KONICA MINOLTA

Service Manual

PagePro 1300W/1350W

1. SAFETY PRECAUTIONS FOR INSPECTION AND SERVICE

- When performing inspection and service procedures, observe the following precautions to prevent accidents and ensure utmost safety.

✻ Depending on the model, some of the precautions given in the following do not apply.

- Different markings are used to denote specific meanings as detailed below.

⚠ WARNING

- Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- The following graphic symbols are used to give instructions that need to be observed.

Used to call the service technician attention to what is graphically represented inside the marking (including a warning).

Used to prohibit the service technician from doing what is graphically represented inside the marking.

Used to instruct the service technician to do what is graphically represented inside the marking.

1-1. Warning

⚠ WARNING

1. Always observe precautions.

- Parts requiring special attention in this product will include a label containing the mark shown on the left plus precautionary notes. Be sure to observe the precautions.
- Be sure to observe the “Safety Information” given in the Operator’s Manual.

⚠ WARNING

2. Before starting the procedures, be sure to unplug the power cord.

- This product contains a high-voltage unit and a circuit with a large current capacity that may cause an electric shock or burn.
- The product also contains parts that can jerk suddenly and cause injury.
- If this product uses a laser, laser beam leakage may cause eye damage or blindness.

3. Do not throw toner or the toner bottle into a fire.

- Do not throw toner or the Toner Bottle (Imaging Cartridge, Toner Cartridge) into a fire. Toner expelled from the fire may cause burns.

4. Use the specified parts.

- For replacement parts, always use the genuine parts specified in the manufacturer's parts manual. Installing a wrong or unauthorized part could cause dielectric breakdown, overload, or undermine safety devices resulting in possible electric shock or fire.
- Replace a blown electrical fuse or thermal fuse with its corresponding genuine part specified in the manufacturer's parts manual. Installing a fuse of a different make or rating could lead to a possible fire. If a thermal fuse blows frequently, the temperature control system may have a problem and action must be taken to eliminate the cause of the problem.

5. Handle the power cord with care and never use a multiple outlet.

- Do not break, crush or otherwise damage the power cord. Placing a heavy object on the power cord, or pulling or bending it may damage it, resulting in a possible fire or electric shock.
- Do not use a multiple outlet to which any other appliance or machine is connected.
- Be sure the power outlet meets or exceeds the specified capacity.
- Use only the power cord supplied in the package. If a power cord is not supplied, only use the power cord and plug that is specified in POWER CORD INSTRUCTION. Failure to use this cord could result in a fire or electrical shock.
- Use the power cord supplied in the package only for this machine and NEVER use it for any other product. Failure to observe this precaution could result in a fire or electrical shock.

6. Be careful with the high-voltage parts.

- A part marked with the symbol shown on the left carries a high voltage. Touching it could result in an electric shock or burn. Be sure to unplug the power cord before servicing this part or the parts near it.

7. Do not work with wet hands.

- Do not unplug or plug in the power cord, or perform any kind of service or inspection with wet hands. Doing so could result in an electric shock.

⚠ WARNING

8. Do not touch a high-temperature part.

- A part marked with the symbol shown on the left and other parts such as the exposure lamp and fusing roller can be very hot while the machine is energized. Touching them may result in a burn.
- Wait until these parts have cooled down before replacing them or any surrounding parts.

9. Maintain a grounded connection at all times.

- Connect the power cord to an electrical outlet that is equipped with a grounding terminal.

10. Do not remodel the product.

- Modifying this product in a manner not authorized by the manufacturer may result in a fire or electric shock. If this product uses a laser, laser beam leakage may cause eye damage or blindness.

11. Restore all parts and harnesses to their original positions.

- To promote safety and prevent product damage, make sure the harnesses are returned to their original positions and properly secured in their clamps and saddles in order to avoid hot parts, high-voltage parts, sharp edges, or being crushed.
- To promote safety, make sure that all tubing and other insulating materials are returned to their original positions. Make sure that floating components mounted on the circuit boards are at their correct distance and position off the boards.

1-2. Caution

⚠ CAUTION

1. Precautions for Service Jobs.

- A star washer and spring washer, if used originally, must be reinstalled. Omitting them may result in contact failure which could cause an electric shock or fire.
- When reassembling parts, make sure that the correct screws (size, type) are used in the correct places. Using the wrong screw could lead to stripped threads, poorly secured parts, poor insulating or grounding, and result in a malfunction, electric shock or injury.
- Take great care to avoid personal injury from possible burrs and sharp edges on the parts, frames and chassis of the product.
- When moving the product or removing an option, use care not to injure your back or allow your hands to be caught in mechanisms.

⚠ CAUTION

2. Precautions for Servicing with Covers and Parts Removed.

- Wherever feasible, keep all parts and covers mounted when energizing the product.
- If energizing the product with a cover removed is absolutely unavoidable, do not touch any exposed live parts and use care not to allow your clothing to be caught in the moving parts. Never leave a product in this condition unattended.
- Never place disassembled parts or a container of liquid on the product. Parts falling into, or the liquid spilling inside, the mechanism could result in an electric shock or fire.

- Never use a flammable spray near the product. This could result in a fire.
- Make sure the power cord is unplugged before removing or installing circuit boards or plugging in or unplugging connectors.
- Always use the interlock switch actuating jig to actuate an interlock switch when a cover is opened or removed. The use of folded paper or some other object may damage the interlock switch mechanism, possibly resulting in an electric shock, injury or blindness.

3. Precautions for the Working Environment.

- The product must be placed on a flat, level surface that is stable and secure.
- Never place this product or its parts on an unsteady or tilting workbench when servicing.
- Provide good ventilation at regular intervals if a service job must be done in a confined space for a long period of time.
- Avoid dusty locations and places exposed to oil or steam.
- Avoid working positions that may block the ventilation ports of the product.

4. Precautions for Handling Batteries. (Lithium, Nickel-Cadmium, etc.)

- Replace a rundown battery with the same type as specified in the manufacturer's parts manual.
- Before installing a new battery, make sure of the correct polarity of the installation or the battery could burst.
- Dispose of used batteries according to the local regulations. Never dispose of them at the user's premises or attempt to try to discharge one.

5. Precautions for the Laser Beam. (Only for Products Employing a Laser)

- Removing the cover marked with the caution label could lead to possible exposure to the laser beam, resulting in eye damage or blindness. Be sure to unplug the power cord before removing this cover.
- If removing this cover while the power is ON is unavoidable, be sure to wear protective laser goggles that meet specifications.
- Make sure that no one enters the room when the machine is in this condition.
- When handling the laser unit, observe the "Precautions for Handling Laser Equipment."

6. Precautions for storing the toner or imaging cartridge.

- Be sure to keep the toner or imaging cartridge out of the reach of children. Licking the imaging cartridge or ingesting its contents is harmful to your health.

1-3. Used Batteries Precautions

ALL Areas

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Germany

VORSICHT!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.
Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

France

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.
Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Denmark

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Finland, Sweden

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

Norway

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

1-4. Other Precautions

- When handling circuit boards, observe the “HANDLING of PWBs”.
- The PC Drum is a very delicate component. Observe the precautions given in “HANDLING OF THE PC DRUM” because mishandling may result in serious image problems.
- Note that replacement of a circuit board may call for readjustments or resetting of particular items, or software installation.

1-5. Precautions for Service

- When performing inspection and service procedures, observe the following precautions to prevent mishandling of the machine and its parts.

✻ Depending on the model, some of the precautions given in the following do not apply.

1. Precautions Before Service

- When the user is using a word processor or personal computer from a wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
- Never disturb the LAN by breaking or making a network connection, altering termination, installing or removing networking hardware or software, or shutting down networked devices without the knowledge and express permission of the network administrator or the shop supervisor.

2. How to Use this Book

DIS/REASSEMBLY, ADJUSTMENT

- To reassemble the product, reverse the order of disassembly unless otherwise specified.

TROUBLESHOOTING

- If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedures applicable within the defective unit.
- All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
- The procedures preclude possible malfunctions due to noise and other external causes.

3. Precautions for Service

- Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged motor or locking mechanism.
- If the product is to be run with the front door open, make sure that the toner hopper is in the locked position.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.

4. Precautions for Dis/Reassembly

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly. If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the timing belt and gears.
- Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- While the product is energized, do not unplug or plug connectors into the circuit boards or harnesses.
- Never use flammable sprays near the copier.
- A used battery should be disposed of according to the local regulations and never be discarded casually or left unattended at the user's premises.
- When reassembling parts, make sure that the correct screws (size, type) and toothed washer are used in the correct places.

5. Precautions for Circuit Inspection

- Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
- When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the GND wire.

6. Handling of PWBs

During Transportation/Storage

- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight and high temperature.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.
- Protect the PWBs from any external force so that they are not bent or damaged.

During Inspection/Replacement

- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch a metal part to discharge static electricity before touching the PWB.
- Note that replacement of a PWB may call for readjustments or resetting of particular items.

7. Handling of Other Parts

- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.

8. Handling of the PC Drum

✻ Only for Products Not Employing an Imaging Cartridge.

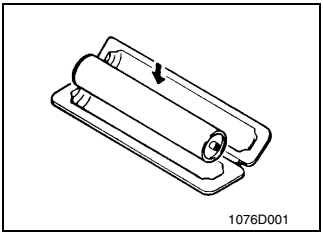
During Transportation/Storage

- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

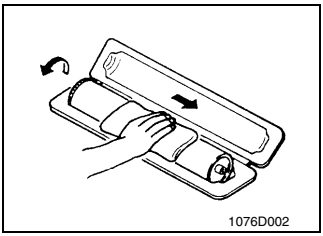
Handling

- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its carton or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.



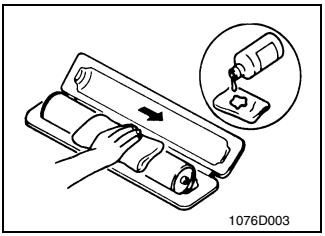
A. Place the PC Drum into one half of its carton.



B. Gently wipe the residual toner off the surface of the PC Drum with a dry, Dust-Free Cotton Pad.

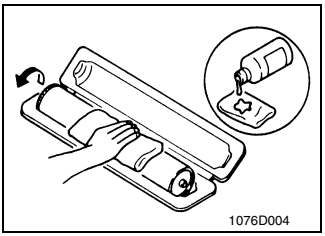
- Turn the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.
- Turn the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the Dust-Free Cotton Pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

✻ At this time, always use a CLEAN face of the dry Dust-Free Cotton Pad until no toner is evident on the face of the Pad after wiping.



C. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused Dust-Free Cotton Pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

✻ Never move the Pad back and forth.



D. Using the SAME face of the Pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

9. Handling of the Imaging Cartridge and Print Unit

✻ Only for Products Employing an Imaging Cartridge and Print Unit.

During Transportation/Storage

- The storage temperature is in the range between –20 °C and +40 °C.
- In summer, avoid leaving the Imaging Cartridge and Print Unit in a car for a long time.

Handling

- Store the Imaging Cartridge and Print Unit in a place that is not exposed to direct sunlight.

Precautionary Information on the PC Drum Inside the Imaging Cartridge and Print Unit.

- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

1-6. Safety information

(1) Laser Safety

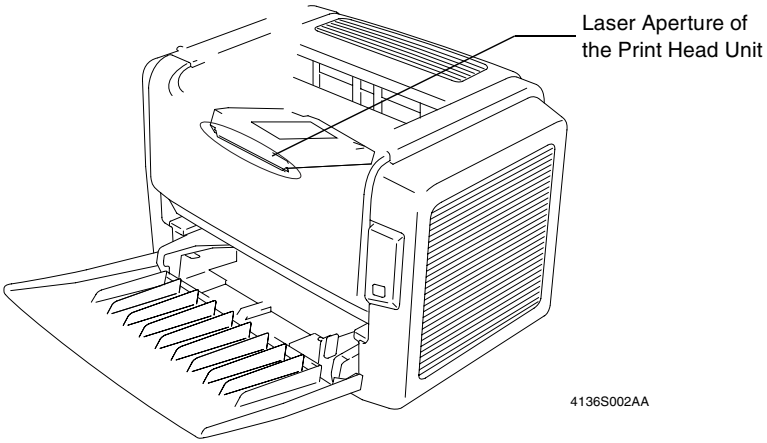
- This is a digital machine certified as a class 1 laser product. There is no possibility of danger from a laser, provided the machine is serviced according to the instruction in this manual.

(2) Internal Laser Radiation

semiconductor laser	
Maximum power of the laser diode	15 mW
Maximum average radiation power(*)	36.903 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 SERVICE ITEM. Therefore, the print head unit should not be opened under any circumstances.



This figure shows the view inside the Front Cover with the Toner Cartridge and the Drum Cartridge removed.

the U.S.A., Canada
(CDRH Regulation)

- This machine is certified as a Class I Laser product under Radiation Performance Standard according to the Food, Drug and Cosmetic Act of 1990. Compliance is mandatory for Laser products marketed in the United States and is reported to the Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration of the U.S. Department of Health and Human Services (DHHS). This means that the device does not produce hazardous laser radiation.

- The label shown to page 13 indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

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	15 mW
Wavelength	770-800 nm

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	15 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 sikkerheds kravene.

halvlederlaser	
Laserdiodens højeste styrke	15 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	15 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	15 mW
våglängden	770-800 nm

VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättomälle lasersäteilylle. Älä katso säteeseen.

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

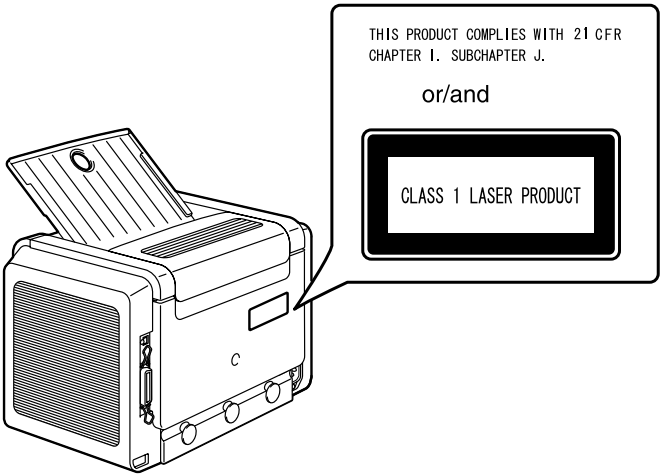
Norway

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	15 mW
bølgelengde	770-800 nm

1-7. Laser Safety Label

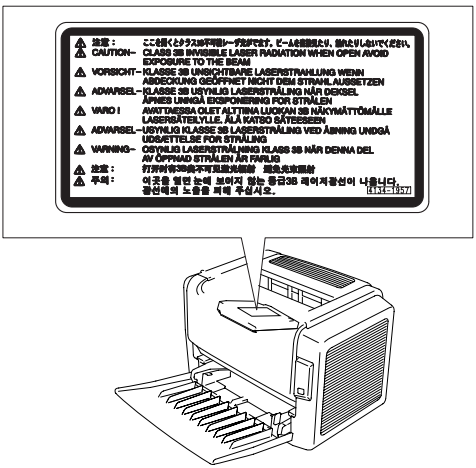
- A laser safety label is attached to the machine as shown below.



4136S505AB

1-8. Laser Caution Label

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



4136S001AA

1-9. 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.
- The Print Head are not to be disassembled or adjusted in the field. Replace the Unit or Assembly including the Control Board. Therefore, remove the Laser Diode, and do not perform Control Board trimmer adjustment.

CONTENTS

GENERAL

MECHANICAL/ELECTRICAL

MAINTENANCE

DIS/REASSEMBLY, ADJUSTMENT

CONTROL PANEL/SERVICE MODE DESCRIPTIONS

TROUBLESHOOTING

GENERAL

1. SPECIFICATIONS

Printer

Type	:	Desktop Laser Beam Printer
Exposure System	:	Laser diode + Polygon Mirror
Resolution	:	600 dpi (1200 dpi in half-speed mode)
Copy Paper Size	:	A4, A5, B5 8.5 × 14, 8.5 × 11, 3 × 5, 5.5 × 8.5, 7 1/4 × 10 1/2
Media Type	:	Plain paper (60 to 90 g/m^2) Recycled paper (60 to 90 g/m^2) OHP transparencies, letterhead, envelopes, labels Thick paper (91 to 163 g/m^2) Postcard, prepaid postcard (with no crease)
First Printing Time	:	At 600 × 600 dpi: 13 sec. (A4L/Letter L) At 1200 × 600, 1200 × 1200 dpi: 21 sec. or less (A4L/Letter L)
Multi Print Speed	:	PP1350W At 600 dpi: 20 prints/min. or more (A4L/Letter L) At 1200 dpi: 10 prints/min. or more (A4L/Letter L) PP1300W At 600 dpi: 16 prints/min. or more (A4L/Letter L) At 1200 dpi: 10 prints/min. or more (A4L/Letter L)
Warm-up Time	:	10 sec. or less (with the rated voltage supplied at 23 °C, from Pause to be ready for first print; 21 sec. or less for a condition immediately after power has been turned ON)
System Speed	:	115.098 mm/sec. (57.505 mm/sec. during half-speed control)
Paper Feeding System	:	1-way system (Multipurpose Tray)
Capacity (recommended paper)	:	MP Tray = 150 sheets
Paper Exit System	:	Face down (tray capacity: 100 sheets) (recommended paper)
Drum Charging System	:	Rotating brush + pre-charge film
Developing System	:	FMT single-component developing system
Image Transfer System	:	Transfer Roller system
PC Drum	:	OPC (organic photoconductor)
Drum Cleaning System	:	Non-cleaner system
Paper Separating System	:	Curvature separating system + Charge Neutralizing Needle
Fusing System	:	Heated roller system
Dimensions	:	150-sheet-capacity printer Width: 386.8 mm Depth: 404.5 mm Height: 348 mm
Mass	:	7.8 kg (including DC/TC)
Power Requirements	:	100 V, 50/60 Hz ± 3 Hz, 9.2 A or less
Max. Power Consumption	:	900 W
Acoustic Noise	:	Standby: 30 dB(A) or less Printing: 54 dB(A) or less
Operating Environment	:	10 to 35 °C, 15 to 85 %

Controller (GDI)

Control Panel	:	LED × 1, SW × 1
ASIC	:	N1-Chips (Naltec Original ASIC)
Memory Configuration	:	Standard ROM: 64 KB (in ASIC) EEPROM: 1 Kilobit Flash ROM: 2 Megabits (250 KB) RAM: 8 MB (64-Megabit SDRAM: 64 Megabits × 1)
Interface	:	IEEE1284 Parallel (Compatible/Nibble/ECP) USB 1.1
Resolution	:	600 × 600 dpi, 1200 × 600 dpi, 1200 × 1200 dpi (1200 × 600 dpi and 1200 × 1200 dpi are half speed)
Emulation	:	None
Printer Driver	:	Windows 98SE/2000/Me/XP
Test Print	:	Configuration page

2. PRECAUTIONS FOR INSTALLATION

2-1. Installation Site

To ensure utmost safety and avoid breakdown, the printer should NOT be used in a place:

- Where it will be subjected to extremely high or low temperature or humidity.
- Where it will be subjected to sudden fluctuations in either temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater, or ventilator.
- Which has poor ventilation or is dusty.
- Which does not have a stable, level floor or where it will receive undue vibration.
- Which is near any kind of heating device.
- Which is near volatile flammables (thinner, gasoline, etc.).
- Where it may be splashed with water and electric leakage is likely to occur.
- Which puts the operator in the direct stream of exhaust from the printer.
- Where ammonia gas might be generated.

2-2. Power Source

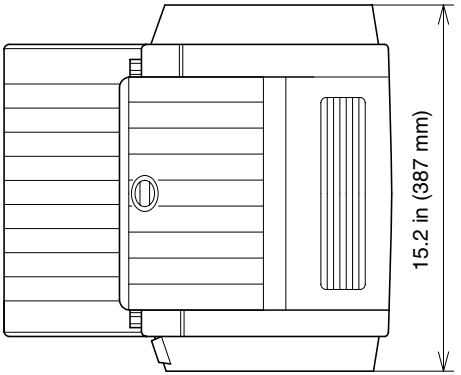
- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the printer.
- Ensure that the printer does not ride on the power cord or communications cable of other electric equipment, and that it does not become wedged into or underneath the mechanism.
- Make the following checks at frequent intervals:

✻ Is the power plug abnormally hot?
✻ Are there any cracks or scrapes in the cord?
✻ Has the power plug been inserted fully into the outlet?
✻ Does something, including the printer itself, ride on the power cord?

Use an outlet with a capacity of 100 V, 15 A or more.

2-3. Installation Space

- Always ground the printer to prevent receiving electric shocks in the case of electric leakage.
- Connect the ground wire to the ground terminal of the outlet or a grounding contact that complies with the local electrical standards.
- Never connect the ground wire to a gas pipe, the ground wire for a telephone, lightning arrester, or a water pipe for fear of fire and electric shock.



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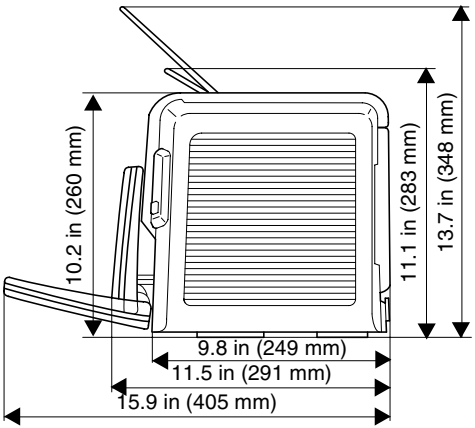


4136M011AA

3. PRECAUTIONS FOR USE

3-1. To Ensure the Printer is Used in an Optimum Condition

- Never place a heavy object on the printer or subject the printer to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover that is secured while the printer is in a print cycle.
- Do not turn OFF the printer while it is in a print cycle.
- Provide good ventilation if the printer is to be used for a long time in a narrow room.
- Never use flammable sprays near the printer.
- If the printer becomes inordinately hot or produces abnormal noise, immediately turn it OFF and unplug it.
- Do not turn ON the power switch at the same time that you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the printer.
- Do not place a vase or vessel containing water on the printer.
- Be sure to turn OFF the power switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the printer.

3-2. Operating Environment

The operating environmental requirements of the printer are as follows.

- Temperature: 10 to 30 °C
- Humidity: 15 to 85 %
- Rate of temperature change: 10 °C/h
- Rate of humidity change: 10 %/h

3-3. Power Requirements

The power source voltage requirements are as follows.

- Voltage fluctuation: AC100 V ± 10 %
- Frequency fluctuation: 50/60 Hz ± 3 Hz

3-4. Miscellaneous Precautions

Use the following precautions when performing service jobs for a printer that uses a laser.

- When a service job needs to be performed in the laser beam path, such as when working around the Print Head Unit or PC Drum, be sure first to unplug the power cord of the printer from the outlet.
- If the service job requires that the power cord be left plugged in, observe the following precautions:
- Take off your watch, ring, and any other reflective object and wear laser protective goggles.
- Keep users away from the job site.
- Do not bring a highly reflective tool into the laser beam path during the service job.

4. HANDLING OF THE CONSUMABLES

Before using any consumables, always read the label on its container carefully.

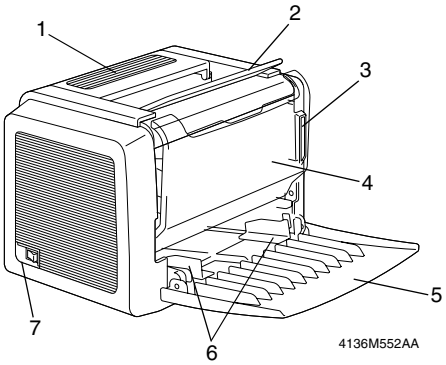
- Paper can easily damp. To prevent absorption of moisture, store paper in a place with little moisture.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the printer crosswise, while long grain paper should only be fed lengthwise. The wrapper of the paper is properly marked.
- If your hands become soiled with toner, wash them with soap and water.
- Do not throw away any used consumables. They are to be collected.
- Do not burn, bury in the ground, or throw into the water any consumables.
- Do not store consumables in a place which:

✻ Is hot and humid.

✻ Is subject to direct sunlight.

✻ Has an open flame nearby.

5. PARTS IDENTIFICATION



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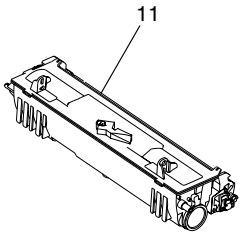

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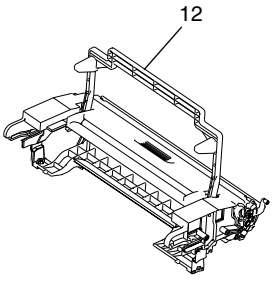

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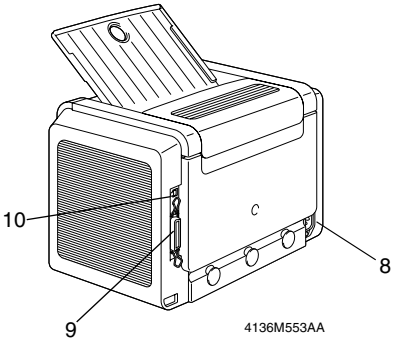
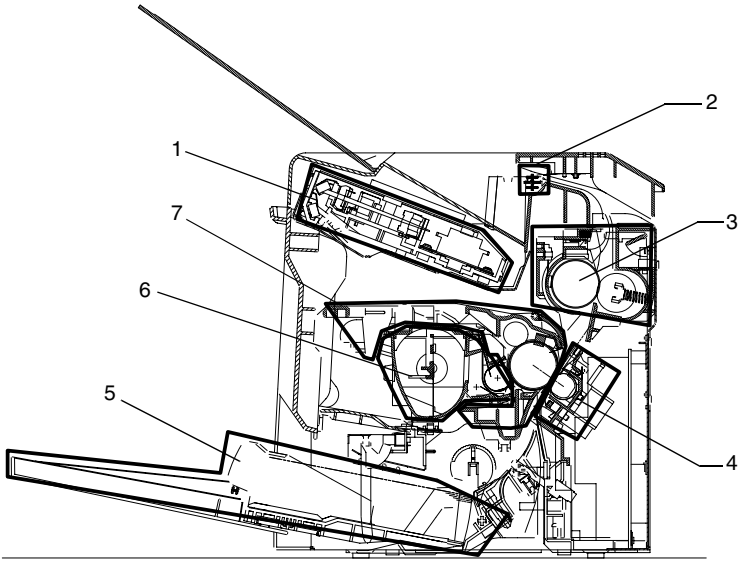


4136M553AA

1. Upper Cover
2. Face-down Tray
3. Control Panel
4. Front Door
5. Multipurpose Tray
6. Edge Guides
7. Power Switch
8. Power Cord Socket
9. Parallel Interface Connector
10. USB Interface Connector
11. Toner Cartridge
12. Drum Cartridge

MECHANICAL/ ELECTRICAL

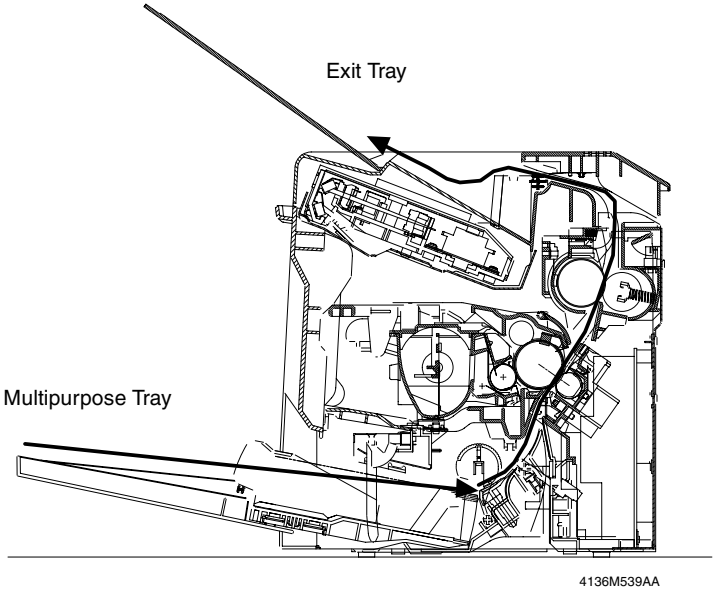
1. COMPONENTS LAYOUT



4136M534AA

1. Print Head (PH) Unit
2. Exit Roller
3. Fusing Unit
4. Image Transfer Section
5. Multipurpose (MP) Tray
6. Toner Cartridge
7. Drum Cartridge

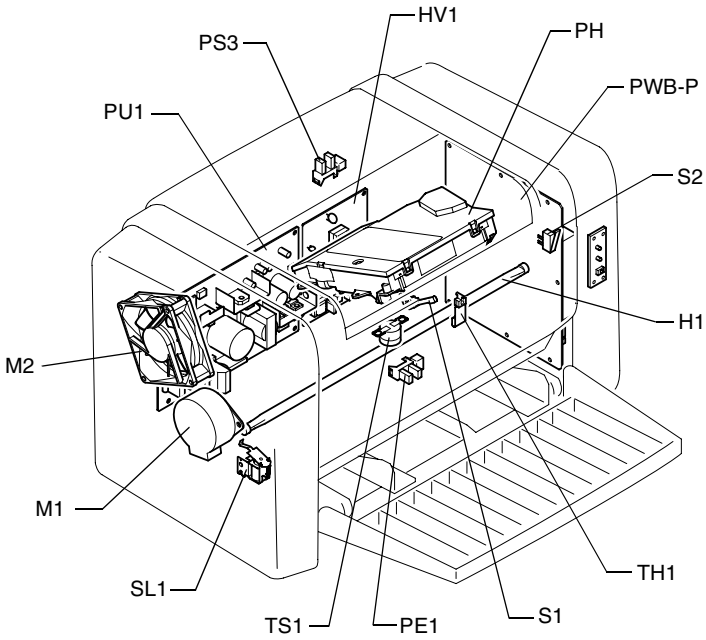
2. PAPER PATH



- The printer adopts the 1-way paper feeding system by means of the Multipurpose Tray (capable of holding up to 150 sheets of paper).
- The paper taken up and fed in by the Paper Take-Up Roll is transported through the printer by the Image Transfer Roller, Fusing Roller, and Exit Roller and fed out of the printer face down onto the Exit Tray.

3. ELECTRICAL COMPONENTS LAYOUT

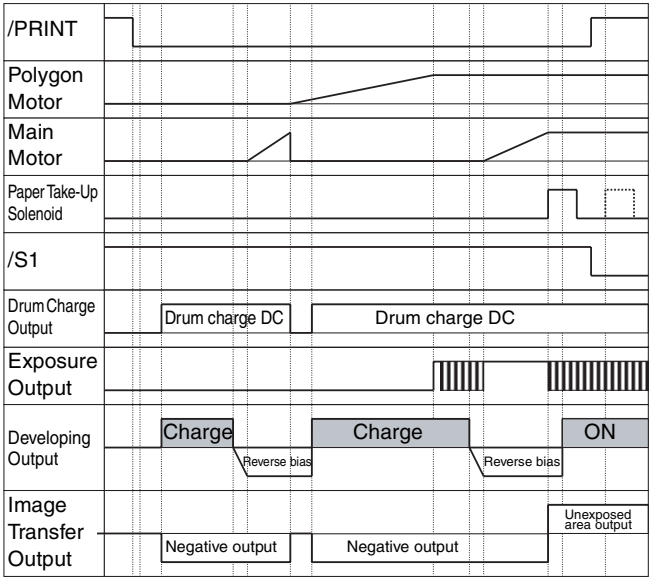
3-1. Printer



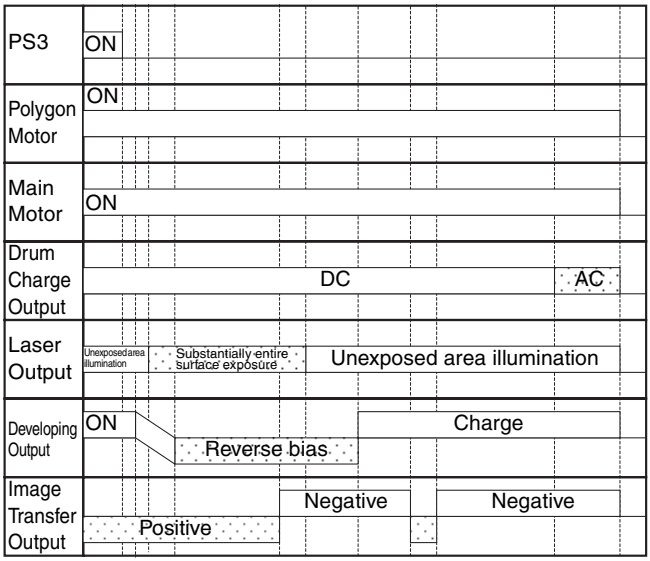
M1	Main Motor	S2	Front Door Switch
M2	Cooling Fan Motor	PE1	Multipurpose Tray Paper Empty Sensor
H1	Fusing Roller Heater Lamp	PS3	Exit Sensor
TH1	Thermistor	SL-1	Paper Take-Up Solenoid
TS1	Thermostat	PU-1	Power Unit
PH	Print Head Unit	HV-1	High Voltage Unit
S1	Paper Take-Up Switch	PWB-P	Controller/Mechanical Control Board

4. OPERATING SEQUENCE

4-1. Print Start Sequence



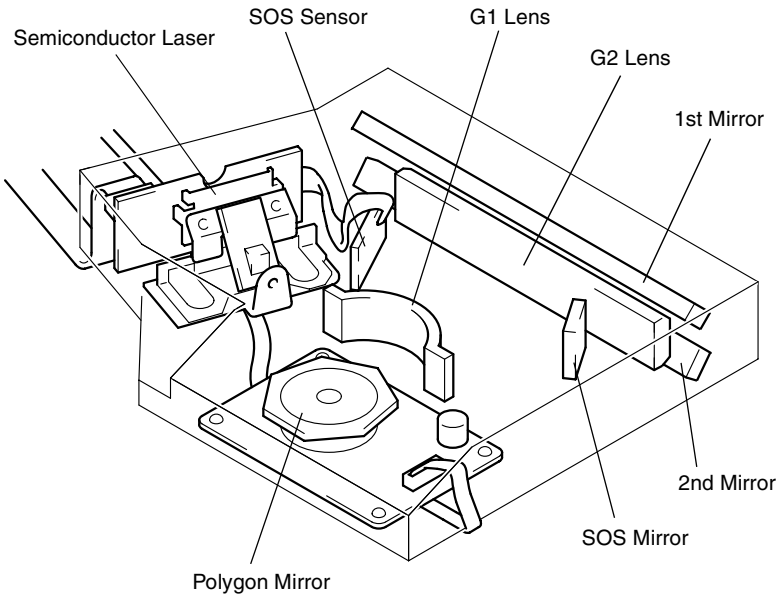
4-2. Print End Sequence



5. PRINT HEAD (PH)

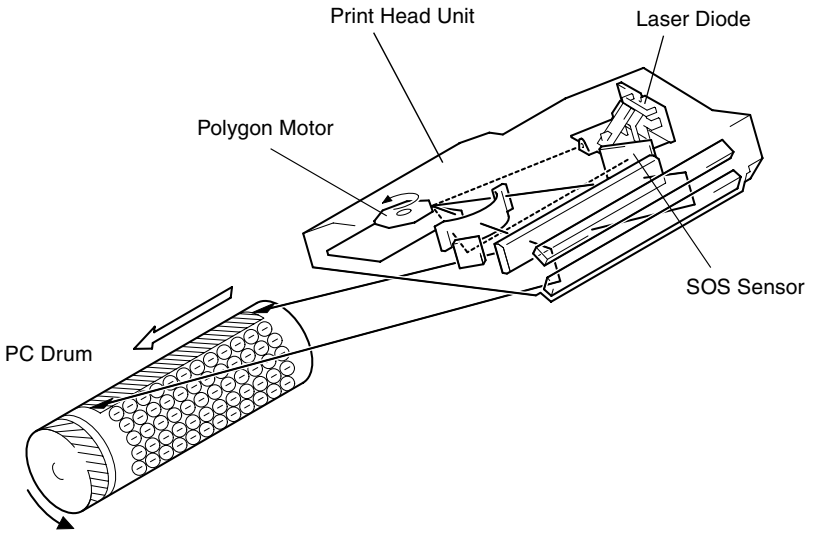
5-1. Construction

- The laser beam light emitted from the Print Head is used to scan the image as driven by the Polygon Motor.



5-2. Laser Exposure Process

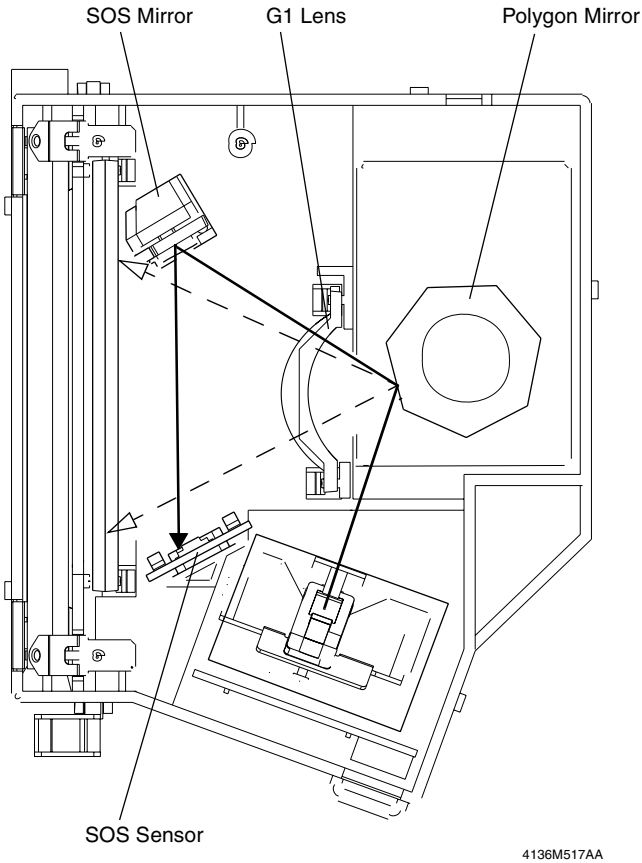
- The laser beam light emitted from the Print Head is used to create an electrostatic latent image on the surface of the PC Drum.
- The following control is provided to correctly time image printing.



- When the printer receives a PRINT signal, the Polygon Motor and the Main Motor start rotating and the paper is taken up and fed into the printer.
- The printing is started when the Controller/Mechanical Control Board sends a VIDEO signal to the Print Head a given period of time after the leading edge of the paper actuates the Paper Take-Up Switch (TOD signal).
- The print start position for the 2nd line is defined by delaying the time, at which the VIDEO signal is to be transmitted.
- The SOS Sensor provided in the PH ensures that the laser beam is emitted at the same timing for all lines in the main scanning direction.

5-3. Laser Emission Timing

- When a READY signal is detected a given period of time after the print command has been issued, the Controller/Mechanical Control Board outputs a laser ON signal.
- The laser ON signal makes a laser beam to be emitted and the laser beam travels to the Polygon Mirror, G1 Lens, and the SOS Mirror to eventually hit the SOS Sensor, which generates an SOS signal.
- The SOS signal determines the laser emission timing for each line in the main scanning direction.



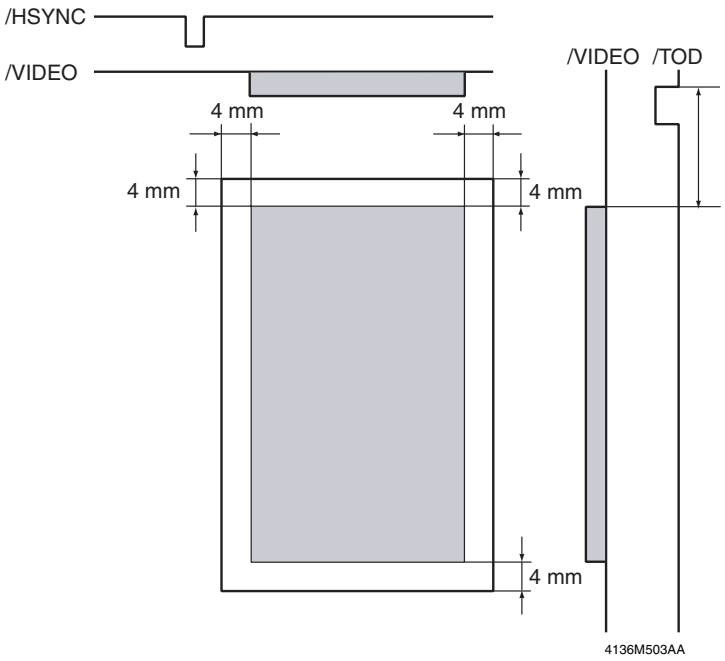
5-4. Laser Emission Area

(1) Main scanning direction

- The print start position is determined by the main scanning print start signal (/HSYNC) output from the Controller/Mechanical Control Board and the width of the paper.
- The laser emission area is determined by the paper size. Areas with a width of 4 mm on both edges are not, however, printed.

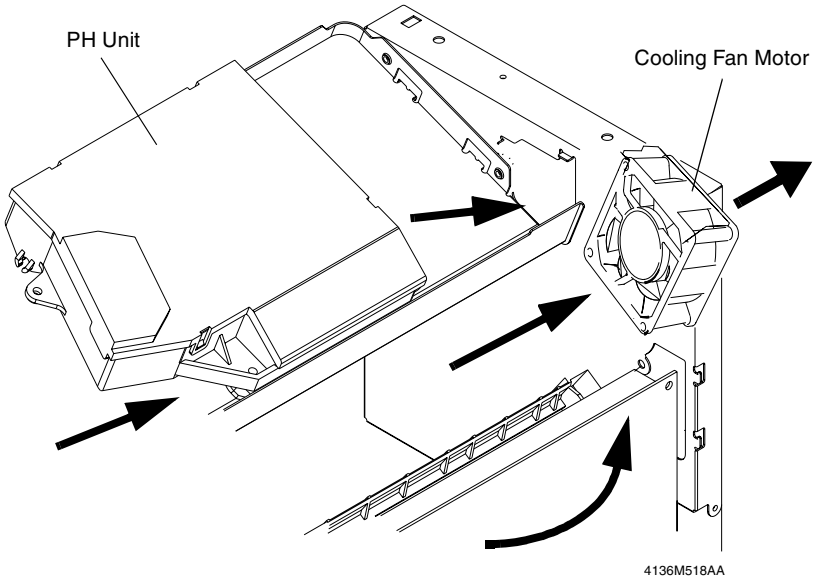
(2) Sub-scanning direction

- The print start position is determined by the sub-scanning print start signal (/TOD) output from the Controller/Mechanical Control Board and the length of the paper.
- The laser emission area is determined by the paper size. Areas with a width of 4 mm on both the leading and trailing edges are not, however, printed.



5-5. Cooling of the Printer Interior

- The Cooling Fan Motor is used to discharge heat generated from the PH Unit out of the printer, thereby preventing the PH Unit from getting hot.

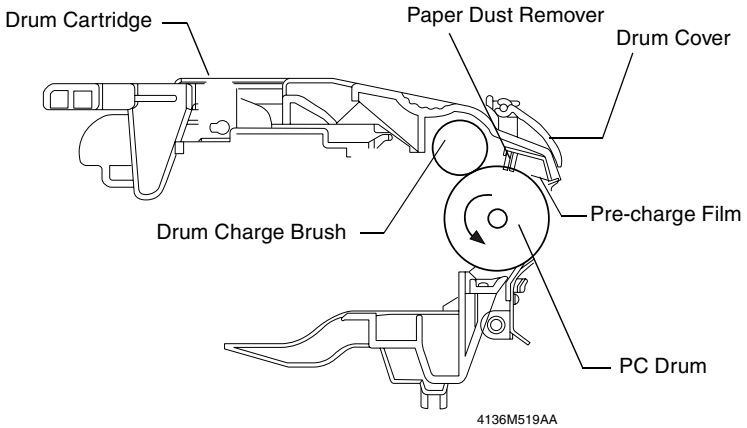


6. DRUM CHARGE

(1) Overview

- The PC Drum is charged with static electricity before laser exposure.
- The Drum Charge Brush and the Pre-charge Film are used for charging.
- Since the Drum Charge Brush and the Pre-charge Film directly deposit charge on the PC Drum, they produce little ozone. Further the charging voltage is low and the deposited charge is even and stable across the surface of the PC Drum.
- The Pre-charge Film supplies a preliminary charge to the PC Drum prior to charging by the Drum Charge Brush, thereby increasing charging efficiency.

(2) Construction



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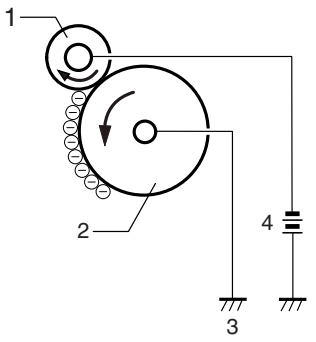


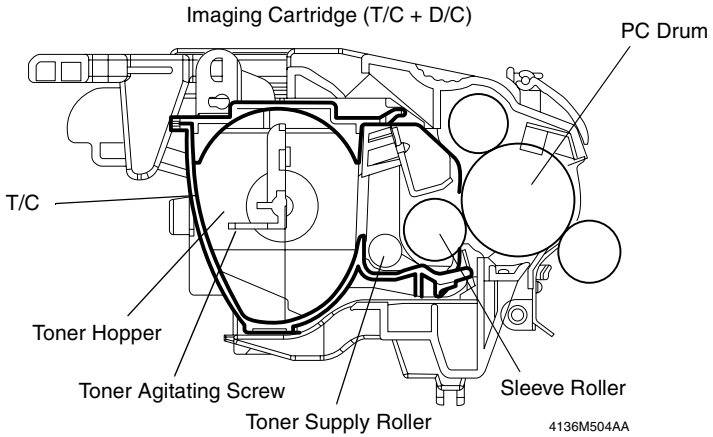
4136M528AA

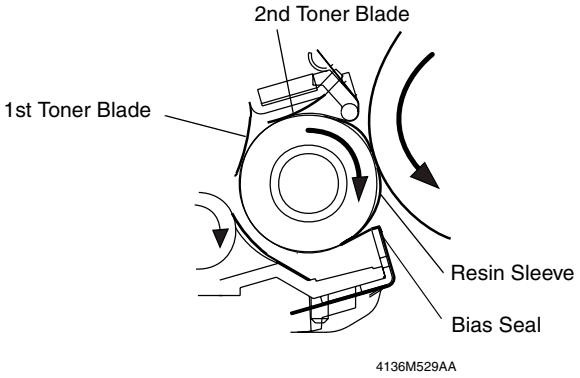
1. Drum Charge Brush
2. PC Drum
3. Ground
4. Drum Charge Brush voltage

7. IC (IMAGING CARTRIDGE) SECTION

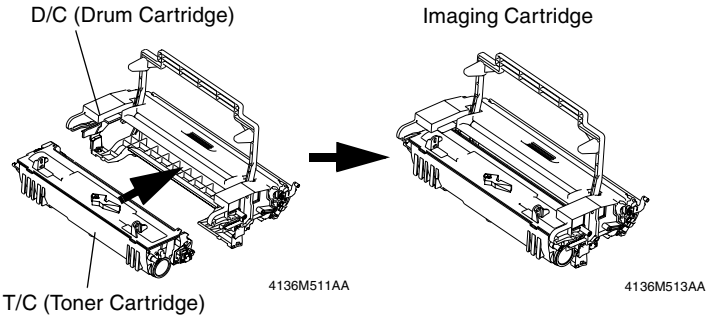
7-1. Overview

- The illustration below shows the construction of the Toner Cartridge and the Developing Unit.
- This printer adopts the single-component FMT, or Fine Micro Toning, developing system.
- The Toner Agitating Screw conveys toner in the Toner Cartridge onto the Toner Supply Roller.
- The Toner Supply Roller transports the toner to the Sleeve Roller. The Resin Sleeve of the Sleeve Roller carries the toner onto the PC Drum to form a toner image on the latent image formed on the surface of the PC Drum.





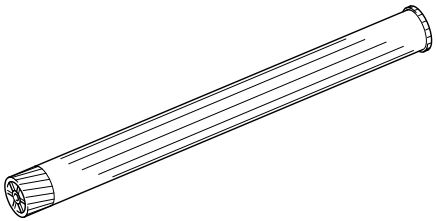
- The Imaging Cartridge consists of a T/C (Toner Cartridge) and a D/C (Drum Cartridge) (see the illustration below).



7-2. PC Drum

- The PC Drum used in this printer is the organic photoconductor (OPC) type.
- The drum consists of two layers - Charge Transport Layer (CTL) and the Charge Generating Layer (CGL) - applied to an aluminum alloy base (cylinder).

Handling Precautions:
The PC Drum of this type exhibits light fatigue after being exposed to light for a long time, which results in its sensitivity being changed. Therefore, always wrap the drum in the PC Drum Cloth or a soft cloth immediately after it has been removed from the printer. Use utmost care to prevent the surface of the PC Drum from being dirtied.



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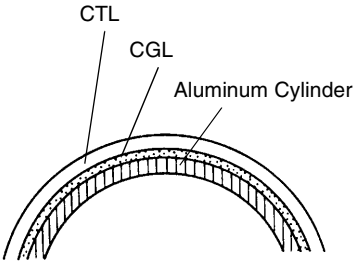
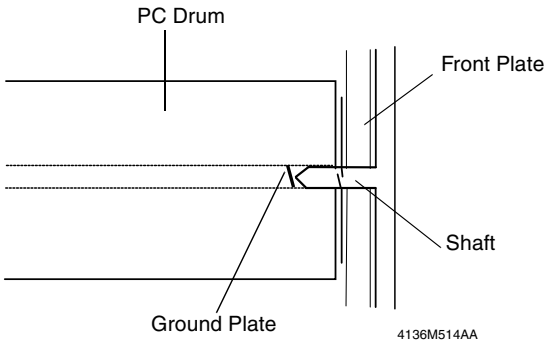


1139M007AA

- Grounding of the PC Drum

  The ground contact point (Ground Plate) for the PC Drum is located inside the PC Drum at its front side. It is, at all times, in contact with the shaft of the front plate of the Imaging Cartridge. When the Imaging Cartridge is loaded in the printer, the set pin of the front plate of the Imaging Cartridge contacts a side plate on the printer side, thereby providing grounding. The potential on the surface of the PC Drum exposed to the laser beam is then grounded through the Ground Plate, shaft, and set pin to the frame of the printer.



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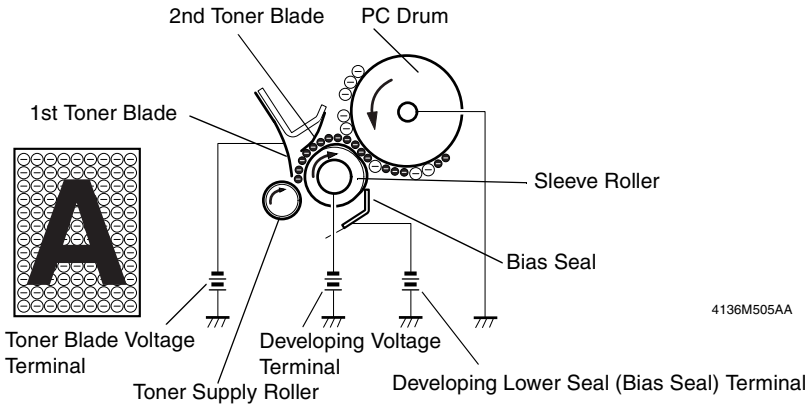
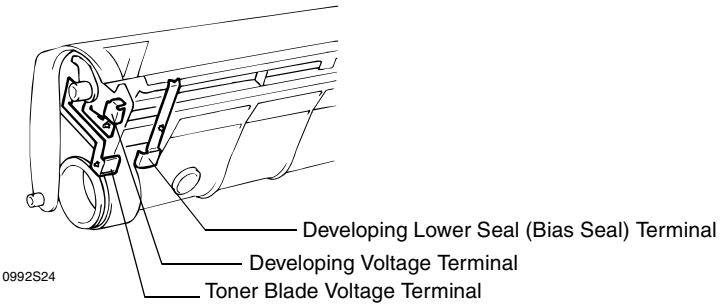
7-3. Developing System

- The Toner Agitating Screw conveys toner in the Toner Cartridge onto the Toner Supply Roller.
- The Toner Supply Roller transports the toner to the Sleeve Roller.
- The 1st Toner Blade located above the Sleeve Roller spreads a thin, even coat of toner over the Sleeve Roller.
- A negative charge is applied to the 2nd Toner Blade, which negatively charges the toner.
- The Sleeve Roller is negatively charged, which retains the toner thereon.
- The toner sticks to the area on the surface of the PC Drum that has been exposed to the laser beam.
- The Bias Seal on the underside of the Sleeve Roller separates toner, which has not been attracted onto the surface of the PC Drum, from the Sleeve Roller and returns it back to the Toner Hopper. The same bias as that applied to the Sleeve Roller is applied to this Bias Seal, thereby preventing toner from falling.
- The developing bias automatically adjusts the print image density over a range of seven steps through feedback control. A bias voltage, reversed from the developing bias, is applied before a print command is issued, before predrive, and during predrive, to prevent toner from sticking to the surface of the PC Drum.





7-4. Detection of Toner Cartridge

(1) Installation detection

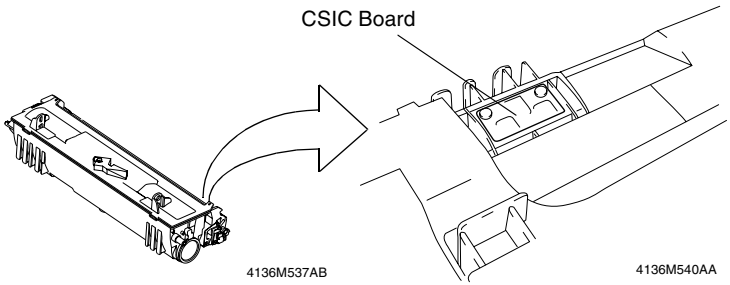
- The IC chip (CSIC) built into the Toner Cartridge detects that the Imaging Cartridge is installed in position when the power switch is turned OFF and ON, and the Front Door is opened and closed. The detection is made electrically.

(2) Detection of a new Toner Cartridge

- The IC chip (CSIC) built into the Toner Cartridge detects a new Toner Cartridge only when it is first installed.

(3) Toner near empty and empty detection

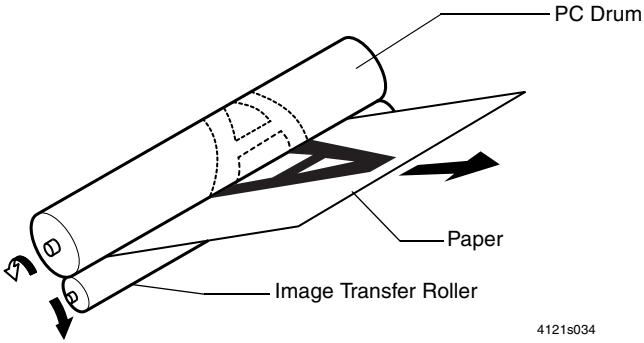
- The built-in CSIC Board counts the amount of toner still available for use in the Toner Cartridge.
- The counter counts one when the amount of toner equivalent to A4, B/W 5 % is consumed and the corresponding data is stored in the CSIC Board.
- A toner near empty condition and a toner empty condition are detected when the counter reads the corresponding predetermined count.

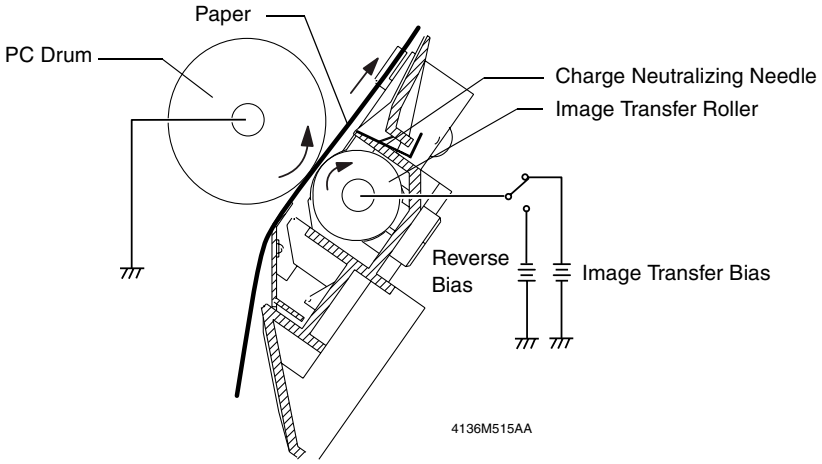


8. IMAGE TRANSFER

8-1. Overview

- The toner image formed on the surface of the PC Drum during the developing process is transferred onto the paper.
- This printer adopts the roller image transfer system, in which the Image Transfer Roller is used to transfer the image onto the paper.
- In the roller image transfer system, the paper is pinched between the PC Drum and the Image Transfer Roller at all times during the print cycle. This results in a very little amount of ozone being produced and there is a little chance of a double transferred image occurring.
- To clean the Image Transfer Roller, reverse bias is applied to the Image Transfer Roller.
- The cleaning sequence is carried out when the printer is started, a print command is issued, a print cycle is completed, and when the printer is started after a misfeed has been cleared.
- There is the Charge Neutralizing Needle installed for neutralizing the paper after image transfer.

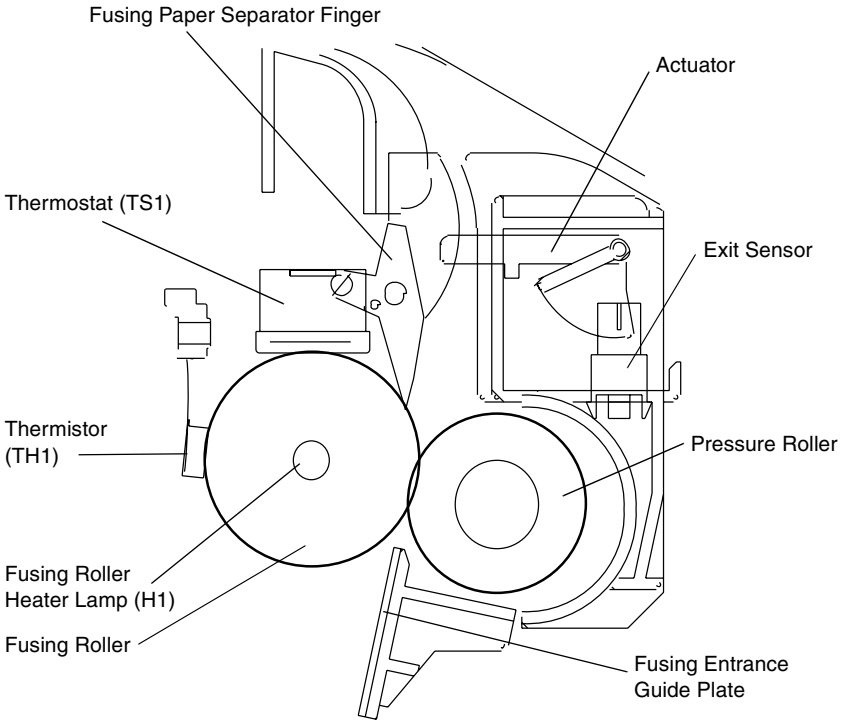




9. FUSING UNIT

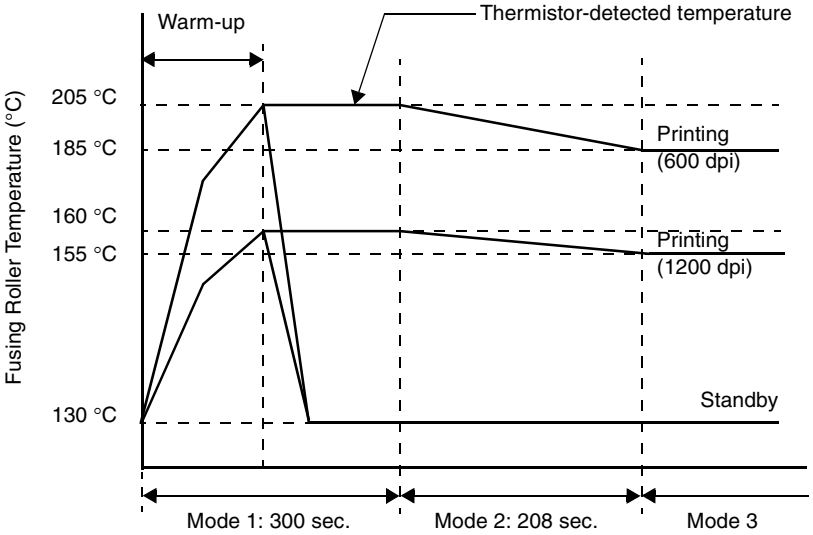
9-1. Overview

- The toner image transferred onto the paper is securely fixed to the paper.
- A heated roller system is used as the fusing system. The paper, to which the toner image has been transferred, is fed between the Fusing Roller heated by the Fusing Roller Heater Lamp and the Pressure Roller. This permanently fixes the toner image in the paper.



9-2. Fusing Unit Temperature Control

(1) Temperature change



		Thermistor-Detected Temperature at Start of Temperature Control		
		Less than 50 °C	50 °C to 130 °C	More than 130 °C
Mode before Temperature Control	Power OFF	Mode 1	Mode 2	Mode 3
	Mode 1		Mode 1	
	Mode 2		Mode 2	Mode 3
	Mode 3			

(2) Temperature control

- During a warm-up cycle, the fusing temperature is increased to a predetermined level.
- The warm-up control is performed when the power is turned ON, the Front Door is opened and closed, and the Pause mode is canceled.
- During the standby state, the fusing temperature is kept lower (130 °C) than during printing so as to economize on power consumption.
- The temperature control mode selected when temperature control is resumed (when the power is turned ON, the Front Door is opened and closed, or the Pause mode is canceled) is determined by the mode set before the interruption and the fusing temperature.
- In the Pause (low power consumption) mode, the Fusing Roller Heater Lamp is turned OFF to reduce power consumption.

(3) Temperature control mode

During a print cycle, the fusing temperature is regulated in accordance with the elapsed time since the completion of the warm-up cycle.

- Mode 1

  Mode 1 lasts for 5 min. If, however, mode 1 is interrupted in mid-operation and the thermistor temperature is 50 °C or more, the timer count before the interruption continues. When mode 1 is completed, mode 2 starts.

- Mode 2

  Mode 2 lasts for 208 sec. During this period, the fusing temperature is gradually decreased and, when it is decreased to the fusing temperature of mode 3, mode 2 is terminated and mode 3 is started.

- Mode 3

  Mode 3 continues until the temperature control is interrupted (as by opening and closing the Front Door, etc.).

(4) Fusing temperature in each mode

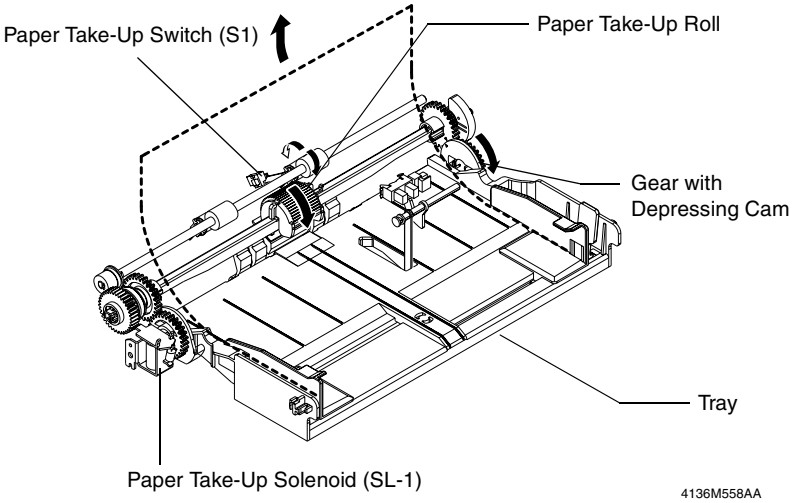
		Mode 1	Mode 2	Mode 3
600 dpi	Plain paper	205 °C	205 °C → 185 °C	185 °C
	Thick paper, envelope, postcard	205 °C → 215 °C		
	OHP transparencies	195 °C	195 °C → 185 °C	185 °C
1200 dpi	Plain paper	160 °C	160 °C → 155 °C	155 °C
	Thick paper, envelope, postcard	165 °C → 170 °C		
	OHP transparencies	155 °C	155 °C → 150 °C	150 °C

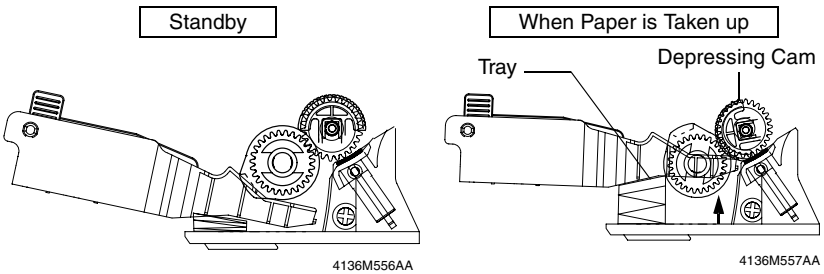
10. PAPER TAKE-UP SECTION

10-1. Multipurpose Tray

(1) Paper take-up mechanism

- When the Paper Take-Up Solenoid is energized, drive from the Main Motor is transmitted to the Paper Take-Up Roll through the Paper Take-Up Clutch, turning the Paper Take-Up Roll.
- At the same time, the Depressing Cam turns so as to raise the Paper Lifting Plate. Then, the top sheet of paper loaded in the tray is taken up and fed into the printer.
- The actual length of paper is detected based on the period of time through which the Paper Take-Up Switch remains actuated (or through which the paper moves past the switch) and the system speed. It is then determined whether or not the actual length matches the paper length specified on the controller.



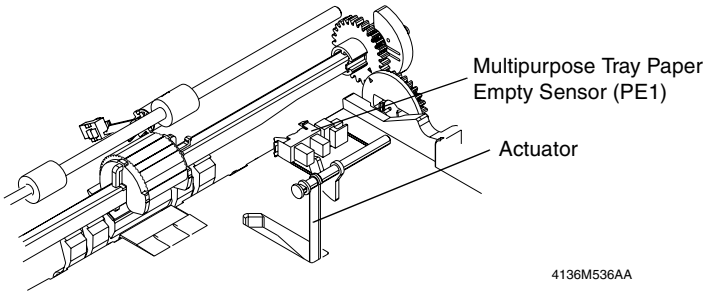


(2) Double feed preventive mechanism

A fixed paper separator pad is used to prevent the second and subsequent sheets of paper from being taken up and fed in with the first one.

(3) Paper empty detection

- There is a Multipurpose Tray Paper Empty Sensor provided on the upper portion of the Multipurpose Tray. It detects paper loaded in the tray.
- When there is a paper stack loaded in the tray, the actuator is raised to block the Paper Empty Sensor.
- When paper runs out, the actuator drops into the hole in the tray, unblocking the Paper Empty Sensor.



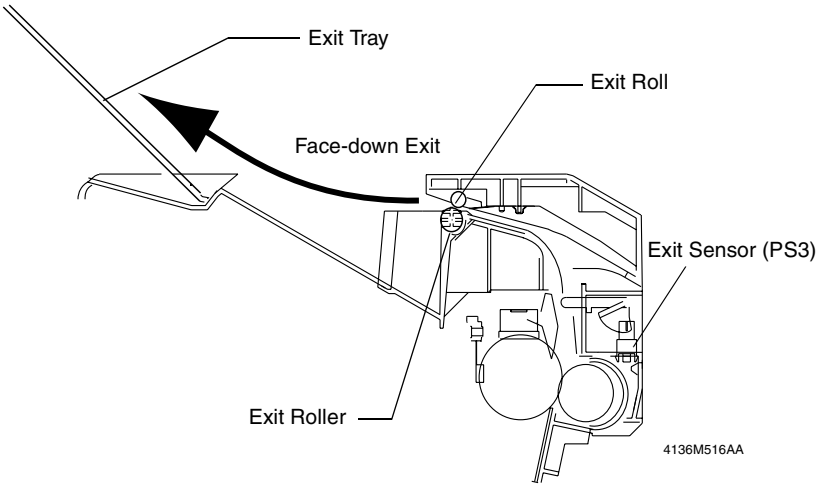
(4) Paper take-up retry function

- To reduce the number of paper misfeeds as a result of a paper take-up failure, a paper take-up retry sequence is carried if the Paper Take-Up Switch is not actuated and deactuated within a predetermined period of time.
- This function is provided for paper take-up from any printer paper tray.

11. PAPER EXIT

11-1. Paper Exit Mechanism

- The paper exit mechanism transports the paper that has been subjected to the fusing process onto the Exit Roller.
- The Exit Sensor detects not only a paper misfeed but also an open Upper Cover.



MAINTENANCE

1. MAINTENANCE SCHEDULE

- To ensure that the printer produces good printed pages and to extend its service life, it is recommended that the maintenance jobs described in this schedule be carried out as instructed.

PM Parts	Clean	Replace		Ref. Page in This Manual
		Continuous	Making one printed page per job	
Paper Take-Up Roll	When a paper take-up failure occurs	Replace when a paper take-up failure occurs		☞ E-3
Image Transfer Roller	–	50K		☞ E-4
Drum Cartridge	–	20K	16K	☞ E-7
Toner Cartridge (for replacement)	–	3K/6K	2.4K/4.8K	☞ E-5
Toner Cartridge (shipped with printer)	–	1.5K	1.2K	☞ E-5
Fusing Unit	–	50K		☞ E-8

NOTES

- *K = 1,000 printed pages*
- *As a rule, the Drum Cartridge and Toner Cartridge are to be replaced by the user.*
- *The contents of the Maintenance List are subject to change without notice.*
- *For the part numbers, see Parts Manual and Parts Modification Notice.*

1-1. Guidelines for Life Specifications Values by Unit

- The life specifications value represents the number of printed pages produced or figures equivalent to it when given conditions (see the Table given below) are met. It can be more or less depending on how each individual printer is used.

Print Conditions		
Job type	Making one printed page per job	Continuous
Paper size	A4L/Letter L	
B/W ratio	5 %	

(1) Near life values

Unit name		Near life value	Detection
Toner Cartridge	1.5K	1.3K	The value used for detection of the amount of toner still available for use is provided as feedback information for calculating toner consumption, thereby detecting a toner near empty condition.
	3.0K	2.9K	
	6.0K	5.8K	

(2) Life values

Unit name		Life value	Detection	Life reset
Toner Cartridge	1.5K	1.5K	The value used for detection of the amount of toner still available for use is provided as feedback information for calculating toner consumption, thereby detecting a toner empty condition.	Reset when the Toner Cartridge is replaced with a new one.
	3.0K	3.0K		
	6.0K	6.0K		

2. REPLACEMENT/CLEANING OF PARTS

(1) Cleaning of the Paper Take-Up Roll

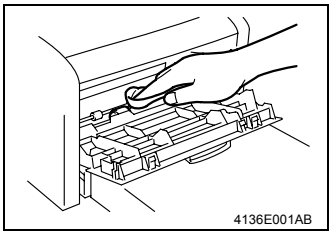
<Printer>

1. Remove the Imaging Cartridge.

☞ E-5

NOTE

- *The Imaging Cartridge is the Drum Cartridge, to which the Toner Cartridge is mounted.*



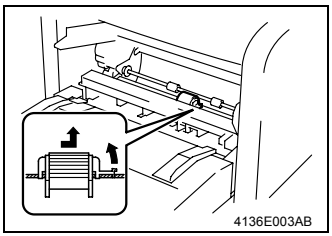
2. Using a soft cloth, wipe the surface of the Paper Take-Up Roll clean of dirt.

(2) Replacement of the Paper Take-Up Roll

<Printer>

1. Remove the Imaging Cartridge.

☞ E-5



2. Remove the Paper Take-Up Roll.

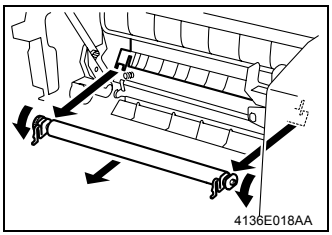
(3) Replacement of the Image Transfer Roller

1. Remove the Imaging Cartridge.

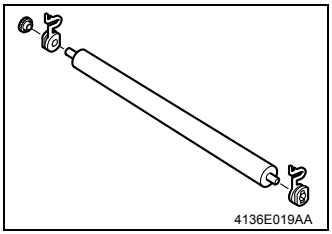
☞ E-5

2. Remove the Fusing Unit.

☞ E-8



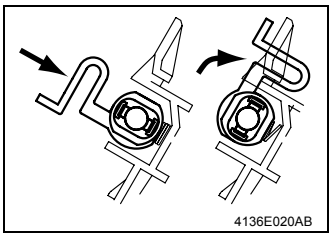
3. Place the levers of the bushings (white) on the right and left ends of the Image Transfer Roller toward this side and remove the Image Transfer Roller from the Image Transfer Roller holder.



4. Pull out the bushings on the right and left ends, and the gear, from the Image Transfer Roller removed from its holder. Install the bushings and the gear to the new Image Transfer Roller.

NOTES

- *Do not touch, or dirty with chemicals or toner, the surface of the Image Transfer Roller, as indentations in and dirt on the surface of the Image Transfer Roller adversely affect the quality of the printed image.*
- *When handling the Image Transfer Roller, hold onto the shaft and bushings of the roller.*
- *Do not place a new Image Transfer Roller directly on the floor or other surface.*

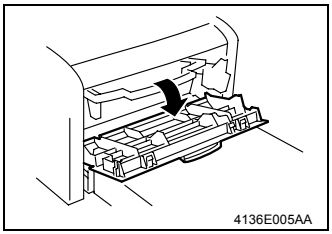


5. Insert the new Image Transfer Roller into the Image Transfer Roller holder and place the levers of the bushings into the original upward positions.

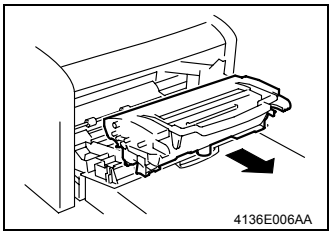
3. REPLACEMENT OF UNITS

(1) Replacement of the Toner Cartridge

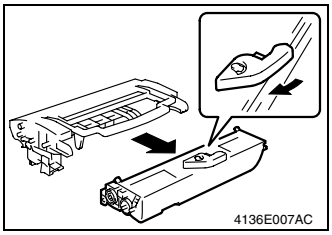
<Removal Procedures>



1. Open the Front Door.



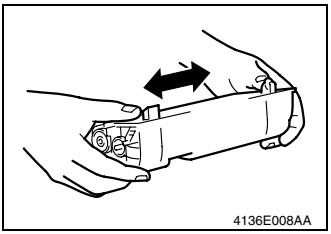
2. Remove the Imaging Cartridge.



3. Pull the lever of the Toner Cartridge in the direction shown in the illustration and disconnect the Toner Cartridge from the Drum Cartridge.

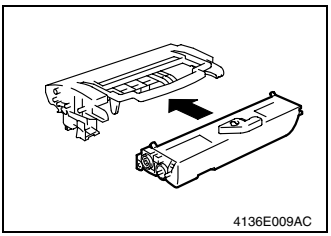
NOTE

- *If the Drum Cartridge is to be placed on a floor or similar place, use care to prevent toner from scattering around.*



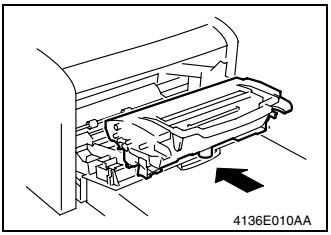
1. Take out a new Toner Cartridge and shake it in the horizontal direction sufficiently so that toner is agitated.

NOTE
- *Placing the Toner Cartridge in an upright position or shaking it vigorously will spill toner.*



2. Install the new Toner Cartridge to the Drum Cartridge.

NOTE
- *Insert the Toner Cartridge along the guide provided on the Drum Cartridge side and make sure that the Toner Cartridge is not tilted when inserted.*



3. Install the Imaging Cartridge in the printer.

NOTE
- *Insert the Imaging Cartridge along the guide provided on the printer side. Ensure that the Imaging Cartridge is not slid obliquely.*

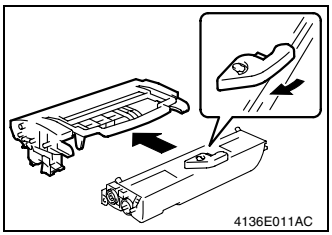
4. Close the Front Door.

(2) Replacement of the Drum Cartridge

<Removal Procedures>

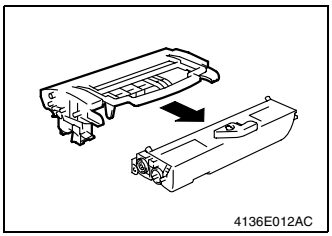
1. Remove the Imaging Cartridge.

☞ E-5



2. Pull the lever of the Toner Cartridge in the direction shown in the illustration and disconnect the Drum Cartridge.

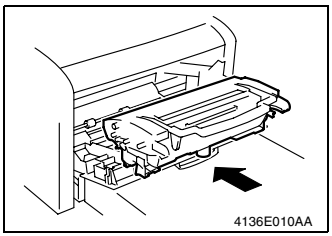
<Installation Procedures>



1. Mount the Toner Cartridge to a new Drum Cartridge.

NOTE

- Insert the Toner Cartridge along the guide provided on the new Drum Cartridge side and make sure that the Toner Cartridge is not tilted when inserted.



2. Install the Imaging Cartridge in the printer.

NOTE

- Insert the Imaging Cartridge along the guide provided on the printer side. Ensure that the Imaging Cartridge is not slid obliquely.

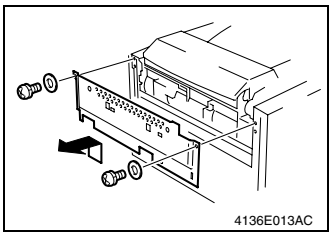
3. Close the Front Door.

(3) Replacement of the Fusing Unit

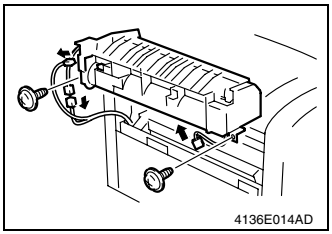
<Removal Procedures>

1. Turn OFF the power switch and leave the printer to stand idle for about 20 min.
2. Remove the Left and Right Covers.

☞ D-2



3. Remove two screws and two washers. Then, remove the Fusing Unit protective metal bracket.



4. Remove the Upper Cover.
5. Remove the Exit Cover.

☞ D-2

6. Remove two screws, unplug three connectors, and remove the Fusing Unit.

NOTE

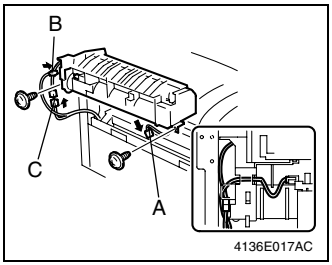
- The surfaces around the Fusing Unit are very hot. Use utmost care not to touch any surfaces other than the Fusing Unit.

NOTE

- *When replacing a part comprising the Fusing Unit individually to correct an image problem or a defective part, see D-11 (“Disassembly of the Fusing Unit” of DIS/REASSEMBLY, ADJUSTMENT).*

<Installation Procedures>

1. Take out the Fusing Unit and cushioning materials.



2. Connect connector A.
3. Mount the Fusing Unit in the printer and secure it in position by tightening the two screws.
4. Connect connectors B and C.

NOTE

- *When installing the Fusing Unit, route the harness as shown in the illustration and make sure that no part of the harness is wedged between the Fusing Unit and printer.*

5. Reinstall the Exit Cover.

☞ D-2

6. Reinstall the Fusing Unit protective metal bracket.

DIS/REASSEMBLY, ADJUSTMENT

1. PRECAUTIONS FOR DISASSEMBLY/ADJUSTMENTS

1-1. Parts That Must Not be Touched

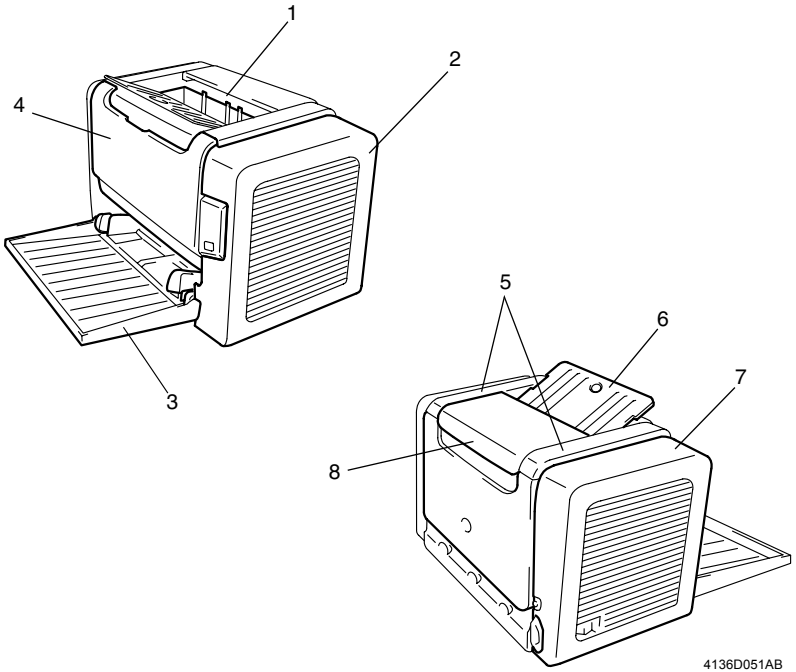
(1) Variable resistors on board

Do not turn the variable resistors on boards for which no adjusting instructions are given in ADJUSTMENT.

2. DISASSEMBLY/REASSEMBLY

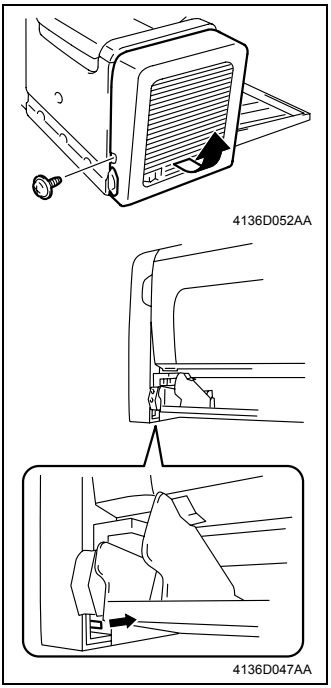
2-1. Identification of Exterior Parts and Removal Procedures for Them

<Printer (150-sheet-capacity)>



No.	Name	Removal Procedure
1	Exit Cover	Remove the Left and Right Covers. → Remove the Upper Cover. → Unhook two tabs and remove the Exit Cover.
2	Right Cover	Remove one screw and the Right Cover. → Disconnect one connector.
3	Tray 1	Close Tray 1. → Pushing one side toward the outside, remove Tray 1.
4	Front Door	Open the Front Door. → Pushing one side toward the inside, remove the Front Door.
5	Upper Cover	Remove the Left and Right Covers. → Open the Exit Open/Close Cover. → Unhook four tabs and remove the Upper Cover.
6	Exit Tray	Open the Exit Tray. → Pushing both sides toward the inside, remove the Exit Tray.
7	Left Cover	☞ D-3 (Removal of the Left Cover).
8	Exit Open/Close Cover	Remove the Left and Right Covers. → Remove the Upper Cover. → Remove the Exit Open/Close Cover.

(1) Removal of the Left Cover



1. Remove one screw, unhook one tab, and remove the Left Cover.

NOTE

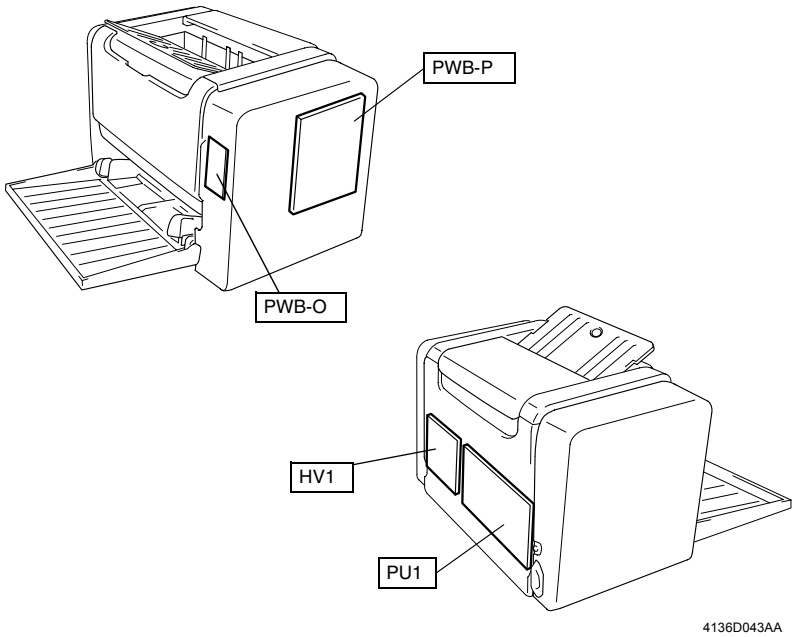
- When removing the Left Cover, be sure to unhook the tab shown on the left using a screwdriver or similar tool. If you attempt to remove the Left Cover without unhooking the tab, you could damage the tab.

2-2. Removal of Circuit Boards and Other Electrical Components

NOTES

- *When removing a circuit board or other electric component, refer to the precautions for handling PWBs and follow the corresponding removal procedures.*
- *The removal procedures given in the following paragraphs omit the removal of the component in question from a connector or a PWB support.*
- *Where it is absolutely necessary to touch the ICs and other electric components on the board, be sure to ground your body.*

<Engine>

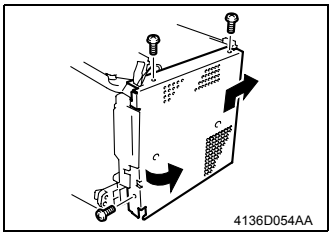


Symbol	Name	Removal Procedures
PWB-P	Controller/Mechanical Control Board (PWB-P)	☞ D-5
PWB-O	Control Panel (PWB-O)	☞ D-5
PU1	Power Unit (PU1)	☞ D-6
HV1	High Voltage Unit (HV1)	☞ D-6

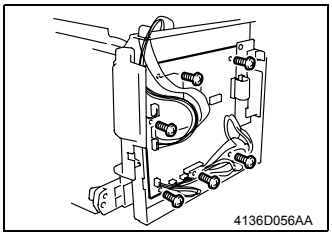
(1) Removal of the Controller/Mechanical Control Board

<Removal Procedures>

1. Remove the Right Cover.



2. Remove three screws and the protective metal bracket.



3. Disconnect all connectors and flat cables from the Controller/Mechanical Control Board.

NOTE

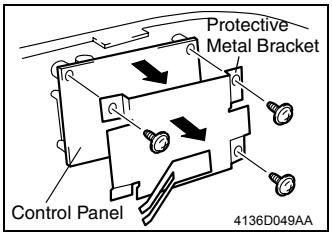
- Use utmost care not to snap off the flat cable.

4. Remove six screws and the Controller/Mechanical Control Board.

(2) Removal of the Control Panel

1. Remove the Right Cover.

☞ D-2

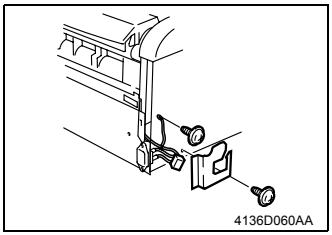


2. Remove three screws, protective metal bracket, and the Control Panel.

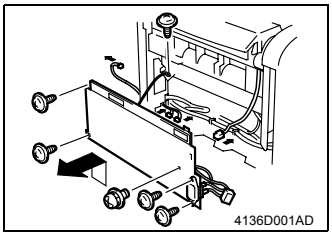
(3) Removal of the Power Unit

1. Remove the Fusing Unit.

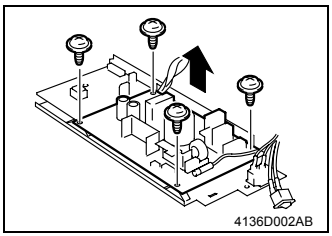
☞ E-8



2. Remove two screws and the Power Switch stay.
3. Remove the Power Switch.



4. Disconnect one connector from the Controller/ Mechanical Control Board.
5. Remove six screws, disconnect three connectors, and remove the Power Unit Assy.

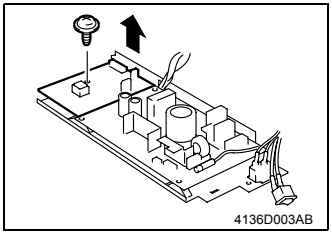


6. Remove four screws and the Power Unit.

(4) Removal of the High Voltage Unit

1. Remove the Power Unit Assy.

☞ D-6



2. Remove one screw and the High Voltage Unit.

2-3. Removal of Units

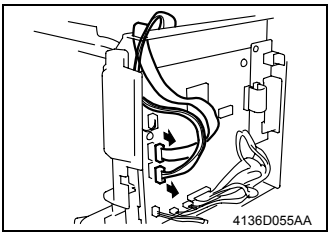
(1) Removal of the PH Unit

⚠ CAUTION

- NEVER attempt to replace the PH Unit with power being supplied to the printer. Doing that could lead to exposure to the laser beam, resulting in blindness.
- NEVER attempt to disassemble or adjust the PH Unit. Doing that could lead to exposure to the laser beam, resulting in blindness.

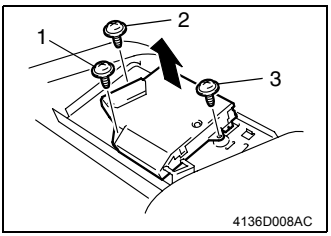
1. Remove the Exit Cover.

☞ D-2



2. Disconnect one connector and one flat cable from the Controller/Mechanical Control Board.

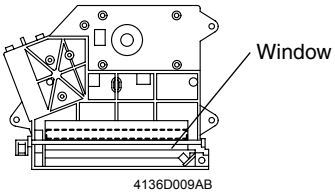
NOTE
- *Use utmost care not to snap off the flat cable.*



3. Remove three screws and the PH Unit.

NOTE
- *When reinstalling the PH Unit, tighten the screws in the numerical order shown in the illustration.*

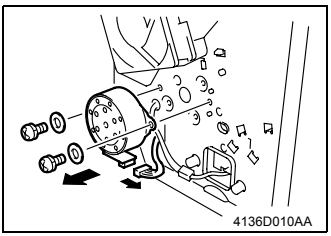
Precautions for Removal/Reinstallation of the PH Unit
- *NEVER touch the window on the backside of the PH Unit. A dirty window can cause an image problem.*



2-4. Disassembly of the Engine

(1) Removal of the Main Motor

1. Remove the Left Cover.



2. Disconnect one connector.
3. Remove two screws, two washers, and the Main Motor.

(2) Removal of the Paper Empty Sensor

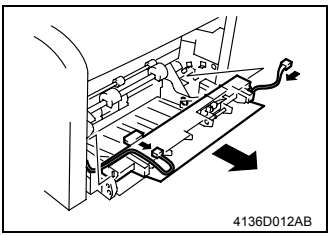
1. Remove the Front Door.
2. Remove the Imaging Cartridge.

NOTE

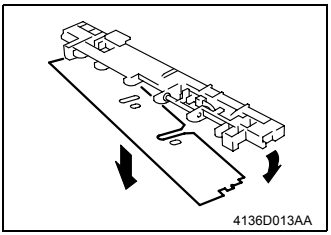
- *The Imaging Cartridge is the Drum Cartridge, to which the Toner Cartridge is mounted.*

3. Remove the Left and Right Covers.

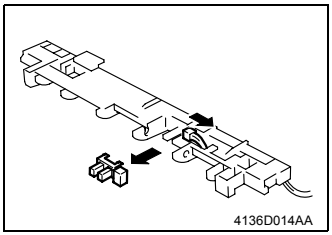
☞ D-2



4. Disconnect one connector from the Controller/ Mechanical Control Board.
5. Unhook two tabs, disconnect one connector, and remove the Paper Take-Up Upper Guide Assy.



6. Unhook two tabs and remove the tray.

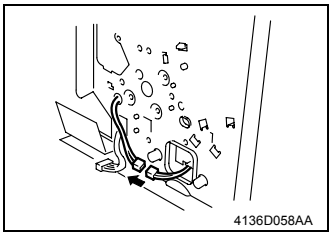


7. Disconnect one connector and remove the Paper Empty Sensor.

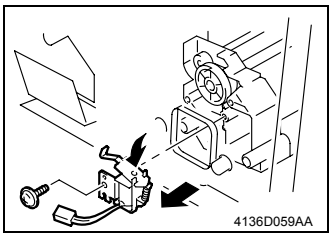
(3) Removal of the Paper Take-Up Solenoid

1. Remove the Left Cover.

☞ E-8



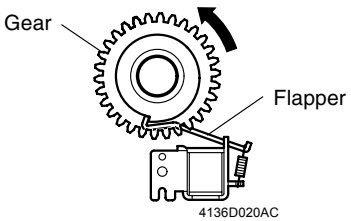
2. Disconnect one connector of the Paper Take-Up Solenoid.



3. Remove one screw and the Paper Take-Up Solenoid.

Precautions for Installation of the Paper Take-Up Solenoid

1. Mount the Paper Take-Up Solenoid and tighten one screw.
2. Turn the gear in the direction of the arrow shown below so that the flapper of the Paper Take-Up Solenoid catches the stopper of the gear.



(4) Removal of the Paper Take-Up Clutch Gear

1. Remove the Fusing Unit.

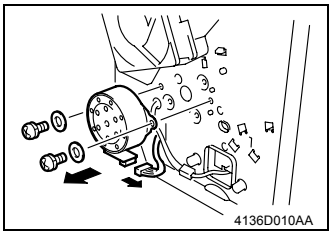
☞ E-8

2. Remove the Power Unit.

☞ D-6

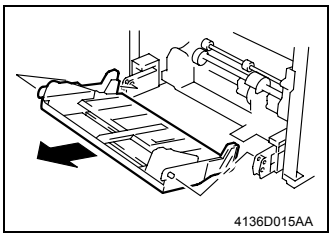
3. Remove the Paper Take-Up Upper Guide Assy.

☞ D-8

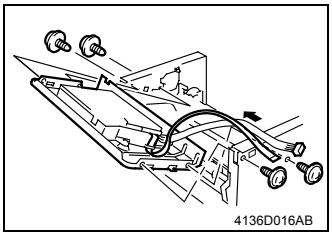


4. Disconnect one connector and remove the Cooling Fan Motor.
5. Remove the Main Motor.

☞ D-8



6. Remove the Paper Lifting Plate Assy.
7. Remove two springs.

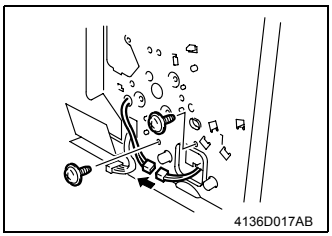


8. Disconnect one connector and one flat cable from the Controller/Mechanical Control Board.

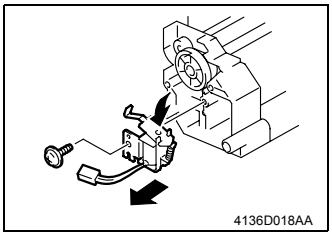
NOTE

- Use utmost care not to snap off the flat cable.

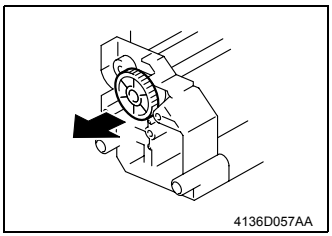
9. Remove four screws and the PH Base Plate Assy.



10. Disconnect one connector of the Paper Take-Up Solenoid.
11. Remove two screws and the Left Frame.



12. Remove one screw and the Paper Take-Up Solenoid.



13. Unhook two tabs and remove the Paper Take-Up Clutch Gear.

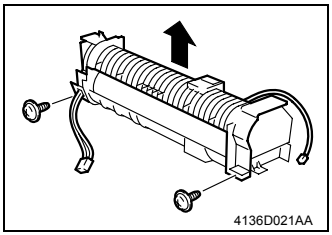
(5) Disassembly of the Fusing Unit

NOTE

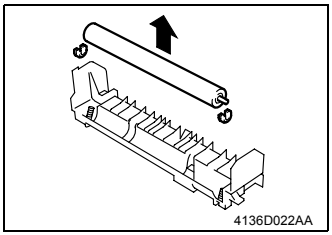
- *The Fusing Unit is extremely hot immediately after the Power Switch has been turned OFF. Allow a sufficient time to let it cool down before starting the procedure to prevent burn.*

1. Remove the Fusing Unit.

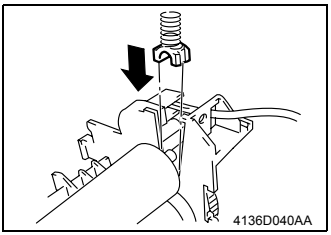
☞ E-8



2. Remove two screws and disconnect the Fusing Unit.

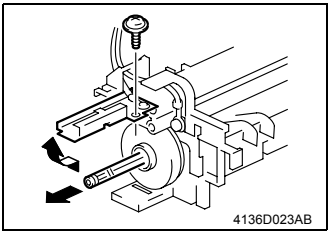


3. Remove two bushings and the Pressure Roller.



Precautions for Installation of Bushings

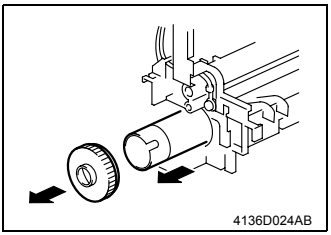
- *Make sure that the slits in the bushing are properly aligned with the rib of the Fusing Unit.*



4. Remove one screw and the terminal block.
5. Pull out the Fusing Roller Heater Lamp.

NOTES

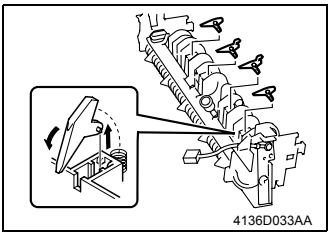
- *Do not touch the surface of the glass of the Fusing Roller Heater Lamp with bare hands.*
- *When reinstalling the Fusing Roller Heater Lamp, make sure that the side of the lamp having a voltage marking faces the gear side.*



6. Pull out the drive gear from the Fusing Roller.
7. Pull out the Fusing Roller.

NOTE

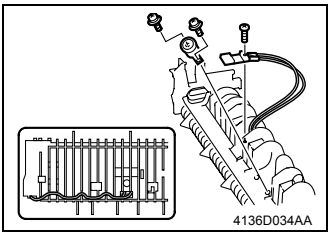
- *When removing and reinstalling the Fusing Roller, keep the Fusing Roller Paper Separator Fingers in their raised position. Use care not to damage the surface of the Fusing Roller.*



8. Remove the four Fusing Roller Paper Separator Fingers.

NOTE

- *Use care not to lose the springs.*



9. Remove one screw and the Thermistor.

NOTE

- *When reinstalling the Thermistor, route the harness as shown in the illustration.*

10. Remove two screws and the Thermostat.

CONTROL PANEL/SERVICE MODE DESCRIPTIONS

1. Indicator functions

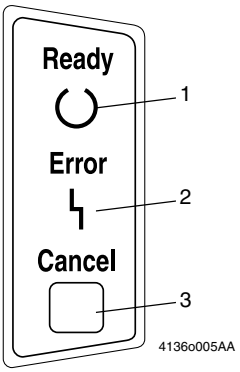
1-1. Explanation for the Button and function

- The control panel has two indicators and one button.
  The control panel indicators provide information on the status of the printer.

✻ Ready indicator
✻ Error indicator
✻ Cancel button

The Cancel button allows you to:

1. Continue a print job after an error message.
2. Cancel a print job



1-2. Continuing a Print Job after an Error Message

- You can continue the print job after correcting the following types of errors:

✻ When the print job is too complex and the memory capacity of the printer is inadequate
✻ When there is no more paper in the tray
✻ When paper of a different format than that set in the printer driver was fed into the printer

1. Check that one of the above errors has occurred.
2. Perform the remedial action according to the error.
3. Press the Cancel button to operate the media feed.
   The print job continues.

1-3. Canceling a Print Job

- You can cancel a print job that is currently being processed.

1. While data is being processed or printed (the green “Ready” indicator is blinking), hold down the Cancel button for more than 5 seconds.
2. Release the Cancel button after both indicators light up.
   The current print job has now been cancelled.

1-4. Indication on the Control Panel

- The indicators have five types of signals:

✻ Off
✻ On
✻ Slow blinking - 1 blink every 2 seconds
✻ Blinking - 1 blink per second
✻ Rapid blinking - 2 blink per second

2. The kind of Indication

2-1. Status message

- Status messages indicate the current condition of the printer. The printer status also can be checked on the Status Display. (Refer to the User Guide for the details about a Status Display)

Ready indicator (green)	Error indicator (orange)	Condition	Action
Off	Off	Power off	None
On	Off	Ready to print	None
Rapid blinking	Off	Warming up	None
Blinking	Off	Receiving data	None
		Processing data	
		Printing	
On	On	Initializing (power on)	None
		Canceling a print job	
Slow blinking	Off	Power save mode	None
On	Slow blinking	Toner near empty	Prepare the toner cartridge.
On	Blinking	Toner empty	Replace the toner cartridge.
On	Rapid blinking	Toner out	Replace the toner cartridge.
		No toner cartridge is installed	Install the toner cartridge.
		Toner out	Install a genuine KONICA MINOLTA toner cartridge.

- Attention

  If the toner cartridge that is used is not a genuine one or is for a different region, cleaning will be performed with each page printed, which will reduce the printing speed.

2-2. Error message

- These messages indicate errors which you must correct before a print job can continue or the printer status returned to “Ready”.

Ready indicator (green)	Error indicator (orange)	Condition	Action
Blinking	Blinking	Communication error.	Check the printer cable.
		Video Under-run	Turn off the printer. After a few seconds, turn on the printer. Change to a lower resolution.
Rapid blinking alternately		No media in the tray specified in the printer driver.	Load the appropriate type of media into Tray 1.
		Media size error If the “Auto Continue” option has been activated in the Status Display, the sheets already fed in is automatically ejected after a predetermined time.	Load the appropriate size media into Tray 1.
		Waiting for the Manual Duplex.	Load the second side of the media.
		Waiting for a proof print.	Press the Cancel button if the proof print is acceptable. If it is not acceptable, hold down the Cancel button for more than 5 seconds to cancel the current job.
Off	Slow blinking	Paper empty	Load media into Tray 1.
Off	Blinking	Media jam	Clear the jam, close the front cover, and then continue with the print job.
Off	On	Front cover or top cover is open	Close the front cover or top cover.

2-3. Service messages

- This message indicates a more serious fault that can only be corrected by a customer service engineer.

Ready indicator (green)	Error indicator (orange)	Condition	Action
Off	Rapid blinking	Fatal error	Turn the printer off, then on again. If the problem persists, contact your vendor or authorized service provider.

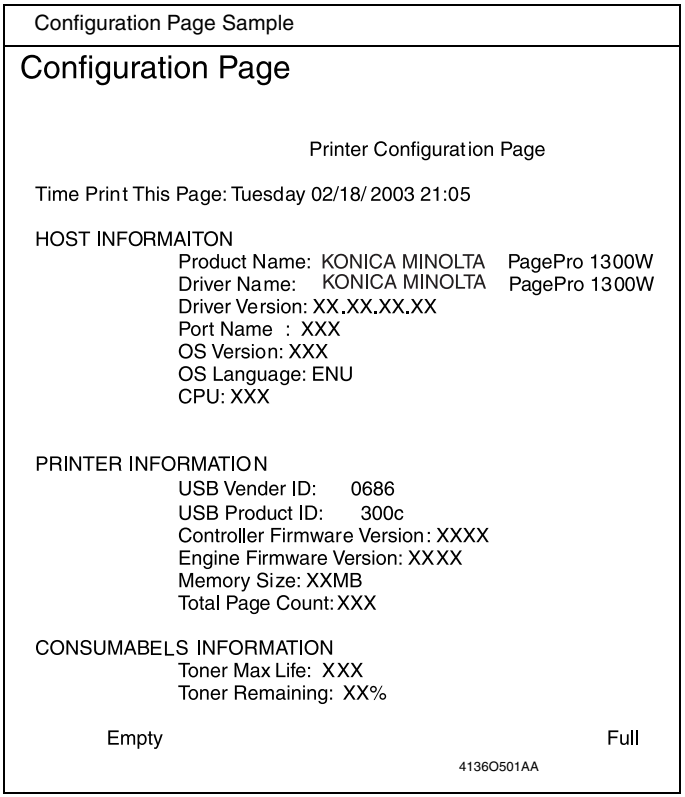
- There are the following kinds of fatal errors.
  Fatal error Fuser warm up
  Fatal error Fuser Temperature Low
  Fatal error Fuser Over Heat
  Fatal error Polygonal Mirror Motor
  Fatal error Fuser Fan
  Fatal error High Voltage Circuit
  Fatal error Laser Unit
  Fatal error Engine Initialize
  Fatal error Engine I/F
  Fatal error ROM
  Fatal error DRAM
  Fatal error EEPROM
  Fatal error VIdeo Transfer
  Fatal error Data Decompression
  Fatal error Video Output
  Fatal error Non-Supported Engine

- Above status are indicated on Status Monitor

3. Others

3-1. Configuration page

- Select configuration page from the printer menu in order to print the configuration page with your printer so that you can check your printer configuration (the host information, the printer information, and the consumable usage).



Configuration Page Sample

Configuration Page

Printer Configuration Page

Time Print This Page: Tuesday 02/18/ 2003 21:05

HOST INFORMAITON
Product Name: KONICA MINOLTA PagePro 1300W
Driver Name: KONICA MINOLTA PagePro 1300W
Driver Version: XX.XX.XX.XX
Port Name : XXX
OS Version: XXX
OS Language: ENU
CPU: XXX

PRINTER INFORMATION
USB Vender ID: 0686
USB Product ID: 300c
Controller Firmware Version: XXXX
Engine Firmware Version: XXXX
Memory Size: XXMB
Total Page Count: XXX

CONSUMABELS INFORMATION
Toner Max Life: XXX
Toner Remaining: XX%

Empty Full

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TROUBLESHOOTING

1. INTRODUCTION

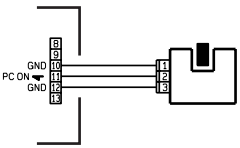
- This chapter contains the items required or used when troubleshooting various printer problems.

1-1. Electric Components Check Procedures

- The following procedures can be used to check to see if an electric component is fully operational when a paper misfeed or a malfunction occurs in the printer.

(1) Sensors

Step	Check	Result	Action
1	Does the input signal to the Controller/Mechanical Control Board go from HIGH to LOW, or vice versa, when the sensor is blocked?	NO	Replace the sensor.
		YES	Replace the Controller/Mechanical Control Board.



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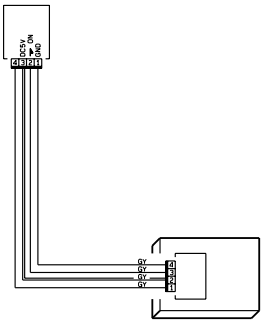

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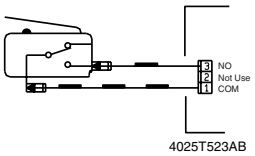
(2) Switches

Step	Check	Result	Action
1	Does the input signal (NO) to the Controller/Mechanical Control Board go from LOW to HIGH when the switch is actuated?	NO	Replace the switch.
		YES	Replace the Controller/Mechanical Control Board.



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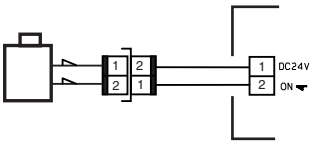
(3) Solenoids

Step	Check	Result	Action
1	Does the output signal from the Controller/Mechanical Control Board go from HIGH to LOW when the solenoid is energized?	NO	Replace the Controller/Mechanical Control Board.
		YES	Replace the solenoid.



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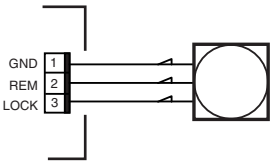
(4) Motors

Step	Check	Result	Action
1	Is the LOCK signal of the Controller/Mechanical Control Board HIGH when the printer is in the standby state?	NO	Replace the Controller/ Mechanical Control Board. Replace the motor.
2	Does the REM signal of the Controller/ Mechanical Control Board go from HIGH to LOW when the motor is energized?	YES	Replace the motor.
		NO	Replace the Controller/ Mechanical Control Board.



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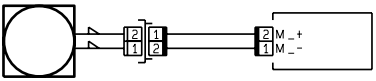
Step	Check	Result	Action
1	Does the input signal to the Controller/Mechanical Control Board go from HIGH to LOW when the motor is energized? (The input signal varies depending on the direction of rotation.)	YES	Replace the motor.
		NO	Replace the Controller/ Mechanical Control Board.



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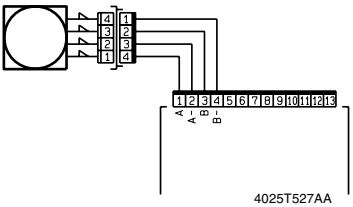
Step	Check	Result	Action
1	Are the hookup connector of the motor and print jack on the Controller/Mechanical Control Board connected properly?	YES	Replace the motor or the Controller/Mechanical Control Board.
		NO	Connect the connector or the print jack properly.



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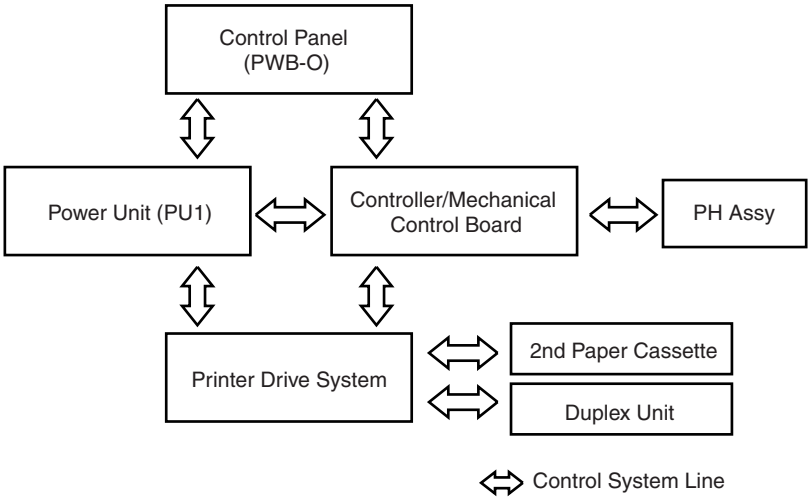
1-2. Overall Control Configuration

- Understanding the overall control configuration will help perform the troubleshooting procedures for paper misfeeds, malfunctions, and image problems.



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2. PAPER MISFEED

2-1. Initial Check Items

- When a paper misfeed occurs in the printer, first make the following initial checks.

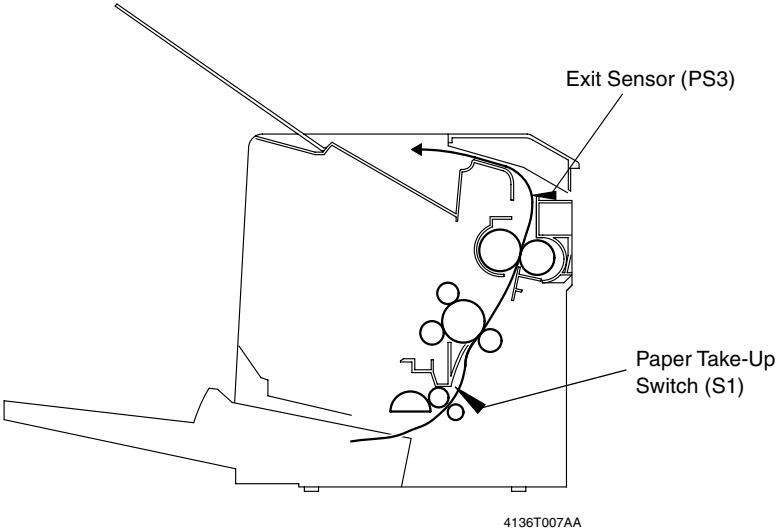
Check	Action
Does the paper meet product specifications?	Replace paper.
Is the paper curled, wavy, or damp?	Replace paper. Instruct user in correct paper storage.
Is the paper transport path deformed, dirty, or obstructed with foreign matter?	Clean the paper path and replace if necessary.
Are the Paper Separator Fingers dirty, deformed, or worn?	Replace Fusing Unit.
Is the roller dirty, deformed, or worn?	Clean the roller and replace if necessary.
Are Edge Guides at correct position to accommodate paper?	Slide the Edge Guides up against the edges of the paper stack.
Does the actuator operate correctly when checked?	Correct or replace the actuator.

Precautions for Clearing Misfeed

- *Reset the misfeed condition by opening and closing the Front Door after the misfeed has been cleared.*

2-2. Locations of Misfeed Detection Sensors

- 150-sheet-capacity Printer (printer only)



2-3. Misfeed Detection Timing and Troubleshooting Procedures

(1) Paper Take-Up/Transport Misfeed

<Detection Timing>

Type	Description
Misfeed detected at the paper take-up section	The Paper Take-Up Switch is actuated earlier than a predetermined period of time after the paper take-up sequence has been started.
	The Paper Take-Up Switch is not actuated even after the lapse of a predetermined period of time after the paper take-up sequence has been started.
Transport section	The Paper Take-Up Switch is deactuated earlier than a predetermined period of time after it has been actuated.
	The Paper Take-Up Switch is not deactuated even after the lapse of a predetermined period of time after it has been actuated.
Detection of paper left at the paper take-up section	Transport of paper is stopped before the Paper Take-Up Switch is actuated after the paper take-up sequence has been started.
Detection of paper left at the transport section	The Paper Take-Up Switch is actuated when the Power Switch is turned ON, the Front Door is opened and closed, or when a misfeed occurs or transport of paper is stopped.
	Paper is present between the Paper Take-Up Switch and Exit Sensor when transport of paper is stopped.

<Troubleshooting Procedures>

Relevant Electrical Parts	
Paper Take-Up Switch (S1) Exit Sensor (PS3) Paper Take-Up Solenoid (SL1)	Controller/Mechanical Control Board (PWB-P)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Initial check items	☞ T-5	–	–
2	SL1 operation check	☞ T-2	PWB-P PJ3A-2	4-F
3	S1 switch check	☞ T-2	PWB-P PJ10A-2	7-F
4	PS3 sensor check	☞ T-1	PWB-P PJ8A-3	6-F
5	Replace PWB-P.	–	–	–

(2) Fusing/Exit Misfeed

<Detection Timing>

Type	Description
Detection of paper left in Fusing Unit	The paper unblocks the Exit Sensor when the Power Switch is turned ON, the Front Door is opened and closed, or when a misfeed occurs or transport of paper is stopped.
Transport section	The paper unblocks the Exit Sensor earlier than a predetermined period of time after the Paper Take-Up Switch has been actuated.
	The paper does not unblock the Exit Sensor even after the lapse of a predetermined period of time after the Paper Take-Up Switch has been actuated.
Misfeed detected at the exit section	The Exit Sensor is blocked earlier than a predetermined period of time after the Paper Take-Up Switch has been actuated.

<Troubleshooting Procedures>

Relevant Electric Parts	
Paper Take-Up Switch (S1) Exit Sensor (PS3)	Controller/Mechanical Control Board (PWB-P)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Initial check items	☞ T-5	–	–
2	S1 switch check	☞ T-2	PWB-P PJ10A-2	7-F
3	PS3 sensor check	☞ T-1	PWB-P PJ8A-3	6-F
4	Replace PWB-P.	–	–	–

3. MALFUNCTIONS/WARNING

3-1. List of Malfunctions

Malfunction Name	Description
Polygon Motor malfunction	• The LOCK signal is not detected within a predetermined period of time that begins 1 sec. after the Polygon Motor has been energized. • No new LOCK signal is detected for a 1-sec. period that begins 1.5 sec. after the first LOCK signal was detected. • The LOCK signal is not detected for a continuous 0.5-sec. period in a state in which the Polygon Motor runs stably. • The LOCK signal remains ON for a continuous 5-sec. period or more when the Polygon Motor remains deenergized.
Laser malfunction	• The laser output exceeds the upper limit value. • The laser output remains lower than the lower limit value. • The Start Scan signal (-S_SCAN) is not detected at all within a predetermined period of time after the laser has been turned ON. • The Start Scan signal (-S_SCAN) is turned OFF.
Cooling Fan Motor malfunction	• The LOCK signal remains HIGH or LOW continuously for a predetermined period of time while the Cooling Fan Motor remains energized.
Warm-up failure	• The voltage of the Thermistor remains low for a predetermined period of time when a warm-up cycle is started. • The temperature detected by the Thermistor remains lower than a reference value for a predetermined period of time for the period of time that begins 5 sec. after, and ends 9 sec. after, the start of the warm-up cycle (where the temperature detected by the Thermistor is 80 °C or less). • The temperature detected by the Thermistor does not increase for a 3-sec. period or more for the period of time that begins after the lapse of a predetermined period of time after the Fusing Roller Heater Lamp has been turned ON and ends when the lamp is turned OFF. • The Fusing Roller Heater Lamp remains ON for a 30-sec. period or more (except during the period through which the Main Motor remains energized).
Abnormally low fusing temperature	• The temperature detected by the Thermistor remains lower than the set temperature continuously for a predetermined period of time while the fusing temperature control is being provided. (The set temperatures are as follows: 140 °C during a print mode at 600 dpi; 110 °C during a print mode at 1200 dpi; 70 °C during the standby mode.)
Abnormally high fusing temperature	• The temperature detected by the Thermistor remains higher than 235 °C for a predetermined period of time while the fusing temperature control is being provided.
High voltage failure	• The Drum Charge Monitor Voltage (HVC_MON) signal falls outside a predetermined range at any time after the lapse of a predetermined period of time after the Power Switch has been turned ON. • The Image Transfer Voltage Monitor signal (T_MON_V) and Image Transfer Current Monitor signal (T_MON_I) fall outside a corresponding predetermined range.

Controller-related malfunctions

Engine initialization failure	Engine I/F failure
ROM malfunction	DRAM malfunction
EEPROM malfunction	Video transfer malfunction
Data decompression failure	Vide output failure
Unsupported engine failure	

3-2. Malfunction Detection Timing and Troubleshooting Procedures

When any of the following malfunctions is detected, all drives are shut down and a hardware error message is displayed on the control panel.

(1) Polygon Motor malfunction

<Detection Timing>

Description
• The LOCK signal is not detected within a predetermined period of time that begins 1 sec. after the Polygon Motor has been energized. • No new LOCK signal is detected for a 1-sec. period that begins 1.5 sec. after the first LOCK signal was detected. • The LOCK signal is not detected for a continuous 0.5-sec. period in a state in which the Polygon Motor runs stably. • The LOCK signal remains ON for a continuous 5-sec. period or more when the Polygon Motor remains deenergized.

<Troubleshooting Procedures>

Relevant Electric Parts	
PH Unit Flat cable	Controller/Mechanical Control Board (PWB-P)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Check cables for connection and correct as necessary.	–	–	–
2	Replace PH Unit.	–	–	–
3	Replace PWB-P.	–	–	–

(2) Laser malfunction

<Detection Timing>

Description
• The laser output exceeds the upper limit value. • The laser output remains lower than the lower limit value. • The Start Scan signal (-S_SCAN) is not detected at all within a predetermined period of time after the laser has been turned ON. • The Start Scan signal (-S_SCAN) is turned OFF.

<Troubleshooting Procedures>

Relevant Electric Parts	
PH Unit Flat cable	Controller/Mechanical Control Board (PWB-P)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Check cables for connection and correct as necessary.	–	–	–
2	Replace PH Unit.	–	–	–
3	Replace PWB-P.	–	–	–

(3) Cooling Fan Motor malfunction

<Detection Timing>

Description
• The LOCK signal remains HIGH or LOW continuously for a predetermined period of time while the Cooling Fan Motor remains energized.

<Troubleshooting Procedures>

Relevant Electric Parts	
Cooling Fan Motor (M2)	Controller/Mechanical Control Board (PWB-P) Power Unit (PU1)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Check the Motor connectors for connection and correct as necessary.	–	–	–
2	Check the fan for possible overload and correct as necessary.	–	–	–
3	M2 operation check	☞ T-3	PWB-P PJ13A-1 to 3 (pulse)	5-F
4	Replace PWB-P.	–	–	–

(4) Warm-up failure

<Detection Timing>

Description
• The voltage of the Thermistor remains low for a predetermined period of time when a warm-up cycle is started. • The temperature detected by the Thermistor remains lower than a reference value for a predetermined period of time for the period of time that begins 5 sec. after, and ends 9 sec. after, the start of the warm-up cycle (where the temperature detected by the Thermistor is 80 °C or less). • The temperature detected by the Thermistor does not increase for a 3-sec. period or more for the period of time that begins after the lapse of a predetermined period of time after the Fusing Roller Heater Lamp has been turned ON and ends when the lamp is turned OFF. • The Fusing Roller Heater Lamp remains ON for a 30-sec. period or more (except during the period through which the Main Motor remains energized).

<Troubleshooting Procedures>

Relevant Electric Parts	
Fusing Unit Thermistor (TH1) Fusing Roller Heater Lamp (H1)	Controller/Mechanical Control Board (PWB-P) Thermostat (TS1) Power Unit (PU1)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Replace Thermistor (TH1).	–	–	–
2	Replace Fusing Roller Heater Lamp (H1).	–	–	–
3	Replace Thermostat (TS1).	–	–	–
4	Replace Fusing Unit.	–	–	–
5	Replace Controller/Mechanical Control Board (PWB-P).	–	–	–
6	Replace Power Unit (PU1).	–	–	–

(5) Abnormally low fusing temperature

<Detection Timing>

Description
• The temperature detected by the Thermistor remains lower than the set temperature continuously for a predetermined period of time while the fusing temperature control is being provided. (The set temperatures are as follows: 140 °C during a print mode at 600 dpi; 110 °C during a print mode at 1200 dpi; 70 °C during the standby mode.)

<Troubleshooting Procedures>

Relevant Electric Parts	
Fusing Unit Thermistor (TH1) Fusing Roller Heater Lamp (H1)	Controller/Mechanical Control Board (PWB-P) Thermostat (TS1) Power Unit (PU1)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Replace Thermistor (TH1).	–	–	–
2	Replace Fusing Roller Heater Lamp (H1).	–	–	–
3	Replace Thermostat (TS1).	–	–	–
4	Replace Fusing Unit.	–	–	–
5	Replace Controller/Mechanical Control Board (PWB-P).	–	–	–
6	Replace Power Unit (PU1).	–	–	–

(6) Abnormally high fusing temperature

<Detection Timing>

Description
• The temperature detected by the Thermistor remains higher than 235 °C for a predetermined period of time while the fusing temperature control is being provided.

<Troubleshooting Procedures>

Relevant Electric Parts	
Fusing Unit Thermistor (TH1) Fusing Roller Heater Lamp (H1)	Controller/Mechanical Control Board (PWB-P) Thermostat (TS1) Power Unit (PU1)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Replace Thermistor (TH1).	–	–	–
2	Replace Fusing Roller Heater Lamp (H1).	–	–	–
3	Replace Thermostat (TS1).	–	–	–
4	Replace Fusing Unit.	–	–	–
5	Replace Controller/Mechanical Control Board (PWB-P).	–	–	–
6	Replace Power Unit (PU1).	–	–	–

(7) High voltage failure

<Detection Timing>

Description
• The Drum Charge Monitor Voltage (HVC_MON) signal falls outside a predetermined range at any time after the lapse of a predetermined period of time after the Power Switch has been turned ON. • The Image Transfer Voltage Monitor signal (T_MON_V) and Image Transfer Current Monitor signal (T_MON_I) fall outside a corresponding predetermined range.

<Troubleshooting Procedures>

Relevant Electric Parts	
Fusing Unit	Controller/Mechanical Control Board (PWB-P)

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Replace Fusing Unit.	–	–	–
2	Replace PWB-P.	–	–	–

(8) Controller-related malfunctions

- The following are malfunctions and failures as they relate to the controller.

Controller-related malfunctions	
Engine initialization failure	Engine I/F failure
ROM malfunction	DRAM malfunction
EEPROM malfunction	Video transfer malfunction
Data decompression failure	Video output failure
Unsupported engine failure	

<Troubleshooting Procedures>

Relevant Electric Parts	
Controller/Mechanical Control Board (PWB-P)	

Step	Action	Ref. Page	WIRING DIAGRAM	
			Control Signal	Location (Electric Parts)
1	Turn Power Switch OFF and ON.	–	–	–
2	Check flat cables for connection and correct or replace as necessary.	–	–	–
3	Check PJ101 connector for connection and correct as necessary.	–	–	7-C
4	Replace PWB-P.	–	–	–

4. MALFUNCTIONS RELATED TO POWER SUPPLY

4-1. Power is not Turned ON.

Relevant Electric Parts	
Controller/Mechanical Control Board (PWB-P)	Power Unit (PU1)

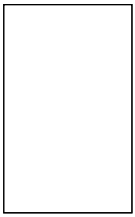
Step	Check	Wiring Diagram (Location)	Result	Action
1	Is the power cord plugged into the power outlet?	–	NO	Plug the power cord into the power outlet.
2	Is the power cord connected properly to the printer?	–	NO	Plug the power cord into the printer.
3	Is the Power Switch turned ON?	–	NO	Turn ON the Power Switch.
4	Are the fuses (F101 and F102) on the Power Unit conducting?	–	NO	Replace Power Unit (PU1).
		–	YES	Replace Controller/Mechanical Control Board (PWB-P).

5. IMAGE QUALITY PROBLEMS

5-1. Troubleshooting Procedure by Image Quality Problem

(1) Blank print and black print

<Typical Faulty Images>



4011T035AA

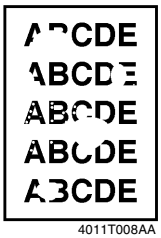
4011T036AA

<Troubleshooting Procedures>

Step	Check	Result	Action
1	Is a printed page blank?	YES	Check PH Unit connectors for proper connection.
2	Is the coupling of the drive mechanism of the Imaging Cartridge properly connected?	NO	Check coupling of drive mechanism for connection and correct as necessary, or replace Imaging Cartridge (Drum Cartridge, Toner Cartridge).
3	Is the drum charge voltage contact point or PC Drum ground contact point of the Imaging Cartridge properly connected?	NO	Check, clean, or correct contact point.
4	Is the High Voltage Unit (HV1) connector connected properly?	NO	Connect it properly.
5	Is the problem eliminated when step 4 was checked?	NO	Replace High Voltage Unit (HV1).
			Replace Controller/Mechanical Control Board (PWB-P).
			Replace PH Unit.

(2) Void areas

<Typical Faulty Image>



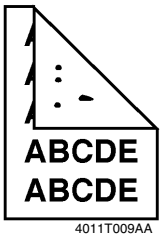
4011T008AA

<Troubleshooting Procedures>

Step	Check	Result	Action
1	Is paper damp?	YES	Replace paper for one just unwrapped.
2	Is the PC Drum scratchy?	YES	Replace Drum Cartridge.
3	Is there foreign matter on paper path?	YES	Remove foreign matter.
4	Is Image Transfer Roller dirty or scratchy? (3)	YES	Replace Image Transfer Roller.
			Replace High Voltage Unit (HV1).
			Replace Controller/Mechanical Control Board (PWB-P).

(3) Back marking

<Typical Faulty Image>



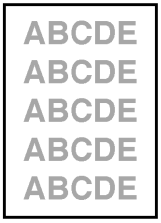
4011T009AA

<Troubleshooting Procedures>

Step	Check	Result	Action
1	Is there foreign matter on paper path?	YES	Remove foreign matter.
2	Is Fusing Roller dirty or scratchy?	YES	Replace Fusing Unit (Fusing Roller).
3	Is Image Transfer Roller dirty or scratchy?	YES	Replace Image Transfer Roller.

(4) Low image density

<Typical Faulty Image>



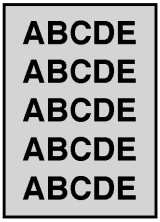
4011T003AA

<Troubleshooting Procedures>

Step	Check	Result	Action
1	Is paper damp?	YES	Replace paper for one just unwrapped.
2	Is there toner left in Toner Cartridge?	NO	Replace Toner Cartridge.
3	Is PC Drum faulty (life)?	YES	Replace Drum Cartridge.
4	Is developing bias faulty?	YES	Replace High Voltage Unit (HV1). Replace Controller/Mechanical Control Board (PWB-P).
5	Is image transfer faulty?	YES	Replace Image Transfer Roller.
			Replace High Voltage Unit (HV1).
			Replace Controller/Mechanical Control Board (PWB-P).

(5) Foggy background

<Typical Faulty Image>



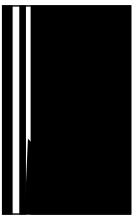
4011T004AA

<Troubleshooting Procedures>

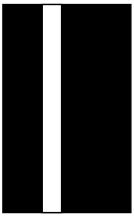
Step	Check	Result	Action
1	Is PC Drum scratchy?	YES	Replace Drum Cartridge.
2	Is developing bias contact terminal in good contact with the mating part?	NO	Clean contact terminal or check terminal position.
3	Is PH window dirty?	YES	Clean.
4	Is the problem eliminated after checks have been made up to step 3?	NO	Replace High Voltage Unit (HV1).
			Replace Controller/Mechanical Control Board (PWB-P).

(6) White lines, white bands

<Typical Faulty Images>



4011T015AA



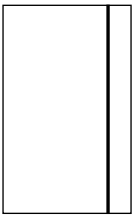
4011T020AA

<Troubleshooting Procedures>

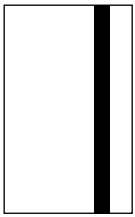
Step	Check	Result	Action
1	Is Image Transfer Roller dented, scratchy, or dirty?	YES	Replace Image Transfer Roller.
2	Is PC Drum scratchy or dirty?	YES	Replace Drum Cartridge.
3	Is Fusing Roller scratchy or dirty?	YES	Replace Fusing Unit (Fusing Roller).
4	Is PH window dirty?	YES	Clean.
5	Is the problem eliminated after checks have been made up to step 4?	NO	Replace Controller/Mechanical Control Board (PWB-P).

(7) Black lines, black bands

<Typical Faulty Images>



4011T017AA



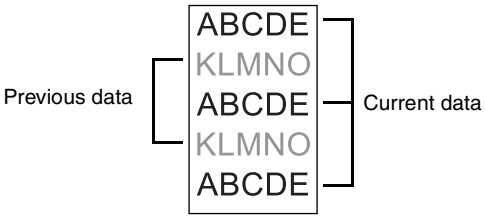
4011T023AA

<Troubleshooting Procedures>

Step	Check	Result	Action
1	Is paper path dirty with toner?	YES	Clean.
2	Is PC Drum scratchy or dirty?	YES	Replace Drum Cartridge.
3	Is Fusing Roller scratchy or dirty?	YES	Replace Fusing Unit (Fusing Roller).
4	Is the problem eliminated after checks have been made up to step 3?	NO	Replace Controller/Mechanical Control Board (PWB-P).

(8) Offset

<Typical Faulty Image>



4136T003AA

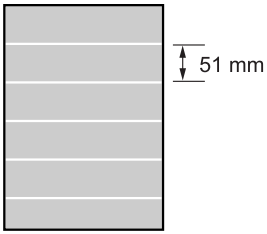
<Troubleshooting Procedures>

Step	Check	Result	Action
1	Is Fusing Roller faulty?	YES	Replace Fusing Unit (Fusing Roller).
2	Is Image Transfer Roller faulty?	YES	Replace Image Transfer Roller.

(9) Uneven image

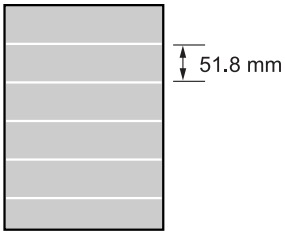
<Typical Faulty Images>

51-mm-pitch uneven image



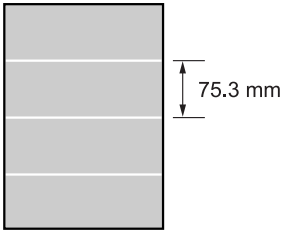
4136T004AA

51.8-mm-pitch uneven image



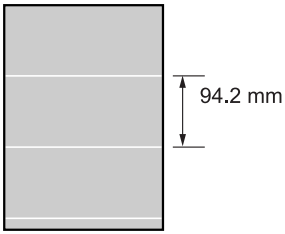
4136T008AA

75.3-mm-pitch uneven image



4136T005AA

94.2-mm-pitch uneven image



4136T006AA

<Troubleshooting Procedures>

Step	Check	Cause	Result	Action
1	Is uneven image at a pitch of 50.6 mm?	Image Transfer Roller is scratchy or dirty.	YES	Replace Image Transfer Roller.
2	Is uneven image at a pitch of 51.8 mm?	Flexible Sleeve is scratchy or dirty.	YES	Replace Toner Cartridge.
3	Is uneven image at a pitch of 75.3 mm?	Pressure Roller is scratchy or dirty.	YES	Replace Fusing Unit.
4	Is uneven image at a pitch of 94.2 mm?	PC Drum is scratchy or dirty.	YES	Replace Drum Cartridge.
		Fusing Roller is scratchy or dirty.	YES	Replace Fusing Unit.

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