

XEROX®

Service Manual

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Phaser® 4500/4510

Laser Printers



Phaser 4500/4510 Laser Printers

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.

Prepared By:

Xerox Corporation

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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.

Consumable: Ink, toner, or print cartridge that is consumed. Customer is expected to replace once consumed.

Routine Maintenance Item: Supply item or kit that has a limited life. Customer is expected to replace at end-of-life.

Accessory: A single component or assembly that may be added to a printer; however, it is NOT an option to the product.

Throughout this manual any pieces of information that pertain to just the Phaser 4500 are indicated with **P4500**, and those that pertain to just the Phaser 4510 are indicated with **P4510**. Those that apply to both models do not have either label.

Common Acronyms:

FRU: Field Replaceable Unit

PL: Corresponds to the FRU Parts List.

CRU: Customer Replaceable Unit

ESD: Electrostatic Discharge

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 statement 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 statement 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



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



The surface is hot while the printer is running. After turning off the power, wait 30 minutes.



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



Do not touch the item.

Power Safety Precautions

Power Source

For 110 VAC printers, do not apply more than 135 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord and connector. For 220 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. This manual assumes that the reader is a Xerox-certified 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.

Disconnecting Power

Turning the power off using the On/Off switch does not completely de-energize the printer. You must also disconnect the printer power cord from the AC outlet. Position the power cord so that it is easily accessible during servicing so that you may power down the printer during an emergency.

- Disconnect the power plug 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 case
 - 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 (ESD) 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 unpackaged replacement devices. Motion such as your clothes brushing together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an electro-statically sensitive device
- Handle ICs and EPROMs 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

For Xerox-certified service personnel only: Refer also to the preceding Power Safety Precautions.

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.

Power source: This product is intended to operate from a power source that will not apply more than 264 volts rms for a 220 volt AC outlet or 140 volts rms for a 110 volt AC outlet between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

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 and the printer's control panel 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 4500/4510 Laser Printer 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 is a class of laser product that does not emit hazardous laser radiation; this 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 off the printer power 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

Turning the power off by using the On/Off switch does not completely de-energize the printer. You must also disconnect the printer power cord from the AC outlet. Position the power cord so that it is easily accessible during servicing.

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 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 media. The fuser assembly is VERY HOT. Turn the printer power off and wait at least 5 minutes for the Fuser to cool before you attempt to service the fuser assembly or adjacent components.

Regulatory Specifications

United States (Federal Communications Commission)

The equipment described in this manual generates and uses radio frequency energy. If it is not installed properly in strict accordance with Xerox instructions, it may cause interference with radio and television reception or may not function properly due to interference from another device. 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 printer into an outlet on a circuit different from that which the receiver is connected.
- Route the interface cables on the printer away from the receiver
- Consult the dealer, Xerox service, or an experienced radio/television technician for help.

Changes or modifications not expressly approved by Xerox can affect the emission and immunity compliance and could void the user's authority to operate this product. To ensure compliance, use shielded interface cables. A shielded parallel cable can be purchased directly from Xerox at www.xerox.com/office/4500supplies.

Xerox has tested this product to internationally accepted electromagnetic emission and immunity standards. These standards are designed to mitigate interference caused or received by this product in a normal office environment. This product is also suitable for use in a residential environment based on the levels tested.

In the United States this product complies with the requirements of an unintentional radiator in part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; (2) this device must accept any interference received, including interference that may cause undesired operation.

Canada

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:

January 1, 1995: Low Voltage Directive 73/23/EEC as amended by 98/68/EEC

January 1, 1996: Electromagnetic Compatibility Directive 89/336/EEC

March 9, 1999: Radio & Telecommunications Terminal Equipment Directive 1999/5/EC

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 signed copy of the Declaration of Conformity for this product can be obtained from Xerox.

General Information

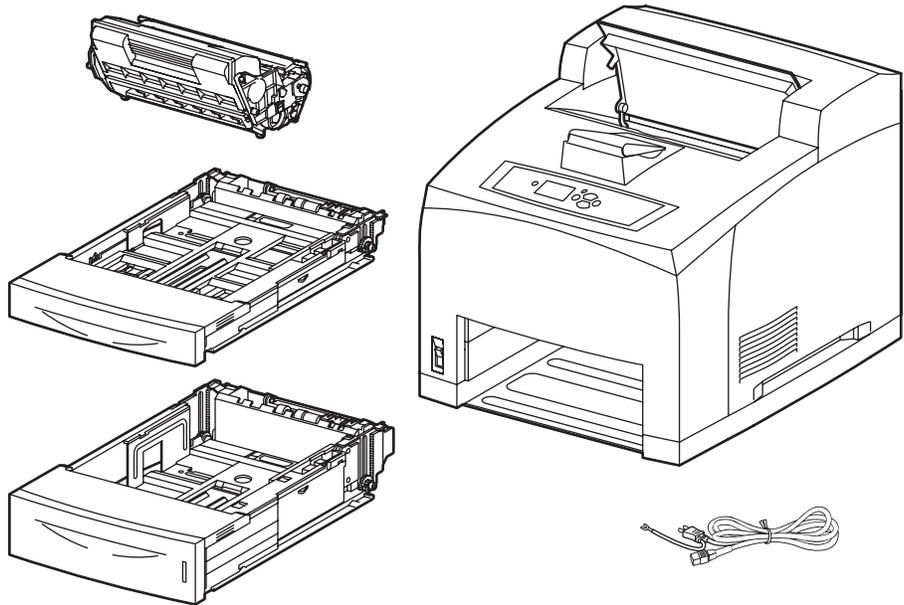
In this chapter...

- Printer Introduction and Overview
- Printer Configurations
- Parts of the Printer
- Control Panel
- Image Processor Board (Phaser 4500)
- Image Processor Board (Phaser 4510)
- Consumables and Routine Maintenance Items
- Printer Specifications

Chapter 1

Printer Introduction and Overview

The *Xerox Phaser 4500/4510 Laser Printer Service Manual* is the primary document used for repairing, maintaining, and troubleshooting the printer. To ensure complete understanding of this product, participation in Xerox Phaser 4500/4510 Service Training is strongly recommended. To service this product, Xerox certification for this product is required.



s4500-001

Technical Support Information

For updates to the Service Manual, Service Bulletins, knowledge base, etc., go to www.office.xerox.com/partners.

For further technical support, contact your assigned Xerox Technical Support for this product.

Printer Configurations

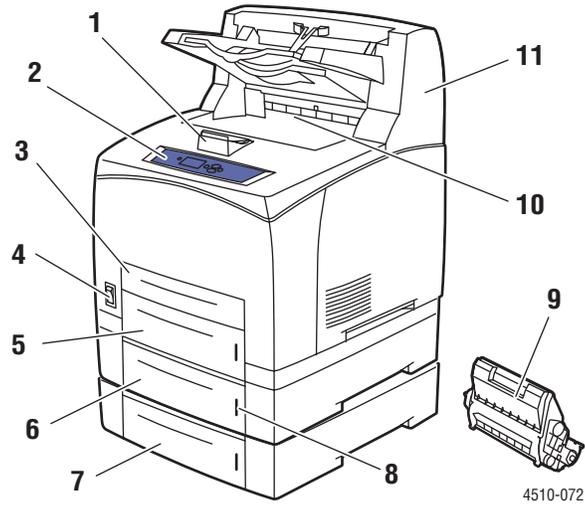
A replaceable configuration card holds configuration information that enables or disables the network features shown in the following table.

Printer Configurations

Features	Printer Configuration			
	B	N	DT	DX
Maximum print speed (letter-size paper)				
P4500:	36 ppm	36 ppm	36 ppm	36 ppm
P4510:	45 ppm	45 ppm	45 ppm	45 ppm
Memory				
P4500:	48 MB	64 MB	64 MB	64 MB
P4510:	128 MB	128 MB	128 MB	128 MB
PostScript fonts	39	39	39	39 + 97 on hard drive
PCL5e/PCL6	Yes	Yes	Yes	Yes
Job pipelining	Standard	Standard	Standard	Standard
PDF direct print	Yes	Yes	Yes	Yes
Resolutions	600 dpi, True 1200 dpi			
USB, Parallel	Yes	Yes	Yes	Yes
10/100BaseTX Ethernet capabilities	Optional	Standard	Standard	Standard
550-sheet feeder (tray 3)	Optional	Optional	Standard	Standard
550-sheet feeder (tray 4)	Optional	Optional	Optional	Optional
Automatic 2-sided printing (requires duplex unit)	Optional	Optional	Standard	Standard
Hard drive	Optional	Optional	Optional	Standard
Job collation (Requires a hard drive)	Optional	Optional	Optional	Standard
Proof Print, Secure Print, Saved Jobs (Requires a hard drive)	Optional	Optional	Optional	Standard
500-sheet stacker	Optional	Optional	Optional	Standard

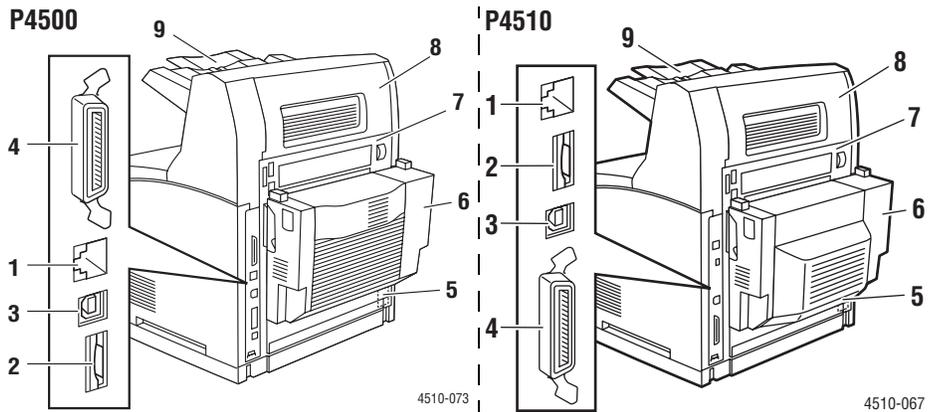
Parts of the Printer

Front View



- | | |
|--------------------|--------------------------------|
| 1. Paper stop | 7. Optional tray 4 |
| 2. Control panel | 8. Paper gauge |
| 3. Tray 1 | 9. Print cartridge |
| 4. On/Off switch | 10. Standard output tray |
| 5. Tray 2 | 11. Optional 500-Sheet stacker |
| 6. Optional tray 3 | |

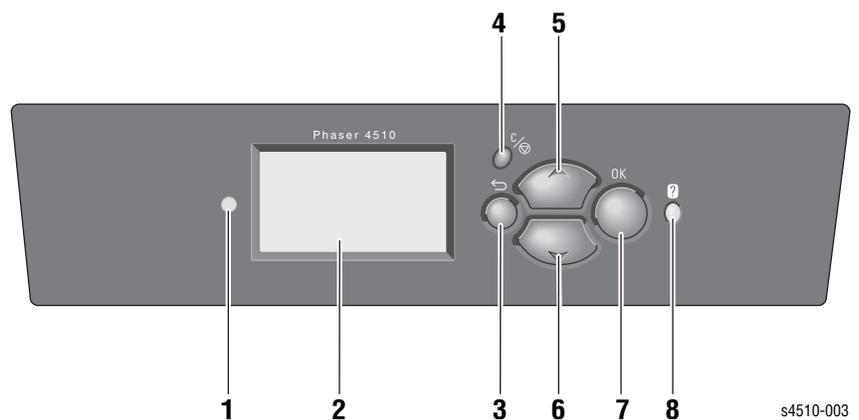
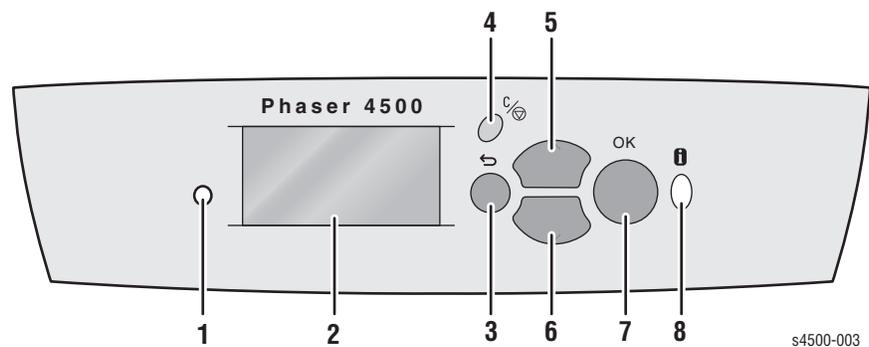
Rear View



- Items 1 - 4 are mounted on the image processor board.
- | | |
|-------------------------------------|-------------------------|
| 1. Ethernet 10/100 Base-T connector | 5. Power receptacle |
| 2. Configuration card | 6. Optional duplex unit |
| 3. USB connector | 7. Rear cover |
| 4. Parallel cable connector | 8. Stacker rear cover |
| | 9. Stacker extension |

Control Panel

The control panel consists of one tricolor LED, a display window, and six functional buttons.



- | | |
|----------------------------------|--|
| 1. Status indicator LED | 5. Up Arrow button - scrolls up the menu system |
| 2. Graphic control panel display | 6. Down Arrow button - scrolls down the menu system |
| 3. Back button | 7. OK (select) button |
| 4. Cancel button | 8. Information (i) (P4500) or Help (?) (P4510) button - for additional explanation or help |

LED States

LED State	Printer State
Green	Ready to Print or in Power Saver mode
Flashing Yellow	Warning (but can still print)
Flashing Green	In Standby mode or busy (receiving data, processing data, printing)
Flashing Red	Error; cannot print

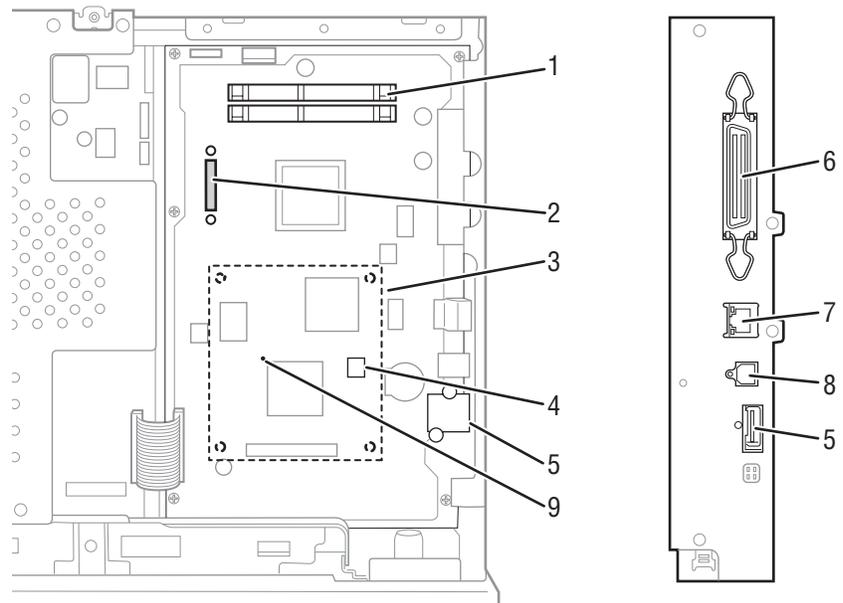
Control Panel Shortcuts

Mode	Buttons Pressed at Power On
Skip execution of POST diagnostics	OK
Print Service Diagnostics Map	Information
Reset PostScript NVRAM	Back + OK
Password Bypass	Up Arrow + Down Arrow
Enter Service Diagnostics	Back + Information

Image Processor Board (Phaser 4500)

When installing a new image processor board in the printer, you must transfer the following parts from the old board:

- Memory DIMMs
- Hard drive (if installed)
- NVRAM
- Configuration card



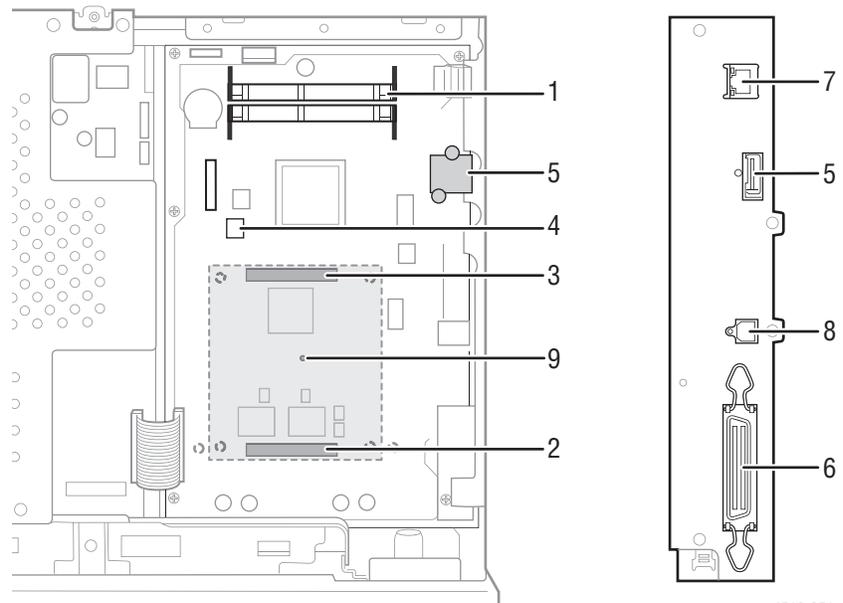
s4500-251

- | | |
|-----------------------------------|-----------------------|
| 1. Memory (RAM) DIMM 1 and DIMM 2 | 6. Parallel connector |
| 2. Flash memory (optional) | 7. Ethernet connector |
| 3. Hard drive (optional) | 8. USB connector |
| 4. NVRAM | 9. Health LED |
| 5. Configuration card | |

Image Processor Board (Phaser 4510)

When installing a new image processor board in the Phaser 4510 printer, you must transfer the following parts from the old board:

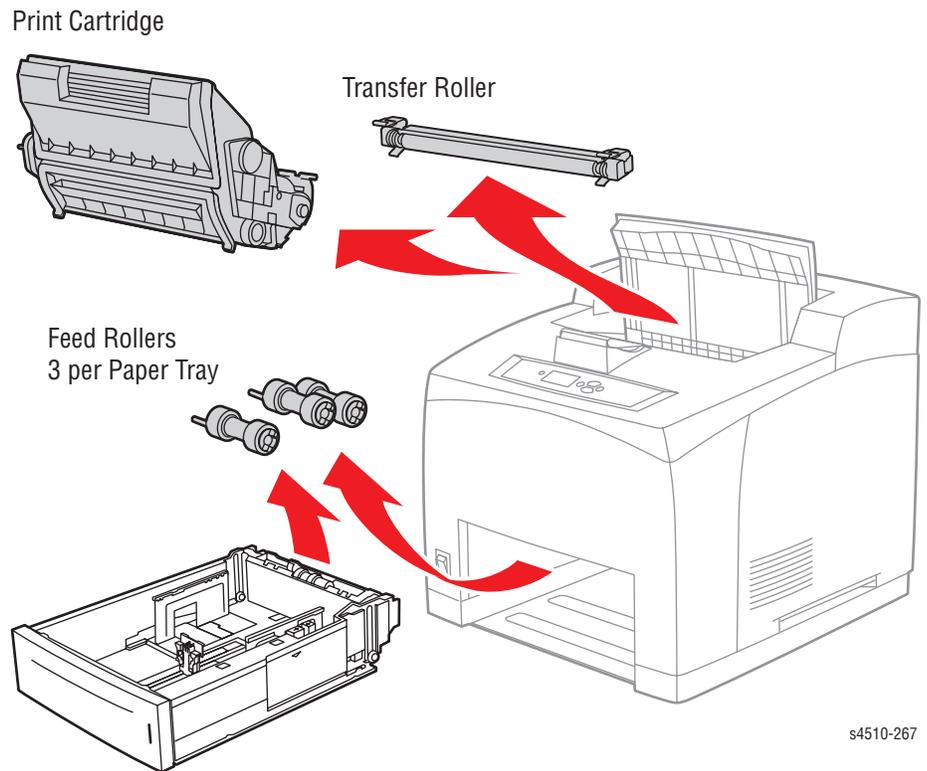
- Memory DIMMs
- Configuration card
- NVRAM
- Hard drive (if installed)
- Flash memory (if installed)



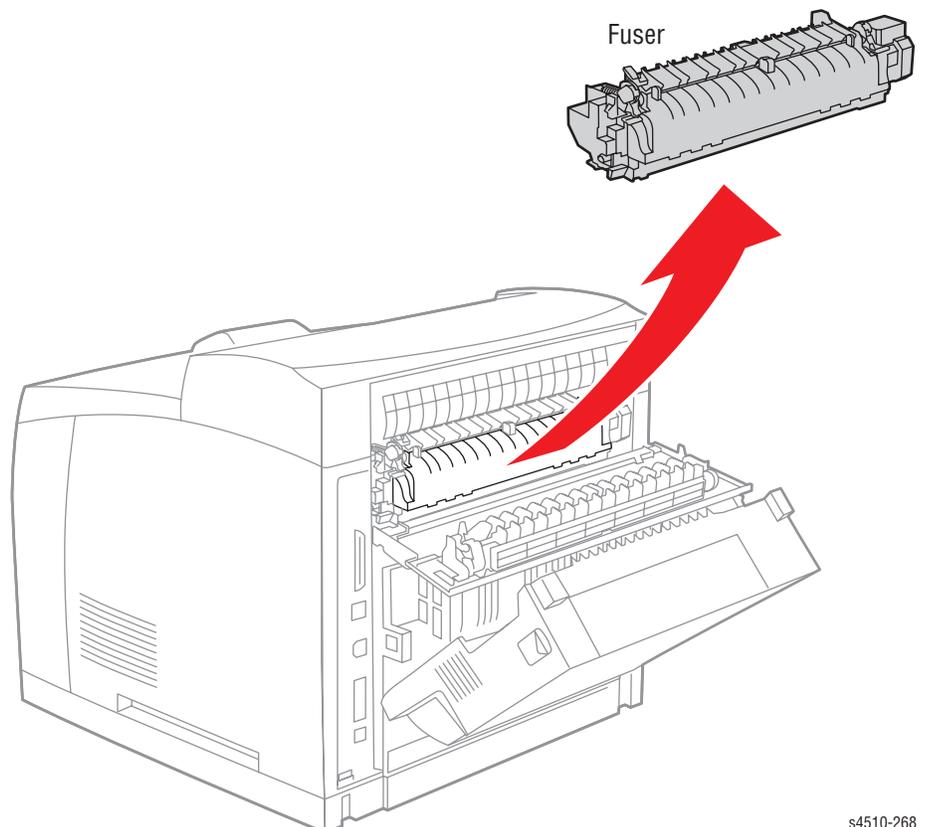
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- | | |
|-----------------------------------|-----------------------|
| 1. Memory (RAM) DIMM 1 and DIMM 2 | 6. Parallel connector |
| 2. Flash memory (optional) | 7. Ethernet connector |
| 3. Hard drive (optional) | 8. USB connector |
| 4. NVRAM | 9. Health LED |
| 5. Configuration Card | |

Consumables and Routine Maintenance Items



s4510-267



s4510-268

Supply Life Counters

Internal counters track the usage of the Consumables and Routine Maintenance Items and store the values in NVRAM. The image processor board monitors these counters in order to display the near end-of-life and end-of-life messages.

Print life ratings are based on 5% coverage and an average job length of 4 pages.

Supply	Print Life (Number of Images)
Consumables	
Print cartridge, standard-capacity	10,000
Print cartridge, high-capacity	19,000
Routine Maintenance Items	
Maintenance kit (consists of fuser, transfer roller, and 12 feed rollers)	200,000

Printer Specifications

Physical Dimensions and Clearances

Print Engine Dimensions	Value
Height	404 mm (15.9 in.)
Width	422 mm (16.6 in.)
Depth	465 mm (18.3 in.)
Depth with paper cassette extended	524 mm (20.7 in.)
Weight (with 10-K print cartridge)	20.5 kg (45.2 lbs.) (P4500) 23.2 kg (51.0 lbs.) (P4510)
Clearances	Value
Top	400 mm (16 in.)
Left	210 mm (8 in.)
Right	300 mm (12 in.)
Front	480 mm (19 in.)
Rear (with duplex unit installed)	230 mm (9 in.)
Total Height requirement	820 mm (32 in.) Add 9.6 cm (3.75 in.) for each 550-sheet feeder
Mounting surface level tolerance	± 5°
550-Sheet Feeder Dimensions	Value
Height (to top of feeder assembly)	143 mm (5.6 in.)
Width	422 mm (16.6 in.)
Depth	452 mm (17.8 in.)
Depth with paper cassette extended	510 mm (20.1 in.)
Weight	6.3 kg (13.9 lbs.)
Duplex Unit Dimensions	Value
Height	219 mm (8.6 in.) (P4500) 238 mm (9.4 in.) (P4510)
Width	352 mm (13.8 in.)
Depth	96 mm (3.8 in.) (P4500) 146 mm (5.8 in.) (P4510)
Weight	1.9 kg (4.2 lbs.)
Stacker Dimensions	Value
Height	226 mm (8.9 in.)
Width	418 mm (16.4 in.)
Depth	312 mm (12.3 in.)
Depth with stacker tray extended	382 mm (15.1 in.)
Weight	2.6 kg (5.7 lbs.)

Functional Specifications

Characteristic	Specification					
Printing process:	Recording System: Electrophotography (roller charging, magnetic monocomponent toner development) Exposure System: Semiconductor laser beam scanning Transfer System: Roller transfer system Fusing System: Thermal fixing using a heat roller					
Resolution / Addressability	600/1200 dpi					
Print-Quality Modes	Two choices:		600 x 600 dpi True 1200 x 1200 dpi			
Phaser 4500 Continuous operating printing speed	36 pages per minute for plain Letter paper, one-sided printing 34 pages per minute for A4 paper, one-sided printing 21 images per minute for Letter paper, 2-sided printing 21 images per minute for A4 paper, 2-sided printing)					
Phaser 4510 Continuous operating printing speed	45 pages per minute for plain Letter paper, one-sided printing 43 pages per minute for A4 paper, one-sided printing 27 images per minute for Letter paper, 2-sided printing 26 images per minute for A4 paper, 2-sided printing)					
Phaser 4500 First Print-Out from READY state (in seconds); Short Edge Feed	Paper Size	Mode	Tray 1	Tray 2	Tray 3	Tray 4
	Letter	Simplex	8.7	8.7	8.7	8.9
		Duplex	12.5	12.5	12.5	12.8
	A4	Simplex	8.7	8.7	8.7	9.0
		Duplex	12.7	12.7	12.7	13.0
Phaser 4510 First Print-Out from READY state (in seconds); Short Edge Feed	Paper Size	Mode	Tray 1	Tray 2	Tray 3	Tray 4
	Letter	Simplex	7.9	7.9	7.9	8.2
		Duplex	11.1	11.1	11.1	11.3
	A4	Simplex	7.9	7.9	7.9	8.2
		Duplex	11.2	11.2	11.2	11.4
Phaser 4500 First Print-Out from sleep mode (in seconds); Short Edge Feed	Paper Size	Mode	Tray 1	Tray 2	Tray 3	Tray 4
	Letter	Simplex	24.0	24.0	24.0	24.2
		Duplex	27.8	27.8	27.8	28.1
	A4	Simplex	24.0	24.0	24.0	24.3
		Duplex	28.0	28.0	28.0	28.3
Phaser 4510 First Print-Out from sleep mode (in seconds); Short Edge Feed	Paper Size	Mode	Tray 1	Tray 2	Tray 3	Tray 4
	Letter	Simplex	24.9	24.9	24.9	25.2
		Duplex	28.1	28.1	28.1	28.3
	A4	Simplex	24.9	24.9	24.9	25.2
		Duplex	28.2	28.2	28.2	28.4
Warm-Up Time	17 seconds					

Electrical Specifications

Characteristic	Specification
Primary Line Voltages	120 VAC nominal, min. 98 V, max. 140 V 220/240 VAC nominal, min. 198 V, max. 264 V
Primary Line Voltage Frequency Range	50/60 Hz \pm 3 Hz
Maximum Power Consumption	P4500: 985 W @ 120 V 985 W @ 220/240 V P4510: 1210 W @ 120 V 1270 W @ 220/240 V

Environmental Specifications

Characteristic	Specification	
Temperature:		
Operating	5 to 35° C (41 to 95° F)	
Optimal Performance Range	10 to 32° C (50 to 89.6° F)	
Transportation	-20 to 40° C (-4 to 104° F)	
Humidity (%RH)		
Operating	15 to 85	
Transportation	5 to 85	
Altitude		
Operating	0 to 3,500 meters (11,500 feet)	
Transportation*	0 to 15,000 meters (49,200 feet)	
Acoustic Noise LWA(B)		
	Engine only	With all options
Idle	P4500: 4.00 B P4510: 5.00 B	— —
Printing	P4500: 6.62 B P4510: 6.95 B	7.30 B 7.50 B
* Air transportation in pressurized cargo space		

ENERGY STAR qualified printer

Media and Tray Specifications

	Trays	Specifications	
Printable Area	All	Within 4 mm of paper edge guaranteed. Edge-to-edge printing supported.	
Supported Media Sizes	Tray 1	Width:	76.2 mm (3.0 in.) ~ 215.9 mm (8.5 in.)
	Trays 2-4	Width:	98.4 mm (3.9 in.) ~ 215.9 mm (8.5 in.)
	Tray 1	Length:	127.0 mm (5.0 in.) ~ 355.6 mm (14 in.)
	Trays 2-4	Length:	148.0 mm (5.8 in.) ~ 355.6 mm (14 in.)
	Stacker	Width:	88.9 mm (3.5 in.) ~ 215.9 mm (8.5 in.)
		Length:	139.7 mm (5.5 in.) ~ 355.6 mm (14 in.)
Supported Media Types and Weights	All	Bond	(P4500) 60-216 g/m ² (16-58 lb.) (P4510) 64-216 g/m ² (17.1-58 lb.)
	All	Labels	
	All	Transparency	
	Tray 1	Greeting Cards	190 g/m ² (70 lb. Cover)
	All	Index Card Stock	60-216 g/m ² (33-120 lb.)
	All	Tag Stock	60-216 g/m ² (37-133 lb.)
		Cover Stock	60-216 g/m ² (22-80 lb.)
Supported Envelopes	All	#10 Commercial (4.12 x 9.5 in.) Monarch (3.87 x 7.5 in.) DL (110 x 220 mm) C5 (162 x 229 mm) B5 (176 x 250 mm) (P4500 only)	
Input Tray Capacity	Tray 1	150 sheets	
	Trays 2-4	550 sheets	
		Based on 75 g/m ² (20 lb. bond) paper stock. Capacity is reduced for heavier/thicker stock.	
Output Tray Capacity	Standard	500 sheets	
	Stacker	500 sheets	

Duplex Unit Media Specifications

	Input Tray	Specifications	
Width	Tray 1	90 - 216 mm (3.5 - 8.5 in.)	
	Trays 2-4	98 - 216 mm (3.9 - 8.5 in.)	
Height	Tray 1	140 - 356 mm (5.5 - 14.0 in.)	
	Trays 2-4	148 - 356 mm (5.8 - 14.0 in.)	
Supported Media Types and Weights	All	Bond	P4500: 60-216 g/m ² (16-58 lb.) P4510: 64-216 g/m ² (17.1-58 lb.)
		Greeting Cards	190 g/m ² (70 lb. Cover)
		Index Card Stock	60-216 g/m ² (33-120 lb.)
		Tag Card Stock	60-216 g/m ² (37-133 lb.)
		Cover Stock	60-216 g/m ² (22-80 lb.)

Memory Requirements

Phaser 4500

Characteristic	Specification
Minimum required	64 MB – The Phaser 4500 B configuration reports 48 MB
Maximum supported	256 MB – accepts modules of 64 or 128 MB in combinations to a total of 256 MB
Supported type	PC133 SDRAM in 144-pin SO-DIMM form

Phaser 4510

Characteristic	Specification
Minimum required	128 MB
Maximum supported	512 MB – accepts modules of 128 or 256 MB <i>only</i> in combinations to a total of 512 MB
Supported type	PC2700 DDR in 200-pin SO-DIMM form

Theory of Operation

In this chapter...

- Overview of the Phaser 4500/4510 Laser Printer
- Paper Path of the Printer
- Sensors
- Major Assemblies and Functions
- Printer Options

Chapter 2

Overview of the Phaser 4500/4510 Laser Printer

Summary of the Printing Process

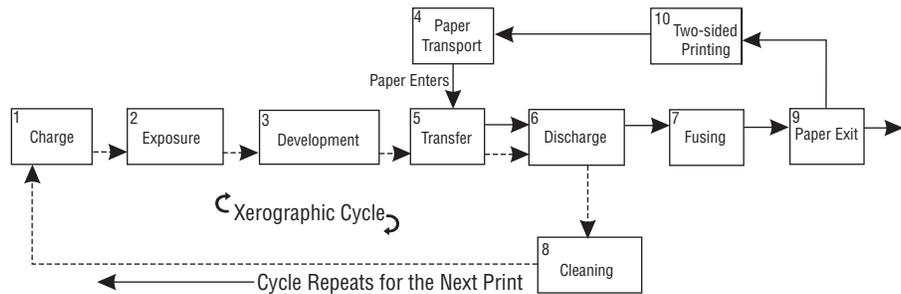
The Phaser 4500/4510 print process consists of the following steps:

1. **Charge** – The print cartridge contains a bias charge roller that uniformly distributes a negative electrical charge over the photoconductive drum surface.
2. **Exposure** – The laser assembly scans the surface of the photoconductive drum, which is located inside the print cartridge. The laser diode assembly produces a laser beam which is turned on and off according to a data signal. A 12-sided polygonal mirror in the scanner assembly is rotated at a specified speed. The laser beam is reflected off of the mirror and onto the drum surface through a series of lenses and mirrors. The laser beam scans the drum surface from one end to the other, neutralizing the negative charge to create one line of a latent image on the surface. The drum is rotated and the scan process is repeated to form an image on the drum surface.
3. **Development** – A magnetic roller in the print cartridge carries a thin layer of toner supplied by an agitator in the cartridge's toner compartment. The charging and metering (CM) blade inside the cartridge applies a negative charge to the toner and spreads the toner onto the magnetic roller. The negatively charged toner is transferred to the areas of the drum surface that have been discharged.
4. **Paper transport** – Paper size sensors determine the length of the media. Four tabs (one fixed, three movable) located in the paper tray indicate the location of the length guide and thereby identify the media size. Switches located in the left tray guides detect the position of four tabs located on the paper tray. The printer uses a three-roller system to pick paper. Two springs raise the tray's lift plate, along with the paper stack, against the nudger roller of the paper feeder assembly. To pick paper, the nudger roller advances the top sheet to the feed roller and retard roller. The retard roller prevents multi-picks. The feed roller advances the paper to the turn pinch rollers, which feed it to the registration rollers. The registration sensor is the first sensor to detect paper.
5. **Transfer** – The transfer roller is driven by a gear on the print cartridge. The pressure of the transfer roller against the drum assists in driving the paper through the transfer area. The transfer roller applies a positive charge to the rear surface of the paper. The negatively charged toner image on the drum is attracted to the positive charge on the rear surface of the paper, causing the image to be transferred from the surface of the drum onto the paper.
6. **Discharge** – The detack saw, located on the transfer roller assembly, helps to separate the paper by partially neutralizing the charge holding the paper to the drum.
7. **Fusing** – The paper is driven into the fuser, which uses heat and pressure rolls to melt and bond the toner onto the surface of the paper. Heat roller fingers inside the fuser peel off the leading edge of the paper from the Heat roller to prevent the paper from becoming wound around it. An exit sensor detects paper exiting from the fuser.
8. **Cleaning** – A cleaning blade in the print cartridge scrapes off toner remaining on the drum surface after transfer has occurred. Then, the latent charge pattern remaining on the photoconductive drum is neutralized to prepare the drum for the next exposure cycle.
9. **Paper exit** – The paper is then advanced upward into the exit rollers and into the selected output tray.

- Two-sided printing reverses the direction of the exit rollers to route the paper through the duplex unit rollers and back to the registration roller. A sensor in the duplex unit detects the presence of paper.

Block Diagram of the Print Cycle

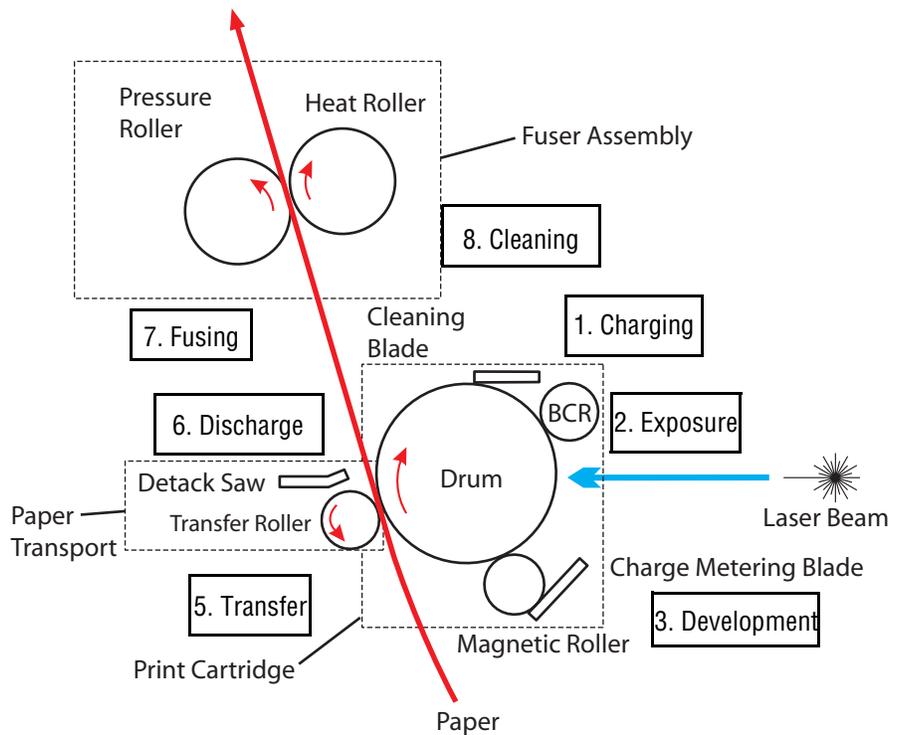
The block diagram of the print cycle shows the sequence of events for the xerographic process (dashed lines) and the paper flow (solid lines) into and out of the printer.



s4500-007

Components Associated with the Xerographic Process

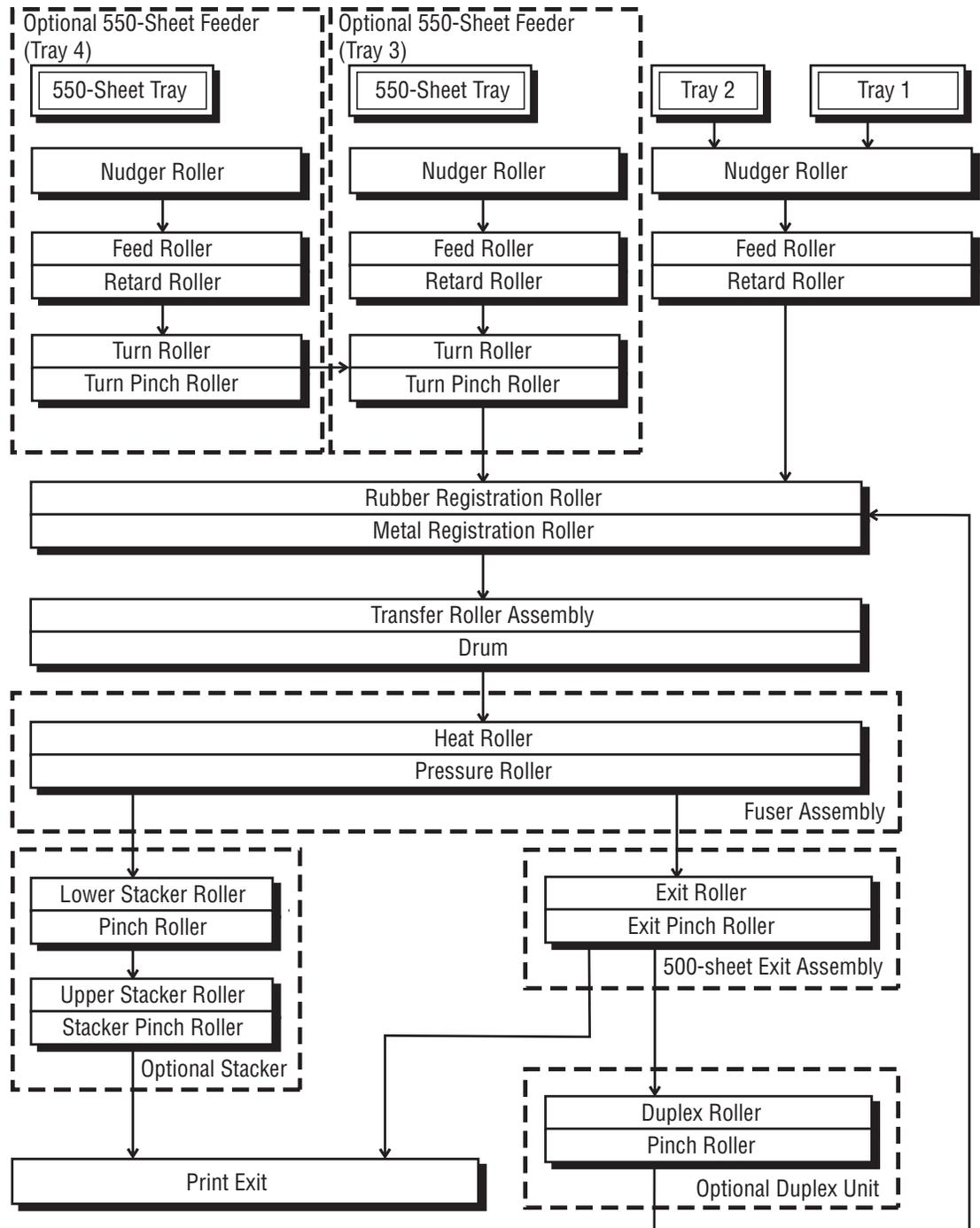
This cut-away side view of the printer shows the location of individual components within the printer, and the major components that are directly related to the print cycle and to the paper path.



s4500-008

Paper Path of the Printer

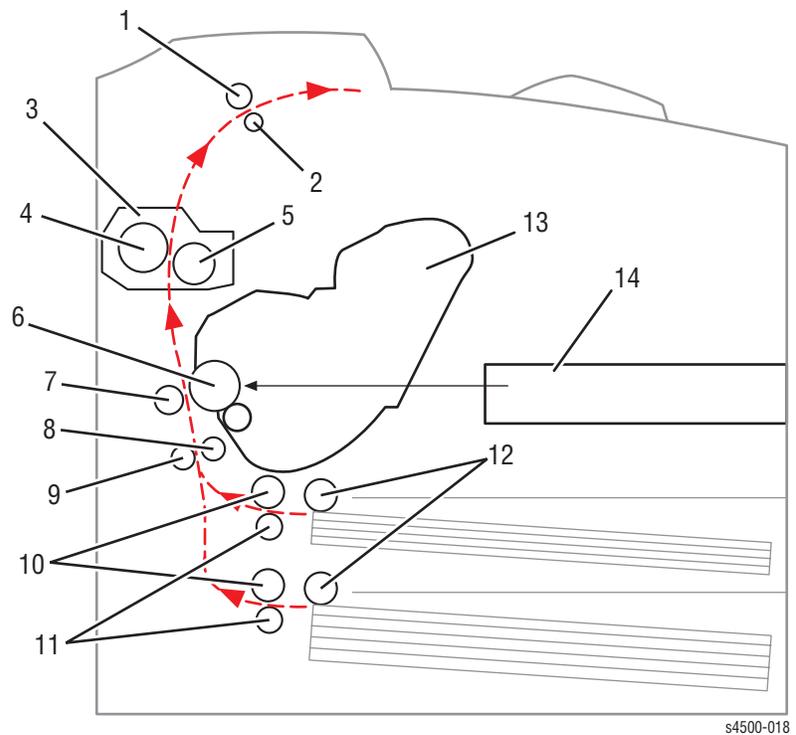
Paper is supplied from Trays 1 and 2 or the optional Trays 3 and 4, and is transported into the printer along the paper path shown below.



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Layout of Paper Transport Path

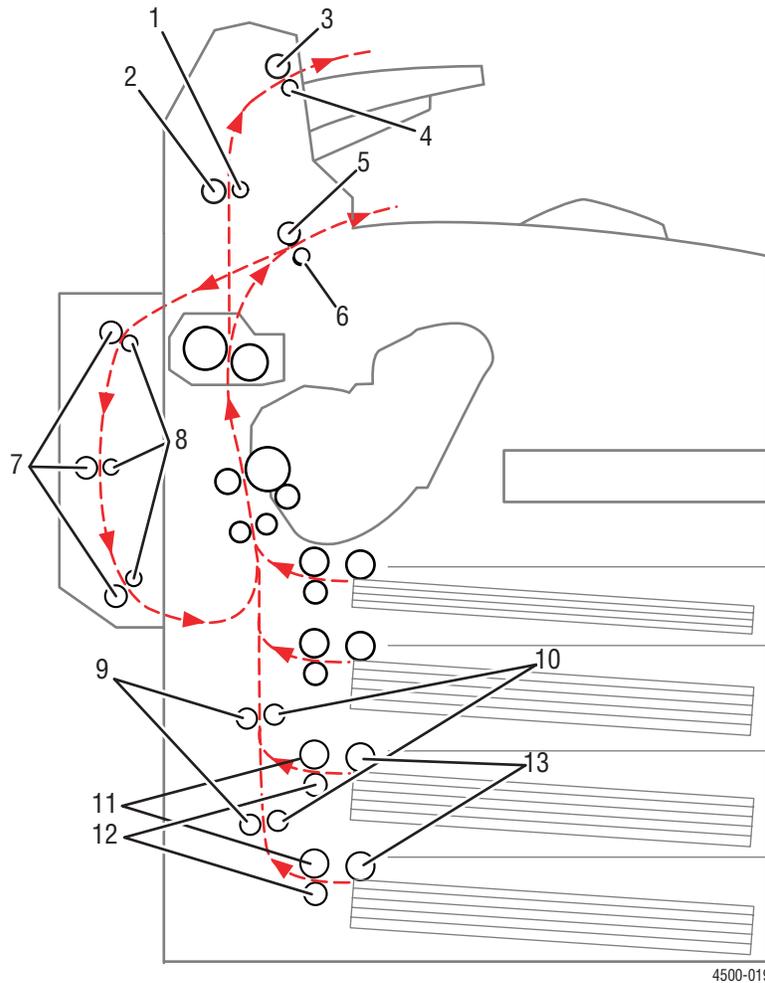
This cross section of the printer shows the main components directly associated with the paper path and transport in the engine only.



s4500-018

- | | |
|-----------------------------|-------------------------------|
| 1. Exit roller | 8. Rubber registration roller |
| 2. Exit pinch roller | 9. Metal registration roller |
| 3. Fuser assembly | 10. Feed roller assemblies |
| 4. Pressure roller | 11. Retard roller assemblies |
| 5. Heat roller | 12. Nudge roller assemblies |
| 6. Drum | 13. Print cartridge |
| 7. Transfer roller assembly | 14. Laser assembly |

This cross section shows the additional components associated with paper transport when the 550-sheet feeders, the duplex unit, and the stacker are installed.



- | | |
|-------------------------------|------------------------------|
| 1. Stacker pinch roller | 8. Duplex pinch rollers |
| 2. Lower stacker roller | 9. Turn pinch rollers |
| 3. Upper stacker roller | 10. Turn roller assemblies |
| 4. Upper stacker pinch roller | 11. Feed roller assemblies |
| 5. Exit roller | 12. Retard roller assemblies |
| 6. Exit pinch roller | 13. Nudger roller assemblies |
| 7. Duplex rollers | |

Sensors

The printer contains a number of sensors of various types that perform a variety of functions. One group of sensors track the progress of the paper along the paper path, and detect if a paper jam occurs. Other sensors detect the presence of the print cartridge, stop printer activity if a door is open, and monitor the fusing temperature. The basic printer has 18 sensors, while a fully-optioned printer has 30 sensors.

The types of sensors in use vary with their function. In general, there are four basic type in use:

- Photo
- Microswitch
- Soft Touch Sensors (STS)
- Magnetic

Most of the photo sensors consist of a LED in one arm of a U-shaped holder, and a photo-transistor in the other arm. When nothing is between the arms of the sensor, light from the LED falls on the photo-receptor, turning it on. If the light is interrupted, the photo-transistor turns off. The on- or off-state of the transistor is used as a signal.

The microswitches are used primarily as interlocks in the printer. They are in a normally open state, and close when actuated. A bank of switches in a holder is used for detecting the size of paper in use in a tray. Cams in the tray close the switches in various combinations (see “Control of Paper Size” on page 2-17) to send a size signal to the controller.

The Soft Touch Sensor has a known value of resistance whose sensitivity varies with temperature.

The magnetic sensor detects the magnetic properties of the toner in the print cartridge.

A fifth sensor in use in the printer is the antenna used to communicate with the CRUM in the print cartridge.

The list of Sensors and interlocks that follows gives each sensor by its name, lists which of the types it is, and briefly describes its function in the printer. The reference column lists manual pages where illustrations show the location of the sensor.

List of Sensors and interlocks

Name	Type	Function	Reference
Paper low	Mechanically actuated photo sensor	Detects low paper condition in 550-Sheet trays 2, 3, and 4 (there is no low-paper sensing in tray 1).	page 2-10 page 2-16
No paper	Mechanically actuated photo sensor	Detects no paper condition in all trays.	Page 2-16
Paper size switches	Microswitch bank	Detects the presence of a tray and the paper size setting of the tray.	Page 2-16 Page 2-41

List of Sensors and interlocks

Name	Type	Function	Reference
Registration sensor	Mechanically actuated photo sensor	Detects the paper as it reaches the registration rollers.	Page 2-10 Page 2-16
Toner sensor	Magnetic sensor	Detects the presence of toner in the print cartridge.	Page 2-16
Exit sensor	Mechanically actuated photo sensor	Detects paper as it leaves the fuser.	Page 2-22
Output tray full sensor	Mechanically actuated photo sensor	Detects when the standard output tray is full.	Page 2-27
Temperature sensor	Soft Touch Sensor	Two of these monitor the temperature of the Heat roller.	Page 2-22
Rear cover switch	Microswitch	Interrupts +24 V to the main motor when the rear exit cover is open; in series with 24 V interlock.	Page 2-30
24 V interlock	Microswitch	Interrupts +24 V to the main motor when the top cover is open; in series with rear cover switch.	Page 2-30
Top cover switch (P4500 only)	Microswitch	Interrupts INTERLOCK BEF to indicate the top cover is open.	Page 2-30
Laser interlock (P4500 only)	Microswitch	Interrupts +5 V to laser diode; in series with 5 V interlock switch.	Page 2-30
5 V interlock	Microswitch	Interrupts +5 V to laser diode. In series with laser interlock.	Page 2-30
Start of scan sensor	Photo	Detects the laser beam at the start of a scan.	Page 2-20
Fuser thermostat(s)	Thermostatic switch(es)	Interrupt AC power to the fuser heater in overtemp condition; P4500: two switches in series; P4510: single switch.	Page 2-22
Stacker rear cover switch	Microswitch	Signals the HVPS/engine logic board that the stacker rear cover is open.	Page 2-38
Stacker sensor	Mechanically actuated photo sensor	Senses the presence of paper in the stacker.	Page 2-38

List of Sensors and interlocks

Name	Type	Function	Reference
Stacker offset sensor	Mechanically actuated photo sensor	Senses the position of the stacker offset chute.	Page 2-38
Duplex unit switch	Microswitch	Signals the HVPS/engine logic board that the duplex unit rear cover is open.	Page 2-35
Duplex unit sensor	Mechanically actuated photo sensor	Detects the presence of paper in the duplex unit.	Page 2-35
Stacker full sensor	Mechanically actuated photo sensor	Detects when the stacker output tray is full.	Page 2-38
Optional feeder paper size switch assembly	Microswitch bank	Detects the presence of a tray and the paper size setting of the tray.	Page 2-41
CRUM antenna	Inductive magnetic code reader	Communicates with the print cartridge CRUM.	

Major Assemblies and Functions

The functions of the main components of the Phaser 4500/4510 printer are described in the following sections:

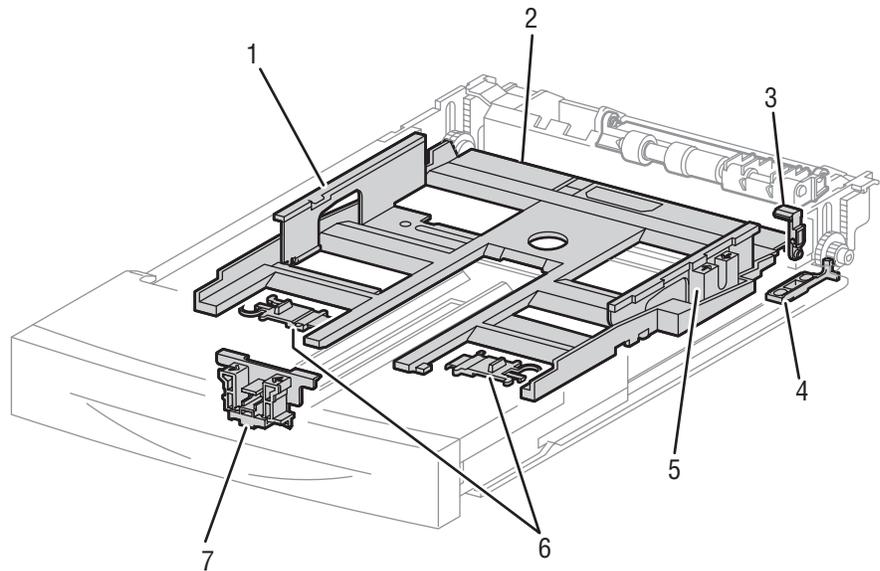
- Paper tray
- Paper feeder
- Print cartridge
- Transfer roller assembly
- Laser assembly
- Fuser
- 500-sheet paper exit
- Drive
- Electrical

Paper Tray

Paper trays include the 150-sheet and 550-sheet trays. Since they are functionally equivalent, only the 150-sheet tray is described here.

The trays adjust to accept various paper sizes. The end and side guides adjust to match paper sizes shorter than A4, or narrower than Letter. To accept paper longer than A4, the tray extension must be unlocked and pulled out, and the end and side guides adjusted to match the size.

Paper Tray Functional Assemblies



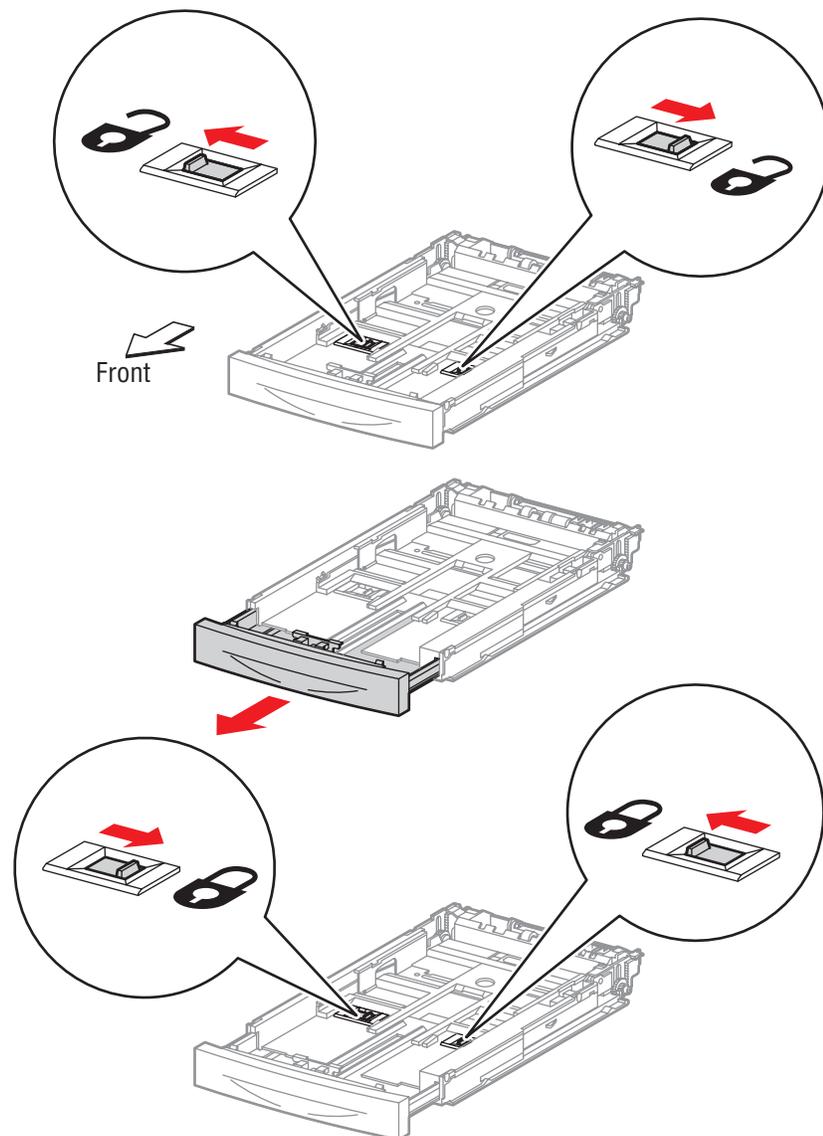
s4500-021

- | | |
|-----------------------------------|------------------------------------|
| 1. Left-side paper guide assembly | 5. Right-side paper guide assembly |
| 2. Bottom plate assembly | 6. Extension lock |
| 3. Bottom lock lever | 7. End guide |
| 4. Gear stopper | |

Left- and right-side paper guide assemblies The left and right paper guides adjust to fit different paper widths. The guides hold the paper in position in the tray.

Bottom plate assembly The bottom plate assembly is pushed up by the bottom lift spring. The bottom plate is released by unlocking the bottom lock lever and stopper gear. When the bottom plate assembly is pushed up, the supplied paper contacts the nudger roller.

Bottom lock lever and gear stopper These are at the rear of the tray (i.e., the front end in the direction of travel of paper). How these components work is explained in “Paper Lift Mechanism” on page 2-14.



s4500-020

Extension lock The 150-sheet tray extends to accommodate different paper lengths. The extension lock holds the extension in position.

End guide The end guide can be adjusted to different paper sizes by making a forward or backward adjustment. It makes contact with the rear end of the paper, and holds the paper in position front-to-back in the paper tray.

Through the cam action of the sector gear and size rack, the position of the end guide is converted to up and down combinations of the three size switch links on the side of the tray. The links, when in contact with the paper size switches in the left tray guide, turn the switches on or off in combinations that correspond to the paper size.

The paper sizes that can be automatically detected are as follows:

Type	Size (mm × mm)
LETTER SEF	215.9 mm × 279.4 mm (8.5" x 14")
LEGAL 14" SEF	215.9 mm × 355.6 mm (8.5" x 13")
LEGAL 13" SEF	215.9 mm × 330.2 mm (8.5" x 11")
EXECUTIVE SEF	184.2 mm × 266.7 mm (7.25" x 10.5")
A4 SEF	210.0 mm × 297.0 mm (8.27" x 11.69")
B5 (JIS) SEF	182.0 mm × 257.0 mm (7.17" x 9.44")
A5 SEF	149.0 mm × 210.0 mm (5.83" x 8.27")

Paper Lift Mechanism

The Phaser 4500/4510 printer paper trays utilize a unique mechanical paper lift mechanism that eliminates the need for paper lift motors. The mechanism consists of a spring-loaded bottom plate assembly that lifts the paper stack upward to the paper feeder assembly.

When the tray is removed from the printer, a channel in the right tray guide pushes the bottom lock gear downward, lowering the bottom plate assembly until it is locked into place by a spring-loaded gear stopper, one-way lock gear, and the bottom rack lock. The gear stopper engages the bottom lock gear, and the bottom rack lock engages the one-way lock gear, which prevents the bottom plate assembly from rising upward.

The gear stopper is released from the bottom lock gear when the tray is inserted into the printer. Once the gear stopper releases the bottom lock gear, the bottom rack lock holds the bottom plate assembly in place. Then, a metal tab located on the paper feeder assembly presses down on the bottom lock lever. This releases the bottom rack lock and allows the bottom plate assembly to raise the paper stack upward until it contacts the nudger roller and lifts the feeder assembly.

Once the feeder assembly is lifted by the paper stack, the metal tab no longer contacts the lock lever. As paper is fed from the stack, the feeder assembly gradually lowers. When the tab contacts the bottom lock lever, the paper stack raises. This process repeats until the tray is empty.

Paper Feeder

Tray 1 and tray 2 are functionally equivalent in terms of the paper size switch assembly, no paper actuator, and no paper sensor. The component descriptions given here apply to both trays.

Since the low paper actuator and low paper sensor are not part of tray 1, the description of these components applies to tray 2 only.

150-sheet/550-sheet feeder assembly This mechanism moves paper from the paper tray into the printer. The driving force from the main motor is transmitted via the feed clutch assembly to the feed roller and nudger roller, transporting paper from the tray into the printer.

No paper actuator This actuator is kept in a raised position by the paper in the tray. If the tray runs out of paper, the no paper actuator drops and the flag of the no paper actuator moves from between the sensor arms, allowing the sensor to turn on.

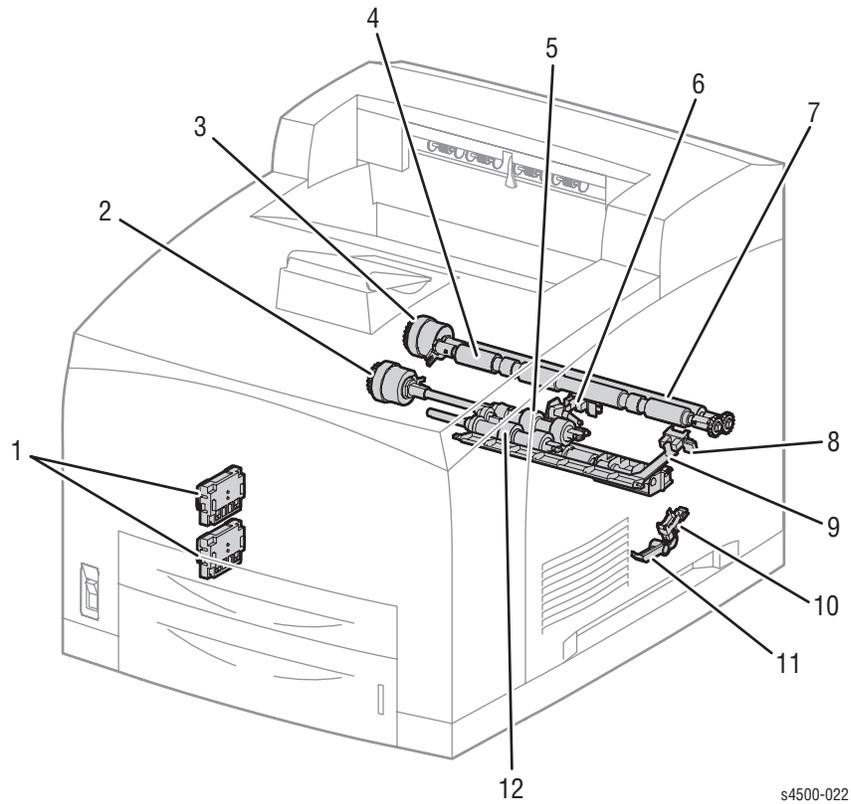
No paper sensor This is a photo sensor that remains in the OFF state when paper is present in the tray. The sensor turns on when there is no paper in the tray and the flag on the no paper actuator moves out of the sensor.

Registration sensor The registration sensor is a photo sensor that detects paper as it arrives at the registration rollers. The paper transported from the paper tray pushes up the actuator of the registration sensor, moving the flag out of the sensor.

Registration clutch This electromagnetic clutch turns on and off to drive the rubber and metal registration rollers, which place the paper in position at the appropriate time for transfer of the developed image from the drum.

Low paper actuator When paper is low in the paper tray installed in tray 2, the arm of the low paper actuator is pushed up by the bottom plate assembly, moving the actuator flag out of the sensor. Low paper sensing occurs only in the 550-sheet feeders, which includes tray 2 and if installed, trays 3 and 4.

Low paper sensor This photo sensor remains in an OFF state until the paper level in the tray drops sufficiently to move the low paper actuator flag out of the sensor.



- | | |
|-------------------------------|------------------------------|
| 1. Paper size switch assembly | 7. Metal registration roller |
| 2. Feed clutch assembly | 8. No paper sensor |
| 3. Registration clutch | 9. No paper actuator |
| 4. Rubber registration roller | 10. Low paper sensor |
| 5. Feed roller | 11. Low paper actuator |
| 6. Registration sensor | 12. Nudger roller |

Control of Paper Size

Paper size switch assembly The switches in this assembly send signals that indicates the paper size setting of the tray. Cams in the bottom of the tray are positioned by the tray's end guide. At pre-defined paper lengths, actuators on the side of the tray close or open the switches in a pattern that is defined in the printer to correspond to one of the pre-set media sizes.

The following table provides the ON (1) or OFF (0) states of the switches in the paper size switch assembly, corresponding to the paper sizes of the paper tray.

Note

The switches in the paper size switch assembly are denoted by "SW1", "SW2", "SW3", and "SW4", respectively, from the front side.

Paper size	Paper Size Switch Assembly			
	SW1	SW2	SW3	SW4
No cassette	0	0	0	0
Executive SEF	0	0	0	1
B5(JIS) SEF	0	0	1	1
A5 SEF	0	1	0	1
Legal14"SEF	0	1	1	1
Letter SEF	1	0	0	1
A4 SEF	1	1	0	1
Legal13"SEF	1	1	1	1

Xerographics

Print Cartridge

The print cartridge is a customer-replaceable item that consists of the following components:

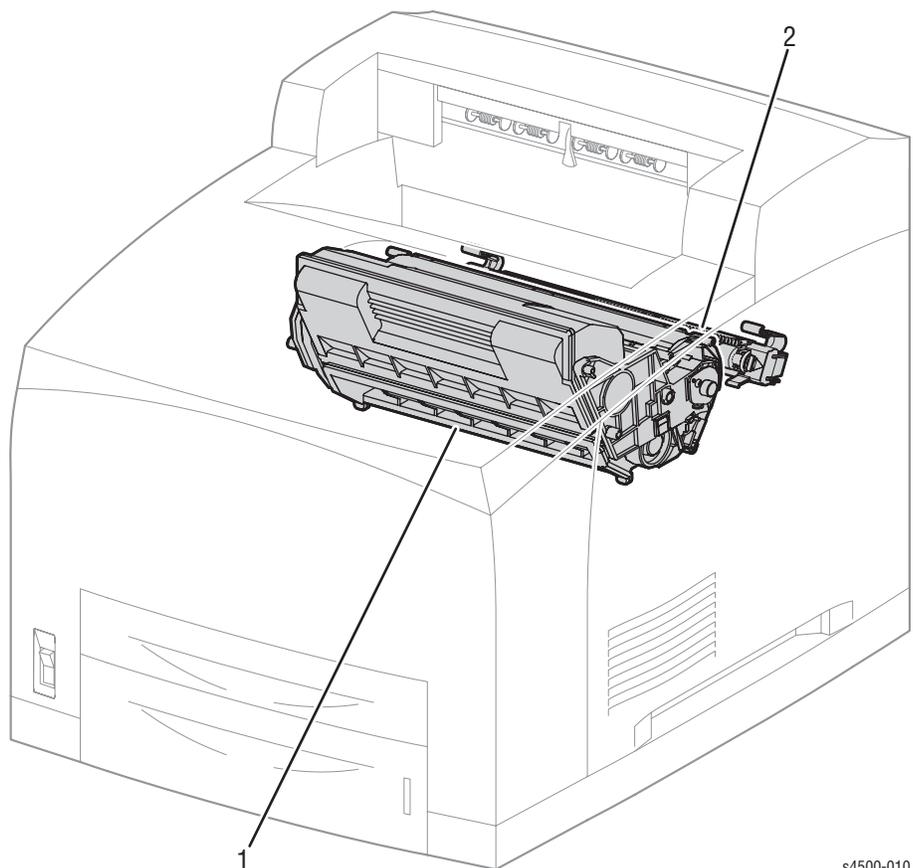
Drum The drum is an aluminum cylinder coated with a layer of photoconductive material that retains electrical charges on its surface until exposed to light, when electrical conduction occurs.

Bias charge roller (BCR) The BCR uniformly distributes electrical charges over the drum surface, and erases a charge pattern remaining from the previous cycle.

Magnet roller A thin layer of toner, supplied by the agitator in the toner compartment, adheres to the surface of this roller, which transports the toner into the gap between the drum and magnet roller.

Charging and metering (CM) blade The CM blade spreads toner into a thin layer over the magnet roller, and applies negative charges to the toner triboelectrically.

Cleaning blade The cleaning blade scrapes off toner remaining on the drum surface after the transfer step.



s4500-010

1. Print cartridge

2. Transfer roller

Laser Assembly

The laser assembly scans the surface of the drum with a laser beam. The laser assembly consists of three components: the laser diode (LD) assembly, the scanner assembly, and the start of scan (SOS) board.

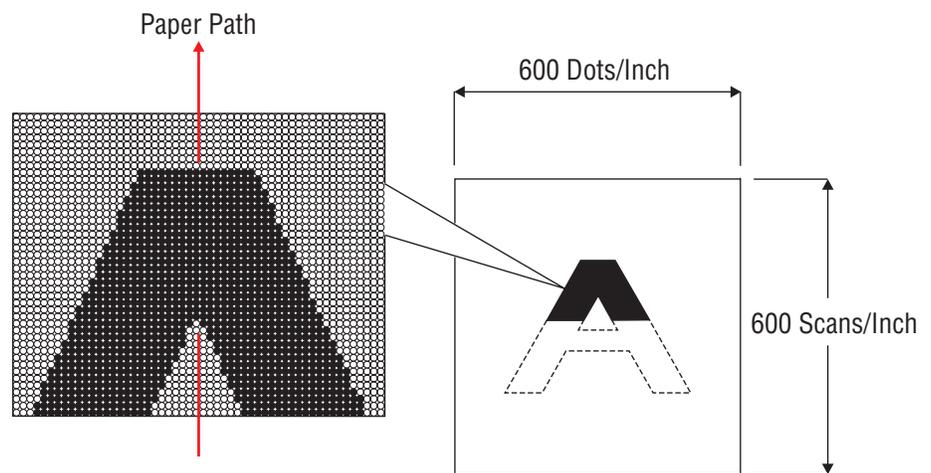
Laser diode (LD) assembly The LD assembly produces a laser beam that is turned on and off according to the print data signal. A single LD is used for 600 dpi, and a dual LD is used for 1200 dpi, generating one beam for 600 dpi and two beams for 1200 dpi.

Scanner assembly This assembly consists of a 12-sided polygonal mirror mounted on the shaft of the scanner motor. As this mirror rotates, it reflects the beam onto the drum surface through lenses and mirrors to scan the beam across the drum.

Start of scan (SOS) board When the laser beam strikes the sensor on the SOS board, the signal generated indicates the initial position of the scan. The initial position where a scan is started on each line is detected. Depending on the print resolution selected, either one beam creates one line, or two beams create two lines at a time.

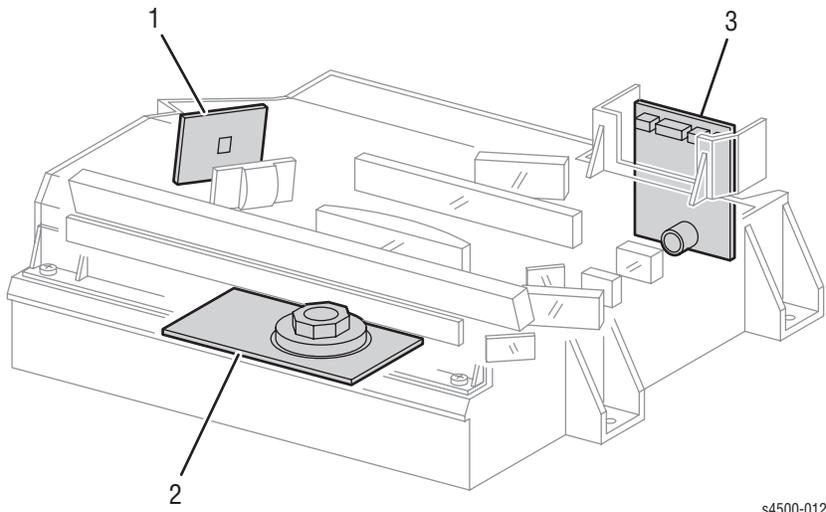
When the laser beam scans from one end of the drum surface to the other while being turned off and on, one line of a latent image is created. The resolution in the scanning direction (from right to left) is determined by the rotational speed of the scanner motor and by the speed at which the laser is modulated. The resolution in the process direction (from top to bottom) is determined by the number of the scan beams and the rotational speed of the print drum.

Conceptual Diagram of Image Creation by Scanning



s4500-011

Laser Assembly Functional Parts



1. Start of scan PWB

2. Scanner assembly

3. Laser diode assembly

Laser Control

The scanner motor turns on when it receives a signal from the controller, and turns off after printing ends. The motor remains off in the standby and power-saving states.

There are two faults associated with the scanner motor speed: U2-1 Laser fails at warm-up, and U2-2, Laser fails motor speed.

Two other laser unit faults, U2-3 and U2-4, are associated with LD power. U2-3 occurs when LD power is too high, and U2-4 occurs when LD power is too low.

Transfer Roller Assembly

The transfer roller is held in contact with the drum of the print cartridge, and is driven by the drum gear. When the paper moves between the transfer roller and drum, the transfer roller applies a positive charge to the rear surface of the paper. The negatively charged toner image is attracted by the positive charge on the rear surface of the paper. Thus, the image is transferred from the surface of the drum to the surface of the paper.

The detack saw, located on the transfer roller assembly, helps to separate the paper from the drum surface.

Fuser

Heat roller The heat roller is a metal tube with a coated surface and a heater assembly inside. As paper passes between the heat roller and pressure roller, the heat that is applied to the paper melts the toner and fuses it to the paper.

Pressure roller The pressure roller is a metal shaft coated with sponge rubber. It maintains pressure on the paper passing between it and the heat roller. This pressure presses the melted toner against the paper.

Heater assembly

The heater assembly consists of two halogen lamps located in the heat roller. One lamp heats the entire length of heat roller, while the other, shorter rod heats the center. The lamps are controlled by switching the neutral side of the power to each lamp; the lamps use a common hot line.

Temperature sensors These are Soft Touch Sensors (STS) having a known value of resistance that varies with temperature. There are two temperature sensors in the fuser. One is located at the center of heat roller, the other is located where the edge of a letter size sheet of paper comes through. The sensors monitor the temperature of each location to control lighting of the heater rods. The sensors are mounted in contact with the surface of the heat roller. Power to the heater rod is turned on and off using the signals from these sensors, so that the surface temperature of the heat roller can be maintained within a specified range. These signals are also used to provide a first stage of overheat protection.

Thermostats The thermostats are connected in series with the heat roller assembly, and provide a second level of overheat protection. If the first stage of overheat protection does not prevent the fuser from overheating, the thermostats cut off the power-supply circuit for the heater rod. If the paper type is set incorrectly, the pressure roller may melt and adhere. As a countermeasure against this, if the STS detect the higher temperature, but can not prevent the overheat, the thermostats cut power to prevent the pressure roller from melting and adhering.

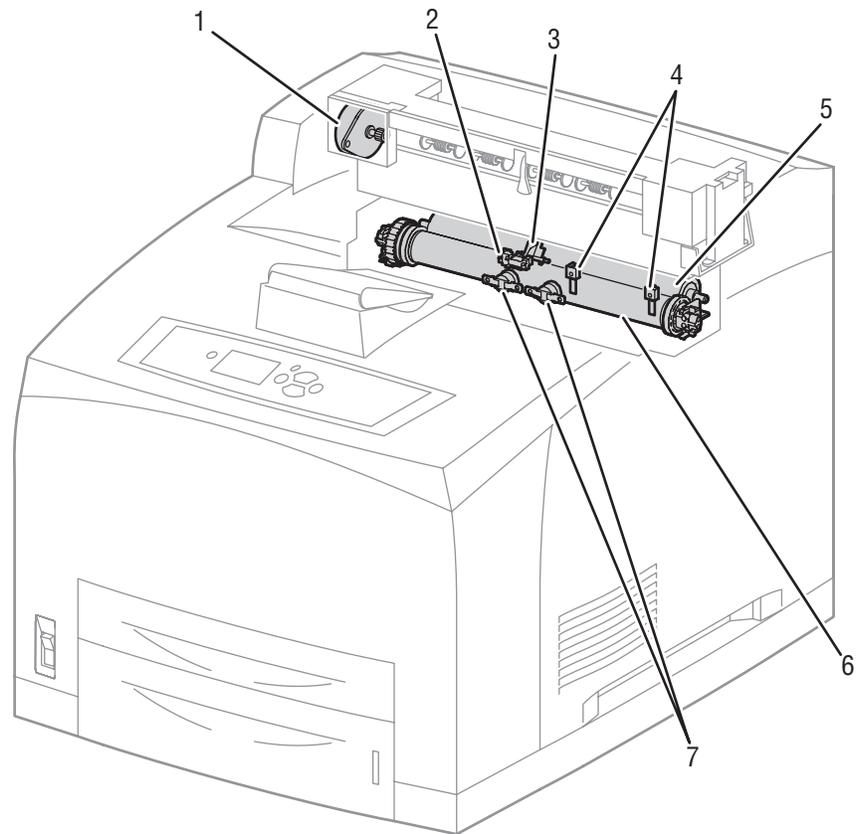
Note

The fuser in the Phaser 4510 uses a single thermostat switch instead of two to perform the same function.

Heat roller fingers These fingers peel off the leading edge of the paper from the Heat roller to prevent the paper from getting wound around the heat roller.

Heat roller diode The negative charge accumulated on the heat roller may deteriorate the toner image on the paper during fixing. The heat roller diode discharges the charge to the frame ground.

Exit sensor This sensor detects the arrival of the paper at a detection point in the exit area positioned behind the fuser. This sensor also detects the discharge of the paper from this point. When the sensor receives light (i.e., paper is present), the signal /EXIT is low.



s4500-023

- | | |
|------------------------|--------------------------------------|
| 1. Exit motor assembly | 5. Pressure roller |
| 2. Exit sensor | 6. Heat roller |
| 3. Actuator | 7. Thermostats (P4510 uses only one) |
| 4. Temperature sensors | |

Fuser Control

The fuser heater control maintains the fuser at a pre-determined control temperature by turning the halogen lamp in the heat roller ON and OFF. The control temperature varies depending on whether or not the printer is at the Ready state, and whether the main motor is operating.

The fuser temperature is considered abnormal when the detected temperature exceeds 250° C, or falls below 130° C.

Temperature Control

At the start of warm-up and when the main motor is at rest, the standby temperature is used as the fuser control temperature. When the main motor is operating except at warm-up, the running temperature is used as the fuser control temperature.

The running temperature and print speed depend on the media type selected for printing. The Phaser 4500 uses four temperature settings while the Phaser 4510 uses six. Print speed slows down for heavy media such as card stock or envelopes, and specialty media such as transparencies. The following tables show the default assignments of temperature setting to media type. The temperature setting assignment for a media type can be changed as explained in "Adjusting Fuser Temperature" on page 6-8.

Phaser 4500 Fuser Temperature Default Settings

Media Type Name	Extra High 215°	High 210° C	Medium 205° C	Low 185° C
Plain Paper			X	
Letterhead			X	
Transparency				X
Labels		X		
Colored Paper			X	
Card Stock		X		
Envelope		X		
Special			X	

Phaser 4510 Fuser Temperature Default Settings

Media Type Name	Extra High 187° C	Very High 215° C	High 212° C	Medium 205° C	Low 190° C	Very Low 170° C
Plain Paper				X		
Transparency						X
Card Stock		X				
Envelope	X					
Labels			X			
Letterhead				X		
Preprinted				X		
Prepunched				X		
Colored Paper				X		

Fuser Warm-Up

The halogen lamp is turned on when the fuser warm-up begins. When the surface temperature of the heat roller (detected by the thermistor) reaches the fuser control temperature (standby temperature), the fuser warm-up is ended.

Fuser Temperature Cycling

The fuser temperature does not remain at a single, constant value, but varies within a temperature range. There are several ranges, which are summarized in the table. Except for Standby, the setting is determined by the media type selection.

Phaser 4500 Fuser Cycling Temperatures

Setting	Temperature
Standby	Lamp ON 180° C Lamp OFF 185° C
Medium	1-100 pages: Lamp ON 205° C Lamp OFF 206° C 101-120 pages: Lamp ON 205° C Temp. decreases by .25° C per page 120 + pages: Lamp ON 200° C Lamp OFF 201° C
High	Lamp ON 210° C Lamp OFF 211° C
Extra High	Lamp ON 215° C Lamp OFF 216° C
Low	Lamp ON 185° C Lamp OFF 186° C

Phaser 4510 Fuser Cycling Temperatures

Setting	Temperature
Standby	Lamp ON 180° C Lamp OFF 185° C
Low	1-50 pages: Lamp ON 190° C Lamp OFF 191° C 51-62 pages: Lamp ON 190° C Temp. decreases by .25° C per page 63 + pages: Lamp ON 187° C Lamp OFF 188° C
Medium	1-50 pages: Lamp ON 210° C Lamp OFF 211° C 51-70 pages: Lamp ON 210° C Temp. decreases by .25° C per page 71 + pages: Lamp ON 205° C Lamp OFF 206° C
High	Lamp ON 212° C Lamp OFF 213° C
Very High	Lamp ON 214° C Lamp OFF 215° C
Extra High	Lamp ON 187° C Lamp OFF 188° C
Very Low	Lamp ON 185° C Lamp OFF 186° C

Temperature Stabilization

The fuser automatically enters a stabilization process under two circumstances:

- When the printer is processing thick paper.

After 50 impressions of continuous printing on thick paper (Thick Paper 1 mode), the fuser lamp turns off, the main motor stops, and the fans rotate at full speed until the temperature of both temperature sensors drops to 190° C or below. Then the printer continues printing the job. The process for Thick Paper 2 is the same, except that it occurs after 30 impressions of continuous printing on thick paper.

- When the side fuser temperature sensor (STS) detects an abnormally high temperature (over 245° C), the printer stops the print job and enters the cool-down process consisting of:
 - Clearing the paper path of all paper
 - Continuing to run the main motor (Time-out 200 sec.)
 - Running the fans at full speed
 - Controlling fuser temperature with short lamp

This process continues until the target control temperature of 180° C - 185° C (Standby) is reached.

Fuser Problems (U4 Error Code)

Major causes of a U4 error include the following:

- Warm-up failure – Fuser warm-up not complete within 110 seconds after starting.
- Cool-down error – Cool-down process not complete within 200 seconds.
- Low trouble temperature – The fuser temperature drops to the low trouble temperature (approximately current control temperature, minus approximately 25° C).
- High trouble temperature – The fuser temperature rises to the high trouble temperature (approximately current control temperature, plus approximately 35° C).
- STS circuit open
- STS failure – The heat rod remains on for at least 10 seconds after warm-up has completed.

Power Shutoff to the Fuser

The printer shuts off power to the Fuser for the following reasons:

- Fuser abnormality (U4)
- Paper jam
- Cover open — top, rear, duplex unit, stacker
- Laser assembly (ROS) abnormality (U2)
- CPU or NVRAM abnormality (U6)
- Main motor assembly abnormality (U1)
- Fan abnormality (U5)
- Fuser Pause command issued
- Xerographics failure
- Duplex unit failure
- Stacker failure
- Option tray unit failure

Paper Exit Assembly

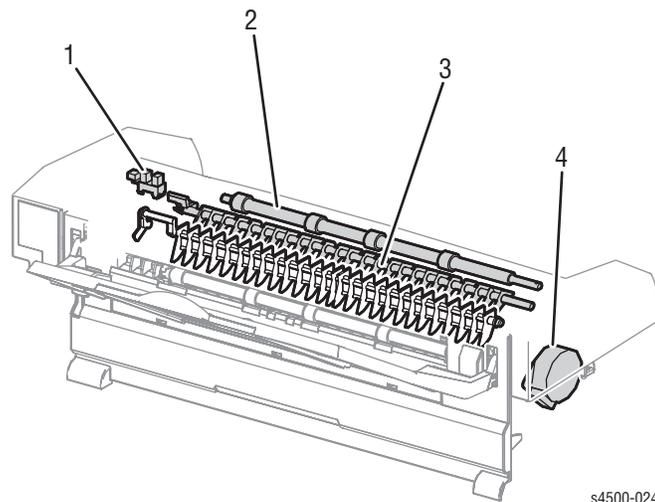
The paper exit assembly discharges the printed paper out of the printer, sending it either to the standard output tray or to the optional stacker.

Exit motor assembly This motor drives the exit roller that conveys paper to each output tray. If the optional duplex unit is installed, this motor also reverses and inserts paper into the duplex unit.

Exit roller This roller transports the printed paper sent out from the Fuser, to the standard output tray.

Output tray full sensor This sensor detects that the standard output tray is full, using the stack full actuator.

Stacker exit gate This gate switches the paper transport path interlocking with the stacker gate link. When the gate solenoid assembly installed in the optional stacker operates, the stacker gate link is pushed down by the spindle of the solenoid assembly. The gate blocks the normal paper output path and switches the output direction to the stacker output tray.



1. Output tray full sensor

2. Exit roller

3. Stacker exit gate

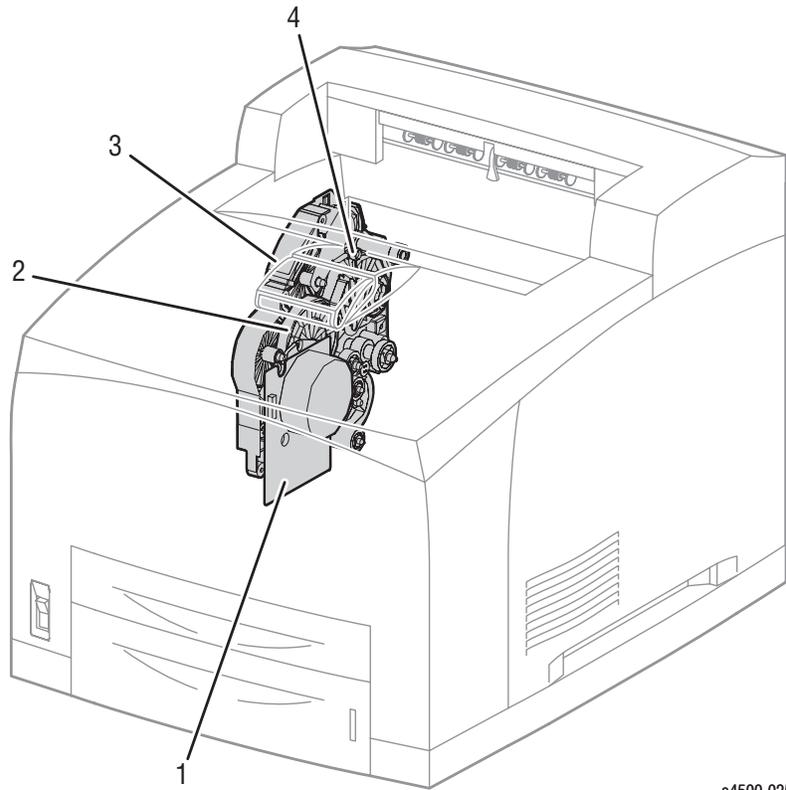
4. Exit motor assembly

Drive

Gear assembly housing The gears in this housing transmit power from the main motor to various parts of the printer.

Gear assembly plate This transmits power from the main motor to the print cartridge.

Link lever This connects and disconnects the drive force from the main motor to the fuser assembly. When the top cover is opened, the link lever pushes up gear 8 in the gear assembly housing disconnecting gear 9 and thus, the fuser assembly. As the link lever moves up and down, gear 4 in the gear assembly plate moves right and left via gear link 3, and drive to the print cartridge drum is connected or disconnected.



s4500-025

1. Main motor

2. Gear assembly plate

3. Gear assembly housing

4. Link lever

Electrical

24 V interlock This safety switch interrupts 24 VDC from the LVPS to the HVPS/engine logic board and main motor when the top cover is open. This switch operates in series with the rear cover switch. See “Schematic Diagram of Phaser 4500 Power Distribution and Interlocks” on page 2-31, or “Schematic Diagram of Phaser 4510 Power Distribution and Interlocks” on page 2-32.

5 V interlock This safety interrupts 5 VDC power from the LVPS to the LD assembly of the laser assembly when the top cover is open. This interlock works in series with the laser interlock. See “Schematic Diagram of Phaser 4500 Power Distribution and Interlocks” on page 2-31, or “Schematic Diagram of Phaser 4510 Power Distribution and Interlocks” on page 2-32.

Rear cover switch This safety switch interrupts 24 VDC from the LVPS to the HVPS/engine logic board and main motor when the rear cover is open. This switch operates in series with the 24 V interlock. See “Schematic Diagram of Phaser 4500 Power Distribution and Interlocks” on page 2-31, or “Schematic Diagram of Phaser 4510 Power Distribution and Interlocks” on page 2-32.

Main fan This vents air inside the printer to prevent an excessive rise in the inside temperature.

Sub fan This fan takes outside air into the printer to prevent an excessive rise in the inside temperature. This is mounted near the laser assembly in the center on the front side.

LVPS The low voltage power supply provides 5 V and 3.3 V for logic circuits, 5 V for the laser diode, and 24 V for motors and clutches. **P4510:** The LVPS board includes the DC-DC converter (described below) as an integral part.

HVPS/engine logic board The functions of the HVPS and engine controller are brought together on a single circuit board. The HVPS provides high AC and DC voltages to the BCR (charging), magnet roller (development), transfer roller (transfer), and detach saw (peeling). The engine logic controls the printing operation according to the information obtained through communications with the image processor and from sensors and switches.

Image processor board This receives data from the host computer, performs printing, and controls the whole printer.

Exit motor PWBA This controls the exit motor assembly according to a signal from the HVPS/engine logic board.

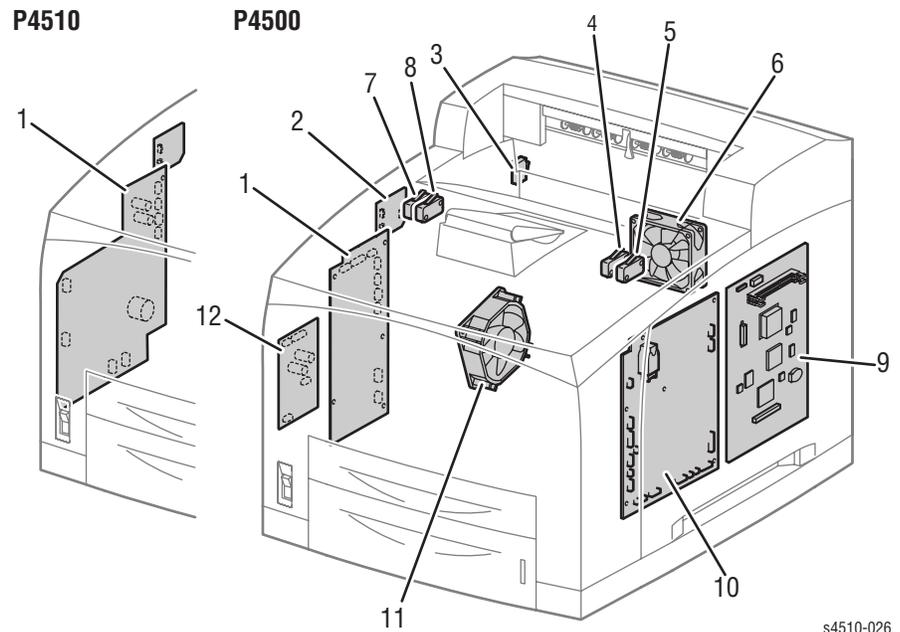
Interlock switch assembly This assembly consists of the following two safety switches. See “Schematic Diagram of Phaser 4500 Power Distribution and Interlocks” on page 2-31.

Top cover switch P4500: This safety interlock interrupts the INTERLOCK BEF signal between the LVPS and the HVPS/engine logic board to indicate that the top cover is open.

Laser interlock P4500: This safety switch interrupts 5 VDC from the LVPS to the LD assembly of the laser assembly when the top cover is open. This switch operates in series with the 5 V interlock.

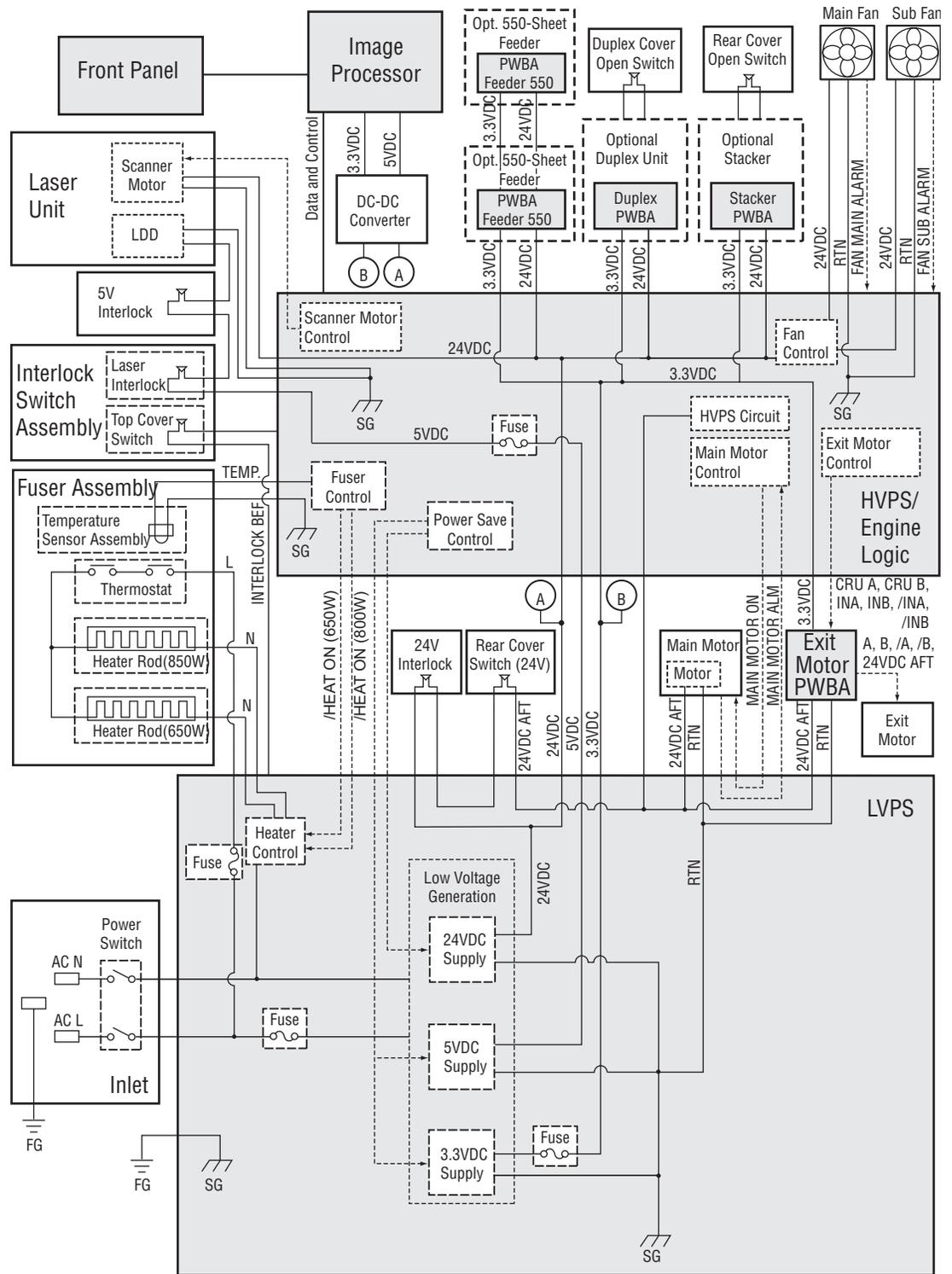
DC-DC converter The DC-DC converter uses 24 V and 3.3 V from the LVPS to supply 5 V and 3.3 V to the image processor board. By using the 24 V, the DC-DC converter supplies additional power for the optional hard drive and several other subcircuits.

P4500: The DC-DC converter is on a separate circuit board from the LVPS.
P4510: The DC-DC converter is an integral part of the LVPS.



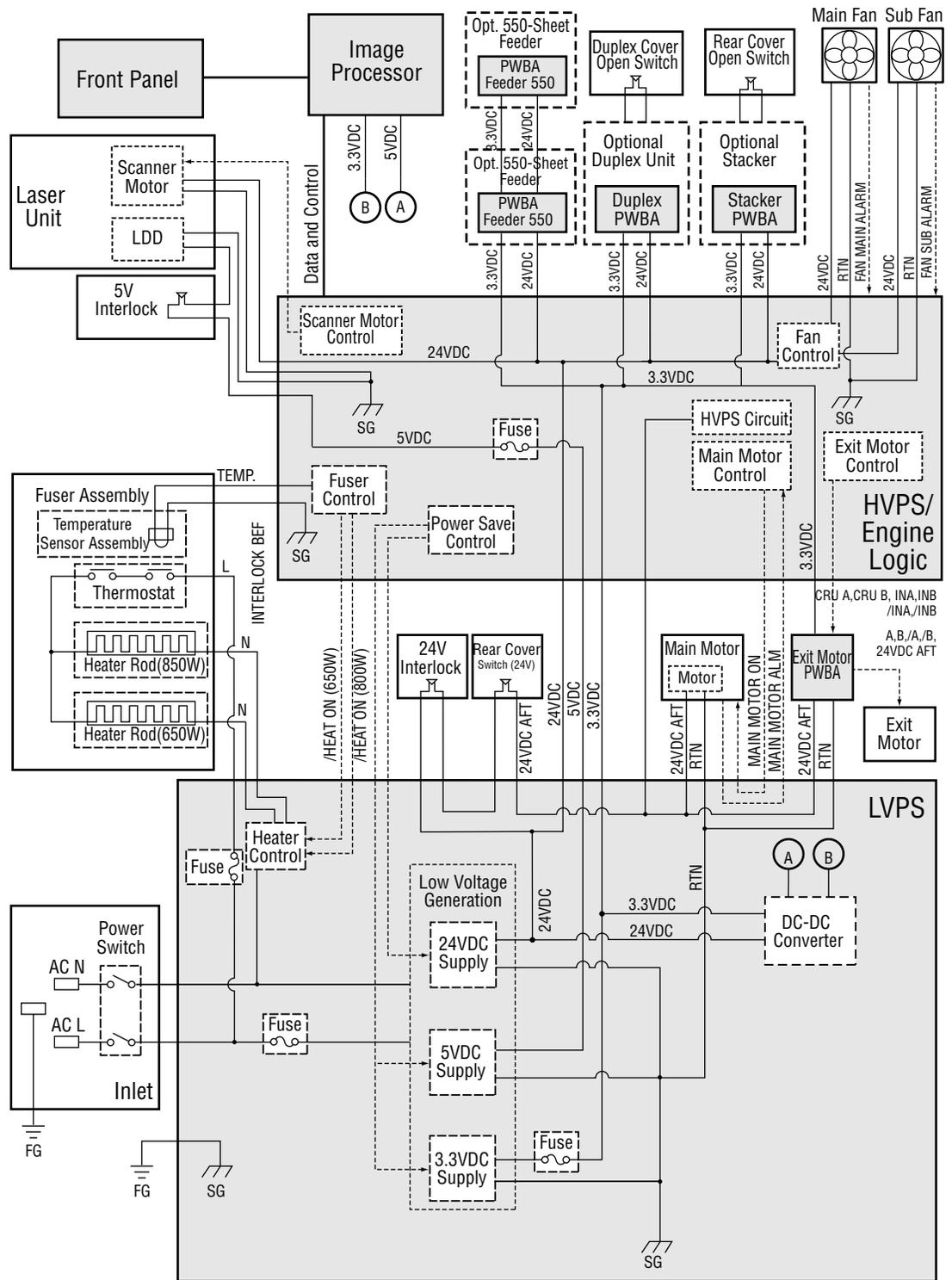
s4510-026

- | | |
|---|--|
| 1. LVPS (includes DC-DC converter in P4510) | 7. 5 V interlock |
| 2. Exit motor PWBA | 8. 24 V interlock |
| 3. Rear cover switch | 9. Image processor board |
| 4. Laser interlock (P4500 only) | 10. HVPS/engine logic board |
| 5. Top cover switch (P4500 only) | 11. Sub fan |
| 6. Main fan | 12. DC-DC converter (separate board in P4500; integrated into LVPS in P4510) |



s4500-027

Schematic Diagram of Phaser 4500 Power Distribution and Interlocks



s4510-027

Schematic Diagram of Phaser 4510 Power Distribution and Interlocks

Printer Options

Three options are available for the Phaser 4500/4510 printer:

- Duplex unit
- Stacker
- 550-sheet feeder

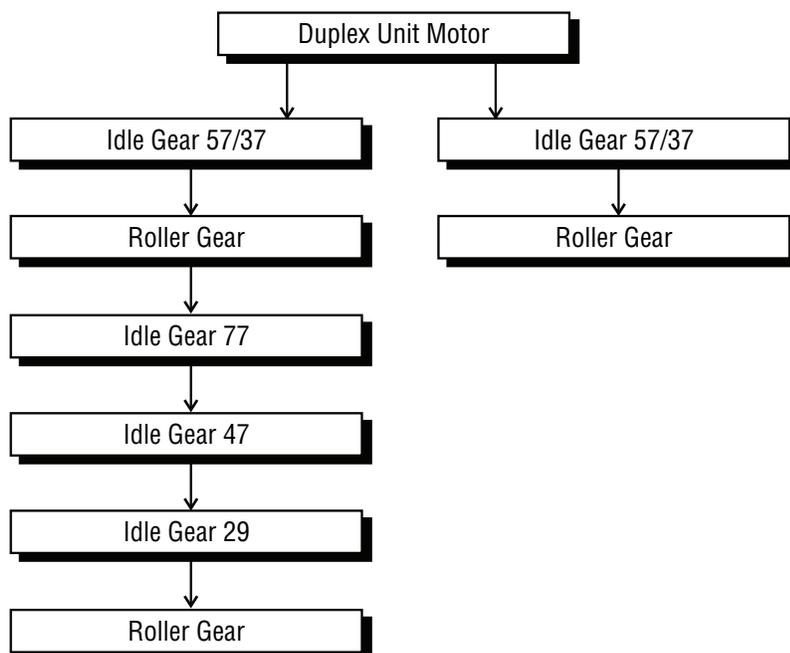
Paper transport information for the options is discussed earlier in this chapter.

Duplex Unit

The duplex unit used on the Phaser 4510 differs from the one used on the Phaser 4500. While the two units function exactly the same, they use different motors due to the difference in speed, and they are shaped differently due to the change in the location of the cooling fan.

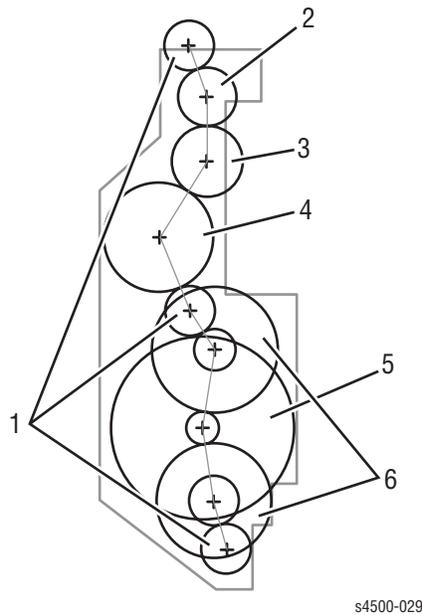
Drive Transmission Path

The rotating force of the duplex unit motor is transmitted by various gears to components requiring mechanical drive as shown in this flow chart and the gear layout that follows.



s4510-028

Gear Layout



- | | |
|-----------------|----------------------|
| 1. Roller gears | 4. Idle gear 77 |
| 2. Idle gear 29 | 5. Duplex unit motor |
| 3. Idle gear 47 | 6. Idle gear 57/37 |

Functional Components

Two-sided printing is enabled by mounting the duplex unit on the rear side of the base engine.

Duplex unit switch This switch detects that the duplex unit lower housing and duplex unit housing cover are closed.

Duplex unit sensor This sensor detects the presence or absence of paper in the duplex unit.

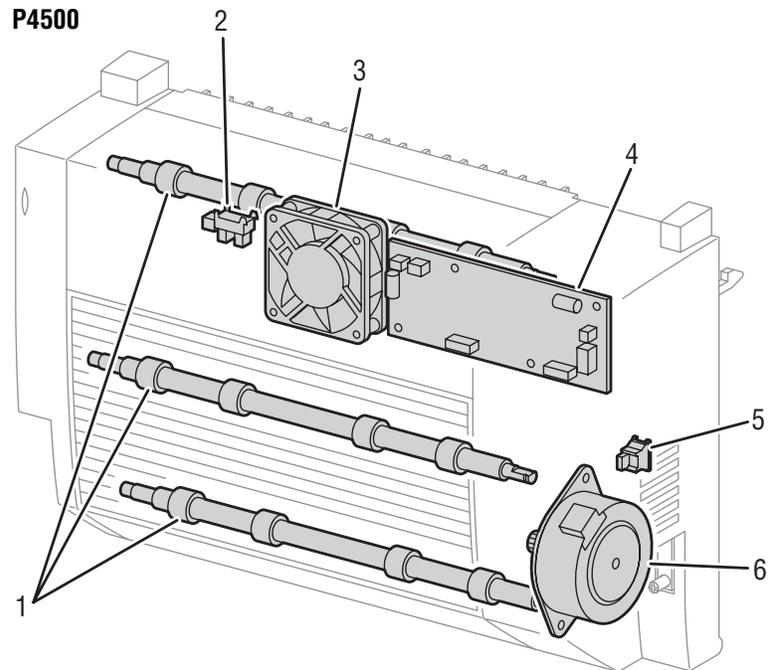
Duplex unit fan This fan vents air within the duplex unit and takes in outside air, to prevent abnormal temperature rise in the duplex unit.

Duplex roller This roller feeds the paper having the printed first surface back into the printer through the duplex unit, to print on the second surface.

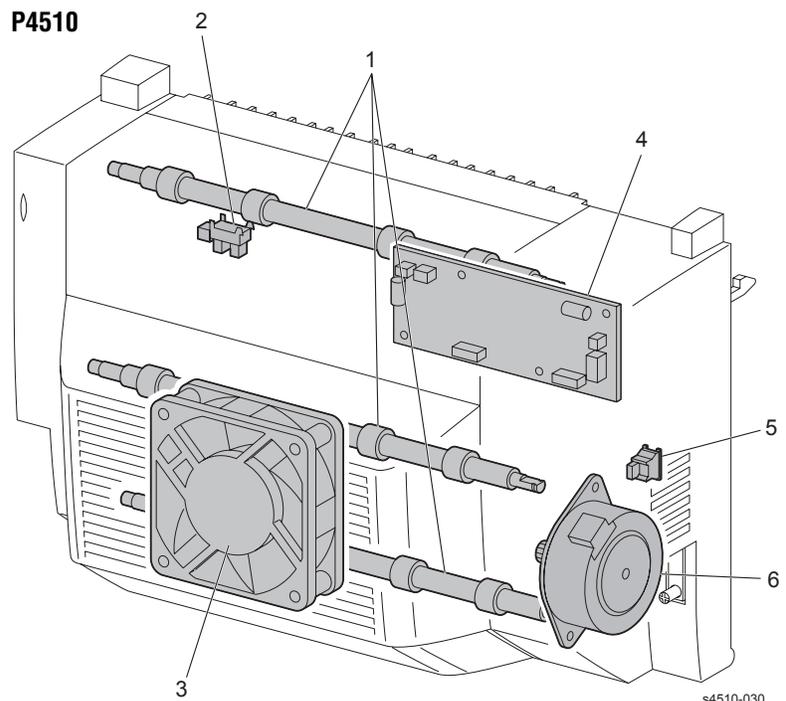
Duplex unit PWBA The CPU on the duplex unit PWBA receives instructions from the HVPS/engine logic board and information from sensors and switches, and controls paper transport through the duplex unit.

Duplex unit motor This motor drives the three duplex rollers, which transport the paper through the duplex unit.

Phaser 4500 and 4510 Duplex Units



s4500-030



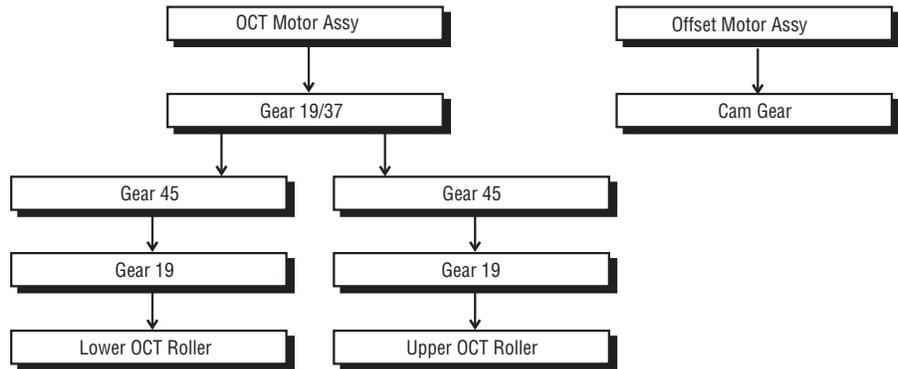
s4510-030

- | | |
|------------------------|-----------------------|
| 1. Duplex unit rollers | 4. Duplex unit PWBA |
| 2. Duplex unit sensor | 5. Duplex unit switch |
| 3. Duplex unit fan | 6. Duplex unit motor |

Stacker

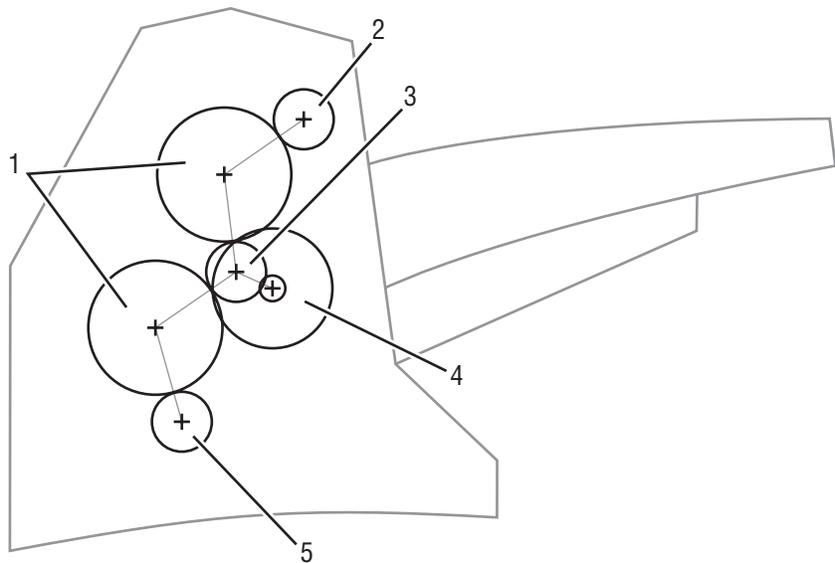
Drive Transmission Path

The rotating force of the stacker motor assembly is transmitted by various gears to components requiring mechanical driving force as shown in this flow chart and the gear layout that follows.



s4500-031

Gear Layout



s4500-032

- | | |
|---------------|---------------------------|
| 1. Gear 45 | 4. Stacker motor assembly |
| 2. Gear 19 | 5. Gear 19 |
| 3. Gear 19/37 | |

Paper Transport Path

When the stacker is installed on the printer, the paper is transported as shown in the illustration on page 2-6. The main components that transport paper through the stacker are shown in the diagram on page 2-4

Functional Components

Offset output is enabled by mounting the stacker on top of the 500-sheet paper exit.

Stacker motor assembly This motor drives the lower stacker roller and upper stacker roller, which transport printed paper to the stacker tray.

Offset motor assembly This motor drives the offset chute assembly via the gear cam.

Gate solenoid assembly This solenoid switches the output paper path between the standard and stacker paper output trays. When the gate solenoid assembly activates, the solenoid armature pushes the stacker Gate Link to operate the stacker exit gate, which reroutes the paper to the stacker paper output tray.

Stacker PWBA The CPU on the stacker PWBA receives instructions from the HVPS/engine logic board and information from sensors and switches, and controls paper transport through the stacker.

Stacker rear cover switch This switch detects when the stacker rear cover is open.

Stacker sensor This sensor detects the presence or absence of paper in the stacker.

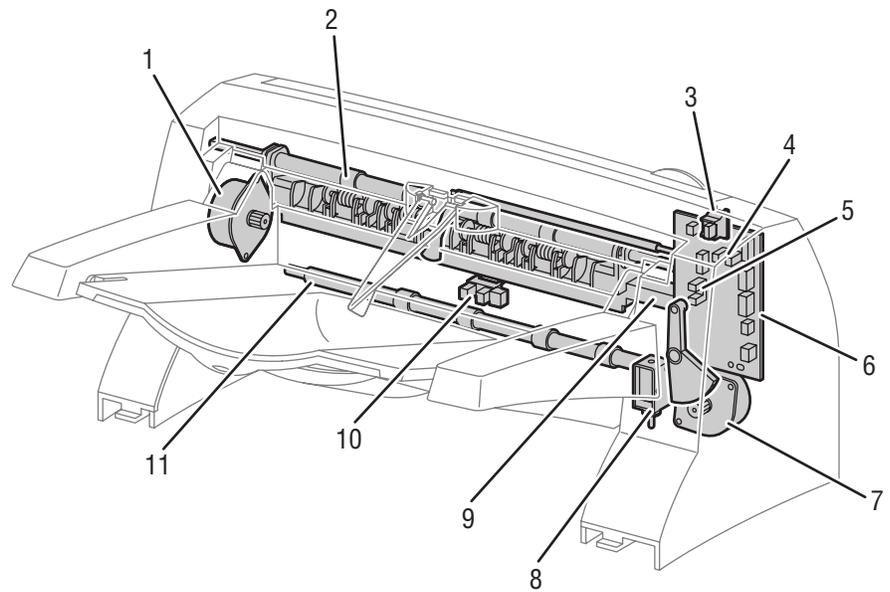
Stacker full sensor This sensor is located on the stacker PWBA, and detects when the stacker output tray is full, using the stack full actuator.

Offset Sensor This sensor is located on the stacker PWBA, and detects an offset operation, using the actuator in the Offset Chute.

Lower stacker roller This roller transports the printed paper coming out of the Fuser to the Upper stacker roller.

Upper stacker roller This roller discharges the printed paper sent from the Lower stacker roller into the stacker paper output tray.

Offset chute assembly This assembly is driven by the offset motor assembly and Cam gear to move right and left during paper output to offset the output of the printer.



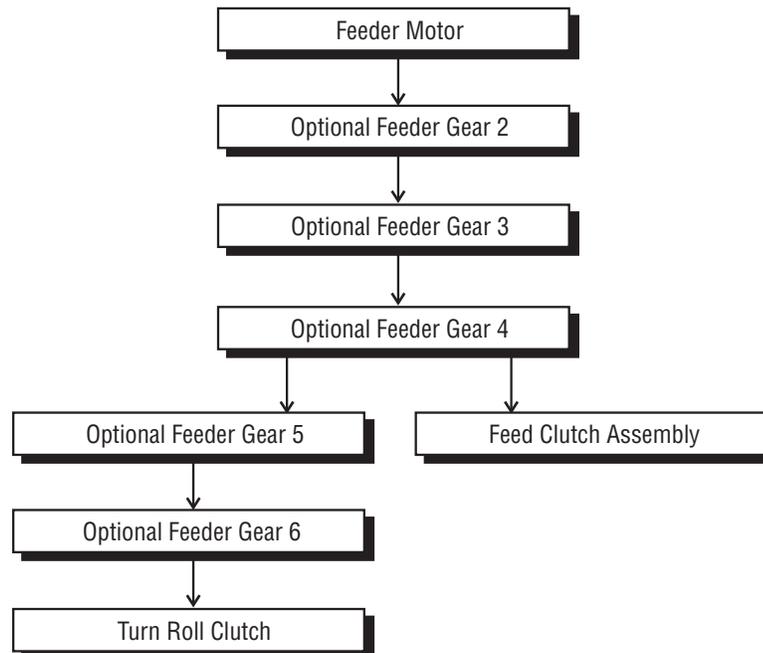
s4500-033

- | | |
|---------------------------|---------------------------|
| 1. Stacker motor assembly | 7. Offset motor assembly |
| 2. Upper stacker roller | 8. Gate solenoid assembly |
| 3. Rear cover switch | 9. Offset chute assembly |
| 4. Full Stack Sensor | 10. Stacker sensor |
| 5. Offset Sensor | 11. Lower stacker roller |
| 6. Stacker PWBA | |

Optional 550-Sheet Feeder

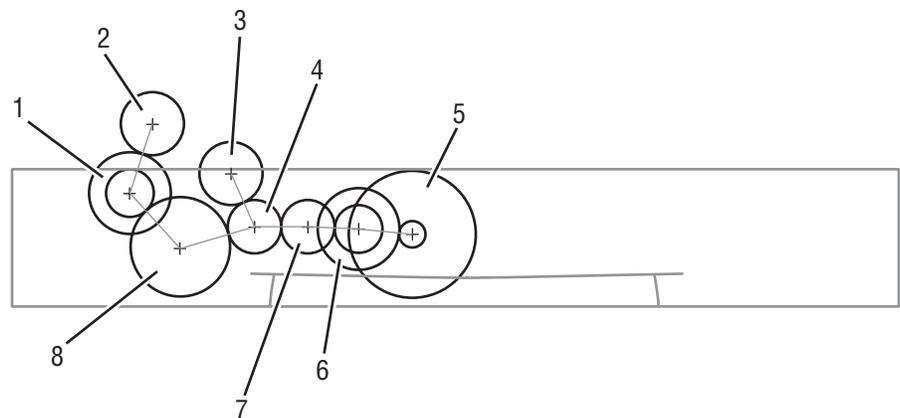
Drive Transmission Path

The rotating force of the feeder motor is transmitted by various gears to components requiring mechanical driving force as shown in this flow chart and the gear layout that follows.



s4500-034

Gear Layout



s4500-035

- | | |
|---------------------------|---------------------------|
| 1. Optional feeder gear 6 | 5. Feeder motor |
| 2. Turn roller clutch | 6. Optional feeder gear 2 |
| 3. Feed clutch | 7. Optional feeder gear 3 |
| 4. Optional feeder gear 4 | 8. Optional feeder gear 5 |

Functional Components

The paper tray used in the optional feeder is identical to the 550-Sheet paper tray used by the base engine, so the description of the paper tray is omitted here.

Option paper size switch assembly A bank of switches for setting the size of paper supplied from each paper tray is mounted in the left tray guide. A signal indicating the paper size is transmitted as a voltage to the HVPS/engine logic board.

No paper actuator This actuator is kept in a raised position by the paper in the tray. If the paper tray runs out of paper, the no paper actuator drops and the flag of the no paper actuator moves from between the sensor arms, allowing the sensor to turn on.

No paper sensor This is a photo sensor that remains in the OFF state when paper is present in the tray. The sensor turns on when there is no paper in the tray and the flag on the no paper actuator moves out of the sensor.

Low paper actuator When paper is low in the paper tray, the arm of the low paper actuator is pushed up by the bottom plate assembly, moving the actuator flag out of the sensor.

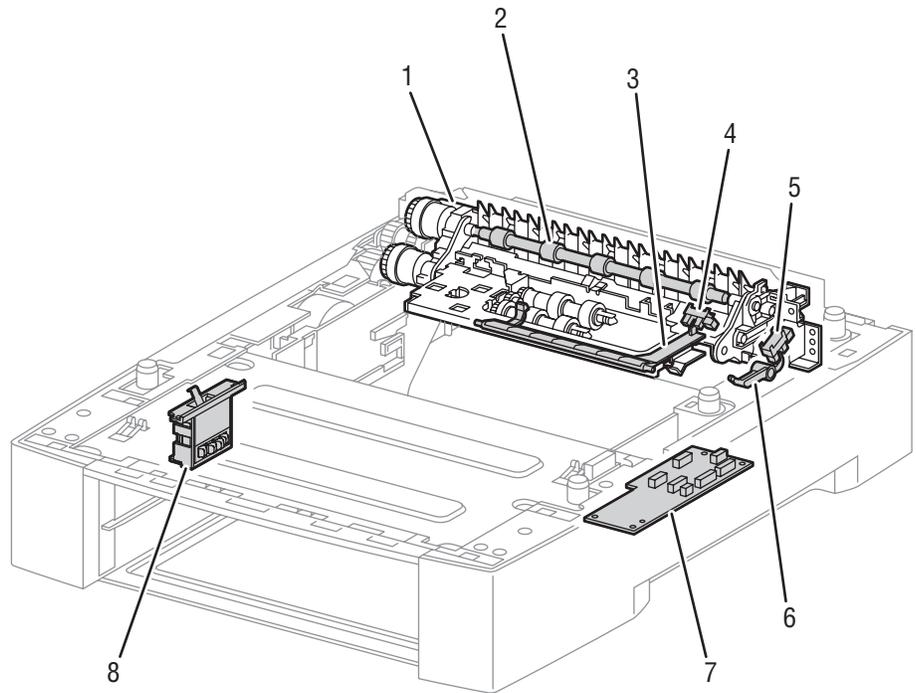
Low paper sensor This photo sensor remains in an OFF state until the paper level in the tray drops sufficiently to move the low paper actuator flag out of the sensor.

Optional 550-sheet feeder This is a mechanism for supplying paper from the paper tray into the printer. The driving force from the feeder motor is transmitted via the feed clutch assembly to the feed roller and nudger roller, transporting paper from the tray into the printer.

As the nudger roller picks up paper and the paper level lowers, the position of the nudger roller drops accordingly. The lowered nudger roller pushes down the lock lever of the bottom plate assembly, releasing it. The spring below the bottom plate assembly pushes it up and lifts the paper, which lifts the nudger support assembly off of the lock lever of the bottom plate assembly stopping its upward motion.

Turn roller This roller, working with the turn pinch roller, advances the paper picked by the nudger and feed rollers into the printer. The feeder motor drives the turn roller through the turn roller clutch.

550-sheet feeder PWBA A CPU installed in the 550-sheet feeder PWBA receives instructions from the HVPS/engine logic board and from sensors and switches; the CPU controls feeding operation in the 550-sheet feeder.



s4500-036

- | | |
|------------------------------|--------------------------------------|
| 1. Optional 550-sheet feeder | 5. Low paper sensor |
| 2. Turn roller | 6. Low paper actuator |
| 3. No paper actuator | 7. 550-sheet feeder PWBA |
| 4. No paper sensor | 8. Option paper size switch assembly |

Error Messages and Codes

In this chapter...

- Introduction
- Servicing Instructions
- Entry Level Fault Isolation Procedure
- Service Diagnostics
- System Start-Up and POST
- Operating System and Application Problems
- Troubleshooting Procedures for Error Messages and Codes
- Inoperable Printer

Chapter 3

Introduction

This chapter covers troubleshooting procedures for problems in the Phaser 4500/4510 that generate error messages or fault codes or both that appear on the control panel or in the Service Usage Profile report, and serves as the entry point into the troubleshooting process. Troubleshooting of problems not directly indicated by or associated with an error message or fault code is covered in “General Troubleshooting” on page 4-1. Print quality problems are covered in “Print-Quality Troubleshooting” on page 5-1.

Servicing Instructions

This set of instructions is an overview of the path a service technician should take, using this manual, to service the print engine and options. If you choose not to use the instructions, it is recommended that you start at the appropriate troubleshooting table and proceed from there.

Always follow the safety measures detailed in “Service Safety Summary” on page xv when servicing the printer.

Step 1: Identify the Problem:

1. Verify the reported problem does exist.
 2. Check for any error codes and write them down.
 3. Print normal customer prints and service test prints.
 4. Make note of any print-quality problems in the test prints.
 5. Make note of any mechanical or electrical abnormalities present.
 6. Make note of any unusual noise or smell coming from the printer.
 7. Print a Service Usage Profile, if the printer is able to print.
 8. View the Engine Error and Jam Histories under the Service Tools Menu
 9. 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.
2. Disconnect the AC power cord from the wall outlet.
3. Verify the power cord is free from damage or short circuit and is connected properly.
4. Remove the print cartridge and protect it from light.
5. Inspect the printer interior and remove any foreign matter such as paper clips, staples, pieces of paper, dust or loose toner.
6. Do not use solvents or chemical cleaners to clean the printer interior.
7. Do not use any type of oil or lubricant on printer parts.
8. Use only an approved toner vacuum.
9. Clean all rubber rollers with a lint-free cloth, dampened slightly with cold water and mild detergent.
10. Inspect the interior of the printer for damaged wires, loose connections, toner leakage, and damaged or obviously worn parts.
11. If the print cartridge appears obviously damaged, replace with a new one.

Step 3: Find the Cause of the Problem:

1. Use the Error Messages and Codes and troubleshooting procedures to find the cause of the problem.
2. Use Service Diagnostics to check the printer and optional components.
3. Use the Wiring Diagrams and Plug/Jack Locator to locate test points.
4. Take voltage readings 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 FRU Disassembly procedures to replace the part.

Step 5: Final Checkout

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

Using the Troubleshooting Procedures

1. Each **Step** in a Troubleshooting Procedure instructs you to perform a certain action or procedure. Follow the steps sequentially in the order given 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 “Service Diagnostics” on page 3-7 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 frequently ask you to take voltage readings or test for continuity at certain test points within the printer. For detailed diagrams, see chapter 10, Wiring Diagrams for complete information on test point locations and signal names.
6. Troubleshooting Procedures often ask you to replace a printer component. Chapter 8 FRU Disassembly provides detailed steps for removing and replacing all major parts of the printer. Chapter 9, Parts Lists details the location and part number for all spared parts of the printer.

General Notes on Troubleshooting

1. Unless indicated otherwise, the instruction “switch ON printer main power” means for you to switch ON printer power and let the printer proceed through POST to a ‘Ready’ condition.
2. When instructed to take voltage, continuity or resistance readings on wiring harness, proceed as follows; Check P/J 232–1 to P/J 210–5 by placing the red probe (+) of your meter on pin 1 of P/J 232, and place the black probe (–) of your meter on pin 5 of P/J 210.
3. When you are instructed to take resistance readings between “P/J 232 <=> P/J 210” (without specified pin numbers), check all pins. See “Wiring Diagrams” on page 10-1 for the location of all wiring harnesses and pins.
4. When you are instructed to take a voltage reading, the black probe (–) is generally connected to a pin that is either RTN (Return) or SG (Signal Ground). You can substitute any RTN pin or test point in the printer, and you can use FG (frame ground) in place of any SG pin or test point. To locate connectors or test points, see “Wiring Diagrams” on page 10-1 for more information.
5. Before measuring voltages make sure the printer is switched ON, the print cartridge and the paper trays are in place, and the interlock switches are actuated, unless a troubleshooting procedure instructs otherwise.
6. All voltage values given in the troubleshooting procedures are approximate values. The main purpose of voltage readings is to determine whether or not a component is receiving the correct voltage value from the power supply and if gating (a voltage drop) occurs during component actuation. Gating signals may be nothing more than a pulse, resulting in a momentary drop in voltage that may be difficult or impossible to read on the average multi-meter.

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

7. When a troubleshooting procedure instructs you to replace a non-spared component and that component is part of a parent assembly, you should replace the entire parent assembly.

Accessing Fault Histories

- Print (if possible) the Service Usage Profile.
 - a. At the printer's control panel, go to the **Troubleshooting Menu** and select **Service Tools**.
 - b. From the **Service Tools** menu select **Service Usage Profile**. The fault histories are detailed in this report log.

Or...

- View the printer's fault history on the control panel.
 - Go to **Troubleshooting Menu --> Service Tools --> Engine Error History** or **Jam History**.

Refer to the Error Message Summary tables that begin on page 3-21 to interpret the numeric codes that appear in the printed or displayed fault histories.

Entry Level Fault Isolation Procedure

Use this procedure to quickly determine the general area of the printer in which the problem is located.

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Switch the printer OFF then ON . Does the printer display READY TO PRINT on the control panel within 1 minute?	Go to Step 4	Go to step 2
2	Does the printer display an error message or code?	Go to the procedure for that error message or code.	Go to step 3
3	Is the control panel LCD/LED Display defective, or the buttons inoperable?	Go to Control panel Troubleshooting procedure	Go to step 4
4	Run Test Prints from all input trays: 1. In the Main Menu, select Troubleshooting and press the OK button. 2. Select Print Quality Problems and press the OK button. 3. Select Test Prints and press the OK button. Does the printer display an error message or code while printing?	Go to the procedure for that error message or code.	Go to step 5
5	Does the printer produce the test prints?	Go to step 6	Go to step 7
6	Evaluate the test prints. Does the print quality meet or exceed the print quality specifications?	Go to step 8	Go to "Print-Quality Troubleshooting" on page 5-1
7	Enter Service Diagnostics and generate Print Engine Test Prints from all input trays. Does the printer produce the test prints?	Go to "Image Processor Isolation" on page 4-33	Go to "Inoperable Printer" on page 3-72
8	Request the customer to send a print job from their application. Did the job print successfully?	Problem solved; return to Final Checkout in the "Servicing Instructions" on page 3-2.	Go to "Operating System and Application Problems" on page 3-19

Service Diagnostics

The Phaser 4500/4510 Laser Printer has built-in diagnostics to aid in troubleshooting problems with the printer. The Service Diagnostics Menu provides a means to test sensors, motors, switches, clutches, fans and solenoids. Diagnostics also contain built-in test prints, printer status and some NVRAM access.

Service Diagnostics are to be executed through the control panel by a certified service technician only. Service Diagnostics can be entered one of two ways:

Entering without rebooting the printer:

1. From the printer's main menu, scroll to **Troubleshooting** and press the **OK** button, then scroll to **Service Tools** and press the **OK** button.
2. Hold down both the **Up** and **Down** arrow buttons for about three seconds. When the hidden Service Diagnostics menu appears, scroll to **Run Service Diagnostics** and press the **OK** button.

Entering by rebooting the printer:

1. Turn the printer power OFF.
2. Hold down the **Back** and **Information** (P4500) or **Help** (P4510) buttons simultaneously and turn the printer back ON.
3. Continue to hold the buttons until the following message is displayed on the control panel: **Entering Service Diagnostics**, and then release the buttons.
4. The control panel displays the **Service Diagnostics Menu**.

You can print a Service Diagnostics Menu Map by highlighting **Print Service Menu Map**, and pressing the **OK** button. The printer will run through POST and return to **Ready**. You will need to re-enter service diagnostics.

Service Diagnostics Menu Map

Print Service Menu Map Prints this page.

General Status Provides current print engine status.

- Engine ROM Version
- Engine Print Counter
- Engine Configuration
- Print Resolution
- Read Fuser Temperature

Engine Test Print Configures print parameters and initiates the test print.

- Print Test Pattern
- Input Tray
- Output Tray
- Duplex
- Print Quantity
- Print Resolution

Engine NVRAM Adjustments Perform NVRAM Adjustments essential to the performance of the printer.

- Laser Power
- Tray 1 Process Direction
- Tray 2 Process Direction
- Tray 3 Process Direction
- Tray 4 Process Direction
- Tray 1 Scan Direction
- Tray 2 Scan Direction
- Tray 3 Scan Direction
- Tray 4 Scan Direction
- Duplex Process Direction
- Duplex Scan Direction

Motors/Fans Tests Tests the functionality of motors/fans.

- Duplex Motor High
- Duplex Motor Low
- Exit Motor Forward
- Exit Motor Reverse High
- Exit Motor Reverse Low
- Main Motor
- Fan Motors High Speed
- Fan Motors Stop
- Laser Scan Motor
- Stacker Motor
- Stacker Offset Motor
- Tray 3 Feed Motor
- Tray 4 Feed Motor

Main Motor+Clutch/Sol Tests Runs main drive motor with each individual clutch.

- Motor + Registration Roll
- Motor + Tray 1 Feed
- Motor + Tray 2 Feed
- Motor + Tray 3 Feed
- Motor + Tray 4 Feed
- Motor + Tray 3 Turn Roll
- Motor + Tray 4 Turn Roll

Sensor Tests Tests the functionality of sensors/switches/options by manually toggling each sensor or installing an option.

- Top Cover Switch
- Rear Cover Switch
- Duplex Cover Switch
- Stacker Cover Switch
- Paper Tray Size Read
 - Tray 1 Size
 - Tray 2 Size
 - Tray 3 Size
 - Tray 4 Size
- Print Cartridge Switch
- Toner Sensor
- Registration Sensor
- Exit Sensor (Fuser)
- Duplex Sensor
- Stacker Sensor
- Stacker Full Sensor
- Output Tray Full Sensor
- Tray 2 Low Paper
- Tray 3 Low Paper
- Tray 4 Low Paper
- Tray 1 No Paper
- Tray 2 No Paper
- Tray 3 No Paper
- Tray 4 No Paper
- Duplex Unit Presence
- Stacker Unit Presence

Solenoid Tests Tests the functionality of printer solenoids.

- Stacker Gate Solenoid

Clutch Tests Tests the functionality of printer clutches.

- Registration Roll
- Tray 1 Feed
- Tray 2 Feed
- Tray 3 Feed
- Tray 4 Feed
- Tray 3 Turn Roll
- Tray 4 Turn Roll

Controller NVRAM Access Resets the PS NVRAM locations to factory defaults.

- Reset PostScript NVRAM
- Factory Reset NVRAM

Exit Exits service diagnostics and reboots the printer.

For Authorized Service Personnel Use Only. Service Menu functions are to be used by Xerox service personnel and authorized service providers only. The printer can be damaged by improper use of the built-in service tests.

Service Diagnostic Control Panel Button Descriptions

Button	Function
BACK	Returns to the prior higher level menu structure, if available. If help text is displayed on the control panel, pressing BACK will restore the current menu item and remove the help text.
CANCEL	Terminates the current test. Cancels current INFO display.
INFO (P4500) or HELP (P4510)	Provides help information, if available. Pressing again restores the current menu item and removes the help text.
UP	Scrolls up one menu item within a menu list. This control does not 'wrap'. Used to increment data in tests requiring user input.
DOWN	Scrolls down one menu item within a menu list. This control does not 'wrap', the end of a menu list is designated by three asterisks. Used to decrement data in tests requiring user input.
OK	Enters the highlighted menu. Executes the current test item. Used to select a data value entered by the user.

Using Service Diagnostics

Most of the diagnostic tests are straightforward and require no additional explanation, but there are some that require that specific conditions be met to achieve meaningful results. These instructions cover each of the test groups, listing special instructions, conditions, or other information necessary to successfully interpret the results of the diagnostic tests.

General Status

The General Status tests provide information about the current status of the printer. These values are read-only and cannot be changed.

Engine ROM Version Lists the version number of the code stored in the engine ROM and its checksum value.

Engine Print Count Lists the printer's life count, the number of prints made since the printer's activation. This page count is reset if the HVPS/engine logic board is replaced.

Engine Configuration Lists the configurations set for the engine. This report is of very limited use to the service technician; it is mainly intended for manufacturing use.

Print Resolution Reports the current print resolution setting for the engine test print. The default setting when entering diagnostics is 1200 dpi.

Read Fuser Temperature Shows the current fuser temperature in degrees C. Reports the fuser temperature only in the Standby mode.

Engine Test Print

You can use Engine Test Print (see “Engine Test Print” on page 6-4) to identify, repair, and validate the operability of printer Xerographics and paper handling from all paper sources, options, and output destinations.

Print Test Pattern Starts the print.

Input Tray Lets you select the tray used as paper source.

Output Tray Lets you select the output location.

Duplex Turns two-sided printing on or off if the duplex unit is installed.

Print Quantity Allows you to select the number of test prints to run. Use the OK button to select which digit to change, use the UP or DOWN buttons to change the value of the digit, and use the Back button to set the selection. If Duplex is set to ON, the quantity selected indicates the number of two-sided prints.

Print Resolution Allows you to select either 600 or 1200 dpi as the print resolution for engine test prints. The default setting when entering diagnostics is 1200.

Engine NVRAM Adjustments

These adjustments allow you to change printer settings that control the power of the laser beam, and that control the registration of the image on the paper.

Laser Power Adjusts the power of the laser beam. Adjustment is done on a scale of 0-8, with 4 being the factory default.

Tray 1/2/3/4 Process Direction Adjusts the image registration in the process direction on paper coming from one of the paper trays. Increasing or decreasing the set value by one number moves the leading edge of the print area 0.5 mm closer to or farther from the edge of the paper.

Tray 1/2/3/4 Scan Direction Adjusts the image registration in the scan direction on paper coming from one of the paper trays. Increasing or decreasing the set value by one number moves the side edge of the print area 0.5 mm closer to or farther from the edge of the paper.

Duplex Process Direction Adjusts the image registration in the process direction on paper coming from the duplex unit. Increasing or decreasing the set value by one number moves the leading edge of the print area 0.5 mm closer to or farther from the edge of the paper.

Duplex Scan Direction Adjusts the image registration in the scan direction on paper coming from the duplex unit. Increasing or decreasing the set value by one number moves the leading edge of the print area 0.5 mm closer to or farther from the edge of the paper.

Motors/Fan Test

Individually turns on each drive motor or fan. In each case except the stacker offset motor, the sound of the motor running is the indication that the item passed or failed the test. In the case of the stacker offset motor, the motion of the offset chute is the indicator.

Duplex Motor (All tests) The test runs the motor about three seconds, then stops it. The test runs the motor even when the duplex unit is open or a printer cover is open.

Exit Motor (All tests) The test runs the motor about three seconds, then stops it. Print engine top and rear covers must be closed and print cartridge must be installed for the motor to run.

Main Motor The test runs the motor for one minute or until you press the Back button to stop it. Print engine top and rear covers must be closed and print cartridge must be installed for the motor to run.

Fan Motor High Speed The test runs the main and sub fans for about three seconds, then returns them to low speed. The test runs with covers open.

Fan Motor Stop The test stops the main and sub fans for about three seconds, then turns them on again at low speed. The test runs with covers open.

Laser Scan Motor The test runs the motor about three seconds, then stops it. The test runs with covers open.

Stacker Motor The test runs the motor about three seconds, then stops it. The test runs with print engine covers open.

Stacker Offset Motor The test runs the motor to move the chute once in each direction. The test runs with covers open.

Tray 3/4 Feed Motor The test runs the motor about three seconds, then stops it. The test runs with print engine covers open. Attempting to test a tray that is not installed results in an "Option Not Installed" message.

Main Motor + Clutch/Sol Tests

Runs the main motor and activates the clutch selected to test the drive.

Tray 1/2/3/4 Feed Tests the drive to the feeder in the selected tray.

Tray 3/4 Turn Roller Tests the drive to the turn roller in the selected tray.

Note

These tests feed a sheet of paper into the registration roller nip that must be cleared following the test.

Sensor Tests

Tests the functionality of sensors/switches/options when the sensor or switch is manually toggled, or when either the duplex unit or stacker is installed.

Top Cover Switch Tests the circuit (not just a single switch) affected by opening the top cover. The print cartridge must be installed and the rear cover closed for this test to be effective. Toggle the switch by opening and closing the top cover. "Open" or "Closed" indications appear on the control panel.

Rear cover switch Tests the circuit (not just a single switch) affected by opening the rear cover. The print cartridge must be installed and the top cover closed for this test to be effective. Toggle the switch by opening and closing the rear cover. "Open" or "Closed" indications appear on the control panel.

Duplex Cover Switch Tests the circuit affected by opening the duplex unit. Toggle the switch by opening the duplex unit rear cover.

Stacker Cover Switch Tests the circuit affected by opening the stacker rear cover.

Paper Tray Size Read Displays the paper size selected by the position of the paper end guide in the paper tray. This test only tests the operation of the paper size switch assembly. It does not recognize custom paper sizes.

Print Cartridge Switch Checks for the presence of the print cartridge. Toggle the switch by partially removing the print cartridge. Displays “Installed” or “Not installed”

Toner Sensor Checks that there is toner in the print cartridge. Displays “Toner Normal” when the print cartridge with toner is in place, and displays “Toner Low” when the print cartridge is partially removed or the toner quantity is low.

Registration Sensor Reports the status of the registration sensor. Reports “Without paper” when the actuator is in the resting position, and reports “With paper” when the actuator is moved by paper in transport.

Exit Sensor (Fuser) Reports the status of the exit sensor in the fuser. Reports “Without paper” when the actuator is in the resting position, and reports “With paper” when the actuator is moved by paper in transport. You can manually toggle the sensor by opening the exit gate on the fuser and pushing the actuator near the center of the fuser.

Duplex Sensor Reports the status of the duplex sensor. Reports “Without paper” when the actuator is in the resting position, and reports “With paper” when the actuator is moved by paper in the duplex unit. You can manually toggle the sensor by removing the inner chute (black plastic) and pressing the actuator, which is just right of center.

Stacker Sensor Reports the status of the stacker sensor. Reports “Without paper” when the actuator is in the resting position, and reports “With paper” when the actuator is moved by paper in the stacker. You can manually toggle the sensor by opening the stacker rear cover and pressing the actuator.

Stacker Full Sensor Reports the status of the stacker full sensor in the stacker. Reports “Not Full” when the actuator is in the resting position, and reports “Full” when the actuator is raised by paper accumulating on the stacker output tray. You can manually toggle the sensor by lifting the actuator bail at the stacker exit slot.

Output Tray Full Sensor Reports the status of the output tray full sensor in the standard output tray. Reports “Not Full” when the actuator is in the resting position, and reports “Full” when the actuator is raised by paper accumulating on the standard output tray. You can manually toggle the sensor by lifting the actuator bail at the standard output exit slot.

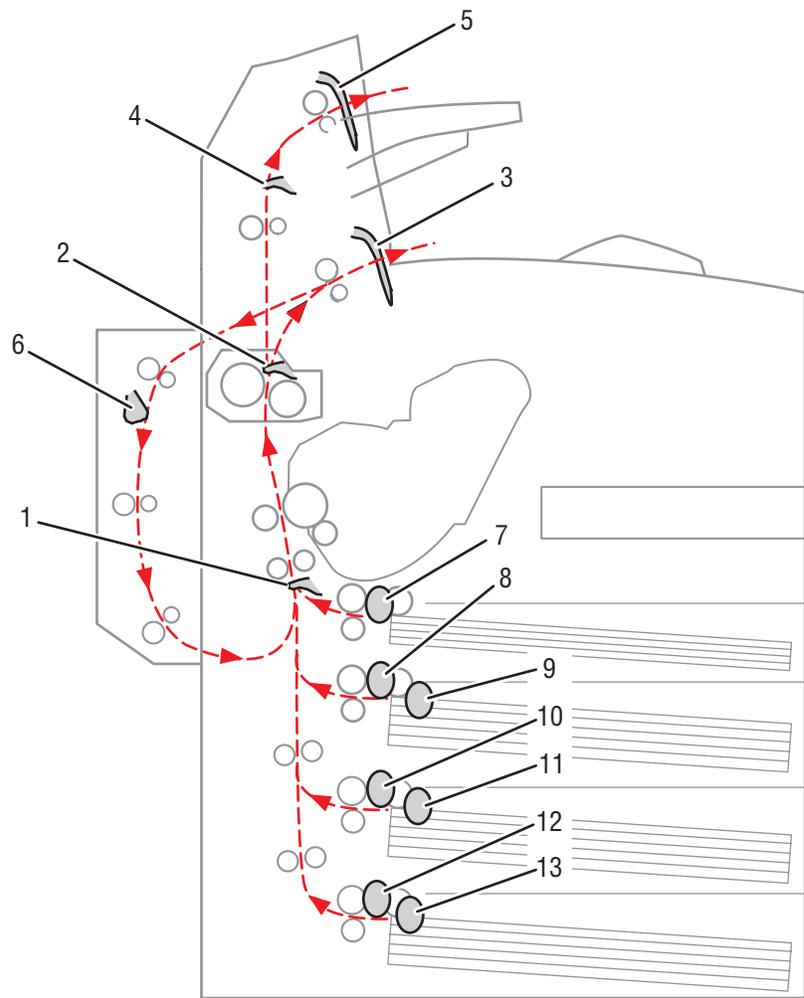
Tray 2/3/4 Low Paper Tests the operation of the Low Paper sensor in the 550-sheet feeders. Reports “Not Low” in the resting position, and “Low” when lifted. You can test the sensor by removing all but three or four sheets of paper from the cassette in that tray and reinserting it. Or you can remove the cassette, reach into the tray cavity, and operate the actuator manually. The actuator is located near the top and rear of the cavity on right side.

Tray 1/2/3/4 No Paper Tests the operation of the No Paper sensor in each tray. Reports “Without Paper” in the resting position, and “With Paper” when lifted. You can test the sensor by removing all paper from the cassette in that tray and reinserting it. Or you can remove the cassette, reach into the tray cavity, and operate the actuator manually. The actuator is located at the top and rear of the cavity in the center.

Duplex Unit Presence Reports whether the duplex unit is “Installed” or “Not Installed.” You can test by removing or installing the duplex unit and restarting the printer, then running the Duplex Unit Presence test.

Stacker Unit Presence Reports whether the stacker is “Installed” or “Not Installed.” You can test by removing or installing the stacker and restarting the printer, then running the stacker Unit Presence test.

Sensor Locations in the Paper Path



s4500-270

- | | |
|---------------------------|-----------------------------|
| 1. Registration sensor | 8. Tray 2 no paper sensor |
| 2. Fuser exit sensor | 9. Tray 2 low paper sensor |
| 3. Output tray full | 10. Tray 3 no paper sensor |
| 4. Stacker sensor | 11. Tray 3 low paper sensor |
| 5. Stacker full | 12. Tray 4 no paper sensor |
| 6. Duplex unit sensor | 13. Tray 4 low paper sensor |
| 7. Tray 1 no paper sensor | |

Solenoid Test

Tests the functionality of the printer's only solenoid.

Stacker Gate Solenoid This test is available at all times, but runs only when a stacker is installed. Attempting to run the test without a stacker results in the "Option not installed." message. You can view the stacker Gate operation by opening the rear cover.

Clutch tests

Tests the functionality of the printer clutches. The audible click of the clutch engaging is the only indicator of success. The feed and turn roller clutches listed here can be tested in conjunction with the main motor.

Registration Roller Tests the clutch that couples drive power to the registration roller.

Tray 1/2/3/4 Feed Tests the clutch that couples drive power to the feed roller for the selected tray.

Tray 3/4 Turn Roller Tests the clutch that couples drive power to the turn roller for the selected tray.

Controller NVRAM Access (NVRAM Reset)

This menu allows you to reset the PostScript NVRAM locations to factory defaults.

Note

Refer to "Resetting All Printer Default Settings (PostScript NVRAM)" on page 6-13 for more details.

Reset PostScript NVRAM Resets the PS NVRAM. You are prompted to confirm your decision to perform a reset operation.

Factory Reset NVRAM Allows you to reset the PS NVRAM locations to factory defaults. This tests is password protected to allow access only to certified Service Personnel. The password to access the reset functions is 4370. To enter the password, you use the **OK** button to move from digit to digit on the display, you use the Up and Down Arrow buttons the change the value of the digit, and when the password is correct, you use the Back button to enter the selection. After you enter the password, you are prompted to confirm your decision to perform a reset operation.

Exit

Reboots the Printer out of Service Diagnostics

System Start-Up and POST

Power On Self Test (POST)

The following tests are performed when the printer is powered on, after the boot loader runs, and before the operating system is loaded and initialized.

POST diagnostics are intended to provide a quick means of isolating a defective subsystem associated with the image processor board and SDRAM. POST returns control to the boot loader and the operating system is loaded. The operating system then loads the imaging processing software. If POST detected any soft errors, a message is printed in a gray box on the start page. If POST detects any hard errors, both the control panel and health LED blink the error code pattern, see “LED Blink Patterns” on page 3-16.

POST Startup indications

- At power-on the hardware default is to turn on the IP board ‘health’ LED.
- The image processor board ‘health’ LED is turned off.
- The control panel display is reset (addressable area becomes “gray”).
- The Red LED turns on.
- The backlight is turned on (normal intensity), with nominal contrast display for 1/4 second.
- The control panel display area is turned on, dark black for 1/4 second.
- The control panel display is cleared for 1/4 second.
- The backlight is turned off with nominal intensity for 1/4 second.
- The POST Vn.nn message appears, and tests are quickly executed.
- If any tests fail, the control panel screen freezes with the name of the test displayed and the line posted is “Call Customer Service”.
- After the POST tests have finished running, the Xerox ‘splash screen’ is posted to the control panel and PostScript begins initialization.

POST Faults

There are two kinds of faults: soft and hard.

A soft fault is any fault that is discovered by POST, but does not prevent the operating system from initializing and becoming available as a tool for troubleshooting. These POST faults do not stop execution and are reported on the Start Page in a gray box after the system is running.

A hard fault is any fault discovered by POST that prevents the operating system from initializing successfully. A hard fault prevents the system from further execution and is halted with blinking LEDs (control panel and health LED). The test name of the test that failed is displayed on the control panel.

Fault Reporting Devices

There are four fault presentation devices.

- All soft faults are printed on the StartPage.

For hard faults:

- The health LED flashes according to the fault code.
- The control panel LED flashes in unison with the health LED.
- The last posted message to the graphic control panel is present.

LED Blink Patterns

For faults identified as hard faults, the POST firmware causes the PS health LED to blink in a particular pattern to identify the fault. There are short and long blinks. A long blink is worth 5 and a short blink is worth 1. If a fault blink pattern is flashed as long, long, short, short, this is fault code $5+5+1+1=12$, which indicates a failure in the CPU interrupt test. See “POST Diagnostic Test Descriptions” on page 3-17.

The exception to the above pattern is a RAM test error. The RAM tests have a special blink pattern and the control panel displays “RAM Error”. During power up the control panel LED is on. If the RAM tests fail, the image processor board health LED is turned off, and the control panel LED is red. At 1/2-second intervals, the health LED and the control panel LED toggle continuously.

POST Diagnostic Test Descriptions

Test	Fault Code	Description
SDRAM	1	(Hard) This test fails if the boot loader finds no RAM present or faulty RAM. Boot loader posts the message "RAM ERROR" to the control panel and blinks the control panel LED at an even rate.
Real Time Clock	14	(Soft) Synchronizes an internal counter to the rollover of the seconds count in the Real Time Clock chip.
I/O ASIC	3	(Hard) This test determines if the I/O chip is functioning properly.
Memory	4	(Hard) This test checks 64-bit reads and writes to memory.
EEPROM	10	(Hard) This test checks addressing of the EEPROM.
Ethernet	11	(Hard) This test checks the ethernet core.
CPU Interrupts	12	(Hard) This test checks that each interrupt source to the CPU is functioning.
USB	13	(Hard) This test checks that the USB core is functioning properly.
Real Time Clock	14	(Soft) Ensures that the Real Time Clock is functionally tested.
RAM DIMM Presence	15	(Soft) This test examines bad or incompatible RAM DIMMs.
Install more RAM	16	(Soft) Checks that there is at least 64 MB of memory installed and ignores more than 512 MB.
Too much RAM	17	(Soft) Checks that there is no more than 512 Mbytes of memory installed.
IDE Disk	20	(Soft) Checks the disk controller core, and runs a DIAGNOSE command on the hard drive.
Engine Command	22	(Hard) Checks communication between the image processor board and the HVPS/engine logic board
Real Time Clock	14	(Soft) Checks to ensure that the seconds count in the Real Time Clock chip is incrementing at one-second intervals +/-2%.

POST Error Code Table

LED Blink Code	Control Panel Message	Comment
1	RAM ERROR	No RAM present, or faulty RAM. Continuous 1/2 second interval LED blink.
1+1+1	3: I/O ASIC	Image processor board ASIC failure. Go to “Image Processor Isolation” on page 4-33.
1+1+1+1	4: MEMORY	Checks installed memory: walking ones address, walking one and complement data. Tests RAM memory above diagnostics code and data addresses. Go to “RAM DIMM Fault Isolation” on page 4-35.
5+5	10: EEPROM	1. Switch off printer power. 2. Remove and re-install the NVRAM EEPROM. 3. Switch on printer power. 4. If the error message persists, first replace the NVRAM EEPROM, then the image processor board (Go to page 4-34).
5+5+1	11: ETHERNET PHY	Image processor E-Net port failure. Replace image processor board (page 8-75).
5+5+1+1	12: CPU INTERRUPTS	Replace image processor board (page 8-75).
5+5+1+1+1	13: USB	Image processor USB port failure. Replace image processor board (page 8-75).
5+5+1+1+1+1	14: REAL TIME CLOCK	Image processor board timer failure. Remove and reinstall the configuration card. If the problem persists, replace the image processor board (page 8-75).
5+5+5	15: RAM DIMM	RAM DIMM failure. Go to “RAM DIMM Fault Isolation” on page 4-35.
5+5+5+1	16: INSTALL MORE RAM	Not enough valid memory installed to support operation. Install additional RAM. Go to “RAM DIMM Fault Isolation” on page 4-35.
5+5+5+1+1	17: TOO MUCH RAM	Too much RAM can excessively load the processor bus, causing system failure. Remove some RAM. Go to “RAM DIMM Fault Isolation” on page 4-35.
5+5+5+5	20: IDE DISK	Hard disk failure. Replace the hard disk (part of image processor removal on page 8-75). Replace the image processor board (page 8-75).
5+5+5+5+1+1	22: ENGINE COMMAND	Communication with print engine has failed. Check ribbon cable to HVPS/engine logic board. Go to “Image Processor Isolation” on page 4-33.

Operating System and Application Problems

Troubleshooting tips and more information are also available on the Xerox web site at: www.xerox.com/office/support.

Macintosh Printing Problems

Image Never Prints

1. Printer acts as if it is receiving data, but nothing comes out of the printer or it goes back to "Ready" mode without printing. The most likely cause is a PostScript error occurred in the printer.
2. Power cycle the printer and try printing again.
3. Make sure that the correct Phaser 4500/4510 printer icon was selected in the Chooser. Try printing the job again.
4. In the Chooser or the print dialog, switch background printing to off. Try printing the job again.
5. If the error returns, turn ON the PostScript error handler through the control panel PostScript Error Info in the Support menu, or CentreWare IS and print the document again. Take note of the information on the error page that just printed.
6. Select the appropriate Phaser 4500/4510 PPD with the LaserWriter Driver or application. Not selecting the appropriate PPD can cause PostScript errors.
7. Select a different document from the application and try to print. If the PostScript error does not occur, then the original document may be causing the problem.
8. Image is rotated 90 degrees.
9. In the application's Page Setup, make sure that the image is selected to print in portrait or landscape orientation to match the document. Also, ensure the selected paper size is correct.

Windows Printing Problems

Image Never Prints

1. Try printing a test page from the printer driver's properties dialog box.
2. Try printing from another application.
3. Try printing to another printer.
4. Try printing from another computer.
5. If the error returns, turn ON the PostScript error handler through the control panel PostScript Error Info in the Support menu, or CWIS and print the document again. Take note of the information on the error page that just printed.

Network Problems

The printer maintains four (P4510) or six (P4500) logs in memory detailing network functions. The logs contain TCP/IP, NetWare (P4500 only) and AppleTalk initialization events. The logs can also be accessed remotely via CentreWare.

The logs list events chronologically. The log is limited in length; when the log is full the printer stops recording data to the log. The logs are stored on the hard drive so only new data is stored each time the printer's power is cycled.

There is a Connection Setup Page, Configuration Page and a network reset available for troubleshooting Network problems.

To Print an Event Log or Runtime Log:

- 1. P4500:** From the main menu, select the **Troubleshooting Menu**, then select **Network Log Pages**.
P4510: From the main menu, select the **Troubleshooting Menu**, then **Network Problems**, then **Network Log Pages**.
- 2.** Highlight the appropriate menu item from the list and select the **OK** button.
- 3.** The page should now print.

Troubleshooting Procedures for Error Messages and Codes

The Error Message Summary tables that follow are the lead-ins to the procedures that follow in subsequent pages. There are two tables because the Engine Error and Jam Error codes are not the same for both printers. The Control Panel Message column lists the error message that appears on the control panel when the error occurs during normal operation. The Diagnostic Message column lists the error message that appears when the error occurs during use of Service Diagnostics. The Engine Errors column lists the code number that appears in fault histories, either on the control panel display when you view [Engine Error History](#) or in the Service Usage Profile at line 262 Engine Error Log. The Jam Errors column lists the code that appears on the control panel display when you view [Jam History](#) for the Phaser 4500 or the *Printer Status* page for the Phaser 4510. The Procedure to Use column lists the page number of the troubleshooting procedure for that error.

For the Phaser 4510 printer, refer to the “Service Code Table” on page A-6, which maps the engine error and jam error codes to specific error messages.

The procedures that follow the table are named with the messages that appear on the control panel when an error occurs. The error codes listed in the procedure are the fault codes displayed in Service Diagnostics along with the fault condition that produced the code.

Phaser 4500 Error Message Summary

Control Panel Message	Diagnostic Message	Engine Errors	Jam Errors	Procedure to Use
“Engine Logic Board NVRAM Failure\ Press i”	U6: NVM Fail	3	—	Go to page 3-33.
“Main Motor Failure\ Press i”	U1: Motor Fail/Power Off	2	—	Go to page 3-28.
“Laser Unit Failure\ Press i”	Laser Fails at warm-up U2-1: Laser Fail/Power Off	5	—	Go to page 3-29
“Laser Unit Failure\ Press i”	Laser Fails Motor Speed U2-2: Laser Fail/Power Off	5	—	Go to page 3-29
“Laser Unit Failure\ Press i”	LD Power is high U2-3: Laser Fail/Power Off	5	—	Go to page 3-29
“Laser Unit Failure\ Press i”	LD Power is low U2-4: Laser Fail/Power Off	5	—	Go to page 3-29
“Fuser Failure\ Press i”	Fuser High Temp U4-1: Fuser Fail/Power Off	1	—	Go to page 3-30

Phaser 4500 Error Message Summary

Control Panel Message	Diagnostic Message	Engine Errors	Jam Errors	Procedure to Use
"Fuser Failure\ Press i"	Fuser Low Temp U4-2: Fuser Fail/Power Off	1	—	Go to page 3-30.
"Fuser Failure\ Press i"	Fuser Overheat in Stand-by U4-3: Fuser Fail/Power Off	1	—	Go to page 3-30.
"Fuser Failure\Press i"	Fuser Fails at warm-up U4-4: Fuser Fail/Power Off	1	—	Go to page 3-30.
"Fuser Failure\Press i"	Fuser Thermistor Failure U4-5: Fuser Fail/Power Off	1	—	Go to page 3-30.
"Toner Is Low\ Press i"	J5: Toner Low	—	—	Go to "Toner Sensor" on page 4-22
"Fan Failure\ Power Off Now\ Press i"	U5: Fan Fail/ Power Off	0	—	Go to page 3-31.
"Install Or Reseat print cartridge\ Press i"	J3: Missing Print Cartridge	—	—	Go to page 3-61.
"Replace Print Cartridge\ Press i"	—	—	—	Go to page 3-62.
"Close Top Cover\ Press i"	Top Cover Open	—	—	Go to page 3-58.
"Close Rear Cover\ Press i"	Rear cover open	—	—	Go to page 3-58.
"Jam At Tray <i>N</i> ; Remove Trays And Open Top Cover To Clear\ Press i "	E2-01 Feed Jam E2-02 Feed Jam E2-03 Feed Jam E2-04 Feed Jam	—	1 2 3 4	Go to page 3-34.
"Jam At Tray <i>N</i> ; Remove Trays And Open Top Cover To Clear\ Press i "	E2-11 Feed Jam E2-12 Feed Jam E2-13 Feed Jam E2-14 Feed Jam	—	1 2 3 4	Go to page 3-37.
"Jam At Top; Open Top Cover To Clear\ Press i"	E3-1 Reg. Jam E3-2 Reg. Jam	—	6	Go to page 3-40.
"Jam At Exit; Open Rear Cover To Clear\ Press i"	E4-2 Exit Jam	—	5	Go to page 3-43.
"Jam At Exit; Open Rear Cover To Clear\ Press i"	E4-3 Exit Jam	—	5	Go to page 3-43.
"Jam At Exit; Open Top Cover To Clear\ Press i"	E4-0 Exit Jam	—	5	Go to page 3-43.

Phaser 4500 Error Message Summary

Control Panel Message	Diagnostic Message	Engine Errors	Jam Errors	Procedure to Use
“Jam At Duplex; Open Duplex To Clear\ Press i “	E7-0 Duplex Jam	—	7	Go to page 3-51.
“Jam At Rear; Open Duplex And Rear Cover To Clear\ Press i “	E7-1 Duplex Jam	—	7	Go to page 3-49.
“Jam At Duplex; Open Duplex To Clear\ Press i “	E7-2 Duplex Jam	—	7	Go to page 3-49.
“Jam At Duplex; Open Duplex To Clear\ Press i “	E7-3 Duplex Jam	—	7	Go to page 3-49.
“Jam At Rear; Open Rear Cover To Clear\ Press i “	E6-1 Stacker jam	—	8	Go to page 3-45.
“Jam At Stacker; Open Rear Stacker Cover To Clear\ Press i “	E6-2 Stacker Jam	—	9	Go to page 3-47.
“Paper Size Jam; Check Paper Tray Guides And Open Rear Cover To Clear\ Press i”	PSE-1 Paper Size Error	—	10	Go to page 3-56.
“Insert Tray 1\ Press i”	Tray 1 Out	—	—	Go to page 3-67
“Insert Tray 2\ Press i”	Tray 2 Out	—	—	Go to page 3-67
“Insert Tray 3\ Press i”	Tray 3 Out	—	—	Go to page 3-68
“Insert Tray 4\ Press i”	Tray 4 Out	—	—	Go to page 3-68
“Tray 2 Paper Is Low\ Press i”	N/A	—	—	Go to page 3-64
“Tray 3 Paper Is Low\ Press i”	N/A	—	—	Go to page 3-66
“Tray 4 Paper Is Low\ Press i”	N/A	—	—	Go to page 3-66
“No Paper in Tray 1\ Press i”	Tray 1 empty	—	—	Go to page 3-63.
“No Paper in Tray 2\ Press i”	Tray 2 empty	—	—	Go to page 3-63.
“No Paper in Tray 3\ Press i”	Tray 3 empty	—	—	Go to page 3-65.
“No Paper in Tray 4\ Press i”	Tray 4 empty	—	—	Go to page 3-65.

Phaser 4500 Error Message Summary

Control Panel Message	Diagnostic Message	Engine Errors	Jam Errors	Procedure to Use
"Maintenance Kit is Near End of Life\ Press i"	N/A	—	—	—
"Replace Maintenance Kit"	N/A	—	—	Go to page 3-71.
"Stacker Is Full, Unload Paper\ Press i"	Stacker output tray full	—	—	Go to page 3-69
"Standard Output Tray Is Full, Unload Paper\ Press i"	Output tray full	—	—	Go to page 3-70
"Tray 3 Failure\ Press i"	E11-1 Tray 3 unit fail	—	6	Go to page 3-54
"Tray 3 or 4 Failure\ Press i"	E11-2 Tray 3 or 4 unit fail	—	7	Go to page 3-54
"Duplex Unit Failure\ Press i"	E9-1 Duplex unit fail	—	8	Go to page 3-52.
"Stacker Unit Failure\ Press i"	E9-2 Stacker unit fail	—	4	Go to page 3-53.
"Close Duplex Unit Cover\ Press i"	Duplex cover open	—	—	Go to page 3-59.
"Close Stacker cover\ Press i"	Stacker cover open	—	—	Go to page 3-60.
"Invalid Configuration Card\ Press i"	N/A	—	—	—
"Configuration Card Missing\ Press i"	N/A	—	—	—

Phaser 4510 Error Message Summary

Control Panel Message	Diagnostic Message	Engine Errors	Jam Errors	Procedure to Use
“Engine Logic Board NVRAM Failure\ Press ?”	U6 NVM fail/ Power Off	59	—	Go to page 3-33.
“Main Motor Failure\ Press ?”	U1 Motor Fail/ Power Off	55	—	Go to page 3-28.
“Laser Unit Failure\ Press ?”	Laser Fails at warm-up U2-1 Laser Fail / Power Off	56	—	Go to page 3-29
“Laser Unit Failure\ Press ?”	Laser Fails Motor Speed U2-2: Laser Fail/Power Off	56	—	Go to page 3-29
“Laser Unit Failure\ Press ?”	LD Power is high U2-3: Laser Fail/Power Off	56	—	Go to page 3-29
“Laser Unit Failure\ Press ?”	LD Power is low U2-4: Laser Fail/Power Off	56	—	Go to page 3-29
“Fuser Failure\ Press ?”	Fuser High Temp U4-1 Fuser Fail/ Power Off	57	—	Go to page 3-30
“Fuser Failure\ Press ?”	Fuser Low Temp U4-2: Fuser Fail/Power Off	57	—	Go to page 3-30.
“Fuser Failure\ Press ?”	Fuser Overheat in Stand-by U4-3: Fuser Fail/Power Off	57	—	Go to page 3-30.
“Fuser Failure\ Press ?”	Fuser Fails at warm-up U4-4: Fuser Fail/ Power Off	57	—	Go to page 3-30.
“Fuser Failure\ Press ?”	Fuser Thermistor Failure U4-5: Fuser Fail/ Power Off	57	—	Go to page 3-30.
“Toner Is Low\ Press ?”	J5: Toner Low	—	—	Go to “Toner Sensor” on page 4-22
“Fan Failure\ Power Off Now\ Press ?”	Fatal Failure: Fan (Code U5)	58	—	Go to page 3-31.
“Install Or Reseat Print Cartridge\ Press ?”	J3: Missing Print Cartridge	—	—	Go to page 3-61.
“Replace Print Cartridge\ Press ?”	—	—	—	Go to page 3-62.

Phaser 4510 Error Message Summary

Control Panel Message	Diagnostic Message	Engine Errors	Jam Errors	Procedure to Use
“Close Top Cover\ Press ?”	Top Cover Open	—	65	Go to page 3-58.
“Close Rear Cover\ Press ?”	Rear cover open	—	66	Go to page 3-58.
“Jam At Tray <i>N</i> ; Remove Trays And Open Top Cover To Clear\ Press ?”	E2-01 Feed Jam	—	1	Go to page 3-34.
	E2-02 Feed Jam		2	
	E2-03 Feed Jam		3	
	E2-04 Feed Jam		4	
“Jam At Tray <i>N</i> ; Remove Trays And Open Top Cover To Clear\ Press ?”	E2-11 Feed Jam	—	5	Go to page 3-37.
	E2-12 Feed Jam		6	
	E2-13 Feed Jam		7	
	E2-14 Feed Jam		8	
“Jam At Top; Open Top Cover To Clear\ Press ?”	E3-1 Reg. Jam	—	9	Go to page 3-40.
	E3-2 Reg. Jam		10	
“Jam At Exit; Open Top Cover To Clear\ Press ?”	E4-0 Exit Jam	—	11	Go to page 3-43.
“Jam At Exit; Open Rear Cover To Clear\ Press ?”	E4-2 Exit Jam	—	12	Go to page 3-43.
“Jam At Exit; Open Rear Cover To Clear\ Press ?”	E4-3 Exit Jam	—	13	Go to page 3-43.
“Jam At Rear; Open Rear Cover To Clear\ Press ?” or “Jam At Rear; Open Duplex and Rear Cover To Clear\ Press ?”	E6-1 Rear jam	—	14	Go to page 3-45.
“Jam At Stacker; Open Rear Stacker Cover To Clear\ Press ?”	E6-2 Stacker Jam	—	15	Go to page 3-47.
“Jam At Duplex; Open Duplex To Clear\ Press ?”	E7-0 Duplex Jam	—	16	Go to page 3-51.
“Jam At Rear; Open Duplex And Rear Cover To Clear\ Press ?”	E7-1 Duplex Jam	—	17	Go to page 3-49.
“Jam At Duplex; Open Duplex To Clear\ Press ?”	E7-2 Duplex Jam	—	18	Go to page 3-49.
“Jam At Duplex; Open Duplex To Clear\ Press ?”	E7-3 Duplex Jam	—	19	Go to page 3-49.
“Insert Tray 1\ Press ?”	Tray 1 Out	—	20	Go to page 3-67
“Insert Tray 2\ Press ?”	Tray 2 Out	—	21	Go to page 3-67
“Insert Tray 3\ Press ?”	Tray 3 Out	—	22	Go to page 3-68

Phaser 4510 Error Message Summary

Control Panel Message	Diagnostic Message	Engine Errors	Jam Errors	Procedure to Use
“Insert Tray 4\ Press ?”	Tray 4 Out	—	23	Go to page 3-68
“Tray 2 Paper Is Low\ Press ?”	N/A	—	—	Go to page 3-64
“Tray 3 Paper Is Low\ Press ?”	N/A	—	—	Go to page 3-66
“Tray 4 Paper Is Low\ Press ?”	N/A	—	—	Go to page 3-66
“No Paper in Tray 1\ Press ?”	Tray 1 empty	—	24	Go to page 3-63.
“No Paper in Tray 2\ Press ?”	Tray 2 empty	—	25	Go to page 3-63.
“No Paper in Tray 3\ Press ?”	Tray 3 empty	—	26	Go to page 3-65.
“No Paper in Tray 4\ Press ?”	Tray 4 empty	—	27	Go to page 3-65.
“Maintenance Kit is Near End of Life\ Press ?”	N/A	—	—	—
“Replace Maintenance Kit”	N/A	—	—	Go to page 3-71.
“Stacker Is Full, Unload Paper\ Press ?”	Stacker output tray full	—	—	Go to page 3-69
“Standard Output Tray Is Full, Unload Paper\ Press ?”	Output tray full	—	—	Go to page 3-70
“Tray 3 Failure\ Press ?”	E11 Tray 3 unit fail	—	53	Go to page 3-54
“Tray 3 or 4 Failure\ Press ?”	E11 Tray 3 or 4 unit fail	—	54	Go to page 3-54
“Duplex Unit Failure\ Press ?”	E9-1 Duplex unit fail	—	51	Go to page 3-52.
“Stacker Unit Failure\ Press ?”	E9-2 Stacker unit fail	—	52	Go to page 3-53.
“Close Duplex Unit Cover\ Press ?”	Duplex cover open	—	67	Go to page 3-59.
“Close Stacker cover\ Press ?”	Stacker cover open	—	68	Go to page 3-60.
“Invalid Configuration Card\ Press ?”	N/A	—	—	—
“Configuration Card Missing\ Press ?”	N/A	—	—	—

Main Motor Failure

Diagnostic Error Code

U1: Main Drive Motor Failure

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Main motor ■ Gear assembly housing ■ Plate gear assembly ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Laser Unit, 5 V Interlock, Interlock Switch Assembly” on page 10-29 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	1. Remove the left cover (page 8-8). 2. Enter Service Diagnostics and check main motor operation. Does the main motor rotate, and each gear rotate normally?	Replace the HVPS/engine logic board. (page 8-73)	Go to step 2.
2	Rotate and check each gear of the gear assembly housing and plate gear assembly. Does each gear rotate normally?	Go to “Main Motor” (page 4-11).	Replace the parts causing the obstruction.

Laser Unit Failure

Diagnostic Error Codes

Laser Fails at warm-up; U2-1 Laser Fail / Power Off
 Laser Fails Motor Speed; U2-2 Laser Fail/ Power Off
 LD Power is high; U2-3 Laser Fail/ Power Off
 LD Power is low; U2-4 Laser Fail/ Power Off

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Laser unit assembly ■ HVPS/engine logic board ■ Print cartridge ■ Laser unit assembly harness ■ LVPS 	<ul style="list-style-type: none"> ■ “Laser Unit, 5 V Interlock, Interlock Switch Assembly” on page 10-29 ■ “Print Cartridge, Transfer Roller Assembly” on page 10-26 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Enter Service Diagnostics and select Engine NVRAM Adjustments. Is the laser power setting at the factory default value of 4?	Go to “Laser Unit Assembly” on page 4-12.	Go to Step 2.
2	Set laser power to default value of 4, and then check again. Does the error still occur?	Go to “Laser Unit Assembly” on page 4-12.	Problem solved.

Fuser Failure

Diagnostic Error Codes

- U4-1: Fuser High Temp
- U4-2: Fuser Low Temp
- U4-3: Fuser overheat in stand-by
- U4-4: Fuser fails at warm-up
- U4-5: Fuser thermistor failure

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Fuser assembly ■ HVPS/engine logic board ■ LVPS ■ Fuser assembly harness ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Turn the printer ON and notice how much time elapses before the error occurs. Does the error occur soon after the power is turned ON?	Replace the fuser assembly. (page 8-44)	Go to “Fuser Assembly” on page 4-15.

Fan Failure

Diagnostic Error Code

U-5: Fan Fail

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Main fan ■ Sub Fan ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Turn the power ON. Does the main fan rotate?	Go to step 2.	Go to step 3.
2	Does the Sub Fan rotate when the power is turned ON?	Go to step 3.	Go to step 9.
3	Enter Service Diagnostics, and from the Motors/Fan Test menu select the Fan Motors High Speed test. Does the main fan rotate at high-speed?	Go to step 4.	Go to step 5.
4	Enter Service Diagnostics, and from the Motors/Fan Test menu select the Fan Motors High Speed test. Does the Sub Fan rotate at high-speed?	Replace the HVPS/engine logic board (page 8-73).	Go to step 9.
5	Measure the voltage across P/J24-18 <=> P/J24-17 on HVPS/Main Logic board. Does the voltage measure 24 VDC? (12 VDC at low-speed)	Go to step 6.	Replace the LVPS (page 8-62) then go to step 8.
6	Measure the voltage across P/J24-17 <=> P/J24-16. Does the voltage measure 0.82 VDC or higher?	Replace the main fan (page 8-68) then go to step 7.	Replace the HVPS/engine logic board (page 8-73).
7	Turn the power ON. Does the fan error occur when the power is turned ON?	Go to step 8.	Problem solved.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
8	Turn the power ON. Does fan error occur?	Replace the HVPS/engine logic board (page 8-73).	Problem solved.
9	Measure the voltage across P/J27-19 <=> P/J27-18. Does the voltage measure 24 VDC? (12 VDC when low-speed)	Go to step 10.	Replace the LVPS (page 8-62) then go to step 8.
10	Measure the voltage across P/J27-18 <=> P/J27-17. Does the voltage measure 0.82 VDC or higher?	Go to step 11.	Replace the HVPS/engine logic board (page 8-73).
11	Replace the Sub Fan (page 8-36) Does the fan error occur when the power is turned ON?	Go to step 12.	Problem solved.
12	Replace the LVPS. Does the fan error occur when the power is turned ON?	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

Engine Logic Board NVRAM Failure

Diagnostic Error Code

U6: NVM Fail

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Does the error occur when the power is turned ON?	Go to step 4.	Go to step 2.
2	Turn the power OFF and ON again. Does the error still occur?	Go to step 4.	Go to step 3.
3	Cycle the power OFF, then ON several times. Does the error still occur?	Go to step 4.	Problem solved.
4	Replace the HVPS/engine logic board. (page 8-73) Does the error occur?	Go to “Electrical Noise” on page 4-37.	Problem solved.

Jam At Tray N

Paper arrives early at the registration sensor

Diagnostic Error Codes

E2-01: Feed Jam 1 at Tray 1
 E2-02: Feed Jam 1 at Tray 2
 E2-03: Feed Jam 1 at Tray 3
 E2-04: Feed Jam 1 at Tray 4

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ 150-sheet feeder assembly ■ 150-sheet paper cassette ■ Registration sensor ■ Registration actuator (Actuator B) ■ LVPS ■ HVPS/engine logic board ■ Registration clutch ■ Feeder 1 chute assembly ■ Gear assembly housing ■ No paper sensor ■ Feeder 2 chute assembly ■ Bottom plate assembly ■ Retard roller ■ Feed clutch assembly ■ Turn roller ■ Turn roller clutch ■ 550-sheet feeder assembly ■ 550-sheet paper cassette 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Remove all jammed paper from the tray? Does the error still occur?	Go to step 2.	Go to “No Paper in Tray 1/No Paper in Tray 2” on page 3-63.
2	Check the condition of the paper in the tray. Is the paper crumpled, damaged, damp, or out of specification?	Replace the paper.	Go to step 3.
3	Compare the size of the paper in use with the tray’s End Guide settings and the paper size selected by the print driver. Does the paper size in use match the settings?	Go to step 4.	Replace the paper, or set up the paper size correctly.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
4	1. Remove the paper cassette. 2. Check if the bottom plate assembly lifts while installing paper cassette. 3. Push the bottom plate assembly down and release; check the movement. 4. Check visually if the bottom plate assembly is inclined to right or left. Does the bottom plate assembly lift and drop smoothly when installing the paper cassette?	Go to step 5.	Replace the paper cassette.
5	Is the Side Guide too tight against the paper?	Slightly widen the Side Guide, and run the paper again.	Go to step 6.
6	1. Remove the print cartridge. 2. Check the gear assembly housing for rotation Does each gear of the gear assembly housing rotate normally?	Go to step 7.	Check operation and mounting of gear assembly housing, and then go to "Print Engine Troubleshooting" on page 4-11.
7	Check the paper position: Remove the print cartridge. Does the leading edge of the paper touch the actuator of the registration sensor?	Go to step 8.	Go to "Registration Sensor" on page 4-17.
8	Inspect the retard roller in each installed paper cassette. Is the retard roller clean and installed correctly?	Go to step 9.	Replace the retard roller (page 8-13, page 8-93).
9	Check the paper feeding tray. Is the paper for test printing supplied from tray 1 or tray 2?	Go to step 10.	Go to step 12.
10	Enter Service Diagnostics, and from the Clutch Tests menu select the appropriate feed clutch test. Does the feed clutch assembly operate normally?	Go to step 15.	Go to "Feed Clutches" on page 4-30.
11	Manually rotate each gear and roller in the 150-sheet feeder. Does each gear and roller rotate smoothly?	Go to step 12.	Replace the 150-sheet feeder assembly (page 8-15).
12	Check the paper feeding tray. Is the paper for test printing supplied from tray 3 or tray 4?	Go to step 13.	Return to step 9.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
13	Enter Service Diagnostics, and from the Clutch Tests menu select the appropriate feed clutch test. Does the feed clutch assembly operate normally?	Go to step 14.	Go to “Optional 550-Sheet Feeder Feed Clutch Assembly” on page 4-46.
14	Manually rotate each gear and roller in the optional 550-sheet feeder. Does each gear and roller of the 550-Sheet Feeder Option rotate smoothly?	Go to step 15.	Replace the “550-Sheet Feeder” on page 8-86.
15	Enter Service Diagnostics, and from the Clutch Tests menu select the appropriate Turn Roll test. Does the turn roller clutch operate normally?	Go to step 16	Go to “Optional 550-Sheet Feeder Turn Roller Clutch” on page 4-48.
16	Manually rotate the turn roller. Does the turn roller rotate smoothly?	Replace the HVPS/engine logic board (page 8-73).	Replace the “550-Sheet Feeder” on page 8-86.

Jam at Tray *N*

Paper arrives late at the registration sensor.

Diagnostic Error Codes

- E2-11: Feed Jam 2 at Tray 1
- E2-12: Feed Jam 2 at Tray 2
- E2-13: Feed Jam 2 at Tray 3
- E2-14: Feed Jam 2 at Tray 4

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ 150-sheet feeder assembly ■ 150-sheet paper cassette ■ Registration sensor ■ Registration actuator ■ Feeder 1 chute assembly ■ HVPS/engine logic board ■ LVPS ■ Feeder 2 chute assembly ■ Feed clutch assembly ■ Retard roller ■ Turn roller clutch ■ Optional 550-sheet feeder ■ 550-sheet feeder assembly ■ 550-sheet paper cassette 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the paper size setup. Does the paper size in use match the size set up by the end guide assembly or by the driver on the PC?	Go to step 2.	Replace the paper, or change the paper size setup.
2	Does the error occur when the power is turned ON?	Go to step 3.	Go to step 6.
3	Check the condition of the paper in the tray. Is the paper crumpled, damaged, damp, or out of specification?	Replace the paper.	Go to step 4.
4	Check the paper at the registration sensor. Does the paper remain at the registration sensor?	Remove the paper, and go to step 5.	Go to “Registration Sensor” on page 4-17.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
5	Does the error occur when the power is turned ON?	Go to “Registration Sensor” on page 4-17.	Go to step 6.
6	Check the operation of the retard roller in each paper cassette. Is the retard roller undamaged, and installed correctly?	Go to step 7.	Replace the retard roller (page 8-13).
7	Enter Service Diagnostics, and select Test Print . Produce test prints from all trays. Does the fault occur?	Go to step 8.	Problem solved.
8	1. Remove the print cartridge. 2. Check the paper position. Does the leading edge of the paper touch the registration sensor?	Go to “Registration Sensor” on page 4-17.	Go to step 9.
9	When the test printing, is the paper supplied from tray 1 or tray 2?	Go to step 10.	Go to step 12.
10	Enter Service Diagnostics, and from the Clutch Tests menu select the appropriate feed clutch test. Does feed clutch assembly operate normally?	Go to step 11.	Go to “Feed Clutches” on page 4-30.
11	Manually rotate each gear and roller of the feeder chute assembly. Does each gear and roller of feeder chute assembly rotate smoothly?	Go to step 12.	Replace the appropriate feeder assembly “150-Sheet Feeder Assembly” on page 8-15 or “550-Sheet Feeder Assembly” on page 8-24.
12	When test printing, is the paper supplied from tray 3 or tray 4?	Go to step 13.	Check if the paper is set, and then go to step 8.
13	Enter Service Diagnostics, and from the Clutch Tests menu select the appropriate feed clutch test. Does the feed clutch assembly operate normally?	Go to step 14.	Go to “Optional 550-Sheet Feeder Feed Clutch Assembly” on page 4-46.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
14	Manually rotate each gear and roller of the Optional 550-sheet feeder. Does each gear and roller of the optional 550-sheet feeder rotate smoothly?	Go to step 15.	Replace the "550-Sheet Feeder" on page 8-86.
15	Enter Service Diagnostics, and from the Clutch Tests menu select the appropriate Turn Roll clutch test. Does the turn roller clutch operate normally?	Go to step 16.	Go to "Optional 550-Sheet Feeder Turn Roller Clutch" on page 4-48.
16	Manually rotate the turn roller. Does the turn roller rotate smoothly?	Replace the HVPS/engine logic board (page 8-73).	Replace the "550-Sheet Feeder" on page 8-86.

Jam At Top; Open Top Cover To Clear

Diagnostic Error Codes

E3-1 Registration Jam 1

E3-2 Registration Jam 2

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Fuser assembly ■ HVPS/engine logic board ■ Registration clutch ■ Transfer roller assembly ■ Print cartridge ■ Gear assembly housing ■ Fuser assembly harness ■ LVPS ■ 150-sheet feeder assembly ■ Print cartridge right guide assembly 	<ul style="list-style-type: none"> ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Cartridge, Transfer Roller Assembly” on page 10-26 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the condition of the paper in the tray. Is the paper crumpled, damaged, damp, or out of specification?	Replace the paper.	Go to step 2.
2	Check paper size setup. Does the paper size in use match the size setup by the end guide assembly or by the Driver on the PC?	Go to step 3.	Replace the paper, or change the paper size set.
3	Open the rear cover to check the paper position. Does the leading edge of the paper touch the exit actuator in the fuser assembly?	Go to step 7.	Go to step 4.
4	Does the leading edge of the paper go through the heat roller/ pressure roller in fuser assembly?	Replace the HVPS/engine logic board (page 8-73).	Go to step 5.
5	Does the leading edge of the paper go through transfer roller assembly?	Go to step 15.	Go to step 6.
6	Does the leading edge of the paper go between metal registration roller and rubber registration roller?	Go to step 14.	Go to step 19.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
7	At the exit of the fuser assembly, manually move the exit actuator up and down. Does the exit Actuator move smoothly?	Go to step 8.	Replace the fuser assembly (page 8-44).
8	Enter Service Diagnostics, and from the Sensor Tests menu select the Exit Sensor (Fuser) test. Does the sensor correctly report its state when the actuator is manually operated?	Replace the HVPS/engine logic board (page 8-73).	Go to step 9.
9	Measure the voltage across P/J46-5 <=> P/J46-4 while manually operating the exit Actuator. Does the voltage measure 0VDC when the exit Actuator is pushed, and 3.3 VDC when released?	Replace the LVPS (page 8-62).	Go to step 10.
10	1. Disconnect P/J46 from the LVPS. Warning: Allow the fuser assembly to cool before removing. 2. Remove the fuser assembly (page 8-44). 3. Check the fuser harness for continuity Is P/J46 <=> P/J4647 continuous?	Go to step 11.	Replace the fuser harness assembly (page 8-42).
11	Check the power to the exit Sensor: Measure the voltage across P/J46-3 <=> P/J46-4. Is the voltage 3.3 VDC?	Go to step 13.	Go to step 12.
12	Check the LVPS for continuity between P/J41-1 and P/J 46-3. Is it continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the LVPS (page 8-62)
13	Warning: Allow the fuser assembly to cool down before removing. 1. Remove the fuser assembly (page 8-44). 2. Manually turn the fuser assembly's heater roller gear. Do the gear and the roller of the fuser assembly rotate smoothly?	Replace the HVPS/engine logic board (page 8-73).	Replace the fuser assembly (page 8-44)
14	1. Remove the transfer roller assembly (page 8-45). 2. Inspect the transfer roller assembly for shape irregularities and shaft and bearing wear. Are there any abnormalities in transfer roller assembly?	Replace the transfer roller assembly (page 8-45).	Go to step 15.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
15	Check the print cartridge right guide assembly. Is the print cartridge right guide assembly damaged or stained?	Clean or replace the print cartridge right guide assembly (page 8-47).	Go to step 16.
16	Remove the print cartridge right guide assembly (page 8-47). Check the print cartridge right guide assembly for continuity Is each harness continuous?	Go to step 17.	Replace the print cartridge right guide assembly (page 8-47).
17	1. Replace the print cartridge. 2. Enter Service Diagnostics, and from the Engine Test Print menu select Print Test Pattern . Does the same problem occur?	Go to step 18.	Problem solved.
18	1. Replace the HVPS/engine logic board (page 8-73). 2. Enter Service Diagnostics, and from the Engine Test Print menu select Print Test Pattern . Does the same problem occur?	Go to step 19.	Problem solved.
19	Manually operate the metal registration roller and rubber registration roller. Do the rollers rotate smoothly?	Go to step 20.	Replace the 150-Sheet Feeder Assembly (page 8-15).
20	Enter Service Diagnostics, and from the Clutch Tests menu select the Registration Clutch test. Does the registration clutch function appropriately?	Go to step 21.	Go to "Registration Clutch" on page 4-29.
21	1. Remove the print cartridge. 2. Check the top cover interlocks (P4500 : two on the right and one on the left; P4510 : one on the left). 3. Enter Service Diagnostics, and from the Motors/Fan Tests menu select the main motor test. Does each gear rotate normally?	Replace the HVPS/engine logic board (page 8-73).	Go to step 22.
22	1. Remove the gear assembly housing (page 8-56) to check gear operation. 2. Manually rotate the gears. Does each gear rotate smoothly?	Contact Xerox for technical support. See "Technical Support Information" on page 1-2	Replace the gear assembly housing (page 8-56).

Jam At Exit; Open Rear/Top Cover To Clear

Diagnostic Error Codes

E4-0 Exit Jam 3
E4-2 Exit Jam 1
E4-3 Exit Jam 2

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Fuser assembly ■ HVPS/engine logic board ■ Fuser assembly harness ■ Exit motor assembly ■ LVPS ■ Exit pinch roller ■ Exit Assembly ■ 150-sheet paper cassette ■ 550-sheet paper cassette 	<ul style="list-style-type: none"> ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the condition of the paper in the tray. Is the paper crumpled, damaged, damp, or out of specification?	Replace the paper.	Go to step 2.
2	Check the paper size setup. Does the paper size in use match the size setup by the End Guide or by the driver on the PC?	Go to step 3.	Replace the paper, or set up the paper size correctly.
3	Does the error occur when the power is turned ON?	Go to step 4.	Go to step 6.
4	Check for paper in the Fuser at the exit Sensor Actuator. Is there any remaining paper in the Fuser?	Remove the paper, and go to step 5.	Go to step 8.
5	Does the error occur when the power is turned ON?	Go to step 8.	Go to step 6.
6	Enter Service Diagnostics, and from the Engine Test Print menu select Print Test Pattern . Does the error occur?	Go to step 7.	Problem solved.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
7	1. Remove the paper exit cover (page 8-4) 2. Check the exit pinch roller by manually turning the exit roller. Is the exit pinch roller undamaged, and does it rotate smoothly? Are the exit pinch springs attached?	Go to step 8.	Replace the exit pinch roller.
8	1. Turn the power ON. 2. Check the exit roller for rotation. Does the exit roller rotate smoothly during warm up?	Go to step 9.	Replace the lower exit chute assembly (page 8-50).
9	Hold the fuser assembly open and operate the Exit Actuator by hand. Does Exit Actuator move smoothly?	Go to step 10.	Replace the fuser assembly (page 8-44).
10	Enter Service Diagnostics, and from the Sensor Tests menu select the Exit Sensor (Fuser) test. Does the sensor correctly report its state when the actuator is manually operated?	Replace the HVPS/engine logic board (page 8-73).	Go to step 11.
11	Measure the voltage across P/J46-5 <=> P/J46-4 while manually operating the Exit Actuator. Does the voltage measure 0VDC when the Exit Actuator is pushed, and 3.3 VDC when released?	Go to step 14.	Go to step 12.
12	Check the power to Exit Sensor Does the voltage across P/J46-3 <=> P/J46-4 measure 3.3 VDC?	Replace the HVPS/engine logic board (page 8-73).	Go to step 13.
13	Check the LVPS for continuity between P/J41-1 and P/J 46-3. Is it continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the LVPS (page 8-62).
14	1. Disconnect P/J11 on the HVPS/engine logic board. 2. Disconnect P/J41 on the LVPS. 3. Check the LVPS harness assembly for continuity between J11-10 and J41-7. Is it continuous?	Replace the LVPS (page 8-62).	Replace the LVPS harness assembly (page 8-36).

Jam At Rear; Open Rear Cover To Clear

Diagnostic Error Code

E6-1: Stacker Jam

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Stacker sensor ■ Stacker actuator ■ Lower stacker roller ■ Upper stacker roller ■ Pinch roller ■ Stacker motor assembly 	<ul style="list-style-type: none"> ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Does the error occur when the power is turned ON?	Go to step 2.	Go to step 4.
2	1. Open the stacker rear cover. 2. Check for paper at the stacker actuator. Is there paper at the stacker actuator?	Remove the paper, and then go to step 3.	Go to “Stacker Sensor” on page 4-59.
3	Does the error occur when the power is turned ON?	Go to “Stacker Sensor” on page 4-59.	Go to step 4.
4	1. Remove the stacker, then re-install it. 2. Enter Service Diagnostics, and from the Engine Test Print menu select Output Tray , then select Stacker . 3. From the Engine Test Print menu select Print Test Pattern . Does the error still occur when the stacker is selected as the output tray?	Go to step 5.	Problem solved.
5	Is the test print being directed to the Standard Output tray instead of the stacker.	Go to “Gate Solenoid Assembly” on page 4-57.	Go to step 6.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
6	1. Remove the stacker cover (page 8-113). 2. Manually turn the lower stacker roller, upper stacker roller, and each gear. Do both rollers and all gears rotate smoothly?	Go to step 7.	Replace the parts preventing rotation.
7	Check the paper transfer at the lower stacker roller and pinch roller: 1. Insert paper between lower stacker roller and pinch roller from below the stacker. 2. Manually rotate gear 19/37 in the CCW direction. Is the paper transferred smoothly?	Go to step 8.	Replace the defective parts.
8	1. Enter Service Diagnostics, and from the Motors/Fan Tests menu select the Stacker Motor test. 2. Check the stacker motor assembly Does stacker motor assembly rotate normally?	Replace the HVPS/engine logic board (page 8-73).	Go to “Stacker Motor Assembly” on page 4-55.

Jam At Stacker; Open Rear Stacker Cover To Clear

Diagnostic Error Code

E6-2: Stacker Jam

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Stacker sensor ■ Stacker actuator ■ Lower stacker roller ■ Upper stacker roller ■ Pinch roller ■ Stacker motor assembly 	<ul style="list-style-type: none"> ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Does the error occur when the power is turned ON?	Go to step 2.	Go to step 5.
2	1. Open the stacker rear cover. 2. Check for paper at the stacker actuator. Does the paper remain at stacker actuator?	Remove the paper, and then go to step 3.	Go to “Stacker Sensor” on page 4-59.
3	Manually operate the stacker actuator. Does the stacker actuator move smoothly when you move it?	Go to step 4.	Replace the stacker actuator (“Stacker Sensor and Actuator” on page 8-122).
4	Does the error occur when the power is turned ON?	Go to “Stacker Sensor” on page 4-59.	Go to step 5.
5	1. Remove the stacker, then re-install it. 2. Enter Service Diagnostics, and from the Engine Test Print menu select Output Tray , then select Stacker . 3. From the Engine Test Print menu select Print Test Pattern . Does the error still occur when the stacker is selected as the output tray?	Go to step 6.	Problem solved.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
6	Remove the stacker cover (page 8-113), and manually turn the lower stacker roller, upper stacker roller, and each gear. Does the lower stacker roller, upper stacker roller, and all gears rotate smoothly?	Go to step 7.	Replace the parts preventing rotation.
7	Check the paper transfer at lower stacker roller and pinch roller: 1. Insert paper between the lower stacker roller and pinch roller from below the stacker. 2. Manually rotate gear 19/37 in the CCW direction. Is the paper transferred smoothly?	Go to step 8.	Replace the defective parts.
8	Check the stacker motor assembly: Enter Service Diagnostics, and from the Motors/Fan Tests menu select the Stacker Motor test. Does the stacker motor assembly rotate normally?	Replace the HVPS/engine logic board (page 8-73).	Go to “Stacker Motor Assembly” on page 4-55.

Jam At Rear; Open Duplex And Rear Cover To Clear

Diagnostic Error Codes

E7-1: Jam at Rear
 E7-2: Jam at Duplex
 E7-3: Jam at Duplex

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Duplex unit sensor ■ Duplex unit actuator ■ Duplex unit roller ■ Pinch Roller ■ Duplex unit motor 	<ul style="list-style-type: none"> ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Does the error occur when the power is turned ON?	Go to step 2.	Go to step 4.
2	1. Open the duplex unit housing cover. 2. Check for paper at the duplex unit actuator Is there paper at the duplex unit actuator?	Remove the paper, and go to step 3.	Go to “Duplex Unit Sensor” on page 4-51.
3	Does the error occur when the power is turned ON?	Go to “Duplex Unit Sensor” on page 4-51.	Go to step 4.
4	1. Remove and re-install the duplex unit. 2. Enter Service Diagnostics, and from the Engine Test Print menu select Duplex and set to ON. 3. From the Engine Test Print menu select Print Test Pattern . Does the error occur when making two-sided test prints?	Go to step 5.	Problem solved.
5	Check the paper position: Open the duplex unit housing cover. Does the leading edge of the paper reach the top roller of the duplex unit?	Go to step 6.	Go to “Exit Motor Assembly” on page 4-28.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
6	1. Remove the duplex unit left cover (page 8-96). 2. Manually rotate the gears. Do the duplex unit roller and all gears rotate smoothly?	Go to step 7.	Replace parts as necessary.
7	1. Open the duplex unit housing cover and insert paper, then close it. 2. Manually rotate the upper roller gear clockwise and check paper transfer. Is the paper transferred smoothly?	Go to step 8.	Replace drive parts as necessary.
8	Enter Service Diagnostics, and from the Motors/Fan Tests menu select the Duplex Motor High test. Does the duplex unit motor rotate normally?	Go to step 9.	Go to “Duplex Unit Motor” on page 4-50.
9	Enter Service Diagnostics, and from the Motors/Fan Tests menu select the Duplex Motor Low test. Does the duplex unit motor rotate normally?	Replace the HVPS/engine logic board (page 8-73).	

Jam At Duplex; Open Duplex To Clear

Diagnostic Error Code

E7-0: Duplex jam

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ FDR1 AS SUB 150 A4 ■ Duplex unit sensor ■ Duplex unit actuator ■ Duplex unit roller ■ Pinch Roller ■ Duplex unit motor 	<ul style="list-style-type: none"> ■ “Duplex Unit Plug/Jack Locator” on page 10-14 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “Duplex Unit Signal Diagram” on page 10-35

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	1. Remove and re-install the duplex unit. 2. Enter Service Diagnostics, and from the Engine Test Print menu select Duplex and set to ON. 3. From the Engine Test Print menu select Print Test Pattern . Does the error occur when Test Printing Duplex?	Go to step 2.	Problem solved.
2	Check the 150-sheet feeder for proper installation. Is the feeder installed correctly?	Go to step 3.	Re-install the 150-Sheet Feeder correctly.
3	1. Remove the duplex unit left cover (page 8-96). 2. Manually rotate the gears. Do the duplex unit roller and all gears rotate smoothly?	Go to step 4.	Replace parts as necessary.
4	1. Open the duplex unit housing cover and insert paper, and then close it. 2. Manually rotate the upper roller gear clockwise and check paper transfer. Is the paper transferred smoothly?	Go to step 5.	Replace drive parts as necessary.
5	Enter Service Diagnostics, and from the Motors/Fan Tests menu select the Duplex Motor High test. Does duplex unit motor rotate normally?	Go to step 6.	Go to “Duplex Unit Motor” on page 4-50.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
6	Enter Service Diagnostics, and from the Motors/Fan Tests menu select the Duplex Motor Low test. Does duplex unit motor rotate normally?	Replace the HVPS/engine logic board (page 8-73).	Go to “Duplex Unit Motor” on page 4-50.

Duplex Unit Error

Diagnostic Error Code

E9-1: Duplex Unit failure

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Duplex unit PWBA ■ Duplex unit assembly harness 	<ul style="list-style-type: none"> ■ “Duplex Unit Plug/Jack Locator” on page 10-14 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “Duplex Unit Signal Diagram” on page 10-35

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Remove the duplex unit, re-install it, and turn the power ON. Does the error still occur?	Go to “Duplex Unit PWBA” on page 4-49.	Problem solved.

Stacker Error

Diagnostic Error Code

E9-2: Stacker Unit failure

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Stacker assembly harness 1 ■ HVPS/engine logic board ■ Stacker PWBA ■ Stacker assembly harness 2 	<ul style="list-style-type: none"> ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Remove the stacker, re-install it, and turn the power ON. Does the error still occur?	Go to “Stacker PWBA” on page 4-54.	Problem solved.

Tray 3 Failure/Tray 3 or 4 Failure

No recognition of the optional 550-sheet feeder.

Diagnostic Error Codes

E11-1: Tray 3 failure
E11-2: Tray 3 or 4 failure

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ LVPS ■ HVPS/engine logic board ■ 550-sheet feeder PWBA ■ Feeder harness 2 ■ Feeder harness 5 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Note

This procedure assumes that optional 550-sheet paper feeders are installed as tray 3 and tray 4.

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check feeder harness 2 of the tray 3 feeder: 1. Remove the optional 150-sheet paper feeder. 2. Disconnect P/J2083. 3. Check the following for continuity: <ul style="list-style-type: none"> ■ J2083-1 <=> J83-10 ■ J2083-2 <=> J83-9 ■ J2083-3 <=> J83-8 ■ J2083-4 <=> J83-7 ■ J2083-5 <=> J83-6 Is each continuous?	Go to “Optional 550-Sheet Feeder PWBA (Tray 3)” on page 4-39, or go to step 2 if Tray 4 is not recognized.	Replace feeder harness 2.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
2	Check feeder harness 5 of the tray 3 feeder: 1. Remove Optional 550-Sheet Paper Feeder. 2. Disconnect P/J84 from the 550-sheet feeder PWBA. 3. Check the following for continuity: <ul style="list-style-type: none"> ■ J84-1 <=> J8483-10 ■ J84-2 <=> J8483-9 ■ J84-3 <=> J8483-8 ■ J84-4 <=> J8483-7 ■ J84-5 <=> J8483-6 Is each continuous?	Go to step 3.	Replace feeder harness 5.
3	Check feeder harness 2 of the tray 4 feeder: 1. Remove the Optional 550-Sheet Paper Feeder. 2. Disconnect P/J8483. 3. Check the following for continuity: <ul style="list-style-type: none"> ■ J8483-1 <=> J83-10 ■ J8483-2 <=> J83-9 ■ J8483-3 <=> J83-8 ■ J8483-4 <=> J83-7 ■ J8483-5 <=> J83-6 Is each continuous?	Go to “Optional 550-Sheet Feeder PWBA (Tray 4)” on page 4-40.	Replace feeder harness 2.

Paper Size Jam

Diagnostic Error Code

PSE-1: Paper size mismatch

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ 150-sheet feeder assembly ■ 150-sheet paper cassette ■ Registration sensor ■ Registration actuator (Actuator B) ■ HVPS/engine logic board ■ Left tray guide ■ 550-sheet feeder assembly ■ 550-sheet paper cassette 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Note

This procedure assumes that optional 550-sheet paper feeders are installed as tray 3 and tray 4.

P4500: If tray 3 or tray 4 is reporting “Executive” when the tray is set to “Legal,” refer to SB702 Rev A for additional troubleshooting information.

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the paper size setup. Does the size displayed match the size of the paper in use in the tray?	Go to step 2.	Go to step 3.
2	Check the registration sensor: 1. Enter Service Diagnostics, and from the Sensor Tests menu select the Registration Sensor test. 2. Manually actuate the registration sensor actuator. Does the sensor operate correctly?	Go to step 3.	Go to “Registration Sensor” on page 4-17.
3	Check the paper feeding tray. Is the paper supplied from either tray 1 or tray 2 when the error occurs?	Go to step 4.	Go to step 5.
4	Check the paper cassette (1). Are the end guide assembly, sector gear, size rack, size switch links 1/2/3 of the paper cassette in tray 1 or tray 2 installed correctly?	Go to “Left Tray Guide” on page 4-31.	Replace the paper cassette.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
5	Check the paper tray. Is the paper supplied from either tray 3 or tray 4 when the error occurs?	Go to step 6.	Replace the HVPS/engine logic board. (page 8-73)
6	Check paper cassette (2). Are the end guide assembly, sector gear, size rack, size switch link 1/2/3 of the paper cassette in tray 3 or tray 4 installed correctly?	Go to "Optional Feeder Paper Size Switch Assembly" on page 4-45.	Replace the paper cassette.

Close Top Cover/Close Rear Cover

Error Indication

Close Top Cover
Close Rear Cover

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Top cover switch ■ 5 V Interlock ■ Rear cover switch ■ Interlock switch assembly ■ top cover ■ Rear cover ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Laser Unit, 5 V Interlock, Interlock Switch Assembly” on page 10-29 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Note

P4500: Refer to Service Bulletin 632 for more troubleshooting information.

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	<p>Check the top and rear covers:</p> <ol style="list-style-type: none"> 1. Open both the Top and rear covers. 2. Inspect the tabs that actuate the interlock switches on both sides of the top cover (P4500) or the left side of the top cover (P4510), and the left side of the rear cover. <p>Are the tabs damaged?</p>	Replace top cover or rear cover.	Close both covers and go to step 2.
2	<p>Check top cover switch: Enter Service Diagnostics, and from the Sensor Tests menu select the Top Cover Switch test. Is the position of the top cover accurately reported when the top cover is opened and closed?</p>	Go to step 3.	<p>Go to and complete the following:</p> <ul style="list-style-type: none"> ■ “24 V Interlock” on page 4-24 ■ “5 V Interlock, Interlock Switch Assembly” on page 4-25 ■ “Interlock Switch Assembly (P4500 only)” on page 4-26

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	Check the rear cover switch Enter Service Diagnostics, and from the Sensor Tests menu select the Rear Cover Switch test. Is the position of the rear cover accurately reported when the rear cover is opened and closed?	Replace the HVPS/engine logic board. (page 8-73)	Go to and complete the following: <ul style="list-style-type: none"> ■ “24 V Interlock” on page 4-24. ■ “Rear Cover Switch” on page 4-26.

Close Duplex Unit Cover

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ LVPS ■ Duplex unit lower housing ■ Duplex unit housing cover ■ Duplex unit switch ■ Duplex unit PWBA 	<ul style="list-style-type: none"> ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Open the duplex unit housing cover. Is the tab on the duplex unit lower housing that actuates the cover interlock switch damaged?	Replace the duplex unit lower housing (page 8-100).	Go to step 2.
2	Enter Service Diagnostics, and from the Sensor Tests menu select the Duplex Cover Switch test. Is the position correctly reported when the duplex unit Cover is opened and closed?	Replace the HVPS/engine logic board (page 8-73).	Go to “Duplex Unit Switch” on page 4-53.

Close Stacker Cover

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ LVPS ■ Stacker PWBA ■ Rear cover ■ Stacker cover ■ Rear cover switch ■ Rear cover assembly harness 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the stacker rear cover. Is the tab on stacker rear cover that actuates the cover switch damaged?	Replace the stacker rear cover (page 8-112)	Go to step 2.
2	Check the stacker rear cover switch: Enter Service Diagnostics, and from the Sensor Tests menu select the Stacker Cover Switch test. Is the position correctly reported when the stacker cover is opened and closed?	Replace the HVPS/engine logic board (page 8-73).	Go to “Stacker Rear Cover Switch” on page 4-58.

Install or Reseat Print Cartridge

Error Indication

Install or Reseat Print Cartridge

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Print cartridge ■ Print cartridge right guide assembly 	<ul style="list-style-type: none"> ■ “Print Cartridge, Transfer Roller Assembly” on page 10-26 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Remove the print cartridge to check the model. Is the print cartridge the correct model?	Go to step 2.	Replace the print cartridge.
2	Re-install the print cartridge. Does the error reoccur when the power is turned ON?	Go to step 3.	Problem solved.
3	1. Remove the print cartridge right guide assembly (page 8-47). 2. Test the wiring harnesses for continuity. Is each harness continuous?	Go to step 4.	Replace the print cartridge right guide assembly (page 8-47).
4	Replace the print cartridge. Does the error occur again when the power is turned ON?	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

Replace Print Cartridge

Error Indication

Replace Print Cartridge

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Print cartridge ■ Print cartridge right guide assembly ■ Toner sensor ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “Print Cartridge, Transfer Roller Assembly” on page 10-26 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Note

P4500: Refer to SB 651 Rev. 1. Before replacing the print cartridge, be sure that PS Firmware version v.1.26 or later is installed in the printer. If it is not, download the latest firmware from http://www.support.xerox.com/go/results.asp?Xtype=download&prodID=4500&Xlang=en_US&Xcntry=USA&source=XOG&prodName=Phaser%204500#Firmware%20%20Machin%20Upgrades

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Does the error still occur after installing a new print cartridge?	Go to step 2.	Problem solved.
2	1. Test toner sensor (page 4-22) Does the sensor test good?	Go to step 3.	Reposition properly or replace toner sensor assembly (page 8-23)
3	1. Remove the print cartridge. 2. Remove the print cartridge right guide assembly (page 8-47). 3. Test each harness for continuity. Is each cable of each harness continuous?	Replace the HVPS/engine logic board (page 8-73).	Replace the print cartridge right guide assembly. (page 8-47).

No Paper in Tray 1/No Paper in Tray 2

Error Indications

No Paper in Tray 1

No Paper in Tray 2

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ No paper sensor ■ No paper actuator ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Does the error code indicate tray 3 or Tray 4?	Go to “No Paper in Tray 3/No Paper in Tray 4” on page 3-65.	Go to step 2.
2	Is there any paper in tray 1 or tray 2?	Go to step 3.	Add paper.
3	Is the bottom plate assembly lifted correctly?	Go to step 4.	Remove the paper cassette, then re-install it correctly.
4	1. Remove the paper cassette. 2. Manually operate the no paper actuator. Does the no paper actuator move smoothly?	Go to step 5.	Replace the no paper actuator.
5	Check the no paper sensor: 1. Remove the print cartridge. 2. Enter Service Diagnostics, and from the Sensor Tests menu select the appropriate No Paper test. 3. Manually operate the no paper actuator. Does the sensor correctly report the position of the sensor actuator?	Replace the HVPS/engine logic board (page 8-73).	Go to “No Paper Sensor” on page 4-19.

Tray 2 Paper Is Low

Error Indication

Tray 2 Paper is Low

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Low paper sensor ■ Low paper actuator ■ Bottom plate assembly ■ HVPS/engine logic board ■ 550-sheet paper cassette ■ 550-sheet feeder assembly 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Insert a paper cassette filled with paper into tray 2. Does the error still occur?	Go to step 2.	Problem solved.
2	1. Remove the paper cassette from tray 2. 2. Manually operate the low paper actuator. Does the low paper actuator move smoothly? Does the low paper actuator go into the sensor part of low paper sensor when the flag is pushed up? Does the low paper actuator go out of the sensor part of low paper sensor when the flag is released?	Go to step 3.	Replace the low paper actuator.
3	Manually push and release the bottom plate assembly. Does the bottom plate assembly move the low paper actuator normally?	Go to step 4.	Replace the paper cassette.
4	Enter Service Diagnostics, and from the Sensor Tests menu select the Tray 2 Low Paper test. Is the correct state reported when the low paper actuator is manually actuated?	Replace the HVPS/engine logic board (page 8-73).	Go to “Low Paper Sensor” on page 4-21.

No Paper in Tray 3/No Paper in Tray 4

Error Indications

No Paper in Tray 3
No Paper in Tray 4

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ LVPS ■ No paper sensor ■ No paper actuator ■ Optional 150-sheet paper feeder ■ 550-sheet paper cassette 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Is there any paper in tray 3 or tray 4?	Go to step 2.	Add paper.
2	Is the bottom plate assembly (PL20.3.10) lifted correctly?	Go to step 3.	Remove the 550-Sheet paper cassette, then re-install it correctly.
3	1. Remove the paper cassette. 2. Manually operate the no paper actuator. Does the no paper actuator move smoothly?	Go to step 4.	Replace the no paper actuator.
4	Check the no paper sensor: 1. Remove the print cartridge. 2. Enter Service Diagnostics, and from the Sensor Tests menu select the tray 3 or tray 4 No Paper test. 3. Manually operate the no paper actuator. Does the sensor correctly report the position of the sensor actuator?	Replace the HVPS/engine logic board (page 8-73).	Go to “Optional 550-Sheet Feeder No Paper Sensor” on page 4-41.

Tray 3 Paper Is Low/Tray 4 Paper Is Low

Error Indications

Tray 3 Paper is Low
Tray 4 Paper is Low

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
HVPS/engine logic board	■ “550-Sheet Feeder General Wiring Diagram” on page 10-32
LVPS	■ “550-Sheet Feeder Signal Diagram” on page 10-33
Low paper sensor	■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12
Low paper actuator	
Bottom plate assembly	
Optional 150-sheet paper feeder	

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the sensor for operation Does the error still occur after the 550-sheet paper cassette filled with a specified amount of paper is inserted into tray 3 or tray 4?	Go to step 2.	Problem solved.
2	1. Remove the 550-sheet paper cassette. 2. Manually operate the low paper actuator. Does the low paper actuator move smoothly? Does the low paper actuator go into the sensor part of low paper sensor when the flag is pushed up? Does the low paper actuator go out of the sensor part of low paper sensor when the flag is released?	Go to step 3.	Replace the low paper actuator.
3	Manually push and release the bottom plate assembly. Does the bottom plate assembly move the low paper actuator normally?	Go to step 4.	Replace the paper cassette.
4	Enter Service Diagnostics, and from the Sensor Tests menu select the Tray 3 or Tray 4 Low Paper test. Is the correct state reported when the low paper actuator is manually actuated?	Replace the HVPS/engine logic board (page 8-73).	Go to “Optional 550-Sheet Feeder Low Paper Sensor” on page 4-43.

Insert Tray 1/Insert Tray 2

Error Indications

Insert Tray 1
Insert Tray 2

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Left tray guide ■ 150-sheet paper cassette ■ HVPS/engine logic board ■ 550-sheet paper cassette 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Does the error occur with tray 3 or tray 4?	Go to “Insert Tray 3/Insert Tray 4” on page 3-68.	Go to step 2.
2	Remove and reinsert the tray 1 or tray 2 paper cassette. Does the error still occur?	Go to step 3.	Problem solved.
3	Check the following tray 1 or tray 2 Paper Casette parts: <ul style="list-style-type: none"> ■ End guide assembly ■ Sector gear ■ Size rack ■ Size switch link 1/2/3 Are the parts installed correctly?	Go to “Left Tray Guide” on page 4-31.	Replace the paper cassette.

Insert Tray 3/Insert Tray 4

Error Indications

Insert Tray 3

Insert Tray 4

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Option paper size switch assembly ■ Optional 150-sheet paper feeder ■ 550-sheet paper cassette 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Remove and re-install the 550-sheet paper cassette into tray 3 or tray 4. Does the error still occur?	Go to step 2.	Problem solved.
2	Check the following tray 3 or tray 4 paper cassette parts: <ul style="list-style-type: none"> ■ End guide assembly ■ Sector gear ■ Size rack ■ Size switch link 1/2/3 Are the parts installed correctly?	Go to “Optional Feeder Paper Size Switch Assembly” on page 4-45.	Re-install the paper cassette.

Stacker Is Full, Unload Paper

Error Indication

Stacker Is Full, Unload Paper

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Stacker full sensor (On stacker PWBA) ■ HVPS/engine logic board ■ Stacker PWBA ■ Stack full actuator 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Manually operate the stack full actuator at the paper outlet. Does the stack full actuator move smoothly?	Go to step 2.	Replace the stack full actuator (page 8-117).
2	Enter Service Diagnostics, and from the Sensor Tests menu select the Stacker Full Sensor test. Is the position of the sensor actuator correctly reported when it is manually actuated?	Replace the HVPS/engine logic board (page 8-73).	Go to “Stacker PWBA” on page 4-54.

Standard Output Tray Is Full, Unload Paper

Error Indication

Standard Output Tray Is Full, Unload Paper

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Output tray full sensor ■ Stack full actuator ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Manually operate the stack full actuator. Does the stack full actuator move smoothly?	Go to step 2.	Replace the stack full actuator.
2	Enter Service Diagnostics, and from the Sensor Tests menu select the Output Tray Full Sensor test. Is the position of the sensor actuator correctly reported when it is manually actuated?	Replace the HVPS/engine logic board (page 8-73).	Go to “Output Tray Full Sensor” on page 4-23.

Replace Maintenance Kit

Error Indication

Replace Maintenance Kit

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Fuser assembly ■ Fuser assembly harness ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	1. Install a new fuser assembly. 2. Reset the Fuser Life (“Resetting Fuser Life” on page 6-9). Does the error still occur?	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

Inoperable Printer

Error Indication

Will not print under the customer's normal operating conditions.

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ LVPS ■ Image processor board 	<ul style="list-style-type: none"> ■ "P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly" on page 10-21 ■ "Print Engine Wiring Diagrams" on page 10-19 ■ "Print Engine Plug/Jack Locator" on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	1. Enter Service Diagnostics, and from the Engine Test Print menu select Print Test Pattern . Generate test prints from all paper trays to all available output trays. Generate Duplex prints if the duplex unit is installed. Are test prints successfully produced?	Go to step 4.	Go to step 2.
2	1. Remove the LVPS Shield Plate (page 8-60). 2. Measure the voltage across P/J11-13 <=> P/J11-14 on the HVPS/engine logic board. Does the voltage measure +5 VDC?	Go to step 3.	Go to "LVPS (Low Voltage Power Supply)" on page 4-4.
3	Measure the voltage across P/J11-16 and P/J11-15 on the HVPS/engine logic board. Does the voltage measure 3.3 VDC?	Replace the HVPS/engine logic board (page 8-73).	Go to "LVPS (Low Voltage Power Supply)" on page 4-4.
4	Replace the cable connecting the printer to the network or to a computer. Does the problem still occur?	Go to step 5.	Problem solved.
5	Replace the image processor board (page 8-75). Does the problem still occur?	Let the customer know that the cause may be in the host computer.	Problem solved.

No Recognition of Duplex Unit

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ LVPS harness assembly ■ Duplex unit PWBA ■ Duplex unit assembly harness 	<ul style="list-style-type: none"> ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the duplex unit detection signal: <ol style="list-style-type: none"> 1. Remove the duplex unit PWBA (page 8-102). 2. Remove the duplex unit assembly harness (page 8-100). 3. Connect J2750 of the duplex unit assembly harness to P2750 of the LVPS harness assembly. 4. Measure the voltage across P2750-5 and J2750-6. Does the voltage measure +3.3 VDC?	Go to step 4.	Go to step 2.
2	Check the duplex unit detection signal (2): Measure the voltage across P/J27-4 and P/J27-3 on the HVPS/engine logic board. Does the voltage measure +3.3 VDC?	Go to step 3.	Replace the HVPS/engine logic board (page 8-73).
3	Check the LVPS harness assembly: <ol style="list-style-type: none"> 1. Remove the duplex unit assembly harness (page 8-100). 2. Check the following for continuity: <ul style="list-style-type: none"> ■ J27-4 <=> J2750-5 ■ J27-3 <=> J2750-6 ■ J27-2 <=> J2750-7 ■ J27-1 <=> J2750-8 Is each continuous?	Go to step 4.	Replace the LVPS harness assembly.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
4	Check the duplex unit assembly harness: 1. Disconnect connectors of duplex unit assembly harness. 2. Check the following for continuity: ■ J2750-3 <=> J50-8 ■ J2750-4 <=> J50-7 ■ J2750-5 <=> J50-6 ■ J2750-6 <=> J50-5 Is each continuous?	Replace the duplex unit PWBA (page 8-102).	Replace the duplex unit assembly harness.

No Recognition of Stacker

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Stacker assembly harness 1 ■ Stacker PWBA ■ Stacker assembly harness 2 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the stacker detection signal (1): 1. Disconnect P/J70 on the stacker PWBA. 2. Measure the voltage across J70-5 <=> J70-6 of stacker assembly harness 2. Does the voltage measure 3.3 VDC?	Go to step 5.	Go to step 2.
2	Check the stacker detection signal (2): Measure the voltage across P/J30-4 <=> P/J30-3 on the HVPS/engine logic board. Does the voltage measure 3.3 VDC?	Go to step 3.	Replace the HVPS/engine logic board (page 8-73).
3	Check stacker assembly harness 2: Remove stacker assembly harness 2. Check for continuity between J70 <=> J3070. Is the harness continuous?	Go to step 4.	Replace stacker assembly harness 2.
4	Check stacker assembly harness 1: 1. Remove stacker assembly harness 1. 2. Check for continuity between J30 <=> J3070. Is the harness continuous?	Go to step 5.	Replace stacker assembly harness 1.
5	Replace the stacker PWBA. Does the problem still occur?	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

General Troubleshooting

In this chapter...

- Introduction
- Control Panel Troubleshooting
- DC Power Supply Troubleshooting
- AC Power Supply Troubleshooting
- Print Engine Troubleshooting

Chapter 4

Introduction

The procedures in this chapter troubleshoot problems that are not associated with an error code or control panel error message. For troubleshooting problems associated with an error code or control panel error message, notes on how to use the troubleshooting procedure tables, and how to use service diagnostics, see Error Messages and Codes. Print quality problems are covered in Print-Quality Troubleshooting.

Control Panel Troubleshooting

LCD/LED Display Error/Inoperable Buttons

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Control panel ■ Control panel harness ■ Image processor board ■ LVPS 	<ul style="list-style-type: none"> ■ “Image Processor Board, DC-DC Converter (P4500), Control Panel” on page 10-31 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the 3.3 V power (P4510) or 5 V power (P4500): 1. Disconnect P110 from the image processor board. 2. Measure the voltage across P110-10 <=> P110-3, and P110-9 <=> P110-3. Is the voltage measurement correct?	Go to step 2.	Go to “Image Processor Board” on page 4-34.
2	1. Disconnect the control panel harness from J810 on the control panel PWBA. 2. Test each conductor in the harness for continuity. Does each conductor exhibit continuity?	Go to step 3.	Replace the control panel harness.
3	Replace the control panel. Is the problem resolved?	Problem solved.	Replace the I/P Board. (page 8-75)

DC Power Supply Troubleshooting

LVPS (Low Voltage Power Supply)

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ LVPS ■ HVPS/engine logic board ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21. ■ “P4510: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-23 ■ “Printer Rear” on page 10-9

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the LVPS control power: <ol style="list-style-type: none"> 1. Remove the LVPS Shield Plate (page 8-60). 2. Disconnect P/J41 from the LVPS. 3. Turn the power ON. 4. Measure the voltages at the following test points: <ul style="list-style-type: none"> ■ P/J41-1 <=> P/J41-2: 3.3 V ■ P/J41-4 <=> P/J41-3: 5 V Are the voltages measured within the specified range?	Go to step 2.	Replace the LVPS. (page 8-62)
2	Check the LVPS motor power: <ol style="list-style-type: none"> 1. Disconnect P/J42 from the LVPS. 2. Turn the power ON. 3. Measure the voltage across P/J42-1 <=> P/J42-2. Does the voltage measure 24 VDC?	P4510: Go to step 3. P4500: Go to step 4.	Go to “24 V Interlock” on page 4-24, “Rear Cover Switch” on page 4-26, or “Interlock Switch Assembly (P4500 only)” on page 4-26.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	Check the output of the DC-DC converter (P4510 only): <ol style="list-style-type: none"> 1. Disconnect P/J40 from the LVPS. 2. Turn the power ON. 3. Measure the voltages at the following test points: <ul style="list-style-type: none"> ■ P/J40-1 <=> P/J40-2: 3.3 V ■ P/J40-3 <=> P/J40-4: 5 V Are the voltages measured within the specified range?	Go to step 4.	Replace the LVPS. (page 8-62)
4	Check the LVPS harness for continuity: <ol style="list-style-type: none"> 1. Turn the power OFF. 2. Disconnect P/J11 from the HVPS/engine logic board. 3. Disconnect P/J41 from the LVPS. 4. Check each conductor in the harness for continuity. Is each conductor of J11 <=> J41 continuous?	Go to step 4.	Replace the LVPS harness assembly (page 8-62).
5	Is the AC power supply outlet correctly wired and grounded?	Replace the HVPS/engine logic board. (page 8-73)	Inform the customer or the electrician.

DC-DC Converter (P4500 only)

Note

The DC-DC converter is an integral part of the LVPS in the P4510. This procedure applies only to the stand-alone board used in the P4500.

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ DC-DC converter PWBA ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “Image Processor Board, DC-DC Converter (P4500), Control Panel” on page 10-31 ■ “Phaser 4500 Left Side” on page 10-10

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	<p>Check the 24 V input:</p> <ol style="list-style-type: none"> 1. Remove the LVPS Shield Plate (page 8-60). 2. Disconnect J404A from P404 (in-line connector). 3. Turn the power ON. 4. Measure the voltage across J404A-3 <=>J404A-2 <p>Does the voltage measure 24 VDC?</p>	Go to step 2.	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.
2	<p>Check the 3.3 V input:</p> <ol style="list-style-type: none"> 1. Disconnect J40 from the LVPS. 2. Turn the power ON. 3. Measure the voltage across P/J40-3 <=> P/J40-4. <p>Does the voltage measure 3.3 VDC?</p>	Go to step 3.	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.
3	<p>Check harness A, 24 V Input:</p> <ol style="list-style-type: none"> 1. Turn the power OFF. 2. Disconnect J404B and J403. 3. Check each conductor in the harness for continuity. <p>Is each conductor continuous?</p>	Go to step 4.	Replace harness A from the LVPS (page 8-62).
4	<p>Check harness B, 3.3 V Input:</p> <ol style="list-style-type: none"> 1. Turn the power OFF. 2. Disconnect P/J40 on the LVPS and P/J401 on the DC-DC converter. 3. Check for continuity across the following: <ul style="list-style-type: none"> ■ P/J40-3 <=> P/J401-2 ■ P/J40-4 <=> P/J402-1 <p>Are both conductors continuous?</p>	Go to step 8	Replace harness B.
5	<p>Check harness C, output to image processor board:</p> <ol style="list-style-type: none"> 1. Turn the power OFF. 2. Disconnect P/J402 on the DC-DC converter and P/J130 on the I/P Board. 3. Check for continuity between P/J402 and P/J130 <p>Are all conductors continuous</p>	Replace the DC-DC converter (page 8-63).	Replace harness C.

AC Power Supply Troubleshooting

No AC Power

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Power cord ■ LVPS ■ HVPS/Engine logic board ■ Control panel ■ Control panel harness ■ 24 V interlock ■ 5 V interlock ■ Rear cover switch ■ Main fan ■ Sub fan ■ Laser unit assembly ■ Fuser assembly ■ Gear assembly housing ■ Main motor ■ Registration clutch ■ Image processor board ■ 550-sheet feeder PWBA ■ Duplex unit PWBA ■ Feed clutch assembly ■ Turn roller clutch 	<ul style="list-style-type: none"> ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Image Processor Board, DC-DC Converter (P4500), Control Panel” on page 10-31 ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Laser Unit, 5 V Interlock, Interlock Switch Assembly” on page 10-29 ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Print Engine Plug/Jack Locator” on page 10-3 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the power cord for continuity. Is each conductor of the power cord continuous?	Go to step 2.	Replace the power cord.
2	Check the AC power. Does the voltage of the AC power source meet requirements?	Go to step 3.	Ask the customer to repair the AC power source.
3	1. Remove the LVPS Shield Plate (page 8-60) 2. Check the fuse on the LVPS. Is the fuse blown?	Replace the LVPS (page 8-62).	Go to step 4.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
4	1. Remove the Optional 550-Sheet Paper Feeder. 2. Turn ON the printer power. Do both fans rotate when the power is turned ON?	Go to “Optional 550-Sheet Feeder PWBA (Tray 3)” on page 4-39, “Optional 550-Sheet Feeder PWBA (Tray 4)” on page 4-40 “Optional 550-Sheet Feeder Feed Clutch Assembly” on page 4-46, and “Optional 550-Sheet Feeder Turn Roller Clutch” on page 4-48.	Go to step 5.
5	1. Remove the duplex unit (page 8-95). 2. Turn ON the printer power. Do both fans rotate when the power is turned ON?	Go to “Duplex Unit PWBA” on page 4-49, and “Duplex Unit Motor” on page 4-50.	Go to step 6.
6	1. Remove the HVPS Shield Plate (page 8-72). 2. Verify that P/J10 is connected to the HVPS/engine logic board. 3. Remove the print cartridge. 4. Check for +24 VDC at the following points: <ul style="list-style-type: none"> ■ P/J10-1 <=> P/J10-4 ■ P/J10-2 <=> P/J10-5 ■ P/J10-3 <=> P/J10-6 ■ P/J10-8 <=> P/J10-7 Does the voltage at each point measure +24 VDC?	Go to step 7.	Go to “Print Engine Troubleshooting” on page 4-11.
7	1. Perform steps 1-3 of the 150-sheet feeder assembly removal (page 8-15). 2. Disconnect P/J243 (see the registration clutch removal on page 8-19). 3. Remove the print cartridge. Does the main fan rotate when the power is turned ON?	Go to “Registration Clutch” on page 4-29.	Go to step 8.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
8	<ol style="list-style-type: none"> 1. Disconnect the control panel harness from the image processor board (J110). 2. Remove the print cartridge. 3. Turn the power ON and check for air blowing from the exhaust on back of the printer. <p>Does the main fan rotate when the power is turned ON?</p>	Go to step 9.	Go to step 10.
9	<ol style="list-style-type: none"> 1. Disconnect the control panel harness from the image processor board (J110). 2. Test each wire in the control panel harness for continuity. <p>Are there any open or shorted wires in the harness?</p>	Replace the control panel harness (page 8-75).	Replace the control panel (page 8-9).
10	<ol style="list-style-type: none"> 1. Disconnect P/J13, P/J16 and P/J17 from the HVPS/engine logic board. 2. Remove the print cartridge. 3. Turn the power ON and check for main fan rotation. <p>Does the main fan rotate when the power is turned ON?</p>	Replace the laser unit assembly. (page 8-38)	Go to step 11.
11	<ol style="list-style-type: none"> 1. Disconnect P/J20 from the HVPS/engine logic board. 2. Remove the print cartridge. 3. Turn the power ON and check for main fan rotation. <p>Does the main fan rotate when the power is turned ON?</p>	Replace the 550-sheet feeder PWBA (page 8-85).	Go to step 12.
12	<ol style="list-style-type: none"> 1. Open the Top and rear covers. 2. Disconnect P/J44 and P/J45 from the LVPS. 3. While testing for continuity across P/J44-1 <=> P/J44-3 (rear cover switch), close the rear cover. 4. While testing for continuity across P/J45-1 <=> P/J45-3 (24 V Interlock), close the top cover. <p>Does each switch indicate continuity when its cover is closed?</p>	Go to step 13.	Replace the faulty interlock switch (page 8-12, page 8-67).
13	<p>Check the top cover interlock:</p> <ol style="list-style-type: none"> 1. Disconnect P/J411. 2. Test for continuity between P/J411-3 <=> P/J411-1 while opening and closing the top cover. <p>Is there continuity when the top cover is closed, and no continuity when the top cover is open?</p>	Go to step 14.	Replace the interlock switch assembly (page 8-12).

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
14	1. Disconnect P/J242 and P/J247 from the tray 1/2 harness assembly. 2. Remove the print cartridge. Does the main fan rotate when the power is turned ON?	Go to “Feed Clutches” on page 4-30.	Go to step 15.
15	1. Disconnect P/J43 from the LVPS. 2. Remove the print cartridge. Does the main fan rotate when the power is turned ON?	Go to “Print Engine Trouble-shooting” on page 4-11.	Go to step 16.
16	1. Replace the main fan (page 8-68). 2. Remove the print cartridge. 3. Turn ON the power. Does the main fan rotate when the power is turned ON?	Problem solved.	Go to step 17.
17	1. Replace the Sub Fan. (page 8-36) 2. Remove the print cartridge. Does the Sub Fan rotate when the power is turned ON?	Problem solved.	Replace the HVPS/engine logic board. (page 8-73)

Print Engine Troubleshooting

Main Motor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Main motor ■ LVPS harness assembly ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	1. Remove the print cartridge. 2. Close the top cover. 3. Turn ON power and listen for the sound of the main motor. Does main motor rotate?	Go to step 2.	Go to step 3.
2	Is the trouble eliminated?	Problem solved.	Go to step 3.
3	Check the LVPS harness assembly for continuity: <ol style="list-style-type: none"> 1. Remove the LVPS Shield Plate (page 8-60). 2. Disconnect P/J41 from the LVPS. 3. Disconnect P/J11 from the HVPS/engine logic board. Is each cable of P/J41 <=> P/J11 continuous?	Go to step 4.	Replace the LVPS harness assembly.
4	<ol style="list-style-type: none"> 1. Remove the LVPS Shield Plate. (page 8-60) 2. Disconnect P/J42 from the LVPS. 3. Disconnect P/J10 from the HVPS/engine logic board. 4. Check each wire in the LVPS harness (2) between P/J42 and P/J10 for continuity. Does each wire in the harness exhibit continuity?	Replace the LVPS (page 8-62), then go to step 5.	Replace the LVPS harness assembly.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
5	Turn ON the printer. Does the main motor rotate?	Problem solved.	Replace the HVPS/engine logic board (page 8-73), then go to step 6.
6	Turn ON the printer. Does the main motor rotate?	Problem solved.	Replace the main motor (page 8-55).

Laser Unit Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Laser unit assembly ■ Laser unit harness assembly ■ 5 V Interlock ■ LVPS harness assembly ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “Laser Unit, 5 V Interlock, Interlock Switch Assembly” on page 10-29 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	1. Remove the top cover assembly (page 8-9). 2. Disconnect P/J140 from laser unit assembly. 3. Reinstall the top cover assembly. 4. Install the print cartridge and close the top cover. 5. Measure the voltage across J140-8 <=> J140-7. Does the voltage measure +5 VDC?	Go to step 8.	Go to step 2.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
2	<p>Check the 5 V Interlock.</p> <ol style="list-style-type: none"> 1. Disconnect the 5 V Interlock at P/J142 (clamped to the side of the gear housing near the Exit Motor PWBA). 2. Test for continuity between P/J142-1 <=> P/J142-3 while opening and closing the top cover. <p>Is there continuity when the top cover is closed, and no continuity when the top cover is open?</p>	Go to step 3.	Replace the 5 V Interlock. (page 8-40)
3	<p>Check the Laser Interlock:</p> <ol style="list-style-type: none"> 1. Unplug P/J144. 2. Test for continuity between P/J144-1 <=> P/J144-3 while opening and closing the top cover. <p>Is there continuity when the top cover is closed, and no continuity when the top cover is open?</p>	Go to step 4.	Replace Interlock switch assembly (page 8-12).
4	<p>Check the LVPS harness:</p> <ol style="list-style-type: none"> 1. Disconnect P/J141 of the LVPS harness (near the Laser Unit PWBA). 2. Test for continuity between P/J141-1 <=> P/J141-3 while opening and closing the top cover. <p>Is there continuity when the top cover is closed, and no continuity when the top cover is open?</p>	Go to step 5.	Replace the LVPS harness assembly.
5	<p>Check the laser unit harness:</p> <ol style="list-style-type: none"> 1. Disconnect P/J14 from the HVPS/engine logic board. 2. Disconnect P/J140 from laser unit assembly. 3. Test for continuity between P/J14-1 <=> P/J140-8 while opening and closing the top cover. <p>Is there continuity when the top cover is closed, and no continuity when the top cover is open?</p>	Go to step 6.	Replace the laser unit harness assembly.
6	<p>Check power to the HVPS/engine logic board:</p> <ol style="list-style-type: none"> 1. Remove the LVPS Shield Plate (page 8-60). 2. Install the print cartridge. 3. Disconnect P/J41 from the LVPS. 4. Measure the voltage across P/J41-4 <=> P/J41-3 on the board. <p>Does the voltage measure +5 VDC?</p>	Go to step 7.	Replace the LVPS (page 8-62).

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
7	<p>Check the HVPS/engine logic board for continuity: Disconnect P/J14 and P/J11 from the HVPS/engine logic board. Test for continuity between P/J14-1 <=> P/J11-13. Is there continuity?</p>	Go to step 8.	Go to step 13.
8	<p>1. Disconnect P/J11 from the HVPS/engine logic board. 2. Test for continuity between P/J11-13 <=> P/J41-4. Is there continuity?</p>	Go to step 9.	Replace the LVPS harness assembly (1).
9	<p>Check the /ROSMOT ON signal of the Scanner Motor: 1. Install the print cartridge. 2. Close the top cover. 3. Measure the voltage across P/J13-3 <=> P/J13-2 on the HVPS/engine logic board. Does the voltage measure 0 V just after the power is turned ON, and 5 VDC 10 seconds after stopping main motor?</p>	Go to step 11.	Go to step 10.
10	<p>Check the laser unit harness assembly: 1. Disconnect P/J13 from the HVPS/engine logic board. 2. Test each conductor in the harness P/J13 <=> P/J130 for continuity. Do all the conductors exhibit continuity?</p>	Replace the HVPS/engine logic board. (page 8-73)	Replace the laser unit harness assembly.
11	<p>Check the laser unit harness assembly: 1. Disconnect P/J17 and P/J16 from the HVPS/engine logic board. 2. Disconnect P/J170 and P/J160 from laser unit assembly. 3. Measure the following for continuity: ■ P/J17 <=> P/J170 ■ P/J16 <=> P/J160 Do the conductors exhibit continuity?</p>	Go to step 12.	Replace the laser unit harness assembly.
12	<p>Check the SOS power circuit of the laser unit assembly: 1. Disconnect P/J140 from laser unit assembly. 2. Measure the following for continuity: ■ P/J140-8 <=> P/J201-1 ■ P/J140-6 <=> P/J201-2 ■ P/J140-7 <=> P/J201-3 Do the conductors exhibit continuity?</p>	Go to step 13.	Replace the laser unit assembly (page 8-38).

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
13	Replace the HVPS/engine logic board (page 8-73). Does the problem still occur after replacement?	Go to step 14.	Problem solved.
14	Replace the laser unit assembly (page 8-38) Does the problem still occur after replacement?	Go to Electrical Noise.	Problem solved.

Fuser Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Fuser assembly ■ HVPS/engine logic board ■ 24 V Interlock ■ Fuser assembly harness 110V/220V ■ AC power harness assembly ■ LVPS ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the Heater circuit for continuity 1. Remove the LVPS Shield Plate (page 8-60). 2. Disconnect P/J47 from the LVPS. 3. Measure the following for continuity: <ul style="list-style-type: none"> ■ J47-1 <=> J47-5 ■ J47-1 <=> J47-3 Do the conductors exhibit continuity?	Go to step 3.	Go to step 2.
2	Check the fuser assembly harness for continuity: Warning: Allow the fuser assembly to cool before removing. 1. Remove the fuser assembly (page 4-15). 2. Measure the following for continuity: <ul style="list-style-type: none"> ■ J4647B-3 <=> J47-1 ■ J4647B-2 <=> J47-3 ■ J4647B-1 <=> J47-5 Do the conductors exhibit continuity?	Replace the fuser assembly (page 8-44).	Replace the fuser assembly harness (page 8-44).

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	<p>Check the Fuser power source voltage:</p> <ol style="list-style-type: none"> 1. Disconnect P/J48 from the LVPS. 2. Remove the print cartridge. 3. Turn the power ON. 4. Measure the voltage across P/J48-1 <=> P/J48-3 <p>Does it measure at line voltage?</p>	Go to step 5.	Go to step 4.
4	<p>Check the AC line voltage.</p> <p>Is the AC line voltage correct?</p>	Replace the AC power harness assembly (RRP12.4)	Inform the customer or the electrician.
5	<p>Check the Heater Rod ON signal voltages:</p> <p>Warning: Allow the fuser assembly to cool down before beginning.</p> <ol style="list-style-type: none"> 1. Make sure that the print cartridge is removed. 2. Measure the voltage across P/J41-13 <=> P/J41-3 (/HEAT ON (Short)), and P/J41-12 <=> P/J41-3 (/HEAT ON (Long)). <p>Does the voltage measure 0 VDC when the heater turns on, and 3.3 VDC when the heater turns off?</p>	Go to step 7.	Go to step 6.
6	<p>Check the LVPS harness assembly for continuity:</p> <ol style="list-style-type: none"> 1. Disconnect P/J11 from the HVPS/engine logic board. 2. Measure the following for continuity? <ul style="list-style-type: none"> ■ P/J41-1 <=> P/J11-16 ■ P/J41-9 <=> P/J11-8 ■ P/J41-10 <=> P/J11-7 ■ P/J41-12 <=> P/J11-5 ■ P/J41-13 <=> P/J11-4 <p>Do they all exhibit continuity?</p>	Replace the HVPS/engine logic board (page 8-73), then go to step 8.	Replace the LVPS harness assembly.
7	<p>Check the resistance of the Thermistor in the Temperature Sensor:</p> <ol style="list-style-type: none"> 1. Disconnect P/J46 from the LVPS. 2. Measure the resistance between P/J46-6 <=> P/J46-7 and P/J46-1 <=> P/J46-2. <p>Is the resistance about 480 k-ohm at normal temperature (about 20° C)?</p>	Replace the HVPS/engine logic board (page 8-73), then go to step 8.	Replace the fuser assembly (page 8-44).
8	<p>Does the problem still occur after replacement?</p>	Go to step 9.	Problem solved.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
9	Replace the LVPS (page 8-62). Does the problem still occur after replacement?	Replace the fuser assembly (page 8-44).	Problem solved.

Registration Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Registration sensor ■ Registration sensor actuator ■ 150-sheet feeder assembly ■ Tray 1 assembly harness ■ Chute assembly harness ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the registration sensor actuator for operation and shape: 1. Remove the 150-sheet feeder assembly (page 8-15). Does the registration sensor actuator operate smoothly? Is the flag of the registration sensor actuator formed normally to shield the sensor detecting point?	Go to step 2.	Replace the 150-sheet feeder (page 8-15).
2	Check the registration sensor: 1. Re-connect J241 of the tray 1 assembly harness to the registration sensor (with 150-sheet feeder removed). 2. Enter Service Diagnostics, and from the Sensor Tests menu select Registration Sensor . 3. Manually actuate the registration sensor. Does the sensor operate correctly?	Replace the HVPS/engine logic board (page 8-73).	Go to step 3.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	<p>Check the power to registration sensor:</p> <ol style="list-style-type: none"> 1. Remove the print cartridge. 2. Measure the voltage across P/J24-9 <=> P/J24-10 on the HVPS/engine logic board. <p>Is the voltage about 3.3 VDC?</p>	Go to step 4.	Go to step 6.
4	<p>Check the chute assembly harness:</p> <ol style="list-style-type: none"> 1. Disconnect P/J24 from the HVPS/engine logic board. 2. Disconnect P/J245. 3. Test the following for continuity: <ul style="list-style-type: none"> ■ J24-9 <=> J245-10 ■ J24-10 <=> J245-9 ■ J24-11 <=> J245-8 <p>Is each conductor continuous?</p>	Go to step 5.	Replace the chute assembly harness.
5	<p>Check the tray 1 assembly harness:</p> <ol style="list-style-type: none"> 1. Remove the registration sensor (page 8-20). 2. Disconnect P/J245. 3. Test the following for continuity: <ul style="list-style-type: none"> ■ P/J245-4 <=> P/J241-3 ■ P/J245-5 <=> P/J241-2 ■ P/J245-6 <=> P/J241-1 <p>Is each conductor continuous?</p>	Go to step 7.	Replace tray 1 assembly harness.
6	<p>Check the HVPS/engine logic board:</p> <ol style="list-style-type: none"> 1. Disconnect P/J11 from the HVPS/engine logic board. 2. Test P/J11-16 <=> P/J24-9 for continuity. <p>Is it continuous?</p>	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the HVPS/engine logic board (page 8-73).
7	<p>Check the registration sensor: Replace the registration sensor (page 8-20).</p> <p>Does the problem occur after replacement?</p>	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

No Paper Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ No paper sensor ■ No paper actuator ■ 150-sheet feeder assembly ■ Tray 1 assembly harness ■ Tray 2 assembly harness ■ Chute assembly harness ■ HVPS/engine logic board ■ Bottom plate assembly ■ LVPS ■ 550-sheet feeder assembly 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the no paper actuator for shape and operation: Does the no paper actuator operate smoothly? Is the flag between the sensor detecting point when the no paper actuator is low (there is no paper), and out of the detecting point when the no paper actuator is high (there is paper)?	Go to step 2.	Replace the no paper actuator (steps 1-3 beginning on page 8-18).
2	Check the bottom plate assembly: Insert the empty paper cassette. Is the flag of the no paper actuator between the sensor arms?	Go to step 3.	Replace the paper cassette.
3	Check the no paper sensor: 1. Remove the paper cassette. 2. Reach into the paper cassette cavity and manually actuate the no paper actuator. 3. Measure the voltages across P/J24-8 <=> P/J24-7 and P/J24-3 <=> P/J24-2 while moving the actuator. Do the voltages measure 0VDC when the no paper actuator is moved up, and 3.3 VDC when down?	Replace the HVPS/engine logic board (page 8-73).	Go to step 4.
4	Check the power to no paper sensor: 1. Remove the print cartridge. 2. Measure the voltages across P/J24-6 <=> P/J24-7 and P/J24-1 <=> P/J24-2 on the HVPS/engine logic board. Do the voltages measure 3.3 VDC?	Go to step 5.	Go to step 6.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
5	<p>Check the chute assembly harness:</p> <ol style="list-style-type: none"> 1. Disconnect P/J24 from the HVPS/engine logic board. 2. Disconnect P/J245 and P/J248. 3. Test the harness for continuity at these points: <ul style="list-style-type: none"> ■ J24-6 <=> J245-13 ■ J24-7 <=> J245-12 ■ J24-8 <=> J245-11 ■ J24-1 <=> J248-5 ■ J24-2 <=> J248-4 ■ J24-3 <=> J248-3 <p>Are all the conductors continuous?</p>	Go to step 7.	Replace the chute assembly harness.
6	<p>Check the tray 1 and tray 2 harnesses:</p> <ol style="list-style-type: none"> 1. Remove the no paper sensor. 2. Disconnect P/J24 from HVPS/MCU. 3. Test the harnesses for continuity at these points: <ul style="list-style-type: none"> ■ P/J245-1 <=> P/J240-3 ■ P/J245-2 <=> P/J240-2 ■ P/J245-3 <=> P/J240-1 ■ P/J248-1 <=> P/J246-3 ■ P/J248-2 <=> P/J246-2 ■ P/J248-3 <=> P/J246-1 <p>Are all the conductors continuous?</p>	Go to step 8.	Replace the Tray 1 or Tray 2 harness.
7	<p>Check the HVPS/engine logic board:</p> <ol style="list-style-type: none"> 1. Disconnect P/J11 from the HVPS/engine logic board. 2. Test the following points for continuity: <ul style="list-style-type: none"> ■ P/J11-16 <=> P/J24-6 ■ P/J11-16 <=> P/J24-1 <p>Are both continuous?</p>	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the HVPS/engine logic board (page 8-73).
8	<p>Replace the no paper sensor (page 8-21, page 8-30).</p> <p>Does the problem still occur after replacement?</p>	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

Low Paper Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Low paper sensor ■ Low paper actuator ■ Bottom plate assembly ■ Low Paper 1 harness assembly ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the low paper actuator: Install paper cassette. Does the low paper actuator operate smoothly when the bottom plate assembly is pushed and released by the hand? Does the flag go into the detection point of the sensor when the bottom plate assembly is released (Actuator is pushed up), and out of the detection point when pushed down?	Go to step 2.	Replace the low paper actuator (page 8-5).
2	Check the low paper sensor: 1. Enter Service Diagnostics, and from the Sensor Tests menu select the appropriate low paper sensor. 2. Manually actuate the low paper sensor. Does the sensor correctly report the position of the actuator?	Replace the HVPS/engine logic board (page 8-73).	Go to step 3.
3	Check the Low Paper 1 harness assembly: 1. Remove the Low Paper 1 harness assembly. 2. Test for continuity across J260 <=> J26. Is it continuous?	Go to step 4.	Replace Low Paper 1 harness assembly.
4	Replace the low paper sensor (page 8-34). Does the problem still occur after replacement?	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

Toner Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Toner sensor ■ Toner sensor assembly ■ Toner harness assembly 1 ■ Toner harness assembly 2 ■ Print cartridge ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Note

P4500: Refer to SB651 Rev. 1. In the case of premature “Toner Low” or “Replace Print Cartridge” messages, verify that PS Firmware v.1.26 or later is installed in the printer before replacing the print cartridge. If it is not, download the latest firmware from http://www.support.xerox.com/go/results.asp?Xtype=download&prodID=4500&Xlang=en_US&Xcntry=USA&source=XOG&prodName=Phaser%204500#Firmware%20%20Machine%20Upgrades.

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the print cartridge (1): Does sufficient toner remain in the print cartridge?	Go to step 3.	Go to step 2.
2	Check the print cartridge (2): Does the problem still occur after replacing the print cartridge?	Go to step 3.	Problem solved.
3	Check the toner sensor assembly installation. Is the toner sensor assembly installed correctly, and does the D-Holder operate smoothly?	Go to step 4.	Replace the toner sensor assembly.
4	Check the toner sensor function: 1. Enter Service Diagnostics, and from the Sensor Tests menu select toner sensor . 2. Remove and replace the print cartridge. Does the toner Sensor correctly detect the presence of the toner in the print cartridge?	Go to step 7.	Go to step 5.
5	Check the toner harness assembly 1: 1. Remove toner harness assembly 1. 2. Test for continuity across J220 <=> J221. Is it continuous?	Go to step 6.	Replace the toner harness assembly 1.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
6	Check the toner harness assembly 2: 1. Remove the toner harness assembly 2. 2. Test for continuity across J22 <=> J221. Is it continuous?	Go to step 7.	Replace the toner harness assembly 2.
7	Replace the toner sensor (page 8-23). Does the problem still occur after replacement?	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

Output Tray Full Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Output tray full sensor ■ Stack full actuator ■ Exit sensor assembly harness ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “Paper Exit” on page 10-30 ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the stack full actuator: 1. Open the paper exit assembly cover. 2. Manually operate the stack full actuator. Does the stack full actuator operate smoothly? Does the flag move between the sensor arms when there is no paper, and out of the sensor arms when paper is present?	Go to step 2.	Replace the stack full actuator (“Output Tray Full Sensor” on page 8-52).
2	Check the output tray full sensor (1): 1. Enter Service Diagnostics, and from the Sensor Tests menu select Output Tray Full Sensor . 2. Manually raise and lower the stack full actuator. Does the sensor correctly report the position of the sensor actuator?	Replace the HVPS/engine logic board (page 8-73).	Go to step 3.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	Check the exit sensor assembly harness: 1. Remove the paper exit assembly (page 8-49) 2. Remove exit sensor assembly harness. 3. Check the following for continuity: ■ J29-1 <=> J290-3 ■ J29-2 <=> J290-2 ■ J29-3 <=> J290-1 Are all continuous?	Go to step 4.	Replace the exit sensor harness.
4	Replace the output tray full sensor (page 8-52). Is the problem cleared?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

24 V Interlock

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ 24 V Interlock ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the 24 V Interlock: 1. Disconnect P/J45 from the LVPS. 2. Test for continuity across P/J45-1 <=> P/J45-3 while manually operating the switch. Is the switch continuous when pushed and open when released?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the 24 V Interlock (page 8-40).

5 V Interlock, Interlock Switch Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ 5 V Interlock ■ Interlock switch assembly ■ Laser unit harness assembly ■ LVPS harness assembly ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “Laser Unit, 5 V Interlock, Interlock Switch Assembly” on page 10-29 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the 5 V Interlock: <ol style="list-style-type: none"> 1. Disconnect P/J142. 2. Test for continuity across P/J142-1 <=> P/J142-2 while manually operating the switch. <p>Is the switch continuous when pushed and open when released?</p>	Go to step 2.	Replace the 5 V Interlock (page 8-40).
2	Check the interlock switch assembly <ol style="list-style-type: none"> 1. Disconnect P/J144. 2. Test for continuity across P/J144-1 <=> P/J144-2 while manually operating the Laser Interlock. <p>Is the switch continuous when pushed and open when released?</p>	Go to step 3.	Replace the interlock switch assembly (page 8-12).
3	Check the LVPS harness assembly <ol style="list-style-type: none"> 1. Disconnect P/J141, P/J142 and P/J144 of LVPS harness assembly. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ J141-2 <=> P142-1 ■ J141-1 <=> P144-2 ■ J142-2 <=> P144-1 <p>Are all continuous?</p>	Go to step 4.	Replace the LVPS harness assembly.
4	Check the laser unit harness assembly: <ol style="list-style-type: none"> 1. Disconnect P/J141, P/J14 and P/J140 of the laser unit harness assembly. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ P141-1 <=> J14-1 ■ P141-2 <=> P140-8 <p>Are both continuous?</p>	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the laser unit harness assembly.

Rear Cover Switch

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Rear cover switch ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the rear cover switch: 1. Disconnect P/J44 from the LVPS. 2. Test for continuity across P/J44-1 <=> P/J44-3 while manually operating the switch. Is the switch continuous when pushed and open when released?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the rear cover switch (page 8-67).

Interlock Switch Assembly (P4500 only)

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Interlock switch assembly ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “Laser Unit, 5 V Interlock, Interlock Switch Assembly” on page 10-29 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the interlock switch assembly 1. Disconnect P/J411. 2. Test for continuity across points P/J411-1 <=> P/J411-3 while manually operating the switch. Is the switch continuous when pushed and open when released?	Go to step 2.	Replace the interlock switch assembly (page 8-12).

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
2	Check the LVPS harness assembly: 1. Disconnect P/J11, P/J41, and P/J411. 2. Test for continuity across the following points: ■ P411-3 <=> J41-5 ■ P411-1 <=> J11-12 Are both continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the LVPS harness assembly.

Exit Motor PWBA

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Exit Motor PWBA ■ LVPS harness assembly ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the LVPS harness assembly: 1. Disconnect P/J27, P/J10, P/J102 and P/J101 from the LVPS harness assembly. 2. Test for continuity across the following points: ■ J27 <=> J102 ■ J10-8 <=> J101-2 Are both continuous?	Go to step 2.	Replace the LVPS harness assembly.
2	Check the Exit Motor PWBA power source voltage: 1. Disconnect P/J101 from the Exit Motor PWBA. 2. Measure the voltage across J101-2 <=> J101-1. Is the voltage +24 VDC?	Go to step 3.	Replace the LVPS (page 8-62).
3	Replace the Exit Motor PWBA (page 8-61). Is the problem cleared, after replacement?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Exit Motor Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Exit motor assembly ■ Exit motor PWBA ■ LVPS harness assembly ■ LVPS ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Enter Service Diagnostics, and from the Motors/Fan Test select the following tests: <ul style="list-style-type: none"> ■ Exit Motor Forward ■ Exit Motor Reverse High ■ Exit Motor Reverse Low Does the exit motor assembly rotate?	Problem solved.	Replace the exit motor assembly (page 8-51), then go to step 2.
2	Is the problem cleared after replacement?	Problem solved.	Go to step 3.
3	Check the LVPS harness assembly: <ol style="list-style-type: none"> 1. Disconnect P/J27, P/J10, P/J102 and P/J101 from the LVPS harness assembly. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ J27 <=> J102 ■ J10-8 <=> J101-1 Are both continuous?	Go to step 4.	Replace the LVPS harness assembly.
4	Check the exit motor assembly power source voltage: <ol style="list-style-type: none"> 1. Disconnect P/J101 from the Exit Motor PWBA. 2. Measure the voltage across J101-2 <=> J101-1. Is the voltage +24 VDC?	Replace Exit Motor PWBA (page 8-61) and go to step 5.	Replace the LVPS (page 8-62).
5	Is the problem cleared, after replacement?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Registration Clutch

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Registration clutch ■ Chute assembly harness ■ Tray 1 assembly harness ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the chute assembly harness: <ol style="list-style-type: none"> 1. Disconnect P/J24 from the HVPS/engine logic board. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ J24-14 <=> J245-5 ■ J24-15 <=> J245-4 Are both continuous?	Go to step 2.	Replace the chute assembly harness.
2	Check the tray 1 assembly harness: <ol style="list-style-type: none"> 1. Remove the registration clutch. 2. Disconnect P/J245. 3. Test for continuity across the following points: <ul style="list-style-type: none"> ■ P/J245-9 <=> P/J243-2 ■ P/J245-10 <=> P/J243-1 Are both continuous?	Go to step 3.	Replace the tray 1 assembly harness.
3	Measure the resistance of the registration clutch between P/J243-1 <=> P/J243-2. Does the resistance of the clutch measure 172 ohm +/-10% (at 20° C)?	Go to step 4.	Replace the registration clutch (page 8-19).
4	Check the HVPS/engine logic board: <ol style="list-style-type: none"> 1. Disconnect P/J24 and P/J10 from the HVPS/engine logic board. 2. Test for continuity across J24-14 <=> J10-1 Is it continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the HVPS/engine logic board (page 8-73).

Feed Clutches

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Feed clutch ■ Tray 1 harness ■ Tray 2 harness ■ Chute harness ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	<p>Check the chute harness:</p> <ol style="list-style-type: none"> 1. Disconnect P/J24 from the HVPS/engine logic board. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ J24-13 <=> J245-6 ■ J24-12 <=> J245-7 ■ J24-5 <=> J248-1 ■ J24-4 <=> J248-2 <p>Are all continuous?</p>	Go to step 2.	Replace the chute harness.
2	<p>Check the tray 1 and tray 2 harnesses:</p> <ol style="list-style-type: none"> 1. Remove the feed clutch. 2. Disconnect P/J245 (tray 1 harness) or P/J248 (tray 2 harness). 3. Test for continuity across the following points: <p>Tray 1 harness:</p> <ul style="list-style-type: none"> ■ P/J245-8 <=> P/J242-1 ■ P/J245-7 <=> P/J242-2 <p>Tray 2 harness:</p> <ul style="list-style-type: none"> ■ P/J248-5 <=> P/J247-1 ■ P/J248-4 <=> P/J247-2 <p>Are all continuous</p>	Go to step 3.	Replace tray 1 or tray 2 harness.
3	<p>Check the resistance of the feed clutches: Measure the resistance between:</p> <ul style="list-style-type: none"> ■ P/J242-1 <=> P/J242-2 (tray 1 feed clutch) ■ P/J247-1 <=> P/J247-2 (tray 2 feed clutch) <p>Does the resistance measure 172 ohms +/-10% (at 20° C)?</p>	Go to step 4.	Replace feed clutch assembly. (page 8-19, page 8-29, page 8-91)

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
4	Check the HVPS/engine logic board: 1. Disconnect P/J24 and P/J10 from the HVPS/engine logic board. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ J24-12 <=> J10-1 ■ J24-4 <=> J10-1 Are both continuous	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the HVPS/engine logic board (page 8-73).

Left Tray Guide

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Left tray guide ■ LVPS harness assembly ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “150-Sheet Feeder, 550-Sheet Feeder, Main Fan” on page 10-27 ■ “Print Engine Wiring Diagrams” on page 10-19

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the LVPS harness assembly: 1. Disconnect P/J18 from the HVPS/engine logic board. 2. Disconnect P/J1821. 3. Test each cable between J18 <=> J1821 for continuity. Are all continuous?	Go to step 2.	Replace the LVPS harness assembly.
2	Check left tray guide: Test each cable between: <ul style="list-style-type: none"> ■ Tray1 size switch <=> J1821 ■ Tray2 size switch <=> J1821 Are all continuous?	Go to “HVPS/Engine Logic Board” on page 4-32.	Replace the left tray guide (page 8-33).

HVPS/Engine Logic Board

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Print cartridge right guide assembly ■ Print cartridge ■ ANT harness assembly ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “Print Cartridge, Transfer Roller Assembly” on page 10-26 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the power to the print cartridge right guide assembly. Is print cartridge right guide assembly installed correctly? Do the contacts on the print cartridge right guide make proper contact with both the plate of the HVPS/engine logic board and print cartridge?	Go to step 2.	Replace the print cartridge right guide assembly (page 8-47).
2	Check the print cartridge right guide assembly: Remove the print cartridge right guide assembly (page 8-47). Is the Ground Plate of the print cartridge right guide damaged or soiled?	Replace the print cartridge right guide assembly (page 8-47).	Go to step 3.
3	Check 24 V to the HVPS/engine logic board: 1. Remove the print cartridge. 2. Measure the voltage across P/J10-1 <=> P/J10-4 on the HVPS/engine logic board. Is the voltage +24 VDC?	Go to step 5.	Go to step 4.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
4	Check the LVPS harness assembly: 1. Disconnect P/J10 from the HVPS/engine logic board. 2. Disconnect P/J42 from the LVPS. 3. Test each cable between P/J10 <=> P/J42 for continuity. Are all continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the LVPS harness assembly.
5	Check the ANT harness assembly: 1. Disconnect P/J15 from the HVPS/engine logic board. 2. Test each cable between J15 <=> J150 for continuity. Are all continuous?	Replace the HVPS/engine logic board (page 8-73).	Replace the ANT harness assembly.

Image Processor Isolation

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Image processor board 	<ul style="list-style-type: none"> ■ “Image Processor Board, DC-DC Converter (P4500), Control Panel” on page 10-31

Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	NOTE If no options are installed (hard disk, etc.), go on to step 2. 1. Switch the printer power OFF. 2. Disconnect all cables connected to the rear of the image processor board. 3. Remove the I/P Shield Window (page 8-71). 4. Remove all options (hard disk, etc.) from the image processor board. 5. Switch the printer power ON. Does the printer boot up correctly and is Ready displayed on the control panel?	Go to step 3.	Go to step 2.
2	1. Switch the printer power OFF. 2. Remove then re-install the ribbon cable between J800 on the image processor board and P28 on the HVPS/engine logic board. 3. Switch the printer power ON. Does the printer boot up correctly and is Ready to Print displayed on the control panel?	Problem solved.	Go to “Image Processor Board” on page 4-34.

Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
3	1. Switch the printer power OFF. 2. Re-install one of the removed options or cables. 3. Switch the printer power ON. Does the printer boot up correctly and is Ready to Print displayed on the control panel?	Repeat the last step with the next option or cable until the problem is found.	Replace the option or cable just installed.

Image Processor Board

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Image processor board ■ DC-DC converter ■ DC-DC converter harness ■ LVPS ■ LVPS harness 	<ul style="list-style-type: none"> ■ “Image Processor Board, DC-DC Converter (P4500), Control Panel” on page 10-31 (P4500) or ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Engine Plug/Jack Locator” on page 10-3

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the 5 V power (P4500): 1. (P4500) Disconnect J402 from the DC-DC converter. (P4510) Disconnect J40 from the LVPS. 2. (P4500) Measure the voltage across P402-1 <=> P402-2. (P4510) Measure the voltage across P40-1 <=> P40-2. Does the voltage measure +5 VDC?	Go to step 2.	P4500: Go to “DC-DC Converter (P4500 only)” on page 4-5. P4510: Go to “LVPS (Low Voltage Power Supply)” on page 4-4.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
2	<p>Check the 3.3 V power (P4500): (P4500) Measure the voltage across P402-3 <=> P402-4. (P4510) Measure the voltage across P40-3 <=> P40-4. Does the voltage measure +3.3 VDC?</p>	<p>P4500: Go to step 3. P4510: Go to step 4.</p>	<p>P4500: Go to “DC-DC Converter (P4500 only)” on page 4-5. P4510: Go to “LVPS (Low Voltage Power Supply)” on page 4-4.</p>
3	<p>Check the DC-DC converter harness: 1. Disconnect P/J402 and J130. 2. Test each cable between J402 <=> J130 for continuity. Are all continuous?</p>	Replace the I/P Board (page 8-75).	Replace the DC-DC converter harness.
4	<p>Check the LVPS harness: 1. Disconnect P/J40 at the LVPS and J120 on the I/P board. 2. Test each cable between J40 <=> J120 for continuity. Are all continuous?</p>	Replace the I/P Board (page 8-75).	Replace the LVPS harness.

RAM DIMM Fault Isolation

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ SDRAM DIMM ■ Image processor board 	<ul style="list-style-type: none"> ■ None

Initial Actions:

- Power off printer. Remove and re-install RAM DIMMs after verifying that they meet the Xerox specifications.

Note

P4500: A minimum of 64 MB of RAM must be installed for proper printer operation. The Phaser 4500 Laser Printer supports PC133 SDRAM in 144-pin SO-DIMM form. The printer accepts modules of 64 or 128 in combinations to a total of 256 MB.

P4510: A minimum of 128 MB of RAM must be installed for proper printer operation. The Phaser 4510 Laser Printer supports PC2700 DDR in 200-pin SO-DIMM form. The printer accepts modules of 128, or 256 MB in combinations to a total of 512 MB.

Troubleshooting Procedures

Step	Actions and Questions	Yes	No
1	Power on the printer. Is RAM ERROR displayed on the control panel?	Go to Step 5	Go to Step 2
2	Is POWER ON SELF TEST ERROR 4: MEMORY displayed on the control panel?	Go to Step 5	Go to Step 3
3	Is POWER ON SELF TEST ERROR 15: RAM DIMM displayed on the control panel?	Go to Step 4	Problem Solved
4	Print a Startup Page and review the contents. Does the Startup Page identify a failed memory DIMM?	Replace the DIMM and go to step 9	Go to Step 5
5	Are there two DIMMs installed in the printer?	Go to Step 6	Go to Step 8
6	1. Power off the printer and remove one of the DIMMs. 2. Power on the printer. Is a memory fault message displayed?	Go to Step 8	Go to Step 7
7	1. Power off the printer and remove the first DIMM. 2. Install the second DIMM and power on the printer. Is a memory fault message displayed?	Go to Step 8	Go to Step 9
8	1. Power off the printer and move the suspected defective DIMM to the other memory socket. 2. Power on the printer. Does the DIMM fail in the new location?	Replace the DIMM and go to step 9	Replace the I/P board (page 8-75)
9	Install all of the DIMMs and power on the printer. Is a memory fault message displayed?	Replace the I/P board (page 8-75)	Problem Solved

Electrical Noise

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ HVPS/engine logic board ■ Print cartridge right guide assembly ■ Fuser assembly ■ Print cartridge ■ ANT harness assembly ■ AC power harness assembly ■ LVPS harness assembly ■ Optional 150-sheet paper feeder ■ 550-sheet feeder PWBA ■ Duplex Unit PWBA 	<ul style="list-style-type: none"> ■ “Print Engine Plug/Jack Locator” on page 10-3 ■ “Print Engine Wiring Diagrams” on page 10-19 ■ “Print Cartridge, Transfer Roller Assembly” on page 10-26 ■ “Fuser Assembly, Power Switch” on page 10-25 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12 ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “Duplex Unit Plug/Jack Locator” on page 10-14 ■ “Duplex Unit Signal Diagram” on page 10-35

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check for foreign noise: Are there any other electrical appliances within 3 m of the printer, such as generators, radios, and appliances with motors?	Go to step 2.	Go to step 3.
2	Either turn off the other electrical appliances, or re-locate the printer at least 6 m from other appliances. Does the electrical noise problem still occur?	Go to step 3	Problem solved.
3	Check the AC ground. Is AC power supply outlet wired and grounded correctly?	Go to step 4.	Request that the customer fix the AC power supply outlet.
4	Check the AC power harness assembly. Is the cable connected to the AC power harness assembly correctly grounded?	Go to step 5.	Install the ground screw correctly.
5	Replace the print cartridge. Does the electrical noise problem still occur after replacement?	Go to step 6.	Problem solved.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
6	<p>Check the print cartridge right guide assembly (1)</p> <p>Does the Ground Plate of the print cartridge right guide make proper contact with terminals on the HVPS/engine logic board?</p>	Go to step 7.	Replace the print cartridge right guide assembly (page 8-47).
7	<p>Check the print cartridge right guide assembly (2):</p> <ol style="list-style-type: none"> 1. Remove the print cartridge. 2. Remove the print cartridge right guide assembly (page 8-47). <p>Is the Ground Plate of the print cartridge right guide free of damage or deposits?</p>	Go to step 8.	Clean the plate or replace the print cartridge right guide assembly (page 8-47).
8	<p>Check ANT harness assembly for continuity:</p> <ol style="list-style-type: none"> 1. Disconnect P/J15 from the HVPS/engine logic board. <p>Is J15 <=> J150 continuous?</p>	Go to step 9.	Replace ANT harness assembly.
9	<p>Check the PWB grounds: Remove the LVPS Shield Plate and HVPS Shield Plate. (RRP12.1, 12.9)</p> <p>Is the ground normal?</p> <p>Are the screws for the grounds of the following PWBs firmly tightened?</p> <ul style="list-style-type: none"> ■ All screws of HVPS/engine logic board ■ All screws of LVPS <p>When an Optional 550-Sheet Paper Feeder is installed: Are the screws of the 550-sheet feeder PWBA firmly tightened?</p> <p>When a duplex unit is installed: Are the screws of the duplex unit PWBA firmly tightened?</p> <p>When a stacker is installed: Are the screws of the stacker PWBA firmly tightened?</p>	Go to step 10.	Repair the faulty ground.
10	<p>Warning: Allow the fuser assembly to cool down before removing.</p> <p>Replace the fuser assembly (page 4-15).</p> <p>Does the problem still occur after replacement?</p>	Go to step 11.	Problem solved.
11	<p>Replace the HVPS/engine logic board (page 8-73).</p> <p>Does the problem still occur after replacement?</p>	Replace all related parts.	Problem solved.

Optional 550-Sheet Feeder PWBA (Tray 3)

Note

Use this procedure when the optional 550-sheet paper feeder is installed as tray 3. When it is installed as tray 4, see the procedure for the “Optional 550-Sheet Feeder PWBA (Tray 4)” on page 4-40.

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Feeder harness 1 ■ 550-sheet feeder PWBA ■ Feeder harness 2 ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check feeder harness 2 for continuity: Remove feeder harness 2. Is J2083 <=> J83 continuous?	Go to step 2.	Replace feeder harness 2.
2	Check feeder harness 1 (in the print engine) for continuity: Remove feeder harness 1. Is feeder harness 1 continuous?	Go to step 3.	Replace feeder harness 1.
3	Replace the 550-sheet feeder PWBA (page 8-85). Does the problem still occur after replacement?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Optional 550-Sheet Feeder PWBA (Tray 4)

Note

Use this procedure when the optional 550-sheet paper feeder is installed as Tray 4. When it is installed as tray 3, see the procedure for the “Optional 550-Sheet Feeder PWBA (Tray 3)” on page 4-39.

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ 550-sheet feeder PWBA ■ Feeder harness 5 ■ Feeder harness 2 ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check feeder harness 2 (in tray 4) for continuity Remove feeder harness 2. Is J8483 <=> J83 continuous?	Go to step 2.	Replace feeder harness 2.
2	Check feeder harness 5 (in tray 3) for continuity Remove feeder harness 5. Is J84 <=> J8483 continuous?	Go to step 3.	Replace feeder harness 5.
3	Replace the 550-sheet feeder PWBA (page 8-85). Does the problem still occur after replacement?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Optional 550-Sheet Feeder No Paper Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ No paper sensor ■ No paper actuator ■ Clutch/Sensor harness 1 ■ Clutch/Sensor harness 2 ■ Optional 150-sheet paper feeder ■ 550-sheet feeder PWBA ■ 550-sheet paper cassette ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the no paper actuator: <ol style="list-style-type: none"> 1. Remove the Optional 550-Sheet Feeder (page 8-86). 2. Install a 550-sheet paper cassette. 3. Manually operate the no paper actuator. <p>Does the no paper actuator operate smoothly? Does the flag move between the sensor arms when paper is present, and out of the sensor arms when there is no paper?</p>	Go to step 2.	Replace the no paper actuator.
2	Check the no paper sensor (1): <ol style="list-style-type: none"> 1. Install the Optional 550-Sheet Feeder (page 8-86). 2. Remove the print cartridge. 3. Close the top cover. 4. Remove the 550-sheet paper cassette. 5. Enter Service Diagnostics, and from the Sensor Tests menu select the Tray 3/4 No Paper test. 6. Manually operate the no paper actuator. <p>Does the sensor correctly indicate the position of the actuator?</p>	Replace the HVPS/engine logic board (page 8-73).	Go to step 3.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	<p>Check the no paper sensor (2)</p> <ol style="list-style-type: none"> 1. Install the optional 550-sheet feeder (page 8-86). 2. Remove the print cartridge. 3. Close the top cover. 4. Remove 550-sheet paper cassette. 5. Measure the voltage across P/J85-7 <=> P/J85-6 while manually operating the no paper actuator. <p>Is the voltage 0 VDC when the no paper actuator is held up, and 3.3 VDC when released?</p>	Go to “Optional 550-Sheet Feeder PWBA (Tray 3)” on page 4-39, or “Optional 550-Sheet Feeder PWBA (Tray 4)” on page 4-40.	Go to step 4.
4	<p>Check Clutch/Sensor harness 1:</p> <ol style="list-style-type: none"> 1. Remove Clutch/Sensor harness 1. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ J855-5 <=> J852-3 ■ J855-6 <=> J852-2 ■ J855-7 <=> J852-1 <p>Are all continuous</p>	Go to step 5.	Replace Clutch/Sensor harness 1.
5	<p>Check Clutch/Sensor harness 2:</p> <ol style="list-style-type: none"> 1. Disconnect connector P/J85 from the 550-sheet feeder PWBA. 2. Test for continuity across the following points: <ul style="list-style-type: none"> ■ J85-5 <=> J855-3 ■ J85-6 <=> J855-2 ■ J85-7 <=> J855-1 <p>Are all continuous</p>	Go to step 6.	Replace Clutch/Sensor harness 2.
6	<p>Check the HVPS/engine logic board:</p> <ol style="list-style-type: none"> 1. Disconnect P/J11 and P/J20 from the HVPS/engine logic board. 2. Test P11-16 <=> P20-5 for continuity. <p>Is it continuous?</p>	Go to step 7.	Replace the HVPS/engine logic board (page 8-73).
7	<p>Replace the no paper sensor (page 8-21).</p> <p>Does the problem still occur after replacement?</p>	Replace the HVPS/engine logic board (page 8-73).	Problem solved.

Optional 550-Sheet Feeder Low Paper Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Low paper sensor ■ Low paper actuator ■ Low paper sensor harness ■ Feeder harness 2 ■ Optional 150-sheet paper feeder ■ 550-sheet paper cassette ■ 550-sheet feeder PWBA ■ Bottom plate assembly ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	<p>Check the low paper actuator:</p> <ol style="list-style-type: none"> 1. Remove the Optional 550-Sheet Feeder (page 8-86). 2. Install a 550-sheet paper cassette. 3. Move the bottom plate assembly up and down. <p>Does the low paper actuator operate smoothly? Does the flag move between the sensor arms when the bottom plate assembly is up (the low paper actuator is pushed up), and out of the sensor arms when the bottom plate assembly is pressed down?</p>	Go to step 2.	Replace the low paper actuator.
2	<p>Check the low paper sensor (1):</p> <ol style="list-style-type: none"> 1. Install Optional 550-Sheet Feeder (page 8-86). 2. Remove 550-sheet paper cassette. 3. Enter Service Diagnostics, and from the Sensor Tests menu select the Tray 3/4 Low Paper test. 4. Manually operate the low paper actuator. <p>Does the sensor correctly indicate the position of the actuator?</p>	Replace the HVPS/engine logic board (page 8-73).	Go to step 3.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	<p>Check the low paper sensor (2)</p> <ol style="list-style-type: none"> 1. Install the optional 550-sheet feeder (page 8-86). 2. Remove the 550-sheet paper cassette. 3. Measure the voltage across P/J81-3 <=> P/J81-2 while manually operating the low paper actuator. <p>Is the voltage 3.3 VDC when the low paper actuator is held up, and 0 VDC when released?</p>	<p>Go to “Optional 550-Sheet Feeder PWBA (Tray 3)” on page 4-39, or “Optional 550-Sheet Feeder PWBA (Tray 4)” on page 4-40.</p>	<p>Go to step 4.</p>
4	<p>Check the low paper sensor harness:</p> <ol style="list-style-type: none"> 1. Install the Optional 550-Sheet Feeder (page 8-86). 2. Disconnect P/J810 from the low paper sensor. 3. Disconnect P/J81 from the 550-sheet feeder PWBA. 4. Test J81 <=> J810 for continuity. <p>Are all conductors continuous?</p>	<p>Go to step 5.</p>	<p>Replace the low paper sensor harness.</p>
5	<p>Check the HVPS/engine logic board:</p> <ol style="list-style-type: none"> 1. Disconnect P/J11 and P/J20 from the HVPS/engine logic board. 2. Test P11-16 <=> P20-5 for continuity. <p>Is it continuous?</p>	<p>Go to step 6.</p>	<p>Replace the HVPS/engine logic board (page 8-73).</p>
6	<p>Replace low paper sensor (page 8-34).</p> <p>Does the problem still occur after replacement?</p>	<p>Replace the HVPS/engine logic board (page 8-73).</p>	<p>Problem solved.</p>

Optional Feeder Paper Size Switch Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Option paper size switch assembly ■ Feeder size assembly harness 1 ■ Feeder size assembly harness 2 ■ Optional 150-sheet paper feeder ■ 550-sheet paper cassette ■ 550-sheet feeder PWBA ■ HVPS/engine logic board 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check feeder size assembly harness 1: 1. Remove feeder size assembly harness 1. 2. Test each conductor between J801 <=> J802 for continuity. Is each cable continuous?	Go to step 2.	Replace feeder size assembly harness 1.
2	Check feeder size assembly harness 2 for continuity: 1. Disconnect P/J80 from the 550-sheet feeder PWBA. 2. Disconnect P/J801. 3. Test each conductor between J80 <=> J801 for continuity. Is each cable continuous?	Go to step 3.	Replace feeder size assembly harness 2.
3	Check the Option paper size switch assembly. Is the harness of Option paper size switch assembly continuous?	Go to “Optional 550-Sheet Feeder PWBA (Tray 3)” on page 4-39, or “Optional 550-Sheet Feeder PWBA (Tray 4)” on page 4-40.	Replace the Option paper size switch assembly (page 8-82).

Optional 550-Sheet Feeder Feed Clutch Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Feed clutch assembly ■ Optional 150-sheet paper feeder ■ 550-sheet paper cassette ■ 550-sheet feeder PWBA ■ Clutch/Sensor harness 1 ■ Clutch/Sensor harness 2 ■ Feeder harness 2 ■ HVPS/engine logic board ■ Feeder harness 1 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check Clutch/Sensor harness 1: 1. Disconnect P/J855. 2. Disconnect P/J853. 3. Test each conductor between J855 <=> J853 for continuity. Is each conductor continuous?	Go to step 2.	Replace Clutch/Sensor harness 1.
2	Check Clutch/Sensor harness 2: 1. Disconnect P/J85 from the 550-sheet feeder PWBA. 2. Disconnect P/J855. 3. Test each conductor between J85 <=> J855 for continuity? Is each conductor continuous?	Go to step 3.	Replace Clutch/Sensor harness 2.
3	Check the resistance of the feed clutch assembly: Measure the resistance of the clutch between P/J853-1 <=> P/J853-2. Does the resistance measure 172 ohm +/- 10% (at 20° C)?	Go to step 4.	Replace the feed clutch assembly (page 8-91).
4	Check the 550-sheet feeder PWBA: 1. Disconnect P/J83 from the 550-sheet feeder PWBA. 2. Test the following points for continuity: <ul style="list-style-type: none"> ■ P83-1 <=> P85-1 ■ P83-2 <=> P85-2 Are both continuous?	Go to step 5.	Replace the 550-sheet feeder PWBA (page 8-85).

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
5	Check feeder harness 2: 1. Remove feeder harness 2. 2. Test for continuity across J2083 <=> J83. Is it continuous?	Go to step 6.	Replace feeder harness 2.
6	Check feeder harness 1: 1. Remove feeder harness 1. 2. Test for continuity across J20 <=> J2083. Is it continuous?	Go to step 7.	Replace feeder harness 1.
7	Check the power to the feed clutch assembly: 1. Measure the voltage across P20-10 <=> P20-9 on the HVPS/engine logic board. Is the voltage +24 VDC?	Replace the feed clutch assembly (page 8-91).	Go to step 8.
8	Check the HVPS/engine logic board: 1. Disconnect P/J10 from the HVPS/engine logic board. 2. Test for continuity across P10-1 <=> P20-10. Is it continuous?	Go to "LVPS (Low Voltage Power Supply)" on page 4-4.	Replace the HVPS/engine logic board (page 8-73).

Optional 550-Sheet Feeder Turn Roller Clutch

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Optional 550-sheet paper feeder turn roller clutch ■ Optional 550-sheet paper feeder ■ 550-sheet paper cassette ■ 550-sheet feeder PWBA ■ Clutch/sensor harness 1 ■ Clutch/sensor harness 2 ■ Feeder harness 2 ■ HVPS/engine logic board ■ LVPS ■ Feeder harness 1 	<ul style="list-style-type: none"> ■ “550-Sheet Feeder Signal Diagram” on page 10-33 ■ “550-Sheet Feeder General Wiring Diagram” on page 10-32 ■ “550-Sheet Feeder Plug/Jack Locator” on page 10-12

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check Clutch/Sensor harness 1 for continuity 1. Disconnect P/J855. 2. Disconnect P/J854. Is each cable between J855 <=> J854 continuous?	Go to step 2.	Replace the Clutch/Sensor harness 1.
2	Check Clutch/Sensor harness 2 for continuity 1. Disconnect P/J85 from the 550-sheet feeder PWBA. 2. Disconnect P/J855. Is each cable between J85 <=> J855 continuous?	Go to step 3.	Replace the Clutch/Sensor harness 2.
3	Check the resistance of the turn roller clutch: Measure the resistance of the clutch between P/J854-1 <=> P/J854-2. Does the resistance measure 172 ohm +/- 10% (at 20° C)?	Go to step 4.	Replace the turn roller clutch (page 8-92).
4	Check the 550-sheet feeder PWBA: 1. Disconnect P/J83 from the 550-sheet feeder PWBA. 2. Test for continuity at these points: <ul style="list-style-type: none"> ■ P83-3 <=> P85-3 ■ P83-4 <=> P85-4 Are both continuous	Go to step 5.	Replace the 550-sheet feeder PWBA (page 8-85).

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
5	Check feeder harness 2: 1. Remove feeder harness 2. 2. Test for continuity across J2083 <=> J83. Is it continuous?	Go to step 6.	Replace feeder harness 2.
6	Check feeder harness 1: 1. Remove feeder harness 1. 2. Test for continuity across J20 <=> J2083. Is it continuous?	Go to step 7.	Replace feeder harness 1.
7	Check the power to the turn roller clutch: Measure the voltage across P20-10 <=> P20-9 on the HVPS/engine logic board. Is the voltage +24 VDC?	Replace the turn roller clutch (page 8-92).	Go to step 8.
8	Check the HVPS/engine logic board: 1. Disconnect P/J10 from the HVPS/engine logic board. 2. Test for continuity across P10-1 <=> P20-10. Is it continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the HVPS/engine logic board (page 8-73).

Duplex Unit PWBA

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Duplex Unit PWBA ■ Duplex Unit assembly harness ■ HVPS/engine logic board ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the duplex unit assembly harness: 1. Remove the duplex unit. 2. Disconnect P/J50 from the duplex unit PWBA. 3. Test each cable between J2750 <=> J50 for continuity. Is each cable continuous?	Go to step 2.	Replace the duplex unit assembly harness.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
2	Check the LVPS harness assembly: 1. Disconnect P/J27 from the HVPS/engine logic board. 2. Test each cable between J27 <=> J2750 for continuity. Is each cable continuous?	Go to step 3.	Replace the LVPS harness assembly.
3	Replace the duplex unit PWBA (page 8-102). Is the problem cleared after replacement?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Duplex Unit Motor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Duplex unit motor ■ Duplex Unit PWBA ■ Duplex Unit assembly harness ■ HVPS/engine logic board ■ LVPS ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the duplex unit assembly harness: 1. Remove the duplex unit. 2. Disconnect P/J50 from the duplex unit PWBA. 3. Test each cable between J2750 <=> J50 for continuity. Is each cable continuous?	Go to step 2.	Replace the duplex unit assembly harness.
2	Check the LVPS harness assembly: 1. Disconnect P/J27 from the HVPS/engine logic board. 2. Test each cable between J27 <=> J2750 for continuity. Is each cable continuous?	Go to step 3.	Replace the LVPS harness assembly.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	Check the duplex unit motor for rotation: 1. Enter Service Diagnostics, and from the Motors/Fan Test menu select Duplex Motor High and Duplex Motor Low tests. Does the motor rotate?	Replace the HVPS/engine logic board (page 8-73).	Go to step 4.
4	Replace the duplex unit motor. Is the problem cleared after replacing the duplex unit motor?	Problem solved.	Go to step 5.
5	Check the power to the duplex unit motor: Measure the voltage across P/J27-8 <=> P/J27-7 on the HVPS/engine logic board. Is the voltage +24 VDC?	Go to “Duplex Unit PWBA” on page 4-49.	Go to step 6.
6	Check the HVPS/engine logic board: 1. Disconnect P/J10 from the HVPS/engine logic board. 2. Test for continuity across P10-1 <=> P27-8. Is it continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the HVPS/engine logic board (page 8-73).

Duplex Unit Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Duplex unit sensor ■ Duplex unit actuator ■ Duplex unit sensor harness ■ Duplex Unit PWBA ■ Duplex Unit assembly harness ■ HVPS/engine logic board ■ LVPS ■ LVPS harness assembly 	<ul style="list-style-type: none"> ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the duplex unit actuator: Does the duplex unit actuator operate smoothly? Does the flag move between the sensor arms when there is no paper in the duplex unit, and out of the sensor arms when the paper is present?	Go to step 2.	Replace the duplex unit actuator.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
2	<p>Check the duplex unit sensor (1):</p> <ol style="list-style-type: none"> 1. Enter Service Diagnostics, and from the Sensor Tests menu select Duplex Sensor test. <p>Does the sensor correctly report the position of the actuator?</p>	Replace the HVPS/engine logic board (page 8-73).	Go to step 4.
3	<p>Check the duplex unit sensor (2):</p> <ol style="list-style-type: none"> 1. Open the duplex unit housing cover and keep open. 2. Measure the voltage across P/J53-3 <=> P/J53-2 while manually operating the duplex unit actuator. <p>Does the voltage measure 0 VDC when the actuator is pushed, and 3.3 VDC when released?</p>	Replace the HVPS/engine logic board (page 8-73).	Go to step 4.
4	<p>Replace the duplex unit sensor (page 8-106).</p> <p>Does the problem still occur after replacement?</p>	Go to step 5.	Problem solved.
5	<p>Check the duplex unit sensor harness:</p> <ol style="list-style-type: none"> 1. Remove the duplex unit sensor. 2. Disconnect P/J53 from the duplex unit PWBA. 3. Test each cable between J53 <=> J530 for continuity. <p>Is each cable continuous?</p>	Go to step 6.	Replace the duplex unit sensor harness.
6	<p>Check the duplex unit harness:</p> <ol style="list-style-type: none"> 1. Remove the duplex unit harness. 2. Test for continuity across J50 <=> J2750. <p>Is it continuous?</p>	Go to step 7.	Replace the duplex unit harness.
7	<p>Check the LVPS harness assembly:</p> <ol style="list-style-type: none"> 1. Remove the LVPS harness assembly. 2. Test for continuity across J27 <=> J2750. <p>Is it continuous?</p>	Go to step 8.	Replace the LVPS harness assembly.
8	<p>Check the HVPS/engine logic board:</p> <ol style="list-style-type: none"> 1. Disconnect P/J11 from the HVPS/engine logic board. 2. Test for continuity across P11-16 <=> P27-4. <p>Is it continuous?</p>	Go to "LVPS (Low Voltage Power Supply)" on page 4-4.	Replace the HVPS/engine logic board (page 8-73).

Duplex Unit Switch

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Duplex unit switch ■ LVPS harness assembly ■ Duplex Unit cover assembly harness ■ Duplex Unit PWBA ■ Duplex Unit assembly harness ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “Duplex Unit Signal Diagram” on page 10-35 ■ “Duplex Unit General Wiring Diagram” on page 10-34 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Duplex Unit Plug/Jack Locator” on page 10-14

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the duplex unit switch: 1. Remove the duplex unit switch. 2. Test for continuity across J520-2 <=> J520-1 while pushing and releasing the duplex switch. Is the switch continuous when pushed, and open when released?	Go to step 2.	Replace the duplex unit switch (page 8-110).
2	Check the duplex unit Cover harness: 1. Remove the duplex unit Cover harness. 2. Test J52 <=> J520 for continuity. Is the harness continuous?	Go to step 3.	Replace the duplex unit cover assembly harness.
3	Check the duplex unit harness: 1. Remove the duplex unit harness. 2. Test J50 <=> J2750 for continuity. Is the harness continuous?	Go to step 4.	Replace the duplex unit assembly harness.
4	Check the LVPS harness assembly: 1. Remove the LVPS harness assembly. 2. Test J27 <=> J2750 for continuity. Is the harness continuous?	Go to step 5.	Replace the LVPS harness assembly.
5	Check the 3.3 V line to the duplex unit: 1. Remove the print cartridge. 2. Measure the voltage across P/J27-4 <=> P/J27-3 on the HVPS/engine logic board. Does the voltage measure 3.3 VDC?	Go to “Duplex Unit PWBA” on page 4-49.	Go to step 6.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
6	Check the HVPS/engine logic board: 1. Disconnect P/J27 from the HVPS/engine logic board. 2. Test P27-4 <=> P11-16 on the HVPS/engine logic board for continuity. Is it continuous?	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.	Replace the HVPS/engine logic board (page 8-73).

Stacker PWBA

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Stacker PWBA ■ Stacker assembly harness 1 ■ Stacker assembly harness 2 ■ HVPS/engine logic board ■ LVPS 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check stacker harness 2: 1. Remove the stacker (page 8-111). 2. Disconnect P/J70 from the stacker PWBA. 3. Remove stacker assembly harness 2. 4. Test J70 <=> J3070 for continuity. Is the harness continuous?	Go to step 2.	Replace stacker harness 2.
2	Check stacker harness 1: Remove stacker harness 1. Is J30 <=> J3070 continuous normally?	Go to step 3.	Replace stacker harness 1.
3	Replace the stacker PWBA (page 8-119). Does the problem still occur after replacement?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Stacker Motor Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Stacker motor ■ Stacker PWBA ■ Stacker motor harness ■ Stacker harness 2 ■ HVPS/engine logic board ■ Stacker harness 1 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the stacker motor assembly: <ul style="list-style-type: none"> ■ Enter Service Diagnostics, and from the Motors/Fan Test select Stacker Motor. Does the stacker motor run?	Problem solved.	Go to step 2.
2	Check the stacker motor harness: <ol style="list-style-type: none"> 1. Remove the stacker motor harness. 2. Test J71 <=> J710 for continuity. Is the harness continuous?	Go to step 3.	Replace the stacker motor harness.
3	Check stacker harness 2: <ol style="list-style-type: none"> 1. Disconnect P/J70 from stacker PWBA. 2. Remove stacker harness 2. 3. Test J70 <=> J3070 for continuity. Is the harness continuous?	Go to step 4.	Replace stacker harness 2.
4	Check stacker harness 1: <ol style="list-style-type: none"> 1. Remove stacker harness 1. 2. Test J30 <=> J3070 for continuity. Is the harness continuous?	Go to step 5.	Replace stacker harness 1.
5	Replace the stacker motor (page 8-128) Is the problem cleared?	Problem solved.	Go to step 6.
6	Replace the stacker PWBA (page 8-119). Is the problem cleared?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Offset Motor Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Offset motor assembly ■ Stacker motor assembly ■ Stacker PWBA ■ Stacker harness 2 ■ HVPS/engine logic board ■ Stacker harness 1 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the offset motor assembly: Enter Service Diagnostics, and from the Motors/Fan Test select Stacker Offset Motor . Does the offset assembly move back and forth when the test is initiated?	Problem solved.	Go to step 2.
2	Check stacker harness 2: 1. Disconnect P/J70 from stacker PWBA. 2. Remove stacker harness 2. 3. Test J70 <=> J3070 for continuity Is the harness continuous?	Go to step 3.	Replace stacker harness 2.
3	Check stacker harness 1: 1. Remove stacker harness 1. 2. Test J30 <=> J3070 for continuity Is the harness continuous?	Go to step 4.	Replace stacker harness 1.
4	Replace the offset motor assembly (page 8-120). Is the problem cleared?	Problem solved.	Go to step 5.
5	Replace stacker PWBA (page 8-119). Is the problem cleared?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Gate Solenoid Assembly

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Gate solenoid assembly ■ Stacker PWBA ■ Stacker harness 2 ■ HVPS/engine logic board ■ Stacker assembly harness 1 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the Gate Solenoid: 1. Enter Service Diagnostics, and from the Solenoid Test menu select Stacker Gate Solenoid . Does the solenoid actuate when test is initiated?	Problem solved.	Go to step 2.
2	Check stacker harness 2: 1. Disconnect P/J70 from stacker PWBA. 2. Remove stacker harness 2. 3. Test J70 <=> J3070 for continuity Is the harness continuous?	Go to step 3.	Replace stacker harness 2.
3	Check stacker harness 1: 1. Remove stacker harness 1. 2. Test J30 <=> J3070 for continuity Is the harness continuous?	Go to step 4.	Replace stacker harness 1.
4	Replace the gate solenoid assembly (page 8-121). Is the problem cleared?	Problem solved.	Go to step 5.
5	Replace the stacker PWBA (page 8-119). Is the problem cleared?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Stacker Rear Cover Switch

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Rear cover switch ■ Rear cover assembly harness ■ Stacker PWBA ■ Stacker harness 2 ■ HVPS/engine logic board ■ LVPS ■ Stacker harness 1 	<ul style="list-style-type: none"> ■ “Stacker Signal Diagram” on page 10-37 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21 ■ “Stacker Plug/Jack Locator” on page 10-16

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	<p>Check the rear cover switch (1):</p> <ol style="list-style-type: none"> 1. Remove the rear cover switch. 2. Test for continuity across J740-2 <=> J740-1 while pushing and releasing the stacker rear cover switch. <p>Is the switch continuous when pushed, and open when released?</p>	Go to step 2.	Replace the rear cover switch.
2	<p>Check the rear cover harness:</p> <ol style="list-style-type: none"> 1. Remove the rear cover harness. 2. Test J74 <=> J740 for continuity. <p>Is the harness continuous?</p>	Go to step 3.	Replace the rear cover harness.
3	<p>Check stacker harness 2:</p> <ol style="list-style-type: none"> 1. Disconnect P/J70 from stacker PWBA. 2. Remove stacker harness 2. 3. Test J70 <=> J3070 for continuity <p>Is the harness continuous?</p>	Go to step 4.	Replace stacker harness 2.
4	<p>Check stacker harness 1:</p> <ol style="list-style-type: none"> 1. Remove stacker harness 1. 2. Test J30 <=> J3070 for continuity <p>Is the harness continuous?</p>	Go to step 5.	Replace stacker harness 1.
5	<p>Check the rear cover switch (2):</p> <p>Measure the voltage across P/J30-4 <=> P/J30-3 on the HVPS/engine logic board.</p> <p>Does the voltage measure +3.3 VDC?</p>	Go to “Stacker PWBA” on page 4-54.	Go to step 6.
6	<p>Check the HVPS/engine logic board:</p> <ol style="list-style-type: none"> 1. Disconnect P/J30 from the HVPS/engine logic board. 2. Test P30-4 <=> P11-16 for continuity. <p>Is it continuous?</p>	Replace the HVPS/engine logic board (page 8-73).	Go to “LVPS (Low Voltage Power Supply)” on page 4-4.

Stacker Sensor

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Stacker sensor ■ Stacker actuator ■ Stacker sensor harness ■ Stacker PWBA ■ Stacker harness 2 ■ HVPS/engine logic board ■ Stacker harness 1 	<ul style="list-style-type: none"> ■ “Stacker Plug/Jack Locator” on page 10-16 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Signal Diagram” on page 10-37 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the stacker actuator: <ol style="list-style-type: none"> 1. Remove the stacker (page 8-111). 2. Open the rear cover. 3. Manually operate the stacker actuator. <p>Does the stacker actuator operate smoothly? Does the flag move between the sensor arms when there is no paper, and out of the sensor arms when paper is present?</p>	Go to step 2.	Replace the stacker actuator.
2	Check the stacker sensor (1): <ol style="list-style-type: none"> 1. Install the stacker (page 8-111). 2. Open the rear cover. 3. Enter Service Diagnostics, and from the Sensor Tests menu select Stacker Sensor. 4. Manually operate the stacker sensor actuator. <p>Does the sensor correctly report the position of the sensor actuator?</p>	Replace the HVPS/engine logic board (page 8-73).	Go to step 3.
3	Check the stacker sensor harness: <ol style="list-style-type: none"> 1. Remove the stacker sensor harness. 2. Test P/J73 <=> P/J730 for continuity. <p>Is the harness continuous?</p>	Go to step 4.	Replace the stacker sensor harness.
4	Check stacker harness 2: <ol style="list-style-type: none"> 1. Disconnect P/J70 from stacker PWBA. 2. Remove stacker harness 2. 3. Test J70 <=> J3070 for continuity <p>Is the harness continuous?</p>	Go to step 5.	Replace stacker harness 2.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
5	Check stacker harness 1: 1. Remove stacker harness 1. 2. Test J30 <=> J3070 for continuity Is the harness continuous?	Go to step 6.	Replace stacker harness 1.
6	Replace the stacker sensor (page 8-122). Is the problem cleared?	Problem solved.	Go to “Stacker PWBA” on page 4-54.

Stacker Full Sensor (On Stacker PWBA)

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Stacker full sensor (mounted on stacker PWBA) ■ Stack full actuator ■ Stacker PWBA ■ Stacker assembly harness 2 ■ HVPS/engine logic board ■ Stacker assembly harness 1 	<ul style="list-style-type: none"> ■ “Stacker Plug/Jack Locator” on page 10-16 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Signal Diagram” on page 10-37 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the stack full actuator: 1. Remove the stacker (page 8-111). 2. Manually operate the stack full actuator. Does the stack full actuator operate smoothly? Does the flag move between the sensor arms when there is no paper, and out of the sensor arms when paper is present?	Go to step 2.	Replace the stack full actuator (page 8-117).
2	Check the stacker full sensor (1): 1. Install the stacker (page 8-111). 2. Enter Service Diagnostics, and from the Sensor Tests menu select Stacker Full Sensor . 3. Manually raise and lower the stack full actuator. Does the sensor correctly report the position of the sensor actuator?	Replace the HVPS/engine logic board (page 8-73).	Go to step 3.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	Check stacker harness 2: 1. Disconnect P/J70 from stacker PWBA. 2. Remove stacker harness 2. 3. Test J70 <=> J3070 for continuity Is the harness continuous?	Go to step 4.	Replace stacker harness 2.
4	Check stacker harness 1: 1. Remove stacker harness 1. 2. Test J30 <=> J3070 for continuity. Is the harness continuous?	Go to step 5.	Replace stacker harness 1.
5	Replace the stacker PWBA (page 8-119). Is the problem cleared?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Offset Sensor (On Stacker PWBA)

Troubleshooting Reference

Applicable Parts	Wiring and Plug/Jack Map References
<ul style="list-style-type: none"> ■ Offset sensor (mounted on stacker PWBA) ■ Offset assembly chute ■ Stacker PWBA ■ Stacker assembly harness 2 ■ HVPS/engine logic board ■ Stacker assembly harness 1 	<ul style="list-style-type: none"> ■ “Stacker Plug/Jack Locator” on page 10-16 ■ “Stacker General Wiring Diagram” on page 10-36 ■ “Stacker Signal Diagram” on page 10-37 ■ “P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly” on page 10-21

Troubleshooting Procedure

Steps	Actions and Questions	Yes	No
1	Check the actuator of the Offset Chute: 1. Remove the stacker (page 8-111). 2. Remove the stacker cover (page 8-113). 3. Manually operate the actuator on the Offset Chute. Does the Offset Chute operate smoothly?	Go to step 2.	Replace the offset chute assembly (steps 1-10 of “Upper Stacker Roller” on page 8-126.
2	Check stacker harness 2: 1. Disconnect P/J70 from stacker PWBA. 2. Remove stacker harness 2. 3. Test J70 <=> J3070 for continuity Is the harness continuous?	Go to step 3.	Replace stacker harness 2.

Troubleshooting Procedure (continued)

Steps	Actions and Questions	Yes	No
3	Check stacker harness 1: 1. Remove stacker harness 1. 2. Test J30 <=> J3070 for continuity Is the harness continuous?	Go to step 4.	Replace stacker harness 1.
4	Replace the stacker PWBA (page 8-119). Is the problem cleared?	Problem solved.	Replace the HVPS/engine logic board (page 8-73).

Print-Quality Troubleshooting

In this chapter...

- Print-Quality Problems Overview
- Analyzing Test Prints
- Print-Quality Troubleshooting

Chapter 5

Print-Quality Problems Overview

Print-quality defects can be attributed to printer components, consumables, media, internal software, external software applications, and environmental conditions. To successfully troubleshoot print-quality problems, as many variables as possible must be eliminated. The first step is to generate prints using information pages embedded in the printer on laser paper from the approved media list. The paper should be from a freshly opened ream that has been acclimated to room temperature.

Go to the “Supplies” page at www.xerox.com or print the printer’s Paper Tips page for supported paper and specialty media that has been tested and approved for use in the Phaser 4500/4510 printer. If the print-quality defect is still present when printing on approved media from a freshly opened ream of paper, then media, software applications, and environmental conditions need to be researched.

Determine the temperature and humidity under which the printer has been operating. Compare this to the environmental specifications for the printer found in “Environmental Specifications” on page 1-13 of this manual. Temperature and humidity extremes can adversely affect the Xerographic and fusing characteristics of the printer.

When analyzing a print-quality defect, first determine if the defect is repeating or random. Continuous defects in the process direction, such as voids and lines, are the most difficult to diagnose. The visible surfaces of all rollers should be inspected for obvious defects.

Analyzing Test Prints

The test print shown on page 5-5 is used to evaluate and ensure that the printed image meets the printer specifications. To make the test print:

1. From the main menu, scroll to **Troubleshooting**, then press the **OK** button.
2. Scroll to **Print Quality Problems**, then press the **OK** button.
3. Scroll to **Test Prints**, then press the **OK** button.

Note

Ensure that Edge-to-Edge printing is set to Off in the Job Defaults Menu before starting the test print. Otherwise, the image is shifted left.

Print-Quality Defect Definitions

The Test Print (shown on page 5-5) is used to evaluate each of the print-quality parameters. Each area of the test pattern is used for a print-quality parameter. The Test Print analysis procedures explain each of the areas and the print-quality parameters. Further assistance in evaluating image-quality problems is available in the **Troubleshooting Print Quality Page** in the **Print Quality Problems** section of the **Troubleshooting** menu. These pages contain detailed explanations of print-quality and image-quality problems along with possible causes and solutions for the problems.

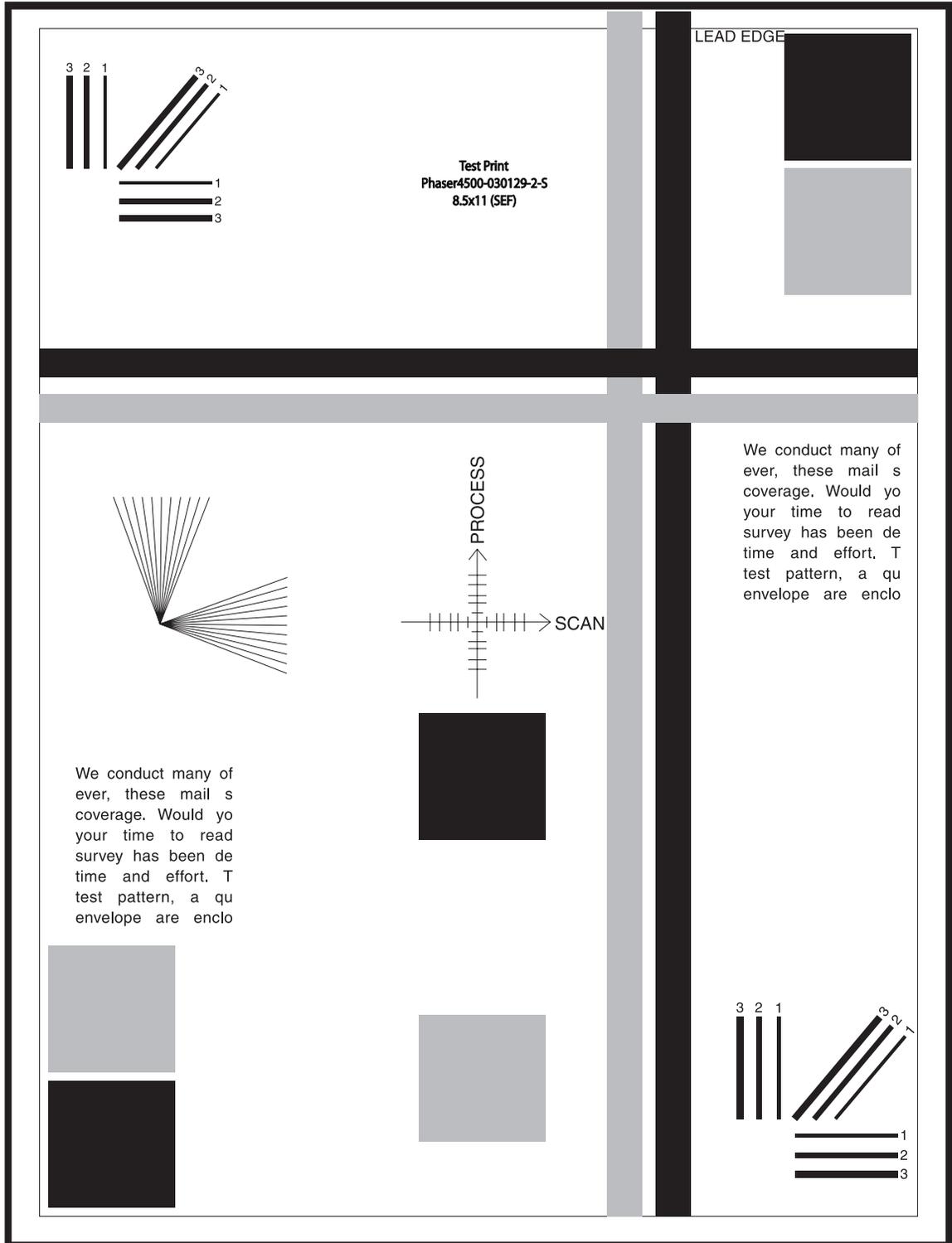
Print-Quality Defect Definitions

Defect Definitions	Go To:
LIGHT PRINTS: The overall image density is too light.	page 5-15
BLANK PRINTS: Prints with no visible image.	page 5-17
BLACK PRINTS: The print is completely covered with toner and has no visible image.	page 5-19
VERTICAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These areas run vertically along the page in the direction of paper movement.	page 5-20
HORIZONTAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These areas run horizontally across the page in the direction of scanning.	page 5-22
VERTICAL STREAKS: Extraneous dark lines/bands in the process direction.	page 5-25
HORIZONTAL STREAKS: Extraneous dark lines/bands in the direction of scan.	page 5-27
SPOTS: There are spots of toner on the page.	page 5-12
UNFUSED IMAGE: Part of or all of the image is unfused. Refer to the specification.	page 5-31
DAMAGED PRINTS: Creases, wrinkles, excessive curl, cuts, folds or embossed marks.	page 5-34

Print-Quality Defect Definitions (continued)

Defect Definitions	Go To:
RESOLUTION: At 600 dpi, the two pixel lines and halftone patches cannot be reproduced clearly on the print.	page 5-8
SPOT DELETIONS: Solid areas are marked with irregular white areas.	page 5-36
REPEATING DEFECTS: Recurring marks, spots, lines, or voids.	page 5-38
RESIDUAL IMAGES: The image from a previous print, which was not removed during the cleaning process, has been developed on the current print.	page 5-39
BACKGROUND: Uniform toner contamination in non image areas. See the Background specification.	page 5-41
UNEVEN DENSITY: The text/line darkness and solid area density image varies across the print.	page 5-42
SKEWED IMAGE: Angular displacement of the image from its intended position on the print. See the specification.	page 5-43
REGISTRATION (lead edge to trail edge): Displacement of the image, in the process direction, from its intended position on the print. (inboard to outboard): Displacement of the image, in the direction of scan, from its intended position on the print.	page 5-46
SKIPS / SMEARS: Skip-Loss or stretching of the image in bands across the process direction. Smear-The distortion of the image in bands across the process direction that cause it to appear to be blurred or compressed.	page 5-48

Test Print

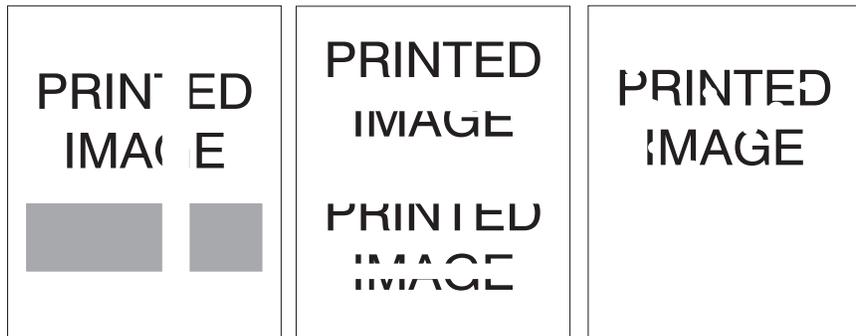


s4510-256

Note

The test print for the Phaser 4510 is identical to the test print for the Phaser 4500 except for the model number shown on the page.

Deletions (Line, Band, Spots)

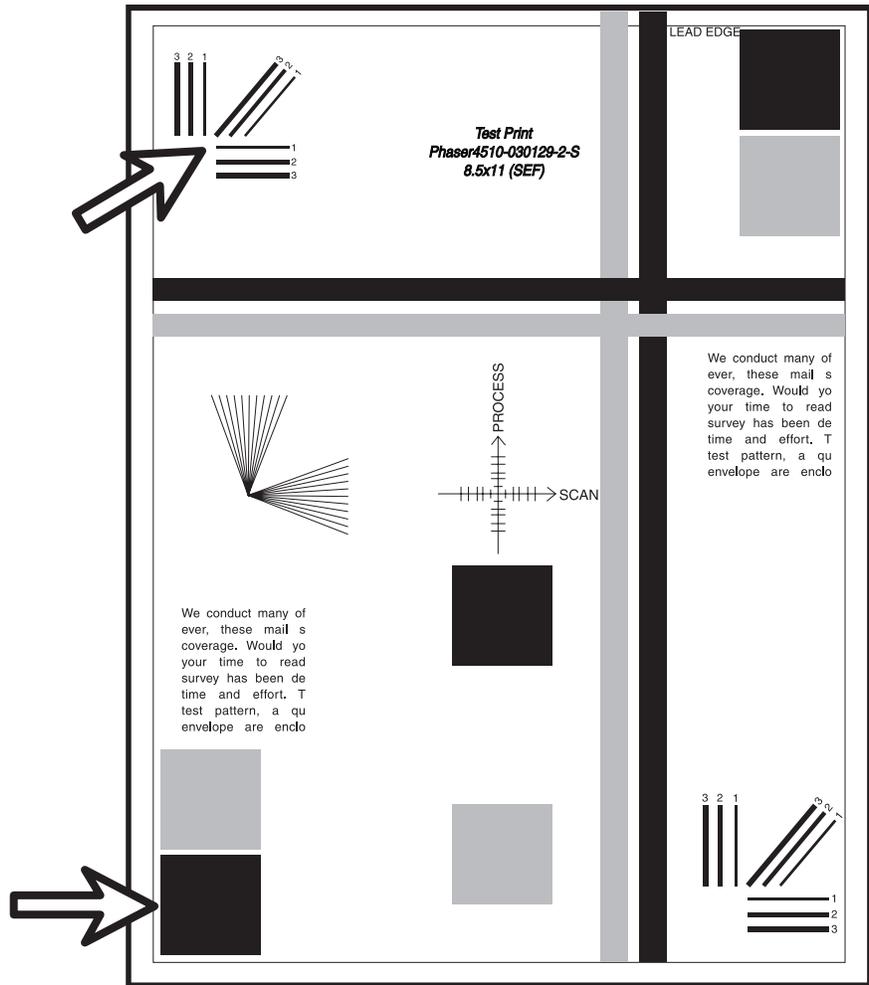


s4400_291

Line, Band, or Spot Deletions

Step	Actions and Questions	Yes	No
1	Inspect the test print for the presence of deletions (missing image). There should be no deletions with a diameter larger than 0.5 mm visible on test prints. Are there deletions on the test prints?	Go to step 2.	Go to “Fusing” on page 5-7.
2	Are there vertical (in process direction) Line/Band deletions present?	Go to “Vertical Deletions” on page 5-20.	Go to step 3.
3	Are there Horizontal (in direction of scanning) Line/Band Deletions present?	Go to Horizontal Deletions on page 5-22.	Go to step 4.
4	Are there Spot Deletions present?	Go to “Spot Deletions” on page 5-36.	Go to “Fusing” on page 5-7.

Fusing



s4510-258

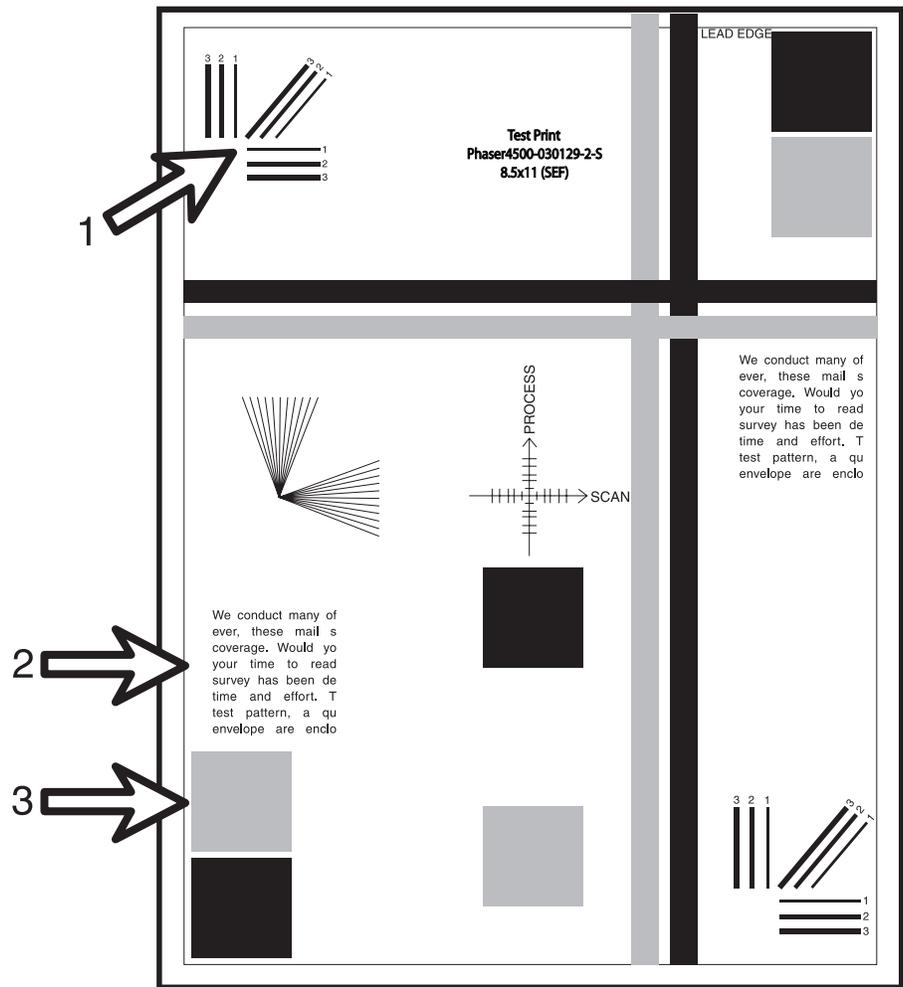
Note

The operating environment of the printer is from 41 degrees F (5 degrees C) at 15% relative humidity to 95 degrees F (35 degrees C) at 85% relative humidity. The fusing performance of the printer varies according to the environment.

- A cold environment affects the warm-up time.
- The weight (lb./gsm) or composition (such as rag content) of the paper or transparency affects the fusing of prints.
- High humidity has an adverse effect on the fusing of prints.

Actions and Questions	Yes	No
Rub the image three times at the marked check points with a soft cloth or tissue. the image should not lift off of the surface of the print. Does the fusing quality of the image appear acceptable?	Go to "Resolution" on page 5-8.	Go to "Unfused Image" on page 5-31.

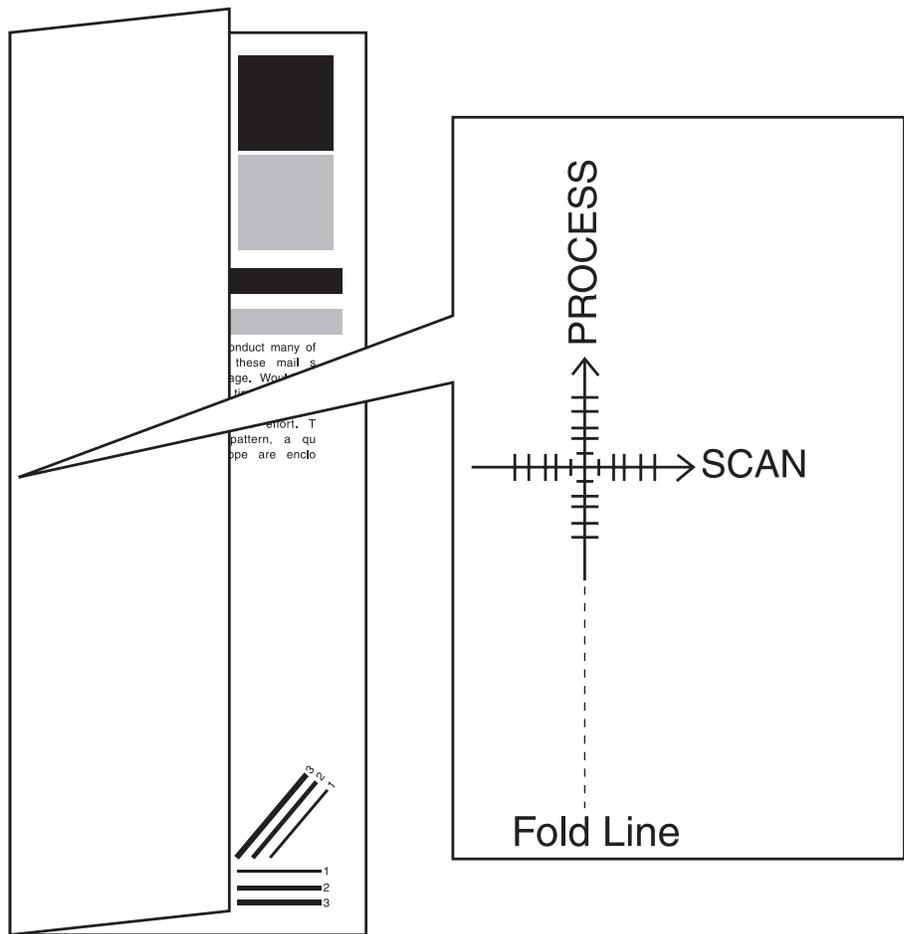
Resolution



s4500-263

Actions and Questions	Yes	No
<p>Observe the three resolution check points on several Test Prints. Check the resolution of the images in each of the following areas:</p> <ul style="list-style-type: none"> ■ Arrow 1: The two pixel vertical, horizontal, and diagonal lines should be clear and continuous. The diagonal lines might appear to be narrower than the others. ■ Arrow 2: The text paragraphs should be roughly equal in density. ■ Arrow 3: The half-tone patches adjacent to the solid blocks in the corners should be uniform in appearance. <p>Are the three check points (arrows 1, 2, and 3) within specification?</p>	<p>The printed test patterns meet the Resolution Specification. Go to “Registration (Side-to-Side)” on page 5-9.</p>	<p>Go to “Resolution” on page 5-35.</p>

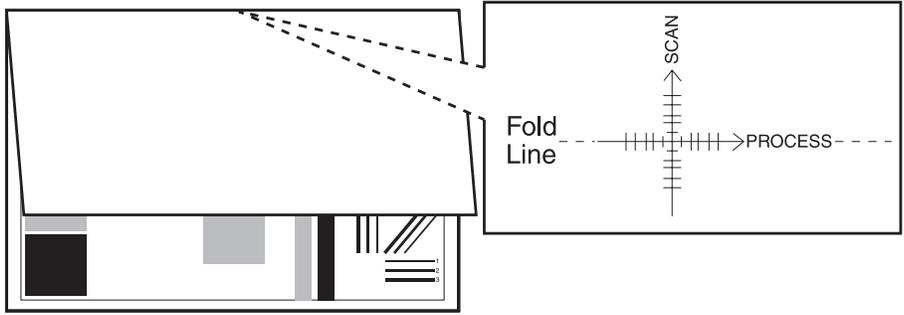
Registration (Side-to-Side)



s4400_294

Actions and Questions	Yes	No
<p>Measure the registration on two consecutive test prints. Fold the paper in half (side-edge to side-edge). Observe the fold line of the paper with reference to the cross hairs of the target.</p> <p>Is the fold within +/- 2.5 mm of the target cross hairs (each line on the target is 1 mm).</p>	<p>The test prints meet the Side-to-Side Registration Specification. Go to "Registration (Lead Edge-to-Tail Edge)" on page 5-10.</p>	<p>Go to "Registration" on page 5-46.</p>

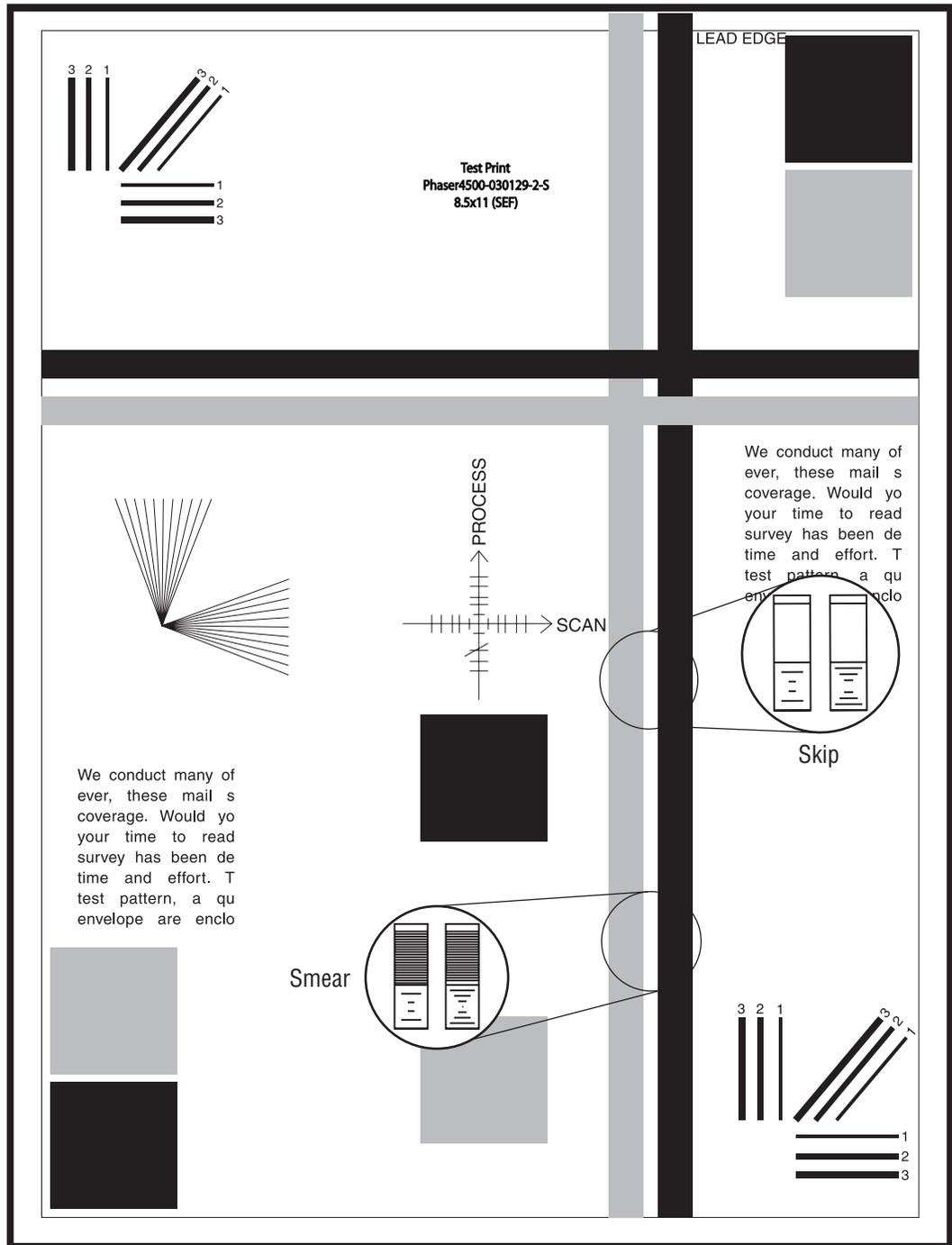
Registration (Lead Edge-to-Trail Edge)



s4400_295

Actions and Questions	Yes	No
<p>Measure the registration on two consecutive test prints:</p> <ol style="list-style-type: none"> 1. Fold the paper in half (Lead Edge-to-Trail Edge). 2. Observe the fold line of the paper with reference to the cross hairs of the target. <p>Is the fold within +/- 2.0 mm of the target cross hairs (each line on the target is 1 mm).</p>	<p>The printed test patterns meet the Lead Edge-to-Trail Edge Registration Specification. Go to "Skew" on page 5-13.</p>	<p>Go to "Registration" on page 5-46.</p>

Skips/Smears



s4510-274

Actions and Questions	Yes	No
Inspect the ladder chart test pattern as shown in the figure. Is the pattern free from skips and smears?	Go to "Spots" on page 5-12.	Go to "Skips and Smears" on page 5-48.

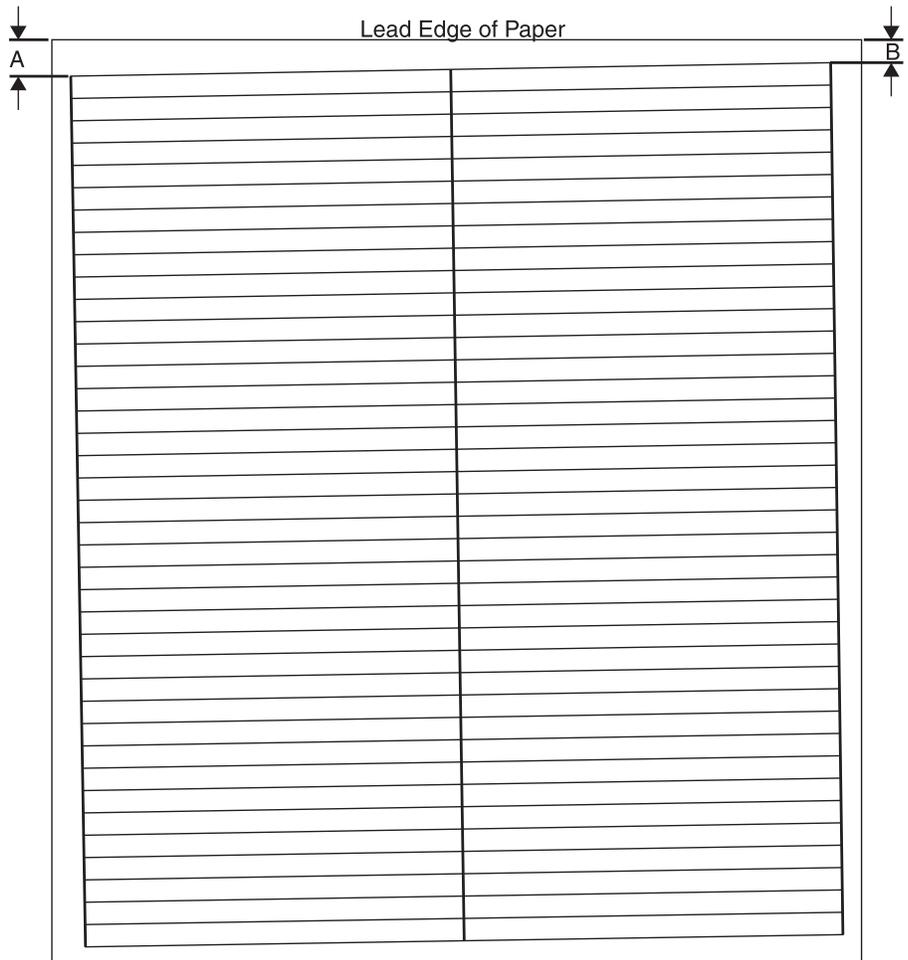
Spots



s4510-298

Actions and Questions	Yes	No
<ol style="list-style-type: none"> 1. From the Main Menu, select Information, then press the OK button. 2. Scroll to Information Pages, then press the OK button. 3. Scroll to Configuration Page, then press the OK button. 4. Inspect the print for spots. Within a 208 X 95 mm square: <ul style="list-style-type: none"> ■ There should be no spots larger than or equal to 0.5 mm visible on the prints. ■ There should be no more than 1 spot measuring between 0.4 mm and 0.5 mm visible on the print. ■ There should be no more than 16 spots measuring between 0.25 mm and 0.4 mm visible on the print. ■ Any spot measuring less than 0.25 mm is acceptable. <p>Are the prints free of spots or the spots that are visible fall within the acceptable range?</p> 	<p>Go to “Light (Undertoned) Print” on page 5-15.</p>	<p>Go to “Spots” on page 5-29.</p>

Skew



s4400_296

Actions and Questions	Yes	No
<ol style="list-style-type: none"> 1. Enter Service Diagnostics, select Engine Test Print, then press the OK button. 2. Scroll to Print Test Pattern, then press the OK button. 3. Measure the dimensions 'A' and 'B' on two consecutive test patterns. <p>Is the difference between 'A' and 'B' 1.2 mm or less?</p>	The printed test patterns meet the Skew specifications. Go to "Skips and Smears" on page 5-48.	Go to "Skewed Image" on page 5-43.

Other Print Defects

Step	Actions and Questions	Yes	No
1	Inspect the Test Patterns for other Print Defects. Are the test prints free of defects?	Return to "Analyzing Test Prints" on page 5-3.	Go to step 2.
2	Are there dark streaks present on the test prints?	Go to "Vertical Streaks" on page 5-25 or "Horizontal Streaks" on page 5-27.	Go to step 3.
3	Is there a residual image (ghost) on the test print?	Go to "Residual Image" on page 5-39.	Go to step 4.
4	Is the paper damage: wrinkles, creases, tears, etc.?	Go to "Damaged Print" on page 5-34.	Problem solved.

Print-Quality Troubleshooting

Light (Undertoned) Print

The overall image density is too light.

Initial Actions

- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check the installation of the print cartridge.
- Check that the print cartridge ground contact points (on the right side of the print cartridge and in the print cartridge Right Side guide in the printer) are clean.
- Ensure that there are no obstructions in the Laser path.
- Ensure that draft mode is turned off.
- Ensure the NVRAM Laser Power adjustment (is set to the default, which is 4).



s4510-037

Light Prints Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Load fresh, dry paper. 2. Print a test print. Does the image density meet specifications?	Problem solved.	Go to step 2.
2	1. Install a new print cartridge. 2. Print a test print. Does the image density meet specifications?	Problem solved.	Go to step 3.
3	1. Remove the print cartridge. 2. Inspect the two wide metal contacts on the print cartridge Right Side Guide. Are the metal contacts intact and free of contamination?	Go to step 5.	Go to step 4.

Light Prints Troubleshooting Procedure (continued)

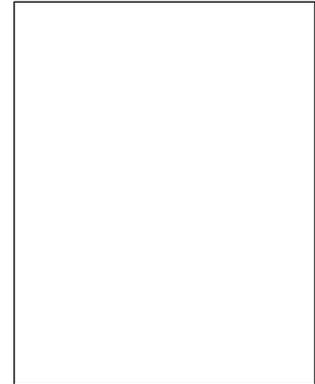
Step	Actions and Questions	Yes	No
4	<p>1. Reform or clean the metal contacts so they make better contact with the print cartridge. Ensure that they are pressed firmly into their plastic mounting pins, and bent outward (not flat).</p> <p>2. Print a test print.</p> <p>Does the image density meet specifications?</p>	Problem solved.	Go to step 5.
5	<p>Check for continuity between the metal grounding contact (the upper contact that has double fingers) and the printer body frame.</p> <p>Is there continuity between the metal grounding contact and the printer frame?</p>	Go to step 6.	Replace the print cartridge right guide (page 8-47).
6	<p>Inspect the laser beam path between the Laser Assembly and the drum for obstructions.</p> <p>Is the laser beam path free of obstructions?</p>	Go to step 7.	Clean the laser window and remove any obstructions from the laser beam path.
7	<p>Is the transfer roller intact and free of contamination?</p>	Go to step 8.	Replace the transfer roller (page 8-45).
8	<p>1. Generate a test print and switch printer power OFF halfway through the print cycle.</p> <p>2. Carefully remove the print cartridge and inspect the toner image on the drum just before the transfer area (transfer roller).</p> <p>Is the image on the drum completely developed with sharp, black, easy-to-read areas?</p>	Go to step 9.	Go to “HVPS/Engine Logic Board” on page 4-32.
9	<p>Inspect the toner image on the drum immediately after the transfer area (transfer roller).</p> <p>Is the toner image on the drum transferred completely to the paper?</p>	Go to step 10.	Go to “HVPS/Engine Logic Board” on page 4-32.
10	<p>Replace in order until the problem is solved:</p> <ul style="list-style-type: none"> ■ HVPS/Engine Logic PWB (page 8-73) ■ Laser Assembly (page 8-38) ■ Transfer roller (page 8-45) 		

Blank Print (No print)

No visible image anywhere on the output print as shown here.

Initial Actions

- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check the installation of the print cartridge.
- Check that the print cartridge ground contact points (on the right side of the print cartridge and in the print cartridge Right Side guide in the printer) are clean.
- Ensure there are no obstructions in the Laser path.
- Ensure the blank prints are not the result of multi-sheet feeds.



s4500-038

Blank Prints Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	<ol style="list-style-type: none"> 1. Enter Service Diagnostics, then select Engine Test Print. 2. Scroll to Print Quantity, then press the OK button. 3. Press the OK button to move the cursor over the last digit, then press the Up Arrow button until the last digit is 5. Press the Back button to return to the Engine Test Print menu. 4. Scroll to Print Test Pattern, then press the OK button. <p>Are the test prints blank?</p>	Go to step 3.	Go to step 2.
2	<ol style="list-style-type: none"> 1. Exit Service Diagnostics. 2. When the printer has restarted, select Information, then press the OK button. 3. Scroll to Information Pages, then press the OK button. 4. Scroll to Configuration Page, then press the OK button. <p>Are the pages blank?</p>	Verify the harness connections on the image processor board. If the problems persist, replace the image processor board (page 8-75).	The problem appears to be with the host computer or the cables. If the problems persist, replace the Image Processor Board (page 8-75).

Blank Prints Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
3	1. Install a new print cartridge. 2. Print a test print as in Step 1. Is there a normal image on the paper?	Problem solved.	Go to step 4.
4	1. Remove the print cartridge. 2. Inspect the Metal Grounding Contact on the print cartridge Right Side Guide. Is the Metal Grounding Contact intact and free of contamination?	Go to step 5.	Reform or clean the Metal Grounding Contact, so they make better contact with the drum shaft, or replace the print cartridge right guide (page 8-47).
5	Check for continuity between the Metal Grounding Contact and the printer frame. Is there continuity between the Grounding Contact and the printer frame?	Go to step 6.	Replace the print cartridge right guide (page 8-47).
6	Is the transfer roller intact and free of contamination?	Go to step 7.	Replace the transfer roller assembly (page 8-45).
7	1. Generate a test print as in Step 1 and switch the printer power OFF halfway through the print cycle. 2. Carefully remove the print cartridge and inspect the toner image on the drum just before the transfer area (transfer roller). Is the image on the drum completely developed with sharp, black, easy-to-read areas?	Go to step 8.	Go to “HVPS/Engine Logic Board” on page 4-32.
8	Replace in order until the problem is solved: <ul style="list-style-type: none"> ■ HVPS/Engine Logic PWB (page 8-73) ■ Laser Assembly (page 8-38) ■ transfer roller assembly (page 8-45) ■ LVPS PWB (page 8-62) ■ Print cartridge Right Side Guide (page 8-47) 		

Black Prints

A totally black output print. There is toner on the paper with no visible image.

Initial Actions

- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.
- Ensure the machine covers are in place and fit well so no outside light can enter the machine.



s4510-039

Black Prints Troubleshooting Procedures

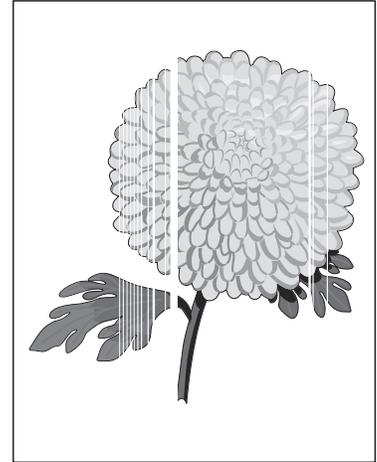
Step	Actions and Questions	Yes	No
1	1. Install a new print cartridge. 2. Print a test print. Is the print normal?	Problem solved.	Go to step 2.
2	Shield half of the window of the Laser Assembly. Print a test print. Is the print half white and half black?	Go to Laser Assembly on "Laser Unit Assembly" on page 8-38.	Go to HVPS/Engine Logic Board on "HVPS/Engine Logic Board" on page 4-32.

Vertical Deletions

A vertical band in the process direction (direction of paper travel) where the image is missing or extremely light.

Initial Actions

- Check that the paper supply is dry and fresh.
- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.
- Ensure there are no obstructions in the laser path.
- Check that rollers and other components in the paper path are clean and unobstructed.



s4510-040

Vertical Deletions Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Load fresh, dry paper. 2. Print a test print. Is the problem still present?	Go to step 2.	Problem solved.
2	1. Install a new print cartridge. 2. Print a test print. Is the problem still present?	Go to step 3.	Problem solved.
3	Inspect the laser beam path between the Laser Assembly and the Drum. Is the laser beam path free of obstructions?	Go to step 4.	Remove any obstructions from the laser beam path.
4	Inspect the paper path, between feed and exit, for contamination or obstructions. Is the paper path free of obstructions?	Go to step 5.	Remove obstructions or contamination from the paper path.
5	Inspect the transfer roller assembly for contamination and wear. Is the transfer roller free of contamination and wear?	Go to step 6.	Replace the transfer roller assembly (page 8-45).

Vertical Deletions Troubleshooting Procedure (continued)

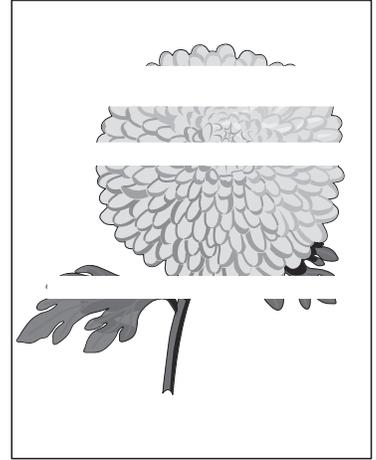
Step	Actions and Questions	Yes	No
6	<p>Warning: Allow the fuser assembly to cool before removing.</p> <ol style="list-style-type: none"> 1. Open the rear cover and remove the fuser assembly. 2. Manually rotate the fuser drive gear and inspect the heat roller. 3. Open the fuser jam access cover. 4. Manually rotate the fuser drive gear and inspect the pressure roller. <p>Are the heat roller and pressure roller free of surface defects and contamination?</p>	Go to Step 7.	Replace the fuser assembly ("Fuser Assembly" on page 8-44)
7	<p>Replace in order until the problem is solved.</p> <ul style="list-style-type: none"> ■ transfer roller assembly (page 8-45) ■ Laser Assembly (page 8-38) ■ Fuser assembly fuser assemblypage 8-44) ■ Engine Logic Board (page 8-73) 		

Horizontal Deletions

A deletion is an area of the print where the image is missing or extremely light. Horizontal deletions extend across the page.

Initial Actions

- Check that the paper supply is dry and fresh.
- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check the installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.
- Check that the two wide metal bias contacts on the print cartridge right-side guide are pressed firmly onto their plastic mounting pins and bent outward (not flat).
- Check that rollers and other components in the paper path are clean and unobstructed.



s4510-041

Horizontal Deletions Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Enter Service Diagnostics , then select Engine Test Print . 2. Scroll to Print Quantity , then press the OK button. 3. Press the OK button to move the cursor over the last digit, then press the Up Arrow button until the last digit is 5. Press the Back button to return to the Engine Test Print menu. 4. Scroll to Print Test Pattern , then press the OK button. Do the prints have horizontal deletions?	Go to step 3.	Go to step 2.

Horizontal Deletions Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
2	<ol style="list-style-type: none"> Exit Service Diagnostics. When the printer has restarted, select Information, then press the OK button. Scroll to Information Pages, then press the OK button. Scroll to Configuration Page, then press the OK button. <p>Do the prints have horizontal deletions?</p>	Verify the harness connections on the image processor board. If the problems persist, replace the image processor board (page 8-75).	The problem appears to be with the host computer or the cables. If the problems persist, replace the image processor board (page 8-75).
3	<ol style="list-style-type: none"> Load fresh, dry paper. Print a test print. <p>Is the problem still present?</p>	Go to step 4.	Problem solved.
4	<ol style="list-style-type: none"> Install a new print cartridge. Print a test print. <p>Is the problem still present?</p>	Go to step 5.	Problem solved.
5	<p>Inspect the transfer roller assembly for contamination and wear.</p> <p>Is the transfer roller free of contamination and wear?</p>	Go to step 6.	Replace the transfer roller assembly (page 8-45).
6	<ol style="list-style-type: none"> Print a test print. Switch OFF the printer power halfway through the print cycle. Carefully remove the print Cartridge and inspect the toner image on the drum just before the transfer area (transfer roller). <p>Is the image on the drum completely developed with sharp, black, easy-to-read areas and no horizontal deletions?</p>	Go to step 7.	Go to “HVPS/Engine Logic Board” on page 4-32.
7	<p>Inspect the toner image on the drum immediately after the transfer area (transfer roller).</p> <p>Was the toner image on the drum transferred to the paper?</p>	Go to step 8.	Go to “HVPS/Engine Logic Board” on page 4-32.

Horizontal Deletions Troubleshooting Procedure (continued)

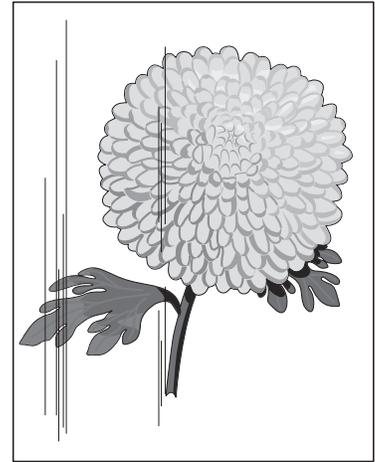
Step	Actions and Questions	Yes	No
8	<p>Warning: Allow the fuser assembly to cool before removing.</p> <ol style="list-style-type: none"> 1. Open the rear cover and remove the fuser assembly. 2. Manually rotate the fuser drive gear and inspect the heat roller. 3. Open the Fuser Jam Access cover. 4. Manually rotate the fuser drive gear and inspect the pressure roller. <p>Are the heat roller and the pressure roller free of surface defects and contamination?</p>	Go to step 9.	Replace the fuser assembly (page 8-44).
9	<p>Replace in order until the problem is solved:</p> <ul style="list-style-type: none"> ■ HVPS/engine logic PWB (page 8-73) ■ Print cartridge right side guide (page 8-47) ■ Transfer roller assembly (page 8-45) ■ Laser assembly (page 8-38) ■ Fuser assembly (page 8-44) ■ Registration clutch (page 8-92) ■ Main motor assembly (page 8-55) ■ Gear assembly housing (page 8-56) 		

Vertical Streaks

Extraneous dark lines/bands in the process direction (in the direction of paper travel).

Initial Actions

- Check that the paper supply is dry and fresh.
- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.
- Check that the paper is within specifications.
- Inspect the paper path, between the feed and exit points, for contamination or obstructions.



s4510-042

Vertical Streaks Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	<ol style="list-style-type: none"> 1. Enter Service Diagnostics, then select Engine Test Print. 2. Scroll to Print Quantity, then press the OK button. 3. Press the OK button to move the cursor over the last digit, then press the Up Arrow button until the last digit is 5. Press the Back button to return to the Engine Test Print menu. 4. Scroll to Print Test Pattern, then press the OK button. <p>Do the test prints have vertical streaks?</p>	Go to step 3.	Go to step 2.

Vertical Streaks Troubleshooting Procedure (continued)

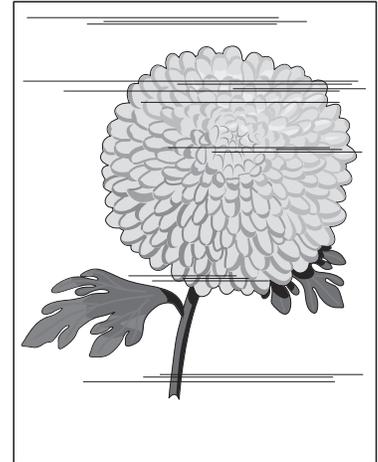
Step	Actions and Questions	Yes	No
2	1. Exit Service Diagnostics. 2. When the printer is Ready, scroll to Information , then press the OK button. 3. Scroll to Information Pages menu, then press the OK button. 4. Scroll to Configuration Page , then press the OK button. Do the prints have vertical streaks?	Verify harness connectors on the I/P Board. If the problem persists, replace the Image Processor Board (page 8-75).	The problem appears to be with the host computer or the cables. If the problems persist, replace the Image Processor Board (page 8-75).
3	1. Install a new print cartridge. 2. Print a test print. Are the vertical streaks gone?	Problem solved.	Go to step 4.
4	Inspect the transfer roller assembly for contamination and wear. Is the transfer roller free of contamination and wear?	Go to step 5.	Replace the transfer roller assembly ("Transfer Roller Assembly" on page 8-45).
5	Warning: Allow the fuser assembly to cool before removing. 1. Open the rear cover and remove the fuser assembly. 2. Rotate the fuser drive gear manually and inspect the heat roller. 3. Open the fuser jam access cover. 4. Rotate the fuser drive gear manually and inspect the pressure roller. Are the heat roller and the pressure roller free of surface defects and contamination?	Go to Electrical Noise (page 4-37).	Replace the fuser assembly (page 8-44).

Horizontal Streaks

There are black lines running horizontally across the page in the scan direction (at a right angle to the direction of paper travel).

Initial Actions

- Check that the paper supply is dry and fresh.
- Inspect the printer paper path for items, such as staples, paper clips, and paper scraps.
- Check installation of the print cartridge.
- Check that the print cartridge contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.



s4510-043

Horizontal Streaks Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	<ol style="list-style-type: none"> 1. Enter Service Diagnostics and select Engine Test Print. 2. Scroll to Print Quantity, then press the OK button. 3. Press the OK button to move the cursor over the last digit, then press the Up Arrow key until the last digit is "5". Press the Back button to return to the Engine Test Print menu. 4. Scroll to the Print Test Pattern and press the OK button. 	Go to step 3.	Go to step 2.
2	<ol style="list-style-type: none"> 1. Exit Service Diagnostics. 2. When the printer is Ready, scroll to Information, then press the OK button. 3. Scroll to Information Pages, then press the OK button. 4. Scroll to Configuration Page, then press the OK button. <p>Do the prints have horizontal streaks?</p>	Verify harness Connectors on I/P PWABA. If the problems persist, replace the Image Processor Board (page 8-75).	The problem appears to be with the host computer or the cables. If the problems persist, replace the Image Processor Board (page 8-75).

Horizontal Streaks Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
3	1. Install a new print cartridge. 2. Print a test print. Do the prints have horizontal streaks?	Problem solved.	Go to step 4.
4	Verify that the connectors on the Laser Assembly are firmly connected. Verify that the Laser Assembly is firmly connected to the frame.	Go to step 5.	Reconnect the connectors and/or re-install the Laser Assembly.
5	Replace Drive Assembly and gear assembly housing Reprint the problem image. Does the problem still occur?	Go to step 6.	Problem solved.
6	Inspect the transfer roller assembly for contamination and wear. Is the transfer roller free of contamination and wear?	Go to step 7.	Replace the transfer roller assembly (page 8-45).
7	1. On the control panel, scroll to Information , then press the OK button. 2. Scroll to Information Pages , then select the OK button. 3. Scroll to Print Test Prints , then press the OK button. 4. Switch OFF the printer power halfway through the print cycle. 5. Carefully remove the print cartridge and inspect the toner image on the drum just before the transfer area (transfer roller). Is the image on the Drum developed with sharp, black, easily read areas and no horizontal streaks?	Go to step 8.	Go to High-Voltage Power Supply (HVPS) Assembly (page 4-32).
8	Inspect the toner image on the paper immediately after the transfer area (transfer roller). Is the toner image on the paper clear without any horizontal streaks?	Go to step 9.	Replace the transfer roller assembly (page 8-45).

Horizontal Streaks Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
9	<p>Warning: Allow the fuser assembly to cool before removing.</p> <ol style="list-style-type: none"> 1. Open the rear cover and remove the fuser assembly. 2. Manually rotate the fuser drive gear and inspect the heat roller. 3. Open the fuser jam access cover. 4. Manually rotate the fuser drive gear and inspect the pressure roller. <p>Are the heat roller and the pressure roller Free of surface defects and contamination?</p>	Go to Electrical Noise (page 4-37).	Replace the fuser assembly (page 8-44).

Spots

There are spots of toner randomly scattered on the page.

Initial Actions

- Check that the paper supply is clean, dry, and fresh (recycled paper may have spots).
- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.
- Check that rollers and other components in the paper path are clean and unobstructed.



s4510-045

Spots Troubleshooting Procedure

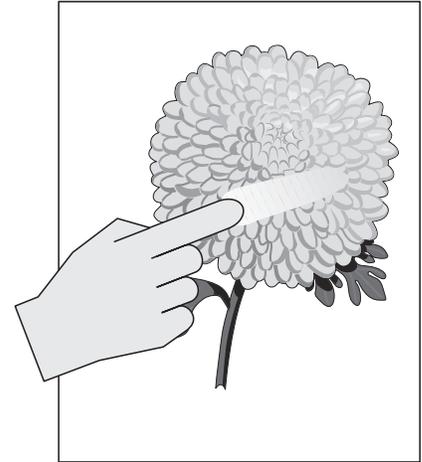
Step	Actions and Questions	Yes	No
1	1. Install a new print cartridge. 2. Print a test print. Are the spots gone?	Problem solved.	Go to step 2.
2	Inspect the transfer roller assembly for contamination and wear. Is the transfer roller free of contamination and wear?	Go to step 3.	Replace the transfer roller assembly (page 8-45).
3	1. Generate a test print and switch OFF the printer power halfway through the print cycle. 2. Carefully remove the print cartridge and inspect the toner image on the drum just before the transfer area (transfer roller). Is the image on the drum completely developed with sharp, black, easy-to-read areas and no spots?	Go to step 4.	Go to High-Voltage Power Supply (HVPS) Assembly (page 4-32).
4	1. Open the rear cover. <i>Warning:</i> Allow the fuser assembly to cool before removing. 1. Remove the fuser assembly. 2. Manually rotate the fuser drive gear and inspect the heat roller. 3. Open fuser jam access cover. 4. Manually rotate the fuser drive gear and inspect the pressure roller. Are the heat roller and the pressure roller free of surface defects and contamination?	To to step 5.	Replace the fuser assembly (page 8-44).
5	Replace the following, in order, until the defective component is found: <ul style="list-style-type: none"> ■ transfer roller assembly (page 8-45) ■ fuser assembly (page 8-44) ■ HVPS Engine Logic PWB (page 8-73) ■ Laser Assembly (page 8-38) 		

Unfused Image

The printed image is not fully fused to the paper. The image rubs off easily.

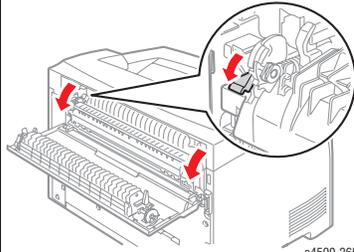
Initial Actions

Check to ensure that the paper is within specifications.



s4510-051

Unfused Image Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Replace the paper with fresh, dry paper from an unopened ream. 2. Print a test print. Is the problem still present?	Go to step 2.	Problem solved.
2	1. Check that the levers on both sides of the fuser assembly are pushed down.  2. Reprint the problem image. Does the problem still occur?	Go to step 3.	Problem solved.

Unfused Image Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
3	<ol style="list-style-type: none"> 1. From the main menu, select Printer Setup, then press the OK button. 2. Scroll to Paper Handling Setup, then press the OK button. 3. Scroll to Fuser Configuration, then press the OK button. 4. Scroll to the Media Type being used and see the Fuser Configuration Table (page 5-33) to ensure that the correct Fuser Temperature is set. <p>Is the problem still present after the correct configuration is set?</p>	Go to step 4.	Problem solved.
4	<p>Change the temperature setting to the next higher setting for the media type.</p> <p>Is the problem still present?</p>	Go to step 5.	Problem solved. Inform the customer that the selected media type requires the higher fuser temperature setting.
5	<p>Is the overall print density within specification?</p>	Go to step 6.	Go to “Light (Undertoned) Print” on page 5-15.
6	<ol style="list-style-type: none"> 1. Open the rear cover. 2. Remove the fuser assembly. 3. Manually rotate the fuser drive gear and inspect the heat roller. 4. Open the fuser jam access cover. 5. Manually rotate the fuser drive gear and inspect the pressure roller. <p>Are the heat roller and the pressure roller free of surface defects and contamination?</p>	Go to step 7.	Clean or replace the fuser assembly (page 8-44).
7	<ol style="list-style-type: none"> 1. Open the fuser jam access cover. 2. Manually rotate the fuser drive gear and inspect the contact between the heat roller and the pressure roller along the rotation. <p>Are the heat roller and the pressure roller contacting each other uniformly?</p>	Go to step 8.	Replace the fuser assembly (page 8-44).

Unfused Image Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
8	Replace the following in order, until the defective component is found: <ul style="list-style-type: none"> ■ Fuser assembly (page 8-44) ■ HVPS/engine logic board (page 8-73) ■ LVPS PWB (page 8-62) 		

Fuser Configuration Defaults

Paper Type	Default Fuser Temperature Setting
Plain	Medium
Letterhead	Medium
Transparency	Low
Labels	High
Colored Paper	Medium
Card Stock	High
Envelope	High
Special	Medium

Damaged Print

The printed page comes out of the printer either wrinkled, creased, or torn.

Initial Actions

- Check that the paper supply is dry and fresh.
- Check that rollers and other components in the paper path are clean and unobstructed.
- Ensure that paper is within specification.
- **P4500:** Refer to Service Bulletin 674 that addresses crease marks on the output.



s4510-049

Damaged Print Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	Observe the paper feed as you print a test print Did the paper feed crookedly?	Go to skewed image (page 5-43).	Go to step 2.
2	Replace paper with fresh, dry standard paper. Print a test print. Is the paper still damaged?	Go to step 3.	Problem solved.
3	Warning: Allow the fuser assembly to cool before removing. 1. Open the rear cover and remove the fuser assembly. 2. Manually rotate the drive gear and inspect the heat roller. 3. Open the fuser jam access cover. 4. Manually rotate the fuser drive gear and inspect the pressure roller. Are the heat roller and the pressure roller free of surface defects and contamination?	Go to step 4.	Clean or replace the fuser assembly (page 8-44).
4	Inspect the paper path between the feed tray and the exit tray for contamination or obstructions. Is the paper path free of obstructions?	Go to step 5.	Remove obstructions or contamination from the paper path.

Damaged Print Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
5	Inspect all of the rollers along the paper path, between the feed tray and the exit tray, for contamination, wear, or damage. Are the paper path rollers free of contamination, wear, or damage?	Go to step 6.	Problem solved.
6	1. Install a new print cartridge. 2. Print a test print. Is the print still damaged?	Go to step 7.	Problem solved.
7	Replace the following, in order, until the defective component is found. <ul style="list-style-type: none"> ■ Paper feed rollers (page 8-16) ■ Fuser assembly (page 8-44) ■ transfer roller assembly (page 8-45) ■ 150-sheet feeder assembly (page 8-15) ■ 550-sheet feeder assembly (page 8-24) ■ Exit Assembly (page 8-49) 		

Resolution

The two-pixel lines and halftone patches cannot be reproduced clearly on the print.

Initial Actions

Ensure the NVRAM Laser Power adjustment is set to the default, which is 4.

Resolution Troubleshooting Procedure

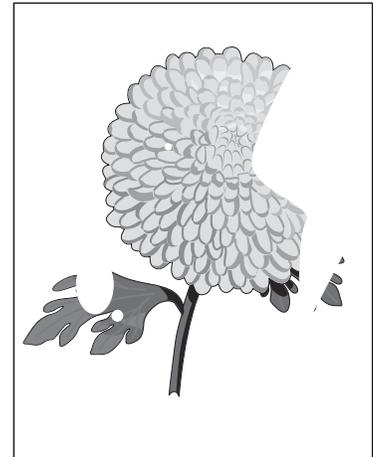
Step	Actions and Questions	Yes	No
1	1. Install a new print cartridge. 2. Print a test print. Is the test print output resolution good?	Problem solved.	Go to step 2.
2	Replace the following, in order until the defective component is found: <ul style="list-style-type: none"> ■ Laser Assembly (page 8-38) ■ HVPS/Engic Logic PWBA (page 8-73) 		

Spot Deletions

Solid areas are marked with irregular white areas.

Initial Actions

- Check that the paper supply is dry and fresh.
- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check the installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.



s4510-044

Spot Deletions Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Load fresh, dry paper 2. Print a test print Is the problem still present?	Go to step 2.	Problem solved.
2	1. Install a new print cartridge. 2. Print a test print. Is the problem still present?	Go to step 3.	Problem solved.
3	1. Generate a test print, and switch OFF the printer power halfway through the print cycle. 2. Carefully remove the print cartridge and inspect the toner image on the drum just before the transfer area (transfer roller). Before transfer, was the toner image on the drum normal and without spot deletions, but there were spot deletions on the paper after transfer?	Replace the transfer roller assembly (page 8-45).	Go to step 4.

Spot Deletions Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
4	<p>Warning: Allow the fuser assembly to cool before removing.</p> <ol style="list-style-type: none"> 1. Open the rear cover and remove the fuser assembly. 2. Manually rotate the fuser drive gear and inspect the heat roller. 3. Open the Fuser Jam Access cover. 4. Manually rotate the fuser drive gear and inspect the pressure roller Drive. <p>Are the heat roller and the pressure roller free of surface defects and contamination?</p>	Go to step 5.	Replace the fuser assembly (page 8-44).
5	<p>Replace the following, in order, until the defective component is found:</p> <ul style="list-style-type: none"> ■ Transfer roller assembly (page 8-45) ■ Laser Assembly (page 8-38) 		

Repeating Defects

Recurring marks, spots, lines, or voids.

Initial Actions

- Check that the paper supply is dry and fresh.
- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.

Repeating Defects Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Replace paper with fresh, dry paper. 2. Print a test print. Do the repeating defects still appear?	Go to step 2.	Problem solved.
2	Do the defects occur every: <ul style="list-style-type: none"> ■ 38 mm (1.5 in.) ■ 52 mm (2.0 in.) ■ 94.4 mm (3.72 in.) 	Install a new print cartridge.	Go to step 3.
3	Do the defects occur every: 51 mm (2.0 in.)	Replace the transfer roller assembly (page 8-45).	Go to step 4.
4	Do the defects occur every: 94.2 mm (3.7 in.)	Replace the fuser assembly (page 8-44).	

Residual Image

The image from a previous print, which was not removed during the cleaning process, has been developed on the current print.

Initial Actions

- Inspect the printer paper path for foreign items, such as staples, paper clips, and paper scraps.
- Check the installation of the print cartridge.
- Check that the print cartridge ground contact points are clean.
- Verify the paper is within the specifications on the Paper Tips Page.



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Residual Image Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Replace paper with fresh, dry paper. 2. Print a test print. Do the residual images still appear?	Go to step 2.	Problem solved.
2	1. Install a new print cartridge. 2. Print a test print. Do the residual images still appear?	Go to step 3.	Problem solved.
3	Inspect the transfer roller assembly for contamination and wear. Is the transfer roller free of contamination and wear?	Go to step 4.	Replace the transfer roller assembly (page 8-45).

Residual Image Troubleshooting Procedure (continued)

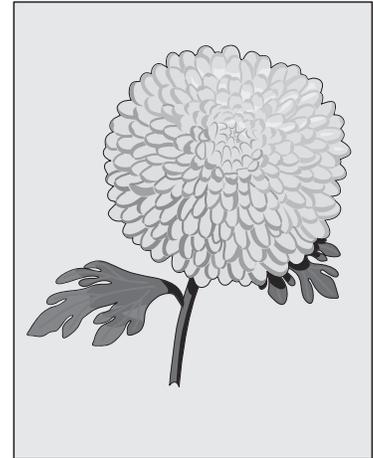
Step	Actions and Questions	Yes	No
4	<p>Warning: Allow the fuser assembly to cool before removing.</p> <ol style="list-style-type: none"> 1. Open the rear cover and remove the fuser assembly. 2. Manually rotate the fuser drive gear and inspect the heat roller. 3. Open the fuser jam access cover. 4. Manually rotate the fuser drive gear and inspect the pressure roller. <p>Are the heat roller and the pressure roller free of surface defects and contamination.</p>	Go to step 5.	Clean or replace the fuser assembly (page 8-44).
5	<p>Replace the following, in order, until the defective component is found:</p> <ul style="list-style-type: none"> ■ Transfer roller assembly (page 8-45) ■ Fuser assembly (page 8-44) ■ HVPS Engine Logic PWB (page 8-73) ■ print cartridge Right Side Guide (page 8-47) 		

Background

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

Initial Actions

- Inspect the printer paper path for items, such as staples, paper clips, and paper scraps.
- Check the installation of the print cartridge.
- Check that the print cartridge ground contacts (on the right side of the print cartridge and in the print cartridge Right Side Guide in the printer) are clean.
- Ensure the machine covers are in place and fit well so no outside light can enter the machine.



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Background Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Install a new print cartridge. 2. Print a test print. Is the background gone?	Problem solved.	Go to step 2.
2	1. Generate a test print and switch OFF the printer power halfway through the print cycle. 2. Carefully remove the print cartridge and inspect the toner image on the drum just before the transfer area (transfer roller). Are the undeveloped areas of the drum clean and without background?	Go to step 3.	Go to High-Voltage Power Supply (HVPS) "HVPS/ Engine Logic Board" on page 4-32.
3	1. Check the 150-sheet feeder assembly ground. 2. Remove the print cartridge. 3. Check the connection between the 150-sheet feeder assembly metal part and printer frame metal part. Is the 150-sheet feeder assembly grounded?	Go to step 4.	Remove the 150-sheet feeder assembly and install again for the correct ground.

Uneven Density Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	1. Install a new print cartridge. 2. Print a test print. Does the test print output image contain uneven print?	Go to step 2.	Problem solved.
2	1. Panic stop the printer halfway through the print cycle. 2. Look at the image on the drum. Does the image on the drum have even density?	Go to step 3.	Repair or replace the transfer roller assembly (page 8-45).
3	Check the transfer roller for contamination, even spring pressure, and proper installation. Is the transfer roller in good condition (not contaminated) and properly installed?	Go to step 4.	Repair or replace the transfer roller assembly (page 8-45).
4	Look at the print on the paper before the Fuser. Does the print on the paper have even density?	Replace the fuser assembly (page 8-44).	Replace the transfer roller assembly (page 8-45).

Skewed Image

The image is not parallel to the edges of the print sheet.

Note

Refer to “Skew” on page 5-13 for specification information.

Initial Actions

- Check the paper tray(s) installation and the paper in the tray(s).
- Load fresh, dry paper.
- Paper meets specifications.
- Check the paper path for any obstructions or debris that might hamper the passage of the paper.
- Ensure the print cartridge is properly installed.



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Skewed Image Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	<p>Run 5 Test Prints, single sided, from each paper tray. If the printer has a duplex unit, run five duplexed prints from each tray.</p> <p>Does the skewed image appear only on duplexed prints?</p>	<ul style="list-style-type: none"> ■ Check the fuser assembly. Check for worn parts or rollers. Check for obstructions or contamination. Clean or replace as necessary. ■ Check all rollers and drives in the Exit Assembly. Check for obstructions or contamination. Clean or replace as necessary. ■ Check the duplex unit. Check for worn parts or rollers. Check for obstructions or contamination. Clean or replace as necessary. ■ Check the chute between the duplex unit and the registration rollers. Check for worn parts or rollers. Check for obstructions or contamination. Clean or replace as necessary. 	
2	<p>The skewed image occurs on prints fed from all trays.</p>	<ul style="list-style-type: none"> ■ Check the registration sensor. Check actuation and for obstructions or contamination. Clean or replace if necessary. ■ Check the registration rollers. Clean or replace if necessary. ■ Check the transfer roller and bearings. Clean or replace if necessary. ■ Check the print cartridge. Replace if necessary. ■ Check the chute Transport Assembly. Check for obstructions or contamination. Clean or replace as necessary. 	Go to step 3.
3	<p>The skewed image occurs on prints fed from tray 1.</p>	<ul style="list-style-type: none"> ■ Check the tray 1 feed rollers. Clean or replace if necessary. ■ Check the tray 1 nudger roller. Clean or replace if necessary. ■ Check the tray 1 retard roller. Clean or replace if necessary. ■ Check the feed chute between tray 1 and the registration rollers. Check for obstructions or contamination. Clean as necessary. ■ Check condition of paper tray. Replace if necessary. 	Go to step 4.

Skewed Image Troubleshooting Procedure (continued)

<p>4</p>	<p>The skewed image occurs on prints fed from tray 2.</p>	<ul style="list-style-type: none"> ■ Check the tray 2 feed rollers. Clean or replace if necessary. ■ Check the tray 2 retard pad/retard roller. Clean or replace if necessary. ■ Check the tray 2 nudger roller. Clean or replace if necessary. ■ Check the tray 2 transport rollers. Check for obstructions or contamination. Clean as necessary. ■ Check the feed chute between tray 2 and tray 1. Check for obstructions or contamination. Clean as necessary. ■ Check condition of paper tray. Replace if necessary. 	<p>Go to step 5.</p>
<p>5</p>	<p>The skewed image occurs on prints fed from tray 3.</p>	<ul style="list-style-type: none"> ■ Check the tray 3 feed rollers. Clean or replace if necessary. ■ Check the tray 3 retard pad/retard roller. Clean or replace if necessary. ■ Check the tray 3 nudger roller. Clean or replace if necessary. ■ Check the tray 3 transport rollers. Check for obstructions or contamination. Clean as necessary. ■ Check the feed chute between tray 3 and tray 2. Check for obstructions or contamination. Clean as necessary. ■ Check condition of paper tray. Replace if necessary. 	<ul style="list-style-type: none"> ■ Check the tray 4 feed rollers. Clean or replace if necessary. ■ Check the tray 4 retard roller. Clean or replace if necessary. ■ Check the nudger roller. Clean or replace if necessary. ■ Check the tray 4 transport rollers. Check for obstructions or contamination. Clean as necessary. ■ Check the feed chute between tray 4 and tray 3. Check for obstructions or contamination. Clean as necessary.

Registration

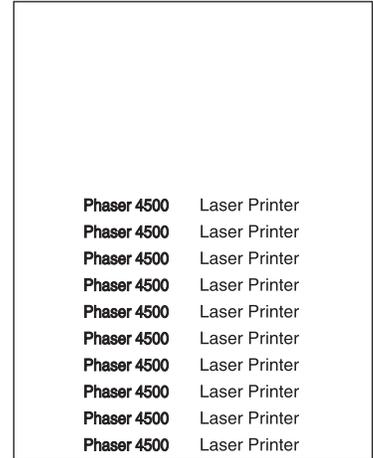
The image is not positioned correctly on the paper. It may be off in either the process direction or in the scan direction.

Note

Refer to “Registration (Side-to-Side)” on page 5-9 and “Registration (Lead Edge-to-Tail Edge)” on page 5-10 for specification information.

Initial Actions:

- Check to ensure that the paper is within specification.
- Check that the paper supply is dry, fresh, and loaded correctly.
- Check that the paper tray guides are set correctly.
- Check that rollers and other components in the paper path are clean and unobstructed.



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Registration Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	Print Engine Test Prints from all Paper trays. Print duplex prints if a duplex option is installed. Is the image registration within specifications?	Go to step 3.	Go to step 2.
2	Perform the registration adjustment procedure (“Adjusting Simplex Registration (Margins)” on page 6-7 or “Adjusting Duplex Registration (Margins)” on page 6-8). Is the image registration correct after the adjustment?	Go to step 3.	Go to step 5.
3	Print test prints Is the image registration correct?	Go to step 4.	Go to step 5.
4	Have the customer run a print job. Are the customer’s prints correctly registered?	Problem solved.	Problem may be application related. Have the customer contact Xerox customer support.

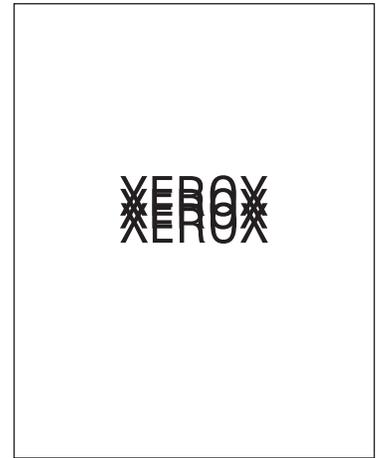
Registration Troubleshooting Procedure (continued)

Step	Actions and Questions	Yes	No
<p>5</p>	<p>The following printer components and areas are associated with this problem. One or more of these components or areas may have partially or completely failed.</p> <p>If misregistration occurs only on two-sided prints, repair or replace the duplex unit.</p> <p>If misregistration occurs in the process direction when feeding from all trays. Replace in sequence as necessary:</p> <ul style="list-style-type: none"> ■ Registration clutch (page 8-19) ■ Registration rollers (page 8-19) ■ Registration sensor and Actuator (page 8-20) ■ 150-sheet feeder assembly (page 8-15) <p>If misregistration occurs in the process direction when feeding from a specific paper tray, replace in sequence as necessary:</p> <ul style="list-style-type: none"> ■ Feed, nudger, retard rollers (page 8-93) ■ Paper cassette (page 8-13) ■ Feed clutch (page 8-19) ■ Turn roller clutch (Trays 3 and 4 only) (page 8-92) ■ Feeder assembly (page 8-86) ■ HVPS/engine Logic PWBA (page 8-73) <p>If misregistaition occurs in the scan direction, replace in sequence as necessary:</p> <ul style="list-style-type: none"> ■ Laser assembly (page 8-38) ■ I/P PWBA (page 8-75) 		

Skips and Smears

Initial Actions:

- Check to ensure that the paper is within specification.
- Check that the paper supply is dry, fresh, and loaded correctly.
- Check the paper path for any obstructions or debris.



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Skips/Smears Troubleshooting Procedure

Step	Actions and Questions	Yes	No
1	Replace the print cartridge. Does the printed image still have skips/smears?	Go to step 2.	Problem solved.
2	Replace the transfer roller. Does the printed image still have skips/smears?	Go to step 3.	Problem solved.
3	Replace the Fuser. Does the printed image still have skip/smears?	Go to step 2.	Problem solved.
4	Replace in sequence as necessary: <ul style="list-style-type: none"> ■ Registration rollers ■ Gear assembly housing (page 8-56) ■ Gear assembly plate (page 8-58) ■ Main motor (page 8-55) 		

Adjustments and Calibrations

In this chapter...

- Service Test Prints
- Adjustments
- Resetting Fuser Life
- Resetting Printer Values to the Factory Default Values

Chapter 6

Service Test Prints

There are two test prints stored in the printer that are primarily intended for service use:

- The Test Prints
- The Engine Test Print

Test Prints

Test Prints contain blocks, lines, patterns, and text, as shown in the sample on the following page. They aid in the evaluation of the quality of printing and in making registration adjustments, as described on page 6-7. For more details about analyzing Test Prints, see page 5-3.

To print Test Prints:

1. From the Main Menu, select **Troubleshooting**, then press the **OK** button.
2. Select **Print Quality Problems**, then press the **OK** button.
3. Select **Test Prints**, then press the **OK** button.

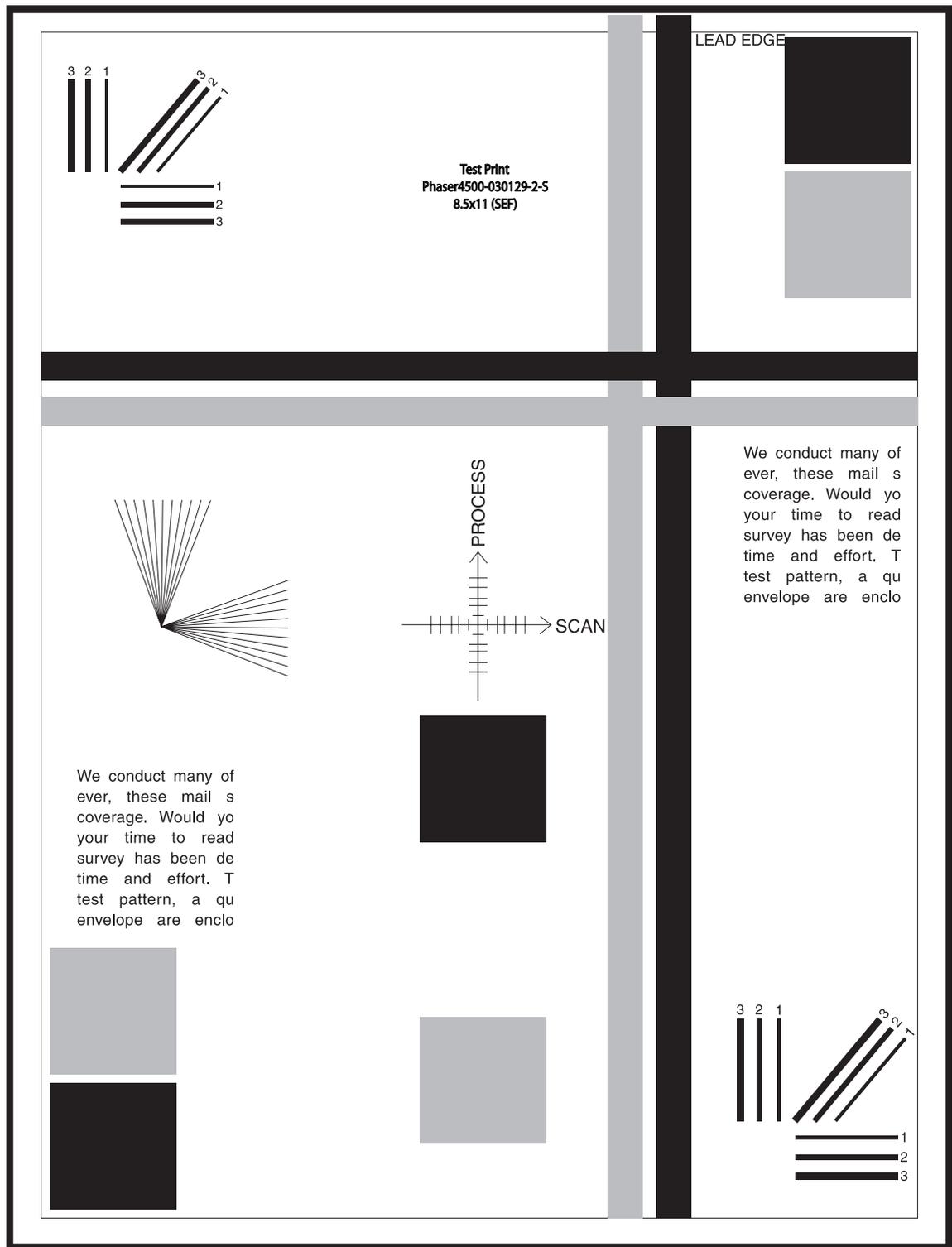
The printer automatically prints two images.

Note

The printer prints the Test Print using the job defaults established in the **Printer Setup** menu. Insure that **Edge-to-Edge Printing** is set to **OFF** before printing the Test Print; otherwise, the image will be shifted left. If the default **Print Quantity** (in the **General Setup** submenu) is **5**, the printer prints ten pages when duplexing is off (in the **Paper Handling Setup** submenu) or five 2-sided prints when duplexing is on.

To set or change the job defaults:

1. From the Main Menu, select **Printer Setup**, then press the **OK** button.
2. Select the submenu containing the print parameter that you want to change, then press the **OK** button. For example, to change Edge-to-Edge Printing, select the **PCL Setup** submenu.
3. Select the print parameter that you want to change, then press the **OK** button. In the example, select **Edge-to-Edge Printing**.
4. In most cases, you make a choice from several alternatives, then press the **OK** button. In other cases, you press the **OK** button to toggle the setting between **On** and **Off**.
5. When you have finished setting all the parameters, select **Exit** and press the **OK** button to return the printer to the **Ready** state.



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Note

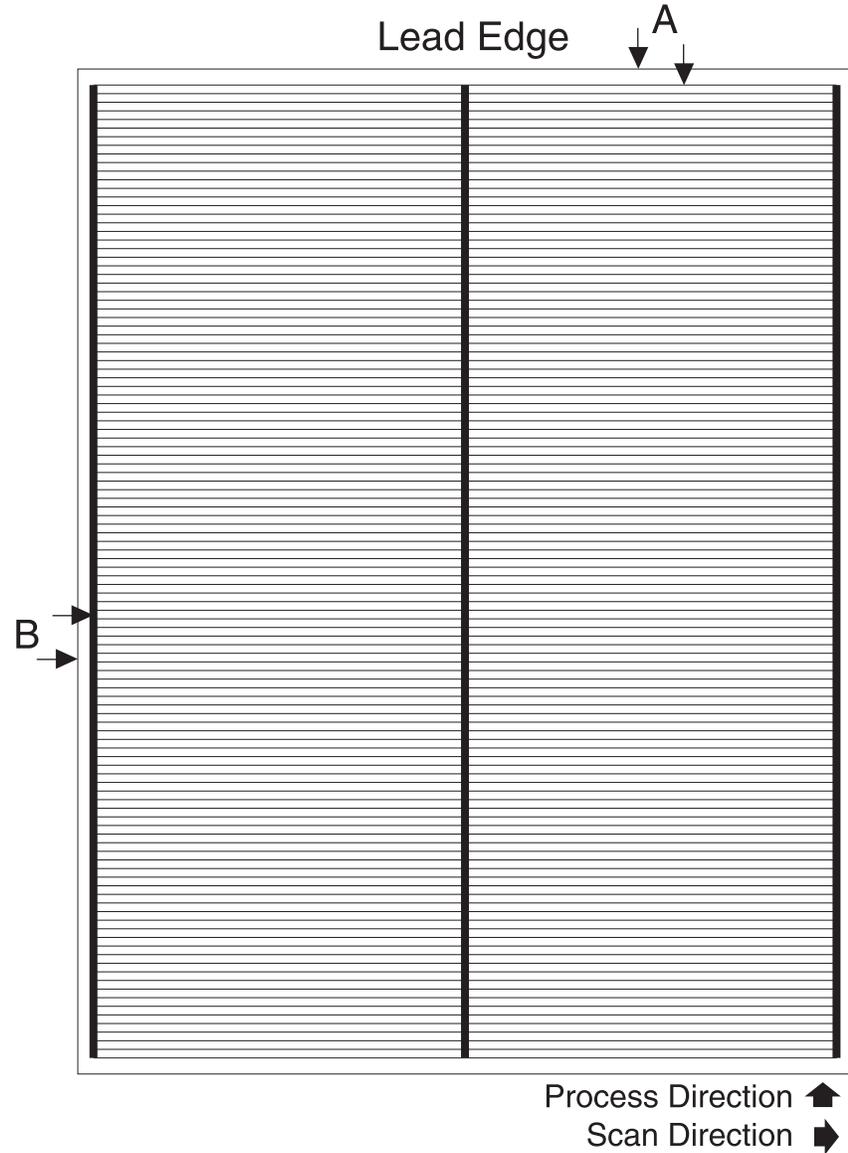
The test print for the Phaser 4510 is identical to the test print for the Phaser 4500 except for the model number shown on the page.

Engine Test Print

The Engine Test Print is used for checking the functionality of various print engine components and for making the registration adjustment. It is accessed through Service Diagnostics.

To print the Engine Test Print:

1. Enter Service Diagnostics.
2. Select **Engine Test Print**, then press the **OK** button.



Adjustments

Adjusting Laser Power (Image Density)

This adjustment procedure increases or decreases the output of the laser to lighten or darken the printable image. This adjustment allows you to “tune” the image density to accommodate a customer’s special application.

Note

Adjusting laser power from the default value impacts other print-quality parameters, such as background, halftone/fine line production, fuser fix, and toner consumption. **This adjustment should not be performed without first discussing with the customer its potential impact on overall print quality.**

To adjust the laser power:

1. Enter Service Diagnostics.
2. Select **Engine NVRAM Adjustments**, then press the **OK** button.
3. Select **Laser Power**, then press the **OK** button.
4. Press the **Down Arrow** or **Up Arrow** buttons to change the value, then press the **OK** button.
Increasing the value increases image density. Decreasing the value decreases image density. The default value is 4.
5. Exit Service Diagnostics.
6. Have the customer send a print job and examine the image density of the output.
7. Repeat steps 1 through 5 until an acceptable image density is achieved.

Checking Registration (Margins)

This procedure checks the printer registration in the horizontal (scan) direction and the vertical (process) direction for both simplex and duplex printing. If any registration measurement does not meet the specification, perform the simplex adjustment procedure on page 6-7 and/or duplex adjustment procedure on page 6-8.

1. Enter Service Diagnostics.
2. Select **Engine Test Print**, then press the **OK** button.
3. Select **Input Tray**, then press the **OK** button.
4. Select the tray that requires verification, then press the **OK** button.
5. Select **Print Quantity**, then press the **OK** button.
6. Select a quantity of **5**, then press the **Back** button to enter the selection.

Note

Use the **OK** button to move the highlight over the digit you want to change. Use the **Up Arrow** and **Down Arrow** buttons to change the value of the digit.

7. Select **Print Test Pattern**, then press the **OK** button to print the Engine Test Pattern.

8. Check the following measurements on two consecutive test patterns of the five made from the tray in step 6.

Distance	Measurement
From the lead edge of the paper to the first horizontal line (measurement A in the figure on page 6-4)	4 mm ± 2 mm
From the left edge of the paper to the edge of the thick vertical line (measurement B in the figure on page 6-4)	4 mm ± 2.5 mm

If a registration measurement does not meet the specification, perform the simplex adjustment procedure on page 6-7.

9. Repeat steps 3 through 8 for each tray.

To test the duplex registration, continue with step 10. You cannot perform the duplex registration test unless the printer has a duplex unit.

10. From the **Engine Test Print** menu, select **Duplex**, then press the **OK** button.
11. Set Duplex to **On**, then press the **OK** button to save the setting.

Note

If Duplex is **Off**, press the **Down Arrow** button to change it to **On**.

12. Repeat steps 7 and 8. Check the registration for the duplexed prints. If a registration measurement does not meet the specification, perform the duplex adjustment procedure on page 6-8.

Adjusting Simplex Registration (Margins)

1. Enter Service Diagnostics.
2. Select **Engine NVRAM Adjustments**, then press the **OK** button.
3. Select either the process adjustment (**Tray [#] Proc Dir**) or scan adjustment (**Tray [#] Scan Dir**) for the desired tray, then press the **OK** button.
4. Use the **Up Arrow** and **Down Arrow** buttons to set the new value. Each increment of change equals 0.5 mm. (The default value is 8.)

Note

In the scan direction, increasing the value moves the image to the right and decreasing the value moves the image to the left.
In the process direction, increasing the value moves the image toward the trail edge and decreasing the value moves the image towards the lead edge.

5. Press the **OK** button to save the setting.
6. Press the **Back** button.
7. Select **Engine Test Print**, then press the **OK** button.
8. Select **Print Test Pattern**, then press the **OK** button to print the Engine Test Pattern.
9. Check the following measurements on two consecutive test patterns.

Distance	Measurement
From the lead edge of the paper to the first horizontal line (measurement A in the figure on page 6-4)	4 mm ± 2 mm
From the left edge of the paper to the edge of the thick vertical line (measurement B in the figure on page 6-4)	4 mm ± 2.5 mm

10. Repeat steps 1 through 9 until correct measurements are achieved.
11. Perform the Registration (Side-To-Side) test on page 5-9 and the Registration (Lead Edge-to-Tail Edge) test on page 5-10. Repeat this adjustment procedure if the results are incorrect.

Adjusting Duplex Registration (Margins)

1. Enter Service Diagnostics.
2. Select **Engine NVRAM Adjustments**, then press the **OK** button.
3. Select either the duplex process adjustment (**Duplex Proc Dir**) or scan adjustment (**Duplex Scan Dir**), then press the **OK** button.
4. Use the **Up Arrow** and **Down Arrow** buttons to set the new value. Each increment of change equals 0.5 mm. (The default value is 8.)
5. Press the **OK** button to save the setting.
6. Press the **Back** button.
7. Select **Engine Test Print**, then press the **OK** button.
8. Select **Print Test Pattern**, then press the **OK** button to print the Engine Test Pattern.
9. Check the following measurements on two consecutive test patterns.

Distance	Measurement
From the lead edge of the paper to the first horizontal line (measurement A in the figure on page 6-4)	4 mm ± 2 mm
From the left edge of the paper to the edge of the thick vertical line (measurement B in the figure on page 6-4)	4 mm ± 2.5 mm

10. Repeat steps 1 through 9 until correct measurements are achieved.
11. Perform the Registration (Side-To-Side) test on page 5-9 and the Registration (Lead Edge-to-Trail Edge) test on page 5-10. Repeat this adjustment procedure if the results are incorrect.

Adjusting Fuser Temperature

The following fuser temperature tables list the temperature settings available for each paper type supported by the printer. The default fuser temperature setting for each paper type is listed in the following **Fuser Configuration Defaults** table.

Phaser 4500 Fuser Temperatures

Temperature Setting	Low	Medium	High	Extra High
Temperature Range	185° C 365° F	200 - 205° C 392 - 401° F	210° C 410° F	215° C 419° F

Phaser 4510 Fuser Temperatures

Temperature Setting	Extra High	Very High	High	Medium	Low	Very Low
Temperature Range	187° C 369° F	215° C 419° F	212° C 414° F	205° C 401° F	190° C 374° F	170° C 338° F

Fuser Configuration Defaults

Paper Type	Phaser 4500 Default Fuser Temperature Setting	Phaser 4510 Default Fuser Temperature Setting
Plain	Medium	Medium
Letterhead	Medium	Medium
Preprinted	Medium	Medium
Prepunched	Medium	Medium
Transparency	Low	Very Low
Labels	High	High
Colored Paper	Medium	Medium
Card Stock	High	Very High
Envelope	High	Extra High
Special	Medium	—
Custom Type	—	The default temperature setting for a custom size selection depends on the paper type chosen for the custom size definition.

To change the fuser setting for a particular paper type:

1. From the Main Menu, select **Printer Setup**, then press the **OK** button.
2. Select **Paper Handling Setup**, then press the **OK** button.
3. Select **Fuser Configuration**, then press the **OK** button.
4. Select **Temperature for [paper type]**, then press the **OK** button
5. Select a temperature setting from the four or six available, then press the **OK** button to place a check mark by that setting.

Note

You must scroll up to see the Extra High setting.

6. Select **Exit**, then press the **OK** button.

Resetting Fuser Life

This procedure restarts the counter that tracks Fuser life. Perform this procedure after you install a new Maintenance Kit.

To reset the fuser:

1. From the Main Menu, select **Information**, then press the **OK** button.
2. Select **Supplies Info**, then press the **OK** button.
3. Select **Reset Fuser Life**, then press the **OK** button.
4. Select **Reset Fuser Life NOW**, then press the **OK** button to reset the fuser life.

Resetting Printer Values to the Factory Default Values

You can reset printer values on the following menus to the factory default settings:

- Connection Setup
- Paper Handling Setup
- PostScript Setup
- PCL Setup
- General Setup
- Control Panel Setup
- Printer Controls
- File Security (available if the printer has a hard drive)

You can reset all of the Image Processor Board NVRAM-stored parameters to their factory default values by resetting the PostScript NVRAM. Instructions for resetting PostScript NVRAM are in “Resetting All Printer Default Settings (PostScript NVRAM)” on page 6-13.

Note

There is no single reset for the Print Engine NVRAM.

Resetting Connection Setup Values

Resetting the connection setup values resets the Printer Name, TCP/IP address, TCP/IP address menu settings (gateway, broadcast, etc.), CentreWare IS, EtherTalk, NetWare, set IPX frame type, IPP, and Ethernet speed to their default values.

Caution

Before resetting the connection setup values to factory default values, make note of the current network settings or print a Configuration Page to record the printer's current network settings.

1. From the Main Menu, select **Connection Setup**, then press the **OK** button.
2. Select **Reset Connection Setup**, then press the **OK** button.
3. Select **Reset Connection Setup NOW**, then press the **OK** button.

Resetting Paper Handling Setup Values

Resetting the Paper Handling Setup values resets the default paper source, 2-sided printing, tray setup (default paper type/size), Load Paper Timeout, tray sequence, tray prompt, custom size paper units, default paper destination, job offset, output tray switch, fuser temperature configuration, and reprint jammed pages settings.

1. From the Main Menu, select **Paper Handling Setup**, then press the **OK** button.
2. Select **Reset Paper Handling Setup**, then press the **OK** button.
3. Select **Reset Paper Handling Setup NOW**, then press the **OK** button.

Resetting PostScript Setup Values

Resetting the PostScript Setup values resets the PostScript Error Info, Image Smoothing, and Edge-to-Edge Printing settings.

1. From the Main Menu, select **PostScript Setup**, then press the **OK** button.
2. Select **Reset PostScript Setup**, then press the **OK** button.
3. Select **Reset PostScript Setup NOW**, then press the **OK** button.

Resetting PCL Setup Values

Resetting the PCL Setup values resets the default font number, pitch, point size, symbol set, orientation, form length, line termination character, and Edge-to-Edge Printing settings.

1. From the Main Menu, select **PCL Setup**, then press the **OK** button.
2. Select **Reset PCL Setup**, then press the **OK** button.
3. Select **Reset PCL Setup NOW**, then press the **OK** button.

Resetting General Setup Values

Resetting the General Setup values resets the Print-Quality Mode, Print Quantity, and Print with Low Toner settings.

1. From the Main Menu, select **General Setup**, then press the **OK** button.
2. Select **Reset General Setup**, then press the **OK** button.
3. Select **Reset General Setup NOW**, then press the **OK** button.

Resetting Control Panel Setup Values

Resetting the control panel values resets the Control Panel Language, Control Panel Brightness, Control Panel Contrast, and Accessible Control Panel settings.

1. From the Main Menu, select **Control Panel Setup**, then press the **OK** button.
2. Select **Reset Control Panel Setup**, then press the **OK** button.
3. Select **Reset Control Panel Setup NOW**, then press the **OK** button.

Resetting Printer Controls Setup Values

Resetting the Printer Controls values resets the Startup Page, Power Saver Timeout, and Power Saver settings.

1. From the Main Menu, select **Printer Controls Setup**, then press the **OK** button.
2. Select **Reset Printer Controls Setup**, then press the **OK** button.
3. Select **Reset Printer Controls Setup NOW**, then press the **OK** button.

Resetting File Security Setup Values

The File Security settings are only available when the printer has a hard drive. Resetting the File Security values resets the settings that control making files deleted from the hard drive unrecoverable and control when old Proof and Secure Job Print files are removed from the hard drive.

1. From the Main Menu, select **File Security Setup**, then press the **OK** button.
2. Select **Reset File Security Setup**, then press the **OK** button.
3. Select **Reset File Security Setup NOW**, then press the **OK** button.

Resetting All Printer Default Settings (PostScript NVRAM)

Resetting the PostScript NVRAM restores all printer values stored in the Image Processor controller NVRAM (including network, printer setup, job defaults, and margin) to their factory default values. The print counts and the Adobe firmware serial number are not affected by this reset.

Caution

Before resetting the printer default settings to factory default values, make note of the current network settings or print a configuration page to record the customer's current network settings.

You can reset the PostScript NVRAM by:

- Using the Main Menu
- Using the Service Diagnostics Menu
- Using the control panel shortcut

Using the Main Menu

1. From the Main Menu, select **Troubleshooting**, then press the **OK** button.
2. Select **Service Tools**, then press the **OK** button.
3. Select **Reset NVRAM**, press the **OK** button.
4. Select **Reset NVRAM and Reset Printer NOW**, then press the **OK** button to reset all the settings to their factory default values.

Using the Service Diagnostics Menu

1. Enter Service Diagnostics.
2. Select **Controller NVRAM Access**, then press the **OK** button.
3. With **Reset PostScript NVRAM** highlighted, press the **OK** button.
4. Enter the password (4370) when prompted.
 - a. Use the **Up** or **Down** buttons to change the value of each digit.
 - b. Shift to the next digit by pressing the **OK** button.
 - c. Press the red **Cancel** button to enter the password.
5. When **Resetting NVRAM! Are you sure?** is displayed, highlight **Yes** and press the **OK** button.

The printer then exits Service Diagnostics and reboots. While booting, NVRAM is reset.

Using the Control Panel Shortcut

1. At power-on, press the **Back + OK** buttons together.
2. When **Password** appears, press and *hold* the **Up Arrow + Down Arrow** buttons together within 2 seconds.

Cleaning and Maintenance

In this chapter...

- Service Preventive Maintenance Procedure
- Recommended Tools
- Cleaning

Chapter 7

Service 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.

Recommended Tools

- Toner vacuum cleaner
- Clean water
- Clean, dry, lint-free cloth
- Black light-protective bag
- #1 Phillips or Posidrive screwdriver with tip at least 1.5" long and less than 1/4" in diameter
- Small slotted screwdriver
- Diagonal cutters (for tie wraps)
- Spare cable tie wraps

Cleaning

Caution

Never apply alcohol to any parts in the printer.
If you remove the print cartridge, place it in a light protective bag.

Note

Never use a damp cloth to clean up toner.

1. Record number of sheets printed.
2. Print several sheets of paper to check for problems or defects.
3. Turn off the printer and disconnect the power cord.
4. Remove the rear cover and clean the Fan with a brush or dry cloth to remove excess dust.
5. Remove any debris or foreign objects from the transfer roller, fuser assembly, laser unit assembly, and paper path.
6. Vacuum out any loose toner from the interior of the printer with a Type II toner vacuum only.
7. Remove and clean the paper trays.
8. Clean feed rollers with a lint-free cloth lightly dampened with water.

FRU Disassembly

In this chapter...

- Overview
- General Notes on Disassembly
- Print Engine: Covers
- Print Engine: 150- or 550-Sheet Paper Cassette
- Print Engine: 150-Sheet Feeder
- Print Engine: 550-Sheet Paper Feeder
- Print Engine: Xerographics
- Print Engine: Paper Exit
- Print Engine: Frame and Drive
- Print Engine: Electrical
- Options: 550-Sheet Paper Feeder
- Options: Duplex Unit
- Options: Stacker

Chapter 8

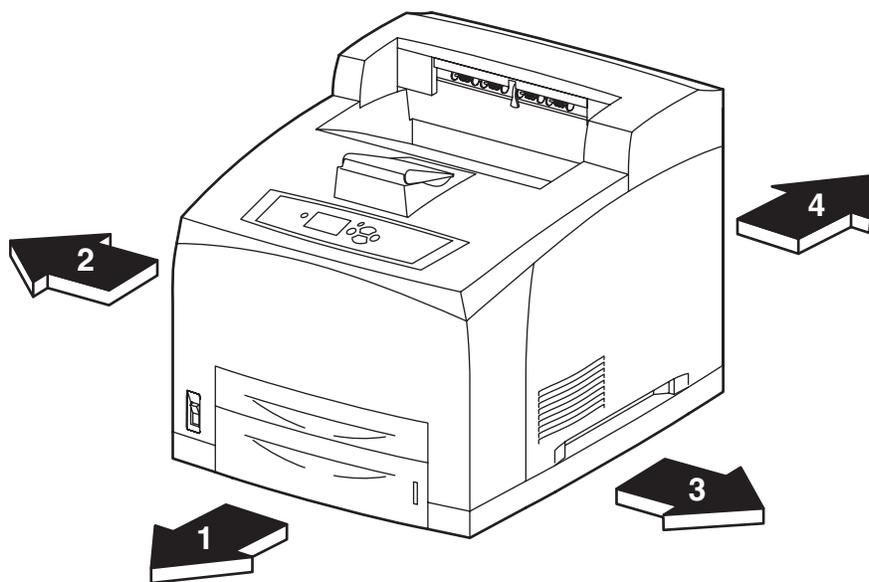
Overview

This section contains the removal and replacement procedures for selected parts of the printer according to the Field Replaceable Units (FRUs) Parts List. Replacement procedures are not provided for most of the FRUs because in most cases, re-installing a part only requires reversing the removal procedure. Where the replacement process is not a simple reversal of the removal, a replacement procedure is included. Replacement Notes provide tips and suggestions that can aid in reassembling the part.

Standard Orientation of the Printer

Locations given in the repairs, such as left, right, front, or rear, assume you are facing the printer control panel.

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.



s4500-247

1. Front

2. Left

3. Right

4. Rear or Back

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. Disconnect all computer interface cables from the printer.
3. Wear an electrostatic discharge wrist strap to help prevent damage to the sensitive electronics of the printer circuit boards.
4. 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.

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.

Note

Names of parts that appear in the disassembly procedures may not be exactly the same as the names that appear in the parts list. For example; a part called the registration chute assembly may appear on the parts list as Assembly, Chute REGI.

Caution

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.

Warning

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

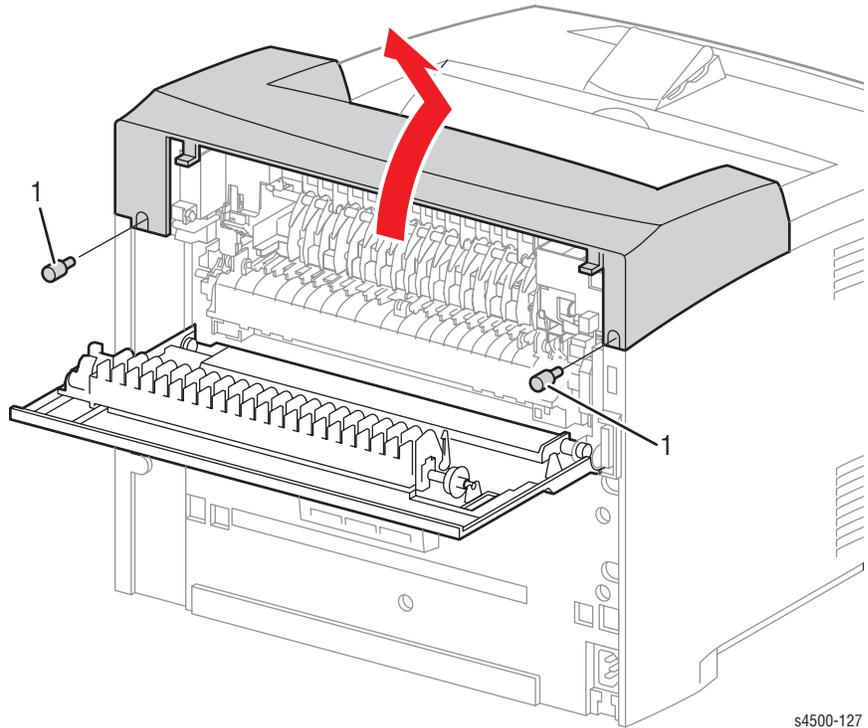
Notations in the Disassembly Text

- The notation "PLX.X.X" indicates that this component is listed in the FRU Parts List.
- Bold arrows in an illustration show direction of movement when removing or replacing a component.
- Procedures, procedural steps, and illustrations that pertain to just the Phaser 4500 are indicated with **P4500**, and those that pertain to just the Phaser 4510 are indicated with **P4510**. Those that apply to both models do not have either label.

Print Engine: Covers

Paper Exit Cover

(PL10.1.1)



s4500-127

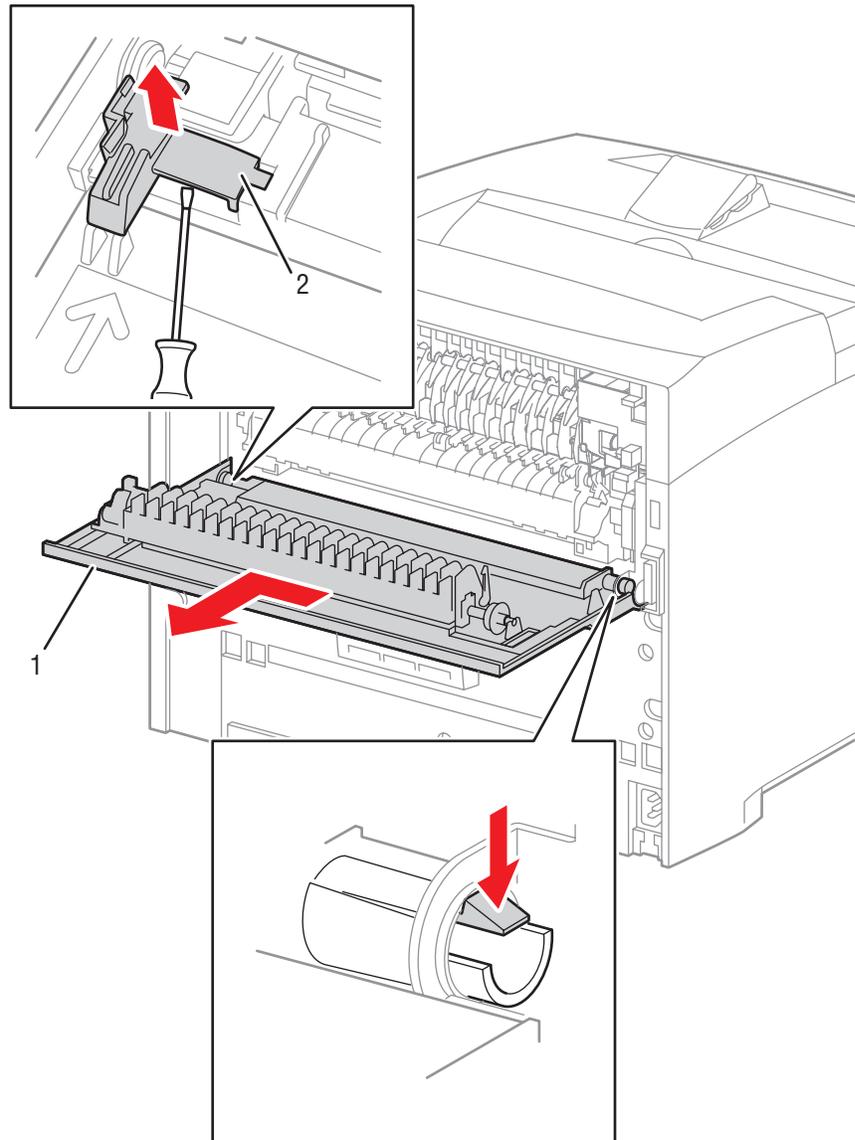
1. Thumbscrews

Procedure:

1. Open the duplex unit if one is installed (page 8-95).
2. Open the paper exit rear door.
3. Unscrew the thumbscrews at the right and left rear sides of the paper exit cover.
4. Lift the rear of the paper exit cover, then pull back to release the tabs at the front of the cover.

Paper Exit Rear Door

(PL10.2.21)



1. Paper exit rear door

2. Hinge Retainer

s4500-135

Procedure:

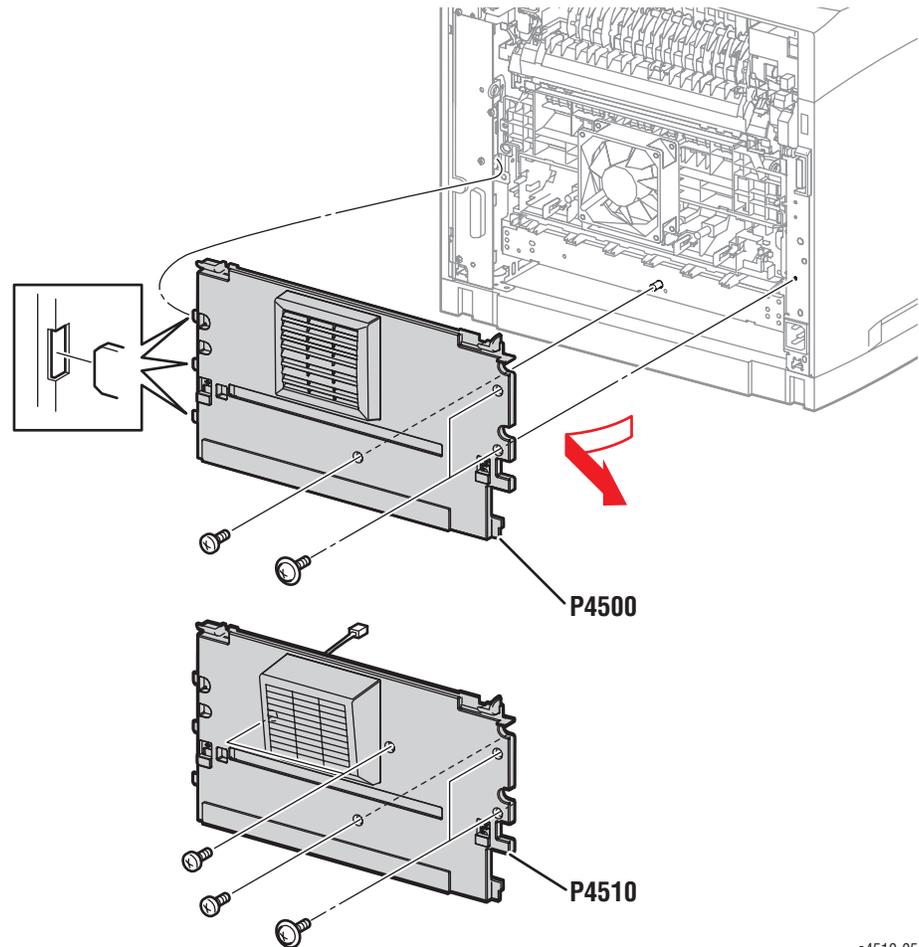
1. Open the duplex unit if one is installed (page 8-95).
2. Lift the lever to release the lock, and open the paper exit rear door.
3. Pry out the hinge retainer on the right side.
4. Release the hook of the left side hinge, and shift the paper exit rear door in the direction of the arrow to remove from the printer.

Replacement Note:

When replacing the hinge retainer, bow it up in the center to allow the retainer to snap into place.

Rear Cover

(PL 1.1.3)



s4510-05

Procedure:

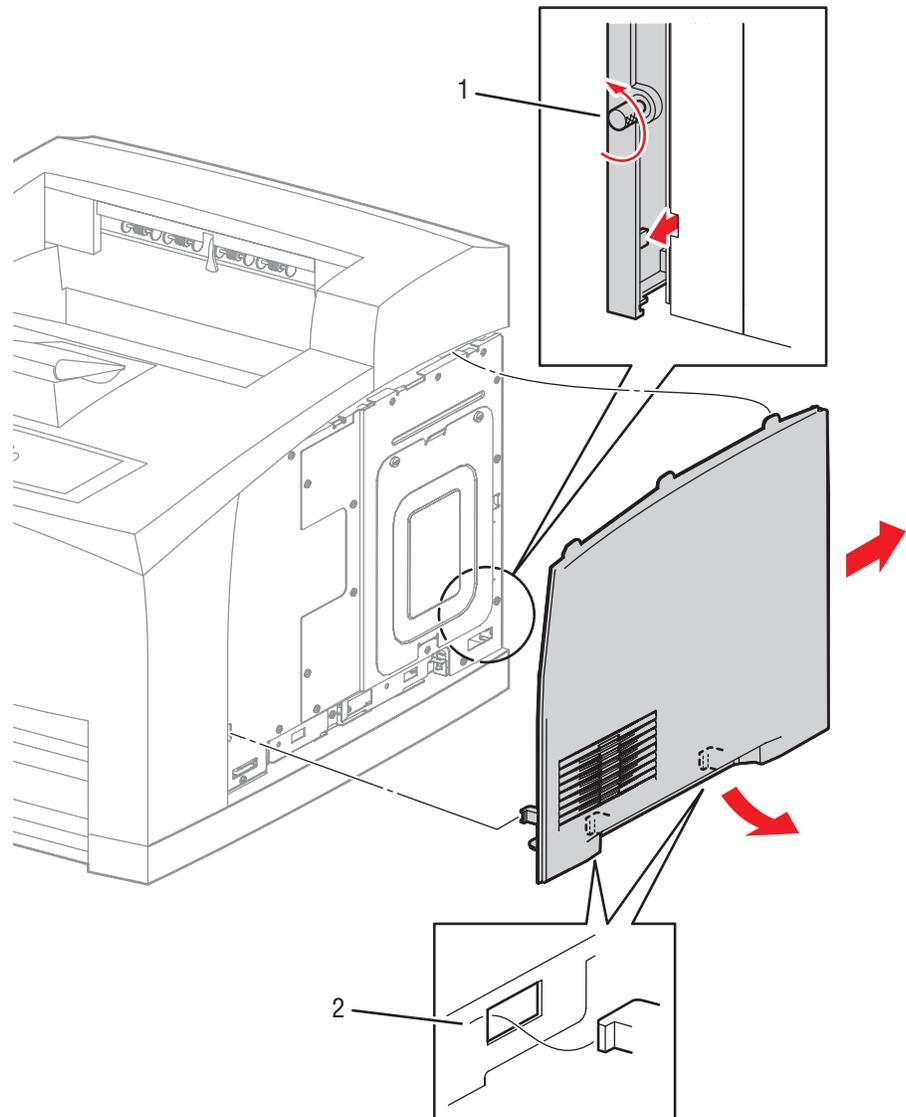
1. Remove the paper exit rear door (page 8-5).
2. Remove the duplex unit if one is installed (page 8-95).
3. **Phaser 4500:** Remove the three screws (two flanged machine, 8 mm; one tapping, 8 mm) that attach the rear cover to the printer.
Phaser 4510: Remove the five screws (two flanged machine, 8 mm; three tapping, 8 mm) that attach the rear cover to the printer.
4. Swing out the left end of the door, then disengage the three hooks on the right side and move the door away from the printer as indicated in the illustration.
5. **Phaser 4510:** Unplug the rear fan harness.

Replacement Notes:

- Two screw types are used; be sure to install them in the correct locations.
- When installing a replacement rear door, transfer the foam seals from the old door to the new.

Right Cover

(PL1.1.4)



s4500-058

1. Thumbscrew

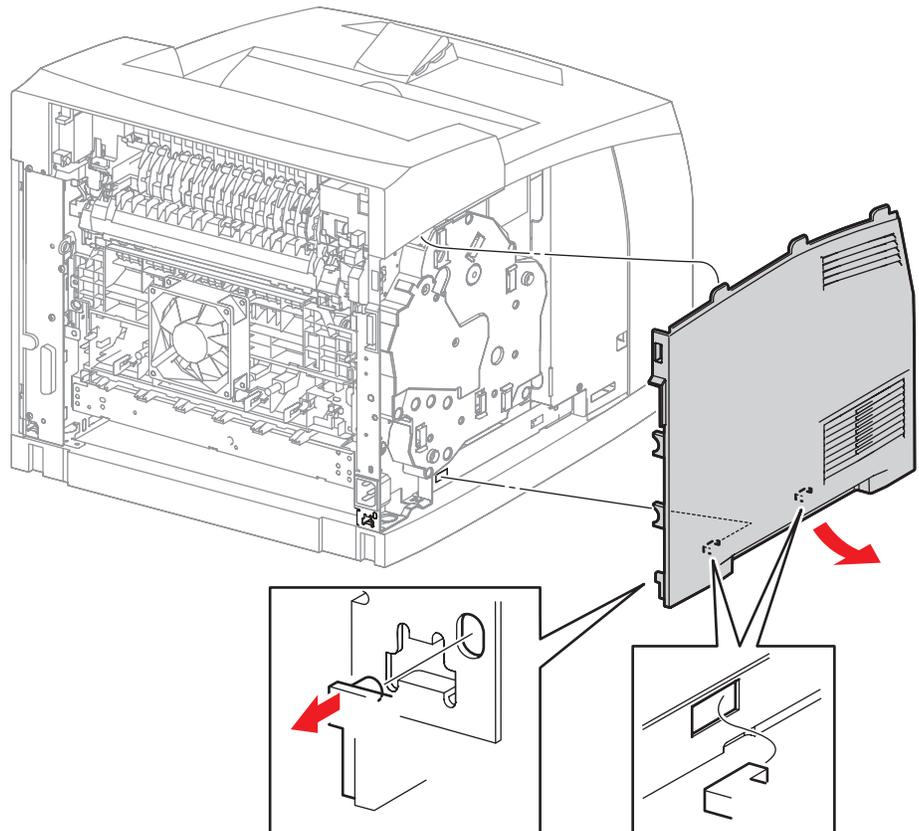
2. Bottom Hooks

Procedure:

1. Loosen the thumbscrew at the rear of the printer that secures the right cover.
2. Shift the cover towards the rear of the printer to release the four hooks (two at the bottom edge, one in front, and one on rear), then swing out the bottom edge.
3. Move the cover downward to release the three tabs along the top edge, and lift away from the printer.

Left Cover

(PL1.1.6)



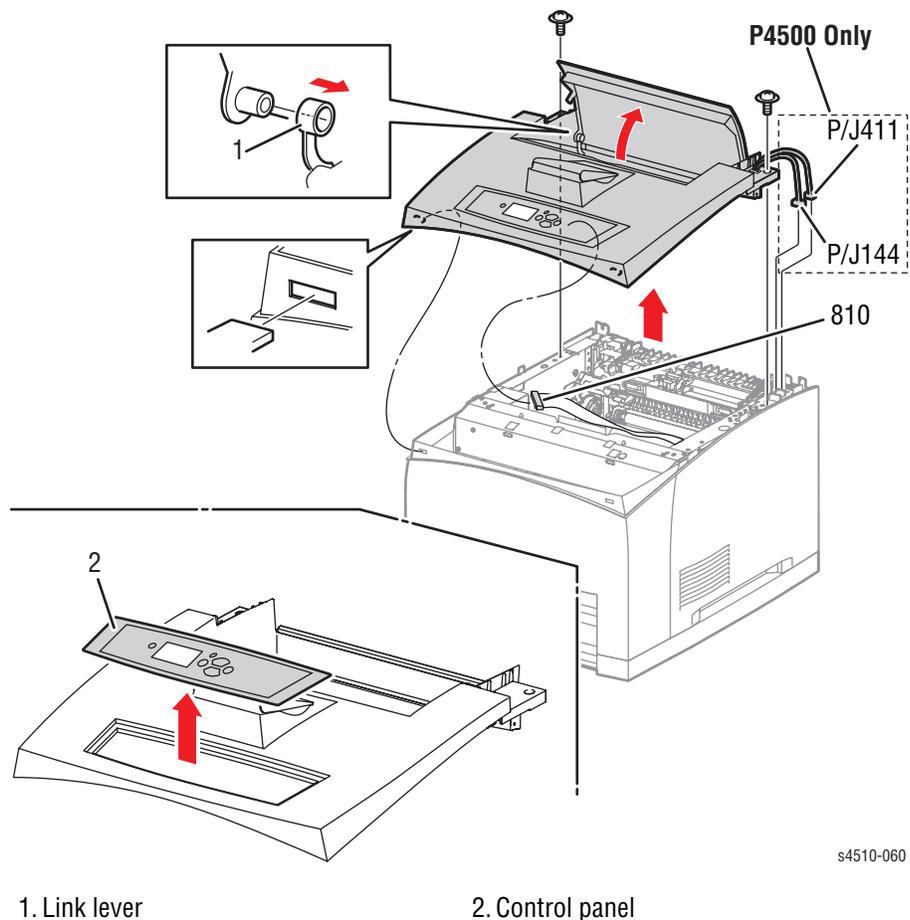
s4500-059

Procedure:

1. Remove the rear cover (page 8-6).
2. Shift the left cover towards the rear of the printer to release the five hooks (one at the front, two at the bottom, two on the rear), then swing out the bottom edge.
3. Move the cover downward to release the three tabs along the top edge, and lift away from the printer.

Top Cover Assembly, Control Panel

(PL1.1.7) (PL1.1.1)



Procedure:

Note

The control panel can be removed without removing the top cover assembly by prying up carefully on the right edge of the control panel and disconnecting the harness.

1. Remove the print cartridge.
2. Remove the paper exit assembly (page 8-49).
3. **P4500:** Disconnect the connectors (P/J144 and P/J411) of the interlock switch assembly from the frame connectors.

Note

The frame connectors referred to in step 3 are present only on the Phaser 4500.

4. Remove the two screws (flanged, 8 mm) that secure the top cover assembly to the printer.

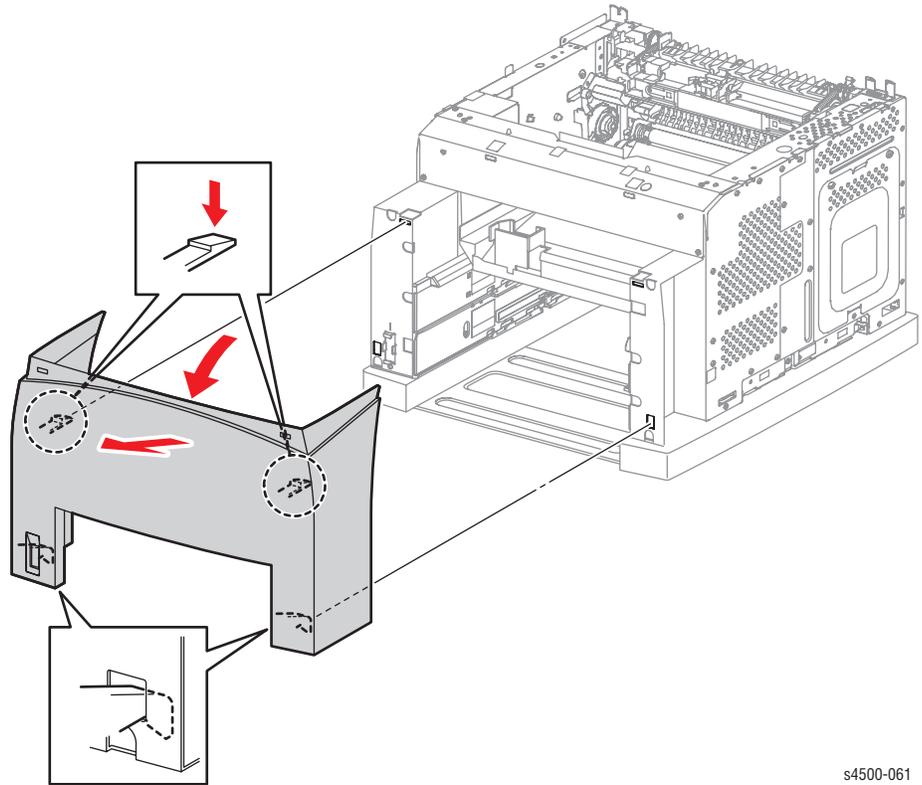
5. Open the top cover and slide the link lever off the boss (item 1 in the figure).
6. Remove the top cover assembly.
 - a. Lift the rear of the top cover assembly and slide the cover forward enough to release the hooks at the front.
 - b. Tilt up the front and disconnect the control panel harness from the connector (P4500: P/J810; P4510: J230) on the control panel circuit board.
 - c. Release the control panel harness from the cable restraint.
7. Push the end tab of the control panel to release it, and slide the control panel out through the top.

Replacement Notes:

- When sliding the link lever onto the boss of the top cover, the top cover should be opened, and the link lever should be extended upward.
- When installing the paper exit assembly, feed the harnesses of the exit motor assembly and exit sensor harness assembly into the larger openings in the frame.

Front Cover

(PL1.1.5)



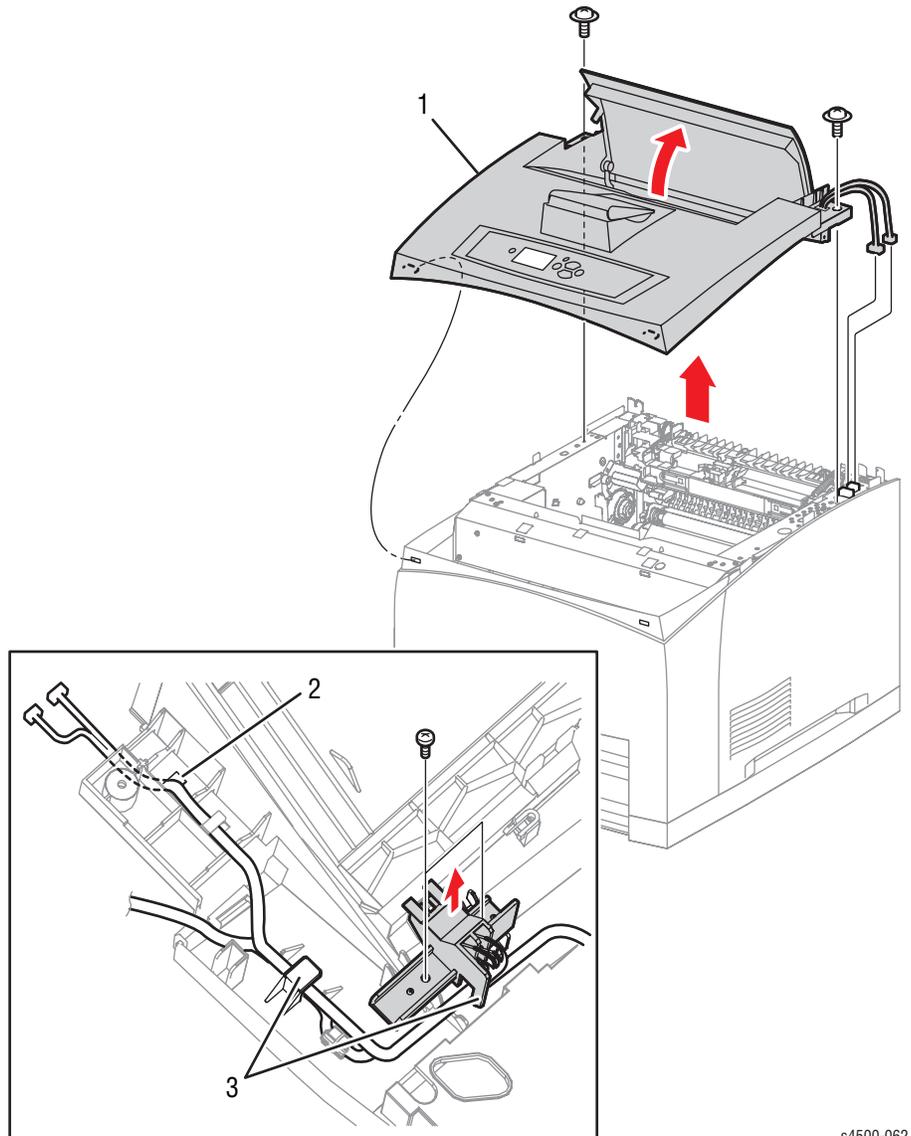
s4500-061

Procedure:

1. Remove the top cover assembly (page 8-9).
2. Release the two upper hooks that secure the front cover to the printer by pressing down on the hooks.
3. Tilt the cover out and lift to release the lower hooks from the frame.

Interlock Switch Assembly (P4500 only)

(PL1.1.11)



s4500-062

1. Top cover assembly

3. Cable Clamps

2. Hole

Procedure:

1. Remove the top cover assembly.

Note

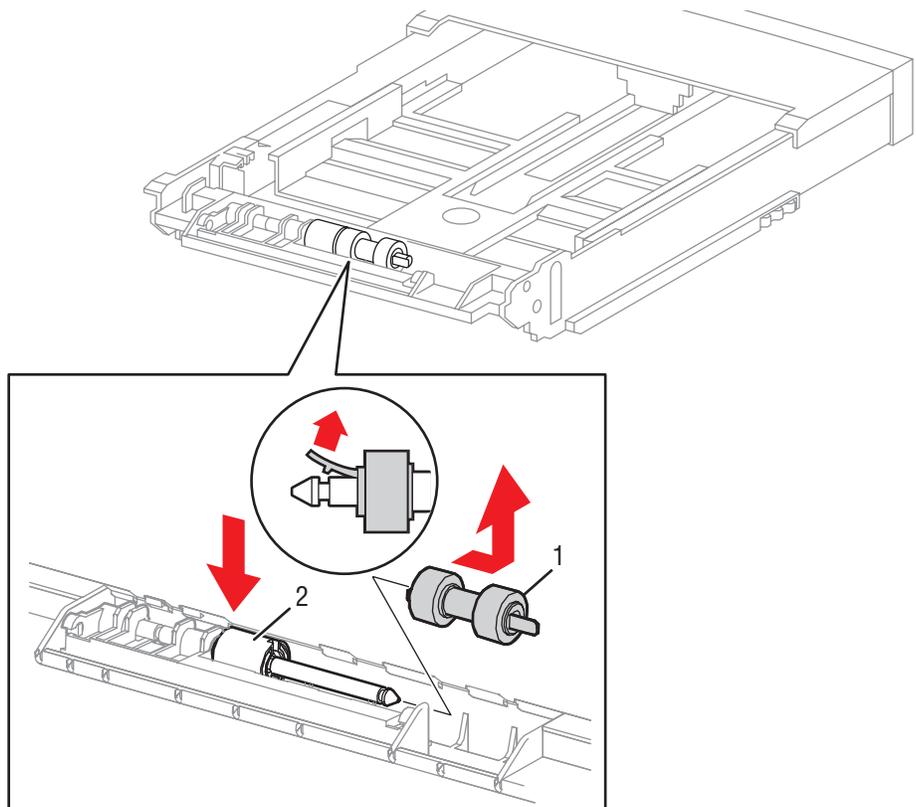
The interlock switch assembly is attached to the underside of the top cover assembly on the right hand side near the top cover opening.

2. Remove the two 8 mm tapping screws that attach the interlock switch assembly.
3. Lift the interlock switch assembly from the top cover assembly, release the harnesses from the cable restraints, and draw the interlock switch harness out of the hole in the top cover assembly.

Print Engine: 150- or 550-Sheet Paper Cassette

Retard Roller and Holder

(PL2.1.2 and 2.1.51 for 150-sheet, PL 4.1.2 and 4.1.51 for 550-sheet); the roller is also part of the Maintenance Kit.



s4500-064

1. Retard roller

2. Retard Holder

Procedure:

1. Pull the paper cassette from the printer.

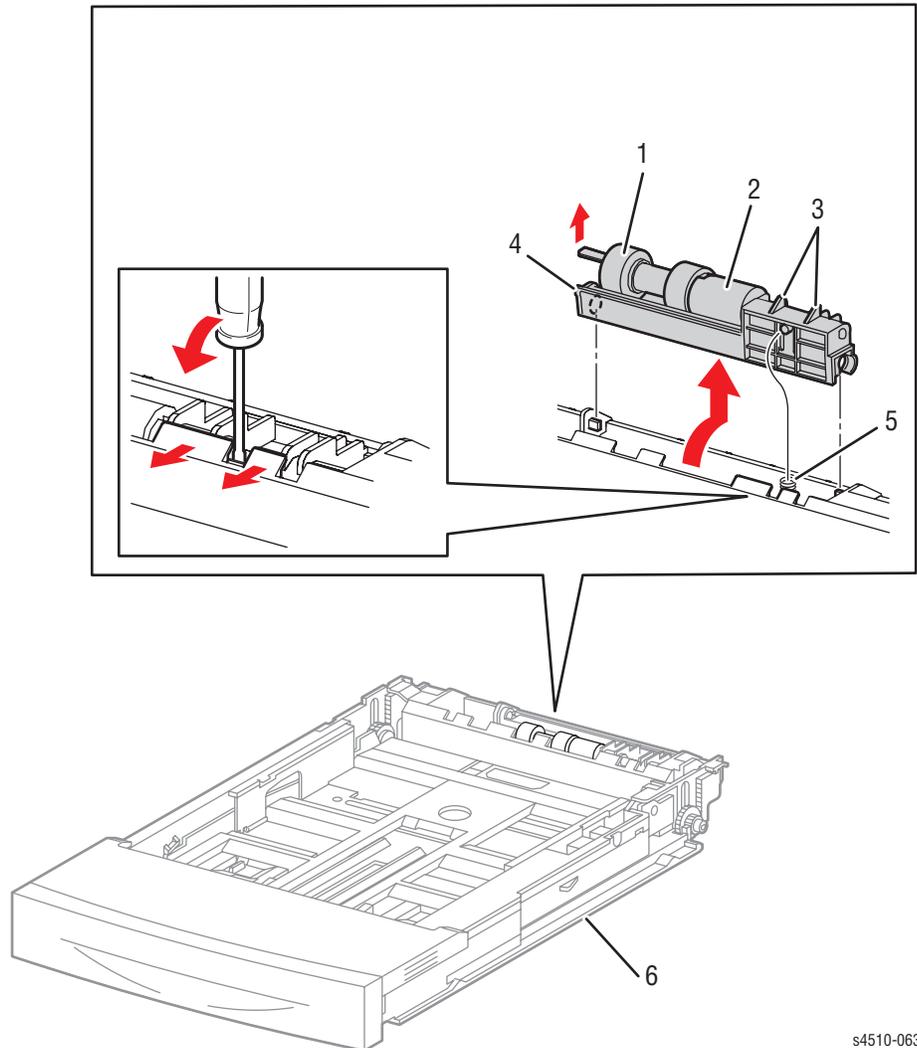
Note

To remove just the retard roller, perform step 2. To remove the Retard Holder, perform steps 3 and 4. Avoid touching the rubber surfaces on the new roller as much as possible to avoid contamination.

2. Press down on the Retard Holder, then release the hook retaining the retard roller and slide it off the shaft.
3. Release the hooks that secure the Retard Holder to the paper cassette using a screwdriver or similar tool as shown in the figure on page 8-14.
4. Lift the Retard Holder in the direction of the arrow as shown in the figure.

Replacement Note:

- While installing the Retard Holder, ensure that both ends of the coil spring under the holder are properly engaged with two boss pins. Check that it springs back to its normal position when depressed and released.



- 1. Retard roller
- 2. Friction Clutch
- 3. Hooks

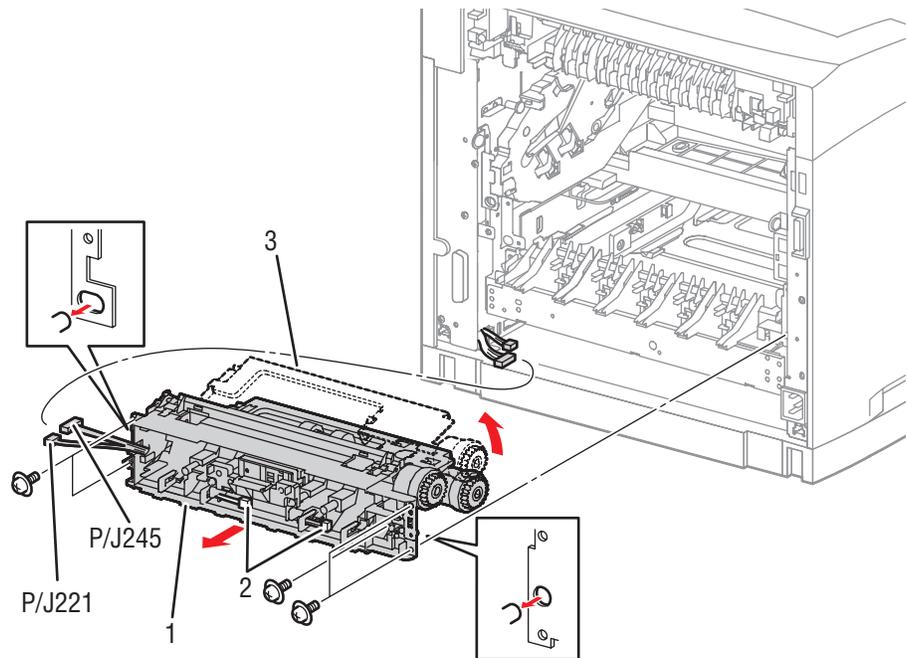
- 4. Retard Holder
- 5. Retard Spring
- 6. 150- or 550-sheet paper cassette

s4510-063

Print Engine: 150-Sheet Feeder

150-Sheet Feeder Assembly

(PL5.1.1)



s4510-090

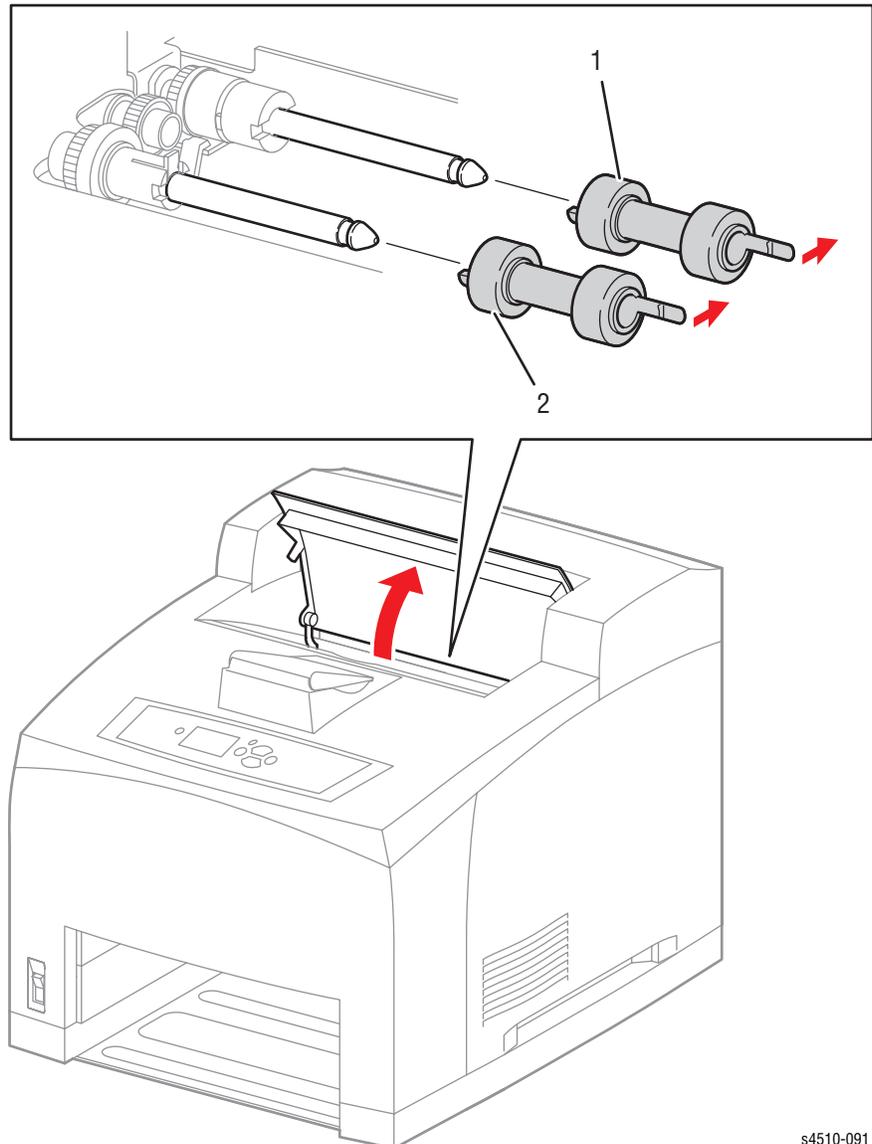
- | | |
|---------------------------------|---------------------------|
| 1. 150-sheet feeder assembly | 3. Roller holder assembly |
| 2. Connectors (P/J242 & P/J243) | |

Procedure:

1. Remove the 150-sheet paper cassette (tray 1).
2. Remove the transfer chute (page 8-46).
3. **P4510:** Disconnect connectors P/J242 and P/J243 near the center of the feeder.
4. Disconnect the two harnesses, P/J 245 and P/J 221.
5. **P4510:** Cut the wire tie that holds the fan wire in the bundle.
6. **P4510:** Release the wire harnesses for P/J 242 and P/J 243 from the retainers in the feeder housing.
7. Swing the roller holder assembly (item 3 in figure) up firmly until it latches in the detent.
8. Remove the five screws (8 mm w/ washer) that attach the 150-sheet feeder assembly to the printer.
9. Shift the 150-sheet feeder assembly backward to disengage the right boss from the frame.
10. Lift the 150-sheet feeder assembly to disengage the left boss.
11. Remove the 150-sheet feeder assembly from the printer.

Nudger Roller, Feed Roller

(PL5.1.11) (PL5.1.44); the rollers are also part of Maintenance Kit



s4510-091

1. Feed roller

2. Nudger roller

Procedure:

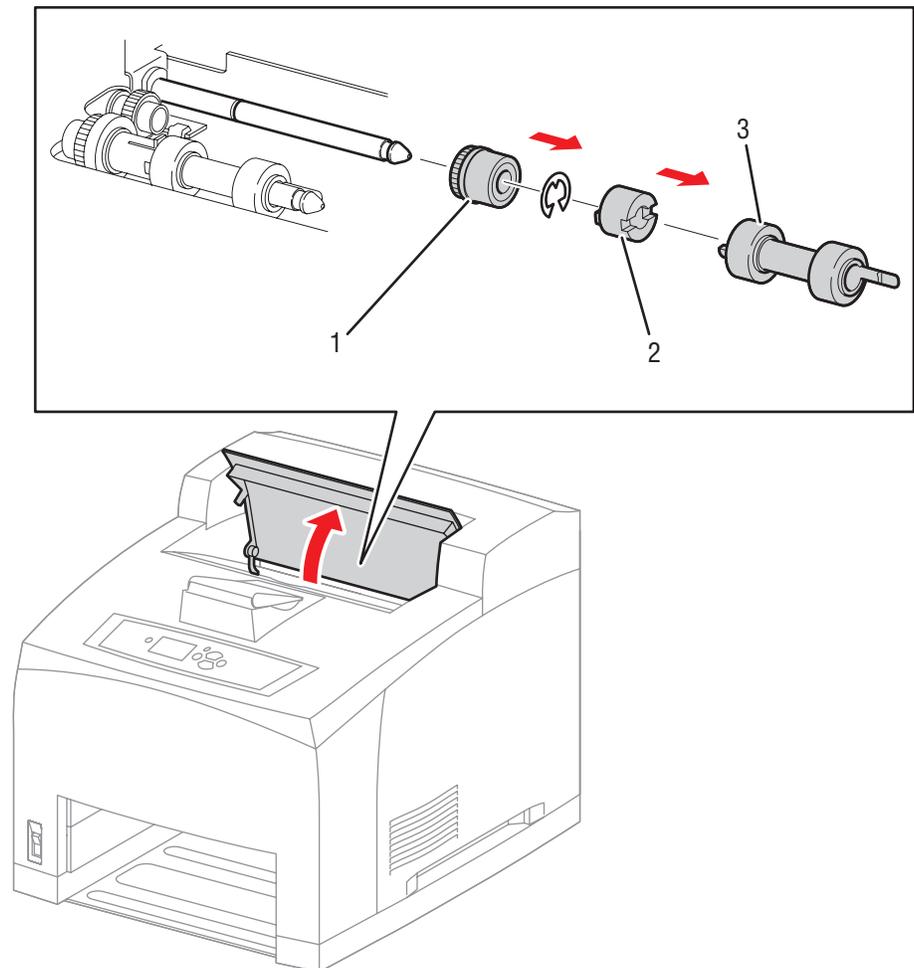
Note

When handling the nudger roller and feed roller assemblies, avoid touching the rubber roller surfaces.

1. Remove the 150-sheet paper cassette (tray 1).
2. Open the top cover.
3. Remove the print cartridge, and protect it from light exposure.
4. Release the hook retaining the nudger roller, and slide the nudger roller off the nudger shaft.
5. Release the hook retaining the feed roller, and slide the feed roller off the feed shaft.

Nudger One-way Clutch

(PL5.1.42)



s4500-092

1. Nudger one-way clutch

3. Feed roller

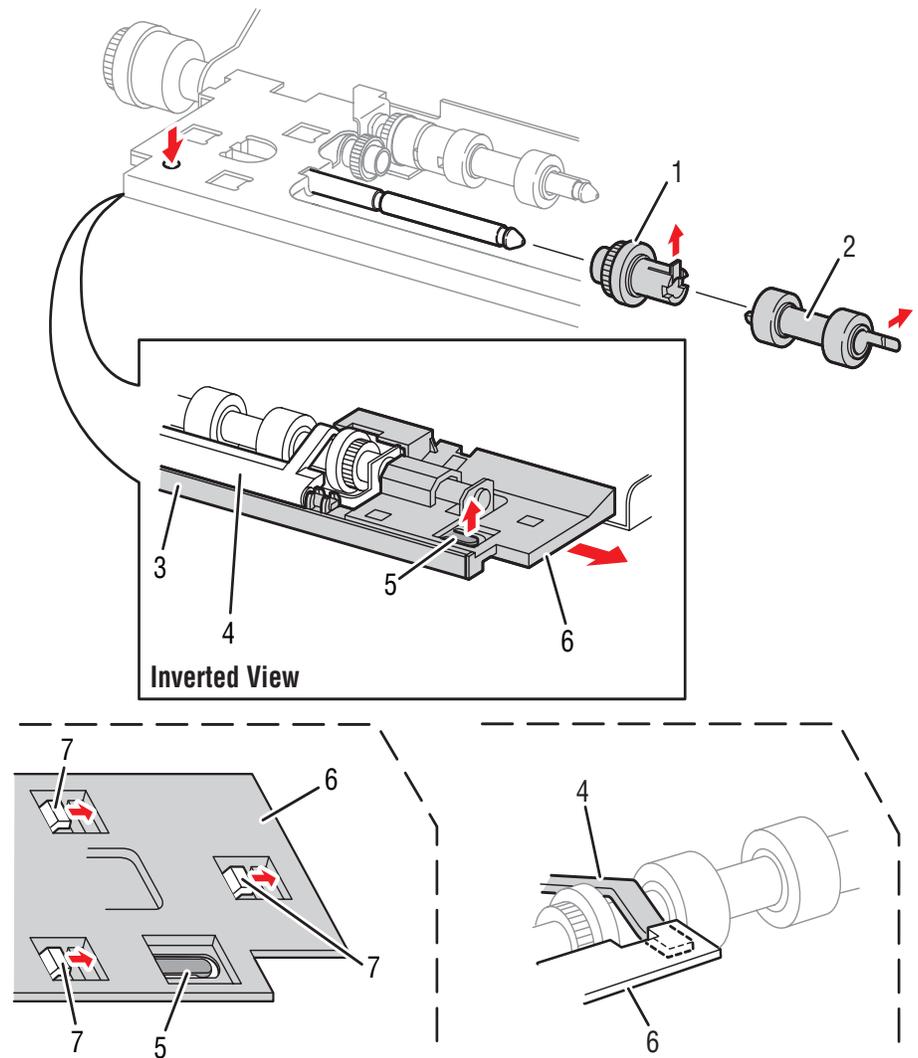
2. Feed one-way clutch

Procedure:

1. Remove the 150-sheet paper cassette (tray 1).
2. Open the top cover.
3. Remove the print cartridge, and protect it from light exposure.
4. Remove the feed roller (page 8-16).
5. Slide the feed one-way clutch off the feed shaft.
6. Remove the E-ring retaining the nudger one-way clutch on the feed shaft.
7. Slide the nudger one-way clutch off the feed shaft.

Nudger Gear

(PL5.1.10)



s4500-163

- | | |
|----------------------|-------------------|
| 1. Nudger gear | 5. Boss (lift up) |
| 2. Nudger roller | 6. Left holder |
| 3. Nudger support | 7. Hooks |
| 4. No paper actuator | |

Procedure:

1. Remove the 150-sheet feeder assembly (page 8-15).
2. Press down the boss of the left holder at the back of the 150-sheet feeder assembly, then shift the left holder in the direction of the arrow to release the three hooks.
3. Remove the left holder and no paper actuator from the nudger support.

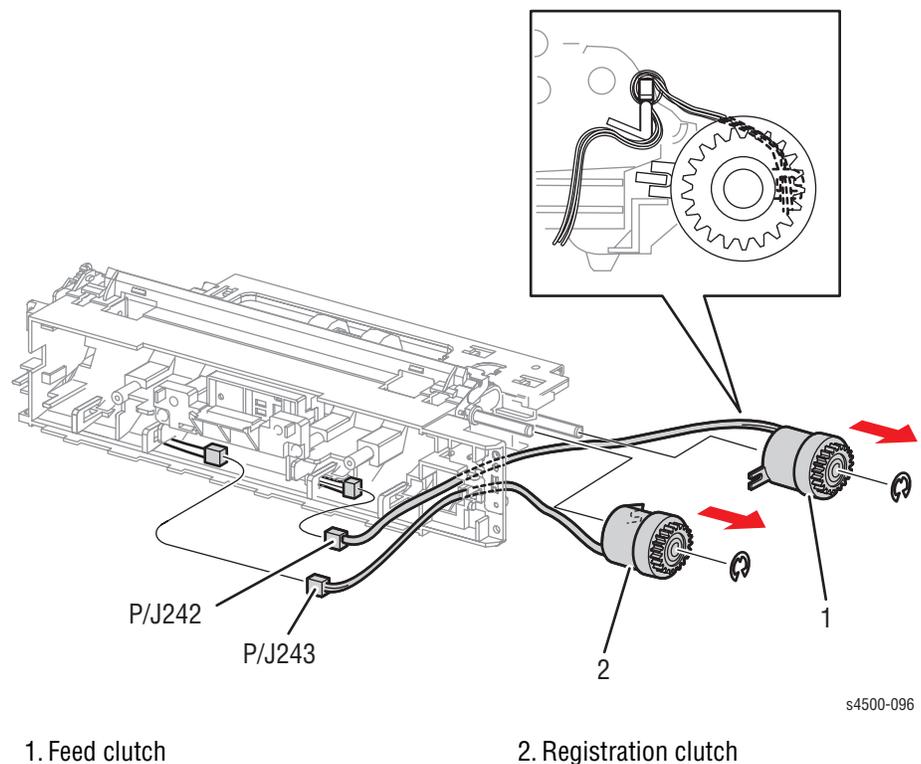
4. Release the hook of the nudger roller, and pull the nudger roller out from the nudger shaft.
5. Release the hook of the nudger gear, and pull the nudger gear out from the nudger shaft.

Replacement Note:

- After the no paper actuator is replaced, manually operate it to verify that it moves smoothly, and that the no paper actuator (4) is positioned as shown in the illustration.

Feed Clutch, Registration Clutch

(PL5.1.21) (PL5.1.23)

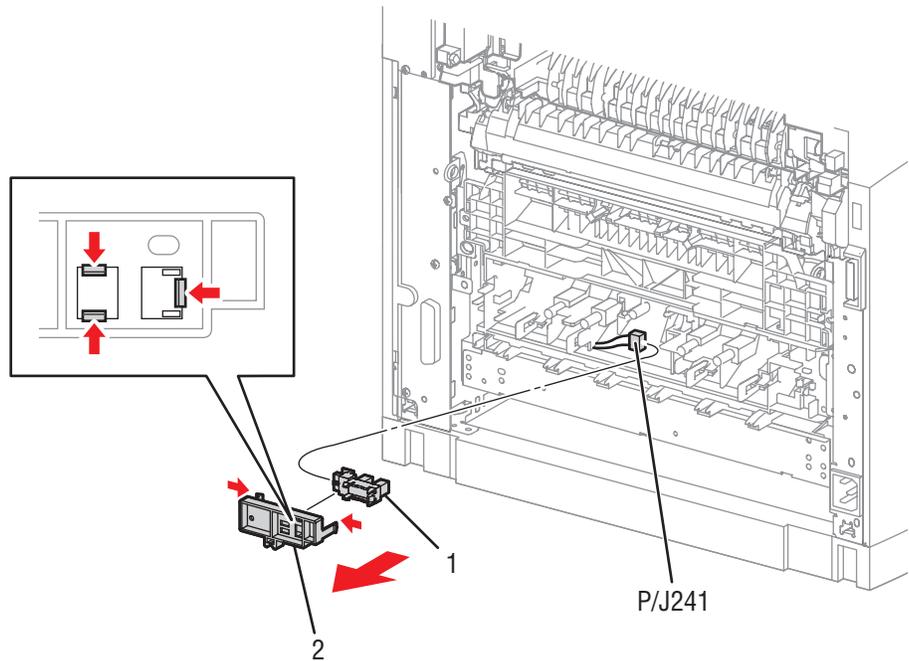


Procedure:

1. Remove the 150-sheet feeder assembly (page 8-15).
2. **P4500 only:** Disconnect the connector (P/J 242) of the feed clutch from the tray 1 harness assembly.
3. Remove the E-ring retaining the feed clutch, and slide the feed clutch assembly from the feed shaft.
4. **P4500 only:** Disconnect the connector (P/J 243) of the registration clutch from the tray 1 harness assembly.
5. Remove the E-ring retaining the registration clutch, and slide the registration clutch from the metal registration roller.

Registration Sensor

(PL5.1.30)



s4500-097

1. Registration sensor

2. Sensor cover

Procedure:

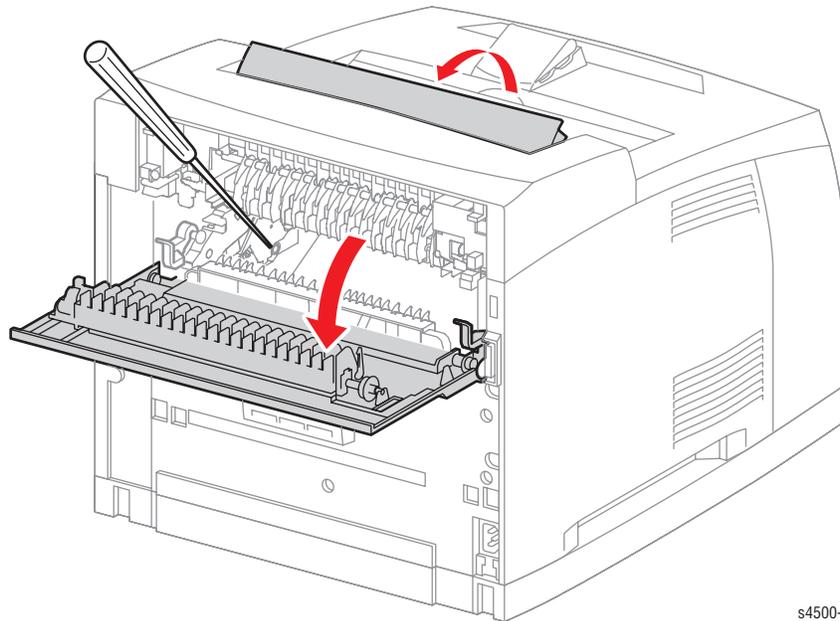
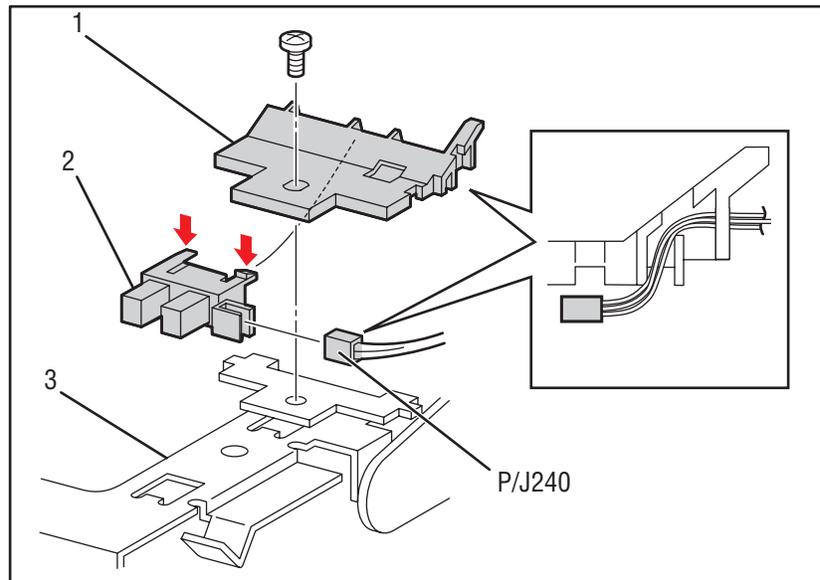
1. **P4500:** Remove the main fan (page 8-68).
P4510: Remove the rear cover (page 8-6)
2. Release the hooks that secure the sensor cover, and remove the sensor cover from the registration chute assembly.
3. Release the hooks that secure the registration sensor, and remove it from the sensor cover.
4. Disconnect the connector (P/J241) of the tray 1 harness assembly from the registration sensor.

Replacement Note:

- When the replacement is completed, verify the process direction registration as described in “Checking Registration (Margins)” on page 6-5.

No Paper Sensor

(PL5.1.38)



s4500-098

1. No paper sensor holder 3. 150-sheet feeder assembly
2. No paper sensor

Procedure:

1. Remove the 150-sheet paper cassette (tray 1).
2. Remove the print cartridge, and protect it from light exposure.
3. Remove the paper exit rear door (PL10.2.21/PL9.1.12) (page 8-5).
4. Remove the fuser assembly (page 8-44).
5. Lift the 150-sheet feeder roller holder assembly upward until it latches into the lifted position detent.

6. Remove the 8 mm screw that attaches the no paper sensor holder.
7. Remove the no paper sensor holder from the 150-sheet feeder assembly.
8. Release the hooks that secure the no paper sensor to the no paper sensor holder, and remove the no paper sensor.
9. Unplug the cable connector (P/J240) from the no paper sensor.

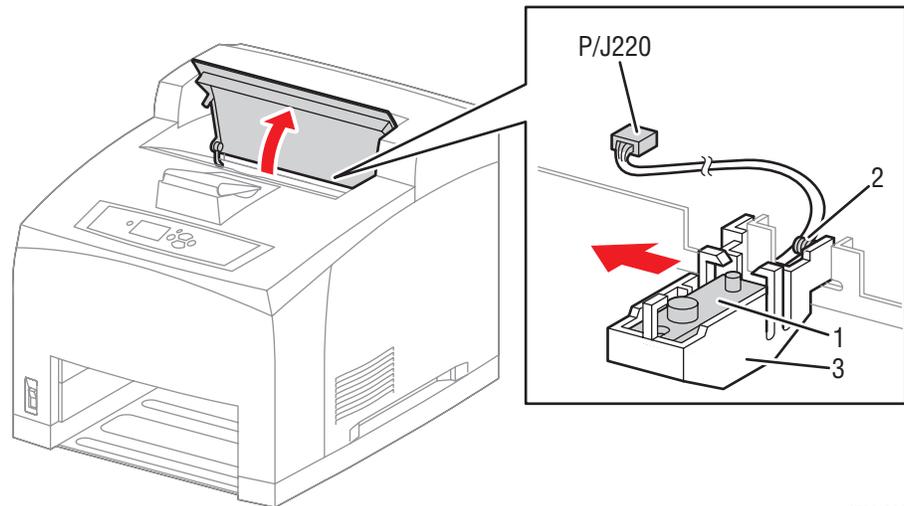
Replacement Note:

Caution

Use care when tightening the screw on the sensor holder to avoid pinching and possibly damaging the wires in the cable harness.

Toner Sensor Assembly

(PL5.1.45)



s4500-099

1. Toner sensor

3. D-Holder

2. Toner sensor spring

Procedure:

1. Remove the print cartridge and leave the top cover open. Protect the print cartridge from light exposure.

Note

Before proceeding, remove the 150-sheet paper cassette and feed a sheet of paper partially into the registration roller to catch the tensioning spring if it falls.

2. Unplug the connector (P/J220) of the toner sensor from the toner harness assembly 1.
3. Release the wires from the cable restraints.
4. Rotate the sensor D-holder to its vertical position, noting the orientation of its tensioning spring.
5. Slide the holder to the left to release the hinge pins from the feeder assembly.

Note

When removing the toner sensor assembly, be careful not to lose the holder tension spring.

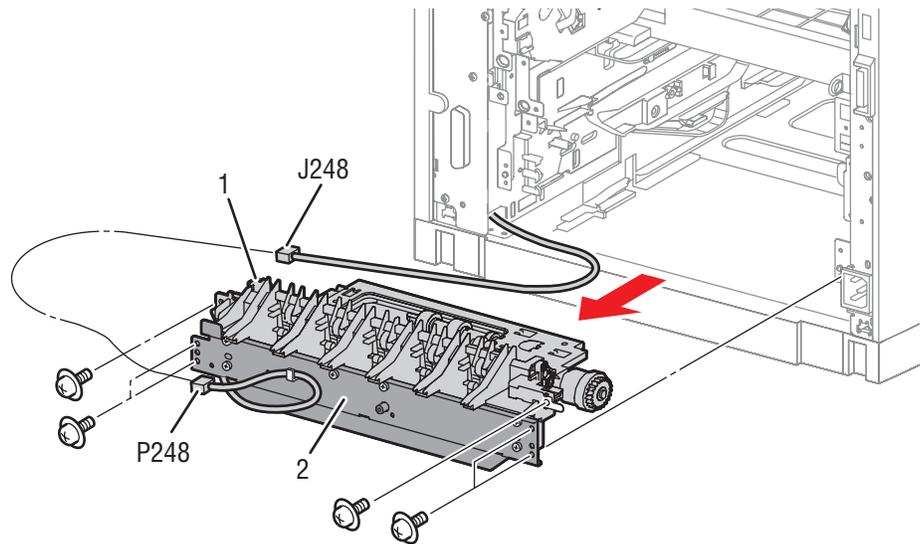
Replacement Note:

- When installing the toner sensor assembly, put the toner sensor spring on the boss of the D-Holder, and then install the toner sensor on it.

Print Engine: 550-Sheet Paper Feeder

550-Sheet Feeder Assembly

(PL7.1.10)



s4500-101

1. Out chute

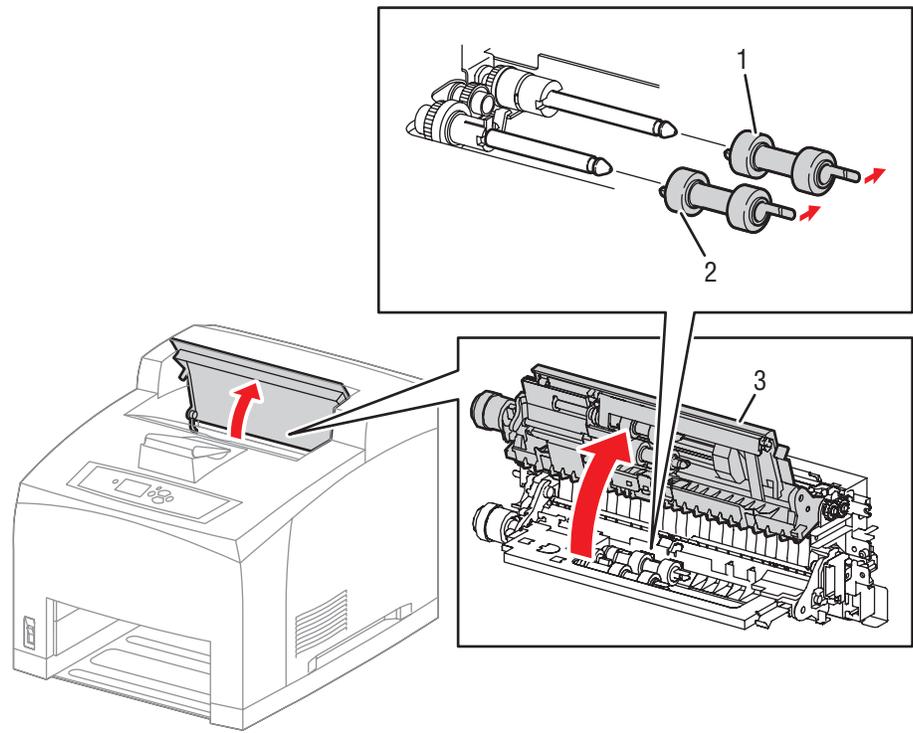
2. Tie plate

Procedure:

1. Remove the 150- and 550-sheet paper cassettes (trays 1 and 2).
2. Unplug the connector (P/J248) and release the cables from the two cable restraints on the tie plate.
3. Remove the four screws (w/ lock washer and washer, 8 mm) that attach the tie plate to the frame.
4. Remove the six screws from the tie plate and remove the tie plate from the printer.
5. Remove the two screws (w/ lock washer and washer, 8 mm) that attach the out chute to the frame.
6. Lower the right-hand side of the 550-sheet feeder assembly and rotate the assembly clockwise into the printer cavity to free the left-hand side. Then remove the 550-sheet feeder assembly from the frame.

Nudger Roller, Feed Roller

(PL7.1.19) (PL7.1.29)



s4500-103

1. Feed roller

3. 150-sheet feeder assembly

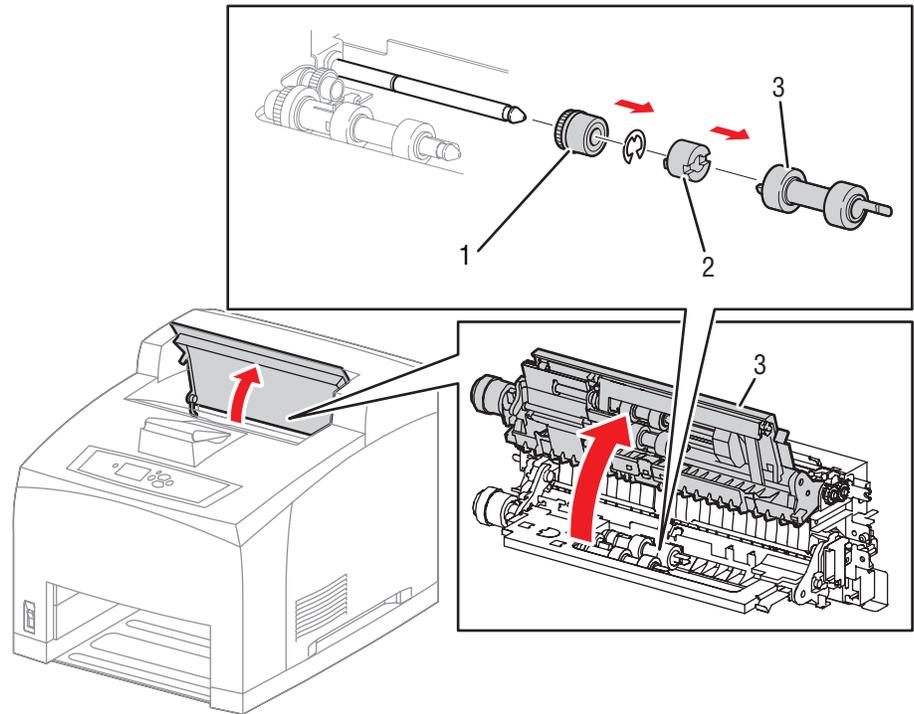
2. Nudger roller

Procedure:

1. Remove the print cartridge and leave the cover open so that the removal can be checked visually.
2. Remove the paper cassettes from tray 1 and tray 2.
3. Lift up the 150-sheet feeder assembly until it locks into the raised detent position.
4. Reach through the paper cassette openings and release the hook retaining the nudger roller. Slide the nudger roller off the nudger shaft.
5. Release the hook retaining the feed roller as in step 4. Slide the feed roller off the feed shaft.

Nudger One-way Clutch

(PL7.1.27)



s4500-104

1. Nudger one-way clutch
2. Feed one-way clutch

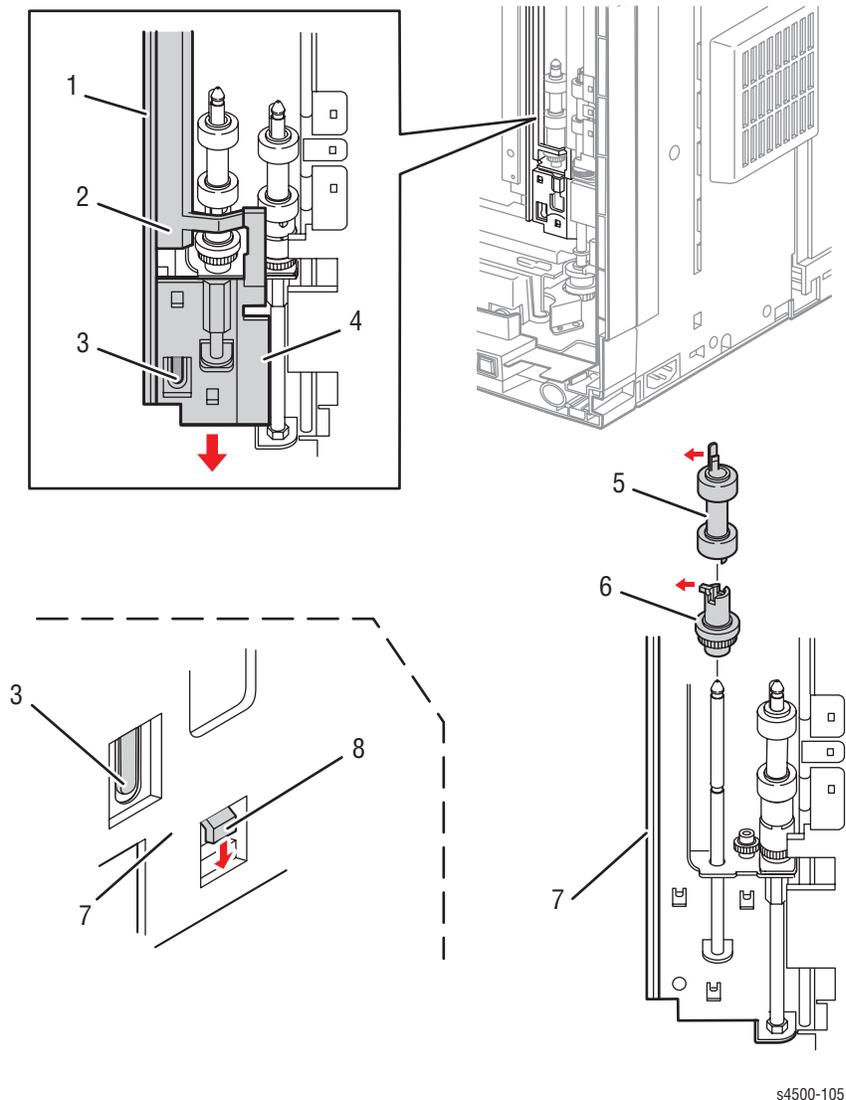
3. Feed roller
4. 150-sheet feeder assembly

Procedure:

1. Remove the print cartridge and leave the cover open so that the removal can be checked visually.
2. Remove the tray 1 and tray 2 paper cassettes.
3. Lift up the 150-sheet feeder assembly until it locks into the raised detent position.
4. Remove the feed roller (page 8-25).
5. Slide the feed one-way clutch off the feed shaft.
6. Remove the E-ring retaining the nudger one-way clutch on the feed shaft.
7. Slide the nudger one-way clutch off the feed shaft.

Nudger Gear

(PL7.1.18)



s4500-105

- | | |
|----------------------|----------------------|
| 1. Nudger support | 5. Nudger roller |
| 2. No paper actuator | 6. Pick gear |
| 3. Boss (lift tab) | 7. Metal pivot plate |
| 4. Left holder | 8. Hook |

Procedure:

1. Remove the stacker if installed.
2. Remove the print cartridge and leave the top cover open.
3. Remove both paper cassettes (Trays 1 and 2).
4. Remove any optional 500-sheet feeder(s) (page 8-78).
5. Lay the printer on its left side.

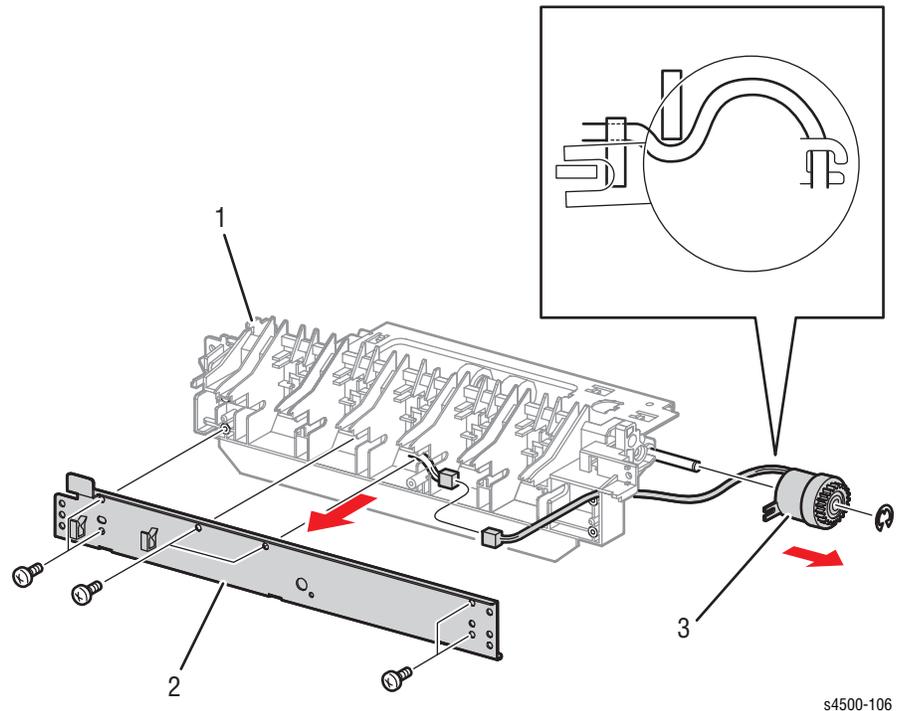
6. Lift the boss of the left holder at the back of the 550-sheet feeder assembly, then shift the left holder in the direction of the arrow to release the three hooks.
7. Remove the left holder and no paper actuator from the nudger support.
8. Release the hook retaining the nudger roller, and slide it off the nudger shaft.
9. Release the hook retaining the nudger gear, and slide it off the nudger shaft.

Replacement Note:

- After the no paper actuator is replaced, manually operate it to verify that it moves smoothly.

Feed Clutch

(PL7.1.20)



s4500-106

1. Out chute

3. Feed clutch

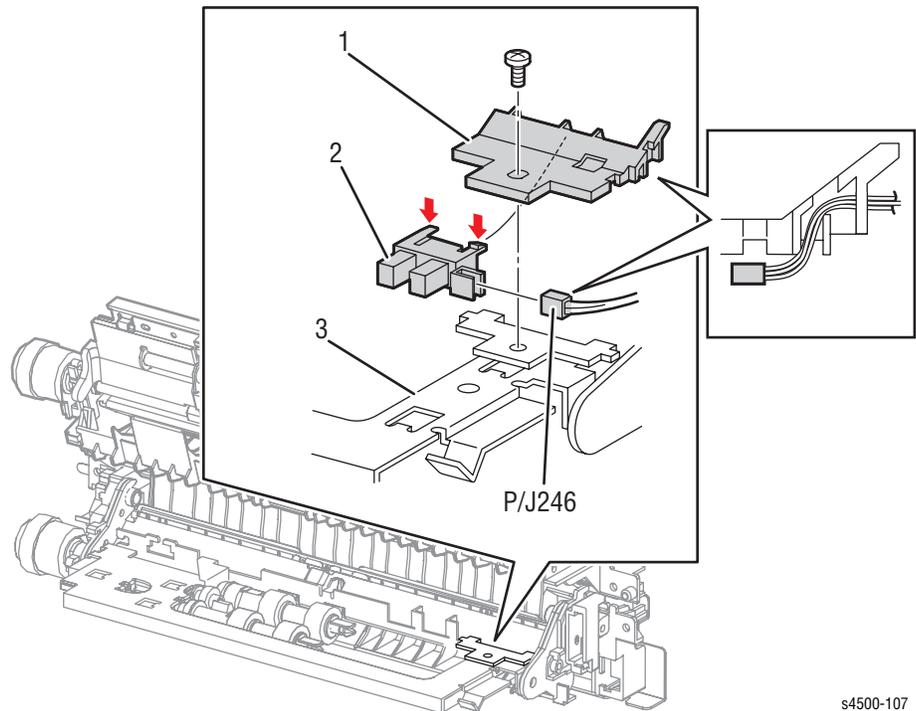
2. Tie plate

Procedure:

1. Remove the 150-sheet feeder assembly (page 8-15).
2. Remove the 550-sheet feeder assembly (page 8-24).
3. Remove the six 8 mm tapping screws that attach the tie plate to the out chute, and remove the tie plate from the out chute.
4. Unplug the connector (P/J247) of the feed clutch from the tray 2 harness assembly.
5. Remove the E-ring that secures the feed clutch, and slide the assembly off the feed shaft.

No Paper Sensor

(PL7.1.38)



s4500-107

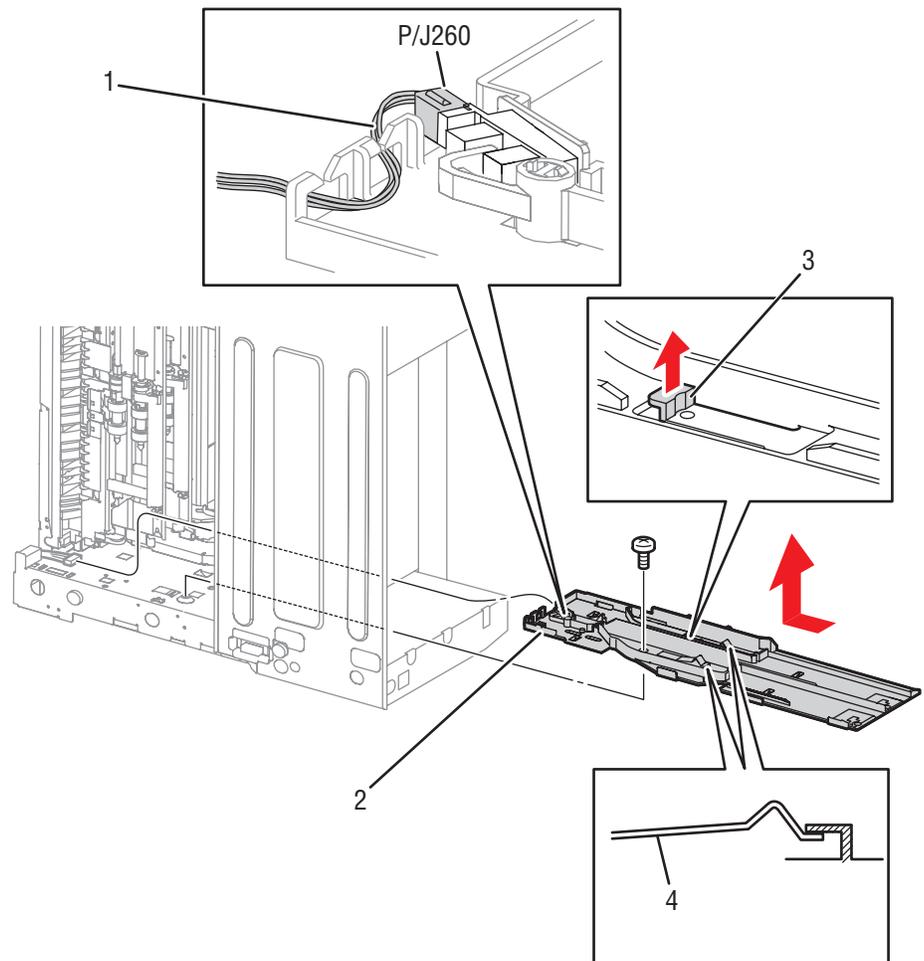
1. No paper sensor holder
2. No paper sensor
3. 550-sheet feeder assembly

Procedure:

1. Remove the 150-sheet feeder assembly (page 8-15).
2. Remove the 6 mm screw that attaches the no paper sensor holder.
3. Remove the no paper sensor holder from the 550-sheet feeder assembly.
4. Release the hooks that secure the no paper sensor to the no paper sensor holder, and remove the no paper sensor.
5. Unplug the cable connector (P/J246) from the no paper sensor.

Right Tray Guide

(PL7.1.3)



s4500-108

- | | |
|-----------------------------|------------------------|
| 1. Low paper sensor harness | 3. Latch |
| 2. Right tray guide | 4. Cassette lock plate |

Procedure:

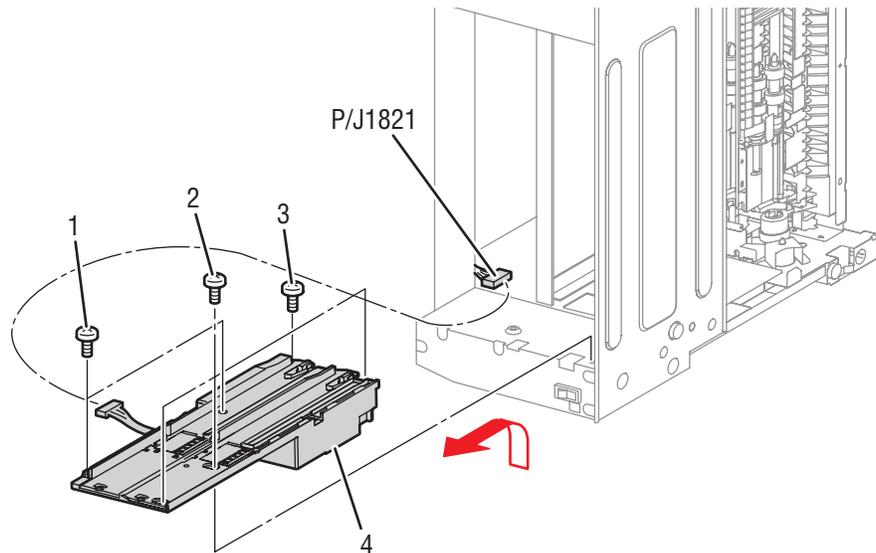
1. Remove the print cartridge and paper cassettes.
2. Remove any optional 550-sheet feeder(s) (page 8-78).
3. Lay the printer on its right side.
4. Remove the 6 mm screw that attaches the right tray guide to the frame.
5. Lift the latch and shift the right tray guide back and up as indicated by the arrow in the figure. Separate the right tray guide from the frame.
6. Release the wire harness from the rear of the right tray guide.
7. Unplug the connector (P/J260) of the low-paper sensor harness from the right tray guide.

Replacement Notes:

- After re-connecting P/J260, make sure the low-paper sensor harness is properly looped through the two harness retainers.
- When installing the right tray guide, be sure to position the cassette lock plates as shown in the figure.

Left Tray Guide

(PL7.1.7)



s4500-109

- | | |
|-------------------------|--------------------|
| 1. Machine screw (6 mm) | 3. Tapping screw |
| 2. Machine screw (6 mm) | 4. Left tray guide |

Procedure:

1. Remove the print cartridge and paper cassettes.
2. Remove any optional 550-sheet paper feeder(s) (page 8-78).
3. Remove the front cover (page 8-11).

Note

Removing the left tray guide might be easier with the 150- and 550-sheet feeders removed (page 8-15 and page 8-24).

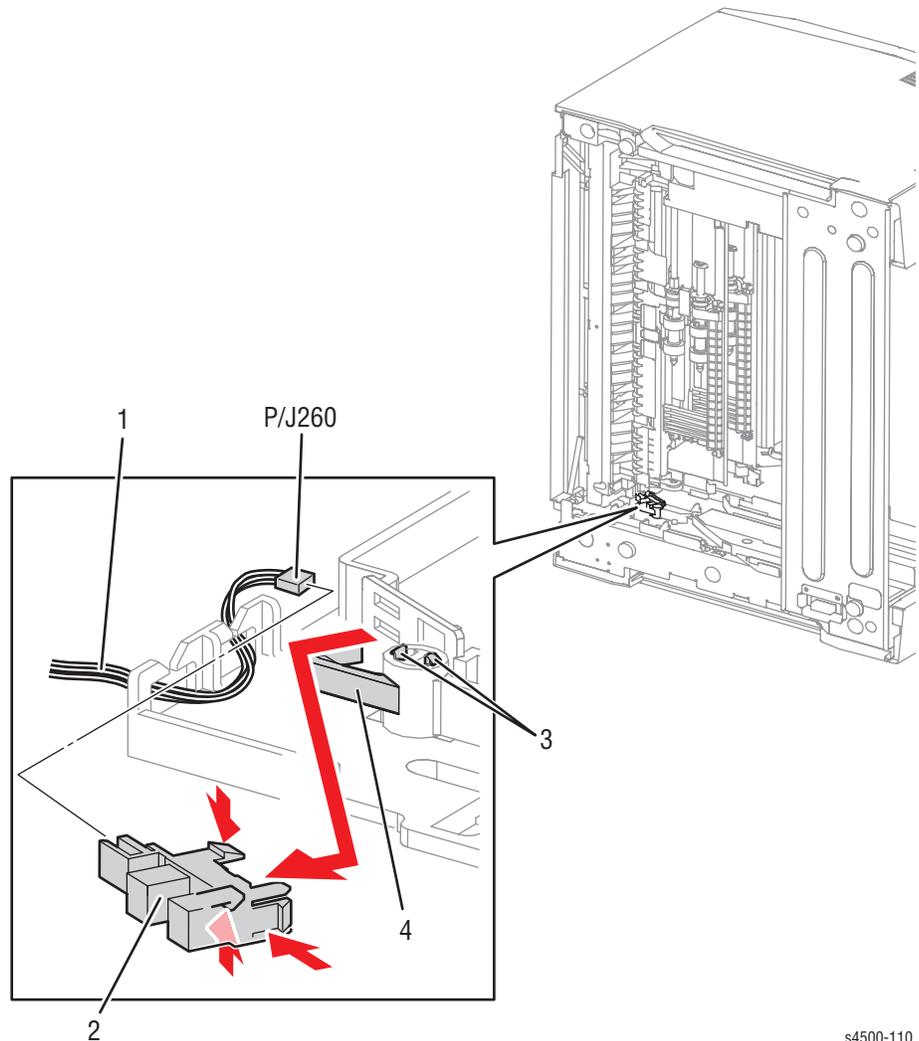
4. Lay the printer on its left side.
5. Unplug the left tray guide harness at connector P/J1821.
6. Remove the one 8 mm tapping and five 6 mm machine screws that attach the left tray guide to the frame.
7. Swing the bottom edge of the left tray guide up, then pull the guide out of the frame as indicated by the arrow.

Replacement Note:

- Two types of screws are used, and they are not interchangeable. Be sure to install screws in the proper locations as indicated in the drawing.

Low Paper Sensor/Actuator

(PL7.1.4)



s4500-110

- | | |
|---------------------------|----------------|
| 1. Low 1 harness assembly | 3. Latch hooks |
| 2. Low paper sensor | 4. Actuator |

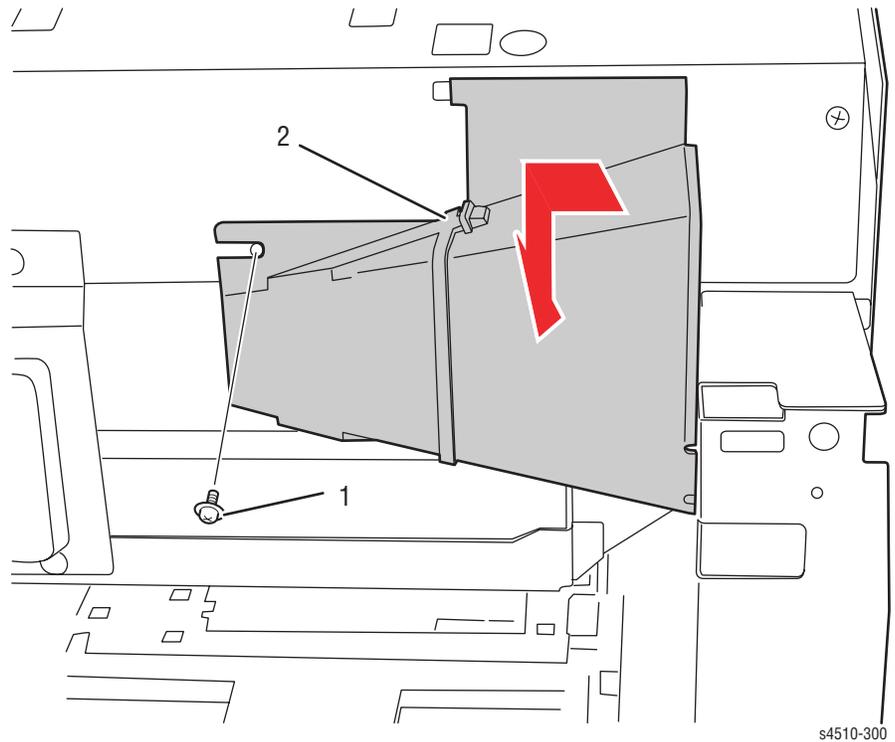
Procedure:

1. Remove the print cartridge and paper cassettes.
2. Remove the right tray guide (page 8-31)
3. Squeeze the actuator latch hooks together and lift the actuator off the pivot shaft.
4. Release the sensor harness wires from the restraints.
5. Release the sensor latches as indicated by the arrows in the drawing to free the sensor from the holder.
6. Unplug connector P/J260 from the sensor.

Print Engine: Xerographics

Vacuum Duct (P4510)

(PL8.1.31)



1. Vacuum duct

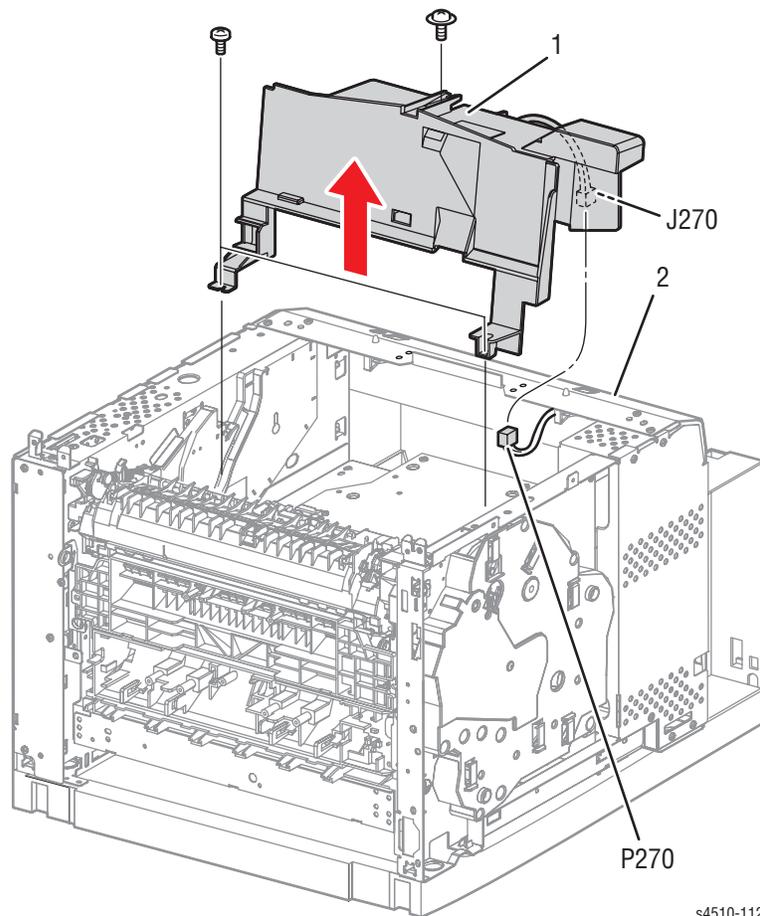
2. Flanged screw

Procedure:

1. Remove the front cover (page 8-11). Removing the front cover requires removing all other printer covers and the paper exit assembly.
2. Remove the flanged screw that attaches the vacuum duct to the printer frame.
3. Slide the vacuum duct to the left, then maneuver the duct out of the printer.

Front Duct, Sub Fan

(PL8.1.4) (PL8.1.5)



s4510-112

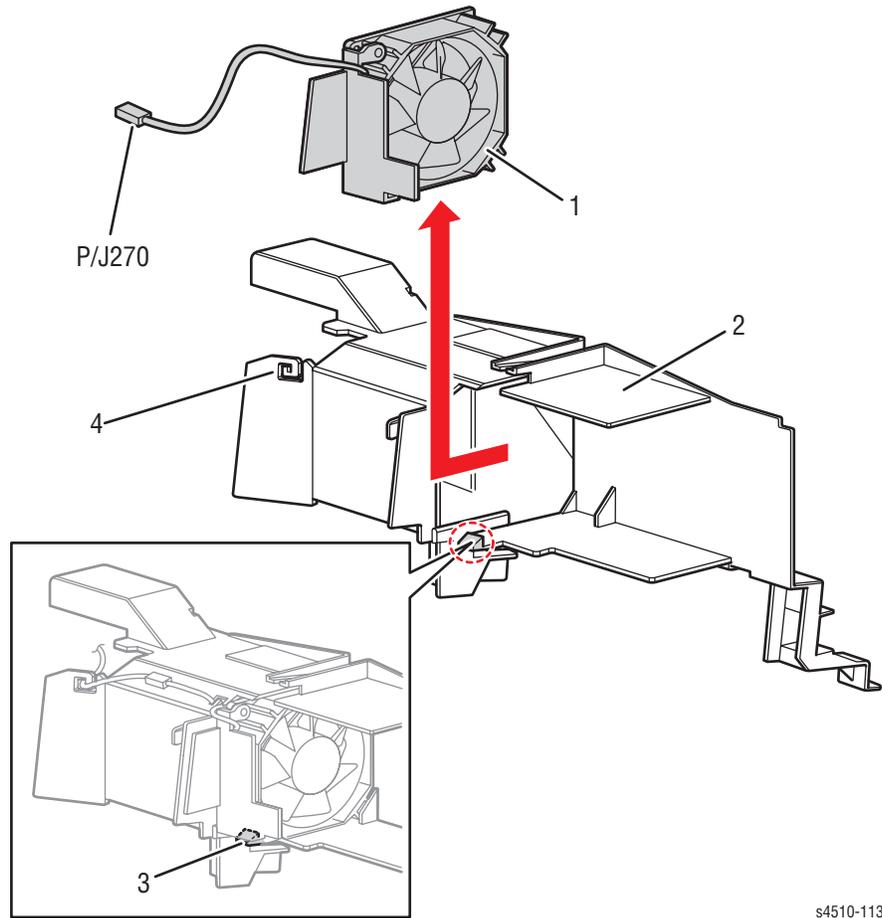
1. Front duct

2. Front tie plate

Procedure:

1. Remove the front cover (page 8-11). Removing the front cover requires removing all other printer covers and the paper exit assembly.
2. **P4510:** Remove the vacuum duct (page 8-35).
3. Remove the three screws (one machine with flange, 8 mm; two tapping, 8 mm) that attach the front duct.
4. Unplug the sub fan harness from the LVPS harness assembly at connector P/J270.
5. Release the fan wires from the cable slot.
6. Remove the front duct (with the sub fan attached) from the frame by moving it in the direction of the arrow.

7. Release the latch that secures the sub fan to the front duct, and remove the sub fan.



s4510-113

- 1. Sub fan
- 2. Front duct

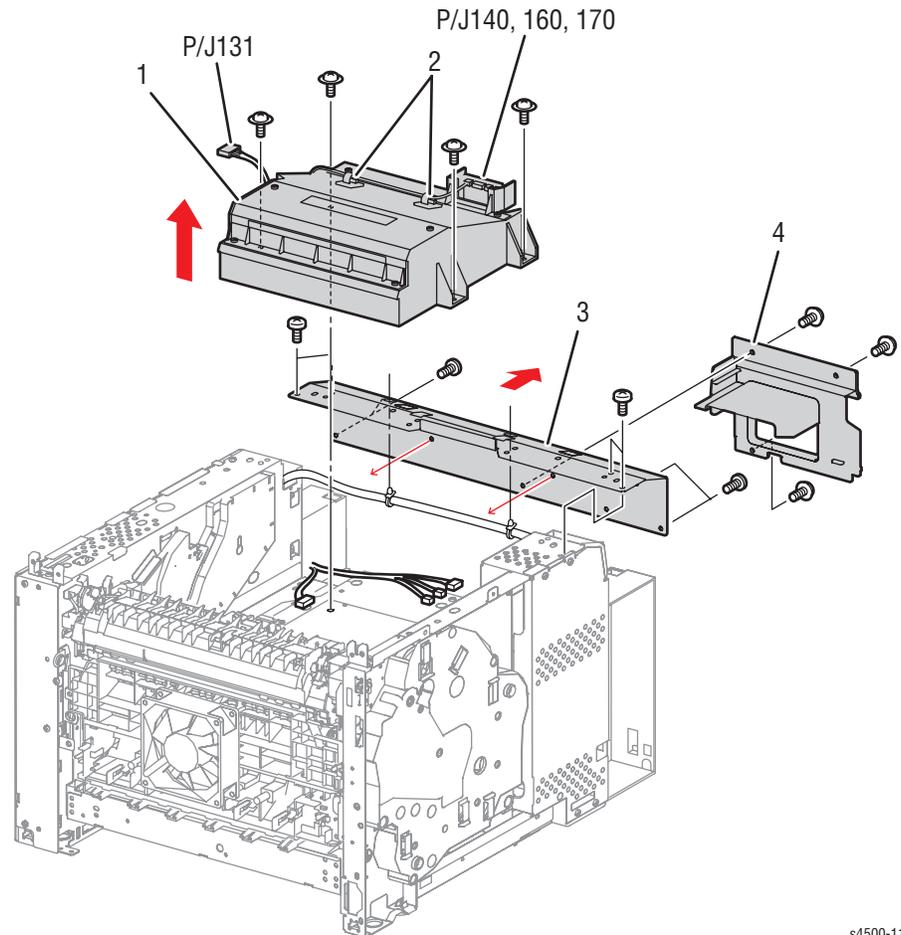
- 3. Latch
- 4. Cable slot

Laser Unit Assembly

(PL8.1.1)

Caution

When removing or installing the laser unit assembly, set the printer on a smooth, level work surface such as a desk. Working on a rough or inclined surface can result in mis-alignment of the laser unit assembly.



s4500-111

- | | |
|------------------------|--------------------|
| 1. Laser unit assembly | 3. Front tie plate |
| 2. Cable clamps | 4. Upper duct |

Procedure:

1. Remove the vacuum duct (page 8-35).
2. Remove the front duct (page 8-36), but do not remove the sub fan from the duct.
3. Remove the three screws (machine with flange, 8 mm) that attach the upper duct (4).
4. Tilt out the left side of the upper duct to clear the connector, and remove the duct.
5. Release the three cable restraints on the inside of the front tie plate (3).

6. If a phillips screwdriver with a long shaft (min. 6.5 in (16.5 cm)) is available, skip this step. Otherwise, remove the eight 6 mm machine screws attaching the front tie plate to the frame, and remove the front tie plate.
7. Release the cable clamp(s) from the front tie plate.

Caution

The printed circuit board on the laser unit assembly is fragile. Support the circuit board to prevent it from flexing and possibly cracking when unplugging the connectors in the following step.

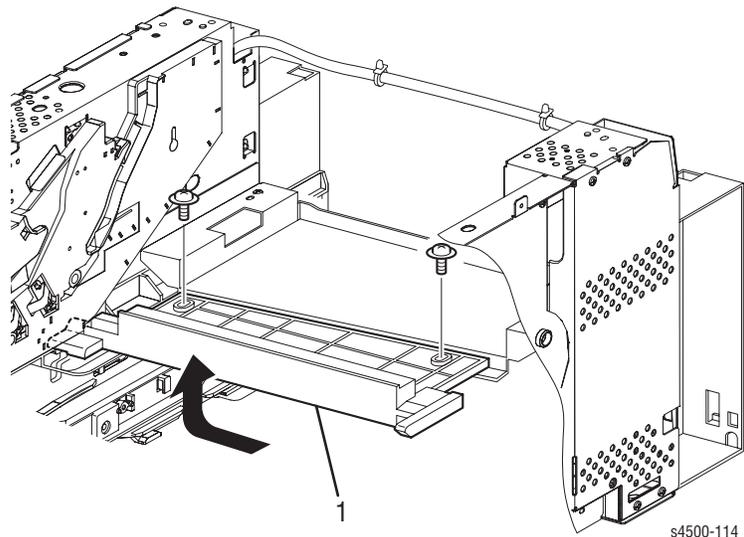
Note

Do not touch the glass laser window strip with finger tips or anything that could leave deposits.

8. Unplug the harness connector at P/J 131, and the three connectors, P/J140, P/J160, and P/J170, from the laser unit circuit board.
9. Remove the four screws (flanged, 8 mm) that attach the laser unit assembly to the frame.
10. Lift the laser unit assembly out of the printer frame.

Laser Unit Shield Plate

(PL8.1.3)



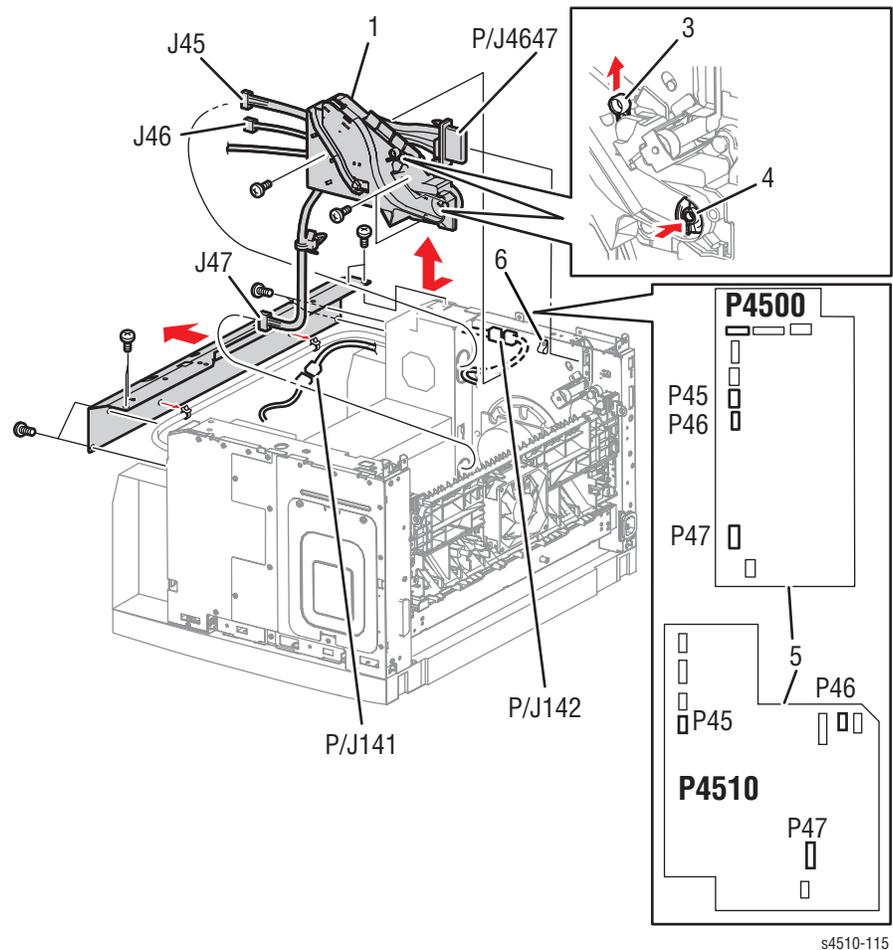
1. Laser unit shield plate

Procedure:

1. Remove the laser unit assembly (page 8-38).
2. Remove the two screws (flanged, 8 mm) that attach the laser unit shield plate to the frame.
3. Lift the laser unit shield plate out of the frame as indicated by the arrow.

Print Cartridge Left Guide

(PL8.1.15)



- | | |
|--|------------------------|
| 1. Print cartridge left guide assembly | 4. Gear 3 link |
| 2. Fuser connector (P/J 4647) | 5. LVPS |
| 3. Link lever | 6. Fuser harness clamp |

Procedure:

1. Remove the fuser assembly (page 8-44).
2. Remove the laser unit shield plate (page 8-39).
3. Remove the fuser harness clamp that secures the fuser harness to the frame.
4. Remove the rear cover (page 8-6).
5. Remove the transfer chute (page 8-46).
6. **P4500:** Disconnect P/J142, which connects the 5 V interlock to the LVPS harness assembly (2-wire gray harness).
P4510: Disconnect P/J141, which connects the 5 V interlock to the laser unit harness.
7. Remove the LVPS shield plate (page 8-60).
8. Unplug J45 from P45 on the LVPS to disconnect the top cover switch.

9. Unplug J46 (Fuser status and sensor connections) and J47 (Fuser AC connection) from P46 and P47 on the LVPS
10. Remove the three 6 mm machine screws that attach the print cartridge left guide to the frame.

Caution

The loops on the print cartridge guide cover are fragile and can easily break if spread too far. Spread the loops only enough to release the hooks.

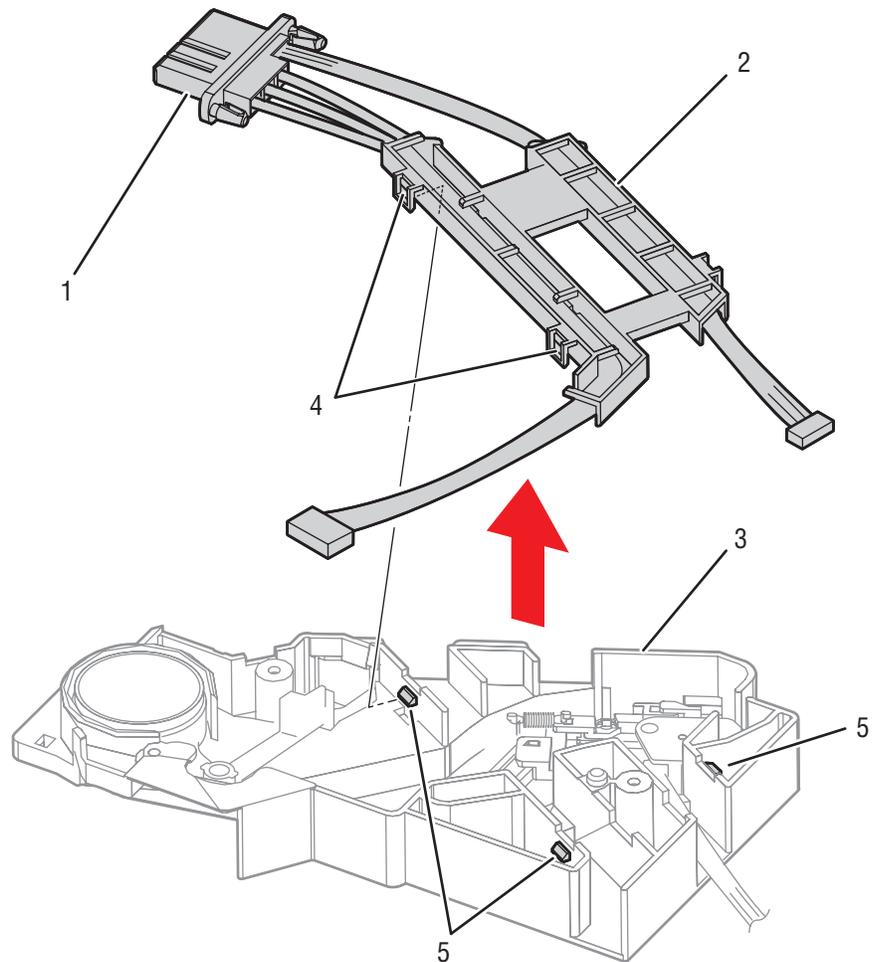
11. Carefully spread the loops on the print cartridge guide cover to release the three latches in the print cartridge left guide (see the figure on the next page). The loops are accessible through the D-shaped holes in the print cartridge left guide.

12. Remove the print cartridge left guide from the frame.

Continue with “Fuser Harness Assembly” on page 8-42.

Fuser Harness Assembly

(PL8.1.17)



s4500-118

- | | |
|--------------------------------|------------|
| 1. Fuser harness assembly | 4. Loops |
| 2. Print cartridge guide cover | 5. Latches |
| 3. Print cartridge left guide | |

Procedure:

1. Remove the print cartridge left guide (page 8-40).

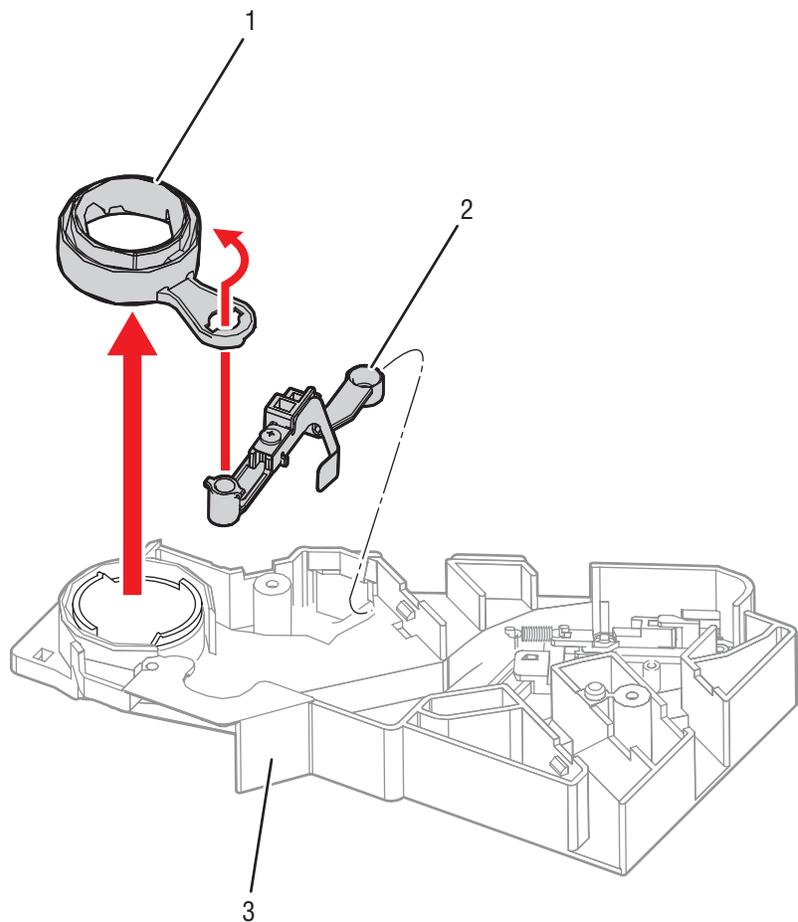
Caution

The latch posts on the fuser connector are brittle and break very easily during removal. Use extreme caution in the next step when squeezing the posts to release them from the frame.

2. Release the latch posts and free the fuser connector (P/J4647) from the frame.
3. Remove the fuser harness assembly from the printer.

Link Lever, Gear 3 Link

(PL8.1.29) (PL8.1.30)



s4500-125

1. Gear 3 link

3. Print cartridge left guide

2. Link lever

Procedure:

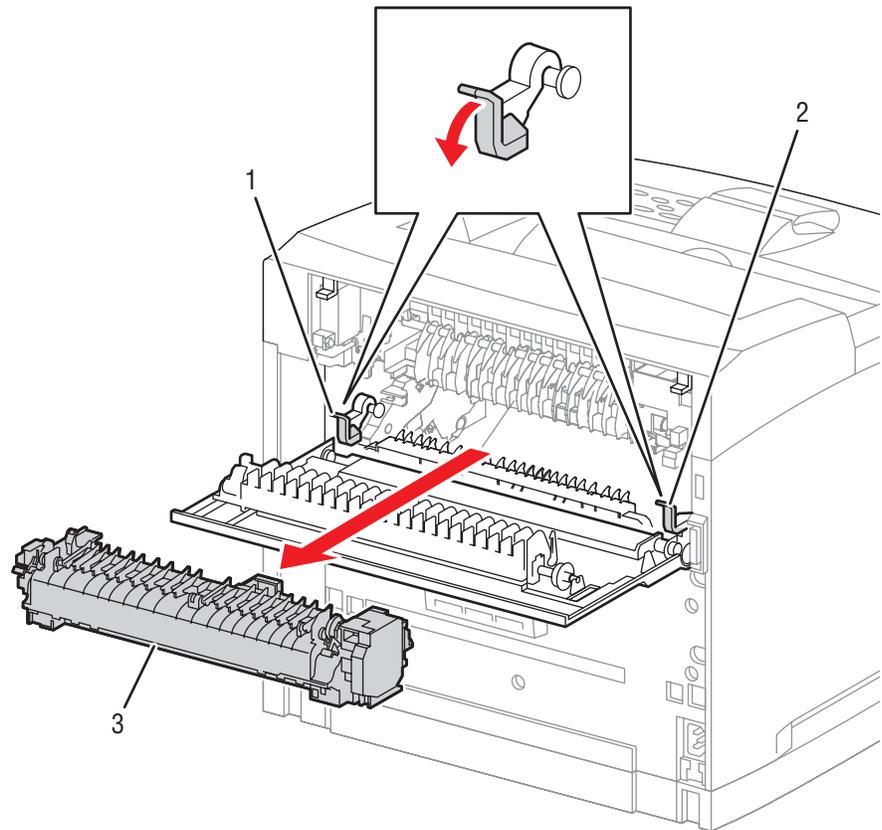
1. Remove the print cartridge left guide (page 8-40).
2. Remove the link lever and gear 3 link.

Fuser Assembly

Note

The fuser used in the Phaser 4510 is different than the fuser used in the Phaser 4500. The fusers are NOT interchangeable.

(PL8.1.20)



s4500-119

1. Right fuser lever

3. Fuser assembly

2. Left fuser lever

Procedure:

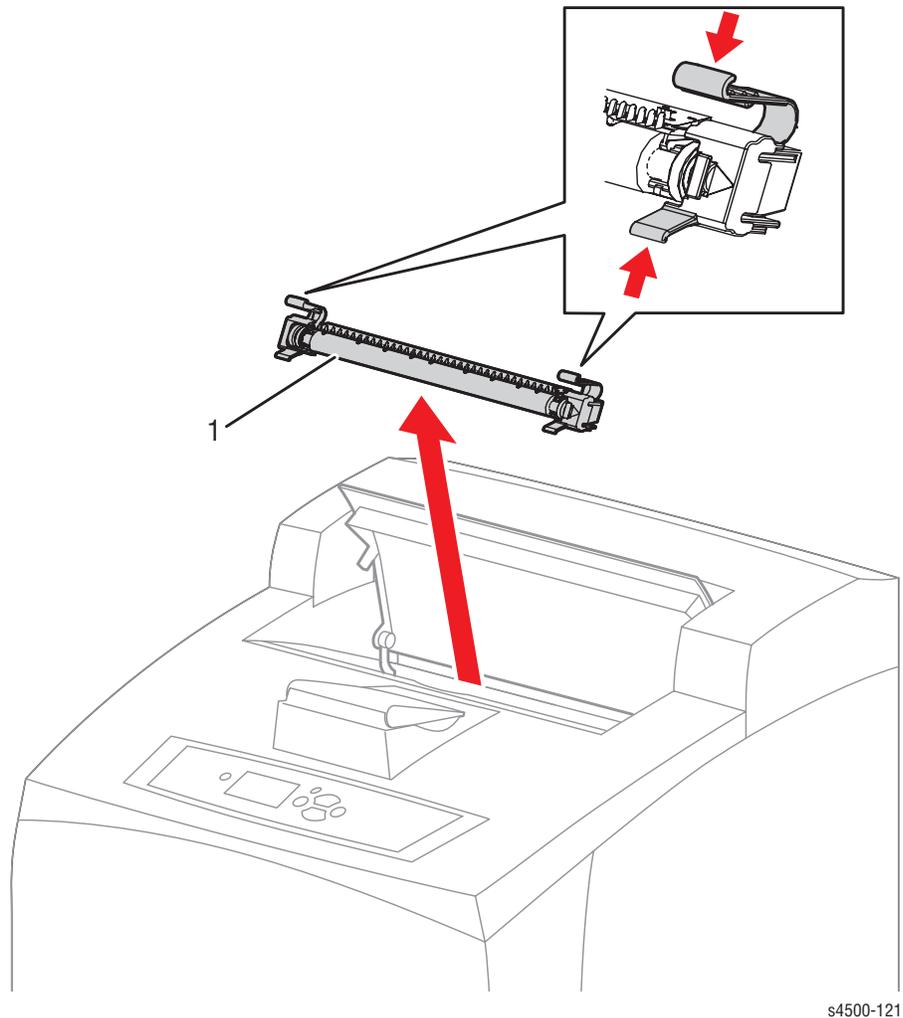
Warning

The fuser assembly is very hot immediately after the printer is turned off. To avoid possible burns, wait to remove the fuser until it cools down sufficiently to be handled.

1. Open the paper exit rear door (page 8-5).
2. Push down the left and right fuser levers in the direction of the arrow to release the fuser assembly locks.
3. Pull the fuser assembly out the back of the printer as indicated by the arrow.

Transfer Roller Assembly

(PL8.1.21)



s4500-121

1. Transfer roller assembly

Procedure:

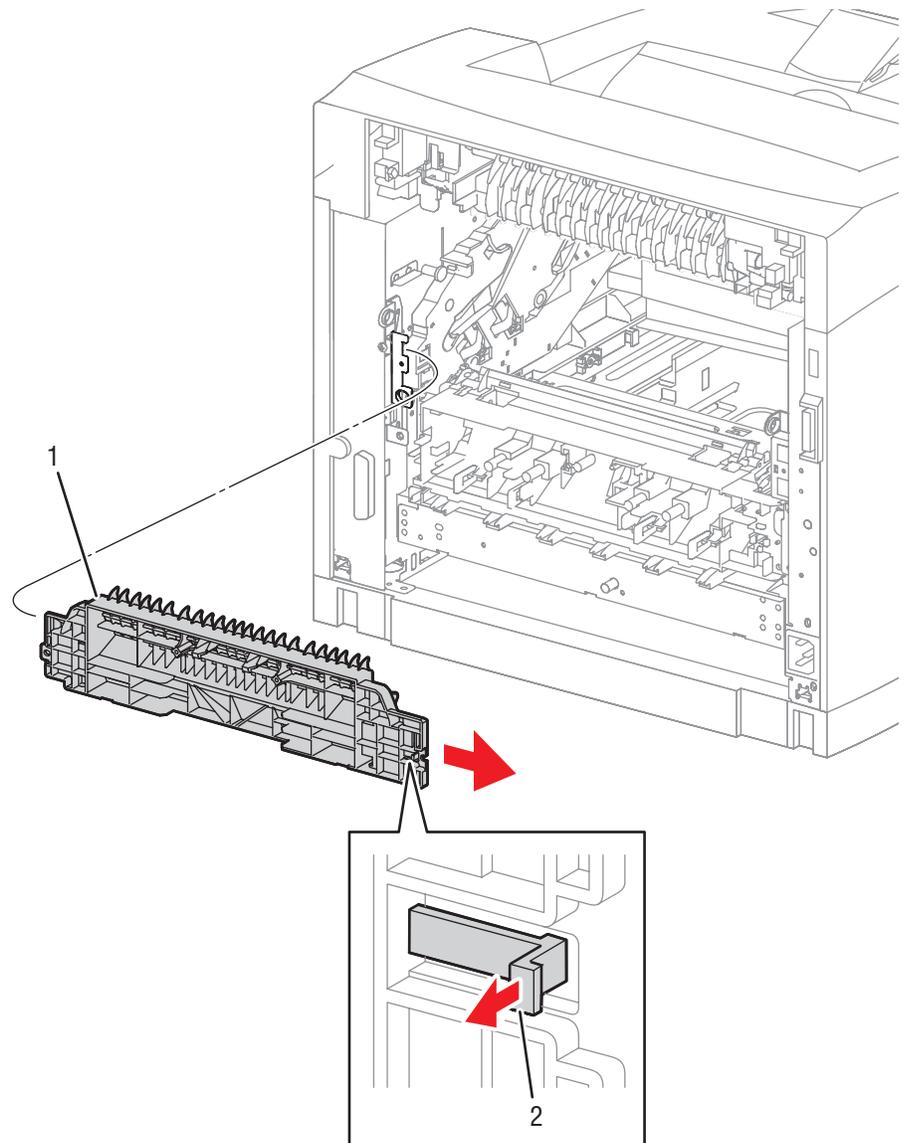
1. Remove the print cartridge and leave the top cover open. Protect the print cartridge from light exposure.
2. Squeeze the latches of both ends of the transfer roller assembly, and remove it from the printer.

Note

Be careful to avoid damaging the transfer roller when handling.

Transfer Chute

(PL8.1.22)



s4500-122

1. Transfer chute

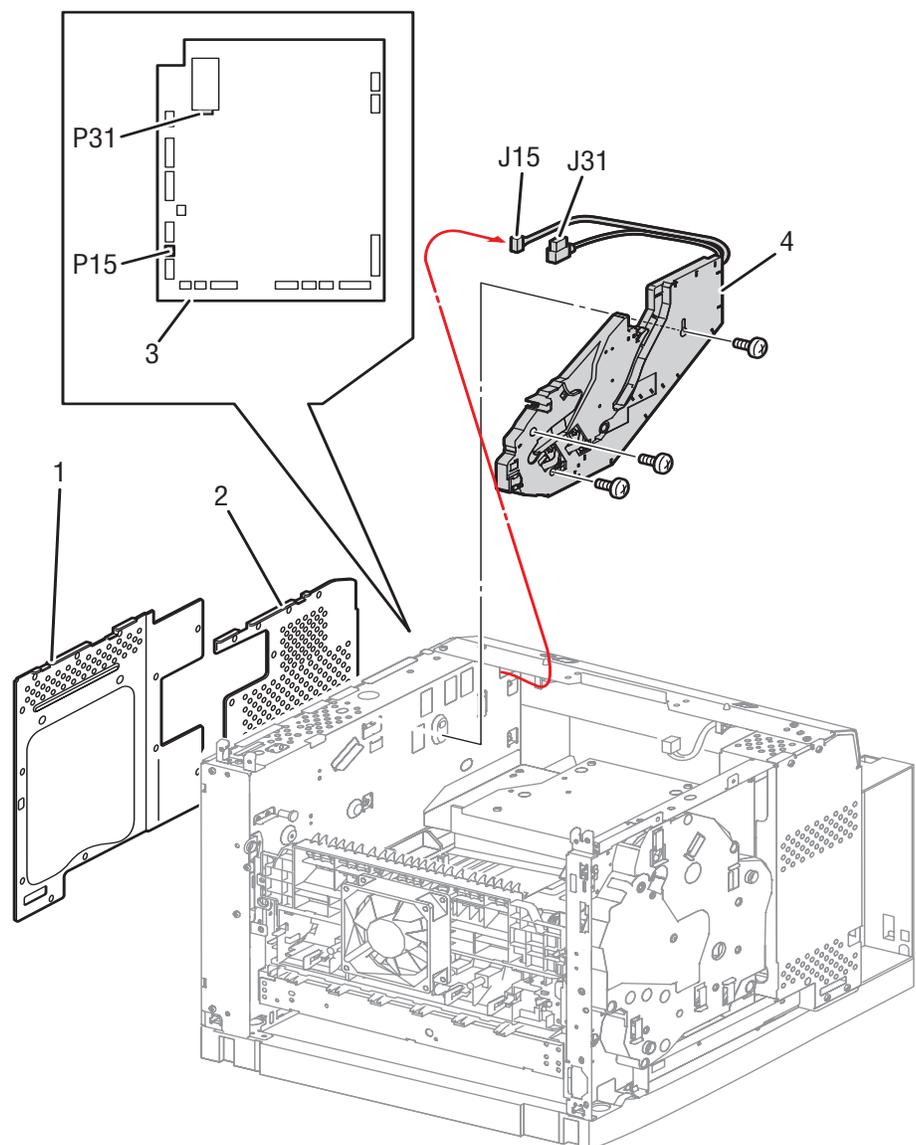
2. Latch tab

Procedure:

1. Remove the transfer roller assembly (page 8-45).
2. Remove the fuser assembly (page 8-44).
3. **P4500:** Remove the main fan (page 8-68)
P4510: Remove the rear cover (page 8-6).
4. Lift the latch tab on the transfer chute and shift the transfer chute toward the printer's left side.
5. Shift the transfer chute in the direction of the arrow, and remove it from the frame.

Print Cartridge Right Guide Assembly

(PL8.1.25)



s4500-124

- | | |
|------------------------------------|---|
| 1. Image processor shield assembly | 3. HVPS/engine logic board |
| 2. HVPS Shield Plate | 4. Print cartridge right guide assembly |

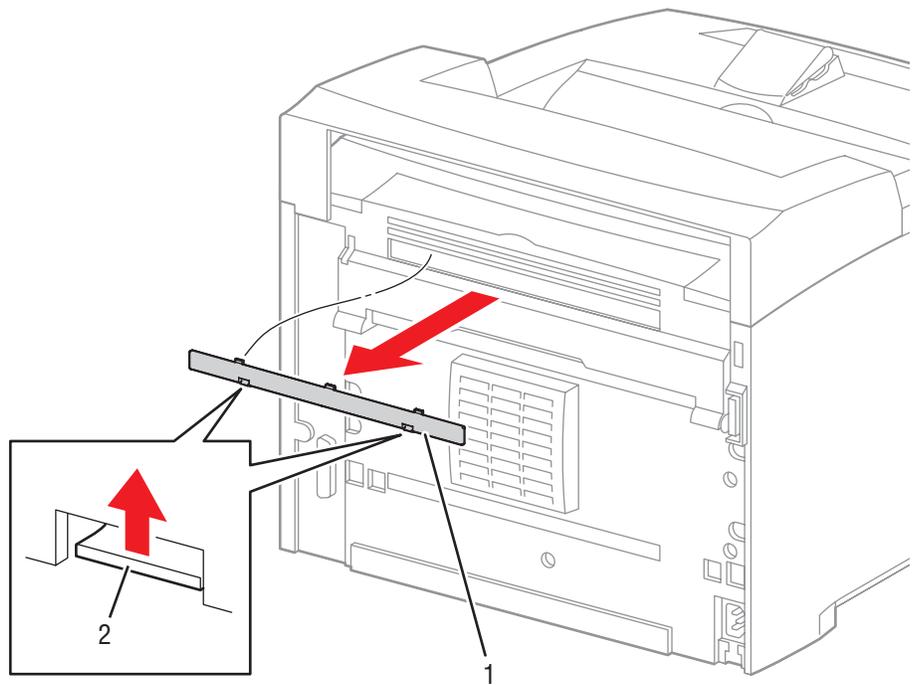
Procedure:

1. Remove the fuser assembly (page 8-44).
2. Remove the transfer roller assembly (page 8-45).
3. Remove the front duct (page 8-36).
4. Remove the image processor shield assembly (page 8-70).
5. Remove the HVPS Shield Plate (page 8-72).
6. Unplug the HV connector, J31 from P31 on the HVPS/engine logic board.

7. Unplug J15 from P15 on the HVPS/engine logic board.
8. Remove the three 6 mm machine screws that attach the print cartridge right guide assembly to the frame.
9. Pull the wiring harness of the print cartridge right guide assembly from the frame.
10. Remove the print cartridge right guide assembly.

Duplex Unit Opening Cover

(PL9.1.13)



s4500-126

1. Duplex unit opening cover

2. Latch hooks

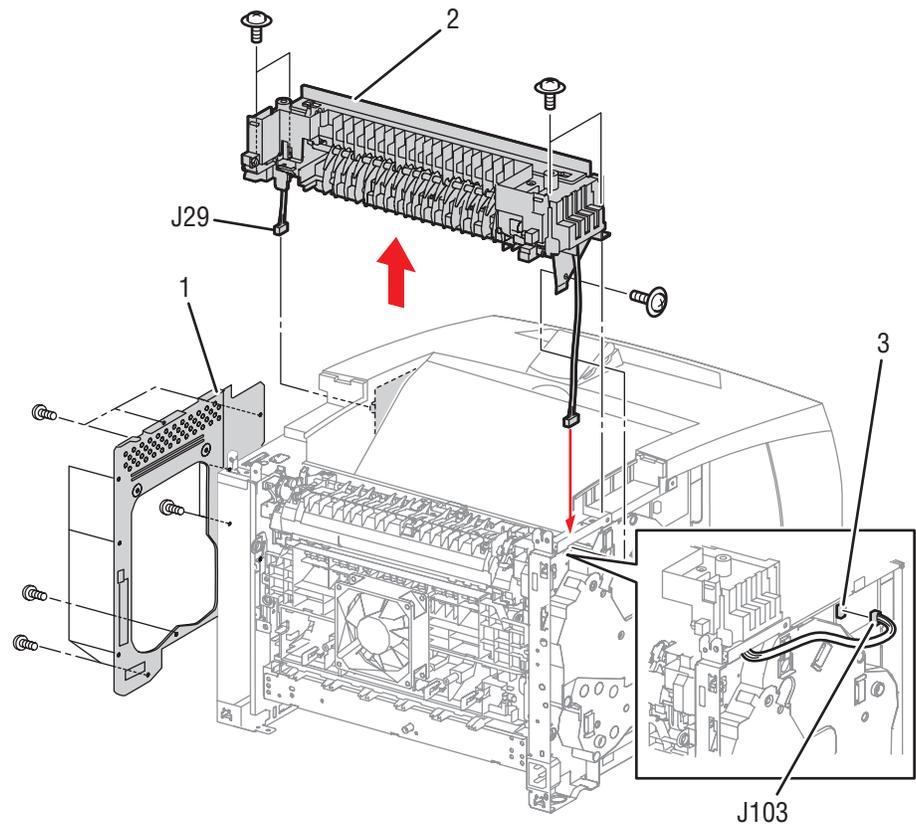
Procedure:

Release the latch hooks of the duplex unit opening cover, and remove it from the paper exit rear door.

Print Engine: Paper Exit

Paper Exit Assembly

(PL10.1.2)



s4500-128

1. Image processor shield assembly 3. Exit motor PWBA
2. Paper exit assembly

Procedure:

1. Remove the paper exit cover (page 8-4) or stacker (page 8-111) if installed.
2. Remove the right cover (page 8-7)
3. Remove the left cover (page 8-8).
4. Remove the image processor shield assembly (page 8-70).
5. Unplug J29 (the exit sensor harness assembly — gray wire) from P29 on the HVPS/engine logic board, and release the harness from the two cable restraints.
6. Unplug J103 (the exit motor assembly) from P103 on the exit motor PWBA and carefully release the harness from the retainers on the gear assembly housing.

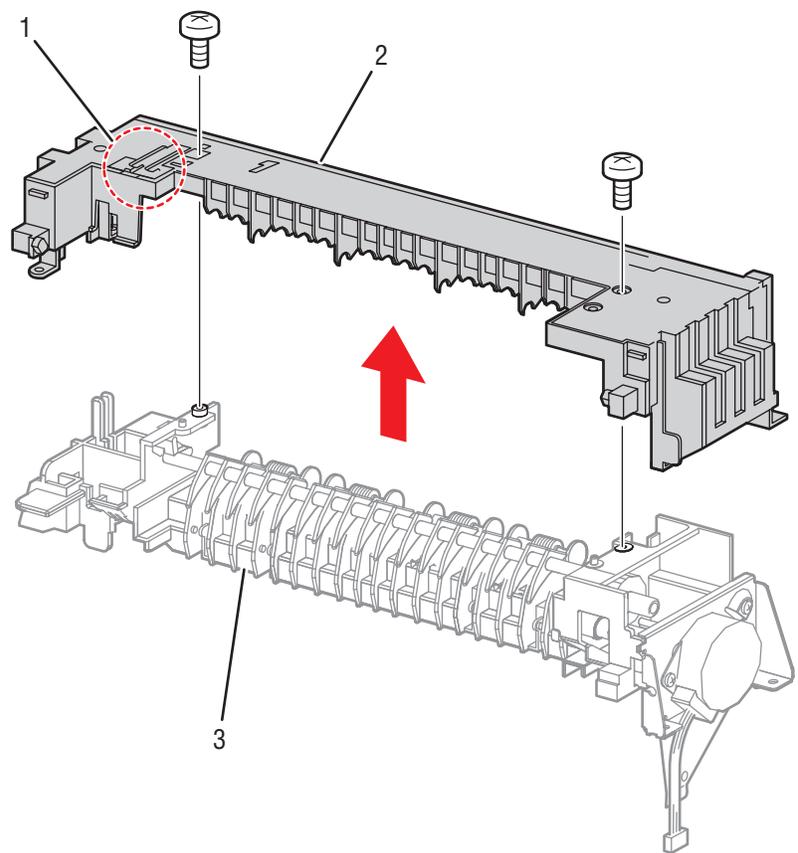
7. Remove the four 8 mm machine screws (w/ washers) that attach the paper exit assembly to the top of the printer, and the one flanged 8 mm machine screw that attaches the paper exit assembly to the left side of the printer.
8. Remove the paper exit assembly.

Replacement Notes:

- When installing the paper exit assembly, feed the harnesses of the exit motor assembly and exit sensor harness assembly into the larger openings in the frame.

Upper Exit Chute, Lower Exit Chute

(PL10.1.4) (PL10.1.21)



s4500-129

- | | |
|----------------------|---------------------|
| 1. Stacker gate link | 3. Lower exit chute |
| 2. Upper exit chute | |

Procedure:

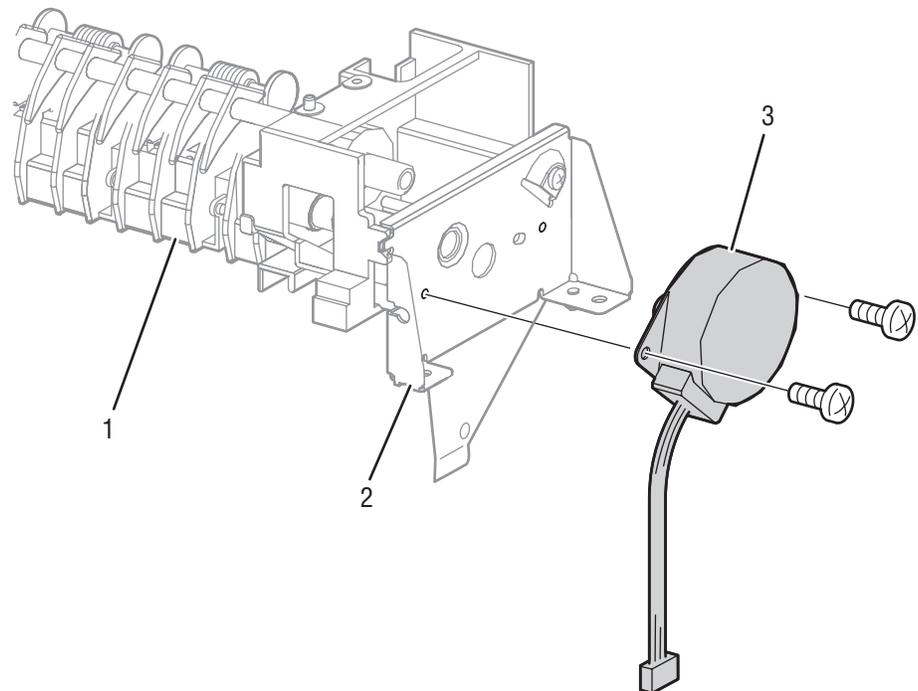
1. Remove the paper exit assembly (page 8-49).
2. Remove the two 8 mm tapping screws that attach the upper exit chute to the lower exit chute.
3. Separate the upper exit chute and lower exit chute.

Replacement Note:

Be sure that the stacker gate link is pivoted to the front of the upper exit chute when reassembling the paper exit assembly. Following assembly, verify that pressing the link actuates the stacker gate.

Exit Motor Assembly

(PL10.1.15)



s4500-131

1. Lower exit chute

3. Exit motor assembly

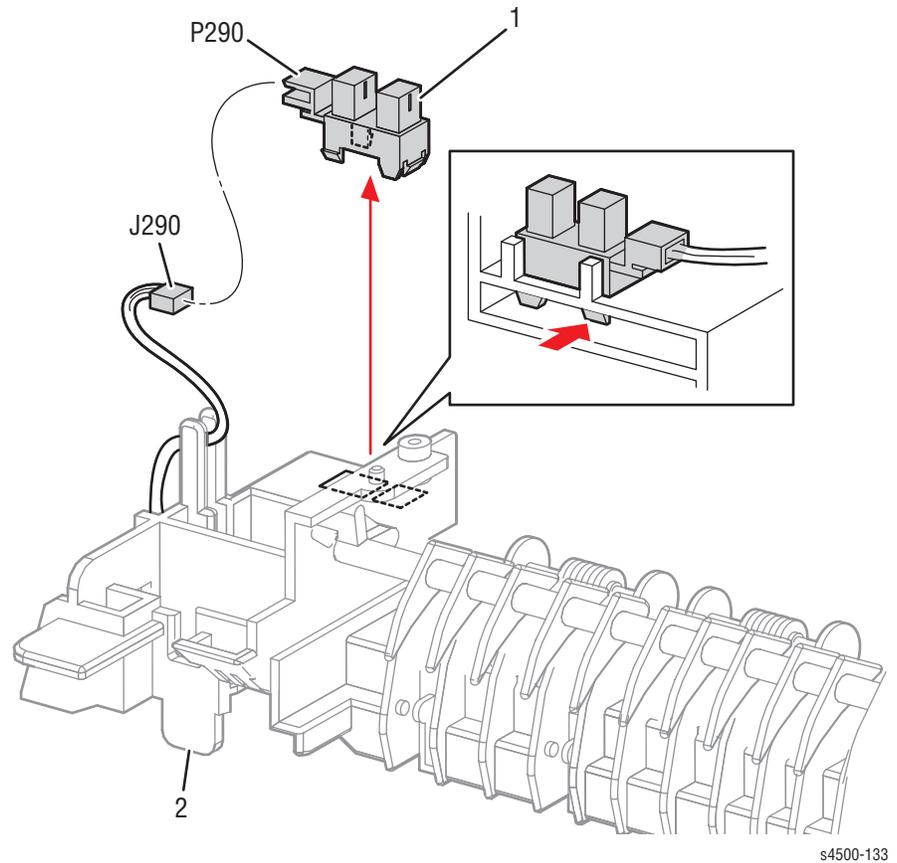
2. Exit motor bracket

Procedure:

1. Remove the paper exit assembly (page 8-49).
2. Remove the upper exit chute (page 8-50).
3. Remove the two 6 mm machine screws that attach the exit motor assembly to the exit motor bracket.
4. Remove the exit motor assembly.

Output Tray Full Sensor

(PL10.1.26)



s4500-133

1. Output tray full sensor

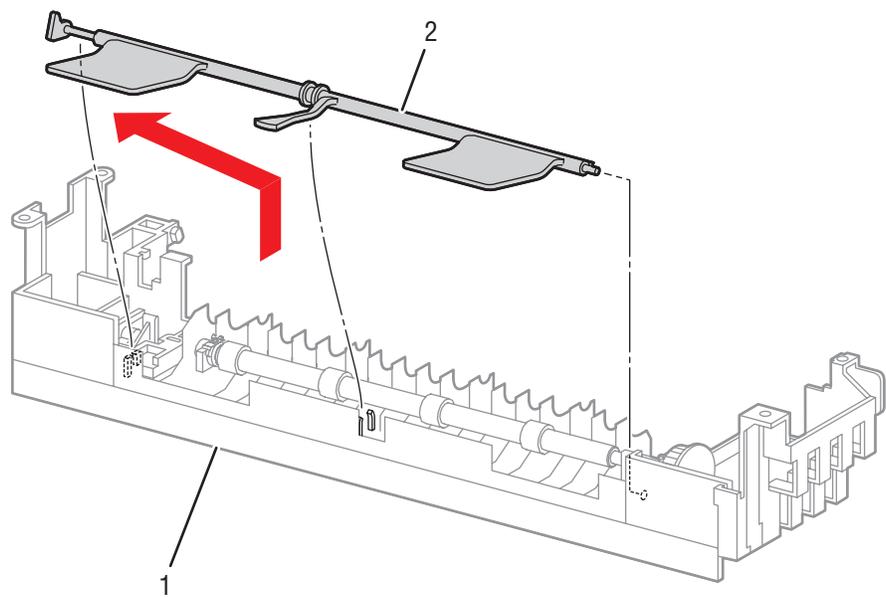
2. Lower exit chute

Procedure:

1. Remove the paper exit assembly (page 8-49).
2. Remove the upper exit chute (page 8-50).
3. Unplug J290 from P290 on the output tray full sensor.
4. Release the hooks of the output tray full sensor, and remove the sensor from the lower exit chute.

Stack Full Actuator

(PL10.1.10)



s4500-134

1. Upper exit chute

2. Stack full actuator

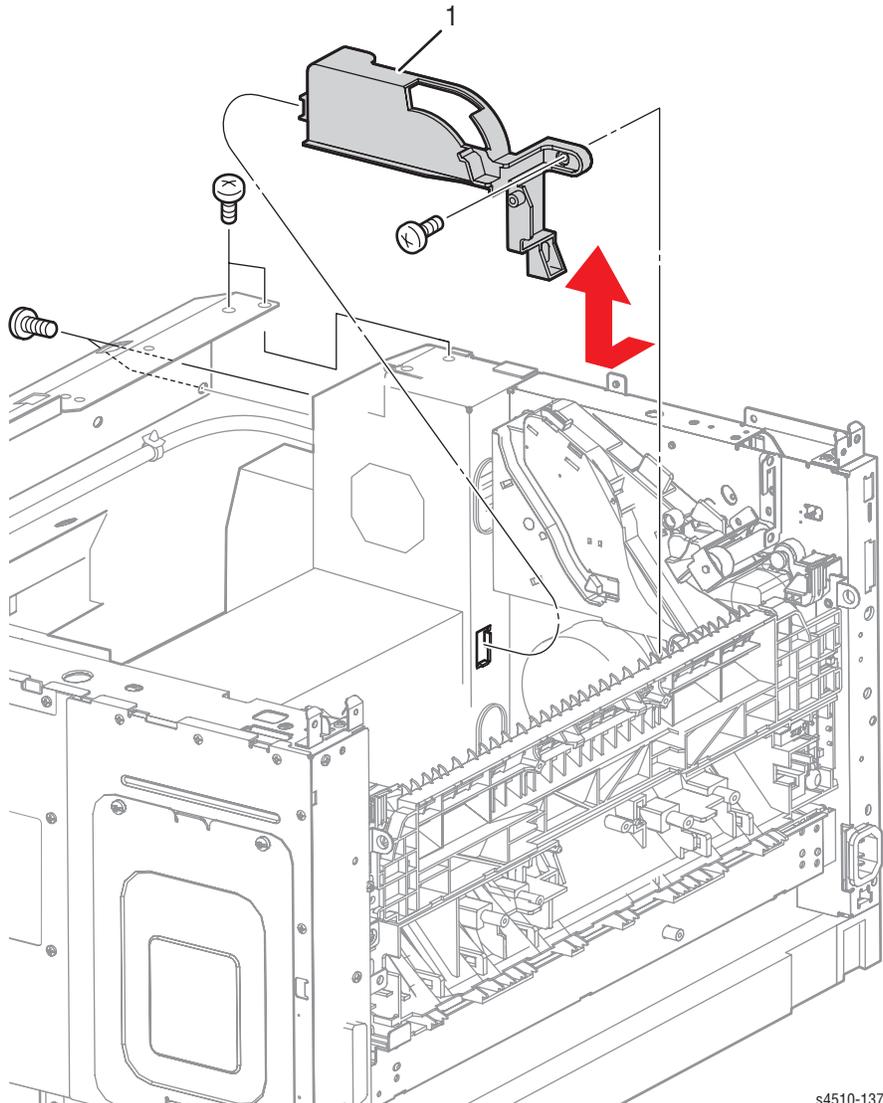
Procedure:

1. Remove the paper exit assembly (page 8-49).
2. Remove the upper exit chute (page 8-50).
3. Remove the stack full actuator from the upper exit chute:
 - a. Snap the flag end out of the retainer.
 - b. Shift to the left (as shown in the drawing) to pull the shaft end from the bearing hole.

Print Engine: Frame and Drive

Motor Cover

(PL11.1.1)



s4510-137

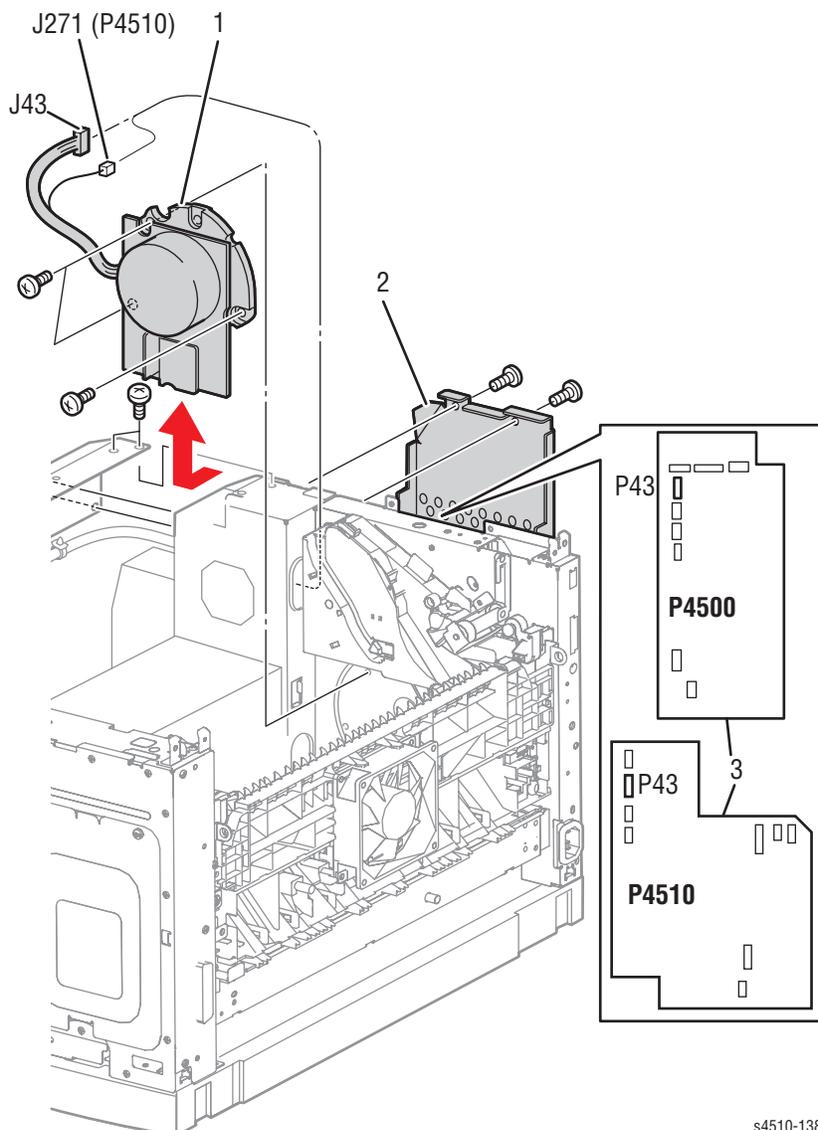
1. Motor cover

Procedure:

1. Remove the laser unit shield plate (page 8-39).
2. Remove the left tray guide (page 8-33).
3. Swing the 150-sheet feeder roller assembly upward to lock it into its raised detent position.
4. Remove the 6 mm machine screw that attaches the motor cover to the frame.
5. Lift the motor cover out of the printer as shown.

Main Motor

(PL11.1.2)



s4510-138

1. Main motor

3. LVPS

2. LVPS shield plate

Procedure:

1. Remove the print cartridge and paper cassettes.
2. Remove the LVPS shield plate (page 8-60).
3. Unplug the main motor cable (J43) from P43 on the LVPS.
4. **P4510:** Disconnect secondary motor cable at inline connector P/J271 (near P43 on the LVPS).
5. Remove the motor cover (page 8-54).

- Remove the three 6 mm machine screws that attach the main motor to the frame.

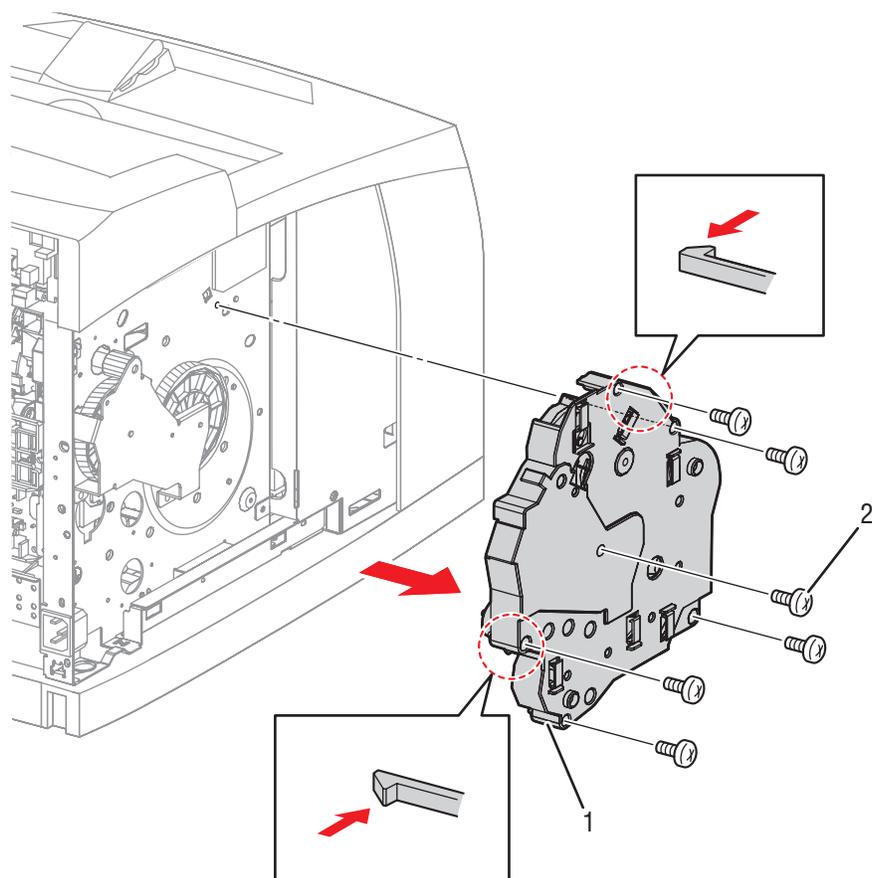
Note

The screws that attach the main motor to the frame are accessed through cutouts at the edge and in the center of the main motor PWBA; they are *not* the screws that attach the main motor PWBA to the motor.

- Remove the main motor.

Gear Assembly Housing

(PL11.1.3)



s4500-139

1. Gear assembly housing

2. Screw (A)

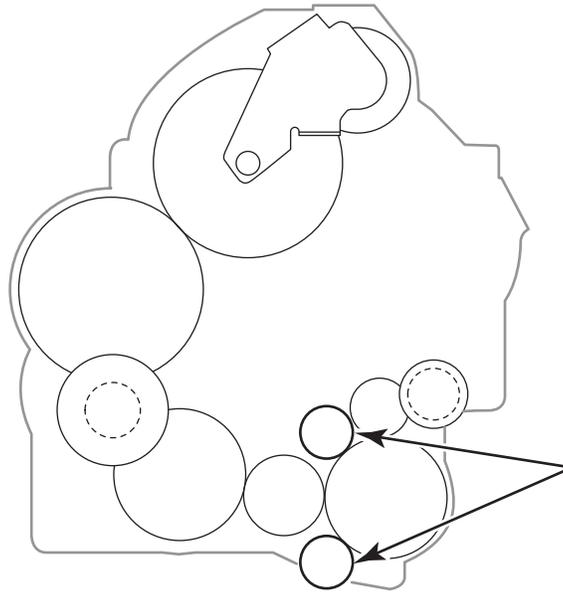
Procedure:

- Remove the left cover (page 8-8).
- Remove the LVPS shield plate (page 8-60).
- Unplug J44 (rear cover switch cable) from P44 on the LVPS.
- Release the wiring harnesses from the cable restraints on the gear assembly housing.

5. Remove the six 6 mm machine screws that attach the gear assembly housing to the frame.

Note

The gears pointed out in this figure are not secured on their shafts and may come off when you remove the gear assembly housing. Be careful not to drop them.



s4500-140

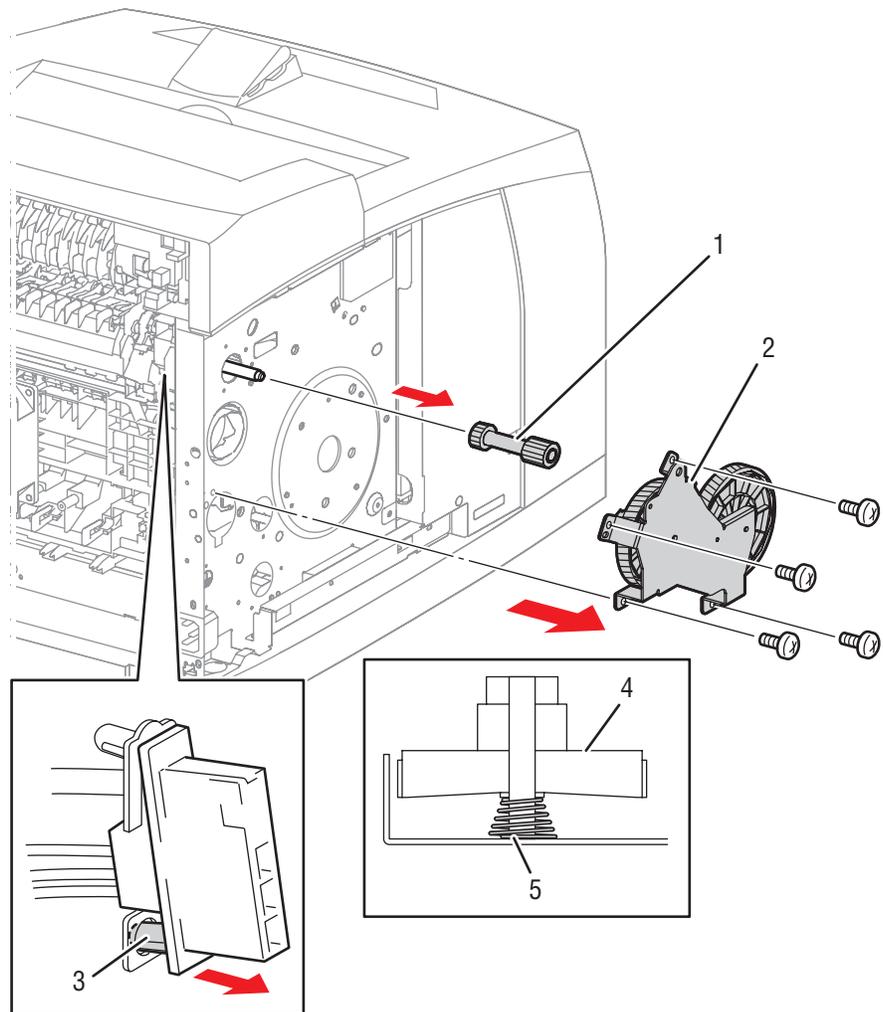
6. Release the hooks of the gear assembly housing, and remove it from the frame.

Replacement Notes:

- When installing, engage the gears of the gear assembly housing, main motor, and gear assembly plate by rotating tray 1 and tray 2 feeder clutches while pressing inward on the gear assembly. Verify the plastic gear housing is flush against the chassis sides before tightening screws. After assembling, rotate the main motor by hand to check the engagement of the gears.
- Be sure that screw "A", the 6 mm screw (item 2 in the figure on the previous page) is returned to its proper hole.

Gear Assembly Plate

(PL11.1.10)



s4500-141

- | | |
|------------------------|-----------|
| 1. Gear 9 | 4. Gear |
| 2. Gear assembly plate | 5. Spring |
| 3. Locking tab | |

Procedure:

1. Remove the fuser assembly (page 8-44).
2. Remove the gear assembly housing (page 8-56).

Note

When removing the gear assembly plate, one of the gears installed on the gear assembly plate is not secured on its shaft and might come off. Also, there is a spring inside of the gear that is not secured to the gear assembly plate. Take care to avoid dropping these parts.

3. Remove the four 6 mm machine screws that attach the gear assembly plate to the frame.
4. Remove the gear assembly plate.
5. Release the locking tab of the bottom side of the connector of the fuser harness assembly from the frame.
6. Remove gear 9 from the shaft on the frame.

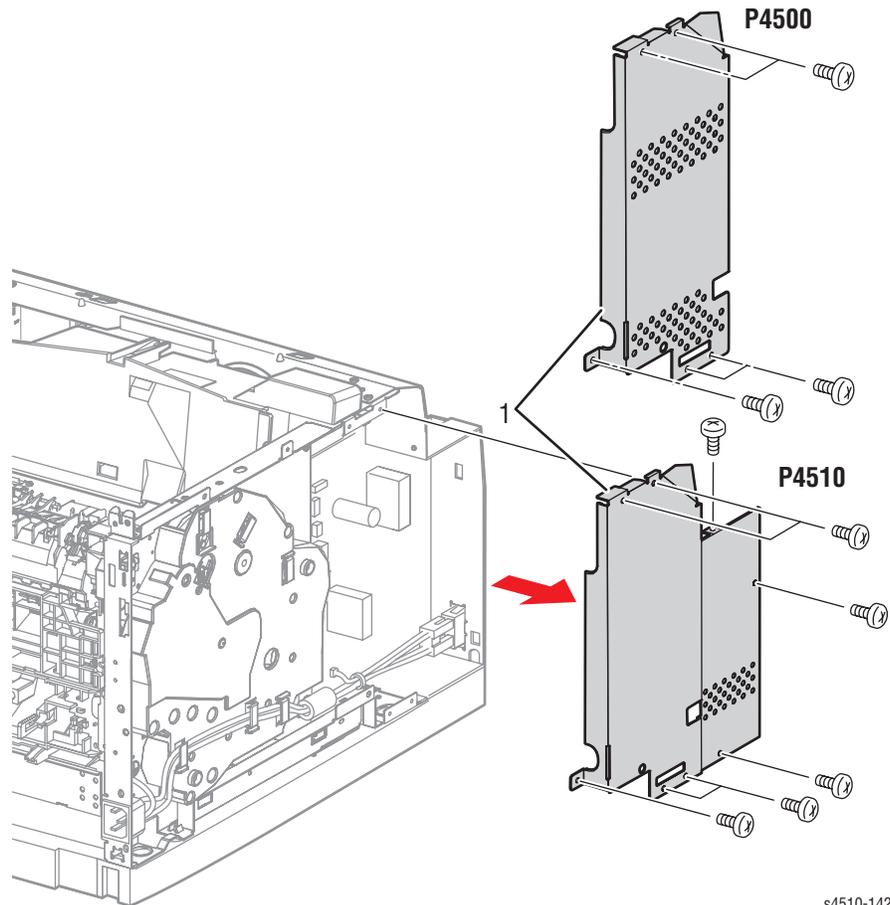
Replacement Note:

- When installing, engage the gears of the gear assembly housing, main motor, and gear assembly plate. After assembling, rotate the main motor by hand to check the engagement of the gears.

Print Engine: Electrical

LVPS Shield Plate

(PL12.1.3)



s4510-142

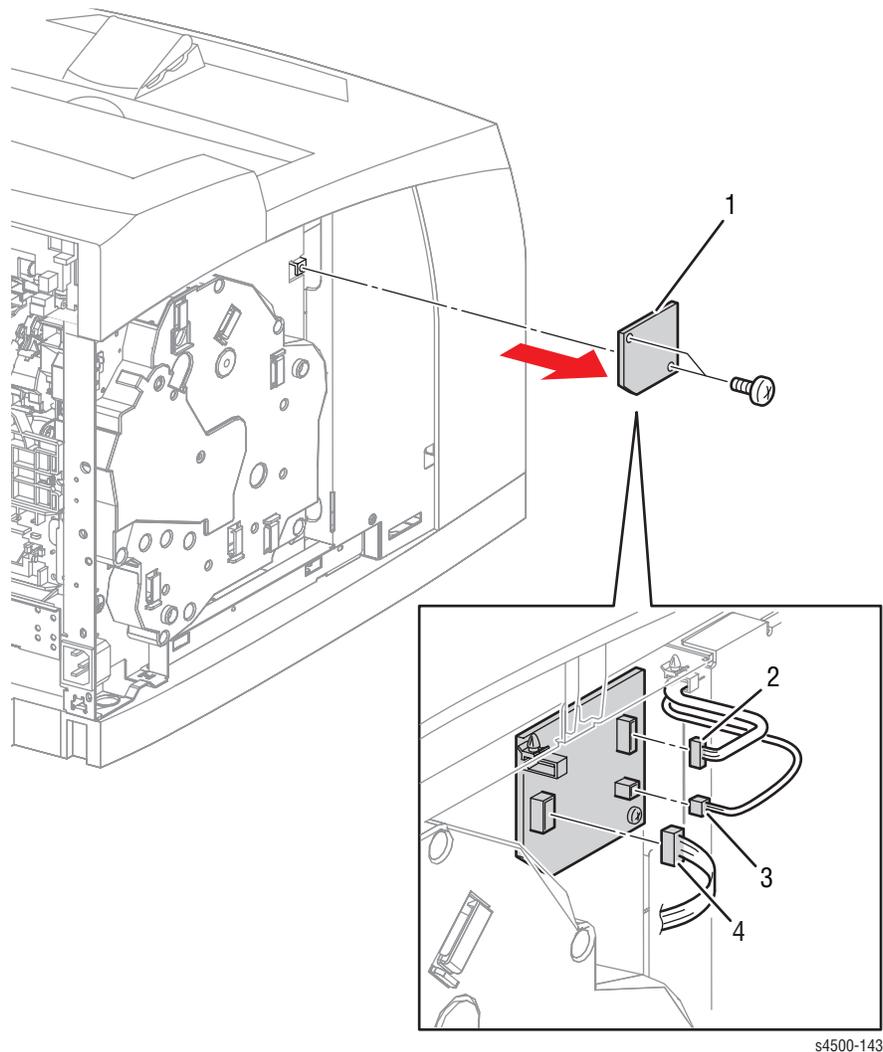
1. LVPS shield plate

Procedure:

1. Remove the front cover (page 8-11).
2. Remove the five (**P4500**) or eight (**P4510**) 6 mm screws that attach the LVPS shield plate to the frame.
3. Remove the LVPS shield plate.

Exit Motor PWBA

(PL12.1.4)



s4500-143

1. Exit motor PWBA

2. P/J 102

3. P/J 101

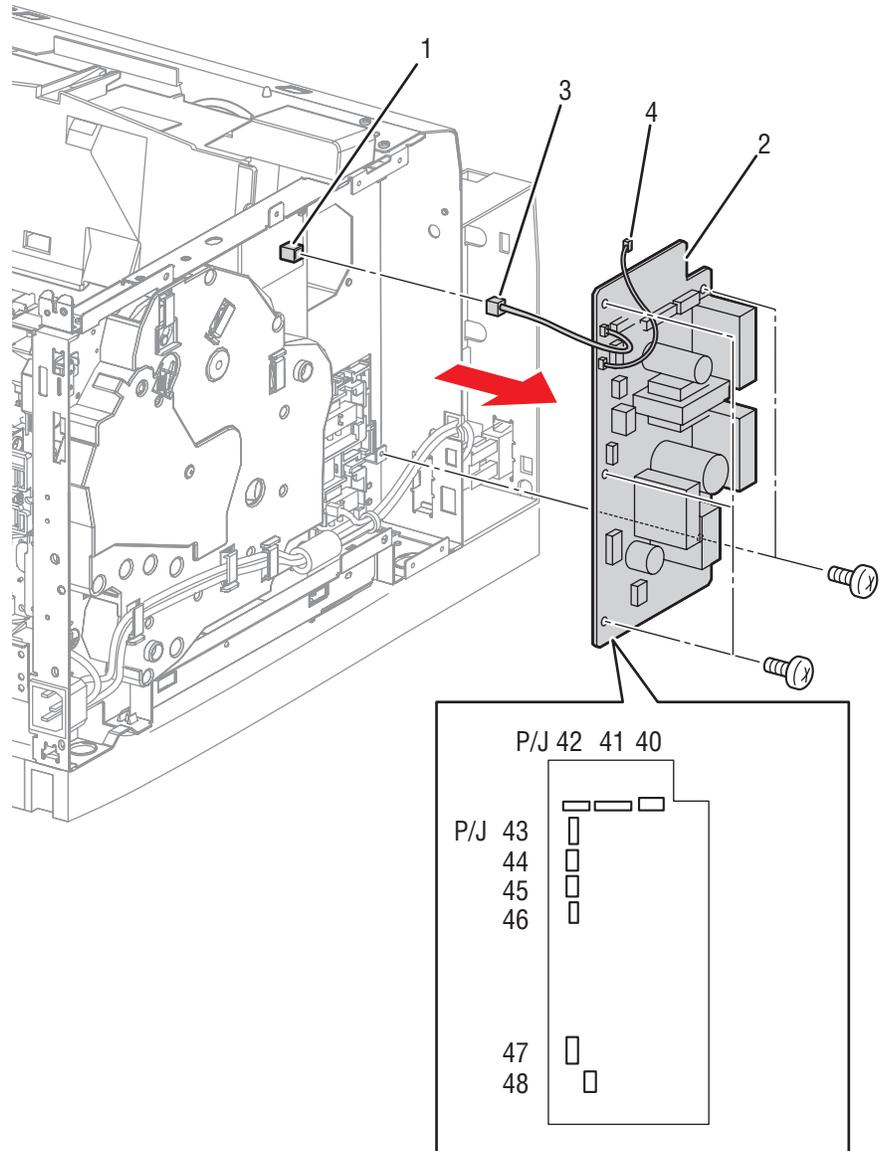
4. P/J 103

Procedure:

1. Remove the left cover (page 8-8).
2. Disconnect the harnesses from the connectors (P/J101, P/J102 and P/J103) on the exit motor PWBA.
3. Remove the two 6 mm screws that attach the exit motor PWBA to the frame.
4. Remove the exit motor PWBA.

Low Voltage Power Supply (LVPS) (P4500)

(PL12.1.5)



s4500-144

1. Exit motor PWBA

3. P101

2. LVPS

4. P/J404

Procedure:

1. Remove the front cover (page 8-11).
2. Remove the LVPS shield plate (page 8-60).

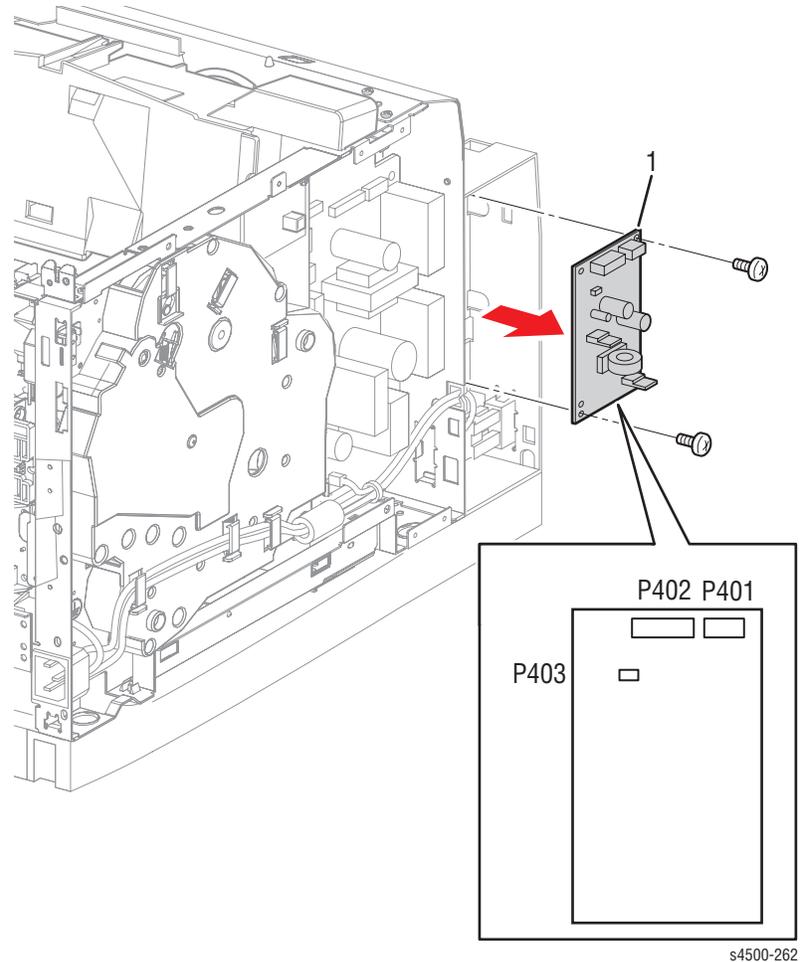
Caution

Do not attempt to unplug the cables from J101 or J104 on the LVPS. These are soldered connections and attempts to disconnect the wires will damage the circuit board.

3. Disconnect the harness connector from P101 on the exit motor PWBA.
4. Unplug the inline harness connector at P/J 404.
5. Disconnect the harness connectors from the connectors (P/J40, 41, 42, 43, 44, 45, 46, 47 and 48) on the LVPS.
6. Remove the five 6 mm screws that attach the LVPS to the frame.
7. Remove the LVPS.

DC-DC Converter (P4500)

(PL 12.01.AA)



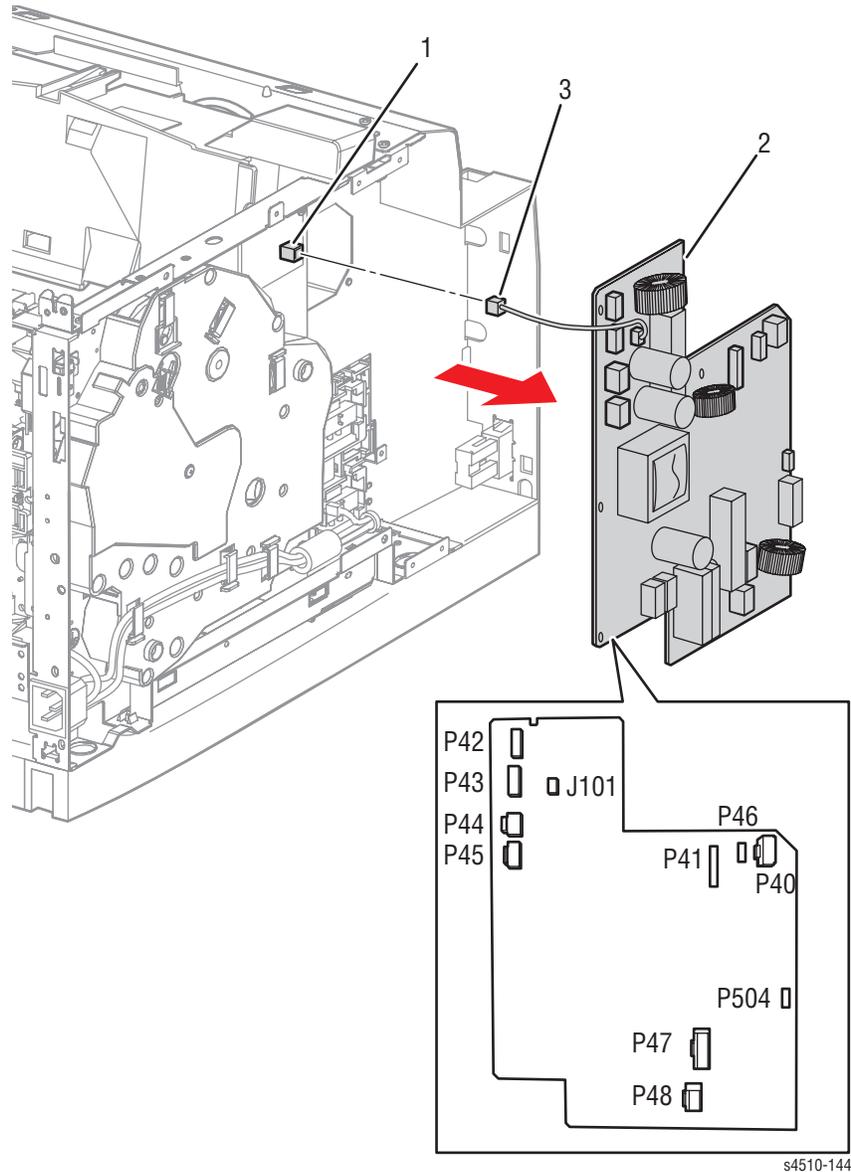
1. DC-DC converter

Procedure:

1. Remove the front cover (page 8-11).
2. Unplug the cable connectors at P401, P402, and P403.
3. Remove the two 6 mm machine screws and lift out the board.

Low Voltage Power Supply (LVPS) (P4510)

(PL12.1.5)



1. Exit motor PWBA

3. P101

2. LVPS

Procedure:

1. Remove the front cover (page 8-11).
2. Remove the LVPS shield plate (page 8-60).

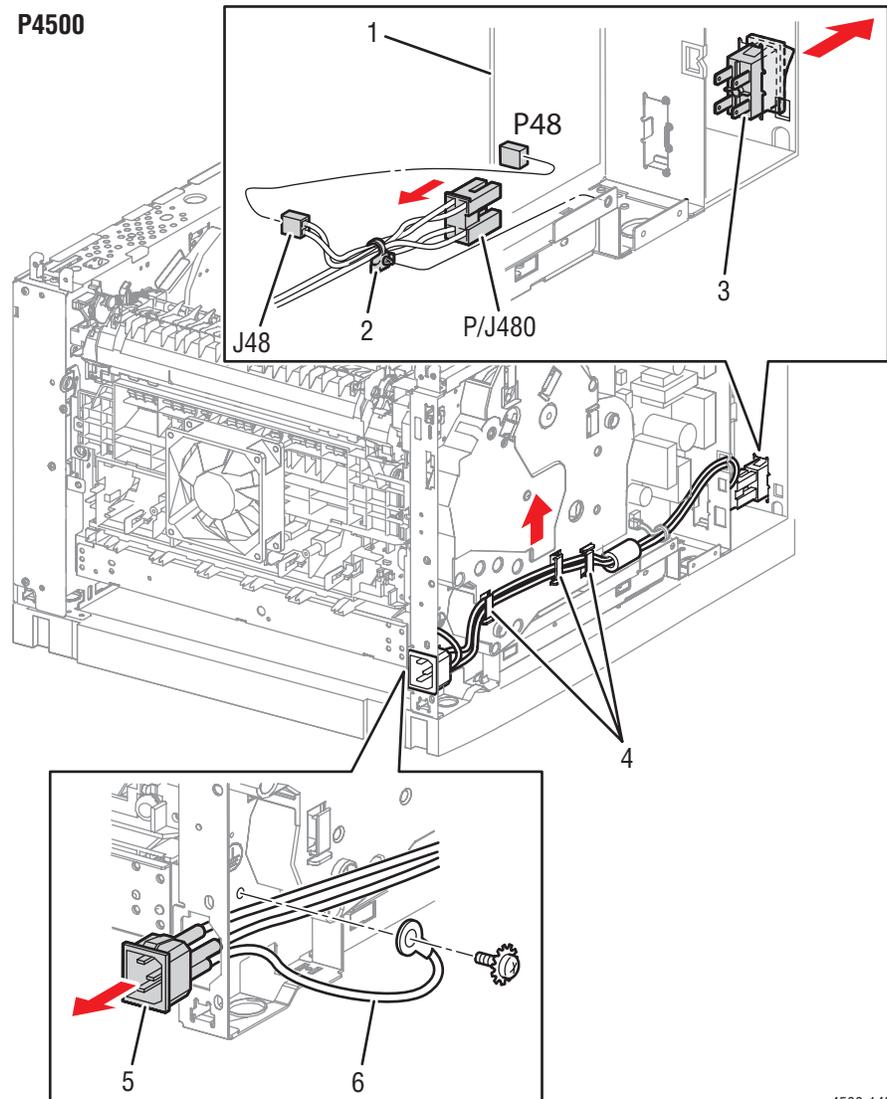
Caution

Do not attempt to unplug the cable from J101 on the LVPS. This is a soldered connection and attempts to disconnect the wire will damage the circuit board.

3. Disconnect the harness connector from P101 on the exit motor PWBA.
4. Disconnect the harness connectors from the connectors (P/J40, 41, 42, 43, 44, 45, 46, 47 and 48) on the LVPS.
5. Remove the six 6 mm screws that attach the LVPS to the frame.
6. Remove the LVPS.

Power Switch, AC Power Harness Assembly

(PL12.1.6), (PL12.1.8)

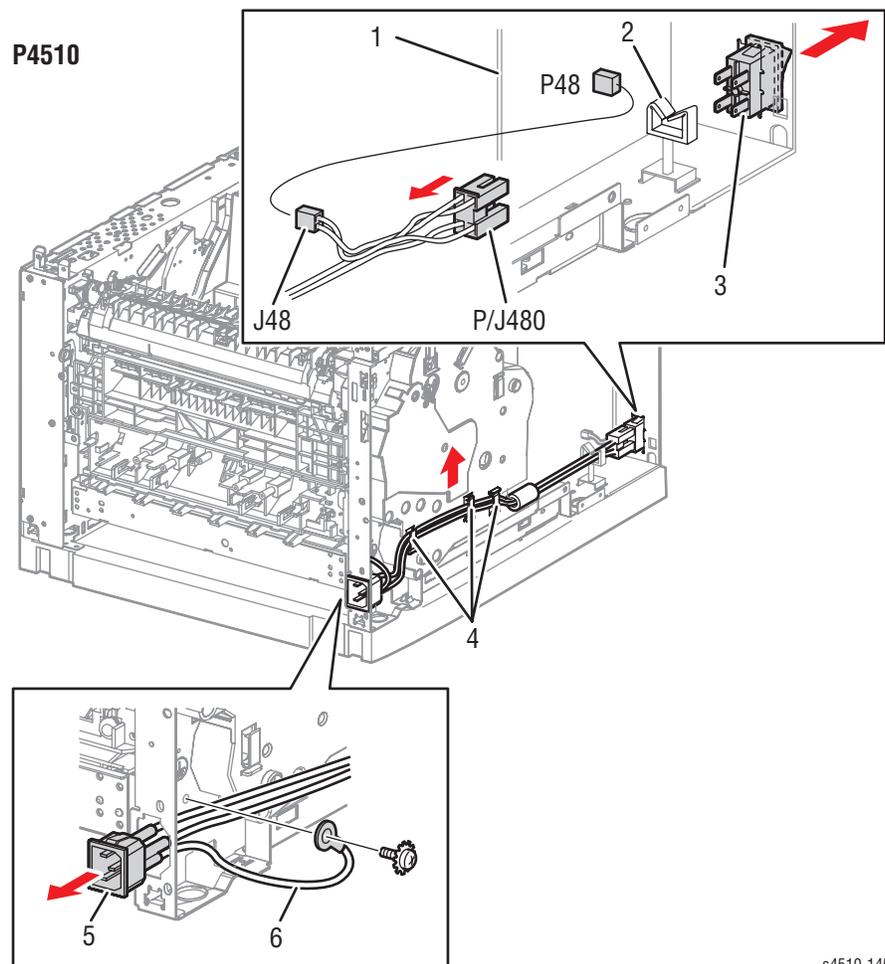


s4500-145

- | | |
|--------------------|-------------------------|
| 1. LVPS | 4. Cable retainer hooks |
| 2. Cable tie clamp | 5. AC Inlet |
| 3. Power switch | 6. Ground Wire |

Procedure:

1. Remove the front cover (page 8-11).
2. Remove the LVPS shield plate (page 8-60).
3. Release the wires of the AC power harness assembly from the cable retainer hooks on the gear assembly housing.
4. Disconnect connector P/J480 from the power switch.
5. Disconnect connector P48 from J48 on the LVPS.
6. **P4500:** Release the cable tie clamp of the AC power harness assembly.
P4510: Release the AC power harness assembly from the cable clamp.
7. Remove the 6 mm screw (with toothed washer) that attaches the ground terminal of the AC power harness assembly to the frame.
8. Squeeze the tabs on the AC Inlet to release it from the printer frame.
9. Pull out the AC power harness assembly from the hole at the rear of the frame.
10. Remove the power switch from the frame.

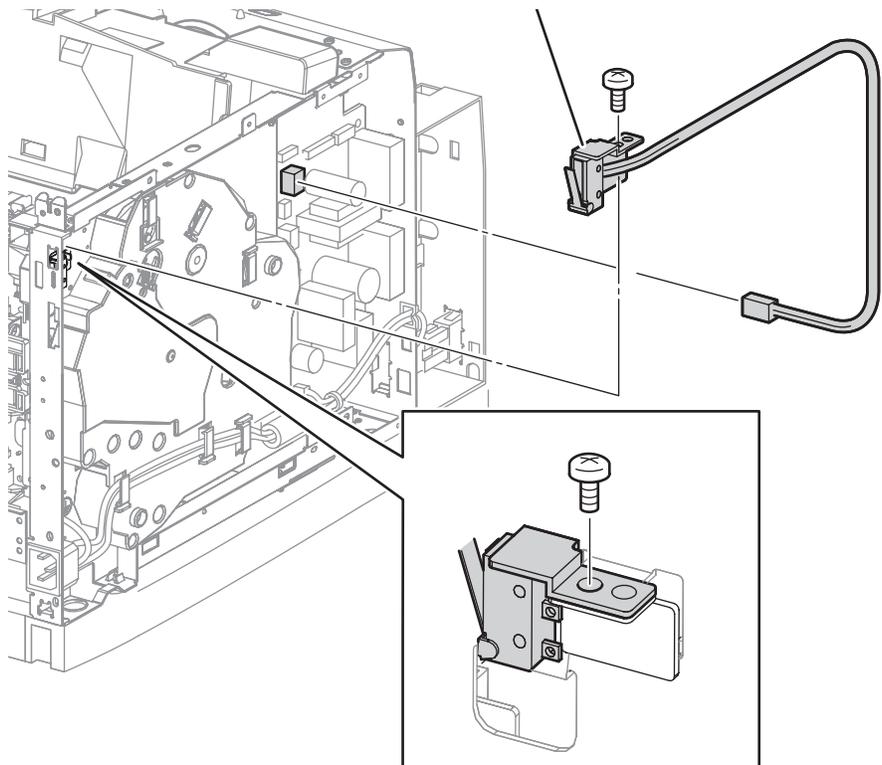


s4510-145

- | | |
|-----------------|-------------------------|
| 1. LVPS | 4. Cable retainer hooks |
| 2. Cable clamp | 5. AC inlet |
| 3. Power switch | 6. Ground wire |

Rear Cover Switch

(PL12.1.7)



s4500-146

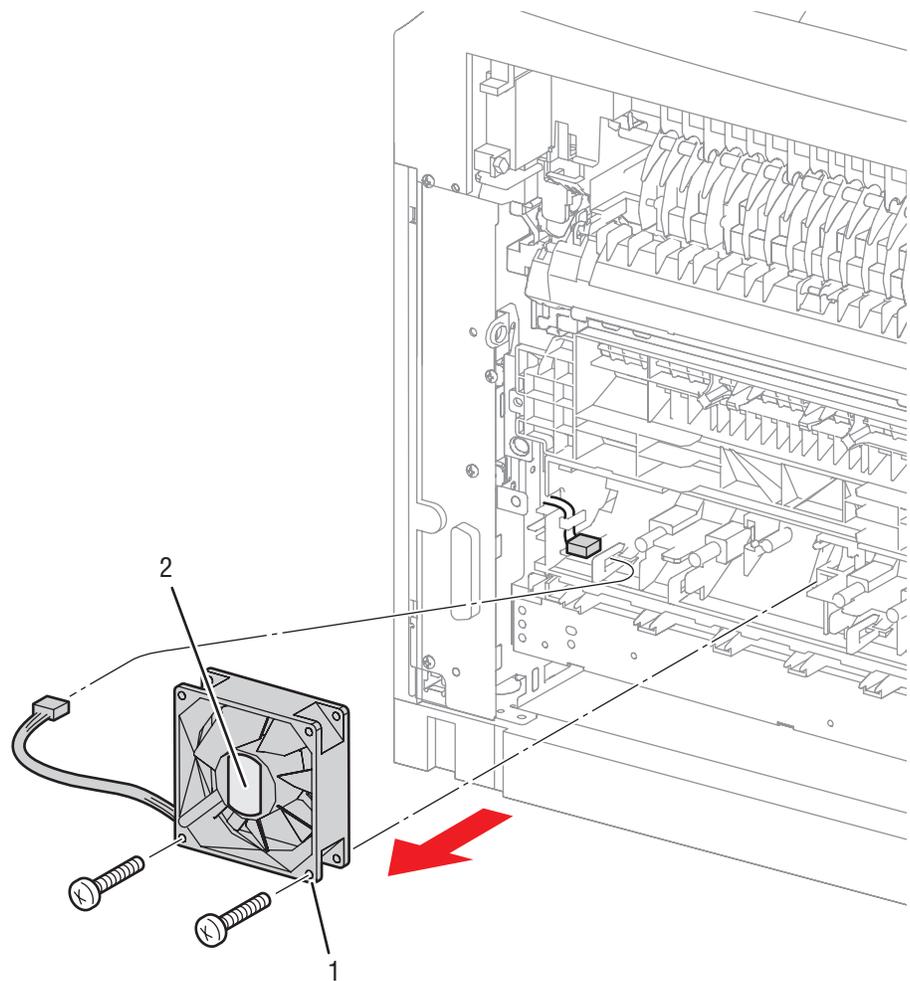
1. Rear cover switch

Procedure:

1. Remove the LVPS shield plate (page 8-60).
2. Disconnect the connector (P/J44) of the rear cover switch from the LVPS.
3. Release the harness assembly of the rear cover switch from the clamps on the gear assembly housing.
4. Remove the 6 mm screw that attaches the rear cover switch to the frame.
5. Remove the rear cover switch.

Main Fan (P4500)

(PL12.1.10)



s4500-147

1. Main fan

2. Label

Procedure:

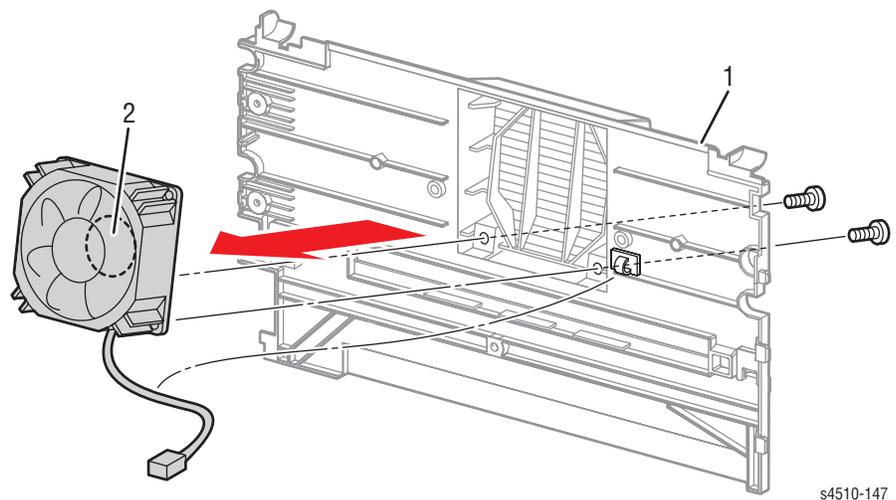
1. Remove the paper exit rear door (page 8-5).
2. Remove the rear cover (page 8-6).
3. Disconnect the connector (P/J244) of the main fan from the tray 1 harness assembly.
4. Remove the two screws (tapping, 30 mm) that attach the main fan to the frame.

Replacement Note:

- When installing, make sure the harness wires are not pinched between the main fan and the frame, and make sure the label faces the outside.

Main Fan (P4510)

(PL1.1.14)



1. Cable clamp

2. Label

Procedure:

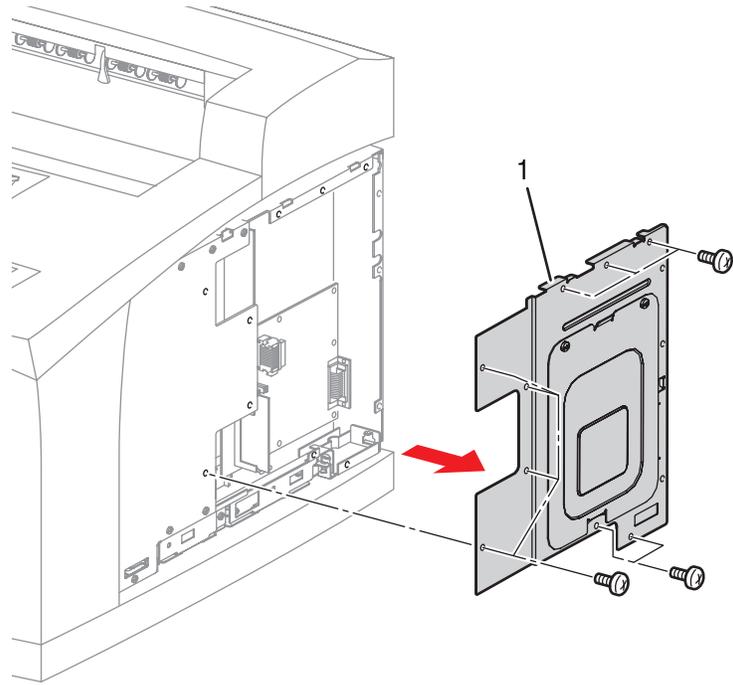
1. Remove the paper exit rear door (page 8-5).
2. Remove the rear cover (page 8-6).
3. Release the fan cable from the cable clamp on the rear cover.
4. Remove the two screws (tapping, 8 mm) that attach the main fan to the rear cover.
5. Slide the fan down and out of the fan well on the rear cover.

Replacement Note:

- When installing, make sure the label faces the rear cover.

Image Processor Shield Assembly

(PL12.1.14)



s4500-148

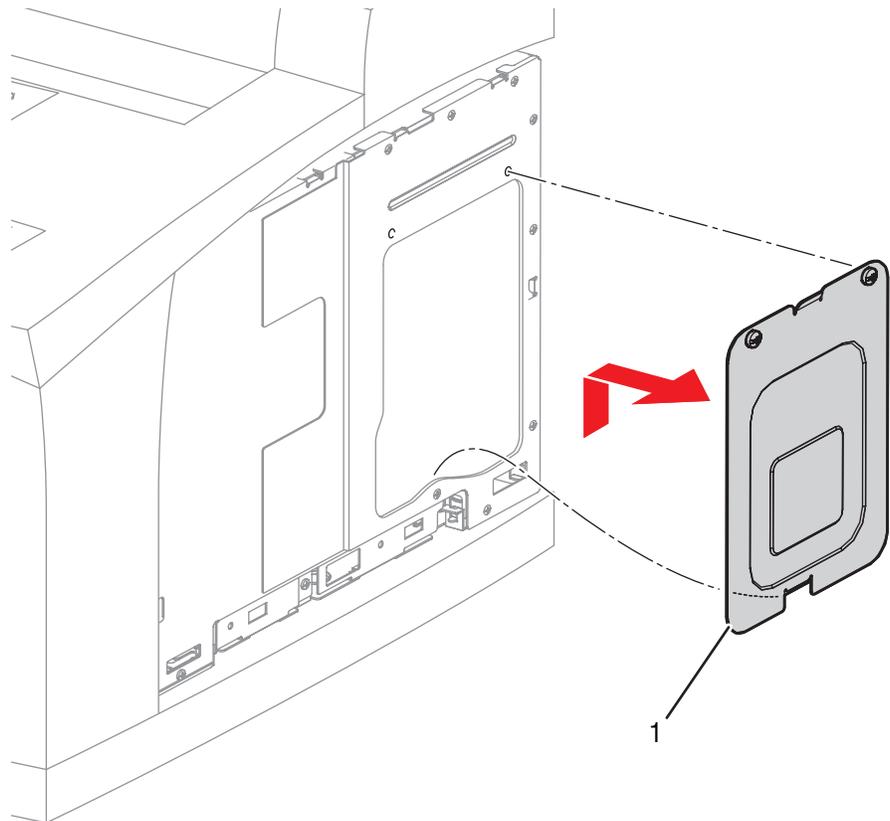
1. Image processor shield assembly

Procedure:

1. Remove the right cover (page 8-7).
2. Remove the twelve 6 mm screws that attach the image processor shield assembly to the frame.
3. Remove the image processor shield assembly.

I/P Shield Window

(PL12.1.15)



s4500-149

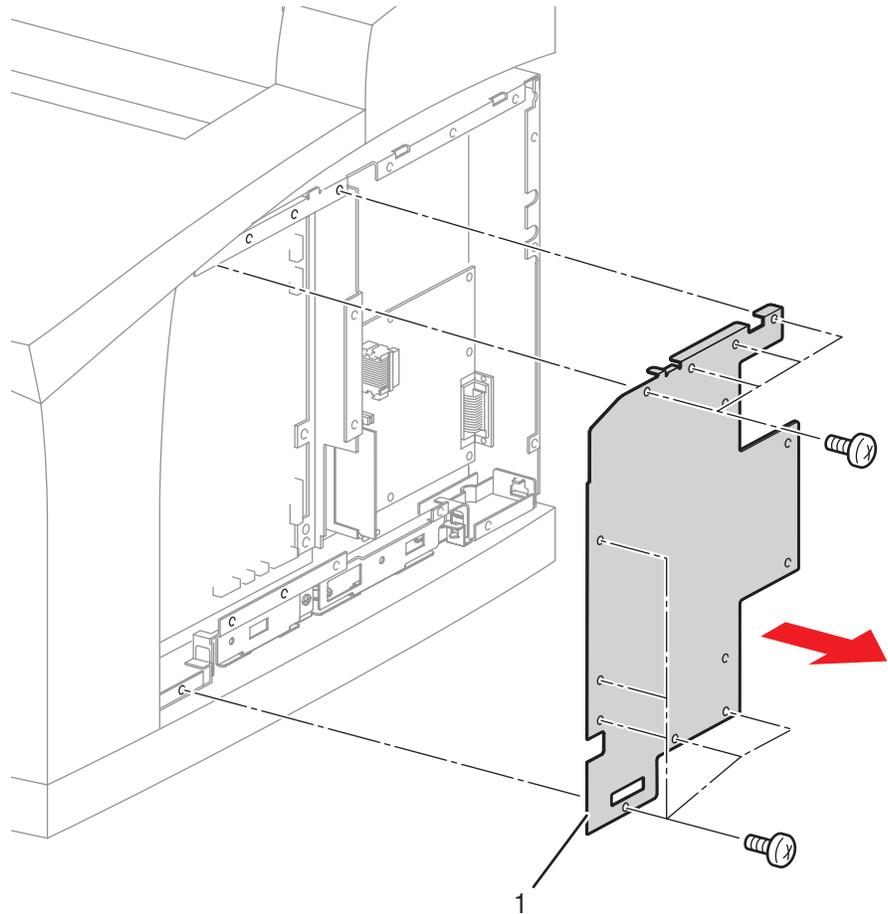
1. Shield Window

Procedure:

1. Remove the right cover (page 8-7).
2. Remove the two screws that secure the Shield Window to the IP Shield Assembly.
3. Remove the Shield Window.

HVPS Shield Plate

(PL12.1.18)



s4500-150

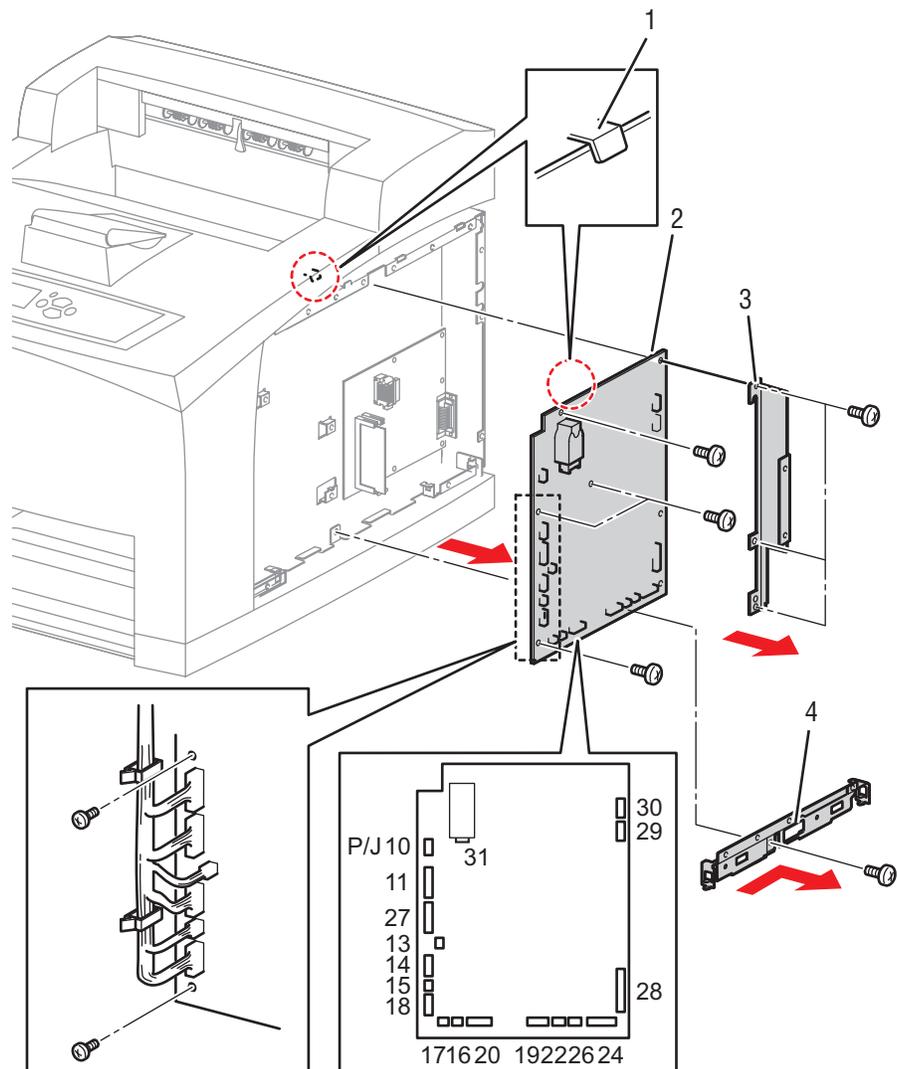
1. HVPS Shield Plate

Procedure:

1. Remove the right cover (page 8-7).
2. Remove the image processor shield assembly (page 8-70).
3. Remove the ten 6 mm screws that attach the HVPS Shield Plate to the frame.
4. Remove the HVPS Shield Plate.

HVPS/Engine Logic Board

(PL12.1.19)



s4500-151

- | | |
|----------------------------|-------------------------|
| 1. Hook | 3. HVPS shield bracket |
| 2. HVPS/engine logic board | 4. Right handle bracket |

Procedure:

Caution

Observe electrostatic precautions when handling the HVPS/engine logic board and its components.

1. Remove the right cover (page 8-7).
2. Remove the HVPS shield plate (page 8-72).
3. Remove the 6 mm screw that attaches the right handle bracket to the frame.

4. Remove the right handle bracket from the frame by sliding it toward the rear of the printer far enough to release the tabs at the ends, then lifting it out.

Note

It might be necessary to unplug the connectors 22, 24, and 26 and release the wires from the retainers to gain access to the bottom screw of the HVPS shield bracket.

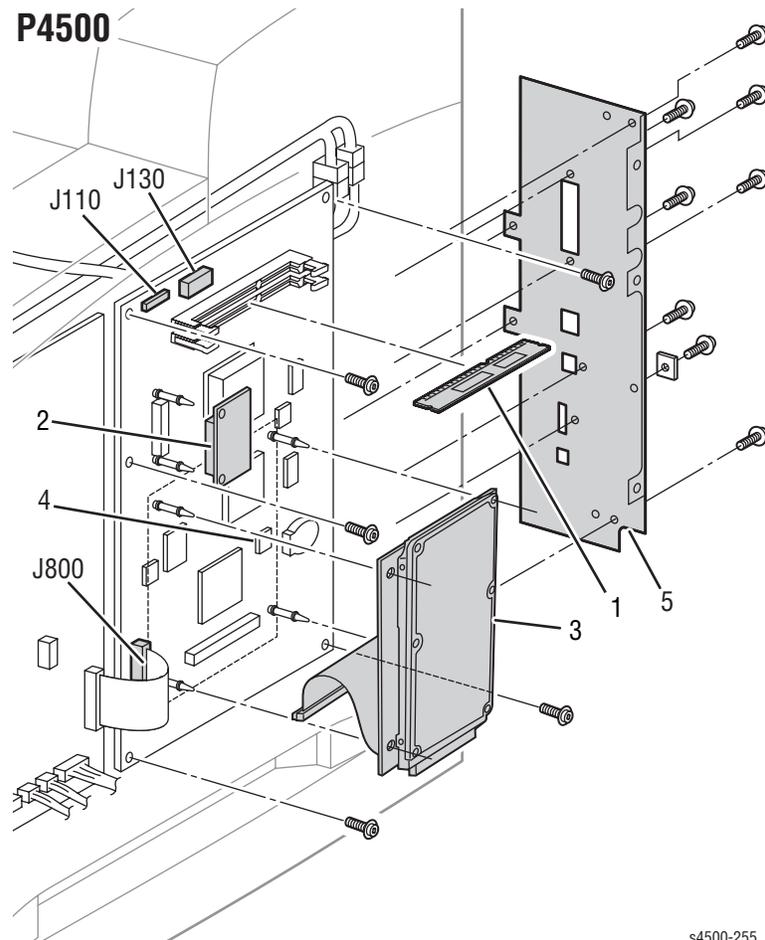
5. Remove the three 6 mm screws that attach the HVPS shield bracket to the frame.
6. Remove the HVPS shield bracket.
7. Unplug the ribbon cable at P/J28 (connects to I/P board).
8. Release the cables connected to the HVPS/engine logic board from the cable restraints.
9. Unplug the remaining cables from connectors P/J10, 11, 13, 14, 15, 16, 17, 18, 20, 22, 24, 26, 27, 29, 30, and 31 on the HVPS/engine logic board.
10. Remove the four remaining 6 mm screws that attach the HVPS/engine logic board to the frame.
11. Swing out the top of the HVPS/engine logic board to clear the frame, then lift the board up and out to remove it.

Replacement Notes:

- When installing the HVPS/engine logic board, install the top edge of the board under the hook of the frame as shown in the illustration.
- When tightening the screws, be careful not to pinch the harness between the board and frame.
- Note that connectors P19 and P32 are not used (no connection).

Image Processor (I/P) Board

(PL 12.1.13)



s4500-255

- | | |
|-------------------------------|-----------------|
| 1. Memory DIMMs | 4. NVRAM (U660) |
| 2. Flash memory (optional) | 5. Rear panel |
| 3. Hard disk drive (optional) | |

Procedure:

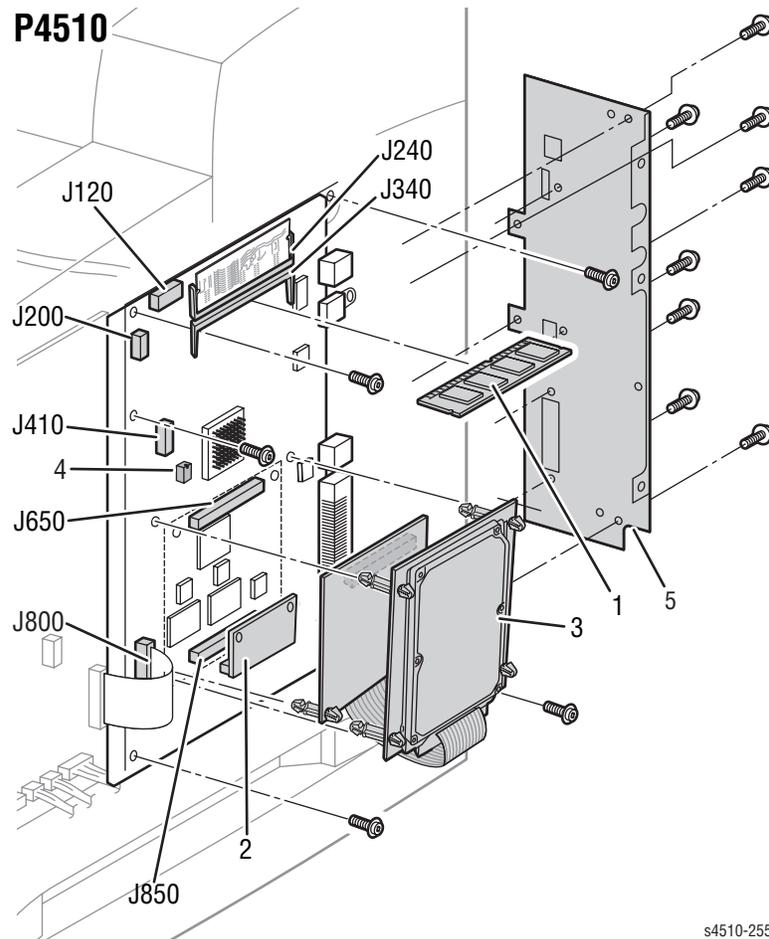
Caution

Observe electrostatic precautions when handling the I/P board and its components.

Do not attempt to slide the I/P board out from the rear of the printer due to the potential for damage to the capacitors along the bottom of the board.

1. Remove the right cover (page 8-7).
2. Remove the image processor shield assembly (page 8-70).
3. Unplug the ribbon cable from J800 (the connector to the HVPS/engine logic board). Be sure to note the orientation of the blue stripe on the ribbon.

4. Unplug the cables at J110 and J130 (P4500) or J120 and 200 (P4510) near the top of the board.



- | | |
|------------------------------------|--------------------------------|
| 1. Memory DIMMs | 4. NVRAM (U520) - Notch at top |
| 2. Flash memory (optional) J850 | 5. Rear panel |
| 3. Hard disk drive (optional) J650 | |

5. Remove the four screws that attach the rear panel to the printer frame.
6. Remove the five 6 mm machine screws that mount the board and lift out the board with the rear panel attached.
P4510: Do not slide out from the rear. Tilt the top of the board out of the printer, then lift out.

Note

The remaining steps cover the removal of parts attached to the I/P board that must be transferred when installing a new I/P board.

7. Remove the memory DIMM(s).
8. Remove the optional flash memory (if present) from J850.
9. Remove the optional hard drive (if present).
P4500: Squeeze the tips of the standoffs to release the drive circuit board, then unplug the ribbon cable.
P4510: Squeeze the tips of the standoffs to release the drive circuit board, then squeeze the tips of the standoffs to release the plug board and unplug from the I/P board.

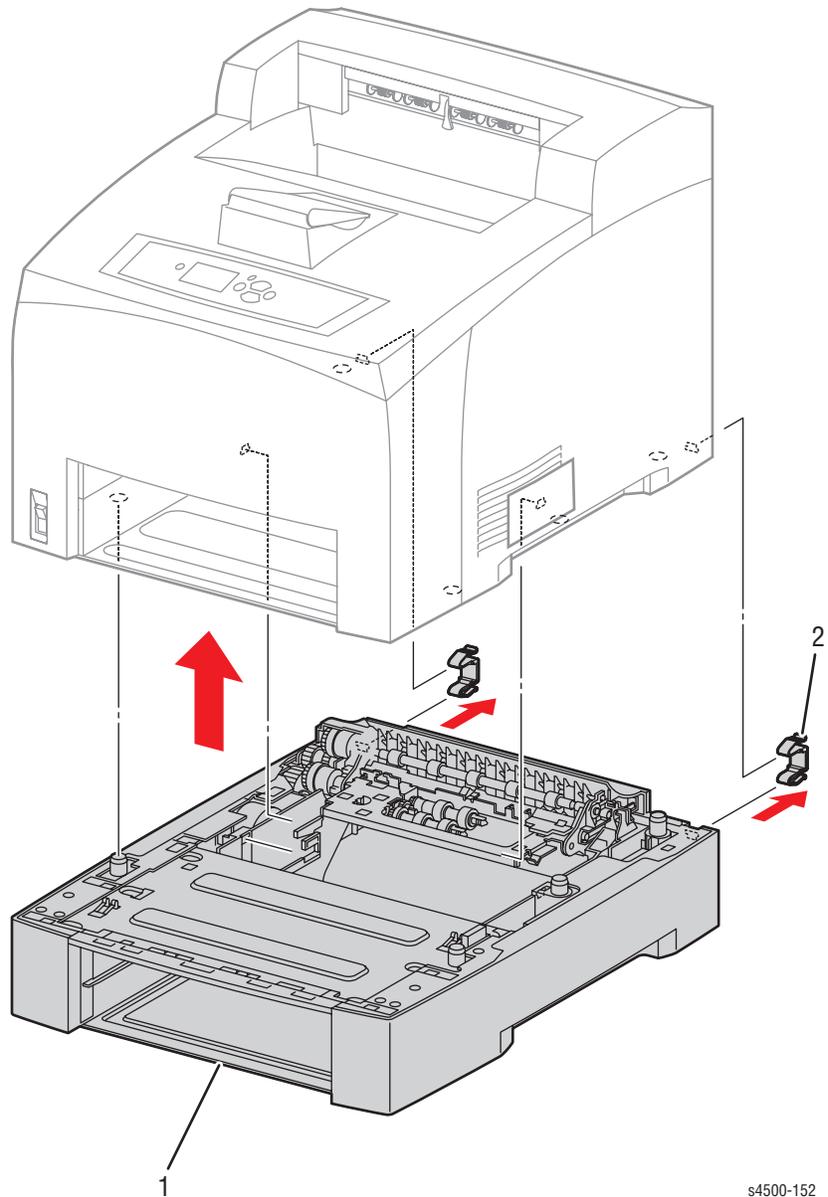
10. Remove the socketed NVRAM (P4500: U660; P4510: U520).
11. Remove the configuration card screw and unplug the configuration card.
12. Remove the two 10 mm machine screws that attach the parallel connector to the rear panel, and the 6 mm machine screw that attaches the USB connector to the rear panel
13. Separate the rear panel from the I/P board.

Replacement Note:

- The configuration card, memory DIMM(s), flash memory (if present), NVRAM, and hard drive (if present) must be transferred to the replacement I/P board. Note that the NVRAM notch orients to the top of the board.

Options: 550-Sheet Paper Feeder

550-Sheet Paper Feeder Removal



1. 550-sheet paper feeder

2. Latch clip

s4500-152

Procedure:

1. Remove the print cartridge.
2. Pull out the 550-sheet paper cassette from the 2nd tray of the printer.
3. Remove the 550-sheet paper cassette from the optional 550-sheet paper feeder.

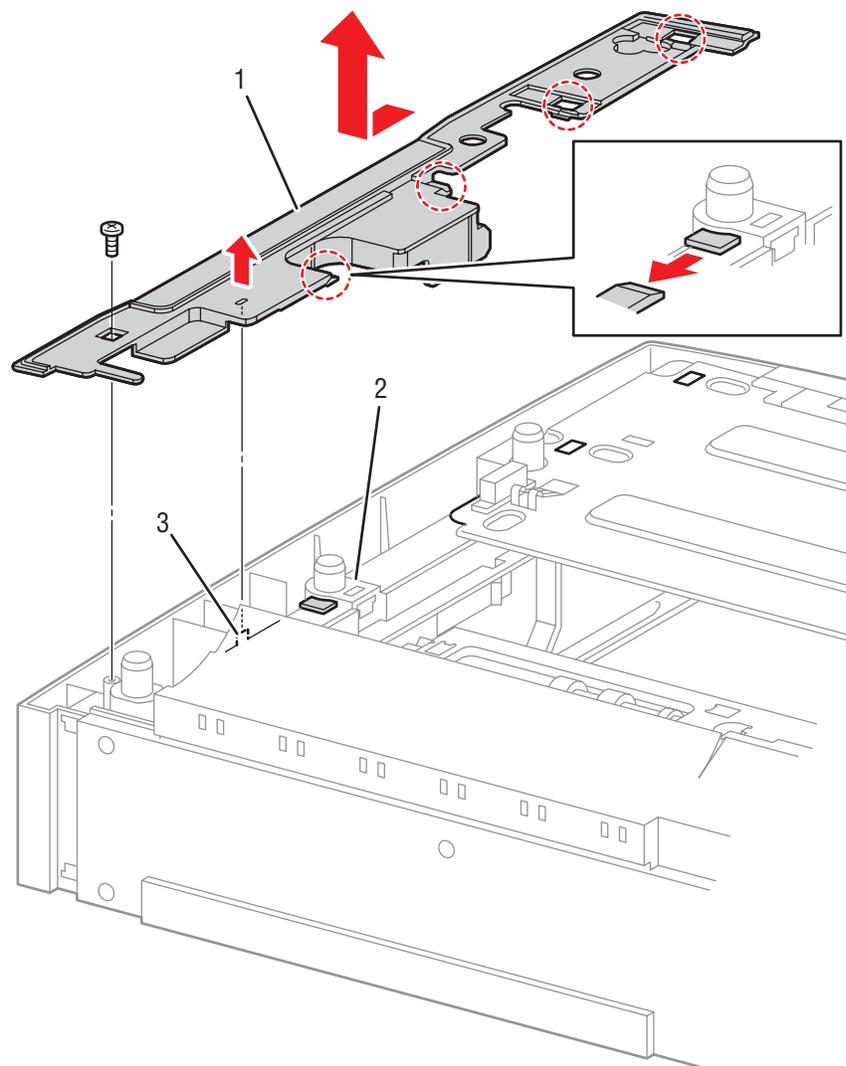
4. Remove two latch clips at the rear of the printer and the two latch clips inside the tray insertion space that secure the printer and the optional 550-sheet paper feeder.
5. Lift and remove the printer from the optional 550-sheet paper feeder, and put it aside.

Replacement Note:

- When installing, align the holes and the bosses of the printer and optional 550-sheet paper feeder, and secure using the four latch clips.

Right Cover Plate

(PL20.1.1)



s4500-153

1. Right cover plate
2. 550 right cover frame

3. Boss

Procedure:

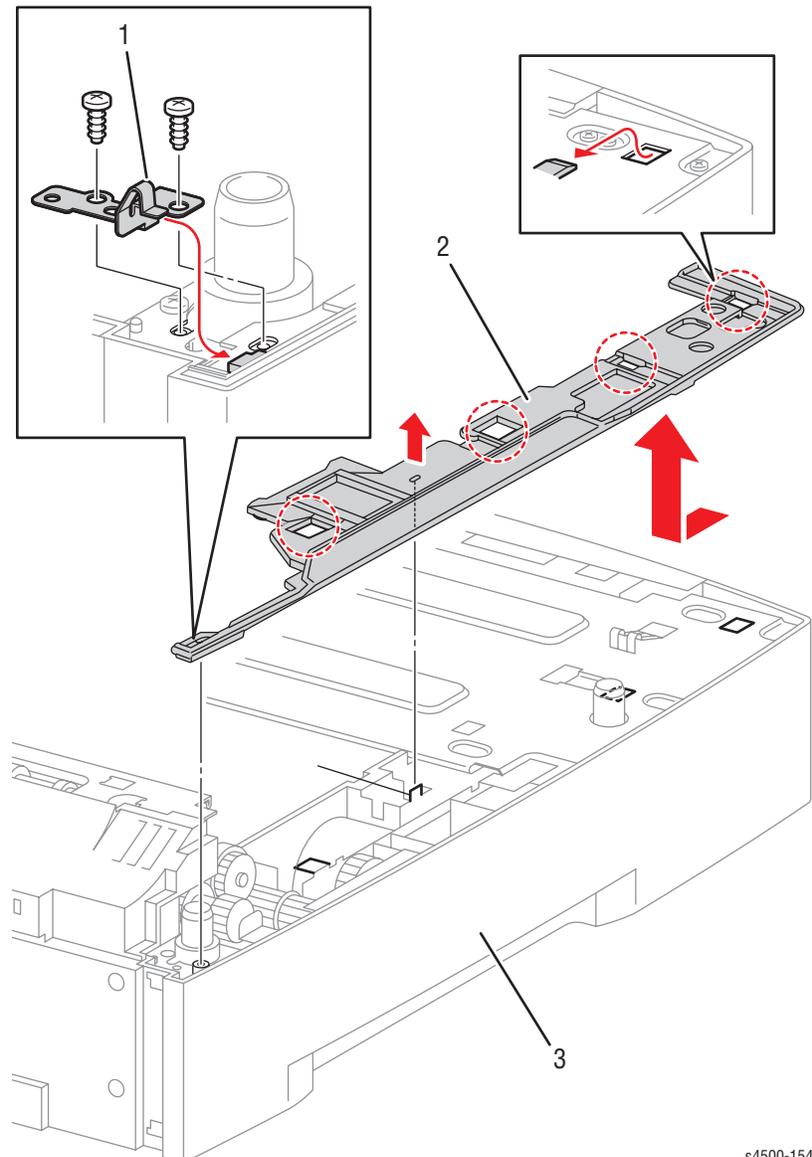
1. Remove the 8 mm tapping screw that attaches the right cover plate to the frame.
2. Lift up the rear of the right cover plate just above the boss of the 550 right cover frame a little to release it.
3. Shift the right cover plate in the direction of the arrow to release the four hooks of the 550 right cover frame, and remove the right cover plate from the optional 550-sheet paper feeder.

Replacement Note:

- When re-installing the right cover plate, ensure all four hooks are properly engaged.

Left Cover Plate

(PL20.1.3)



s4500-154

1. Grounding plate

3. 550 left cover frame

2. Left cover plate

Procedure:

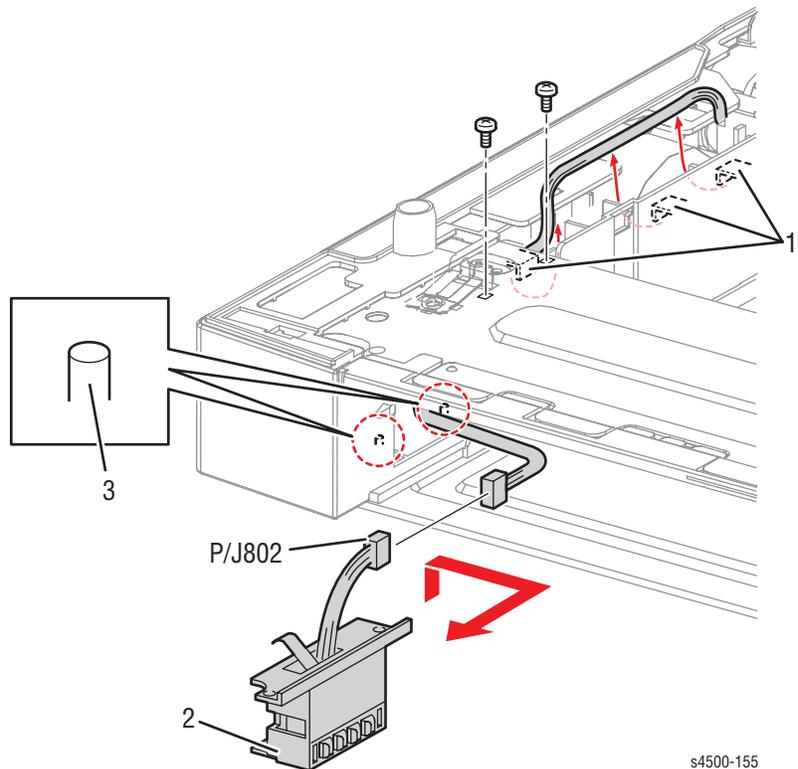
1. Remove the two 8 mm tapping screws that attach the grounding plate to the frame.
2. Remove the grounding plate.
3. Lift up the left cover plate just above the boss of the 550 left cover frame a little to release it.
4. Shift the left cover plate in the direction of the arrow to release the 4 hooks of the 550 left cover frame, and remove the left cover plate from the optional 550-sheet paper feeder.

Replacement Notes:

- When installing the grounding plate, be sure to install the tip of the grounding plate under the left cover plate.
- Ensure all four hooks on the left cover plate are properly engaged by pressing down on each while sliding it toward the front.

Option Paper Size Switch Assembly

(PL20.1.18)



1. Hooks
2. Option paper size switch assembly
3. Bosses

Procedure:

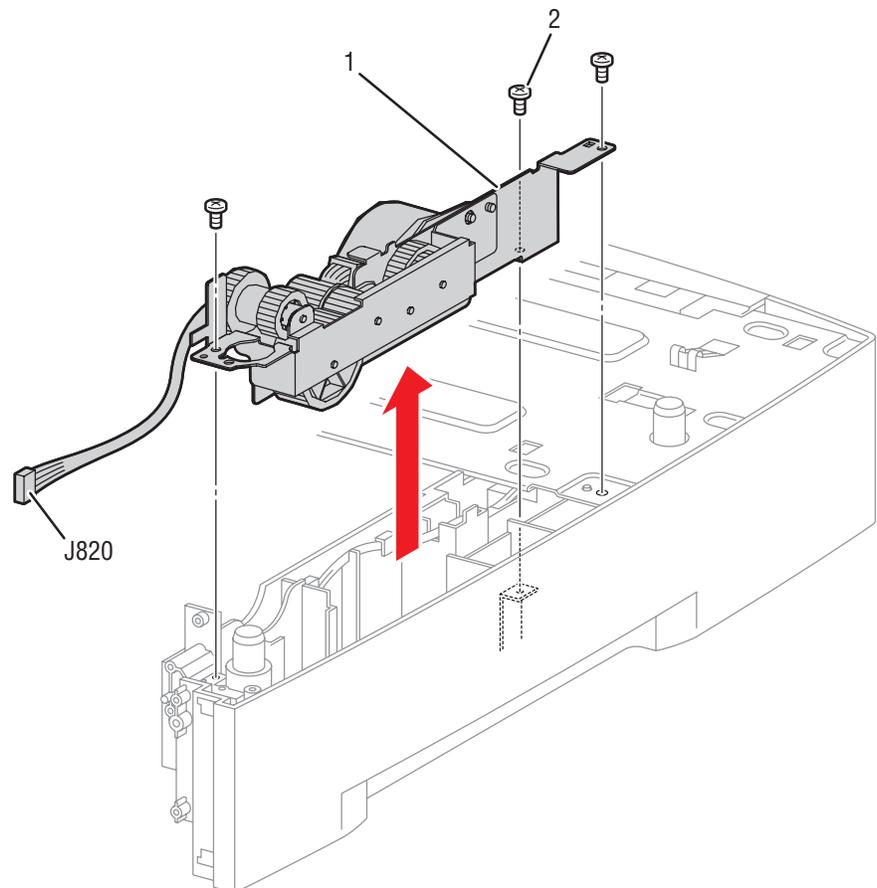
1. Remove the two 8 mm tapping screws that attach the option paper size switch assembly to the 550 left cover frame. These screws are accessed through square cutouts in the metal frame on the top of the feeder.
2. Shift the option paper size switch assembly in the direction of the arrow to release the bosses, and remove it from the 550 left cover frame. If necessary, release the feeder size 1 assembly harness from the hooks of the 550 left cover frame to get enough slack in the harness to make the connector accessible.
3. Disconnect the connector (P/J802) of the feeder size 1 assembly harness from the connector of the option paper size switch assembly.

Replacement Note:

- It is important to ensure the two holes in the bottom of the switch assembly properly engage the two bosses in the feeder housing before tightening screws.

Optional Feeder Drive Assembly

(PL20.1.8)



s4500-156

1. Optional feeder drive assembly

2. Screw A

Procedure:

1. Remove the optional 550-sheet paper feeder (page 8-78).
2. Remove the 550-sheet feeder (page 8-86).
3. Disconnect the feeder motor harness (J820) from P820 (located at the rear of the 550-sheet feeder assembly).
4. Remove the three screws (two tapping, 8 mm; one machine, 6 mm) that attach the optional feeder drive assembly to the 550 left cover frame.

Replacement Notes:

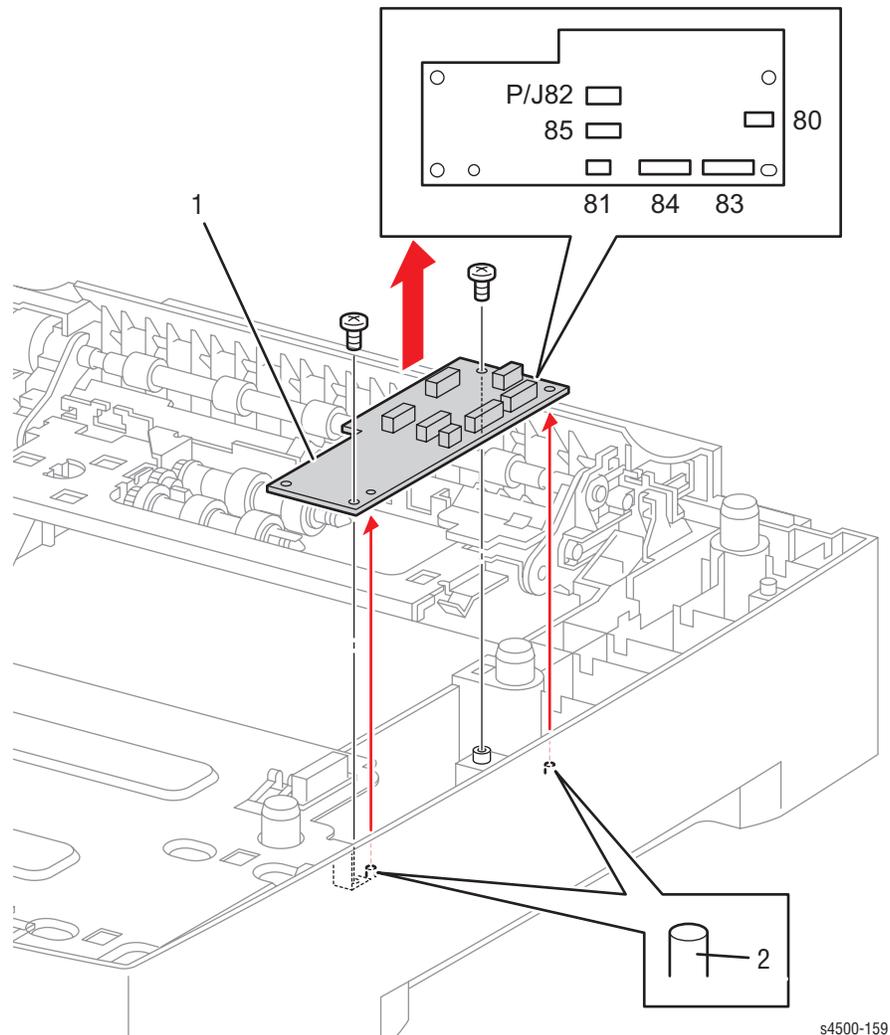
Caution

Be careful to not pinch wires during re-assembly.

- Be sure to return the machine 6 mm screw to the location shown at “Screw (A)” in the figure.
- When installing the left cover plate, be sure to install the tip of the grounding plate under the left cover plate.

550-Sheet Feeder PWBA

(PL20.1.34)



s4500-159

1. 550-sheet feeder PWBA

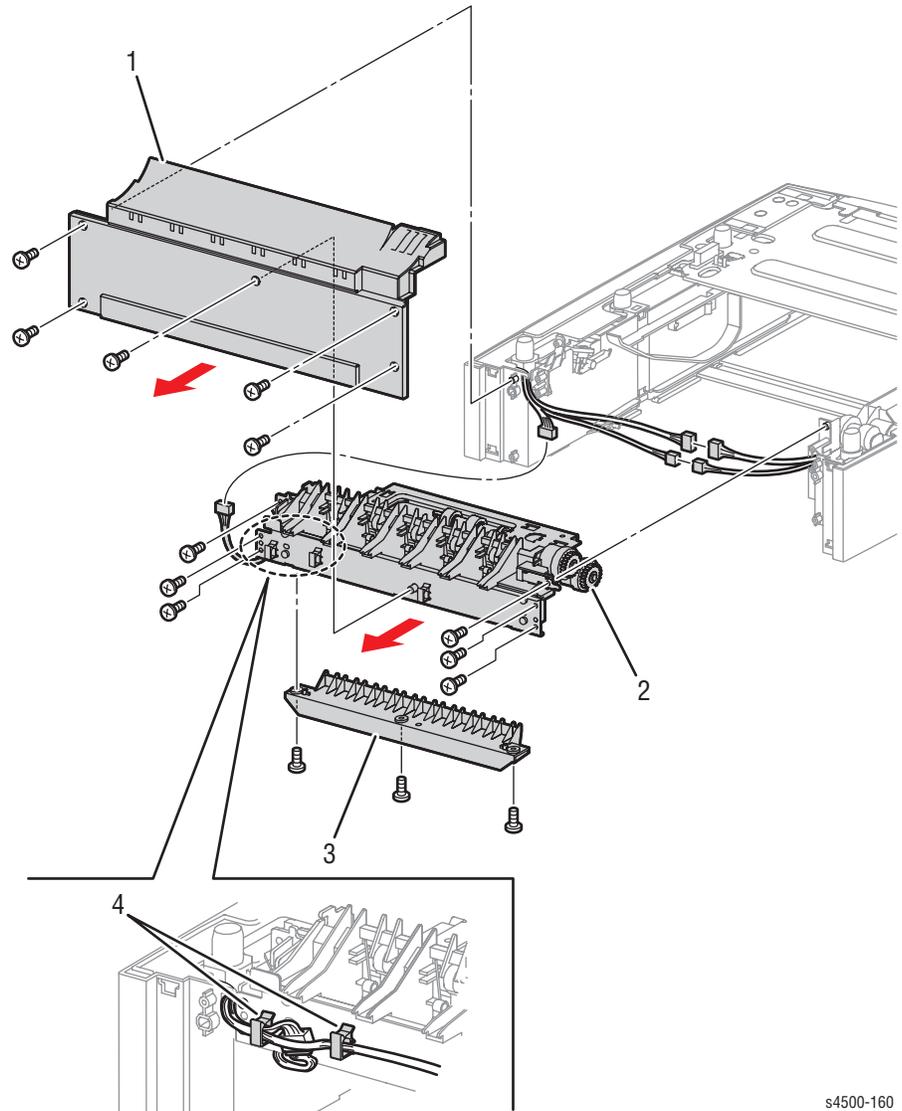
2. Boss

Procedure:

1. Remove the right cover plate (page 8-79).
2. Disconnect the harness connectors from the connectors (P/J80, P/J81, P/J82, P/J83, P/J84 and P/J85) on the 550-sheet feeder PWBA.
3. Remove the two 8 mm tapping screws that attach the 550-sheet feeder PWBA to the frame.
4. Remove the 550-sheet feeder PWBA.

550-Sheet Feeder

(PL20.2.1)



s4500-160

- | | |
|------------------------------|-------------------|
| 1. Feeder rear cover | 3. Lower chute |
| 2. Optional 550-sheet feeder | 4. Harness clamps |

Procedure:

1. Remove the five 8 mm tapping screws that attach the feeder rear cover to the frame.
2. Remove the feeder rear cover.

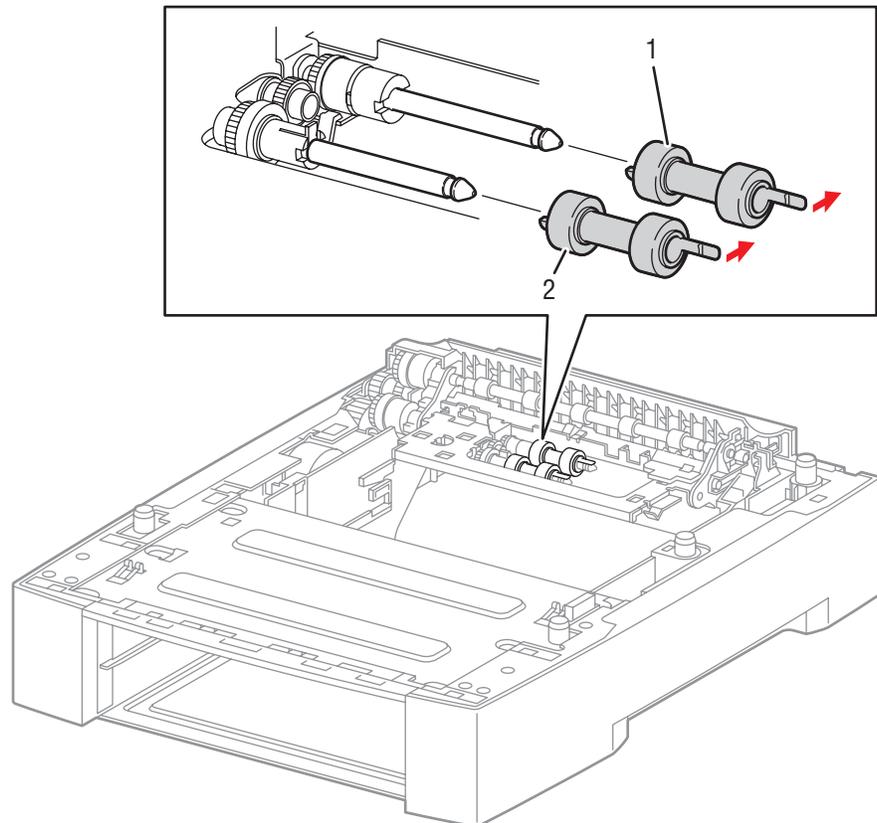
Note

The three connectors in the following step have gender adapters that could stay with either side of the harness.

3. Disconnect the three wiring harness connectors (P/J801, P/J820, and P/J855) exposed behind the rear cover.
4. Release release the wiring harnesses from the four harness clamps.
5. Remove the six 8 mm tapping screws that attach the optional 550-sheet paper feeder to the frame.
6. Remove the optional 550-sheet paper feeder from the frame.

Nudger Roller, Feed Roller

(PL20.2.11) (PL20.2.12)



s4500-161

1. Feed roller

2. Nudger roller

Procedure:

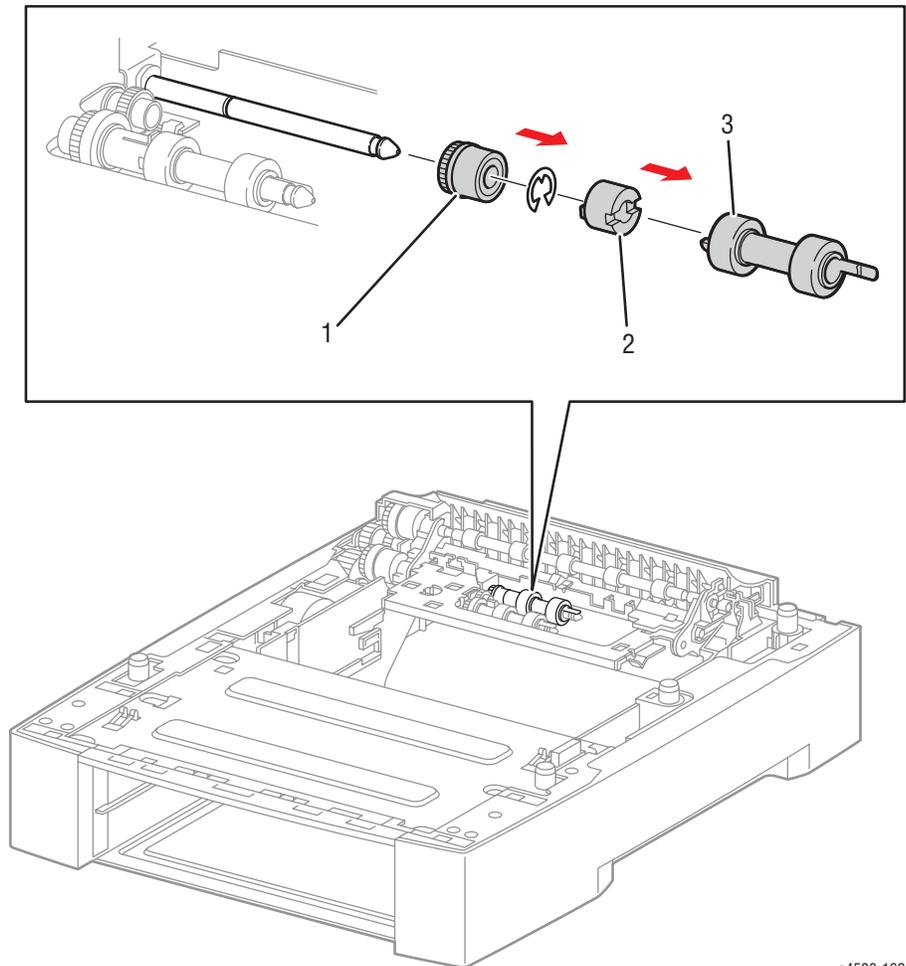
1. Release the hook that retains the nudger roller and pull the roller off the nudger shaft.
2. Release the hook that retains the feed roller and pull the roller off the feed shaft.

Replacement Note:

- The same roller (same part number) is used for the feed roller and nudger roller assemblies.

Nudger One-way Clutch

(PL20.2.15)



s4500-162

1. Nudger one-way clutch

3. Feed roller

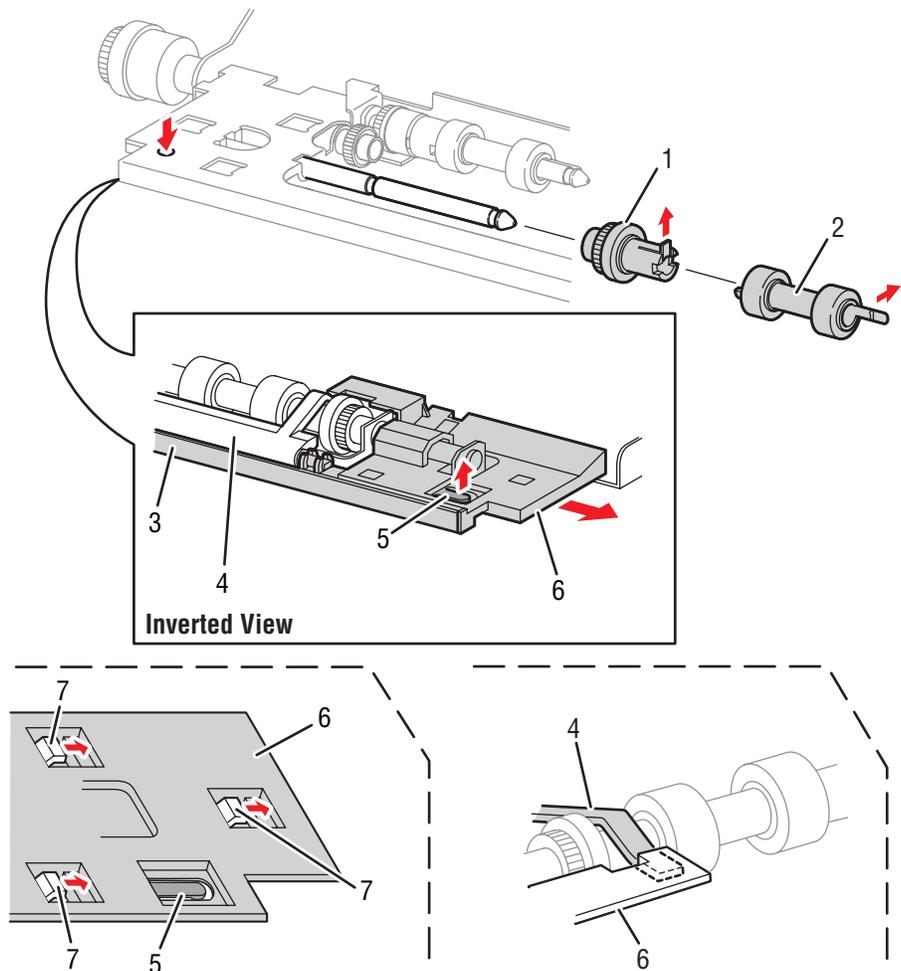
2. One-way feed clutch

Procedure:

1. Remove the feed roller (page 8-87).
2. Pull out the one-way feed clutch from the feed shaft.
3. Remove the E-ring that secures the nudger one-way clutch to the feed shaft.
4. Pull out the nudger one-way clutch from the feed shaft.

Nudger Gear

(PL20.2.10)



s4500-163

- | | |
|----------------------|-------------------|
| 1. Nudger gear | 5. Boss (lift up) |
| 2. Nudger roller | 6. Left holder |
| 3. Nudger support | 7. Hooks |
| 4. No paper actuator | |

Procedure:

1. Remove the optional 550-sheet paper feeder (page 8-78).

Note

The following steps are more easily performed by turning the 550-sheet paper feeder upside-down.

2. While lifting up the boss (or depressing the boss from the top) of the left holder at the back of the optional 550-sheet paper feeder, shift the left holder in the direction of the arrow to remove the 3 hooks.

3. Remove the left holder from the nudger support. At the same time, the no paper actuator is removed.

Note

When handling the nudger roller or nudger gear, avoid touching the rubber surfaces of the rollers.

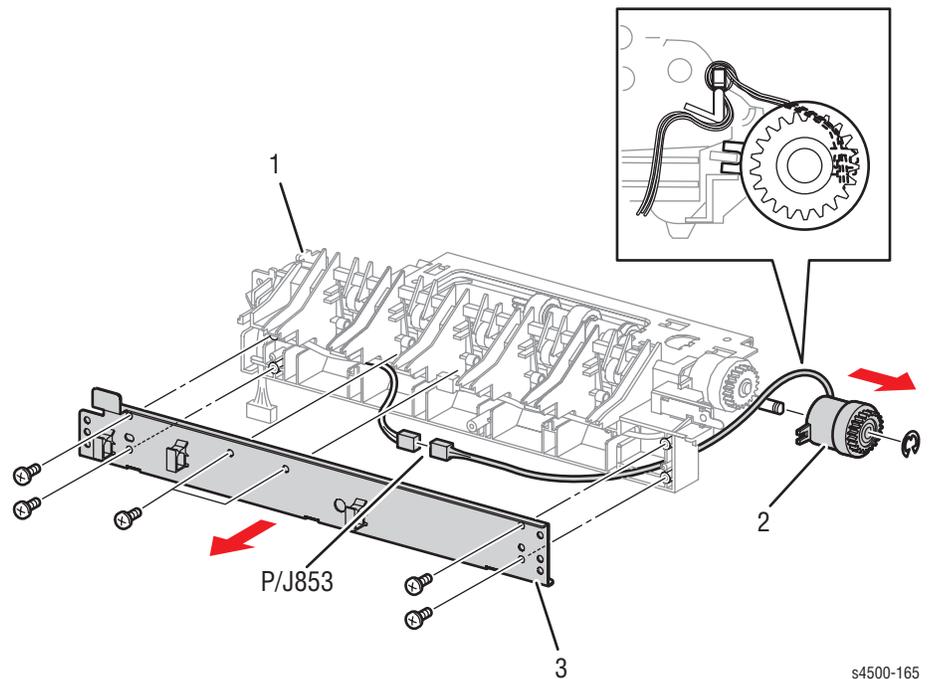
4. Release the hook of the nudger roller, and pull it out from the nudger shaft.
5. Release the hook of the nudger gear, and pull it out from the nudger shaft.

Replacement Notes:

- Be sure to install the shafts on both ends of the no paper actuator into the left holder and nudger support.
- Assemble the hook of the no paper actuator with the left holder as shown in the figure.

Feed Clutch Assembly

(PL20.2.21)



s4500-165

1. Out chute
 2. Feed clutch assembly
 3. Tie plate

Procedure:

1. Remove the optional 550-sheet paper feeder (page 8-78).
2. Remove the six screws (tapping, 8 mm) that attach the tie plate.
3. Remove the tie plate from the out chute.

Note

The connector in the following step has a gender adapter that could stay with either side of the harness.

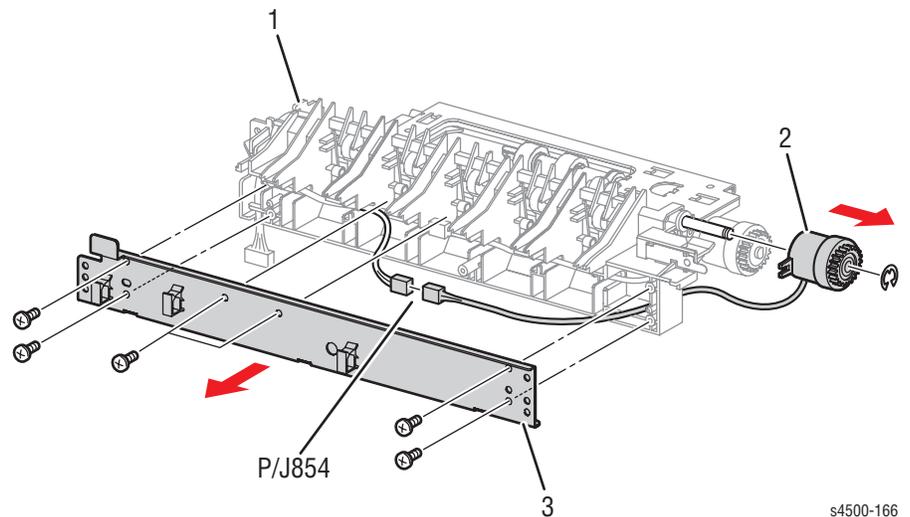
4. Disconnect the connector (P/J853) of the feed clutch assembly from the clutch sensor 1 assembly harness.
5. Remove the E-ring that secures the feed clutch assembly, and remove the feed clutch assembly from the feed shaft.

Replacement Note:

- The connectors for the feed clutch assembly and the turn roller clutch are identical. Be careful to plug in the correct connector.

Turn Roller Clutch

(PL20.2.22)



1. Out chute

2. Turn roller clutch

3. Tie plate

Procedure:

1. Remove the optional 550-sheet paper feeder (page 8-78).
2. Remove the six screws (taping, 8 mm) that attach the tie plate.
3. Remove the tie plate from the out chute.

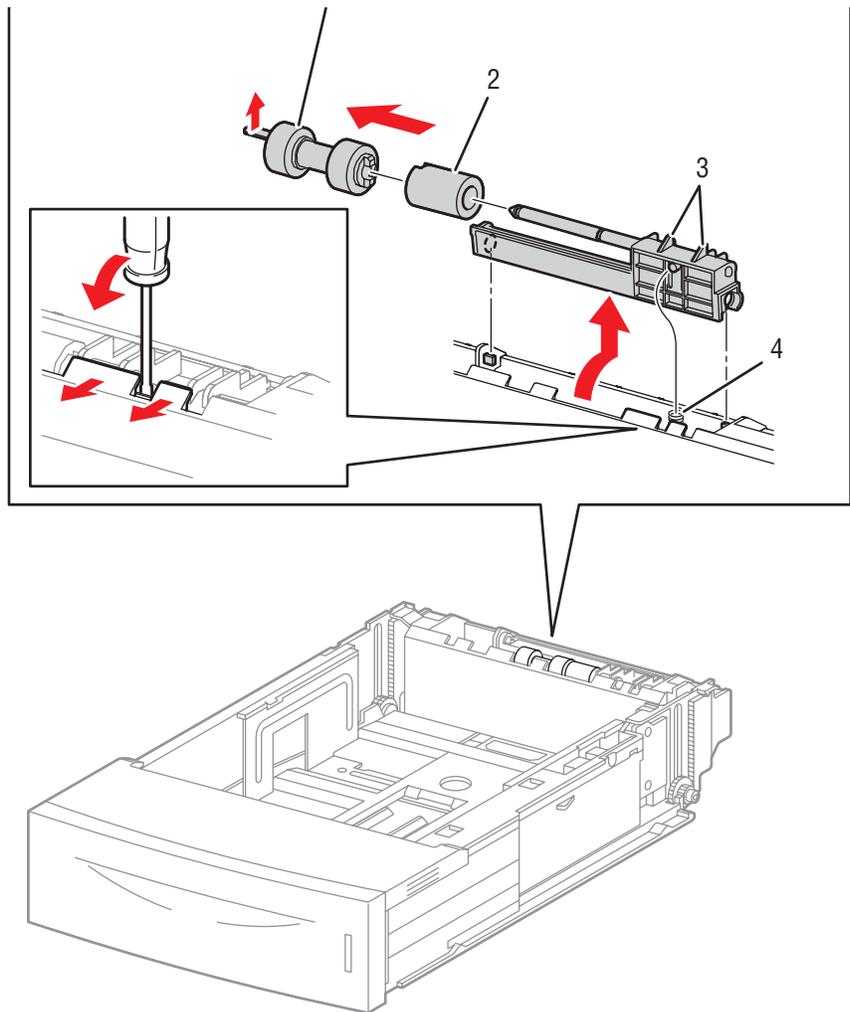
Note

The connector in the following step has a gender adapter that could stay with either side of the harness.

4. Disconnect the connector (P/J854) of the turn roller clutch from the clutch sensor 1 assembly harness.
5. Remove the E-ring that secures the turn roller clutch, and remove the turn roller clutch from the turn roller.

Retard Roller

(PL20.3.2)



s4500-168

- 1. Retard roller
- 2. Friction clutch

- 3. Hooks
- 4. Retard spring

Note

When handling the retard roller, avoid touching the rubber surfaces of the roller.

Procedure:

1. Pull out the 550-sheet paper cassette from the optional 550-sheet paper feeder.
2. Release the hooks that secure the retard holder to the 550-sheet paper cassette using a screwdriver or similar tool.
3. Lift the retard holder up in the direction of the arrow, and remove it.
4. Release the hook that secures the retard roller, and pull it out from the retard shaft.

Note

You can also remove the retard roller by pushing down the retard holder, releasing the hook, and sliding the roller off the shaft.

Replacement:

1. Install the retard roller to the retard shaft. Be sure that the hook of the retard roller seats in the retard shaft groove.

Note

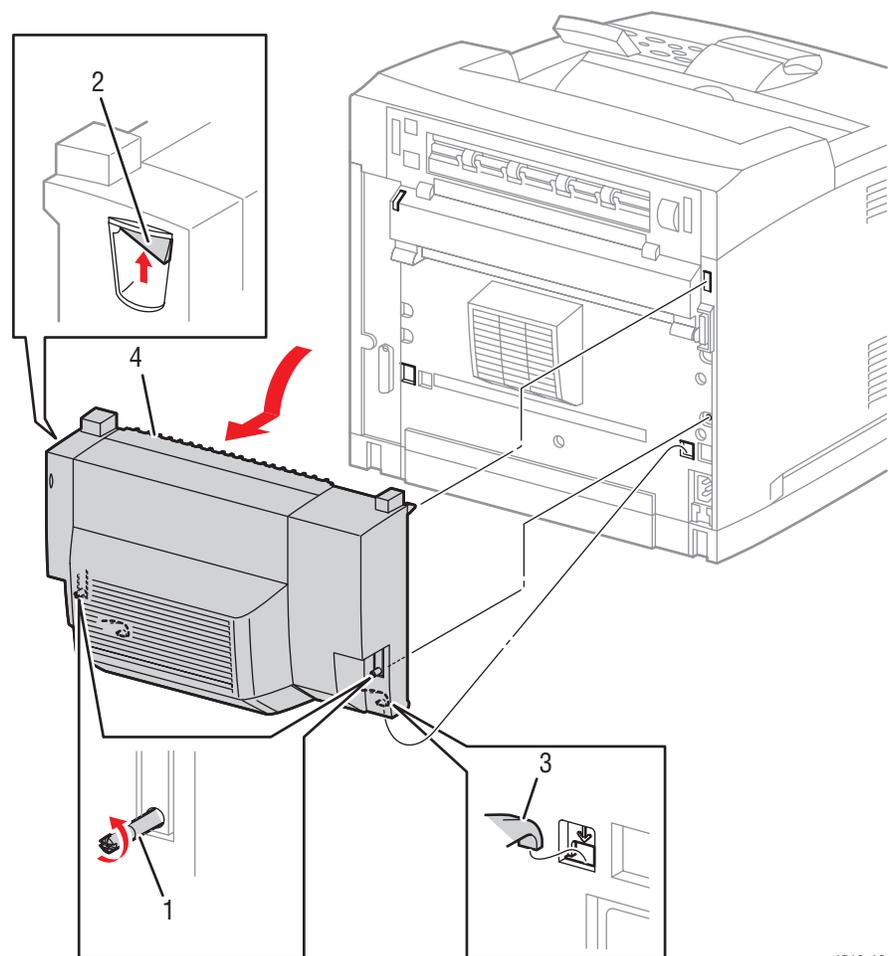
After installing, make sure the retard holder comes back to the former position with the spring force of the retard spring.

2. Install the 550-sheet paper cassette in the optional 550-sheet paper feeder.

Options: Duplex Unit

Duplex Unit Removal

(PL 21.1)



s4510-184

- | | |
|----------------------|----------------|
| 1. Thumbscrew | 3. Bottom hook |
| 2. Right latch lever | 4. Duplex unit |

Note

Be careful not to drop the duplex unit when removing it.

Procedure:

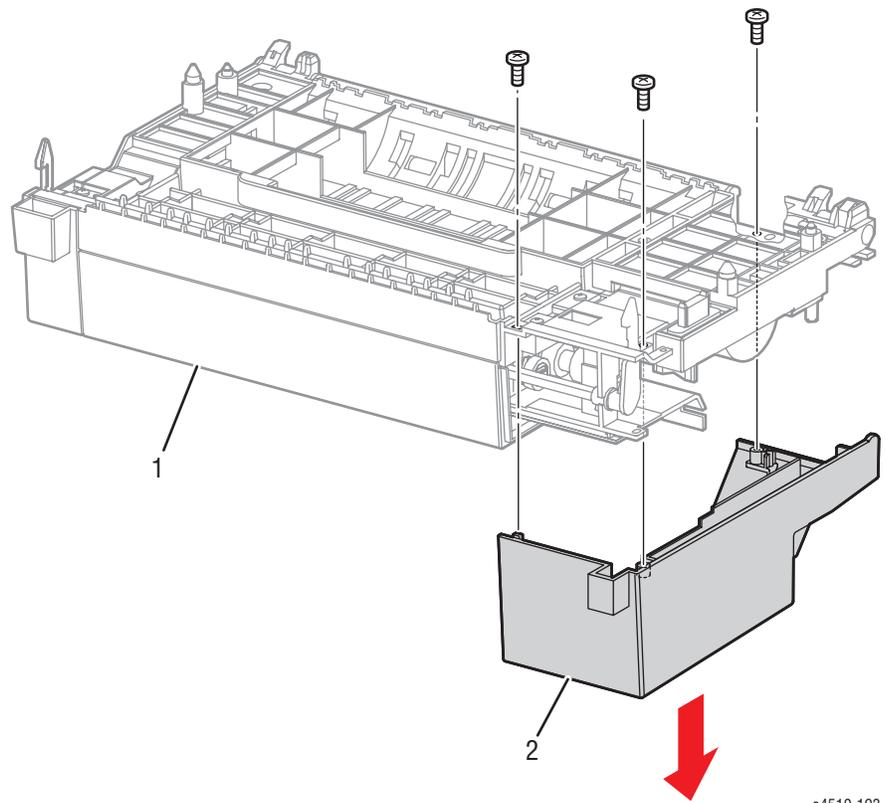
1. Loosen the 2 Thumb Screws that secure the duplex unit to the printer.
2. Push up the right latch lever to release the duplex unit from the printer.
3. Tilt the duplex unit back, then lift away from the printer.

Replacement Note:

- When installing, be sure to insert the bottom hooks of the duplex unit into the holes of the printer.

Left Cover

(PL21.1.25)



s4510-193

1. Duplex unit housing cover

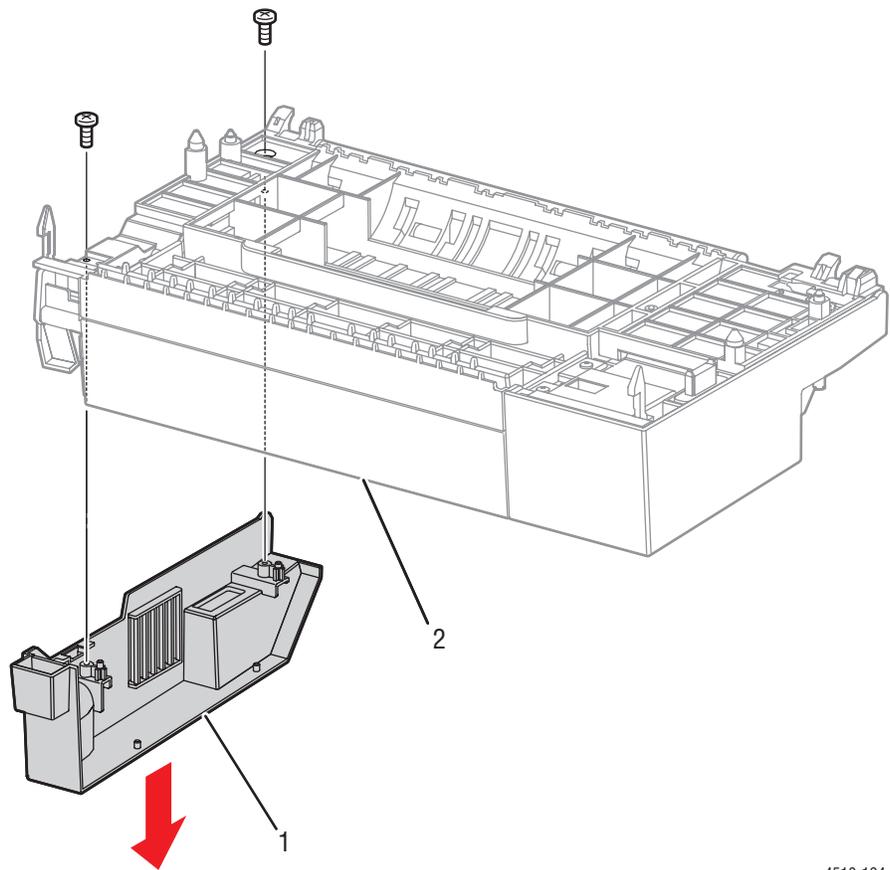
2. Left cover

Procedure:

1. Remove the three 8 mm tapping screws that attach the left cover.
2. Remove the left cover from the duplex unit housing cover.

Right Cover

(PL21.1.41)



s4510-194

1. Right cover

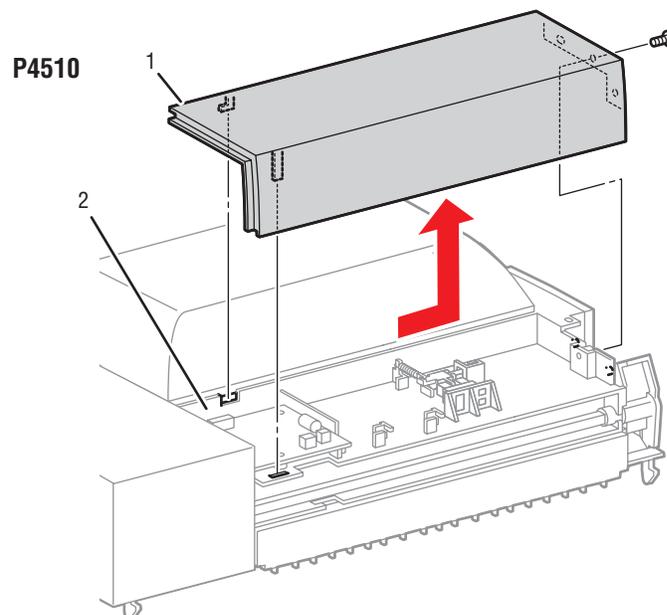
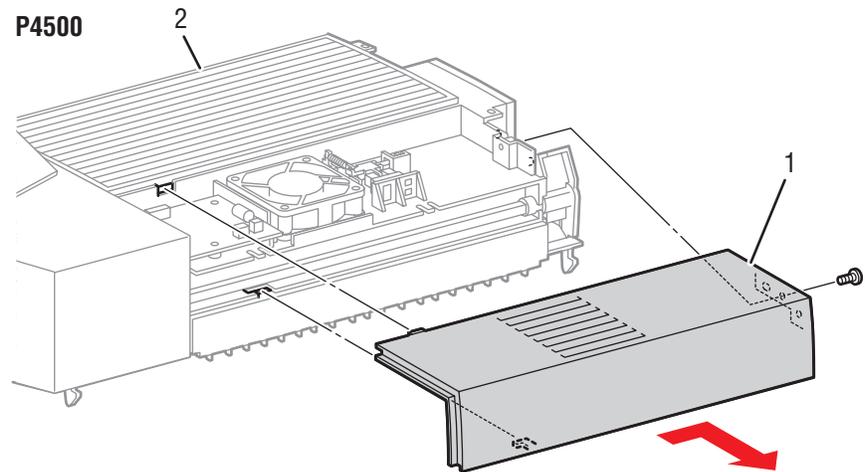
2. Duplex unit housing cover

Procedure:

1. Remove the two 8 mm tapping screws that attach the right cover.
2. Remove the right cover from the duplex unit housing cover.

Top Cover

(PL21.1.12)



s4510-188

1. Top cover

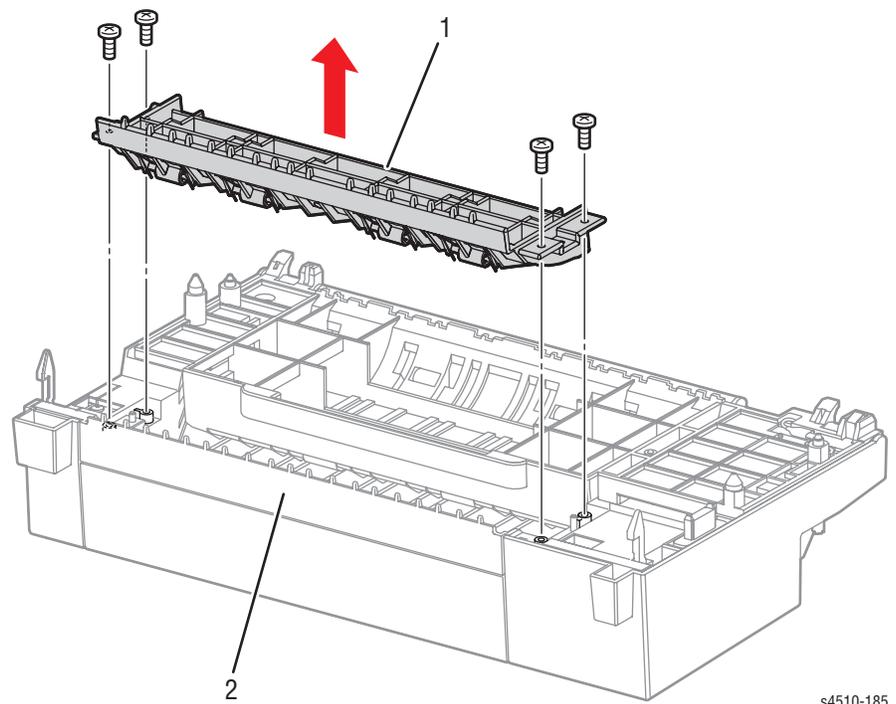
2. Duplex unit housing cover

Procedure:

1. Remove the right cover (page 8-97).
 - a. Remove the 8 mm tapping screw that attaches the top cover to the duplex unit housing cover.
2. Shift the top cover in the direction of the arrow to release the four hooks, and remove the top cover from the duplex unit housing cover.

Upper Assembly Housing

(PL21.1.1)



s4510-185

1. Upper assembly housing

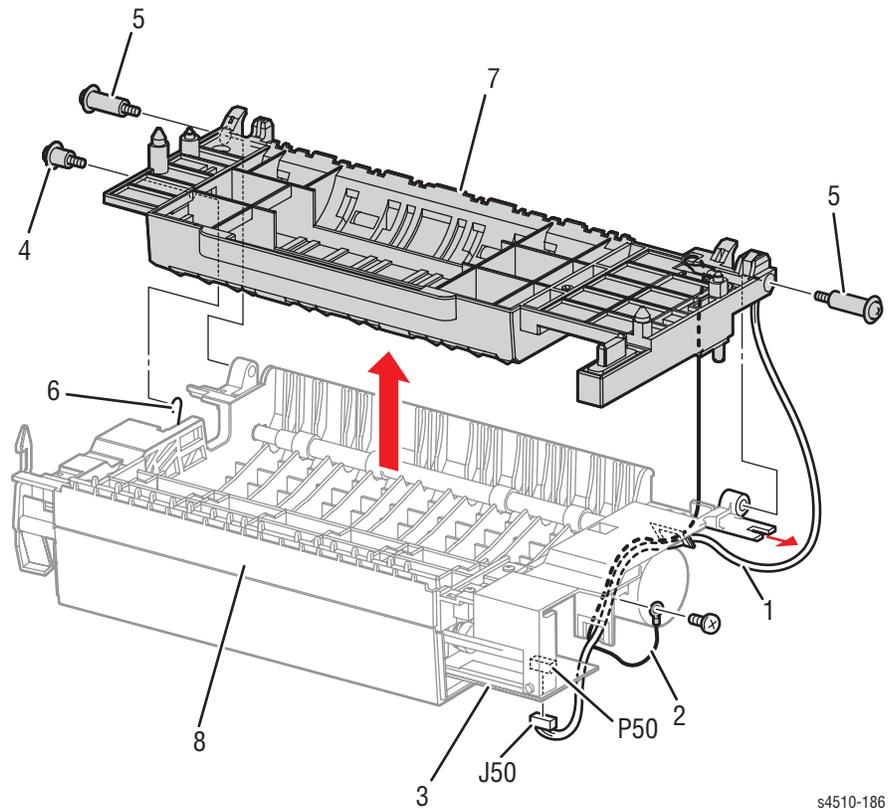
2. Duplex unit housing cover

Procedure:

1. Remove the four 8 mm tapping screws that attach the upper assembly housing to the duplex unit.
2. Remove the upper assembly housing from the duplex unit housing cover.

Duplex Unit Lower Housing

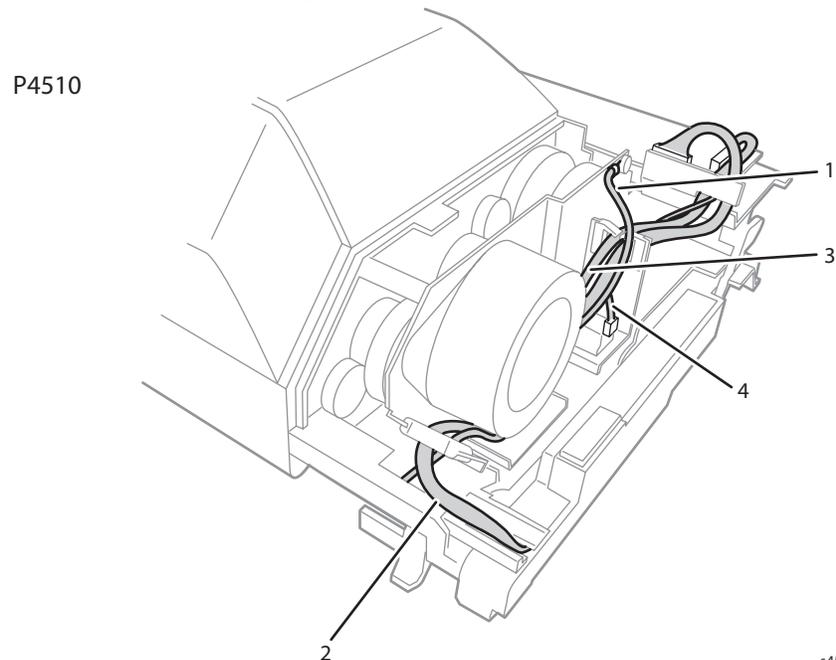
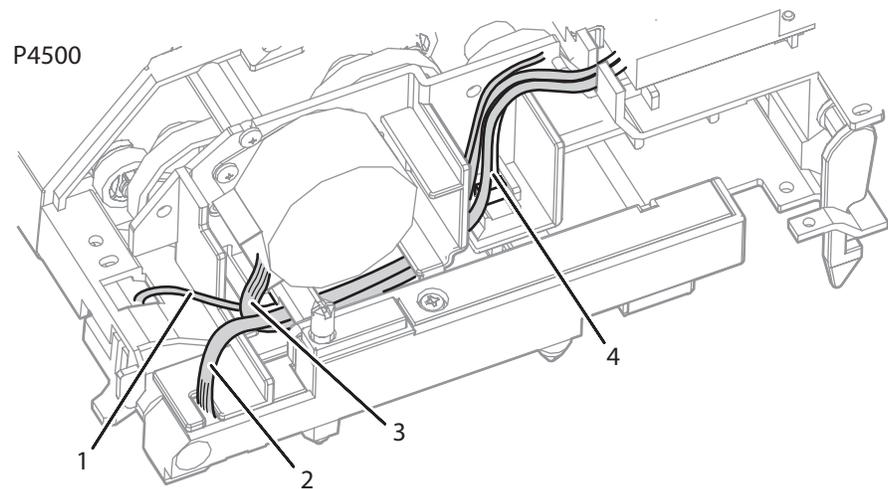
(PL21.1.6)



- 1. Duplex unit harness
- 2. Duplex unit ground wire
- 3. Duplex unit PWBA
- 4. Shoulder screw

- 5. Hinge screw
- 6. Damper spring
- 7. Duplex unit lower housing
- 8. Duplex unit housing cover

s4510-186



s4510-187

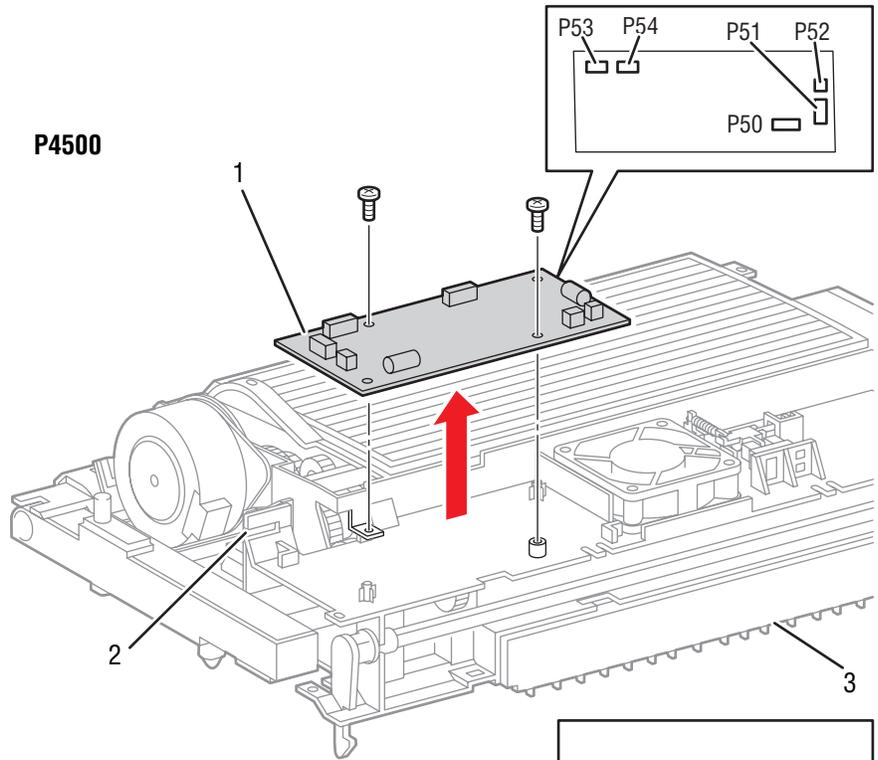
- | | |
|----------------------------|-------------------------------|
| 1. Duplex unit ground wire | 3. Duplex unit motor |
| 2. Duplex unit harness | 4. Duplex unit sensor harness |

Procedure:

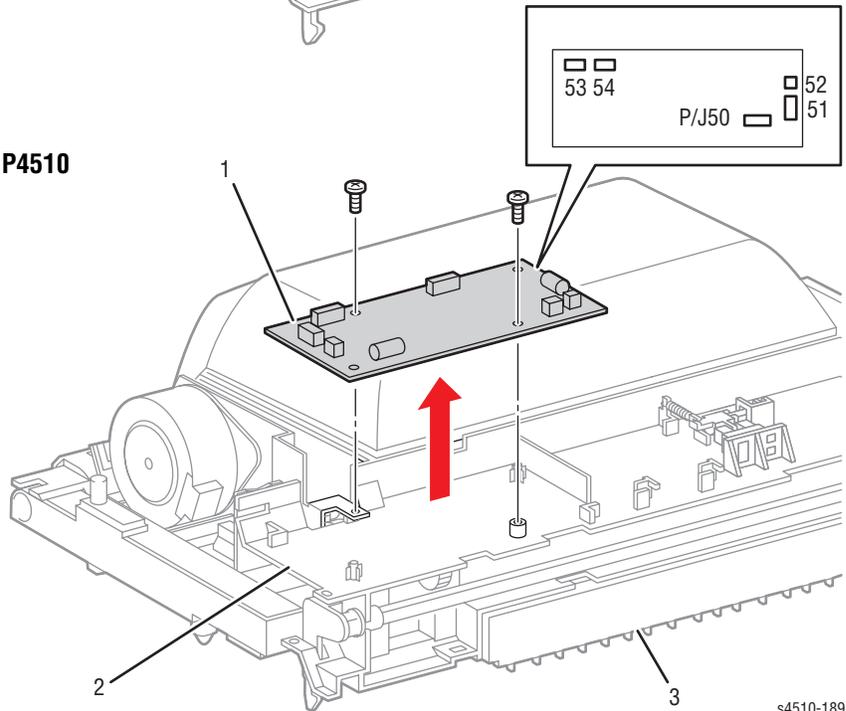
1. Remove the left cover (page 8-96).
2. Remove the right cover (page 8-97).
3. Unplug J50, the duplex unit harness, from P50 on the duplex unit PWBA.
4. Remove the 6 mm machine screw to disconnect the duplex unit ground wire.
5. Release the duplex unit harness and ground wire from the harness clamp.
6. Remove the shoulder screw that attaches the damper spring.
7. Remove the two hinge screws that secure the duplex unit lower housing, and remove the duplex unit lower housing from the duplex unit housing cover.

Duplex Unit PWBA

(PL21.1.32)



P4510



- 1. Duplex unit PWBA
- 2. Cable retainer slot

- 3. Duplex unit housing cover.

s4510-189

Procedure:

1. Remove the left cover (page 8-96).
2. Remove the right cover (page 8-97).
3. Remove the top cover (page 8-98).
4. Unplug the harness connectors from P50, P51, P52, P53 and P54) on the duplex unit PWBA.

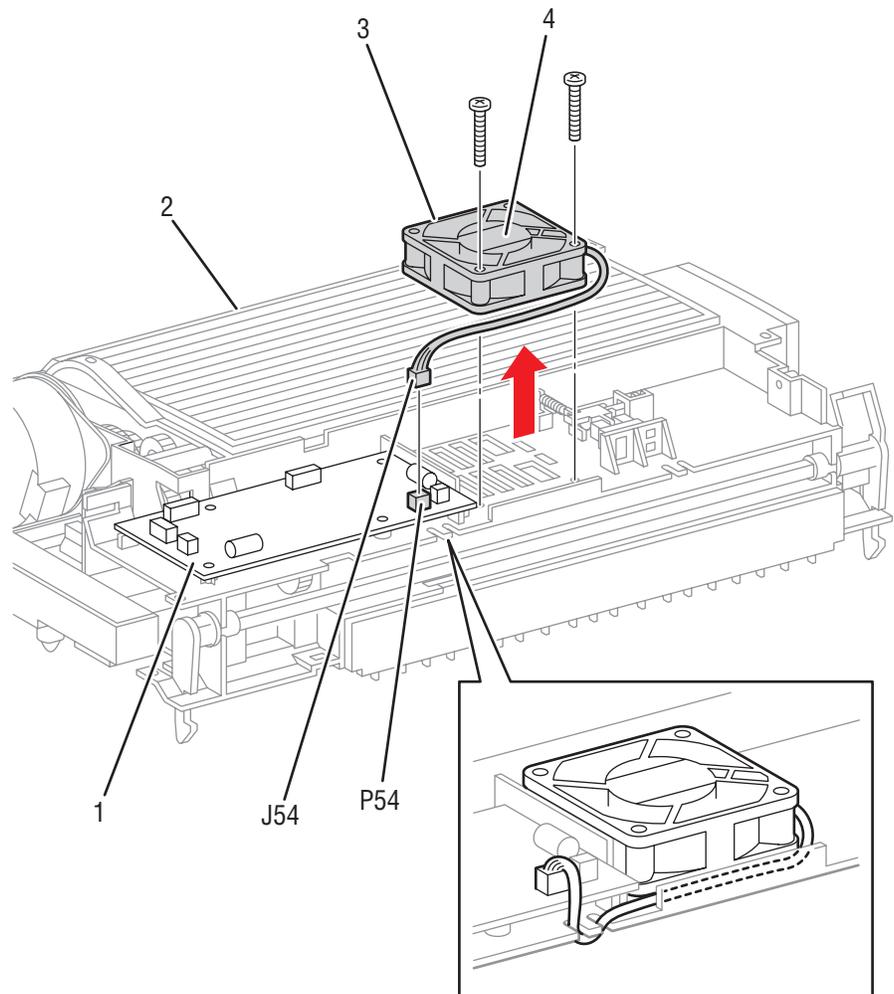
Note

The P55 connector is unused.

5. Remove the two screws (one tapping, 8 mm; one machine, 6 mm) that attach the duplex unit PWBA to the duplex unit housing cover.
6. Remove the duplex unit PWBA.

Duplex Unit Fan (P4500)

(PL21.1.33)



s4500-190

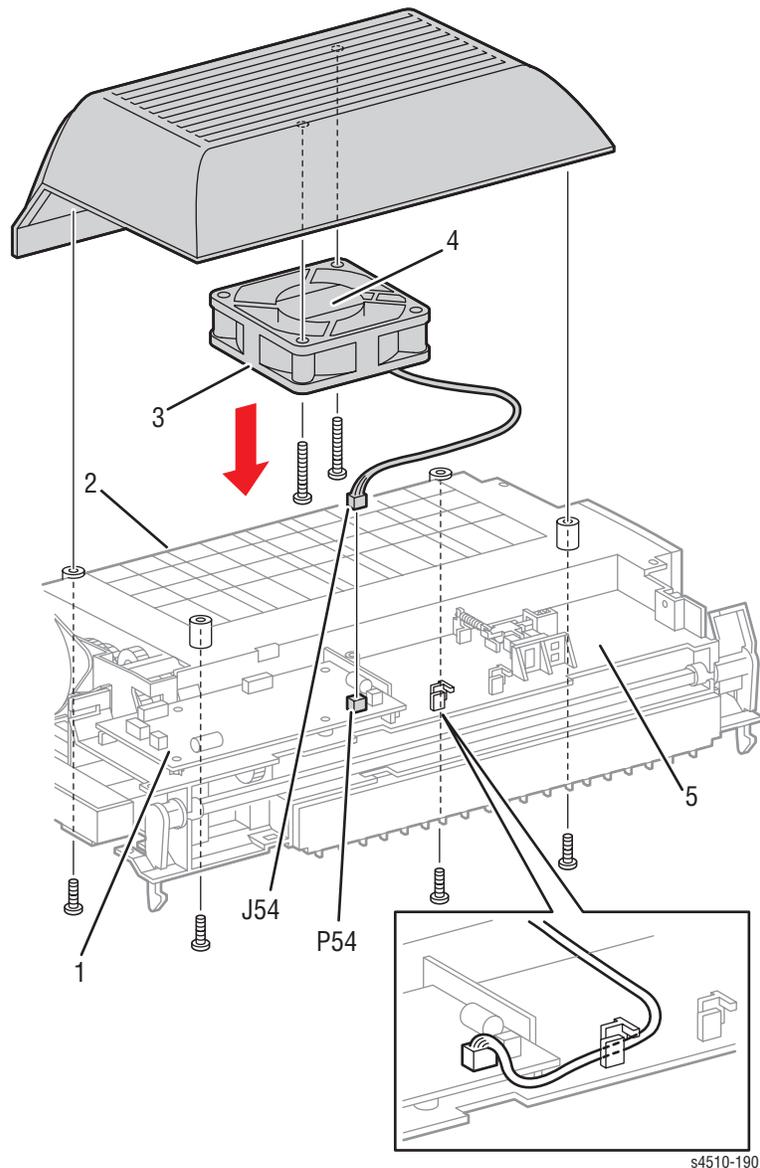
- | | |
|------------------------------|--------------------|
| 1. Duplex unit PWBA | 3. Duplex unit fan |
| 2. Duplex unit housing cover | 4. Label |

Procedure:

1. Remove the right cover (page 8-97).
2. Remove the top cover (page 8-98).
3. Unplug the fan cable connector, J54, from P54 on the duplex unit PWBA.
4. Release the fan cable from the hook on the duplex unit housing cover.
5. Remove the two screws (tapping, 22 mm) that attach the duplex unit fan to the duplex unit housing cover.
6. Remove the duplex unit fan.

Duplex Unit Fan (P4510)

(PL21.1.33)



s4510-190

- | | |
|------------------------------|--------------------|
| 1. Duplex unit PWBA | 3. Duplex unit fan |
| 2. Duplex unit housing cover | 4. Label |

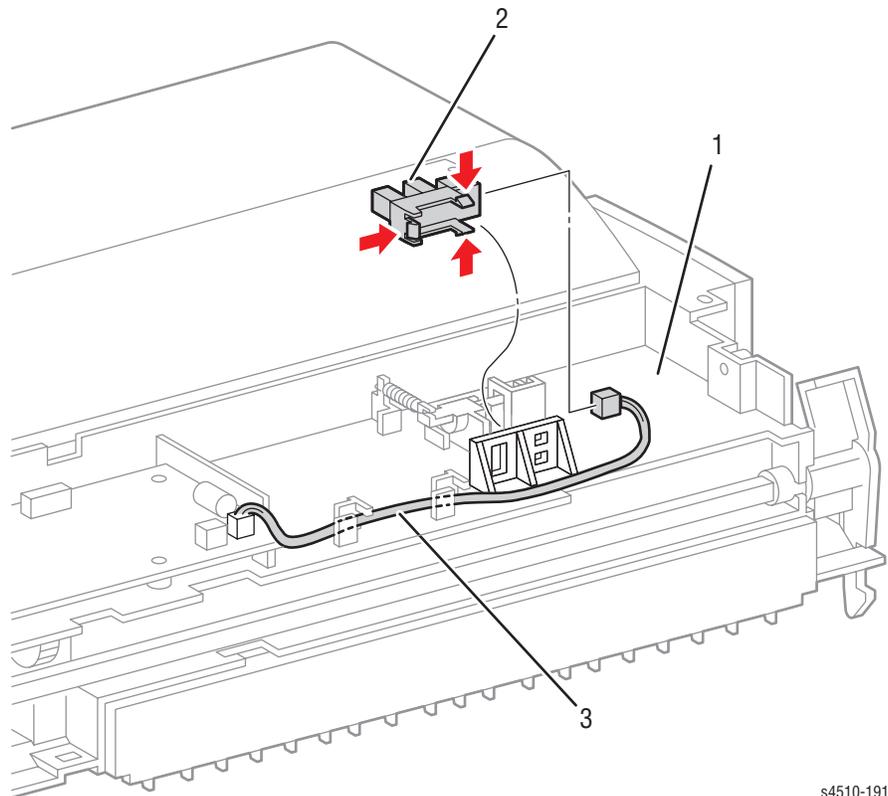
Procedure:

1. Remove the right cover (page 8-97).
2. Remove the top cover (page 8-98).
3. Remove the upper assembly housing (page 8-99).
4. Unplug the fan cable connector, J54, from P54 on the duplex unit PWBA.
5. Release the fan cable from the hook on the duplex unit housing cover.

6. Remove the four screws (tapping, 22 mm) that attach the duplex unit rear cover to the duplex unit housing and remove the cover. The two screws near the bottom of the unit are accessible through holes in the duplex unit lower housing.
7. Remove the two screws (tapping, 22 mm) that attach the duplex unit fan to the duplex unit housing cover and remove the fan.

Duplex Unit Sensor

(PL21.1.34)



s4510-191

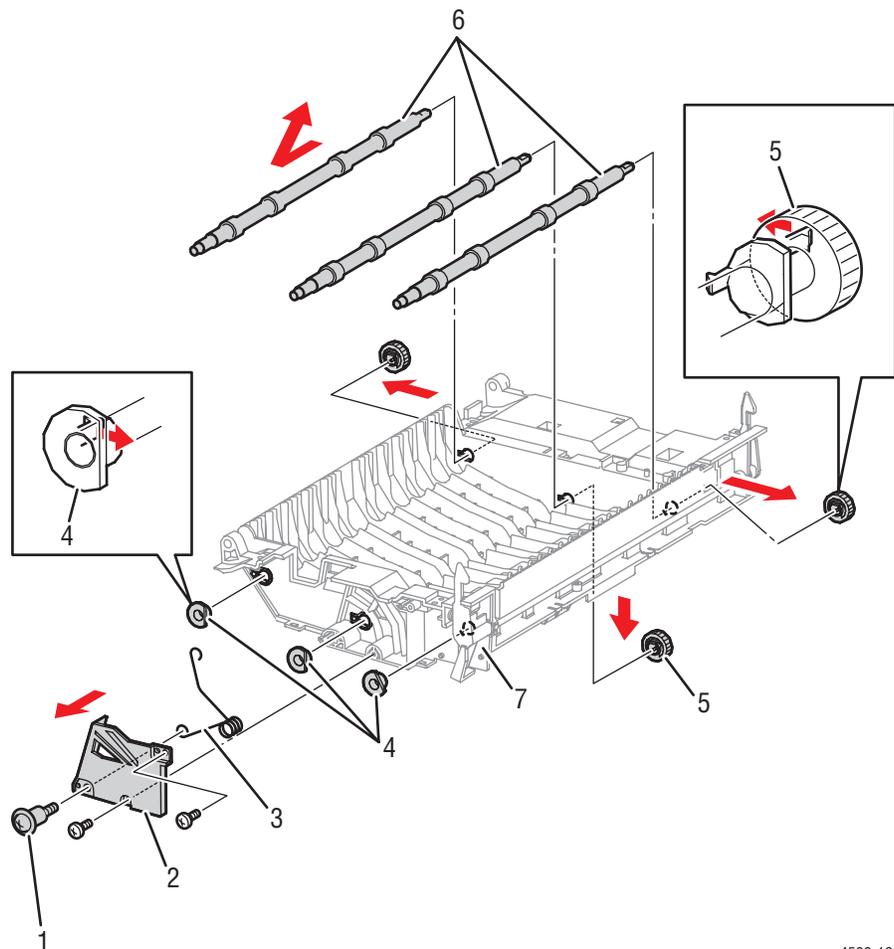
1. Duplex unit housing cover
2. Duplex unit sensor
3. Duplex unit sensor harness

Procedure:

1. Remove the right cover (page 8-97).
2. Remove the top cover (page 8-98).
3. Release the hooks of the duplex unit sensor, and remove it from the duplex unit housing cover.
4. Disconnect the connector (P/J530) of the duplex unit assembly harness SNR from the duplex unit sensor.

Duplex Unit Roller

(PL21.1.17)



s4500-192

- | | |
|-----------------------------|------------------------------|
| 1. Shoulder screw (tapping) | 5. Roller gear |
| 2. Damper cover | 6. Duplex unit rollers |
| 3. Damper spring | 7. Duplex unit housing cover |
| 4. Duplex unit bearings | |

Procedure:

1. Remove the left cover (page 8-96).
2. Remove the right cover (page 8-97).
3. Remove the upper assembly housing (page 8-99).
4. Remove the duplex unit lower housing (page 8-100).
5. Remove the two 8 mm tapping screws and the shoulder screw that attach the damper cover to the duplex unit housing cover.

6. Remove the damper cover and damper spring from the duplex unit housing cover.

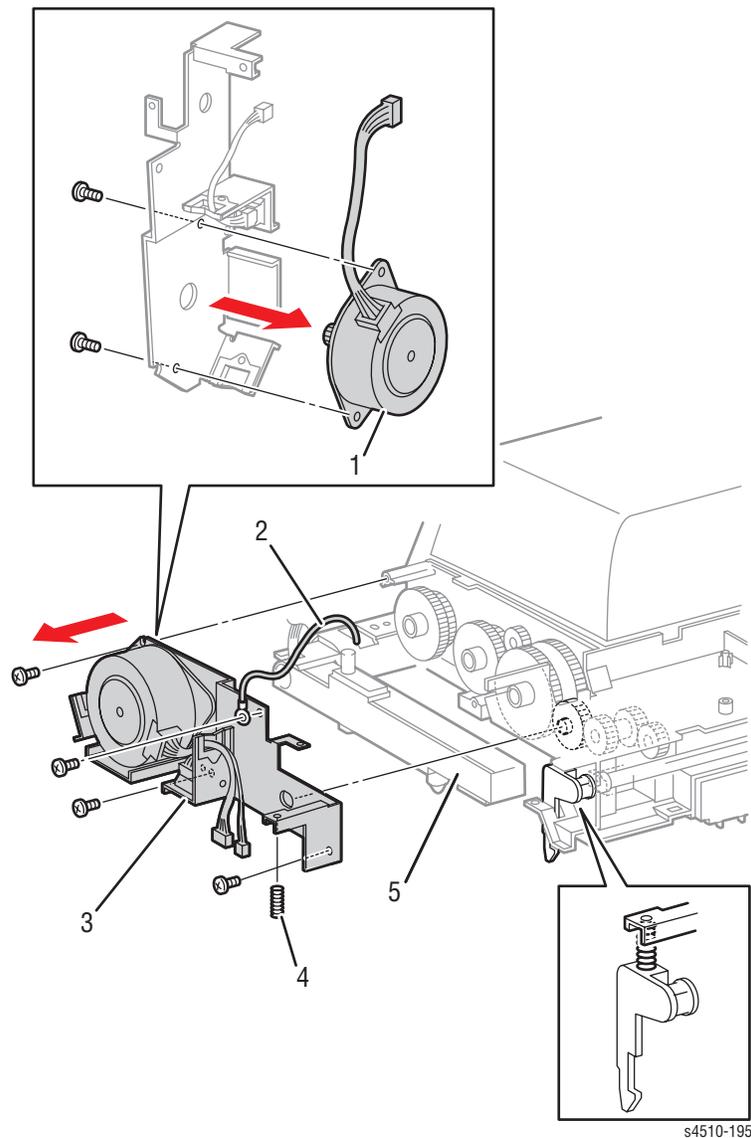
Note

Some of the gears do not have retainers, and could fall off. Be careful not to lose any of the gears.

7. Release the hooks of three roller gears, and remove them from the duplex unit roller.
8. Release the hooks of three duplex unit bearings on the opposite side of the roller gear from the inside, and remove three duplex unit bearings from the duplex unit housing cover.
9. Remove three duplex unit rollers by moving them in the direction of the arrow.

Duplex Unit Motor

(PL21.1.29)



- | | |
|----------------------|------------------------------|
| 1. Duplex unit motor | 4. Latch spring |
| 2. Ground wire | 5. Duplex unit housing cover |
| 3. Motor bracket | |

Procedure:

1. Remove the left cover (page 8-96).
2. Remove the 6 mm screw that attaches the duplex unit assembly harness ground
3. Remove the three 8 mm tapping screws that attach the motor bracket to the duplex unit housing cover.
4. Remove the screw that mounts the duplex unit PWBA to the motor bracket.
5. Remove the latch spring.

6. Remove the motor bracket together with the duplex unit motor and duplex unit switch.

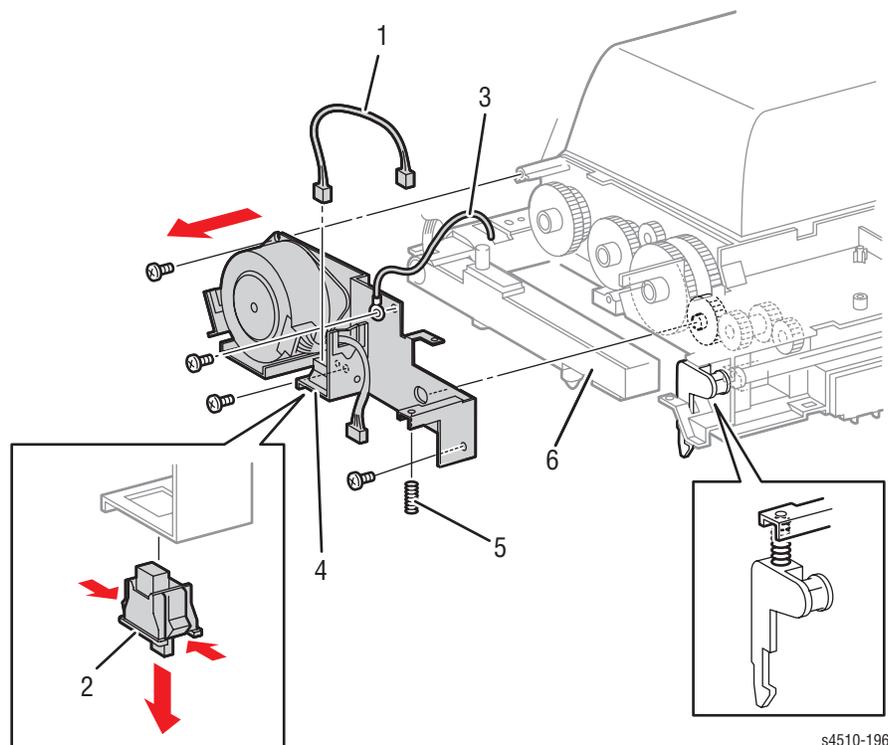
Note

When removing the motor bracket, be careful not to lose the gears attached to the duplex unit housing cover.

7. Remove the two 6 mm screws that attach the duplex unit motor to the motor bracket.
8. Remove the duplex unit motor.

Duplex Unit Switch

(PL21.1.27)



s4510-196

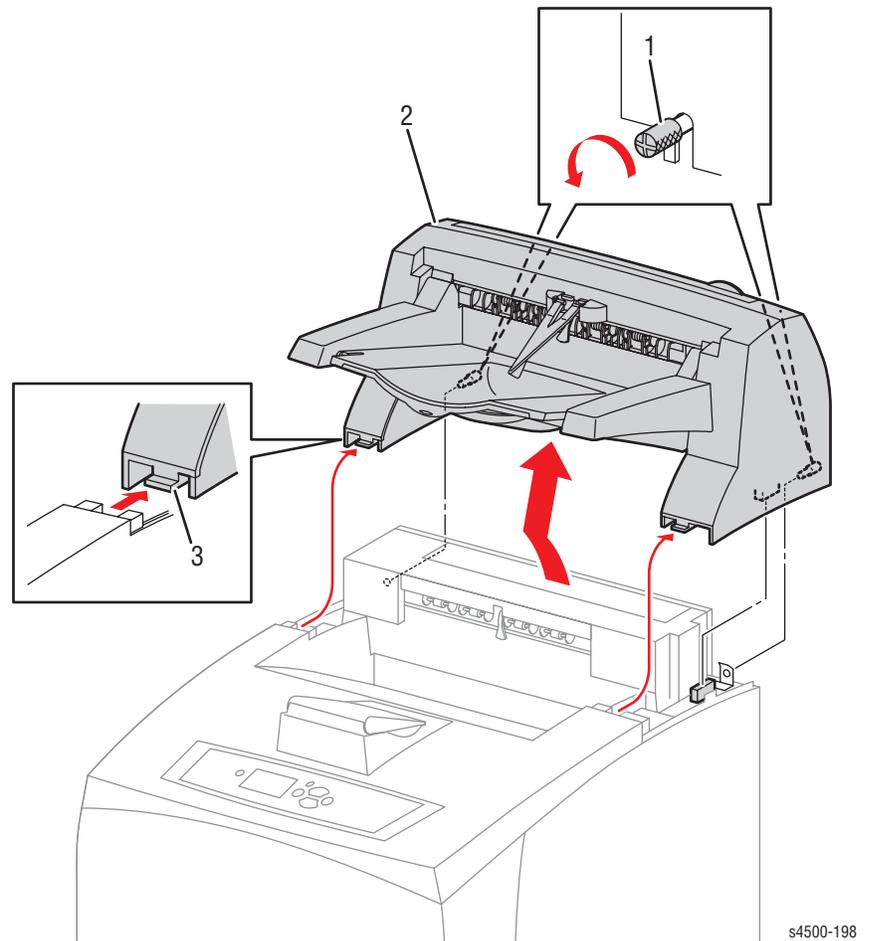
- | | |
|------------------------------|------------------------------|
| 1. Duplex unit cover harness | 4. Motor bracket |
| 2. Duplex unit switch | 5. Latch spring |
| 3. Duplex unit ground wire | 6. Duplex unit housing cover |

Procedure:

1. Remove the duplex unit motor bracket as described in the duplex unit motor procedure (page 8-109).
2. Disconnect the connector of the duplex unit cover assembly harness from the connector (P/J52) of the duplex unit switch.
3. Release the hooks of the duplex unit switch, and remove it from the motor bracket.

Options: Stacker

Stacker Removal



1. Thumbscrew

2. Stacker

3. Hook

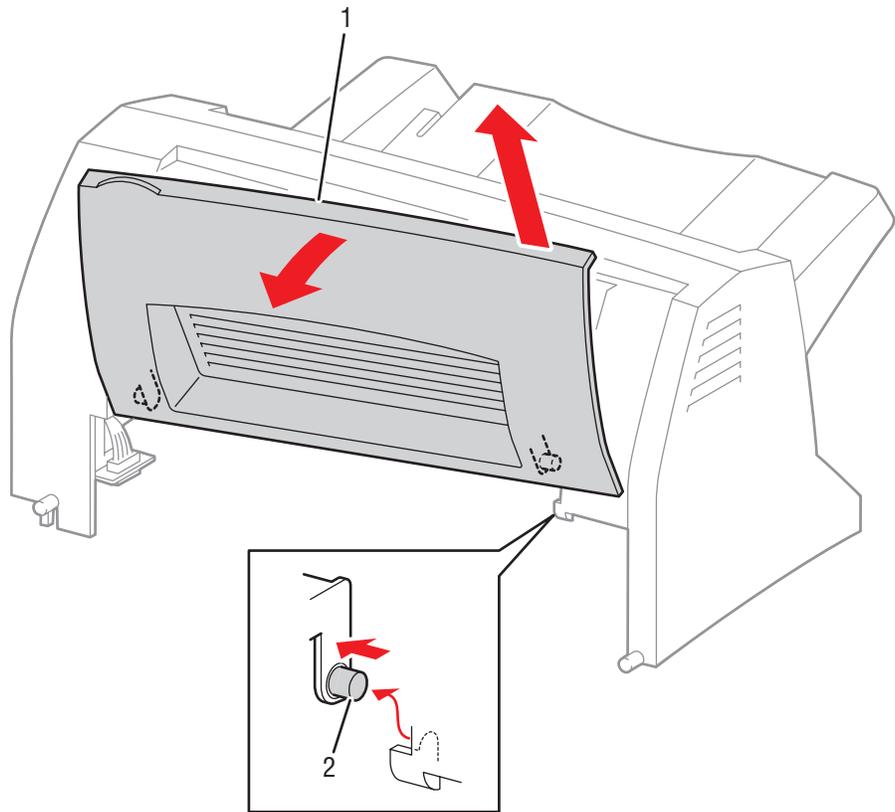
s4500-198

Procedure:

1. Loosen the two thumb screws that secure the stacker to the printer.
2. Tilt the stacker forward to release connector P/J3070 and the front hooks, then lift the stacker off the printer.

Stacker Rear Cover

(PL23.1.4)



s4500-199

1. Rear Cover

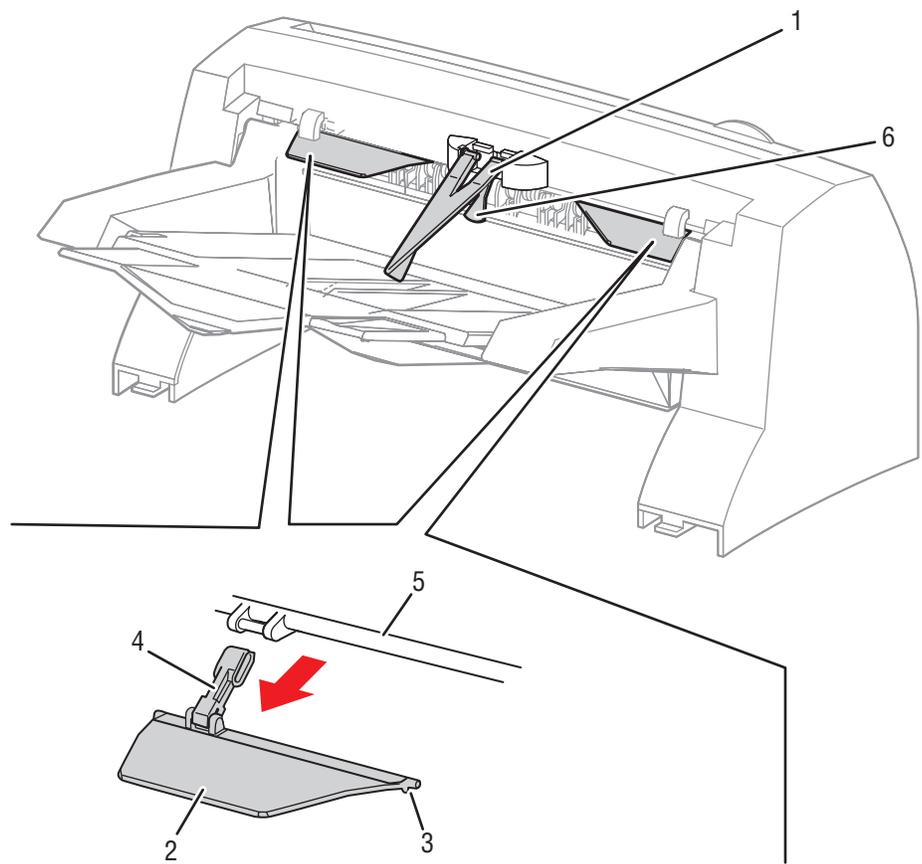
2. Boss

Procedure:

1. Open the rear cover about 1 in. (2cm).
2. While pressing the door either to the left or right, lift the opposite end upward to clear the boss from the hinge in the stacker cover.

Stacker Cover

(PL23.1.1)



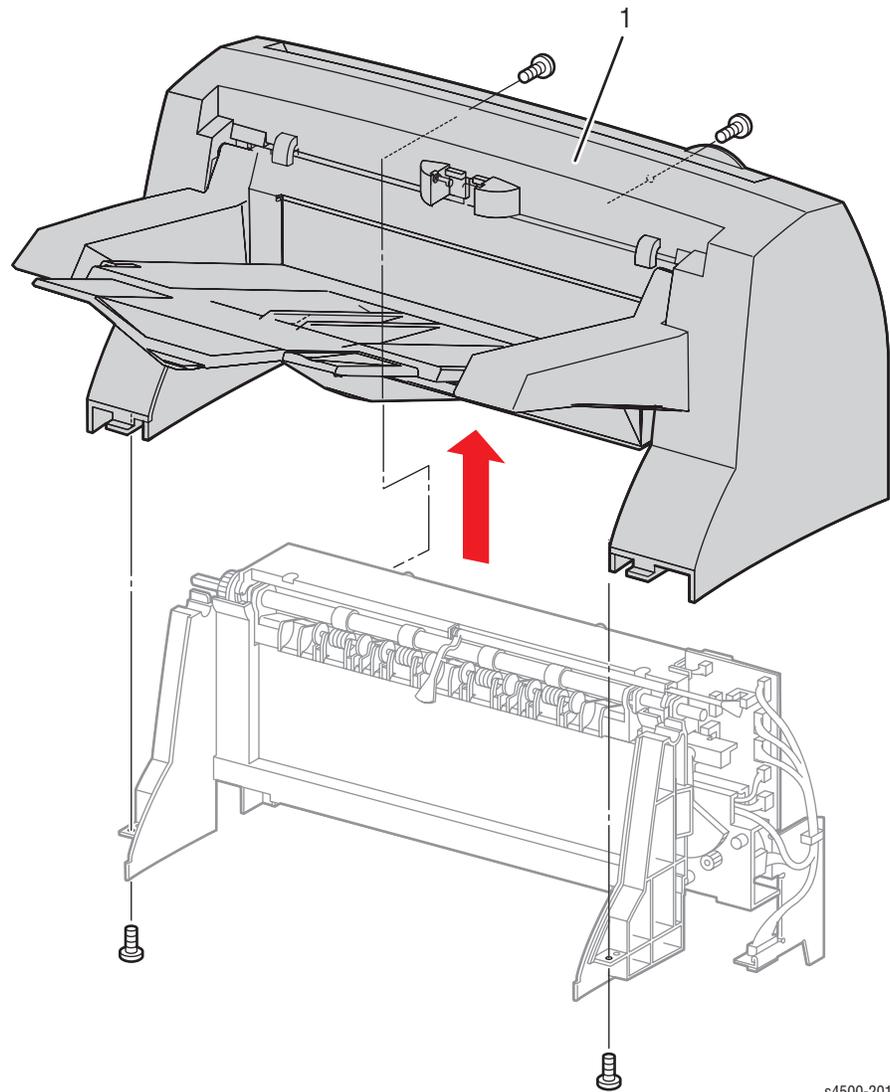
s4500-202

- | | |
|-----------------|------------------------|
| 1. Weight | 4. Link |
| 2. Left flapper | 5. Stack full shaft |
| 3. Hinge | 6. Stack full actuator |

Procedure:

1. Remove the stacker from the printer (page 8-111)
2. Remove the stacker rear cover (page 8-112).
3. Remove the weight.
4. Disengage both left flapper hinges from the stacker cover.
5. Disengage the link attached to the left flapper from the stack full shaft.
6. Disengage both right flapper hinges from the stacker cover.
7. Disengage the link attached to the right flapper from the stack full actuator.
8. Remove the four 8 mm tapping screws, two on the rear and two on the bottom of the stacker, that attach the stacker cover to the stacker.
9. Rotate the stacker tray up until it contacts the top of the stacker cover.

10. Lift the stacker cover with the attached stacker tray assembly to remove it from the stacker.



s4500-201

1. Stacker cover

Replacement:

Caution

To avoid breaking the sensor flag off the right end of the stack full actuator, be very careful while sliding the stacker assembly back into the stacker cover. It is important that the flag shaft clears the output tray hinge bracket.

1. Lay the stacker cover on its back side.
2. Rotate the stacker tray up until it contacts the top of the stacker cover.
3. Slide the stacker up into place inside the stacker cover, being careful to not break the output full actuator arm or flag.
4. Install the four 8 mm tapping screws that attach the stacker cover to the stacker.

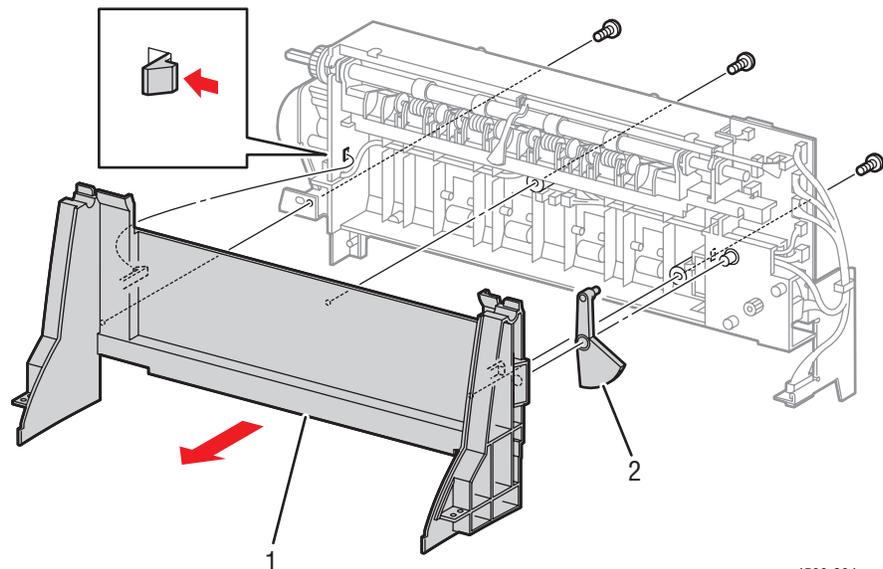
5. Lay the stacker cover on its back side.
6. Rotate the stacker tray up until it contacts the top of the stacker cover.
7. Snap the link from the right flapper to the crank arm on the stack full actuator.
8. Fit the hinge pins at both ends of the right flapper into the hinge brackets on the stacker cover.
9. Install the right flapper in a similar manner.
10. Install the weight.
11. Install the stacker rear cover (page 8-112).

Note

After installation, manually move the left flapper and verify that the stack full actuator moves together with the left flapper.

Stacker Front Cover

(PL23.1.45)



1. Front cover

2. Cam gear

Procedure:

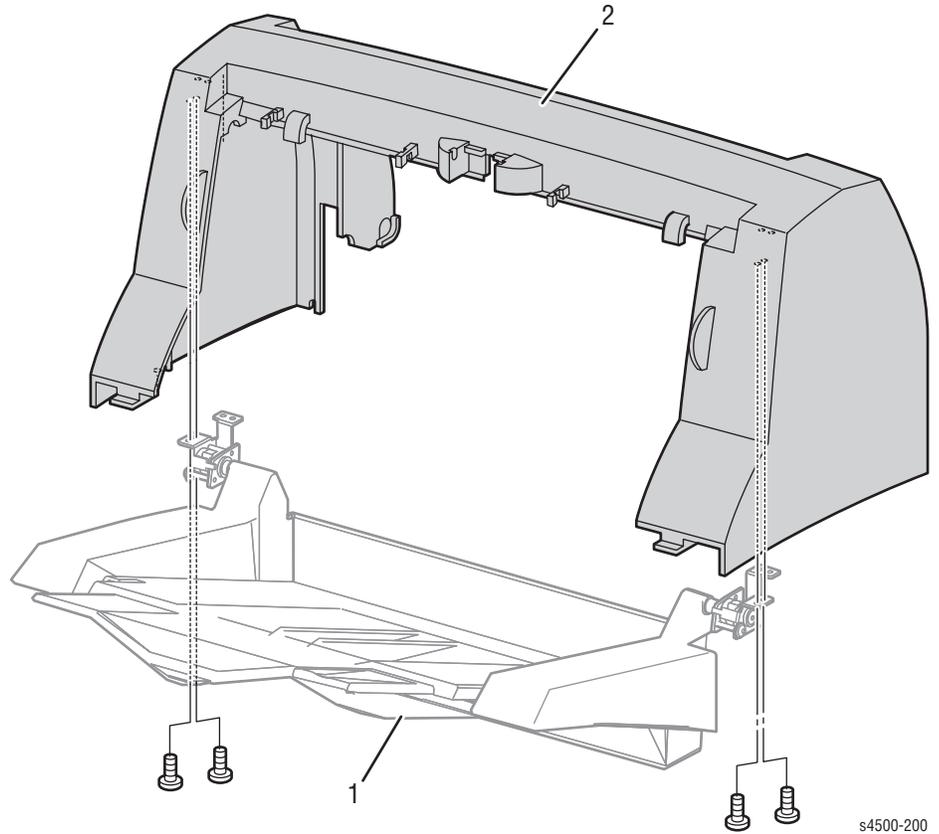
1. Remove the stacker rear cover (page 8-112).
2. Remove the stacker cover (page 8-113).
3. Remove the three 8 mm tapping screws that attach the stacker front cover to the stacker.
4. Release the hooks on both sides of the stacker front cover, and remove the stacker front cover.

Note

When removing the stacker front cover, the cam gear comes off. Be careful not to lose it.

Stacker Tray Assembly

(PL23.1.40)



1. Stacker tray assembly

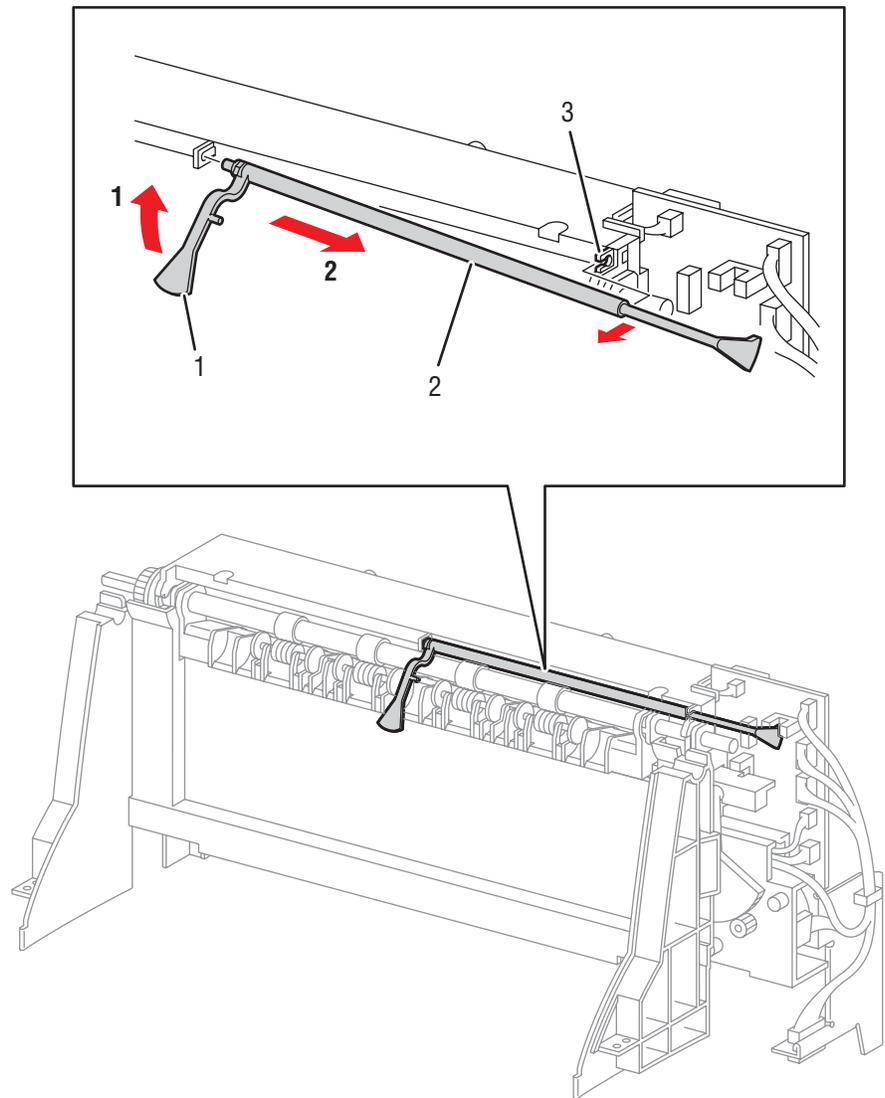
2. Stacker cover

Procedure:

1. Remove the stacker cover (page 8-113).
2. Remove the four 8 mm tapping screws that attach the stacker tray assembly to the stacker cover, and remove the stacker tray assembly from the stacker cover.

Stack Full Actuator

(PL23.1.15)



s4500-206

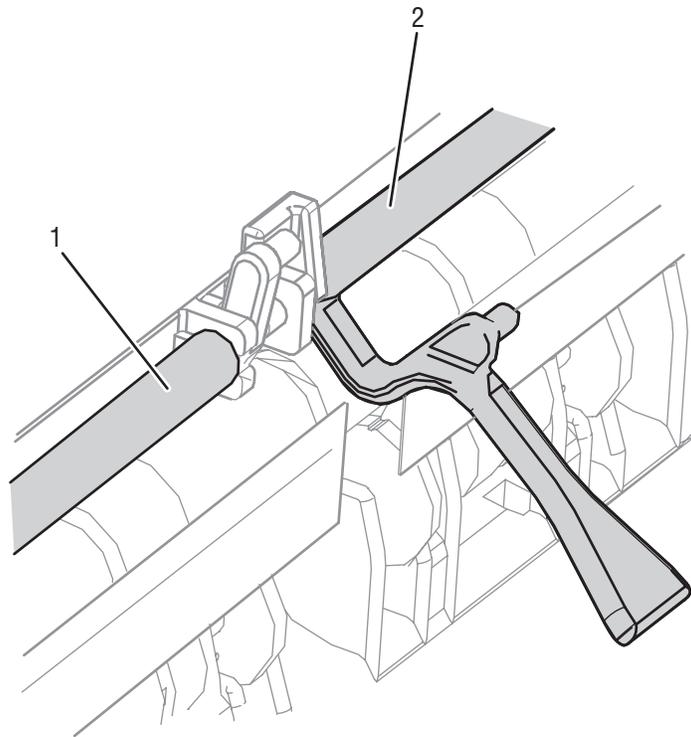
1. Flap

3. Hook

2. Stack full actuator

Procedure:

1. Remove the stacker cover (page 8-113).
2. Lift the stack full actuator flap in the direction of the arrow (1). Release the actuator shaft from the hook, then move the actuator in the direction of the arrow (2) to remove from the stacker.



s4500-207

1. Stack full shaft

2. Stack full actuator

Replacement:

1. Lift up the stack full actuator in the direction of the arrow (1), and insert it to the hook. Move the stack full actuator in the opposite direction of the arrow (2) to install.

Note

When installing the stack full actuator to the stacker, engage the actuator with the stack full shaft as shown in the figure.

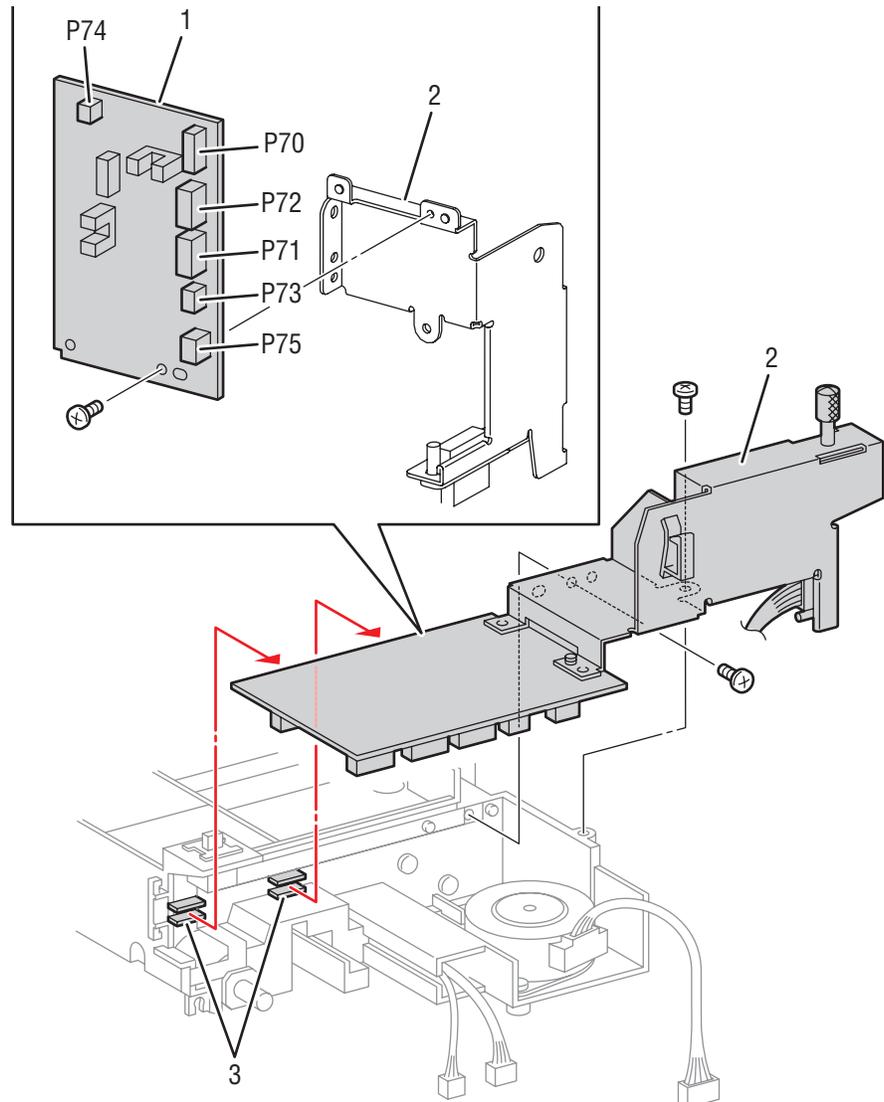
2. Install the stacker cover (page 8-113).

Note

After installation, manually move the left flapper and verify that the stack full actuator moves together with the left flapper.

Stacker PWBA

(PL23.1.22)



s4500-208

1. Stacker PWBA

3. Guide slots

2. Stacker right support

Procedure:

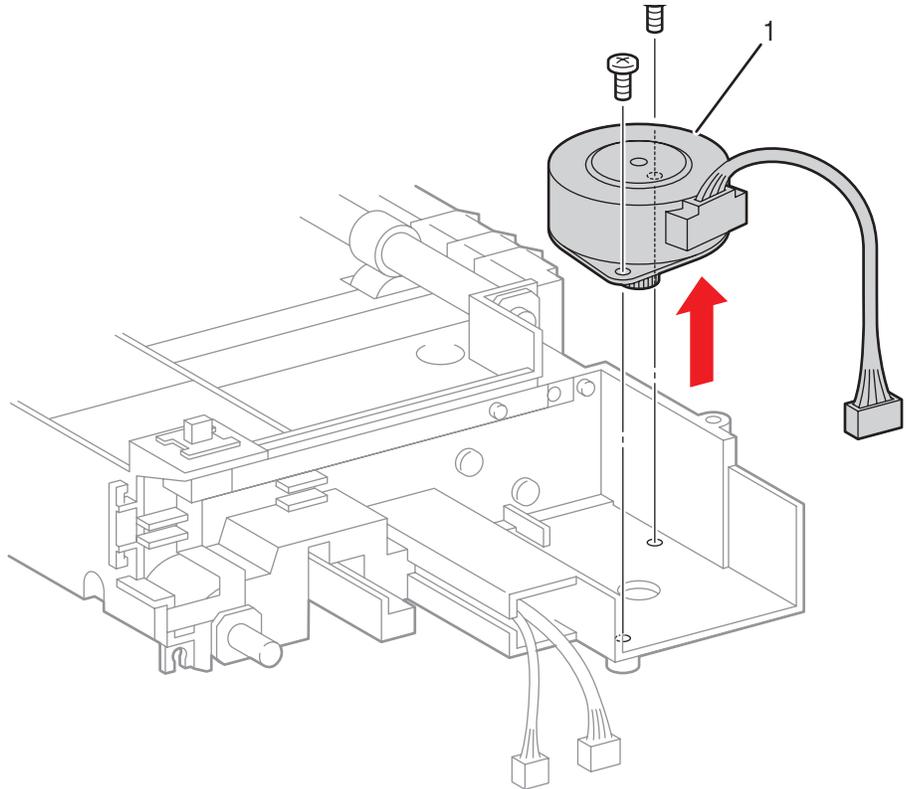
1. Remove the stacker front cover (page 8-115).
2. Unplug the harness connectors at P70, P71, P72, P73, P74 and P75 on the stacker PWBA.
3. Remove the two 8 mm tapping screws that attach the right stacker support to the stacker housing.
4. Remove the 6 mm screw that attaches the stacker PWBA to the right stacker support.
5. Remove the stacker PWBA.

Replacement Notes:

- Be sure to install the stacker PWBA into the two guide slots of the stacker.
- Be sure that the flag on the stack full actuator is in the gap in the sensor on the stacker PWBA.

Offset Motor Assembly

(PL23.1.20)



s4500-209

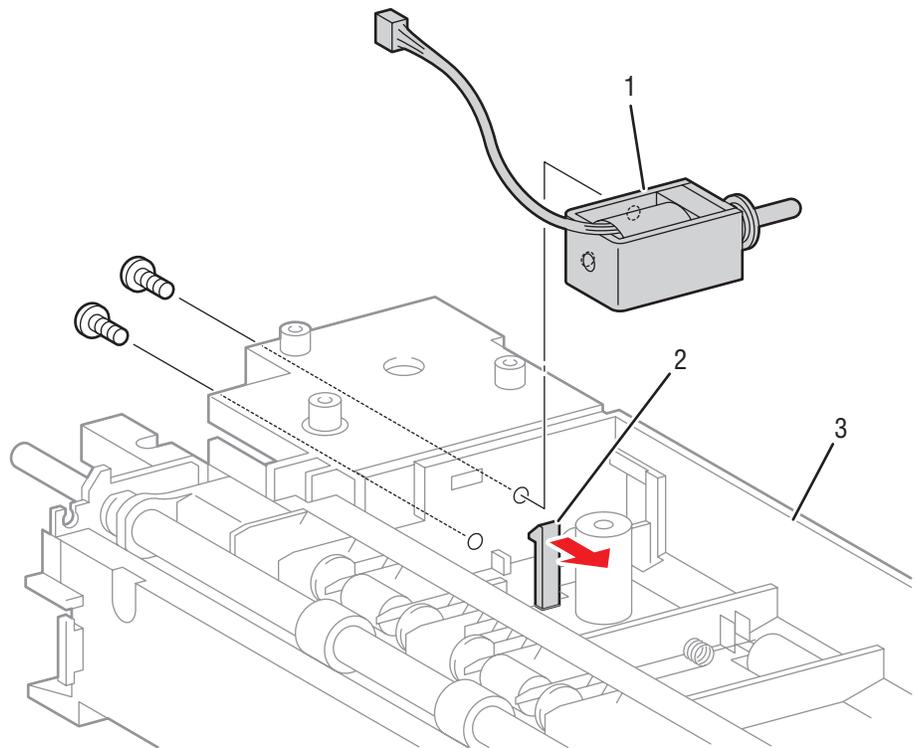
1. Offset motor assembly

Procedure:

1. Remove the stacker PWBA (page 8-119).
2. Remove the two 8 mm tapping screws that attach the offset motor assembly to the stacker.
3. Remove the offset motor assembly.

Gate Solenoid Assembly

(PL23.1.27)



s4500-210

1. Gate solenoid

3. Stacker housing

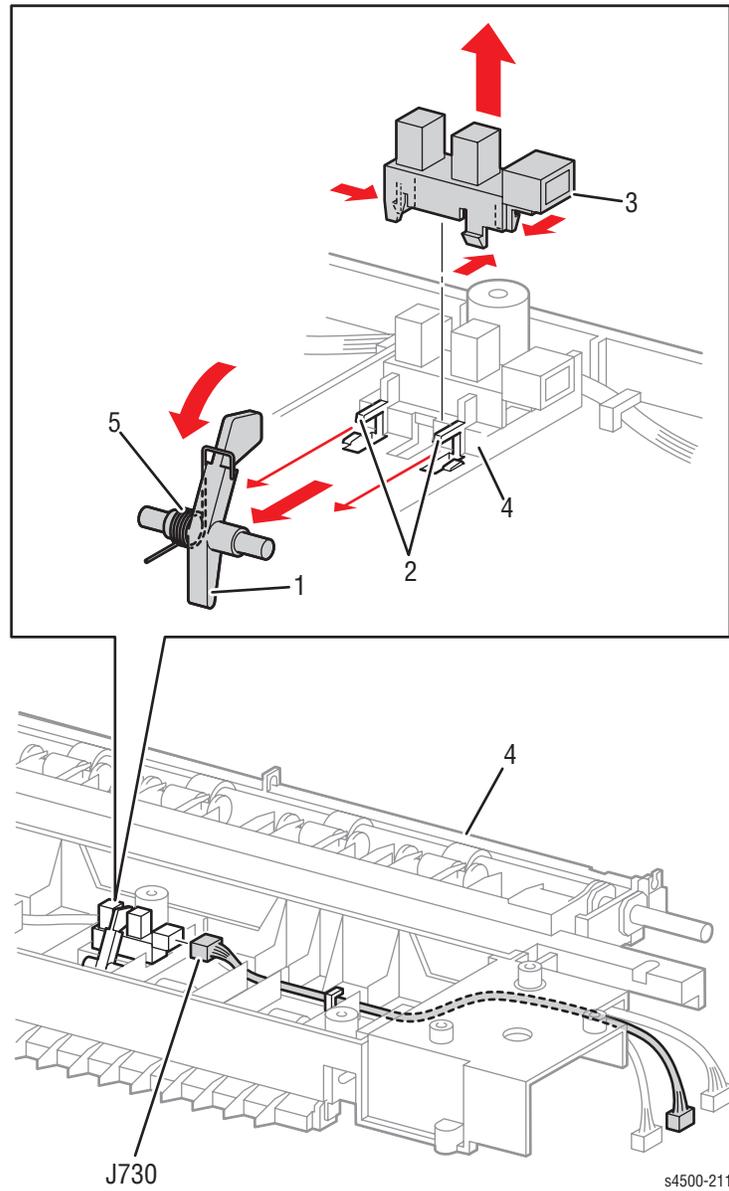
2. Hook

Procedure:

1. Remove the offset motor assembly (page 8-120).
2. Remove the two screws (with washer, 6 mm) that attach the gate solenoid assembly to the stacker.
3. Release the hook that secures the gate solenoid assembly, and remove the gate solenoid assembly.

Stacker Sensor and Actuator

(PL23.1.30)



- 1. Stacker actuator
- 2. Pivot hooks
- 3. Stacker sensor
- 4. Stacker housing
- 5. Actuator spring

Procedure:

1. Remove the stacker front cover (page 8-115).

2. Shift the stacker actuator in the direction of the arrows to release the pivots from the hooks on both sides.

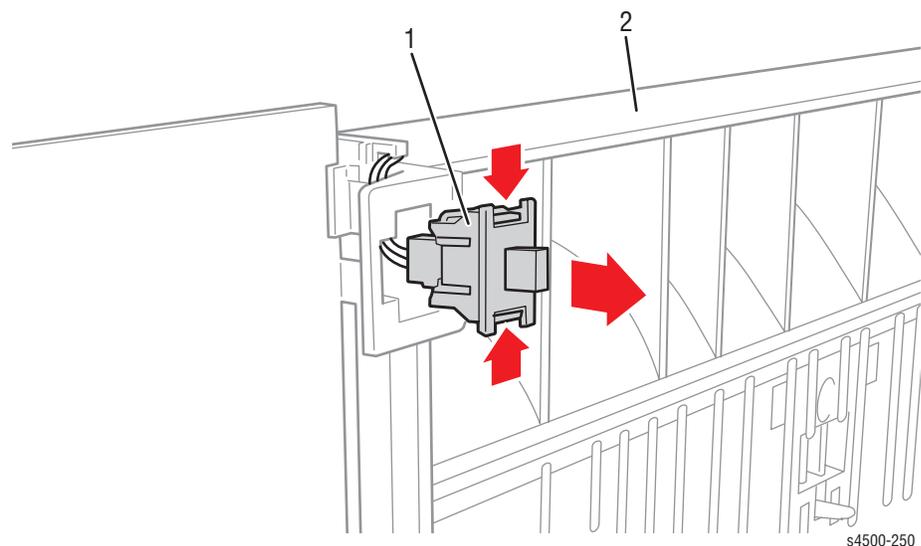
Note

Carefully observe the orientation of the actuator spring for reference when reassembling.

3. Unplug stacker sensor harness (J730) from the stacker sensor.
4. Release the hooks of the stacker sensor, and remove it from the stacker housing.

Stacker Rear Cover Interlock Switch

(PL23.1.18)



1. Interlock switch

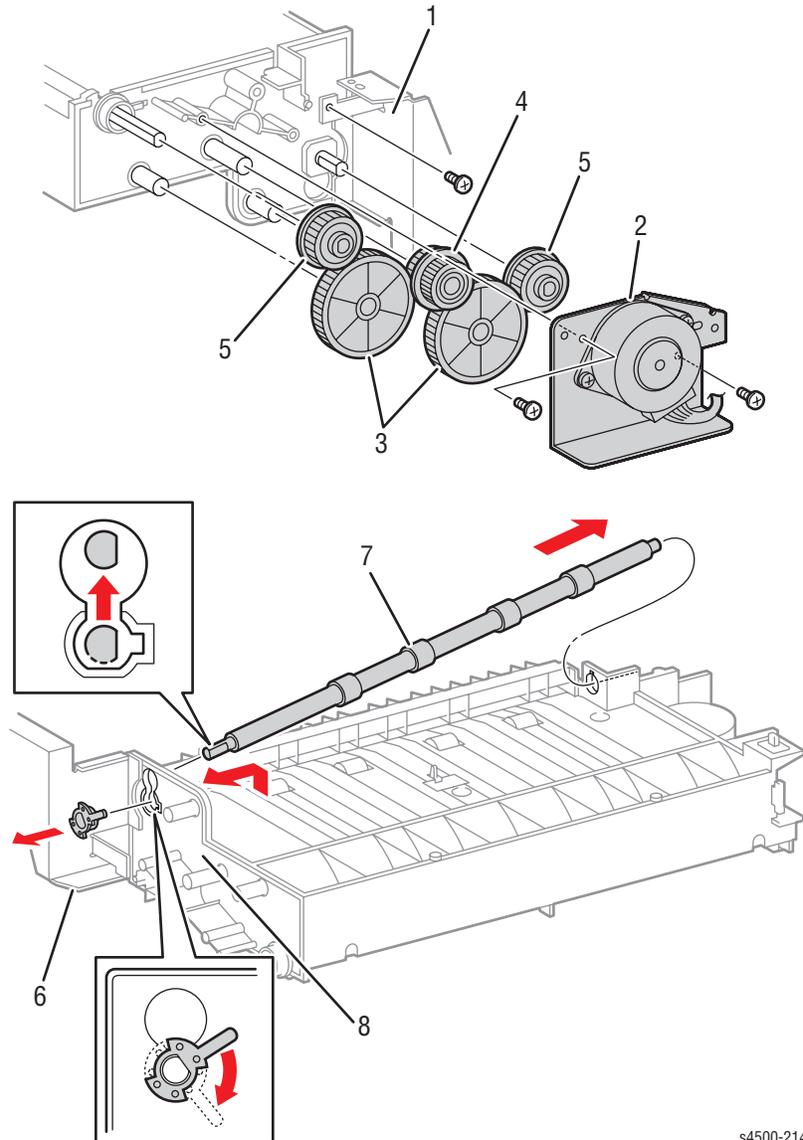
2. Housing

Procedure:

1. Remove the stacker cover (page 8-113).
2. Disconnect the wire harness from the interlock switch.
3. Compress the hooks on the top and bottom of the switch and slide it out of the housing.

Lower Stacker Roller

(PL23.1.16)



s4500-214

- | | |
|--------------------------|-------------------------|
| 1. Stacker left support | 5. Gear 19 |
| 2. Stacker motor bracket | 6. Roller bearing |
| 3. Gear 45 | 7. Lower stacker roller |
| 4. Gear 19/37 | 8. Stacker housing |

Procedure:

1. Remove the stacker cover (page 8-113).
2. Remove the screws (one tapping, 8 mm; one machine, 6 mm) that attach the left stacker support.
3. Remove the two 8 mm tapping screws that attach the stacker motor bracket.

4. Remove gears 45, 19/37, and two gears 19, in that order.
5. Rotate the roller bearing on the right end about 90 degrees CW to align the lock tabs with the keyway slot in the chassis, and remove the bearing from the stacker housing.

Note

Be careful handling the hook of the roller bearing. It is fragile and could break if excessive force is used.

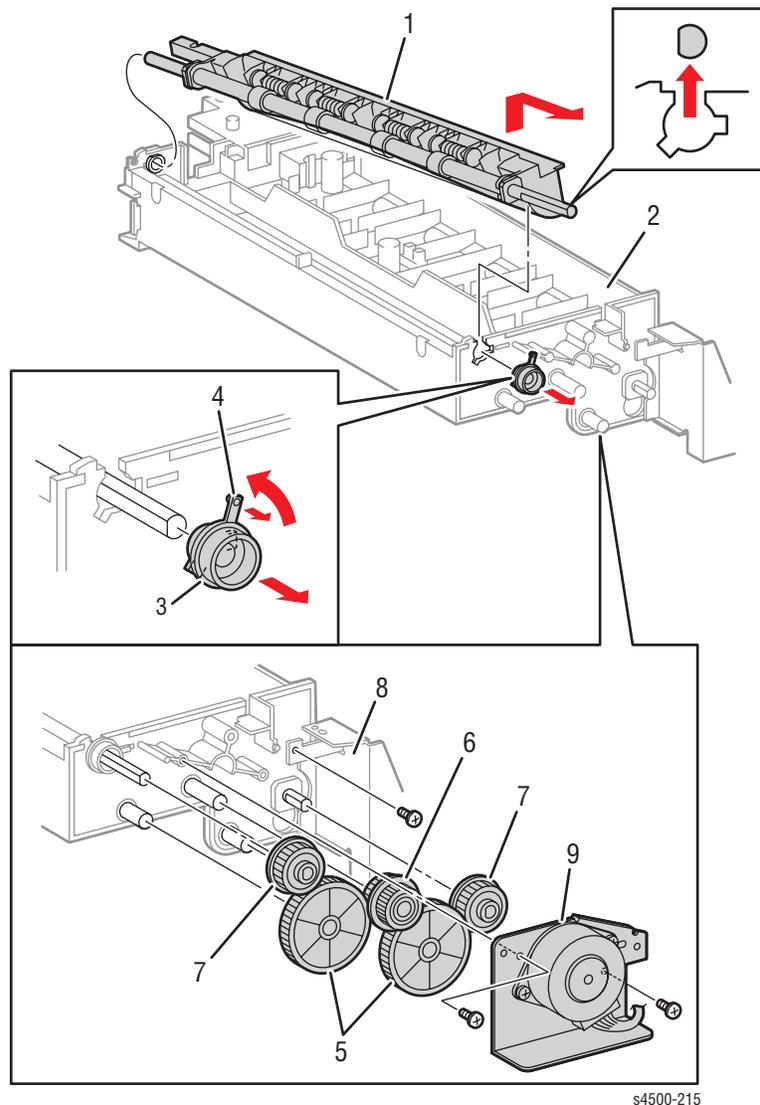
6. Shift the lower stacker roller in the direction of the arrow to remove.

Replacement Note:

- When installing gears 19 and 19/37, be sure the gears are correctly oriented on their shafts.

Upper Stacker Roller

(PL23.1.36)



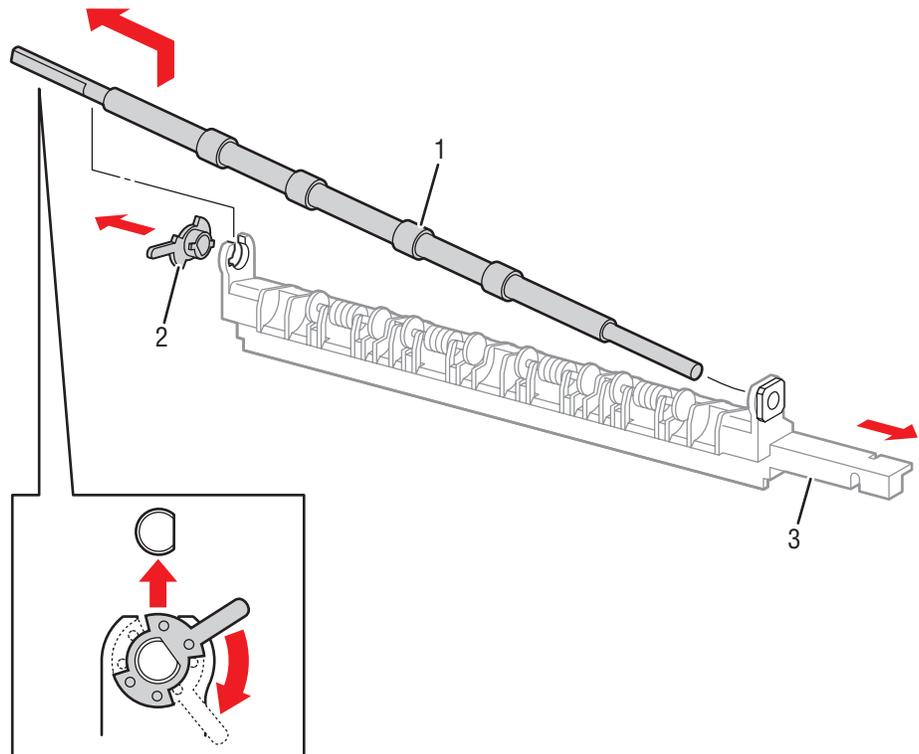
s4500-215

- | | |
|--------------------|--------------------------|
| 1. Offset chute | 6. Gear 19/37 |
| 2. Stacker housing | 7. Gear 19 |
| 3. Offset bearing | 8. Left stacker support |
| 4. Hook | 9. Stacker motor bracket |
| 5. Gear 45 | |

Procedure:

1. Remove the stacker front cover (page 8-115).
2. Slide the cam gear off its shaft (page 8-115).

3. Release the hook of the offset bearing, and turn it 90 degrees CCW to align the lock tabs with the keyway slots in the chassis. Remove the offset bearing from the stacker housing.
4. Remove the offset chute assembly by raising the free end high enough to clear the chassis while sliding in the direction of the arrow.
5. Release the hook of the roller bearing at the end of the roller with the flattened shaft, rotate the bearing 90 degrees CW, and remove the bearing.
6. Remove the upper stacker roller from the offset chute assembly.



s4500-216

1. Upper stacker roller

3. Offset chute assembly

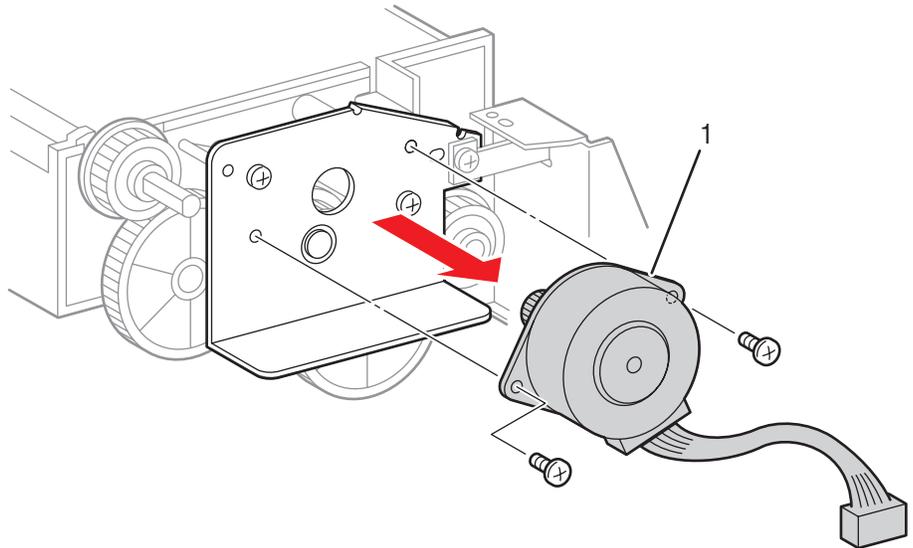
2. Roller bearing

Replacement Note:

- When installing gears 19 and 19/37, make sure the gears are correctly oriented on their shafts.

Stacker Motor Assembly

(PL23.1.6)



s4500-217

1. Stacker motor assembly

Procedure:

1. Remove the stacker front cover (page 8-115).
2. Disconnect the connector of the stacker motor assembly from the stacker motor harness assembly.
3. Remove the two screws (machine, 8 mm) that attach the stacker motor assembly, and remove the stacker motor assembly.

Parts Lists

In this chapter...

- Serial Number Format
- Using the Parts List
- Print Engine Parts
- Options
- Xerox Supplies and Accessories

Chapter 9

Serial Number Format

Changes to Xerox products are made to accommodate improved components as they become available. As improvements are made, part numbers may change from those appearing in this section. To get the latest part, provide the following information when ordering:

- 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 just inside the tray 2 opening. Tray 2 must be removed to see it.

The nine-digit serial number has the following format:

PPP-RSSSSS

PPP = product code, as shown in the following table.

Product	Voltage	Product Code
4500	110 V	PMT
	220 V	PMU
4510	110 V	ART
	220 V	ARU

RSSSSS = Numeric serial number. For the Phaser 4500 the serial number includes all six digits. For the Phaser 4510, the "R" is a revision code (incremented when a major product change occurs) followed by the 5-digit serial number.

For example, a printer having **PMT219638** as its Serial Number:

- Is a 110 V Phaser 4500 Printer
- Has a 219638 serial number

Using the Parts List

The following list explains the conventions and symbols used in the parts lists and parts diagrams.

- **No.:** The callout number from the exploded part diagram.
- **Name/Description:** The name of the part to be ordered and the number of parts supplied per order.
- **Part Number:** The material part number used to order that specific part.
- Parts identified throughout this manual are referenced **PL#.##**; For example, PL3.1.10 means the part is item 10 of Parts List 3.1.
- 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.
- 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.
- An asterisk (*) following a part name indicates the page contains a note about this part.
- The notation (NS) next to a part indicates that particular part is not spared, but contained in a kit or major assembly or not used in the printer.
- 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.

Note

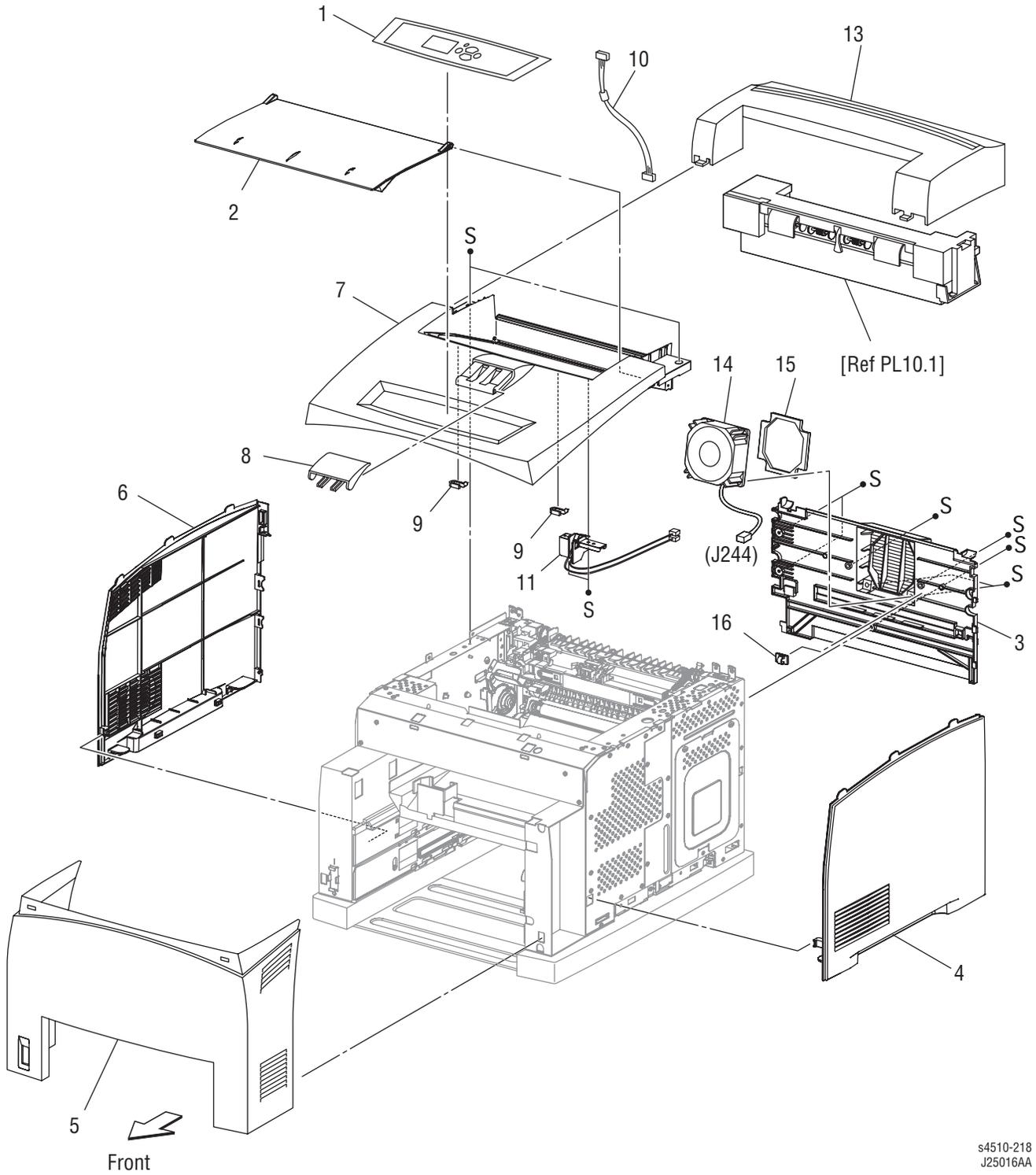
Only parts showing part numbers are available for ordering by support. Parts not showing part numbers are available on the parent assembly.

Abbreviations

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

Print Engine Parts

Parts List 1.1 Covers



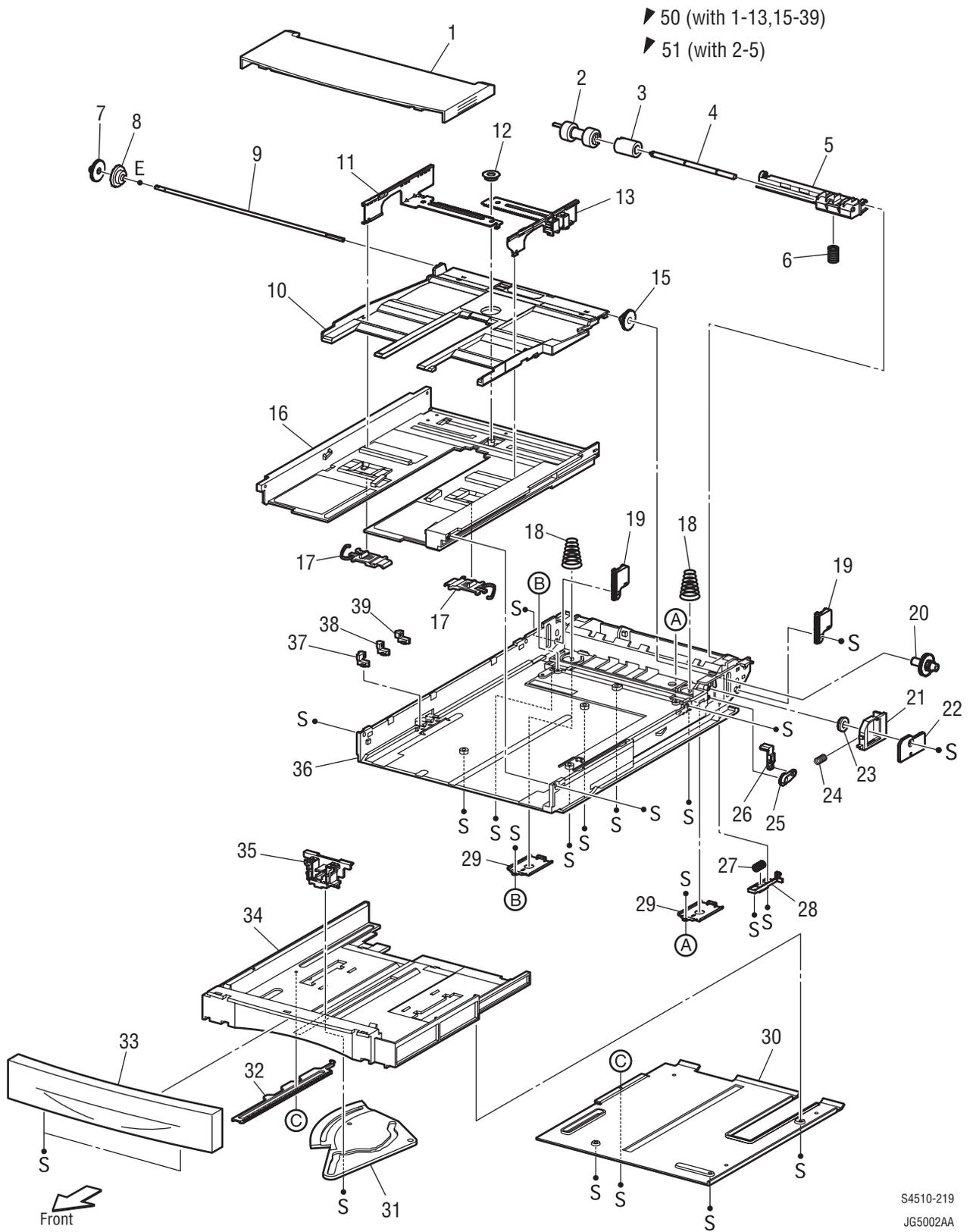
s4510-218
J25016AA

FRU Parts List 1.1 Covers

No.	Name/Description	Part Number
1	OPERATION PANEL (control panel)	P4500: 848K06471 P4510: 848E17860
2	COVER OPEN (top cover)	802E47286
3	COVER REAR	P4500: 604K16463 P4510: 604K37141
4	COVER RIGHT	802E49524
5	COVER FRONT	P4500: 802E63802 P4510: 848K02990
6	COVER LEFT	802E49492
7	COVER TOP ASSY	
8	COVER STOPPER	P4500: 802E61863 P4510: 848E09200
9	STOPPER OPEN	
10	HARNESS ASSY PANEL	962K22731
11	SWITCH I/L ASSY (J144, J411)	P4500 only: 110K11894
13	COVER EXIT 500 (also listed as 10.1)	P4500: 802E47345 P4510: 604K38280
14	FAN MAIN (Phaser 4510) ^a	P4500: see PL 12.1.10 P4510: 127E84180
15	SEAL REAR FAN (Phaser 4510)	
99	KIT TOP COVER (with 7, 9)	P4500: 604K15384 P4510: 604K39040

a The main fan for the Phaser 4500 is listed in PL12.1 on page 9-27.

Parts List 2.1 150-Sheet Paper Cassette



S4510-219
JG5002AA

FRU Parts List 2.1 150-Sheet Paper Cassette

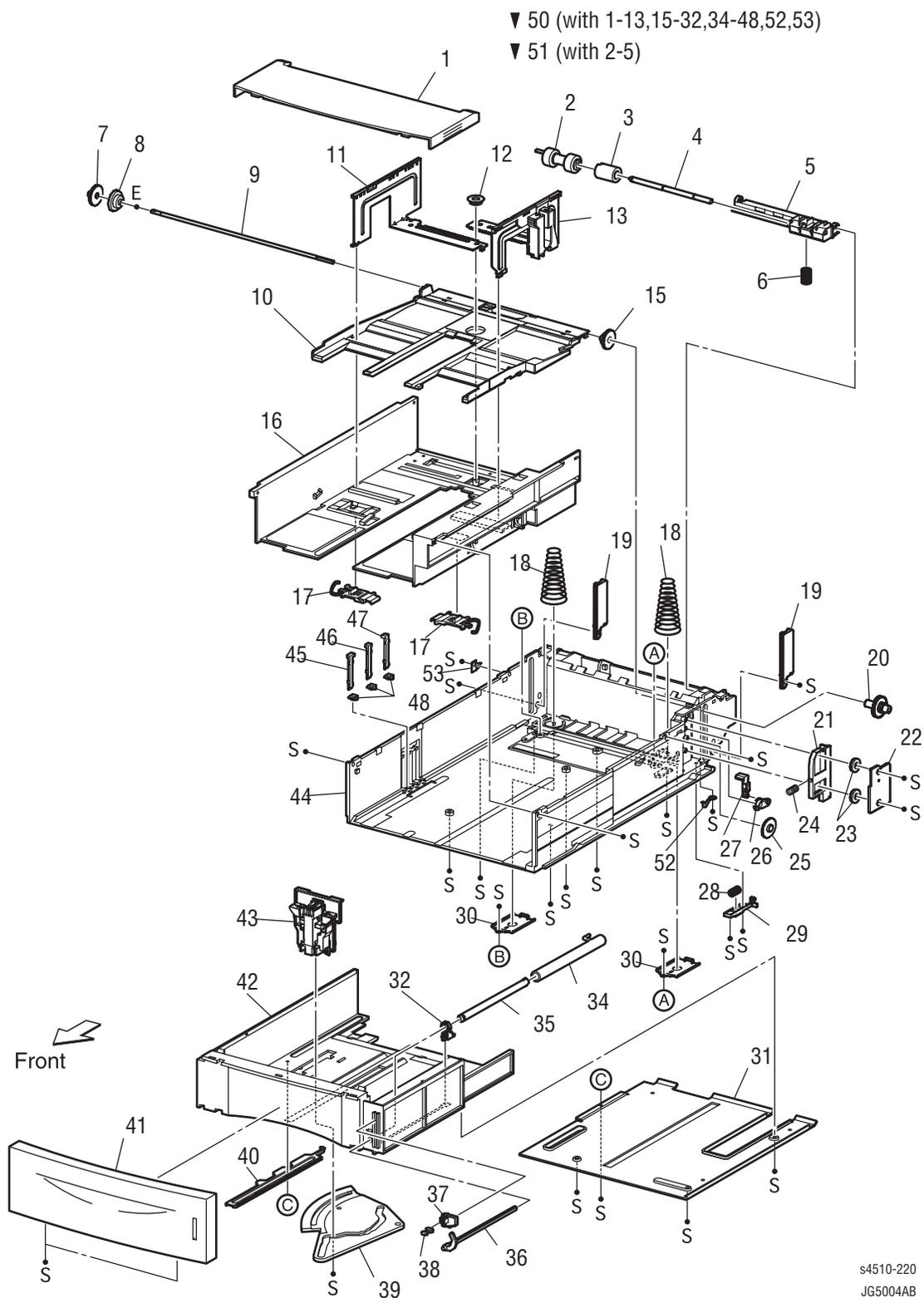
No.	Name/Description	Part Number
1	COVER CST	802E47191
2	ROLL ASSY RETARD (p/o Item 99)	
3	FRICTION CLUTCH	
4	SHAFT RETARD	
5	HOLDER RETARD	
6	SPRING RETARD	P4500: 809E37500 P4510: 809E74400
7	GEAR PB L	
8	GEAR BTM ONEWAY	
9	SHAFT PB	
10	PLATE ASSY BTM (with 14)	
11	GUIDE ASSY SD L150	
12	GEAR PINION	
13	GUIDE ASSY SD R150	
15	GEAR LOCK ONEWAY	
16	HOUSING TOP 150	
17	LOCK EXTENSION	
18	SPRING BTM UP 150	
19	PLATE GEAR LOCK 150	
20	GEAR PB R	
21	RACK BTM LOCK 150	
22	COVER BTM UP 150	
23	GEAR BOTTOM LOCK PINION	
24	SPRING BTM LOCK	
25	GEAR LEVER LOCK	
26	LEVER BTM LOCK	
27	SPRING STOPPER GEAR	
28	STOPPER GEAR	
29	PLATE SUPPORT	
30	COVER EXTENSION	
31	GEAR SECTOR	
32	RACK SIZE	
33	HANDLE EXTENSION 150	
34	HOUSING EXTENSION 150	
35	GUIDE END 150	
36	HOUSING BASE 150	

FRU Parts List 2.1 150-Sheet Paper Cassette (continued)

No.	Name/Description	Part Number
37	LINK SW SIZE1-150	
38	LINK SW SIZE2-150	
39	LINK SW SIZE3-150	
50	150 PAPER CASSETTE (with 1-13, 15-39) ^a	P4500: 084K15355 P4510: 050K58090
51	HOLDER ASSY RETARD (with 2-5)	019K98186
99	Roller Kit (Item 2, Qty. 3)	604K19890

a The Phaser 4510 paper cassette is not interchangeable with the Phaser 4500 paper cassette due to the different retard spring, PL 2.1.6.

Parts List 4.1 550-Sheet Paper Cassette



FRU Parts List 4.1 550-Sheet Paper Cassette

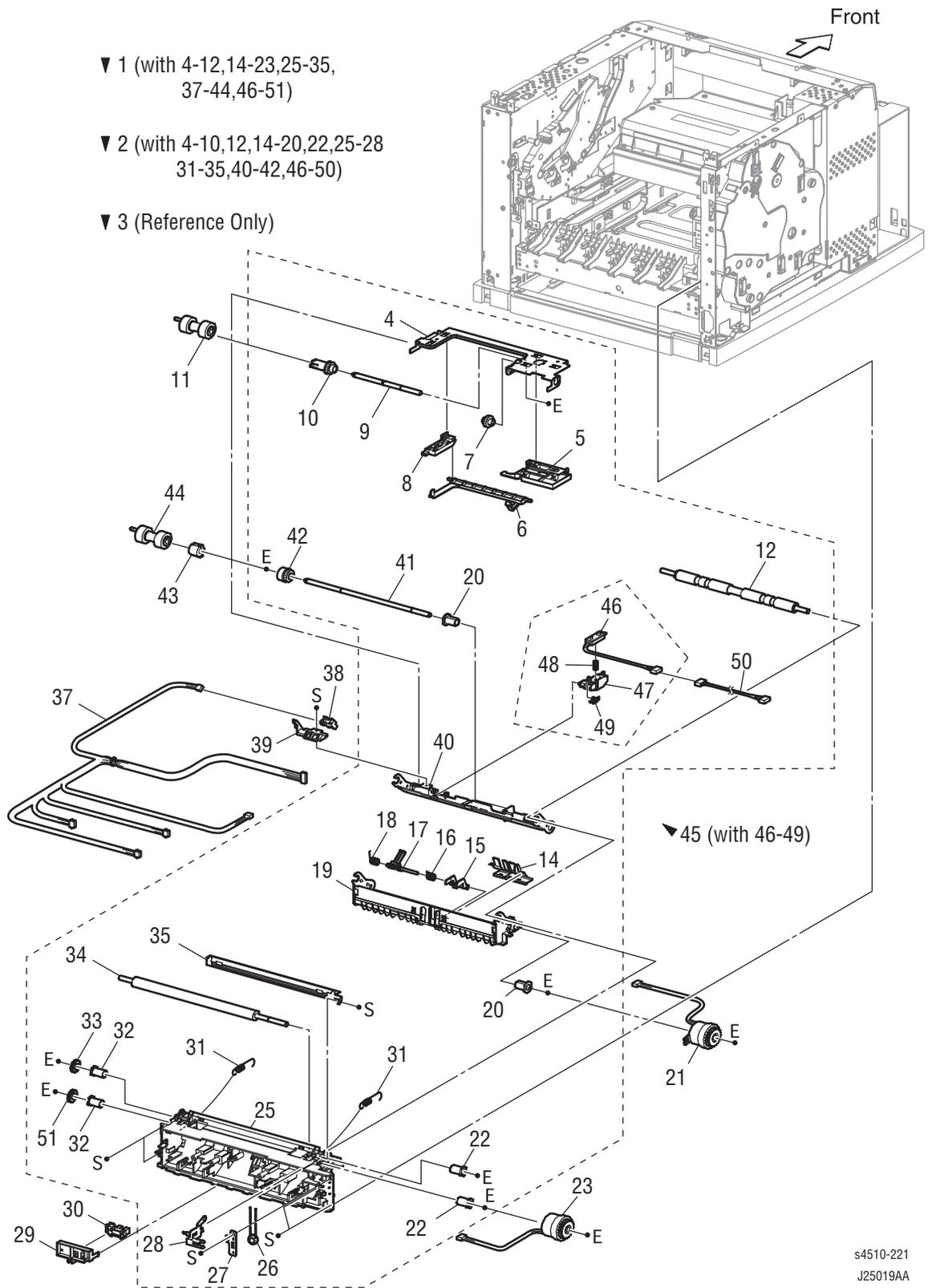
No.	Name/Description	Part Number
1	COVER CST	802E47191
2	ROLL ASSY RETARD (p/o Item 99)	
3	FRICTION CLUTCH	
4	SHAFT RETARD	
5	HOLDER RETARD	
6	SPRING RETARD	P4500: 809E37500 P4510: 809E74400
7	GEAR PB L	
8	GEAR BTM ONEWAY	
9	SHAFT PB	
10	PLATE ASSY BTM	
11	GUIDE ASSY SD L550	
12	GEAR PINION	
13	GUIDE ASSY SD R550	
15	GEAR LOCK ONEWAY	
16	HOUSING TOP 550	
17	LOCK EXTENSION	
18	SPRING BTM UP 550	
19	PLATE GEAR LOCK 550	
20	GEAR PB R	
21	RACK BTM LOCK 550	
22	COVER BTM UP 550	
23	GEAR LOCK PINION	
24	SPRING BTM LOCK	
25	GEAR BTM LOCK	
26	GEAR LEVER LOCK	
27	LEVER BTM LOCK	
28	SPRING STOPPER GEAR	
29	STOPPER GEAR	
30	PLATE SUPPORT	
31	COVER EXTENSION	
32	SUPPORT GUIDE IND	
34	GUIDE INDICATOR 1	
35	GUIDE INDICATOR 2	
36	GUIDE INDICATOR 3	
37	LOW INDICATOR	

FRU Parts List 4.1 550-Sheet Paper Cassette (continued)

No.	Name/Description	Part Number
38	LOW IND FRONT	
39	GEAR SECTOR	
40	RACK SIZE	
41	HANDLE EXTENSION 550	
42	HOUSING EXTENSION 550	
43	GUIDE END 550	
44	HOUSING BASE 550	
45	LINK SW SIZE1-550	
46	LINK SW SIZE2-550	
47	LINK SW SIZE3-550	
48	LINK SW SIZE LOW	
50	550 PAPER CASSETTE ^a (with 1-13, 15-32, 34-48, 51-53)	P4500: 084K15416 P4510: 050K58100
51	HOLDER ASSY RETARD (with 2-5)	019K98186
52	STOPPER BASE R	
53	STOPPER BASE L	
99	Roller Kit (Item 2, Qty. 3)	604K19890

a The Phaser 4510 paper cassette is not interchangeable with the Phaser 4500 paper cassette due to the different retard spring, PL 4.1.6.

Parts List 5.1 150-Sheet Paper Feeder



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FRU Parts List 5.1 150-Sheet Paper Feeder

No.	Name/Description	Part Number
1	150 FEEDER ASSY (with 4-12, 14-23, 25-35, 37-44, 46-51)	P4500: 604K16683 P4510: 604K37313
2	FDR1 AS SUB 150 A4 (with 4-10, 12, 14-20, 22, 25-28, 31-35, 40-42, 46-50)	
3	CHUTE ASSY FDR 1 (Reference Only) (with 4-10,14-20,40-42)	
4	SUPPORT NUDGER	
5	HOLDER LEFT	
6	ACTUATOR NO PAPER	
7	GEAR IDLER NUDGER	
8	HOLDER RIGHT	
9	SHAFT NUDGER	
10	GEAR NUDGER	059K25270
11	ROLL ASSY NUDGER (part of item 97)	
12	ROLL REGI RUBBER	
14	COVER ACTUATOR	
15	ACTUATOR A (part of registration actuator)	
16	SPRING REGI SNR B	
17	ACTUATOR B (part of registration actuator)	
18	SPRING REGI SNR A	
19	CHUTE BTM ASSY	
20	BEARING NUDGER	013E22571
21	CLUTCH ASSY PH (J242) (feed clutch assembly)	121K28511
22	BEARING REGI LEFT	
23	CLUTCH REGI (J243)	121K28511
25	CHUTE REGI	
26	VARISTER	
27	EARTH PLATE BASE	
28	EARTH PLATE MID	
29	COVER SENSOR	
30	SENSOR REGI (J241)	930W00113
31	SPRING REGI	809E41093
32	BEARING REGI RIGHT	
33	GEAR REGI	807E01290
34	ROLL REGI METAL	
35	CHUTE EARTH REGI (P4500 only)	

FRU Parts List 5.1 150-Sheet Paper Feeder (continued)

No.	Name/Description	Part Number
37	HARNESS ASSY TRAY1 (J245-J240,J241,J242,J243,J244)	
38	SENSOR NO PAPER (P240)	930W00113
39	COVER HARNESS R	
40	CHUTE TOP ASSY	
41	SHAFT FEED	
42	CLUTCH ONEWAY NUDGER	005E16951
43	CLUTCH ONEWAY FEED	005E16941
44	ROLL ASSY FEED (part of item 97)	
45	SENSOR TONER ASSEMBLY (with 46-49)	130K63603
46	SENSOR TONER (J220)	
47	HOLDER-D (part of item 46)	
48	SPRING TONER (part of item 46)	
49	SPRING (part of item 46)	
50	HARNESS ASSY TONER 1 (J22-P221)	962K10313
51	GEAR REGI METAL (WHITE)	807E01280
97	Roller Kit (with 11 or 44, Qty. 3)	604K19890
98	KIT CHUTE REGI (with 25-28)	
99	KIT CHUTE BTM (with 14-19)	

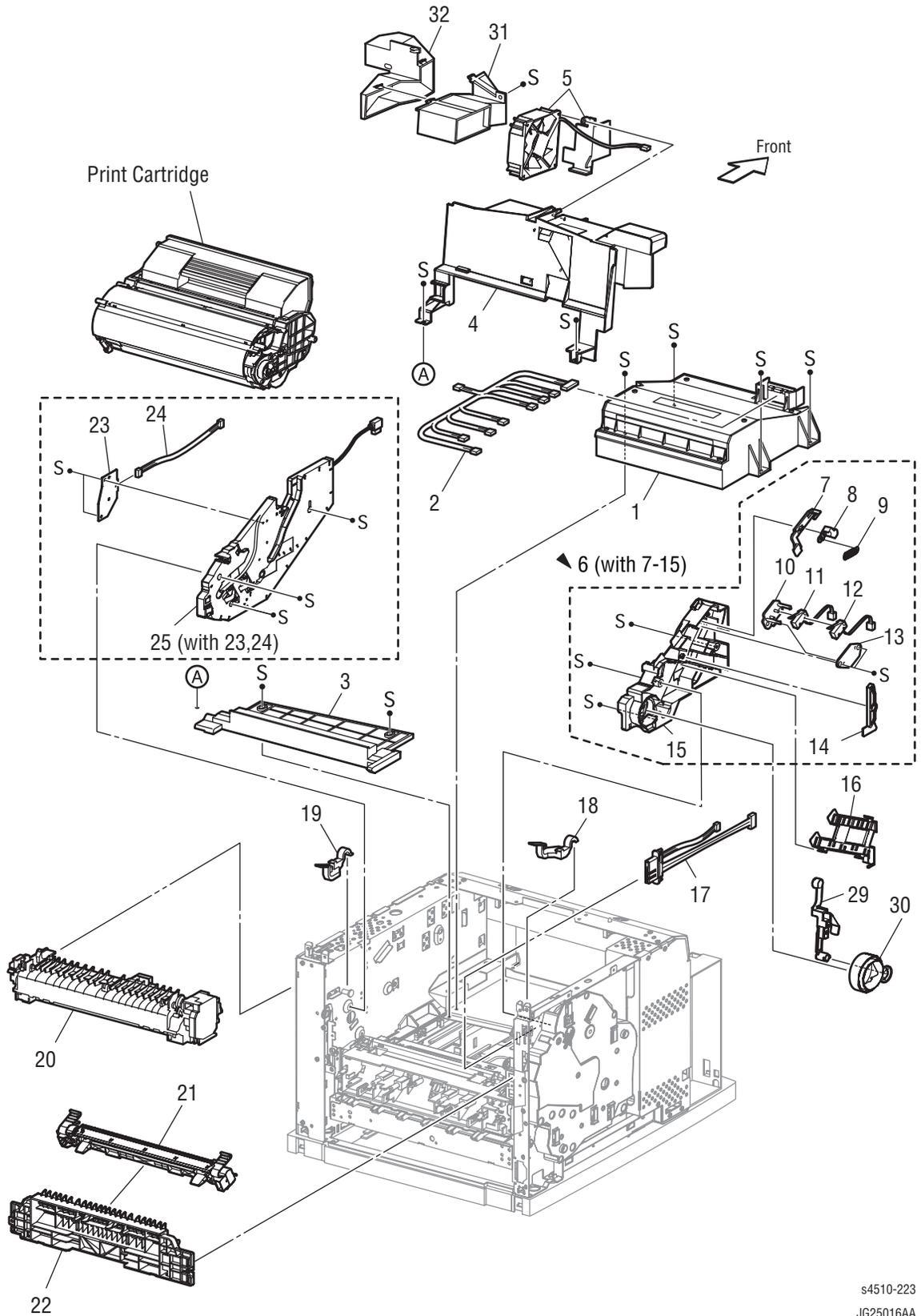
FRU Parts List 7.1 550-Sheet Paper Feeder

No.	Name/Description	Part Number
1	—	
2	HARNESS ASSY LOW1 (J26-J260)	
3	GUIDE TRAY RIGHT	032E18795
4	SENSOR LOW PAPER (P260)	930W00113
5	ACTUATOR	120E21311
6	PLATE CST LOCK	
7	GUIDE TRAY LEFT (with 8,9)	032K96837
8	COVER HARNESS SIZE	
9	LOCK CST L	003E59231
10	550 FEEDER ASSY (with 12-20, 22-31, 33-39)	P4500: 022K66965 P4510: 022K73901
12	SUPPORT NUDGER	
13	HOLDER LEFT	
14	ACTUATOR NO PAPER	
15	GEAR IDLER NUDGER	
16	HOLDER RIGHT	
17	SHAFT NUDGER	
18	GEAR NUDGER	059K25270
19	ROLL ASSY NUDGER (part of item 99)	
20	CLUTCH ASSY PH (J247)	121K28511
22	BEARING NUDGER	013E22571
23	COVER ACTUATOR	
24	CHUTE BTM	
25	CHUTE TOP ASSY	
26	SHAFT FEED	
27	CLUTCH ONEWAY NUDGER	005E16951
28	CLUTCH ONEWAY FEED	005E16941
29	ROLL ASSY FEED (Part of item 99)	
30	HOLDER PIVOT LEFT	
31	EARTH PLATE	

FRU Parts List 7.1 550-Sheet Paper Feeder (continued)

No.	Name/Description	Part Number
32	CHUTE 550 LOWER	
33	CHUTE OUT	
34	HOLDER PIVOT RIGHT	
35	PLATE TIE	
36	HARNESS ASSY TRAY2 (J248-J246, P247)	
37	COVER HARNESS R	
38	SENSOR NO PAPER (P246)	930W00113
39	CLAMP-10V0	
40	STOPPER TRAY R	003E59510
41	STOPPER TRAY L	003E59501
99	FEED ROLLER KIT (with 19 or 29, qty. 3)	604K19890

Parts List 8.1 Xerographics



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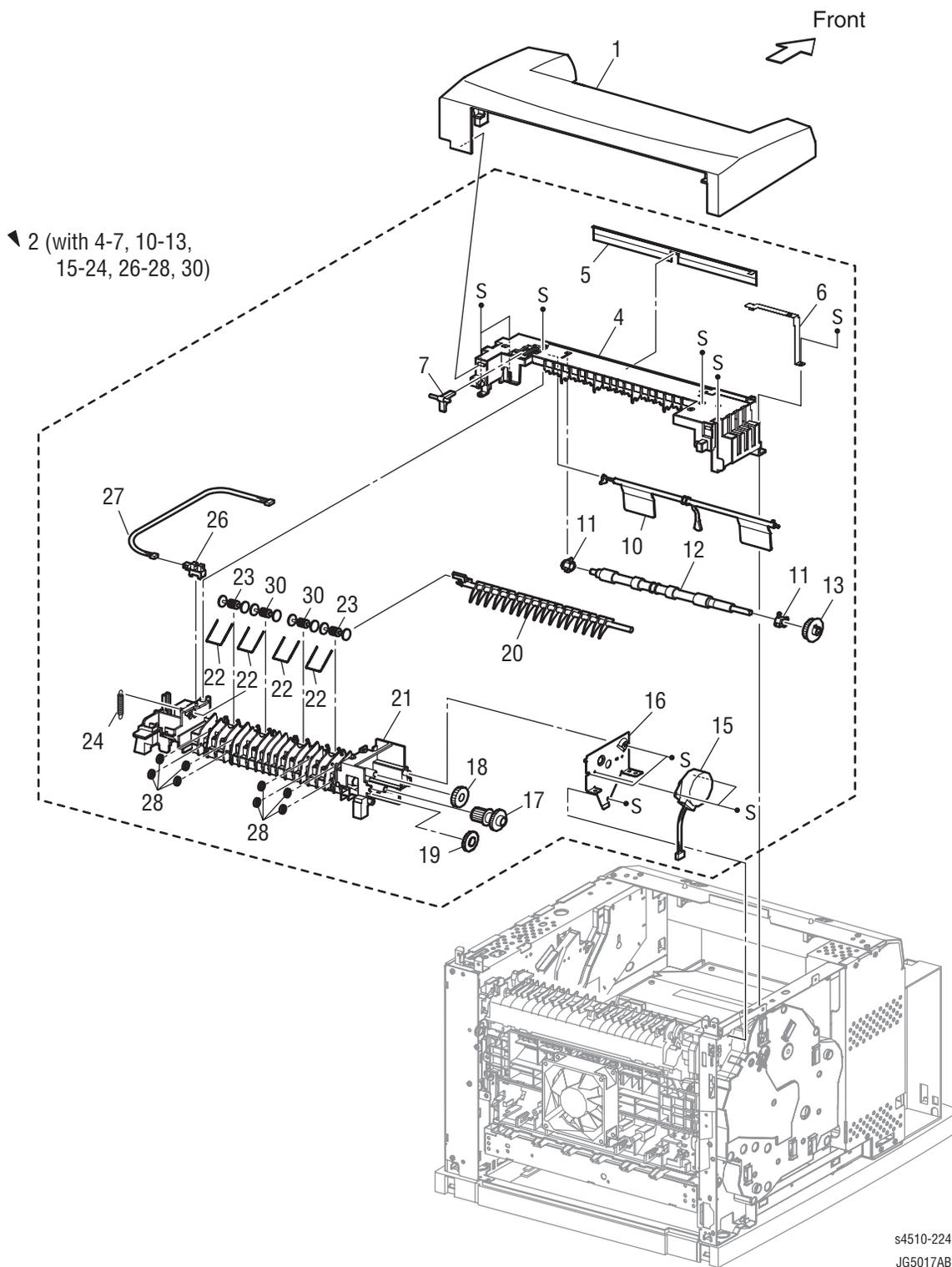
FRU Parts List 8.1 Xerographics

No.	Name/Description	Part Number
1	ROS ASSY (Laser Unit) (J131,P140,P160,P170)	P4500: 084K13156 P4510: 062K18170
2	HARNESS ASSY ROS (J13, J14, J16, J17-P131, J140, P141, J160, J170)	
3	SHIELD PLATE ROS	
4	DUCT FRONT	
5	FAN SUB (J270)	127K39391
6	GUIDE ASSY CRU L (with 7-15)	P4500: 032K97111 P4510: 032K98870
7	GUIDE SL (part of item 6)	
8	SPACER SS (part of item 6)	
9	SPRING SL (part of item 6)	
10	HOLDER I/L SW1 (part of item 6)	
11	INTERLOCK S/W 24 V (J45) (part of item 6)	
12	INTERLOCK S/W 5 V (part of item 6)	
13	HOLDER I/L SW2 (part of item 6)	
14	LEVER GUIDE (Guide Lever) (part of item 6)	
15	GUIDE CRU LEFT (part of item 6)	
16	COVER GUIDE CRU	
17	HARNESS ASSY FUSER 110V (J4647-J46, J47)	P4500: 962K08242 P4510: 962K45770
	HARNESS ASSY FUSER 220V (J4647-J46, J47)	P4500: 962K12942 P4510: 962K45782
18	LEVER FUSER LH	011E13362
19	LEVER FUSER RH	P4500: 011E13373 P4510: 011E19070
20	FUSER ASSY 110V	P4500: 604K28531 P4510: 604K37338
	FUSER ASSY 220V	P4500: 604K28541 P4510: 604K37358
21	BTR ASSY (transfer roller assembly)	P4500: 802K49746 P4510: 802K96322
22	CHUTE TRANSFER	054K26071
23	PWBA ASSY ANT (P150) (part of item 25)	
24	HARNESS ASSY ANT (J15-J150) (part of item 25)	
25	GUIDE ASSY CRU R (J31) (with 23, 24)	032K97012
29	LEVER LINK	012K94352
30	LINK GEAR 3	012E10561

FRU Parts List 8.1 Xerographics (continued)

No.	Name/Description	Part Number
31	VACUUM DUCT R	P4510 only: 054E27470
32	VACUUM DUCT L	P4510 only: 054E27460

Parts List 10.1 Paper Exit (1/2)



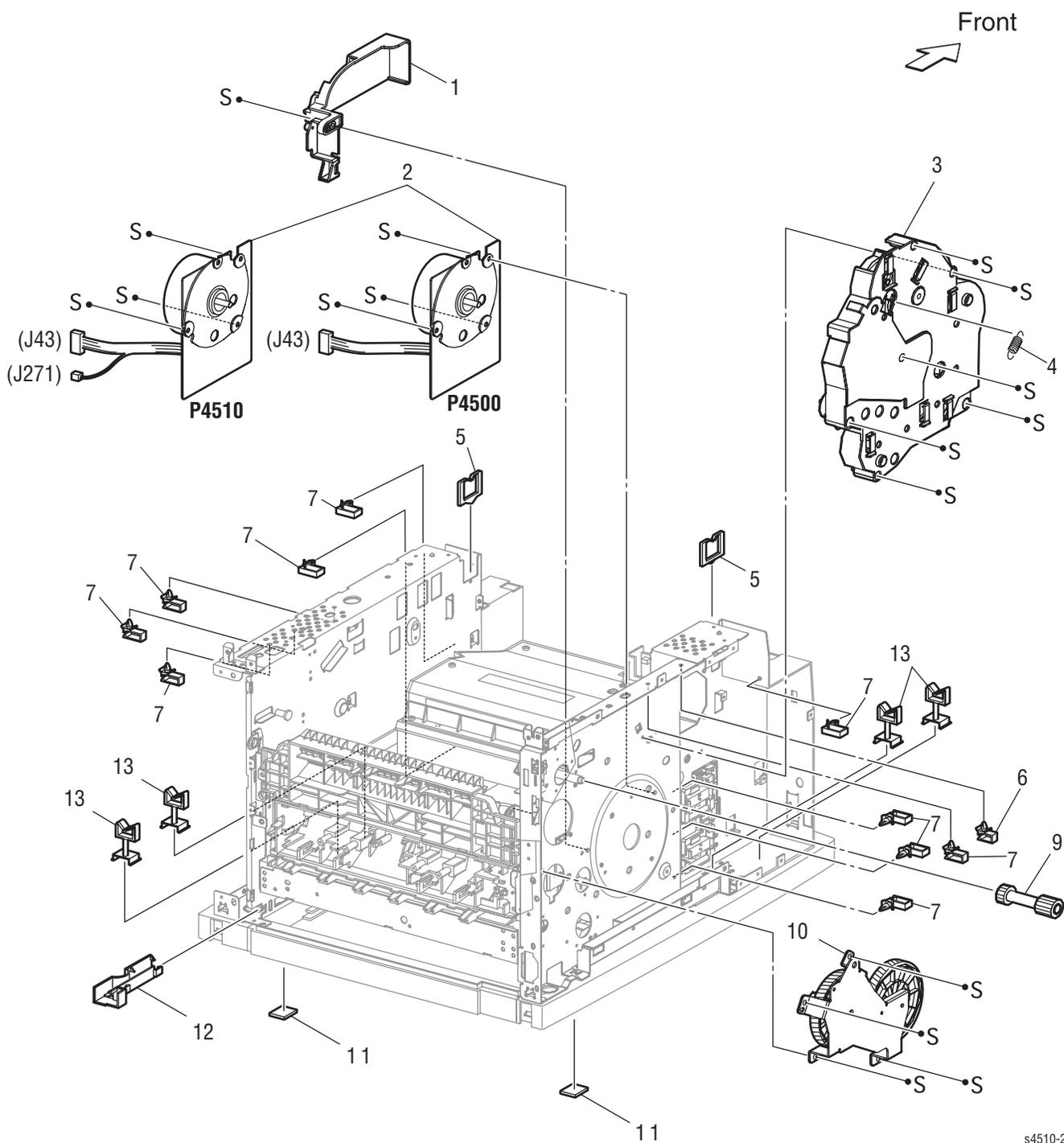
FRU Parts List 10.1 Paper Exit (1/2)

No.	Name/Description	Part Number
1	COVER EXIT 500	P4500: 802E47345 P4510: 848E05030
2	500 EXIT ASSY (with 4-7, 10-13, 15-24, 26-28, 30)	P4500: 084K18472 P4510: 054K33661
4	CHUTE UP EXIT	
5	ELIMINATOR EXIT	
6	EARTH PLATE EXIT	
7	LINK GATE OCT (stacker gate link)	
10	ACTUATOR FULL STACK (p/o 31)	
11	BEARING EXIT	
12	ROLL EXIT	
13	GEAR 21	
15	MOTOR ASSY EXIT (J103)	P4500: 127K36931 P4510: 127K51020
16	BRACKET MOTOR EXIT	
17	GEAR 16/49	
18	GEAR 25-2	
19	GEAR 25-1	
20	GATE OCT EXIT (stacker exit gate)	
21	CHUTE LOW EXIT	
22	SPRING PINCH EXIT	
23	ROLLER PINCH EXIT (p/o 31)	
24	SPRING GATE OCT (stacker gate spring)	
26	SENSOR FULL STACK (P290)	930W00113
27	HARNESS ASSY EXIT SNR (J29-J290)	
28	ROLLER EXIT 500	
30	ROLL PINCH EXIT OCT (stacker exit pinch roller - p/o 31)	
31	CORRUGATION KIT (WITH 10, 23 qty2, 30 qty2)	P4500 only: 604K28750

FRU Parts List 10.2 Paper Exit (2/2)

No.	Name/Description	Part Number
2	CHUTE UP FU	
6	GATE FU	
7	CHUTE LOW FU	
8	LEVER LATCH LEFT	
9	PIPE LATCH LEFT	
10	SPRING LATCH FU	
11	LEVER LATCH RIGHT	
15	LEVER GATE HOLDER	
20	EARTH PLATE FU	
21	COVER REAR 500	
22	COVER DUP	802E48403
23	STOPPER FSR	003E59201
98	COVER REAR 500 (with 2-22)	084K18455

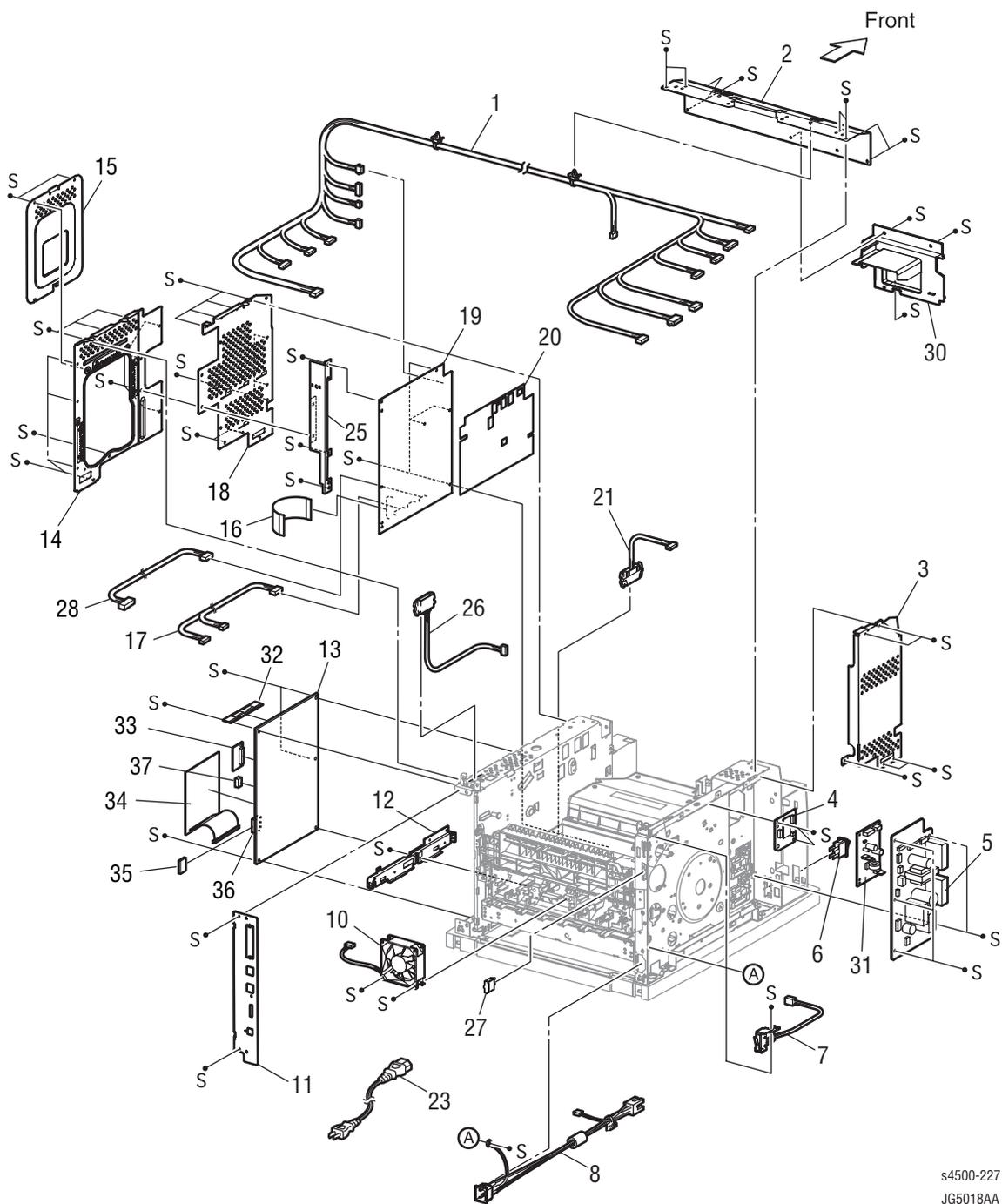
Parts List 11.1 Frame and Drive



PL11.1 Frame and Drive

No.	Name/Description	Part Number
1	MOTOR COVER	
2	MAIN MOTOR (J43)	P4500: 127K36824 P4510: 127K46132
3	GEAR ASSY HOUSING (with 4)	P4500: 604K16670 P4510: 604K38610
4	SPRING RELEASE (part of item 3)	
5	CLAMP EDGE	
6	CLAMP-5 V0	
7	CLAMP-10V0	
8	CLAMP-EDGE	
9	GEAR 9	807E02560
10	GEAR ASSY PLATE	007K87753
11	FOOT 550	
12	GUIDE HARNESS R	
13	CLAMP-RWSH	

Parts List 12.1 Electrical (P4500)



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PL12.1 Electrical

No.	Name/Description	Part Number
1	HARNESS ASSY LVPS (J10, J11, J18, J27, CNPOW, J141-J42, J41, J1821, P270, J102, P2750, J40, P142, P144, J411, J400)	
2	PLATE TIE FRONT	
3	SHIELD PLATE LVPS	
4	PWBA EXIT MOTOR	160K91992
5	LVPS 110 V	P4500: 105K20395 P4510: 105K22181
	LVPS 220 V	P4500: 105K20404 P4510: 105K22191
6	POWER SWITCH	110K11570
7	INTERLOCK S/W REAR (J44)	P4500: 110K11624 P4510: 110K14750
8A	HARNESS ASSY AC 110V (J48, J480)	
8B	HARNESS ASSY AC 220V (J48, J480)	
10	FAN MAIN (J244) ^a	P4500: 127E83610 P4510: see PL 1.1.14
11	PANEL REAR	
12	BRACKET HANDLE R	
13	Image Processor PWBA (ESS)	P4500: 960K35050 P4510: 960K41801
14	SHIELD ASSY ESS	
15	SHIELD ASSY WINDOW	
16	FFC ASSY ESS (P28-CNVD)	962K13460
17	HARNESS ASSY CHUTE (J24-P245, P248)	
18	SHIELD PLATE HVPS	
19	HVPS/MCU 110 V	P4500: 675K30892 P4510: 675K44385
	HVPS/MCU 220 V	P4500: 675K30902 P4510: 675K44395
20	MYLAR HVPS	
21	HARNESS ASSY FDR1 (J20-P2083) (feeder harness 1)	

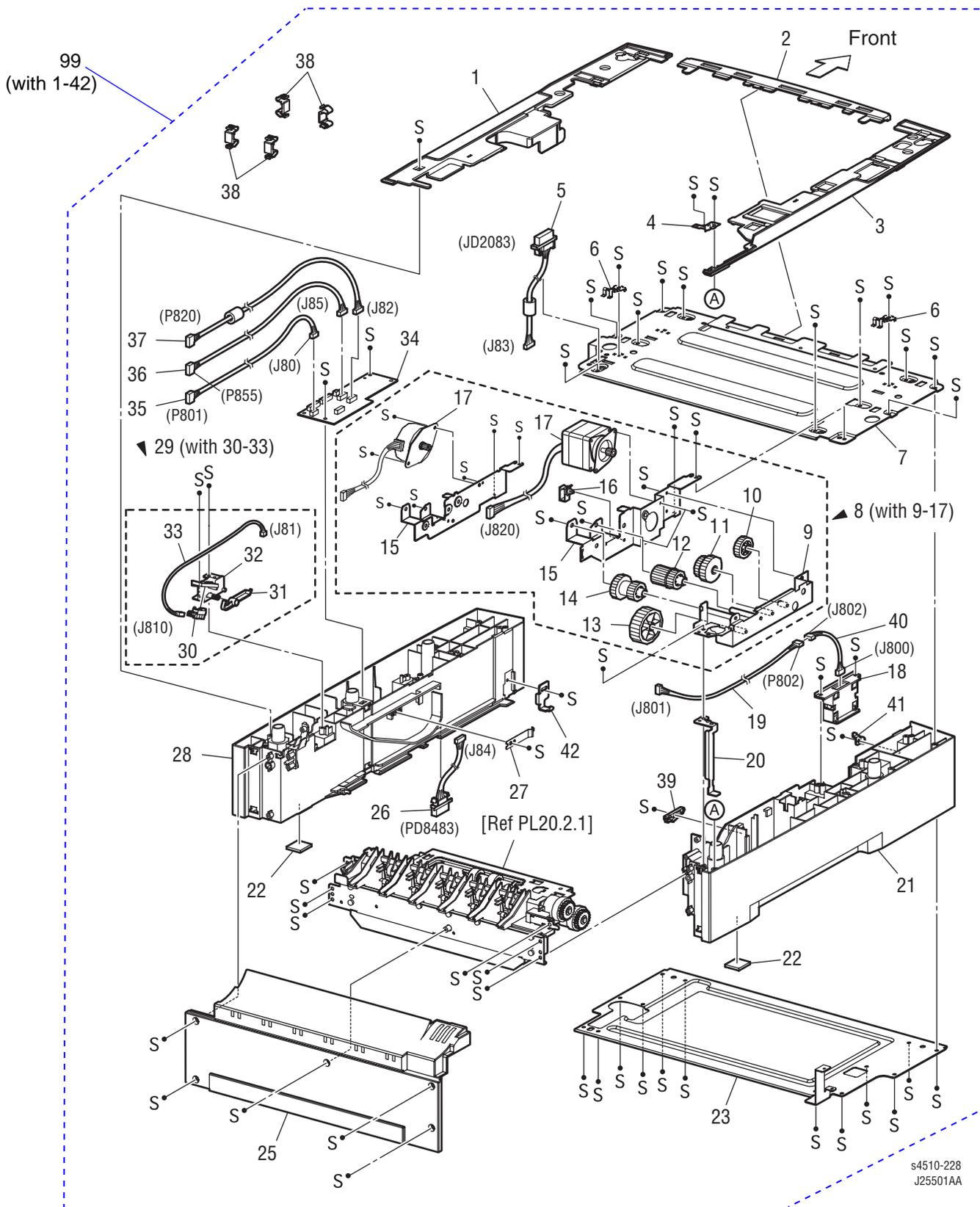
a The main fan for the Phaser 4510 is listed in PL 1.1 on page 9-4.

PL12.1 Electrical (continued)

No.	Name/Description	Part Number
23	POWER CORD, NA 125V, 15A	117E29520
	POWER CORD, EURO	117E29500
	POWER CORD, AUSTRALIA	117E29490
	POWER CORD, SWISS	117E35050
	POWER CORD, DENMARK	117E29460
	POWER CORD, CHINA	117E35030
	POWER CORD, ARGENTINA	117E35040
	POWER CORD, UK 240V	117E29510
25	BRACKET SHIELD HVPS	
26	HARNESS ASSY OCT 1 (J30-P3070) (stacker harness 1)	
27	CAP CONNECTOR-DRAWER	
28	HARNESS ASSY TONER 2 (J22-P221)	
30	DUCT (Upper Duct)	054E23162
31	DC-DC converter	P4500 only: 105K20441
32	64 MB RAM DIMM	P4500: 133K27720 P4510: NS
	128 MB RAM DIMM	P4500: 137E24210 P4510: 133K27760
	256 MB RAM DIMM	P4500: 237E23790 P4510: 237E24070
33	FLASH Memory	P4500: 237E23840 P4510: 237E24090
34	HARD DRIVE ASSY	P4500: 121K45130 P4510: 121K45280
35	CONFIG CARD B TO N	P4500: 069E00450 P4510: 069E00530
36	CONFIG CARD BASE	P4500: 069E00440 P4510: 069E00540
37	NVRAM DEVICE	P4500: 237E23700 P4510: 237E24080

Options

Parts List 20.1 550-Sheet Paper Feeder (1/2)



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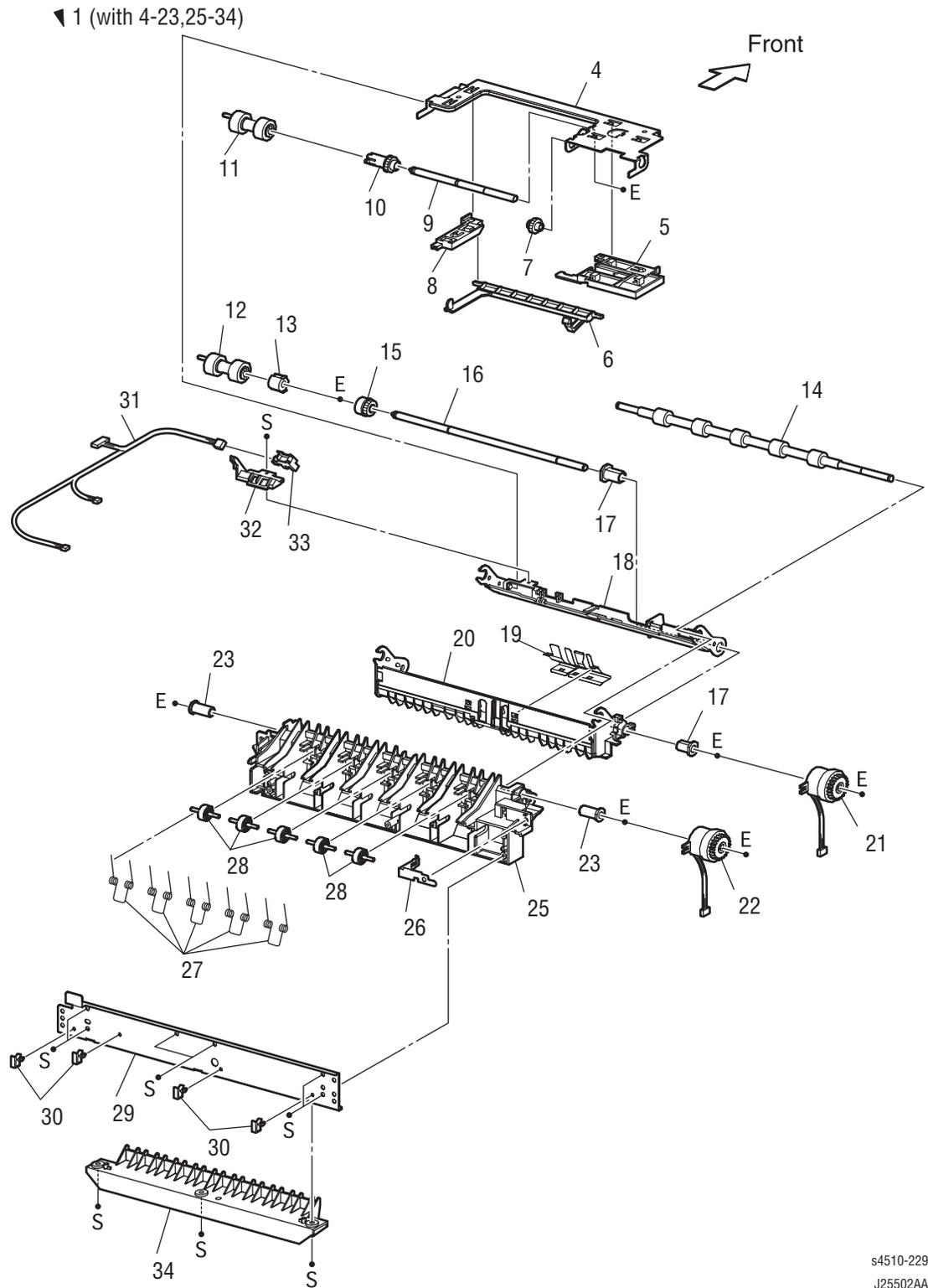
Parts List 20.1 550-Sheet Paper Feeder (1/2)

No.	Name/Description	Part Number
1	COVER RIGHT PLATE	
2	COVER FRONT	
3	COVER LEFT PLATE	
4	EARTH PLATE	
5	HARNESS ASSY FDR2 (J83-JD2083) (feeder harness 2)	
6	SPRING EARTH TOP	
7	FRAME TOP ASSY	
8	DRIVE ASSY OPT FDR (with 9-17)	P4500: 007K87655 P4510: 007K94810
9	BRACKET ASSY DRIVE	
10	GEAR OPT FDR2	
11	GEAR OPT FDR3	
12	GEAR OPT FDR4	
13	GEAR OPT FDR5	
14	GEAR OPT FDR6	
15	PLATE FEEDER DRIVE	
16	CLAMP-5 V0	
17	MOTOR FEEDER (J820)	
18	OPT ASSY SIZE (J800) (paper size switch assembly)	110K11635
19	HARNESS ASSY SIZE FDR1 (P802-J801)	
20	PLATE EARTH 550	
21	FRAME CVR L550	
22	FOOT	
23	FRAME BASE FRONT	
25	COVER RE550	
26	HARNESS ASSY FDR5 (J84-PD8483) (feeder harness 5)	
27	PLATE CST LOCK	
28	FRAME CVR R550	
29	HLD LOW PAPER ASSY (P810) (with 30-33)	019K98503
30	SENSOR LOW PAPER (P810)	930W00113

Parts List 20.1 550-Sheet Paper Feeder (1/2) (continued)

No.	Name/Description	Part Number
31	ACTUATOR LOW PAPER	
32	HOLDER LOW PAPER	
33	HARNESS LOW PAPER (J81-J810)	
34	PWBA FEEDER 550	P4500: 160K86724 P4510: 960K26411
35	HARNESS ASSY SIZE FDR2 (J80-J801)	
36	HARNESS ASSY CLSNR2 (J85-P855)	
37	HARNESS ASSY FDR MOT (J82-P820)	
38	JOINT FEEDER	113E36900
39	LOCK CST L	003E59231
40	HARNESS ASSYSIZE FDR3 (J802-J800) p/o 18	
41	STOPPER TRAY L	003E59501
42	STOPPER TRAY R	003E59510
99	550 DECK ASSY (without tray)	P4500: 084K24570 P4510: 084K25804

Parts List 20.2 550-Sheet Paper Feeder (2/2)

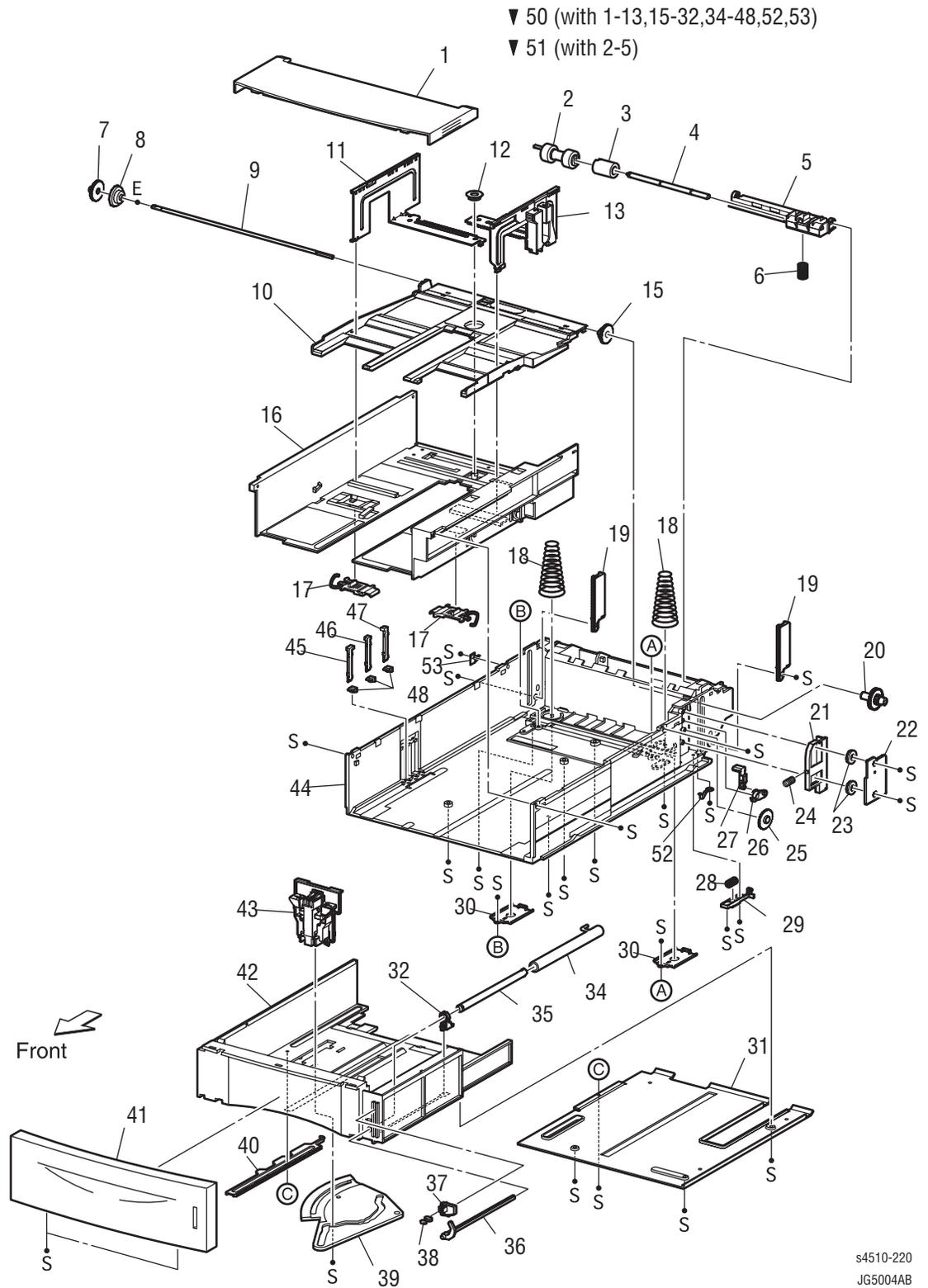


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Parts List 20.2 550-Sheet Paper Feeder (2/2)

No.	Name/Description	Part Number
1	550 FEEDER OPTION (with 4-23, 25-34)	P4500: 022K66125 P4510: 022K74442
4	SUPPORT NUDGER	
5	HOLDER LEFT	
6	ACTUATOR NO PAPER	
7	GEAR IDLER NUDGER	
8	HOLDER RIGHT	
9	SHAFT NUDGER	
10	GEAR NUDGER	059K25270
11	ROLL ASSY NUDGER (part of 99)	
12	ROLL ASSY FEED (part of 99)	
13	CLUTCH ONEWAY FEED	005E16941
14	ROLL ASSY TURN	
15	CLUTCH ONEWAY NUDGER	005E16951
16	SHAFT FEED	
17	BEARING NUDGER	013E22571
18	CHUTE TOP ASSY	
19	COVER ACTUATOR	
20	CHUTE BTM	
21	CLUTCH ASSY PH (J853) (feed clutch)	121K28511
22	CLUTCH PR-REGI (J854) (turn roller clutch)	121K28511
23	BEARING FEEDER	
25	CHUTE OUT	
26	SPRING EARTH (Ground Spring)	
27	SPRING PINCH TURN	
28	ROLL PINCH TURN	
29	PLATE TIE	
30	CLAMP-5 V0	
31	HARNESS ASSY CLSNR1 (J855-J852, P853, P854)	
32	COVER HARNESS R	
33	SENSOR NO PAPER (P852)	930W00113
34	CHUTE 550 LOWER	
99	Roller Kit (with 11 or 12, qty. 3)	604K19890

Parts List 20.3 Optional 550-Sheet Paper Cassette



Parts List 20.3 Optional 550-Sheet Paper Cassette

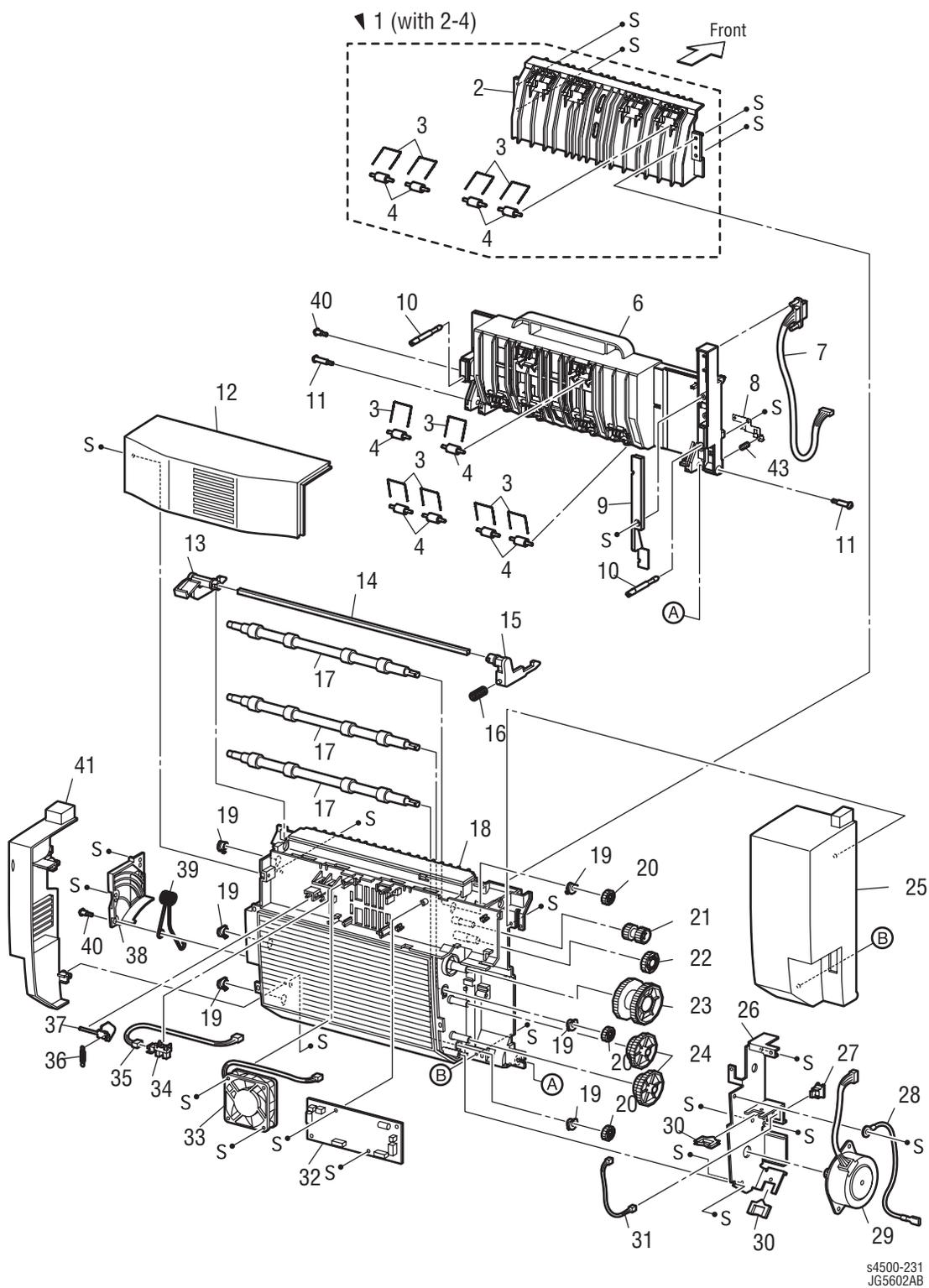
No.	Name/Description	Part Number
1	COVER CST	802E47191
2	ROLL ASSY RETARD (part of 99)	
3	FRICTION CLUTCH	
4	SHAFT RETARD	
5	HOLDER RETARD	
6	SPRING RETARD	P4500: 809E37500 P4510: 809E74400
7	GEAR PB L	
8	GEAR BTM ONEWAY	
9	SHAFT PB	
10	PLATE ASSY BTM	
11	GUIDE ASSY SD L550	
12	GEAR PINION	
13	GUIDE ASSY SD R550	
15	GEAR LOCK ONEWAY	
16	HOUSING TOP 550	
17	LOCK EXTENSION	
18	SPRING BTM UP 550	
19	PLATE GEAR LOCK 550	
20	GEAR PB R	
21	RACK BTM LOCK 550	
22	COVER BTM UP 550	
23	GEAR LOCK PINION	
24	SPRING BTM LOCK	
25	GEAR BTM LOCK	
26	GEAR LEVER LOCK	
27	LEVER BTM LOCK	
28	SPRING STOPPER GEAR	
29	STOPPER GEAR	
30	PLATE SUPPORT	
31	COVER EXTENSION	
32	SUPPORT GUIDE IND	
34	GUIDE INDICATOR 1	
35	GUIDE INDICATOR 2	
36	GUIDE INDICATOR 3	
37	LOW INDICATOR	

Parts List 20.3 Optional 550-Sheet Paper Cassette (continued)

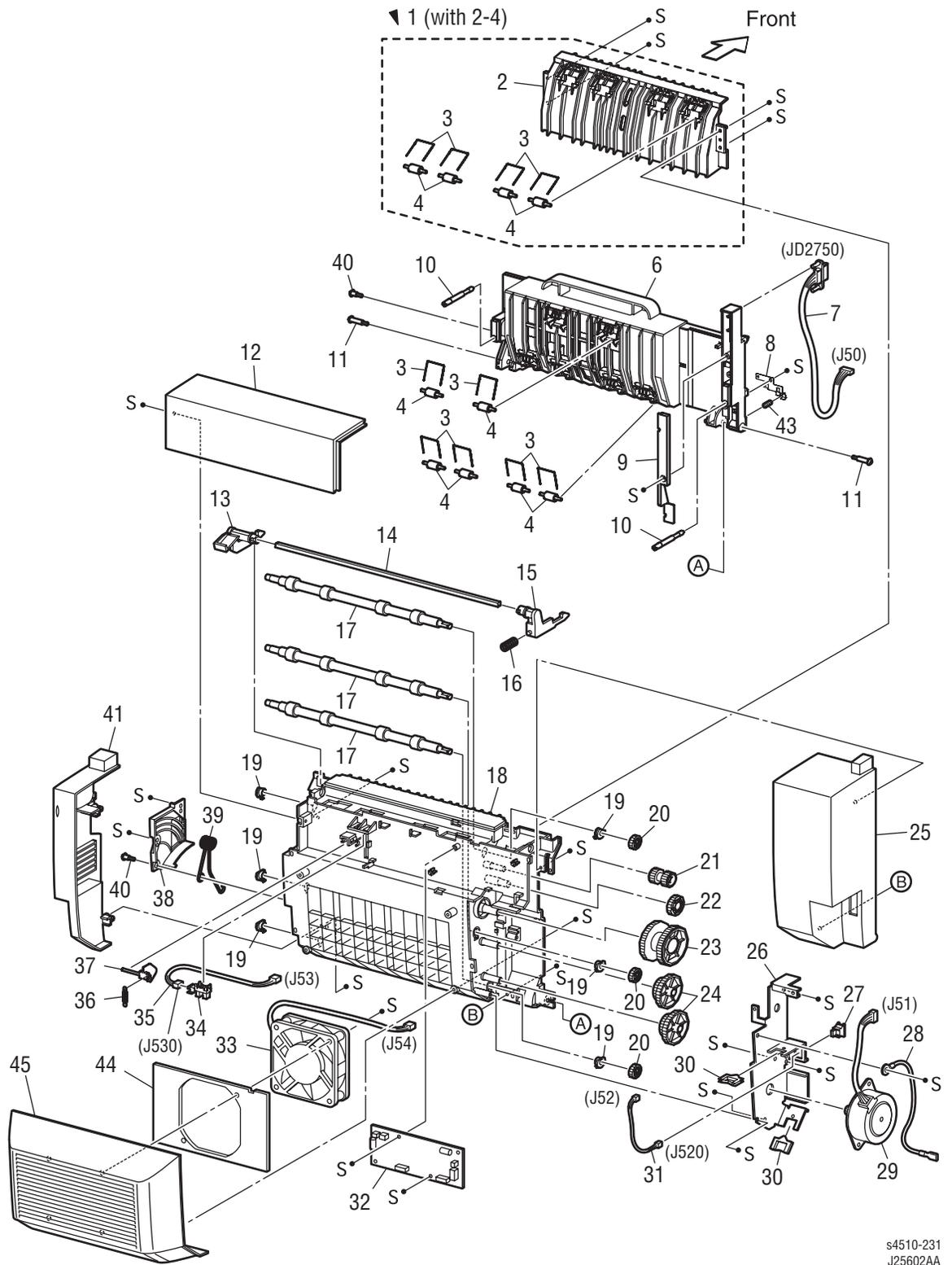
No.	Name/Description	Part Number
38	LOW IND FRONT	
39	GEAR SECTOR	
40	RACK SIZE	
41	HANDLE EXTENSION 550	
42	HOUSING EXTENSION 550	
43	GUIDE END 550	
44	HOUSING BASE 550	
45	LINK SW SIZE1-550	
46	LINK SW SIZE2-550	
47	LINK SW SIZE3-550	
48	LINK SW SIZE LOW	
50	550 PAPER CASSETTE ^a (with 1-13, 15-32, 34-48, 51-53)	P4500: 084K15416 P4510: 050K58100
51	HOLDER ASSY RETARD (with 2-5)	019K98186
52	STOPPER BASE R	
53	STOPPER BASE L	
99	Roller Kit (with 2, qty. 3)	604K19890

a The Phaser 4510 paper cassette is not interchangeable with the Phaser 4500 paper cassette due to the different retard spring, PL 4.1.6.

Parts List 21.1 Duplex Unit (P4500)



Parts List 21.1 Duplex Unit (P4510)



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J25602AA

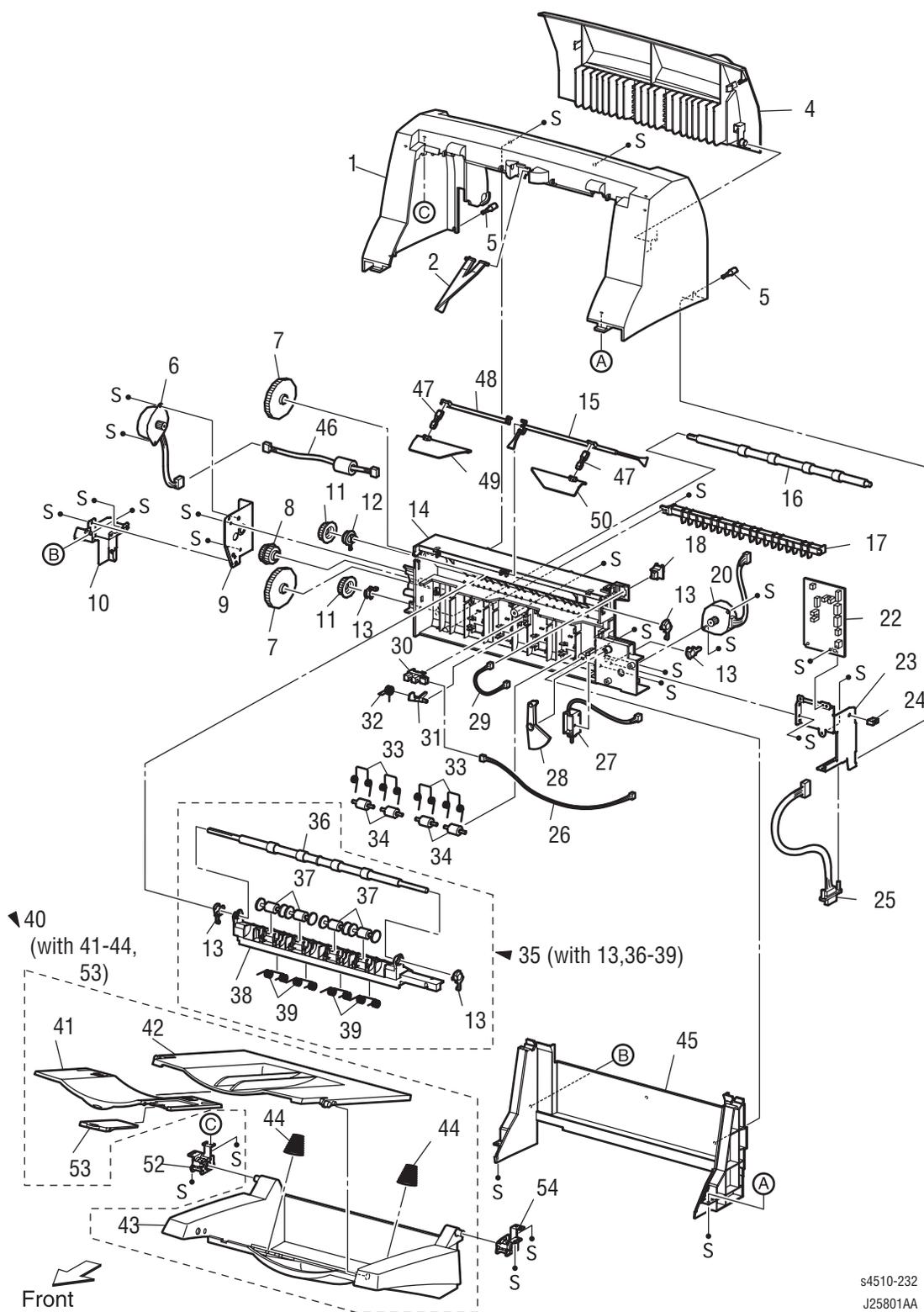
Parts List 21.1 Duplex Unit

No.	Name/Description	Part Number
1	HSG UPPER ASSY (with2-4)	802K46802
2	HSG UPPER DUP	
3	SPRING PINCH	809E37140
4	ROLL PINCH	059E97500
6	HSG LOWER DUP	P4500: 802E50613 P4510: 848E06510
7	HARNESS ASSY DUP (J50-JD2750)	
8	EARTH ASSY PLATE	
9	COVER HARNESS	
10	SCREW THUMB	
11	SCREW HINGE	
12	COVER TOP	
13	LEVER LATCH RIGHT	
14	SHAFT LATCH	
15	LEVER LATCH LEFT	
16	SPRING LATCH	
17	ROLLER DUP	059E97811
18	COVER HSG DUP	
19	BEARING DUP	013E22671
20	GEAR ROLLER	
21	GEAR IDLE29	
22	GEAR IDLE47	
23	GEAR IDLE77	
24	GEAR IDLE57/37	
25	COVER LEFT	
26	BRACKET MOTOR	
27	SWITCH DUPLEX (P520)	110E10200
28	HARNESS ASSY DUP EARTH (J56-JD560)	
29	MOTOR DUPLEX (J51)	127E83202
30	CLAMP EDGE	

Parts List 21.1 Duplex Unit (continued)

No.	Name/Description	Part Number
31	HARNESS ASSY DUP COVER (J52-J520)	
32	PWBA DUPLEX	P4500: 160K86757 P4510: 960K28791
33	FAN DUPLEX (J54)	P4500: 127E83210 P4510: 127E85210
34	SENSOR DUP (P530)	130E87090
35	HARNESS ASSY DUP SNR (J53-J530)	
36	SPRING ACTUATOR	809E50961
37	ACTUATOR DUP	604K16750
38	COVER DAMPER	
39	SPRING DAMPER	
40	SCREW TAPPING	
41	COVER RIGHT	
43	SPRING Frame Ground DUP	
99	DUPLEX ASSY (ENTIRE UNIT)	P4500: 084K18297 P4510: 084K25791

Parts List 23.1 Stacker



Parts List 23.1 Stacker

No.	Name/Description	Part Number
1	COVER OCT (with 3) (stacker cover)	604K15645
2	WEIGHT	036E91551
3	ELIMINATOR ASSY	
4	COVER REAR	
5	SCREW THUMB	
6	MOTOR ASSY OCT (J71) (stacker motor assembly)	127K39351
7	GEAR 45	007E74830
8	GEAR 19/37	007E74840
9	BRACKET MOTOR OCT (stacker motor bracket)	
10	SUPPORT OCT LEFT (left stacker support)	
11	GEAR 19	007E74821
12	BEARING OFFSET	013E22030
13	BEARING ROLL	013E22021
14	HOUSING OCT (stacker housing)	
15	ACTUATOR FULL STACK	120E21663
16	ROLL OCT LOWER (lower stacker roller)	059K25121
17	CHUTE INLET	
18	S/W REAR COVER (P740)	110E10200
20	MOTOR ASSY OFFSET (J72)	127K39341
22	PWBA OCT (stacker PWBA)	160K86745
23	SUPPORT OCT RIGHT (right stacker support)	
24	CLAMP MINI	
25	HARNESS ASSY OCT 2 (J70-JD3070) (stacker harness 2)	
26	HARNESS ASSY OCT SNR (J73-J730) (stacker sensor harness)	
27	SOLENOID ASSY GATE (J75)	121K28672
28	GEAR CAM	007E74810
29	HARNESS ASSY REAR COVER (J74-J740)	
30	SENSOR OCT (P730) (stacker sensor)	930W00113
31	ACTUATOR OCT (stacker actuator)	120E21270
32	SPRING ACTUATOR	809E37332
33	SPRING PINCH	809E37341
34	ROLL PINCH	059E97541
35	CHUTE OFFSET ASSY (with 13, 36-39)	054K23313
36	ROLL OCT UPPER (Upper stacker roller)	

Parts List 23.1 Stacker (continued)

No.	Name/Description	Part Number
37	ROLL PINCH OCT (stacker pinch roller)	
38	CHUTE OFFSET	
39	SPRING PINCH EXIT	
40	TRAY ASSY OCT (with 41-44, 53) (stacker tray assembly)	050K49267
41	TRAY EXTENSION	
42	TRAY EXIT	
43	TRAY BASE	
44	SPRING TRAY	
45	COVER FRONT	
46	HARNESS ASSY OCT MOT (J71-P710) (stacker motor harness)	
47	LINK (Qty. 2)	012E11500
48	SHAFT FULL STACK	006E79380
49	FLAPPER ASSY L (with 47)	036K91583
50	FLAPPER ASSY R (with 47)	036K91593
51	SPRING	
52	DAMPER ASSY TRAY L	004K02070
53	STOPPER	
54	DAMPER ASSY TRAY R	004K02080
99	STACKER ASSY (ENTIRE UNIT)	084K18117

Xerox Supplies and Accessories

Repair Kits, World Kits and Repacking Kits

Description	Part Number
World Kit Installation Guide Quick User Guides (Qty. 4) Software and Documentation CD-ROM and pocket Registration Cards (Qty. 2) Warranty Booklet	P4500: 650K27170 P4510: 650K27470
Repack Kit	P4500: 065-0633-00 P4510: 695K23110
Hardware Kit	604K16421

Power Cords

Description	Part Number
Cable PWR NA, 125V, 10A	117E29520
Cable PWR EURO 220V, 99L	117E29500
Cable PWR AUST 240 V, 96L	117E29490
Cable Assy SWISS 220/240 V, 50Hz	117E35050
Cable Assy PWR. DANISH, 250 V	117E29460
Cable Assy PWR, CHINA	117E35030
Power, 240V, ARGENTINA	117E35040
Cable PWR U.K. 240 V, 96L	117E29510

Upgrade Kits and Options

Description	Option Part Number	FRU Part Number
64 MB memory option	P4500: 097S03122 P4510: NS	P4500: 133K27720 P4510: NS
128 MB memory option	P4500: 097S03123 P4510: 097S03776	P4500: 137E24210 P4510: 133K27760
256 MB memory option	P4500: NS P4510: 097S03777	P4500: NS P4510: 237E24070
Flash memory module, P4500: 16MB; P4510: 20MB	P4500: 097S03125 P4510: 097S03778	P4500: 237E23840 P4510: 237E24090
Hard drive option	P4500: 097S03126 P4510: 097S03779	P4500: 121K45130 P4510: 121K45280
B TO N Upgrade option configuration card	P4500: 097S03146 P4510: 097S03623	P4500: 069E00450 P4510: 069E00530

Upgrade Kits and Options (continued)

Description	Option Part Number	FRU Part Number
Base Model configuration card	NS	P4500: 069E00440 P4510: 069E00540
550-sheet feeder ^a	P4500: 097S03715 P4510: 097S03624	P4500: 084K24570 P4510: 084K25804
Duplex unit	P4500: 097S03713 P4510: 097S03625	P4500: 084K18297 P4510: 084K25791
500-sheet stacker with job offset	097S03764	084K18117
150-sheet replacement paper tray ^b	P4500: 109R00734 P4510: NS	P4500: 084K15355 P4510: 050K58090
550-sheet replacement paper tray	P4500: 109R00721 P4510: NS	P4500: 084K15416 P4510: 050K58100

a The 550-sheet feeder option includes the paper cassette; the 550-sheet feeder FRU does not.

b The Phaser 4510 150- and 550-sheet paper trays look identical to the Phaser 4500 paper trays and will fit into a Phaser 4500 printer, but might not function correctly. Consequently, the paper trays are not considered to be interchangeable and carry different part numbers.

Consumables

Description	Part Number
Standard-capacity print cartridge (10K)	P4500: 113R00656 P4510: 113R00711
High-capacity print cartridge (18K P4500 19K P4510)	P4500: 113R00657 P4510: 113R00712
Page Pack print cartridge	P4500: 113R00703 P4510: 113R00715

Routine Maintenance Items

Description	Part Number
Maintenance kit, 110 V	P4500: 108R00600 P4510: 108R00717
Maintenance kit, 220 V	P4500: 108R00601 P4510: 108R00718

Service Manual

Description	Part Number
Service Manual, Phaser 4500/4510	701P45760

Wiring Diagrams

In this chapter...

- Print Engine Plug/Jack Locator
- 550-Sheet Feeder Plug/Jack Locator
- Duplex Unit Plug/Jack Locator
- Stacker Plug/Jack Locator
- Notations Used in Wiring Diagrams
- Print Engine Wiring Diagrams
- Optional 550-Sheet Feeder
- Duplex Unit
- Stacker

Chapter 10

Introduction

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

The Plug/Jack locators consist of the P/J Locator Tables and the P/J Locator Diagrams. The table lists the plug/jack numbers in numerical order. The co-ordinates column lists the diagram co-ordinates for the location of the connector. A brief description of each connection is included in the remarks column.

The Print Engine P/J Locator diagrams show the print engine in four views. The first two views depict the front and right sides of the printer, while the last two views cover the rear and left sides of the printer.

Print Engine Plug/Jack Locator

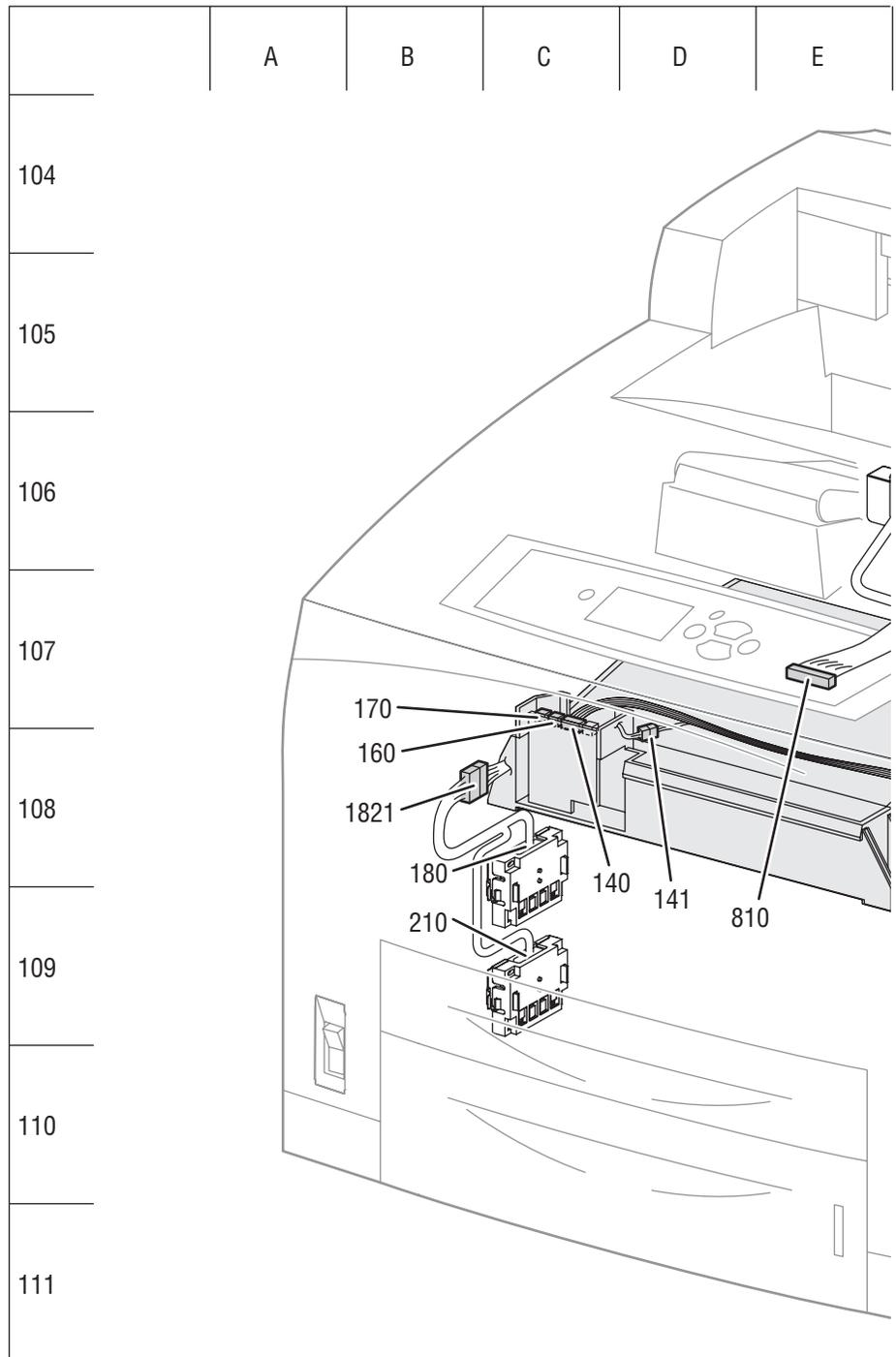
P/J Locator Table

P/J	Coordinates	Remarks
10	G-108	Connects the LVPS harness assembly and HVPS/engine logic board
11	G-108	Connects the LVPS harness assembly and HVPS/engine logic board
13	G-109	Connects the laser unit harness and HVPS/engine logic board
14	G-109	Connects the laser unit harness and HVPS/engine logic board
15	G-109	Connects the ANT harness and HVPS/engine logic board
16	G-110	Connects the laser unit harness and HVPS/engine logic board
17	G-110	Connects the laser unit harness and HVPS/engine logic board
18	G-110	Connects the LVPS harness assembly and HVPS/engine logic board
19	G-109	No connection
20	G-110	Connects the feeder harness 1 and HVPS/engine logic board
22	H-109	Connects the toner harness and HVPS/engine logic board
24	H-109	Connects the chute harness and HVPS/engine logic board
25	—	Non-existent
26	H-109	Connects the low paper sensor and HVPS/engine logic board
27	G-109	Connects the LVPS harness assembly and HVPS/engine logic board
28	H-109	Connects the HVPS/engine logic board to I/P Board
29	H-107	Connects the exit sensor harness 1 and HVPS/engine logic board
30	H-107	Connects the stacker harness and HVPS/engine logic board
31	G-108	Connects the print cartridge Guide and HVPS/engine logic board
32	H-109	No connection
40	U-122 V-122	P4500: 3.3 VDC Output from the LVPS to the DC-DC converter P4510: 3.3 and 5 VDC output from the LVPS to the I/P board
41	U-122	Connects the LVPS harness assembly and LVPS
42	U-122	Connects the LVPS harness assembly and LVPS
43	U-122	Connects the main motor and LVPS
44	U-122	Connects the rear cover switch and LVPS
45	U-123	Connects the 24 V Interlock and LVPS
46	U-123	Connects the fuser harness assembly and LVPS
47	T-124	Connects the fuser harness assembly and LVPS

P/J	Coordinates	Remarks
48	U-124	Connects the AC harness assembly and LVPS
101	T-122	Connects the LVPS and Exit Motor PWBA NOTE J101 on the LVPS is permanently wired and is NOT a plug. DO NOT attempt to unplug.
102	T-122	Connects the LVPS harness assembly and Exit Motor PWBA
103	T-122	Connects the exit motor assembly and Exit Motor PWBA
110	H-107	P4500 only: Connects the control panel harness to I/P Board
120	H-107	P4510 only: Connects 3.3 and 5 VDC from the LVPS to the I/P Board
130	I-107	P4500 only: Connects the DC-DC converter harness to the I/P Board
131	F-108	Connects the laser unit assembly and laser unit harness assembly
140	C-107	Connects the laser unit assembly and laser unit harness assembly
141	D-108	Connects the laser unit harness assembly and LVPS harness assembly
142	S-122	P4500 only: Connects the LVPS harness assembly and 5 V Interlock
144	J-106	Connects the Laser Interlock and LVPS harness assembly
150	P-122	Connects the ANT PWBA assembly and ANT harness assembly
160	C-107	Connects the laser unit assembly and laser unit harness assembly
170	C-107	Connects the laser unit assembly and laser unit harness assembly
180	C-108	Connects the tray 1 size switch and LVPS harness assembly
200	H-107	P4510 only: Connects the control panel harness to I/P Board
201	C-107	Connects Laser Diode board to SOS sensor cable
210	C-109	Connects the tray 2 size switch and LVPS harness assembly
220	Q-124	Connects the toner sensor and toner harness 1
221	N-124	Connects the toner harness 1 and toner harness 2
J230	E-107	P4510 only: Connects the control panel and control panel harness assembly
240	O-124	Connects the no paper sensor and tray 1 harness assembly
241	P-124	Connects the registration sensor and tray 1 harness assembly
242	Q-125	Connects the tray 1 feed clutch and tray 1 harness assembly
243	P-125	Connects the registration clutch and tray 1 harness assembly
244	O-124	Connects the main fan and tray 1 harness assembly
245	N-125	Connects the tray 1 harness assembly and chute harness assembly

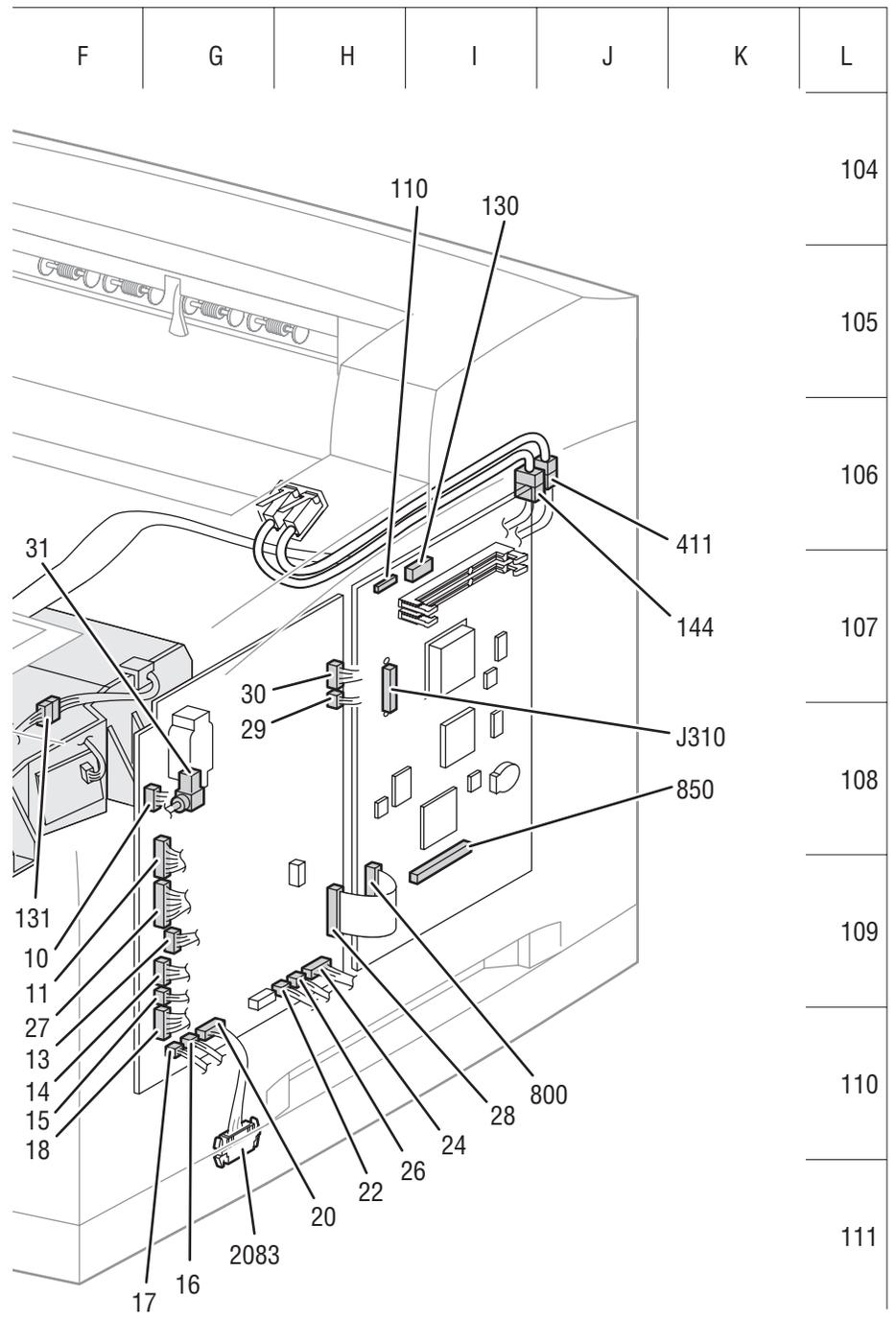
P/J	Coordinates	Remarks
246	O-124	Connects the no paper sensor and tray 2 harness assembly
247	P-125	Connects the tray 2 feed clutch and tray 2 harness assembly
248	N-124	Connects the tray 2 harness assembly and chute harness assembly
260	O-124	Connects the tray 2 low paper sensor and low paper sensor harness
270	T-121	Connects the Sub Fan and LVPS harness assembly
271	U-122	Connects LVPS harness assembly and main motor
290	N-121	Connects the output tray full sensor and exit sensor harness assembly1
310	O-123	Connects the print cartridge and GUIDE Assembly CRU
J310	H-107	P4500 only: Plug on I/P board for Flash Memory option
401	V-122	3.3 VDC Input from the LVPS
402	V-122	P4500 only: 3.3 VDC and 5 VDC Output to the Image Processor Board
403	V-122	P4500 only: 24 V Input from the LVPS
404	U-122	P4500 only: Connects 24 V from the LVPS to the DC-DC converter at P403
411	J-106	Connects the top cover switch and LVPS harness
480	V-124	Connects the AC harness to the power switch
J650	I-108	P4510: Plug on the I/P Board for the Hard Drive.
800	H-109	Connects the I/P Board to the HVPS/engine logic board
810	E-107	P4500 only: Connects the control panel and control panel harness assembly
850	I-109	P4500: Plug on the I/P Board for the Hard Drive. P4510: Plug on the I/P Board for the Flash Memory option
1821	B-108	Connects the left tray guide assembly and LVPS harness assembly (size switch connection)
2011	F-108	Connects SOS sensor to Laser Diode board
2083	G-110	Connects the feeder harness 1 and feeder harness 2
2750	R-124	Connects the LVPS harness assembly and duplex unit assembly harness
3070	N-122	Connects stacker harness 1 and stacker harness 2
4647	R-122	Connects the fuser harness assembly and fuser assembly

P/J Locator Diagrams



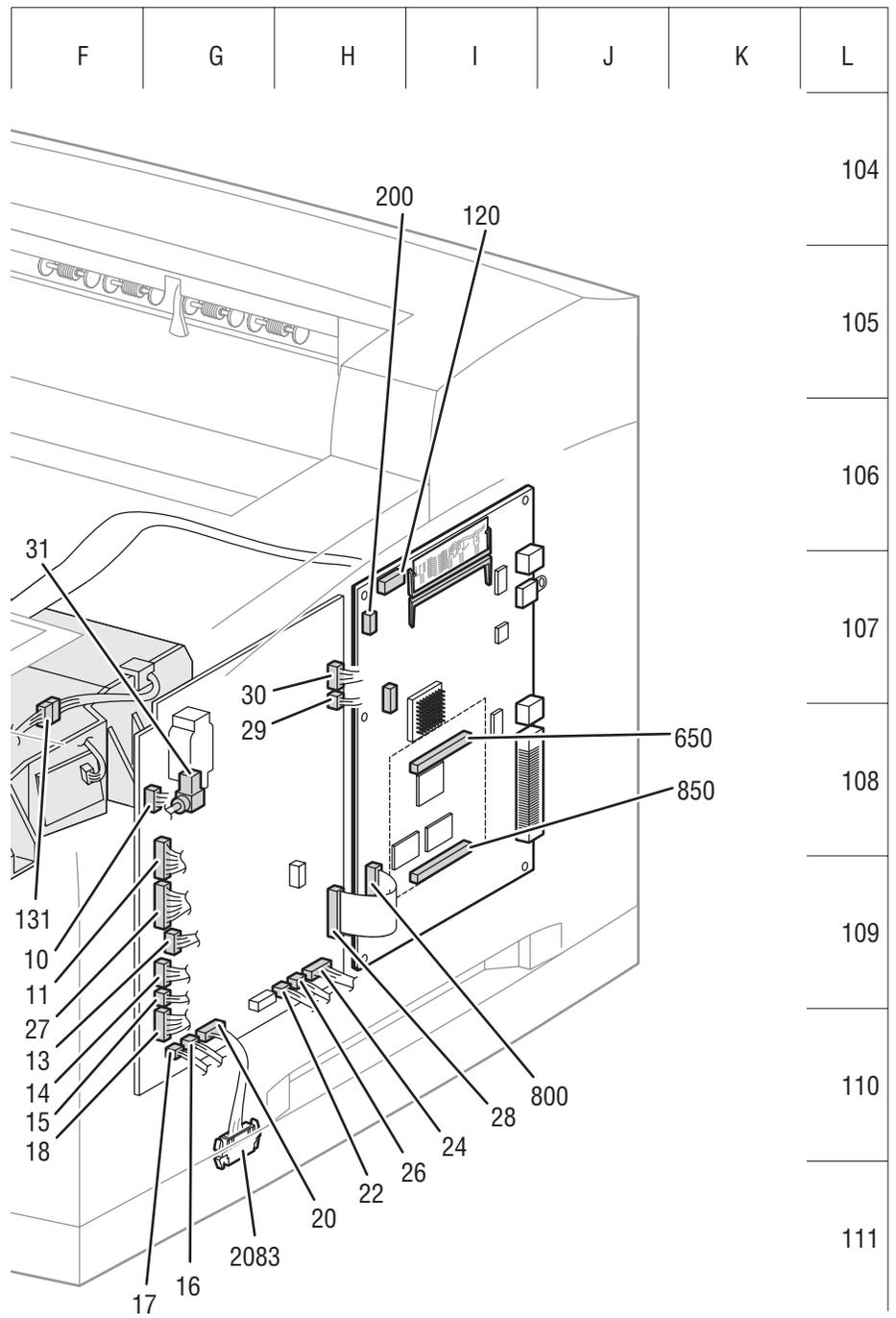
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Printer Front



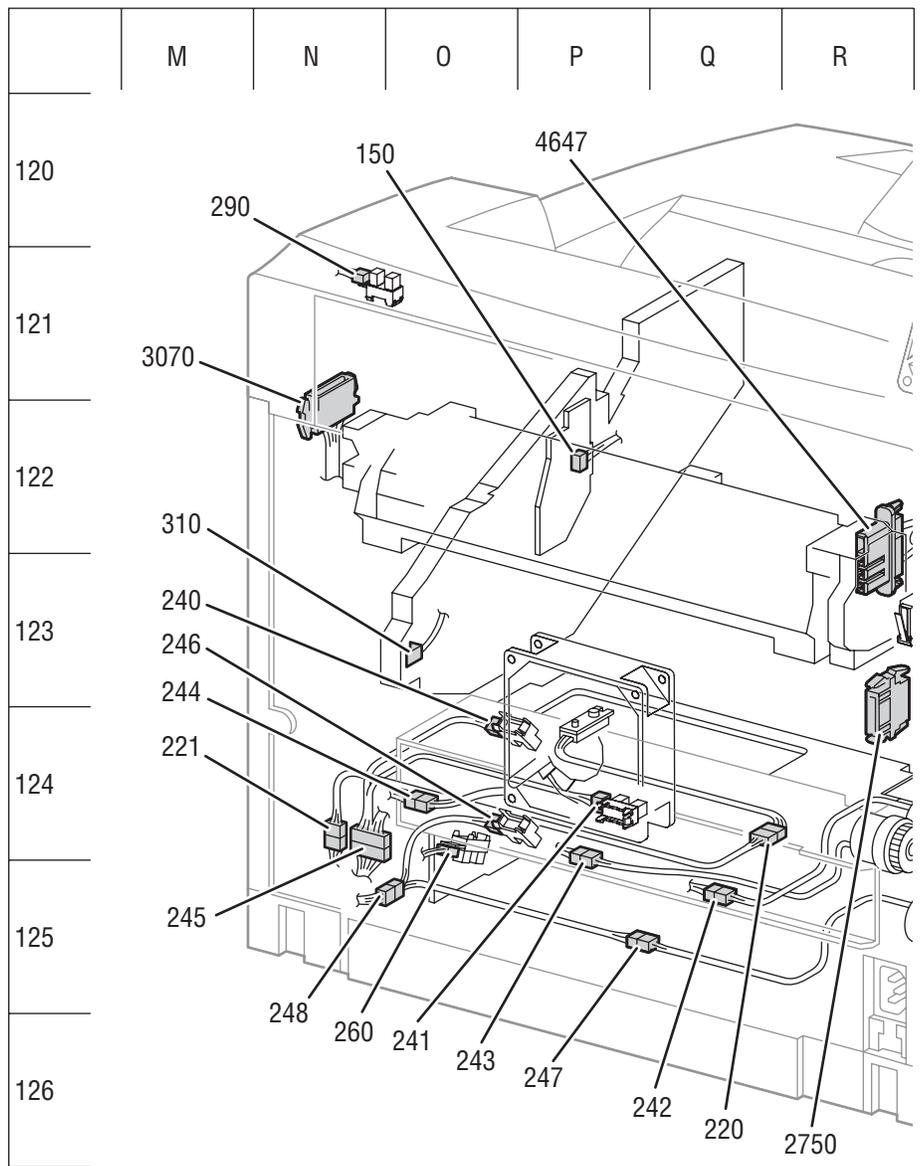
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Phaser 4500 Right Side



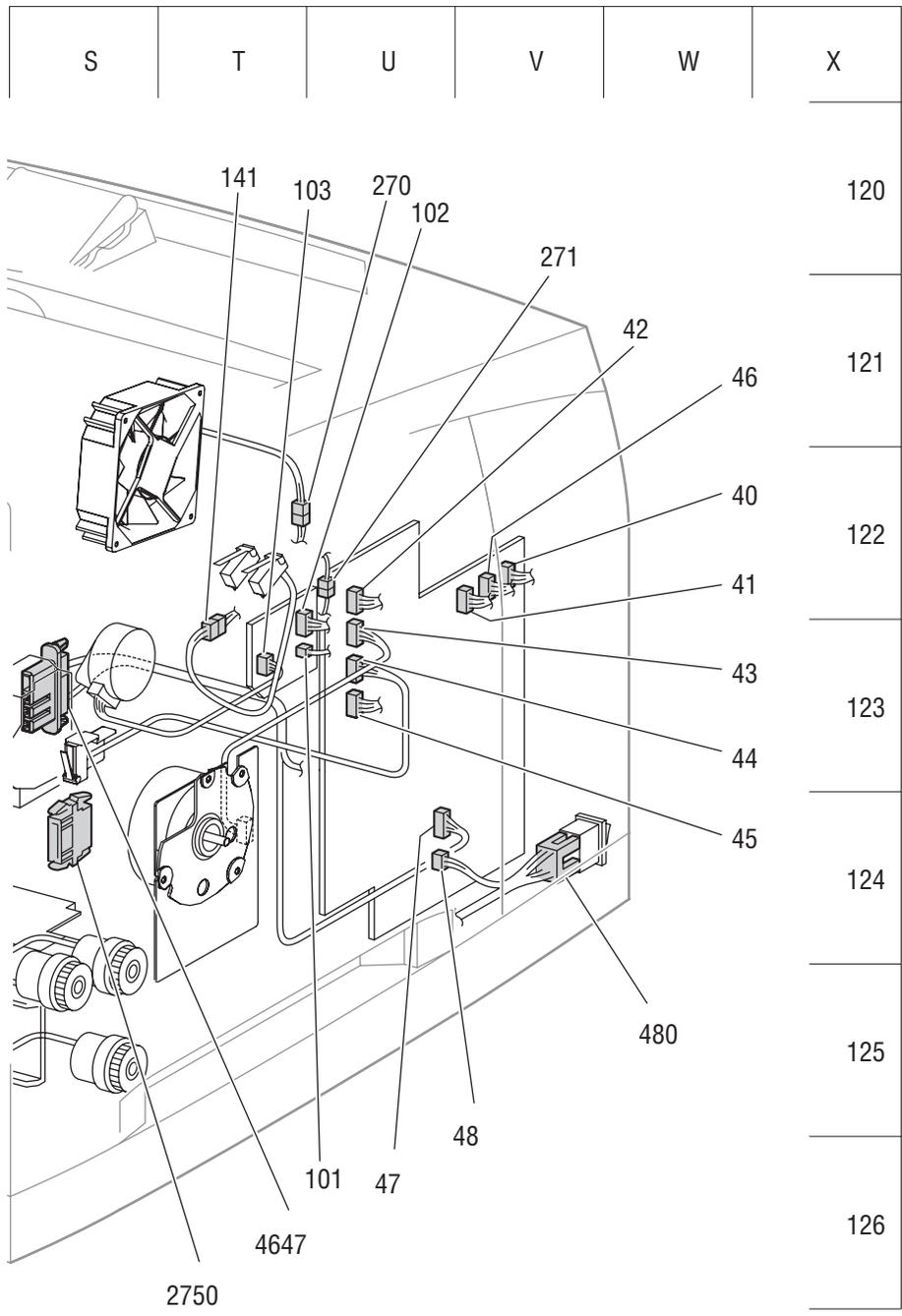
Phaser 4510 Right Side

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Printer Rear



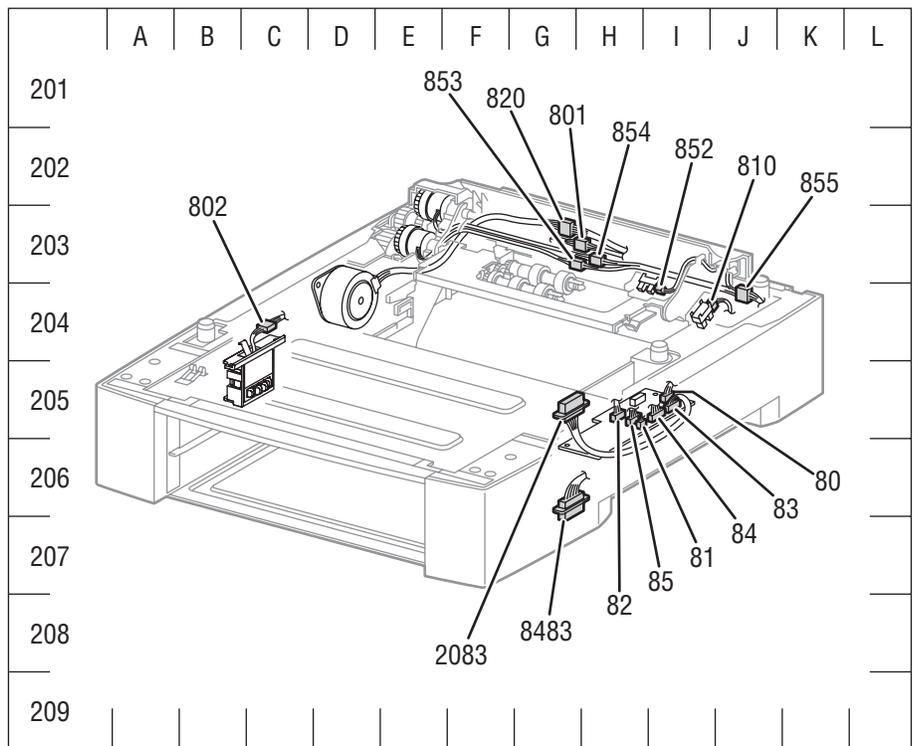
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Phaser 4510 Left Side

550-Sheet Feeder Plug/Jack Locator

P/J Locator Table

P/J	Coordinates	Remarks
80	I-205	Connects feeder size switch harness 2 and the 550-sheet feeder PWBA
81	H-205	Connects the low paper sensor harness and the 550-sheet feeder PWBA
82	H-205	Connects the feeder motor harness and the 550-sheet feeder PWBA
83	I-205	Connects feeder harness 2 and the 550-sheet feeder PWBA
84	I-205	Connects feeder harness 5 and the 550-sheet feeder PWBA
85	H-205	Connects Clutch/Sensor harness 2 and the 550-sheet feeder PWBA
801	H-203	Connects feeder size switch harness 1 and feeder size switch harness 2
802	C-204	Connects feeder size switch harness 1 and size switch assembly
810	I-205	Connects the low paper sensor and low paper sensor harness
820	G-203	Connects the feeder motor and feeder motor harness
852	I-205	Connects the no paper sensor and Clutch/Sensor harness 1
853	G-203	Connects the feeder clutch and Clutch/Sensor harness 1
854	H-203	Connects the turn roller clutch and Clutch/Sensor harness 1
855	J-204	Connects Clutch/Sensor harness 1 and Clutch/Sensor harness 2
2083	G-205	Connects feeder harness 1 and feeder harness 2
8483	G-206	Connects feeder harness 5 and feeder harness 5



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550-Sheet Feeder Option

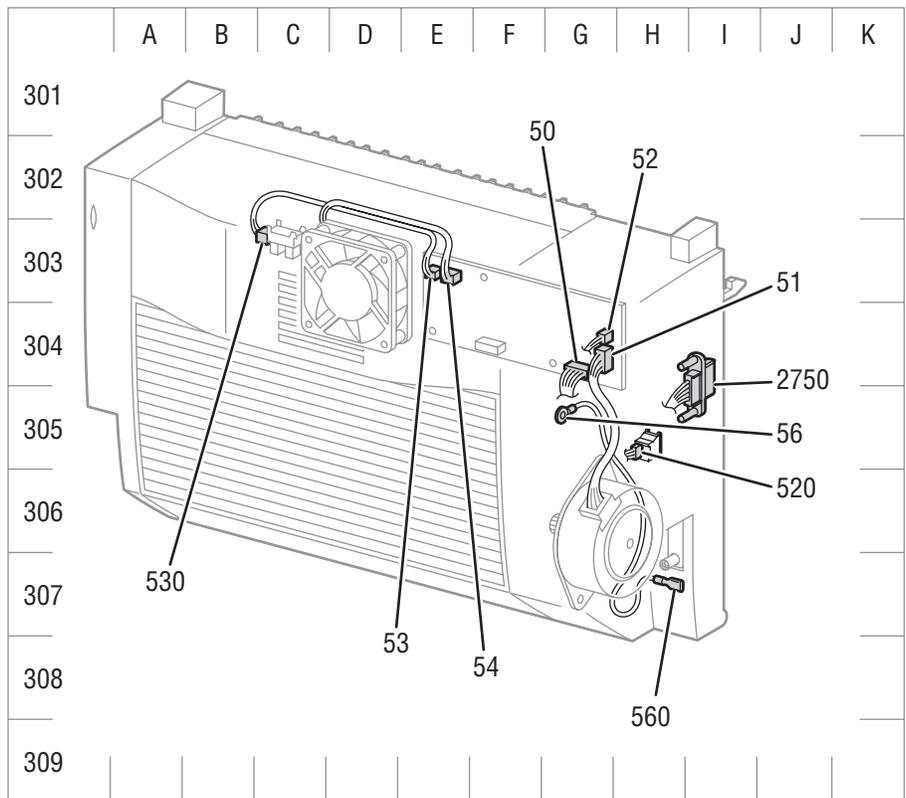
Note

The plug/jack locations are the same for both the Phaser 4500 and Phaser 4510 optional feeders.

Duplex Unit Plug/Jack Locator

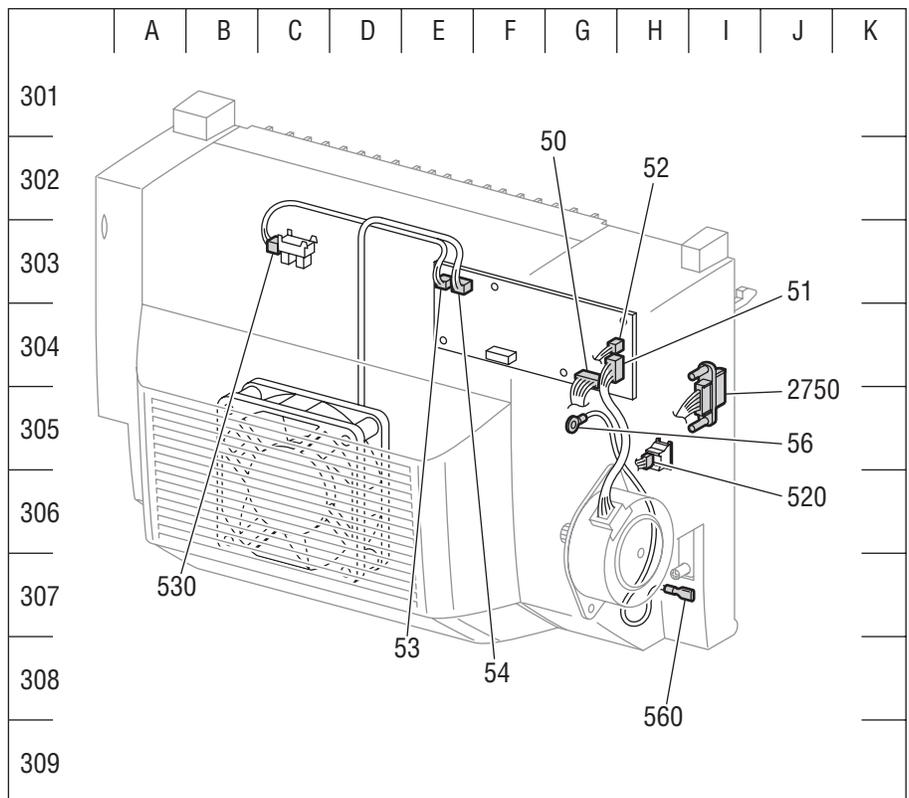
P/J Locator Table

P/J	Coordinates	Remarks
50	G-304	Connects the duplex unit harness and duplex unit PWBA
51	G-304	Connects the duplex unit motor and duplex unit PWBA
52	G-304	Connects the duplex unit harness COVER and duplex unit PWBA
53	E-303	Connects the duplex unit harness SNR and duplex unit PWBA
54	E-303	Connects the duplex unit fan and duplex unit PWBA
56	G-305	Connects the duplex unit harness ground and duplex unit PWBA
520	H-305	Connects the duplex unit switch and duplex unit harness
530	C-303	Connects the duplex unit sensor and duplex unit sensor harness
560	H-307	Connects the duplex unit harness ground and Ground Plate Assembly
2750	I-304	Connects the duplex unit harness and LVPS harness assembly



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Phaser 4500 Duplex Unit



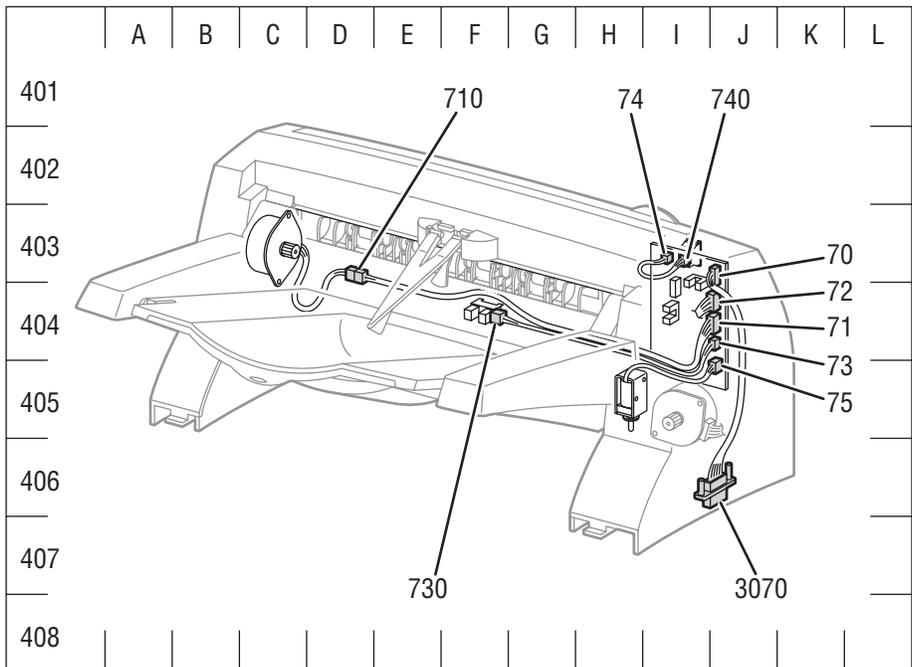
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Phaser 4510 Duplex Unit

Stacker Plug/Jack Locator

P/J Locator Table

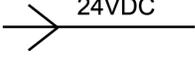
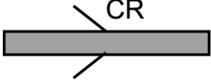
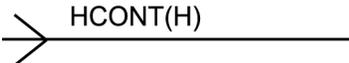
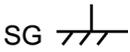
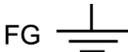
P/J	Coordinates	Remarks
70	J-403	Connects stacker harness 2 and the stacker PWBA
71	J-404	Connects the stacker motor and stacker PWBA
72	J-404	Connects the offset motor and stacker PWBA
73	J-404	Connects the stacker sensor harness and stacker PWBA
74	I-403	Connects the stacker rear cover harness and stacker PWBA
75	J-405	Connects the gate solenoid and stacker PWBA
710	D-403	Connects the stacker motor harness and stacker motor
730	F-404	Connects the stacker sensor and stacker sensor harness
740	I-403	Connects the stacker rear cover switch and stacker rear cover harness
3070	J-406	Connects stacker harness 2 and stacker harness 1

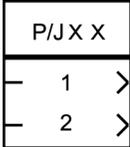
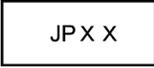
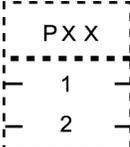
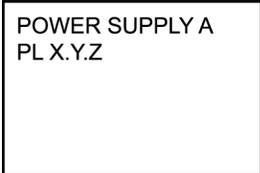


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Notations Used in Wiring Diagrams

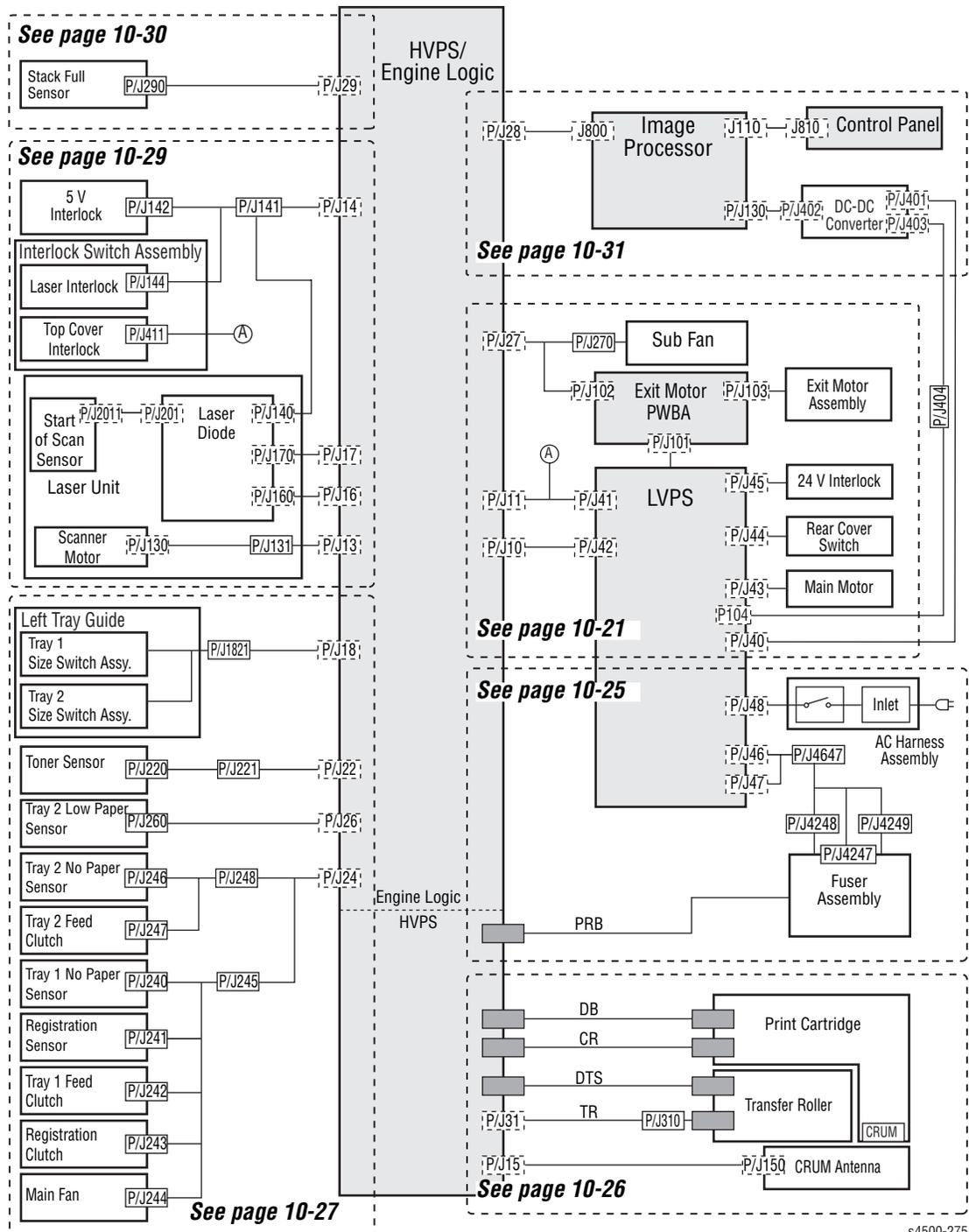
The symbols in the interconnection wiring diagram are described below. Note that the description of general symbols is omitted.

Symbol	Description
	Represents an interconnection between parts using wiring harness or wire, and indicates its signal name/contents. The arrow ">" or "<" on the line represents the direction of signal flow.
	Represents an interconnection between parts using wiring harness or wire, which differs according to the specifications, and indicates its signal name/contents. The arrow ">" or "<" on the line represents the direction of signal flow.
	Represents a connection between parts using a conductive member such as a plate spring, and indicates its signal name/contents. The arrow ">" or "<" on the line represents the direction of signal flow.
	Represents a function and a logical value (High (H) or Low (L)) of a signal when the function is activated. The voltage indicates a value when the signal is High. The arrow indicates the direction of signal flow.
	Represents a function and a logical value (High (H) or Low (L)) of a signal when the function is in a detectable state. The voltage indicates a value when the signal is High. The arrow indicates the direction of signal flow.
	Represents a connection between lead wires.
	Represents a connection between parts by tightening of a screw.
	Represents a connection between "A" and "A".
24 VDC	The DC voltage indicates an approximate value measured when the negative side is connected to a signal ground (SG).
SG 	Indicates a signal ground (SG).
FG 	Indicates a frame ground (FG).
RTN	Indicates a return.

Symbol	Description
	<p>Represents a connector. The connector and PIN Nos. are shown at the upper and lower parts respectively.</p> <p>“P,-” indicates the plug side of the connector.</p> <p>“J,>” indicates the jack side of the connector.</p>
	<p>Represents a connection terminal with a plate spring on the printed circuit board. The connector No. is indicated inside the box.</p>
	<p>Represents a connector directly connected to the printed circuit board. The connector No. is indicated inside the box.</p>
	<p>Represents a part.</p> <p>“PL X.Y.Z” indicates the item “Z” of the plate (PL) “X.Y” described in Chapter 5 “Parts List.”</p>
	<p>Represents a functional part within a part, and indicates the name of the functional part.</p>
	<p>Indicates a reference item associated with the section.</p>

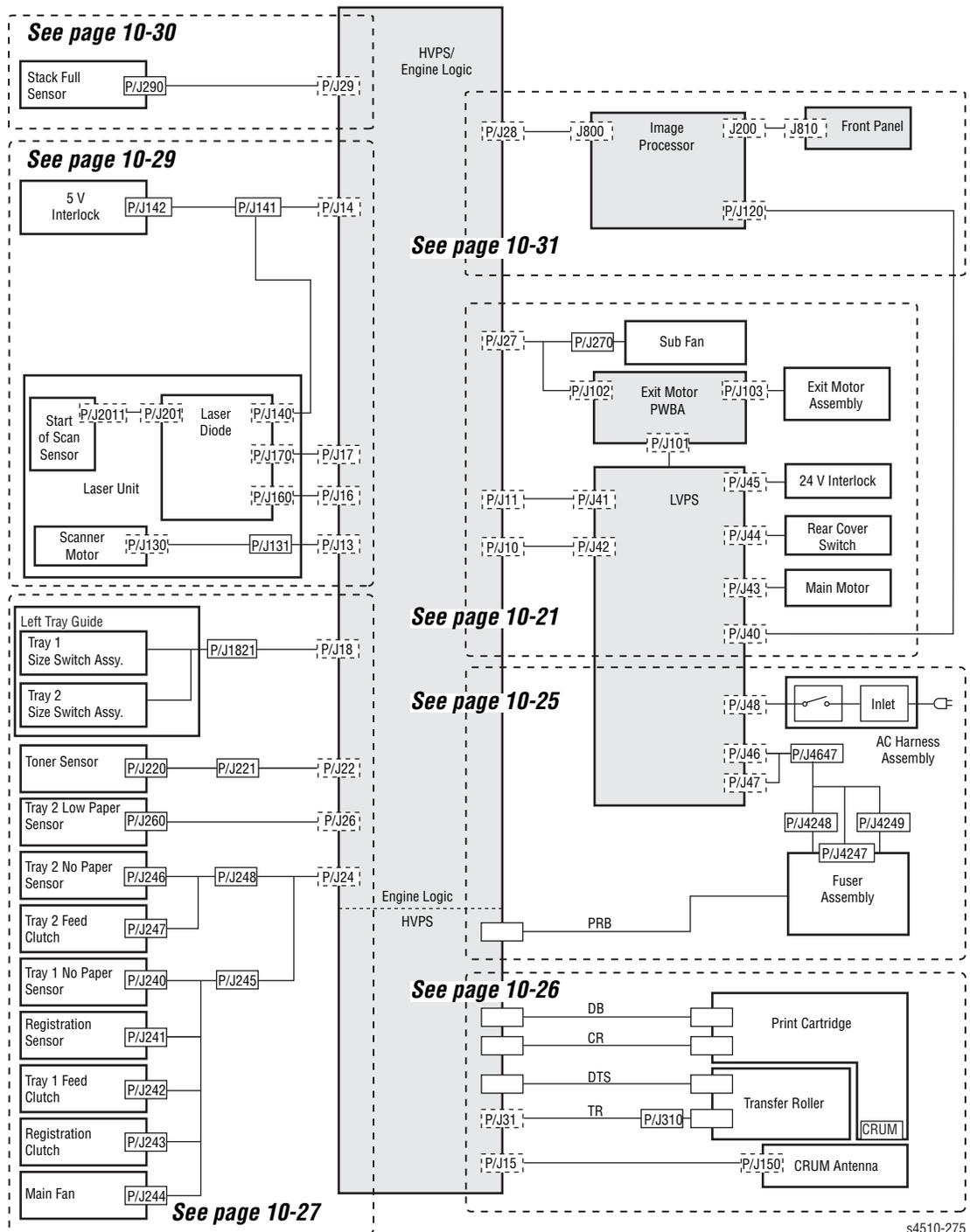
Print Engine Wiring Diagrams

P4500: General Wiring Diagram



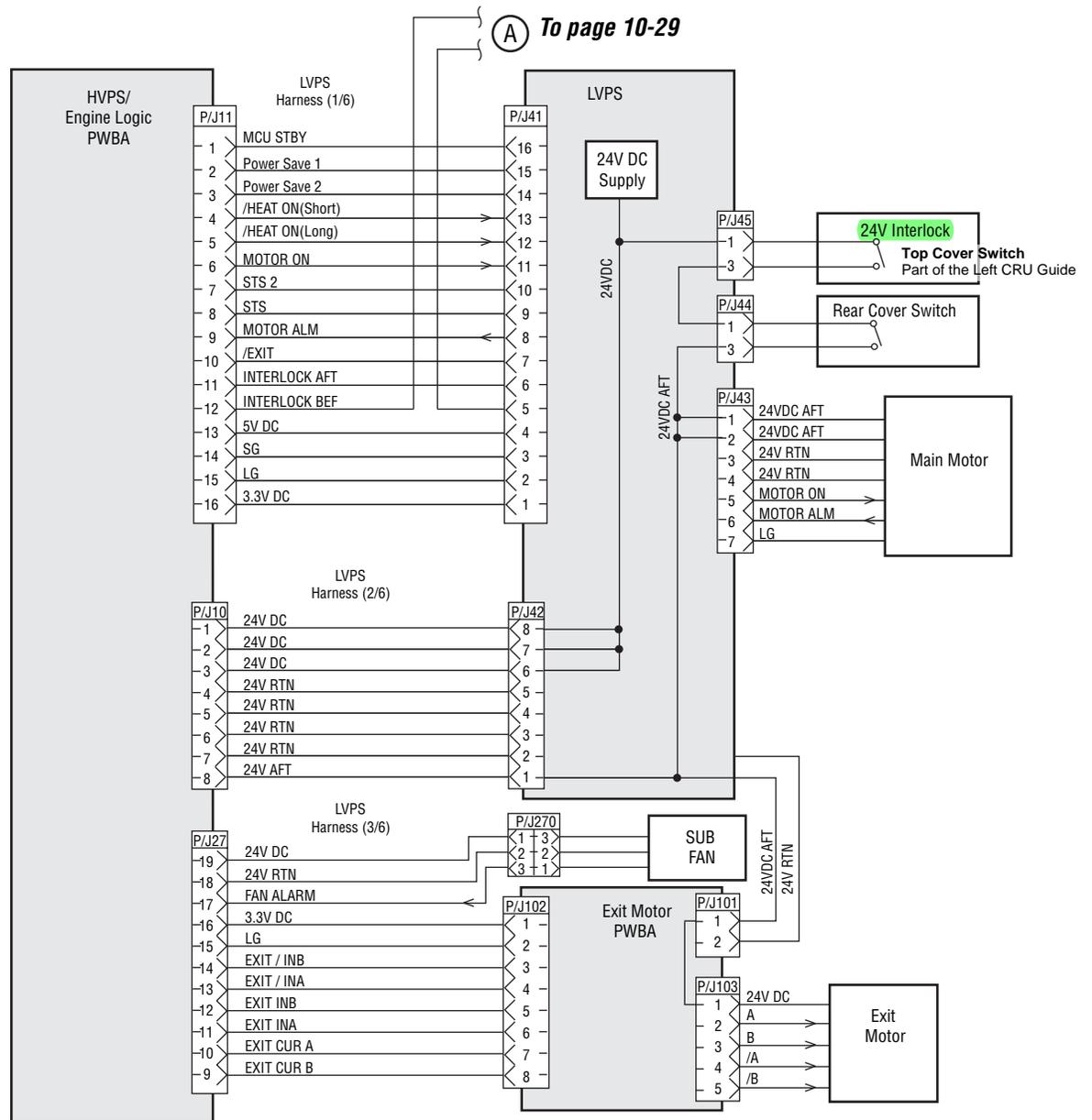
s4500-275

P4510: General Wiring Diagram



s4510-275

P4500: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly

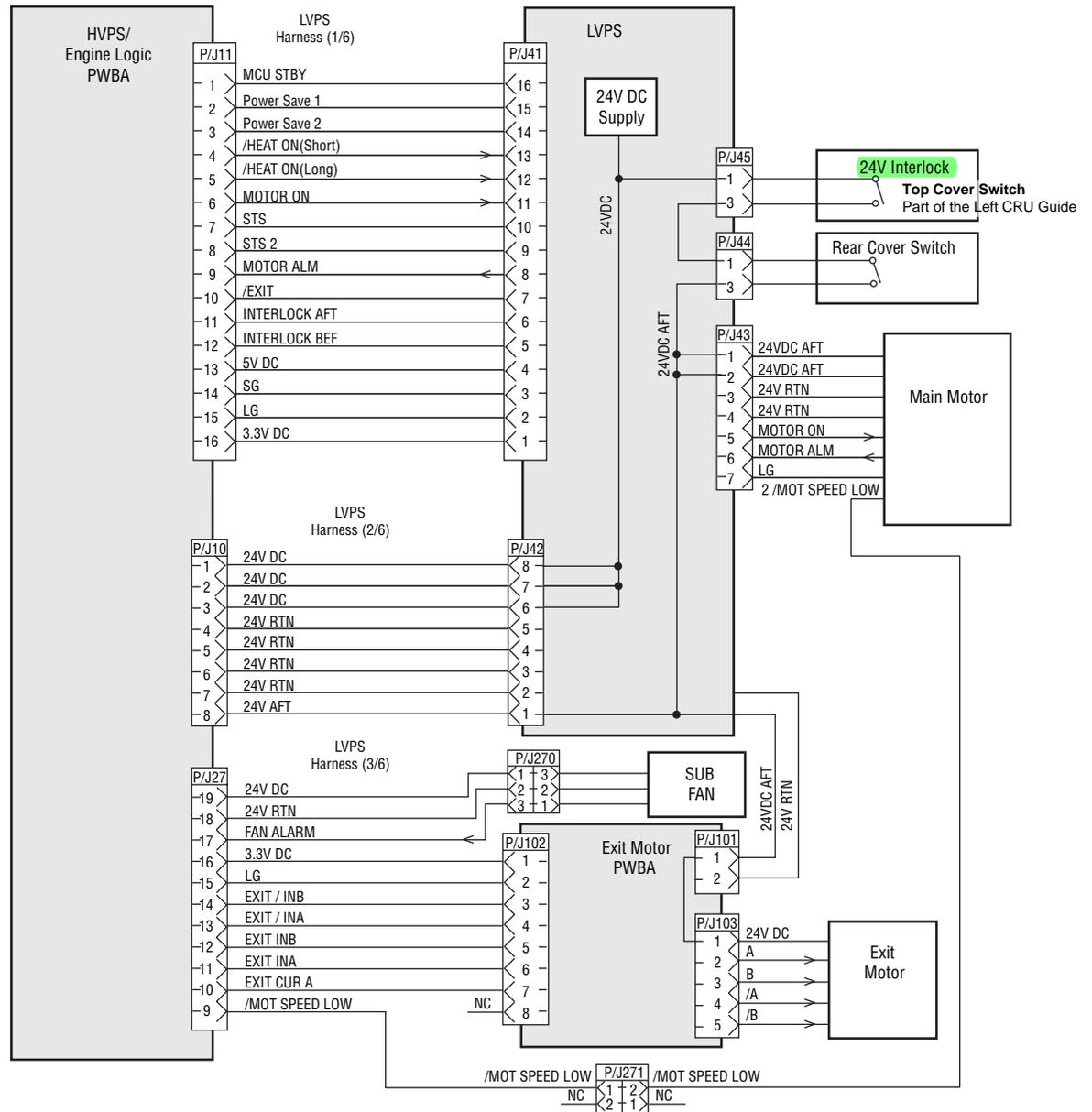


s4510-235

Signal line name	Description
/HEAT ON	AC power-supply control signal for Heater Rod. Low: ON/High: OFF
MOTOR ON	Control signal for main motor.
MOTOR ALM	Monitor signal for main motor.
INTERLOCK AFT	Signal indicating that the rear cover is open. This signal goes High when the top or rear cover is open.

Signal line name	Description
INTERLOCK BEF	Signal indicating that the top cover is open. This signal goes High when the top cover is open.
FAN ALARM	Sub Fan monitor signal. If a trouble occurs, this signal goes High.
EXIT /INB	Excitation signal for Exit Motor. Phase /B.
EXIT /INA	Excitation signal for Exit Motor. Phase /A.
EXIT INB	Excitation signal for Exit Motor. Phase B.
EXIT INA	Excitation signal for Exit Motor. Phase A.
EXIT CUR A	Current-switching signal for Exit Motor.
EXIT CUR B	Current-switching signal for Exit Motor.
A and B	Current output to each winding of Exit Motor. Phases A and B.
/A and /B	Current output to each winding of Exit Motor. Phases \bar{A} and \bar{B} .
/PRFD	Prefeed signal. This is effective only when /RDY is Low.
/CCLK	Clock signal. This is sent out simultaneously with /STA or /CMD.
/CMD	Command signal. When /CBSY is Low, it is sent out from the controller in synchronism with /CCLK.
/CPRDY	Ready signal for the controller power supply. This signal goes Low when the controller power supply is ON and, at the same time, initialization of the CPU is completed. When a trouble occurs with the CPU, the signal goes High.
/START	Print start signal. This is effective only when /RDY is Low.
/CBSY	Command busy signal. This goes Low when /CMD is sent out (except when /SBSY is Low or /PPRDY is High).
/STA	Status signal. Status is sent in synchronism with /CCLK when /SBSY is Low.
/SBSY	Status busy signal. This signal is Low when the printer is sending /STA (except when /CBSY is Low or /CPRDY is High).
/TOP	Vertical sync signal for image data. This is periodically sent out when Laser Unit Motor is in operation.
/RDY	Ready signal. This signal is Low in a standby state where reception of /START is awaited.
/PPRDY	Ready signal for the printer power supply. This goes Low when the printer power supply is turned on and initialization of the CPU is completed. This signal goes High when the MCP detects an error.
/BD	Horizontal sync signal for image data. This is periodically sent out when Laser Unit Motor is in operation.
/SLP	Control signal for LVPS. This goes Low in power saving mode.
/VDO1	Image data signal. This is sent out in synchronism with /TOP and /
/VDO2	BD. This signal goes High (White) for other than effective data.

P4510: 24 V Interlock, Rear Cover Switch, Main Motor, Sub Fan, Exit Motor Assembly

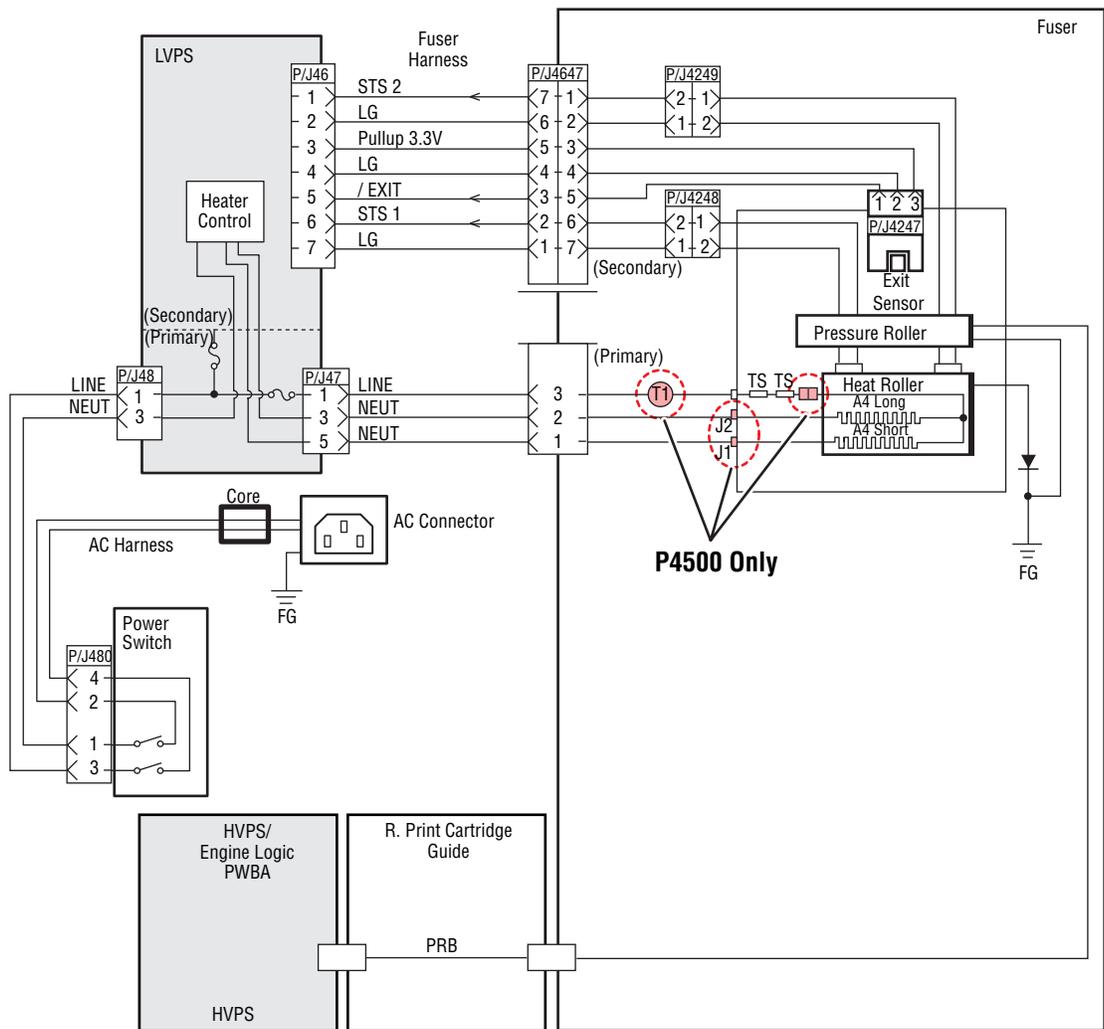


s4510-235

Signal line name	Description
/HEAT ON	AC power-supply control signal for Heater Rod. Low: ON/High: OFF
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EXIT INB	Excitation signal for Exit Motor. Phase B.
EXIT INA	Excitation signal for Exit Motor. Phase A.
EXIT CUR A	Current-switching signal for Exit Motor.
EXIT CUR B	Current-switching signal for Exit Motor.
A and B	Current output to each winding of Exit Motor. Phases A and B.
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/TOP	Vertical sync signal for image data. This is periodically sent out when Laser Unit Motor is in operation.
/RDY	Ready signal. This signal is Low in a standby state where reception of /START is awaited.
/PPRDY	Ready signal for the printer power supply. This goes Low when the printer power supply is turned on and initialization of the CPU is completed. This signal goes High when the MCP detects an error.
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/VDO2	BD. This signal goes High (White) for other than effective data.

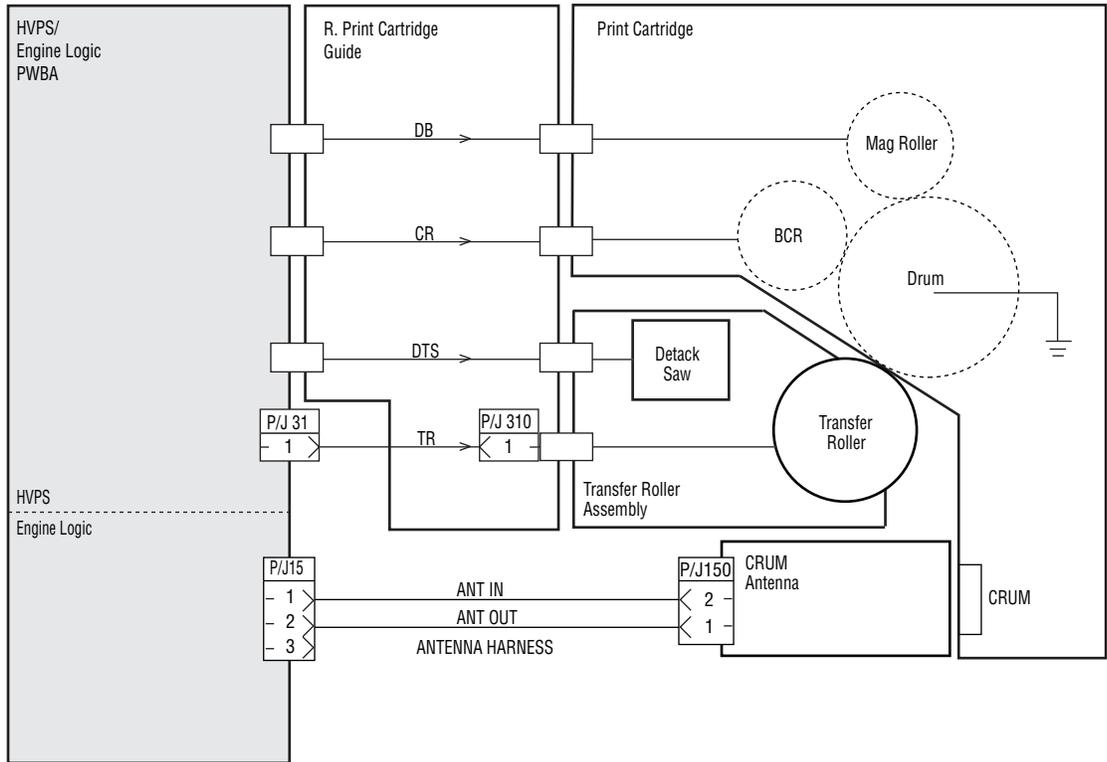
Fuser Assembly, Power Switch



s4510-236

Signal line name	Description
/EXIT	Signal from Exit Sensor. This signal goes Low when the flag moves out of the sensor.
STS	Temperature monitor signal (analog signal) from Temperature Sensor (Thermistor). It detects the temperature on the surface of heat roller.
PRB	Output from HVPS which applies a high voltage to pressure roller.

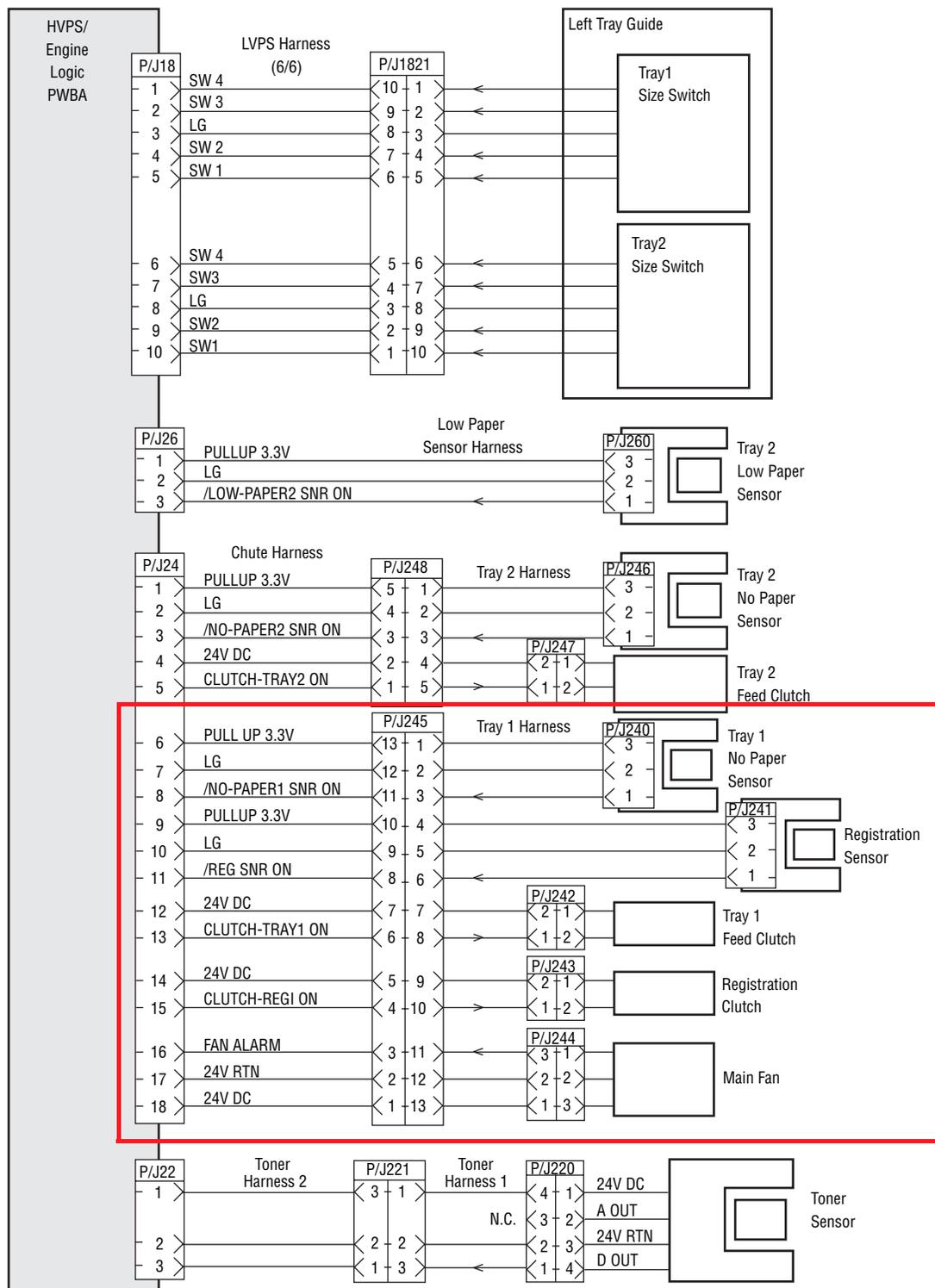
Print Cartridge, Transfer Roller Assembly



s4510-237

Signal line name	Description
DB	Output from HVPS to Magnet Roller (Development bias)
CR	Output from HVPS to BCR
DTS	Output from HVPS to Detack Saw
TR	Output from HVPS to transfer roller

150-Sheet Feeder, 550-Sheet Feeder, Main Fan

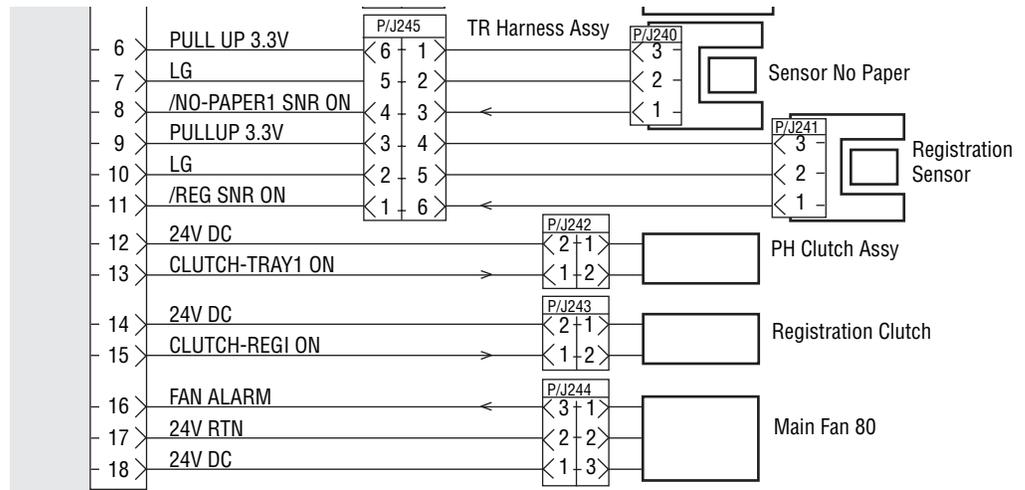


s4510-238

Note

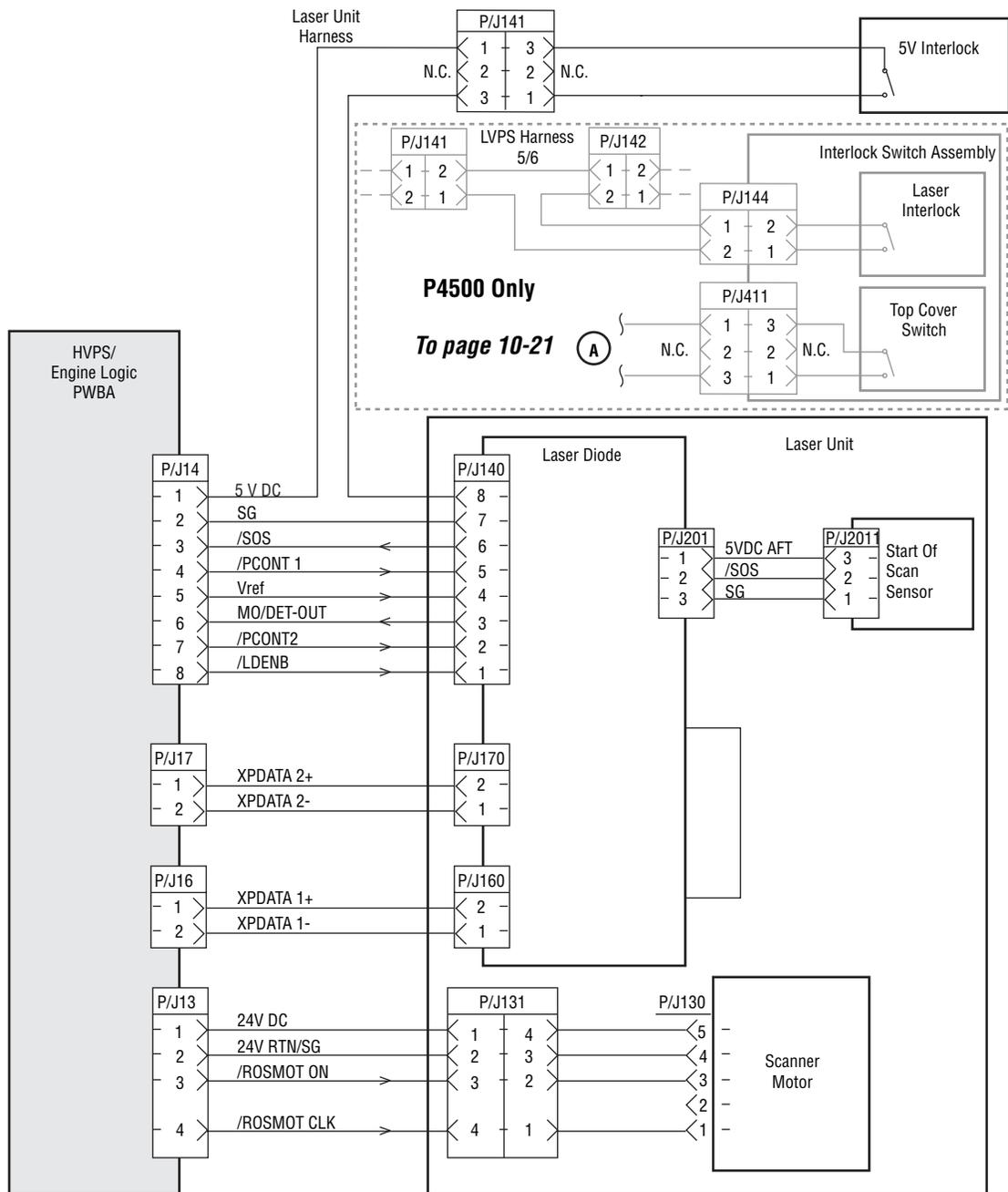
The diagram in the boxed area is for the P4500. See the P4510 differences diagram on the next page.

P4510: Wiring Difference



Signal line name	Description
/LOW-PAPER2 SNR ON	Signal from low paper sensor. This signal goes Low when the flag moves out of the sensor.
/NO-PAPER2 SNR ON	Signal from the no paper sensor of Tray2. This signal goes Low when the flag moves out of the sensor.
CLUTCH-TRAY2 ON	Control signal for tray 2 feed clutch. Low: ON / High: OFF
/NO-PAPER1 SNR ON	Signal from the no paper sensor of Tray1. This signal goes Low when the flag moves out of the sensor.
/REG SNR ON	Signal from registration sensor. This signal goes Low when the flag moves out of the sensor.
CLUTCH-TRAY1 ON	Control signal for tray 1 feed clutch. Low: ON / High: OFF
CLUTCH-REGI ON	Control signal for registration clutch. Low: ON / High: OFF
FAN ALARM	Fan monitor signal. This signal goes High if there is a trouble with main fan.
D OUT	Signal indicating detection of toner in the print cartridge, from toner sensor.

Laser Unit, 5 V Interlock, Interlock Switch Assembly

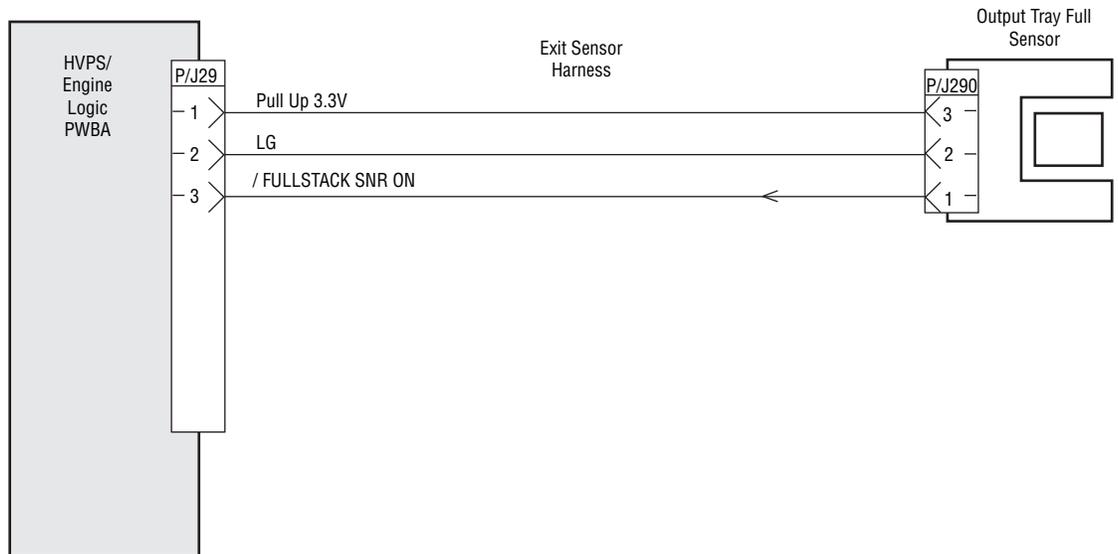


s4510-239

Signal line name	Description
/SOS	Synchronization signal generated by SOS Sensor. This signal commands start of each scan.
/PCONT	Sample / Hold circuit Low: Sampled (LD is forcibly lit up); High: Held
Vref	Laser output control signal for determining or adjusting the current flowing through Laser Diode.

Signal line name	Description
MO/DET-OUT	Laser output monitor signal for providing feedback of laser output beam from Laser Diode (analog signal).
/LDENB	Control signal permitting emission of Laser Diode. High: Laser Diode OFF.
XP DATA+	Print image data. DATA+ > DATA-: lit up DATA+ < DATA-: put out
XP DATA-	
/ROSMOT ON	Sensor Motor Control signal for turning Scanner Motor ON/OFF. Low: ON / High: OFF
/ROSMOT CLK	Clock signal to Laser Unit Motor.

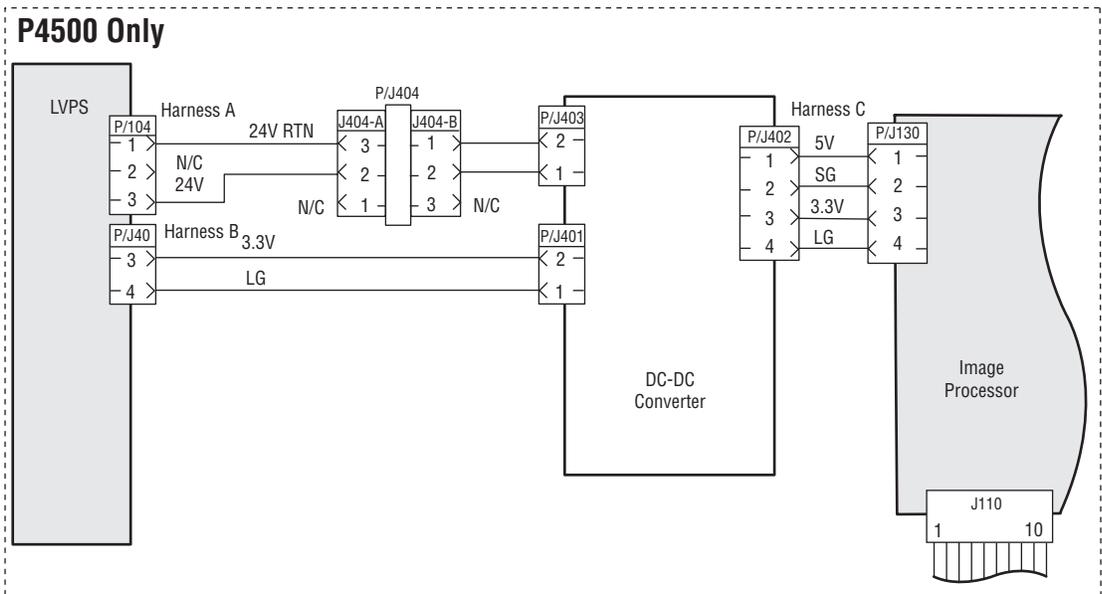
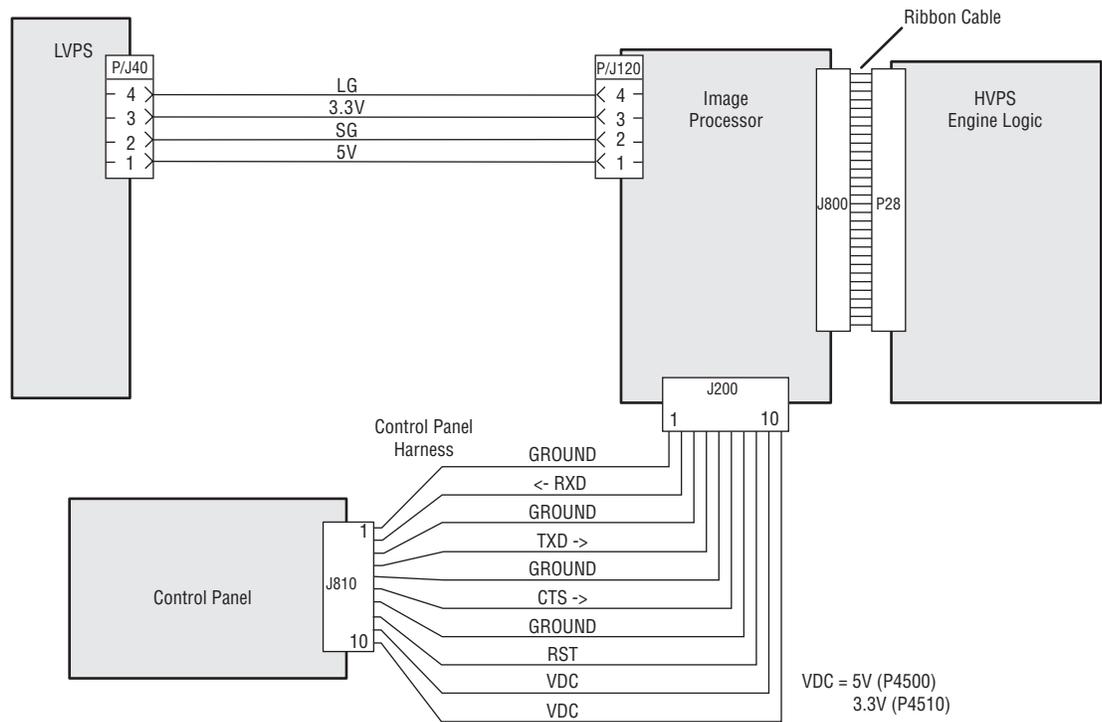
Paper Exit



s4510-240

Signal line name	Description
/FULLSTACK SNR ON	Signal from output tray full sensor. This signal goes Low when the flag moves out of the sensor.
/FACE UP OPEN SNR ON	Signal from Face-Up Open Sensor. This signal goes Low when the flag moves out of the sensor.

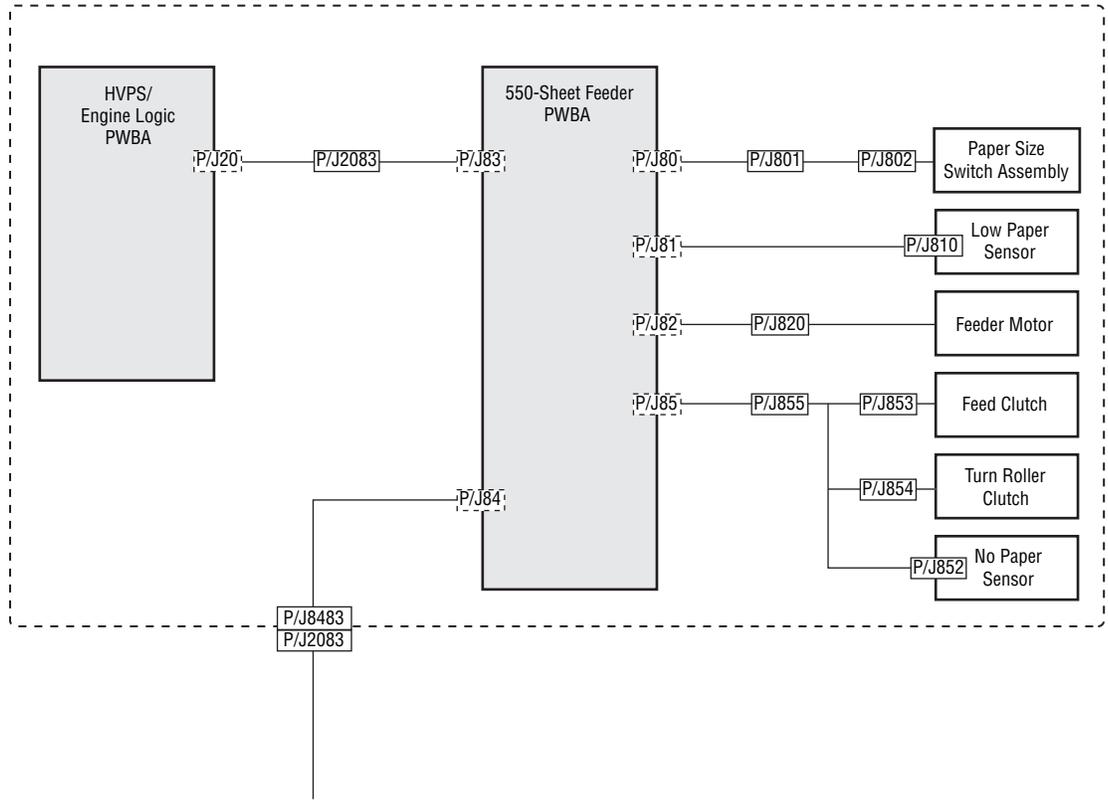
Image Processor Board, DC-DC Converter (P4500), Control Panel



s4510-266

Optional 550-Sheet Feeder

550-Sheet Feeder General Wiring Diagram

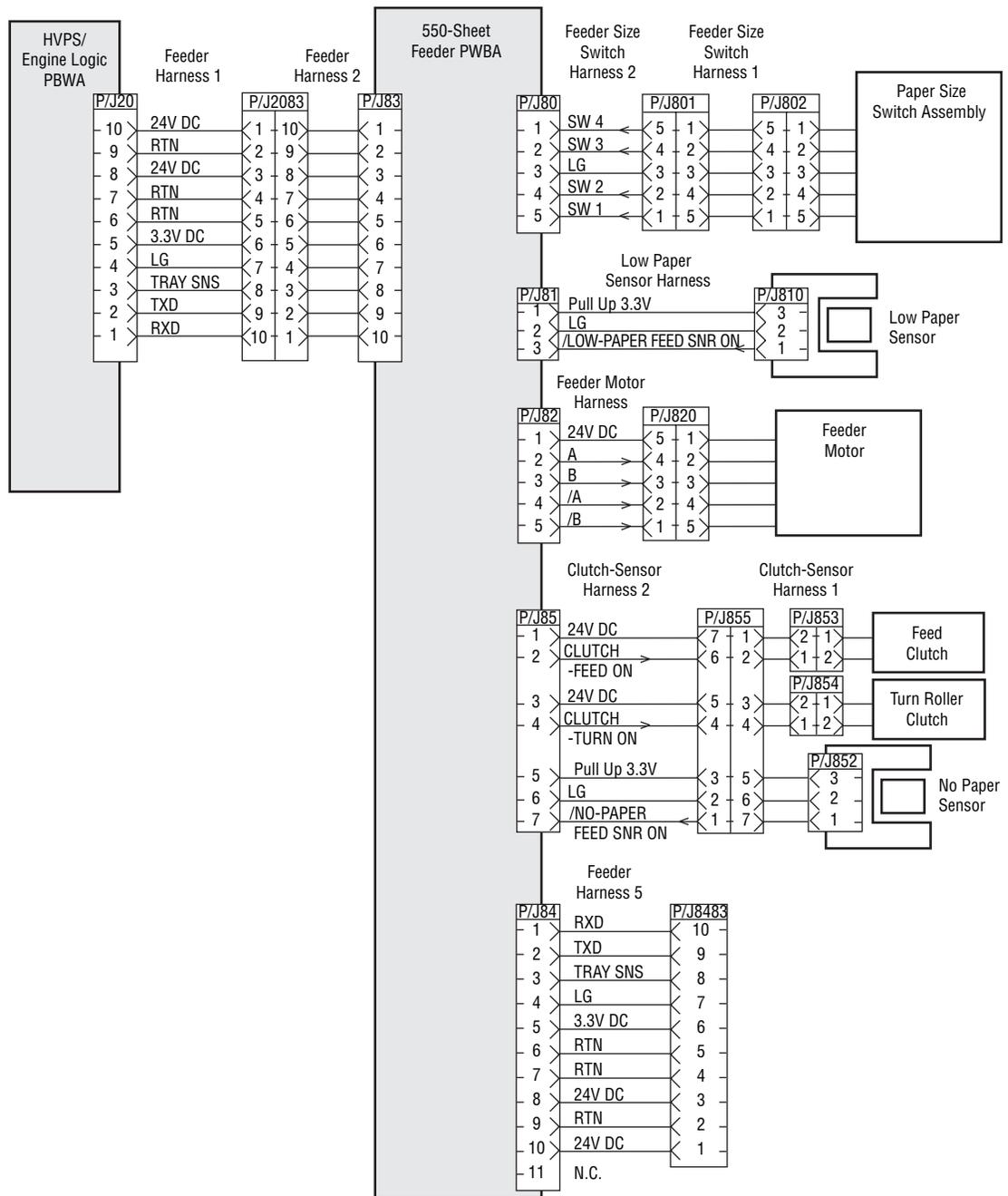


s4510-241

Note

The printer can have up to two optional 150-sheet paper feeders installed.

550-Sheet Feeder Signal Diagram



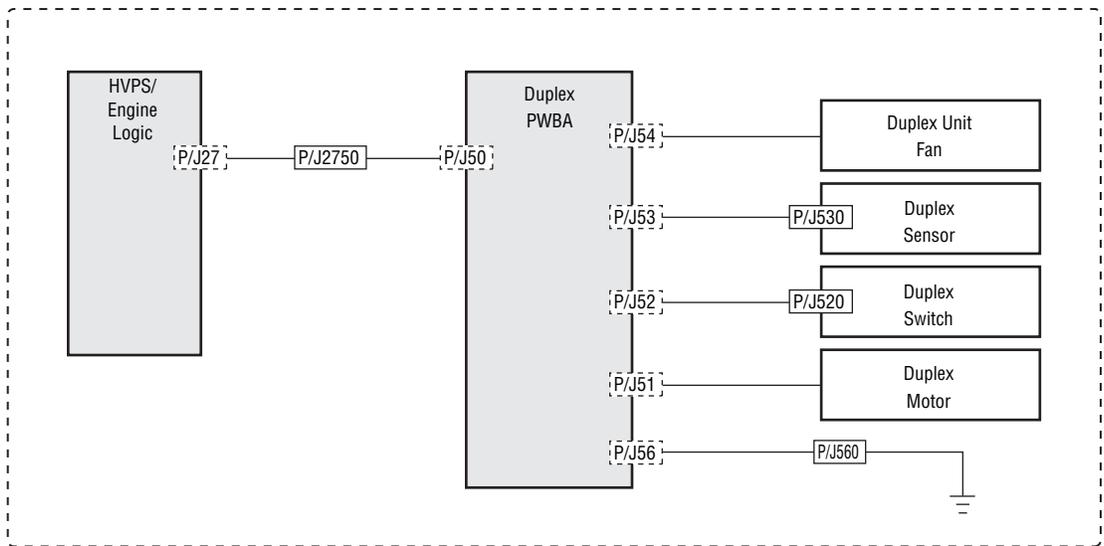
s4510-242

Signal line name	Description
TRAY SNS	Signal detecting an optional 150-sheet paper feeder. ID is recognized by the number of falling edges.
/LOW-PAPER FEED SNR ON	Signal from low paper sensor. This signal goes Low when the flag moves out of the sensor.
A and B	Excitation signal for feeder motor. Phases A and B.

Signal line name	Description
/A and /B	Excitation signal for feeder motor. Phases /A and /B.
CLUTCH-FEED ON	Control signal for feed clutch. Low: ON / High: OFF
CLUTCH-TURN ON	Control signal for turn roller clutch. Low: ON / High: OFF
/NO-PAPER FEED SNR ON	Signal from the no paper sensor. This signal goes Low when the flag moves out of the sensor.

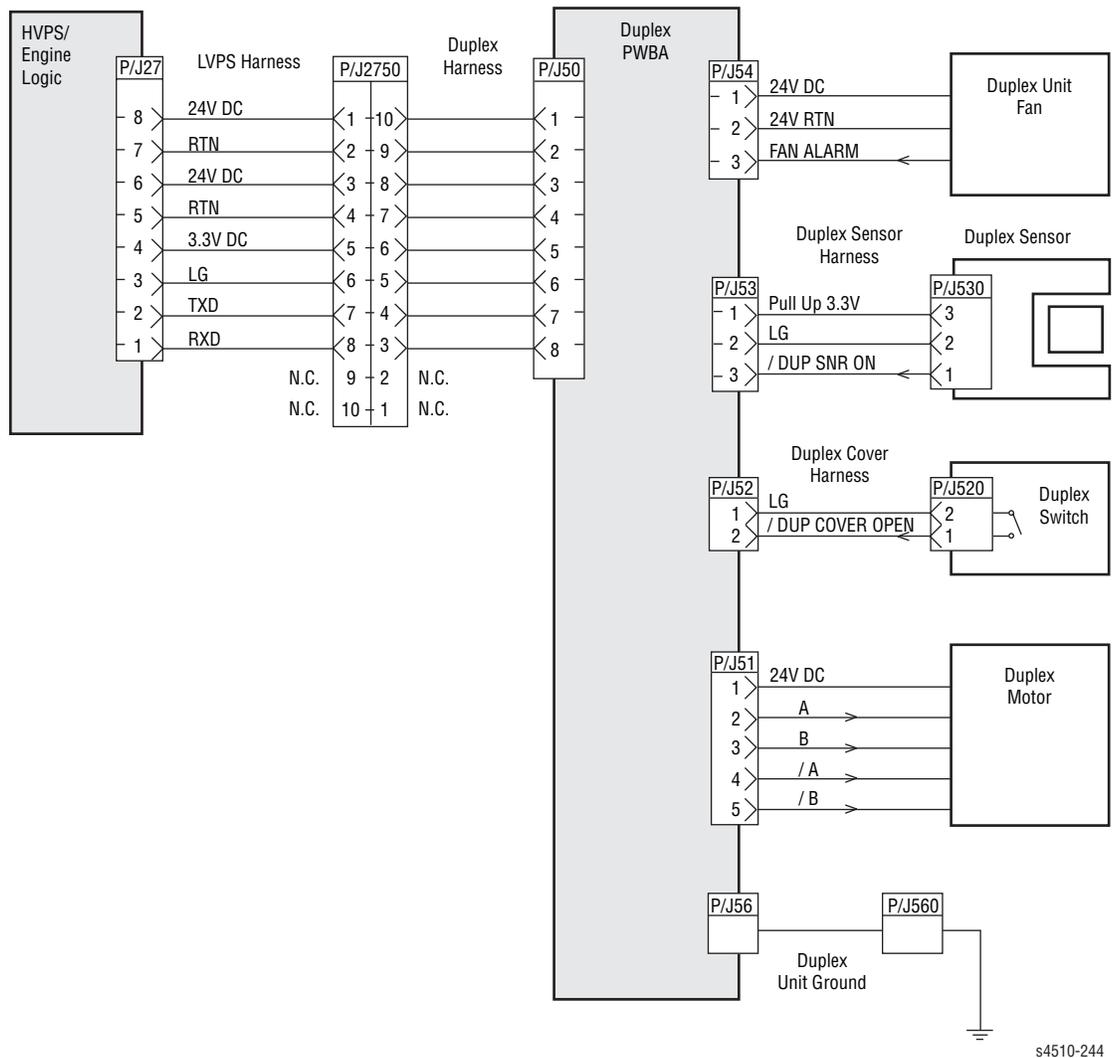
Duplex Unit

Duplex Unit General Wiring Diagram



s4510-243

Duplex Unit Signal Diagram

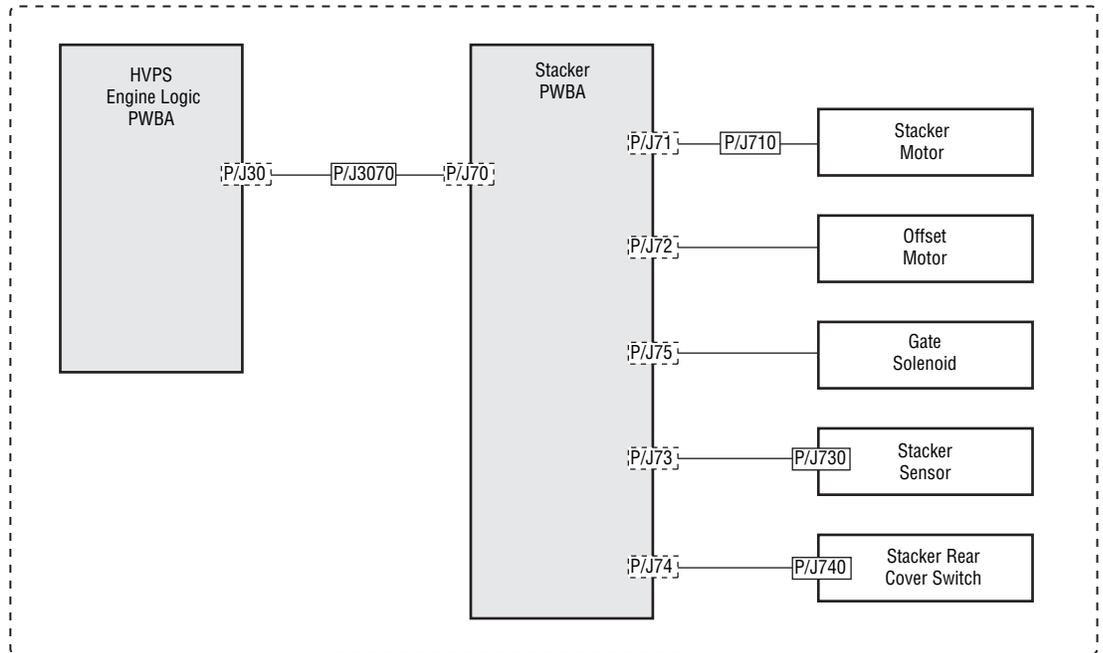


s4510-244

Signal line name	Description
FAN ALARM	Fan monitor signal. This signal goes High if there is a trouble with duplex unit fan.
/DUP SNR ON	Signal from duplex unit sensor. This signal goes Low when the flag moves out of the sensor.
/DUP Top Cover	Signal from duplex unit switch. This signal goes Low when the cover of Duplex (duplex unit housing cover) is closed.
A and B	Excitation signal for duplex unit motor. Phases A and B.
/A and /B	Excitation signal for duplex unit motor. Phases /A and /B.

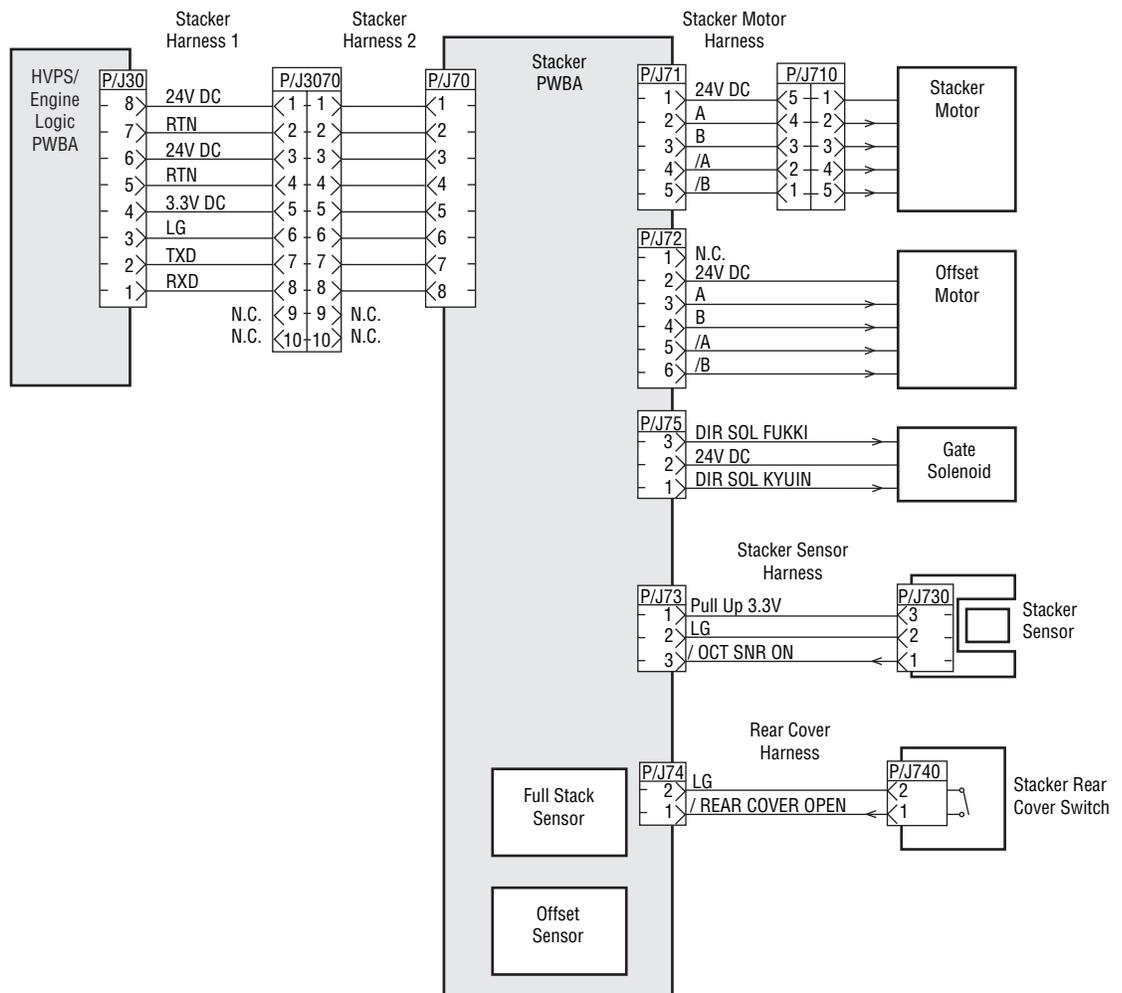
Stacker

Stacker General Wiring Diagram



s4510-245

Stacker Signal Diagram



s4510-246

Signal line name	Description
A and B	Excitation signal for stacker motor assembly and offset motor assembly. Phases A and B.
/A and /B	Excitation signal for stacker motor assembly and offset motor assembly. Phases /A and /B.
DIR SOL FUKKI DIR SOL KYUIN	Control signal for gate solenoid assembly.
/OCT SNR ON	Signal from duplex unit sensor. This signal goes low when the flag moves out of the sensor.
/REAR Top Cover	Signal from rear cover switch. This signal goes Low when the rear cover of stacker (rear cover) is closed.

Appendix

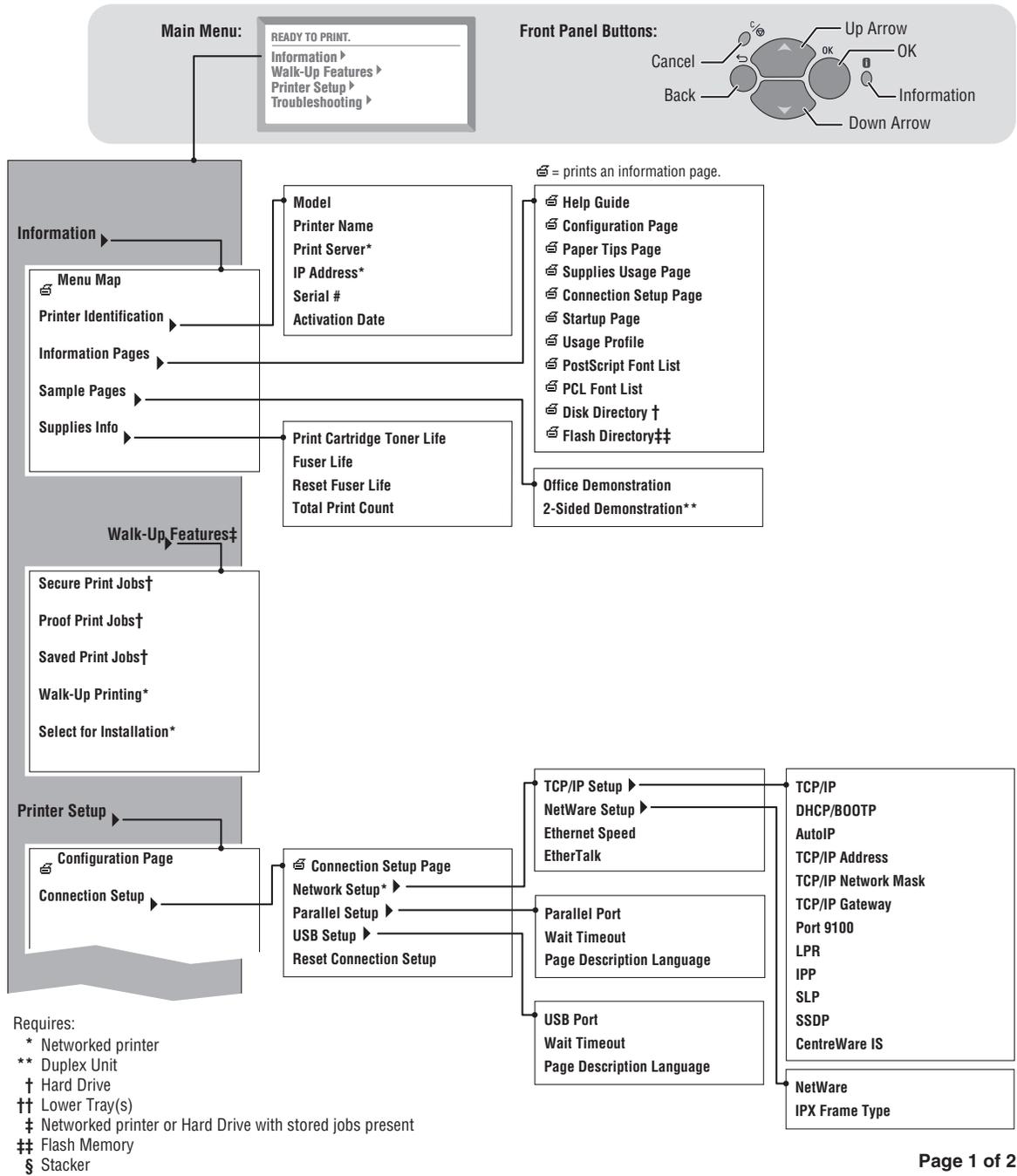
Contents...

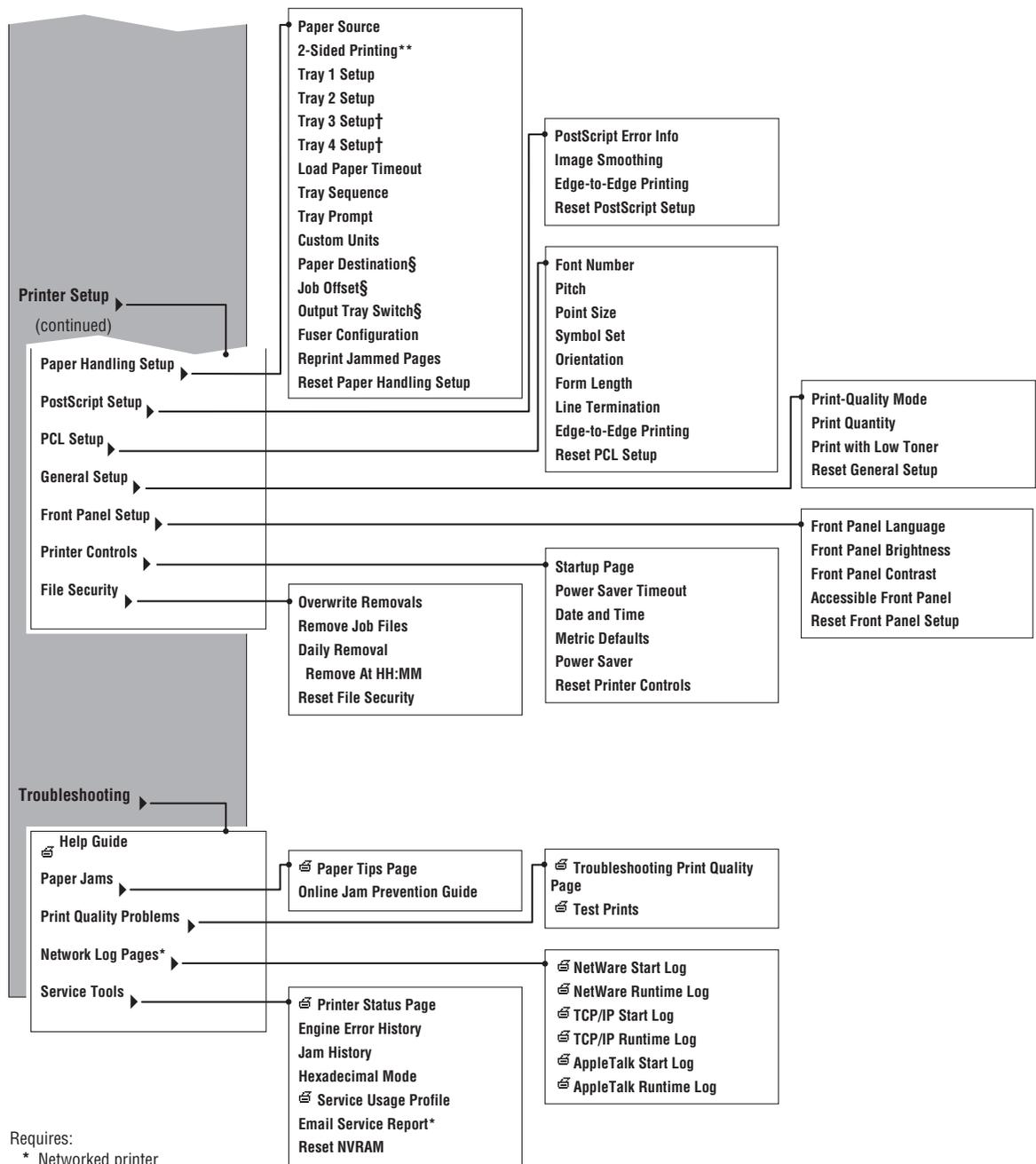
- Phaser 4500 Menu Map
- Phaser 4510 Menu Map
- Service Code Table

Appendix A



Phaser 4500 Menu Map

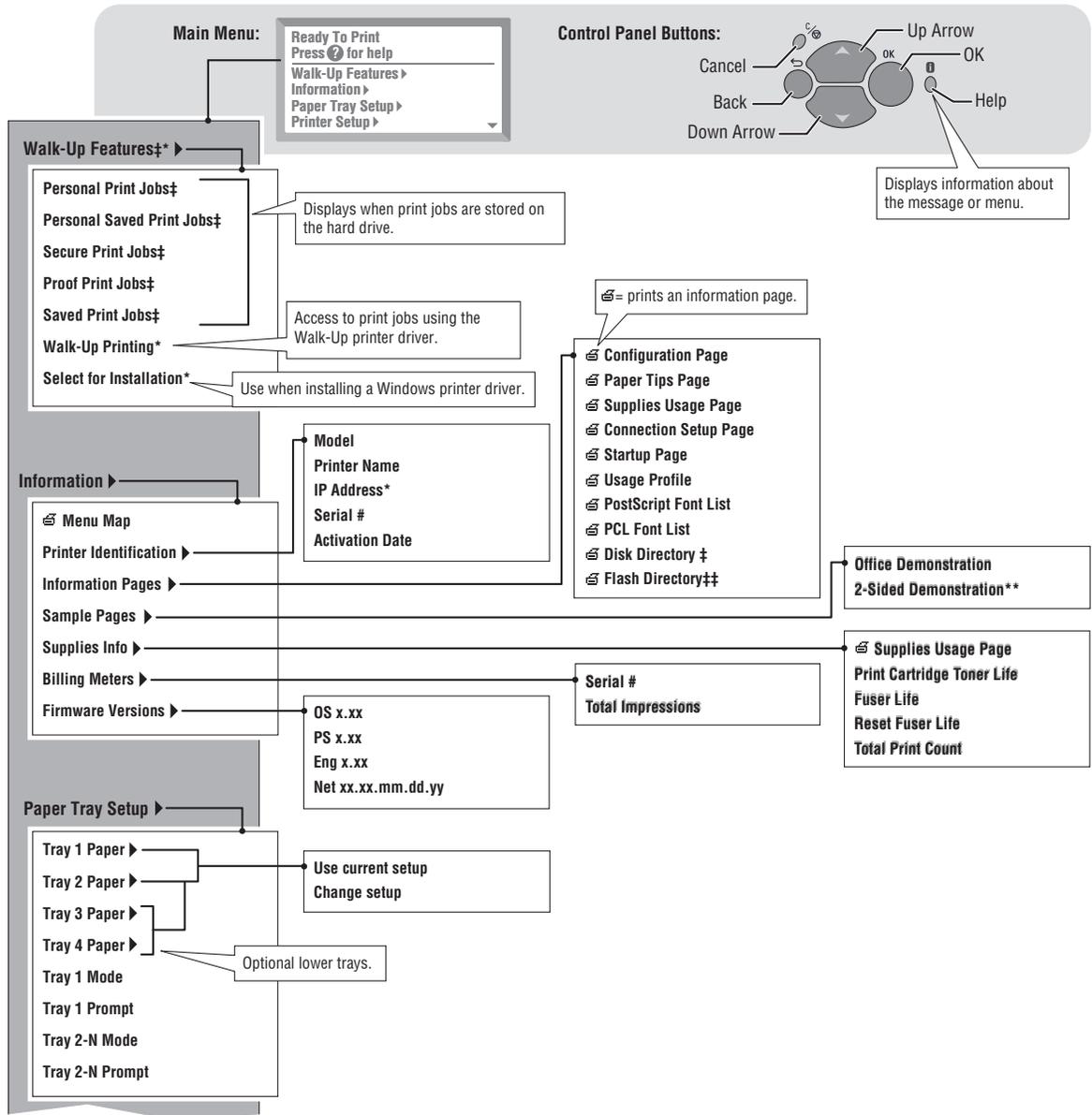




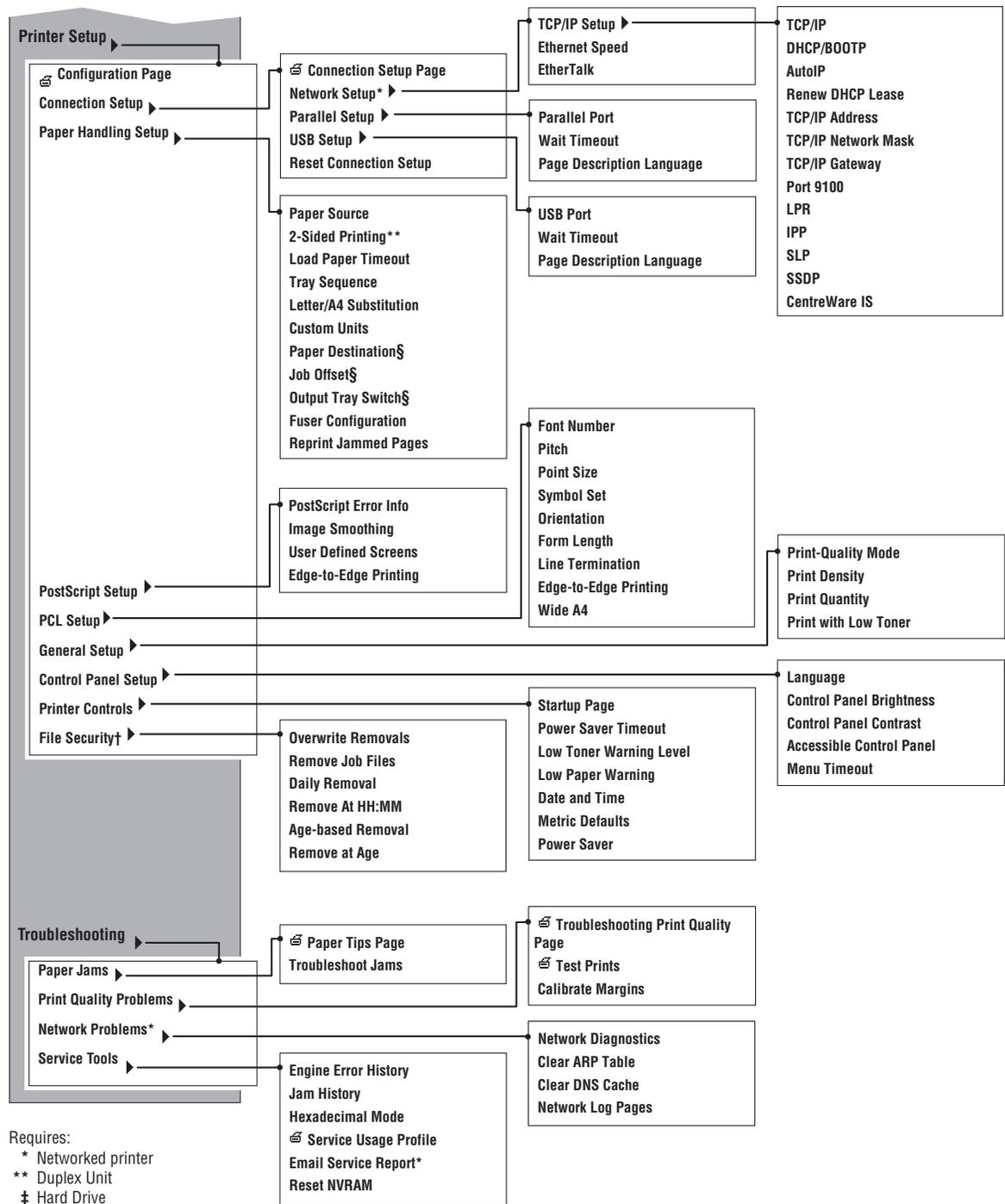
Requires:

- * Networked printer
- ** Duplex Unit
- † Hard Drive
- †† Lower Tray(s)
- ‡ Networked printer or Hard Drive with stored jobs present
- ‡‡ Flash Memory
- § Stacker

Phaser 4510 Menu Map



- Requires:
- * Networked printer
 - ** Duplex Unit
 - ‡ Hard Drive
 - ‡‡ Flash Memory
 - § Stacker



Service Code Table

Service codes that appear in the Phaser 4510's Service Usage Profile at line 237 and line 262, on the *Printer Status* page, and are output by the Diagnostic Fault History utility are defined in the following table. Refer to the Error Message Summary tables in "Troubleshooting Procedures for Error Messages and Codes" on page 3-21 for additional information.

Phaser 4510 Service Codes

Code	Error Description
65	Top Cover Open
66	Rear Cover Open
67	Duplex Unit Cover Open
68	Stacker Cover Open
1	E2_01
2	E2_02
3	E2_03
4	E2_04
5	E2_11
6	E2_12
7	E2_13
8	E2_14
9	E3_1
10	E3_2
11	E4_0
12	E4_2
13	E4_3
14	E6_1
15	E6_2
16	E7_0
17	E7_1
18	E7_2
19	E7_3
20	Error: Insert Tray 1
21	Error: Insert Tray 2
22	Error: Insert Tray 3
23	Error: Insert Tray 4
24	Out of paper: Load Tray 1
25	Out of paper: Load Tray 2
26	Out of paper: Load Tray 3

Phaser 4510 Service Codes

Code	Error Description
27	Out of paper: Load Tray 4
28	Error: Load Tray 1 - wrong size
29	Error: Load Tray 2 - wrong size
30	Error: Load Tray 3 - wrong size
31	Error: Load Tray 4 - wrong size
32	Paper not available: Load Tray 1
33	Paper not available: Load Tray 2
34	Paper not available: Load Tray 3
35	Paper not available: Load Tray 4
36	ODM requesting media
37	Error: Standard Output Bin Full
38	Error: Offset Stacker Full
39	Error: Toner Empty
40	Error: Toner Empty (PP)
41	Error: Install or Reseat Toner Cartridge
42	Error: Install or Reseat Toner Cartridge (PP)
43	Error: Non Xerox Toner Cartridge - Do Not Use
44	Error: Non Xerox Toner Cartridge - Do Not Use (PP)
45	Error: Incorrect Toner Cartridge
46	Error: Incorrect Toner Cartridge (PP)
47	Force Metered Toner
48	Error: Metered Toner Cartridge
49	Configuration Card Invalid
50	Configuration Card Missing
51	Fatal Failure: Duplex
52	Fatal Failure: Stacker
53	Fatal Failure: Tray 3 Needs POPO
54	Fatal Failure: Tray 3 or 4
55	Fatal Failure: Main Motor
56	Fatal Failure: Laser Unit
57	Fatal Failure: Fuser
58	Fatal Failure: Fan
59	Fatal Failure: NVM
60	Fatal Failure: Hard Disk
61	Fatal Failure: Flash DIMM

Phaser 4510 Service Codes

Code	Error Description
62	Error: Toner Cartridge - Bad CRUM Id
63	Error: Toner Cartridge - Bad CRUM Id (PP)
64	Metered Toner disabled

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