PageWorks/Pro 1100
PageWorks/Pro 1100L

SERVICE MANUAL

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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 engineer attention to what is graphically represented inside the marking (including a warning).

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

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

 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 Operator’s Manual.

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 injure.
- If this product uses a laser, laser beam leakage may cause eye damage or blindness.

3. 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 is probably of a problem and action must be taken to eliminate the cause of the problem.

4. Handle the power cord with care and never use a multiple socket.

- Do not brake, 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 appliances or machines is connected.
- Be sure the power outlet meets or exceeds the specified capacity.

5. Be careful about 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.

6. Do not keep your hands wet when performing the procedures.

- 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.

7. 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.

8. Make a ground connection at all times (This item may not be effected in USA).

- Be sure to connect a ground wire to the ground terminal even when performing an inspection or repair. Without proper grounding, electrical leakage could result in an electric shock or fire.
- Never connect the ground wire to a gas pipe, water pipe, telephone ground wire, or a lightning conductor.

9. 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.

10. 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, and 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.

CAUTION

1. Precautions for Service Jobs

- A toothed 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.

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 Working Environment

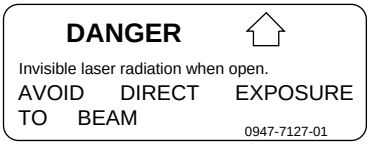
- The product must be placed on a flat, level surface that is stable and secure.
- Never place this product or its parts on an unsteady or tilting workbench when servicing.
- Provide good ventilation at regular intervals if a service job must be done in a confined space for a long period time.
- Avoid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

4. Precautions for Handling Batteries

- 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 Laser Beam (Products Employing Laser Only)

- Removing the cover marked with the following 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.”



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Other Precautions

- To reassemble the product, reverse the order of disassembly unless otherwise specified.
- While the product is energized, do not unplug or plug connectors into the circuit boards or harnesses.
- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.
- An air gun and vacuum cleaner generates a strong electrostatic charge that can destroy the ATDC sensor and other sensors. Before cleaning a component with one of these devices, be sure to remove all the sensors. Otherwise, use a blower brush and cloth when cleaning parts.
- When handling circuit boards with MOS ICs, observe the “INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs” (applicable only to the products using MOS ICs).
- 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.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Check the area surrounding the service site for any signs of damage, wear or need of repair.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged hopper 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.

SAFETY INFORMATION

This printer is a page printer which operates by means of a laser. There is no possibility of danger from the laser, provided the printer is operated according to the instructions in this manual.
Since radiation emitted by the laser is completely confined within protective housing, the laser beam cannot escape from the machine during any phase of user operation.

Laser Safety

This printer is certified as a Class 1 Laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. Compliance is mandatory for products marketed in the United States. The label shown below indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

Internal Laser Radiation

Maximum Radiation Power: 0.6 (mW) at laser aperture of the print head unit
Wave Length: 770-810 (nm)

This product employs Class IIIb Laser Diode.
Laser Diode and 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.

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

This is a semiconductor laser. The maximum power of the laser diode is 5 mW and the wavelength is 770-810 nm.

For Denmark Users;

ADVARSEL
Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

Klasse 1 laser produkt der opfylder IEC825 sikkerheds kravene.

For Finland, Sweden Users;

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

VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Äjä katso sätee

VARNNING
Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning som överskrider gränsen för laser klass 1.

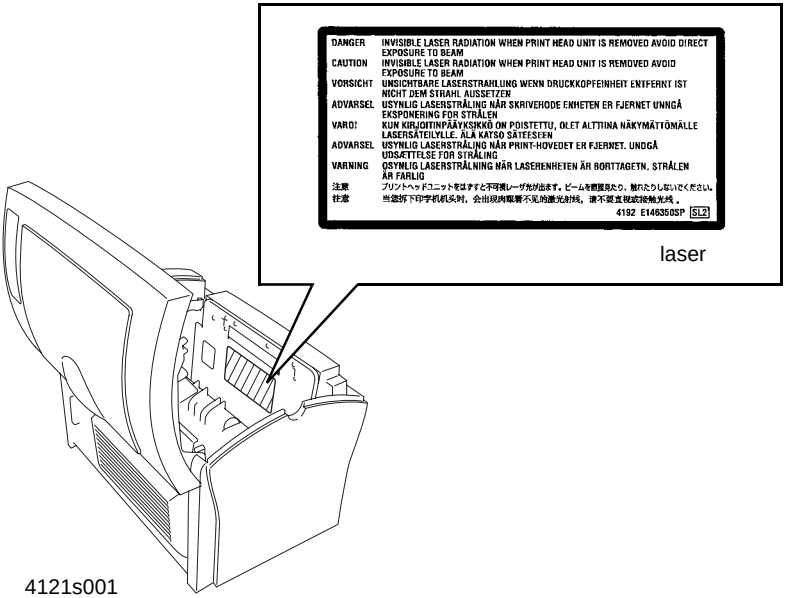
VAROITUS
Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteiylle.

For Norway Users;

ADVARSEL
Dersom apparatet brukes på annen måte enn spesifisert i denne bruksanvisning, kan brukeren utsettes for unsynlig laserstråling som overskrider grensen for laser klasse 1.

Dette er en halvleder laser. Maksimal effeckt til laserdiode er 5mW og bølgelengde er 770-810 nm.

WARNING LABEL



4121s001

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Chapter 2: GENERAL INFORMATION

Chapter 3: MECHANICAL/ELECTRICAL

Chapter 4: MAINTENANCE/DISASSEMBLY

Chapter 1: INSTALLATION

1-1. Installation Environment

When installing the printer, please avoid the types of locations listed below, both for safety considerations and to avoid breakdowns.

- Areas with high temperatures or humidity, or with low temperatures and humidity
- Areas where the temperature and/or humidity fluctuate sharply
- Places where the printer will be in direct sunlight
- Areas near a cooler, heater, ventilation opening or in the direct path of wind
- Areas near oil stoves or other heat-generating equipment
- Locations with poor ventilation
- Areas where water is likely to fall on the equipment or electrical leakage is likely
- Areas where corrosive gases (ammonia gases, etc.) are present
- Areas where there is a high volume of dust, dirt and vibration
- Areas where the floor is not sufficiently strong or is not level
- Areas containing volatile and flammable materials and curtains

1-2. Usage Environment

In order to make sure the printer functions in good condition, please make sure the ambient environment satisfies the following requirements:

Temperature: 10-35°C	Temperature fluctuation: ±10°C per hour or less
Humidity: 15-85%RH	Humidity fluctuation: ±20% RH per hour or less

1-3. Installing The Power Supply

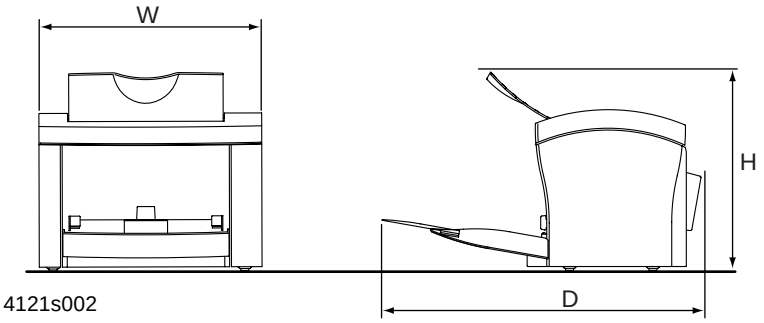
1. Do not plug the Power Cord into a power outlet via an extension cord supplying electricity to more than one unit.
2. Do not connect the printer to a power outlet used for other equipment or appliances. More than one appliance connected to a single outlet could cause a drop or surge in the electrical supply, resulting in operational problems for the printer.

Voltage fluctuation:	Specified voltage: ±10% (+6%, -10%: AC127V areas only)
Frequency fluctuation:	Specified frequency: ±3Hz

3. The following items should be checked periodically:
   - Make sure the power supply plugs do not feel warm.
   - Power supply cords should be free of cracks and scratches.
   - Power supply plugs should be firmly plugged into outlets.

1-4. Installation Space

1-4-1. Standard



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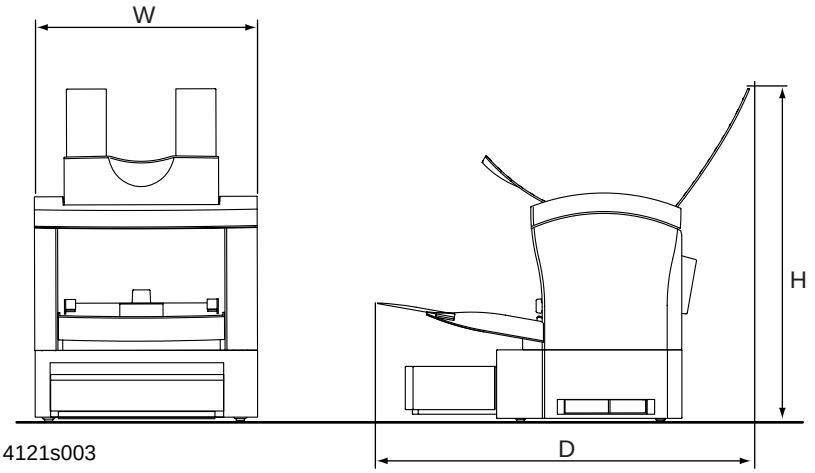
Model	W	D	H
1100	380mm or 15 in.	436mm or 17-1/8 in.	360mm or 14-1/8 in.
1100L	361mm or 14-1/4 in.		

1-4-2. With Options



4121s003

Model	W	D	H
1100	380mm or 15 in.	520mm or 20-1/2 in.	554mm or 21-3/4 in.
1100L	361mm or 14-1/4 in.		

Chapter 2: GENERAL INFORMATION

2-1. Specifications

2-1-1. Printer

Type	Desk-Top Laser Beam Printer
Printing System	Electrostatic dry powdered imaging system
Exposure System	Laser diode + Polygon Mirror scanning
Resolution	600 DPI (dot/inch)
Media Size	Standard size: A4, A5, JIS B5, Letter, Legal, Executive, Invoice, Envelope (DL, C5, B5, Commercial 10, Monarch) Non standard size: Widths: 76 mm to 216 mm (3 in. to 8-1/2 in.), Lengths:127 mm to 356 mm (5 in. to 14 in.)
Media Type	Ordinary plain paper (60 to 90 g/m^2 or 16 to 24 lbs.), Recycled paper (60 to 90 g/m^2 or 16 to 24 lbs.), Thick paper (90 to 163 g/m^2 or 24 to 43 lbs.), Transparencies, Envelopes, Letterhead, Labels
First Printing Time	within 19 sec. (A4 or Letter)
Multi Print Speed	10 pages per minute (A4/Letter-size print)
Warm-up Time	within 23 sec. *when power supplied at 23°C/73.4°F
System Speed	60.6 mm/sec.
Paper Feeding System	2-way system Multipurpose Tray (maximum: 150 sheets) Second Paper Cassette Unit (maximum: 500 sheets) Manual feed tray (1 sheet)
Paper Exit System	Face down (maximum: 100 sheets) Face up (maximum: 20 sheets)
Drum Charging System	Charging brush roller & Pre-charging blade charging
Developing System	Single element developing system FMT (Fine Micro Toning) system
Density Control	Developing Bias adjusting system
Image Transfer System	Transfer Roller system

PC Drum	OPC (Organic Photoconductor)
Drum Cleaning System	Non-cleaner system
Paper Separating System	Curvature separating system and charge neutralizing pin
Fusing System	Heated roller system
Dimensions	Width: 361 mm (14-1/4 in.) Depth: 283 mm (11-1/4 in.) Height: 262 mm (10-1/4 in.) (Closing the Paper Take-up Tray and the Face-down Tray and without second paper cassette unit)
Weight	Approximately 7 kg (15-1/2 lbs.) *without Cartridges Drum cartridge: approx. 0.3kg Toner cartridge:approx. 0.5kg(after T/C) approx. 0.4kg (initial T/C)
Power Supply Voltage	AC120V, AC220-240V
Frequency	50/60Hz ±3Hz
Power Consumption	120V Area: Operating: 690 W or less Standby (average): 270 W or less 220-240V Area: Operating: 700 W or less Standby (average): 270 W or less
Operating Environment	10-35°C, 15-85%RH
Drum Cartridge Life	20,000 prints or more (in continuous printing) 16,000 prints or more (in single printing) *Black/White ratio=5%
Toner Cartridge Life (after T/C)	6,000 prints or more (in continuous printing) 4,800 prints or more (in single printing) *Black/White ratio=5%
Toner Cartridge Life (initial T/C)	3,000 prints or more (in continuous printing) 2,400 prints or more (in single printing) *Black/White ratio=5%
Standard Accessories	Power Cord, Toner Cartridge, Drum Cartridge
Options	Face-up Tray, Second Paper Cassette Unit, Expansion DIMM (1100 only)

2-1-2. Second Cassette Unit

Media Type	Ordinary plain paper (60 to 90 g/m^2 or 16 to 24 lbs.), Recycled paper (60 to 90 g/m^2 or 16 to 24 lbs.)
Media Size	A4, B5, Letter, Legal, Executive with an exclusive use cassette
Cassette Capacity	Up to 500 sheets
Paper Feeding System	One-way system with paper claw separation mechanism
Power Source	supply from main unit (DC24V, DC5V)
Drive Source	supply from main unit
Dimensions	Width: 380 mm (15 in.): 1100 Width: 361 mm (14-1/4 in.): 1100L Depth: 323 mm (12-3/4 in.) High: 125 mm (5 in.) *without Paper Cassette
Weight	approx. 4kg (8-4/5 lbs.) *without Paper Cassette
Standard Accessory	Paper cassette (A4 or Letter)
Option	Paper cassette (A4, B5, Legal, Letter, Executive)

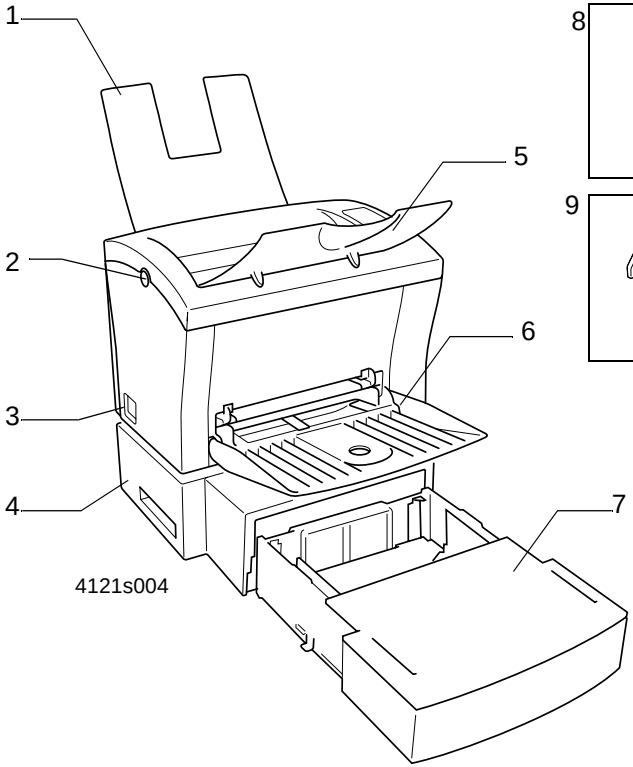
2-1-3. Controller (fro 1100)

ASIC (CPU)	D8401 (IBM PowerPC401GF) Mitsubishi M3807
Imaging Method	Band Buffer method (bitmap method)
Memory configuration	Standard ROM: 4 MB Standard RAM: 4 MB (16Mbit SDRAM 1M x 16bit x 2) Expansion Memory (DIMM) slot: 1 slot
DIMM specifications	Capacity: 16, 32, 64, 128 MB Function type: Burst mode Access speed: 70 ns or less Number of pins: 168 pin Operating voltage: 3.3 V Non-ECC (However, ECC can be used instead.) CAS Latency 2 (CAS Latency 3 is not compatible.) Synchronous LVTTL compatible input and output
Standard Interface	Centronics IEEE1284/ ECP Type B connector
Network Interface	Ethernet 10/100Base-T (Option)
Fine-ART Mode	Fine-ART for resolution that actually exceeds 1200 dpi
Toner Saver Mode	Function to regulate the toner consumption
Image Density	Function to regulate the toner consumption
Resolution	300 x 300 dpi, 600 x 600 dpi + EET *EET: Edge Enhanced Technology (Fine-ART)
Emulation	Compatible with PCL5e & PCLXL2.0 (HP LaserJet 4000)
Printer Driver	Standard (PCL5e) driver: For Windows95/98 Enhanced (PCLXL) driver: For Windows95/98/NT4.0/ 3.1 and Windows2000
Printer Resident Fonts (Agfa USFT Ver3.3)	1 bitmap font 45 outline fonts (35 Agfa Intellifont & 10 TrueType fonts)
Screen Fonts	96 Intellifont and TrueType fonts for windows
Test Print Function	Configuration Page (press panel button of printer) Demo Page (Select from Software Control Panel) Font List (Select from Software Control Panel)

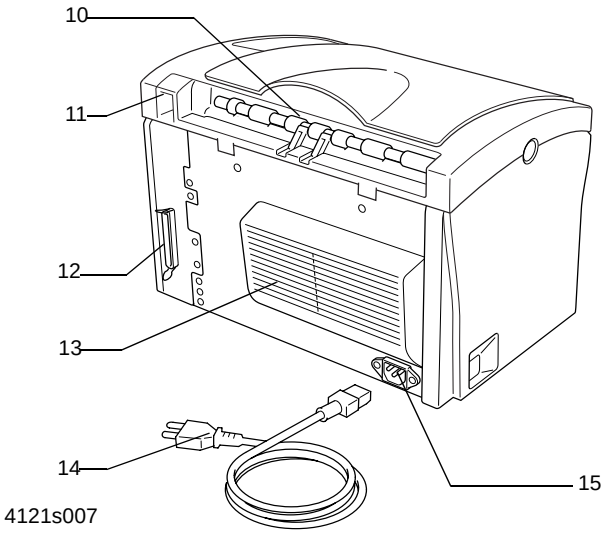
2-1-4. Controller (for 1100L)

CPU	Mitsubishi M38073M4 12MHz
ASIC	Destiny D6004 QuickASIC
Imaging Method	DestinyWinstyler
Memory configuration	Standard: RAM 4MB
Standard Interface	Centronics IEEE1284/ ECP Type B connector
Toner Saver Mode	Function to regulate the toner consumption
Image Density	Function to regulate the toner consumption
Resolution	600 x 600 dpi, 300 x 300 dpi
Printer Language	GDI (DestinyWinstyler): Resident interpreter
Printer Driver	Quickpage Driver For Windows95/98/ NT4.0/3.1X and Windows2000

2-2. Parts Identification

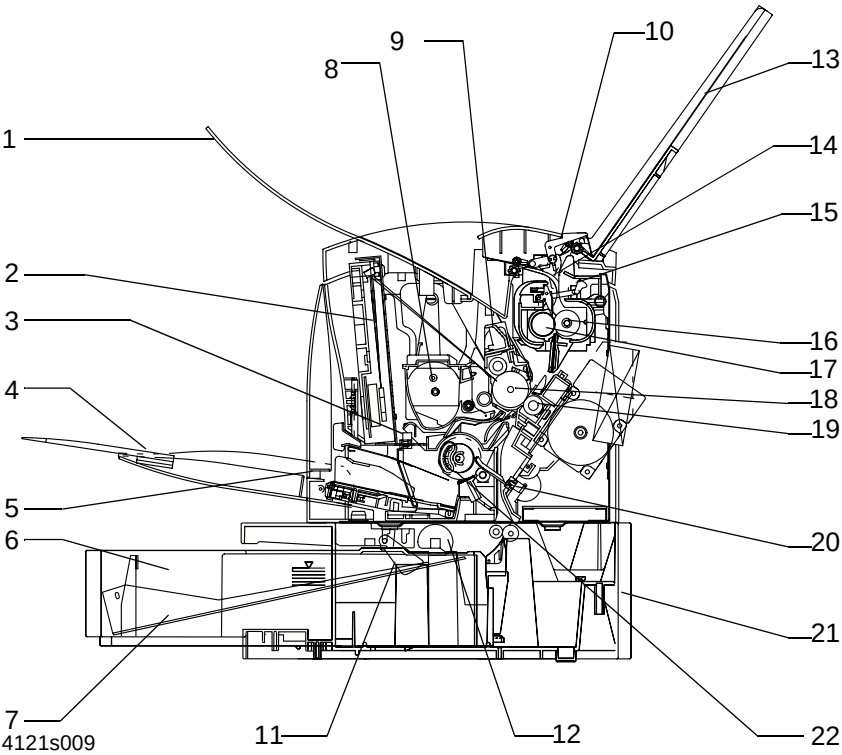


1. Face-up Tray (option)
2. Top Cover Release Button
3. Power Switch
4. Second Paper Cassette Unit (option)
5. Face-down Tray
6. Multi-purpose Tray
7. Second Paper Cassette (option)
8. Drum Cartridge
9. Toner Cartridge



10. Face-up Exit Roller
11. Face-up/Face-down Selection Switch
12. Interface Connector
13. Cooling Fan
14. Power Cord
15. Power Cord Socket

2-3. Component Layout



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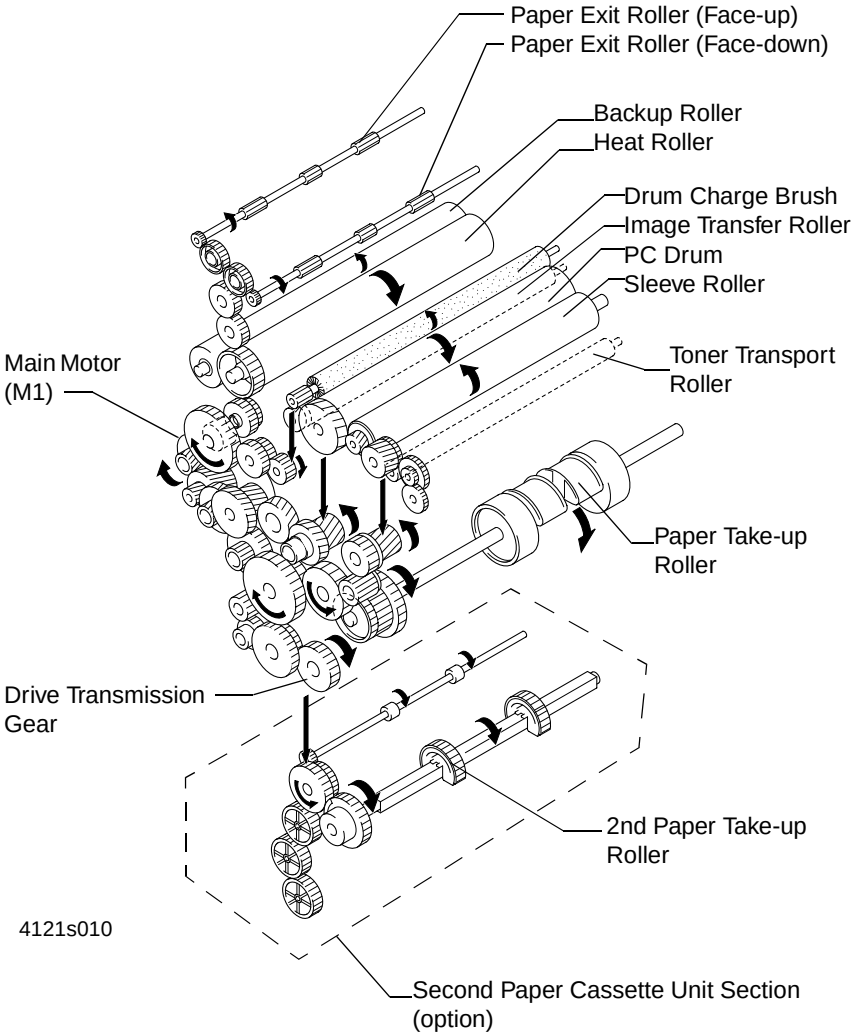
1. Face-down tray
2. Print Head unit
3. Paper Empty Sensor (PE1)
4. Multi-purpose Tray
5. Paper Size Guide
6. Sheet Second Cassette
7. Paper Lift-up Plate
8. Toner Cartridge
9. Drum Cartridge
10. Face-up/Face-down Selection Switch
11. Paper Empty Detecting Lever
12. Second Paper Take-up Roller
13. Face-up Tray
14. Fusing Separator
15. Paper Exit Sensor (PS3)
16. Backup Roller
17. Heat Roller
18. P.C. Drum
19. Image Transfer Roller
20. Paper Take-up Sensor (PS1)
21. Second Paper Cassette Unit
22. Paper Take-up Roller

6, 7, 11, 12, 13, 21: option

2-4. Drive Section

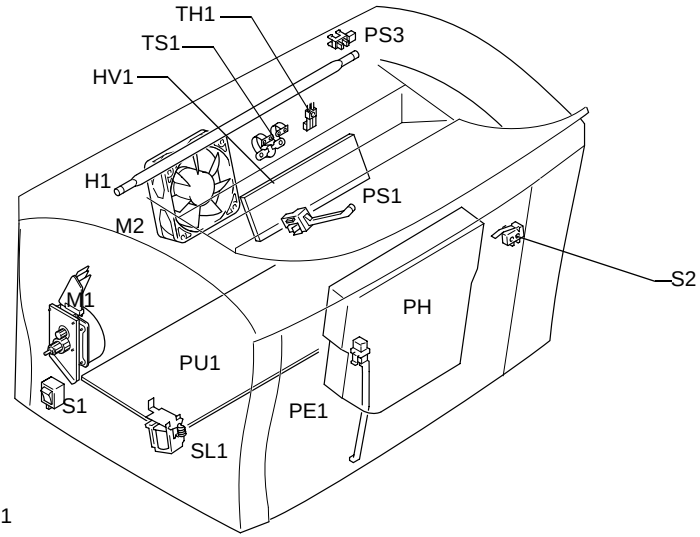
2-4-1. Overview

The Main Motor (M1) transmits the drive to the rollers of the printer and the Second Paper Cassette Unit via each gear as shown below.



2-5. Electrical Components Layout

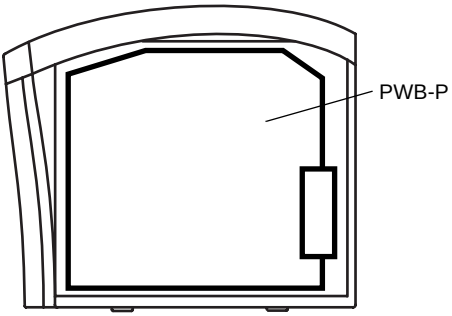
2-5-1. Printer



4121s011

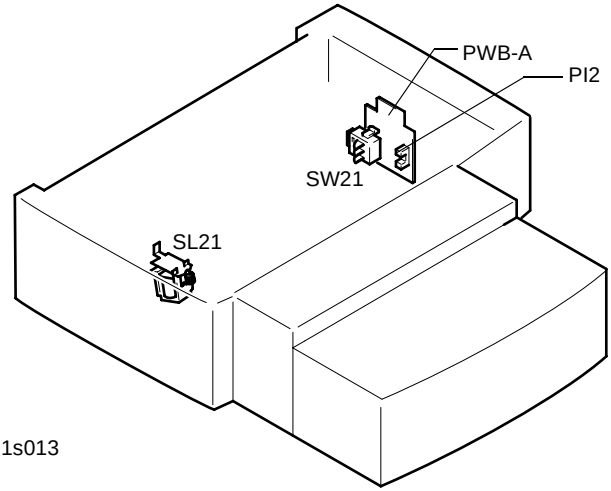
H1 ..... Heater Lamp
HV1 ..... High Voltage Unit
M1 ..... Main Motor
M2 ..... Cooling Fan Motor
PE1 ..... Paper Empty Sensor
PH ..... Print Head Unit
PS1 ..... Paper Take-up Sensor
PS3 ..... Paper Exit Sensor
PU1 ..... Power Unit
S1 ..... Power Switch
S2 ..... Interlock Switch
SL1 ..... Paper Take-up Solenoid
TH1 ..... Thermistor
TS1 ..... Thermostat

2-5-2. Controller



PWB-P ..... Controller Board

2-5-3. Second Paper Cassette Unit (option)



PI2..... Paper Empty Sensor
PWB-A ..... Connecting Board
SL21..... Paper Take-up Solenoid
SW21 ..... Cassette Type Detecting Switch

2-6. Electrical Parts Function

2-6-1. Printer

Symbol	Name	Function
H1	Heater Lamp	A halogen lamp that supplies heat to the Fusing Rollers. (450W)
HV1	High Voltage Unit	Supplies power to the following sections: - Drum Charge Brush: Charged voltage - Developing Sleeve Roller: Developing bias voltage - Developing Tone Regulation Plate: Developing blade voltage - Developing Toner Collecting Plate: Developing Lower Seal voltage - Image Transfer Roller: Image transfer voltage
M1	Main Motor	Is the drive source of the printer.
M2	Cooling Fan Motor	Exhaust the heat in the body
M3	Polygon Motor (Inside of the Print Head Unit)	A regular heptagon polygon mirror is installed, and rotates at high speed and makes the laser scan in scanning direction.
PE1	Paper Empty Sensor	Detects the presence of paper. The signal is L when the paper is detected.
PS1	Paper Take-up Switch	Detects when paper is picked up. The signal is H when the paper is detected.
PS3	Paper Exit Sensor	Detects when the paper is fed out. The signal is H when the paper is detected.
PU1	Power Unit	Converts the power voltage from AC voltage into DC voltage and supplies that to H1.
PWB-P	Controller Board	Communicates with the personal computer and controls all printer operation.

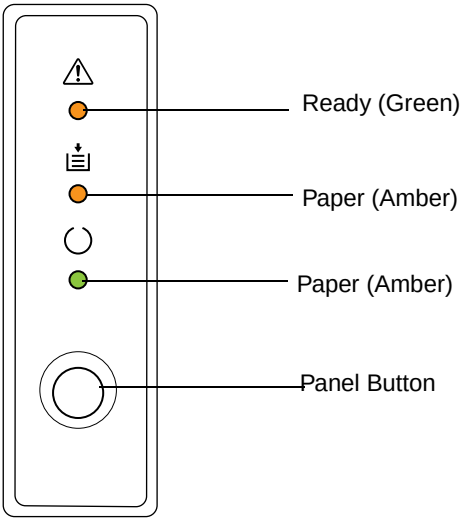
Symbol	Name	Function
PWB-D	Laser Diode Drive Board (Inside of the Print Head Unit)	Detects the start point of printing via the laser diode and SOS sensor, and irradiates the P.C. Drum with the laser beam according to the image signals.
S1	Power Switch	Turns ON or OFF the printer.
S2	Interlock switch	Detects the opening or closing of the Top Cover. Cuts output voltage (except 5 VDC) when the Top Cover is open.
SL1	Paper Take-up Solenoid	Transmits the drive of the Main Motor to the Paper Take-up Roller.
TH1	Thermistor	Detects the temperature of the Heat Roller, measures the temperature on the surface of the Heat Roller and sends to the Heater control circuit.
TS1	Thermostat	Cuts power to the Heater Lamp (H1) when overheating (210°C) is detected at the Fusing Section.

2-6-2. Second Paper Cassette Unit (option)

Symbol	Name	Function
SL21	Paper Take-up Solenoid	Controls gears and clutches to transmit the drive from the Main Motor to Paper Take-up Rollers. The drive is transmitted when the solenoid is turned on.
SW21	Cassette Type Detecting Switch	Triple push switches for detecting the cassette type according to the paper size.
PI2	Paper Empty Sensor (on the PWB-A)	Detects the presence of paper. The signal is L when the paper is detected.
PWB-A	Connecting Board	Sends/receives power and control signals from the printer to/from components in the Second Paper Cassette Unit.

2-7. Explanation of Control Panel for 1100

The Control Panel has three Indicator lights and one button.



4109s83

2-7-1. Indicator Lights

Different combinations of the three Indicator lights indicate the current printer status and let the user know what the printer is doing. The details of the current printer status appears on the host computer.

2-7-2. Indicator Status

Error ⚠ ●	Paper ●	Ready ○ ●	Printer Status
Off	Off	Off	Power is Off
On	On	On	Power on initial setting
Off	Off	On	Printer is ready
Off	Off	Blinking	Warming up.
Off	Off	Slow Blinking	Power save Mode
Off	Off	Off	Receiving data
On	Off	Off	Top cover is open
Blinking	Off	Off	Print job is too complex
			Memory overflow
Off	Blinking	Off	The wrong size of paper were fed into the printer during printing
			Printer is standing by waiting for manual paper feed
			Printer is standing by waiting for feeding from paper feed tray
On	On	Off	Paper misfeed
Off	On	Off	Almost out of paper
Blinking	Blinking	Blinking	Printer Error (Refer to Next Page.)

Printer Error Indicate Pattern

Whenever any of the indicator light patterns shown below (two patterns are shown alternately) appears, try turning the printer off and then back on again.

1st	Error 	Paper 	Ready 	Printer Status
	Blinking	Blinking	Blinking	
2nd	Off	On	On	Engine communication error.
	On	On	Off	Controller error. Engine error (laser).
	On	Off	Off	Engine error (fusing unit).
	Off	Off	On	Engine error (polygon scanner).
	On	Off	On	Network communication error.

2-7-3. Control Panel Button Function

The panel button can be used to perform various operations according to the status of the printer.

- Reset the counter
- Job cancel
- Print configuration page
- Form feed

Function	Explanation
Reset the counter	Use the following procedure whenever you want to reset the counter. 1. Turn off the printer. 2. While holding down the panel button, turn on the printer. 3. Keep the panel button held down, and the Ready indicator will start to blink. After the Ready indicator has blinked for about 5 seconds, release the panel button. This should cause all the indicators to start to blink. 4. After all the indicators blink, the printer enters the counter reset mode. ☞ P.20
Job Cancel	Use the following procedure whenever you want to cancel the current job. 1. Hold down the panel button for more than 5 seconds. 2. After all the indicators are lit, release the panel button to cancel the print job.
Print Configuration Page	Use the following procedure whenever you want to configuration for printer. • Press the panel button while printer is idle without any errors and job requests. ☞ P.21
Form Feed	Use the following procedure to resume printing after an error occurs dues to any one of the following causes. Print job is too complex. • Memory overflow • Almost out of paper • Wrong size paper was fed into the printer. Press the panel button to perform a form feed.

2-7-4. To Reset the Counter of the Toner Cartridge (only 1100)

Perform the following procedure to reset the toner cartridge counter after you replace the toner cartridge.

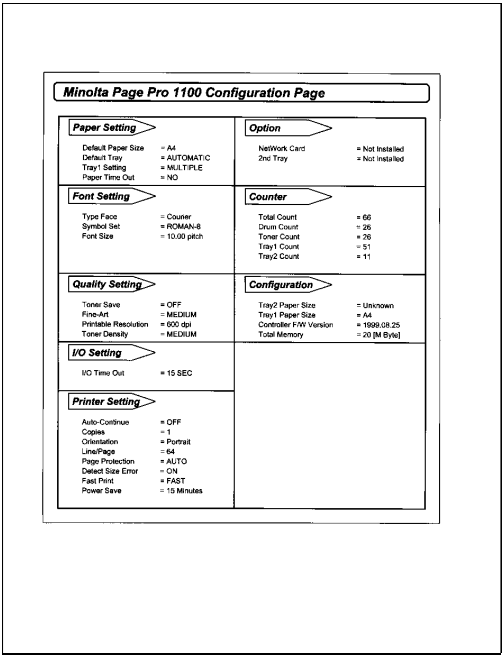
1. While holding down the panel button, turn on the printer.
2. Keep the panel button held down, and the Ready indicator will start to blink. After the Ready indicator has blinked for about 5 seconds, release the panel button. This should cause all the indicators to start to blink.
3. After confirming that all the indicators are blinking, press and hold down the panel button again for at least 5 seconds. During this time, the Ready indicator only continues to blink and all the other indicators turn off.
4. Release the panel button and only the Paper indicator starts to blink.
5. After a few seconds, all the indicators start to blink again, indicating that the toner cartridge counter has been reset.
6. Turn off the printer. The printer will be ready to print the next time you turn it on.

2-7-5. To Reset the Counter of the Drum Cartridge (only 1100)

Perform the following procedure to reset the drum cartridge counter after you replace the drum cartridge.

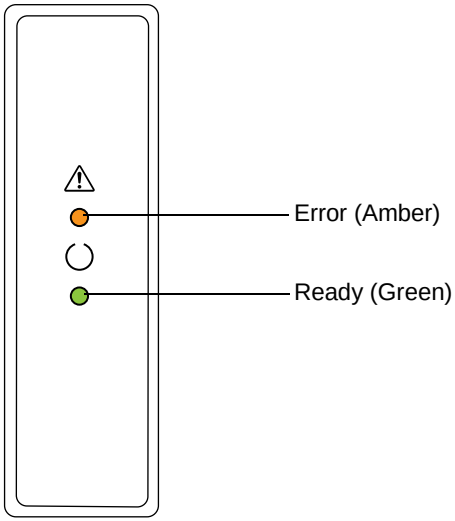
1. While holding down the panel button, turn on the printer.
2. Keep the panel button held down, and the Ready indicator will start to blink. After the Ready indicator has blinked for about 5 seconds, release the panel button. This should cause all the indicators to start to blink.
3. After confirming that all the indicators are blinking, briefly press the panel button. This causes the Error indicator to blink and all the other indicators to turn off.
4. After a few seconds, all the indicators start to blink again, indicating that the drum cartridge counter has been reset.
5. Turn off the printer. The printer will be ready to print the next time you turn it on.

2-7-6. Test Print Function (only 1100)

Operation	Press the panel button while printer is idle without any errors and job requests.
Configuration Page Sample	

2-8. Explanation of Control Panel for 1100L

The Control Panel has two Indicator lights.



4109s84

2-8-1. Indicator Lights

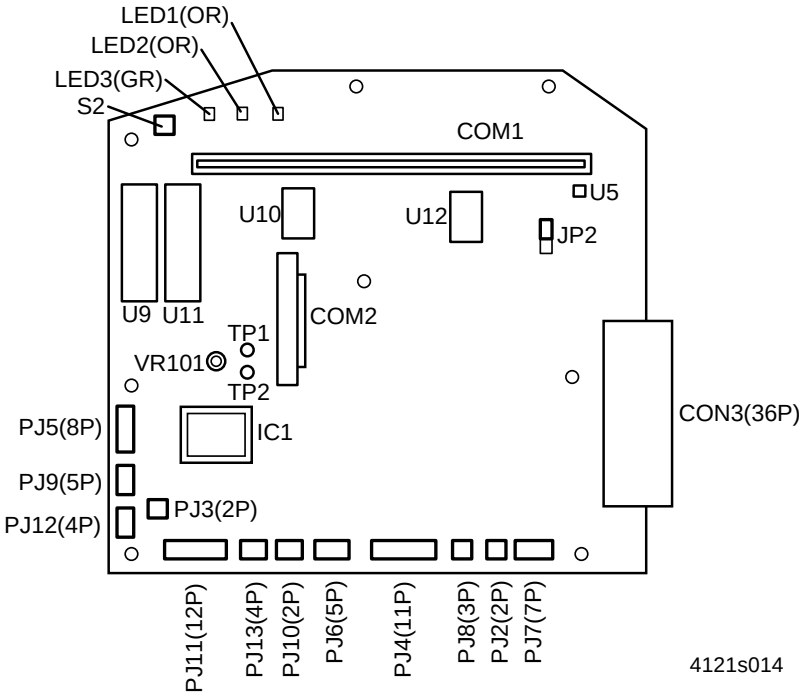
Different combinations of the two Indicator lights indicate the current printer status and let the user know what the printer is doing. The details of the current printer status appears on the host computer.

2-8-2. Indicator Status

Error ⚠ ●	Ready ◯ ●	Conditions
Off	Off	Power is Off
On	On	Power on initial setting
Off	On	Printer is ready
		Warming up.
Slow Blinking	Off	Power save Mode
Off	Blinking	Receiving data
		Processing data
		Printing
On	Off	Paper misfeed
		Top Cover is open
		Out of paper
Blinking	Off	Paper of the wrong size was fed into the printer
Blinking ↔ Blinking		Engine error.
		Engine communication error
		Controller error

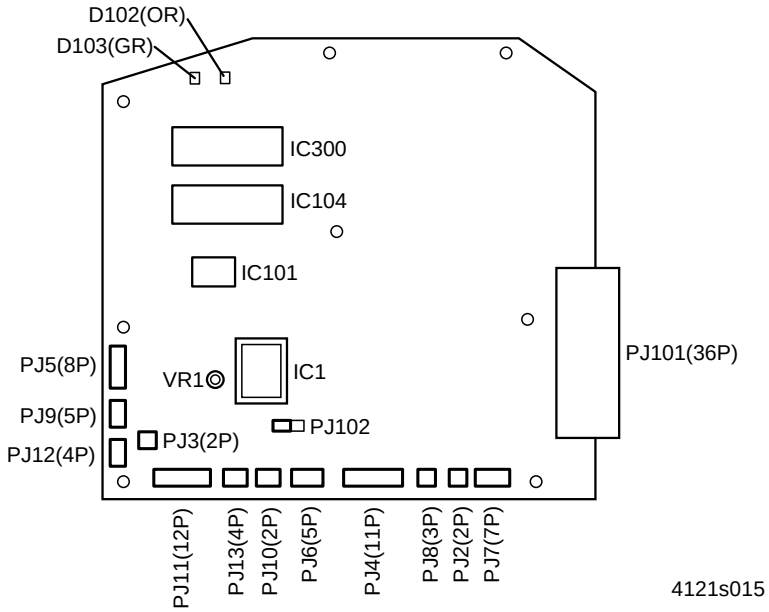
2-9. Electrical Service Parts on P.W.Boards

2-9-1. PWB-P (Controller Board for 1100)



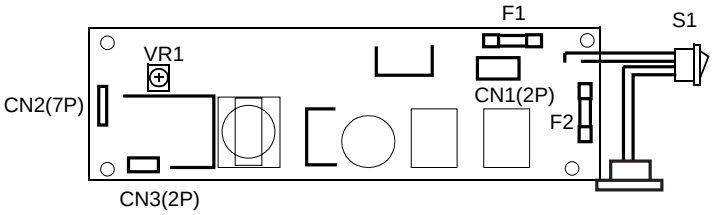
Symbol	Item	Explanation
CON1	Connector	Slot for 168-pin DIMM (max. 128MB)
CON2	Connector	For Optional NIC Connector
CON3	Connector	Parallel Connector (Centronics IEEE1284/Nibble compatible mode Type B Connector)
IC1	CPU	M38073M4-A01FP
IC101	ASIC	DESTINY D6004PQFP-100
JP2	Jumper post	For Area Setting Upper Side: PageWorks 1100 (Inch) Lower Side: PagePro 1100 (Metric)
LED1	LED	Orange LED
LED2	LED	Orange LED
LED3	LDE	Green LED
TP1 TP2	Test Point	Adjusts the Image registration margin. ☞ P.70
U5	EEPROM	Serial EEPROM
U10	SDRAM	2MB(1M x 16bit CMOS) SDRAM
U12	SDRAM	2MB(1M x 16bit CMOS) SDRAM
U9	ROM	Firmware ROM2
U11	ROM	Firmware ROM1
VR1	Volume	Adjusts the Image registration margin. ☞ P.70

2-9-2. PWB-P (Controller Board for 1100L)



Symbol	Item	Explanation
D102	LED	Amber LED
D103	LED	Green LED
IC1	CPU	M38073M4-A01FP
IC101	ASIC	DESTINY D6004PQFP-100
IC104	DRAM	2 MB (60nsec. First Page mode Type)
IC300	DRAM	2 MB (60nsec. First Page mode Type)
PJ101	Connector	Parallel Connector (Centronics IEEE1284/Nibble compatible mode Type B Connector)
PJ102	Jumper post	For Area Setting Left Side: PagePro 1100L (Metric) Right Side: PageWorks 1100L (Inch)
VR1	Volume	Adjusts the Image registration margin. ☞ P.70

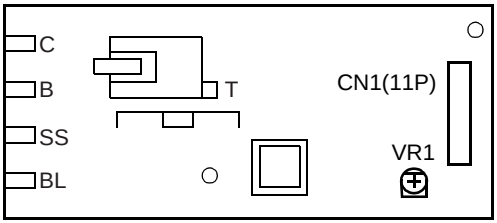
2-9-3. PU1 (Power Unit)



4121s016

F1 ..... Protection Fuse (10A, 125V)
F2 ..... Protection Fuse (4A, 125V)
VR1 ..... For factory setting only **[Do not touch]**

2-9-4. HV1 (High Voltage Unit)

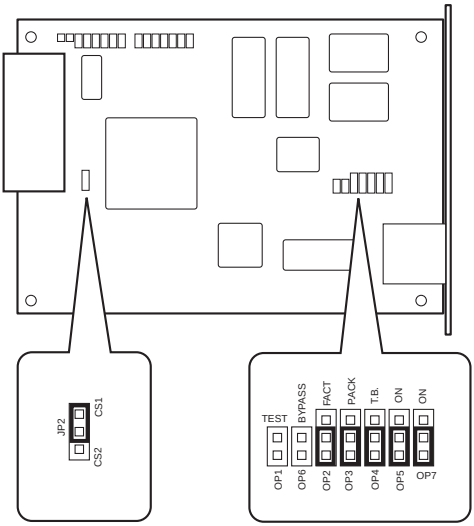


4121s017

C ..... Drum Charging Voltage terminal (DC1286V/AC-811W)
B ..... Developing Voltage terminal (DC100V/-340Vmax)
BL ..... Developing Toner Blade Voltage terminal (DC590Vmax)
SS ..... Developing Lower Seal Voltage terminal (DC250V/-340V max)
T ..... Image Transfer terminal (DC4000V/-1000V max.)
VR1 ..... For factory setting only **[Do not touch]**

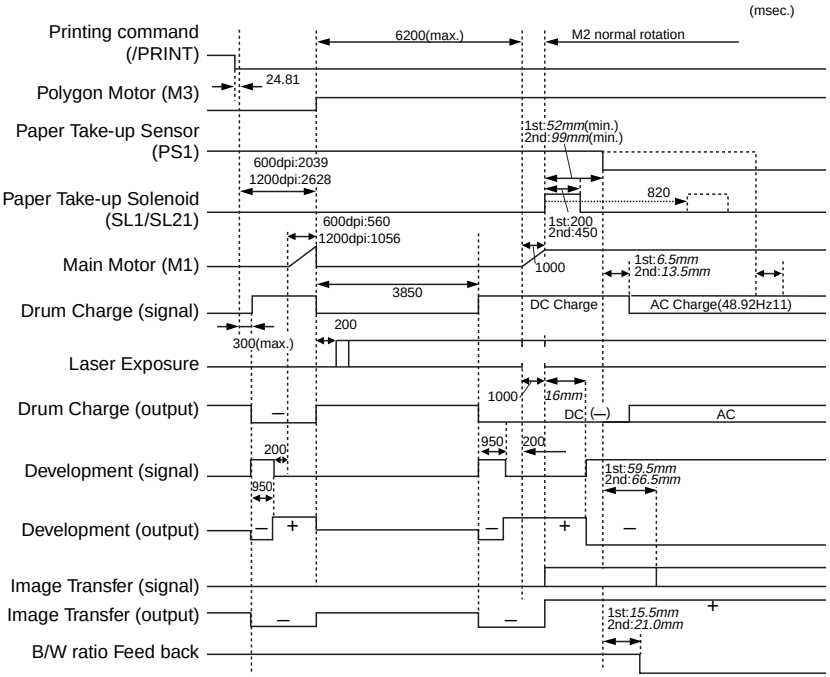
2-9-5. NIC (Network Interface Card option for 1100)

Jumper Post Default Position Setting

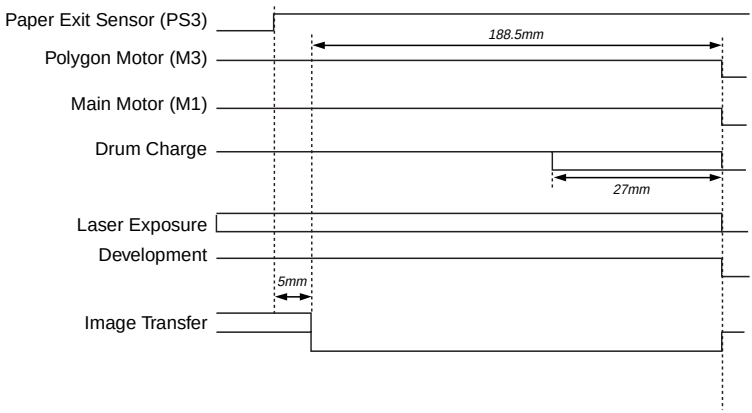


2-10. Timing Chart

2-10-1. Print Starting



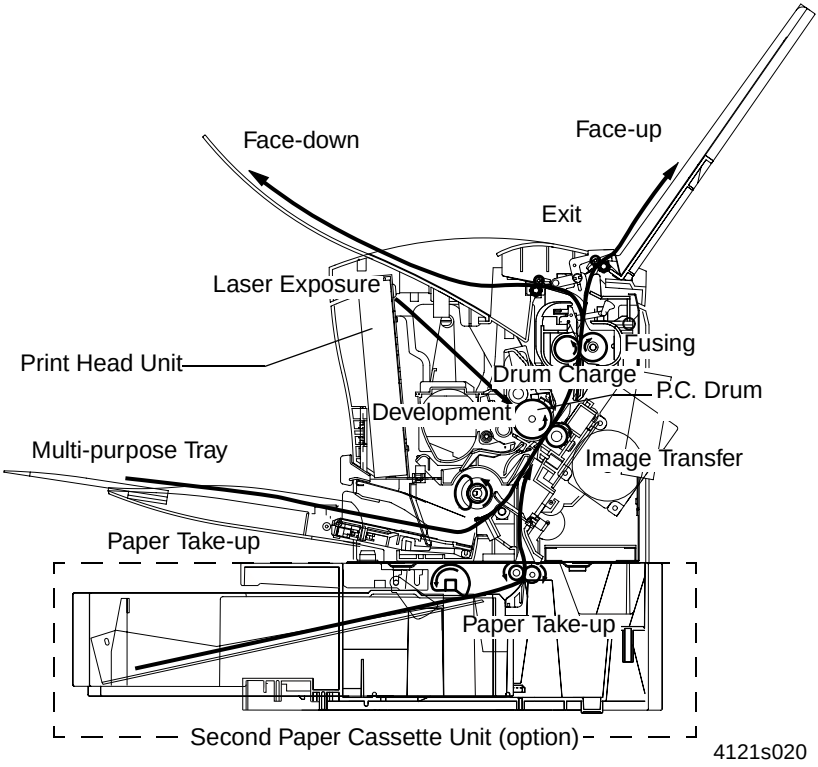
2-10-2. Print Ending



Chapter 3: MECHANICAL/ELECTRICAL

3-1. Paper Path

- Paper can be fed into the printer either from the Multi-purpose Tray (150 sheets).
- The paper feed system can be extended to a 3-way system by Installing the Second Paper Cassette Unit (500 sheets) adds another feeding method.
- The paper fed by the Paper Take-up Roller is transported to the Image Transfer Roller, Fusing Roller and then Paper Exit Roller. After this, the paper is fed out onto the Print Tray.

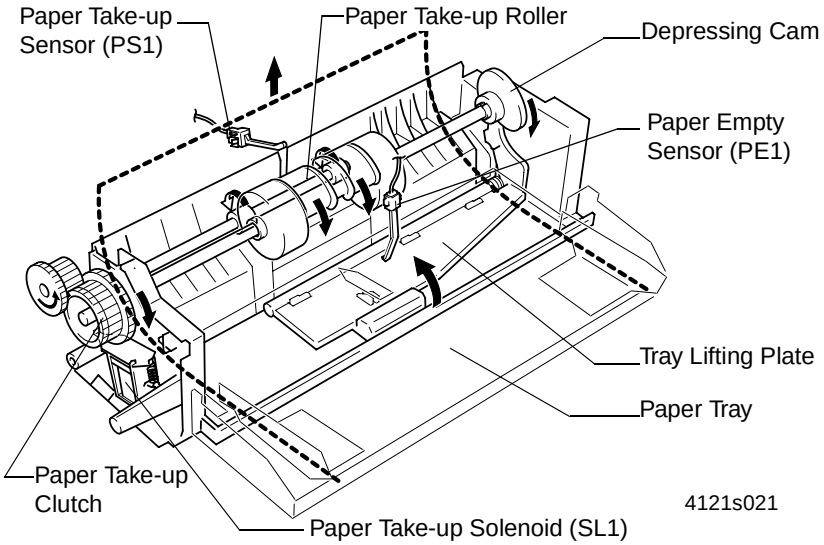


3-2. Paper Take-up Section

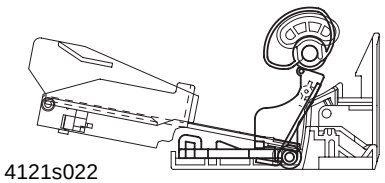
3-2-1. Multi-purpose Tray

Mechanism

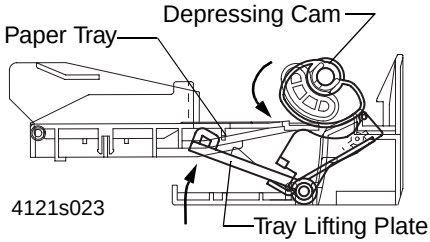
- When the Paper Take-up Solenoid (SL1) is energized, the drive of the Main Motor (M1) is transmitted to the Paper Take-up Roller via the Paper Take-up Clutch (one-way clutch) to turn the Paper Take-up Roller one revolution.
- At the same time, the Depressing Cam turns and lifts the Tray Lifting Plate, and the first (top) sheet of paper on the tray is fed to the printer.
- The Fixed Separating Pad is used for the paper separation system. It prevents the second or later sheets of paper from being fed together with the top sheet.
- The printer has no paper size detecting mechanism. It recognizes the paper size by the paper length which is calculated by the Paper Take-up Sensor (PS1) activation timing. Therefore, papers having different widths are recognized as the same paper size if they have the same length.



When SL1 is de-energized



When SL1 is energized



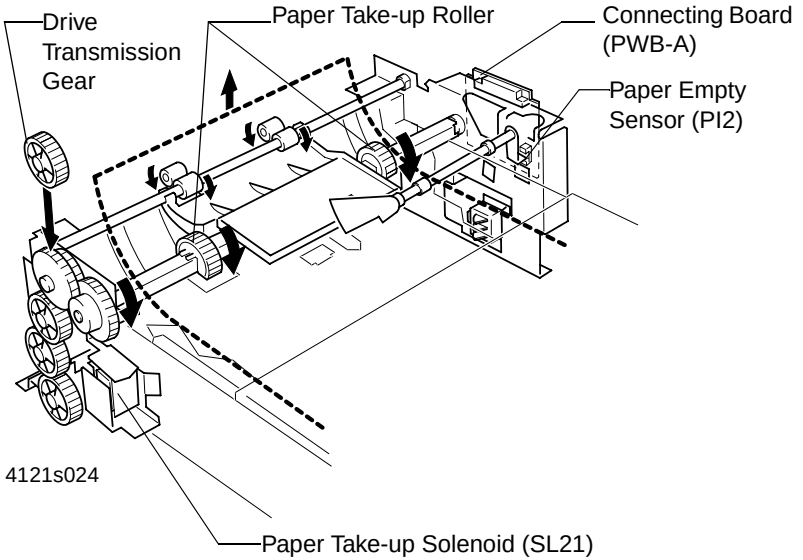
Paper Empty Detection

When the Multi-purpose Tray runs out of paper, the actuator for the Paper Empty Sensor (PE1) drops into the cutout in the Paper Tray. This activates the Paper Empty Sensor and the printer detects that the Multi-purpose Tray has run out of paper.

3-2-2. Second Paper Cassette Unit (option)

Mechanism

- Since a drive motor is not installed in this unit, the drive of M1 is transmitted to the paper take-up and transport sections in the unit via the Drive Transmission Gear.
- Although the feeding method is the same as the Multi-purpose Tray in the printer, the corner separation system is applied in this unit as the paper separating method.
- Paper is separated at the corner by the paper separation claw in the paper cassette and the strength of paper itself (corner separation system). One sheet of paper is fed for each paper feed cycle.
- The Paper Take-up Solenoid (SL21) in the unit is controlled by the printer via PWB-A in the unit.

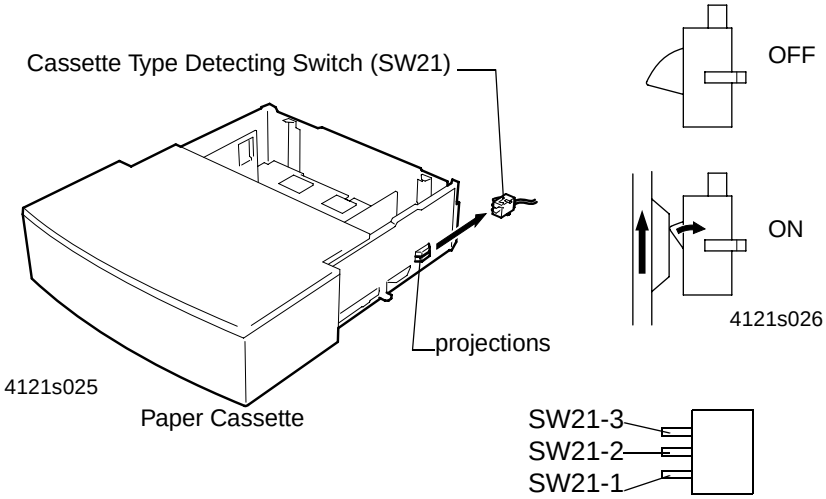


Paper Empty Detection

When the Paper Cassette runs out of paper, the actuator for the Paper Empty Sensor (PI2) drops into the cutout in the Paper Lifting Plate. This activates the Paper Empty Sensor and the printer detects that the Paper Cassette has run out of paper.

Cassette Type Detection

The paper size setup for the Paper Cassette is detected by the combination in which switches 1 to 3 of SW21 are turned on and off.
The projections on the side of the Paper Cassette turn the three switches on or off. The printer determines the cassette type (paper size) by the combination of ON/OFF states of the switches.



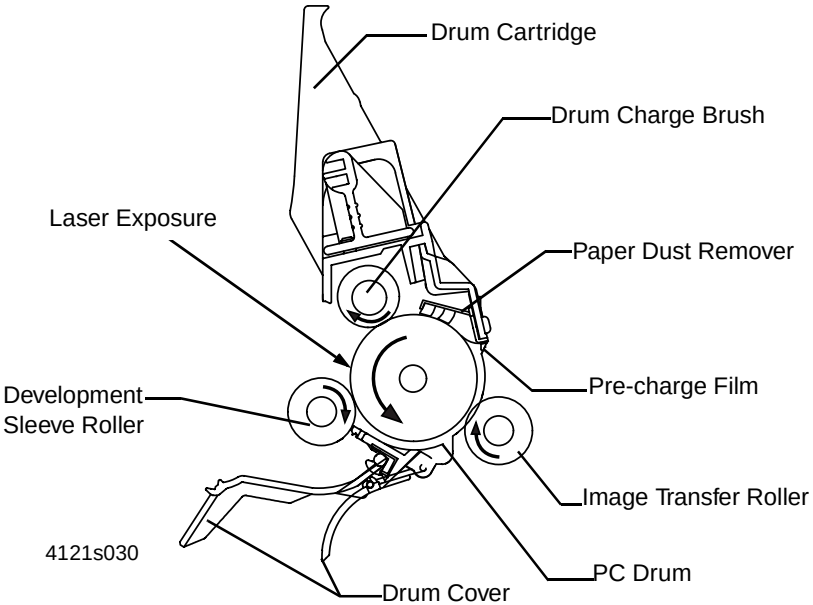
The state of SW21 for each cassette type

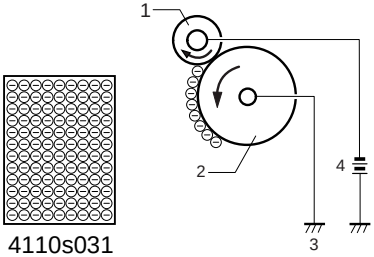
Cassette Type	SW21-1	SW21-2	SW21-3
A4	OFF	OFF	ON
B5	ON	ON	OFF
Letter	OFF	ON	OFF
Legal	ON	OFF	OFF
Executive	OFF	ON	ON
No Cassette (Undefined)	OFF	OFF	OFF
	ON	ON	ON
	ON	OFF	ON

3-3. Drum Charge

3-3-1. Overview

- The P.C. Drum is charged with static electricity before laser exposure.
- The Drum Charge Brush and the Pre-charge Film are used for the charging method.
- The Drum Charge Brush and Pre-charge Film charging generate little ozone in the printer. Because the charge is directly applied to the P.C. Drum, the P.C. Drum can be charged by low voltage. At the same time, the P.C. Drum can be charged stably and evenly.
- The Pre-charge Film supplies the charge to the P.C. Drum before being charged by the Drum Charge Brush to improve the charging efficiency.
- The Drum Charge Brush is turned by the drive of the Main Motor (M1) via a gear.
- The electric potential on the surface of the charged PC Drum is approximately-800 V.



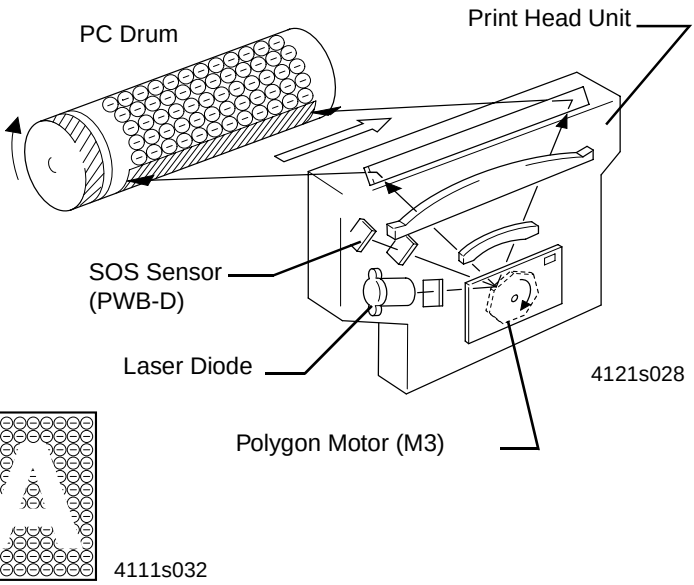


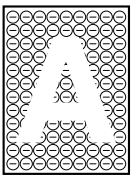
4110s031

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

3-4. Laser Exposure

Laser exposure is the process of creating an invisible static charge image on the PC Drum by the laser beam emitted from the Print Head Unit.
This process is controlled as follows in order to appropriately time image printing.





4111s032

In the sub-scanning direction (vertical direction)

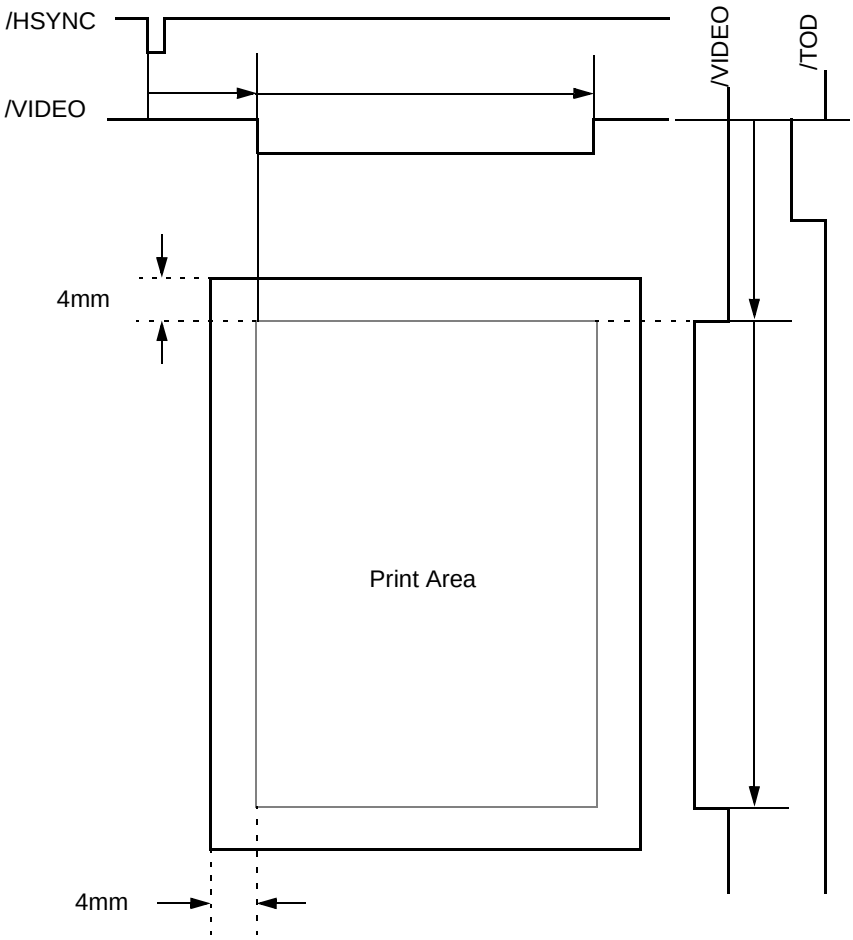
- When the printer receives the PRINT signal, the Polygon Motor (M3) and the Main Motor (M1) rotate and the paper is fed into the printer.
- The printing in the sub-scanning direction is started when the controller board sends the VIDEO signal to the Print Head a certain time after the leading edge of the paper activates the Paper Sensor (TOD signal).
- The print starting position for the 2nd line is decided by delaying the VIDEO signal sending timing.

In the scanning direction (horizontal direction)

- The SOS Sensor is installed on the Laser Diode Control Board (PWB-D) to unify the laser emission timing for each scan line.

PRINTING AREA

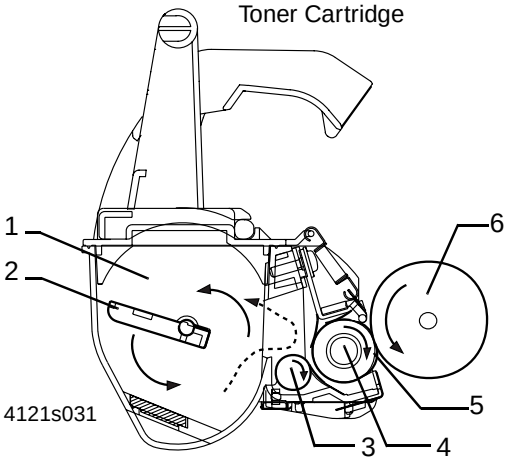
- The controller sends the VIDEO signal at the appropriate paper size to the engine (Controller Board).
- The controller determines the start point of printing according to the TOD signal (sub-scanning direction) sent from the engine (Controller Board) and the HSYNC signal.
- Laser exposure is started when the print head receives the VIDEO signal.

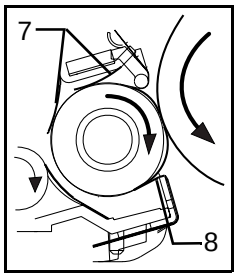


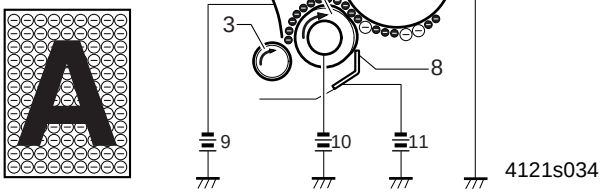
3-5. Development

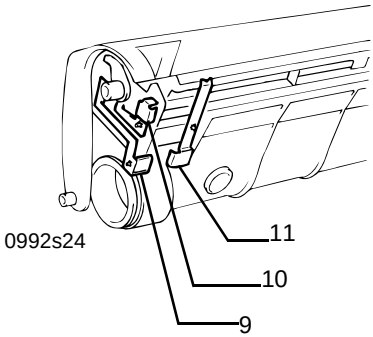
3-5-1. An Overview

- Toner is applied to the invisible static image on the PC Drum and a toner image is created on the drum surface.









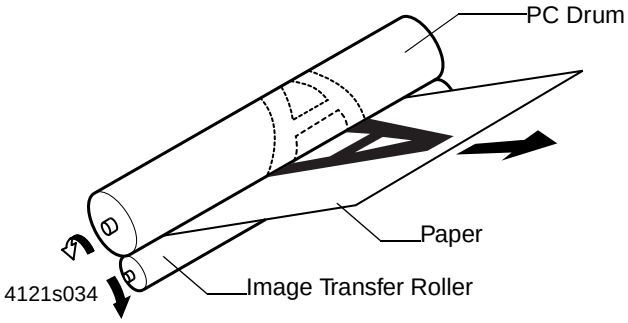
3-5-2. Explanation of each part

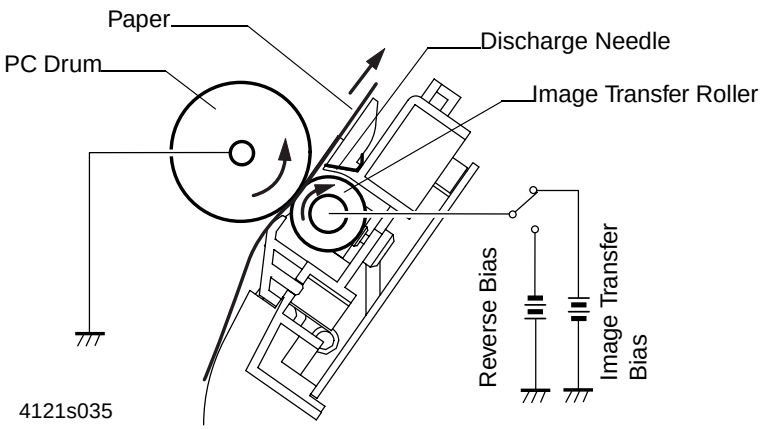
No.	Name	Function
1	Toner Hopper	Contains toner.
2	Toner Agitating Screw	Agitates the toner in the Toner Hopper and sends the toner to the Toner Transport Roller.
3	Toner Transport Roller	Transports the toner to the Sleeve Roller.
4	Sleeve Roller	Turns the Resin Sleeve.
5	Resin Sleeve	Carries the toner to the PC Drum surface for development.
6	PC Drum	Exposed to laser to create an invisible image and rotates to carry the developed image to the paper surface.
7	Toner Blade	Spreads a thin, even coat of toner over the Resin Sleeve. The toner is negatively charged when passing between this Blade and the Resin Sleeve.
8	Bias Seal	Collects the toner remaining on the Resin Sleeve.
9	Developing Blade Voltage terminal (V_{BL})	DC-550V (DC590V max.)
10	Developing Voltage terminal (V_B)	DC-300V (DC4000V/DC-1000V max.)
11	Developing Lower Seal Voltage terminal (V_{SS})	DC-300V (DC-250V/-340V max.)

3-6. Image Transfer

3-6-1. An Overview

- Image transfer is the process of transferring the toner image created on the PC Drum in the developing process to paper.
- Roller Image Transfer is used instead of Corona Image Transfer as the image transfer method.
- In Roller Image Transfer, there is little generation of ozone due to corona discharge. Also, there is no blur of toner because the paper is always pressed by the PC Drum and the Image Transfer Roller.
- When cleaning the Image Transfer Roller and before printing, reverse bias is applied.
- The residual electric potential on the paper is dissipated via a discharge needle.

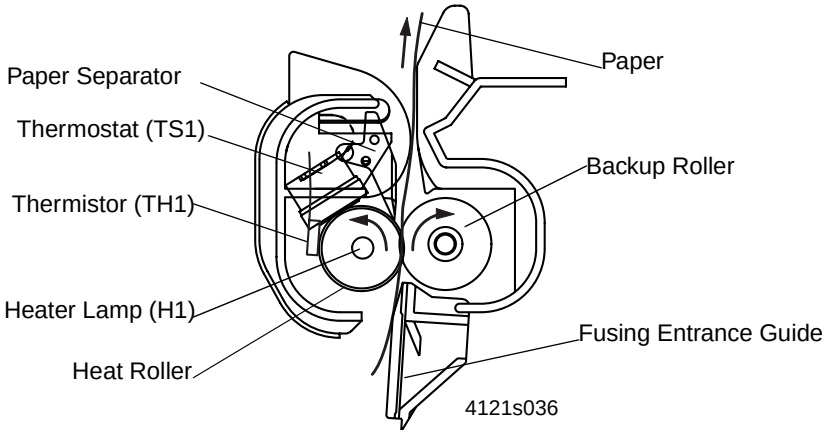




3-7. Fusing

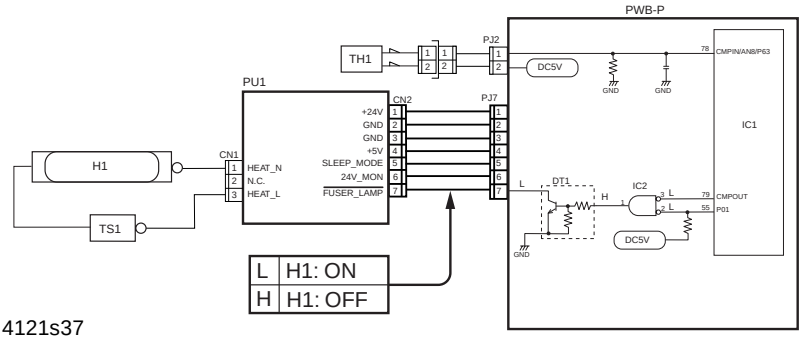
3-7-1. An Overview

- The toner image transferred onto the paper is securely fixed to the paper.
- A heat roller system is used as the fusing system. The toner image is fused by the Heat Roller heated by the Heater Lamp, and securely fixed by the pressure between the Heat Roller and Backup Roller.



3-7-2. Fusing Temperature Control Circuit

- The Thermistor (TH1) detects the surface temperature of the Upper Fusing Roller and inputs that analog voltage into IC1A-78. Corresponding to this data, the Heater Lamp ON/OFF signal is output from IC1A-55, causing the Heater Lamp (H1) to turn ON or OFF to control the fusing temperature.
- When the Heater Lamp is not turned OFF even if the Thermistor detects a high temperature malfunction (if the surface temperature of the Upper Fusing Roller exceeds 210°C), the signal from IC1A-79 changes from L to H to turn OFF the Heater Lamp forcibly.

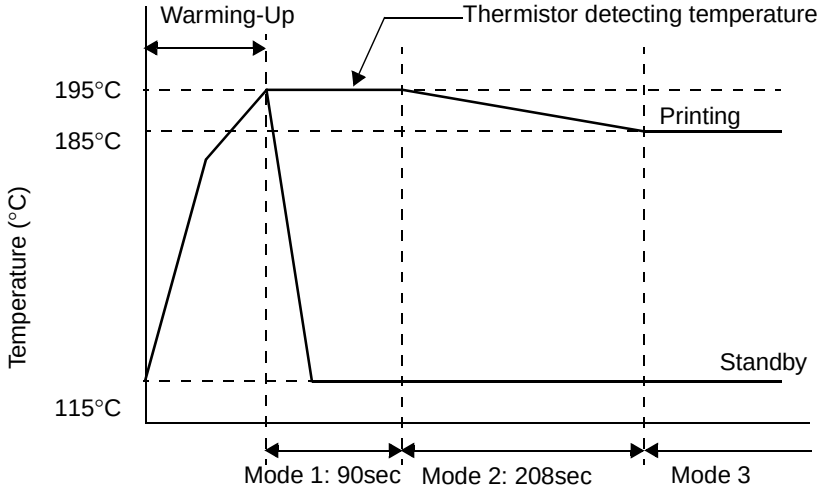


The printer is initialized upon power supply. The printer then starts warming-up and the Heater Lamp lights. The temperature is controlled as follows.

Mode 1
The temperature is controlled to maintain 115°C during standby and 195°C during printing. If this mode continues for 90 seconds, it will shift to mode 2.

Mode 2
The temperature of the Heat Roller falls gradually to about 185°C from about 195°C.
If this mode continues for 208 seconds, it will shift to mode 3.

Mode 3
The temperature is controlled to maintain 115×C during standby and 185×C during printing. Unless an error occurs or a top cover is opened, this mode is maintained.

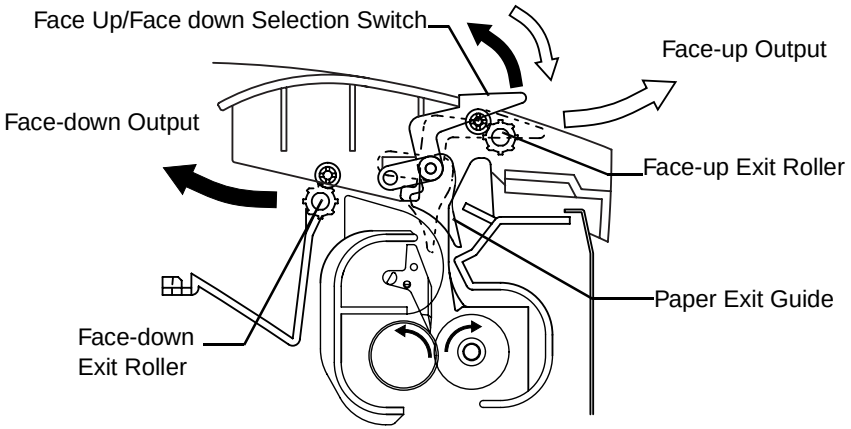


	Temperature immediately after temperature control start		
The state before discontinuation of temperature control	less than 50°C	50°C or more, less than 115 °C	115°C or more
Mode 1, warming-up	Mode 1		
Mode 2, 3 or Power OFF	Mode 1	Mode 2	Mode 3

3-8. Paper Exit

3-8-1. Face-up/Face-down Selection Mechanism

After fusing, the paper is ejected onto the Face-down Tray or the Face-down Tray by the Face-up/Face-down Selection Mechanism. An optional Face-up Tray (capacity 20 sheets) can also be selected. Switching the paper exit to use the Face-up Tray is done with the Face-up/Face-down Selection Switch.



Face-down output
It is ejected to the Face-down Tray at the top of the printer.

Face-up output
It is ejected onto the Face-up Tray option.
Even when there is no Face-up Tray, face-up output is possible.

Tray Capacity (Ordinary Plain Paper)	
Face-down Tray	Max. 100 sheets
Face-up Tray	Max. 20 sheets

Chapter 4: MAINTENANCE/DISASSEMBLY

4-1. Precautions for Maintenance/Disassembly

4-1-1. Precautions for Disassembly

Observe the following precautions whenever servicing the printer.

- Be sure to unplug the printer from the outlet before attempting to service the printer.
- To reassemble the printer, reverse the order of disassembly unless otherwise specified.
- The basic rule is not to operate the printer anytime during disassembly. If it is absolutely necessary to run the printer with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the gears, rollers and motor.
- Never touch the terminals of electrical parts or high-voltage parts such as the High Voltage Unit.
- Be sure to handle the Fusing Unit carefully as the unit is still hot for a while after the printer is stopped.
- Always unplug connectors by holding the connector housing.
- Be sure to use the fuse of the specified rating
- Do not forget to install the ground wire or ground plate to ensure positive conduction. Install the screw with a toothed washer in the right position at reassembly.

4-1-2. Precautions for Handling the Laser Equipment

- When a service job needs to be performed in the laser beam path, such as when working around the Print Head Unit and the Drum Cartridge, be sure to turn the printer OFF first.
- 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.
- If the job requires that the printer be left ON, take off your watch and ring, and wear laser protective goggles which must meet the following laser specifications:

Max. power: 0.6 mW
Output wavelength: 770 - 810nm

4-1-3. Parts not to be touched

The following parts must not be removed, disassembled or adjusted.

- The parts where the mounting screws are painted red.
- Print Head Unit

4-1-4. Instructions for Handling the PWBs with MOS ICs

The following precautions must be observed when handling circuit boards with MOS (Metal Oxide Semiconductor) ICs.

During Transportation/Storage:

- During transportation or when in storage, new circuit boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place circuit boards in a location exposed to direct sunlight.
- 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.

During Replacement:

- Before unplugging connectors from the circuit boards, make sure that the power cord has been unplugged from the power outlet.
- When removing a board from its conductive bag or 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.
- Before plugging connectors into the board, make sure that the power cord has been unplugged from the power outlet.

During Inspection:

- Avoid checking the IC directly with a multi-meter; use connectors on the board.
- Never create a closed circuit across IC pins with a metal tool.
- Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.

4-1-5. Precautions for Handling the Drum Cartridge

During Transportation/Storage:

- Use the specified carton whenever moving or storing the Drum Cartridge.
- The storage temperature is in the range between -20°C and +40°C.

Handling:

- As the P.C. Drum is extremely sensitive to light fatigue and takes long time to recover sensitivity, never open the protection cover or expose the P.C. Drum to direct sunlight for long periods time.
- Use care not to contaminate the surface of the P.C. Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the P.C. Drum.

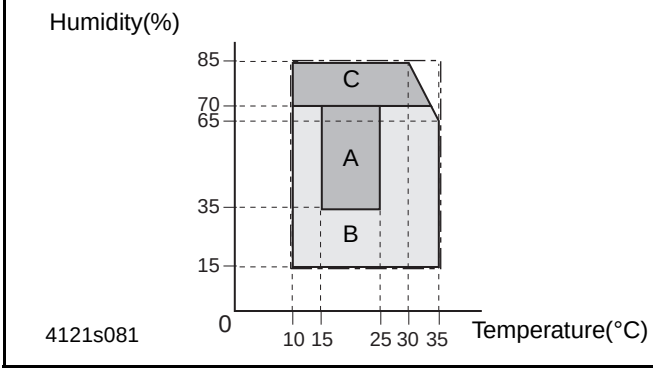
4-2. Maintenance Schedule List

Parts (Unit)	Cleaning Cycle	Replacement Cycle		Refer to
		Continuous Printing	Single Printing	
Drum Cartridge	none	20,000 prints	16,000 prints	*
Toner Cartridge (After)	none	6,000 prints	4,800 prints	
Toner Cartridge (Initial)	none	3,000 prints	2,400 prints	
Image Transfer Roller (Within A, C environment in Fig. below)	none	135,000 prints	80,000 prints	☞ P. 51
Image Transfer Roller (Within B environment in Fig. below)	none	100,000 prints	50,000 prints	☞ P. 51
Fusing Unit	none	50,000 prints		☞ P. 58
Paper Take-up Roller	Replaced at the time of trouble due to ware.			☞ P. 50
Second Cassette Unit Paper Take-up Roller	Replaced at the time of trouble due to ware.			☞ P. 66

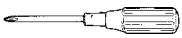
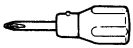
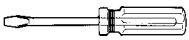
*The Toner Cartridge and Drum Cartridge are user replaceable items.

Fig.

Temperature and Humidity



4-3. Required Service Tools

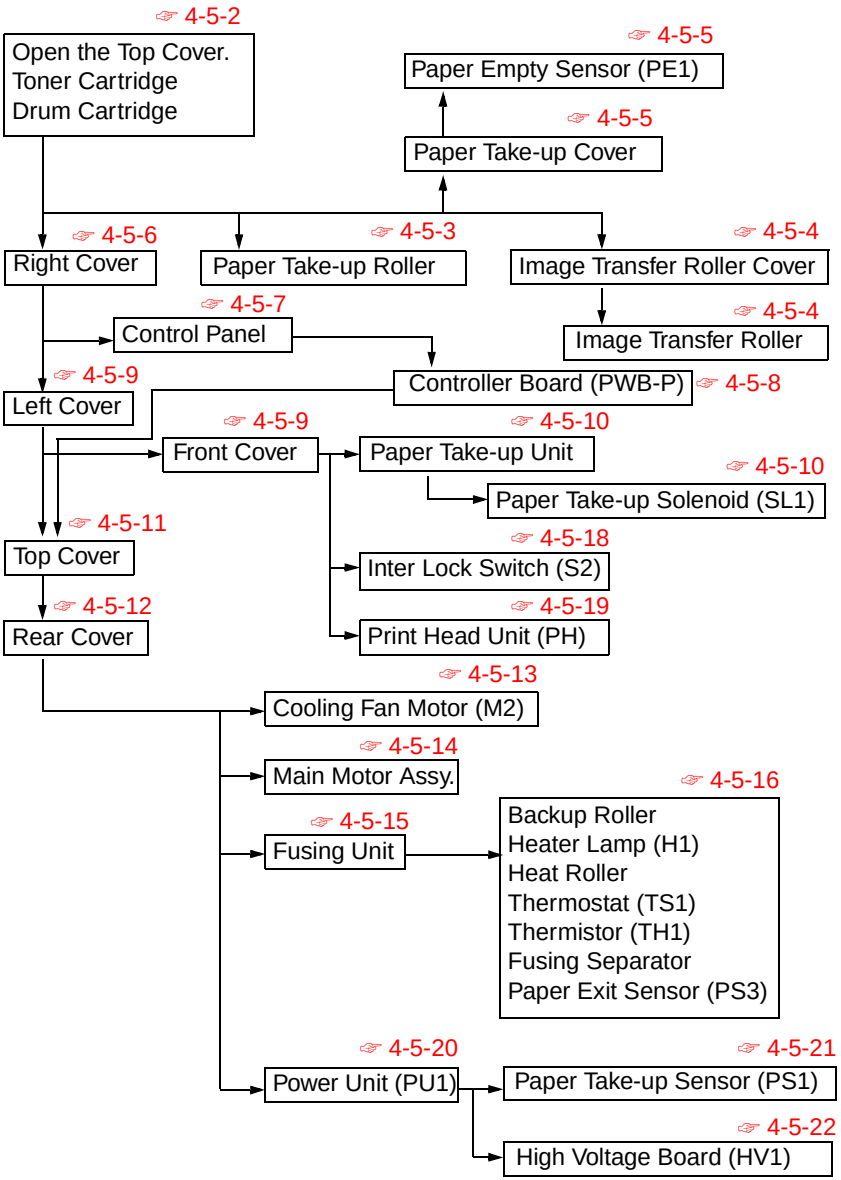
Tools			
Phillips Screw-driver (No. 1) 	Phillips Screw-driver (No. 2) 	Stubby Screw-driver 	Screwdriver 

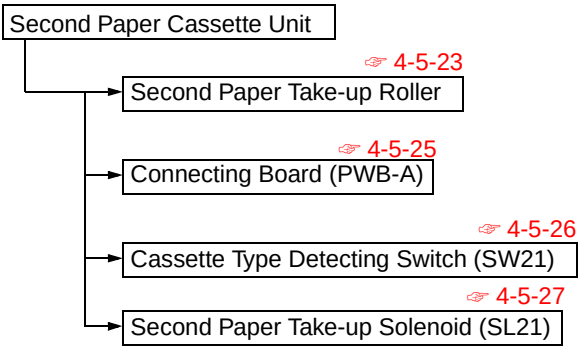
4-4. Screws

Illust	No.	D x L (mm)	Illust	No.	D x L (mm)	Illust	No.	D x L (mm)
	1305 1308	3x6 3x8		3501 3504	3x6 3x8		3907	3x8
	1112	3x6		3704	3x8			

4-5. Disassembly Procedures

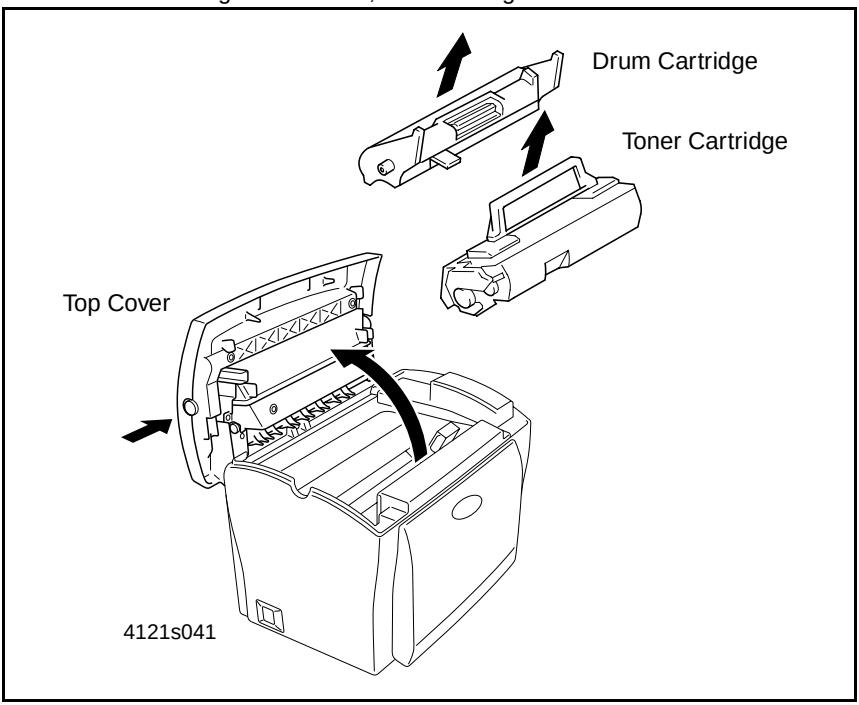
4-5-1. Disassembly procedure chart




Second Paper Cassette Unit
☞ 4-5-23
Second Paper Take-up Roller
☞ 4-5-25
Connecting Board (PWB-A)
☞ 4-5-26
Cassette Type Detecting Switch (SW21)
☞ 4-5-27
Second Paper Take-up Solenoid (SL21)

4-5-2. Before disassembly procedure

Before disassembling the machine, the following units need to be removed.

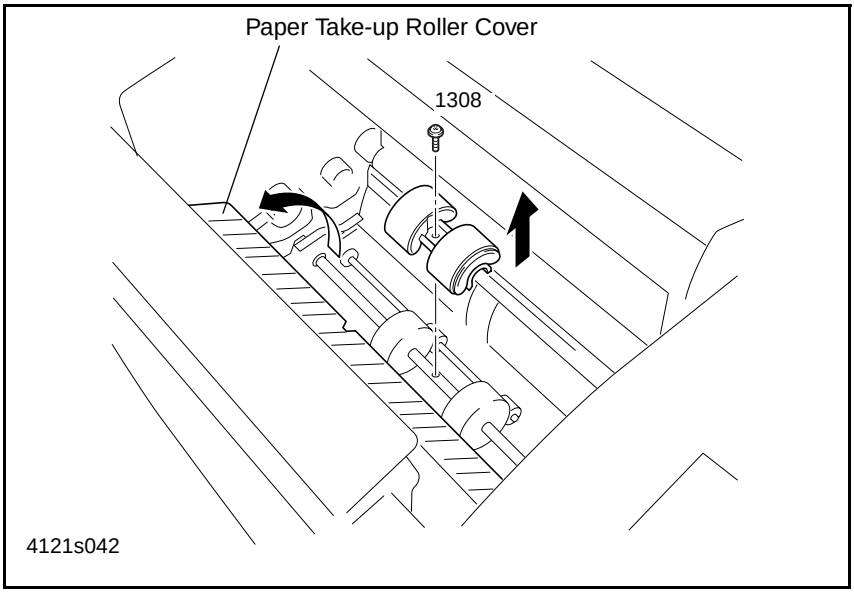


1. Push the Top Cover Release Button and fully open the Top Cover.
2. Remove the Toner Cartridge.
3. Remove the Drum Cartridge.

4-5-3. Replacing the Paper Take-up Roller

1. Open the Paper Take-up Roller Cover and remove the Paper Take-up Roller. (1 screw)

NOTE: When installing the roller, fit the positioning pin on the back side of the roller into the hole of the shaft.

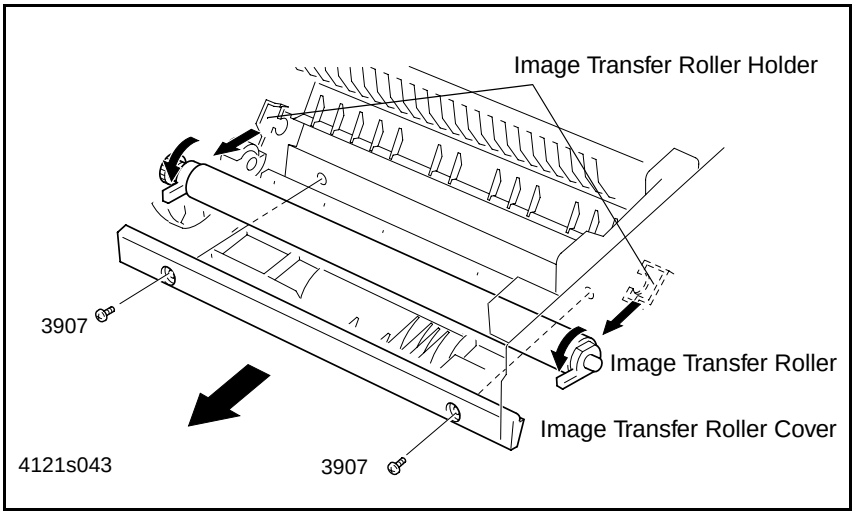


4-5-4. Replacing the Image Transfer Roller

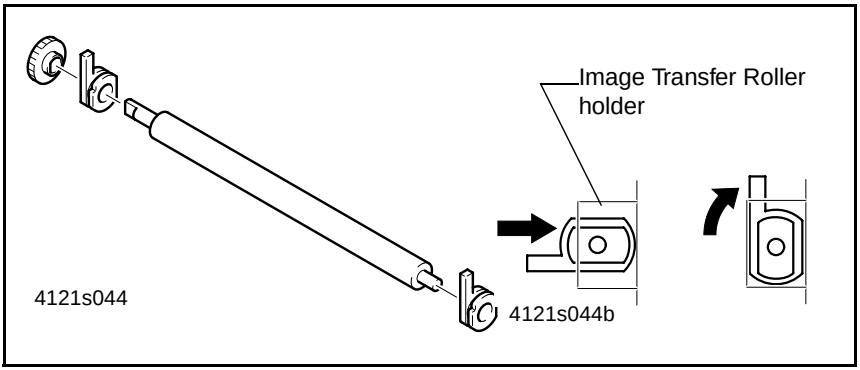
Replace the Image Transfer Roller about every 50,000 sheets of print.

NOTE: Never touch the surface of the Image Transfer Roller or contaminate it with chemicals or toner. A depression or contamination on the roller will affect the printing quality.
Carefully hold the roller by the shaft or bushings.

1. Remove the Image Transfer Roller cover. (2 screws)
2. Push down the lever of the bushings (white) of the Image Transfer Roller and remove the roller from the Image Transfer Roller holder.



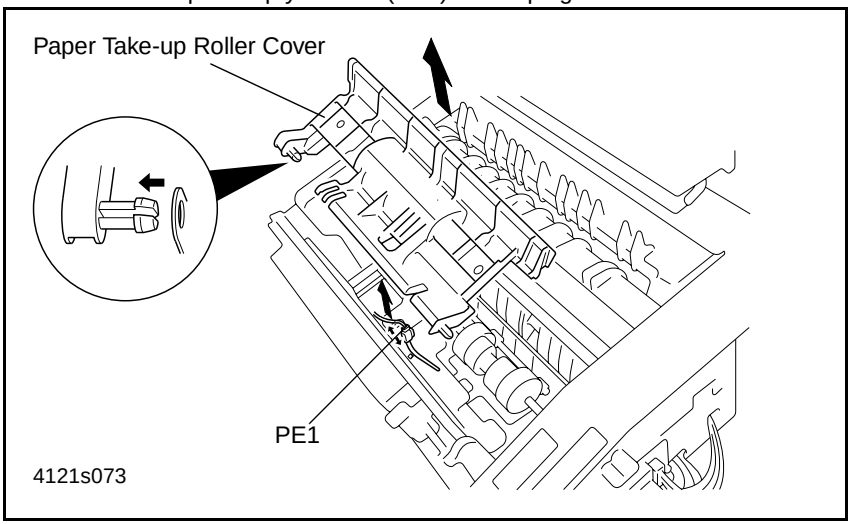
3. Pull the bushings and gear from the old Image Transfer Roller and install them on the new Image Transfer Roller.
4. Insert the new roller into the Transfer Roller holder and raise the lever of the bushings.



5. Replace the Image Transfer Roller cover. (2 screws)

4-5-5. Removal of the Paper Empty Sensor (PE1)

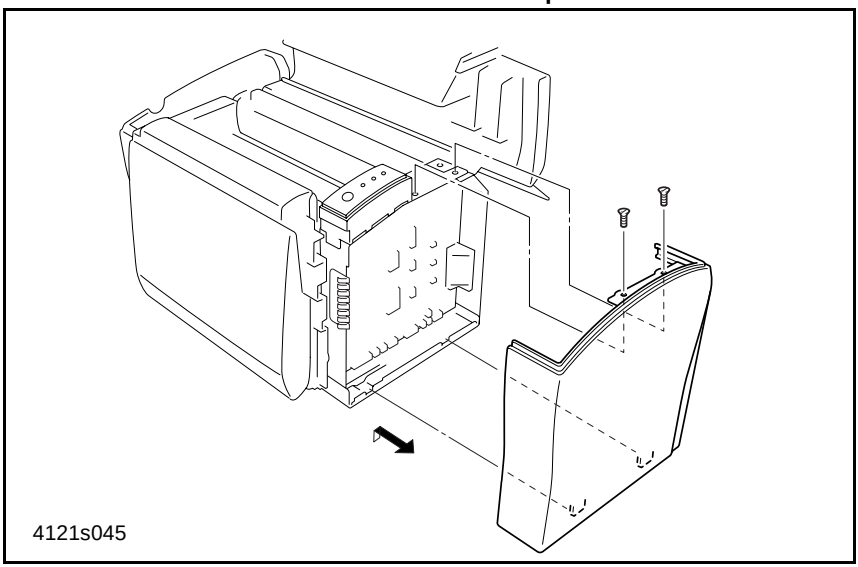
1. Remove the Paper Take-up Roller Cover.
2. Remove the Paper Empty Sensor (PE1) and unplug the connector.



4-5-6. Removal of the Right Cover

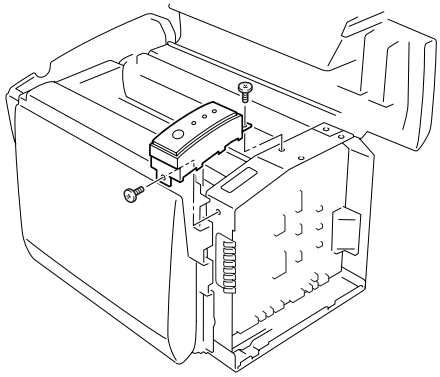
1. Remove the Right Cover. (2 screws, 2 projections)
2. Remove the Control Panel. (2 screws, 1 connector)

NOTE: When reinstalling the Right Cover, securely insert the projections of the cover into the cutouts of the printer frame.



4-5-7. Removal of the Control Panel

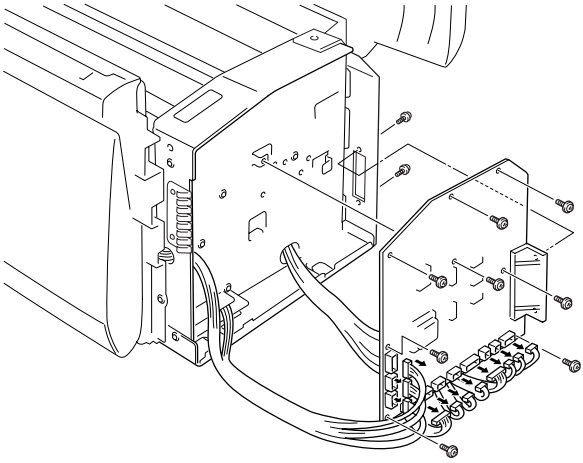
1. Remove the Control Panel. (2 screws)



4121s084

4-5-8. Removal of Controller Board (PWB-P)

1. Unplug all connectors on the Controller Board. (12 connectors)
2. Remove the Controller Board. (10 screws)



3501

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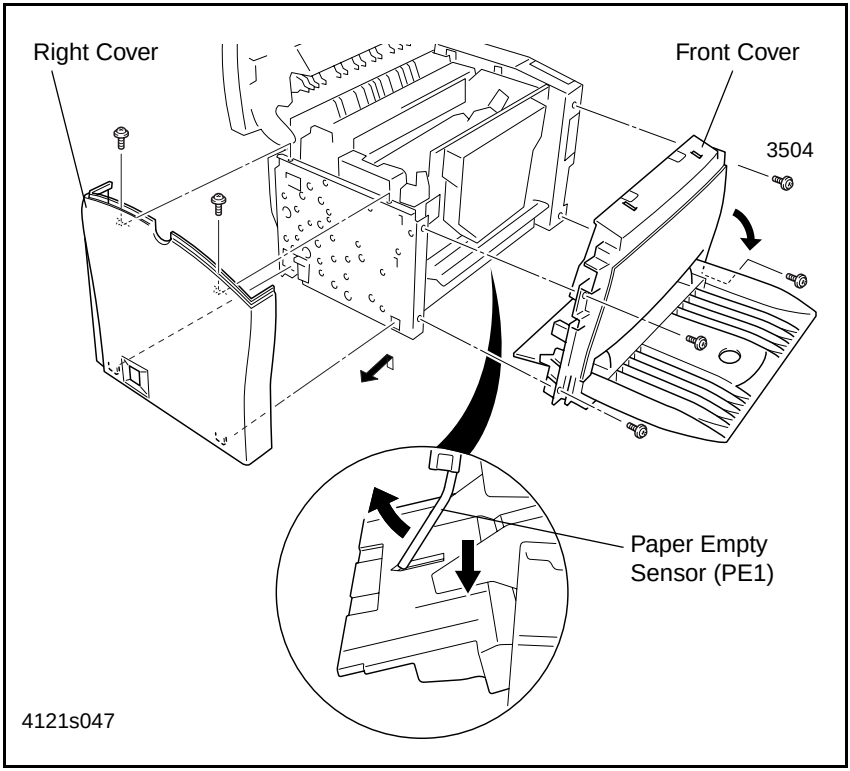
4-5-9. Removal of the Left Cover and Front Cover

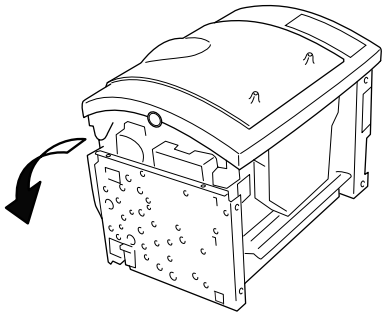
1. Remove the Left Cover. (2 screws, 2 projections)
2. Remove the Right Cover, and remove the Front Cover. (4 screws)

NOTE: When reinstalling the Front Cover, don't catch the Paper Empty Sensor (PE1).
When reinstalling the Left Cover, securely insert the projections of the cover into the cutouts in the printer frame.



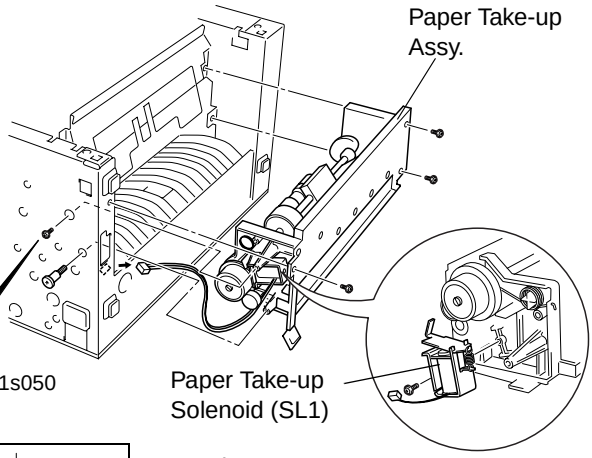
4-5-10. Removal of the Paper Take-up Solenoid (SL1)

1. Remove the Right Cover, Left Cover and Front Cover
2. Close the Top Cover, turn the machine over on its back side.



4121s049

3. Remove the Paper Take-up Assy.(4 screws, 1 connector)
4. Remove the Paper Take-up solenoid (SL1). (1 screw)



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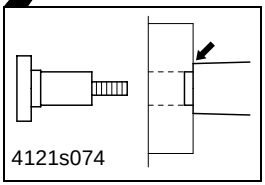
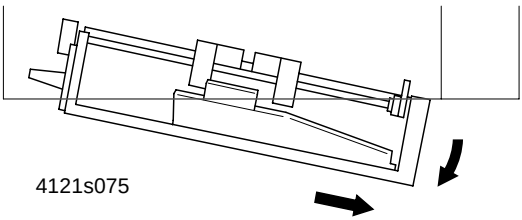


4121s074

When mounting the Paper Take-up Assy., make sure the lower left post of the assy. is anchored in the plastic piece attached to the left frame.

To View

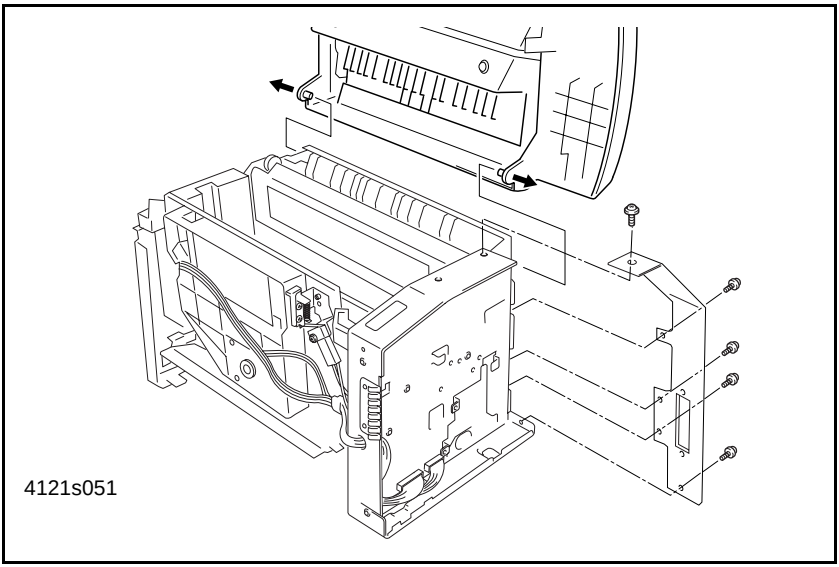


4121s075

To remove, pull the right side of the Paper Take-up Assy out, then slide the assy out to the right.

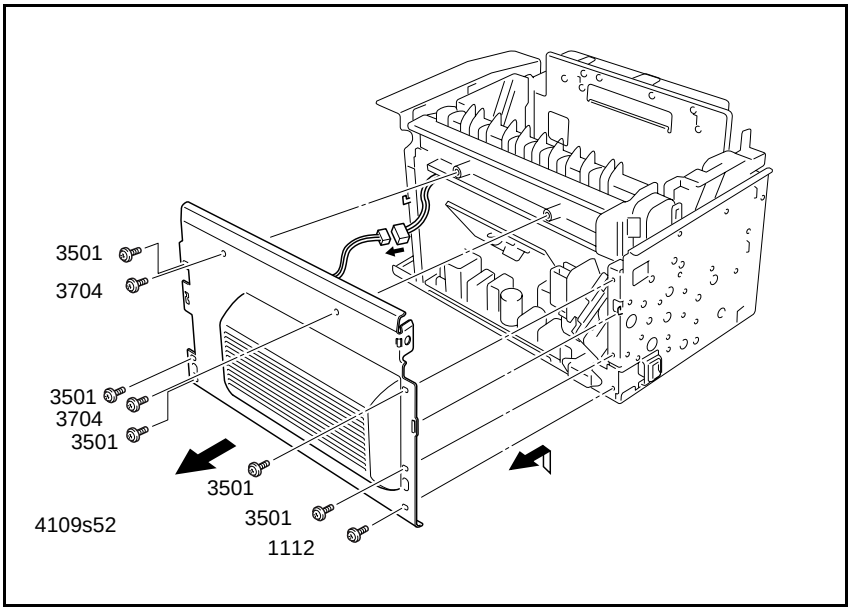
4-5-11. Removal of the Top Cover

1. Remove the Controller Bracket. (5 screws)
2. Remove the Top Cover. (2 projections)



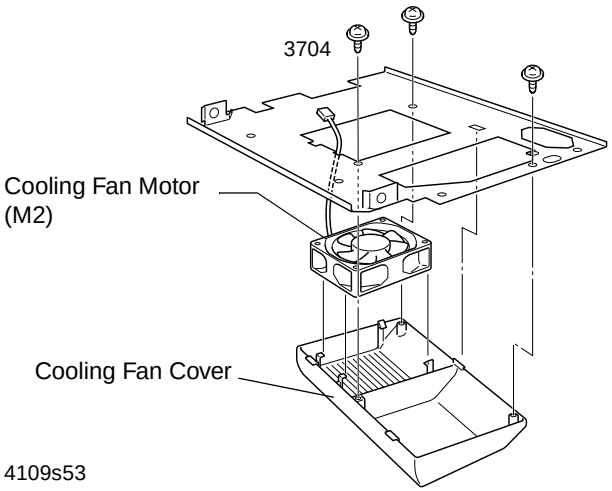
4-5-12. Removal of the Rear Cover

1. Remove the Rear Cover. (8 screws, 1 connector)



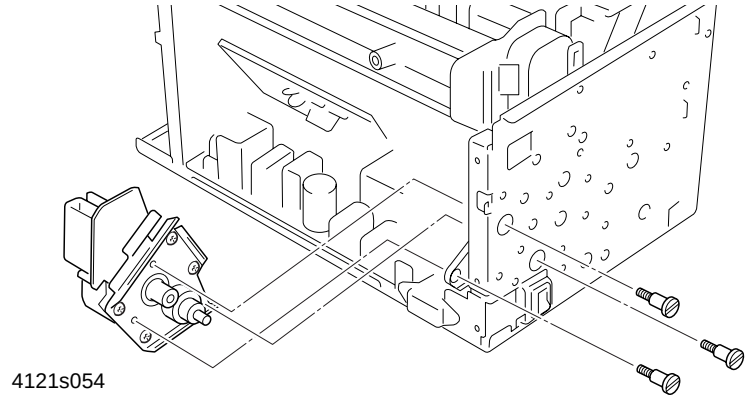
4-5-13. Removal of the Cooling Fan Motor (M2)

1. Remove the Rear Cover.
2. Remove the Cooling Fan Cover. (3 screws)
3. Remove the Cooling Fan Motor (M2).



4-5-14. Removal of the Main Motor Assy.

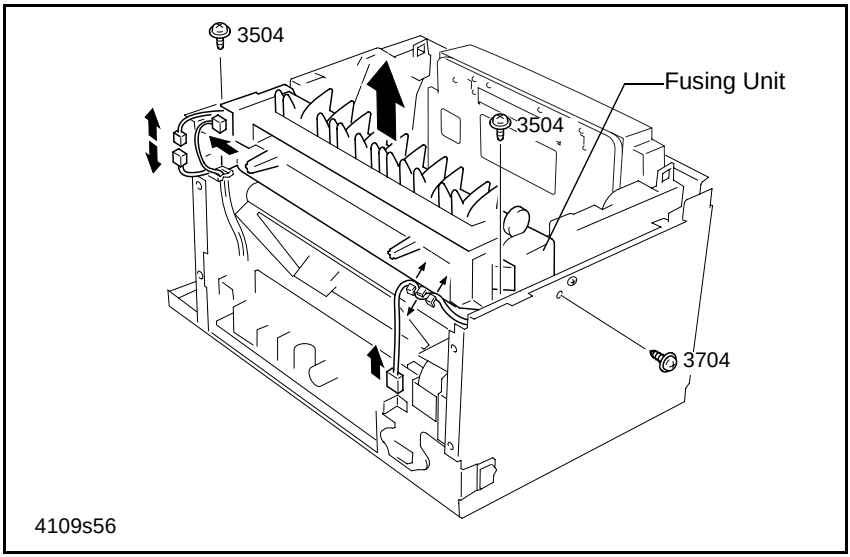
1. Remove the Rear Cover.
2. Remove the Main Motor Assy. (3 screws,1 connecter)



4-5-15. Removal of the Fusing Unit

Replace the Fusing Unit about every 50,000 sheets of print.

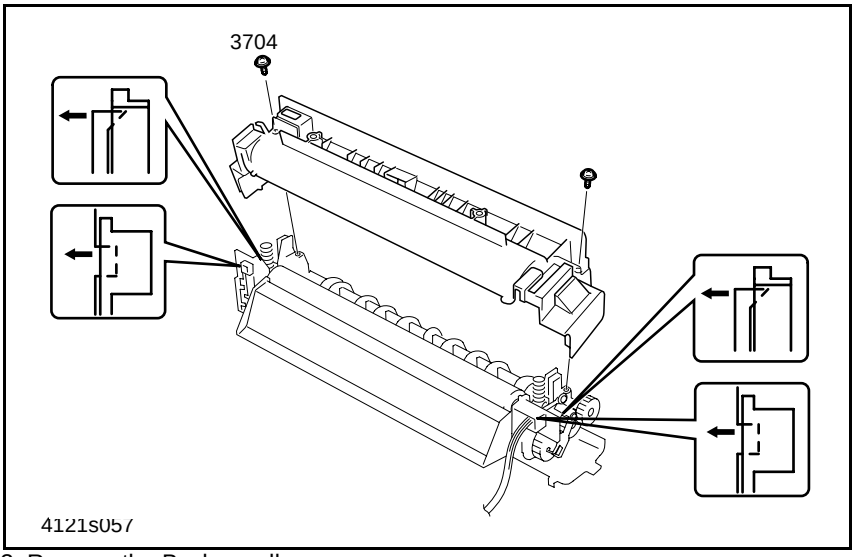
1. Remove the Right Cover, Left Cover, Top Cover and Rear Cover.
2. Remove the Fusing Unit. (3 screws, 3 connectors)



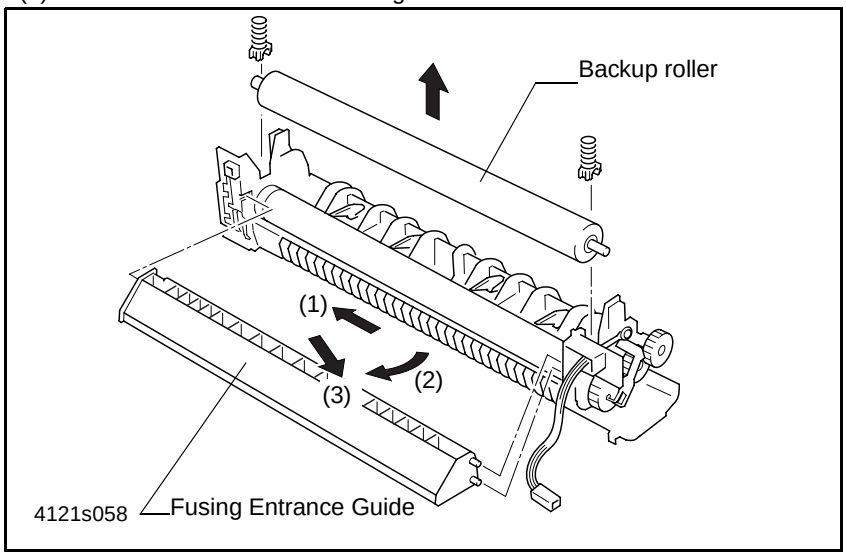
NOTE: Once the Fusing Unit is removed, use the following instructions to make repairs when image quality problems or parts failure occurs.

4-5-16. Disassembly of the Fusing Unit

1. Remove two screws.
2. Press the left and right claws (4 in total) and separate the upper and lower fusing units.

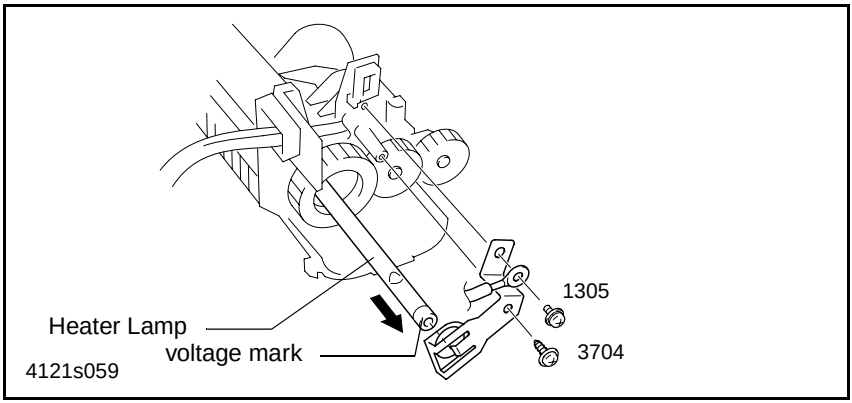


3. Remove the Backup roller.
4. Remove the Fusing Entrance Guide.
   (1) Push the Guide to the left.
   (2) Pull out the right end of the Fusing Entrance Guide.
   (3) Pull out the left end.of the Fusing Entrance Guide.



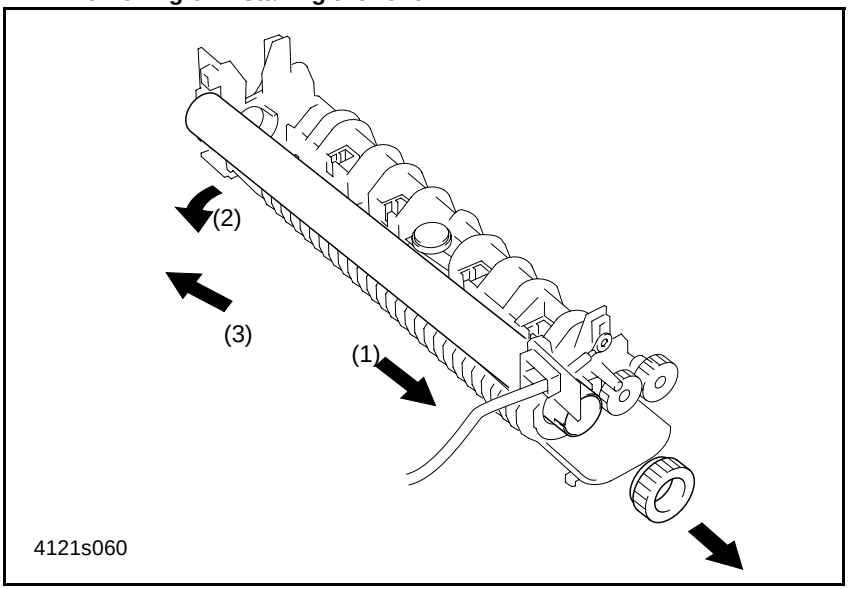
5. Remove the Lamp holder. (2 screws)
6. Pull out the Heater Lamp.

NOTE: When reinstalling the lamp, position the voltage mark on the fusing drive gear side. Be sure not to touch the lamp surface with bare hands.



7. Remove the fusing drive gear from the Heat roller.
8. Remove the Heat Roller from the Fusing Unit.
   (1) Slide the roller to the right.
   (2) Swing out the left end.
   (3) Slide out the right end.

NOTE: In order not to scratch the surface of the Heat Roller with the Fusing Separators, lift the Separators as much as possible when removing or installing the roller.



9. Remove the Roller Assy. (2 screws)
10. Remove the four Fusing Paper Separators.
11. Remove the Thermistor (TH1). (1 screw)

NOTE: Route the harness along the bottom of the Fusing unit when attaching the Thermistor, as shown in Fig.1.

12. Remove the Thermostat (TS1). (2 screw)

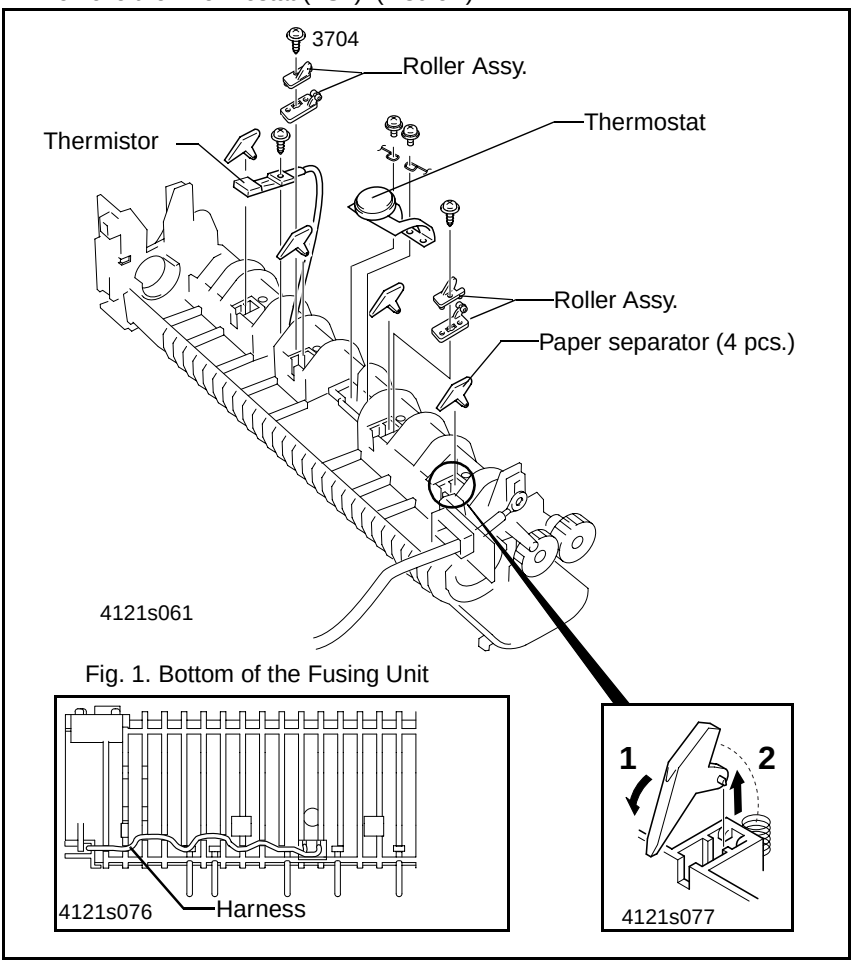
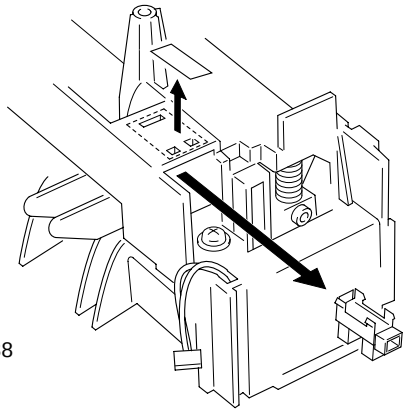


Fig. 1. Bottom of the Fusing Unit

4-5-17. Removal of the Paper Exit Sensor (PS3)

1. Remove the Fusing Unit.
2. Remove the Paper Exit Sensor (PS3) from the Fusing Unit.

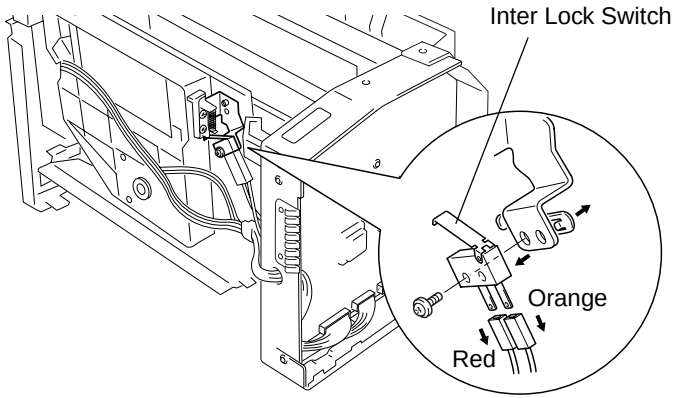


4121s088

Paper Exit Sensor (PS3)

4-5-18. Removal of the Inter Lock Switch (S2)

1. Remove the Right Cover, Left Cover and Front Cover.
2. Remove the Inter Lock Switch(S2). (1 screw, 2 connectors)



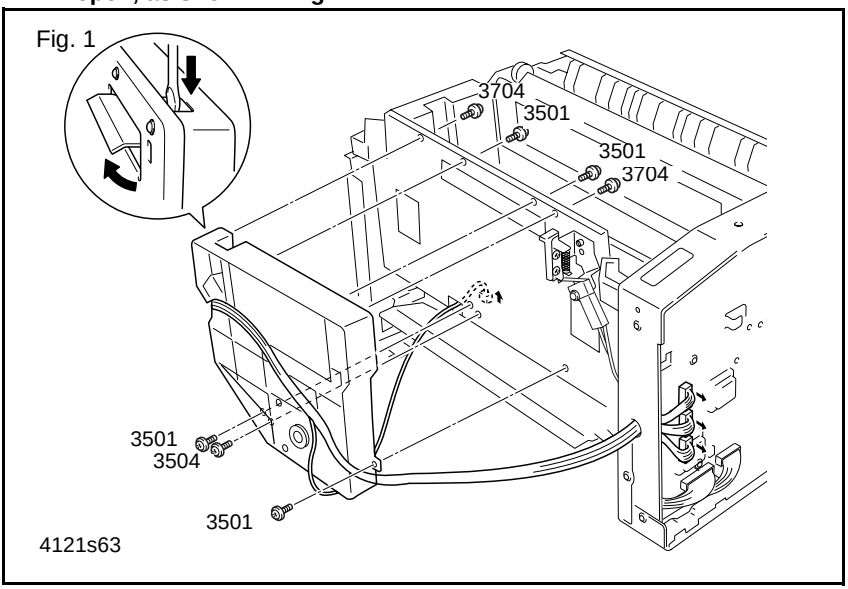
4121s062

4-5-19. Removal of the Print Head Unit (PH)

1. Remove the Right Cover, the Left Cover and the Front Cover.
2. Unplug the connectors (PJ5, PJ9, PJ12) from the Controller board and remove the wirings from the cord holders.
3. Remove the Print Head Unit (PH). (7 screws)

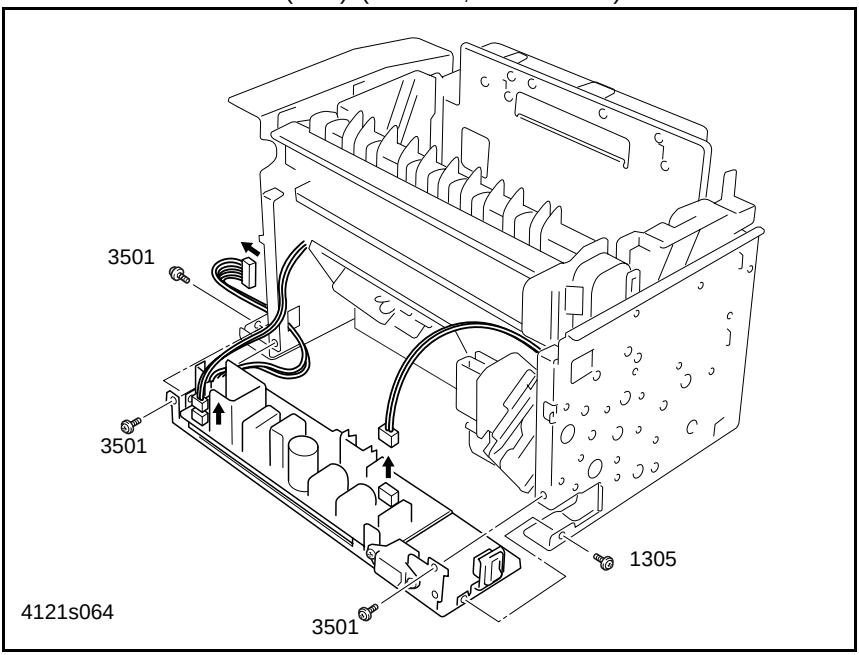
NOTE: When reinstalling the Print Head Unit (PH), keep the shutter open, as shown in Fig.1.

Fig. 1



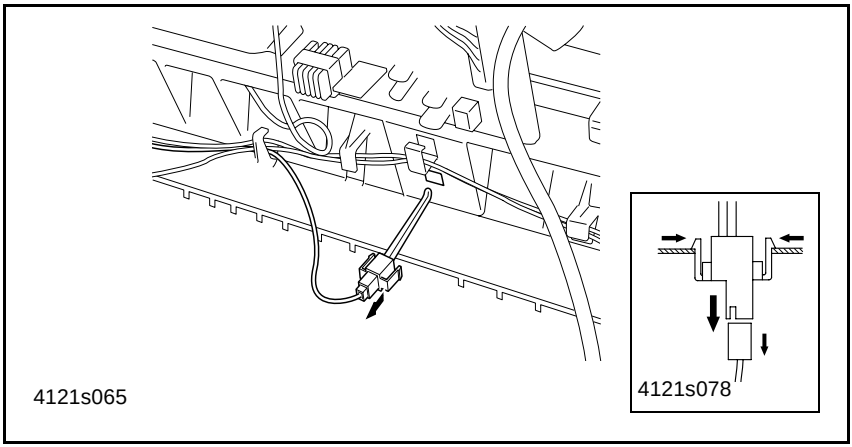
4-5-20. Removal of the Power Unit (PU1)

1. Remove the Right Cover, Left Cover, Top Cover and Rear Cover.
2. Unplug PJ7 connector on the controller board and removes the harness from the cord holder.
3. Remove the Power Unit (PU1). (4 screws, 2 connectors)



4-5-21. Paper Take-up Sensor (PS1)

1. Remove the Power Unit (PU1).
2. Remove the Paper Take-up Sensor (PS1). (1 connector)

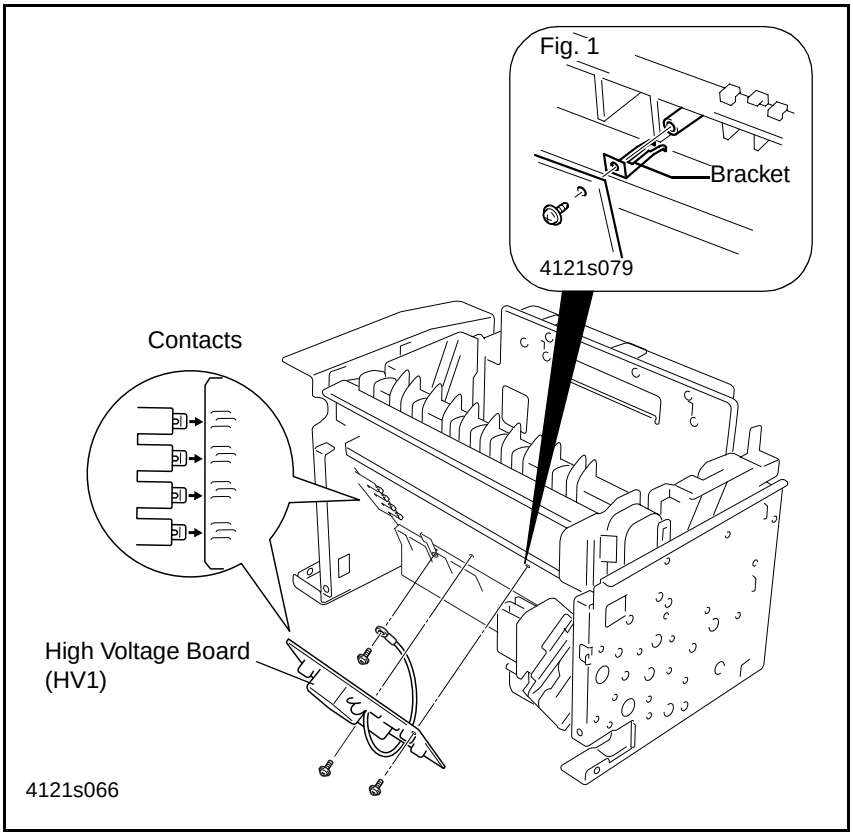


4-5-22. Removal of High Voltage Unit (HV1)

1. Remove the Right Cover, Left Cover, Top Cover and Rear Cover.
2. Remove the Power Unit (PU1).
3. Remove the High Voltage Unit (HV1). (3 screws, 1 connector)

NOTE: When installing the High Voltage Unit (HV1), direct care to the following points:

1. **Attach the bracket to the rear side of the HV1 as shown in Fig. 1.**
2. **Confirm that all contacts (4 locations) are in contact without failure.**



4-5-23. Replace the Second Paper Take-up Roller

1. Separate the printer and Second Paper Cassette Unit.
2. As shown in Fig. 1, remove Paper Take-up Rollers.
   (1) Pull up on the lever of the roller.
   (2) Pull it to the right.
   (3) Lift out the roller.
3. Install a new Paper Take-up Rollers in the opposite way.

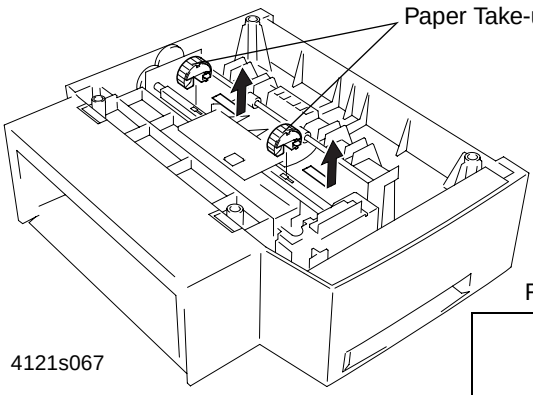
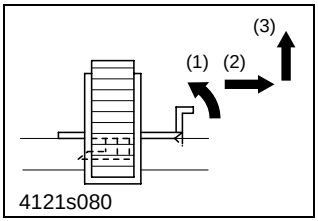
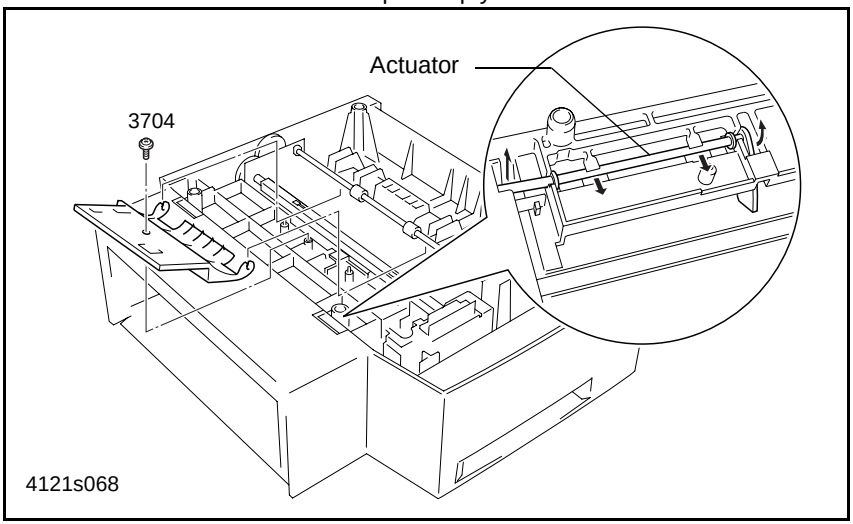


Fig. 1

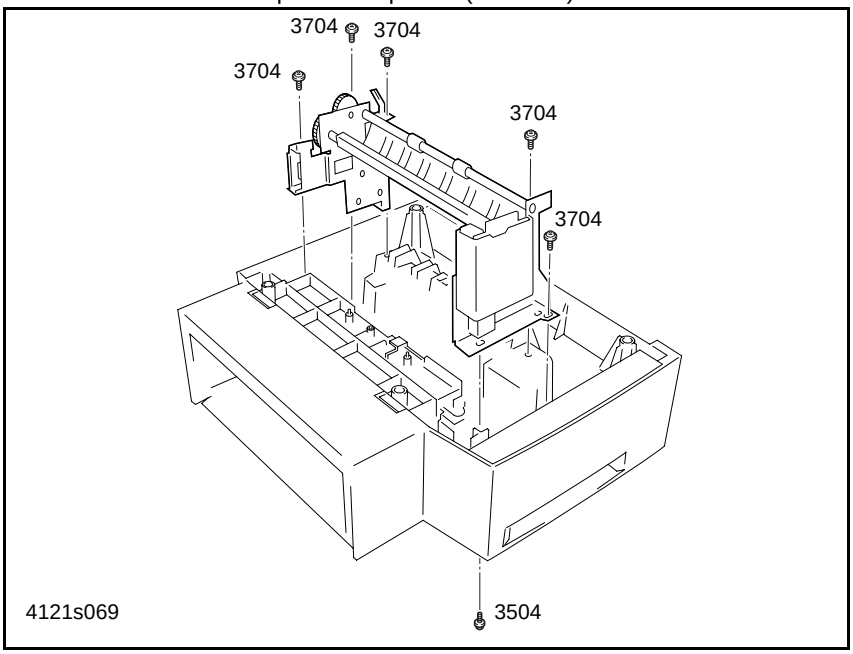


4-5-24. Removal of the Second Paper Take-up Unit.

1. Remove of a black cover. (1 screw, 2 projections)
2. Remove of the actuator for the Paper Empty Sensor.

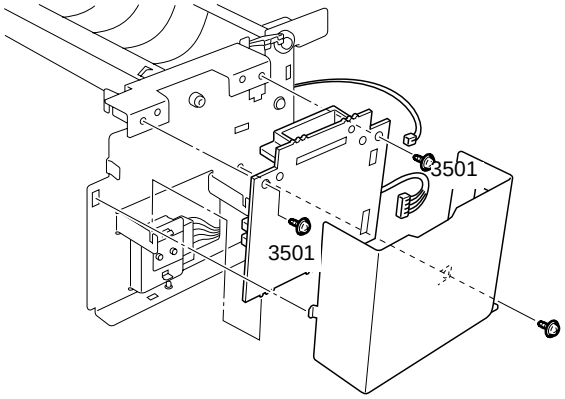


3. Remove the Second Paper Take-up Unit. (6 screws)



4-5-25. Removal of the Connecting Board (PWB-A)

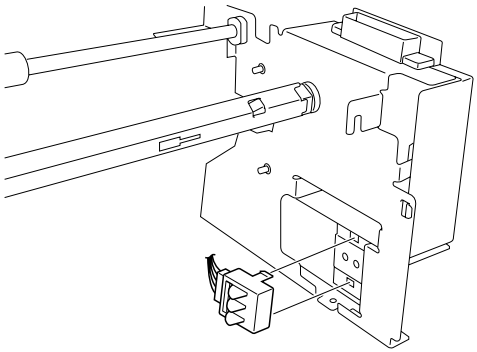
1. Remove the cover. (1 screw, 2 connectors)
2. Remove the Connecting Board (PWB-A). (2 screws)



4121s070

4-5-26. Removal of the Cassette Type Detecting Switch (SW21)

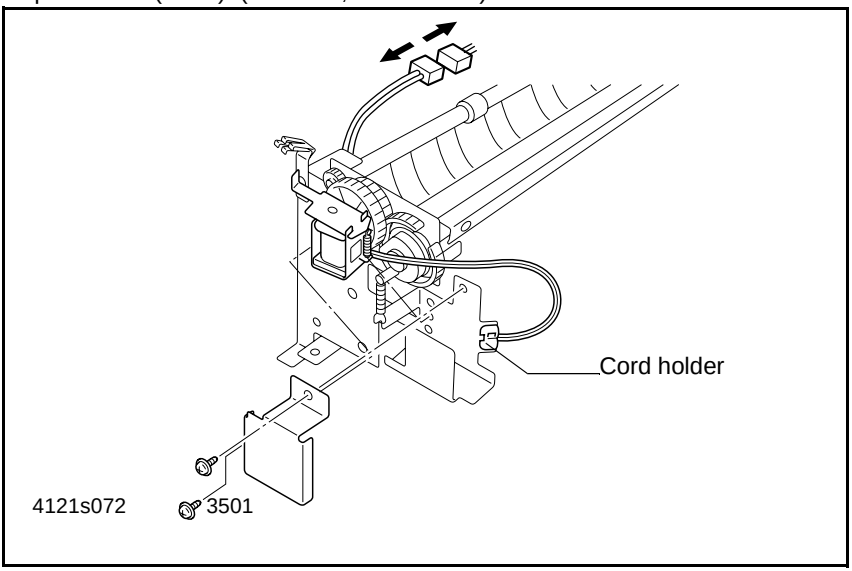
1. Remove the Cassette Type Detecting Switch (SW21).



4121s071

4-5-27. Removal of the Second Paper Take-up Solenoid (SL21)

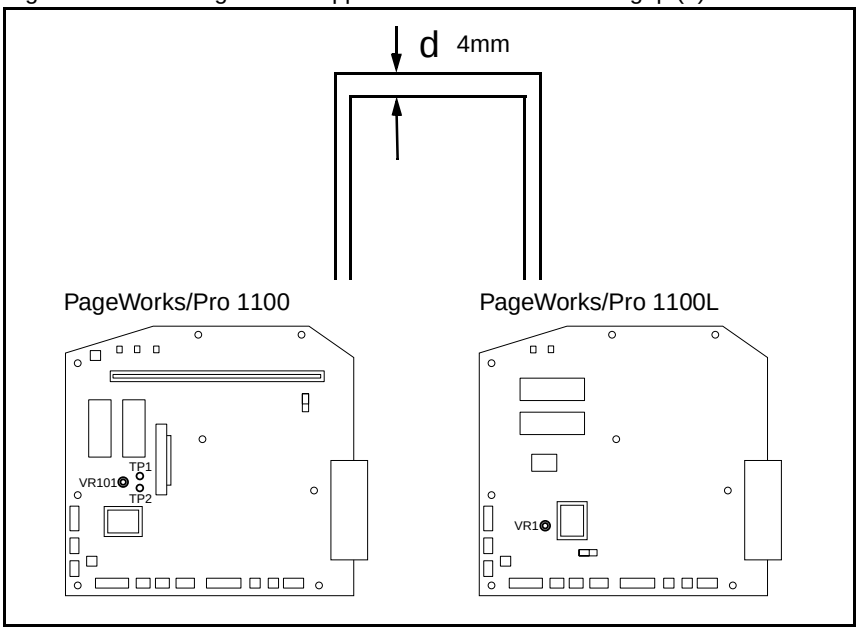
1. Remove a cover. (1 screw)
2. Remove the wiring from the cord holder and remove the Second Paper Take-up Solenoid (SL21). (1 screws, 1 connector)



5-1. Adjustment of Image Registration

After Mechanical Control Board (Controller board) is replaced, be sure to make a print of an image sample.
If the starting position of the image (registration gap (d)=4mm) in the sub-scanning direction is not suitable, adjust the gap by following the procedure described below.

1. Remove the right cover so that VR of each Controller board can be adjusted.
2. Turning VR on Controller board in the clockwise direction makes the gap (d) greater and turning it in the opposite direction makes the gap (d) smaller.



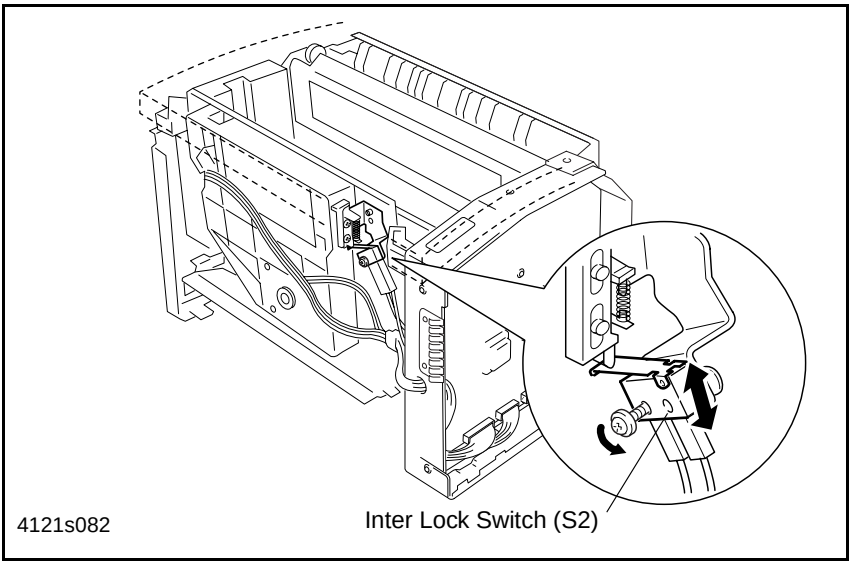
Adjustment by voltage (PageWorks/Pro 1100 only)

1. Apply the positive and negative terminals of the multimeter to TP1 and TP2 respectively with power turned on.
2. Rotate VR101 so that the reading voltage on the multimeter becomes between DC2.35V and DC2.5V.

5-2. Adjustment of Interlock Switch Position

When the Top cover is closed and the power supply does not come back on even though the Power Switch (S1) is turned ON, check and adjust the position of the Interlock Switch (S2) following the procedure below.

1. Open the top cover and remove the left cover, right cover and front cover.
2. After loosening the screw of the interlock switch (S2), close the top cover carefully.
3. Move the interlock switch (S2) up and down and tighten the screw at the position where the switch turns on.



Chapter 6: TROUBLESHOOTING

6-1.Paper Misfeed Detection

6-1-1. An Overview

The printer recognizes if paper remains inside the printer by detecting the status of the Paper Take-up Sensor (PS1) and the Paper Exit Sensor (PS3). A paper misfeed is detected by the timing that PS1 and PS3 become activated or deactivated.
When a paper misfeed is detected, the drive for all elements is stopped, excluding the two following cases.

During multi printing
When condition 1 listed below is detected and paper remains in the printer, all elements will be stopped after the paper is fed out of the printer.

During single printing
When condition 1 listed below is detected and paper does not remain in the printer, all elements except the Heater Lamp (H1) will be stopped.

6-1-2. Paper misfeed Detecting Conditions

1. The Paper Take-up Sensor (PS1) does not activate within about 2.1 sec. after the Paper Take-up Roller in the printer starts turning, or within about 2.35 sec. after the Paper Take-up Roller in the optional Second Cassette Unit starts turning.
2. The Paper Take-up Sensor (PS1) does not deactivate within about 6.79 sec. after the paper leading edge reaches the Paper Take-up Sensor (PS1).
3. The Paper Exit Sensor (PS3) does not activate within about 2.3 to 3.08 sec. after the paper leading edge reaches the Paper Take-up Sensor (PS1).
4. The Paper Exit Sensor (PS3) does not deactivate within about 2.6 to 3.63 sec. after the paper trailing edge passes the Paper Take-up Sensor (PS1).
5. The Paper Take-up Sensor (PS1) activates when the Power Switch (S1) is turned ON, or when the Top cover is closed.
6. The Paper Exit Sensor (PS3) activates when the Power Switch (S1) is turned ON, or when the Top cover is closed.

6-1-3. How to reset a paper misfeed

Close the Top cover after removing the misfed paper.

6-2.Malfunction Detection

All elements are deactivated when the malfunctions described below are detected.

6-2-1. Laser malfunction

The Laser Diode is forcibly activated immediately after the Polygon Motor (M3) starts rotation. At this time, laser emission power is adjusted. The DA1 signal or DA2 signal deviates from the specified value while the laser emission power is adjusted. DA1/DA2: These signals are to adjust the laser drive current.

6-2-2. Polygon Motor Malfunction

1. The -SSCAN signal has not been entered once within 0.8 sec. after the Polygon Motor is energized.
2. The number of Polygon Motor rotations has not stabilized within ±0.5% by 6 sec. after the Motor is energized.
3. The number of Polygon Motor rotations has exceeded ±3% for more than 0.5 after the Motor is energized and the rotation number stabilizes within ±0.5%.

6-2-3. Main Motor Malfunction

1. The Motor Lock signal is not detected within 1.0 sec. after the Main Motor is energized.
2. The Motor Lock signal remains OFF for 0.1 sec.

6-2-4. Fusing Malfunction

1. The Thermistor detecting temperature has exceeded 220°C for 50 msec. during temperature control.
2. The temperature detected by the Thermistor has not reached the reference temperature for 50 msec. within 8 to 12 sec. after warming up. (This detection applies only when the Thermistor detecting temperature is 80°C or less.)
3. The Thermistor detecting temperature has not reached the reference temperature within 45 sec. after warming up.
4. The Thermistor detecting temperature during the idle state has fallen to 70°C or lower for 50 msec., or the temperature during printing has fallen to 140°C or lower.

6-3.Troubleshooting for Paper Misfeed

6-3-1. Paper misfeed occurred when the Power switch (S1) is turned ON

Check		Remedy
Paper left in machine.	→ Yes	Remove the paper.
↓ No		
Do the Paper Take-up sensor (PS1) and Paper Exit Sensor (PS3) lever move correctly?	→ No	Correct the Sensor lever movement.
	→ Yes	Replace PS1. ☞ P.64
		Replace PS3. ☞ P.62
		Replace the Controller Board. ☞ P.53

6-3-2. Paper misfeed occurred at the paper take-up section

Check		Remedy
Does the Paper Take-up roller of the Multi-purpose tray and Second Cassette unit turn?	→ No	Replace SL1. ☞ P.55
		Replace SL21. ☞ P.69
↓ Yes		
Does the paper being used conform to the product specifications?	→ No	Instruct the user to use the paper that conforms to the product specifications.
↓ Yes		
Is the paper curled, waved, or damp?	→ Yes	Change the paper. Instruct the user to store the paper properly.
↓ No		
Are the Paper take-up roller and 2nd Paper Take-up Roller deformed, worn, or dirty with paper dust?	→ Yes	Replace the Paper Take-up Roller. ☞ P.50
		Replace the 2nd Paper Take-up Roller. ☞ P.66
↓ No		

Check		Remedy
Do the Paper Take-up Sensor (PS1) lever move correctly?	→ No	Correct the Sensor lever movement.
	→ Yes	Replace PS1. ☞ P.64
		Replace the Controller Board. ☞ P.53

6-3-3. Paper misfeed occurred at the paper exit section

Check		Remedy
The paper stops when approximately 5-3/4" (or 14.5mm) of it's leading edge comes out from the Exit Roller.	→ Yes	Replace PS1. ☞ P.64
		Replace the Controller Board. ☞ P.53
↓ No		
Is the Image Transfer Roller deformed, worn, or dirty with paper dust?	→ Yes	Replace the Image Transfer Roller. ☞ P.51
↓ No		
Is the Fusing roller deformed, worn, or dirty with paper dust?	→ Yes	Replace the Fusing unit. ☞ P.58
↓ No		
Does the Paper exit roller rotate?	→ No	Replace the Top Cover Assy. ☞ P.56
↓ Yes		
Does the Paper Exit Sensor (PS3) lever move correctly?	→ No	Correct the Sensor lever movement.
	→ Yes	Replace PS3. ☞ P.62
		Replace the Controller Board. ☞ P.53

6-4.Troubleshooting For Malfunction (1100)

6-4-1. No power

Check		Remedy
Has the Power Cord been securely plugged into the outlet?	→ No	Plug the power cord into the power outlet.
↓ Yes		
Has the Power Cord been securely connected to the printer?	→ No	Plug in the power cord.
↓ Yes		
Has the Power Switch (S1) been turned ON?	→ No	Turn on the Power Switch (S1).
↓ Yes		
Has the Interlock Switch (S2) been turned ON?	→ No	Adjust the Interlock Switch (S2) position. ☞ P.71
↓ Yes		
Has the fuse (F1 or F2) in the Power Unit (PU1) blown?	→ No	Replace PU1. ☞ P.64
		Replace the Controller Board. ☞ P.53
	→ Yes	Replace the fuse (F1 or F2). ☞ P.27

6-4-2. Engine Communication Error

Cause	Remedy
Engine Communication Malfunction	Replace the Controller Board. ☞ P.53

6-4-3. Controller Error

Cause	Remedy
Controller Malfunction	Replace the Controller Board (PWB-P). ☞ P.53

6-4-4. Engine Error (laser)

Cause	Remedy
Laser diode malfunction.	Replace the Print Head Unit. ☞ P.63 Replace the Controller Board. ☞ P.53

6-4-5. Engine Error (polygon scanner & main motor)

Check		Remedy
The Polygon Motor (M3) in the Print Head Unit rotates when the Power Switch (S1) is turned ON.	→ No	Replace the Print Head Unit. ☞ P.63
		Replace the Controller Board. ☞ P.53
↓ Yes		
The Main Motor (M1) rotates when the Power Switch (S1) is turned ON.	→ No	Replace the M1. ☞ P.57
	→ Yes	Replace the Controller Board. ☞ P.53

6-4-6. Engine Error (fusing unit)

Check		Remedy
Is Fusing Unit warm?	→ Yes	Replace the Thermistor (TH1) or Fusing Unit. ☞ P.59
		Replace the Controller Board. ☞ P.53
↓ No		Replace the Power unit (PU1). ☞ P.64
Is there electrical conduction between CN1E-1 and CN1E-3 of the Fusing Unit?	→ No	Replace the Fusing unit ☞ P.58
		Replace the Heater Lamp (H1) or Thermostat (TS1). ☞ P.59
	→ Yes	Replace the Power unit (PU1). ☞ P.64
		Replace the Controller Board. ☞ P.53

6-4-7. Network Communication Error

Cause	Remedy
Network Interface Malfunction	Replace the Network Interface Card.
	Replace the Controller Board (PWB-P). ☞ P.53

6-5.Troubleshooting For Malfunction (1100L)

6-5-1. No power

Check		Remedy
Has the Power Cord been securely plugged into the outlet?	→ No	Plug the power cord into the power outlet.
↓ Yes		
Has the Power Cord been securely connected to the printer?	→ No	Plug in the power cord.
↓ Yes		
Has the Power Switch (S1) been turned ON?	→ No	Turn on the Power Switch (S1).
↓ Yes		
Has the Interlock Switch (S2) been turned ON?	→ No	Adjust the Interlock Switch (S2) position. ☞ P.71
↓ Yes		
Has the fuse (F1 or F2) in the Power Unit (PU1) blown?	→ No	Replace PU1. ☞ P.64
		Replace the Controller Board. ☞ P.53
	→ Yes	Replace the fuse (F1 or F2). ☞ P.27

6-5-2. Engine Communication Error

Cause	Remedy
Engine Communication Malfunction	Replace the Controller Board. ☞ P.53

6-5-3. Controller Error

Cause	Remedy
Controller Malfunction	Replace the Controller Board. ☞ P.53

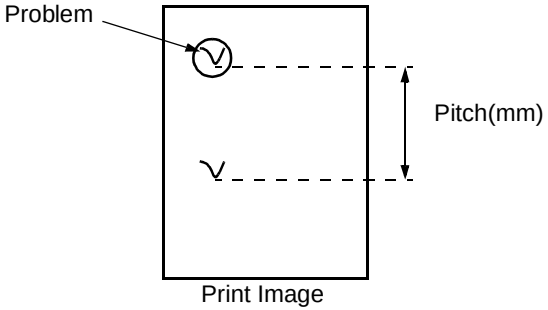
6-5-4. Engine Error

Check		Remedy
Is shown an error after the printer has completed warming up?	→ Yes	Replace the Thermistor (TH1) or Fusing Unit. ☞ P.58
↓ No		Replace the Controller Board. ☞ P.53
The Polygon Motor (M3) in the Print Head Unit rotates when the Power Switch (S1) is turned ON.	→ No	Replace the Print Head Unit. ☞ P.63
		Replace the Controller Board. ☞ P.53
↓ Yes		
The Main Motor (M1) rotates when the Power Switch (S1) is turned ON.	→ No	Replace the M1. ☞ P.57
		Replace the Controller Board. ☞ P.53
↓ Yes		
Is Fusing Unit warm?	→ Yes	Replace the Thermistor (TH1) or Fusing Unit. ☞ P.59
		Replace the Controller Board. ☞ P.53
↓ No		Replace the Power unit (PU1). ☞ P.64
Is there electrical conduction between CN1E-1 and CN1E-3 of the Fusing Unit?	→ No	Replace the Fusing unit ☞ P.58
		Replace the Heater Lamp (H1) or Thermostat (TS1). ☞ P.59
	→ Yes	Replace the Power unit (PU1). ☞ P.64
		Replace the Controller Board. ☞ P.53

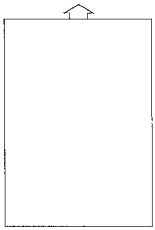
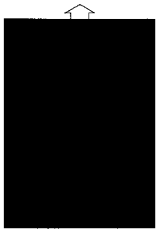
6-6.Image Quality Troubleshooting

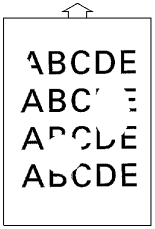
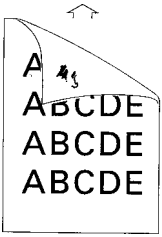
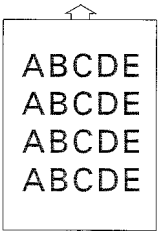
When an image problem occurs, exchange the Toner Cartridge and/or Drum Cartridge for a new one and determine whether the cause of the problem is due to one of the cartridges or something else in the printer.

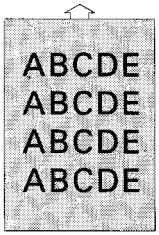
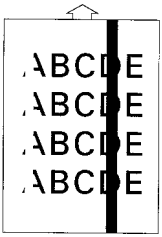
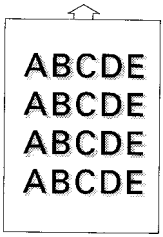
If an image quality problem occurs with the Printer, first replace the Toner Cartridge or Drum Cartridge.
If the problem still occurs, please use the following chart to help determine the defective unit.



Pitch	Defective Part (diameter)	Defective Unit (parts)
28mm	Sleeve Roller (ϕ 15.7mm)	Toner Cartridge
94.2mm	P.C. Drum (ϕ 30mm)	Drum Cartridge
50.3mm	Image Transfer Roller (ϕ 16mm)	Image Transfer Roller
62.8mm	Heat Roller (ϕ 20mm)	Fusing Unit
67.8mm	Back-up Roller (ϕ 21.6mm)	

Symptom	Possible Cause	Remedy
Blank print  0951o211	No Toner Cartridge	Install a Toner Cartridge.
	Toner empty	Replace the Toner Cartridge.
	No Drum Cartridge	Install a Drum Cartridge.
	Defective PC Drum (end of life)	Replace the Drum Cartridge.
	Improper laser exposure	Replace Print Head unit. ☞ P.63
		Replace the High Voltage Unit (HV1). ☞ P.65
		Replace the Controller Board. ☞ P.53
	Poor image transfer	Replace Image Transfer Roller. ☞ P.51
		Replace the High Voltage Unit (HV1). ☞ P.65
		Replace the Controller Board. ☞ P.53
Black print  0951o213	Improper laser exposure	Replace Print Head unit. ☞ P.63
		Replace the Controller Board. ☞ P.53
	Improper charging	Replace the High Voltage Unit (HV1). ☞ P.65
		Replace the Controller Board. ☞ P.53

Symptom	Possible Cause	Remedy
White spots  0951o220	The paper may have absorbed some moisture due to high humidity.	Replace the paper.
	Poor image transfer	Replace Image Transfer Roller. ☞ P.51
		Replace the High Voltage Unit (HV1). ☞ P.65
		Replace the Controller Board. ☞ P.53
Toner smudges on backside  0951o226	Dust or damage on the Fusing Roller.	Replace the Fusing unit or the Fusing Roller. ☞ P.58
	Dust or damage on the Image Transfer Roller.	Replace the Image Transfer Roller. ☞ P.51
	Toner on paper path.	Clean the paper path inside of the printer.
Low Image density  0951o214	Toner empty	Replace the Toner Cartridge.
	Defective PC Drum (end of life)	Replace the Drum Cartridge.
	Poor development	Replace the High Voltage Unit (HV1). ☞ P.65
		Replace the Controller Board. ☞ P.53

Symptom	Possible Cause	Remedy
Foggy background  0951o218	Poor development	Replace the High Voltage Unit (HV1). ☞ P.65
		Replace the Controller Board. ☞ P.53
	Defective PC Drum (end of life)	Replace the Drum Cartridge.
White/Black lines and bands  0951o222	Scratch on the PC Drum.	Replace the Drum Cartridge.
	Defective Print Head unit.	Replace the Print Head unit. ☞ P.63
		Replace the Controller Board. ☞ P.53
Offset image  0951o219	Defective Fusing Roller.	Replace the Fusing unit or the Fusing Roller. ☞ P.58
	Defective Image Transfer Roller.	Replace the Image Transfer Roller. ☞ P.51

Appendix A. INDEX

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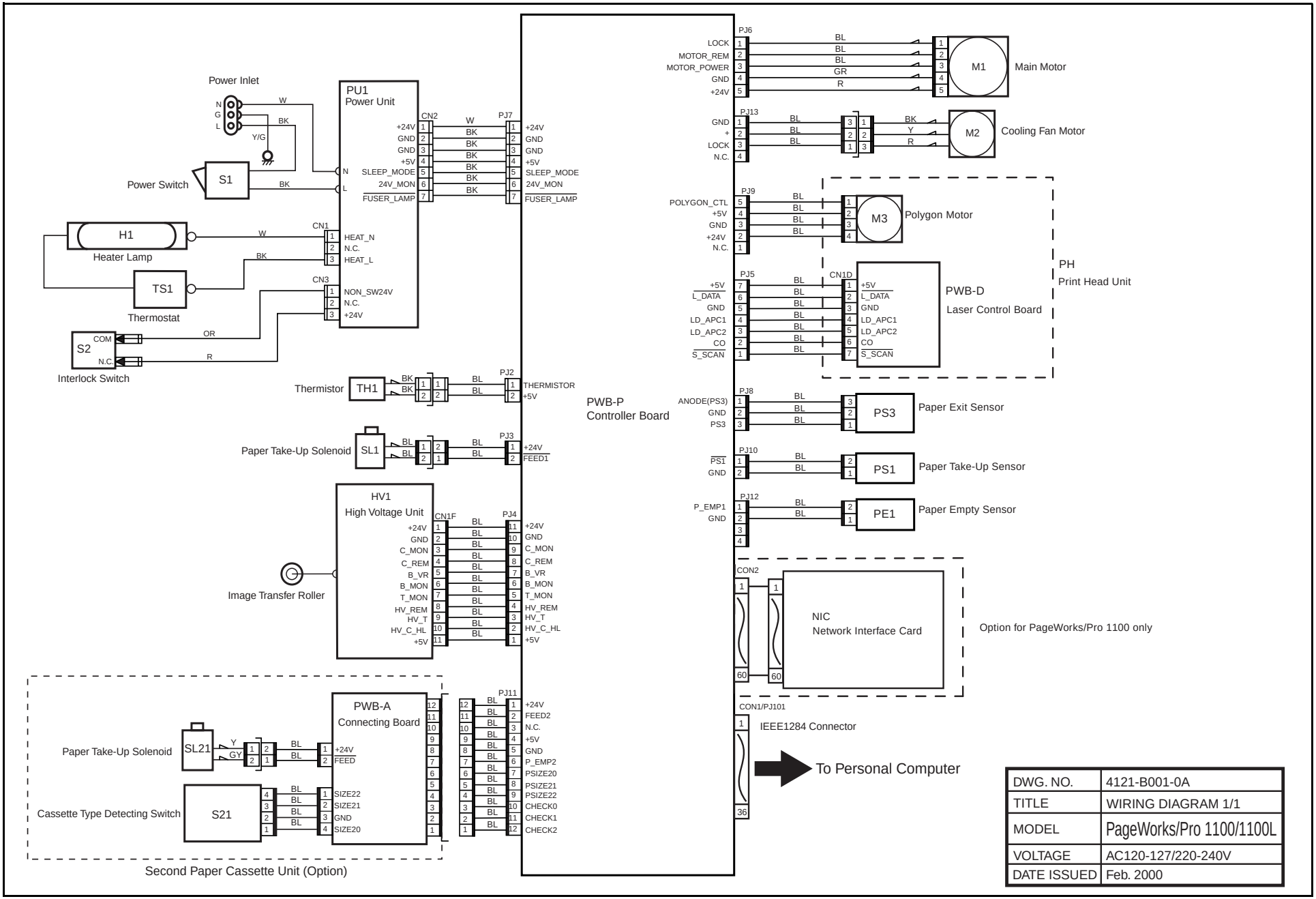
Appendix B. WIRING DIAGRAM



DWG. NO.	4121-B001-0A
TITLE	WIRING DIAGRAM 1/1
MODEL	PageWorks/Pro 1100/1100L
VOLTAGE	AC120-127/220-240V
DATE ISSUED	Feb. 2000

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