

Phaser® 3600

Laser Printer



Phaser® 3600 Printer

**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.

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Service Terms

Manual Terms

Various terms are used throughout this manual to either provide additional information on a specific topic or to warn of possible danger present during a procedure or action. Be aware of all symbols and terms when they are used, and always read Note, Caution, and Warning statements.

Note

A note indicates an operating or maintenance procedure, practice or condition that is necessary to efficiently accomplish a task.

A note can provide additional information related to a specific subject or add a comment on the results achieved through a previous action.



Caution

A caution indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, results in damage to, or destruction of, equipment.



Warning

A warning indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, results in injury or loss of life.

Product Terms

Caution: A personal injury hazard exists that may not be apparent. For example, a panel may cover the hazardous area.

Danger: A personal injury hazard exists in the area where you see the sign.

Symbols Marked on the Product



Warning. Danger invisible laser radiation when open. Avoid direct exposure to beam.



Hot surface on or in the printer. Use caution to avoid personal injury.



Warning. Use caution to avoid personal injury.



Use caution (or draws attention to a particular component). Refer to the manual(s) for information.



Do not touch the OPC Drum.



Do not expose the item to sunlight.



Do not tilt the Print Cartridge.



Do not expose item to extreme temperature.



Recycle the item.

Power Safety Precautions

Power Source

For 115 VAC printers, do not apply more than 127 volts RMS between the supply conductors or between either supply conductor and ground. For 230 VAC printers, do not apply more than 254 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord and connector. This manual assumes that the reader is a qualified service technician.

Plug the three-wire power cord (with grounding prong) into a grounded AC outlet only. If necessary, contact a licensed electrician to install a properly grounded outlet. If the product loses its ground connection, contact with conductive parts may cause an electrical shock. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Disconnecting Power



Warning

Turning the power Off using the power switch does not completely de-energize the printer. You must also disconnect the power cord from the printer's Alternating Current (AC) inlet. Disconnect the power cord by pulling the plug, not the cord.

Disconnect the power cord in the following cases:

- if the power cord or plug is frayed or otherwise damaged,
- if any liquid or foreign material is spilled into the product,
- if the printer is exposed to any excess moisture,
- if the printer is dropped or damaged,
- if you suspect that the product needs servicing or repair,
- whenever you clean the product.

Electrostatic Discharge Precautions

Some semiconductor components, and the respective sub-assemblies that contain them, are vulnerable to damage by Electrostatic 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 unpacked 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 Erasable Programmable Read-Only Memories (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).

Service Safety Summary

General Guidelines and Safety precautions:

For qualified service personnel only: Refer also to the preceding “Power Safety Precautions” on page v.

Avoid servicing alone: Do not perform internal service or adjustment of this product unless another person capable of rendering first aid or resuscitation is present.

Use care when servicing with power: Dangerous voltages may exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is On. Disconnect power before removing the power supply shield or replacing components.

Do not wear jewelry: Remove jewelry prior to servicing. Rings, necklaces, and other metallic objects could come into contact with dangerous voltages and currents.

Warning Labels

Read and obey all posted warning labels. Throughout the printer, warning labels are displayed on potentially dangerous components. As you service the printer, check to make certain that all warning labels remain in place.

Safety Interlocks

Make sure all covers are in place and all Interlock Switches are functioning correctly after you have completed a printer service call. If you bypass an Interlock Switch during a service call, use extreme caution when working on or around the printer.

Class 1 Laser Product

The Phaser 3600 is certified to comply with Laser Product Performance Standards set by the U.S. Department of Health and Human Services as a Class 1 Laser Product. This means that this product does not emit hazardous laser radiation; which is possible only because the laser beam is totally enclosed during all modes of customer operation. When servicing the printer or laser unit, follow the procedures specified in this manual and there will be no hazards from the laser.

Servicing Electrical Components

Before starting any service procedure, switch the printer power Off and unplug the power cord from the wall outlet. If you must service the printer with power applied, be aware of the potential for electrical shock.



Warning

Do not touch any electrical component unless you are instructed to do so by a service procedure.



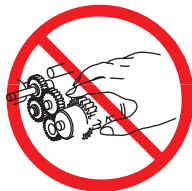
Servicing Mechanical Components

When servicing mechanical components within the printer, manually rotate the Drive Assemblies, Rollers, and Gears.



Warning

Do not try to manually rotate or manually stop the drive assemblies while any printer motor is running.



Servicing Fuser Components



Warning

This printer uses heat to fuse the toner image to paper. The Fuser is VERY HOT. Turn the printer power Off and wait at least 5 minutes for the Fuser to cool before attempting to service the Fuser or adjacent components.

Regulatory Information

Xerox has tested this product to electromagnetic emission and immunity standards. These standards are designed to mitigate interference caused or received by this product in a typical office environment.

United States (FCC Regulations)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with these instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment Off and On, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiver (device being interfered with).
- Increase the separation between the printer and the receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Any changes or modifications not expressly approved by Xerox could void the user's authority to operate the equipment. To ensure compliance with Part 15 of the FCC rules, use shielded interface cables.

Canada (Regulations)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

European Union



The CE mark applied to this product symbolizes Xerox's declaration of conformity with the following applicable Directives of the European Union as of the dates indicated:

December 12, 2006: Council Directive 2006/95/EC as amended. Approximation of the laws of the member states related to low voltage equipment.

December 15, 2004: Council Directive 2004/108/EC as amended. Approximation of the laws of the member states related to electromagnetic compatibility.

This product, if used properly in accordance with the user's instructions, is neither dangerous for the consumer nor for the environment.

To ensure compliance with European Union regulations, use shielded interface cables.

A full declaration of conformity, defining the relevant directives and referenced standards, can be obtained from your Xerox Limited representative.

Manual Organization

The Phaser 3600 Printer Service Manual is the primary document used for repairing, maintaining, and troubleshooting the printer. Use this manual as your primary resource for understanding the operational characteristics of the printer and all available options. This manual describes specifications, theory, and the diagnosis and repair of problems occurring in the print engine and attached options. Also included are detailed replacement procedures, parts lists, and wiring diagrams.

The Phaser 3600 Printer Service Manual contains these chapters:

Introductory, Safety, and Regulatory Information: This section contains important safety information and regulatory requirements.

Chapter 1 - General Information: This chapter contains an overview of the printer's operation, configuration, specifications, and consumables.

Chapter 2 - Theory of Operation: This chapter contains detailed functional information on the printer components.

Chapter 3 - Error Messages: This chapter provides detailed troubleshooting procedures for error messages generated by resident diagnostics.

Chapter 4 - General Troubleshooting: This chapter contains general information on troubleshooting the printer. In addition, this chapter includes troubleshooting methods for situations where error indicators are not available.

Chapter 5 - Print-Quality Troubleshooting: This chapter focuses on techniques to correct image quality problems associated with the printer output.

Chapter 6- Cleaning and Maintenance: This chapter provides periodic cleaning procedures for the printer.

Chapter 7- Service Parts Disassembly: This chapter contains removal procedures for spare parts listed in the Parts List. A replacement procedure is included when necessary.

Chapter 8- Parts List: This chapter contains exploded views of the print engine and optional Field Replaceable Units (FRUs), as well as part numbers for orderable parts.

Chapter 9- Plug/Jack and Wiring Diagrams: This chapter contains the plug/jack locations and the wiring diagrams for the printer.

Reference: This section provides a list of acronyms and abbreviations

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General Information

In this chapter...

- Printer Configurations
- Consumable and Service Part Life Expectancy
- Parts of the Printer
- Control Panel
- Printer Specifications
- Media and Tray Specifications

Chapter 1

Printer Configurations

Print Features and Configurations

Features	Printer Configurations			
	3600_B	3600V_B	3600_N	3600V_N
Maximum Print Speed Letter	40 ppm	40 ppm	40 ppm	40 ppm
Memory (Optional) Up to 512 MB Optional if the original DIMM is replaced with 256MB RAM DIMM and the second slot has a 256MB RAM DIMM	64 MB	64 MB	128 MB	128 MB
PostScript and PCL Fonts	Yes		Yes	Yes
Default Resolution Maximum Resolution	600 x 600 dpi 1200 x 1200 dpi	600 x 600 dpi 1200 x 1200 dpi		
500-Sheet Feeder (Tray 3)	Optional	Optional	Optional	Optional
Network Interface	Not Optional	Not Optional	Standard	Standard
Automatic 2-Sided Printing (Separate Duplex Unit)	Optional	Optional	Optional	Standard
USB, Parallel Interface	Yes	Yes	Yes	Yes

Printer Options and Supplies

Options and Supplies

Printer Option	Item	Part Number
Memory	64 MB additional RAM memory 128 MB additional RAM memory 256 MB additional RAM memory	097S03759 097S03760 097S03761
Optional Units	Duplex Unit 500-Sheet Feeder	097S03387 097S03385
Cartridges	Standard-Capacity Print Cartridge (7,000 pages) High-Capacity Print Cartridge (14,000 pages) Extra High-Capacity Print Cartridge (20,000 pages) Metered/Pagepack Print cartridge (20,000 pages)	106R01370 106R01371 106R01372 106R01369
Gear Lubricant	Xerox lubricant Plastislip grease	043E00550

Consumable and Service Part Life Expectancy

Consumable (toner/print cartridge) usage is tracked by the CRUM and monitored by the Main Board in order to display the near end-of-life and end-of-life messages. Life ratings are based on 5% coverage and an average 4 page job length.

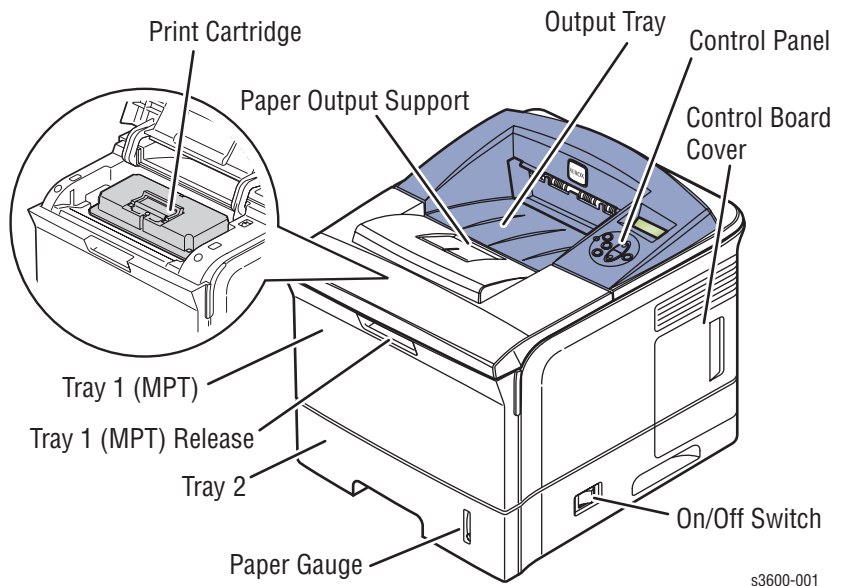
Consumables	Print Life
Print Cartridge	Standard Capacity 7,000 pages High Capacity 14,000 pages Extra High Capacity 20,000 pages Metered/Pagepack 20,000 pages
Service Parts	
Fuser Assembly	150,000 pages
Transfer Roller	150,000 pages
Feed Roller Kit	150,000 pages
Retard Roller	150,000 pages
Separator Pad	150,000 pages

Note

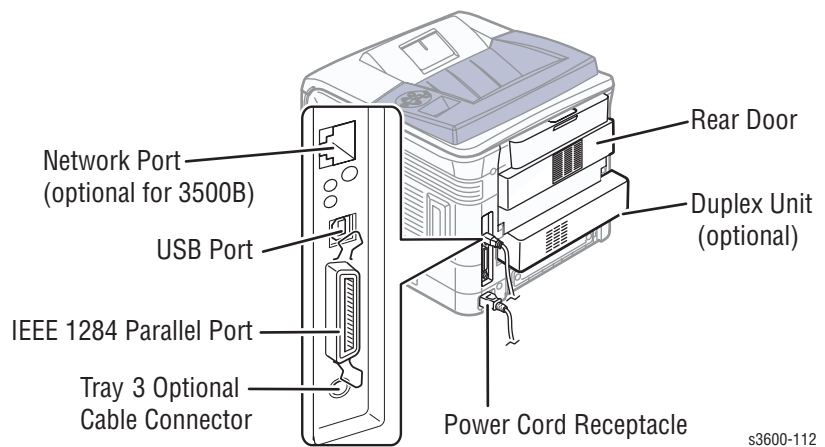
The service parts are not tracked with an NVRAM counter and there is no replace or low warnings associated with these service parts.

Parts of the Printer

Front View



Rear View



Control Panel

The Control Panel has three components:

- Multi-colored Light Emitting Diode (LED) light
- Alphanumeric display
- Six-button cluster

Control Panel Buttons

Button	Function
Return	Returns to the prior higher level menu structure, if available.
CANCEL	Terminates the current action.
MENU	Cycles through all of the top level menu items.
UP	Scrolls up one menu item within a menu list. If you continually press this control, the menu items will 'wrap'.
DOWN	Scrolls up one menu item within a menu list. If you continually press this control, the menu items will 'wrap'.
OK	Executes the highlighted menu item.

Menu Map

The Menu Map is a visual representation of the Control Panel settings and information pages. All Menu Map settings are documented in the User Guide.

Error and Warning Messages

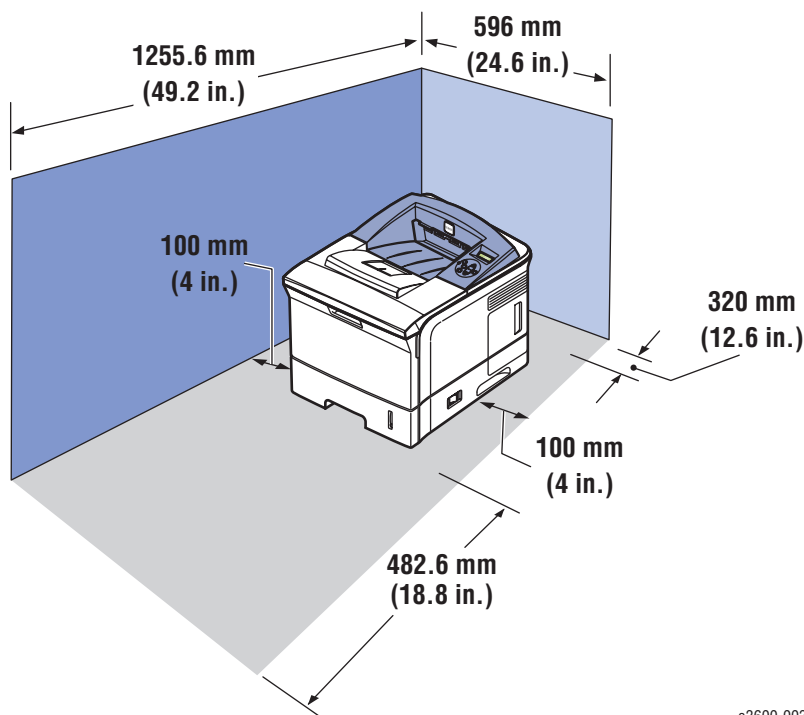
When there is a problem with the printer, the Control Panel LED (3) blinks red for an error and a warning. An error or warning message is displayed in the Alphanumeric Display (5).

Printer Specifications

Printer Location and Clearance

Place the printer in a dust-free area where the temperature range is 50 degrees F to 89 degrees F (10 degrees C to 32 degrees C) and the relative humidity range is between 20% to 80%.

- Place the printer in an area where there is adequate space for ventilation, operation, and servicing. See the clearance graphic below.
- Do not block or cover the slots and openings on the printer. The printer can overheat without adequate ventilation.
- For altitudes under 2,050 meters (6,726 feet), use the Low Altitude setting. For altitudes over 2,050 meters (6,726 feet), use the High Altitude setting.
- Do not place the printer near a heat source.
- Do not place the printer in direct sunlight.
- Do not place the printer in line with the cold air flow from an air conditioning system.
- Place the printer on a level, solid surface with adequate strength for the weight of the printer.



Printer Physical Specifications

Physical Dimensions and Weight

	Item	Specification
Packaging Dimension (W*D*H)	Packing Dimension w/o option tray	518*566*568mm (20.4"*22.3"*22.4")
Net Dimension (W*D*H)	Net Dimension w/o Option Tray	396*453*353mm (15.6"*17.8"*13.9")
	Net Dimension with Option Tray	396*453*501mm (15.6"*17.8"*19.7")
Toner Dimension (W*D*H)	Toner	314 x 225 x 116 mm
	Toner Packing	368 x 286 x 169 mm
Weight	SET with 10K toner cartridge	17.30kg (38.14lb)
	SET w/o toner cartridge	15.46kg (34.06lb)
	Consumable toner cartridge	10K : 1.85kg (4.08lbs) 20K : 2.06kg (4.54 lbs)
	Set + Consumables	19.15 kg (42.2lb) with 10K toner cart.
	Packing Weight	22.46kg (49.50lb)

Functional Specifications

Print Operability

Characteristic	Specification
Printing process	Non-Impact Electrophotography
Color medium	Monochrome
Resolution / Addressability	True 600 x 600 dpi Addressable 1200 x 1200 dpi
Operating Modes	Standby Mode: Print engine capable of making prints in less than 9 seconds. Sleep/ Low Power/ Power Saver Mode: 31 seconds from completion of a print.
Continuous Operating Printing Speed (ppm = pages per minute)	Letter: Up to 40 ppm A4: Up to 38 ppm
First Print-Out (in seconds)	10 seconds or less
Warm-Up Time	Power-on Boot: 40 seconds or less

Print Quality

Property	Characteristic	Specification
Resolution	Normal	Up to 1200 x 1200 dpi effective output
	Line Width @ 600dpi	
	Line Width @ 1200dpi	
	Dot Diameter @ 600dpi	
	Dot Diameter @ 1200dpi	
	RET	Yes
	Halftone (Gray Scale)	256 levels
	Blackness	>1.20
	Homogeneity of Halftone	at five points on page must be 0.1
	Halftone	20 % = 0.17 50 % = 0.49 80 % = 0.91
Printable Area	Letter	208 x 271 mm
	A4	200 x 289 mm
Non-Printable Area	Envelope	10mm(0.4") from edge(Top/Bottom/Left/Right)
	Other Media	4mm(0.16") from edge(Top/Bottom/Left/Right)
Toner Fixing	Black (100% Solid)	80%
	Halftone	70%
Magnification	Horizontal (applied to 177.8mm length)	< 1.0 mm (0.04) (0.5 %)
	Vertical (applied to 241.3mm length)	< 3.0 mm (0.12) (1.2 %)
Printing Skew	Tray 1 (MPT)	< 1.5 mm (0.06) Simplex & Horizontal
		< 2.0 mm (0.08) Duplex & Horizontal
		< 2.0 mm (0.08) Simplex & Vertical
		< 2.5 mm (0.10) Duplex & Vertical
	Tray 2	< 1.5 mm (0.06) Simplex & Horizontal
		< 2.0 mm (0.08) Duplex & Horizontal
		< 2.0 mm (0.08) Simplex & Vertical
		< 2.5 mm (0.10) Duplex & Vertical
	Optional Tray 3	< 2.0 mm (0.08) Simplex & Horizontal
		< 2.5 mm (0.1) Duplex & Horizontal
		< 2.5 mm (0.10) Simplex & Vertical
		< 3.0 mm (0.12) Duplex & Vertical

Electrical Specifications

Power Rating and Line Voltages

Characteristic	Specification
Primary line voltages	110 - 127 V Printer - (100 - 135 V) 13 amp circuit 220 - 240 V Printer - (180 - 264 V) 7-8 amp circuit
Primary line voltage frequency range	100 - 135 V Printer - 50/60 Hz $\pm$ 3 Hz 220 - 240 V Printer - 50/60 Hz $\pm$ 3 Hz
Power consumption	Printing: 550 Watts (average) Sleep: under 10 Watts

Environmental Specification

Operating Environment

Characteristic	Specification
Optimal Temperature	10 - 30 degrees C (50-60 degrees F)
Optimal Humidity	20% - 80% Relative Humidity
Altitude	
Operating	0 - 2,500 meters (8,200 ft.)
Low Altitude Setting	0 - 2,050 meters (6,726 ft.)
High Altitude Setting	2,050 - 2,500 meters (6,726 - 8,200 ft.)
Transportation	0 - 6,092 meters (20,000 ft.)
Acoustic Noise	
Idle	35.0db or less
Printing	49.0db or less

Acoustic Characteristic	Mode	Specification
Printing	Simplex from Tray1	Less than 56.0 dBA
	Simplex from MP	Less than 56.0 dBA
	Simplex from SCF	Less than 59.0 dBA
	Duplex from Tray1	Less than 59.0 dBA
Measurement	Standby	Less than 35.0 dBA
	Warm up	Less than 50.0 dBA
	Maximum	Less than 60.0 dBA

Media and Tray Specifications

Media Tray Capacity

Property	Media	Specification
Input Size Max	Custom Paper (W*H)	216 x 356 mm (8.5" x 14")
	Min Custom Paper (W*H)	76 x 127 mm (3.0" x 5.0") (>105g)
Input Capacity	Standard	500-sheet Cassette Tray/100-sheet Multi Purpose Tray @75g
	Maximum	1 to 100 sheets
Output Capacity	Face-Down Capacity	250 sheets
	Face-Up Capacity	100 sheets
	Output Full sensing	Yes (Paper Outbin Full Sensor)
	Output path change	Face Up/Down controlled manually by opening rear cover
Multi-Purpose Tray	Plain Paper Capacity	100 sheets
	Envelope Capacity	10 sheets
	Card Stock Capacity	10 sheets
	Labels Capacity	25 sheets
	Transparencies Capacity	50 sheets
	Media sizes	A4/A5/A6/Letter/Legal/Oficio/Folio/Executive/ISO B5/JIS B5/3"x5"/Monarch/No.10/DL/C5/C6
	Media type	Transparencies/Envelopes/Labels/Card stock
	Media weight	16~43lb (60 to 163g)
	Sensing	Paper Empty Sensor
	Capacity	500 sheets
Standard Cassette Tray	Media sizes	A4/A5/Letter/Legal/Executive/Folio/Oficio/ISO B5/JIS B5
	Media types	Plain paper
	Media weight	16~28lb (60 to 105g)
	Sensing	Paper Empty Sensor and Paper Size Sensor

Media Tray Capacity

Optional Cassette Tray	Capacity	500 sheets@75g
	Media sizes	A4/A5/Letter/Legal/Executive/Folio/Oficio/ISO B5/JIS B5
	Media types	Plain paper
	Media weight	16~28lb (60 to 105g/)
	Sensing	Paper Empty Sensor
Duplex	Supporting	Optional
	Media sizes	A4/Letter/Legal/Folio/Oficio
	Media types	Plain paper
	Media weight	20~24lb (75 to 90g)

Media Input Size/Weight

Source	Media Types	Media Sizes	Media Weights
Tray 1	Paper, Envelope, Paper Labels, Transparency.	A4, Letter, Legal, Folio, Executive, ISO and JISB5, A5	16 lb. ~ 28 lb. (60 ~ 176 gsm)
Tray 2	Paper, Cardstock Min: 76 mm x 127 mm (3 in. x 5 in.) Max: Legal	A4, Letter, Legal, Folio, Executive, ISO and JISB5, A5, A6, Statement Monarch, COM 10, C5, DL, 3" x 5"	16 lb. ~ 43 lb. (60 ~ 105 gsm) 65# Cover
Tray 3	Paper	A4, Letter, Legal, Folio, Executive, ISO and JISB5, A5	16 lb. ~ 28 lb. (60 ~ 105 gsm)
Duplex	Paper	A4, Letter, Legal, Folio	20 lb. ~ 24 lb. (75 ~ 90 gsm)

Media Print Speed

Property	Mode	Specification
Speed	Simplex	Up to 38 ppm in A4 (40 ppm in Letter)
	Duplex	26 ipm in A4 (27 ipm in Letter)
		(Letter A4 Folio Oficio Legal)
First-Page Output Time (FPOT)	from standby	Less than 9 sec
	from sleep/power save mode	Less than 40 sec
	from cold status	Less than 49 sec
Warm Up Time	from sleep/power save mode	Less than 31 sec
	from cold status	Less than 40 sec

Media Print Speed

Toner save setting unit	SWS	Support
	PSU	Support (30%)
	LUI(Local UI)	Support(UI2.0)
Duplex Print	Simplex	Support
	Manual Duplex	N/A
	Duplex	Optional

Theory of Operation

In this chapter...

- Phaser 3600 Operational Overview
- Printer Paper Path
- Printer Controls
- Sensor Functions
- Printer Controls

Chapter 2

Phaser 3600 Operational Overview

Summary of the Printing Process

The Phaser 3600 Laser Printer is a desktop monochrome laser printer, applying the principals of an electrophotographic system to place a monochrome image onto the print media. The system contains a drum and developing unit which places the toner image onto print media producing monochrome prints through the transfer unit.

The printing process is composed of the following:

Charging: The charge roller is negatively charged at approximately -1400 VDC by the high voltage power supply (HVPS). The charge roller is kept in contact with the drum surface to provide a uniform negative charge of approximately -800 VDC on the drum surface as it rotates at a constant speed.

Exposure: The Laser Scan Unit (LSU) emits laser beams in response to image data from the Main board. The laser beams are directed onto the drum surface through a system of mirrors and lenses. A rotating polygonal mirror causes the laser beams to scan the drum surface from end to end (axially) as it rotates. The beams are turned on to print a pixel and off when no printing is required. The negative charge on the drum surface is reduced to approximately -250 VDC at each point where the energized laser beam strikes, to form an invisible electrostatic latent image on the drum surface.

Development: Negatively charged toner particles from the toner hopper are applied to the supply roller and are then applied to the developer roller in a even layer controlled by the metering blade. The developer roller turns against the drum and the toner particles are attracted to the relatively positive latent image. The toner forms a visible image on the drum surface.

Pre-Clean: The pre-transfer Lamp exposes the developed surface of the drum lowering the surface potential and thereby providing enhanced transfer efficiency.

Transfer: The finished toner image on the drum is transferred onto the print media using the voltage supplied by the Transfer Roller. The conductive Transfer Roller receives a high positive voltage (approximately +1000 VDC) from the HVPS that puts it at a higher potential than the drum. Since the Transfer Roller is located behind the print media, the toner image is attracted to the high potential and deposits on the surface of the print media.

Fixing: The finished toner image is impermanent and easily smeared. To fix the image, the print media goes through the Fuser where it passes between a pressure roller and the Heat Roller. The toner is fused onto the print media by the combination of heat and pressure.

The Heat Roller is heated by a heat element. The roller surface temperature is detected by a Thermistor. The information is fed back to the heater control to maintain a surface temperature of 185° C during printing and 145° C during standby. If the thermostats detect a Fuser overheat condition, it disconnects AC power to the Fuser.

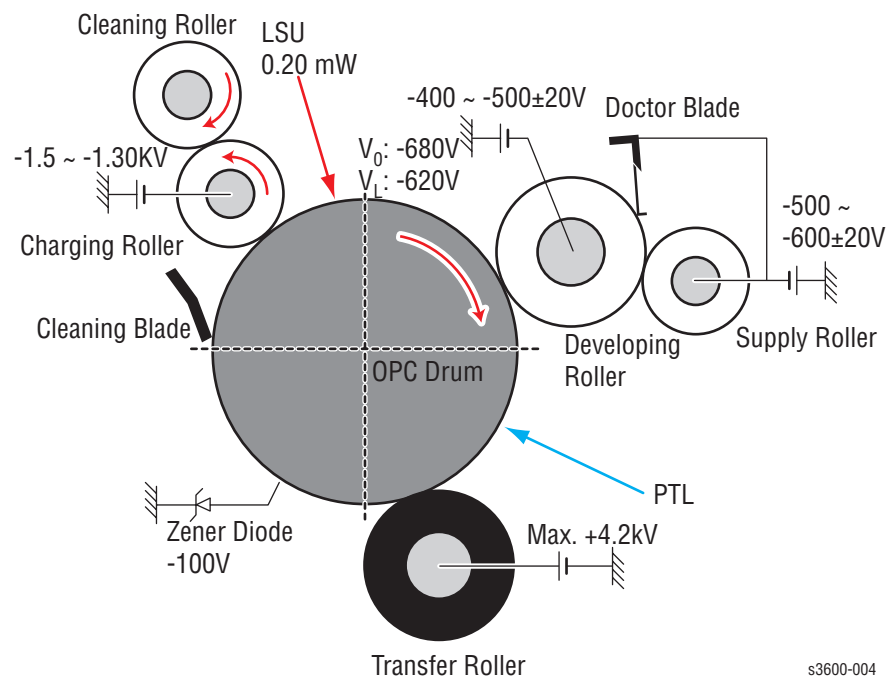
Cleaning: After the image is transferred to the print media, a cleaning blade inside the cartridge removes any remaining toner particles from the drum.

Print Cartridge and Print Modes

Print Cartridge

The Print Cartridge receives image data in the form of pulsed laser light from the Laser Scan Unit (LSU) and creates the image via the xerographic process. The Print Cartridge contains the following components:

- Charge Roller
- Drum
- Developer Roller (D/R)
- Supply Roller (S/R)
- Metering Blade
- Cleaning Blade



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Print Modes

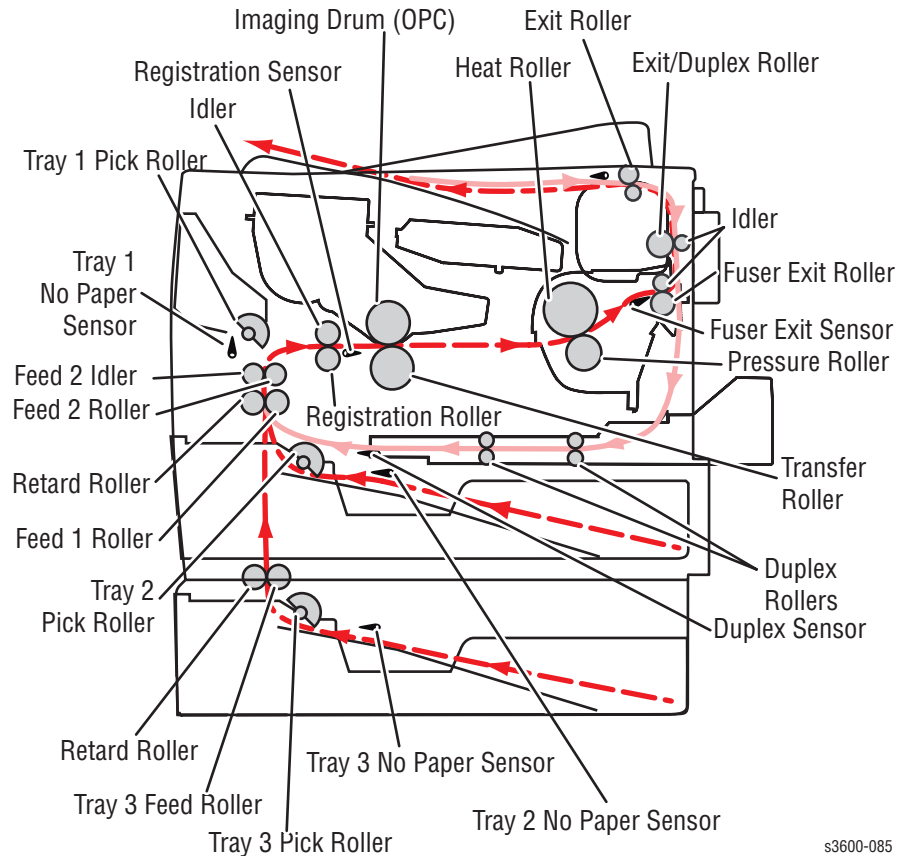
The Phaser 3600 Laser Printer provides two print modes:

1. Draft mode: Uses a combination of reduced toner output and the lowest resolution (300 x 300 dpi) to extend print cartridge life.
2. Enhanced mode: Used for printing on plain paper with an addressable resolution of 1200 x 1200 dpi.

Printer Paper Path

Paper Path Components

The diagram below shows the paper path and identifies the major components of the printer. The simplex paper path is shown in red and the duplex path is shown in light red.



s3600-085

Media that meets printer specifications can be fed from Tray1 (MPT) and Tray 2, or the Optional Tray 3. If you use thick paper with a weight of more than 105 gsm (60 lbs), you must insert the paper into Tray 1 (MPT) and select the paper type. Paper will exit the printer to the face down top tray. A door at the rear of the printer provides access for jam clearance.

All major components of the printer are explained in greater detail under Printer Controls on page 2-10.

Duplex Paper Path

When 2-sided printing is selected, side two is printed first, the image being printed is the first image. After the first image prints, the paper is reversed and is fed through the duplexer and back up to the feed roller with side one positioned for printing with the second image.

Paper Feed Sequence

When the Main Board is ready to feed paper, it energizes the paper feed solenoid. The solenoid armature releases the clutch and the Pick-Up Roller makes one revolution. This drives the paper to the Feed Roller and the Retard Roller. The Feed Roller and Retard Roller drive the paper to the Registration Assembly, which in turn drives the paper towards the transfer area. Before arriving at the transfer area, the paper actuates the Feed Sensor.

Paper Transport

The Registration Assembly continues to drive the paper into the transfer area, where the image is transferred from the drum to the paper.

After the image transfers, the paper continues to the Fuser Assembly for the fusing the process. In the Fuser Assembly, the Heat Roller is heated by a heat element and the paper passes in between the Heat Roller and the pressure roller, where toner melts onto the paper to form a permanent image. The temperature of the heat roller is monitored by a Thermistor that sends signals to the Main Board.

The Fuser Assembly drives the paper into the Exit Rollers, which drive the paper into the output tray. When printing the first side of a duplex print job, the drive direction is reversed when the Exit Sensor is actuated. Paper is then directed into the Duplex Unit for printing on the second side.

Paper Feed Drive

The drive for all rollers is provided by the Main Drive Motor and a series of drive gears. The Main Motor is used for paper feed, fusing, and the duplex/exit roller reversal for 2-sided printing. When the main motor turns, all the paper path components also turn except the Pick-Up Roller. The Pick-Up Roller assembly moves the paper along the path with the Feed Solenoid. There is a separate Developer Motor for the Print Cartridge.

Print Engine Assemblies

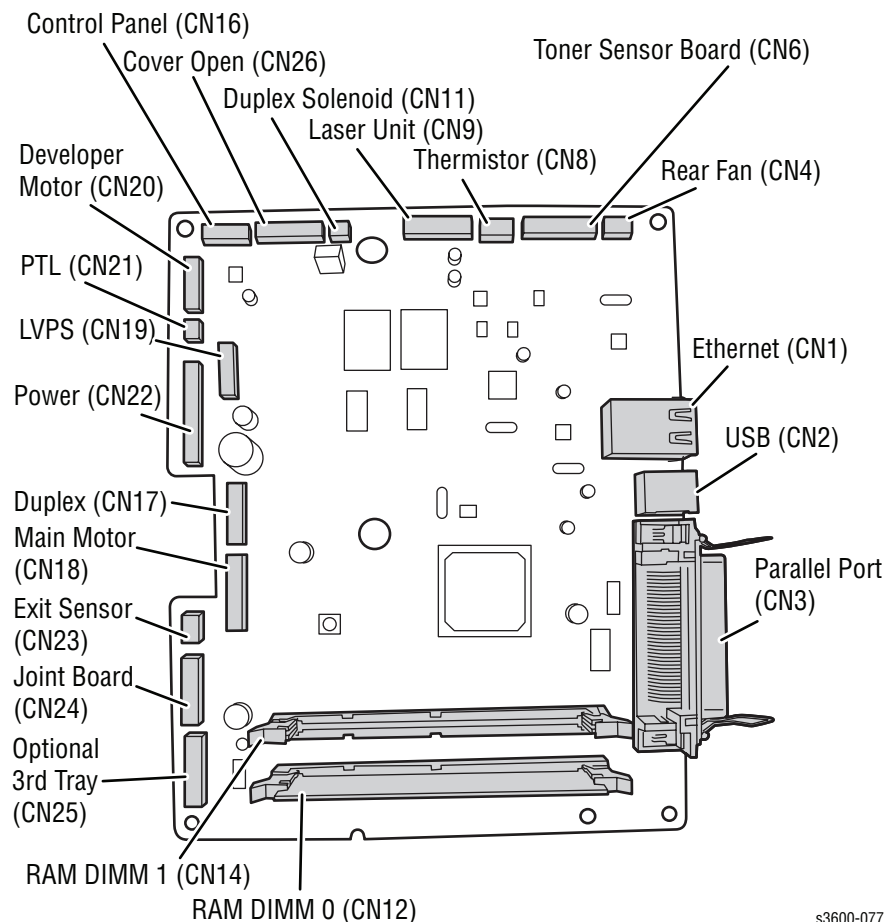
The print engine assemblies include the following:

- Image Processing and the Main Board
- Laser Scan Unit
- Main Drive Assembly
- Feed assembly Process and Components
- Transfer Roller Assembly
- Fuser Assembly

Image Processing Assembly and Main Board

The Main Board receives image data from the host computer, converts it to a bitmap image, and then transfers the image to the Laser Scan Unit (LSU).

The Main Board combines the Image Processor and Engine Control functions. It contains a 32 bit RISC processor and comes with a standard memory capacity of 64 Mbytes of RAM and 4 Mbytes of flash memory. The board provides one expansion slot that allows available memory to be expanded up to 512 Mbytes with two 256Mbyte RAM DIMM.



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Laser Scan Unit (LSU)

The Laser Scan Unit (LSU) is the core element of the image production process. The LSU receives video data from the controller on the Main Board and converts the data to an electrostatic latent image on the OPC (Organic Photo Conductor) drum. The laser beam exposes the OPC drum under direction of the controller. The controller also turns the drum synchronously with a polygon mirror within the LSU. The OPC drum also turns in relation to the speed of the paper feed process. An /HSYNC signal is created when the laser beam from LSU reaches the end of a polygon mirror, and the signal is sent to the controller.

The controller detects the /HSYNC signal to adjust the vertical line of the image on paper. That is, after the controller detects the /HSYNC signal, the image data is sent to the LSU to adjust the left margin of the media.

Motor Drive Assemblies

The Motor Drive Assemblies include the Main Motor and the Developing Motor. Under control of the Main Board, the Main Motor Drive is a power delivery unit. Through a series of gears, it supplies the power to the paper feed components, the fusing unit, and the distributing unit. For the duplex process, the Main Motor energizes a solenoid to change paper direction.

By gearing, the main motor drives the rollers such as Feed Roller, developing roller, fuser roller, and Exit Roller. In addition, a step motor controls the acceleration of the drive gearing.

The Developing motor also drives gears that, in turn, drive components used in the image development process.

Feed Assembly Process and Components

The Feed assembly process and components consists of:

1. Separation process

Separates the paper from the friction pad mounted to the center of the cassette and applies a Retard Roller which uses a spring clutch. A separate Feed Roller then uses an electronic clutch to control driving power.

2. Center Loading Process

A center loading method applies 'friction pad separation', which means that a software process first detects paper (even though there is a paper sensor). After the initial detection, the Paper Size Sensor determines paper size (see "Paper Size Sensor" on page 2-16).

Both the side guide and the rear guide can be adjusted for various types of papers from A5 to legal size paper. The process also includes a paper arranging function and a display function displays the amount of paper remaining. In the front side of the tray, there is a paper level indicator.

3. Paper Pick-up Process

Functions include a paper pickup function, paper feeding function, and the removal of electronic static.

4. Miscellaneous Paper Functions

A paper arrangement function uses a stopper roller and a weight without an electric actuator. It also includes an additional paper separating function, a driving control function, and a multi feeding prevention function. The Feed Roller transfers paper along the paper path and is also part of jam detection.

Transfer Roller Assembly

The transfer subsystem consists of the Pre-transfer Lamp (PTL) and the Transfer Roller. The PTL exposes the drum surface after the latent image has been developed to lower surface potential of the drum. This provides enhanced transfer efficiency.

The Transfer Roller provides a high positive potential on the back of the print media. This potential attracts the negatively charged toner image from the drum and deposits it on the surface of the print media.

The transfer voltage is controlled by PWM (Pulse Width Modulation). When the paper enters the Transfer Roller, the resistance value of the Transfer Roller will change due to the surrounding temperature of the printer. If the temperature changes, a new voltage level is created through an AD converter.

Fuser Assembly

The Fuser Assembly contains the entire Fuser Subsystem and is a field replaceable unit. The Fuser Assembly contains the following components:

- Heat Element and Heat Roller: Two quartz lamps operate as the heating elements, which generate the heat inside the Heat Roller. The Heat Roller melts the toner so it adheres to the paper.
- Pressure Roller: Provides pressure on the opposite side of the print media so the Heat Roller can embed the melted toner in the media.
- Thermistor: Monitors the surface temperature of the Heat Roller. This information is used to control the heat lamp and thus keep the Heat Roller at the correct temperature.
- Thermostat: Prevents overheat damage when unexpected system faults occur.

Duplex and Tray Assemblies

Duplex Assembly

The Optional Duplex Assembly automatically prints on both sides of a sheet of paper. With the Duplex Assembly, the printer can print A4-sized paper up to 26 inches per minute (IPM) and letter-sized paper up to 27 IPM. The duplexer also supports the Oficio and Folio paper sizes.

The components of the Duplex unit include a paper transfer function, paper guide function, jam removing function, paper sensing function, and main board supporting function.

You can remove a jam at the front of the assembly by merely opening up the cassette and paper guide. To remove a jam in a rear part of the assembly, merely open the rear cover.

Tray 2 and Optional Tray 3 Assemblies

You can increase the paper handling capacity of the printer by installing Tray 2 or an optional Tray 3. Each tray holds 500 sheets of paper (Cassette is same size as the Tray1 (MPT). Each tray includes a separate driving mechanism with the following features:

- Feeding Method : Cassette Type
- Feeding Standard : Center Loading
- Feeding Capacity : Cassette 500 Sheets(75g/ , 20lb Paper Standard)
- Paper Detecting Sensor : Photo Sensor
- Paper Size Sensor : Yes

Printer Controls

Paper Size Control

The paper size selection for Tray 2 and Tray 3 is set by moving the paper guide in the tray. This in turn sets the plastic “fingers” on the side of the paper tray to a specific position. The position of the “fingers” activates the correct combination of the three paper size switches, located in each paper tray slot, for the selected paper size. Additionally, the back of the tray must be pulled down in order to select the two largest sizes; US Folio and Legal. Not all sizes can be used in both trays. See “Media and Tray Specifications” on page 10 for a complete listing of the media types for each tray. Additional media types can be used in Tray 1 (MPT). After inserting the media in Tray 1, use the Control Panel controls to select the media type.

Paper Size	Paper Size Switch		
	SW1	SW2	SW3
LEGAL 14"	ON	ON	OFF
US FOLIO (LEGAL 13")	OFF	OFF	OFF
A4	OFF	ON	ON
LETTER	ON	OFF	OFF
EXECUTIVE	OFF	ON	OFF
B5	ON	OFF	OFF
B5, JIS-B5	OFF	OFF	ON
A5	ON	ON	ON
No Tray	OFF	OFF	OFF

Automatic Paper Pick Control

The default paper pick selection at power ON is Tray 2, Auto-Select ON is also default. If the default tray is empty, the printer will automatically switch to any other tray that contains paper unless Auto-Select is set to OFF.

Laser Scan Unit (LSU) Control

The Laser Scan Unit receives the bit-mapped image data from the Main Board and uses that information to turn the laser beam on and off as required to correctly expose the drum. Image data transfer from the Main Board is controlled by a synchronization signal from the LSU so the vertical scanning line is synchronized with the printed page. The LSU contains the following components:

- Laser Diodes: Generates the laser beams.
- Rotating Polygon Mirror: Scans the laser beam across the drum, axially.
- Beam Detector: Synchronizes the left margin.
- Optical Lens System: Focuses the laser beam onto the surface of the drum.
- Mirrors: Reflect the laser beam onto the surface of the drum.

Laser Light Intensity Control

Image data is transmitted to the laser diode in the Laser Scan Unit as digital signals. The laser diode converts the image data from digital signals to optical signals; data expressed by blinking laser beams. The Laser Scan Unit monitors the output to determine if variations in the light intensity from the laser beam, variations in the optical system (such as mirrors and lenses), or variations in drum sensitivity are preventing the system from obtaining a proper electrostatic image and, if necessary, adjusts the light intensity to attain a stable electrostatic image.

Error	Description	Error Message
Polygon Motor Error	The polygon motor speed cannot obtain a steady state.	Laser Failure
Hsync Error	The polygon motor speed is steady, but the Hsync signal is not generated.	Laser Failure

Toner Control

Print Cartridge installation and Toner Level are detected by the Print Cartridge Interconnect Board and the associated signals are supplied to the Main Board. The CRUM not only detects cartridge presence, it also determines whether it is a genuine Xerox cartridge. When the toner remaining falls to 15%, the printer displays a low toner message on the Control Panel display.

Fuser Temperature Control

During Fuser temperature control the printer's target temperature is set. The Heat Roller surface temperature is controlled to match the target temperature by turning the heat element ON/OFF. The Heat Roller surface temperature is detected by a Thermistor. If the Thermistor shows that the temperature is higher than the target, the heat element is turned OFF. If the detection result is low, the heater lamp is turned ON. The fuser control circuit keeps the Fuser temperature at 185° C during printing and at 145° C during standby.

- When the power voltage for the printer is too high or too low, the Fuser is stopped to protect the Fuser.
- When the AC voltage is not applied to the Fuser control circuit, the fuser will not work and a Fuser Low Heat Error will occur.
- When the temperature of the Fuser is too high, an “Engine Overheat” error occurs if the cooling operation is insufficient

Error	Description	Error Message
Open Heat Error	When warming up, the Fuser has been lower than 60 degrees C for over 35 seconds.	Fuser Failure
Low Heat Error	Stand-by: ■ Lower than 130 degrees C for over 10 seconds. ■ Printing: ■ Up to 2 consecutive pages: Lower than 155 degrees C for over 7 seconds. ■ From 3 consecutive pages: Lower than 25 degrees C than the fixed fusing temperature over 7 seconds.	Engine Low Heat Error
Over Heat Error	Temperature is higher than 230 degrees C over 10 seconds.	Engine Over Heat Error

Sensor Functions

Sensor Types

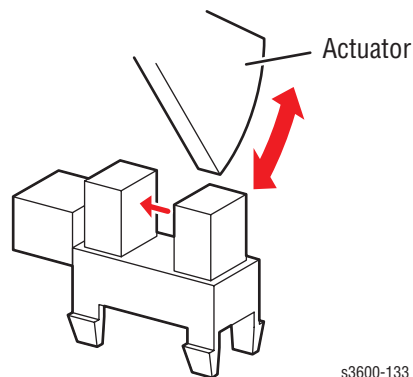
The types of sensors used vary with function. In general, there are three types in use:

Photo Sensors

Two types of photo sensors are used, photo-reflective and photo-receptive. Photo-reflective sensors use light reflected back from an object to detect its presence. Photo-receptive sensors use an actuator or the object itself to block the light path to detect an object or condition.

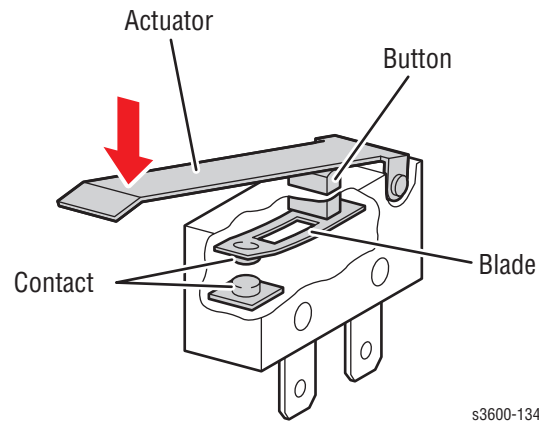
Photo-reflective sensors have the light emitter and light receiver aligned on a single surface. Output of the photo-receptor is High ($> +4.5$ V) when light is being reflected back and Low ($< +3$ V) when it isn't.

Photo-receptive sensors consist of a LED in one arm of a U-shaped holder, and a photo-transistor in the other arm. When the sensing area is vacant, nothing is between the arms of the sensor, light falls on the photo-receptor sending the signal High. If the light is interrupted, the photo-transistor goes Low.



Microswitches

Microswitches are used primarily as paper size sensors and cover interlocks. They are in a normally open state, and close when actuated. A bank of microswitches is used to detect paper size in the universal trays. Microswitches also employ hooks or catches for retention in the bracket or frame.

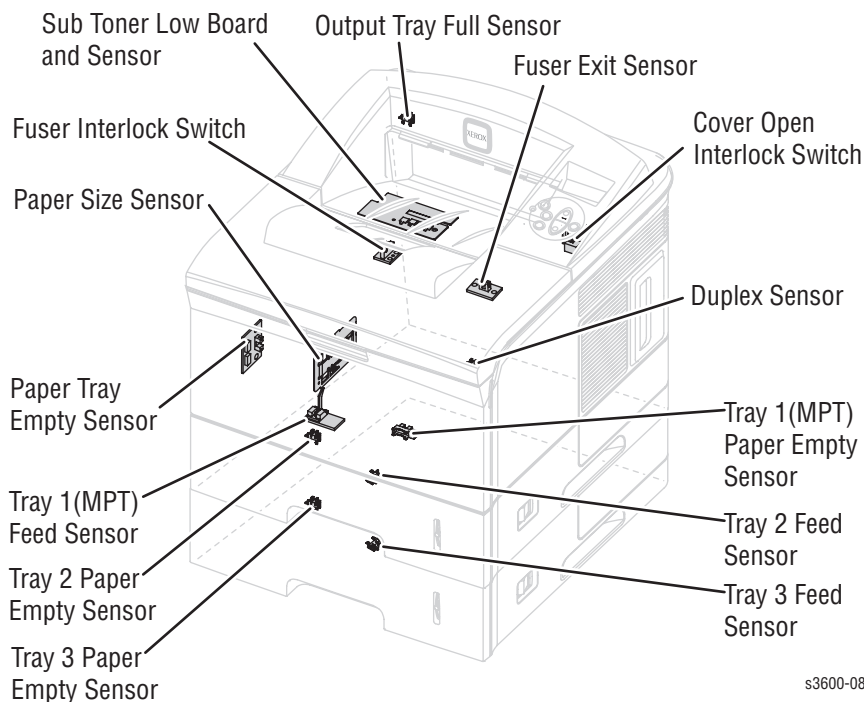


Thermistors

Thermistors have a known value of resistance whose value varies with temperature. Used primarily in the Fuser for temperature sensing.

Sensors in the Paper Path

The following illustration shows the general physical location of the specified sensor. Not all the sensors in the illustration have replaceable part numbers. The text topics following the illustration describe those sensors that have associated part numbers.



Paper Tray Empty Sensor

Media supply is monitored by the Paper Tray Empty Sensor. When any paper tray runs out of paper, the sensor will send a signal to the Main Board, the control panel LED will blink red, and the message will display on the control panel identifying which tray “No Paper in Tray {2|3}” is empty.

Tray 1 (MPT) Paper Empty Sensor

The Tray 1 (MPT) paper empty sensors monitors paper from Tray 1. If Tray 1 is selected and no paper is available, a message appears on the control panel. If there is no paper in Tray 2 or Tray 3 and the printer is in auto-select mode, the printer will look for paper in all the trays and report “No Paper in Tray 1”.

Tray 1 (MPT) Feed Sensor

The Tray 1 (MPT) Feed Sensor has two purposes. First, it monitors paper movement. If the paper takes too long getting to the sensor, or it stays at the sensor location too long, the Main Board will shut down the machine, the control panel LED will blink red, and a “Jam” error message will display on the control panel.

Secondly, the signal generated by the sensor tells the Main Board that the paper is almost at the transfer area and it is time to start the xerographic process. It is important that the leading edge of the paper enters the transfer area at the same time as the leading edge of the developed image on the drum.

Paper Size Sensor

The Paper Size Sensor detects the presence of paper and monitors a paper size plate consisting of three sensitive metal tabs in the paper path. Depending on the size of the paper, one or more of these tabs will send a signal to the Main Board with the information needed to determine the paper size. For information regarding the paper size combinations, see “Paper Size Control” on page 2-10.

Outbin Tray Full Sensor

The Outbin Tray Full Sensor detects when the output bin is full and can no longer accept more paper from the exit section of the paper path. When the Main Board detects this sensor, it sends an “Output Bin Full” message to the control panel.

Fuser Exit Sensor

The Fuser Exit Sensor monitors paper exit and detects the “Jam at Exit” error if the paper takes too long getting to the sensor, or it stays at the sensor too long. At this point the Main Board will shut down the printer, the Control Panel LED will blink red, and a “Jam at Exit” error message will display on the Control Panel. The signal from the Fuser Exit Sensor is also used to control paper feed to the Duplex Unit for duplex print jobs.

Cover Open Interlock Switch

The Cover Open Interlock Switch detects whether the top cover is open or closed. When the top cover is open the “Close Top Cover” message displays on the Control Panel.

Duplex Sensor

The Duplex Unit slides into the rear of the printer above Tray 2. The Main Board senses the presence of the Duplex Unit and paper in the Duplex unit through the Duplex connector. As paper leaves the Fuser Assembly and is picked up by the Exit Rollers, the drive direction is reversed to send the paper into the Duplex Unit. As the paper leaves the Duplex Unit, it activates the Duplex Sensor within the unit. This activates the Feed Roller to position the paper for printing on the second side of the paper.

Power Supplies

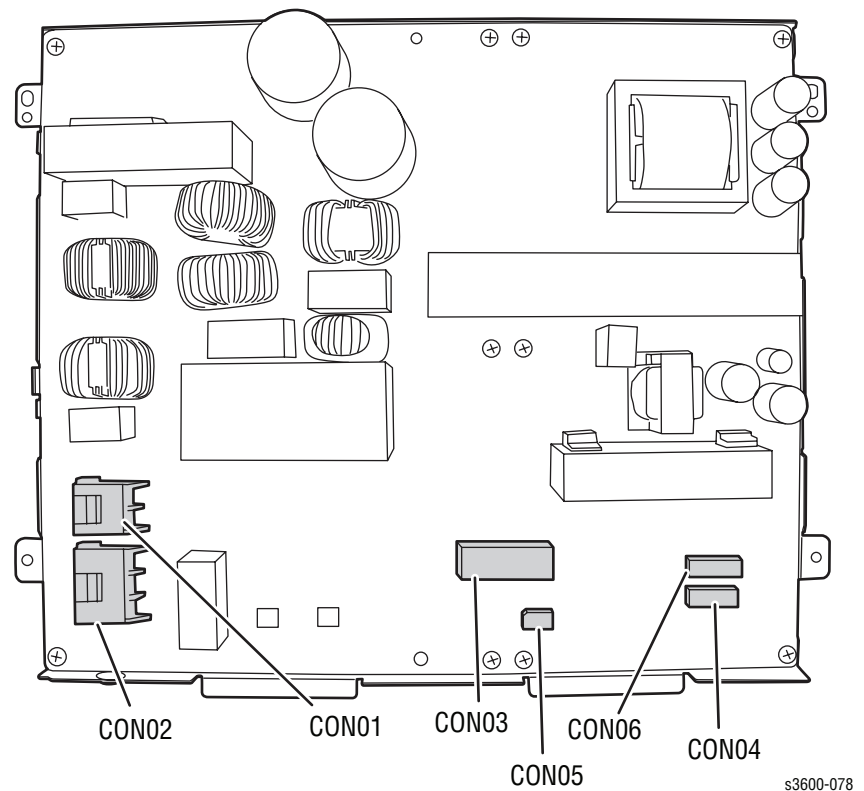
High Voltage Power Supply (HVPS)

The HVPS section generates and supplies the following voltages:

- Transfer Voltage
- Charge Voltage
- Bias Voltage
- Supply Voltage

The Bias, Supply, and Charge voltages are used by the Print Cartridge.

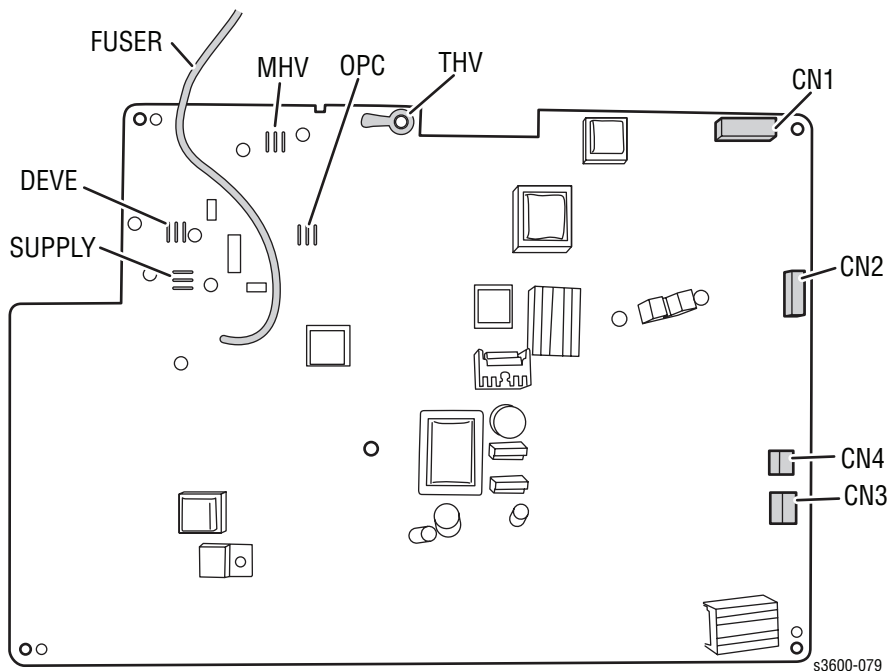
The power distribution section receives AC voltage and creates the required DC outputs (3.3 VDC, 5 VDC, and 24 VDC) to power the printer components. It also supplies AC voltage to the Fuser Assembly.



Switching Mode Power Supply (SMPS)

The SMPS is mounted on the bottom of the printer and is the main power source of the entire system. It converts the AC input line into two main output channels: 3.3 volts DC and 24 Volts DC. The SMPS then provides these output channels to various components throughout the system in a *switching mode* as instructed by the Main Board.

The SMPS also drives the AC heater unit, which supplies controlled current levels to the Fuser assembly as an independent module.



Error Messages

In this chapter...

- Troubleshooting Overview
- Service Diagnostics
- Service Diagnostics Menu Map
- Troubleshooting Error Messages

Chapter 3

Troubleshooting Overview

This section covers troubleshooting procedures for the Phaser 3600 Laser Printer. When an error first occurs, record the error message and code and then cycle power to the printer to see if the error recurs.

To troubleshoot image-quality problems, see “Image-Quality Troubleshooting” on page 5-9.

Using the Troubleshooting Procedures

1. Each Step in a Troubleshooting Procedure instructs you to perform a certain action or procedure. The steps are to be followed sequentially until the problem is fixed or resolved.
2. The Actions and Questions box contains additional information and/or additional procedures you must follow to isolate the problem.
3. When a procedure instructs you to test a component using service diagnostics, see the “Service Diagnostics Menu Map” on page 3-3 for the detailed steps and functions for testing parts of the printer.
4. The action is followed by a question. If your response to the question is “Yes”, then follow the instructions for a “Yes” reply. If your response to the question is “No”, then follow the instructions for a “No” reply.
5. Troubleshooting Procedures may ask you to take voltage readings or test for continuity at certain test points within the printer. For detailed diagrams, see “Plug/Jack and Connector Locators and Maps” on page 9-3 for complete information on test point locations and signal names.
6. Troubleshooting Procedures often ask you to replace a printer component, see “Service Parts Disassembly” on page 7-1 for detailed steps in removing and replacing all major components of the printer. The “Parts List” on page 8-1 details the location, quantity, and part number for all spared printer components.

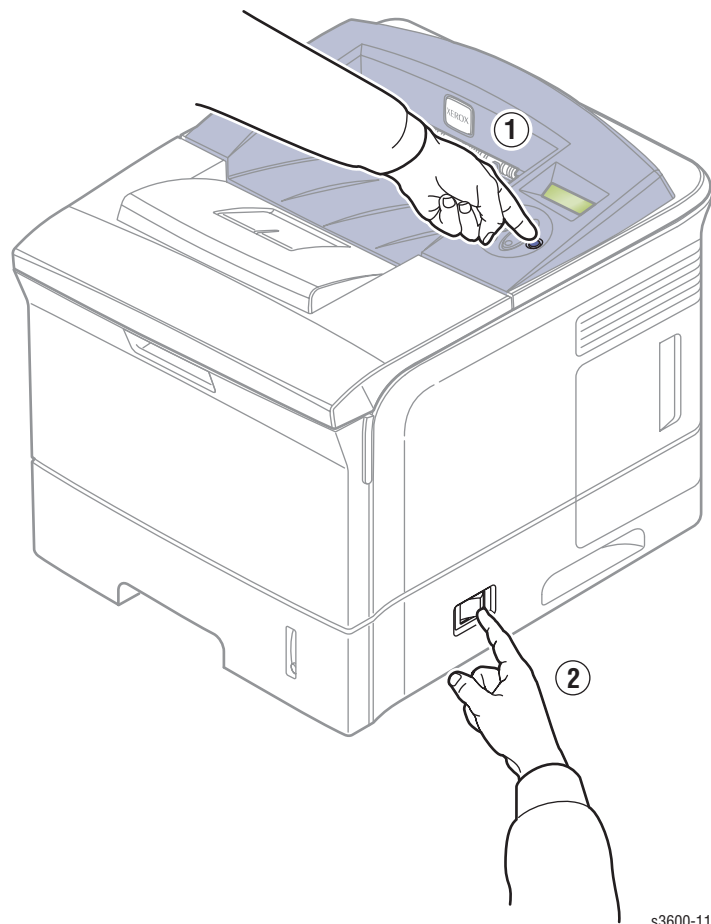
Service Diagnostics

The printer has built-in diagnostics to aid in troubleshooting problems. The Service Diagnostics Menu provides a means to test sensors, motors, switches, clutches, fans and solenoids. Diagnostics also contain built-in test prints, cleaning procedures, printer status and some NVRAM access.

Service diagnostics are to be executed through the control panel by a certified service technician only.

Service Diagnostics Menu Map

Entering Service Diagnostics



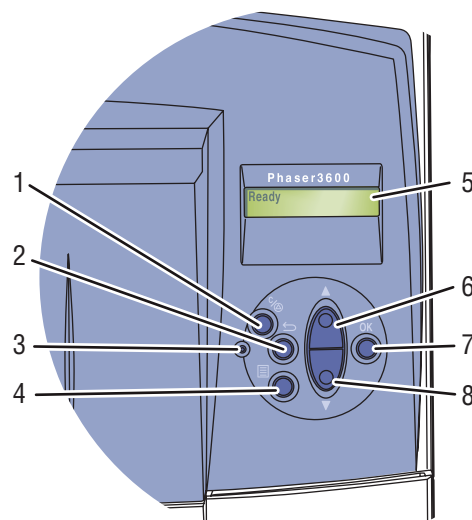
s3600-113

1. Turn the printer power OFF.
2. While holding down the 'OK' button (1), turn the printer back ON (2).

Note

Refer to the "Diagnostic Test Menu Map" on page 3-5 to see the description of all component tests.

Service Diagnostic Control Panel Button Descriptions



1. **Cancel** Button
2. **Return** Button
3. On-line/Data/Error LED
4. **Menu** Button
5. Status/Error Messages and Menus
6. **Up Arrow** Button
7. **OK** Button
8. **Down Arrow** Button

s3600-002

The alphanumeric display provides status messages and control panel menus.

Diagnostic Control Panel Buttons

Button	Function
BACK	Returns to the prior higher level menu structure, if available. Stops the actively running test.
CANCEL	Terminates the current test.
MENU	Cycles through all of the top level menu items.
UP	Scrolls up one menu item within a menu list. This control does not 'wrap'. Used to increment values in tests requiring user input.
DOWN	Scrolls up one menu item within a menu list. This control does not 'wrap'. Used to increment values in tests requiring user input.
OK	Enters the highlighted menu. Executes the current test item. Used to select the value entered by the user.

Diagnostic Test Menu Map

Note

For definitions of Acronyms and Abbreviations listed in the Diagnostic Menu Map below, refer to the Appendix (page A-2).

Diagnostic Menu Map Options

Main Menu	Sub Menu	Description/Function	Control Panel Display
Cover Status (Test 0)	Top Cover	If the cover is opened, "Open" message will be displayed and if not, "Closed" displayed.	Top Cover [Closed]/[Open]
	Tray 1 Cassette *(T1 thru T3 refer to Tray 1 thru Tray3 respectfully. T4 is not supported)	If the Tray is opened, "Open" message will be displayed and if not, "Closed" displayed	Tray 1 Cassette
	Tray 2 Cassette	If the Tray is opened, "Open" message will be displayed and if not, "Closed" displayed	Tray 2 Cassette
	Tray 3 Cassette	If the Tray is opened, "Open" message will be displayed and if not, "Closed" displayed	Tray 3 Cassette
	Fuser Door	If the Door is opened, "Open" message will be displayed and if not, "Closed" displayed.	Fuser Door [Closed] [Open]

Diagnostic Menu Map Options

Main Menu	Sub Menu	Description/Function	Control Panel Display
Sensor Status (Test 1)	Registration Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	Registration Sensor [Without Paper] [With Paper]
	T1 Feed Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T1 Feed Sensor [Without Paper] [With Paper]
	T2 Feed Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T2 Feed Sensor [Without Paper] [With Paper]
	T3 Feed Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T3 Feed Sensor [Without Paper] [With Paper]
	T4 Feed Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T4 Feed Sensor [Without Paper] [With Paper]
	Exit Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	Exit Sensor [Without Paper] [With Paper]
	DJam 1 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	DJam1 Sensor [Without Paper] [With Paper]

Diagnostic Menu Map Options

Main Menu	Sub Menu	Description/Function	Control Panel Display
Sensor Status (cont)	Outbin Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	Outbin Sensor [Normal] [Full]
	Bypass Empty	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	Bypass Empty [Empty][Present]
	T1 Paper Empty	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T1 Paper Empty [Empty][Present]
	T2 Paper Empty	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T2 Paper Empty [Empty][Present]
	T3 Paper Empty	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T3 Paper Empty [Empty][Present]
	T4 Paper Empty	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T4 Paper Empty [Empty][Present]
	T1 PSize0 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T1 Psize0 Sen [Low] [High]
	T1 PSize1 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T1 Psize1 Sen [Low] [High]
	T1 PSize2 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T1 Psize2 Sen [Low] [High]
	T2 PSize0 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T2 Psize0 Sen [Low] [High]
	T2 PSize1 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T2 Psize1 Sen [Low] [High]

Diagnostic Menu Map Options

Main Menu	Sub Menu	Description/Function	Control Panel Display
Sensor Status (cont)	T2 PSize2 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T2 Psize2 Sen [Low] [High]
	T3 PSize0 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T3 Psize0 Sen [Low] [High]
	T3 PSize1 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T3 Psize1 Sen [Low] [High]
	T3 PSize2 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T3 Psize2 Sen [Low] [High]
	T4 PSize0 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T4 Psize0 Sen [Low] [High]
	T4 PSize1 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T4 Psize1 Sen [Low] [High]
	T4 PSize2 Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	T4 Psize2 Sen [Low] [High]
	DPX Detect Sensor	The first value lists normal display <i>before</i> touching the sensor, and the second value lists normal display <i>after</i> touching the sensor.	DPX Detect Sen [Low] [High]
Motors (Test 2)	Main Mtr Fwd	The motor will run on the forward direction or stop.	Main Mtr Fwd [On] [Off]
	Main Mtr Slow	The motor will run on the forward direction in half speed mode.	Main Mtr Slow [On] [Off]
	Dev Mtr Nor	The motor will run on the forward direction in normal speed.	Dev Mtr Nor [On] [Off]
	Dev Mtr Slow	The motor will run on the forward direction in half speed.	Dev Mtr Slow [On] [Off]
	Duplex Mtr Fwd	The motor will run on the forward direction.	Duplex Mtr Fwd [On] [Off]
	T2 Feed Motor	The motor will run on the forward direction or stop.	T2 Feed Motor [On] [Off]

Diagnostic Menu Map Options

Main Menu	Sub Menu	Description/Function	Control Panel Display
Motors (Cont.)	T3 Feed Motor	The motor will run on the forward direction or stop.	T3 Feed Motor [On] [Off]
	T4 Feed Motor	The motor will run on the forward direction or stop.	T4 Feed Motor [On] [Off]
Fans (Test 3)	Fuser Fan	The fan will run or stop.	Fuser Fan [On] [Off]
	Fuser Fan Rdy	Check whether the fan is in the locked state.	Fuser Fan Rdy [Ready] [Not Ready]
	SMPS Fan	The fan will run or stop.	SMPS Fan [On] [Off]
	SMPS Fan Rdy	Check whether the fan is in the locked state.	SMPS Fan Rdy [Ready] [Not Ready]
	Duplex Fan	The fan will run or stop.	Duplex Fan [On] [Off]
Clutches/Solenoids (Test 4)	T1 P-up Clutch	The clutch will run or stop.	T1 P-up Clutch [On] [Off]
	T2 P-up Clutch	The clutch will run or stop.	T2 P-up Clutch [On] [Off]
	T3 P-up Clutch	The clutch will run or stop.	T3 P-up Clutch [On] [Off]
	T4 P-up Clutch	The clutch will run or stop.	T4 P-up Clutch [On] [Off]
	Bypass Clutch	The clutch will run or stop.	Bypass Clutch [On] [Off]
	Duplex Sol.	The solenoid will run or stop.	Duplex Sol. [On] [Off]
Fuser Ctrl (Test 5)	Fuser Bias	The bias will have the previously saved value.	Fuser Bias [On] [Off]
	Temp Control	The fuser unit will control the power for fixing and displaying the current temperature on the panel. The target temperature is 160 degrees.	Temp Control [On] [Off] [xxx]
	Fuser Temp	The Control Panel displays a digital equivalent [xxx] of the analog value.	Fuser Temp [xxx]
	Inner Temp	The Control Panel displays a digital equivalent [xxx] of the analog value.	Inner Temp [xxx]

Diagnostic Menu Map Options

Main Menu	Sub Menu	Description/Function	Control Panel Display
LSU Ctrl (Test 6)	LD Power1	The display shows the previously saved value.	LD Power1 [On] [Off]
	LD Power2	The display shows the previously saved value.	LD Power2 [On] [Off]
	Laser Motor	The motor will run or stop.	Laser Motor [On] [Off]
	Laser Ready	When the LSU is ready to print (laser diode ON with a stable motor speed), the message, "Normal" displays.	Laser Ready [Normal] [Fault]
Dev Control (Test 7)	THV Plus Bias	The panel displays the previously saved bias value.	THV Plus Bias [On] [Off]
	THV Minus Bias	The panel displays the previously saved bias value.	THV Minus Bias [On] [Off]
	DEV Bias	The panel displays the previously saved bias value.	DEV Bias [On] [Off]
	DEV AC Bias	The panel displays the previously saved bias value.	DEV AC Bias [On] [Off]
	DEV Vpp Bias	The panel displays the previously saved bias value.	DEV Vpp Bias [On] [Off]
	MHV Bias	The panel displays the previously saved bias value.	MHV Bias [On] [Off]
	PTL	The Pre-transfer Lamp will be either on or off.	PTL [On] [Off]
	Erase Lamp	The lamp will be either on or off.	Erase Lamp [On] [Off]
	TR Cur Read	The Control Panel displays a digital equivalent [xxx] of the analog value.	TR Cur Read [xxx]
	CR Cur Read	The Control Panel displays a digital equivalent [xxx] of the analog value.	CR Cur Read [xxx]
Test Print (Test 8)	Pattern Print	The printer prints a pattern test page into Tray (MPT).	Print [On] [Off]
	T2 Version	Displays Tray 2 version	2.00
	T3 Version	Displays Tray 3 version	1.00
	T4 Version	N/A	N/A
	DPX Version		1.03

Troubleshooting Error Messages

The following list summarizes the Phaser 3600 error messages:

Jam At Tray [1|2|3] (JAM 0)

The leading edge of the paper doesn't pass the Feed Sensor, or the sensor does not turn ON.

- After paper pick, paper is not fed.
- After paper pick, paper enters the printer but does not reach the Feed Sensor in the specified time.
- After paper pick, the feed sensor turns ON and tries to pick again but the paper does not reach the Feed Sensor in the specified time.

Jam At Top (JAM 1)

The paper jams between the Feed Sensor and the Exit Sensor. The Jams occur when:

- The leading edge of the paper passes the Feed Sensor but the trailing edge does not pass through the Feed Sensor in the specified time. (The Feed Sensor cannot be OFF).
- The leading edge of the paper passes the Feed Sensor, but the paper cannot reach the Exit Sensor in the specified time. (The Exit Sensor cannot be ON).

Jam At Exit (JAM 2)

The trailing edge of the paper passes the Feed Sensor, but the paper does not pass the Exit Sensor in the specified time.

Jam at Rear (Duplex JAM 1)

The trailing edge of the paper passes the Exit Sensor, but does not reach the Duplex Sensor in the specified amount of time.

Jam at Duplex (Duplex JAM 2)

The leading edge of the paper passes the Duplex Sensor, but the leading edge of the paper does not reach the Feed Sensor in the specified time.

Check Cartridge, Invalid Print Cartridge, Non-Xerox Cartridge

This message appears when:

- A print cartridge is not detected.
- A non-Xerox print cartridge is installed.
- The Toner Sensor Board is malfunctioning.

Close Top Cover.

This message appears when the:

- Top cover is damaged
- Sensor or actuator is damaged.

Fuser Failure, Engine Fuser Low Heat Error, Engine Overheat Error

Fuser is damaged or malfunctioning.

Laser Failure

The Laser Scan Unit is malfunctioning or damaged.

Outbin Tray is Full

The Outbin Tray Full Sensor or actuator is malfunctioning or damaged.

Jam At Tray [1] [2] [3] (Jam 0)

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Tray 1 Assembly, PL1.2.35 ■ Tray 1 Solenoid, PL1.1.26 ■ Registration Assembly, PL1.1.12 ■ Pick Roller, PL1.3.2.5 ■ Main Board, PL1.1.19	■ “Sensor to Main Board Wiring Diagram” on page 9-14 ■ “Map 2- Main Board” on page 9-5

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1.	Check the side guides for the inoperative tray for damage or improper seating. Are guides damaged or loose?	Replace the Tray (page 7-14).	Go to Step 2.
2.	Check the surface of the Pick Roller for dirt or damage. Are the rollers dirty or damaged?	Clean rollers with a soft cloth very slightly dampened with water or replace (page 7-25) if damaged.	Go to Step 3.
3.	Do the Registration Rollers turn freely?	Go to Step 4.	Replace Registration Assembly (page 7-41).
4.	Is the Feed Sensor Actuator damaged or binding?	Repair or replace the actuator and/or sensor (page 7-21).	Go to Step 5.
5.	Use service diagnostics to check the operation of the tray solenoid. Do the tray solenoids operate correctly?	Replace the Main Board (page 7-39).	Replace the inoperative solenoid (page 7-29).

Jam At Top (Jam 1)

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Registration Assembly, PL1.1.12 ■ Paper Exit Sensor, PL1.3.76 ■ Switched Mode Power Supply	■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15 ■ “Map 3- SMPS Board” on page 9-6

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1.	Clean the paper path of any obstructions, dirt or debris. Did this correct the problem	Complete.	Go to Step 2.
2.	Use service diagnostics to test the operation of the Registration Assembly. Does the Registration Assembly operate correctly?	Go to Step 3.	Replace the Registration Assembly (page 7-41).
3.	Use service diagnostics to test the Exit Sensor. Does the sensor operate correctly?	Go to Step 4.	Replace the Exit Sensor page 7-56
4.	Replace the Fuser Assembly (page 7-54) and retest. Did this correct the problem?	Complete.	Replace the SMPS (page 7-76).

Jam At Exit (Jam 2)

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Exit Roller, PL1.3.6 ■ Paper Exit Sensor, PL1.3.76 ■ Fuser Assembly, PL1.4.1 ■ Switched Mode Power Supply, PL1.1.29.2 ■ Main Board, PL1.1.19	■ “Map 3- SMPS Board” on page 9-6 ■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15

Step	Action and Questions	Yes	No
	Is the Paper Exit Sensor or the actuator damaged or binding?	Repair or replace the actuator and/or Paper Exit Sensor (page 7-56).	Go to Step 2.
2.	Inspect the Exit Roller. Use service diagnostics to test the main drive to exit. Is the exit roller damaged or binding?	Replace the Exit Roller (page 7-44).	Go to Step 3.
3.	Visually inspect the Fuser. Is there paper wrapped around the Fuser rollers?	Remove obstruction and clean Fuser rollers.	Go to Step 4.
4.	Is the Fuser Assembly operational. Do the Fuser gears rotate when the Main motor is on?	Go to Step 5.	Replace the Fuser Assembly (page 7-54).
5.	Use the embedded diagnostics to check the Exit Roller. Are the rollers operational?	Replace Main Board (page 7-39).	Replace the SMPS (page 7-76).

Jam At Rear (Duplex Jam 1)

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Transfer Roller, PL1.1.7 ■ Duplex Exit Sensor, PL2.3.15 ■ Duplex Roller, PL2.3.4 ■ Duplex Unit, PL2.3.0 ■ Main Board, PL1.1.19	■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15

Step	Actions and Questions	Yes	No
1.	Does paper jam after reversal but before reaching the Duplex Sensor?	Go to Step 2.	Go to Step 3.
2.	Replace Transfer Roller Shaft Assembly (page 7-43). Does problem recur?	Replace Duplex Unit (page 7-37).	Complete
4.	Inspect the Duplex Unit. Is any paper wrapped around the Duplex Rollers?	Remove obstruction and clean rollers.	Go to Step 5.
5.	Are the rollers damaged or binding?	Replace the Duplex Roller (page 7-47).	Go to Step 7.
6.	Is there damage to the duplex assembly.	Replace the Duplex Unit (page 7-37).	Replace Main Board (page 7-39).

Jam At Duplex (Duplex Jam 2)

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Transfer Roller, PL1.1.7 ■ Duplex Exit Sensor, PL2.3.15 ■ Duplex Roller, PL2.3.4 ■ Main Board, PL1.1.19 ■ HVPS Board, PL1.1.29.1	■ “Sensor to Main Board Wiring Diagram” on page 9-14 ■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15 ■ “Map 4 - HVPS Board” on page 9-7

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1.	Does the paper jam after reversal but before reaching the Duplex Exit Sensor?	Replace the Transport Roller (page 7-43).	Go to Step 2.
2.	Use service diagnostics to test the Duplex Exit Sensor. Does the sensor operate correctly?	Go to Step 3.	Replace the Duplex Unit (page 7-37).
3.	Inspect the Exit and Duplex Rollers for any signs of damage or binding.	Replace the Duplex Roller (page 7-47).	Go to Step 4.
4.	Replace the Duplex Unit. Does the problem still occur?	Replace the Main Board (page 7-39).	Replace the HVPS Power Supply Board (page 7-75).

Check Cartridge, Invalid Print Cartridge, Non-Xerox Cartridge, Replace Print Cartridge

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Print Cartridge, PL1.1.34 ■ Toner Sensor Board, PL1.3.47.2 ■ Main Board, PL1.1.19	■ “Map 2- Main Board” on page 9-5 ■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15

Step	Action and Questions	Yes	No
1.	Open the top cover and ensure that the Print Cartridge is properly seated. Does the error clear after reseating the cartridge?	Complete	Go to Step 2.
2.	Check the Print Cartridge for damage. Does the cartridge contain toner and appear to be operating properly?	Go to Step 3.	Replace Print Cartridge.
3.	Reseat all harness connections to the Toner Sensor (CRUM) Board. Does the error clear?	Complete	Go to Step 4.
4.	Check continuity between the Toner Sensor (CRUM) Board and CN7 on the Main Board.	Replace the Toner Sensor Board (page 7-24).	Replace the Main Board (page 7-39).

Close Fuser Door

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Fuser Assembly, PL1.4.1 ■ Main Board, PL1.1.19 ■ Switched Mode Power Supply (SMPS), PL1.1.29.2	■ “LSU and Main Motor to Main Board Wiring Diagram” on page 9-16 ■ “Map 2- Main Board” on page 9-5 ■ “Map 3- SMPS Board” on page 9-6

Step	Action and Questions	Yes	No
1.	Visually inspect the fuser door close tab for damage. Is the tab broken?	Replace the Fuser (page 7-54) then go to Step 3.	Go to Step 2.
2.	Is the sensor and actuator on the Fuser operating correctly.	Replace the Main Board (page 7-39).	Replace the Fuser (page 7-54) then go to Step 3.
3	Is the Printer operational?	Complete	Replace the SMPS (page 7-76).

Close Top Cover

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Top Cover, PL1.4.1 ■ Main Board, PL1.1.19	■ “Map 2- Main Board” on page 9-5

Troubleshooting Procedure Table

Step	Action and Questions	Yes	No
1.	Visually inspect the top cover and the top cover actuator. Is the Top Cover or actuator damaged?	Replace the Top Cover (page 7-10).	Go to Step 2.
2.	Use diagnostics to test the Cover Open Board. Does the Cover Open board function properly?	Replace the Main Board (page 7-39).	Replace the Cover Open Board (page 7-74).

Fuser Failure, Engine Fuser Low Heat Error, or Engine Fuser Over Heat Error

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Fuser Assembly, PL1.4.1 ■ Switched Mode Power Supply, PL1.1.29.2 ■ Main Board, PL1.1.19	■ “Map 3- SMPS Board” on page 9-6 ■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15

Troubleshooting Procedure Table

Step	Action and Questions	Yes	No
1.	Does the error report Fuser Failure?	Go to Step 2.	Go to Step 3.
2.	Check the thermistor. Is the circuit open?	Replace the Fuser (page 7-54).	Replace the Main Board (page 7-39).
3.	Check the line voltages across the thermostats. Are they open?	Replace the Fuser (page 7-54).	Go to Step 4.
4.	Is the Fuser getting power?	Replace the Fuser (page 7-54).	Replace the SMPS (page 7-76). Replace the Main Board (page 7-39).

Laser Failure

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Laser Scan Unit, PL1.1.15 ■ Main Board, PL1.1.19	■ “Map 1- LSU and Fuser” on page 9-4 ■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15

Step	Actions and Questions	Yes	No
1.	Reseat the connections to the laser and visually inspect the Laser Scan Unit for damage. Did this correct the problem?	Complete	Go to Step 2.
2.	Use diagnostics to check the laser motor function. Is the Laser Scan Unit Operational?	Replace the Laser Scan Unit (page 7-70).	Replace the Main Board (page 7-39).

Output Tray is Full

Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack Map References
■ Main Board, PL1.1.19 ■ Tray Full Actuator, PL1.3.8 ■ Tray Full Sensor, PL1.3.95	■ “Sensor to Main Board Wiring Diagram” on page 9-14 ■ “Main Drive/Joint Board and Optional Tray Wiring Diagram” on page 9-15

Step	Actions and Questions	Yes	No
1.	Check the Tray Full Sensor and actuator for obvious damage. Is the actuator damaged?	Replace the actuator (page 7-45).	Go to Step 2.
2.	Use diagnostics to test the Tray Full Sensor. Does the sensor operate correctly?	Replace the Main Board (page 7-39).	Replace the Tray Full Sensor (page 7-23).

General Troubleshooting

In this chapter...

- Servicing Instructions
- Preventive Maintenance Procedure
- Control Panel Troubleshooting
- Power Supply Troubleshooting

Chapter 4

Servicing Instructions

The service flowchart is an overview of the path a service technician should take, using this manual, to service the print engine and options.

Step 1: Identify the Problem

1. Verify the problem reported and check for any error codes and write them down.
2. Print normal customer prints and service test prints and look for any of the following:
 - a. any image quality problems in the test prints.
 - b. any mechanical or electrical abnormalities present.
 - c. any unusual noise or smell coming from the printer.
3. View the fault and jam histories and look at the total print count for the printer.
4. Verify the AC input power supply is within proper specifications by measuring the voltage at the electric outlet while the printer is running.

Step 2: Inspect and Clean the Printer

1. Switch OFF printer power and disconnect the AC power cord from the wall outlet.
2. Verify the power cord is free from damage or short circuit and is connected properly.
3. Remove the Print Cartridge and protect it from light, then inspect the printer interior and remove any foreign matter, obstructions, or loose toner.
4. Inspect the interior of the printer for damaged wires, loose connections, toner leakage, and damaged or obviously worn parts.
5. Do not use solvents or chemical cleaners to clean the printer interior.
6. Do not use any type of oil or lubricant on printer parts.
7. Use only an approved toner vacuum.
8. Clean all rubber rollers with a lint-free cloth, dampened slightly with cold water.
9. Replace any service items that have reached their 150,000 end-of-life.

Step 3: Find the Cause of the Problem

1. Use the Repair Analysis Procedures to find the cause of the problem.
2. Use Diagnostics to check printer and optional components.
3. Use the Wiring Diagrams to locate test points.
4. Take voltage readings at various test points as instructed in the appropriate troubleshooting procedure.

Step 4: Correct the Problem

1. Use the Parts List to locate a part number.
2. Use the Repair and Adjustments Procedures to replace the part.

Step 5: Final Checkout

1. Test the printer to be sure you have corrected the initial problem and there are no additional problems present.
-

Preventive Maintenance Procedure

Perform the following procedures whenever you check, service, or repair a printer. Cleaning the printer, as outlined in the following steps, assures proper operation of the printer and reduces the probability of having to service the printer in the future.

The frequency of use and the type of paper a customer prints on determines how critical and how often cleaning the machine is necessary. Record the number of sheets printed.

Recommended Tools

- Toner vacuum cleaner
- Clean water
- Clean, dry, lint-free cloth
- Black light protective bag

Control Panel Troubleshooting

The following procedures cover Control Panel and Start-up problems with the printer when no specific error code or Control Panel message is displayed.

No Control Panel Display after Power Is Turned ON

1. Verify that power cord is securely plugged into both the printer and the grounded, three prong AC outlet with the appropriate power available.
2. Ensure that all covers are securely closed.
3. Verify the Top Cover, Print Cartridge, and Fuser interlocks are functional.
4. Verify voltages at the Main Board. See "Taking Voltage Measurements" on page 4-5.
5. Replace the Power Supply Board.
6. Replace the Main Board.
7. Replace the Control Panel.

Control Panel LED is On, Control Panel Display Is Blank

1. Remove and reseal the Control Panel wiring to the Main Board.
2. Replace the Control Panel.
3. Replace the Main Board.

Power Supply Troubleshooting

1. Check the voltage at the AC wall outlet, there should be approximately 110 VAC (or 220 VAC if the printer is a 220 V model) at the AC wall outlet?
2. Check the power cord for defects, damage, or a loose connection.
3. Check the AC switch harness for continuity.
4. Verify the Power Supply is operating correctly.

Taking Voltage Measurements

To locate connectors or test points, refer to "Printer Plug/Jack/Connector Designators" on page 9-3 for more information.

Unless otherwise specified, the following voltage tolerances are used within this section.

Stated	Measured
+3.3 VDC	+3.135 to +3.465 VDC
+5.0 VDC	+4.75 to +5.25 VDC
+24.0 VDC	+21.6 to +26.4 VDC
0.0 VDC	Less than +0.5 VDC

Print-Quality Troubleshooting

In this chapter...

- Print-Quality Problems Overview
- Repeating Defects
- Control Panel (Internal) Test Print
- Image-Quality Troubleshooting

Chapter 5

Print-Quality Problems Overview

Image-quality defects can be attributed to printer components, consumables, media, internal software, external software applications, and environmental conditions. To successfully troubleshoot image-quality problems, as many variables as possible must be eliminated.

The following guidelines should be used before troubleshooting an image-quality problem:

- Use an unopened ream of approved media for evaluating image-quality problems

See the approved media list, “Media and Tray Specifications” on page 1-10, for media that has been tested and approved for use with the Phaser 3600 Laser Printer.

- Print a test page to see if the image-quality problem still exists. See Test 8 in the “Diagnostic Test Menu Map” on page 3-5.
- When analyzing a image-quality defect, first determine if the defect is repeating or random. Repeating defects can often be associated with a particular component.
- Inspect the surfaces of all rollers in the paper path for obvious defects.

Repeating Defects

Some image-quality problems can be associated with specific assemblies, the most common problems and the associated assemblies are listed below. Also, see the specific image-quality troubleshooting procedure for more information.

Print Cartridge

- Streaks
- Fine Lines
- Banding in Process Direction
- Uneven Density
- Voids
- Repeating Defects

Transfer Roller

- Toner on the back side of the printed page (simplex mode)
- Light Prints
- Repeating Defects
- Spots on Image

Fuser

- Hot or Cold Offsetting
- Repeating Defects
- Voids

Repeating Defects Measurement Table

Repeating Defects

Assembly	Component	Distance between Defects	Typical Defect
Print Cartridge	Developer Roller	50 mm (1.97 in.)	Horizontal image band
	Drum	94 mm (3.70 in.)	White spots on black image or black spots on white
	Drum Charge Rollers	38 mm (1.50 in.)	Black spots
	Supply Roller	42 mm (1.65 in.)	Light or dark horizontal image bands
Transfer Roller	Transfer Roller	56 mm (2.20 in.)	Image ghost
Fuser Assembly	Heat Roller	126 mm (4.96 in.)	Black spots and image ghost
	Pressure Roller	126 mm (4.96 in.)	Black spots on back

Control Panel (Internal) Test Print

A test print is available to aid in determining the quality of output from the printer and to assist in troubleshooting image-quality problem (see Test 8 in the “Diagnostic Test Menu Map” on page 3-5). Each area of the test print is used for a image-quality parameter. The following pages explain each of the areas and the image-quality parameters. Follow these guidelines when generating the test print:

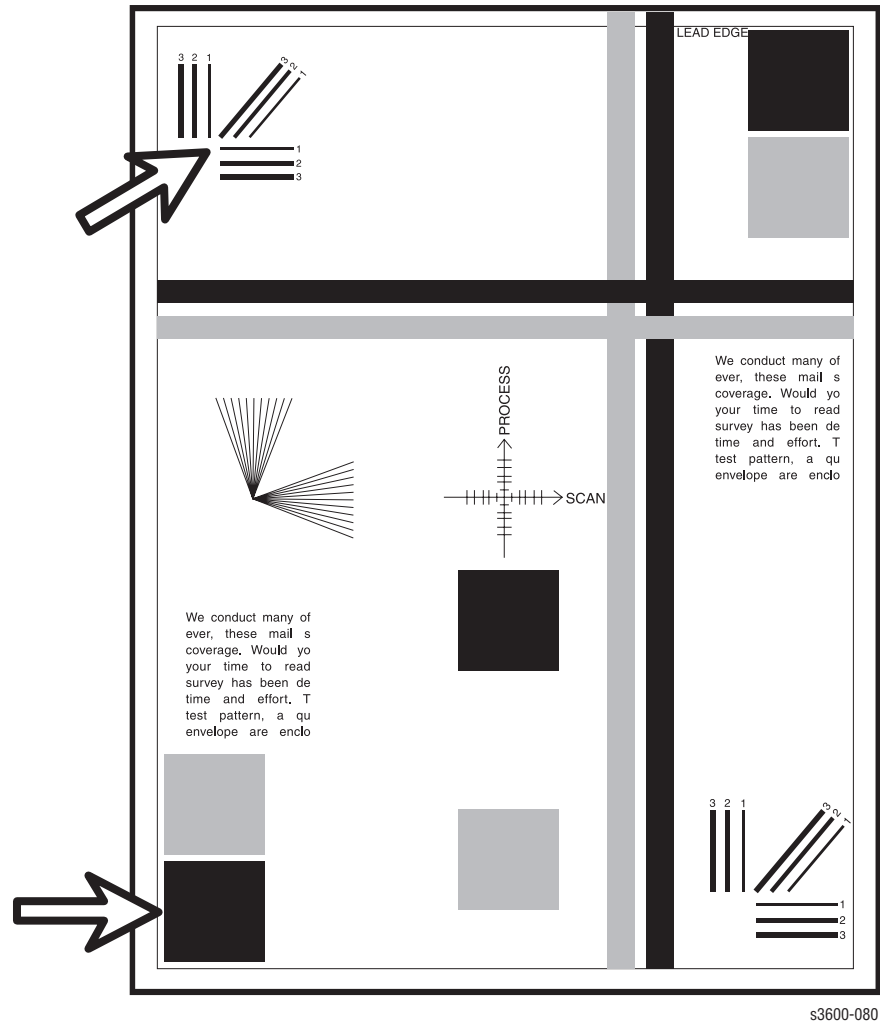
- Use supported paper from a fresh, unopened ream
- Print five copies of the test print.
- Discard the first two prints and retain the remaining prints for image-quality analysis.

Deletions

Inspect the test print for the presence of deletions or unprinted spots. If these are found, see “Repeating Bands, Lines, Marks, or Spots” on page 5-22.

Fusing

Rub the image three times at the indicated points with a soft cloth or tissue. The toner should not lift off of the surface of the print. If the image smears or toner lifts off the image onto the cloth, see “Unfused Image” on page 5-24.

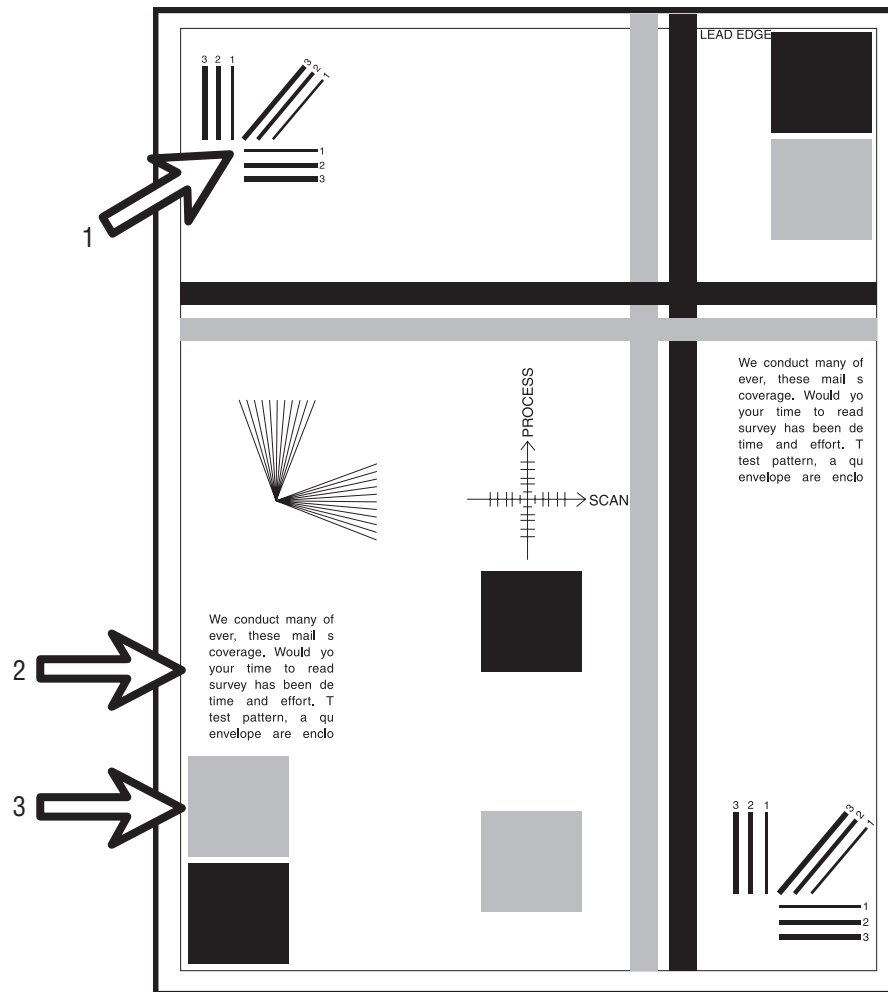


Resolution

Observe the three resolution check points on several test prints.

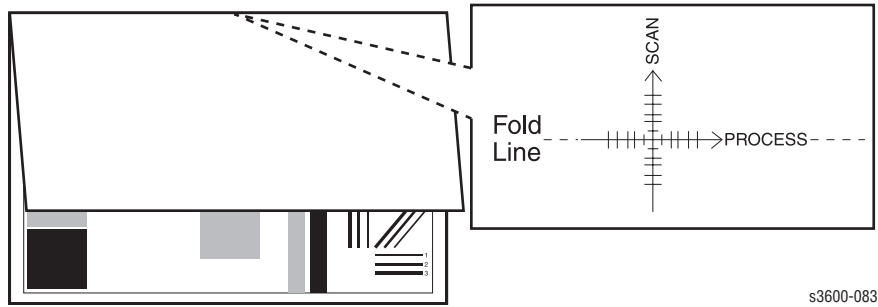
- Ensure that the 2 pixel horizontal, vertical, and diagonal lines are clear and continuous. The diagonal lines might appear to be narrower than the others.
- Characters in the text paragraphs should be uniform and equal in density.
- The halftone patches should be uniform in appearance.

If the image does not meet the criteria, see “Light or Undertone Print” on page 5-11 or “Background Contamination” on page 5-15.

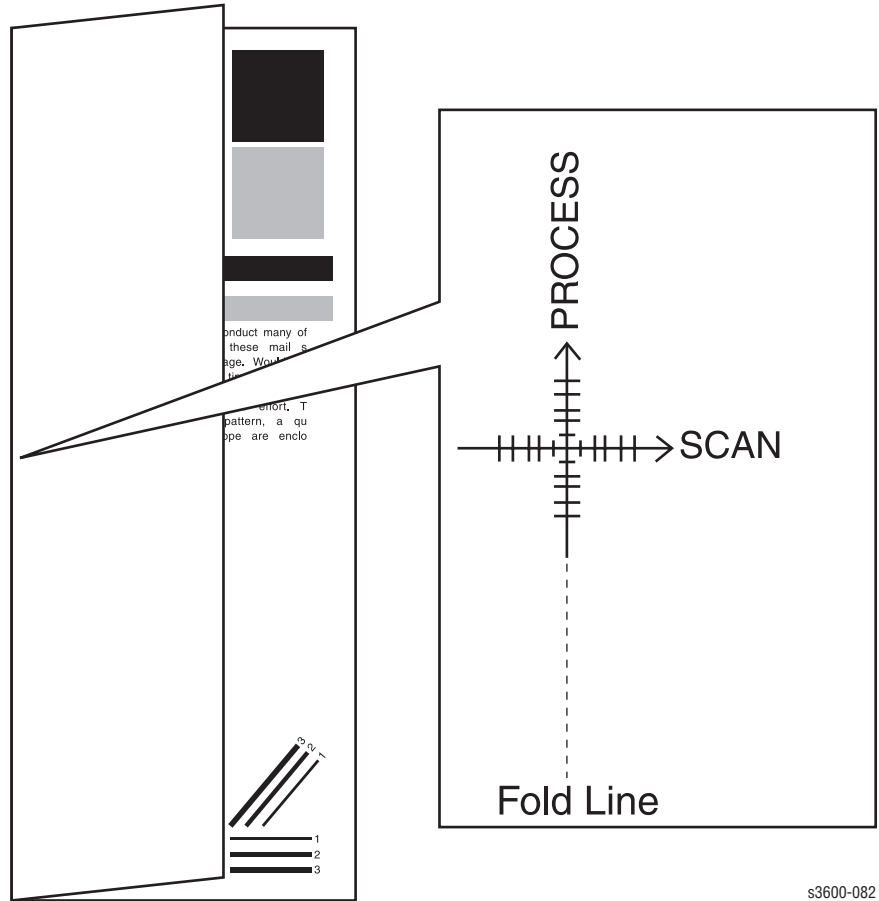


Registration and Skew

Fold the paper from two consecutive test prints in half (first side edge to side edge and then top edge to bottom edge). Observe the fold lines with reference to the crosshairs of the printed target. The fold line should be aligned perpendicular to the target crosshairs and should be within ± 2.0 mm of the target crosshairs (each line on the target is 1.0 mm). If the image does not meet the criteria, see "Skew" on page 5-25.



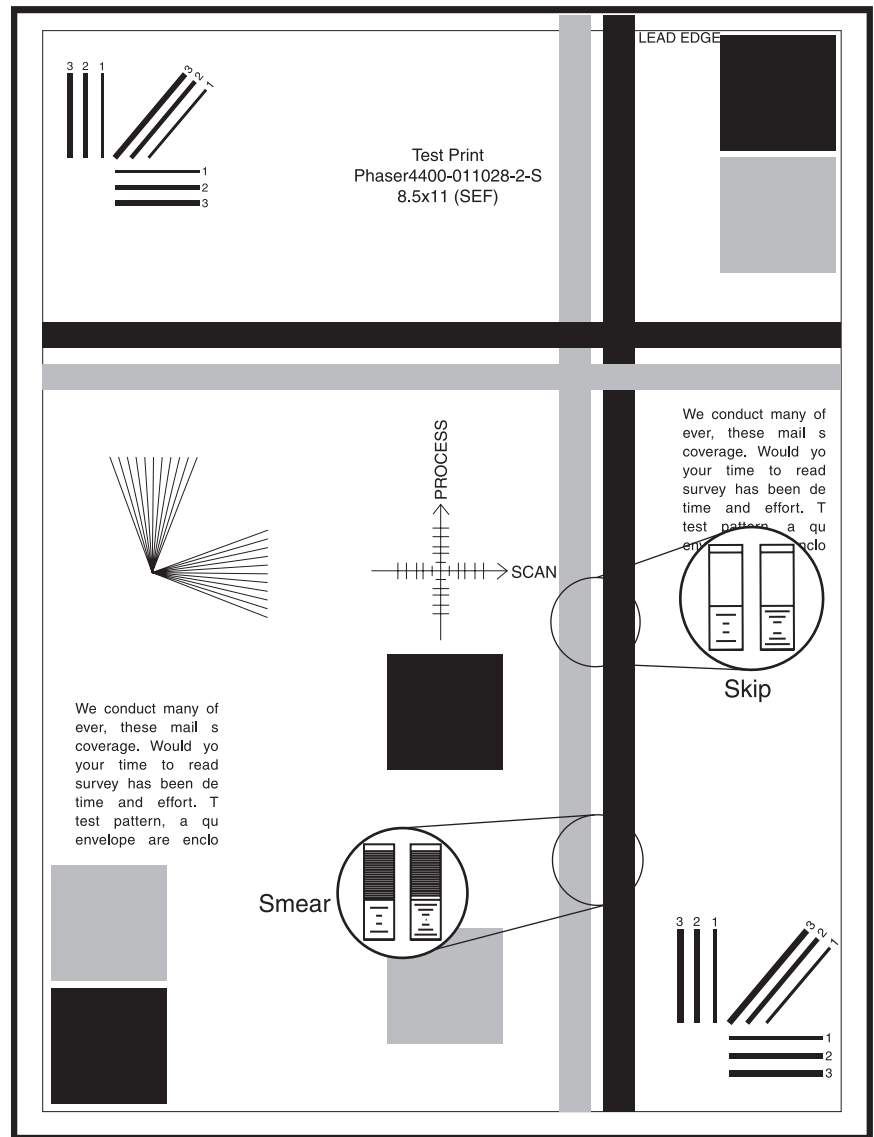
s3600-083



s3600-082

Skips or Smears

Check the test print in the indicated areas for loss, stretching, or distortion of the image in bands across the process direction that make the image seem distorted, blurred, or compressed. If these faults are observed, see “Horizontal Band, Voids, or Streaks” on page 5-27.



s3600-084

Image-Quality Troubleshooting

The following table provides examples and descriptions, possible causes, and the solutions for troubleshooting various image or printing defects that may be observed in the Phaser 3600 Laser Printer.

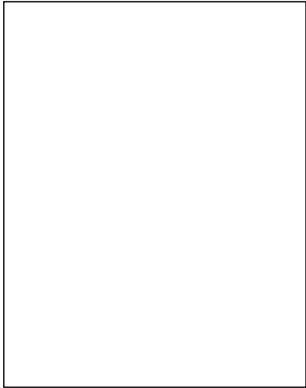
Blank Print (No Print)

The entire image area is blank.

Initial Actions

- Check the paper transfer path.
- Ensure the transfer path is free of debris.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Transfer Roller, PL1.1.7 ■ Registration Assembly, PL1.1.12 ■ Laser Scan Unit, PL1.1.15 ■ Print Cartridge, PL1.1.34 ■ HVPS, PL1.1.29 ■ Main Board, PL1.1.19	 Blank Print

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a Demo page. Is the entire area still blank?	Go to step 3.	Go to step 2.
2	Check the paper condition. Is the paper dry, a recommended type, and loaded in the correct position?	Go to step 3.	Replace the paper.
3	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 4.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
4	Check the Registration Assembly. Is there any damage to the Registration Assembly?	Replace the Registration Assembly (page 7-41).	Go to step 5.
5	Check the Transfer Roller for correct installation. Reseat the Transfer Roller (page 7-43). Does the image quality improve?	Complete.	Go to step 6.
6	Check the laser beam path. Is there any debris between the Laser Scan Unit and Transfer Roller?	Remove any debris.	Go to step 7.
7	Check the wiring harness connector between the Laser Scan Unit and the Main Board. Are the connectors securely connected?	Go to step 8.	Reconnect the connectors, then go to step 8.
8	Check the Main Board for correct installation. Reseat the Main Board (page 7-39). Does the image quality improve?	Complete.	Go to step 9.
9	Check the HVPS for correct installation. Reseat the HVPS Board (page 7-75). Does the image quality improve?	Complete.	Go to step 10.
10	Replace the Laser Scan Unit (page 7-70). Does the image quality improve?	Complete.	Replace the Main Board (page 7-39).

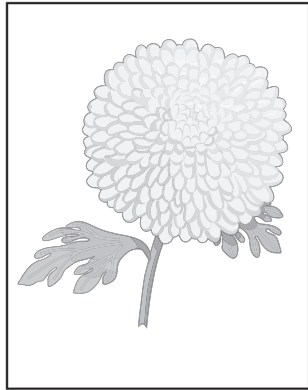
Light or Undertone Print

The image density is too light in all colors.

Initial Actions

- Check the paper path for any debris.
- Check the Control Panel settings for proper print settings.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Transfer Roller, PL1.1.7 ■ Laser Scan Unit, PL1.1.15 ■ Print Cartridge, PL1.1.34 ■ HVPS, PL1.1.29 ■ Main Board, PL1.1.19	 Light or Undertone Print

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Check the paper condition. Is the paper dry, recommended type, and loaded in the correct position?	Go to step 4.	Replace the paper.
4	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 5.
5	Check the Transfer Roller for correct installation. Reseat the Transfer Roller (page 7-43). Does the image quality improve?	Complete.	Go to step 6.
6	Replace the Main Board (page 7-39). Does the image quality improve?	Complete.	Go to Step 7.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
7	Check the laser beam path. Is there any debris between the Laser Scan Unit and Transfer Roller?	Remove the debris, then go to step 5.	Go to step 8.
8	Replace the Laser Scan Unit (page 7-70). Does the image quality improve?	Complete.	Go to step 9.
9	Check the HVPS for correct installation. Reseat the HVPS Board. Does the image quality improve?	Complete.	Replace the HVPS Board (page 7-39).

Black Print

The entire image is black.

Initial Actions

- Check the paper transfer path.
- Ensure there is no debris on the transfer path.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Transfer Roller, PL1.1.7 ■ Laser Scan Unit, PL1.1.15 ■ Print Cartridge, PL1.1.34 ■ HVPS, PL1.1.29 ■ Main Board, PL1.1.19	 Black Print

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Check the paper condition. Is the paper dry, recommended type, and loaded in the correct position?	Go to step 4.	Replace the paper.
4	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 5.
5	Check the Transfer Roller for correct installation. Reseat the Transfer Roller (page 7-43). Does the image quality improve?	Complete.	Go to step 6.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
6	Check the wiring and connectors between the Laser Scan Unit and the Main Board. Are the connectors securely connected?	Go to step 7.	Reconnect the connectors, then go to step 7.
7	Replace the Laser Scan Unit (page 7-70). Does the image quality improve?	Complete.	Go to step 8.
8	Check the Main Board for correct installation. Reseat the Main Board (page 7-39). Does the image quality improve?	Complete.	Go to step 9.
9	Check the HVPS for correct installation. Reseat the HVPS Board (page 7-75). Does the image quality improve?	Complete.	Go to step 10.
10	Replace the Print Cartridge. Does the image quality improve?	Complete.	Replace the Main Board (page 7-39).

Background Contamination

There is toner contamination on all or most of the page. The contamination appears as a very light gray dusting.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.
- Clean the Pre-transfer Lamp (PTL).

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Transfer Roller, PL1.1.7 ■ Registration Assembly, PL1.1.12 ■ Print Cartridge, PL1.1.34 ■ HVPS, PL1.1.29	 Background Contamination

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Is the original document normal?	Go to step 4.	Replace the original document.
4	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 5.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
5	Check the Transfer Roller. Are there any damages to the Transfer Roller?	Replace the Transfer Roller (page 7-43).	Go to step 6.
6	Check the Registration Assembly. Is there any damage to the Registration Assembly?	Replace the Registration Assembly (page 7-41).	Go to step 7.
7	Check the HVPS for correct installation. Reseat the HVPS (page 7-75). Does the image quality improve?	Complete.	Replace the Printer Cartridge.

Residual Image or Ghosting

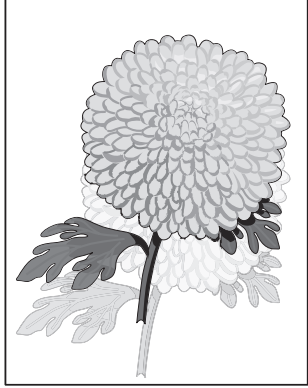
There are faint, ghostly images appearing on the page. The images may be either from a previous page or from the page currently being printed.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.

- Verify the paper is within the printer specifications (refer to page 1-10).

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Transfer Roller, PL1.1.7 ■ Registration Assembly, PL1.1.12 ■ Print Cartridge, PL1.1.34 ■ Fuser, PL1.4.1 ■ Main Board, PL1.1.19	 Residual Image/Ghosting



Warning

Ensure to wait for the Fuser to cool down before starting the procedure.

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the printing usage. Did the user print the same image at a large volume?	Go to step 2.	Go to step 3.
2	Check the Transfer Roller. Are there any damages to the Transfer Roller surface?	Replace the Transfer Roller (page 7-43).	Go to step 3.
3	Check the Registration Assembly. Is there any damage to the Registration Assembly?	Replace the Registration Assembly (page 7-41).	Go to step 4.
4	Check the Print Cartridge for correct installation. Reseat the Print Cartridge. Does the image quality improve?	Complete.	Go to step 5.
5	Replace the Print Cartridge. Does the image quality improve?	Complete.	Go to step 6.
6	Replace the Fuser (page 7-54). Does the image quality improve?	Complete.	Replace the Main Board (page 7-39)

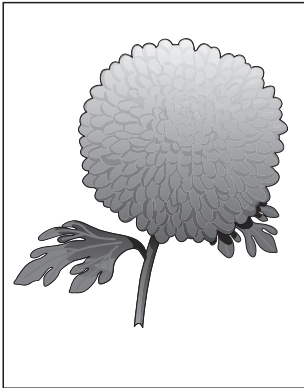
Faded or Missing Image

Areas of the image are extremely light or missing in limited areas on the paper.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Transfer Roller, PL1.1.7 ■ Registration Assembly, PL1.1.12 ■ Print Cartridge, PL1.1.34	 Color Uneven or Wrong (Process Direction)

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Is the original document normal?	Go to step 4.	Replace the original document.
4	Check the paper condition. Is the paper dry, recommended type, and loaded in the correct position?	Go to step 5.	Replace the paper.
5	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 6.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
6	Check the Registration Assembly. Is there any damage to the Registration Assembly?	Replace the Registration Assembly (page 7-41).	Go to step 7.
7	Check the Transfer Roller for correct installation. Reseat the Transfer Roller (page 7-43). Does the image quality improve?	Complete.	Replace the Transfer Unit (page 7-43).

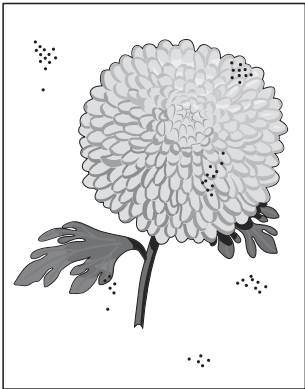
Random Spots

Spots of toner are randomly scattered across the page.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Transfer Roller, PL1.1.7 ■ Print Cartridge, PL1.1.34 ■ Fuser, PL1.4.1	 Random Spots



Warning

Ensure to wait for the Fuser to cool down before starting the procedure.

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Check for any debris on the document glass and the CVT window. Are there any debris?	Remove the debris.	Go to step 4.
4	Check for spot's regular intervals. Are there any spots on the page?	Go to step 5.	Complete.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
5	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 6.
6	Check the Transfer Roller for correct installation. Reseat the Transfer Roller (page 7-43). Does the image quality improve?	Complete.	Go to step 7.
7	Check the Fuser for correct installation. Reseat the Fuser. Does the image quality improve?	Complete.	Replace the Fuser (page 7-54).

Repeating Bands, Lines, Marks, or Spots

Recurring lines, marks, or spots appear on the page.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Registration Assembly, PL1.1.12 ■ Transfer Roller, PL1.1.7 ■ Laser Scan Unit, PL1.1.15 ■ Print Cartridge, PL1.1.34	 Repeating Defects



Warning

Ensure to wait for the Fuser to cool down before starting the procedure.

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Check the document path. Is there any debris on the document path?	Remove the debris.	Go to step 4.
4	Check for band or spot's regular intervals. Are there any bands or spots on the page?	Refer to Repeating defects info on page page 5-3.	Go to step 5.
5	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 6.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
6	Check the paper condition. Is the paper dry, recommended type, and loaded in the correct position?	Go to step 7.	Replace the paper.
7	Check the Transfer Roller. Are there any damages on the roller surface?	Replace the Transfer Roller (page 7-43).	Go to step 8.
8	Check the Registration Assembly for correct installation. Reseat the assembly (page 7-41). Does the image quality improve?	Complete.	Go to step 9.
9	Check for debris in the laser beam path between the Laser Scan Unit and the Registration Assembly. Is there any debris?	Remove the debris.	Go to step 10.
10	Does the image quality improve?	Complete.	Replace the Laser Scan Unit (page 7-70).

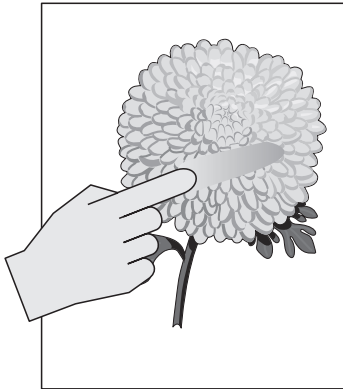
Unfused Image

The toner image is not completely fused to the paper. The image easily rubs off.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Print Cartridge, PL1.1.34 ■ Fuser Assembly, PL1.4.1	 Unfused Image



Warning

Ensure to wait for the Fuser to cool down before starting the procedure.

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 2.	Complete.
2	Verify the media type selection.	Go to step 3.	Select the correct media.
3	Check the paper condition. Is the paper dry, recommended type, and loaded in the correct position?	Go to step 4.	Replace the paper.
4	Check the Print Cartridge for damages. Is the Print Cartridge damaged?	Go to step 5.	Replace the Print Cartridge.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
5	Check the Fuser for correct installation. Reseat the Fuser (page 7-54). Does the image quality improve?	Complete.	Replace the Fuser (page 7-54).

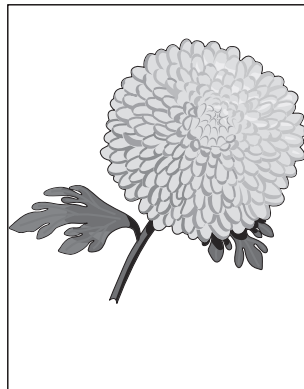
Skew

The printed image is not parallel with both sides of the paper.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.

Troubleshooting Reference Table

Applicable Notes	Example Print
■ Retard Assembly, PL1.3.49 ■ Tray 1 (MPT) Assembly, PL1.2.35 ■ Separator Pad Assembly, PL1.3.4 ■ Feed2 Idle Unit, PL1.3.50 ■ Registration Assembly, PL1.1.12 ■ Duplex Unit, PL2.3.0	 Skew 2

Troubleshooting Procedure Table

Step	Action and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Check the paper condition. Is the paper dry, recommended type, and loaded in the correct position?	Go to step 4.	Replace the paper.

Troubleshooting Procedure Table (continued)

Step	Action and Questions	Yes	No
4	Check the Print Cartridge for correct installation. Reseat the Print Cartridge. Does the error still occur?	Go to step 5.	Complete.
5	Check the Separator Pad Assembly. Is there damage or debris on the Separator Pad?	Remove the debris or replace the Separator Pad Assembly (page 7-20).	Go to step 6.
6	Check for a skewed tray. Is the skewed paper fed from Tray 1 (MPT)?	reseat the paper and go to step 7.	Go to step 7.
7	Check the Tray 1 (MPT) Side Guides. Reset the Paper Guides. Does the error still occur?	Go to step 8.	Complete.
8	Replace the Tray 1 (MPT) Feed Roller (page 7-14). Does the error still occur?	Go to step 9.	Complete.
9	Check the Registration Assembly and Transfer Roller for correct installation. Reseat the Transfer Roller (page 7-43). Does the error still occur?	Replace the Registration assembly (page 7-41), then go to step 10.	Complete.
10	Check the skewed mode through the Duplex Unit. Is the skewed paper fed the from the Duplex?	Go to step 11.	Go to step 12.
11	Check the Duplex Unit for correct installation. Reseat the Duplex Roller (page 7-47). Does the error still occur?	Go to step 12.	Complete.
12	Check additional paper trays for correct installation. Reseat the trays. Does the error still occur?	Go to step 13.	Complete.
13	Replace the Tray 2 Feed Roller (page 7-30). Does the error still occur?	Replace the Retard Assembly (page 7-19).	Complete.

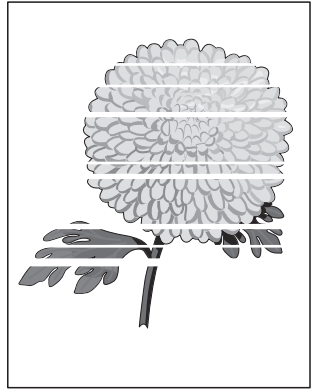
Horizontal Band, Voids, or Streaks

Areas of the image are extremely light or missing entirely. The missing areas form wide bands covering a wide area horizontally and perpendicular to the paper feed direction.

Initial Actions

- Check the paper transfer path.
- Ensure there are no debris on the transfer path.

Troubleshooting Reference Table

Applicable Parts	Example Print
■ Registration Assembly, PL1.1.12 ■ Transfer Roller, PL1.1.7 ■ Laser Scan Unit, PL1.1.15 ■ Print Cartridge, PL1.1.34	 Horizontal Band, Void, or Streaks

Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Print a demo page. Does the error still occur when printing?	Go to step 3.	Go to step 2.
2	Print a customer application page. Does the error still occur?	Go to step 3.	Complete.
3	Check the document path. Are there any debris on the paper path?	Remove the debris.	Go to step 4.
4	Check for band's regular intervals Are there any bands on the page?	Refer to page 5-4.	Go to step 5.
5	Check the Print Cartridge for damage. Is the Print Cartridge damaged?	Replace the Print Cartridge.	Go to step 6.
6	Check the paper condition. Is the paper dry, recommended type, and loaded in the correct position?	Go to step 7.	Replace the paper.

Troubleshooting Procedure Table (continued)

Step	Actions and Questions	Yes	No
7	Check the Registration Assembly. Is there any damage to the Registration Assembly?	Replace the Registration Assembly (page 7-41).	Go to step 8.
8	Check the Transfer Roller for correct installation. Reseat the Transfer Roller (page 7-43). Does the image quality improve?	Complete.	Go to step 9.
9	Check for debris in the laser beam path between the Laser Scan Unit and the Registration Assembly. Is there any debris?	Remove the debris.	Go to step 10.
10	Does the image quality improve?	Complete.	Replace the Laser Scan Unit (page 7-70).

Cleaning and Maintenance

In this chapter...

- Service Maintenance Procedure
- General Cleaning

Chapter 6

Service Maintenance Procedure

Perform the following procedures whenever you check, service, or repair a printer. Cleaning the printer, as outlined in the following steps, assures proper operation of the printer and reduces the probability of having to service the printer in the future.

The frequency of use, Average Monthly Print Volume (AMPV), type of media printed on, and operating environment are factors in determining how critical cleaning the machine is and how often it is necessary. Record the number of sheets printed.

Recommended Tools

- Toner vacuum cleaner
- Clean water
- Clean, dry, lint-free cloth
- Black light-protective bag

General Cleaning

Perform the following general cleaning steps as indicated by the printer's operating environment.



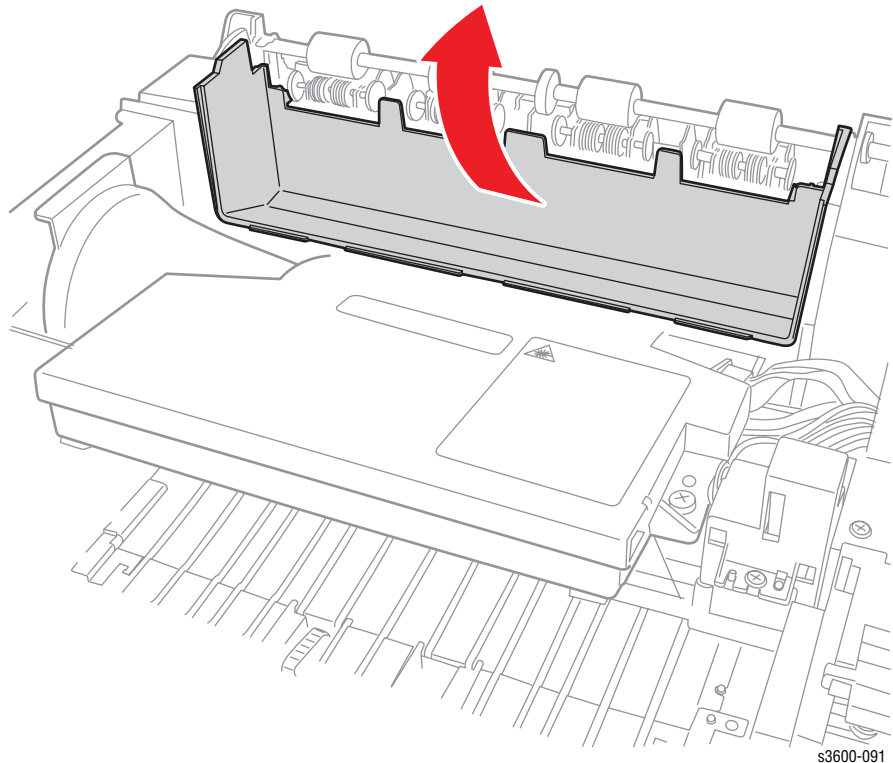
Caution

Never apply alcohol or other chemicals to any parts of the printer. Never use a damp cloth to clean up toner. If you remove the Print Cartridges, place them in a light-protective bag or otherwise protect them as exposure to light can quickly degrade performance and result in early failure.

1. Record number of sheets printed.
2. Print several sheets of paper to check for problems or defects.
3. Turn the printer power Off and disconnect the power cord.
4. Remove the Transfer Unit, Fuser, Print Cartridges, Duplex Unit (if installed), and Side Covers before cleaning.
5. Remove the Rear Cover and clean the Rear Cover Fan to remove excess dust.
6. Remove the Top Cover and clean the Main Fan to remove excess dust.
7. Ensure that all cover vents are clean and free of obstructions.
8. Remove any debris or foreign objects from the Fuser, Transfer Unit, Print Cartridges, Duplex Unit, and inside of the printer.
9. Remove and clean the paper trays.
10. Clean all rubber rollers with a lint-free cloth slightly dampened with cold water.

Cleaning the Laser Scan Unit

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the cover-frame exit cover to expose the Laser Scan Unit window.
5. Use a dry lint-free cloth to wipe any dust off of the window.



Cleaning the Print Cartridge



Caution

Do not expose the Print Cartridge to light for more than 5 minutes. Cover the Print Cartridge to avoid damage.

1. Open the Top Cover.
2. Remove the Print Cartridge.
3. Use a dry lint-free cloth to wipe any dust and/or spilled toner from the Print Cartridge area. Remove any paper debris from the area.

Control Panel Maintenance

Cleaning the Drum

To clean the Drum from the Control Panel:

1. Turn on the printer and wait for the “Ready” display on the Control Panel.
2. Press **Menu** > **System Setup** > **Maintenance** > **Clean Drum**.
3. Select Print **Yes**.

Note

A test page will print notifying you that the Clean Drum cycle has successfully completed.

Cleaning the Fuser

To clean the Fuser from the Control Panel:

1. Turn on the printer and wait for the “Ready” display on the Control Panel.
2. Press **Menu** > **System Setup** > **Maintenance** > **Clean Fuser**.
3. Select Print **Yes**.

Note

A test page will print notifying you that the Clean Fuser cycle has successfully completed.

Service Parts Disassembly

In this chapter...

- Service Overview
- General Notes on Disassembly
- Covers and Control Panel
- Tray 1 (MPT) Assembly
- Tray 2 (PL2.1.0) and Optional Tray 3 (PL2.2.0) Replacement
- Duplex Unit (PL2.3.0)
- Main Drive and Registration Assemblies
- Frame Assembly
- Fuser Assembly (1.3.80)
- Laser Scan Unit (PL 1.1.15)
- Power Supplies

Chapter 7

Service Overview

This section contains the removal and replacement procedures for selected parts of the printer according to the Service Parts List. Not all Replacement Procedures are included in this Service Manual. In most cases, to reinstall a part, simply reverse the Removal Procedure shown. In some instances, the Replacement Procedure is included, because it may contain special steps. For specific assemblies and parts, see "Parts List" on page 8-1.

General Notes on Disassembly

Preparation

Before you begin any Removal and Replacement Procedure:

1. Switch OFF the printer power and disconnect the power cord from the wall outlet.
2. Remove the Print Cartridge and protect it from exposure to light by covering it with a light proof bag or by placing it in a light-tight container.
3. Disconnect all computer interface cables from the printer.
4. Wear an electrostatic discharge wrist strap to help prevent damage to the sensitive electronics of the printer circuit boards.



Warning

Remove the Fuser Assembly or wait at least 5 minutes after you have switched OFF printer power for the Fuser to cool before you work on or around the Fuser.

5. Tray 2 can interfere with the removal of many printer parts. Remove Tray 2 before further disassembly.

Note

Part names that appear in the disassembly procedures may not exactly match the names that appear in the Parts List. For example, a part called the Registration Transport Assembly may appear on the Parts List as Assembly, Transport Regi.

**Caution**

Many parts are secured by plastic tabs. DO NOT over flex or force these parts. Do not over torque the screws threaded into plastic parts.

Always use the correct type and size screw. Using the wrong screw can damage tapped holes. Do not use excessive force to either remove or install either a screw or a printer part.

A spring hook is required for removal and replacement of the various springs in the printer. Springs can be damaged using pliers or other tools for this task.

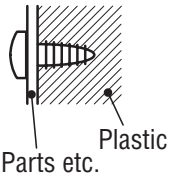
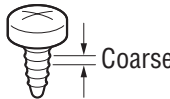
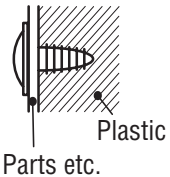
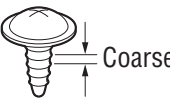
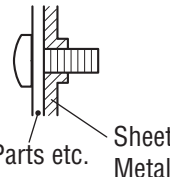
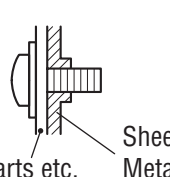
**Warning**

Unplug the AC power cord from the wall outlet before removing any printer part.

Fastener Types

The following table lists the primary types of Posi-Drive screws used to assemble the printer. The procedures provide dimensional specifications for screws being removed.

Posi-Drive Screw Types used in the Printer

Type	Application	Shape	Characteristics
Self-tapping, plastic			1. Silver colored. 2. Screw thread is coarse compared to metal screw. 3. Screw tip is thin.
Self-tapping, plastic, with flange			1. Black colored. 2. Screw thread is coarse compared to metal screw. 3. Screw has a flange. 4. Screw tip is thin.
Sheet Metal, silver			1. Silver colored. 2. Diameter is uniform.
Sheet Metal, with flange			1. Silver colored. 2. Screw has a flange. 3. Diameter is uniform.



Caution

Use care when installing self-tapping screws in plastic. To properly start the screw in plastic, turn the screw counter-clockwise in the hole until you feel the screw engage the threads, then tighten as usual. Failure to properly align or over tighten the screw can result in damage to previously tapped threads.

Always use the correct type and size screw. Using the wrong screw can damage tapped holes. Do not use excessive force to remove or install either a screw or a printer part.

Note

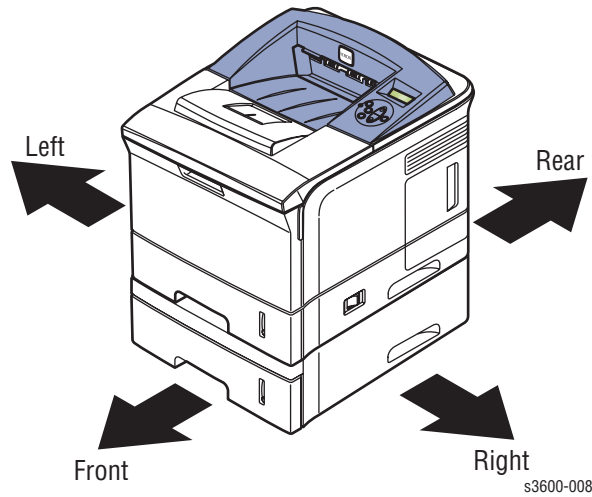
Unless specifically noted in the text, all screws listed in the disassembly chapter for the Phaser 3600 are 10mm self tapping screws.

Notations in the Disassembly Text

- The notation “(item X)” points to a numbered callout in the illustration corresponding to the disassembly procedure being performed.
- The notation “PLX.X.X” indicates that this component is listed in the Parts List.
- Bold arrows in an illustration show direction of movement when removing or replacing a component.

Standard Orientation of the Printer

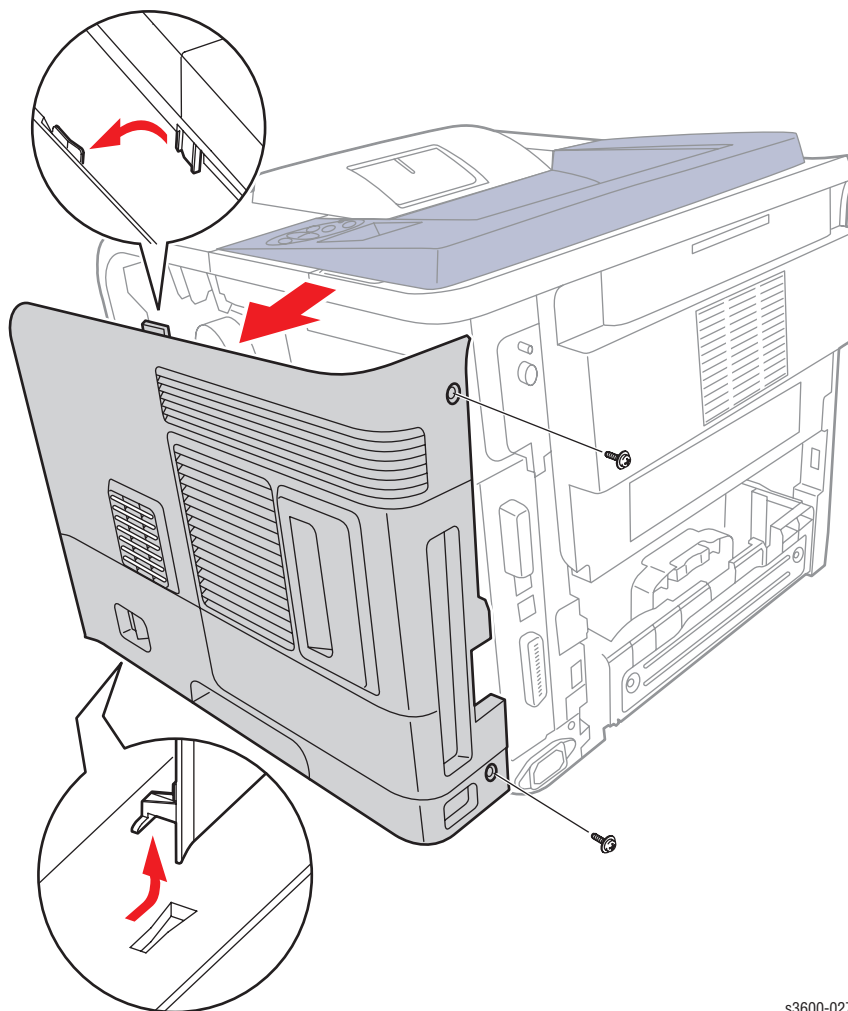
When needed, the orientation of the printer is called out in the procedure for locating printer parts. Refer to the printer orientation graphic for locating the right, left, front and back sides of the printer.



Covers and Control Panel

Right Cover (PL 1.2.3)

1. Turn OFF the Printer Power Switch and unplug the power cord.
2. Remove the Duplex Unit (page 7-37).
3. Remove the 2 rear screws securing the Right Cover to the rear of the printer.



s3600-027

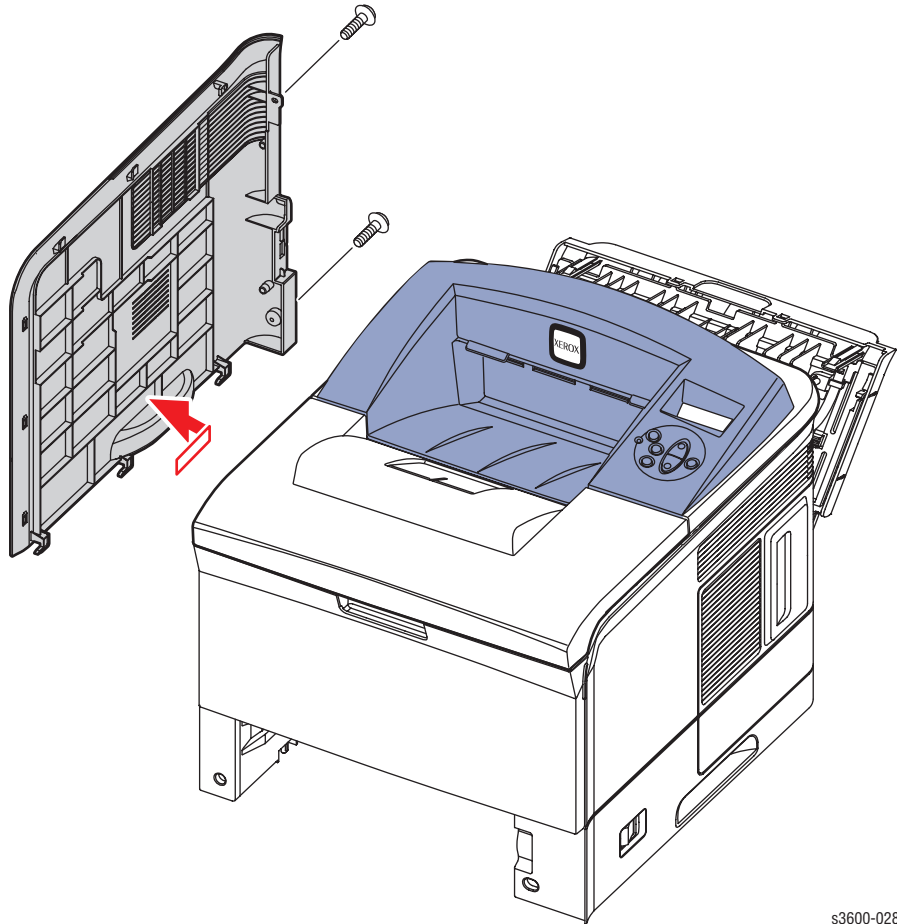
4. Remove the right side access cover.
5. To remove from the printer, slide the Right Cover towards the rear of the printer to release the 3 tabs on the top of the cover and 3 hooks on the bottom of the cover.

Replacement Note

When reinstalling the cover, insert the 3 bottom hooks first, then slide the cover from the rear to the front. Make sure the cover is securely behind the 3 tabs.

Left Cover (PL 1.2.2)

1. Disconnect the power cord.
2. Remove the Duplex Unit (page 7-37).
3. Open the Rear Cover for access to the top rear screw.
4. Remove the 2 rear screws of the cover.
5. Slide the left cover towards the rear of the printer to release the 3 tabs on the top and 3 bottom hooks securing it to the printer.



s3600-028

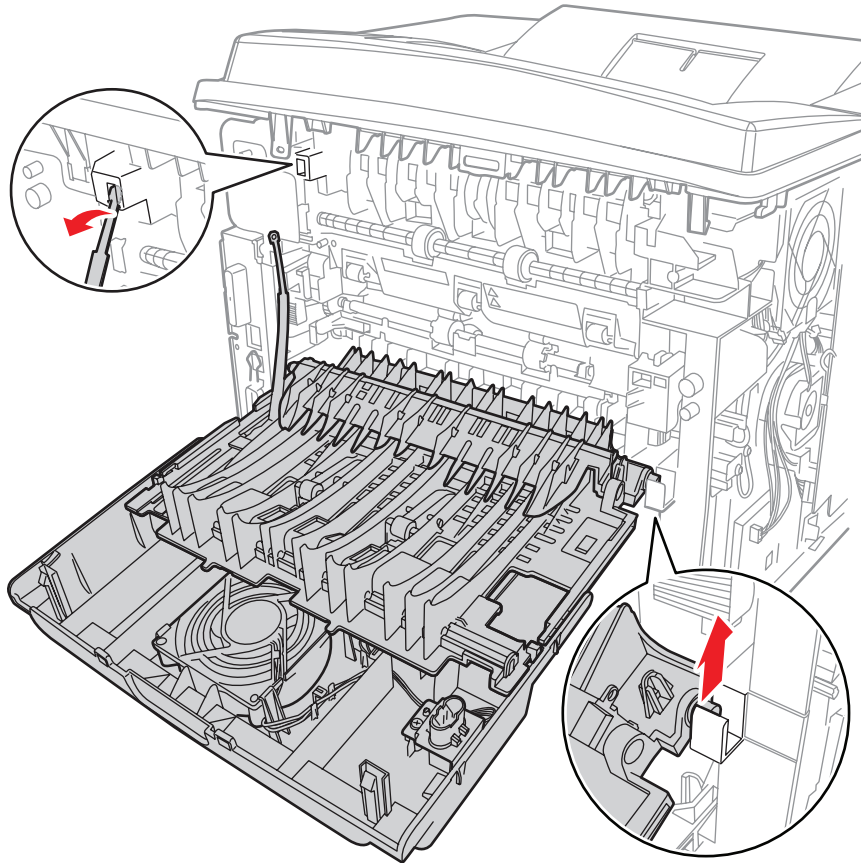
Replacement Note

Before reinstalling the cover, remove the duplex unit.

When reinstalling the cover, insert the 3 bottom hooks first, then slide the cover from the rear to the front. Make sure the cover is securely behind the 3 tabs.

Rear Cover (PL 1.2.6)

1. Open the Rear Cover.
2. Release the Restraining Strap (tie stopper).

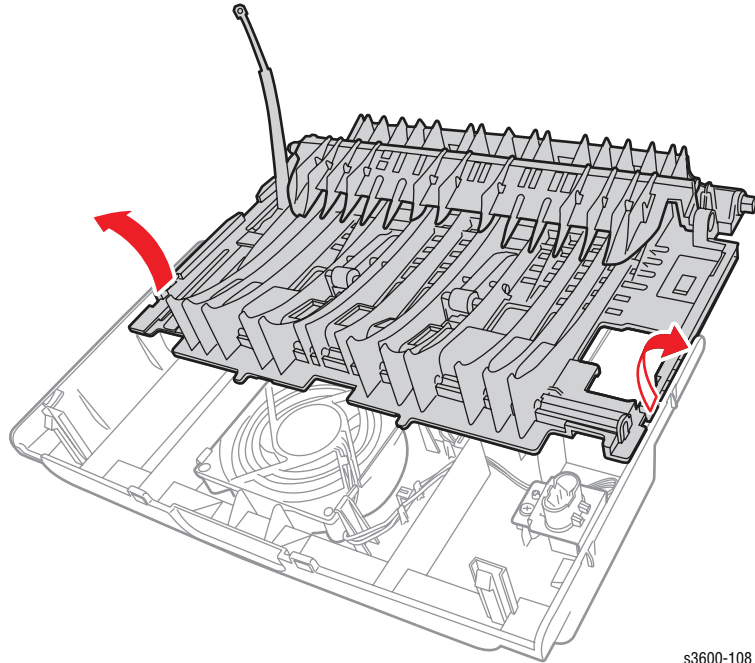


s3600-040

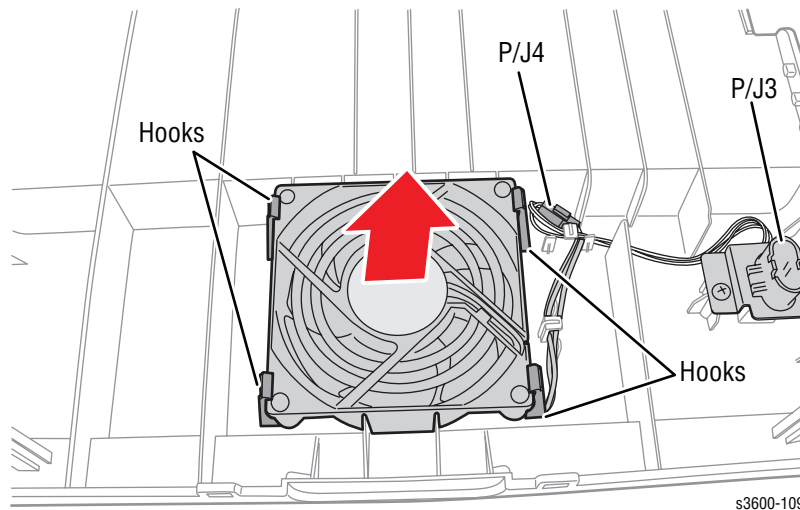
3. While facing the Rear Cover, lift up on the right hinge pin, slide the Rear Cover to the right to free the left hinge pin, then remove the Rear Cover from the printer.

Rear Cover Fan (PL1.2.6.10)

1. Remove the Rear Cover (page 7-8).
2. Use a flatblade screwdriver to flex one side of the paper guide, then lift and remove to expose the fan.



3. Disconnect the interim connector (P/J4) from the three-wire harness to the fan.
4. Flex two hooks on one side of the fan to release and remove.

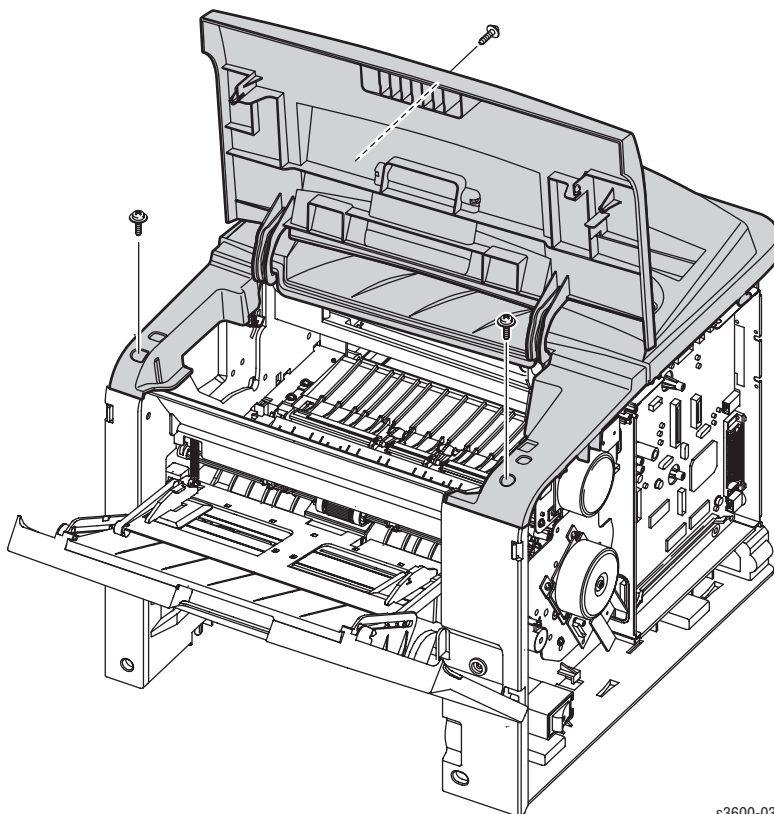


Top Cover (PL 1.2.1)

Note

Since the top cover is being redesigned, the following instructions will change.

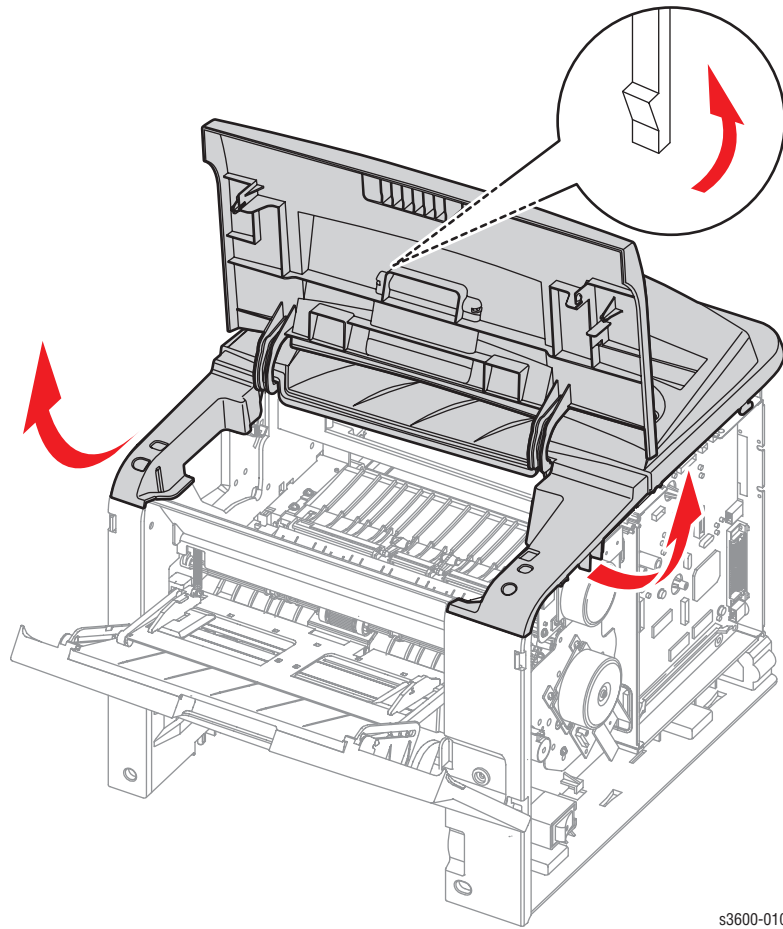
1. Open the Top Cover for access.
2. Remove the Print Cartridge and protect it from light exposure.
3. Remove the Right Cover (page 7-6).
4. Remove the Left Cover (page 7-7).
5. Remove the 2 screws located on the front of the Top Cover.
6. On the rear, right side of the printer, remove 1 screw securing the Top Cover.



7. Release 3 tabs, one on the left, one on the right, and one on the rear of the Top Cover.

Replacement Note

You may need to open the Rear Cover slightly before reinstalling the Top Cover.



s3600-010

8. Disconnect the Control Panel wiring harness (CN17) from the Main Board.

Replacement Note

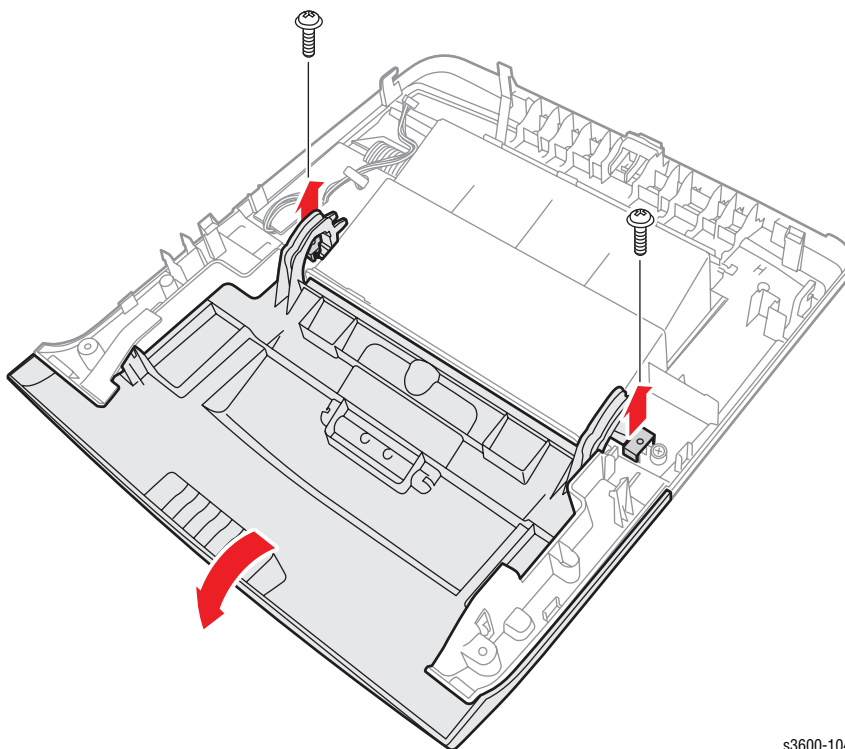
Note the position of the wiring harness and ferrite coil for reassembly.

Access Door (PL 1.2.1.1)

Note

Since the top cover is being redesigned, the following instructions will change.

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the 2 screws and stoppers from the Access Door.
5. Remove the Access Door from the Top Cover by flexing the 2 tabs.



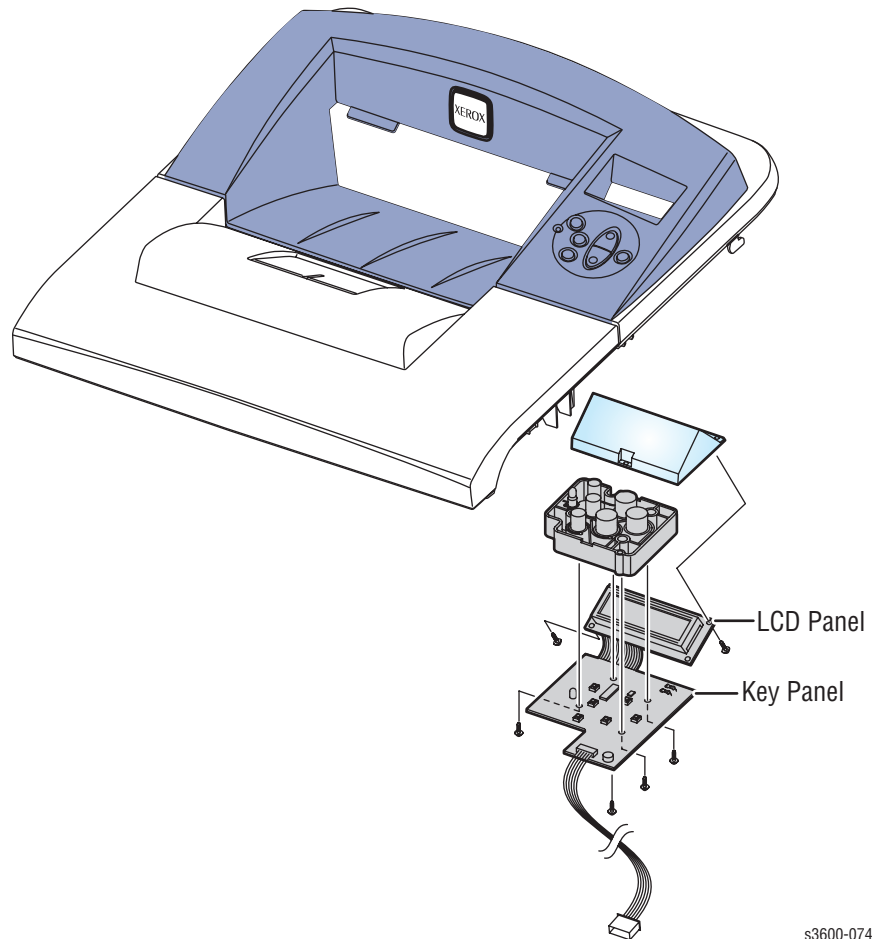
s3600-104

Control Panel (PL 1.2.9)

1. Remove the Top Cover (page 7-10).
2. Remove the 6 screws securing the LCD and control panel and remove from the top cover.

Note

DO NOT remove the 3 screws securing the plastic portion of the LCD display.



Tray 1 (MPT) Assembly



Caution

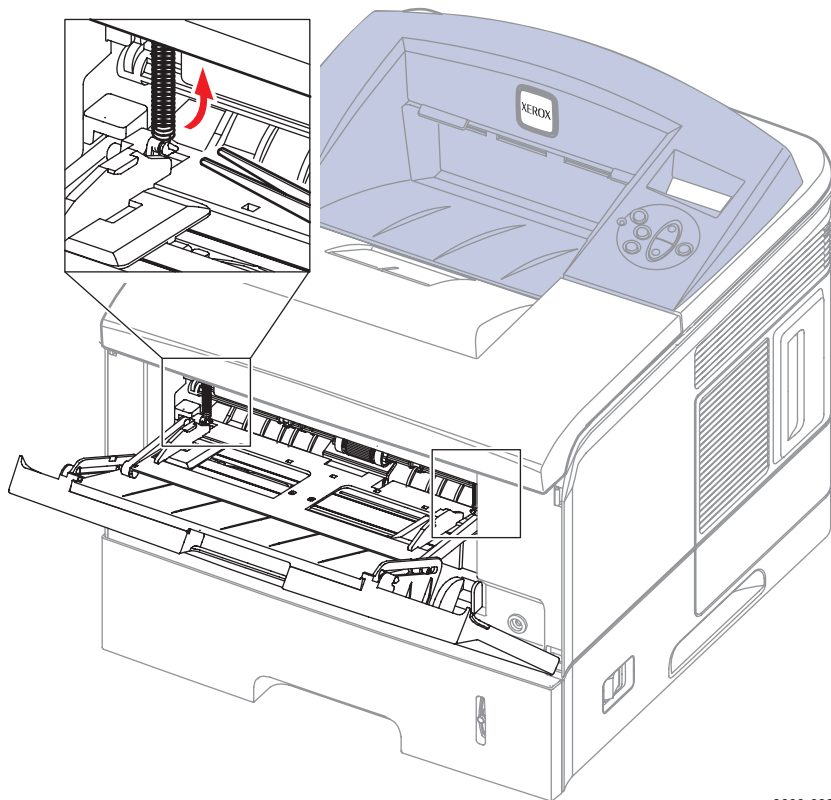
Tray 1 and the Knock-Up Plate contain unsecured plastic parts that fall off and are easy to lose.

Also, be careful in step 6 to not exert too much pressure, or you can break the plastic tracks.

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Open Tray 1.
5. Unhook only the bottom of the 2 springs connecting the Knock-Up Plate to the Pick-Up Rack.

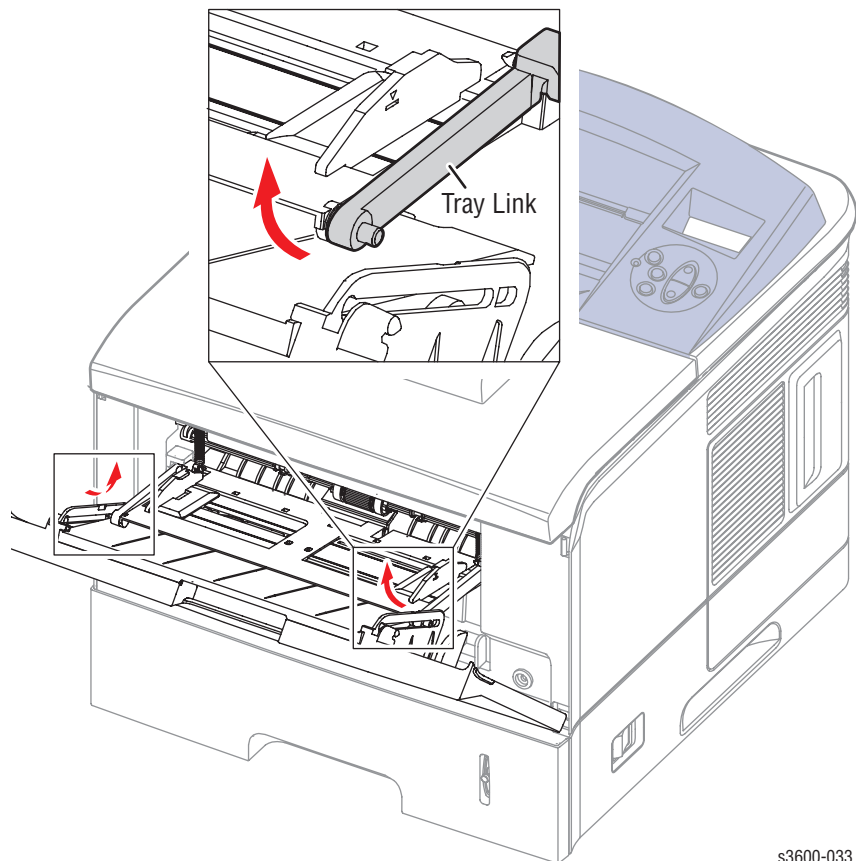
Note

DO NOT unhook the top portion of the springs from the Pick-Up Rack.



s3600-032

6. To disengage the Knock-Up Plate from the Tray 1 (MPT) Assembly, flex the left and right tray links from the indented portion of the tracks.



s3600-033

7. Facing Tray 1, slide the tray to the left to release the 4 pivot points securing the Tray, then remove the Tray 1 Assembly from the printer.

Replacement Note

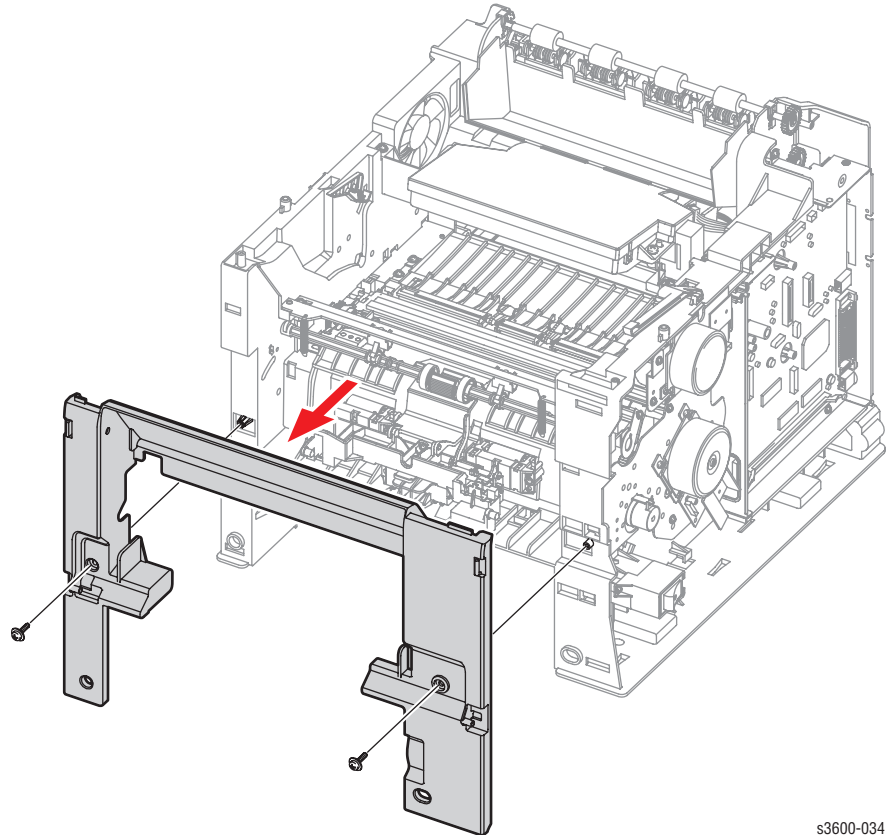
Follow these steps to ensure correct replacement of the tray:

To attach the Tray 1 (MPT) assembly to the Knock-Up Plate:

1. Attach the left and right plastic tray links to the top portion of the Knock-Up plate.
2. Attach the bottom portion of the Knock-Up Plate to the plastic mounting links on the chassis.
3. Slide the assembly onto the four pivot points.
4. Insert the top portion of the secured tray links through the Knock-Up Plate indentations on the track.

Inner Cover (PL 1.2.5)

1. Remove the Top Cover (page 7-10).
2. Remove the Tray 1 (MPT) Assembly (page 7-14).
3. Open or remove Tray 2 for better access.
4. Remove 2 screws securing the Inner Cover to the printer frame.
5. Remove the Inner Cover.



s3600-034

Tray 1 (MPT) Knock-Up Plate Only (PL 1.1.3)

1. Follow the first three steps for removing the Tray 1 (MPT) Assembly (page 7-14).
2. Rotate the tray links down slightly until they come free from the printer.

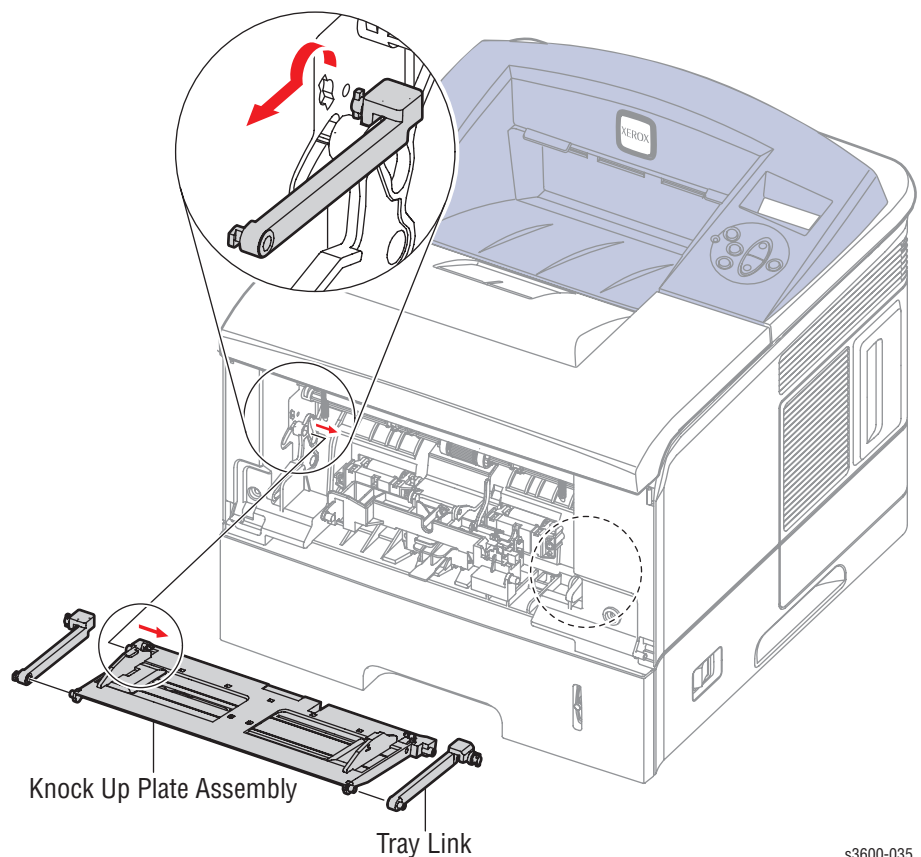
Note

The tray links are marked “L” for the left and “R” for the right.

3. To free the Knock-Up Plate, carefully spread the slotted hinge piece to release the post, then remove the Knock-Up Plate.

Note

Tray 1 and the Knock-up Plate contain unsecured plastic parts that fall off and are easy to lose.



s3600-035

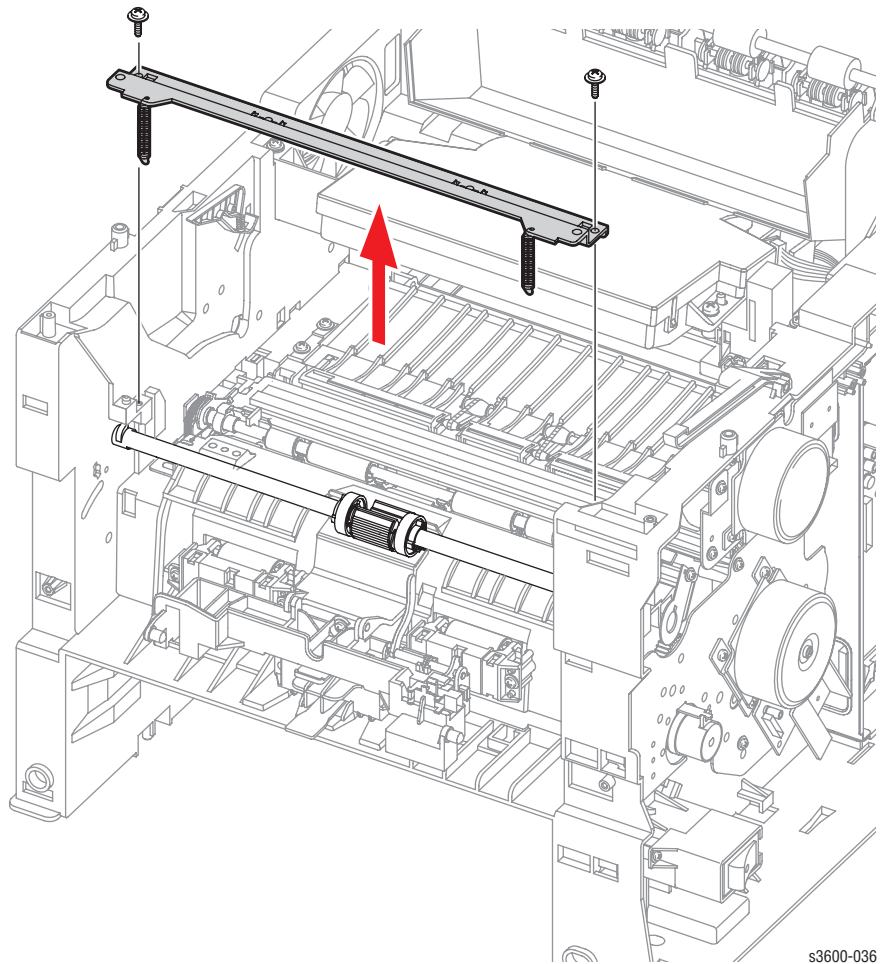
Tray 1 (MPT) Pick-Up Rack (PL 1.3.2)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the Tray 1 (MPT) Assembly (page 7-14).
5. Remove the Inner Cover (page 7-16).
6. Remove 2 screws securing the Pick-Up Rack and remove the rack.



Caution

Do not remove or lose the springs.

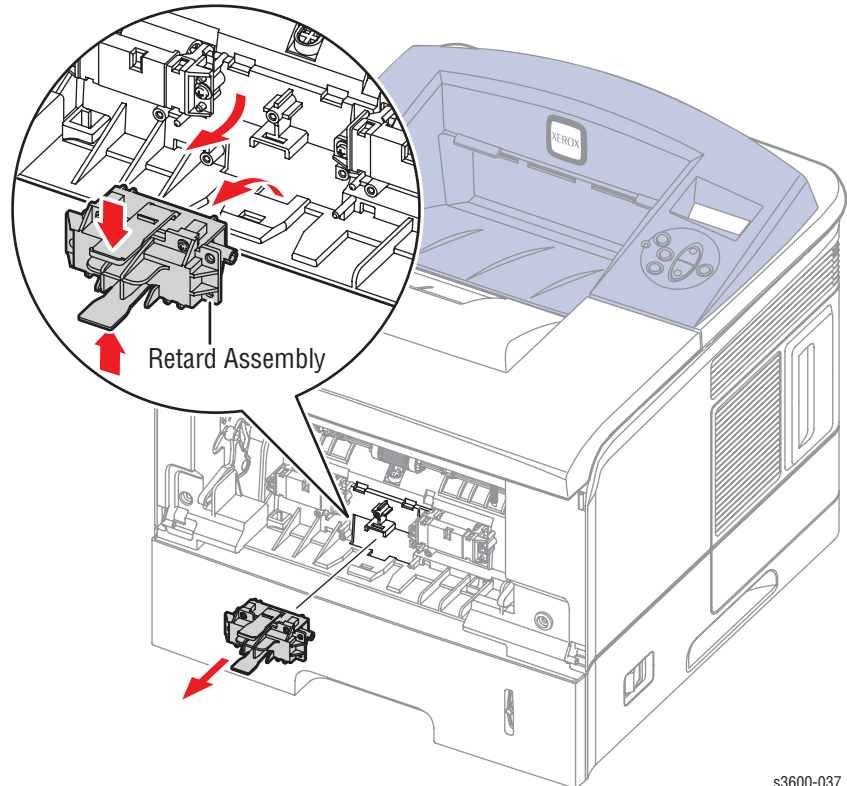


Replacement Note

When reinstalling, be sure to secure the Pick-up Rack in the “boss” on each side of the rack.

Retard Assembly (PL 1.3.49)

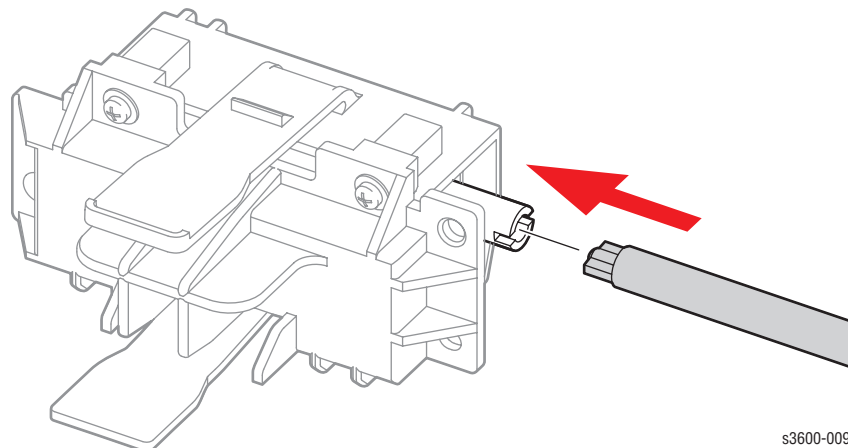
1. Remove Tray 1(MPT) Assembly (page 7-14).
2. Remove the Inner Cover (page 7-16).
3. Remove the Tray 1 Pick-Up rack (page 7-18).
4. Squeeze the lock as shown below and slide the Retard Assembly off of the Retard Roller.



s3600-037

Replacement Note

When reassembling, insert the Retard Roller over the left end of the retard shaft until the roller snaps in place.



s3600-009

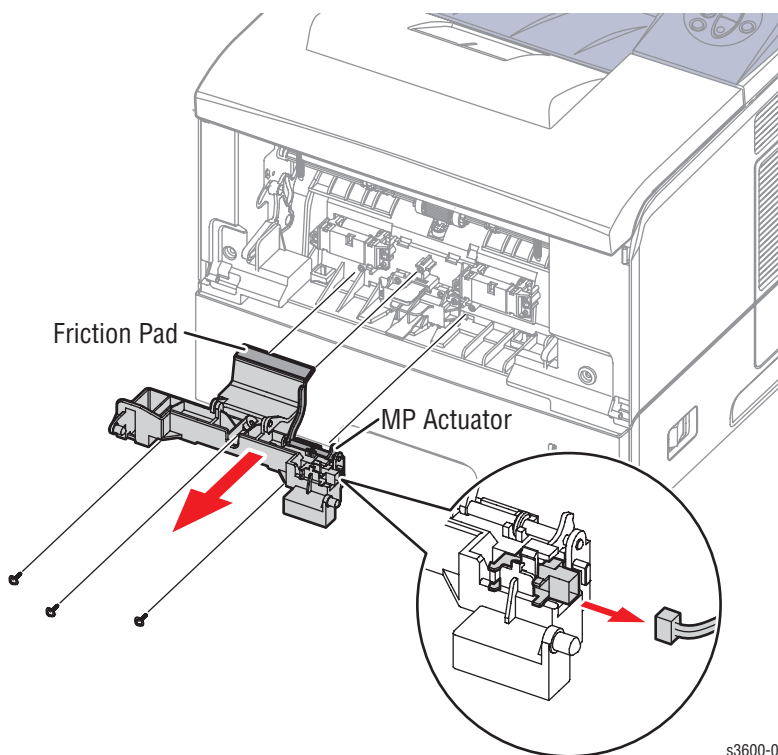
Tray 1 (MPT) Separator Pad Assembly (PL 1.3.4)

1. Remove the Tray 1 (MPT) Assembly (page 7-14).
2. Remove the Retard Assembly (page 7-19).
3. Loosen the wire harness from the plastic wire holder and disconnect the connector (CN1) from the Separator Pad Assembly. Do not use a needlenose set of pliers to loosen the connector.
4. Remove the 3 screws shown below and then remove the Separator Pad Assembly from the printer.



Caution

Be careful not to break the MP actuator flag. Also, do not lose the spring located underneath the Friction Pad of the separator.



Replacement Note

Before installing the three screws, be sure to snug the spring between the friction pad and the plastic base.

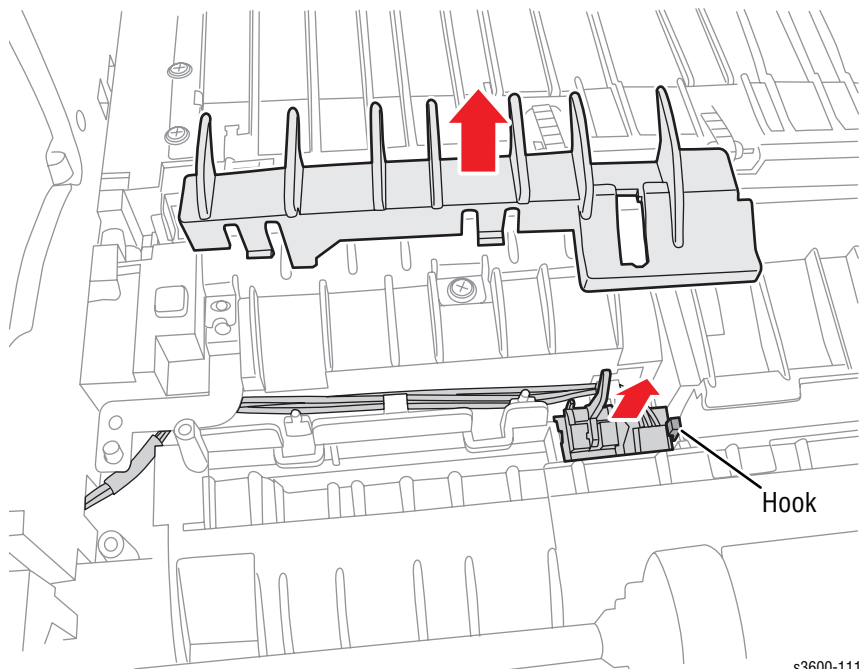
Tray 1 (MPT) Feed Sensor (PL1.3.97)



Caution

When removing the plastic cover in the step 5, lift the edge nearest the sensor first then the other end, being careful not to bend the actuator.

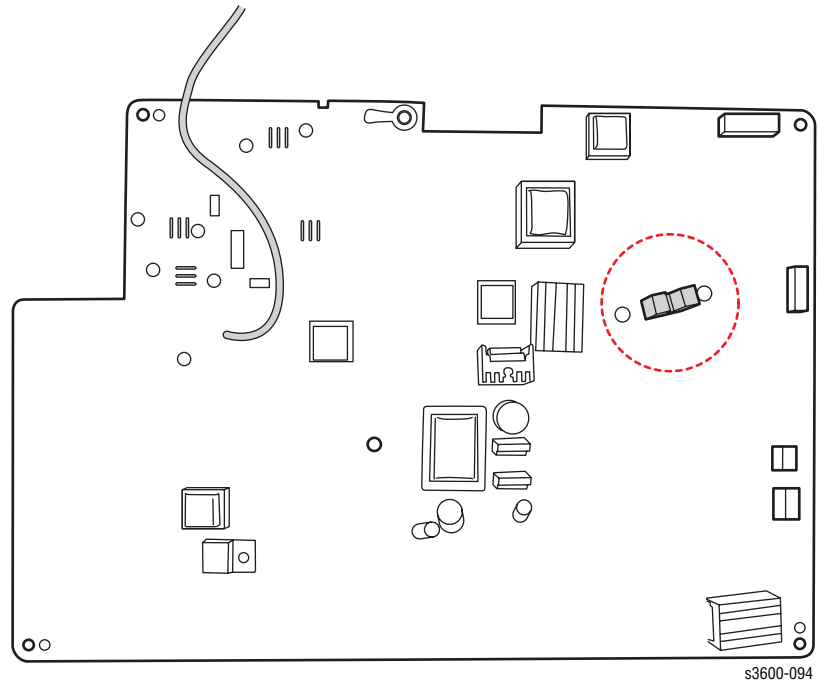
1. Remove the Tray 1 (MPT) Assembly (page 7-14).
2. Remove the 6 screws from the HVPS board to expose the connectors.
3. Disconnect CN3 from the HVPS board.
4. Unlace the 3-wire harness of CN3 from the HVPS.
5. Remove the plastic cover covering the sensor.
6. Gently push the plastic hook away from the sensor board to remove the board and sensor.



s3600-111

Paper Tray Empty Sensor (PL1.3.95)

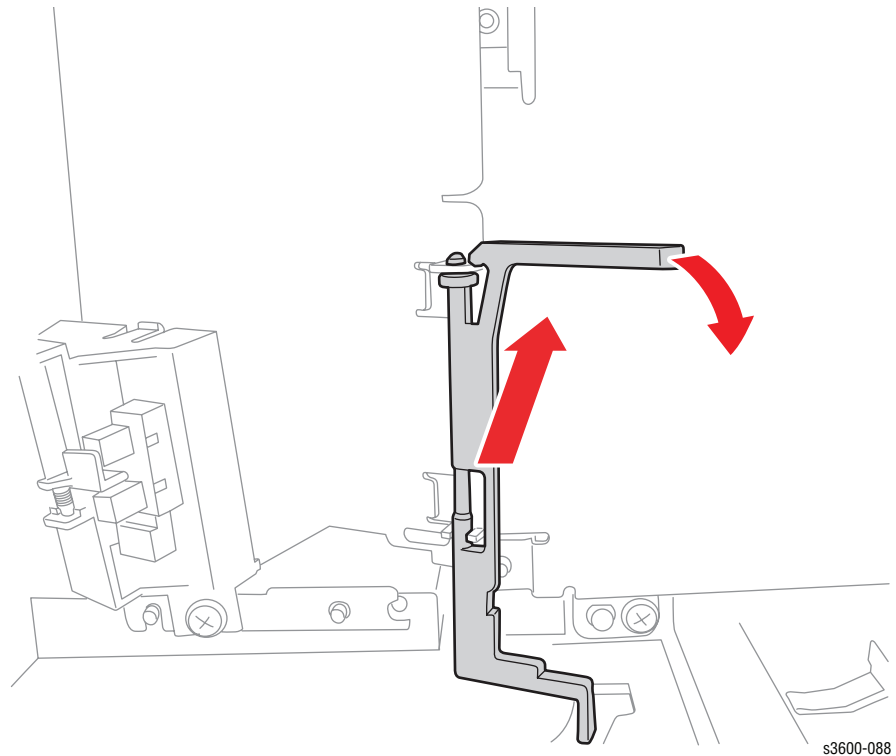
The Paper Tray Empty Sensor is soldered in the High Voltage Power Supply (HVPS). If the sensor is defective, follow the instructions to replace the power supply board (page 7-75).



Paper Tray Empty Actuator (PL1.3.58)

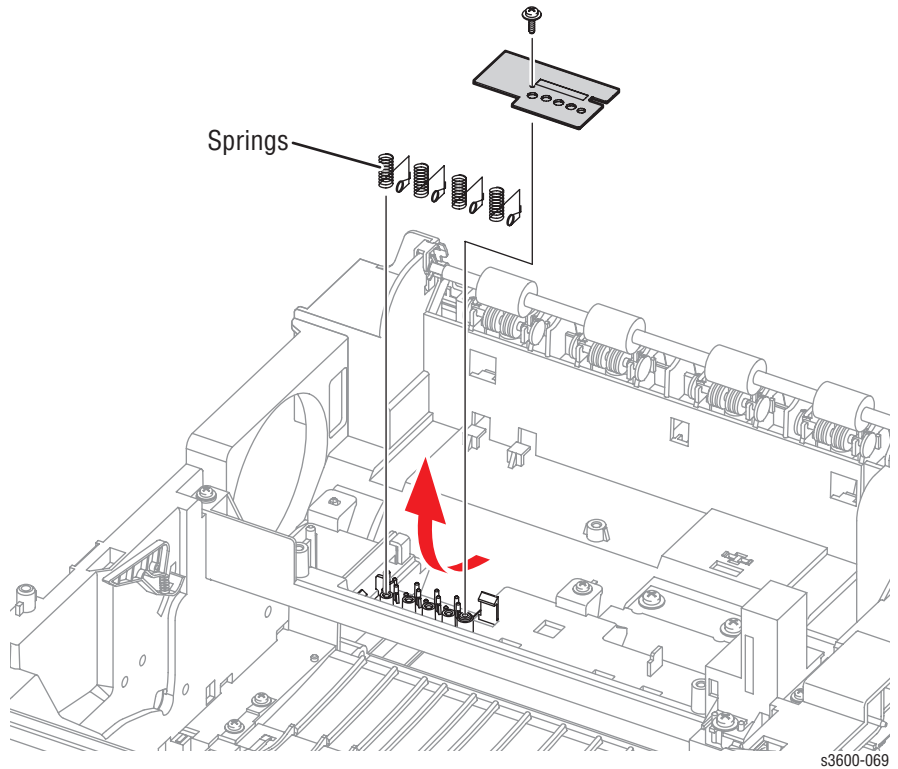
The Paper Tray Actuator passes through the Paper Tray Empty Sensor, which is soldered in the Switched Mode Power Supply (SMPS).

1. Remove the Tray 1 (MPT) Assembly (page 7-14).
2. Locate the Paper Tray Empty Actuator on the opposite side of the SMPS board and chassis.
3. Depress the elongated portion of the actuator slightly to release, then remove the actuator from the chassis slot.



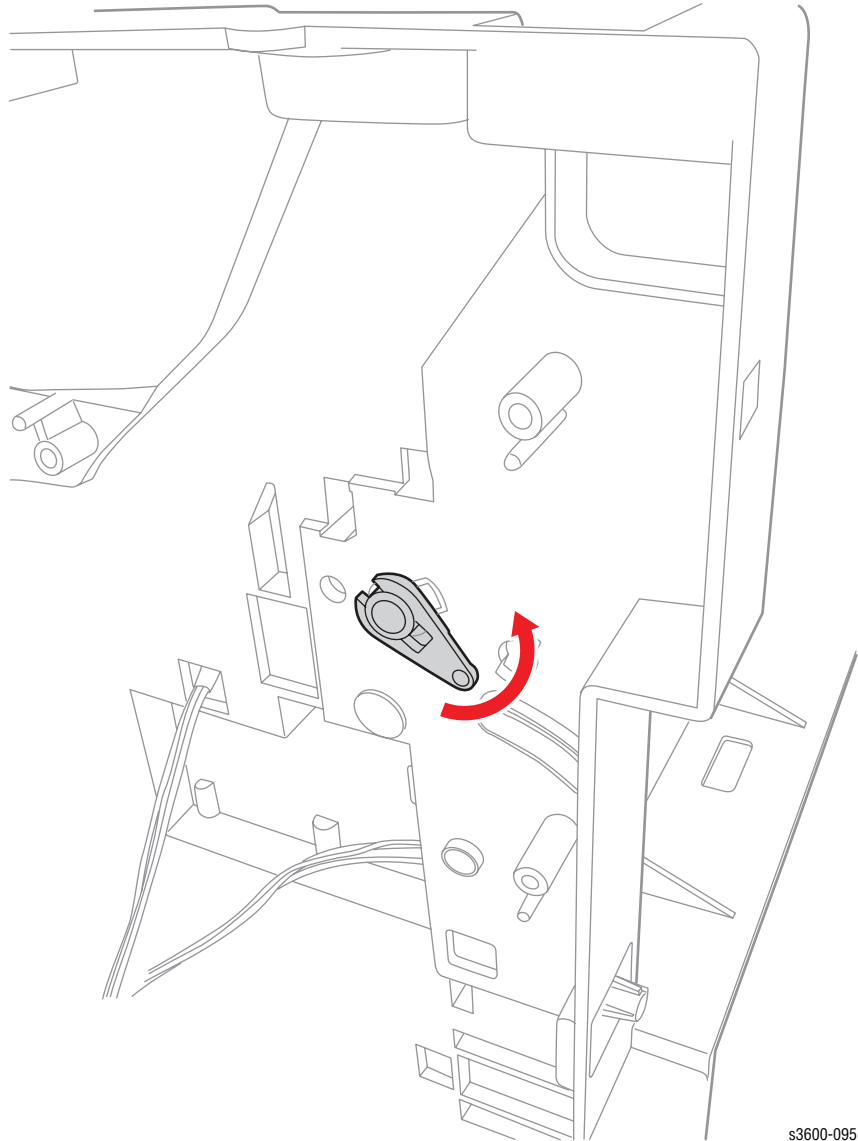
Sub Toner Low Sensor Board (PL1.3.47)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the Laser Scan Unit (page 7-70).
5. Remove the LSU Lower Cover (page 7-72).
6. Disconnect all connectors running to the Toner Sensor Board.
7. Remove 2 screws securing the Toner Sensor Board to the LSU cover.
8. Release the 2 locking tabs to remove the board.



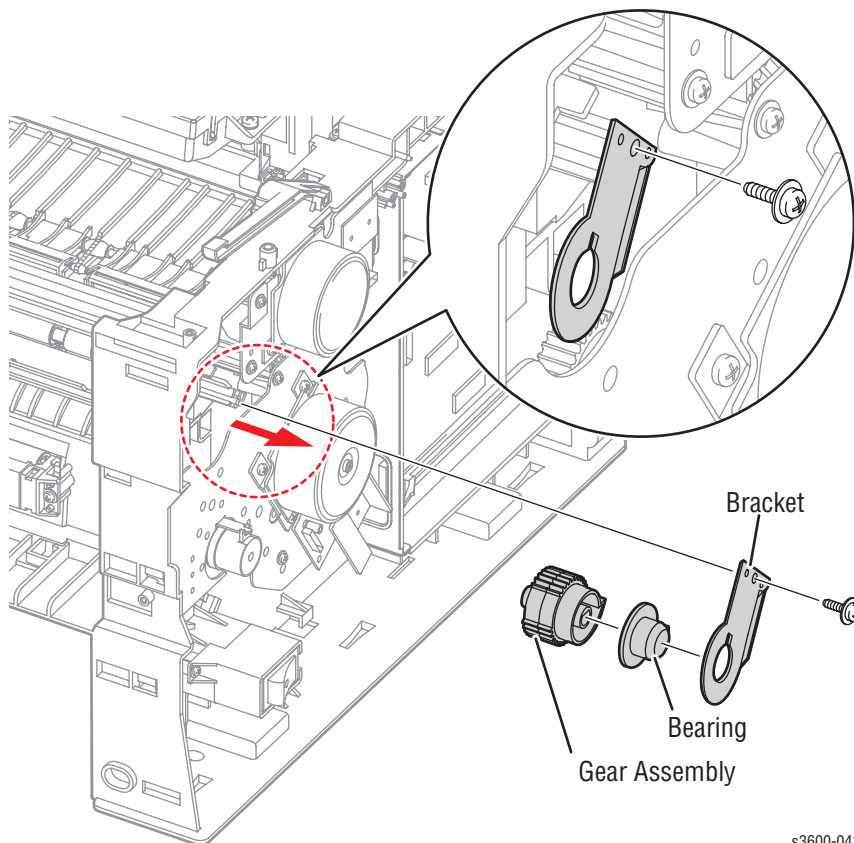
Pick Roller and Shaft (PL 1.3.2.5)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the Tray 1 (MPT) Assembly (page 7-14).
5. Remove the Inner Cover (page 7-16).
6. Remove the Main Drive Assembly (page 7-38).
7. Remove the locking bearing on the front of the shaft by rotating it in the direction of the arrows shown below.



s3600-095

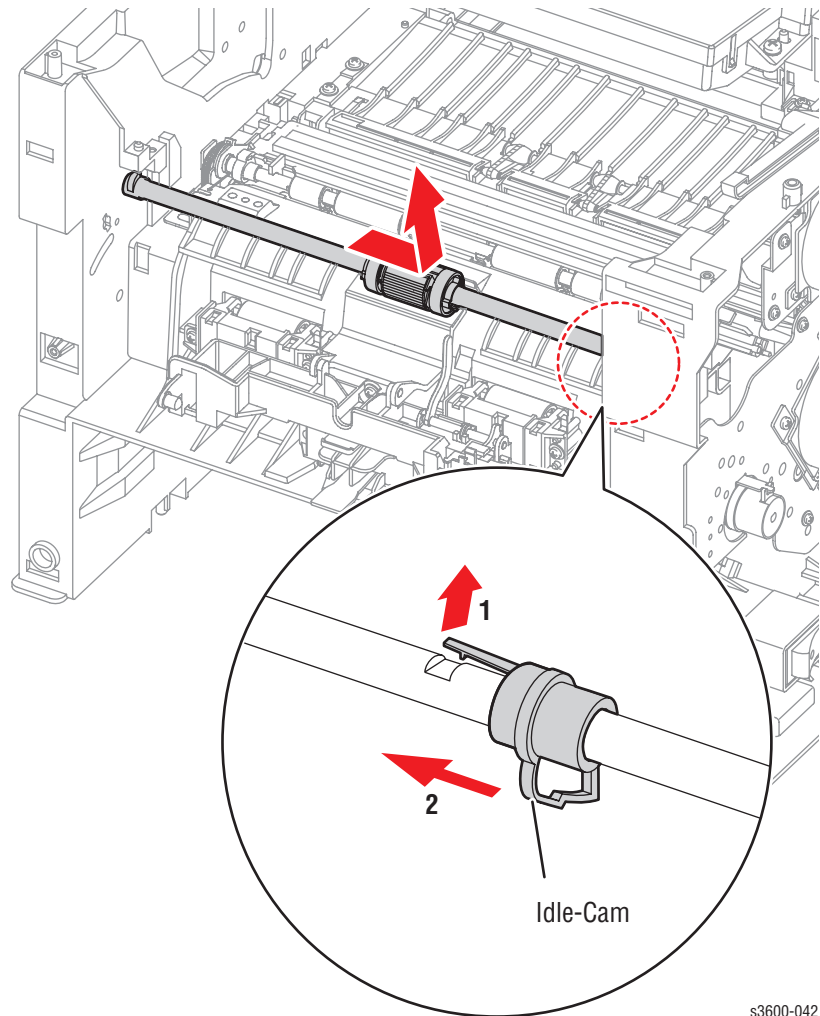
8. Remove 1 screw, on the right end of the shaft, securing the bracket, remove the bracket with the bearing.



s3600-041

9. Remove the right side gear from the shaft.

10. Lift the latch on the idle cam and slide the shaft to the right through the cam to free it from the printer.



s3600-042

Tray 1 (MPT) Pick Roller Only (PL 1.3.2.4)

Note

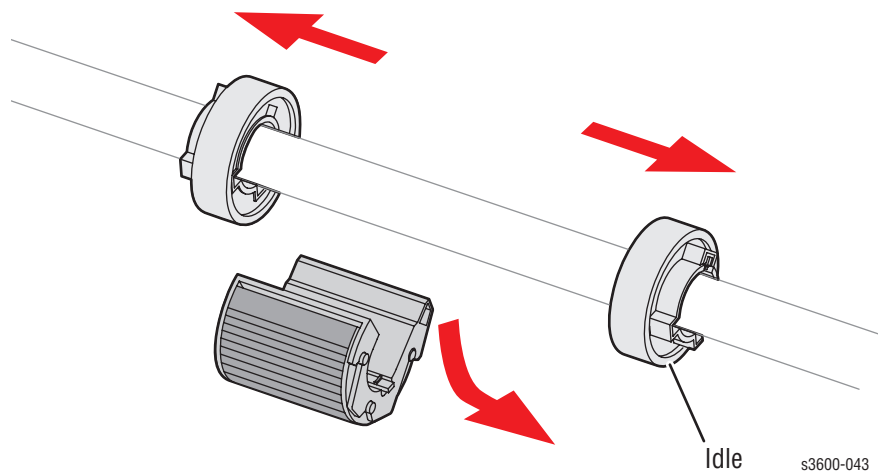
If you are only removing the Pick Roller, and not the shaft, it may be necessary to rotate the shaft, release the solenoid, and then rotate the shaft gear clockwise to position the roller properly.



Caution

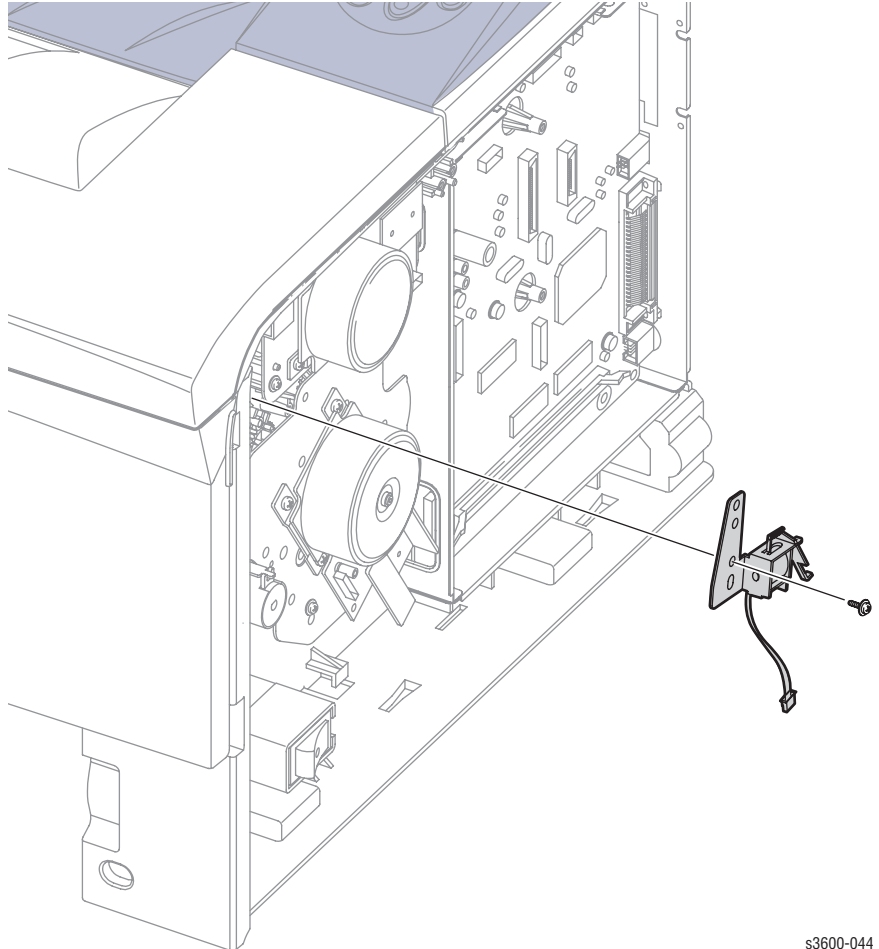
Do not break the pick shaft by trying to force the Pick Roller off.

1. Slide the idle gears outward. Release the locking tab on the Pick Roller Assembly and slide the roller to the right.



Tray 1 (MPT) Solenoid (PL 1.1.26)

1. Remove the Right Cover (page 7-6).
2. Disconnect the connector (CN11) from the Joint Board to the Tray 1 Solenoid.
3. Remove 1 screw securing the Tray 1 Solenoid.



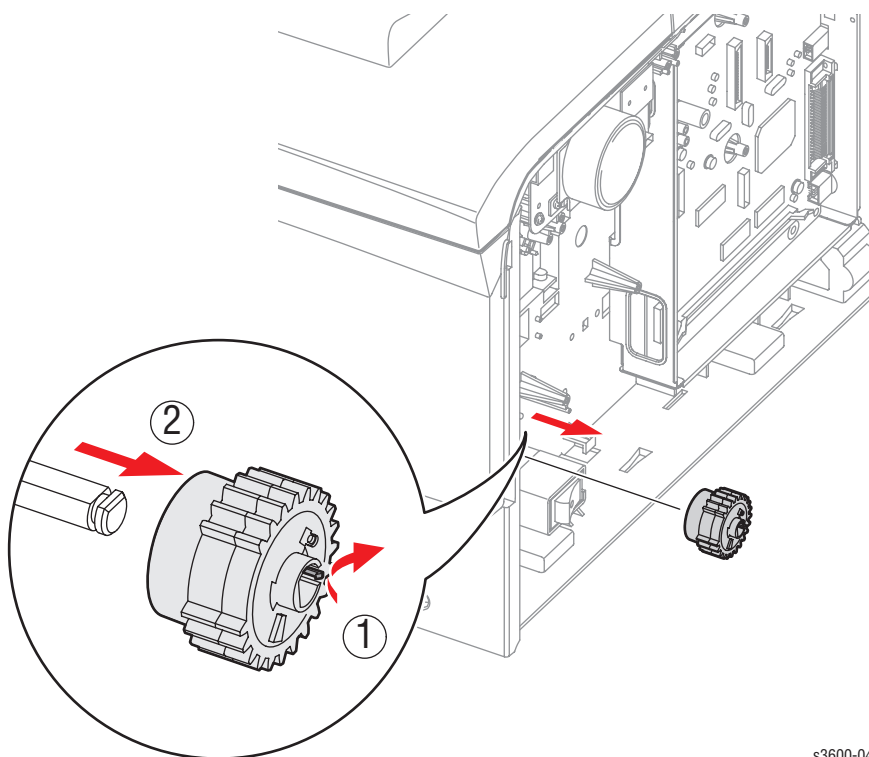
s3600-044

Tray 2 Pick-Up Assembly and Rollers

Note

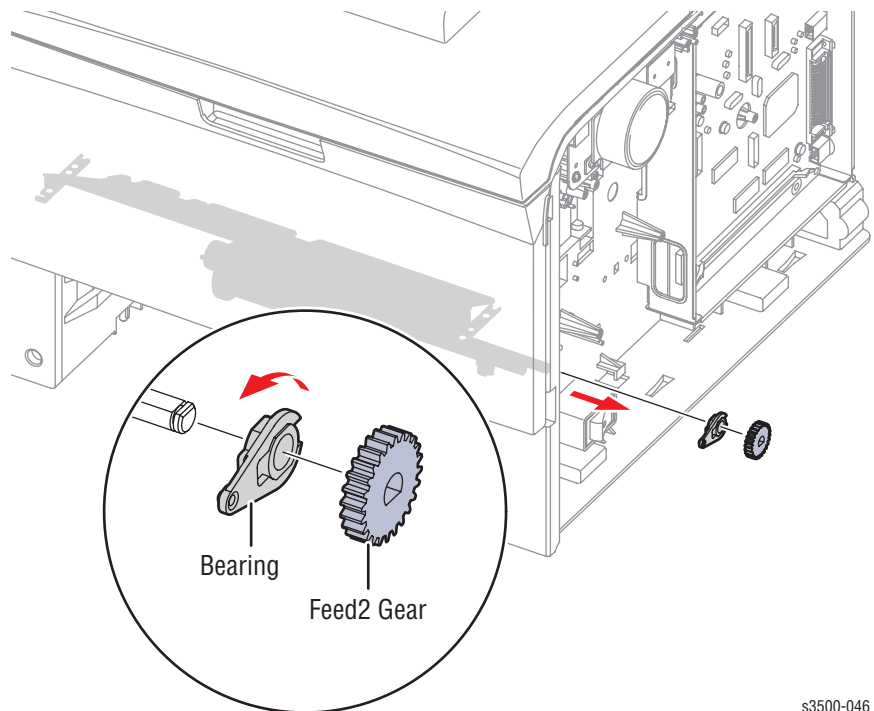
It is not necessary to remove the entire assembly in order to remove the Pick Rollers. Also, do not replace the feeder assembly unless drive components need to be replaced. If replacing just the rollers, the Feed Assembly does not need to be removed

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the Tray 1 (MPT) Assembly (page 7-14).
5. Remove the Inner Cover (page 7-16).
6. Remove the Main Drive Assembly (page 7-38).
7. Remove Tray 2 and Tray 3 (if installed)
8. Turn the printer onto its left side.



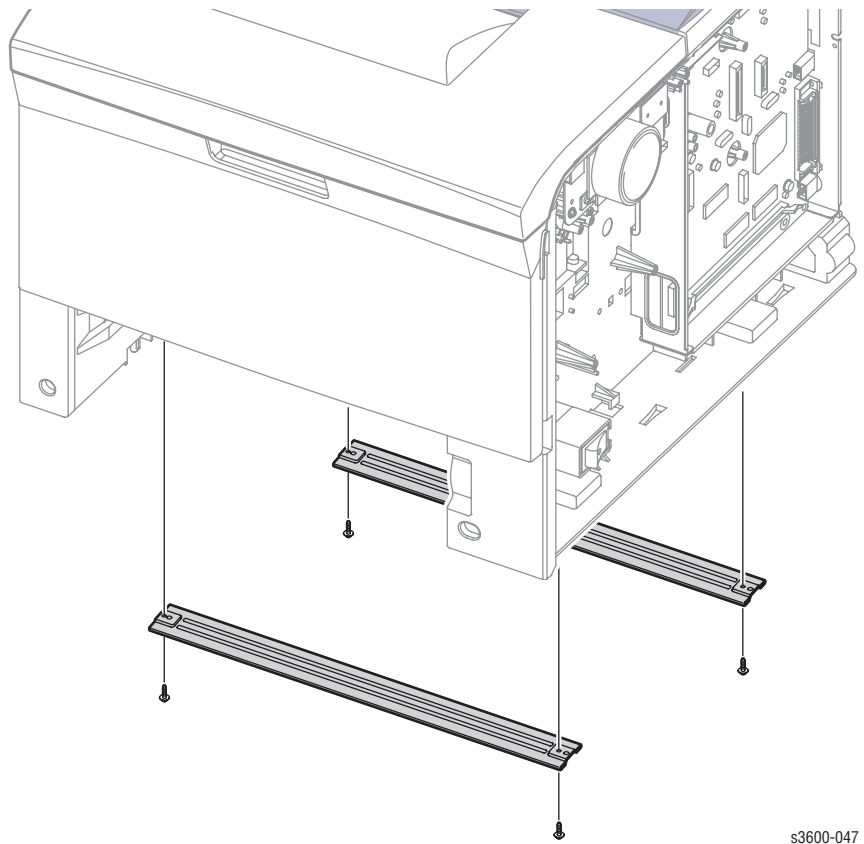
s3600-045

9. Before you can slide the Pick-Up Camshaft in the next step, you must first release the white locking mechanism from the white plastic bearing, then lift free from the shaft.
10. Remove the Pick-Up Roller by lifting the black tab to slide it off the shaft.



s3500-046

- 11.** Remove the black locking tab to free and remove the purple gear on the Retard Shaft.
- 12.** Press the plastic release tab on the Retard Roller to remove the roller.
- 13.** Remove 4 screws securing the Pick-Up Assembly and maneuver the pick assembly out of the printer.
- 14.** Remove the Front Bottom Cross Bar secured by 2 screws and the ground strap.

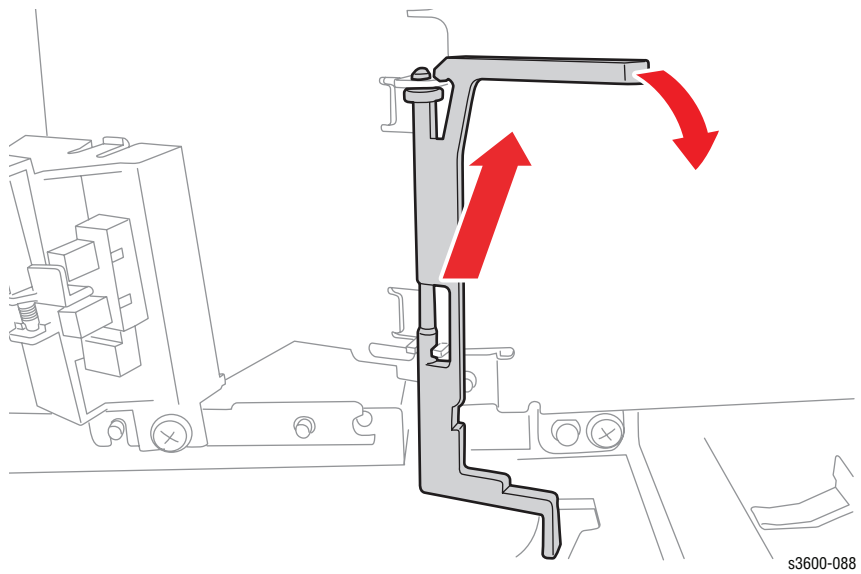


Replacement Note

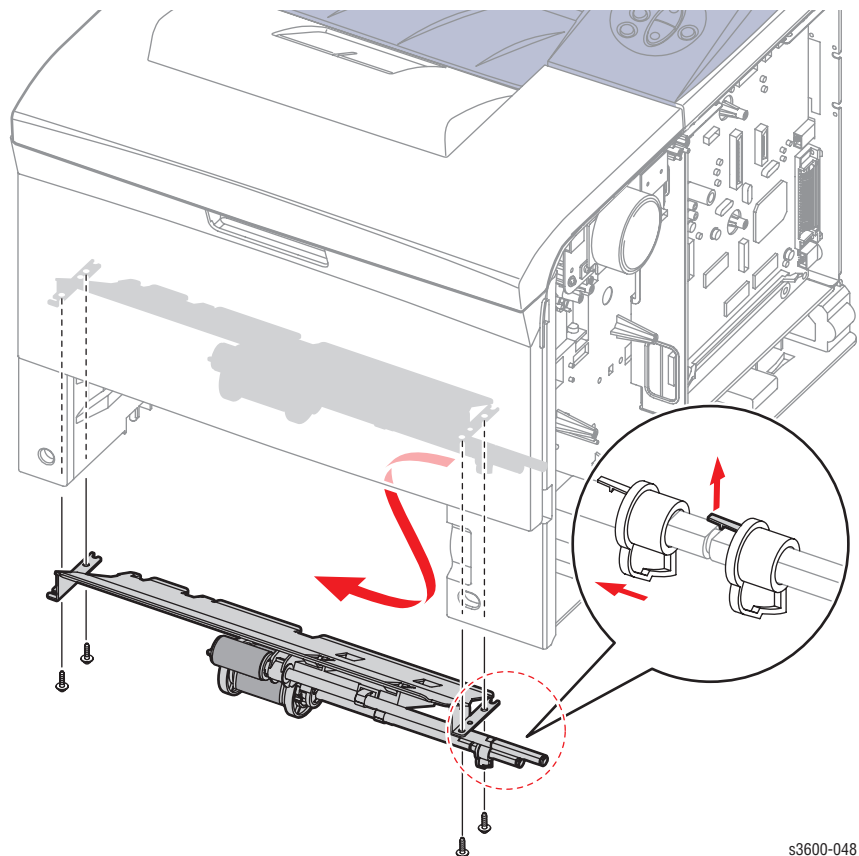
When you are replacing the Cross Bar, place the ground strap between the bar and the printer before you insert the screw.

Note

Remove a small support metal bracket and screw separately from the main feeder assembly while removing the 4 securing screws. Also, remove a rubber spacing block held in place by the metal support bracket.

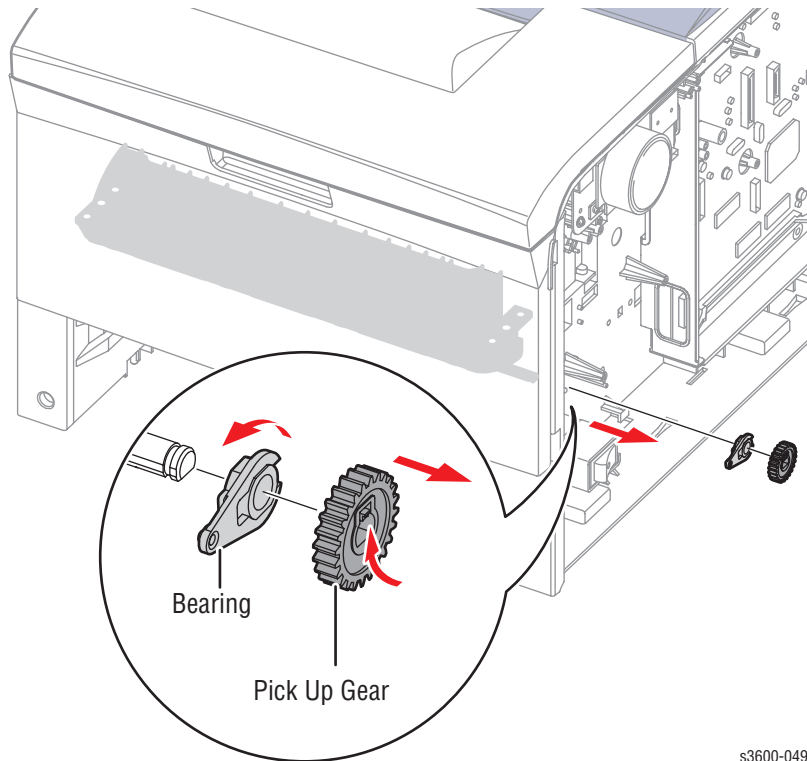


15. Release the plastic tab on the actuator that is mounted on the metal plate. Once the screw is out just lift it free from the boss.
16. Remove the 4 screws securing the pick assembly and maneuver the pick assembly out of the printer.



Pick-Up Gear and Bearing (PL 1.1.21)

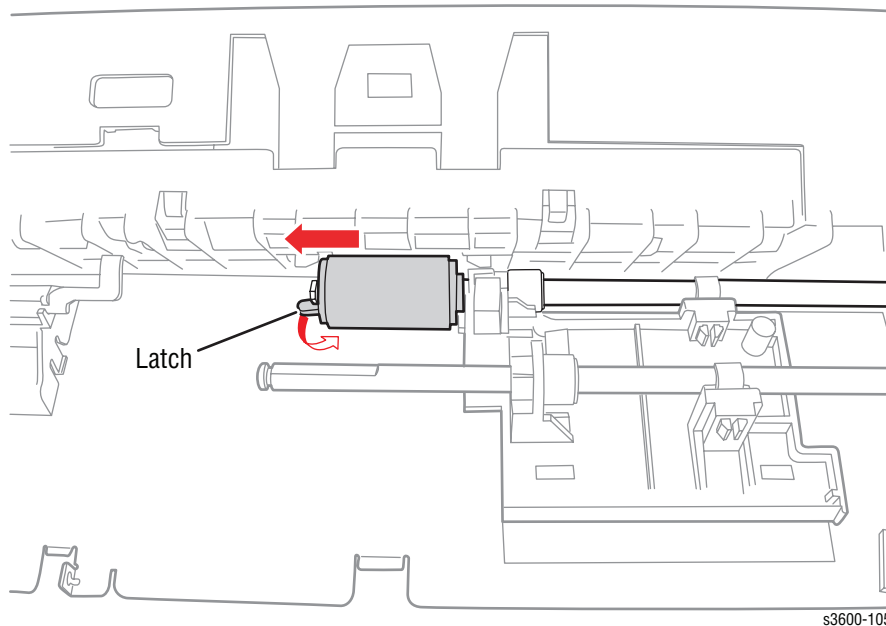
1. Perform all steps for removing the Tray 2 Pick-Up Assembly and Rollers (page 7-30).
2. Remove the pick up gear.
3. Remove the locking bearing.



s3600-049

Tray 2 Feed Roller (PL1.3.59.5)

1. Perform all steps for removing the Tray 2 Pick-Up Assembly and Rollers (page 7-30).
2. From underneath the chassis, depress the latch downward, then slide the Feed Roller off of the shaft.

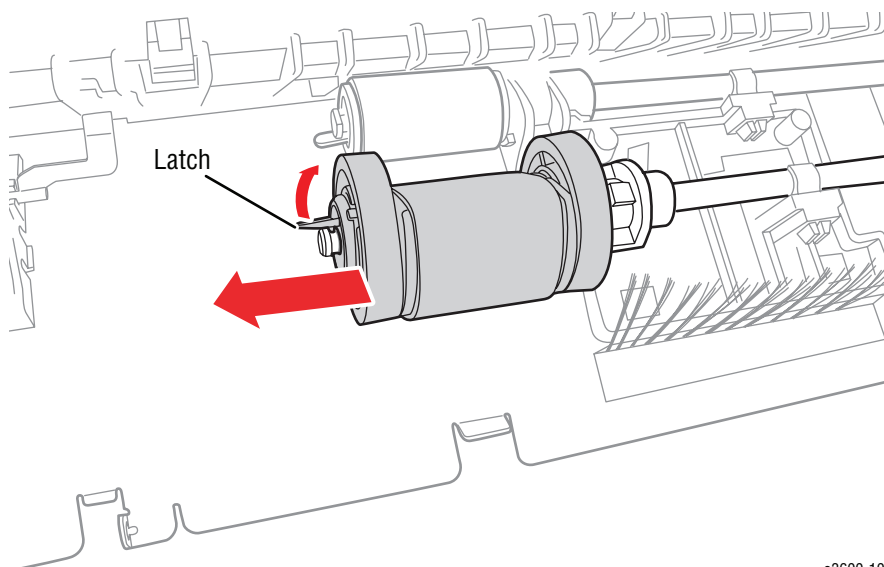


Tray 2 Pick Roller (PL1.3.59.2)

Note

Since the Pick Roller is accessible directly underneath the chassis, there is no need to remove any assemblies.

1. From underneath the chassis, depress the latch downward, then slide the Pick Roller off of the shaft.



Tray 2 (PL2.1.0) and Optional Tray 3 (PL2.2.0) Replacement

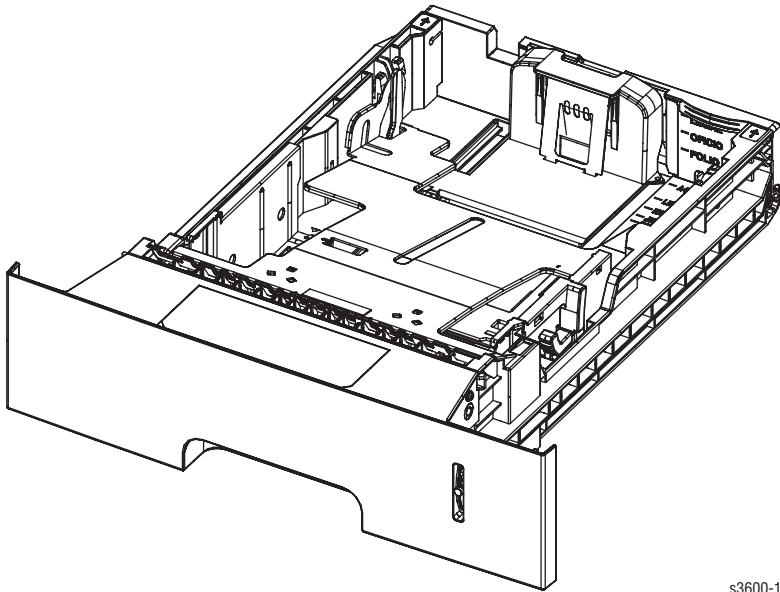
Note

If the printer includes the Optional Tray 3, It will be the bottom tray with a handle. It is identical in appearance to Tray 2 located directly above.

Note

No reconfiguration parameters are required when replacing the Optional Tray 3.

1. Remove the defective tray.
2. Remove the new tray from its plastic packaging and reinsert in the same slot.



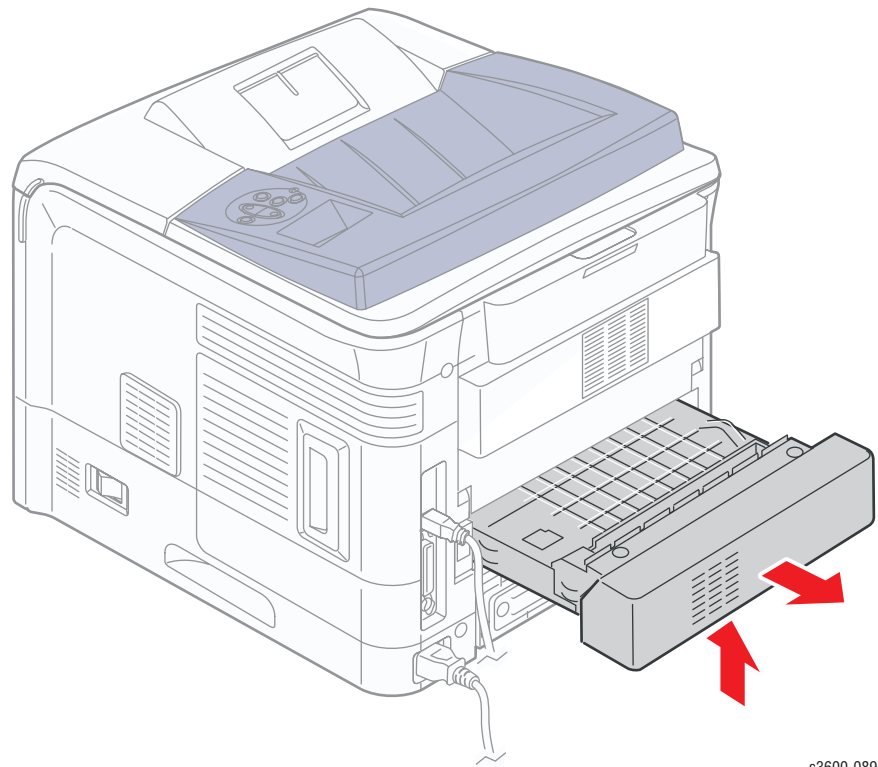
s3600-107

Duplex Unit (PL2.3.0)

Note

No reconfiguration parameters are required when replacing the Duplex Unit.

1. Remove the defective Duplex Unit.
2. Remove the new Duplex Unit from its plastic packaging and reinsert in the same slot.



s3600-089

Main Drive and Registration Assemblies

Main Drive Assembly (PL 1.1.18)



Caution

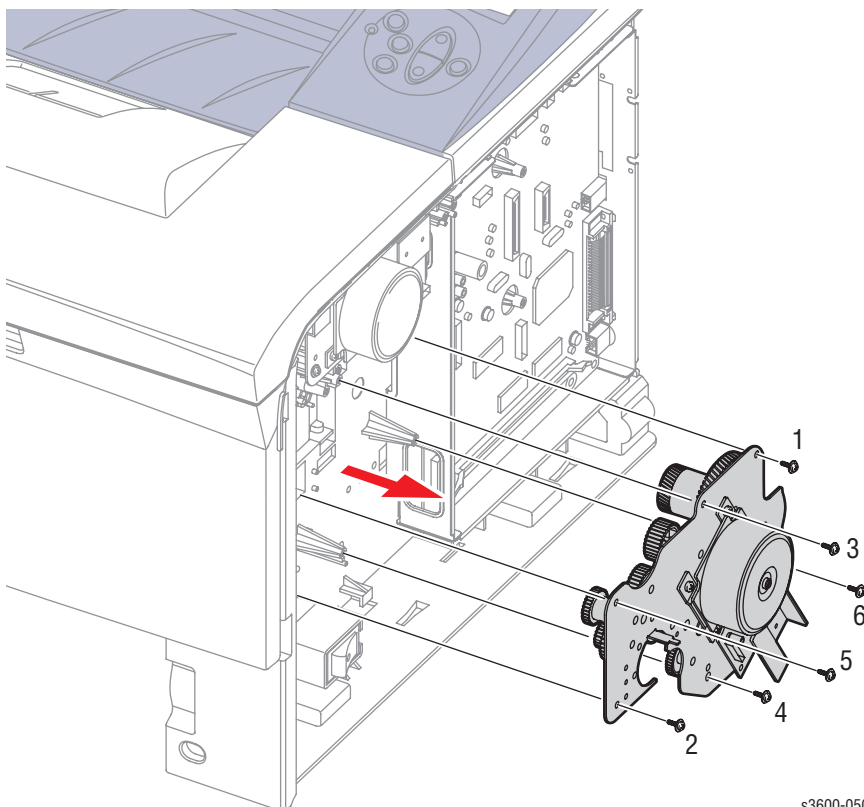
When removing screw #3 in step 3, make sure you do not bend or break the wire connected to the varistor. Also, screw #4 has a grounding strap that must be replaced during reassembly.

1. Remove the Right Cover (page 7-6).
2. Disconnect the CN1 cable on the Main Drive assembly. The other end is attached to the Main Board at CN19 DC Motor.
3. Remove all 6 screws in order. The screw numbers are labeled on the main assembly plate.
4. Remove the Main Drive Assembly.



Caution

Be careful not to reposition the gears.



s3600-050

Replacement Procedure

When reassembling:

1. Line up the metal shaft of the main drive assembly to the correct hole.
2. If necessary, lubricate the gears with Xerox Plastislip grease lubricant (PN-043E00550).
3. Install screws in order on the etched plate when replacing the Main Drive.

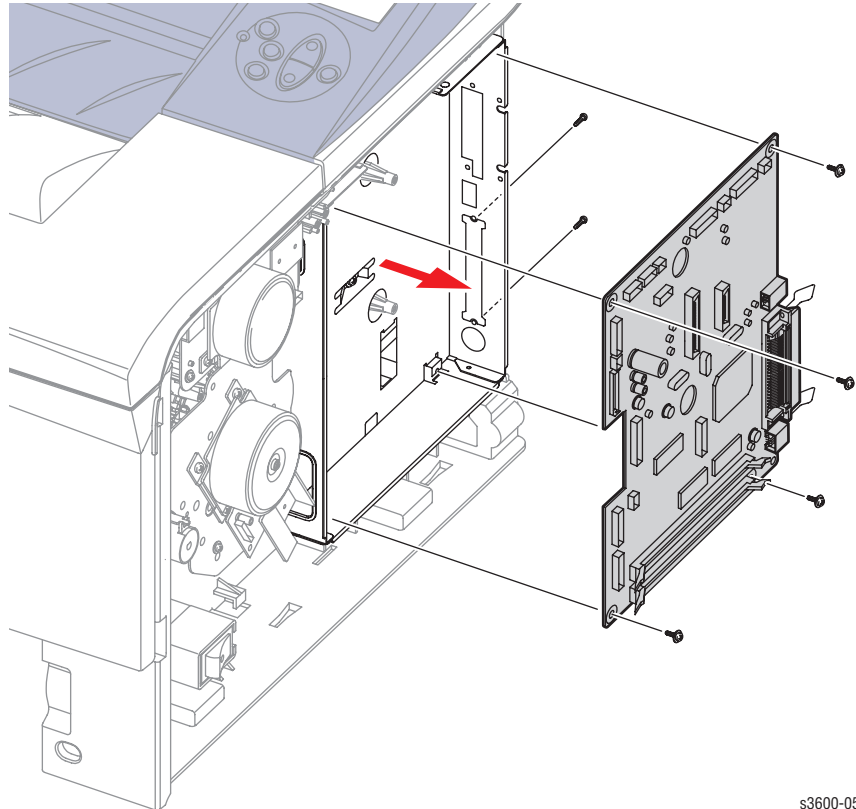


Caution

Be careful not to bend the Varistor on screw #3.

Main Board (PL 1.1.19)

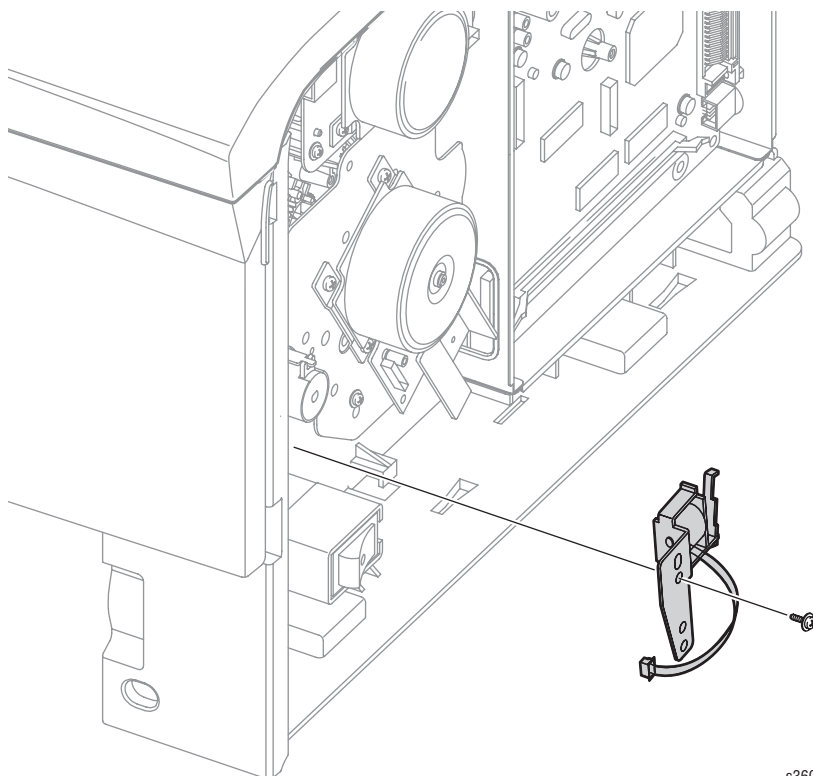
1. Remove the Right Cover (page 7-6).
2. Disconnect all connectors from the Main Board.
3. Remove the 6 screws (4 on the Main Board and 2 on the outside chassis to the parallel connector) securing the Main Board to the printer.
4. Position the retainers on the parallel port connector straight out from the connector for removal.
5. Move the board toward the front of the printer so the connectors clear the bracket and remove the Main Board to the right.



s3600-051

Main Solenoid (PL 1.1.25)

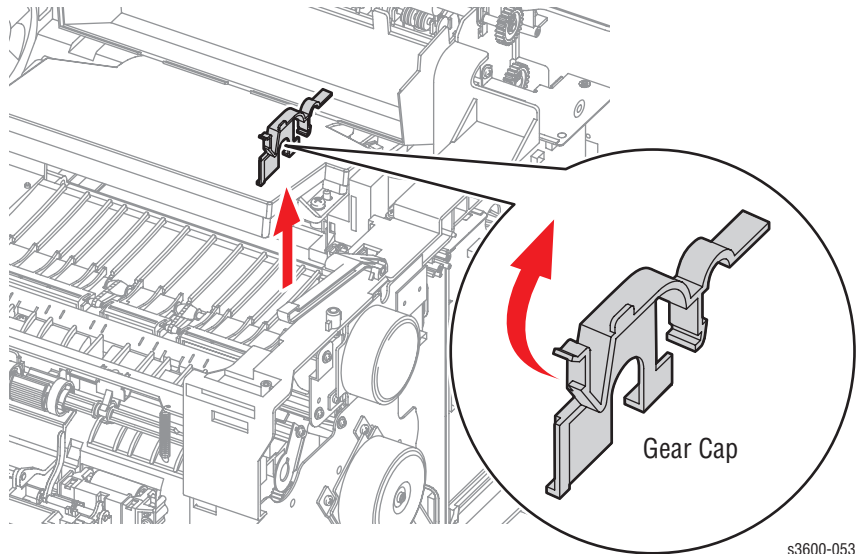
1. Remove the Right Cover (page 7-6).
2. Disconnect the connector (CN10) from the Joint Board to the Main Solenoid.
3. Remove 1 screw securing the Main Solenoid and remove from the chassis.



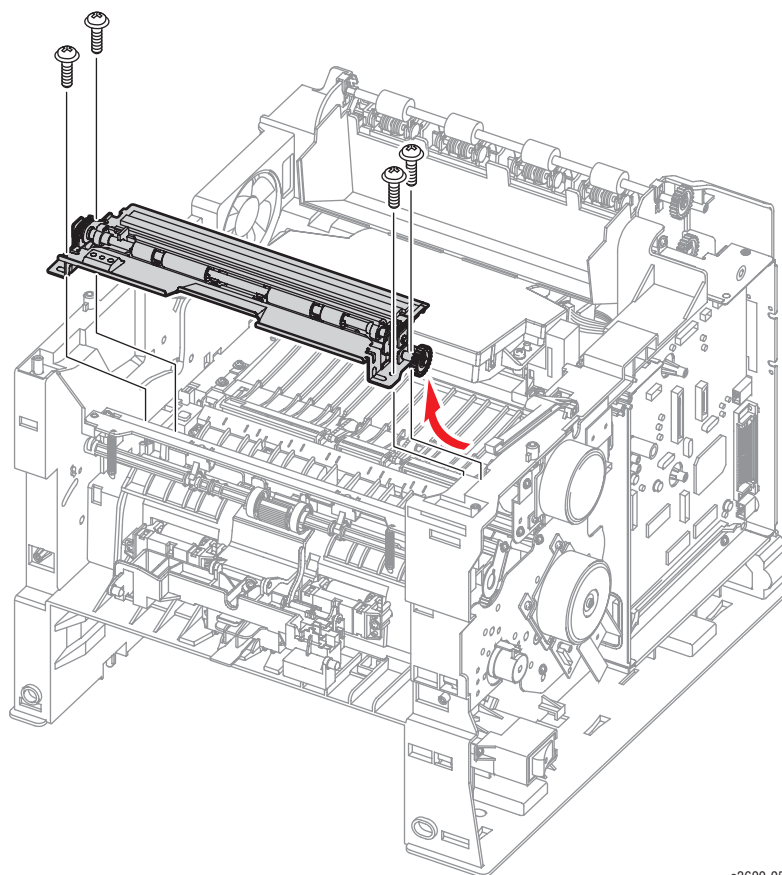
s3600-052

Registration Assembly (PL 1.1.12)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Locate the Gear Cap on the right side of the Registration Assembly.
5. Lift up on the tab to release and remove the Gear Cap from the assembly.



6. Remove the 4 screws securing the Registration Assembly to the printer.
7. Remove the Registration Assembly from the printer.



s3600-054

Transfer Roller (PL 1.1.7)



Caution

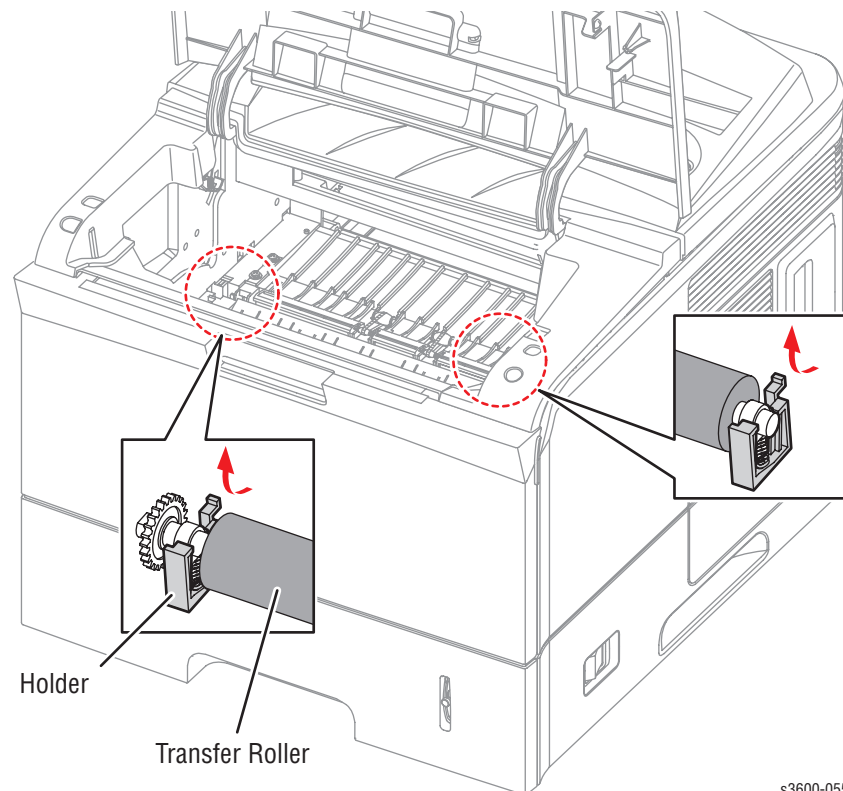
Do not touch the surface of the Transfer Roller.

1. Open the Top Cover (page 7-10).
2. Remove the Print Cartridge and protect it from exposure to light.
3. Locate the cap on the left side of the Transfer Roller.
4. Use small needlenose pliers to depress one end of the cap and remove from the roller.
5. Pull the tab of the bearing clips on both ends of the Transfer Roller toward you to release roller tension.
6. Slide the roller slightly to the right so the end of the shaft clears the lip on the printer case and lift the Transfer Roller and the Bearing Clips from the printer.



Caution

Be careful not to drop the separate springs, copper contact, and plastic parts into the chassis.



s3600-055

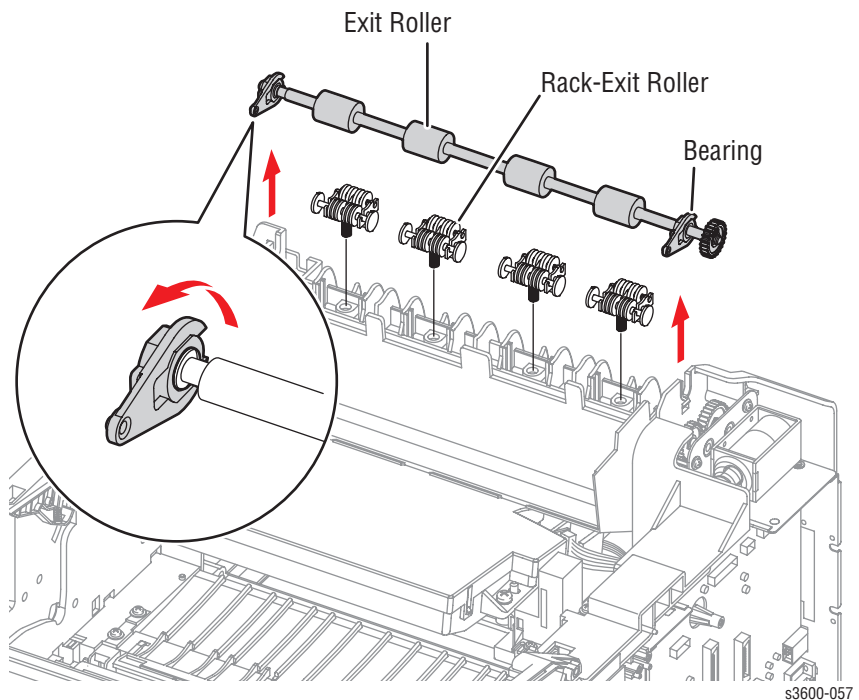
Exit Roller (PL 1.3.6)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the locking bearings from both ends of the shaft.



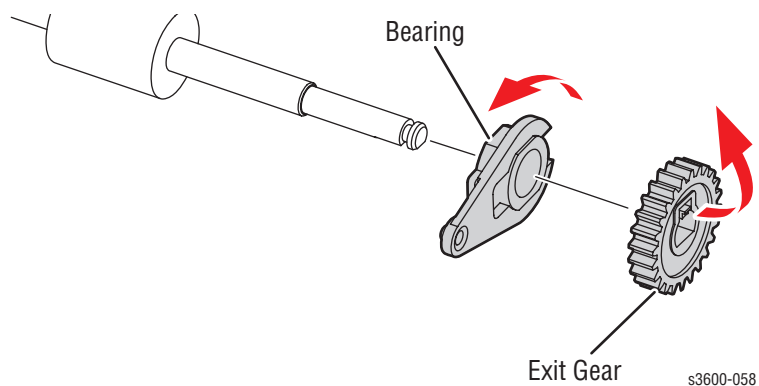
Caution

When you remove the Exit Rollers, do not lose the springs.



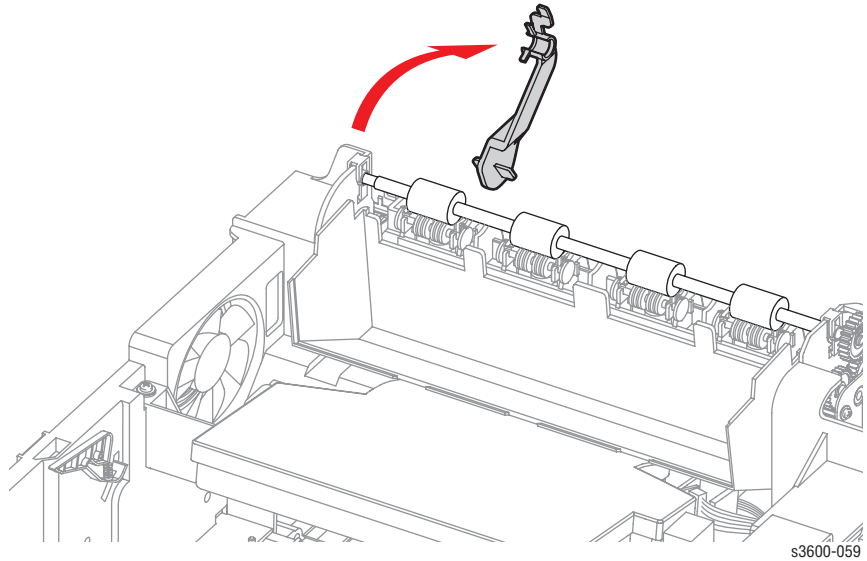
Exit Gear (PL 1.3.9)

1. Remove the bearing in order to remove the Exit Gear.



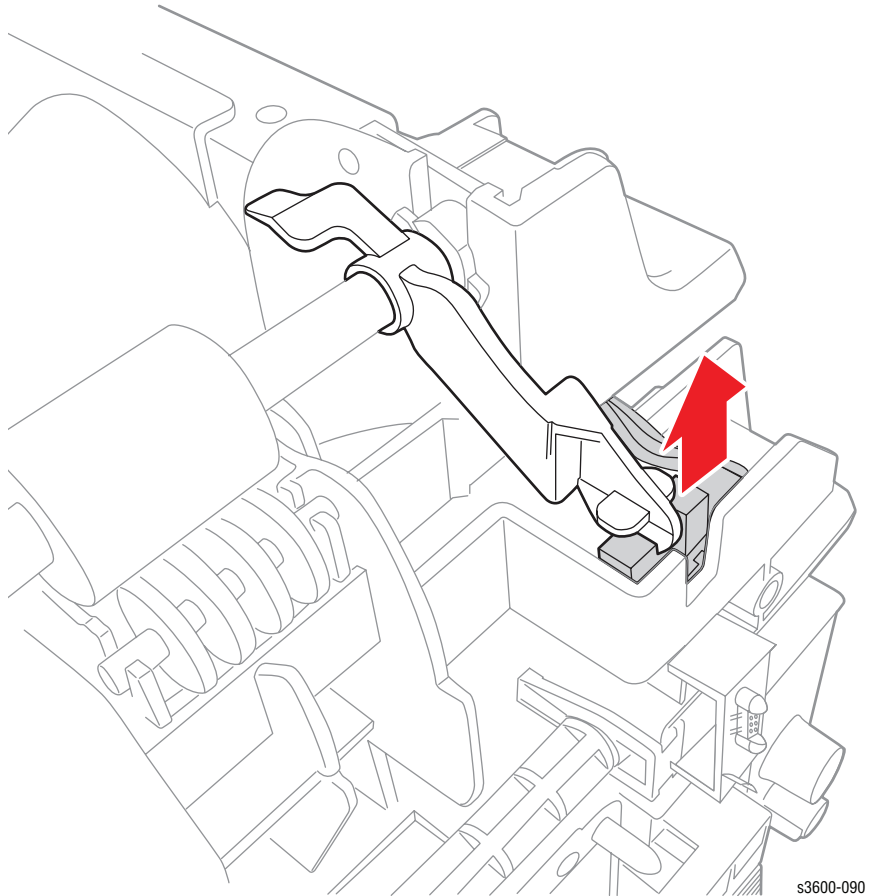
Outbin Full Actuator (PL 1.3.8)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. To remove the Actuator, carefully separate the two plastic tabs on the actuator and lift free from the Exit Roller indentation.



Outbin Full Sensor (PL1.3.21)

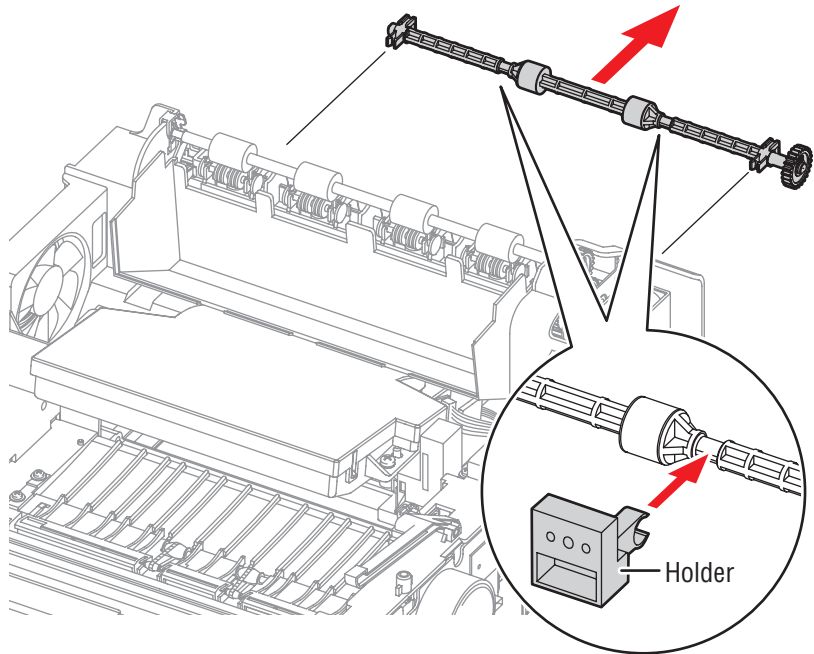
1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Disconnect the 3-wire harness connector (CN3) from the Toner Sensor Board.
5. Pinch two black mounting tabs from underneath the sensors to release and remove the sensor.



s3600-090

Duplex Roller (PL 1.3.11)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Using a small flatblade screwdriver, spread apart the bearings on both side of the duplex roller and remove from the printer.



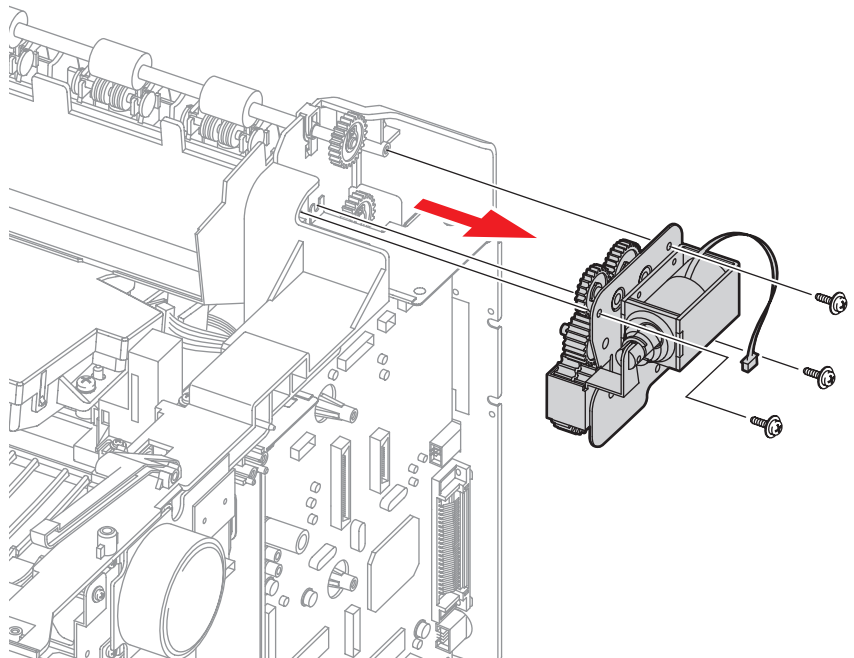
s3600-060

Exit Solenoid (PL 1.1.16)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Disconnect connector CN10 from the Main Board.
5. Remove 3 screws securing the solenoid to the printer.
6. Remove the solenoid assembly.

Note

There is a resistor attached by the upper right hand screw. When reassembling the printer, ensure the resistor is in place.

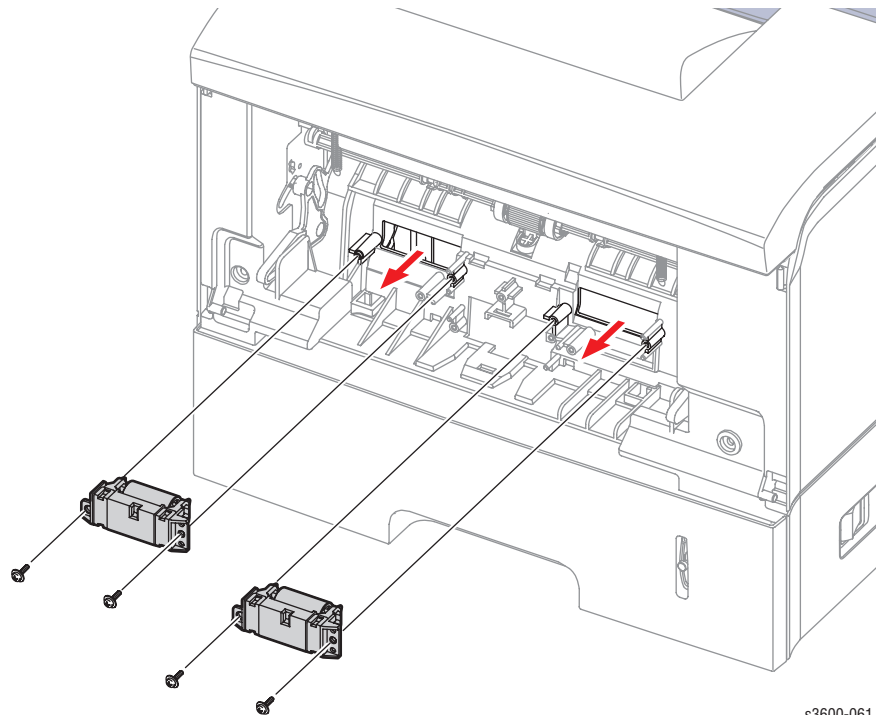


s3600-056

Frame Assembly

Feed Idle Unit (PL 1.3.50)

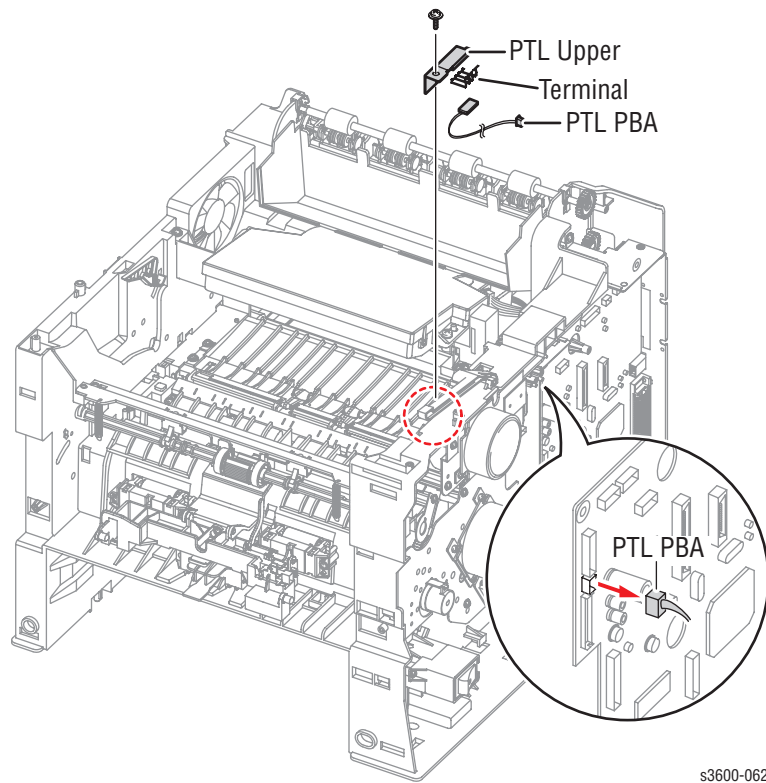
1. Remove the Tray 1 (MPT) Assembly (page 7-14).
2. Remove the Retard Assembly (page 7-19).
3. Remove the Tray 1 Separator (Holder) Pad Assembly (page 7-20).
4. Remove 4 screws, 2 for each of the Feed Idle Units.
5. Remove each Feed Idle Unit.



s3600-061

Pre-transfer Lamp (PTL) Board (PL 1.3.71)

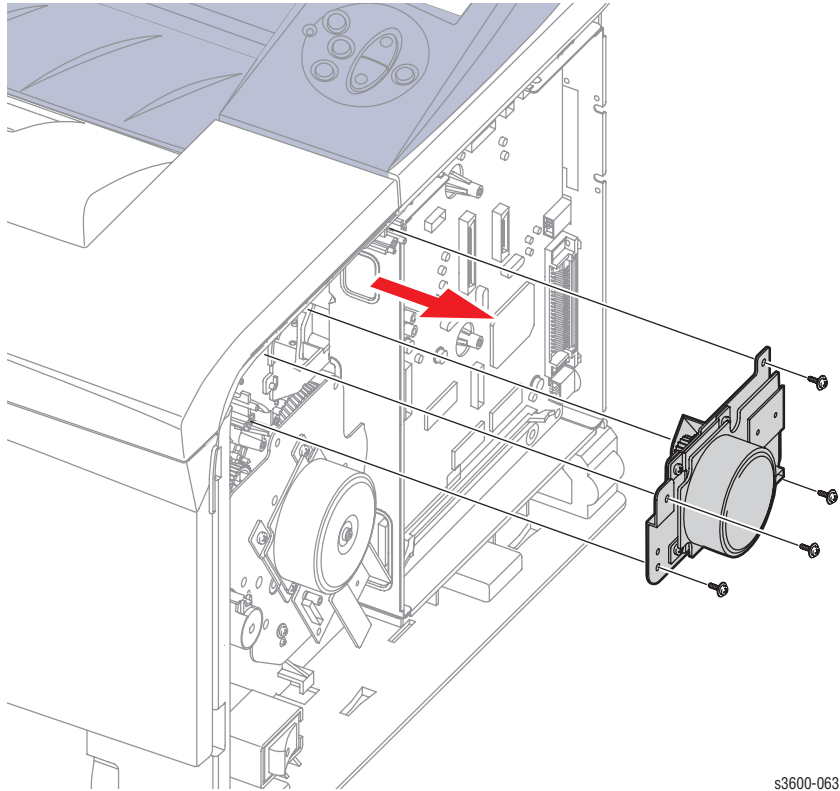
1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the Registration Assembly (page 7-41).
5. Disconnect the wiring harness (CN22) from the Main Board.
6. Remove 1 screw and take out the PTL board.



s3600-062

Developer Drive Assembly (PL 1.1.17)

1. Remove the Right Cover (page 7-6).
2. Disconnect the Developer Drive Assembly from the connector (CN21) on the Main Board.
3. Remove 4 screws securing the assembly to the printer.



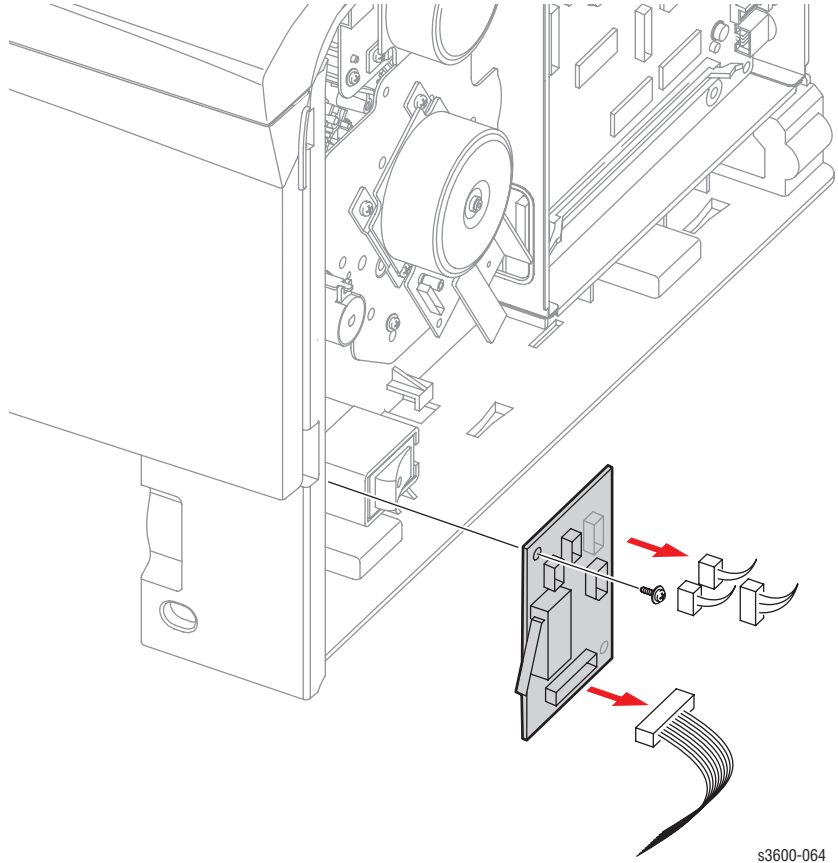
s3600-063

Replacement Note

Reassemble the 4 screws in order of the numbers etched in the metal plates of the Developer Drive Assembly.

Joint Board (PL 1.3.61)

1. Remove the Right Cover (page 7-6).
2. Disconnect all connectors to the Joint Board.
3. Remove 1 screw securing the Joint Board to the chassis and remove.



Replacement Note

Be sure to insert the board in the securing slot before re-installing the board. Secure with the single screw.

Paper Size Sensor (PL 1.3.14)

Note

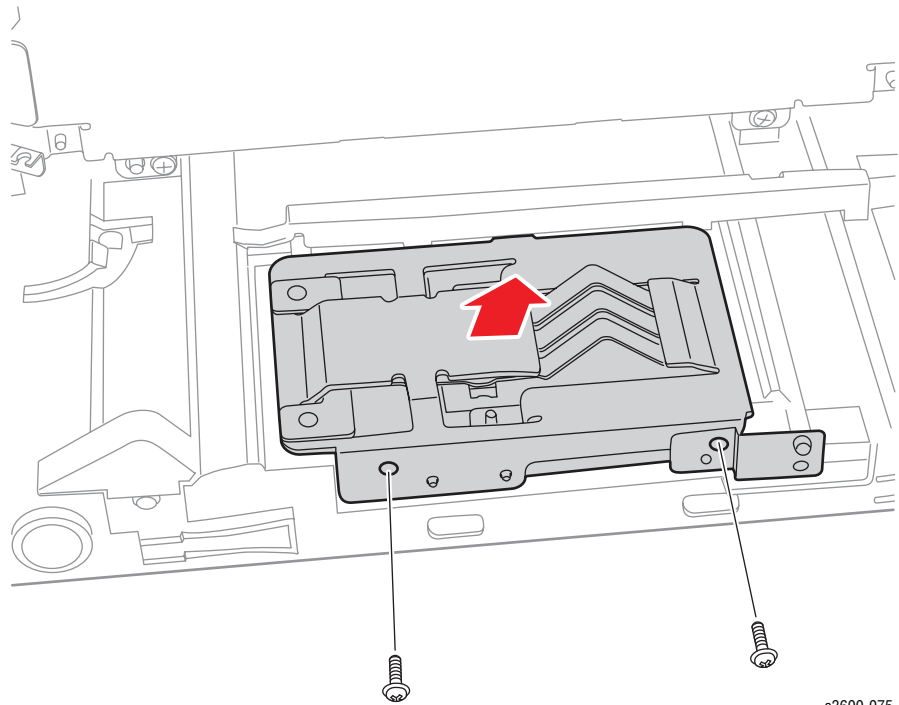
If Tray 2 or the optional Tray 3 Feeder is installed, they must be removed before performing this procedure.

1. Remove the Print Cartridge.
2. Remove the Left Cover (page 7-7).
3. Disconnect connector (PSIZE) from the Paper Size Sensor.
4. Gently turn the printer upside down.

Note

The Paper Size Sensor can be removed and replaced without removing the rear crossbar. However, to provide improved access, remove the crossbar screw above the Paper Size Sensor and loosen the screw on the other side so you can swing the crossbar out of the way.

5. From the bottom of the printer, remove 2 screws (6mm) holding the Paper Size Sensor assembly to the chassis and lift free from the printer.
6. To remove the sensor board from the Paper Size Sensor assembly, remove two screws that secure the Paper Size Sensor to the assembly.



s3600-075

Replacement Note

Do not lose the copper mounting shield that connects the assembly to the chassis.

Fuser Assembly (1.3.80)



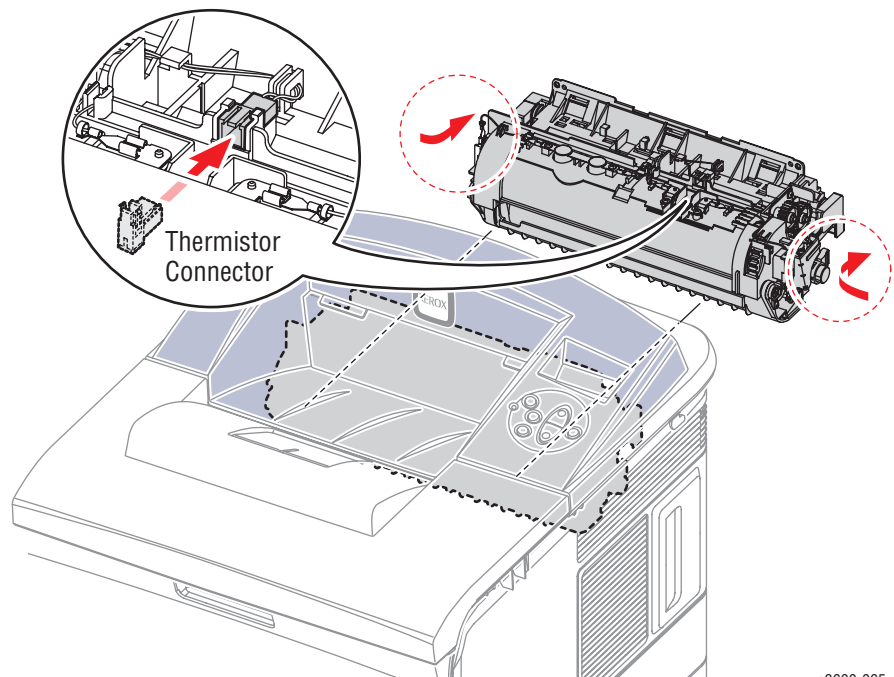
Warning

Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Rear Cover (page 7-8).
2. Pull the locking lever and take out the Fuser Assembly.

Note

Press the two green tabs towards the center of the machine to pull out the Fuser.



s3600-065

Replacement Note

When you replace the Fuser, run the Clean Fuser cycle from the Control Panel (page 6-4).

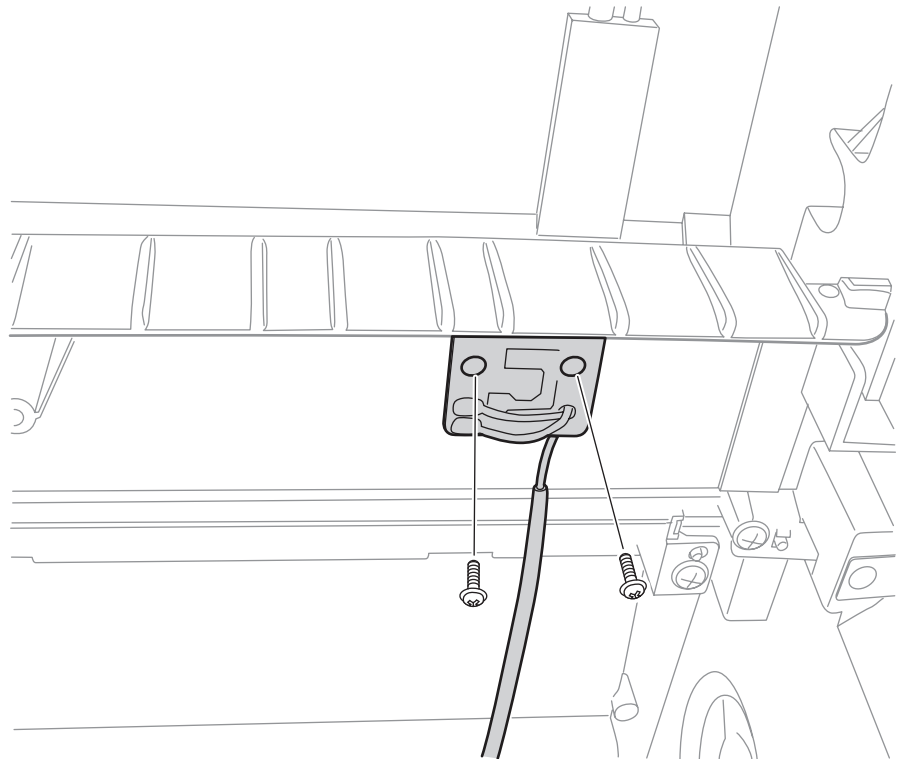
Fuser Interlock Switch (PL 1.3.77)



Warning

Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Left Cover (page 7-7).
2. Remove the Rear Cover (page 7-8).
3. Follow the instructions for removing the SMPS Power Supply (page 7-76).
4. Disconnect the connector from CON5 of the SMPS Power Supply.
5. From the bottom of the printer, remove the screws holding the sensor to the chassis.
6. Remove the Fuser Interlock Switch and wire harness.



s3600-102

Fuser Exit Sensor (PL 1.3.76)



Warning

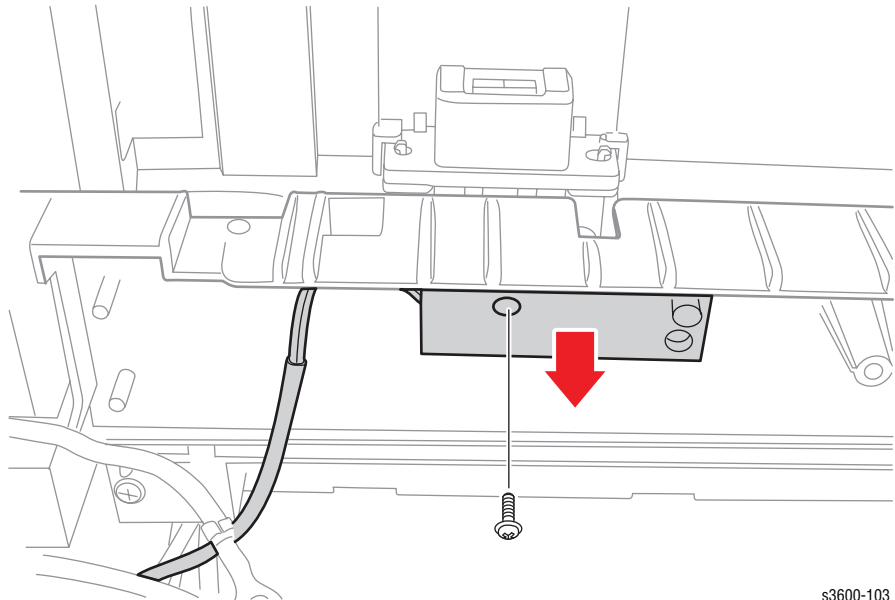
Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Left Cover (page 7-7).
2. Remove the Rear Cover (page 7-8).
3. Pull the locking lever and take out the Fuser Assembly.

Note

Press the two green tabs towards the center of the machine to pull out the Fuser.

4. From the left side of the printer, disconnect CN24 from the Main Board.
5. Free the CN24 harness and carefully pull into the interior of the printer.
6. Follow the instructions for removing the SMPS Power Supply (page 7-76).
7. From the bottom of the printer, remove a single screw holding the sensor to the chassis.
8. Remove the Fuser Exit Sensor and wire harness.



s3600-103

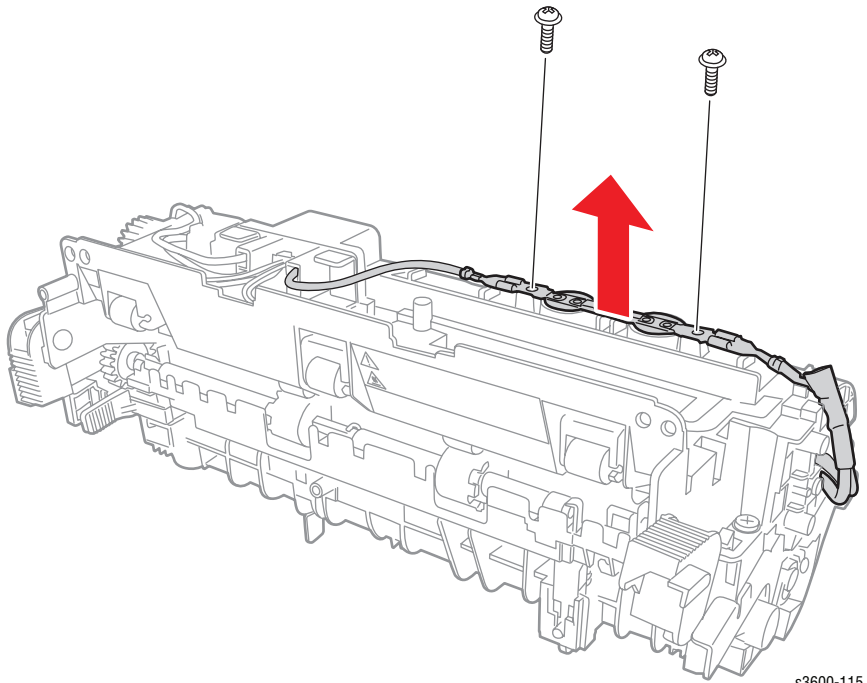
Fuser Thermostat (PL 1.4.3)



Warning

Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Fuser Assembly from the Printer (page 7-54).
2. Remove two screws (6mm) securing the Thermostat to the Fuser assembly.
3. Slide one wire connector off each end of the Thermostat tabs.



4. Pull the Thermostat free from the Fuser Assembly.

Replacement Note

Be sure to insert the Thermostat with the Foil side near the edge of the Assembly.

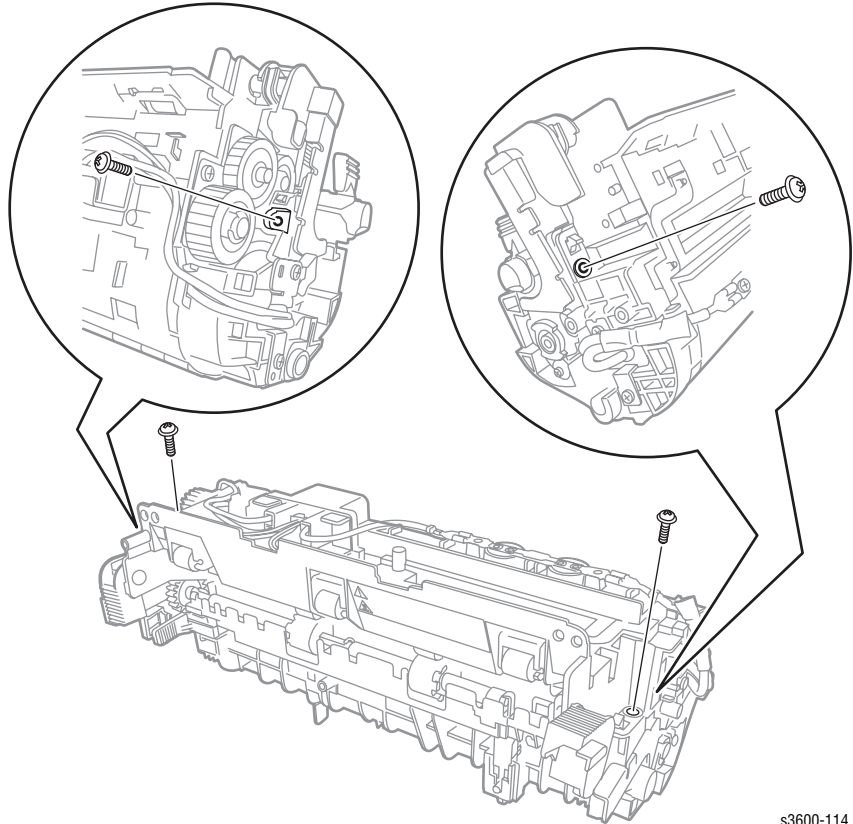
Fuser Thermistor (PL 1.4.40)



Warning

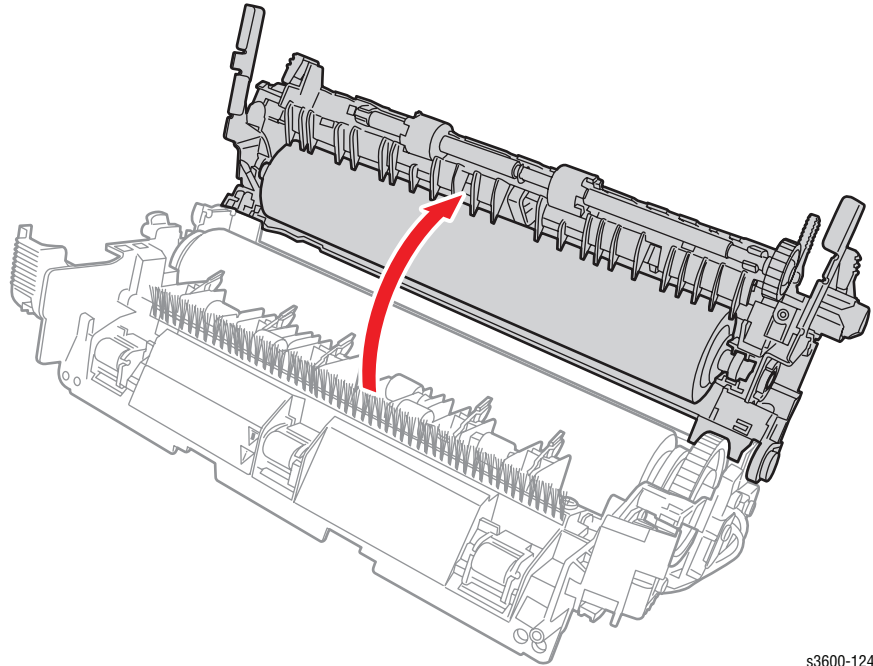
Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Fuser Assembly from the Printer (page 7-54).
2. Remove two screws from the Fuser assembly (see inset below).



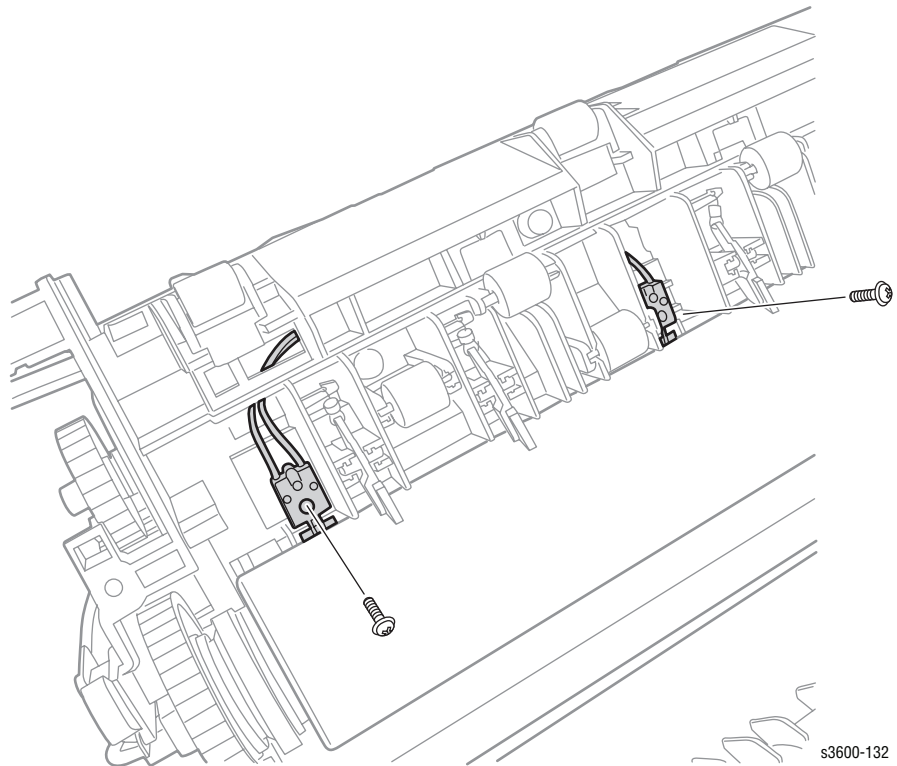
s3600-114

3. Unfold the Fuser Assembly to expose the Heat Roller and the Pressure Roller.



s3600-124

4. Disconnect the 4-wire Thermistor plug from the Fuser Connector.
5. Remove one screw holding each of the two Thermistors and remove both thermistors with plug wiring harness from the Fuser Assembly.



s3600-132

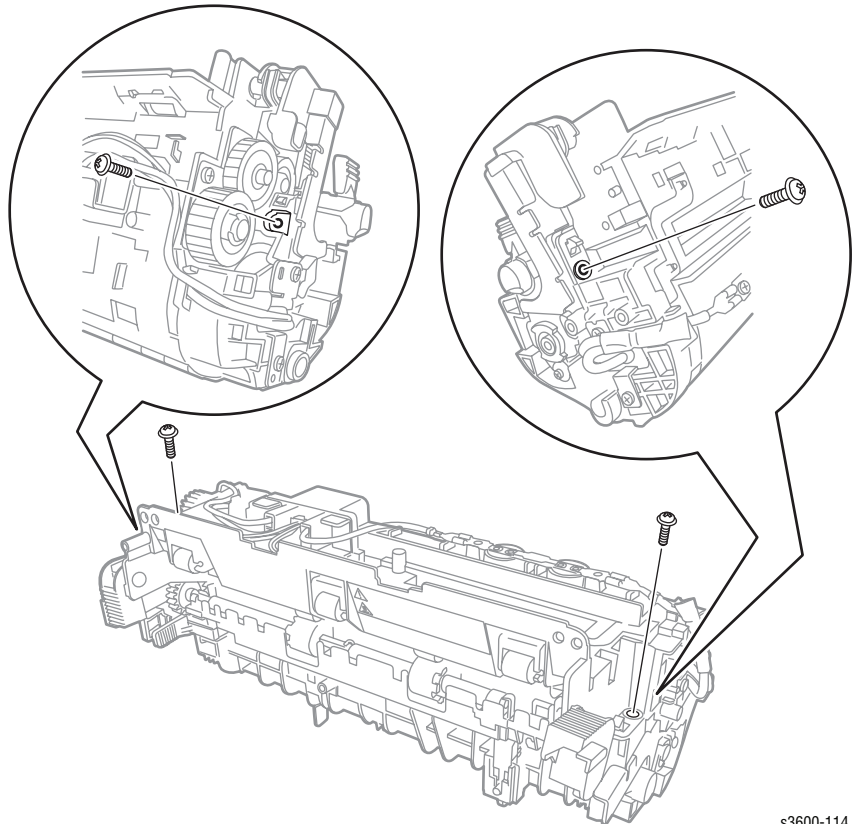
Heat Roller (PL 1.4.53) and Bushing (PL 1.4.44)



Warning

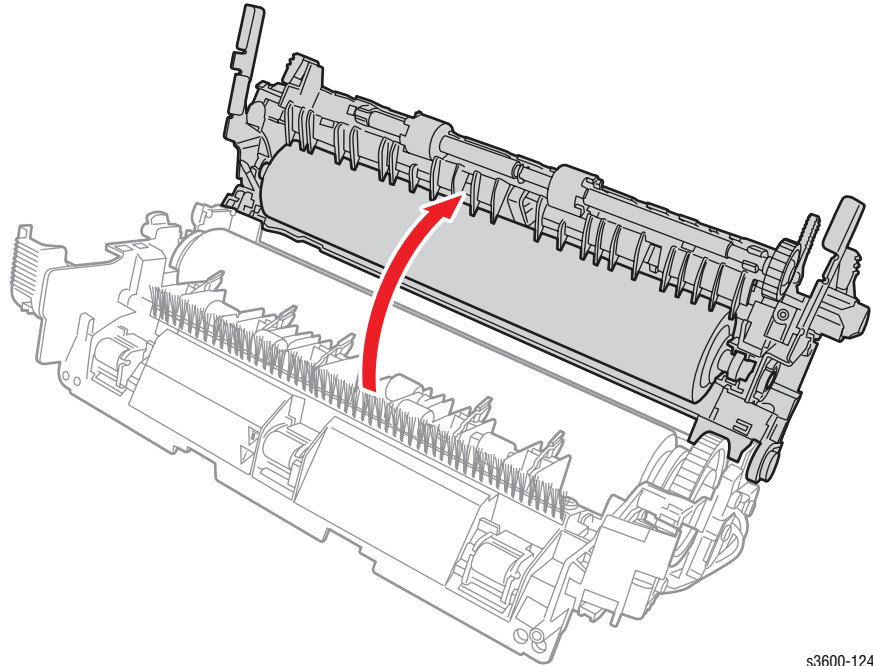
Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Fuser Assembly from the Printer (page 7-54).
2. Remove two screws from the Fuser assembly (see inset below).



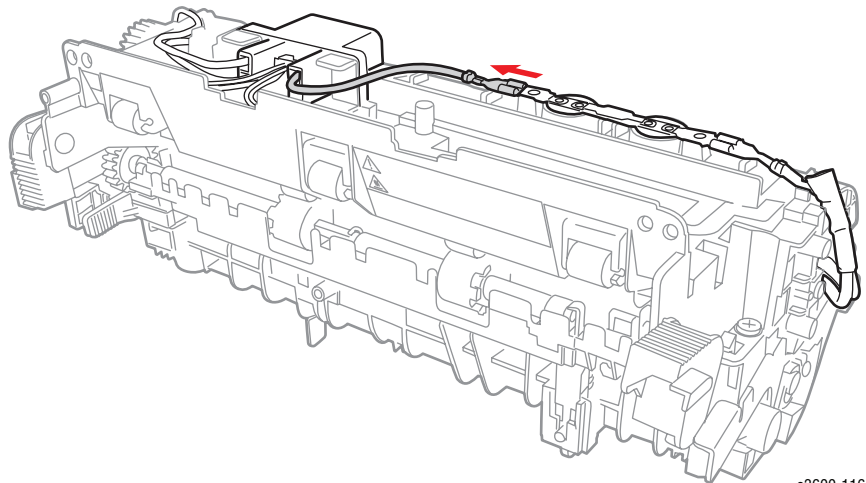
s3600-114

3. Unfold the Fuser Assembly to expose the Heat Roller and the Pressure Roller.



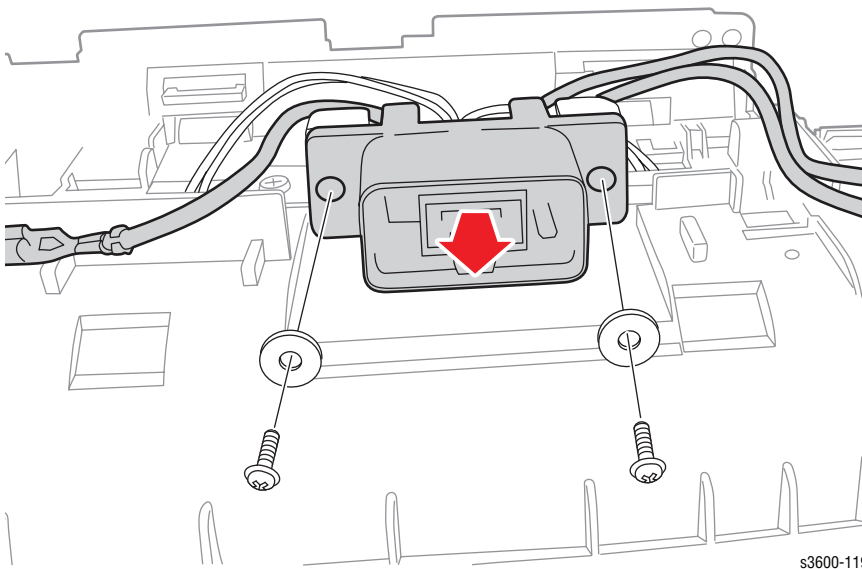
s3600-124

4. Facing the Fuser Connector, disconnect the single wire connector from the right tab of the Thermistor.

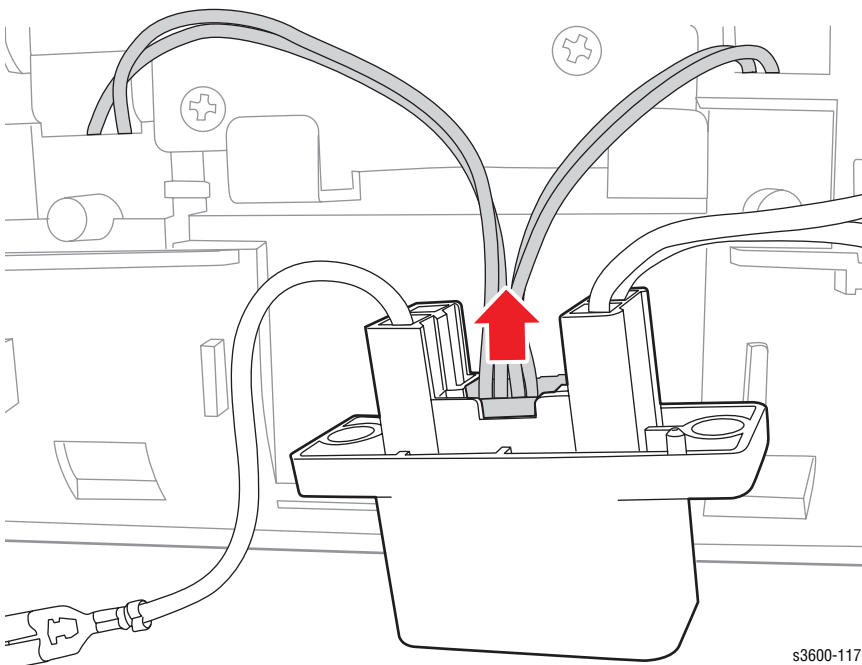


s3600-116

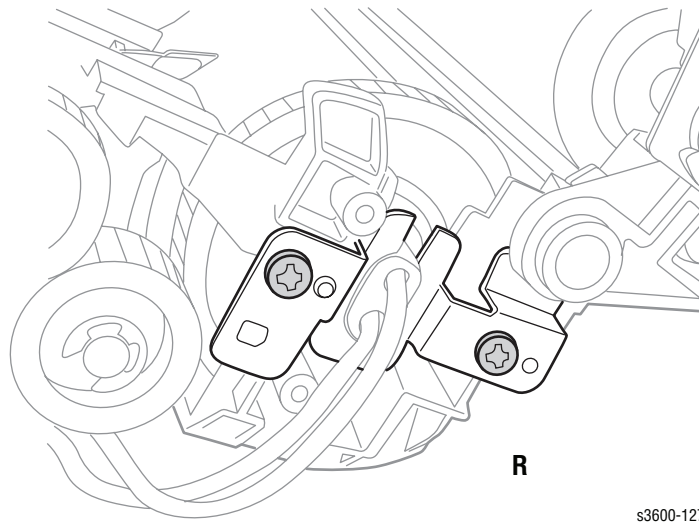
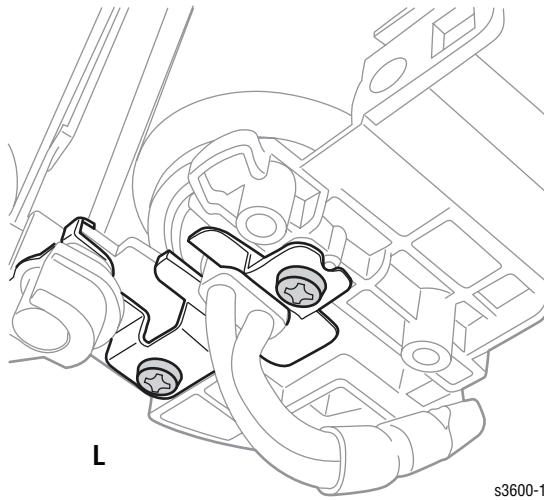
5. Remove two screws (8mm) securing the Fuser connector to the Fuser Assembly.



6. Disconnect the center Thermistor plug from the Fuser Connector.



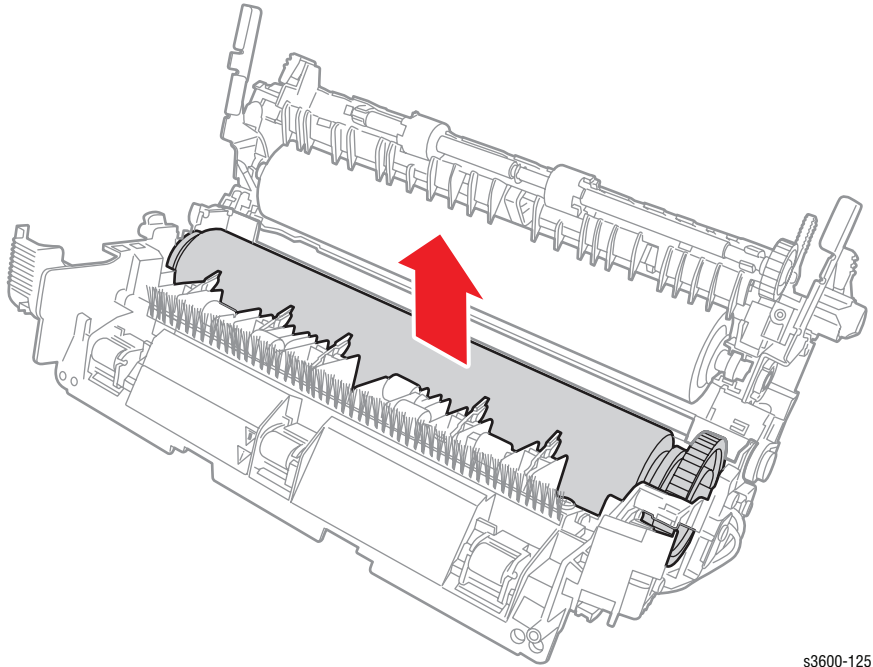
7. Loosen (but do not remove) two screws (6mm) securing the Heat Roller retaining plates on each side of the Heat Roller.



8. Pull the retaining plates away from roller and lift the roller free from the assembly.

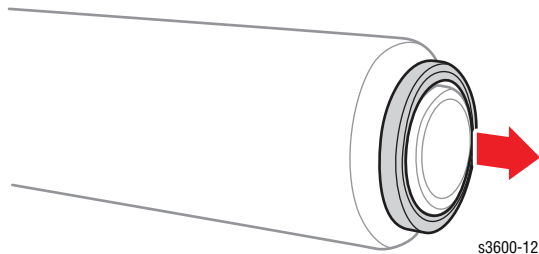
Note

Make sure you do not lose any of the Heat Roller claws.



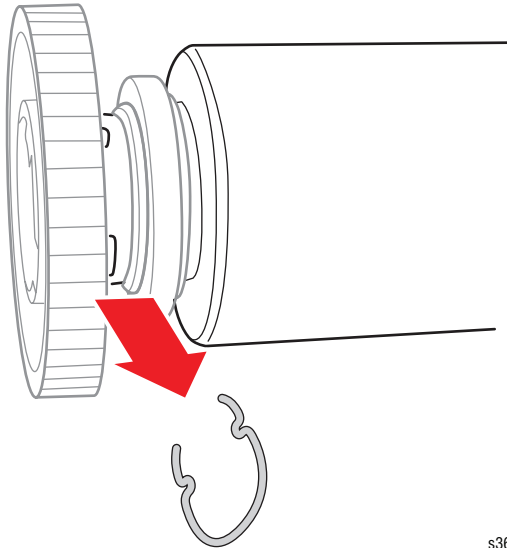
s3600-125

9. Remove the bushing (and rubber sleeve) from the left side of the roller.



s3600-121

10. From the right side of the roller, remove the spring retaining clip securing the gear to the roller.



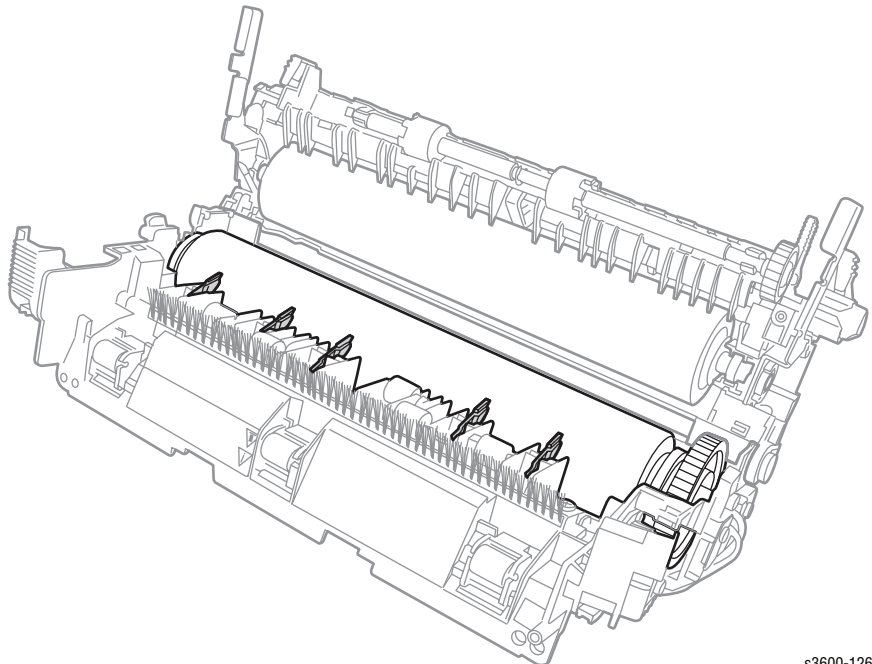
s3600-122

**Caution**

Be careful not to break the Dual-lamp when removing the roller.

**Caution**

Be sure to seat the Heat Roller claws over the Heat Roller before securing the Heat Roller to the assembly.



s3600-126

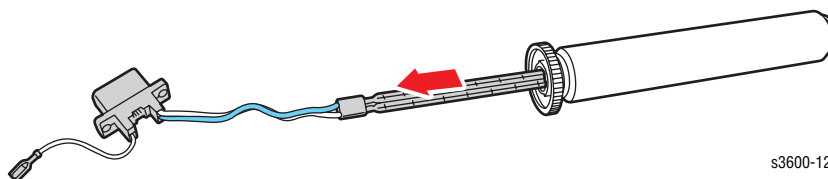
Dual-lamp (PL 1.4.56)



Warning

Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Fuser Assembly from the Printer (page 7-54).
2. Remove the Heat Roller and Bushing (page 7-60).
3. Slide the Dual-lamp free from the Heat Roller.



s3600-120



Caution

Do not touch the lamps when re-installing. Fingerprints can cause the lamps to burn out prematurely.

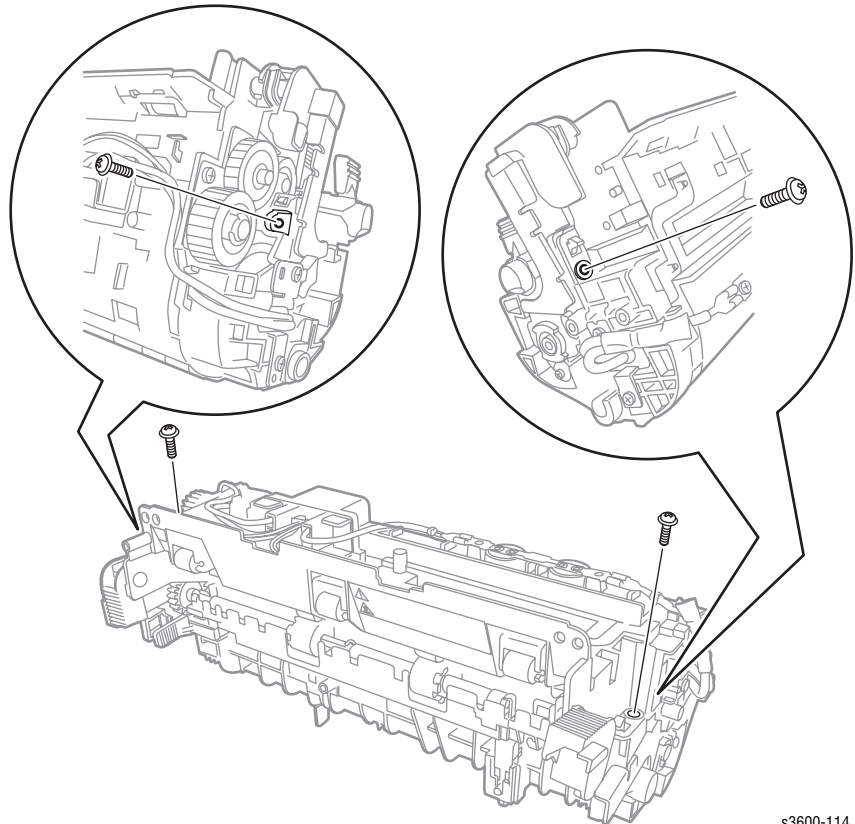
Pressure Roller (PL 1.4.66) and Bushing (PL 1.4.50)



Warning

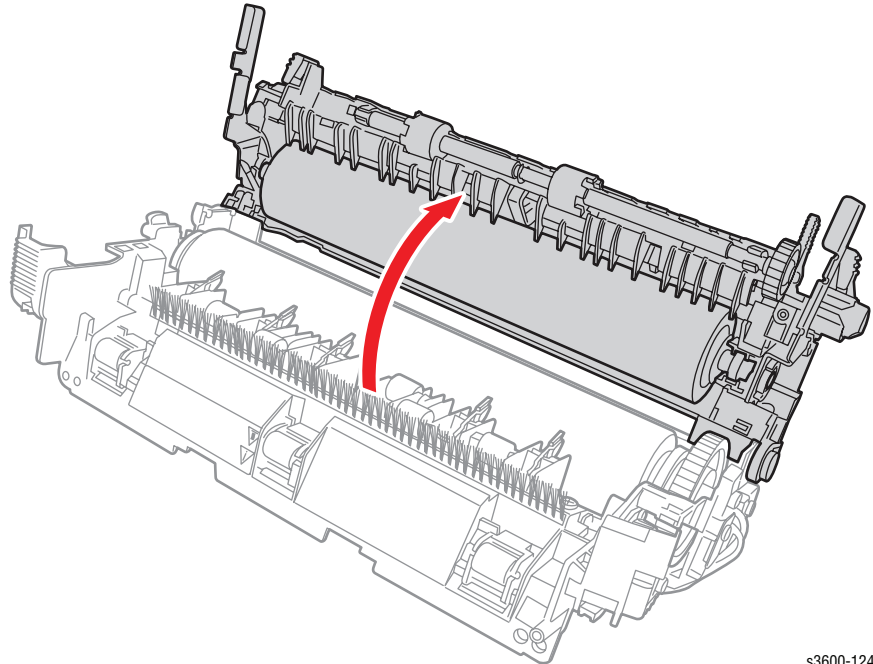
Be sure you turn off the Printer and let the Fuser cool for 5 minutes

1. Remove the Fuser Assembly from the Printer (page 7-54).
2. Remove two screws from the Fuser assembly (see inset below).



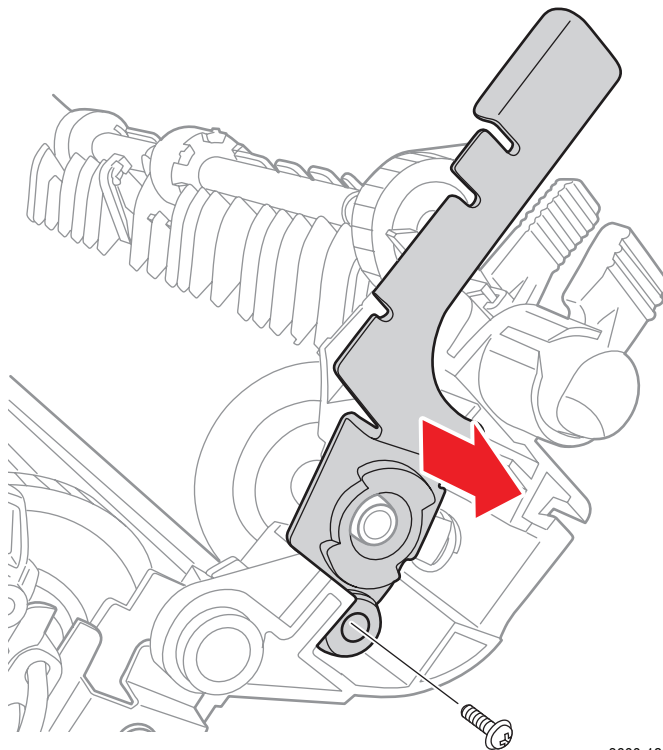
s3600-114

3. Unfold the Fuser Assembly to expose the Heat Roller and the Pressure Roller.

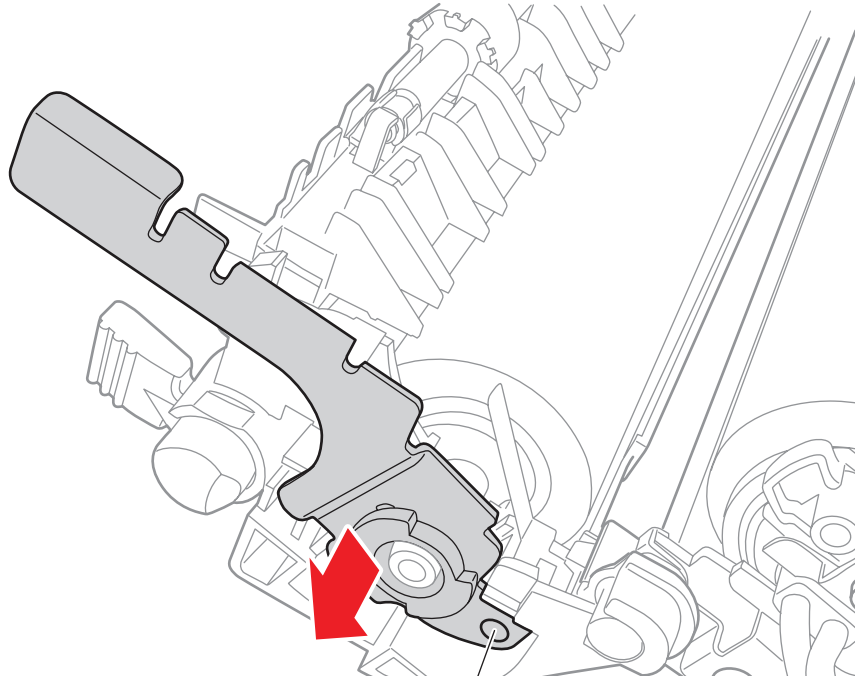


s3600-124

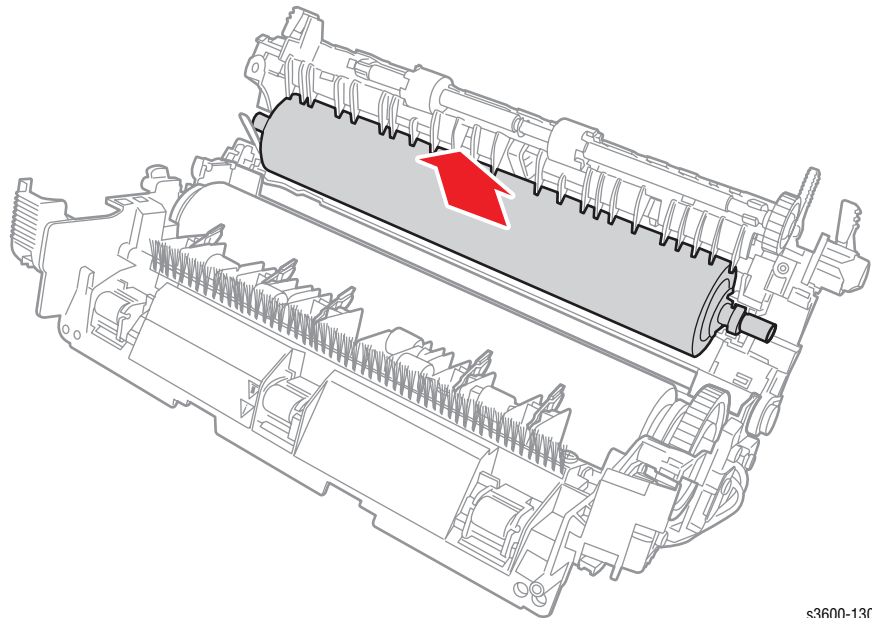
4. Facing the Fuser Connector, disconnect the single wire connector from the right tab of the Thermistor.
5. Remove two screws (8mm) securing the Fuser connector to the Fuser Assembly.
6. Remove one screw from each end of the Pressure Roller.



s3600-128



7. Slide the retaining plate and bushing off of each end of the Pressure Roller.
8. Lift the Pressure Roller free from the assembly.



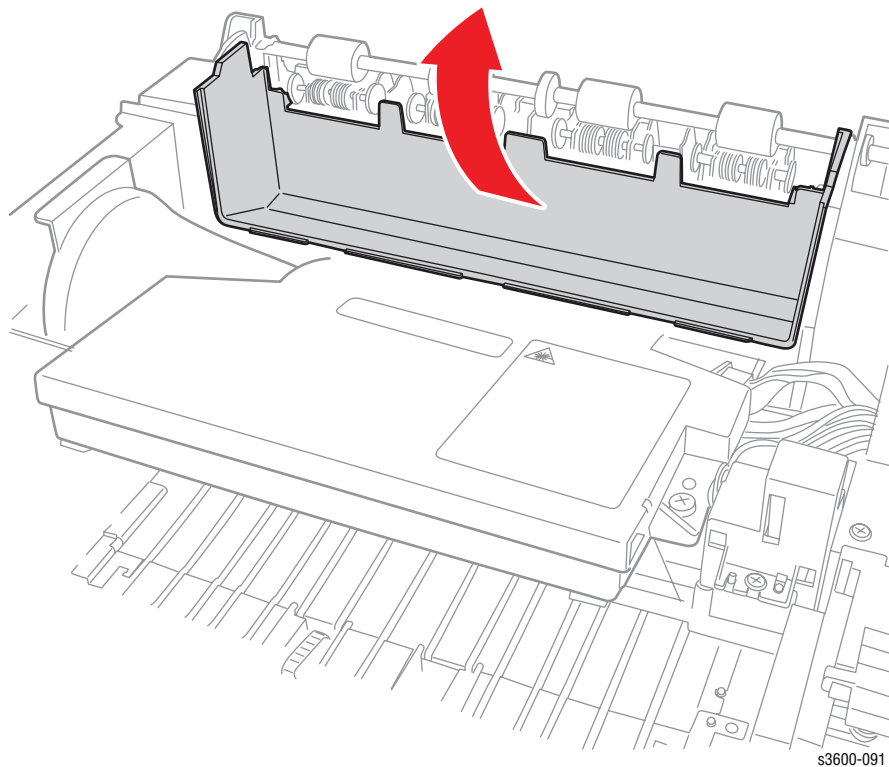
s3600-130

Replacement Note

Slide the retaining plates with bushings onto the Roller and seat into the plastic retainers before securing the two end screws.

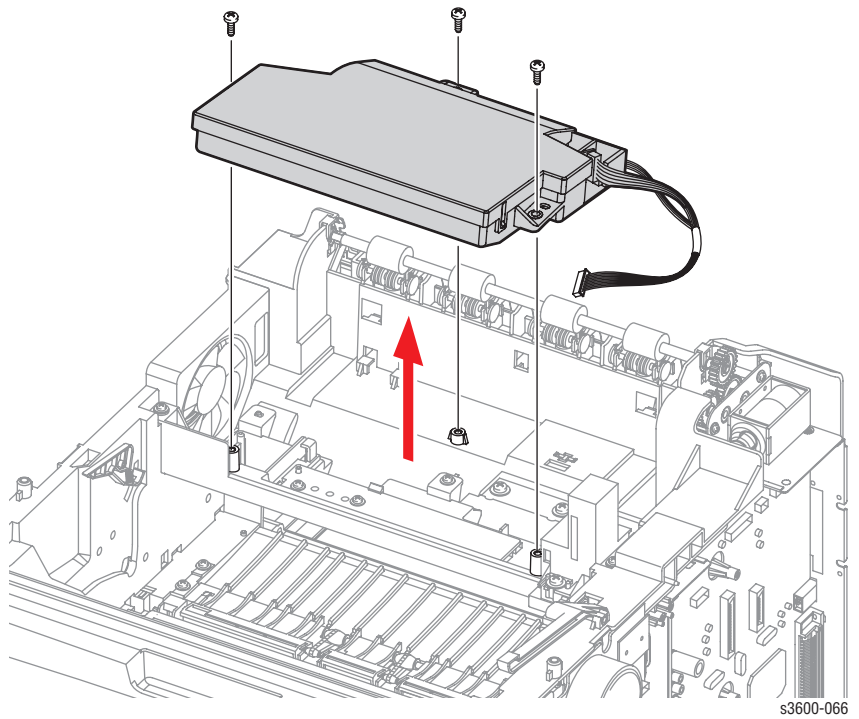
Laser Scan Unit (PL 1.1.15)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the cover-frame exit cover.



s3600-091

5. Disconnect the LSU cable connector from CN10 on the Main Board.
6. Remove the 3 screws (8mm) securing the LSU to the chassis and remove the LSU from the printer.

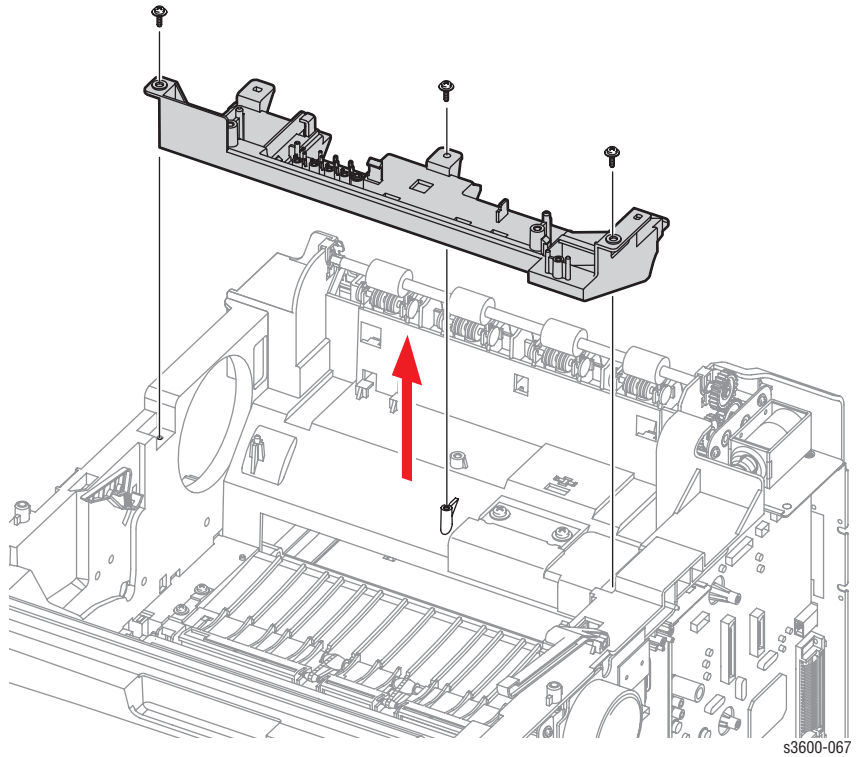


Replacement Note

The screws are numbered and need to be replaced and tightened in the correct order.

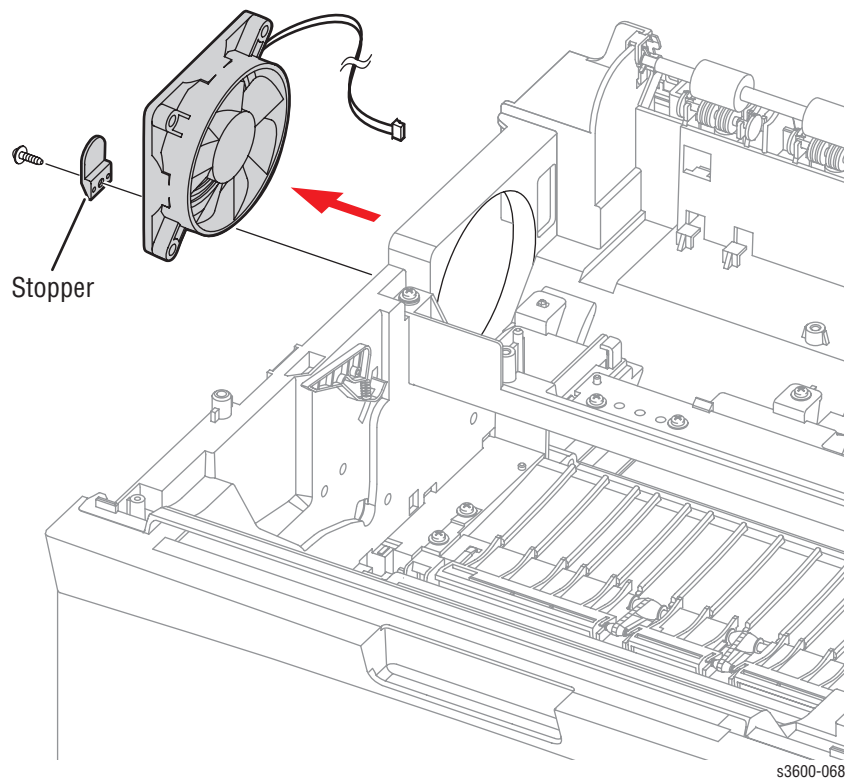
LSU Lower Cover (PL 1.3.48)

1. Remove 1 screw securing the fan duct.
2. Remove the fan and duct to access the screws in the next step.
3. Remove 3 screws (12mm) securing the LSU Cover.
4. Disconnect all the connectors running to the LSU Cover.
5. Lift the cover free from the chassis.



Left Side Cooling Supply Fan and Duct (PL 1.1.31)

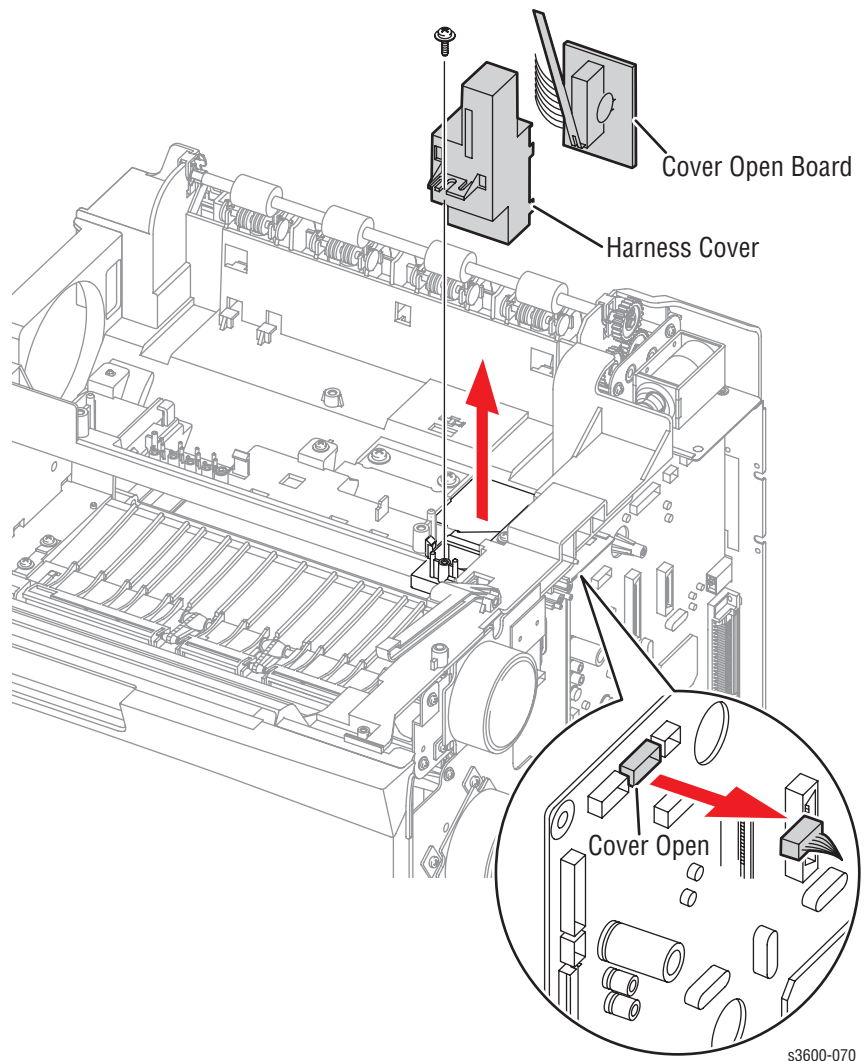
1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the Laser Scan Unit (page 7-70).
5. Remove the LSU Lower Cover (page 7-72).
6. Remove a single screw and lift the fan duct covering the Toner Sensor Board.
7. Disconnect the fan connector to the Toner Sensor Board.
8. Remove 1 screw to remove the fan from the printer.



s3600-068

Cover Open Board and Sensor (PL 1.3.47)

1. Remove the Right Cover (page 7-6).
2. Remove the Left Cover (page 7-7).
3. Remove the Top Cover (page 7-10).
4. Remove the Laser Scan Unit (page 7-70).
5. Remove the LSU Lower Cover (page 7-72).
6. Remove 1 screw securing the cover open housing harness cover.
7. Release the latching tab and remove the cover open housing harness cover.
8. Disconnect the connector (CN13) from the Main Board.
9. Using a small flatblade screwdriver, release the 4 tabs to remove the Cover Open Board.



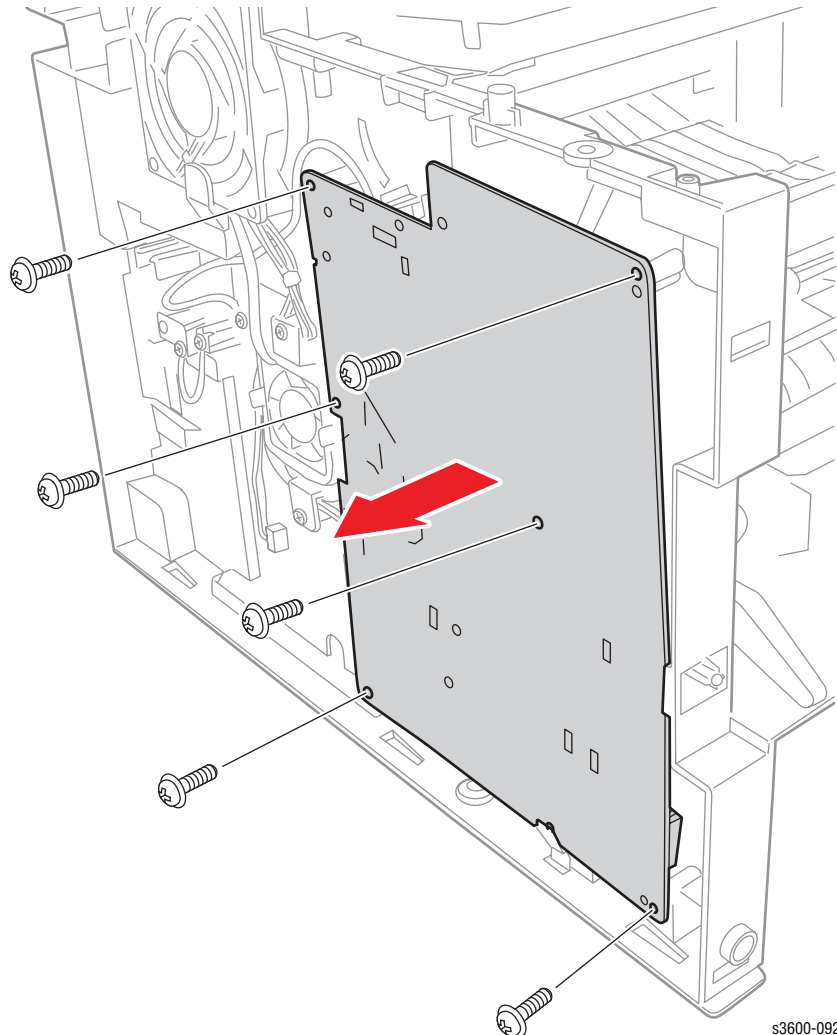
Power Supplies

High Voltage Power Supply (HVPS) (PL 1.1.29.1)

Note

Do not lose the three board-retaining springs when removing the HVPS.

1. Remove the Left Cover (page 7-7).
2. Remove the Rear Cover (page 7-8).



s3600-092

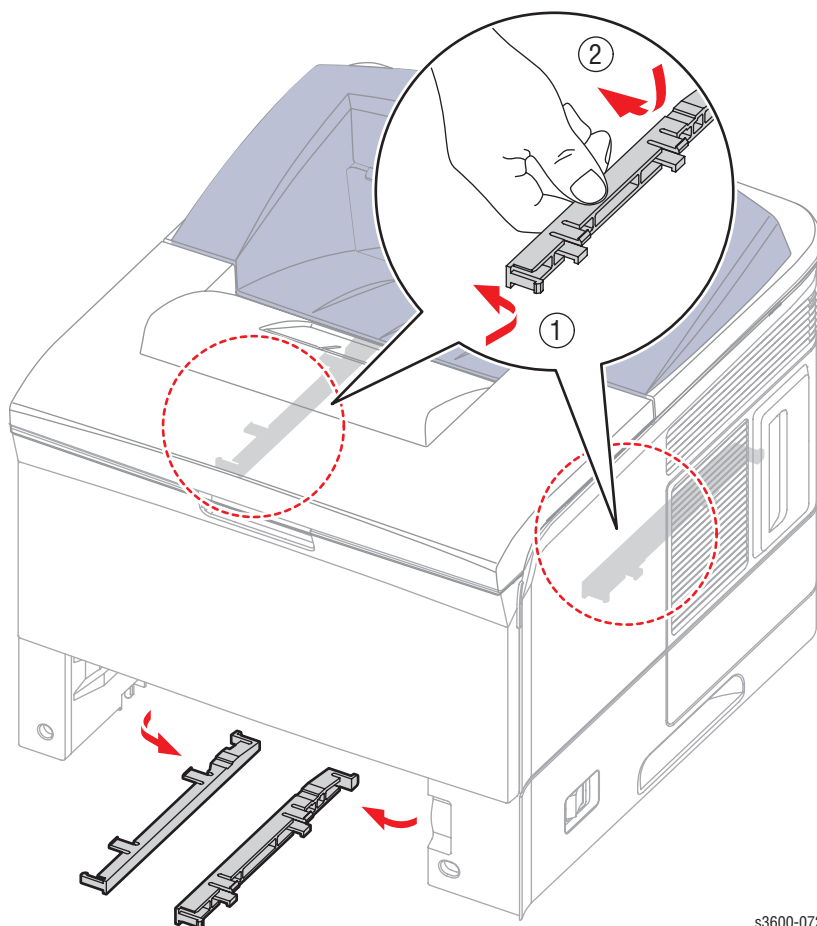
3. Remove 6 screws from the HVPS.
4. Disconnect all connectors from the HVPS.
5. Remove the HVPS from the printer.

Replacement Note

After reinstalling the SMPS board, make sure the actuator from the chassis can move freely into the Paper Tray Empty Sensor.

Switched Mode Power Supply (PL 1.1.29.2)

1. Remove the Print Cartridge.
2. Remove Tray 2 and Tray 3 (if installed).
3. Remove the Right Cover (page 7-6).
4. Remove the Rear Cover (page 7-8).
5. Remove the Registration Assembly (page 7-41).
6. Turn the printer upside down so that you are viewing the bottom of the chassis.
7. Remove the rear Cross Bar secured by 2 screws.
8. Remove the Tray 2 No Paper Actuator for better access.
9. Remove the left and right Duplex Unit Guides.



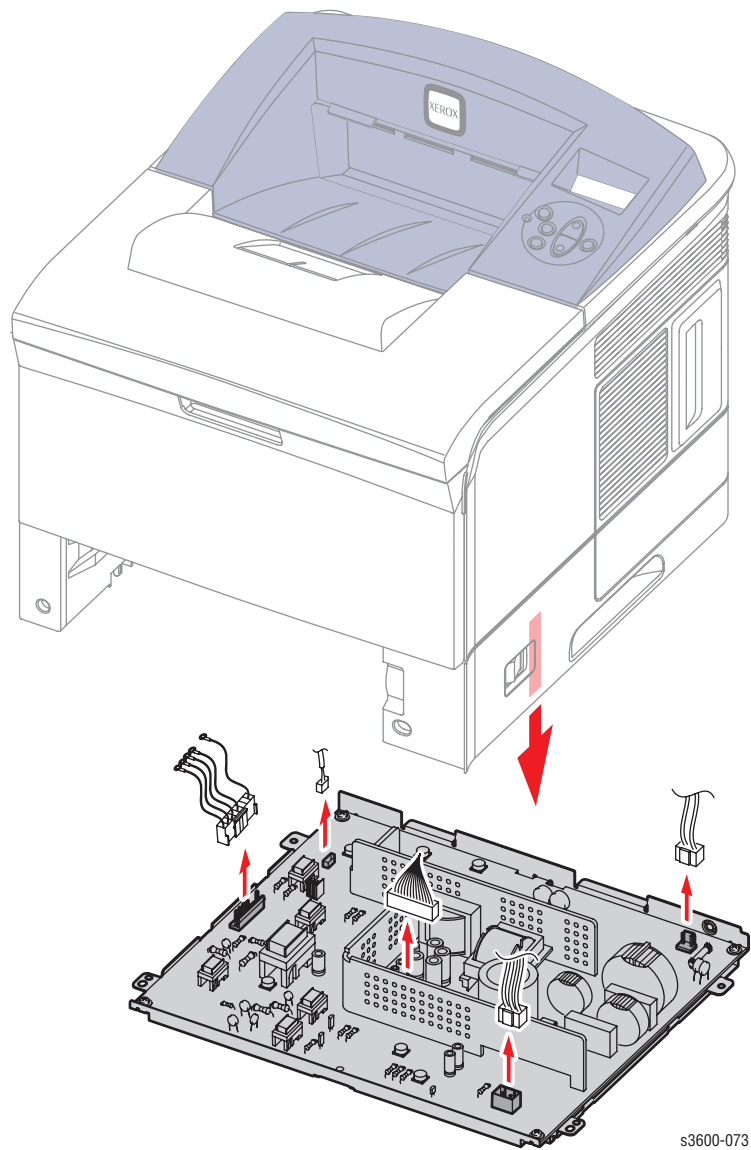
s3600-072

10. Remove 5 screws from the SMPS Power Supply Board.
11. Remove one grounding screw from the rear of the power supply.
12. Remove the SMPS Power Supply Board from the printer.



Caution

Since the fuser wire is hardwired to the SMPS Power Supply Board, disconnect the wire from the fuser side.



Parts List

In this chapter...

- Serial Number Format
- Using the Parts List
- PL 1.1 Main Assembly
- PL 1.2 Cover Assembly
- PL 1.3 Frame Assembly (1 of 2)
- PL 1.3 Frame Assembly (2 of 2)
- PL 1.4 Fuser Assembly
- PL 2.1 Tray 2 Cassette
- PL 2.2 Tray 3 Cassette
- PL 2.3 Duplex Assembly

Chapter 8

Serial Number Format

Changes to Xerox products are made to accommodate improved components as they become available. It is important when ordering parts to include the following information:

- Component's part number
- Product type or model number
- Serial Number of the printer

The serial number is found on a label located on the frame of the printer. Front Cover must be opened to locate the Serial Number.

The nine-digit serial number has the following format:

■ **PPPRSSSSS**

■ **PPP** = Three digit alphanumeric product code

■ **R** = Single digit numeric revision digit, 0~9. To be rolled when a major product change occurs and initiated with a change request.

Product Code	Product
MLB	3600_B, 110 V Engine
MKA	3600V_B, 220 V Engine
MHB	3600_N, 110 V Engine
MHX	3600V_N, 220 V Engine

Mass Production Units (MP Build)

PPP1SSSSS

SSSSS = Five digit numeric serial number based on the following table:

Product	Starting Serial Number	Ending Serial Number
3600_B, 110 V Engine	804501	836500
3600V_B, 220 V Engine	836501	843500
3600_N, 110 V Engine	843501	908500
3600V_N, 220 V Engine	908501	995500

Example

MLB1804599: Xerox Serial Number

MLB: Product Code for the Phaser 3600, configuration B, 110V printer

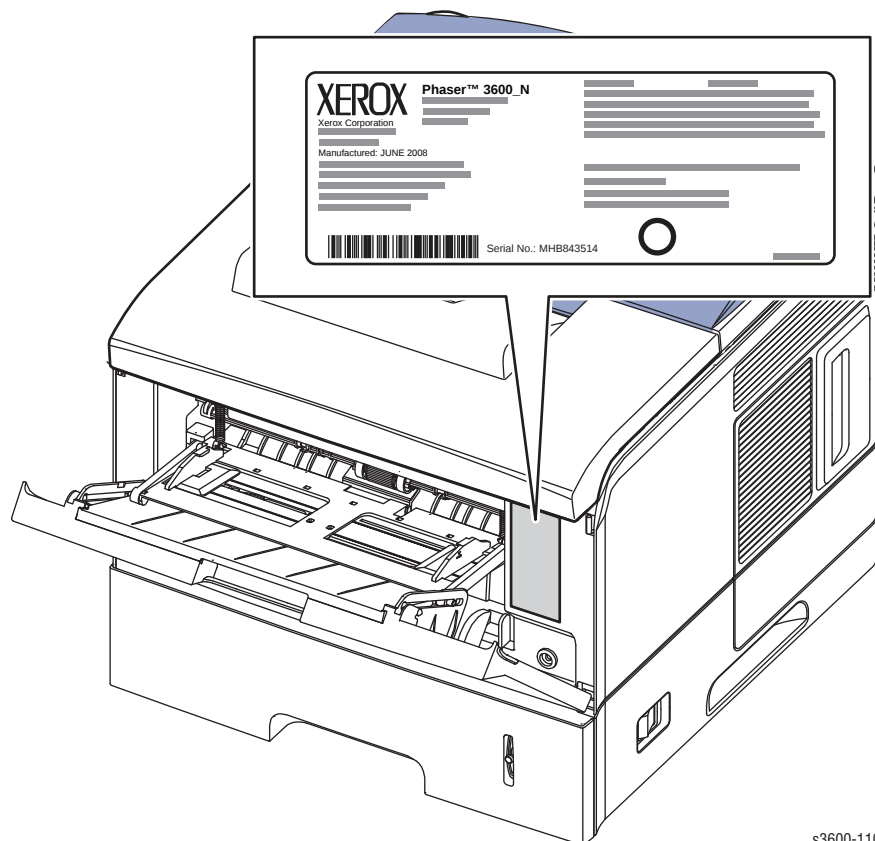
1 = Revision Level

804599 = Serial Number for 3600_B

Serial Number Format

Serial Number Label Location

The location of the Serial Number Label appears to the right of Tray 1 (MPT) output bin.



s3600-110

Using the Parts List

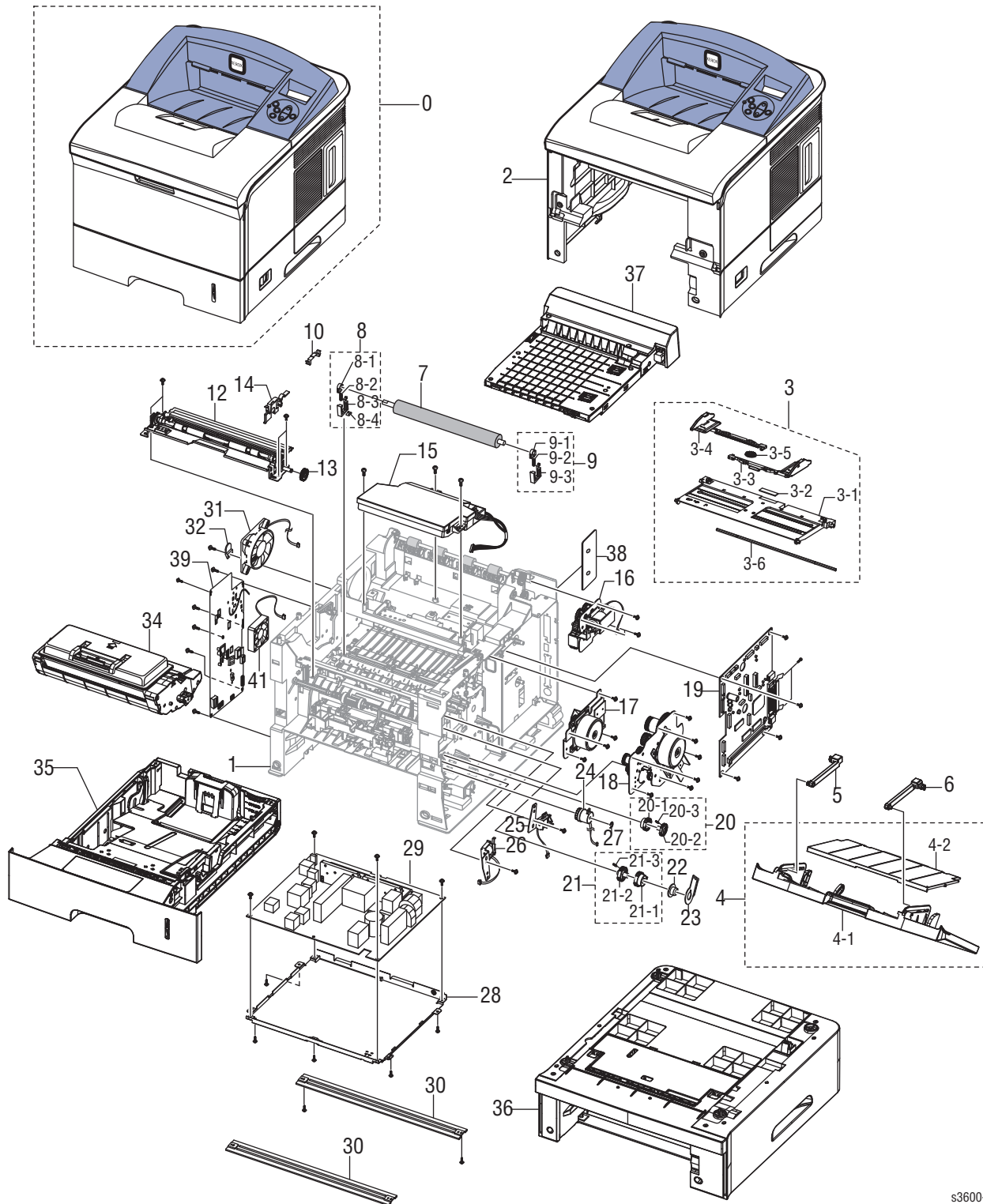
1. **No.:** The callout number from the exploded part diagram.
2. **Part Number:** The material part number used to order specific parts.
3. **Qty:** This number represents the parts per printer, not the number of parts supplied in the actual part order.
4. **Name/Description:** Details the name of the part to be ordered and the number of parts supplied per order.
5. Parts identified throughout this manual are referenced PL #.#.#; For example, PL 3.1.10 means the part is item 10 of Parts List 3.1.
6. A black triangle preceding a number followed by a parenthetical statement in an illustrated parts list means the item is a parent assembly, made up of the individual parts called out in parentheses.
7. The notation "with X~Y" following a part name indicates an assembly that is made up of components X through Y. For example, "1 (with 2~4)" means part 1 consists of part 2, part 3, and part 4.
8. An asterisk (*) following a part name indicates the page contains a note about this part.
9. The notation (NS) next to a part indicates that particular part is not spared, but contained in a kit or major assembly.

The notation "J1<>J2 and P2" is attached to a wire harness. It indicates that connector Jack 1 is attached to one end of the wire harness and connector J2 is attached to the other end that is plugged into P2.

Only parts showing part numbers are available for support. Parts not showing part numbers are available on the parent assembly.

Identifier	Meaning
C	C-ring
E	E-ring
KL	K-clip
S	Screw

PL 1.1 Main Assembly



s3600-011

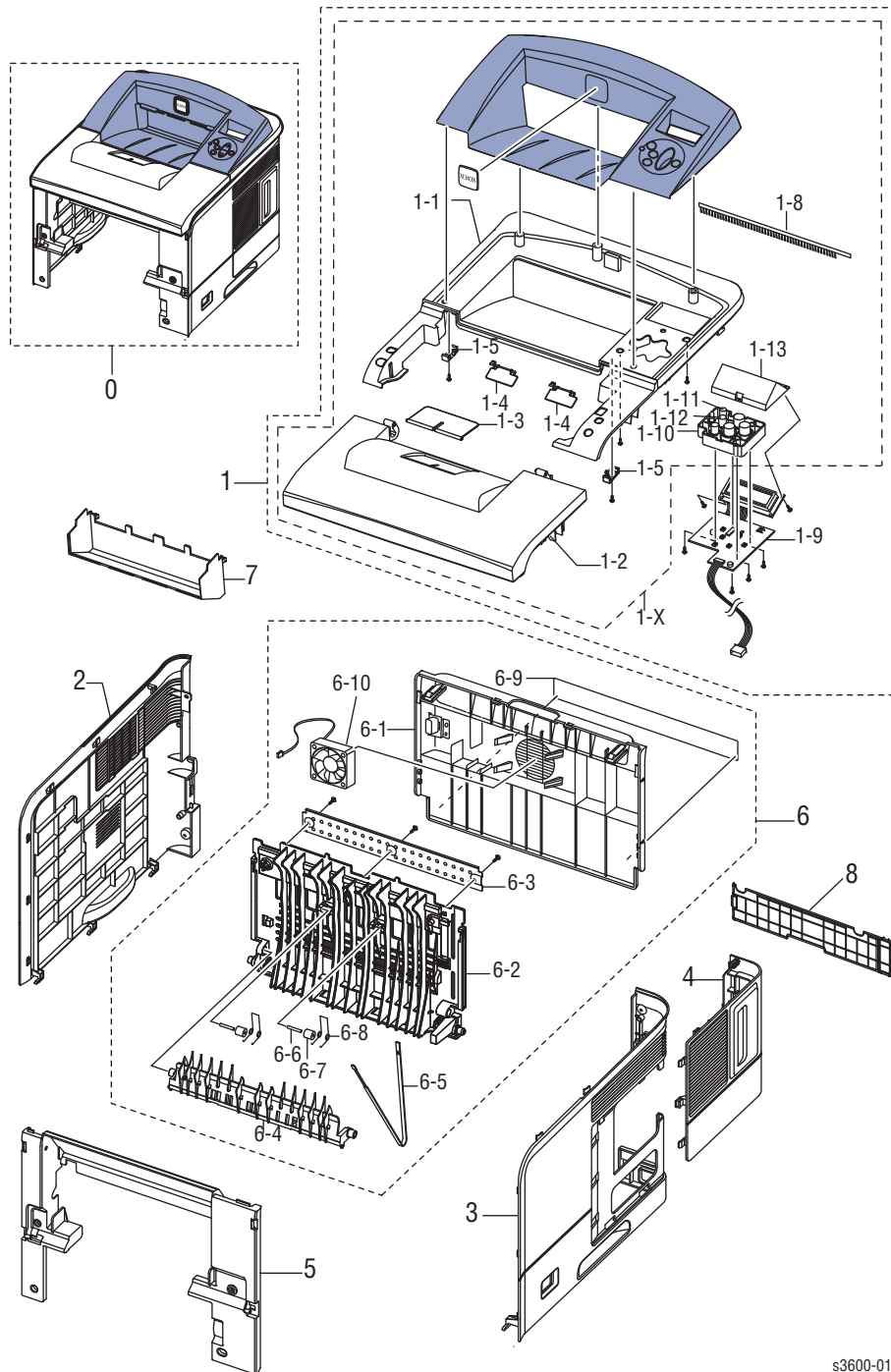
PL 1.1 Main Assembly Parts List Table

ID No.	Name/Description	Part Number
1	ELA UNIT FRAME BASE	
2	ELA HOU BASE HOUSING	
3	MEA UNIT KNOCK UP MP (Tray 1 Knock-Up Plate)	050N00475
3.1	PLATE M KNOCK UP MP	
3.2	MPR PAD KNOCK UP MP	
3.3	PMO SIDE GUIDE MP R	
3.4	PMO SIDE GUIDE MP L	
3.5	GEAR PINION	
3.6	SHAFT REINFORCEMENT	
4	MEA UNIT COVER MP XRX (Transfer Roller)	002N02410
4.1	COVER M MP XRX	
4.2	TRAY M EXTND MP	
5	TRAY M LINK MP L	012N00521
6	TRAY M LINK MP R	012N00522
7	ROLLER TRANSFER	022N02353
8	ELA UNIT HOLDER TR R	030N00560
8.1	PMO BUSHING TR	
8.2	SPRING ETC TR R HAWK	
8.3	PMO TRANSFER HOLDER	
8.4	IPR PLATE TR	
9	ELA UNIT HOLDER TR L	019E63480
9.1	PMO BUSHING TR	
9.2	SPRING ETC TR R HAWK	
9.3	PMO TRANSFER HOLDER	
10	PMO CAP TR	021N02248
11		
12	ELA UNIT REGI (Registration Assembly)	146N00131
13	GEAR REGI Z25	007N01360
14	CAP M GEAR	007N01599
15	UNIT LSU (Laser Scan Unit)	122N00276
16	ELA UNIT EXIT SOLENOID	121N01100
17	ELA UNIT DEVE MOTOR	127N07389
18	ELA UNIT MAIN MOTOR	127N07571
19	PBA MAIN (Base) PBA MAIN (Network)	140N63317 140N63333
20	MEA UNIT GEAR PICK UP	007N01598
20.1	GEAR M PICK UP CAM	
20.2	GEAR M PICK UP	
20.3	SPRINT ETC CAM MP	
21	MEA UNIT GEAR P/UP MP CARDINAL (Feed Unit 2)	007N01600

PL 1.1 Main Assembly Parts List Table (continued)

ID No.	Name/Description	Part Number
21.1	GEAR MP HOLDER CAM	
21.2	GEAR MP PICK UP	
21.3	SPRING ETC CAM MP	
22	BEARING PICK UP	
23	BRACKET P SHAFT MP	
25	SOLENOID MAIN	121N01167
26	SOLENOID MP (Tray 1 (MPT) Pick Solenoid)	121N01102
27	RING E	
28	SHIELD P SMPS	
29	SMPS V1- 110V SMPS V2- 220V	105N02144 105N02146
30	BAR P CROSS BOTTOM (Front Bottom Cross Bar)	
31	FAN DC (Left Side Cooling Fan)	127N07569
32	STOPPER M FAN80	
34	ELA UNIT DEVE (Print Cartridge) 7K Toner Cartridge 14K Toner Cartridge	106R01370 106R01371
35	ELA UNIT CASSETTE (Tray 2)	109R00756
36	ELA UNIT SCF (Optional Tray 3)	097N01673
37	ELA UNIT DUPLEX	097N01679
38	BRACKET P DUMMY CTRL	
39	HVPS	105N02145
39.1	BRACKET NIC	
39.2	PBA SUB (NIC BOARD)	
40	STOPPER M NETWORK	
41	40MM FAN	127N07568

PL 1.2 Cover Assembly

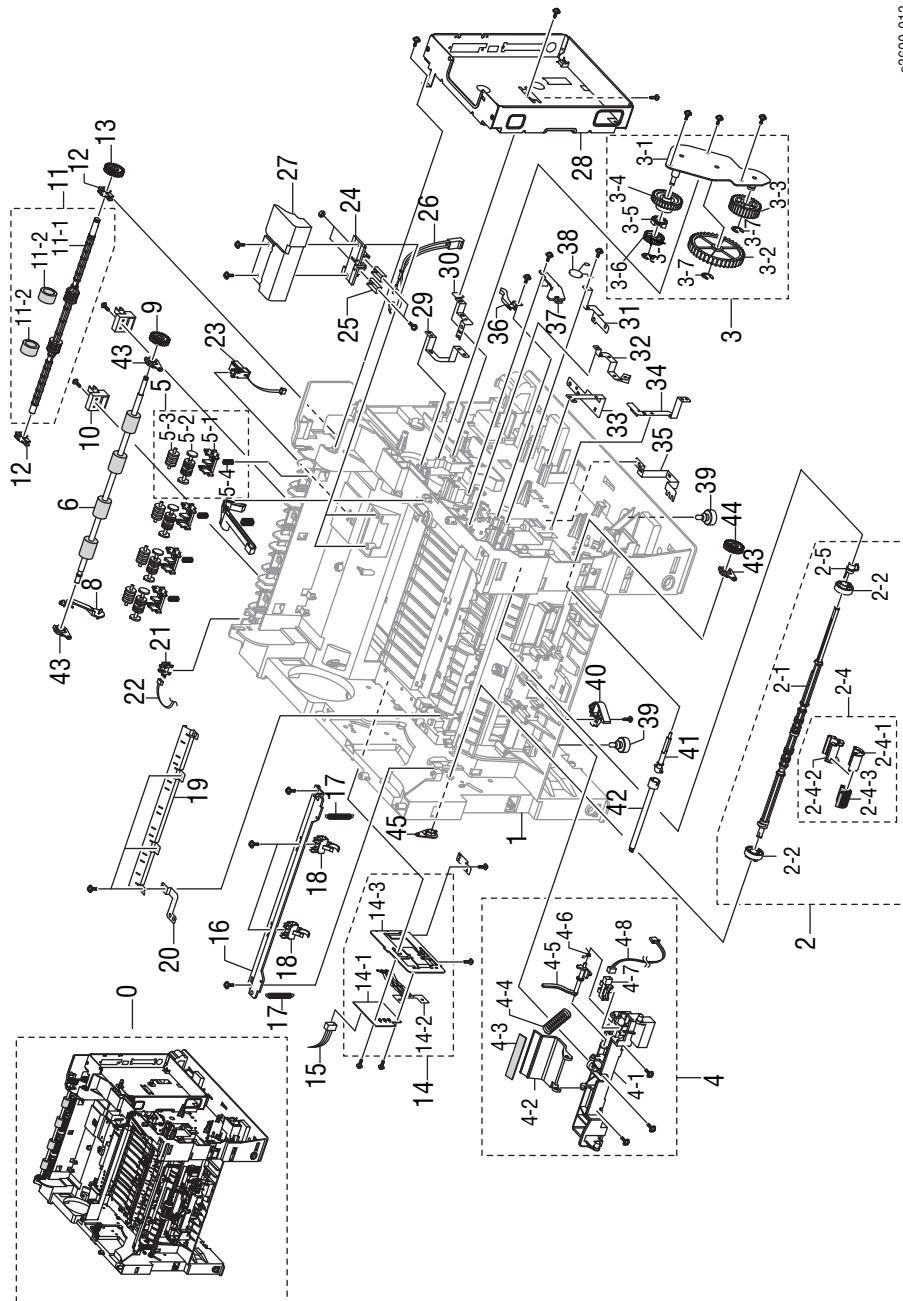


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PL 1.2 Cover Assembly Parts List Table

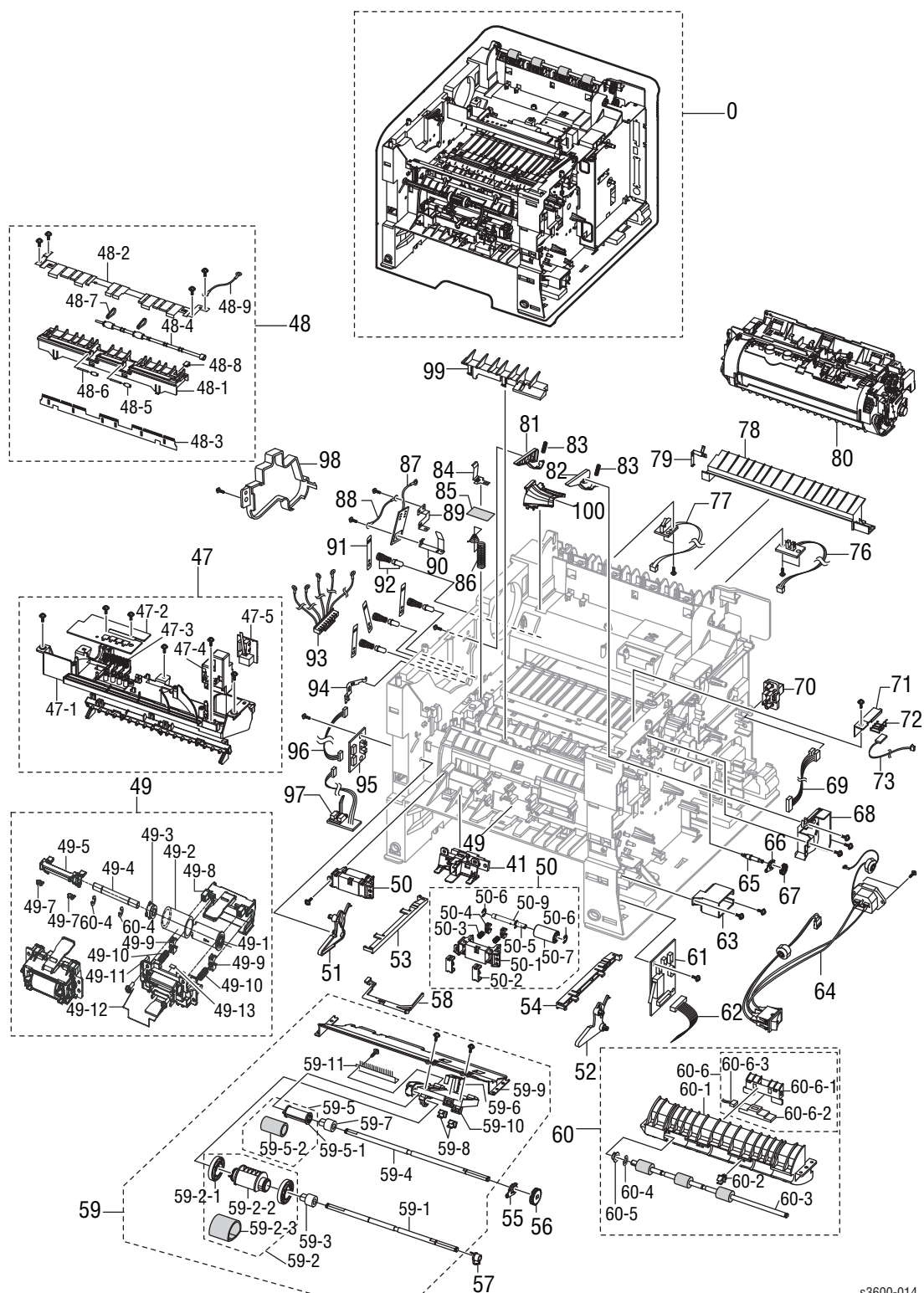
ID No.	Name/Description	Part Number
1 (1-X)	AS UNIT COVER TOP	002N02411
1-1	COVER M TOP	002N02730
1-2	COVER M OPEN XRX	002N02729
1-3	PMO STACKER RX	002N02418
1-4	LEVER M STACKING 38	036N00030
1-5	STOPPER M HINGE OPEN	
1-6	COVER M OP PANEL XRX	
1-7	SHEET OVERLAY BUTTON	
1-8	MEC BRUSH ANTISTATIC	
1-9	PBA SUB PANEL B'D	140N63320
1-10	KEY M BUTTON XRX	
1-11	KEY M CANCEL	
1-12	CAP M LED XRX	
1-13	WINDOW M LCD	
2	COVER M LEFT	002N02413
3	COVER M RIGHT	002N02414
4	COVER M CONTROL BOX	002N02419
5	COVER M FRONT INNER	002N02415
6	MEA UNIT COVER REAR	002N02416
6.1	COVER M REAR	
6.2	PMO STACKER REAR	
6.3	ICT BRKT REAR COVER	
6.4	GUIDE M EXIT	
6.5	PMO STRIPE	001N00462
6.7	PEX ROLLER F/UP(2)	
6.8	SPRING ETC SEPARATION	
6.9	LABEL(P) JAM REMOVAL	
6.10	FAN	127N07569
7	COVER M FRAME EXIT	002N02417
8	COVER M DUMMY DUP (FILLER PANEL)	002N02420

PL 1.3 Frame Assembly (1 of 2)



s3600-013

PL 1.3 Frame Assembly (2 of 2)



s3600-014

PL 1.3 Frame Assembly Parts List Table

Item No.	Description	Part Number
1	FRAME M BASE	
2	MEA UNIT PICK UP MP (Tray 1 Pick-Up Rack)	130N01536
2-1	SHAFT M PICK UP MP	
2-2	PMO IDLE PICK UP MP	
2-4	ELA UNIT ROLLER P/UP MP	022N02182
2-4-1	HOLDER M PICKUP MP	
2-4-2	HOUSING M PICK UP MP	
2-4-3	RUBBER PICK UP MP	
2-5	CAM M SHAFT	
3	MEA UNIT GEAR IDLE	007N01362
3-1	BRACKET P GEAR IDLE	
3-2	GEAR FUSER IDLE 3	
3-3	GEAR M FUSER IDLE 2	
3-4	GEAR M FUSER DRV IN	
3-5	CLUTH M HUB	
3-6	GEAR RDCN FUSER OUT	
3-7	RING-E	
4	ELA HOU BASE HOLDER (Separator Pad Assembly)	022N02173
4-1	FRAME M HOLDER PAD	
4-2	HOLDER M PAD	
4-3	RPR FRICTION PAD MP	
4-4	SPRING ETC PAD	
4-5	PMO ACTUATOR EMPTY MP	
4-6	SPRING ETC EMPTY	
4-7	PHOTO INTERRUPTER	
4-8	CBF HARNESS MP EMPTY	
5	MEA RACK EXIT ROLLER	022N02081
5-1	PMO HOLDER EXIT ROLL	
5-2	PMO ROLLER FD F	
5-3	PMO ROLLER FD R	
5-4	SPRING EXIT ROLL FD	
6	ROLLER EXIT F/DOWN	006N01264
7		
8	PMO ACTUATOR OUT FULL (Outbin Full Actuator)	120N00479
9	GEAR M EXIT Z17	007N01364

PL 1.3 Frame Assembly Parts List Table (continued)

Item No.	Description	Part Number
10	HOLDER BUSHING EXIT (F/DOWN)	013E25770
11	MEA UNIT ROLL EXIT DUPLEX (Duplex Roller)	006N01265
11-1	SHAFT M EXIT DUPLEX	
11-2	RMO RUBBER EXIT DUP	
12	BUSH M EXIT D7	013N13839
13	GEAR M EXIT DUP Z21	007N01363
14	ELA HOU CST SENSOR (Paper Size Sensor)	130N01461
14-1	PBA SUB CASSETTE	
14-2	IPR PLATE SENSOR	
14-3	IPR BRACKET SENSOR	
15	CBF HARNESS PSIZE	
16	GUIDE P REGI UPPER	
17	SPRING ETC LEVER	
18	HOLDER M BUSHING TX	
19	GUIDE PLATE PAPER	
20	IPR P GROUND PLATE PAPER	
21	PHOTO INTERRUPTER (Outbin Full Sensor)	130N01274
23	CBF HARNESS THERM	
24	PMO HOUSING TERMINAL	
25	IPR TERMINAL FU	
26	CBF HARNESS FUSER	
27	CAP M HOUS TERM	
28	SHIELD P CTRL	
29	GROUND P MOTOR DEVE	
30	GROUND P GUIDE TR	
31	GROUND P REGI ROLLER	
32	GROUND P PICK UP MP	
33	GROUND P SCF MAIN	
34	GROUND P MOTOR MAIN	
35	GROUND P GUIDE DUP	
36	CAP M GUIDE HARNESS	
37	PMO DUMMY DEVE	
38	ELA HOU VARISTOR	
39	FOOT ML80	
40	PMO REMOVE LOCK CST	

PL 1.3 Frame Assembly Parts List Table (continued)

Item No.	Description	Part Number
41	SHAFT M GEAR RETARD	
42	SHAFT M COUPLING RETARD	
43	PMO BEARING SHAFT	013N13841
44	GEAR REGI Z25	
45		
47	MEA UNIT FRAME LSU LOW (Sub-toner Low Sensor)	001N00500
47-1	FRAME M LSU LOWER (LSU Lower Cover)	
47-2	PBA TONER SENSOR	
47-3	TERMINAL P DEVE	
47-4	PBA SUB COVER OPEN	130N01399
47-5	CAP M COVER OPEN	002N02729
48	ELA UNIT FEED 3X5	022N02174
48-1	HOLDER M SAW	
48-2	GUIDE P TRANSFER FRONT	
48-3	PLATE P SAW	
48-4	SHAFT M ROLLER BELT	
48-5	ROLLER M IDLE BELT	
48-6	IEX SHAFT IDLE, F/UP	
48-7	RUBBER BELT FEED	
48-8	GUIDE M SHAFT BELT	
49	ELA UNIT ROLLER IDLE	022N02349
49-1	FRAME M RETARD	
49-2	HOLDER M RETARD	
49-3	SPRING ETC PAD	
49-4	BUSH M RETARD 2	
49-5	HOUSING M RETARD	
49-6	SHAFT RETARD	
49-7	RING-E	
49-8	PMO HUB OUT RETARD	
49-9	SPRING TS	
49-10	PMO HUB IN RETARD	
49-11	RUBBER RETARD	
50	ELA UNIT FEED2 IDLE (Feed 2 Idle Unit)	022N02176
50-1	HOLDER IDLE FEED2	
50-2	CAP M IDLE FEED2	

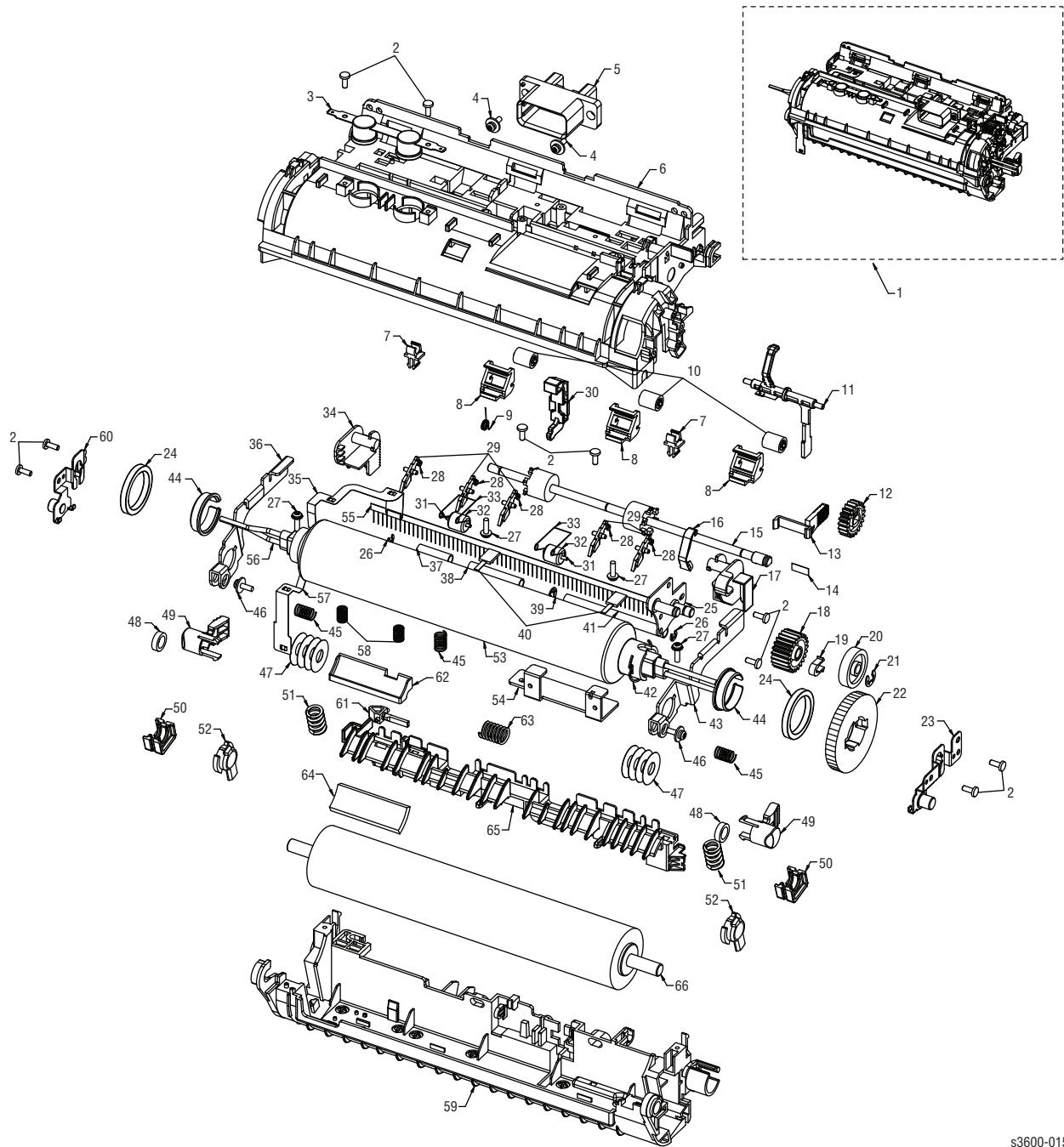
PL 1.3 Frame Assembly Parts List Table (continued)

Item No.	Description	Part Number
50-3	SPRING ETC PAD	
50-4	BUSH M RETARD	
50-5	SHAFT IDLE FEED2	
50-6	RING-E	
50-7	ROLLER M IDLE FEED2	
50-9	SHAFT HUB IN	
51	STOPPER M KNOCK UP MP L	
52	STOPPER M KNOCK UP MP R	
53	RAIL M LEFT DUPLEX	032N00441
54	RAIL M RIGHT DUPLEX	032N00442
55	PMO BEARING SHAFT	013N13841
56	GEAR REGI E25	
57	BEARING PICK UP	
58	PMO ACTUATOR EMPTY (Paper Tray Empty Actuator)	120N00519
59	ELA UNIT PICK UP	022N02183
59-1	SHAFT PICK UP	
59-2	MEA UNIT P/UP HOUSING (Pick Roller)	022N02177
59-2-1	PMO M IDLE PICK UP	
59-2-3	RUBBER PICK UP	
59-3	PMO M CAM PICKUP	
59-4	SHAFT FEED 1	
59-5	AS FEED 1 ROLL ASSY	022N02187
59-5-1	HOUSING M FEED1	
59-5-2	RUBBER FEED1	
59-6	GROUND P PICK UP MAIN	
59-7	BEARING PICK UP	
59-8	PMO BUSHING FEED	
59-9	GUIDE P FRONT DUP PICKUP	
59-10	GUIDE M SUPPORT PICKUP	
60	ELA UNIT FEED2	022N02178
60-1	FRAME M PICK UP	
60-2	PMO BUSHING FEED	
60-3	SHAFT M FEED2	
60-4	BEARING PICK UP	
60-5	RUBBER ROLLER FEED2	

PL 1.3 Frame Assembly Parts List Table (continued)

Item No.	Description	Part Number
61	PBA SUB JOINT (Joint Card)	140N63022
62	CBF HARNESS TRAY OUT	
63	CAP M POWER	
64	CBF HARNESS INLET	152N11756
65	SHAFT M BELT GEAR	
66	PMO BEARING SHAFT	
67	GEAR M EXIT Z17	
68	CAP M DEVE MOTOR	
69	CBF HARNESS DUPLEX	
71	CAP M WIRE PTL LOWER	021N02249
72	TERMINAL P PTL	116N00243
73	CBF HARNESS PTL	
74		
76	PBA SUB EXIT SENSOR (Fuser Exit Sensor)	130N01400
77	PBA FUSER SW (Fuser Interlock Switch)	130N01401
78	GUIDE M FRONT	
79	TERMINAL P GUIDE FRONT	
80	ELA UNIT FUSER 110V ELA UNIT FUSER 220V	126N00293 126N00294
81	PMO GUIDE DEVE L	
82	PMO GUIDE DEVE R	
83	SPRING ETC GUIDE DEVE	
84	TERMINAL P TR KESTREL	
86	TERMINAL SPRING TR	
87	PBA MAIN ZENER	
88	CBF HARNESS EARTH	
89	GROUND P ZENER	
90	GROUND P FUSER	
91	TERMINAL P HV CARDINAL	
92	MEA UNIT TERMINAL TR	
93	CBF HARNESS HVPS	
94	IPR P GROUND OPC	
95	PBA SUB EMPTY SENSOR (Paper Tray Empty Sensor)	140N63023
96	CBF HARNESS SENSOR	
97	PBA SUB FEED SENSOR (Tray 1 FeedSensor)	140N63024
98	CAP M HV	

PL 1.4 Fuser Assembly



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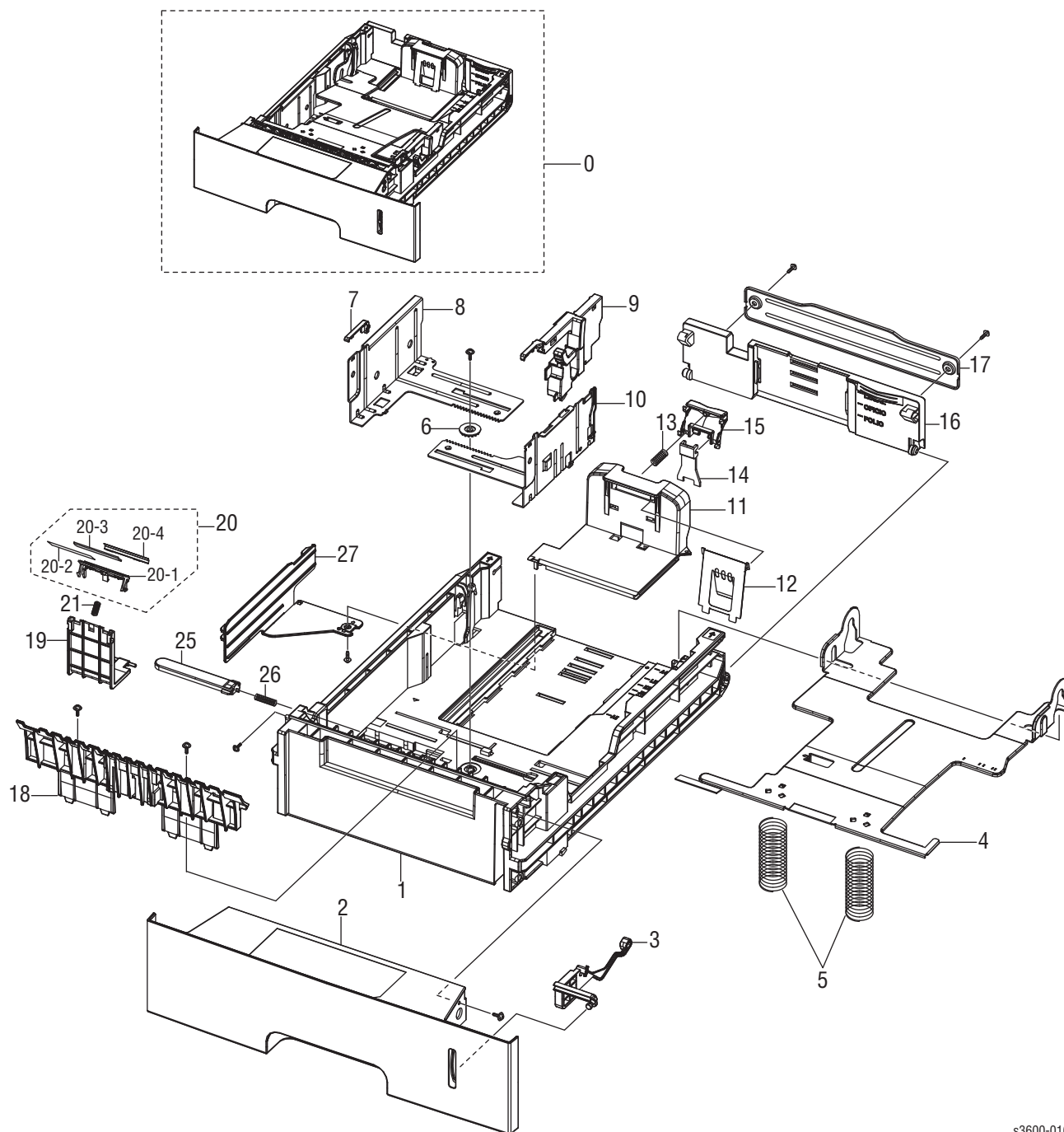
PL 1.4 Fuser Assembly Parts List Table

Item No.	Description	Part Number
1	ELA UNIT FUSER (110V) ELA UNIT FUSER (220V)	126N00293 126N00294
2	SCREW-TAPTITE	
3	THERMOSTAT	130N01537
4	SCREW-TAPTITE	
5	HARNESS-FUSER	
6	COVER-FUSER UP LAMP	
7	PMO BUSHING TX	
8	HOLDER -IDLE ROLLER	
9	SPRING ETC ACTUATOR	
10	PMO ROLLER UPPER DP	
11	PMO ACTUATOR EXIT	
12	GEAR-EXIT	
13	HOLDER REAR LEVER	
14	LABEL HOLD-REOPEN	
15	ROLLER EXIT F_UP	
16	PLATE ACTUATOR COVER	
17	HOLDER-LEVEL R	
18	GEAR IDLE	
19	CAP ACTUATOR	
20	GREASE-BEARING	
21	RING E	
22	GEAR-FUSER 2 LAMP	
23	BRACKET LAMP-RIGHT	
24	BEARING BALL	
25	BRACKET FUSER-LAMP	
26	RING CS	
28	SPRING ETC-SEPARATION	
29	GUIDE-CLAW POLY	
30	COVER SLIDE SENSOR	
31	TEX-SHAFT IDLE F/UP	
32	PEX ROLLERF/UP	
33	SPRING-TS	
34	HOLDER-LEVER L	
35	GROUND FUSER BRUSH	

PL 1.4 Fuser Assembly Parts List Table (continued)

Item No.	Description	Part Number
36	LEVER AUTO RELEASE L	
37	TUBE SMALL	
38	TUBE MIDDLE	
39	RING E	
40	THERMISTOR	130N01462
41	TUBE LARGE	
42	SPRING ETC LOCK	
43	LEVER AUTO RELEASE R	
44	BUSHING-HEAT_ROLLER	013N13883
48	BEARING BALL	
49	CAP FUSER LOCK	
50	BUSHING PRESSURE_ROLLER	013N13884
52	HOLDER PR SHAFT	
53	HEAT ROLLER	022N02351
54	BRACKET DRAWER	
55	MEG-BRUSH ANTISTATIC	
56	LAMP-DUAL 266 (110V) LAMP-DUAL 266 (220V)	122N00277 122N00278
57	GROUND HR LAMP	
58	SPRING CS	
59	COVER FUSER LO LAMP	
60	BRACKET LAMP-LEFT	
61	CAP ACTUATOR	
63	SPRING ETC GUIDE	
64	FELT CLEAN TONER	
65	GUIDE REAR LAMP	
66	PRESSURE ROLLER	022N02352

PL 2.1 Tray 2 Cassette

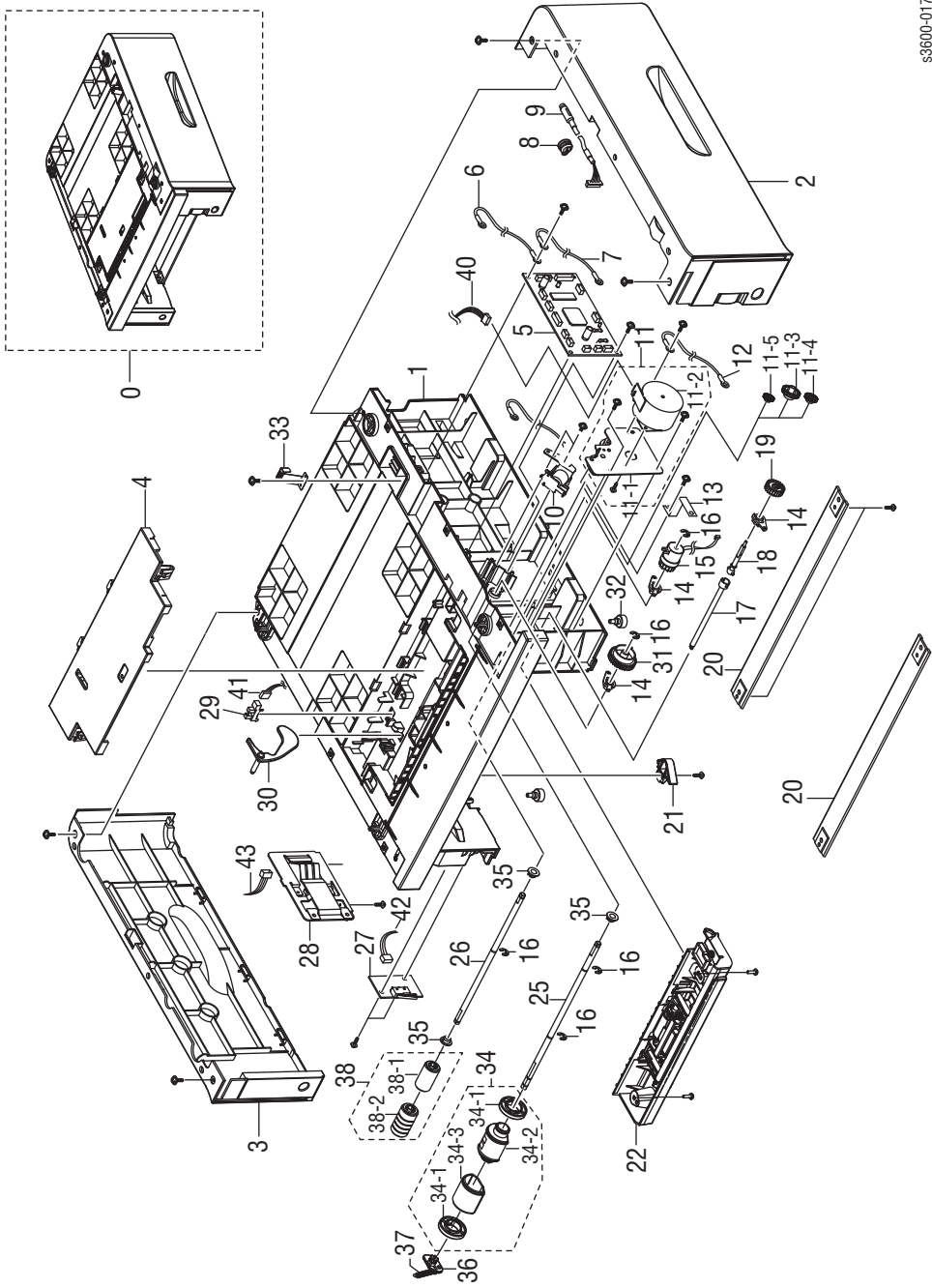


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PL 2.1 Tray 2 Assembly Parts List Table

Item No.	Description	Part Number
0	ELA UNIT CASSETTE	109R00756
1	FRAME M CASSETTE	
2	GUIDE M HANDLE	
3	INDICATOR EMPTY	
4	PLATE P KNOCK UP	
5	SPRING PLAT K/UP	
6	GEAR PINION	
7	CAP M GUIDE SIDE L	
8	GUIDE P SIDE L	
9	GUIDE M SIDE LOCK	
10	GUIDE P SIDE R	
11	GUIDE M REAR	
12	GUIDE P REAR PAPER	
13	SPRING ETC GUIDE PAPER	
14	GUIDE M LOCK	
15	GUIDE M REAR	
16	GUIDE M EXTENTION	
17	BRACKET P EXTENTION	
18	GUIDE M PAPER	
19	HOLDER M PAD HOUSING	
20	MEA UNIT HOLDER PAD	019N00947
20-1	HOLDER M PAD	
20-2	SHEET HOLDER PAD R2	
20-3	RPR FRICTION PAD	
20-4	IPR PLATE PAD	
21	SPRING EXIT ROLL FD	
25	PMO LOCKER PLATE	
26	SPRING LOCKER PLATE	
27	GUIDE M PAPER SIZE	

PL 2.2 Tray 3 Cassette



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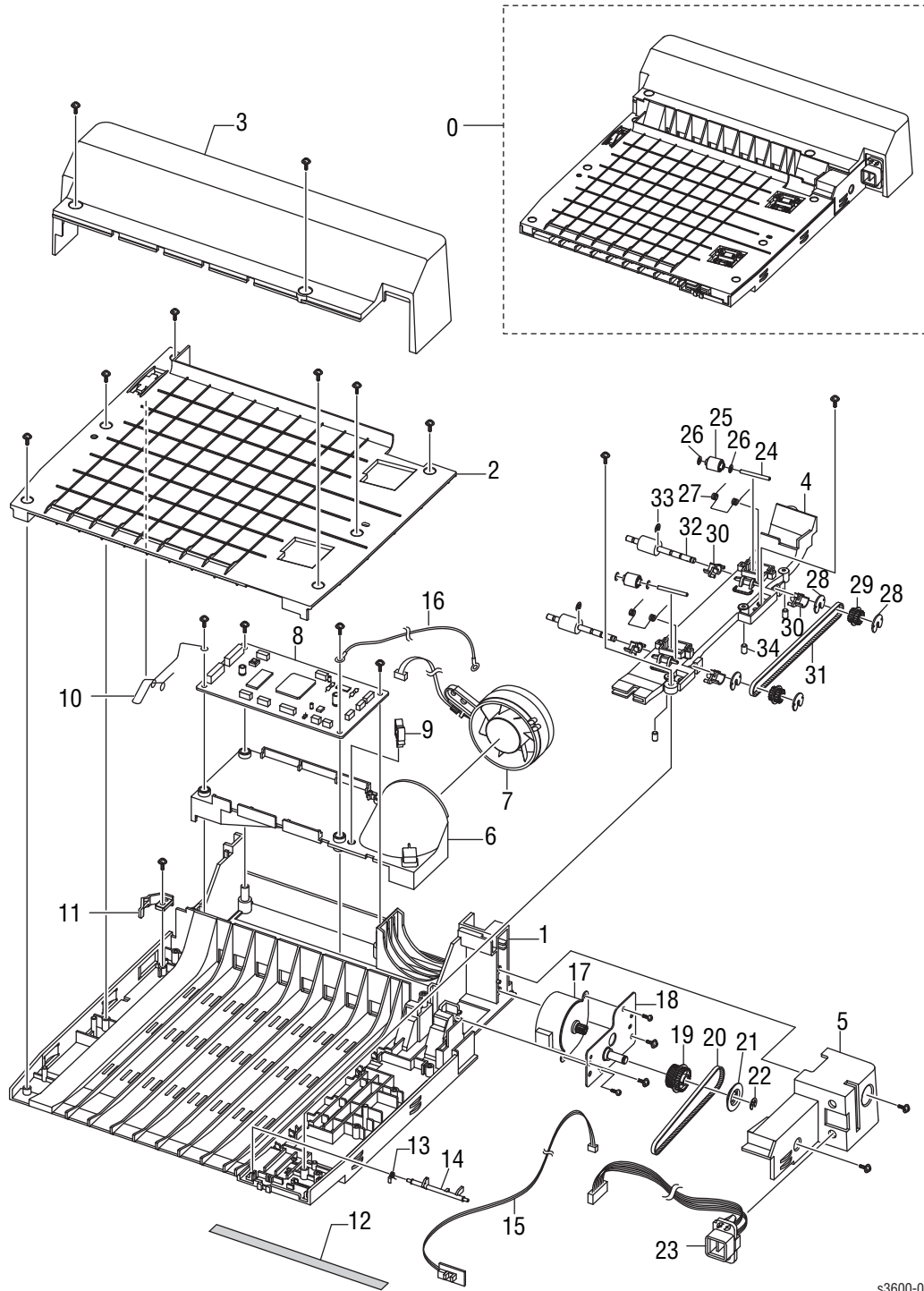
PL 2.2 Tray 3 Cassette Parts List Table

Item No.	Description	Part Number
0	ELA UNIT SCF (Tray 3, 500-sheet feeder)	050N00543
1	FRAME M SCF	
2	COVER M RIGHT SCF	
3	COVER M LEFT SCF	
4	COVER M DUMMY SCF	
5	PBA SCF	140N63300
6	CBF HARNESS OPE	
8	BUSH CABLE	
9	CBF HARNESS SCF INTERFACE	152N11714
10	SOLENOID MAIN	
11	ELA UNIT MOTOR SCF	127N07570
11-1	BRACKET P SCF MOTOR	
11-2	MOTOR STEP 7.5 DEG	
11-3	GEAR M SCF RDCN RETARD	
11-4	GEAR M SCF RDCN FEED	
11-5	GEAR M SCF RDCN PICK UP	
12	CBF HARNESS OPE	
13	IPR GROUND SPRING FEED	
14	PMO BEARING SHAFT	
15	MEP CLUTCH FEED SCF	
16	RING E	
17	SHAFT M COUPLING RETARD S	
18	SHAFT M GEAR RETARD	
19	GEAR REGI Z25	
20	BAR P CROSS BOTTOM	
21	PMO REMOVE LOCK CST	
22	ELA UNIT IDLE SCF	022N02350
23		
24		
25	SHAFT PICK UP SCF	
27	PBA SCF COVER OPEN	140N63025
28	ELA HOU CST SENSOR	
29	PHOTO INTERRUPTER	
30	PMO ACTUATOR EMPTY, SCF	120N00520
31	GEAR SCF PICK UP CAM	007N01366

PL 2.2 Tray 3 Cassette Parts List Table (continued)

Item No.	Description	Part Number
32	FOOT ML80	
33	IPR GROUND TOP	
34	MEA UNIT PICK UP HOU	
34-1	PMO M IDLE PICK UP	
34-2	RUBBER PICK UP	
34-3	HOUSING M PICK UP	
35	PMO BUSHING FEED	
36	PMO M DUMMY SHAFT	
37	SPRING ES	
38	HOUSING M FEED1	
39	RUBBER FEED1	
40	CBF HARNESS MOTOR	
41	CBF HARNESS SCF EMPTY	
42	CBF HARNESS SCF CASSETTE	
43	CBF HARNESS SCF P SIZE	

PL 2.3 Duplex Assembly



s3600-018

PL 2.3 Duplex Assembly Parts List Table

Item No.	Description	Part Number
0	ELA UNIT DUPLEX	022N02412
1	FRAME M DUPLEX	
2	GUIDE M UPPER DUP	
3	COVER M REAR DUP	
4	MEA ETC ALIGN DUP	
4-1	GUIDE M ALIGN DUP	
4-2	SHAFT IDLE ROLL DUP	
4-3	ROLLER M IDLE DUP	
4-4	PCT SLIP WASHER	
4-5	SPRING ETC DUP	
4-6	PULLEY M 18 DUMMY DUP	
4-7	PULLEY 18 DUP	
4-8	BUSH M FEED DUP	
4-9	BELT TIMMING	
4-10	ROLLER FEED DUP	
4-11	RING C	
5	CAP M CONNECTOR DUP	
6	DUCT M FAN DUP	
7	FAN DC HAWK	
8	PBA SUB DPX SCF	
9	CABLE CLAMP	
10	IPR TERMINAL GND DUP	
11	LOCKER M DUP	
12	SHEET FRAME DUP	
13	SPRING TS	
14	PMO ACTUATOR FEED DUP	
15	PBA SUB MP SEN (Duplex Exit sensor)	
16	CBF HARNESS POWER GND	
17	MOTOR STEP	
18	BRACKET P MOTOR DUP	
19	PULLEY M 30 DUP	
20	BELT TIMMING GEAR	
21	PULLEY M 30 DUMMY DUP	
22	RING E	
23	CBF HARNESS D JOINT	

Plug/Jack and Wiring Diagrams

In this chapter...

- Plug/Jack Diagrams and Designators

Chapter 9

Plug/Jack Diagrams and Designators

This chapter contains the Plug/Jack or Connector Designators, Locators, and wiring diagrams for the print engine and all options.

The diagrams following the Plug/Jack table show the P/J (Plug/Jack) and CN (connector) locations on boards in the printer, Optional 550-Sheet Feeder, Duplex Unit, Fax, Copier, and Scanner. Use these illustrations to locate connectors called out in the Troubleshooting procedures presented in Sections 3, 4, and 5.

The Plug/Jack and CN locators consist of the P/J Designator Table and the Locator Diagrams.

- The P/J column lists the Plug/Jack or CN numbers in numerical order.
 - The Map column provides the map number of the specific areas (i.e., Electrical, Laser Scan Unit...etc.)
 - The Coordinates column lists the diagram coordinates for the location of the connector.
 - The Remarks column provides a brief description of each connection.
1. Locate the P/J connector designator in the first column of the table.
 2. With this information, go to the map listed in the second column.
 3. Use the coordinates to locate the connection indicated on the map with its P/J designation number.

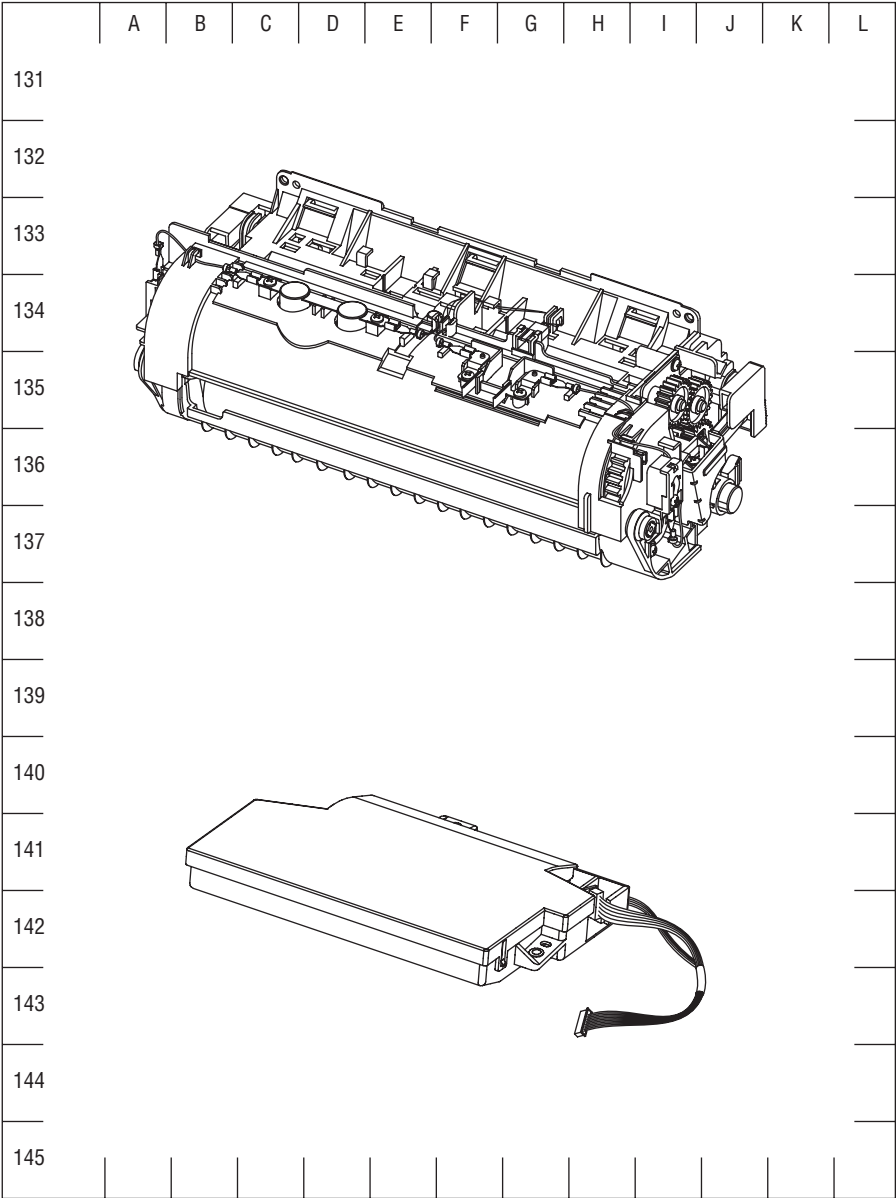
Plug/Jack and Connector Locators and Maps

Printer Plug/Jack/Connector Designators

Print Engine Plug/Jack Designator Table

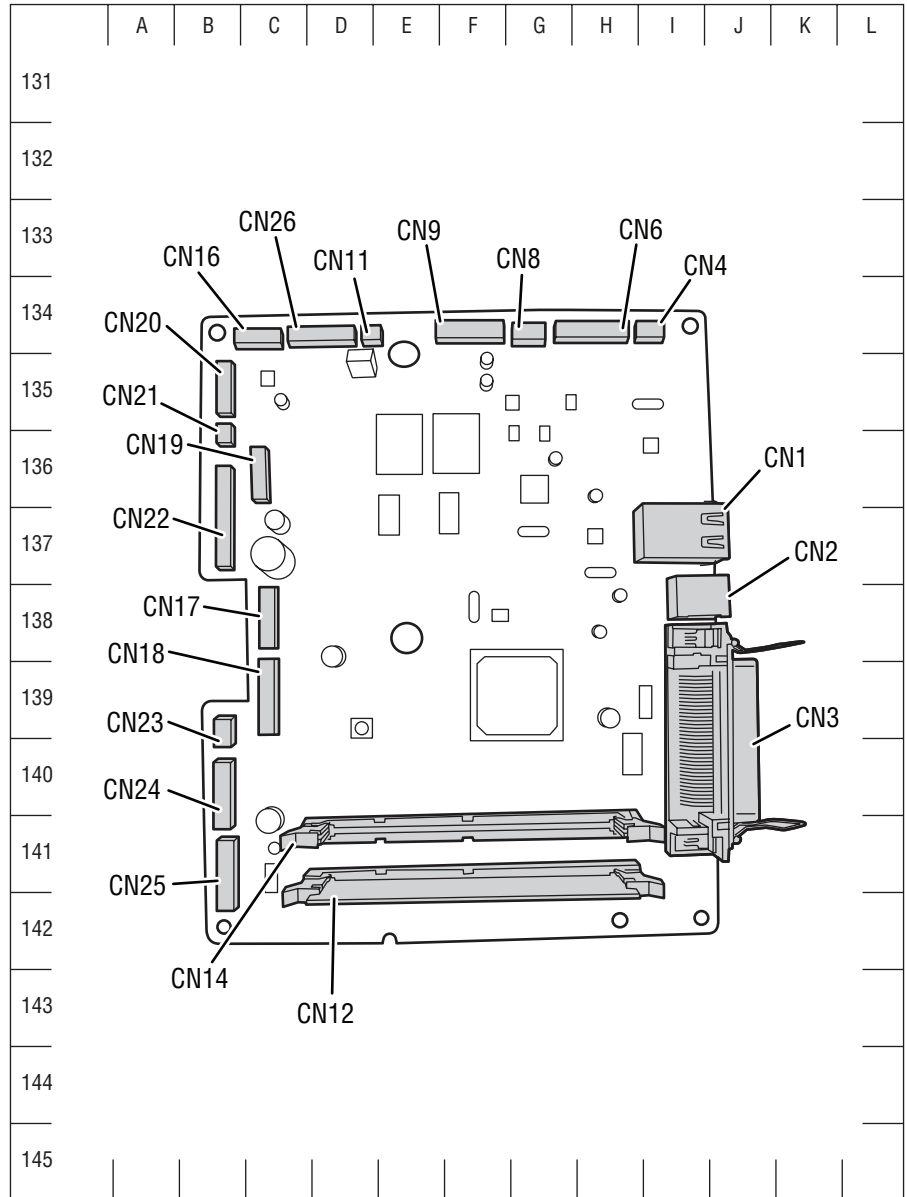
Map	P/J	Coordinates	Remarks
1	P/J1	H-143	Connects the Laser Scan Unit to CN10 of the Main Board.
2	CN3	J-139	Connects the Ethernet to the Main Board.
2	CN4	I-134	Connects the USB to the Main Board.
2	CN6	H-134	Connects the Serial port to the Main Board.
2	P/J9	F-134	Connects Main Board to the Thermistor.
2	P/J11	E-134	Connects the main board to the Duplex Solenoid
2	P/J12	D-134	Connects the Main Board to the 1st RAM DIMM.
2	P/J14	F-142	Connects the Main Board to the 2nd RAM DIMM.
2	P/J16	C-134	Connects the Main Board to the Control Panel
2	P/J17	C-138	Connects the Main Board to the Duplex Board.
2	P/J18	C-139	Connects the Main Board to the Main Motor.
2	P/J19	C-136	Connects the Main Board to CON4 of the SMPS Board.
2	P/J20	B-135	Connects the Main Board to the Developer Motor.
2	P/J21	B-136	Connects the Main Board to the PTL Board.
2	P/J22	B-137	Connects the Main Board to CON3 of the SMPS Board.
2	P/J23	B-139	Connects the Main Board to P/J5 of the Exit Sensor.
2	P/J24	B-140	Connects the Main Board to CN12 of the Joint Board.
2	P/J25	B-141	Connects the Main Board to the Optional Tray 3.
2	P/J26	D-134	Connects the Main Board to the Rear Fan.
3	P/J1	A-140	Connects the SMPS Board to the AC inlet.
3	P/J2	A-141	Connects the SMPS Board to the Fuser.
3	P/J3	D-141	Connects the SMPS Board to CN23 of the Main Board.
3	P/J4	J-141	Connects the SMPS Board to CN20 of the Main Board.
3	P/J5	H-141	Connects the SMPS Board to the Jam Cover Switch.
3	P/J6	J-140	Connects the SMPS Board to CN1 of the HVPS Board.
4	P/J1	J-134	Connects the HVPS Board to CON6 of the SMPS Board.
4	P/J2	K-136	Connects the HVPS Board to CN2 of the Toner Sensor Board.
4	P/J3	J-139	Connects the HVPS Board to the Feed Sensor.
4	MP/J2	J-140	Connects the HVPS Board to the Tray Empty Sensor.

Map 1- LSU and Fuser



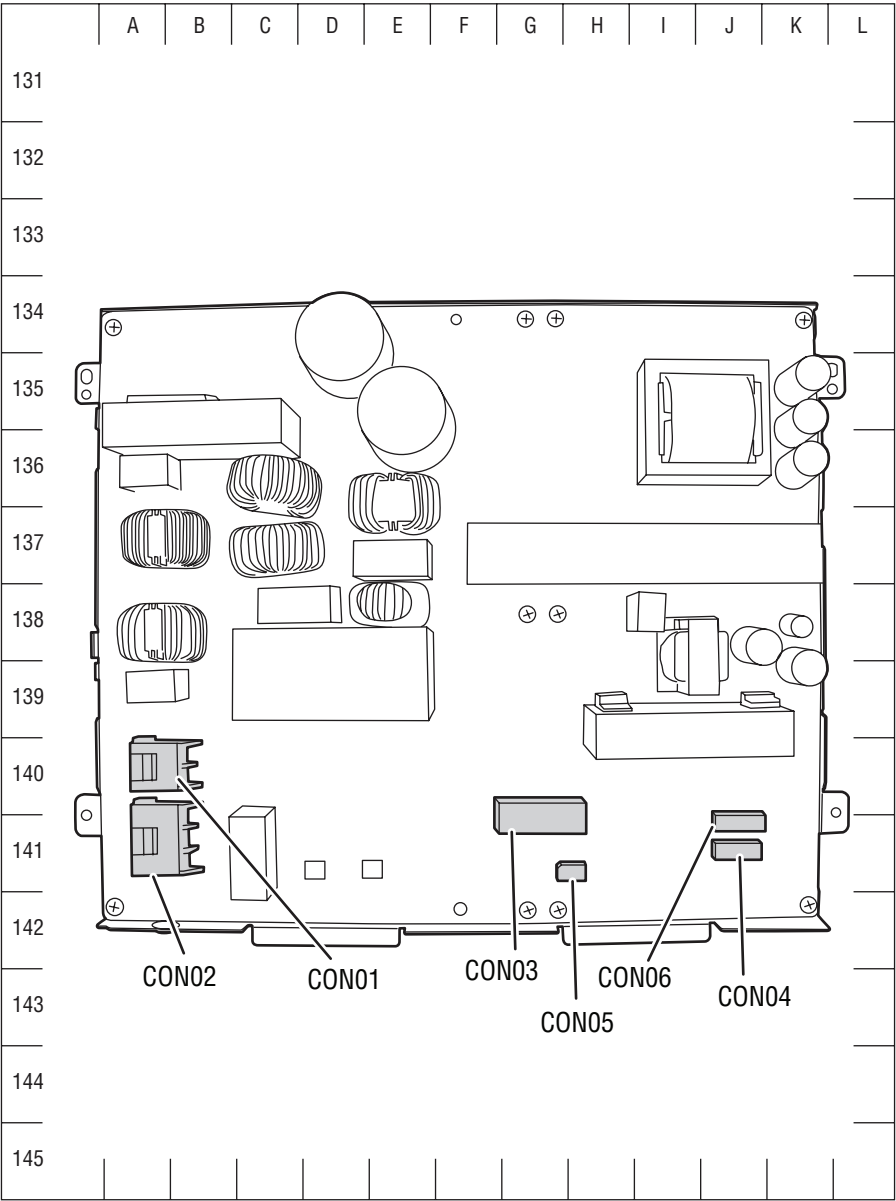
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Map 2- Main Board



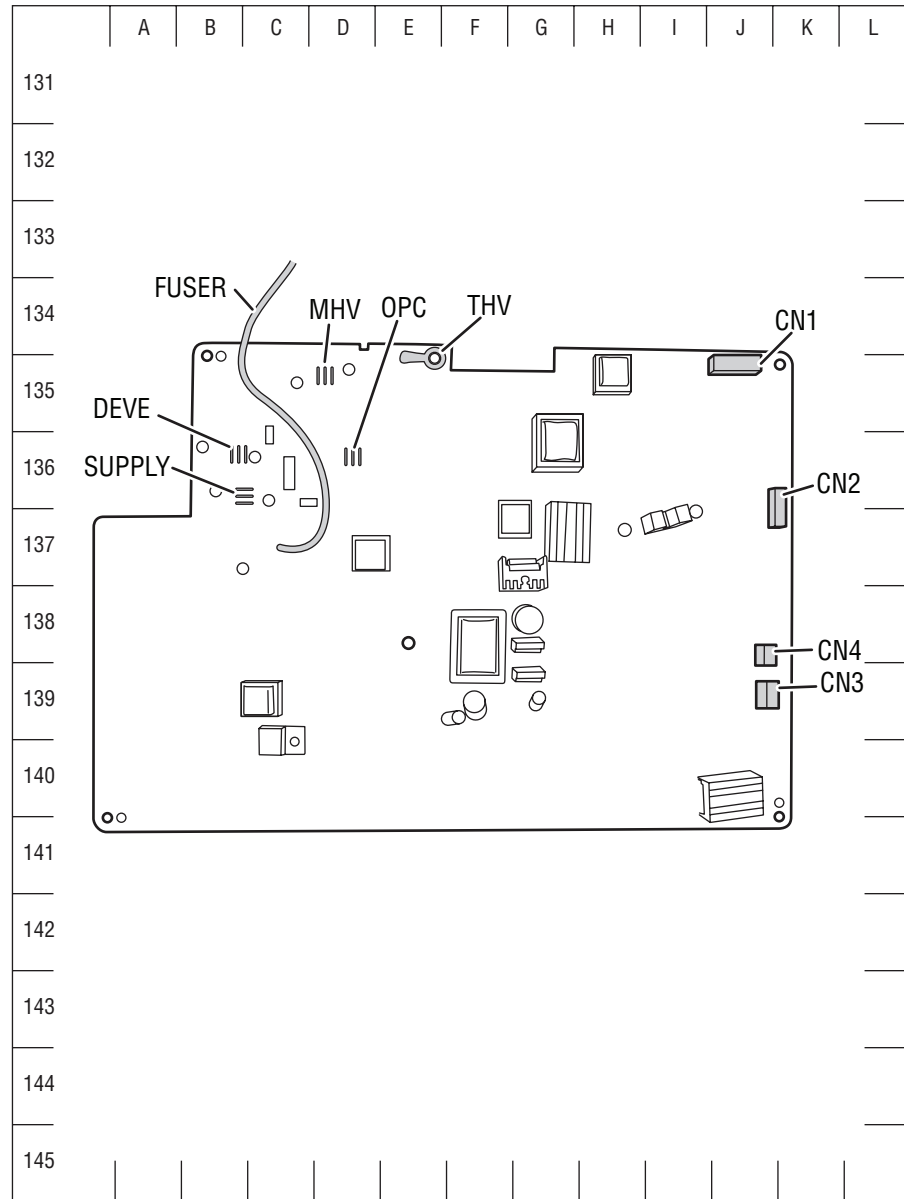
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Map 3- SMPS Board



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Map 4 - HVPS Board

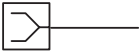


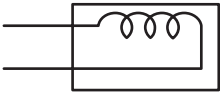
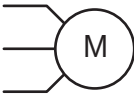
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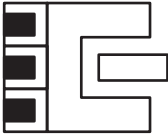
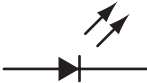
Wiring Diagrams

Notations Used in the Wiring Diagrams

The following table lists the symbols used in the wiring diagrams.

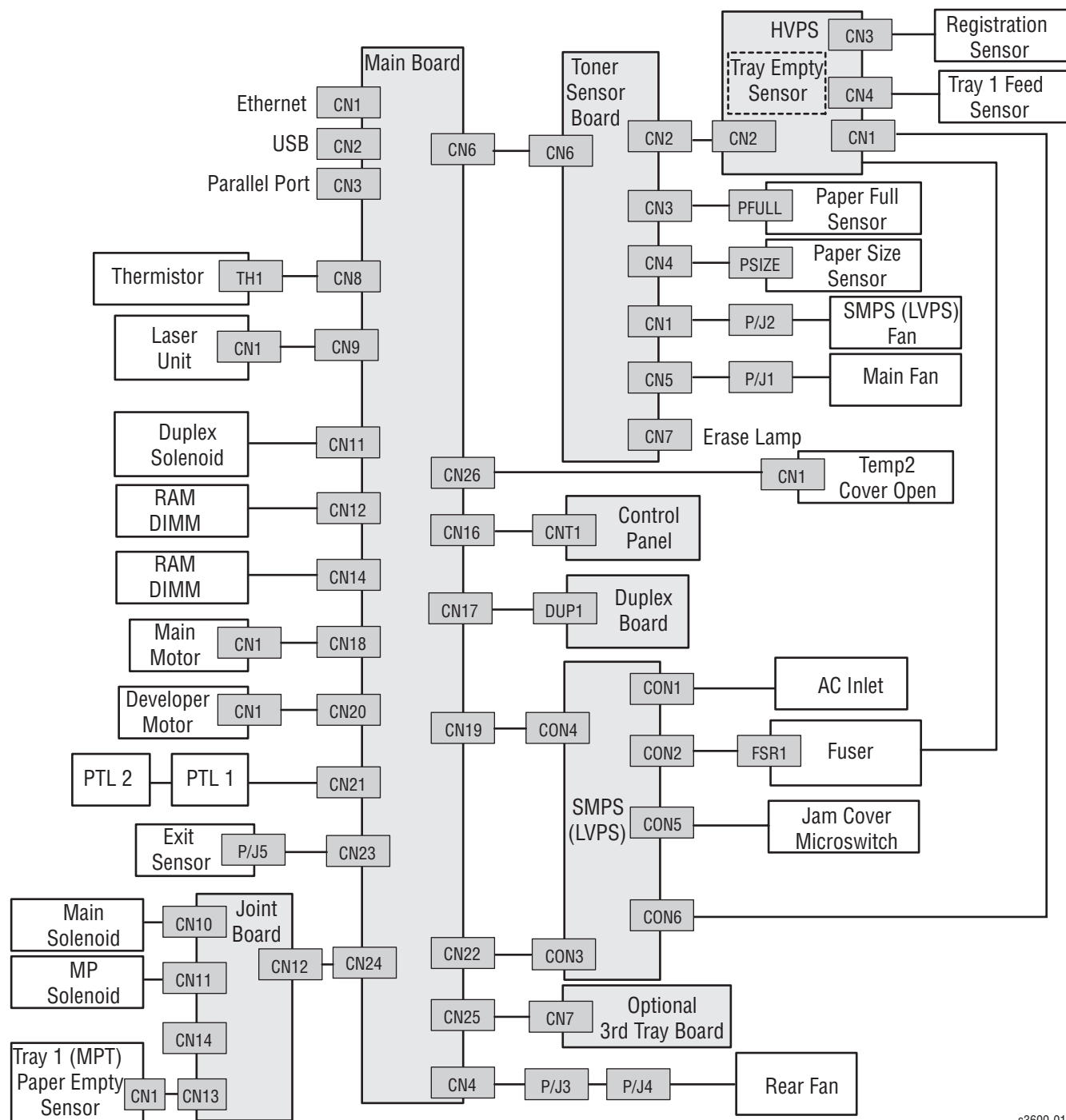
Symbol	Description
 Plug	Denotes a Plug.
 Jack	Denotes a Jack.
 Plug and Jack	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
 Jumper	Denotes a Jumper Point (JPxxx/xxx). Each end of the Jumper connection has a numeric designation.
 Subassembly 1	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Parts List.
 Subassembly 2	Denotes functional parts attached with functional parts name.

Symbol	Description
 Subassembly 3	Denotes the control and its outline in the Board.
 Connection Wire	Denotes a connection between parts with harness or wires, attached with signal name/ contents.
 Function Logic 1	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
 Function Logic 2	Denotes the function, and logic value of the signal when the function is operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
 Connection of Wires	Denotes a connection between wires.
 Solenoid/Clutch	Denotes a Clutch or Solenoid.
 Motor	Denotes a Motor.

Symbol	Description
	Denotes a Photo Sensor.
Optic Sensor	
	Denotes an LED.
LED	
	Denotes a Safety Interlock Switch.
Safety Interlock Switch	
	Denotes an On-Off Switch (single-pole, single-throw switch).
On Off Switch	
	Denotes an On-Off Switch (Temperature - normally close).
Temperature Switch	
	Denotes an NPN Photo-transistor.
NPN Phototransistor	
	Represents an interconnection between parts using wiring harness or wire.
Interconnection	
	Represents an interconnection which differs according to the specifications.
Interconnection, Differing	

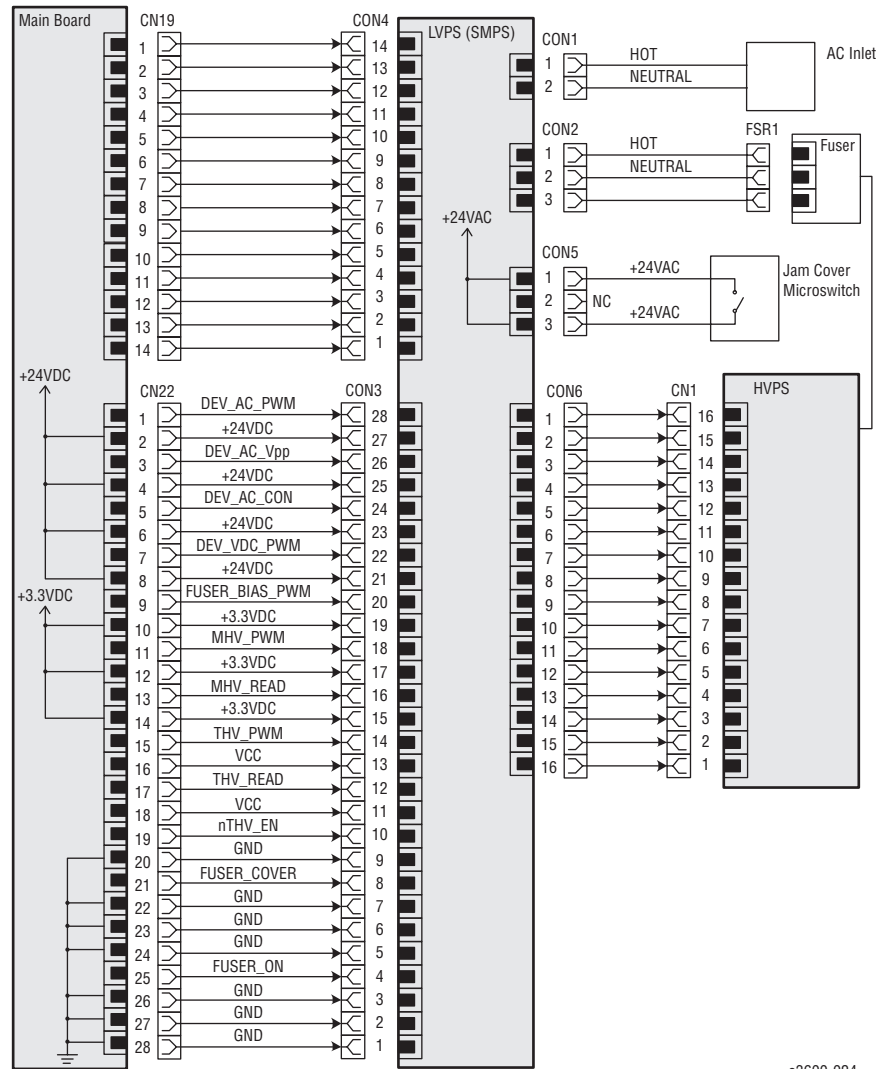
Symbol	Description
 Interconnection, Conductive Part	Represents an interconnection between parts using a conductive part such as a Plate Spring.
+5 VDC +3.3 VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes return.

General Wiring Diagram

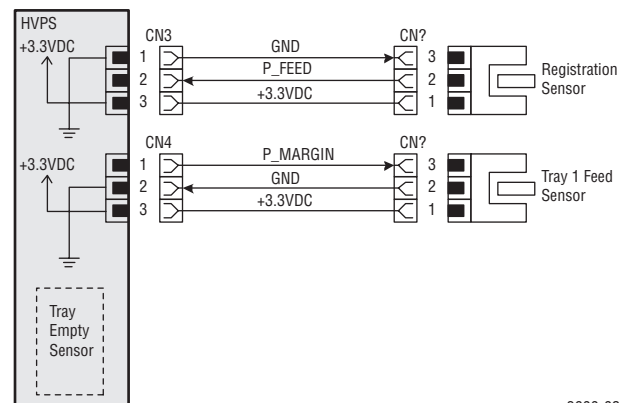


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HVPS/SMPS to Main Board Wiring Diagram

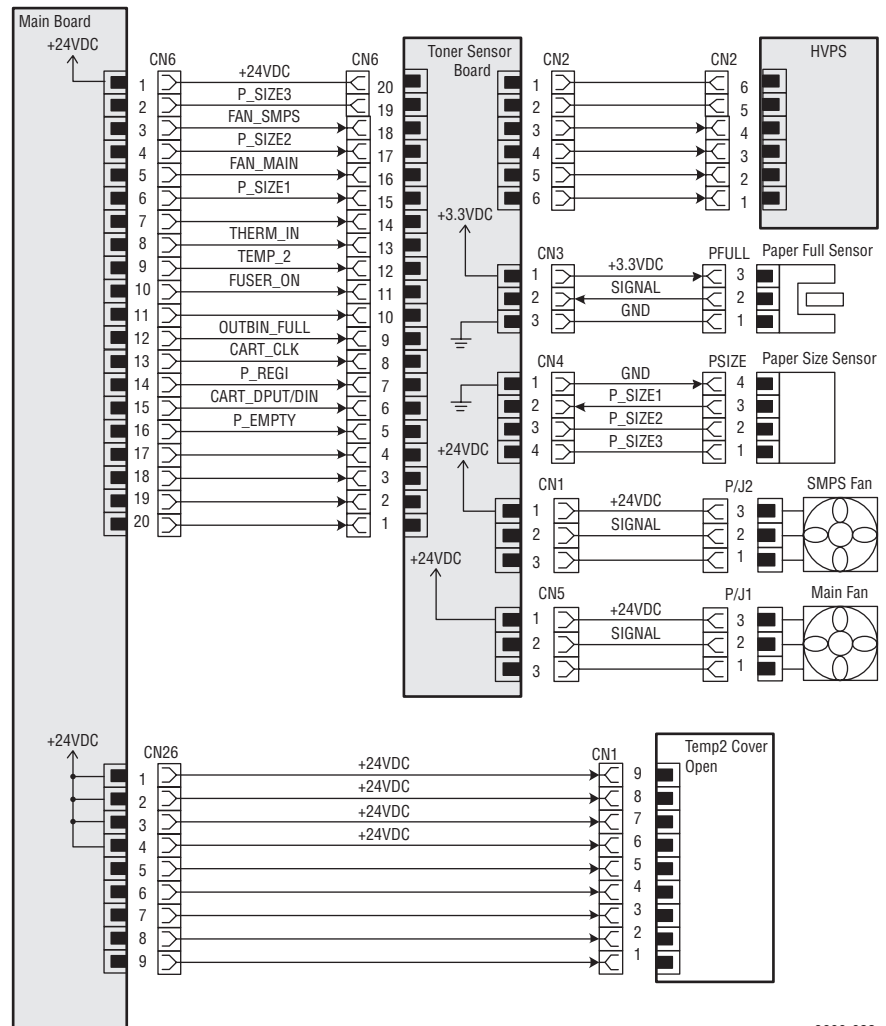


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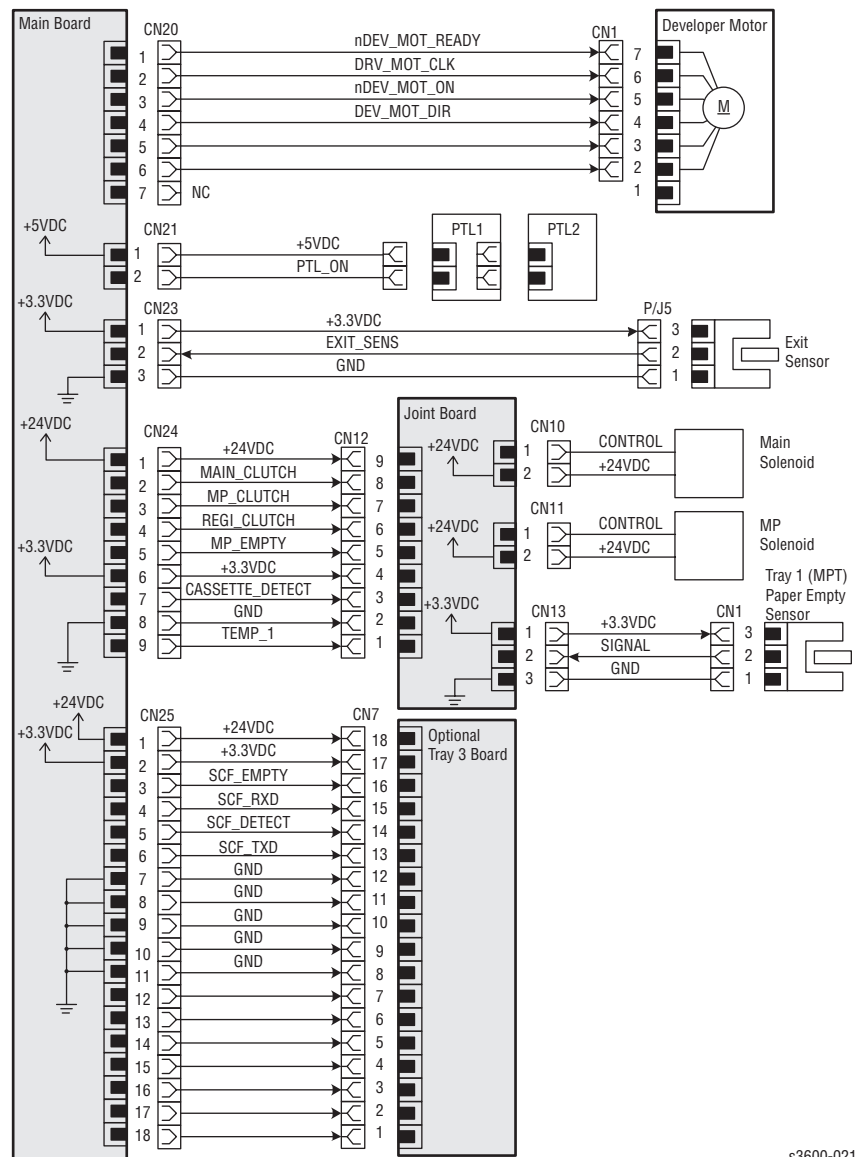
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Sensor to Main Board Wiring Diagram



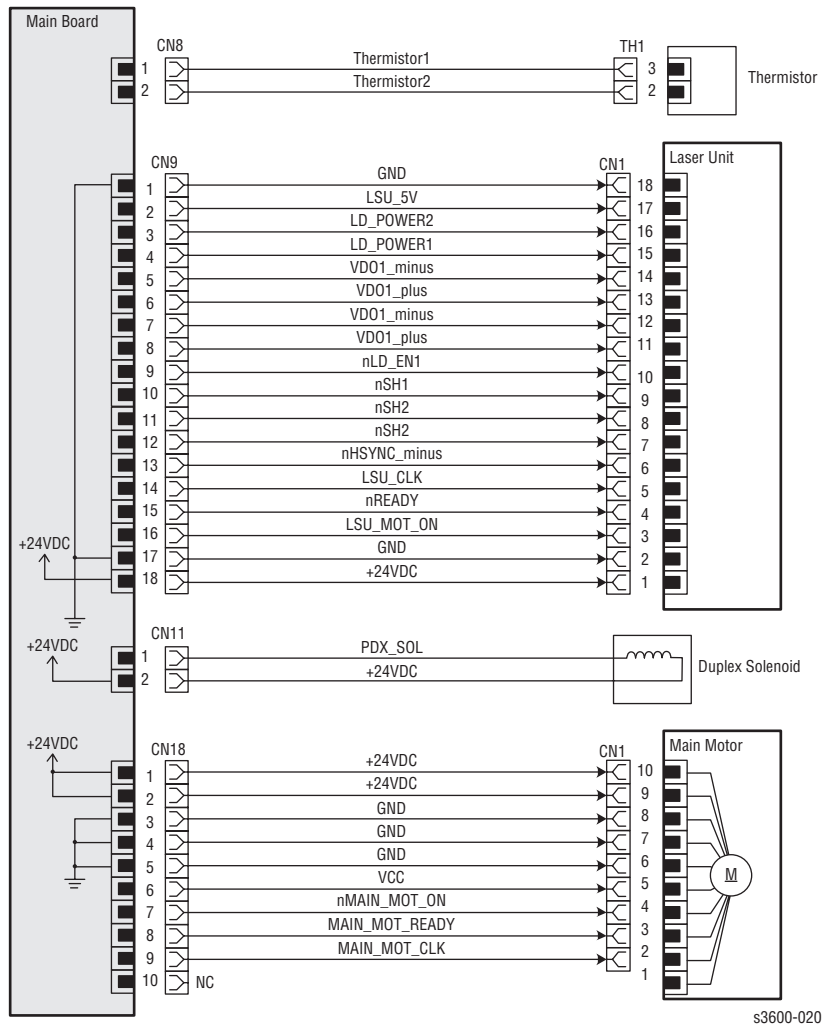
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Main Drive/Joint Board and Optional Tray Wiring Diagram

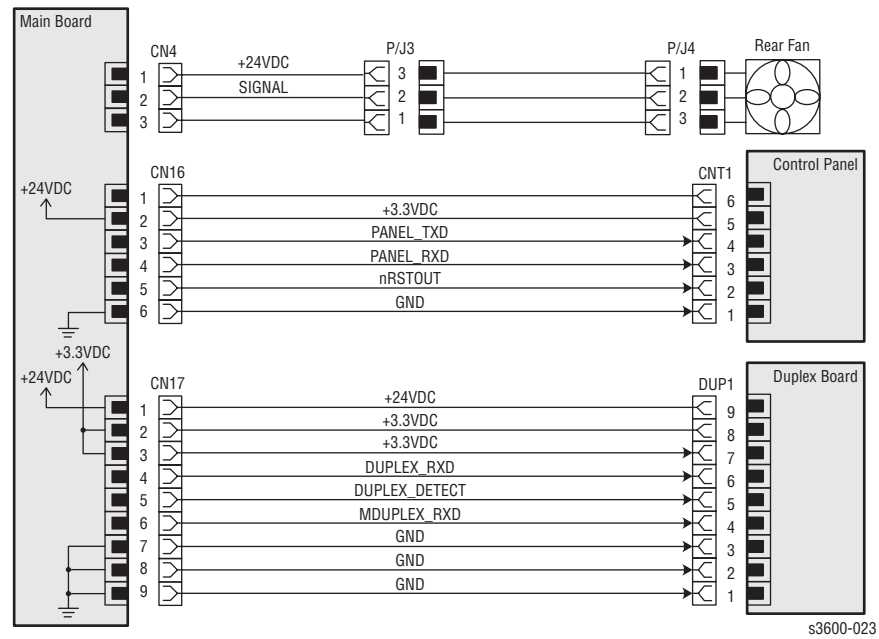


s3600-021

LSU and Main Motor to Main Board Wiring Diagram



Controller Unit and Duplex Board to Main Board Wiring Diagram



Reference

Contents...

- Acronyms and Abbreviations

Reference

Acronyms and Abbreviations

Acronym	Description
3TM	Three Tray Module
A3	Paper size 297 millimeters (11.69 inches) x 420 millimeters (16.54 inches).
A4	Paper size 210 millimeters (8.27 inches) x 297 millimeters (11.69 inches).
A5	Paper size 148 millimeters (5.82 inches) x 210 millimeters (2.10 inches).
AC	Alternating Current is type of current available at power source for the printer.
AMPV	Average Monthly Print Volume
APC	Auto Power Control
ASIC	Application Specific Integrated Circuit
ASSY	Assembly
ATM	Adobe Type Manager
BCR	Bias Charge Roller
BLDC	Brush-Less Direct Current
BOOTP	Boot Parameter Protocol
BSD	Block Schematic Diagram
BTM	Bottom
BTR	Bias Transfer Roller
CAM	Cam Shaft
CCD	Charged Coupled Device (Photoelectric Converter)
CD	Circuit Diagram
CD	Compact Disc
CLT	Clutch
CN	Connector
CON	Connector
CRU	Customer Replaceable Unit
CRUM	Customer Replaceable Unit Meter/Memory
CST	Cassette
CUPS	Common Unix Printing System
dB	Decibel
DC	Direct Current is type of power for printer components. Machine converts AC power from power source to DC power.

Acronym	Description
DCU	Diagnostic Control Unit
DDR2 DIMM	Double Data Rate Dual In-Line Memory Module
DEVE	Developer
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual In-line Memory Module
DPI	Dot Per Inch
DRV	Drive
DUP	Duplex
Duplex	2-sided printing
EC	European Community
ECM	Error Correction Mode
EEA	European Economic Area
EEC	European Economic Community
EEPROM	Electrically Erasable Programmable Read-Only Memory
EOM	End of Message
ESA	Electric Static Attachment
ESD	Electrostatic Discharge. A transfer of charge between bodies at different electrostatic potential.
FCC	Federal Communications Commission
FDR	Feeder
FE	Field Engineer
FPOT	First Print Output Time
FR/FRNT	Front
FRU	Field Replaceable Unit
F/W	Firmware
GB	Giga Byte
GDI	Graphics Device Interface
GND	Ground
HARN	Harness
HCF	High-Capacity Feeder
HDD	Hard Disk Drive
HOU	Housing
HUM	Humidity
HVPS	High-Voltage Power Supply
Hz	Hertz (cycles per second)
IC	Integrated Circuit
IDT	Intermediate Drum Transfer

Acronym	Description
IEC	International Electrotechnical Commission
I/F	Interface
IP	Image Processor
IPM	Image Per Minute
IPP	Internet Printing Protocol
IQ	Image Quality
KB	Kilo Byte
LAN	Local Area Network
LCD	Liquid Crystal Display
LD	Laser Diode
LED	Light Emitting Diode
LEF	Long-Edge Feed
LSU	Laser Scan Unit
LTR	Letter Size Paper (8.5 x 11 inches)
LVPS	Low-Voltage Power Supply
MAC	Media Access Control
MB	Mega Byte
MHz	Mega Hertz
MM	Millimeters
MOT	Motor
MPT	Multi-Purpose Tray
NCS	Non-Contact Sensor
NCU	Network Control Unit
NPP	No Paper
NVM	Non-Volatile Memory
NVRAM	Non-Volatile Random Access Memory
OHP	Overhead Paper (Transparency)
OPC	Organic Photo Conductor
OPT	Optional
OS	Operating System
PBA	Printed Board Assembly
PC	Personal Computer
PCB	Printed Circuit Board
PCL	Printer Command Language
PDL	Page Description Language
P/J	Plug Jack (electrical connections)

Acronym	Description
PJL	Printer Job Language
PL	Parts List
PPD	PostScript Printer Description
PPM	Pages Per Minute
PPR	Partial Page Request
PPS	Pages
PPS	Pulses Per Second
PS	PostScript
PTL	Pre-transfer Lamp
PV	Print Volume Management
PWB	Printed Wiring Board
PWBA	Printed Wiring Board Assembly
PWM	Pulse Width Modulation
RAM	Random Access Memory
RH	Relative Humidity
RLS	Release
ROM	Read-Only Memory
ROS	Raster Output Scanner - Laser Scan Unit
SEF	Short-Edge Feed
SMPS	Switching Mode Power Supply
SNR	Sensor
SOL	Solenoid
SOS	Start of Scan
SPOOL	Simultaneous Peripheral Operations Online
STS	Soft Touch Sensor
SYNC	Synchronous or Synchronization
TDC	Toner Density Control
THV	Transfer High Voltage
TNR	Toner
TRNS	Transport
UI	User Interface
USB	Universal Serial Bus

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