Phaser® 3150

THE DOCUMENT COMPANY
XEROX®

laser printer

Service Manual

Phaser 3150 Laser Printer

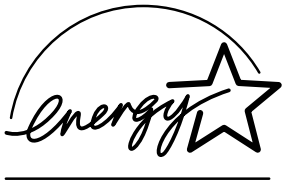
Service Manual

Warning

The following servicing instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.

First Printing: July 2004

721P58540



MD/TA

1 Precautions

2 Reference Information

3 Specifications

4 Product Summary

5 Disassembly

6 Alignment and Adjustments

7 Troubleshooting

8 Parts List

9 Block Diagram

10 Connection Diagram

1 Precautions

In order to prevent accidents and to prevent damage to the printer, please read the precautions listed below carefully before servicing the printer.

1.1 Safety Warnings

1. Only to be serviced by appropriately qualified service engineers.

   High voltages and lasers inside this product are dangerous. This printer should only be serviced by a suitably trained and qualified service engineer.

2. Use only Xerox replacement parts.

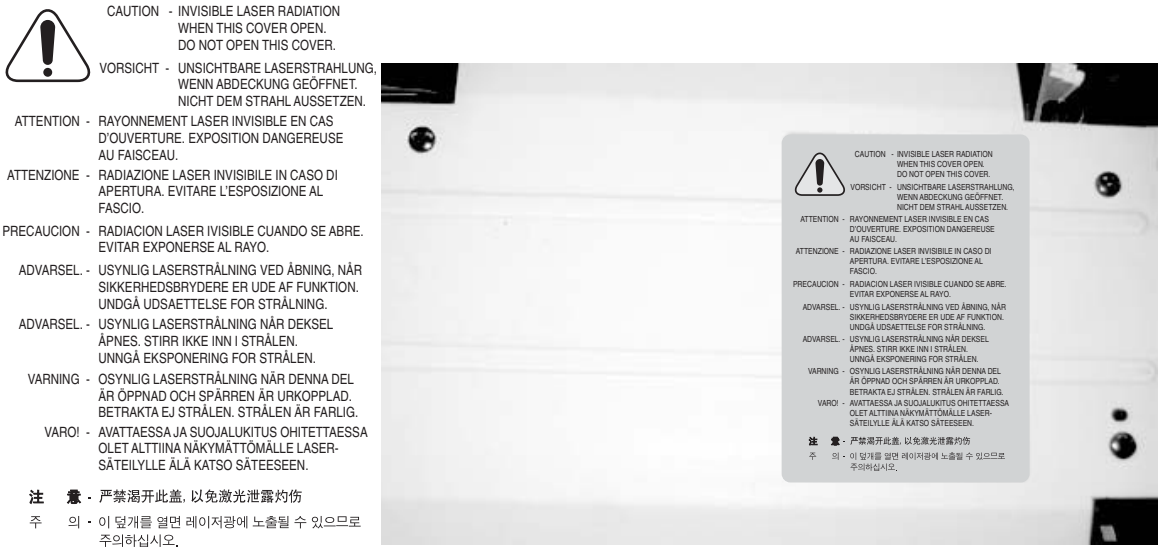
   There are no user serviceable parts inside the printer. Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire hazards.

3. Laser Safety Statement

   The Printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class 1 laser products, and elsewhere, it is certified as a Class 1 laser product conforming to the requirements of IEC 825. Class 1 laser products are not considered to be hazardous. The laser system and printer are designed so there is never access to laser radiation above a Class 1 level during normal operation, user maintenance, or prescribed service condition.

Warning

Never operate or service the printer with the protective cover removed from Laser assembly. The reflected beam, although invisible, can damage your eyes. When using this product, these basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and bodily injury.



CAUTION - INVISIBLE LASER RADIATION WHEN THIS COVER OPEN. DO NOT OPEN THIS COVER.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.

ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.

PRECAUCION - RADIACION LASER IVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.

ADVARSEL. - USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLNING.

ADVARSEL. - USYNLIG LASERSTRÅLNING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN. UNNGÅ EKSPONERING FOR STRÅLEN.

VARNING - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN. STRÅLEN ÄR FARLIG.

VARO! - AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER-SÄTEILYLLE ÄLÄ KATSO SÄTEESEEN.

注 意 - 严禁渴开此盖, 以免激光泄露灼伤

주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로 주의하십시오.

1.2 Safety Cautions

1.2.1 Toxic Material

This product contains toxic materials that could cause illness if ingested.

1. Please keep toner cartridges away from children. The toner powder contained in the toner cartridge may be harmful and if swallowed you should contact a doctor immediately.

1.2.2 Electric Shock and Fire Safety Precautions

Failure to follow the following instructions could cause electric shock or potentially cause a fire:

1. Use only the correct voltage, failure to do so could damage the printer and potentially cause a fire or electric shock.
2. Use only the power cable supplied with the printer. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire hazard.
3. Do not overload the power socket, this could lead to overheating of the cables inside the wall and could lead to a fire hazard.
4. Do not allow water or other liquids to spill into the printer, this can cause electric shock. Do not allow paper clips, pins, or other foreign objects to fall into the printer as these could cause a short circuit leading to electric shock or fire hazard.
5. Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the printer, remove the power plug from the wall socket.
6. Use caution when inserting or removing the power connector. The power connector must be inserted completely otherwise poor contact could cause overheating possibly leading to a fire. When removing the power connector, grip it firmly and pull.
7. Do not allow the power cable to become twisted, bent sharply round corners or otherwise damaged. Do not place objects on top of the power cable. If the power cable is damaged, it could overheat and cause a fire or exposed cables could cause an electric shock. Replace a damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can eat through the coating on the power cable, weakening the cover, or exposing cables causing fire and shock risks.
8. Ensure that the power sockets and plugs are not cracked or broken in any way. Any defects should be repaired or replaced immediately. Take care not to cut or damage the power cable or plugs when moving the printer.
9. Use caution during thunder or lightening storms. Xerox recommends that this printer be disconnected from the power source when such weather conditions are present. Do not touch the printer or the power cord if it is still connected to the wall socket in these weather conditions.
10. Avoid damp or dusty areas, install the printer in a clean well ventilated location. Do not position the printer near a humidifier. Damp and dust build up inside the printer can lead to overheating and cause a fire.
11. Do not position the printer in direct sunlight. This will cause the temperature inside the printer to rise leading to the printer failing to work properly and in extreme conditions could lead to a fire.
12. Do not insert any metal objects into the printer through the ventilator fan or other parts of the casing, it could come into contact with a high voltage conductor inside the printer and cause an electric shock.

1.2.3 Handling Precautions

The following instructions are for personal safety, to avoid injury, and to avoiddamage the printer

1. Ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall.
2. The printer contains many rollers, gears, and fans. Take great care to ensure that you do not catch your fingers, hair, or clothing in any of these rotating devices.
3. Do not place any small metal objects, containers of water, chemicals, or other liquids close to the printer which if spilled could get into the printer and cause damage, electric shock, or a fire hazard.
4. Do not install the printer in areas with high dust or moisture levels, beside an open window, or close to a humidifier or heater.
5. Do not place candles or burning cigarettes on the printer.These can cause a fire.

1.2.4 Assembly and Disassembly Precautions

Always use Xerox parts. Take care to note the exact location of parts and cable routing before disassembling any part of the printer. Ensure all parts and cables are replaced correctly.

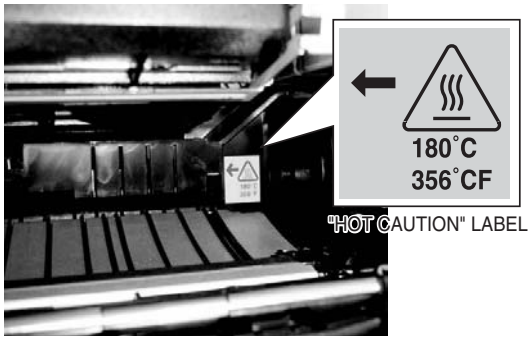
Please carry out the following procedures before disassembly or replacing any parts:

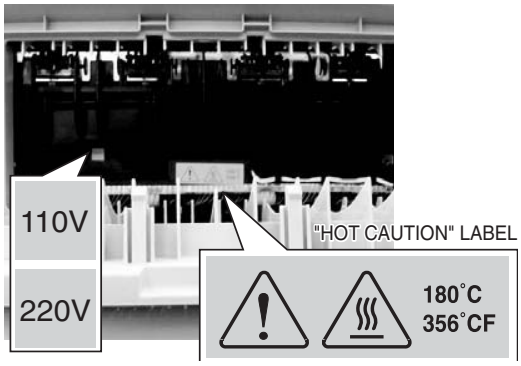
1. Check the contents of the printer memory and make a note of any user settings. These will be erased if the mainboard or network card is replaced.
2. Ensure that power is disconnected from the wall socket before servicing or replacing any electrical parts.
3. Disconnect printer interface cables and power cables before servicing or replacing any parts.
4. Only use approved spare parts. Ensure that part number, product name, any voltage, current, or temperature rating are correct.
5. When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.
6. Take care not to drop any small parts into the printer.

Handling of the OPC Drum

The OPC Drum can be irreparably damaged if:

- Exposed to light. Take care not to expose the OPC Drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 minutes can damage the surface photoconductive properties and will result in print quality degradation. Take extra care when servicing the printer. Remove the OPC Drum and store it in a black bag or other lightproof container.
- Take care when working with the covers (especially the top cover) open as light is admitted to the OPC area and can damage the OPC Drum.
- Take care not to scratch the green surface of OPC Drum Unit.
- If the green surface of the Drum Cartridge is scratched or touched, the print quality will be compromised.





1.2.5 Bodily Injury Warnings

1. Use caution around high temperature parts.

   The fuser unit works at a high temperature. Use caution when working on the printer. Wait for the fuser to cool down before disassembly.

2. Use caution when around rotating parts.

   When operating the printer, do not put your hands into the rotating parts (Paper feeding entrance, motor, fan, etc.). Remove jewelry and loose clothing before servicing the printer.

3. When you moving the printer.

   This printer weighs 12.7 kg including the toner cartridge and tray. Use safe lifting and handling techniques. Use the lifting handles located on each side of the printer. Back injury could result if you do not lift the printer properly.

4. Ensure the printer is installed properly.

   Ensure the printer is installed on a flat, level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall possibly causing personal injury or damaging the printer.

   Do not install the printer on a sloping or unstable surface. After installation, double check that the printer is stable.

1.3 ESD Precautions

Some semiconductor components, and the respective sub-assemblies that contain them, are vulnerable to damage by Electro-Static DISCHARGE (ESD). These components include Integrated Circuits (ICs), Large-Scale Integrated circuits (LSIs), field-effect transistors, and other semiconductor chip components. The following techniques will reduce the occurrence of component damage caused by static electricity.

Be sure the power is off to the chassis or circuit board, and observe all other safety precautions.

- Immediately before handling any semiconductor components assemblies, drain the electrostatic charge from your body. This can be accomplished by touching an earth ground source or by wearing a wrist strap device connected to an earth ground source. Wearing a wrist strap will also prevent accumulation of additional bodily static charges. Be sure to remove the wrist strap before applying power to the unit under test to avoid potential shock.
- After removing a static sensitive assembly from its anti-static bag, place it on a grounded conductive surface. If the anti-static bag is conductive, you may ground the bag and use it as a conductive surface.
- Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage some devices.
- Do not remove a replacement component or electrical sub-assembly from its protective package until you are ready to install it.
- Immediately before removing the protective material from the leads of a replacement device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
- Minimize body motions when handling unpackaged replacement devices. Motion, such as your clothes brushing together, or lifting a foot from a carpeted floor, can generate enough static electricity to damage an electro-statically sensitive device
- Handle IC’s and EPROM’s carefully to avoid bending pins.
- Pay attention to the direction of parts when mounting or inserting them on Printed Circuit Boards (PCB’s).

2 Reference Information

This section contains a tools list, list of abbreviations used in this manual, and a clearance required specification when installing the Phaser 3150 printer.

2.1 Tools for Troubleshooting the Printer

The following tools are recommended for safe and easy troubleshooting as described in this service manual.

- Digital Voltage Meter (DVM) standard: indicating more than 3 digits
- Screwdrivers
- Tweezers
- Cotton swabs
- Cleaning equipment: dry, lint-free cloth and/or mild detergent
- Toner Type II Vacuum
- Soft bristle brush
- Printer Installer and Utilities CD-ROM
- Diagnostic Control Unit (DCU)

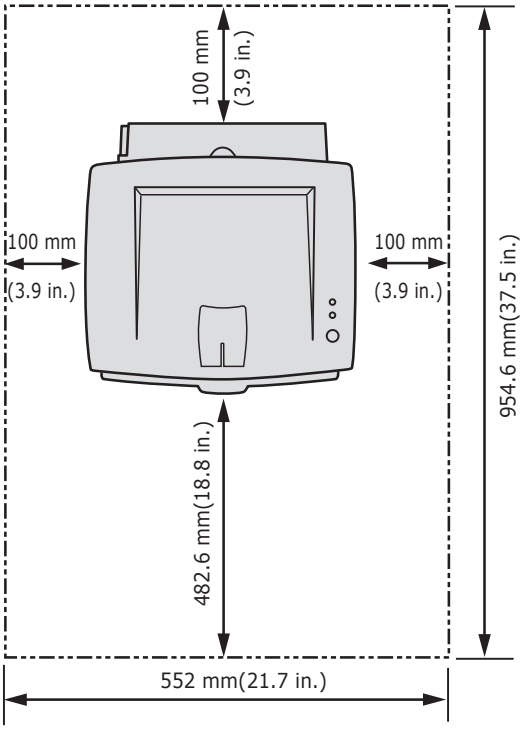
2.2 Acronyms and Abbreviations

	Definition		Definition
ADC	Analog-to-Digital Conversion	F/W	Firmware
AP	Access Point	FCF/FCT	Tray 1 or First Cassette Feeder
AC	Alternating Current	FISO	Front In, Side Out
ASIC	Application Specific Integrated Circuit	FPOT	First Print Out Time
Ass'y	Assembly	GDI	Windows Graphic Device Interface
BIOS	Basic Input Output Sytem	GIF	Graphic Interchange Format
BLDC	Motor Brushless Dc Motor	GND	Ground
CMOS	Complementary Metal Oxide Semiconductor	HBP	Host Based Printing
CMYK	Cyan, Magenta, Yellow, Black	HDD	Hard Disk Drive
CN	Connector	HTML	Hyper-text Transfer Protocol
CON	Connector	HV	High Voltage
CPU	Central Processing Unit	HVPS	High Voltage Power Supply
CTD Sensor	Color Toner Density Sensor	I/F	Interface
dB	Decibal	I/O	Input/Output
dBA	A Weighted Decibel	lb	Pound(s)
dBm	Decibel Milliwatt	IC	Integrated Circuit
DC	Direct Current	ICC	International Color Consortium
DCU	Diagnostic Control Unit	IDE	Intelligent/integrated Drive Electronics
DIMM	Dual In-line Memory Module	IEEE	Institute of Electrical and Electronics Engineers, Inc.
DPI	Dots Per Inch	IOT	Image Output Terminal (Color Printer, Copier)
DRAM	Dynamic Random Access Memory	IPA	Isopropyl Alcohol
DVM	Digital Voltmeter	IPC	Inter Process Communication
ECP	Enhanced Capability Port	IPM	Images Per Minute
ECU	Engine Control Unit	ITB	Image Transfer Belt (Transfer Belt)
EEPROM	Electronically Erasable Programmable Read Only Memeory	LAN	Local Area Network
EMI	Electro Magnetic Interference	LBP	Laser Beam Printer
EP	Electro Photographic	LCD	Liquid Crystal Display
EPP	Enhanced Parallel Port	LED	Light Emitting Diode
		LSU	Laser Scanner Unit

	Definition		Definition
LVPS	Low Voltage Power Supply Or SMPS		
MB	Megabyte	Q'ty	Quantity
MHz	Megahertz	RAM	Random Access Memory
MPBF	Mean Prints Between Failure	ROM	Read Only Memory
MPF/MPT	Multi-Purpose Tray	SCF/SCT	Tray 2 Or Second Cassette Feeder
NIC	Network Interface Card	SMPS	Switching Mode Power Supply or LVPS
NPC	Network Printer Card	SPGPm	Samsung Printer Graphic Processor
NVRAM	Non-volitale Random Access Memory	SPL	Samsung Printer Language
OPC	Organic Photo Conductor	Spool	Simultaneous Peripheral Operation Online
PBA	Print Board Assembly	SW	Switch
PCI	Peripheral Component Interconnect	SURF	Surface Rapid Fusing
PCL	Printer Command Language	Sync	Synchronous
PDF	Portable Document Format	T1	ITB or Transfer Belt Imaging
PDL	Page Description Language	T2	Transfer Roller Imaging
Ping	Packet Internet or Inter-network Grouper	TRC	Toner Reproductive Curve
PPD	PostScript Printer Description	PnP	Universal Plug-n-Play
PPM	Pages Per Minute	URL	Uniform Resource Locator
PS	PostScript	USB	Universal Serial Bus
PTL	Pre-Transfer (Erase) Lamp		
PWM	Pulse Width Moduration		

2.3 Selecting a Location for the Printer

- Leave enough room to open the printer trays, covers, and allow for proper ventilation.
- Provide the proper environment:
  - A sturdy, level surface.
  - Away from the direct airflow of air conditioners, heaters, or ventilators.
  - Free from extreme fluctuations in temperature, sunlight, or humidity.
  - Clean, dry, and free from excessive dust.



3 Specifications

The specifiations in this manual are correct at the time of printing. Product specifications are subject to change without notice.

3.1 General Specifications

Item	Description
Print Method	Laser diode unit and electrophotography
Developing system	Non-magnetic, contacting development system
Exposure System	Semiconductor laser diode beam scanning
Fuser (toner fixing)	Thermal rollers fusing with pressure (heat lamp: 600 Watts)
Resolution	True: 600 x 600 dpi Addressable: 1200 x 1200 dpi Grayscale level: 128 Gray
Print Speed*	A4: 20 ppm Letter/Executive: 22 ppm Legal: 18 ppm
Warm-up time	Cold warm-up and sleep mode: 42 seconds
FPOT	≤ 10 seconds
Feed Method	Tray 1/MPT (Multi-Purpose Tray), Tray 2 (Cassette), Optional Tray 3, 250-sheet feeder
Dimensions	Width: 358 mm (14.1 in.) Depth: 452 mm (17.8 in.) Height: 278 mm (10.9 in.)
Weight	Printer: 10.2 kg (22 lb.) with consumables Optional Tray 2: 3 kg (6.6 lb.) with packaging
Acoustic Noise**	Standby: 39 dBA Printing: 53 dBA
Power Saver Mode	Available, user settings enabled

* Print speed will be affected by the operating system used, computing performance, application software, connection method, media type, media size, and job complexity.

** Sound pressure level, ISO 7779

3.2 Controller/Software Specifications

Item	Description
Processor	SPGPM (Samsung Printer Graphic Processor) 166 MHz
Memory	32 MB, expandable to 144 MB, SDRAM
Emulation	SPL, PCL6 (Firmware), Epson, IBM Proprinter, Optional PostScript 3 SPL, PCL6 (Firmware), KS5843, KSSM, KSC5895
Interface	Standard: IEEE1284, USB 2.0 Auto Interface sensing
Font	Flash memory, 45 scalable, 1 bitmap
Network	Optional: 10/100 Base TX
Test Print	Demo Mode: Press the Cancel key for 2 seconds. Configuration Mode: Press the Cancel key for 6 seconds. Cleaning Mode: Press the Cancel key for 10 seconds.
Operating System Compatibility	Windows 98/NT4/2000/Me/XP Linux OS including Red Hat, Caldera, Debian, Mandrake, Slakware, SuSE, and Turbo Linux

3.3 Electrical Specifications

Item	Description	
Input Voltage	**Low voltage: 100-127 VAC**	**High voltage: 220-240 VAC**
Input Range	90-135 VAC	180-270 VAC
Input Frequency:	50/60 Hz	50/60 Hz
Frequency tolerance	±3 Hz	±3 Hz
Power Consumption	Ready: 70 Watts Average: 400 Watts Maximum: 700 Watts Power Saver: 15 Watts	
Power Saver Mode	User settings available	Off or 5, 10, 15, 30, 45, and 60 min.

3.4 Environmental Range

Items	Operating	Storage	Optimum
Temperature	10 ~ 32° C (50 ~ 90° F)	0 ~ 40 ° C (32 ~ 104° F)	20 - 25° C
Humidity	10 - 80% RH	20 - 95% RH	30 - 70% RH
Altitude	2,500 meters (8,200 feet)		

3.6 Media Specifications

3.6.1 Approved Paper Size and Weights

The supported media types for this printer include, but are not limited to: labels, envelopes, cardstock, plain paper, transparency, letterhead and colored paper.

Tray Support	Media Types / Capacity	Sizes	Weight
Tray 2 **Optional Tray 3**	Plain Paper - 250 sheets	A4, A5, A6, Letter, Legal, Folio, Oficio, Executive, ISO and JIS B5	16 ~ 24 lb. 60 ~ 90 g/m^2
Tray1 / MPT	Plain Paper - 50 sheets OHP film, Label Envelope -10 Card stock; Custom	A4, A5, A6, Letter, Legal, Folio, Oficio, Executive, ISO and JIS B5 Monarch No. 10, C5, C6, DL International Postcard, Letter/A4 Min. 75 x 125 mm	16 ~ 43 lb. 60 ~ 163 g/m^2

3.6.2 Print Margins and Skew

Print Area		Margin	
Guaranteed Print Quality Area	Paper Width (A+B)	A = Left Margin	4.23 mm
		B = Right Margin	4.23 mm
	Paper Length (C+D)	C = Top Margin	4.23 mm
		D = Bottom Margin	4.23 mm
Printable area	Paper Width (A+B)	A = Left Margin	3 mm
		B = Right Margin	3 mm
	Paper Length (C+D)	C = Top Margin	3 mm
		D = Bottom Margin	3 mm
Registration Tolerance	±2.5 mm in the scan direction ±3.0 mm in the process direction		

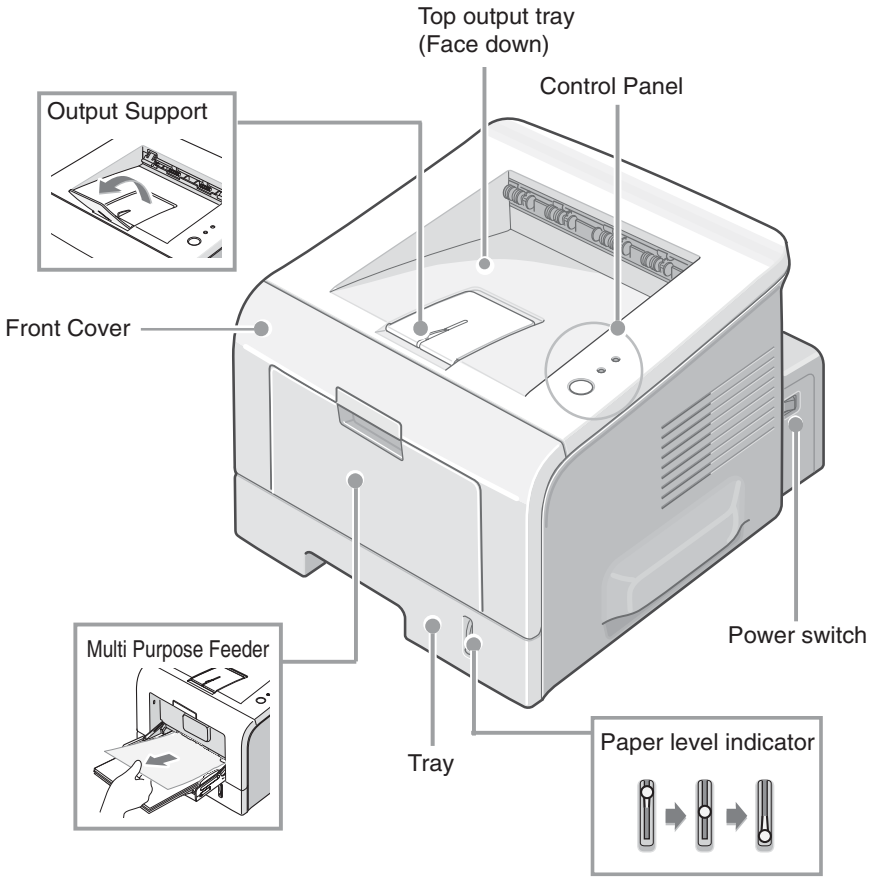
Skew	Tray 1, 2	Tray 3	Length
A. Vertical Skew	< 2.0 mm (0.08 in.)	< 2.5 mm (0.10 in.)	244.3 mm
B. Horizontal Skew	< 1.5 mm (0.06 in.)	< 2.0 mm (0.08 in.)	177.8 mm

4 Product Summary

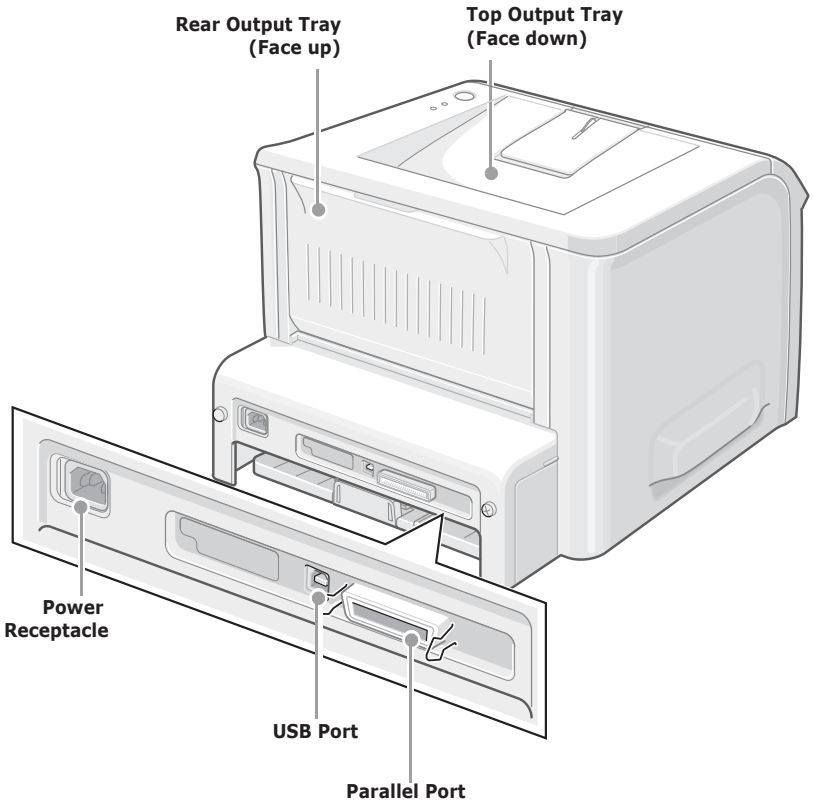
This section describes the functions and operating principals of the printers main components.

4.1 Printer Components

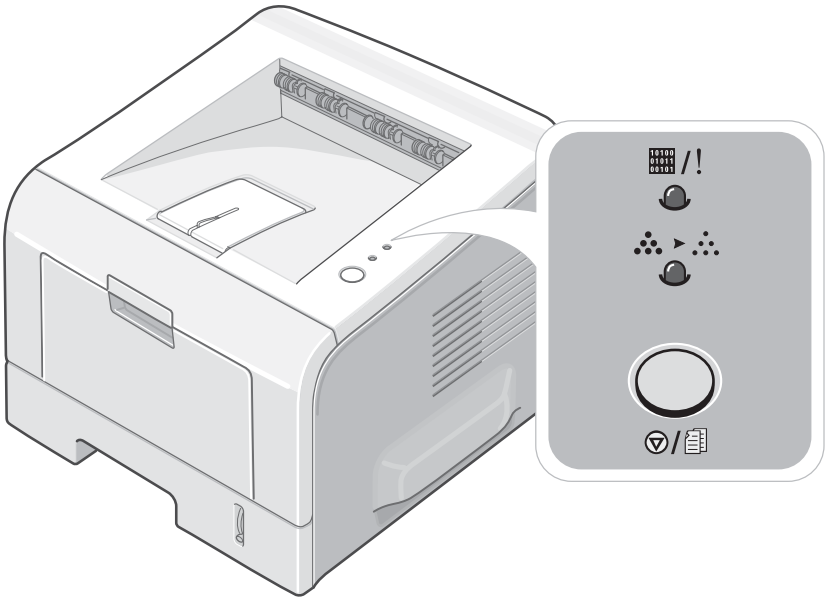
4.1.1 Front View



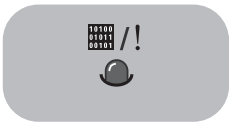
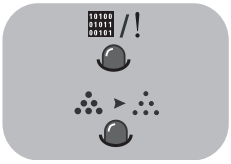
4.1.2 Rear View



4.1.3 Control Panel



ON Line/Error and Toner Save LED's

LED	Description
	The On Line/Error LED is green, when the printer is Ready to Print.
	The On Line/Error LED slowly blinks green when the printer is receiving data, and blinks rapidly while printing.
	The On Line/Error LED is red if an error occurs in the printer.
	The On Line/Error LED will blink red if: ■ The user presses the **Cancel** button to cancel a print job. ■ The printer is in manual feed mode and there is no paper in the Tray1/MPT.
	If the On Line/Error LED is blinking red and orange alternately the printer has detected a non-Xerox toner cartridge.
	If the installed toner cartridge is empty the On Line/Error LED blinks orange and the toner cartridge needs to be replaced.
	If the On Line/Error and Toner Save LEDs all blink at the same time, an internal or hardware malfunction is present. Refer to Section 6.6 for troubleshooting procedures.
	The Toner Save LED comes on when Toner Save mode is enabled. This can be set in the printer driver.

Cancel Button Functions

Printing the Demo Page	In Ready mode, press and hold the **Cancel** button until all LEDs blink slowly and then release, (approximately 2 seconds).
Printing the Configuration Page	In Ready mode, press and hold the **Cancel** button until all LEDs blink quickly and then release, (approximately 6 seconds).
Cleaning inside the printer	In Ready mode, press and hold the **Cancel** button until all LEDs turn on and then release (approximately 10 seconds). After cleaning, one cleaning sheet is printed.
Canceling a print job	To cancel a print job, press the **Cancel** button. The On Line/Error LED blinks while the print job is cleared from both the printer and the computer. The printer then returns to Ready mode. This may take some time depending on the size of the print job. **Note** In Manual Feed mode it is not possible to cancel the print job by pressing this button.

4.2 Printer Theory of Operation

4.2.1 System Summary

The printer consists of the following main functional components:

1) The Firmware

Engine firmware controls the whole printing process.

2) The Print Engine

1. **Engine Frame**
2. **Paper Feed**

   The paper feed system consists of a 250-sheet main paper tray (Tray 2), a multi-purpose paper tray (Tray 1), pickup rollers, friction pads, and feed rollers. The rollers and sensors in the paper feed path control paper registration and guide the paper through the image transfer, image development, image fusing and exit assemblies. The paper path has an anti-static connection to ground to eliminate problems due to static charge on the paper.
3. **Main drive mechanism**

   The main drive is a bi-polar, two phase motor. It drives the drum, paper pick, and paper feed rollers using a gear train mechanism.
4. **Image development unit**

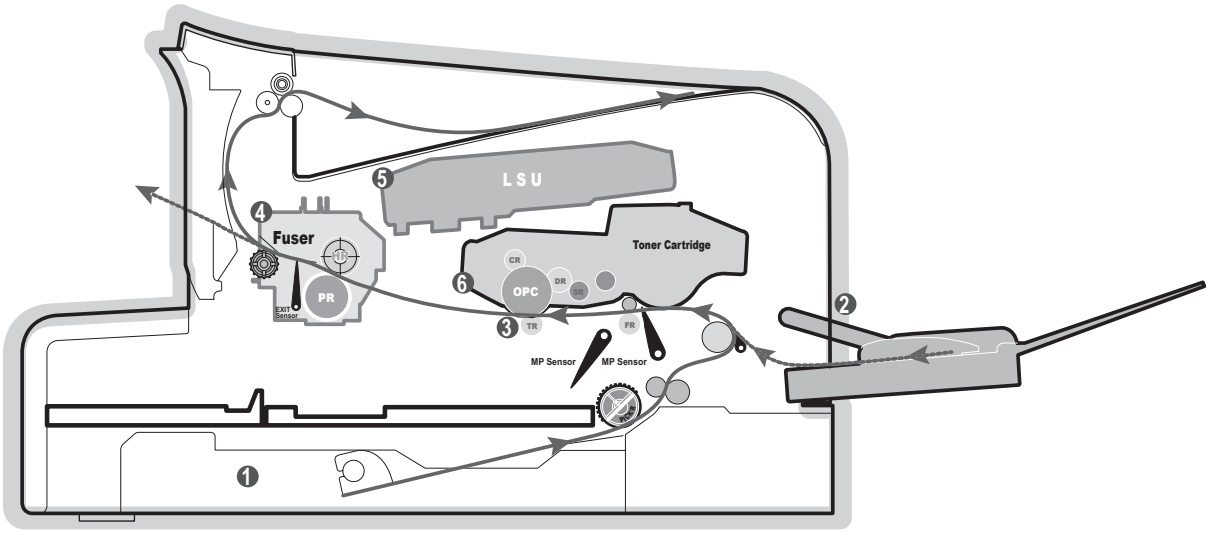
   Using a Laser Scanner Unit (LSU), this portion of the mechanism creates the image on the OPC drum (part of the integrated toner cartridge).
5. **Image transfer unit**

   This unit uses the high voltages supplied by the HVPS to move the image from the OPC drum onto the paper.
6. **Image fusing unit**

   This unit permanently fixes the toner image onto the paper. This is achieved using a temperature controlled heating unit (the fuser).
7. **Electronic boards include:**
   a. The Main control board, consisting of:
      - Main processor asic (166 MHz SPGPm)
      - Memory (Flash ROM containing the control program and DRAM for working memory)
      - Engine interface parts (motor control, fuser control, HVPS control, and sensors)
      - PC Interface (USB , Parallel, Network)
      - Bus, DMA and I/O handling

   b. Control panel
   c. PC Interface

4.2.2 System Layout



1. Cassette
2. Manual Feeder
3. Transfer Roller
4. Fuser
5. LSU(Laser Scan Unit)
6. Toner Cartridge

4.2.3 Paper Feed

The paper feed system consists of a 250- sheet main paper tray (Tray 2), a multi-purpose paper tray (Tray 1), pickup rollers, friction pads and feed rollers. The rollers and sensors in the paper feed path control paper registration and guide the paper through the image transfer, image development, image fusing and exit assemblies. The paper path has an anti-static connection to ground to eliminate problems due to static charge on the paper.

1. **Paper separation method**

   Individual sheets are separated in the tray using the ‘friction pad’ method. When paper feeds into the printer it passes over a spring loaded friction pad that separates the sheets of paper.

2. **Paper tray (cassette)**

   The paper trays use a ‘center loading’ method. There are no paper size sensors, instead a software process is used to detect the size of the first sheet of paper as it is fed through the printer. Both the rear and side paper guides are adjustable for various paper sizes.

   There is a ‘Paper Empty’ sensor which detects the presence of paper (Capacity: 250 sheets).

   There is an indicator flag on the front of the tray which indicates the amount of paper remaining.

3. **Pick-up roller**

   The pick-up roller is used to pick and feed paper into the printer. It also is used to remove any static charge on the paper.

4. **Tray1/MPT**

   The multi-purpose tray is used to hold non-standard or custom paper sizes and special media (envelopes, transparencies, etc.). There is an MPT paper empty sensor. The MPT uses a friction pad method to ensure paper separation and can hold a maximum of 50 sheets of paper or envelopes.

5. **SCF (Second Cassette Feeder) or Tray 3**

   The optional third tray unit is universal with the second main tray and also has a capacity of 250 sheets.

4.2.4 Transfer Assembly

The transfer roller transfers toner from the OPC drum to the paper. Toner is transferred from the OPC drum onto the paper using a PTL (Pre-Transfer Lamp) and a transfer roller. The PTL shines light onto the OPC, reducing the electrical charge on the OPC surface improving the efficiency of the transfer.

The transfer assemblies life span is 60,000 sheets.

4.2.5 Drive Assembly

The drive assembly receives power from the main controller board. The main motor powers the paper feed, toner cartridge, fuser unit and all pick-up, feed, and exit rollers.

4.2.6 Fuser Assembly

The fuser assembly uses a heat lamp process. This consists of a heat lamp, heat roller, pressure roller, thermistor, and thermostat. By use of heat and pressure, toner is melted to adhere to the paper surface in order to complete the printing process.

4.2.6.1 Thermistor and Thermostat

The thermistor is used to detect the temperature of the heating unit and feeds this information into the main processor.

If the heat lamp becomes too hot, the thermostat cuts off the power to the lamp in order to prevent overheating and any potential fire hazard is removed.

4.2.6.2 Heat roller

The heat roller transfers the heat from the heat lamp to the paper. The surface of the heat roller is coated with Teflon so that toner does not stick to the surface.

4.2.6.3 Pressure roller

A pressure roller, mounted under the heat roller, is made of a silicon resin and the surface is also coated with Teflon. When paper passes between the heat roller and the pressure roller the toner powder is melted and permanently fixed to the surface of the paper.

4.2.6.4 Safety features

To prevent overheating:

- 1st protection device: Hardware cuts off when overheated.
- 2nd protection device: Software cuts off when overheated.
- 3rd protection device: Thermostat cuts off main power to the lamp.

Safety device

- Fuser power is cut off when the front cover is opened.
- Laser power is cut off when the front cover is opened.
- The temperature of the fuser cover's surface is maintained at less than 80º C to protect the user. A caution label is attached where the customer can see it easily when the rear cover is opened.

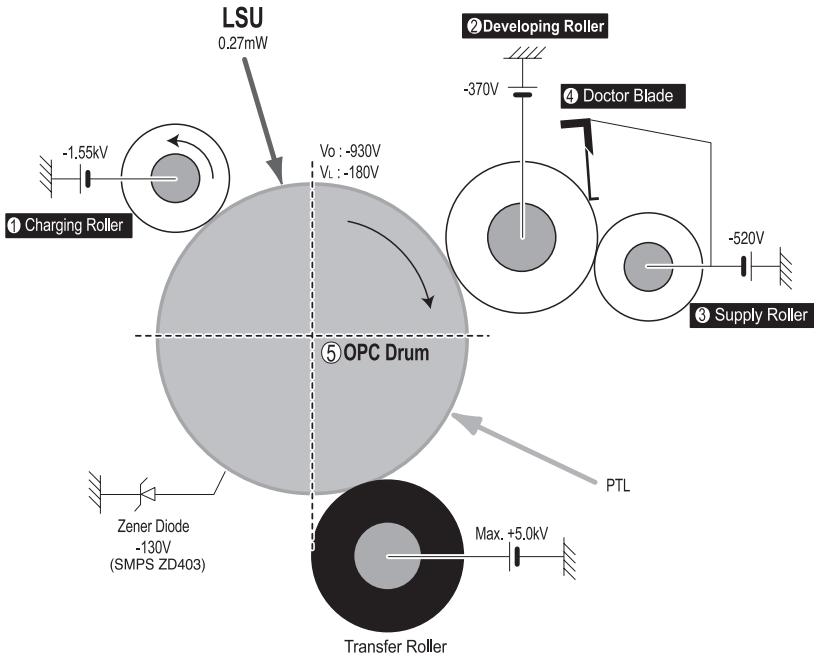
4.2.7 Laser Scanner Unit (LSU)

This is the core of the laser printer. It converts the video data received from the computer into an electrostatic latent image on the surface of the OPC drum. This is achieved by controlling the laser beam and exposing the surface of the OPC drum to the laser light. A rotating polygon mirror reflects the laser light onto the OPC. Each face of the mirror produces one scan line. As the OPC drum turns, the laser scans, to create the full page image.

The HSYNC signal is created when the laser beam from the laser unit reaches the end of the polygon mirror and this signal is sent to the controller. The controller detects the HSYNC signal to adjust the vertical line of the image on paper. In other words after the HSYNC signal is detected the image data is sent to the laser unit to adjust the left margin on the paper.

4.2.8 Toner Cartridge

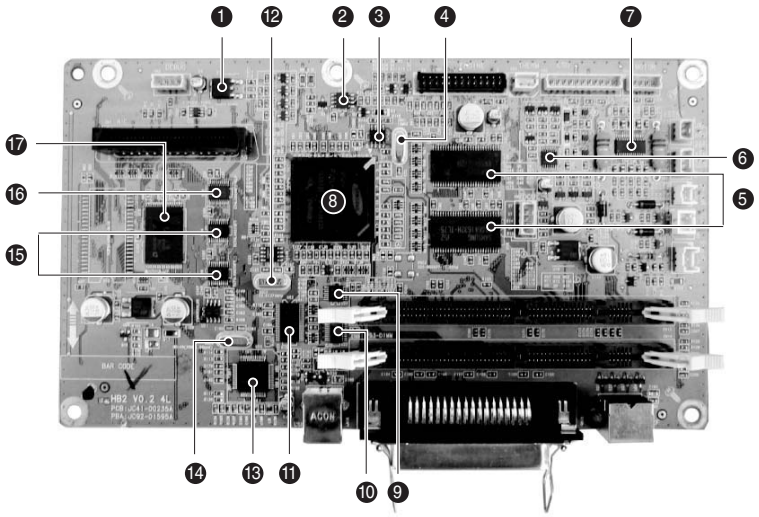
The toner cartridge is an integral unit containing the OPC unit and toner unit. The OPC unit consists of the OPC drum and charge roller. The toner cartridge unit consists of the toner, supply roller, developing roller, and blade (doctor blade).



Developing Method	Non magnetic 1 element contacting method
Toner	Non magnetic 1 element shatter type toner
Toner Life	3,500 sheets / 5,000 sheets (ISO19752 standard)
Toner remaining sensor	No
OPC Cleaning	Film OPC using an electro-static cleaning process
Management of waste toner	Collected using an electro-static process and retained within the toner cartridge. No waste toner to dispose of.
OPC Drum protecting Shutter	No
Toner CRUM Reader	Identifies whether toner is Xerox branded toner or whether a Non-Xerox toner cartridge is installed in the printer

4.3 Main Controller Board (PBA)

The engine board and controller board have been integrated into a single board consisting of the CPU and printer control functions. The CPU functions as the bus controller, I/O handler, motor driver and PC interface. The main board sends the current image video data to the laser unit and manages the electrophotographic printing process. Circuits on the main board drive the main motor (paper feed, cartridge, fuser), clutch, pre-transfer lamp, heat-lamp and fan. The signals from the paper feed jam sensor and paper empty sensor are inputted to the main board from the power supply board.



1.	**U1** Low drop fixed and adjustable positive voltage regulators (LD1117DT)
2.	**U2** Low power, dual bi-polar comparators (LM393D)
3.	**U4** Spread spectrum clock generator (CY25811)
4.	**OSC1** CPU X-TAL (12 MHz)
5.	**U6, U15** SDRAM (K4S641632H)
6.	**U7** Low voltage HEX inverter with 5 V tolerant Schmitt trigger inputs (74LCX14)
7.	**U9** Motor driver (A3977SLP)
8.	**U11** Graphics processor ASIC (SPGPm)
9.	**U24** Low voltage HEX inverter with 5V tolerat Schmitt trigger inputs (74LCX14)
10.	**U23** Parallel port single termination network (ST1284)
11.	**U22** Low voltage IEEE translating transceiver (161284)
12.	**OCS3** Video X-TAL (19.6 MHz)
13.	**U25** USB 2.0 (NET2270)
14.	**OSC4** USB X-TAL (30 MHz)
15.	**U14, U19** Low voltage octal D-type flip-flop (74LVX273)
16.	**U10** Low voltage, bi-directional transceiver (74LCX245)
17.	**U13** Flash Memory (29LV160DB)

4.3.1 ASIC (SPGPm)

- **ARM946ES**
  - 32-bit RISC embedded processor core
  - 16 KB instruction cache and 16 KB data cache
  - No tightly coupled memory
  - Memory protection unit and CP15 control program
- **Dual bus architecture for bus traffic distribution**
  - AMBA high performance bus (AHB)
  - System bus with SDRAM
- **IEEE1284 compliant parallel port interface**
- **Printer Video Controller for LBP engines**
- **Graphic Execution Unit for banding support of printer languages**
- **Printer Video Controller for LBP engines**
  - PVC: Printer Video Controller without RET Algorithm
  - HPVC: Printer Video Controller with RET algorithm

  (Line Memory and Lookup Table Memory: 512 x 8, 4096 x 16)
- **Engine Controller**
  - Motor control unit
  - Motor speed lookup table memory (128 x 16 x 2)
  - Pulse width modulation unit
  - 4 channels are supported
  - ADC interface unit
  - 3 ADC Channels are available
  - ADC Core (ADC8MUX8) maximum clock frequency: 3 MHz
- **USB 2.0 Interface**
- **Package: 272 pins PBGA**
- **Power: 1.8 V(Core), 3.3 V(IO) power operation**
- **Speed: 166 MHz core (ARM946ES) operation, 60 MHz bus operation**

4.3.2 Memory

The board has Flash ROM and DRAM memory units. There are 2 SODIMM sockets to enable extra DRAM or Flash ROM (PostScript option, not available in all countries) to be fitted.

4.3.3 Flash Memory

Flash memory stores the system software code. This can be updated by downloading the system program through the PC Interface. PCL fonts are also stored in the flash memory.

- Capacity: 2 MB
- Access Time: 70 nsec

4.3.4 SDRAM

Used as a swath buffer, systems working memory area, etc. when printing.

- Capacity: 32 MB, expandable up to 144 MB
- Optional Additional DIMM : 16 MB / 32 MB / 64 MB /128 MB
- Type : SDRAM 100 MHz/133 MHz, 16bit

4.3.5 Sensor Input Circuit

4.3.5.1. Paper Empty Sensing

The Paper Empty sensor (Photo Interrupter) on the engine board is monitored by the CPU. When the tray is empty the printer flashes the red error LED.

4.3.5.2. Tray 1/MPT Sensing

Presence of paper in Tray 1 is detected by the MP sensor (photo interrupter) on the frame. The CPU monitors this sensor to recognize paper in Tray 1, and paper is fed if there is paper present.

4.3.5.3. Paper Feeding

When paper passes the actuator on the feed sensor, it is detected by the photo interrupter. The CPU monitors the signal and starts the process of creating the image after a specified delay time. If the feed sensor is not detected within one second after paper is fed, a paper jam0 occurs. (red error LED is lit).

4.3.5.4. Toner Remaining Sensing

The printer does not have a toner remaining sensor.

4.3.5.5. Paper Exit Sensing

This detects that paper exits cleanly from the printer using an exit sensor on the engine board and actuator on the frame. The CPU detects the on/off time of the exit sensor and normal operation or a jam status is reported. If a Jam2 error occurs, the red error LED is lit.

4.3.5.6. Cover Open Sensing

The cover open sensor is located on the power supply board. It is operated by a molded tab on the front cover. When the front cover is open the +24 V and +5 V supplies to the DC fan, solenoid, main motor, polygon motor in the laser unit, HVPS and laser diode are cut off.

4.3.5.7. DC Fan/Solenoid Driving Circuit

A fan driving circuit is controlled by the CPU via a transistor. It is automatically turned off when the printer enters sleep mode. There are two solenoids, these are driven by signals from the CPU (tray paper pick).

4.3.5.8. Motor Driving Circuit

The main motor drives the paper feed, developing unit, fuser, and exit assembly. The circuit is driven by software which controls the acceleration, constant speed, and deceleration profiles. The Motor is driven using an A3977 driver IC.

4.3.5.9 Transfer

The charging voltage, developing voltage, and the transfer voltage are controlled by pulse width modulation (PWM). Each output voltage is changeable according to the PWM duty cycle. The transfer voltage used when the paper passes the transfer roller is decided by environment recognition. The resistance value of the transfer roller changes due to the environment of the room or within the printer. This change in resistance in turn changes the value of the voltage due to loading. This voltage is fed back into the printer through the A/D converter. Based on the value fed back the PWM cycle is changed to maintain the required transfer voltage.

4.3.5.10 Fusing

The temperature of the heat roller's surface is detected according to the resistance value of the thermistor. The thermistor resistance is measured using the A/D converter and thus the CPU can determine the temperature of the heat roller. The AC power is controlled by comparing the target temperature to the value from the thermistor. If the value from the thermistor is out of the controlled range while controlling the fusing process, an error is reported.

See the error table below to identify fuser temperatur errors.

Error	Description	DCU	LED Display
Open heat error	Lower than 68^0 C for more than 25 seconds while warming up.	60	All LEDs blinking
Low heat error	Standby: Lower than 100^0 C for more than 20 seconds. Printing: From 2 consecutive pages; the fixed fusing temperature has been lower than 30^0 C for more than 5 seconds. Higher than 220^0 C for over 3 seconds.	62	All LEDs blinking
Over heat error	It has been higher than 220^0 C for over 3 seconds.	68	All LEDs blinking

4.3.5.11 Laser Scanner Unit (LSU)

The Laser Unit consists of the laser diode and the polygon motor control. When the printing signal occurs, the laser diode is turned on and the polygon motor is enabled. When the light sensor detects the beam, H-SYNC occurs. When the polygon motor speed becomes steady, Ready mode occurs. If these two conditions are satisfied the laser unit is judged to be ready. If the two conditions are not satisfied, one of two errors are reported as shown in the table below.

Error	Description	DCU
Polygon motor error	When the polygon motor speed is not steady.	95
H-SYNC error	The polygon motor speed is steady but the H-SYNC is not generated.	96

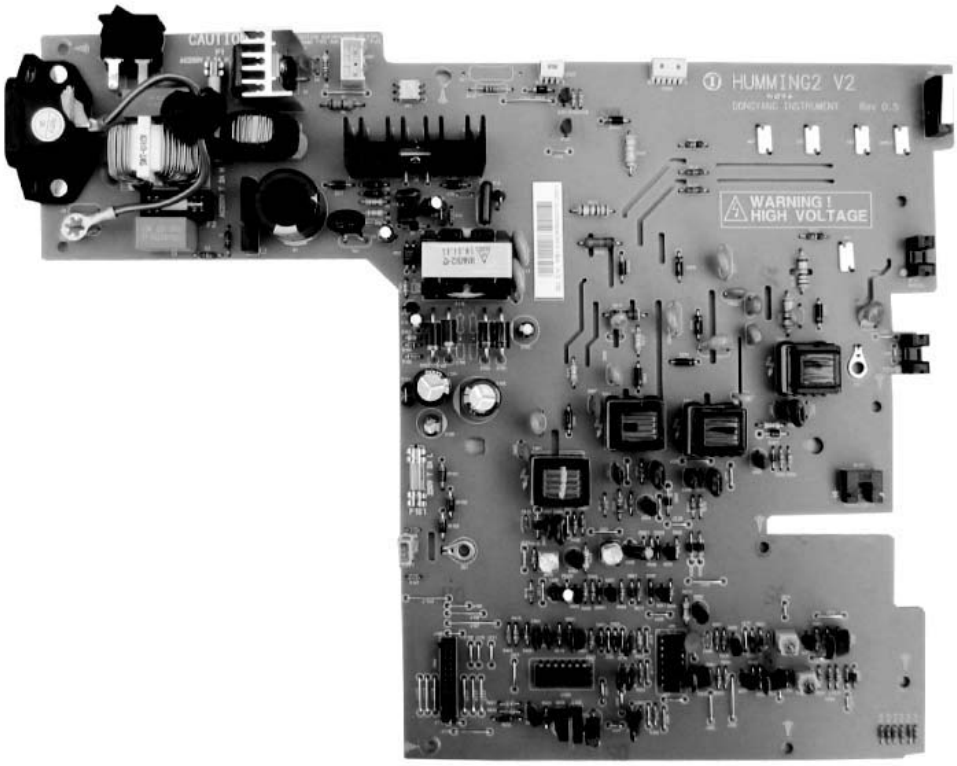
4.4 Switching Mode Power Supply (SMPS) and High Voltage Power Supply (HVPS)

The SMPS and HVPS are on one integrated board.

The SMPS supplies the DC power to the printer. It takes either 110 V or 220 V and outputs the +5 V and +24 V supplies to the main board.

The HVPS creates the high voltage for the THV/MHV/Supply/Dev and supplies it to the toner cartridge. The CPU is used to modify some of these voltage settings to provide the ideal voltages to create the image.

The HVPS uses the 24 V and outputs the high voltage for THV/MHV/BIAS and the outputted high voltage is then supplied to the toner, OPC cartridge, and transfer roller.



4.4.1 High Voltage Power Supply

1) Transfer High Voltage (THV+)

Input Voltage: 24 VDC ± 15%
Output Voltage: MAX +5.0K V ± 5%, (duty variable, no loading

1.2 KV ±15% (when cleaning, 200 M

Output Voltage Trigger: 6.5 uA
Input contrast of the Voltage stability degree :under ± 5 % (fluctuating input 21.6 V~26.4 V)
Loading contrast : ± 5% or less
Output Voltage Rise Time: 100 ms Max
Output Voltage Fall Time: 100 ms Max
Transfer voltage range as environment varies: +650 V(Duty 10%) ~ 5K V (Duty 90%)
Environment Recognition Control Method:

The THV-PWM ACTIVE is the transfer active signal. It detects the resistance by recognizing the voltage value, F/B, while permitting the environmental recognition voltage.

Output Voltage Control Method:

Transfer output voltage is output and controlled by changing the duty cycle of the THV PWM Signal.
10% duty: +650 V; 90% duty: +5K V±5%

2) Charge Voltage (MHV)

Input Voltage: 24 VDC ± 15%
Output Voltage: -1.3K V ~ -1.8K VDC ± 50V
Output Voltage Rise Time: 50 ms maximum
Output Voltage Fall Tim: 50 ms maximum
Output Loading range: 30 Mž ~1000 Mž
Output Control Signal (MHV-PWM): CPU is HV output when PWM is low

3) Cleaning Voltage (THV-)

The (+)Transfer Voltage is not output because the THV PWM is controlled with high.
The (-)Transfer Voltage is output because the THV-Enable Signal is controlled with low.
The output fluctuation range is big because there is no Feedback control.

4) Developing Voltage (DEV)

Input Voltage: 24 VDC ± 15%
Output Voltage: -200 V ~ -600 VDC ±20V
Output Voltage Fluctuation range: PWM Control
Input contrast of the output stability degree: ±5 % or less
Loading contrast: ± 5 % or less
Output Voltage Rise Time: 50 ms maximum
Output Voltage Fall Time: 50 ms maximum
Output Loading range: 10 Mž ~ 1000 Mž
Output Control Signal (BIAS-PWM): the CPU output is HV output when PWM is low.

5) Supply

Output Voltage: -400 V ~ -800 VDC ±50 V (ZENER using, DEV)
Input contrast of the output stability degree: under ±5%
Loading contrast: ±5% or less
Output Voltage Rise Time: 50 ms maximum
Output Voltage Fall Time: 50 ms maximum
Output Loading range: 10 Mž ~ 1000 Mž
Output Control Signal (BIAS-PWM): the CPU is HV output when PWM is low.

4.4.2 Switching Mode Power Supply

The SMPS is the power source for the entire printer system. The SMPS supplies DC power for driving the printer, and the AC heater control which supplies power to fuser. The SMPS has two output channels: 3.3 V and +24 V.

1) AC Input

Input Rated voltage: AC 220 V ~ 240 V, AC 120 V ~ AC 220 V (EXP version)

Input Voltage range: AC 198 V ~ 264 V, AC 90 V ~ 135 V, AC 198 V ~ 264 V (EXP version)

Rated Frequency: 50/60 Hz

Frequency range: 47 ~ 63 Hz

Input Current: Under 4.0A RMS/2.0A RMS (When the fuser lamp is off and input / output voltages are in range)

2) Rated Output Power

No	Item	CH1	CH2	CH3	Remark
1.	Channel name	+3.3 V	+5 V	+24.0 V	
2.	CONNECTOR PIN	CON 3 3.3 V PIN: 3, 4 GND PIN: 5, 6	CON 3 5 V PIN: 8 GND PIN: 7	CON 3 24 V PIN: 11, 12, 13 GND: 9, 10	
3.	Rated output	3.3 V ± 5% (3.2 ~ 3.4 V)	+5 V ± 5% (4.75 ~ 5.25 V)	+24 V ± 10% (21.6 ~ 26.4 V)	
4.	Max output current	1.0 A	0.14A	2.0 A	
5.	Peak loading current	1.5 A	0.14A	2.5 A	1ms
6.	Ripple noise voltage	Under 100mVp-p	100mVp-p	Under 500mVp-p	
7.	Maximum output	3.3 W	0.35 W	48 W	
8.	Peak output	4.95 W	0.7 W	60 W	1ms
9.	Protection for loading shortage and overflowing current	-		-	

3) Consumption Power

No	Item	CH1 +3.3 V	CH2 +5 V	CH3 +24.0 V	Remark
1.	Standby	1.0 A	0.07 A	0.4 A	AVG: 55 Wh
2.	Printing	1.0 A	0.14 A	2.0 A	AVG: 280 Wh

4.5 Engine F/W

4.5.1 Feeding

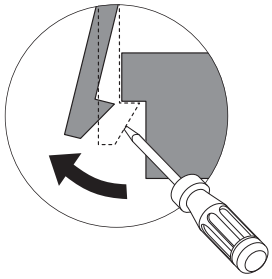
While feeding from the universal trays, the drive for the pickup roller is controlled by the pick-up solenoid. The printer feeds the paper from the Tray1/MPT according to the information provided by the MP sensor, and by driving the main motor, insert the paper in front of the feed sensor.

Jam	Description
Jam 0	This is an indcation that the leading edge of the paper did not pass the feed sensor. ■ After paper pick, paper does not enter the printer. ■ After paper pick, the paper enters the printer but it does not reach the feed sensor in the specified amount of time. ■ If paper has been picked, and the feed sensor is not ON, the printer will re-pick. If after re-picking the feed sensor is still not reported as ON, this error will occur. ■ Even though the paper reaches the feed sensor, the feed sensor is not ON.
Jam 1	This is an indication that the leading edge of the paper has already passed the feed sensor. ■ After the leading edge of the paper passes the feed sensor, the trailing edge of the paper does not pass the feed sensor within the specified time. (The feed sensor cannot be OFF during this time.) ■ After the leading edge of the paper passes the feed sensor, the paper does not reach the exit sensor within the specified time. (The exit sensor cannot be ON during this time.)
Jam 2	The paper is between the feed sensor and the exit sensor. ■ After the trailing edge of the paper passes the feed sensor, the trailing edge of the paper does not pass the exit sensor within the specified time.

5 Disassembly

5.1 Precautions for Disassembly/Reassembly

- Use only approved Xerox spare parts. Ensure that the part number, product name, any voltage, current or temperature ratings are correct. Failure to do so could result in damage to the printer, circuit overload, fire or electric shock.
- Do not make any unauthorized changes or additions to the printer, this could cause the printer to malfunction and create electrical shock or fire hazards.
- When disassembling the printer, note where each screw goes. Using the wrong screw could lead to printer failure, short circuits, or electrical shock.
- Do not disassemble the laser unit. Once it is disassembled dust is admitted to the mirror chamber and will seriously degrade print quality. There are no serviceable parts inside.
- Regularly check the condition of the power cord, plug and socket. Bad contacts could lead to overheating and fire. Damaged cables could lead to electric shock or component malfunctions.



Caution

Many of the parts are held in place with plastic latches. The latches break easily; Remove them carefully. To remove such parts, gently pull the hook end of the latch away from the part where it is latched.

Caution

To prevent damaging the toner cartridge and degrading print quality, protect the toner cartridge from light when removing it from the printer.

5.1.1 Precautions When Removing Circuit Boards

Static electricity can damage a board, follow the ESD precautions in Section 1 of this manual when handling or storing a board.

Precautions when moving and storing boards:

- Place boards in an approved anti-static discharge bag.
- Do not store a board where it is exposed to direct sunlight.

Precautions when replacing boards:

- Disconnect power connectors first, before disconnecting other cables.
- Do not touch any soldered connections, connector terminals, or other electronic parts when handling insulated parts.

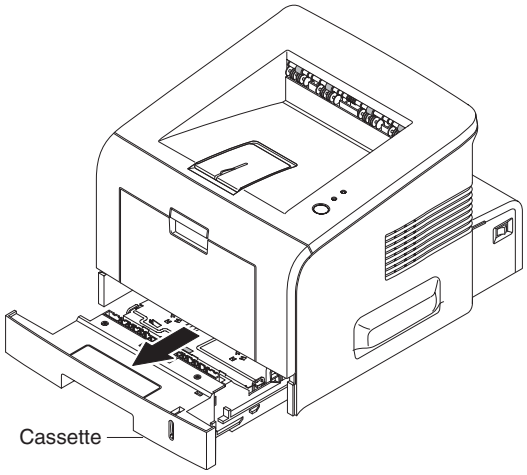
Precautions when checking boards:

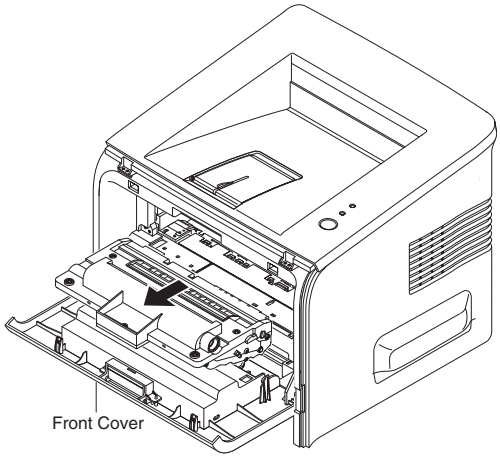
- Before touching a board, touch a grounded area on the printer chassis to discharge any static electrical charge on the body or wear an anti-static wrist strap.

- Do not touch the board with your bare hands or metal objects, this can create a short circuit or cause an electrical shock. Take extra care when handling boards containing sensors, motors or lamps as they may get hot.
- Take care when fitting, or removing, screws. Check for hidden screws. Always ensure that the correct screw is used. When toothed washers are removed, ensure they are refitted in their original positions

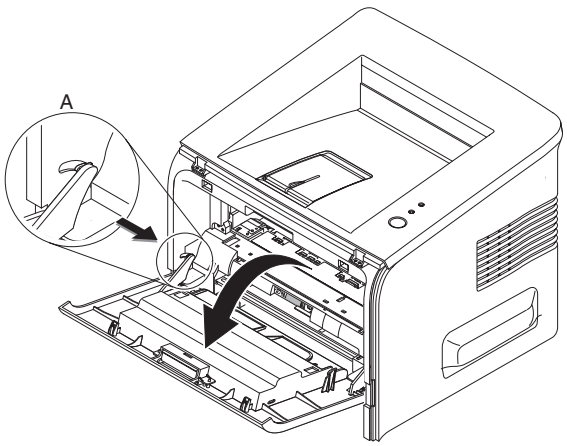
5.2 Front Cover

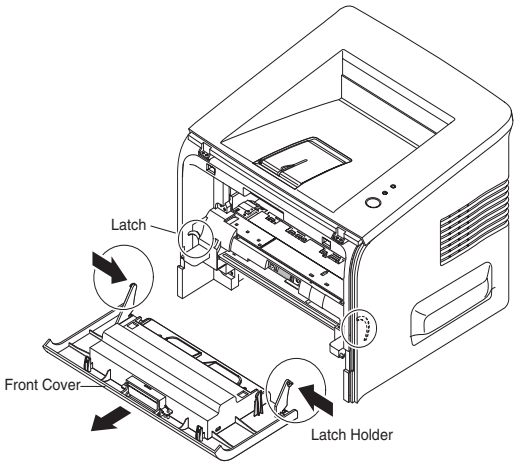
1. Remove the paper tray.
2. Open the front door and remove the toner cartridge.





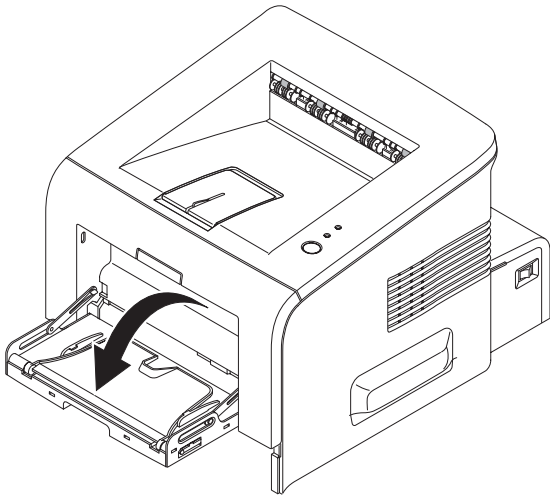
3. With the front cover fully open, carefully release the plastic hinge supports from the guide hooks by pulling inward.
4. Pull the front cover away from the printer to remove.



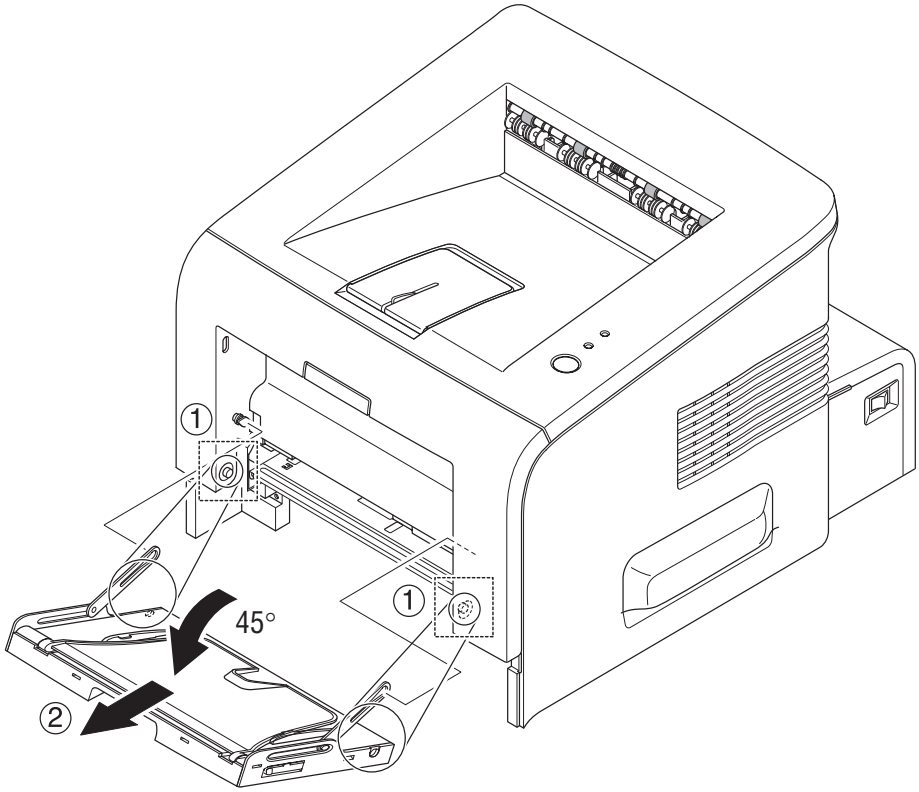


5.3 Tray 1/MPT Assembly

1. Open the Tray1/MPT assembly.



2. With the tray at a 45^{o} angle, carefully release the plastic hinge supports from the guide hooks.
3. Lift the Tray1/MPT assembly off the hinge pins on the front cover.

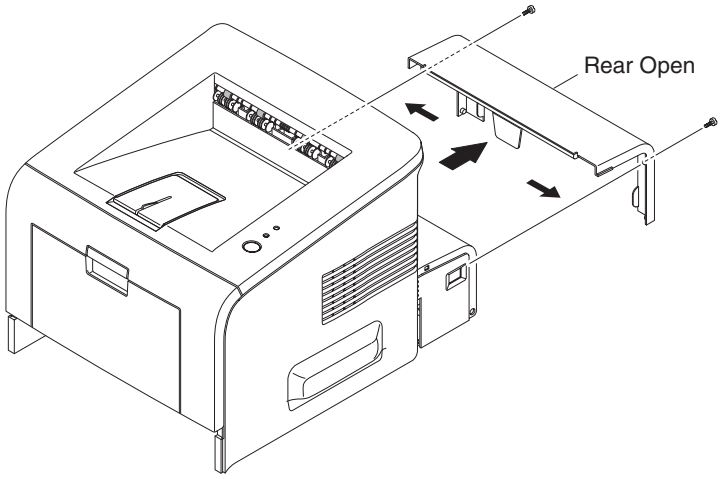


5.4 Rear Cover

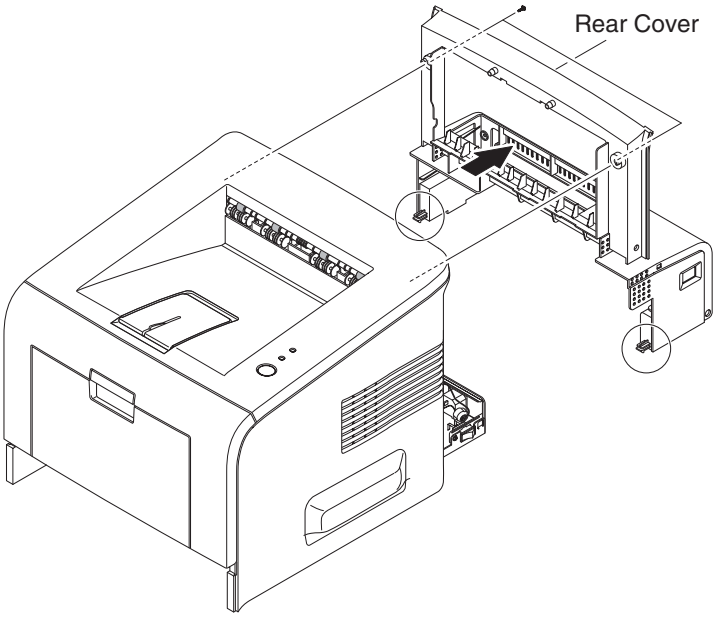
Note

When disassembling the rear cover, move the power switch to the OFF position. When reassembling the rear cover, move the power switch to the ON position.

1. Remove 2 screws securing the rear open cover and remove.



2. Open the face up cover.
3. Remove the 2 screws as shown below.
4. Using a screwdriver, carefully release the 2 tabs securing the rear cover.

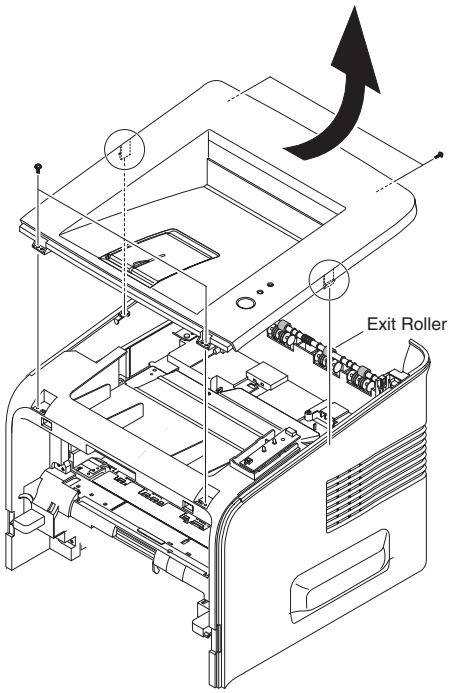


5.5 Top Cover

1. Remove the front cover, see "5.2 Front Cover" on page 5-3.
2. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
3. Remove 4 screws securing the top cover as shown below.

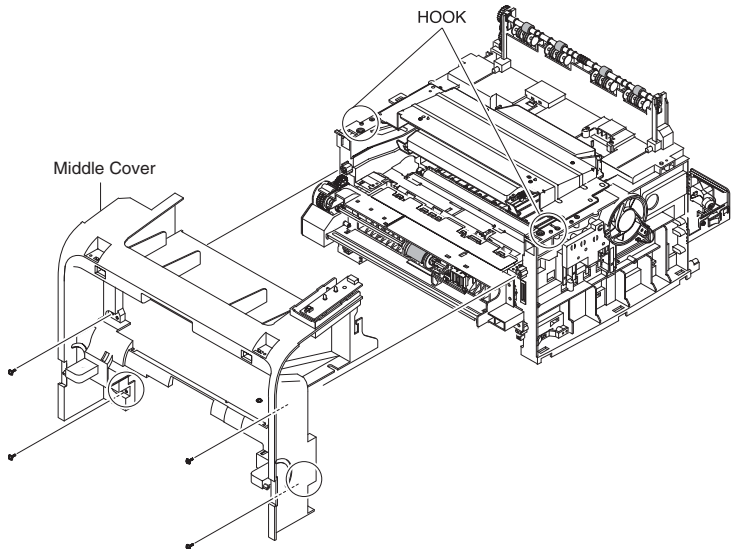
Caution

When removing the top cover, lift the front of the top cover slowly to avoid damaging the exit rollers. Use caution to avoid damaging the exit rollers when reassembling the top cover.



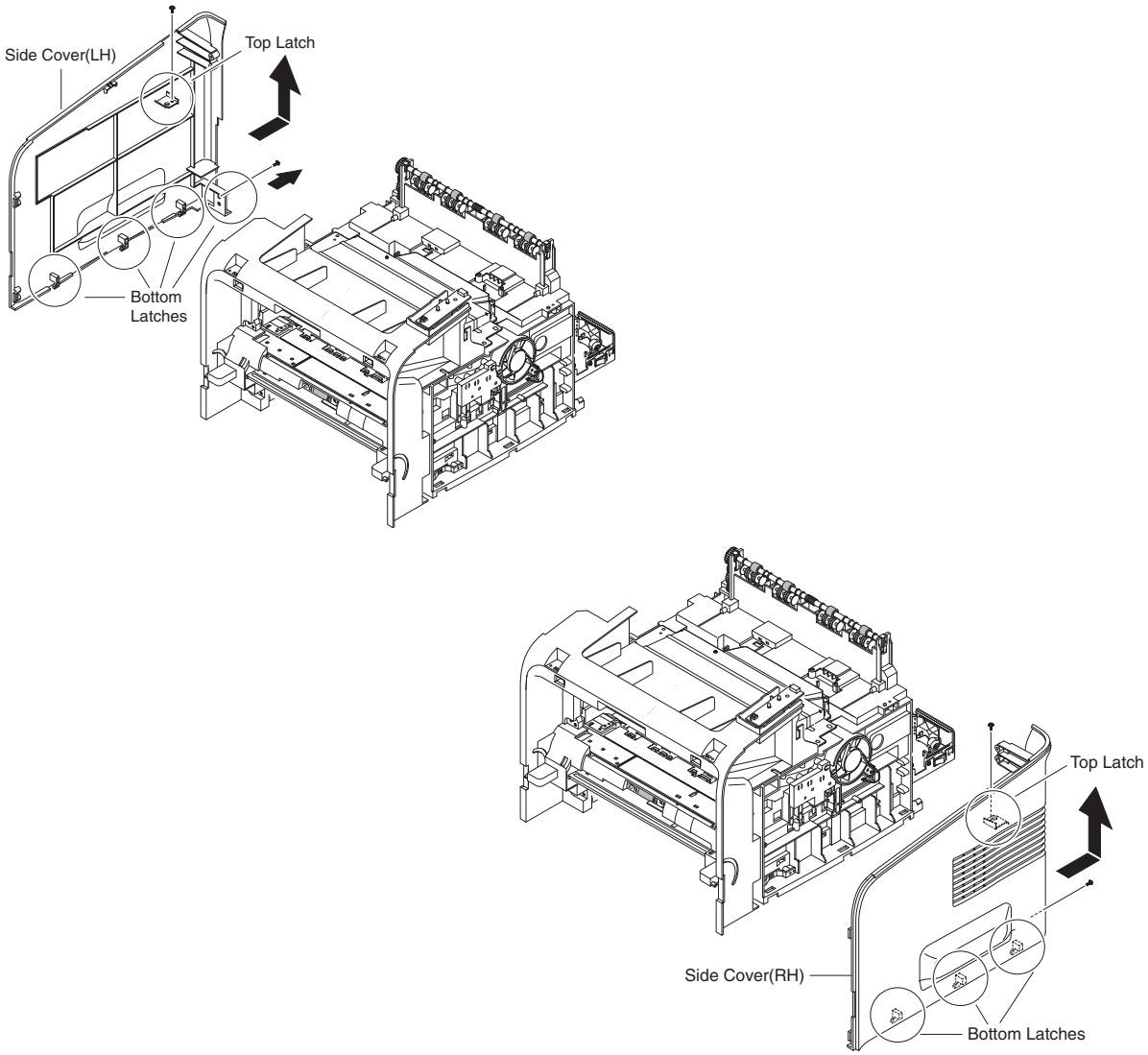
5.6 Middle Cover

1. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
2. Remove the top cover, see "5.5 Top Cover" on page 5-6.
3. Open the front cover.
4. Remove 4 screws securing the middle cover.
5. Disconnect and free the wiring harness from the middle cover.
6. Lift up on the left side of the middle cover to release it from the retaining pin.



5.7 Side Cover (Left and Right)

1. Remove the front cover, see "5.2 Front Cover" on page 5-3.
2. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
3. Remove the top cover, see "5.5 Top Cover" on page 5-6.
4. Remove the 2 screws securing the right or left cover.
5. Slide the cover towards the rear of the printer while releasing the top latch, as shown below, to remove the right or left cover.

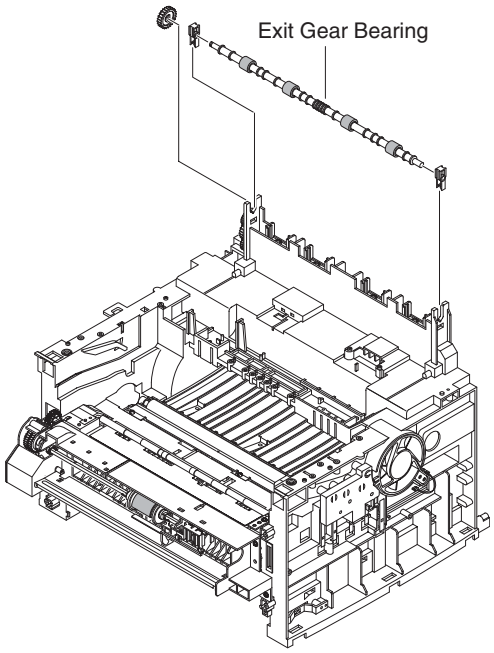


5.8 Exit Roller

1. Remove the front cover, see "5.2 Front Cover" on page 5-3.
2. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
3. Remove the top cover, see "5.5 Top Cover" on page 5-6.
4. Remove the left and right covers, see "5.7 Side Cover (Left and Right)" on page 5-8.
5. Remove the exit gear, bearing and exit roller as shown below

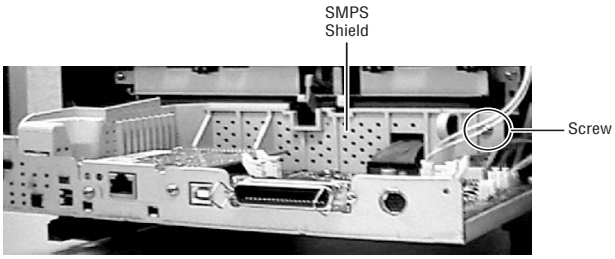
Note

It is not necessary to remove the laser unit or middle cover, although the image below shows them removed from the printer.



5.9 Engine Shield Assembly and Exit Board

1. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
2. Remove the top cover, see "5.5 Top Cover" on page 5-6.
3. Remove the right cover, see "5.7 Side Cover (Left and Right)" on page 5-8.
4. Remove the paper tray.
5. Remove 1 screw securing the SMPS shield and remove the shield.



6. Disconnect the following wiring harnesses from the SMPS; on the right side printer, the fan (CN3) and the control panel (CN4). On the rear of the printer disconnect the fuser (CN1) and exit sensor (CN6).
7. Disconnect the following wiring harnesses connected to the main board.

CN 5 Laser Unit	**CN 10 Manual Solenoid**
CN 6 Motor	**CN 11 PTL**
CN 8 Pickup Sol	**CN 17 MP sensor**
CN 9 Regi Sol	**CN 18 CRUM**

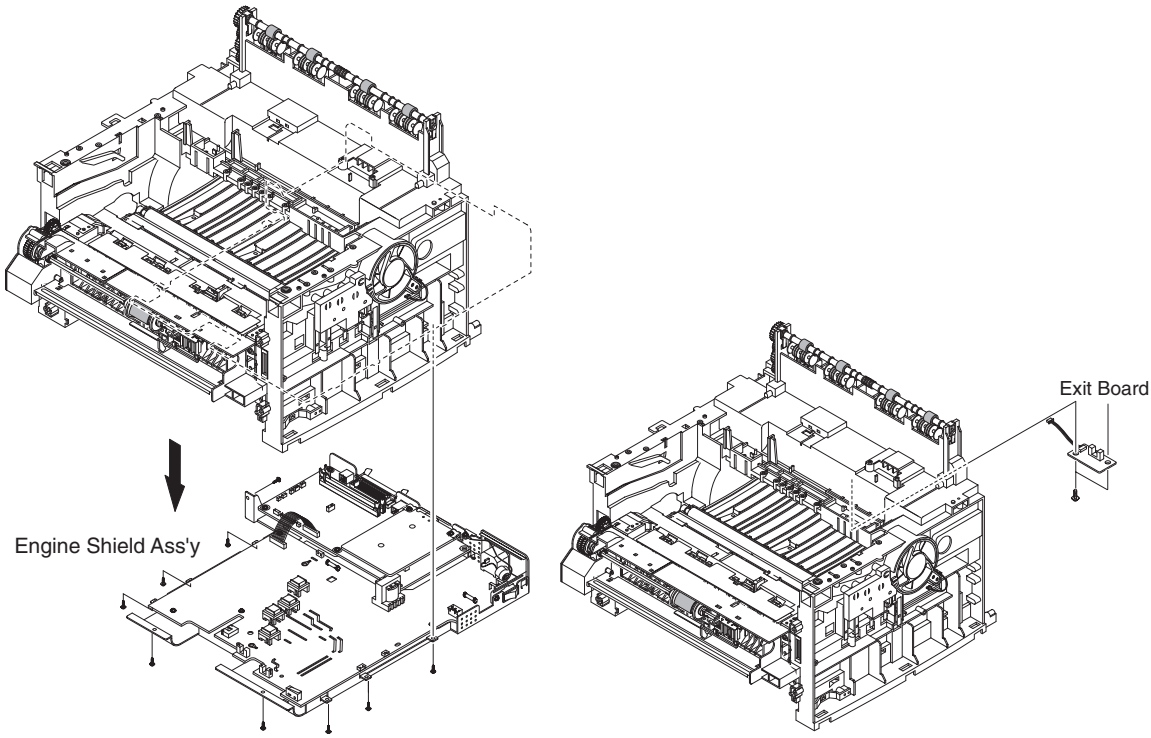
Caution

Be sure all 12 wiring harnesses are diconnected from the assembly.

Caution

In the next step you will be turning the printer over, use caution when working on the printer in order to avoid damaging the exit rollers.

8. Turn the printer onto its top to access and remove the 12 screws on the bottom of the printer securing the engine shield assembly.



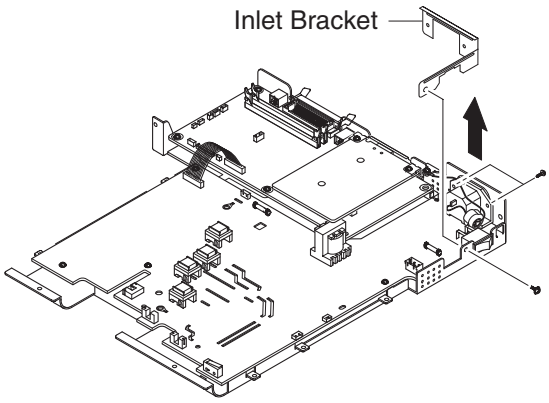
9. Remove 2 screws securing the Exit Board to the print frame.

Caution

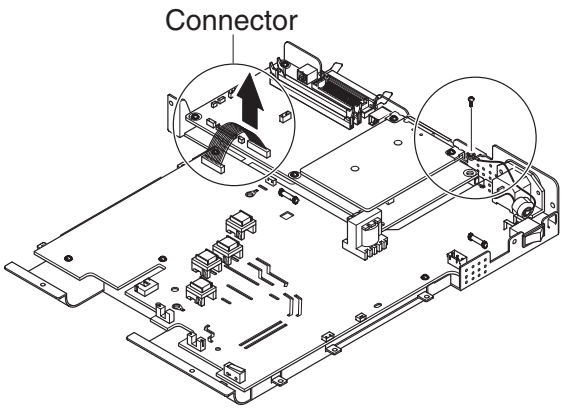
When reassembling the engine shield assembly, be sure the paper out sensor flag is up and out of the way to avoid damaging the flag.

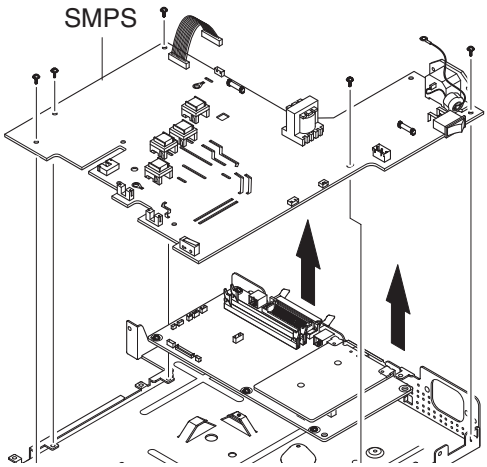
5.10.1 SMPS

1. Remove the front cover, see "5.2 Front Cover" on page 5-3.
2. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
3. Remove the top cover, see "5.5 Top Cover" on page 5-6.
4. Remove the left and right covers, see "5.7 Side Cover (Left and Right)" on page 5-8.
5. Remove the engine shield assembly, see "5.9 Engine Shield Assembly and Exit Board" on page 5-10.
6. Remove the 3 screws (one is to ground) securing the inlet bracket and remove the bracket.



7. Unplug 1 connector from the main board.
8. Remove the 6 screws securing the SMPS to the shield.



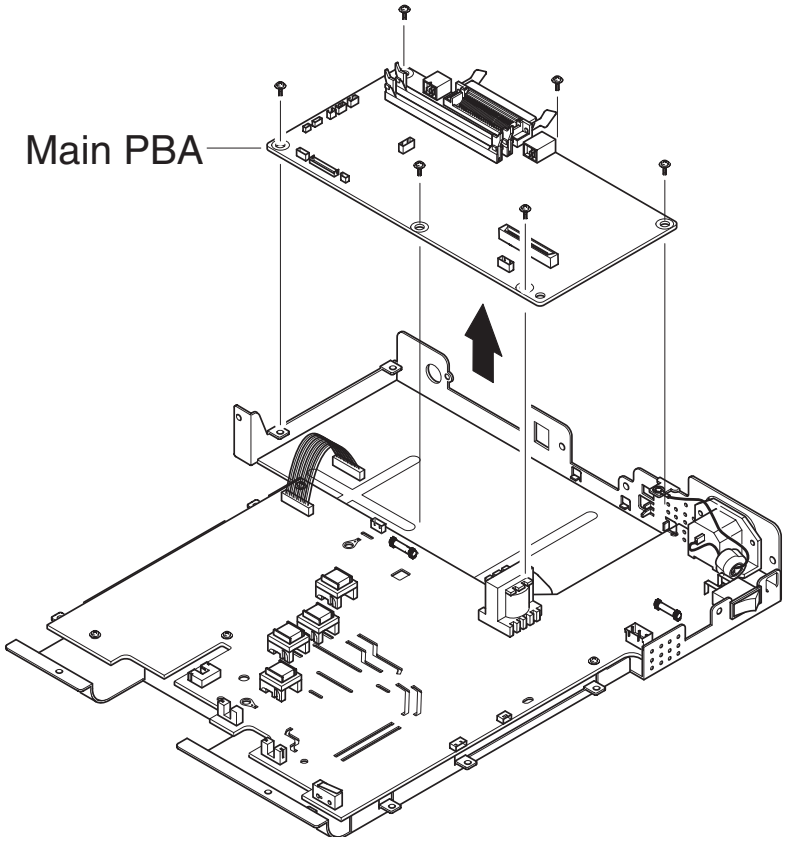


5.10.2 Main Board

1. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
2. Remove the SMPS shield, see step 5 in "5.9 Engine Shield Assembly and Exit Board" on page 5-10.
3. Disconnect all harnesses from the main board.
4. Remove the 8 screws securing the main board to the printer and remove the main board

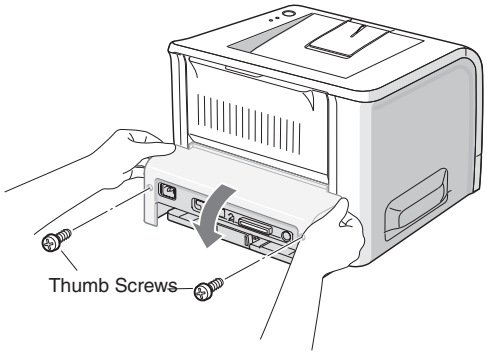
Note

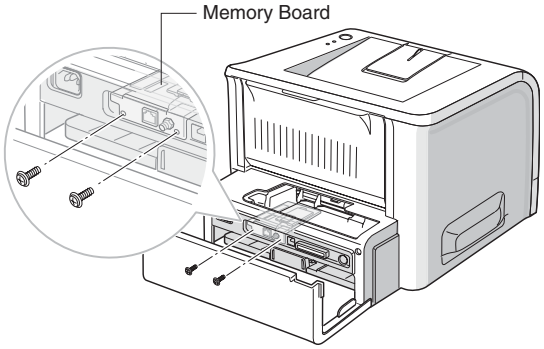
2 screws are securing the network card or plate.

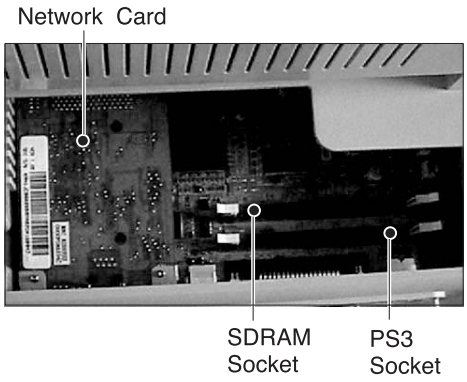


5.10.3 Removing the Network Card or Optional Memory Modules

You only need to open the rear open cover to access the memory modules and network card.





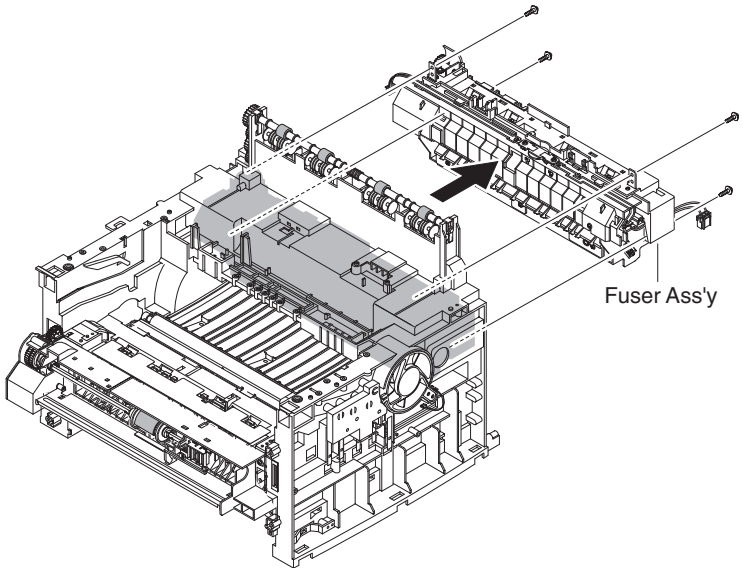


5.11 Fuser Assembly

Warning

*The fuser assembly is **HOT**. Let the fuser cool before removing.*

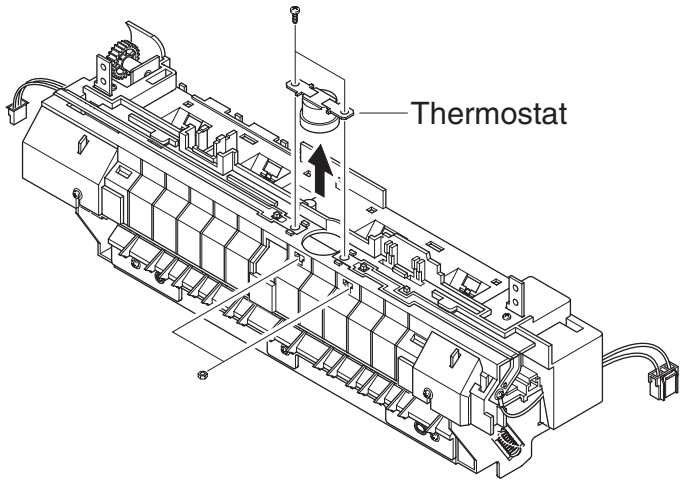
1. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
2. Unplug 2 connectors, one from the main board and one from the SMPS.
3. Remove 4 screws securing the fuser assembly.



Caution

When removing the thermostat, the 2 screws are secured by nuts that are not captured. These can fall out and get lost if you tip the fuser assembly.

4. Remove the 2 screws securing the thermostat and lift the thermostat out.



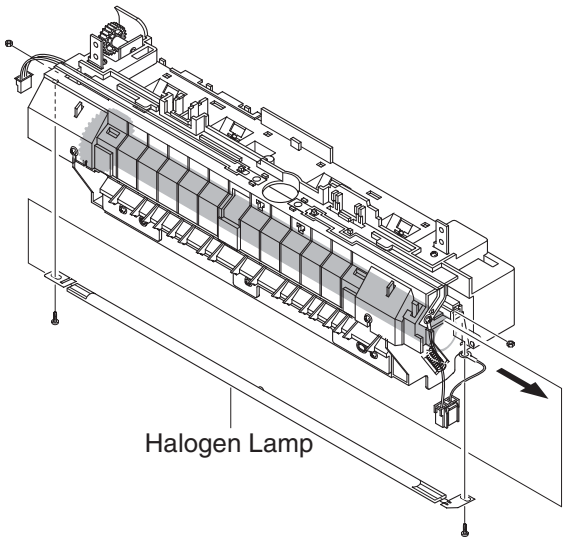
Caution

There are 2 securing nuts the screws go through that are not captured. These can fall out and get lost when tipping the fuser assembly.

Caution

Hold the Halogen lamp by the end terminals. ***DO NOT TOUCH*** *the lamp itself, this will damage it and cause the fuser to malfunction.*

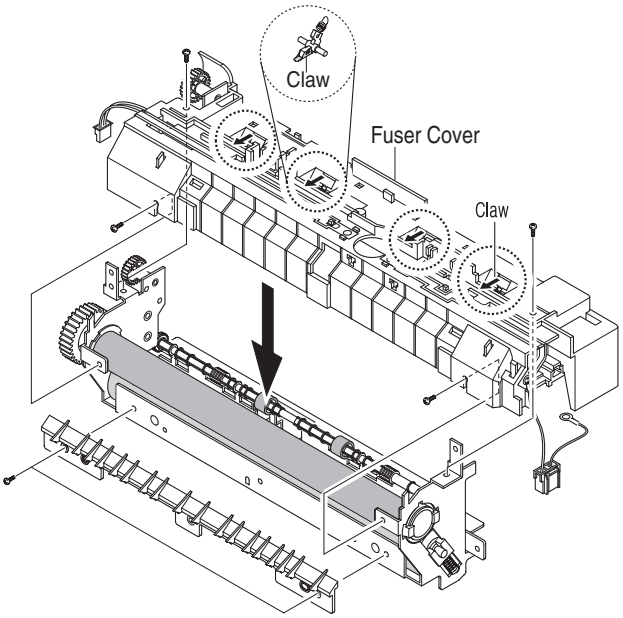
5. Remove the 2 screws securing the Halogen lamp. Then remove the lamp from the heat roller as shown below.



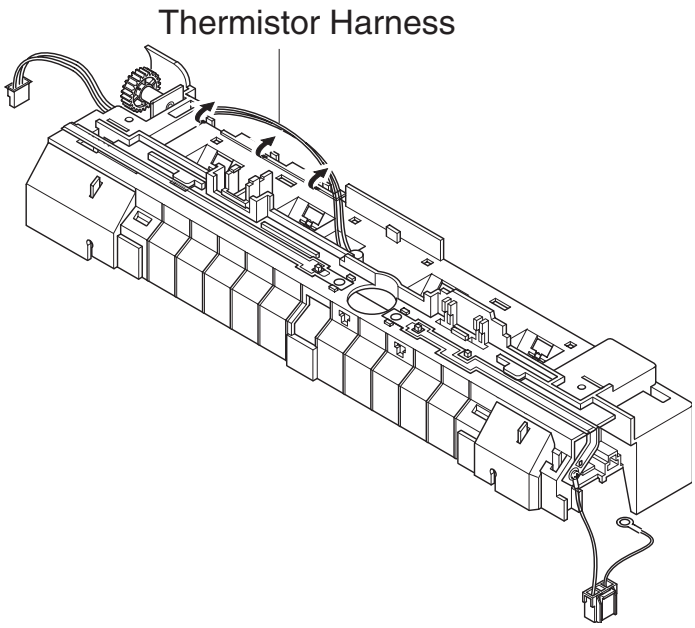
Caution

When disassembling the fuser, note the orientation of the spring loaded stripper fingers (claws). If reassembled improperly the claws will damage the heat roller causing the fuser to malfunction.

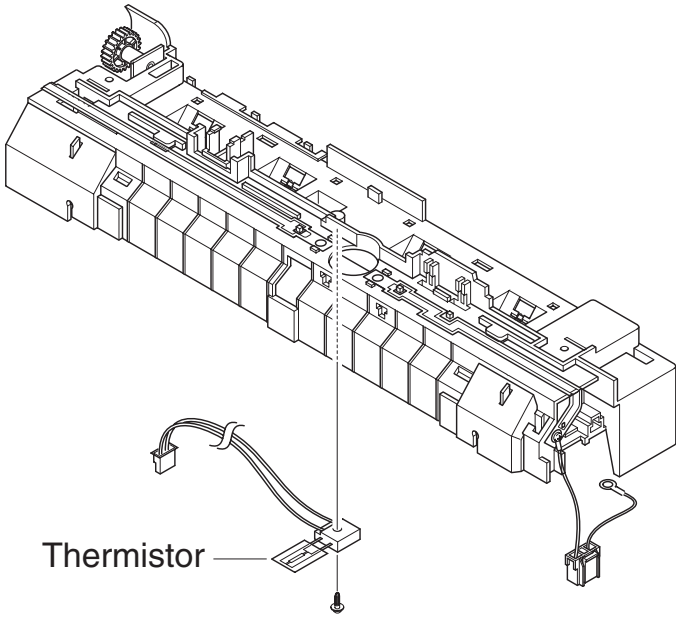
6. Remove the 4 screws securing the fuser cover and 2 screws securing the guide to disassemble the fuser.



7. Free the thermister harness as shown below.

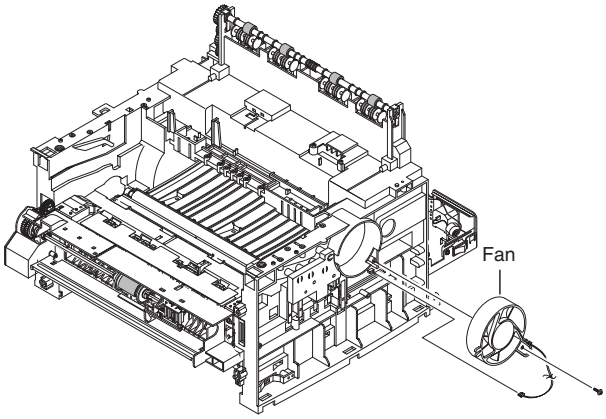


8. Remove 1 screw securing the thermister and remove from the fuser assembly.



5.12 Fan

1. Remove the front cover, see "5.2 Front Cover" on page 5-3.
2. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
3. Remove the top cover, see "5.5 Top Cover" on page 5-6.
4. Remove the right cover, see "5.7 Side Cover (Left and Right)" on page 5-8.
5. Disconnect the connector from the SMPS.
6. Remove 1 screw securing the fan.



5.13 Laser Scanner Unit (LSU)

1. Remove the front cover, see "5.2 Front Cover" on page 5-3.
2. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
3. Remove the top cover, see "5.5 Top Cover" on page 5-6.
4. Remove the left and right covers, see "5.7 Side Cover (Left and Right)" on page 5-8.
5. Remove 1 screw to the control panel board and remove the board.
6. Remove the 4 screws securing the LSU.

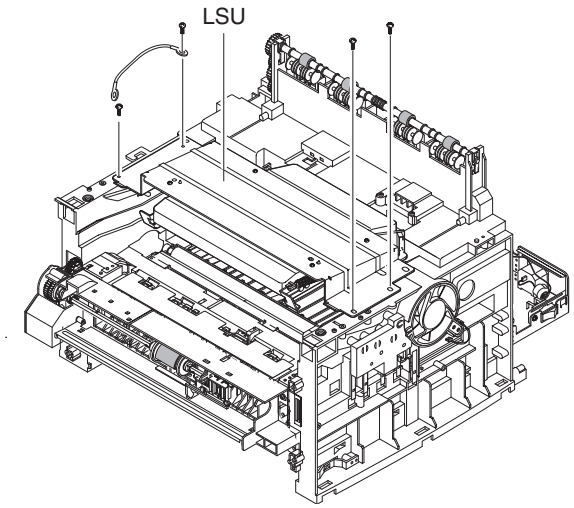
Caution

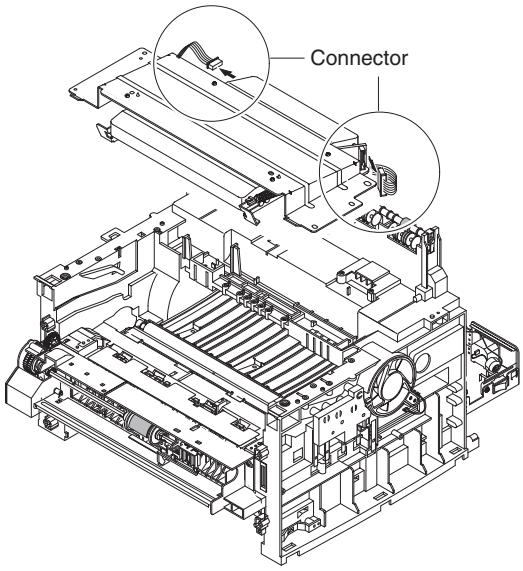
Be careful not to get fingerprints on the window of the laser unit (bottom of assembly).

Note

The laser unit securing screws are numbered and need to be tightened down in the correct order when reassembling.

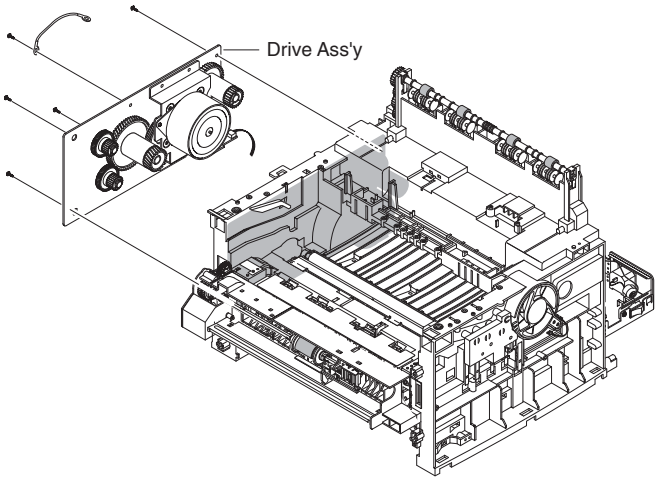
7. Disconnect the two connectors to the LSU, and remove the laser unit





5.14 Drive Assembly

1. Remove the front cover, see "5.2 Front Cover" on page 5-3.
2. Remove the rear cover, see "5.4 Rear Cover" on page 5-5.
3. Remove the top cover, see "5.5 Top Cover" on page 5-6.
4. Remove the left and right covers, see "5.7 Side Cover (Left and Right)" on page 5-8.
5. Remove the 6 screws securing the drive assembly.



Note

The drive assembly screws are numbered and need to be tightened down in the correct order when reassembling.

6. Disconnect 1 connector from the drive assembly to remove the drive.