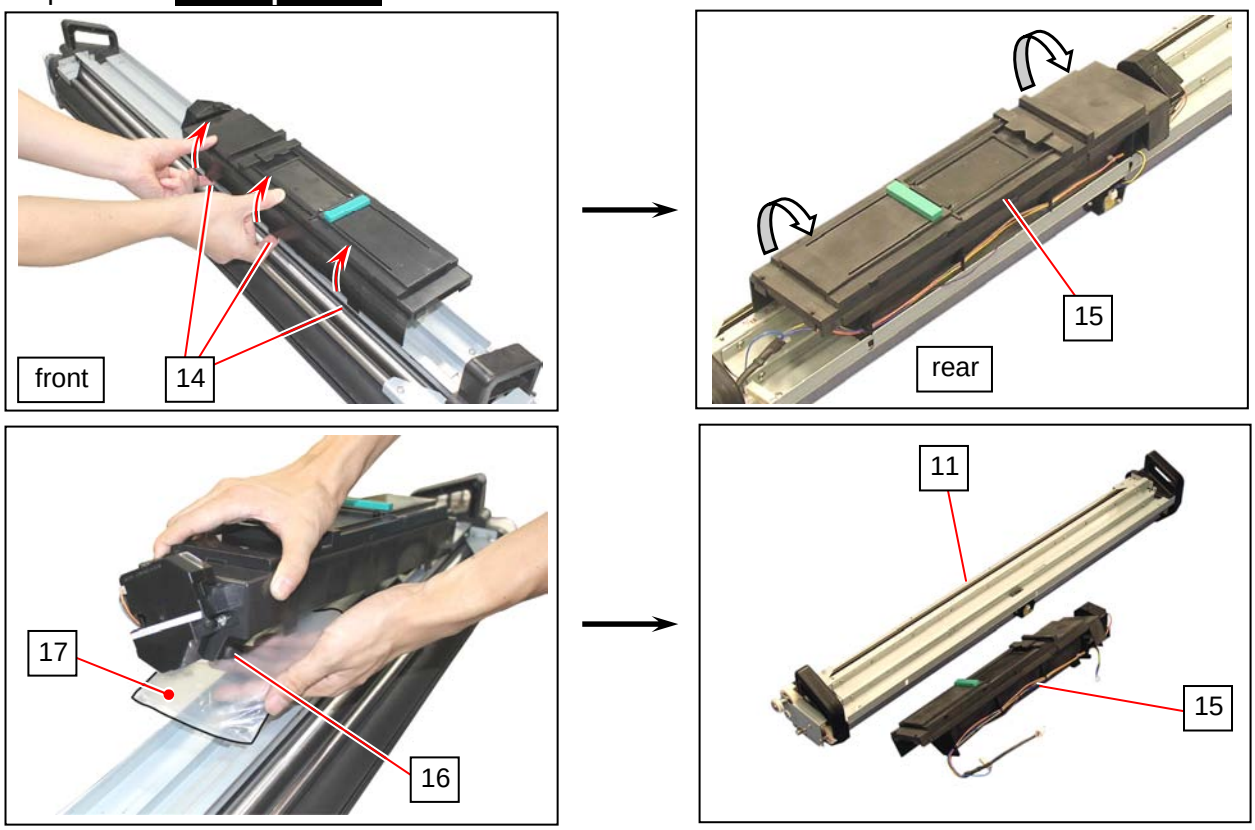


7. Disconnect the ground wire (12) and 1 connector (13).



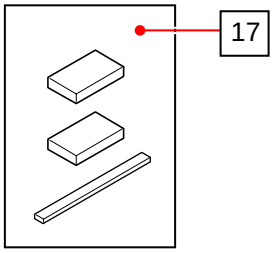


8. Release 3 tabs (14) on the front. Turn the Hopper Unit (15) to the arrow direction to remove it from the DEVELOPER ASSY (11). Cover the toner supply hole (16) on the Hopper Unit with a plastic bag (17) at this time to avoid scattering toner.
Replace the **Developer Unit** with a new one.



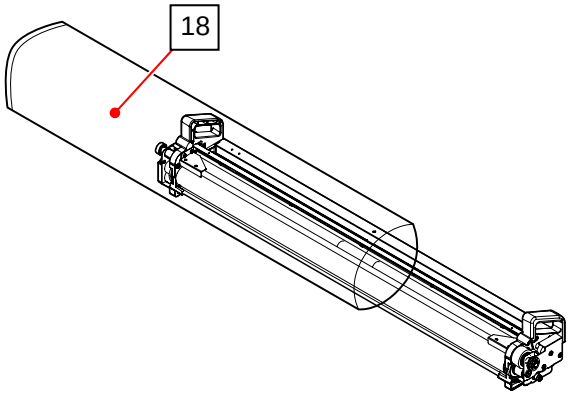
Reference

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

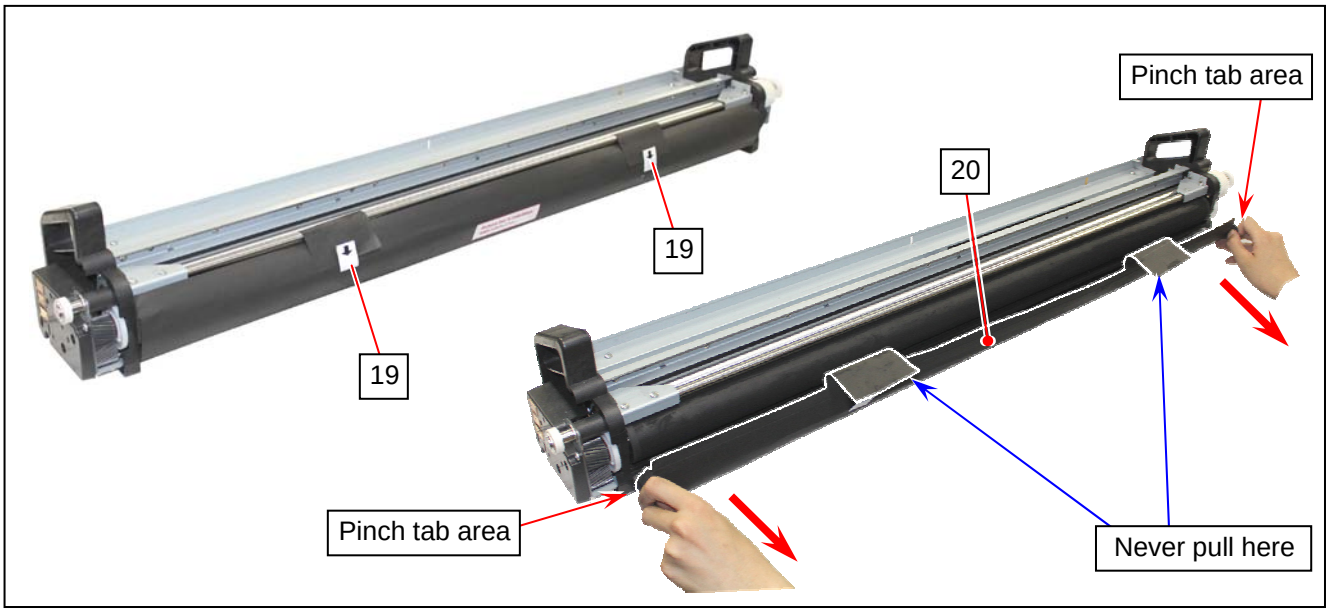


NOTE

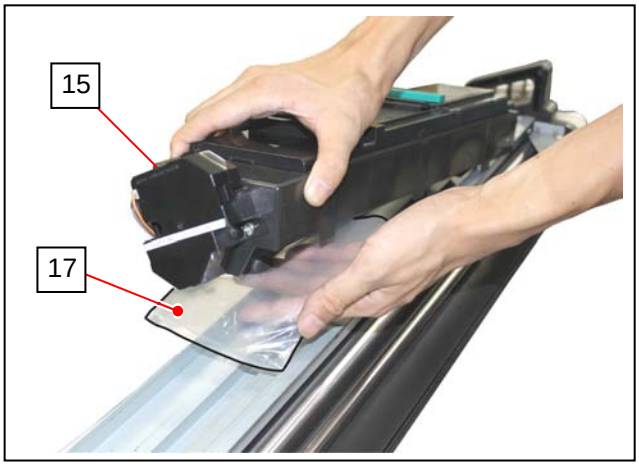
The old Developer Unit should be packed with the empty plastic bag (18) included in the kit. Dispose of the unit according to local regulations.

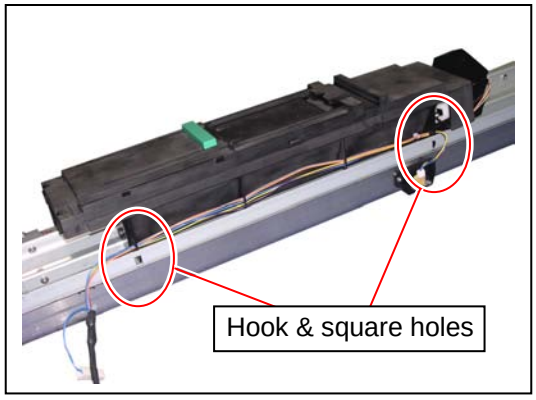


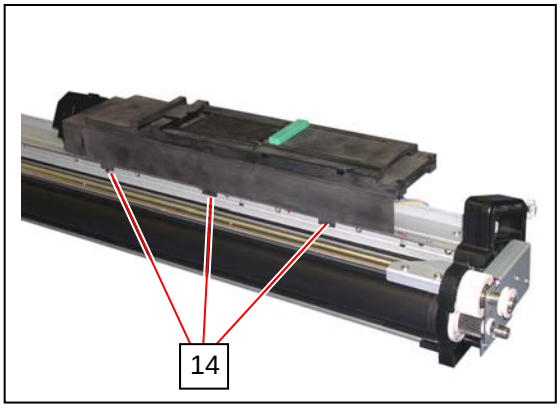
9. Remove the sticker (19) and the protection sheet (20) from the new Developer Unit.



10. Return the Hopper Unit (15). Again, cover he 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).



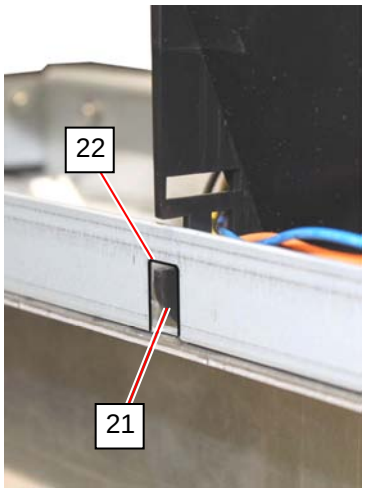


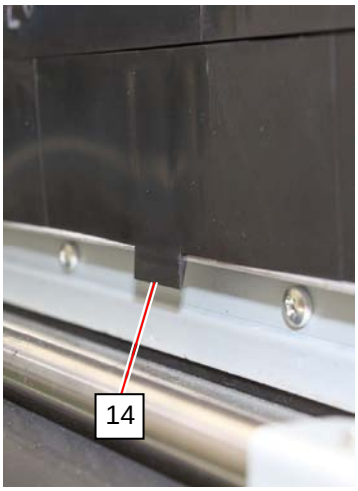


(See the next page)

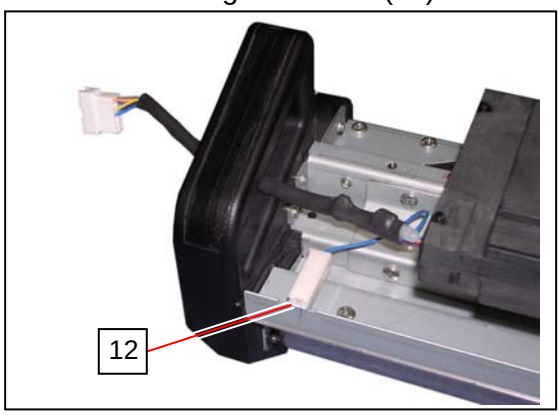
NOTE

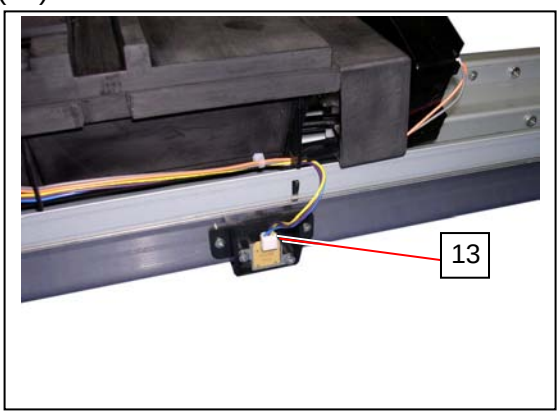
Be sure to confirm the followings after reinstalling the Hopper Unit to the Developer Unit.
- The hook parts (21: 2pcs) fit in the square holes (22).
- The tab parts (14: 3pcs) catch the frame's rim. (Press the entire Hopper Unit)



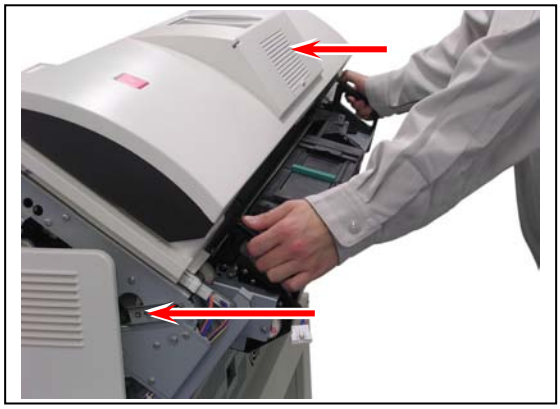


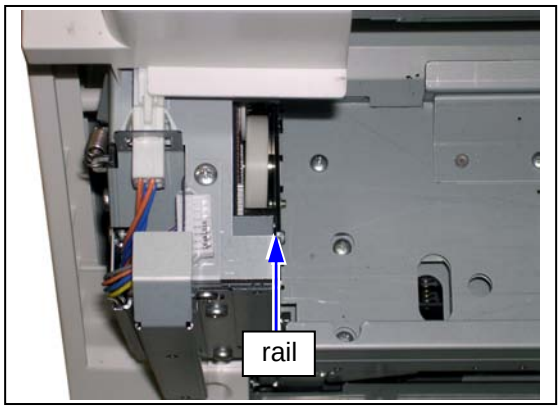
11. Reconnect the ground wire (12) and the connector (13).

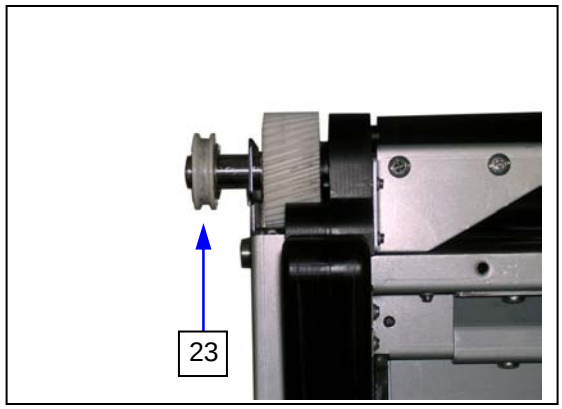


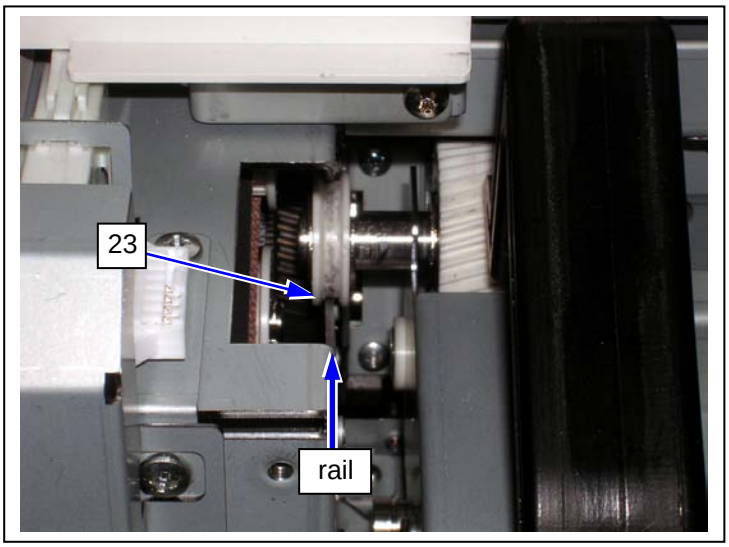


12. The Upper Unit should be open.
Hold the handgrip on both sides. Place the wheel (23) on the rail of the drive side (left hand).
Push the Developer Unit in the machine until it stops.



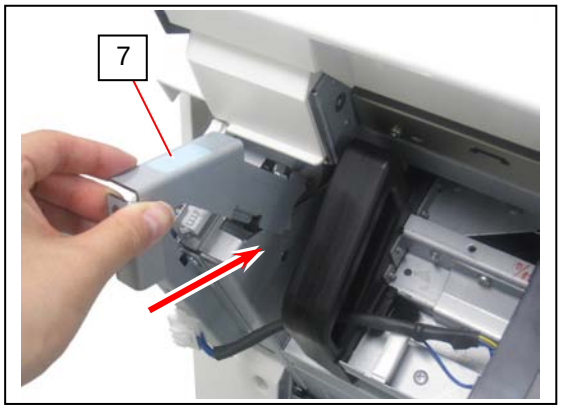


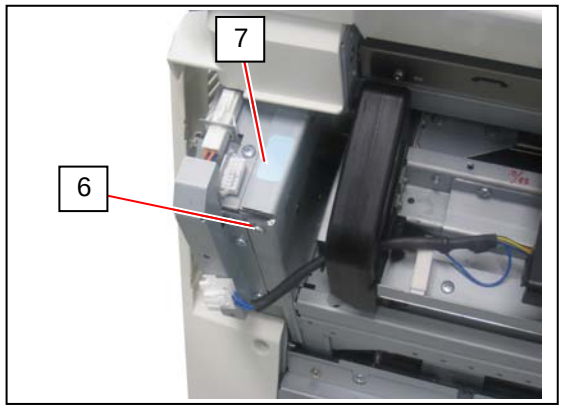




13. Slide the Developer Unit to the arrow direction (to your right hand).

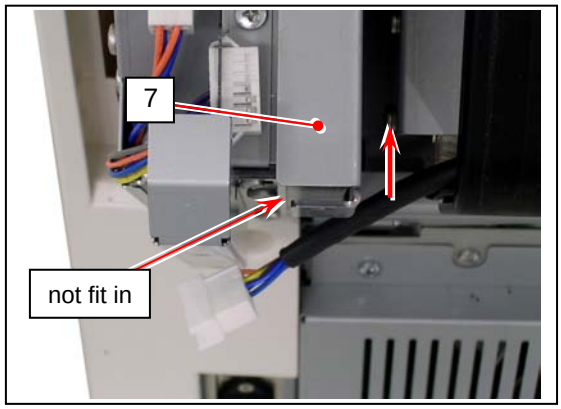
14. Secure the rail blocker R (7) to the rail opening with the screw (6).



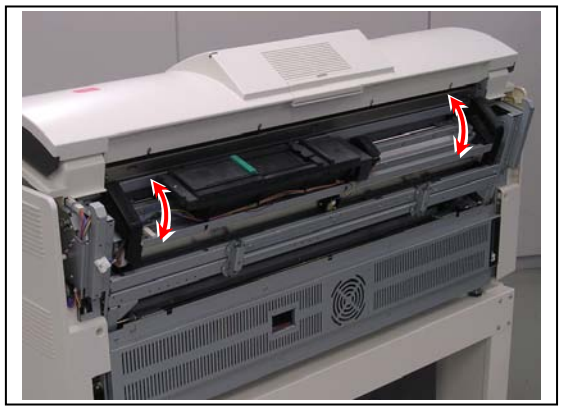


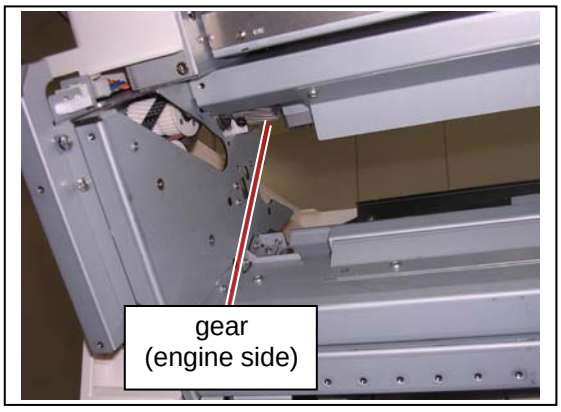
NOTE

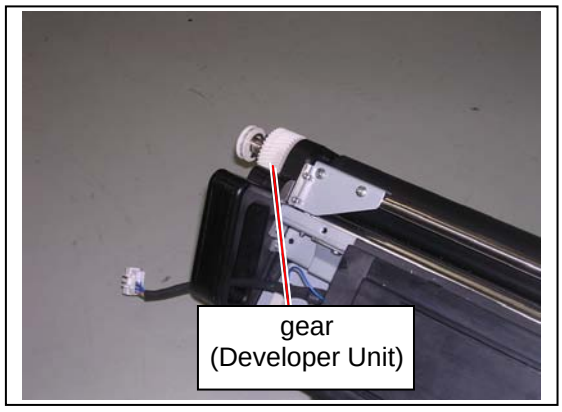
Fully insert the rail blocker R (7). If it does not go into the opening completely, please follow the instruction(s) below to seat the Developer Unit in position.



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

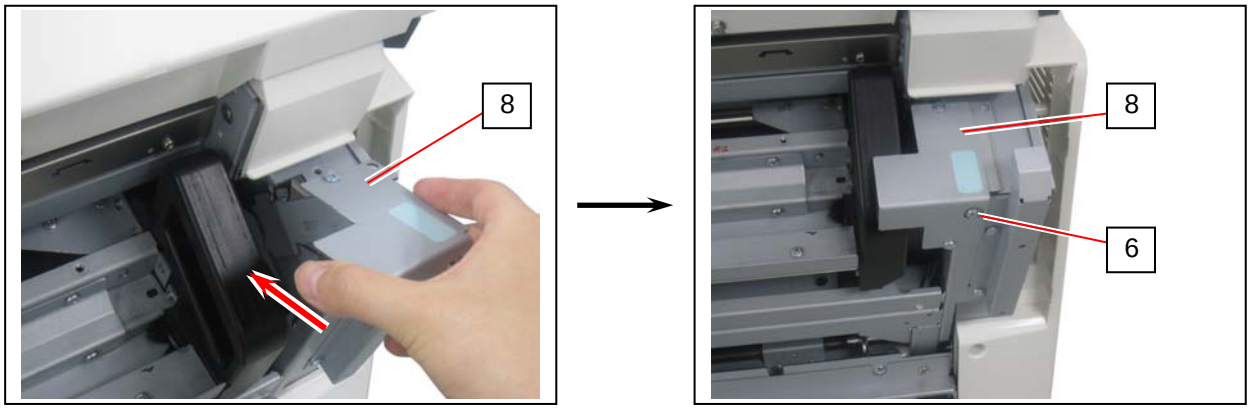




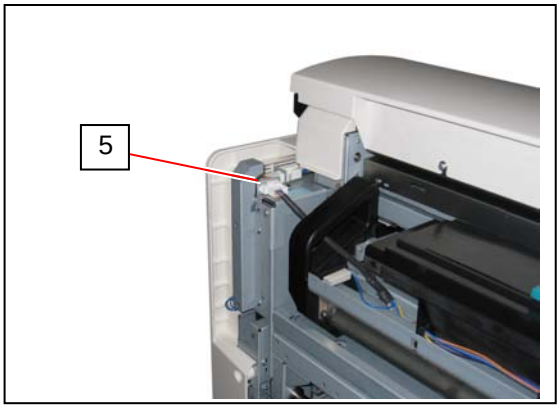


2. Hold the handles on both sides of the Developer Unit to slide it to your right hand.

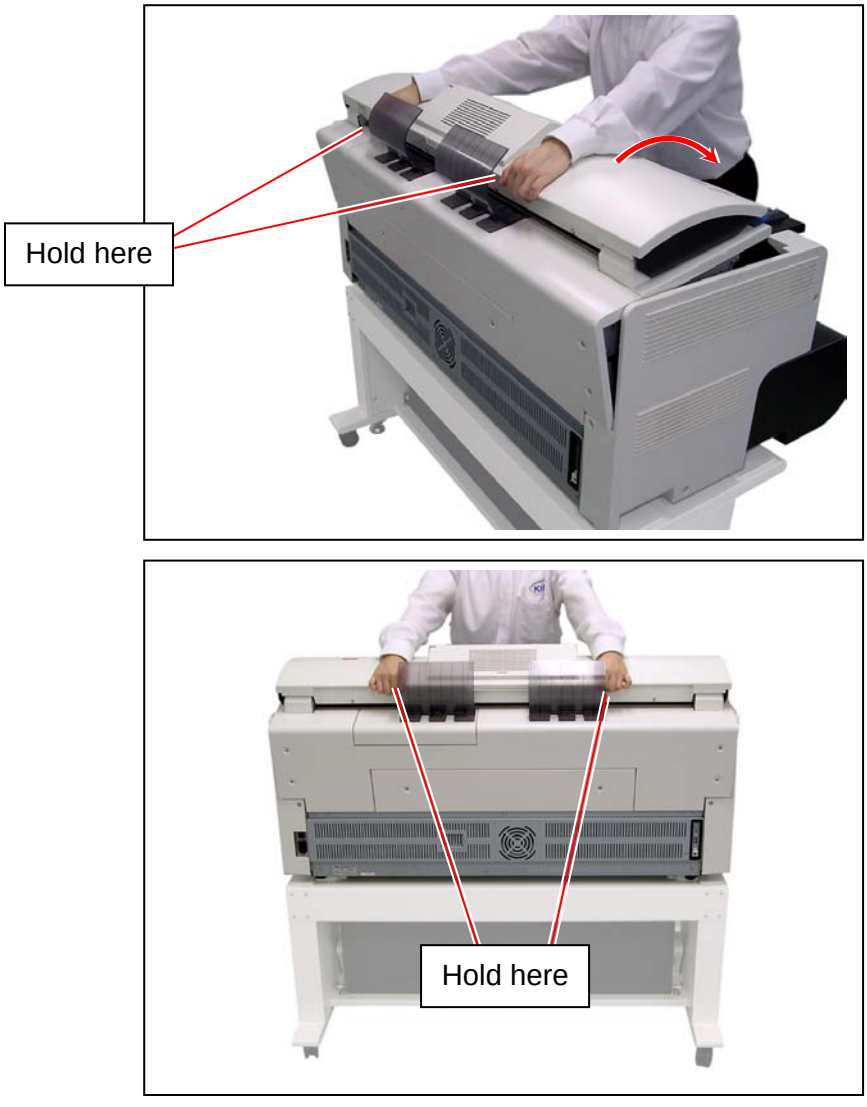
15. Secure the rail blocker L (8) to the rail opening with the screw (6).



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.

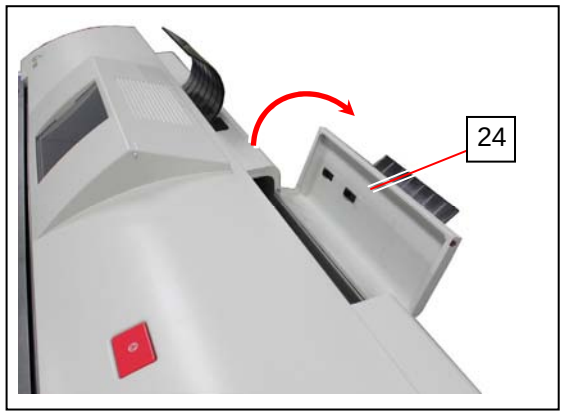


18. Return Cover 32 (4) and Cover 31 (2).

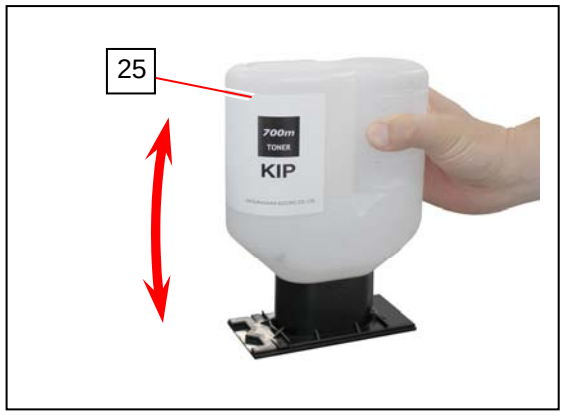
NOTE

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.



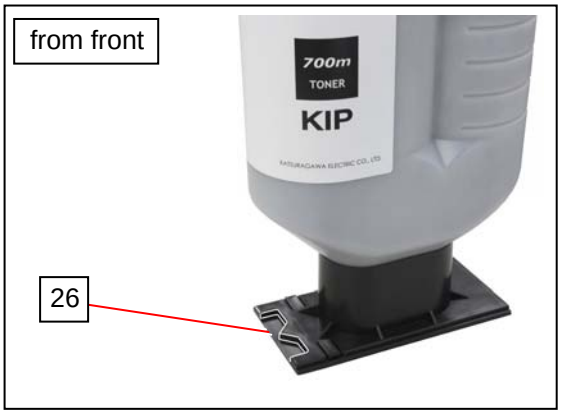
20. Shake the Toner Bottle (25) several times to loosen the toner.

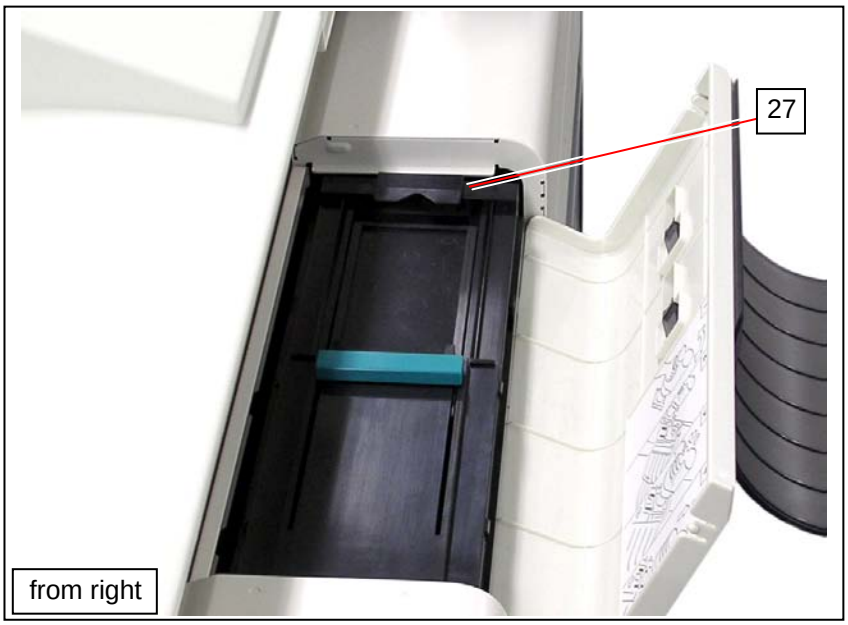


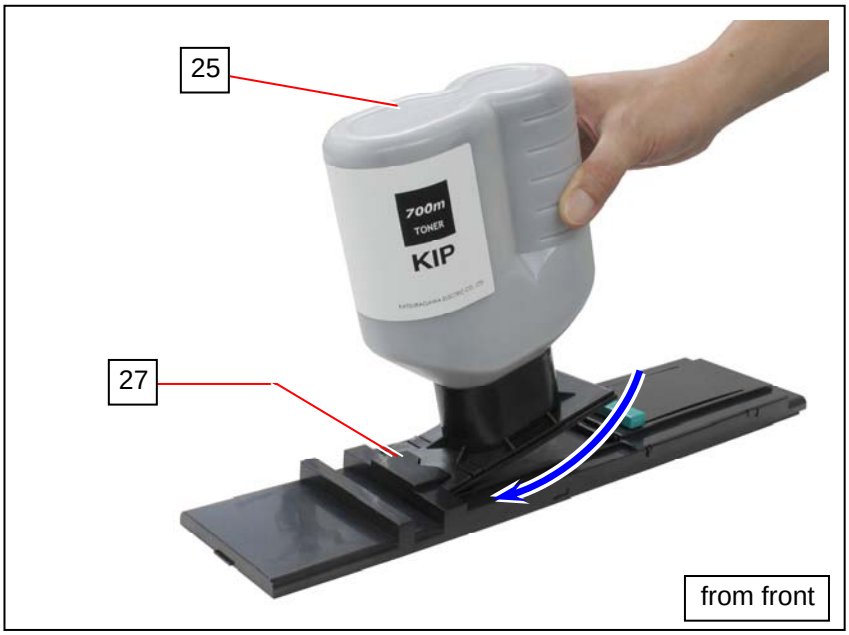
NOTE

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.

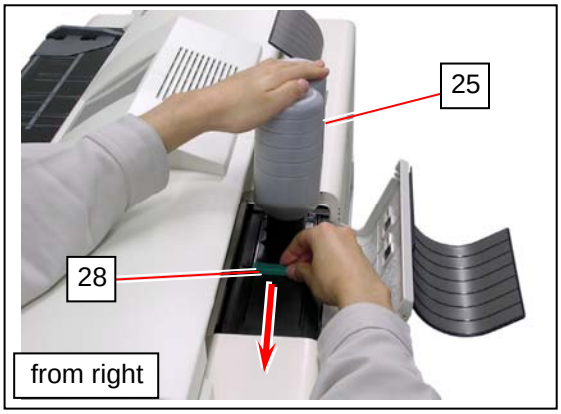
21. Put the dent area (26) under the holder (27) to firmly seat the bottom plate of the Toner Bottle (2) to the toner supply position.







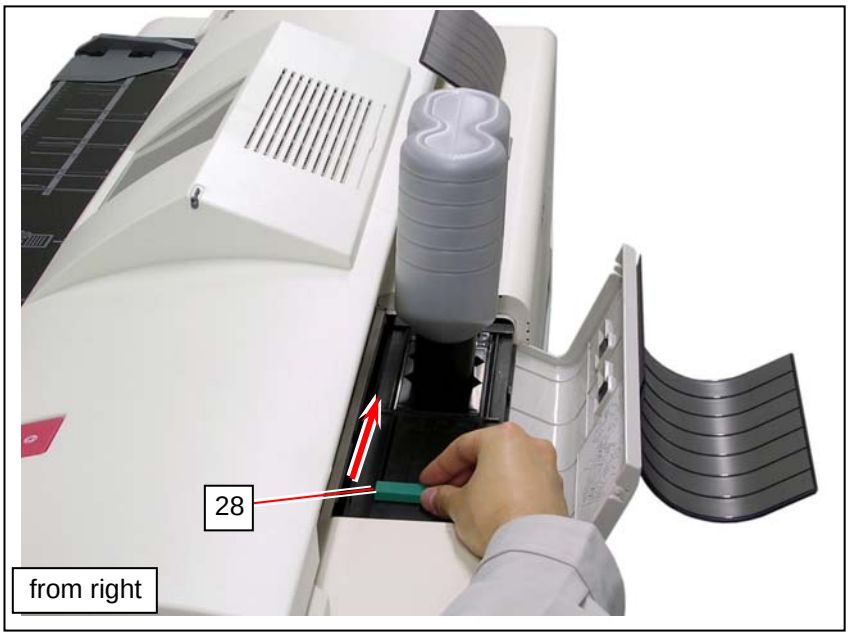
22. With pressing down the Toner Bottle (25), slide the green lever (28) to the arrow direction until it stops. When it stops, wait 10 seconds as it is.
Gently tap the top of the Toner Bottle several times.



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.

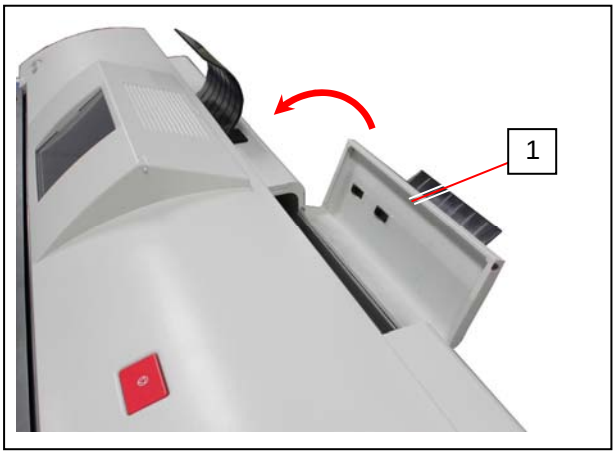


NOTE

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.

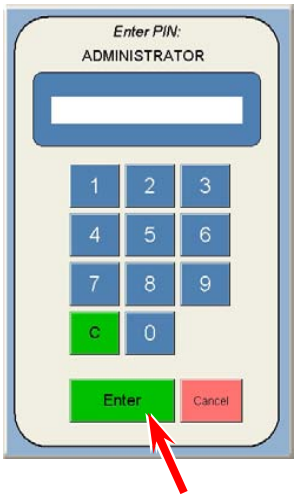
25. Close the Toner Hatch (1).



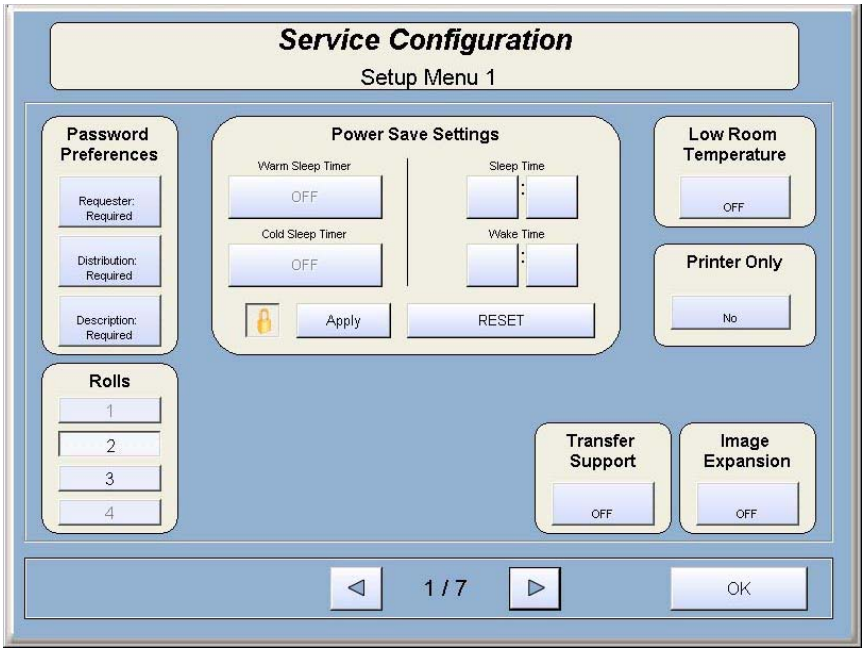
26. Press “? - Help” on Home screen.

27. Press [Service].

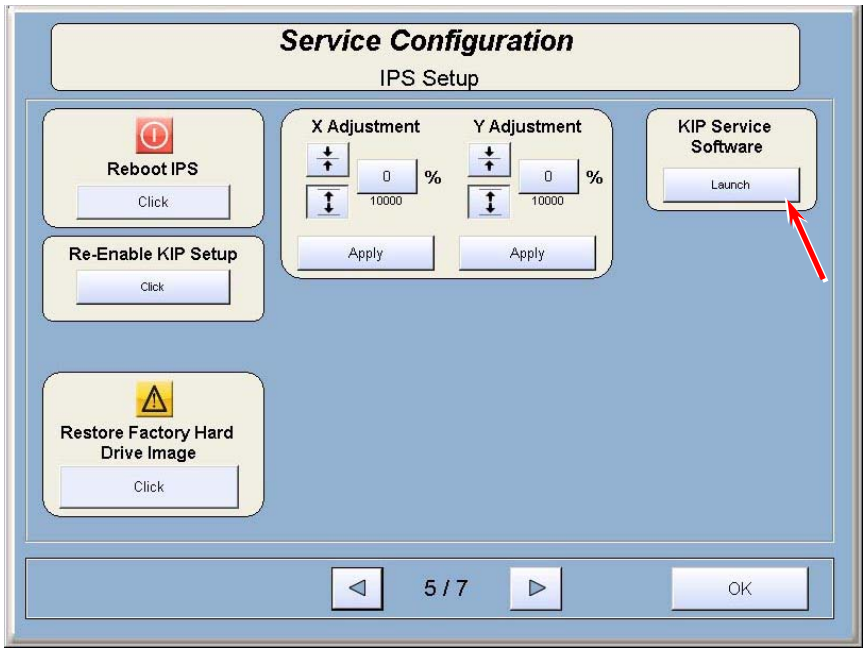
28. On-screen Keypad appears.
Input “8495107” and press [Enter].



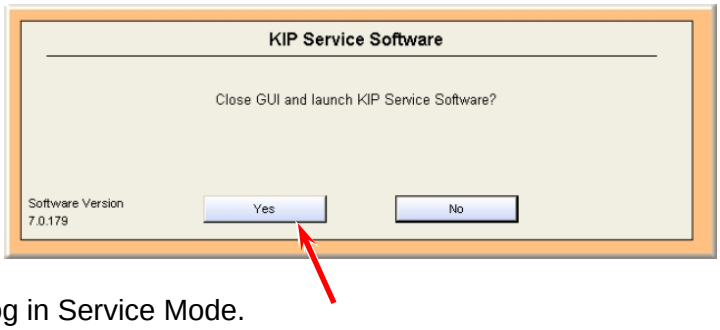
29. Service Configuration screen will appear.



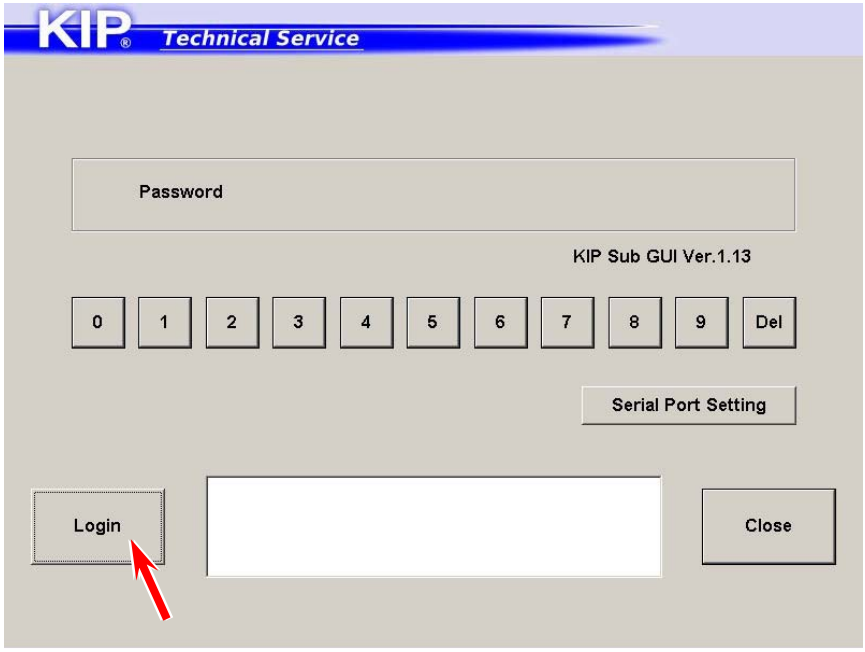
30. Use the arrow keys to open [5/7 IPS Setup]. Press [Launch] in “KIP Service Software”.



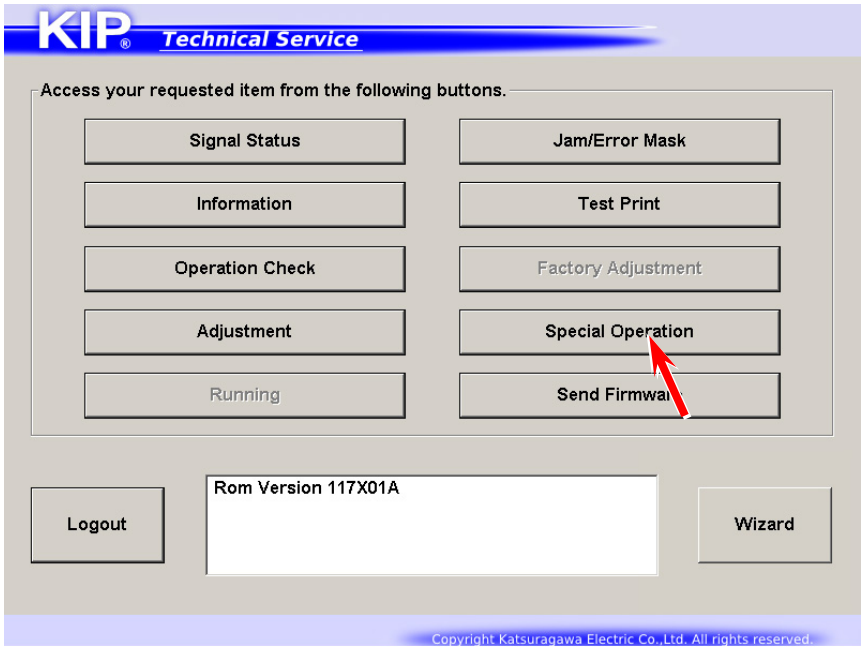
31. Press [Yes].



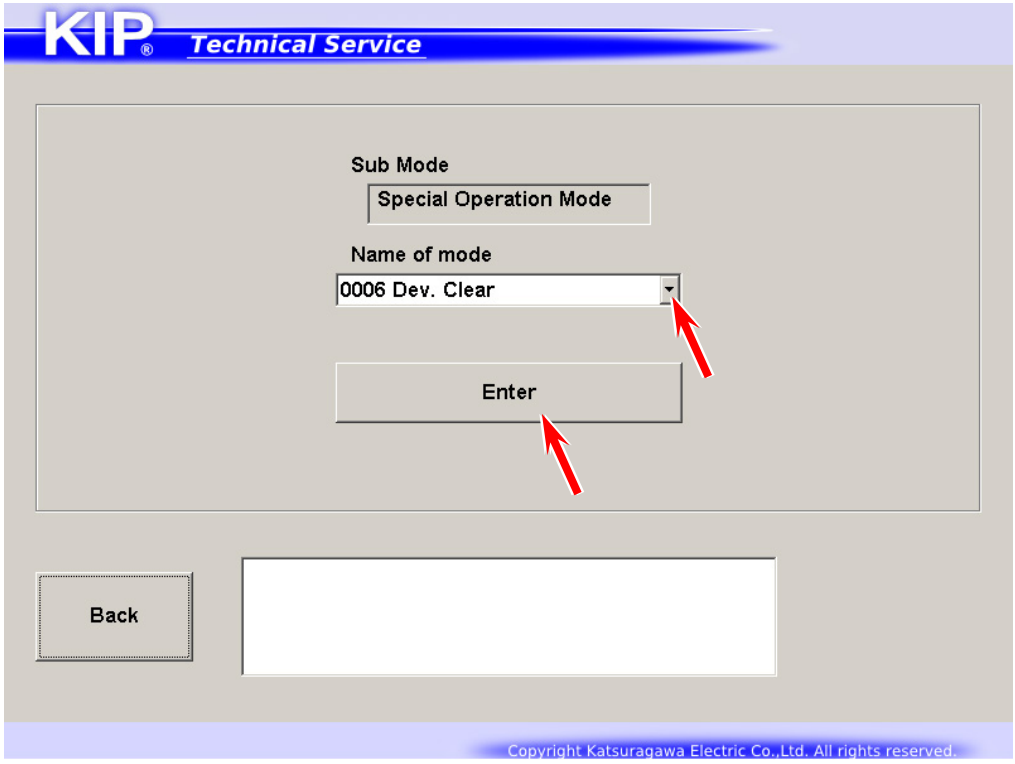
32. Press [Login] to log in Service Mode.



33. Press [Special Operation] in Service Mode Home.
Operation Target screen appears.

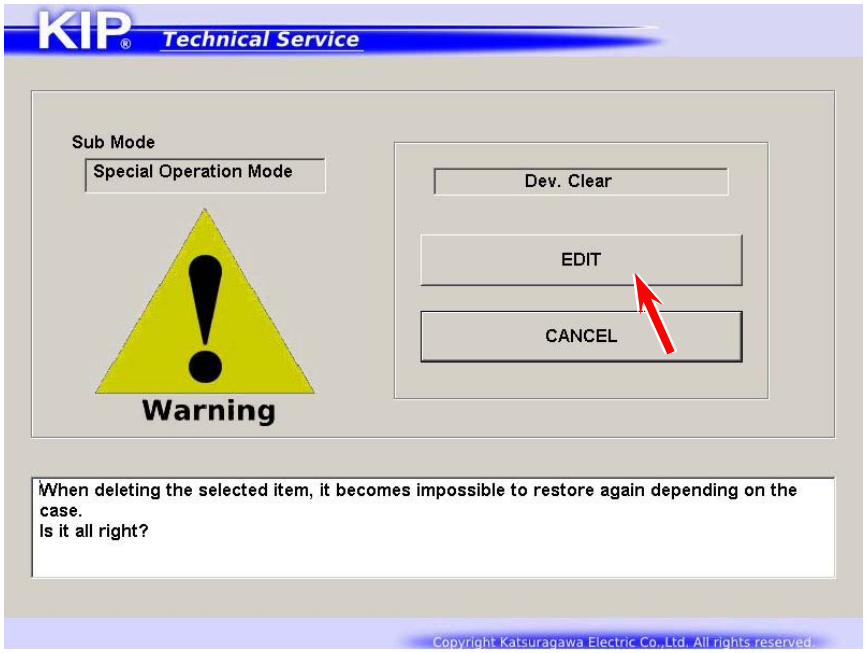


34. Select [0006 Dev. Clear] from Name of mode menu. Press [Enter].

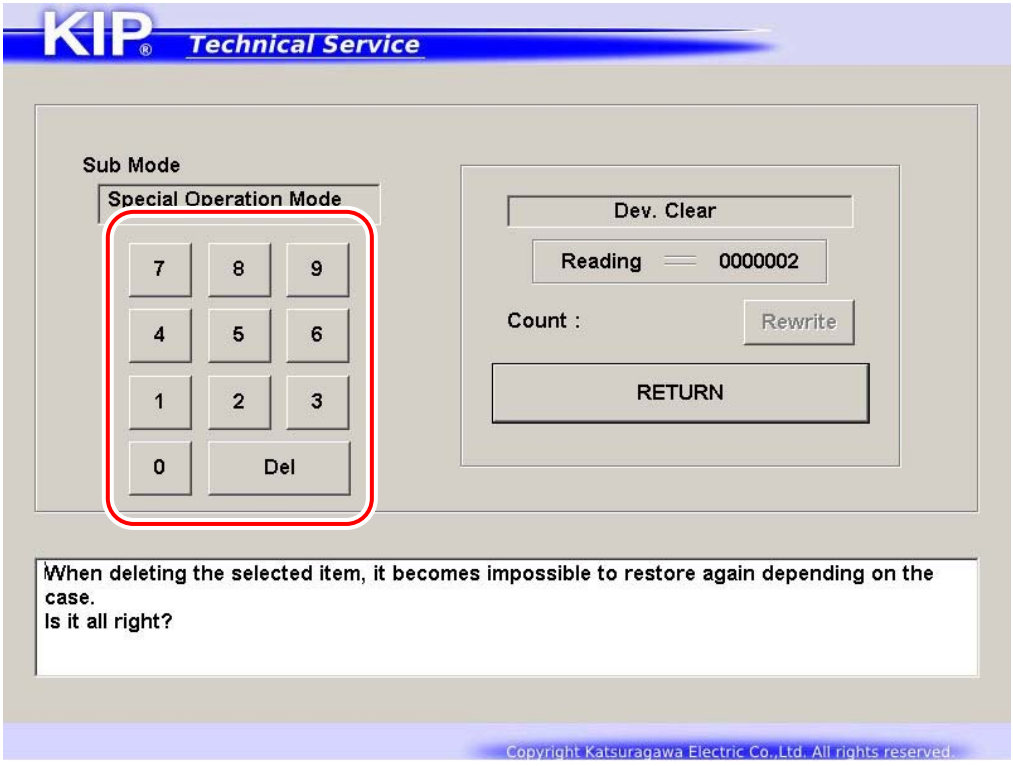


0006	Dev. Clear	Initializes Developer / Regulation Bias adjusted with Density Compensation Process

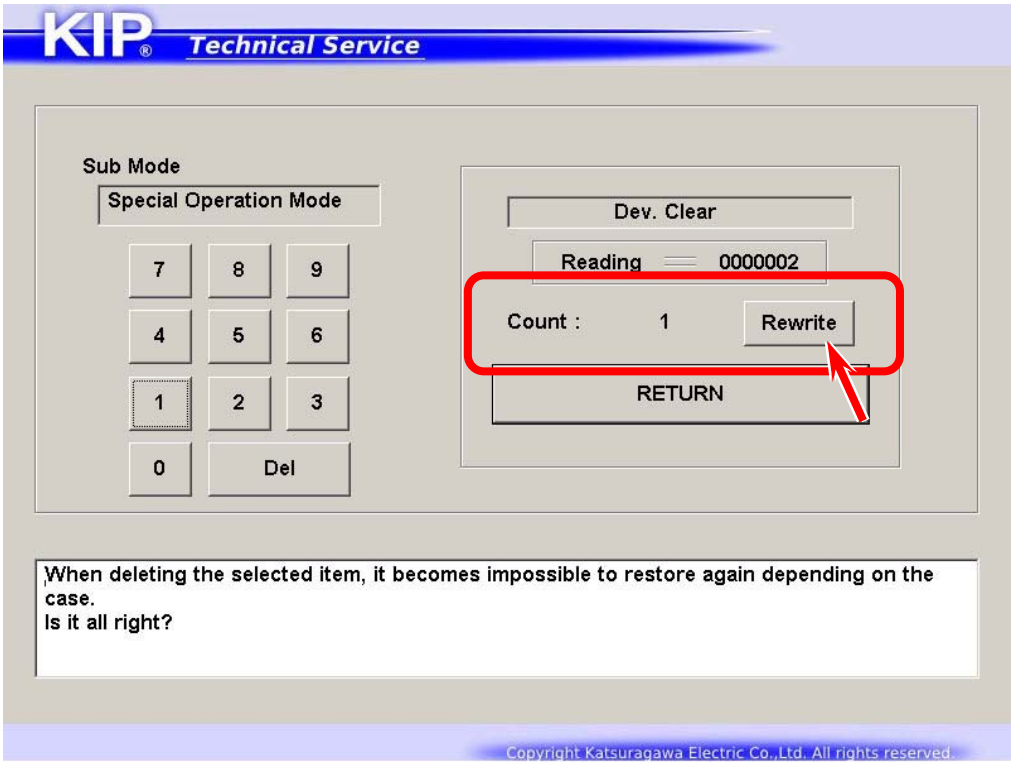
35. Confirmation screen appears.
    Press [EDIT] to enter the input screen.



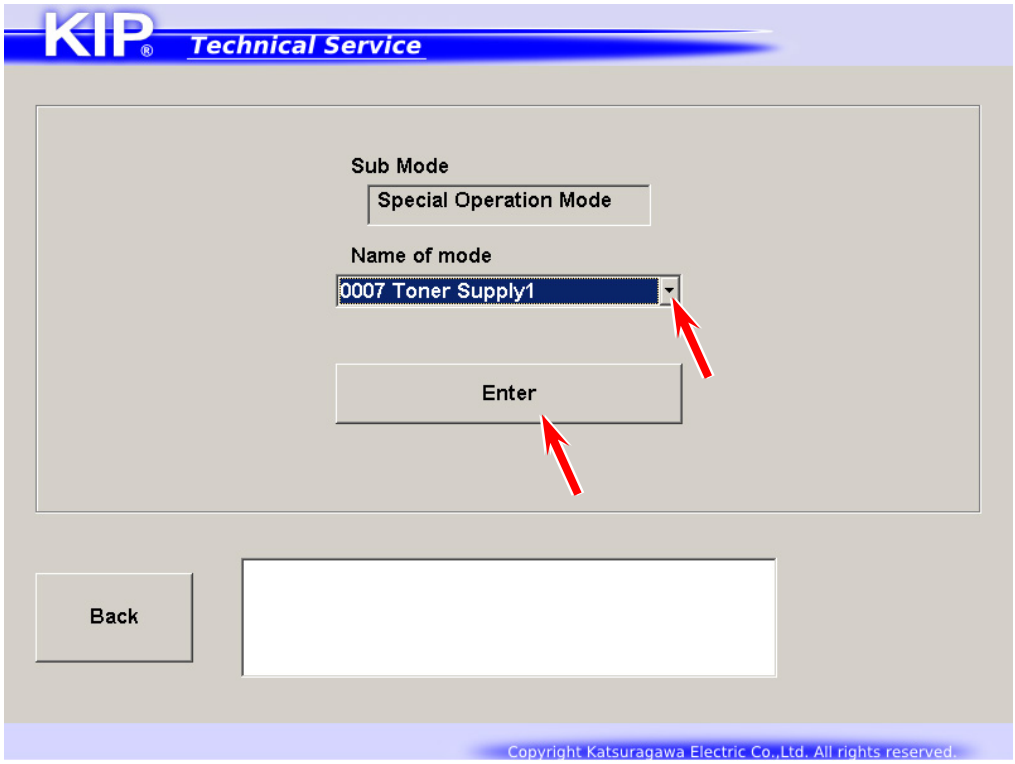
36. Input screen appears.
    Input "1" with On-screen Keypad.



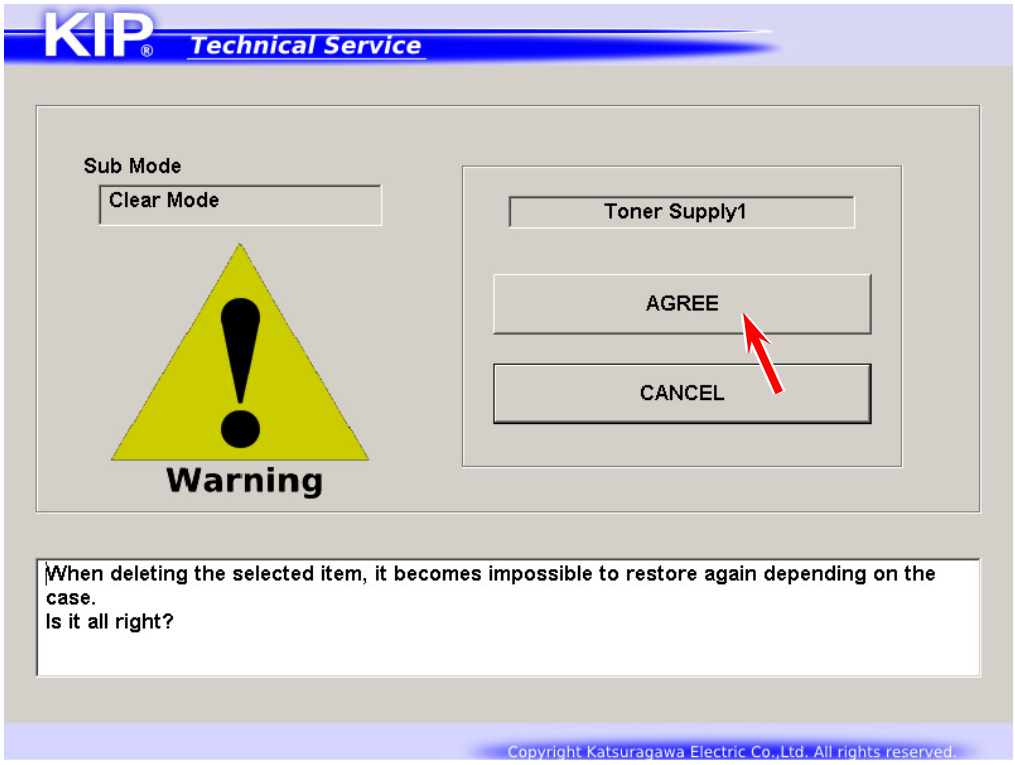
37. The value is displayed in “Count” area.
[Rewrite] will be activated.
Press [Rewrite] to apply the new value to the printer.
The value in “Reading” area will be changed to the new value.



38. Press [RETURN] to go back to Operation Target screen.
Select [0007 Toner Supply1] and press [Enter].

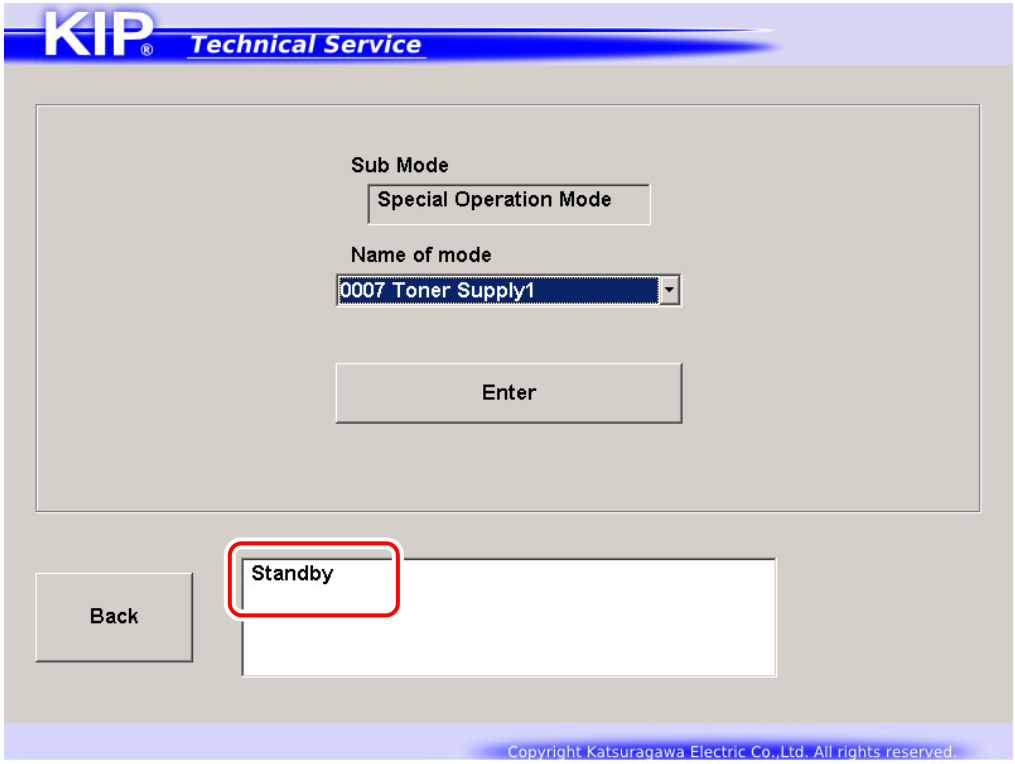


39. Confirmation screen appears. Press [Agree].
    Toner supply / agitation starts. This will take 10 minutes to complete.



40. Once you press [Agree], it will turn deactivated. Press [Return].

41. The screen goes back to Operation Target Screen. The status window shows “warm up” during toner supply / agitation.
    After the completion, it changes to “standby”.



42. Do the same way on step 38 to 41. (twice in a row for 2 Toner Bottles)

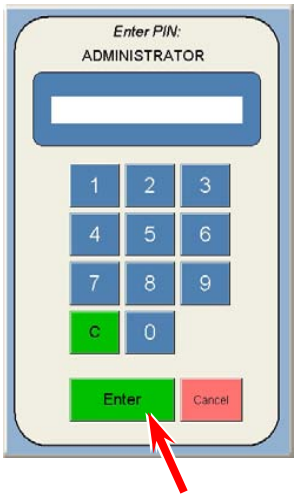
5. 1. 4. 2 Using Wizard

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

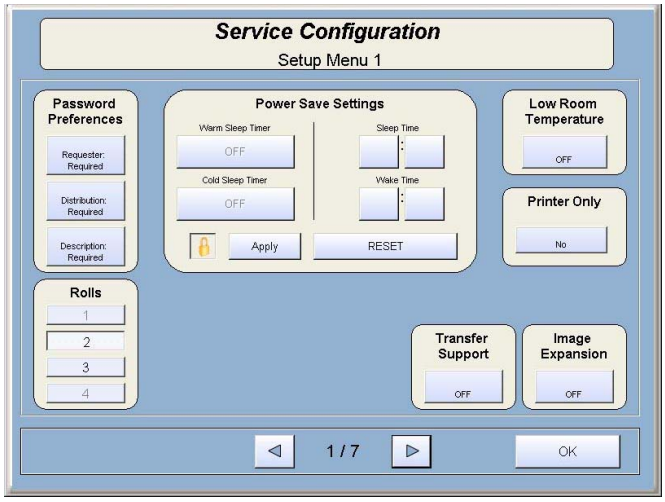
1. Press “? - Help” on Home screen.

2. Press [Service].

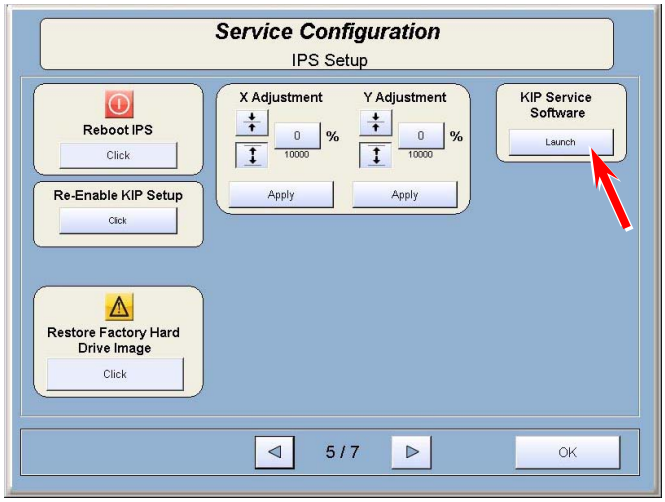
3. On-screen Keypad appears.
Input “8495107” and press [Enter].



4. Service Configuration screen will appear.

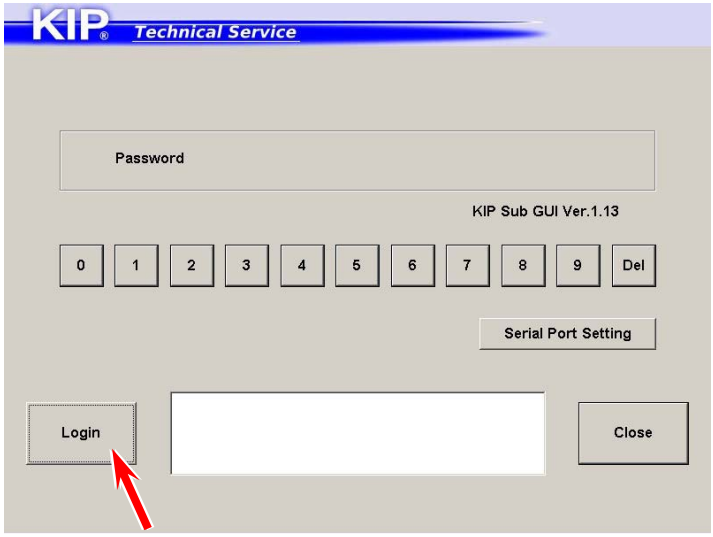


5. Use the arrow keys to open [5/7 IPS Setup]. Press [Launch] in “KIP Service Software”.

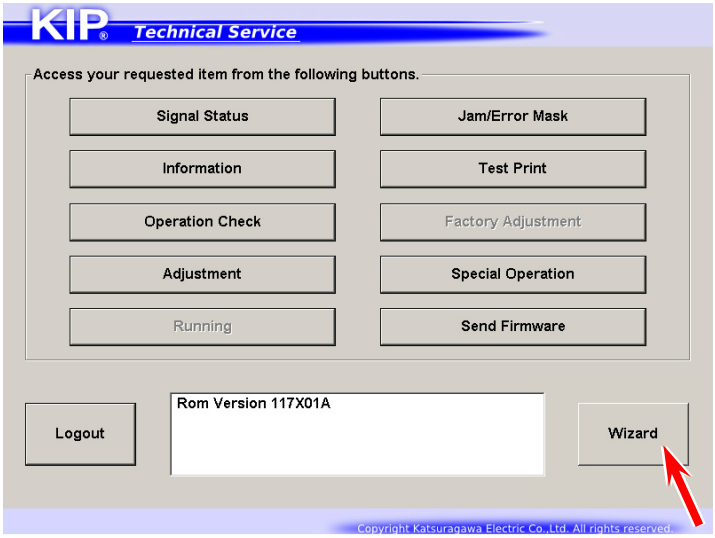


6. Press [Yes].

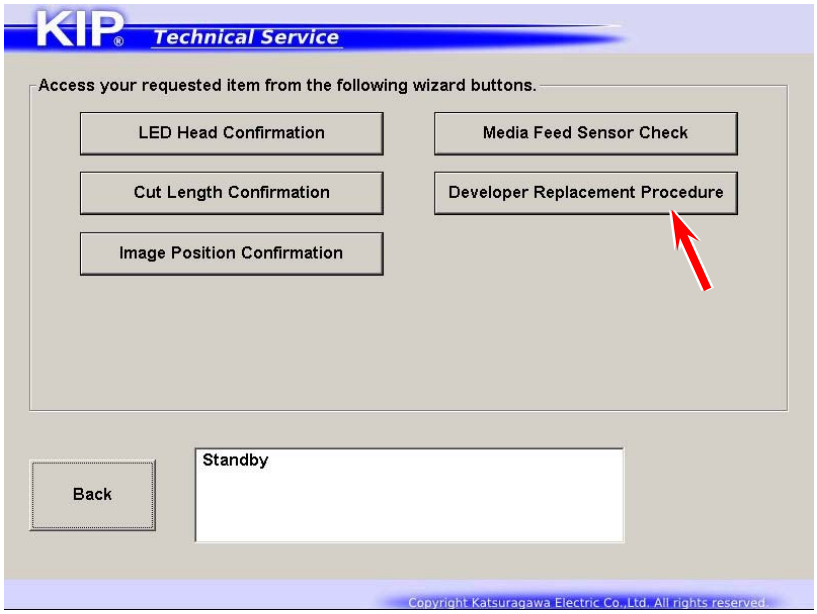
7. Press [Login] to log in Service Mode.



8. Press [Wizard].



9. Press [Developer Replacement Procedure].



10. Press [Login Hold].

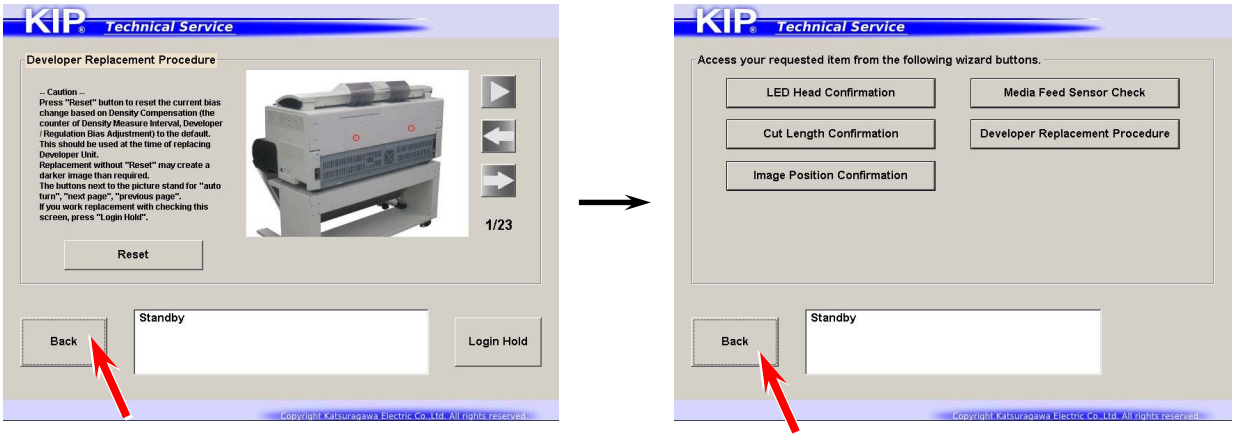
11. The screen shows the procedure step by step. Press [→] button to turn the pages.
    Press [►] to start the slide show style.
    Follow the instructions and replace Developer Unit.

12. Page 23/23 is the end of the procedure. Press [Login Hold].

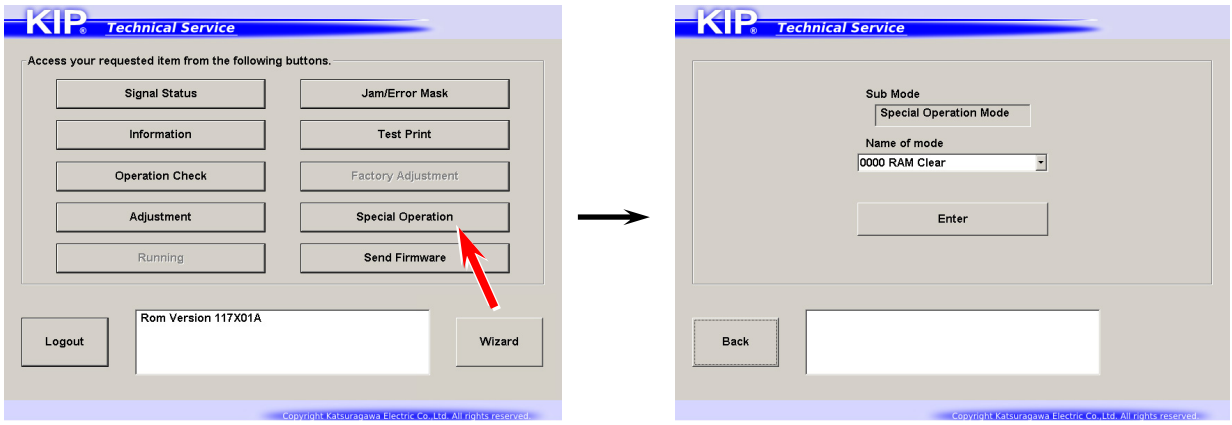
13. Press [Reset] on the left.

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

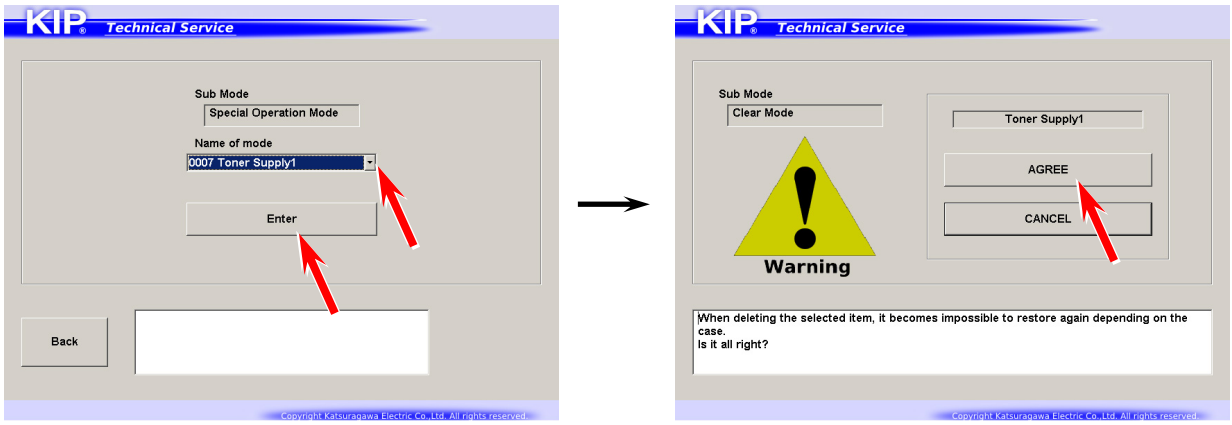
15. Press [Back], [Back]



16. Enter Special Operation Mode.

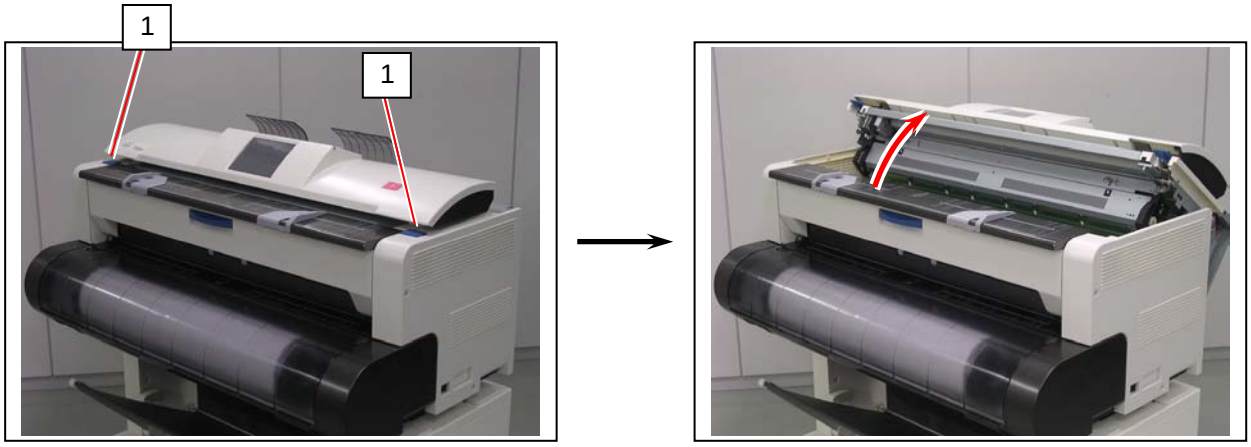


17. Select “Toner Supply1”. Run “Toner Supply1” twice in a row.

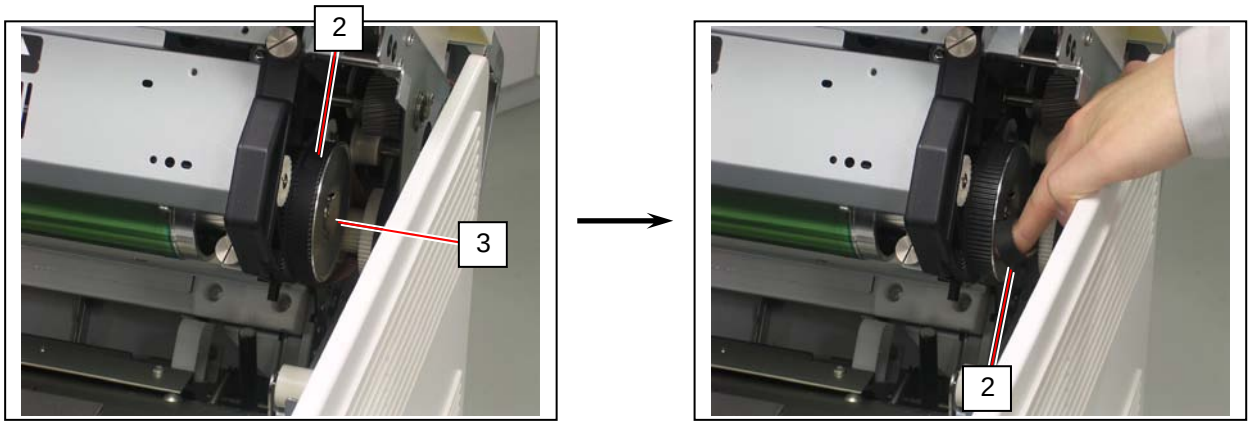


5. 1. 5 Process Unit

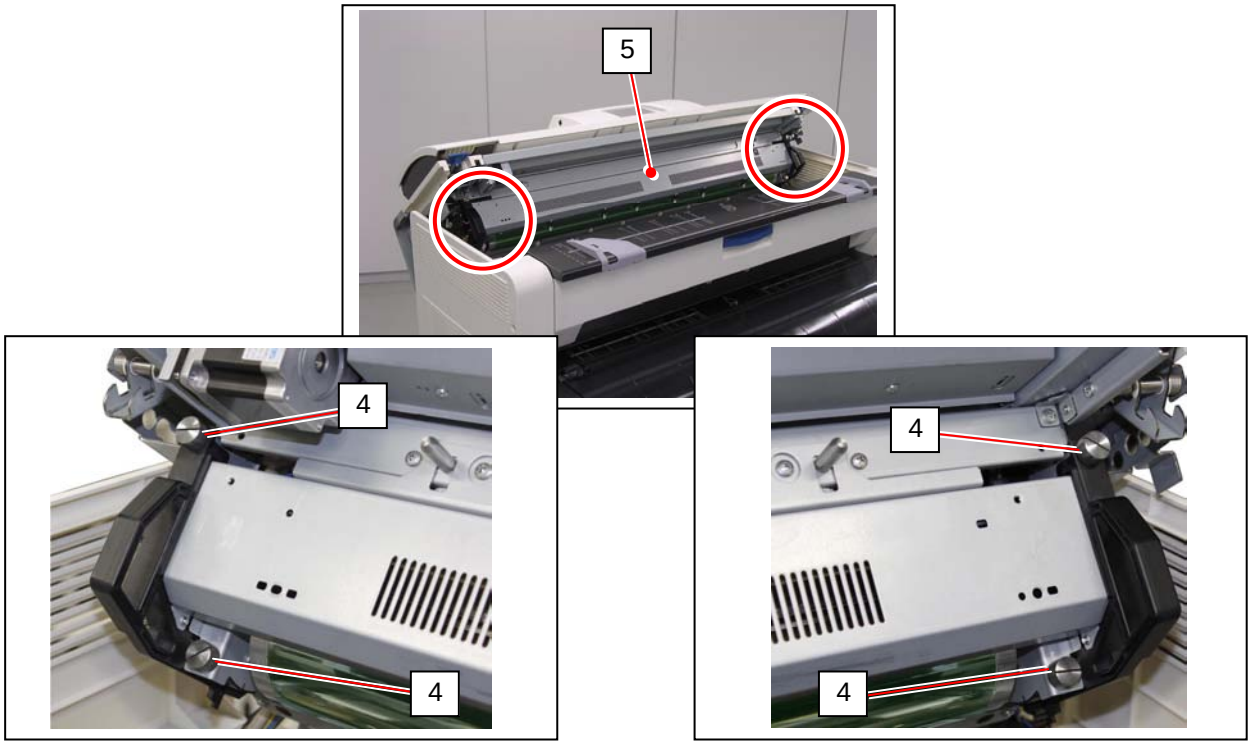
1. Press the blue lever (1) on both sides to open the Upper Unit.



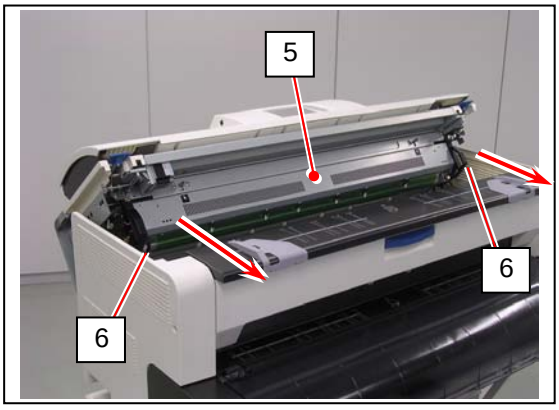
2. Release the belt (2) from the pulley (3).

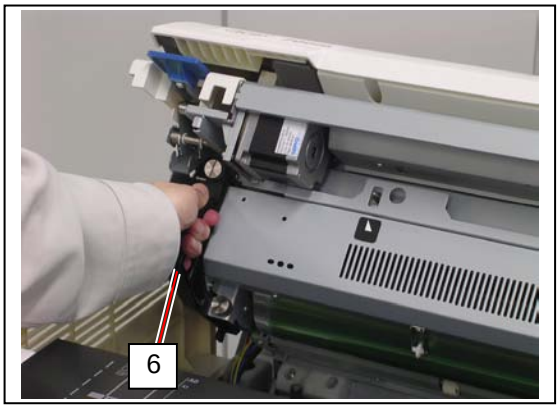


3. Loosen 4 thumb screws (4) to release the Process Unit (5).



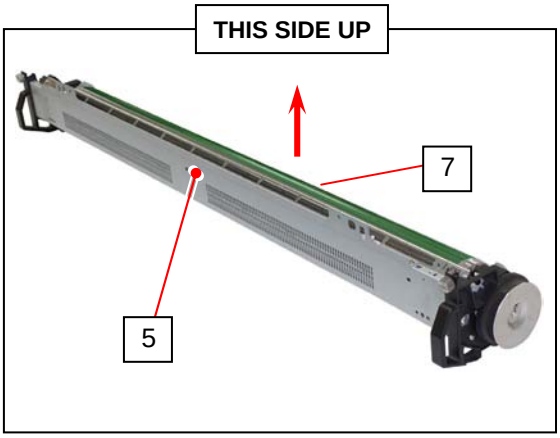
4. Hold the handgrip (6) on both sides. Pull the Process Unit (5) to the arrow direction to remove it from the machine.





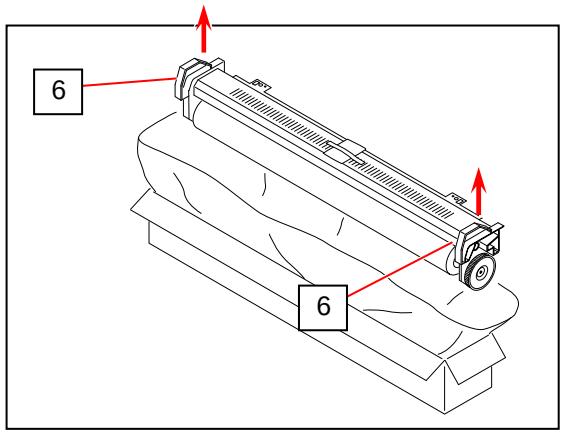
NOTE

(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).

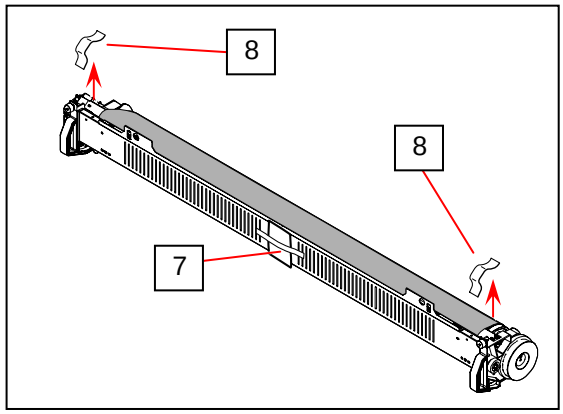


(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.
- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process Unit with a piece of plain bond roll paper.

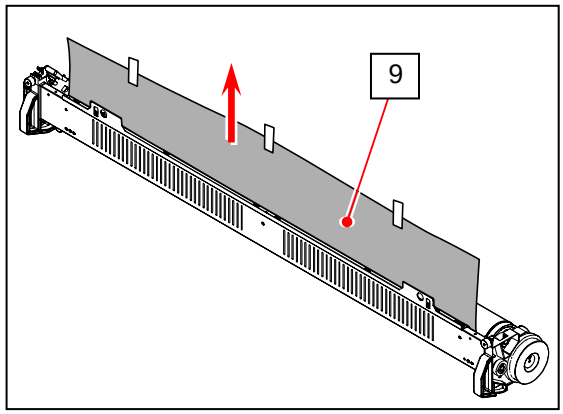
5. Hold the handgrip (6) on both sides to take out the new **Process Unit** from the container.



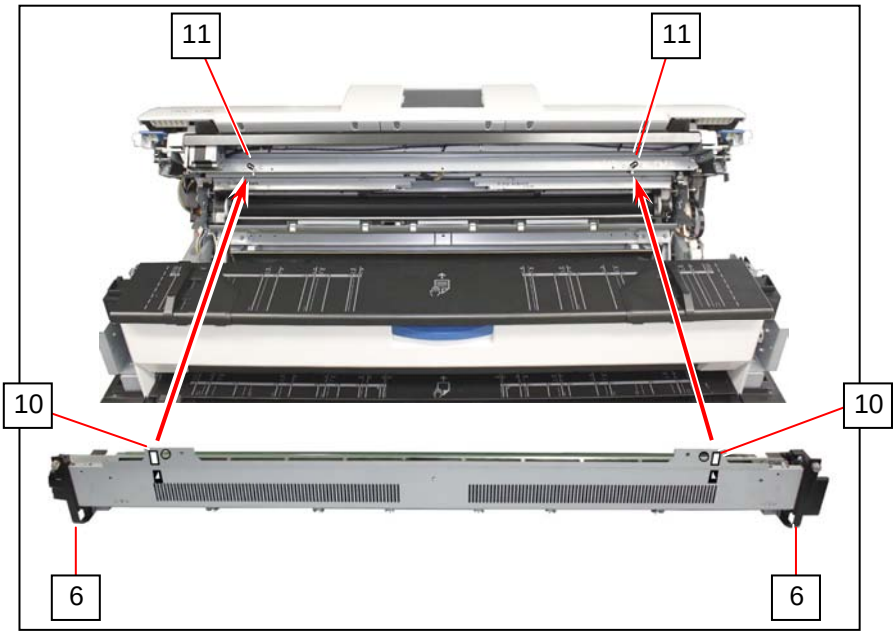
6. Put the Process Unit on a flat surface.
   Remove the desiccant (7) and the tapes (8).



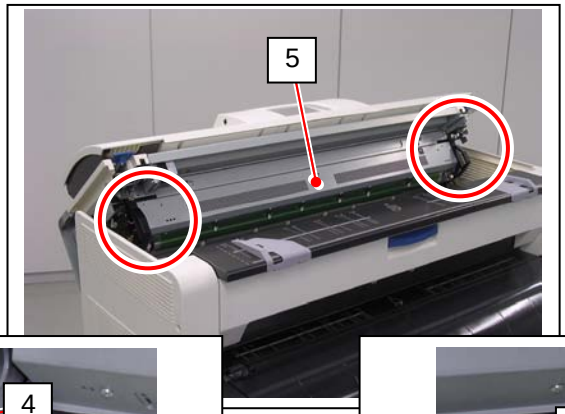
7. Remove the black shading paper (9).

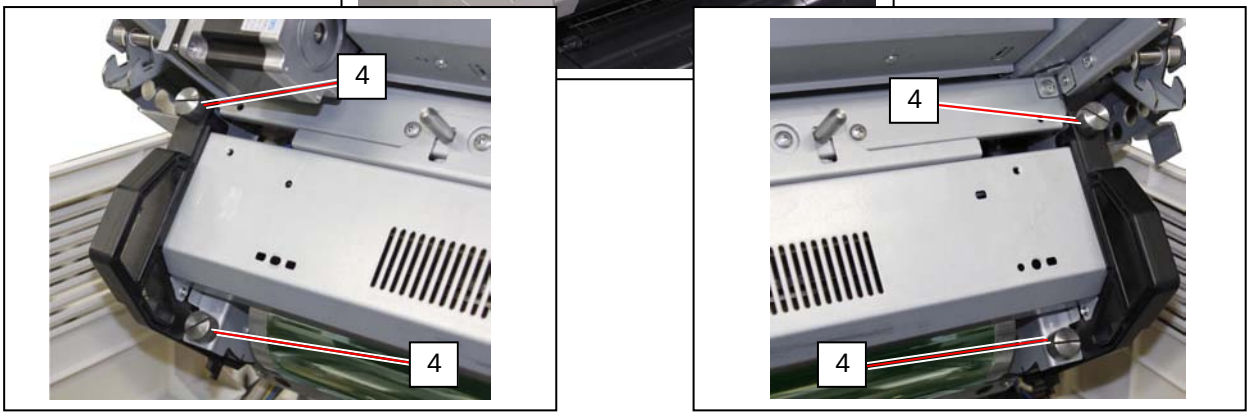


7. Hold the handgrip (6) on both sides. Slightly tilt the Process Unit downward. Put the square holes (10) onto the tapered edges of the positioning pins (11). Before inserting completely, pivot the unit upward to face each other. Finally push the unit into the machine

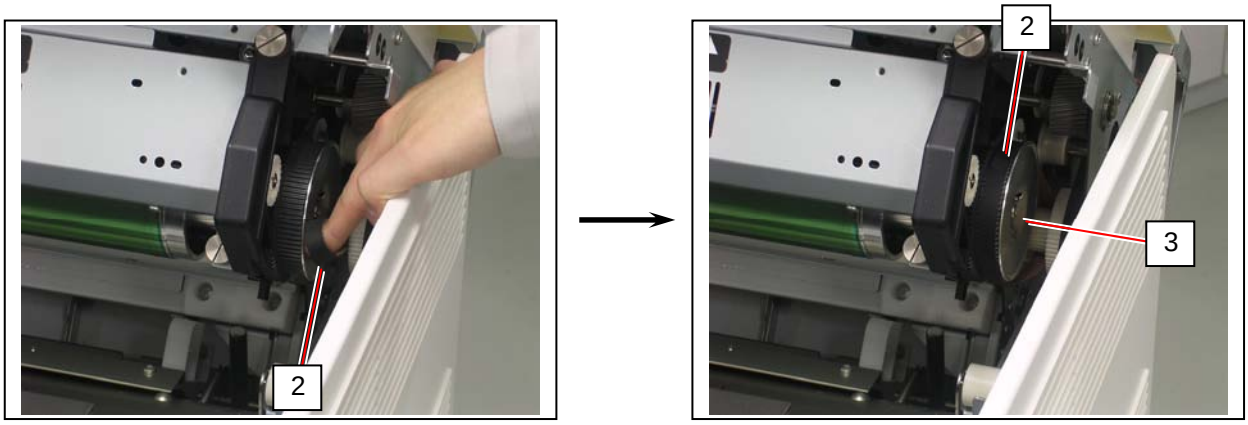


9. Completely push the Process Unit in the machine to be seated in position.
Then secure the thumb screws (4) to fix the Process Unit to the machine.

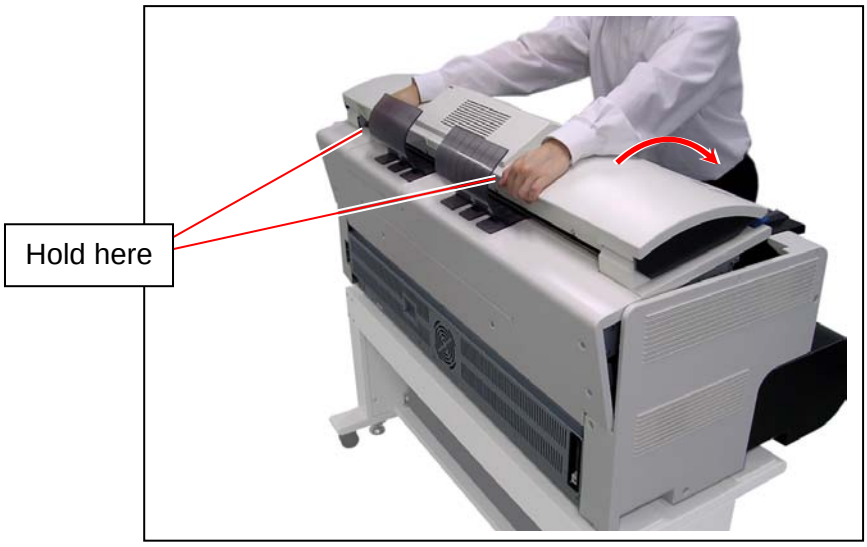


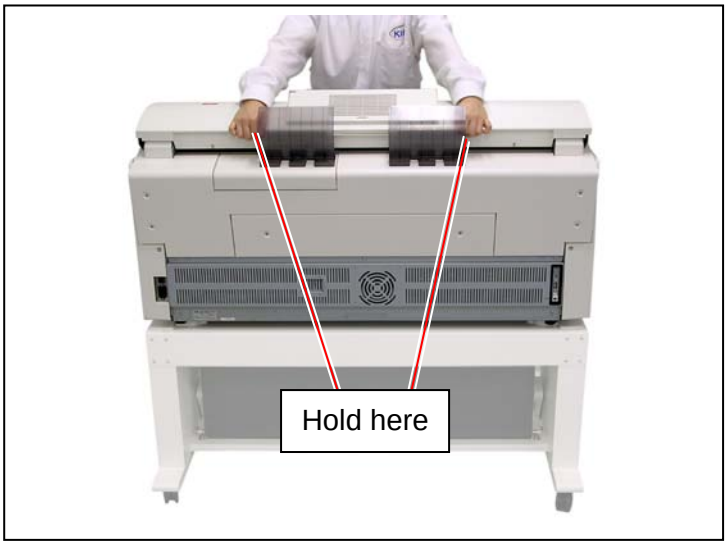


10. Return the belt (2) to the pulley (3).



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.

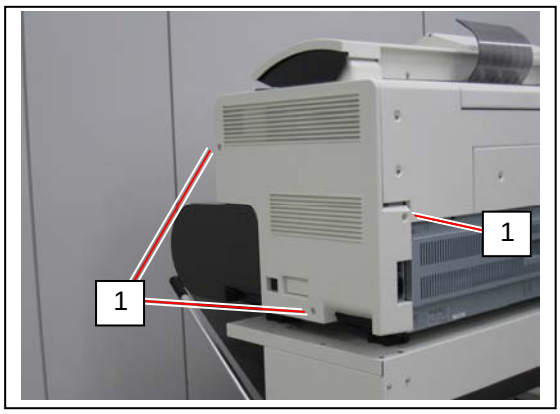


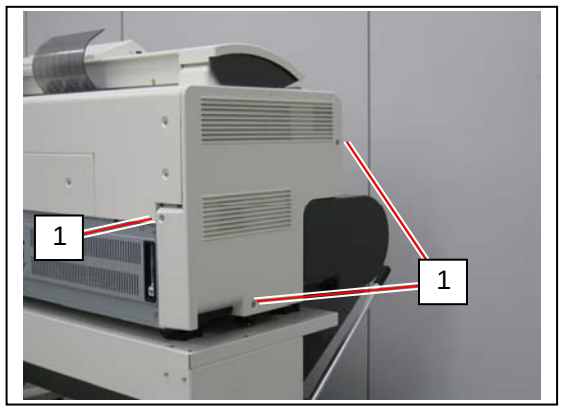


5. 2 Fuser Unit

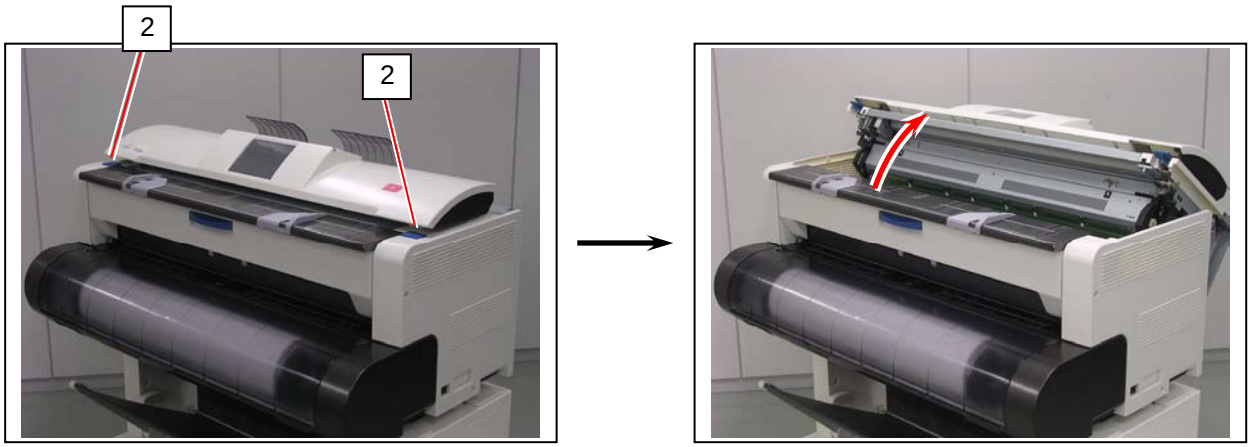
5. 2. 1 Removing Fuser Unit

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

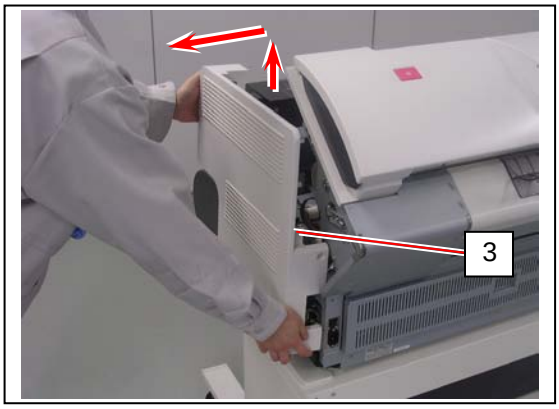


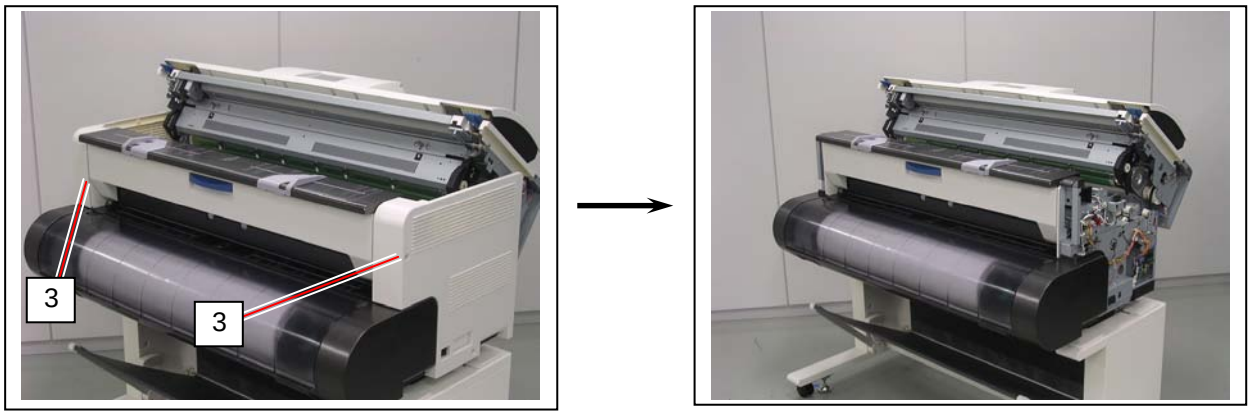


2. Press the blue lever (2) on both sides to open the Upper Unit.

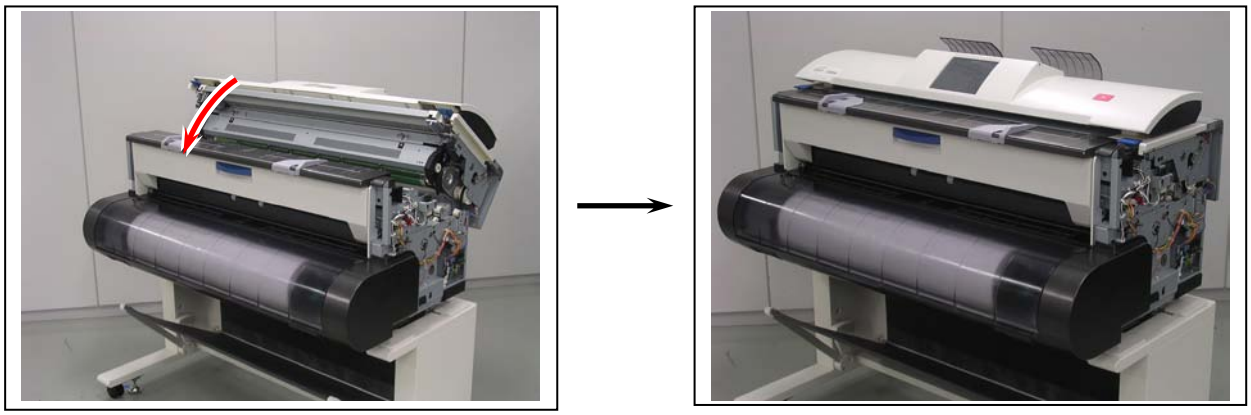


3. Slightly lift Side Cover L / R (3) up to the arrow direction to remove then from the machine.

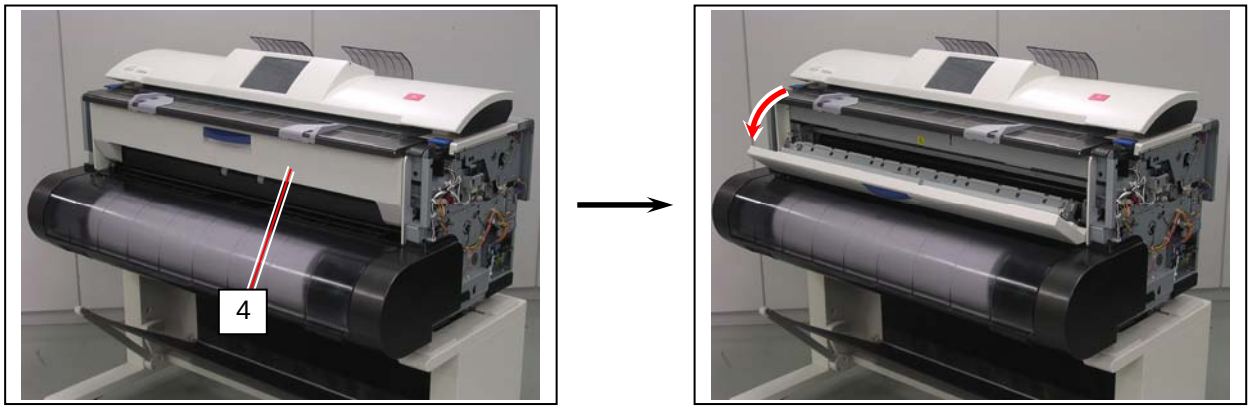




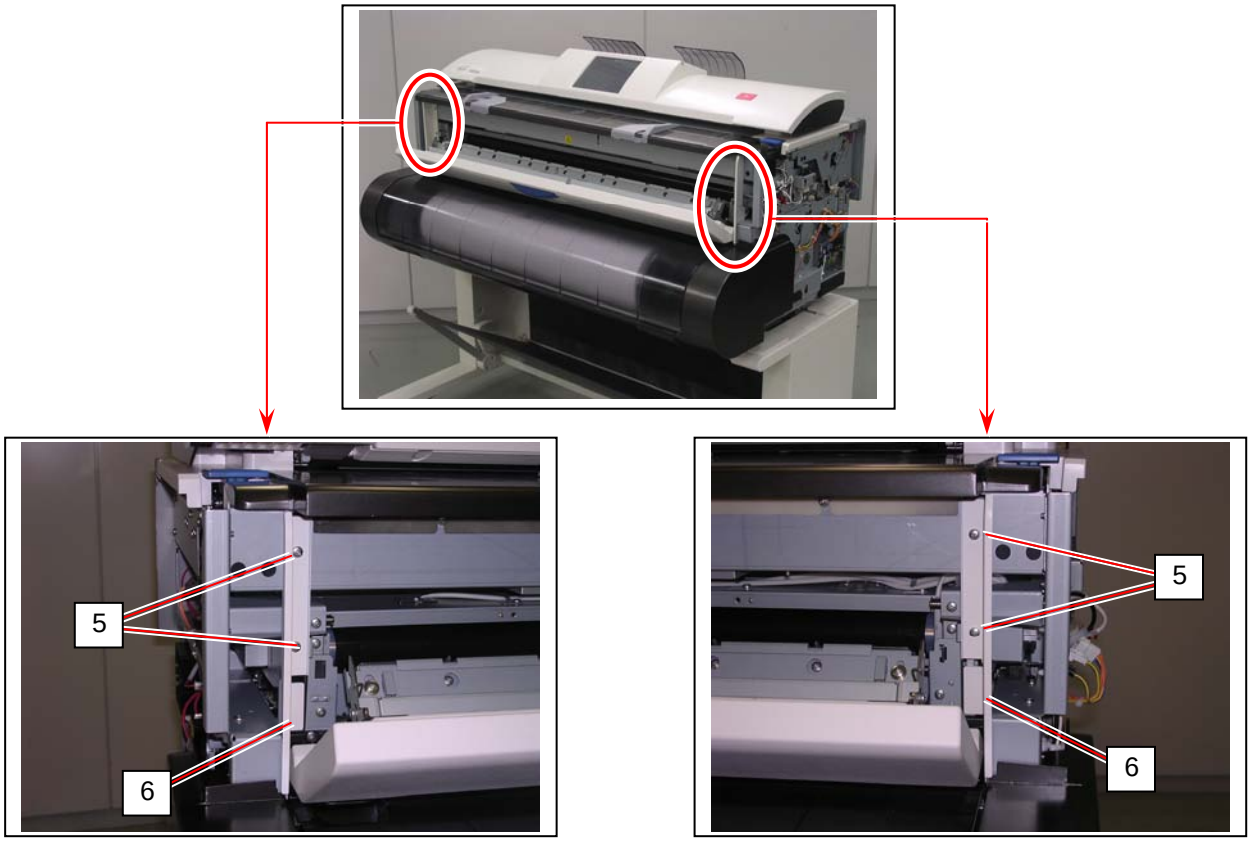
4. Close the Upper Unit.



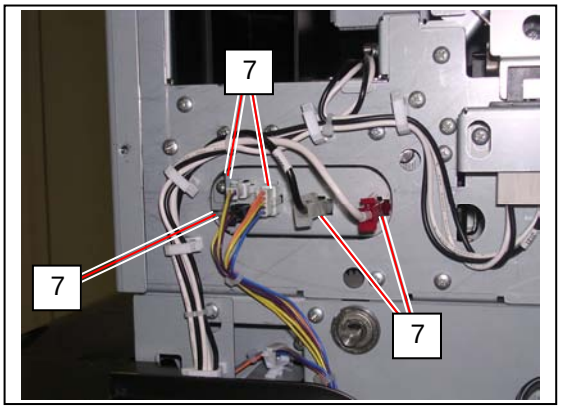
5. Open the Exit Cover (4).



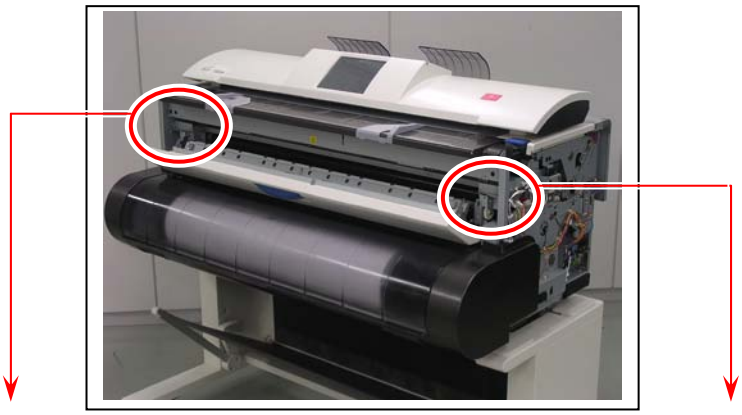
6. Remove 2 screws (5) on each side to remove the face plate R / L (6).



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

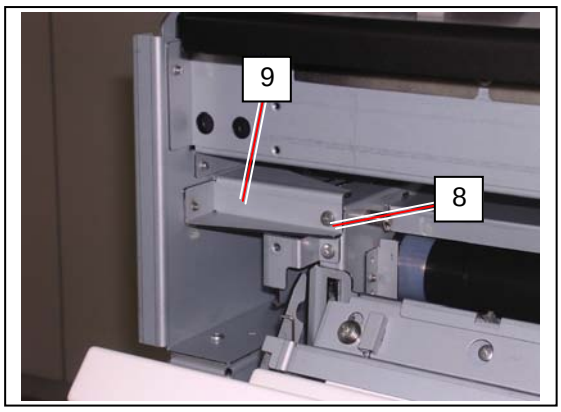


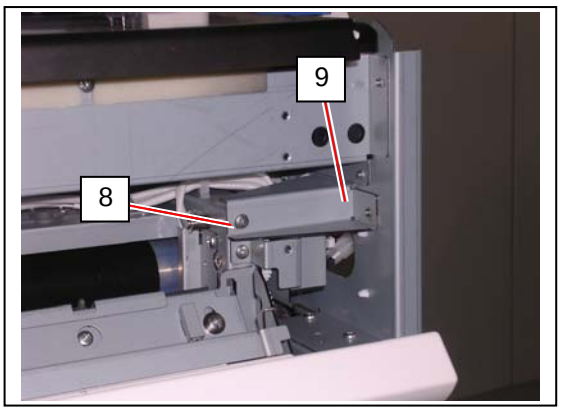
8. Remove 4 screws (8) on each side to remove the Fuser Bracket L / R (9).

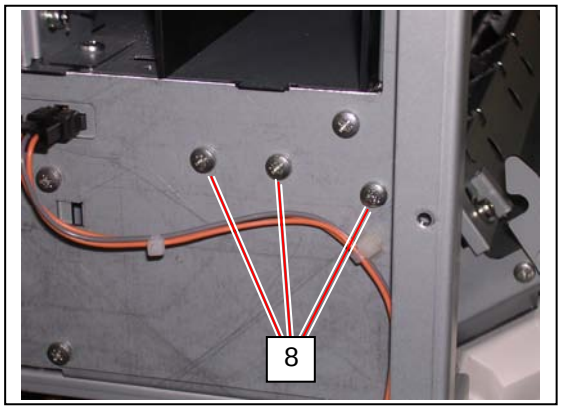


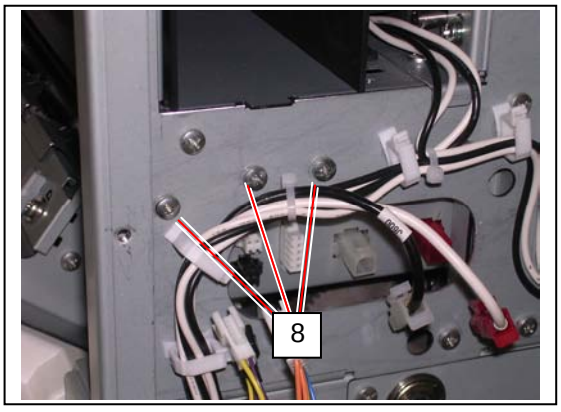
Front Left

Front Right





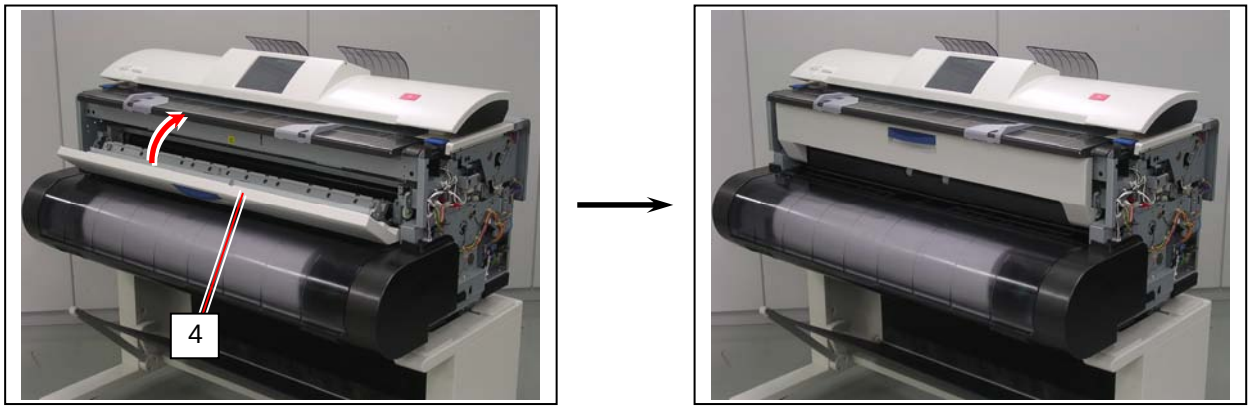




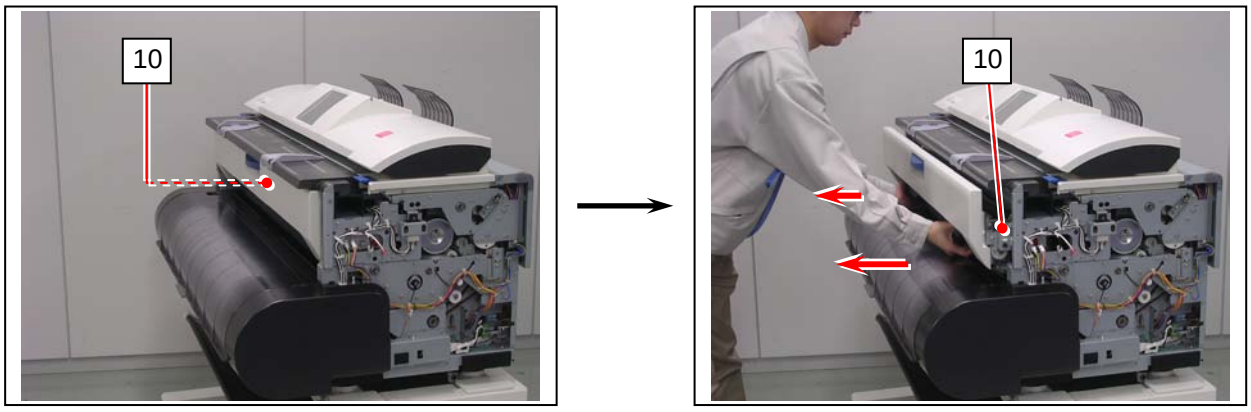
Left Side

Right Side

9. Close the Exit Cover (4).

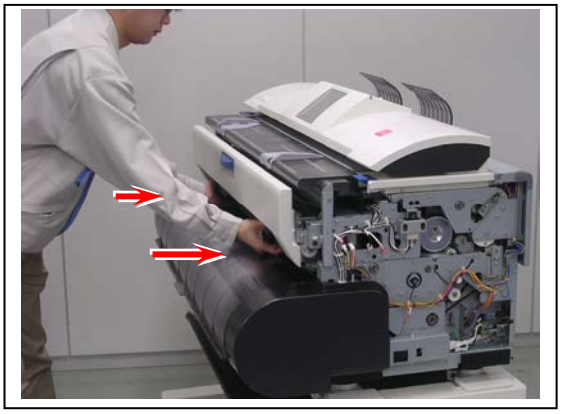


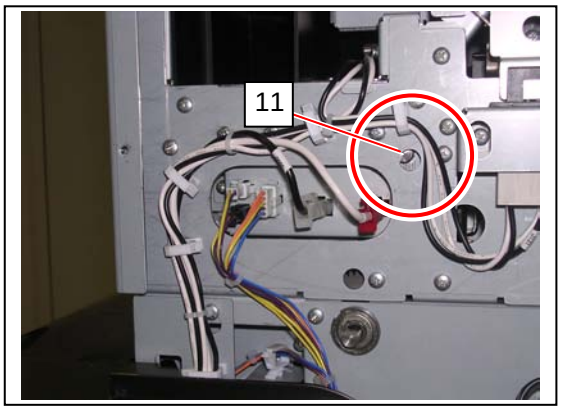
10. Put your hands under the bottom of the Fuser Unit.
Pull and remove the Fuser Unit (10) from the machine.

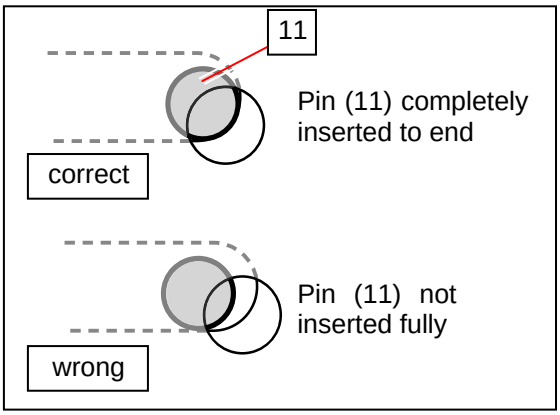


NOTE

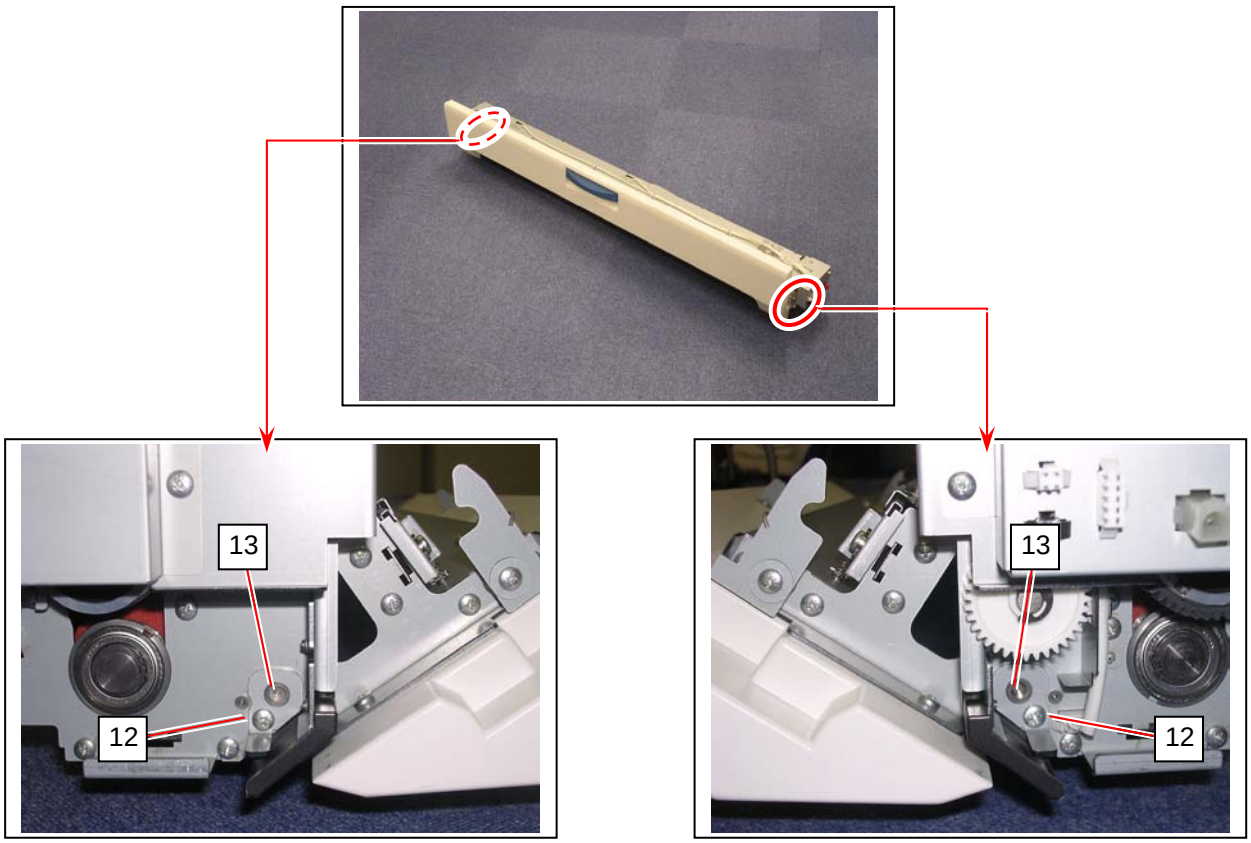
When you remount the Fuser Unit, fully push it in the machine. Check for this by the position of the side pin (11) of the Fuser Unit.



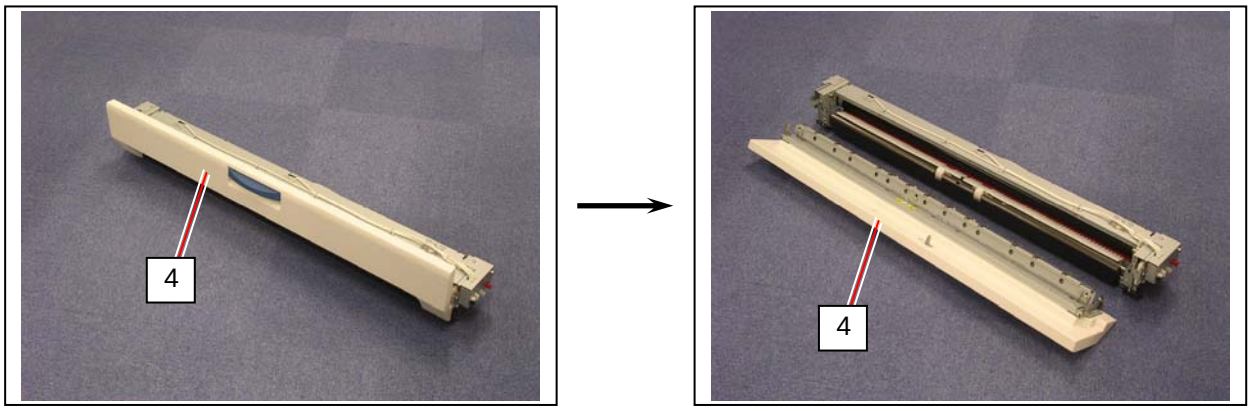




10. Remove 1 screw (12) on each side to remove the hinge plate L / R (13).



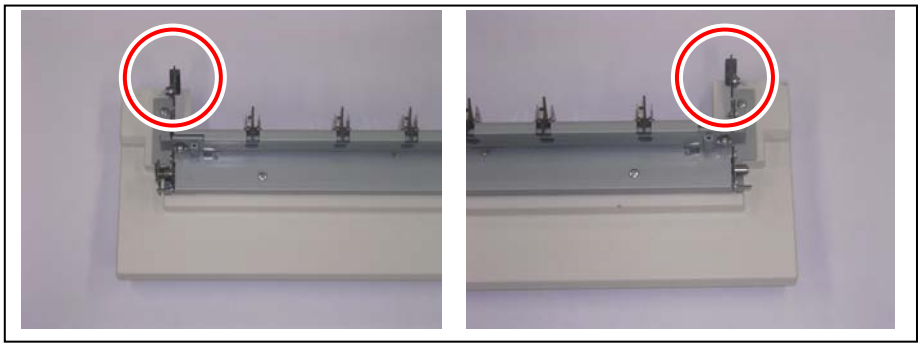
11. Remove the Exit Cover (4) from the Fuser Unit.

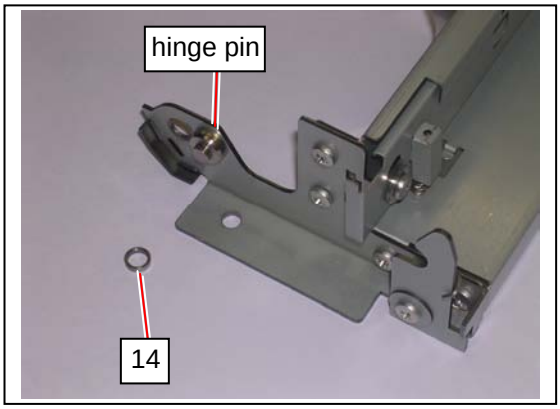


(Continued on the next page)

NOTE

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



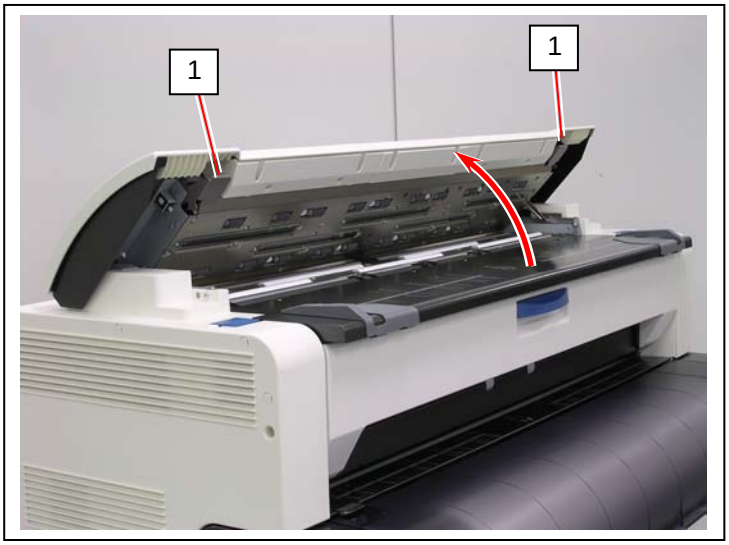


5. 3 Scanner Unit

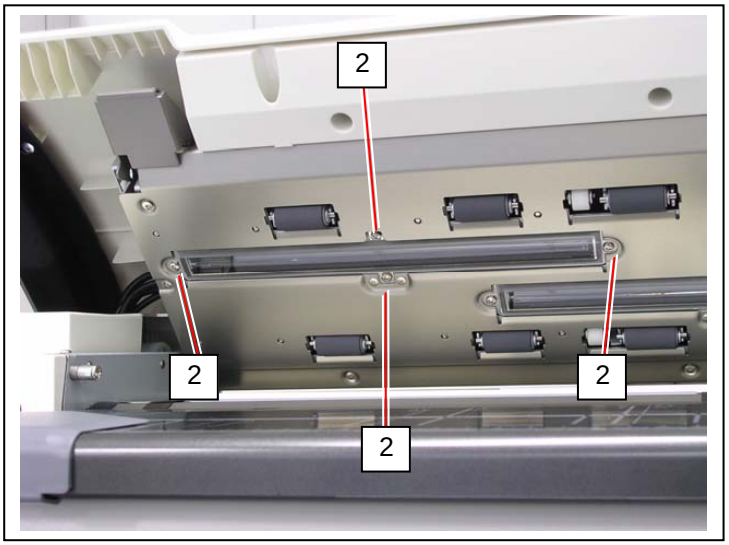
This section describes the procedure of replacing the individual components of the Scanner Unit.

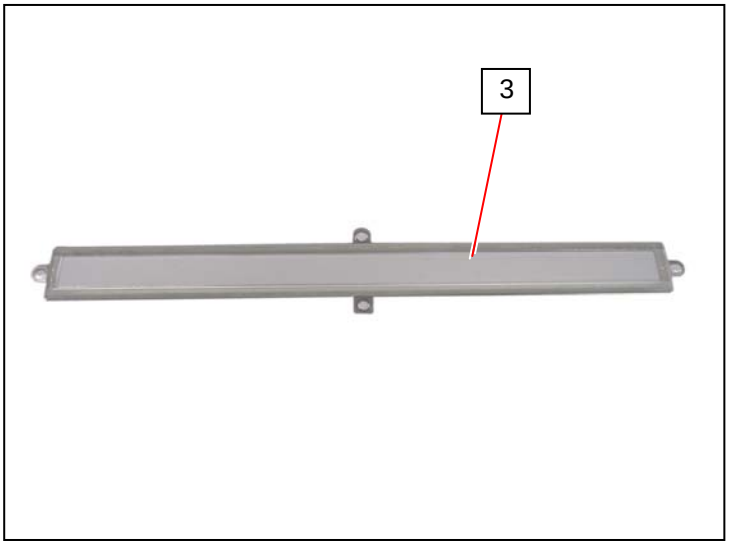
5. 3. 1 Scan Glass Assy

1. On both sides, pull the levers (1) to unlock the Scanner Unit. Open the Scanner Unit.



2. Remove 4 screws (2) to replace Scan Glass Assy (3).





5. 3. 2 CIS

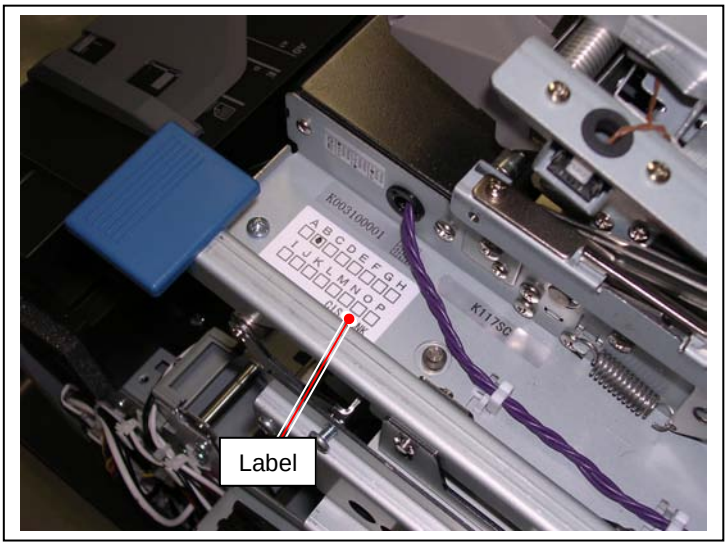
NOTE

A CIS is divided into several classes according to wavelength variations of their LED.

All the 5 pieces of CIS on a certain Scanner Unit should be in the same class to assure even image quality (brightness, color quality and etc) among image blocks.

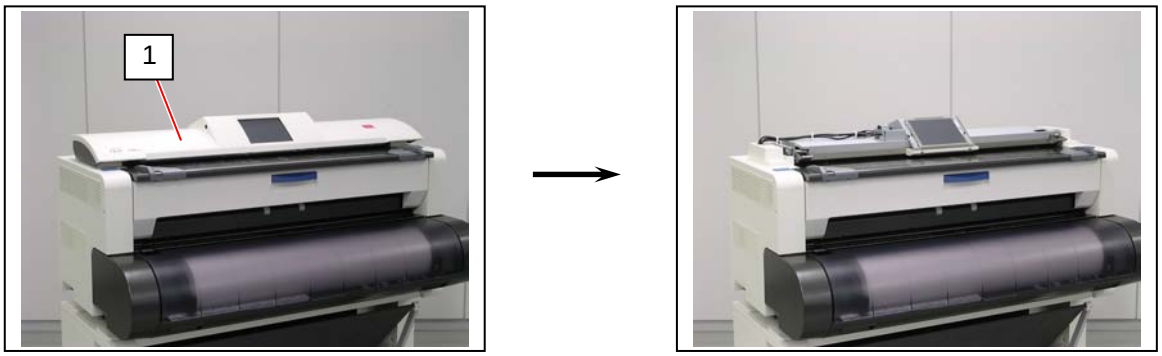
Be sure to check which CIS class is used to the scanner before replacing to avoid class mixing. Otherwise even image quality can not be expected.

Equipped CIS class can be identified with the label on the rear of the Scanner Unit.

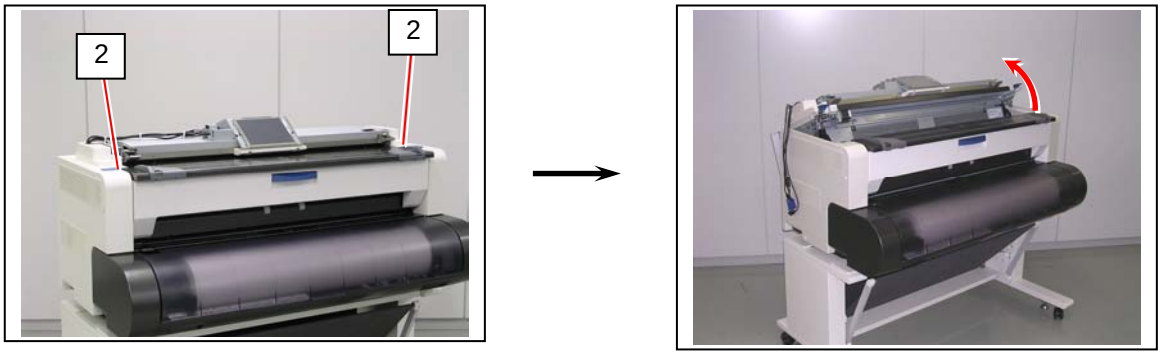


(simplified procedure to check CIS class)

1. Remove Scanner Top Cover (1).



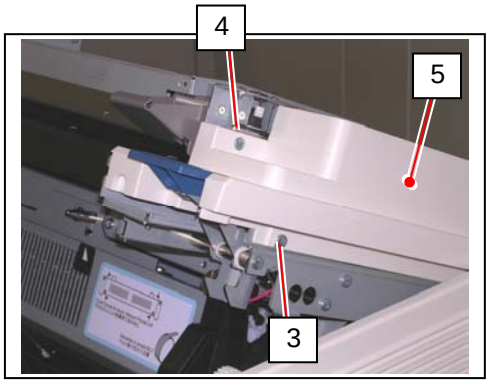
2. Push the blue levers (2) to open the Upper Unit.



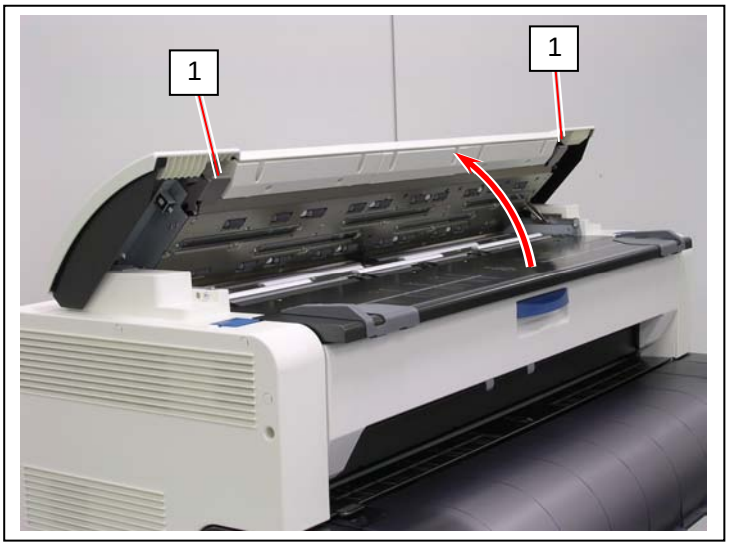
(continued on the next page)

NOTE (cont.)

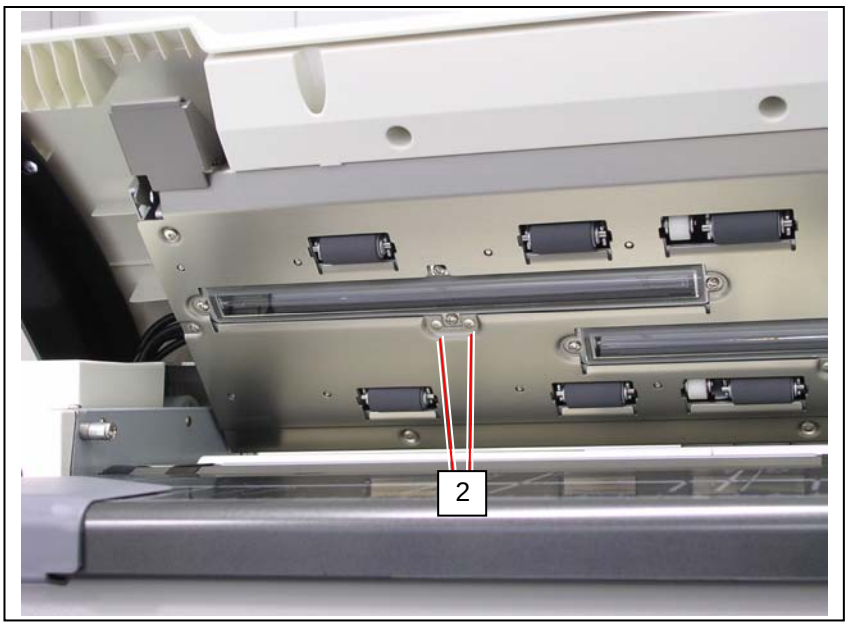
3. Loosen 1 screw (3) and remove 1 screw (4) to remove the plastic cover (5).



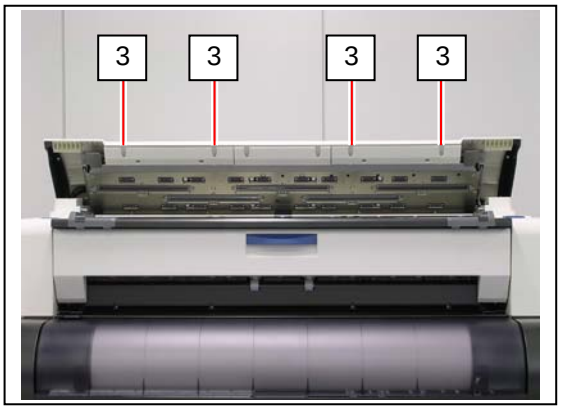
1. On both sides, pull the levers (1) to unlock the Scanner Unit. Open the Scanner Unit.



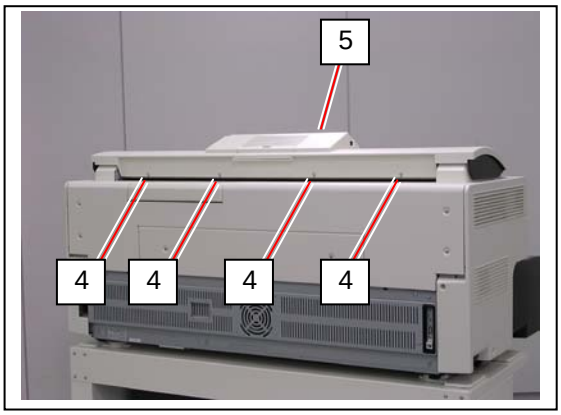
2. On a CIS to be replaced, remove 2 small screws (2) with a sharp screwdriver.



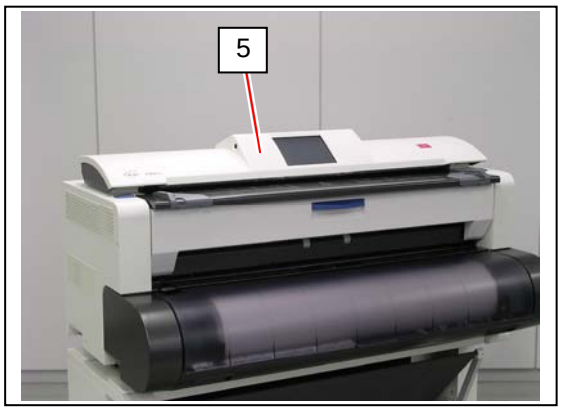
3. Remove 4 screws (3) on the front.



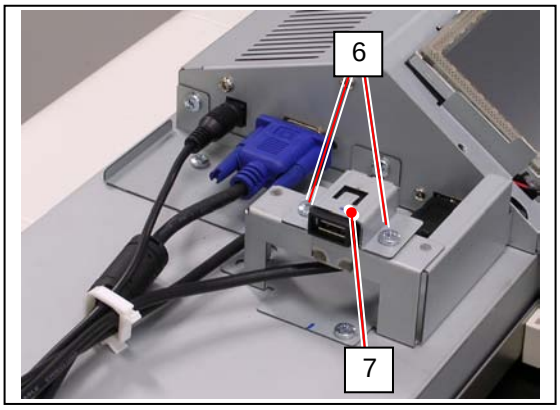
4. Close the Scanner Unit. Loosen 4 screws (4) to release Scanner Top Cover (5).



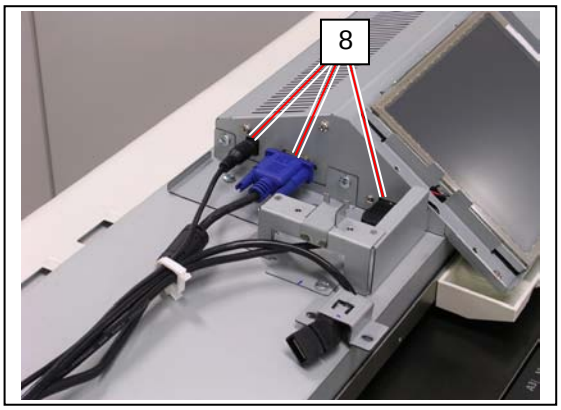
5. Remove Scanner Top Cover (5) from the Scanner Unit.



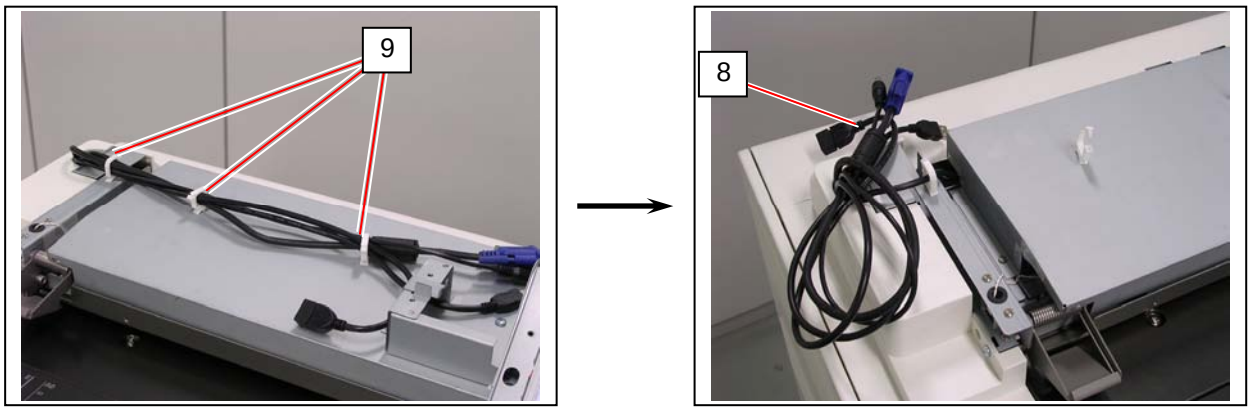
6. Remove 2 screws (6) to remove USB Cable Bracket (7).



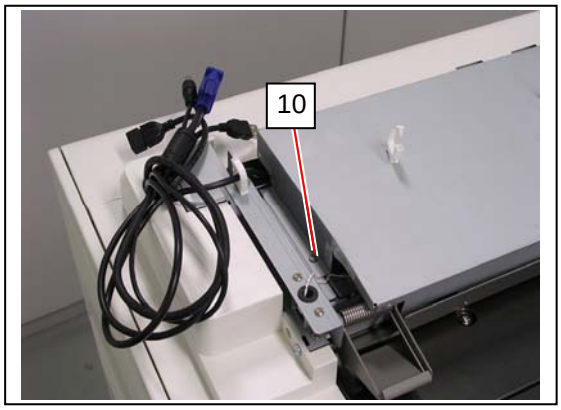
7. Disconnect 3 cables (8) from the touchscreen connector.

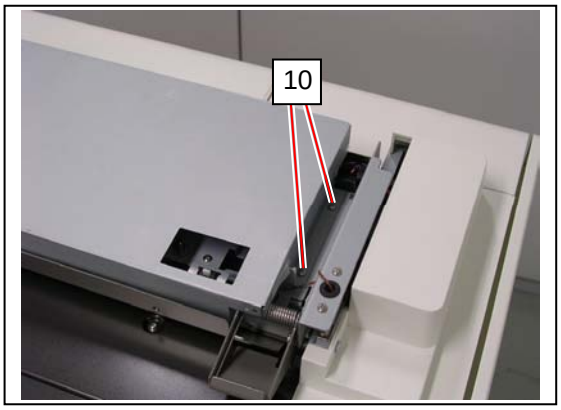


8. Open 3 wire saddles (9) to release all the cables (8) .

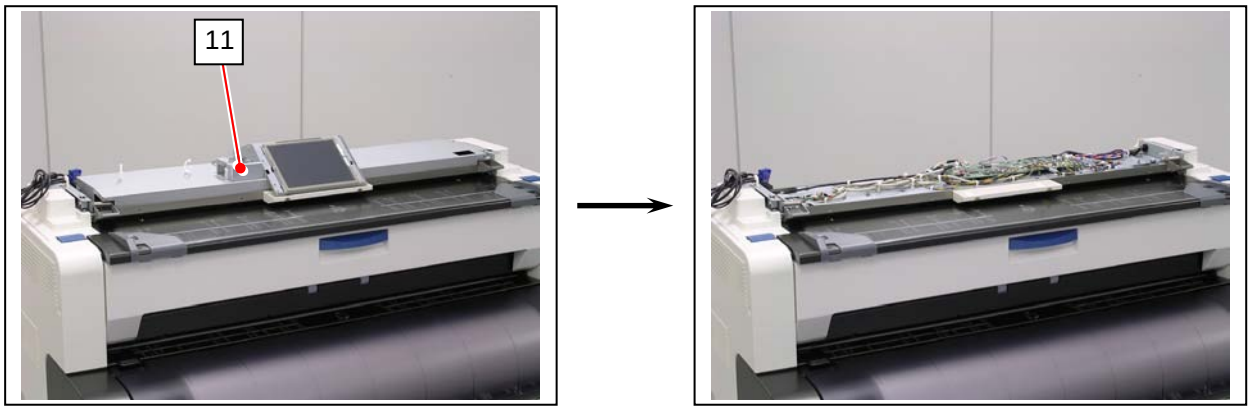


9. Remove 3 screws (10: M3x6).

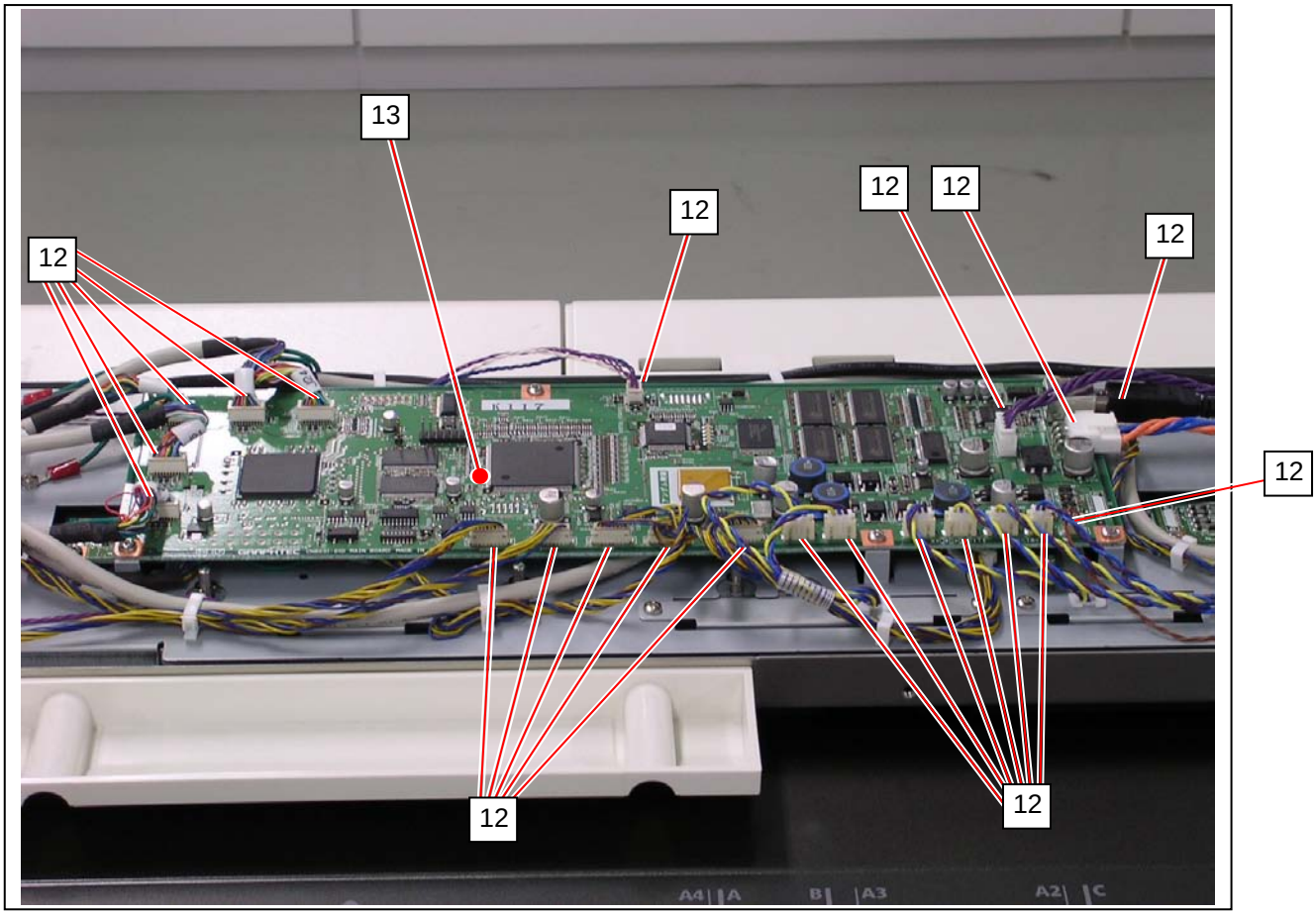




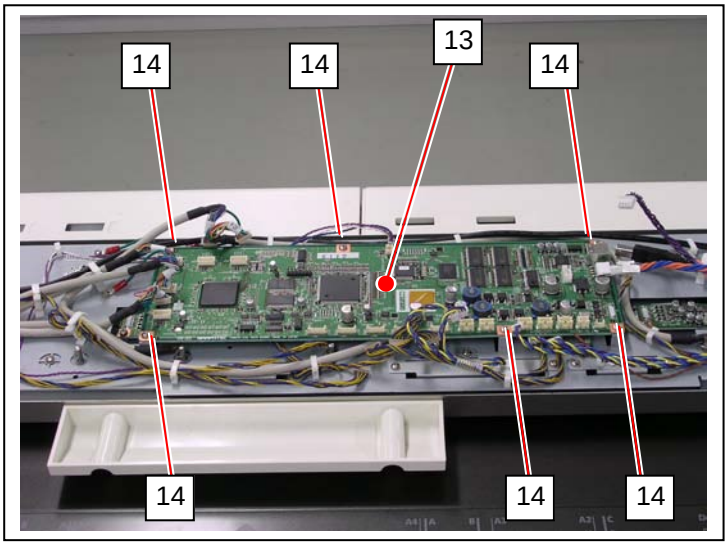
10. Remove Scanner Inner Plate (11).

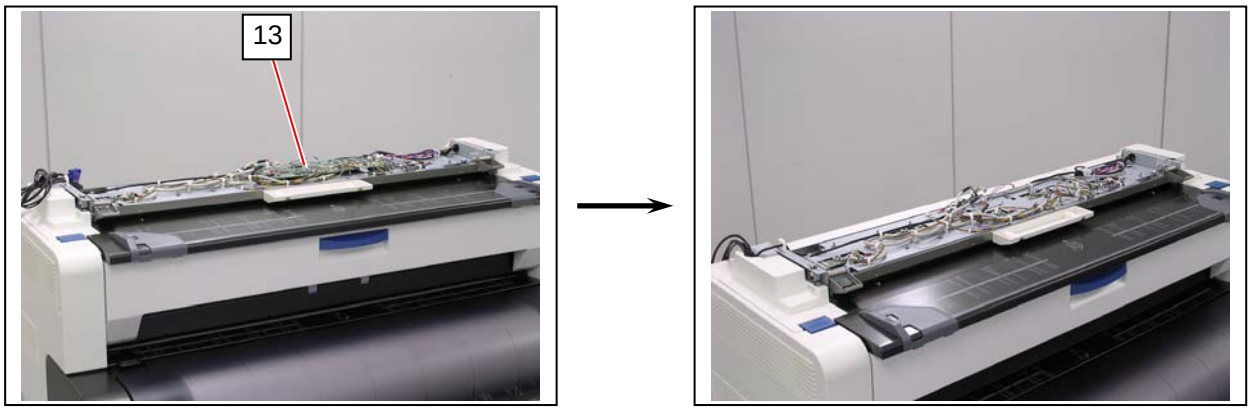


11. Remove all the connectors (12) from Main Board (13).

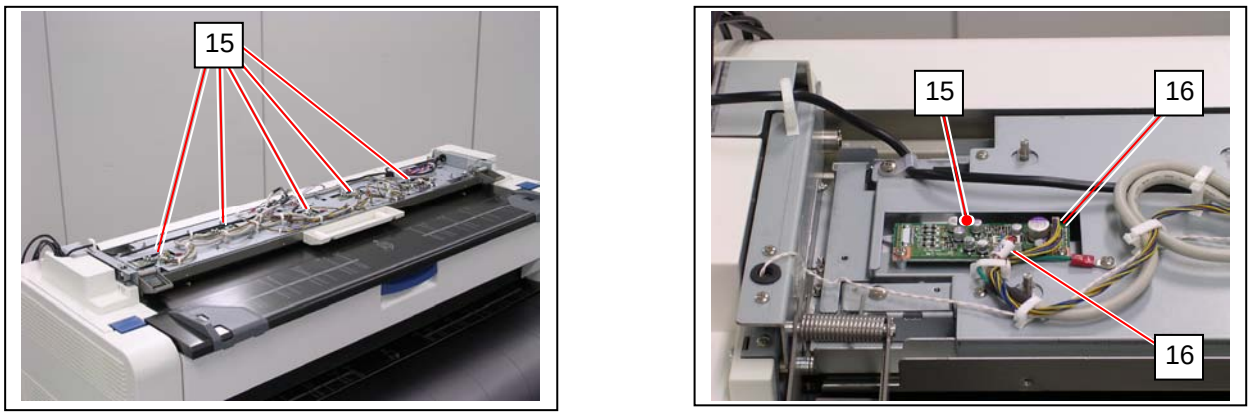


12. Remove 6 screws (14) to remove Main Board (13).

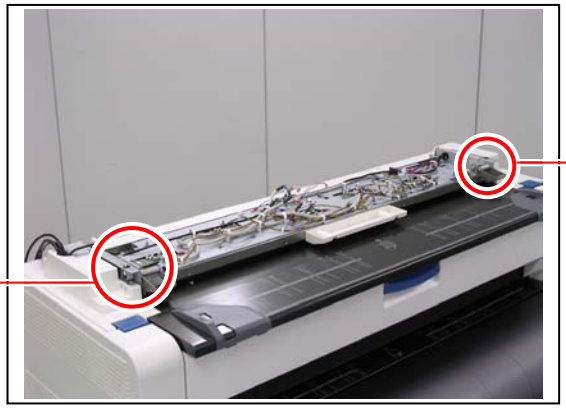


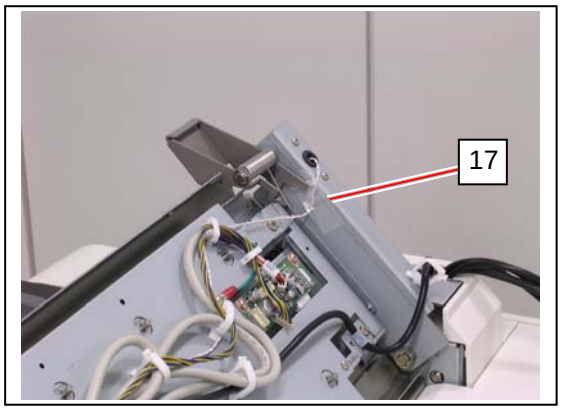


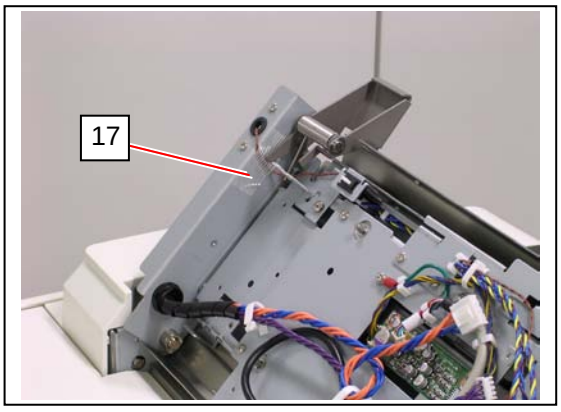
13. On all CIS Boards (15), remove 2 harnesses (16)



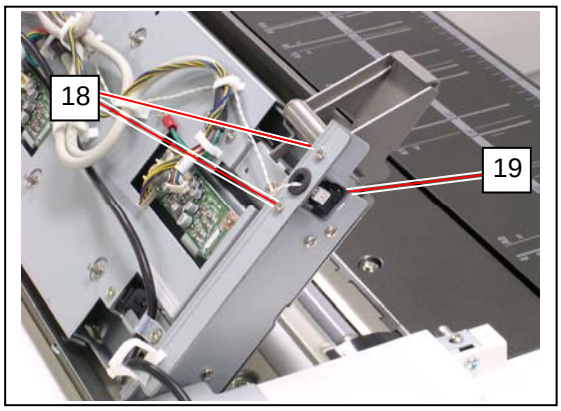
14. Open the Scanner Unit. On both sides, remove the tapes (17) to release the white / brown harness.

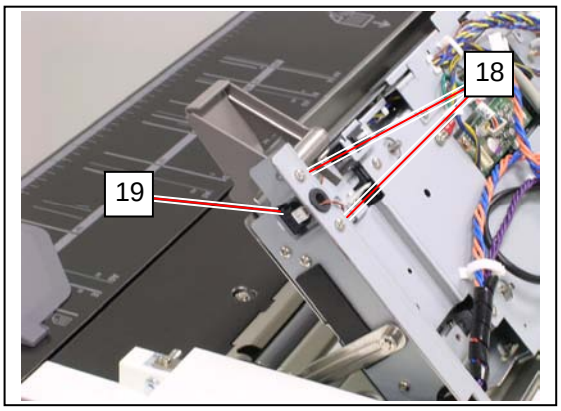




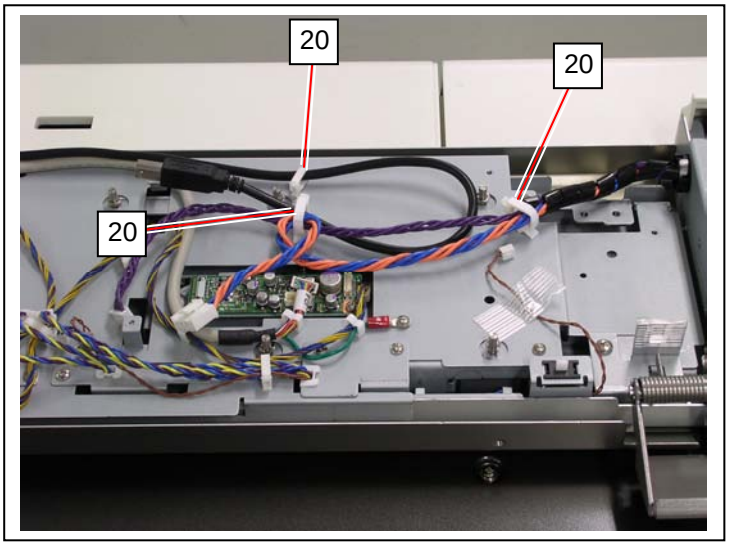


15. Remove 4 screws (18) and the harness to remove Switch Bracket R / L (19).

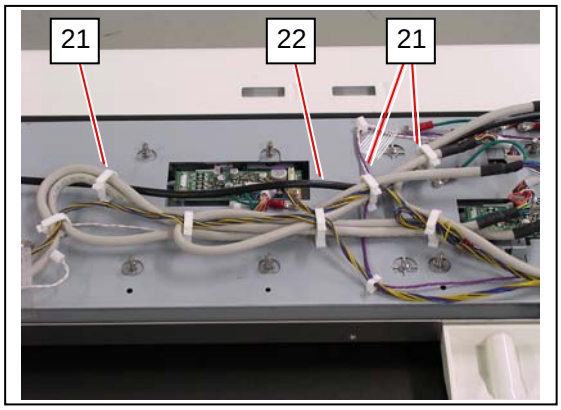


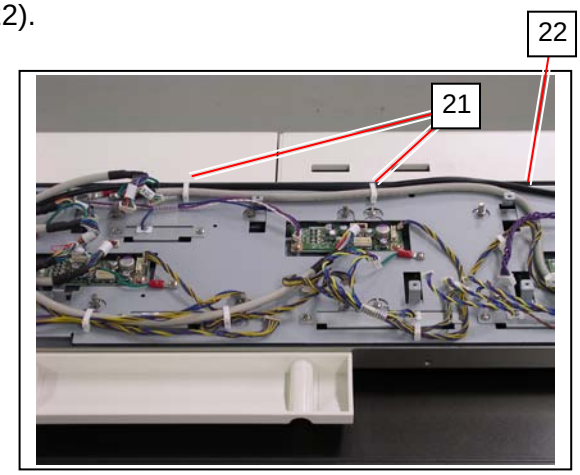


16. Close the Scanner Unit. Open 3 wire saddles (20) to release the harnesses.

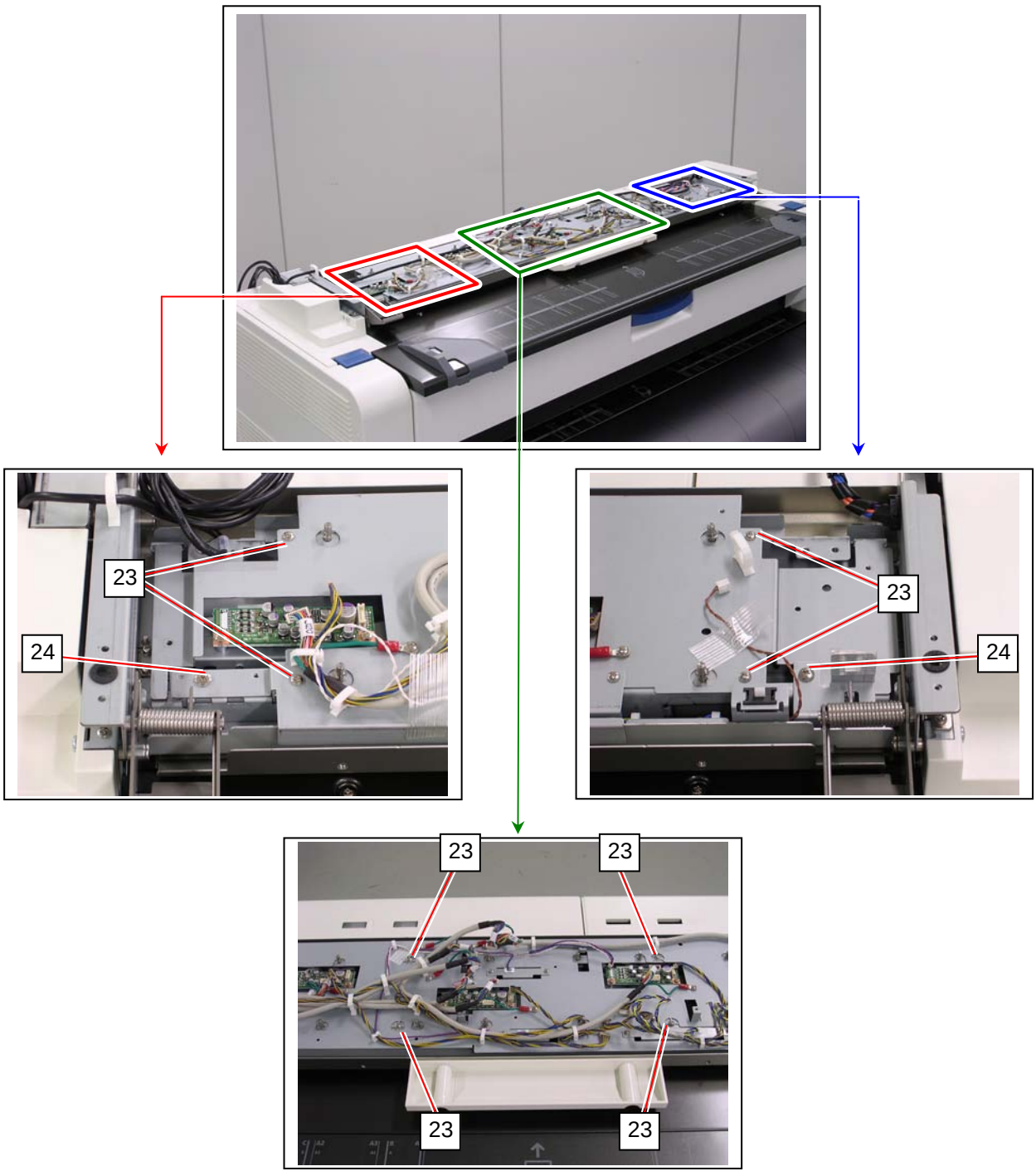


17. Open 5 wire saddles (21) to release USB Cable (22).

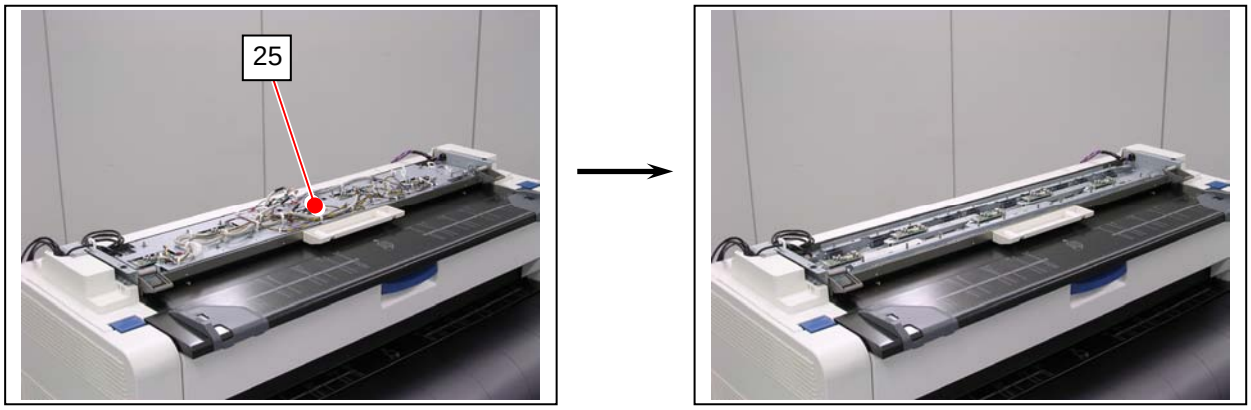


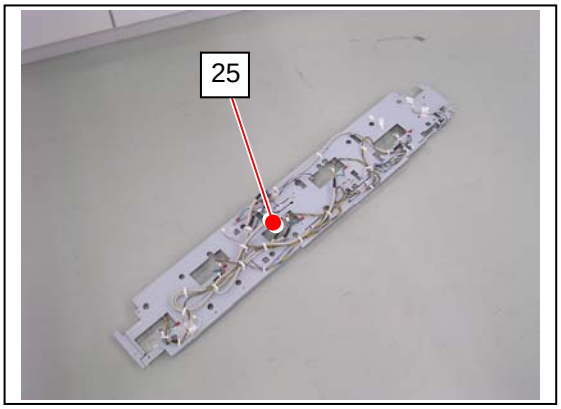


18. Remove 9 screws (23, M3x6) and 2 screws (24, M4x6).

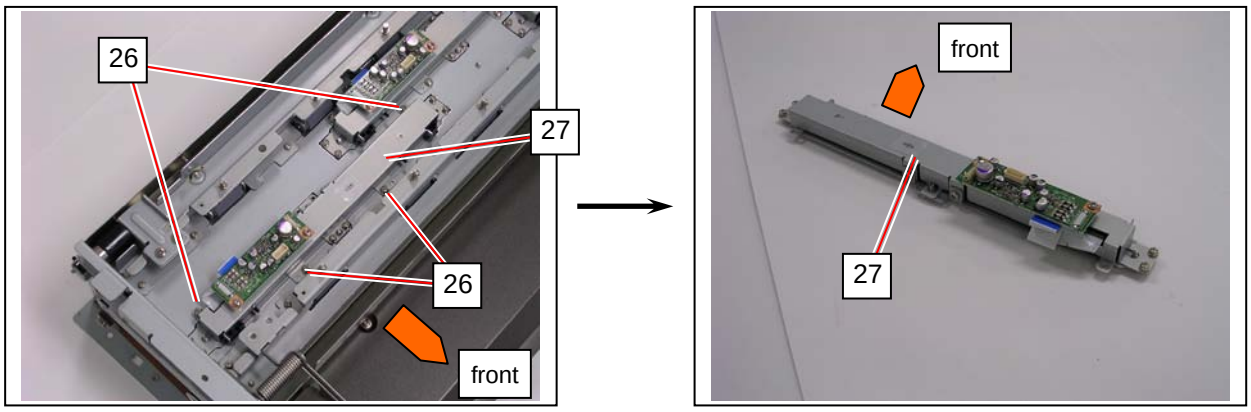


19. Remove the Base Plate (25).





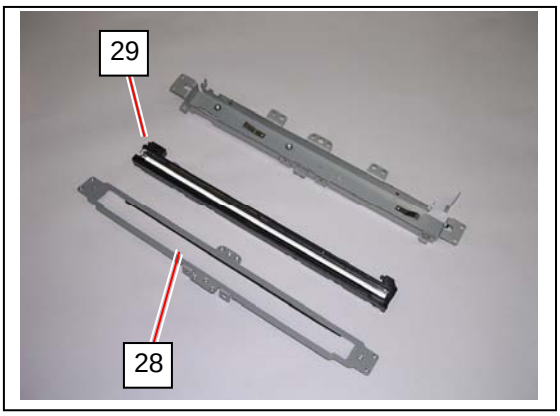
20. Remove 4 screws (26, M3x4 w/ TW) to remove the concerning CIS Bracket (27).



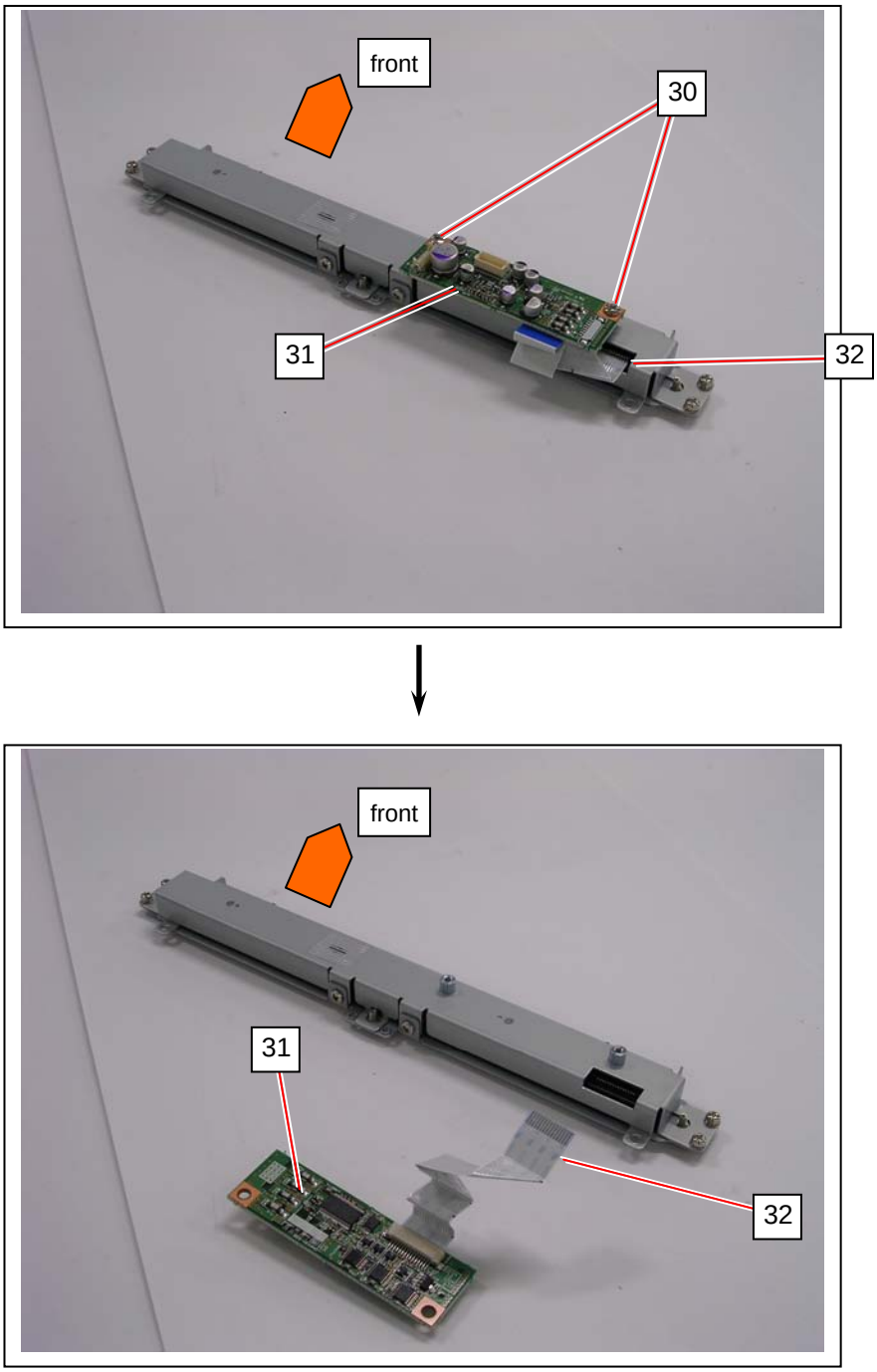
NOTE

Place CIS Bracket on a soft cloth or anything to avoid damage on the Scan Glass Assy (28).

If you remove the Scan Glass Assy just in case, still you should prepare such to avoid damage on the sensor array of the CIS (29).



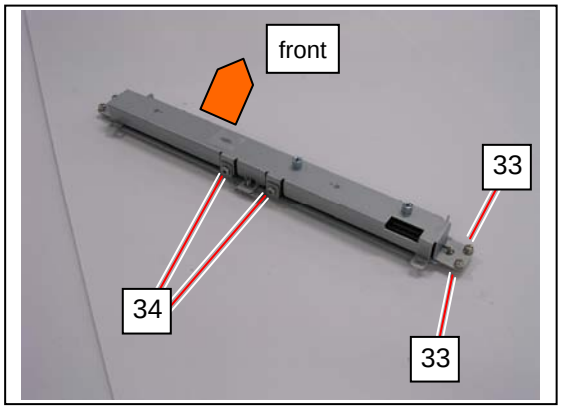
21. Remove 2 screws (30) to release CIS Board (31).
Carefully remove the flat cable (32) from CIS.

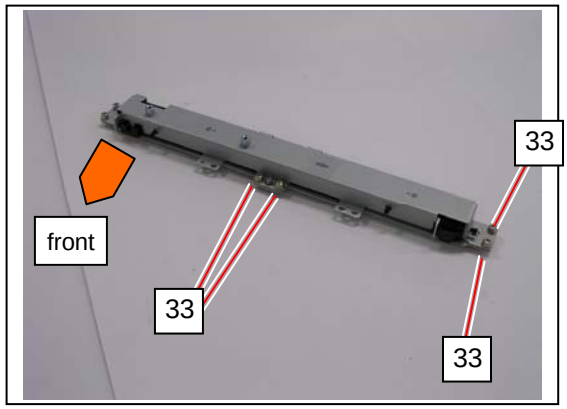


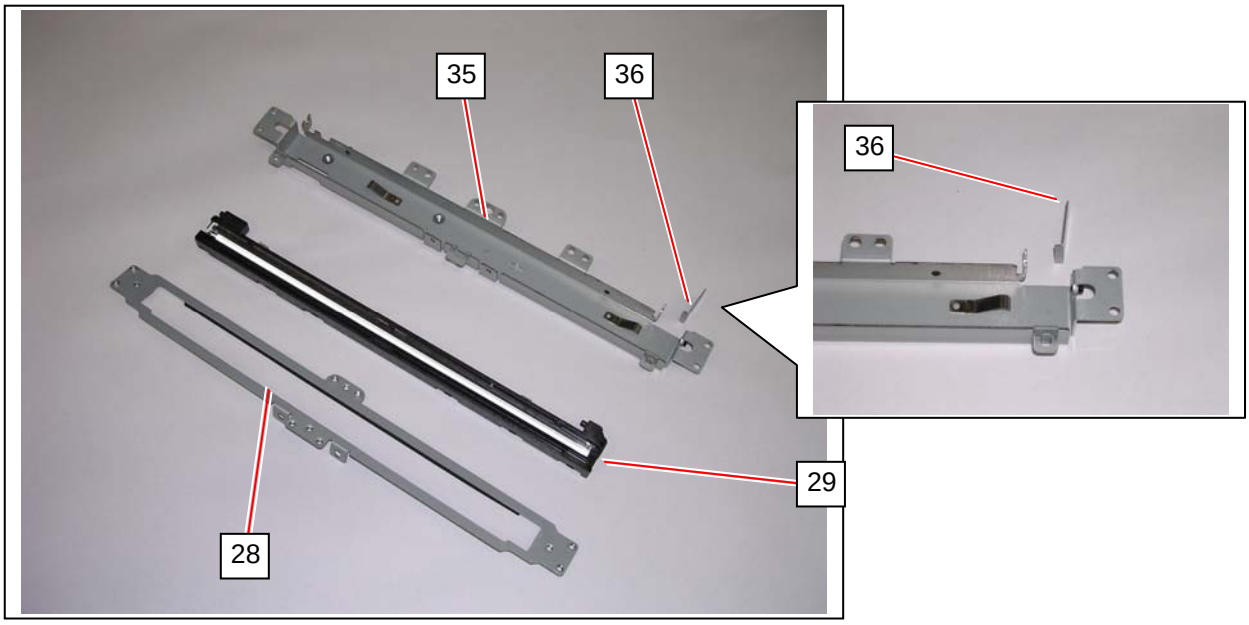
NOTE

When reassembling, gently insert Flat Cable (32) all the way in the terminal on the CIS. Inserting incorrectly would lead abnormal scan image.
FRAGILE. Handle Flat Cable with great care.

22. Remove 6 screws (33: M3x4 w/ SW) and 2 screws (34: M3x4) disassemble the CIS Unit.
    - upper bracket (35)
    - small spacer (36)
    - CIS (29)
    - lower bracket with Scan Glass Assy (28)



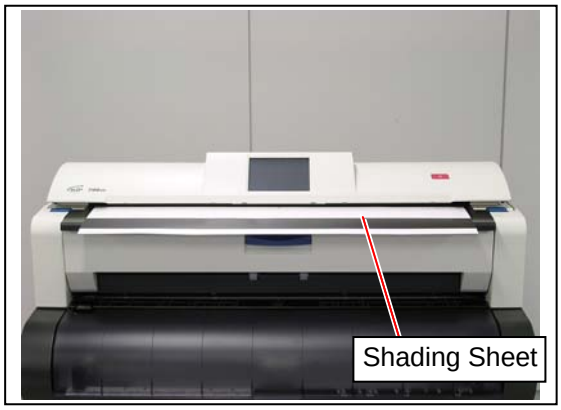


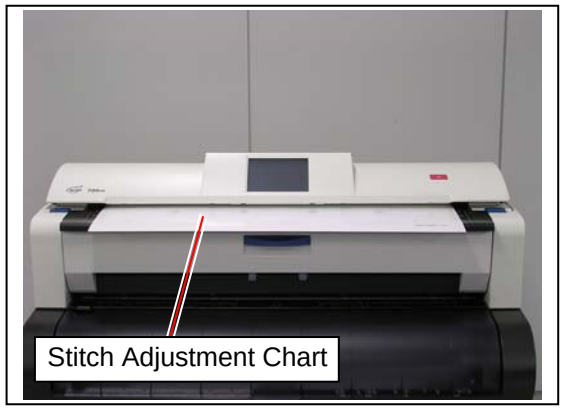


23. Replace CIS with a new one.

24. Return all the parts in position.

25. Perform the scanner calibration. See [8.13.4 Scanner Utility].
    This is a must!





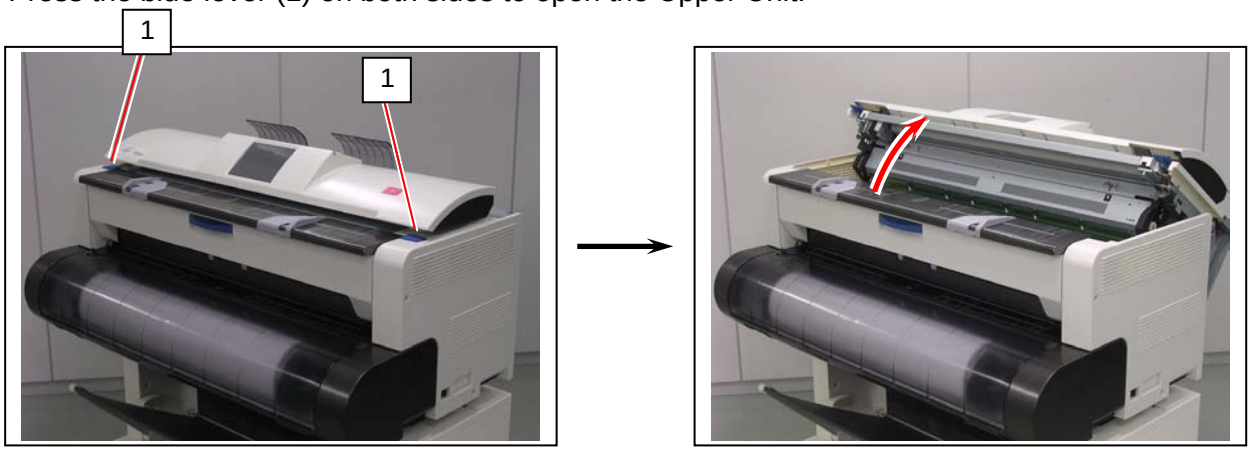
5. 4 LED Head Unit

5. 4. 1 Replacing LED Head Unit

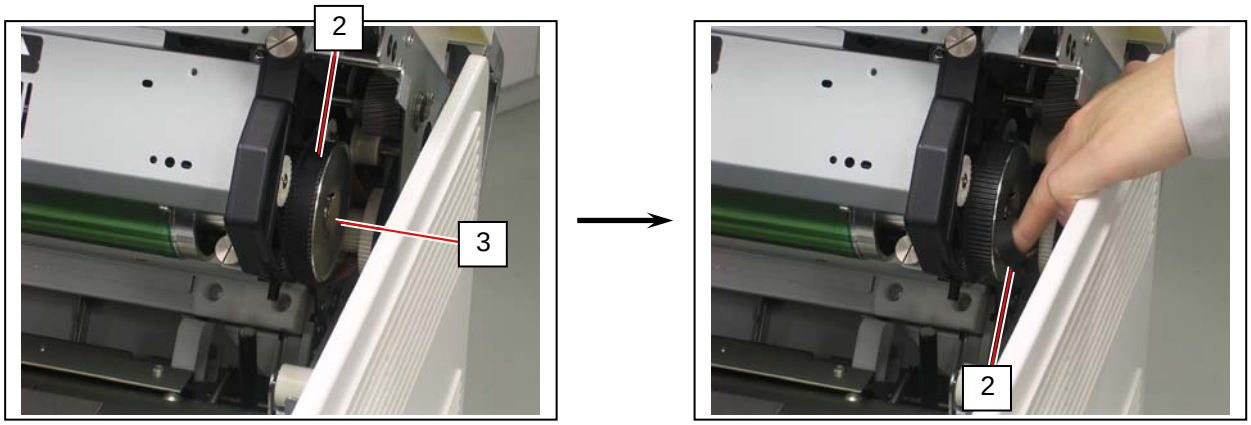
Reference

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

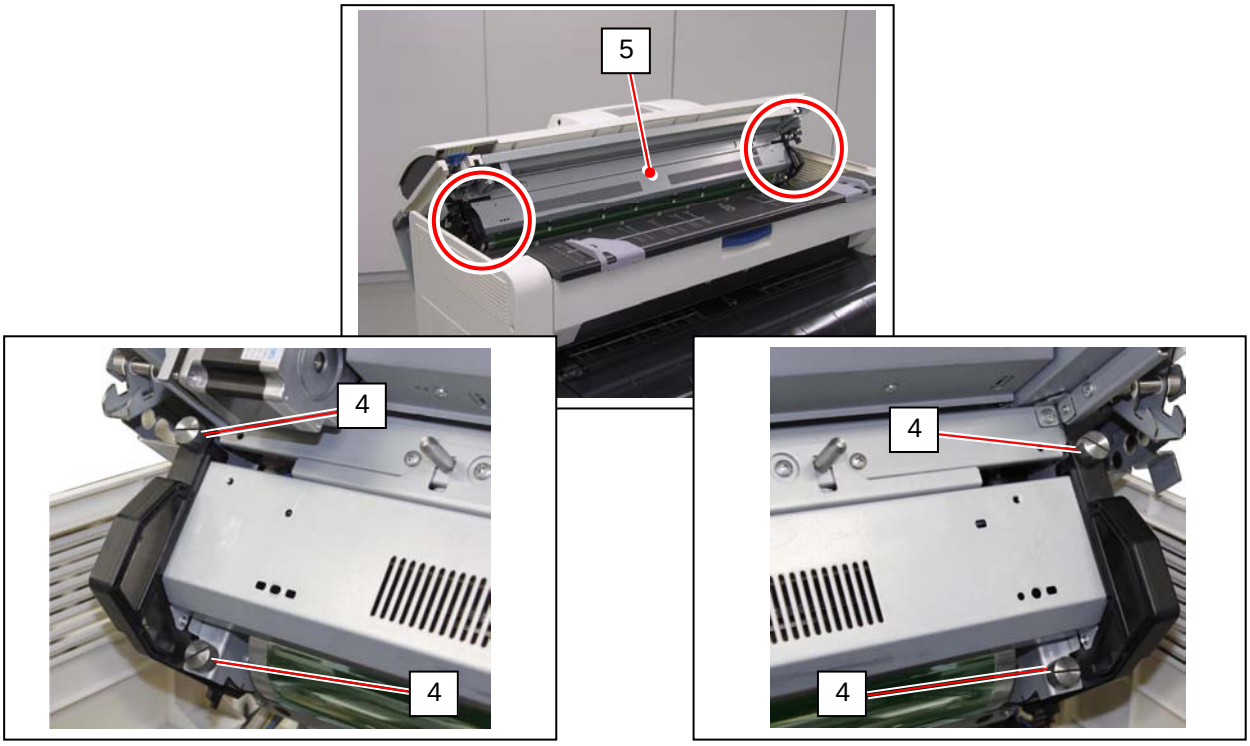
1. Press the blue lever (1) on both sides to open the Upper Unit.



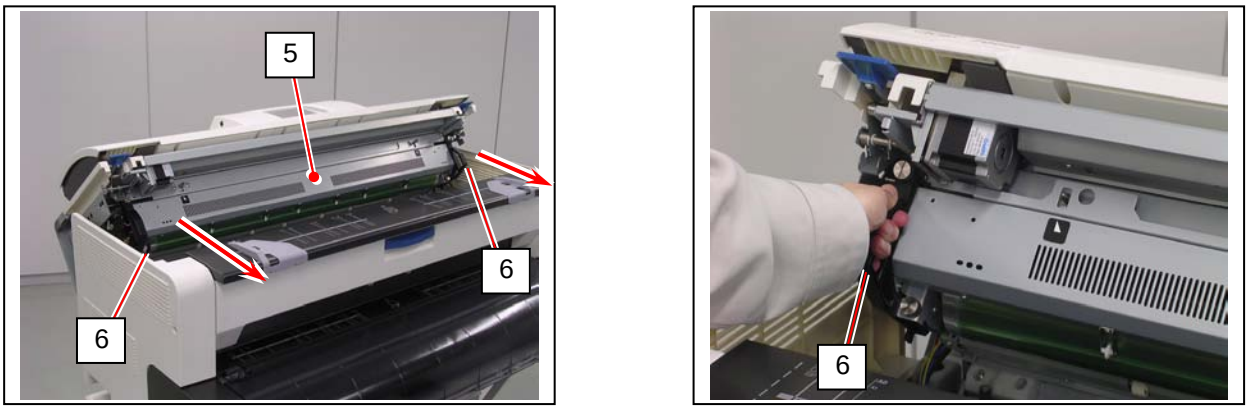
2. Release the belt (2) from the pulley (3).



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

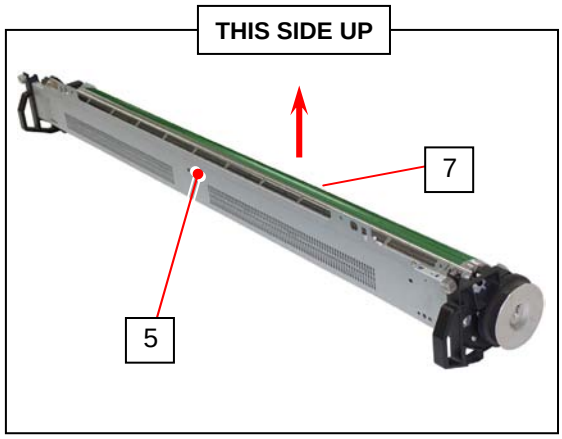


4. Hold the handgrip (6) on both sides. Pull the Process Unit (5) to the arrow direction to remove it from the machine.



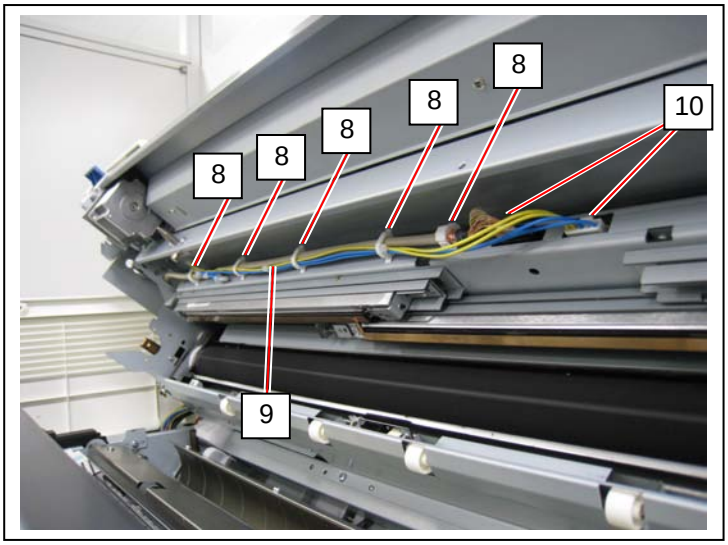
NOTE

(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).

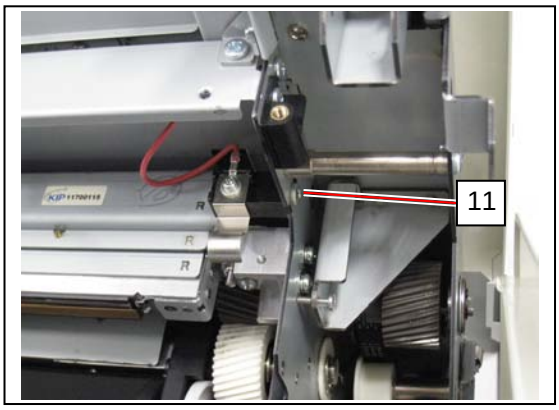


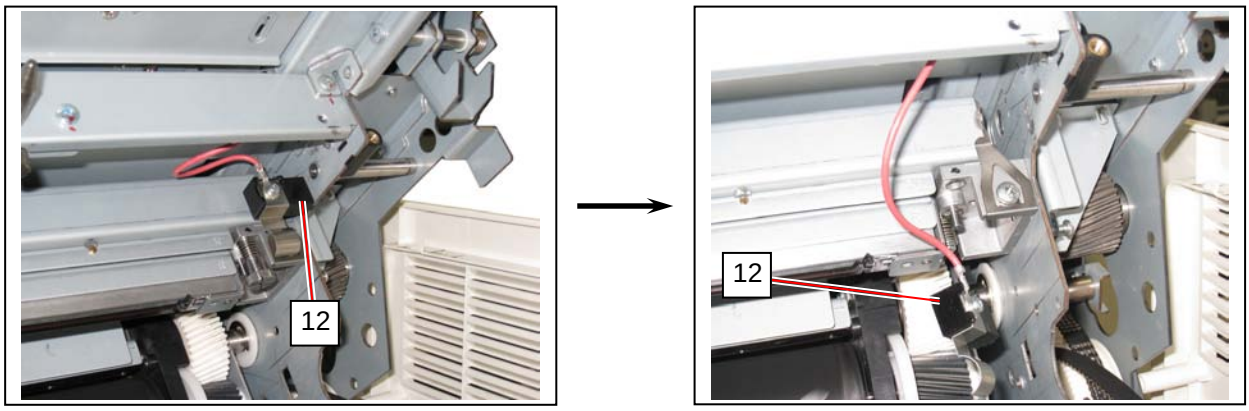
(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.
- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process Unit with a piece of plain bond roll paper.

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

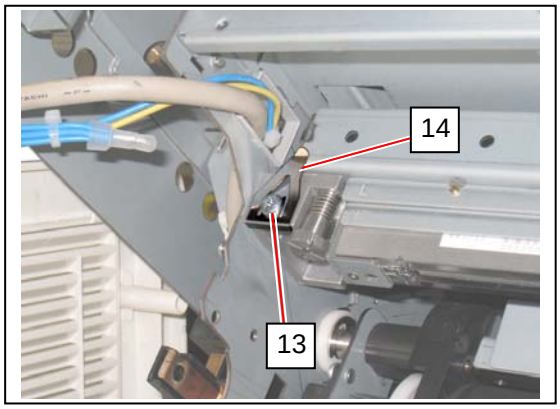


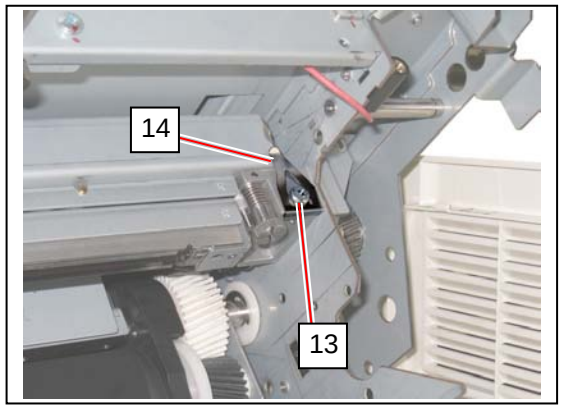
6. On the right side, remove 1 screw (11) to release the bias terminal for Image Corona (12).





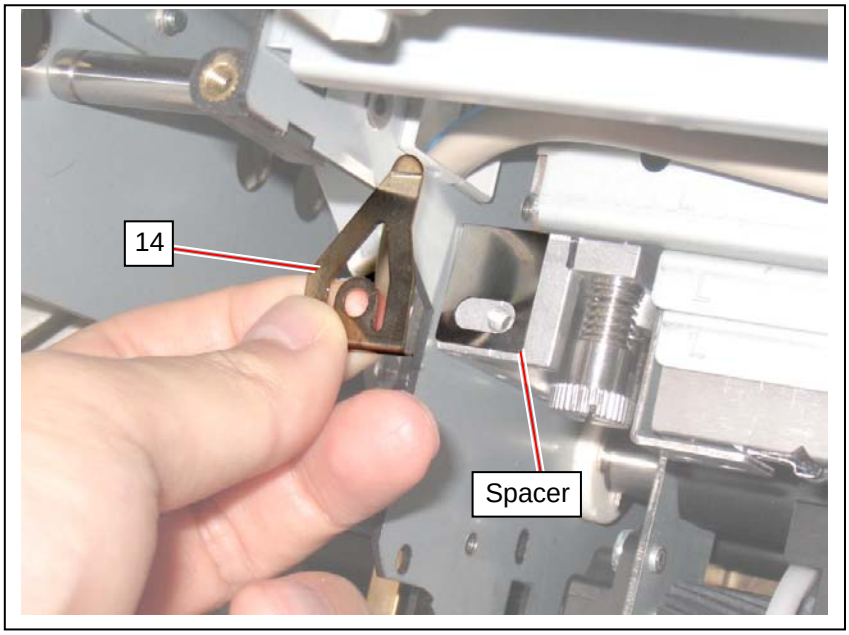
7. On the both sides, remove 1 screw each (13) to remove Spring Plates (14).



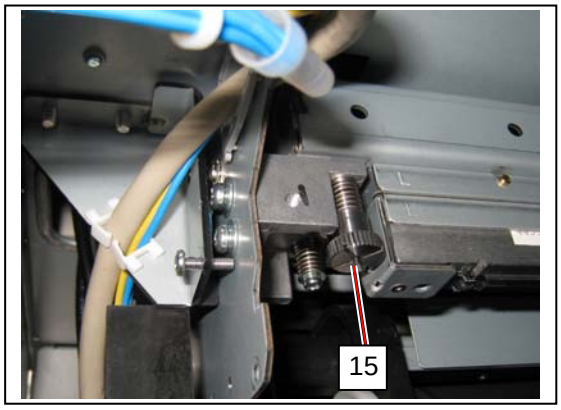


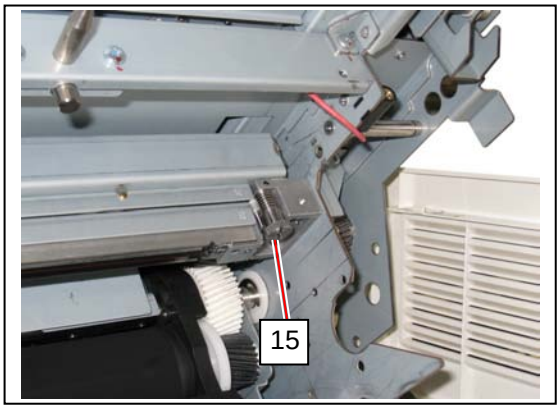
NOTE

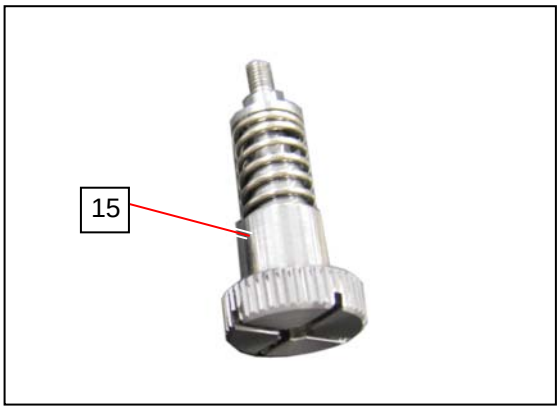
There may be Spacer(s) under Sprint Plate (14).
This is for tolerance of Upper Unit. Be sure to remain / reinstall Spacer(s) to the original position.



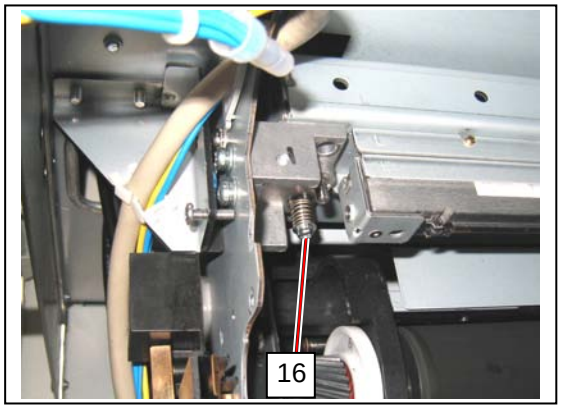
8. On both sides, remove the front Thumb Screws (15).
   Be careful that the spring on the screws does not drop in the machine.

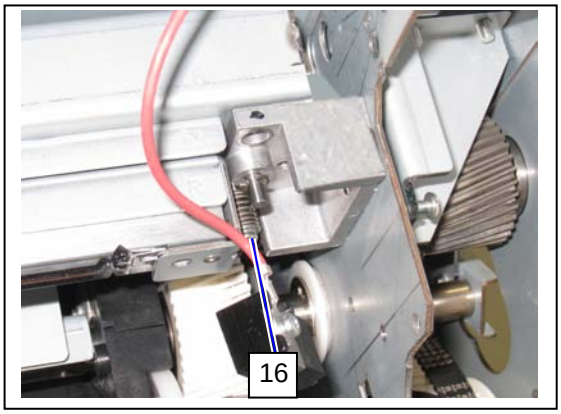


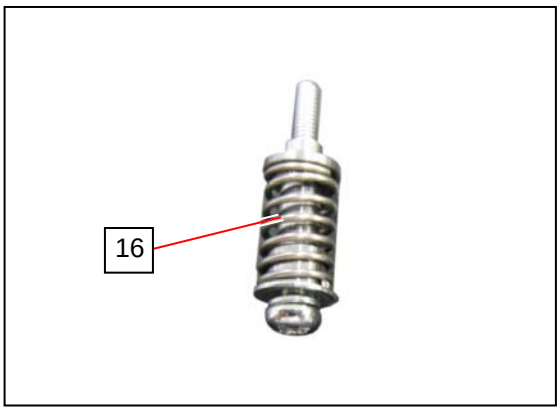




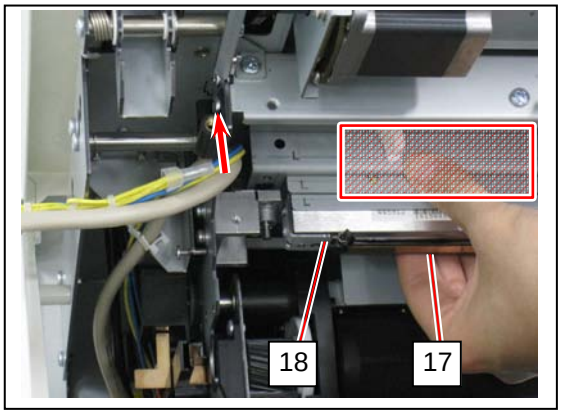
9. On both sides, remove the rear screws (16).
   Again be careful that the spring on the screws does not drop in the machine.

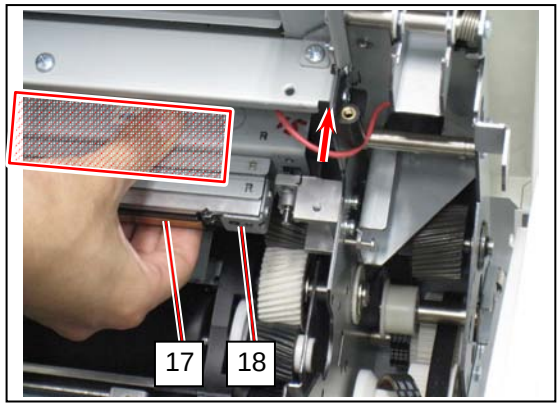


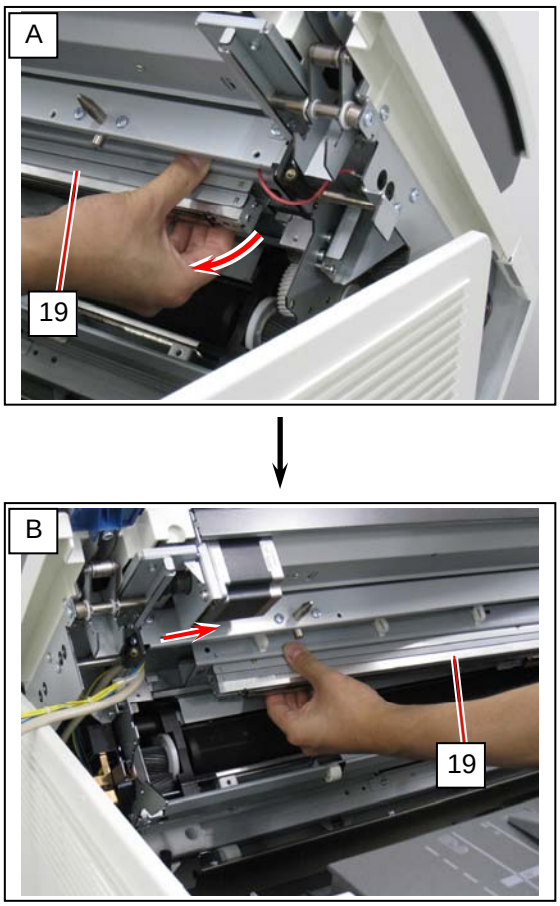




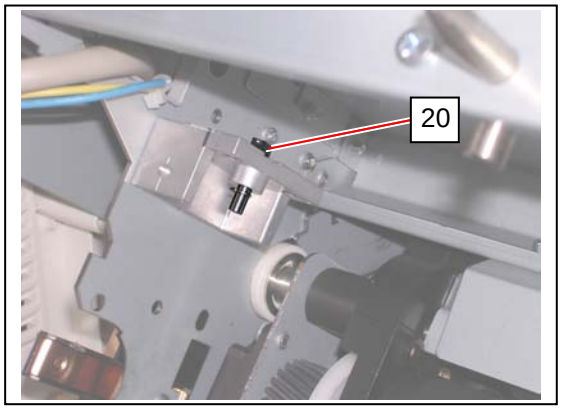
10. Pinch and hold the shaded area in the picture on both sides.
NEVER touch the LED Array (17) and the LED Head Bracket (18).
Slightly lift up the entire LED Head Unit (19). Pull the right side to outside first (A), and next move the LED Head Unit to the arrow direction (B).

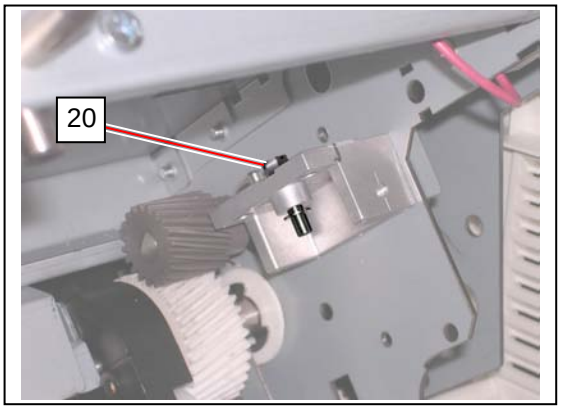


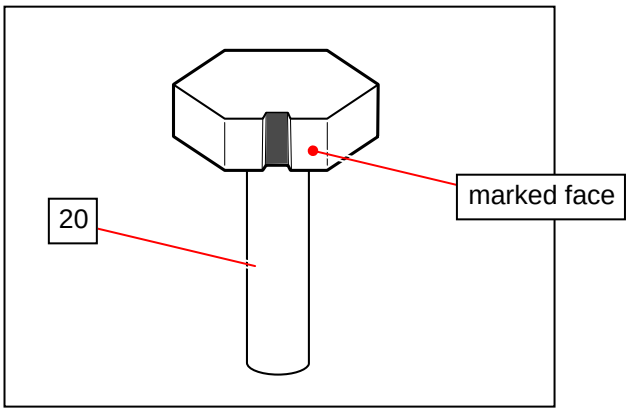




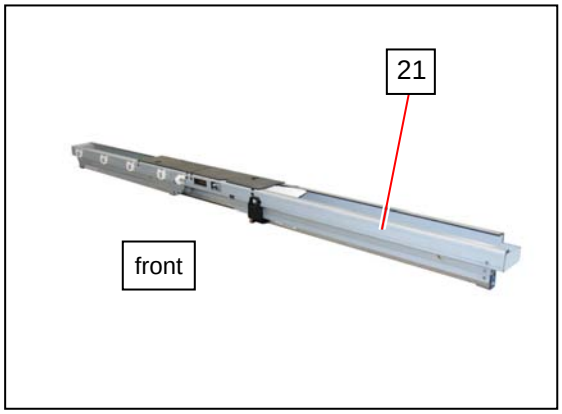
11. In the Upper Unit, there is the “hex. head pin” (20) on the rest (steel) of the LED Head Unit. Check that the “marked face” comes to front. If not, turn the pin (20).

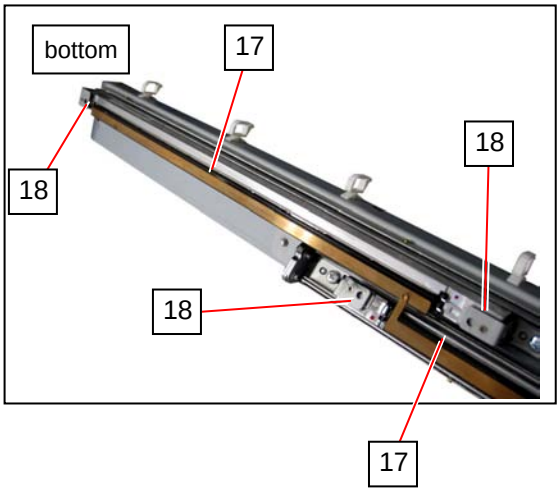




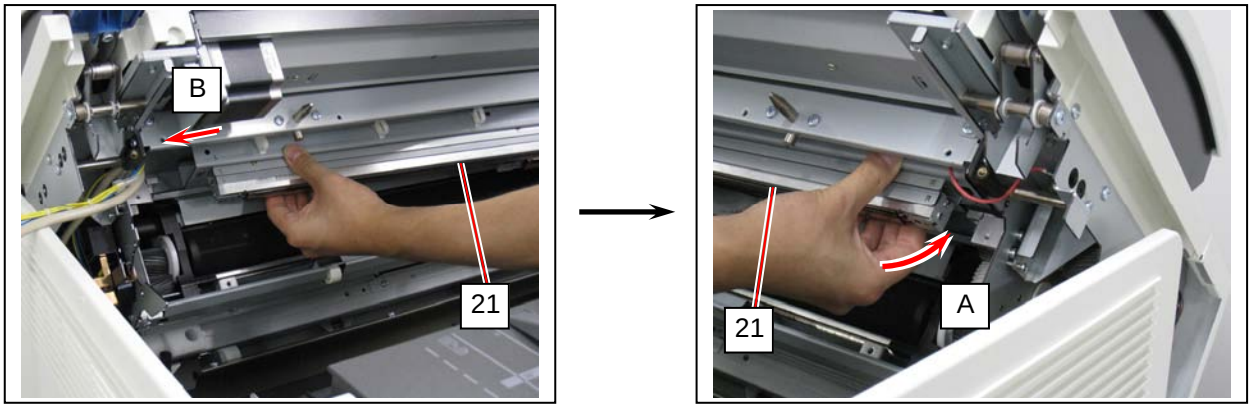


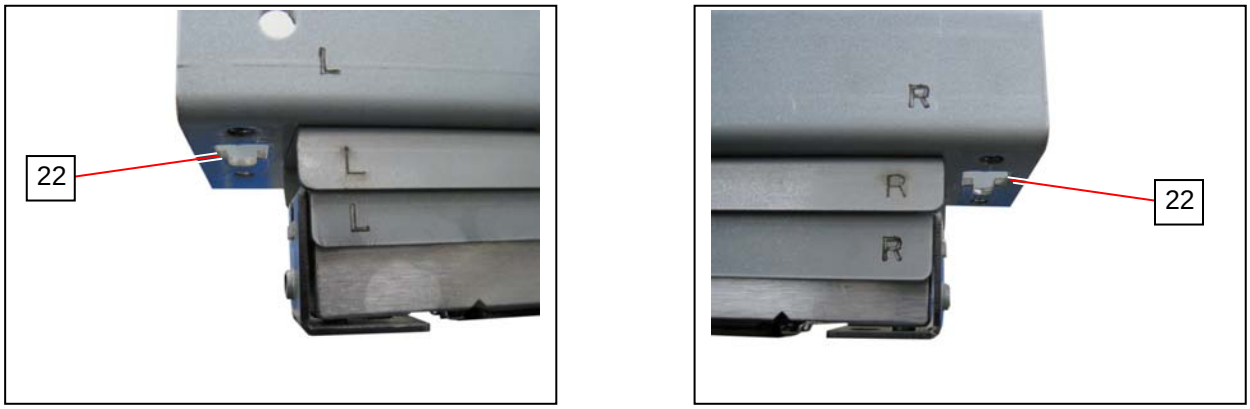
12. Take away the new LED Head Unit (21) from its container.
Again NEVER touch the LED Array (17) and the LED Head Bracket (18).

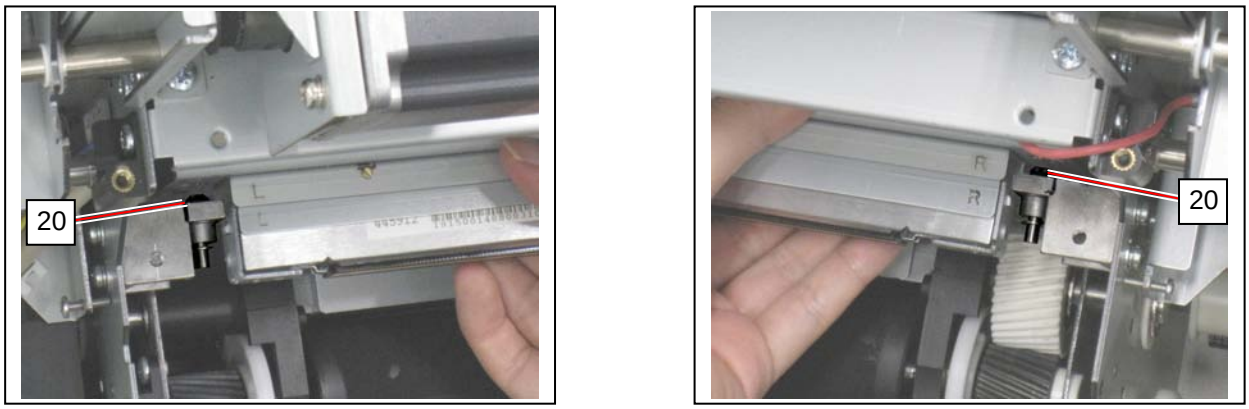




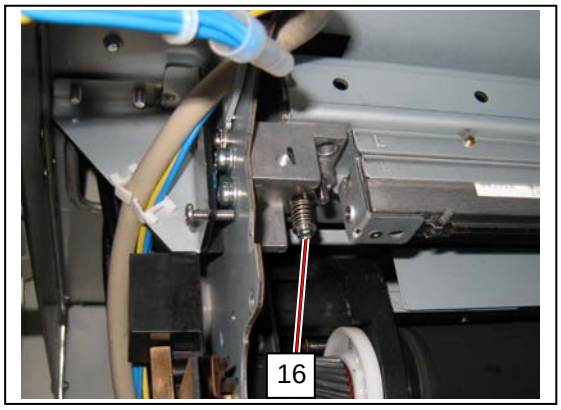
13. **Again NEVER touch the LED Array and the LED Head Bracket.**
Put the left side of the LED Head Unit (21) in the Upper Unit first (B), and then the right side (A). Seat the unit so that the hex. head pin (20) goes into the square hole (22) on the LED Head Unit.

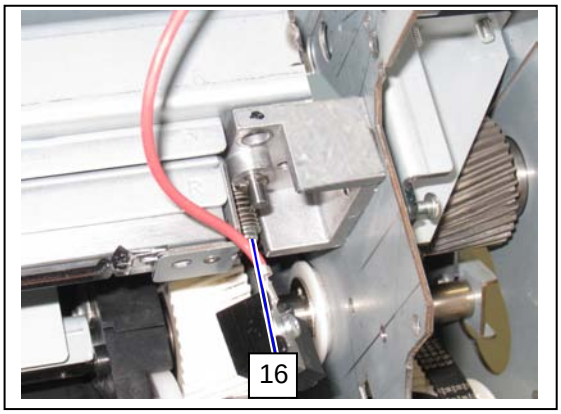


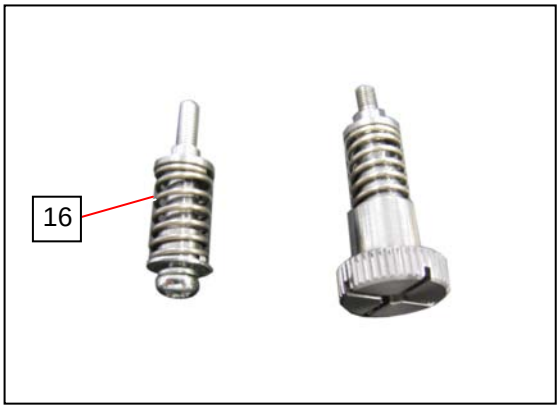




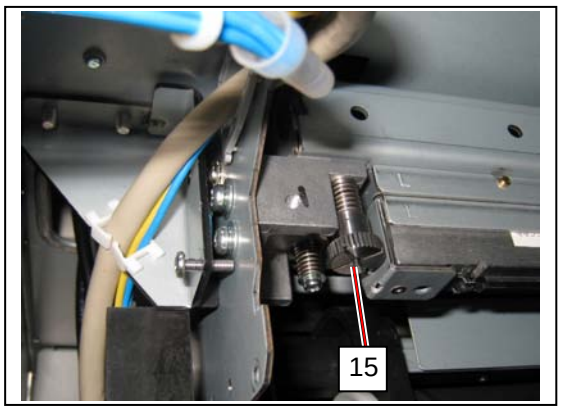
14. On both sides, reinstall the rear screws (16: w/ spring).

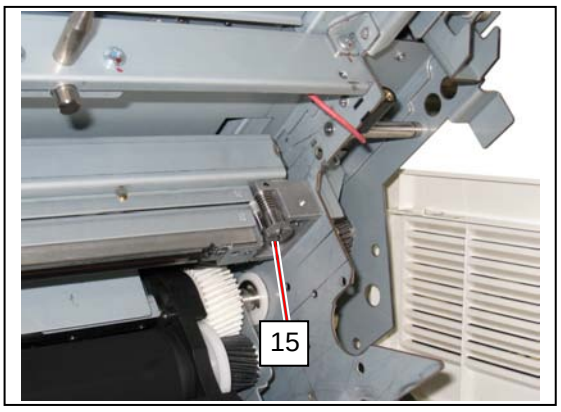


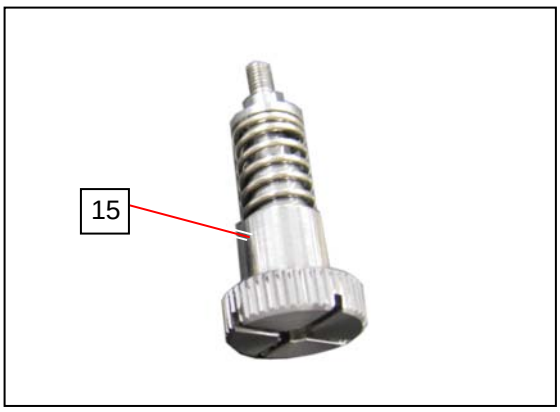




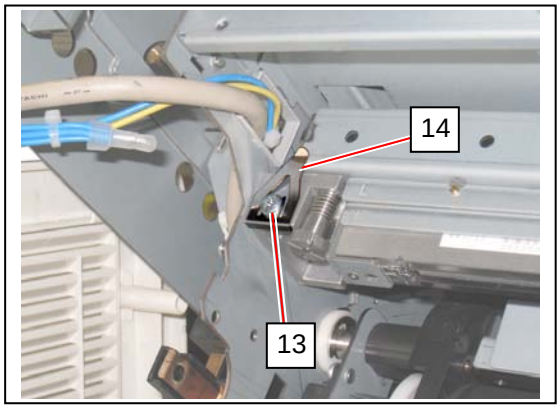
15. On both sides, reinstall the front Thumb Screws (15: w/ spring).

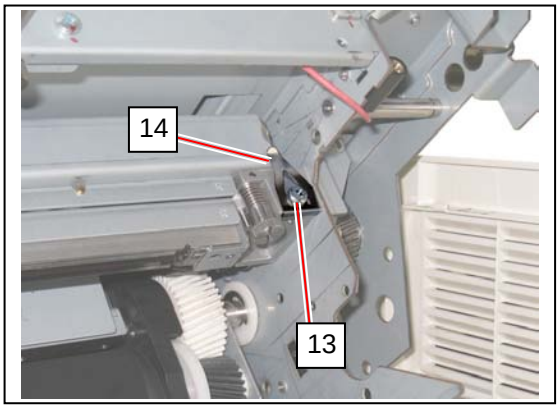






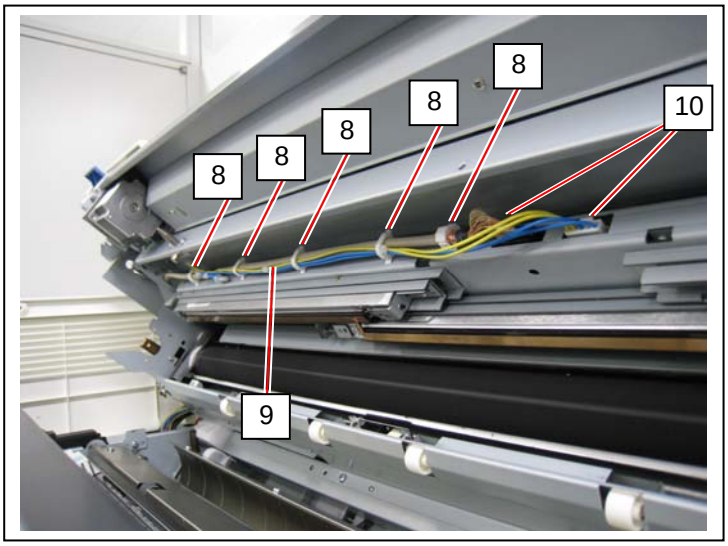
16. On both sides, reinstall the Spring Plates (14) with the screws (13).
If there is Spacer(s), fix them together.



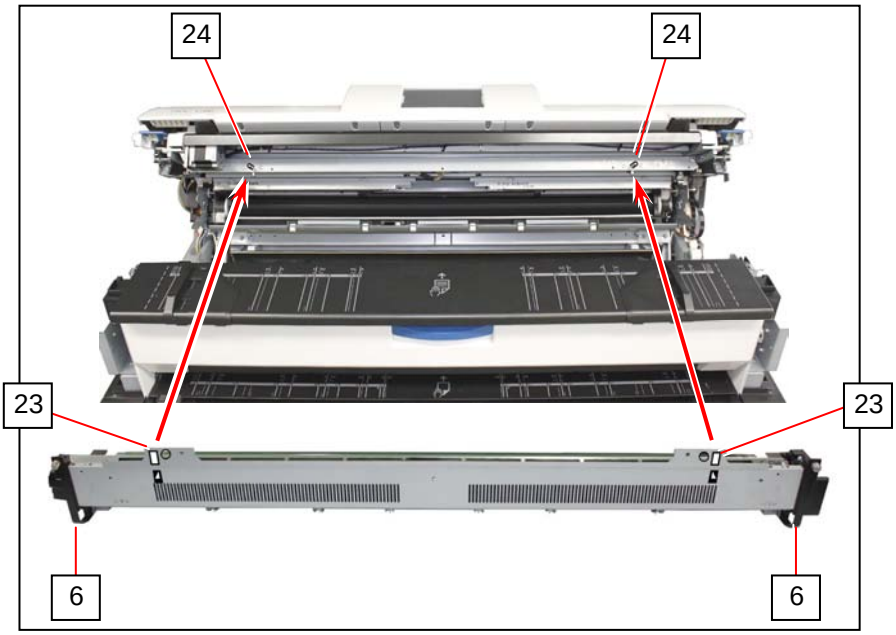


17. On the right side, reinstall the terminal plate (12) with the screw (11).
The tab parts should fit in the notch on the frame.

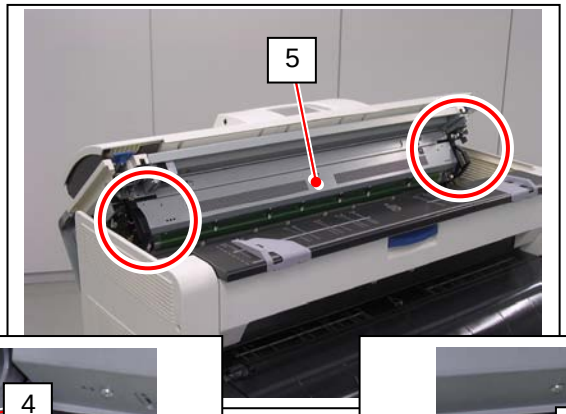
18. Reconnect 2 connectors (10). Put the harnesses (9) in the wire saddles (8).

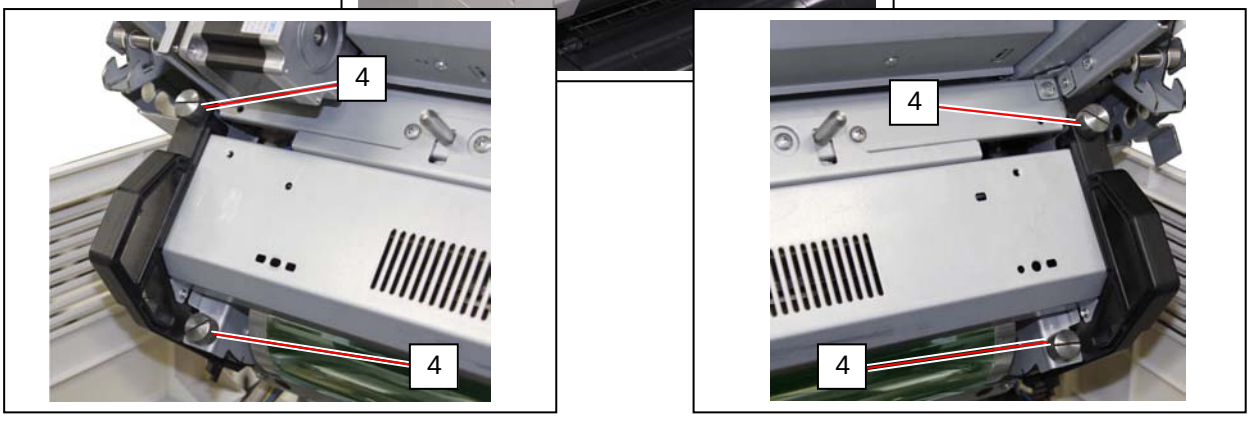


19. Hold the handgrip (6) on both sides. Slightly tilt the Process Unit downward. Put the square holes (23) onto the tapered edges of the positioning pins (24). Before inserting completely, pivot the unit upward to face each other. Finally push the unit into the machine

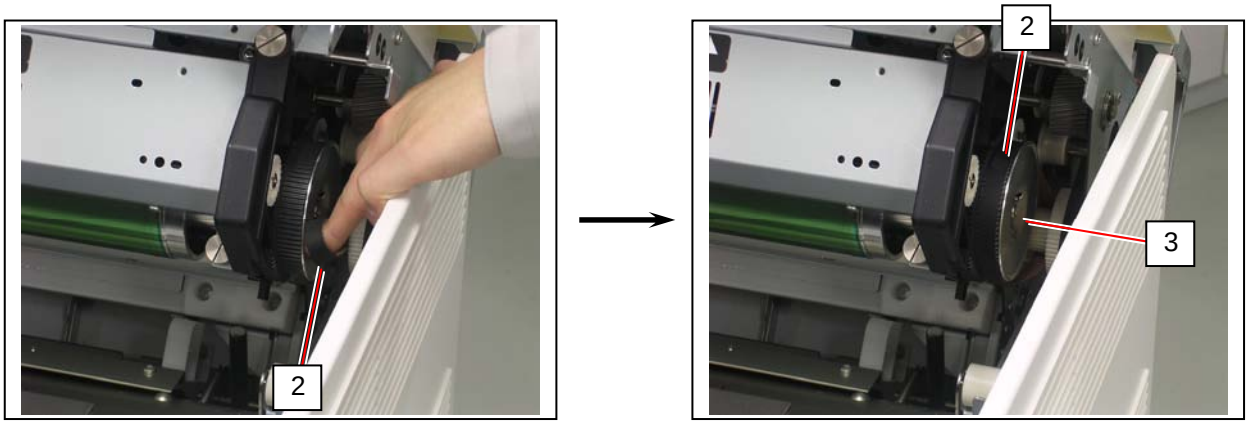


20. Completely push the Process Unit in the machine to be reseated in position. Then secure the thumb screws (4) to fix the Process Unit to the machine.

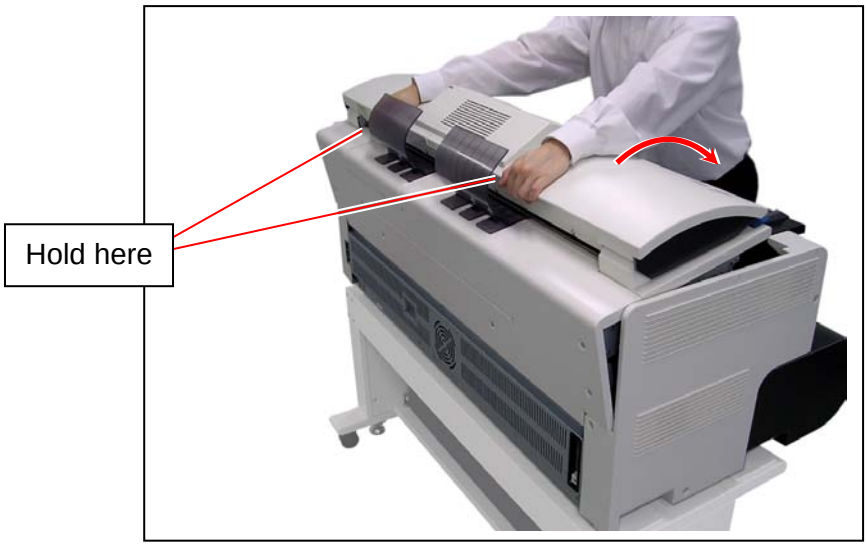


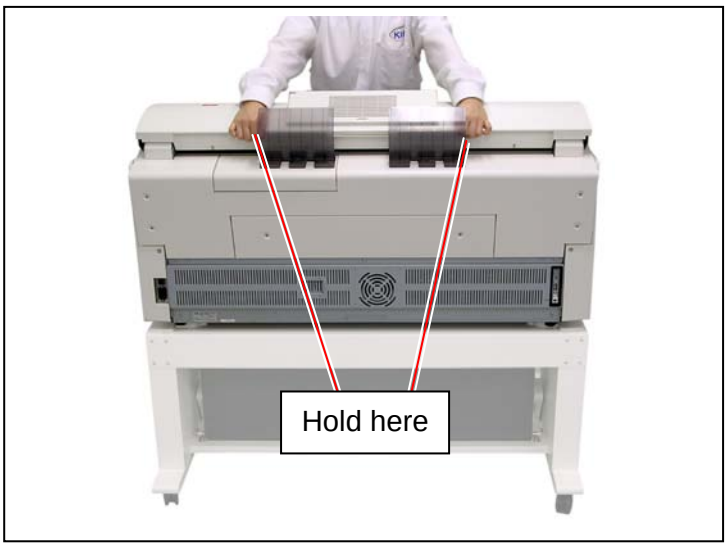


21. Return the belt (2) to the pulley (3).



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.



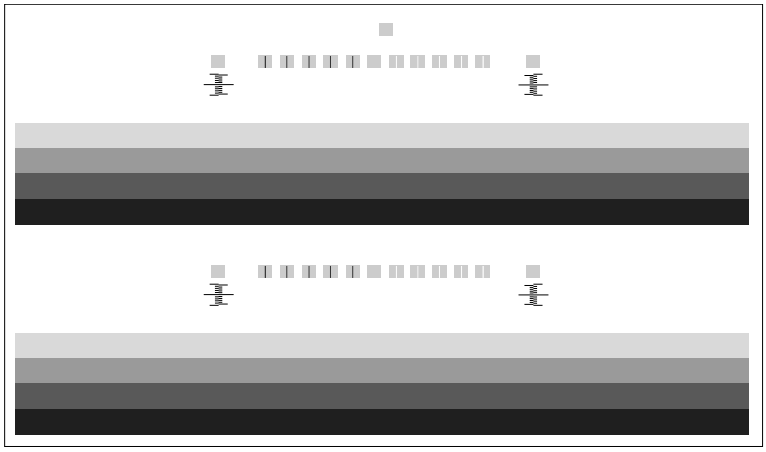


23. Run LED Confirmation wizard in KIP Service Software.
A 36 inch / A0 / 914mm wide roll media (plain paper / bond) is required.
For further details, see [8.14 Confirmation Wizard]

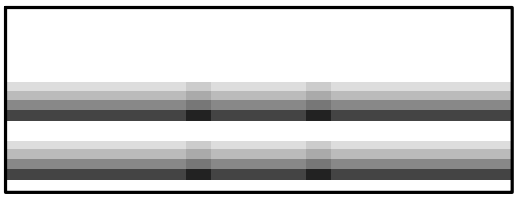
5. 4. 2 Focus Adjustment

Reference

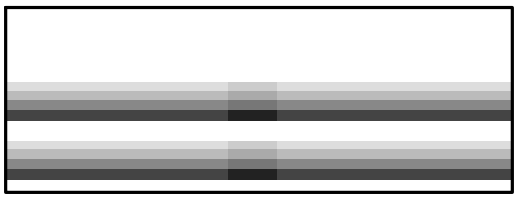
After replacing the LED Head Unit according to [5.4.1 Replacing LED Head Unit], an uneven halftone bands may appear on the test print sheet.



Test Pattern #9 Size Code 3

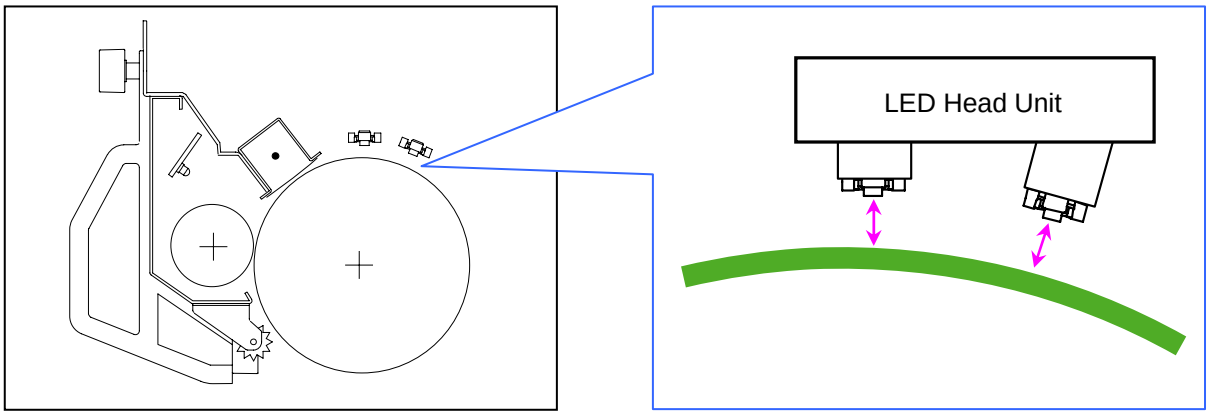


darker areas in the middle



darker area at the center

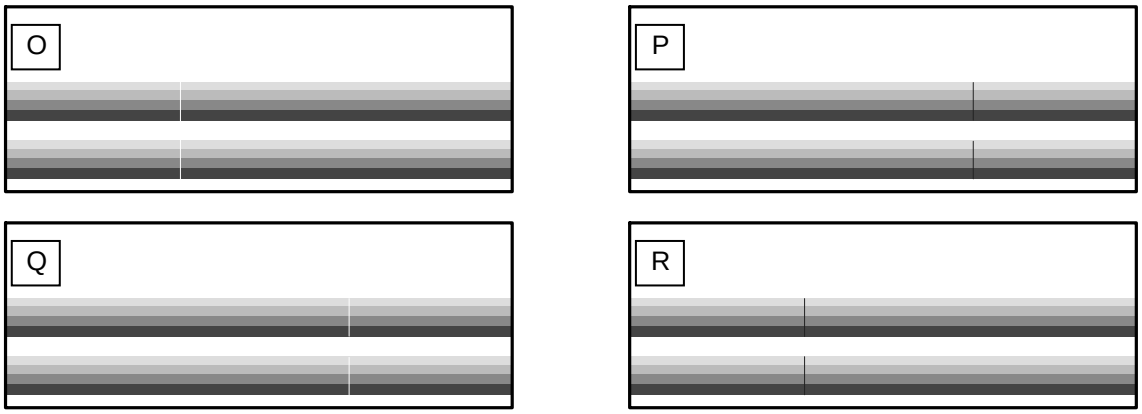
This requires a special adjustment to obtain a proper distance between the LED Head Unit and the Photoconductive Drum (focus).



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

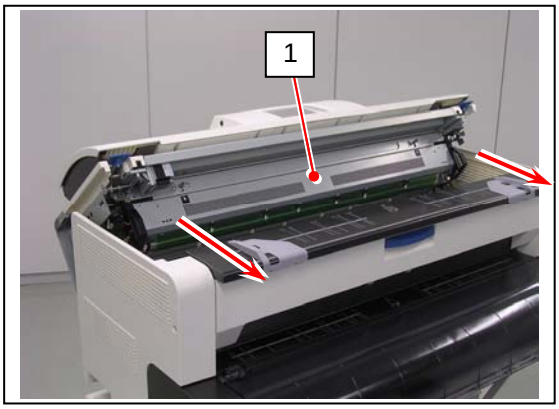
black line at LED Block border

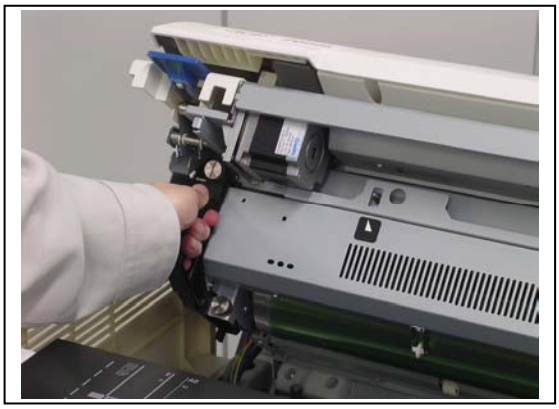
O: Block A (left block) should move right to touch with Block B (center, reference block).
P: Block C (right block) should move right to keep apart from Block B.
Q: Block C should move left to touch with Block B.
R: Block A should move left to keep apart from Block B.

In this case, Stitch adjustment is required.

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

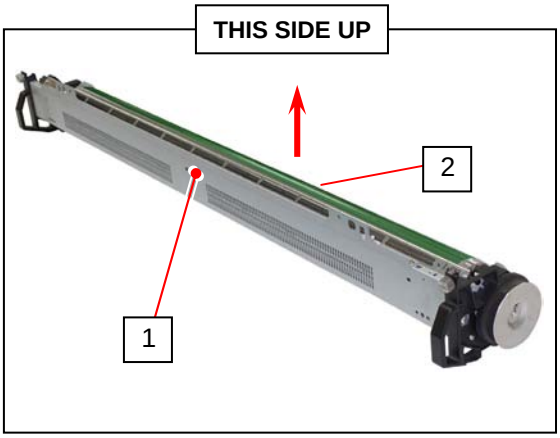
1. Remove the Process Unit (1). For the detailed procedure, see [5.1.5 Process Unit].





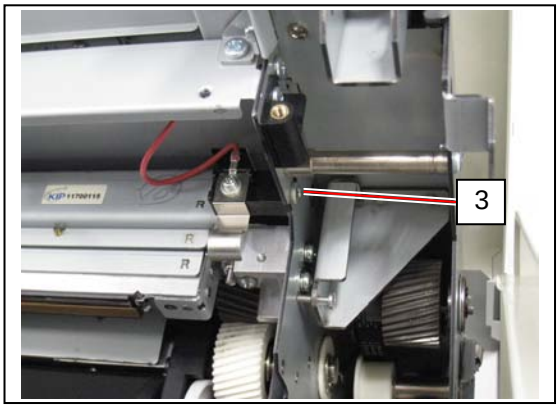
NOTE

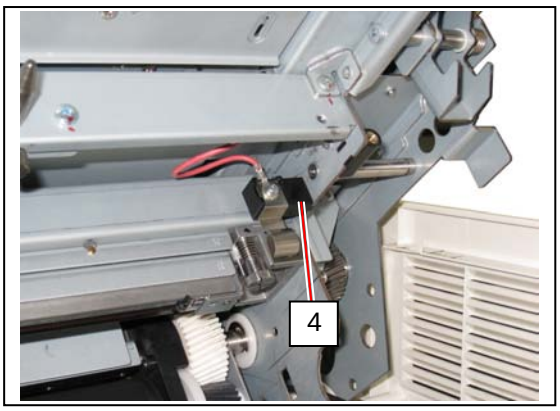
(1) Gently place the Process Unit (1) on a flat surface in the correct direction. Not doing so may damage the Photoconductive Drum (2) (shiny green cylinder).

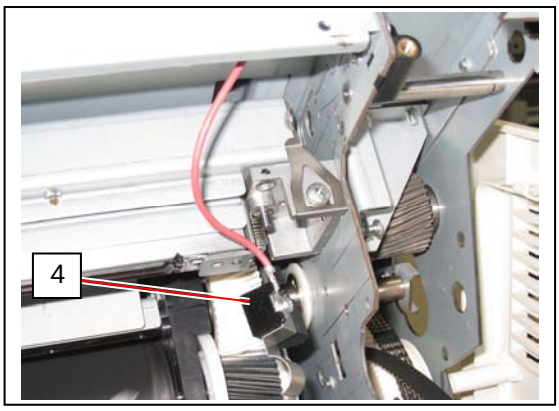


(2) The Photoconductive Drum is one of the most important components for the printer to obtain a satisfactory print image quality.
- Never touch the shiny green area of the Photoconductive Drum with a bare hand.
- Do not expose the Photoconductive Drum to light. It is recommended to shade the whole Process Unit with a piece of plain bond roll paper.

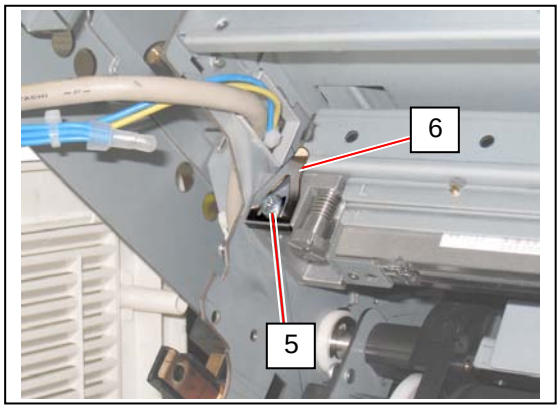
2. On the right side, remove 1 screw (3) to release the bias terminal for Image Corona (4).

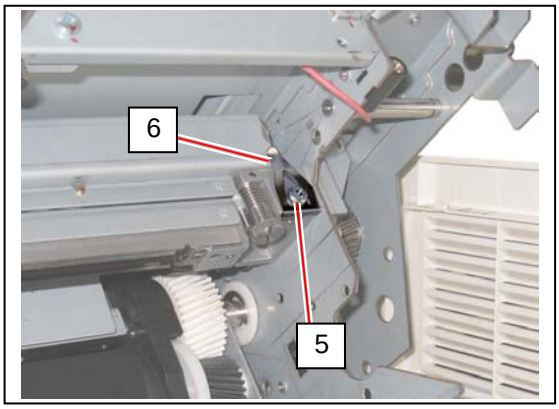




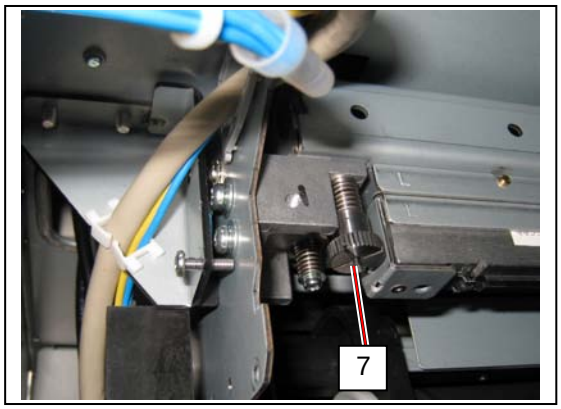


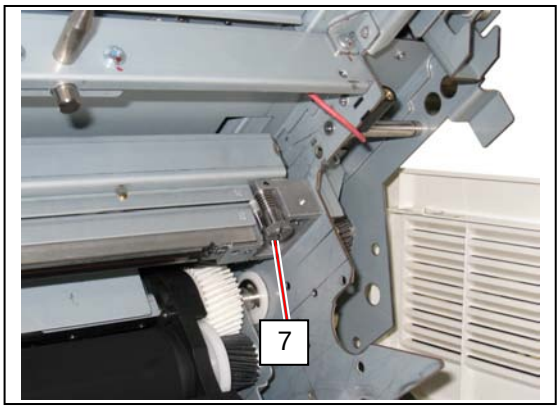
3. On the both sides, remove 1 screw each (5) to remove Spring Plates (6).

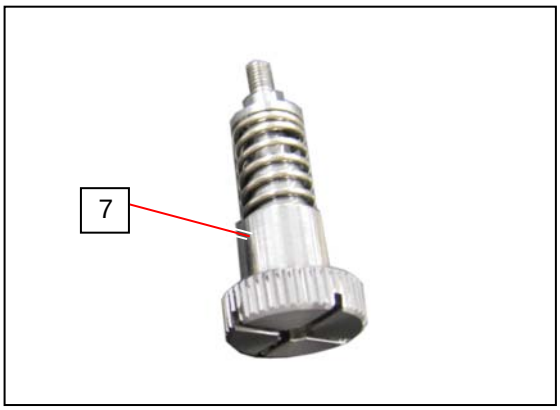




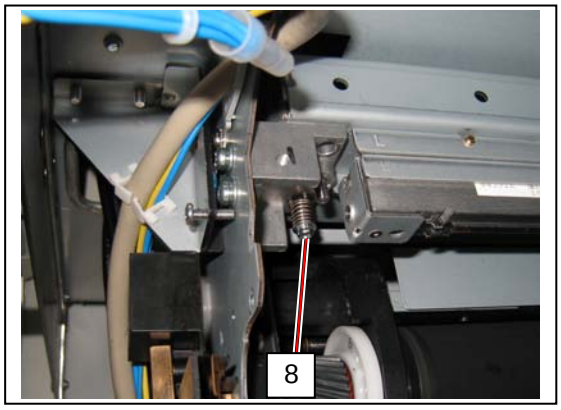
4. On both sides, remove the front Thumb Screws (7).
Be careful that the spring on the screws does not drop in the machine.

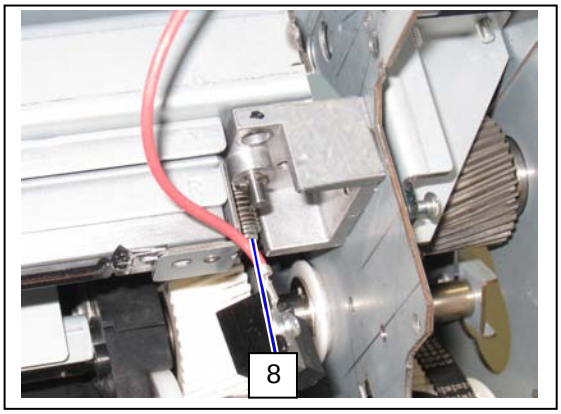


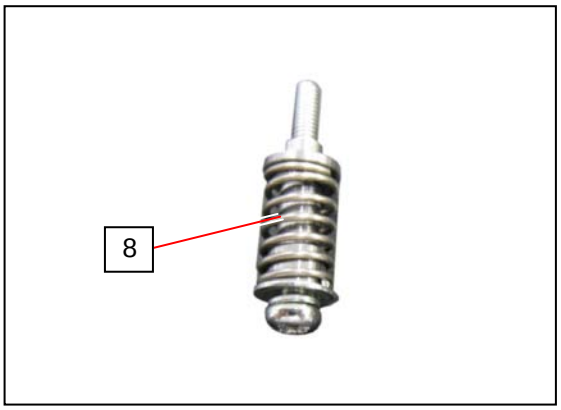




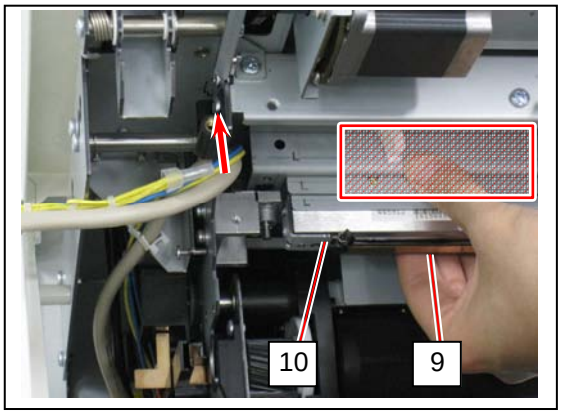
5. On both sides, remove the rear screws (8).
   Again be careful that the spring on the screws does not drop in the machine.

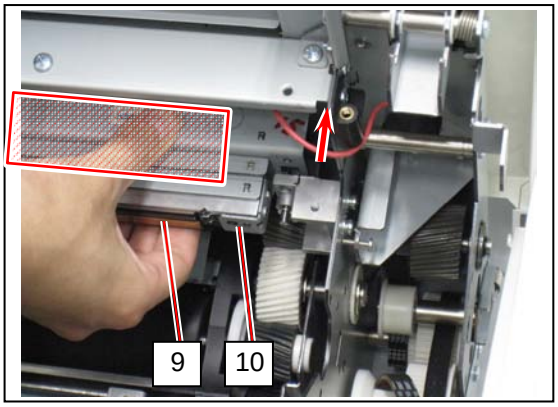




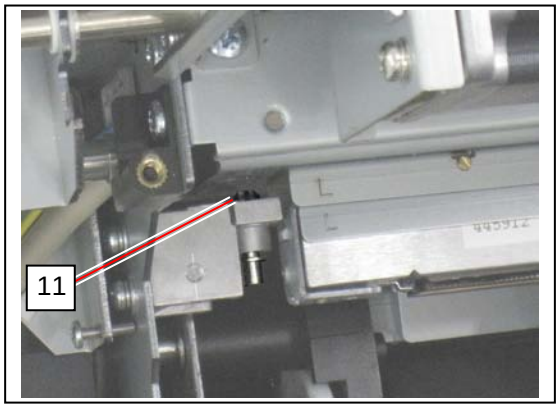


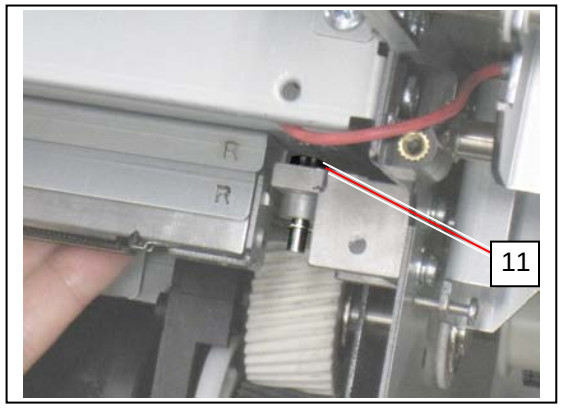
6. Pinch and hold the shaded area in the picture on both sides.
   NEVER touch the LED Array (9) and the LED Head Bracket (10).
   Slightly lift up the entire LED Head Unit. Keep lifting it up.





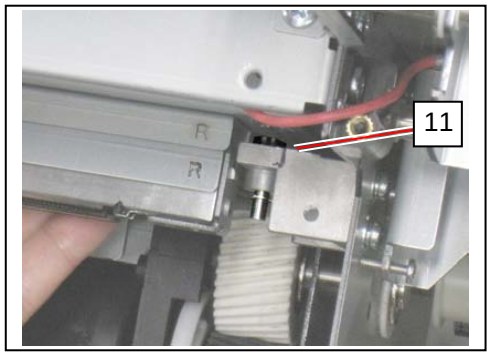
7. You can see the head of the “hex. head pin” (11) on both sides.
Specify which face comes to front. Read the column below about the pin’s head.

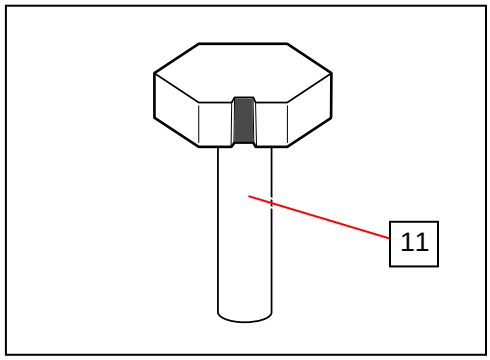




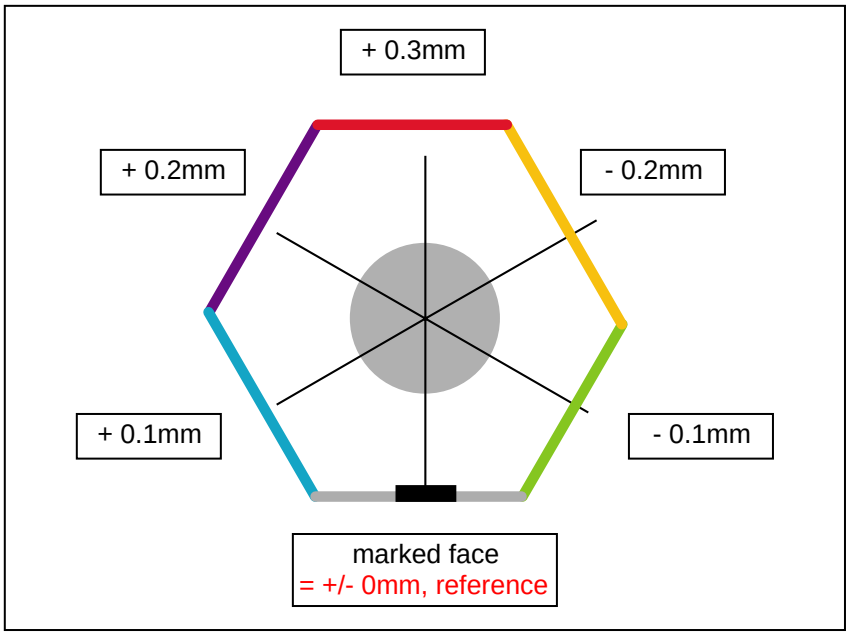
Reference

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.



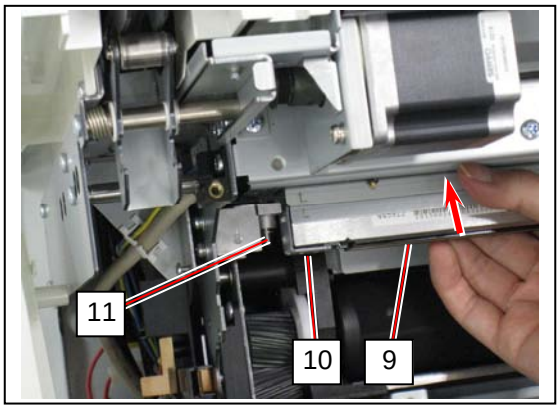
For example, on step 7, a face in front of you is not “marked face”. Suppose you turn the pin in two faces (= 120 degrees) counter clockwise, then you can see the “marked face”.
In this case, the original front face was “-0.2mm” (yellow).

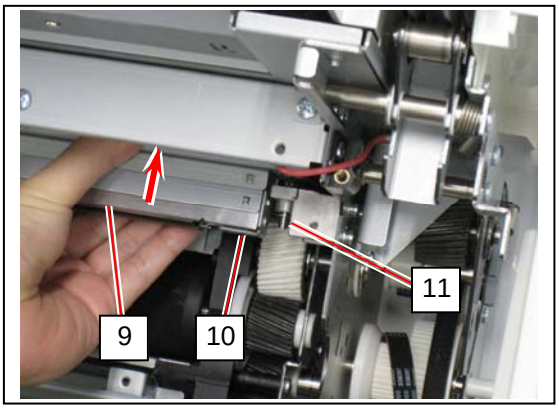
(see the next page)

NOTE

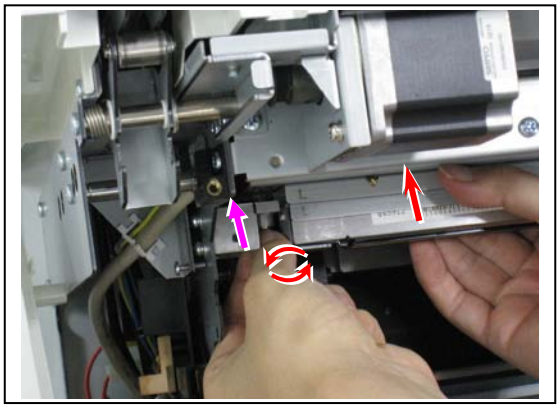
To turn the pin (11), follow the instruction below.

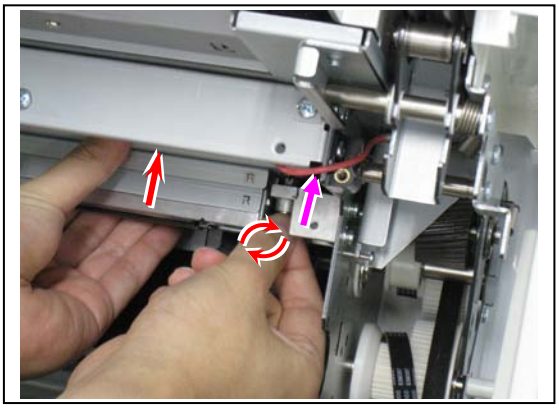
1. Lift up the LED Head Unit. Keep lifting it up.
   Again NEVER touch the LED Array (9) and the LED Head Bracket (10).

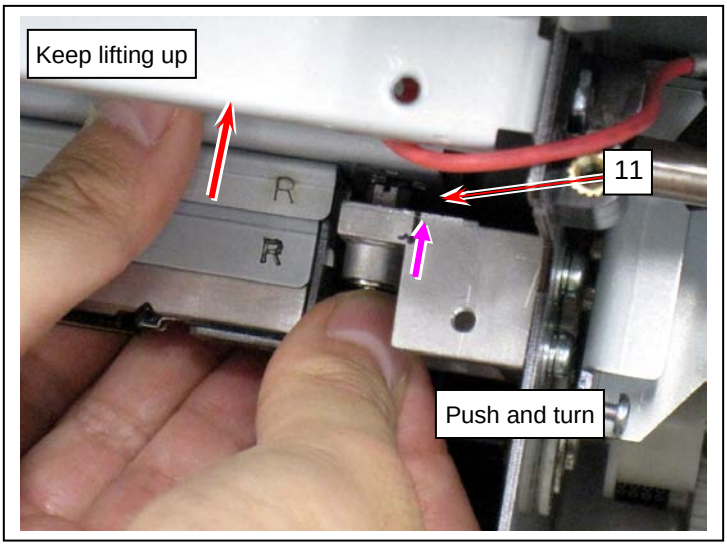




2. Push and turn the pin (11).







(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.

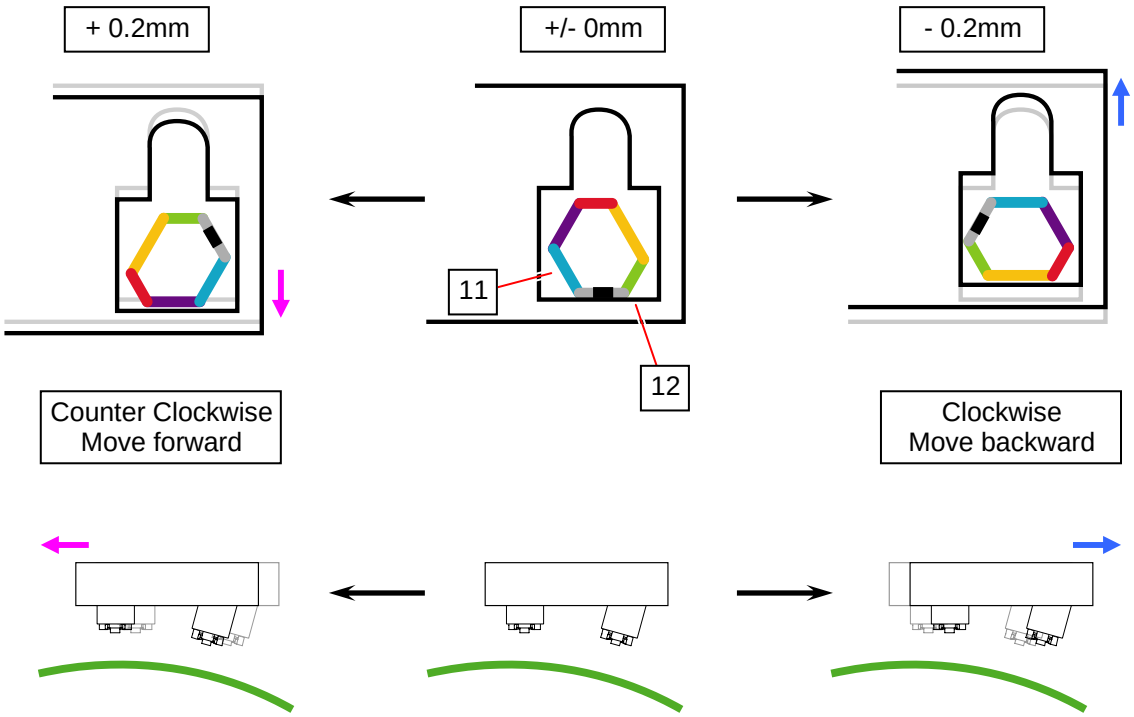
Reference

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

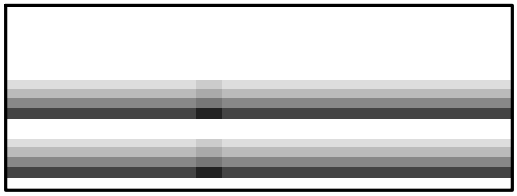
Please read as well the NOTE column on the previous page that instructs how to turn the pin (11).

Right Side of LED Head Unit

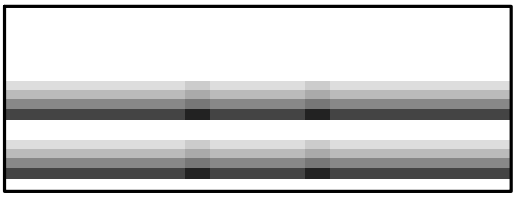


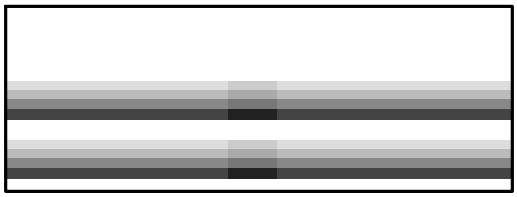
Side Section view from right

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

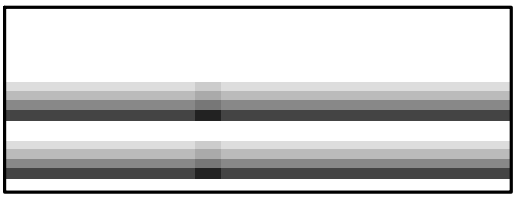


2 darker areas in the middle / 1 darker area at the center
→ Go to step 10.





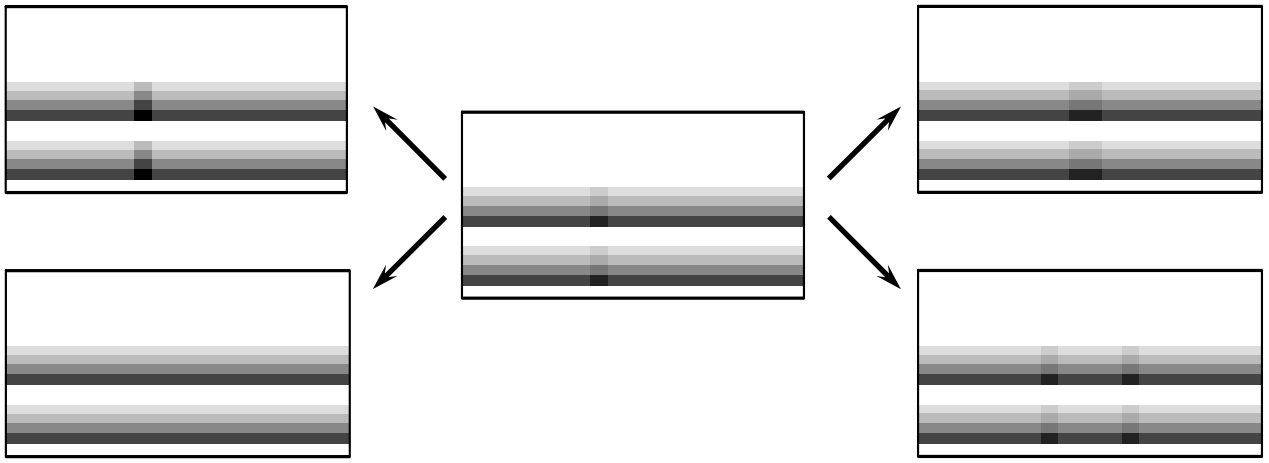
9. If the gray bands get darker on one area in the middle (not the exact center), that is because the LED Head Unit is seated skew.



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 5-64.

Worse: try another direction.

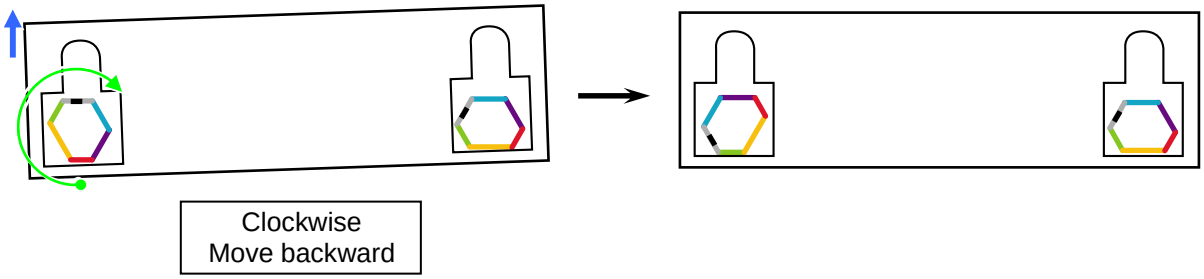
OK to proceed the next step.



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

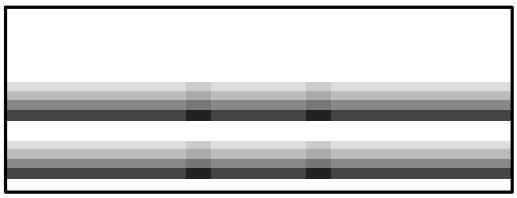
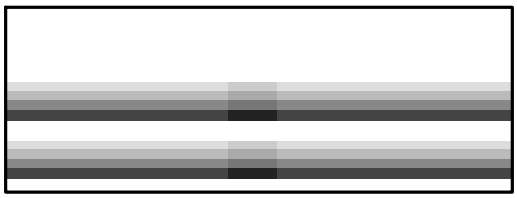
(1) The actual “original front face” may vary by the case.

(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 frontward or backward) **to turn the pin may vary by the case, try both directions.**

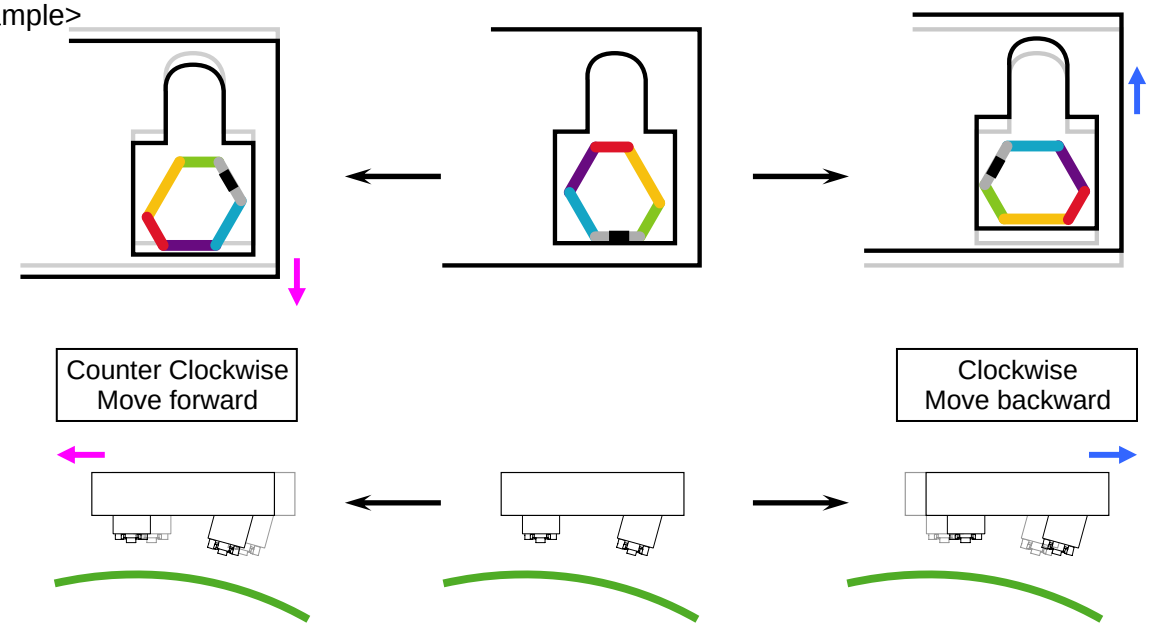
Compare the results to find the better direction.
When you remove the skew, go to the next step.

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

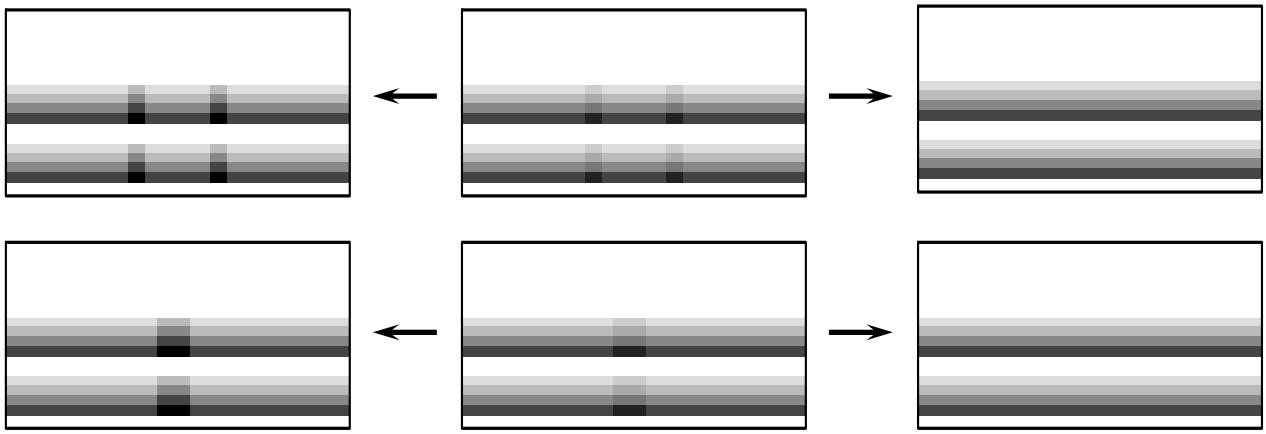
(1) The actual “original front face” may vary by the case.

(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. OK



Chapter 6

Maintenance

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	Z178080050	**Image Corona**, **Transfer / Separation Corona**, **Filters**, Pads (2 pcs), Nail Cleaning Jig
Service Kit B	Z178080060	**Image Corona**, **Transfer / Separation Corona**, **Filters**, **Developer Unit**, Pads (2 pcs), Nail Cleaning Jig, Toner Bottle (2 bottles)
Service Kit C	Z178080070	**Transfer / Separation Corona**, **Filters**, **Developer Unit**, **Process Unit** (includes **Image Corona**, Drum), Pads (2 pcs), Nail Cleaning Jig, Toner Bottle (2 bottles)

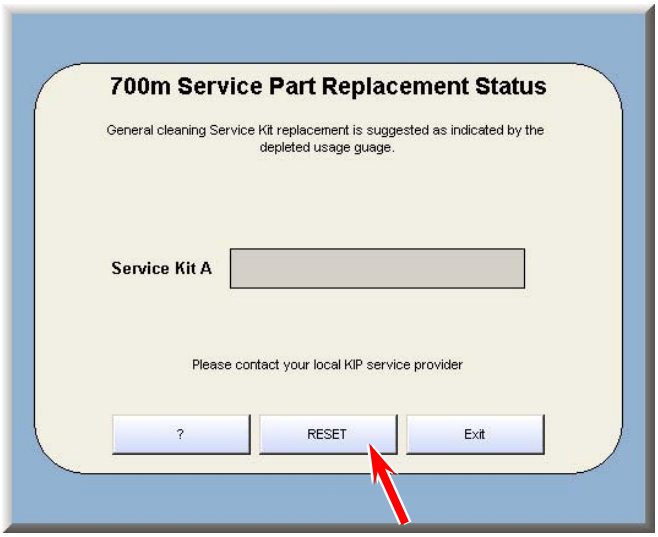
The KIP 700m incorporates a Service Part Replacement Notification system. This can be disabled in the “Service” settings on the touch screen (under “?”) if the notification is not desired.

Notification on the UI screen is to occur at these designated intervals.
The UI screen notification system requires a “count reset” once a Kit is installed (if the system is enabled).

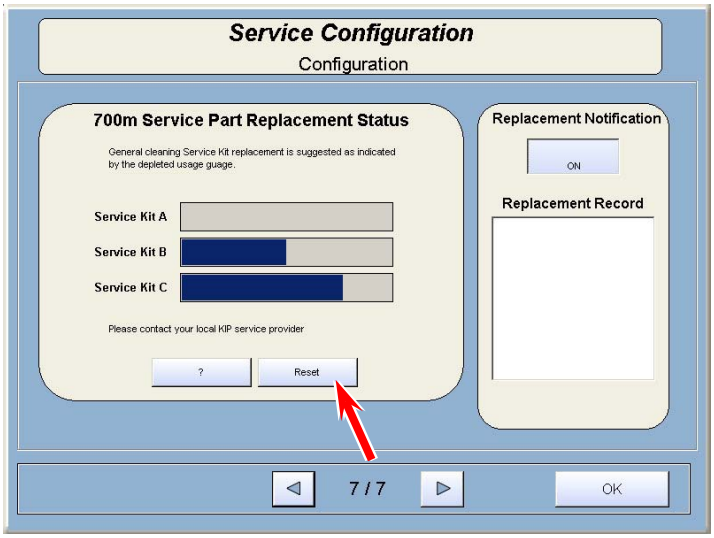
Note: - 6000 linear meters is estimated to approximately 50,000 square feet. This is dependent on the average width of media used.

Linear Meters	Kit A	Kit B	Kit C
6000	✔		
12000		✔	
18000	✔		
24000			✔
30000	✔		
36000		✔	

1. The notification window appears. → Press [RESET].
   If the window disappears, enter the service mode and scroll page to [Service Configuration 7/7].
   → press [Reset].

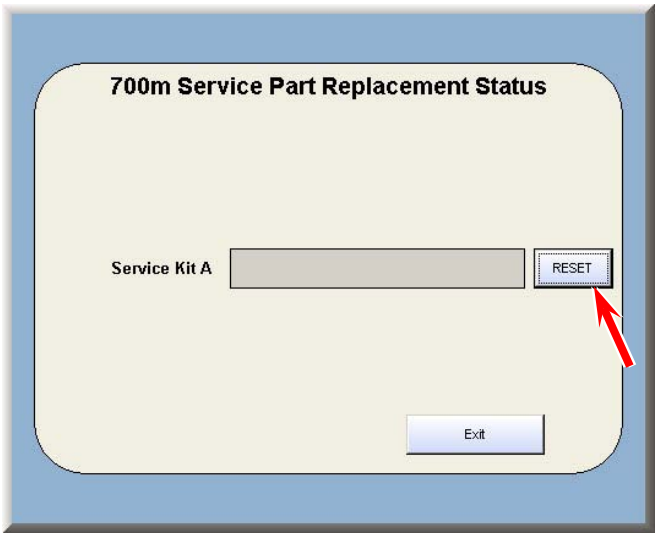


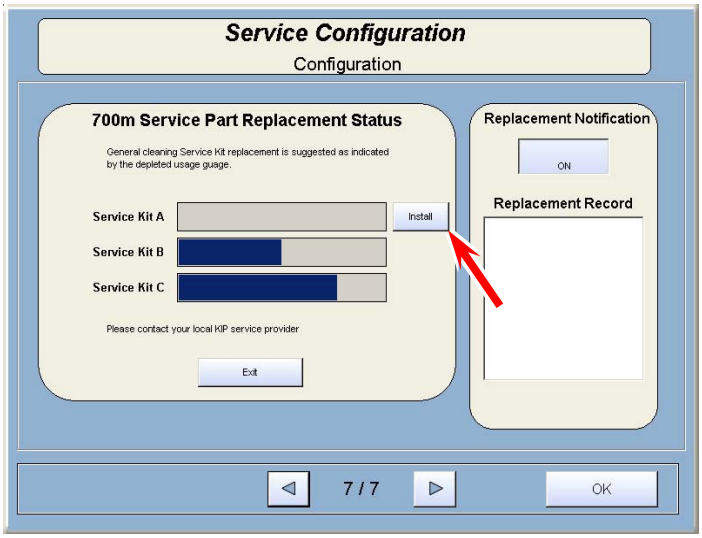
Notification Window



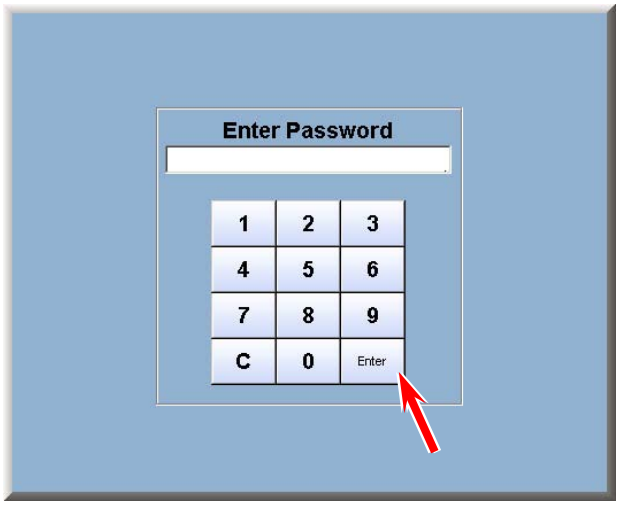
Status on Service Mode

2. Press the button appeared besides the concerning Service Kit to be applied.





3. Input a “reset password” and press [Enter].



The touch panel notification system requires a “counter reset” once a Kit is installed (if the system is enabled). The reset codes are included in each kit and are as follows:

Kit A	7852
Kit B	5354
Kit C	2864

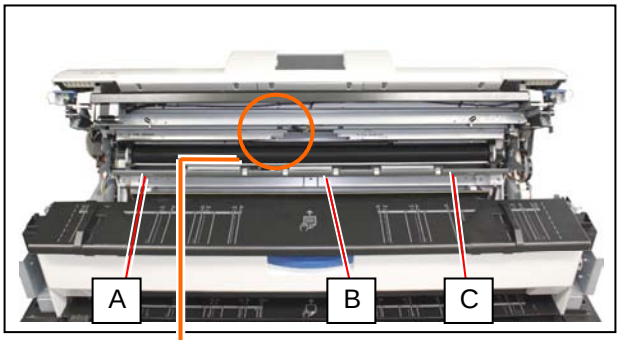
6. 2 Cleaning

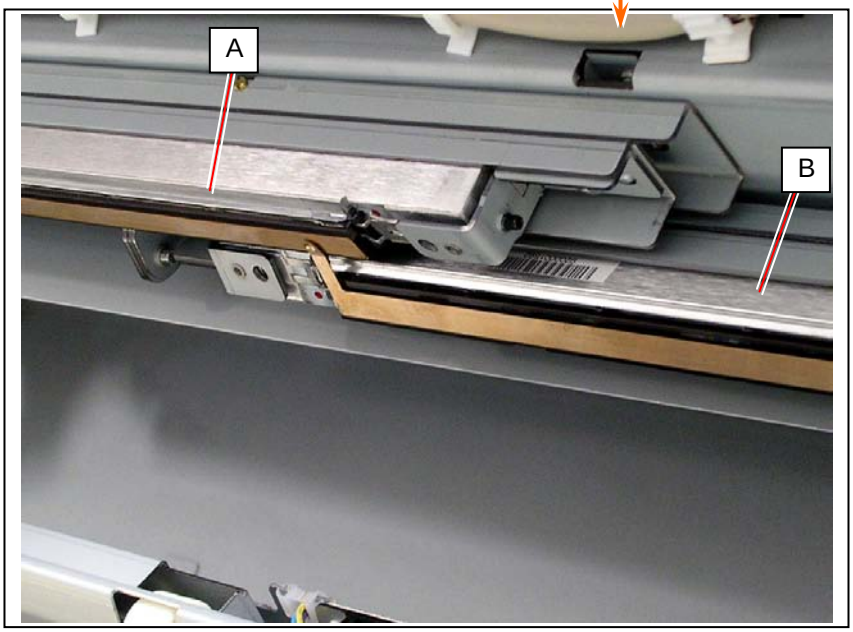
Please make the following maintenances to keep the machine in a good condition and to get a superior image.

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.

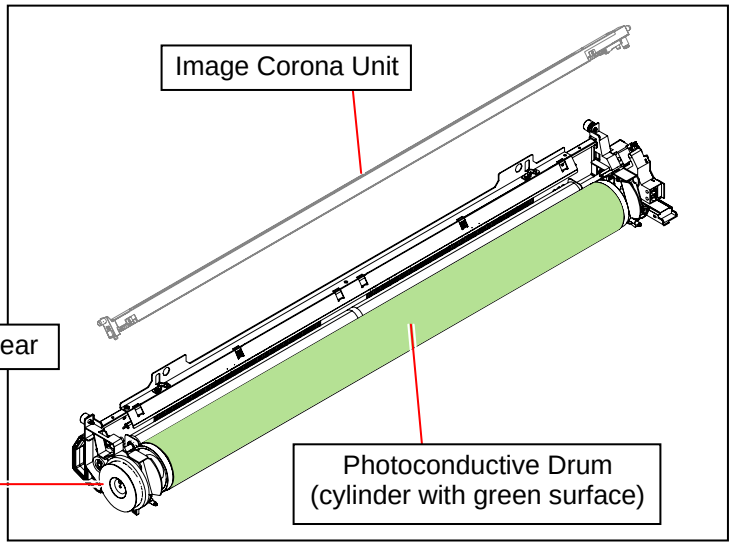
Wipe LED Head Block (A) (B) (C).
The metal plates attract possible scattering toner to prevent the LED Head Blocks from getting dirt.





Photoconductive Drum:
See [5.1.1 Image Corona Unit] to remove Image Corona Unit.

Gently wipe the surface (green area).

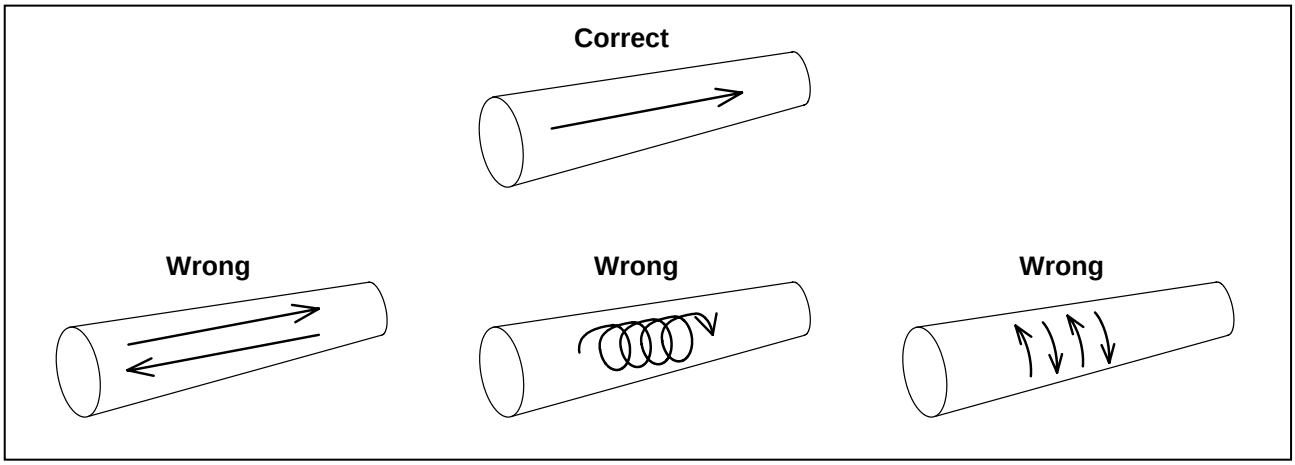


Rotate the drive gear (on the right hand grip side of Process Unit) to turn Photoconductive Drum.
(slightly heavy load)

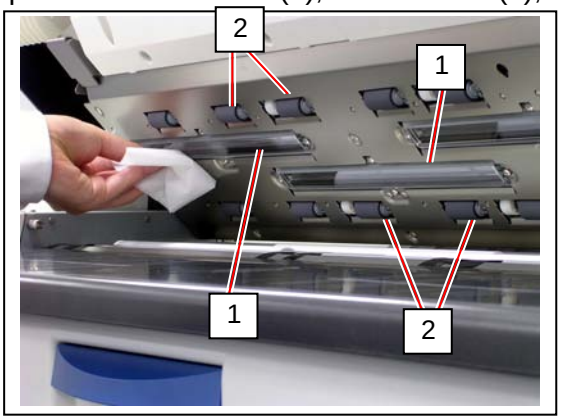
NOTE

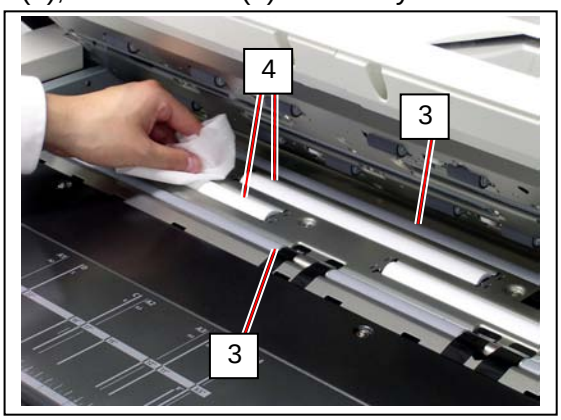
(1) 10 to 20 sheets just after cleaning may temporarily get lost proper image quality.

(2) **Always wipe the surface in one direction.**
Failure to do so may damage the surface and result in defective imaging.



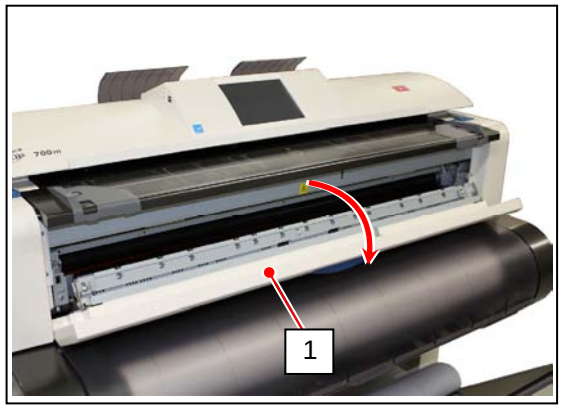
Scanner Unit:
Wipe each Scan Glass (1), Pinch Roller (2), Feed Roller (3), Press Roller (4) with a dry cloth.



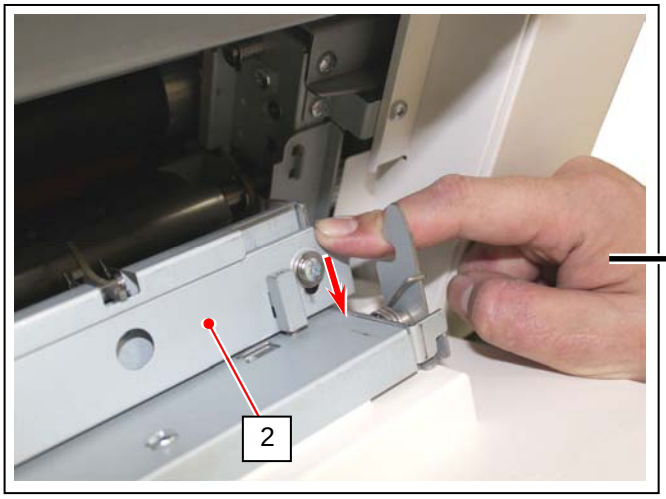


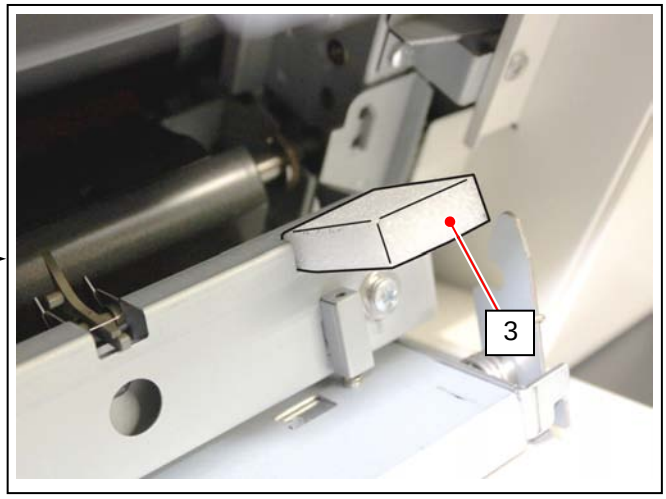
6. 2. 1 Cleaning Nail Stripping

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.

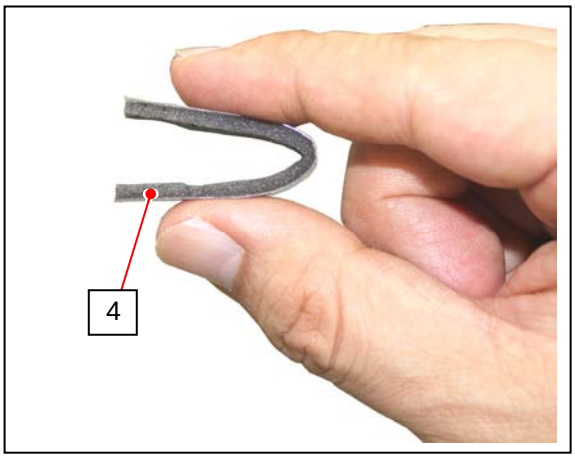




Reference

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

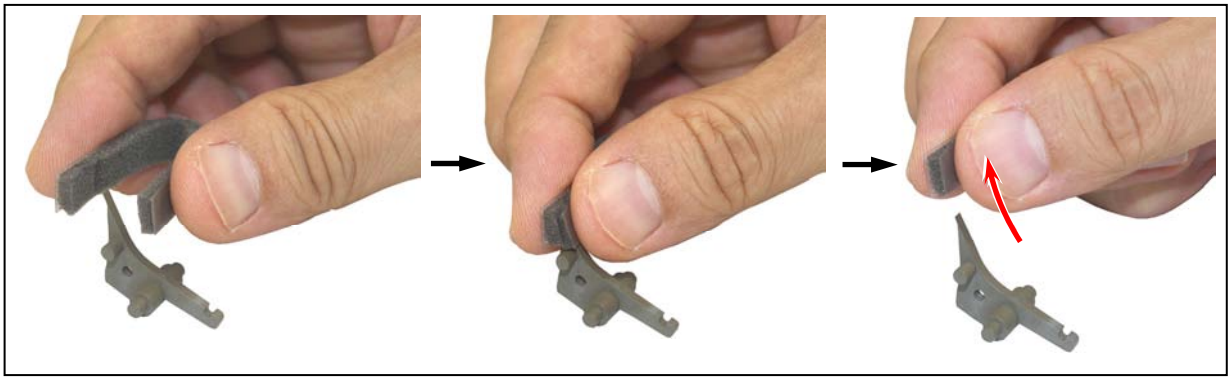
3. Pinch the Nail Cleaning Jig as shown in the following pictures.
(Read the column below to clean the Nail Stripping.)



NOTE

(1) There are extremely hot parts inside the Fuser Door.
Never touch any hot parts to avoid burning yourself.

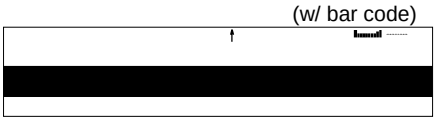
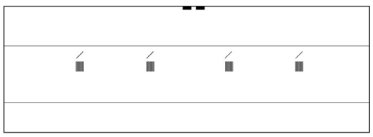
(2) Move the Nail Cleaning Jig to the arrow direction only.



(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) (Z178300360)		8.13.4.1 Shading (Calibration)
SCANNER ADJUSTMENT CHART (Feed Distance) (Z058501590)		8.13.4.2 Feed Distance (1:1)
STITCH ADJUSTMENT CHART (Position) (Z168300580)		8.13.4.3 Position (Stitching)
Scanner Utility Version 1.31 or later (Scanner adjustment)	Windows 2000 / XP w/ scanner unit USB driver 1.30 or later	8.13.4.1 Shading (Calibration) 8.13.4.2 Feed Distance (1:1) 8.13.4.3 Position (Stitching) 8.13.5 Scanner Firmware Update

Chapter 7

Troubleshooting

7. 1 Troubleshooting - Printer Errors

7. 1. 1 Countermeasures - Call Operator Errors

7. 1. 1. 1 J-0103 / 0203 Roll Deck Feeder Jam

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.
Feed Sensor (PH6)	2	Check the status of Feed Sensor in the Signal Status Mode of the Service Mode. Signal Code : 105 (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 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 Signal Status Mode of the Service Mode. Signal Code : 094 (Cutter Home Position Right) 095 (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 Operation Check Mode of the Service Mode. Device Code : 10 (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-0104 / 0204 / 1004 Registration 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 Signal Status Mode of the Service Mode. Signal Code : 100 (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 Operation Check Mode of the Service Mode. Device Code : 11 (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-0105 / 0205 / 1005 Process Unit Jam

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 Signal Status Mode of the Service Mode. Signal Code : 010 (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-0106 / 0206 / 1006 Fuser 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 Signal Status Mode of the Service Mode. Signal Code : 011 (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-1300 / 1400 Door Open while printing

Cause	Checking order	Checking	Result	Treatment
Upper Unit / Exit Cover open	1	Is Upper Unit / Exit Cover open before the completion of printing?	Yes	Close the concerning nit firmly.

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 Signal Status Mode of the Service Mode. Signal Code : 105 (Roll Set Sensor) 111 (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 Signal Status Mode of the Service Mode. Signal Code : 008 (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 Signal Status Mode of the Service Mode. Signal Code : 100 (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 Operation Check Mode of the Service Mode. Device Code : 11 (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 Empty

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/Output Mode of the Service Mode. I/O Signal Code : 107 (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 Signal Status Mode of the Service Mode. Signal Code : 009 (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 - Call Service Errors

The followings are the names of Service Call Errors and the conditions that those errors occur.

Error Code	Error Indication	Conditions
E-0000	Fuser Temperature Rising Error	Fuser Temperature does not reach 50 °C within 120 seconds after turning on.
E-0001	Fuser Over Temperature Error	Fuser Temperature reaches over 200 °C.
E-0002	Fuser Low Temperature Error	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.
E-0003	Fuser Temperature Abnormal Fall Error	The difference of temperature between center and side of fuser becomes 50 °C or more.
E-0004	Fuser Temperature Abnormal Fall Error	The Lamp of fuser lights (Signal HEAT1 is “H”) to heat up the Fuser Roller in the ready condition, but even 1 °C of temperature rise can not be accomplished within 30 seconds.
E-0005	Fuse Error	Fuse (F1) is broken.
E-0010	Main 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-0013	Paper Tray Motor Error	The Paper Tray Motor Output Detection Signal (CSETM_LD) continues to be “H” for 3 seconds or longer when the Paper Tray Motor is rotating.
E-0020	Counter Error	The Counter Connection Detection Signal (COUNT_OPN) continues to be “L” for 1 second or longer after turning on.
E-0031	Image Corona Output Error	The Image Corona Output Detection Signal (IM_LD) continues to be “L” for 1 second or longer when the Image Corona is ON.
E-0032	Separation Corona Output Error	The Separation Corona Output Detection Signal (AC_LD) continues to be “L” for 1 second or longer when the Separation Corona is ON.
E-0033	Transfer Corona Output Error	The Transfer Corona Output Detection Signal (TR_LD) continues to be “L” for 1 second or longer when the Transfer Corona is ON.

Error Code	Error Indication	Conditions
E-0034	Bias Output Error	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-0040	Cutter Error	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-0050	FPGA Error	Initialization of FPGA is failed after turning on.
E-0070	Developer Error	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-0080 E-0081	Density Sensor Error	Density Sensor cannot be calibrated correctly before Density Measure.
E-0090	Eraser Lamp Error	1. The connector J-227 / J-228 is not connected. 2. Eraser Lamp (PW6631) is broken.

7. 1. 2. 1 E-0000 / 0002 / 0004 Fuser Error

E-0000: Fuser Temperature Rising Error
E-0002: Fuser Low Temperature Error
E-0004: Fuser Temperature Abnormal Fall 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.
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. : 00 (Fuser temperature 1) 01 (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 Operation Check Mode, and then change the signal of the following signal to “H”. Device Code : 22 (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.

Cause	Checking order	Checking	Result	Treatment
Solid State Relay (SSR1)	7	Select the Operation Check Mode, and then change the signal of the following signals to “H”. Device Code : 22 (Fuser Relay) 21 (Fuser Lamp 1) Then check the voltage between J600 and J601. Is it 0V? **CAUTION:** **Change the signal of “21” (Fuser Lamp 1) to “L” after checking!**	Yes	Replace the Solid State Relay
			No	Replace the PW11720 PCB.

7. 1. 2. 2 E-0001 Fuser Error

E-0001 : Fuser Over Temperature 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. : 00 (Fuser temperature 1) 01 (Fuser temperature 2) Is each temperature normal?	No	Replace the concerning Thermistor.

7. 1. 2. 3 E-0003 Fuser Error

E-0003: Fuser Temperature Abnormal Fall 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.
Thermistors (TH1 & TH2)	3	Select the Information Mode, and then check the temperature of fuser detected by Thermistors (TH1 & TH2). Item No. : 00 (Fuser temperature 1) 01 (Fuser temperature 2) Is each temperature normal?	No	Replace the concerning Thermistor.

7. 1. 2. 4 E-0005 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. 1. 2. 5 E-0010 Main 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 Operation Check Mode of the Service Mode. Device Code : 00 (Main Motor) Does the Main Motor operate correctly?	No	Replace the Main Motor.

7. 1. 2. 6 E-0013 Paper Tray Motor Error

Cause	Checking order	Checking	Result	Treatment
Wires	1	Is the wire between Paper Tray 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. 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.
Paper Tray Motor (M3)	3	Check the operation of Main Motor in the Operation Check Mode of the Service Mode. Device Code : 33 (Paper Tray Motor) Does the Main Motor operate correctly?	No	Replace the Main Motor.

7. 1. 2. 7 E-0020 Counter Error (E-020)

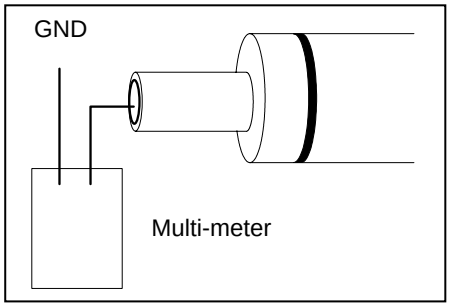
Cause	Checking order	Checking	Result	Treatment
Service Mode	1	Has the setting of Adjustment Mode Item No.753 set to “1” ?	Yes	Set it to “0”.

7. 1. 2. 8 E-0031 / 0032 / 0033 High Voltage Output Error

E-0031: Image Corona Output Error
E-0032: Separation Corona Output Error
E-0033: Transfer Corona Output Error

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. 9 E-0034 Bias Output Error

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. 10 E-0040 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 Signal Status Mode of the Service Mode. Signal Code : 094 (Cutter Home Position Right) 095 (Cutter Home Position Left) Is the status “L” when the Cutter is at each home position?	No	Replace the Cutter Unit.
Cutter Motor (M4)	3	Check the operation of Cutter in the Operation Check Mode of the Service Mode. Device Code : 27 (Cutter Motor 1) 28 (Cutter Motor 2) Does the Cutter operate?	No	Replace the Cutter Unit.

7. 1. 2. 11 E-0050 FPGA 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. 12 E-0070 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. 13 E-0080 / 0081 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.

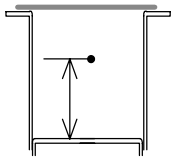
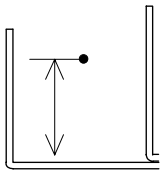
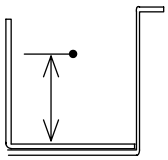
7. 1. 2. 14 E-0090 Eraser Lamp Error

Cause	Checking order	Checking	Result	Treatment
Wires	1	Is the wire between Toner Density Sensor and PW11720 PCB connected properly? Is the spring on the left bottom of the Process Unit OK?	No	Connect it properly.
Eraser Lamp	2	Can you fix the problem if you replace the Process Unit?	No	Replace PW11720 with a new one.

7. 2 Troubleshooting - Image Quality

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	Adjustment Mode No.029 (Plain) No.030 (Tracing) No.031 (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	Adjustment Mode No.022 (Plain) No.023 (Tracing) No.024 (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	Adjustment Mode No.622	
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

7. 2. 2. 1 Halftone is too light

Check the following matters with the Test Pattern No.1 S(0) and No.3 S(0).
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 Test Pattern No.1 S(0) and No.3 S(0).
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 Test Pattern No.1 S(0) and No.3 S(0).
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. Is the toner image looks normal?	Yes	Go on to the step 5.
			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 Test Pattern No.1 S(0) and No.3 S(0).
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 Test Pattern No.1 S(0) and No.4 S(0).
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 Test Pattern No.1 S(0) and No.4 S(0).
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 Test Pattern No.1 S(0) and No.4 S(0).
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.

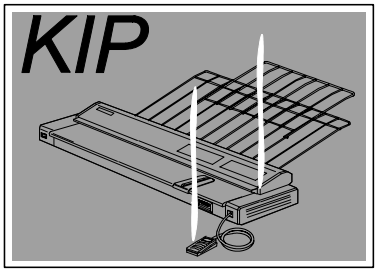
7. 2. 2. 8 White line (Vertical)

Check the following matters with the Test Pattern No.1 S(0) and No.7 S(0).
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 Test Pattern No.1 S(0) and No.7 S(0).
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	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	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	1. Check if there is enough toner in the Developer Unit. 2. Also select the Device Status Mode and check the Toner Sensor Signal (Device Code: 107). 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]

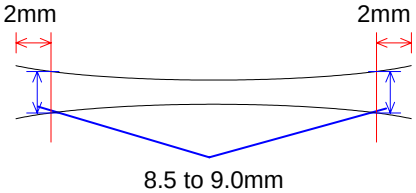
7. 2. 2.10 Dirt on the back of the print

Check the following matters with the Test Pattern No.1 S(0) and No.4 S(0).
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 Test Pattern No.1 S(0) and No.3 S(0).
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. 1 Fuser Error (E-001, E-002 & E-004)] 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 the Test Patter No.2 S(0) 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 Test Pattern No.1 S(0) and No.7 S(0).
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 Test Pattern No.1 S(0) and No.7 S(0).
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.

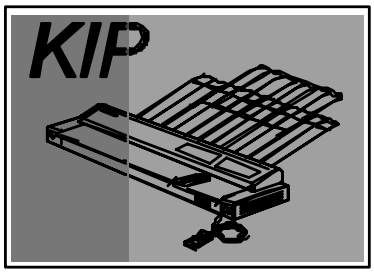
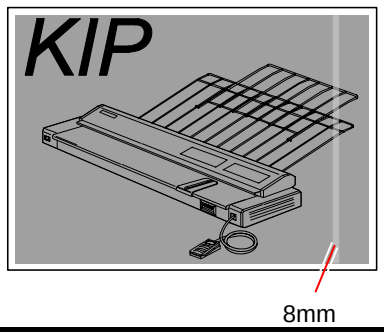
7. 2. 2.14 Image looks not sharp

Check the following matters with the Test Pattern No.1 S(0).
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 Test Pattern No.1 S(0) and No.7 S(0).
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 [8.6.3 008 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 Test Pattern No.1 S(0).
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. Is there any toner image on the Drum?	No	Replace the LED Head.
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

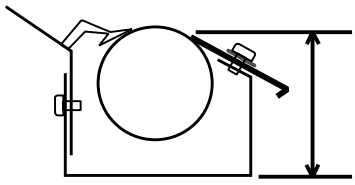
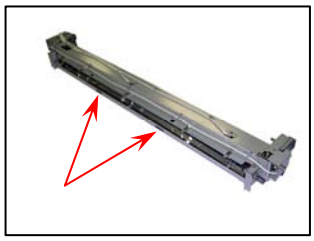
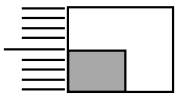
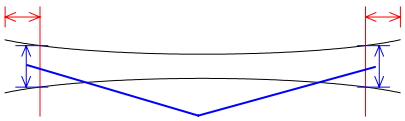
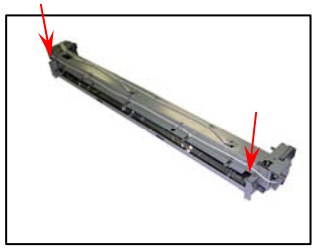
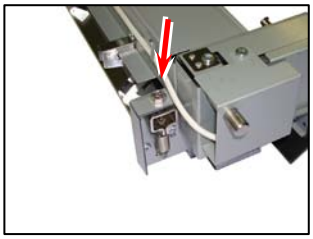
7. 2. 2.17 Completely black

Check the following matters with the Test Pattern No.1 S(0) and No.4 S(0).
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

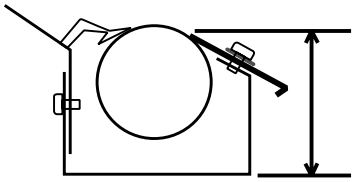
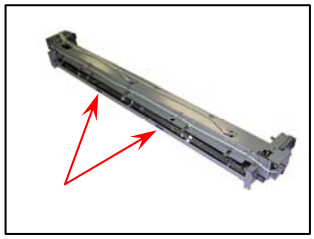
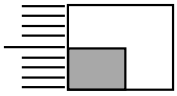
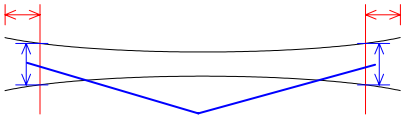
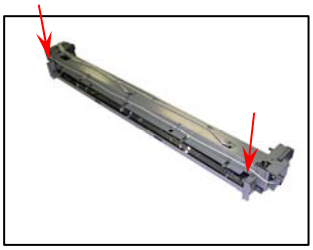
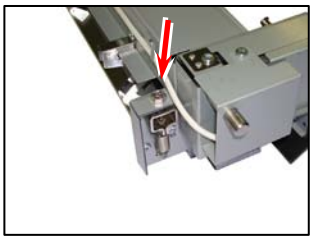
7. 2. 2.18 Crease of paper

Check the following matters with the Test Pattern No.1 S(0).
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 the Test Patter No.2 S(0) 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.) 2mm 2mm  8.5 to 9.0mm	No	Adjust the fusing pressure correctly.  Turn the bolt to adjust. 

7. 2. 2.19 Double Image

Check the following matters with the Test Pattern No.1 S(0).
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.
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 the Test Patter No.2 S(0) 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.) 2mm 2mm  8.5 to 9.0mm	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 Test Pattern No.2 S(0).
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)

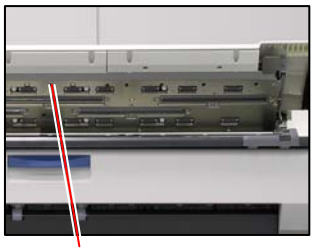
The following procedure may address a crease on a long print.
If a crease and image void can be seen at a time, follow this section.

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
Sensor	1	Is the original detected? (Is it shown on the UI?)	No	1. Tap the UI screen to cancel the sleep mode. 2. Switch the UI screen to Copy or Scan mode. 3. Check the sensor which detects the leading edge of original. If broken replace it.  Check this sensor.
USB Cable	2	Is the USB Cable connected correctly?	No	Connect it correctly.
Data Controller Board	3	Can you fix the problem if you replace the Data Controller Board?	Yes	OK

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.
Motor	2	Does the Motor rotate?	No	Check the Motor, and replace it if broken.
+24VDC	3	Is +24VDC supplied to the scanner?	No	Check the DC Power Supply on the printer part. Replace it if broken.
Data Controller Board	4	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 it.

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.

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 the Upper Unit, which blocks the light of sensor?	Yes	Remove it.

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.
Data Controller Board	4	Prepare another PC which can recognize another type of USB Scanner. Is it also impossible to recognize the K117SC with this PC?	Yes	Replace the Data Controller PCB.

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 [8.13.4.1 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 [8.13.4.1 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 [8.13.4.1 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 [8.13.4.3 Position].)	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 [8.13.4.3 Position].)	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.

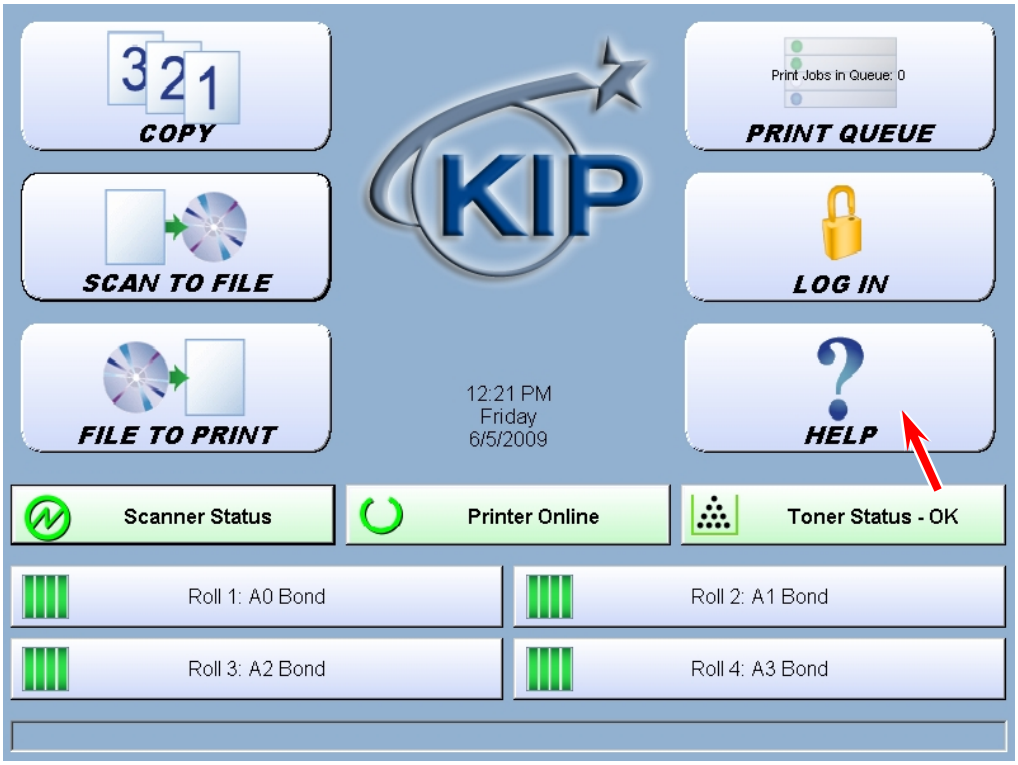
7. 3. 2. 7 Density is different between left and right

Cause	Checking order	Checking	Result	Treatment
Calibration	1	Can you fix the problem if you make Shading (Calibration)? (Refer to [8.13.4.1 Shading].)	Yes	OK

7. 4 Touch Screen Calibration

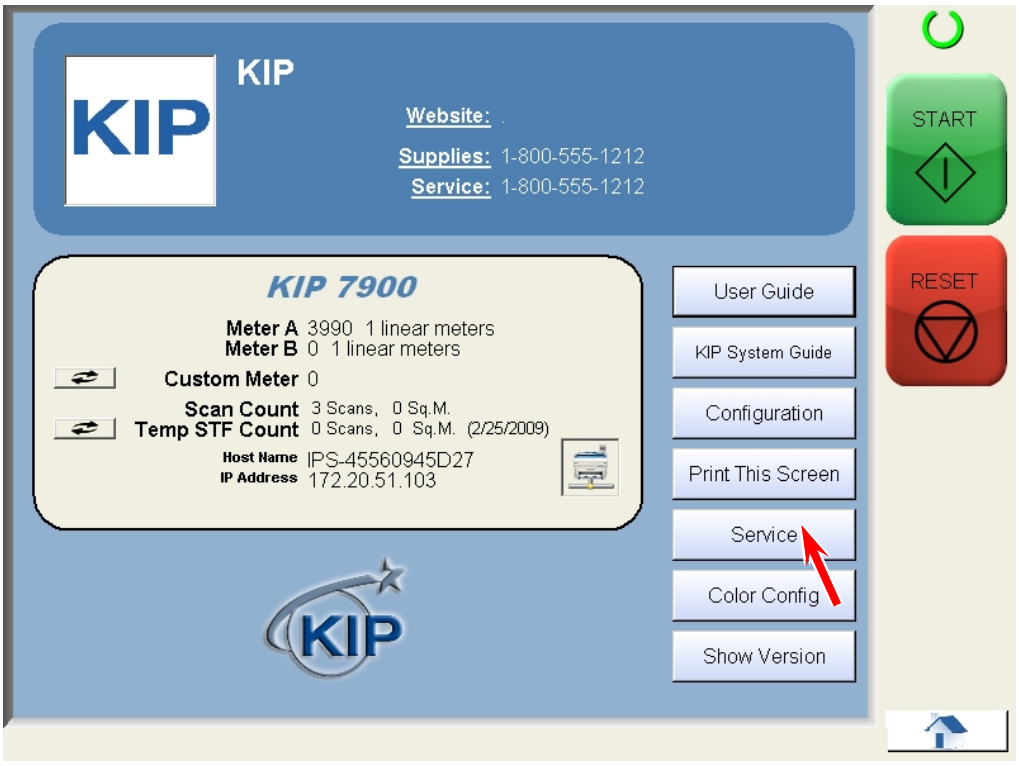
If the cursor position in the screen does not correctly match the tapped position on the panel, the touch screen should be calibrated so that the cursor is located directly underneath your finger or a stylus.

1. Press “? - Help” on Home screen.



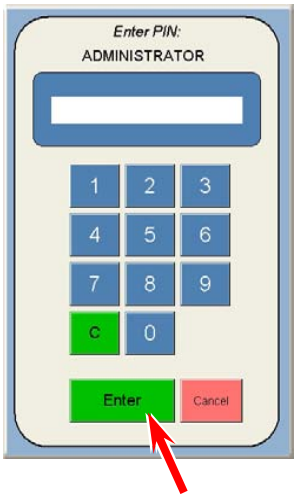
The screen shows any available options. This may vary from the actual one

2. Press [Service].

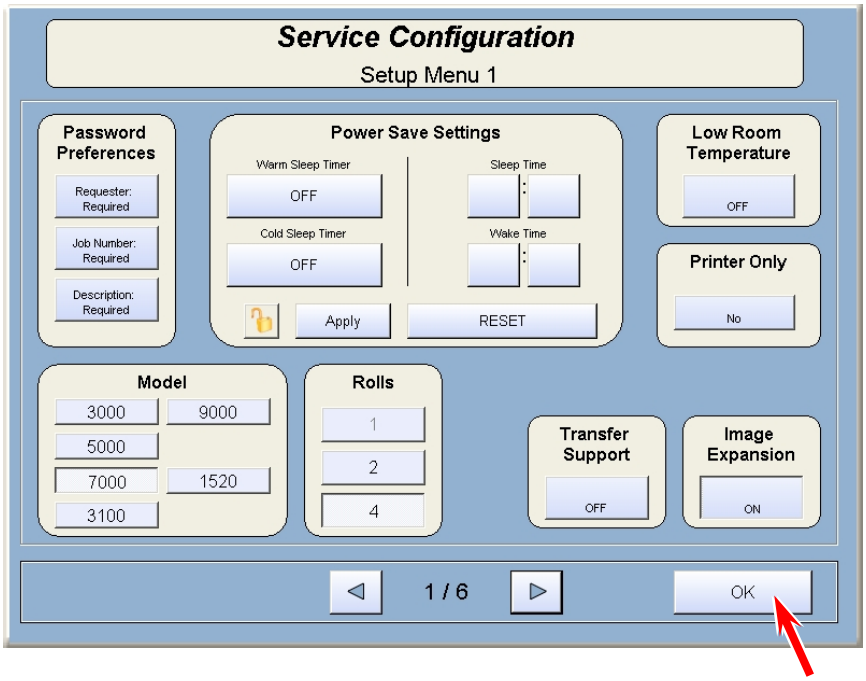


The screen shows any available options. This may vary by KIP model or your system

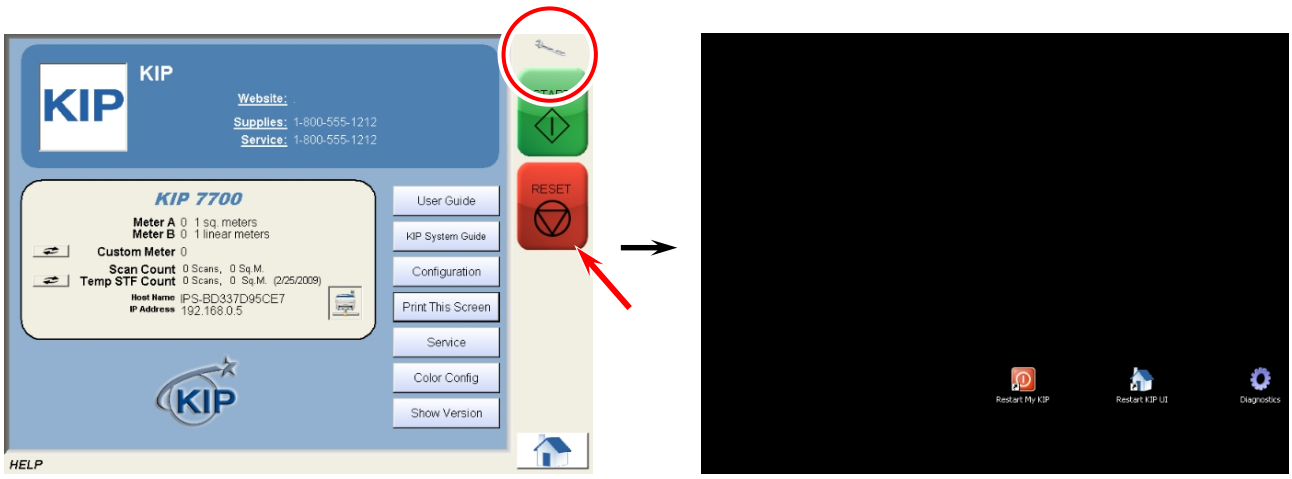
3. On-screen Keypad appears.
   Input “8495107” and press [Enter].



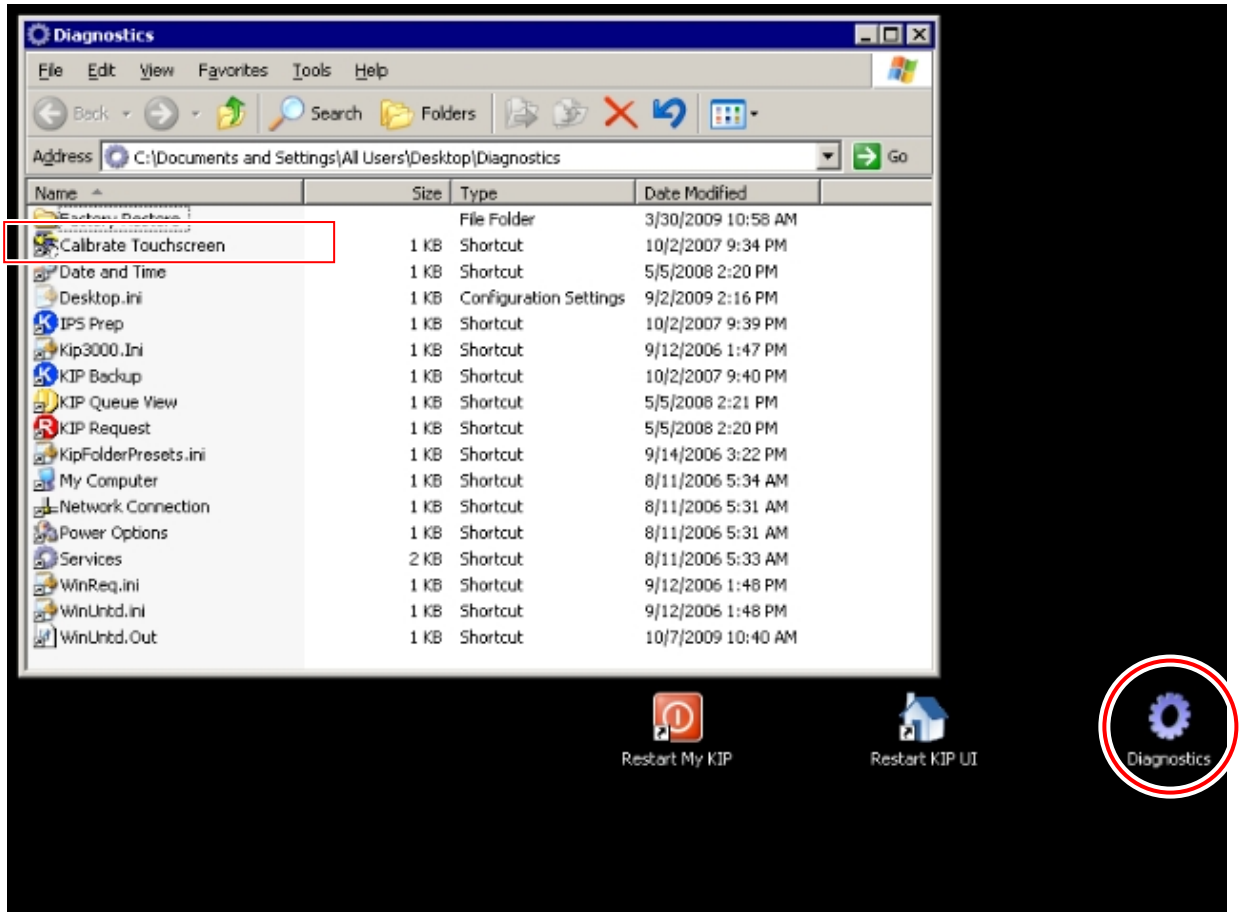
4. Service Configuration screen is displayed. Press [OK].

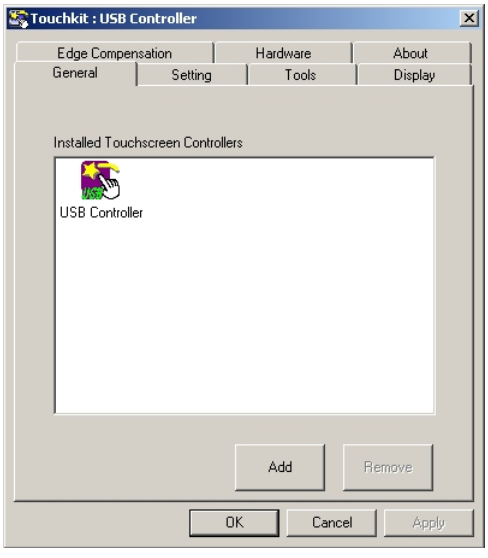


5. Make sure that a wrench symbol is indicated at the upper right of the screen.
   Press [Reset] to close UI operation window.

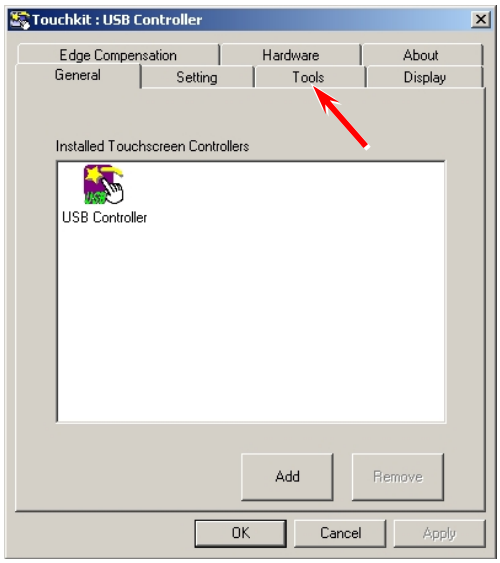


6. Tap Diagnostics folder twice as a double-click.
   Run the shortcut “TouchScreen Configure Utility” for touch screen calibration.

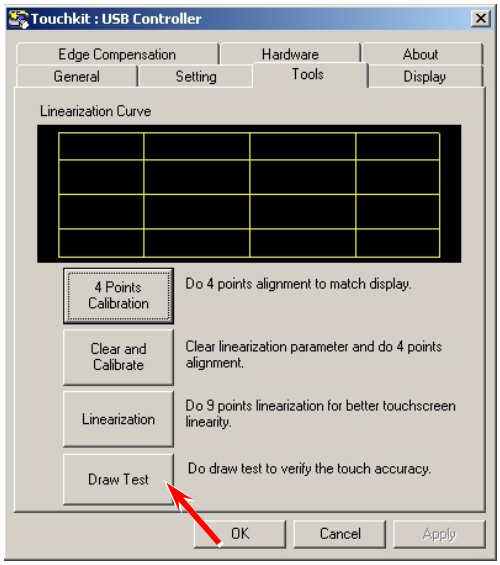




7. Select [Tools] tab.



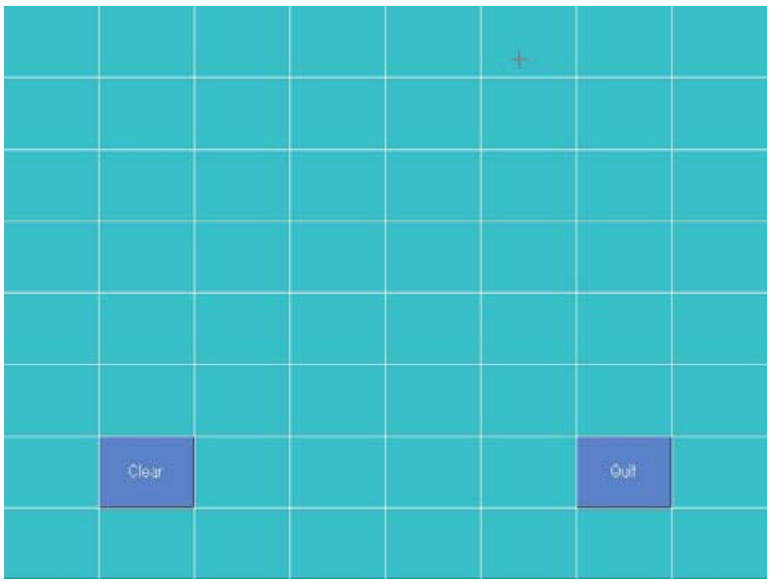
8. Press [Draw Test] to check that the touch screen correctly detects a tapped position.



NOTE

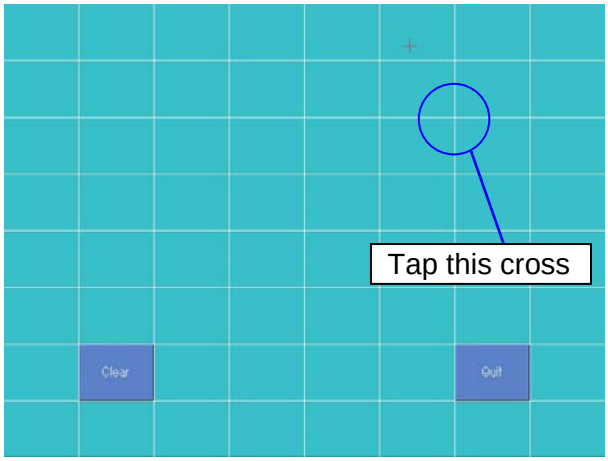
Using a stylus is recommended for easy and accurate touch screen calibration.
Do not use any sharp instrument.

9. Test screen will appear.

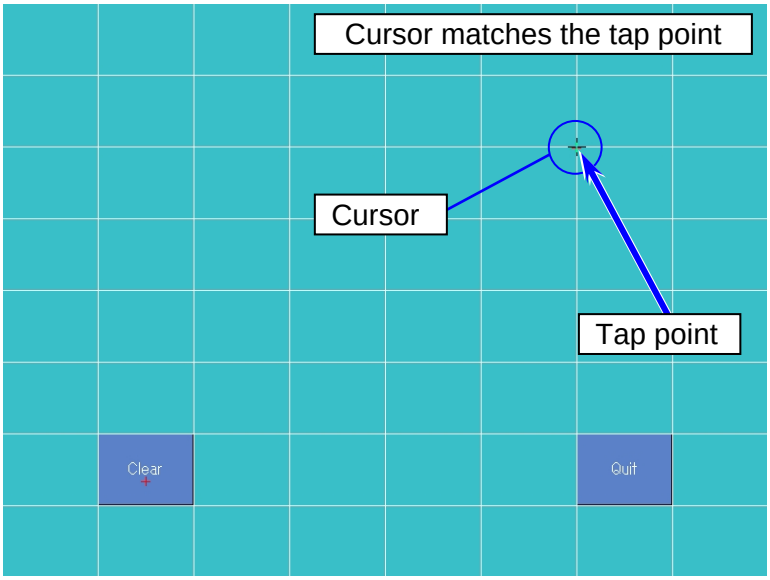


10. Tap a certain point and check the cursor appears directly underneath a stylus.

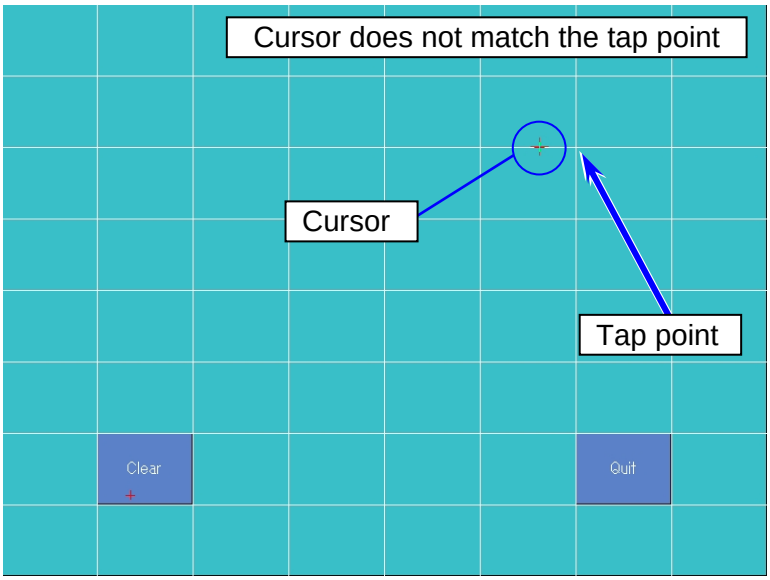
For example, suppose you tap the point shown the next figure.



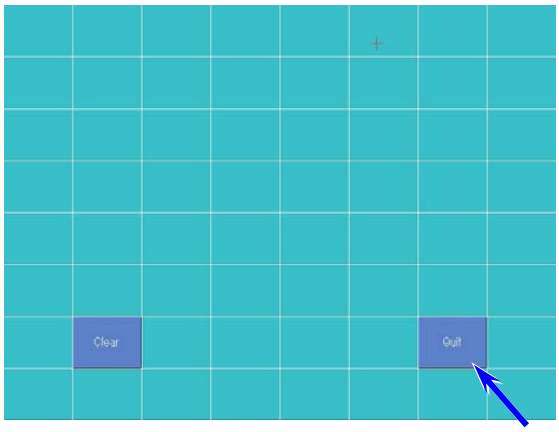
The cursor will appear just underneath the tapped point in a correct condition (calibration is not necessary).



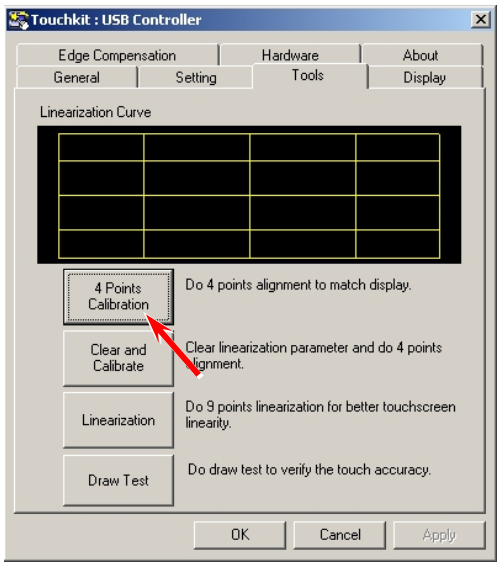
If the cursor appears an unintended position, the touch screen should be calibrated.



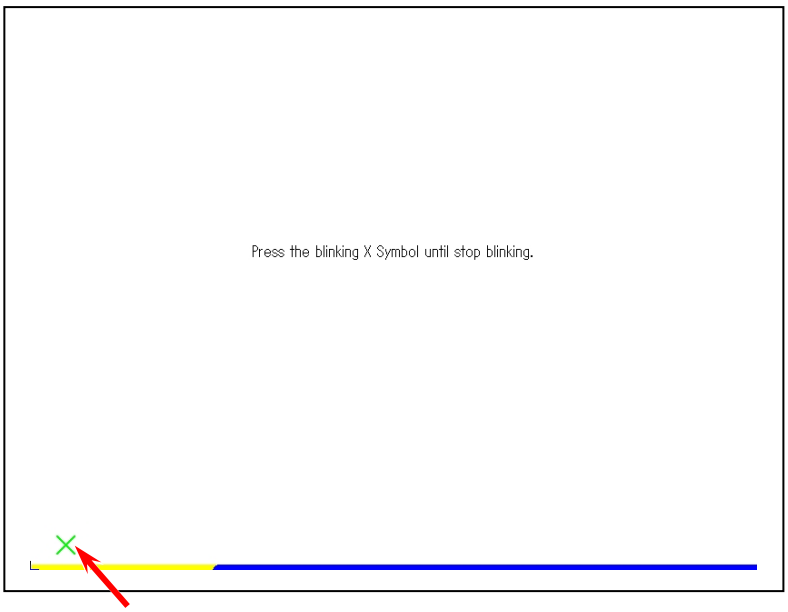
11. Tap [Quit] to close Test screen.



12. Press [4 Points Calibration].



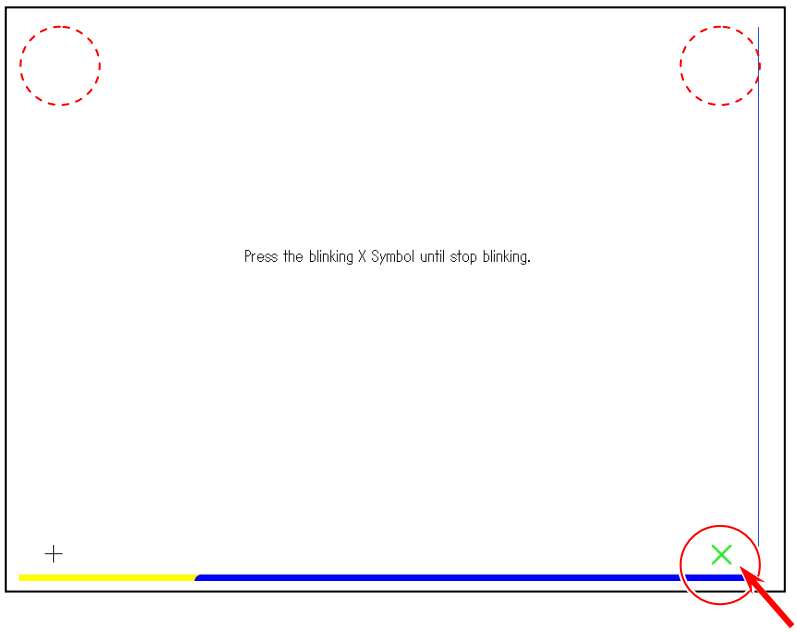
13. On Calibration screen, a blinking X symbol on the bottom left can be seen.
Press the X until it stops blinking with a beep.



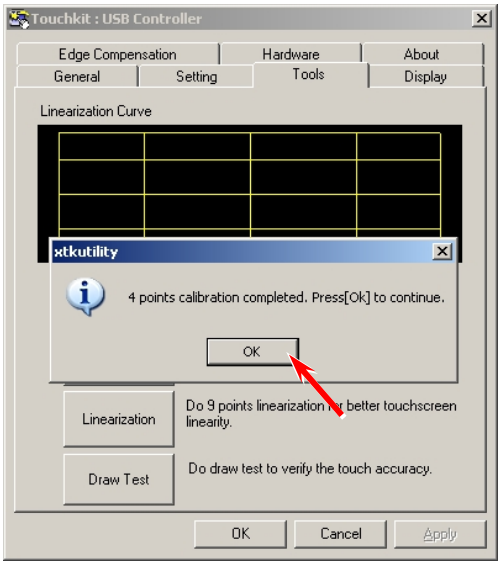
NOTE

Press the X symbol for several seconds before the progress bar at the bottom reaches the end.

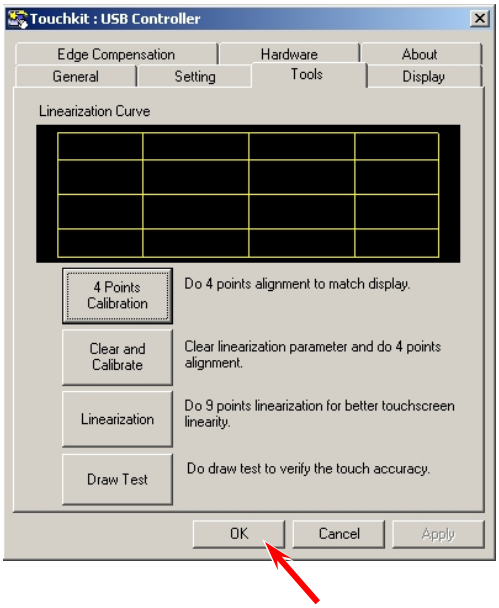
14. The X disappears and the next one will come in the following order:
bottom right, top right, top left.
Perform the same way for the other 3 points.



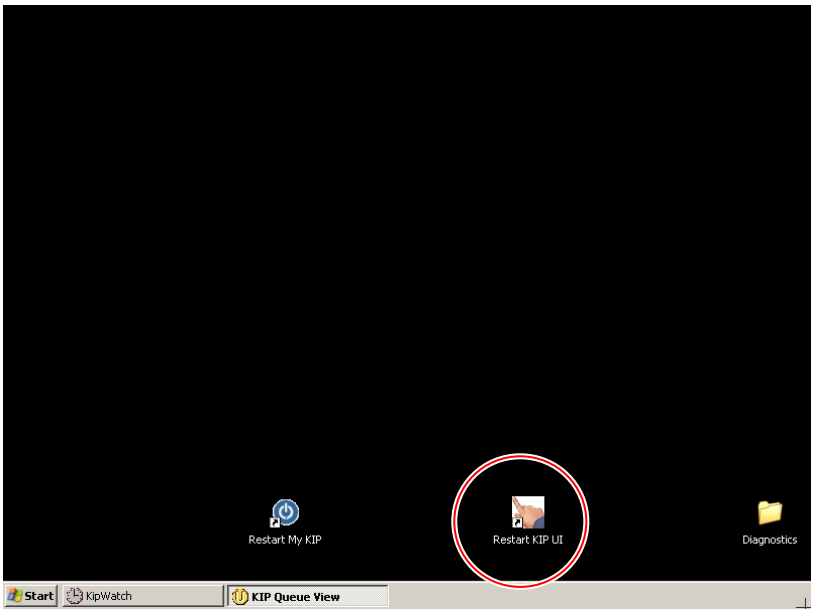
15. When all the 4 points are pressed successfully, Calibration screen disappears and the following dialog appears. Press [OK].



16. Press [OK] to finish touch screen calibration.



17. Run the shortcut “Restart KIP UI” for KIP UI operation.



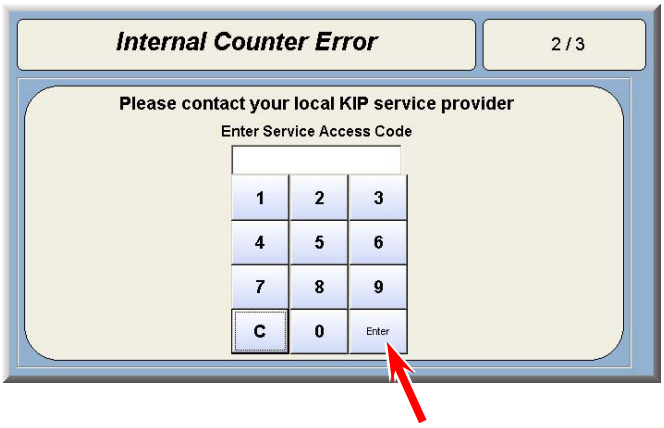
7. 5 Internal Counter Error

The KIP 700m has 2 kinds of the software counter.
One is “Print Count”, this is shown in “? Help” screen as “Counter A”. The other is “Total Count”, this can be seen NOT in the UI program screen but KIP Service Software.

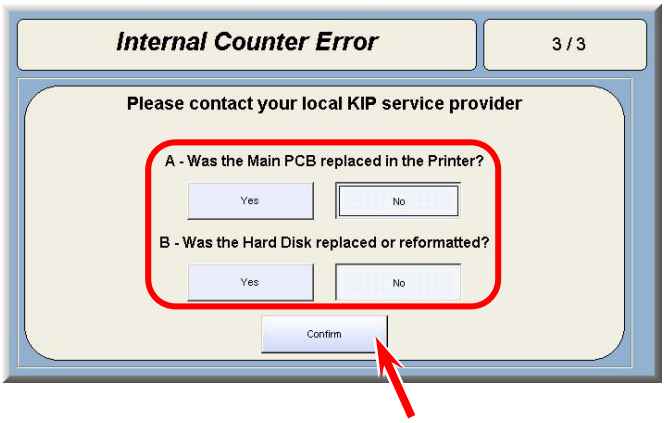
The counter values are stored on PW11720 PCB Assy and the HDD of IPS at the same time.
The KIP 700m has a backup system for the counter values. If one of them gets lost, the UI asks “which counter value has been lost, PW11720 or HDD?”

1. “Internal Counter Error” appears. Press [Continue].

2. Input “8495107” and press [Enter].



3. Answer 2 questions and press [Confirm].



- If PW11720 PCB Assy is replaced;
  → The counter values in the HDD will be written to the PW11720 PCB Assy.
- If the HDD is reformatted;
  → The counter values in PW11720 PCB Assy will be written to the HDD.

Chapter 8

Service Mode / Utility

8. 1 General Information of Service Mode

The system is equipped with advanced functions for field service to easily achieve its best performance.

Service Mode contains the following categories.

- Signal Status Mode
- Information Mode
- Operation Check Mode
- Adjustment Mode
- Running Mode
- Jam/Error Mask Mode
- Test Print Mode
- Factory Adjustment Mode
- Special Operation Mode
- Send Firmware Mode

Reference

“KIP Service Software” acts as an interface for service technicians to efficiently utilize any functions in Service Mode.
For further information about how to operate KIP Service Software, see the next page.

NOTE

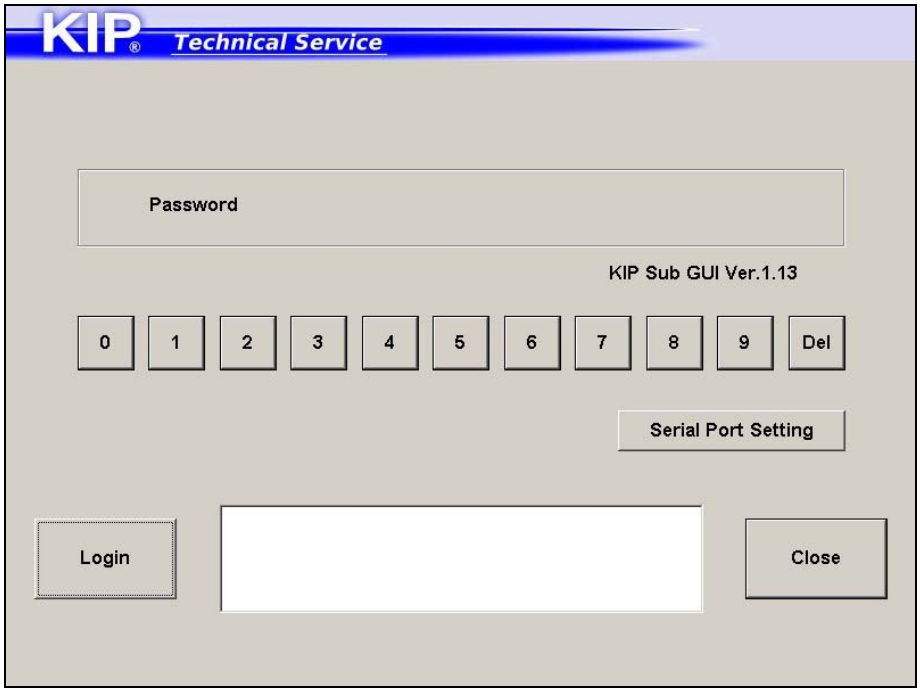
The screenshot images in Chapter 8 may vary by KIP printer model / system configuration / software version.

Shown with available options.

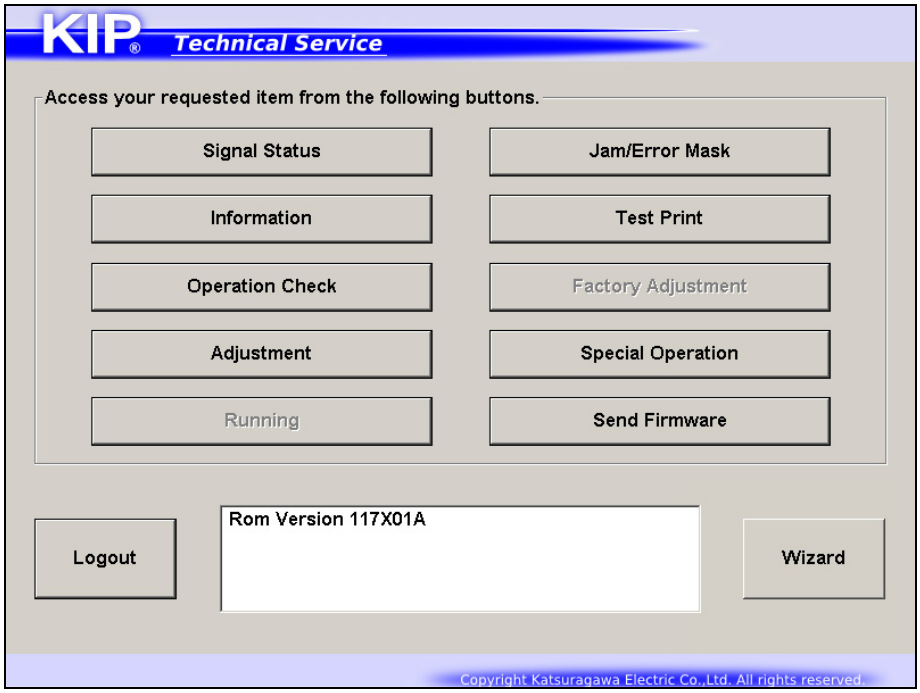
8. 2 KIP Service Software Overview

KIP Service Software is an integrated utility application that provides intuitive operability by using Touch Screen.
KIP Service Software is included in the controller and operates as an interface for monitoring, checking and setting configuration for field service.

Canceling the UI program (controlling user operation such as Copy screen) allows Touch Screen to be free to use Desktop on the controller's operating system.
Launch KIP Service Software and now it is ready to access the printer's Service Mode.

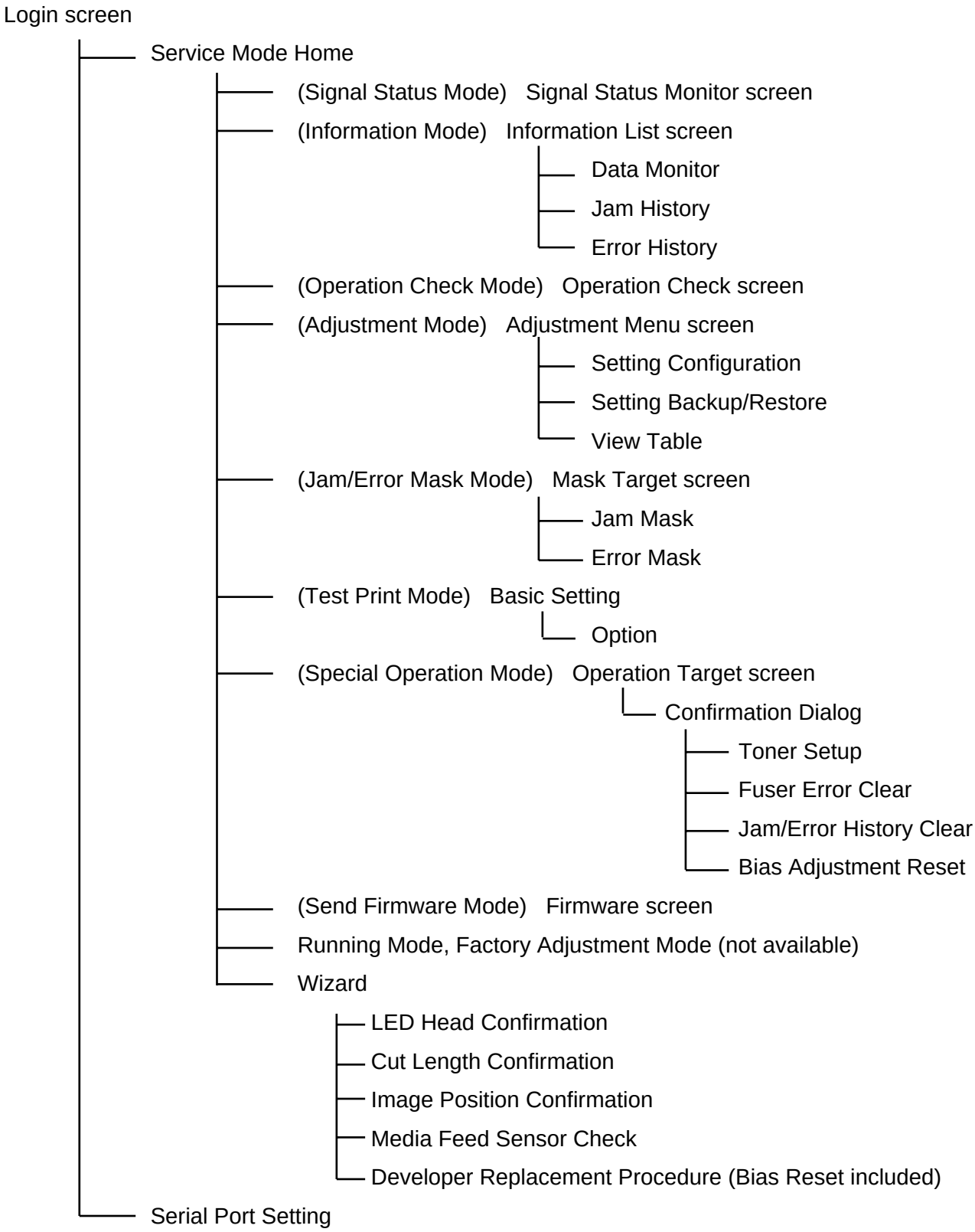


KIP Service Software Login Screen (version 1.13)



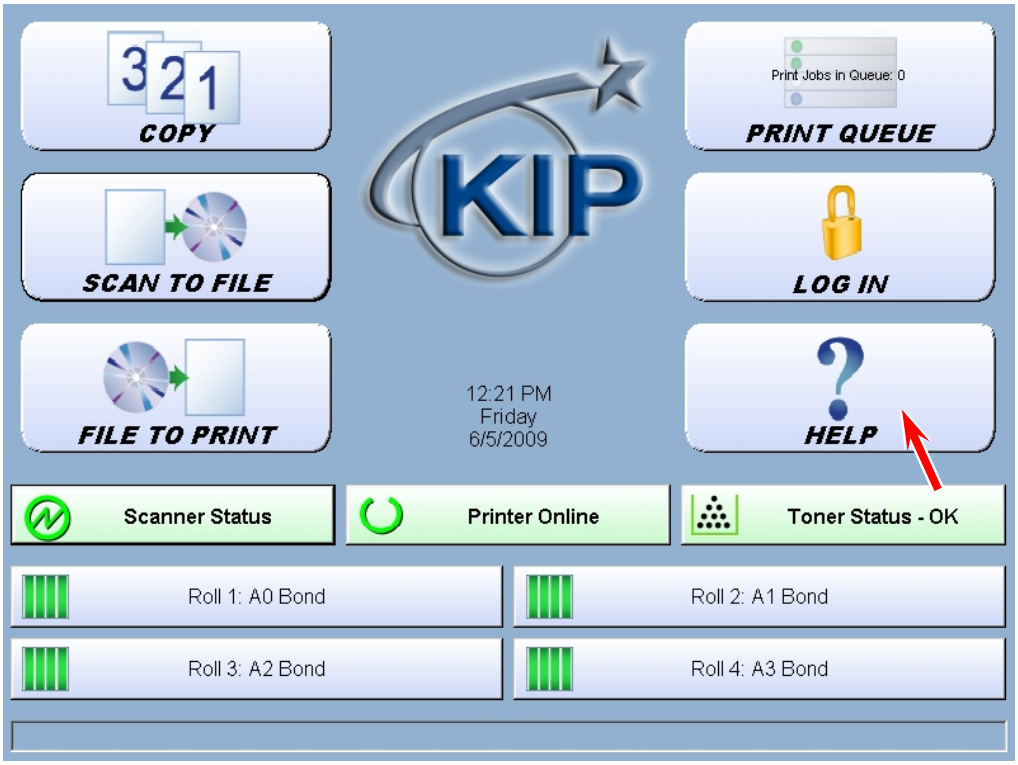
Service Mode Home

KIP Service Software Tree Diagram of screen menu hierarchy

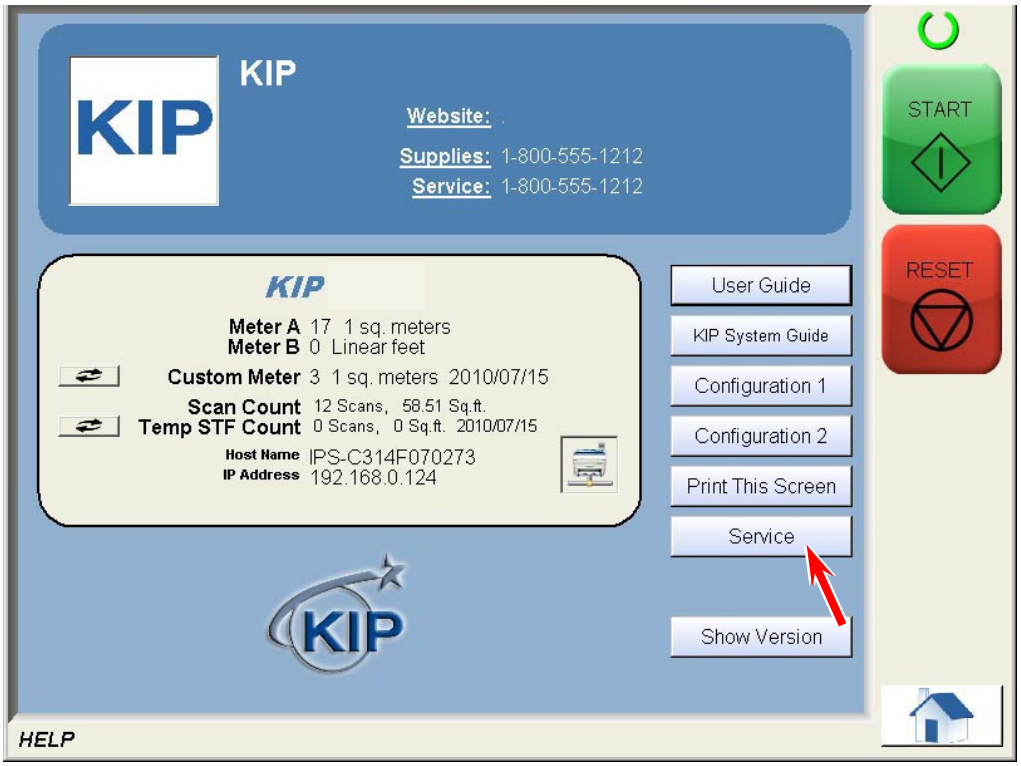


8. 2. 1 Launching KIP Service Software

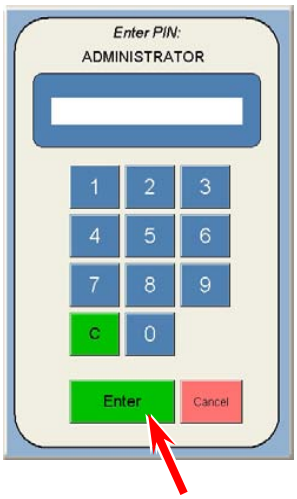
1. Press “? - Help” on Home screen.



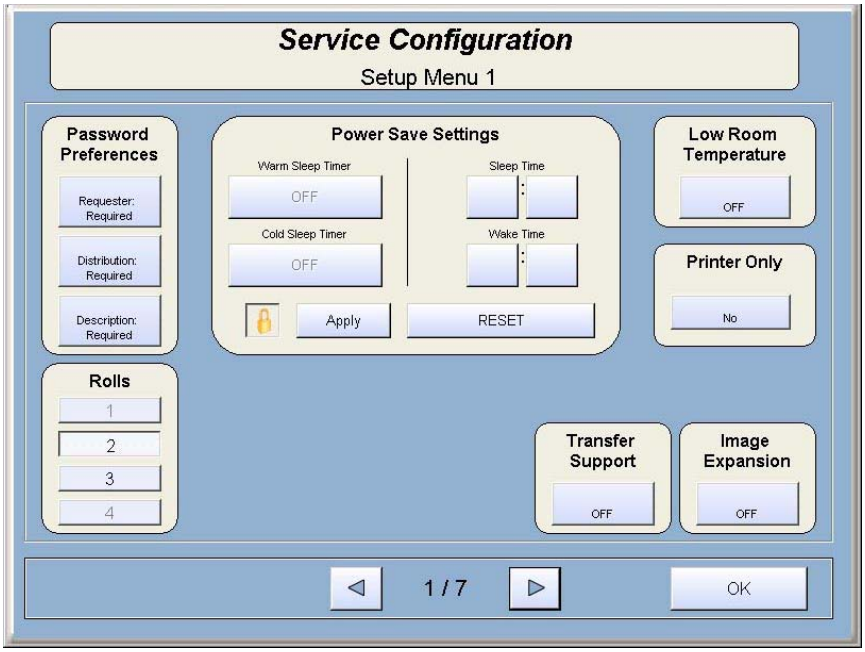
2. Press [Service].



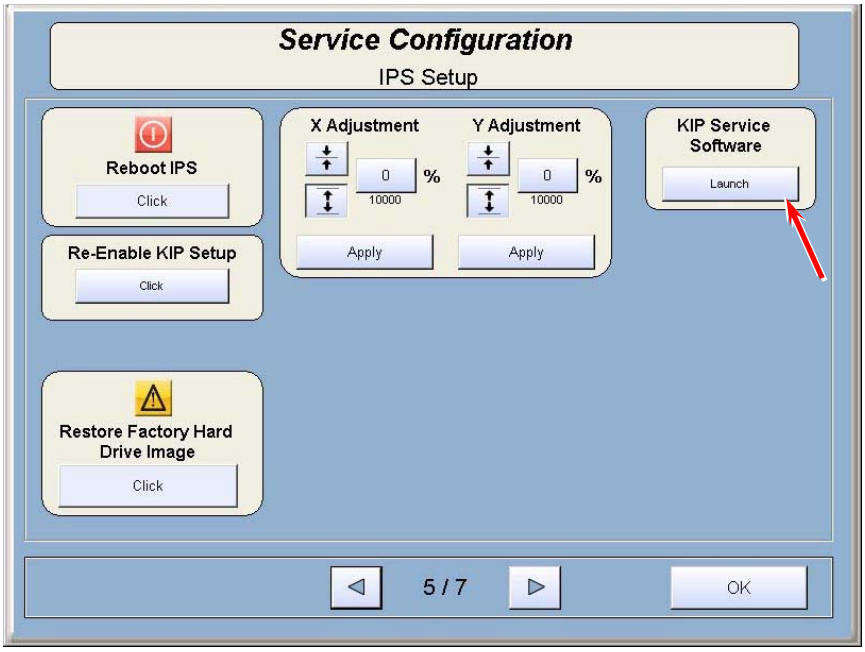
3. On-screen Keypad appears.
   Input “8495107” and press [Enter].



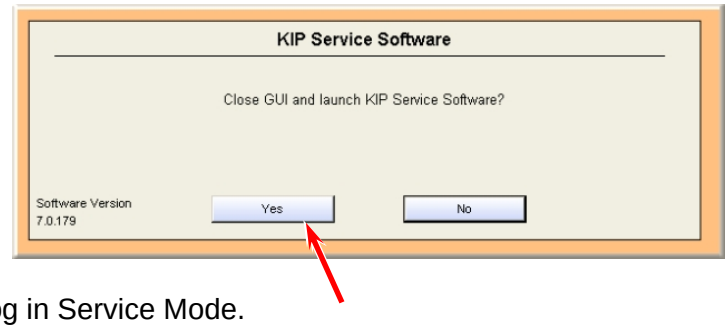
4. Service Configuration screen will appear.



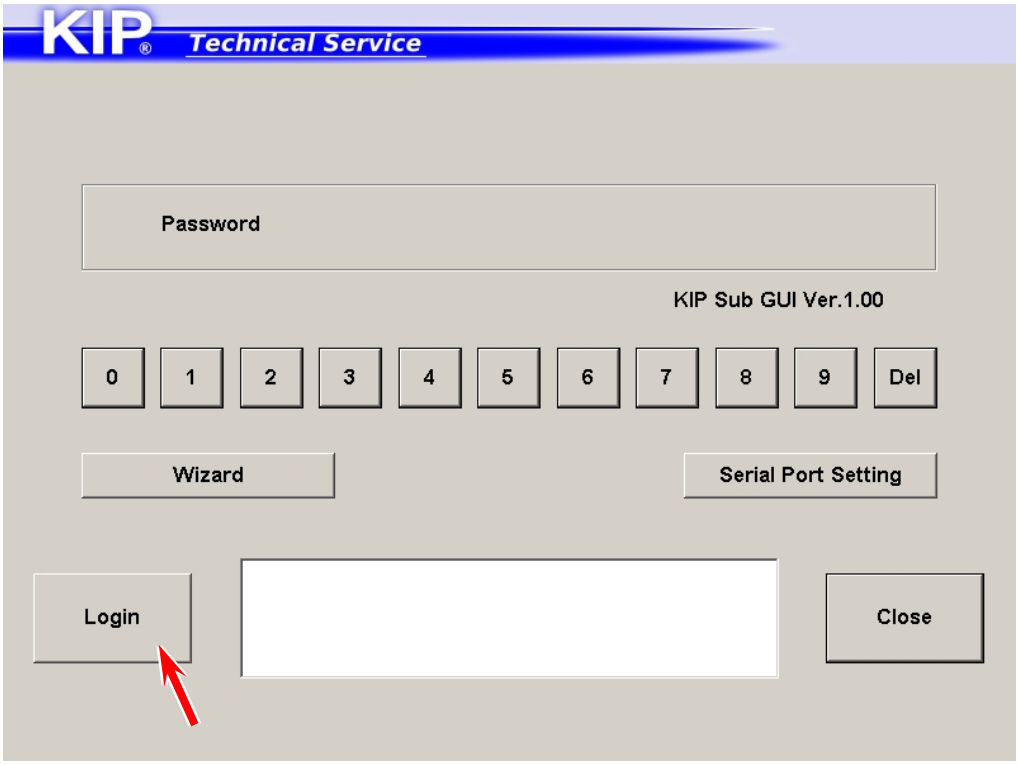
5. Use the arrow keys to open [5/7 IPS Setup]. Press [Launch] in “KIP Service Software”.



6. Press [Yes].



7. Press [Login] to log in Service Mode.

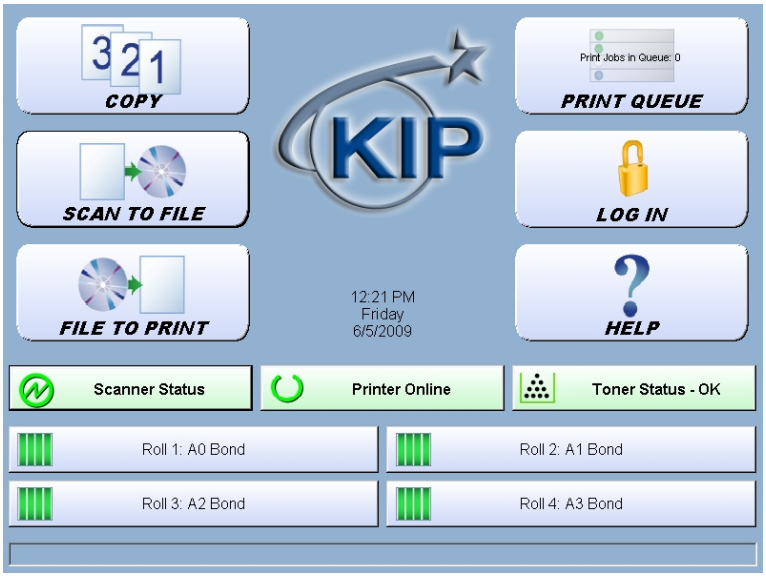


8. 2. 2 Closing KIP Service Software

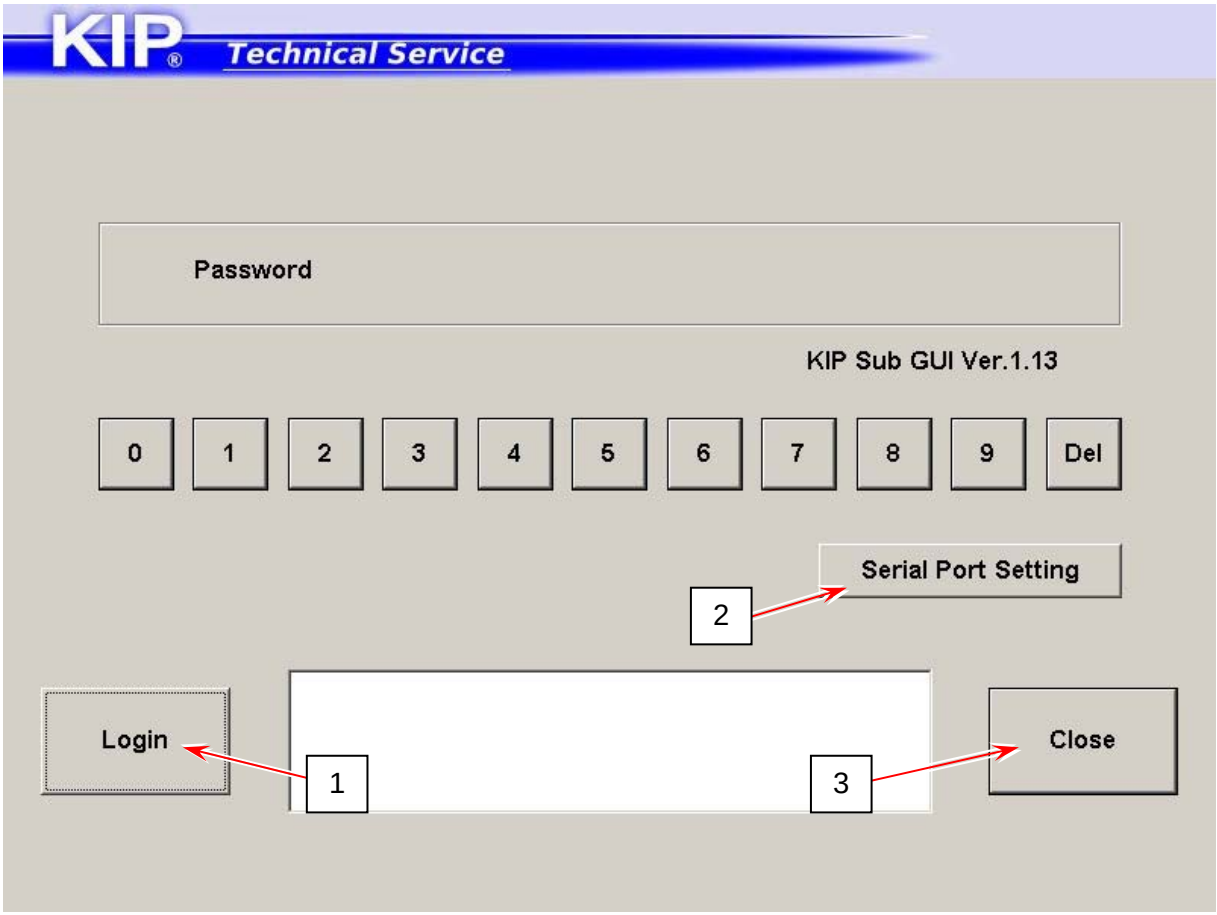
1. Return to Service Mode Home. Press [Logout].
2. In Login screen, press [Close].

Reference

Closing “KIP Service Software” automatically invoke UI Home screen to be ready for user operation.

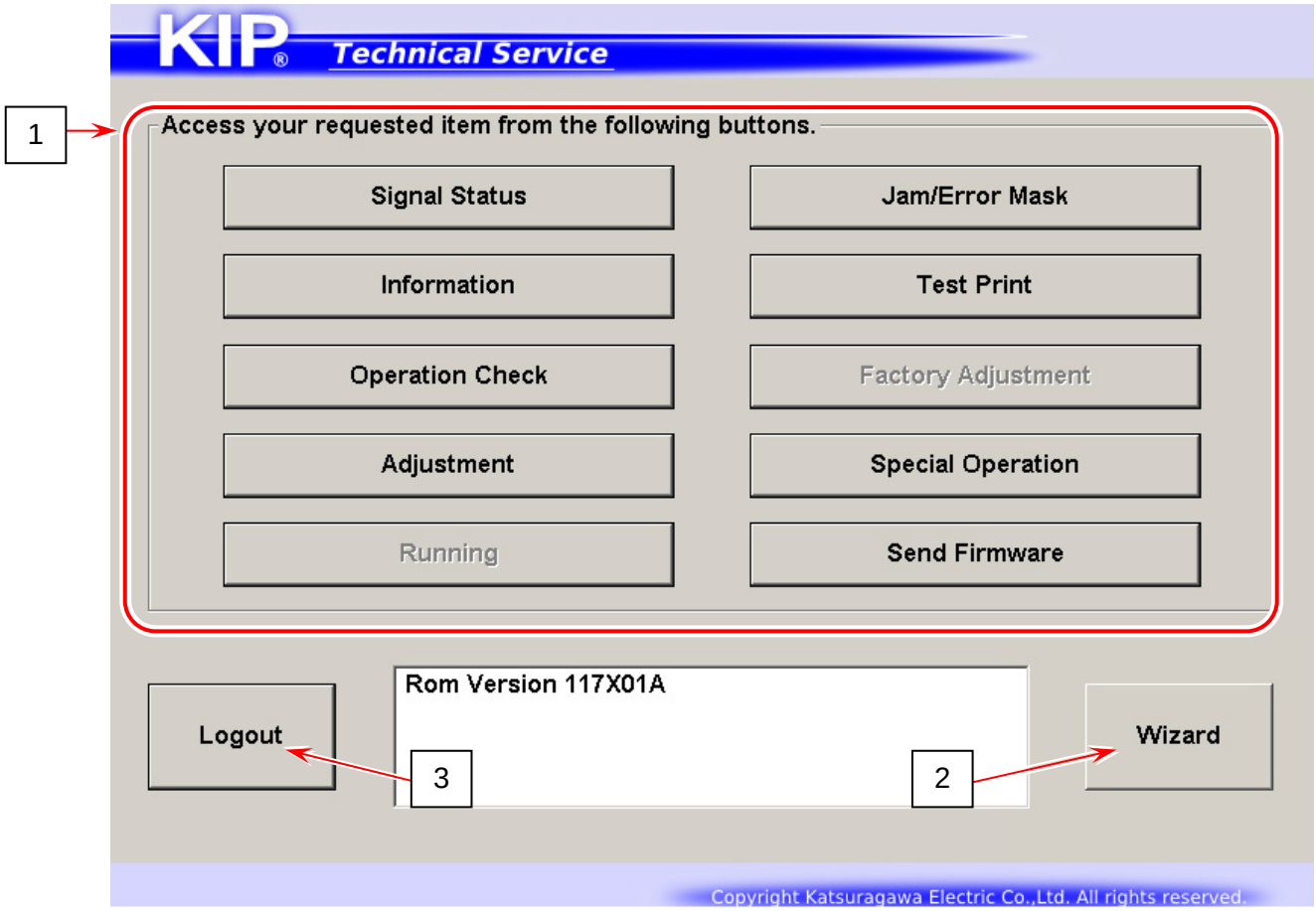


8. 2. 3 Log In screen



	Name	Function
1	Login	Log in Service Mode
2	Serial Port Setting	Configures Communication Port Settings between the controller and PW11720 PCB It is not necessary to use this button in normal condition.
3	Close	Press here to close KIP Service Software.

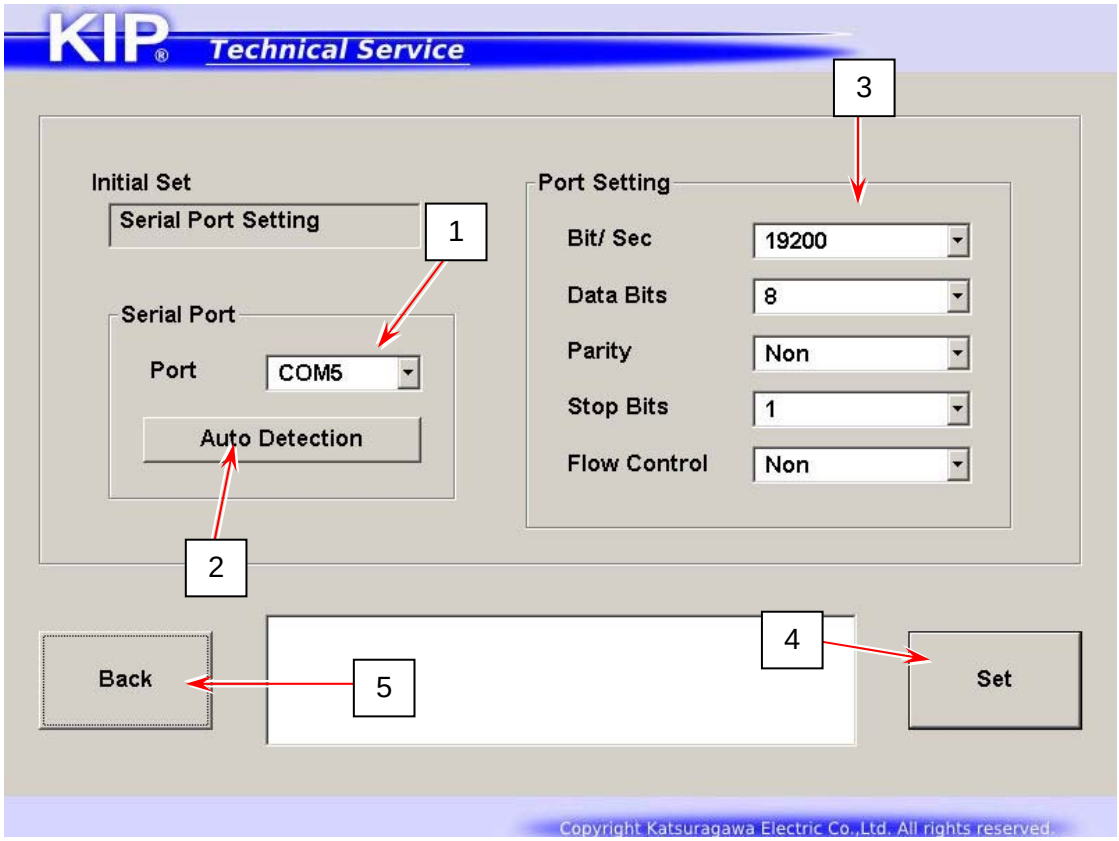
8. 2. 4 Service Mode Home



	Name	Function
1	Mode Select	Press one of Mode Category buttons that you want to enter.
2	Wizard	contains step by step wizard for confirmation of LED Head / Cut Length / Image Position and some other helpful instructions
3	Logout	Press here to log out Service Mode. Returns to Log In screen

Signal Status	Input / Output signal monitor
Information	Analog data status monitor
Operation Check	Electric device check
Adjustment	Printer settings
Running	not available
Jam/Error Mask	Disables jam/error detection
Test Print	Test pattern plot command
Factory Adjustment	not available
Special Operation	Clears history, error status, setting reset functions
Send Firmware	Sends firmware program to printer

8. 2. 5 Serial Port Setting



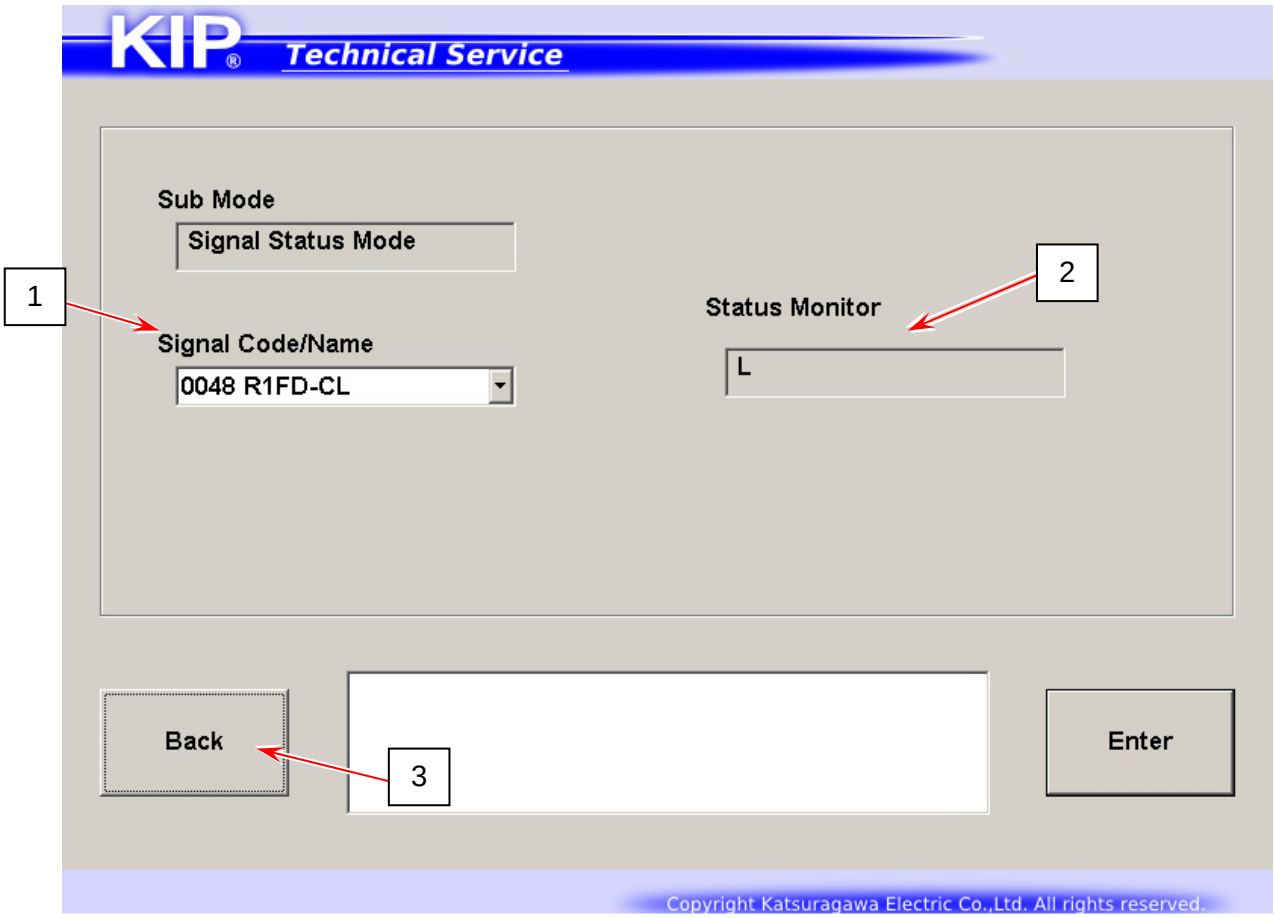
	Name	Function
1	Port Number	Shows the currently selected serial port
2	Auto Detection	Detects a serial port number to be used for communication between PW11720 to IPS
3	Port Setting	Correct ant settings if not set so in the above image.
4	Set	Applies serial port configuration to the selected port
5	Back	Press here to log out Service Mode. Returns to Log In screen

In case of communication failure or port open error, press [Auto Detection] to re-establish communication between PW11720 to IPS.

8. 3 Signal Status Mode

It is possible to monitor the status of any device signal input to / output from PW11720 PCB with making prints.
For information about Signal Codes, Signal Names and their contents, see [8.3.2 Input / Output Signal List].

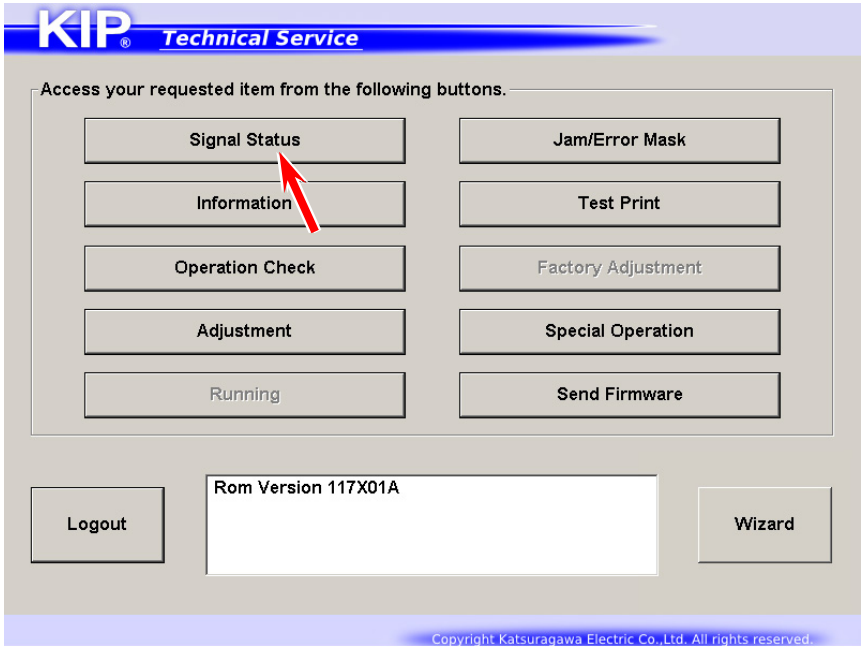
Signal Status Monitor screen

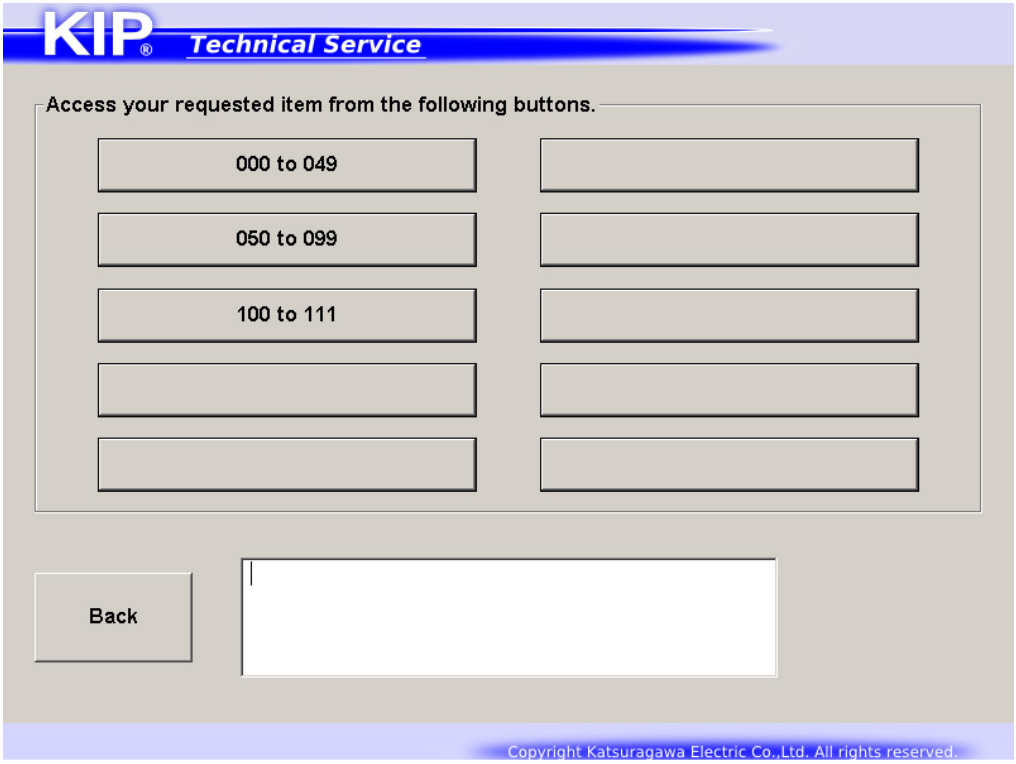


	Name	Function
1	Signal Code / Name	Displays Signal Code / Name in drop-down menu Specify one item that you want to monitor.
2	Status Monitor	Displays the current status of the selected signal
3	Back	Returns to Service Mode Home

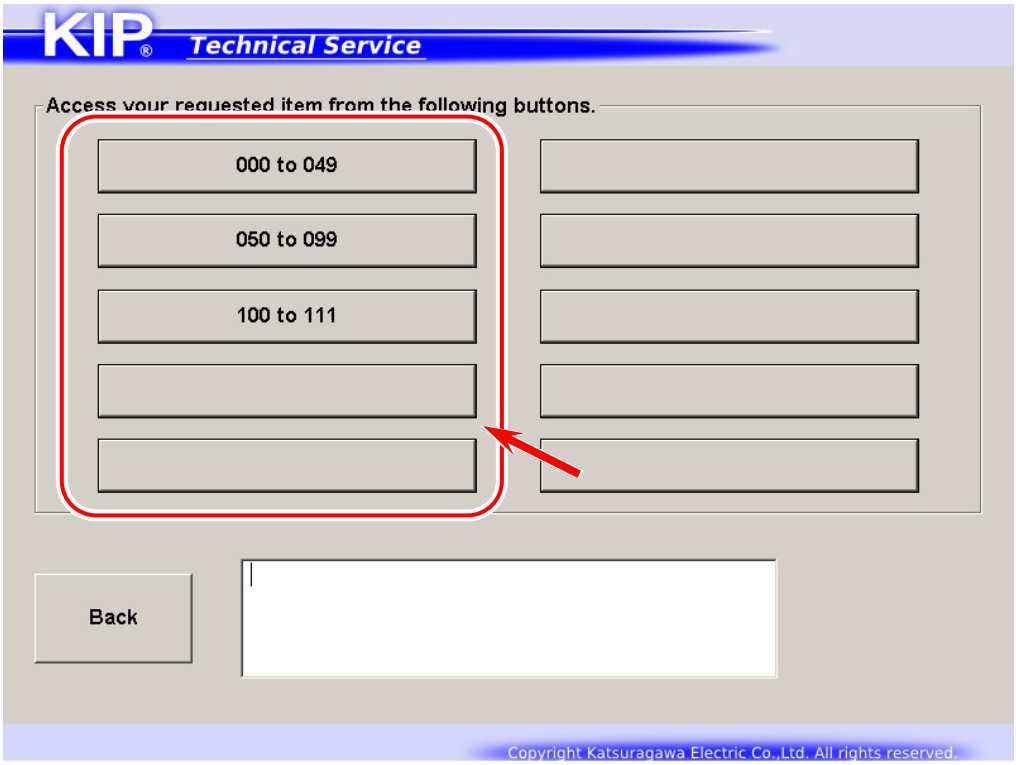
8. 3. 1 Monitoring Signal Status

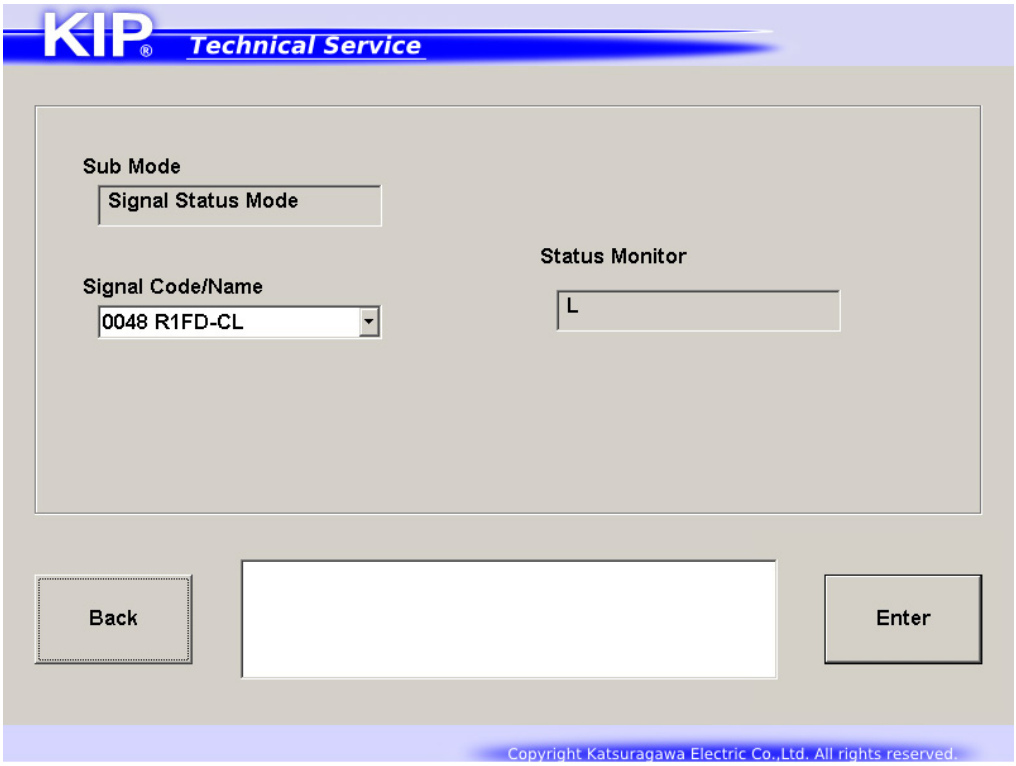
1. Press [Signal Status] in Service Mode Home.
   Signal Code Group screen appears.



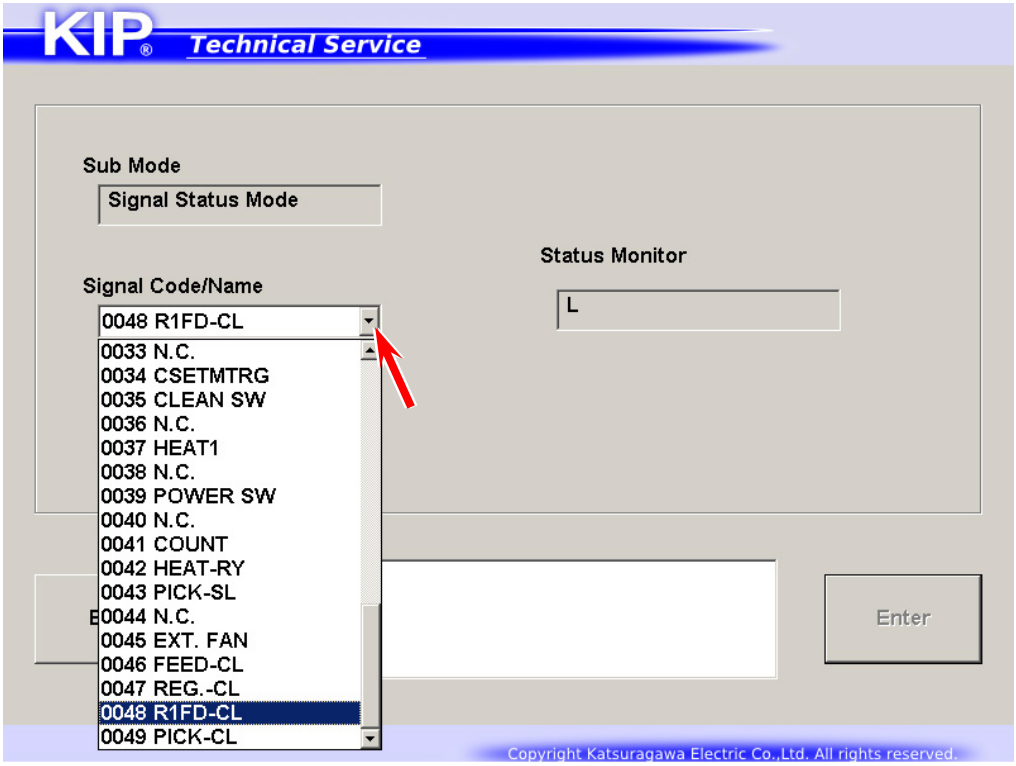


2. Press one Code Group button that contains the signal code that you want to monitor. Signal Status Monitor screen appears.





3. Specify one signal item that you want to monitor from Signal Code/Name menu.



4. The current status of the device you have chosen is displayed in Status Monitor.

8. 3. 2 Input / Output Signal List

Signal Code	Symbol	IC Port	Connector	Signal Name	Input / Output	Status
000	SW1	IC3-P20	J205-11	Input Switch 1	Input	L : ON
001	SW2	IC3-P21	J205-12	Input Switch 2	Input	L : ON
002	SW3	IC3-P22	J205-13	Input Switch 3	Input	L : ON
003	SW4	IC3-P23	J205-14	Input Switch 4	Input	L : ON
004	SW5	IC3-P24	J205-15	Input Switch 5	Input	L : ON
005	GUIDE_S	IC3-P25	J204-26	Guide Sensor	Input	H : Guide Plate flap UP
006	HAND_DOOR	IC3-P26	J204-25	Manual Feed Table Open	Input	H : Open
007	PRO_OPEN	IC3-P27	J207-16	Upper Unit Open	Input	H : Open
008	MANIN_S	IC3-P40	J204-18	Manual Feed Sensor	Input	H : Media detected
009	DOOR_OPN	IC3-P41	J204-19	Roll Deck Open	Input	H : Open
010	SEP_S	IC3-P42	J204-20	Separation Sensor	Input	L : Media detected
011	HEAT_EXIT	IC3-P43	J204-21	Exit Sensor	Input	L : Media detected
012	SAMP_CUT	IC3-P44	J204-22	Initial Cut Switch		
013	---	IC3-P45	J208-20			
014	ER_LD	IC3-P46	J208-19	Eraser Lamp Connection Detection	Input	H : No connection * does not work while lighting.
015	---	IC3-P47	J204-27			
016	COUNT_LD	IC3-80	J208-4	(Reserved)		
017	MAINM_LD	IC3-81	J207-18	Main Motor Output Detection	Input	L : Detected
018	FUSERM_LD	IC3-82	J207-19	(Reserved)	Input	L : Detected
019	DIS_CN	IC3-83	J207-20	Developer Connection Detection	Input	L : No connection
020	IM_LD	IC3-84	J207-21	Image Corona Output Detection	Input	L : No connection
021	TR_LD	IC3-85	J207-22	Transfer Corona Output Detection	Input	L : No connection
022	AC_LD	IC3-86	J207-23	Separation Corona Output Detection	Input	L : No connection
023	BIAS_LD	IC3-87	J207-24	Developer Bias Output Detection	Input	L : No connection
024	MAIN_TRG	IC3-P10	J206-7	Main Motor	Output	H : Rotate
025	FUSER_TRG	IC3-P11	J206-8	(Reserved)		
026	HV_IM	IC3-P12	J206-9	Image Corona	Output	H : Output
027	HV_TR	IC3-P13	J206-10	Transfer Corona	Output	H : Output
028	HV_AC	IC3-P14	J206-11	Separation Corona	Output	H : Output
029	BIAS_TRG	IC3-P15	J206-12	Developer Bias	Output	H : Output
030	BIAS_SW	IC3-P16	J206-13	Developer Bias Polarity Switch	Output	L : Positive H : Negative
031	FUSER_DIR	IC3-P17	J206-14	(Reserved)		
032	MAIN_DIR	IC3-P30	J206-15	Main Motor Reversal Rotation	Output	H : Reverse
033	---	IC3-P31	J206-16			
034	CSET_TRG	IC3-P32	J206-17	Paper Tray Motor	Output	L : Rotate
035	CLEAN_SW	IC3-P33	J206-18	Cleaning Roller Voltage Polarity Switch	Output	L : Positive H : Negative
036	---	IC3-P34	J206-22			
037	HEAT1	IC3-P35	J206-25	SSR ON/OFF Signal 1	Output	H : Heater Lamp lights
038	---	IC3-P36	J206-26			
039	POWER_SW	IC3-P37	J206-27	Power Switch Output	Output	H : OFF
040	---	IC3-P50	J208-3			
041	COUNT	IC3-P51	J208-4	(Reserved)		
042	HEAT_RY	IC3-P52	J208-5	Fuser Relay	Output	H : ON
043	PICKUP_SL	IC3-P53	J208-13	Pickup Solenoid	Output	H : ON
044	---	IC3-P54	J208-14			
045	EXT_FAN	IC3-P55	J208-21	Extractor Fan	Output	H : ON
046	FEED_CL	IC3-P56	J208-10	Feed Clutch	Output	H : ON
047	REGIST_CL	IC3-P57	J208-11	Registration Clutch	Output	H : ON
048	R1FD_CL	IC3-P60	J208-6	Roll Feed Clutch	Output	H : ON
049	CPICK_CL	IC3-P61	J208-7	Paper Tray Pickup Clutch	Output	H : ON
050	CFEED_CL	IC3-P62	J208-8	Paper Tray Feed Clutch	Output	H : ON
051	GUIDE_CL	IC3-P63	J208-9	Guide Clutch	Output	H : ON
052	HEAT_BL_L	IC3-P64	J208-12	Fuser Blower (Low)	Output	H : ON
053	HEAT_BL_H	IC3-P65	J208-12	Fuser Blower (High)	Output	H : ON

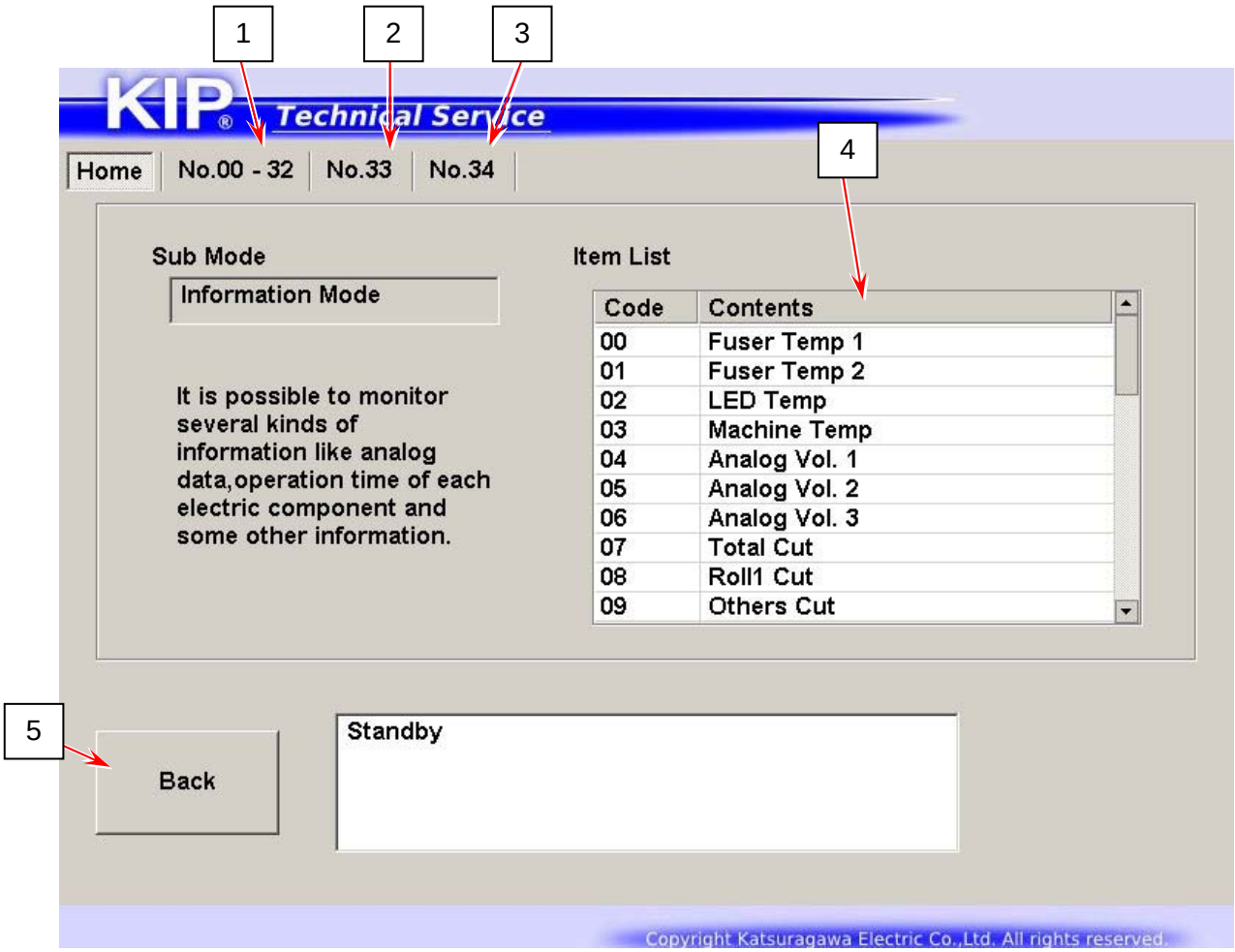
Signal Code	Symbol	IC Port	Connector	Signal Name	Input / Output	Status
054	---	IC3-P66				
055	---	IC3-P67				
056	---	IC3-P70				
057	---	IC3-P71				
058	---	IC3-P72				
059	---	IC3-P73				
060	---	IC3-P74	J207-3			
061	---	IC3-P75	J207-4			
062	ER1	IC3-P76	J208-22	Eraser Lamp	Output	H : Eraser Lamp lights
063	TONER_M	IC3-P77	J208-23	Toner Supply Motor	Output	H : Rotate
064	---	IC3-P90	J207-5			
065	---	IC3-P91	J207-6			
066	---	IC3-P92	J207-7			
067	PCB_LED	IC3-P93		PW11720 PCB LCD	Output	H : Lights
068	---	IC3-P94	J203-8			
069	---	IC3-P95	J203-9			
070	ONLINE	IC3-P96	J205-9	ONLINE LED	Output	H : Lights
071	---	IC3-P97	J204-28			
072	IBUSY_H	IC1-P10		Data Output Busy	Output	H : Busy
073	IPRADY_L	IC1-P11		Printer Ready	Output	L : Ready
074	IPREQ_L	IC1-P12		Print Request	Output	L : Requested
075	PAGEBL	IC1-P13		Print Request	Output	L : Print ON
076	TEST_H	IC1-P14		Test Print	Output	H : Test Printing
077	I_POW_ON_A	IC1-P15				
078	LED_EN	IC1-P16		LED Enable		
079	CLEAN BIAS	IC1-P17	J206-28	Cleaning Roller Bias	Output	H : Output
080	LCD_CLK	IC1-P20	J205-8	LCD Clock		
081	LCD_DATA	IC1-P21	J205-7	LCD Data		
082	LCD_EN	IC1-P23	J205-6	LCD Enable		
083	LCD_RW	IC1-P24	J205-5	Data Read / Write Selection	Output	
084	LCD_RS	IC1-P22	J205-4	LCD Input Selection	Output	
085		IC1-P25	J206-5	Main Motor Clock		
086		IC1-P26	J206-4	Fuser Motor Clock		
087	RESET_SIG	IC1-P27		Reset Signal	Output	
088	RXD0	IC1-P32		Serial 0 Input	Input	
089	RXD1	IC1-P33		Serial 1 Input	Input	
090	RXD2	IC1-P51		Serial 2 Input	Input	
091	TXD0	IC1-P30		Serial 0 Output	Output	
092	TXD1	IC1-P31		Serial 1 Output	Output	
093	TXD2	IC1-P50		Serial 2 Output	Output	
094	MSCUTR	IC1-P60	J204-5	Cutter Home Position Sensor (Right)	Input	L : Staying at Home Position
095	MSCUTL	IC1-P61	J204-6	Cutter Home Position Sensor (Left)	Input	L : Staying at Home Position
096	MCUTL	IC1-P62	J208-2	Cutter Motor 1	Output	H : Rotate
097	MCUTR	IC1-P63	J208-1	Cutter Motor 2	Output	H : Rotate
098	IPRINT_L	IC1-P34		Print Request	Input	L : Requested
099	IPCUT_L	IC1-P64		Paper Cut Request	Input	L : Cutting
100	REGIST_S	IC1-P65	J204-7	Registration Sensor	Input	H : Media detected
101	PICKUP_S	IC1-P66	J204-8	Paper Tray Pickup Sensor	Input	H : Media detected
102	CSET_S	IC1-P67	J204-9	Paper Tray Set Sensor	Input	H : Media detected
103	VLC_OFF	IC1-PG0	J205-3	LCD Indication ON/OFF	Output	H : Indicating
104	TONER_S	IC1-PA5	J204-10	Toner Sensor	Input	H : Toner detected
105	R1_SET_S	IC1-PA6	J204-11	Roll 1 Set Sensor	Input	H : Media detected
106	---	IC1-PA7	J204-12			
107	---	AN5	J203-20			
108	CSETM_LD	IC1-PF0	J207-17	Paper Tray Motor Output Detection	Input	L/H alternates : Rotate
109	RENC_S	IC1-PF1	J204-23	Feed Encoder		
110	CSET_ON	IC1-PF2	J204-24	Paper Tray Connection Detection	Input	H : No connection
111	R_EDGE	IC1-PF7	J204-13	Trailing Edge Detection	Input	H : Media detected

8. 4 Information Mode

It is possible to monitor the analog voltage input sent by devices (such as Thermistor) to DC Controller PCB. It is also possible to monitor the current Fuser temperature which is calculated from the input voltage.

Information Mode includes the list of the latest 100 jam / service call error records.

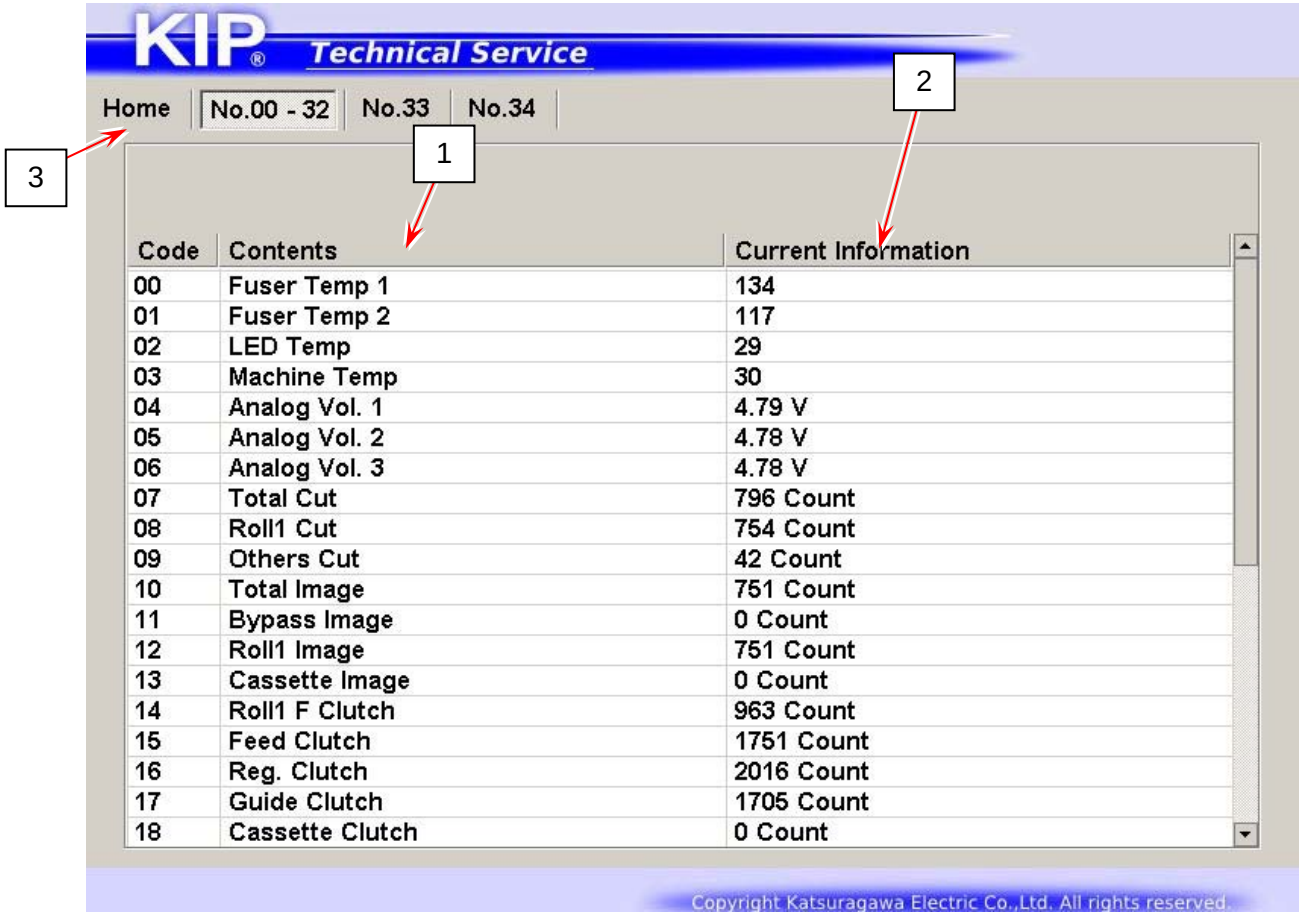
Information Home screen



	Name	Function
1	No.00 - 32	Switches to Monitor screen
2	No.33	Switches to Jam History screen
3	No.34	Switches to Error History screen
4	Contents	Explains the contents of the item
5	Back	Returns to Service Mode Home

The number shown in the second / third / last tab may vary by KIP printer model or printer firmware version.

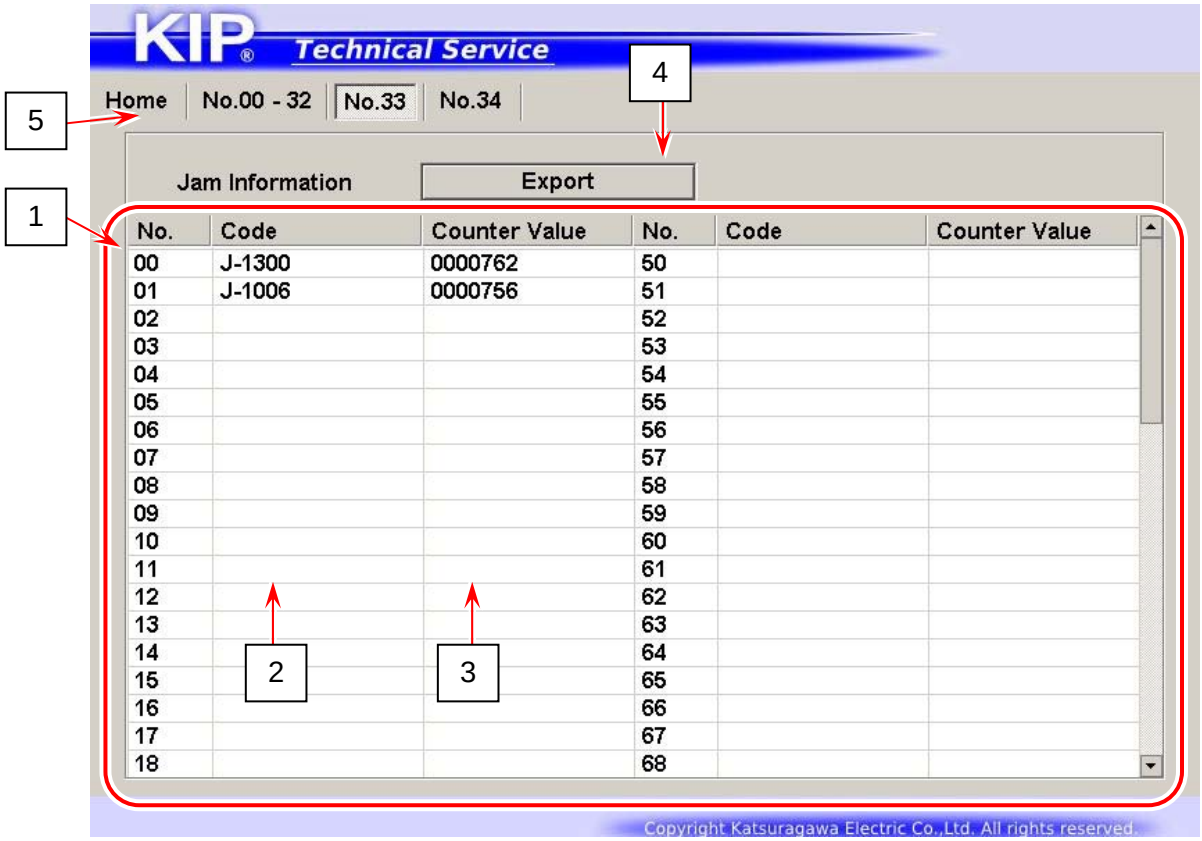
Monitor screen



	Name	Function
1	Contents	Explains the contents of the listed items
2	Current Information	Displays the current Analog Voltage and its calculated value for the items to be monitored
3	Home	Returns to Information Home screen

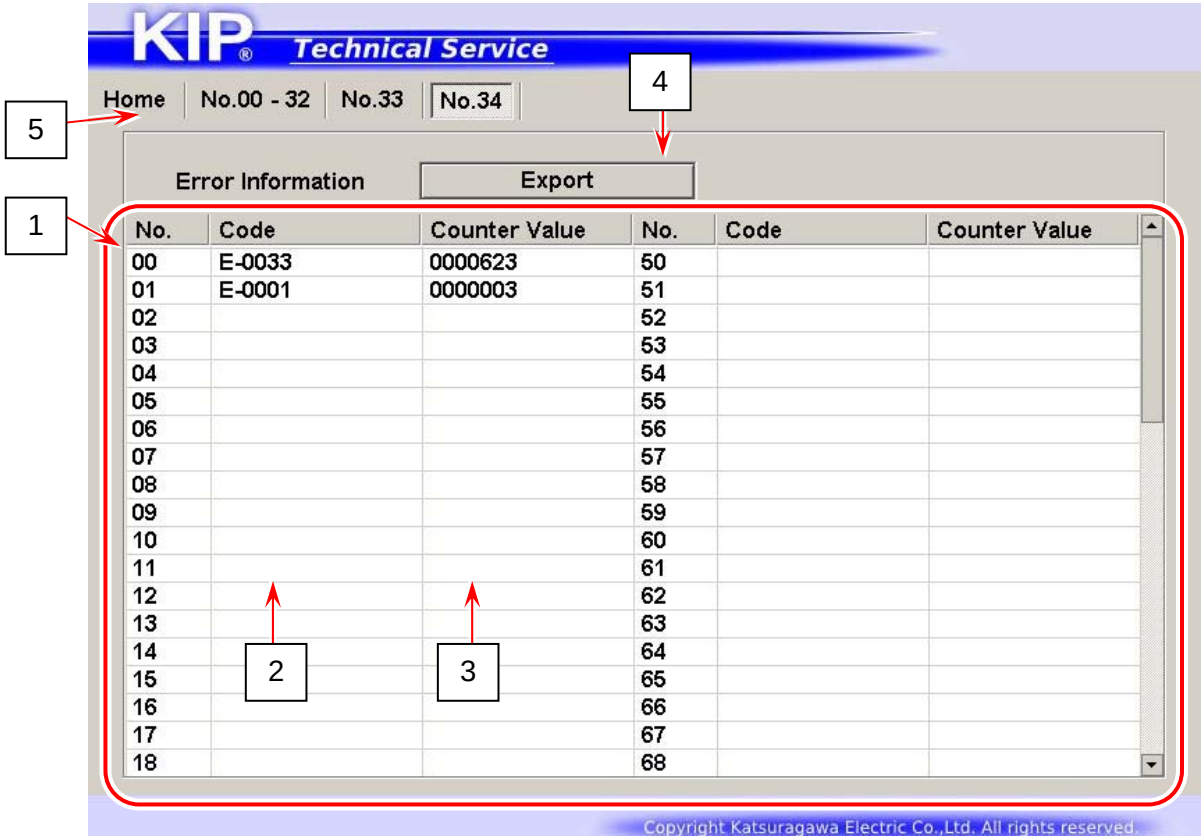
For information about items to be monitored, see [8.4.2 List of Analog Data Monitor].

Jam History screen



	Name	Function
1	Jam Information	Displays the latest 100 jam records
2	Code	Displays Jam Code “J-****”
3	Counter Value	Displays the counter value that the concerning jam occurred
4	Export	Saves the records as a file
5	Home	Returns to Information Home screen

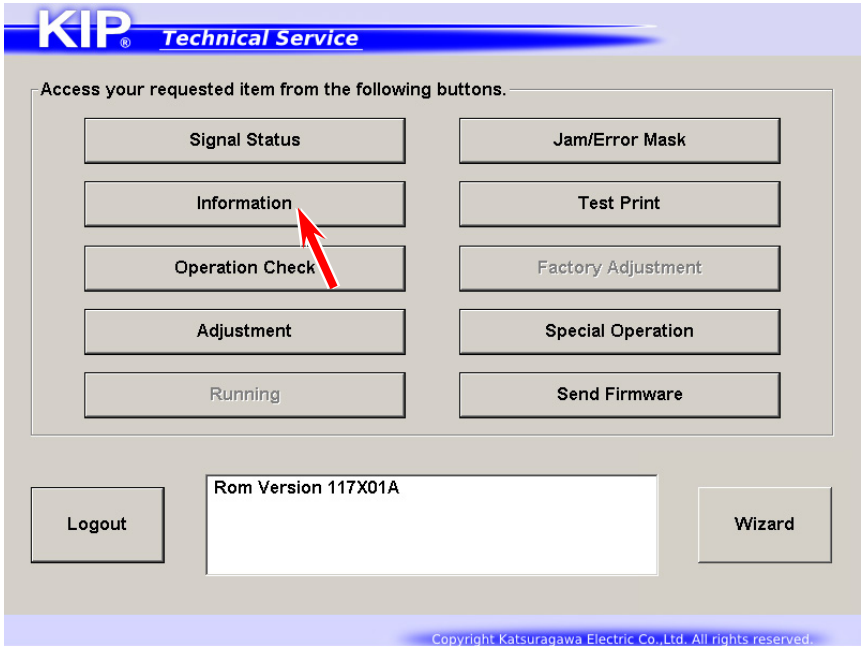
Error History screen

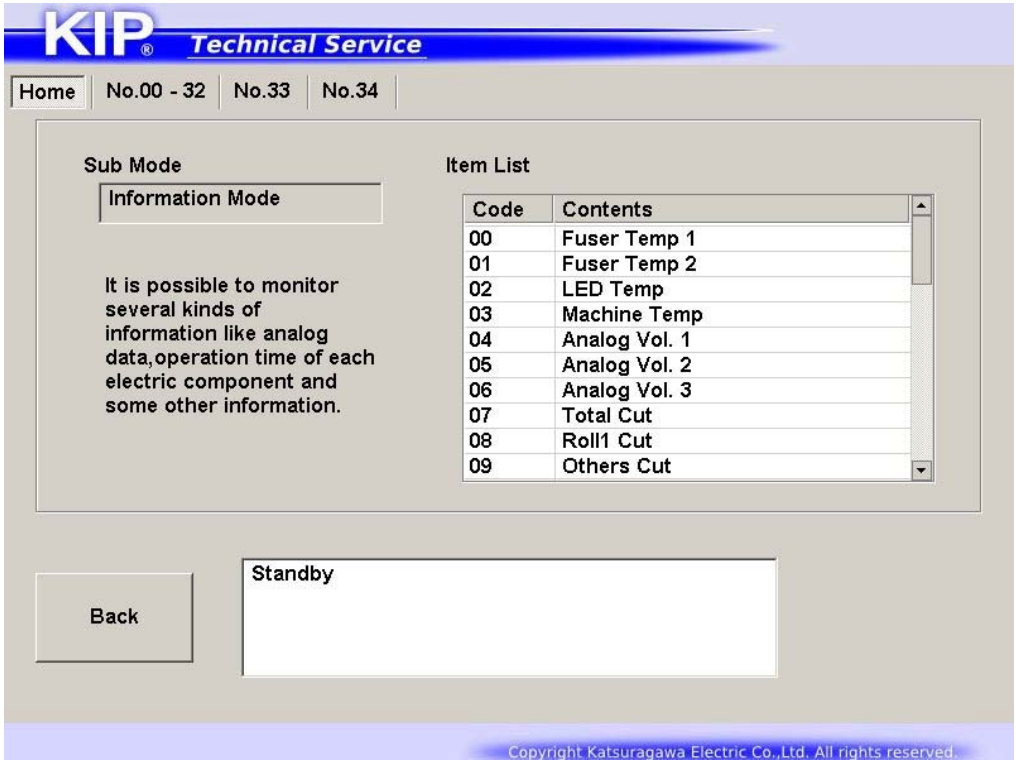


	Name	Function
1	Error Information	Displays the latest 100 service call error records
2	Code	Displays Jam Code “E-****”
3	Counter Value	Displays the counter value that the concerning error occurred
4	Export	Saves the records as a file
5	Home	Returns to Information Home screen

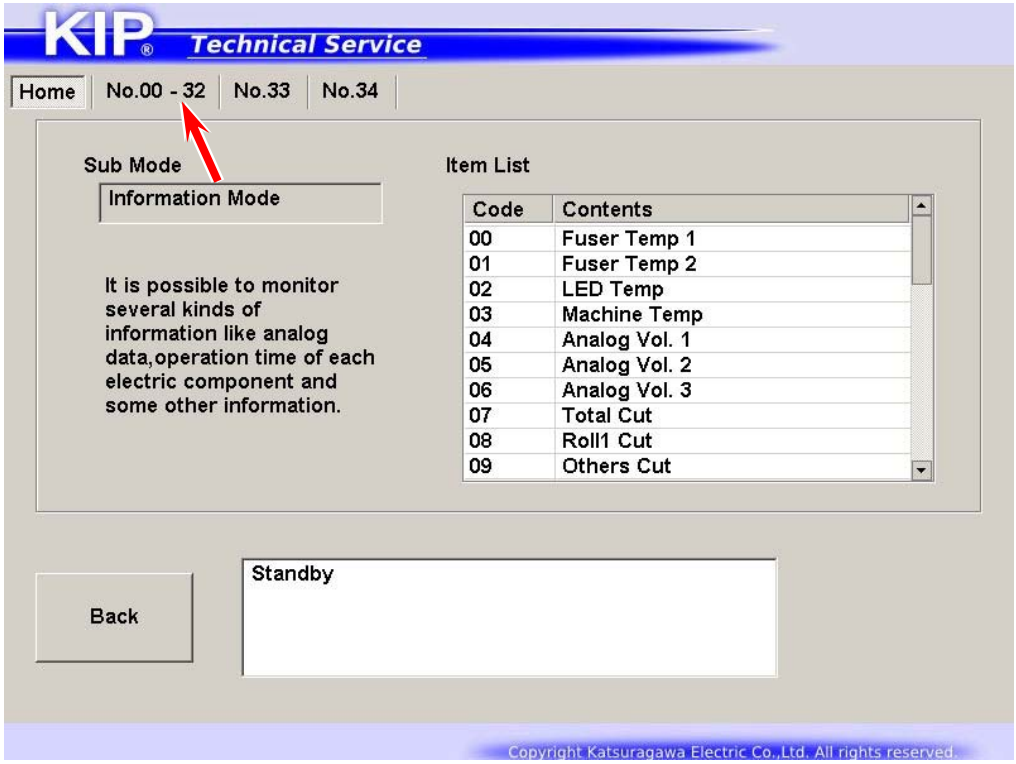
8. 4. 1 Monitoring Analog Data

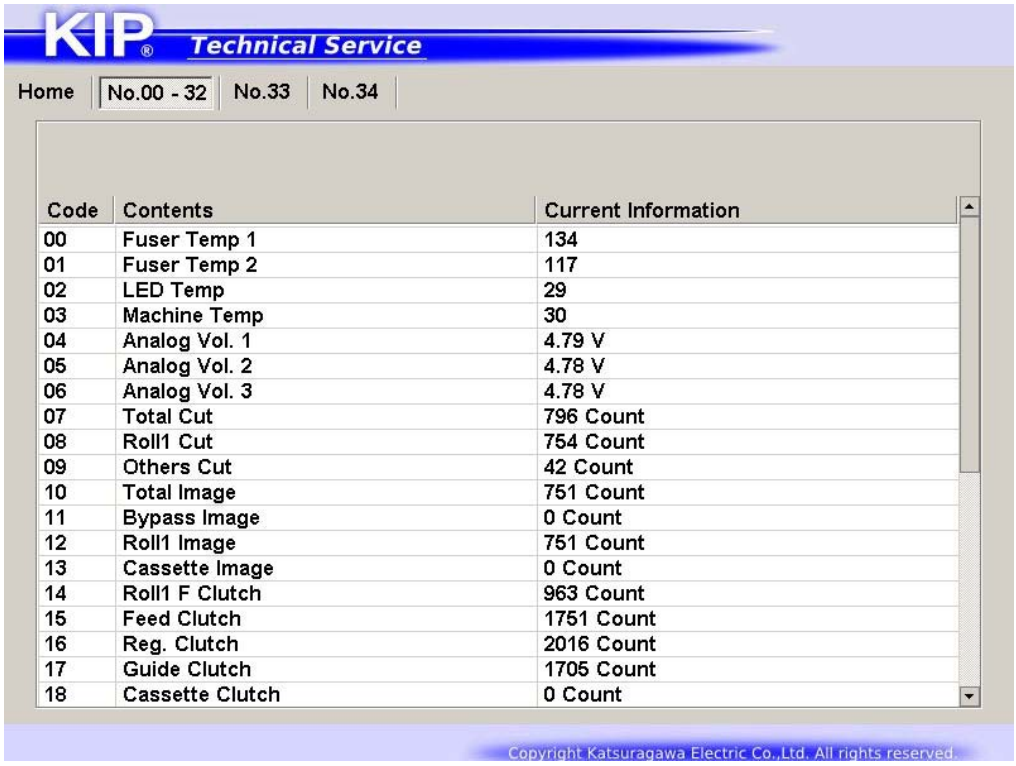
1. Press [Information] in Service Mode Home.
   Information Home screen appears.





2. To monitor any available Analog Data value, open [No.00 - 32] tab to display Monitor screen.



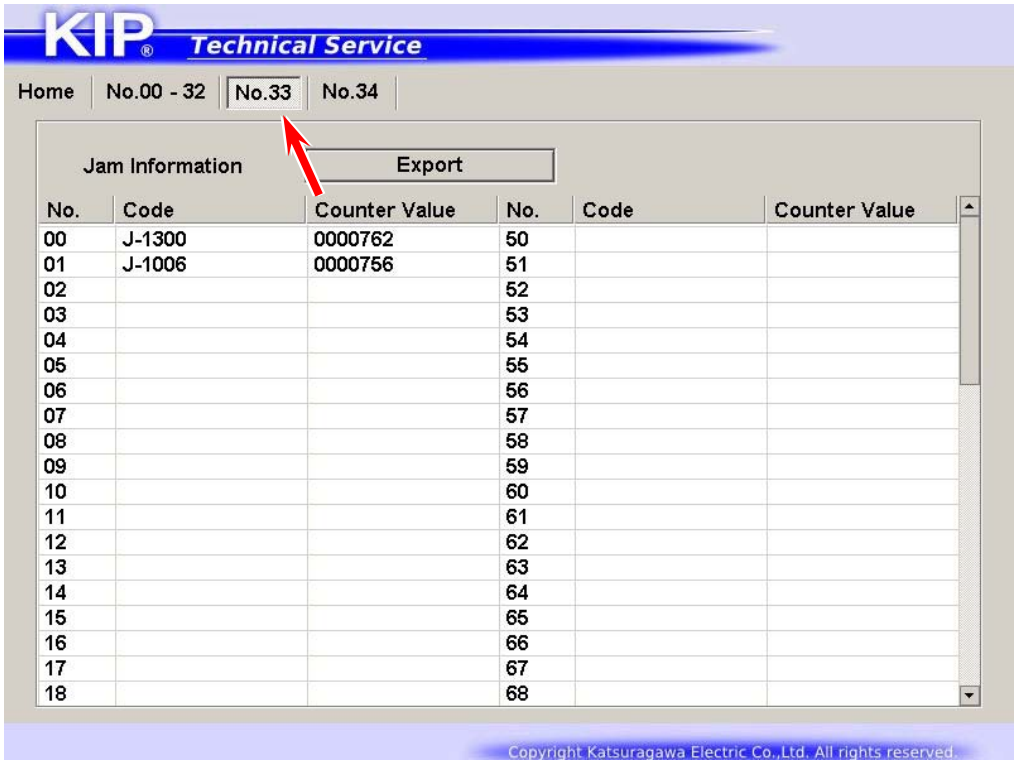


8. 4. 2 List of Analog Data Monitor

Data Code	Item	Unit	Remarks	Contents
00	Fuser Temp 1	Centigrade	Calculated Value	temperature detected by the thermistor on the center of the Fuser Unit
01	Fuser Temp 2	Centigrade	Calculated Value	temperature detected by the thermistor on the right of the Fuser Unit
02	LED Temp	Centigrade	Calculated Value	temperature detected on LED Head (PW11755)
03	Machine Temp	Centigrade	Calculated Value	temperature detected on PW11720
04	Analog. Vol.1			(Reserved)
05	Analog. Vol.2	[V]		analog output
06	Analog. Vol.3			(Reserved)
07	Total Cut			number of operation times in total for media cut with any source / situation
08	Roll 1 Cit			number of operation times for media cutting from Roll 1
09	Others Cut			number of operation times for media cutting for trim cut
10	Total Image			number of operation times in total for printing operation with any source
11	M Image			number of operation times for printing operation on Bypass Feeder
12	R1 Image			number of operation times for printing operation on Roll 1
13	Cassette Image			number of operation times for printing operation on Paper Tray
14	R1F Clutch			number of operation times of Roll 1 Clutch
15	Feed Clutch			number of operation times of Feed Clutch
16	Reg. Clutch			number of operation times of Registration Clutch
17	Guide Clutch			number of operation times of Guide Clutch
18	Cassette Clutch			number of operation times of Paper Tray Clutch
19	Pickup Solenoid			number of operation times of Pickup Solenoid
20	(Reserved)	-	-	(Reserved)
21	(Reserved)	-	-	(Reserved)
22	Motor 1 Time	minute		total operation time of Main Motor
23	Motor 2 Time	minute		(Reserved)
24	LED ON Time	minute		total lighting-up time of LED Head
25	Density V0		development use	
26	Density V1		development use	
27	Density Vr		development use	
28	Density DA1		development use	
29	Bias 2 Vol	Hex		Developer Bias output
30	Bias 3 Vol	Hex		Regulation Bias output
31	Image Ratio	%		Coverage Rate (dot ratio) of the latest sheet
32	FPGA Version			

8. 4. 3 Browsing Jam History

To browse the machine's jam history, open [No.33] tab to display Jam History screen.



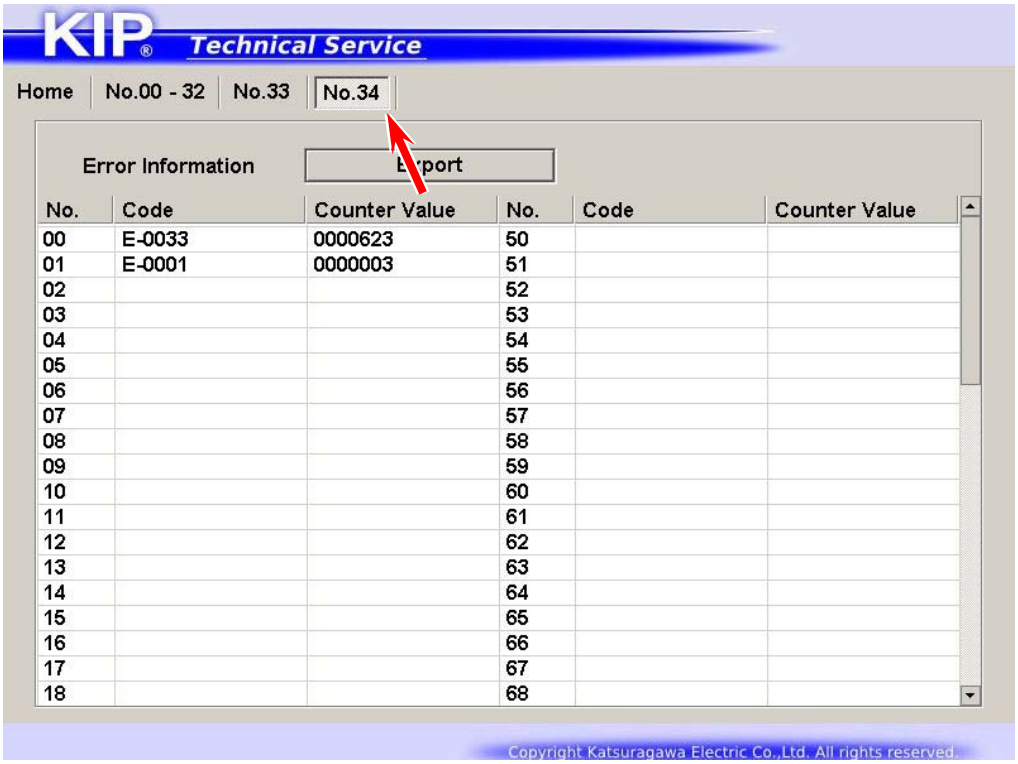
[Export] creates "jaminfo.dat" that contains the currently recorded Jam History.

Reference

To clear the entire jam history record, see [8.11.1 Clearing Fuser Error, Jam/Error History].

8. 4. 4 Browsing Error History

To browse the machine's service call error history, open [No.34] tab to display Error History screen.



[Export] creates "errinfo.dat" that contains the currently recorded Error History.

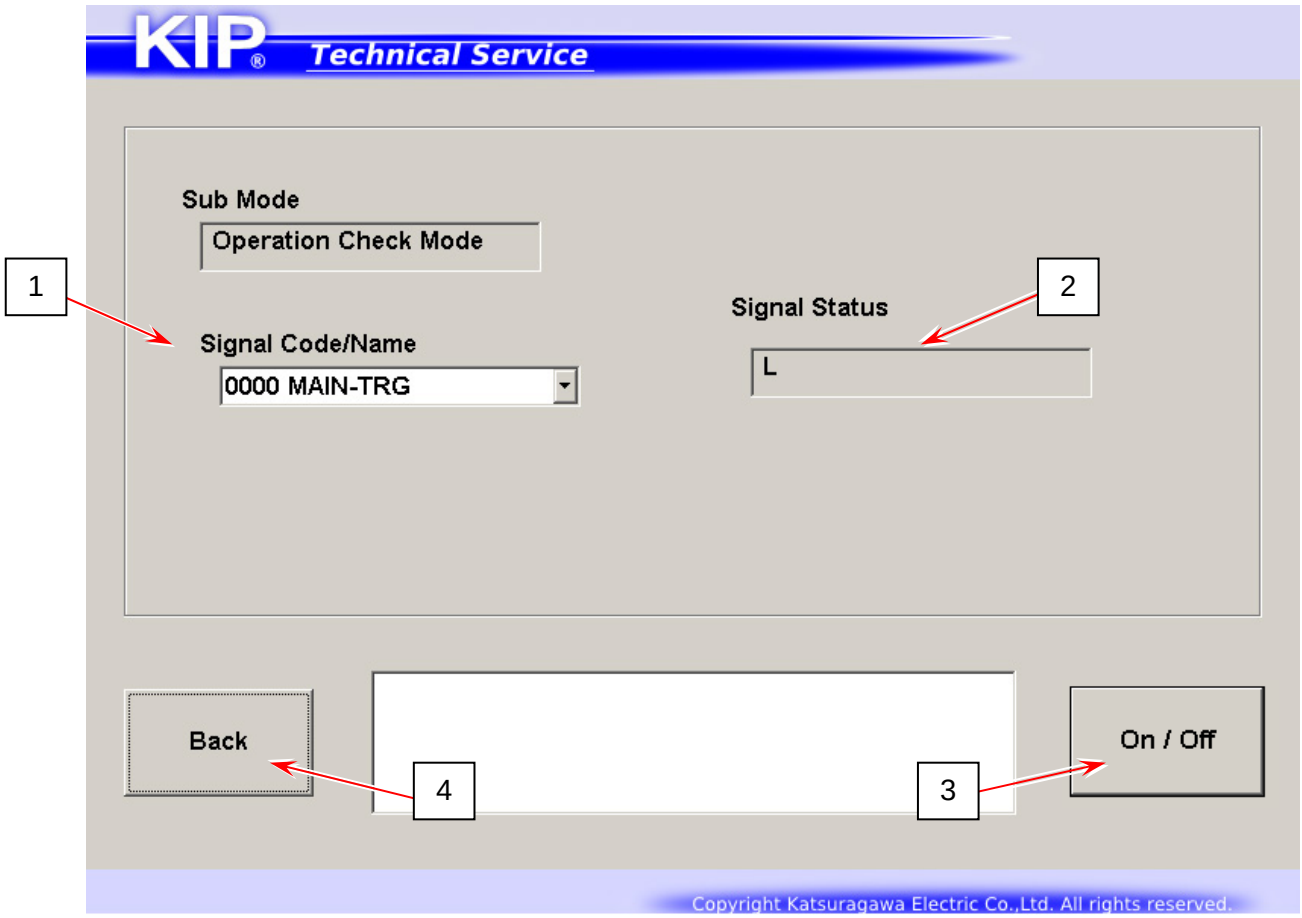
Reference

To clear the entire service call error history record, see [8.11.1 Clearing Fuser Error, Jam/Error History].

8. 5 Operation Check Mode

It is possible to operate several electrical components independently, such as motor, clutch, and fans.

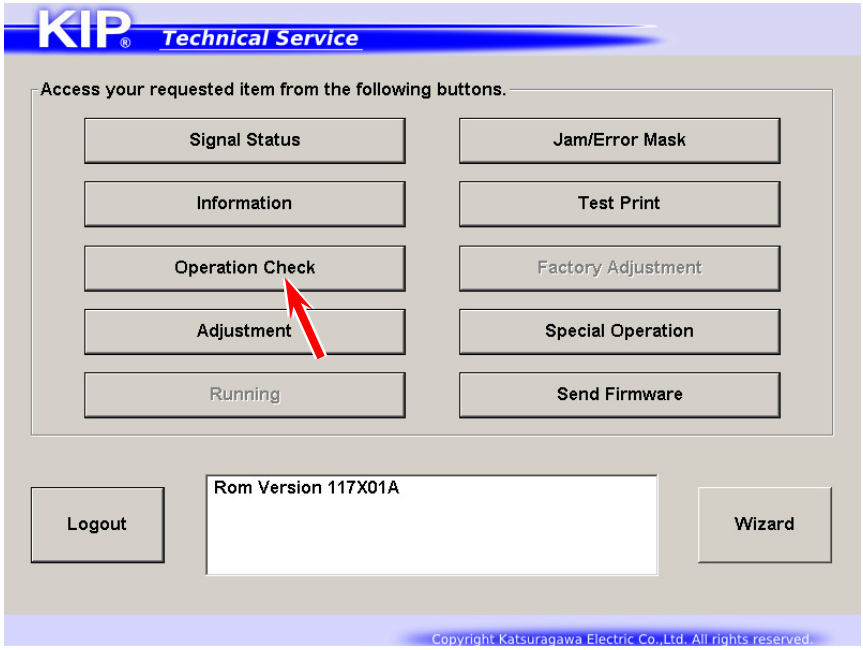
Operation Check screen

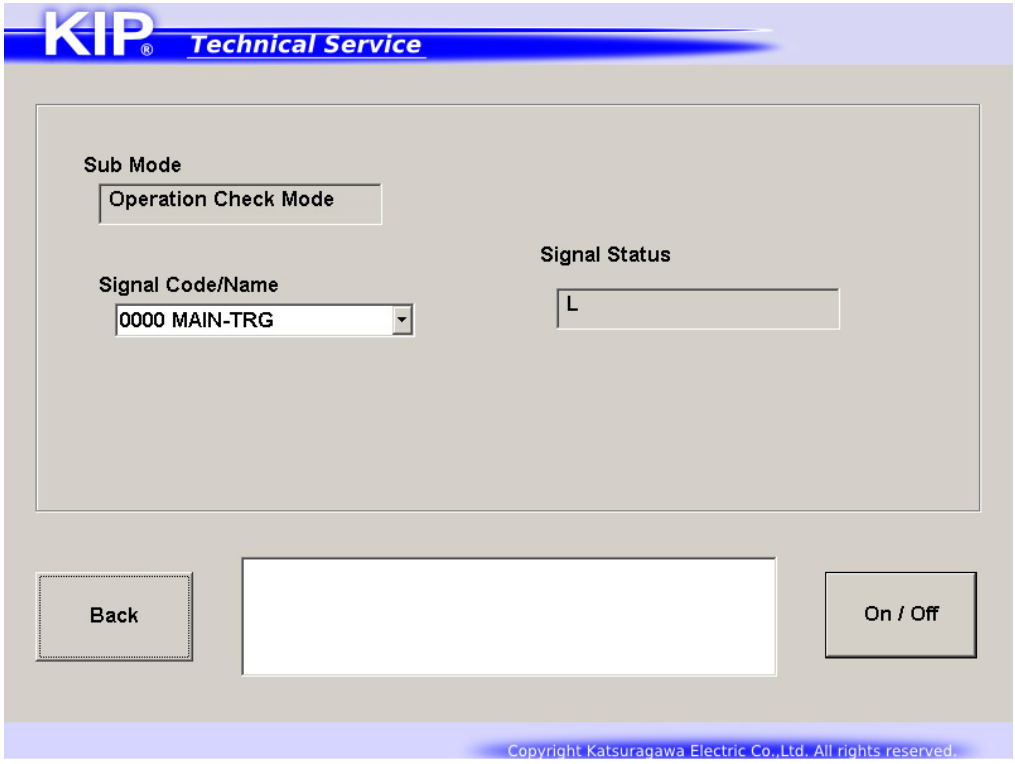


	Name	Function
1	Signal Code / Name	Displays Signal Code/Name in drop-down menu Specify one item that you want to check.
2	Signal Status	Displays the current status of the selected signal
3	On / Off	Operates the electric device you have chosen
4	Back	Returns to Service Mode Home

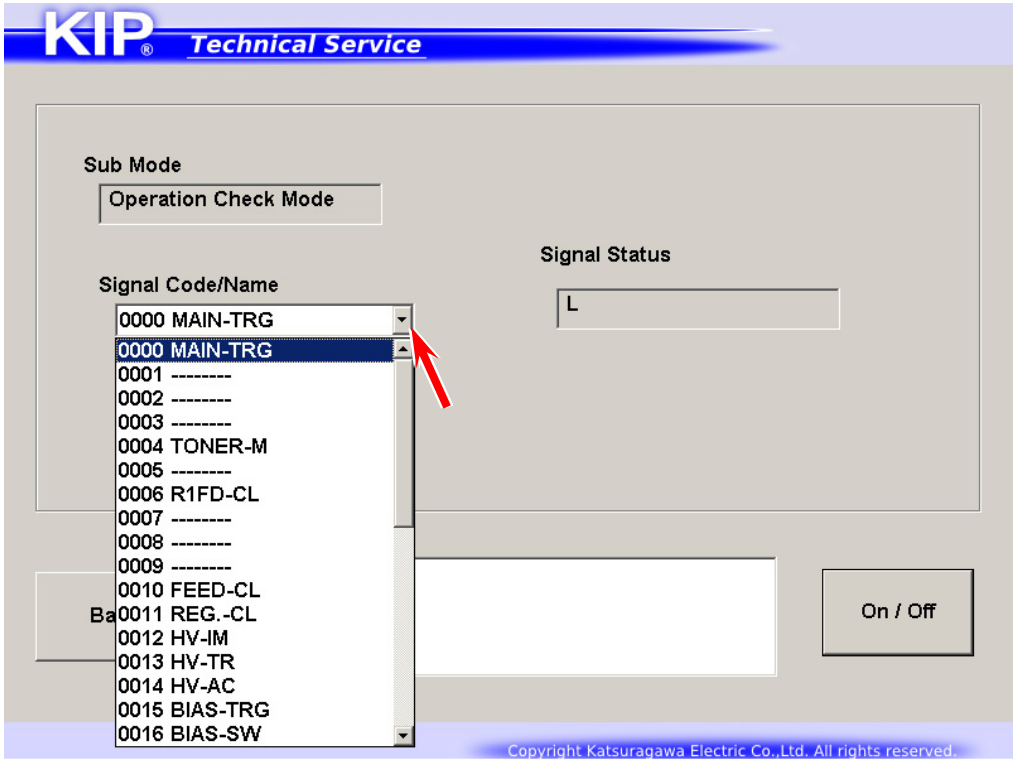
8. 5. 1 Checking Device Operation

1. Press [Operation Check] in Service Mode Home.
   Operation Check screen appears.





2. Specify one signal item that you want to monitor from Signal Code/Name menu.



3. The current status of the device you have chosen is displayed in Signal Status field. Press [Start] to operate the device alone.

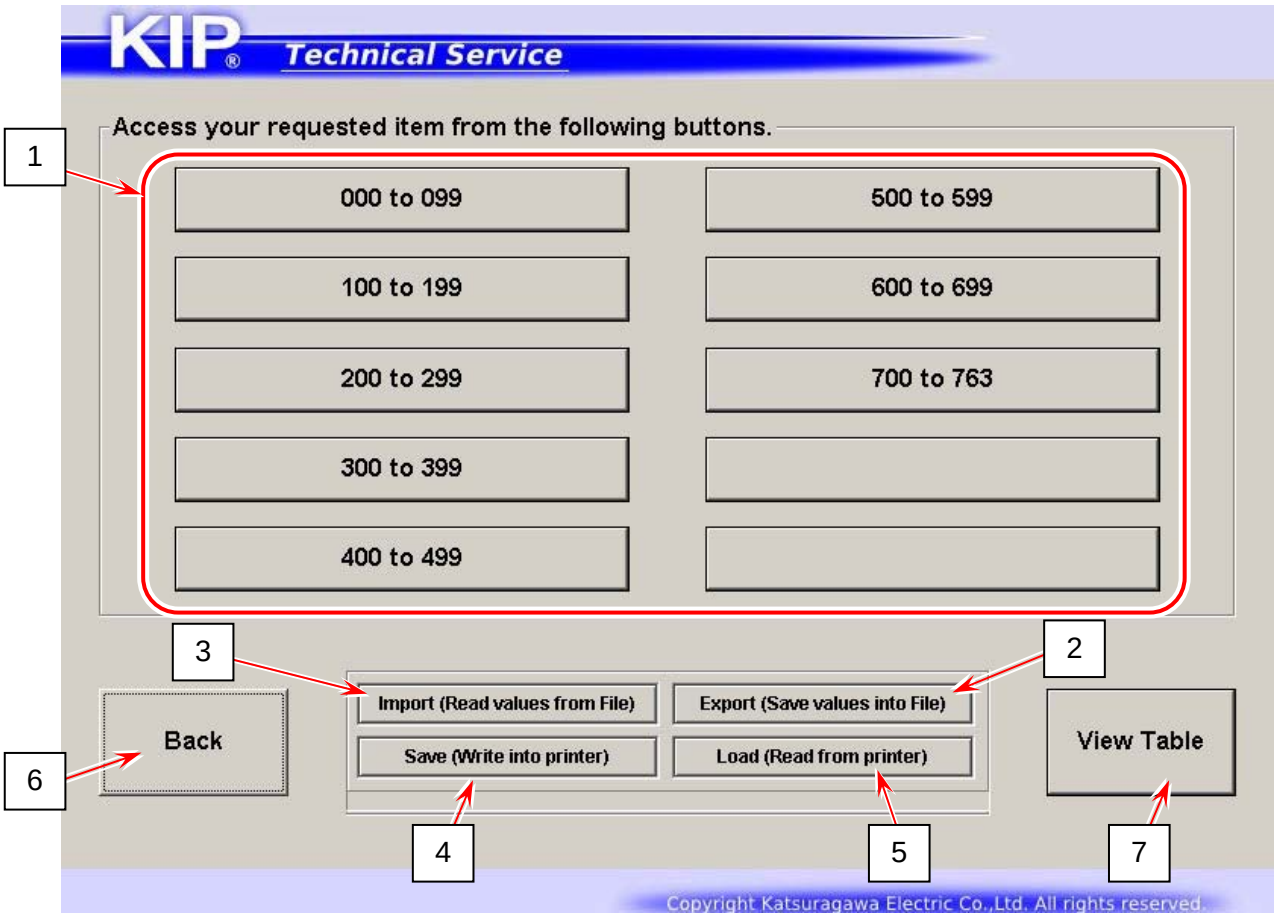
8. 5. 2 Device List

Signal Code	Signal Name	Target item
00	MAIN-TRG	Main Motor
01	---	Reserved
02	---	Reserved
03	---	Reserved
04	TONER-M	Toner Supply Motor
05	---	Reserved
06	R1FD-CL	Roll 1 Feed Clutch
07	---	Reserved
08	---	Reserved
09	---	Reserved
10	FEED-CL	Feed Clutch
11	REG.-CL	Registration Clutch
12	HV-IM	Image Corona
13	HV-TR	Transfer Corona
14	HV-AC	Separation Corona
15	BIAS-TRG	Developer Bias
16	BIAS-SW	Positive/Negative selection of Developer Bias
17	CLEANTRG	Cleaning Roller Bias
18	CLEAN-SW	Positive/Negative selection of Cleaning Roller Voltage
19	---	Reserved
20	---	Reserved
21	HEAT1	Fuser Lamp 1
22	HEAT-RY	Fuser Relay
23	H BLW(L)	Fuser Blower (Low speed)
24	H BLW(H)	Fuser Blower (High speed)
25	EXT FAN	Exit Blower
26	COUNT	Reserved
27	M5_CUTL	Cutter Motor (blade moves to left)
28	M5_CUTR	Cutter Motor (blade moves to right)
29	POWER-SW	Main Switch
30	ER1	Eraser Lamp
31	---	Reserved
32	GUIDE CL	Guide Clutch
33	CSET-MTRG	Paper Tray Motor
34	PICK-SL	Pickup Solenoid
35	CFEED CL	Paper Tray Clutch
36	LED HEAD	LED Head (all the 3 units, in 3 seconds)

8. 6 Adjustment Mode

It is possible to configure fundamental settings on the printer.
Every setting item has the corresponding Sub Mode Number.

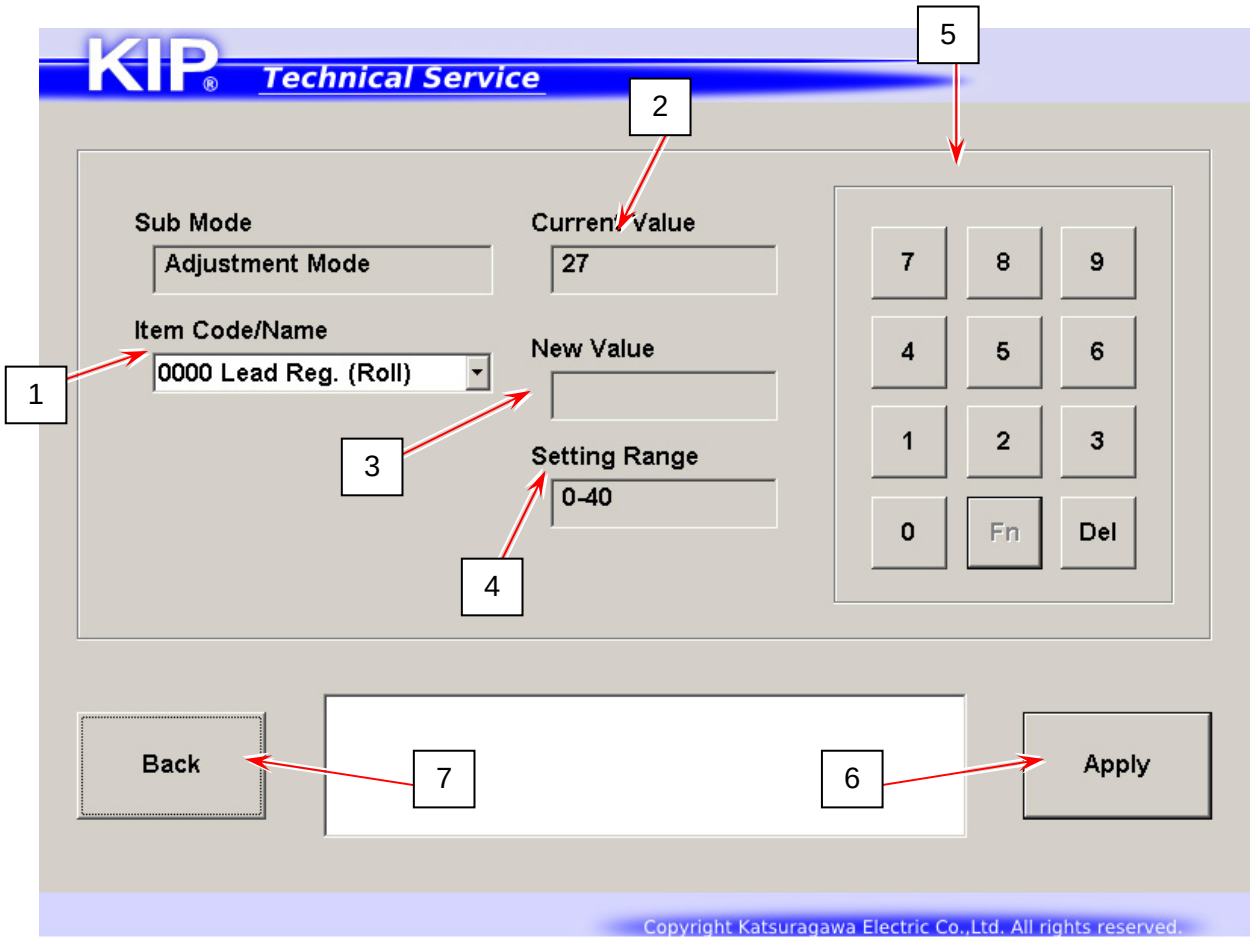
Adjustment Menu screen



	Name	Function
1	Sub Mode Number Group Button	Press one Code Group button that contains the signal code you want to configure.
2	Export	Stores the current parameters in a RAM (& txt) file for backup
3	Import	Reads parameters stored in a RAM file for restoring parameters
4	Save	Applies the parameters read by [Import] to PW11720
5	Load	Press here only for refreshing memory
6	Back	Returns to Service Mode Home
7	View Table	Shows the list of the current parameters on touchscreen

The number shown on the last Code Group button may vary by KIP printer model or printer firmware version.

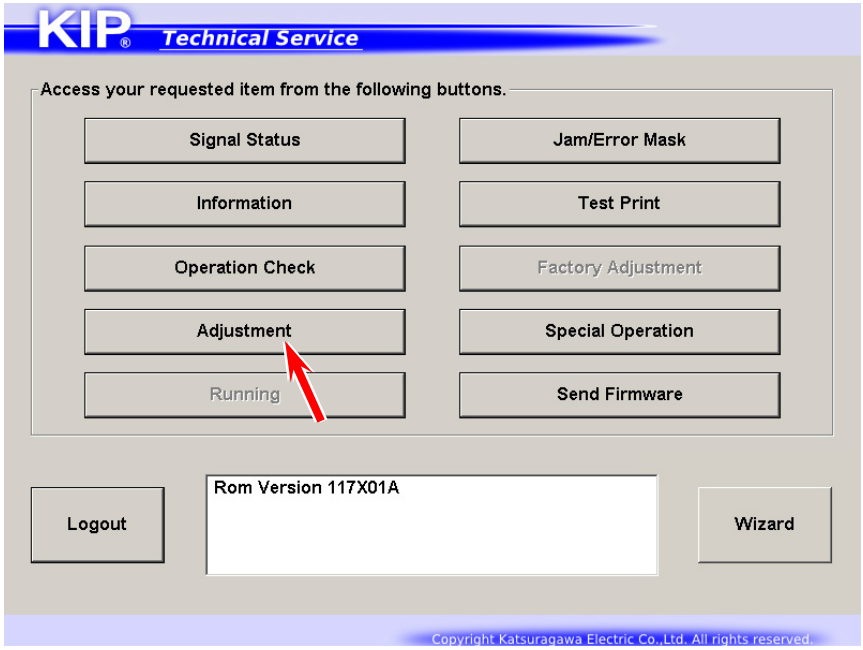
Setting Configuration screen

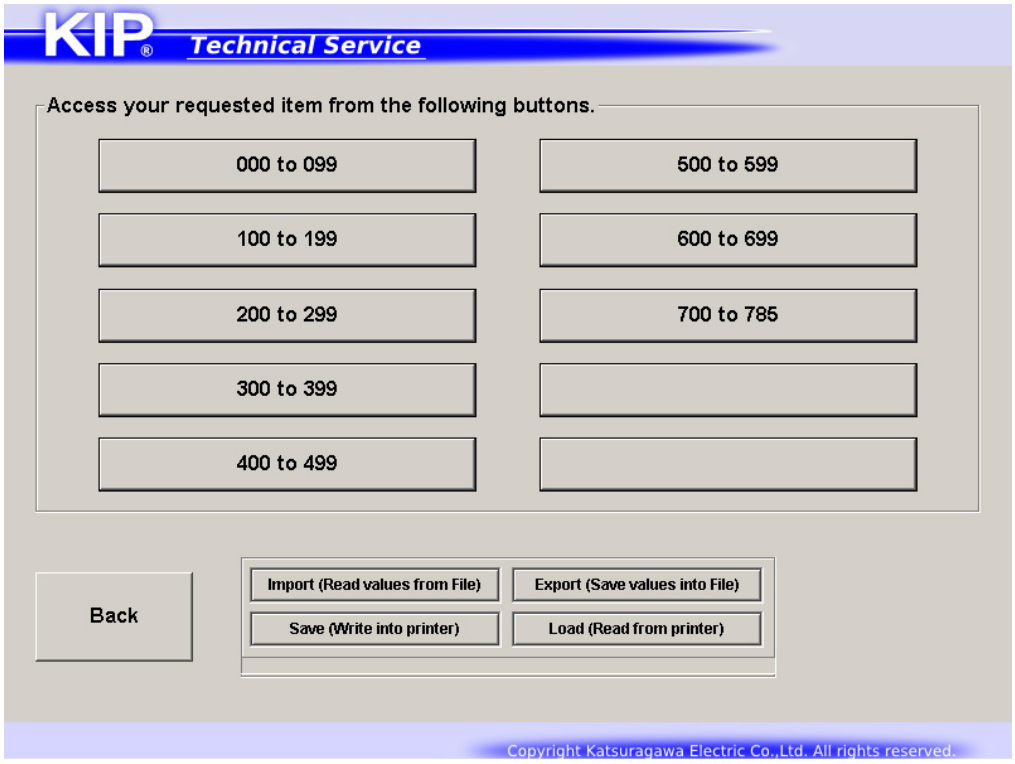


	Name	Function
1	Item Code / Name	Displays Item Code/Name in drop-down menu Specify one item that you want to configure.
2	Current Value	Displays the current value of the selected item
3	New Value	Displays an input value by using On-screen Keypad
4	Setting Range	An input value must be set within this range.
5	Numeric Key	Use On-screen Keypad to input a value to be configured.
6	Apply	Applies a value in “Modify” to the selected item
7	Back	Returns to Service Mode Home

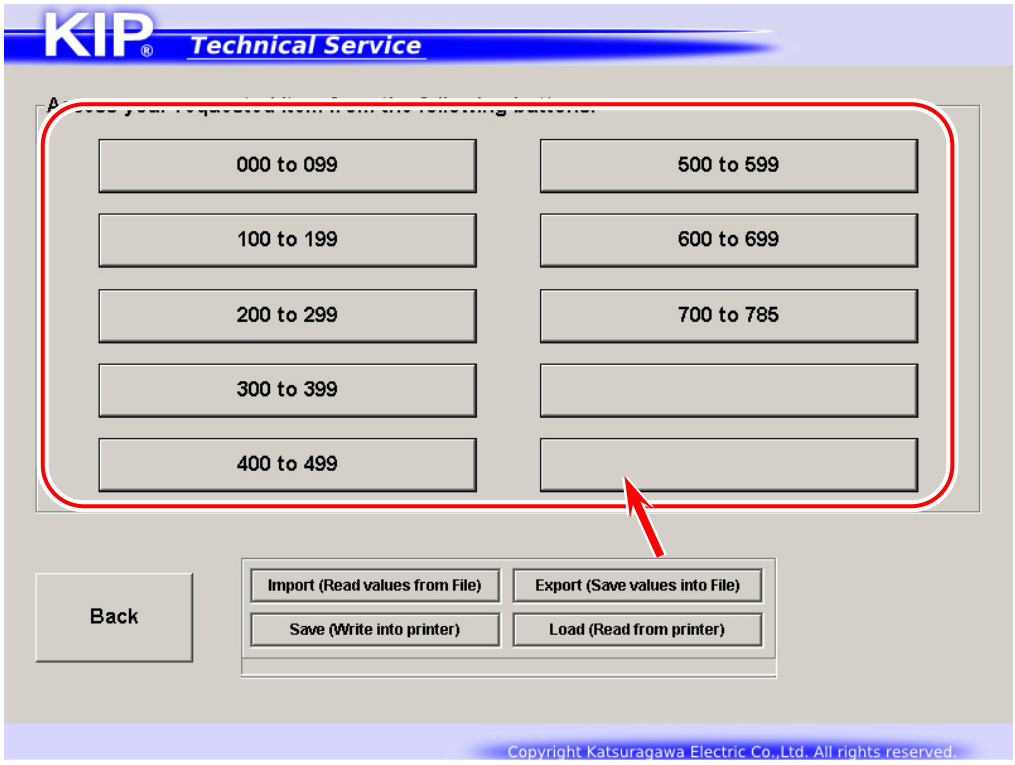
8. 6. 1 Changing Setting Value

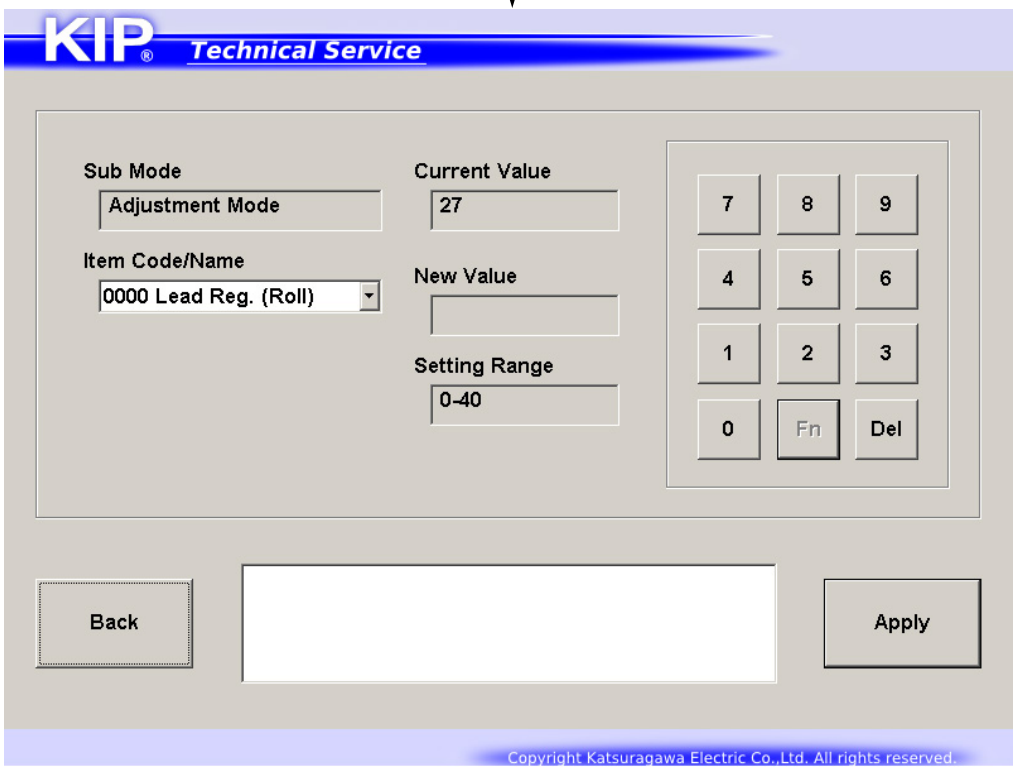
1. Press [Adjustment] in Service Mode Home.
   Adjustment Menu screen appears.



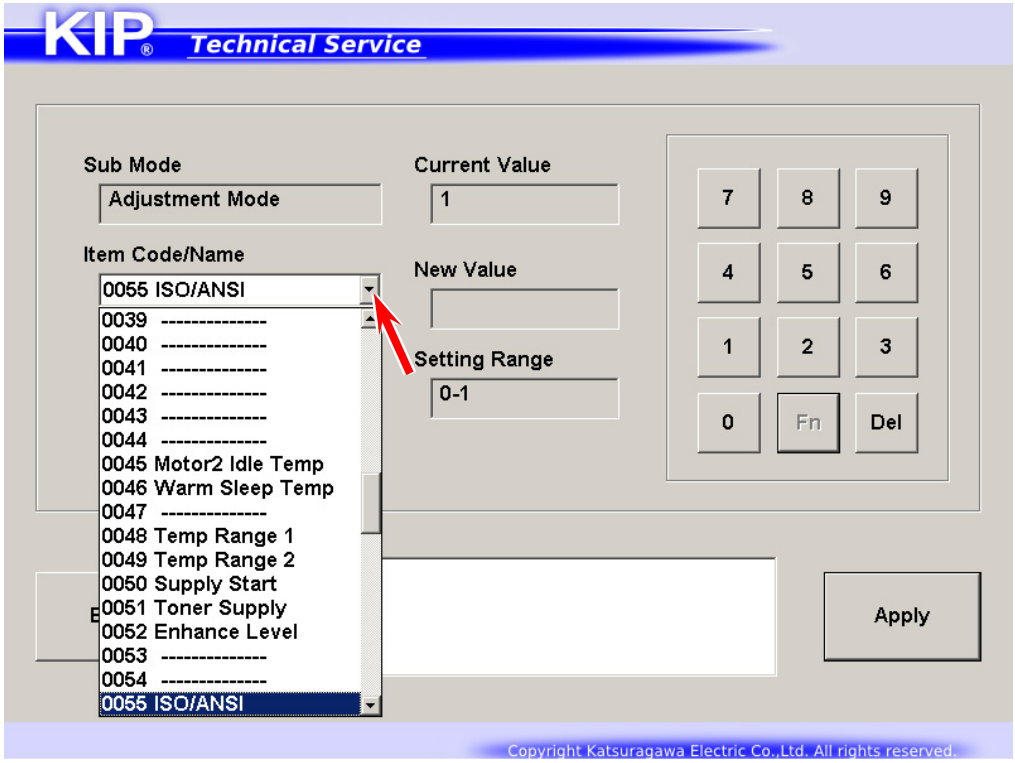


2. Press one Code Group button that contains the signal code that you want to configure. Setting Configuration screen appears.

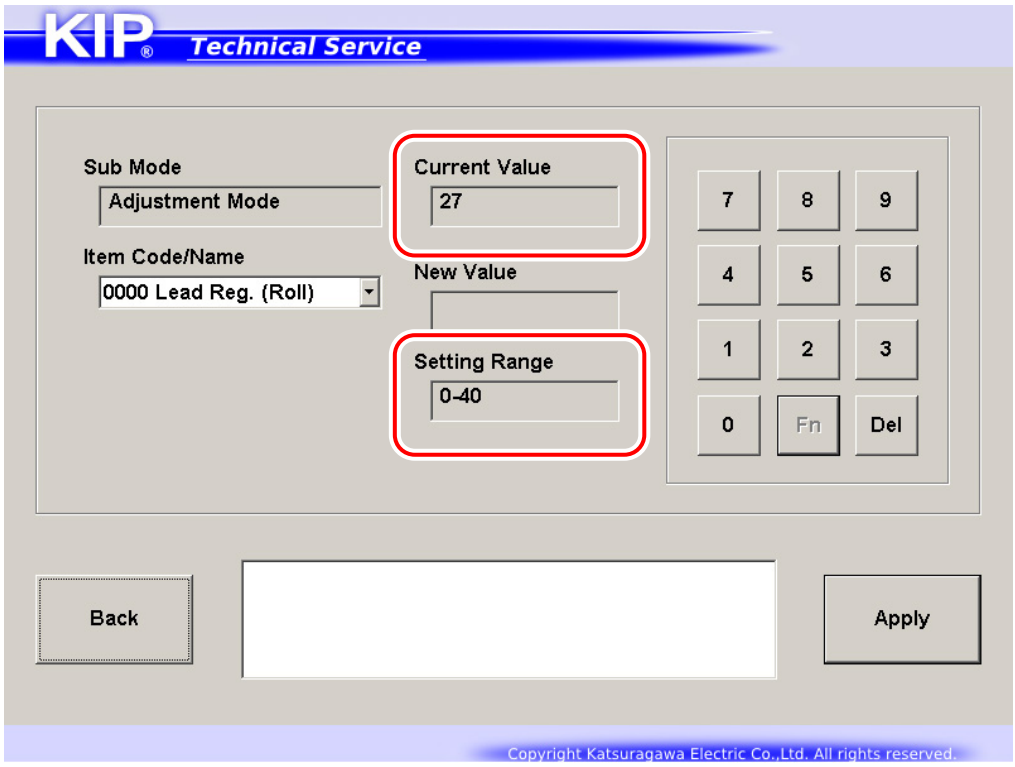




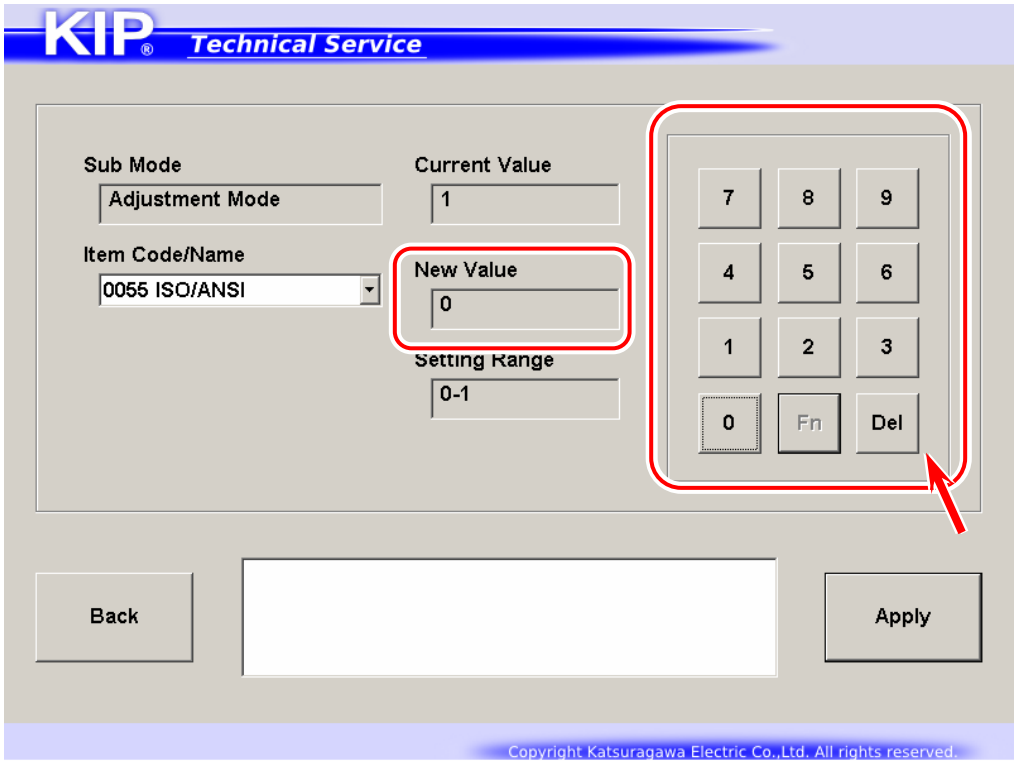
3. Specify one signal item that you want to configure from Item Code/Name menu.



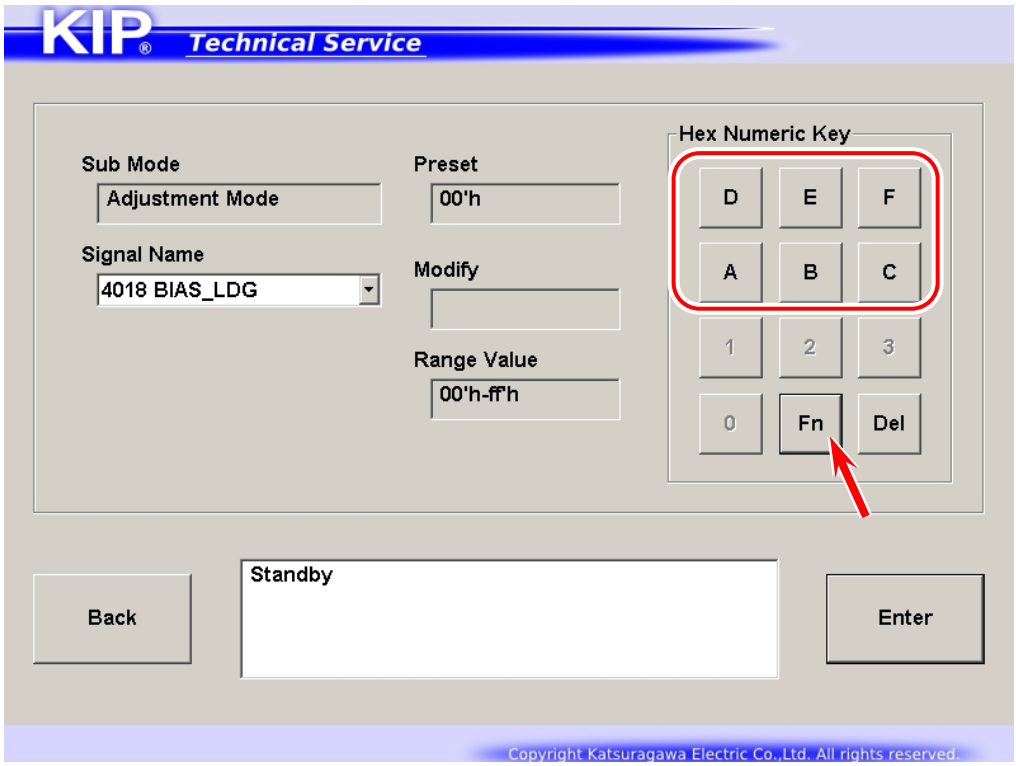
4. The current value and available setting range of the item you have chosen are displayed.



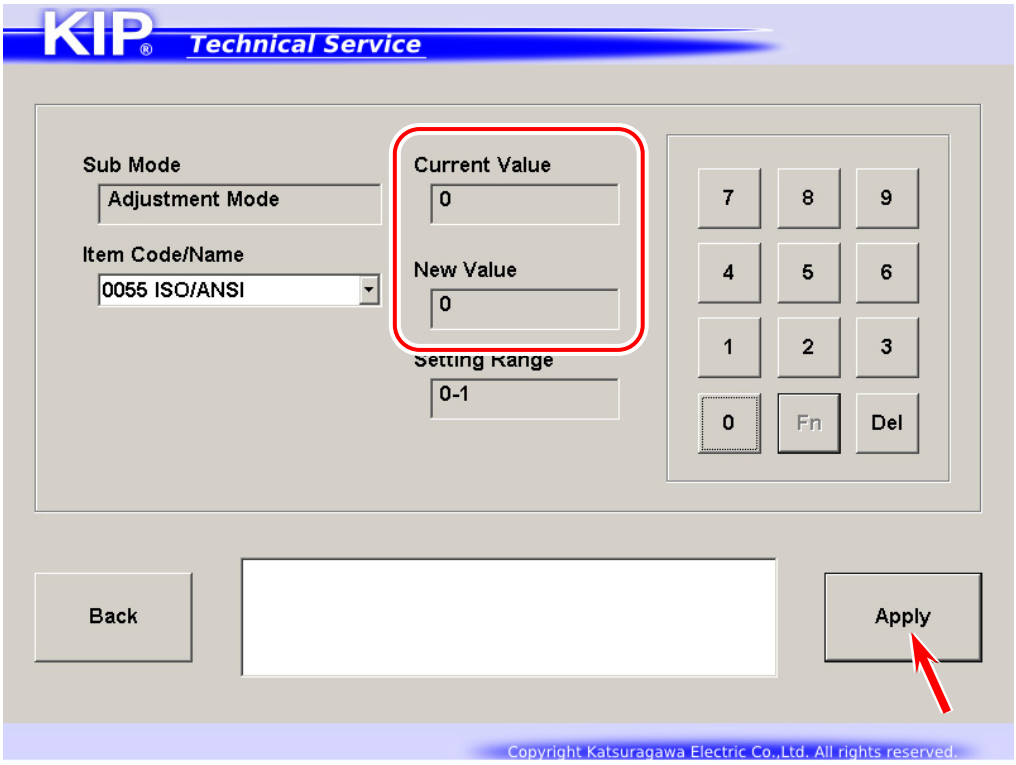
5. To change a setting value, input a desired value with On-screen Keypad.
   The value will be displayed in “New Value” field.



The setting item you have chosen is in hexadecimal, press [Fn] to input alphabetic characters A to F.



6. Press [Apply] to apply the new value to the printer.
   The value in “Current Value” field will be changed to the new value.



8. 6. 2 Setting Item List

Default Values may differ by individual machine. See 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
000	Leading Registration (Roll paper)	1mm	0 to 40	27	27
001	Leading Registration (Cut sheet paper)	1mm	0 to 40	26	26
002	Trailing Margin (Roll paper)	1mm	0 to 40	11	11
003	Trailing Margin (Cut sheet paper)	1mm	0 to 40	12	12
004	Side Margin (Left and right)	1mm	0 to 20	3	3
005	Side Registration (Cut sheet paper)	0.1mm	0 to 100	50	50
006	Side Registration (Roll paper)	0.1mm	0 to 100	50	50
007	Reserved				
008	LED Strobe Time for Main Pixel (Block A)	1 microsecond	0 to 10	7	7
009	LED Strobe Time for Main Pixel (Block B)	1 microsecond	0 to 10	7	7
010	LED Strobe Time for Main Pixel (Block C)	1 microsecond	0 to 10	7	7
011	LED Strobe Time for IST (Supplemental Pixel) (Block A)	1 microsecond	0 to 18	9	9
012	LED Strobe Time for IST (Supplemental Pixel) (Block B)	1 microsecond	0 to 18	9	9
013	LED Strobe Time for IST (Supplemental Pixel) (Block C)	1 microsecond	0 to 18	9	9
014	Vertical Alignment of LED Block A/B	0.5pixel	0 to 144	72	72
015	Vertical Alignment of LED Block B/C	0.5pixel	0 to 144	72	72
016	Cut Length 1 (length information provided)	1mm	0 to 100	50	50
017	Cut Length 2 (length information not provided)	1mm	0 to 100	50	50
018	Cut Length 3 (Compensation of the length of a long print)	0.1mm	1 to 999	440	440
019	Leading Margin	0.1mm	0 to 50	30	30
020	Reserved				
021	Reserved				
022	Developer Bias (Plain Paper)	(Hex.)	000 to 4FF	161	161
023	Developer Bias (Tracing Paper)	(Hex.)	000 to 4FF	161	161
024	Developer Bias (Film)	(Hex.)	000 to 4FF	161	161
025	Developer Bias (Special Media/Plain Paper)	(Hex.)	000 to 4FF	161	161
026	Developer Bias (Special Media/Tracing Paper)	(Hex.)	000 to 4FF	161	161
027	Developer Bias (Special Media/Film)	(Hex.)	000 to 4FF	161	161
028	Developer Bias compensation - 1st Drum revolution	-	0 to 255	0	0
029	Transfer Voltage (Plain Paper)	(Hex.)	000 to 4FF	366	366
030	Transfer Voltage (Tracing Paper)	(Hex.)	000 to 4FF	28A	28A
031	Transfer Voltage (Film)	(Hex.)	000 to 4FF	28A	28A
032	Transfer Voltage (Special Media/Plain Paper)	(Hex.)	000 to 4FF	292	292
033	Transfer Voltage (Special Media/Tracing Paper)	(Hex.)	000 to 4FF	292	292
034	Transfer Voltage (Special Media/Film)	(Hex.)	000 to 4FF	292	292
035	Separation Corona ON Timing	1mm	0 to 100	50	50
036	Reserved				
037	Transfer Corona ON Timing	1mm	0 to 100	50	50
038	Reserved				
039	Reserved				
040	Reserved				
041	Reserved				
042	Reserved				
043	Reserved				
044	Reserved				
045	Fuser temperature to Start Idling	1°C	100 to 140	120	120
046	Warm Sleep - Fuser Temperature	1°C	100 to 160	100	100
047	Reserved				
048	Fuser Temperature Control Range (In the print cycle)	1°C	1 to 6	1	1
049	Fuser Temperature Control Range (Stand by)	1°C	1 to 6	2	2
050	Reaction Time of Toner Supply Motor	1 Second	1 to 30	3	3
051	Toner Supply Motor Time	1 Second	1 to 75	25	25
052	Dot Enhancement Level (Dither)	-	0 to 3	1	1
053	Reserved				
054	Reserved				
055	Metric or Inch	-	0 to 1	1	0
056	Language	-	0 to 1	1	1
057	Reserved				
058	Reserved				
059	Count Unit (Counter A = Print Count)	-	0 to 6	5	---
060	Maximum Length	-	0 to 1	0	0
061	Reserved				
062	Reserved				
063	Cut length 5 (Compensation for Tracing Paper)	-	0 to 200	100	100
064	Cut length 6 (Compensation for Film)	-	0 to 200	100	100
065	Drum Reverse Time	1 millisecond	10 to 100	70	70
066 to 309	Reserved	-			
310	Main Motor Speed (Plain paper)	0.04mm/s	0 to 80	40	40

Item No.	Setting Item	Unit	setting range	Default (sample)	
				US	EU/Asia
311	Main Motor Speed (Tracing paper)	0.02mm/s	0 to 80	40	40
312	Main Motor Speed (Film)	0.02mm/s	0 to 80	44	40
313	Main Motor Speed (Special plain paper)	0.02mm/s	0 to 80	40	40
314	Main Motor Speed (Special Tracing Paper)	0.02mm/s	0 to 80	40	40
315	Main Motor Speed (Special Film)	0.02mm/s	0 to 80	40	40
316 to 507	Reserved	-			
508	Transfer Voltage applied at 100mm from trailing edge (Plain paper)	(Hex.)	000 to 9FE	4FF	4FF
509	Transfer Voltage applied at 100mm from trailing edge (Tracing paper)	(Hex.)	000 to 9FE	4FF	4FF
510	Transfer Voltage applied at 100mm from trailing edge (Film)	(Hex.)	000 to 9FE	4FF	4FF
511	Transfer Voltage applied at 70mm from trailing edge (Plain paper)	(Hex.)	000 to 9FE	62F	62F
512	Transfer Voltage applied at 70mm from trailing edge (Tracing paper)	(Hex.)	000 to 9FE	69F	69F
513	Transfer Voltage applied at 70mm from trailing edge (Film)	(Hex.)	000 to 9FE	4FF	4FF
514 to 612	Reserved	-			
613	Judgment Value for Additional Cut Length for Non-standard Size Prints (36"/ 34"/ 30"/ A0 / B1)	1mm	1 to 20	1	1
614	Judgment Value for Additional Cut Length for Non-standard Size Prints (24"/ 20"/ A1)	1mm	1 to 20	1	1
615	Judgment Value for Additional Cut Length for Non-standard Size Prints (18"/ 17"/ 15"/ A2)	1mm	1 to 20	1	1
616	Judgment Value for Additional Cut Length for Non-standard Size Prints (12"/ 11"/ A3)	1mm	1 to 20	1	1
617	Additional Cut Length for Non-standard Size Prints (36"/ 34"/ 30"/ A0 / B1)	1mm	0 to 35	0	0
618	Additional Cut Length for Non-standard Size Prints (24"/ 22"/ A2)	1mm	0 to 35	0	0
619	Additional Cut Length for Non-standard Size Prints (18"/ 17"/ 15"/ A2)	1mm	0 to 35	0	0
620	Additional Cut Length for Non-standard Size Prints (12"/ 11"/ A3)	1mm	0 to 35	0	0
621	Toner Supply Roller Bias	-	0 to 800	286	286
622	Regulation Bias	-	0 to 800	270	240
623	Reserved				
624	Density Sensor Analog Voltage	-	0 to 60	0	0
625	Print - Fuser Temperature (Plain) (12" / 11" / A3)	1°C	120 to 180	145	145
626	Print - Fuser Temperature (Tracing) (12" / 11" / A3)	1°C	120 to 180	145	145
627	Print - Fuser Temperature (Film) (12" / 11" / A3)	1°C	120 to 180	165	155
628	Print - Fuser Temperature (Special / Plain) (12" / 11" / A3)	1°C	120 to 180	145	145
629	Print - Fuser Temperature (Special / Tracing) (12" / 11" / A3)	1°C	120 to 180	145	145
630	Print - Fuser Temperature (Special media / Film) (12" / 11" / A3)	1°C	120 to 180	165	155
631	Print - Fuser Temperature (Plain) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
632	Print - Fuser Temperature (Tracing) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
633	Print - Fuser Temperature (Film) (18" / 17" / 15" / A2)	1°C	120 to 180	165	155
634	Print - Fuser Temperature (Special / Plain) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
635	Print - Fuser Temperature (Special / Tracing) (18" / 17" / 15" / A2)	1°C	120 to 180	145	145
636	Print - Fuser Temperature (Special / Film) (18" / 17" / 15" / A2)	1°C	120 to 180	165	155
637	Print - Fuser Temperature (Plain) (24" / 22" / A1)	1°C	120 to 180	145	145
638	Print - Fuser Temperature (Tracing) (24" / 22" / A1)	1°C	120 to 180	145	145
639	Print - Fuser Temperature (Film) (24" / 22" / A1)	1°C	120 to 180	165	155
640	Print - Fuser Temperature (Special / Plain) (24" / 22" / A1)	1°C	120 to 180	145	145
641	Print - Fuser Temperature (Special / Tracing) (24" / 22" / A1)	1°C	120 to 180	145	145
642	Print - Fuser Temperature (Special / Film) (24" / 22" / A1)	1°C	120 to 180	165	155

Item No.	Setting Item	Unit	setting range	Default (sample145)	
				US	EU/Asia
643	Print - Fuser Temperature (Plain) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
644	Print - Fuser Temperature (Tracing) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
645	Print - Fuser Temperature (Film) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	165	155
646	Print - Fuser Temperature (Special / Plain) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
647	Print - Fuser Temperature (Special / Tracing) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	145	145
648	Print - Fuser Temperature (Special / Film) (36" / 34" / 30" / A0 / B1)	1°C	120 to 180	165	155
649	Density Sensor Output Monitor	-	2 to 9	6	6
650	Reserved				
651	Reserved				
652	Density Compensation On/Off	-	0 to 1	1	11
653	Target Density	(Hex.)	000 to 400	051	051
654	Toner Patch Adjustment	-	0 to 16	16	16
655	Density Measure Interval	1 hour	1 to 18	2	2
656	Reserved				
657	Reserved				
658	Reserved				
659	Reserved				
660	Ready - Fuser Temperature (Plain)	1°C	120 to 180	135	135
661	Ready - Fuser Temperature (Tracing)	1°C	120 to 180	145	145
662	Ready - Fuser Temperature (Film)	1°C	120 to 180	165	155
663	Ready - Fuser Temperature (Special / Plain)	1°C	120 to 180	135	135
664	Ready - Fuser Temperature (Special / Tracing)	1°C	120 to 180	145	145
665	Ready - Fuser Temperature (Special / Film)	1°C	120 to 180	165	155
666 to 737	Reserved	-			
738	Standby - Fuser Temperature	1°C	120 to 180	135	135
739 to 748	Reserved	-			
749	Tracing Mode	-	0 to 1	0	0
750	Reserved				
751	Disable HV Error Detection Mode	-	0 to 1	0	0
752	Reserved				
753	Counter Setting	-	0 to 1	0	0
754	Total Increment of Developer Bias Adjustment	(Hex.)	000 to 9FE	59E	59E
755	Developer Bias Increment for Adjustment Level 1 and after	0.5V	0 to 300	159	159
756	Developer Bias Limit (minimum, absolute value)	(Hex.)	000 to 4FF	141	141
757	Developer Bias Limit (maximum, absolute value)	(Hex.)	000 to 4FF	23A	23A
758	Total Increment of Regulation Bias Adjustment	-	0 to 340	160	160
759	Regulation Bias Increment for Adjustment Level 2 and after	0.5V	10 to 200	90	090
760	Regulation Bias Limit (minimum, absolute value)	-	0 to 399	270	270
761	Regulation Bias Limit (maximum, absolute value)	-	400 to 800	450	450
762	Developer Reference Bias 1	(Hex.)	000 to 4FE	060	060
763	Developer Reference Bias 2	(Hex.)	000 to 4FE	100	400
764	Developer Reference Bias 3	(Hex.)	000 to 4FE	19F	19F
765	Developer Reference Bias 4	(Hex.)	000 to 4FE	23A	23A
766	Developer Reference Bias 5	(Hex.)	000 to 4FE	2D4	2D4
767	Developer Reference Bias 6	(Hex.)	000 to 4FE	377	377
768	Motor Setting	-	0 to 1	0	0
769	Wait Time of Media Feed Start	100ms	0 to 60	0	0
770	Additional Toner Supply Time (Toner Supply Motor ON)	minute	1 to 30	9	9
771	Additional Toner Supply Time (Agitation only)	minute	1 to 30	1	1
772	Horizontal Alignment of LED Head (Block A/B)	1 pixel	2 to 114	58	58
773	Horizontal Alignment of LED Head (Block B/C)	1 pixel	2 to 114	58	58
774	Dot Light Level (Block A/B, border 1 pixel)	-	0 to 40	20	20
775	Dot Light Level (Block B/C, border 1 pixel)	-	0 to 40	20	20
776	Dot Light Level (Block A/B, next pixel to border)	-	0 to 40	20	20
777	Dot Light Level (Block B/C, next pixel to border)	-	0 to 40	20	20
778	Strobe Time Adjustment on Border Pixel (Block A/B)	-	6 to 14	10	10
779	Strobe Time Adjustment on Border Pixel (Block B/C)	-	6 to 14	10	10
780	Leading Registration (Paper Tray)	1mm	0 to 40	27	27
781	Trailing Margin (Paper Tray)	1mm	0 to 40	15	15
782	Side Registration (Paper Tray)	0.1mm	0 to 100	50	50
783	Forced Initial Cut Before Print (Cut Length)	1mm	279 to 600	350	350
784	Upper Limit Temperature of LED Stitch Compensation	1°C	30 to 50	35	35
785	Lower Limit Temperature of LED Stitch Compensation	1°C	10 to 20	15	15
786	Paper Tray Motor Speed	0.4mm/s	0 to 50	10	10
787	Transfer Corona ON Timing Compensation (Paper Tray)	1millisecond	1 to 999	540	540
788	Transfer Corona OFF Timing Compensation (Paper Tray)	1millisecond	1 to 999	380	380
789	Transfer Corona OFF Timing (Plain) (12" / 11" / A3)	1mm	0 to 100	20	20

Item No.	Setting Item	Unit	setting range	Default (sample)	
				US	EU/Asia
790	Transfer Corona OFF Timing (Tracing) (12” / 11” / A3)	1mm	0 to 100	20	35
791	Transfer Corona OFF Timing (Film) (12” / 11” / A3)	1mm	0 to 100	35	35
792	Transfer Corona OFF Timing (Plain) (18” / 17” / 15” / A2)	1mm	0 to 100	20	20
793	Transfer Corona OFF Timing (Tracing) (18” / 17” / 15” / A2)	1mm	0 to 100	35	20
794	Transfer Corona OFF Timing (Film) (18” / 17” / 15” / A2)	1mm	0 to 100	35	35
795	Transfer Corona OFF Timing (Plain) (24” / 22” / A1)	1mm	0 to 100	20	20
796	Transfer Corona OFF Timing (Tracing) (24” / 22” / A1)	1mm	0 to 100	35	20
797	Transfer Corona OFF Timing (Film) (24” / 22” / A1)	1mm	0 to 100	35	35
798	Transfer Corona OFF Timing (Plain) (36” / 34” / 30” / A0 / B1)	1mm	0 to 100	20	20
799	Transfer Corona OFF Timing (Tracing) (36” / 34” / 30” / A0 / B1)	1mm	0 to 100	35	35
800	Transfer Corona OFF Timing (Film) (36” / 34” / 30” / A0 / B1)	1mm	0 to 100	35	35
801	Separation Corona OFF Timing (Plain) (12” / 11” / A3)	1mm	0 to 100	35	35
802	Separation Corona OFF Timing (Tracing) (12” / 11” / A3)	1mm	0 to 100	35	50
803	Separation Corona OFF Timing (Film) (12” / 11” / A3)	1mm	0 to 100	50	50
804	Separation Corona OFF Timing (Plain) (18” / 17” / 15” / A2)	1mm	0 to 100	35	35
805	Separation Corona OFF Timing (Tracing) (18” / 17” / 15” / A2)	1mm	0 to 100	50	35
806	Separation Corona OFF Timing (Film) (18” / 17” / 15” / A2)	1mm	0 to 100	50	50
807	Separation Corona OFF Timing (Plain) (24” / 22” / A1)	1mm	0 to 100	35	35
808	Separation Corona OFF Timing (Tracing) (24” / 22” / A1)	1mm	0 to 100	50	35
809	Separation Corona OFF Timing (Film) (24” / 22” / A1)	1mm	0 to 100	50	50
810	Separation Corona OFF Timing (Plain) (36” / 34” / 30” / A0 / B1)	1mm	0 to 100	35	35
811	Separation Corona OFF Timing (Tracing) (36” / 34” / 30” / A0 / B1)	1mm	0 to 100	50	50
812	Separation Corona OFF Timing (Film) (36” / 34” / 30” / A0 / B1)	1mm	0 to 100	50	50
813	Encoder Type	-	0 to 1	1	1

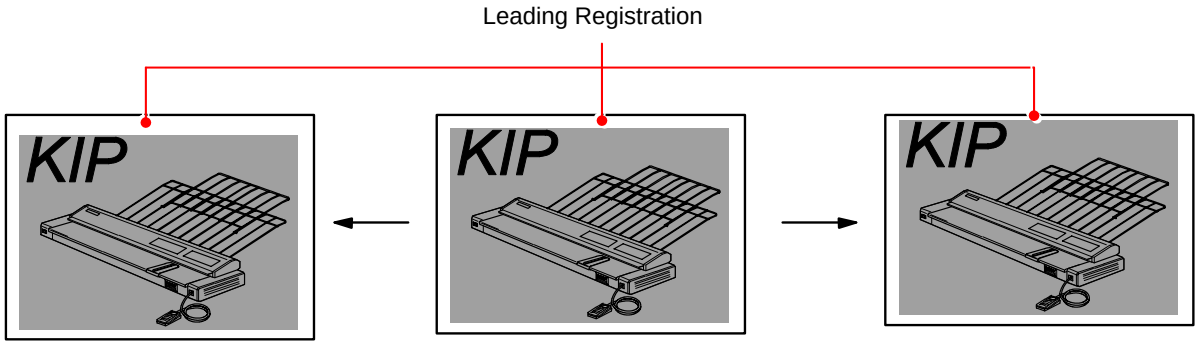
8. 6. 3 Setting Item Explanation

> **NOTE**
>
> Default Values may differ by individual machine. See the service sheet attached inside the machine.
> 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



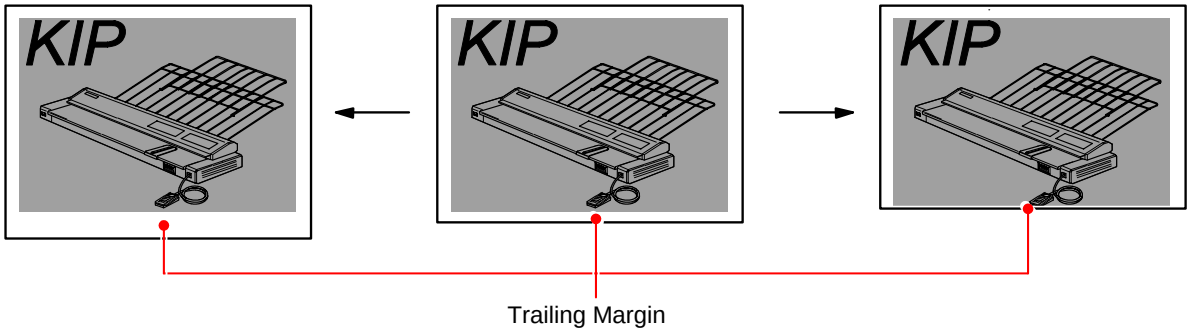
value is increased. value is decreased.

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.

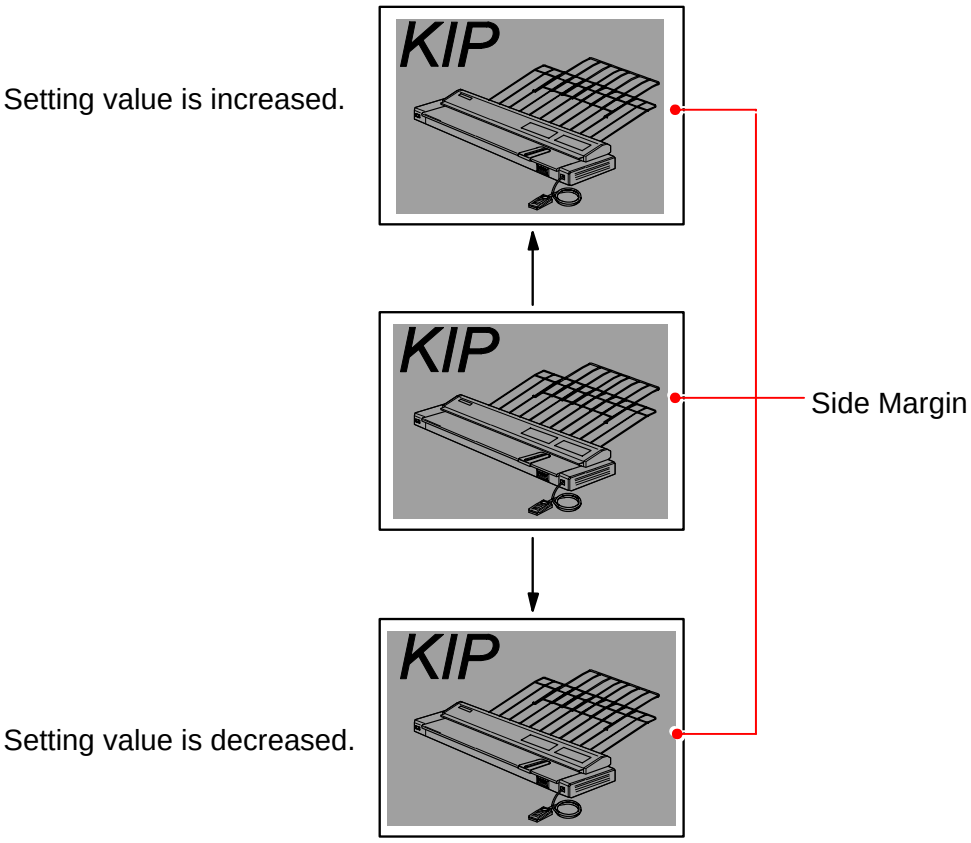


> **NOTE**
>
> Some trailing image may be lost if you decrease the value too much.

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



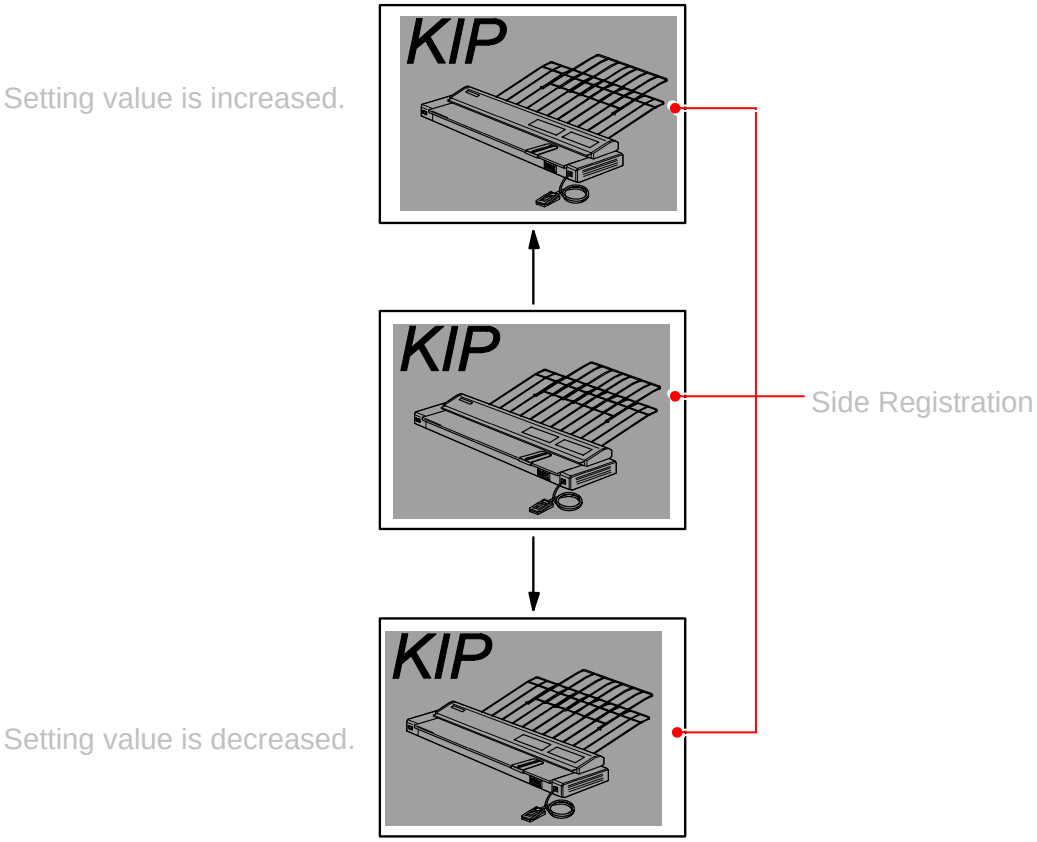
NOTE

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.

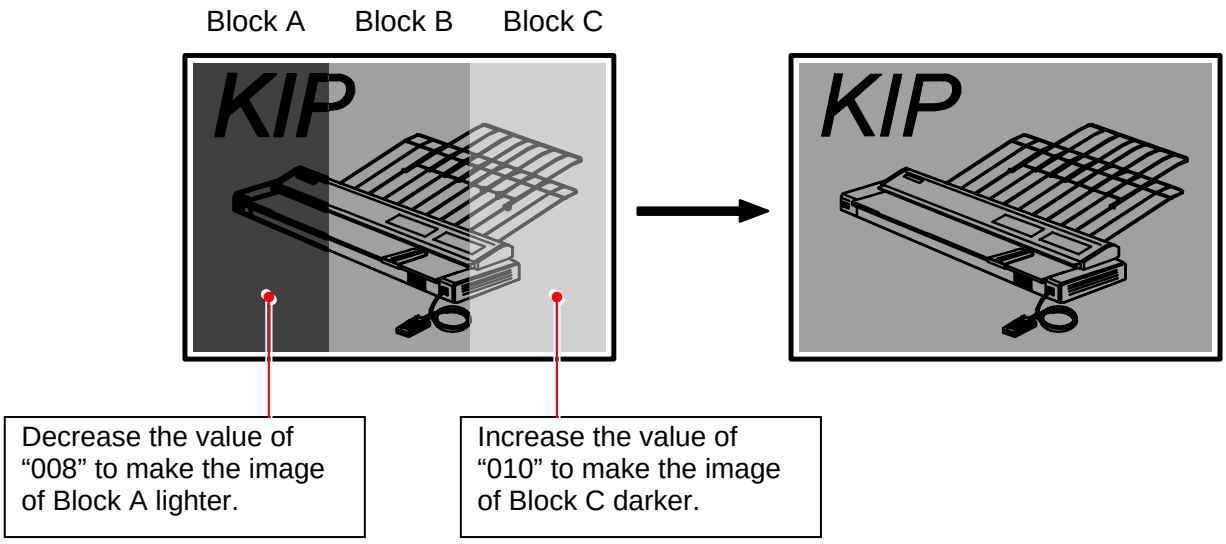
Item No.	Setting Item	Setting range	Step of increment
005	Side Registration (Cutsheet)	0 to 100	0.1mm
006	Side Registration (Roll 1)	0 to 100	0.1mm

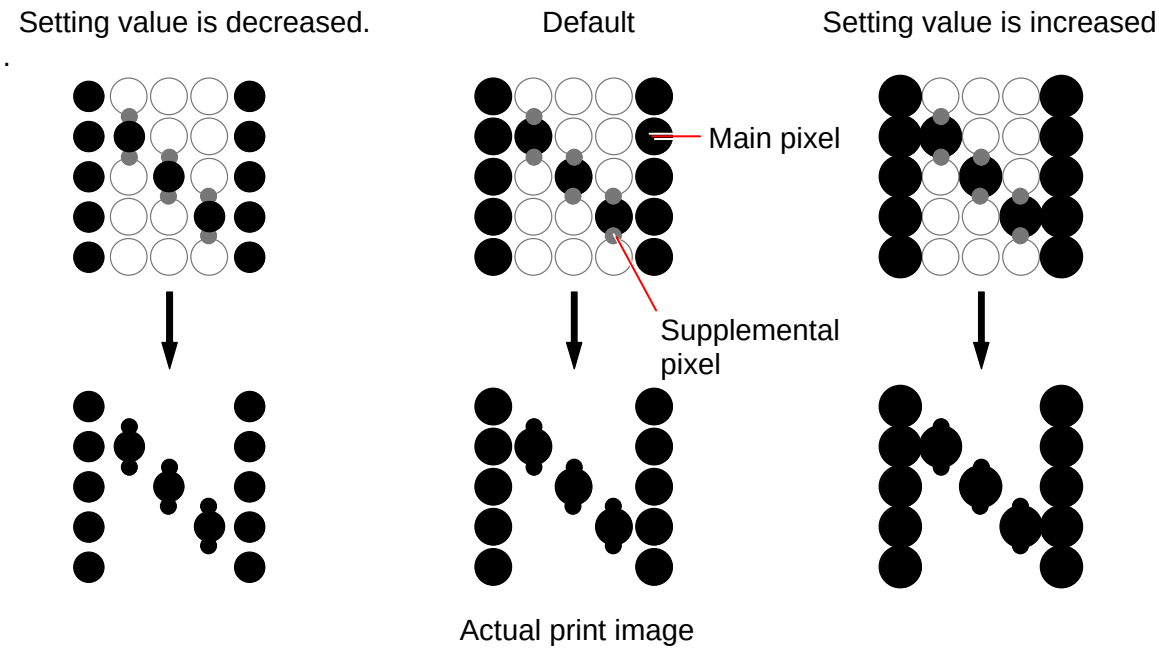


008 to 010 LED Strobe Time for Main Pixel

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



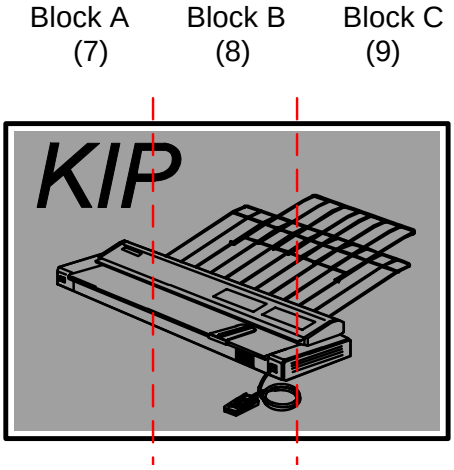


For the detail information about "Main Pixel" and "Supplemental Pixel", see the reference column in [011 to 013 LED Strobe Time for IST (Supplemental Pixel)].

NOTE

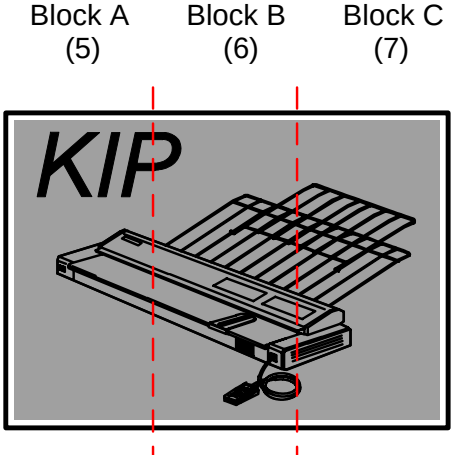
(1) The LED Strobe Times specified in these 008, 009 and 010 are directly applied to the Test Print.
If the setting values are 7 (for 008), 8 (for 009) and 9 (for 010), for example, the actual LED Strobe Times are also 7 (for block A), 8 (for block B) and 9 (for block C).

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

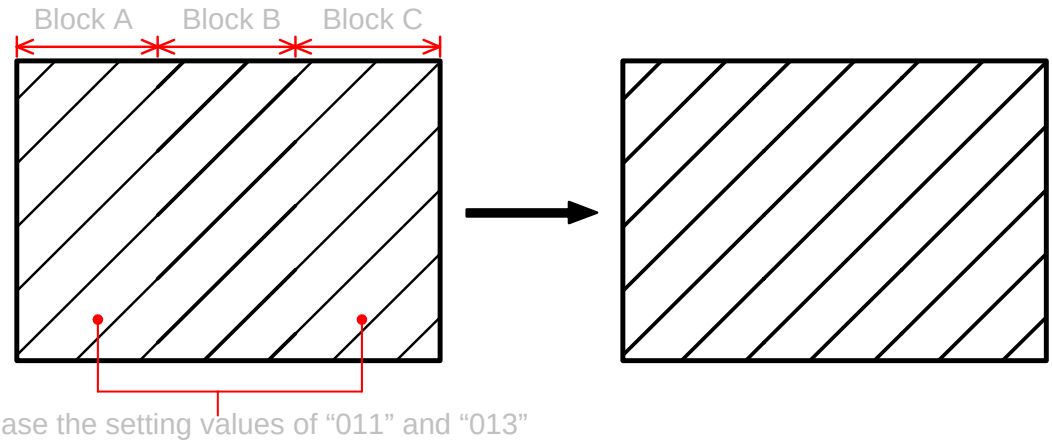


(2) If the value of density command (LED Strobe Time) sent from the output device is larger than “9 microsecond” (Max.), it is automatically corrected to “9 microsecond”.
If it is smaller than “0 microsecond” (Min.), it is corrected to “0 microsecond” similarly.

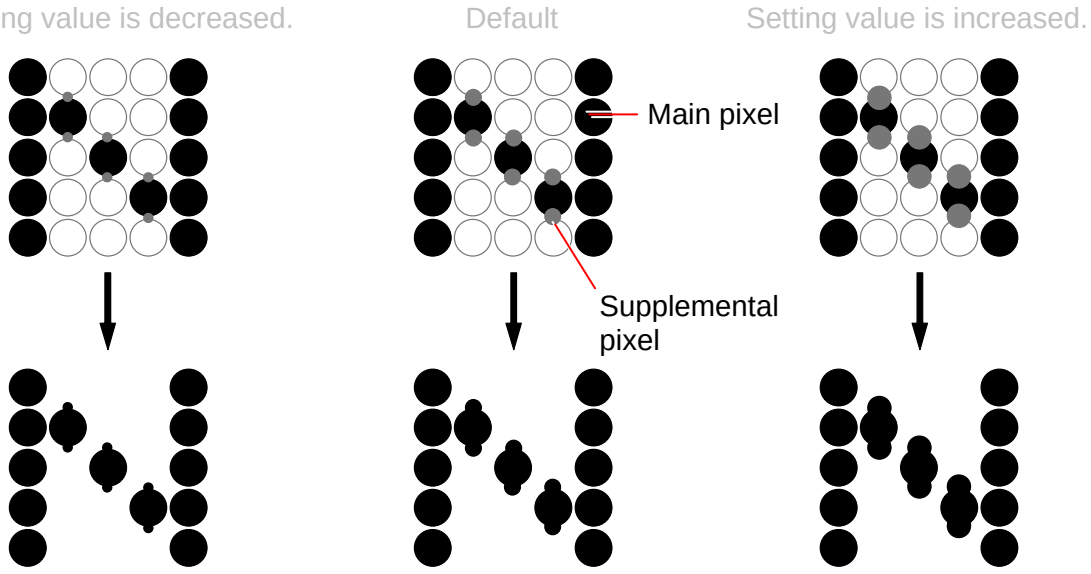
011 to 013 LED Strobe Time for IST (Supplemental Pixel)

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



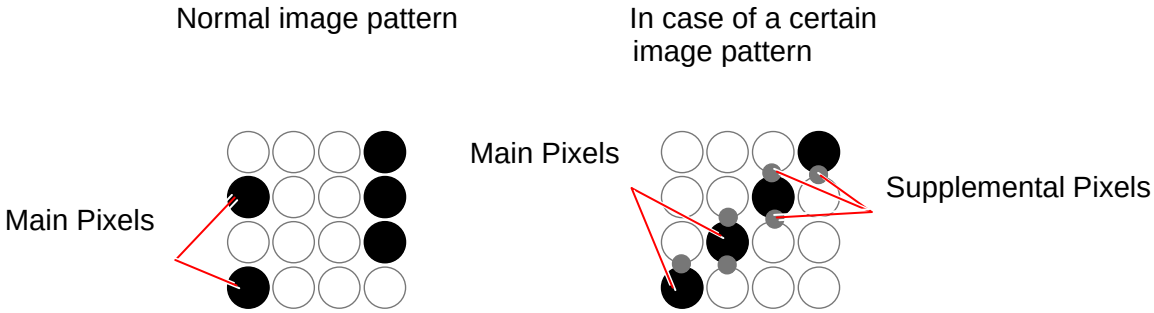
Increase the setting values of “011” and “013” to make the images of these blocks clearer.



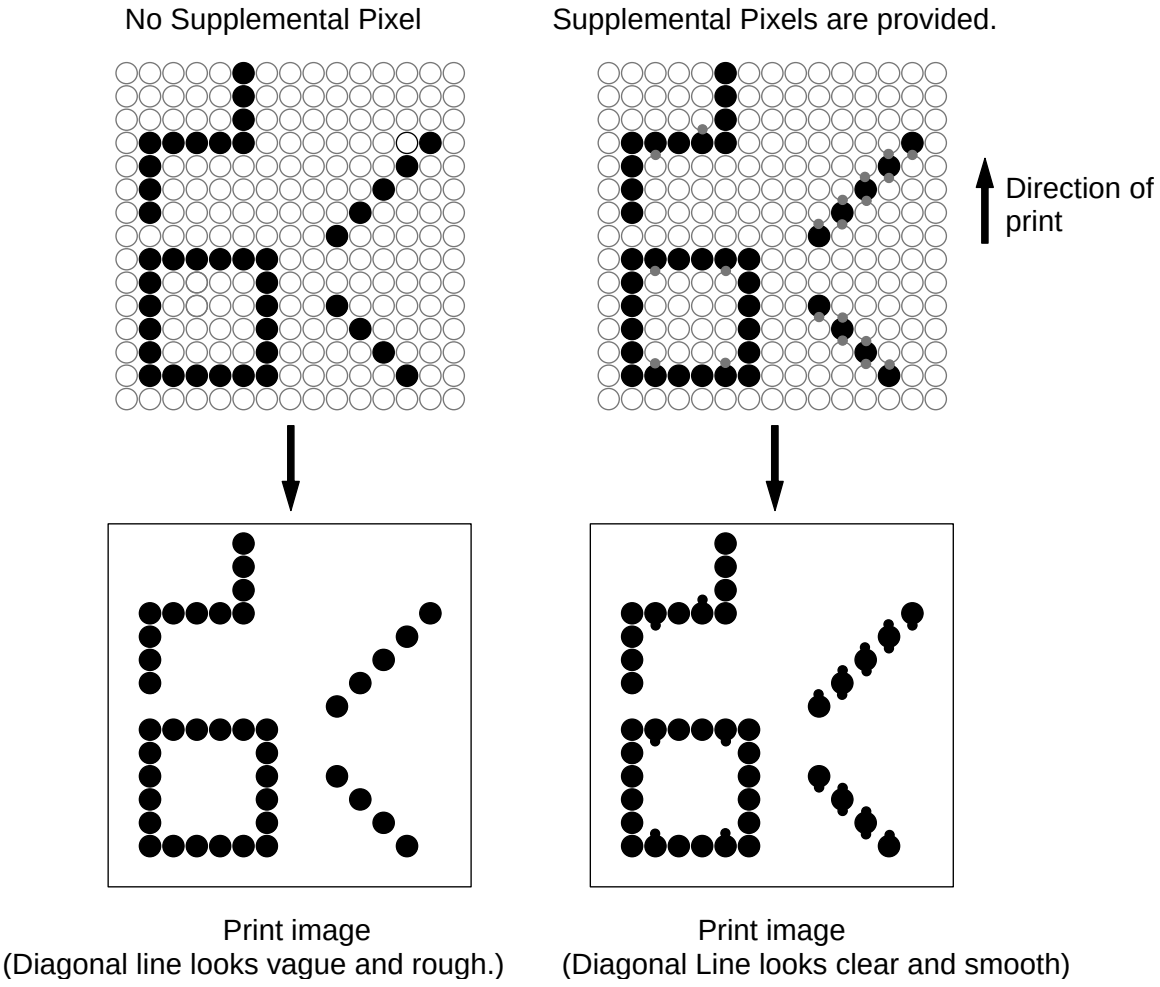
For the detail information about “Main Pixel” and “Supplemental Pixel”, see the reference column on the next page.

Reference

Normally the KIP 700m 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 700m 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].



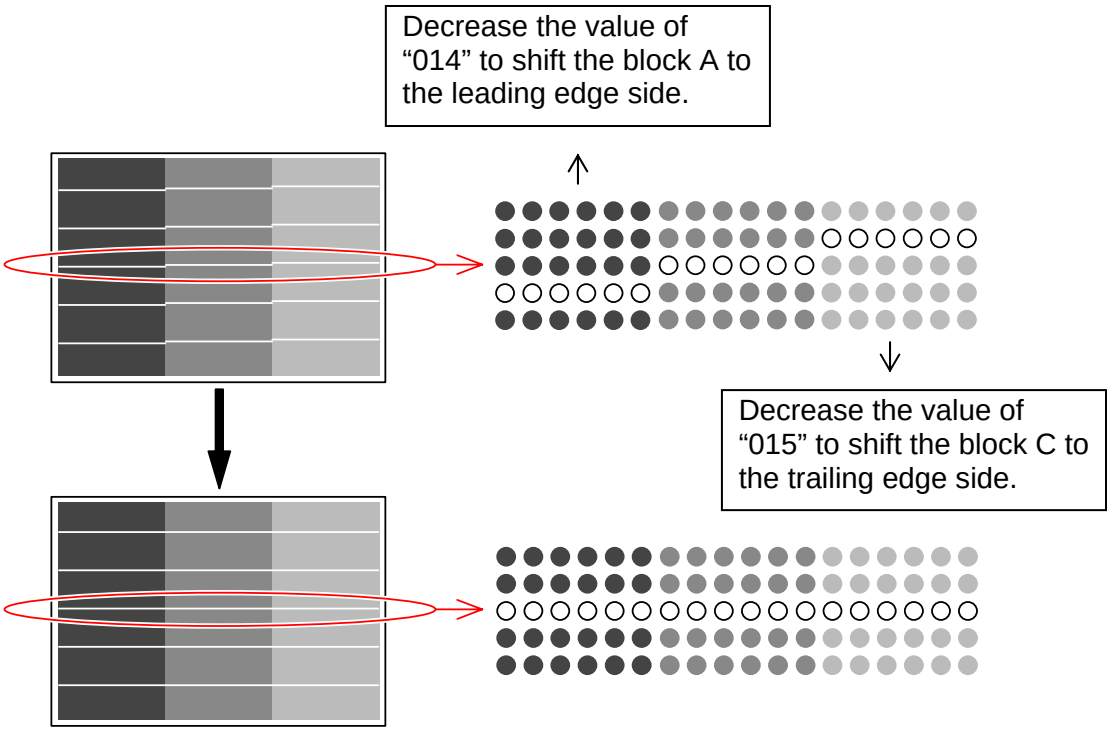
Supplemental Pixels are provided so as to fill the space between Main Pixels.
When we compare a vertical / horizontal 1 dot line and a diagonal 1 dot line, for example, the diagonal one looks vague and rough although the vertical / horizontal one looks clear and smooth.
This is because the diagonal line 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

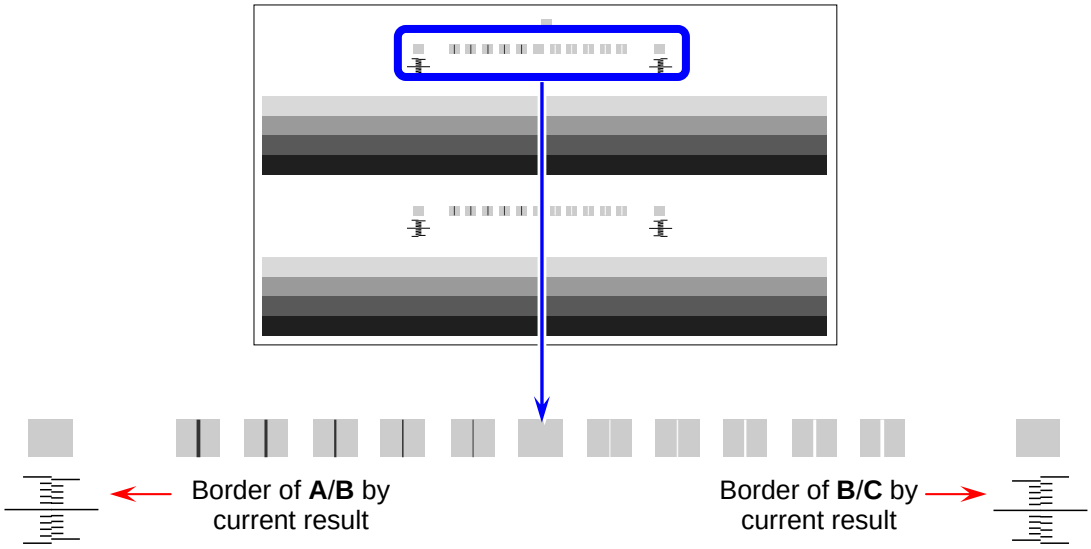
It is possible to align the pixels between Image Blocks if there is a gap of pixels.
The Image Block B is the standard, and both the Image Blocks A and C can be shifted vertically.
If you increase the setting value by “+1”, the whole pixels of the concerning Image Block is shifted “0.5 pixel” to the 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

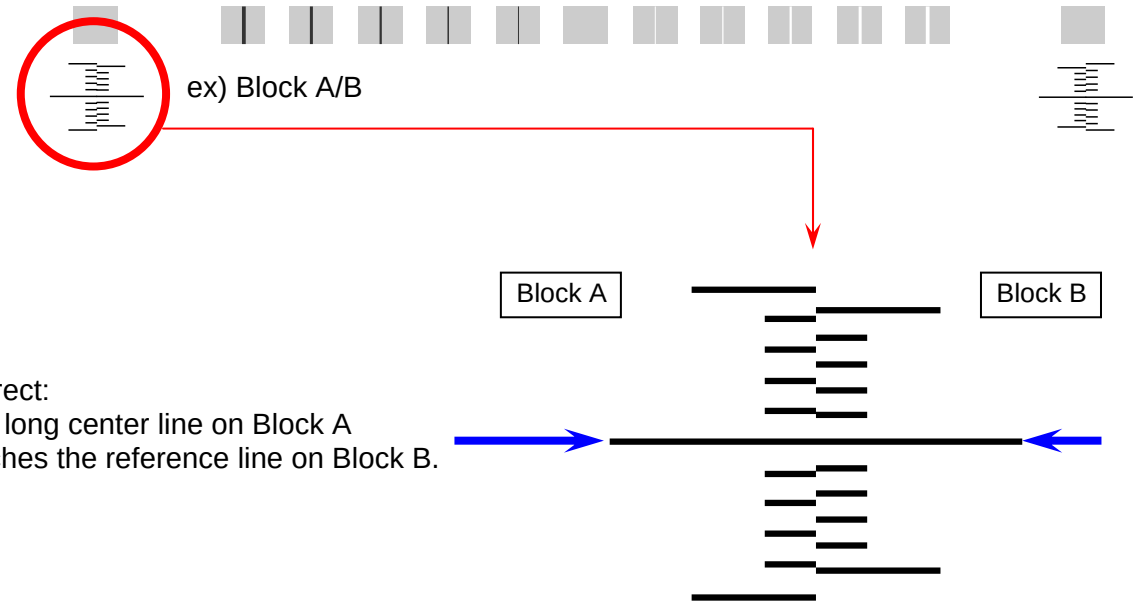


Reference

Test Pattern No.9 S(3) is an integrated test pattern image for margins at edges, focus and pixcel sticth check.

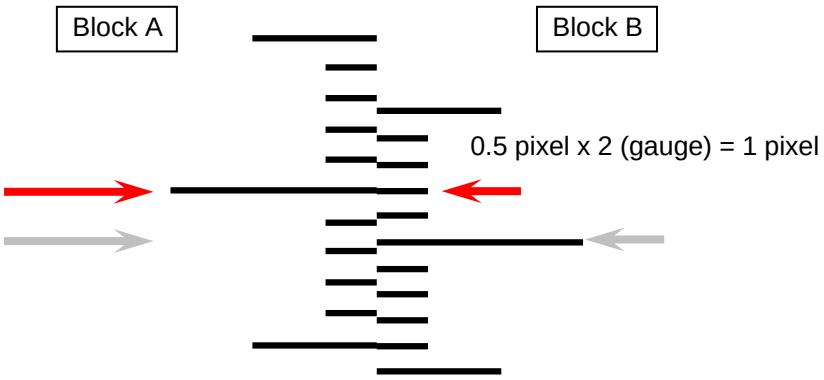


Check the following part of the test pattern No.9 S(3) for how many pixels Block A or Block C are shifting against Block B.



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 x 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.

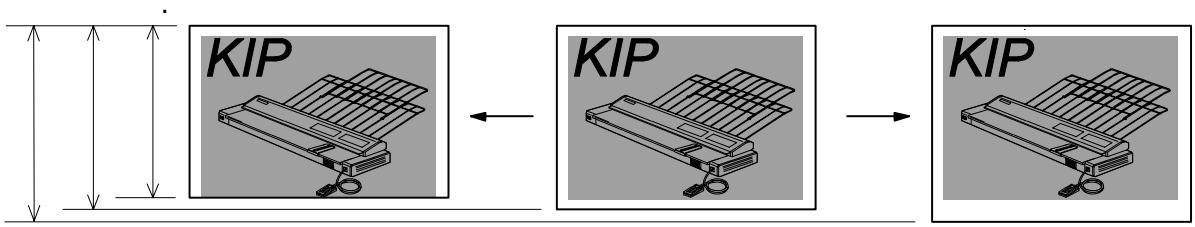
In this example, increase No.014 in “2” to move Block A toward the trailing edge in 1 pixel.

016 Cut Length 1 (length information provided)

It is possible to make the print length longer or shorter.
This setting is applied when the print command (plot & copy) is provided with the length information. **(this is command used on all standard pages printed from the IPS)**
If you increase the setting value by “+1”, the print length becomes 1mm longer.

Setting Range	Step of increment
0 to 100	1mm

Setting value is increased. Setting value is decreased



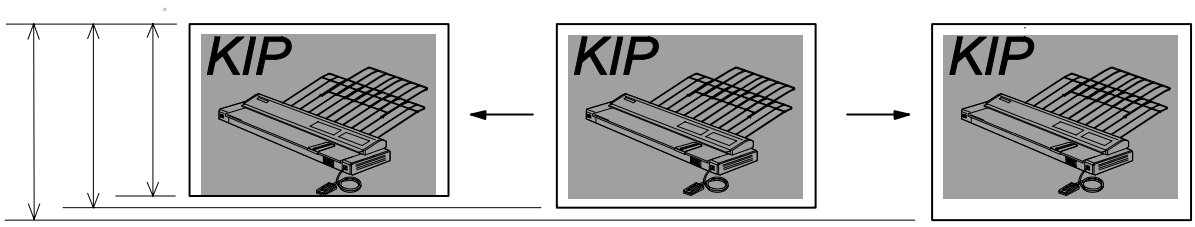
Cut length

017 Cut Length 2 (length information not provided)

It is possible to make the print length longer or shorter.
This setting is applied when the print command (plot & copy) is not provided with the length information. **(This is may only be used on LONG prints over 6 meters on the IPS)**
If you increase the setting value by “+1”, the print length becomes 1mm longer.

Setting Range	Step of increment
0 to 100	1mm

Setting value is increased. Setting value is decreased



Cut length

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.

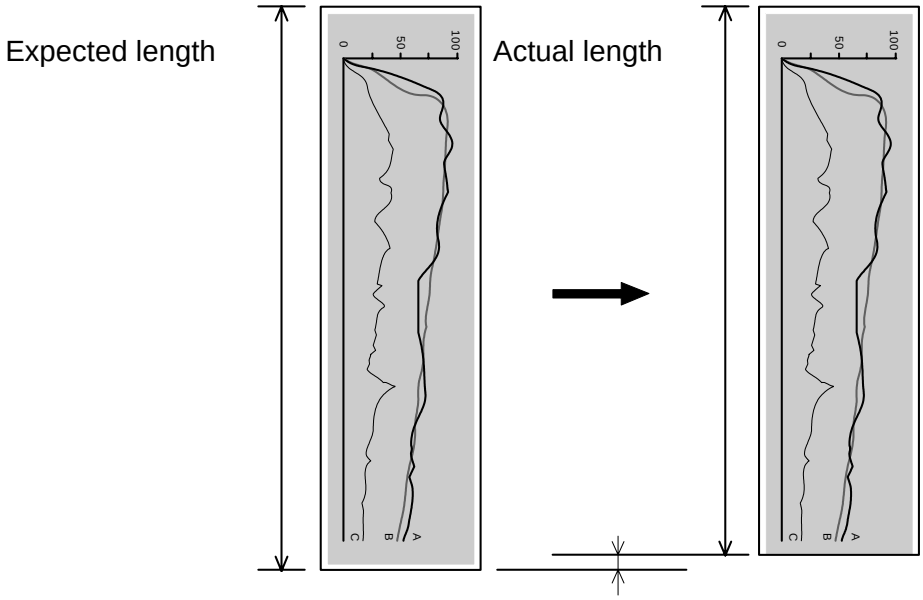
Setting Range	Step of increment
1 to 999	0.1mm

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]

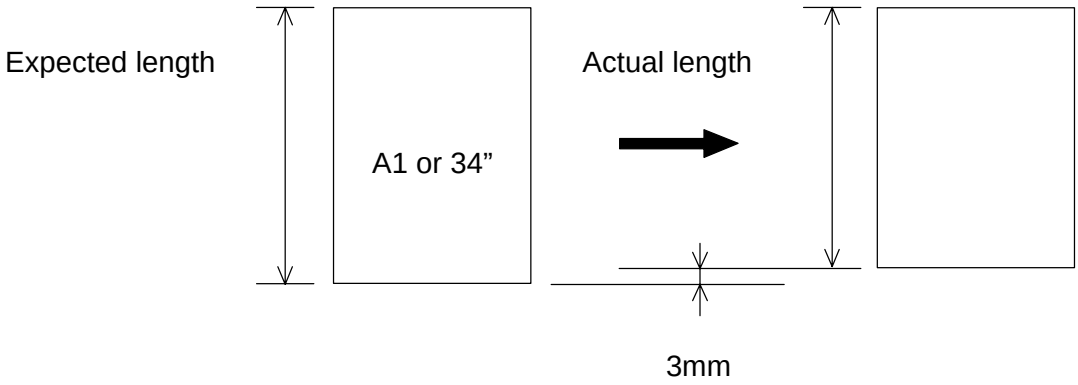
1. Supposing the actual length of a long print is shorter than expected.



Actual length is shorter than expected.

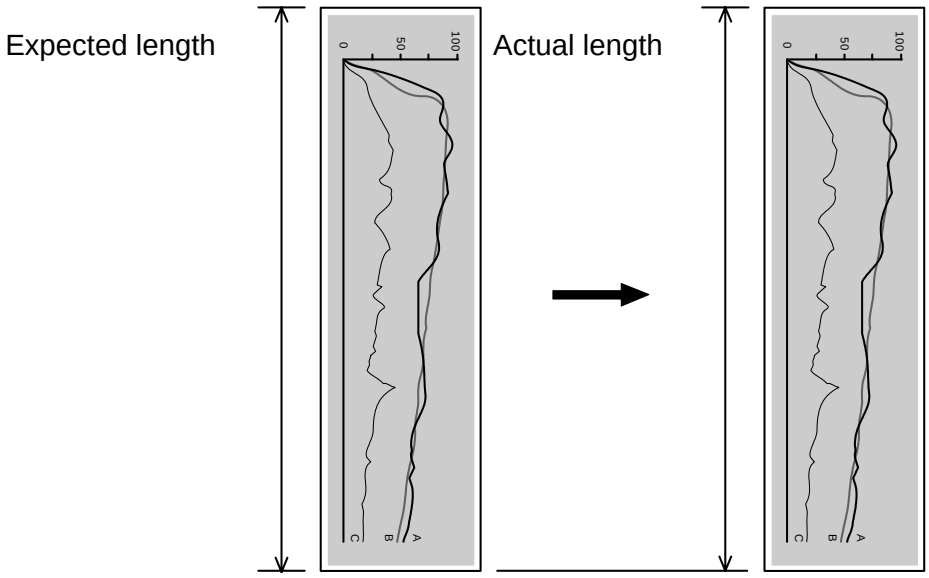
2. Make an A1 (841mm long) or 34” long print.
   Measure the actual length of this A1 or 34” print to know how long millimeter it is shorter than expected.

   (Example: Print out is 838mm, so it is 3mm shorter than expected.)



3. 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. (3mm x 10 = 30)
   Specify “30” as the setting value of No.018.

4. Make a long print.
   The actual print out will be as long as expected.



019 Leading Margin

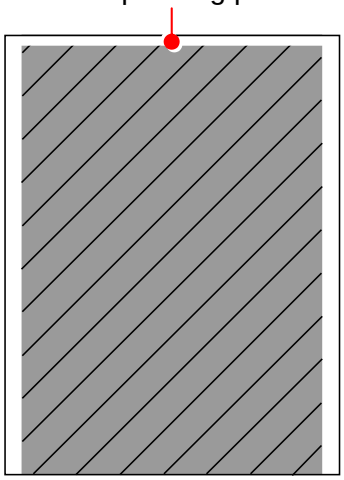
It is possible to adjust the length of the leading margin.
An image portion that corresponds to the given length of the leading margin is not printed.
The length of the leading margin becomes 0.1mm longer if you Increase the setting value by “+1 “.

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

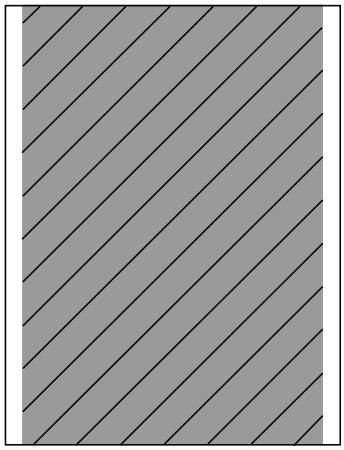
Default: 30

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

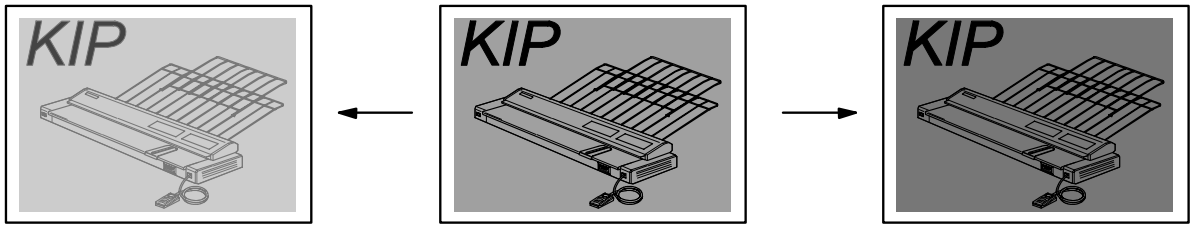
Setting to “0” may result in a jam in Fuser Unit and a ghost image at approximately 252mm from the leading edge.

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 4FF
023	Developer Bias (Tracing paper)	0 to 4FF
024	Developer Bias (Film)	0 to 4FF
025	Developer Bias (Special media / Plain paper)	0 to 4FF
026	Developer Bias (Special media / Tracing paper)	0 to 4FF
027	Developer Bias (Special media / Film)	0 to 4FF

Setting value is increased. Setting value is decreased.



NOTE

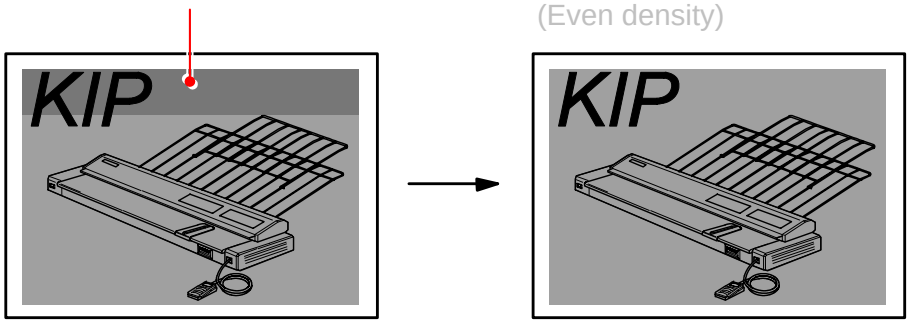
Please adjust the Developer Bias while checking the actual voltage with the multi-meter.

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 4FF
030	Transfer Corona Analog Voltage (Tracing paper)	0 to 4FF
031	Transfer Corona Analog Voltage (Film)	0 to 4FF
032	Transfer Corona Analog Voltage (Special media / Plain paper)	0 to 4FF
033	Transfer Corona Analog Voltage (Special media / Tracing paper)	0 to 4FF
034	Transfer Corona Analog Voltage (Special media / Film)	0 to 4FF

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.

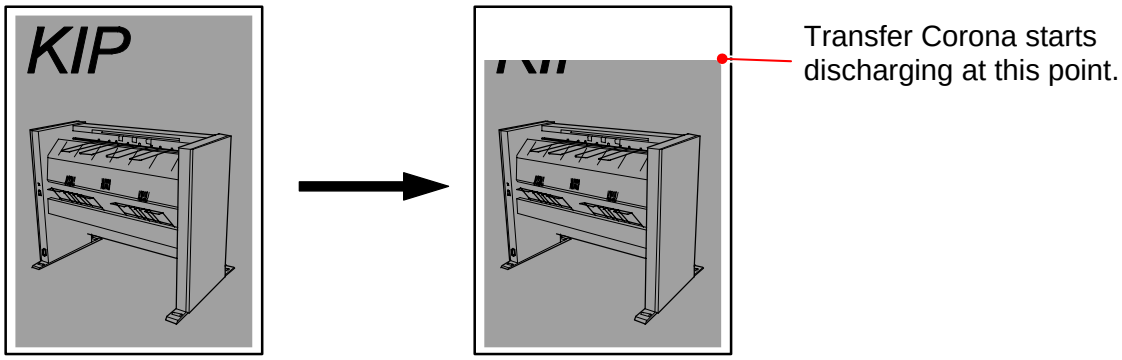
Setting Range	Step of increment
0 to 100	1mm

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.

Normal

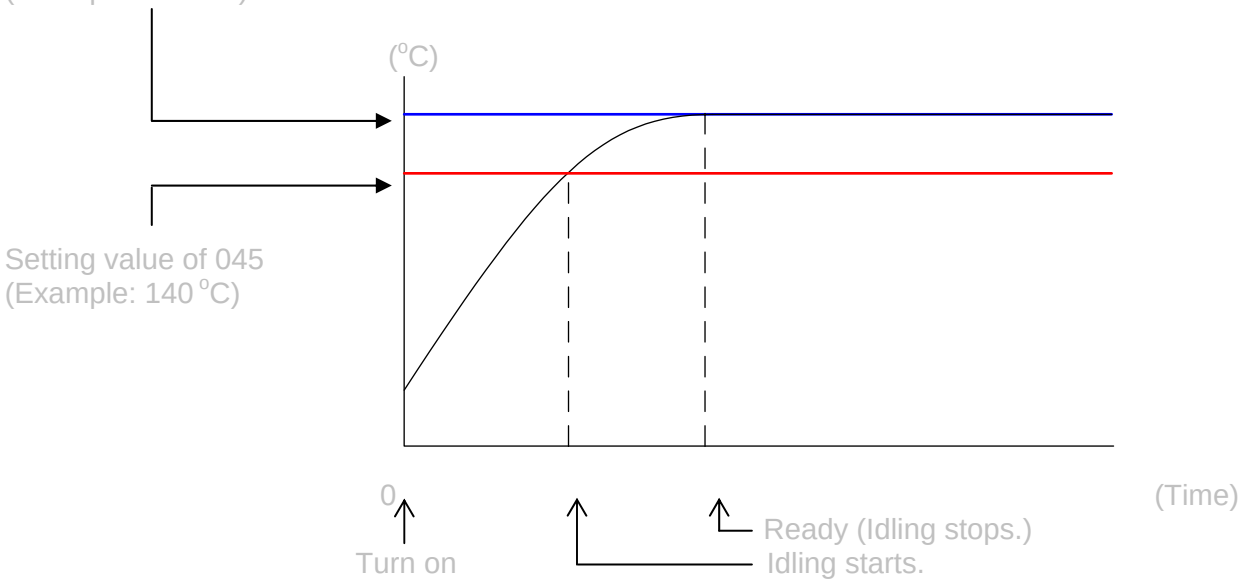
Setting value is increased too much.



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).

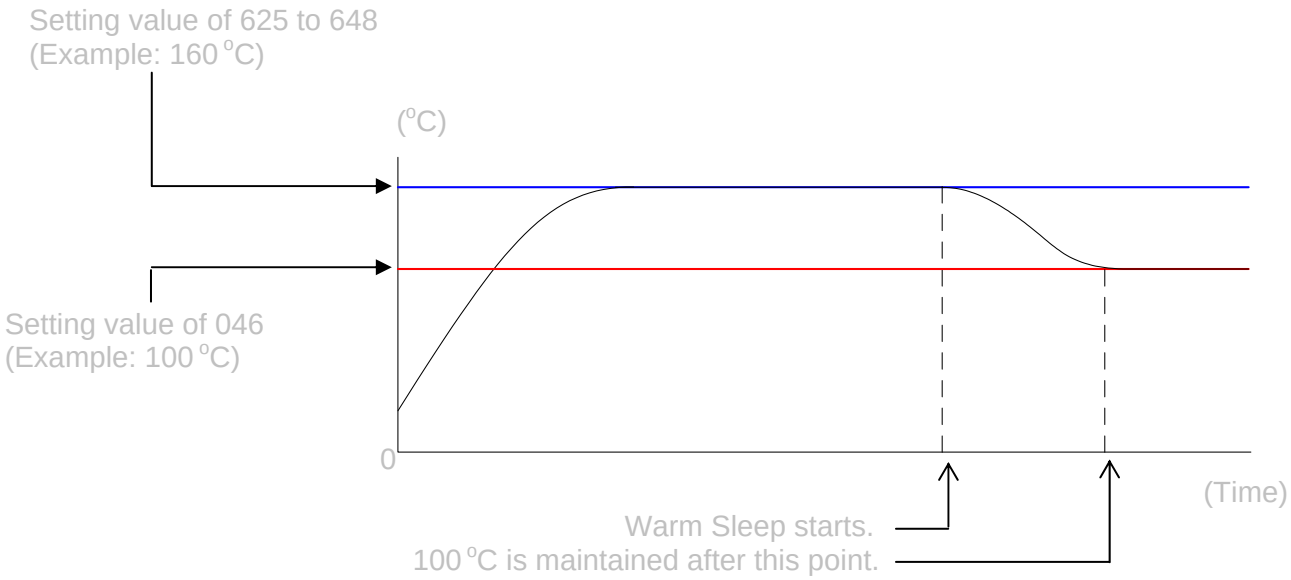
Setting Range	Step of increment
100 to 140	1°C



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



048, 049 Fuser Temperature Control Range

It is possible to specify the control range of temperature of Fuser Roller.

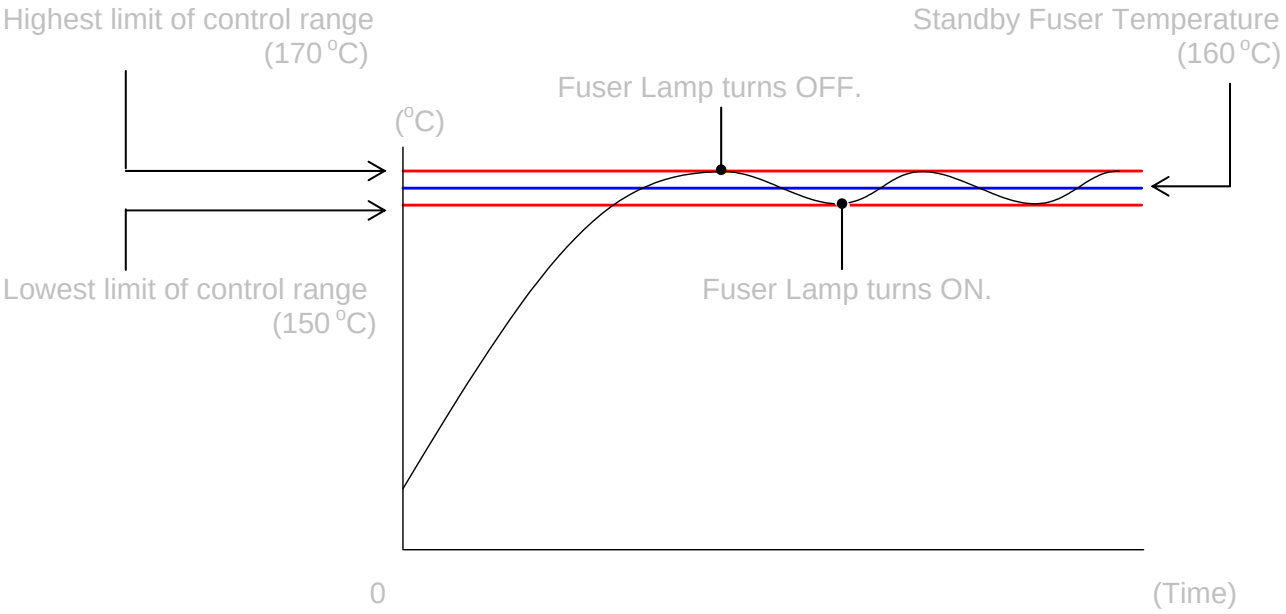
If you specify some setting value “X” on these No.048 and 049, for example, you can decide the highest limit and the lowest one of the control range of temperature.
The highest limit is “Fuser Temperature (Decided in No.625 to 648, and 738)” plus the setting value “X”.
And the lowest one is “Fuser Temperature” 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

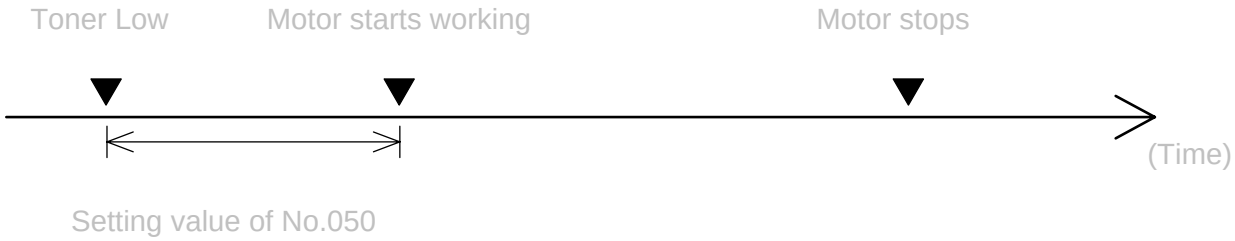
Example: Value of No.049 (Fuser Temperature Control Range) is “10”
Value of No.738 (Standby - Fuser Temperature) is “160”



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



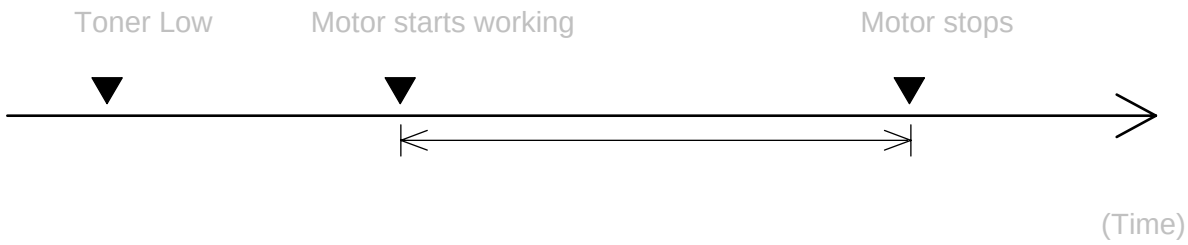
NOTE

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 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)

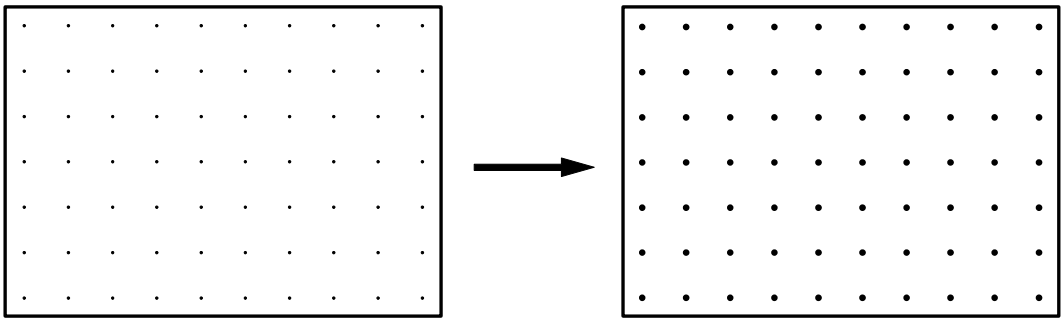
It is possible to validate the Dot Enhancement function which makes an isolated dot look clearer. An isolated dot image is more emphasized if you increase the setting value.

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.

055 Metric or Inch

It is possible to decide the base format of the print.

Setting value	Contents
0	Metric
1	Inch

NOTE

No.055 is effective only to the size format selection available in the UI screen.
This does not effect to the counting “unit”.

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

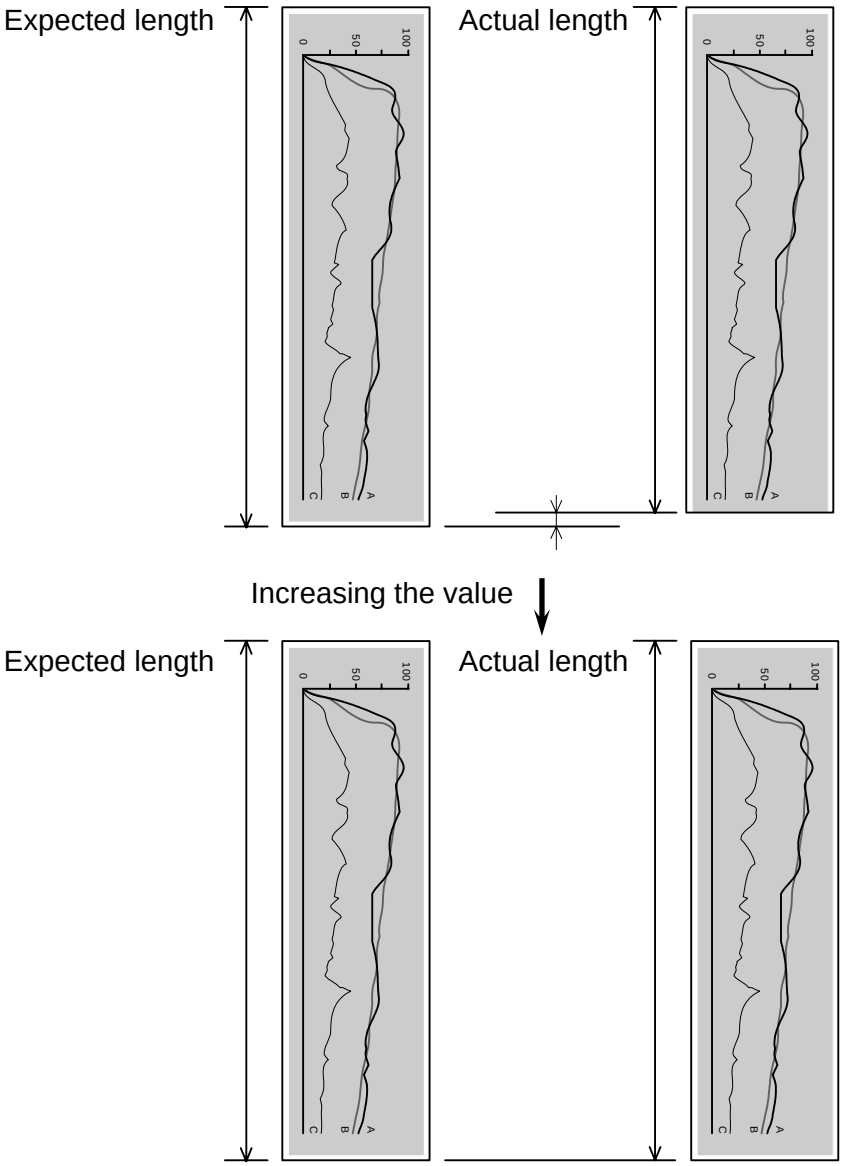
063, 064 Cut Length 5 & 6
(Length Compensation for Tracing Paper / Film)

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



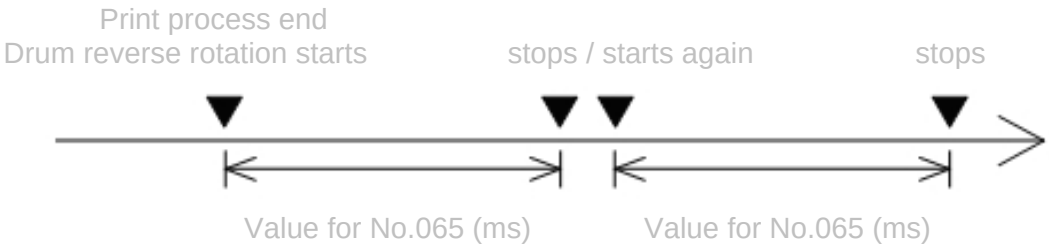
065 Drum Reverse Time

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.

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 9FE
509	Transfer Voltage applied at 100mm from trailing edge (Tracing)	0 to 9FE
510	Transfer Voltage applied at 100mm from trailing edge (Film)	0 to 9FE

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 9FE
512	Transfer Voltage applied at 70mm from trailing edge (Tracing)	0 to 9FE
513	Transfer Voltage applied at 70mm from trailing edge (Film)	0 to 9FE

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		

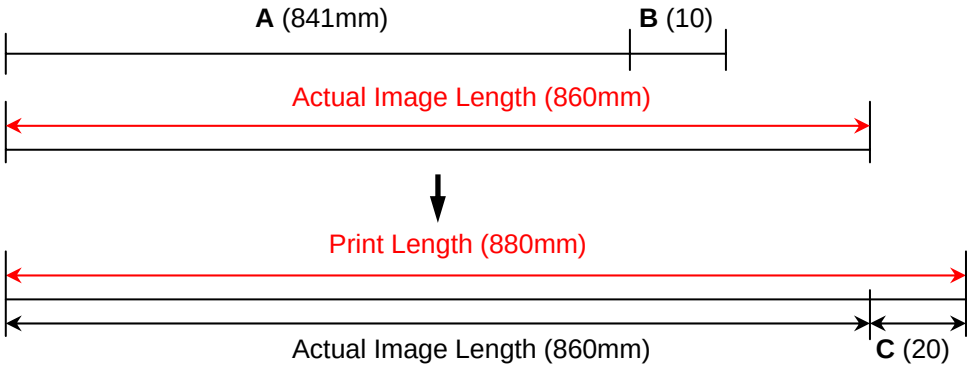
(next page)

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”

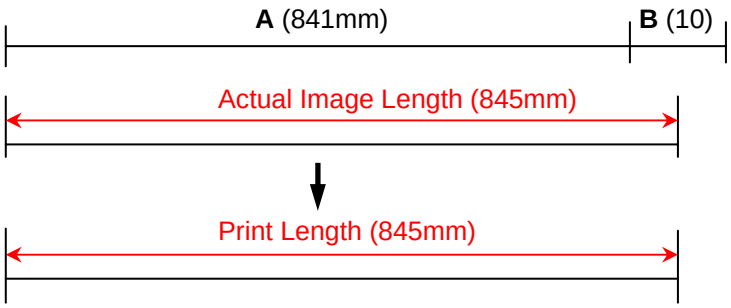
<Example> Actual Image Length: 860mm
A: 841mm (A1 roll width)
B: 10
C: 20



(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.

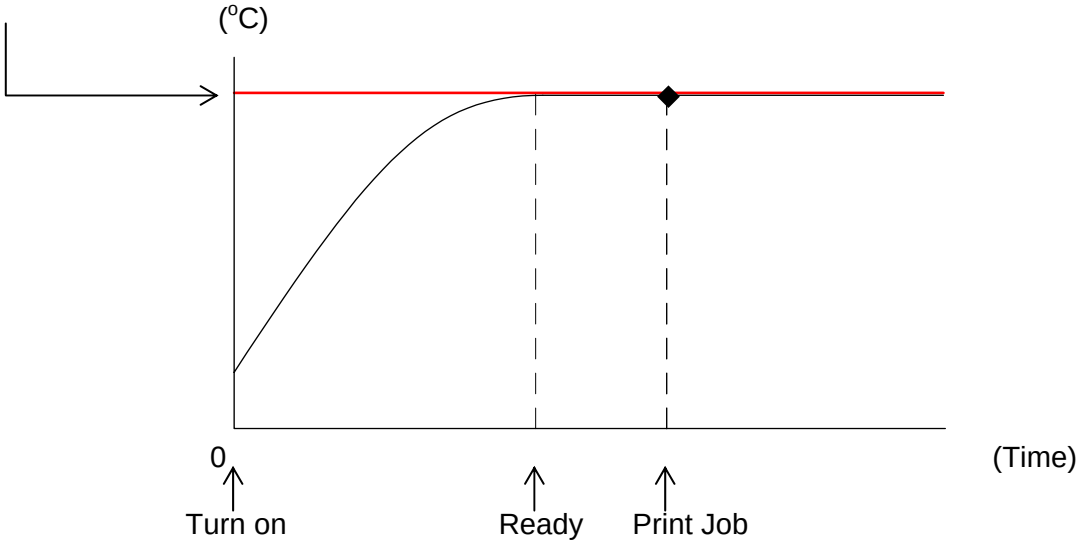
Setting Range
0 to 60

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.

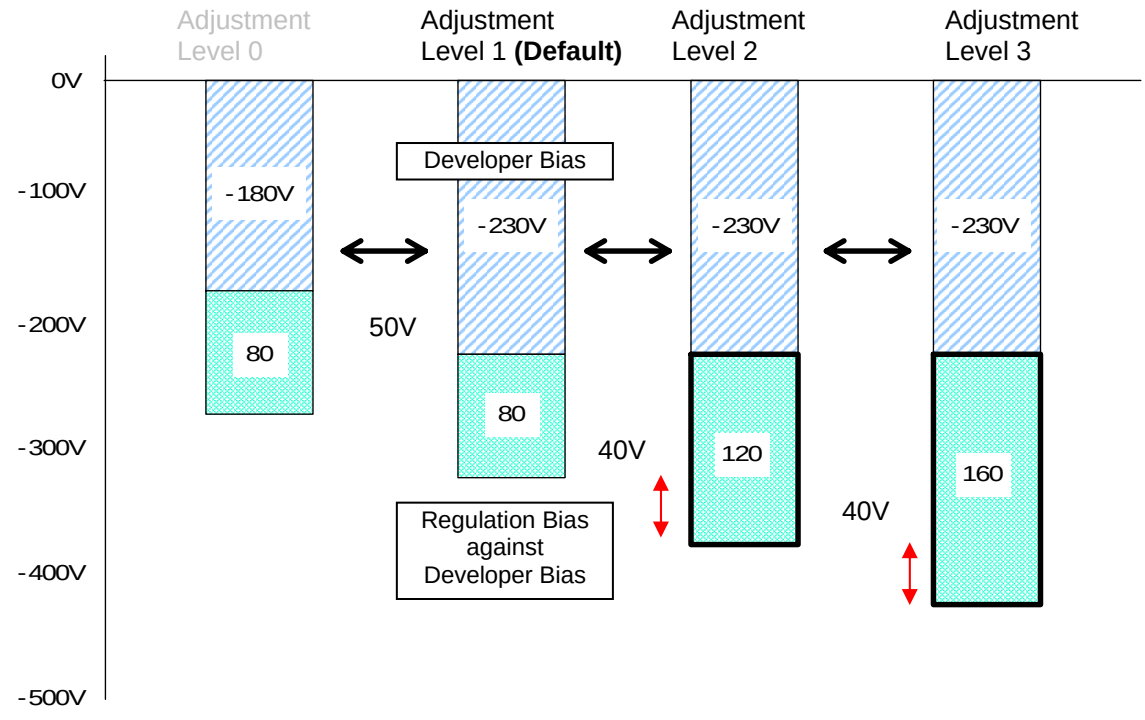
Setting value	Contents
0	Density Compensation Process is disabled
1	Density Compensation Process is enabled

Reference

Density Compensation Process is performed as follows.

1. 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.
2. 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.
3. 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.

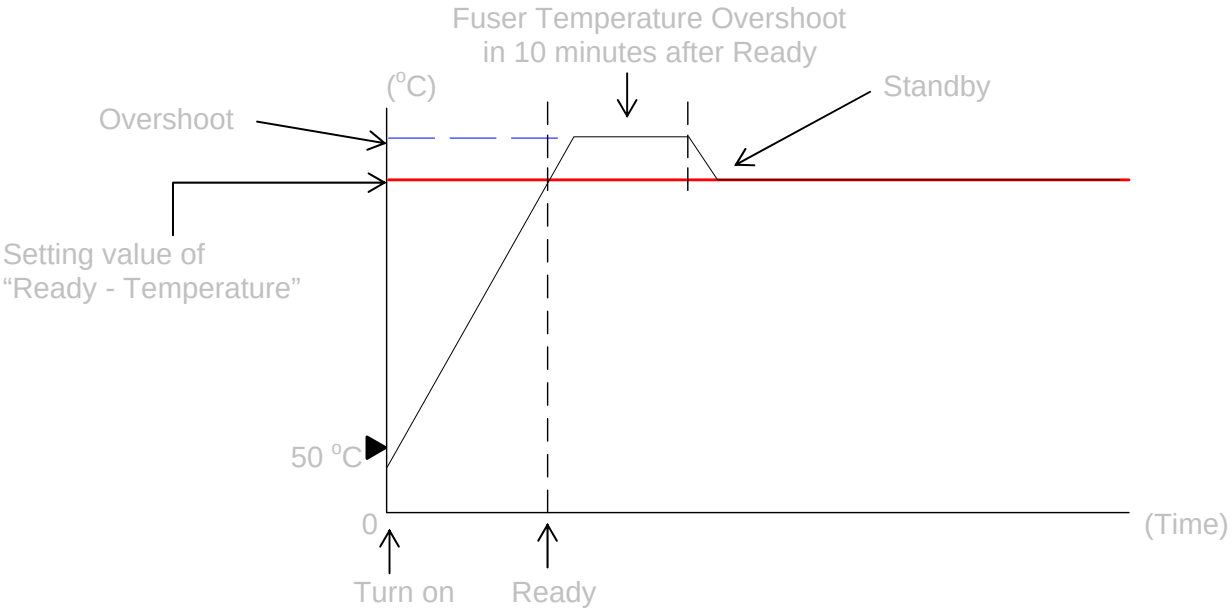
Setting Range	Step of increment
1 to 18	1 hour

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

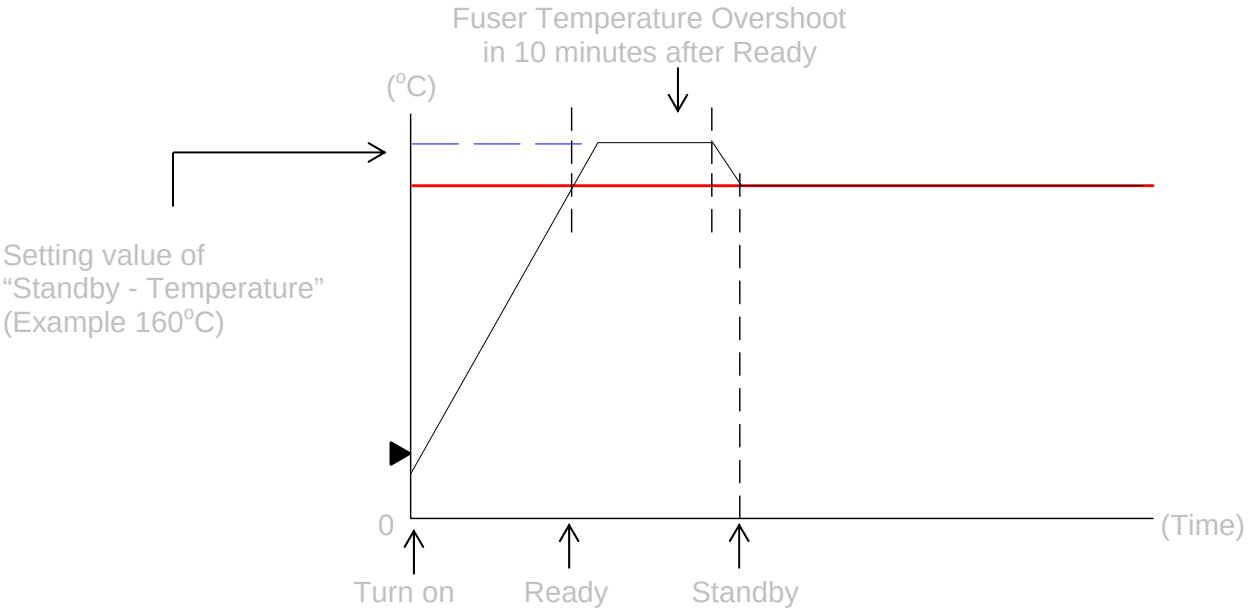
After reaching “Ready”, fuser temperature will rise 10 °C higher than “Ready” (Overshoot) in 10 minutes. Then it will be maintained within “Standby” temperature.



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 9FE

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 9FE
756	Developer Bias Limit (maximum, absolute value)	000 to 9FE

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 9FE
763	Developer Reference Bias 2	000 to 9FE
764	Developer Reference Bias 3	000 to 9FE
765	Developer Reference Bias 4	000 to 9FE
766	Developer Reference Bias 5	000 to 9FE
767	Developer Reference Bias 6	000 to 9FE

Developer Reference Bias are used only to find out the possible best output voltage of Developer Bias for the target density.

768 Motor Setting

NOTE

This setting does not function. Keep the value unchanged.

Setting value	Contents
0	Keep the value unchanged.
1	Never use.

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.

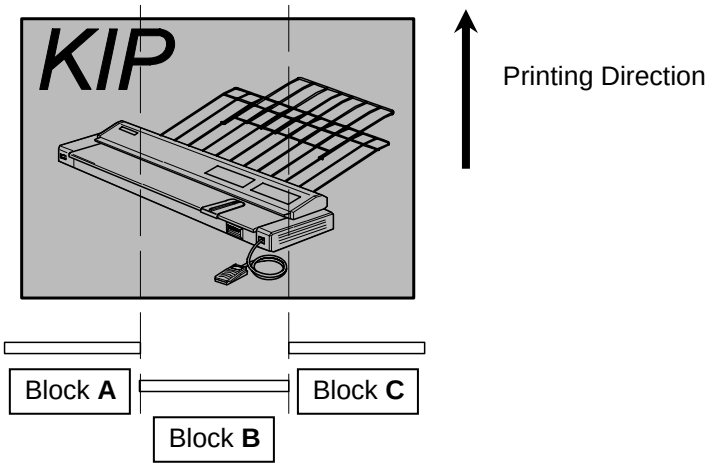
Item No.	Setting Item	Default Value	Setting range	Step of increment
770	Additional Toner Supply Time (toner supply motor ON)	9	1 to 30	min
771	Additional Toner Toner Supply Time (Agitation only)	1	1 to 30	min

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.

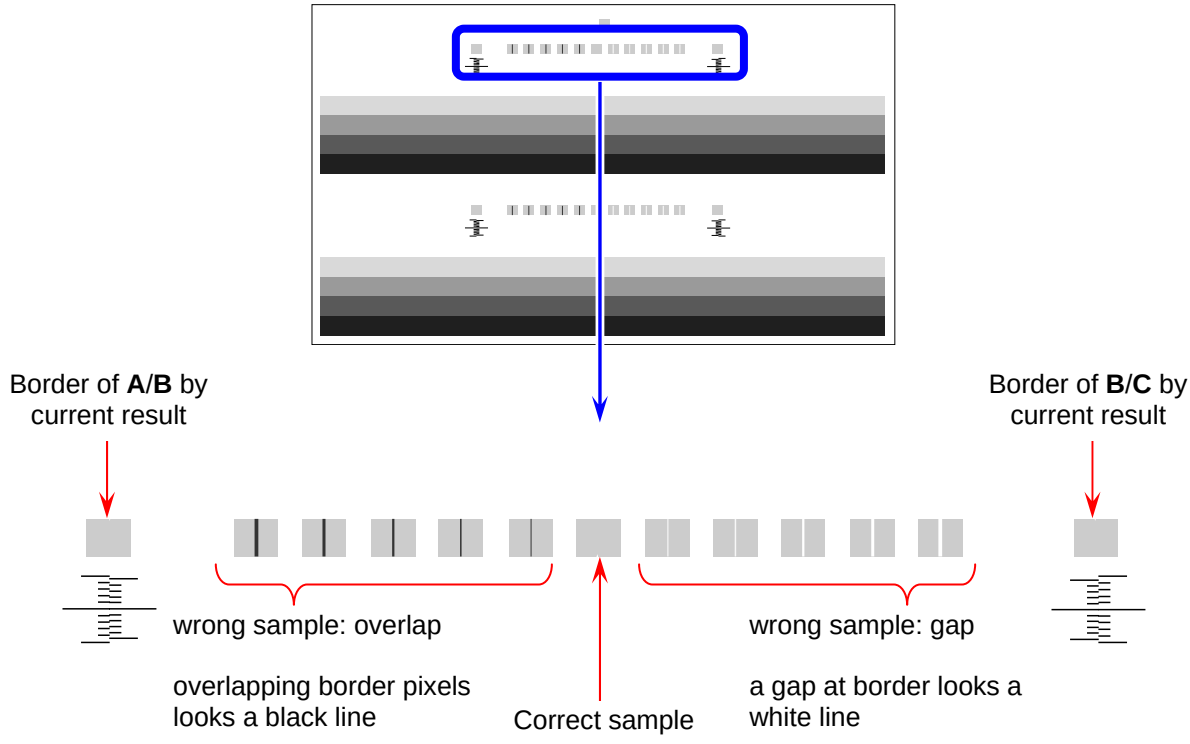
Increasing the setting value shifts the concerning Block (A or C) to the **right**.
Decreasing the setting value shifts the concerning Block (A or C) to the **left**.



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

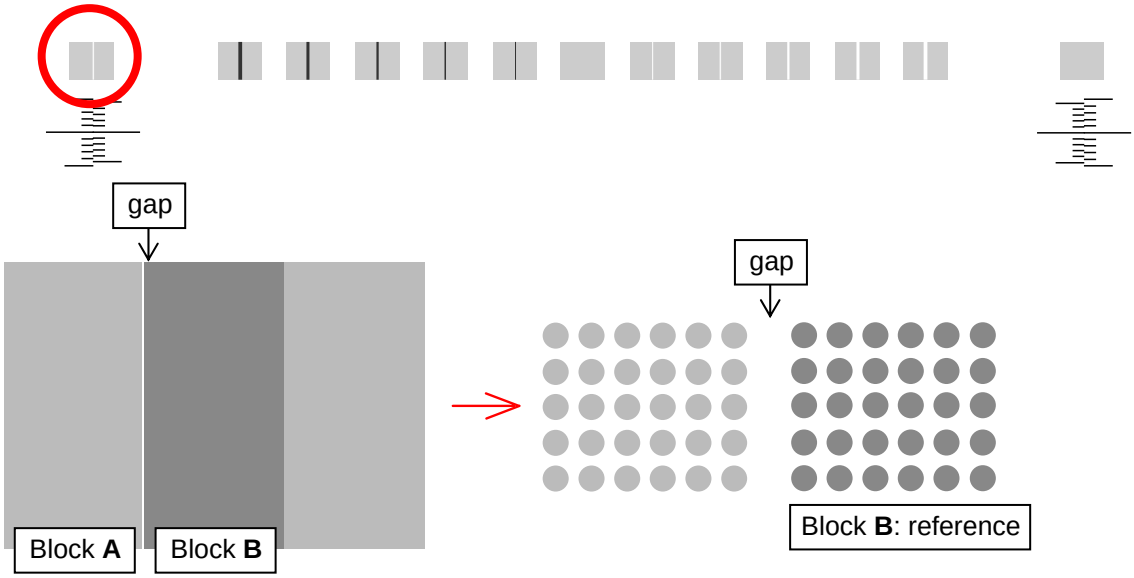
Reference

Test Pattern No.9 S(3) is an integrated test pattern image for margins at edges, focus and pixcel sticth check.

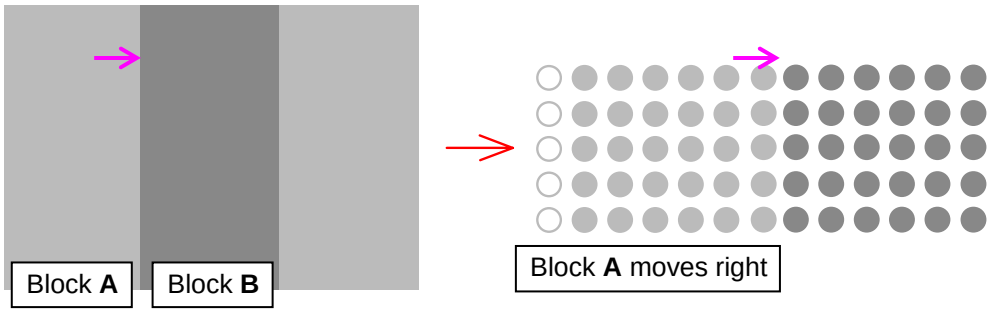


Example)
- The border between Block A/B has a white line. (= Block A displaced in left, apart from Block B)
  → Block A should move right to touch with Block B.

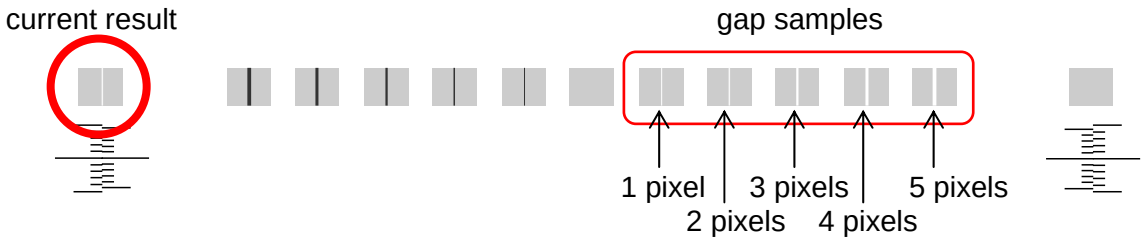
white line at Border A/B



In this case, increase No.772 to shift Block A to the right side.



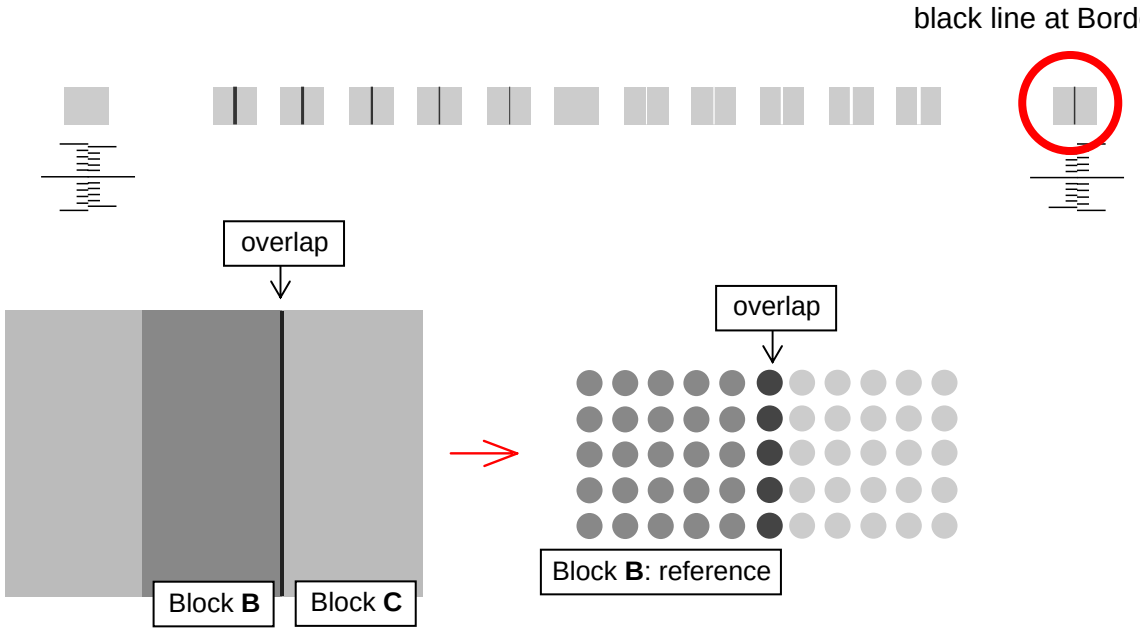
Compare the current border result and the samples, and find in how many pixel(s) the gap is.



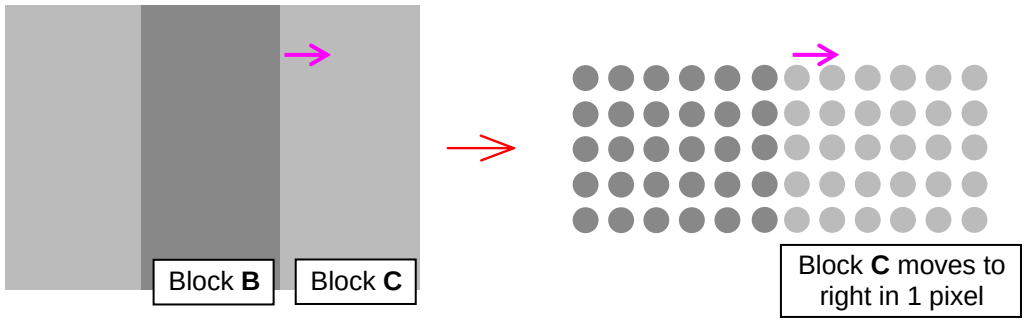
On the other hand, to remove a black line between Block A/B (= Block A displaced in left, overlapping Block B), decrease No.772 and shift Block A left to remove overlap.

> **NOTE**
>
> For a gap / overlap in less than 1 pixel, see [778, 779 Strobe Time Adjustment on Border Pixels].

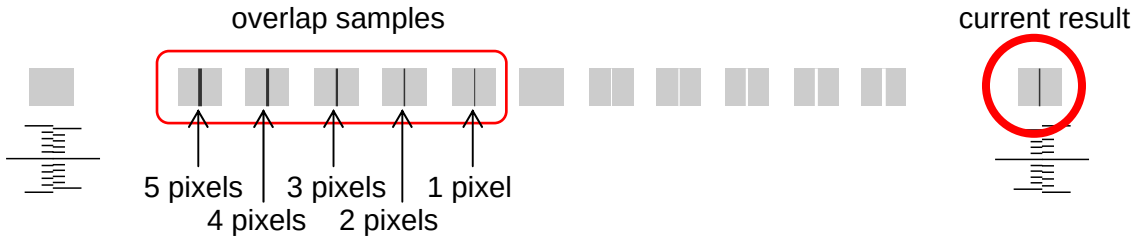
- The border between Block B/C has a black line. (= Block C displaced in left, overlapping Block B)
  → Block C should move right to remove overlap with Block B.



In this case, increase No.773 to shift Block C to the right side.



Compare the current border result and the samples, and find how many pixel(s) is overlapping.



On the other hand, to remove a white line between Block B/C (= Block C displaced in right, apart from Block B), decrease No.773 and shift Block C left to touch with Block B.

> **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

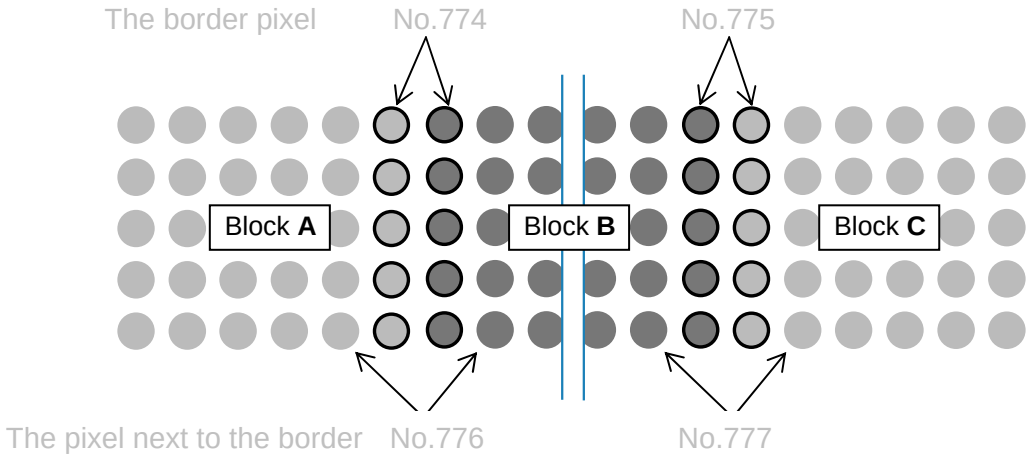
> **NOTE**
>
> This setting has been factory-adjusted. Keep the value unchanged.

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.

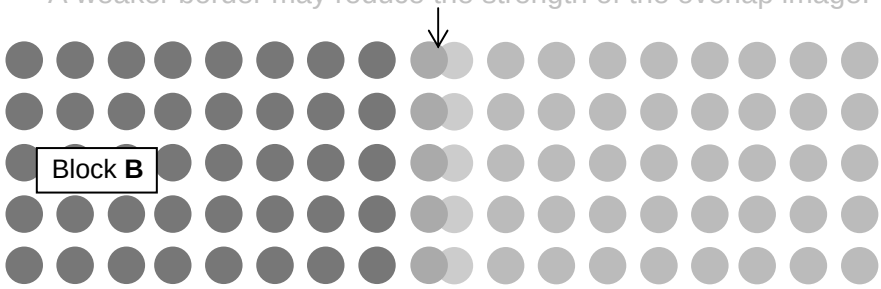
Decrease the value to weaken the dot light level for a weak black line.
Increase the value to strengthen the dot light level for a weak white line.

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 borderl)	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.



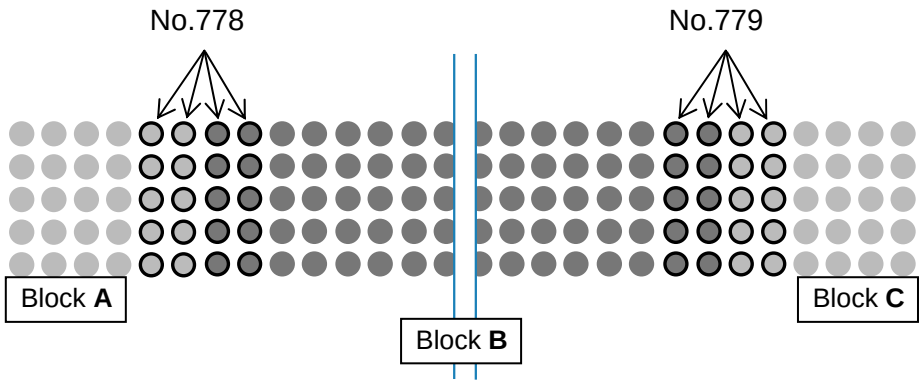
778, 779 Strobe Time Adjustment on Border Pixel

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.

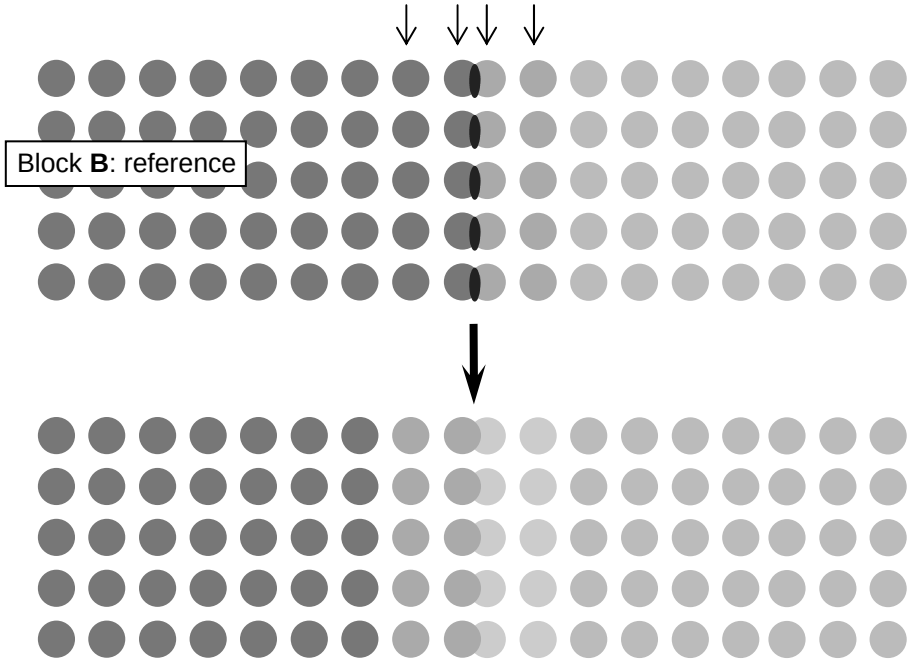
Decrease the value to shorten the strobe time for a weak black line.
Increase the value to lengthen the strobe time for a weak white line.

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



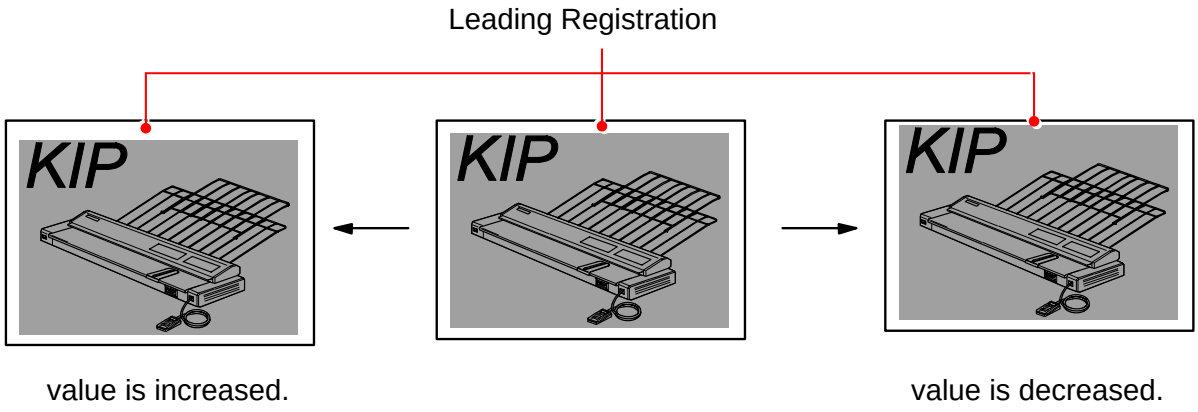
The border B/C is overlapping in less than 1 pixel.
Decrease the setting value to shorten the strobe time for these 2 pixels.
This will reduce the strength of the overlap image.



780 Leading Registration (Paper Tray)

It is possible to specify where to start printing the image at the leading edge of a sheet from the Paper Tray.
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.

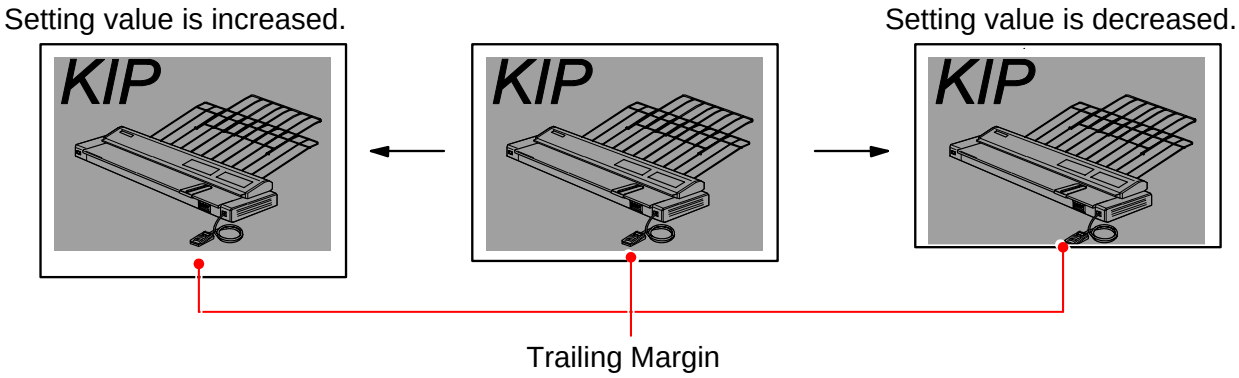
Setting Range	Step of increment
1 to 40	1mm



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



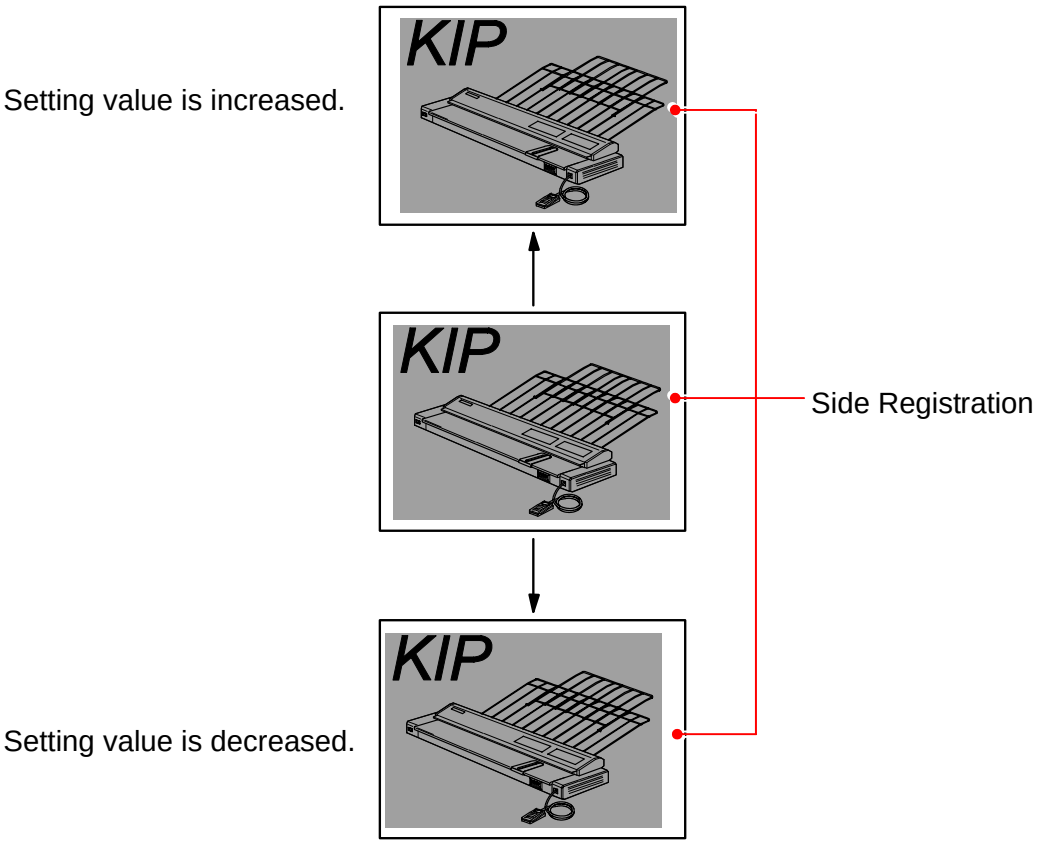
NOTE

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



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 emvironment, 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

786 Paper Tray Motor Speed

It is possible to adjust the speed of Paper Tray Motor.
If you increase the setting value by “+1”, the motor speed becomes 0.4mm/second faster.

Setting Range	Step of increment
1 to 19	0.4mm

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.

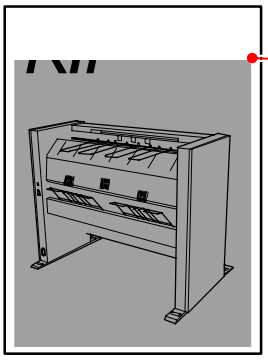
Setting Range	Step of increment
1 to 999	1millisecond

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.

Normal

Setting value is increased too much.



Transfer Corona starts discharging at this point.

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.

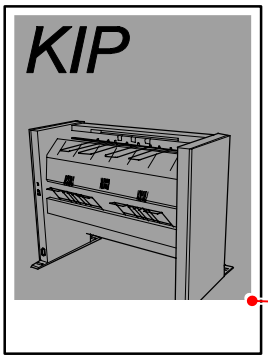
Setting Range	Step of increment
1 to 999	1millisecond

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.

Normal

Setting value is increased too much.



Transfer Corona stops discharging at this point.

789 to 800 Transfer Corona OFF Timing (Roll, Cut Sheet)

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

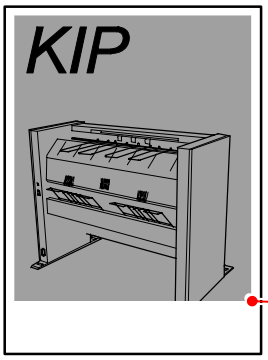
	Plain Paper	Tracing Paper	Film
A3, 11”, 12”	No.789	No.790	No.791
A2, 15”, 17”, 18”	No.792	No.793	No.794
A1, 22”, 24”	No.795	No.796	No.797
A0, B1, 30”, 34”, 36”	No.798	No.799	No.800

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.

Normal

Setting value is increased too much.



Transfer Corona stops discharging at this point.

801 to 812 Separation Corona OFF Timing (Roll, Cut Sheet)

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

813 Encoder Type

NOTE

This setting has been factory-adjusted. Keep the value unchanged.
An incorrect setting would cause improper cut length.

No.813 specifies the type of the pulse generator wheel on “Feed Encoder” (PH4, PENC_S).

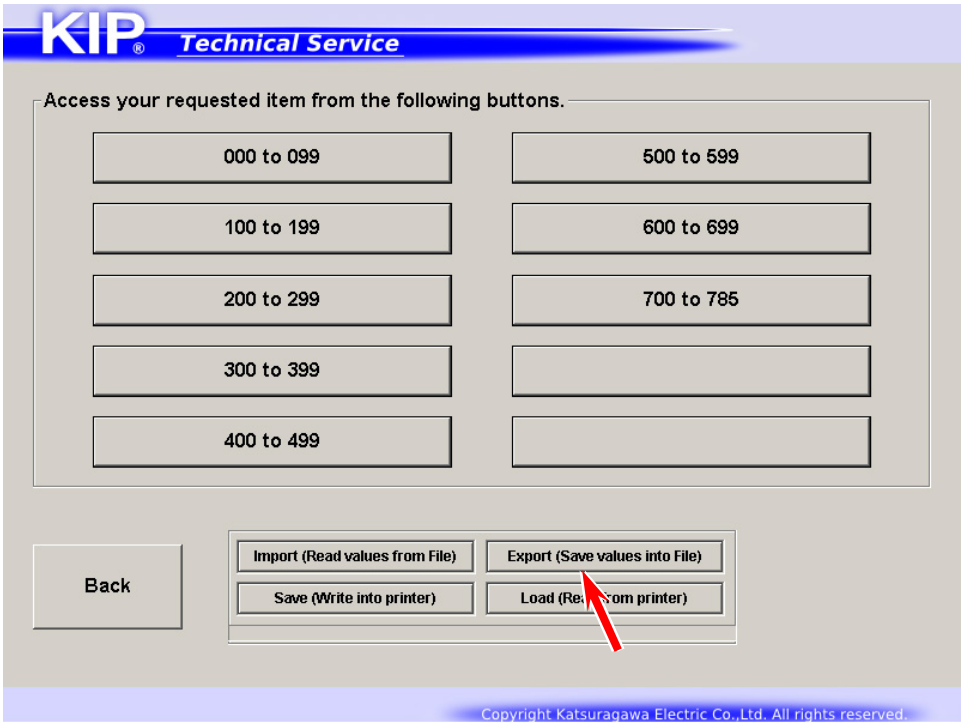
Setting Range
0 to 1

8. 6. 4 Creating Backup

It is possible to save the current parameters in Adjustment Mode as RAM file.
RAM file can be used for backup measure.

> **NOTE**
>
> Prior to any attempts at significant changes on Adjustment Mode, export the current parameters to .RAM file.

1. Press [Export] in Adjustment Menu screen.



2. Input any text to the field. The text will be added to a folder name to be created in the next step. The machine's serial no. would be suitable.

3. Specify a place to save the current parameter.
   It will be saved as both *.txt and *.ram in a folder that is automatically created there at this time.

   *.ram is used for backup of the current parameter. You can use it to import the parameter to machines.
   *.txt" is only used for simplified confirmation with an appropriate application such as Notepad.

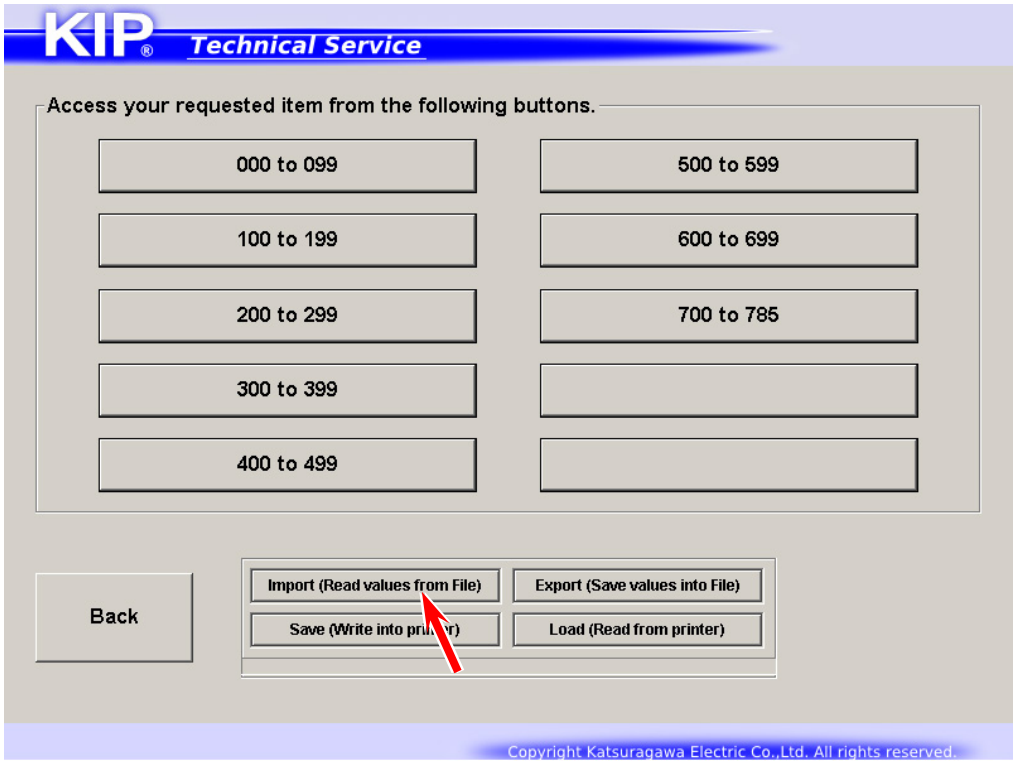
4. You can print out the summary of the saved parameter at this time.
   (Set 1 sheet of 210 x 297mm cut sheet to the Manual Feed Table)

8. 6. 5 Restoring Configuration from Backup

It is possible to restore the parameters by using a RAM file that has been saved before.
This can be used for the following possible cases.

- If the current parameters have loss or damage of data.
- To apply parameters of a certain printer to another.

1. Press [Import] in Adjustment Menu screen.

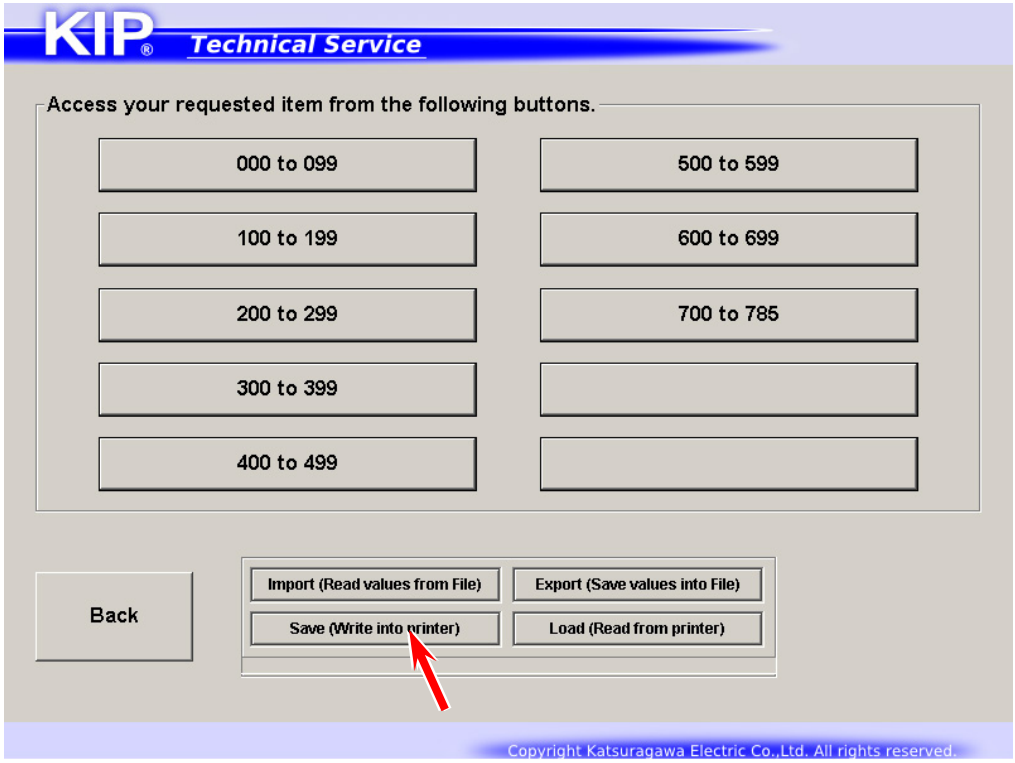


2. Locate and open a RAM file that you want to apply.

3. The system reads all the parameters in the RAM file.
   Then the parameters will be applied to **"New Value"** field.

> **NOTE**
>
> **At this point, KIP Service Software just reads and displays the parameters in the RAM file, but the parameters do not take effect on PW11720 yet.**
>
> Follow the later step to apply the read parameters to PW11720.

4. Press [Save]. After confirmation, the read parameters will be sent to PW11720.



8. 7 Running Mode

In Running Mode, the printer takes usual printing operation with no print media loaded.
If you install any roll media, it is transported and ejected from the printer as usual as normal print.
Note that the printer will continue printing till the media empty.

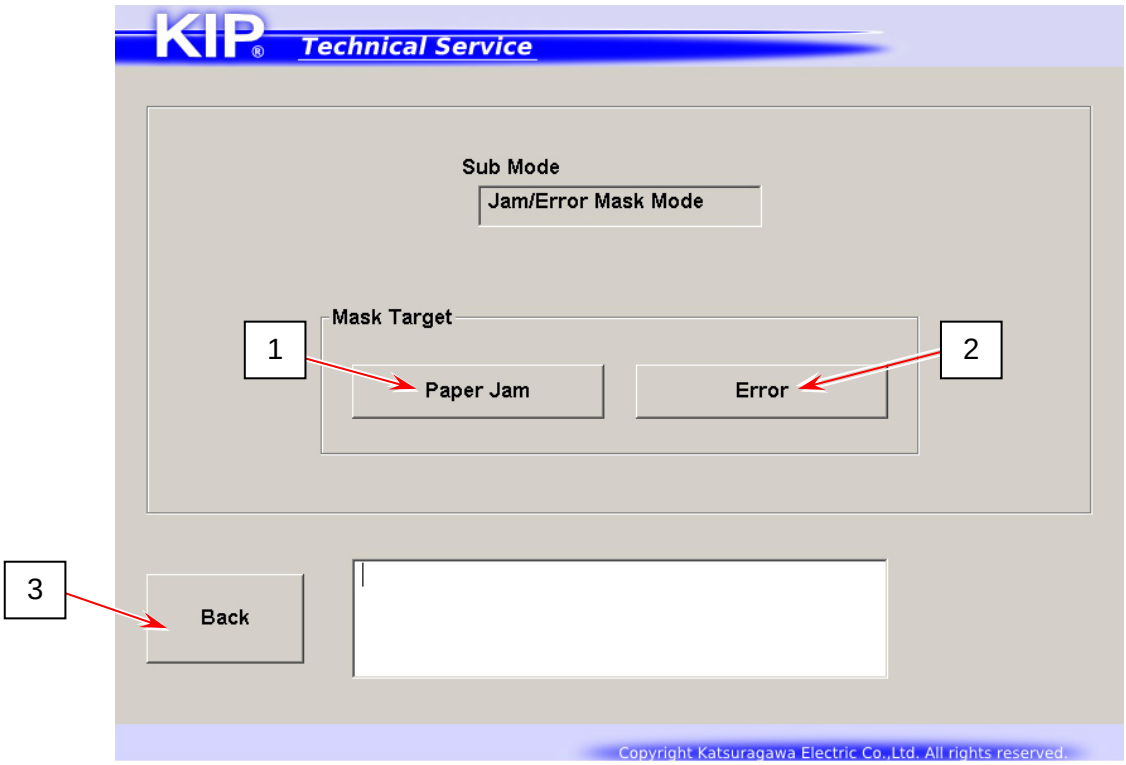
> **NOTE**
>
> Running Mode is not available in Service Mode. Factory Use Only.

8. 8 Jam/Error Mask Mode

If the printer indicates any error (J-****/E-****), it is possible to mask (ignore, not to detect) it in Jam/Error Mask Mode. 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.

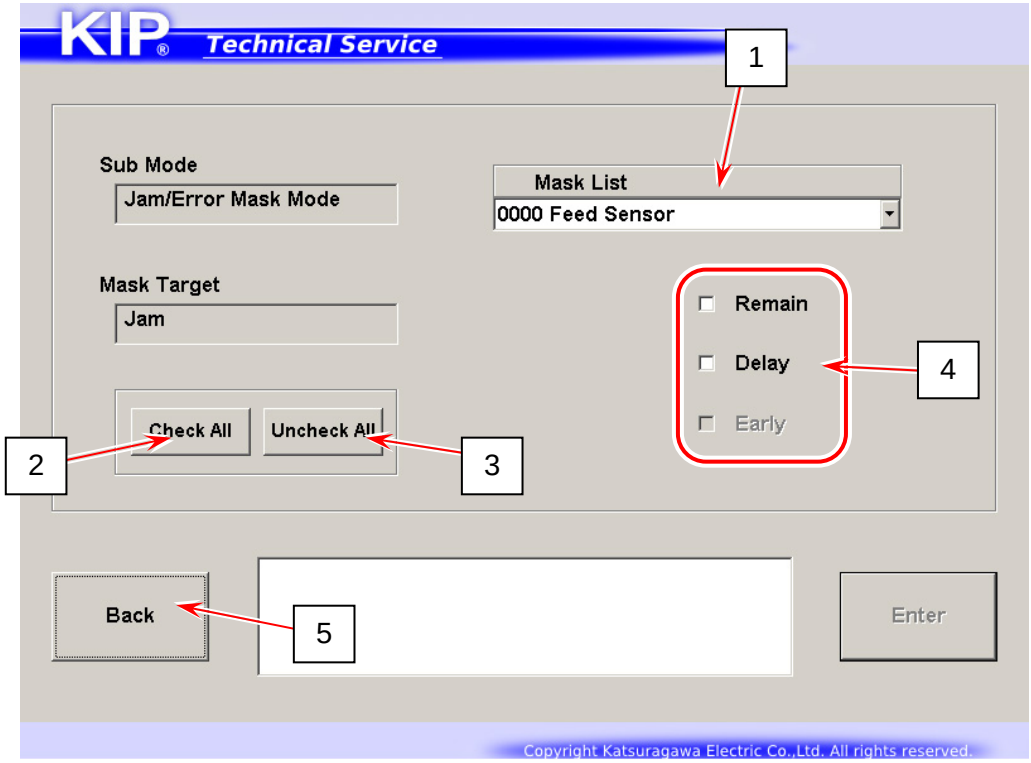
> **NOTE**
>
> Masking condition will be automatically canceled once you quit KIP Service Software or turn off the printer.

Mask Target screen



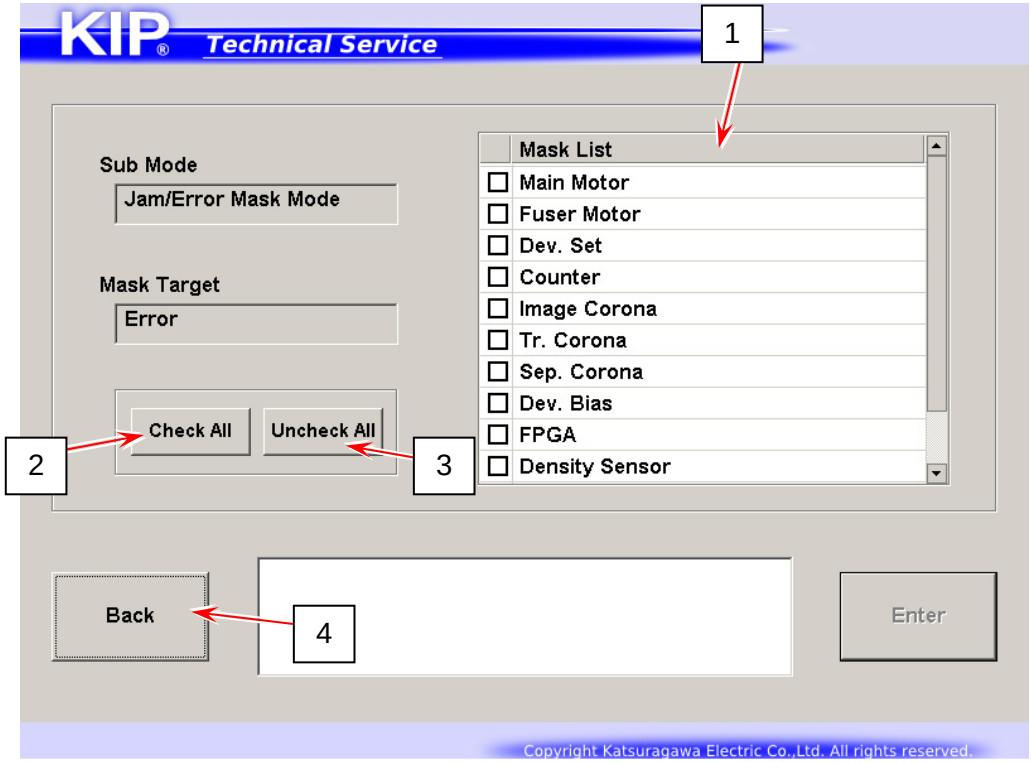
	Name	Function
1	Paper Jam	Switches to Jam Mask screen
2	Error	Switches to Error Mask screen
3	Back	Returns to Service Mode Home

Jam Mask screen



	Name	Function
1	Mask List	Displays Mask items in drop-down menu Choose one item that you want to mask.
2	Check All	Starts jam masking against all the items
3	Uncheck All	Cancels jam masking against checked items
4	media situation to be masked	Specifies which situation to be masked. * “Early” is not available on the KIP 700m
5	Back	Returns to Service Mode Home

Error Mask screen



	Name	Function
1	Mask List	Displays Mask items in the list Select mask target(s) that you want to mask. Starts error masking while item(s) is checked
2	Check All	Starts error masking against all the items
3	Uncheck All	Cancels error masking against checked items
4	Back	Returns to Service Mode Home

8. 8. 1 Mask List

Jam Mask

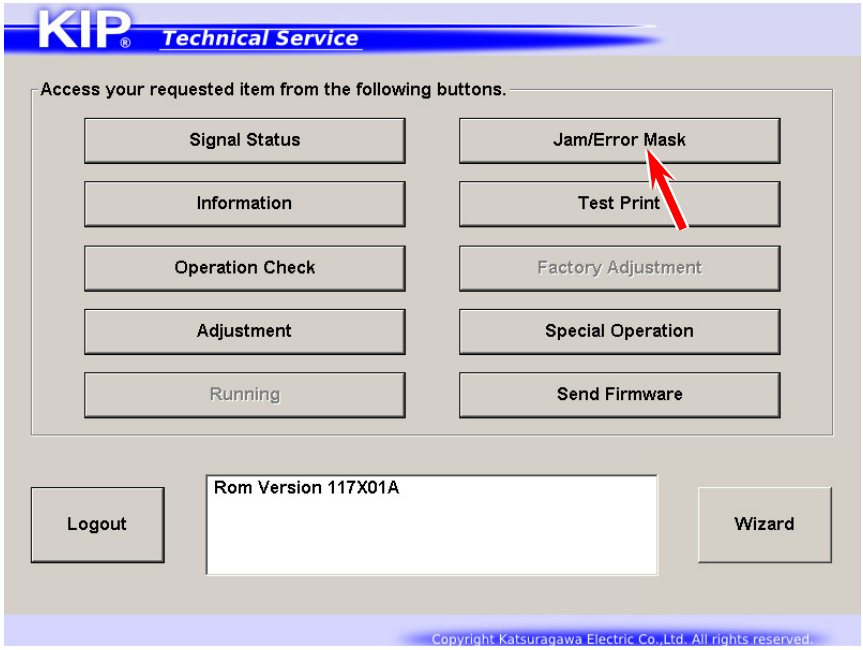
0000	Feed	Feeding Jam
0001	Manual	Manual Jam
0002	Regist	Registration Jam
0003	Sep	Internal Jam
0004	Exit	Fuser / Exit Cover Jam
0005	Paper Tray	Pickup Jam (Paper Tray)

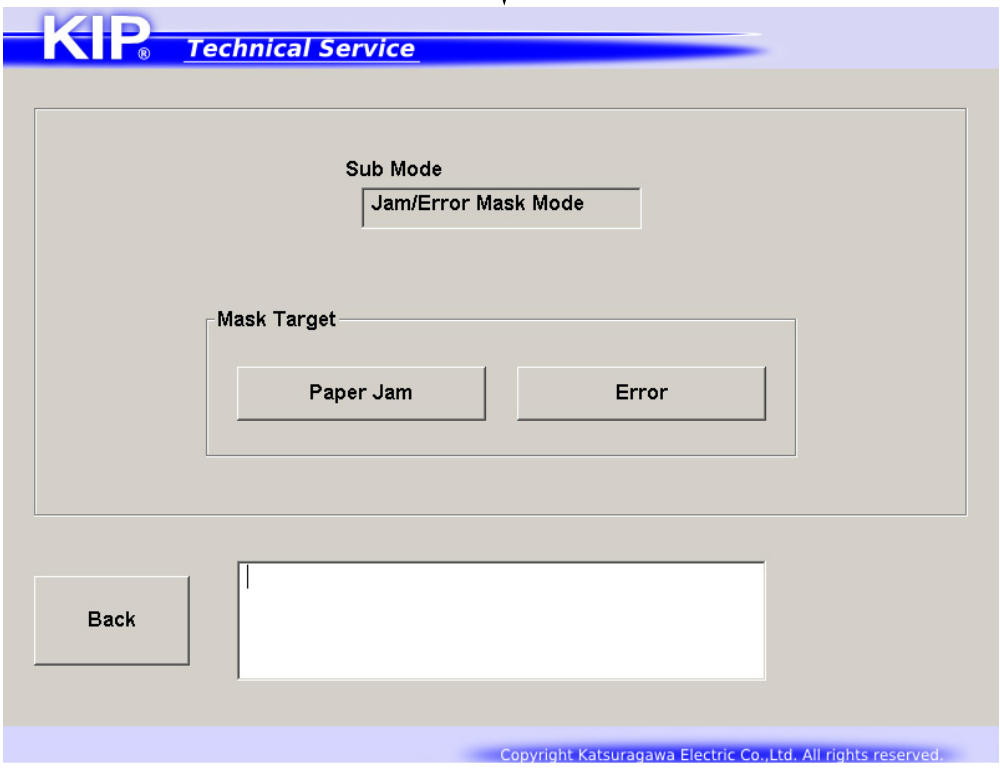
Error Mask

Main Motor	Main Motor Error	E-0010
Fuser Motor	(motor setting error)	E-0011
Dev. Set	Developer Unit Set Error	E-0070
Counter	(counter setting error)	E-0020
Im Corona	Image Corona Output Error	E-0031
Tr Corona	Transfer Corona Output Error	E-0033
Sp Corona	Separation Corona Output Error	E-0032
Dev. Bias	Developer Bias Error	E-0034
FPGA	FPGA Error	E-0050
Density Sensor	Density Sensor Error	E-0080 E-0081
Fuse	Fuse Error	E-0005
Eraser	Eraser Lamp Error	E-0090

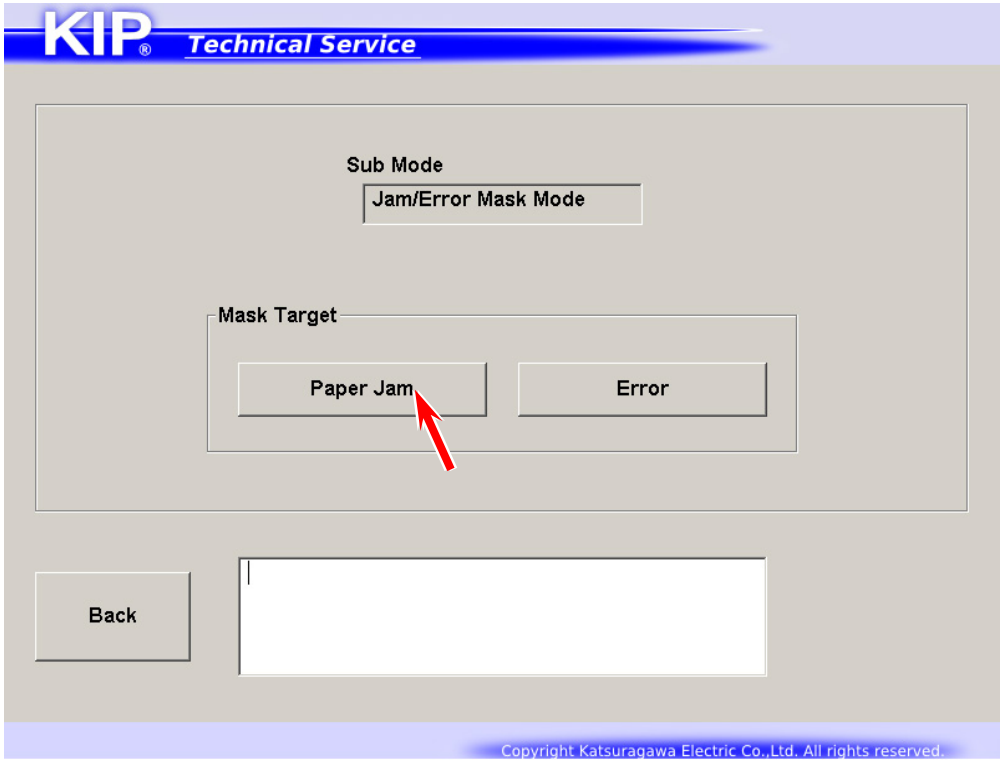
8. 8. 2 Masking Jam

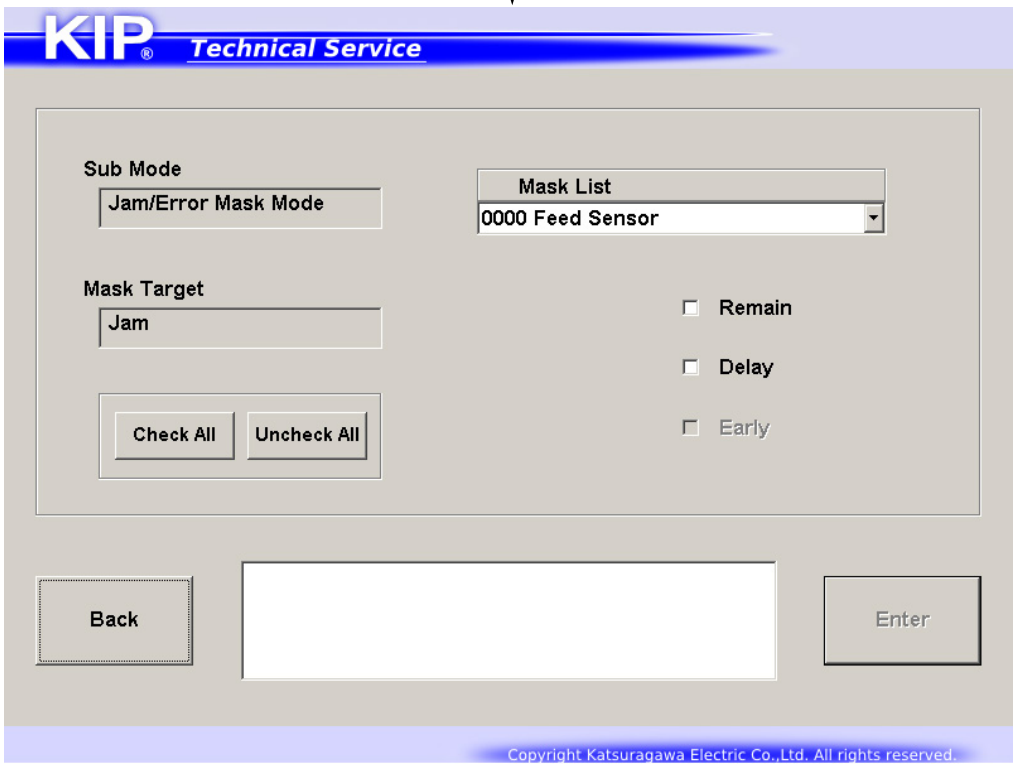
1. Press [Jam Error Mask] in Service Mode Home.
   Mask Target screen appears.



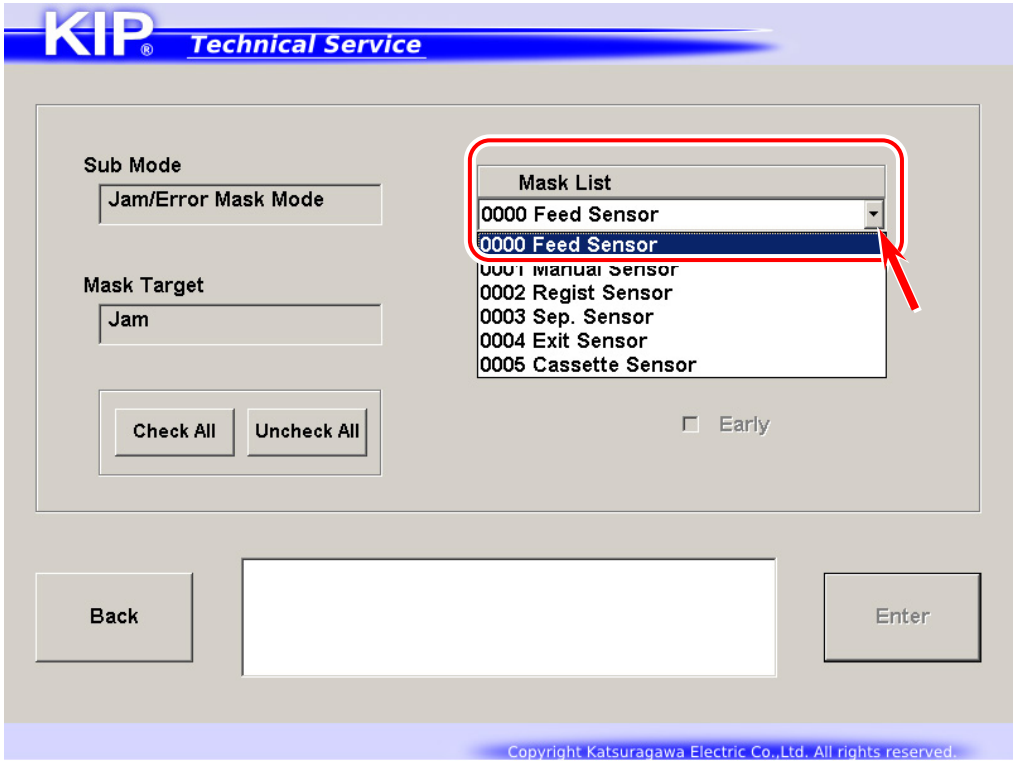


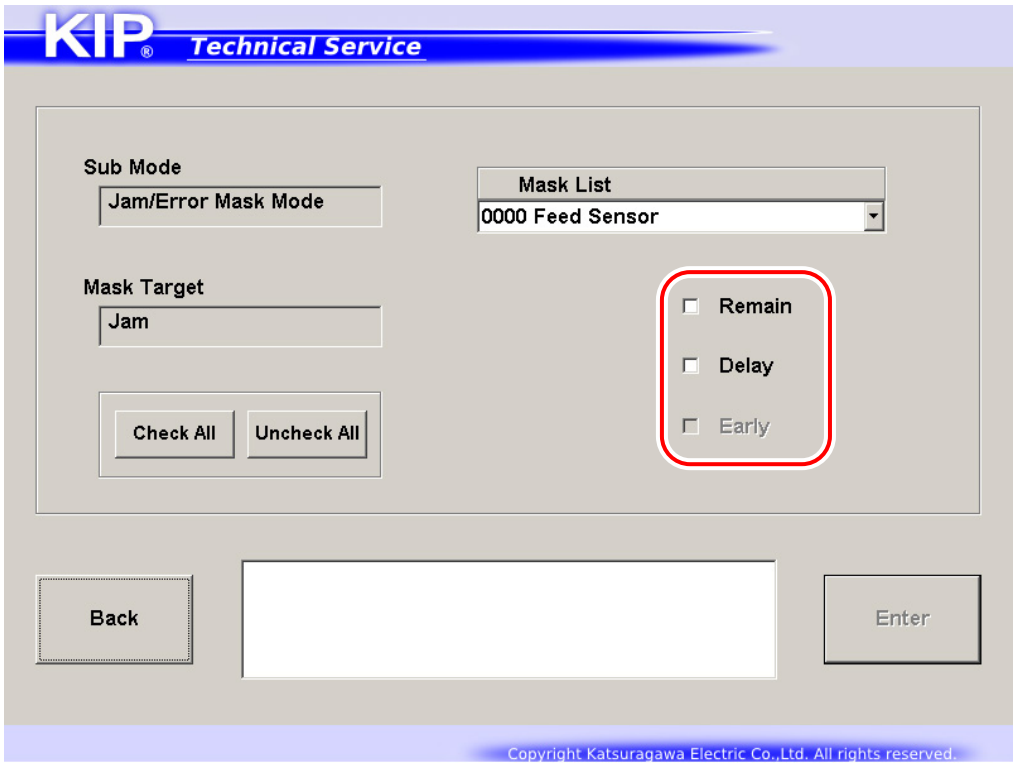
2. Press [Paper Jam].





3. Select the desired target from the pull-down menu.
   Check any of “Remain” / “Delay” / “Early” then the concerning sensor starts to ignore the checked jam.



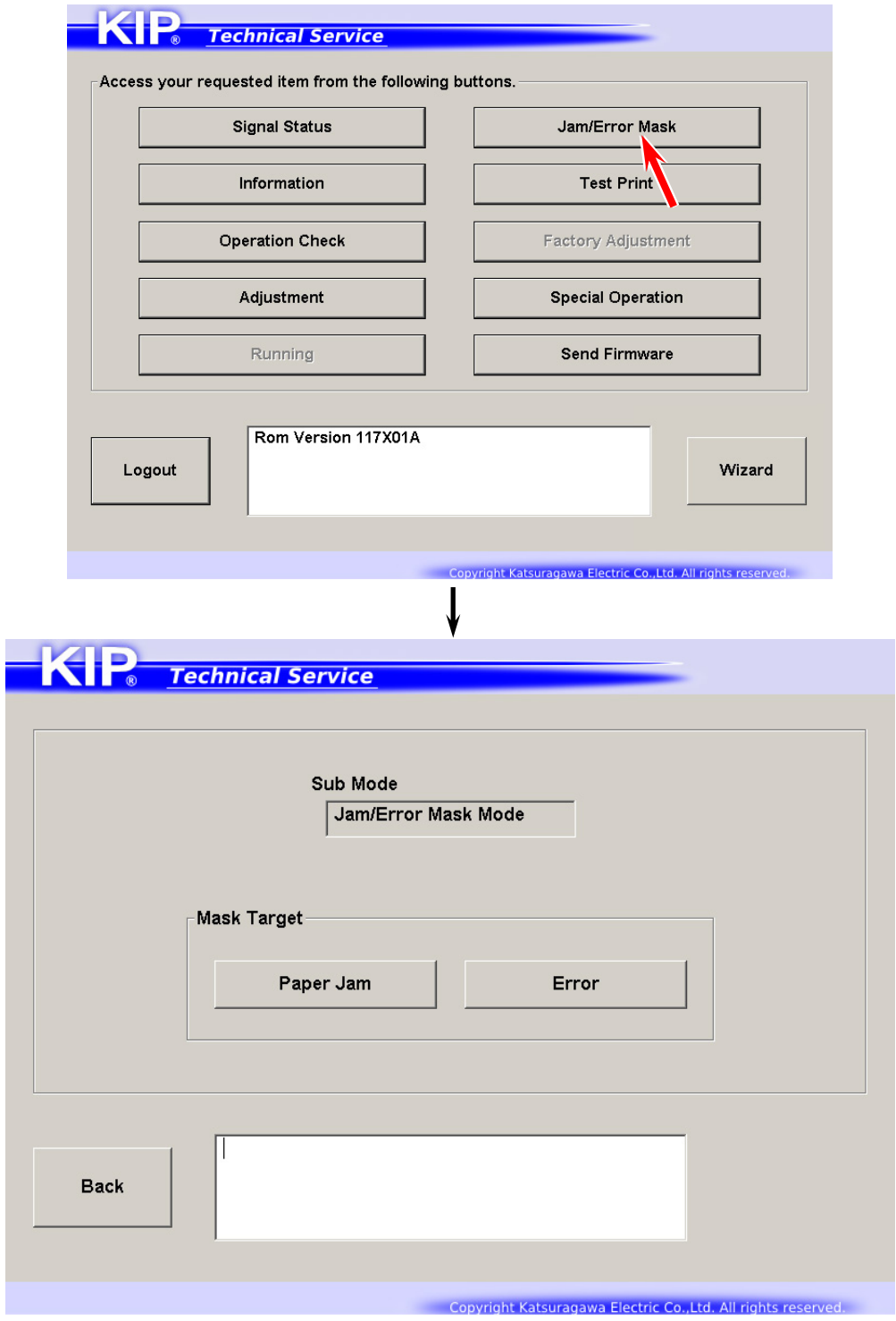


NOTE

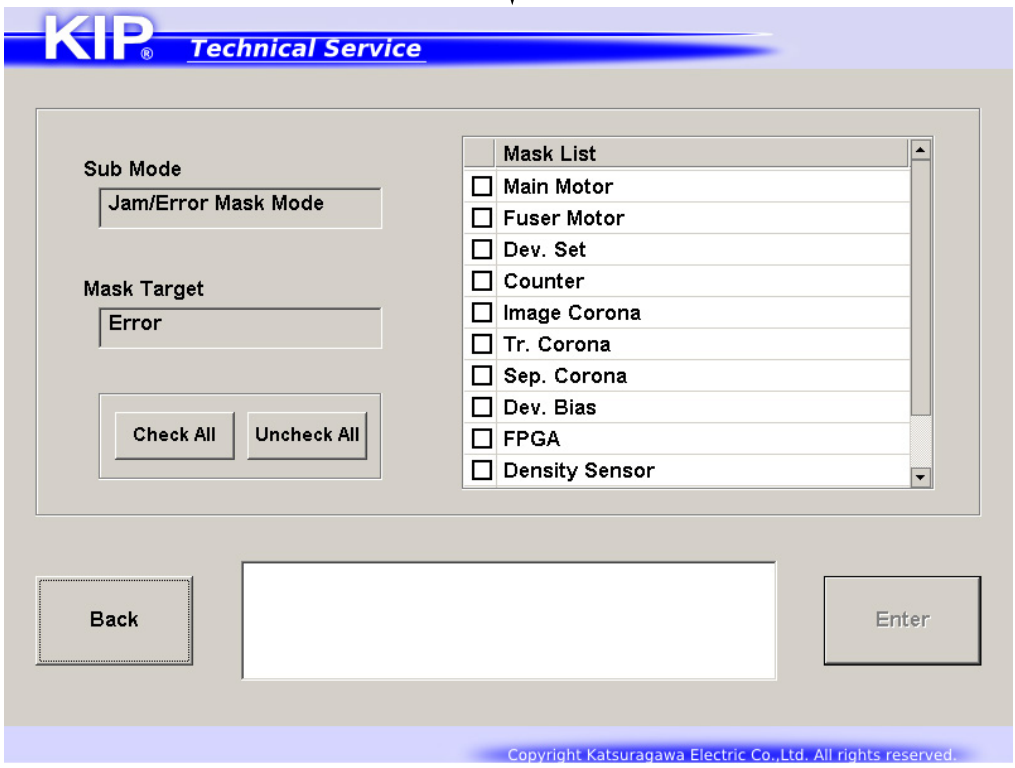
Available mask situation selection (Remain, Delay, Early) may vary by KIP printer model.

8. 8. 3 Masking Error

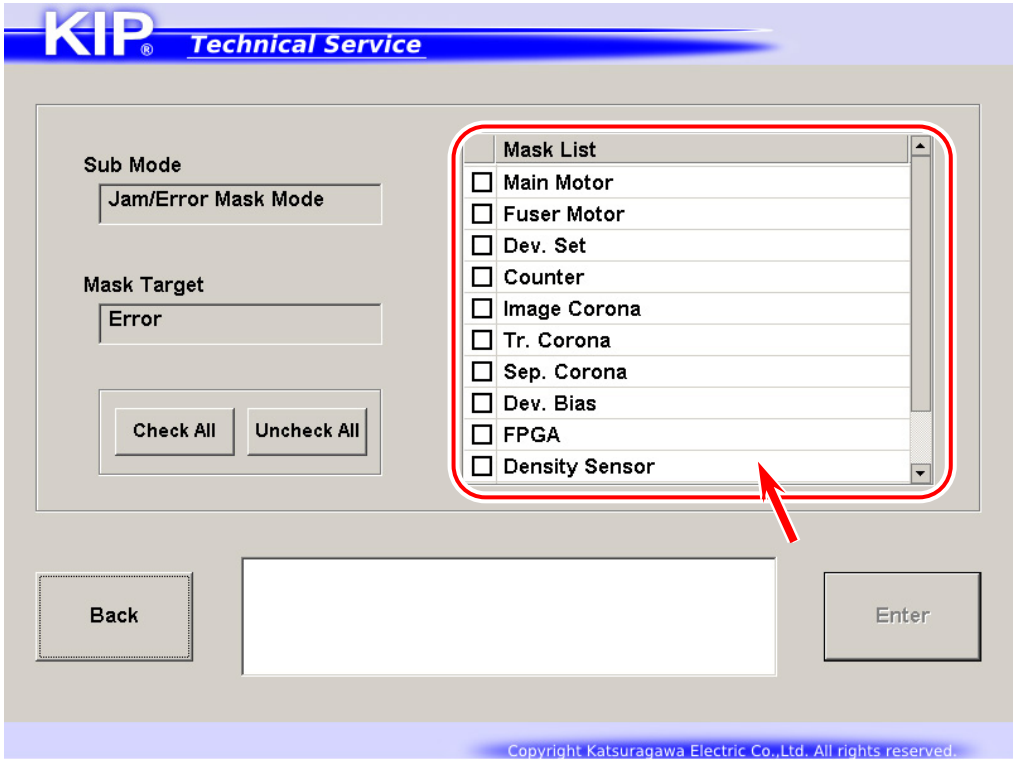
1. Press [Jam Error Mask] in Service Mode Home.
   Mask Target screen appears.



2. Press [Error].



3. Check items that you want to mask. Then the concerning sensor starts to ignore the checked Error.



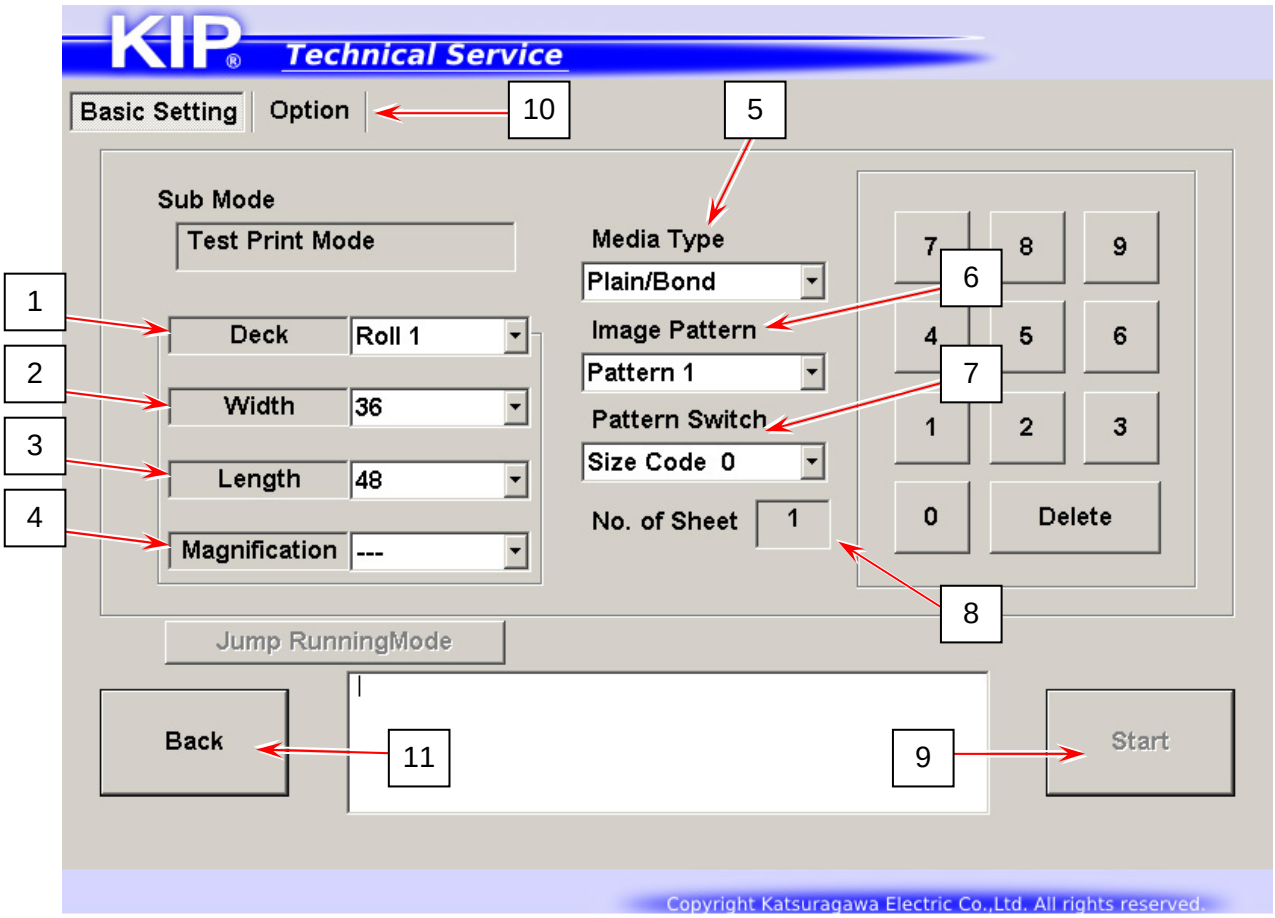
NOTE

No “Door Open” mask is available.

8. 9 Test Print Mode

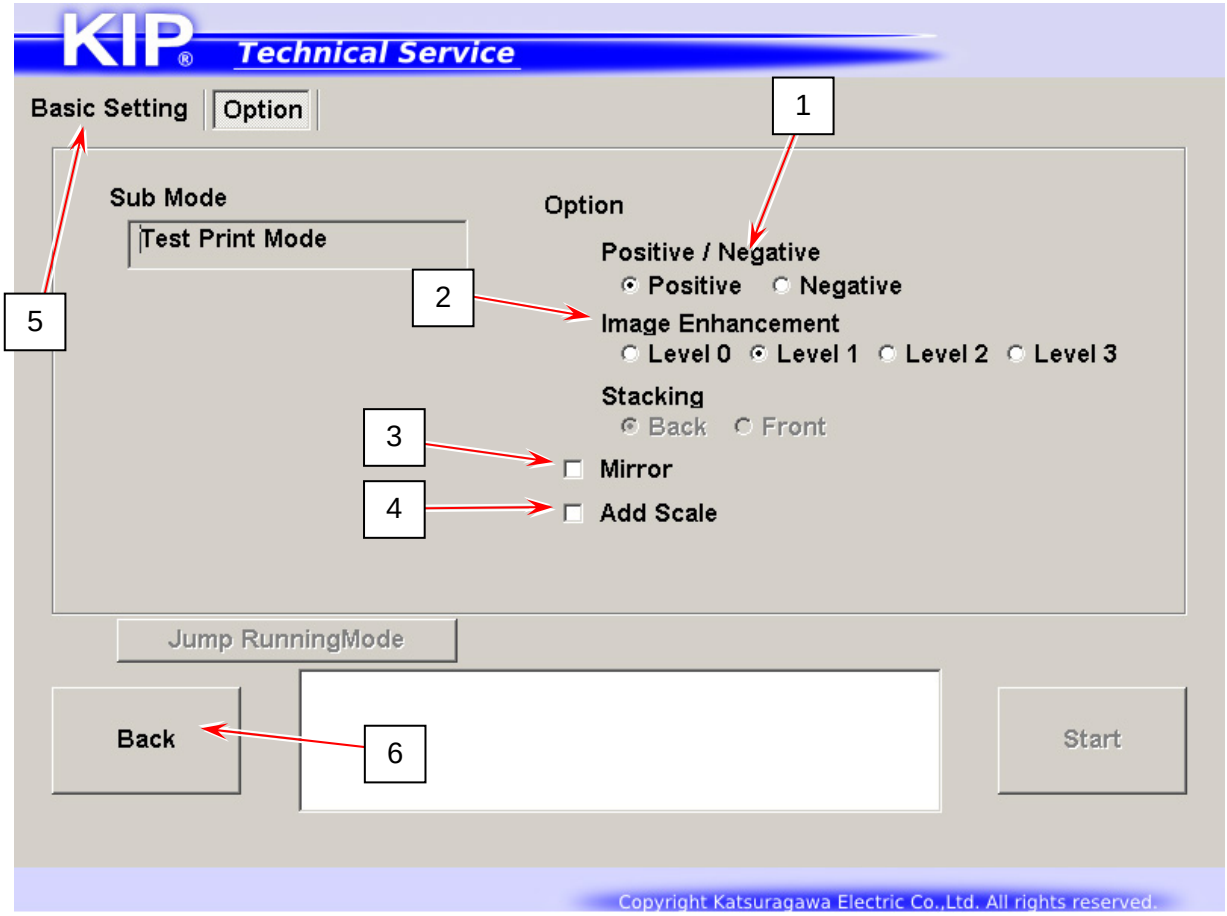
It is possible to output some built-in test patterns as a stand alone plotter.
No external device (controller / scanner / network connection) is required for test pattern plotting.

Basic Setting screen



	Name	Function
1	Deck	Displays media source in drop-down menu Choose one item that you want to use for test print.
2	Width	Displays media width of the selected media source in drop-down menu You can set a different width from the actual media.
3	Length	Displays print length of the test print in drop-down menu Specify one item for test print.
4	Magnification	The print length will extend *n* times specified in “Magnifying”.
5	Media Type	Displays media type in drop-down menu Specify one media type of the selected media source.
6	Image Pattern	Displays built-in image pattern number in drop-down menu Specify one pattern that you want to plot.
7	Pattern Switch	Specify a size code for the size of “repeated patterns” in a test print image. (ex. band pattern width, grid square size, etc)
8	Number of Sheet	Displays the number of sheets to be plotted You can change the number by using On-screen Keypad.
9	Start	Starts the configured test print
10	Option	Switches to Option screen
11	Back	Returns to Service Mode Home

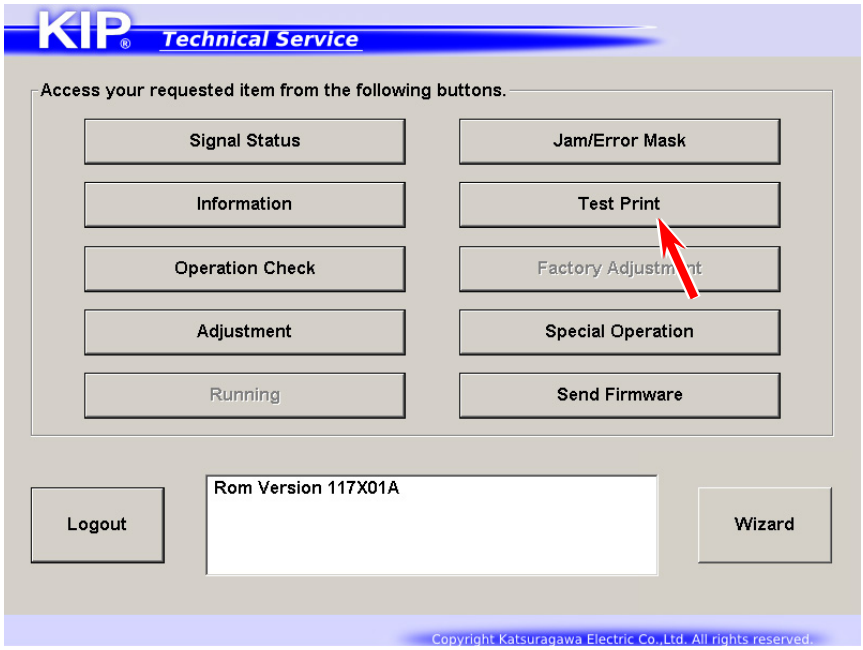
Option screen

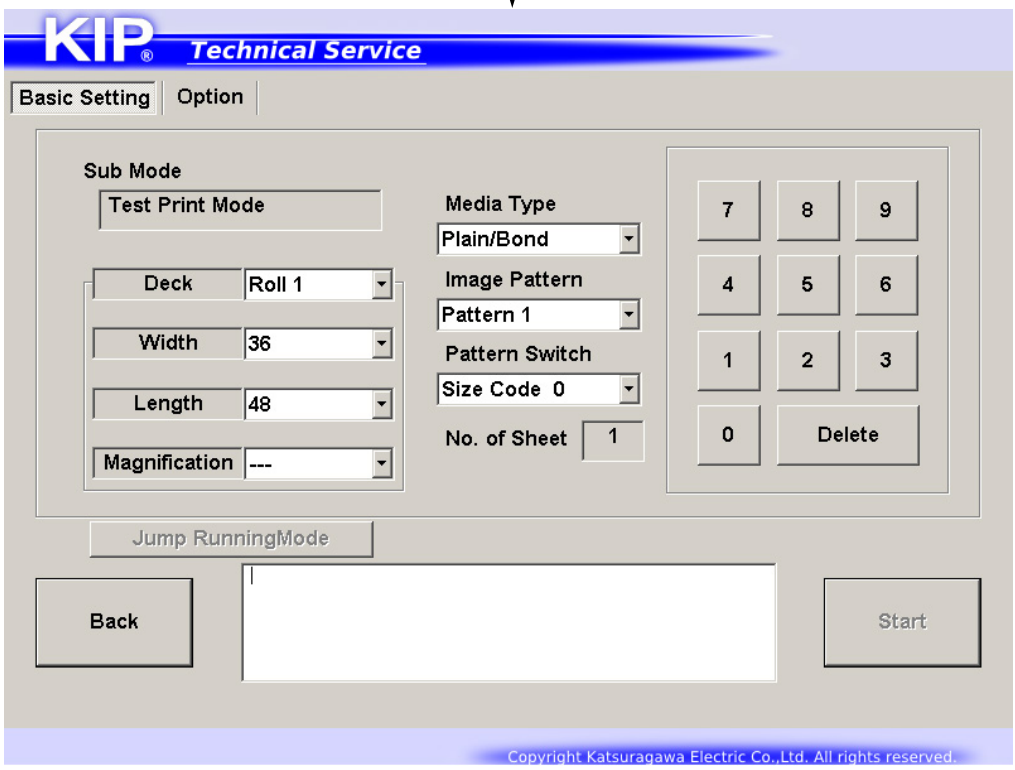


	Name	Function
1	Positive / Negative	Choose “Negative” for B/W inverting.
2	Image Enhancement	Displays Image Enhancement Level
3	Mirror	Enables horizontal reverse image
4	Add Scale	Adds scales on the test print
5	Basic Setting	Switches to Basic Setting screen
6	Back	Returns to Service Mode Home

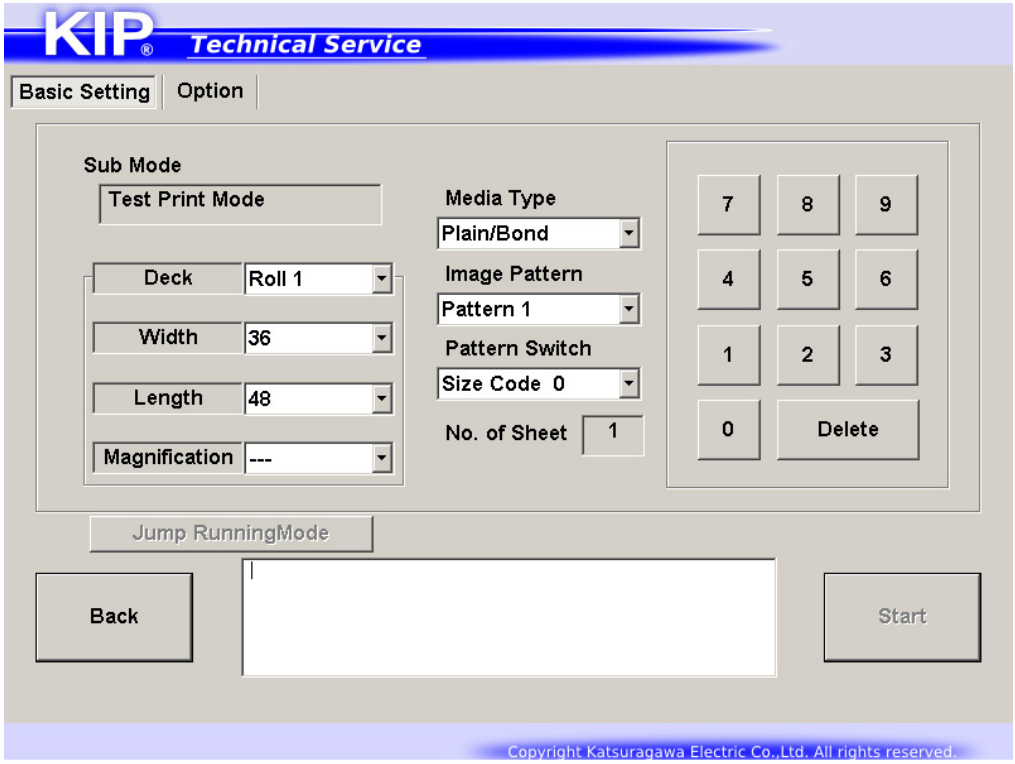
8. 9. 1 Making Test Print

1. Press [Test Print] in Service Mode home.

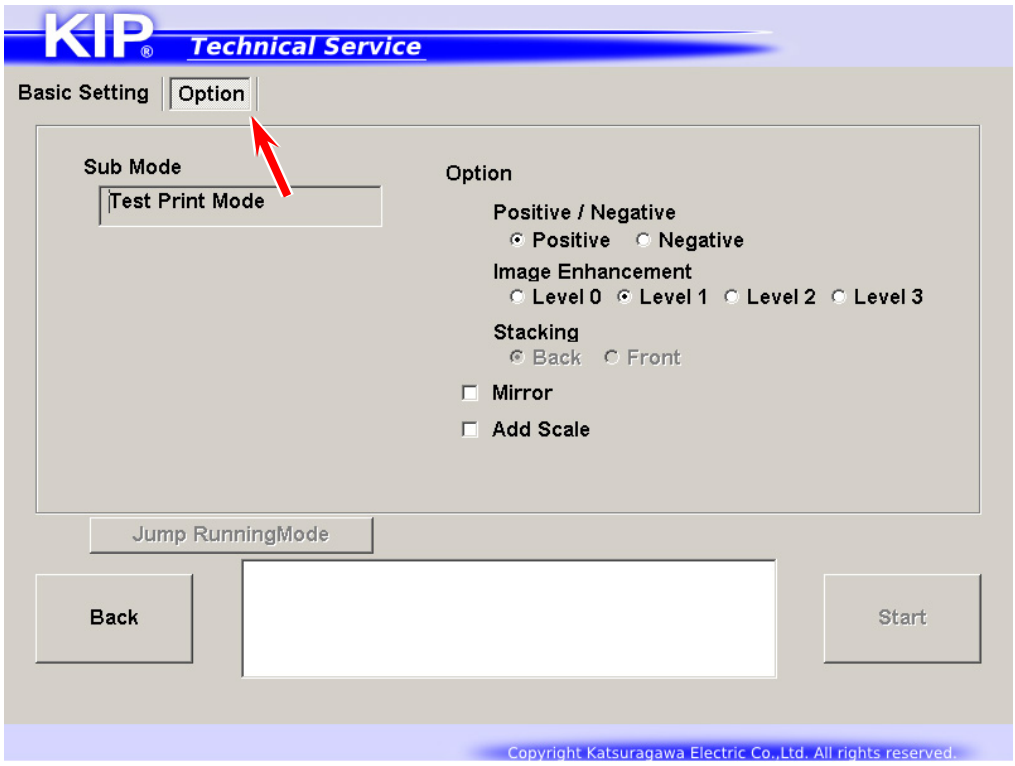




2. Configure a test print job.
   In Basic Setting tab, you can configure media source, type, length, image pattern selection, number of sheets.



3. If necessary, open Option tab to configure some other settings.

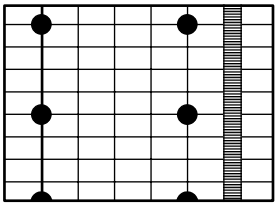


4. Press [Start] to start printing the configured test print.

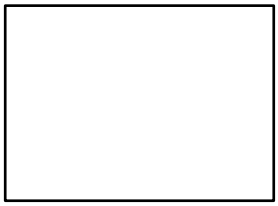
8. 9. 2 Built-in Test Pattern

Image may vary by Side Code.

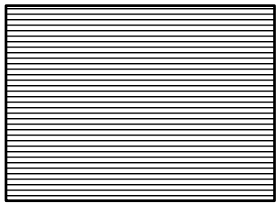
Pattern No.1



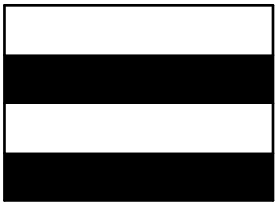
Pattern No.4



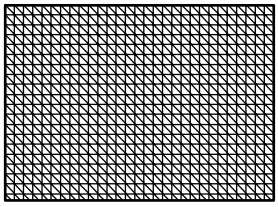
Pattern No.7



Pattern No.2

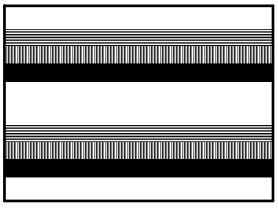


Pattern No.5

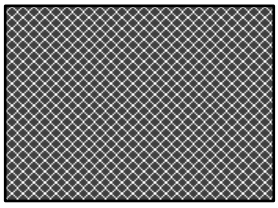


Pattern No.8

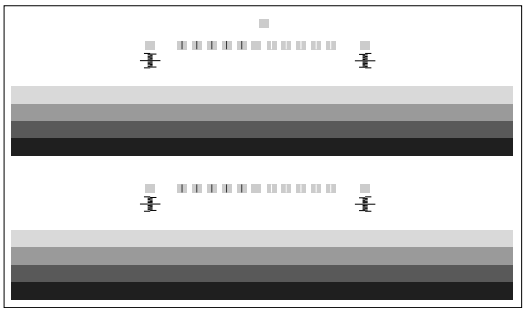
Pattern No.3



Pattern No.6



Pattern No.9
Side Code 3



example:
Pattern #4, Size Code 0: white image
Pattern #4, Size Code 1: black image
Pattern #5, Size Code 0: huge lattice
Pattern #5, Size Code 1, 2, 3…: smaller lattice

Some image patterns are factory-used only.

8. 10 Factory Adjustment Mode

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 Special Operation Mode

Special Operation Mode has several kinds of special important functions to the machine.

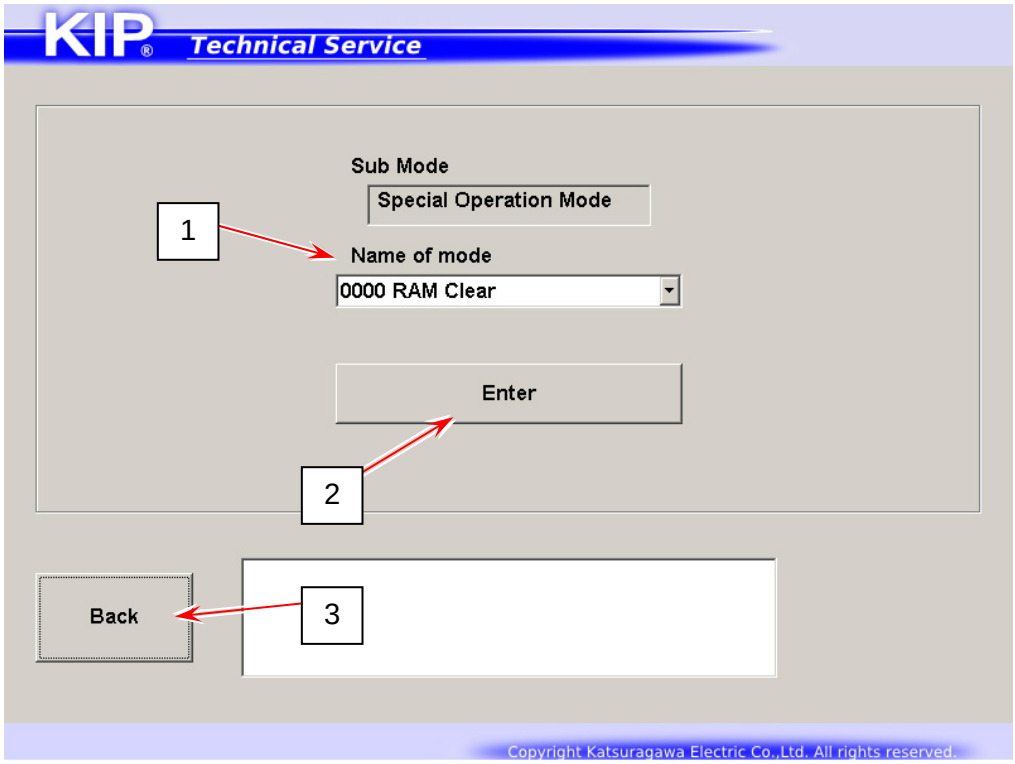
(1) Clears the following recorded error
- E-0000 Fuser Temperature Rising Error
- E-0001 Fuser Over Temperature Error
- E-0002 Fuser Low Temperature Error
- E-0003 / 0004 Fuser Temperature Abnormal Fall Error

(2) Clears the following history
- Jam History
- Error History

(3) Resets bias adjustment by Density Compensation Process
(4) Starts Toner Supply for initial toner
(5) Resets any counting parameters in Information Mode

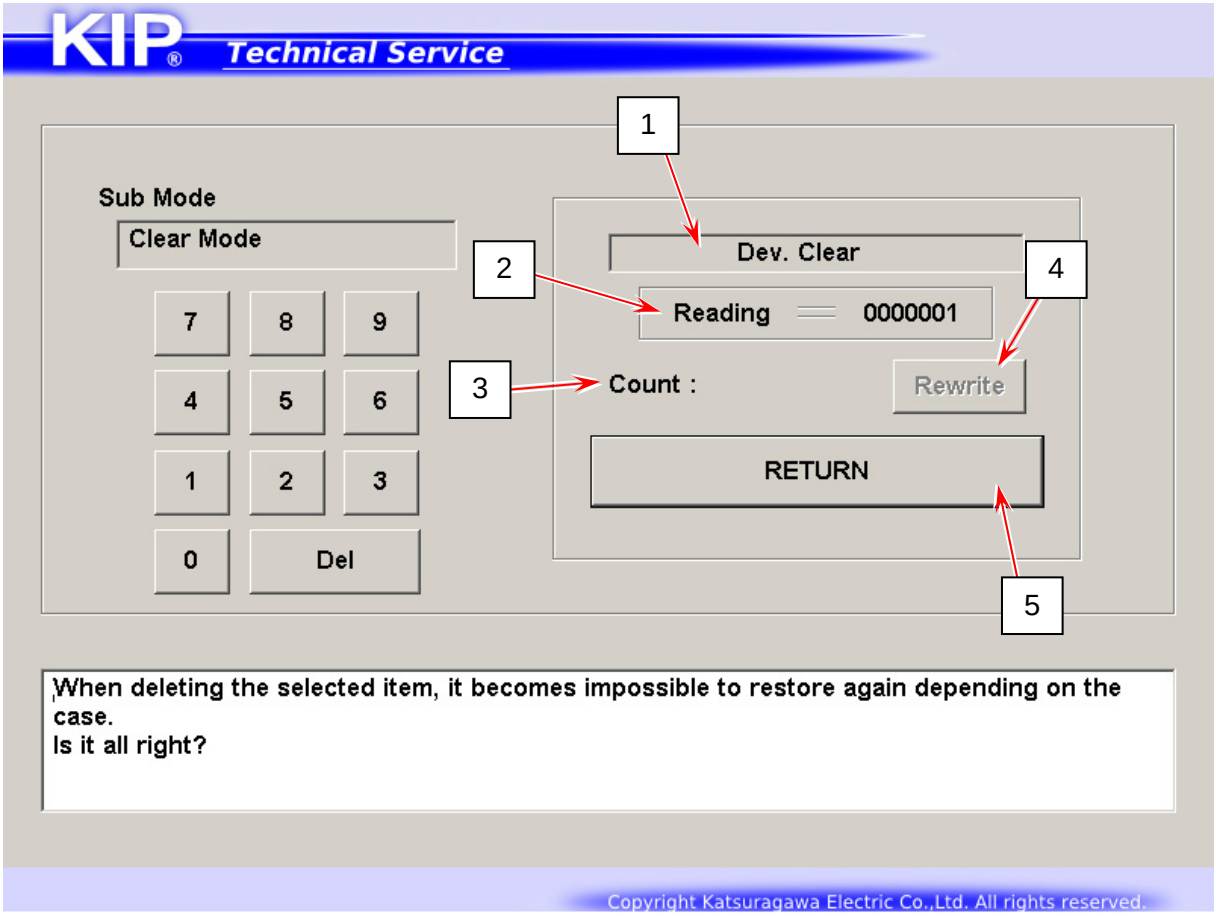
> **NOTE**
>
> E-0000 / 0001 / 0002 / 0003 / 0004 (regarding Fuser Error) do not disappear automatically even if you remove any cause of these errors.
>
> You should clear the error in Special Operation Mode to allow the printer to be ready for printing.

Operation Target screen



	Name	Function
1	Name of Mode	Displays items in drop-down menu Choose one item that you want to use.
2	Enter	Switches to Confirmation screen Clearing is not executed immediately once you press [Enter].
3	Back	Returns to Service Mode Home

Input screen



	Name	Function
1	Counter Name	Displays the counter name you have chosen
2	Reading	Displays the current counter value stored in the memory
3	Count	Displays an input counter value by using On-screen Keypad
4	Rewrite	Applies a new counter value in “Count” to the selected counter
5	Return	Returns to Operation Target screen

8. 11. 1 Special Operation List

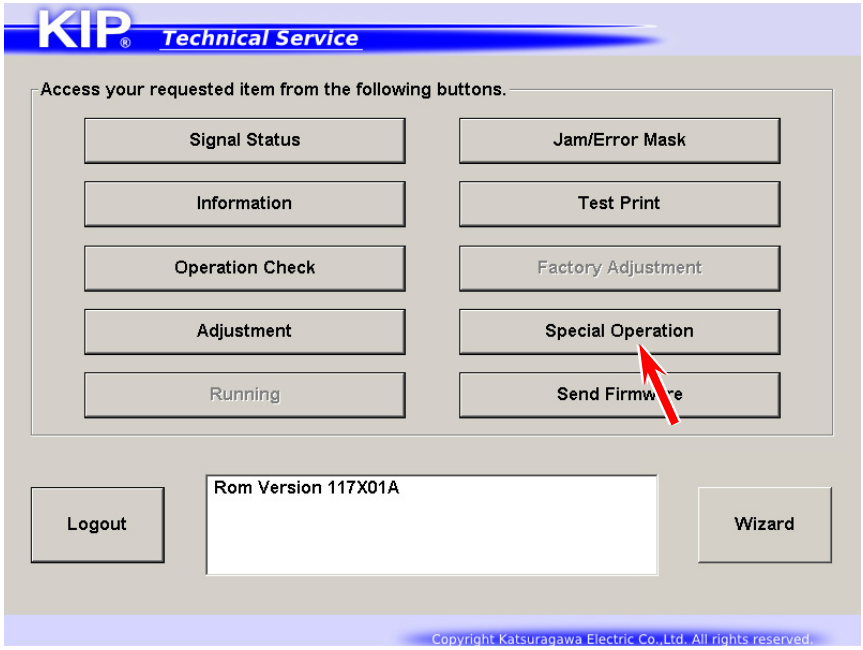
Item No.	Name	Contents
0000	RAM Clear	Clears any stored data in the memory
0001	Error Clear	Clears E-0000 / 0001 / 0002 / 0003 / 0004 from the memory
0002	Jam History	Clears Jam records J-**** in Jam History list
0003	Error History	Clears Error records E-**** in Error History list
0004	Print Count	Checks 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	Info Data Clear	Clears the Items 0009 to 0027 at a time
0009	Total Cut	Clears each Item used in Information Mode See [8.4 Information Mode]
0010	Roll1 Cut	
0011	Others Cut	
0012	Total Image	
0013	Manual1 Image	
0014	Roll1 Image	
0015	Cassette Image	
0016	Roll1F CL	
0017	Feed CL	
0018	Reg. CL	
0019	Guide CL	
0020	Cassette CL	
0021	Pickup SL	
0022	NC	(Reserved)
0023	NC	(Reserved)
0024	Motor1 Time	
0025	Motor2 Time	
0026	LED Head on Time	
0027	Image Ratio	
0028	NC	(Reserved)
0029	PM Count1	Checks the remainder counter for Service Kit A
0030	PM Count2	Checks the remainder counter for Service Kit B
0031	PM Count3	Checks the remainder counter for Service Kit C
0032	PM Count4	(Reserved)

⚠ NOTE

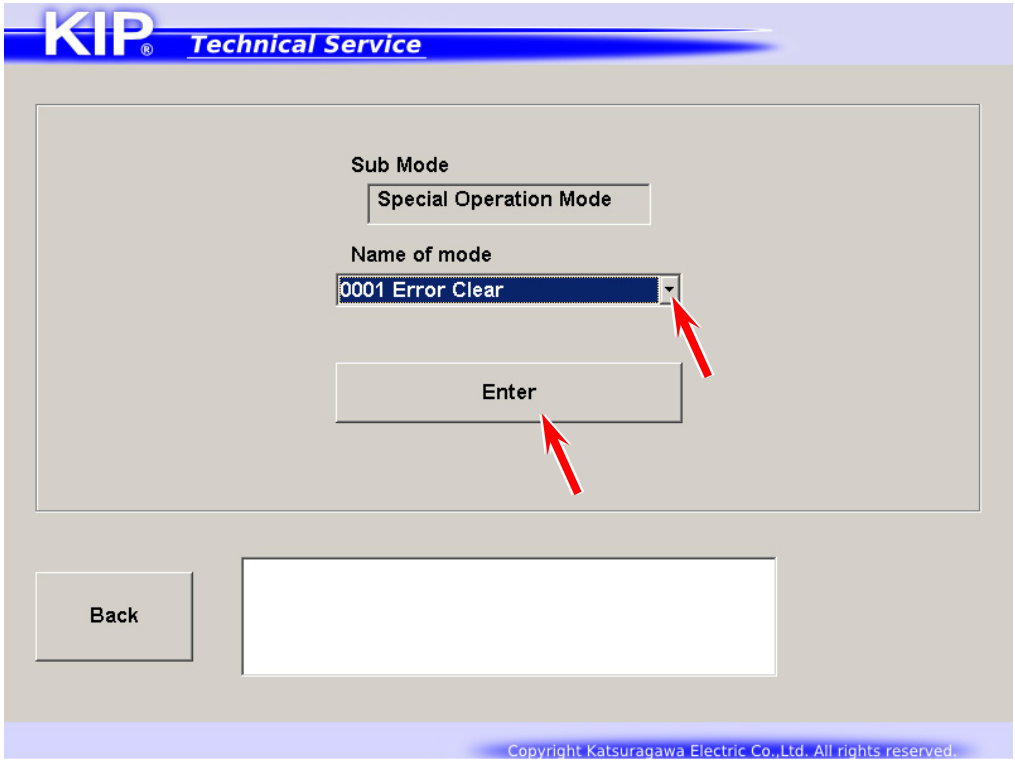
Total Count (0005) and Print Count (0004) are stored on both PW11720 and the IPS. The counting memory is always verified between them. If you replace one of them, the other will automatically override the Count memory to the replaced component.

8. 11. 2 Clearing Fuser Error, Jam/Error History

1. Press [Special Operation] in Service Mode Home.
   Operation Target screen appears.

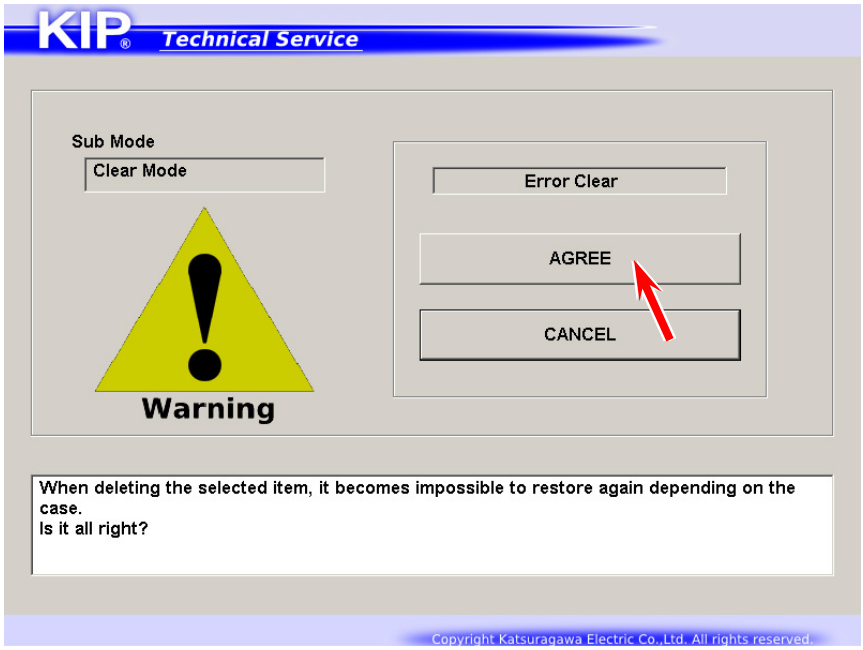


2. Specify one item that you want to use from Name of mode menu. Press [Enter].



Item No.	Clear Item	Contents
0001	Error Clear	Clears E-0000 / 0001 / 0002 / 0003 / 0004 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

3. Confirmation screen appears.
   Press [Agree] to clear the concerning record(s).



4. Once you press [Agree], it will turn deactivated. Press [RETURN].

8. 11. 3 Reset of Bias Adjustment by Density Compensation Process

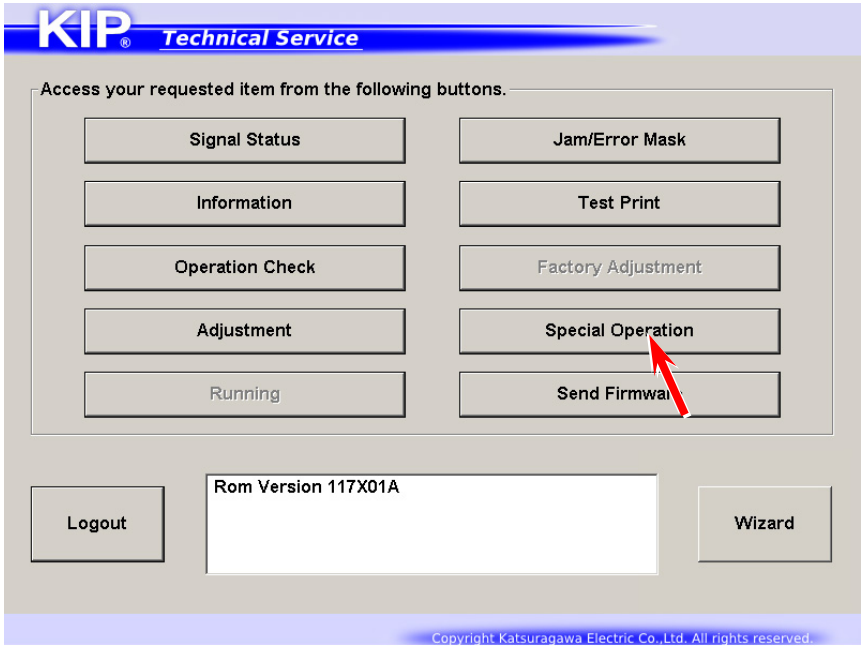
NOTE

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.

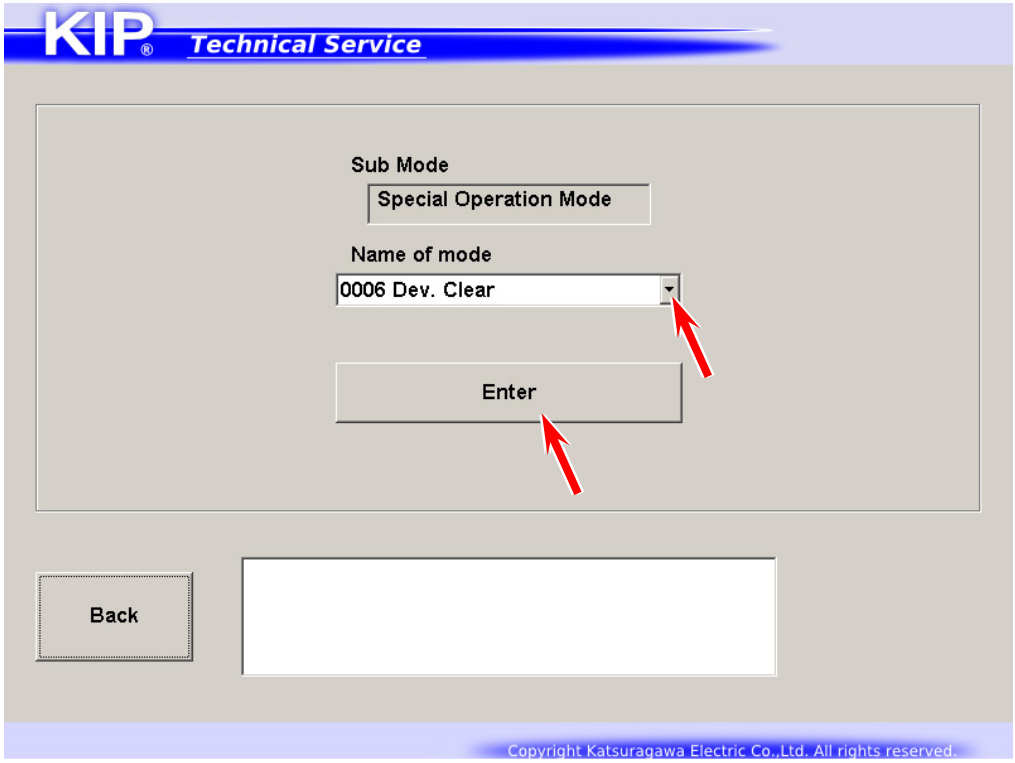
Reference

Reset function is also included in [Developer Replacement Procedure] in the wizard.
Setting Bias Adjustment to “1” manually in this section and pressing [Reset] button in the wizard works completely the same.
Refer to [9.1 Confirmation Wizard] as well.

1. Press [Special Operation] in Service Mode Home.
   Operation Target screen appears.

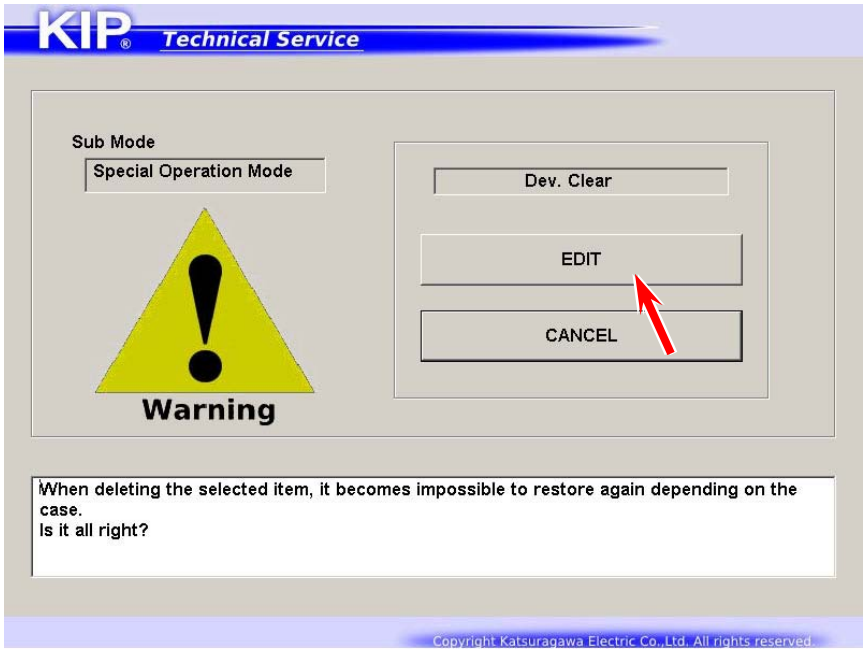


2. Select [0006 Dev. Clear] from Name of mode menu. Press [Enter].

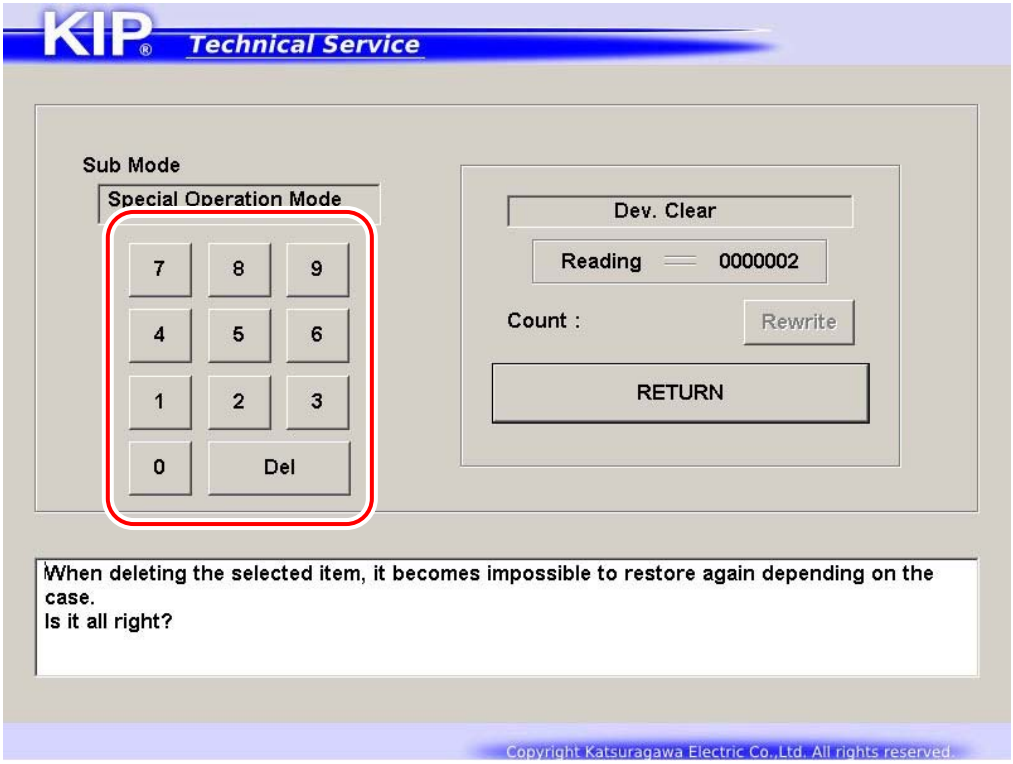


0006	Dev. Clear	Initializes Developer / Regulation Bias adjusted with Density Compensation Process

3. Confirmation screen appears. Press [EDIT].



4. Input screen appears.
   Input “1” with the on-screen Keypad.

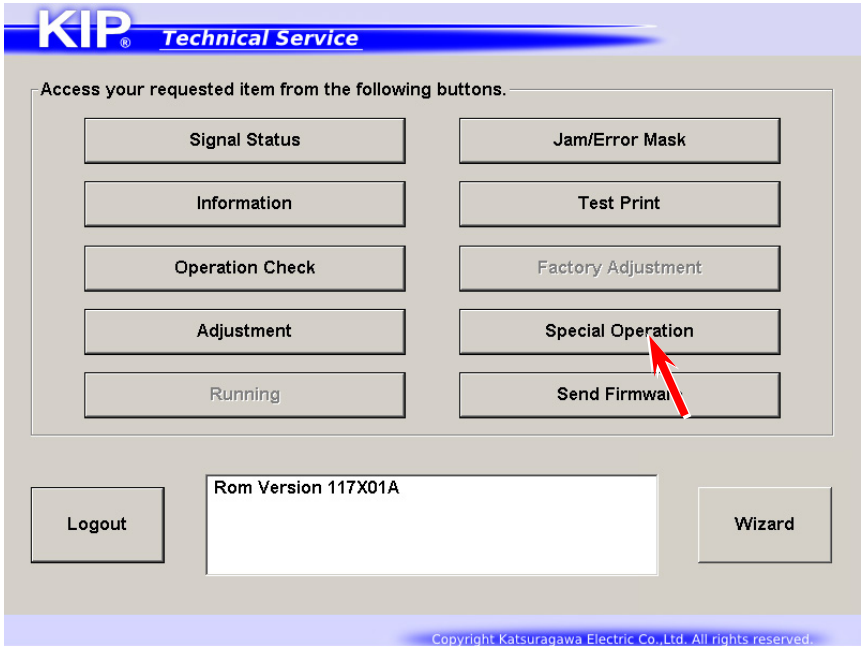


> **NOTE**
>
> The required value for the KIP 700m to reset Bias Adjustment by Density Compensation Process is “000000**1**”.
>
> “0000000” to “0000003” correspond to the Adjustment Level in Density Compensation Process.

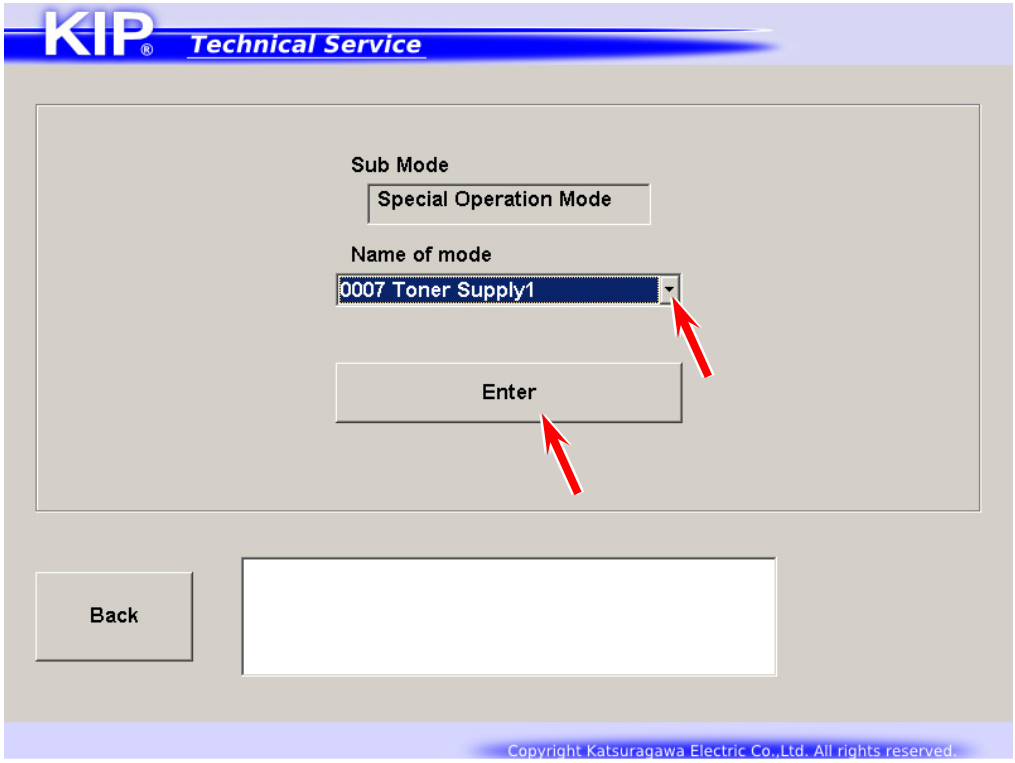
5. The value is displayed in “Count” area.
   Once you input a value, [Rewrite] will be activated.
   Press [Rewrite] to apply the new value to the printer.
   The value in “Reading” area will be changed to the new value.

8. 11. 4 Toner Supply Mode

1. Press [Special Operation] in Service Mode Home.
   Operation Target screen appears.

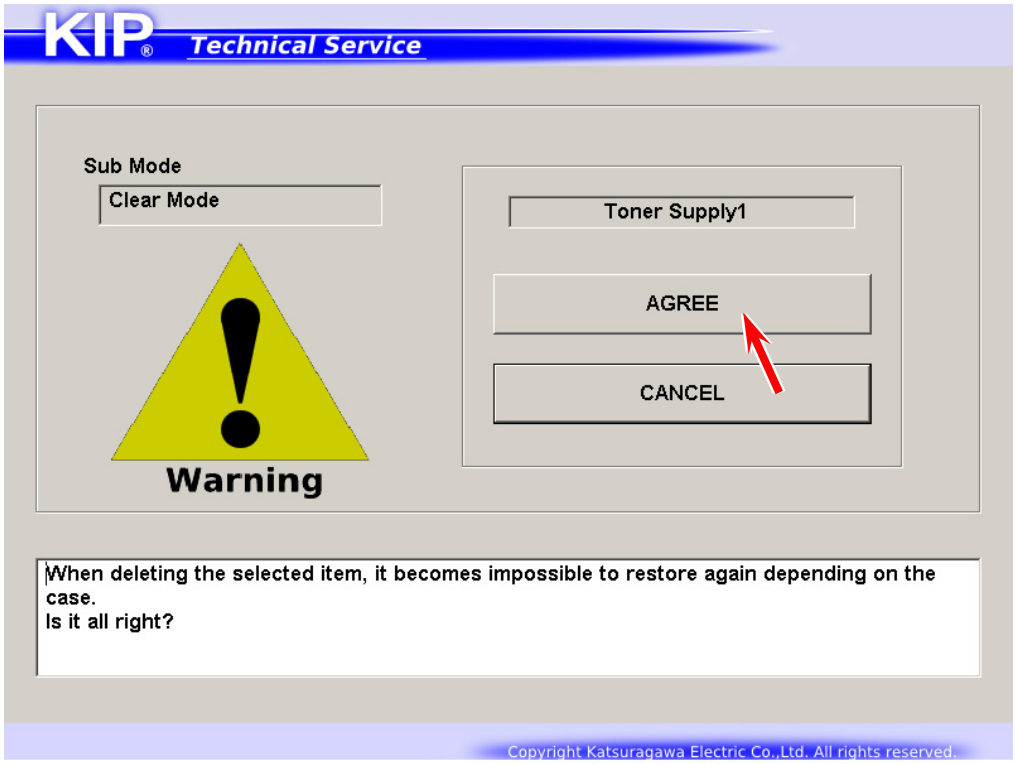


2. Select [0007 Toner Supply1] from Name of mode menu. Press [Enter].



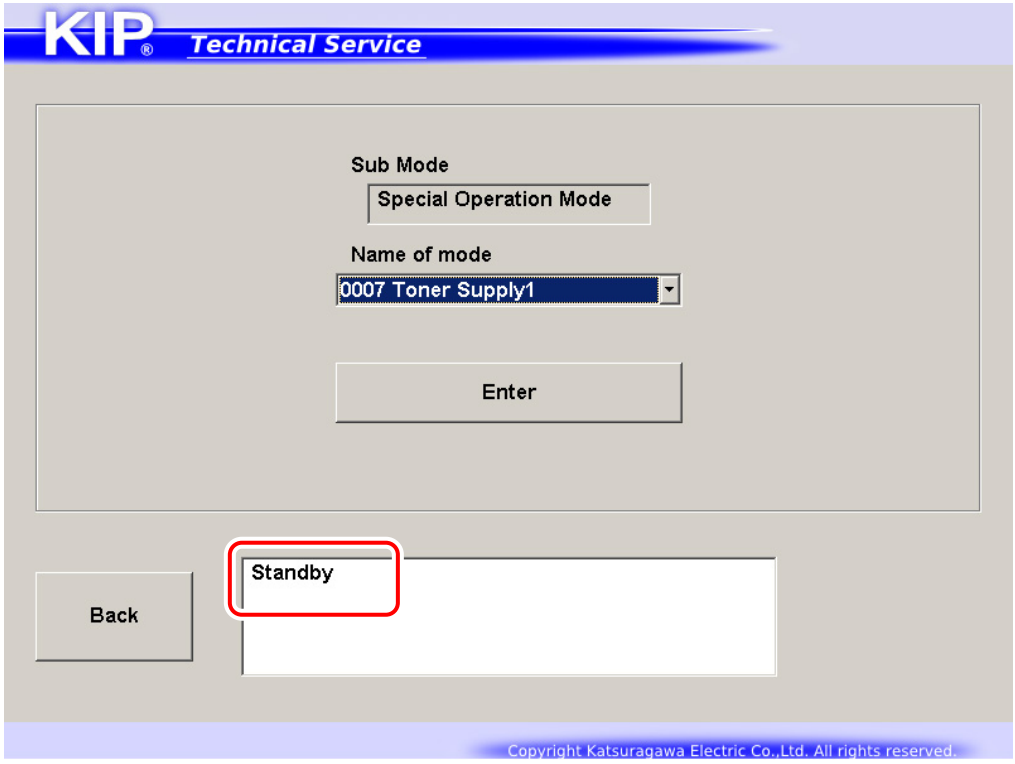
0007	Toner Supply1	Starts toner supply / agitation in Developer Unit

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



4. Once you press [Agree], it will turn deactivated. Press [Return].

5. The screen goes back to Operation Target Screen. The status window shows “warm up” during toner supply / agitation.
   After the completion, it changes to “standby”.

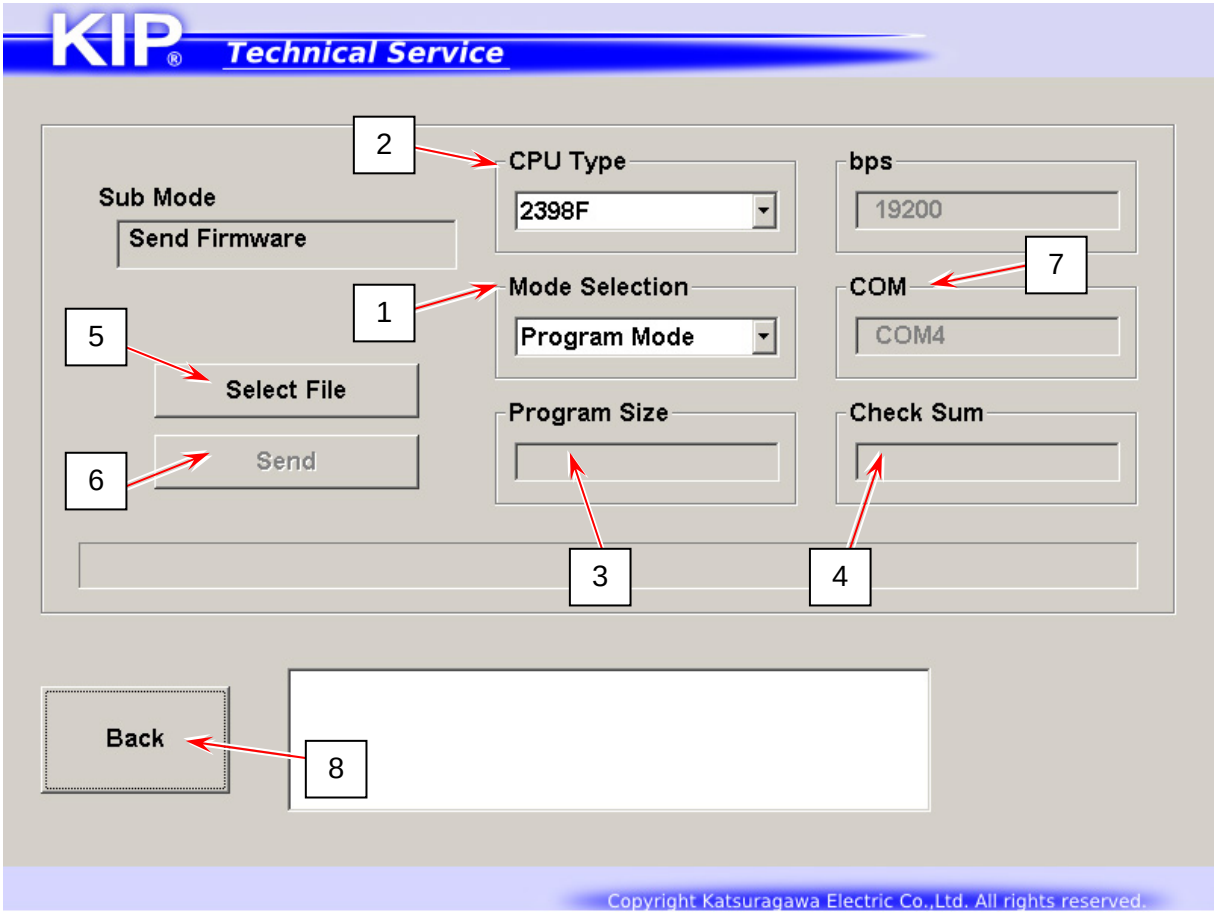


8. 12 Send Firmware Mode

You can send a new version firmware program provided by the manufacturer to the printer.
Note that the firmware program is named “K117X##A.mot”.

> **NOTE**
>
> A firmware update does not effect to the current parameters. They remain unchanged.
> But please be sure to make a backup in .RAM prior to any firmware update just in case.

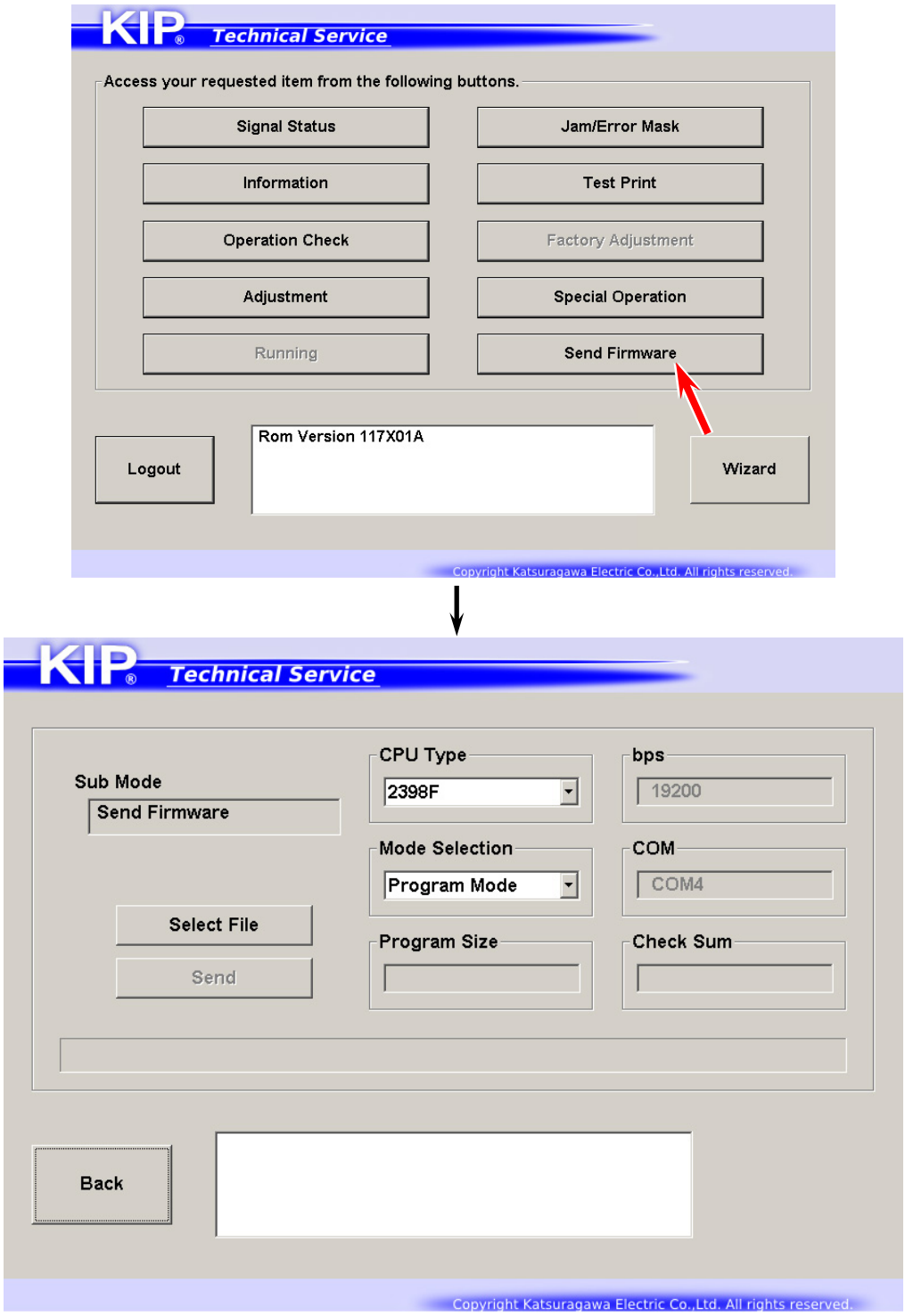
Send Firmware screen



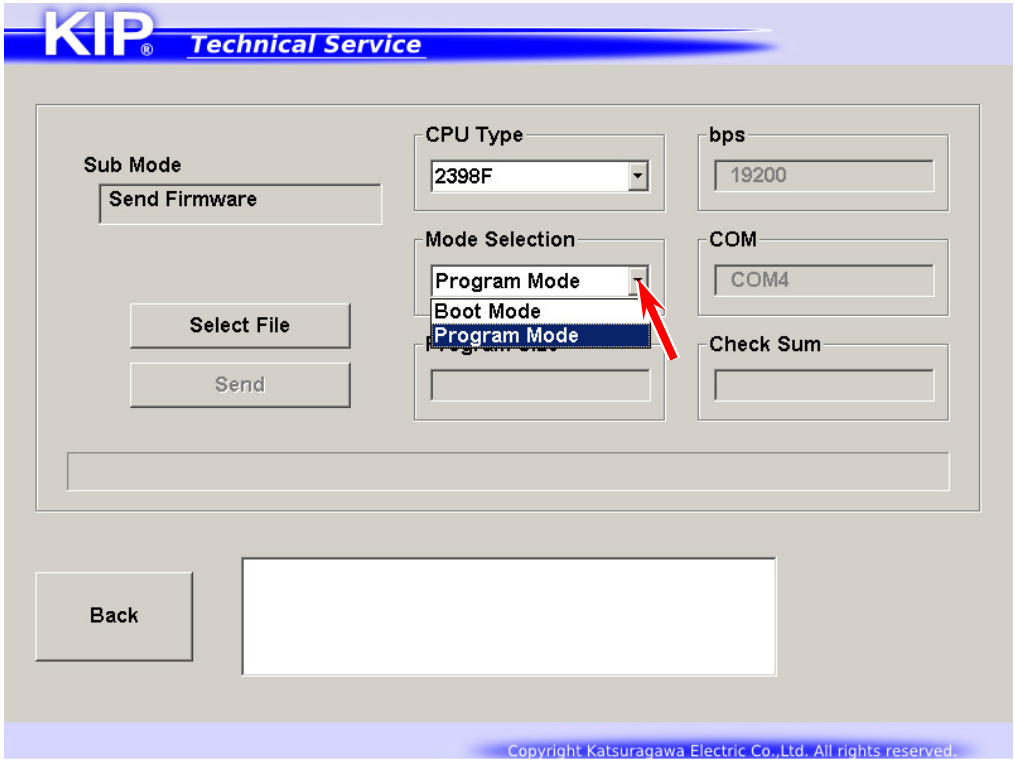
	Name	Function
1	Mode Select	Use “Program Mode” usually.
2	CPU Type	Use “2398F” only.
3	Program Size	Displays the file size of a selected firmware program (.mot fie)
4	Checksum	Displays the checksum of a selected .mot file
5	Select File	Locates a .mot file that you want to send to the printer
6	Update	Sends a selected .mot file to the printer
7	COM	Displays a COM port number on the controller to be used for communication that has been configured in Serial Port Setting of Log In screen
8	Back	Returns to Service Mode Home

8. 12. 1 Sending Firmware to Printer

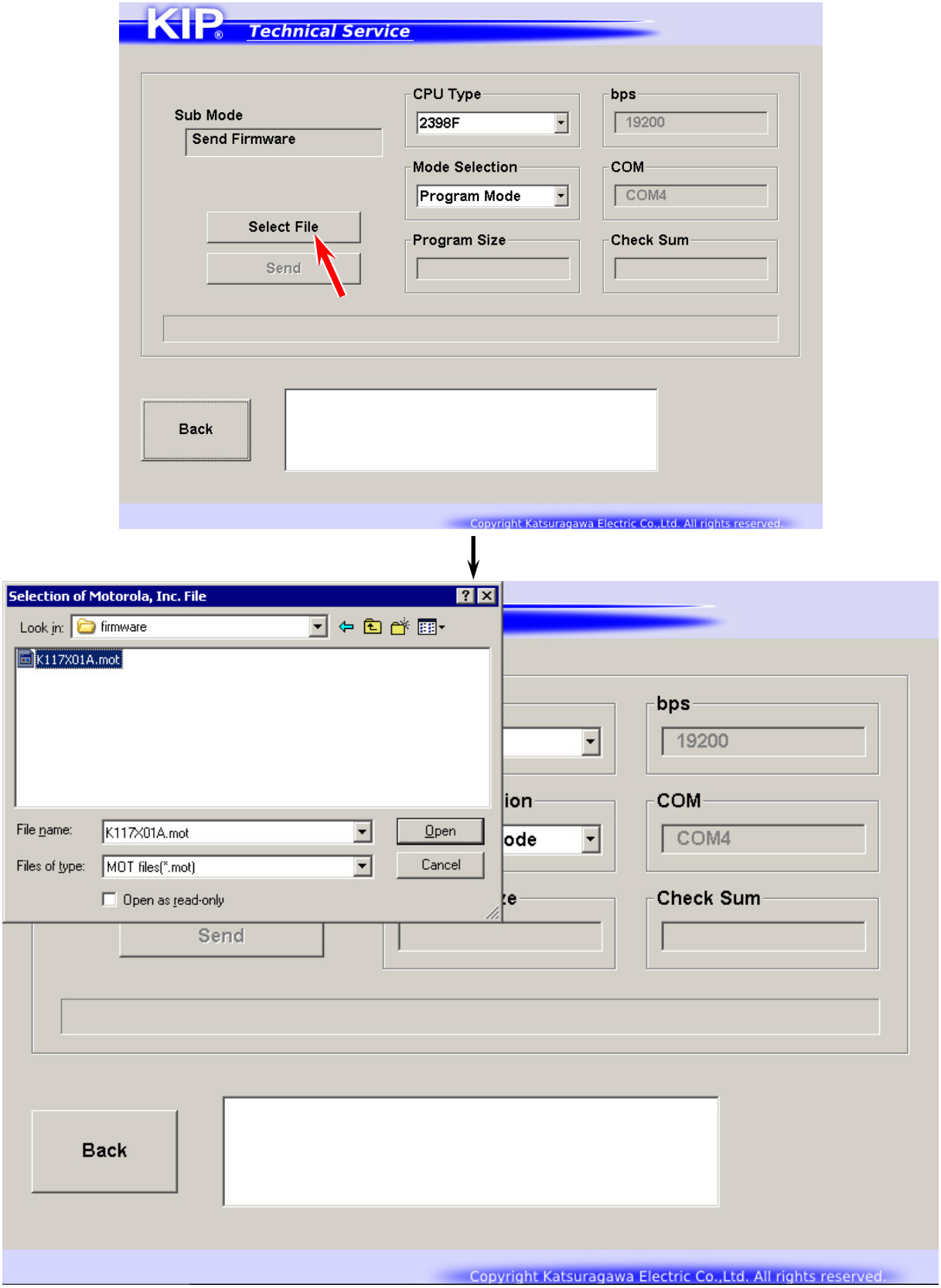
1. Press [Send Firmware] in Service Mode Home.
   Send Firmware screen appears.



2. Choose “Program Mode” from Mode Select menu if not displayed.



3. Press [Select File] to locate and open a .mot file that you want to apply.



NOTE

For KIP 700m, its firmware program is always named **"K117X##A.mot"**
Do not open any other file.

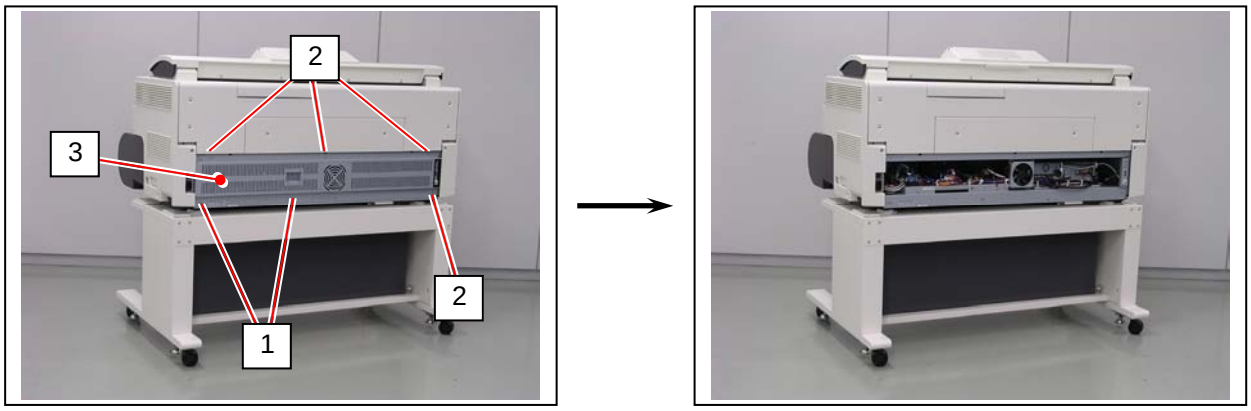
4. Check for the program size and its checksum of the .mot file you have chosen.
   Press [Update] to send it to the printer.

> **NOTE**
>
> "Program Size" and "Checksum" vary by the firmware version.

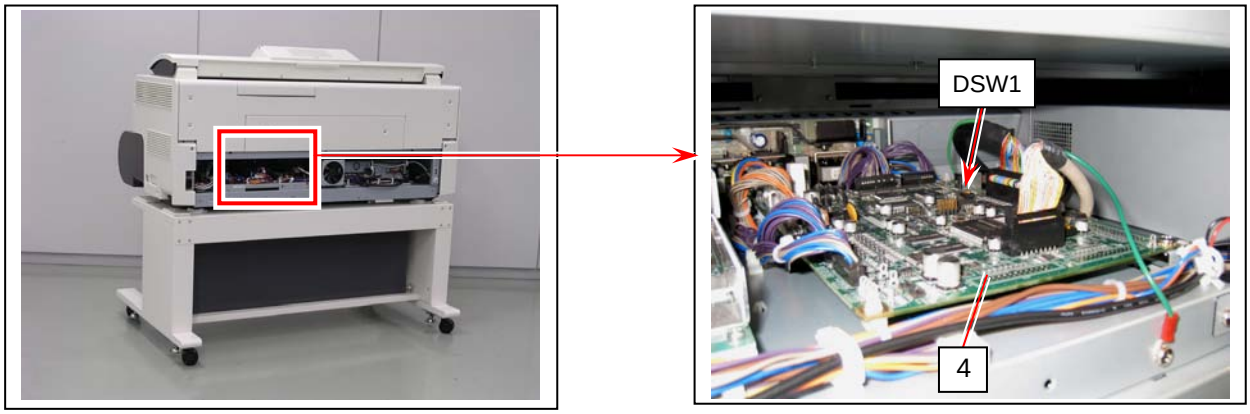
8. 12. 2 In case of transmission failure

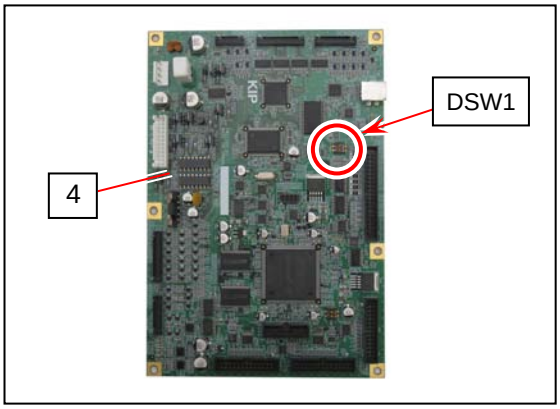
1. Retry to send the firmware in the same way.

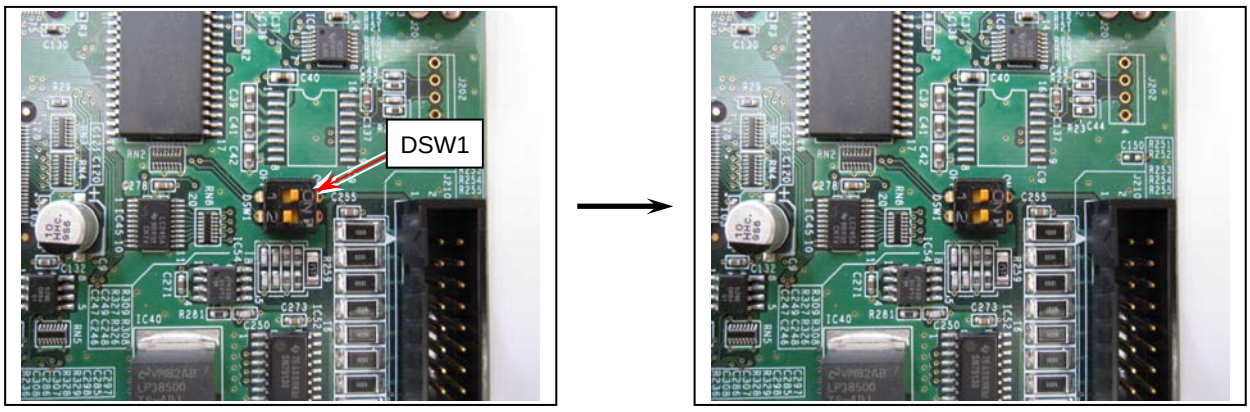
2. If the communication cannot be established any more, that is because the firmware file stored in PW11720 PCB would be collapsed.
   Turn off the machine. Loosen 2 screws (1), remove 4 screws (2) to remove the rear cover (3).



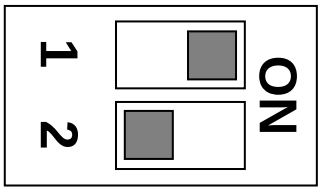
3. On PW11720 PCB Assy (4), switch the #2 of “DSW1” to ON.
   This allows the firmware to overwritten to PW11720 PCB Assy.



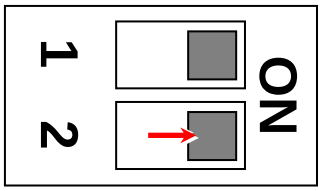




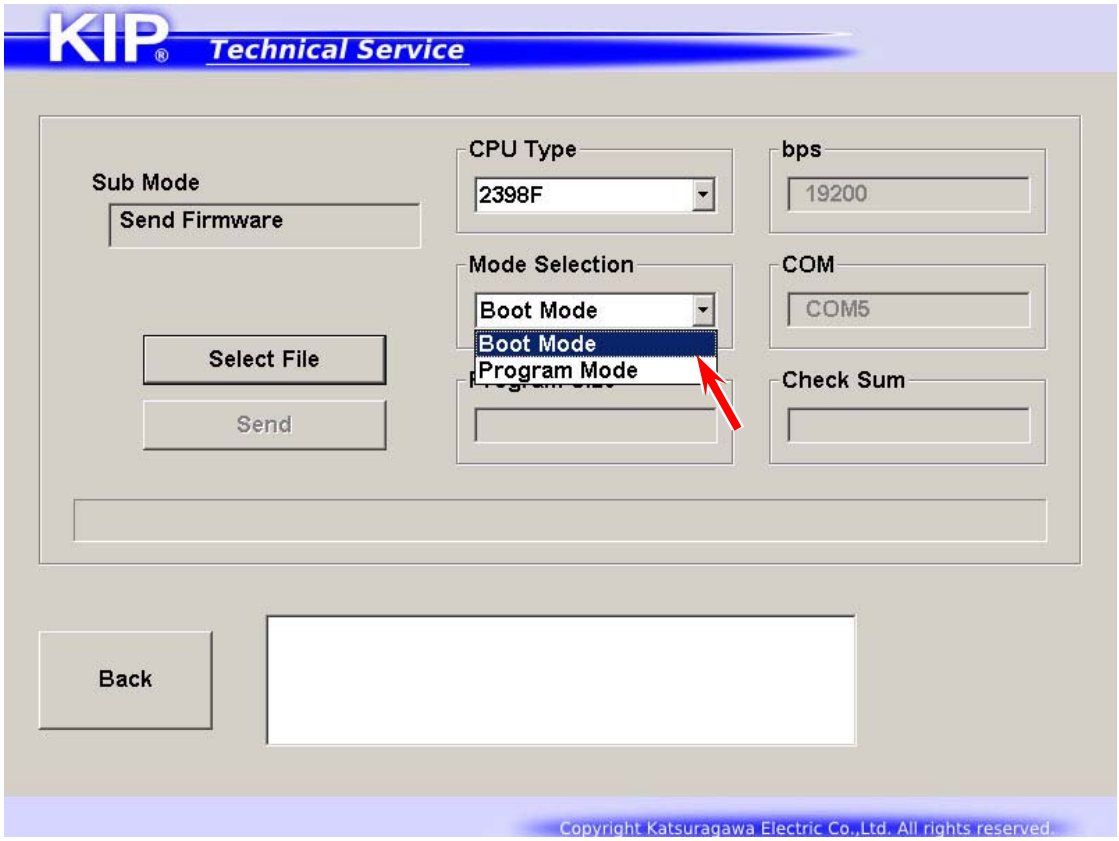
Operation Position



Force Overwrite Position



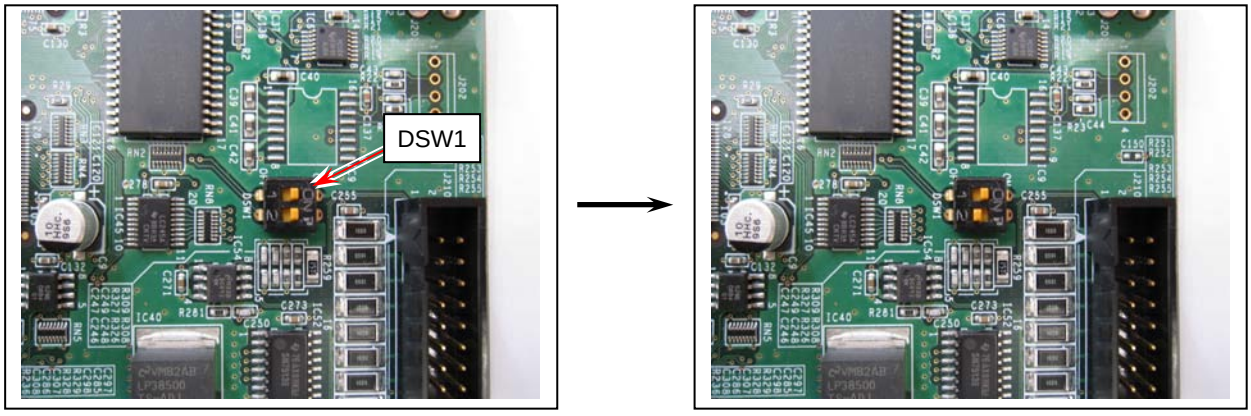
4. Turn on the machine.
   On Send Firmware screen, choose “Boot Mode” from Mode Selection menu.



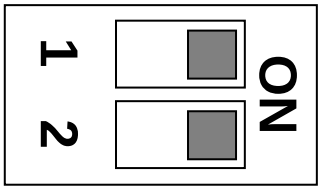
5. Select a firmware program file. Press [Send].

6. When finished successfully, turn off the machine.

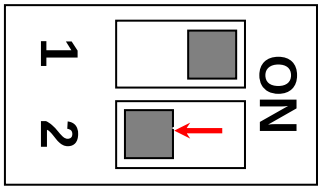
7. On PW11720 PCB Assy, switch #2 of “DSW1” to OFF. (original position)



Force Overwrite Position



Operation Position



8. Return the rear cover.

8. 13 KIP Scanner Utility

KIP Scanner Utility 1.31 or later is a program that provides several scanner adjustments.
- Shading (mono/color calibration)
- Feed Distance (1:1)
- Position (stitch)

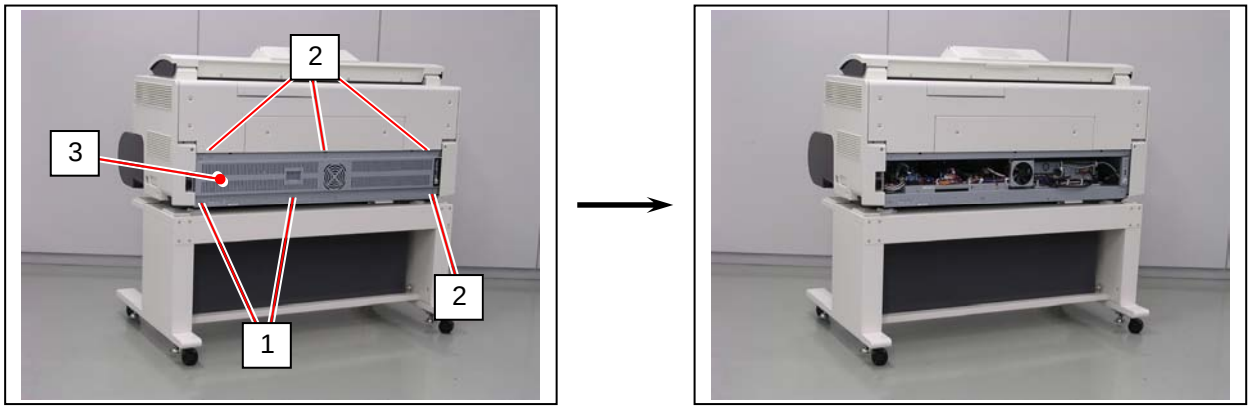
8. 13. 1 Installation

> **NOTE**
>
> Below are the system requirements to operate KIP Scanner Utility.
> - Windows 2000 / XP operating system
> - USB 2.0 support
> - USB Driver for communication with KIP Scanner Unit (version 1.30 or later)

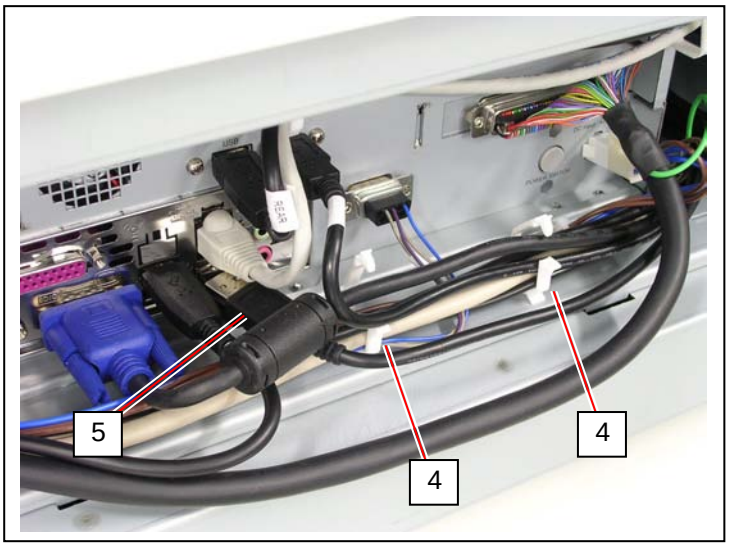
8. 13. 1. 1 Installing USB Driver

NOTE: Contact your KIP partner for the latest software and save it to any available storage on your service PC.

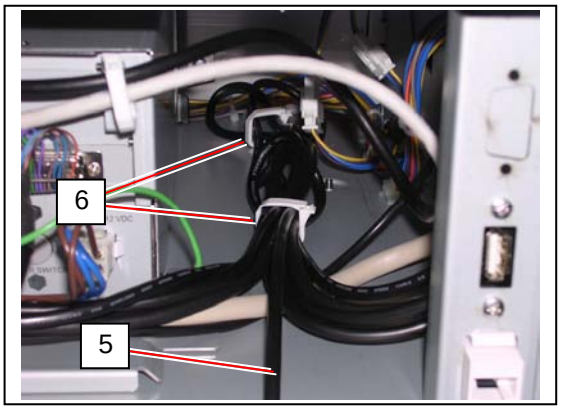
1. Loosen 2 screws (1), remove 4 screws (2) to remove Cover 32 (3).



2. Open 2 wire saddles (4) to release the Scanner USB Cable (5).
   Disconnect the Scanner USB Cable (5) from IPS.



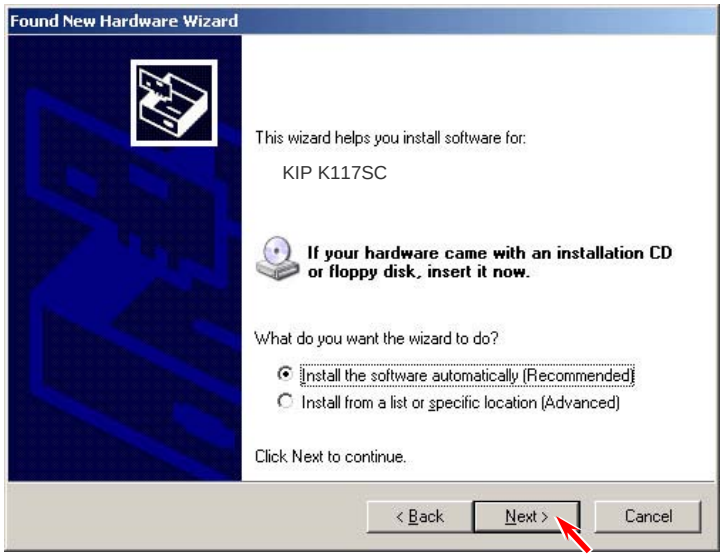
3. Open 2 wire saddles (6) to release the Scanner USB Cable (5).



4. Connect the Scanner USB Cable to any USB port on **your service PC**.

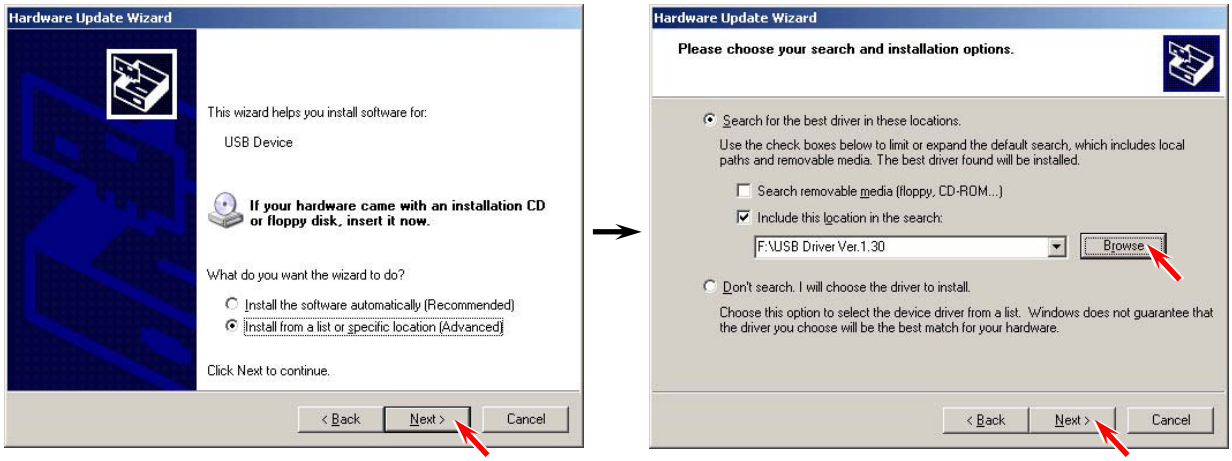
5. Turn on both your PC and the printer.
   [Found New Hardware Wizard] for **"KIP K117SC"** starts automatically.
   If the following message appears, choose "No, not this time" and click [Next].

6. Choose "Install the software automatically [Recommended]". Click [Next].



NOTE

If the auto detection does not work properly, click “Install from a list of specific location [Advanced]” to locate the driver software (.ini).



7. Click [Continue Anyway] when the following message is indicated.

8. Click [Finish] to close [Found New Hardware Wizard].

9. Open Device Manager, and confirm that **“KIP K117SC”** (under Imaging Device) is operating properly.

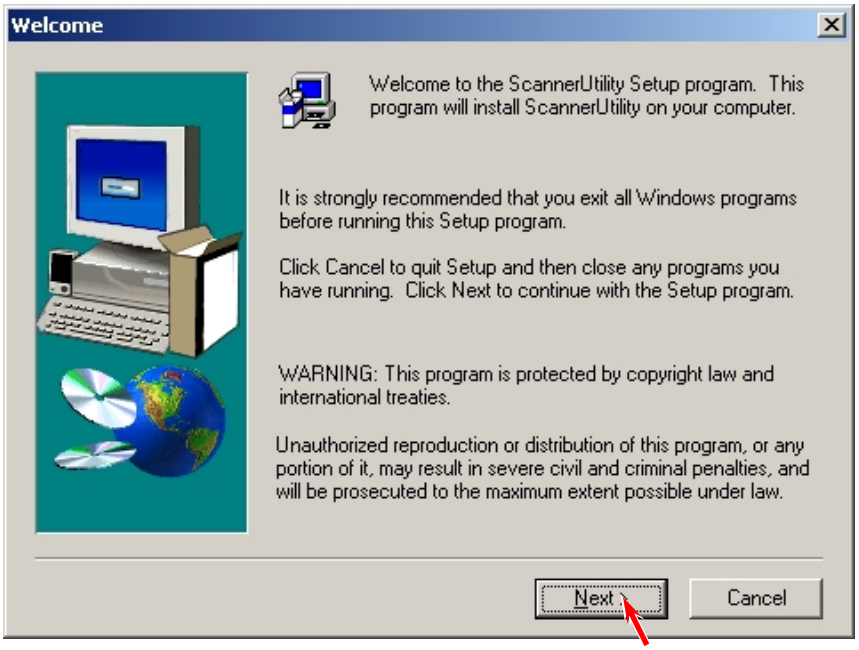
10. Cycle the machine power.

8. 13. 1. 2 Installing KIP Scanner Utility (1.31 or later)

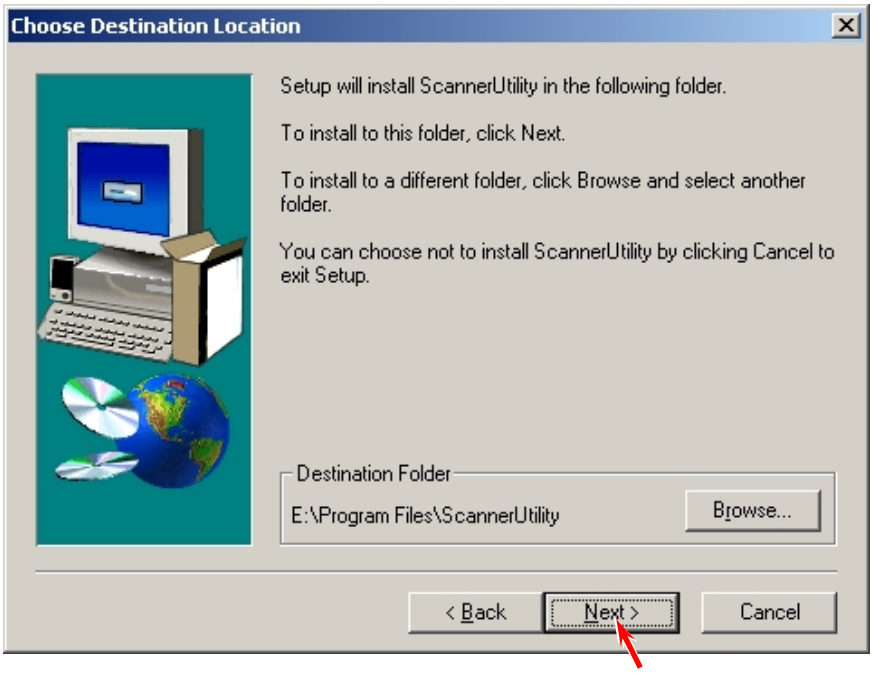
> **NOTE**
>
> (1) Below are the system requirements to operate KIP Scanner Utility.
> - Windows 2000 / XP operating system
> - USB 2.0 support
> - USB Driver for communication with KIP Scanner Unit (version 1.30 or later)
>
> (2) Use version 1.31 or later. K105Utility is not available.
> (3) Contact your KIP partner for the latest software and save it to any available storage on your service PC.

1. Locate your SETUP.EXE for Scanner Utility and execute it.

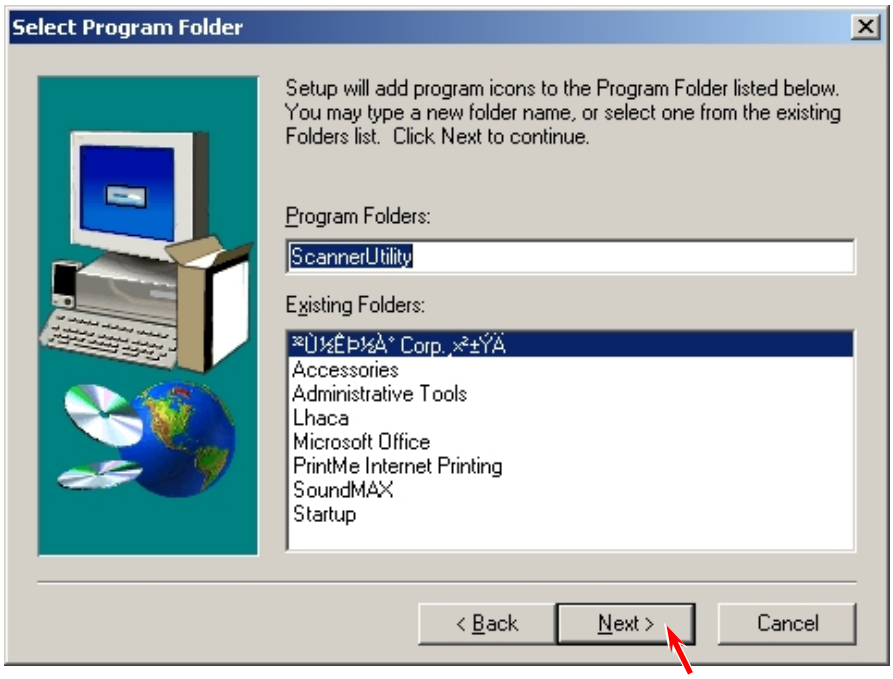
2. The Setup program starts. Click [Next].



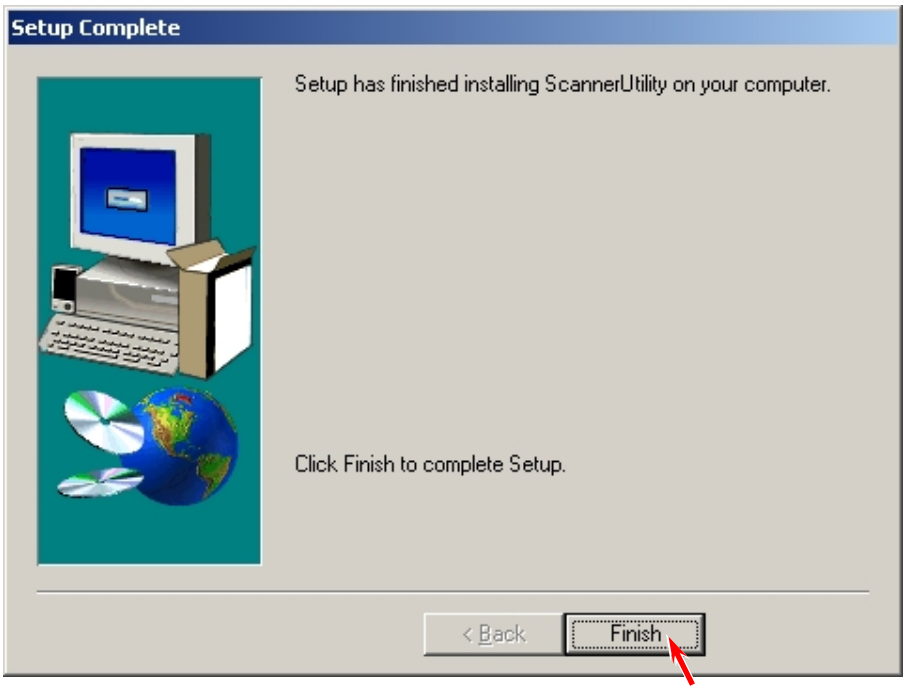
3. The destination of the software can be changed. Click [Next].



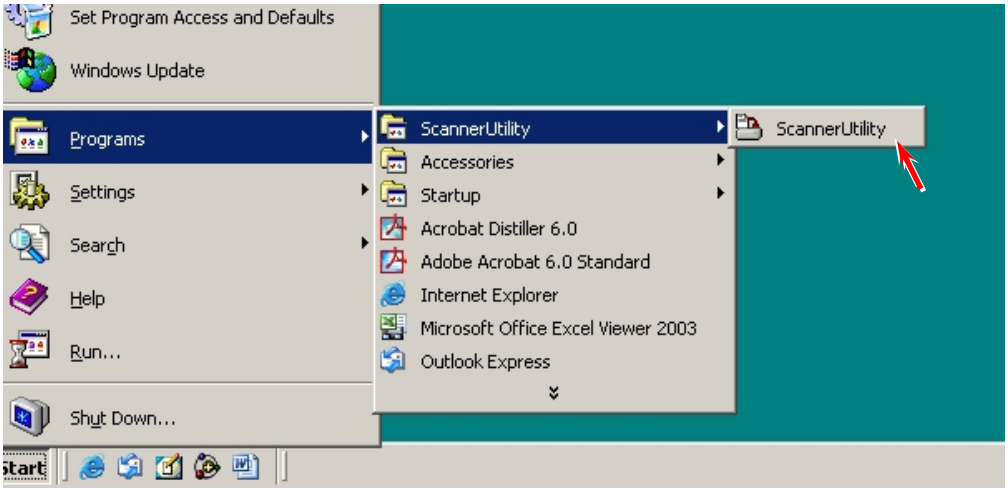
4. The name of the program folder can be changed. Click [Next].



5. The following message is indicated when all files have been copied. Click [Finish].

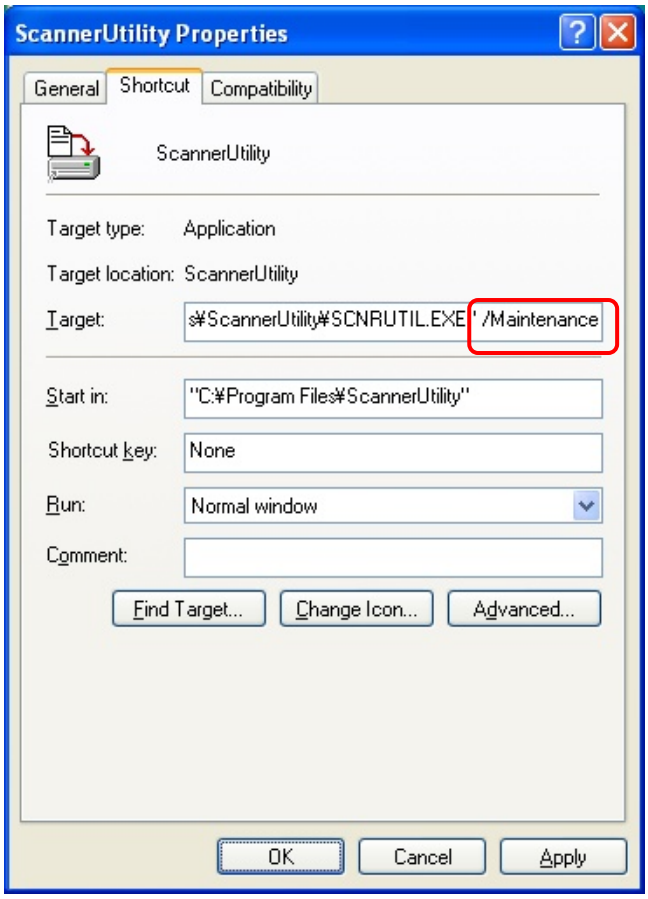


6. Open the properties panel for the “Scanner Utility” shortcut on “Start” _”Program” _ “Scanner Utility” _ “Scanner Utility”. (ex. right click on the shortcut)



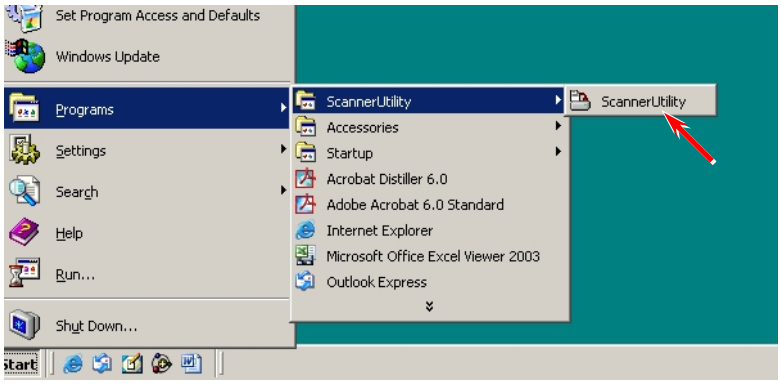
7. Add the following text to the end of the target path. Click [Apply].

“(one byte space)/Maintenance”

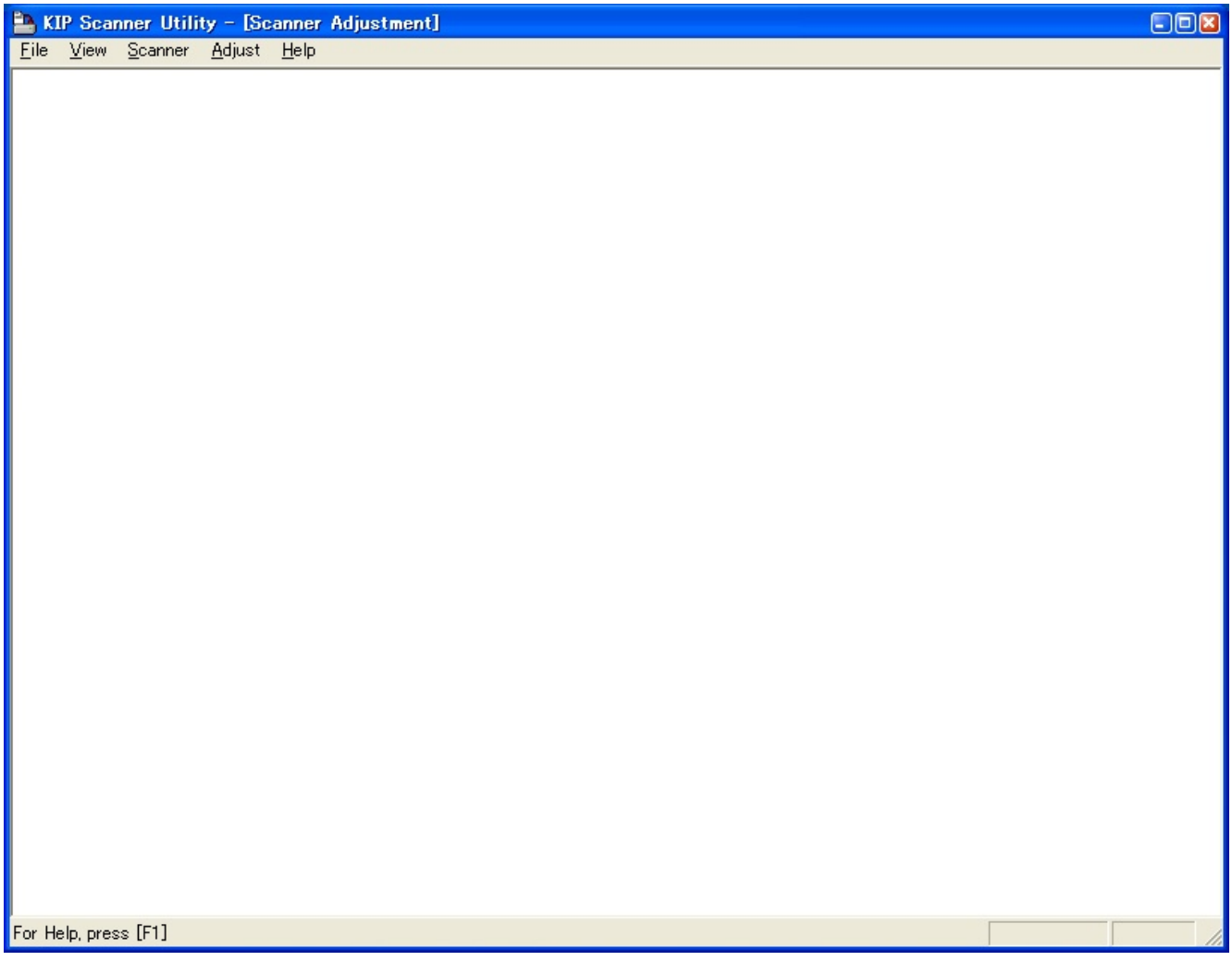


8. 13. 2 Starting KIP Scanner Utility

Start KIP Scanner Utility by; “Start” _”Program” _ “ScannerUtility” _ “ScannerUtility”



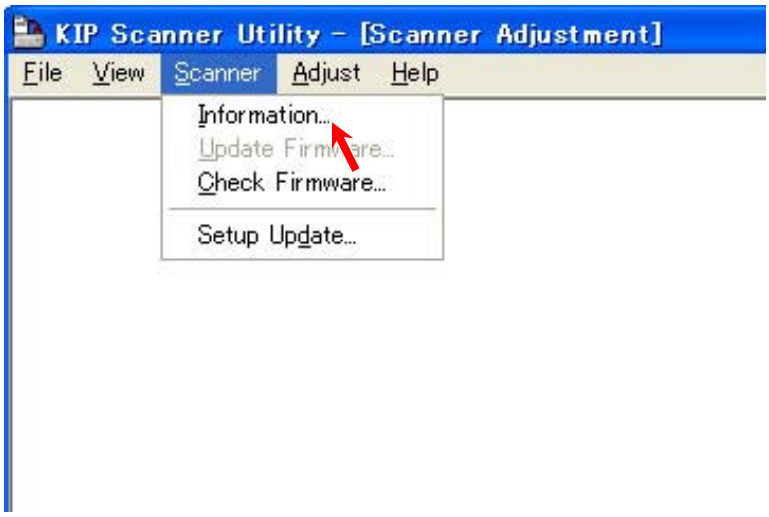
(KIP Scanner Utility’s initial screen)



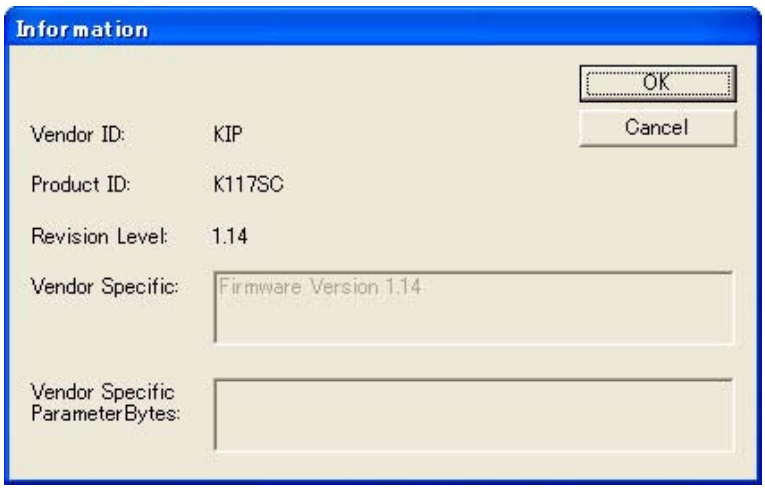
8. 13. 3 Checking Scanner Information

8. 13. 3. 1 Displaying Scanner Information

1. Select [Scanner] - [Information].



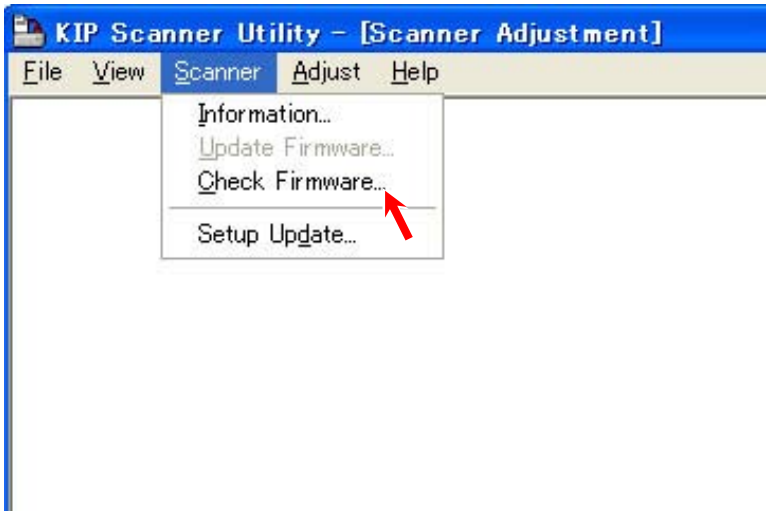
2. KIP Scanner Utility acquires the scanner information and displays it.



This is just an example.
Revision Level (Scanner Firmware version) may vary from the actual one.

8. 13. 3. 2 File Check

1. Select [Scanner] - [Check Firmware].



2. Press [Execute].

File Check OK:

File Check failed:

Press [OK] to select a proper firmware file to overwrite.
See [8.13.5 Updating Scanner Firmware].

8. 13. 4 Scanner Adjustment Procedure

It is possible to make the following scanner adjustment with KIP Scanner Utility.

- Shading (calibration)
- Feed Distance (1:1)
- Position (stitching)

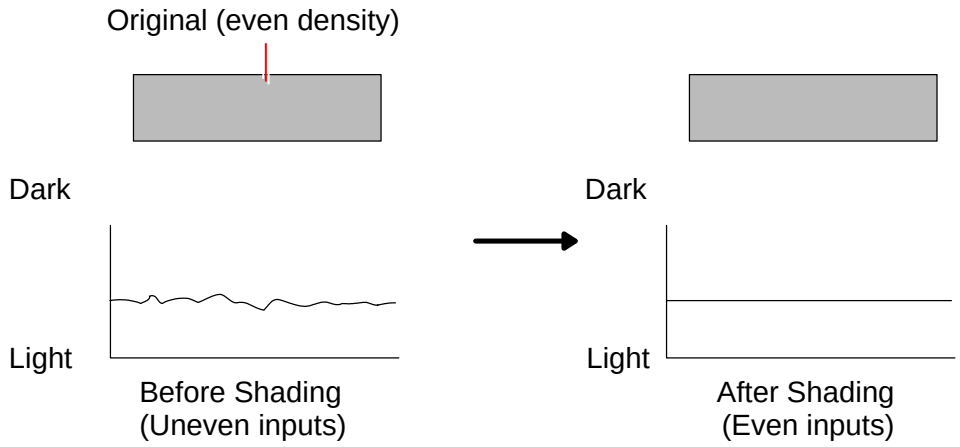
These adjustments are very important because they are greatly related with the image quality.

8. 13. 4. 1 Shading (calibration)

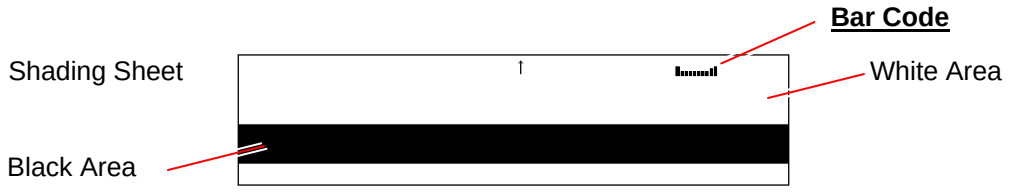
[Purpose of Shading (calibration)]

The pixels on the CIS are not same but they have their own characteristic.
This may be a problem because the inputs (density) from those pixels are uneven although they read the same image (density).

But the Shading compensates the input from each pixel properly to remove the unevenness among the pixels.
As a result the even level of input can be expected from every pixel after Shading.



On Shading adjustment, the pixels on the CIS will be calibrated in the default for R/G/B light source by using input gaps between black and white on Shading Sheet.



The KIP 700m uses R/G/B light sources not only for color reading but also for monochrome reading. The scanner unit will be calibrated in monochrome/color at the same time.

[Necessary situation]

Shading is required after replacing;

- CIS
- CIS Board (117)
- Main Board (117)

⚠ NOTE

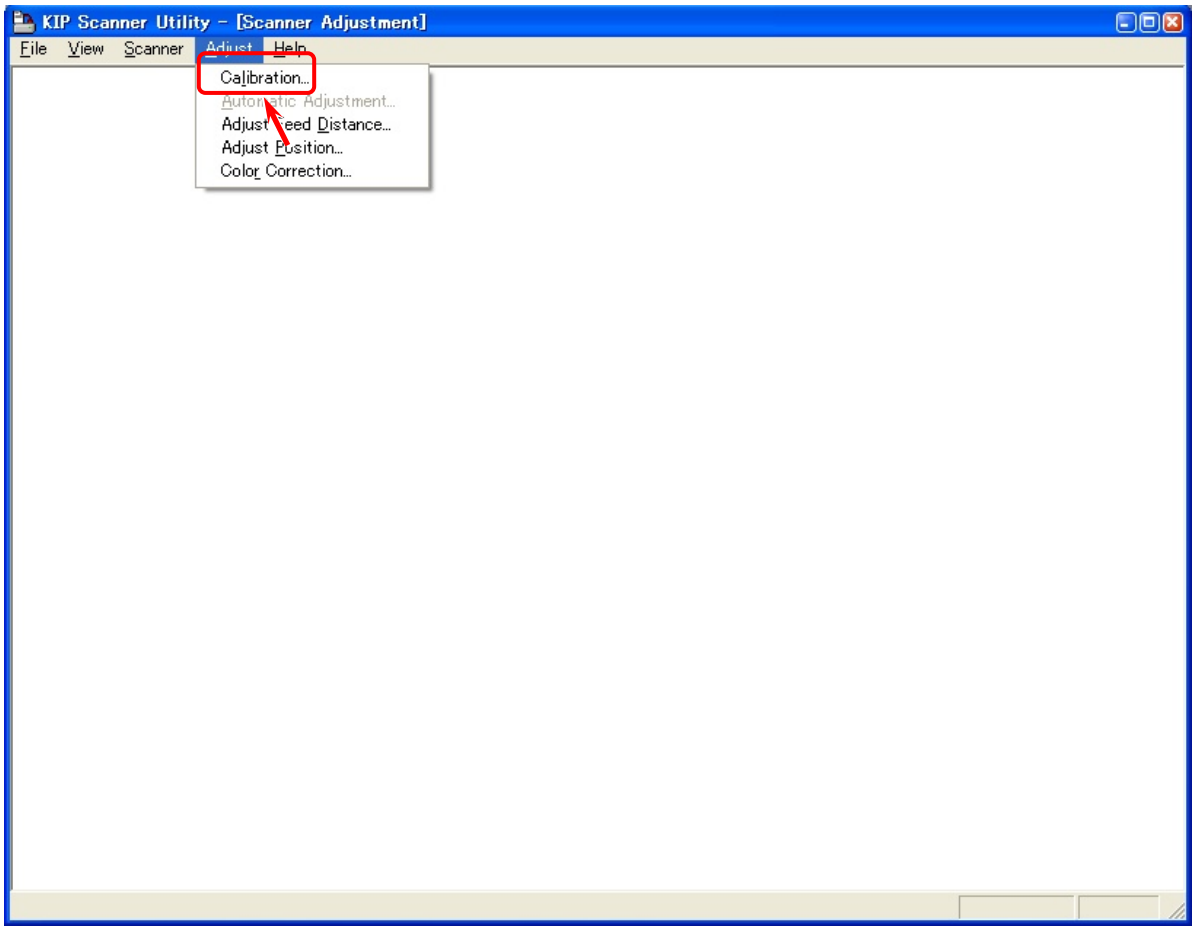
(1) Shading adjustment should be performed with Shading Sheet (P/N: Z178300360, with a bar code).
1 sheet of Shading Sheet is included in the product accessary. Keep it in safe custody.

(2) Shading adjustment should be performed with “KIP Scanner Utility 1.31 or later”.
“K105Utility” is not available.

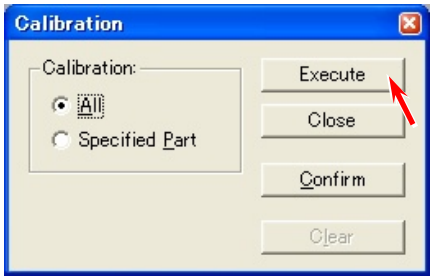
(3) Please clean Scan Glasses before Shading.

[Operation]

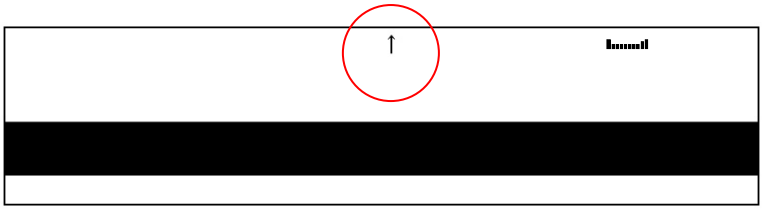
1. Connect the scanner unit and the PC directly with a USB 2.0 Cable.
2. Start KIP Scanner Utility.
3. Select [Calibration] under [Adjust].



4. At first it is required to calibrate all pixels.
Select [All] and then click [Execute].



5. Set Shading Sheet in the KIP 700m accessory to the scanner noting the arrow direction.



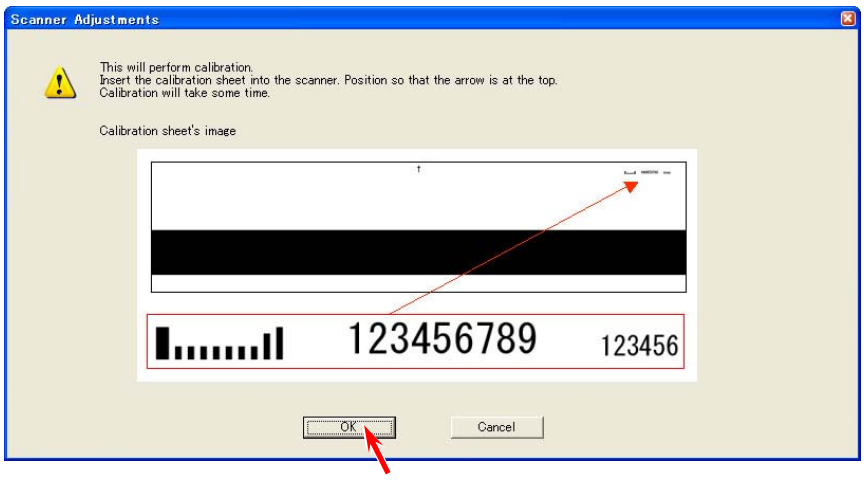
NOTE

(1) Use the Shading Sheet in the KIP 700m Accessory. The Shading Sheet has a bar code on the top right.

Bar code

(2) Handle Shading Sheet with great care. Keep it in safe custody for avoiding dirt, fold or tear.

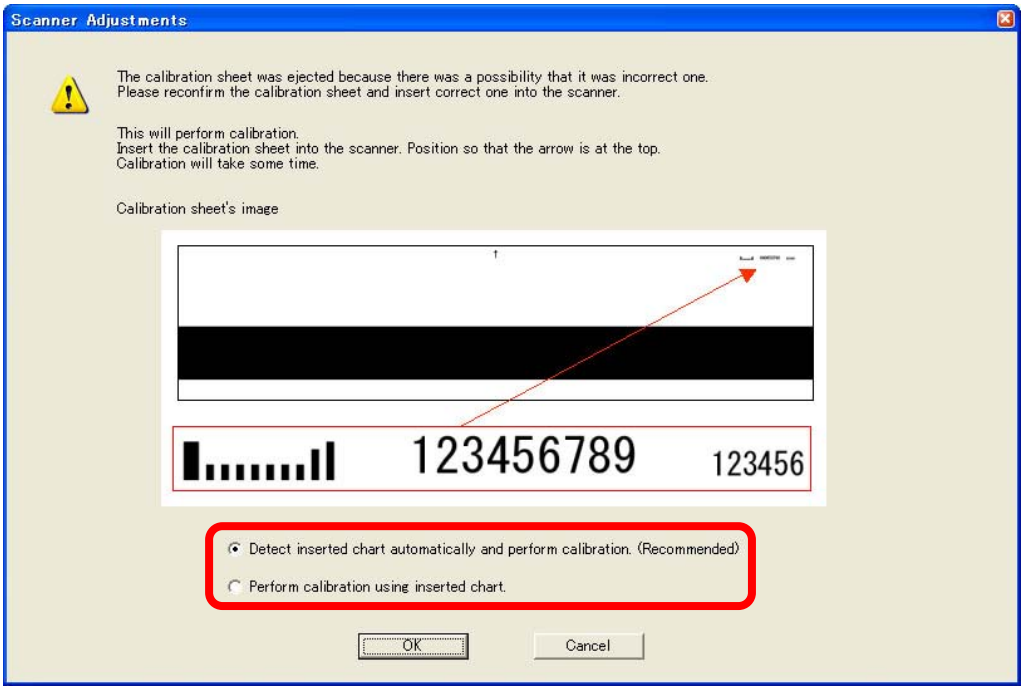
6. Click [OK] after setting Shading Sheet, and the scanner reads it.



NOTE

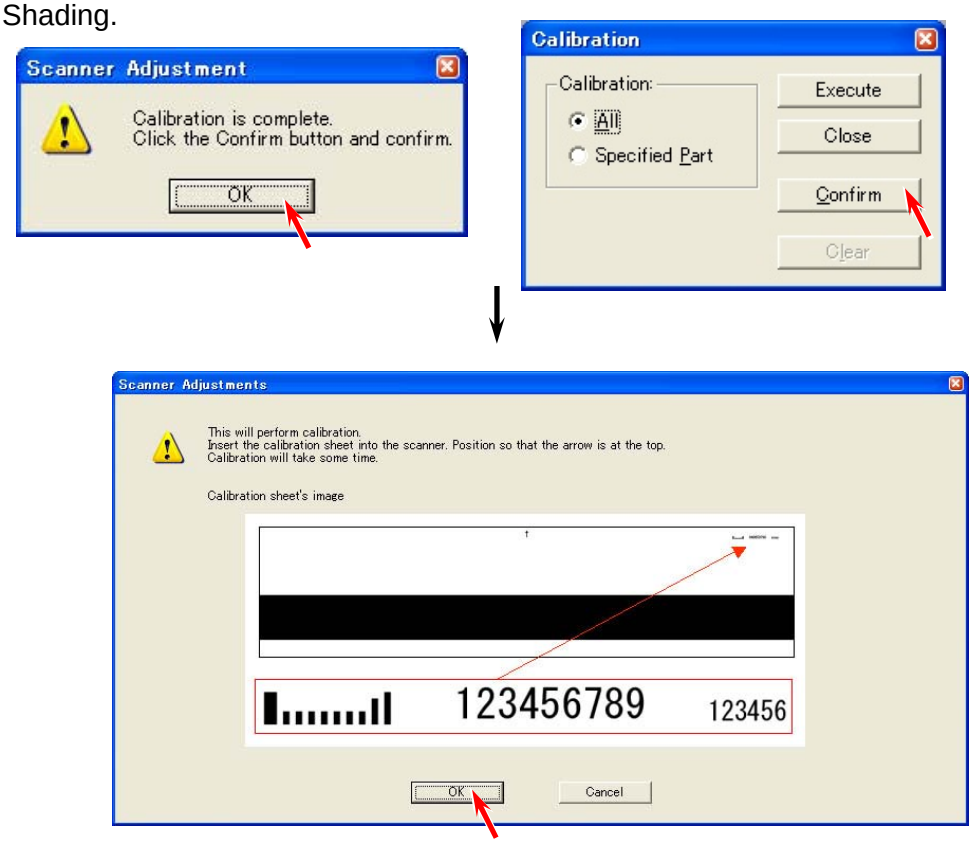
(1) It takes about 7 minutes to complete Shading adjustment.

(2) A sheet other than Shading Sheet (P/N: Z178300360) will be ejected by Scanner Utility's auto chart distinction. After that the following confirmation appears.

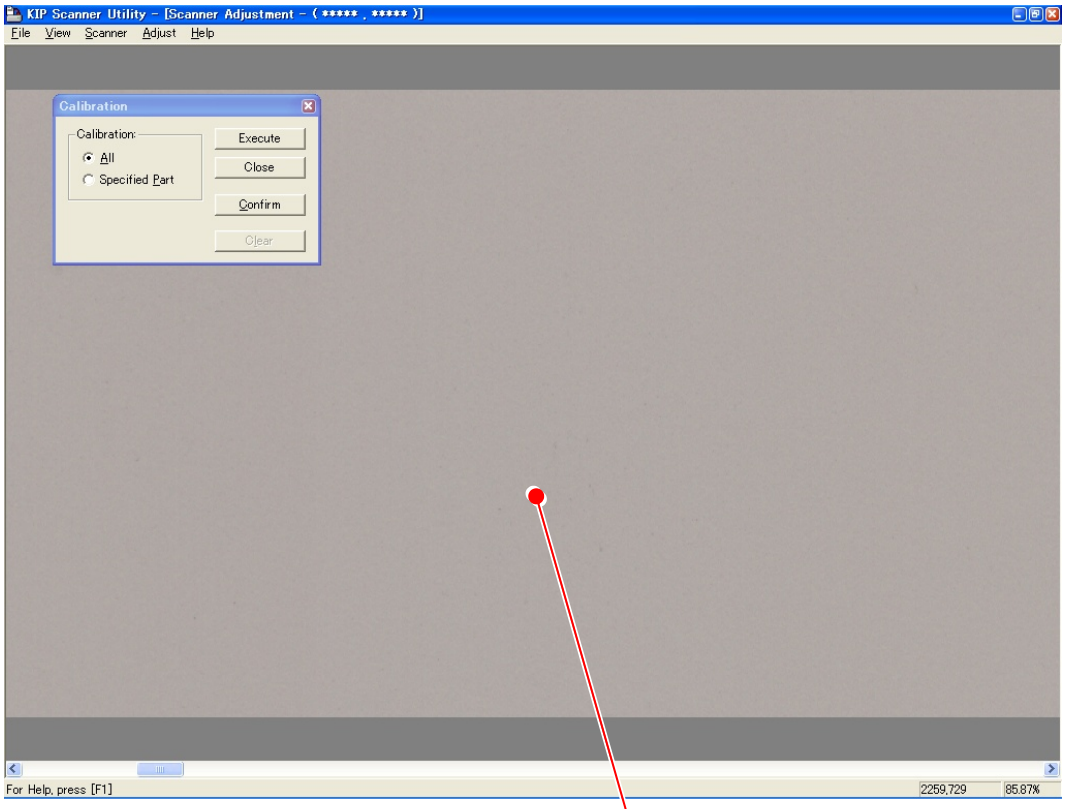


If you inserted a wrong chart to the scanner, remove it and set the correct Shading Sheet. Confirm that [Detect inserted chart automatically and perform calibration (Recommended)] is selected, and press [OK].

7. When Shading is finished, the following message appears. Click [OK].
   Open the scanner and reload Shading Sheet to the scanner and click [Confirm] to check the result of Shading.

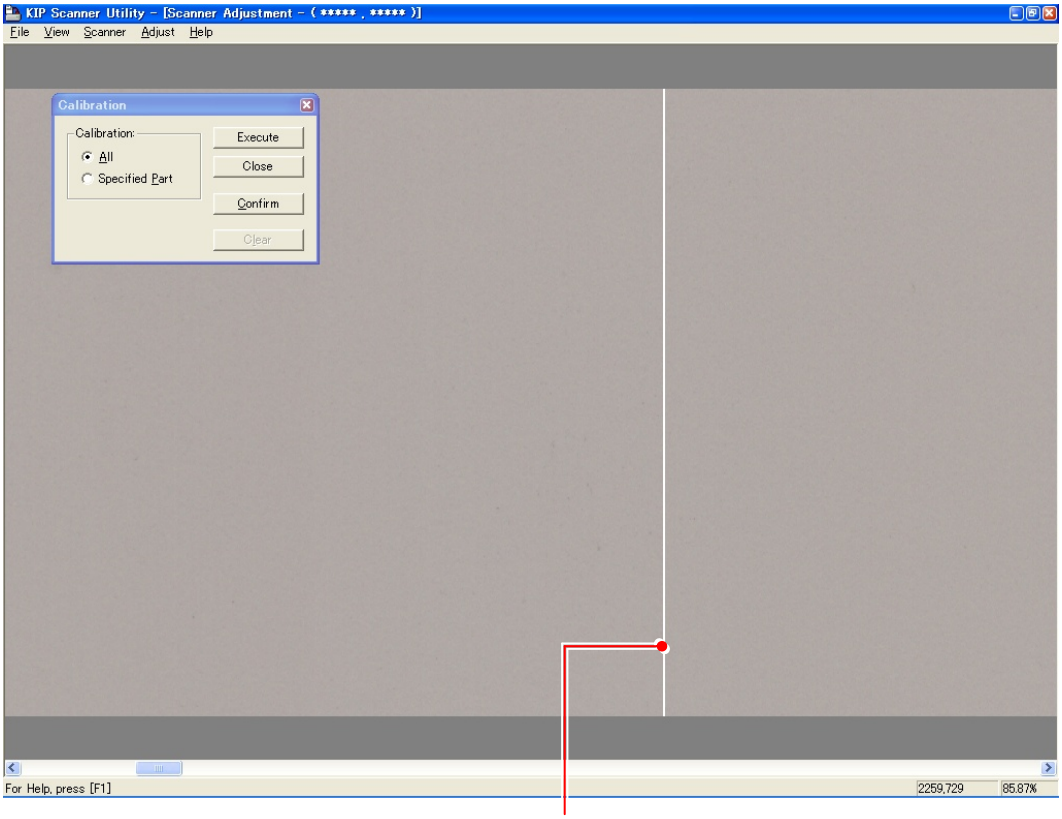


8. The scan image of Shading Sheet is displayed. (It looks gray due to “calibrating” scan)



9. Scroll the image right and left to find a strong black/white line that runs vertically in one pixel wide. If there is no such line in the whole image, click [Close] to finish Shading.

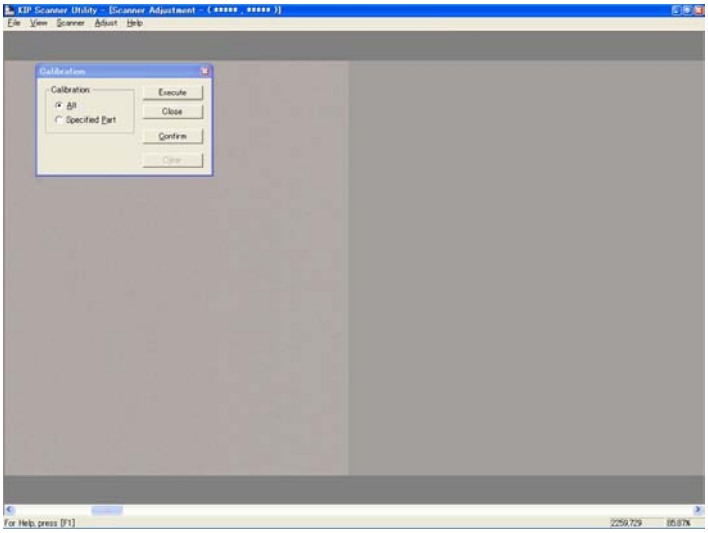
   The following picture is an example of the line (due to “defective pixel”).
   A defective pixel needs individual pixel calibration in the later steps.



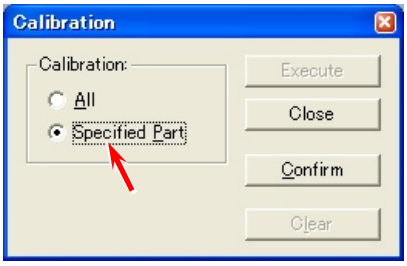
Defective pixel

NOTE

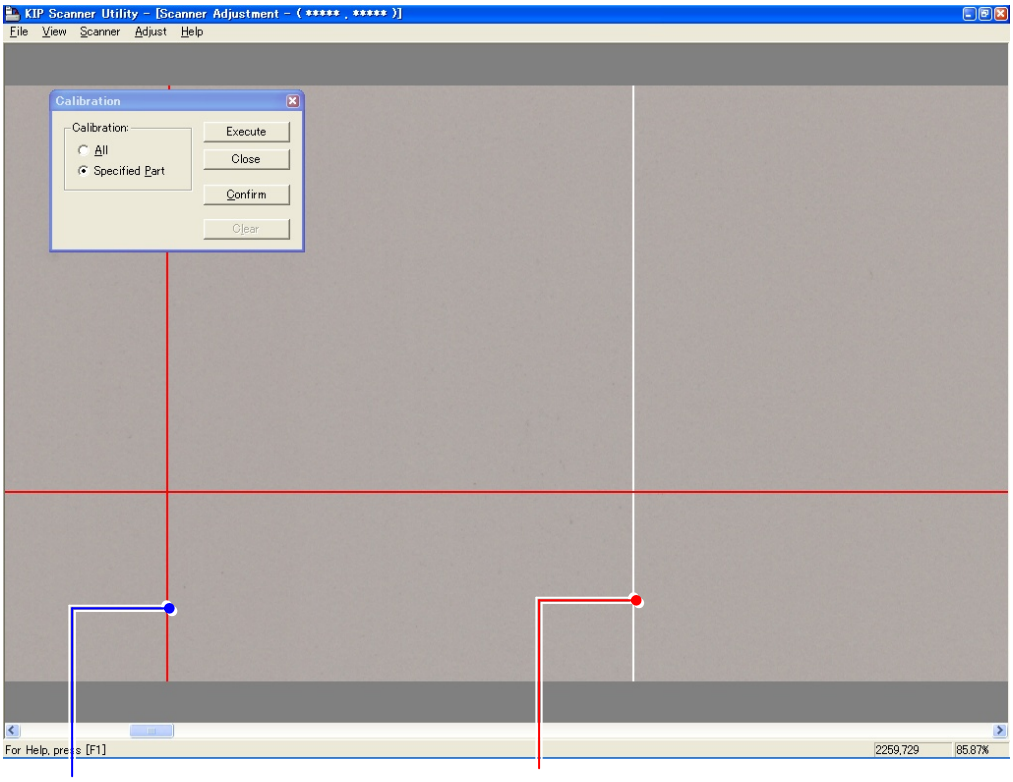
Sometimes the density may be different between left and right as the following image.
This is not a problem but it is just the border of image blocks.



10. If you will calibrate an individual pixel, select [Specified part].

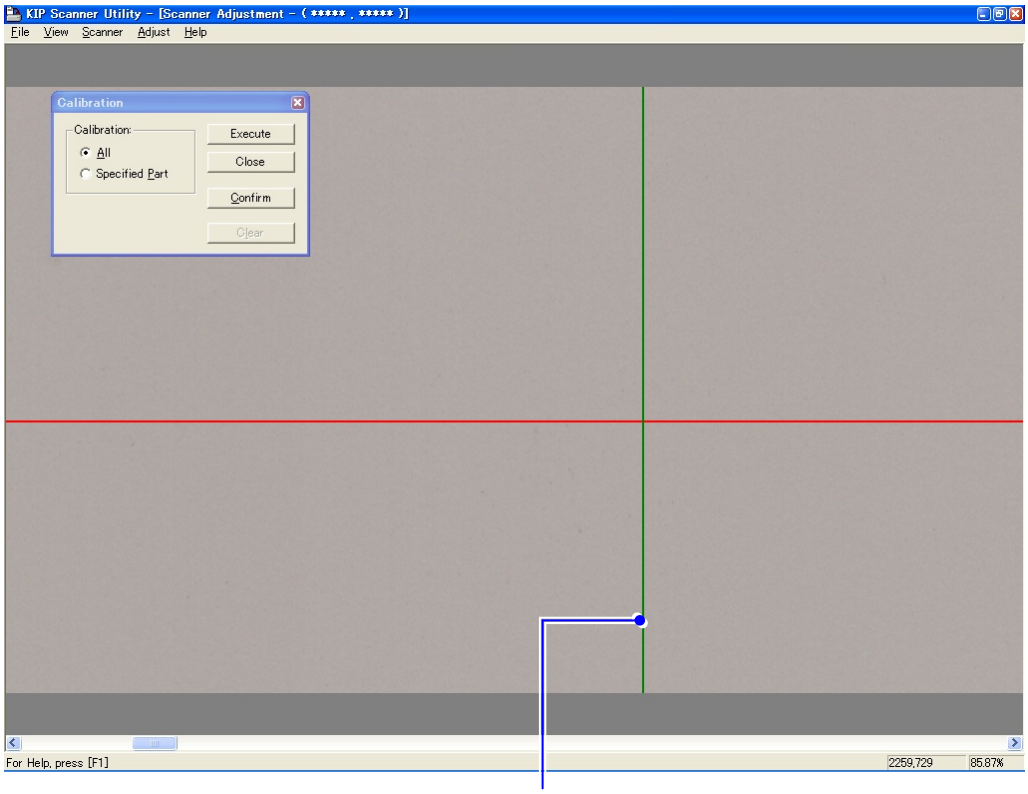


11. Move the pointer onto the scan image, and you will find a kind of red cursor.



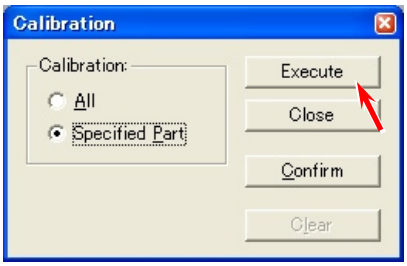
red cross cursor defective pixel

12. Move the red cursor so that its vertical line matches the defective pixel and click it.
    The defective pixel is selected by this operation.
    If there are some more defective pixels, select them in the same way.

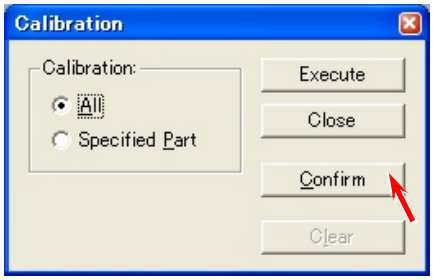


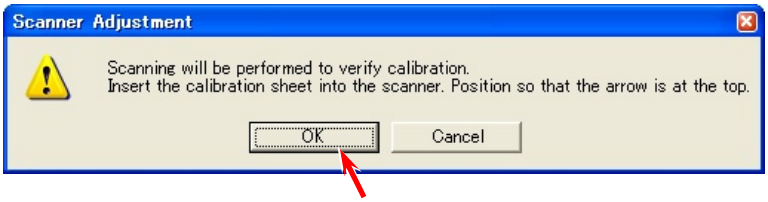
Match the vertical line to a defective pixel.

13. Click [Execute], and the selected “defective pixel” is compensated individually.



14. You will be asked to set Shading Sheet again.
    Set Shading Sheet to the scanner and click [OK].
    Check the result of Shading again.
    When finished, click [Close].



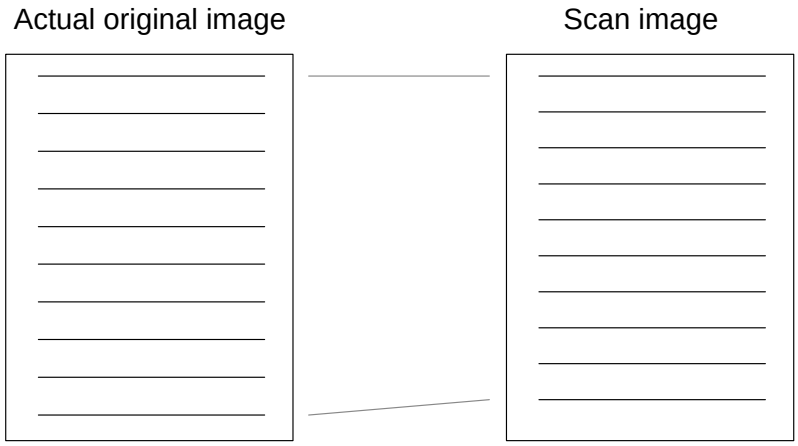


15. Shading (“white balance” / “color” calibration) is completed.

8. 13. 4. 2 Feed Distance (1:1)

[Purpose of Feed Distance (1:1)]

The lengths between actual original image and scan image may become different each other if you replace the Feed Roller of the Scanner Unit.
This is caused by the mechanical play that each Feed Roller has.



“Feed Distance” is the solution for this phenomenon.
It compares the actual original image and the scan image to know how much their lengths are different.
Then “Feed Distance” calculates the best compensation (motor speed) automatically so that both images should become as long as each other.

[Necessary situation]

Feed Distance is required when;

- After replacing;
  (1) Feed Roller R
  (2) Feed Roller F

Also you need to check whether the Feed Distance is proper after replacing the following parts.
(Please record the current setting value before the replacement and input the same value after the replacement.)

(1) CIS
(2) Main Board (117)

NOTE

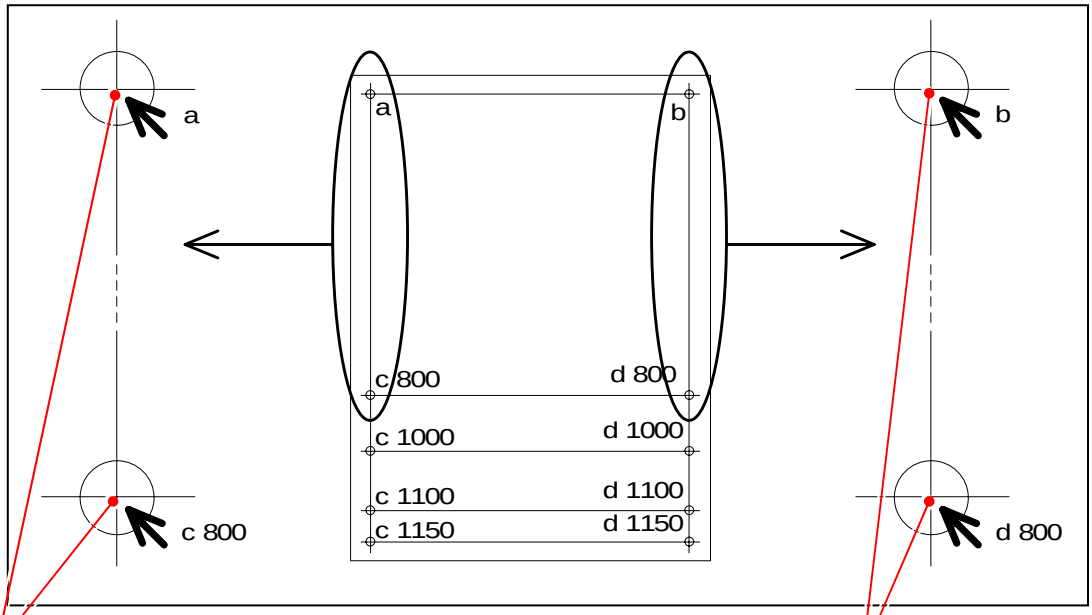
(1) Feeding Distance adjustment should be performed with Scanner Adjustment Chart (P/N: Z058501590).

(2) Feeding Distance adjustment should be performed with “KIP Scanner Utility 1.31 or later”.
“K105Utility” is not available.

[Operation]

1. Measure the actual distance between “a point” and “c point” on the far left area of Scanner Adjustment Chart, and between “b point” and “d point” on the far right area.

   Let’s suppose that each distance is as follows.
   Between “a point” and “c point (800)” is “799.7mm”
   Between “b point” and “d point (800)” is 799.8mm



Measure between these 2 points.

Measure between these 2 points.

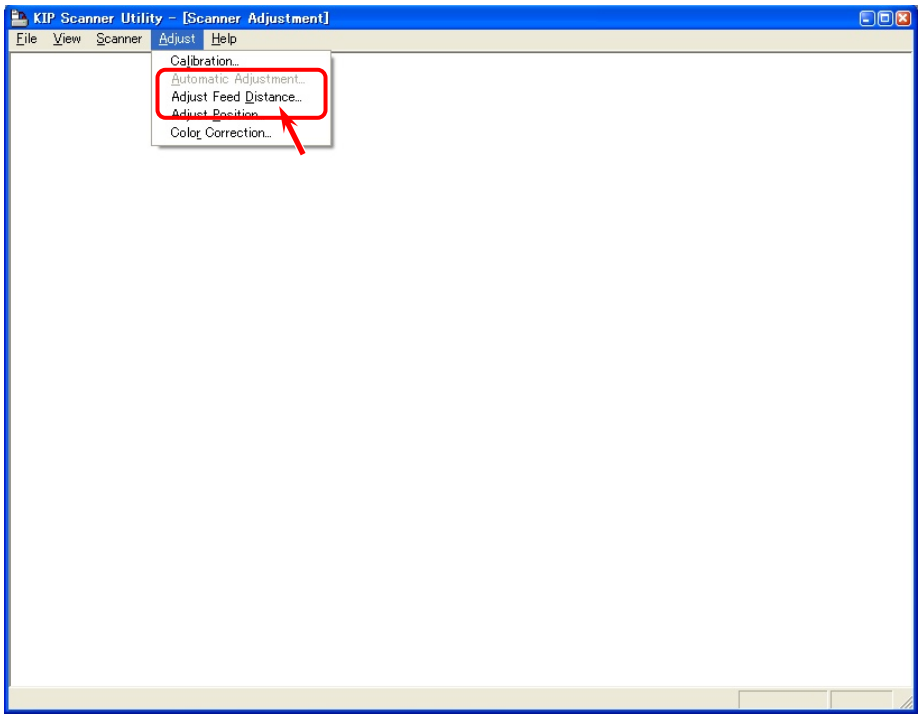
NOTE

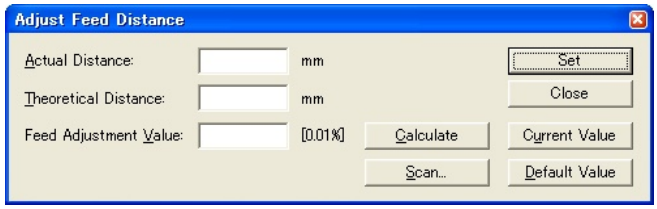
There are some number of “c point X” and “d point X” on the chart.
You can select any one, but better adjustment can be expected if you measure a longer distance.

2. Connect the scanner unit and the PC directly with the USB 2.0 Cable.

3. Start KIP Scanner Utility.

4. Select [Adjust Feed Distance] from [Adjust]. Adjust Feed Distance Dialog is indicated.





NOTE

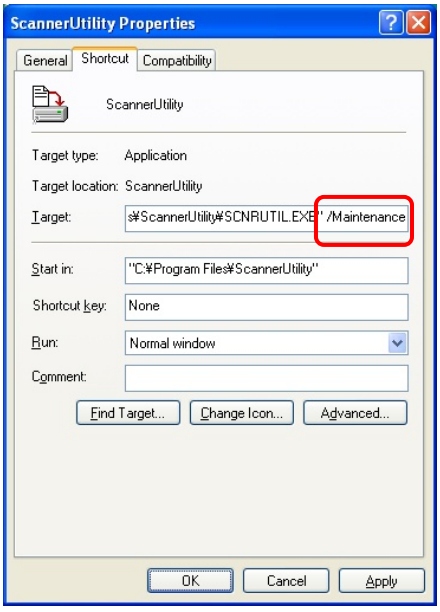
(1) If [Adjust Feed Distance] does not appear, follow the instruction below.

a) Open the properties panel for a KIP Scanner Utility shortcut. (ex. right click on the shortcut)

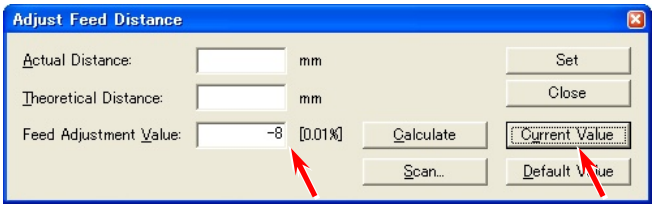
b) Add the following text to the end of the target path.

"(one byte space)**/Maintenance**"

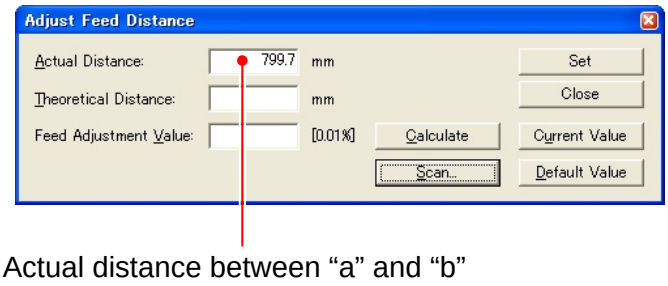
c) Click [Apply].



(2) Write down the current setting value that will be displayed with [Current Value].

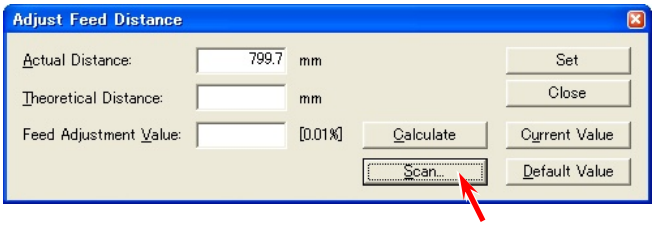


5. At first, input the **actual distance between “a point” and “c point”** in [Actual Distance], which you have measured at the former step “1”.

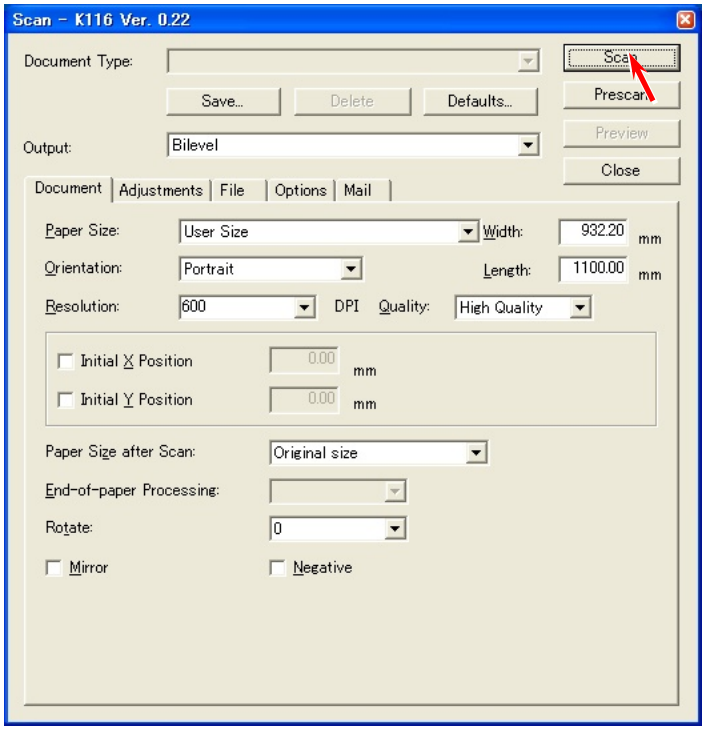


Actual distance between “a” and “b”

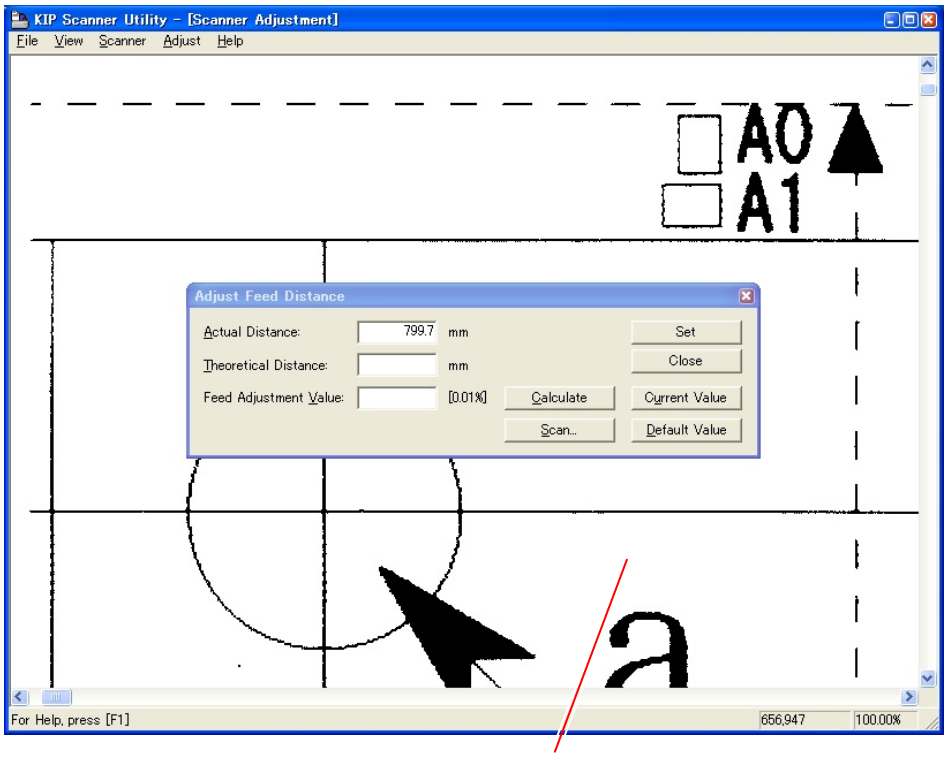
6. Set Scanner Adjustment Chart to the scanner unit, and then click [Scan].



7. A dialog to specify the scan settings is indicated.
Simply click [Scan] to scan the chart. (You do not have to change any setting this time.)



8. The scan image of Scanner Adjustment Chart is indicated in the screen of KIP Scanner Utility.

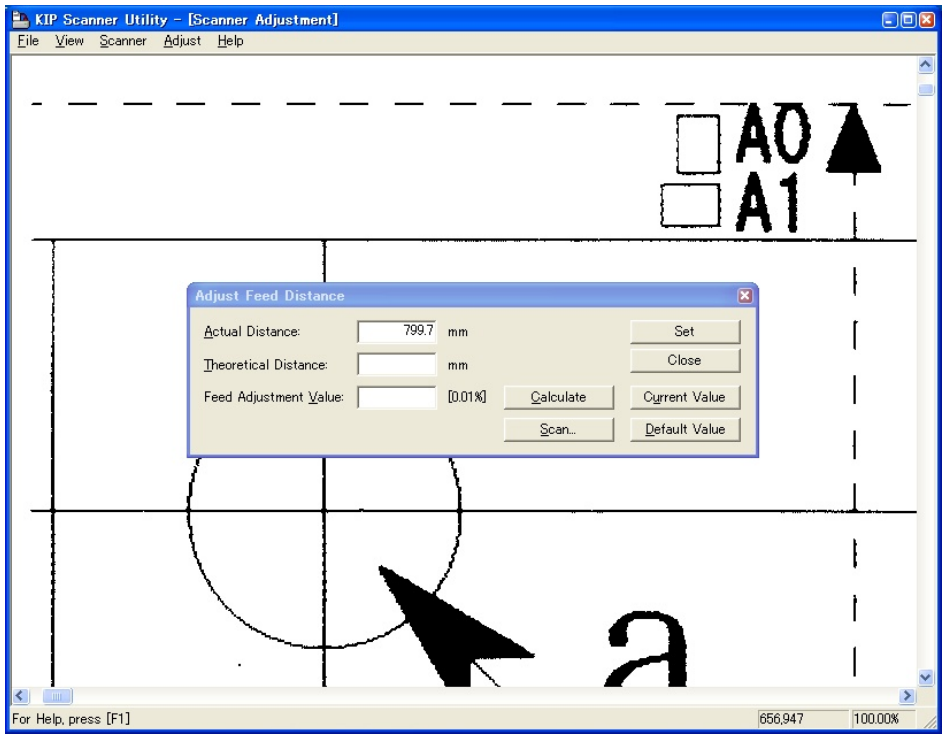


Scan image of the chart

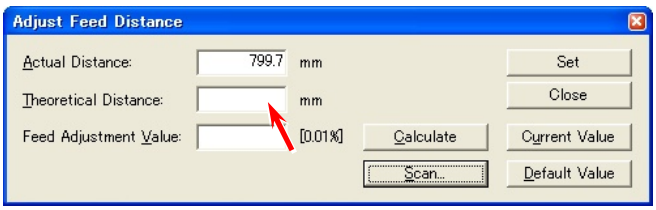
Reference

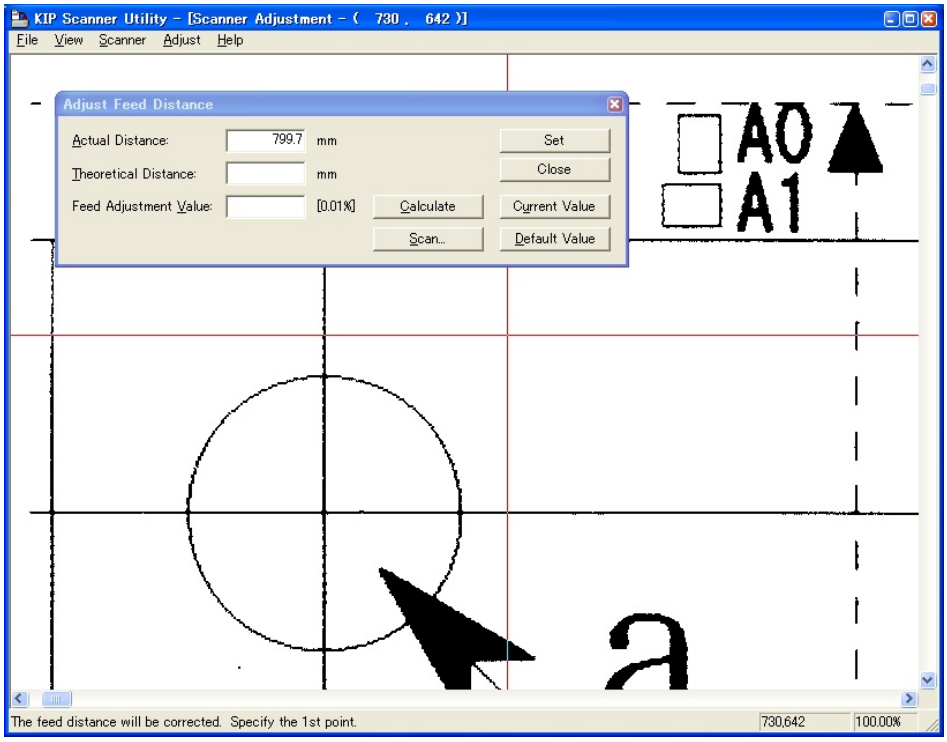
You can enlarge the scan image by dragging with the right button of mouse.
Press the F2 Key when you would like to go back to the reduced image.

9. Indicate the enlarged image of “a point” on the screen, which was the measuring point at the former step “1”.

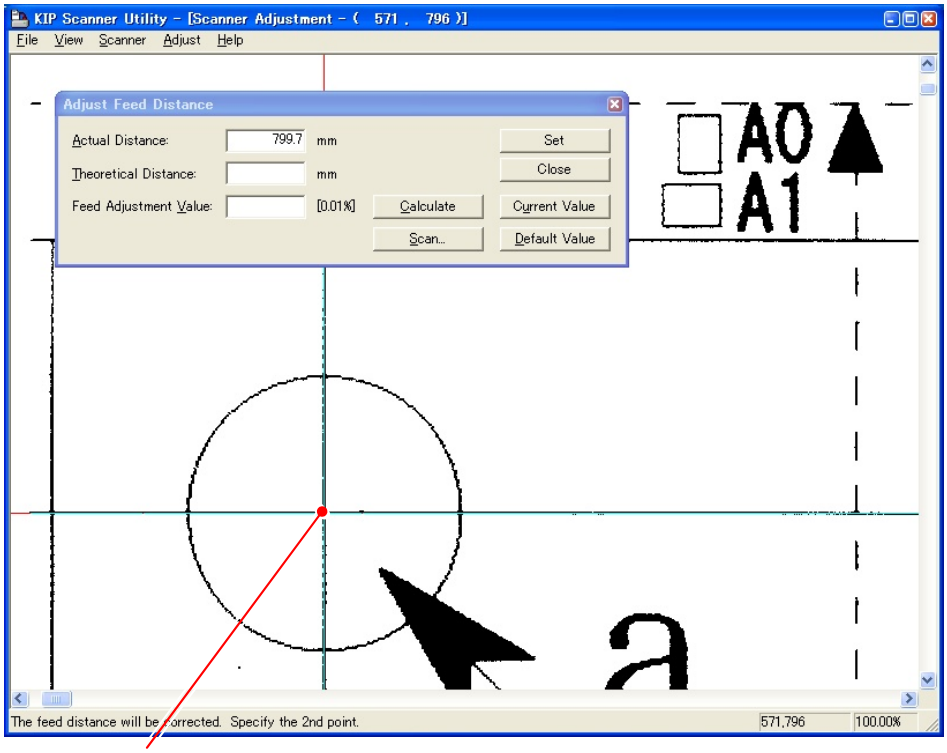


10. Click the input window of [Theoretical Distance].
    A red cursor appears on the screen.



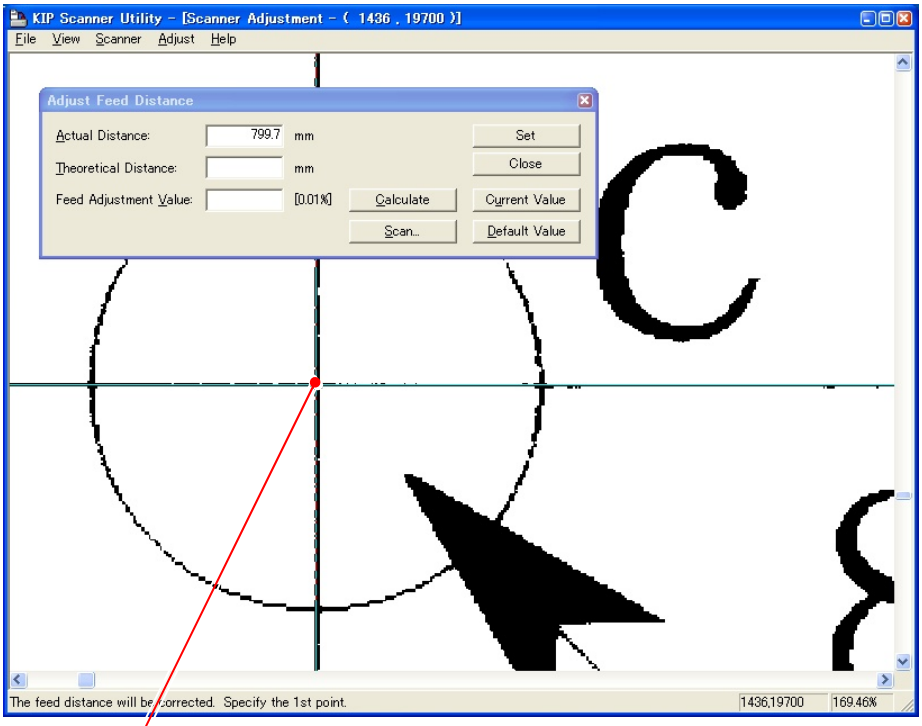


11. Click the mouse once at the measuring point.



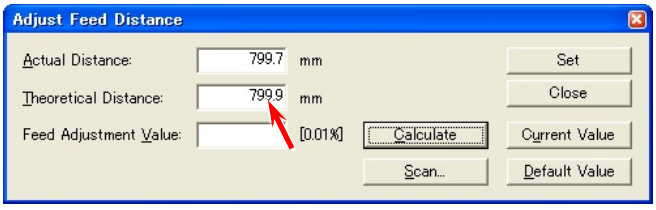
Click on the measuring point “a”.

12. Similarly indicate the enlarged image of “c point” and click the mouse at the measuring point.

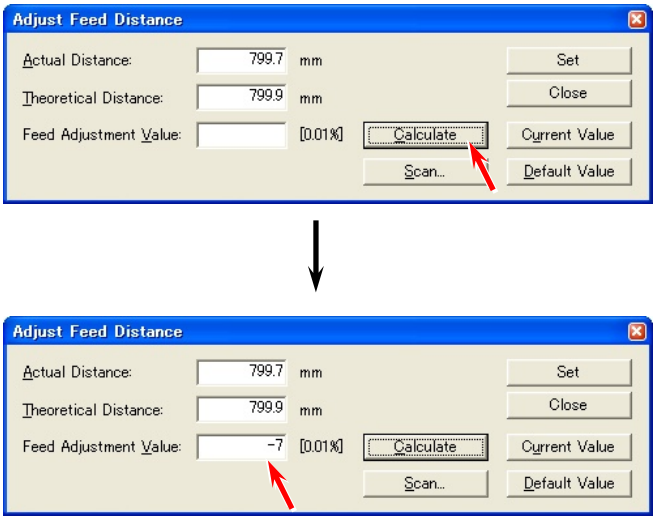


Click on the measuring point “c”.

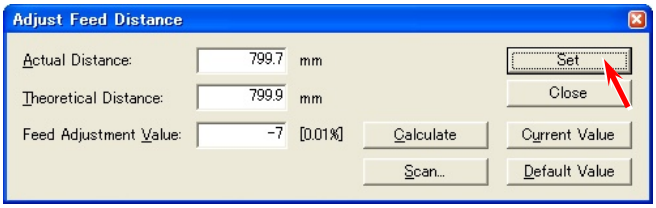
13. Some value is indicated in [Theoretical Distance] according to 2 measuring points you specified at both steps “9” and “10”.
This value means the distance between “a point” and “b point” of the resulting scan image.



14. Click [Calculate].
The program automatically calculates the best compensation value considering the difference of “Actual Distance” and “Theoretical Distance”.
The calculated compensation value (motor speed) is indicated in [Feed Adjustment Value].

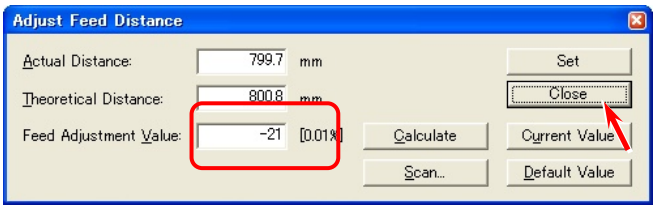


15. Click [Set], and the calculated Feed Adjustment Value is validated.



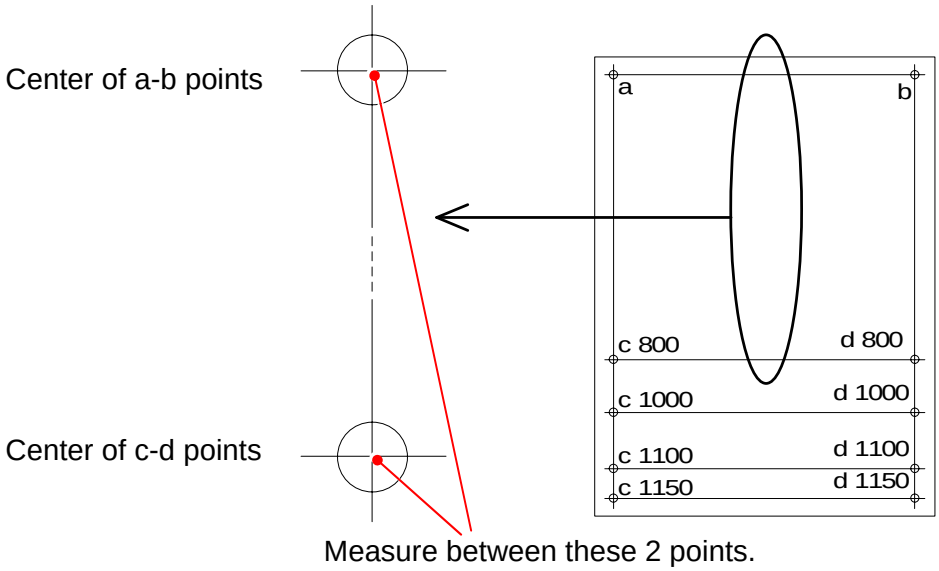
16. It is necessary to check the balance of original feeding between left and right after validating the new setting.
(Left side means “a-c points” side, and right side means “b-d points” side.)

Repeat the former steps from “3” to “12” also for the right side (between “b point” and “d point”), and compare the values of Feed Adjustment Value between left (a-c points) and right (b-d points).
You do not have to do anymore thing if the difference between left and right is within 0.2%.
(“within 0.2%” means the difference of indicated values is within +/-20.)
Please click [Close] without clicking [Set].



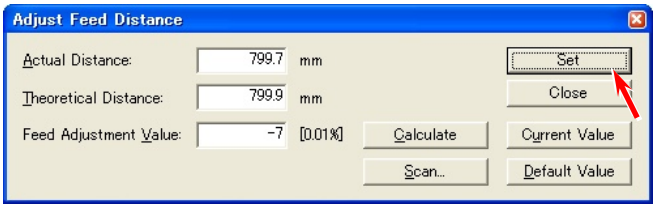
17. If the difference of the values of Feed Adjustment Value between left and right is larger than 0.2%, do as follows.

a) Measure the actual distance between the center of a-b points and that of c-d points on the chart.



b) Repeat the former steps from “3” to “12” for the center area.

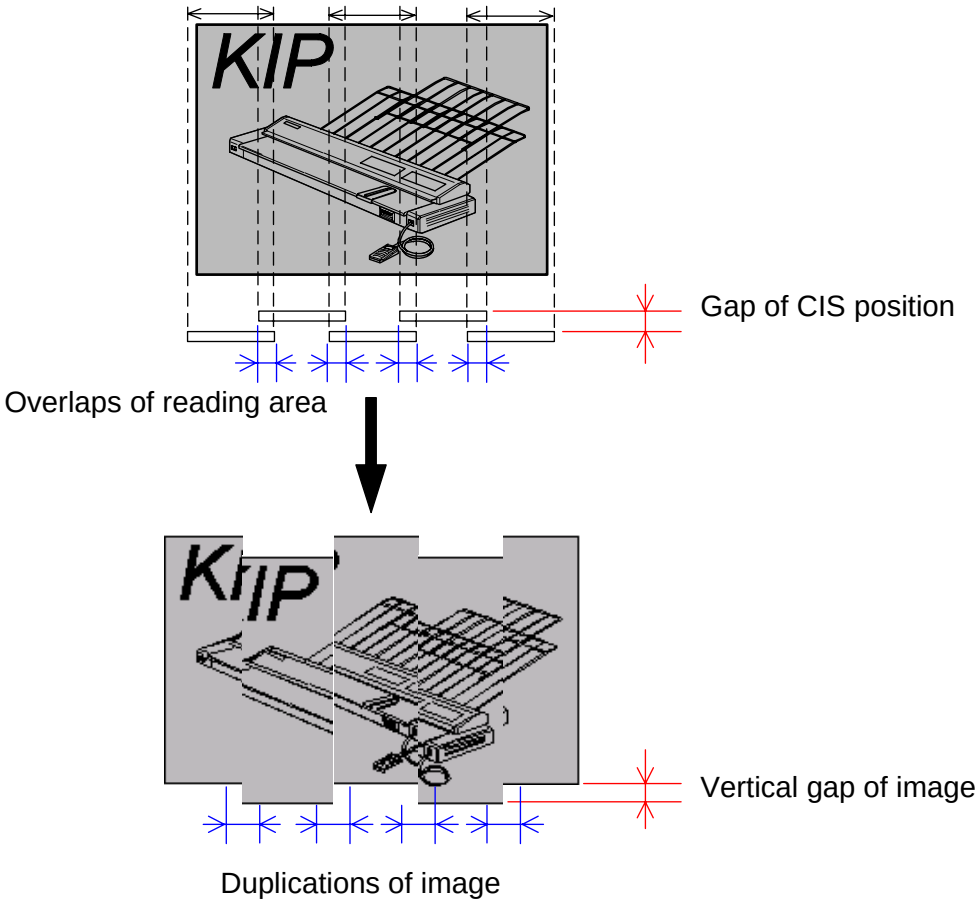
c) Click [Set] to validate the Value indicated in [Feed Adjustment Value].



8. 13. 4. 3 Position (stitching)

[Purpose of Position (stitching)]

The scanner part of KIP 700m 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. Also the reading area of these 5 pieces of CIS overlaps each other some degree. As a result there occurs the duplication of image between neighboring Image Block (same image is commonly included in the neighboring two Image Blocks).



“Position” is the solution for these kinds of phenomenon.
It is possible remove the vertical gap of image by vertical positioning process (Y offset).
And it is also possible to remove the duplication of image by horizontal positioning process (X overlap).
KIP 700m has the function to adjust X/Y positioning by automatic. After X/Y positioning, adjustment for the LE (leading edge) positioning should be performed manually.

[Necessary situation]

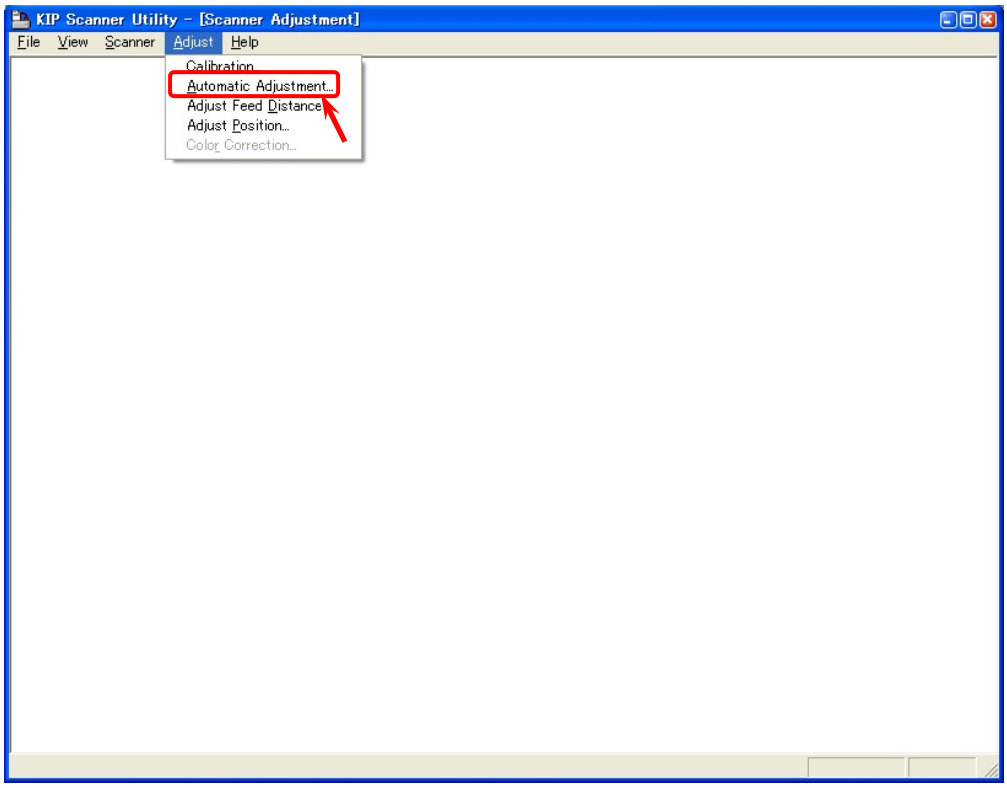
Position is required when;

- After replacing;
  (1) CIS
  (2) Main Board (117)

> **⚠ NOTE**
>
> (1) Position adjustment should be performed with Stitch Adjustment Chart (P/N: Z168300580).
>
> (2) Position adjustment should be performed with “KIP Scanner Utility 1.31 or later”.
> **No “K105Utility”.**

[Operation]

1. Connect the scanner unit and the PC directly with the USB 2.0 Cable.
2. Start KIP Scanner Utility.
3. Select [Automatic Adjustment] from [Adjust]. Scanner Adjustment Dialog is indicated.



NOTE

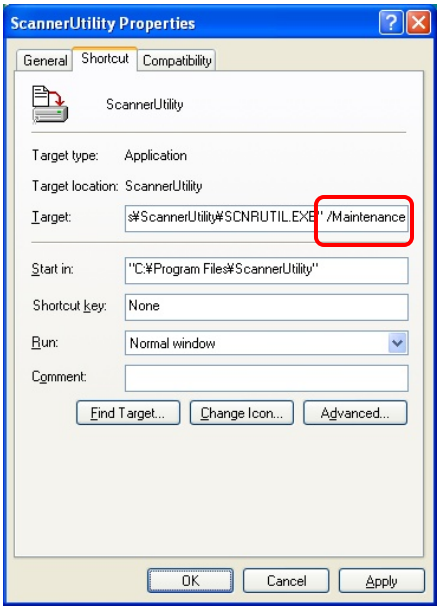
If [Automatic Adjustment] does not appear, follow the instruction below.

a) Open the properties panel for KIP Scanner Utility shortcut. (ex. right click on the shortcut)

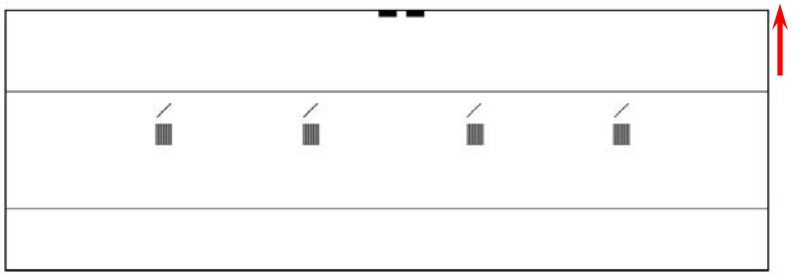
b) Add the following text to the end of the target path.

"(one byte space)**/Maintenance**"

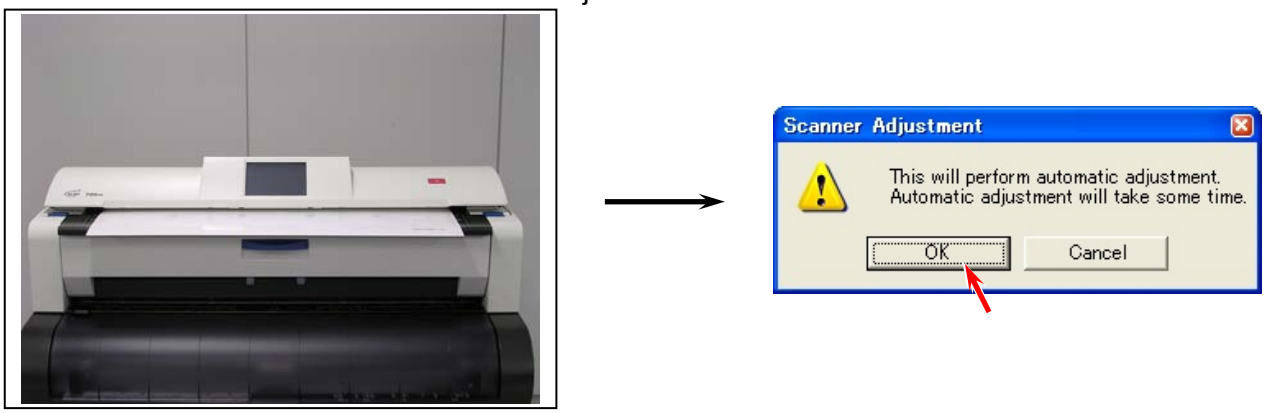
c) Click [Apply].



4. Set Stitch Adjustment Chart to the scanner noting the set direction and press [OK].



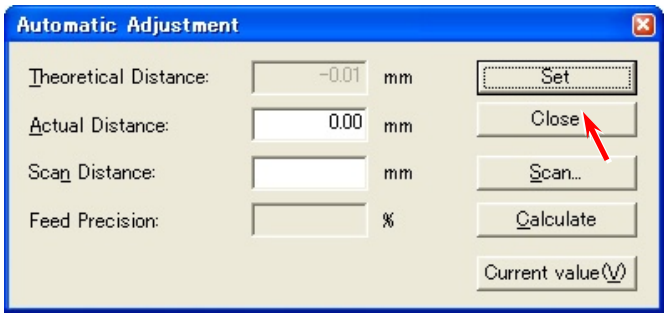
Stitch Adjustment Chart



NOTE

An incorrect feeding of Stitch Adjustment Chart may result in an error. Position Stitch Adjustment Chart with the center of Original Table and avoid skewing.

5. After completing the scan, the following window will be displayed. Press [Close].

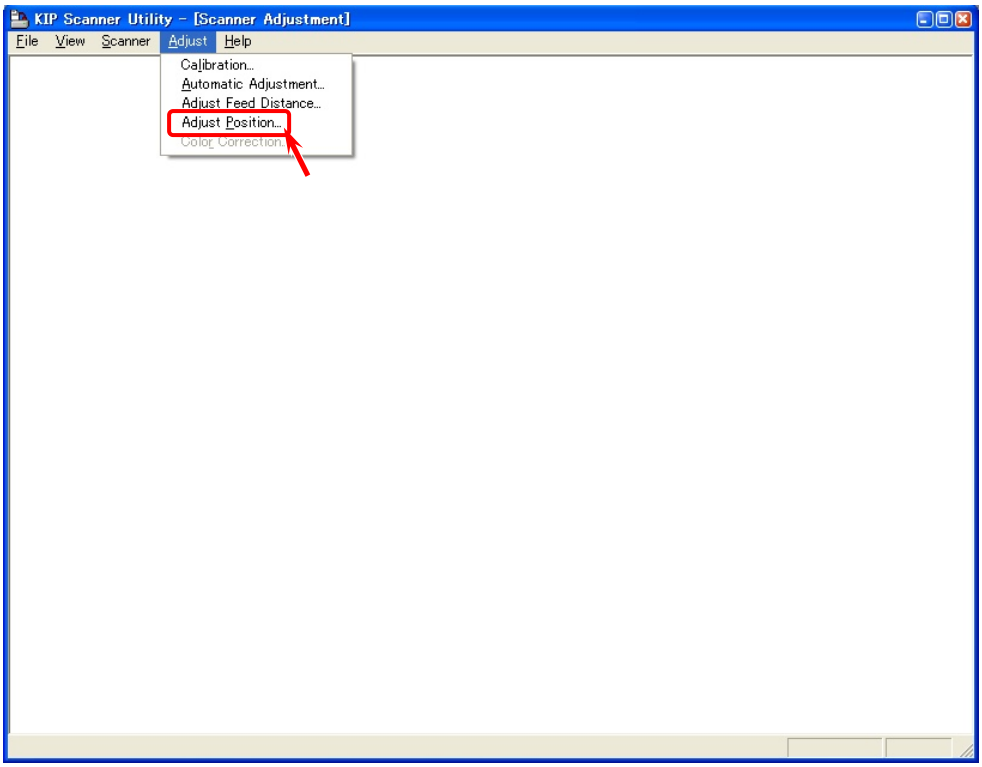


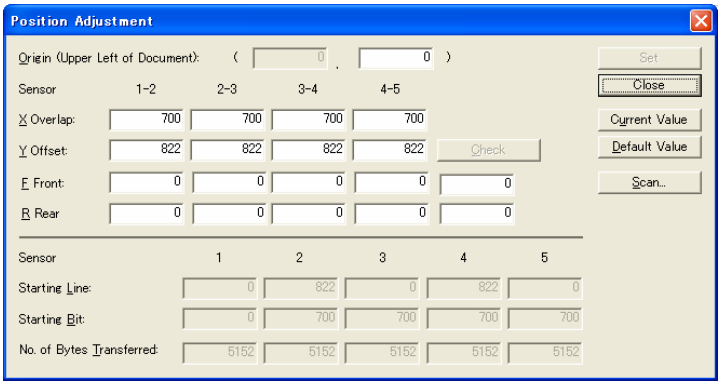
6. Automatic Adjustment for X/Y positioning is completed.
   Continue to the next step for the LE positioning.

NOTE

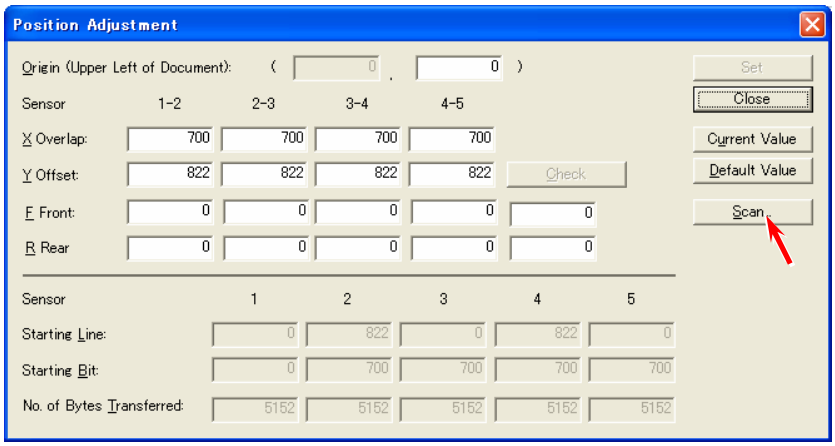
After Automatic Adjustment for X/Y positioning, LE positioning is required. Be sure to follow the later procedure to adjust the LE positioning.

7. Select [Adjust Position] from [Adjust]. Adjust Position subscreen is indicated.

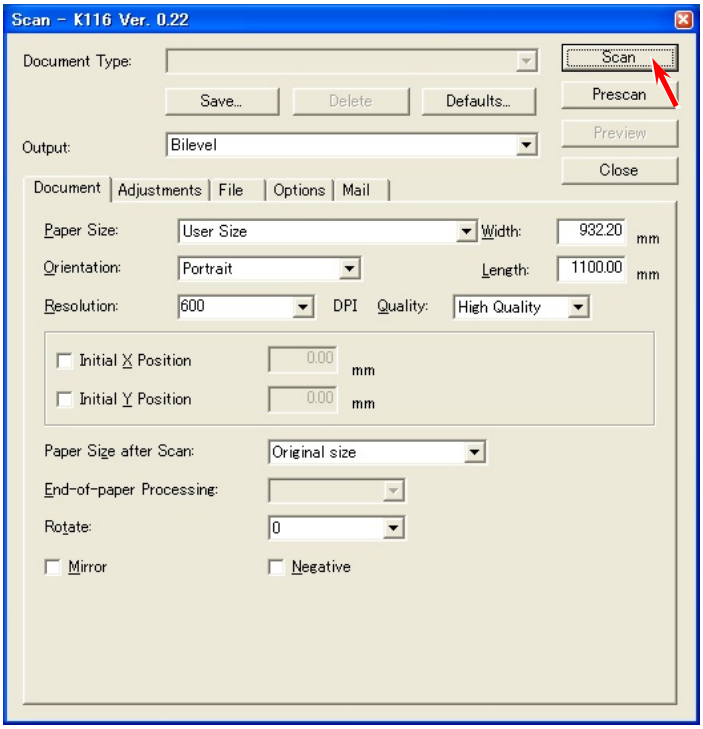




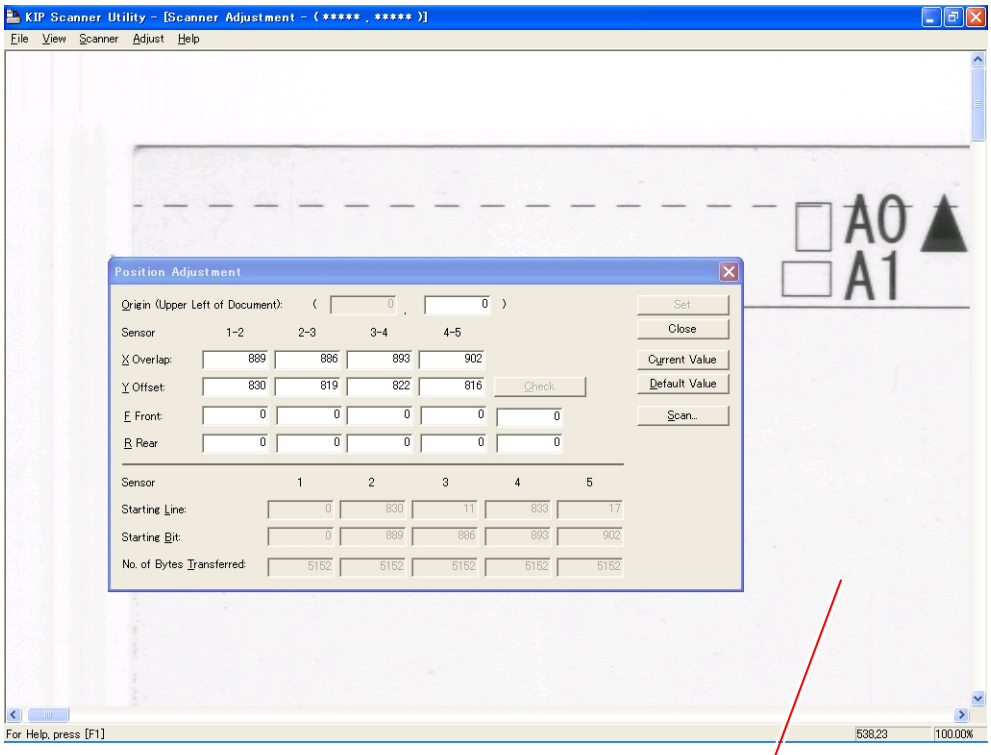
8. Set Stitch Adjustment Chart to the scanner again and press [Scan].



9. A dialog to specify the scan settings is indicated.
   Simply click [Scan] to scan the chart. (You do not have to change any setting this time.)

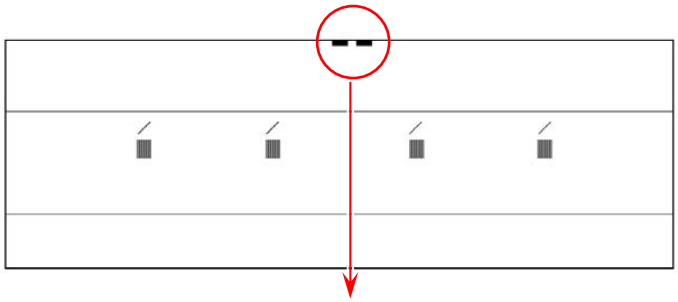


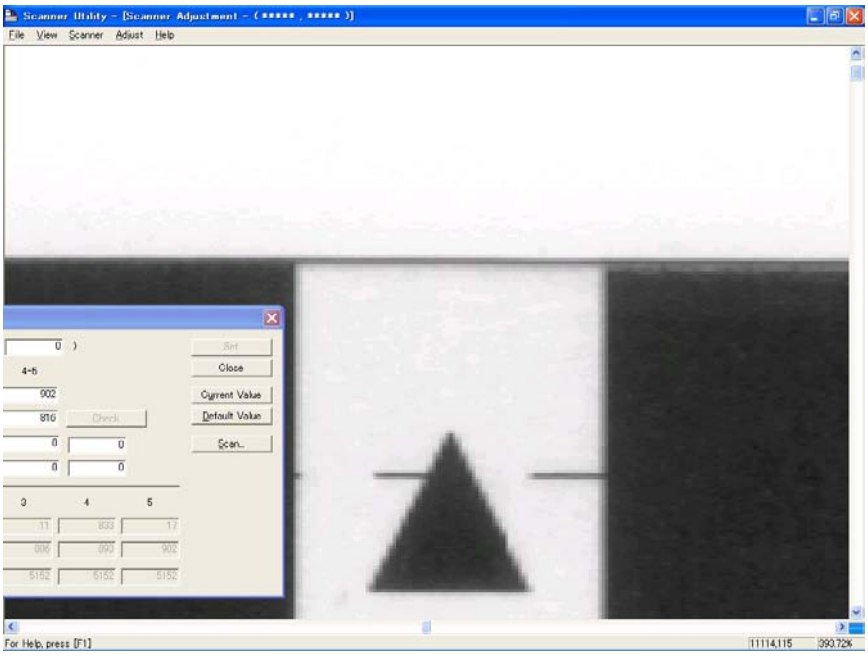
10. The scan image of Scanner Adjustment Chart is indicated in the screen of KIP Scanner Utility.



Scan image of the chart

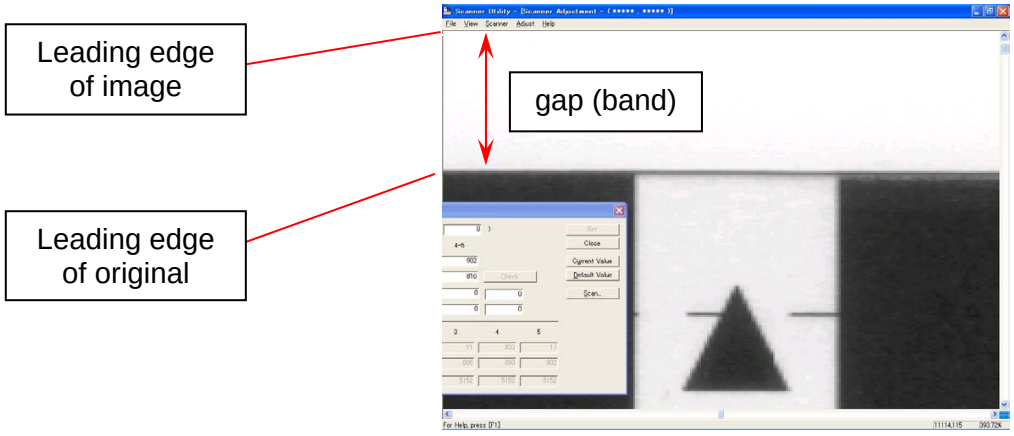
11. Enlarge the top center area by right dragging.

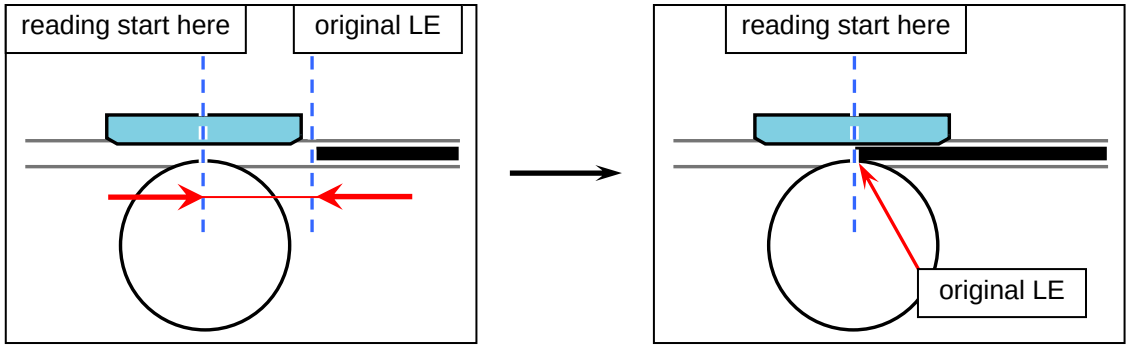




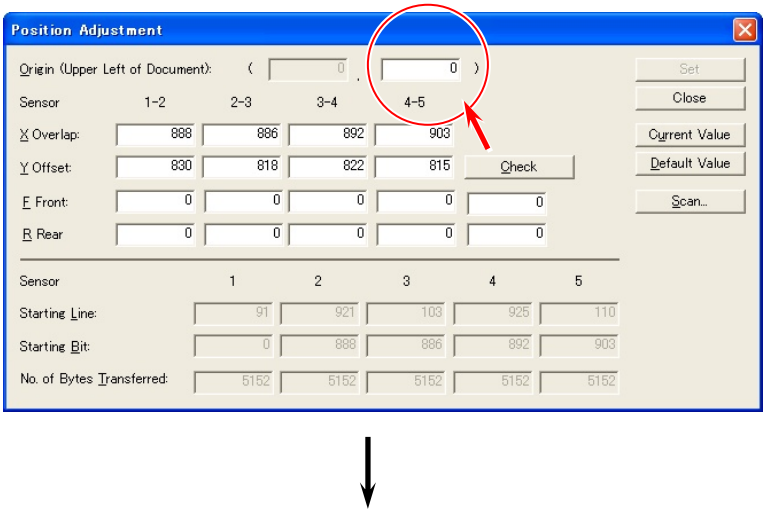
Reference

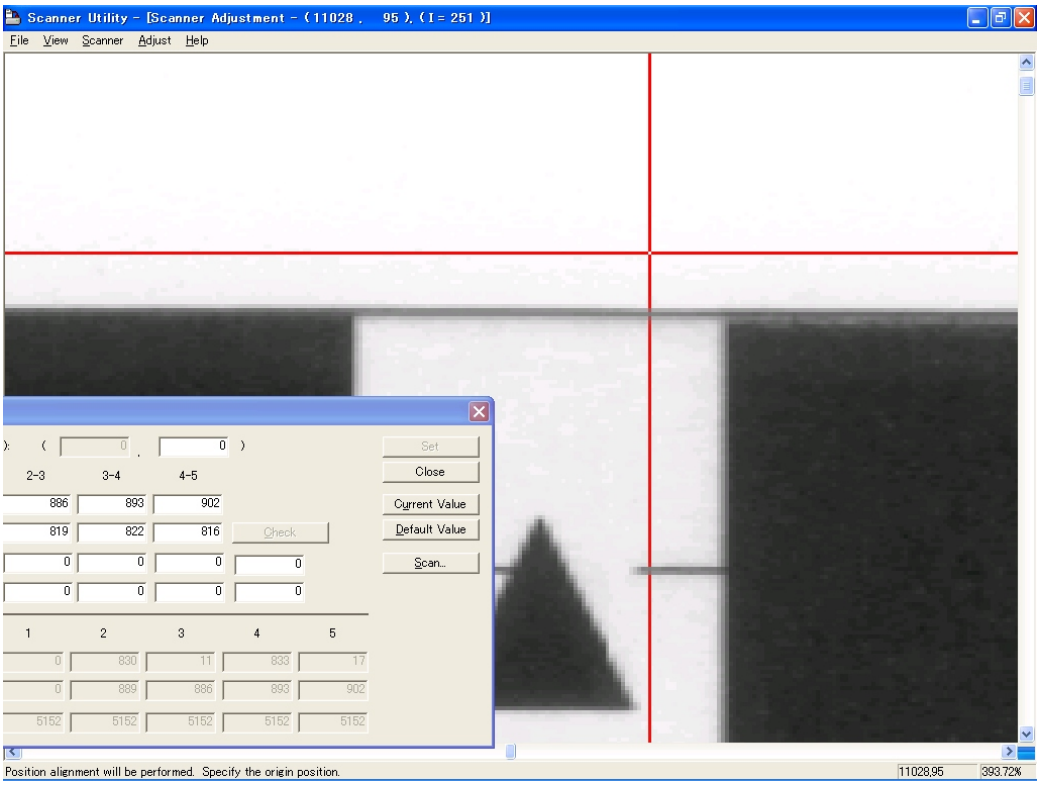
There is a gap between the leading edge of the scan image and the leading edge of the chart at this time. This band area shows that both of the edges do not match together. The gap will be removed after the completion of Position adjustment for the leading edge.



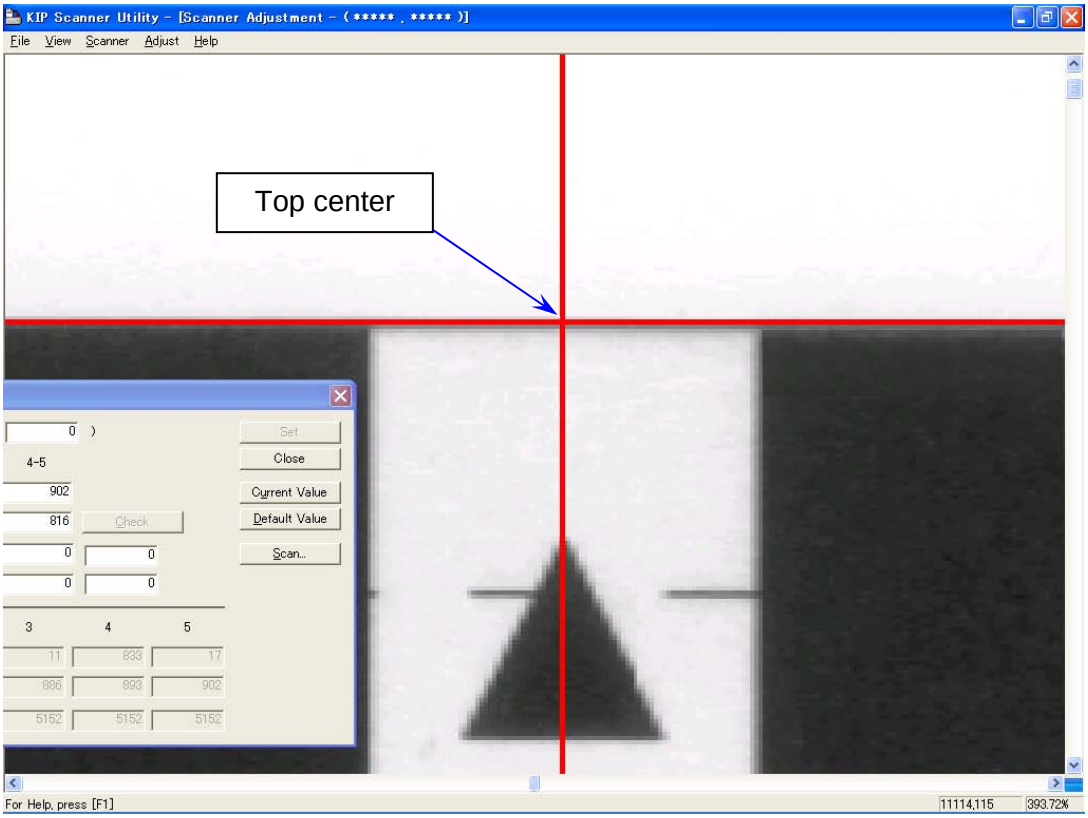


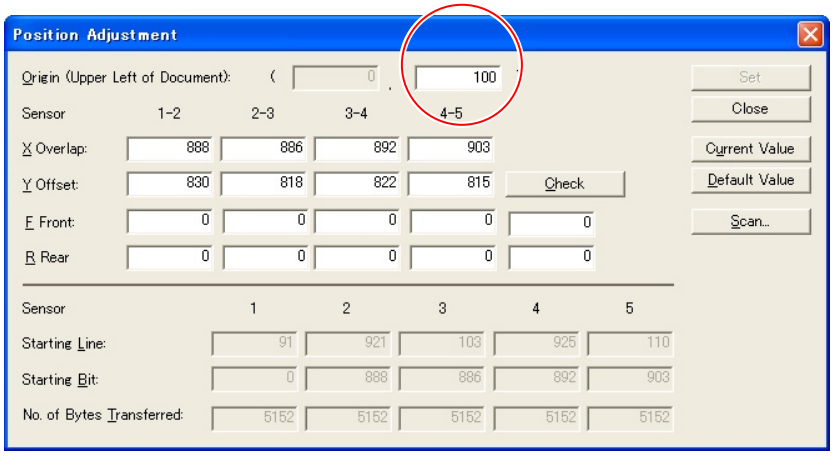
12. Click “Origin” entry field of the subscreen. A red cross cursor appears on the scan image.





13. Click once on the top center of the chart in the scan image.
A value appears in the field.

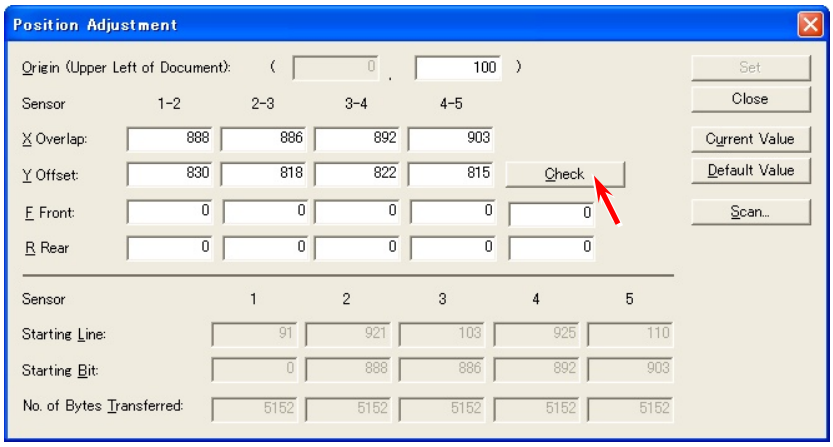


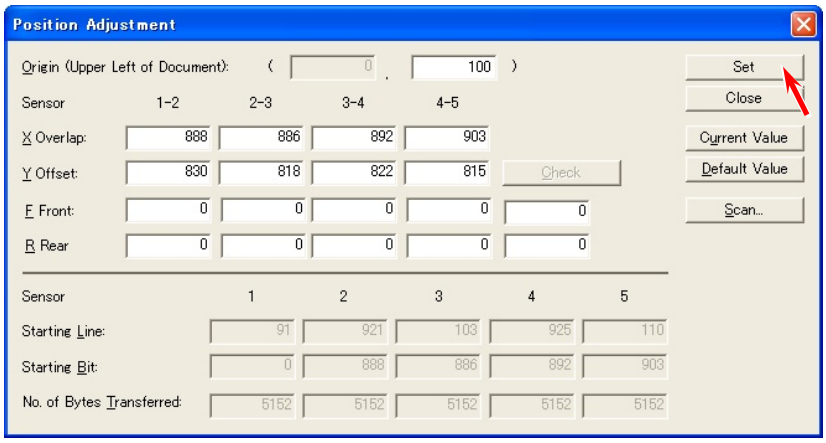


NOTE

If you make any **unintended clicks** on the image, press [Close] and go back to step 8.

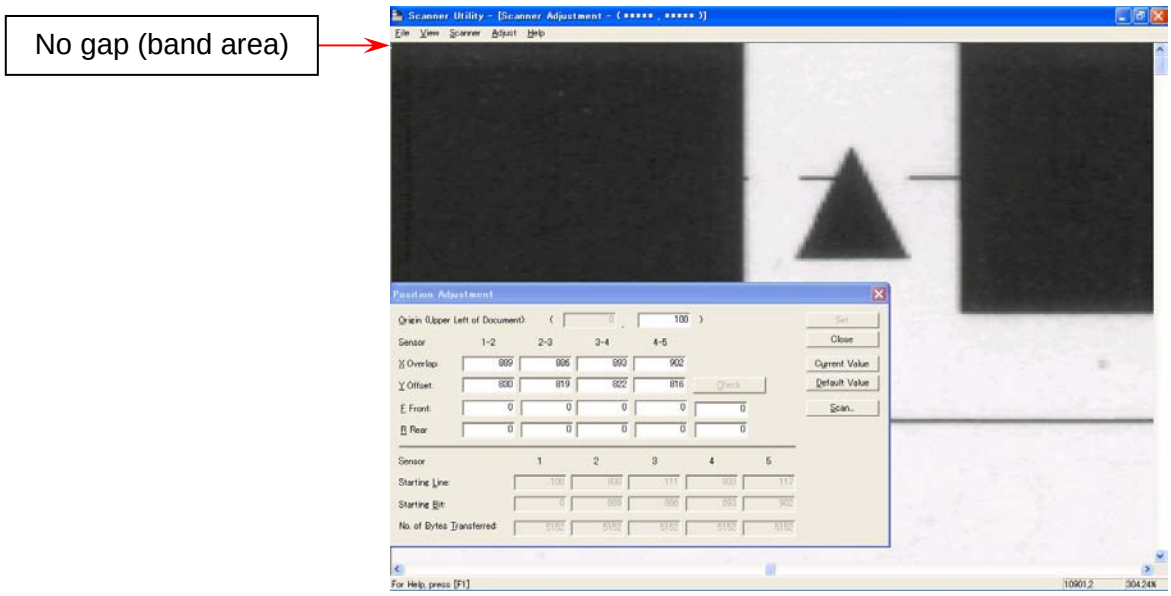
14. Press [Check] then [Set].





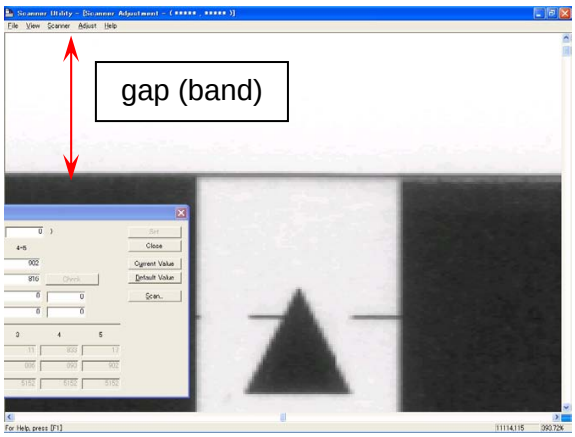
15. A dialog appears to prompt confirmation of the result. Press [OK].

16. Start Adjust Position again. Make a rescan of Stitch Adjustment Chart.
Confirm the result of the adjustment. If the gap disappears, LE positioning is completed.

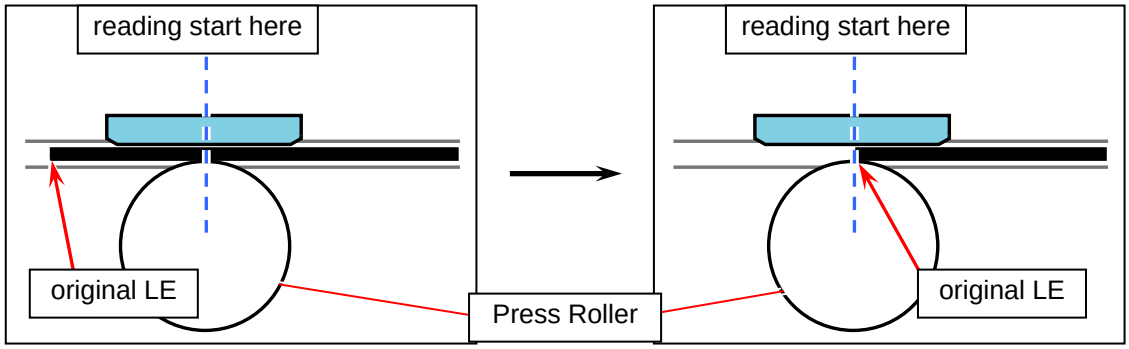


NOTE

If the rescan image still has a gap, go back to step 11 to remove it completely.
Every scan image has a blank band on the leading edge by the gap.
Be sure to remove the gap completely.



If the image on the leading edge is missing, the reading start is too late. Go back to step 4.

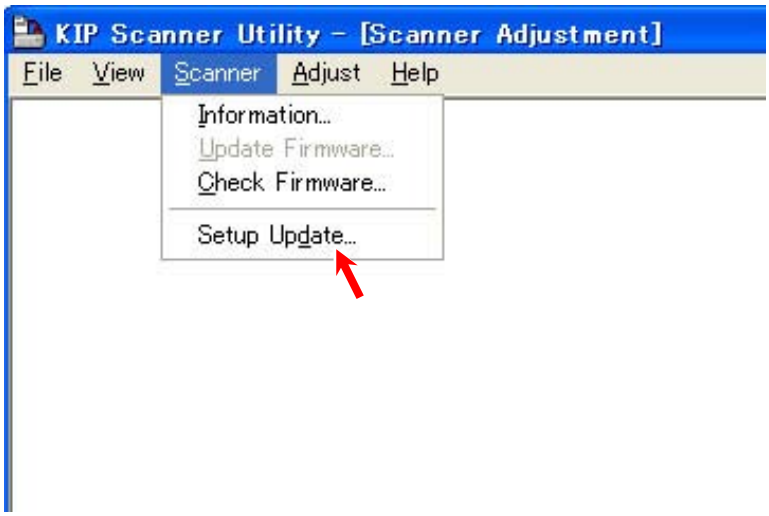


17. The entire Position adjustment is completed.

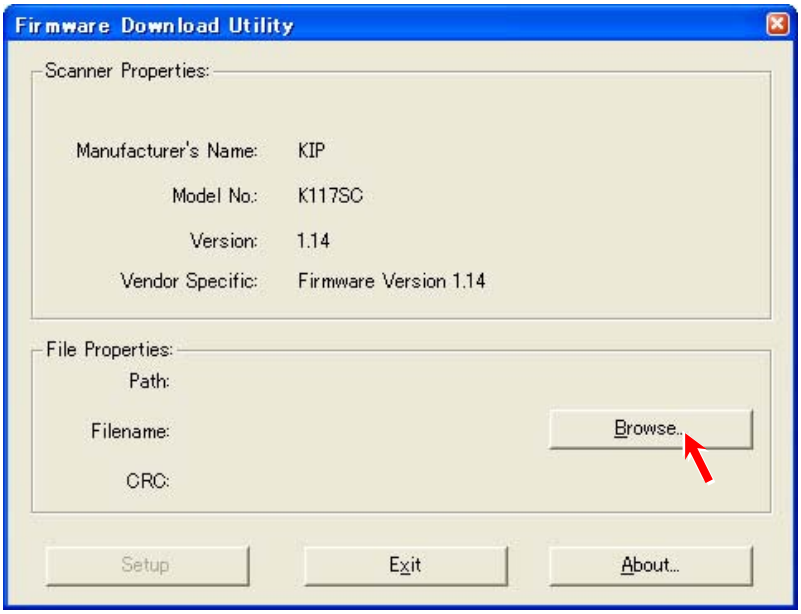
8. 13. 5 Updating Scanner Firmware

It is possible to install a new Firmware to the KIP 700m with KIP Scanner Utility.

1. Select [Scanner] - [Setup Update].



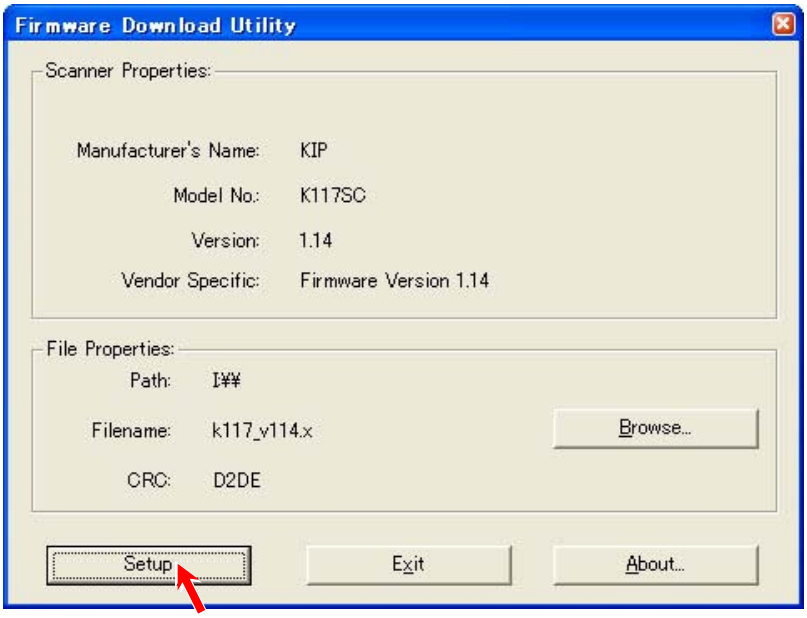
2. Press [Browse].



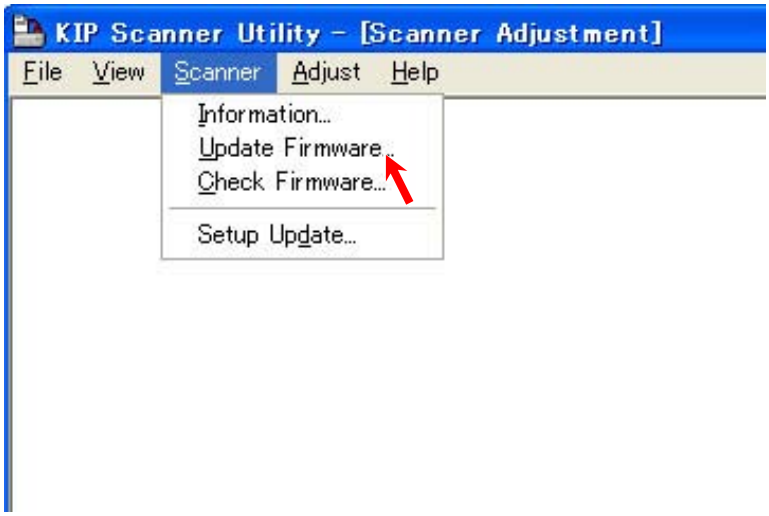
This is just an example.
Revision Level (Scanner Firmware version) may vary from the actual one.

3. Locate a folder where a firmware file is stored, and press [OK].

4. Confirm the selected file name and press [Setup].



5. Select [Scanner] - [Update Firmware].

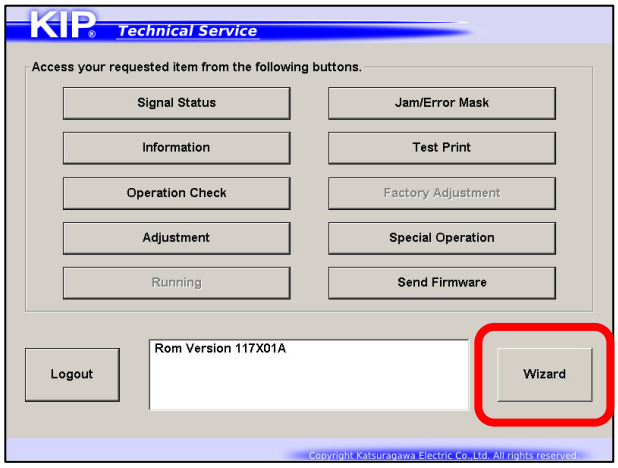


6. Confirm the selected file name and press [Execute].

7. The transmission of the firmware file starts.
   After the completion of transmission, turn off and on the machine power.

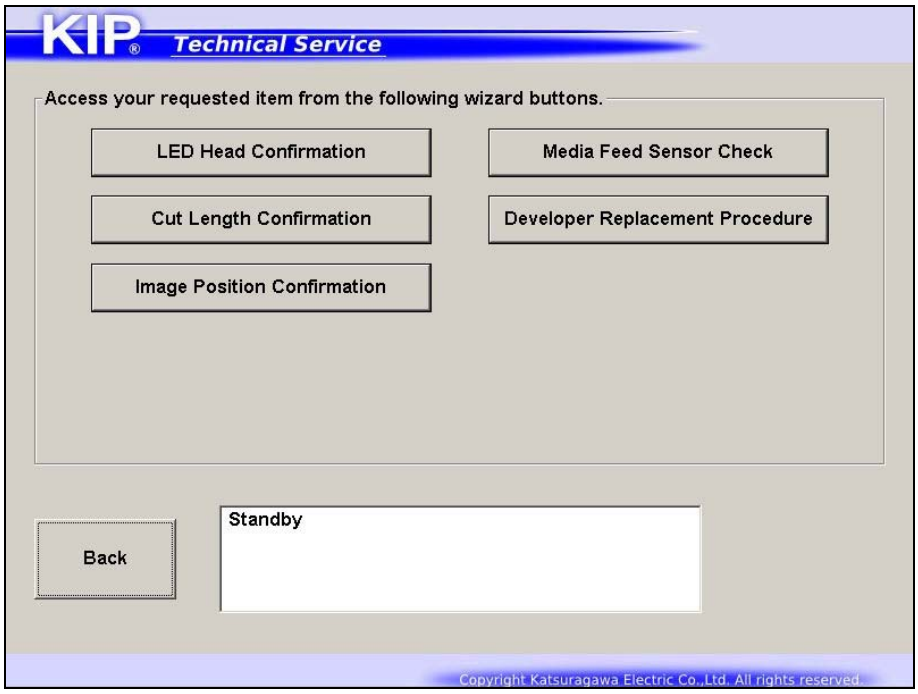
8. 14 Confirmation Wizard

Service Software includes “Wizard” function to confirm the printer’s operation.
Press [Wizard] button 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)
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



Wizard menu screen

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 screen. You can make additional adjustment right there.

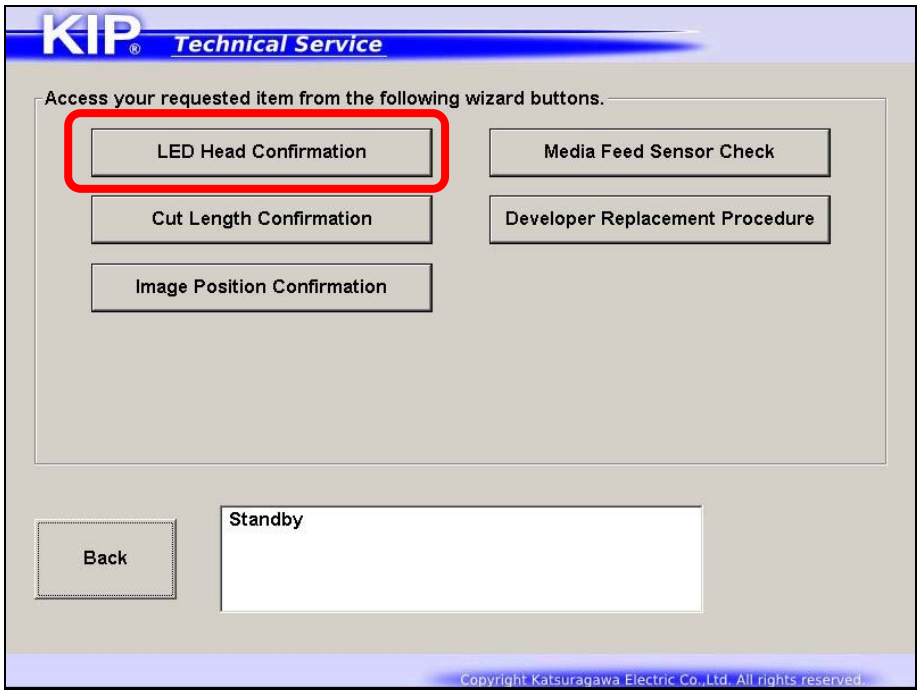
Additional adjustment will change the corresponding sub mode parameter in Adjustment Mode directly in an easy interface. For the detailed information about each sub mode, see the related subsection of [8.6.3 Setting Item Explanation].

8. 14. 1 LED Head Confirmation

“LED Head Confirmation” can be used to confirm the current result (performance) of the following sub mode parameters.

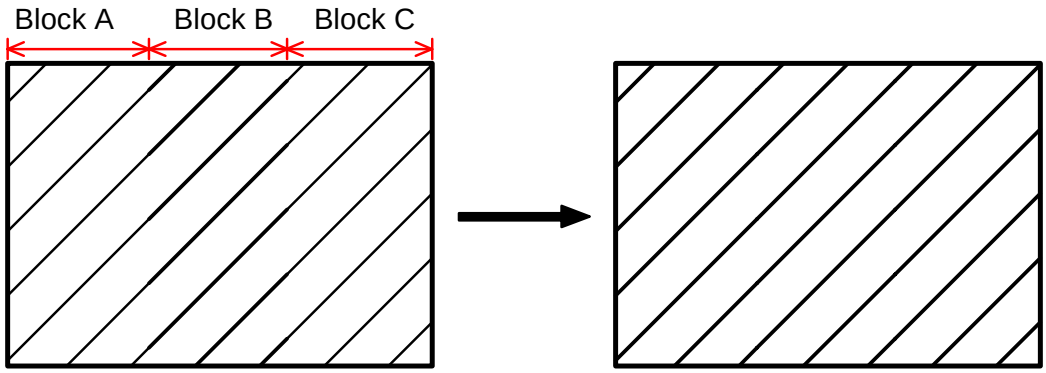
Title of page	Concerning Sub Mode
1/4 LED Strobe Time for IST	No.011 to 013
2/4 Vertical Alignment	No.014, 015
3/4 Horizontal Alignment	No.772, 773
4/4 Strobe Time Adjustment on Border pixels	No.778, 779

1. Press [LED Head Confirmation] on the wizard menu screen.

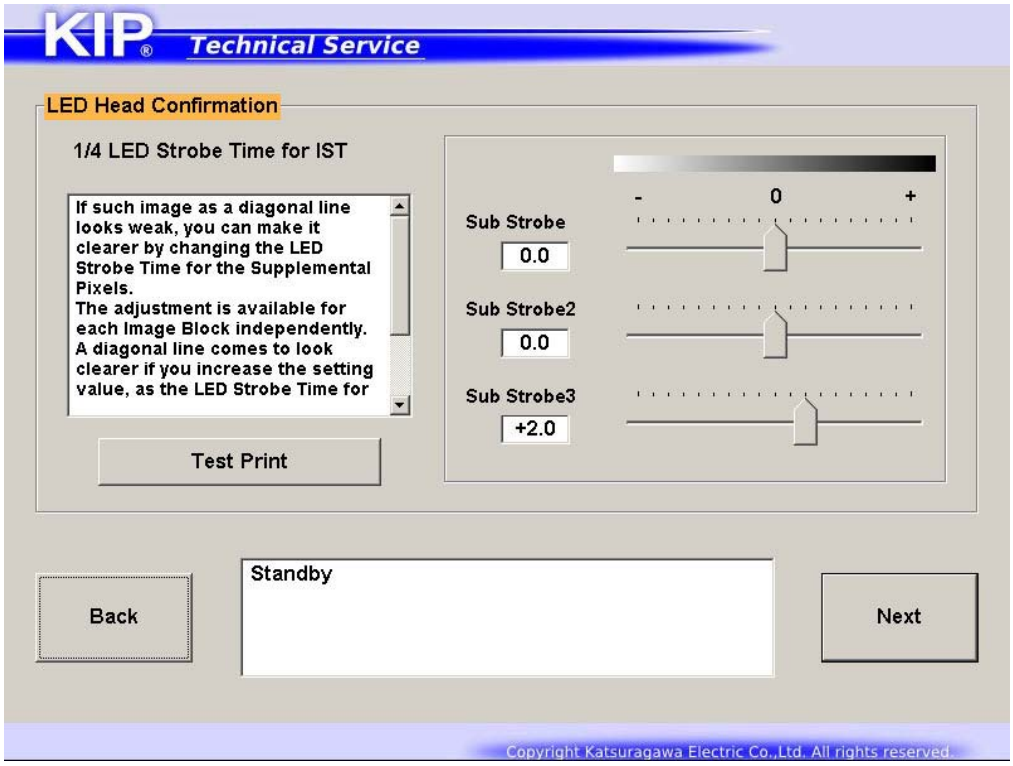


2. [1/4 LED Strobe Time for IST] is used to confirm the image like diagonal lines.

Make a test print to confirm diagonal lines on the image. Adjust the slide bar for clear, enough strong diagonal lines if needed.



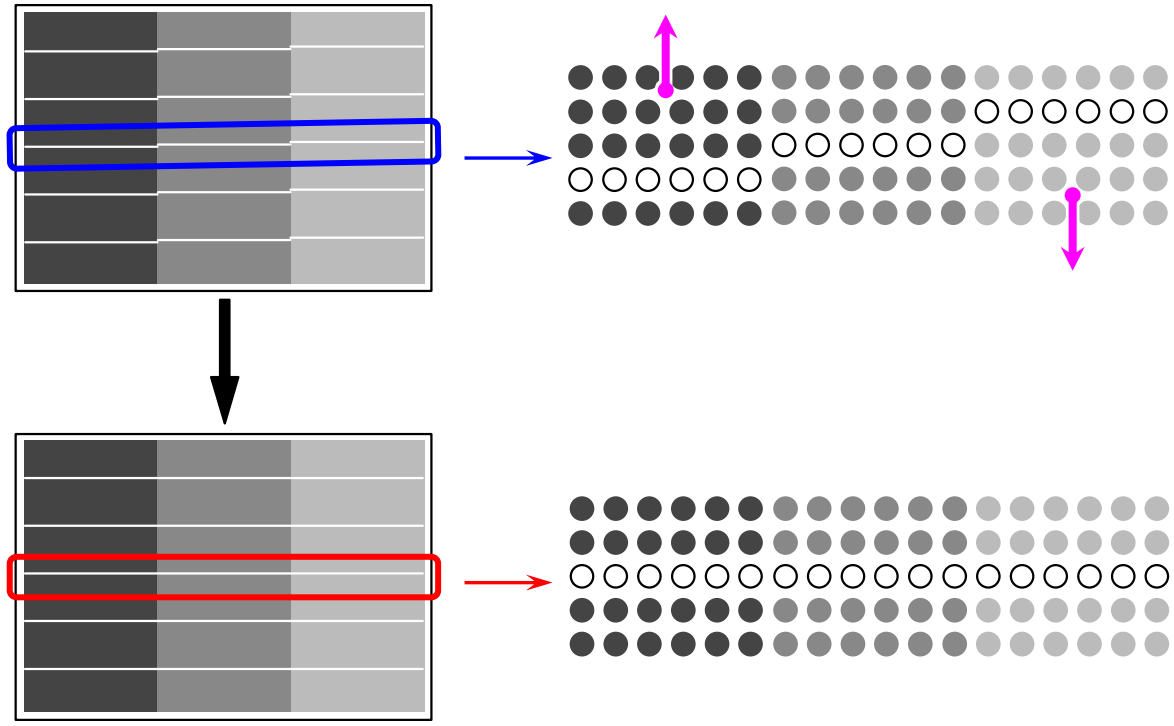
Ex) Block A and C looks weaker than Block B



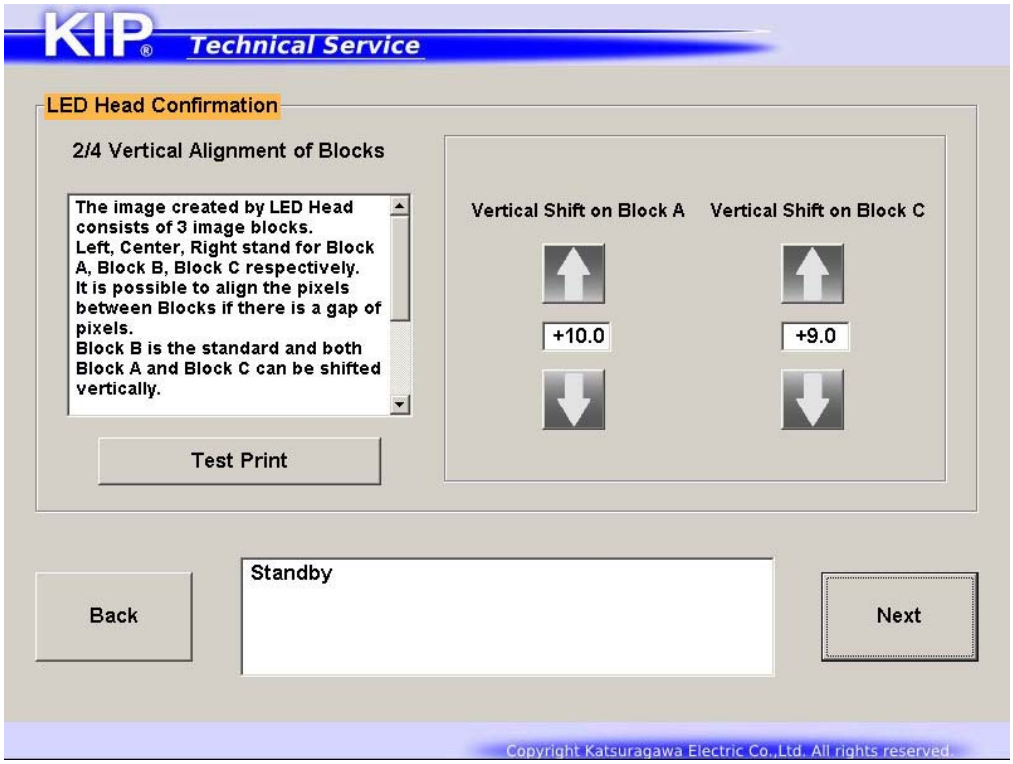
When confirmation is done, press [Next].

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 ↑↓ buttons to adjust the amount of shift if needed.



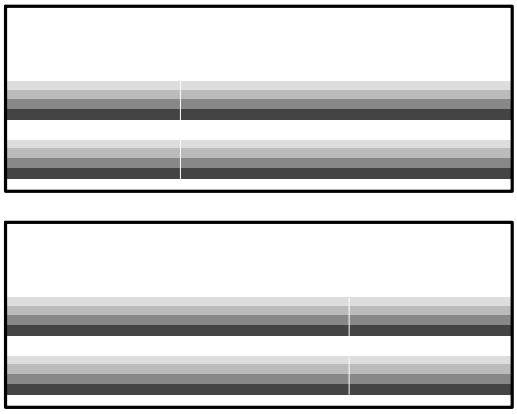
Ex) Block A is displaced toward TE against Block B. Block C toward LE.



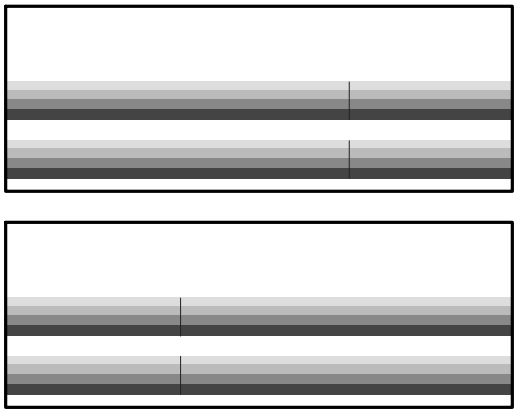
When confirmation is done, press [Next].

4. [3/4 Horizontal Alignment] is used to confirm horizontal alignment of the Blocks.

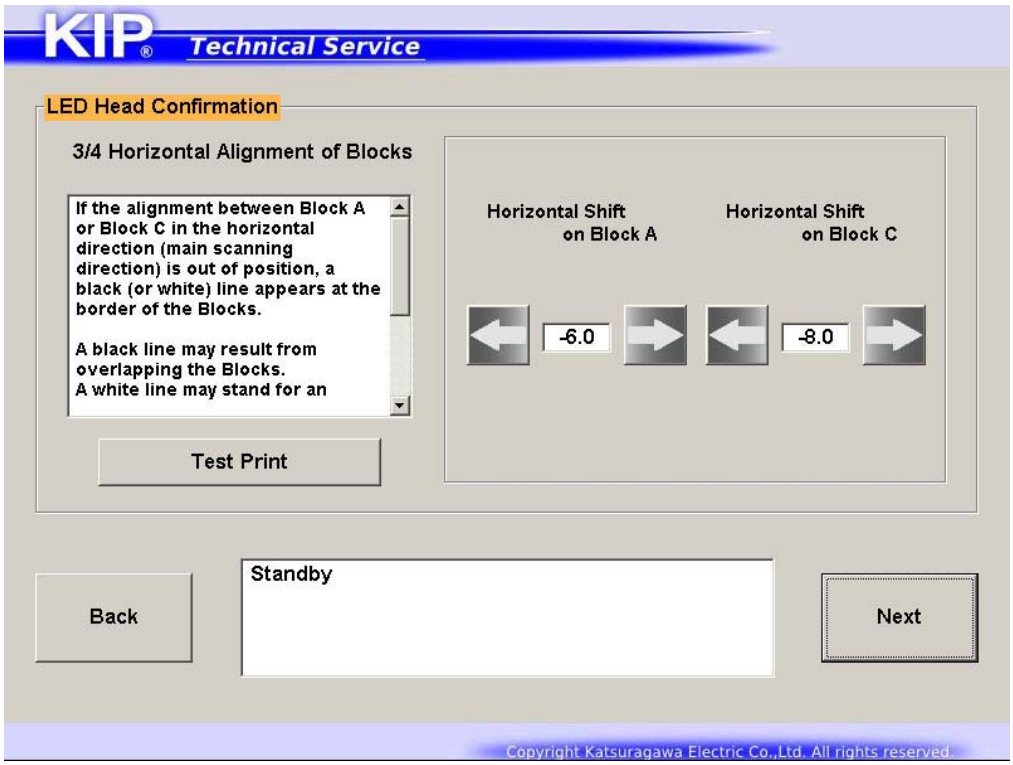
Make a test print to confirm vertical alignment on the image. Tap ←→ buttons to adjust the amount of shift if needed.



Ex) White line at Block border



Black line at Block Border



NOTE

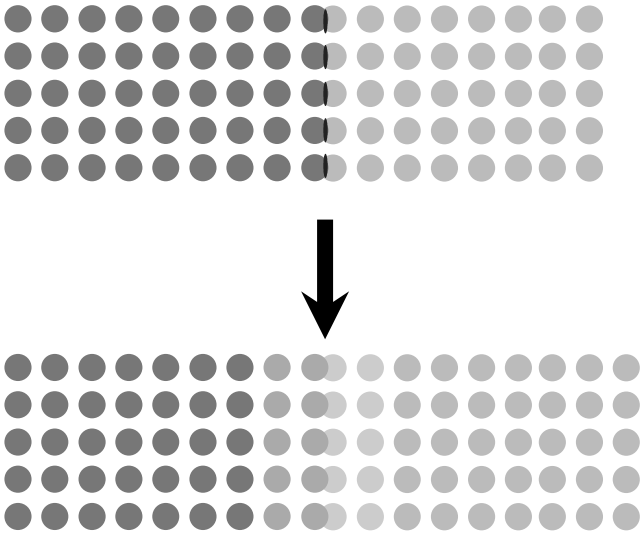
(1) Changes on this page will shift the related Block in 1 pixel according to Sub Mode No.772, 773. For the detailed information, see [8.6.3 772, 773 Horizontal Alignment].

(2) A gap / overlap in less than 1 pixel cannot be fixed in this page completely. Go to the next page.

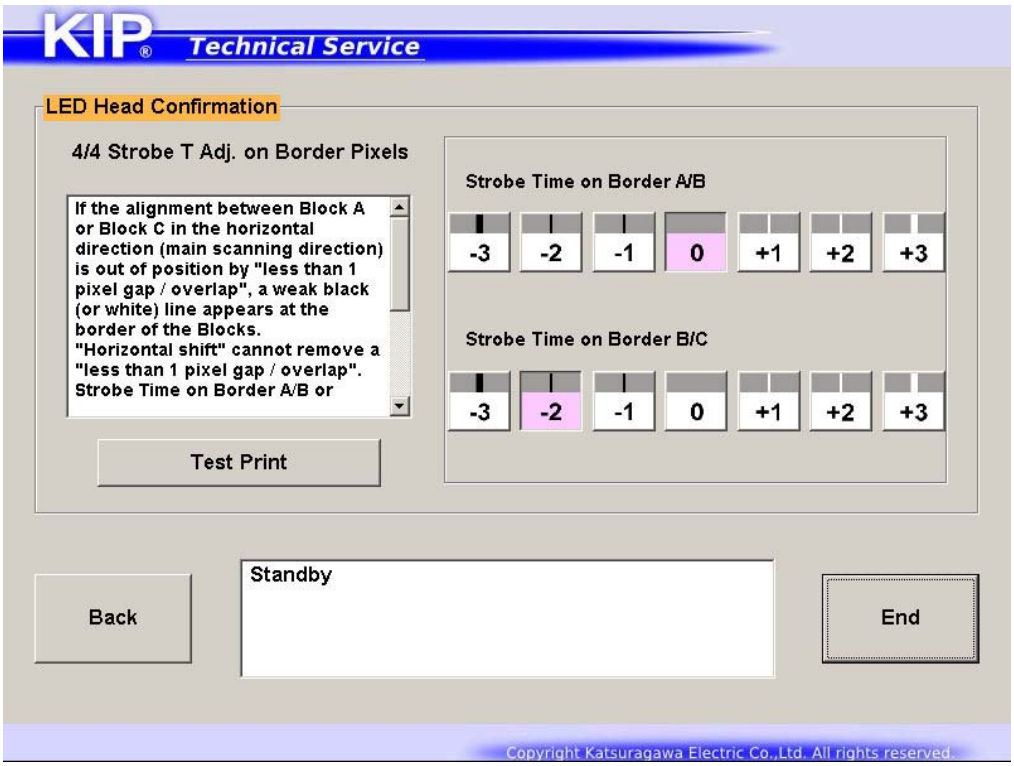
When confirmation is done, press [Next].

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



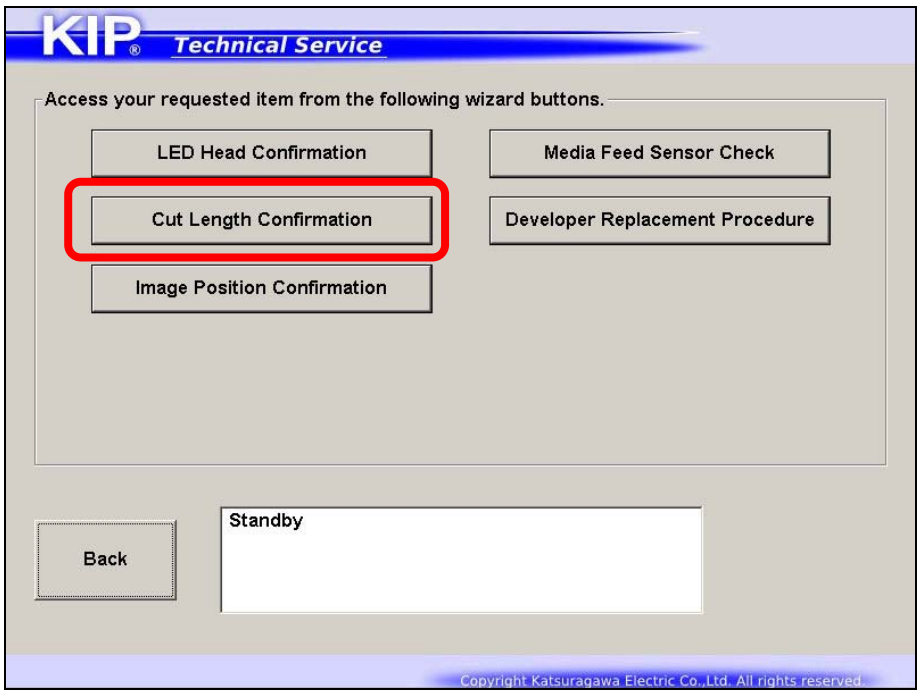
When confirmation is done, press [End].

8. 14. 2 Cut Length Confirmation

“Cut Length Confirmation” can be used to confirm the current result (performance) of the following sub mode parameters.

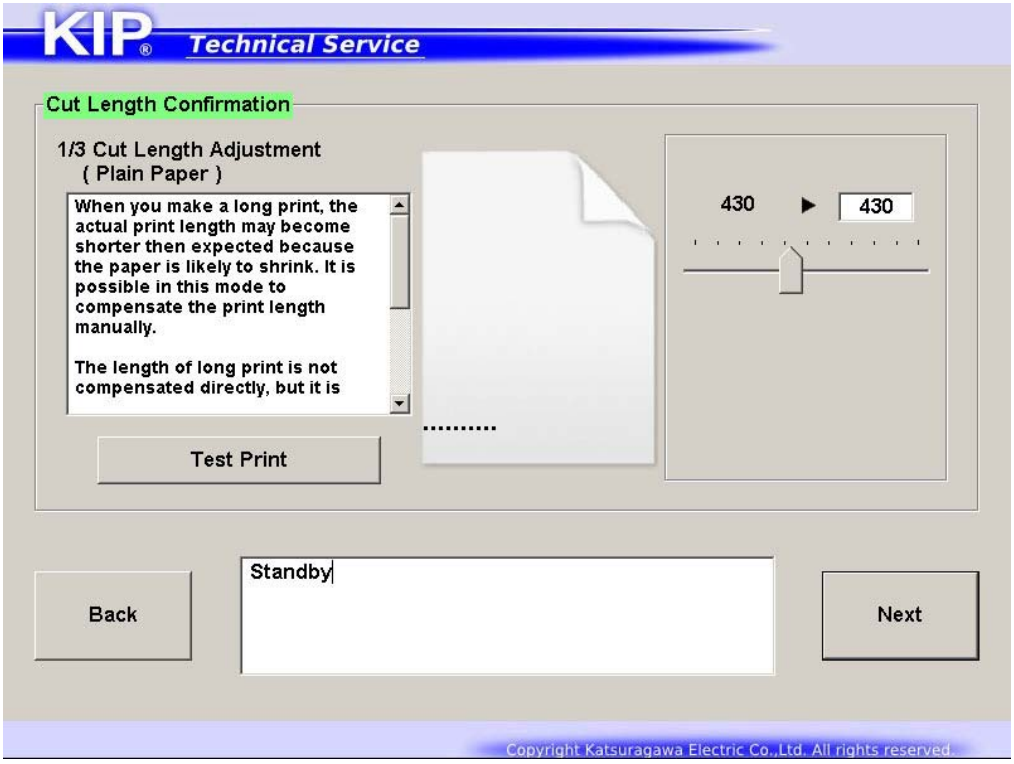
Title of page	Concerning Sub Mode
1/3 Cut Length Adjustment (Plain Paper)	No.018
3/3 Cut Length Adjustment (Tracing Paper)	No.063
3/3 Cut Length Adjustment (Film)	No.064

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.

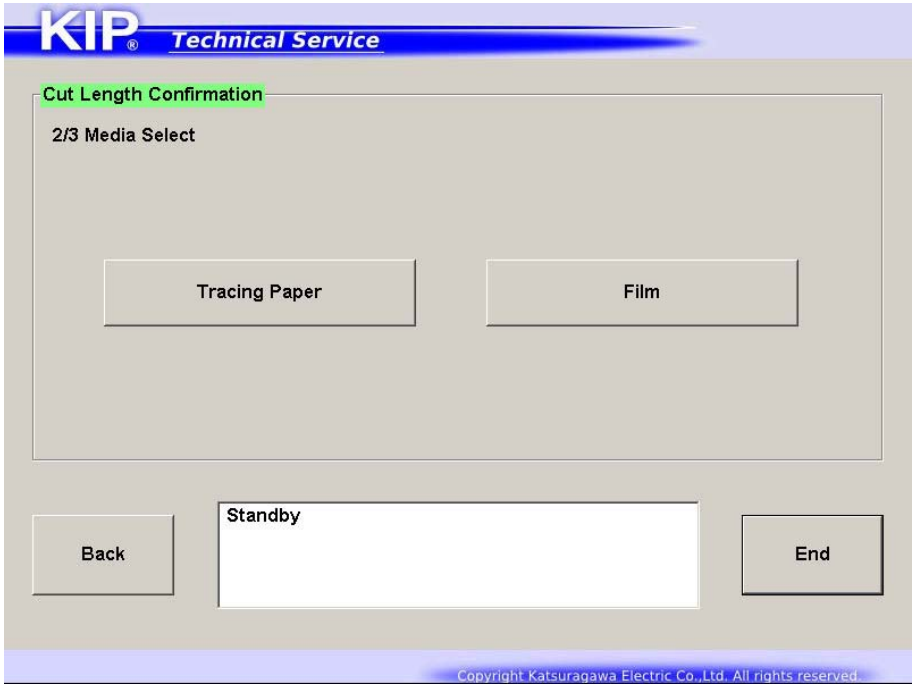
   Make a test print to confirm the cut length of the print. Move the slide bar to adjust the cut length if needed.



   When confirmation is done, press [Next].

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.

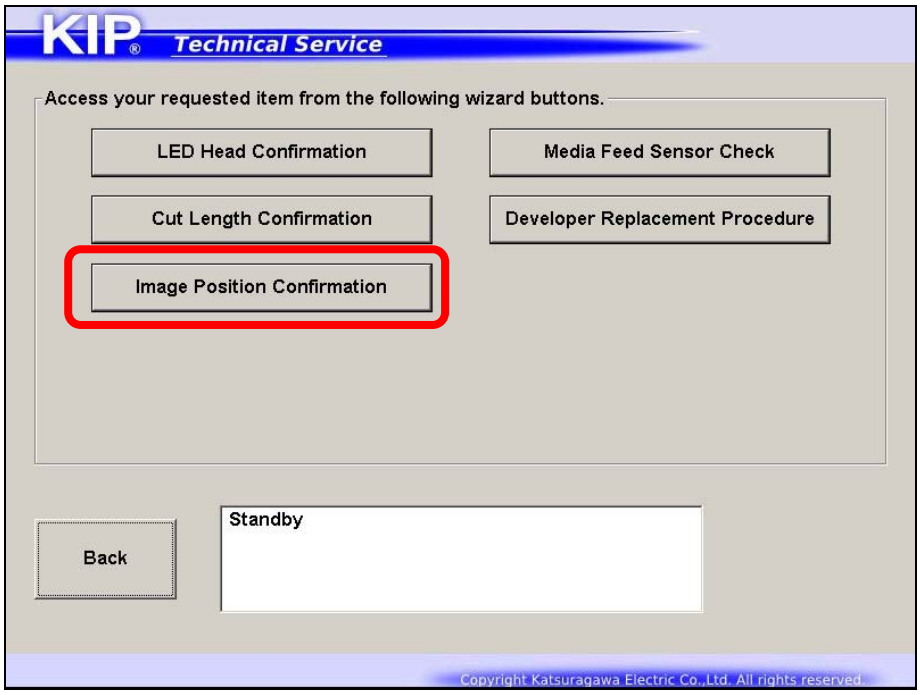


8. 14. 3 Image Position Confirmation

“Image Position Confirmation” can be used to confirm the current result (performance) of the following sub mode parameters.

Title of page	Concerning Sub Mode
1/8 LE Registration / TE Margin (Roll Media)	No.000 / 002
2/8 Side Registration (Roll Media)	No.006
4/8 LE Registration / TE Margin (Cut Sheet)	No.001 / 003
5/8 Side Registration (Cut Sheet)	No.005
7/8 LE Registration / TE Margin (Paper Tray)	No.780 / 781
8/8 Side Registration (Paper Tray)	No.782

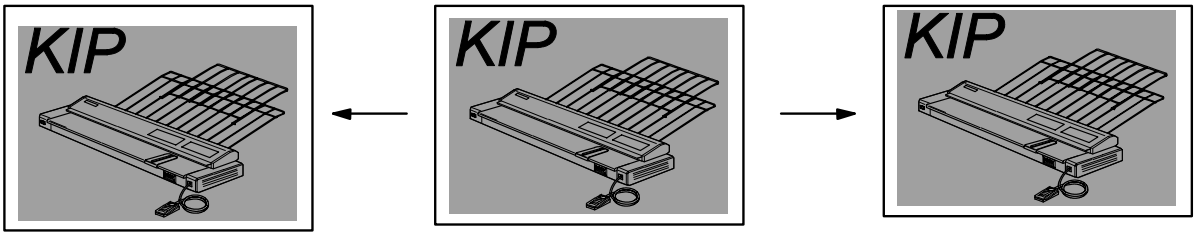
1. Press [Image Position Confirmation] on the wizard menu screen.

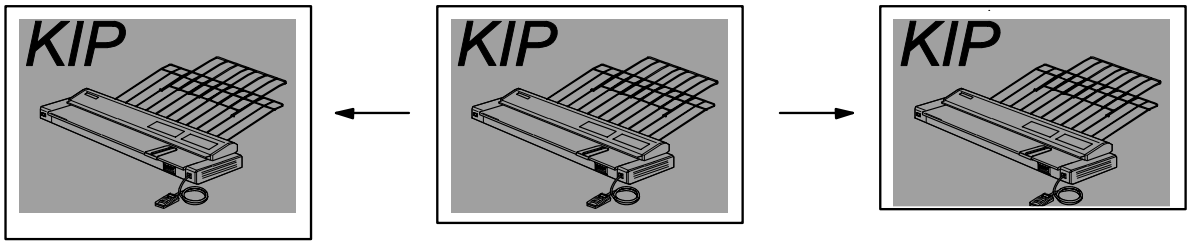


2. [1/8 LE Registration / TE Margin (Roll Media)] is used to confirm the image position (in the media feeding direction) on the roll media.

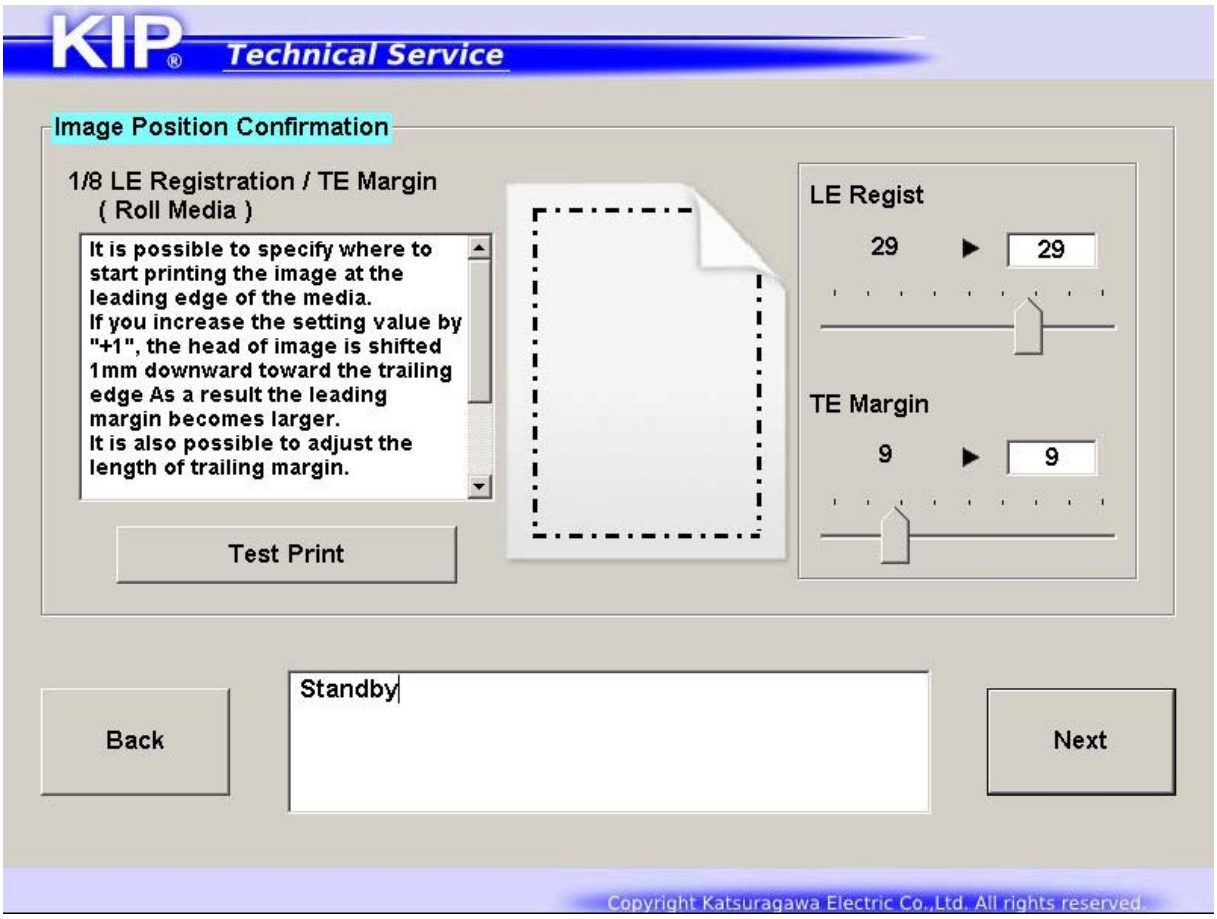
   Make a test print to confirm the image position on the print. Move the slide bar to adjust the LE Registration or TE Margin if needed.

Ex) Shift the start point of the image by changing LE Registration





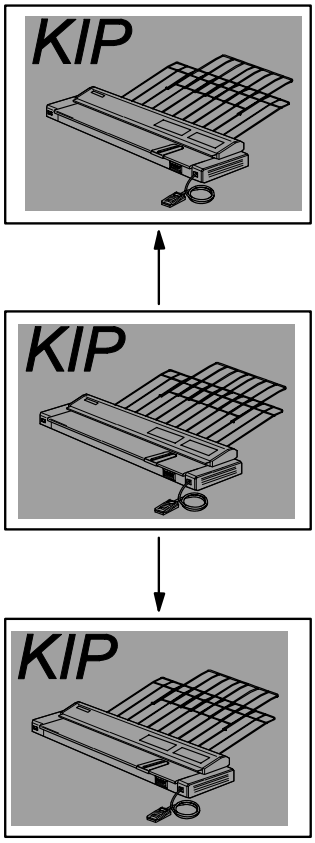
Ex) Add / remove TE Margin



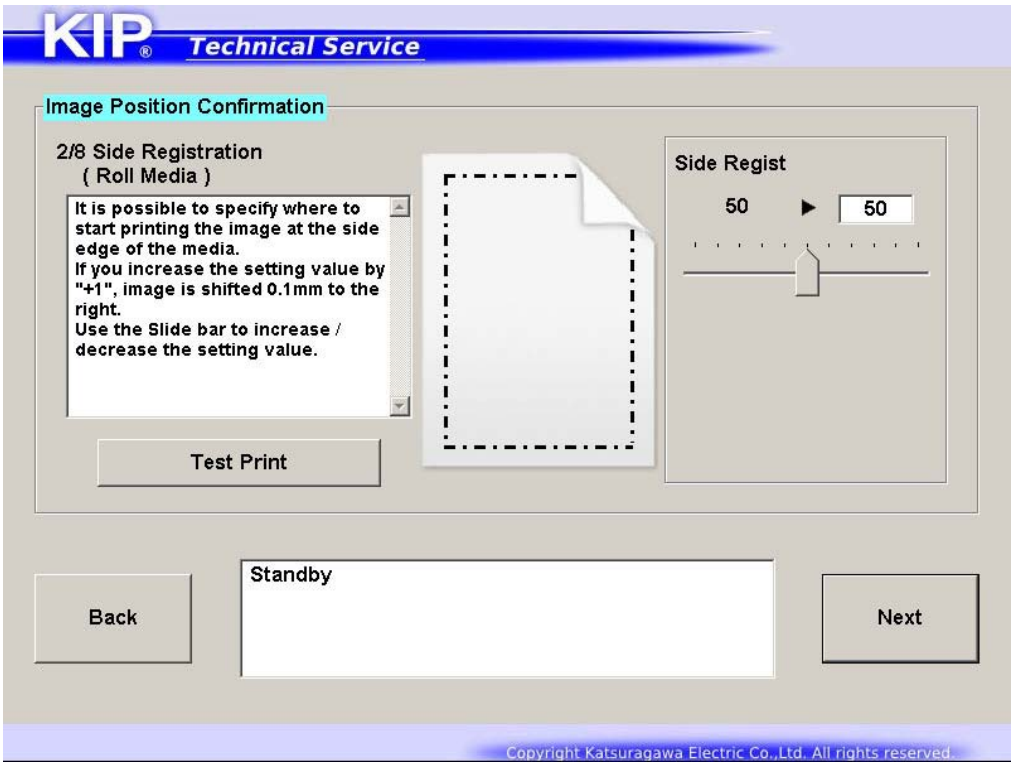
When confirmation is done, press [Next].

3. [2/8 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



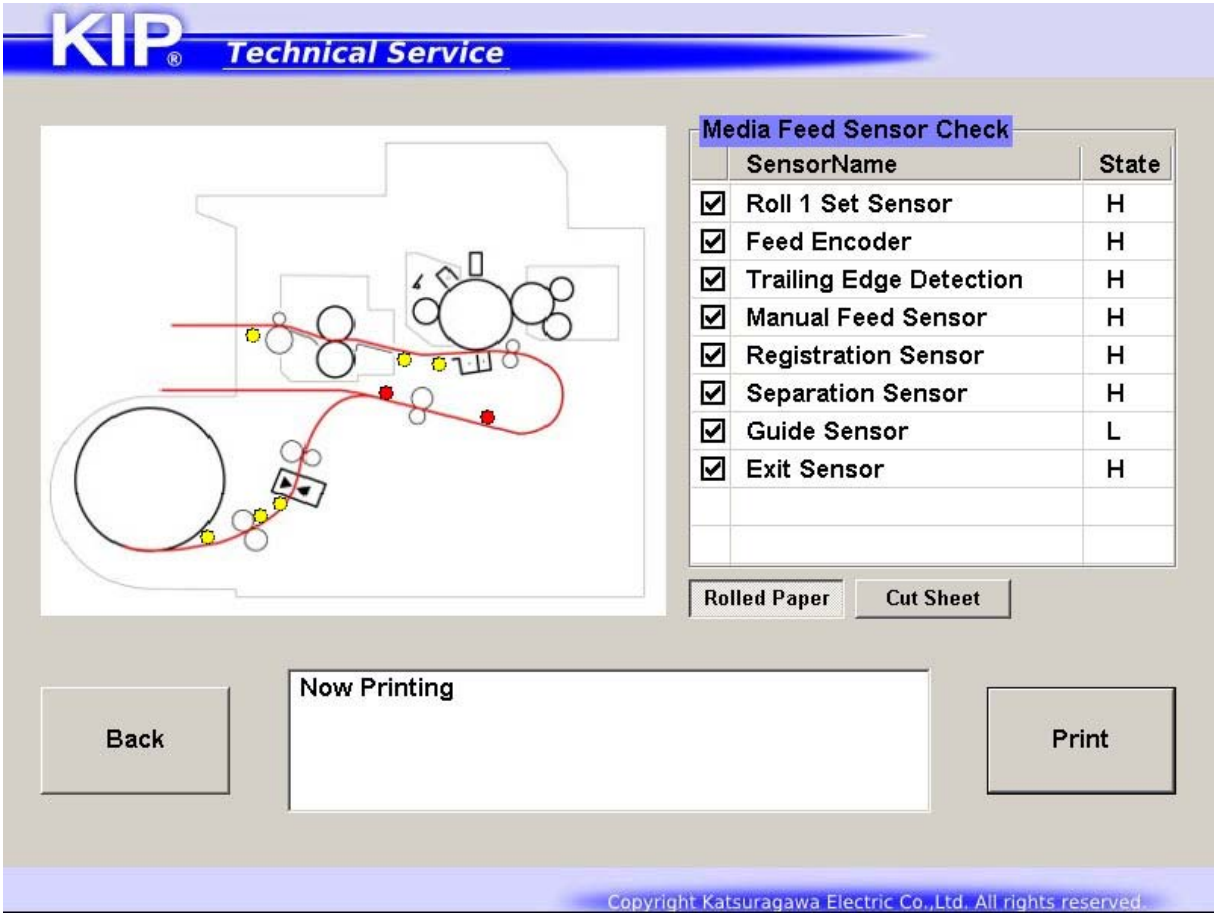
When confirmation is done, press [Next].

4. If you confirm the image position on the cut sheet, press [Continue] on [3/8 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.
   After scrolling the paged for the cut sheet, the wizard for the Paper Tray (option) is available if your machine has one.

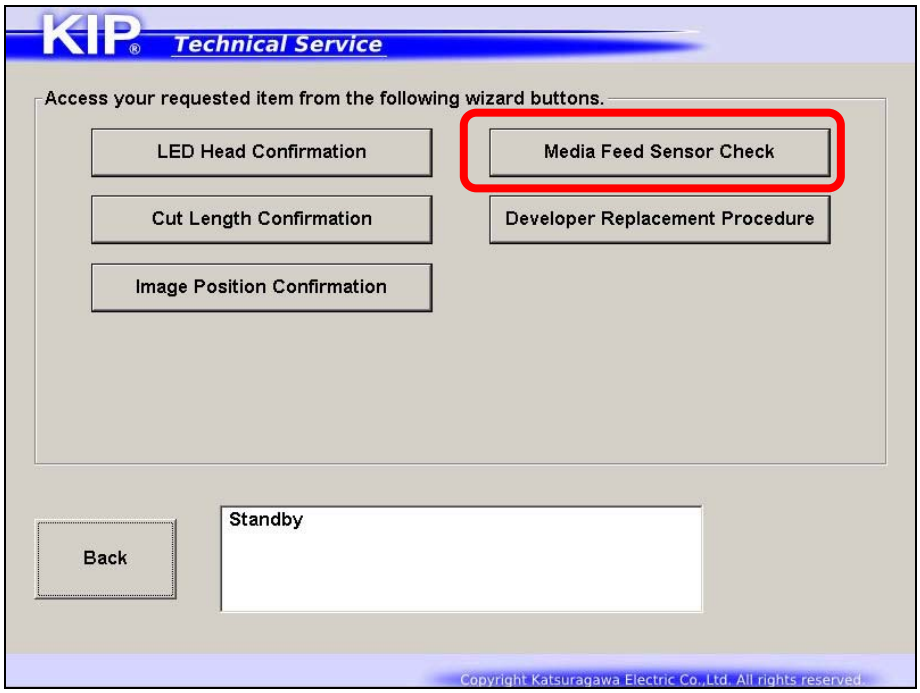
8. 14. 4 Media Feed Sensor Check

“Media Feed Sensor Check” can be used to visually check the current status of the sensors on the media path.

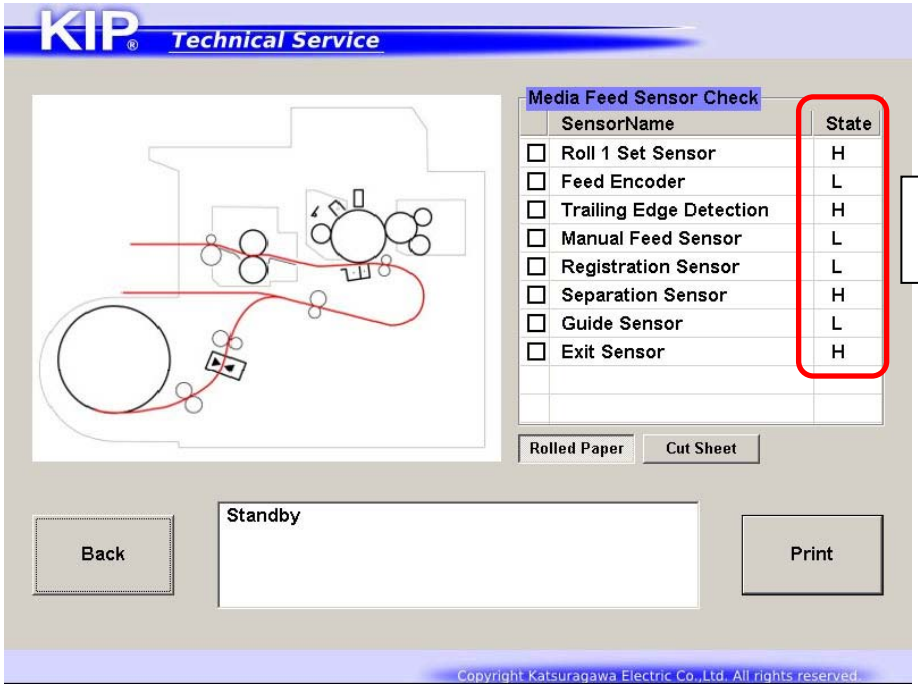


This example shows that the machine is now processing a print job with a short sheet from the roll deck. At this point, the media cut is done and the sheet goes around Registration Sensor.

1. Press [Media Feed Sensor Check.



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.



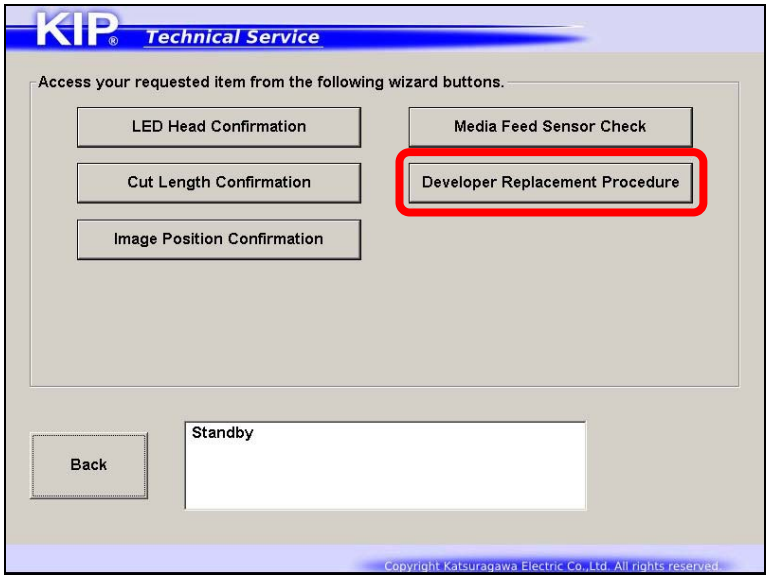
Sensor’s name	Sensor’s function	Corresponding Signal Status No.
Roll 1 Set Sensor	Detects whether the leading edge is at set position	No.105
Feed Encoder	Detects the distance of the roll media feeding	No.109
Trailing Edge Detection	Detects roll media feeding at the Roll Deck region	No.111
Manual Feed 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 on the right side of the picture to turn the page forward.
Press [►] button to show the procedure automatically like a slide show.

To perform the actual replacement procedure, press [Login Hold].

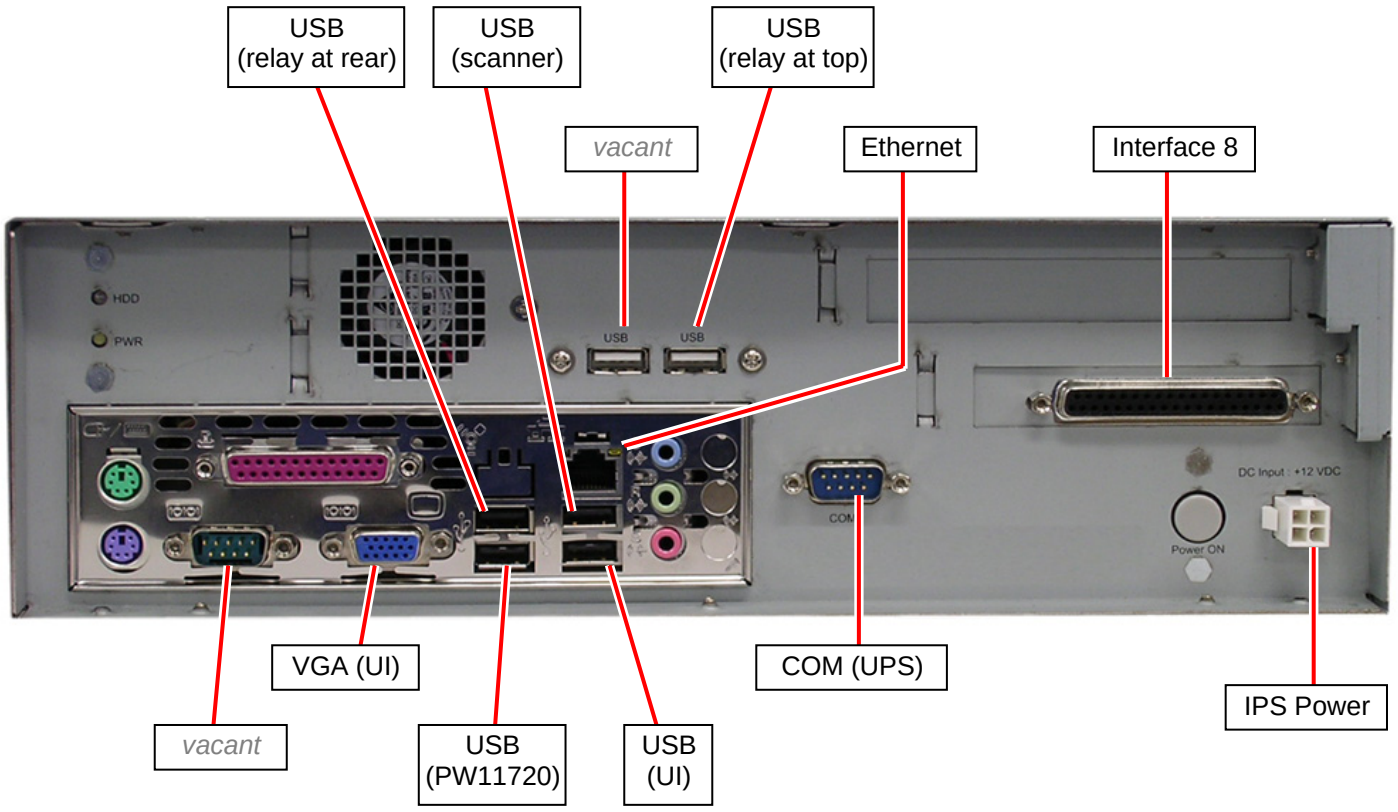
> **⚠ NOTE**
>
> If you open the Upper Unit without pressing [Login Hold], the touch screen goes back to Login screen because the interlock function shuts the communication with PW11720 PCB.

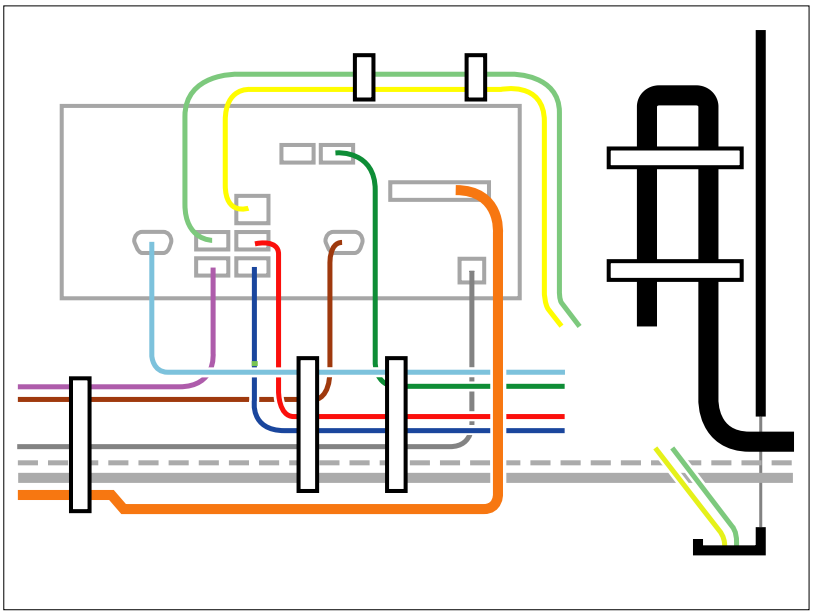
Chapter 9

Appendix

9. 1 Schematic Wiring around Controller

IPS Assy for KIP 700m (DC1 type)





Interface 8

IPS Power

Ethernet

USB to PW11720

USB Relay at rear

USB from Scanner*

USB from UI*

VGA from UI*

USB Relay at top*

* all the 4 above

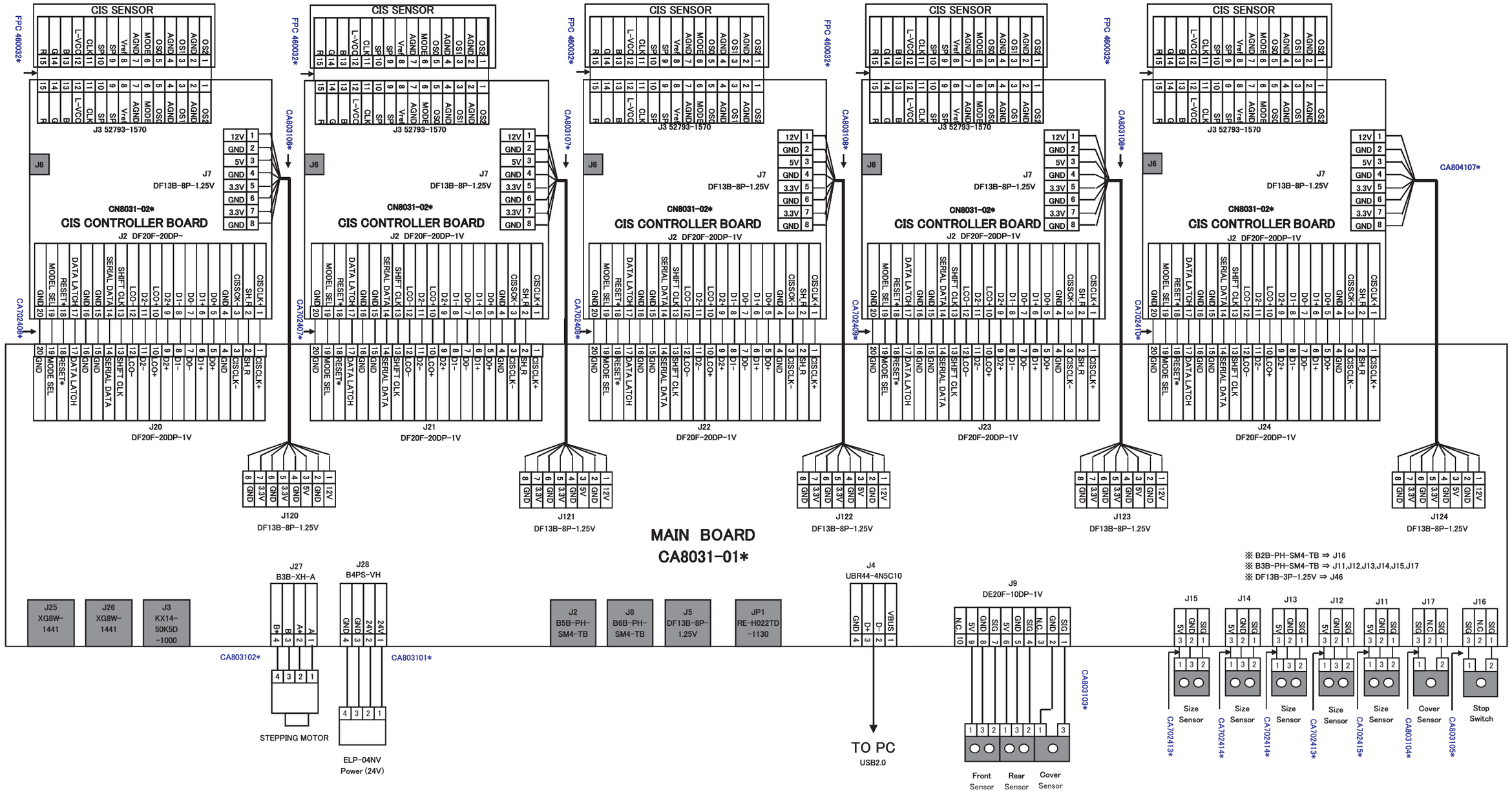
(Monitor power)

(LED Head cable)

9. 2 Overall Diagram

KIP 700m Overall Circuit Diagram (USA/120V)

KIP 700m Overall Circuit Diagram (EUR/230V)



NOTE: 1. Items shown by gray ☐ are not used.
2. CA ******* means the cable.

KIP 700M SCANNER DIAGRAM