KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

bizhub 164

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KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.1

FIELD SERVICE TOTAL CONTENTS

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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the safety and important warning items described below to understand them before doing service work.

IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this product as well as the risk of damage to the product, KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. (hereafter called the KMBT) strongly recommends that all servicing be performed only by KMBT-trained service technicians.
Changes may have been made to this product to improve its performance after this Service Manual was printed. Accordingly, KMBT does not warrant, either explicitly or implicitly, that the information contained in this service manual is complete and accurate.
The user of this service manual must assume all risks of personal injury and/or damage to the product while servicing the product for which this service manual is intended.
Therefore, this service manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the product properly.
Keep this service manual also for future service.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In this Service Manual, each of three expressions "⚠ DANGER", "⚠ WARNING", and "⚠ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing the product, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

⚠ **DANGER: Action having a high possibility of suffering death or serious injury**

⚠ **WARNING: Action having a possibility of suffering death or serious injury**

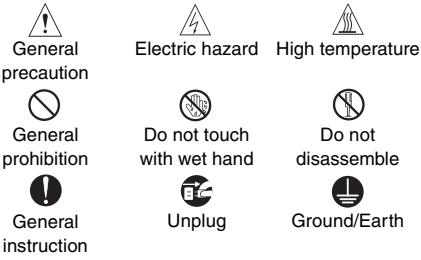
⚠ **CAUTION: Action having a possibility of suffering a slight wound, medium trouble, and property damage**

Symbols used for safety and important warning items are defined as follows:

△ :Precaution when servicing the product.

⃠ :Prohibition when servicing the product.

● :Direction when servicing the product.



SAFETY WARNINGS

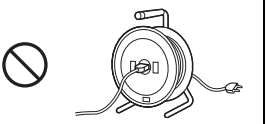
[1] MODIFICATIONS NOT AUTHORIZED BY KONICA MINOLTA BUSINESS TECHNOLOGIES, INC.

KONICA MINOLTA brand products are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.
Product design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. the points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

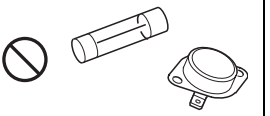
Prohibited Actions

⚠ DANGER

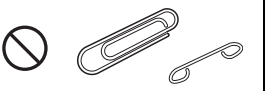
- Using any cables or power cord not specified by KMBT.



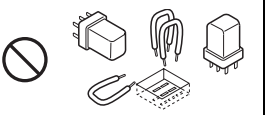
- Using any fuse or thermostat not specified by KMBT. Safety will not be assured, leading to a risk of fire and injury.



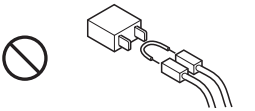
- Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object.



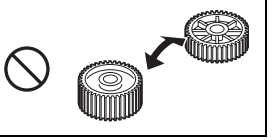
- Disabling relay functions (such as wedging paper between relay contacts).



- Disabling safety functions (interlocks, safety circuits, etc.). Safety will not be assured, leading to a risk of fire and injury.



- Making any modification to the product unless instructed by KMBT.
- Using parts not specified by KMBT.



[2] POWER PLUG SELECTION

In some countries or areas, the power plug provided with the product may not fit wall outlet used in the area. In that case, it is obligation of customer engineer (hereafter called the CE) to attach appropriate power plug or power cord set in order to connect the product to the supply.

Power Cord Set or Power Plug

⚠ WARNING

- Use power supply cord set which meets the following criteria:
  - provided with a plug having configuration intended for the connection to wall outlet appropriate for the product's rated voltage and current, and
  - the plug has pin/terminal(s) for grounding, and
  - provided with three-conductor cable having enough current capacity, and
  - the cord set meets regulatory requirements for the area.

  Use of inadequate cord set leads to fire or electric shock.

- Attach power plug which meets the following criteria:
  - having configuration intended for the connection to wall outlet appropriate for the product's rated voltage and current, and
  - the plug has pin/terminal(s) for grounding, and
  - meets regulatory requirements for the area.

  Use of inadequate cord set leads to the product connecting to inadequate power supply (voltage, current capacity, grounding), and may result in fire or electric shock.

- Conductors in the power cable must be connected to terminals of the plug according to the following order:
  - •Black or Brown:L (line)
  - •White or Light Blue:N (neutral)
  - •Green/Yellow:PE (earth)

  Wrong connection may cancel safeguards within the product, and results in fire or electric shock.

[3] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

KONICA MINOLTA brand products are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

1. Power Supply

Connection to Power Supply

⚠ WARNING

- Check that mains voltage is as specified.

  Connection to wrong voltage supply may result in fire or electric shock.

- Connect power plug directly into wall outlet having same configuration as the plug.

  Use of an adapter leads to the product connecting to inadequate power supply (voltage, current capacity, grounding), and may result in fire or electric shock.

  If proper wall outlet is not available, advice the customer to contact qualified electrician for the installation.

- Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.

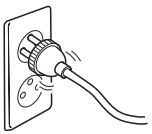
  If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.

  If excessive current flows in the wall outlet, fire may result.

- Make sure the power cord is plugged in the wall outlet securely.

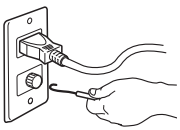
  Contact problems may lead to increased resistance, overheating, and the risk of fire.



- Check whether the product is grounded properly.

  If current leakage occurs in an ungrounded product, you may suffer electric shock while operating the product.

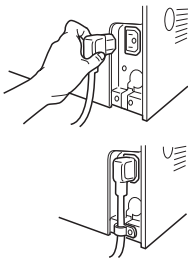
  Connect power plug to grounded wall outlet.



Power Plug and Cord

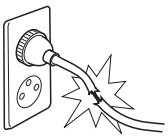
⚠ WARNING

- When using the power cord set (inlet type) that came with this product, make sure the connector is securely inserted in the inlet of the product.
  When securing measure is provided, secure the cord with the fixture properly.
  If the power cord (inlet type) is not connected to the product securely, a contact problem may lead to increased resistance, overheating, and risk of fire.

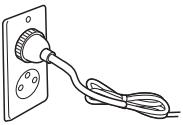


- Check whether the power cord is not stepped on or pinched by a table and so on.
  Overheating may occur there, leading to a risk of fire.

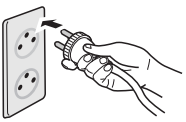
- Check whether the power cord is damaged. Check whether the sheath is damaged.
  If the power plug, cord, or sheath is damaged, replace with a new power cord (with plug and connector on each end) specified by KMBT. Using the damaged power cord may result in fire or electric shock.



- Do not bundle or tie the power cord.
  Overheating may occur there, leading to a risk of fire.

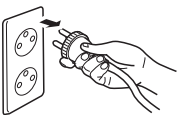


- Check whether dust is collected around the power plug and wall outlet.
  Using the power plug and wall outlet without removing dust may result in fire.



- Do not insert the power plug into the wall outlet with a wet hand.
  The risk of electric shock exists.

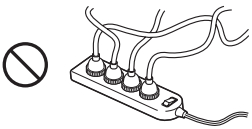
- When unplugging the power cord, grasp the plug, not the cable.
  The cable may be broken, leading to a risk of fire and electric shock.



Wiring

⚠ WARNING

- Never use multi-plug adapters to plug multiple power cords in the same outlet.
  If used, the risk of fire exists.



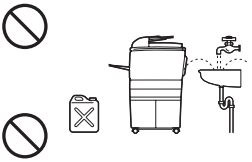
- When an extension cord is required, use a specified one. Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
  Do not use an extension cable reel with the cable taken up. Fire may result.

2. Installation Requirements

Prohibited Installation Places

⚠ WARNING

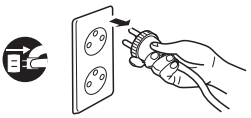
- Do not place the product near flammable materials or volatile materials that may catch fire.
  A risk of fire exists.
- Do not place the product in a place exposed to water such as rain.
  A risk of fire and electric shock exists.



When not Using the Product for a long time

⚠ WARNING

- When the product is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.
  Dust collected around the power plug and outlet may cause fire.



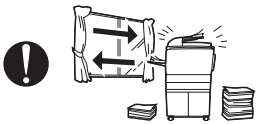
Ventilation

⚠ CAUTION

- The product generates ozone gas during operation, but it will not be harmful to the human body.

  If a bad smell of ozone is present in the following cases, ventilate the room.

  a. When the product is used in a poorly ventilated room
  b. When taking a lot of copies
  c. When using multiple products at the same time



Stability

⚠ CAUTION

- Be sure to lock the caster stoppers.

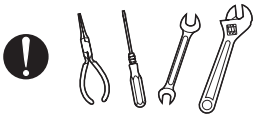
  In the case of an earthquake and so on, the product may slide, leading to a injury.

Inspection before Servicing

⚠ CAUTION

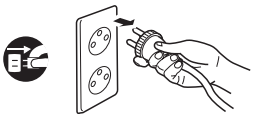
- Before conducting an inspection, read all relevant documentation (service manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure in safety clothes, using only the prescribed tools. Do not make any adjustment not described in the documentation.

  If the prescribed procedure or tool is not used, the product may break and a risk of injury or fire exists.



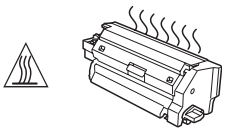
- Before conducting an inspection, be sure to disconnect the power plugs from the product and options.

  When the power plug is inserted in the wall outlet, some units are still powered even if the POWER switch is turned OFF. A risk of electric shock exists.



- The area around the fixing unit is hot.

  You may get burnt.



Inspection before Servicing

⚠ CAUTION

- Do not leave the machine unattended during transportation, installation, and inspection of the machine. If it is to be unavoidably left unattended, face protrusions toward the wall or take other necessary risk reducing action.

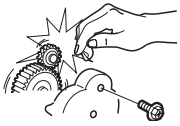
  The user may stumble over a protrusion of the machine or be caught by a cable, falling to the floor or being injured.

Work Performed with the Product Powered On

⚠ WARNING

- Take every care when making adjustments or performing an operation check with the product powered.

  If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.



- Take every care when servicing with the external cover detached.

  High-voltage exists around the drum unit. A risk of electric shock exists.

- If it is absolutely necessary to service the machine with the door open or external covers removed, always be attentive to the motion of the internal parts.

  A normally protected part may cause unexpected hazards.

Safety Checkpoints

⚠ WARNING

- Check the exterior and frame for edges, burrs, and other damage.

  The user or CE may be injured.

- Whenever mounting an option on the machine, be attentive to the motion of the fellow worker of the joint work.

  The fellow worker may be injured with his or her finger or hand pinched between the machine and the option.

Safety Checkpoints

⚠ WARNING

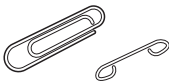
- When mounting an option on the machine, be careful about the clearance between the machine and the option.
  You may be injured with your finger or hand pinched between the machine and the option.

- When removing a part that secures a motor, gear, or other moving part, disassembling a unit, or reinstalling any of such parts and units, be careful about moving parts and use care not to drop any part or unit. During the service procedure, give sufficient support for any heavy unit.
  You may be injured by a falling part or unit.

- Check the external covers and frame for possible sharp edges, burrs, and damage.
  They can be a cause of injury during use or servicing.

- When accessing a hard-to-view or narrow spot, be careful about sharp edges and burrs of the frame and parts.
  They may injure your hands or fingers.

- Do not allow any metal parts such as clips, staples, and screws to fall into the product.
  They can short internal circuits and cause electric shock or fire.



- Check wiring for squeezing and any other damage.
  Current can leak, leading to a risk of electric shock or fire.

- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.
  Current can leak, leading to a risk of product trouble or fire.

- Check high-voltage cables and sheaths for any damage.
  Current can leak, leading to a risk of electric shock or fire.

- Check electrode units such as a charging corona unit for deterioration and sign of leakage.
  Current can leak, leading to a risk of trouble or fire.

Safety Checkpoints

⚠ WARNING

- Before disassembling or adjusting the write unit (P/H unit) incorporating a laser, make sure that the power cord has been disconnected.

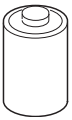
  The laser light can enter your eye, leading to a risk of loss of eyesight.

- Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position.

  The laser light can enter your eye, leading to a risk of loss of eyesight.

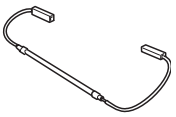
- When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority.

  Improper replacement can cause explosion.



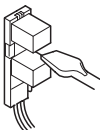
- After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state.

  A risk of fire exists.



- Check the interlock switch and actuator for loosening and check whether the interlock functions properly.

  If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the product (e.g., for clearing paper jam).



- Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts.

  Current can leak, leading to a risk of electric shock or fire.

- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)

  A risk of product trouble, electric shock, and fire exists.

Handling of Consumables

⚠ WARNING

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.

  If the substances get in the eye, rinse with plenty of water immediately. When symptoms are noticeable, consult a physician.

- Never throw the used cartridge and toner into fire.

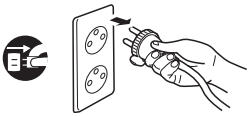
  You may be burned due to dust explosion.

Handling of Service Materials

⚠ CAUTION

- Unplug the power cord from the wall outlet.

  Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.



- Do not replace the cover or turn the product ON before any solvent remnants on the cleaned parts have fully evaporated.

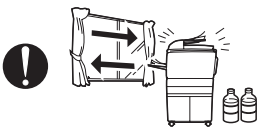
  A risk of fire exists.

- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.

  A risk of fire exists.

- When using any solvent, ventilate the room well.

  Breathing large quantities of organic solvents can lead to discomfort.



[4] Laser Safety

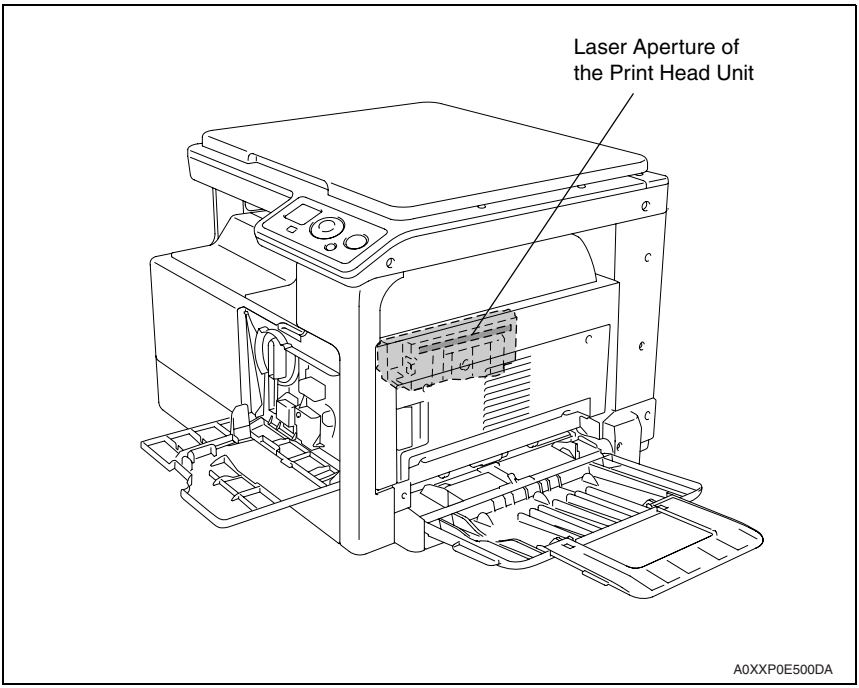
- This is a digital machine certified as a Class 1 laser product. There is no possibility of danger from a laser, provided the machine is serviced according to the instruction in this manual.

4.1 Internal Laser Radiation

semiconductor laser	
Maximum power of the laser diode	7 mW
Maximum average radiation power (*)	5.3 µW
Wavelength	770 - 800 nm

*at laser aperture of the Print Head Unit

- This product employs a Class 3B laser diode that emits an invisible laser beam. The laser diode and the scanning polygon mirror are incorporated in the print head unit.
- The print head unit is NOT A FIELD SERVICEABLE ITEM. Therefore, the print head unit should not be opened under any circumstances.



All Areas

CAUTION
- **Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.**

semiconductor laser	
Maximum power of the laser diode	7 mW
Wavelength	770 - 800 nm

Denmark

ADVARSEL
- **Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. Klasse 1 laser produkt der opfylder IEC60825-1 sikkerheds kravene.**

halvlederlaser	
Laserdiodens højeste styrke	7 mW
bølgelængden	770 - 800 nm

Finland, Sweden

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

VAROITUS!
- **Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.**

puolijohdelaser	
Laserdiodin suurin teho	7 mW
aallonpituus	770 - 800 nm

VARNING!
- **Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.**

halvledarlaser	
Den maximala effekten för laserdioden	7 mW
våglängden	770 - 800 nm

VARO!
- **Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättomälle laser-säteilylle. Älä katso säteeseen.**

VARNING!
- **Osynlig laserstråining när denna del är öppnad och spärren är urkopplad. Betrakta ej stråien.**

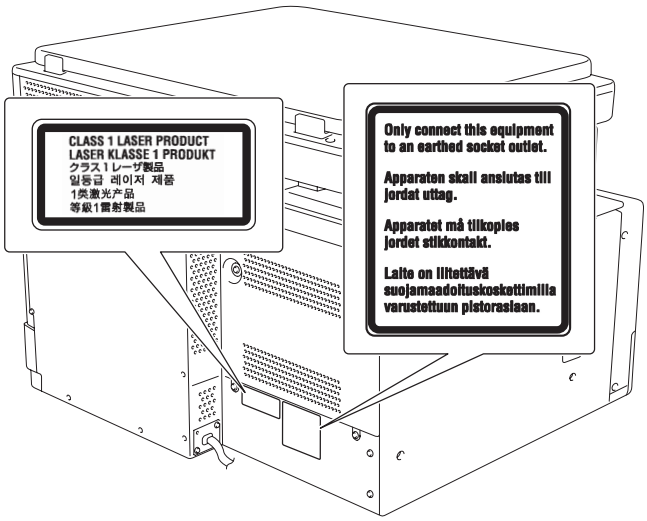
Norway

ADVERSEL
- **Dersom apparatet brukes på annen måte enn spesifisert i denne bruksanvisning, kan brukeren utsettes för unsynlig laserstrålning, som overskrider grensen for laser klass 1.**

halvleder laser	
Maksimal effekt till laserdiode	7 mW
bølgelengde	770 - 800 nm

4.2 Laser Safety Label

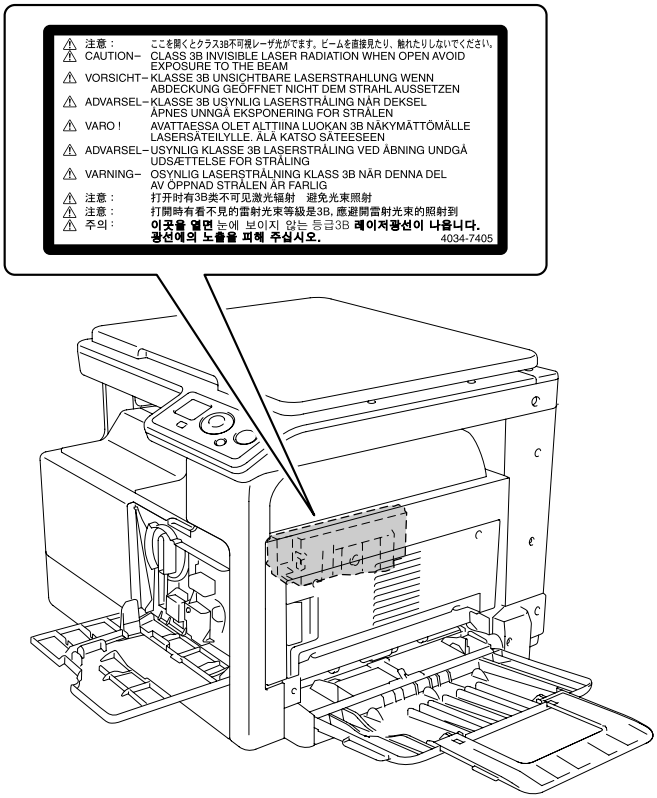
- A laser safety label is attached to the inside of the machine as shown below.



A0XXP0E501DA

4.3 Laser Caution Label

- A laser caution label is attached to the outside of the machine as shown below.



A0XXP0E502DA

4.4 PRECAUTIONS FOR HANDLING THE LASER EQUIPMENT

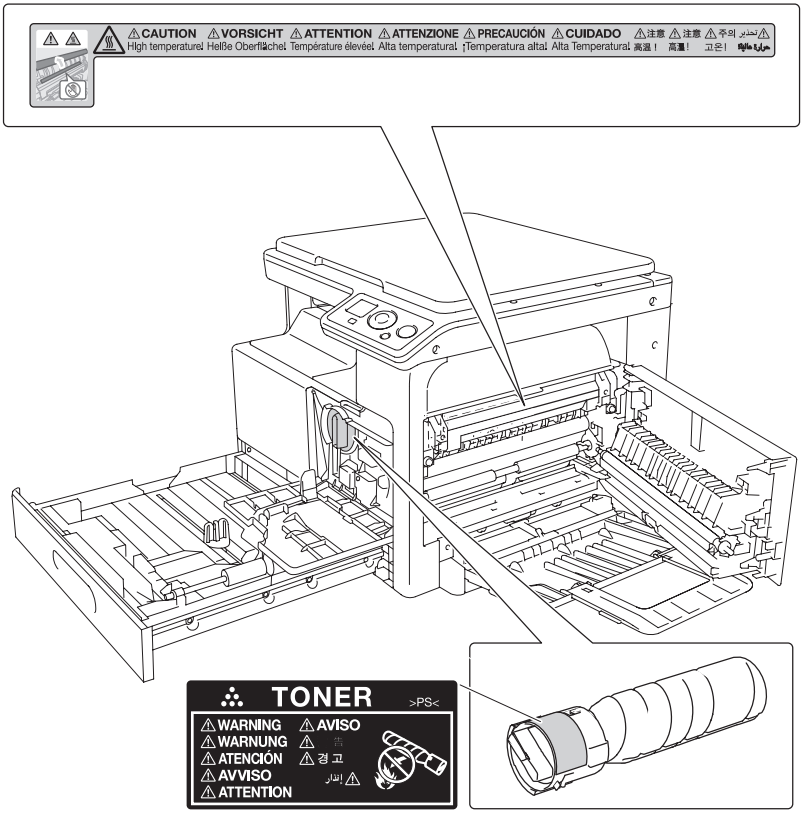
- When laser protective goggles are to be used, select ones with a lens conforming to the above specifications.
- When a disassembly job needs to be performed in the laser beam path, such as when working around the printerhead and PC Drum, be sure first to turn the printer OFF.
- If the job requires that the printer be left ON, take off your watch and ring and wear laser protective goggles.
- A highly reflective tool can be dangerous if it is brought into the laser beam path. Use utmost care when handling tools on the user's premises.

WARNING INDICATIONS ON THE MACHINE

Caution labels shown below are attached in some areas on/in the machine.
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and electric shock.

CAUTION

- **The area around the Fusing Unit is extremely hot. Touching any part other than those indicated may result in burns.**



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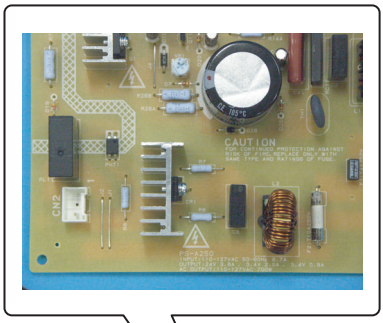
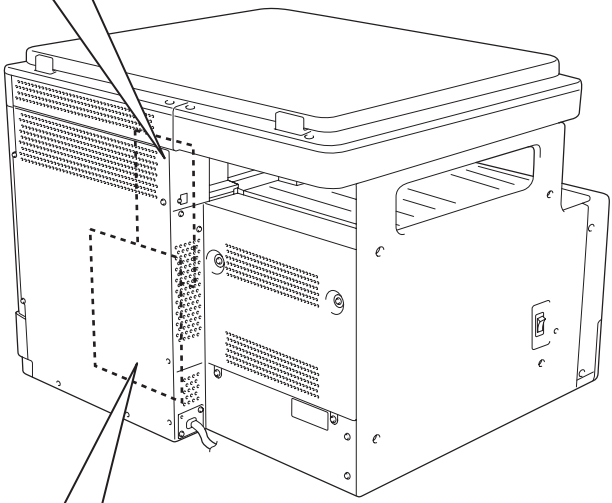
CAUTION:

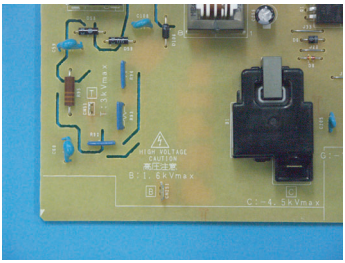
- **You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from. Do not remove caution labels. And also, when the caution label is peeled off or soiled and cannot be seen clearly, replace it with a new caution label.**



High voltage

- **This area generates high voltage. Be careful not to touch here when the power is turned ON to avoid getting an electric shock.**





High voltage

- **This area generates high voltage. Be careful not to touch here when the power is turned ON to avoid getting an electric shock.**

A0XXP0E503DA

MEASURES TO TAKE IN CASE OF AN ACCIDENT

1. If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.
2. If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and KMBT must be notified.
3. To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by KMBT.
4. For reports and measures concerning serious accidents, follow the regulations specified by every distributor.

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Composition of the service manual

This service manual consists of Theory of Operation section and Field Service section to explain the main machine and its corresponding options.

Theory of Operation section gives, as information for the CE to get a full understanding of the product, a rough outline of the object and role of each function, the relationship between the electrical system and the mechanical system, and the timing of operation of each part.

Field Service section gives, as information required by the CE at the site (or at the customer's premise), a rough outline of the service schedule and its details, maintenance steps, the object and role of each adjustment, error codes and supplementary information.

The basic configuration of each section is as follows. However some options may not be applied to the following configuration.

<Theory of Operation section>

OUTLINE:	Explanation of system configuration, product specifications, unit configuration, and paper path
COMPOSITION/OPERATION:	Explanation of configuration of each unit, operating system, and control system

<Field service section>

OUTLINE:	Explanation of system configuration, and product specifications
MAINTENANCE:	Explanation of service schedule, maintenance steps, service tools, removal/reinstallation methods of major parts, and firmware version up method etc.
ADJUSTMENT/SETTING:	Explanation of utility mode, service mode, and mechanical adjustment etc.
TROUBLESHOOTING:	Explanation of lists of jam codes and error codes, and their countermeasures etc.
APPENDIX:	Parts layout drawings, connector layout drawings, timing chart, overall layout drawing are attached.

Notation of the service manual

A. Product name

In this manual, each of the products is described as follows:

(1)	bizhub 164	Main body
(2)	Microsoft Windows NT 4.0:	Windows NT 4.0 or Windows NT
	Microsoft Windows 2000:	Windows 2000
	Microsoft Windows XP:	Windows XP
	Microsoft Windows Vista:	Windows Vista
	Microsoft Windows 7:	Windows 7
	When the description is made in combination of the OS's mentioned above:	
		Windows NT 4.0/2000
		Windows NT/2000/XP/Vista/7

B. Brand name

The company names and product names mentioned in this manual are the brand name or the registered trademark of each company.

C. Feeding direction

- When the long side of the paper is parallel with the feeding direction, it is called short edge feeding. The feeding direction which is perpendicular to the short edge feeding is called the long edge feeding.
- Short edge feeding will be identified with [S (abbreviation for Short edge feeding)] on the paper size. No specific notation is added for the long edge feeding.
  When the size has only the short edge feeding with no long edge feeding, [S] will not be added to the paper size.

<Sample notation>

Paper size	Feeding direction	Notation
A4	Long edge feeding	A4
	Short edge feeding	A4S
A3	Short edge feeding	A3

KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

bizhub 164

2010.04

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.1

Revision history

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a specific section revised within text,  is shown at the left margin of the corresponding revised section.
  The number inside represents the number of times the revision has been made.

- To indicate clearly a specific page that contains a revision or revisions, the page number appearing at the left or right bottom of the specific page is marked with  .
  The number inside represents the number of times the revision has been made.

NOTE

Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.

- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

Date	Service manual Ver.	Revision mark	Descriptions of revision
2010/04	1.1	—	Issue of the first edition
2010/03	1.0	—	Issue of the draft edition

CONTENTS

bizhub 164 Main body

OUTLINE

MAINTENANCE

ADJUSTMENT/SETTING

TROUBLESHOOTING

APPENDIX

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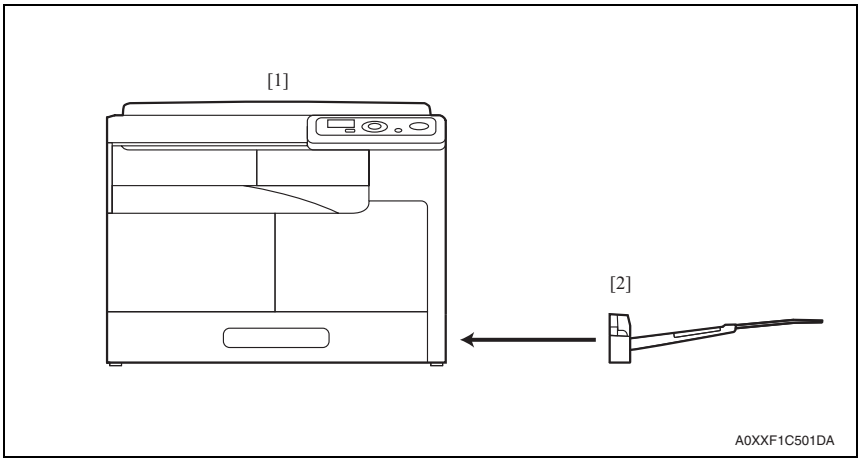
OUTLINE

1. SYSTEM CONFIGURATION



[1] bizhub 164

[2] Multi bypass tray (MB-503)

2. PRODUCT SPECIFICATIONS

2.1 Type

Type	Scanner/printer integrated desktop type
Scanning density	600 x 600 dpi
Platen	Stationary
Original scanning	CIS module optical scanning system
Scanning light source	LED
Printing process	Laser electrostatic printing system
PC drum type	OPC drum: 9ST
Paper feeding system	Tray 1: Separator pad system Multi bypass tray: Small roller separation system with torque limiter
Exposure system	LD exposing system/polygon mirror scan system
Exposure density	600 x 600 dpi
Developing system	Dry 2 components developing method, HMT developing system
Charging system	DC comb electrode scorotron system
Neutralizing system	Non-erase
Image transfer system	Roller image transfer system
Paper separating system	Combination of curvature, separating claws system
Fusing system	Roller fusing system
Heating system	Halogen lamp

2.2 Functions

Types of original	Sheets, books, and three-dimensional objects	
Max. original size	A3 or 11 × 17	
Max. original weight	2 kg	
Multiple copies	1 to 99	
Warming-up time	220 - 240 V: 29 sec. or less 110 V/120 - 127 V: 30 sec. or less (when the power switch is turned ON from a stabilized state at ambient temperature of 23° C/73.4° F and rated source voltage)	
Image loss	Leading edge: 4 mm (3/16 inch), trailing edge: 4 mm (3/16 inch), Rear edge: 4 mm (3/16 inch), front edge: 4 mm (3/16 inch)	
First copy time (A4, 8 $^1/_2$ x 11)	8 sec. or less (Values in conditions of paper fed from tray 1 at a room temperature of 23°C and with a rated power source)	
Processing speed	77 mm/s	
Copying/printing speed for multi-copy cycle (A4, 8 $^1/_2$ x 11)	bizhub 164	16 sheets/min. (Plain paper) 7 sheets/min. (Card1/2)

Fixed zoom ratios	Europe, china	Full size: x 1.00 Reduction: x 0.50, x 0.70, x 0.81 Enlargement: x 1.15, x 1.41, x 2.00
	Latin america areas for inch	Full size: x 1.00 Reduction: x 0.50, x 0.64, x 0.78 Enlargement: x 1.21, x 1.29, x 2.000
	Latin america area for metric	Full size: x 1.00 Reduction: x 0.500, x 0.70, x 0.78 Enlargement: x 1.15, x 1.41, x 2.000
Variable zoom ratios	×0.50 to ×2.00 (in 0.001 increments)	
Paper size used	Tray 1	A3 to A5S, Letter, LedgerS, 11 x 14, LegalS, Invoice, 8K, 16K, FLS
	Multi bypass tray	
Copy exit tray capacity	250 sheets	

2.3 Paper

		Tray 1	Multi bypass tray
Type	Plain paper (64 to 90 g/m² / 17 to 24 lb)	❍ (250 sheets)	❍ (100 sheets)
	Card 1 (91 to 120 g/m² / 24.25 to 31.75 lb)	❍ (20 sheets)	❍ (20 sheets)
	Card 2 (121 to 157 g/m² / 32.25 to 41.75 lb)	❍ (20 sheets)	❍ (20 sheets)
	OHP film	-	-
	Postcards	-	-
	Labels	-	-
	Envelopes	-	-
Size	Width	90 to 297 mm / 3 $^{9}/_{16}$ to 11 $^{11}/_{16}$ inch	
	Length	139.7 to 431.8 mm / 5 $^{1}/_{2}$ to 17 inch	

2.4 Materials

Parts name	Number of prints	Type name
Toner bottle	5,000 prints *1	TN117
	11,000 prints *1	TN116
Developer	55,000 prints *1	DV116
Drum	55,000 prints *1	DR114

*1: Specification value

2.5 Print volume

A. bizhub 164

China	Average	2,300 prints/month
	Maximum	12,000 prints/month
Non- China	Average	1,700 prints/month
	Maximum	12,000 prints/month

2.6 Machine specifications

Power requirements	Voltage	AC110 V, AC120-127V, AC220-240V	
	Current	110 V	7 A
		120 V	6 A
		127 V	6 A
		230 V	3.5 A
	Frequency	50/60 Hz	
Max power consumption	800 W		
Dimensions	570 mm (W) x 531 mm (D) x 419mm (H) *1 22.4 inch (W) x 20.9 inch (D) x 16.5 inch (H) *1		
Space requirements	928 mm (W) x 531 mm (D) *2 36.5 inch (W) x 20.9 inch (D) *2		
Weight	Approx. 23.5 kg /51.8 lb (without toner bottle and developer)		

*1: Height up to the original glass.
*2: When the multi bypass tray MB-503 is used.

2.7 Operating environment

Temperature	10 to 30° C / 50 to 86° F (with a fluctuation of 10° C / 18° F or less per hour)
Humidity	15 to 85% (Relative humidity with a fluctuation of 10%/h)

2.8 Print function

Type	Built-in printer controller
RAM	32 MB (shared with the copier)
Interface	USB2.0/1.1
Printer language	GDI
Print resolution	600 x 600 dpi
Printer fonts	Windows font
Supported OS for printer driver	Windows 2000 Professional (SP4 or later) Windows 2000 Server (SP3 or later) Windows XP Home Edition (SP1 or later) Windows XP Professional (SP1 or later) Windows Server 2003, Standard Edition (SP1 or later) Windows Server 2003, Enterprise Edition (SP1 or later) Windows Server 2003 R2, Standard Edition Windows Server 2003 R2, Enterprise Edition Windows XP Professional x64 Edition Windows Server 2003, Standard x64 Edition Windows Server 2003, Enterprise x64 Edition Windows Server 2003 R2, Standard x64 Edition Windows Server 2003 R2, Enterprise x64 Edition Windows Vista Business * Windows Vista Enterprise * Windows Vista Home Basic * Windows Vista Home Premium * Windows Vista Ultimate * Windows Server 2008 Standard * Windows Server 2008 Enterprise * Windows 7 Home Premium/Professional/Ultimate * * 32 bits (x86)/64 bits (x64) environment are supported

2.9 Scan function

Scanner	Scannable range	Same as the copier
	Scanning resolution	150/300/600 dpi
TWAIN	Driver	TWAIN Driver
	Supported OS	Windows 2000 Professional (SP4 or later) Windows 2000 Server (SP3 or later) Windows XP Home Edition (SP1 or later) Windows XP Professional (SP1 or later) Windows Server 2003, Standard Edition (SP1 or later) Windows Server 2003, Enterprise Edition (SP1 or later) Windows Server 2003 R2, Standard Edition Windows Server 2003 R2, Enterprise Edition Windows XP Professional x64 Edition Windows Server 2003, Standard x64 Edition Windows Server 2003, Enterprise x64 Edition Windows Server 2003 R2, Standard x64 Edition Windows Server 2003 R2, Enterprise x64 Edition Windows Vista Business * Windows Vista Enterprise * Windows Vista Home Basic * Windows Vista Home Premium * Windows Vista Ultimate * Windows Server 2008 Standard * Windows Server 2008 Enterprise * Windows 7 Home Premium/Professional/Ultimate * * 32 bits (x86)/64 bits (x64) environment are supported

MAINTENANCE

3. PERIODICAL MIANTENANCE ITEMS

3.1 Concept of periodical maintenance

- **The cleaning or replacement cycle of the parts of the machine and options that need periodical maintenance depends on the total counter value or each counter value provided by [SERVICE MODE] - [COUNTER] - [PM COUNTER].**

3.1.1 Main body

A. Periodical maintenance 1 (Total counter; every 55,000 counts)

Section	Description/part name	Qt.	Clean	Check	Lubrication	Replace	Descriptions
Overall	Paper feed and image conditions	—		●			
	Appearance	—	●	●			
Conveyance section	Timing roller	—	●				
	Pre-image transfer guide plate	—	●				
Processing section	Ds collars	—	●				
	Developer scattering prevention plate	—	●				
	Drum separator fingers	—	●				
	Developer	1				●	
	Drum	1				●	
	Cleaning blade	1				●	
	Drum charge corona assy	1				●	

B. Periodical maintenance 2 (PM counter; every 100,000 counts)

Section	Description/part name	Qt.	Clean	Check	Lubrication	Replace	Descriptions
Fusing section	Fusing unit	1				●	

3.2 Periodical replacement parts list

- To ensure that the machine produces good copies and to extend its service life, it is recommended that the maintenance jobs described in this schedule be carried out as instructed.
- Replace with reference to the numeric values displayed on the total counter, the life counter or the messages displayed on the control panel.
- Maintenance conditions are based on the case of A4 or 8 $^1/_2$ x 11, standard mode* and low power mode OFF.

		B/W
* Standard mode	bizhub 164	2 pages per job

3.2.1 Main body

Classification	Parts name		Parts No.	Qt.	Replacing cycle	Descriptions	Ref. page
Processing section	Developer		—	1	55,000		P.10
	Drum		—	1	55,000		P.14
	Cleaning blade		A0XX 3618 ##	1	55,000		P.16
	Drum charge corona assy		A1XU R701 ##	1	55,000		P.16
	Toner bottle (TN116)		—	1	11,000		P.19
Fusing section	Fusing unit	220V - 240V	A0XX PP6X ##	1	100,000	*1	P.27
		120V - 127V	A0XX PP70 ##	1			

*1: Actual durable cycle (PM counter value)

3.3 Periodical cleaning parts list

- Clean with reference to the numeric values displayed on the total counter, the life counter or the messages displayed on the control panel.

3.3.1 Main body

Classification	Parts name	Cleaning cycle	Descriptions	Ref.Page
Processing section	Ds collars	55,000	*1	P.21
	Developer scattering prevention plate	55,000	*1	P.23
	Drum separator fingers	55,000	*1	P.22
Conveyance section	Timing roller	55,000	*1	P.25
	Pre-image transfer guide plate	55,000	*1	P.25

*1: Total counter value

3.4 Concept of parts life

3.4.1 Life value of consumables and parts

- Life specification value means an actual life terminated when prints are made under the conditions as defined in the next section, “Conditions for life specifications values.”
See P.9

	Description	Near life value	Life value	Max. life value
Developer	The distance travelled by the drum is converted to a corresponding number of printed pages of A4 paper at 2P/J.	50,000 *1	55,000 *1	69,000 *1, *3
Drum				
Cleaning blade				
PC drum charge corona				
Fusing unit	The number of sheets of paper fed out of the copier is counted.	—	100,000 counts *2	—

*1: To check the life count, select [Service Mode] - [COUNTER] - [SUPPLIES COUNTER] - [I/U Life].
*2: To check the life count, select [Service Mode] - [COUNTER] - [PM COUNTER] - [FUSING].
*3: When the count reaches the maximum life value, printing is not allowed.

3.4.2 Conditions for life specifications values

Item			Description
Copying type			2P/J
Paper size			A4 or 8 $^{1}/_{2}$ x 11
PV/M	bizhub 164	Average	2,300 (China) / 1,700 (Others except for China)
		Maximum	12,000
Original density			B/W 6%

4. PERIODICAL MAINTENANCE PROCEDURE

NOTE

- **The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.**

4.1 Processing section

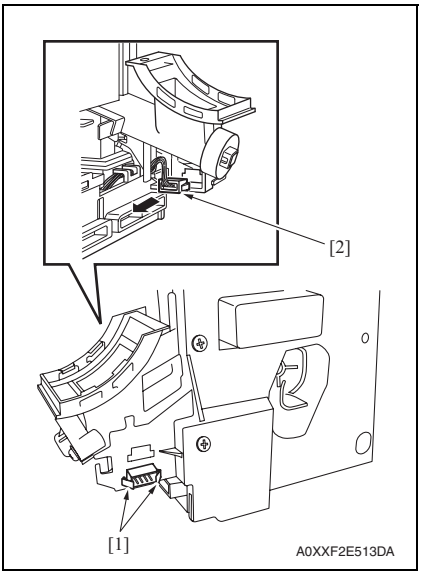
4.1.1 Replacing the developer

A. Periodically replacing parts/cycle

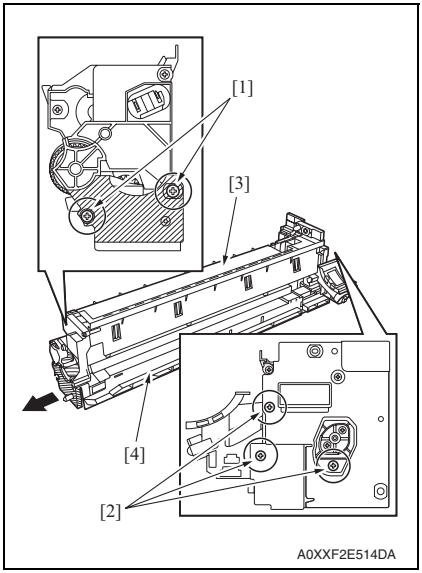
- Developer: Every 55,000 counts

B. Procedure

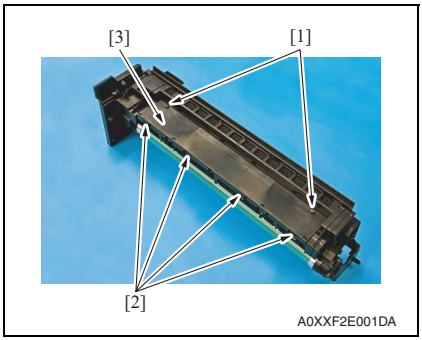
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40



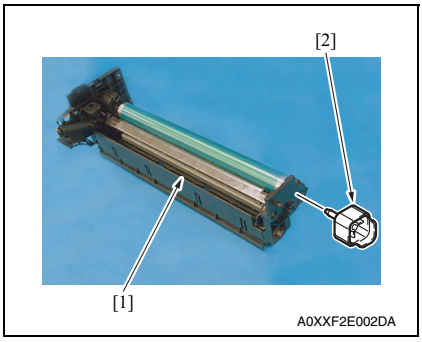
3. Release the tabs [1] and disconnect the connector [2] from the imaging unit.



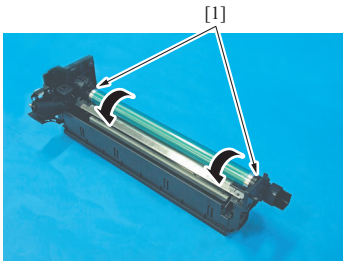
4. Remove two screws [1] in the rear of the imaging unit.
5. Remove three screws [2] at the front of the imaging unit.
6. While slightly pulling the area below the drum (diagonally shaded area) in the direction of arrow, separate the drum unit [3] from the developing unit [4].



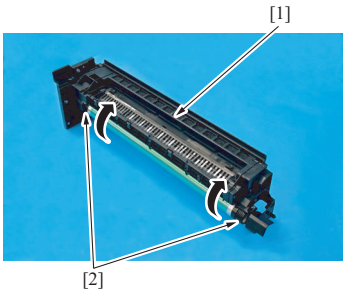
7. Remove two screws [1], release four tabs [2], and remove the plate [3].



8. Turn the drum unit [1] over to place it as shown in the illustration.
9. Attach the PC positioning jig [2].

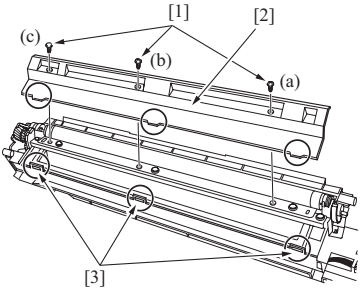


10. While turning the drum [1] in the direction of the arrow, dump the remaining developer from the screw.



11. Turn the drum unit [1] over to place it as shown in the illustration.

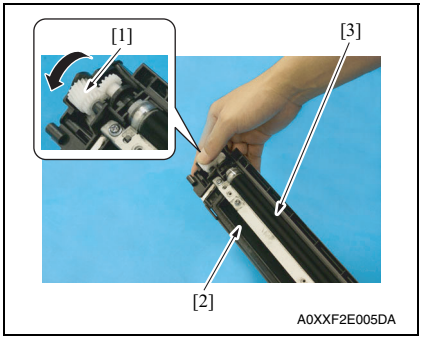
12. While turning the drum [2] in the direction of the arrow, dump the remaining developer from the screw.



13. Remove three screws [1], and remove the developer scattering prevention plate [2].

NOTE

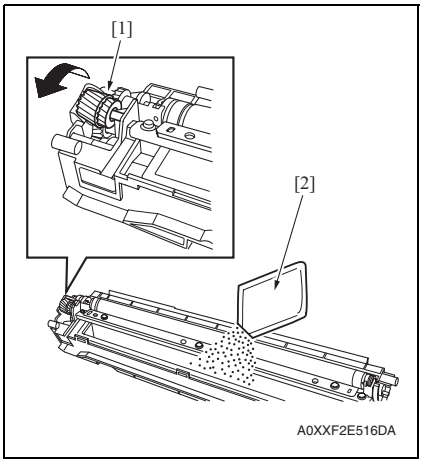
- **When securing the developer scattering prevention plate, tighten screws in the order of one on one edge (a), one at the center (b), and one on the other edge (c).**
- **When attaching the developer scattering prevention plate, make sure that the tabs of the developer scattering prevention plate are inserted into the slots [3].**



14. Tilt the developing unit as shown in the illustration. While turning the gear [1] in the direction of the arrow, dump the developer [2].

NOTE

- **Make sure that the magnet roller [3] is placed on the upper side of the developing unit when dumping the developer [2].**
  Old developer adhering to the gears and rolls can cause their breakage.
- **Turning the gear backward at this time could damage the sheet for cleaning the TCR sensor.**
- **Dump developer until almost no developer sticks to the magnet roller.**



15. While turning the gear [1] in the direction of the arrow, pour a packet of developer [2].

NOTE

- **Shake the packet of developer well before pouring.**

16. To reinstall, reverse the order of removal.

NOTE

- **Do not install the toner bottle at this stage.**

17. Turn ON the power switch.

18. Perform [SERVICE MODE] - [FUNCTION] - [TCR AUTO ADJUST].
See P.110

NOTE

- **To obtain the correct adjustment value, make this adjustment while the toner bottle is removed.**

19. Install the toner bottle.

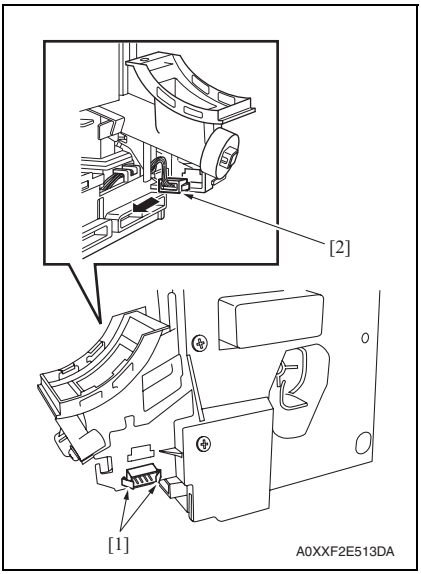
4.1.2 Replacing the drum

A. Periodically replacing parts/cycle

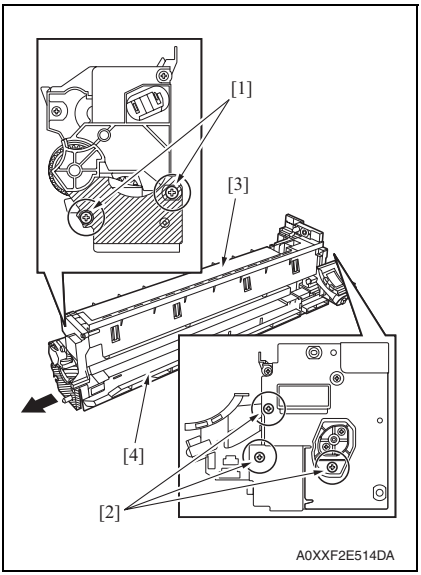
- Drum: Every 55,000 counts

B. Procedure

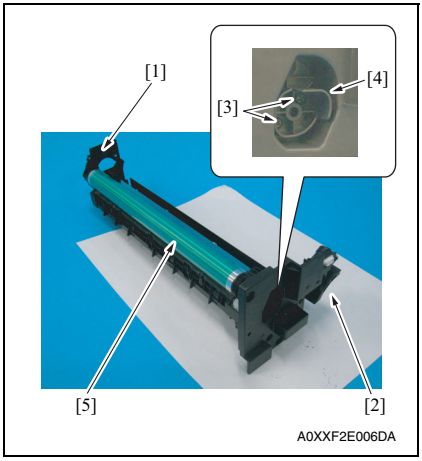
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40



3. Release the tabs [1] and disconnect the connector [2] from the imaging unit.



4. Remove two screws [1] in the rear of the imaging unit.
5. Remove three screws [2] at the front of the imaging unit.
6. While slightly pulling the area below the drum (diagonally shaded area) in the direction of arrow, separate the drum unit [3] from the developing unit [4].



7. Place the drum unit [1] as shown in the illustration.

NOTE

- **Developer can spill from the portion [2] shown in the illustration. Place the drum unit on a sheet of paper to prevent developer from making the site dirty.**

8. Remove two screws [3] and remove the bracket [4] that holds the drum in place.

9. Remove the drum [5].

NOTE

- **Protect the drum that has been removed with a protective cloth.**
- **If the drum has been replaced with a new one, apply a coat of toner to the surface of the new drum.**

See P.17

10. To reinstall, reverse the order of removal.

11. Turn ON the power switch.

12. Select [SERVICE MODE] - [CLEAR DATA] - [SUPPLIES COUNTER] and clear the counter value of [I/U Life].

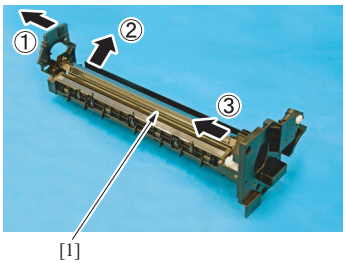
4.1.3 Replacing the drum charge corona assy

A. Periodically replacing parts/cycle

- Drum charge corona assy: Every 55,000 counts

B. Procedure

1. Remove the toner bottle.
   See P.19
2. Remove the imaging unit.
   See P.40
3. Remove the drum.
   See P.14



4. Remove the drum charge corona [1] as shown in the illustration.

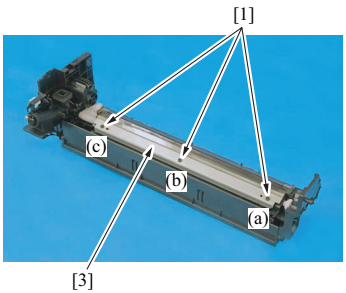
4.1.4 Replacing the cleaning blade

A. Periodically replacing parts/cycle

- Cleaning blade: Every 55,000 counts

B. Procedure

1. Remove the toner bottle.
   See P.19
2. Remove the imaging unit.
   See P.40
3. Remove the drum.
   See P.14
4. Remove the drum charge corona assy.
   See P.16



5. Remove three screws [1], and remove the cleaning blade [2].

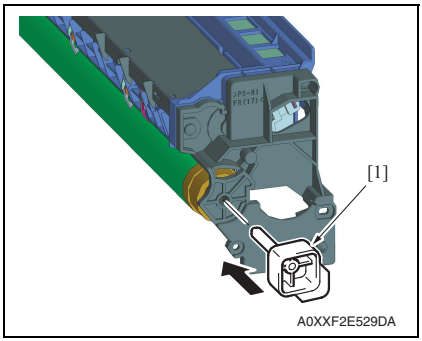
NOTE

- **When securing the cleaning blade, tighten screws in the order of one on one edge (a), one at the center (b), and one on the other edge (c).**
- **When the cleaning blade has been replaced, apply a coat of toner to the surface of the drum.**
  See P.17

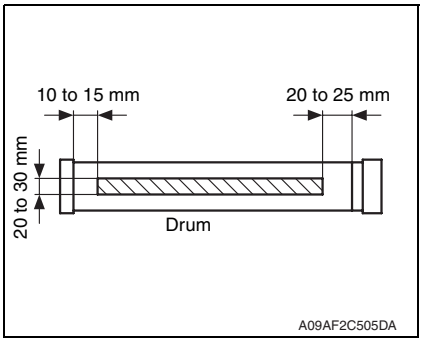
4.1.5 Application of toner

NOTE

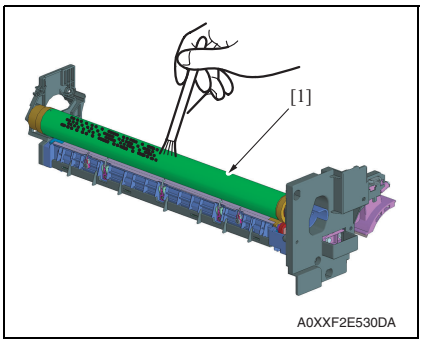
- **Perform these steps when the drum and/or cleaning blade have been replaced.**



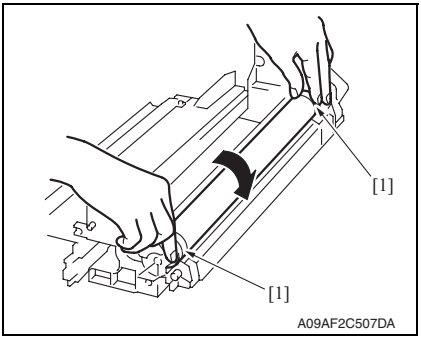
1. With the imaging unit divided into the drum assy and developing assy, install the drum positioning jig [1] in the rear of the drum assy.



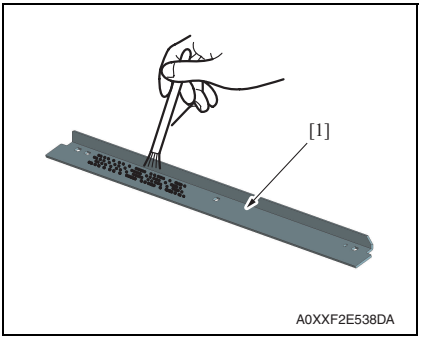
<<Area to which toner is to be applied>>



2. Using a brush, apply a light coat of toner to the surface of the drum [1].



3. Hold both ends [1] of the drum with your both hands and turn the drum a half turn in the direction of the arrow.



4. Using a brush, apply a light coat of toner to the surface of the cleaning blade [1].

4.1.6 Replacing the toner bottle

A. Periodically replacing parts/cycle

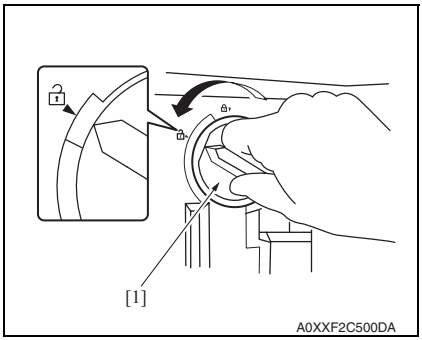
- Toner bottle (TN116): Every 11,000 prints

B. Procedure

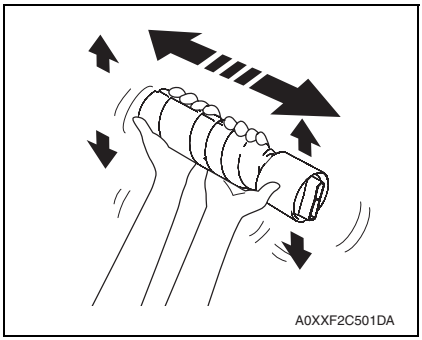
NOTE

- **Do not install or remove the toner bottle while the imaging unit is not installed. Doing so can cause a toner spill.**

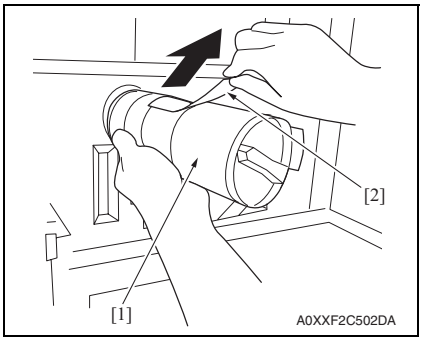
1. Open the front door.



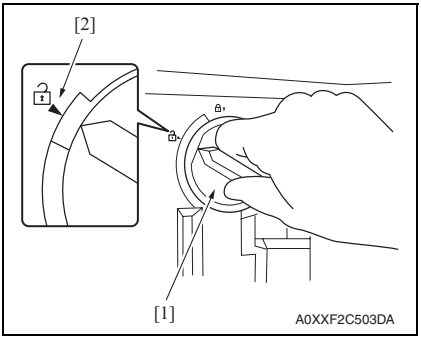
2. Rotate the empty toner bottle [1] counterclockwise to unlock it.
3. Pull out the toner bottle [1].



4. Remove the new toner bottle from its packaging, and shake it side to side 5 to 10 times.



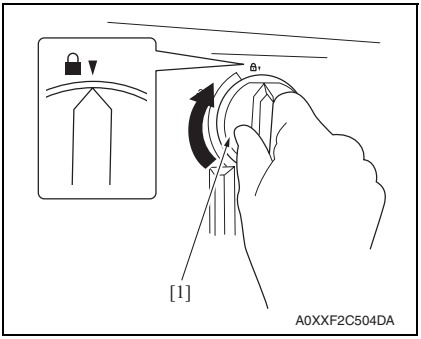
5. Insert the toner bottle [1] into the machine a little.
6. While holding the seal of the toner bottle up, slowly peel off the seal [2].



7. Insert the toner bottle [1] into the machine.

NOTE

- **Align the tip of the knob of the toner bottle with the mark of ▼ [2] indicated on the machine as shown in the illustration.**



8. Rotate the toner bottle [1] clockwise to lock it.

9. Close the front cover.

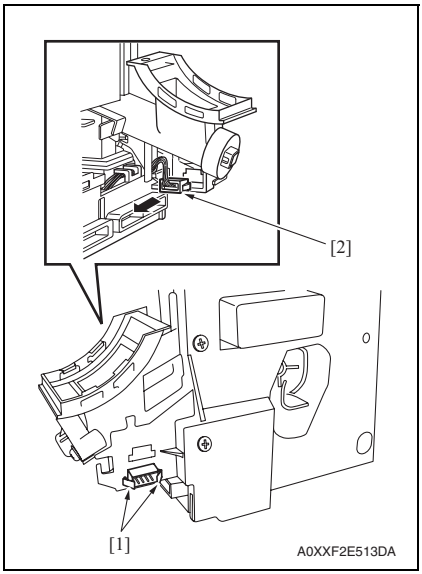
4.1.7 Cleaning of the Ds collars

A. Periodically cleaning parts/cycle

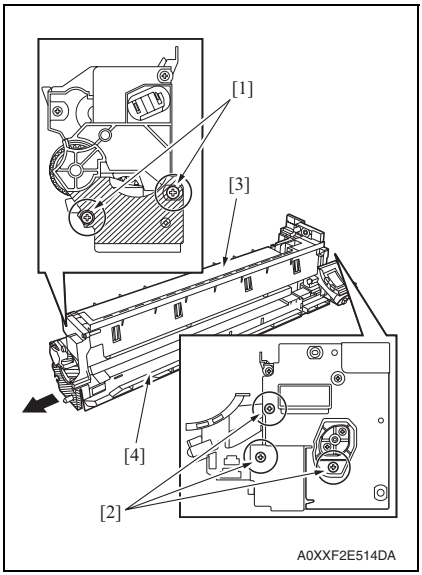
- Ds collars: Every 55,000 counts

B. Procedure

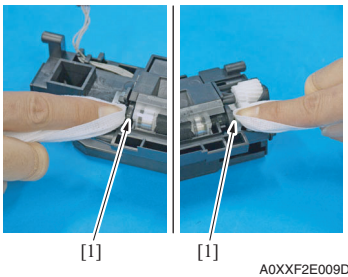
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40



3. Release the tabs [1] and disconnect the connector [2] from the imaging unit.



4. Remove two screws [1] in the rear of the imaging unit.
5. Remove three screws [2] at the front of the imaging unit.
6. While slightly pulling the area below the drum (diagonally shaded area) in the direction of arrow, separate the drum unit [3] from the developing unit [4].



7. Using a cleaning pad with alcohol, wipe the two Ds collars [1] clean of dirt.

8. To reinstall, reverse the order of removal.

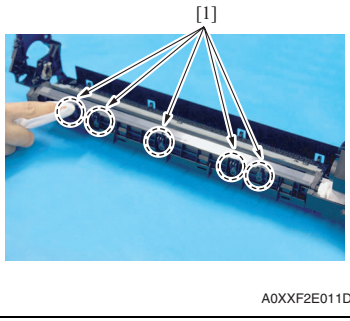
4.1.8 Cleaning of the drum separator fingers

A. Periodically cleaning parts/cycle

- Drum paper separator fingers: Every 55,000 counts

B. Procedure

1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Remove the drum.
See P.14



4. Using a cleaning pad with alcohol, wipe the five separator fingers [1] clean of dirt.

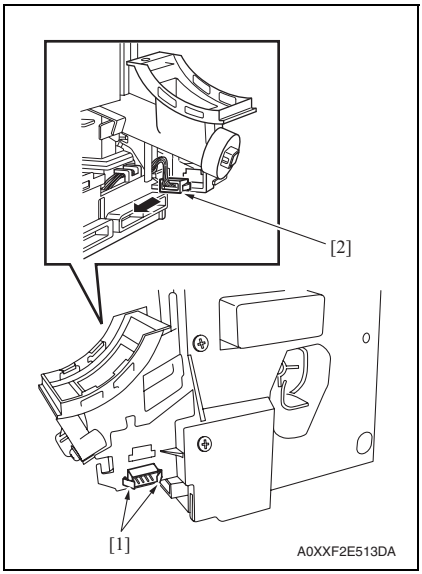
4.1.9 Cleaning of the developer scattering prevention plate

A. Periodically cleaning parts/cycle

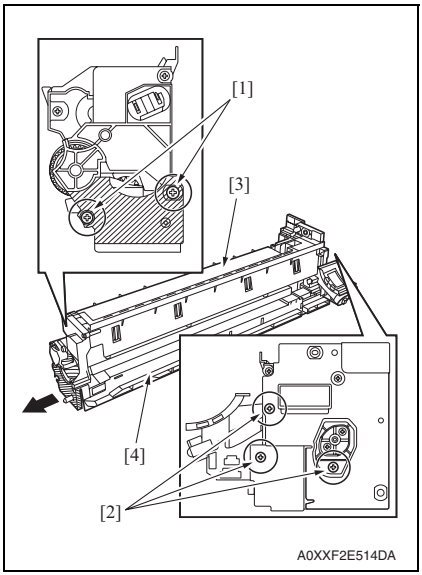
- Developer scattering prevention plate: Every 55,000 counts

B. Procedure

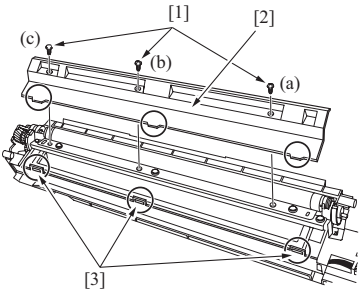
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40

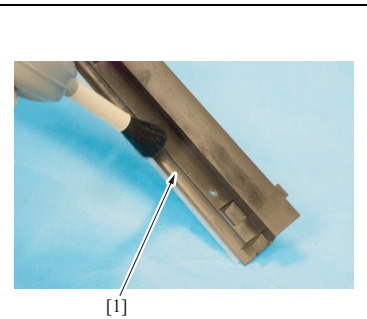


3. Release the tabs [1] and disconnect the connector [2] from the imaging unit.



4. Remove two screws [1] in the rear of the imaging unit.
5. Remove three screws [2] at the front of the imaging unit.
6. While slightly pulling the area below the drum (diagonally shaded area) in the direction of arrow, separate the drum unit [3] from the developing unit [4].





9. To reinstall, reverse the order of removal.

7. Remove three screws [1], and remove the developer scattering prevention plate [2].

NOTE

- **When securing the developer scattering prevention plate, tighten screws in the order of one on one edge (a), one at the center (b), and one on the other edge (c).**
- **When attaching the developer scattering prevention plate, make sure that the tabs of the developer scattering prevention plate are inserted into the slots [3].**

8. Using a brush, whisk dust and dirt off the surface of the developer scattering prevention plate [1].

4.2 Conveyance section

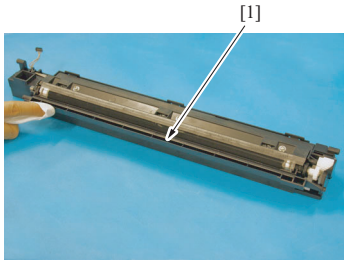
4.2.1 Cleaning of the timing roller

A. Periodically cleaning parts/cycle

- Timing roller: Every 55,000 counts

B. Procedure

1. Open the right door.



2. Using a cleaning pad dampened with alcohol, wipe the timing roller [1] clean of dirt.

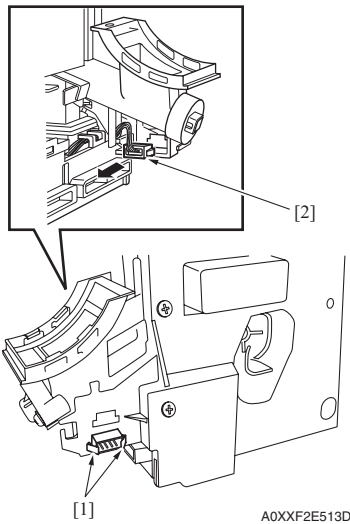
4.2.2 Cleaning of the pre-image transfer guide plate

A. Periodically cleaning parts/cycle

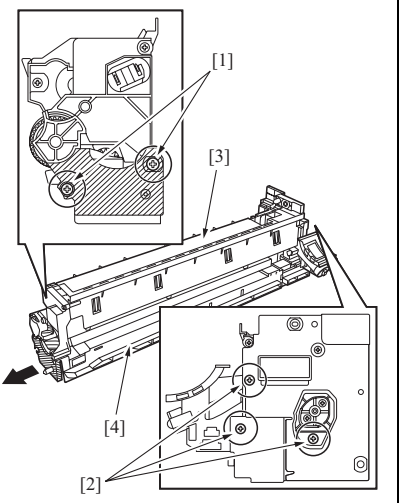
- Pre-image transfer guide plate: Every 55,000 counts

B. Procedure

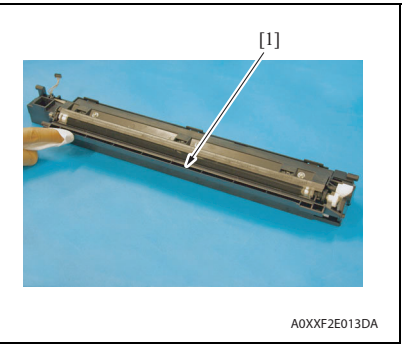
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40



3. Release the tabs [1] and disconnect the connector [2] from the imaging unit.



4. Remove two screws [1] in the rear of the imaging unit.
5. Remove three screws [2] at the front of the imaging unit.
6. While slightly pulling the area below the drum (diagonally shaded area) in the direction of arrow, separate the drum unit [3] from the developing unit [4].



7. Using a cleaning pad with alcohol, wipe the pre-image transfer upper guide plate [1] clean of dirt.

4.3 Fusing section

4.3.1 Replacing the fusing unit

⚠ CAUTION

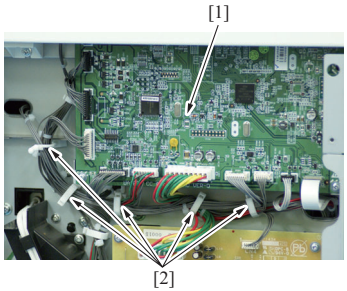
- **The temperature gets high in the vicinity of the fusing unit. You may get burned when you come into contact with the area. Before replacement operations, make sure that more than 20 minutes have elapsed since the main and sub power switches were turned off.**

A. Periodically replacing parts/cycle

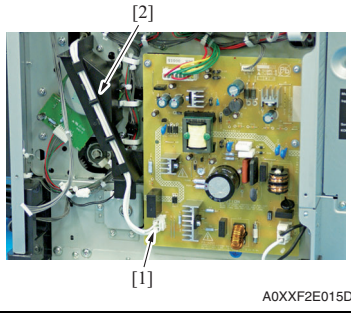
- Fusing unit: Every 100,000 counts

B. Procedure

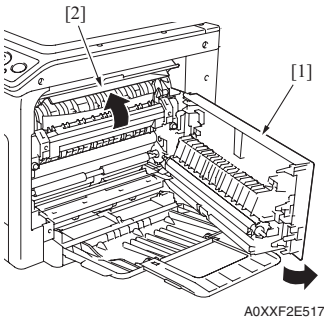
1. Remove the rear right cover/1.
See P.34
2. Remove the rear right cover/2.
See P.34
3. Remove the rear cover.
See P.34



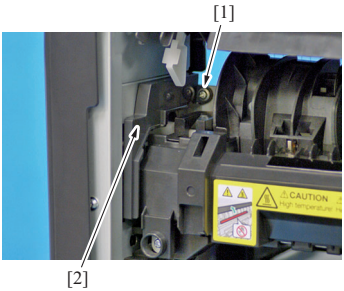
4. Disconnect the connector (P004) [1] on the printer control board.
5. Remove the harness from five wire saddles [2].



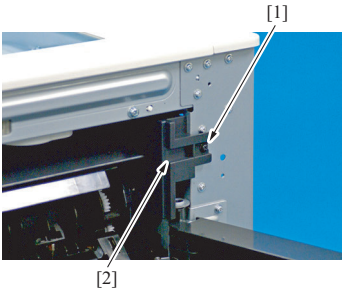
6. Disconnect the connector (CN2) [1] on the DC power supply.
7. Remove the harness from the harness guide [2].



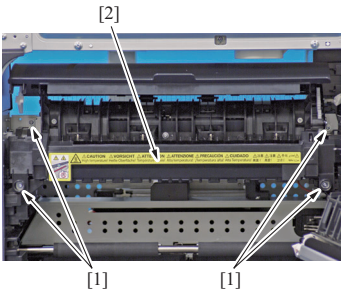
8. Open the right door [1].
9. Open the fusing unit cover [2].



10. Remove the screw [1], and remove the front side cover [2].



11. Remove the screw [1], and remove the rear side cover [2].



12. Remove four screws [1], and remove the fusing unit [2].
13. To reinstall, reverse the order of removal.
14. Turn ON the power switch.
15. Select [SERVICE MODE] - [CLEAR DATA] - [PM COUNTER] and clear the counter value of [FUSING].

5. OTHER MAINTENANCE ITEMS

5.1 Disassembly/adjustment prohibited items

A. Paint-locked screws

NOTE
- **To prevent loose screws, a screw lock in blue or green series color is applied to the screws.**
- **The screw lock is applied to the screws that may get loose due to the vibrations and loads created by the use of machine or due to the vibrations created during transportation.**
- **If the screw lock coated screws are loosened or removed, be sure to apply a screw lock after the screws are tightened.**

B. Red-painted screws

NOTE
- **The screws which are difficult to be adjusted in the field are painted in red in order to prevent them from being removed by mistake.**
- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE
- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION
- **When removing a circuit board or other electrical component, refer to "Handling of PWBs" and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

E. Precautions for disassembly
- **When accessing a hard-to-view or narrow spot, be careful about sharp edges and burrs of the frame and parts.**
  They may injure your hands or fingers.
- **If it is absolutely necessary to service the machine with the door open or external covers removed, always be attentive to the motion of the internal parts.**
  A normally protected part may cause unexpected hazards.
- **When removing a part that secures a motor, gear, or other moving part, disassembling a unit, or reinstalling any of such parts and units, be careful about moving parts and use care not to drop any part or unit. During the service procedure, give sufficient support for any heavy unit.**
  You may be injured by a falling part or unit.

F. Precautions during setup or transportation

- **Whenever mounting an option on the machine, be attentive to the motion of the fellow worker of the joint work.**
  The fellow worker may be injured with his or her finger or hand pinched between the machine and the option.
- **When mounting an option on the machine, be careful about the clearance between the machine and the option.**
  You may be injured with your finger or hand pinched between the machine and the option.
- **Do not leave the machine unattended during transportation, installation, and inspection of the machine. If it is to be unavoidably left unattended, face protrusions toward the wall or take other necessary risk reducing action.**
  The user may stumble over a protrusion of the machine or be caught by a cable, falling to the floor or being injured.

5.1.1 PH unit

A. Reason for prohibition

- The laser runs inside the PH unit. Opening the cover may cause dust to enter and interrupt the laser. Do no remove any screw which may disassemble the PH unit.

5.1.2 Fusing unit

A. Reason for prohibition

- Inner part of the fusing unit and the position of the fusing roller are adjusted prior to shipping. Do not remove any screw which may disassemble the fusing unit.

5.2 Disassembly/reassembly parts list

Section	Part name	Ref. page
Exterior parts	Front door	P.32
	Front cover	P.33
	Left cover	P.33
	Rear right cover/1	P.34
	Rear right cover/2	P.34
	Rear cover	P.34
	Scanner right cover	P.35
	Scanner rear cover	P.35
	Paper exit tray (left) / Paper exit tray (right)	P.36
	Operation panel	P.38
	Original glass	P.37
Units	Tray 1	P.38
	Multi bypass tray (MB-503)	P.39
	Imaging unit	P.40
	PH unit	P.41
	CIS module (CIS)	P.43
	Transfer roller unit	P.44
	Scanner unit	P.45
Boards	Printer control board (PRCB)	P.46
	High voltage unit (HV1)	P.47
	DC power supply (DCPU)	P.48
Other parts	Tray 1 feed roller	P.48
	Tray 1 separation pad	P.49
	Ozone filter	P.50
	Multi bypass tray feed roller	P.50
	Multi bypass tray separation roller assy	P.52
	Main motor (M1)	P.53
	Toner supply motor (M2)	P.54
	Scanner motor (M4)	P.55
	DC power supply fan motor (FM5)	P.56
	Registration clutch (CL1)	P.57
	Tray1 paper feed clutch (CL2)	P.57
	Bypass paper feed clutch (CL3)	P.58
	Bypass pick-up solenoid (SD1)	P.59

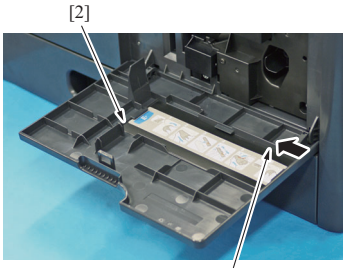
5.3 Cleaning parts list

Section	Part name	Ref. page
Tray 1	Tray 1 feed roller	P.60
	Tray 1 Separation pad	P.60
Scanner section	Original glass	P.61
Manual bypass tray	Multi bypass tray separation roller	P.61
	Multi bypass tray feed roller	P.61

5.4 Disassembly/reassembly procedure

5.4.1 Front door

1. Open the front door.

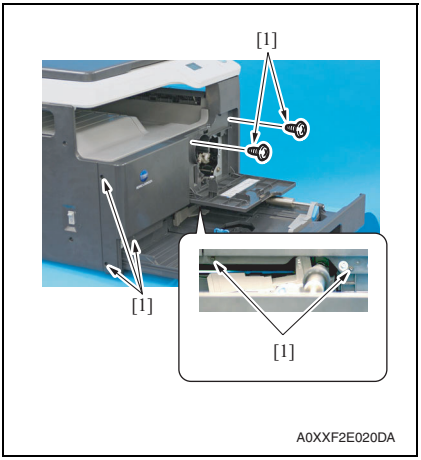


2. While releasing the tab [1], remove the front door [2].

3. To reinstall, reverse the order of removal.

5.4.2 Front cover

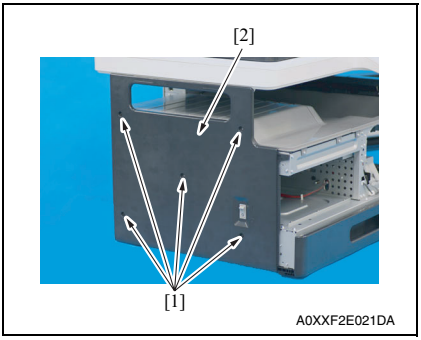
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Open the front door.
4. Slide out the tray 1.



5. Remove seven screws [1], and remove the front cover [2].
6. To reinstall, reverse the order of removal.

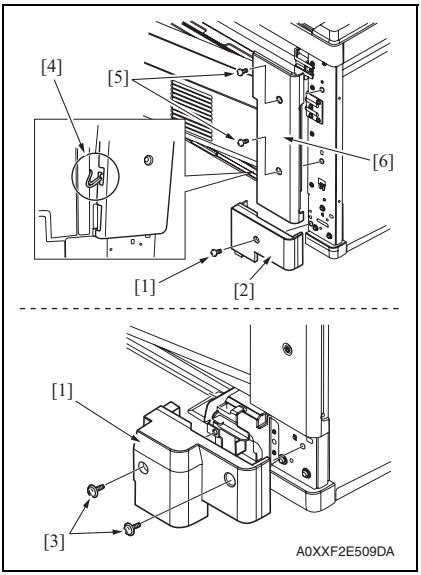
5.4.3 Left cover

1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Remove the front cover.
See P.33



4. Remove four screws [1], and remove the left cover [2].
5. To reinstall, reverse the order of removal.

5.4.4 Rear right cover/1, Rear right cover/2



1. Remove the screw [1], and remove the rear right cover/1 (lower) [2].

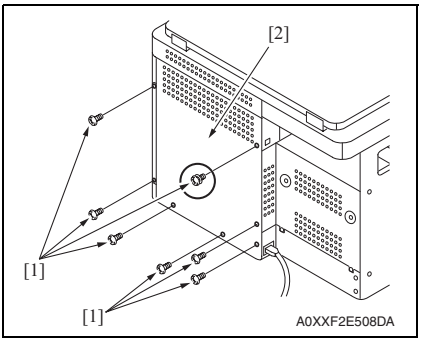
NOTE

- **If the multi bypass tray is installed, remove two screws [3].**
- **Remove the harness that is hung on the guide [4].**

2. Remove two screws [5], and remove the rear right cover/2 (upper) [6].

3. To reinstall, reverse the order of removal.

5.4.5 Rear cover



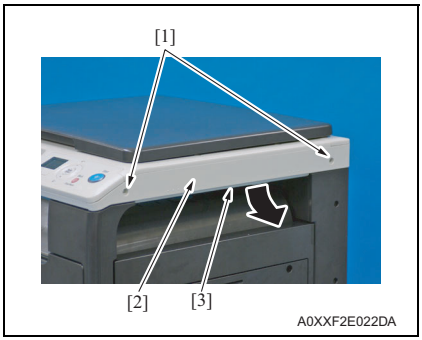
1. Remove seven screws [1], and remove the rear cover [2].

NOTE

- **When reinstalling the rear cover, note that only the circled screw is different from the other screws.**

2. To reinstall, reverse the order of removal.

5.4.6 Scanner right cover



1. Remove two screws [1], and remove the scanner right cover [2].

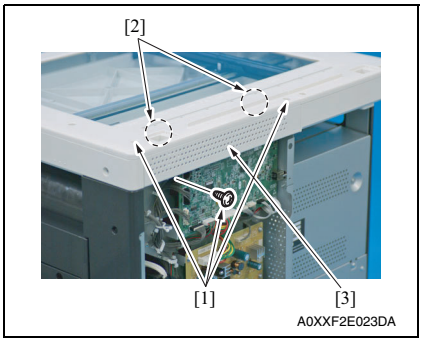
NOTE

- **While releasing the tab [3], remove the cover as shown in the illustration.**

2. To reinstall, reverse the order of removal.

5.4.7 Scanner rear cover

1. Remove the rear cover.
See P.34



2. Remove three screws [1], and remove the scanner rear cover [2].

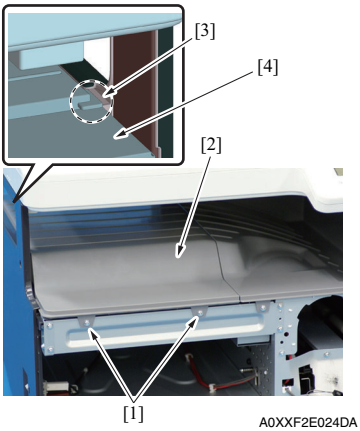
NOTE

- **When reinstalling the scanner rear cover, completely insert its two tabs [2] into the holes of the scanner.**

3. To reinstall, reverse the order of removal.

5.4.8 Paper exit tray (left) / Paper exit tray (right)

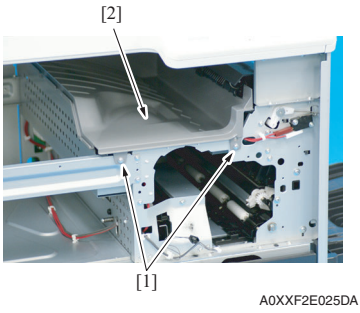
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Remove the front cover.
See P.33



4. Remove two screws [1], and remove the paper exit tray (left) [2].

NOTE

- **When reinstalling the paper exit tray (left), make sure that the rib [3] of the paper exit tray (left) sits on the top of the left rear cover [4].**

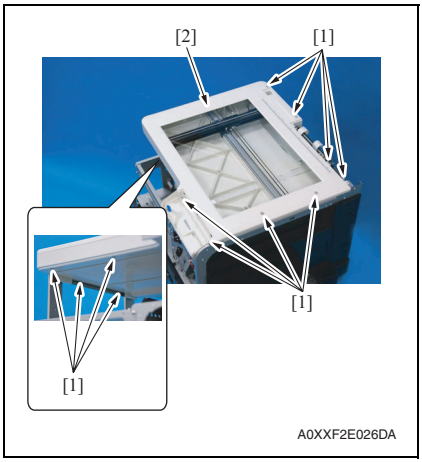


5. Remove two screws [1], and remove the paper exit tray (right) [2].

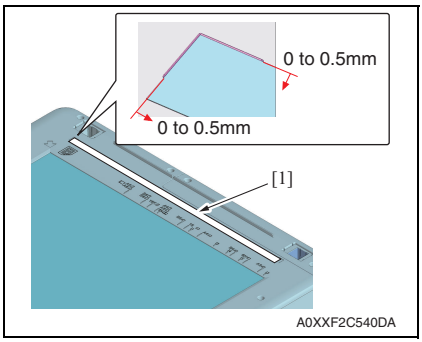
6. To reinstall, reverse the order of removal.

5.4.9 Original glass

1. Remove the left cover.
   See P.33
2. Remove the scanner right cover.
   See P.35
3. Remove the operation panel.
   See P.38
4. Remove the rear cover.
   See P.34
5. Remove the scanner rear cover.
   See P.35
6. Remove the toner bottle.
   See P.19
7. Remove the imaging unit.
   See P.40
8. Remove the front cover.
   See P.33
9. Remove the paper exit tray (left) and paper exit tray (right).
   See P.36



10. Remove twelve screws [1], and remove the original glass [2].



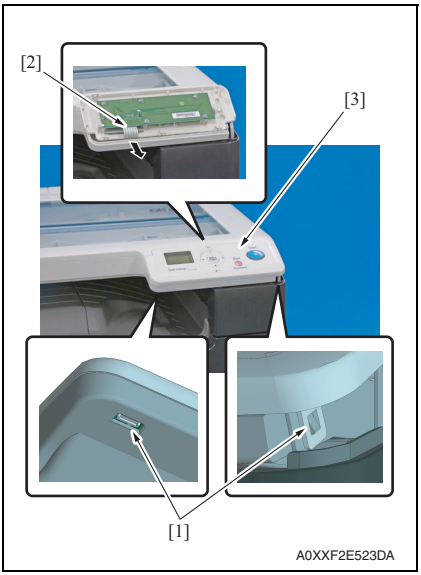
11. To reinstall, reverse the order of removal.

NOTE

- **When affixing the scale label (A0XXPP7B00) [1] during the replacement of the original glass, align the left and rear edges of the scale label with the left and rear protrusions on the main body.**

5.4.10 Operation panel

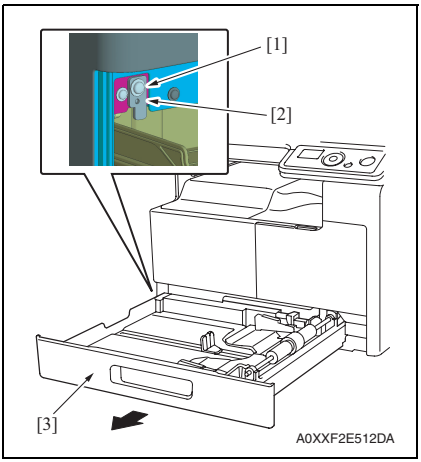
1. Remove the scanner right cover.
See P.35



2. Unlock two tabs [1].
3. Disconnect the flat cable [2], and remove the operation panel [3].
4. To reinstall, reverse the order of removal.

5.4.11 Tray 1

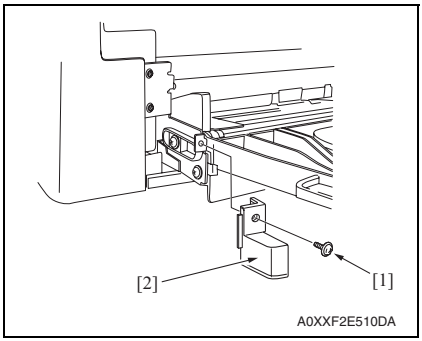
1. Slide out the tray 1.



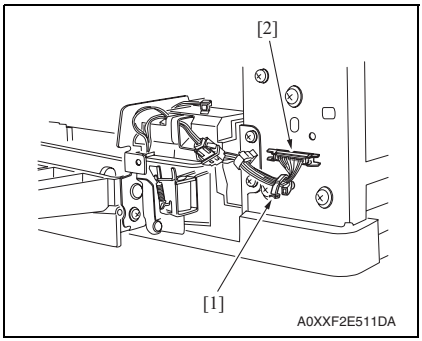
2. Remove the screw [1], and remove the fixed sheet metal [2].
3. Remove the tray 1 [3].
4. To reinstall, reverse the order of removal.

5.4.12 Multi bypass tray

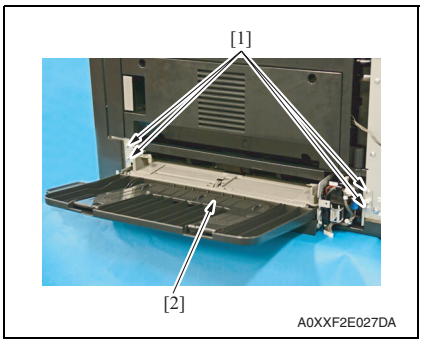
1. Remove the rear right cover/1.
See P.34



2. Remove the screw [1], and remove the cover [2].



3. Remove the harness from the wire saddle [1].
4. Disconnect the connector [2].



5. Remove four screws [1], and remove the multi bypass tray [2].

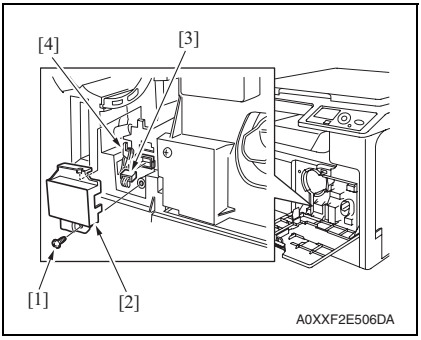
6. To reinstall, reverse the order of removal.

5.4.13 Imaging unit

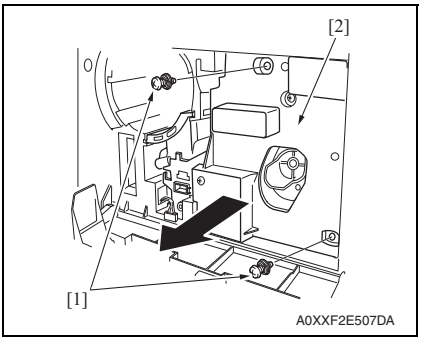
1. Open the right door.
2. Open the front door.
3. Remove the toner bottle.
See P.19

NOTE

- **Do not install or remove the toner bottle while the imaging unit is not installed. Doing so can cause a toner spill.**



4. Remove the screw [1], and remove the cover [2].
5. Disconnect the connector [3].
6. Remove the harness from guide [4].



7. Remove two screws [1], and remove the imaging unit [2].

NOTE

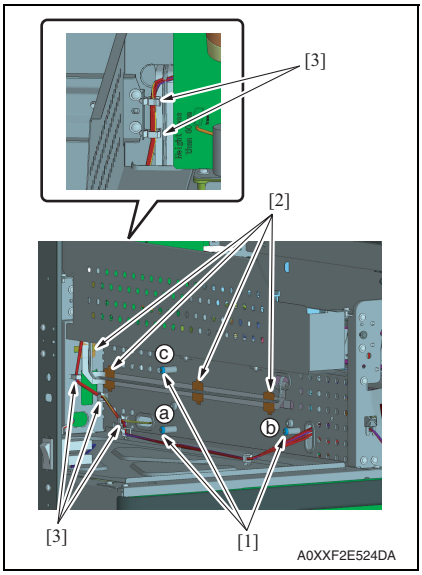
- **Do not install the toner bottle while the imaging unit is not installed.**
- **When installing the imaging unit, use care not to damage the drum.**
- **Before attempting to install the imaging unit, be sure to fully open the right door. Take care that, if the imaging unit is installed with the right door locked halfway, it may interfere with the transfer roller.**
- **When inserting the imaging unit, do that slowly and, when you are sure that the drum gear contacts the mating part, push the imaging unit all the way into position. If this step is done all at once, the drum gear could be damaged.**

5.4.14 PH unit

CAUTION
• **Do not replace the printer head unit while the power is ON. Laser beam generated during the above mentioned activity may cause blindness.**
• **Do not disassemble or adjust the printer head unit. Laser beam generated during the above mentioned activity may cause blindness.**

A. Removal procedure

1. Remove the left cover.
See P.33
2. Remove the rear cover.
See P.34
3. Remove the toner bottle.
See P.19
4. Remove the imaging unit.
See P.40
5. Remove the front cover.
See P.33
6. Remove the paper exit tray (left) and paper exit tray (right).
See P.36
7. Remove the scanner unit.
See P.45

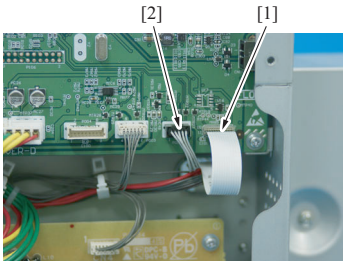


8. Remove three screws that have a spring [1].

NOTE

- **Be careful not to lose spring at this time.**
- **When reinstalling the screws, tighten them in the following order: a → b → c.**

9. Remove four flat cable clamps [2].
10. Remove the harness from five wire saddles [3].



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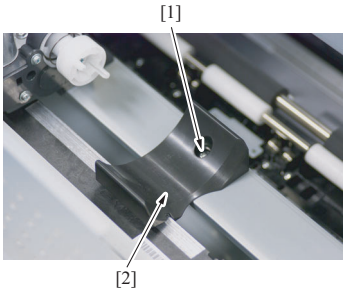
11. Disconnect the flat cable (P001) [1] and the connector (P002) [2].



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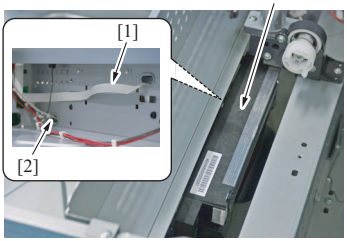
12. Remove the screw [1] and the bracket [2].



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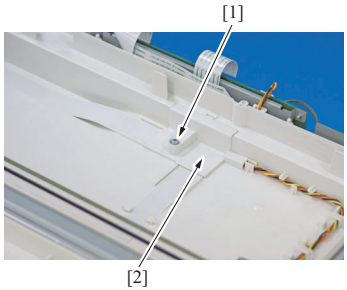
13. Pull out the flat cable [1] and the harness [2], and remove the PH unit [3].

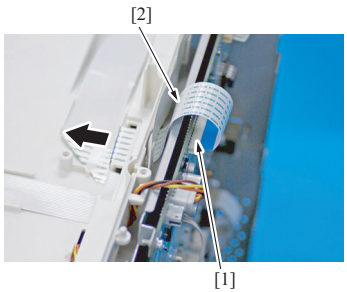
14. To reinstall, reverse the order of removal.
15. Turn ON the power switch.
16. Select [SERVICE MODE] - [CLEAR DATA] - [SUPPLIES COUNTER] and clear the counter value of [PH Start].
17. Select [SERVICE MODE] - [CLEAR DATA] - [SUPPLIES COUNTER] and clear the counter value of [PH Turn].

5.4.15 CIS module (CIS)

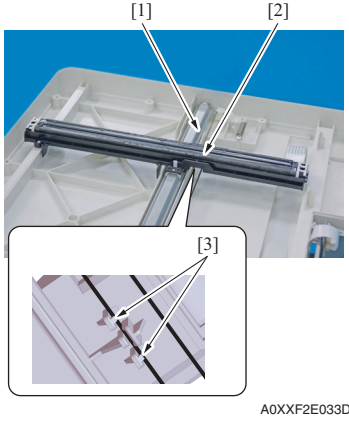
1. Remove the original glass.
See P.37



2. Remove the screw [1], and remove the cover [2].



3. Disconnect the connector (P102) [1] on the printer control board.
4. Pull out the flat cable [2].



5. Remove the CIS module [2] from the belt [1].

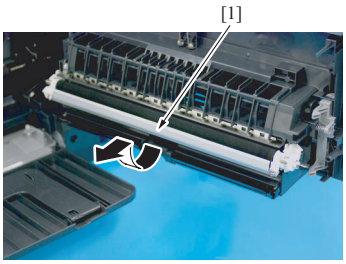
NOTE

- **When installing the CIS module, make sure that the belt is held in place by the two tabs [3] as shown in the illustration.**

6. To reinstall, reverse the order of removal.

5.4.16 Transfer roller unit

1. Open the right door.



2. Remove the transfer roller unit [1] as shown in the illustration.

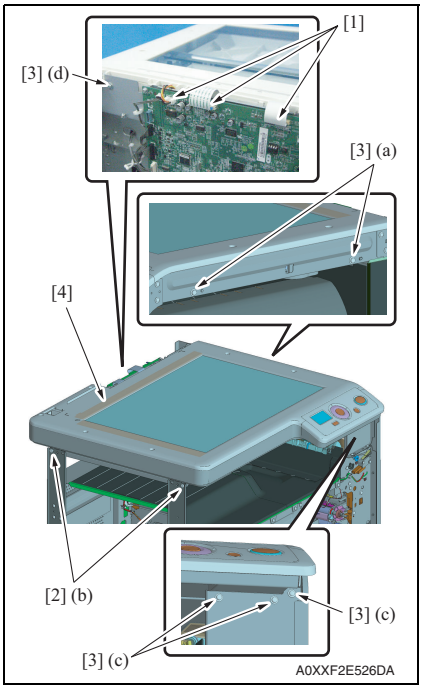
NOTE

- **Indentations or dirt on the surface of the image transfer roller adversely affect the printed image. Do not therefore touch or dirty with toner the surface of the image transfer roller.**
- **When handling the image transfer roller, hold onto the shaft or bearings of the roller.**
- **Do not place a new image transfer roller directly on the floor.**

3. To reinstall, reverse the order of removal.
4. Turn ON the power switch.
5. Select [SERVICE MODE] - [CLEAR DATA] - [PM COUNTER] and clear the counter value of [TRANSFER].

5.4.17 Scanner unit

1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Remove the front cover.
See P.33
4. Remove the left cover.
See P.33
5. Remove the scanner right cover.
See P.35
6. Remove the rear cover.
See P.34
7. Remove the scanner rear cover.
See P.35



8. Disconnect three connectors [1].
9. Remove two shoulder screws [2] and six screws [3], and remove the scanner unit [4].

NOTE

- **To reinstall the scanner unit, place the machine on the top of a flat table.**
- **Tighten the screws in the following order: (a) → (b) → (c) → (d)**

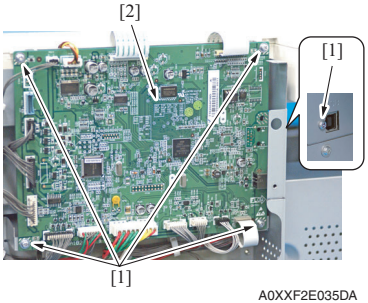
10. To reinstall, reverse the order of removal.

NOTE

- **When affixing the scale label (A0XXPP7B00) [1], align the left and rear edges of the scale label with the left and rear protrusions on the main body.**
See P.37

5.4.18 Printer control board (PRCB)

1. Remove the rear cover.
See P.34
2. Remove the scanner rear cover.
See P.35



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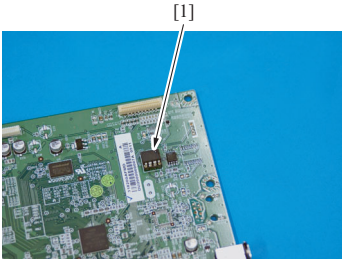
3. Disconnect all connectors from the printer control board.
4. Remove five screws [1], and remove the printer control board [2].



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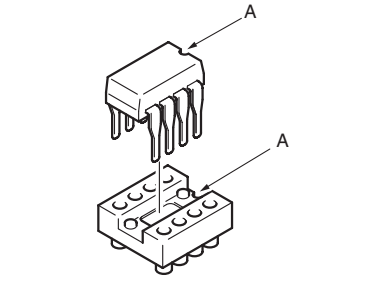
NOTE
- **When the printer control board (PRCB) is replaced with a new one, EEPROM (U8) [1] must be demounted from the old PRCB and remounted on the new PRCB. Mount the EEPROM (U8) [1] of the old PRCB on the new PRCB.**



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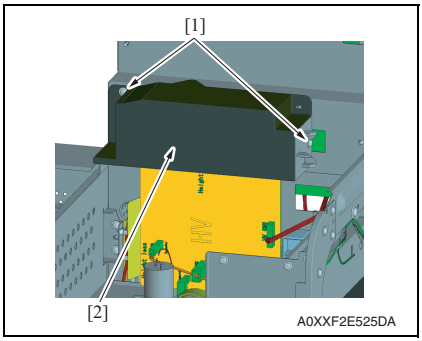
NOTE
- **Note the alignment notch marked with A on the EEPROM (U8) when mounting the IC.**

5. To reinstall, reverse the order of removal.

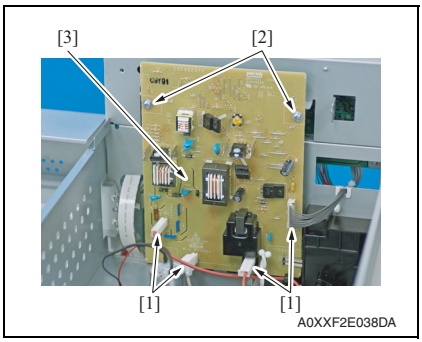
NOTE
- **When the printer control board is to be replaced, rewriting both the controller and engine firmware to the latest one.**
See P.63

5.4.19 High voltage unit (HV1)

1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Remove the front cover.
See P.33
4. Remove the paper exit tray (left) and paper exit tray (right).
See P.36
5. Remove the rear right cover/1.
See P.34
6. Remove the rear right cover/2.
See P.34
7. Remove the rear cover.
See P.34
8. Remove the fusing unit.
See P.30
9. Remove the scanner unit.
See P.45



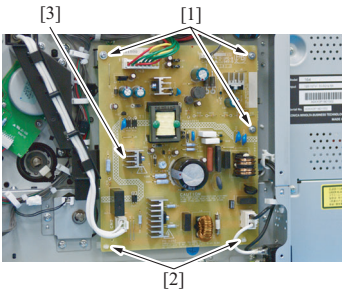
10. Remove two screws [1], and remove the paper exit inside cover [2].



11. Disconnect four connectors [1].
12. Remove two screws [1], and remove the high voltage unit [2].
13. To reinstall, reverse the order of removal.

5.4.20 DC power supply (DCPU)

1. Remove the rear cover.
See P.34



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2. Disconnect all connectors from the DC power supply.
3. Remove three screws [1] and two card spacers [2], and remove the DC power supply [3].

NOTE

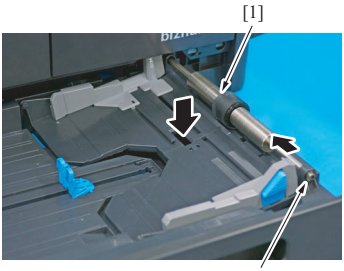
When reinstalling the DC power supply, be sure to note the following points.

- **Make sure that no harness is caught on the back of the board.**
- **Make sure that no harness is caught in the notch on the plate.**

4. To reinstall, reverse the order of removal.

5.4.21 Tray 1 feed roller

1. Slide out the tray 1.



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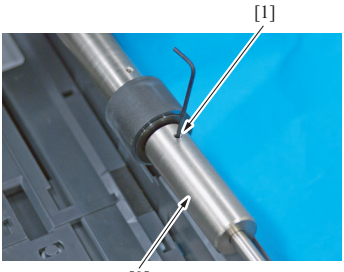
2. Press down the paper lifting plate.
3. Snap off the E-ring [2] from the feed roller assy [1].
4. Slide the feed roller assy [1] to the rear and pull it off the bushing at the front.



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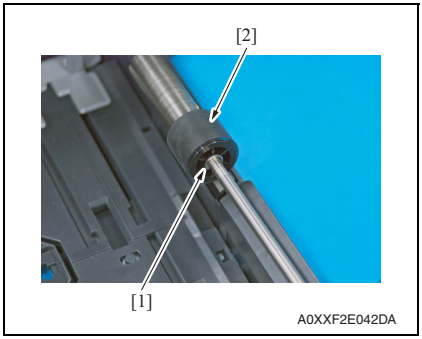
5. Loosen the set screw [1] with the hexagon wrench (2.5 mm), and remove the weight [2].

NOTE

- **When reinstall the weight, tighten the set screw with the weight slightly pushed against the feed roller.**

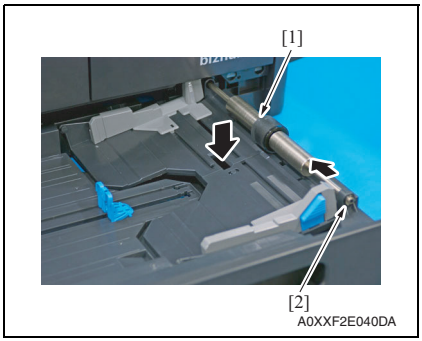


6. Snap off the E-ring [1], and remove the tray1 feed roller [2].

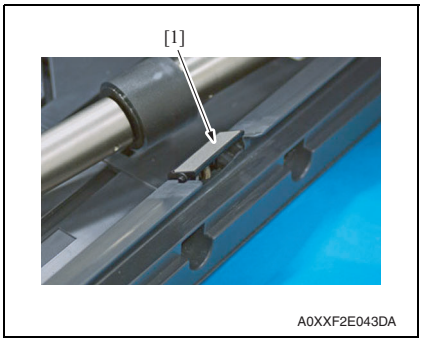
7. To reinstall, reverse the order of removal.
8. Turn ON the power switch.
9. Select [SERVICE MODE] - [CLEAR DATA] - [PM COUNTER] and clear the counter value of [TRAY1].

5.4.22 Tray 1 separation pad

1. Slide out the tray 1.



2. Press down the paper lifting plate.
3. Snap off the E-ring [2] from the feed roller assy [1].
4. Slide the feed roller assy [1] to the rear and pull it off the bushing at the front.



5. Remove the tray 1 separation pad [1].

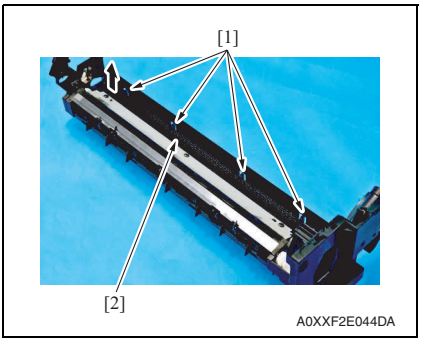
NOTE

- **Be careful not to lose spring at this time.**

6. To reinstall, reverse the order of removal.
7. Turn ON the power switch.
8. Select [SERVICE MODE] - [CLEAR DATA] - [PM COUNTER] and clear the counter value of [TRAY1].

5.4.23 Ozone filter

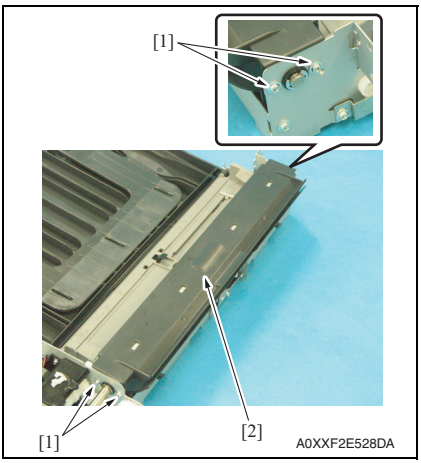
1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Remove the drum.
See P.14
4. Remove the drum charge corona assy.
See P.16



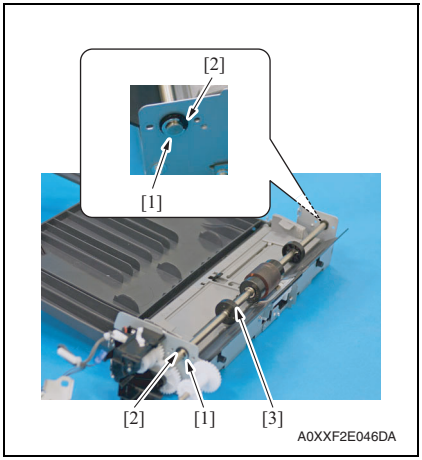
5. While releasing four tabs [1], remove the ozone filter [2].
6. To reinstall, reverse the order of removal.
7. Turn ON the power switch.
8. Select [SERVICE MODE] - [CLEAR DATA] - [PM COUNTER] and clear the counter value of [OZONE].

5.4.24 Multi bypass tray feed roller

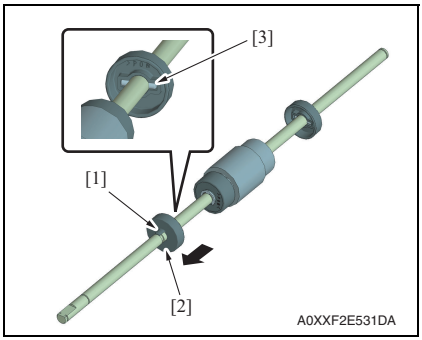
1. Remove the multi bypass tray.
See P.39
2. Remove the bypass paper feed clutch.
See P.58



3. Remove four screws [1], and remove the multi bypass tray upper cover [2].



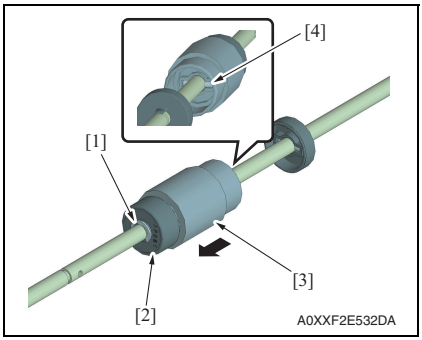
4. Remove two E-rings [1] and two bearings [2].
5. Remove the multi bypass tray feed roller assy [3].



6. While releasing the tab [1], remove the collar [2].

NOTE

- **Be careful not to lose shaft [3] at this time.**



7. Remove the E-ring [1], and remove the weight [2].
8. Remove the multi bypass tray feed roller [3].

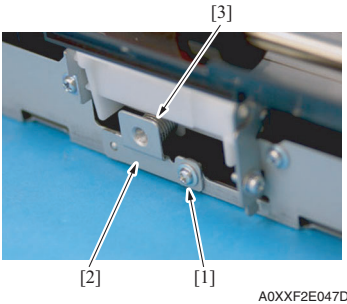
NOTE

- **Be careful not to lose shaft [4] at this time.**

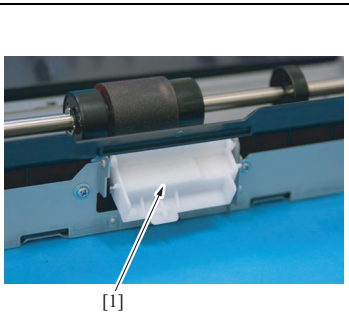
9. To reinstall, reverse the order of removal.
10. Select [SERVICE MODE] - [CLEAR DATA] - [PM COUNTER] and clear the counter value of [BYPASS].

5.4.25 Multi bypass tray separation roller assy

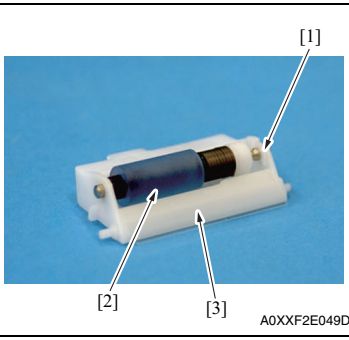
1. Remove the multi bypass tray.
See P.39



2. Remove the screw [1].
3. Remove the fixed sheet metal [2] and the spring [3].



4. Remove the multi bypass tray separation roller assy [1].



5. Remove the C-clip [1], and remove the multi bypass tray separation roller assy [2].

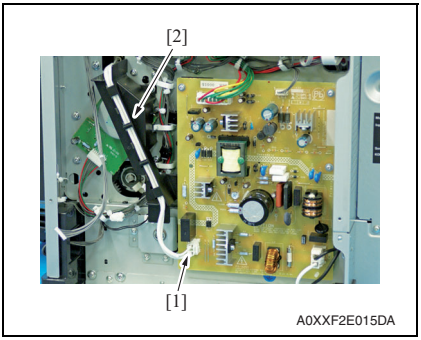
NOTE

- **Take care to avoid scratching or creasing the film [3].**

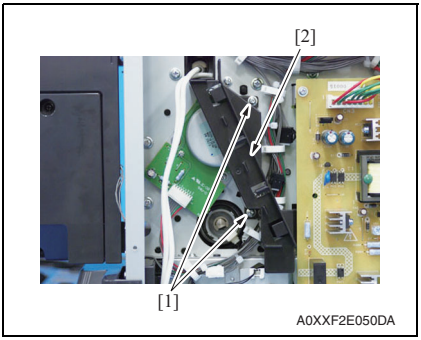
6. To reinstall, reverse the order of removal.
7. Select [SERVICE MODE] - [CLEAR DATA] - [PM COUNTER] and clear the counter value of [BYPASS].

5.4.26 Main motor (M1)

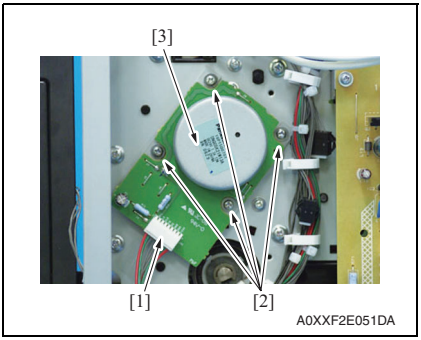
1. Remove the rear cover.
See P.34



2. Disconnect the connector (CN2) [1] on the DC power supply.
3. Remove the harness from the harness guide [2].



4. Remove two screws [1], and remove the harness guide [2].



5. Disconnect the connector [1].
6. Remove four screws (M3x 6) [2], and remove the main motor [3].

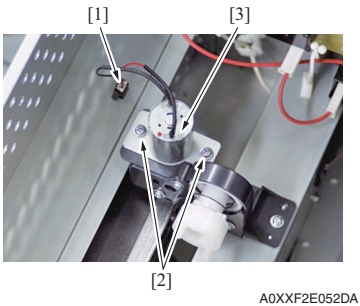
NOTE

- **When reinstalling the main motor, be sure to use the removed screws [2]. If you use a longer screw, it may interfere with the gear.**

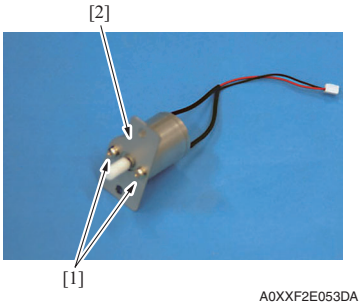
7. To reinstall, reverse the order of removal.

5.4.27 Toner supply motor (M2)

1. Remove the toner bottle.
See P.19
2. Remove the imaging unit.
See P.40
3. Remove the front cover.
See P.33
4. Remove the paper exit tray (left) and paper exit tray (right).
See P.36
5. Remove the scanner unit.
See P.45



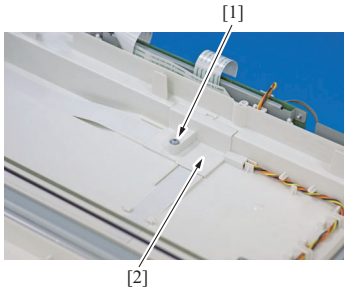
6. Disconnect the connector [1].
7. Remove two screws [2], and remove the toner supply motor assy [3].



8. Remove two screws [2], and remove the toner supply motor [3].
9. To reinstall, reverse the order of removal.

5.4.28 Scanner motor (M4)

1. Remove the original glass
See P.37



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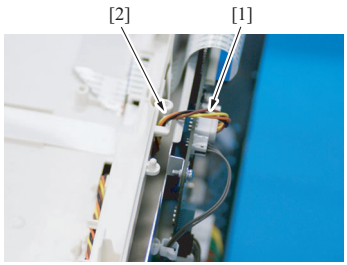
2. Remove the screw [1], and remove the cover [2].



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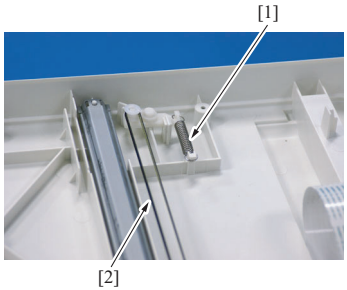
3. Disconnect the connector (P101) [1] on the printer control board.
4. Pull out the harness [2].



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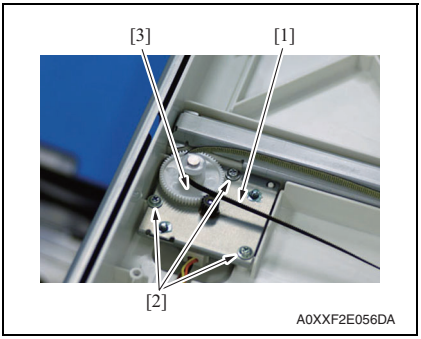
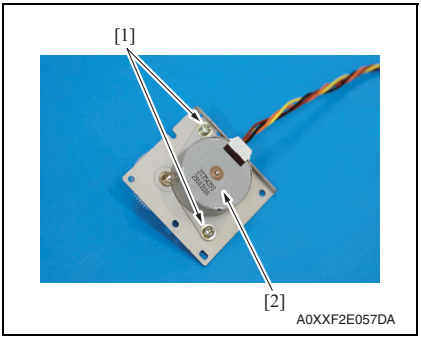
5. Remove the spring [1] to reduce the tension of the belt [2].



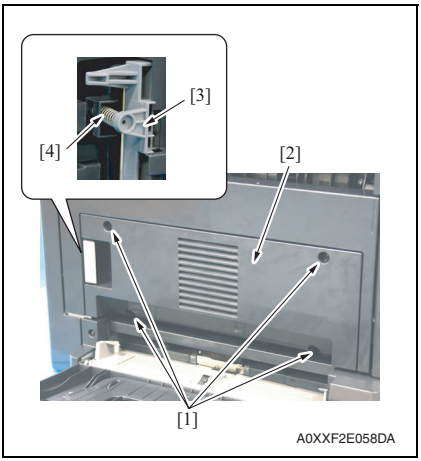
6. Remove the belt [1].
7. Remove three screws [2], and remove the scanner motor assy [3].



8. Remove two screws [1], and remove the scanner motor [2].

9. To reinstall, reverse the order of removal.

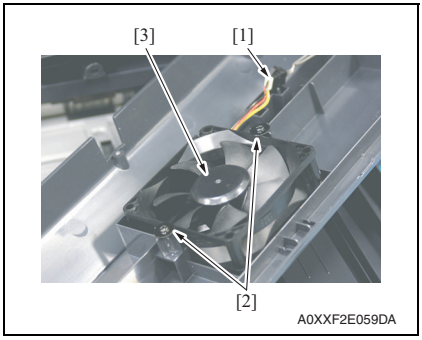
5.4.29 DC power supply fan motor (FM5)



1. Remove four screws [1], and remove the fan motor cover [2].

NOTE

- **As the spring [4] attached to the lock lever [3] comes off, take care not to lose the spring.**

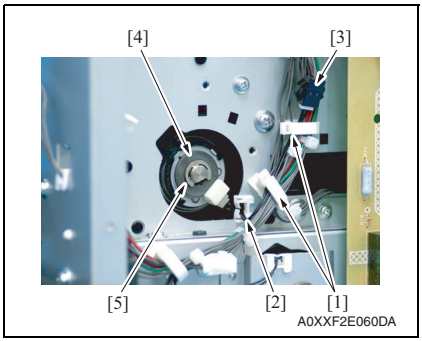


2. Disconnect the connector [1].
3. Remove two screws [2], and remove the DC power supply fan motor [3].

4. To reinstall, reverse the order of removal.

5.4.30 Registration clutch (CL1)

1. Remove the rear cover.
See P.34
2. Remove the main motor.
See P.53

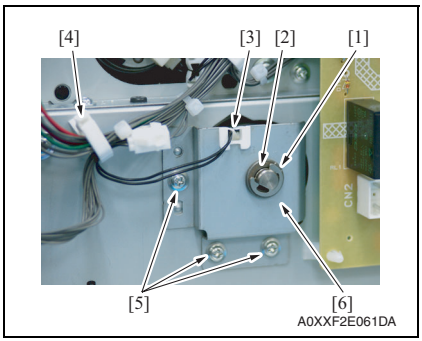


3. Remove the harness from two wire saddles [1] and edge cover [2].
4. Disconnect the connector [3].
5. Remove the E-ring [4], and remove the registration clutch[5].

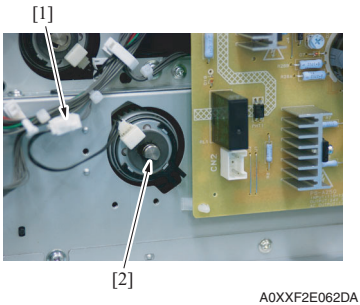
6. To reinstall, reverse the order of removal.

5.4.31 Tray1 paper feed clutch (CL2)

1. Remove the rear cover.
See P.34



2. Remove the E-ring [1] and bearing [2].
3. Remove the harness from the edge cover [3] and wire saddle [4].
4. Remove three screws [5], and remove the sheet metal [6].

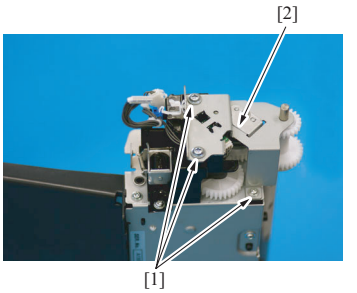


5. Disconnect the connector [1], and remove the tray paper feed clutch [2].

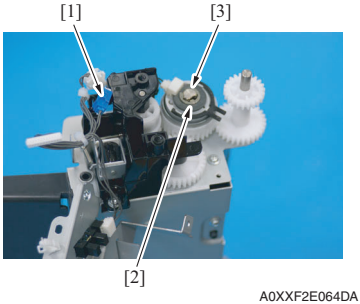
6. To reinstall, reverse the order of removal.

5.4.32 Bypass paper feed clutch (CL3)

1. Remove the multi bypass tray.
See P.39



2. Remove three screws [1], and remove the fixed sheet metal [2].

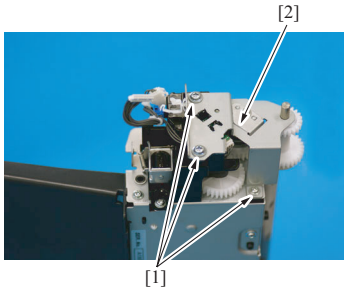


3. Disconnect the connector [1].
4. Remove the E-ring [2], and remove the bypass paper feed clutch [3].

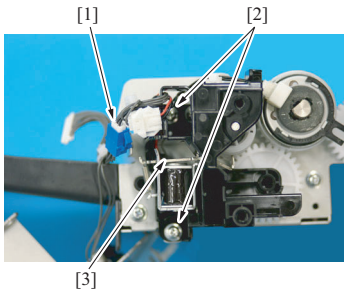
5. To reinstall, reverse the order of removal.

5.4.33 Bypass pick-up solenoid (SD1)

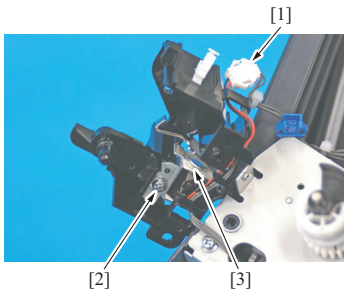
1. Remove the multi bypass tray.
See P.39



2. Remove three screws [1], and remove the fixed sheet metal [2].



3. Disconnect the connector [1].
4. Remove the harness from the wire saddle [2].
5. Remove two screws [3], and remove the solenoid assy [4].



6. Disconnect the connector [1].
7. Remove the screw [2], and remove the bypass pick-up solenoid [3].

8. To reinstall, reverse the order of removal.

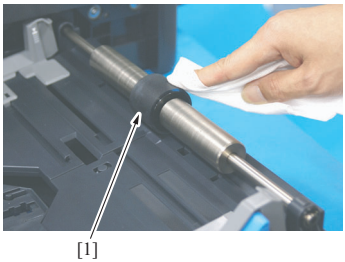
5.5 Cleaning procedure

NOTE

- **The alcohol described in the cleaning procedure represents the ethanol isopropyl alcohol.**

5.5.1 Tray 1 feed roller

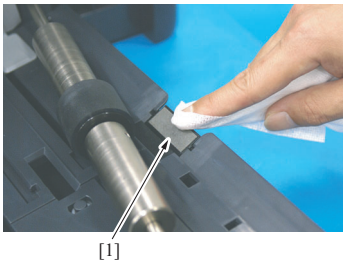
1. Slide out the tray 1.



2. Using a cleaning pad dampened with alcohol, wipe the tray 1 feed roller [1] clean of dirt.

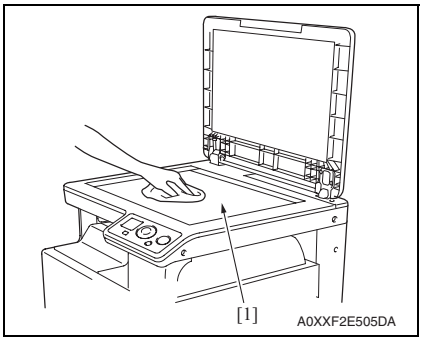
5.5.2 Tray 1 separation pad

1. Slide out the tray 1.
2. Remove the tray 1 feed roller.
See P.48



3. Using a cleaning pad dampened with alcohol, wipe the tray 1 separation pad [1] clean of dirt.

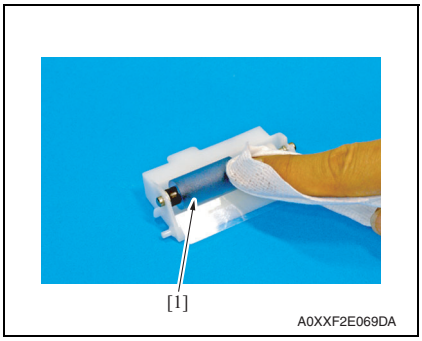
5.5.3 Original glass



1. Using a cleaning pad, wipe the original glass [1].

5.5.4 Multi bypass tray separation roller

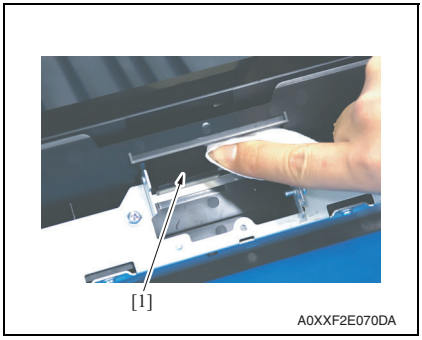
1. Remove the multi bypass tray.
See P.39
2. Remove the multi bypass tray separation roller assy.
See P.52



3. Using a cleaning pad dampened with alcohol, wipe the multi bypass tray separation roller [1] clean of dirt.

5.5.5 Multi bypass tray feed roller

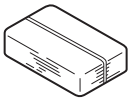
1. Remove the multi bypass tray.
See P.39
2. Remove the multi bypass tray separation roller assy.
See P.52



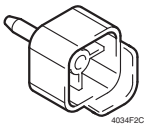
3. Using a cleaning pad dampened with alcohol, wipe the multi bypass tray feed roller [1] clean of dirt.

6. SERVICE TOOL

6.1 Service material list

Name	Shape	Material No.	Remarks
Cleaning pad	 A02EF2C526DA	000V-18-1	10pcs/1pack
Isopropyl alcohol	 A00KF2C506DA	—	

6.2 CE tool list

Tool name	Shape	Quantity	Parts No.	Remarks
PC positioning jig	 4034F2C504DA	1	4021 4362 ##	

7. FIRMWARE REWRITING

7.1 Outline

- Two types of firmware rewrite, the controller firmware rewrite and the engine firmware rewrite, are available. Both types of firmware rewrite need connecting the PC to the machine with the USB cable and starting the dedicated updater on the PC.

7.2 Preparation

NOTE

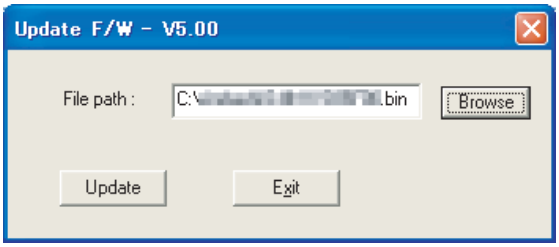
- **Before rewriting the firmware, install the TWAIN drivers on the host computer used for the firmware rewrite.**
- **Before rewriting the firmware, copy the firmware rewriting tool, "UpdateFW.exe" to the host computer used for the firmware rewrite.**

7.3 Rewriting method

1. Connect the machine and PC using the USB cable.
2. Copy the UpdateFW.exe and rewriting program in any arbitrary directory of the PC.
3. Double-click "UpdateFW.exe".

A0XXF2E537DA

4. Click [Browse] and select File path, "XXXXX.bin".
5. Click [Update].

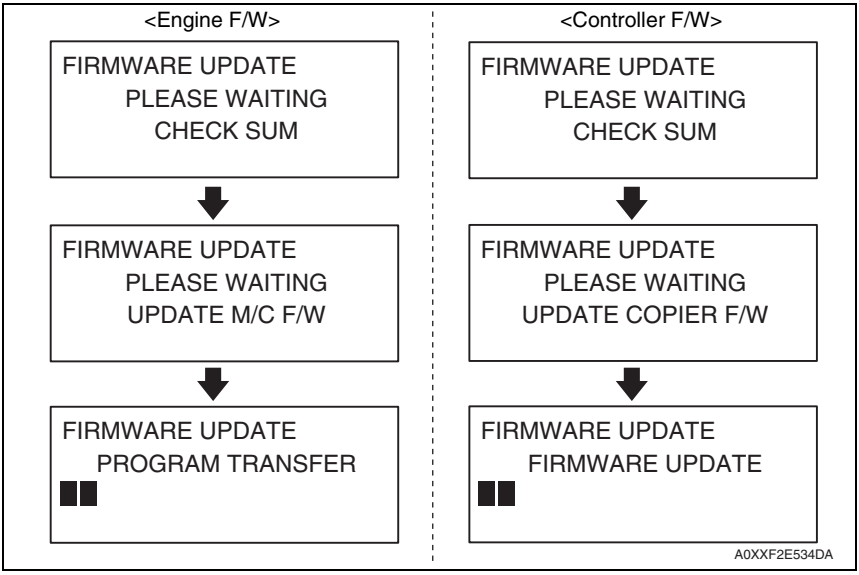


A0XXF2E533DA

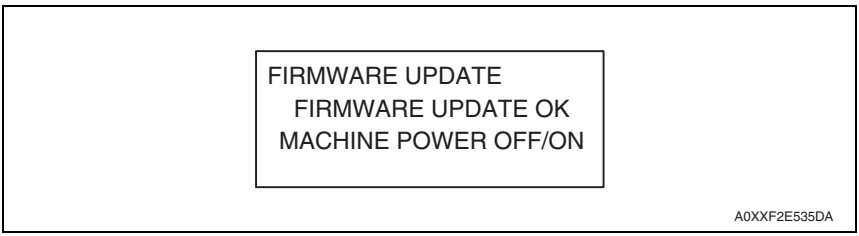
6. Firmware rewriting starts.
7. Check the display for status of the firmware rewriting sequence.

NOTE

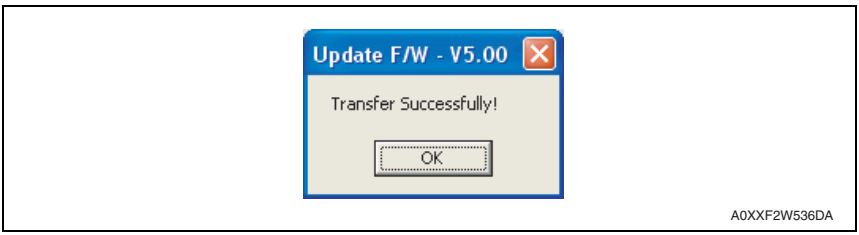
- **Do not turn off the copier while its firmware is being rewrited.**



8. When the following message appears in the display, it indicates that rewriting of the firmware has been completed.



9. When [Transfer Successfully!] message appears on the screen, click [OK] to close the execution tool.



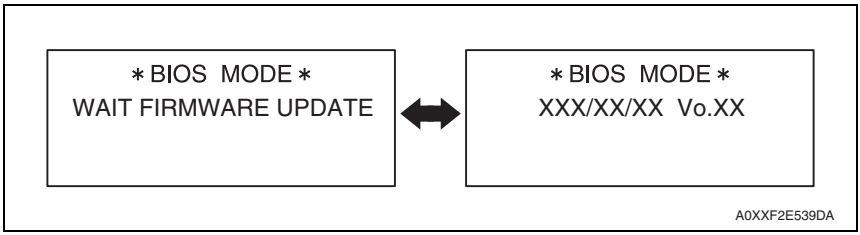
10. Turn OFF and ON the power switch of the machine, and confirm the firmware version. See P.108

7.4 Procedure when upgrading the firmware has failed

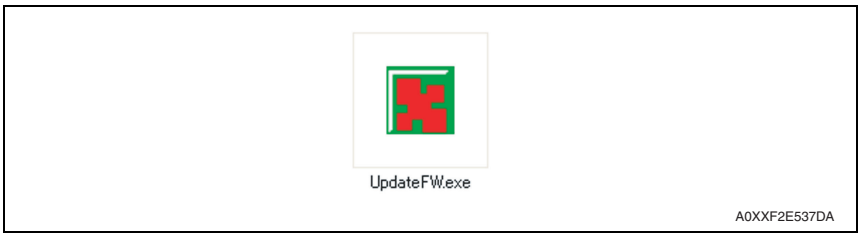
NOTE

- **Perform the following procedure only when upgrading from PC using ordinary USB connection has failed and the machine has not started properly.**

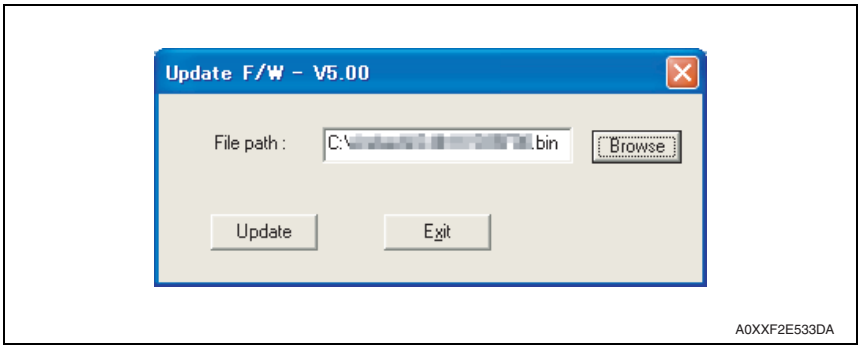
1. Turn ON the power switch of the machine while pressing the Menu/Select key on the control panel.
2. Check to make sure that [BIOS MODE] is displayed on the control panel.



3. Connect the machine and PC using the USB cable.
4. Copy the UpdateFW.exe and rewriting program in any arbitrary directory of the PC.
5. Double-click “UpdateFW.exe”.



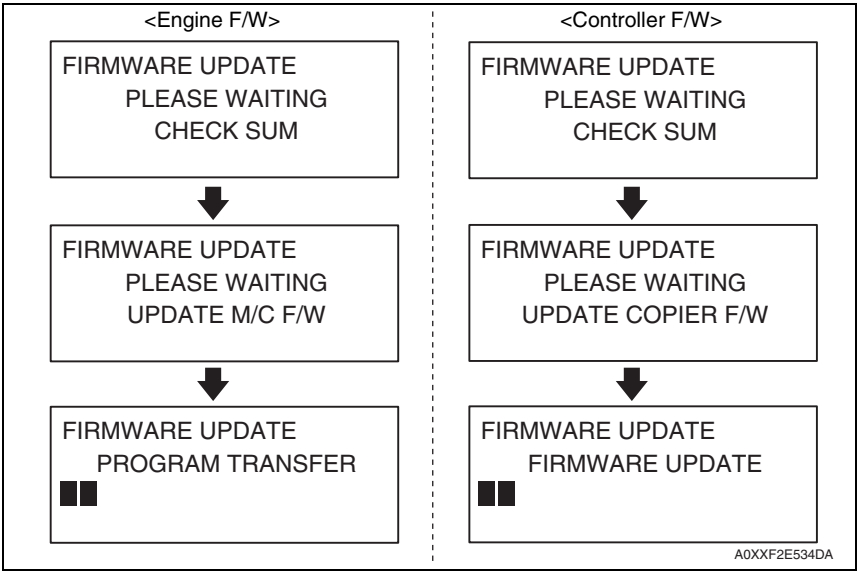
6. Click [Browse] and select File path, “XXXXX.bin”.
7. Click [Update].



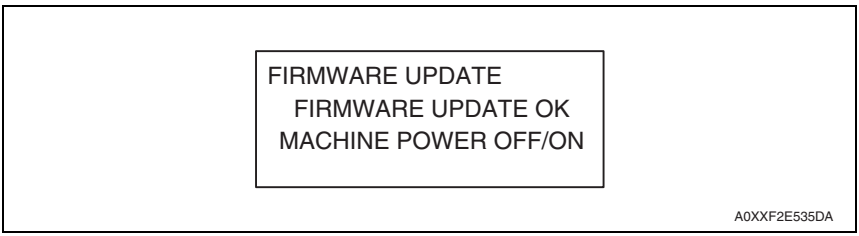
8. Firmware rewriting starts.
9. Check the display for status of the firmware rewriting sequence.

NOTE

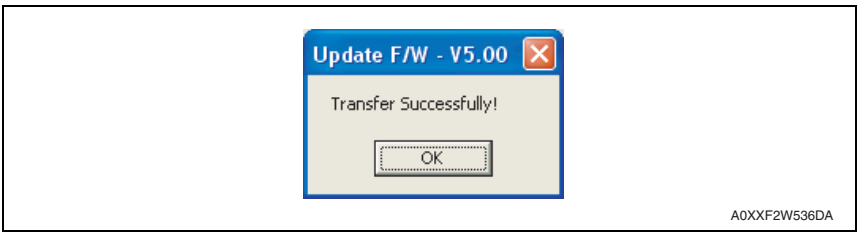
- **Do not turn off the copier while its firmware is being rewrited.**



10. When the following message appears in the display, it indicates that rewriting of the firmware has been completed.



11. When [Transfer Successfully!] message appears on the screen, click [OK] to close the execution tool.



12. Turn OFF and ON the power switch of the machine, and confirm the firmware version. See P.108

ADJUSTMENT/SETTING

8. HOW TO USE THE ADJUSTMENT SECTION

- "Adjustment/Setting" contains detailed information on the adjustment items and procedures for this machine.
- Throughout this "Adjustment/Setting," the default settings are indicated by " ".

A. Advance checks

- Before attempting to solve the customer problem, the following advance checks must be made. Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The original glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for service jobs

1. To unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the scanner cables or gears of the exposure unit.
3. Special care should be used when handling the fusing unit which can be extremely hot.
4. The developing unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

9. UTILITY MODE

9.1 List of utility mode

UTILITY mode			Ref. page
MACHINE SETTING	AUTO PANEL RESET		P.69
	SLEEP MODE		P.69
	SLEEP SHIFT		P.69
	DENSITY (BOOK)		P.70
	PRINT DENSITY		P.70
	LCD CONTRAST		P.70
	KEY SPEED SETTING	TIME TO START	P.70
		INTERVAL	P.70
	LANGUAGE		P.71
CUSTOM SIZE MEMORY	MEMORY1		P.72
	MEMORY2		
USER MANAGEMENT	DRUM DEHUMIDIFY		P.72
JOB SETTING	TRAY PRIORITY		P.72
	TRAY1 PAPER	SIZE	P.73
		TYPE	P.73
	BYPASS PAPER	SIZE	P.73
		TYPE	P.74
	PRINT PRIORITY		P.74
	CRISSCROSS MODE		P.74
COPY SETTING	QUALITY PRIORITY		P.74
	DENSITY PRIORITY		P.75
	DENSITY LEVEL	AUTO	P.75
		MANUAL	P.75
	ERASE SETTING		P.75
	SORT PRIORITY		P.76
	4IN1 COPY ORDER		P.76
TOTAL PAGE	TOTAL COUNT		P.76
	SIZE COUNT		P.76
	TOTAL SCAN		P.76

9.2 Starting/Exiting

9.2.1 Starting procedure

1. Press the Menu/Select key.
2. Select [UTILITY], and press the Menu/Select key.
3. The UTILITY mode screen will appear.

9.2.2 Exiting procedure

- Press the Back/Stop/Reset key.

9.3 MACHINE SETTING

9.3.1 AUTO PANEL RESET

A. Use

- To set the time it takes the auto panel reset function, which resets the panel settings when the set period of time elapses after a copy cycle has been completed or the last key operated, to be activated.

B. Procedure

- The default setting is 1 min.

OFF/30sec/"1min"/2min/3min/4min/5min/6min/7min/8min/9min

9.3.2 SLEEP MODE

A. Use

- To set the time it takes the machine to enter the sleep mode after a print cycle has been completed or the last key operated.

B. Procedure

- The default setting is 15 min.

1 to 240 min (1step: 1 min)

9.3.3 SLEEP SHIFT

A. Use

- Specify whether to shift to the sleep mode immediately after a print job is executed while the machine is in the sleep mode.
  DISABLE : Enters the sleep mode when the time specified in the [SLEEP MODE] setting has elapsed.
  ENABLE : Enters the sleep mode immediately after the print job is executed.

B. Procedure

- The default setting is ENABLE.

"ENABLE"/DISABLE

9.3.4 DENSITY (BOOK)

A. Use

- To set the reading image density level when the original glass scanning.
  MODE1: To produce a copy having an image density equivalent to that of the original.
  MODE2: To lower the image density to prevent a dirty copy from being produced.

B. Procedure

- The default setting is MODE1.

"MODE1"/MODE2

9.3.5 PRINT DENSITY

A. Use

- To set the print density in 7 steps.

B. Procedure

- The default setting is displayed with ■.

LIGHT □□□■□□□ DARK

9.3.6 LCD CONTRAST

A. Use

- To set the LCD display contrast in 4 scales.

B. Procedure

- The default setting is displayed with ■.

LIGHT □■□□ DARK

9.3.7 KEY SPEED SETTING

A. TIME TO START

(1) Use

- Specify a length of time until the value begins to change after a key is held down.

(2) Procedure

- The default setting is 1.0 sec.

0.1sec/0.3sec/0.5sec/"1.0sec"/1.5sec/2.0sec/2.5sec/3.0sec

B. INTERVAL

(1) Use

- Specify the length of time for the value to change to the next number.

(2) Procedure

- The default setting is 0.1sec.

"0.1sec"/0.3sec/0.5sec/1.0sec/1.5sec/2.0sec/2.5sec/3.0sec

9.3.8 LANGUAGE

A. Use

- To select the language displayed on the control panel.
- Language selection and default language depends on the [LANGUAGE GROUP] in the SERVICE MODE.

B. Procedure

- Select the desired language and touch [OK] to set the language.

C. Selectable language list

	LANGUAGE GROUP in the Service mode				
	TYPE 1	TYPE 2	TYPE 5	TYPE 6	TYPE 7
English	O (default)	O (default)	O (default)	O	O
German	O	O			
French	O	O			
Italian	O				
Danish	O				
Dutch	O				
Spanish	O				
Norwegian	O				
Swedish	O				
Finnish	O				
Turkish	O				
Portuguese	O				
Czech		O			
Hungarian		O			
Polish		O			
Romanian		O			
Lithuanian		O			
Slovak		O			
Catalan		O			
Russian			O		
Simplified Chinese				O (default)	
Traditional Chinese					O (default)

9.4 CUSTOM SIZE MEMORY

A. Use

- To set the custom size paper commonly used.
- Up to 2 digits can be set (MEMORY 1/MEMORY 2)
- The paper length [X] can be set between 140 mm and 432 mm.
  The paper width [Y] can be set between 90 mm and 297mm.

B. Procedure

1. Select [CUSTOME SIZE MEMORY] and press OK key.
2. Select [MEMORY 1] or [MEMORY 2] and press OK key.
3. Input the paper size with the numeric keypad.

9.5 USER MANAGEMENT

9.5.1 DRUM DEHUMIDIFY

A. Use

- To run a drum dry sequence.
- The drum dry sequence is run when an image problem occurs due to condensation formed on the surface of the drum as a result of a sudden change in temperature or an increased humidity.

B. Procedure

1. Select [DRUM DEHUMIDIFY] and press the [OK] key.
2. The drum dry sequence is automatically terminated after the lapse of a predetermined period of time and the initial screen reappears.

9.6 JOB SETTING

9.6.1 TRAY PRIORITY

A. Use

- Specify the paper tray displayed for default settings.

B. Procedure

- The default setting is TRAY1.

"TRAY1"/MULTI BYPASS

9.6.2 TRAY1 PAPER

A. SIZE

(1) Use

- To set the paper size loaded in the tray 1.

(2) Procedure

- The default setting is as follows.
  Metric area: A4
  Inch area: Letter

A3/B4/A4S/"A4"/B5S/B5/A5S/A5/FLS/8K/16K S/16K/11x17/Letter S/"Letter"/
Legal/Invoice S/Invoice
SIZE INPUT/MEMORY1/MEMORY2

- When selecting "SIZE INPUT", enter the size with the numeric keypad.
  Setting range: 140 to 432 mm (Width)
  : 90 to 297 mm (Length)
- The size registered on [COUSTOME SIZE MEMORY] of UTILITY MODE is set for [Memory1]/ [Memory 2].

B. TYPE

(1) Use

- To set the media type loaded in the tray 1.

(2) Procedure

The default setting is PLAIN.

"PLAIN"/PLAIN-R/CARD1/CARD1-R/CARD2/CARD2-R/
RECYCLE/RECYCLE-R/SPECIAL

9.6.3 BYPASS PAPER

A. SIZE

(1) Use

- To set the paper size loaded in the bypass tray.

(2) Procedure

- The default setting is as follows.
  Metric area: A4
  Inch area: Letter

A3/B4/A4S/"A4"/B5S/B5/A5S/A5/FLS/8K/16K S/16K/11x17/Letter S/
"Letter"/Legal/Invoice S/Invoice
SIZE INPUT/MEMORY1/MEMORY2

- When selecting "SIZE INPUT", enter the size with the numeric keypad.
  Setting range: 140 to 432 mm (Width)
  : 90 to 297 mm (Length)
- The size registered on [COUSTOME SIZE MEMORY] of UTILITY MODE is set for [Memory1]/ [Memory 2].

B. TYPE

(1) Use

- To set the media type loaded in the bypass tray.

(2) Procedure

- The default setting is PLAIN.

"PLAIN"/PLAIN-R/CARD1/CARD1-R/CARD2/CARD2-R/
RECYCLE/RECYCLE-R/SPECIAL

9.6.4 PRINT PRIORITY

A. Use

- Specify whether to give priority to print jobs when the machine receives a print job while printing copies.
  - COPY : The copy operation is given priority for 30 seconds after printing copies. If no operation is performed for 30 seconds after printing copies or last copy operation is finished, execute a print job.
  - PRINT : As print jobs are given priority, execute a print job immediately after printing copies.

B. Procedure

- The default setting is COPY.

"COPY"/PRINT

9.6.5 CRISSCROSS MODE

A. Use

- Specify whether or not copies are fed out in an alternating crisscross pattern when the crisscross output conditions are met.

B. Procedure

- The default setting is OFF.

ON/"OFF"

9.7 COPY SETTING

9.7.1 QUALITY PRIORITY

A. Use

- To set the priority image quality mode that is selected when the power switch is turned ON or the Back/Stop/Reset key is pressed.
  - TEXT/PHOTO : Select this option when the original consists of text and photos. The edge of the text is reproduced sharply, while photos are reproduced as a smooth image.
  - TEXT : Select this option when the original consists of text only. The edge of the text is reproduced sharply.
  - PHOTO : Select this option when the original consists of photos only. Photos are reproduced as a smooth image.

B. Procedure

- The default setting is TEXT/PHOTO.

"TEXT/PHOTO"/TEXT/PHOTO

9.7.2 DENSITY PRIORITY

A. Use

- To set the priority density that is selected when the power switch is turned ON or the Back/Stop/Reset key is pressed.
  AUTO : The density level is automatically adjusted.
  MANUAL : The density level is manually adjusted.

B. Procedure

- The default setting is AUTO.

"AUTO"/MANUAL

9.7.3 DENSITY LEVEL

A. AUTO

(1) Use

- To set the density level when the auto density is selected.

(2) Procedure

- The default setting is displayed with ■.

LIGHT □■□ DARK

B. MANUAL

(1) Use

- To set the density level when the manual density is selected.

(2) Procedure

- The default setting is displayed with ■.

LIGHT □□□□■□□□□ DARK

9.7.4 ERASE SETTING

A. Use

- Specify the erase width between 5 mm and 20 mm (in 1 mm increments) when making copies with [LEFT ERASE], [UPPER ERASE] or [FRAME ERASE] selected for the [ERASE] setting.
  LEFT : Erases the left side of the original.
  UPPER : Erases the upper side of the original.
  FRAME : Erases the frame around the original.

B. Procedure

1. Select the erase position.

- The default setting is LEFT.

"LEFT"/UPPER/FRAME

2. Set the erase width.

- The default setting is 10 mm.

5 to 20 mm (1 step: 1 mm)

9.7.5 SORT PRIORITY

A. Use

- Specify whether to sort copies as they are fed into the output tray.

B. Procedure

- The default setting is OFF.

"OFF"/ON

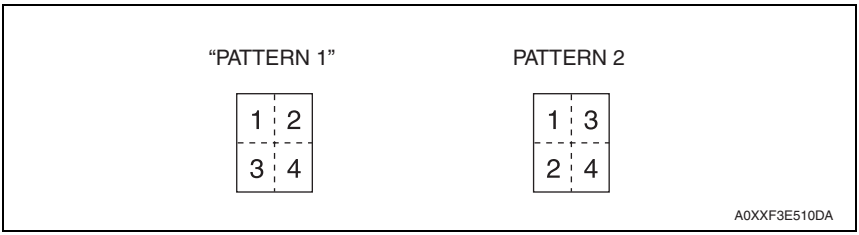
9.7.6 4IN1 COPY ORDER

A. Use

- To set the layout of copy images in 4in1 copies.

B. Procedure

- The default setting is PATTERN1.



9.8 TOTAL PAGE

9.8.1 TOTAL COUNT

A. Use

- Displays the total number of pages printed since this machine was installed.

9.8.2 SIZE COUNT

A. Use

- Displays the total number of copies/printouts printed on the specified paper size. The paper size that is counted should be configured by your service representative.

9.8.3 TOTAL SCAN

A. Use

- Displays the total number of scans made since this machine was installed. (Scans made during copying are not included.)

Blank Page

10. ADJUSTMENT ITEM LIST

Adjustment/Setting Items		Replacement Part/Service Job	No	Tray1						
				Replace feed roller	Replace separation roll assy	Replace drum	Replace drum charge corona assy	Replace developer	Replace cleaning blade	
SERVICE MODE	SERVICE'S CHOICE	ID ADJUST	1			3*		5*		
		VG ADJUST	2			4*	1*			
		LEADING EDGE	3							
		TRAILING EDGE	4							
		VERTICAL EDGE	5							
		LOOP Ad. (TRAY1)	6	3*	3*					
		LOOP Ad. (BYPASS)	7							
		FUSER TEMP.	8							
	ADJUST	PRN MAIN	9							
		PRN SUB	10							
		CIS MAIN ZOOM	11							
		CIS SUB ZOOM	12							
		CIS MAIN REGIST	13							
		CIS SUB REGIST	14							
	CLEAR DATA	PM COUNTER	15	1	1					
		SUPPLIES COUNETER	16			2	2	3	2	
	FUNCTION	PAPAER FEED TEST	17	2	2					
		TCR AUTO ADJUST	18					1, 4		
		PRN TEST PATTERN	19			5	3	6		
		SCAN TEST	20							
Others		UTILITY MODE	21							
		SERVICE MODE	22							
		Parameter chip (U18)	23							
		FW update	24							
		Application of toner to drum	25			1			1	
		Change of developer	26					2		

*: Check when setting is changed.

✻ This table shows the list of adjustment items when replacing a part. Items are numbered by the priority if there is any.

No	Replace transfer roller unit	Replace fusing unit	Replace ozone filter	Replace CIS module	Replace printer control board	Replace TCR sensor	Replace PH unit	Memory Clear	MB-503	
									Replace feed roller	Replace separation roller assy
1						4*				
2										
3							7			
4							8			
5							9			
6										
7									3*	3*
8		2*								
9							1			
10							2			
11				1			3			
12				2			4			
13				3			5			
14				4			6			
15	1	1	1						1	1
16										
17									2	2
18						1, 3				
19										
20										
21								1		
22								2		
23					1					
24					2					
25										
26						2				

*: Check when setting is changed.

NOTE

- **Before executing a memory clear, be sure to take notes of the settings and adjustment data of UTILITY MODE, SERVICE MODE, SECURITY MODE, and adjust modes. After the memory clear has been executed, re-enter those data.**

11. SERVICE MODE

11.1 List of SERVICE MODE

SERVICE MODE		Ref. page
SERVICE'S CHOICE	SHIPMENT	P.83
	POWER SUPPLY	P.83
	MAINTENANCE COUNT.	P.84
	IU LIFT STOP MODE	P.84
	ID ADJUST	P.84
	VG ADJUST	P.85
	TRANSFER (PLAIN)	P.85
	TRANSFER (RECYCLE)	P.85
	TRANSFER (CARD1)	P.85
	TRANSFER (CARD2)	P.85
	FUSER TEMP. (PLAIN)	P.86
	FUSER TEMP. (CARD1)	P.86
	FUSER TEMP. (CARD2)	P.86
	LEADING EDGE	P.87
	TRAILING EDGE	P.88
	VERTICAL EDGE	P.88
	LOOP Ad. (TRAY1)	P.89
	LOOP Ad. (BYPASS)	P.89
	FLS PAPER SIZE	P.89
	GDI TIMEOUT	P.90
	ERASER INSTALL	P.90
	SUCTION FAN	P.90
	LANGUAGE GROUP	P.90
ADJUST	PRN MAIN (TRAY1)	P.91
	PRN MAIN (BYPASS)	P.92
	PRN SUB (TRAY1-P)	P.93
	PRN SUB (TRAY1-R)	P.94
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11.2 Starting/Exiting

11.2.1 Starting procedure

1. Press the Menu/Select key.
2. Press the following keys in this order.
   Quick Settings → ◀ → ◀ → Quick Settings → ◀ → ▶
3. The SERVICE MODE menu screen will appear.

11.2.2 Exiting procedure

- Press the Back/Stop/Reset key as many times as it is required to display the initial screen.

11.2.3 Changing the setting value in SERVICE MODE functions

1. Select the desired item using [▲/▼/◀/▶] key.
2. Select the setting value using [▲/▼/◀/▶] key.
3. Validate the selection by pressing the Menu/Select key.
4. To go back to previous screen, press the Back/Stop/Reset key.

11.3 SERVICE'S CHOICE

11.3.1 SHIPMENT

A. Use

- To select the display of the fixed zoom ratios and paper sizes according to the applicable marketing area.
- If this setting is changed, the following items are also changed.
  - Default paper size (Inch/Metric)
  - Fixed zoom ratio
  - FLS paper size
  - UTILITY MODE settings (Language, Tray Priority, Custom Size memory)
  - Default zoom ration for 2in1/ 4in1 copy.
  - Initial value of Custom size

B. Procedure

- The default setting is METRIC.

  "METRIC"/INCH/TAIWAN/CHINA/L.AMERICA (METRIC)/L.AMERICA (INCH)

11.3.2 POWER SUPPLY

- Not used.

11.3.3 MAINTENANCE COUNT.

A. Use

- To enter an appropriate counter value (0 to 999999) as the tentative maintenance time.
- Specify the setting on maintenance counter to "1" or "2": If the maintenance life is reached, the maintenance call (M1) or service call [Call Service (M1)] will appear.
  "0" : Not counted
  1 : Counted (The maintenance call display is given when the counter reaches 0.)
  2 : Counted (The service call display is given and the initiation of any new copy cycle is inhibited when the counter reaches 0.)

NOTE

- **The counter value is decremented until it reaches -999999 even after it has counted 0.**

B. Procedure

- The default setting is 0.
- When "1" or "2" is selected, a screen will then appear to allow the counter value to be entered.

11.3.4 IU LIFE STOP MODE

A. Use

- When the supplies life count. reaches the life value, the IU life will be detected.
- The mode when the IU life is reached, is specified by this setting.
  CONTINUOUS : Enables copying. Maintenance call (M2) display is given.
  STOP : Disables copying. Service call [Call Service (M2)] display is given and the initiation of any new copy cycle is inhibited.

NOTE

- **When the drum reaches its life value, the image quality of subsequent prints is out of warranty.**

B. Procedure

- The default setting is STOP.

CONTINUOUS/"STOP"

11.3.5 ID ADJUST

A. Use

- To set the image density by varying Vg and Vb on the engine side.
- Used when the image density is high or low.

B. Procedure

- The default setting is 0.

-3 to +3 (1step: 20 V)

11.3.6 VG ADJUST

A. Use

- To adjust image density by varying Vg with changing sensitivities as the drum is used for an extended period of time.
- Used when image problems (fog, void) occur.
- Used when the drum unit has been replaced.
  Increase the setting value to eliminate void.
  Decrease the setting value to eliminate fog.

B. Procedure

- The default setting is 0.

-3 to +3 (1step: 20 V)

11.3.7 TRANSFER (PLAIN)

11.3.8 TRANSFER (RECYCLE)

11.3.9 TRANSFER (CARD1)

11.3.10 TRANSFER (CARD2)

A. Use

- Adjust the image transfer output value for each paper type.
- The output value determined by the transfer output control can be adjusted within the range of ± 30 %
- To use when the transfer failure occurs.

B. Procedure

- The default setting is 0.

-3 to +3 (1step: 10 %)

11.3.11 FUSER TEMP. (PLAIN)

A. Use

- To set the temperature of the fusing roller for each type of paper, thereby making up for fusing performance that changes with the operating environment or type of paper.
- Used when fusing failure occurs.
- Used when the type of paper is changed.

B. Procedure

- The default setting is 0.

-1 to +4

NOTE

- **If +2, +3, or +4 is selected, the productivity decreases due to the paper feed interval increased under the PPM control.**

<Temperature table for adjusting fusing temperature for plain/recycle paper>

Setting value	Difference from the target temperature determined by the fusing temperature control
+4	+20 °C
+3	+15 °C
+2	+10 °C
+1	+5 °C
0 (default value)	0 °C
-1	-10 °C

11.3.12 FUSER TEMP. (CARD1)

11.3.13 FUSER TEMP. (CARD2)

A. Use

- To set the temperature of the fusing roller for each type of paper, thereby making up for fusing performance that changes with the operating environment or type of paper.
- Used when fusing failure occurs.
- Used when the type of paper is changed.

B. Procedure

- The default setting is 0.

-1 to +4

<Temperature table for adjusting fusing temperature for card 1/card 2>

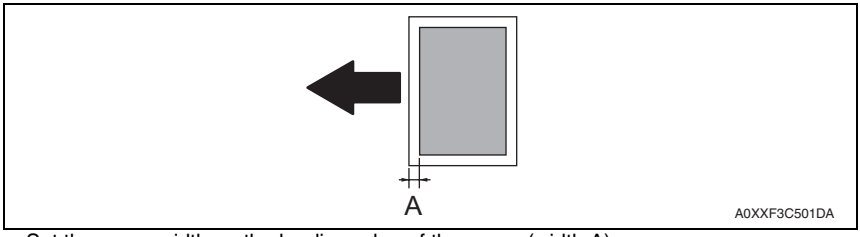
Setting value	Difference from the target temperature determined by the fusing temperature control
4	+20 °C
3	+15 °C
2	+10 °C
1	+5 °C
0 (default value)	0 °C
-1	-10 °C

11.3.14 LEADING EDGE

A. Use

- To adjust the erase width on the leading edge of the image by varying the laser emission timing.
- Used when the PH unit has been replaced.

B. Procedure



- Set the erase width on the leading edge of the paper (width A).
- The default setting is 4 mm.

0 mm/1 mm/2 mm/3 mm/“4 mm”/5 mm

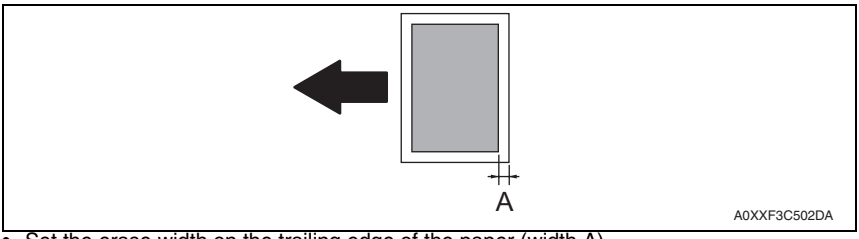
1. Call SERVICE’S CHOICE of SERVICE MODE to the screen.
2. Select [LEADING EDGE] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
   To make the erase width smaller, decrease the setting value.
   To make the erase width greater, increase the setting value.
4. Press the OK key to validate the setting value selected in step 3.

11.3.15 TRAILING EDGE

A. Use

- To adjust the erase width on the trailing edge of the image by varying the laser emission timing.
- Used when the PH Unit has been replaced.

B. Procedure



- Set the erase width on the trailing edge of the paper (width A).
- The default setting is 4 mm.

0 mm/1 mm/2 mm/3 mm/"4 mm"/5 mm

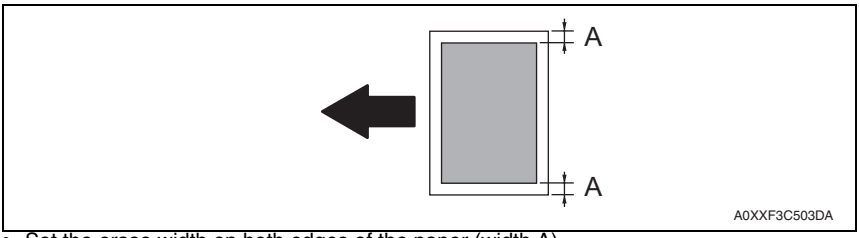
1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [TRAILING EDGE] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
   To make the erase width smaller, decrease the setting value.
   To make the erase width greater, increase the setting value.
4. Press the OK key to validate the setting value selected in step 3.

11.3.16 VERTICAL EDGE

A. Use

- To adjust the erase width on both edges of the image (in CD direction) by varying the laser emission timing.
- Used when the PH Unit has been replaced.

B. Procedure



- Set the erase width on both edges of the paper (width A).
- The default setting is 4 mm.

0 mm/1 mm/2 mm/3 mm/"4 mm"/5 mm

1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [VERTICAL EDGE] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
   To make the erase width smaller, decrease the setting value.
   To make the erase width greater, increase the setting value.
4. Press the OK key to validate the setting value selected in step 3.

11.3.17 LOOP Ad. (TRAY1)

A. Use

- To adjust the length of the loop formed in the paper feed from the tray1 before the synchronizing roller.
- Used when a skew feed, fold, or misfeed of paper occurs.
- Used when variations in the amount of void on the leading edge occurs.

B. Procedure

-3.234 to +3.234 mm (1 step: 0.462 mm)

1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [LOOP Ad. (TRAY1)] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
4. Press the OK key to validate the setting value selected in step 3.

- Try a different setting value until there are no variations in the amount of void on the leading edge, and paper skew, fold, or misfeed.

11.3.18 LOOP Ad. (BYPASS)

A. Use

- To adjust the length of the loop formed in the paper feed from the manual bypass tray before the synchronizing roller.
- Used when a skew feed, fold, or misfeed of paper occurs.
- Used when variations in the amount of void on the leading edge occurs.

B. Procedure

-3.234 to +3.234 mm (1 step: 0.462 mm)

1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [LOOP Ad. (BYPASS)] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
4. Press the OK key to validate the setting value selected in step 3.

- Try a different setting value until there are no variations in the amount of void on the leading edge, and paper skew, fold, or misfeed.

11.3.19 FLS PAPER SIZE

A. Use

- To select the paper size for FLS.
- Used when the FLS paper size is changed.
- Used at setup.

B. Procedure

- The default setting varies depending on the marketing area.

330✻203/330✻210/330✻216/330✻220/337✻206

11.3.20 GDI TIMEOUT

A. Use

- To specify the time for timeout when data from PC is interrupted during GDI printing.

B. Procedure

- The default setting is 60 sec.

5 sec/10 sec/20 sec/30 sec/40 sec/50 sec/"60 sec"

11.3.21 ERASER INSTALL

- Not used.

11.3.22 SUCTION FAN

A. Use

- To specify the length of time from when a print cycle is completed and until when the suction fan motor stops rotating.
- Used when image failure (while line etc.) occurs due to residual ozone that remains around the drum.

B. Procedure

- The default setting is 2 sec.

"2 sec"/20 sec/ 60 sec/600 sec

NOTE

- **Even when 20 sec. or more is selected in this setting, a higher priority is given to the shift to sleep mode.**

11.3.23 LANGUAGE GROUP

A. Use

- To select the language group applied to the firmware.
- To rewrite the firmware so that it can be used for a different marketing area.

B. Procedure

- The default setting varies depending on the marketing area.

TYPE 1/TYPE 2/TYPE 5/TYPE 6/TYPE7

- The new setting takes effect after the power switch is turned OFF/ON.

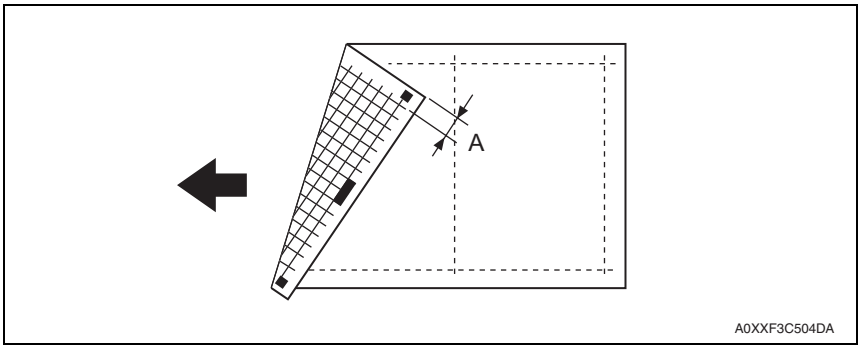
11.4 ADJUST

11.4.1 PRN MAIN (TRAY1)

A. Use

- To adjust by varying the starting position of image writing in the main scanning direction.
- Used when the image on the copy deviates in the main scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 20 ± 2.0 mm

80 (-3.08 mm) to 120 (+3.08 mm) (1 step: 0.154 mm)

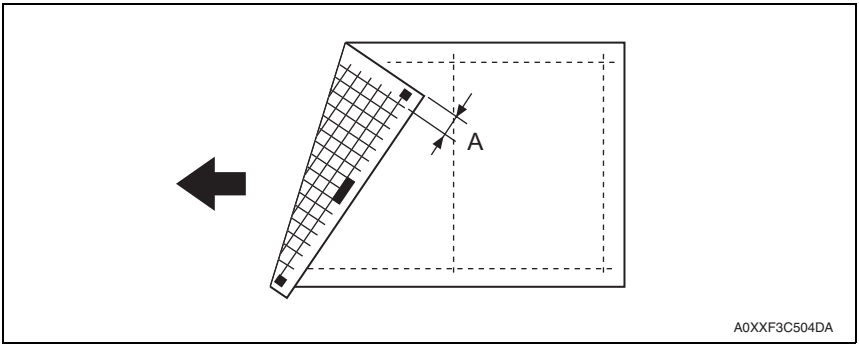
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN MAIN (TRAY1)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.2 PRN MAIN (BYPASS)

A. Use

- To adjust by varying the starting position of image writing in the main scanning direction.
- Used when the image on the copy deviates in the main scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 20 ± 2.0 mm

80 (-3.08 mm) to 120 (+3.08 mm) (1 step: 0.154 mm)

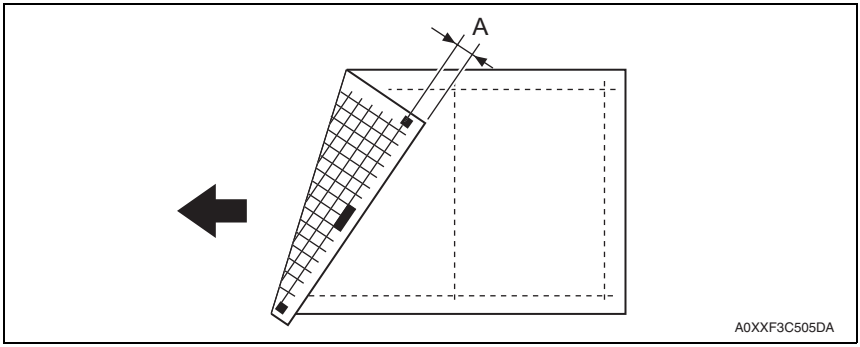
1. Load the bypass tray with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN MAIN (BYPASS)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.3 PRN SUB (TRAY1-P)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

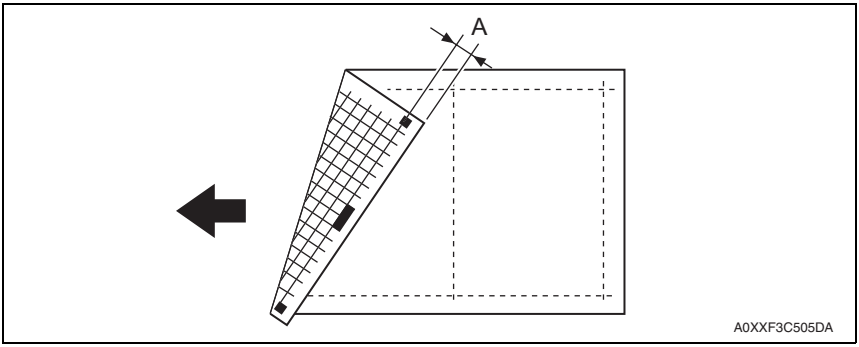
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-P)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.4 PRN SUB (TRAY1-R)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

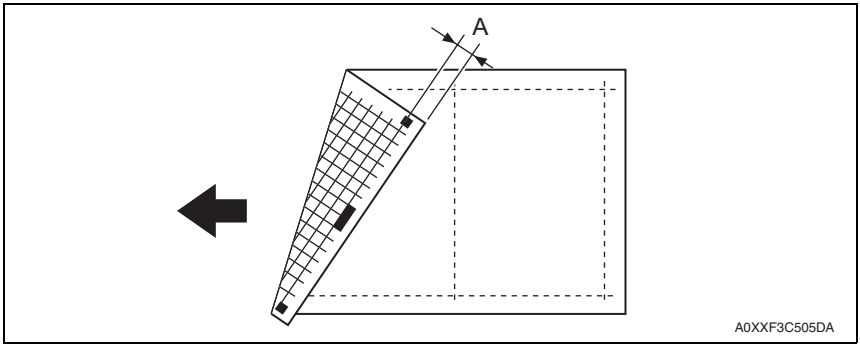
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-R)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.5 PRN SUB (TRAY1-C1)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

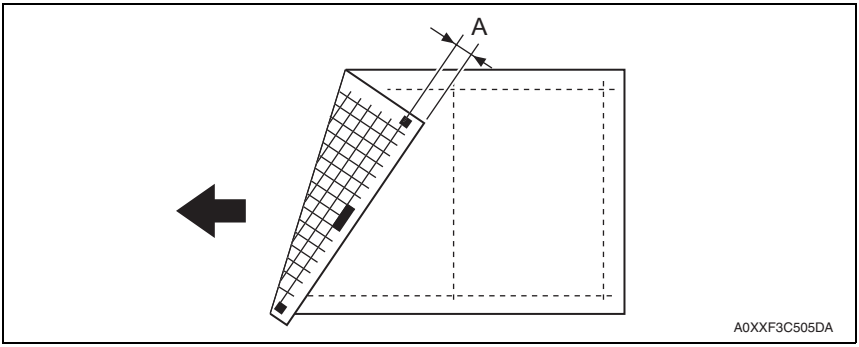
1. Load the tray 1 with A3/11 x 17 card 1 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-C1)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.6 PRN SUB (TRAY1-C2)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

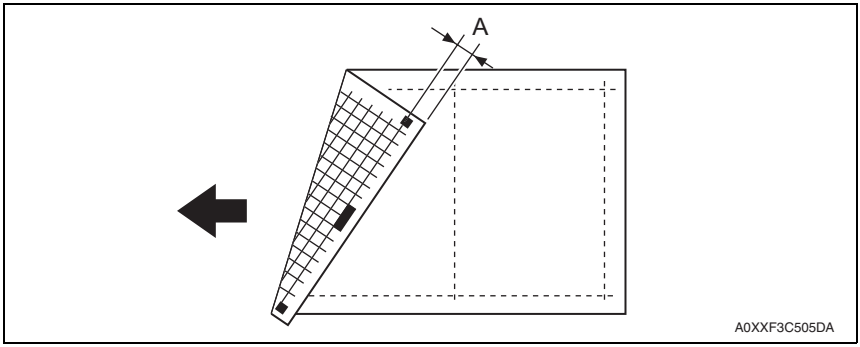
1. Load the tray 1 with A3/11 x 17 card 2 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-C2)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.7 PRN SUB (BYPASS-P)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

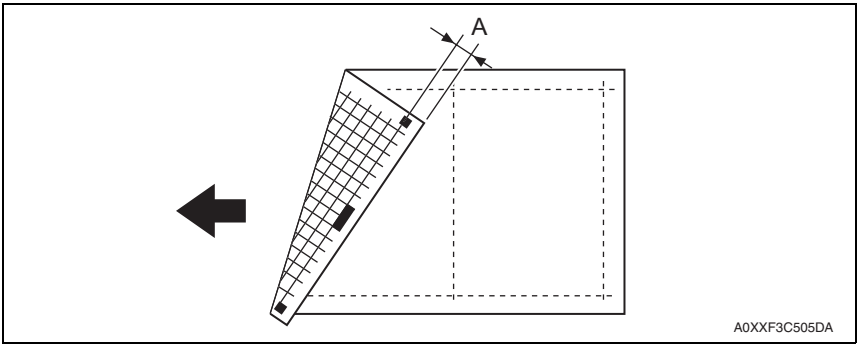
1. Load the bypass tray with A3/11 x 17 plain paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-P)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.8 PRN SUB (BYPASS-R)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

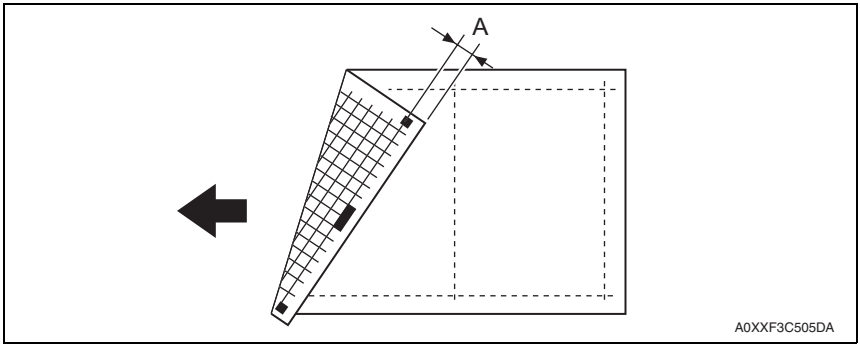
1. Load the bypass tray with A3/11 x 17 recycle paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-R)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.9 PRN SUB (BYPASS-C1)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

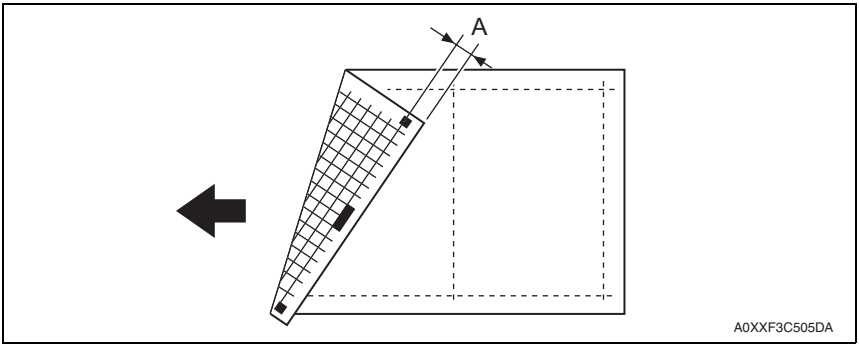
1. Load the bypass tray with A3/11 x 17 card 1 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-C1)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.10 PRN SUB (BYPASS-C2)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

1. Load the bypass tray with A3/11 x 17 card 2 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-C2)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.11 CIS MAIN ZOOM

A. Use

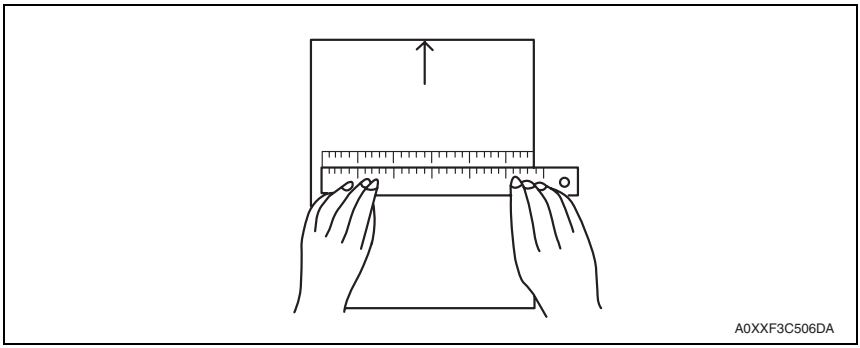
- To adjust variations in machining and installation accuracy of different scanner parts by varying the scanning zoom ratio in the main scanning direction.
- Used when the CIS module has been replaced. (After the CIS module has been adjusted for correct position)

B. Procedure

- Adjust so that the amount of error falls within ±1.0% of the length to be measured.
- Adjust so that the following specifications are met when the length of the scale is 200 mm.
- Zoom Ratio/Specifications
- Zoom Ratio: Full size (× 1.00)
- Specifications: 200 ± 2.0 mm
- The default setting is 100.

95 (-2.0%) to 105 (+2.0%) (1 step: 0.4%)

1. Place a scale on the original glass in parallel with the original width scale and make a copy.



2. Measure the length of the scale on the copy. If the amount of error falls outside the specified range, perform the following steps to make an adjustment.
3. Enter adjust of the SERVICE MODE.
4. Select [CIS MAIN ZOOM] of [ADJUST].
5. Using [▲ / ▼] key, select the appropriate setting value.
   If the length on the copy is longer than the actual one, decrease the setting value.
   If the length on the copy is shorter than the actual one, increase the setting value.
6. Press the OK key to validate the setting value selected in step 5.
7. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 6.

11.4.12 CIS SUB ZOOM

A. Use

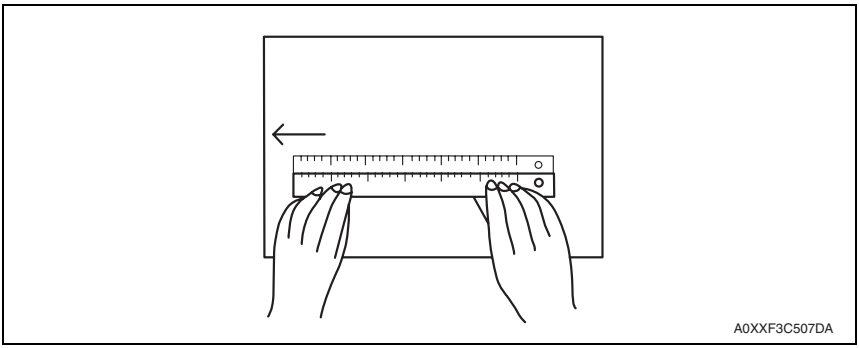
- To adjust variations in machining and installation accuracy of different scanner parts by varying the scanning zoom ratio in the sub scanning direction.
- Used when the CIS module have been replaced.

B. Procedure

- Adjust so that the amount of error falls within ±1.0% of the length to be measured.
- Adjust so that the following specifications are met when the length of the scale is 300 mm.
- Zoom Ratio/Specifications
- Zoom Ratio: Full size (× 1.00)
- Specifications: 300 ± 3.0 mm
- The default setting is 100.

95 (-2.0%) to 105 (+2.0%) (1 step: 0.4%)

1. Place a scale so that it is at right angles to the original width scale, and copy it.



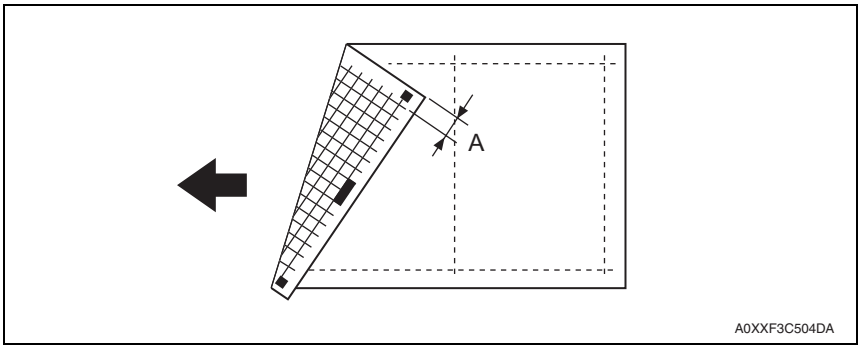
2. Measure the length of the scale on the copy. If the amount of error falls outside the specified range, perform the following steps to make an adjustment.
3. Enter adjust of the SERVICE MODE.
4. Select [CIS SUB ZOOM] of [ADJUST].
5. Using [▲ / ▼] key, select the appropriate setting value.
   If the length on the copy is longer than the actual one, decrease the setting value.
   If the length on the copy is shorter than the actual one, increase the setting value.
6. Press the OK key to validate the setting value selected in step 5.
7. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 6.

11.4.13 CIS MAIN REGIST

A. Use

- To adjust variations in machining and installation accuracy of different IR parts by varying the starting position of image scanning in the main scanning direction.
- Used when the PH unit has been replaced.
  (After PRN MAIN REGIST, PRN SUB REGIST, and CIS MAIN ZOOM have been adjusted)
- Used when the CIS module has been replaced. (After the CIS module has been adjusted for correct position)

B. Procedure



- Adjust so that deviation between width A on the test pattern produced and that on the copy produced falls within the specified range.
- Specifications: 0 ± 2.0 mm

20 (-8.0 mm) to 180 (+8.0 mm) (1 step: 0.1 mm)

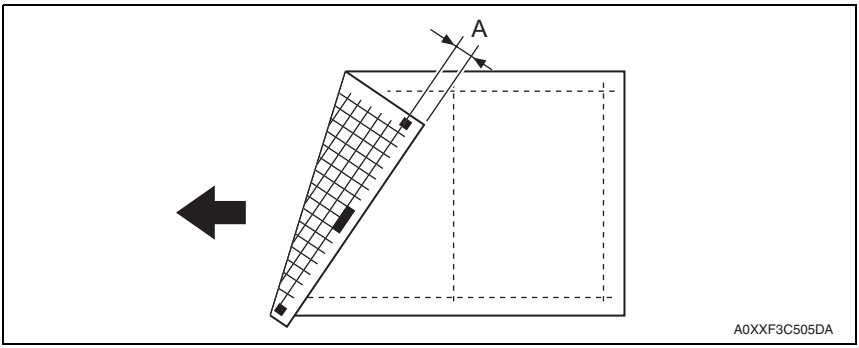
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Place the test pattern produced in step 3 on the original glass and make a copy of it.
5. Place the test pattern (original) on top of the copy and check for deviation in width A. If the deviation in width A falls outside the specified range, perform the following steps to make an adjustment.
6. Select [CIS MAIN REGIST] of [ADJUST].
7. Using [▲ / ▼] key, select the appropriate setting value.
   If the deviation is longer than the specifications, increase the setting value.
   If the deviation is shorter than the specifications, decrease the setting value.
8. Press the OK key to validate the setting value selected in step 7.
9. If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 5 through 7.

11.4.14 CIS SUB REGIST

A. Use

- To adjust variations in machining and installation accuracy of different scanner parts by varying the starting position of image scanning in the sub scanning direction.
- Used when the PH unit has been replaced.
  (After PRN MAIN REGIST, PRN SUB REGIST, and CIS MAIN ZOOM have been adjusted)
- Used when the CIS module has been replaced. (After the CIS module has been adjusted for correct position)

B. Procedure



- Adjust so that deviation between width A on the test pattern produced and that on the copy produced falls within the specified range.
- Specifications: 0 ± 1.5 mm

60 (-4.0 mm) to 140 (+4.0 mm) (1 step: 0.1 mm)

1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Place the test pattern produced in step 3 on the original glass and make a copy of it.
5. Place the test pattern (original) on top of the copy and check for deviation in width A. If the deviation in width A falls outside the specified range, perform the following steps to make an adjustment.
6. Select [CIS SUB REGIST] of [ADJUST].
7. Using [▲ / ▼] key, select the appropriate setting value.
   If the deviation is longer than the specifications, increase the setting value.
   If the deviation is shorter than the specifications, decrease the setting value.
8. Press the OK key to validate the setting value selected in step 7.
9. If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 5 through 7.

11.4.15 TCR GAIN

A. Use

- To manually adjust the TCR sensor voltage.
- To set the TCR sensor control voltage again if the voltage determined by TCR AUTO ADJUST is cleared due to the replacement of the printer control board or memory clear.

B. Procedure

- The default setting is 140 (3.624 V).

90 (2.329 V) to 190 (4.917 V) (1 step: 0.026 V)

- The adjusted value of the TCR auto adjust is the setting value.

11.4.16 MODEL SETTING

NOTE

- **Never change this setting.**
- **If it is changed, the Tech. Rep. call (C03FF) will appear.**

- Default setting depend on the marketing area setting.

18 ppm/16 ppm

11.4.17 CUSTOMER ID

NOTE

- **Never change this setting.**

- The default setting is 0.

11.5 COUNTER

11.5.1 TOTAL COUNTER

A. Use

- To display the total count value of the selected mode.
- To check total count value in each mode.
- Counting method is different depending on the settings of [SECURITY] → [TOTAL COUNTER COUNT] in the service mode.
See P.117

B. Procedure

COPY	: Total count value in copy mode
PRINT	: Total count value in PC print mode

11.5.2 SIZE COUNTER

A. Use

- To display the count of the size counter.
- Paper sizes on which counting can be made are different depending on the setting of [SECURITY] → [SIZE COUNTER] in the service mode.
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.3 PM COUNTER

A. Use

- To display the count of the number of times each of different parts of the machine has been used.
- This function is used at the time of maintenance work for the main body and options.
- The count should be cleared when the corresponding PM part is replaced.

B. Procedure

BYPASS : Each time a page is printed with paper from the bypass tray, the counter increases by one.

TRAY1 : Each time a page is printed with paper from the tray 1, the counter increases by one.

IR : Each time a page is copied with the use of the scanner, the counter increases by one.

OZONE : If the paper length in the sub scanning direction is 216 mm or less, each time a page is printed, the counter increases by one. If the paper length in the sub scanning direction is over 216 mm, each time a page is printed, the counter increases by two.

FUSING : If the paper length in the sub scanning direction is 216 mm or less, each time a page is printed, the counter increases by one. If the paper length in the sub scanning direction is over 216 mm, each time a page is printed, the counter increases by two.

TRANSFER : If the paper length in the sub scanning direction is 216 mm or less, each time a page is printed, the counter increases by one. If the paper length in the sub scanning direction is over 216 mm, each time a page is printed, the counter increases by two.

- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.4 MAINTENANCE COUNT.

A. Use

- To display the count of the maintenance counter.
- When the counter reaches “0”, maintenance call M1 or the service call will appear, according to the setting on MAINTENANCE COUNT. of SERVICE’S CHOISE.
See P.84
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.5 SUPPLIES COUNTER

A. Use

- To display the count of the supplies life counter.
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

B. Procedure

I/U Life : The value that corresponds to the amount of time for which the PC drum has rotated is calculated and the value is subtracted from the initial counter value of 55,000.

PH Start : Each time the polygon motor is started, the counter increases by one.

PH Turn : The amount of time for which the polygon motor has rotated is monitored and the counter increases by one for every given period of time.

11.5.6 APPLICATION COUNTER

A. Use

- To display the count of the number of sheets of paper used for each of different applications.
  COPY PRINT : Number of copies made
  PC PRINT : Number of printed pages produced from PC
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.7 PAPER SIZE COUNTER

A. Use

- To display the count of the number of sheets of paper used for each following size and type.
  A3/B4/A4 SEF/A4 LEF/B5/FLS/11 x 17/LEGAL/LETTER SEF/LETTER LEF/INVOICE/OTHER/PLAIN/RECYCLE/CARD1/CARD2/PLAIN-R (2-sided)/RECYCLE-R (2-sided)/CARD1-R (2-sided)/CARD2-R (2-sided)

NOTE

- **8K size is counted as B4.**
- **16K size is counted as B5.**
- **Special paper is counted as PLAIN.**
- **A5, custom size is counted as OTHER.**

- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.8 MISFEED COUNTER

A. Use

- To display the count of the number of paper misfeeds that have occurred at different parts of the machine.
  BYPASS/TRAY1/FUSER/SEPARATOR
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.9 TROUBLE COUNTER

A. Use

- To display the count of the number of malfunctions detected according to the malfunction code.
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.6 DISPLAY

11.6.1 TONER DENSITY

A. Use

- To display the current output value of TCR sensor.
- Refer to the following table for actual T/C values.
- Used to check the T/C ratio when the image density is defective.

Display	T/C
⋮	⋮
80	8.0%~8.4%
⋮	⋮
100	10.0%~10.4%
⋮	⋮
130	13.0%~13.4%
135	13.5%~13.9%
140	14.0%~14.4%
145	14.5%~14.9%
⋮	⋮

11.6.2 FUSER TEMPERATURE

A. Use

- To display the temperature of the fusing unit.

11.6.3 TRANSCRIPT CURRENT

A. Use

- To display the transfer current output value.

11.6.4 TCR GAIN

A. Use

- To display the TCR gain value determined by TCR AUTO ADJUST.

<Conversion formula of TCR gain value to voltage>
TCR control voltage (V) =3.3 x 2 x [TCR gain value] / 256

11.6.5 PROCESS CONTROL

A. Use

- To display the Vg (Grid V.) and Vb (Bias V.) values.

11.6.6 MAIN F/W VER.

A. Use

- To display the main firmware (MFPB) version information.

11.6.7 ENGINE F/W VER.

A. Use

- To display the engine firmware (PRCB) version information.

11.6.8 MAIN RAM SIZE

A. Use

- To display the main memory size.

11.6.9 SERIAL NO.

A. Use

- To display the serial number of the machine.

11.6.10 CUSTOMER ID

A. Use

- To display the customer ID of the machine.

11.7 FUNCTION

11.7.1 PAPER FEED TEST

A. Use

- To check for correct paper passage of the paper feed and transport system by letting the machine consecutively take up and feed paper without involving actual printing action.
- Here are the details of operation involved in the paper passage motion.
  The scanner does not make any scan motion.
  Paper is fed until the corresponding paper source runs out of paper.
  No counters are activated.
  (Except PM counter, maintenance counter, supplies counter)
  It cannot be operated at the time of warming up.
  A printing paper source can select on the screen of the function mode.
- Used when a paper misfeed occurs

B. Procedure

1. Select the paper source.
   TRAY1/BYPASS
2. Press the OK key to start the paper feed test.
3. Press the Stop key to stop the paper feed test.

11.7.2 PROCESS CHECK

- HV output (for factory setting only) *Should not be used

11.7.3 TCR AUTO ADJUST

A. Use

- To make an automatic adjustment of the TCR sensor.
- Used at setup.
- Used when developer has been changed.
- Used when IU has been replaced.

B. Procedure

NOTE

- **Before starting this adjustment, the toner bottle must be removed.**

1. Press the OK key to start the adjustment.
2. The adjustment sequence automatically stops as soon as the adjustment is made, and TCR gain value is displayed.

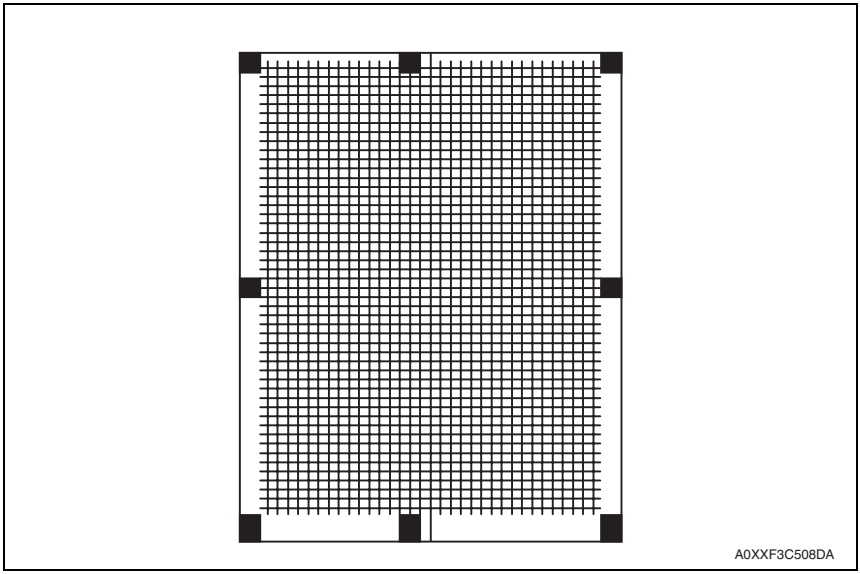
<Conversion formula of TCR gain value to voltage>
TCR control voltage (V) =3.3 x 2 x [TCR gain value] / 256

11.7.4 PRN TEST PATTERN

A. PATTERN1

(1) Use

- To produce a test pattern for image adjustments.
- When skew, registration, or zoom ratio has been adjusted.
- Here are the details of operation involved in the paper passage motion.
  The scanner does not make any scan motion.
  No counters are activated. (Except PM counter, maintenance counter, supplies counter)
  It cannot be operated at the time of warming up.
  A printing paper source can select on the screen of the function mode.
  The writing to a photo conductor is made as A3 size to every paper.
  The erasing of circumference of paper is effective. (Leading edge/trailing edge/vertical edge)



(2) Procedure

1. Load the A3 or 11 x 17 paper, and select the paper source.

NOTE

- **To produce a test pattern, be sure to use the paper of A3 or 11 x 17 sizes. Using paper that is smaller than A3 or 11 x 17 may cause smear on the back side of paper ejected on the output tray. If this problem occurs, feed several sheets of paper through the machine to resolve the problem.**

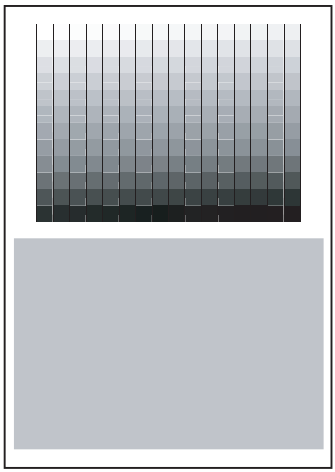
2. Select the type of test pattern.

3. Press the OK key to let the machine produce the test pattern.

B. PATTERN2

(1) Use

- To produce halftone and gradation test patterns.
- Used when checking for uneven density or uneven pitch.
- Used when checking for gradation reproducibility.
- Here are the details of operation involved in the paper passage motion.
  The scanner does not make any scan motion.
  No counters are activated. (Except PM counter, maintenance counter, supplies counter)
  It cannot be operated at the time of warming up.
  A printing paper source can select on the screen of the function mode.
  The writing to a photo conductor is made as A3 size to every paper.
  The erasing of circumference of paper is effective. (Leading edge/trailing edge/vertical edge)



A0XXF3C509DA

(2) Procedure

1. Load the A3 or 11 x 17 paper, and select the paper source.

NOTE

- **To produce a test pattern, be sure to use the paper of A3 or 11 x 17 sizes. Using paper that is smaller than A3 or 11 x 17 may cause smear on the back side of paper ejected on the output tray. If this problem occurs, feed several sheets of paper through the machine to resolve the problem.**

2. Select the type of test pattern.

3. Press the OK key to let the machine produce the test pattern.

11.7.5 SCAN TEST

A. Use

- To check that the exposure lamp turns ON properly and the scanner moves properly.
- Used when the scan motion is faulty.

B. Procedure

1. Press the OK key to start the scan test.
2. Pressing the Stop key will stop the scan test.

11.7.6 TONER SUPPLY

A. Use

- To adjust the set T/C level by replenishing an auxiliary supply of toner when a low ID occurs due to a lowered T/C after large numbers of prints have been made of originals having a high image density.

B. Procedure

1. Press the OK key to start the toner supply function.
2. When the toner density returns to normal or a given period of time elapses after the toner supply is started, the machine automatically stops supplying toner.

11.8 REPORT

11.8.1 SETTING DATA LIST

A. Use

- To produce an output of a list of setting values, adjustment values, counter values and others.
- Used at the end of setup or when a malfunction occurs.
- The printing paper size of A3, A4S, A4, B4S, 8KS, 11x17S, LegalS, LetterS, Letter should be set.
- No counters are activated. (Except PM counter, maintenance counter, supplies counter)
- The following items are recorded;

  UTILITY

  MACHINE SETTING/CUSTOM SIZE MEMORY/JOB SETTING/COPY SETTING

  SERVICE MODE

  SERVICE'S CHOICE/ADJUST/COUNTER/TOTAL COUNTER COUNT MODE/DISPLAY

11.9 FIXED ZOOM CHANGE

A. Use

- FIXED ZOOM CHANGE is used to change the fixed zoom ratios.

B. Procedure

1. Select the particular fixed zoom ratio to be changed.
2. Using the 10-key pad, enter the desired fixed zoom ratio.

C. Default values and setting range of fixed zoom ratios

(1) Metric

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(2) Taiwan

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	122%	101% to 140%
EXPANSION2	141%	141% to 199%

(3) Inch

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	64%	51% to 64%
REDUCTION1	78%	65% to 99%
EXPANSION1	121%	101% to 128%
EXPANSION2	129%	129% to 199%

(4) China

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(5) Latin America (Metric)

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	78%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(6) Latin America (Inch)

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	64%	51% to 64%
REDUCTION1	78%	65% to 99%
EXPANSION1	121%	101% to 128%
EXPANSION2	129%	129% to 199%

11.10 FACTORY TEST

11.10.1 PANEL TEST

A. Use

- To test the LCD, LEDs and switches on the operation panel for operation.
- When the machine is set into this mode, all LEDs light up 5 sec. and the message "PANEL SWITCH TEST PRESS ANY SWITCH!" appears on the LCD, indicating that the machine has entered the switch test standby state.
- Pressing a key on the operation panel in the switch test standby state causes the LCD to show the name of key pressed.
- Press the Stop key twice to return to the standby screen.

11.10.2 RAM TEST

A. Use

- Write or read data to/from RAM memory to make sure of normal operation.
- When test finishes and everything is okay, it will display "RAM CHIP IS OK" and automatically clear DRAM.
  After DRAM clear finish, LCD will display "DRAM IS CLEAR!."

B. Procedure

- Pressing the OK key will start the check.
- After approx. 30 seconds, "RAM CHIP IS OK" will appear.

11.11 CLEAR DATA

NOTE

- **When turning OFF the power switch after clearing the data, make sure that the message "ACCEPTED" is displayed on the control panel.**

11.11.1 MEMORY CLEAR

A. Use

- To clear the setting values listed on the right, resetting them to the default values.
- The following items are initialized;
  UTILITY
  SERVICE MODE - SERVICE'S CHOICE
  SERVICE MODE - ADJUST
  SERVICE MODE - FIXED ZOOM CHANGE
  SERVICE MODE - SECURITY
  Copy function information
  Copy program registration.

NOTE

- **After memory clear has been executed, be sure to turn OFF and ON the power switch.**

11.11.2 TOTAL CLEAR

A. Use

- To clear the all electronic counters.
- The following counters are cleared;
  SIZE COUNTER
  PM COUNTER
  MAINTENANCE COUNTER
  SUPPLIES COUNTER
  APPLICATION COUNT.
  SCAN COUNTER
  PAPER SIZE COUNTER
  MISFEED COUNTER
  TROUBLE COUNTER

11.11.3 PM COUNTER

A. Use

- To clear each of the counts of the PM counter.

11.11.4 MAINTENANCE COUNTER

A. Use

- To clear the count of the maintenance counter.

11.11.5 SUPPLIES COUNTER

A. Use

- To clear the count of the supplies life counter.

11.11.6 APPLICATION COUNT.

A. Use

- To clear each of the counts of the application counter.

11.11.7 SCAN COUNTER

A. Use

- To clear the count of the scan counter.

11.11.8 PAPER SIZE COUNTER

A. Use

- To clear each of the counts of the paper size counter.

11.11.9 MISFEED COUNTER

A. Use

- To clear each of the counts of the misfeed counter.

11.11.10 TROUBLE COUNTER

A. Use

- To clear each of the counts of the trouble counter.

12. SECURITY

12.1 List of SECURITY mode

SECURITY		Ref. page
SECURITY	TOTAL COUNTER COUNT	P.117
	SIZE COUNTER COUNT	P.117

12.2 Starting/Exiting

12.2.1 Starting procedure

1. Call the SERVICE MODE to the screen.
2. Press the following keys in this order:
   Quick Settings → ◀ → ▶
3. The SECURITY mode screen will appear.

12.2.2 Exiting procedure

- Press the Back/Stop/Reset key as many times as it is required to display the initial screen.

12.3 SECURITY

12.3.1 TOTAL COUNTER

A. Use

- To set the calculational procedure of the total counter.

B. Procedure

- The default setting is depends on the marketing area.
  - 0 : One count-up for each print cycle (Default: Inch, Taiwan and Latin America (inch))
  - 1 : Two count-up for each print cycle in the total counter
  - 2 : Two count-up for each print cycle in the total counter and the size counter. (Default: Metric, China and Latin America (Metric))

12.3.2 SIZE COUNTER

A. Use

- To set the size of paper to be counted by the size counter.

B. Procedure

- The default setting is depends on the marketing area.
  - 0 : Not counted
  - 1 : A3/11 x 17 (Default: Inch, Taiwan, China, Latin America (inch/metric))
  - 2 : A3/B4/11x17/LEGAL/8K (Default: Metric)
  - 3 : A3/B4/FLS/11x17/LEGAL/8K

- In the case of the custom size paper, when the minimum paper length of the contents of size counter count mode is exceeded, it considers as setting size.
  E.g. in the case of size counter count mode = “2”
  If main scan direction [custom size] is more than 216 mm (Legal width), and sub scan direction [custom size] is more than 356 mm (Legal length), it considers as setting size.

12.3.3 Count-up table

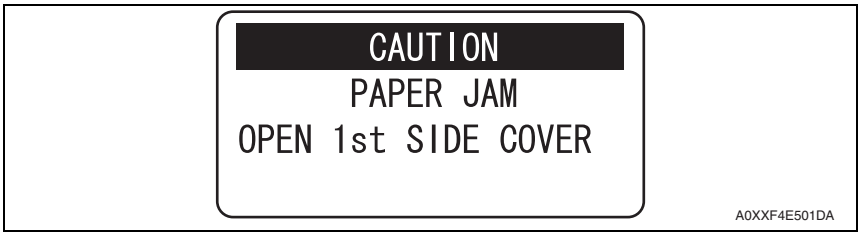
Size counter count mode	Except setting size			Setting size		
Total counter count mode	Mode 0	Mode 1	Mode 2	Mode 0	Mode 1	Mode 2
Total counter	1			1	2	2
Size counter	0			1	1	2

TROUBLESHOOTING

13. JAM DISPLAY

13.1 Misfeed display

- When a paper misfeed occurs, the error indicator lights up steadily and the display gives a corresponding message.



Display message	Misfeed/paper location	Ref. page
OPEN 1st SIDE COVER	Tray 1 paper feed section	P.122
	Bypass tray paper feed section *1	P.123
	Image transfer section	P.124
	Fusing/paper exit section	P.125

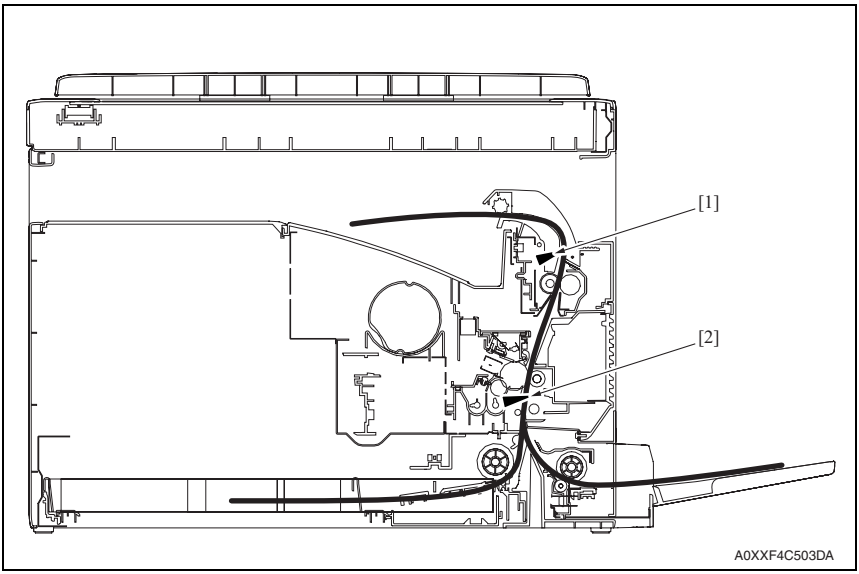
*1: Only when the multi bypass tray MB-503 is mounted.

13.1.1 Display resetting procedure

- Open the 1st side cover, clear the sheet of paper misfed, and close the cover.

13.2 Sensor layout

13.2.1 System mounted with MB-503.



[1] Exit sensor (PS5)

[2] Registration sensor (PS1)

13.3 Solution

13.3.1 Initial check items

- When a paper misfeed occurs, first perform the following initial checks.

Check item	Action
Does paper meet product specifications?	Replace paper.
Is the paper curled, wavy, or damp?	Replace paper. Instruct the user on the correct paper storage procedures.
Is a foreign object present along the paper path, or is the paper path deformed or worn?	Clean or change the paper path.
Are the paper separator fingers dirty, deformed, or worn?	Clean or replace the defective paper separator finger.
Are rolls/rollers dirty, deformed, or worn?	Clean or replace the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the paper?	Set as necessary.
Are the actuators operational and checked for correct operation?	Correct or replace the defective actuator.
Is the paper size setting correct?	Check the paper size and reset as necessary.

13.3.2 Misfeed at tray1 paper feed section

A. Detection timing

Type	Description
Tray1 paper feed section misfeed detection	• If the paper feed from the tray 1 fails, the machine retries twice. However, the leading edge of the paper does not unblock the registration sensor (PS1) even after the lapse of a given period of time after the two retries.

B. Action

Relevant electrical components	
Registration sensor (PS1) Tray1 paper feed clutch (CL2)	Main motor (M1) Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial check items	-	-
2	Check the connector between M1-PRCB CN6 for proper connection and correct as necessary.	-	-
3	Check the M1 connector for proper drive coupling and correct as necessary.	-	-
4	Check the connector between PS1-relay CN24-PRCB CN9 for proper connection and correct as necessary.	-	-
5	Check the connector between CL2-relay CN8-PRCB CN9 for proper connection and correct as necessary.	-	-
6	PS1 sensor check	PRCB CN9-7 (ON)	C-11
7	CL2 operation check	PRCB CN9-4 (REM)	C-11
8	M1 operation check	PRCB CN6-7 (LOCK)	D-9
9	Replace PRCB.	-	-

13.3.3 Misfeed at the bypass tray paper feed section

A. Detection timing

Type	Description
Manual bypass tray paper feed section misfeed detection	• If the paper feed from the bypass tray fails, the machine retries twice. However the leading edge of the paper does not unblock the registration sensor (PS1) even after the lapse of a given period of time after the two retries. • The paper fed from the bypass tray does not unblock the registration sensor (PS1) within the given period of time.

B. Action

Relevant electrical components	
Registration sensor (PS1) Bypass paper feed clutch (CL3)	Main motor (M1) Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial check items	-	-
2	Check the connector between M1-PRCB CN6 for proper connection and correct as necessary.	-	-
3	Check the M1 connector for proper drive coupling and correct as necessary.	-	-
4	Check the connector between PS1-relay CN24-PRCB CN9 for proper connection and correct as necessary.	-	-
5	Check the connector between CL3-relay CN3-relay CN6-PRCB CN8 for proper connection and correct as necessary.	-	-
6	PS1 sensor check	PRCB CN9-7 (ON)	C-11
7	CL3 operation check	PRCB CN8-10 (REM)	E-11
8	M1 operation check	PRCB CN6-7 (LOCK)	D-9
9	Replace PRCB.	-	-

13.3.4 Misfeed at the image transfer section

A. Detection timing

Type	Description
Paper image transfer section misfeed detection	• The exit sensor (PS5) is not blocked even after the lapse of a given period of time after the paper has unblocked the registration sensor (PS1). • The registration sensor (PS1) is not blocked even after the lapse of a given period of time after the paper has unblocked the PS1. • The registration sensor (PS1) is blocked before the lapse of a given period of time after the paper has unblocked the PS1. • While the main motor (M1) is rotating, the machine cannot detect that the paper continuously unblocks the registration sensor (PS1) for the given period of time
Size error detection	• When the registration sensor (PS1) detects the paper length in the sub scanning direction, the difference between the detected paper length and the paper length specified on the control panel is ± 260 mm or more.
Detection of paper left in image transfer section	• The registration sensor (PS1) is unblocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

Relevant electrical components	
Registration sensor (PS1) Exit sensor (PS5) Registration clutch (CL1)	Main motor (M1) Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial check items	-	-
2	Check the connector between M1-PRCB CN6 for proper connection and correct as necessary.	-	-
3	Check the M1 connector for proper drive coupling and correct as necessary.	-	-
4	Check the connector between PS1-relay CN24-PRCB CN9 for proper connection and correct as necessary.	-	-
5	Check the connector between PS5-PRCB CN4 for proper connection and correct as necessary.	-	-
6	Check the connector between CL1-relay CN7-PRCB CN9 for proper connection and correct as necessary.	-	-
7	PS1 sensor check	PRCB CN9-7 (ON)	C-11
8	PS5 sensor check	PRCB CN4-4 (ON)	E-3
9	CL1 operation check	PRCB CN9-2(REM)	C-11
10	M1 operation check	PRCB CN6-7 (LOCK)	D-9
11	Replace PRCB.	-	-

13.3.5 Misfeed at the fusing/exit section

A. Detection timing

Type	Description
Fusing/exit section misfeed detection	• The exit paper sensor (PS3) is not unblocked even after the lapse of a given period of time after the registration sensor (PS1) has been blocked.
Detection of paper left in fusing/exit section	• The exit paper sensor (PS3) is blocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

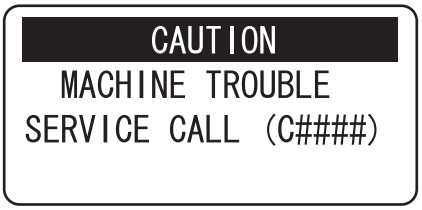
Relevant electrical components	
Registration sensor (PS1) Exit sensor (PS5) Registration clutch (CL1)	Main motor (M1) Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial check items	-	-
2	Check the connector between M1-PRCB CN6 for proper connection and correct as necessary.	-	-
3	Check the M1 connector for proper drive coupling and correct as necessary.	-	-
4	Check the connector between PS1-relay CN24-PRCB CN9 for proper connection and correct as necessary.	-	-
5	Check the connector between PS5-PRCB CN4 for proper connection and correct as necessary.	-	-
6	Check the connector between CL1-relay CN7-PRCB CN9 for proper connection and correct as necessary.	-	-
7	PS1 sensor check	PRCB CN9-7 (ON)	C-11
8	PS5 sensor check	PRCB CN4-4 (ON)	E-3
9	CL1 operation check	PRCB CN9-2(REM)	C-11
10	M1 operation check	PRCB CN6-7 (LOCK)	D-9
11	Replace PRCB.	-	-

14. MALFUNCTION CODE

14.1 Trouble code

- The copier's CPU performs a self-diagnostics function that, on detecting a malfunction, gives the corresponding malfunction code and maintenance call mark on the control panel.



14.1.1 Trouble code list

Code	Item	Description
C0211	Bypass tray lift-up failure	• When a print cycle is completed, a jam is fixed, or the power switch is turned ON, if the bypass lift sensor (PS4) does not change from the unblocked to blocked condition after the lapse of a given period of time after the bypass pick-up solenoid (SD1) is turned ON, the machine retries the depressing motion. This trouble code is displayed if the PS4 is not blocked after the retry. • While the bypass lift sensor (PS4) is blocked, if the PS4 is not unblocked after the lapse of a given period of time after the bypass pick-up solenoid (SD1) is turned ON, the machine retries the lifting motion. This trouble code is displayed if the PS4 is not unblocked after the retry.
C2351	Suction fan motor malfunction	• The fan lock signal remains HIGH for a predetermined continuous period of time while the motor remains stationary.
C2557	Abnormally low T/C ratio	• The T/C ratios detected by the TCR sensor board (TCRSB) are below the threshold for the detection of abnormally low T/C ratio for three successive times. However, if a toner empty condition is detected, this abnormality is not detected.
C2558	Abnormally high T/C ratio	• The T/C ratios detected by the TCR sensor board (TCRSB) are above the threshold for the detection of abnormally high T/C ratio for three successive times. • The connector between TCRSB to PRCC is disconnected.
C255C	TCR sensor adjustment failure	• When [SERVICE MODE]→[FUNCTION]→[TCR AUTO ADJUST] is performed, the difference between the TCR sensor output voltage determined by TCR AUTO ADJUST and the standard voltage is greater than the given value.
C2702	Abnormal image transfer voltage	• The image transfer voltage remains more than 100 V continuously for a given period of time while the drum remains stationary.

Code	Item	Description
C3451	Warming-up failure	• The surface temperature of the fusing roller does not reach a given level even after the lapse of a given period of time during a warm-up cycle.
C3751	Fusing failure (abnormally high fusing temperature 1)	• The temperature detected by the thermistor/1 (TH1) remains higher than a given temperature for a given period of time.
C3752	Fusing failure (abnormally high fusing temperature 2)	• The temperature detected by the thermistor/2 (TH2) remains higher than a given temperature for a given period of time.
C3851	Fusing failure (abnormally low fusing temperature)	• The temperature detected by the thermistor/1 (TH1) remains lower than a given temperature for a given period of time.
C4001	Faulty HSYNC	• The SOS sensor does not detect a rising edge of SOS within a given period of time after the polygon motor has started turning and a laser output has been started. • The SOS sensor detects no rising edges of SOS while VIA (image area control) is ON.
C4101	Polygon motor malfunction	• A HIGH polygon motor lock signal is not detected within a given period of time that begins 0.5 sec. after the polygon motor has started turning. • A LOW polygon motor lock signal is not detected for a continuous given period of time while the rotation of the polygon motor remains stabilized.
C5102	Main motor malfunction	• The main motor (M1) lock signal remains HIGH for a continuous 1-sec. period at any time 1 sec. after the main motor has started turning.
C6101	Scanner home detection failure	• When the power switch is turned ON or a scan operation is completed, detecting the home position fails.
C9401	Scanner lamp error	• When the power switch is turned ON or a scan operation is completed, the light quantity is checked and the shading compensation is performed. At this time, trouble is detected.
CC102	Controller - engine connection failure	• The engine control system can not communicate with the controller.
CC151	Flash ROM error	• The copier determines that there is an error if writing to the flash ROM fails during upgrading of the firmware. • When the power switch is turned ON, the error indicator lights up steadily and a corresponding message appears on the display. • If this error message appears, no operations can then be performed. It is not possible to upgrade the firmware from a PC connected through USB connection, either.
CC153	Engine flash ROM error	• Data of flash ROM of the engine control system is determined to be faulty.
CC163	Engine connection failure	• The controller can not communicate with the engine control system
CD301	EEPROM error	• Contact the responsible people of KMBT before taking some countermeasures.

14.2 Trouble resetting procedure

Code	Item	Procedure
C0211	Bypass tray lift-up failure	• Turn OFF and ON the power switch.
C2351	Suction fan motor malfunction	
C2557	Abnormally low T/C ratio	
C2558	Abnormally high T/C ratio	
C255C	TCR sensor adjustment failure	
C2702	Abnormal image transfer voltage	
C3451	Warming-up failure	• Turn ON the power switch with the Back/ Stop/Reset key held down.
C3751	Fusing failure (abnormally high fusing temperature 1)	
C3752	Fusing failure (abnormally high fusing temperature 2)	
C3851	Fusing failure (abnormally low fusing temperature)	
C4001	Faulty HSYNC	• Turn OFF and ON the power switch.
C4101	Polygon motor malfunction	
C5102	Main motor malfunction	
C6101	Scanner home detection failure	
C9401	Scanner lamp error	
CC102	Controller - engine connection failure	
CC151	Flash ROM error	
CC153	Engine flash ROM error	
CC163	Engine connection failure	
CD301	EEPROM error	

14.3 Solution

14.3.1 C0211: Bypass tray lift-up failure

Relevant electrical components	
Bypass lift sensor (PS4) Bypass pick-up solenoid (SD1)	Main motor (M1) Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the connector between M1-PRCB CN6 for proper connection and correct as necessary.	-	-
2	Check M1 for correct drive coupling and correct as necessary.	-	-
3	Check the connector between PS4-relay CN6-PRCB CN8 for proper connection and correct as necessary.	-	-
4	Check the connector between SD1-relay CN4-relay CN6-PRCB CN8 for proper connection and correct as necessary.	-	-
5	PS4 I/O check, sensor check.	PRCB CN8-8 (ON)	E-11
6	M1 operation check.	PRCB CN6-7 (LOCK)	D-9
7	SD1 operation check.	PRCB CN8-12 (REM)	F-11
8	Change PRCB.	-	-

14.3.2 C2351: Suction fan motor malfunction

Relevant electrical components	
Suction fan motor (FM5)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the connector between FM5-relay CN13-PRCB CN14 for proper connection and correct as necessary.	-	-
2	Check the fan for possible overload and correct as necessary.	-	-
3	FM5 operation check.	PRCB CN14-2(REM)	F-3
4	Change PRCB.	-	-

14.3.3 C2557: Abnormally low T/C ratio

14.3.4 C2558: Abnormally high T/C ratio

14.3.5 C255C: TCR sensor adjustment failure

Relevant electrical components	
TCR sensor board (TCRSB)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check to see if developer is available.	-	-
2	Check the connector between TCRSB-relay CN14-PRCB CN10 for proper connection and correct as necessary.	-	-
3	Change TCRSB.	-	-
4	Execute “TCR AUTO ADJUST.”	-	-
5	Change PRCB.	-	-

14.3.6 C2702: Abnormal image transfer voltage

Relevant electrical components	
Transfer roller unit High voltage unit (HV1)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the transfer roller unit for installation.	-	-
2	Change HV1.	-	-
3	Change PRCB.	-	-

14.3.7 C3451: Warming-up failure

14.3.8 C3751: Fusing failure (Abnormally high fusing temperature 1)

14.3.9 C3752: Fusing failure (Abnormally high fusing temperature 2)

14.3.10 C3851: Fusing failure (Abnormally low fusing temperature)

Relevant electrical components	
Fusing unit	Right door switch (SW2) DC power supply (DCPU) Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the fusing unit for correct installation.	-	-
2	Check the open/close operation of the right door.	-	-
3	Check the fusing unit, DCPU and PRCB for proper connection and correct or change as necessary.	-	-
4	Change fusing unit.	-	-
5	Change PRCB.	-	-
6	Change DCPU.	-	-

14.3.11 C4001: Faulty HSYNC

14.3.12 C4101: Polygon motor malfunction

Relevant electrical components	
PH unit	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	-	-
2	Check the connector between PH unit-PRCB CN1, CN2 for proper connection and correct as necessary.	-	-
3	Change PH unit.	-	-
4	Change PRCB.		-

14.3.13 C5102: Main motor malfunction

Relevant electrical components	
Main motor (M1)	Printer control board (PRCB) DC power supply (DCPU)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the connector between M1-PRCB CN6 for proper connection and correct as necessary.	-	-
2	Check M1 for correct drive coupling and correct as necessary.	-	-
3	M1 operation check.	PRCB CN6-7 (LOCK)	D-9
4	Change PRCB.	-	-
5	Change DCPU.	-	-

14.3.14 C6101: Scanner home detection failure

Relevant electrical components	
Scanner motor (M4) CIS module (CIS)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	–	–
2	Check the connector between M4-PRCB P101 for proper connection and correct as necessary.	–	–
3	Check M4 for correct drive coupling and correct as necessary.	–	–
4	Check the connector between CIS-PRCB P102 for proper connection and correct as necessary.	–	–
5	M4 operation check	PRCB P101-1 to 4	F-11
6	Change M4.	–	–
7	Change CIS	–	–
8	Change MFPB.	–	–

14.3.15 C9401: Scanner lamp error

Relevant electrical components	
CIS module (CIS)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	–	–
2	Check the connector between CIS-PRCB P102 for proper connection and correct as necessary.	–	–
3	Change CIS	–	–
4	Change MFPB.	–	–

14.3.16 CC102: Controller-engine connection failure

Relevant electrical components	
Printer control board (PRCB)	

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	-	-
2	Change PRCB.	-	-

14.3.17 CC151: Flash ROM error

14.3.18 CC153: Engine flash ROM error

Relevant electrical components	
Printer control board (PRCB)	

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the PRCB connectors for proper connection and correct as necessary.	-	-
2	Identify the specific firmware that is responsible for the error.	-	-
3	Perform upgrading of the firmware.	-	-
4	Unplug EEPROM (R22) from PRCB and then plug it back in.	-	-
5	Change PRCB.	-	-

14.3.19 CC163: Engine connection failure

Relevant electrical components	
Printer control board (PRCB)	

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	-	-
2	Check the PRCB connectors for proper connection and correct as necessary.	-	-
3	Change PRCB.	-	-

15. POWER SUPPLY TROUBLE

15.1 The copier does not turn ON

Step	Check	Result	Action
1	A malfunction code appears when the power switch is turned ON.	YES	• Go to step 2.
		NO	• Go to step 3.
2	The malfunction is temporarily reset when the power switch is turned OFF and ON with the Back/Stop/Reset key held down.	YES	• Perform the troubleshooting procedure according to the malfunction code.
3	Power supply voltage check <Check procedure> Check voltage across pins of DC power supply (DCPU) when the power switch is turned ON. • Voltage across CN1DCPU-1 and CN1DCPU-2 AC0 V when the power switch is OFF Rated AC voltage when the power switch is turned ON	NO	• Check wall outlet for voltage. • Check power cord for continuity. • Check power switch.
4	Check of output of DC24 V to PRCB <Check procedure> Check voltage across a PRCB pin and GND when the power switch is turned ON. • Voltage across CN5PRCB-1 and GND • Voltage across CN5PRCB-3 and GND DC0 V when the power switch is OFF DC24 V when the power switch is turned ON	NO	• Check front door switch (SW3). • Check right door switch (SW2). • Change DC power supply (DCPU).
5	Check of output of DC 3.3 V to PRCB <Check procedure> Check voltage across a PRCB pin and GND when the power switch is turned ON. • Voltage across CN5PRCB-7, 8 and GND DC0 V when the power switch is OFF DC3.3 V when the power switch is turned ON	NO	• Change power supply unit (DCPU)
6	Check of output of DC3.3 V to control panel <Check procedure> Check voltage across a PRCB pin and GND when the power switch is turned ON. Voltage across P103PRCB-8, 9 and GND DC0 V when the power switch is OFF DC3.3 V when the power switch is turned ON	NO	• Change printer control board (PRCB). • Change DC power supply (DCPU)
		YES	• Change control panel.

16. IMAGE QUALITY PROBLEM

16.1 How to identify problematic part

- In this chapter, troubleshooting is divided into “initial checks” and “troubleshooting procedures classified by image failures.”
- If any image failure has occurred, first make the initial checks, then proceed to the corresponding image failure troubleshooting procedure.

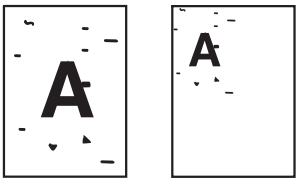
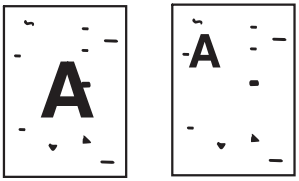
16.1.1 Initial check items

- Determine if the failure is attributable to a basic cause or causes.

Section	Step	Check	Result	Action
Paper	1	Paper meets product specifications.	NO	• Instruct user to use paper that meets specifications and is recommended.
	2	Paper is damp.	YES	• Change paper for one that is dry. Then, instruct user to use paper that meets specifications and in how to store paper.
Original	3	Original is placed correctly.	NO	• Reposition original.
	4	Original is written in light pencil.	YES	• Instruct user to use original with appropriate image density.
	5	Original is transparent (OHP film, etc.).	YES	• Instruct user to use originals that meet specifications.
	6	Original glass is dirty or scratchy.	YES	• Clean original glass. • Change original glass.
PM parts	7	The PM parts relating to image formation have reached the end of cleaning/replacement cycles.	YES	• Clean PM parts. • Change PM parts.
Adjustment items	8	Adjustment item in which re-adjustment is made to improve the image faulty.	YES	• Re-adjustment

16.1.2 Identification of the faulty system

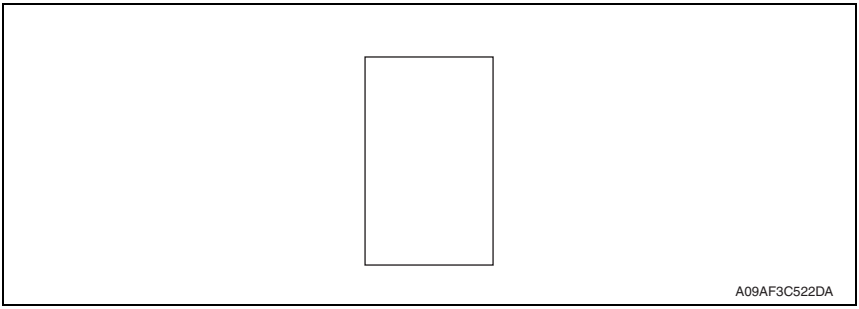
- Determine if the failure is attributable to an input system (scanner) or output system (printer).

<table>
<tr><th>Check</th><th>Result</th><th>Action</th></tr>
<tr><td rowspan="2">Copy made at a reduced ratio
 
A09AF3C519DA</td><td>Full-size Reduced
 
A09AF3C520DA</td><td>Input system (scanner)</td></tr>
<tr><td>Full-size Reduced
 
A09AF3C521DA</td><td>Output system (printer)</td></tr>
</table>

16.2 Solution

16.2.1 Scanner section: Blank copy

A. Typical faulty images

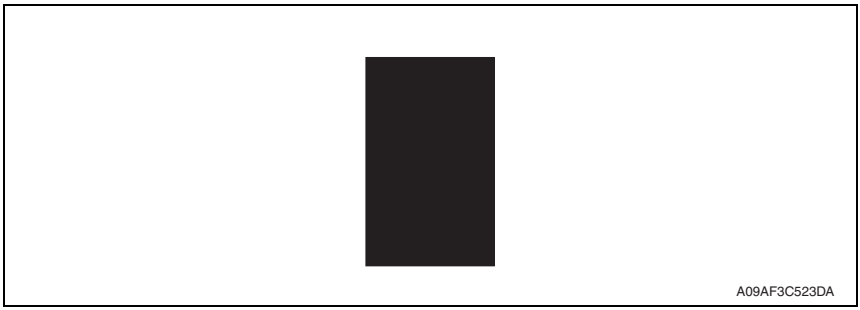


B. Troubleshooting procedure

Step	Check	Result	Action
1	CIS module (CIS) connector is loose.	YES	• Reconnect.
2	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.2 Scanner section: Black copy

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Exposure lamp turns ON when the power switch is turned ON.	NO	Go to step 3.
2	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	Go to step 4.
3	CIS module (CIS) connector is loose.	YES	• Reconnect.
4	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.3 Scanner section: Low image density

A. Typical faulty images

A09AF3C524DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
2	CIS module (CIS) connector is loose.	YES	• Reconnect.
3	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.4 Scanner section: Foggy background or rough image

A. Typical faulty images

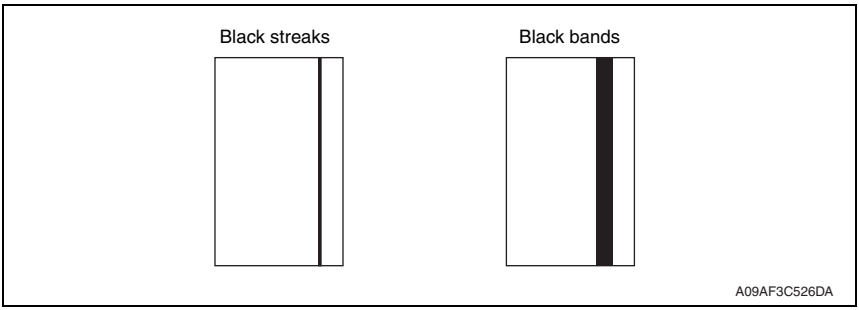
A09AF3C525DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty.	YES	• Clean.
2	CIS module components (glass, lamp) are dirty.	YES	• Clean.
3	CIS module (CIS) connector is loose.	YES	• Reconnect.
4	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.5 Scanner section: Black streaks or bands

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
4	CIS module (CIS) connector is loose.	YES	• Reconnect.
5	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.6 Scanner section: Black spots

A. Typical faulty images

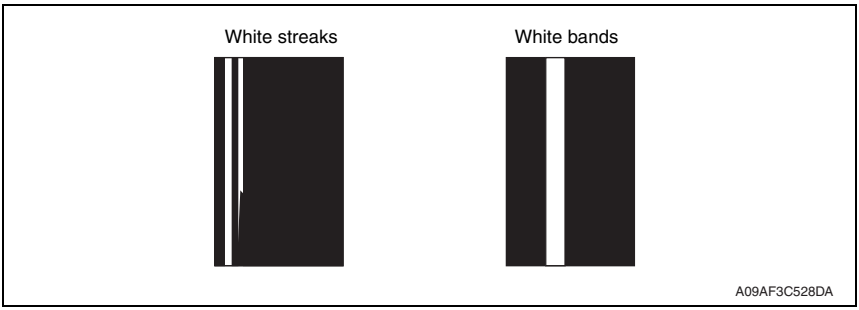
A09AF3C527DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty or scratchy.	YES	• Clean.
2	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
3	CIS module (CIS) connector is loose.	YES	• Reconnect.
4	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.7 Scanner section: White streaks or bands

A. Typical faulty images

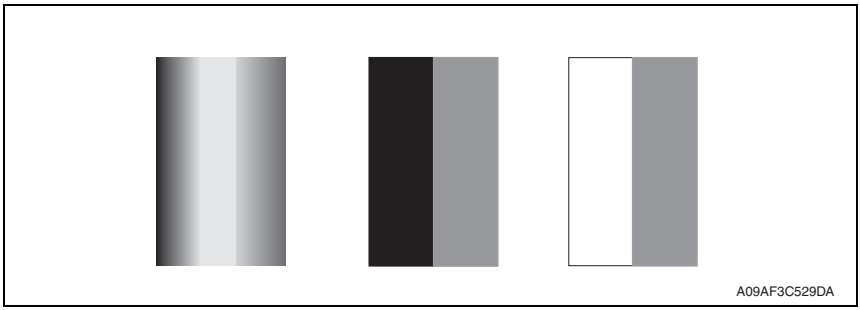


B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
4	CIS module (CIS) connector is loose.	YES	• Reconnect.
5	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.8 Scanner section: Uneven image density

A. Typical faulty images

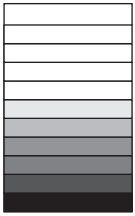


B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	• Go to step 5.
4	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
5	CIS module (CIS) connector is loose.	YES	• Reconnect.
6	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.9 Scanner section: Gradation reproduction failure

A. Typical faulty images



A09AF3C530DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	• Go to step 5.
4	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
5	CIS module (CIS) connector is loose.	YES	• Reconnect.
6	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.10 Scanner section: Periodically uneven image

A. Typical faulty images

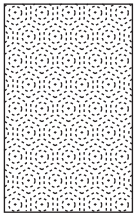
A09AF3C531DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Scanner motor (M4) is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
2	Scanner motor (M4) drive mechanism is dirty or damaged.	YES	• Clean or change.
3	Scanner drive mechanism pulley is dirty with foreign matter, scratchy, deformed, worn, or damaged.	YES	• Remove foreign matter or change.
4	Scanner rails are dirty with foreign matter, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	CIS module moves smoothly. <Check procedure> Gently move the scanner by hand to check for smooth operation.	NO	• Reinstall CIS.
6	CIS module (CIS) connector is loose.	YES	• Reconnect.
7	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB.

16.2.11 Scanner section: Moire

A. Typical faulty images



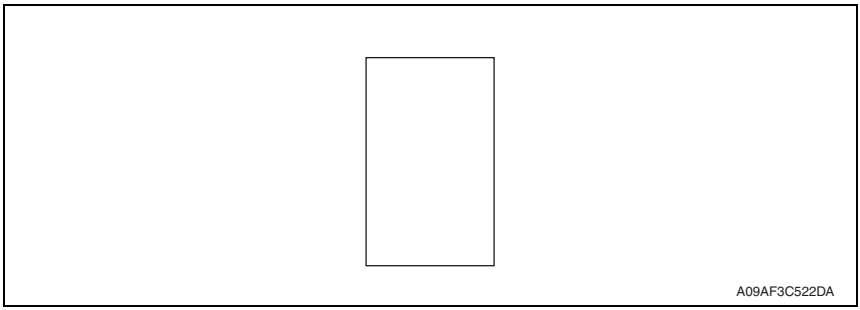
A09AF3C532DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Moire distortions recur even after the orientation of original has been changed.	NO	• Change the original mode (select one other than that resulted in moire).
2	Moire distortions recur even after the original mode has been changed.	NO	• Change the original image mode.
3	Moire distortions recur even when the zoom ratio is changed.	NO	• Change the zoom ratio setting.
4	The problem has been eliminated through the checks of step up 3.	NO	• Adjust CCD MAIN ZOOM and CCD SUB ZOOM. See P.101

16.2.12 Printer section: Blank copy

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Imaging unit is installed correctly.	NO	• Reinstall.
2	Connector between the imaging unit and copier is dirty.	YES	• Clean.
3	PH shutter (located along the laser path between the PH unit and drum) is not in correct position or malfunctions.	YES	• Correct or reinstall.
4	Connectors CN1PRCB and CN2PRCB in PH unit come off or lift.	YES	• Reconnect.
5	Transfer roller unit is installed correctly.	NO	• Reinstall.
6	Transfer current contact is dirty, broken, or bent.	YES	• Clean, correct, or change.
7	Developing bias contact is dirty, broken, or bent.	YES	• Clean, correct, or change.
8	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
9	The following voltage is supplied from the printer control board (PRCB). <Check procedure> Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change PH unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.13 Printer section: Black copy

A. Typical faulty images

A09AF3C523DA

B. Troubleshooting Procedure

Step	Check	Result	Action
1	Drum charge corona grid mesh and comb electrode are loose.	YES	• Reinstall.
2	Drum charge corona contact is dirty, scratchy, folded, bent, or damaged.	YES	• Correct or change.
3	Grid bias contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
4	Drum ground contact is dirty, scratchy, bent, or damaged.	YES	• Clean, correct, or change.
5	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
6	The PH unit cable is loose.	YES	• Reconnect.
7	The following voltage is supplied from the printer control board (PRCB). <Check procedure> Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change PH unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.14 Printer section: Low image density

A. Typical faulty images

A09AF3C524DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	The image changes when “TONER SUPPLY” in SERVICE MODE is executed.	YES	• Replenish the supply of toner using “TONER SUPPLY”.
2	The image changes when “ID ADJUST” and “VG ADJUST” are executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.
3	Image transfer current contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
4	Developing bias contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
5	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
6	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
7	Is a power voltage supplied across CN-2, 3 on PRCB? <Check procedure> • Check voltage across a master board pin and GND when the power switch is turned ON.	NO	• Change TCR sensor (TCRS) and then change developer.
8	The following voltage is supplied from the printer control board (PRCB). <Check procedure> • Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.15 Printer section: Foggy background or rough image

A. Typical faulty images

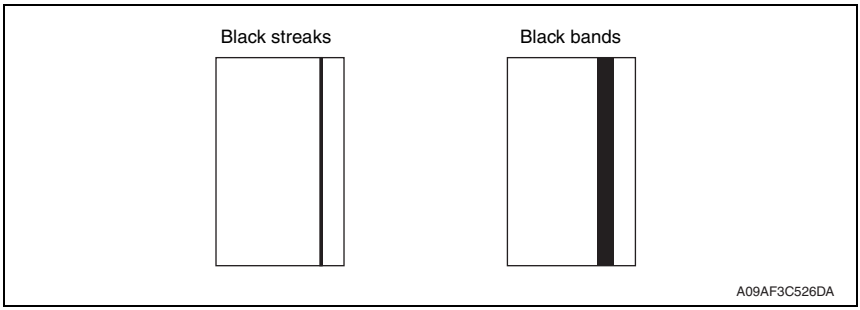
A09AF3C525DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	The image changes when “ID ADJUST” and “VG ADJUST” are executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.
2	Drum surface and the areas in contact with Ds collars are dirty with foreign matter, or deformed or worn.	YES	• Clean or change.
3	Grid bias contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
4	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
5	Is a power voltage supplied across CN-2, 3 on PRCB? <Check procedure> • Check voltage across a master board pin and GND when the power switch is turned ON.	NO	• Change TCR sensor (TCRS) and then change developer.
6	The following voltage is supplied from the printer control board (PRCB). <Check procedure> • Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Adjust Db. For details, see ADJUSTING/SETTING. • Change drum. • Change imaging unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.16 Printer section: black streaks or bands

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Drum is dirty or scratchy.	YES	• Clean or change.
2	Foreign matter (such as paper dust) sticks to the cleaning blade of IU or the blade curves upward.	YES	• Remove foreign matter, correct, or change.
3	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
4	Drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, damaged, or out of position.	YES	• Clean or change.
5	Fusing roller is dirty or scratchy.	YES	• Clean or change.
6	PH window of the PH unit is dirty or scratchy.	YES	• Clean or change.
		NO	• Change IU.

16.2.17 Printer section: Black spots

A. Typical faulty images

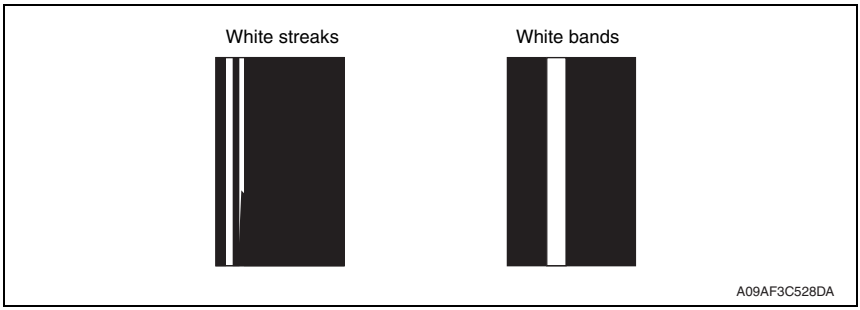
A09AF3C527DA

B. Troubleshooting Procedure

Step	Check	Result	Action
1	Toner is present along the paper path.	YES	• Clean.
2	Drum is dirty or scratchy.	YES	• Clean or change.
3	Tip of the drum paper separator finger is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
4	Fusing roller is dirty or scratchy.	YES	• Clean or change.
5	Tip of the fusing paper separator finger is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change fusing paper separator fingers and finger springs.
6	The image changes when “VG ADJUST” is executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.

16.2.18 Printer section: Blank streaks or bands

A. Typical faulty images

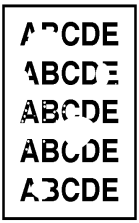


B. Troubleshooting procedure

Step	Check	Result	Action
1	Drum ground terminal is dirty, scratchy, deformed, or damaged.	YES	• Clean, correct, or change.
2	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
3	Drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, or damaged.	YES	• Clean, correct, or change.
4	Post-fusing guide plate is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	PH window of the PH unit is dirty, scratchy, or damaged.	YES	• Clean or change.
		NO	• Change IU.

16.2.19 Printer section: Void areas

A. Typical faulty images



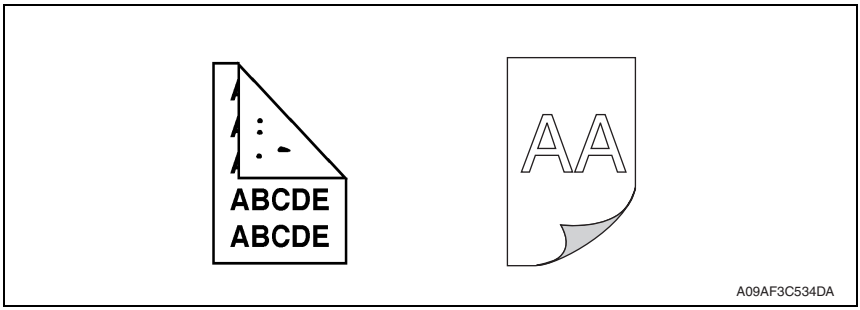
A09AF3C533DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Foreign matter is present along the paper path.	YES	• Remove foreign matter.
2	Paper dust plugs up the paper dust remover.	YES	• Clean or change.
3	Drum charge corona, grid mesh, and comb electrode are loose.	YES	• Reinstall.
4	Drum charge corona contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
5	Developing roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
6	Toner is even on sleeve/magnet roller.	NO	• Adjust Db. For details, see ADJUSTING/SETTING.
7	Developer is not even in the developer mixing chamber of IU.	YES	• Even out developer in the developer mixing chamber.
8	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
9	Transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
10	Transfer roller unit is installed correctly.	NO	• Reinstall.
11	Charge neutralizing plate is dirty, scratchy, folded, or bent.	YES	• Clean, correct, or change.
12	Fusing roller is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
		NO	• Change IU.

16.2.20 Printer section: Smear on back

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Toner is spilled over area inside copier.	YES	• Clean interior.
2	Toner is present along the paper path.	YES	• Clean.
3	Fusing pressure roller is dirty, scratchy, or damaged.	YES	• Clean or change.
4	Transfer roller is dirty.	YES	• Clean or change.
5	Grid bias contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
		NO	• Change high voltage unit (HV1). • Change printer control board (PRCB).

16.2.21 Printer section: Uneven image density

A. Typical faulty images

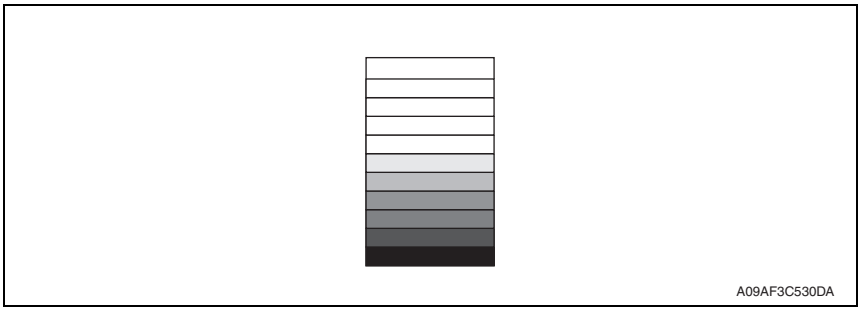
A09AF3C529DA

B. Troubleshooting Procedure

Step	Check	Result	Action
1	Drum ground plate is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
2	Drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, worn, damaged, or loose.	YES	• Clean, correct, or change.
3	Transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
4	Sleeve/magnet roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	Toner is even on sleeve/magnet roller.	NO	• Adjust Db. For details, see ADJUSTING/SETTING.
6	Developer is not even in the developer mixing chamber of IU.	YES	• Even out developer in the developer mixing chamber.
		NO	• Change IU. • Change printer control board (PRCB).

16.2.22 Printer section: Gradation reproduction failure

A. Typical faulty images



B. Troubleshooting Procedure

Step	Check	Result	Action
1	Drum is dirty.	YES	• Clean.
2	Transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
3	The PH unit cable is loose.	YES	• Reconnect.
4	PH window of PH unit is dirty.	YES	• Clean.
5	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
6	Is a power voltage supplied across CN-2, 3 on PRCB? <Check procedure> • Check voltage across a master board pin and GND when the power switch is turned ON.	NO	• Change TCR sensor (TCRS) and developer.
		YES	• Change printer control board (PRCB).

16.2.23 Printer section: Periodically uneven image

A. Typical faulty images

A09AF3C531DA

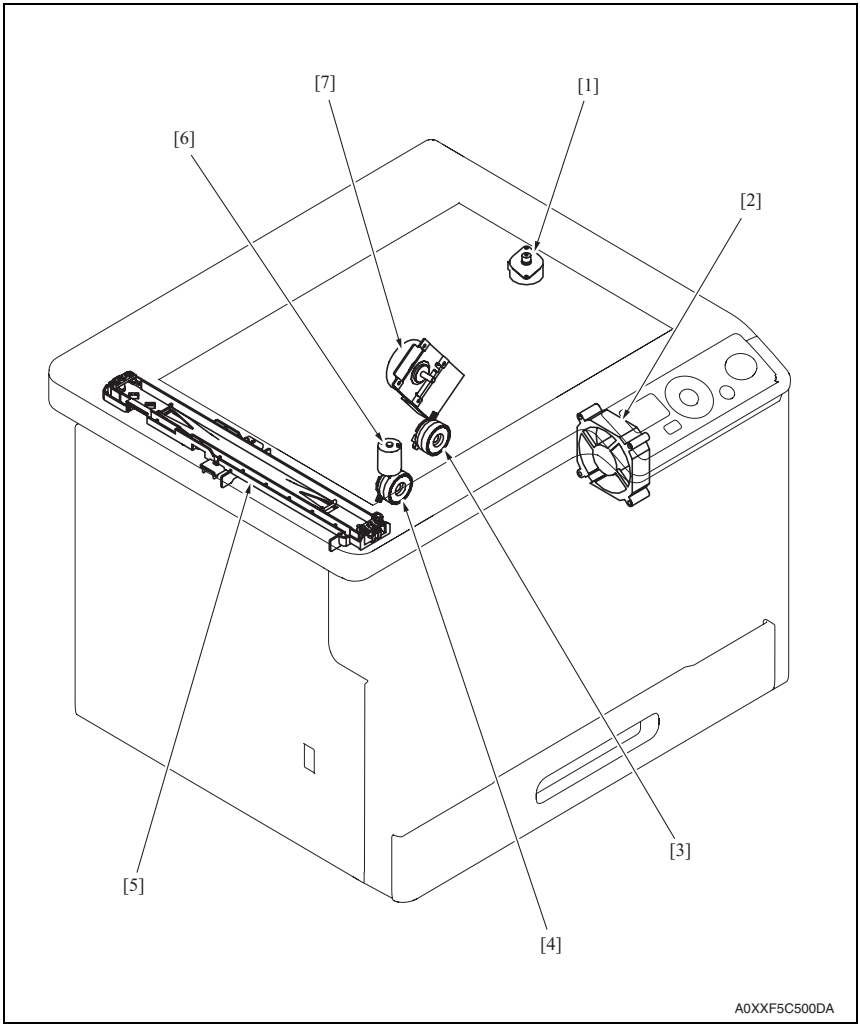
B. Troubleshooting procedure

Step	Check	Result	Action
1	IU is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
2	PH unit is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
3	IU drive mechanism is dirty or damaged.	YES	• Clean or change.
4	Drum surfaces in contact with Ds collars and drive mechanism are dirty, scratchy, deformed, or worn.	YES	• Clean or change.
5	Registration roller drive mechanism is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
6	Fusing unit drive mechanism is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
		NO	• Change printer control board (PRCB).

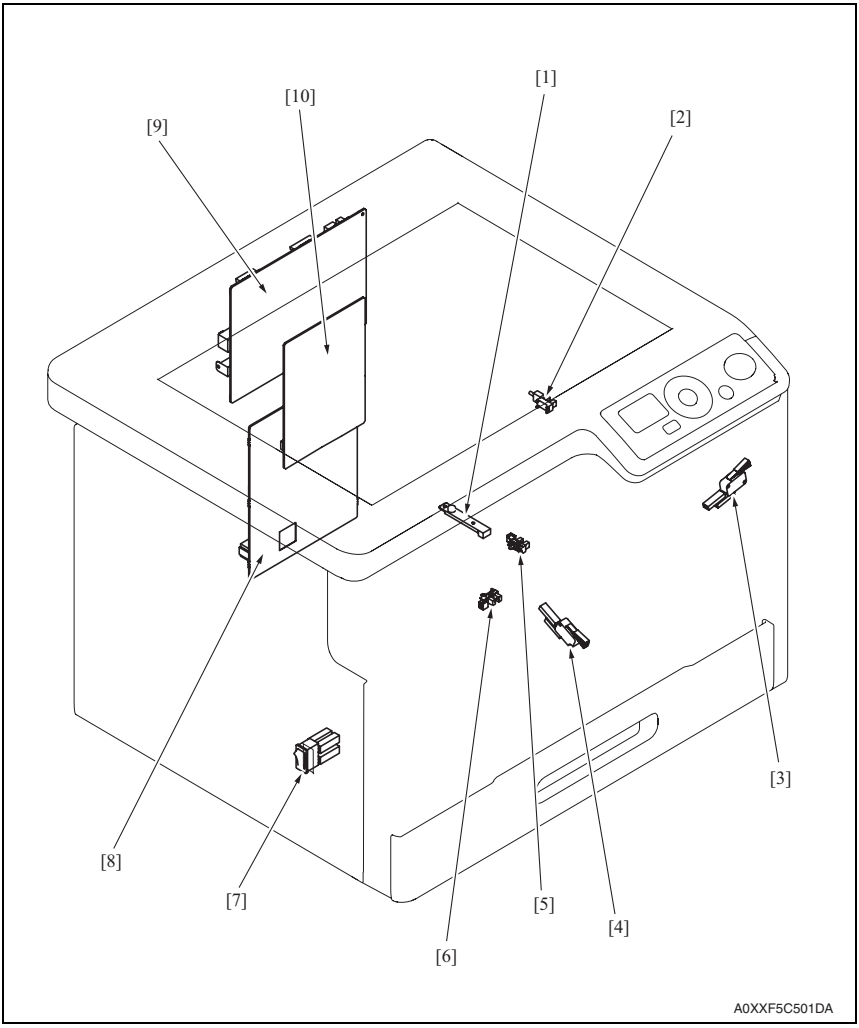
APPENDIX

17. PARTS LAYOUT DRAWING

17.1 Main body

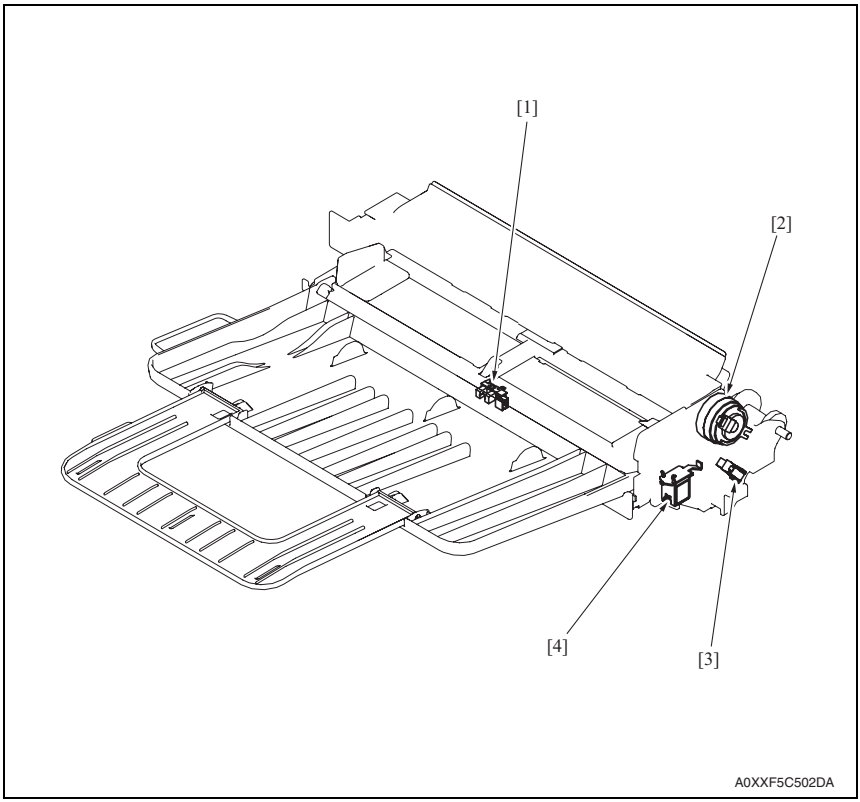


[1] Scanner motor (M4)
[2] DC power supply fan motor (FM5)
[3] Registration clutch (CL1)
[4] Tray1 paper feed clutch (CL2)
[5] CIS module (CIS)
[6] Toner supply motor (M2)
[7] Main motor (M1)



[1] TCR sensor board (TCRSB)
[2] Exit sensor (PS5)
[3] Right door switch (SW2)
[4] Front door switch (SW3)
[5] Registration sensor (PS1)
[6] Tray1 empty sensor (PS2)
[7] Power switch (SW1)
[8] DC power supply (DCPU)
[9] Printer control board (PRCB)
[10] High voltage unit (HV1)

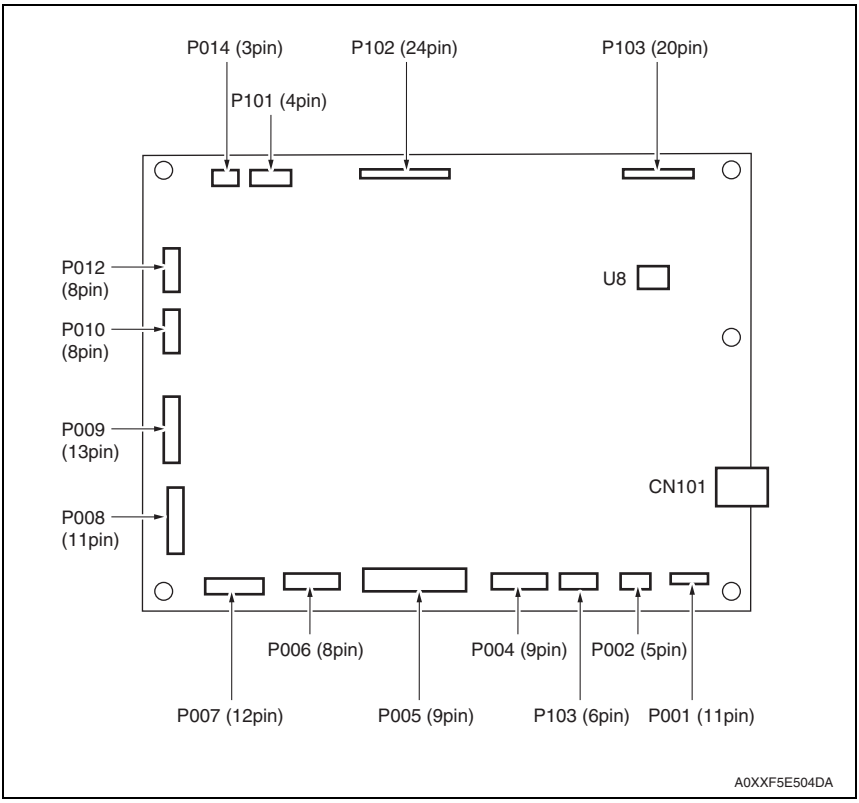
17.2 Multi bypass tray (MB-503)



[1] Bypass paper empty sensor (PS3)
[2] Bypass paper feed clutch (CL3)
[3] Bypass lift sensor (PS4)
[4] Bypass pick-up solenoid (SD1)

18. CONNECTOR LAYOUT DRAWING

18.1 Printer control board (PRCB)

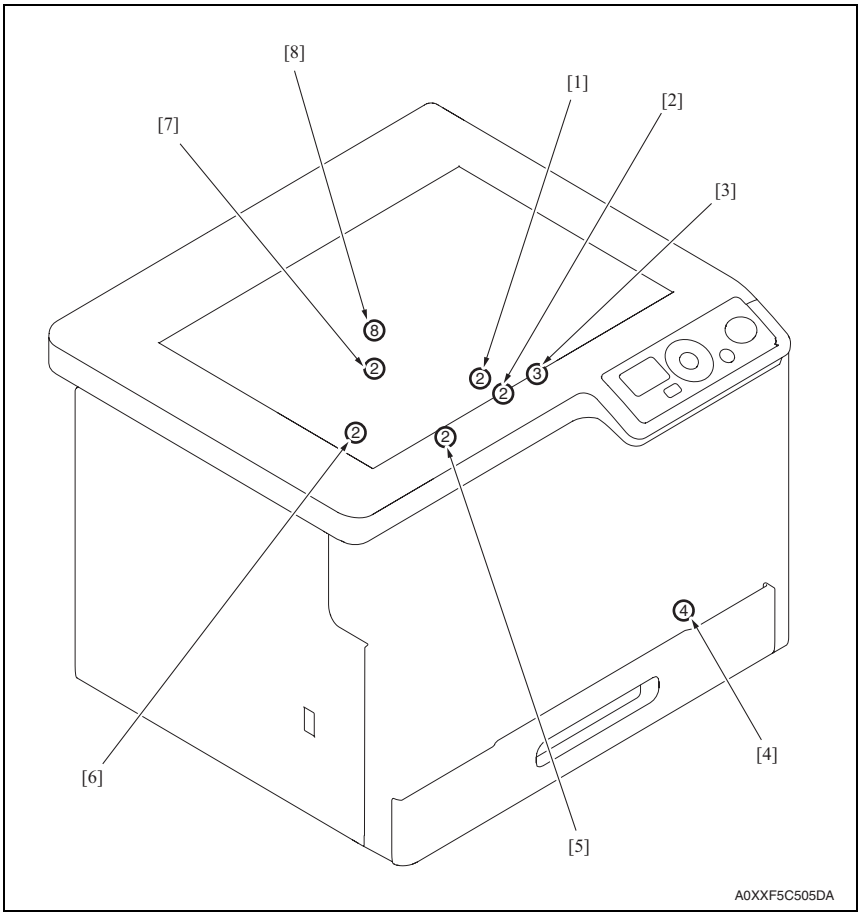


19. CONNECTOR LAYOUT DRAWING

Description

Number of Pin → ① Possible to confirm by removing external cover.

→ 1 Not possible to confirm by removing external cover.



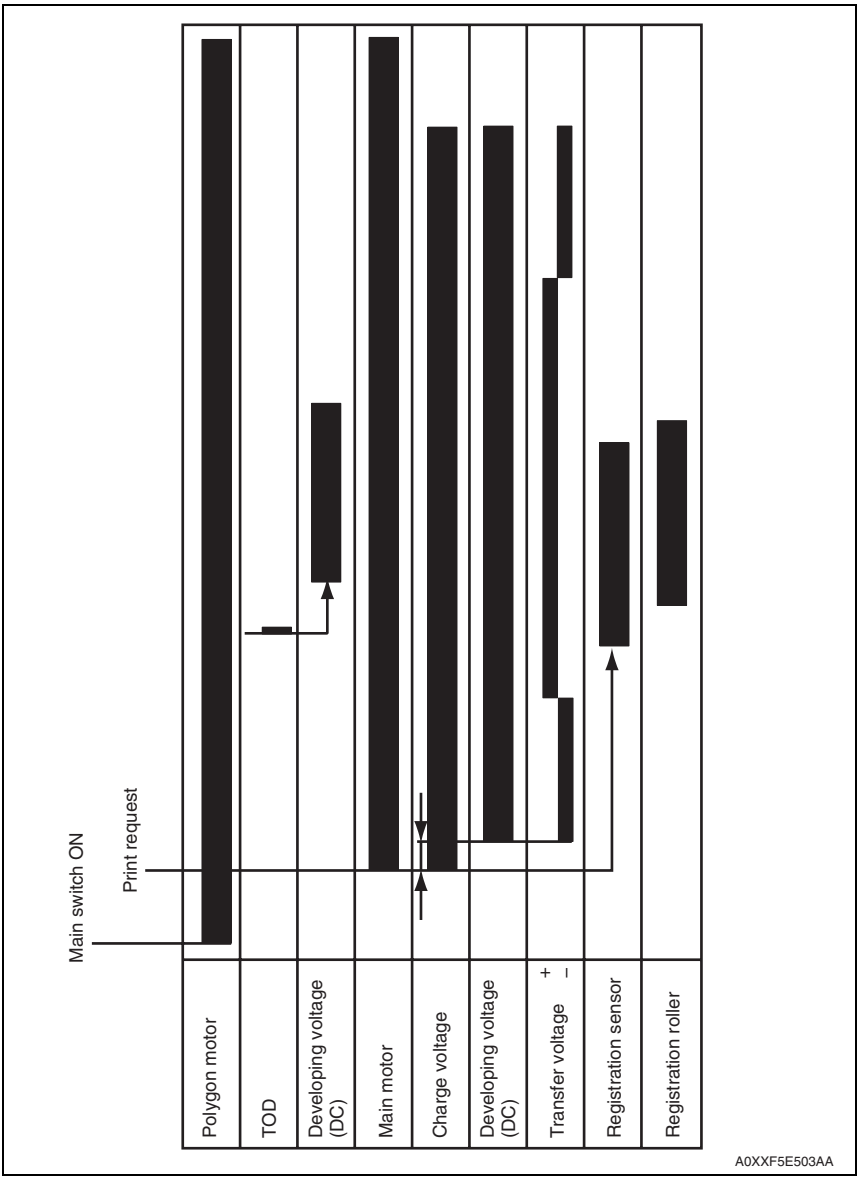
No.	CN No.	Location	No.	CN No.	Location
[1]	CN3	E-10	[5]	CN8	C-10
[2]	CN4	F-10	[6]	CN15	B-5
[3]	CN13	F-5	[7]	CN7	C-10
[4]	CN14	A-5	[8]	CN24	D-9

20. TIMING CHART

A. Operating conditions

- A4 or Letter

B. Timing chart



KONICA MINOLTA

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

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