



KONICA MINOLTA

# magicolor<sup>®</sup> 2300 SERIES

## Service Manual



1750068-001B

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# CONTENTS

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<b>CONTENTS</b> .....	<b>3</b>
<b>SAFETY</b> .....	<b>9</b>
Safety Precautions for Inspection and Service .....	11
Warning .....	11
Caution .....	13
Used Batteries Precautions .....	15
Other Precautions .....	16
Precautions for Service .....	16
Safety information .....	19
Laser Safety Label .....	22
Laser Caution Label .....	22
PRECAUTIONS FOR HANDLING THE LASER EQUIPMENT .....	23
<b>GENERAL</b> .....	<b>25</b>
Product Specifications .....	27
Installation Precautions .....	31
Installation environment .....	31
Installation power supply .....	31
Space requirements.....	32
Operation Precautions .....	33
Ensuring the optimum performance of this unit .....	33
Operating environment .....	33
Power supply requirements .....	33
Other precautions .....	33
Parts Identification .....	34
<b>MECHANICAL/ ELECTRICAL</b> .....	<b>35</b>
CROSS-SECTIONAL VIEW .....	37
ELECTRICAL COMPONENTS LAYOUT .....	38
OPERATING SEQUENCE .....	43
IMAGE STABILIZATION CONTROL .....	44
AIDC Detection .....	44
Outline of AIDC Control .....	45
Operation Timing .....	46
Temperature/Humidity Sensor .....	47
ATVC (Auto Transfer Voltage Control) .....	48
DRUM CARTRIDGE .....	49
PC Drum .....	49
PC Drum Charging .....	50
LASER EXPOSURE .....	51
DEVELOPING UNIT .....	53
Developing Position .....	55
Toner Cartridge .....	56
IMAGE TRANSFER .....	60
Image Transfer Belt Unit .....	60
Second Image Transfer Roller Cleaning .....	63
Image Transfer Belt Cleaning Mechanism.....	64
Waste Toner Bottle .....	66

Waste Toner Bottle Detection .....	66
FUSING SECTION .....	67
Fusing Unit .....	67
Fusing Temperature Control .....	69
PAPER TAKE-UP SECTION .....	71
Manual Feed Tray .....	71
Lower Feeder Unit (Option) .....	72
OTHER MECHANISMS .....	73
Duplex Unit (Option) .....	73
<b>MAINTENANCE &amp; DISASSEMBLY/ASSEMBLY .....</b>	<b>81</b>
Disassembly/Assembly Precautions .....	83
Precautions for disassembly and assembly .....	83
Parts that must not be touched .....	83
Precautions for transporting or storing PWBs .....	83
Precautions for replacing PWBs .....	83
Precautions for inspecting PWBs .....	83
Precautions for transporting or storing the OPC drum cartridge .....	84
Precautions for handling the OPC drum cartridge .....	84
Red painted Screws .....	84
Variable Resistors on Board .....	84
Maintenance Schedule .....	85
Guideline for Life Specifications Values by Unit.....	87
Detail of Each Unit Life .....	87
Maintenance And Cleaning .....	89
Replacement of the Units .....	93
Disassembly Procedures .....	96
Pre-disassembly preparation .....	98
Removal Of Circuit Boards And Other Electrical Components .....	100
Removal of Units .....	106
DISASSEMBLY OF THE ENGINE PARTS .....	111
<b>CONTROL PANEL / SERVICE MODE DESCRIPT. 127</b>	
Control Panel Descriptions—2300DL & 2350 .....	129
Names of control panel parts and their functions .....	129
Message Window .....	129
Menu Contents for magicolor 2300 DL .....	133
Print menu overview .....	133
Settings menus .....	134
Service Mode .....	136
Service mode displays .....	136
Entering service mode .....	136
Service mode options .....	136
Menu Contents for magicolor 2350 .....	138
Menu Overview .....	138
About the 2300W Control Panel .....	140
Control Panel Key .....	140
Indicator Lights .....	141
Working with the 2300W Status Display .....	142

Using the Status Display .....	143
Status, Error and Service Messages .....	144
<b>TROUBLESHOOTING .....</b>	<b>147</b>
Introduction .....	149
Checking the electrical components .....	149
Paper Misfeeds .....	152
Perform initial check procedures .....	152
Paper misfeed displays .....	153
Wiring diagram of misfeed-detecting sensors .....	154
Misfeed detection timing and remedies .....	155
Malfunctions and Warnings (2300 DL & 2350) .....	159
Malfunction detection timing and remedies .....	161
Power supply malfunctions .....	167
Image Quality Troubleshooting .....	168
<b>INDEX .....</b>	<b>171</b>







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# SAFETY

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## 1. SAFETY PRECAUTIONS FOR INSPECTION AND SERVICE

- When performing inspection and service procedures, observe the following precautions to prevent accidents and ensure utmost safety.
- \* Depending on the model, some of the precautions listed below do not apply.
- Different markings are used to denote specific meanings as detailed below.



- 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.



- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
- The following graphic symbols are used to give instructions that need to be observed.



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

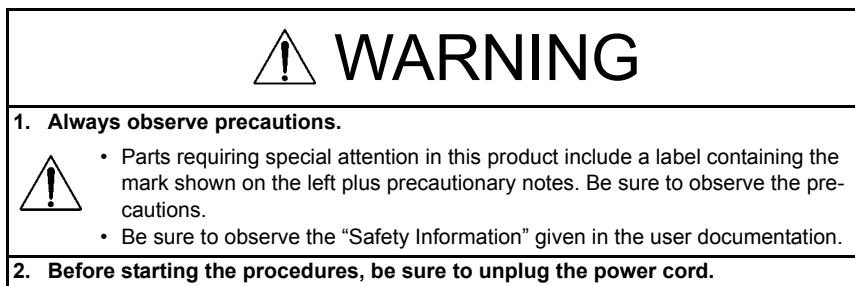


Used to prohibit the service technician from doing what is graphically represented inside the marking.



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

### 1-1. Warning





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



## WARNING

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



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

### 4. Use the specified parts.



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

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



- Do not break, crush or otherwise damage the power cord. Placing a heavy object on the power cord, or pulling or bending it may damage it, resulting in a possible fire or electric shock.
- Do not use a multiple outlet to which any other appliance or machine is connected.
- Be sure the power outlet meets or exceeds the specified capacity.

### 6. Be careful with the high-voltage parts.



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

### 7. Do not work with wet hands.



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

### 8. Do not touch a high-temperature part.



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

## WARNING

### 9. Maintain a Grounded Connection at all times.



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

### 10. Do not remodel the product.



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

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



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

## 1-2. Caution

## CAUTION

### 1. Precautions for Service Jobs.



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



## CAUTION

### 2. Precautions for Servicing with Covers and Parts Removed.



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



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

### 3. Precautions for the Working Environment.



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

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



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

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



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

### 6. Precautions for storing the toner or imaging cartridge.



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

### 1-3. Used Batteries Precautions

ALL Areas

#### CAUTION

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

Germany

#### VORSICHT!

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

France

#### ATTENTION

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

Denmark

#### ADVARSEL!

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

Finland, Sweden

#### VAROITUS

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

#### VARNING

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

Norway

#### ADVARSEL

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

#### **1-4. Other Precautions**

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

#### **1-5. Precautions for Service**

- When performing inspection and service procedures, observe the following precautions to prevent mishandling of the machine and its parts.
- \* Depending on the model, some of the precautions given in the following do not apply.

##### **1. Precautions Before Service**

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

##### **2. How to Use this Book**

###### **DIS/REASSEMBLY, ADJUSTMENT**

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

###### **TROUBLESHOOTING**

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

##### **3. Precautions for Service**

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



#### **4. Precautions for Dis/Reassembly**

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

#### **5. Precautions for Circuit Inspection**

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

#### **6. Handling of PWBs**

##### During Transportation/Storage

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

##### During Inspection/Replacement

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

#### **7. Handling of Other Parts**

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

## **8. Handling of the Imaging Cartridge**

### **During Transportation/Storage**

- The storage temperature is in the range between  $-20\text{ }^{\circ}\text{C}$  and  $+40\text{ }^{\circ}\text{C}$ .
- In summer, avoid leaving the Imaging Cartridge in a car for a long time.

### **Handling**

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

### **Precautionary Information on the PC Drum Inside the Imaging Cartridge**

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

## 1-6. Safety information

### (1) Laser Safety

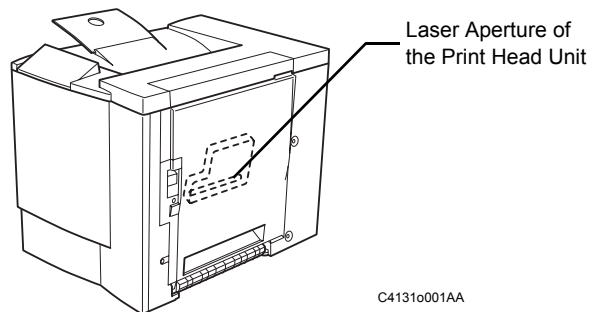
- This is a digital machine certified as a class 1 laser product. There is no possibility of danger from a laser, provided the machine is serviced according to the instruction in this manual.

### (2) Internal Laser Radiation

semiconductor laser	
Maximum average radiation power(*)	4.68 $\mu$ W
Wavelength	770-795 nm

\*:Laser power in surface of the PC Drum

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



C4131o001AA

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

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

- This machine is certified as a Class I Laser product under Radiation Performance Standard according to the Food, Drug and Cosmetic Act of 1990. Compliance is mandatory for Laser products marketed in the United States and is reported to the Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration of the U.S. Department of Health and Human Services (DHHS). This means that the device does not produce hazardous laser radiation.
- The label shown to page 13 indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

**CAUTION**

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

semiconductor laser	
Maximum power of the laser diode	5 mW
Wavelength	770-795 nm

**All Areas**

**CAUTION**

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

semiconductor laser	
Maximum power of the laser diode	5 mW
Wavelength	770-795 nm

**Denmark**

**ADVARSEL**

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

halvlederlaser	
Laserdiodens højeste styrke	5 mW
bølgelængden	770-795 nm

**Finland, Sweden**

LUOKAN 1 LASERLAITE  
KLASS 1 LASER APPARAT

**VAROITUS!**

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

puolijohdelaser	
Laserdiodin suurin teho	5 mW
aallonpituus	770-795 nm

**WARNING!**

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

halvledarlasert	
Den maximala effekten för laserdioden	5 mW
våglängden	770-795 nm

**VARO!**

Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

**WARNING!**

Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

**Norway**

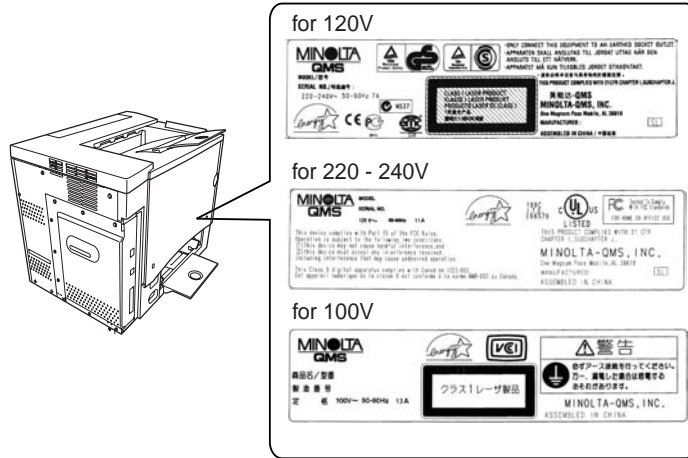
**ADVERSEL**

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

halvleder laser	
Maksimal effekt till laserdiode	5 mW
bølgelengde	770-795 nm

### 1-7. Laser Safety Label

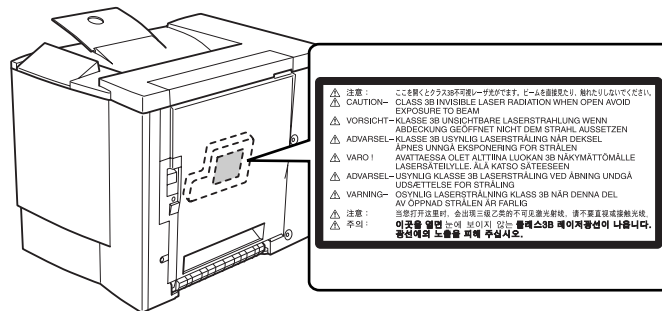
- A laser safety label is attached to the outside of the machine as shown below.



4131o003AA

### 1-8. Laser Caution Label

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



C4131s005AA

### **1-9. PRECAUTIONS FOR HANDLING THE LASER EQUIPMENT**

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







---

# GENERAL

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## 1. Product Specifications

### (1) Printer

Type	Desktop full-color laser beam printer
Printing method	Electrophotographic (two-part imaging cartridge)
Exposure method	Laser diode and polygon mirror scanning
Print resolution	600 dpi (dots/inch)
Media sizes	A5T, B5T, A4, Letter, Legal
Media types	Plain paper (16-24 lb bond, 60-90 g/m <sup>2</sup> ), recycled paper, overhead projector transparencies, letterheads, envelopes (Monarch, Com-10, DL, C5, C6, Chokey -3, Chokey -4), label sheets, thick paper (91-163 g/m <sup>2</sup> ), government-standard postcards, postcard sheets, Japanese postcard, and return postcards
First-page print time	Black-and-white printing: 14 sec.
	Color printing: 25 sec.
Multi-page print speed	Black-and-white printing: 16 pages/min. (for A4- or Letter-size pages)
	Color printing: 4 pages/min. (for A4- or Letter-size pages)
Warm-up time	Within 180 seconds (at a room temperature of 23 °C and at the rated voltage)
System speed	101.78 mm/sec.
Paper feed-in method	1-way system (maximum 2-way); Expandable to 2-way system by installing the optional 2nd paper cassette
	Manual feed tray (200 sheets of plain paper)
	2nd paper cassette (500 sheets of plain paper) (2300 DL & 2350 only)
Paper feed-out method	Face-down (tray capacity: 200 sheets)
Drum-charging method	Comb electrode scorotron charger
Developing method	Single-element developing system
Image transfer method	Transport image transfer system
PC drum	OPC (Organic Photoconductor)
PC drum cleaning method	Blade system
Paper separation method	Curvature separation + charge-neutralizing system
Fusing method	Heated roller fusing system
Dimensions	14.02 in.(356 mm) (W) x 19.69 in.(500 mm) (D) x 15.43 in. (392 mm) (H)
Weight	55.1 lbs(25 kg) (without drum cartridge and toner cartridges)
Weight (consumables)	62.4 lbs (28.3 kg) (including drum cartridge and toner cartridges)
Rated power supply voltage	100 V / 120V / 220-240 V
Frequency	50/60 Hz
Maximum power consumption	1100 W or less (100/120 V)
	1100 W or less (220-240 V)
Operating noise	During stand-by: 39 dB (A) or less
	During printing: 54 dB (A) or less (color printing) 54 dB (A) or less (black-and-white printing)

Operating environment	50-95° F (10-35°C)
	15 - 85%
Drum cartridge life	45,000 pages (black/white ratio=5%)
Toner cartridge life (purchased separately)	4,500 pages (black/white ratio=5%)
	1,500 pages (black/white ratio=5%)
Toner cartridge life (enclosed cartridge)	Black: 1,500 pages (black/white ratio=5%)
	Color: 1,500 pages (color/white ratio for each color=5%)
Options	Second paper cassette (2300 DL & 2350 only)
	Duplex unit

**(2) Second paper cassette (Option)**

Name	Second paper cassette (2300 DL & 2350 only)
Paper	Plain paper (16 to 24 lbs.; 60-90 g/m <sup>2</sup> ), recycled paper (16 to 24 lbs., 60-90 g/m <sup>2</sup> )
Media sizes	A4, Letter
Paper cassette capacity	500 sheets
Paper separation mechanism	Paper separator system
Power source	Supplied by main unit (DC24 V ±10%)
Drive source	Supplied by main unit
Dimensions	15 in. (380 mm) (W) x 20.1 in. (511 mm) (D) x 6.9 in. (176 mm) (H) (including the height of the right-side door)
Weight	11.7 lbs. (5.3 kg)

**(3) Duplex unit**

Name	Duplex unit
Paper	Plain paper (16 to 24 lbs.; 60-90 g/m <sup>2</sup> )
Media sizes	A4, Letter
Print speed (double-sided printing)	Color printing: 2.0 pages/min. (A4- or Letter-size pages)
	Black-and-white printing: 5.0 pages/min. (A4- or Letter-size pages)
Document feeding capacity	A4/Letter: 2 pages (including the paper path of the paper feed-out section)
Paper transfer baseline	Center baseline
Power source	Supplied by main unit (DC24 V ±10%)
Drive source	Supplied by main unit
Dimensions	3.8 in. (97 mm) (W) x 13.4 in. (340 mm) (D) x 13 in. (330 mm) (H) (including the height of the right-side door)
Weight	4.4 lbs. (2.0 kg)

**(4) Controller magicolor 2300DL (PWB-P)**

CPU	D8405 200MHz
Memory configuration	Standard ROM: 4MB
	Standard RAM: 32MB
Standard I/F	Ethernet (10/100BASE-TX, RJ-45)
	IEEE1284 (Compatible/Nibble/ECP/EPP)
	USB Type B connector
Network protocol	TCP/IP
	DHCP, ARP/ICMP, BOOTP, SLP, IPP, HTTP, SNMP, LPR
Network print service	RAW Port Printing (9100)
	IPP1.0 ( <a href="http://Printer IP address/ipp.cgi">http://Printer IP address/ipp.cgi</a> )
	LPD (Queue Name: lp, LP, default, DEFAULT)
Resolution	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
Printer Driver	OS: Windows 95/98/Me, Windows NT4.0, Windows 2000, Windows XP
Compatible clients:	
PC	IBM PC or compatible
CPU	CPU clock of 300 MHz or more recommended
Hard disk free space	Minimum 36 MB
	20 MB: Printer drive/Status display
	16 MB: Image processing area
RAM	At least 16 MB (Windows 95/98/NT4.0)
	At least 32 MB (Windows Me)
	At least 64 MB (Windows 2000 Professional)
	At least 128 MB (Windows XP Home Edition/Professional)
Browser	Either of the following browsers is required to use PageScope Light.
	Netscape Navigator Ver. 4.7 or later
	Internet Explorer ver5.0

**(5) Controller magicolor 2350 (PWB-P)**

CPU	IBM Mercury, Power PC 405, 200 Mhz processor core SOC, system bus speed of 100 Mhz
Memory configuration	Boot ROM (512KB); 12MB Flash ROM (supports up to 24MB) 128 MB standard, upgreadeable to 384 MB via 1 DIMM slot
Standard I/F	Ethernet (10/100BASE-TX, RJ-45) IEEE1284 (Compatible/Nibble/ECP/EPP) USB 1.1
Optional I/F	Dongle (803.11b & Bluetooth) via parallel
Optional Hard Disk	IDE Hard Disk Kit (includes daughterboard, hard disk and TOD clock); IDE Hard Disk Kit (without hard disk) for third party hard disks.
Resident Emulations	PostScript 3, PCL 5, XL, PDF v. 1.3 (requires optional hard disk), Line printer
Fonts	137 PostScript fonts, 90 PCL fonts (80 scalable & 10 bitmap)
System Software	Upgradable via FLASH at initial release, later upgradeable via Mask ROM.
Resolution	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
Printer Driver	OS: Windows 95/98/Me, Windows NT4.0, Windows 2000, Windows XP

**(6) Controller magicolor 2300W (PWB-P)**

CPU	N1-chip (Naltec original ASIC)
Memory configuration	64 KB (In ASIC) Standard RAM: 32MB
Standard I/F	IEEE1284 (Compatible/Nibble/ECP) USB Type B connector
Resolution	600 x 600 dpi, 1200 x 600 dpi
Printer Driver	OS: Windows 95/98/Me, Windows 2000, Windows XP
Compatible clients:	
PC	IBM PC or compatible
CPU	CPU clock of 300 MHz or more recommended
Hard disk free space	Minimum 256 MB 128 MB: Printer drive/Status display 128 MB: Image processing area
RAM	At least 16 MB (Windows 95/98) At least 32 MB (Windows Me) At least 64 MB (Windows 2000 Professional) At least 128 MB (Windows XP Home Edition/Professional)

## **2. Installation Precautions**

### **2-1. Installation environment**

To ensure safety and prevent possible malfunctions, install the unit in a location that meets the following requirements.

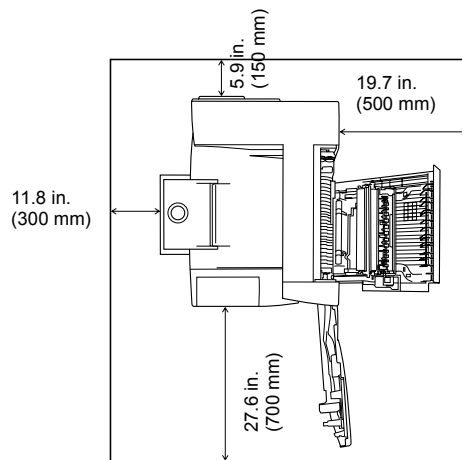
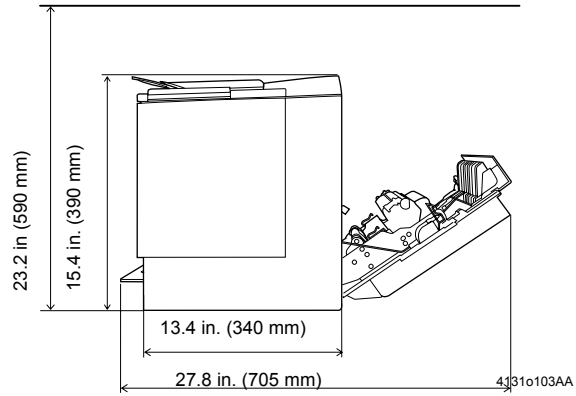
- A location that is not exposed to extremely high or low temperatures and not exposed to extremely high or low humidity.
- A location that is not exposed to extreme changes in temperature or humidity.
- A location that is not exposed to direct sunlight.
- A location out of the direct airflow of an air conditioner, heater or ventilation opening.
- A well-ventilated location that is not extremely dusty.
- A stable and level location that is not subjected to undue vibrations.
- A location that is not near room heaters or any other heat-generating appliances.
- A location away from volatile, combustible material (such as paint thinner or gasoline).
- A location that is not exposed to water or other liquids and where a short circuit of the unit is not likely.
- A location that does not put people in the direct airflow of exhaust from the unit.
- A location where ammonia gases are not generated.

### **2-2. Installation power supply**

- If other electrical equipment are plugged into the same electrical outlet, make sure that the current capacity is not exceeded.
- Use a power source with as little voltage fluctuations as possible.
- Only use an outlet expander or a table tap; never use extension cords.
- Be careful that the unit does not pinch or is not placed on top of power or transmission cords of other electrical equipment.
- Periodically check that the following conditions are met:
  - \*The power supply plug does not feel unusually warm.
  - \*The power supply cord is free of cracks and scratches.
  - \*The power supply plug is securely inserted into the electrical outlet.
  - \*Pressure is not applied to the power supply cord.

### 2-3. Space requirements

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### **3. Operation Precautions**

#### **3-1. Ensuring the optimum performance of this unit**

- Never place heavy objects on the unit or subject it to shocks.
- Make sure that the power supply plug is securely inserted into the electrical outlet.
- Never remove secured panels or open doors of the unit while it is printing.
- Never turn off the unit while it is printing.
- Always provide good ventilation when using the unit for a long period of time within a confined area.
- Never use combustible sprays near the unit.
- If the unit becomes unusually warm or generates an unusual noise, immediately turn it off, and then unplug the power supply cord.
- Never turn on the unit at the same time that the power supply cord is being plugged in.
- When unplugging the power supply cord, always grasp the plug, not the cord.
- Never bring magnetized objects near the unit.
- Never place vases or other containers filled with liquid on the unit.
- Be sure to turn off the unit if it is not to be used for a long period of time or if a power outage occurs.
- Never allow metal objects such as paper clips or staples to fall into the unit or any of its openings.

#### **3-2. Operating environment**

In order to ensure proper operation of the unit, make sure that the operating environment meets the following conditions:

- Temperature: 50-95° F (10-35 °C)
- Humidity: 15-85% Rh
- Temperature fluctuation:  $\pm 18^{\circ}$  F (10 °C) per hour
- Humidity fluctuation:  $\pm 20\%$  Rh per hour

#### **3-3. Power supply requirements**

In order to ensure proper operation of the unit, make sure that the power supply meets the following conditions:

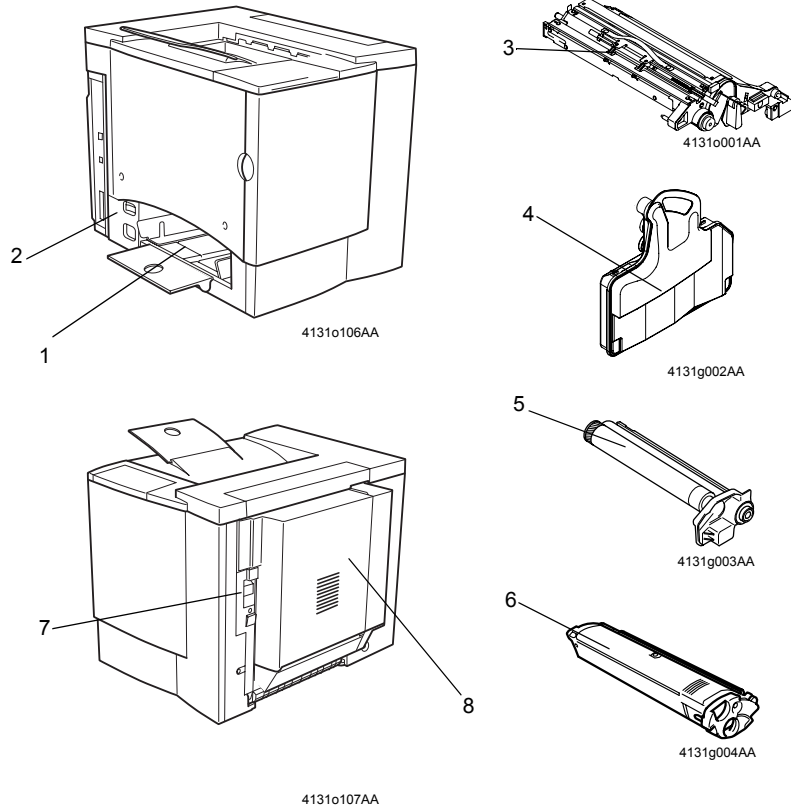
- Voltage fluctuation  $\pm 10\%$  of the specified voltage
- Frequency fluctuation  $\pm 3$  Hz%
- In order to reduce the risk of electric shock in the event of a short circuit, the ground wire must be connected.
- Attach the ground wire to the ground terminal of the electrical outlet or to a ground connection that complies with local electrical standards.
- Never connect the ground wire to a gas pipe, a telephone ground connection, a lightning rod or a water pipe, otherwise a fire or electric shock may occur.

#### **3-4. Other precautions**

When servicing a machine equipped with a laser beam, observe the following precautions:

- When servicing parts in the path of the laser beam (near the print head or PC drum), be sure to first unplug the power supply cord of the unit.
- When you are required to service the unit with the power supply cord plugged in, be sure to strictly observe the following precautions:
  1. Before performing any service procedures, be sure to remove any reflective accessories such as watches and rings, and wear laser protective goggles.
  2. Be sure that nobody is nearby while you perform the service operations.
  3. Do not bring highly reflective tools into the path of the laser beam.

### 3-5. Parts Identification



1. Manual feed tray
2. Power switch
3. Image transfer belt unit
4. Waste toner bottle
5. Drum cartridge
6. Toner cartridge
7. Right-side door release lever
8. Duplex unit (optional)



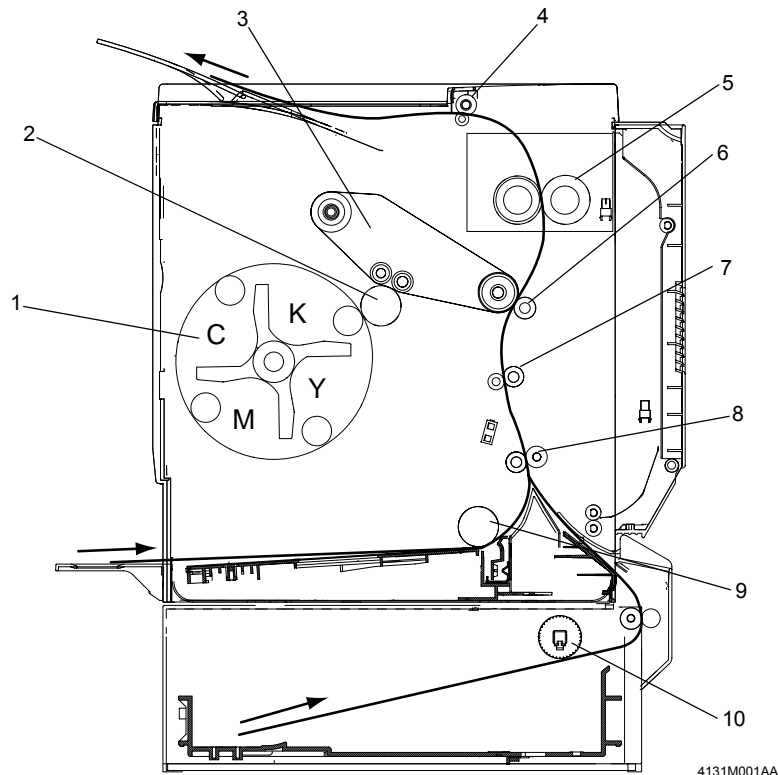
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**MECHANICAL/  
ELECTRICAL**

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## 1. CROSS-SECTIONAL VIEW



- |                                 |                                 |
|---------------------------------|---------------------------------|
| 1. Toner Cartridge Rack         | 8. Transport Roller             |
| 2. PC Drum                      | 9. Paper Take-Up Roller         |
| 3. Image Transfer Belt Unit     | 10. Second Paper Take-Up Roller |
| 4. Exit Roller                  |                                 |
| 5. Fusing Roller                |                                 |
| 6. Second Image Transfer Roller |                                 |
| 7. Synchronizing Roller         |                                 |

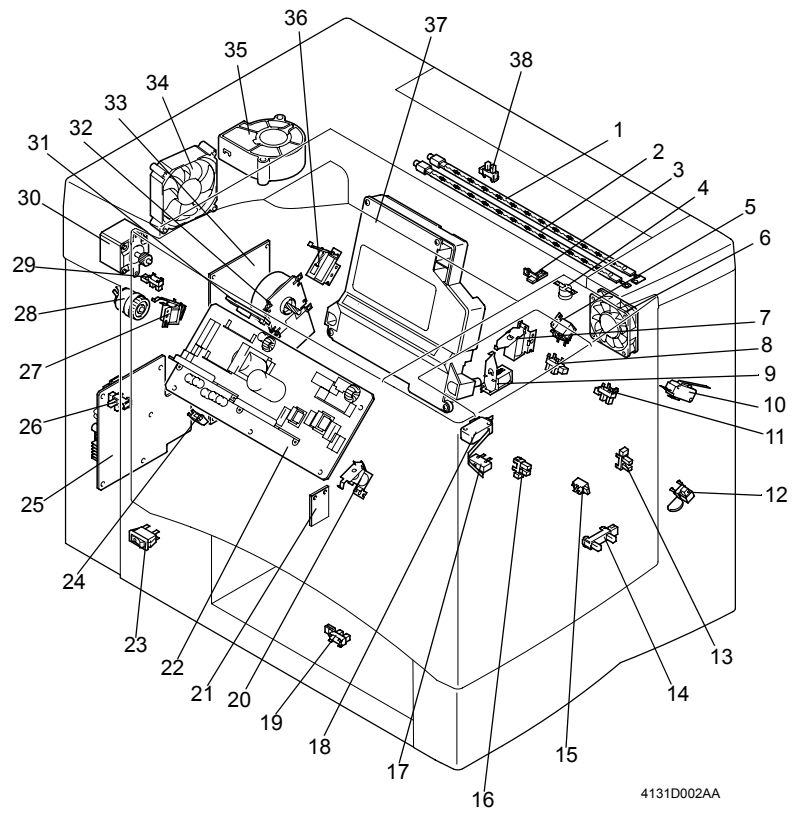
### \* Paper Path

The printer has a Multi-Purpose Tray (MPT) capable of holding up to 200 sheets of paper. Paper feeding becomes a two-way system by mounting an optional feeder unit.

- The paper pulled by the Paper Take-Up Roll is transported by the Transport Roller, Synchronizing Roller, Second Image Transfer Roller, Fusing Roller, and the Exit Roller and fed out of the printer.

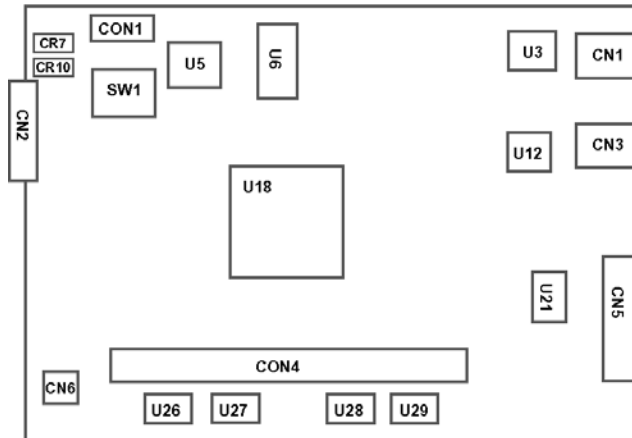
## 2. ELECTRICAL COMPONENTS LAYOUT

### (1) Printer



1. Fusing Roller Heater Lamp (H1)
2. Fusing Pressure Roller Heater Lamp (H2)
3. Thermistor (TH1)
4. Thermostat (TS1)
5. Second Image Transfer Roller Pressure Contact Solenoid (SL5)
6. Fusing Cooling Fan Motor (M5)
7. Synchronizing Roller Solenoid (SL3)
8. Fusing Paper Loop Detecting Sensor (PC11)
9. Transport Roller Solenoid (SL2)
10. Right Door Switch (S3)
11. Paper Transport Sensor (PC12)
12. Waste Toner Bottle Set Switch (S5)
13. Second Image Transfer Roller Pressure Positioning Sensor (PC7)
14. Waste Toner Full Detecting Sensor (PC6)
15. OHP Detecting Sensor (PC3A)
16. Synchronizing Roller Sensor (PC2)
17. Laser Safety Switch (S4)
18. Front Door Switch (S2)
19. Manual Feed Paper Empty Sensor (PC1)
20. Manual Feed Paper Take-Up Solenoid (SL1)
21. Temperature/Humidity Sensor (HS1)
22. Power Unit (PU)
23. Power Switch (S1)
24. Toner Cartridge Detecting Sensor (PC8)
25. High Voltage Unit (HV)
26. Rack Home Position Sensor (PC4)
27. Belt Cleaner Separation Solenoid (SL4)
28. Rack Clutch (CL1)
29. Belt Cleaner Positioning Sensor (PC9)
30. Rack Motor (M2)
31. AIDC Sensor (AIDC)
32. Main Motor (M1)
33. Master Board (PWB-A)
34. Power Supply Cooling Fan Motor (M4)
35. Ventilation Fan Motor (M6)
36. Fusing Paper Loop Solenoid (SL6)
37. Print Head Unit (PH)
38. Exit Sensor (PC10)

(2) 2300DL Controller

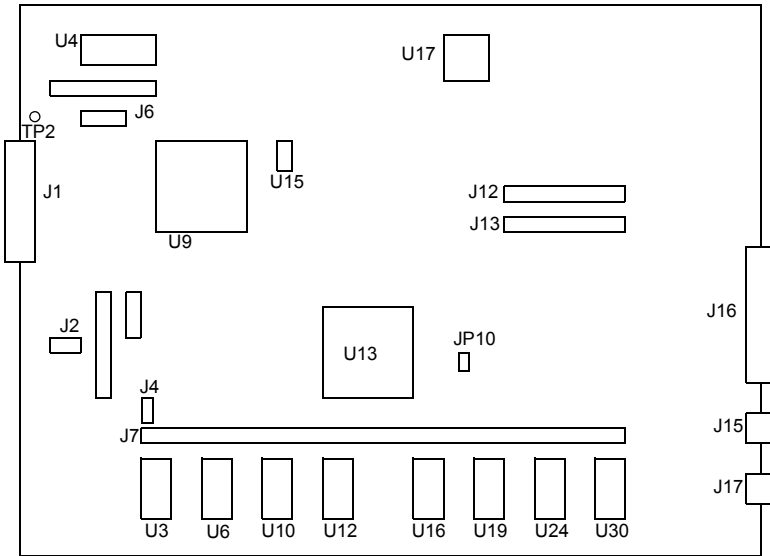


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Symbol	Item	Explanation
U18	CPU	Destiny D8405 200 MHz controller control CPU
U26, U27, U28, U29	SDRAM	8-MB memory chip, a total of 32 MB standard memory
CON4	Expansion slot	68-pin SD-RAM add-on memory (128, 256 MB, PC100/133 CL3)
CN1	Connector	10/100Base-T Ethernet RJ45 connector
U3	IC	Ethernet Controller
CN3	Connector	USB connector
U12	IC	USB Controller
CN5	Connector	IEEE1284 Parallel Connector
U21	IC	Parallel buffer
U6	IC	System data storage ROM (4 MB)
U5	ASIC	JBIG compressed image processing
CON1	Connector	Controller Panel expansion connector
CN2	Connector	Engine Controller connector
SW1	Dip SW	1. Not Used (Always OFF)
		2. Not Used (Always OFF)
		3. ON: A4, OFF: Letter
		4. ON: A4, OFF: Letter
CR7	LED	For 5 V voltage check
CR10	LED	For 3.3 V voltage check
CN6	Connector	Video signal connector

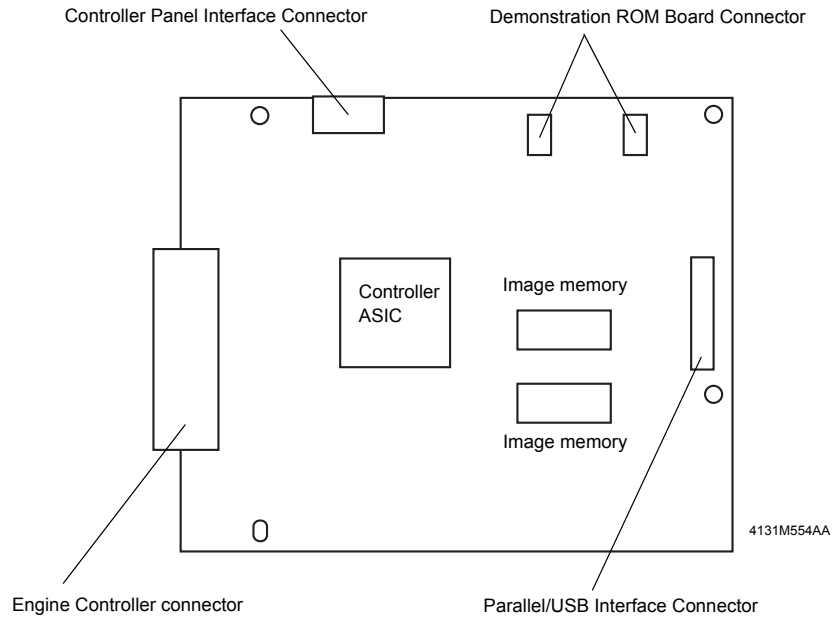


(3) 2350 Controller



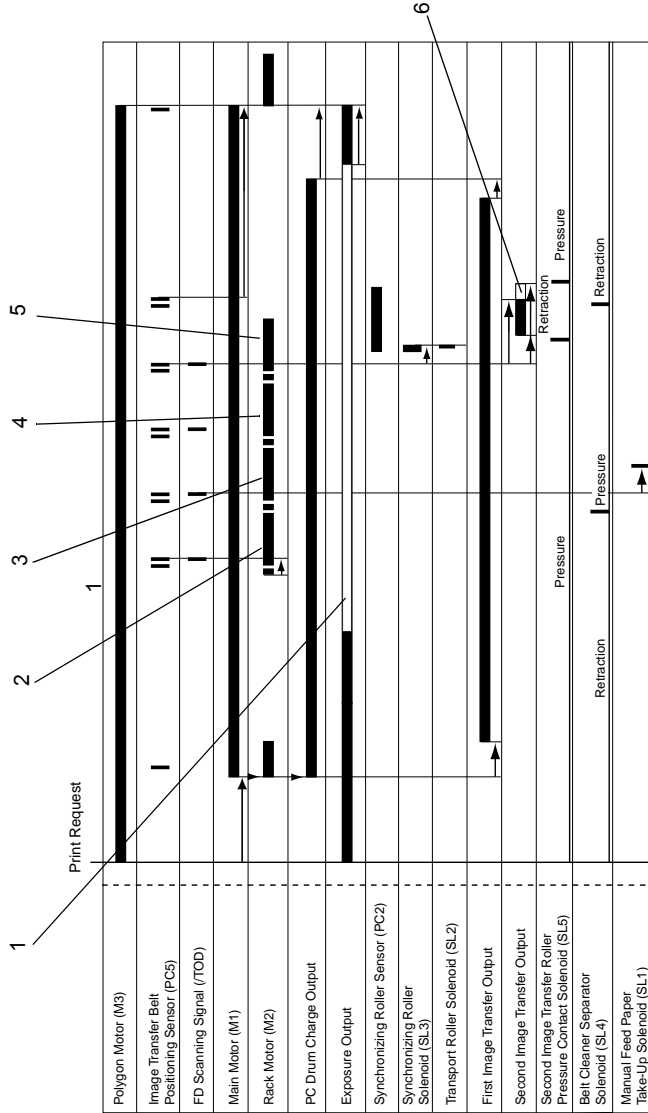
Symbol	Item	Explanation
U13	CPU	200 MHz Power PC 405 CPU
U3, U6, U10, U12, U16, U19, U24, U30	SDRAM	A total of 128 MB standard memory
J7	Expansion slot	68-pin SD-RAM add-on memory (128, 256 MB, PC100/ 133 CL3)
J15	Connector	10/100Base-T Ethernet RJ45 connector
J16	Connector	IEEE1284 Parallel Connector
J17	Connector	USB connector
JP10	Jumper	DIAG test point
J2	Jumper	DEBUG test point
J1	Connector	Engine I/F
TP2	Test Point	5V
J12	Connector	PCI Daughterboard Card Bus
J13	Connector	PCI IDE Hard Drive Card Bus
U9	IC	FPGA1
U15	IC	FPGA PROM
U17	IC	DSFL PROM
J6	Connector	Controller Panel connector
J4	Connector	Printhead Video signal connector
U4	Socket	Empty PROM Socket

(4) 2300W Controller



### 3. OPERATING SEQUENCE

\* Conditions: A4 plain paper, full-color printing



- 1. Outside image area illumination
- 2. Y development
- 3. M development
- 4. C development
- 5. Bk development
- 6. Paper trailing edge voltage

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## 4. IMAGE STABILIZATION CONTROL

- The printer provides the image stabilization control as detailed below to ensure stabilized print image.

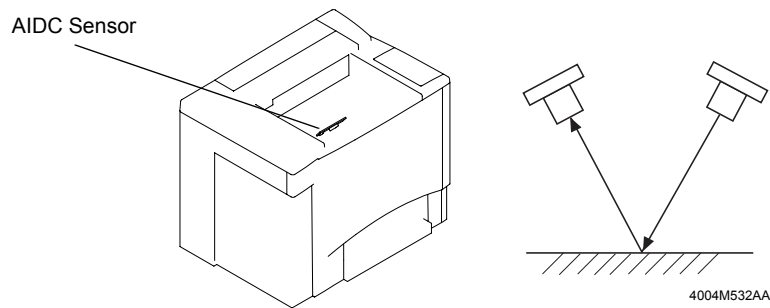
Purpose	Control	Control (Sensor)
<ul style="list-style-type: none"> <li>To stabilize image density</li> <li>To stabilize gradation</li> </ul>	AIDC control	AIDC Sensor (AIDC detection)
<ul style="list-style-type: none"> <li>To stabilize image transfer</li> </ul>	Image transfer output control	Temperature/Humidity Sensor

### 4-1. AIDC Detection

- The amount of toner sticking to the Image Transfer Belt is measured and color reproducibility is stabilized.

Amount of Toner Sticking	Intensity of Light Reflected	Output
Large	Low	Small
Small	High	Great

- A light-emitting diode is used to emit infrared rays that illuminate the toner pattern on the Image Transfer Belt.
- The photo receiver detects the intensity of the infrared light reflected off the toner pattern on the Image Transfer Belt.
- A voltage corresponding to the intensity of the reflected light is output to the Master Board (PWB-A).



#### 4-2. Outline of AIDC Control

- The following AIDC controls are provided to ensure image stabilization.

Control	Description
• Ds correction control	• Sets the developing bias.
• LED intensity adjustment control	• Adjusts the intensity of the LED light.
• Belt surface (on which no toner sticks) reflection factor measurement control	• Used for corrections for the laser intensity and $\gamma$ correction control.
• Solid image toner amount control	• Maintains a given amount of toner sticking to the surface of the PC Drum.
• Laser intensity adjustment control	• Ensures constant reproduction of black and white lines. • Adjusts the intensity of the laser light to ensure a constant amount of toner consumed.
• $\gamma$ correction control	• Makes a gradation correction by means of the controller

**(1) Ds correction control**

- Sets a developing bias optimum to prevent foggy print or uneven density.

**(2) LED intensity adjustment control**

- Adjusts the intensity of the LED light of the AIDC sensor to ensure a constant output value on the surface of the Image Transfer Belt (no toner area). This controls variations in characteristics of the belt caused by change with time or contamination of the sensor.

**(3) Belt surface (no toner area) reflection factor measurement control**

- Measures variations in the reflection factor caused by change with time of the Image Transfer Belt for use for corrections in the laser intensity control and  $\gamma$  correction control.

**(4) Solid image toner amount control**

- Adjusts the pulse width ratio of the developing bias to keep constant the amount of toner sticking to the surface of the PC Drum for a 100% solid image.

**(5) Laser intensity adjustment control**

- Adjusts the intensity of the laser light to ensure constant reproduction of black and white lines and constant toner consumption characteristics with changes in characteristics of PC Drum, developing, and drum charging and in durability.

**(6)  $\gamma$  correction control**

- Makes a gradation correction by producing a pattern on the Image Transfer Belt, measuring the image density of the pattern with the AIDC Sensor, and sending the measurement results to the controller.

### 4-3. Operation Timing

- A specific function of image stabilization control is carried out as required according to the situation.

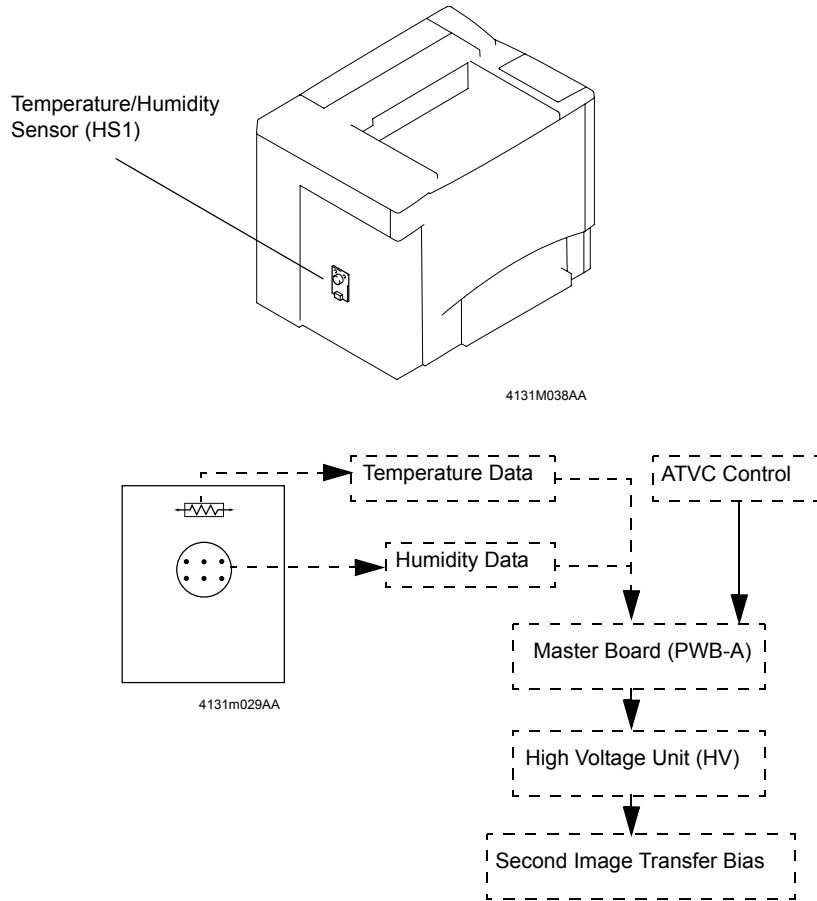
Operating Timing	Processing	
<ul style="list-style-type: none"> <li>• When a new Image Transfer Belt is detected</li> <li>• When a new Drum Cartridge or Toner Cartridge is detected</li> <li>• When the environment changes</li> <li>• When 1,000 printed pages have been produced*1</li> </ul>	A	<ul style="list-style-type: none"> <li>• Ds correction control -&gt; LED intensity adjustment control -&gt; Belt surface reflection factor measurement control -&gt; Solid image toner amount control -&gt; Laser intensity adjustment control -&gt; <math>\gamma</math> correction control</li> </ul>
<ul style="list-style-type: none"> <li>• When 200 printed pages have been produced*2</li> </ul>	B	<ul style="list-style-type: none"> <li>• Solid image toner amount control -&gt; Laser intensity adjustment control -&gt; <math>\gamma</math> correction control</li> </ul>
<ul style="list-style-type: none"> <li>• When the processing is commanded from the Control Panel</li> </ul>	C	<ul style="list-style-type: none"> <li>• <math>\gamma</math> correction control</li> </ul>

\* 1: When 1,000 printed pages have been produced after A has been performed last.

\* 2: When 200 printed pages have been produced after A and B have been performed last.

#### 4-4. Temperature/Humidity Sensor

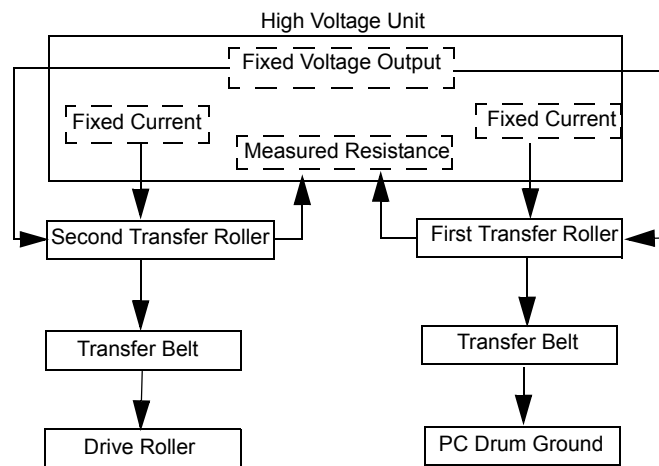
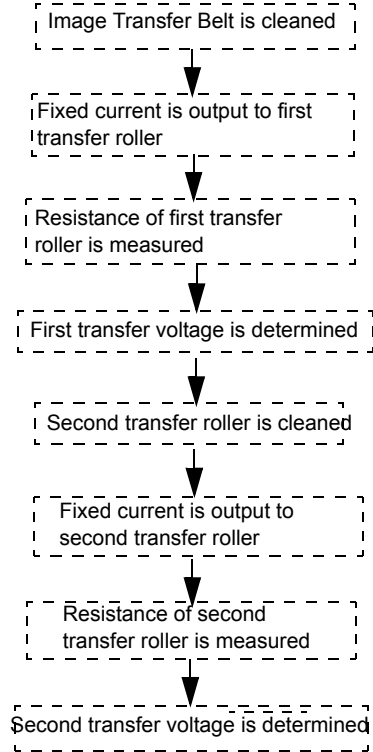
- The bias voltage is determined based on the value calculated through ATVC (Auto Transfer Voltage Control) and by the Temperature/Humidity Sensor (environment).



#### 4-5. ATVC (Auto Transfer Voltage Control)

- Adjusts the transfer bias voltage based on the age and cleanliness of the transfer rollers.

##### ATVC Control





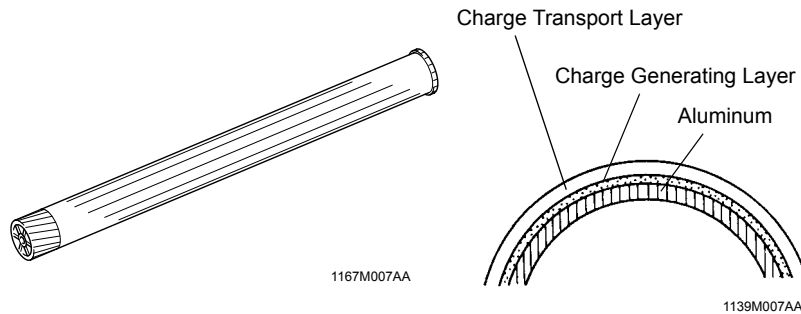
## 5. DRUM CARTRIDGE

### 5-1. PC Drum

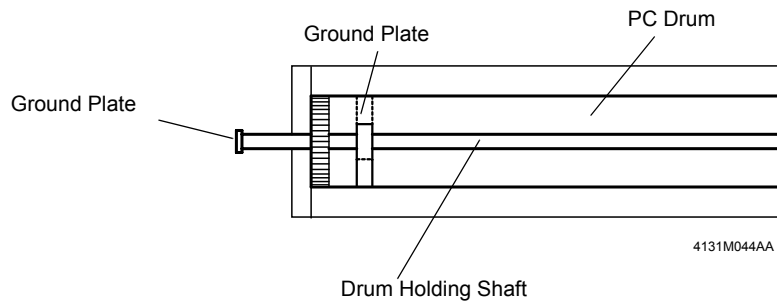
- The photoconductive drum used in this printer is the organic photo conductor (OPC) type.
- \* This is the PC Drum consisting of the Charge Generating Layer and the Charge Transport Layer applied to an aluminum alloy base.

#### Handling Precaution

The PC Drum exhibits light fatigue after being exposed to light for a long time, which results in its sensitivity being changed. Always wrap the drum in the PC Drum Cloth or a soft cloth immediately after it has been removed from the printer. Use utmost care to protect the surface of the PC Drum from contamination.

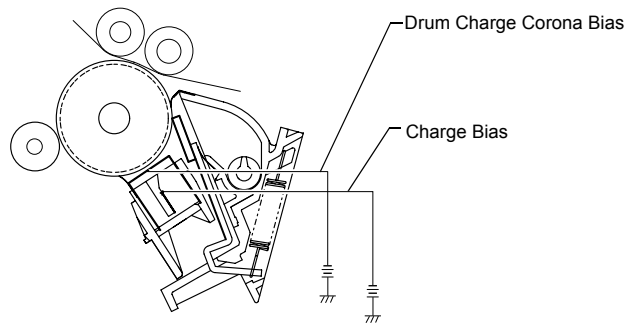
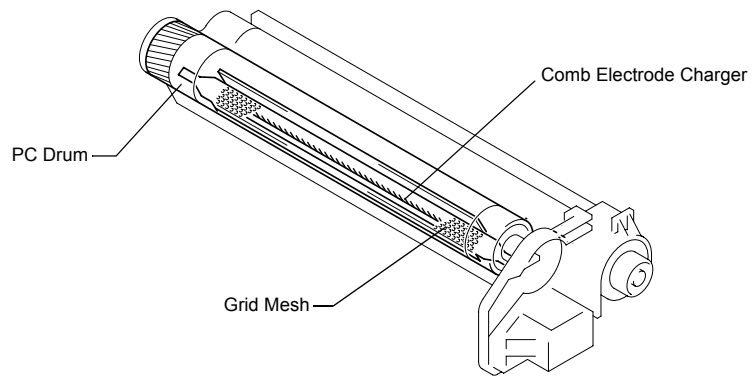


- Grounding of the PC Drum
- \* The PC Drum ground point is located inside, and in the rear of, the PC Drum. It is in constant contact with the Drum Holding Shaft. When the Drum Cartridge is installed in the printer, the Drum Holding Shaft contacts the ground plate in the printer. This provides for assured grounding of the PC Drum through the ground point, Drum Holding Shaft, and ground plate to the frame of the printer.



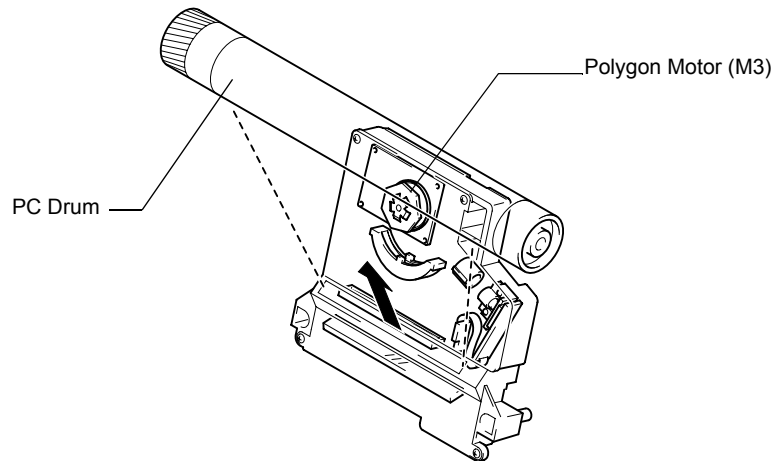
## 5-2. PC Drum Charging

- The PC Drum Charge Corona employs a comb electrode Scorotron charger system.
- It generates corona emission to deposit a charge evenly across the surface of the PC Drum through a grid mesh.
- The comb electrode ensures that a charge is concentrated on the grid mesh, thus reducing the amount of ozone produced.



## 6. LASER EXPOSURE

An electrostatic latent image is formed on the surface of the PC Drum by a laser light emitted from the print head.



### (1) FD Direction (vertical scanning direction)

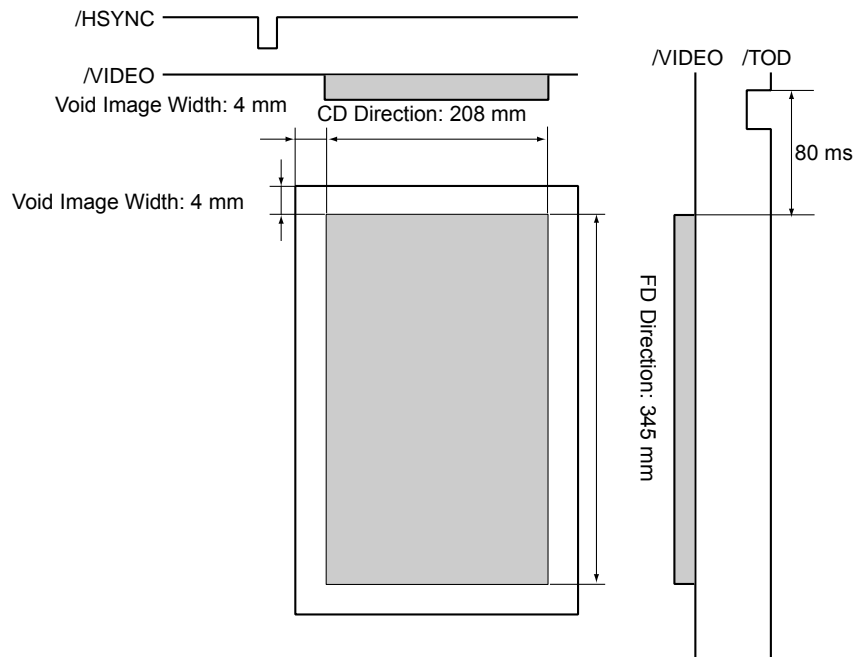
- The Polygon Motor and Main Motor are energized by the PRINT signal, which starts a paper take-up sequence.
- The printing action in the FD direction is started when the Image Transfer Belt Positioning Sensor is activated.

### (2) CD Direction (horizontal scanning direction)

- The printing action in the CD direction is started by the SOS signal sent from the Laser Control Board.

**(3) Print Area**

- The figure below shows the print area in the FD and CD direction.



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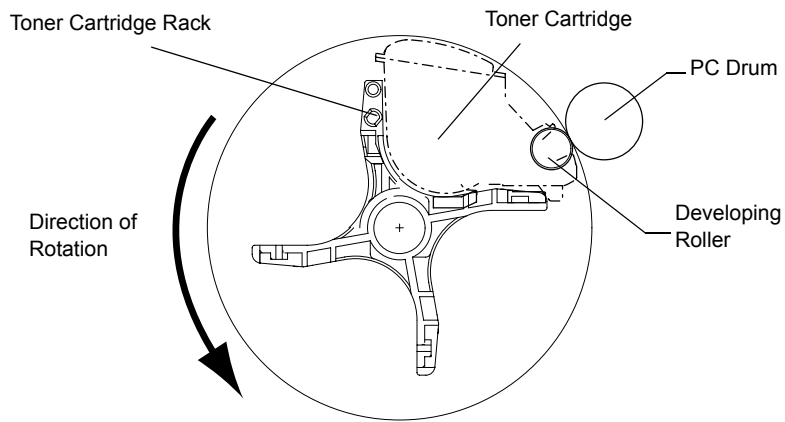
## 7. DEVELOPING UNIT

### (1) Toner Cartridge Rack

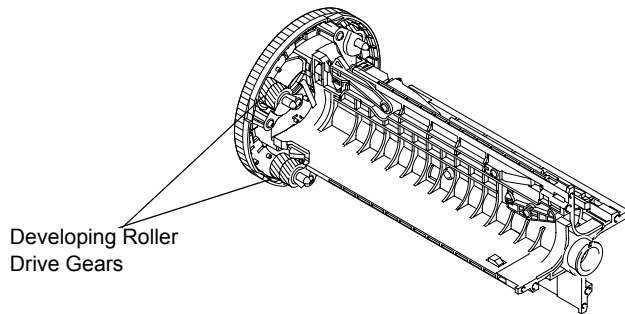
When printing in each of the four different colors of toner, the Toner Cartridge Rack is rotated to bring the Toner Cartridge of the corresponding color of toner (K, Y, M, or C) to the developing position.

### (2) Drive for the Toner Cartridge Rack

- The Toner Cartridge Rack is driven by the Rack Motor (M2) and Rack Clutch.



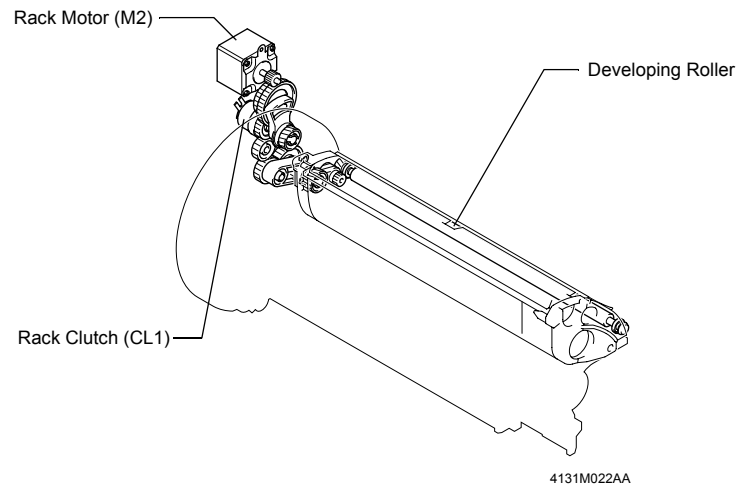
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### (3) Drive for the Developing Roller

- The Developing Roller is driven by the Rack Motor (M2) and the Developing Roller Drive Gears.
- When the Toner Cartridge Rack is stopped at the developing position, the Developing Roller is rotated by a drive from the Rack Motor (M2) transmitted with the Developing Roller Drive Gears.



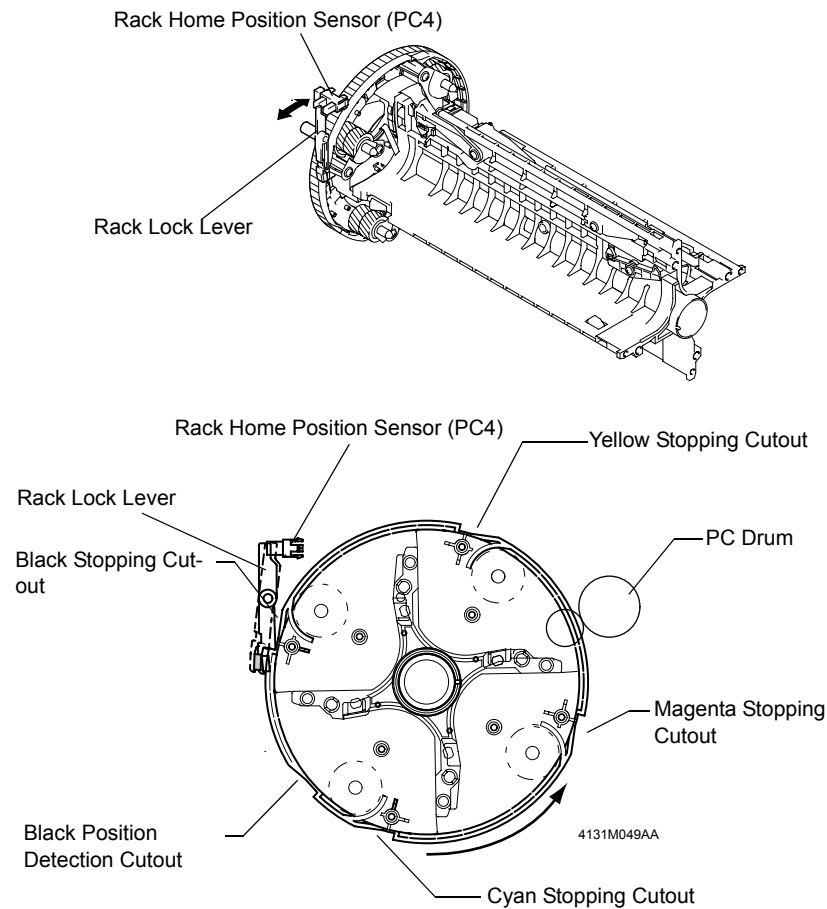
## 7-1. Developing Position

### (1) Toner Cartridge Rack Stop Position for Development

- The stop position for development of each Toner Cartridge is determined by the Rack Lock Lever and the Rack Home Position Sensor (PC4).
- The Toner Cartridge Rack rotates and the Rack Lock Lever drops into a stopping cutout. This unblocks the Rack Home Position Sensor (PC4), thus determining the stop position for the Toner Cartridge for the current use.

### (2) Toner Cartridge Rack Standby Position

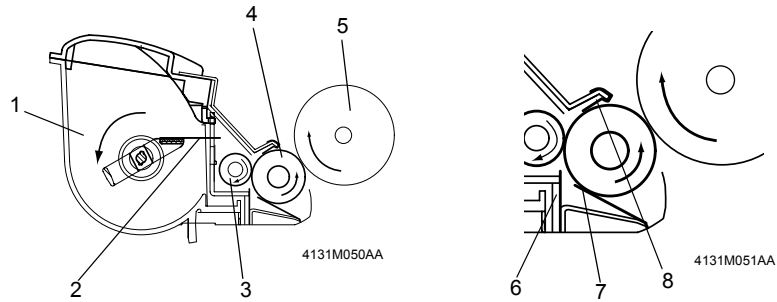
- The standby position (reference position) of the Toner Cartridge Rack is 20° ahead of the developing stop position of the black Toner Cartridge.
- When the Toner Cartridge Rack rotates and the Rack Lock Lever moves past the black position detection cutout (PC4: blocked -> unblocked), the rotating speed of the rack is decelerated.



## 7-2. Toner Cartridge

### (1) Construction

- The Toner Cartridge is constructed as illustrated below.



1. Toner Hopper
2. Toner Agitating Plate
3. Toner Transport Roller
4. Developing Roller
5. PC Drum

6. First Regulator Blade
7. Second Regulator Blade
8. Bias Seal



**(2) First Regulator Blade / Second Regulator Blade**

- Regulates the amount of toner supplied to the Developing Roller.

**(3) Developing Roller**

- Carries toner, whose amount has been regulated by the Regulator Blades.

**(4) Developing Bias**

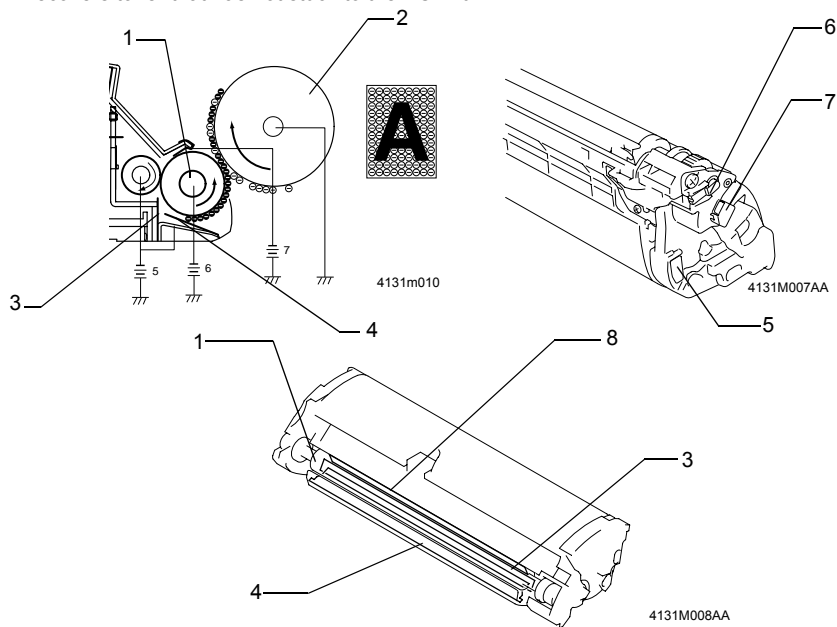
- Applied to the Developing Roller to ensure that an adequate amount of toner is fed to the PC Drum.

**(5) Toner Empty Detection**

- Toner consumption is calculated from image data for toner empty detection.
- When a toner-empty condition is detected, the corresponding message is displayed on the control panel.

**(6) Bias Seal**

- Recovers toner that has not stuck to the PC Drum.

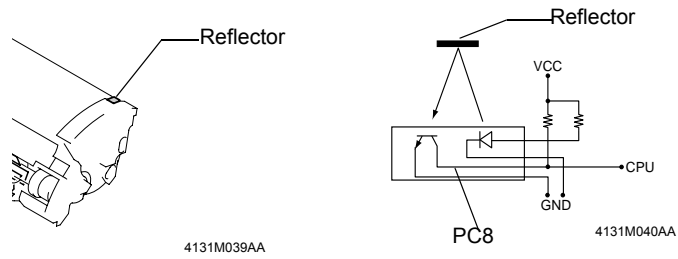


- |                           |                         |
|---------------------------|-------------------------|
| 1. Developing Roller      | 6. Developing Bias      |
| 2. PC Drum                | 7. Developing Seal Bias |
| 3. First Regulator Blade  | 8. Bias Seal            |
| 4. Second Regulator Blade |                         |
| 5. Regulator Blade Bias   |                         |

**(7) Toner Cartridge Installation Detection**

- Toner Cartridge installation detection is made with the Toner Cartridge Detection Sensor (PC8) and the Reflector in the Toner Cartridge.

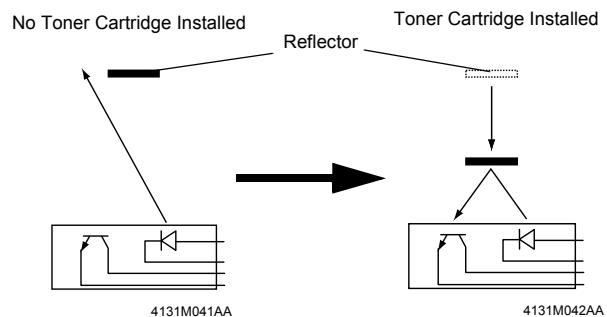
Detection Method		Intensity of Light Reflected
	No Cartridge installed	
Cartridge installed		YES



**(8) Detection of a brand new Toner Cartridge**

1. A brand new Toner Cartridge is installed.
- ↓
2. The Front Door is closed. Then, the Power Switch is turned ON.
- ↓
3. The Toner Cartridge Rack is rotated to bring the Toner Cartridge at the developing position.
- ↓
4. The Toner Cartridge Detection Sensor (PC8) detects whether or not the Toner Cartridge is installed.
- ↓
5. The Toner Cartridge Detection Sensor judges that no Toner Cartridge is installed, since no light reflection is made with the Reflector placed under the Cover in the brand new Toner Cartridge.
- ↓
6. The toner Cartridge, which is detected as "not installed," is stopped at the developing position. Then, the Developing Roller is rotated.
- ↓
7. The Reflector placed under the Cover is pushed out in the Toner Cartridge with a rotation of the Developing Roller. The Toner Cartridge Detection Sensor detects that the Toner Cartridge is installed with the light reflection from the Reflector.
- ↓
8. Other Toner Cartridges are stopped at the developing position respectively. If the Cartridge is a brand new, sequences from 4 through 7 are repeated for each Color Toner Cartridge.

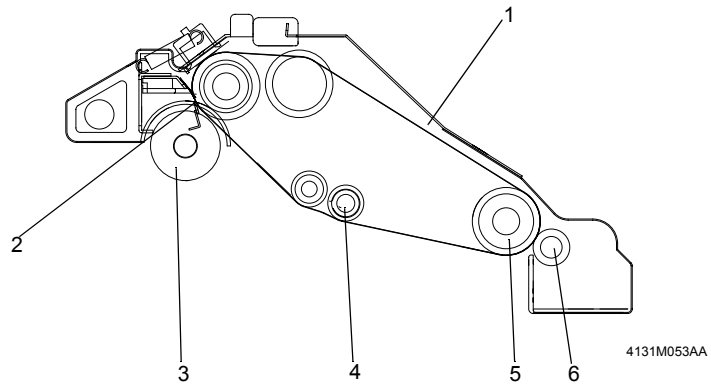
According to the above-mentioned sequential operation, the Toner Cartridge is detected as a brand new one.



## 8. IMAGE TRANSFER

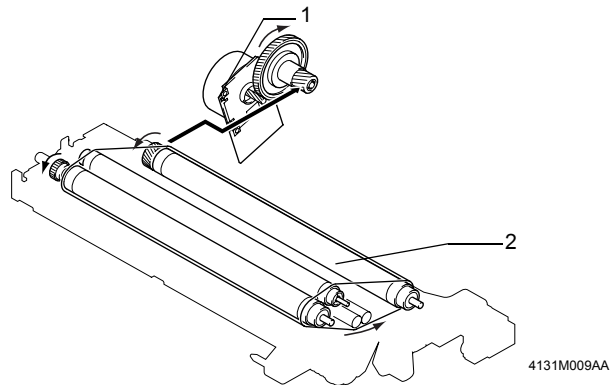
### 8-1. Image Transfer Belt Unit

#### (1) Construction



- |                                |                                 |
|--------------------------------|---------------------------------|
| 1. Image Transfer Belt         | 5. Drive Roller                 |
| 2. Cleaning Blade              | 6. Second Image Transfer Roller |
| 3. Waste Toner Conveying Coil  |                                 |
| 4. First Image Transfer Roller |                                 |

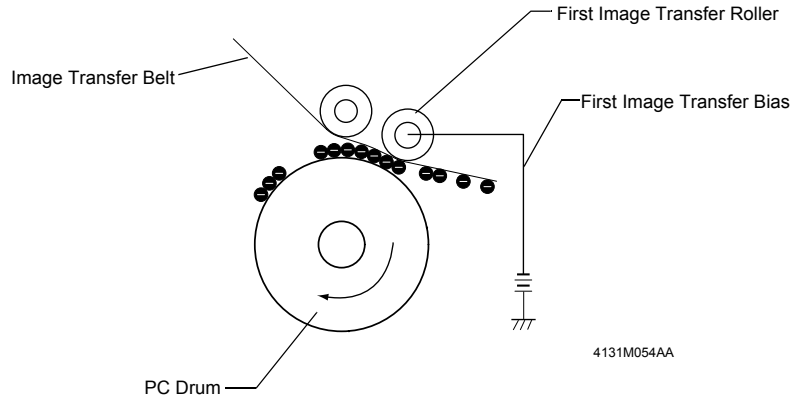
#### (2) Drive Train



- |                    |                 |
|--------------------|-----------------|
| 1. Main Motor (M1) | 2. Drive Roller |
|--------------------|-----------------|

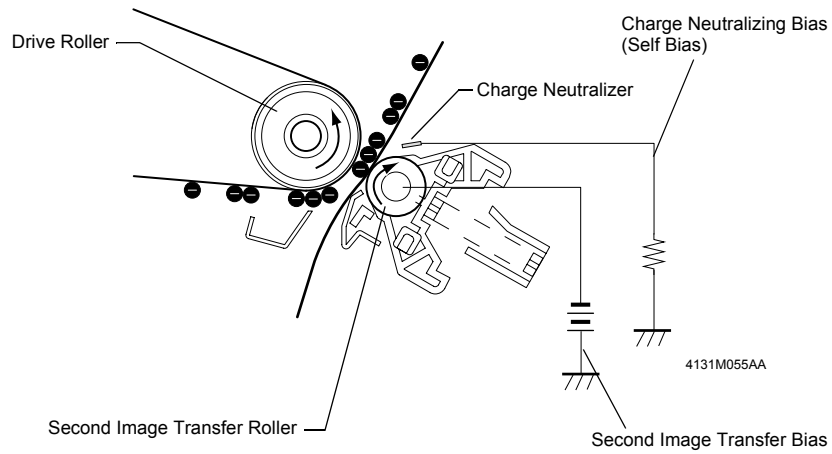
**(3) First Image Transfer**

- The first image transfer bias is applied to the First Image Transfer Roller to transfer the toner image on the surface of the PC Drum onto the Image Transfer Belt.



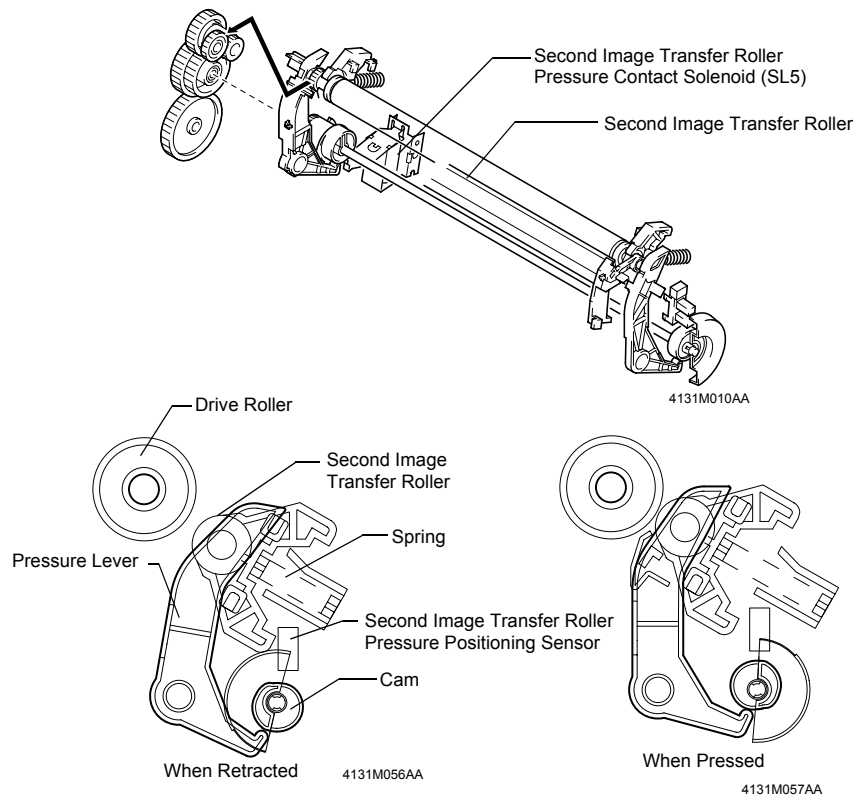
**(4) Second Image Transfer**

- The second image transfer bias is applied to the Second Image Transfer Roller to transfer the toner image on the Image Transfer Belt onto the paper.
- The residual charge left on the paper is neutralized by the Charge Neutralizer.



**(5) Second Image Transfer Roller Pressure/Retraction**

- The Second Image Transfer Roller is pressed against, and retracted from, the Image Transfer Belt by a cam on the printer side that is turned as the Second Image Transfer Roller Pressure Contact Solenoid (SL5) is energized or de energized.
- When the Second Image Transfer Roller Pressure Contact Solenoid (SL5) is energized, the cam on the printer side turns, causing the Pressure Lever to move the Second Image Transfer Roller away from the Image Transfer Belt.
- The pressure and retracted positions are detected by the Second Image Transfer Roller Pressure Positioning Sensor (PC7).



**(6) Second Image Transfer Roller Pressure/Retraction Timing**

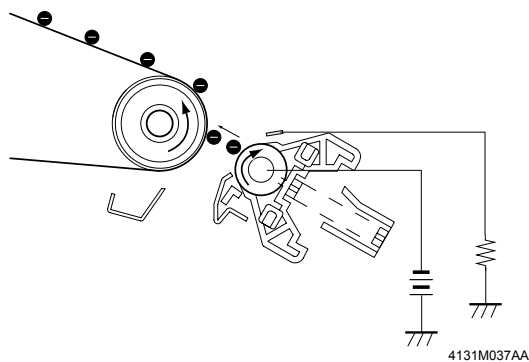
Pressed	Before the paper reaches the Second Image Transfer Roller
Retracted	After the trailing edge of the paper has moved past the Second Image Transfer Roller

## 8-2. Second Image Transfer Roller Cleaning

- A reverse bias is applied to the Second Image Transfer Roller to remove any residual toner left on the roller.
- The residual toner is transferred onto the Image Transfer Belt and then recovered by the Cleaning Blade.

### (1) Operating Timing

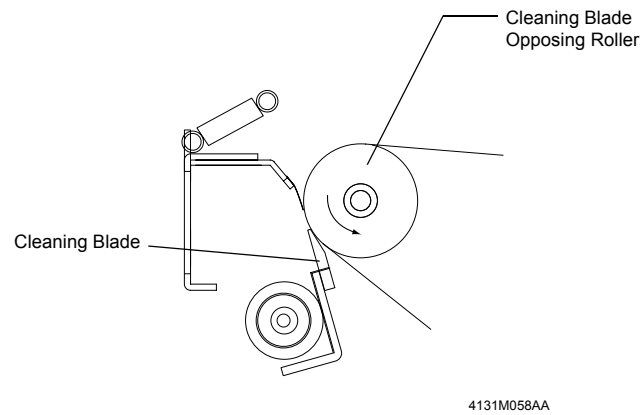
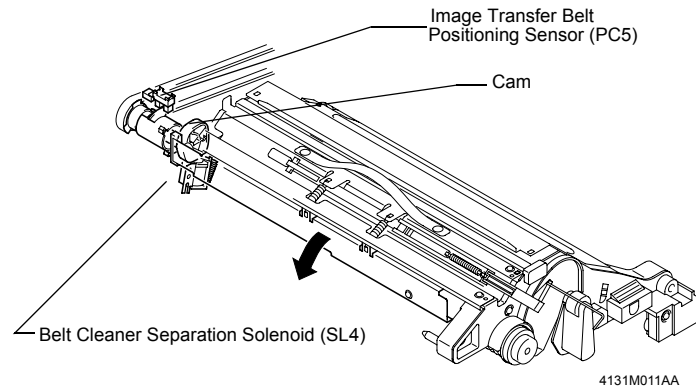
- After the lapse of a given period of time during pre-drive.
- After the paper moves past the Second Image Transfer Roller when a media error occurs.
- Before the second image transfer ATVC.



### 8-3. Image Transfer Belt Cleaning Mechanism

#### (1) Image Transfer Belt Cleaning Blade

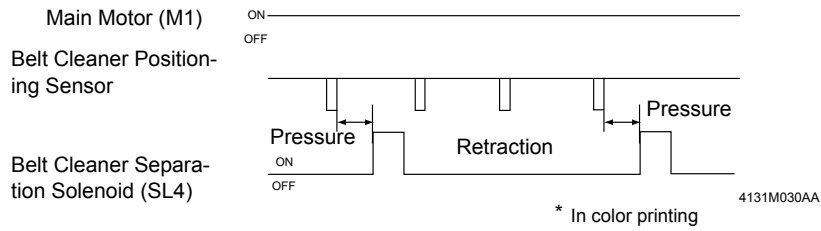
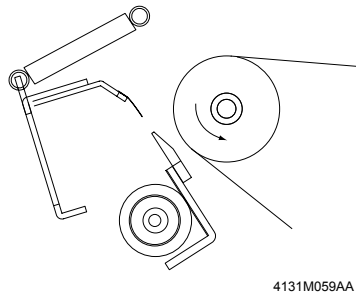
- The Cleaning Blade is used to scrape any residual toner off the surface of the Image Transfer Belt.





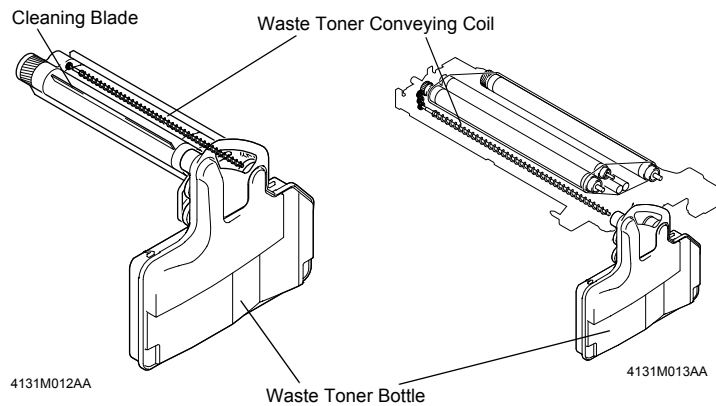
**(2) Image Transfer Belt Cleaning Blade Retraction**

- The Image Transfer Belt Cleaning Blade is retracted from the Opposing Roller by a cam on the printer side that turns as the Belt Cleaner Separation Solenoid (SL4) is energized or deenergized.
- The cam on the printer side is made into direct contact with the Cleaning Blade housing so that the Cleaning Blade is retracted.
- The Image Transfer Belt Cleaning Blade is detected at its retracted position when the cam turns to deactivate the Belt Cleaner Positioning Sensor (PC9).



#### 8-4. Waste Toner Bottle

- Waste toner on the PC Drum and the Image Transfer Belt is collected.
- The waste toner sticking to the surface of the PC Drum is scraped off by the Cleaning Blade and conveyed by the Waste Toner Conveying Coil.
- The waste toner left on the surface of the Image Transfer Belt is scraped off by the Image Transfer Belt Cleaning Blade and conveyed by the Waste Toner Conveying Coil.



#### 8-5. Waste Toner Bottle Detection

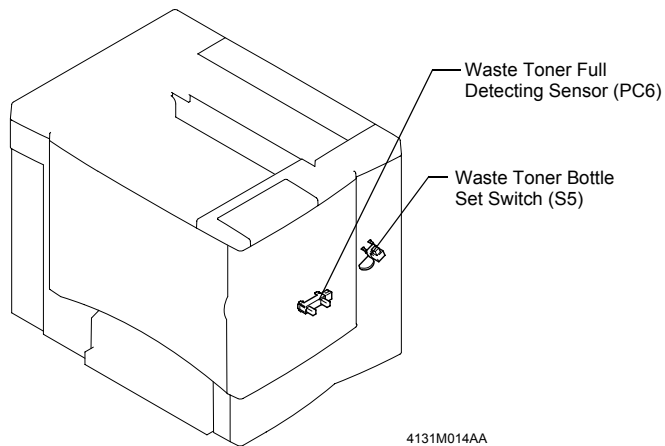
##### (1) Waste Toner Bottle Detection

- The Waste Toner Bottle Set Switch (S5) detects whether or not the Waste Toner Bottle is installed in the printer.

##### (2) Waste Toner Full Detection

The Waste Toner Full Detecting Sensor (PC6) detects that the Waste Toner Bottle is full of waste toner.

- A waste toner full condition is detected when waste toner in the Waste Toner Bottle blocks the sensor.

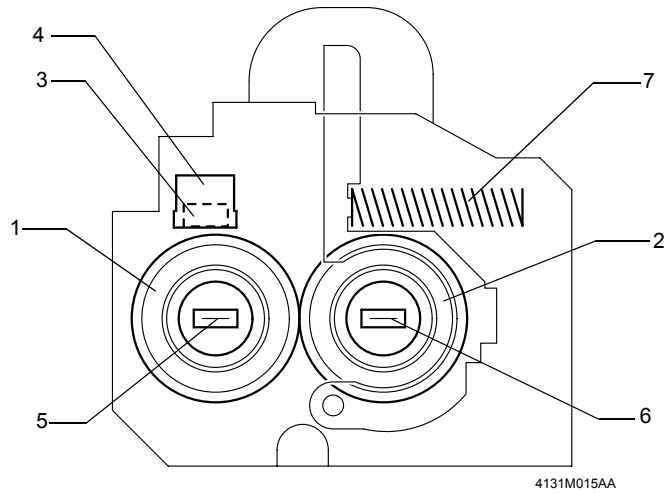


## 9. FUSING SECTION

### 9-1. Fusing Unit

#### (1) Overview

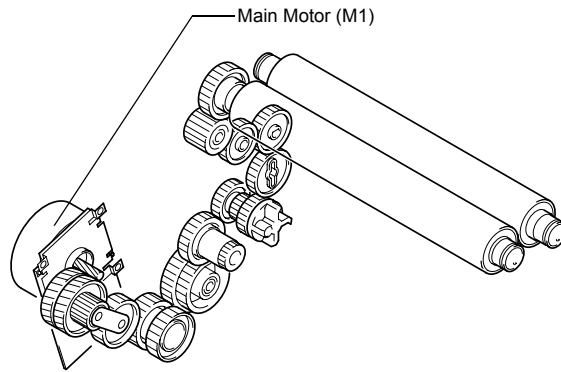
- Toner transferred onto the paper through the image transfer process is permanently fixed onto the paper.
- The fusing system employed in the printer is a heat roller method, in which the Fusing Roller heated by a heater lamp is pressed against the Fusing Pressure Roller and, by feeding the paper between these two rollers, toner is fused onto the paper.



- |                                   |  |
|-----------------------------------|--|
| 1. Fusing Roller                  | 6. Fusing Pressure Roller Heater Lamp (H2) |
| 2. Fusing Pressure Roller         | 7. Pressure Spring                         |
| 3. Thermistor (TH1))              |  |
| 4. Thermostat (TS1)               |  |
| 5. Fusing Roller Heater Lamp (H1) |  |

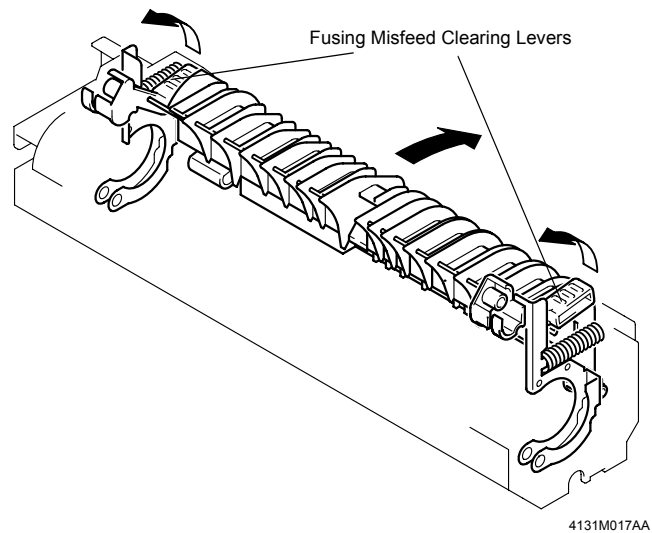
**(2) Drive**

- The Fusing Unit is driven by the Main Motor (M1).



**(3) Fusing Roller Pressure**

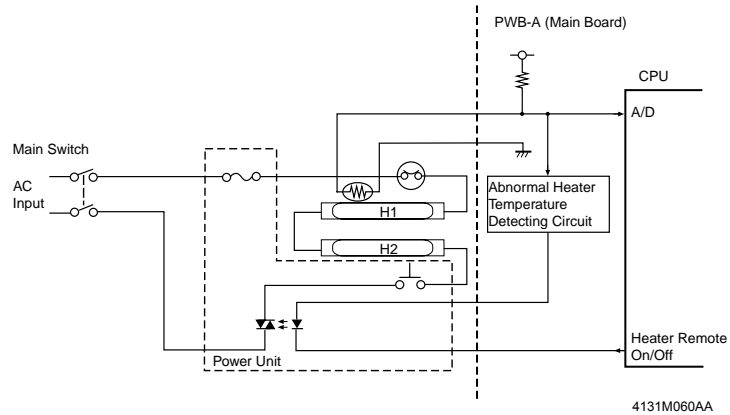
- The Fusing Roller and the Fusing Pressure Roller are pressed against each other at all times. They are released for maintenance service or replacement of parts.
- When a paper misfeed occurs in the Fusing Unit, the Fusing Misfeed Clearing Levers are pulled upward to release pressure between the two rollers.



## 9-2. Fusing Temperature Control

### (1) Fusing Temperature Control Circuit

- The resistance of the Thermistor (TH) mounted to the Fusing Roller varies with temperature. The higher the temperature, the smaller the resistance value. The output from the Thermistor (TH) is applied to the analog port of the CPU.
- When the temperature increases and the resistance of the Thermistor (TH) decreases, the input voltage to the analog port becomes smaller.
- The CPU monitors the output from the Thermistor and turns ON or OFF the Heater Lamp as necessary to control the temperature of the Fusing Roller.
- To energize the Fusing Roller Heater Lamp (H1), the CPU turns ON (LOW) the Heater Remote output signal. This turns ON the triac in the Power Unit, which allows an AC voltage to be applied to the Fusing Roller Heater Lamp (H1) to heat it.
- When the temperature of the Fusing Roller runs inordinately high, the Abnormal Heater Temperature Detecting Circuit is activated to shut down power to the Fusing Roller Heater Lamp (H1).



**(2) Fusing Temperature Control**

- The temperature control as detailed below is provided by means of the Fusing Roller Heater Lamp (H1) and the Fusing Pressure Roller Heater Lamp (H2).
- The surface temperature of the Fusing Roller is converted by the Thermistor (TH1) to a corresponding electrical signal.

1. Warm-up Control

- The temperature during the warm-up cycle is set at 170°.
- When the temperature of the Fusing Roller reaches this set temperature, both the Fusing Roller Heater Lamp (H1) and the Fusing Pressure Roller Heater Lamp (H2) are turned OFF.

2. Temperature Control in Standby State

- The temperature in the standby state is set at 171°.

3. Temperature Control during Printing (monochrome printing)

- The temperature during printing is set as follows.

	Plain paper	Thick paper postcards	OHP transparencies	Envelopes	Small size*
Set temperature	157°	157°	157°	166°	152°

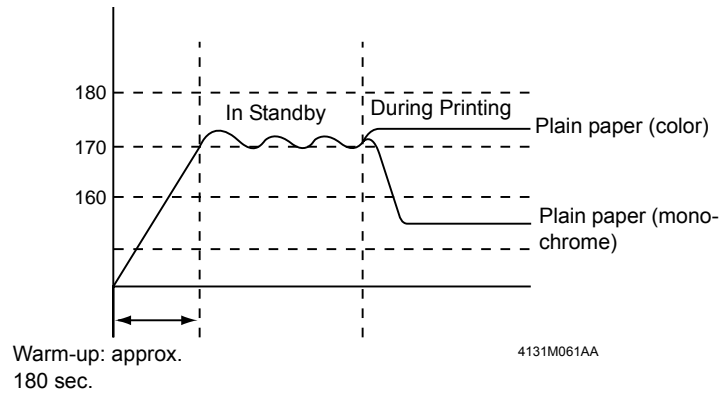
\* Small-size paper: Plain paper whose length is 226 mm or less

4. Temperature Control during Printing (color printing)

- The temperature during printing is set as follows.

	Plain paper	Thick paper postcards	OHP transparencies	Envelopes	Small size*
Set temperature	174°	174°	166°	166°	169°

\* Small-size paper: Plain paper whose length is 226 mm or less



## 10. PAPER TAKE-UP SECTION

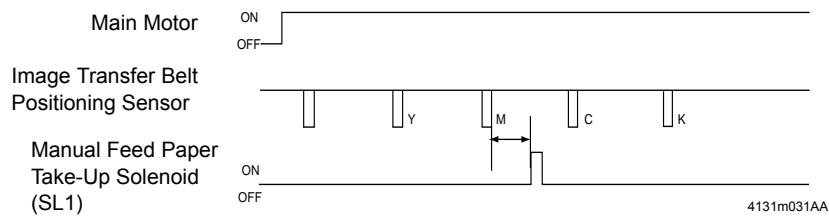
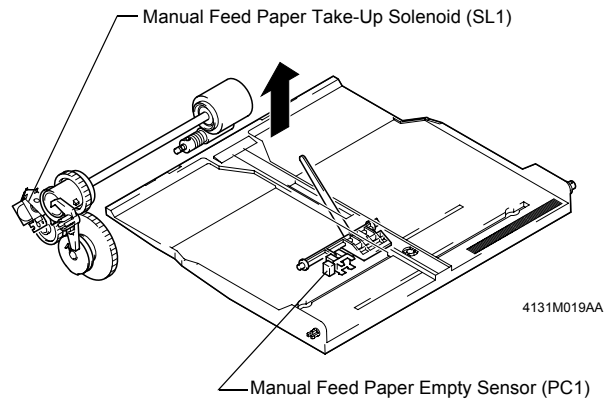
### 10-1. Manual Feed Tray

#### (1) Paper Take-Up Mechanism

- The Manual Feed Tray consists of a Paper Take-Up Roll, Paper Lifting Plate, and the Manual Feed Paper Take-Up Solenoid (SL1).
- When the Manual Feed Paper Take-Up Solenoid (SL1) is energized, the cam turns. At the same time, the Paper Lifting Plate raises the tray and the paper on the tray is taken up by the Paper Take-Up Roll and fed into the printer.

#### (2) Paper Empty Detection

- There is the Manual Feed Paper Empty Sensor (PC1) provided on the underside of the Manual Feed Tray. It detects a paper-empty condition of the Manual Feed Tray.
- When there is paper, the actuator is lowered to unblock the sensor.
- When there is no paper, the actuator is raised to block the sensor.



\* In color printing

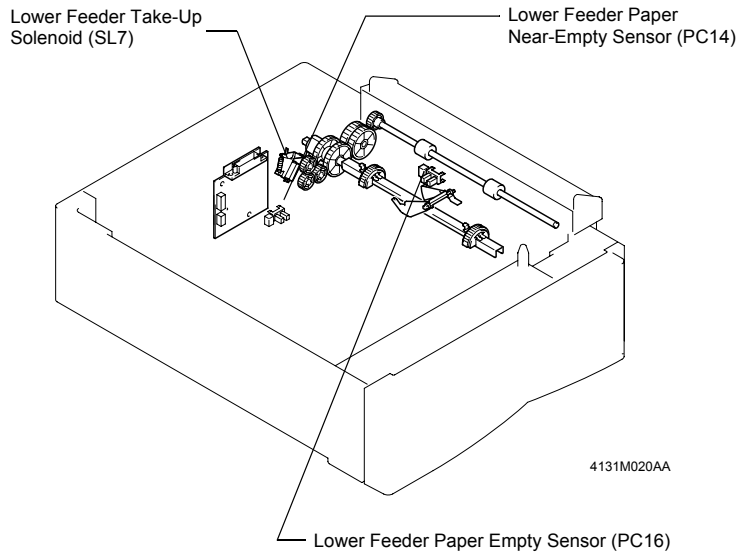
## 10-2. Lower Feeder Unit (Option)

### (1) Paper Take-Up Mechanism

- Since there is no drive motor installed, the drive for paper take-up and transport (supplied from M1) is transmitted through a drive coupling gear from the printer.
- The same paper take-up mechanism is employed as that of the Multi-Purpose Tray, except that paper separator fingers are used, instead of the separator roll with a torque limiter, for paper separation.
- The Lower Feeder Take-Up Solenoid (SL7) is controlled from the printer through the Lower Feeder Control Board (PWB-A) of the Lower Feeder Unit.

### (2) Paper Empty Detection

- A paper-empty condition is detected by the Lower Feeder Paper Empty Sensor (PC16).
- When there is paper, the actuator is raised to block the sensor.
- When there is no paper, the actuator is lowered to unblock the sensor.



### (3) Lower Feeder Paper Near-Empty Sensor (PC14)

- A paper near-empty condition is detected by the Lower Feeder Paper Near-Empty Sensor.
- A paper near-empty condition is equivalent to the following number of sheets of paper left in the tray.

	Specifications
Near-empty detection	50 +/- 25 sheets

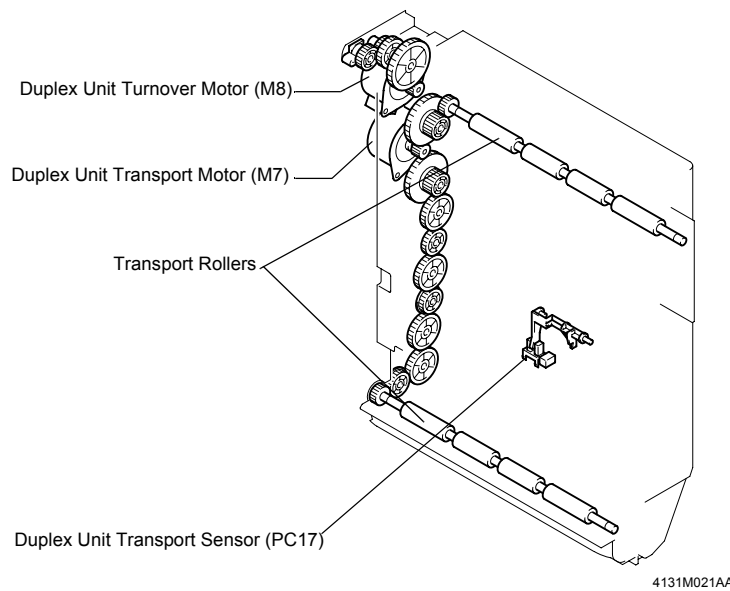


## 11. OTHER MECHANISMS

### 11-1. Duplex Unit (Option)

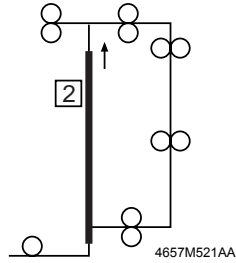
#### (1) Drive

- The drive for the Duplex Unit works as follows. The paper having a printed image on its one side is temporarily fed toward the Exit Tray and, as soon as the trailing edge of the paper moves past the guide plate before the Exit Roller, the Exit Roller is turned backward so that the paper is fed into the Duplex Unit.
- The drive for the Exit Roller is disconnected from the printer when the Duplex Unit is mounted on the printer and, instead, it is provided by the Duplex Unit Turnover Motor of the Duplex Unit.
- The Transport Rollers of the Duplex Unit are driven by the Duplex Unit Transport Motor.
- The paper is transported to the printer by the Transport Rollers.

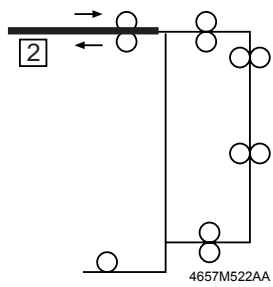


**(2) Paper Feeding Method**

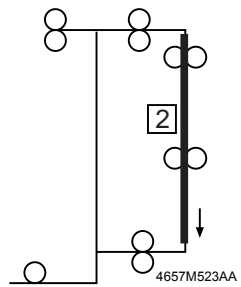
1. Operations in 2-sided printing with a single sheet of paper resident in, and circulated through, the system



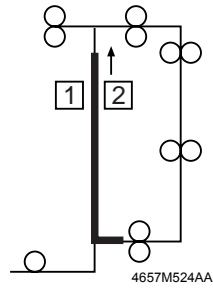
- (1) Paper is taken up and fed in and the image on page 2 of the print job is printed.



- (2) The paper is temporarily fed toward the exit section and, immediately before the paper leaves the Exit Roller, the direction of rotation of the Exit Roller is switched.
- (3) The paper is transported into the Duplex Unit.



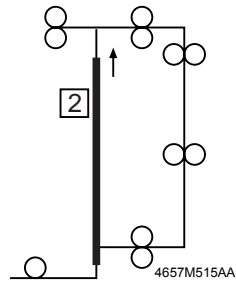
- (4) The paper in the Duplex Unit is temporarily stopped at the Duplex paper take-up position.



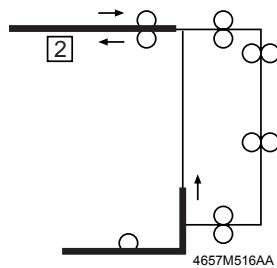
- (5) The image on page 1 of the print job is printed on the paper that is taken up from the Duplex Unit.
- (6) The first paper is fed out of the printer.

\* Steps from (2) to (6) are hereafter repeated.

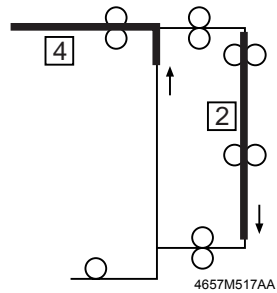
2. Operations in 2-sided printing with two sheets of paper resident in, and circulated through, the system:



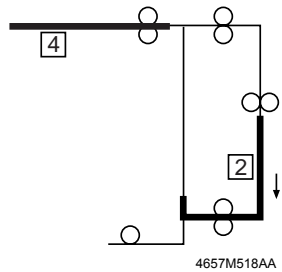
- (1) The first sheet of paper is taken up and fed in and the image on page 2 of the print job is printed.



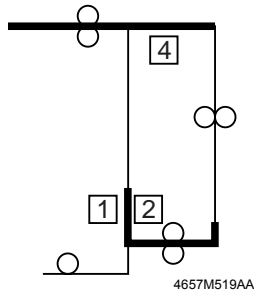
- (2) The first sheet of paper is temporarily fed toward the exit section and, immediately before the paper leaves the Exit Roller, the direction of rotation of the Exit Roller is switched.
- (3) The first sheet of paper is transported into the Duplex Unit.
- (4) At the same time, the second sheet of paper is taken up and fed in.



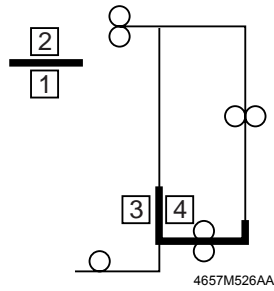
- (5) The first sheet of paper in the Duplex Unit is temporarily stopped at the Duplex paper take-up position.
- (6) The image on page 4 of the print job is printed on the second sheet of paper.



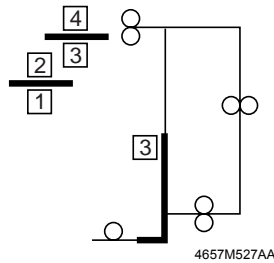
- (7) The first sheet of paper is taken up from the Duplex Unit.
- (8) The second sheet of paper is temporarily fed toward the Exit Tray and, immediately before the paper leaves the Exit Roller, the direction of rotation of the Exit Roller is switched.



- (9) The image on page 1 of the print job is printed on the first sheet of paper.
- (10) The second sheet of paper is transported into the Duplex Unit.



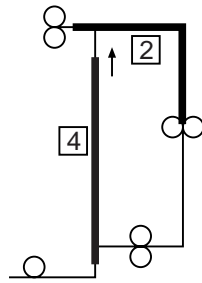
- (11) At the same time that the first sheet of paper is fed out of the printer, the image on page 3 is printed on the second sheet of paper.



- (12) At the same time that the second sheet of paper is fed out of the printer, the third sheet of paper is taken up and fed in and the image on page 6 is printed on the third sheet of paper.

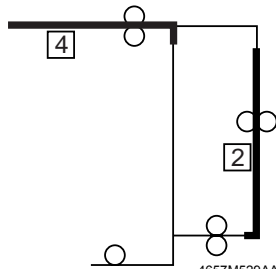
\* Steps from (2) to (12) are hereafter repeated.

3. Operations in 2-sided printing with two sheets of paper resident in the system and with a new sheet of paper taken up when a printed page with images printed on both sides is fed out



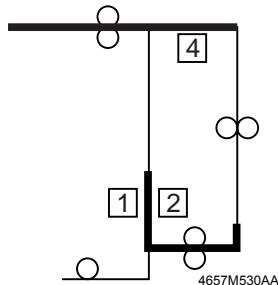
4657M528AA

- (1) The first sheet of paper is taken up and fed in and the image on page 2 of the print job is printed.
- (2) The first sheet of paper is temporarily fed toward the exit section and, immediately before the paper leaves the Exit Roller, the direction of rotation of the Exit Roller is switched.
- (3) The first of paper is fed in the duplex unit.
- (4) At the same time that the second sheet of paper is taken up and page4 is printed.



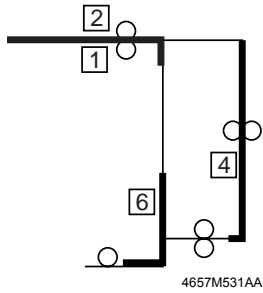
4657M529AA

- (5) The first sheet of paper is stopped at take-up position.
- (6) The second sheet of paper is fed in exit section.

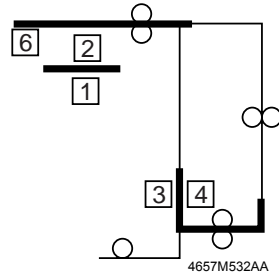


4657M530AA

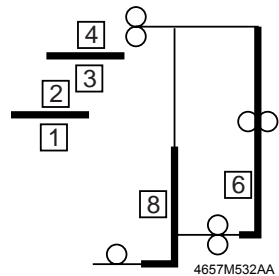
- (7) The image on page 1 of the print job is printed on the first sheet of paper.
- (8) The second sheet of paper is immediately before the paper leaves the Exit Roller, the direction of rotation of the Exit Roller is switched.
- (9) The second sheet of paper fed in the duplex unit.



- (10) The first sheet of paper fed out in exit tray.
- (11) At the same time the third sheet of paper is taken up and fed in.
- (12) The second of sheet of paper stopped at take-up position.



- (13) The image on page 3 is printed on the second sheet of paper.
- (14) The third sheet of paper is immediately before the paper leaves the Exit Roller the direction of rotation of the Exit Roller is switched.
- (15) The third sheet of paper fed in the Duplex Unit.

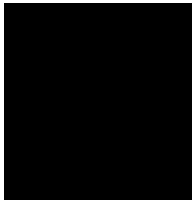


- (16) The second sheet of paper fed out in Exit Tray.
- (17) At the same time the fourth sheet of paper is taken up and fed in.
- (18) The third sheet of paper stopped at take-up position.

\* Steps from (13) to (18) are hereafter repeated.







---

**MAINTENANCE & DISAS-  
SEMBLY/ASSEMBLY**

---



## **1. Disassembly/Assembly Precautions**

### **1-1. Precautions for disassembly and assembly**

- Unplug the power cord from the electrical outlet before servicing the printer.
- Reassemble the unit in reverse order of disassembly unless otherwise instructed.
- If it is necessary to run the printer with its covers removed, use extreme care to avoid catching your fingers or clothing in rotating parts such as gears, rollers, or motors.
- Never touch the terminals of electrical components or high-voltage components, such as the power unit or the high-voltage unit.
- Be careful when working around the fusing unit because it will be hot long after the printer is turned off. Wait until the fuser has cooled before disassembly.
- Turn off the printer before plugging or unplugging a power cord. Never plug or unplug a power cord that is energized. When plugging or unplugging connectors, be sure to hold the plug. Never pull on the cord or you may break the wires connecting the plug to the power cord.
- Use only fuses of the specified rating.
- To ensure electrical conduction, attach the ground wire. In addition, be sure to use the screws with toothed washers as instructed.

### **1-2. Parts that must not be touched**

Do not remove, disassemble, or adjust any of the parts listed below:

- Print head unit (disassembly or adjustment)
- Components with mounting screws that are painted red.

### **1-3. Precautions for transporting or storing PWBs**

Observe the following precautions when handling circuit boards.

- During transportation or storage, circuit boards must be placed in anti-static bags and must not be unnecessarily removed. Do not wrap the circuit boards in plastic or paper bags.
- Do not store or place circuit boards in a location exposed to direct sunlight.
- When it becomes necessary to remove a circuit board from the anti-static bag, do not place it where it is easily be affected to static electricity, such as on carpet, plastic, or in vinyl bags.

### **1-4. Precautions for replacing PWBs**

- Generally, the PWB or the assembly should be replaced.
- When unplugging connectors from the circuit board, ensure the power is off.
- When removing a circuit board from its anti-static bag, or when replacing the circuit board, hold the board by its edges, making sure not to touch pins of the ICs or the printed pattern.

### **1-5. Precautions for inspecting PWBs**

- Do not check ICs directly with a multimeter; use connectors on the circuit board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is necessary to touch ICs and other electrical components on the circuit board, be sure to first ground yourself.

### **1-6. Precautions for transporting or storing the OPC drum cartridge**

- Use the specified carton when transporting or storing the OPC drum (magicolor 2350)/ PC drum (magicolor 2300 dl).
- Do not store or place an OPC drum cartridge in a location where it will be exposed to direct sunlight. The storage temperature should be between -4°F(-20°C) to 104°F (+40°C).

### **1-7. Precautions for handling the OPC drum cartridge**

- The OPC drum cartridge is extremely sensitive to light shock. It takes a long time to recover the drum's photosensitivity. Never leave the protective cover open or expose the OPC drum cartridge to direct sunlight for long periods of time.
- Do not contaminate the surface of the OPC drum cartridge with fingerprints, oil or chemicals.
- Do not scratch the surface of the OPC drum cartridge.

### **1-8. Red painted Screws**

---

#### ***Purpose of Application of Red Paint***

*Red painted screws show that the assembly or unit secured can only be adjusted or set at the factory and should not be adjusted, set, or removed in the field.*

*Note that when two or more screws are used on the part in questions, only one representative screw may be marked with red paint.*

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### **1-9. Variable Resistors on Board**

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

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## 2. Maintenance Schedule

	PM Parts	Maintenance Cycle		Near Life Detection	Life Detection	Print Inhibited	Ref. Page in This Manual
		Clean	Replace				
Paper Take-Up Section	Paper Take-Up Roller	When paper take-up failure occurs	200K Prints	NO	NO	NO	89
	Separator Roller Assy	When paper take-up failure occurs	200K Prints	NO	NO	NO	89
Transfer Section	Paper Dust Roller	When paper transport failure occurs	-	NO	NO	NO	90
	Transport Roller	When paper transport failure occurs	-	NO	NO	NO	91
	2nd Image Transfer Roller	-	120K Prints	NO	NO	NO	92
Image Transfer Section	Image Transfer Belt Unit	-	210K Prints B&W 52.5K Prints Color	NO	NO	NO	94
	Waste Toner Bottle	-	25K Images	YES	YES	YES	91
	Around waste toner collecting port	When the Waste Toner Bottle is removed	-	NO	NO	NO	91
Developing Section	Toner Cartridge C/M/Y/K	-	4.5K Prints (High Cap) 1.5K Prints (Standard)	YES	YES	NO	94
	OPC Drum Cartridge	-	45K Images - B&W 11.25K Images - Color	YES	YES	NO	93
PH Section	Laser Lens Cover	When an image problem occurs	-	NO	NO	NO	92
Fusing Section	Fusing Unit	-	120K Prints	NO	NO	NO	95

---

**NOTES**

- \* Replace the Paper Take-Up Roll and Separator Roll at the same time.
  - \* Replace the Second Image Transfer Roller and Fusing Unit at the same time.
  - \* When the Fusing Unit has been replaced, reset the counter on the control panel. (See CONTROL PANEL/SERVICE MODE DESCRIPTIONS.)
  - \* When the Image Transfer Belt Unit and Second Image Transfer Roller have been replaced, reset the counter on the control panel. (See CONTROL PANEL/SERVICE MODE DESCRIPTIONS.)
- 

Every one color developed in one count up.

## 2-1. Guideline for Life Specifications Values by Unit

	Life Value	Near Life Value	Life Value
Toner Cartridge	4.5K Pages (C/W)	TC with machine (1.5K pages) <ul style="list-style-type: none"> <li>• When reach the TC consumption ratio in 89%. After TV (4.5K pages)</li> <li>• When reach the TC consumption ratio in 96%.</li> </ul>	When reach the TC consumption ratio in 100%.
OPC Drum Cartridge	45K images	When reach the DC consumption ratio in 96%.	When reach the DC consumption ratio in 100%.
Waste Toner Bottle	25K images	When detect near life information from Main unit.(Master Board)	Print out the 200 images (monochrome) or 50 images(color), after detect the near life.
Image Transfer Belt Unit	210K images	-	-
Fusing Unit	120K Pages		
2nd Image Transfer Roller	120K Pages		

## 2-2. Detail of Each Unit Life

	Kind of Paper	Detail of Life
Toner Cartridge	Plain Paper	C/W ratio 5% less: 1.5K images - 4.5K images *1
	Special Paper	C/W ratio 5% less: 1.0K images - 4.5K images *1
OPC Drum Cartridge	Plain Paper	Standard Life Specification Value: monochrome 13.5K prints, color 4.5K prints (TOTAL 18K prints)
	Special Paper	Continuous: monochrome 15K prints, color 7.5K print
Waste Toner Bottle	Plain Paper	C/W ratio 5% Prints, Waste toner capacity: monochrome 25K images, color 6.25K images *1
	Special Paper	
Waste Toner Bottle	Plain Paper	Standard Life Specification Value: monochrome 60K prints, color 20K prints (TOTAL 80K prints)
Fusing Unit	Plain Paper	Standard Life Specification Value: monochrome 90K prints, color 30K prints (TOTAL 120K prints)
2nd Image Transfer Roller	Plain Paper	

\* 1: The Life Specification Value represents the number of prints made or figures equivalent to it when given conditions are met. They can be more or less depending on the printer operating conditions of each individual user.

### NOTES

- The Life Value represents the number of printed pages or a figure equivalent to it when given conditions (shown below) are met. It can be more or less depending on the operating conditions of the machine of each individual user.
- One color is one image. One printed page produced in color is counted four images.

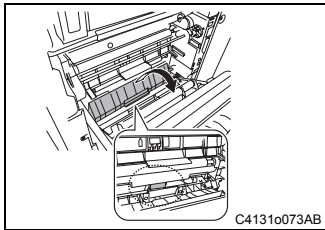
Conditions for Life Specifications Values

	magicolor 2300DL, 2350, 2300W
Print conditions	Monochrome: producing three printed pages continuously; color: making two printed pages continuously
Paper Size	A4C or Letter C
Color Ratio	Monochrome : Color = 3 : 1
Density	C/W(Coverage/White) ratio = 5% in each color



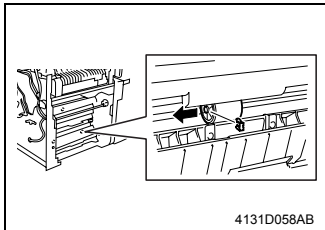
### 3. Maintenance And Cleaning

#### (1) Cleaning of the Paper Take-Up Roller



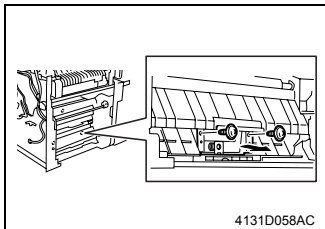
1. Open the right-side door.
2. Using a soft cloth dampened with alcohol, wipe the Paper Take-Up Roll clean of dirt.

#### (2) Replacement the Paper Take-up Roller

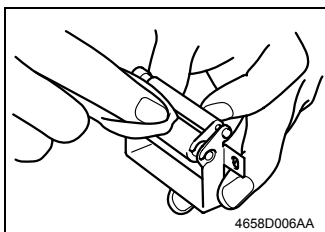


1. Remove the right-side door.
2. Remove the knob, and then replace the Paper Take-up Roll.

#### 3. Cleaning of the Paper Separator Roll

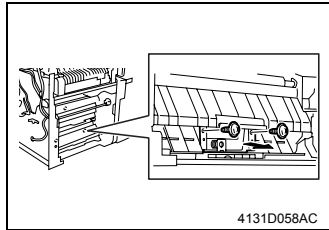


4. Remove the right-side door.
5. Remove two screws and the Paper Separator Roll Mounting Assy.

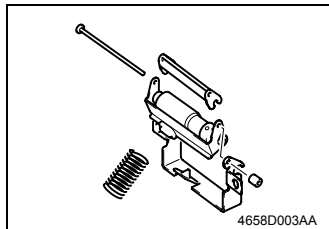


6. Using a soft cloth dampened with alcohol, wipe the Paper Separator Roll clean of dirt.

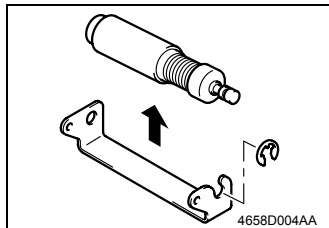
### (3) Replacement of the Paper Separating Roller Assy



1. Remove the right-side door.
2. Remove two screws and the Paper Separator Roll Mounting Assy.

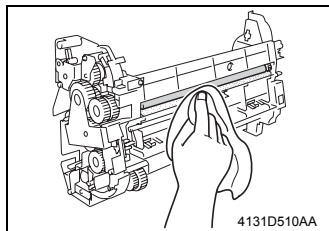


3. Take off the rubber stopper, shaft, spring, and guide plate to remove the Paper Separator Roll fixing bracket assembly.



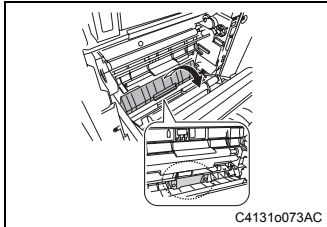
4. Snap off one E-ring and the Paper Separator Roll Assy.
5. Remove the Paper Separator Roll.
6. To reinstall, reverse the order of removal.

### (4) Cleaning of the Paper Dust Roller



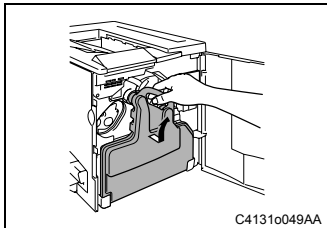
1. Remove the Transport Unit.
2. Using a soft cloth dampened with alcohol, wipe the Paper Dust Roller Roll clean of dirt.

**(5) Cleaning of the Transport Roller**

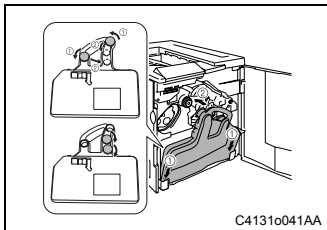


1. Open the Right-side Door.
2. Using a soft cloth dampened with alcohol, wipe the Transport Roller clean of dirt.

**(6) Replacement of the Waste Toner Bottle**



1. Open the Front Door.
2. Hold onto the handle of the Waste Toner Bottle and, while slightly pulling the bottle to the front, pull it upward.



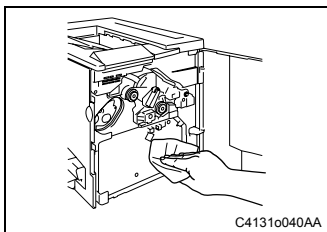
3. Mount the cap to the waste toner collecting port.

**NOTE**

*Discard the Waste Toner Bottle according to the applicable local regulation.*

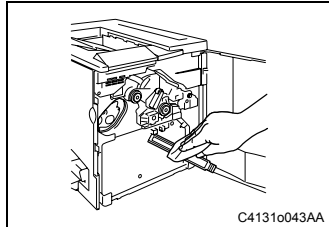
4. To reinstall, reverse the order of removal.

**(7) Cleaning of the Areas around Waste Toner Collections Port**



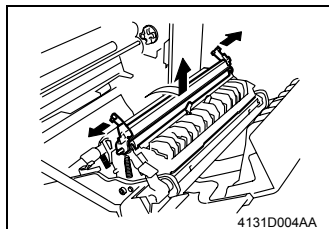
1. Open the Front Door.
2. Remove the Waste Toner Bottle.
3. Wipe the areas around the waste toner collecting port clean of dirt using a soft cloth dampened with alcohol.

**(8) Cleaning of the Laser Lens Cover**



1. Open the Front Door.
2. Remove the Waste Toner Bottle.
3. Withdraw the Laser Lens Cover.
4. Wipe the lens of the Laser Lens Cover clean of dirt using a soft cloth dampened with alcohol.

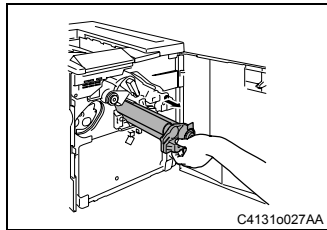
**(9) Replacement of the Second Image Transfer Roller**



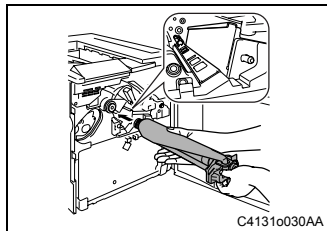
1. Remove the Right-side Door.
2. While pulling the bushings (white) at the front and rear ends of the 2nd Image Transfer Roller to the rear and to the front, respectively, place them down to the right. Then, remove the 2nd Image Transfer Roller from the 2nd Image Transfer Roller Holder.
3. To reinstall, reverse the order of removal.
4. Select functions as follows: Engine/Service -> Power On Test. Then, execute ATVC.

## 4. Replacement of the Units

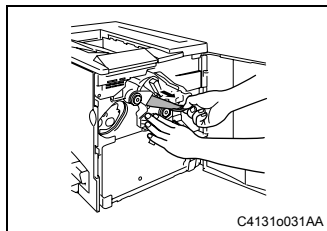
### (1) Replacement of the OPC Drum Cartridge



1. Open the Front Door.
2. Remove the Waste Toner Bottle.
3. Lower the unlock lever and remove the Drum Cartridge.

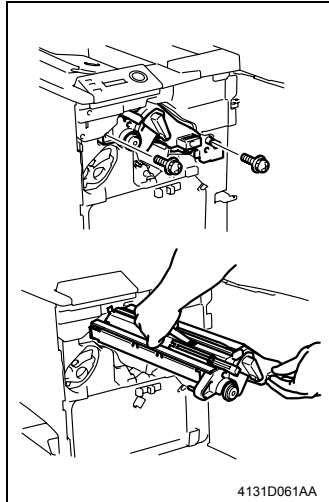


4. Reinstall the new Drum Cartridge.



5. Pull the protective sheet of the Drum Cartridge to the front and remove it.
6. Raise the unlock lever.

### (2) Replacement of the Image Transfer Belt Unit



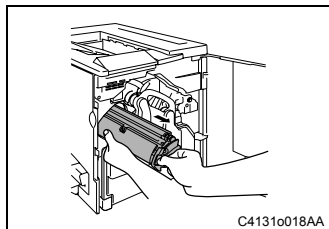
1. Open the Front Door.
2. Remove the Waste Toner Bottle.
3. Remove the Drum Cartridge.
4. Remove two screws and the Image Transfer Belt Unit.

#### **NOTE**

*When replacing the Image Transfer Belt Unit, be sure to remove the packing materials. Do not touch the transfer belt with bare hands.*

5. To reinstall the belt unit, reverse the order of removal.
6. Select functions as follows: Service -> Service/Service Person -> Reset Counter/Fuser Unit. Then, clear the counter.

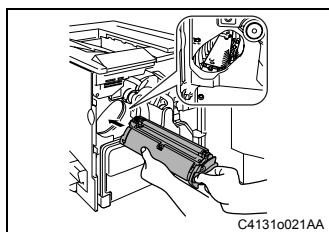
### (3) Replacement of the Toner Cartridge



1. Open the Front Door.
2. Remove the Waste Toner Bottle.
3. Remove the Drum Cartridge.

#### **NOTE**

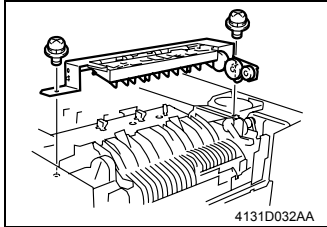
*Discard the Toner Cartridge according to the applicable local regulation. Do not throw the Toner Cartridge into an open flame.*



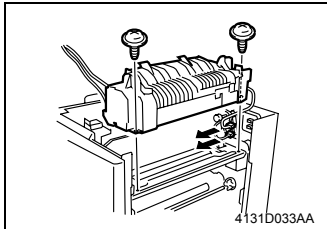
4. Remove the packing materials and install the Toner Cartridge.
5. Enter the capacity of the Toner Cartridge just installed through the control panel.  
E.g.: If a Yellow Toner Cartridge has been replaced (4.5 K)  
"Menu/Engine -> Replace Toner -> Yellow -> High"

#### (4) Replacement of the Fusing Unit

1. Remove the Top Front Cover.
2. Remove the Top Cover.
3. Open the Right-side Door.



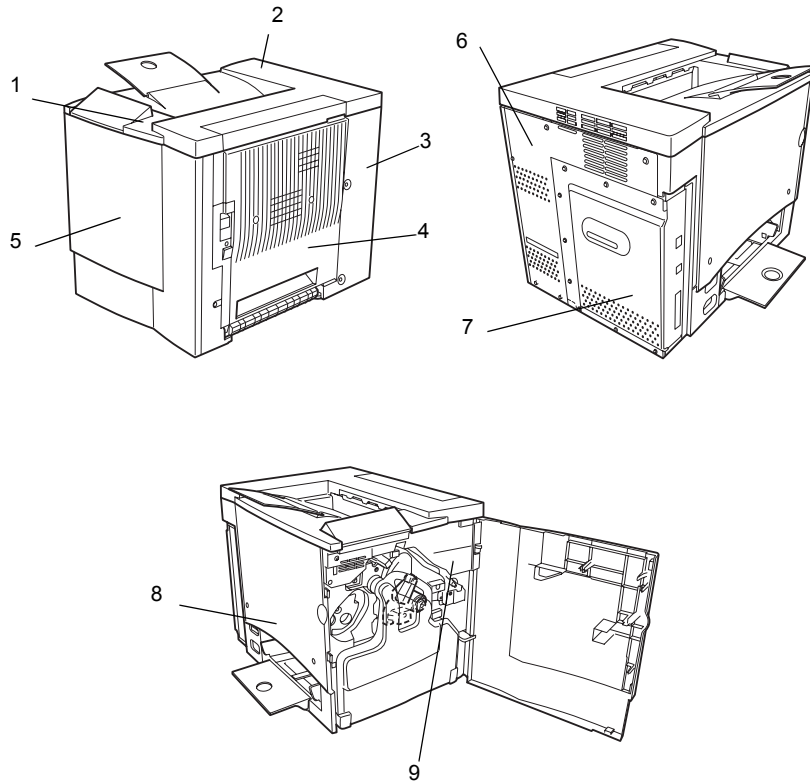
4. Remove two screws and the Fusing Unit Cover.



5. Unplug the connector from the Power Unit and remove the harness from the cord holder.
6. Remove the Fusing Unit from the machine (two screws and two connectors).
7. To reinstall the Fusing Unit, reverse the order of removal.
8. Select functions as follows: Service -> Service/Service Person -> Reset Counter/Fuser Unit. Then, clear the counter.

## 4-1. Disassembly Procedures

- (1) Doors, Covers, And Exterior Parts:  
Identification And Removal Procedures



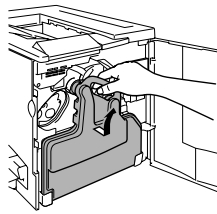


No.	Name	Removal Procedure
1	Top Front Cover	Open the Front Door and Right Door. -> Remove two screws and the Top Front Cover.
2	Top Cover	Open the Front Door and Right Door. -> Remove the Front Upper Cover. -> Remove five screws and the Top Cover.
3	Right-side Rear Cover	Remove the Controller Protective Cover. -> Remove the Rear Cover. -> Remove two screws and the Right-side Rear Cover.
4	Right-side Door Cover	Remove two screws and the Right-side Door Cover.
5	Front Door	Open the Right Door. -> Remove the Top Front Cover. -> Remove the Top Cover. -> Remove the Front Door.
6	Rear Cover	Remove the Controller Board Protective Cover. -> Remove eight screws and the Rear Cover.
7	Controller Board Protective Cover	Loosen nine screws, remove two screws, and remove the Controller Board Protective Cover.
8	Left-side Cover	Open the Right Door. -> Remove the Top Front Cover. -> Remove the Top Cover. -> Remove three screws and the Left-side Cover.
9	Front Cover	Open the Right Door. -> Remove the Top Front Cover. -> Remove the Top Cover. -> Remove the Front Door. -> Remove nine screws and the Front Cover.

## 4-2. Pre-disassembly preparation

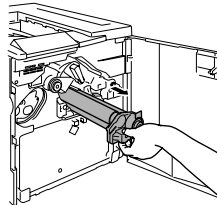
Before disassembling the machine, the following units need to be removed.

- Waste toner bottle
- OPC drum cartridge
- Toner cartridges (4 colors)
- Image transfer belt unit



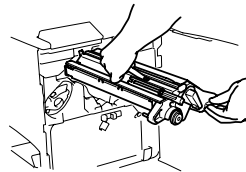
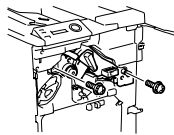
4131o023AA

1. Open the front door.
2. Remove the waste toner bottle.



4131o027AA

3. Remove the OPC drum cartridge.



4131D061AA, 4131D062AA

4. Remove the image transfer belt unit. (2 screws)

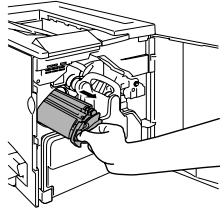
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### Note

**When replacing the image transfer belt unit, be sure to remove the packing material.**

**Do not touch the image transfer belt with your bare hands.**

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4131o017AA

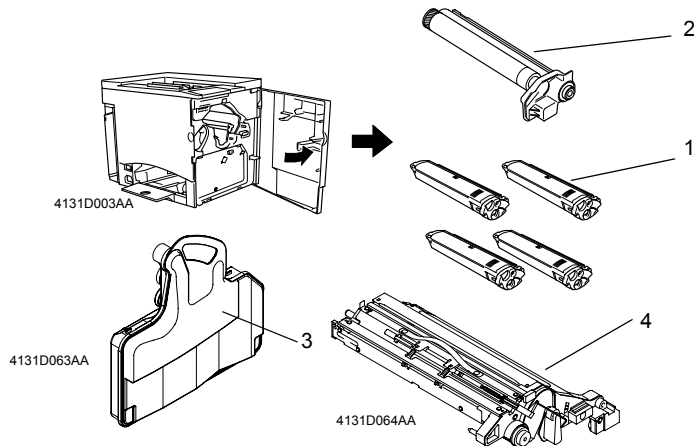
5. Remove all toner cartridges.
  - (1) **magicolor 2350 procedures:**
    - a) From the display, select the menu "Quality".
    - b) Select "Toner", then "Replace"
    - c) Select each toner color of the cartridge to be removed, and then press the Select key to move the cartridge to the removal position.
  - (2) **magicolor 2300 DL procedures**
    - a) From the display, select the menu "Engine".
    - b) Select "Replace Toner".
    - c) Select each color toner cartridge from this menu to remove it.
  - (3) **magicolor 2300W procedures**
    - a) Open the Status Display from the connected PC.
    - b) From the Printer tab choose Toner Replace...
    - c) Select each color toner and follow the procedures to replace.

**(4) Manual removal procedures**

**Caution:**

Rotate the carousel carefully to prevent injury to your fingers.

- a) Press in the toner carousel latch and carefully turn the carousel until the next cartridge is positioned for removal. Remove the toner cartridge.
- b) Repeat step b until all toners have been removed.



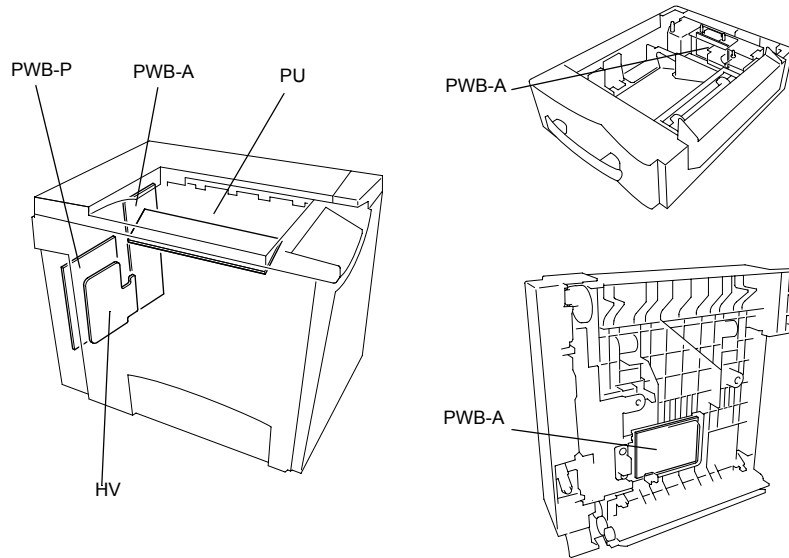
1 Toner cartridge  
2 OPC drum cartridge

3 Waste toner bottle  
4 Image transfer belt unit

### 4-3. Removal Of Circuit Boards And Other Electrical Components

#### NOTES

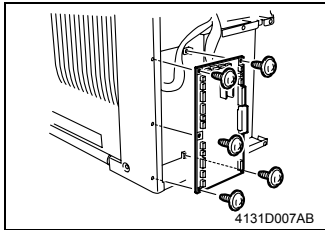
- When removing a circuit board or other electrical component, refer to “Handling of PWBs” and follow the corresponding removal procedures.
- The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.
- Where it is absolutely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



Symbol	Name	Removal Procedure
PWB-A	Master Board	101
PWB-P	Controller Control Board	102
PU	Power Unit	102
HV	High Voltage Unit	103
PWB-A	Lower Feeder Control Board	104
PWB-A	Duplex Unit Control Board	105

**(1) Removal of the Rear Cover**

1. Remove the Rear Cover



2. Remove the harness and connector.
3. Remove five screws and the Master Board (PWB-A).

**NOTE**

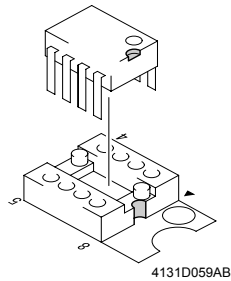
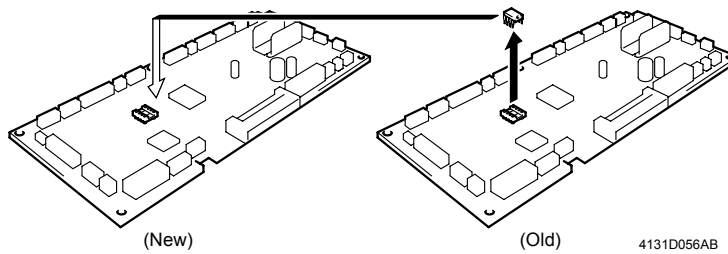
*When the Master Board has been replaced, be sure to demount EEPROM from the old master board and mount it to the new one.*

**(2) To replace the Master Board**

**Note**

- *When replacing the master board, be sure to move the EEPROM from the old master board to the new one.*

1. Remove the rear cover and the master board.
2. Replace the EEPROM (IC3).

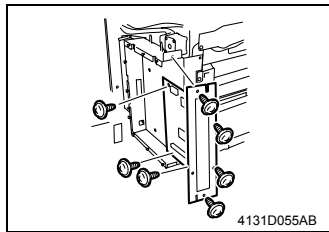


**Note**

*Be sure to install the EEPROM so that it faces the correct direction.*

**(3) Removal of the Controller Board**

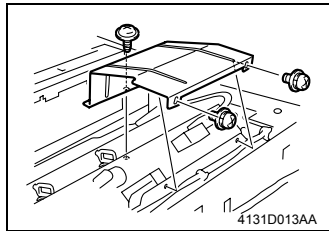
1. Remove the Controller Board Protective Cover.



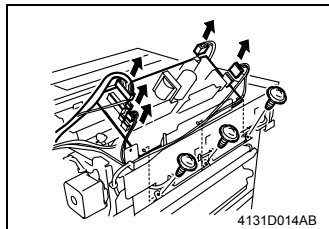
2. Remove the harness and connector.
3. Remove seven screws and the Controller Board (PWB-P).

**(4) Removal of the Power Unit**

1. Open the Right-side Door.
2. Remove the Top Front Cover.
3. Remove the Top Cover.
4. Remove the Left-side Cover.



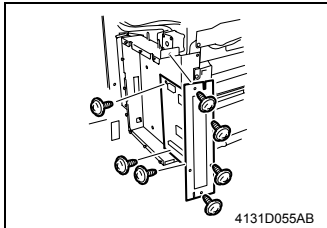
5. Remove three screws and the protective cover.



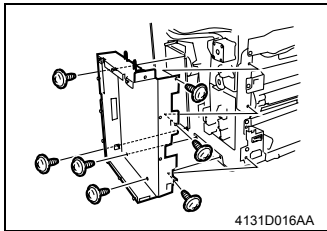
6. Remove the harness, connector, and PWB support.
7. Remove three screws and the Power Unit.

**(5) Removal of the High Voltage Unit**

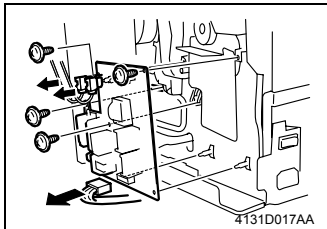
1. Open the Right-side Door.
2. Remove the Top Front Cover.
3. Remove the Top Cover.
4. Remove the Rear Cover.
5. Remove the Left-side Cover.
6. Remove the Controller Protective Cover.



7. Remove the harness and connector.
8. Remove seven screws and the Controller Board (PWB-P).

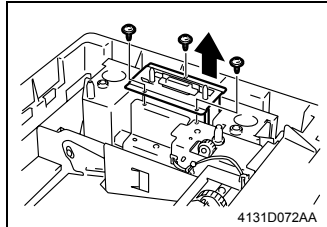


9. Remove seven screws and the Controller Box.

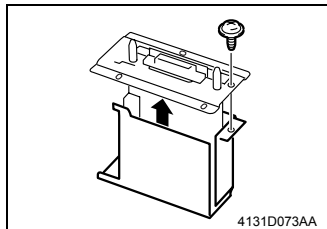


10. Remove the connector and PWB support.
11. Remove four screws and the High Voltage Unit (HV).

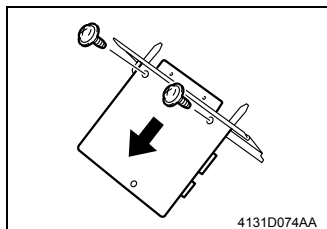
**(6) Removal of the Lower Feeder Control Board**



1. Remove three screws and the Lower Feeder Control Board Assy.



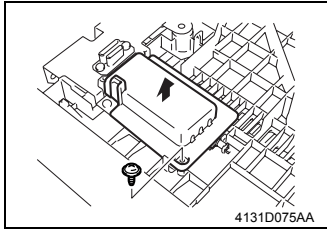
2. Remove the harness and connector.
3. Remove one screw and the PWB protective cover.



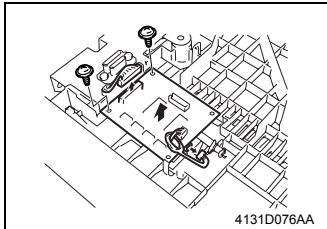
4. Remove two screws and the Lower Feeder Control Board.



**(7) Removal of the Duplex Unit Control Board**



1. Remove one screw and the PWB Protective Cover.

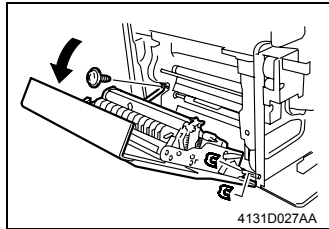


2. Remove the harness and connector.
3. Remove two screws and the Duplex Unit Control Board.

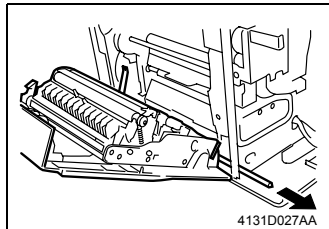
## 4-4. Removal of Units

### (1) Removal of the Right-side Door

1. Remove the Front Door.
2. Remove the Controller Protective Cover.
3. Remove the Rear Cover.
4. Remove the Front Cover.
5. Remove the Right-side Rear Cover.



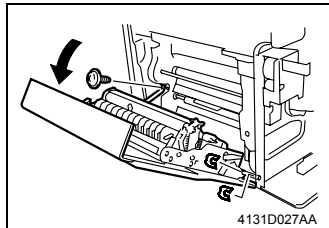
6. Remove the harness and connector.
7. Slightly open the Right-side Door and, supporting the door with your hand, remove one screw and two C-rings.



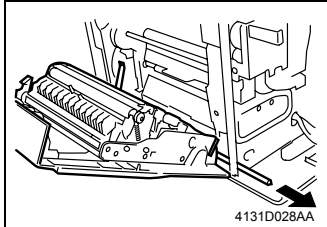
8. Pull out the shaft and remove the Right-side Door.

### (2) Removal of the Print Head Unit (PH)

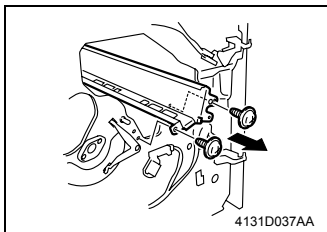
1. Remove the Front Door.
2. Remove the Controller Protective Cover.
3. Remove the Rear Cover.
4. Remove the Front Cover.
5. Remove the Right-side Cover.



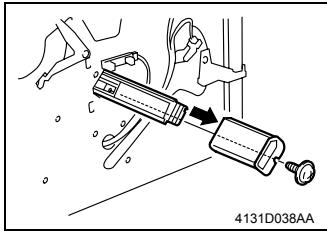
6. Remove the harness and connector.
7. Slightly open the Right-side Door and, supporting the door with your hand, remove one screw and two C-rings.



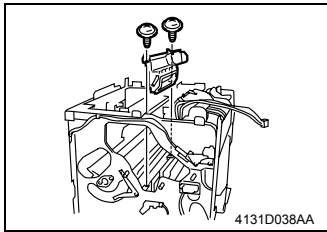
8. Pull out the shaft and remove the Right-side Door.



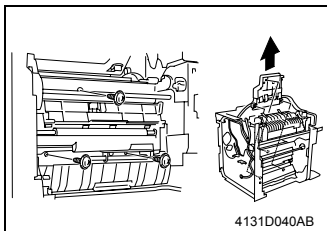
9. Remove the harness and connector.  
10. Remove two screws and the Drum Unit Slide Cover.



11. Remove one screw and the Laser Lens Cover.



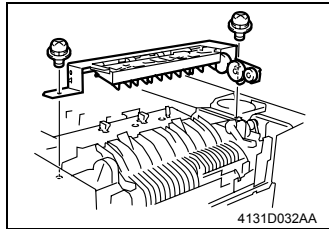
12. Remove two screws and the Print Head Cover.



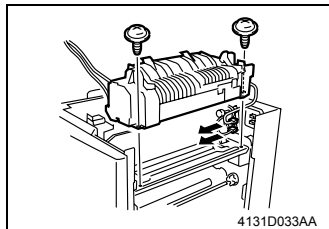
13. Remove three screws and the Print Head Unit (PH).

### (3) Removal of the Fusing Unit

1. Remove the Top Front Cover.
2. Remove the Top Cover.
3. Open the Right-side Door.



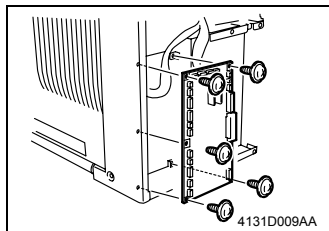
4. Remove two screws and the Paper Exit Assy.



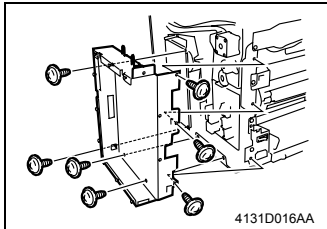
5. Remove the harness and connector.
6. Remove two screws. Then, remove the Fusing Unit from the machine.

### (4) Removal of the Transport Unit

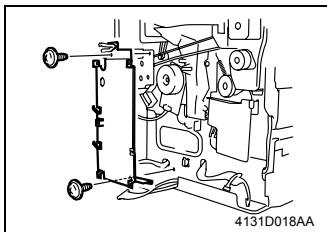
1. Open the Right-side Door.
2. Remove the Top Front Cover.
3. Remove the Top Cover.
4. Remove the Controller Board Protective Cover.
5. Remove the Controller Board.
6. Remove the Rear Cover.
7. Remove the Front Door.
8. Remove the Front Cover.



9. Remove the harness and connector.
10. Remove five screws and the Master Board (PWB-A).

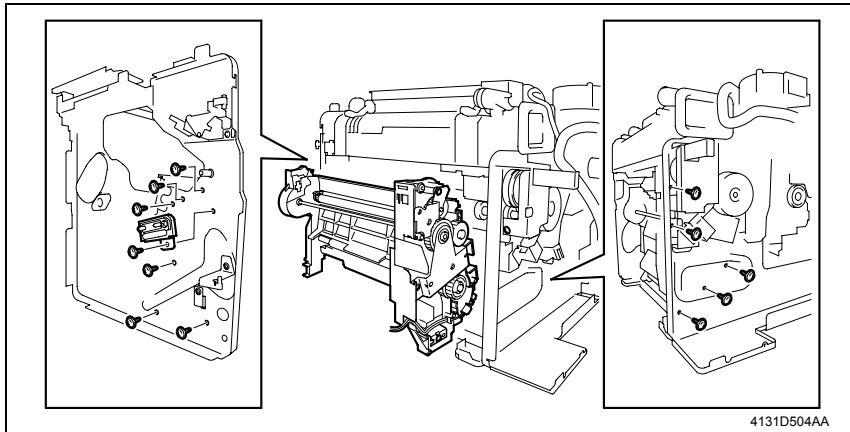


11. Remove seven screws and the Controller Box.



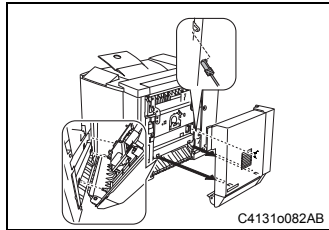
12. Remove two screws and the Master Board Cover.

13. Remove the harness and connector.  
14. Remove ten screws and the Transport Unit.



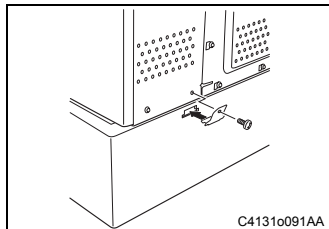
**(5) Removal of the Duplex Unit**

1. Open The Right-side Door.

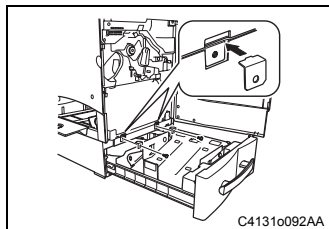


2. Remove two screws.
3. Supporting the Duplex Unit with your hand, remove the cable hook.

**(6) Removal of the Lower Feeder**



1. Remove one screw and the rear panel fixing bracket.

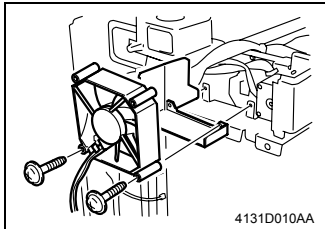


2. Open the Front Door and slide out the Second Paper Cassette.
3. Remove two screws and the two front panel fixing brackets.

## 4-5. DISASSEMBLY OF THE ENGINE PARTS

### (1) Power Supply Cooling Fan Motor

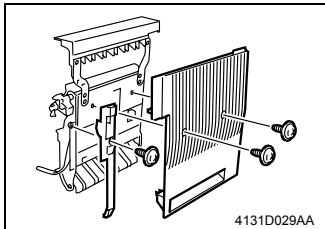
1. Open the Right-side Door.
2. Remove the Top Front Cover.
3. Remove the Front Cover.
4. Remove the Rear Cover.



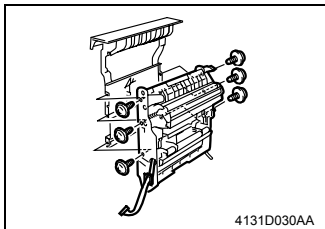
5. Remove the harness and connector.
6. Remove two screws and the Power Supply Cooling Fan Motor.

### (2) Removal of the Fusing Cooling Fan Motor

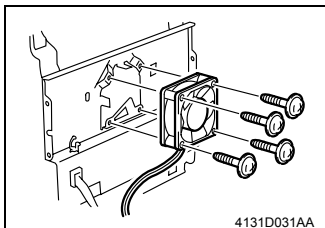
1. Remove the Right-side Door.
2. Remove the Right-side Door Cover.



3. Remove one screw and the Right Front Cover.



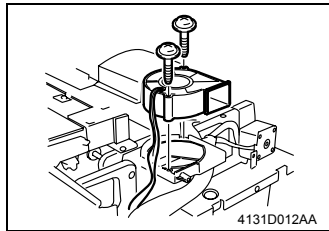
4. Remove six screws and the Paper Exit Unit.



5. Remove the harness and connector.
6. Remove four screws and the Fusing Cooling Fan Motor.

**(3) Removal of the Ventilation Fan Motor**

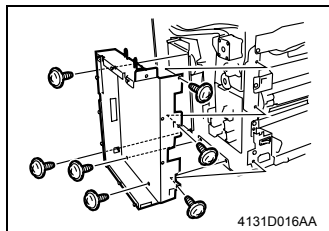
1. Open the Right-side Door.
2. Remove the Top Front Cover.
3. Remove the Top Cover.
4. Remove the Rear Cover.



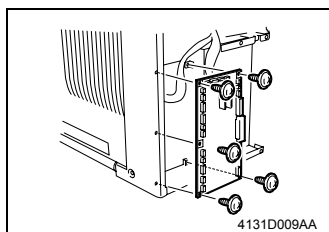
5. Remove the harness and connector.
6. Remove two screws and the Ventilation Fan Motor.

**(4) Removal of the Main Motor Assembly**

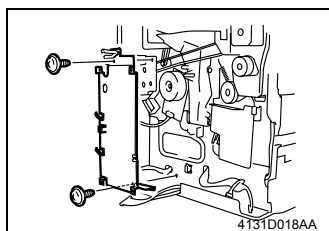
1. Remove the Controller Protective Cover.
2. Remove the Rear Cover.



3. Remove seven screws and the Controller Box.

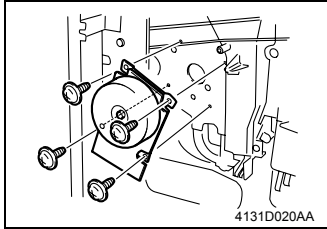


4. Remove the harness and connector.
5. Remove five screws and the Master Board (PWB-A).



6. Remove two screws and the Master Board Cover.

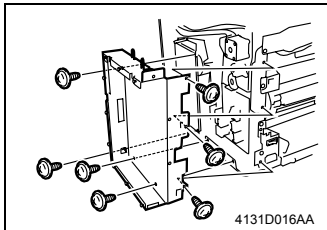




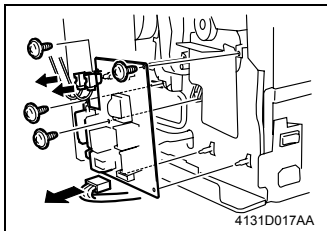
7. Remove four screws and the Main Motor Assy.

**(5) Removal of the Rack Motor**

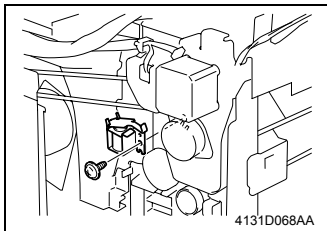
1. Open the Right-side Door.
2. Remove the Top Front Cover.
3. Remove the Top Cover.
4. Remove the Rear Cover.
5. Remove the Left-side Cover.
6. Remove the Controller Protective Cover.



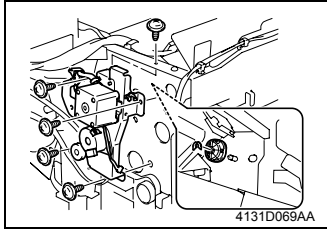
7. Remove seven screws and the Controller Box.



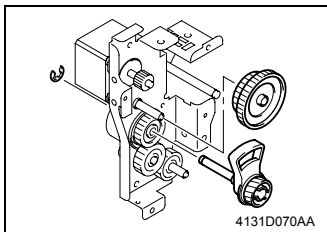
8. Remove the connector and PWB Support.
9. Remove four screws and the High Voltage Unit (HV).



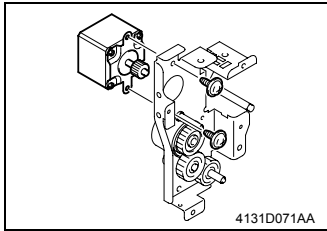
10. Remove one screw and the Belt Cleaner Separation Solenoid.



11. Snap off one E-ring and remove the cam from the inside of the printer.
12. Remove five screws and the Rack Drive Assy.

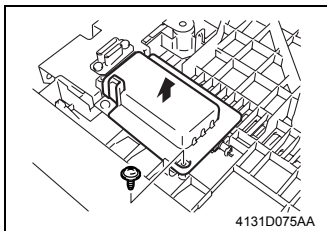


13. Snap off one E-ring. Then, remove the Rack Clutch Shaft and the Drive Gear.

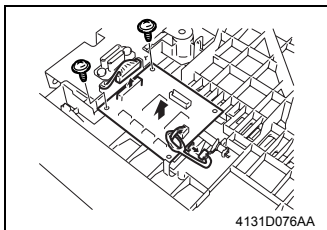


14. Remove two screws and the Rack Motor.

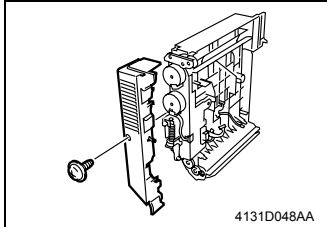
#### **(6) Removal of the Turnover Motor And The Transport Motor**



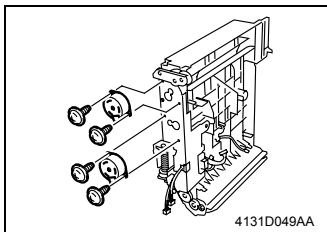
1. Remove one screw and the Protective Cover.



2. Remove the harness and connector.
3. Remove two screws and the Duplex Unit Control Board.



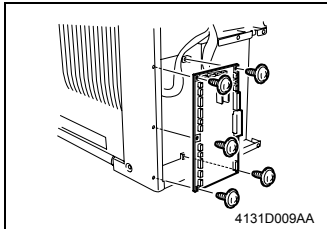
4. Remove the harness and connector.
5. Remove one screw and the Duplex Unit Cover.



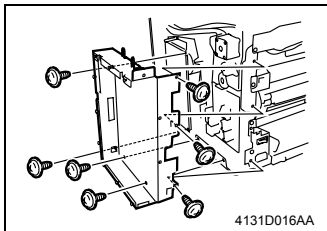
6. Remove two screws and the Duplex Unit Turn-over Motor.
7. Remove two screws and the Duplex Unit Transport Motor.

**(7) Removal of the Manual Feed Take-up Solenoid**

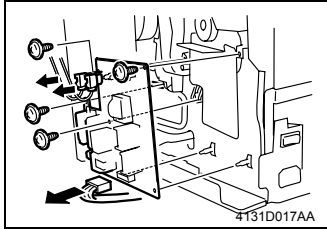
1. Remove the Top Front Cover.
2. Remove the Top Cover.
3. Remove the Rear Cover.
4. Remove the Left-side Cover.
5. Remove the Right-side Door.
6. Remove the Front Cover.



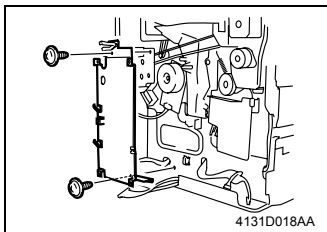
7. Remove the harness and connector.
8. Remove five screws and the Master Board (PWB-A).



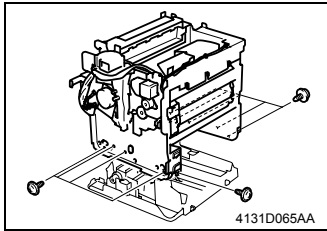
9. Remove seven screws and the Controller Box.



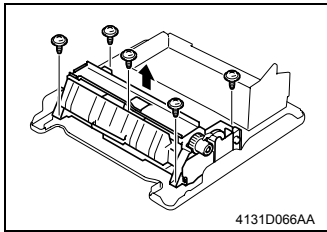
- 10. Remove the connector and PWB Support.
- 11. Remove four screws and the High Voltage Unit (HV).



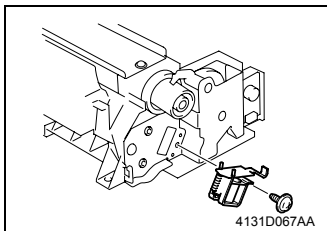
- 12. Remove two screws and the Master Board Cover.



- 13. Remove eleven screws and the bottom plate.



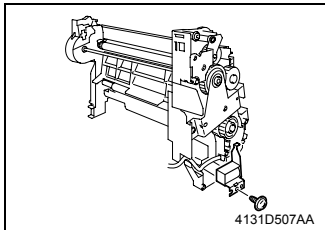
- 14. Remove five screws and the Manual Feed Take-Up Assy.



- 15. Remove one screw and the Manual Feed Paper Take-Up Solenoid.

**(8) Removal of the Transport Roller Solenoid**

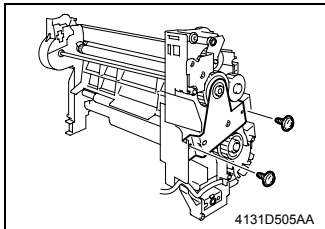
1. Remove the Transport Unit  
See page 108



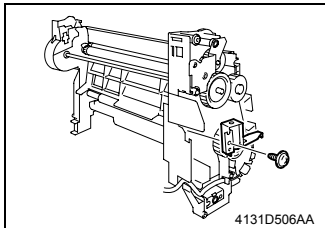
2. Remove one screw and the Transport Roller Solenoid.

**(9) Removal of the Synchronizing Roller Solenoid**

1. Remove the Transport Unit  
See page 108



2. Remove two screws and the Transport Unit gear mounting bracket.

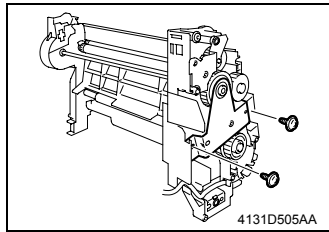


3. Remove one screw and the Synchronizing Roller Solenoid.

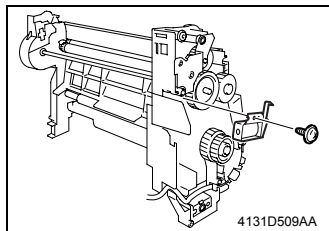
**(10) Removal of the Second Image Transfer Roller Pressure Contact Solenoid**

1. Remove the Transport Unit

See page 108



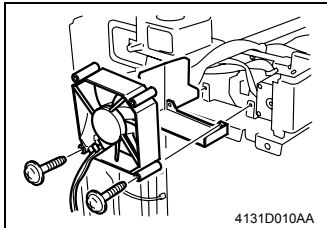
2. Remove the Transport Unit gear mounting bracket.



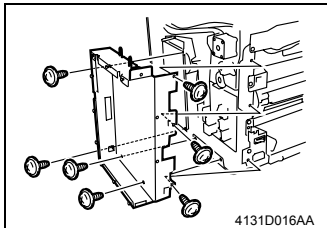
3. Remove one screw and the 2nd Image Transfer Roller Pressure Contact Solenoid.

**(11) Removal of the Belt Cleaner Separation Solenoid**

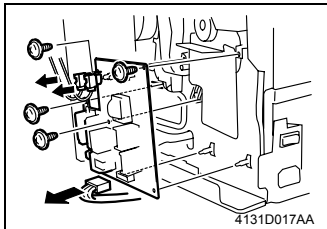
1. Open the Right-side Door.
2. Remove the Top Front Cover.
3. Remove the Top Cover.
4. Remove the Rear Cover.
5. Remove the Left-side Cover.
6. Remove the Controller Protective Cover.



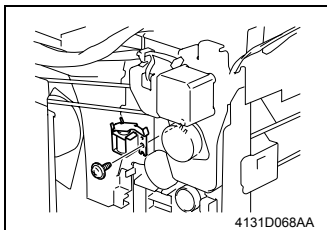
7. Remove the harness and connector.
8. Remove two screws and the Power Supply Cooling Fan Motor.



9. Remove seven screws and the Controller Box.



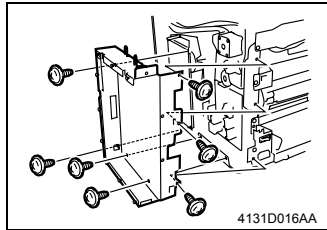
10. Remove the connector and PWB Support.
11. Remove four screws and the High Voltage Unit (HV).



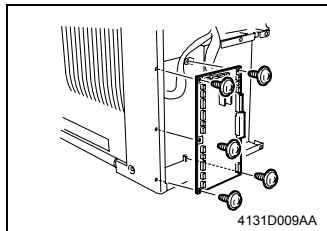
12. Remove one screw and the Belt Cleaner Separation Solenoid.

## (12) Removal of the Fusing Paper Loop Solenoid

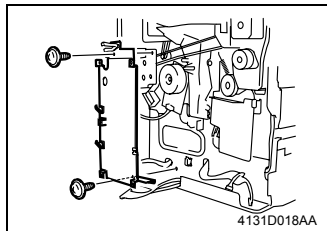
1. Remove the Rear Cover



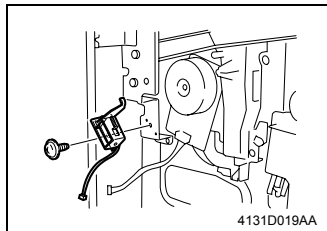
2. Remove seven screws and the Controller Box.



3. Remove the harness and connector.  
4. Remove five screws and the Master Board (PWB-A).



5. Remove two screws and the Master Board Cover.

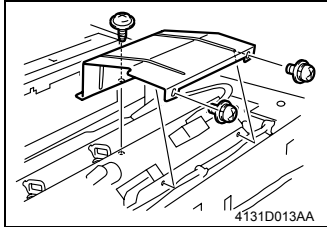


6. Remove one screw and the Fusing Paper Loop Solenoid.

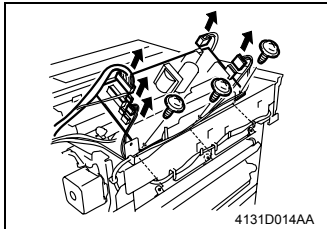


**(13) Removal of the AIDC sensor**

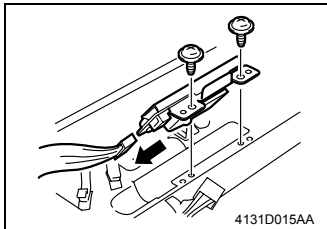
1. Remove the Top Front Cover.
2. Remove the Top Cover.
3. Remove the Left-side COver.



4. Remove three screws and the protective cover.



5. Remove the harness, connector, and PWB Support.
6. Remove three screws and the Power Unit.



7. Remove the wiring saddle on the protective sheet.
8. Peel off the protective sheet and remove two screws and the AIDC Sensor.

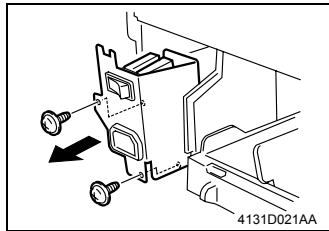
---

**NOTE**  
*Do not remove the protective sheet.*

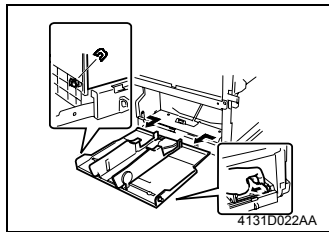
---

**(14) Removal of the Manual feed tray**

1. Remove the Top Front Cover.
2. Remove the Top Cover.
3. Remove the Front Cover.
4. Remove the Left-side Cover.



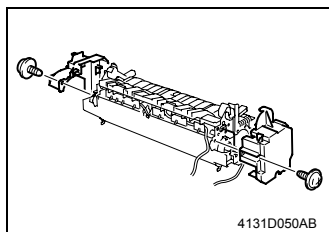
5. Remove two screws and the switch box.



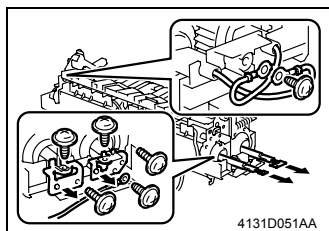
6. Snap off the C-ring and remove the Manual Feed Tray.

**(15) Disassembly of the Fusing Unit**

1. Remove the Fusing Unit.  
See page 108



2. Remove two screws and the cover.



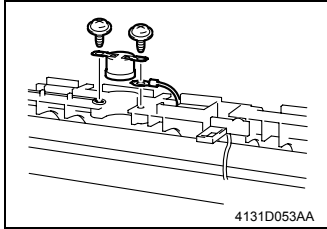
3. Remove six screws and the Heater Lamp.

---

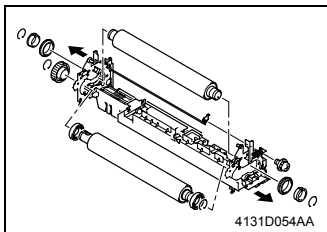
**Notes for installation**

*Be sure to install the screws securing the leads in the correct locations.*

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4. Remove two screws and the Thermostat (TS1).



5. Remove the Fusing Roller and Fusing Pressure Roller (screw, E-ring, C-ring).

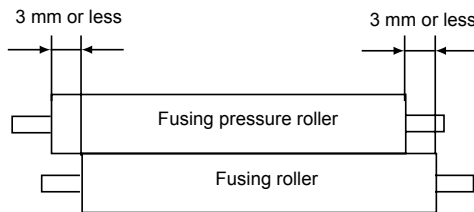
---

**Notes for installation**

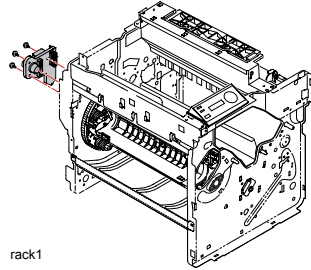
*When installing the fusing roller and the fusing pressure roller, install them with the specified misalignment.*

*Standard:  $\pm 3$  mm or less*

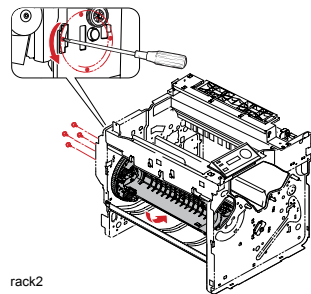
---



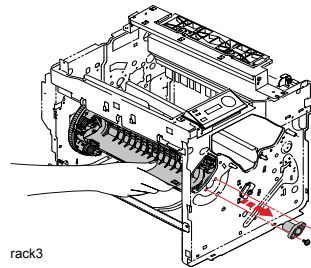
**(16) Disassembly of the toner cartridge rack**



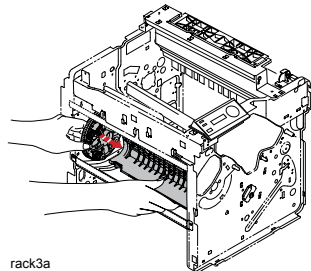
rack1



rack2

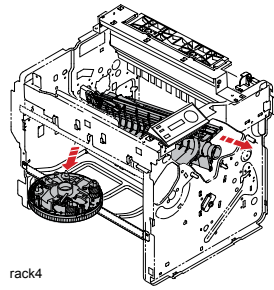


rack3



rack3a

1. Remove the controller protective cover, top-front cover, top cover, left-side cover, rear cover, controller, controller box, high-voltage unit, master board, and master-board bracket.
2. Remove the rear-rack shaft cover. (3 screws)
3. Remove the screws securing the rack disk to the toner-cartridge rack. (4 screws)
4. Remove the front-rack shaft cover. (2 screws)
5. Separate the toner-cartridge rack from the rack disk.



6. Remove the toner-cartridge rack and rack disk from the printer.





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**CONTROL PANEL / SERVICE MODE DESCRIPTIONS**

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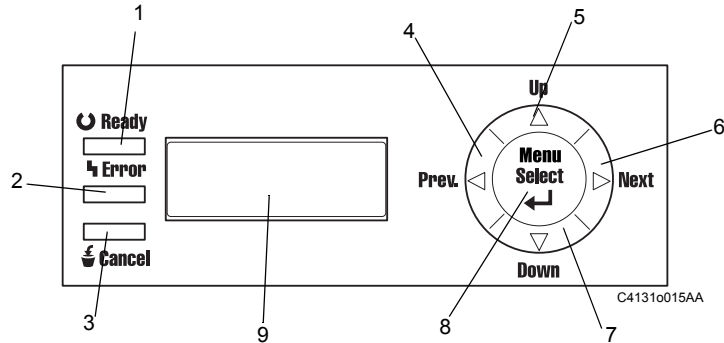




## 1. Control Panel Descriptions—2300DL & 2350

\* For details, refer to the User's Guide supplied with the unit.

### 1-1. Names of control panel parts and their functions



No.	Name	Function/details
1	Green LED indicator	<ul style="list-style-type: none"> <li>Lights up to indicate that the printer is ready to print.</li> </ul>
2	Orange LED indicator	<ul style="list-style-type: none"> <li>Lights up to indicate that an error has occurred.</li> </ul>
3	Cancel Key	<ul style="list-style-type: none"> <li>Press to cancel the print job.</li> <li>IDLE is displayed.</li> </ul>
4	Prev. Key	<ul style="list-style-type: none"> <li>Press to scroll through the menus.</li> </ul>
5	Up key	
6	Next Key	
7	Down Key	
8	Menu Select Key	<ul style="list-style-type: none"> <li>Press to enter the configuration menu or to apply the currently selected setting.</li> </ul>
9	Message Window	<ul style="list-style-type: none"> <li>Displays the status or configuration of the printer.</li> </ul>

### 1-2. Message Window

#### (1) Ready screen

The ready screen is the initial message that appears after the unit is finished warming up and after a menu setting is cancelled.

IDLE  
MAGICOLOR 2300DL

MAGICOLOR 2350  
IDLE

C4131o001AA

#### (2) Warning screen

The following appear in the warning screen according to the condition of the printer.

<Malfunction display>

This generally appears when a malfunction that cannot be corrected by the user has occurred.

Example: Malfunction that can be indicated with malfunction code.

FATAL ERROR  
CODE: 04H

C4131o002AA

SERVICE CALL 04  
ENGINE BOARD

<Error display>

This appears when an error has occurred.

Example: There is a media misfeed or a door is open

MEDIA JAM  
FUSER

C4131o003AA

PAPER JAM  
FUSER

<Caution display>

This appears if printing is possible, but an error in the near future is expected.

Example: The black toner cartridge is empty.

TONER EMPTY  
BLACK

C4131o004AA

BLACK EMPTY  
REPLACE?

(3) Status Messages

<b>magicolor 2300 DL Messages</b>	<b>magicolor 2350 Messages</b>
CALIBRATING	CALIBRATING
CANCELLING JOB	CANCELLING JOB
ENERGY SAVER	ENERGY SAVER
IDLE MAGICOLOR 2300DL	MAGICOLOR 2350 IDLE
PRINTING	PRINTING
PROCESSING	PROCESSING
WARMING UP	WARMING UP
	STARTING SYSTEM
	COPYING # of #
	INITIALIZING
C TONER LOW	CYAN LOW REPLACE?
M TONER LOW	MAGENTA LOW REPLACE?
K TONER LOW	BLACK LOW REPLACE?
Y TONER LOW	YELLOW LOW REPLACE?
TONER EMPTY BLACK	BLACK EMPTY REPLACE?
TONER EMPTY YELLOW	YELLOW EMPTY REPLACE?
TONER EMPTY CYAN	CYAN EMPTY REPLACE?
TONER EMPTY MAGENTA	MAGENTA EMPTY REPLACE?
MEDIA JAM TRAY 1	PAPER JAM TRAY 1
MEDIA JAM TRAY 2	PAPER JAM TRAY 2
MEDIA JAM DUPLEX LOWER	PAPER JAM DUPLEX
MEDIA JAM DUPLEX UPPER	
MEDIA JAM TRANSFER ROLLER	PAPER JAM TRANSFER
MEDIA JAM FUSER	PAPER JAM FUSER
MEDIA JAM EXIT	PAPER JAM EXIT
TRAY 1 EMPTY	
TRAY 2 EMPTY	
WASTE: NEAR FULL	
DRUM CARTRIDGE END OF LIFE	REPLACE OPC DRUM
DRUM LOW	OPC DRUM LOW
PRINTER COVER OPEN	MAIN UNIT COVER OPEN
PUT PAPER:TRAY 2 "SIZE"	
PUT MEDIA:TRAY1 "SIZE"	PUT [X] IN [Y]
DRUM CARTRIDGE NOT ATTACHED	OPC DRUM MISSING
WASTE TONER BOX NOT ATTACHED	WASTE TONER MISSING
NO TONER UNIT CYAN	CYAN TONER MISSING
NO TONER UNIT MAGENTA	MAGENTA TONER MISSING
NO TONER UNIT BLACK	BLACK TONER MISSING

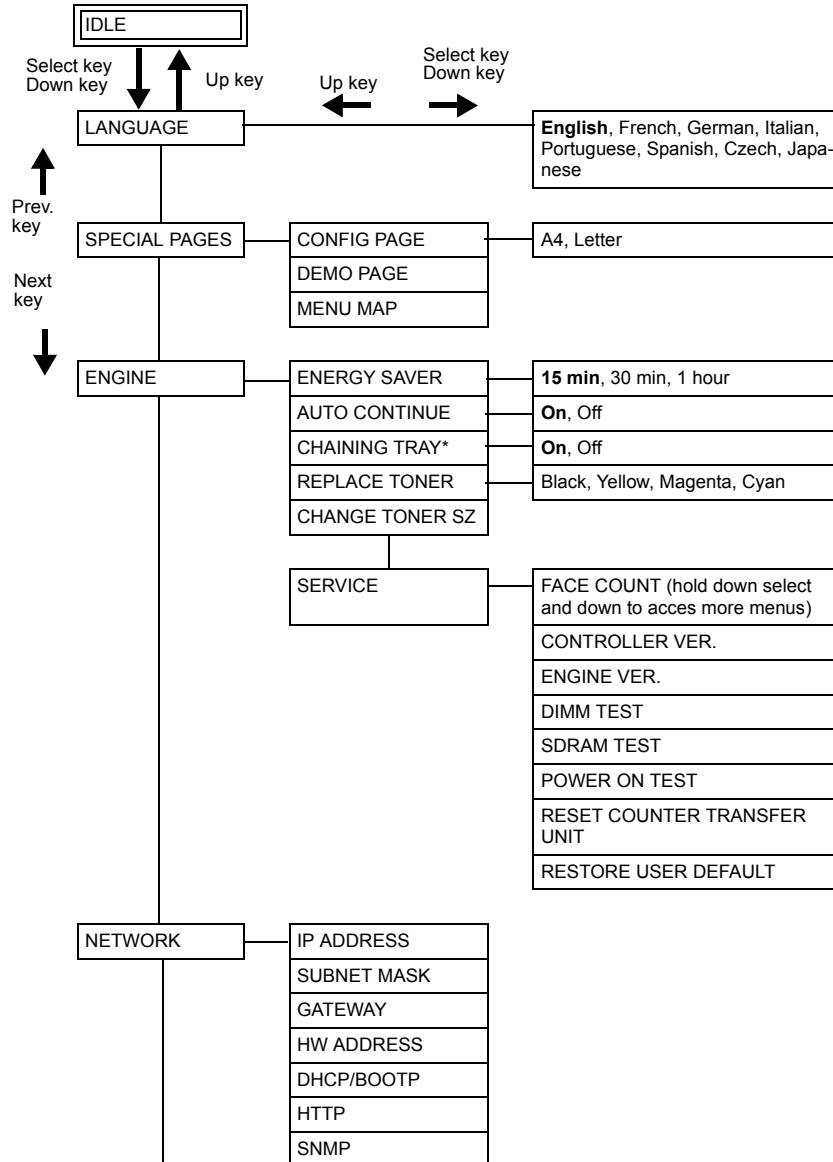
<b>magicolor 2300 DL Messages</b>	<b>magicolor 2350 Messages</b>
NO TONER UNIT YELLOW	YELLOW TONER MISSING
COVER OPEN TRAY 2	TRAY 2 PATH COVER OPEN
WASTE TONER BOX FULL	REPLACE WASTE TONER
DRAWER OPEN TRAY 2	[tray #] OPEN
PUT X:TRAY1	
TRAY 2 NOT ATTACHED	
SIZE MISMATCH	PAPER MISMATCH
SIZE/TYPE ERROR	MEDIA MISMATCH
SIZE/TYPE ERROR DUPLEX	
ERROR AIDC SENSOR	AIDC ERROR
DUPLEX UNIT NOT ATTACHED	
TRAY 2 LOW	
ERROR VIDEO UNDERRUN	
ERROR MEMORY OVERFLOW	
	DISK NEAR FULL
	DISK ACCESS ERROR {file type}
	EMAIL ERROR ACC DATA TRANS
	DOWNLOAD IMAGE TO ENET PORT
	ERROR LOADING IMAGE
	FIRMWARE UPDATE FORMAT ERROR
	FIRMWARE UPDATE INVALID IMAGE
	FIRMWARE UPDATE DOWNLOAD IMAGE
	FIRMWARE UPDATE FORMATTING
	FIRMWARE UPDATE READING HEADER
	FIRMWARE UPDATE READING IMAGE
	FIRMWARE UPDATE SELECTED

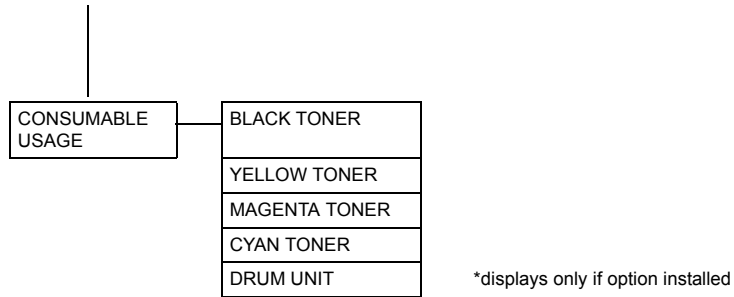
## 2. Menu Contents for magicolor 2300 DL

### 2-1. Print menu overview

The following settings appear in the menus.

\* The settings that appear in bold are the default settings.





## 2-2. Settings menus

### (1) Language menu

- The language in which messages are displayed can be changed.

### (2) Special pages

CONFIG PAGE	A configuration page can be printed.
DEMO PAGE	A demonstration page can be printed.
MENU MAP	A menu chart page can be printed.

### (3) Engine menu

ENERGY SAVER	Set the length of time until the printer enters energy saver mode after it no longer receives print jobs or is not operated. If a print job is received while the printer is in energy saver mode, the printer warms up, then returns to normal print mode before starting to print.
AUTO CONTINUE	When set to "On," the printer continues printing even if the specified tray is not loaded with paper of the correct size. When set to "Off," the printer stops and displays a message indicating that paper of the correct size should be loaded into the specified tray if the specified tray does not contain paper of the correct size. The Auto Continue setting can also be changed while printing. If this is done, the setting will remain valid for future print jobs.
CHAINING TRAY	When set to "On," the printer automatically switches to a different media tray containing paper of the same size and type and continues printing if the specified tray runs out of paper. When set to "Off," the printer stops and displays a message indicating that paper should be loaded into the specified tray if the specified tray runs out of paper. The Chaining Tray setting can also be changed while printing. If this is done, the setting will remain valid for future print jobs.
REPLACE TONER	This is used when replacing the toner cartridge. By selecting the color of the toner cartridge that you wish to replace (remove), the carousel automatically stops so that the selected toner cartridge can be removed.
CHANGE TONER SZ	Use this submenu to select the toner cartridge capacity.

**(4) Service menu**

FACE COUNT	A six-digit number indicating the number of pages that have been printed until now with this printer is displayed.
CONTROLLER VER.	The controller firmware version is displayed.
ENGINE VER.	The printer engine firmware version is displayed.
DIMM TEST	A complete DIMM test is performed, allowing you to check that there are no errors in the DIMM.
SDRAM TEST	A complete SDRAM test is performed, allowing you to check that there are no errors in the SDRAM.
POWER ON TEST	A Power On test is performed. Wait until the test is finished and "IDLE" is displayed.
RESET COUNTER TRANSFER UNIT	Use this after replacing the transfer unit.
RESTORE USER DEFAULT	The settings for Energy Saver, Auto Continue and Chaining Tray are returned to their defaults. The default settings are listed below. Energy Saver: 30 minutes Auto Continue: On Chaining Tray: On

**(5) Network menu**

- If the printer is connected and used on a network, the following settings should be specified.
- For details about each setting, contact your network administrator.

IP ADDRESS	Set the IP address of this printer on the network. Using the <b>Up</b> , <b>Down</b> , <b>Prev.</b> and <b>Next</b> keys, enter the value.
SUBNET MASK	Set the subnet mask value of the network. Using the <b>Up</b> , <b>Down</b> , <b>Prev.</b> and <b>Next</b> keys, enter the value.
GATEWAY	If a router is used on the network, enter the IP address of the router. Using the <b>Up</b> , <b>Down</b> , <b>Prev.</b> and <b>Next</b> keys, enter the value.
HW ADDRESS	The Ethernet hardware address for this printer can be seen. (It cannot be changed.)
HTTP	This specifies whether or not PageScopeLight can be accessed.
SNMP	This specifies the access privileges for the MIB file.
DHCP/BOOTP	DHCP: If there is a DHCP server on the network, set whether or not the IP address is automatically assigned by the DHCP server and other network information is loaded. BOOTP: Set whether or not the IP address is automatically assigned by BOOTP and other network information is loaded. Either can be set to "On" or both can be set to "Off".

**(6) Consumable Usage menu**

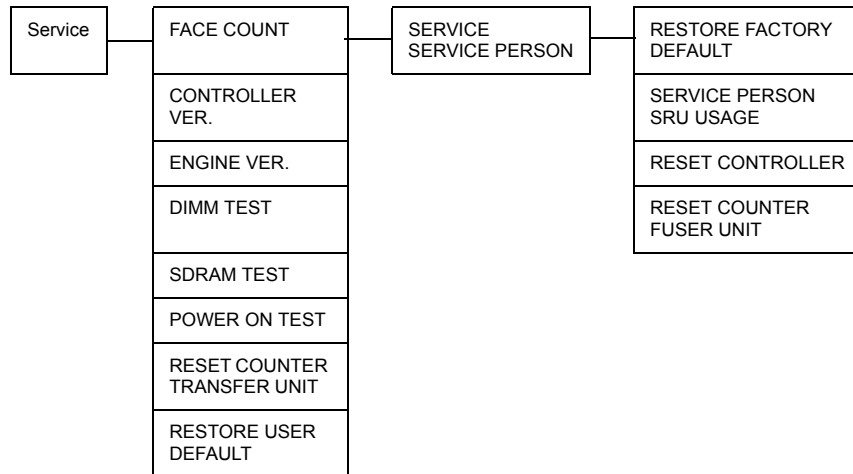
BLACK TONER XXX% REMAINING	Indicates the percentage of black toner remaining in the cartridge.
YELLOW TONER XXX% REMAINING	Indicates the percentage of yellow toner remaining in the cartridge.

MAGENTA TONER XXX% REMAINING	Indicates the percentage of magenta toner remaining in the cartridge.
CYAN TONER XXX% REMAINING	Indicates the percentage of cyan toner remaining in the cartridge.
DRUM UNIT XXX% REMAINING	Indicates the percentage of the life of the drum unit remains.

### 2-3. Service Mode

This mode is used to check and specify service functions.

### 2-4. Service mode displays



### 2-5. Entering service mode

<Procedure>

1. With the menu "ENGINE" selected, press the Down key.
2. Press the Prev. key until "SERVICE" is displayed.
3. Press the Select key to display "FACE COUNT".
4. Press both the Select and the Down keys at the same time for at least 2 seconds.
5. With "SERVICE PERSON" displayed, press the Down key.

<Cancelling procedure>

- Press the Cancel key.

### 2-6. Service mode options

#### (1) RESTORE FACTORY DEFAULT

- Select this option to restore all settings to their defaults.  
Language, Energy Saver, Auto Continue, Chaining Tray, IP Address, Subnet Mask, Gateway, DHCP/BOOTP, All toner max life=1500, All remaining=100%, All counters, CPU counters for service, PSL admin password.

#### (2) SERVICE PERSON SRU USAGE



- Select this option to display the remaining service life for the image transfer belt unit and the drum unit.

**(3) RESET CONTROLLER**

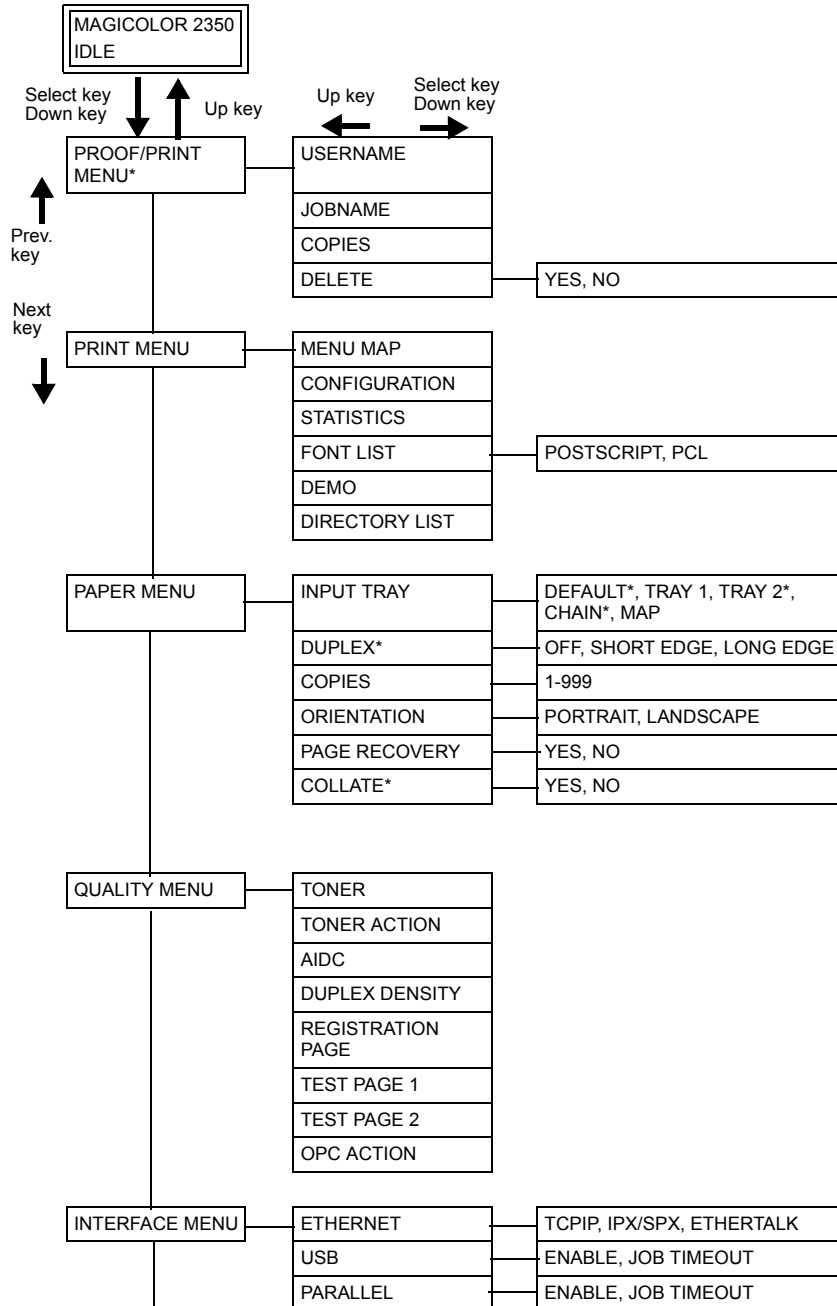
- Select this option to reset the controller.

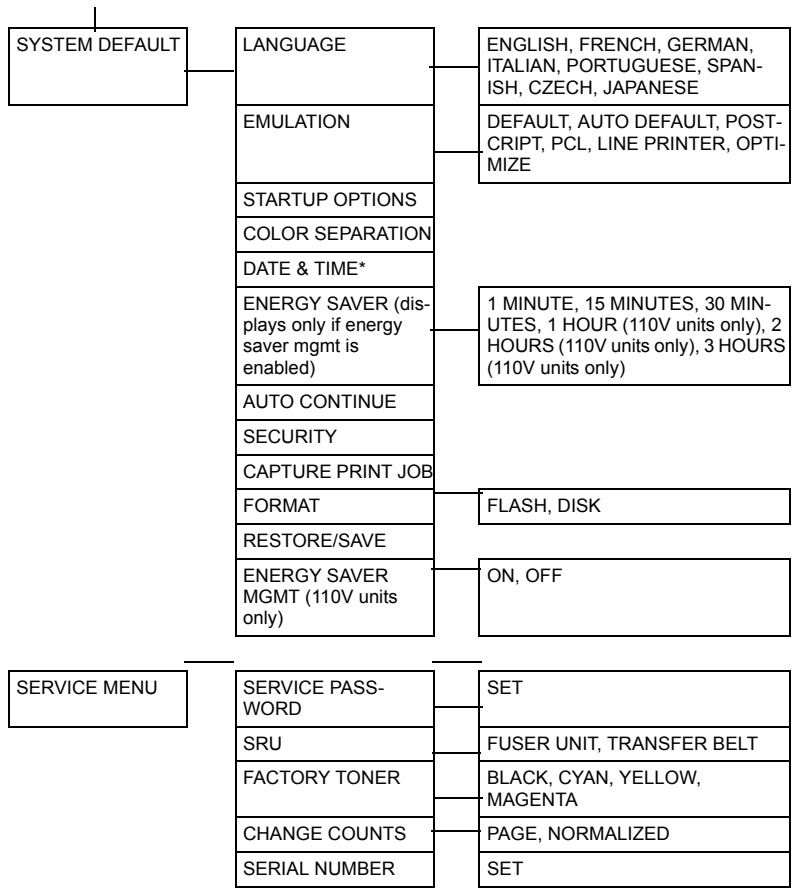
**(4) RESET COUNTER FUSER UNIT**

- Select this option to reset the counter for the fusing unit.

### 3. Menu Contents for magicolor 2350

#### 3-1. Menu Overview



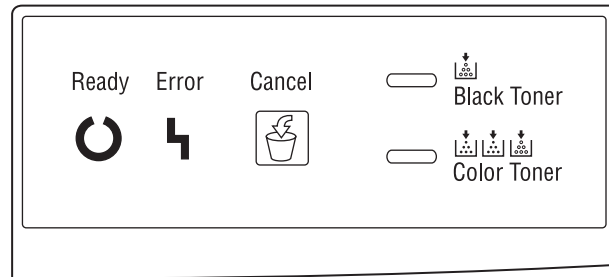


\* displays only if the associated option is installed.

## 4. About the 2300W Control Panel


The control panel, located on the top of the printer, allows you to direct the printer's operation. In addition, it displays the current status of the printer, including any condition that needs your attention.

- One key allows you to control the printer configuration through access to frequently used printer functions.
- Four indicator lights (LEDs) provide printer status information. For details, refer to the Operator's Manual supplied with the unit.





C4131o208AA

### 4-1. Control Panel Key

Key	Function
<p><b>Cancel</b></p>  <p>C4131o209AA</p>	<ul style="list-style-type: none"> <li>• Cancels printing when held down for at least 5 seconds.</li> <li>• Overrides a media size/type mismatch when held down for less than 5 seconds.</li> <li>• Resets the printer to factory defaults when held down for at least 20 seconds while the printer's front door is open.</li> </ul>

## 4-2. Indicator Lights

Ready  C4131o210AA	Error  C4131o211AA	Printer Status****
Green LED	Orange LED	
Off	Off	Power off
On	On	Power-on initialization Canceling a job
On	Off	Printer ready (idle)
Blinking rapidly***	Off	Warming up Calibrating
Blinking normally**	Off	Receiving data Printing
Blinking slowly*	Off	Energy Saver mode
On	Blinking slowly*	Waste toner bottle is nearly full Drum cartridge life has nearly expired
On	Blinking normally**	OPC drum cartridge life has expired
Off	Blinking normally**	Media jam Waste toner bottle is full
Off	Blinking slowly*	Tray 1 Empty
Off	Blinking rapidly***	Fatal error
Off	On	Cover open
Blinking rapidly***		Load [Media Size] in Tray
Blinking normally**		Communication error
* : Blinking slowly 1 blink per every 2 seconds ** : Blinking normally 1 blink per second *** : Blinking rapidly 2 blinks per second **** : For details, check the Status Display utility.		

Black Toner	Condition
Orange LED	
Blinking slowly*	Black toner low
On	Black toner empty
Blinking rapidly***	Ready to change black toner cartridge
* Blinking slowly	1 blink per every 2 seconds
*** Blinking rapidly	2 blinks per second

Color Toner	Condition
Orange LED	
Blinking slowly*	Color toner low
On	Color toner empty
Blinking rapidly***	Ready to change color toner cartridge
* Blinking slowly	1 blink per every 2 seconds
*** Blinking rapidly	2 blinks per second

#### 4-3. Working with the 2300W Status Display

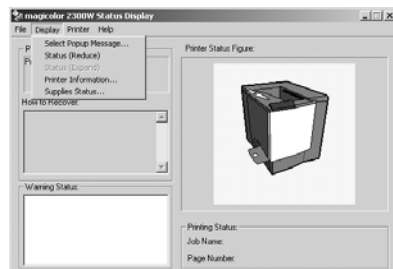
- The Status Display displays information about the current status of the computer's local printer. If you used the CD-ROM Installer to install the printer driver, the Status Display was also installed. However, if you used Add Printer to manually install the printer driver, Status Display is not installed.

##### (1) Environment

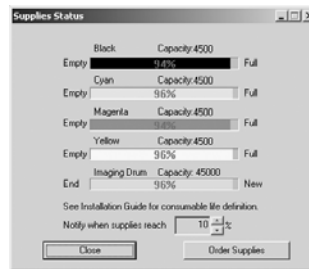
- The Status Display functions over parallel and USB connections on all supported Windows operating systems, but only for the default printer.

##### (2) Opening the Status Display and Showing Supplies Status

- Double-click the Status Display icon in the taskbar. (If the Status Display icon does not appear in the taskbar, from the Start menu, choose Programs, then magicolor 2300W Utilities, and then magicolor 2300W Status.
- From the Display menu, choose Supplies Status to view remaining consumables life.



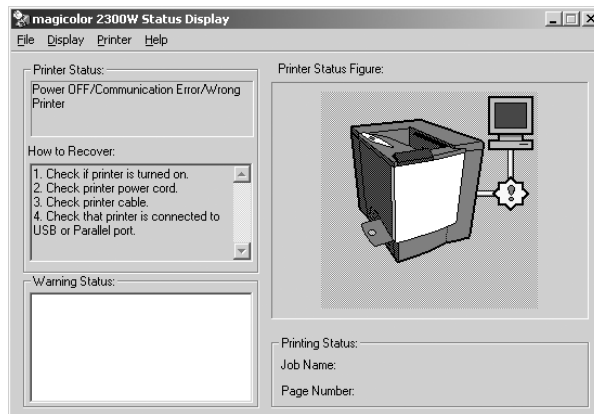
C4131p551AA



C4131P552AA

#### 4-4. Using the Status Display

- When the background of the right-hand printer graphic is green, the printer is in standby mode or a job is printing normally.
- When the background of the right-hand printer graphic is red, there is an error and the job has been interrupted. The status of the printer and the error message are shown in the dialog boxes on the left.



C4131p553AA

\* The function areas include:

Printer Status	Displays text messages that describe the current operational status of the printer.
How to Recover	Provides you with instructions to correct problems and recover from error conditions.
Warning Status	Displays text messages that warn you of such conditions as low toner.
Printer Status Figure	Shows a graphic representation of the printer and indicates where there is a problem.
Printing Status	Displays the status of the current print job.

##### (1) Working with the Display Menu

- Refer to the Status Display's online help for information on all of its functions.

Select Popup Message	Allows you to choose which message(s) you want to bring to the foreground when that particular condition occurs on the printer.
Status (Reduce)	Decreases the size of the Status Display window.
Status (Expand)	Increases the size of the Status Display window.
Printer Information	Displays the total print count, the list of installed options and the memory size.
Supplies status	Displays consumables usage (percentage remaining) for the toner cartridges and OPC drum cartridge. Refer to the Status Display's online help for information on all of its functions.

**(2) Working with the Printer Menu**

Power On Test	Performs an AIDC (Auto Image Density Control) calibration cycle. Wait until the test is finished, the Ready indicator on the control panel lights up, and the Error indicator goes off (less than 150 seconds).
Maintenance	
Duplex Density	Adjusts the density of the second side of the paper when duplex printing.
Energy Saver	Sets the length of time until the printer enters Energy Saver mode after it no longer receives print jobs or is not operated. If a print job is received while the printer is in Energy Saver mode, the printer warms up, then returns to normal print mode before starting to print.
Auto Continue	When set to On, causes the printer to continue printing even if the specified tray is not loaded with paper of the correct size. If the Auto Continue setting is changed during printing, the setting remains valid for future print jobs.
Toner Replace...	Allows you to replace a toner cartridge. From the list, select the color of the toner cartridge to be replaced. Select the capacity of the toner cartridge (1500 or 4500). Click OK. Open the front door, and then replace the toner cartridge.
Print Status Sheet	Prints an LED status sheet, which lists all LED combinations and their related printer status and error conditions.

**4-5. Status, Error and Service Messages**

- Status, error, and service messages are displayed in the Status Display. They provide information about your printer and help you locate many problems. When the condition associated with a displayed message has changed, the message is cleared from the Status Display message window.

**(1) Standard Status Messages**

This message...	means...
Canceling Job	The job is being cancelled.
Energy Saver	The printer is in Energy Saver mode to reduce power consumption during periods of inactivity. When a print job is received, the printer returns to normal power within 180 seconds.
Printer Idle	The printer is on and ready to receive data.
Printing	The printer is printing.
Processing	The printer is processing data.
Warming Up	The printer is warming up.



**(2) Error Messages**

This message...	means...
Put COLOR Toner Cartridge	The indicated toner cartridge is not installed properly.
Drum is not Attached	The OPC drum cartridge is not installed.
No Duplex Unit	Duplex printing was specified with the printer driver, but the duplex unit is not attached to the printer.
Video Under-run	The amount of data to be printed exceeds the printer's internal data transmission speed.
Paper Jam at Duplex Lower	Media has jammed in the duplex unit.
Paper Jam at Duplex Upper	
Paper Jam in Ejection	Media has jammed between the print engine and the output tray. A media jam has been detected between the fuser and output tray rollers located near the top cover. Exit jams occur in the media eject area.
Paper Jam at Fusing Unit Section	Media has jammed leaving the fuser area.
Paper Jam at Transfer Roller	A media jams has occurred in the transfer roller area. This type of jam means that the media did not make it to the paper exit area.
Paper Jam at Tray 1	Media has jammed while being pulled from tray 1.
COLOR Toner Low	The specified toner is low and should be replaced within 200 pages at 5% coverage of letter/A4 pages.
Drum Near End	The OPC drum cartridge is nearing end of life and should be replaced or the quality eventually fades.
Printer Cover Open	Printer's front door is open and must be closed.
Size Mismatch	The media size set with the printer driver is different from the size of media loaded.
Media Size is "XX".	The media size or type set with the printer driver is different from the type of media loaded into Tray 1.
COLOR Toner Empty	The specified toner cartridge is empty.
Tray 1 Empty	The indicated tray is empty.
Waste Toner Box Near Full	The waste toner bottle is nearly full.
Waste Toner Box Full	The waste toner in the waste toner bottle is full.
Put Waste Toner Box	The waste toner bottle is not installed.

**(3) Service Messages**

- A service message sometimes occurs as a result of an unusual combination of events, not because of an actual problem. When the printer stops and a service message displays in the Status Display message window, turn the printer off and then back on. This often clears the service message indicator, and printer operation resumes.

This service message...	means...
AIDC Sensor Error	AIDC sensor error.

Communication Error	A communication error occurred in the parallel or USB interface.
Controller Internal Error	There is an internal error on the controller board.
SDRAM Error on Board	There is an SDRAM error on the controller board.
ROM Error	ROM error.
Service Call: XX	An error has been detected with the item indicated "XX " in the service message.



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# TROUBLESHOOT- ING

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## 1. Introduction

- Information required for troubleshooting and steps that must be performed are described in this chapter.

### 1-1. Checking the electrical components

- If a paper misfeed or malfunction occurs, perform the following operation to check the condition of the electrical components.

#### (1) Sensor

Step	Check	Result	Remedy
1	Does the input signal of the master board change (H→L, L→H) when the sensor light is interrupted?	NO	Replace the sensor.
		YES	Replace the master board.

#### (2) Switch

Step	Check	Result	Remedy
1	Does the input signal (NO) of the master board change from L to H when the switch is turned on?	NO	Replace the switch.
		YES	Replace the master board.

**(3) Solenoid**

Step	Check	Result	Remedy
1	Does the output signal of the master board change from H to L when the solenoid is turned on?	NO	Replace the master board.
		YES	Replace the solenoid.

**(4) Clutch**

Step	Check	Result	Remedy
1	Does the output signal of the master board change from H to L when the clutch is activated?	NO	Replace the master board.
		YES	Replace the clutch.

**(5) Motor**

Step	Check	Result	Remedy
1	Does the LOCK signal switch to H when the machine goes into standby?	NO	Replace the master board. Replace the motor.
2	Does the REM signal of the master board change from H to L when the motor is turned on?	YES	Replace the motor.
		NO	Replace the master board.

Step	Check	Result	Remedy
1	Does the input signal of the master board change from H to L when the motor is turned on?(The input signal differs depending on the rotation direction.)	YES	Replace the motor.
		NO	Replace the master board.

Step	Check	Result	Remedy
1	Are the relay connector of the motor and the print jack on the master board correctly connected?	YES	Replace the motor or the master board.
		NO	Connect the connector or the print jack.

## 2. Paper Misfeeds

### 2-1. Perform initial check procedures

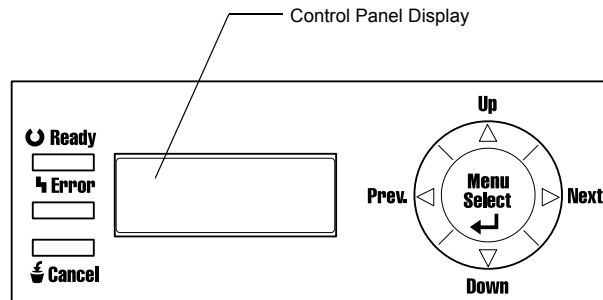
- If a paper misfeed occurs, first check for the following conditions.

Condition to be checked	Remedy
Is paper within the product specifications being used?	Change the paper.
Is the paper curled, wrinkled or humid?	Change the paper. Instruct the user on how to store paper.
Are there foreign objects in the transport path or is it dirty or deformed?	Clean or replace the transport path.
Are the rollers dirty, deformed or scratched?	Clean or replace the rollers.
Are the paper guides adjusted to the size of the paper?	Adjust the guides.
Is the actuator operating correctly?	Repair or replace the actuator.



## 2-2. Paper misfeed displays

- If a paper misfeed occurs, a message indicating the location of the misfeed appears in the display.



C41310015AA

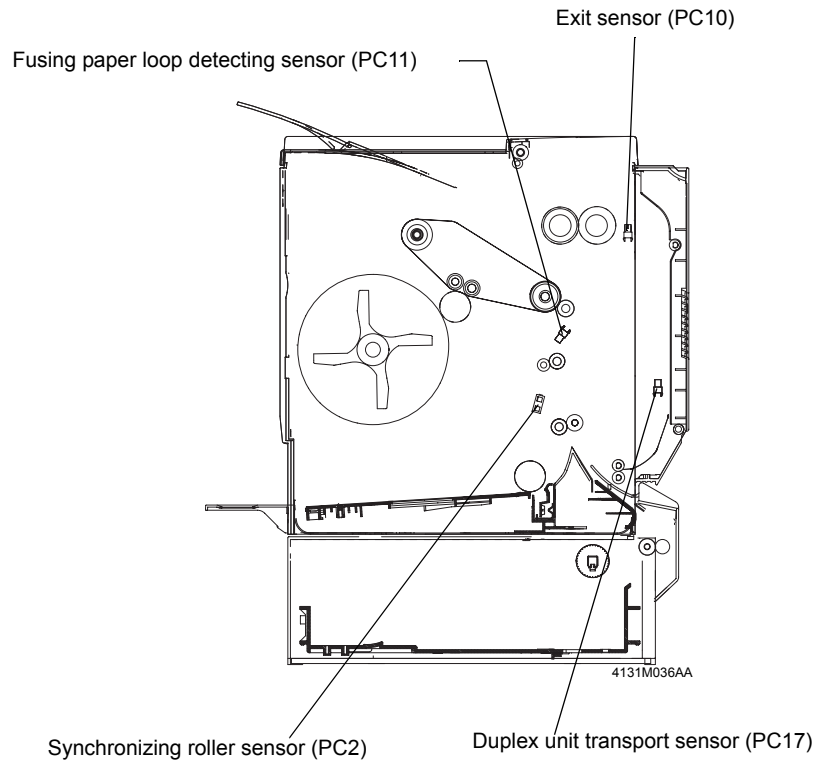
Message: 2300 DL	2350	2300W Status Display Message	Location of misfeed or location of paper	Remedy page reference
MEDIA JAM TRAY1	PAPER JAM TRAY 1	Paper Jam at Tray 1	Paper feed-in section of manual feed tray	155
MEDIA JAM TRANSFER ROLLER	PAPERJAM TRANSFER	Paper Jam at Transfer Roller	Second image transfer section	156
MEDIA JAM FUSER	PAPER JAM FUSER	Paper Jam at Fusing Unit Section	Fusing section	156
MEDIA JAM EXIT	PAPER JAM EXIT	Paper Jam in Ejection	Paper feed-out section of main unit	156
MEDIA JAM TRAY2	PAPER JAM TRAY 2	Paper Jam at Tray 2	Feed-in section of expansion paper cassette unit	157
MEDIA JAM DUPLEX LOWER	PAPER JAM DUPLEX	Paper Jam at Duplex Lower	Feed-in section of duplex unit	157
MEDIA JAM DUPLEX UPPER	PAPER JAM DUPLEX	Paper Jam at Duplex Upper	Turnover section of duplex unit	157
		Paper Jam at Duplex Upper	Storage section of duplex unit	157

<Display reset procedure>

Paper misfeed in the main unit	Open the appropriate door, remove the misfed paper and any remaining paper, and then close the door. (For optional equipment, after removing the paper, load it again.)
Paper misfeed in optional equipment	

### 2-3. Wiring diagram of misfeed-detecting sensors

- If the duplex unit and lower feeder are installed



## 2-4. Misfeed detection timing and remedies

### (1) Paper misfeed in the paper feed-in section of the manual feed tray (Tray1)

<Detection timing>

Category	Details
Paper misfeed detected in the paper feed-in section of the manual feed tray	If the end of the paper does not interrupt the synchronizing roller sensor (PC2) when a set amount of time has passed after the manual feed paper take-up sensor (SL1) is activated
Paper size error detected in the manual feed tray	If PC2 does not pass through when a set amount of time has passed after the paper interrupts the synchronizing roller sensor (PC2)

<Remedy>

Electrical components for detection of the paper misfeed	
Synchronizing roller sensor (PC2) Manual feed paper take-up solenoid (SL1)	Master board (PWB-A)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Perform initial check procedures.	152	-	-
2	Check PC2 operation.	149	PC2_ON	5-D
2	Check SL1 operation.	150	SL1_REM	8-G
3	Replace PWB-A	-	-	-

**(2) Paper misfeed in the Second image transfer section**

<Detection timing>

Category	Details
Paper misfeed detected in the Second image transfer section	If PC2 does not pass through when a set amount of time has passed after the paper interrupts the synchronizing roller sensor (PC2)
	If the light is not interrupted even after the paper has passed the interruption position for the fusing paper loop detecting sensor (PC11)
Remaining paper detected in the Second image transfer section	If the synchronizing roller sensor (PC2) is interrupted when the machine is turned on, doors and covers are opened, then closed, and paper misfeeds and malfunctions are corrected

<Remedy>

Electrical components for detection of the paper misfeed	
Synchronizing roller sensor (PC2) Fusing paper loop detecting sensor (PC11)	Master board (PWB-A)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Perform initial check procedures.	152	-	-
2	Check PC2 operation.	149	PC2_ON	5-D
3	Check PC11 operation.	149	PC11_ON	9-B
4	Replace PWB-A.	-	-	-

**(3) Paper misfeed in the fusing section or the paper feed-out section**

<Detection timing>

Category	Details
Paper misfeed detected in the paper feed-out section	If PC10 does not pass through when a set amount of time has passed after the paper interrupts the exit sensor (PC10)
Remaining paper detected in the paper feed-out section	If the exit sensor (PC10) is interrupted when the machine is turned on, doors and covers are opened, then closed, and paper misfeeds and malfunctions are corrected

<Remedy>

Electrical components for detection of the paper misfeed	
Exit sensor (PC10)	Master board (PWB-A)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Perform initial check procedures.	152	-	-
2	Check PC10 operation.	149	PC10_ON	3-D
3	Replace PWB-A.	-	-	-

**(4) Paper misfeed in the paper feed-in section of the Second paper cassette  
(Tray2) 2300 DL & 2350 only**

<Detection timing>

Category	Details
Paper misfeed detected in the paper feed-in section	If the end of the paper does not interrupt the synchronizing roller sensor (PC2) when a set amount of time has passed after the 2nd drawer take-up solenoid (SL7) is activated
Remaining paper detected in the Second paper cassette	If the synchronizing roller sensor (PC2) is interrupted when the machine is turned on, doors and covers are opened, then closed, and paper misfeeds and malfunctions are corrected

<Remedy>

Electrical components for detection of the paper misfeed	
2nd drawer take-up solenoid (SL7) Synchronizing roller sensor (PC2)	2nd drawer control board (PWB-A)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Perform initial check procedures.	152	-	-
2	Check PC2 operation.	149	PC2_ON	5-D
4	Check SL7 operation.	150	SL7_REM	7-F
5	Replace PWB-A.	-	-	-

**(5) Paper misfeed in the transport section, turnover section or storage section of the duplex unit**

<Detection timing>

Category	Details
Paper misfeed detected in the turnover, storage or transport section	If the paper does not interrupt the duplex unit transport sensor (PC17) when a set amount of time has passed
Remaining paper detected in the transport section	If the duplex unit transport sensor (PC17) is interrupted when the machine is turned on, doors and covers are opened, then closed, and paper misfeeds and malfunctions are corrected

<Remedy>

Electrical components for detection of the paper misfeed	
Duplex unit transport sensor (PC17)	Duplex unit control board (PWB-A)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Perform initial check procedures.	152	-	-
2	Check PC17 operation.	149	PC17_ON	7-C

3	Replace PWB-A.	-	-	-
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### 3. Malfunctions and Warnings (2300DL & 2350)

The CPU performs a self-diagnosis on the condition of the unit, and if a malfunction is detected, the malfunction appears on the display.

Malfunction cancelling procedure

- For malfunctions other than those described above, open, then close the front door or turn the unit off, then on.

Malfunction code		Detection timing	Reference page
2300 DL	2350		
FATAL ERROR CODE: 04H	SERVICE CALL 04 ENGINE BOARD	• If abnormal transmissions are detected in the master board (PWB-A)	161
FATAL ERROR CODE: 05H	SERVICE CALL 05 FLASH ROM	• If a FLASH ROM error occurs during printer initialization	161
FATAL ERROR CODE: 08H	SERVICE CALL 08 MAIN MOTOR	• If the main motor (M1) does not rotate when the unit is turned on	161
FATAL ERROR CODE: 0BH	SERVICE CALL 0B XFER FAN	• If the ventilation fan motor (M6) does not rotate when the unit is turned on	162
FATAL ERROR CODE: 0CH	SERVICE CALL 0C PWR SUPPLY FAN	• If the power supply cooling fan motor does not rotate when the unit is turned on	162
FATAL ERROR CODE: 0EH	SERVICE CALL 0E SUCTION FAN	• If the fusing cooling fan motor does not rotate when the unit is turned on	162
FATAL ERROR CODE: 10H	SERVICE CALL 10 LASER UNIT	• If the polygon motor does not rotate	162
FATAL ERROR CODE: 14H	SERVICE CALL 14 XFER ROLLER	• If there is no pressure by or separation from the second image transfer roller	163
FATAL ERROR CODE: 15H	SERVICE CALL 15 XFER BELT	• If there is no pressure by or separation from the transfer belt cleaner	163
FATAL ERROR CODE: 16H	SERVICE CALL 16 XFER BELT	• If the transfer belt of the transport image transfer belt unit does not rotate	163
FATAL ERROR CODE: 17H	SERVICE CALL 17 TONER RACK	• If the toner cartridge does not rotate	164
FATAL ERROR CODE: 18H FATAL ERROR CODE: 19H	SERVICE CALL 18 FUSER UNIT SERVICE CALL 19 FUSER UNIT	<ul style="list-style-type: none"> <li>• If the unit does not reach 80° C within 100 seconds from the time that warm-up begins</li> <li>• If the temperature of the fusing roller falls below 70° C in 10 seconds during standby</li> <li>• If the temperature of the fusing roller increases to 220° C in 0.1 second</li> </ul>	164 164

FATAL ERROR CODE: 1AH FATAL ERROR CODE: 1BH	SERVICE CALL 1A FUSER UNIT SERVICE CALL 1B FUSER UNIT	<ul style="list-style-type: none"> <li>If the temperature of the fusing roller when the fusing unit begins warming up does not remain increased by 5°C for 1 second within the 40 to 50 seconds after the fusing roller begins warming up</li> </ul>	165 165
FATAL ERROR CODE: 21H	SERVICE CALL 21 TRANS DET SENS	<ul style="list-style-type: none"> <li>If a overhead projector transparency is not detected</li> </ul>	165
FATAL ERROR CODE: 29H FATAL ERROR CODE: 2AH FATAL ERROR CODE: 2BH FATAL ERROR CODE: 2CH	SERVICE CALL 29 MEM MALF COUNTER SERVICE CALL 2A MEM MALF DATA SERVICE CALL 2B MEM MALF ACCESS	<ul style="list-style-type: none"> <li>If the EEPROM malfunctioned</li> </ul>	165



### 3-1. Malfunction detection timing and remedies

- If the problem cannot be corrected by the user, a service code is displayed.

**(1) FATAL ERROR CODE 04H / SERVICE CALL 04 ENGINE BOARD: Malfunction of the master board**

<Remedy>

Components for display of the warning	
Master board (PWB-A)	

Step	Remedy	Reference Page	WARNING DIAGRAM	
			Control signal	Location (electrical component)
1	Replace PWB-A.	-	-	-

**(2) FATAL ERROR CODE 05H / SERVICE CALL 05 FLASH ROM: Malfunction of the FLASH ROM during initialization**

<Remedy>

Components for display of the warning	
Controller control board (PWB-P)	

Step	Remedy	Reference Page	WARNING DIAGRAM	
			Control signal	Location (electrical component)
1	Turn the printer off and on again.	-	-	-
2	Reload system code.	-	-	-
3	Replace PWB-P.	-	-	-

**(3) FATAL ERROR CODE 08H / SERVICE CALL 08 MAIN MOTOR: Malfunction of the main motor**

<Remedy>

Components for display of the warning	
Main motor (M1)	Master board (PWB-A) Power Unit (PU) Controller control board (PWB-P)

Step	Remedy	Reference Page	WARNING DIAGRAM	
			Control signal	Location (electrical component)
1	Check M1 operation.	151	M1_REM	5-A
2	Replace PU.	-	-	-
3	Replace PWB-A.	-	-	-
4	Replace PWB-P.	-	-	-

**(4) FATAL ERROR CODE 0BH / SERVICE CALL 0B XFER FAN: Malfunction of the ventilation fan motor**

<Remedy>

Components for display of the warning	
Ventilation fan motor (M6)	Master board (PWB-A) Power Unit (PU) Controller control board (PWB-P)

Step	Remedy	Reference Page	WARNING DIAGRAM	
			Control signal	Location (electrical component)
1	Check M6 operation.	151	M6_REM	3-E
2	Replace PU.	-	-	-
3	Replace PWB-A.	-	-	-

4	Replace PWB-P.	-	-	-
---	----------------	---	---	---

**(4) FATAL ERROR CODE 0CH / SERVICE CALL 0C PWR SUPPLY FAN: Malfunction of the power supply cooling fan motor**

<Remedy>

Components for display of the warning	
Power supply cooling fan motor (M4)	Master board (PWB-A) Power unit (PU) Controller control board (PWB-P)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Check M4 operation.	151	M4_REM	3-D
2	Replace PU.	-	-	-
3	Replace PWB-A.	-	-	-
4	Replace PWB-P.	-	-	-

**(5) FATAL ERROR CODE 0EH / SERVICE CALL SUCTION FAN: Malfunction of the fusing cooling fan motor**

<Remedy>

Components for display of the warning	
Fusing cooling fan motor (M5)	Master board (PWB-A) Power unit (PU) Controller control board (PWB-P)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Check M5 operation.	151	M5_REM	11-E
2	Replace PU.	-	-	-
3	Replace PWB-A.	-	-	-
4	Replace PWB-P.	-	-	-

**(6) FATAL ERROR CODE 10H / SERVICE CALL LASER UNIT: Malfunction of the polygon motor**

<Remedy>

Electrical components for detection of the malfunction	
Print head unit	Master board (PWB-A) Power unit (PU) Controller control board (PWB-P)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)

1	Replace the print head unit.	-	-	-
2	Replace PU.	-	-	-
3	Replace PWB-A.	-	-	-
4	Replace PWB-P.	-	-	-

**(7) FATAL ERROR CODE 14H / SERVICE CALL 14 XFER ROLLER: Incorrect pressure by or separation from the Second image transfer roller**

<Remedy>

Electrical components for detection of the malfunction	
Image transfer roller pressure contact solenoid (SL2)	Master board (PWB-A)
Image transfer roller pressure positioning sensor (PC7)	Controller control board (PWB-P)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Check PC7 operation.	149	PC7_ON	5-C
2	Replace the Second image transfer roller pressure/separation mechanisms.	-	-	-
3	Check SL2 operation.	150	SL2_REM	5-E
4	Replace PWB-A.	-	-	-
5	Replace PWB-P.	-	-	-

**(8) FATAL ERROR CODE 15H / SERVICE CALL 15 XFER BELT: Incorrect pressure by or separation from the transfer belt cleaner**

<Remedy>

Electrical components for detection of the malfunction	
Belt cleaner pressure contact solenoid (SL4)	Master board (PWB-A)
Belt cleaner positioning sensor (PC9)	Controller control board (PWB-P)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Check PC9 operation.	149	PC9_ON	3-G
2	Replace the belt cleaner pressure/separation mechanisms.	-	-	-
3	Check SL4 operation.	150	SL4_REM	2-H
4	Replace PWB-A.	-	-	-
5	Replace PWB-P.	-	-	-

**(9) FATAL ERROR CODE 16H / SERVICE CALL 16 XFER BELT: Incorrect transfer belt rotation**

<Remedy>

Electrical components for detection of the malfunction	
-	-

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Replace the image transfer belt unit.	-	-	-

**(10) FATAL ERROR CODE 17H / SERVICE CALL 17 TONER RACK: Incorrect developing rack rotation**

<Remedy>

Electrical components for detection of the malfunction	
Rack motor (M2) Rack clutch (CL1) Rack home position sensor (PC4)	Master board (PWB-A) Controller control board (PWB-P)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Check PC4 operation.	149	PC4_ON	3-F
2	Check CL1 operation.	150	CL1_REM	2-F
3	Check M2 operation.	151	-	3-E
4	Replace PWB-A.	-	-	-
5	Replace PWB-P.	-	-	-

**(11) FATAL ERROR CODE 18H /SERVICE CALL 18 FUSER UNIT: Faulty warm-up detected**

**(12) FATAL ERROR CODE 19H / SERVICE CALL 19 FUSER UNIT: Incorrect fusing roller low temperature**

<Remedy>

Electrical components for detection of the malfunction	
Fusing roller heater lamp (H1) Fusing pressure roller heater lamp (H2) Thermostat (TS1)	Master board (PWB-A) Power unit (PU)

Step	Check	Result	Remedy	WARNING DIAGRAM	
				Control signal	Location(electrical component)
1	Check for continuity at H1 and H2.	NO	Replace H1 and H2.	-	2-B, 2-C
2	Check for continuity at TS1.	NO	Replace TS1.	-	2-C
3	Is the resistance at TH1 infinite? (between CN18-1 and -2 on the thermistor)	YES	Clean TH1 or replace the fusing unit.	HEATER	2-D
		NO	Replace PU. Replace PWB-A.		

**(13) FATAL ERROR CODE 1AH / SERVICE CALL 1A FUSER UNIT: Incorrect fusing roller high temperature**

**(14) FATAL ERROR CODE 1BH / SERVICE CALL 1B FUSER UNIT: Disconnection at thermistor**

<Remedy>

Electrical components for detection of the malfunction	
Thermistor (TH1)	Master board (PWB-A) Controller control board (PWB-P)

Step	Check	Result	Remedy	WARNING DIAGRAM	
				Control signal	Location(electrical component)
1	Is there a short circuit at TH1? (between CN18-1 and -2 on the thermistor)	YES	Clean TH1.	HEATER	2-D
			Replace the fusing unit.		
		NO	Replace PU.		
			Replace PWB-A		

**(15) FATAL ERROR CODE 21H / SERVICE CALL 21 TRANS DET SENS: Malfunction of the OHP detecting sensor**

<Remedy>

Electrical components for detection of the malfunction	
OHP detecting sensor (PC3A)	Master board (PWB-A) Controller control board (PWB-P)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Check PC3A operation.	149	PC3_REM	5-D
2	Replace PWB-A.	-	-	-
3	Replace PWB-P.	-	-	-

**(16) FATAL ERROR CODE 29H / SERVICE CALL 29 MEM MALF COUNTER: Malfunction of the EEPROM (memory counter error)**

**(17) FATAL ERROR CODE 2AH / SERVICE CALL 2A MEM MALF DATA: Malfunction of the EEPROM (memory data error)**

**(18) FATAL ERROR CODE 2BH / SERVICE CALL 2B MEM MALF ACCESS: Malfunction of the EEPROM (memory access error)**

**(19) FATAL ERROR CODE 2CH: Malfunction of the EEPROM (memory recognition error)**

<Remedy>

Electrical components for detection of the malfunction	
EEPROM	Master board (PWB-A)

Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Replace the EEPROM.	-	-	-
2	Replace PWB-A.	-	-	-

### 3-2. Power supply malfunctions

#### (1) No power



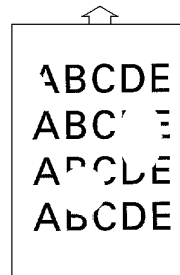
<Remedy>

Electrical components for detection of the malfunction	
Power unit (PU) Power switch (S1)	Master board (PWB-A)

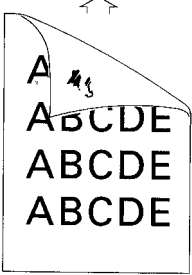
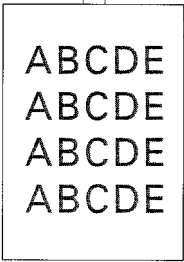
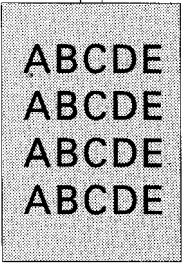
Step	Remedy	Reference page	WARNING DIAGRAM	
			Control signal	Location(electrical component)
1	Check if the power supply cord is connected to the main unit.	-	-	-
2	Check S1 operation.	-	-	2-A
3	Replace the power unit.	-	-	-
4	Replace PWB-A.	-	-	-

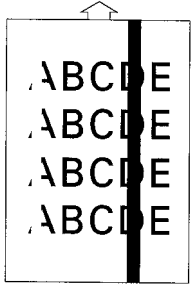
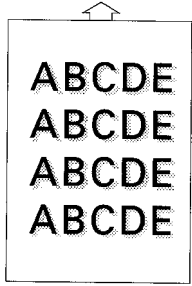
## 4. Image Quality Troubleshooting

- If an image quality problem occurs, replace the toner cartridge and drum cartridge with new ones, and then determine whether the cause of the problem is due to one of the cartridges or another part of the main unit.

Symptom	Cause	Remedy
Blank print  0951o211	Faulty PC drum	Replace the drum cartridge.
	Improper laser exposure	Replace the print head unit.
		Replace the master board (PWB-A).
		Replace the controller control board.
Poor developing bias	Replace the master board (PWB-A). Replace the controller control board.	
Black print  0951o213	Improper laser exposure	Replace the print head. Replace the controller control board.
	Improper charging	Replace the master board (PWB-A). Replace the controller control board
White spots  0951o220	Damp paper	Change the paper.
	Poor image transfer	Replace the Second image transfer roller.
		Replace the master board (PWB-A).
		Replace the transport image transfer belt unit.
	Replace the controller control board.	



Symptom	Cause	Remedy
Toner smudges on back-side of paper  0951o226	Dirty fusing roller	Replace the fusing roller.
	Dirty image transfer roller	Replace the Second image transfer roller.
	Dirty paper transport path	Clean the paper transport path.
Low image density  0951o214	No toner in toner cartridge	Replace the toner cartridge.
	Faulty PC drum (end of service life)	Replace the drum cartridge.
	Poor developing bias	Replace the master board (PWB-A).
		Replace the controller control board.
	Poor image transfer	Replace the Second image transfer roller.
		Replace the master board (PWB-A).
Replace the transport image transfer belt unit.		
Foggy background  0951o218	Poor developing bias	Replace the master board (PWB-A).
		Replace the controller control board.
	Faulty PC drum (end of service life)	Replace the drum cartridge.

Symptom	Cause	Remedy
White/Black lines and bands  0951o222	Scratched PC drum	Replace the drum cartridge.
	Defective print head	Replace the print head unit.
Replace the master board (PWB-A).		
Offset image  0951o219	Defective fusing roller	Replace the fusing roller.
	Faulty image transfer roller	Replace the Second image transfer roller.
Replace the image transfer belt unit.		



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INDEX

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## A

AIDC Control 45  
AIDC Detection 44

## B

Belt Cleaning 64  
Belt Cleaning Blade 64  
Belt Cleaning Blade Retraction 65  
Belt Unit 60  
Black print 168  
Blank print 168

## C

CDRH Regulation 20  
Charging 50  
Cleaning  
    Areas around Waste Toner  
        Collections Port 91  
    Laser Lens Cover 92  
    Paper Dust Roller 90  
    Paper Separator Roller 89  
    Paper Take-Up Roller 89  
Comb electrode 50  
Control Panel - magicolor 2300W 140  
Control Panel Description  
    Cancel Key 129  
    Menu Select Key 129  
Control Panel Descriptions 129  
Controller layout for 2300 W 42  
Controller layout for 2300DL 40  
Controller layout for 2350 41

## D

DEVELOPING UNIT 53  
Developing Unit  
    Developing Position 55  
    Developing Roller 54  
    Drive 53  
    Rack Standby Position 55  
    Rack Stop Position 55  
    Toner Cartridge 56  
    Toner Cartridge Installation  
        Detection 58  
    Toner Cartridge Rack 53  
Dimensions 27  
Disassembly of the Fusing Unit 122  
Disassembly Procedures 96  
    AIDC sensor 121  
    Belt Cleaner Separation Solenoid  
        119  
    Circuit Boards & Electrical  
        Components 100  
    Controller Board 102  
    Controller Protective Cover 103

Doors, Covers, And Exterior Parts  
    96

Duplex Unit 110  
Duplex Unit Control Board 105  
EEPROM (IC3) 101  
Fusing Cooling Fan Motor 111  
Fusing Paper Loop Solenoid 120  
Fusing Unit 108  
High Voltage Unit 103  
Lower Feeder 110  
Lower Feeder Control Board 104  
Main Motor Assembly 112  
Manual Feed Take-up Solenoid 115  
Manual feed tray 122  
Master Board 101  
Power Supply Cooling Fan Motor  
    111  
Power Unit 102  
Pre-disassembly 98  
Print Head Unit 106  
Rack Motor 113  
Right-side Door 106  
Second Image Transfer Roller  
    Pressure Contact  
    Solenoid 118  
toner cartridge rack 124  
Transport Motor 114  
Transport Roller Solenoid 117  
Transport Unit 108  
Turnover Motor 114  
Ventilation Fan Motor 112

Disassembly/Assembly 83  
Disassembly/Assembly Precautions 83  
Disconnection at thermistor 165  
Drum Cartridge 49  
Drum cartridge life 28  
Duplex Unit 73  
    Drive 73  
    Paper Feeding Method 74

## E

ELECTRICAL COMPONENTS 38  
environment 31  
Error Codes 159  
    04H 161  
    08H 161  
    0BH 161  
    0CH 162  
    0EH 162  
    10H 162  
    14H 163  
    15H 163  
    16H 163

- 17H 164
- 18H 164
- 19H 164
- 1AH 165
- 1BH 165
- 21H 165
- 29H 165
- 2AH 165
- 2BH 165
- 2CH 165

**F**

- Faulty warm-up detected 164
- First Image Transfer 61
- Foggy background 169
- Fusing Roller Pressure 68
- Fusing Section 67
  - Drive 68
- Fusing Temperature Control 69
- Fusing Unit Replacement 95

**G**

- Grid 50

**H**

- Handling of PWBs 100
- Handling of the Imaging Cartridge 18
- High-temperature Part 12
- High-voltage Parts 12
- How to Use this Book 16
- Humidity Sensor 47

**I**

- Image Quality
  - Black print 168
  - Blank print 168
  - Foggy background 169
  - Low image density 169
  - Offset image 170
  - Toner smudges on backside of paper 169
  - White spots 168
  - White/Black lines and bands 170
- Image Quality Troubleshooting 168
- Image Stabilization Control 44
  - AIDC Control 45
  - AIDC Detection 44
  - Operation Timing 46
  - Temperature/Humidity Sensor 47
- Image Transfer 60
  - Belt Cleaning 64
  - Belt Cleaning Blade Retraction 65
  - Belt Unit 60
  - Drive Train 60
  - First Image Transfer 61
  - Roller Cleaning 63
  - Roller Pressure/Retraction 62
  - Second Image Transfer 61
  - Waste Toner Bottle 66
- Image Transfer Belt Unit Replacement 94
- Incorrect developing rack rotation 164
- Incorrect fusing roller high temperature 165
- Incorrect fusing roller low temperature 164
- Incorrect pressure 163
- Incorrect transfer belt rotation 163
- Installation
  - environment 31
  - power supply 31
  - Space requirements 32
- Installation Precautions 31

**J**

- Jam sensors 154
- Jams 152

**L**

- Laser Caution Label 22
- Laser Exposure 51
  - CD Direction 51
  - FD Direction 51
  - Print Area 52
- Laser Safety Label 22
- Life Specifications 87
- Low image density 169

**M**

- magicolor 2300W
  - Control Panel 140
  - Status Display 142
- Main motor malfunction 161
- Maintenance And Cleaning 89
- Maintenance Schedule 85
  - Fusing unit 85
  - Image transfer belt unit 85
  - Laser lens cover 85
  - OPC Drum cartridge 85
  - Paper dust roller 85
  - Paper take-up roller 85
  - Second image transfer roller 85
  - Separator roller assembly 85
  - Toner cartridge 85
  - Transport roller 85
  - Waste toner bottle 85
- Malfunction of the EEPROM 165
- Malfunction of the fusing cooling fan motor 162
- Malfunction of the main motor 161

- Malfunction of the master board 161
- Malfunction of the OHP detecting sensor 165
- Malfunction of the polygon motor 162
- Malfunction of the power supply cooling fan motor 162
- Malfunction of the ventilation fan motor 161
- Malfunions and Warnings 159
- Manual Feed Tray 71
  - Paper Empty Detection 71
  - Take-Up 71
- Media sizes 27
- Media types 27
- Memory configuration 29
- Menu
  - magicolor 2300 DL 133
  - magicolor 2350 138
- Message Window 129
- Misfeed detection timing 155
- Misfeed-detecting sensors 154
- N**
- Near-Empty Sensor 72
- No power 167
- Noise 27
- O**
- Offset image 170
- OPC Drum Cartridge Replacement 93
- Operating environment 28, 33
- Operating noise 27
- Operating Sequence 43
- P**
- Paper cassette capacity 28
- Paper Empty Detection 71
- Paper Misfeeds 152
- Paper Path 37
- Paper Separating Roller Assy Replacement 90
- Paper Take-up Roller Replacement 89
- Paper Take-up Section 71
  - Manual Feed Tray 71
- PC Drum 49
  - Charging 50
  - Grounding 49
  - Handling Precaution 49
  - Scorotron 50
- PC drum specifications 27
- polygon motor 162
- Power consumption 27
- Power Cord 12
- Power supply 31

- Power supply requirements 33
- Precautions for Dis/Reassembly 17
- Precautions for Service 16
- Print resolution 27
- Product Specifications 27
- R**
- Rack 53
- Rack Standby Position 55
- Rack Stop Position 55
- RAM 29
- Replacement
  - Fusing Unit 95
  - Image Transfer Belt 94
  - OPC Drum Cartridge 93
  - Second Image Transfer Roller 92
  - Toner Cartridge 94
  - Waste toner bottle 91
- Roller Cleaning 63
- Roller Pressure/Retraction 62
- S**
- Safety Information
  - Internal Laser Radiation 19
  - Laser Safety 19
- Safety information 19
- Safety Precautions 11
  - Covers and Parts Removed 14
  - Grounded Connection
    - Grounded Connections 13
  - Handling of PWBs 17
  - Handling of the Imaging Cartridge 18
  - High-temperature Part 12
  - High-voltage Parts 12
  - Laser Beam 14
  - Power Cord 12
  - Service Jobs 13
  - Specified Parts 12
  - Storing toner 14
- Scorotron 50
- Second Cassette 72
  - Near-Empty Sensor 72
  - Paper Empty Detection 72
  - Take-Up 72
- Second Image Transfer 61
- Second Image Transfer Roller Replacement 92
- Service Call
  - 04 161
  - 08 161
  - 0B 161
  - 0C 162
  - 0E 162

- 10 162
- 14 163
- 15 163
- 16 163
- 17 164
- 18 164
- 19 164
- 1A 165
- 1B 165
- 21 165
- 29 165
- 2A 165
- 2B 165
- Service Calls 159
- Service Mode
  - magicolor 2300 DL 136
- Service mode options
  - magicolor 2300 DL 136
- Space requirements 32
- Specifications 27
  - CPU for 2300 29
  - CPU for 2350 30
  - Dimensions 27
  - Drum cartridge life 28
  - Maximum power consumption 27
  - Media sizes 27
  - Media types 27
  - Memory configuration 29
  - Operating environment 28
  - Operating noise 27
  - Paper cassette capacity 28
  - PC drum 27
  - Print resolution 27
  - RAM 29
  - Rated power supply voltage 27
  - Toner cartridge life 28
  - Warm-up time 27
  - Weight 27
- Specified Parts 12

**T**

- Temperature Control 69
- Temperature/Humidity Sensor 47
- Toner Cartridge Installation Detection 58
- Toner cartridge life 28
- Toner Cartridge Replacement 94
- Toner smudges 169
- Troubleshooting 149
  - Checking the electrical components 149
  - Clutch 150
  - Fatal Error Codes 159
  - Image Quality 168
  - Jams 152
  - Misfeed detection timing 155
  - Misfeed-detecting sensors 154
  - Motor 151
  - No power 167
  - paper curled, wrinkled or humid 152
  - Sensor 149
  - Solenoid 150
  - Switch 149

**W**

- Warm-up time 27
- Warnings 159
- Waste Toner Bottle 66
- Waste Toner Bottle Detection 66
- Waste Toner Full Detection 66
- Waste Toner Bottle Replacement 91
- Weight 27
- White spots 168
- White/Black lines 170