XEROX

**Service Manual**

701P28980

# Phaser® 6115MFP

## Color Laser Multifunction Product

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**Service Manual**

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## Color Laser Multifunction Product

**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.

Revised: Jan 2008

# 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.

### Common Acronyms:

The following list defines the acronyms that may be found in this manual.

ADC: Automatic Density Control
BTR: Bias Transfer Roller
CTD: Toner Density Control
ECB: Engine Control Board
ESD: Electrostatic Discharge
FRU: Field Replaceable Unit
IPB: Image Processor Board
IU: Imaging Unit
NCS: Non-Contact Sensor
PL: Corresponds to the FRU Parts List.

**Note**

A note indicates an operating or maintenance procedure, practice or condition that is necessary to efficiently accomplish a task.
A note can provide additional information related to a specific subject or add a comment on the results achieved through a previous action.

**Caution**

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

**Warning**

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

## Product Terms

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

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

# Symbols Marked on the Product

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

Do not touch the item.

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

# Power Safety Precautions

## Power Source

For 115 VAC printers, do not apply more than 135 volts RMS between the supply conductors or between either supply conductor and ground. For 230 VAC printers, do not apply more than 254 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord and connector. This manual assumes that the reader is a qualified service technician.

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

## Disconnecting Power

**Warning**

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

Disconnect the power cord in the following cases:

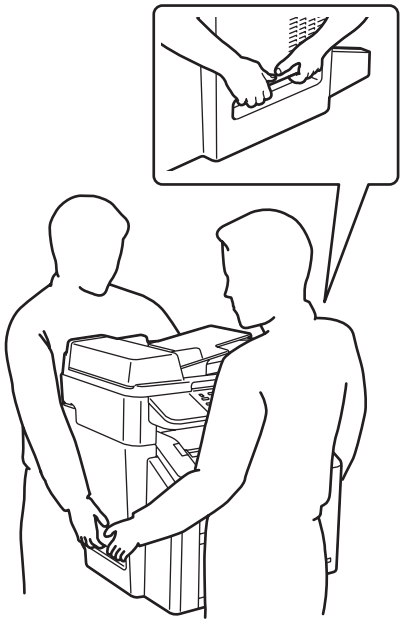
- if the power cord or plug is frayed or otherwise damaged,
- if any liquid or foreign material is spilled into the product,
- if the printer is exposed to any excess moisture,
- if the printer is dropped or damaged,
- if you suspect that the product needs servicing or repair,
- whenever you clean the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

## Moving the Printer

Follow these guidelines to avoid injuring yourself or damaging the printer:

- Do not place any food or liquids on the printer.
- Turn off the printer and unplug all power cables before moving the printer.

- Always lift the printer from the designated lift points.




**Caution**

Damage to the printer resulting from improper moving or failure to repackage the printer properly for shipment, is not covered by the warranty, service agreement, or Total Satisfaction Guarantee. The Total Satisfaction Guarantee is available in the United States and Canada. Coverage may vary outside these areas; please contact your local representative for details.

# 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.
- Do not remove a replacement component or electrical sub-assembly from its protective package until you are ready to install it.
- After removing a static sensitive assembly (such as a PCB board or an NVRAM) 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.
- Immediately before removing the protective material from the leads of a replacement device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
- Minimize body motions when handling unpacked replacement devices. Motion such as your clothes brushing together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an electro-statically sensitive device
- Handle IC's and EPROM's carefully to avoid bending pins.
- Pay attention to the direction of parts when mounting or inserting them on Printed Circuit Boards (PCB's).

# Service Safety Summary

## General Guidelines

**For qualified 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.

### Warning Labels

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

### Safety Interlocks

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

### CLASS 1 LASER PRODUCT

The Phaser 6115MFP Multifunction Product is certified to comply with Laser Product Performance Standards set by the U.S. Department of Health and Human Services as a Class 1 Laser Product. This means that this product does not emit hazardous laser radiation; which is possible only because the laser beam is totally enclosed during all modes of customer operation. When servicing the printer or laser unit, follow the procedures specified in this manual and there will be no hazards from the laser.

## Servicing Electrical Components

Before starting any service procedure, switch 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**

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 Fusing Unit is VERY HOT. Turn the printer power off and wait at least 5 minutes for the Fusing Unit to cool before you attempt to service the unit or adjacent components.

# Regulatory Specifications

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

## United States (FCC Regulations)

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

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

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

## Canada (Regulations)

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

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

## European Union

Xerox Corporation declares, under our sole responsibility, that the product to which this declaration relates is in conformity with the following standards and other normative documents:

- **January 1, 1995: Low Voltage Directive 73/23/EEC as amended by 93/68/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.

# Manual Organization

The *Phaser 6115MFP Multifunction Product Service Manual* is the primary document used for repairing, maintaining, and troubleshooting the printer. Use this manual as your primary resource for understanding the operational characteristics of the printer and all available options. This manual describes specifications, theory, and the diagnosis and repair of problems occurring in the print engine and attached options. Also included are detailed replacement procedures, parts lists, and wiring diagrams.

The *Phaser 6115MFP Multifunction Product Service Manual* contains these sections:

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

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

**Chapter 2 - Theory of Operation:** This section contains detailed functional information on print engine components.

**Chapter 3 - Error Codes and Messages:** This section provides detailed troubleshooting procedures for error messages and codes generated by resident diagnostics.

**Chapter 4 - General Troubleshooting:** Troubleshooting discussions cover the operation of Power On Self Test (POST), Service Diagnostics, In addition, this section includes troubleshooting methods for situations where no error indicator is available.

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

**Chapter 6 - Adjustments and Print Function Settings:** This section provides procedures for the adjustment of print engine components and service settings for print functions.

**Chapter 7 - Cleaning and Maintenance:** This section provides periodic cleaning procedures for the printer.

**Chapter 8 - Service Parts Disassembly:** This section contains removal procedures for spare parts listed in the Parts List. A replacement procedure is included when necessary.

**Chapter 9 - Parts List:** This section contains exploded views of the print engine and option FRUs, as well as part numbers for orderable parts.

**Chapter 10 - Wiring Diagrams:** This section contains the plug/jack locations and the wiring diagrams for the print engine.

**Index:** This section indexes all part numbered components and associated error codes, troubleshooting, operational information, disassembly procedures, and wiring.

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## 1 General Information



## 2 Theory of Operation

# 3 Error Codes and Messages



# 4 General Troubleshooting

# 5 Print-Quality Troubleshooting



# 6 Adjustments and Print Function Settings

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# General Information

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- System Options
- System Specifications

Chapter 1

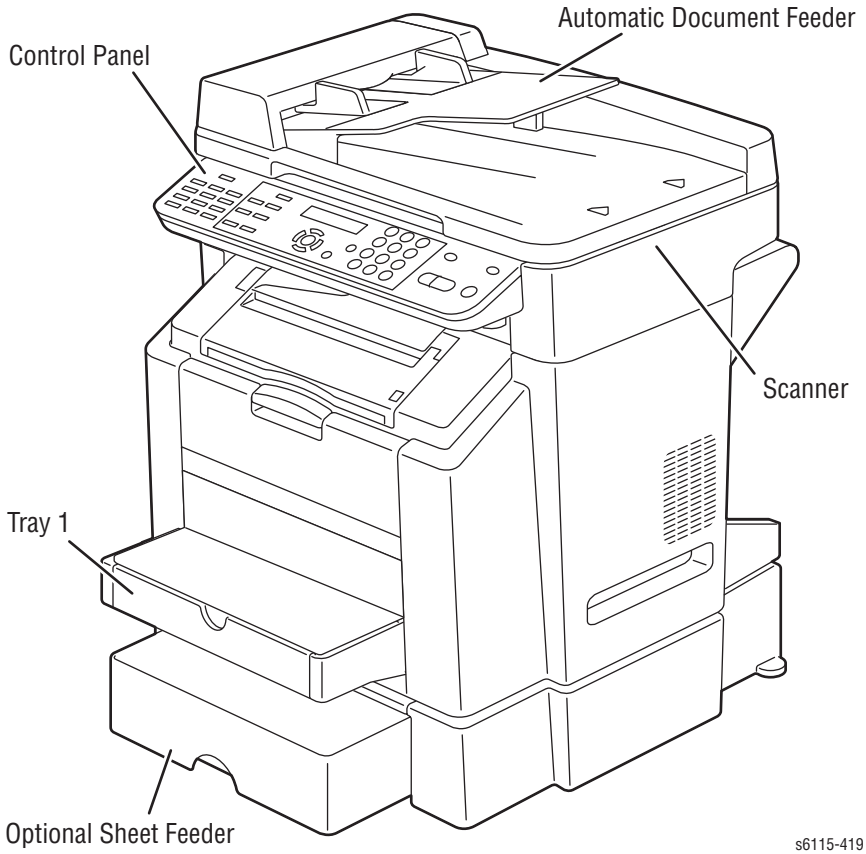
# Printer Introduction and Overview

The Xerox Phaser 6115MFP Multifunction Product combines a color laser print engine, a Copier, Scanner, and Fax. The system is a high performance, Letter or A4, 20 page per minute (ppm) monochrome, 5 ppm Color desktop multifunction product supporting resolutions up to 2400 x 600 dots-per-inch (dpi). The system features USB and 10/100baseT Ethernet ports. The Phaser 6115MFP provides a 200-sheet Tray 1 (MPT) from which specialty media, card stock, and envelopes are fed. Tray 1 (MPT) also supports manual feeding. An additional tray, Tray 2, provides 500 sheets of capacity. The Exit Tray holds 100 sheets facedown.

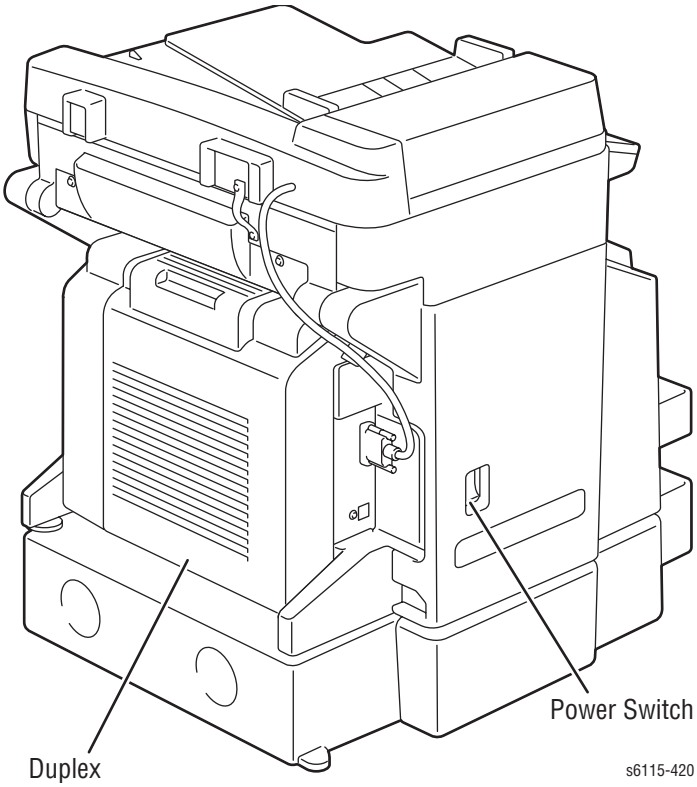
Phaser 6115MFP options add paper capacity and functionality. For configurations not originally equipped, a 500-Sheet Feeder (Tray 2) adds input capacity, and the Duplex Unit enables auto-duplexed (2-sided) printing.

The Fax portion of the system incorporates a resolution of up to 203 dpi by 392 dpi. Fax features include a modem speed of up to 33.6 Kbps using V.34 standard transmission, print capability of up to a maximum of 250 printed pages. The Fax includes a phone book, real time clock, and auto redial.

## Phaser 6115MFP Front View (with Optional Sheet Feeder)



## Phaser 6115 MFP Rear View



# System Configurations

The Phaser 6115MFP Multifunction Product is available in two configurations. The main differences is the addition of the Duplex Unit to enable 2-sided printing. The following table lists both configurations.

| Features | Configuration | |
|---|---|---|
| | **6115N** | **6115D** |
| **Max Print Speed (ppm) color/monochrome** | 5/20 | 5/20 |
| Memory* | 128 MB | 128 MB |
| USB Port | Yes | Yes |
| 10/100 Ethernet Port | Yes | Yes |
| Duplex Unit | No | Yes |
| PostScript and PCL Fonts | Yes | Yes |
| Print Resolutions (dpi):<br>Draft<br>Standard<br>Enhanced | <br>600x600<br>1200x600<br>2400x600 | <br>600x600<br>1200x600<br>2400x600 |
| Copy Speed (dpi or ppm):<br>600x300<br>600x600 | Color/Mono<br>5/12 ppm<br>2.5/6 ppm | Color/Mono<br>5/12 ppm<br>2.5/6 ppm |
| Scan Resolutions (dpi or ppm):<br>600x300<br>600x600 | Color/Mono<br>70/30 mm/sec<br>35/14 mm/sec | Color/Mono<br>70/30 mm/sec<br>35/14 mm/sec |
| 500-Sheet Feeder** | Optional | Optional |

* All configurations have two memory slots supporting 256 MB and 512 MB cards, to a maximum of 1 GB.
**One 500-sheet feeder (Tray 2)

# System Specifications

## Electrical Specifications

| | | |
|---|---|---|
| Power Requirements | Voltage: | AC 110 to 127 V<br>AC 220 to 240 V |
| | Frequency: | 50/60 Hz ± 3 Hz |
| Max Power Consumption | | 1100 W or less |
| Dimensions | | 528 (W) x 475 (D) x 531 (H) mm<br>20 3/4 (W) x 18 3/4 (D) x 21 (H) inch |
| Weight | | 32 kg (70 1/2 lb) or less<br><br>39 kg (86 lb) or less (w/packing material) |
| Operating Noise | | During standby: 39 dB (A) or less<br>During printing: 53 dB (A) or less |

## Operating Environment

| | |
|---|---|
| Operating Noise | During standby: 35 dB (A) or less<br>During printing: 54 dB (A) or less |
| Operating Range Temperature | 10° to 32° C / 50° to 90° F (with a fluctuation of 10° C / 18° F or less per hour) |
| Operating Range Humidity | 10%-80% RH @ 15° to 32° C/59° to 89° F to with water vapor no higher than 25.5 C/77.9° F 80% condition. |
| Operating Range Altitude | 0-2,500 meters (8,000 ft.) |
| Transportation Range Temperature | -20° C to +55° C/-4° to 131° F |
| Transportation Range Humidity | 30%-85% RH, non-condensing |

# Product Specifications

## Media Input Capacity

| Type | Desktop |
|---|---|
| Printing System | Semiconductor laser and electrostatic image transfer to plain paper |
| Exposure System | 2 laser diodes and polygon mirror |
| PC Drum Type | OPC (organic photo conductor) |
| Photoconductor Cleaning | Blade cleaning system |
| Scan Resolution | 600 x 600 dpi, 600 x 300 dpi |
| Print Resolution | 2400 x 600 dpi, 1200 x 600 dpi, 600 x 600 dpi |
| Copy Resolution | 600 x 600 dpi |
| Platen | Stationary |
| Original Scanning | Scanning in main scanning direction with a CCD |
| Registration | Rear left edge |
| Paper Feeding System | Tray1: 200 sheets<br>Tray2: 500 sheets (Option) |
| Developing System | Single-element developing system |
| Charging System | DC comb electrode Scorotron system |
| Image Transfer System | Intermediate transfer belt system |
| Paper Separating System | Curvature separation + Charge-neutralizing system |
| Fusing System | Roller fusing |
| Paper Exit System | Face down (Exit Tray capacity: 100 sheets) |

## Built-in Controllers

| | | |
|---|---|---|
| CPU | Embedded RISC processor 48MHz | |
| Standard memory | SDRAM | 128 MB on IPB |
| | | 16 MB on LANB |
| Optional Memory | Not supported | |
| Interfaces | Host (PC) interface | USB device (High-speed mode 480 Mbps) |
| | Camera direct interface | USB Host (Full-speed mode 12 Mbps) |
| | Network interface | Ethernet 10/100 BaseT |
| | PSTN line (Fax RX/TX) | Telephone line jack/External device jack |
| OS compatibility | Windows 98SE/Me/2000/XP/Server 2003 | |

## Media Specifications

| Paper Type | Size | Paper Type | Size |
|---|---|---|---|
| Letter | 8.5" x 11" | Government Letter | 8.0" x 10.5" |
| A4 | 210 x 297 mm | Government Legal | 8.0" x 13" |
| Legal | 8.5" x 14" | SP Folio | 8.5" x 12.69" |
| Folio | 210 x 330 mm | DL | 110 x 220 mm |
| Executive | 7.25" x 10.5" | C5 | 162 x 229 mm |
| B5 (JIS) | 182 x 257 mm | C6 | 114 x 162 mm |
| B5 (ISO) | 176 x 250 mm | Monarch | 3.88" x 7.5" |
| A5 | 148 x 210 mm | Com 10 | 4.13" x 9.5" |
| Statement | 5.5" x 8.5" | Japanese PostCard | 100 x 148 mm |
| Foolscap | 8" x 13" | Custom size | Width 92-216 mm |
| UK Quatro | 8" x 10" | | Length 148-356 mm* |
| Custom Paper Sizes | Paper width: 92 to 216 mm (3.6" to 8.5") | | |
| | Paper length: 148 to 356 mm (5.9" to 14") | | |
| Media Types | Plain Paper (60 to 90 g/$m^2$ / 16 to 24 lb.)<br>Transparencies<br>Thick stock (90 to 163 g/$m^2$/ 25 to 40 lb.)<br>Postcards<br>Envelopes<br>Letterhead<br>Label stock (60-163 g/$m^2$/16-43 lb. bond)<br>Glossy stock(163 g/$m^2$ index max/110 lb. book max) | | |

## Functional Specifications

### Function Table

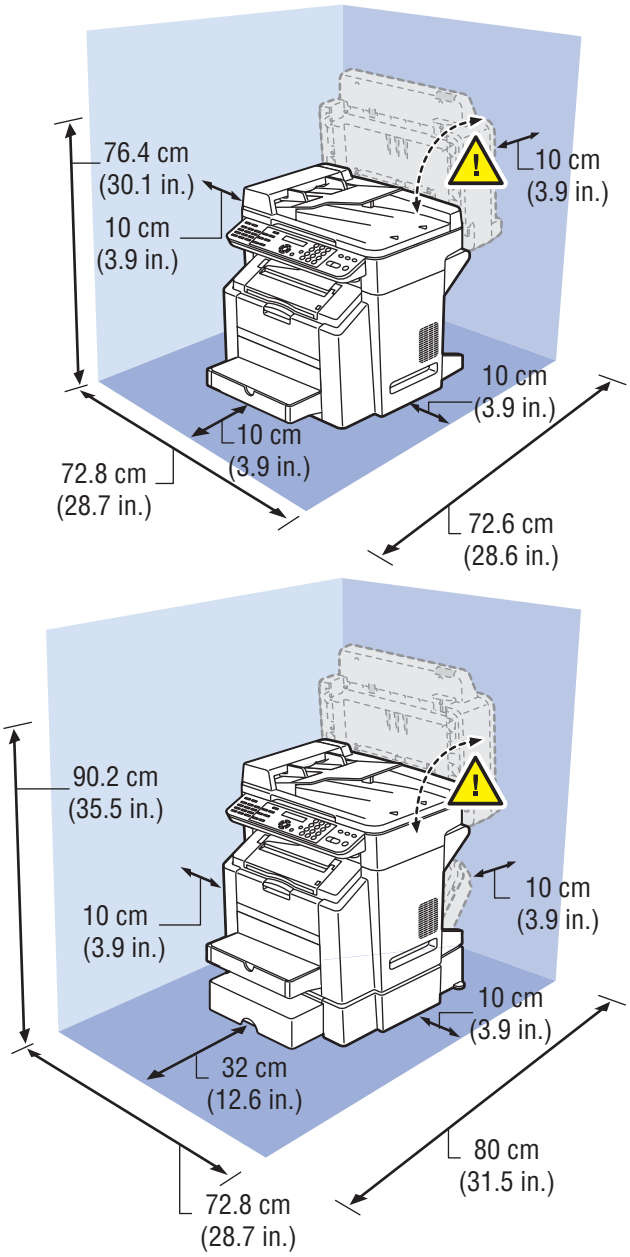
| Function | Description | |
|---|---|---|
| Warm-up time | Average: 45 seconds (100 V area)<br>Average: 49 seconds (200 - 240 V area)<br>(at ambient temperature of 23 °C/73.4 °F and rated source voltage) | |
| System Speed | Plain paper | 126.78 mm/second |
| | Thick stock | 63.39 mm/second |
| | Transparency film | 42.26 mm/second |
| First-page-out (Plain paper) | Full color | 22 seconds or less: LetterS, A4S |
| | Monochrome | 13 seconds or less: LetterS, A4S |
| First copy time (Plain paper) | Full color | 52 seconds (600 x 300 dpi scan) |
| | Monochrome | 23 seconds (600 x 300 dpi scan) |
| Copy / Print speed (Plain paper) | Full color | 5 pages/minute |
| | Monochrome | 20 pages/minute |
| Printable Margin | Non-printable area (margin) 4mm (0.16”) from edge of listed media size except for Legal size. For Legal size, the bottom 16mm is black only, color printing area only reaches 335.6mm from top edge of page. | |
| | Horizontal position | 4mm +/- 2.0mm (0.08”) |
| | Vertical position | 4mm +/- 2.5mm (0.10”) |
| Image Skew | Create a rectangle box of 189mm by 256mm (7.4” by 10.1”) to measure image skew. | |
| | Simplex vertical skew<br>Simplex horizontal skew | +/- 2.0 mm (0.08”)<br>+/- 2.5mm (1.0”) |
| | Duplex vertical skew<br>Duplex horizontal skew | +/- 3.0 mm (0.12”)<br>+/- 2.5mm (1.0”) |
| Custom paper sizes | Paper width: 92 to 216 mm (3 1/2 to 8 1/2 inch) | |
| | Paper length: 148 to 356 mm (5 3/4 to 14 inch) | |
| Media types | Plain Paper (60 to 90 g/m² / 16 to 24 lb)<br>Recycled paper (60 to 90 g/m² / 16 to 24 lb)<br>Transparencies<br>Thick stock (91 to 163 g/m² / 25 to 40 lb)<br>Postcards, Envelopes, Letterhead, Label stock, Glossy stock | |
| Tray capacities | Plain paper and letterhead, 200 sheets<br><br>Transparencies, thick stock, postcards, labels stock, and glossy stock, 50 sheets<br><br>Envelopes, 10 sheets | |
| Machine Durability | 200,000 prints or 5 years, whichever comes first | |
| Color to color registration | Vertical: Average 0.12mm (0.005”)<br>Horizontal: Average 0.12mm (0.005”) | |

## FAX Specifications

| | | |
|---|---|---|
| Resolution | Standard (203 dpi x 98 dpi) | |
| | Fine (203 dpi x 196 dpi) | |
| | Super fine (203 dpi x 392dpi) | |
| Halftone Level | Standard/Fine/Super fine | |
| | Half tone standard/Half tone fine/Half tone super fine | |
| Automatic reduction | Receive | Supported |
| | Transmit | Not supported |
| Compatibility | ECM/Super G3 | |
| Modem speed | V.34 (up to 33.6 Kbps) | |
| Transmit speed | 3 second/page (at V.34) | |
| Compression | MH/MR/MMR/JBIG | |
| Memory for receiving | 4 MB for fax-RX (approx. 250 pages), (included in 32 MB NAND flash) | |
| Remote setting | Available via USB/Network | |
| Paper size | A4, Legal, Letter | |
| Functions | One touch dial | 9 one-touch key on operation panel |
| | Speed dial | 100 fax numbers |
| | Group dial | 9 groups (50 destination stations for one group) |
| | Broadcast | Available maximum 125 stations.<br>(One-touch dial 9 stations, speed dial 100 stations, full dial 16 stations) |
| | Other supported functions | Timer transmission, phone book, real time clock, auto redial, reduce/split, smoothing |

## Physical Dimensions and Clearances

To ensure easy operation, consumable replacement and maintenance, adhere to the recommended space requirements detailed below.



# ADF Specifications

## ADF Unit

| | |
|---|---|
| Power requirements | DC 24 V (supplied from the main unit) |
| | DC 5 V (supplied from the main unit) |
| Max. power consumption | 30 W |
| Dimensions | 518 (W) x 350.1 (D) x 90.3 (H) mm<br>20 1/2 (W) x 13 3/4 (D) x 3 1/2 (H) inch |
| Unit Weight | 3.2 kg (7 lb) |
| Input tray capacity | 50 sheets @80 gsm (32lb Cover) |
| Supported media weight/size | Width: 140 - 216mm (5.5” - 8.5”)<br>Length: 148 - 500mm* (5.8” - 19.7”)<br>* 500mm for FAX only |

# Options Specifications

## Duplex Unit

| | |
|---|---|
| Power Requirements | DC 24 V ± 10% (supplied from the main unit) |
| | DC 5 V ± 5% (supplied from the main unit) |
| Max. Power Consumption | 42 W |
| Dimensions | 370 (W) × 153 (D) × 318 (H) mm<br>14 1/2 (W) × 6 (D) × 12 3/4 (H) inch |
| Weight | Approx. 2.4 kg (5 1/4 lb) |

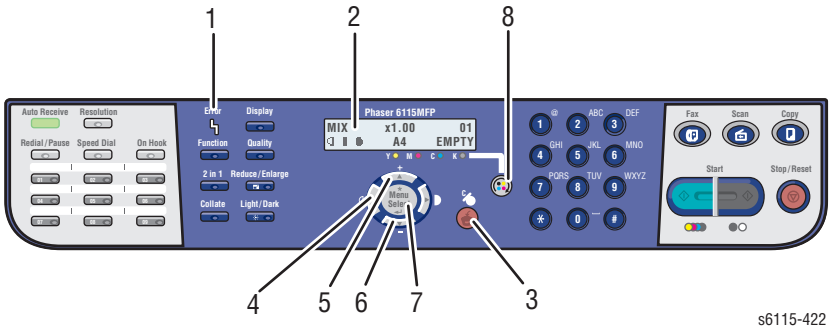
## 500-Sheet Feeder

| | |
|---|---|
| Power Requirements | DC 24 V ± 10% (supplied from the main unit) |
| | DC 5 V ± 5% |
| Max. Power Consumption | 12 W |
| Dimensions | 495 (W) × 581 (D) × 138 (H) mm<br>19 1/2 (W) × 22 3/4 (H) × 5 1/2 (D) inch |
| Weight | 5.0 kg |

# Control Panel Description

The Control Panel contains one tricolor LED, a display window, and six function buttons. These buttons navigate the menu system shown in the display window, perform various functions, and select modes of operation for the printer.

## Control Panel Buttons




1 LED (Power/Status)

2 Control Panel Display

3 **Cancel** Button

4 **Back** Button

5 **Up Arrow** Button - scrolls up the menu

6 **Down Arrow** Button - scrolls down the menu

7 **OK** (select) Button

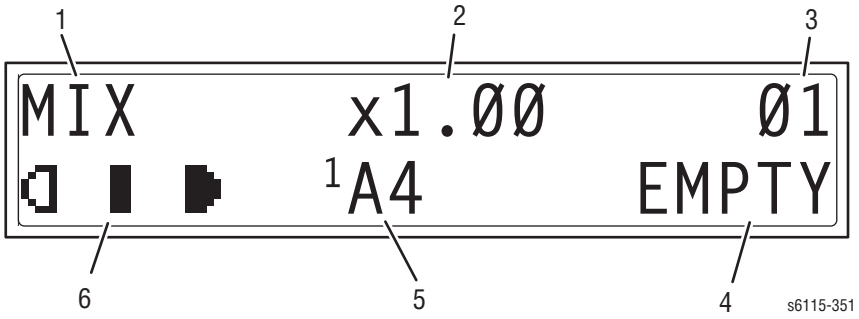
8 **TC Change** Button - rotates the toner rack to select the individual toner cartridges

### LED Indicators:

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

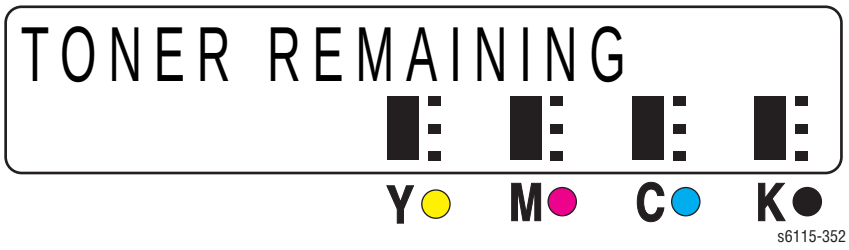
## Control Panel Display

After Power-up, the following screen appears on the Control Panel:




| No. | Name | Description |
|---|---|---|
| [1] | Document type | Displays the type of the document currently set. |
| [2] | Zoom ratio | Displays the zoom ratio currently set. |
| [3] | Number of copies | Displays the number of copies set to be made. |
| [4] | Status | Displays messages such as when paper is empty.<br>Displays messages such as when toner is low. |
| [5] | Paper tray/paper size | Indicates the selected paper tray and paper size. |
| [6] | Copy density | Displays the copy density currently set. |

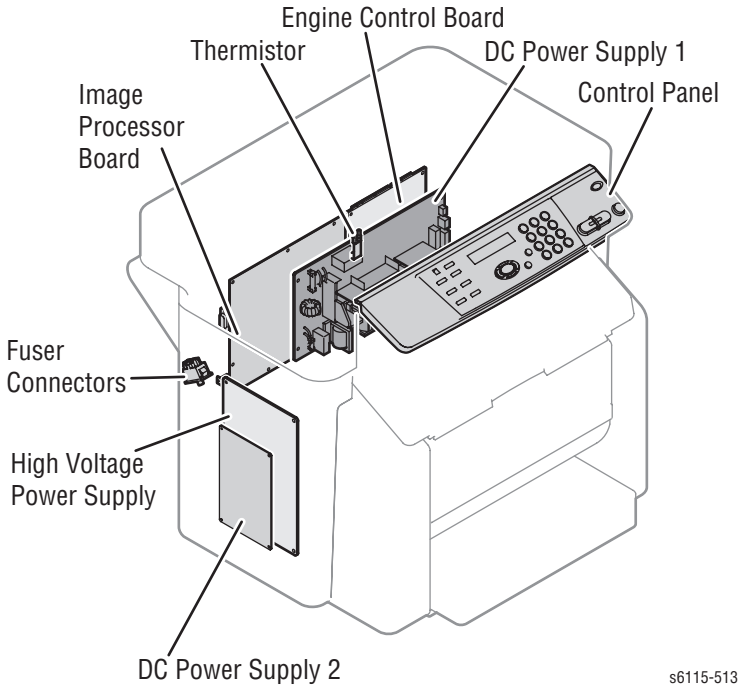
- Pressing the Display key will display the [TONER REMAINING] screen.
- Pressing the Cancel/C key will cause the Main screen to reappear.



# Main Engine Components

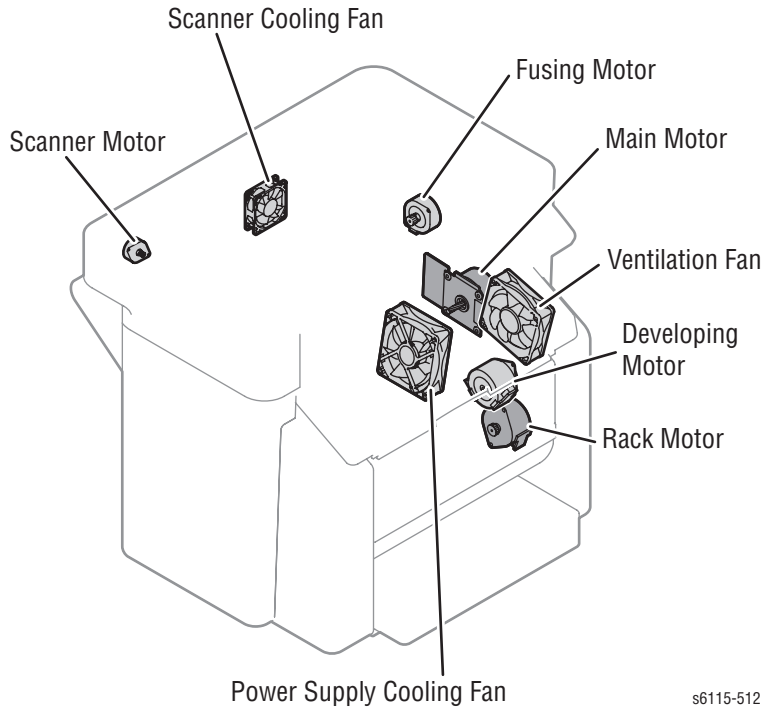
## Boards and Power Supplies Locator

The following illustration provides a basic locator for the main system boards and power supplies.



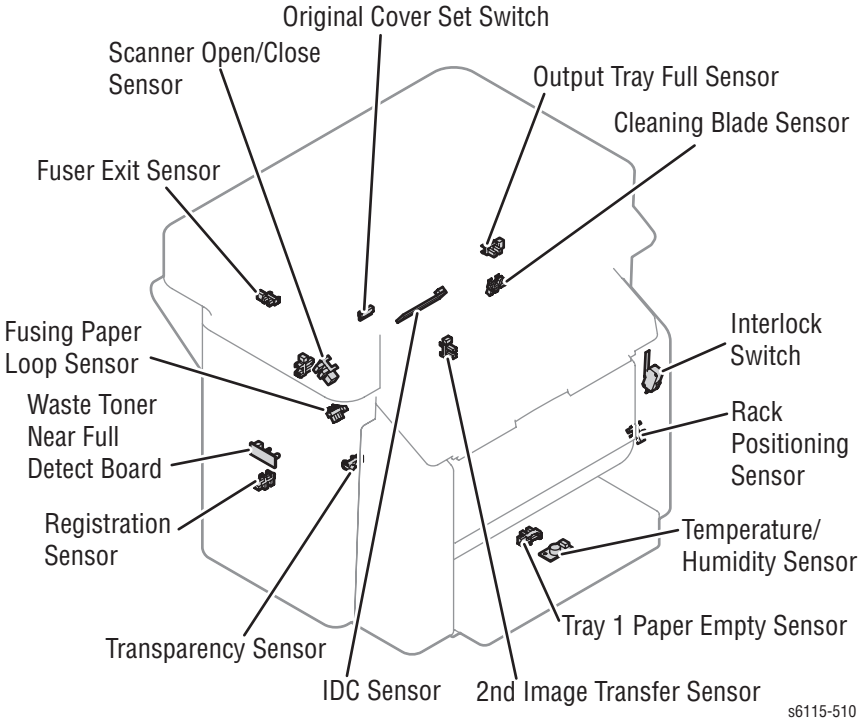
## Motors and Fans Locator

The following illustration provides a basic locator for the main engine motors and fans.



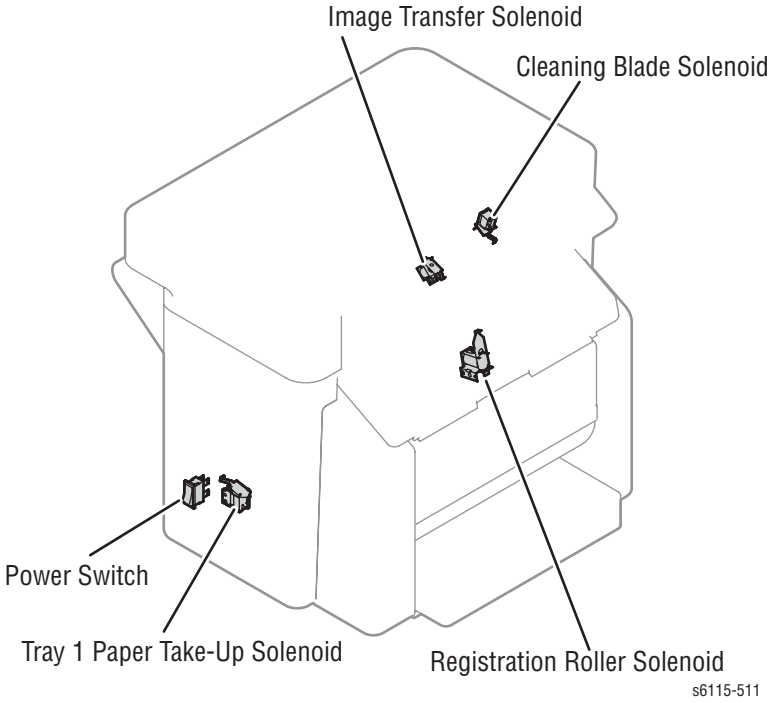
## Sensors and Switches Locator

The following illustration provides a basic locator for the main system sensors and switches.



## Solenoids and Power Switch Locator

The following illustration provides a basic locator for the main system solenoids.

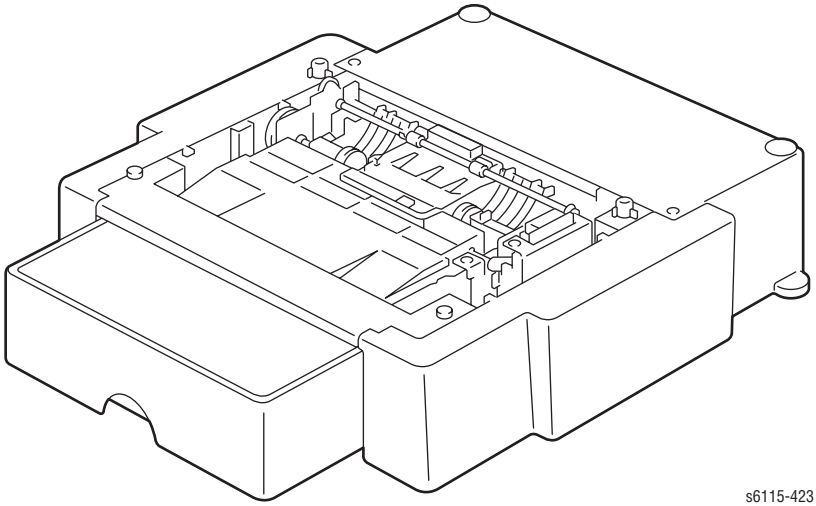


# System Options

Phaser 6115MFP options include a 500-Sheet Feeder and a Duplex Unit.

## 500-Sheet Feeder (Tray 2)

The 500-Sheet Feeder (Tray 2) increases the input capacity of the system. The feeder attaches below Tray 1 with four screws. Only one 500-Sheet Feeder is supported. Electrical connection to the printer is made by a single interface connector.



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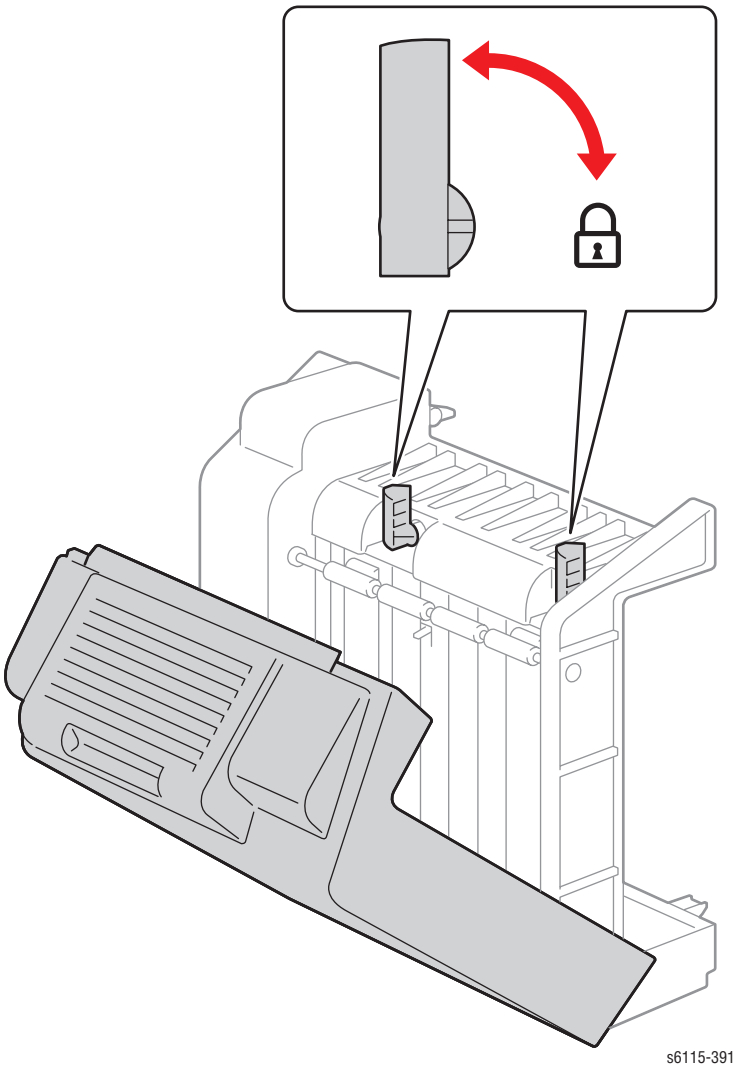
## Duplex Unit

The Duplex Unit adds two-sided printing. The Duplex Unit attaches in back of the system using two twist locks. Electrical connection to the printer is made by an interface cable.



s6115-391

# Consumables and Maintenance Parts

Consumables consist of the four toner cartridges (standard and high capacity). Maintenance items consist of the imaging unit, the Fusing Unit, the Transfer Roller, the Waste Box, and a maintenance kit of spare hardware.

## Consumable Part Numbers

The following table lists the cartridge types and their part numbers. Refer to Chapter 9 for a complete listing of all print engine and option parts.

**Consumable Part Numbers**

| Description | Part number |
|---|---|
| CYAN STANDARD CAPACITY PRINT CARTRIDGE, PHASER 6120/6115mfp | 113R00689 |
| MAGENTA STANDARD CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP | 113R00691 |
| YELLOW STANDARD CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP | 113R00690 |
| CYAN HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP | 113R00693 |
| MAGENTA HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP | 113R00695 |
| YELLOW HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP | 113R00694 |
| BLACK HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP | 113R00692 |

## Maintenance Part Numbers

The following table lists the cartridge types and their part numbers. Refer to Chapter 9 for a complete listing of all print engine and option parts.

**Maintenance Part Numbers**

| Description | Part number |
|---|---|
| FUSING UNIT, 110V, PHASER 6120/6115mfp | 126K23192 |
| FUSING UNIT, 220V, PHASER 6120/6115MFP | 126K23202 |
| IMAGING UNIT, PHASER 6120/6115MFP | 108R00691 |
| TRANSFER ROLLER, PHASER 6120/6115MFP | 059E05450 |
| HARDWARE MAINTENANCE KIT, PHASER 6120/6115MFP | 604K35500 |

## Consumable Life Counter Behavior

Internal counters track Consumables and Maintenance Items life usage. The Image Processor Board monitors these counters in order to display the near end-of-life and end-of-use messages.

Life ratings are based on A-size sheets at 5% coverage. Imaging Unit life ratings are based on average 4 page job length.

| **Toner Cartridges** | **Print Life** |
|---|---|
| Black-Capacity<br>Color Capacity Standard/Hi | 4500<br>1500, 4500 |
| **Maintenance Items** | |
| Imaging Unit | 35,000 |
| Fusing Unit | 100,000 |
| Transfer Roller and Waste Box | 25,000 |
| Feed Roller Kit | up to 100,000 |

### Low/Out Behavior for Consumables

| | **Front Panel Message** | **Low** | **Hard Stop** | **Reset to 0** |
|---|---|---|---|---|
| Toner (pixel) | Low / Out | 96%/<br>88%* | | By new toner |
| Toner (page) | Low / Out | | 6000 pages | By new toner |
| Imaging unit (rotation) | Low / Out | 96% | when waste toner box full | By new imaging unit |
| Transfer belt | No | No | No | By front panel (user) |
| Fusing Unit | No | No | No | By control panel (Service) |
| Transfer roller | No | No | No | By front panel (Service) |
| Pick roller | No | No | No | none |

* For 4.5K/1.5K toner. Toner life calculations are based on 5% coverage.

** 45,000 images for continuous printing, shorter job length will shorten the imaging unit life.

# Theory of Operation

## In this chapter...

- Operational Overview of the Phaser 6115MFP
- Paper Path of the Printer
- Major Assemblies and Functions
- Sensors

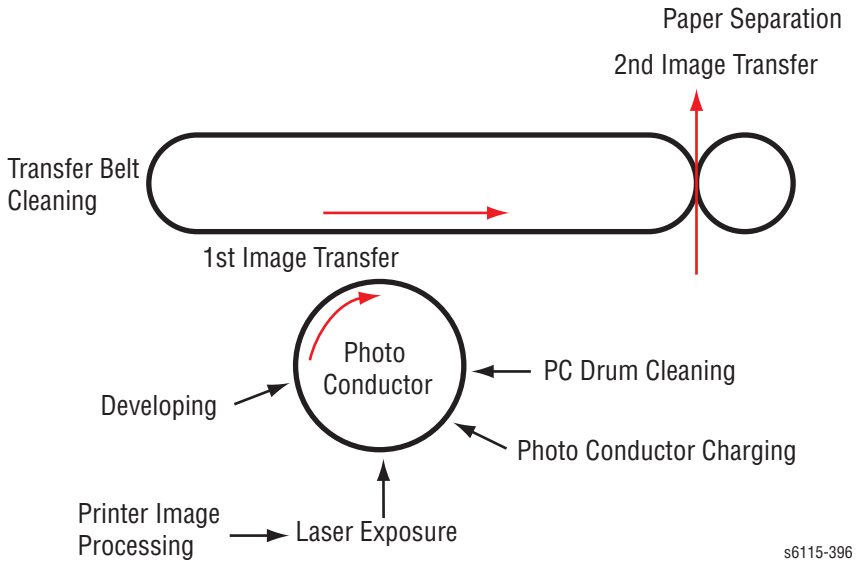
Chapter 2

# Operational Overview of the Phaser 6115MFP

The Phaser 6115MFP Multifunction Product is a full-color laser printer that utilizes electrophotographic recording principals to place a full color image onto the print media. The system, as it appears in the following illustration, contains a drum and developing unit for each color [yellow, magenta, cyan and black (YMCK)], and places the toner image of each color onto print media producing full-color prints.

## Print Cycle

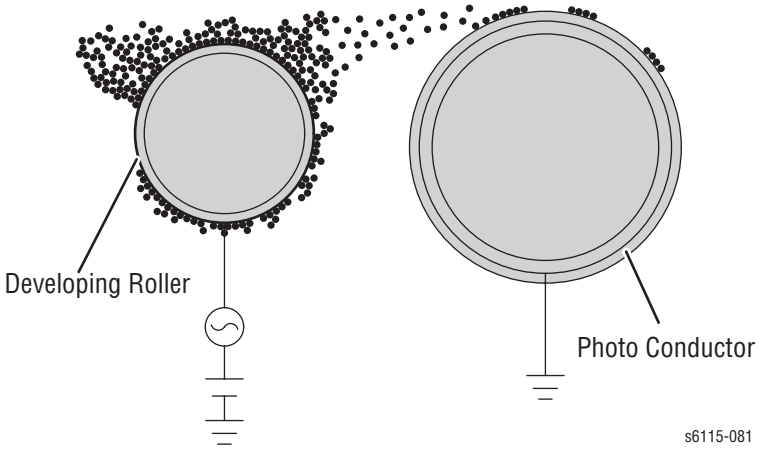
The block diagram of the Phaser 6115MFP print cycle provides the sequence of events for the xerographic process and the paper flow into and out of the printer.



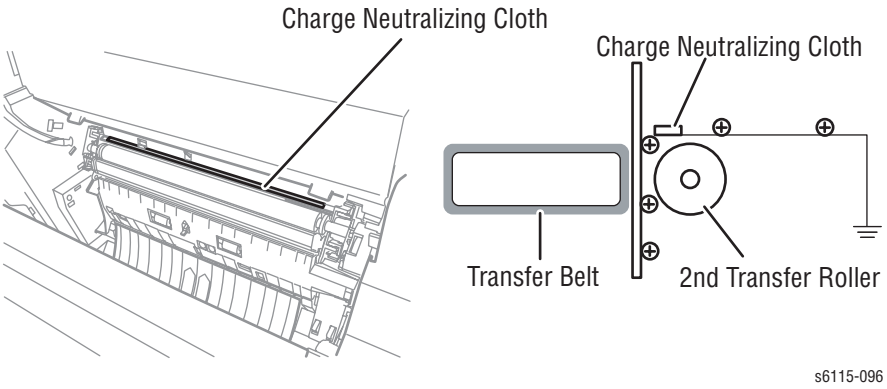

The Phaser 6115MFP print process consists of these steps:

1. Exposure
   The surface of the Drum is irradiated with the laser light and an electrostatic latent image is formed.
2. Developing
   The toner, negatively charged in the Hopper, is attracted onto the electrostatic latent image formed on the surface of the Drum.

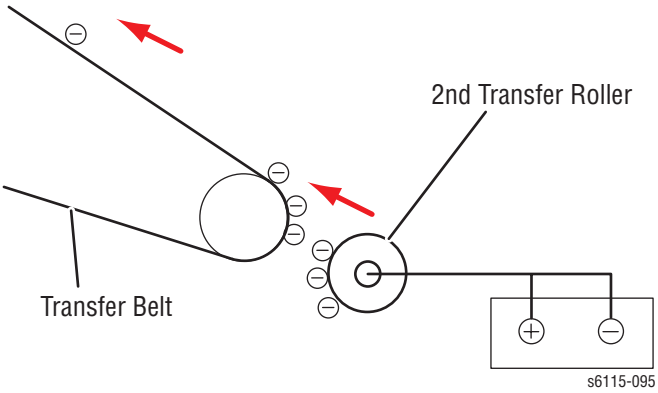
A DC negative bias voltage is applied to the Developing Roller, thereby preventing toner from sticking to the background image portion.




3. Image Transfer to Belt
   A DC positive voltage is applied to the backside of the Transfer Belt to attract the visible, developed image from the surface of the Drum.
4. Image Transfer to Media
   A DC positive voltage is applied to the backside of the paper to attract the visible, developed image on the surface of the Transfer Belt to the media.
5. Paper Separation
   A Charge Neutralizing Cloth is provided on the guide plate to neutralize the charge.



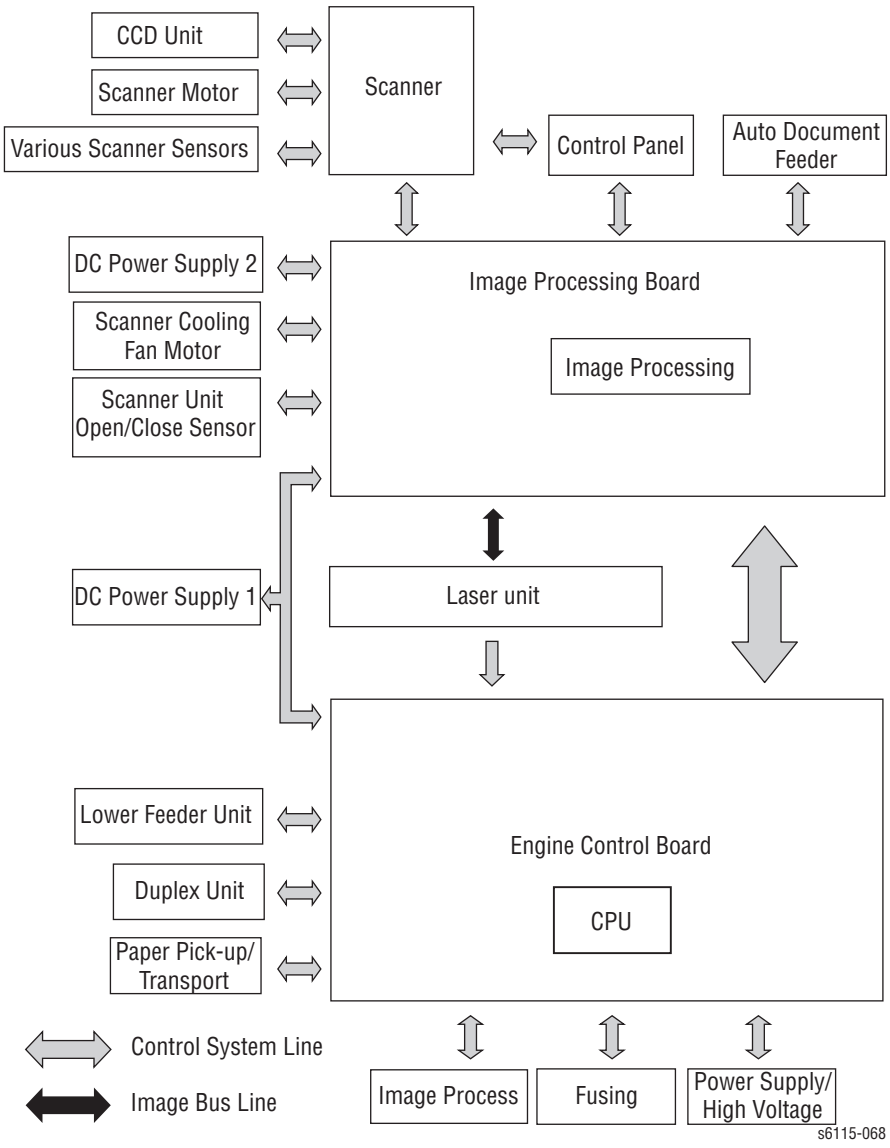

6. Transfer Roller Cleaning
   The residual toner left on the surface of the Transfer Roller) is removed by an alternating DC charge that transfers the waste toner back to the Transfer Belt for collection by the Transfer Belt cleaning blade.



7. Transfer Belt Cleaning
   A charge is applied to the Transfer Belt. By potential difference, residual toner on the surface of the Transfer Belt is collected for cleaning. The toner scraped off the surface of the photo conductor is collected in the Imaging Unit.
8. Fusing
   Toner is permanently fused to the paper by the combination of heat and pressure applied by the Fuser.

## System Control

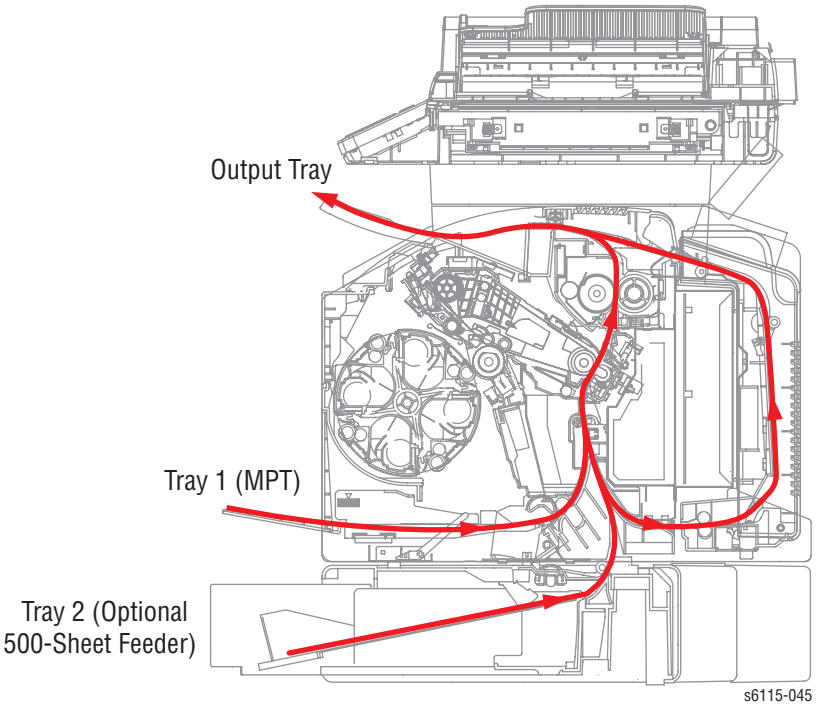
The following diagram shows the major operating components and their basic connection to each other.



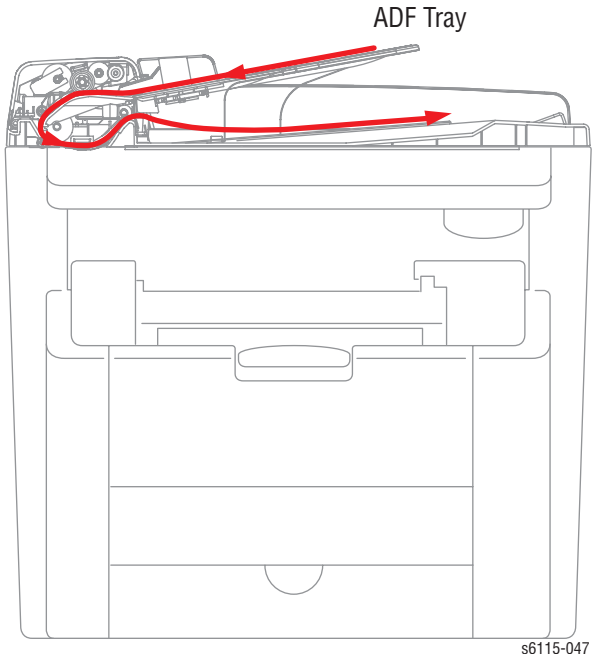
# Paper Path of the Printer

## Main Print Engine Paper Path

The print media is supplied from Tray 1 or the optional Tray 2, and is transported into the printer along the paper path as shown in the diagram.

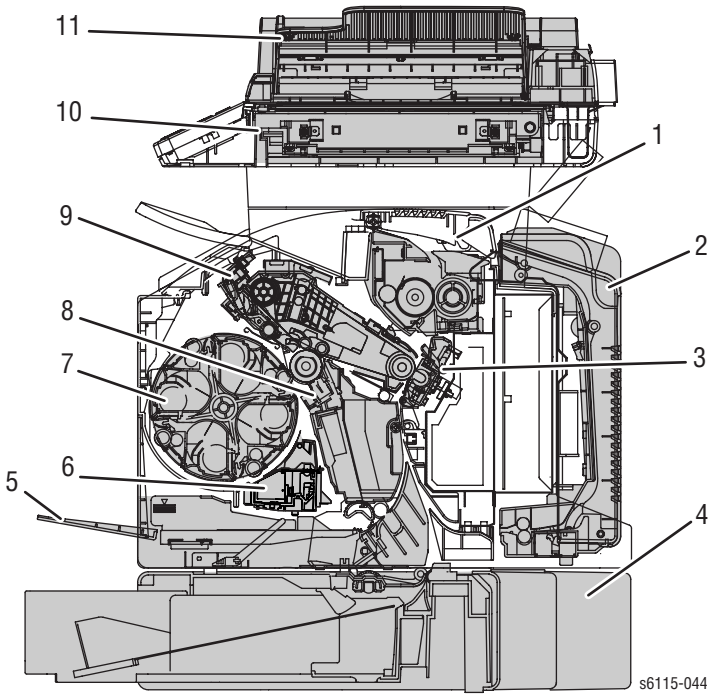



## Automatic Document Feeder (ADF) Print Path



# Major Assemblies and Functions

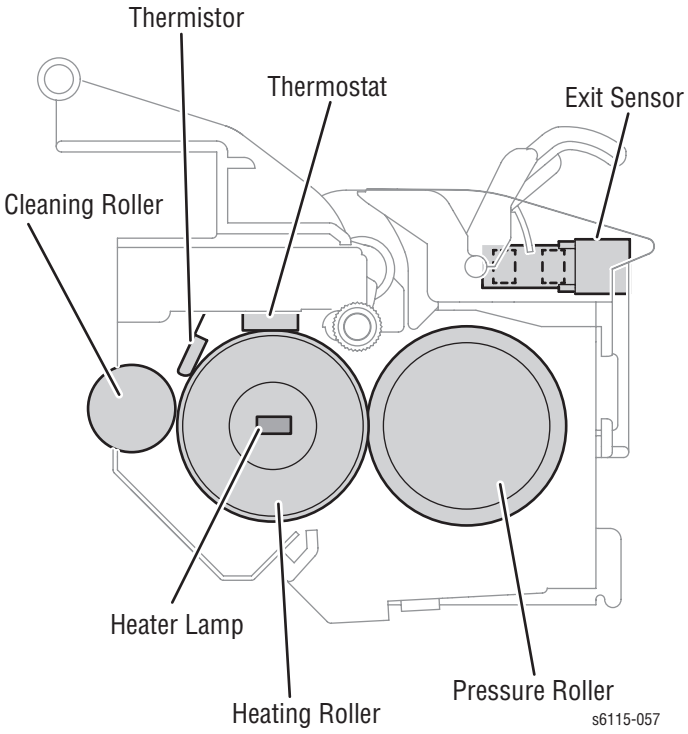
The location of the system's primary functional components is shown.




| | | | |
|---|---|---|---|
| 1 | Fusing Unit | 7 | Toner Cartridges |
| 2 | Duplex Unit | 8 | Imaging Unit |
| 3 | Transfer Roller | 9 | Transfer Belt |
| 4 | Tray 2 Feeder | 10 | Scanner |
| 5 | Tray 1 Feeder | 11 | Auto Document Feeder (ADF) |
| 6 | Laser | | |

# Fusing Unit

Functional components of the Fusing Unit appear below.




## Fuser Speed Regulation

The Fuser is driven by the Fusing Motor and employs both speed and temperature regulation to maintain the proper fusing properties. The fusing speed is changed in three steps depending on the media type.

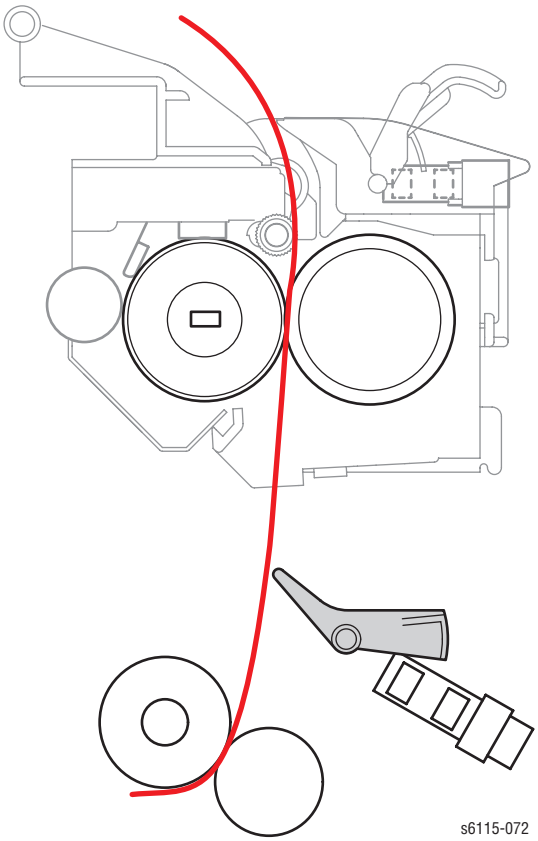
### Fusing Speeds

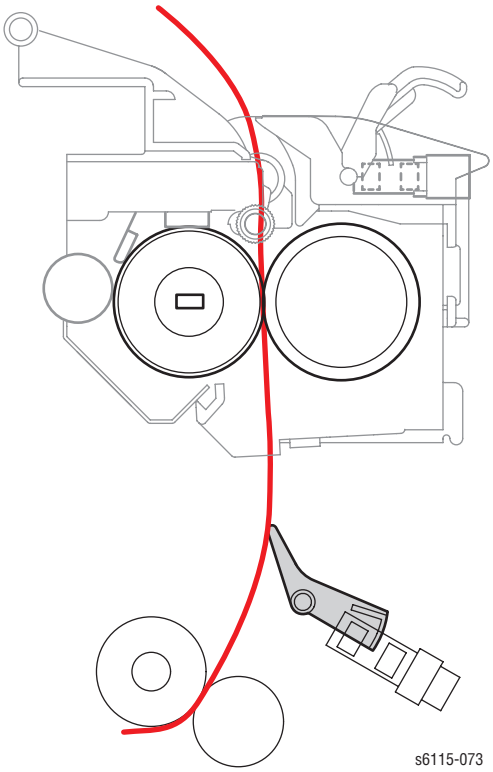
| Media Type | Fusing Speed (mm/sec) | Fusing Speed (PPM) |
|---|---|---|
| Plain paper, letterhead | 126.78 | 13 |
| Thick stock, postcards, labels, glossy stock | 63.39 | 6 |
| Transparency film, envelopes | 42.26 | 4 |

To prevent double transferred image or brush effect, the difference between the fusing speed and paper transport speed during image transfer is corrected. The fusing speed is changed in two steps relative to the system speed, either at high speed (which is +2% of the system speed) or low speed (which is -2.5% of the system speed).

Fusing Motor speed is regulated using the Fusing Loop Sensor output following this process:

1. The initial fusing speed is set to the low speed. This causes the Transfer Roller of the paper transport system to feed paper at a faster rate than the speed of the fuser. This action causes a loop, or a bending effect of the paper (see illustration below).
2. When the length of the loop formed in the paper becomes greater, the Fusing Loop Sensor is activated (blocked).
3. While the Fusing Paper Loop Sensor remains activated, the fusing speed increases to the high level.
4. When the Fusing Paper Loop Sensor is deactivated, the fusing speed immediately switches to the low level.
5. The sequence of these operations is repeated so that the fusing speed is changed automatically according to the loop length. This effectively compensates for the difference between the fusing speed and paper transport speed during image transfer.

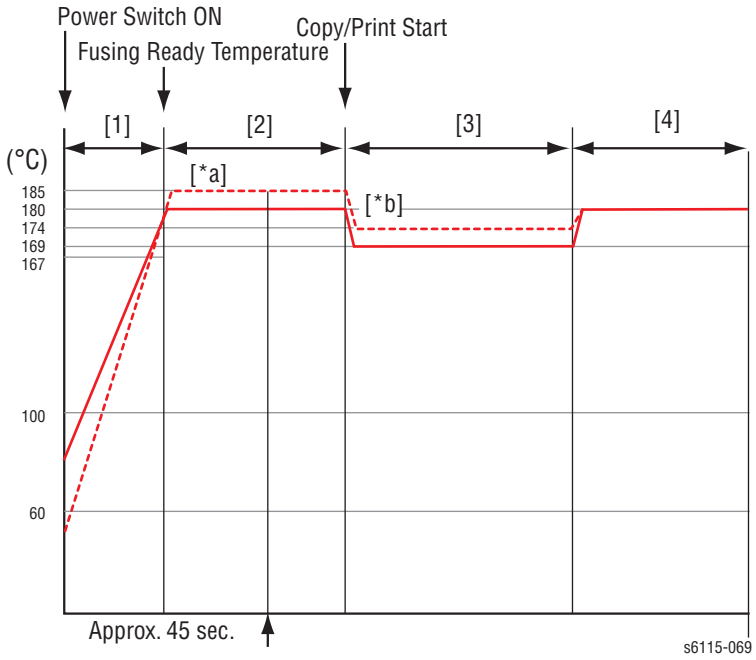


## Fuser Temperature Regulation

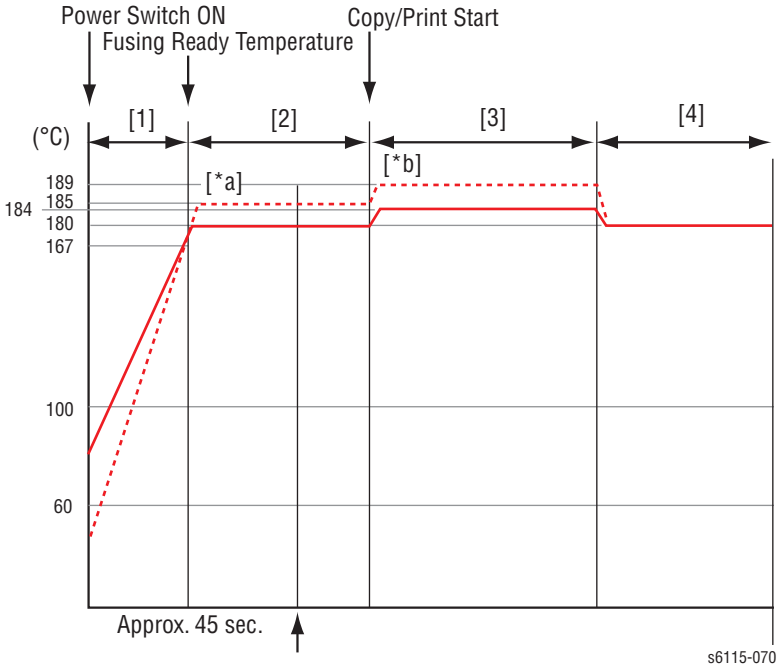
A thermistor detects the surface temperature of the Fusing Unit's heat roller. The heater lamp is turned On and Off as necessary to achieve the set temperature.

The following chart illustrates fusing temperature regulation during monochrome printing on plain paper.




- Warm-up (1), heat the roller to 178 C set temperature. Warm-up requires approximately 45 seconds (120 V) or 49 seconds (240 V).
- Standby state (2), maintain the roller temperature at 180 C. If the roller temperature is 60 C or less when the warm-up cycle starts, the set temperature changes to 185 C. (5 min.) After 5 min., the set temperature returns to 180 C.
- Print cycle (3), the set temperature is 189 C. If the Temperature/Humidity Sensor indicates a temperature of less than 60 C, the set temperature is increased to 184 C.
- Standby state (4), maintain the roller temperature at 180 C.

The following chart illustrates fusing temperature regulation during color printing on plain paper.




- Warm-up (1), heat the roller to 178 C set temperature. Warm-up requires approximately 45 seconds (120 V) or 49 seconds (240 V).
- Standby state (2), maintain the roller temperature at 180 C. If the roller temperature is 60 C or less when the warm-up cycle starts, the set temperature changes to 185 C. (5 min.) After 5 min., the set temperature returns to 180 C.
- Print cycle (3), the set temperature is 169 C. If the Temperature/Humidity Sensor indicates a temperature of less than 20 C, the set temperature is increased to 174 C.
- Standby state (4), maintain the roller temperature at 180 C.

Warm-up regulation is performed when the Power Switch is turned On, a malfunction or paper misfeed is reset, the Energy Saver mode is canceled, or the door is opened and closed.

After 20 minutes of inactivity, the standby state set temperature changes to 170 C if interior temperature is less than 20 C or 165 C if the interior temperature is 20 C or higher.

## Fusing Temperatures by Media

During printing, the roller set temperature varies according to the media as listed in the following tables:

### Fusing Temperatures for Monochrome

| Media Type | Typical (°C) | Temperature/humidity Sensor more than 20 °C |
|---|---|---|
| Plain paper, letterhead | 169 | 174 |
| Plain paper, letterhead 257 mm or less | 169 | 174 |
| Thick stock, postcards, labels | 169 | |
| Transparencies | 169 | |
| Envelopes | 194* | |
| Glossy stock | 169 | |

* The temperature is controlled at 159 C if the system's interior temperature is 20 ×C or more and relative humidity is 40% or higher.

**Note**

There is a Control Panel command which obtains environmental temperature and humidity levels. However, this command is for internal use only and not available from the service menus.

If the print cycle is started while the Temperature/Humidity Sensor indicates an internal temperature of 20 C or more, control is returned back to one having a control temperature of more than 60 ×C after five printed pages have been produced.

### Fusing Temperatures for Color (1-sided)

| Media Type | Roller temp at warm-up start | Typical (°C) | Temperature/ humidity Sensor less than 20 °C | Temperature/ humidity Sensor more than 20 °C |
|---|---|---|---|---|
| Plain paper, letterhead | 60 C or less | 189 | 194 | 189 |
| | More than 60 C | 184 | 194 | 184 |
| Plain paper, letterhead 257 mm or less | 60 C or less | 189 | 194 | 189 |
| | More than 60 C | 184 | 194 | 184 |
| Thick stock, postcards, labels | _ | 184 | | |
| Transparencies | _ | 179 | | |
| Envelopes | _ | 194* | | |
| Glossy stock | _ | 190 | 190 | 185 |

* The temperature is controlled at 159 ×C if the system's interior temperature is 20 ×C or more and relative humidity is 40% or higher.

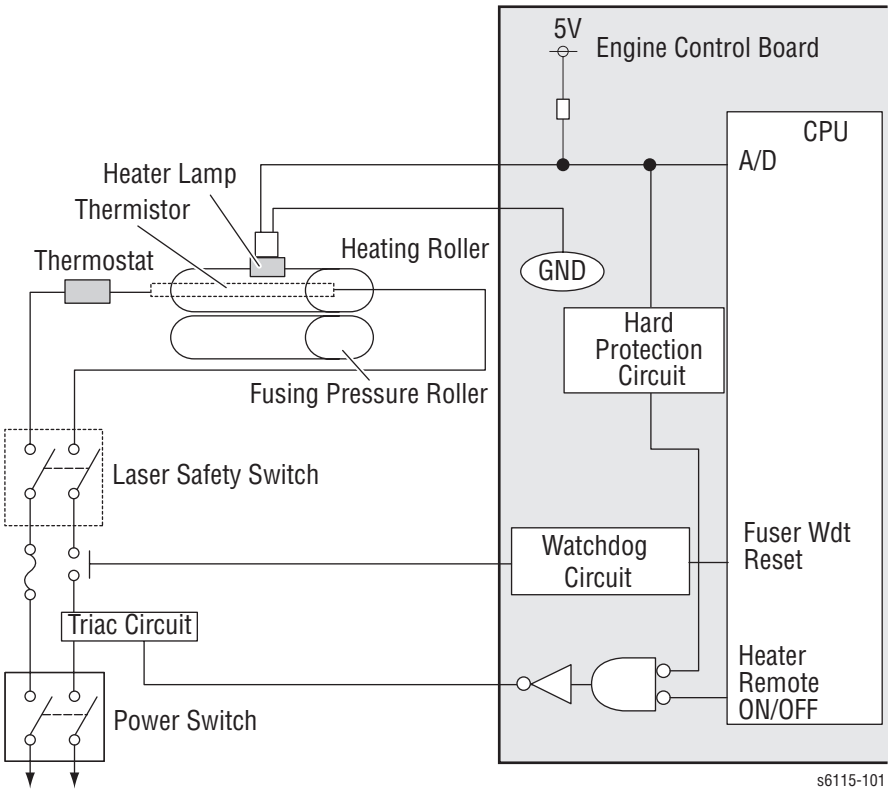
**Note**

Fuser thermal regulation stops and the Fuser heat lamp turned Off when the system enters Energy Saver mode, a door is opened, or an error occurs.

## Fuser Overheat Protection

The machine provides protection at three different stages to prevent abnormally high temperature of the Fusing Unit.

- Soft Protection. If the Thermistor detects a temperature exceeding a predetermined value, the error code representing abnormally high temperature is displayed. At this time, the heater lamp is turned Off, and new print cycles are prohibited.
- Hard Protection. If the CPU overruns and the output level of the CPU of the Mechanical Control Board becomes a HIGH or LOW level, and not a pulse output, and a predetermined temperature or higher is detected, a circuit within the Mechanical Control Board turns OFF the relay to shut down the power supply to the Heater Lamp.
- Thermostat Protection. If neither the soft protection nor hard protection detect an abnormally high temperature due to a defective Thermistor or other reason, the Thermostat operates at the specified temperature. This shuts down the power supply to the Heater Lamp, thus forcibly turning it OFF.



## Print Speed Thermal Control

Print speed thermal control prevents the temperature on edges of the heat roller from increasing during a multi-print cycle using smaller size media. The process timing between sheets increases according to the number of printed pages per job and the paper length. The following tables provide page per minute (ppm) output by media size during print speed thermal control conditions. Output speeds are also affected by environmental conditions.

### Monochrome Prints in Typical Environmental Conditions

| In millimeters(mm) | Media Length | | | |
|---|---|---|---|---|
| **Width** | Less than 210 | 210 ~ 215 | 216 ~ 256 | 257 ~ 296 |
| 139 mm or less | 14 ppm | 14 ppm | 14 ppm | 14 ppm |
| 140 - 148 mm | 18 ppm | 18 ppm | 14 ppm | 14 ppm |
| 149 - 182 mm | 19 ppm | 18 ppm | 14 ppm | 14 ppm |
| 183 ~ 210 mm | 20 ppm | 20 ppm | 20 ppm | 14 ppm |

The low temperature environment refers to the condition, in which the Temperature/Humidity Sensor detects a temperature of less than 20 C.

**Note**

There is a Control Panel command which obtains environmental temperature and humidity levels. However, this command is for internal use only and not available from the service menus.

### Monochrome Prints in Low Temperature Environmental Conditions

| In millimeters(mm) | Media Length | | | |
|---|---|---|---|---|
| **Width** | 210 | 211 ~ 216 | 217 ~ 257 | 258~ 297 |
| 139 mm or less | 12 ppm | 12 ppm | 12 ppm | 12 ppm |
| 140 - 148 mm | 15 ppm | 15 ppm | 12 ppm | 12 ppm |
| 149 - 182 mm | 16 ppm | 15 ppm | 12 ppm | 12 ppm |
| 183 ~ 210 mm | 17 ppm | 17 ppm | 17 ppm | 12 ppm |

For Color printing, these output speeds apply:

### Color Prints in Typical Environmental Conditions

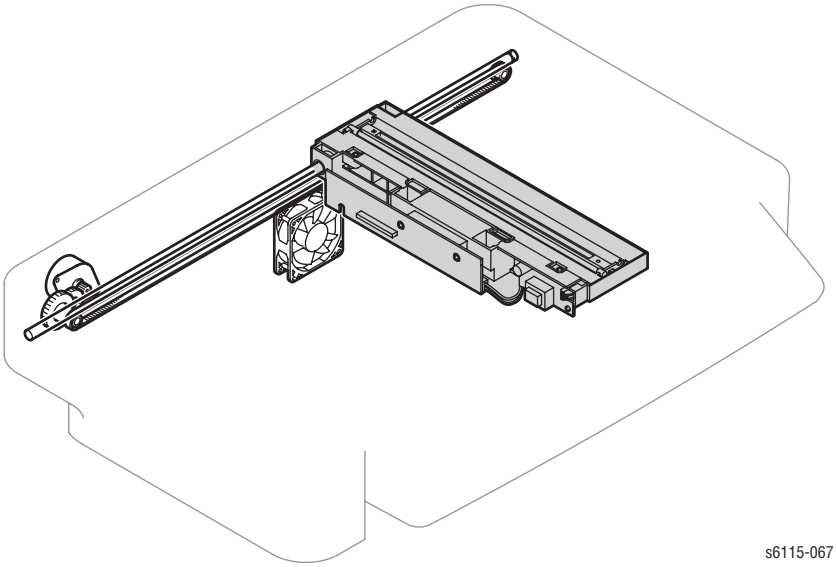
| In millimeters(mm) | Media Length | | | |
|---|---|---|---|---|
| **Width** | 210 | 211 ~ 216 | 217 ~ 257 | 258~ 297 |
| 139 mm or less | 3 ppm | 3 ppm | 3 ppm | 3 ppm |
| 140 - 148 mm | 5 ppm | 5 ppm | 3 ppm | 3 ppm |
| 149 - 182 mm | 5 ppm | 5 ppm | 3 ppm | 3 ppm |
| 183 ~ 210 mm | 5 ppm | 5 ppm | 5 ppm | 3 ppm |

## Scanner

Scanner components include:

- Scanner Latch
- Scanner Motor and Drive Belt
- Scanner Fan
- Platen Glass
- Scanhead

Functional components of the Scanner are illustrated below.



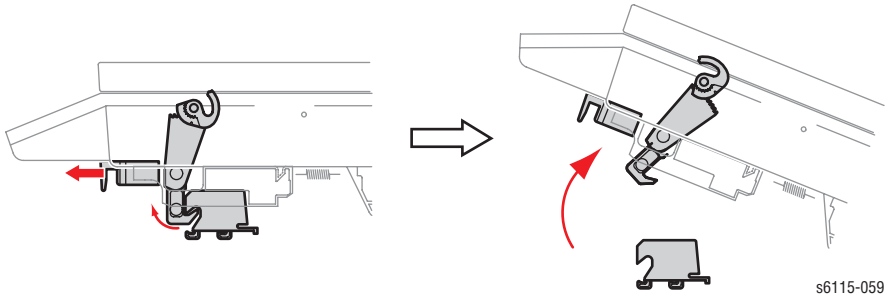
s6115-067

The Scanner does not include sensors for determining the size of the original document. Original media size settings are made on the Control Panel. An error occurs following the print cycle if the correct media size is not selected on the Control Panel or loaded in the tray.

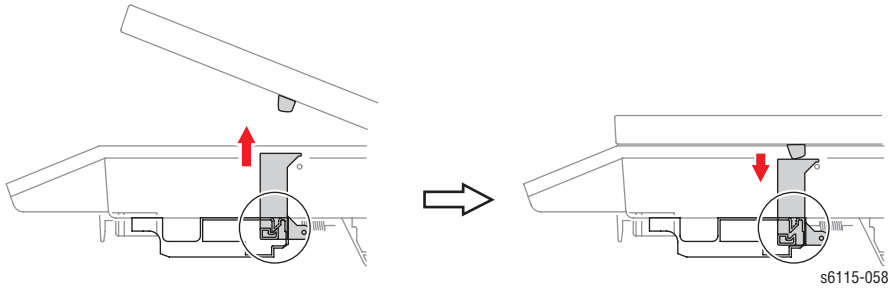
## Scanner Latch

The Scanner Latch works with the ADF Lever to prevent the simultaneous opening of both assemblies. When the Scanner is opened, the ADF is locked closed. Likewise, when the ADF is opened, the Scanner is locked closed.

Pulling the Scanner Latch Lever disengages the Scanner Lock Pawl, allowing the Scanner to be opened.

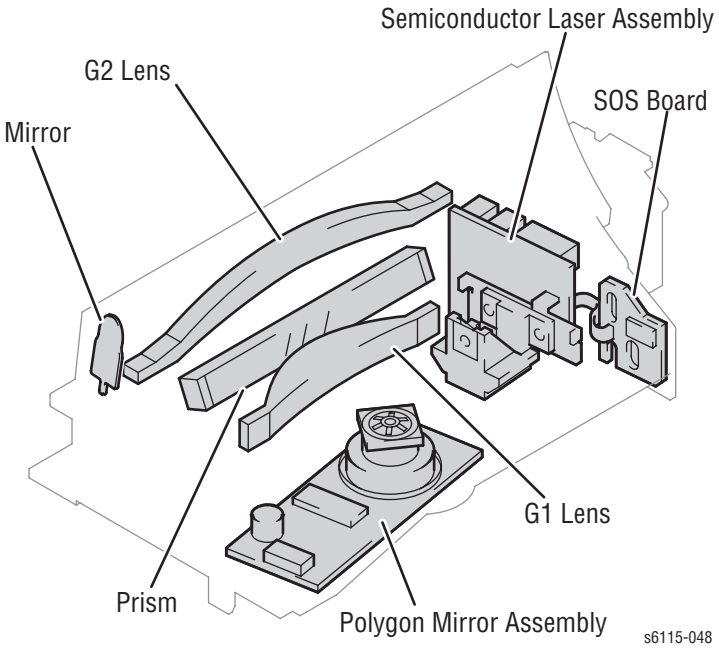



If the ADF is open, the ADF Lever locks the Scanner Latch mechanism to prevent the Scanner from opening.



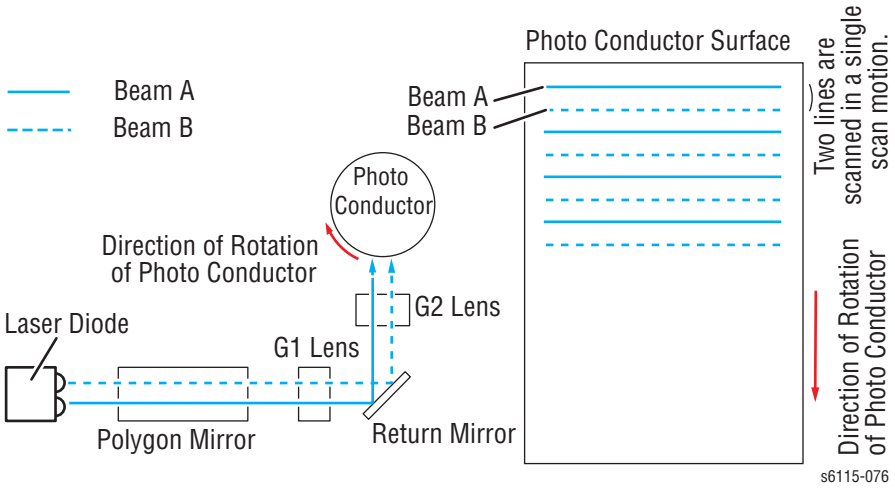

## Laser Assembly

The Laser Assembly in the Phaser 6115MFP printer has two laser diodes. The laser diode control circuitry adjusts the light intensity for each beam automatically. Image data is transmitted to the laser diodes in the Laser Assembly as digital signals. The laser diodes convert the image data from digital signals to optical signals. The Laser Assembly monitors and adjusts the intensity of the laser beams to attain a stable electrostatic image. The Laser Assembly is replaced as a complete assembly. Functional components within the Laser appear below.



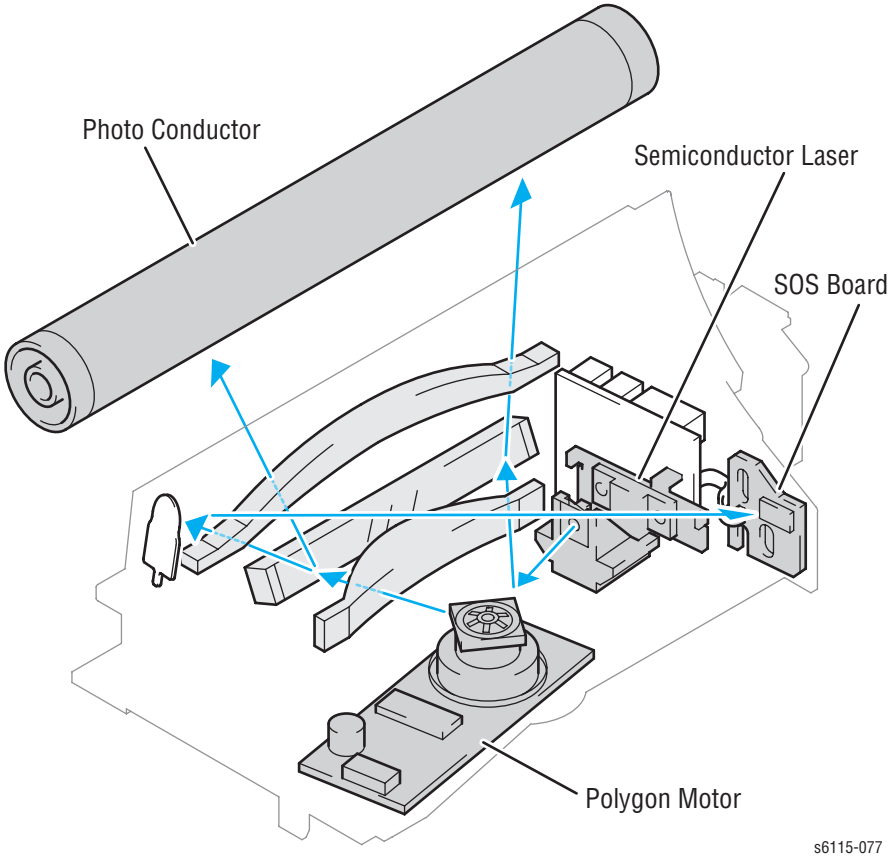

## Imaging Unit Exposure

The surface of the Imaging Unit is irradiated with a laser light and an electrostatic latent image is formed. The polygon mirror has four faces. The two-beam laser array consists of two laser diodes arranged vertically. Two lines are scanned through a single face of the polygon mirror.



## Laser Write Process

1. The laser light strikes the polygon mirror.
2. The four-sided polygon mirror rotates at high speeds driven by the polygon motor.
3. The Start-of-Scan (SOS) Sensor monitors laser light emission and initiates timing for each line of the scanning process.



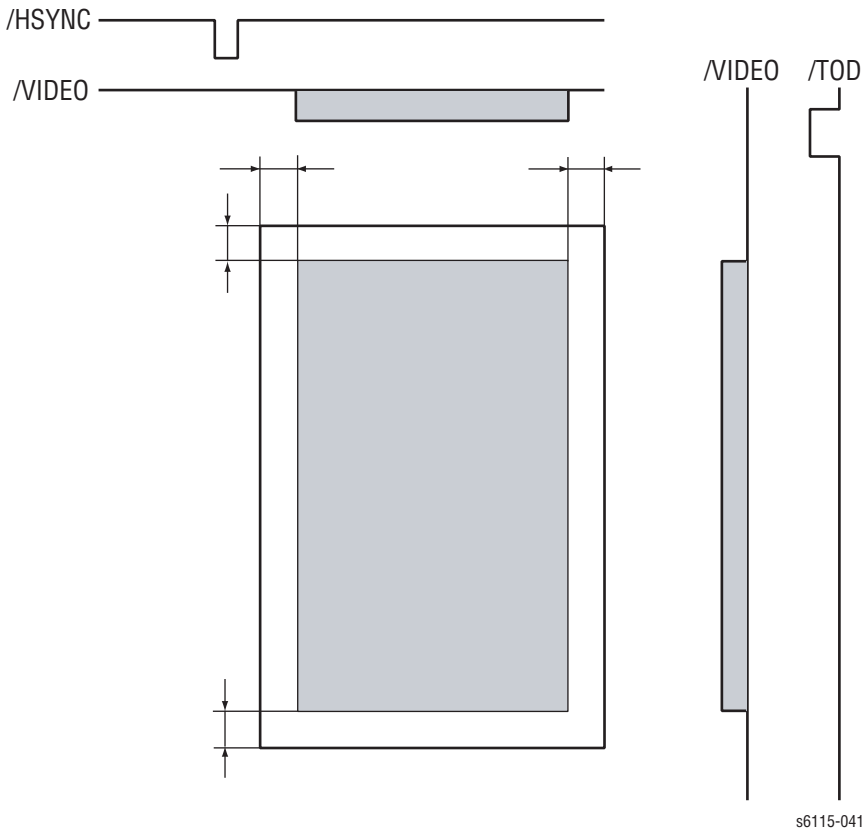

## Laser Write Timing

When a Ready signal is detected after the print cycle begins, a Laser On signal is output from the Engine Control Board. The Laser On signal triggers each laser diode illuminating the SOS Board and generating an SOS signal. The SOS signal is used to synchronize the timing at which the laser write each scan line.

The print start position in the CD direction is determined by the CD Print Start signal (/HSYNC) that is output from the Image Processor Board and the width of the paper.

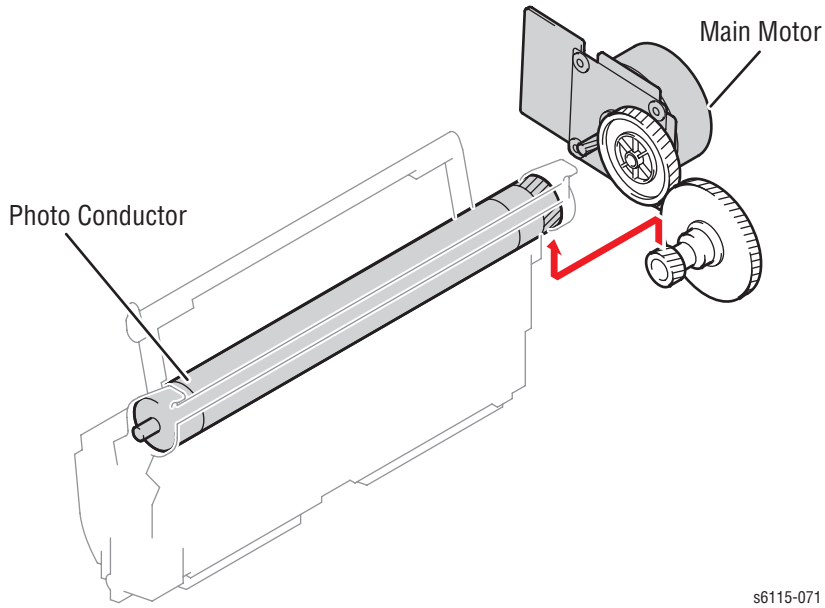
The print start position in the FD direction is determined by the Image Write Start signal (TOD) that is output from the Image Processor Board and the length of the paper. The laser emission area is determined by the paper size.

The area of 4 mm on both the leading and trailing edges of the paper is, however, the void image area.



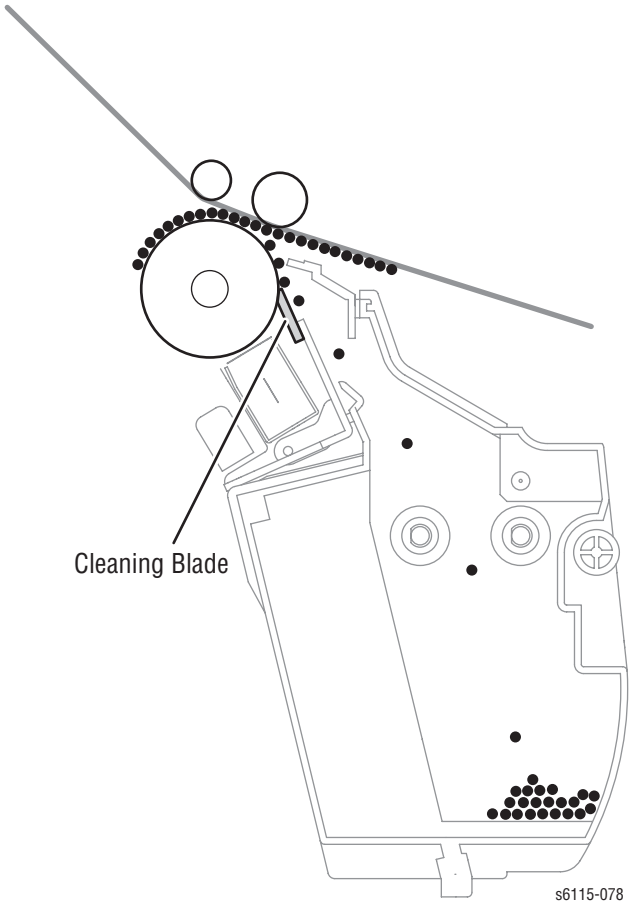
## Imaging Unit

The Imaging Unit contains the photo-conductive drum, a cleaning blade, and a waste toner reservoir. The Drum is driven by the Main Motor through a series of gears. When the Main Motor is energized, it turns the drive gear, which in turn rotates the drum.

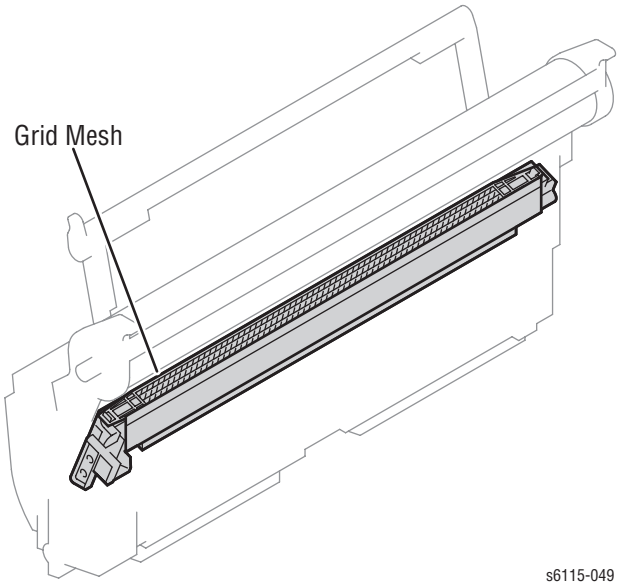



The cleaning blade is pressed against the drum to remove excess toner. Waste toner is stored in the Imaging Unit.

Waste toner levels are monitored by the Waste Toner Sensor.




An electrical charge is applied to the drum by an electrode mounted near the drum. This charge attracts toner from the Toner Cartridge developer roller. The image stabilization control process controls the grid voltage (Vg) applied to the electrode's grid mesh.



## Imaging Unit Life

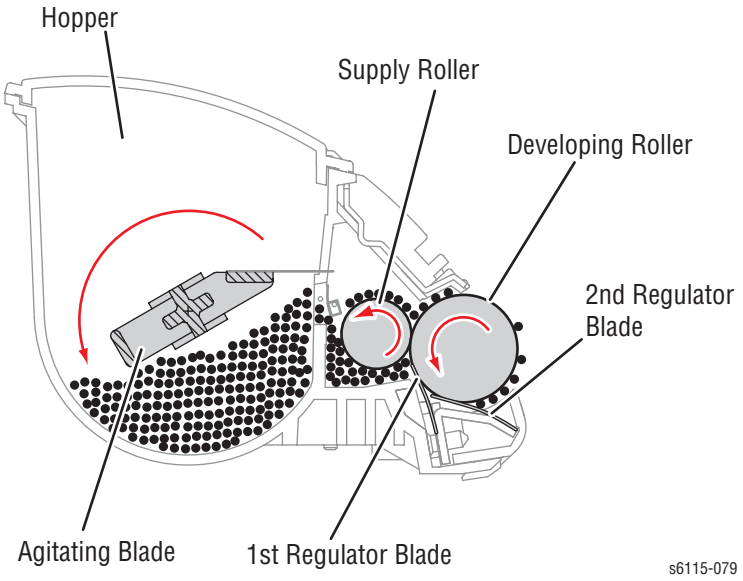
A counter tracks the number of prints since the last detection of a new Imaging Unit. As this count nears its maximum value, the system generates a warning message. When the count reaches the maximum value, a replacement error is generated. The counter is reset following the detection of a new Imaging Unit.

The system checks for a new Imaging Unit when the Power Switch is turned On or the front door is closed. If a new Imaging Unit is detected, the image stabilization sequence is carried out.

The life counter is reset when a new DC is detected. When a predetermined number of printed pages are produced after the life value has been reached, the machine displays a DC replacement message.

# Toner Cartridge

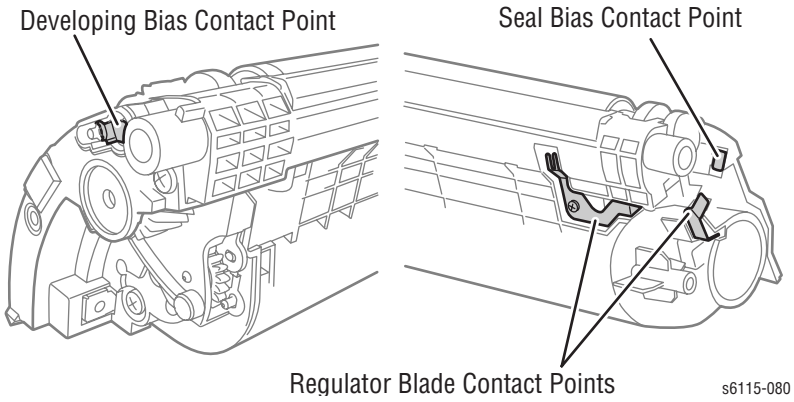
The system employs four Toner Cartridges (CMYK) installed in a revolving Toner Cartridge Rack that positions each cartridge's developer roller over the Drum. A cross section of the Toner Cartridge showing functional components appears below.




1. Toner stored in the hopper is agitated by the agitating blade and conveyed into the toner supply portion by the conveyance blade fitted to the leading edge of the agitating blade.
2. Toner in the toner supply portion is conveyed by the supply roller onto the developing roller.
3. At this time, the 1st and 2nd regulator blades moderate the height of toner on the surface of the developer roller.
4. When positioned by the Toner Cartridge Rack in the developing position, toner adheres to the latent image on the drum. Toner left on the surface of the developer roller following transfer to the drum is returned to the toner supply portion.

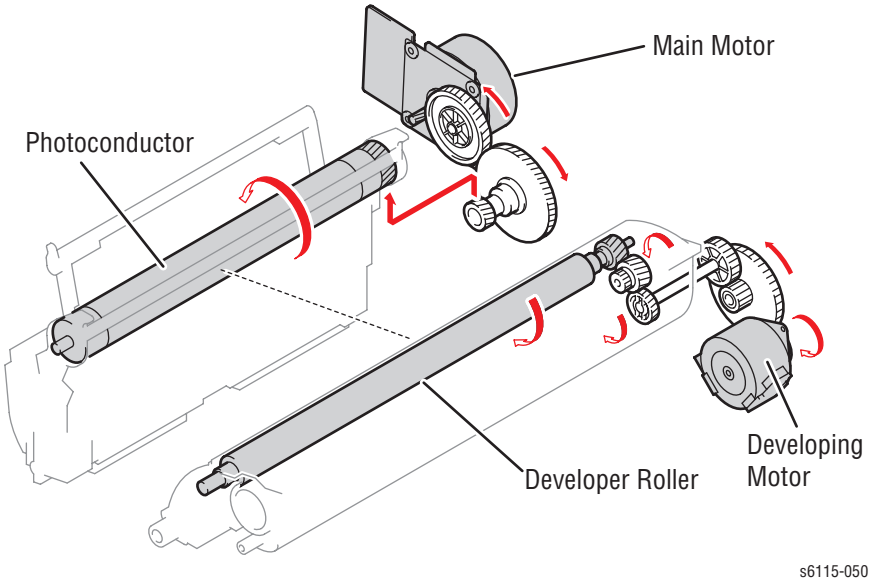
   To attract toner to the drum, a developing bias voltage (Vb) that includes both DC (-) and + AC components is applied to the developing roller during development. The AC component is applied only during

development. The developing bias voltage (Vb) supplied by the High Voltage Power Supply is applied to the developing roller at the contact point shown below.

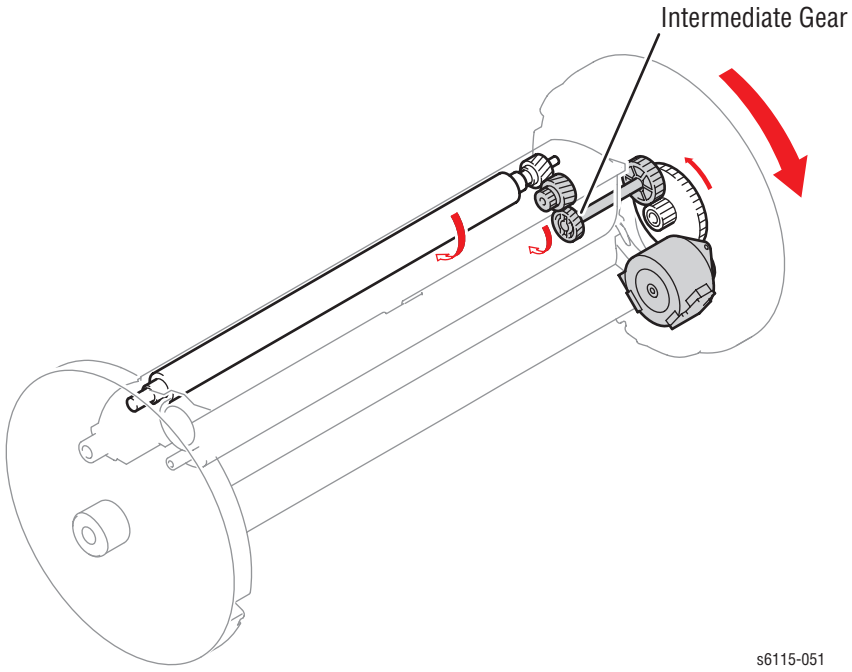



## Developer Roller Drive

The Developer Roller is driven by the Developing Motor and intermediate gears.

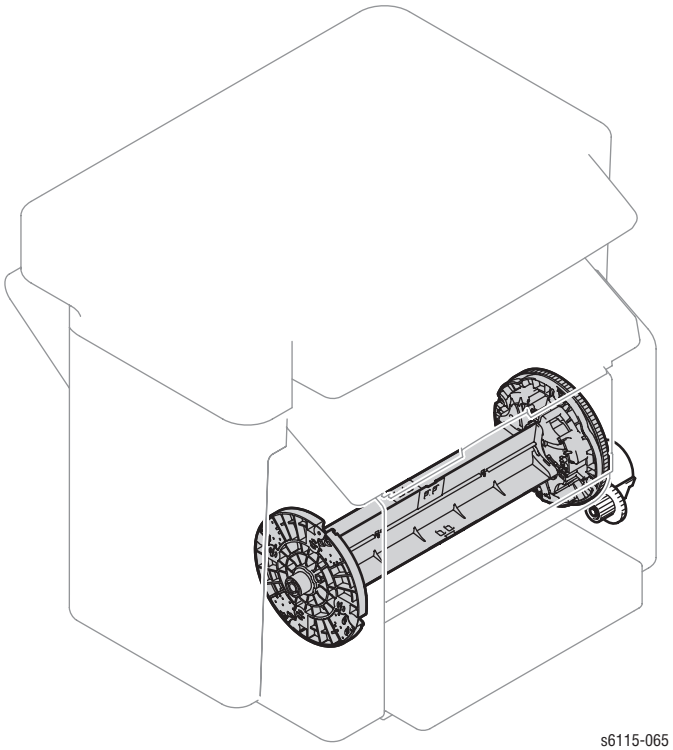


When the Toner Cartridge Rack is stationery at the developing position, the Developer Roller drive gear meshes with intermediate gears allowing the Development Motor to engage the roller.



## Toner Cartridge Rack

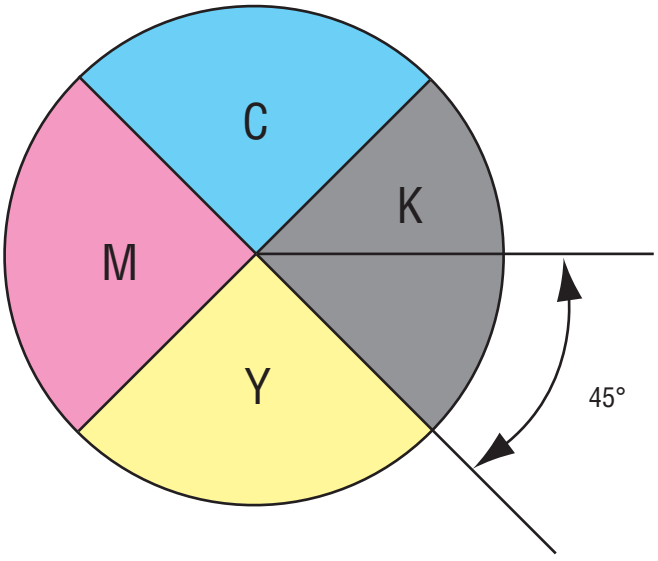
The Toner Cartridge Rack holds the four Toner Cartridges and rotates to position each cartridges' Developer Roller in the developing position. The rack is driven by the Rack Motor.




The Toner Cartridge Rack has three stop positions: the standby (reference) position, the developing position, and the cartridge replacement position:

- The standby position is the Toner Cartridge Rack position when the system completes a warm-up cycle or waits for a print command.
- The development position is when the Toner Cartridge Rack stops during development of a specific color of toner.
- The cartridge replacement position refers to the position at which the Toner Cartridge Rack is stopped for replacement of the Toner Cartridge of a specific color of toner.

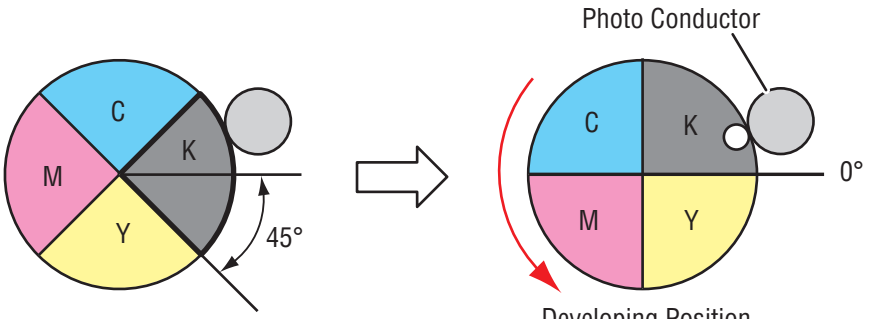
The standby position is 45 degrees before the developing position of the Black (K) Toner Cartridge.




Standby Position

s6115-082

The developing position is where the Toner Cartridge Rack is rotated 45 degrees from the standby position.




Developing Position

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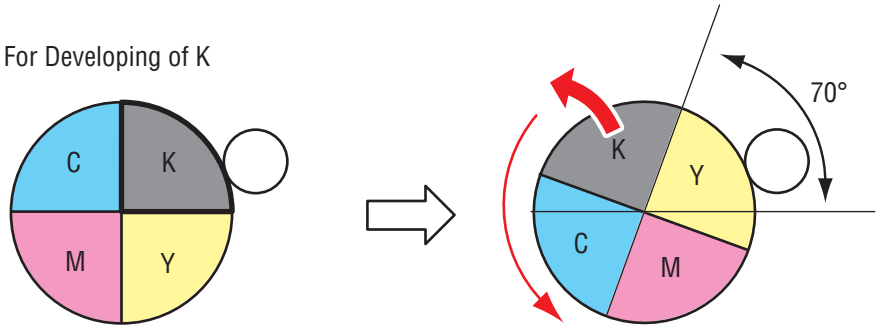
The cartridge replacement position is where the Toner Cartridge Rack is rotated 70 degrees from the developing position.




K Developing Position

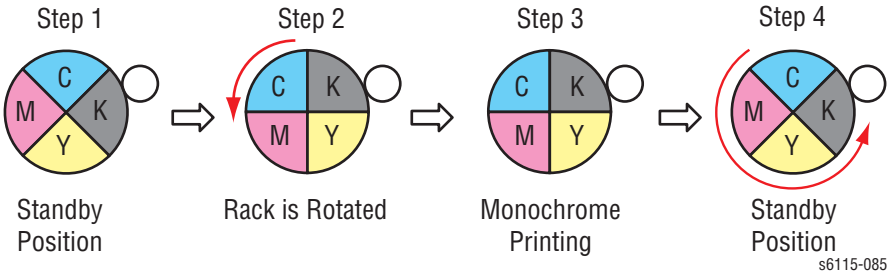
Cartridge Replacement Position

s6115-084

## Operation for Monochrome

The Toner Cartridge Rack follows these steps for monochrome prints.

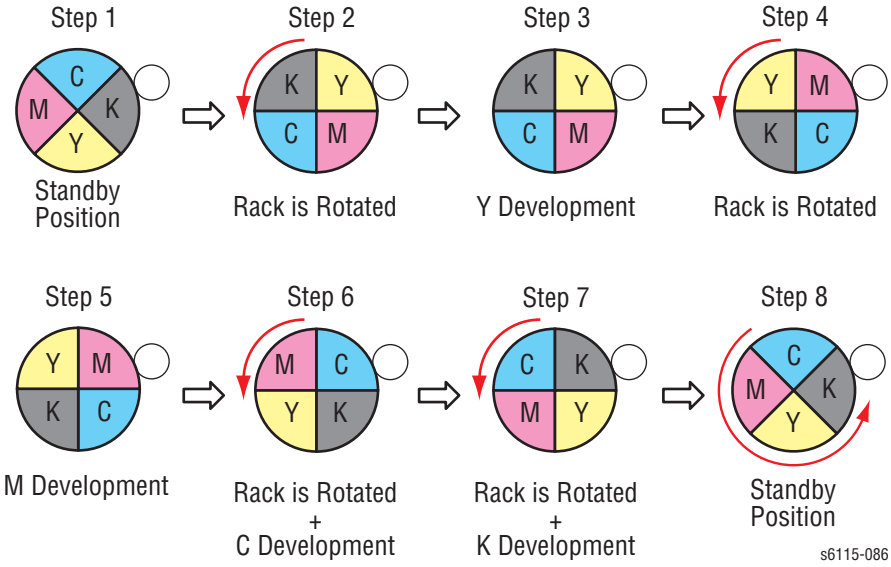
1. The Toner Cartridge Rack is stationary at the standby position.
2. When a print request is received from the controller, the Toner Cartridge Rack is rotated to bring the K Toner Cartridge to its developing position.
3. Development of monochrome printing is started.
4. When the development is completed, the Toner Cartridge Rack is rotated and brought to a stop at the standby position.




## Operation for Color

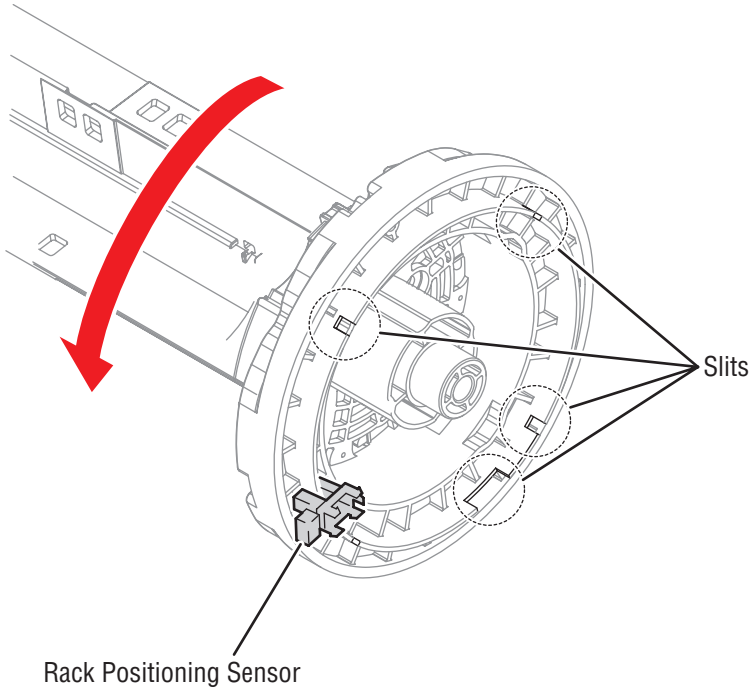
The Toner Cartridge Rack follows these steps for color prints.

1. The Toner Cartridge Rack is stationary at the standby position.
2. When a print request is received, the Toner Cartridge Rack rotates to place the Y Toner Cartridge to its developing position.
3. Development of Y is carried out.
4. When development of Y is completed, the Toner Cartridge Rack is rotated to bring the M Toner Cartridge to its developing position.
5. Development of M is carried out.
6. Similarly, the Toner Cartridge Rack rotates and development of C is carried out, followed by K.
7. When the development of K is completed, the Toner Cartridge Rack rotates to the standby position.

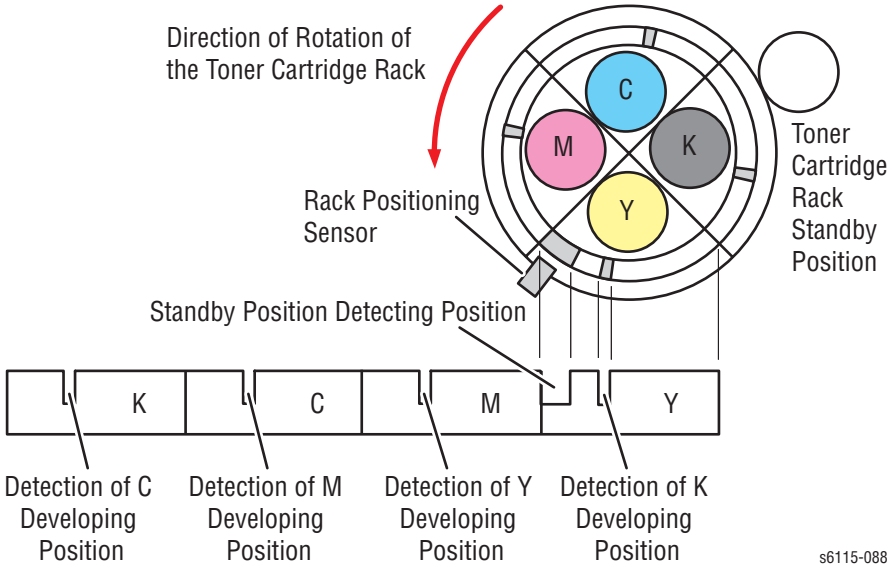


## Position Detection

The Toner Cartridge Rack stop position for each color of toner is detected by the Rack Positioning Sensor. Openings around the circumference of the Toner Cartridge Rack actuate the Rack Position Sensor at each stop position.



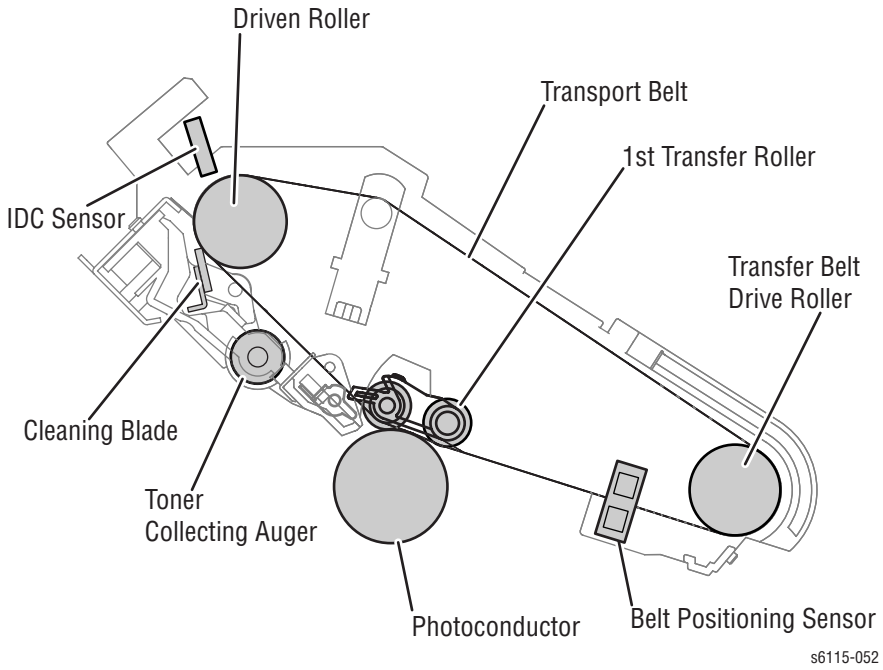

When the Toner Cartridge Rack rotates past the slit for the K developing position, the Rack Positioning Sensor is actuated. This indicates that the current development is for K. Through pulse control of the Rack Motor, the Rack Motor drives the Toner Cartridge Rack to the standby position.



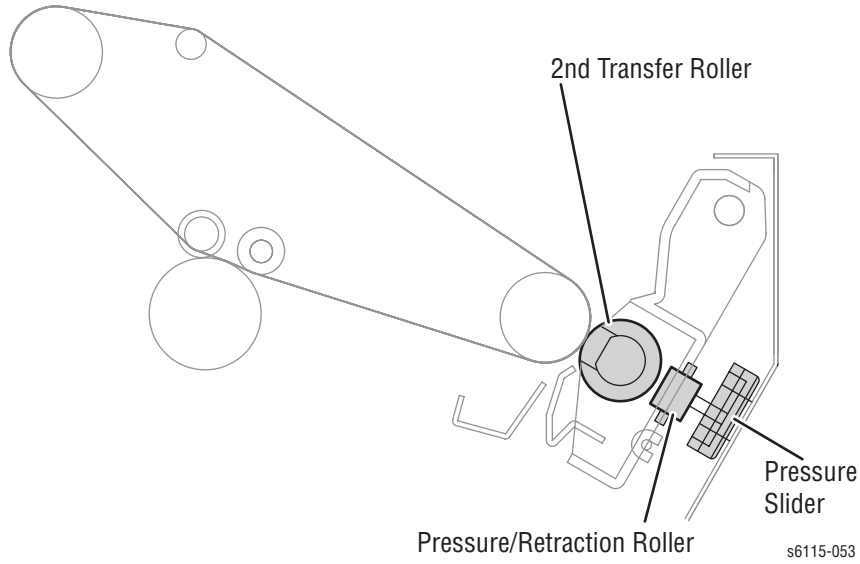

When a replacement request is made for a Toner Cartridge, the Toner Cartridge Rack is rotated 70 degrees from the depleted cartridges' developing position through pulse control of the Rack Motor.

## Transfer Belt

The Transfer Belt serves to accumulate the images produced by the four developer rollers before transferring the composite image to the media with the Transfer Roller. Components of the Transfer Belt appear below.

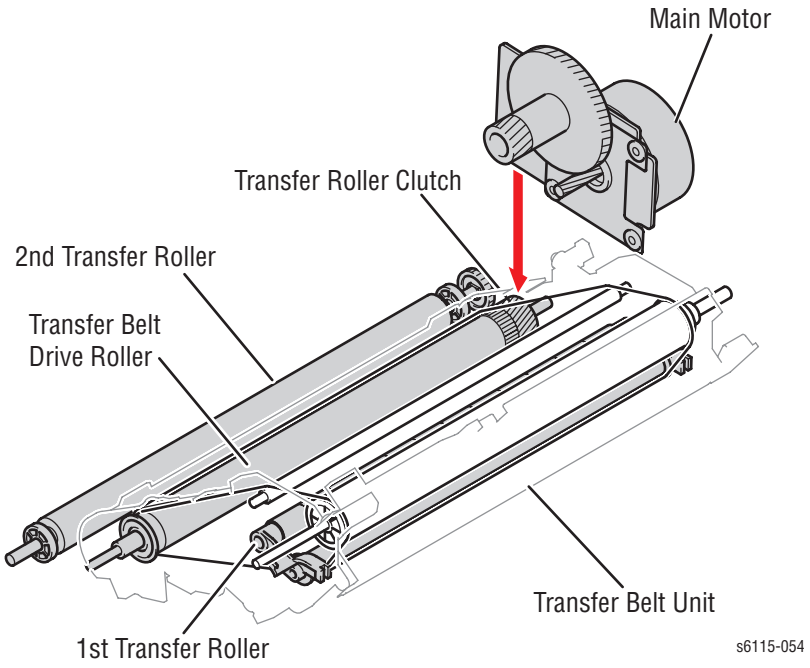



In addition to the Transfer Belt, a Transfer Roller (sometimes referred to as the 2nd Transfer Roller) transfers the composite image to the media for fusing.



## Transfer Drive

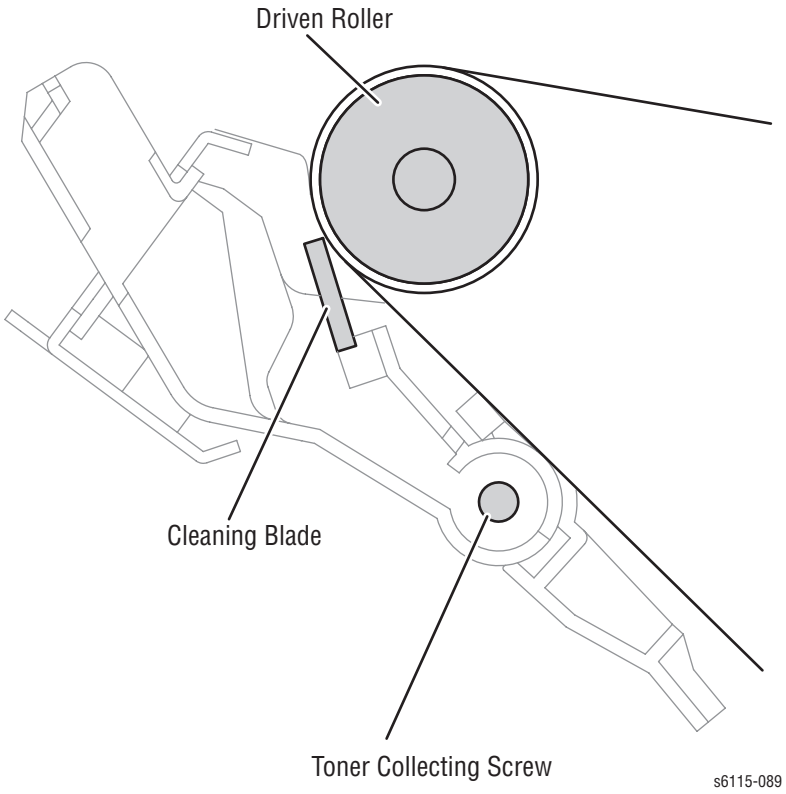
The Transfer Belt and Transfer Roller (sometimes referred to as the 2nd Transfer Roller) are driven by the Main Motor. The Transfer Roller Clutch at one end of the (2nd) Transfer Roller engages the Main Motor drive.



## Transfer Belt Cleaning

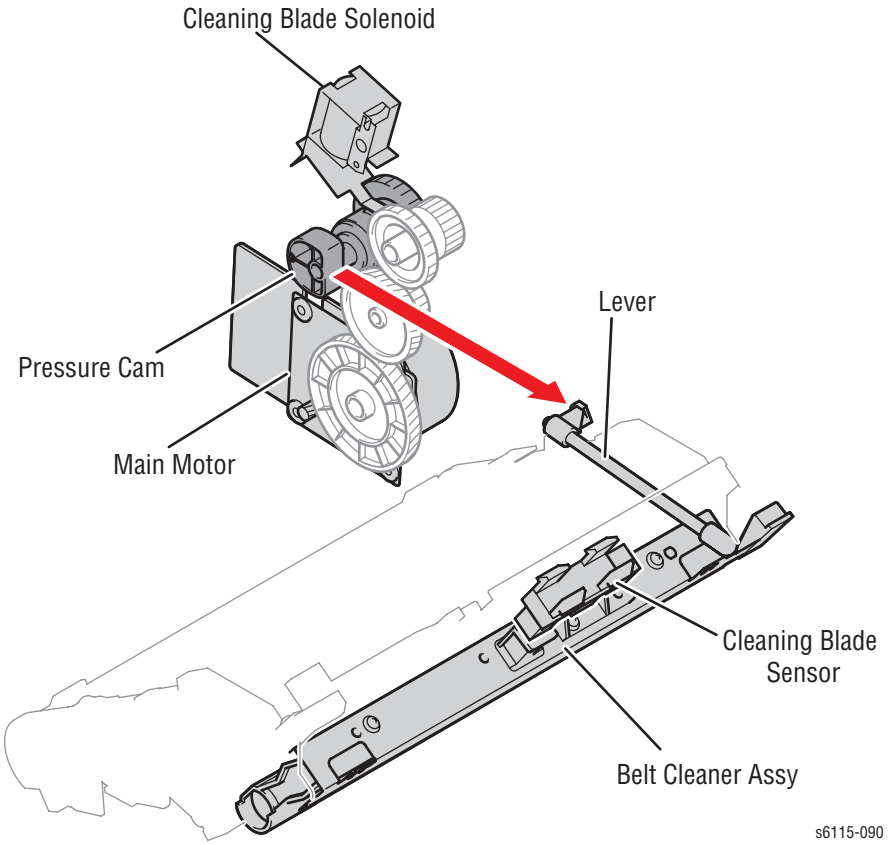
The Transfer Belt Cleaning Blade collects residual toner off the surface of the Transfer Belt, and a toner collecting auger transfers waste toner to the Imaging Unit reservoir.

During color printing, an image is formed on the Transfer Belt for each color. The Cleaning Blade uses a retraction mechanism to lift off the belt during the printing process. During monochrome printing, no retraction sequence is needed. The Cleaning Blade is normally in contact with the Transfer Belt.




Cleaning Blade retraction operations are driven by the Main Motor, Cleaning Blade Solenoid, pressure cam, lever, and Cleaning Blade Position Sensor.

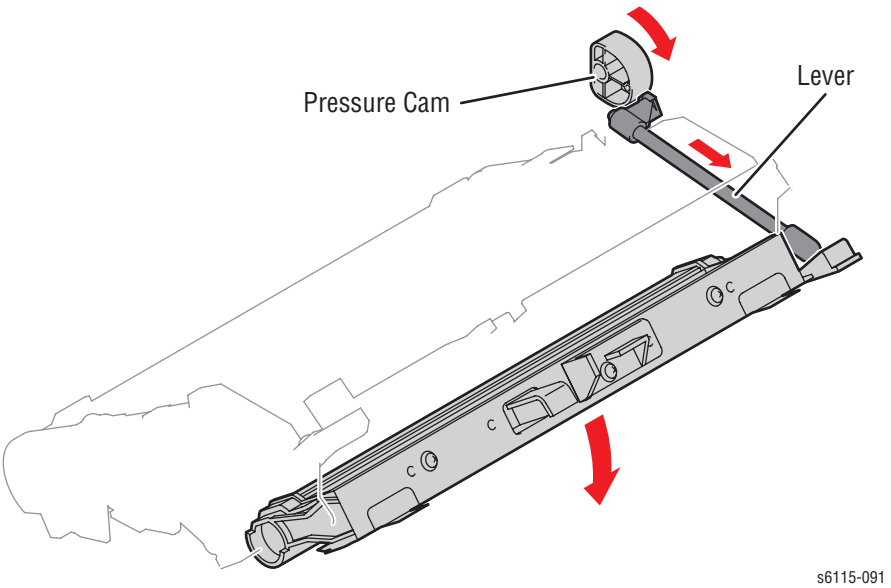
When the Cleaning Blade Solenoid is energized, drive from the Main Motor is transmitted to the pressure cam.




The sequence of events to retract the Cleaning Blade are:

1. Drive from the Main Motor is transmitted to the drive gear.
2. Rotation of the drive gear is transmitted to the pressure cam.
3. When the Cleaning Blade Solenoid is energized, the half-moon-shaped pressure cam rotates a half turn to push the lever forward to retract the Cleaning Blade.

4. The Cleaning Blade Position Sensor signal indicates whether or not the Cleaning Blade is retracted from the Transfer Belt.



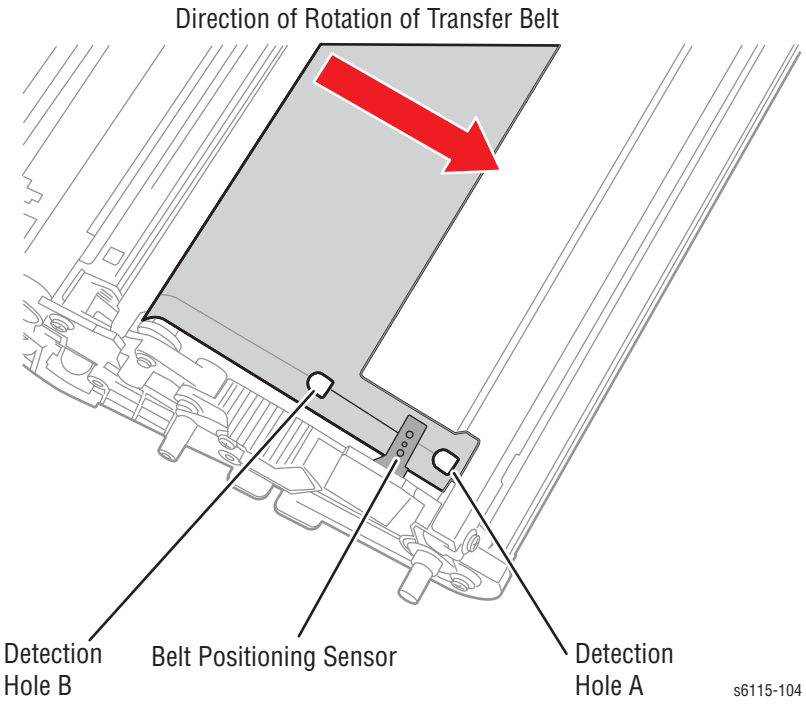

The position of the Cleaning Blade is unknown when the Power Switch is turned On or the cover is opened and closed. To determine home position for the Cleaning Blade, the system performs a home position detection sequence during a warm-up cycle. The Cleaning Blade Solenoid is energized to start a retraction sequence. When the Cleaning Blade Position Sensor is blocked, indicating home position, the Cleaning Blade Solenoid is de energized.

## Transfer Belt Position Sensor

Image development requires the creation of a composite image on the surface of the Transfer Belt. The leading edge of each color component of the image must register correctly on the Transfer Belt's surface. The position of the Transfer Belt is monitored by the Transfer Belt Position Sensor. The optical sensor detects holes in the Transfer Belt.

Two detection holes are punched in the Transfer Belt. The image write start position varies according to the media size. For A4 or smaller media, the image write start position, as determined by the sensor, is detection hole A.

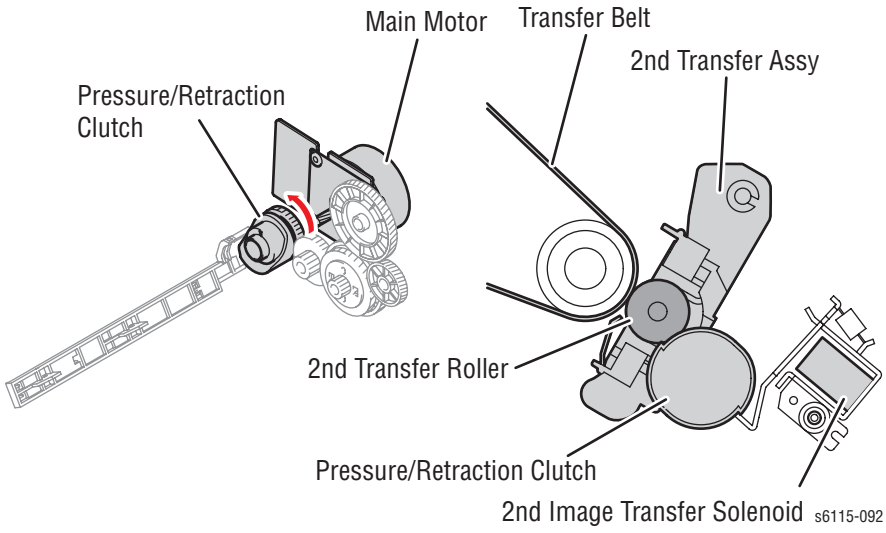
For a media sizes larger than A4, detection hole B is the reference for the image write start position.




## Transfer Roller

The Transfer Roller (sometimes referred to as the 2nd Transfer Roller) transfers the developed image from the Transfer Belt to the media. To allow development of the composite color image on the Transfer Belt, the Transfer Roller retracts from the belt while the image is developed.

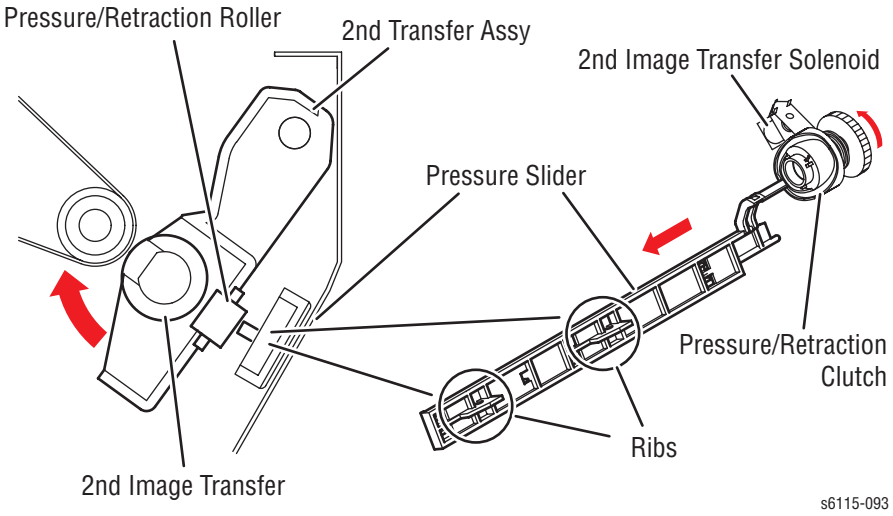
The Transfer Roller retraction operation is performed by the Main Motor, Image Transfer Solenoid, and Transfer Roller Clutch. When the Image Transfer Solenoid is energized, drive from the Main Motor is transmitted to the Transfer Roller Clutch.



## Image Transfer

To apply pressure to the Transfer Roller (sometimes referred to as the 2nd Transfer Roller), the system follows these steps:

1. Drive from the Main Motor is transmitted to the drive gear.
2. Rotation of the drive gear is transmitted to the Transfer Roller Clutch.
3. When the 2nd Image Transfer Solenoid is energized, the Transfer Roller Clutch rotates a half turn. This moves the Pressure Slider.
4. When the Pressure Slider is moved, the ribs push against the Pressure Retraction Roller.
5. When the assembly is pushed up, the Transfer Roller presses against the Transfer Belt.

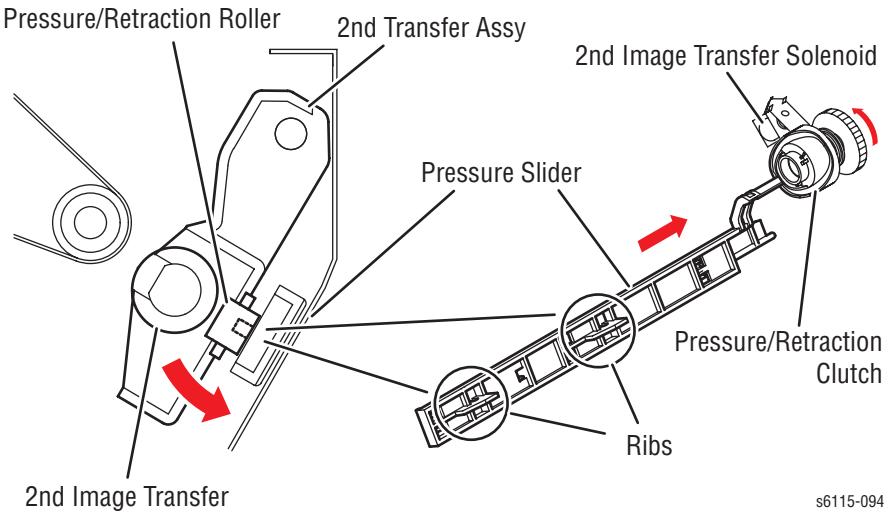



## Transfer Roller Retraction

To retract the Transfer Roller from the Transfer Belt, the system performs the following steps:

1. When the Image Transfer Solenoid is energized, the Transfer Roller is presses against the Transfer Belt and the Transfer Roller Clutch rotates a half turn. This moves the Pressure Slider.
2. When the Pressure Slider moves, the Transfer Assembly, which has been pushed up by the ribs on the Pressure Slider, lowers.

3. When the Transfer Assembly lowers, the Transfer Roller retracts from the Transfer Belt.




## Transfer Roller Cleaning

DC positive and negative transfer bias voltages are alternately applied to the Transfer Roller. These charges oppose those on the Transfer Belt attracting toner residue on the Transfer Roller back to the Transfer Belt. The Transfer Belt cleaning blade collects the waste toner from the belt and stores the waste in the Imaging Unit.

Transfer Roller cleaning occurs when:

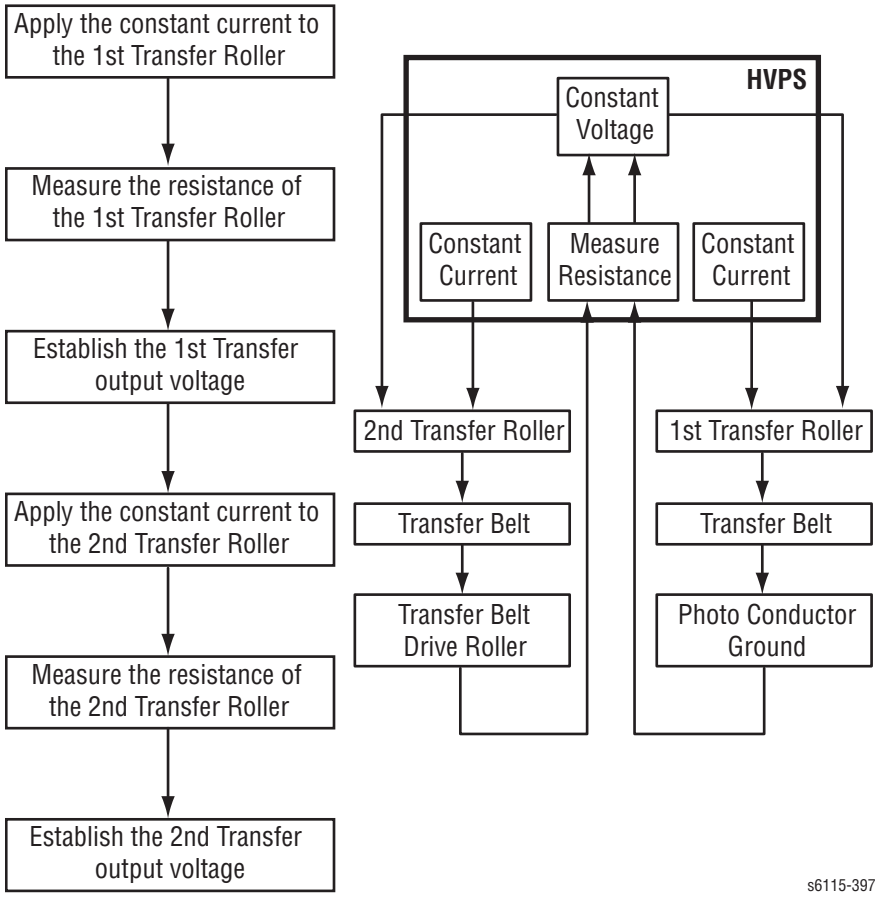
- Power Switch is turned ON
- Cover is opened and closed
- A media error occurs during a print cycle.
- A paper empty condition occurs during a print cycle.
- A paper size error occurs during a print cycle.

# Process Control

For stable printing, the parameters related to forming both the electrostatic and toner image are continuously monitored and adjusted by the printer. Parameter correction and control over the entire printing process is called “process control”. Two primary process control mechanisms are used by the system, Automatic Transfer Voltage Control (ATVC) and Automatic Image Density Control (AIDC).

## Automatic Transfer Voltage Control (ATVC)

ATVC optimizes the transfer output. A constant current flows through each of the Transfer Rollers. The resistance of each of the 1st Transfer Roller, the Transfer Roller (sometimes referred to as the 2nd Transfer Roller), and Transfer Belt is measured. ATVC automatically adjusts the appropriate image transfer output voltage (bias) to be applied to each Transfer Roller and transfer belt during the print cycle.

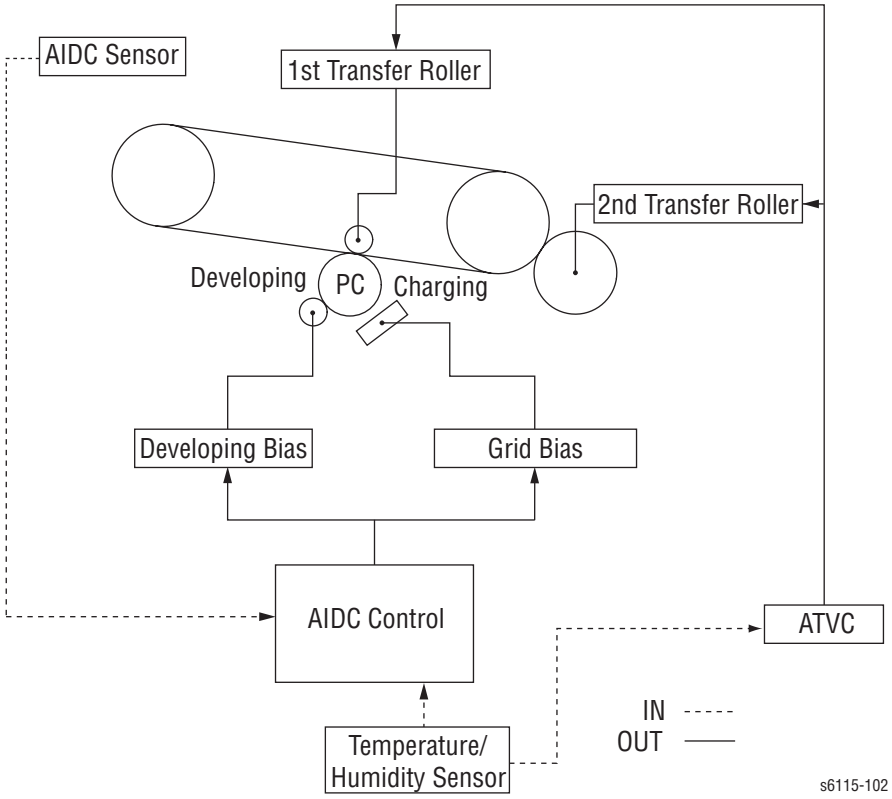



## Automatic Image Density Control (AIDC)

AIDC stabilizes image density to provide accurate tone reproduction. AIDC uses the IDC Sensor and Temperature/Humidity Sensor to monitor system and environmental parameters to regulate the following:

- Leak detection control
  For the clearance between the Drum and Developing Roller, an optimum developing bias voltage is established that prevents leak image or uneven density.
- IDC Sensor intensity control
  Adjustments are made to correct changes in IDC Sensor characteristics due to changes over time or contamination. The IDC Sensor is a photo-reflective sensor that emits light from an LED and detects the reflected light returning from the Transfer Belt. The light emitted from the LED is controlled so that the reflected light density is constant.

- Reflectance measurement control
  The reflectance of the Transfer Belt is measured using the IDC Sensor. The measurement is taken for one complete revolution of the Transfer Belt. The measured value is corrected during the intensity adjustment and G-correction control.
- Toner adherence control
  The developing bias voltage value is adjusted to keep constant the amount of toner sticking to the surface of the Drum with reference to the 100% solid image.
- Laser intensity adjustment control
  Characteristics of the Drum, developing, and charging processes are affected over time and by the environment. The intensity of the laser light is adjusted so that fine lines and gradations of a predetermined level are reproduced at all times.
- G-correction control
  A gradation pattern is produced on the surface of the Transfer Belt. The IDC Sensor measures the density of the pattern and sends the measured result to the controller for gradation adjustment.

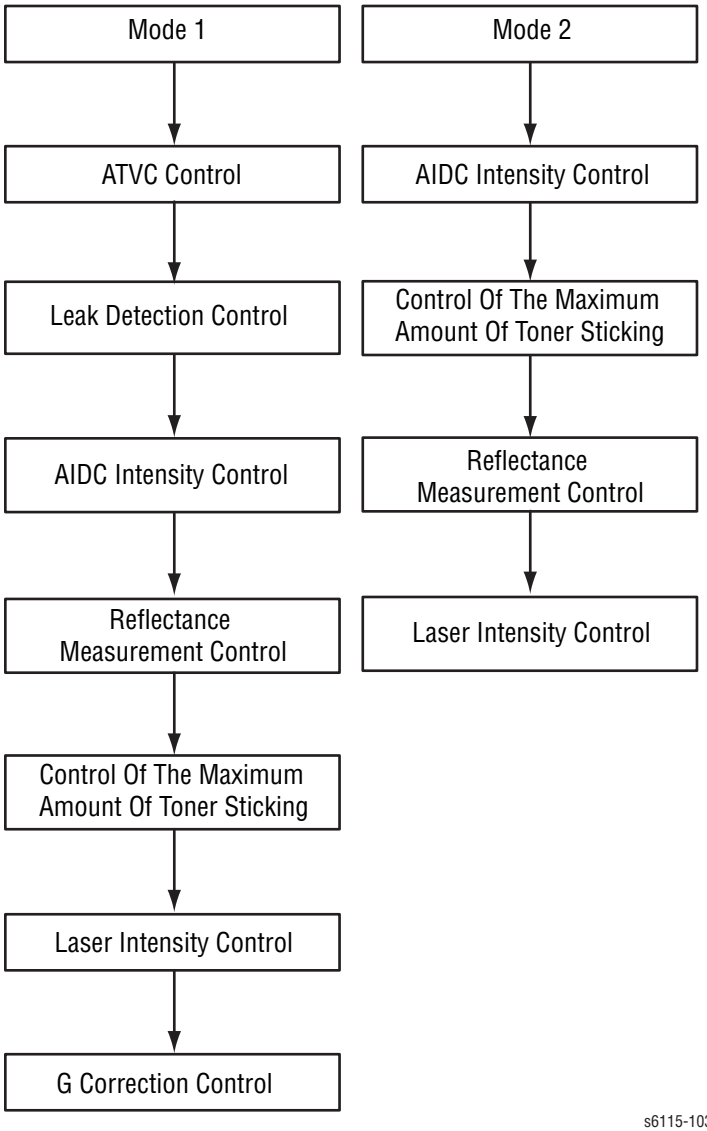


Depending on the state of the system, the process control mechanisms are activated. Factors for each state are listed in the following table.

### Process Control Operational Mode Definitions

| Mode | Process Control Criteria |
|---|---|
| Mode 1 | ■ When the Power Switch is turned On, the current environmental readings are different from when the Power Switch was turned Off.<br>■ The stored environmental readings taken when Energy Saver mode was entered differ from those taken when the system woke from Energy Saver mode.<br>■ The Power Switch is turned Off and On or Energy Saver mode is canceled after a predetermined number of printed pages have been produced.<br>■ A new Imaging Unit or Toner Cartridge is detected. |
| Mode 2 | Only the Power Switch is turned Off and On, or Energy Saver mode is canceled after a predetermined number of printed pages have been produced. |

The process controls invoked and the order in which they occur for each mode appears below.

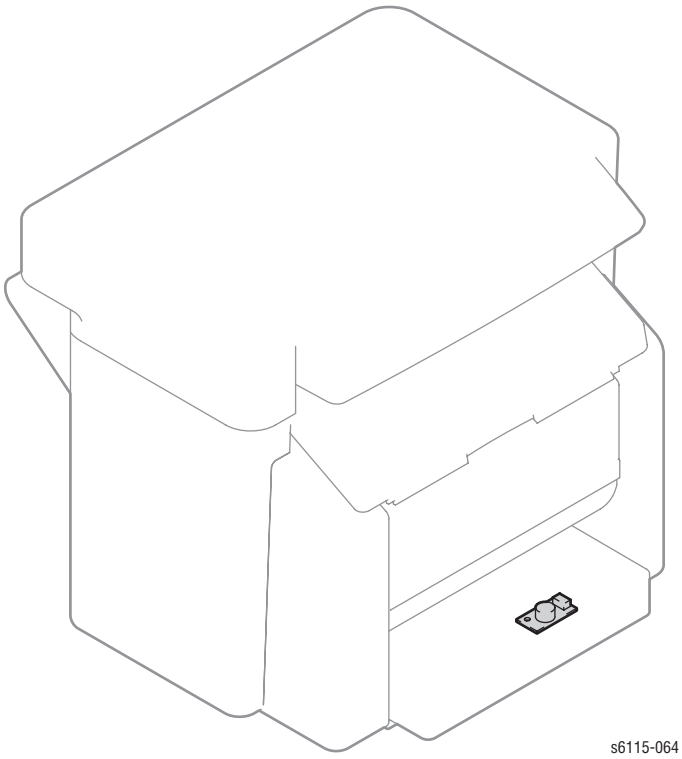


## Temperature/Humidity Sensor

The Temperature/Humidity Sensor monitors the internal temperature of the system. It is also used for image stabilization, transfer ATVC, and fusing temperature control.

**Note**

There is a Control Panel command which obtains environmental temperature and humidity levels. However, this command is for internal use only and not available from the service menus.



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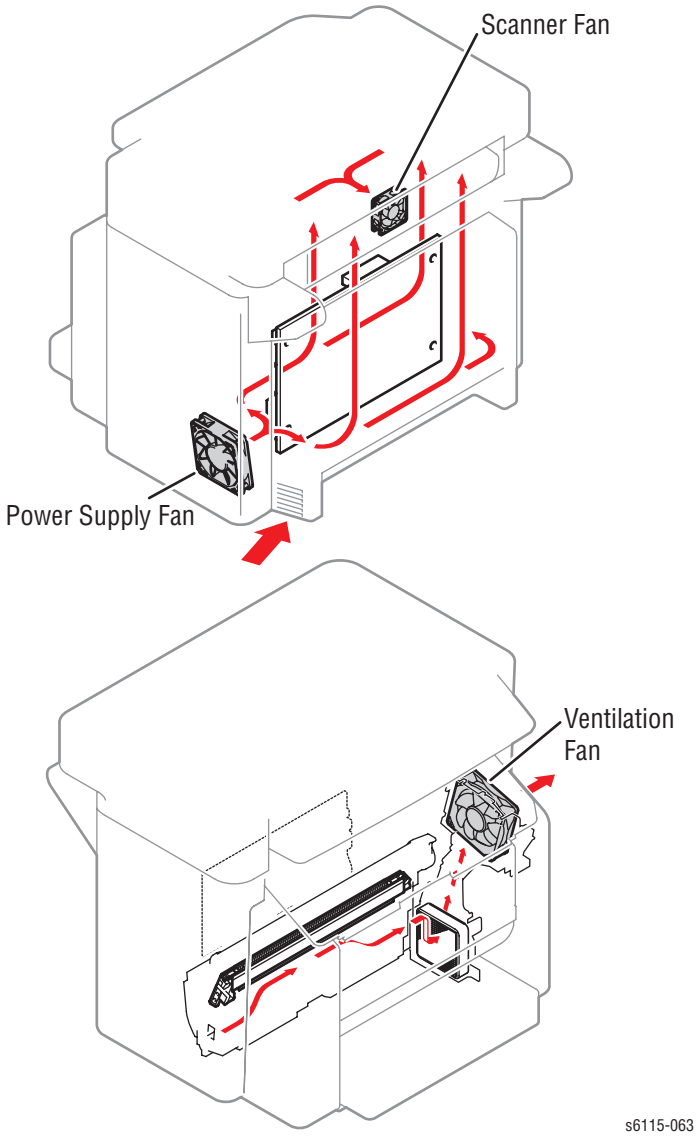
## System Thermal Regulation

Fans are the primary means used to limit the rise in internal temperature. Three fans are controlled by specialized circuity on the Main Board.

The following illustration shows the location and airflow direction of the Scanner Unit, Power Supply, and Chassis Fans.




### Power Supply Cooling Fan

The Power Supply Cooling Fan cools the system Power Supply and operates at full-speed, half-speed, or stopped states according to these conditions:

The Power Supply Cooling Fan runs at full-speed for:

- A predetermined period of time after the Power Switch is turned On
- A specified period of time representing the end of Energy Saver mode

- At the start of a print cycle following the lapse of a predetermined period of time needed for half-speed rotation.

**Note**

No full-speed rotation is performed if the print cycle completes during half-speed rotation.

The Power Supply Cooling Fan runs at half-speed:

- At the end of a print cycle (half-speed rotation following the predetermined period of time needed for full-speed rotation)
- During half-speed rotation under any condition other than above

The Power Supply Fan stops when:

- The system enters the Energy Saver mode
- The fan develops a malfunction
- The Power Switch is turned Off

## Chassis Fan

The Chassis Fan cools the system cabinet and operates at full-speed, half-speed, or stopped states according to these conditions:

The Chassis Fan runs at full-speed:

- When the Main Motor is in operation

The Chassis Fan stops:

- After a predetermined period of time after the Main Motor stops
- When a Door is opened, a media misfeed or malfunction occurs, or the Power Switch is turned Off

## Scanner Fan

The Scanner Fan cools the Scanner and operates at full-speed, half-speed, or stopped states according to these conditions:

The Scanner Fan runs at full-speed:

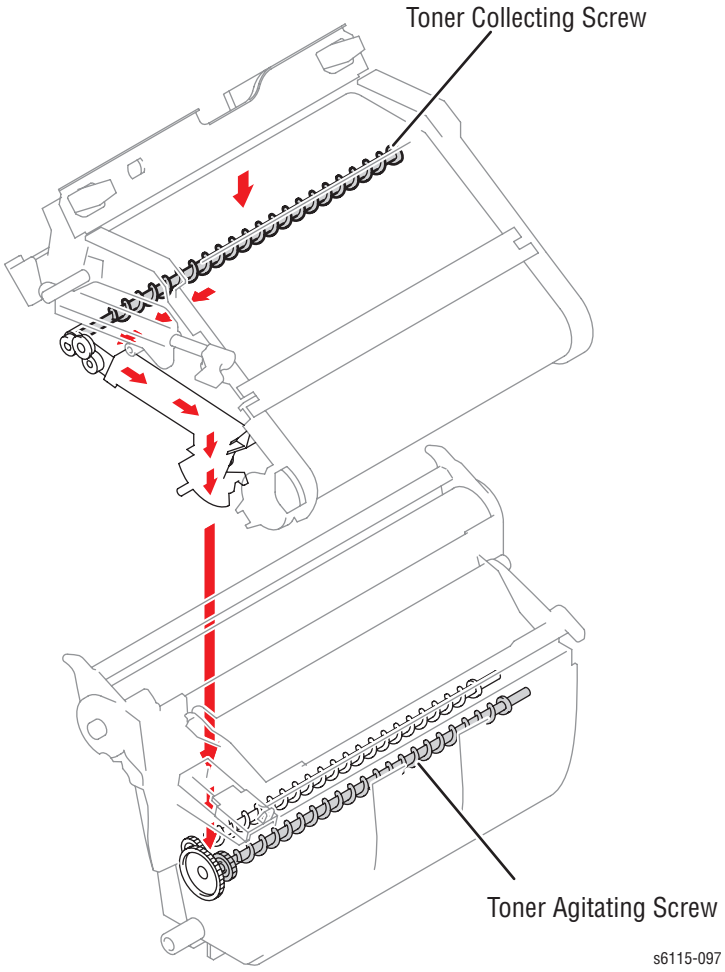
- For the predetermined period of time after the Power Switch has been turned On
- At the start of a print cycle (full-speed rotation after a predetermined period of time needed for half-speed rotation)

The Scanner Supply Fan runs at half-speed:

- At the end of a print cycle (half-speed rotation after a predetermined period of time needed for full-speed rotation)
- During half-speed rotation under any condition other than above

## Waste Toner Collection

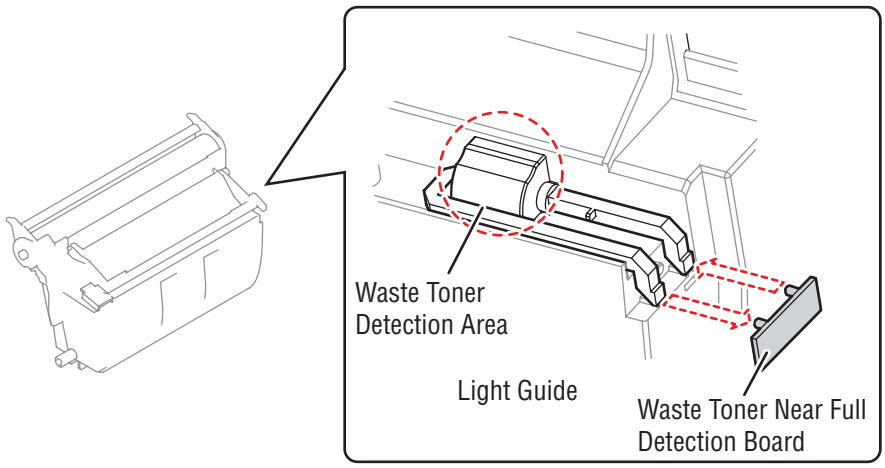
Waste toner removed from the Transfer Belt and Drum by the Cleaning Blade is transferred by gear driven augers along the Waste Toner Transfer Unit into the Imaging Unit waste toner reservoir.




### Waste Toner Full Sensor

The Waste Toner Full Sensor detects a near full condition within the Imaging Unit waste toner reservoir. Two agitating augers are used in the reservoir to provide the maximum waste toner storage capacity. A waste toner near full

condition occurs when light emitted from the sensor LED is obstructed during its travel through the light guide.

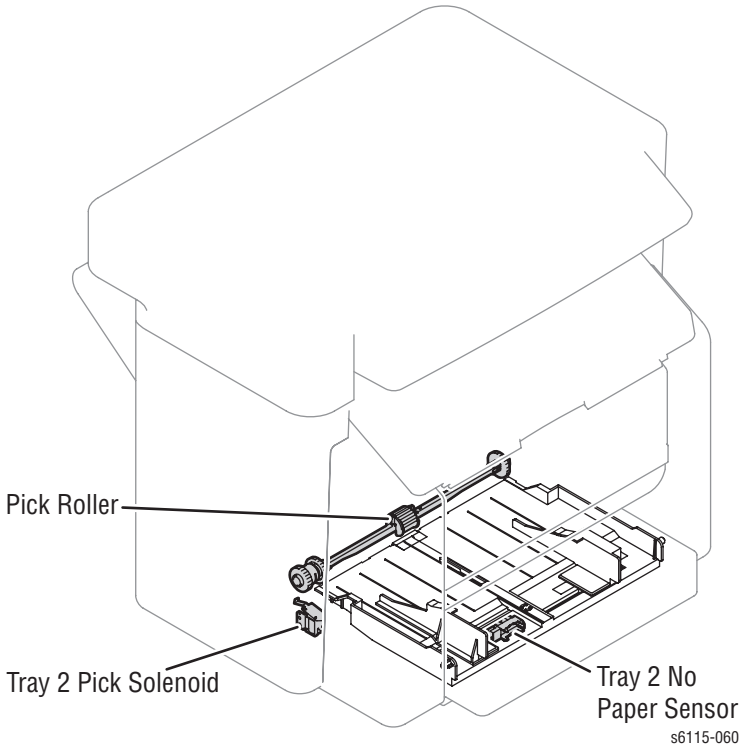



A waste toner full condition exists when 200 images are reached after a waste toner near full condition is detected. The initiation of any new print cycle is prohibited when 50 full-color printed pages are produced after the waste toner near full condition is detected.

When the LED light is unblocked following Imaging Unit replacement, the waste toner full condition is reset.

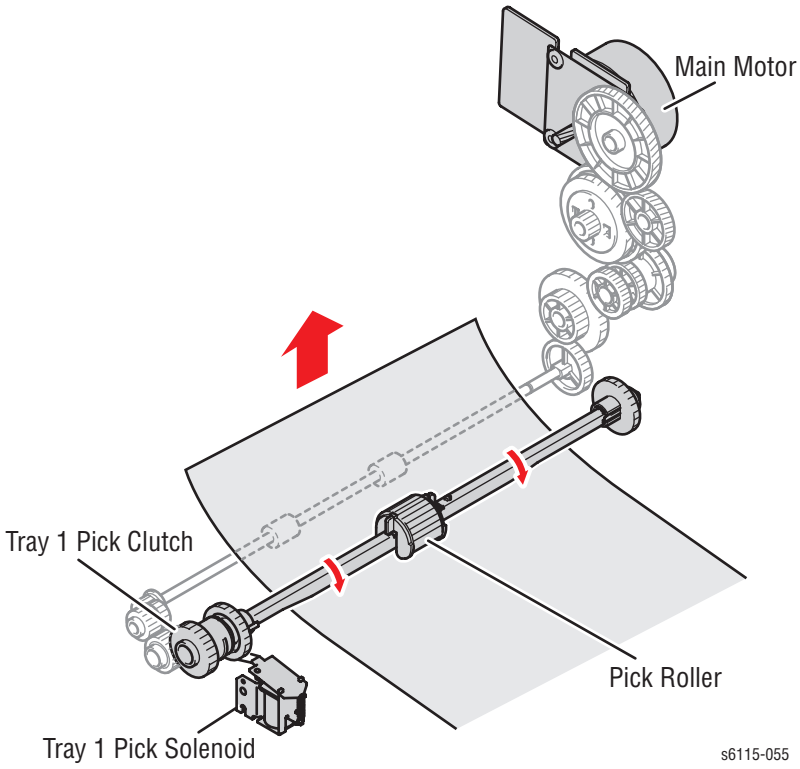
## Tray 1 Feeder

Tray 1

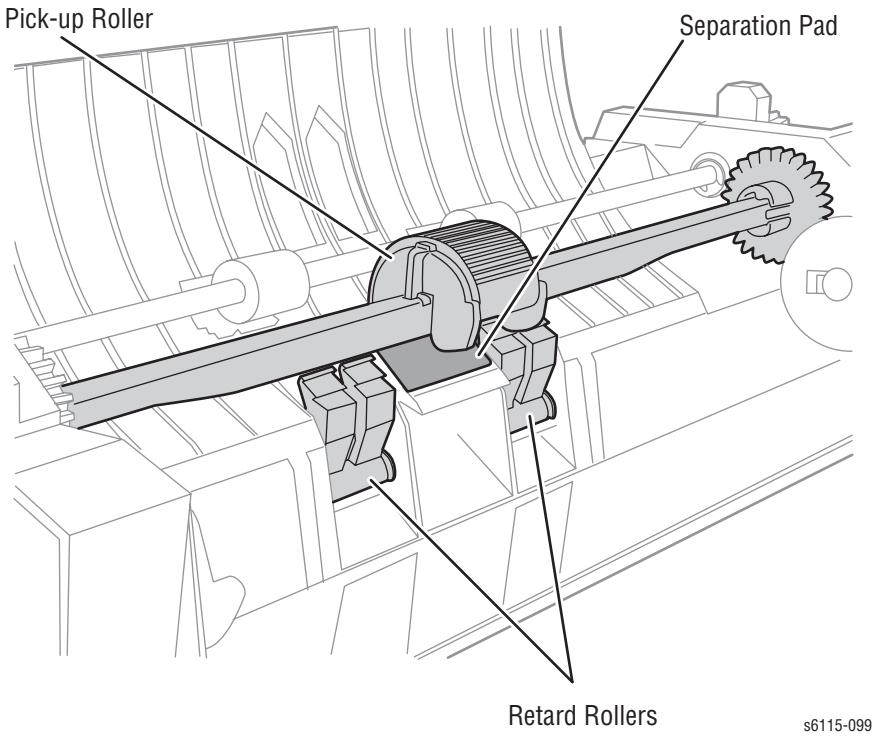


## Tray 1 Drive

When the Tray1 Pick Solenoid is energized, drive from the Main Motor is transmitted to the Pick Roller via the Tray 1 Pick Clutch. At the same time, the Lift Cam is rotated, which raises the Lift Plate. This allows the media to be taken up and fed in by the Pick Roller.



The fixed Separation Pad system plus the Retard Rollers are used for paper separation. This ensures that only one sheet of paper is fed.



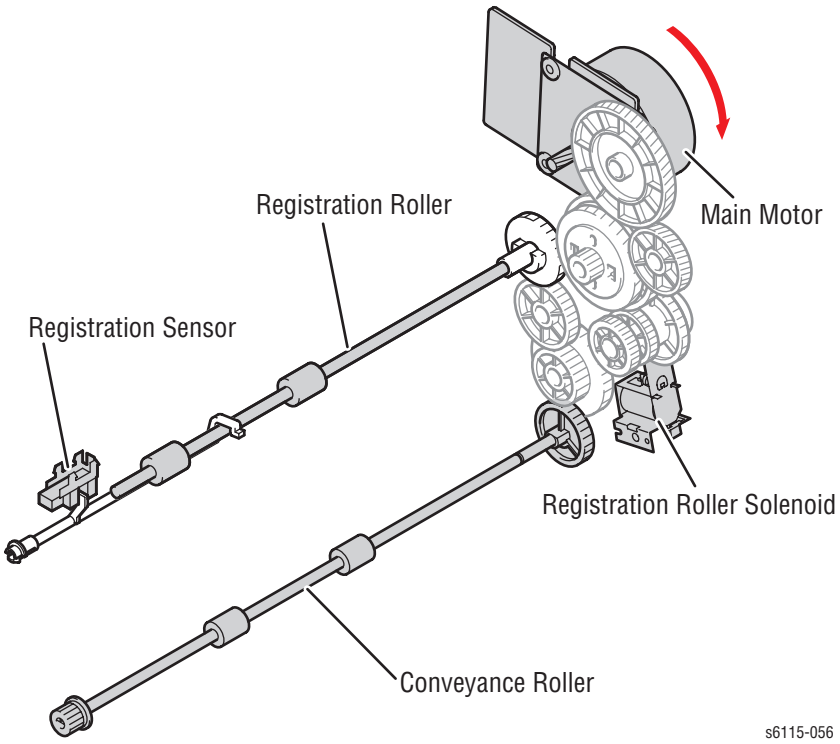

To reduce the number of detected paper misfeeds, another paper feed sequence is carried out if the Registration Sensor is not unblocked and blocked within a predetermined period of time.

## Tray 1 No Paper Sensor

The Tray1 No Paper Sensor is located on the underside of Tray 1, and detects the presence of media in the tray. When there is media loaded in the tray, the actuator drops into the tray, unblocking the sensor. When media runs out, the actuator raises, blocking the sensor.

## Registration

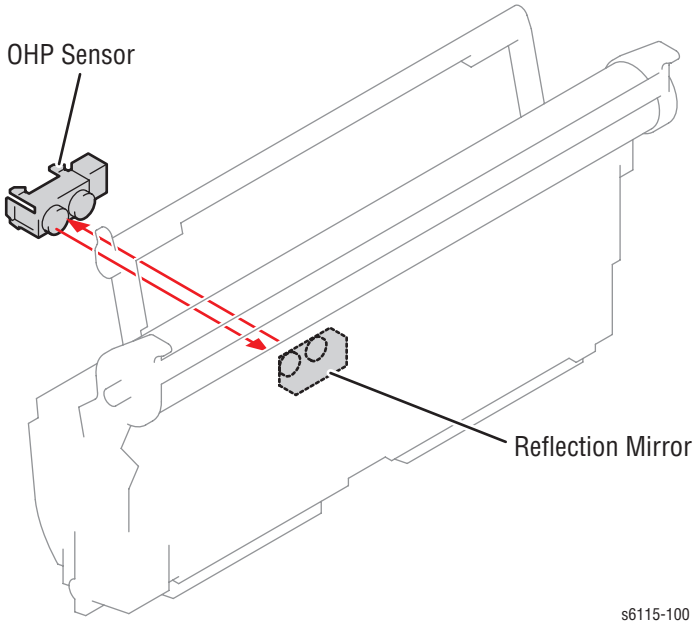
The Registration Sensor detects whether or not media has reached the rollers. The rollers move the media in synchronization with the image. Since the Conveyance Roller and Registration Roller are synchronized with each other, no loop is formed in the paper at the Registration Roller.




## Transparency Sensor

The Transparency Sensor detects the type of the media in the registration section. When the Registration Sensor is activated, the signal from the Transparency Sensor is also read to determine the media type. If the Transparency Sensor signal is High, Transparency film is in the registration section.

If the paper type specified by the controller when a print request is made does not match the results of Transparency Sensor detection, the machine suspends the print cycle and displays a corresponding message on the control panel.



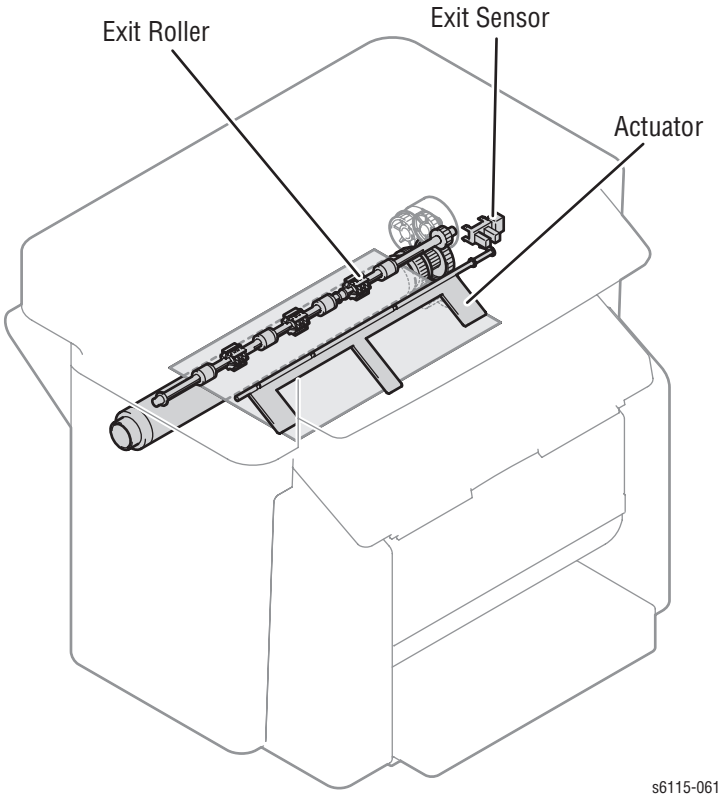

## Media Size Detection

Media size is detected using the Registration Sensor. The length of the media is determined by the length of time the Registration Sensor remains High indicating media in the registration section.

If the media size specified by the controller does not match the media size detected by the Registration Sensor, the system displays an error message on the Control Panel. The sheet causing the size error continues through the print process and is output to the tray. Operations for subsequent sheets are specified from the controller.

## Exit Tray

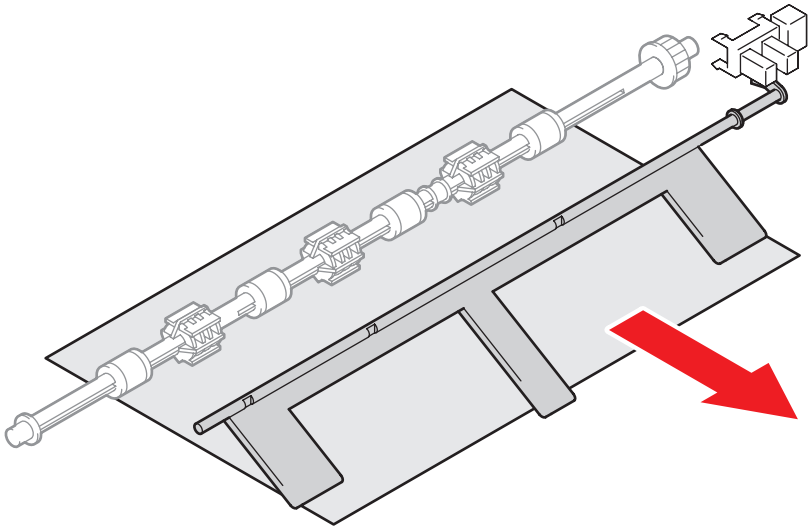
Media is transported from the Fuser to the Exit Tray using the Exit Roller. the The Exit Sensor monitors the Media output.




The Fusing Motor drives the Exit Roller.

### Exit Tray Full Sensor

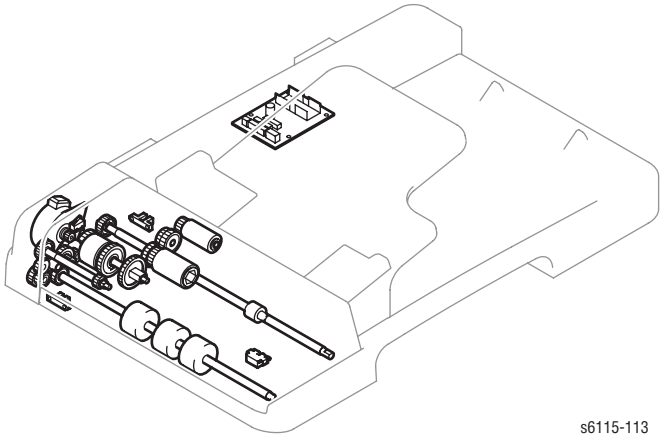
The Exit Tray Full Sensor monitors the Exit Tray status.



s6115-062

## Automatic Document Feeder (ADF)

The ADF feeds documents to the Scanner platen for scanning. The functional components within the ADF are illustrated below.

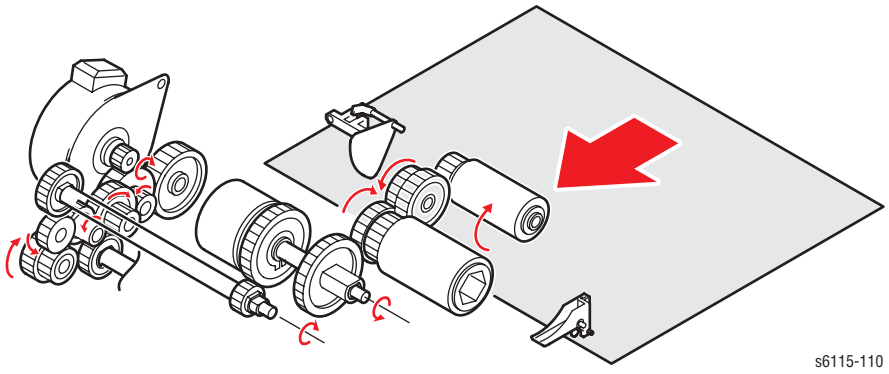


s6115-113

### ADF Pick Operation

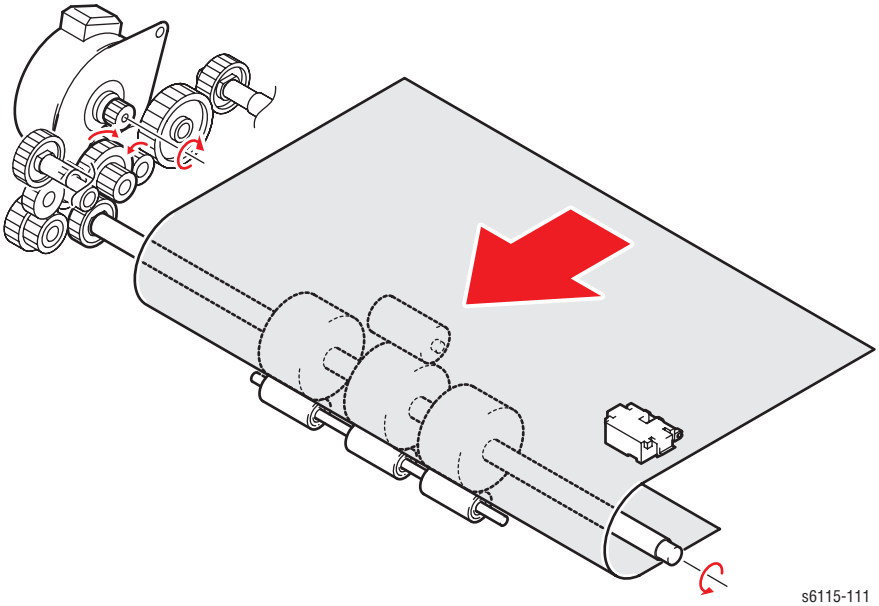
Media loaded in the ADF is detected by the Original Detection Sensor. The Document Stopper establishes the leading edge position of the document loaded in the Document Feeder. The stopper is lowered in the standby state and raised when the document is taken up and fed in. A Separation Pad limits the number of sheets picked to one.

1. The Document Stopper is raised and lowered in synchronism with the raising and lowering motion of the Pick Roller.
2. The ADF Motor drives the Pick Roller and Take-up Roller through a gear train and the ADF Feed Clutch.
3. The Pick Roller and Take-up Roller turn to take up and feed the original properly.
4. The Pick Roller transports the original up to the Take-up Roller.



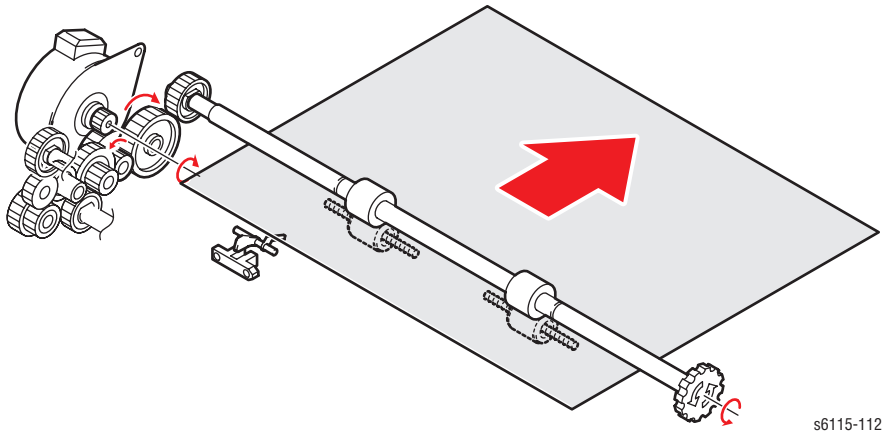

## ADF Transport Operation

When the sheet obstructs the ADF Feed Sensor, the Transport Roller, driven by the ADF Motor, turns to move the original to the document scanning position.



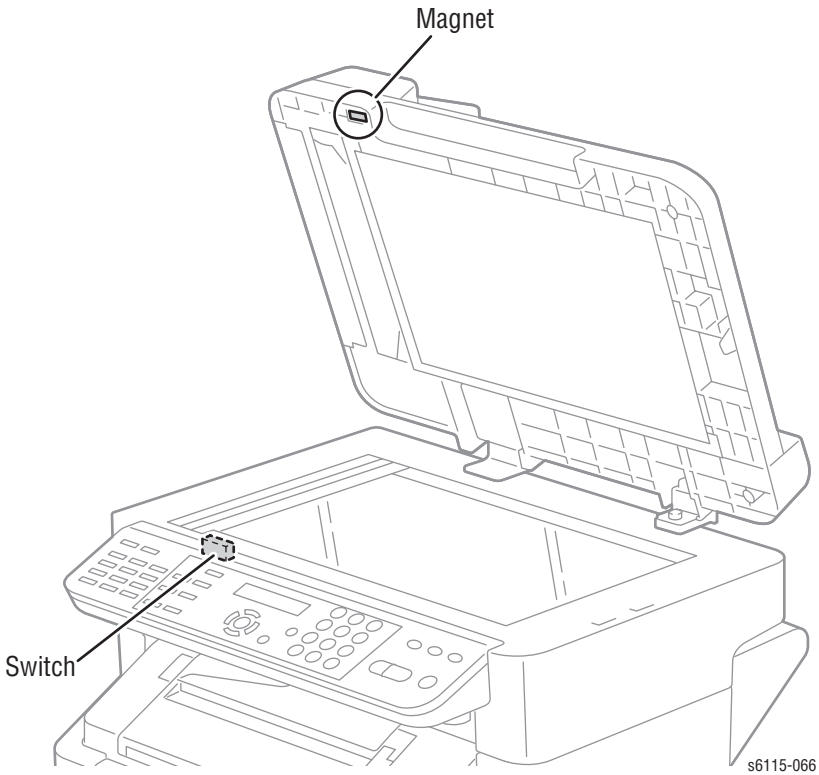
## ADF Exit Operation

When the leading edge of the sheet obstructs the Leading Edge Detect Sensor, the Exit Roller, driven by the ADF Motor, turns to feed the original to the ADF Output Tray.



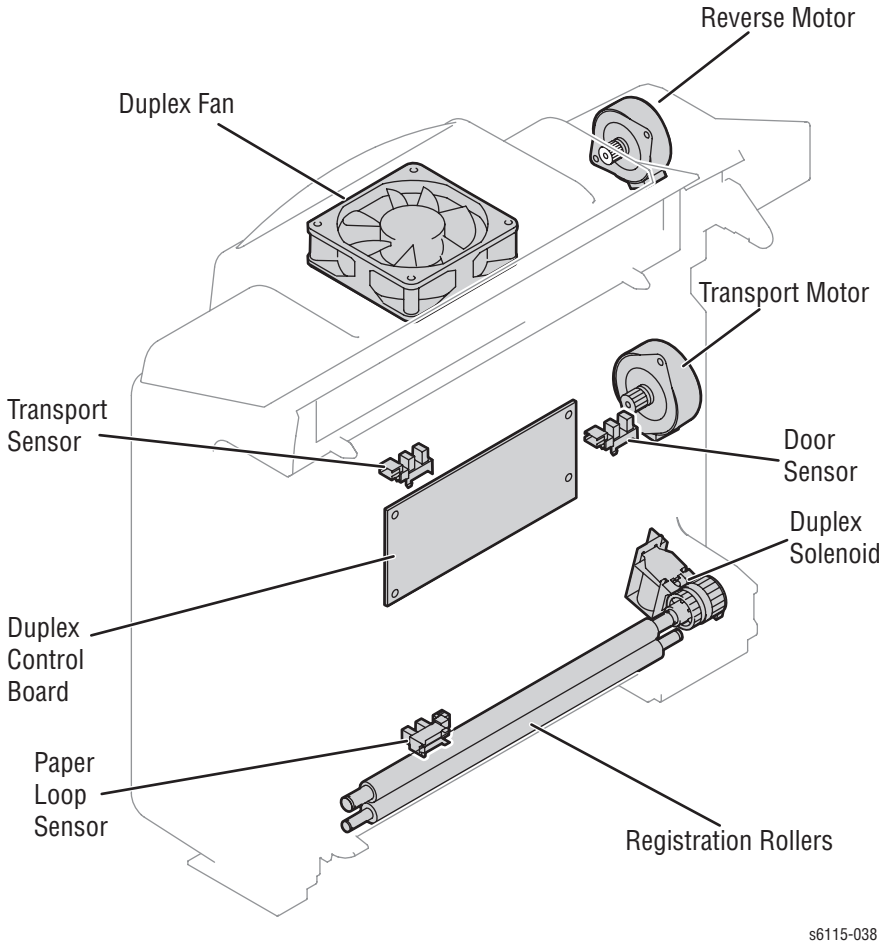

## ADF Interlock

The ADF contains a magnet at its edge that activates a switch located in the Scanner to indicate the position of the ADF.



## Duplex Unit

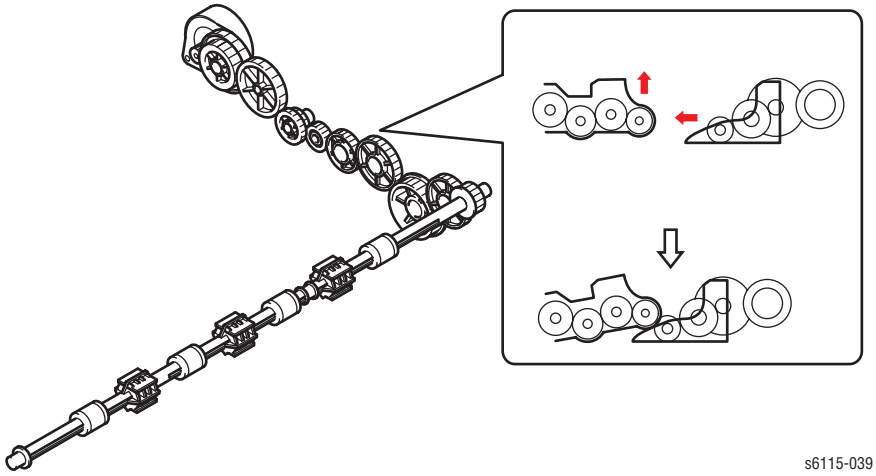
The Duplex Unit adds 2-sided print capability to the system. The following illustration shows the location of components within the Duplex Module.




### Duplex Drive

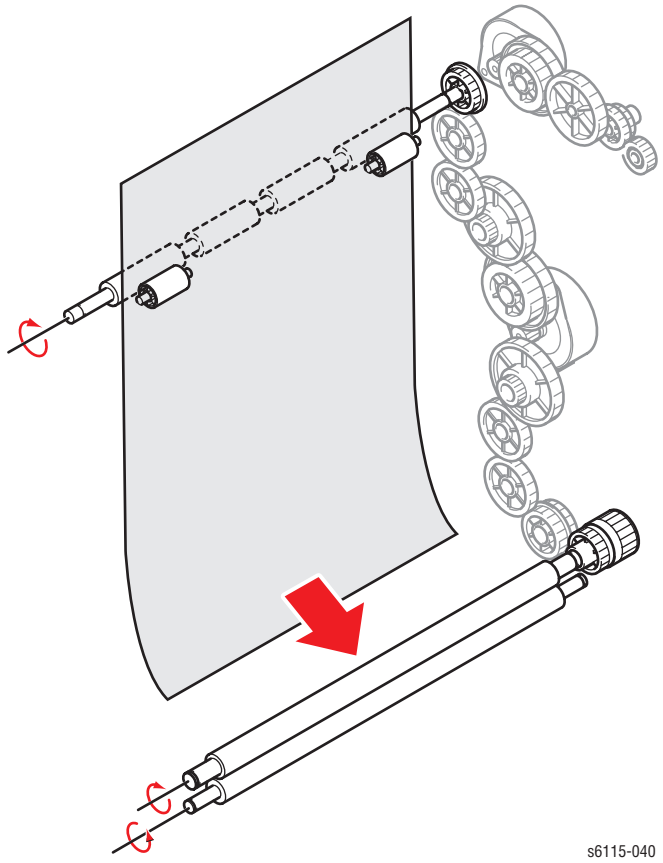
The print engine's Exit Roller, typically driven by the Fusing Motor during one-sided operations, feeds media into the Duplex Option. For duplex operation, a lever disengages the Fusing Motor from the Exit Roller, and engages the Duplex Reverse Motor.

This reverses the Exit Roller feeding the media into the Duplex Module.



s6115-039

After entering the Duplex Module, two Transport Rollers, driven by the Duplex Transport Motor, move media through the system.



s6115-040

A deskew loop correction mechanism is provided to prevent skew from occurring in the second page. The Registration Solenoid is energized after the lapse of a given period of time after the Paper Loop Sensor has been activated. This drives the Registration Roller. When the Registration Roller is driven, the paper is conveyed into the machine.

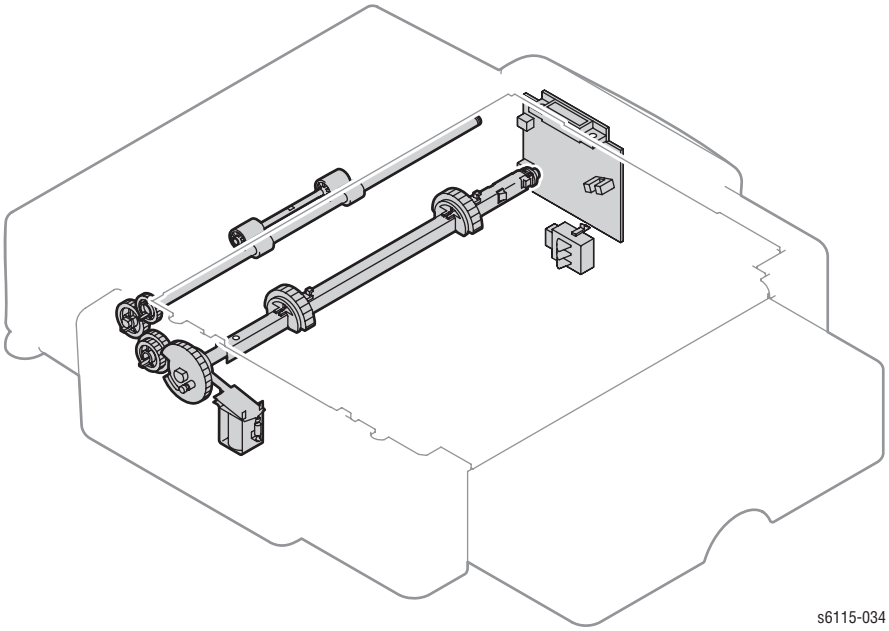
## Duplex Transport Operations

The following steps detail the transport operations for single, hand-fed sheets.

1. The first sheet of paper is taken up and fed in from the main tray and the first print cycle begins. Immediately before the one-sided print leaves the Exit Roller, the direction of rotation of the Exit Roller is reversed and the 1-sided print is transported toward and into the Duplex Unit.
2. The print moves through the Duplex Unit and is temporarily stopped at the Duplex take-up position. Any skew in the paper is corrected at the Registration Roller before the paper is fed by the Duplex Unit.
3. The second print cycle begins to produce the second image on the original sheet. While feeding the first two-sided print to the Exit Tray, the first print cycle for the second sheet begins. This process repeats until the print job is complete.
4. The first sheet of paper is then taken up and fed in from the tray and the first print cycle begins to produce the print image on the second page of the original. Immediately before the first one-sided print leaves the Exit Roller, the Exit Roller is reversed and the first 1-sided print is transported into the Duplex Option.
5. At the same time, the second sheet of paper is fed into the print engine. The first print cycle for the second sheet produces the image on the fourth page of the original.
6. Also at the same time, the first 1-sided print is transported through the Duplex Option. The main unit produces the print image of the first page of the original on the first one-sided print that has been fed through the Duplex Option. At the same time, the second sheet of paper is subjected to a switchback sequence at the exit section and fed into the Duplex Option. Also, the third sheet of paper is taken up and fed into the main unit.
7. While feeding the first 2-sided print out, the main unit produces the print image of the 6th page of the original on the third sheet of paper. The second sheet of paper waits at the Duplex take-up position until the third sheet of paper is subjected to a switchback sequence.
8. Immediately before the first one-sided print leaves the Paper Exit Roller, the direction of rotation of the Paper Exit Roller is reversed and the first 1-sided print for the third sheet is transported toward and into the Duplex Unit.
9. At the same time, the second sheet of paper is fed into the main unit again.The main unit carries out the first print cycle for the second sheet of paper to produce the print image of the third page of the original. At the same time, the first 1-sided print for the third is transported through the Duplex Option. Also at the same time, the forth sheet of paper is taken up and fed into the main unit.
10. While feeding the second 2-sided print out, main unit produces the print image of the 8th page of the original on the fourth sheet of paper. The third sheet of paper waits at the Duplex take-up position until the fourth sheet of paper is subjected to a switchback sequence. The process repeats until the print job is complete.

## 500-Sheet Feeder Unit

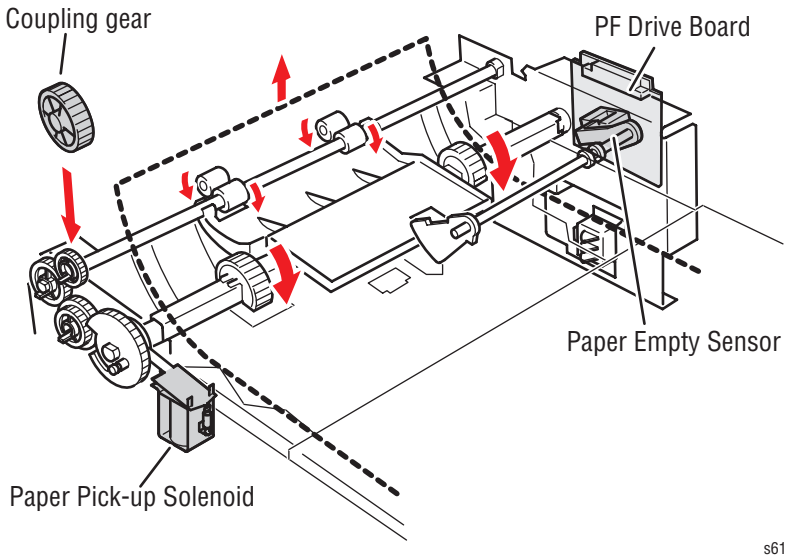
The optional 500-Sheet Feeder is replaced as a single assembly. Components of the optional 500-Sheet Feeder appear below.



s6115-034

### Feeder

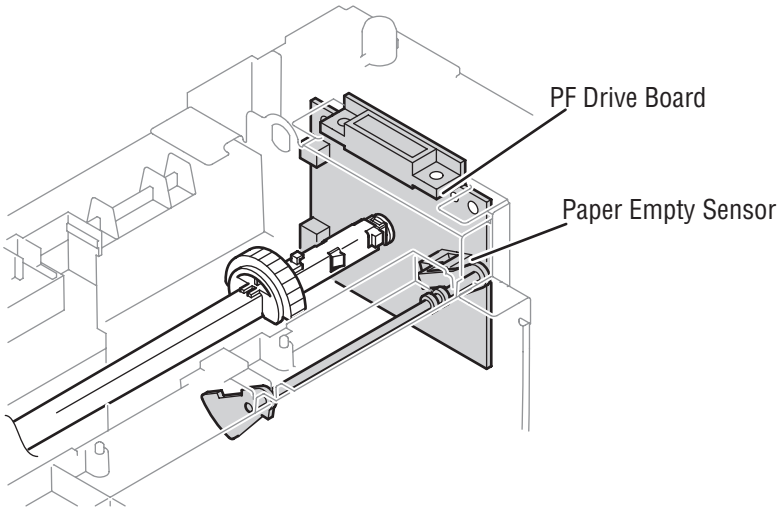
The feeder is driven by the system's Main Motor through a coupling gear. The paper separation mechanism uses separation claws installed in the unit and elasticity of the paper. It ensures that only one sheet of paper is fed in at time. The Pick Solenoid is controlled by the system through the Feeder Control Board mounted in the feeder.

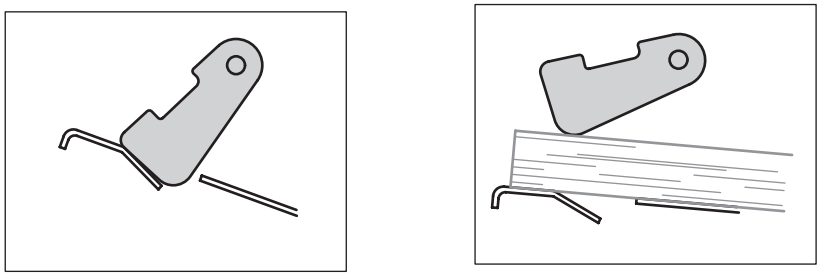



s6115-035

## Tray 1 No Paper Sensor

The Tray 1 No Paper Sensor located on the Feeder Control Board detects when the tray is empty. When media is present in the tray, the actuator is raised unblocking the sensor. When the tray is empty, the actuator drops into the slit in the Lift Plate blocking the sensor



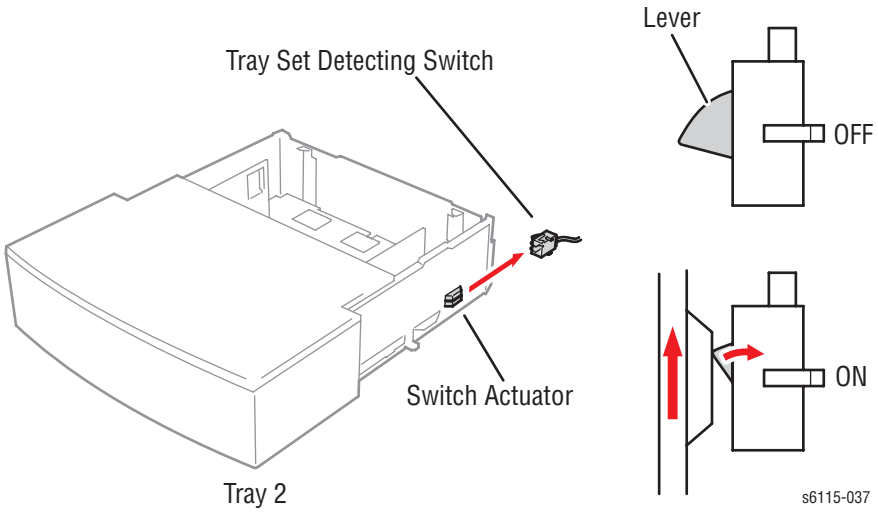
At Paper Empty Condition

Under Normal Conditions

s6115-036

### Tray Detect Switch

The Tray Detect Switch signals the presence of a tray in the feeder. The switch is On when the tray is fully-inserted in the feeder.




## Sensors

The printer contains 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 detects if a paper jam occurs. Other sensors detect the presence of the Toner Cartridges, stop printer activity if a door is open (interlock), detect the presence and size of media in the trays, and monitor the fusing temperature.

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

### Photo Sensors

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

Photo-reflective sensors have the light emitter and light receiver aligned on a single surface. Output of the photo-receptor is High (> +4.5 V) when light is being reflected back and Low (< +.3 V) when it isn't. Photo-receptive sensors consist of a LED in one arm of a U-shaped holder, and a photo-transistor in the other arm. When the sensing area is vacant, nothing is between the arms of the sensor, light falls on the photo-receptor sending the signal High. If the light is interrupted, the photo-transistor goes Low.

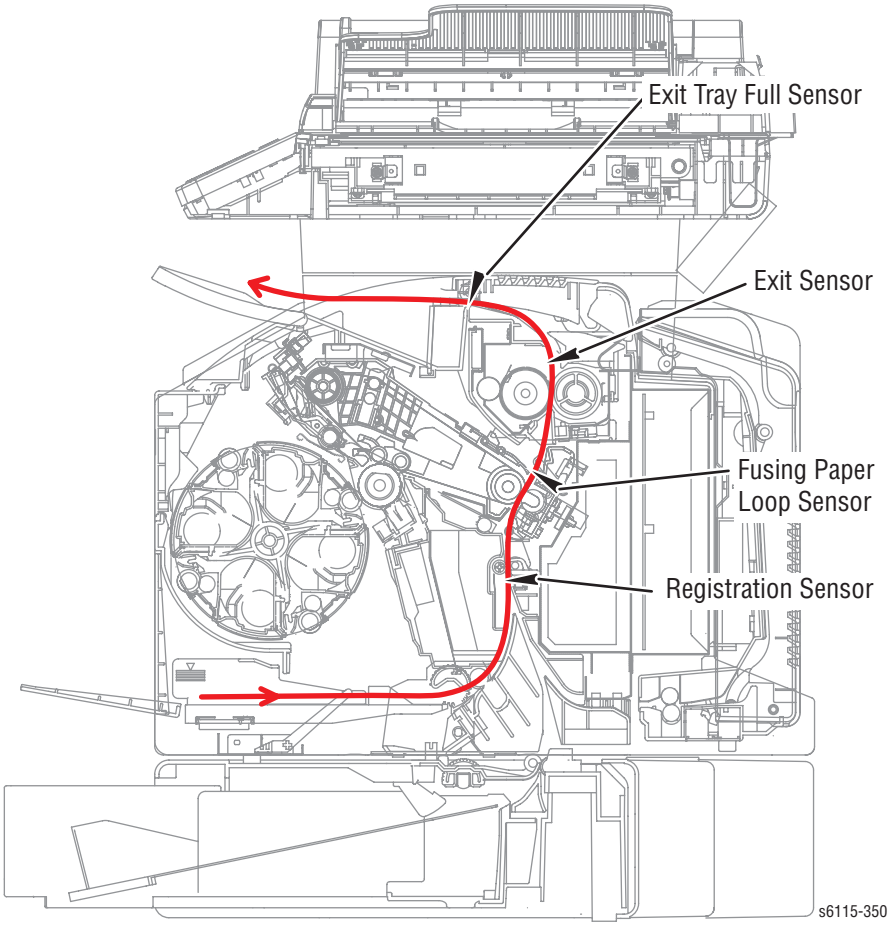
## Microswitches

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

## Thermistors

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

## Sensor Layout



# Error Codes and Messages

## In this chapter…

- Overview of Error Messages
- Index of Error and Warning Messages
- Messages, Codes, and Procedures
- Jam Error Procedures

Chapter 3

# Overview of Error Messages

This section describes error messages and numeric codes displayed on the Control Panel. These error indications serve as the entry point into the troubleshooting process. Printer problems not directly indicated by, or associated with an error message or code are covered in Chapter 4, “General Troubleshooting.” Print-quality problems are covered in Chapter 5, “Print-Quality Troubleshooting.”

The printer tracks and reports errors in a number of ways. The two types of error reporting discussed in this Section include:

- Error messages and help text displayed on the Control Panel.
- Engine (fatal) and Jam Error logs displayed on the Control Panel or listed in the Service Usage Profile.

# Index of Error and Warning Messages

The following table lists errors that will halt printing and require a service technician”. All of the call designators (e.g. CALL 04) are proceeded with the display of *CAUTION* MACHINE TROUBLE.”

Service call Messages

| Message | Description |
|---|---|
| CALL 04 | Engine Controller Board error |
| CALL 05 | Engine Controller FLASH ROM error |
| CALL 08 | Engine Main Motor error |
| CALL 0B | Fusing Fan Error |
| CALL 0C | Power Supply Fan error |
| CALL 0F | Duplex Fan error. |
| CALL 10 | Laser Unit Mirror Motor error |
| CALL 12 | Laser Unit error - no sync signal |
| CALL 14 | Transfer Roller contact pressure error |
| CALL 15 | Transfer Belt contact pressure error |
| CALL 16 | Transfer Belt rotation error |
| CALL 17 | Toner Carousel rotation error |
| CALL 18 | Fuser warmup error |
| CALL 19 | Fuser temperature low error |
| CALL 1A | Fuser temperature high error |
| CALL 1B | Fuser Thermistor error |
| CALL 21 | Transparency Detect Sensor error |
| CALL 23 | Waste Toner Full Detection Sensor error |
| CALL 24 | Fuser temperature resistance error |

| Message | Description |
|---|---|
| CALL 29 | Controller Memory Checksum error |
| CALL 2A | Controller Memory Data error |
| CALL 2B | Controller Memory Access error |
| CALL 2C | Controller Memory Mounting error |
| CALL 31 | Scanner Fan Motor error |
| CALL 101 | Scanner Motor error |
| CALL 102 | Scanner Lamp error |
| ENGINE INTERFACE | Communication error between Main Controller and Engine controller |
| CONTROLLER | Main Controller Error |

## Other Error/Warning Messages

These are errors that will require customers to do some corrective action. Some require user intervention to continue printing.

| Message | Description |
|---|---|
| K TONER EMPTY | Error in Fax mode -- black toner empty (color toner is not used in fax) |
| PAPER EMPTY | Error in Fax mode |
| PAPER JAM* | Error in Fax mode (paper jam in ADF) |
| OUTPUT TRAY FULL | Error in Fax mode (idle) |
| OUTPUT TRAY FULL<br>REMOVE PAPER | Error in sending out fax |
| MEDIA TYPE ERRO<br>REMOVE PAPER | Media type error for fax mode |
| REPLACE Y TONER | Toner replacement mode, this message covers all 4 colors, Y is just an example. |
| EJECT MODE<br>REMOVE Y TONER | Toner eject mode, this message cover all 4 colors, Y is just an example |
| PAPER EMPTY<br>LOAD PAPER(xYYY) | Paper empty error in Printing |
| PAPER SIZE ERROR<br>RESET PAPER(xYYY) | Paper size error in printing |
| MEDIA TYPE ERROR<br>CHANGE xyyz->XYYZ | Paper type error |
| MEMORY FULL<br>PRESS ANY KEY | Memory full in printing |

| Message | Description |
|---|---|
| MEM.FULL/JOB CANCEL?<br>OK=SEL (SEND=START) | Memory nearly full in Scanning mode |
| MEMORY FULL<br>PRESS ANY KEY | Memory full in Scanning |
| *CAUTION* FILE FULL<br>*CAUTION* PRESS ANY KEY | Files full in Scanning |
| *CAUTION PAPER MISSFEED<br>*CAUTION!* OPEN TOP COVER | Paper jam at input tray |
| *CAUTION* PAPER JAM<br>*CAUTION* OPEN DUPLEX COVER | Paper jam at duplex unit |
| *CAUTION* PAPER JAM<br>*CAUTION* OPEN TOP COVER | Paper jam in the engine |
| *CAUTION* ORIGINAL DOC.JAM<br>*CAUTION* OPEN DOC FEED COVER | Paper jam at ADF |
| *CAUTION* PC CONNECTION FAILED<br>*CAUTION* PRESS ANY KEY | Scanner Interface error (cable not attached?) |
| *CAUTION* FRONT COVER OPEN<br>*CAUTION* CLOSE FRONT COVER | |
| *CAUTION* TOP COVER OPEN<br>*CAUTIO!* CLOSE TOP COVER | |
| *CAUTION* DUPLEX COVER OPEN<br>*CAUTION* CLOSE DUPLEX COVER | |
| *CAUTION* SCANNER UNIT OPEN<br>*CAUTION* CLOSE SCANNER UNIT | |
| DOC FEED COVER OPEN<br>CLOSE DOC FEED COVER | |
| PAPER EMPTY<br>LOAD PAPER(xYYY) | |
| OUTPUT TRAY FULL<br>REMOVE PAPER | |

| Message | Description |
|---|---|
| YMCK TONER EMPTY<br>REPLACE YMCK TONER | Only the low one will show, if cyan and magenta are low, it will show MC TONER EMPTY |
| TEXT x1.00 <-A-> 1A4<br>YMCK TONER<br>TEXT x1.00 <-A-> 1A4<br>LOW | Only the low one will show, if cyan and magenta are low, it will show MC TONER EMPTY, also Imaging unit, this is in the copy mode |
| TONER LIFE END<br>CHANGE YMCK TONER | Only the EOL one will show, if cyan and magenta are low, it will show MC TONER Life end |
| IMAGE UNIT DEPLETED<br>REPLACE IMAGING UNIT | EOL for drum (waste toner full, sensor trigger) |
| IMAGING UNIT NOT INSTALLED | Error |
| CYAN TONER NOT INSTALLED | |
| MAGENTA TONER NOT INSTALLED | |
| YELLOW TONER NOT INSTALLED | |
| BLACK TONER NOT INSTALLED | |
| CURRENCY DETECTED | |
| LOAD DOC FEEDER | No original document at ADF |
| SET ORIGINAL TO ADF | No original at ADF for 2in1 copy |
| REMOVE ORIG.IN ADF | When there is original at ADF but call for flatbed scanning |
| ADMINISTEREDBY PC | CWIS or MCC prevent changes from the front panel |
| LINE PROBLEM<br>CHECK LINE | Fax line problem |
| *FAX COMM.<br>ERROR*(XXXX) | FAX communication error |
| *NO DIAL TONE*<br>030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *LINE IS BUSY* 030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *NO ANSWER* 030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *REDIAL WAITING*<br>030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *REDIAL ALL FAILED*<br>030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *HANG UP THE PHONE*<br>030524120 | 030524120 is an example for phone number (as in Tokyo) |

| Message | Description |
|---|---|
| *MEM.FULL/SEND* 030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *MEM.FULL/RECEIVE* 030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *FILE FULL/SEND* 030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *FILE FULL/RECEIVE* 030524120 | 030524120 is an example for phone number (as in Tokyo) |
| *MEMORY FULL* | Fax memory full (receiving) |
| *FILE FULL* *DESTINATION FULL* | Fax transmitting error |
| *DESTINATION SET BY MANUALUPTO 16* | Group dial can be set to 50 destination by CWIS and MCC, but from Front Panel, you can not set this more than 15 |
| *DUPLICATE SETTING* | Same destination is set in One-Touch one Speed Dial |
| *NOT REGISTERED!* | One-Touch or Speed Dial button is not registered |
| *WRONG PASSWORD* | Incorrect Password for the Memory RX |
| *WRONG NUMBER SET* | Setting is not correct in Date or Time (like March, 50,,,) |
| *NOT AVAILABLE* | Selection is not available |
| CYAN TONER NOT INSTALLED | |
| MAGENTA TONER NOT INSTALLED | |
| YELLOW TONER NOT INSTALLED | |
| BLACK TONER NOT INSTALLED | |
| *CAUTION* CURRENCY DETECTED | |
| *CAUTION* LOAD DOC FEEDER | No original document at ADF |
| *CAUTION* SET ORIGINAL TO ADF | No original at ADF for 2in1 copy |
| *CAUTION* REMOVE ORIG.IN ADF | When there is original at ADF but call for flatbed scanning |
| *PLEASE WAIT* ADMINISTERED BY PC | CWIS or MCC prevent changes from the front panel |
| STD 100% LINE PROBLEM<br>STD 100% CHECK LINE | Fax line problem |
| REGISTERED! GROUP | An error occurs if Group dial was selected when inputting the destination for Hook function. |

| Message | Description |
|---|---|
| **The following are scan to Email errors**<br>*NOT E-MAIL ADDRESS* | Setting is not E-mail address |
| *NOT REGISTERED!* | No setting in the selected key |
| *NO NETWORK SETTING* | Setting is not completed |
| *IP ADDRESS NOT SET* | Cannot get IP Address |
| *FILE FULL* | |
| *JOB CANCELED*<br>MEMORY FULL<br>PRESS ANY KEY | In case of Memory Full |
| *COMM.ERROR*<br>SMTP Server | Communication Error |
| *DISCONNECT*<br>SMTP Server | Cannot connect |
| *CANNOT CONNECT*<br>SMTP Server | Communication Error |
| *CANNOT CONNECT*<br>DNS Server | Communication Error |
| *SERVER MEMORY FULL<br>*SMTP Server | Mail Receiving Memory of the SMPT Server is full. |

For details of malfunction messages and troubleshooting procedures, see “Main Print Engine Troubleshooting” on page 4-3

## Messages, Codes, and Procedures

The error messages and codes generated by the printer’s operating system are the lead-in to the troubleshooting procedures that follow in subsequent pages. This section correlates the output of the printer’s diagnostic aids and provides the location of the troubleshooting procedure to correct reported errors.

## Error Message Summary

The following table provides a listing of error messages and the page number for the description of each.

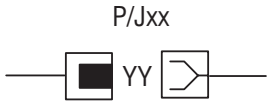
| Control Panel Message | Code | Go to Page |
|---|---|---|
| **Boards and FLASH ROM** | | |
| 04H Engine Malfunction | 04H | 3-11 |
| 05H Flash ROM Malfunction | 05H | 3-12 |
| **Motors and Fans** | | |
| 08H Main Motor Malfunction | 08H | 3-13 |
| 0BH Ventilation Fan Motor Malfunction | 0BH | 3-14 |
| 0CH Power Supply Cooling Fan Malfunction | 0CH | 3-15 |
| 10H Polygon Motor Malfunction | 10H | 3-16 |
| **Image Components** | | |
| 12H Laser Malfunction | 12H | 3-17 |
| 14H Second Image Transfer Pressure/Retraction Failure | 14H | 3-18 |
| 15H Cleaning Blade Pressure/Retraction Failure | 15H | 3-19 |
| 16H Transfer Belt Rotation Failure | 16H | 3-21 |
| 17H Rack Rotation Failure | 17H | 3-22 |
| **Thermistors and Sensors** | | |
| 18H Heating Roller Warmup Failure | 18H | 3-23 |
| 19H Abnormally Low Heating Roller Temperature | 19H | 3-23 |
| 1AH Abnormally High Heating Roller Temperature | 1AH | 3-23 |
| 1BH Faulty Thermistor | 1BH | 3-23 |
| 21H Faulty Transparency Sensor | 21H | 3-25 |
| 23H Faulty Waste Toner Near Full Detection Board | 23H | 3-26 |
| **Miscellaneous Motors and Lamps** | | |
| 31H Scanner Cooling Fan Motor Malfunction | 31H | 3-28 |
| 101H Scanner Motor Malfunction | 101H | 3-29 |
| 102H Faulty Scanner Exposure Lamp | 102H | 3-30 |
| **Power Supply Errors** | | |
| Machine is Not Energized | N/A | 3-32 |
| Control Panel Indicators Do Not Light | N/A | 3-33 |
| Fusing Heaters Do Not Operate | N/A | 3-34 |

## Using the Troubleshooting Procedures

1. **Applicable Status Code(s)** lists the error message(s) addressed by each troubleshooting procedure.
2. **Applicable Parts** and **Wiring and Plug/Jack References** assist you in locating information available for a particular part or procedure.
3. Follow each **Step** in a troubleshooting procedure sequentially in the order given until the problem is fixed or resolved.
4. The **Actions and Questions** box instructs you to perform a certain action or procedure. Also included are precautions and/or additional procedures you must follow to isolate the problem.
5. Some actions are 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.
6. Note that two types of photo sensors are used: photo-reflective and photo-receptive. Photo-reflective sensors use light reflected back from an object to detect its presence or absence. Photo-receptive sensors use an actuator or the object itself to block the light path to detect an object or condition.
7. Troubleshooting procedures frequently ask you to take voltage readings or test for continuity or resistance at certain test points. The **Wiring and Plug/Jack References** table provides pointers to the diagrams that provide this information.
8. Troubleshooting procedures often ask you to replace a printer component. When instructed to replace a non-spared component and that component is part of a parent assembly, replace the entire parent assembly.

## Measurement Techniques

1. Unless indicated otherwise, the instruction “switch On printer power” means for you to switch On printer power and let the printer proceed through Power On Self Test (POST) to a ‘Ready’ condition.
2. Conventions used in this manual to represent connectors.




Plug and Jack

3. 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.
4. When you are instructed to take resistance readings between “P/J 232 <=>
   P/J 210” (without specified pin numbers), check all pins. Refer to the section "Wiring Diagrams" for the location of all wiring harnesses and pins.
5. When you are instructed to run a test, run the Service Diagnostics test associated with the component being examined.
6. 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.
7. Before measuring voltages make sure the printer is switched On, the Imaging Unit and the paper trays are in place, and the interlock switch is actuated, unless a troubleshooting procedure instructs otherwise.

8. 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.
9. 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.
10. Ensure that you are using a supported media size and type, refer to “Product Specifications” on page 1-6.
11. Power and signal grounds are connected to the frame ground. All circuit troubleshooting can be performed using the metal frame (chassis) as the grounding point. To locate connectors or test points, refer to the section “Plug/Jack Locator Diagrams” on page 10-2.
12. 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 |

# Jam Error Procedures

## 04H Engine Malfunction

Power is on but no printer functions are available.

### Applicable Status Code

**04H:** Engine Malfunction

### Initial Actions

- Check for faulty connections
- Power down and reboot the system.

#### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Engine Control Board, PL4.19.15 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board Locator (page 10-5) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing Step 3 of the following troubleshooting procedure.

#### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control Board connectors.<br>Are the connections properly seated? | Go to Step 3. | Reconnect and go to Step 2. |
| 2 | Power up the system.<br>Does the system operate correctly? | Complete | Go to Step 3. |
| 3 | Replace the board and power up the system (page 8-57). | Complete | |

# 05H Flash ROM Malfunction

FLASH ROM will not display or load.

## Applicable Status Code

**05H:** Flash ROM Malfunction

## Initial Actions

- Check to see if the correct FLASH ROM is installed.
- Power down and reboot the system.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Engine Control Board, PL4.19.15 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board Locator (page 10-5) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing Step 3 of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control Board connector P/J702 to the Control Panel. Is the connection properly seated? | Go to Step 3. | Reconnect and go to Step 2. |
| 2 | Power up the system. Does the system operate correctly? | | Go to Step 3. |
| 3 | Replace the board and power up the system (page 8-57). | Complete | |

# 08H Main Motor Malfunction

Main motor inoperative, noisy, or erratic.

## Applicable Status Code

**08H:** Main Motor Malfunction

## Initial Actions

- Check power cord and connections.
- Power down and reboot the system.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Main Motor, PL4.12.1<br>■ Engine Control Board, PL4.19.15<br>■ DC Power Supply 1, PL4.19.3 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Main Motor Plug/Jack Locator (page 10-16)<br>■ Engine Control Board to Main Motor and Positioning Sensor Wiring (page 10-16) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Main Motor connector P/J8 to the Engine Control Board for proper connection.<br>Is the connector seated properly? | Go to Step 2. | Reseat the connector. If the problem persists, go to Step 2. |
| 2 | Check the Main Motor for proper positioning.<br>Is the motor engaged with the gears? | Go to Step 3. | Reseat the motor drive properly. If the problem persists, go to Step 3. |
| 3 | Check the operation of the Main Motor.<br>Is the motor faulty? | Replace the motor (page 8-93). If the problem persists, go to Step 4. | Go to Step 4. |

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 4 | Replace the Engine Control Board (page 8-57).<br>Does the problem persist? | Go to Step 5. | Complete. |
| 5 | Replace the DC Power Supply 1 (page 8-60). | Complete | |

## 0BH Ventilation Fan Motor Malfunction

Ventilation fan motor inoperative, noisy, or erratic.

### Applicable Status Code

**0BH:** Ventilation Motor Malfunction

### Initial Actions

- Check power cord and connections.
- Power down and reboot the system.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Ventilation Fan Motor, PL4.8.2<br>■ Engine Control Board, PL4.19.15<br>■ DC Power Supply 1, PL4.19.3 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to Motor Wiring (page 10-15)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Ventilation Fan Motor connector CN2 for proper connection.<br>Is the connector seated properly? | Go to Step 2. | Reseat the connector. If the problem persists, go to Step 2. |

### Troubleshooting Procedure Table (Continued)

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 2 | Check the Engine Control Board connector P/J4.<br>Is the connector seated properly. | Go to Step 4. | Reseat the connector. If the problem persists, go to Step 4. |
| 3 | Check the operation of the Ventilation Fan motor.<br>Is the motor faulty? | Replace the motor (page 8-96). If the problem persists, go to Step 5. | Go to Step 5. |
| 4 | Replace the Engine Control Board (page 8-57).<br>Does the problem persist? | Go to Step 6. | Complete. |
| 5 | Replace the DC Power Supply 1 (page 8-60). | Complete | |

## 0CH Power Supply Cooling Fan Malfunction

Power Supply cooling fan motor inoperative, noisy, or erratic.

### Applicable Status Code

**0CH:** Power Supply Cooling Fan Motor Malfunction

### Initial Actions

- Check power cord and connections.
- Power down and reboot the system.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Power Supply Cooling Fan Motor, PL4.8.1<br>■ Engine Control Board, PL4.19.15<br>■ DC Power Supply 1, PL4.19.3 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to Motor Wiring (page 10-15)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Power Supply Cooling Fan connector P/J4 between the fan and the Engine Control Board.<br>Is the connector seated properly? | Go to Step 2. | Reseat the connector. If the problem persists, go to Step 2. |
| 2 | Check the Power Supply Cooling Fan for proper operation.<br>Is the fan operational? | Go to Step 3. | Replace the motor (page 8-94). |
| 3 | Replace the Engine Control Board (page 8-57).<br>Does the problem persist? | Go to Step 4. | Complete. |
| 4 | Replace the DC Power Supply 1 (page 8-60). | Complete | |

## 10H Polygon Motor Malfunction

Polygon Motor inoperative, noisy, or erratic.

### Applicable Status Code

**10H:** Polygon Motor Malfunction

### Initial Actions

- Check power cord and connections.
- Power down and reboot the system.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Laser Unit, PL4.14.1<br>■ Engine Control Board, PL4.19.15 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to Power Supply and Laser Unit Wiring (page 10-14)<br>■ Image Processor Board to Laser and Scanner Wiring (page 10-21) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the connectors P/J3, P/J19, and P/J20 between the Laser Unit and both the Engine Control Board and the Image Processor (IP) board for proper connection.<br>Are the connectors seated properly? | Go to Step 2. | Reseat the connectors. If the problem persists, go to Step 2. |
| 2 | Replace the Laser Unit (page 8-15).<br>Does the problem persist? | Go to Step 3. | Complete. |
| 3 | Replace the Image Processor Board (page 8-55).<br>Does the problem persist? | Go to Step 4. | Complete |
| 4 | Replace the Engine Control Board (page 8-57). | Complete. | |

## 12H Laser Malfunction

Laser inoperative or malfunctioning.

### Applicable Status Code

**12H:** Laser Malfunction

### Initial Actions

- Run the printer test page.
- Power down and reboot the system.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Laser Unit, PL4.14.1<br>■ Engine Control Board, PL4.19.15<br>■ Image Processor Board, PL4.19.1 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to Power Supply and Laser Unit Wiring (page 10-14)<br>■ Image Processor Board to Laser and Scanner Wiring (page 10-21) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the connectors P/J3, P/J19, and P/J20 between the Laser Unit and both the Engine Control Board and the Image Processor (IP) board for proper connection.<br>Are the connectors seated properly? | Go to Step 2. | Reseat the connectors. If the problem persists, go to Step 2. |
| 2 | Replace the Laser Unit (page 8-15).<br>Does the problem persist? | Go to Step 3. | Complete. |
| 3 | Replace the Image Processor Board (page 8-55).<br>Does the problem persist? | Go to Step 4. | Complete |
| 4 | Replace the Engine Control Board (page 8-57). | Complete. | |

## 14H Second Image Transfer Pressure/Retraction Failure

Incorrect image transfer due to faulty pressure or retraction process.

### Applicable Status Code

**04H:** Faulty image transfer

### Initial Actions

- Power down then reboot the system.
- Run a test print page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Cleaning Blade Solenoid, PL4.11.2<br>■ Main Motor, PL4.12.1<br>■ Engine Control Board, PL4.19.15<br>■ Transfer Belt Unit, PL4.15.5 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13)<br>■ Engine Control Board to Motor Wiring (page 10-15) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Main Motor connector P/J8 to the Engine Control Board. Is the connection seated properly? | Go to Step 2. | Reseat the connector and go to Step 2. |
| 2 | Check the Main Motor for proper drive operation.<br>Is the motor operational? | Go to Step 3. | Replace the motor<br>(page 8-93). |
| 3 | Check the Cleaning Blade solenoid. Is it operational? | Go to Step 4. | Replace the solenoid<br>(page 8-105). If the problem persists, go to Step 4. |
| 4 | Replace the Engine Control Board<br>(page 8-57).<br>Does the problem persist? | Go to Step 5. | Complete |
| 5 | Check the 2nd Image Sensor connector P/J11 to the Engine Control Board. Does the problem persist? | Replace the transfer Belt Unit<br>(page 8-33). | Complete |

## 15H Cleaning Blade Pressure/Retraction Failure

Faulty sensor, solenoid, or cleaning blade retraction.

### Applicable Status Code

**15H:** Cleaning Blade Pressure/Retraction Failure

### Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Transfer Belt Unit, PL4.15.5<br>■ Cleaning Blade Solenoid, PL4.11.2<br>■ Main Motor, PL4.12.1 | ■ Solenoids and Power Switch Locator (page 1-17)<br>■ Motors and Fans Locator (page 1-15)<br>■ Engine Control Board to Motor Wiring (page 10-15) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Main Motor connector P/J8. Is the connection seated properly? | Go to Step 2. | Reseat the connector and go to Step 2. |
| 2 | Check Main Motor for proper operation. Is the motor operational? | Go to Step 3. | Replace the motor (page 8-93). |
| 3 | Check the Cleaning Blade Solenoid connector CN3 to the Engine Control Board.<br>Is the connector seated properly. | Go to Step 4. | Reseat the connector. If the problem persists, go to Step 4. |
| 4 | Check the Cleaning Blade Solenoid. Is it operational? | Go to Step 5. | Replace the solenoid (page 8-105). If the problem persists, go to Step 5. |
| 5 | Replace the Engine Control Board (page 8-57). | Complete. | |

# 16H Transfer Belt Rotation Failure

Faulty belt rotation.

## Applicable Status Code

**16H:** Transfer Belt Rotation Failure

## Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Transfer Belt Unit, PL4.15.5 | ■ Print Engine Wiring Map (page 10-12)<br>■ Map 1 - Engine Control Board Plug/Jack Locator (page 10-5) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control Board connector P/J9 and the Belt Positioning sensor connector P/J37. Are the connectors seated properly? | Go to Step 2. | Reseat the connectors and go to Step 2. |
| 2 | Replace the Engine Control Board (page 8-57) and reboot. Is the system operational? | Complete | If the problem persists, go to Step 3. |
| 3 | Replace the Transfer Belt Unit (page 8-33). | Complete. | |

# 17H Rack Rotation Failure

Faulty rack sensor or rack motor.

## Applicable Status Code

**17H:** Rack Rotation Failure

## Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Rack Positioning Sensor, PL4.3.12<br>■ Rack Motor, PL4.13.9 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to Miscellaneous Motor and Sensor Wiring (page 10-17) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Rack Motor connector P/J30.<br>Is the connector seated properly? | Go to Step 2. | Reseat the connector and go to Step 2. |
| 2 | Check the Rack Motor for proper operation.<br>Is the motor operational? | Go to Step 3. | Replace the motor (page 8-101). If the problem persists, go to Step 3. |
| 3 | Check the Engine Control Board connector P/J5.<br>Is the connector seated properly. | Go to Step 4. | Reseat the connector. If the problem persists, go to Step 4. |

**Troubleshooting Procedure Table (Continued)**

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 4 | Check the Rack Positioning sensor at PJ5, pin 11. Is the sensor on? | Go to Step 6. | Replace the sensor (page 8-112). If the problem persists, go to Step 6. |
| 5 | Replace the Engine Control Board (page 8-57). | Complete. | |

## 18H Heating Roller Warmup Failure

### Applicable Status Code

**18H:** Heating Roller Warmup Failure

## 19H Abnormally Low Heating Roller Temperature

### Applicable Status Code

**19H:** Abnormally Low Heating Roller Temperature

## 1AH Abnormally High Heating Roller Temperature

### Applicable Status Code

**1AH:** Abnormally High Heating Roller Temperature

## 1BH Faulty Thermistor

Faulty thermistor in the Fusing Unit.

### Applicable Status Code

**1BH:** Faulty Thermistor

### Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Fusing Unit, PL4.18.12<br>■ Engine Control Board, PL4.19.15<br>■ DC Power Supply 1, PL4.19.3 | ■ Print Engine Wiring Map (page 10-12)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Fusing Unit for correct installation.<br>Is the unit secured in position? | Go to Step 2. | Reinstall the Fusing Unit (page 8-36). If the problem persists, go to Step 2. |
| 2 | Check the connections between the Fusing Unit (CN2), Engine Control Board (P/J3 and P/J2)), and the power supply (CN4, CN5, and CN6).<br>Are the connections correct? | Go to Step 3. | Reseat the connectors. If the problem persists, go to Step 3. |
| 3 | Check the lever of the safety switch at connector CN3.<br>Is the switch positioned properly and is the connector seated properly. | Go to Step 4. | Reposition the switch and reseat the connector. If the problem persists, go to Step 4. |
| 4 | Replace the Engine Control Board (page 8-57).<br>Is the system operational? | Complete | Go to Step 5. |
| 5 | Replace the DC Power Supply 1 (page 8-60). | Complete | |

# 21H Faulty Transparency Sensor

Faulty Transparency sensor in image subassembly.

## Applicable Status Code

**21H:** Faulty Transparency Sensor

## Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Transparency Sensor, PL4.17.16<br>■ Engine Control Board, PL4.19.15 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control Board connector at P/J12. Is the connector seated properly? | Go to Step 2. | Reseat the connector and go to Step 2. |
| 2 | Check the Transparency Sensor at P/J40 pin 6. Is the sensor on? | Go to Step 3. | Replace the sensor (page 8-117). If the problem persists, go to Step 3. |
| 3 | Replace the Engine Control Board (page 8-57). | Complete. | |

# 23H Faulty Waste Toner Near Full Detection Board

Incorrect detection of waste toner.

## Applicable Status Code

**23H:** Faulty Waste Toner Near Full Detection Board

## Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Waste Toner near full detect board, PL4.6.6<br>■ Imaging Unit, PL4.15.9<br>■ Engine Control Board, PL4.19.15 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Print Engine Wiring Map, page 10-12<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the WTDTB/LED connector P/J1 for proper connection. Is the connector seated properly? | Go to Step 2. | Reseat the connector and go to Step 2. |
| 2 | Check the Engine Control Board connector P/J13 for proper connection. Is the connector seated properly? | Go to Step 3. | Reseat the connector and go to Step 3. |
| 3 | Replace the Imaging Unit (page 8-13). Is the system operational? | Complete | Go to Step 4. |
| 4 | Replace the WTDTB/LED Board (page 8-70). Is the system operational? | Complete | Go to Step 5. |
| 5 | Replace the Engine Control Board (page 8-57). Is the system operational? | Complete. | |

# 2AH Faulty NVRAM Data

Incorrect data or faulty operation of the NVRAM.

## Applicable Status Code

**2AH:** Faulty NVRAM Data

## Initial Actions

- If possible, print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Engine Control Board, PL4.19.15 | ■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing steps beyond step 1 of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Turn the power switch OFF and ON.<br><br>Did this resolve the problem? | Complete. | Go to Step 2. |
| 2 | Check the NVRAM on the Engine Control Board.<br><br>Was the NVRAM chip properly installed? | Replace the Engine Control Board (page 8-57). | Replace the machine. |

# 31H Scanner Cooling Fan Motor Malfunction

Inoperative Scanner Cooling Fan Motor.

## Applicable Status Code

**31H:** Scanner Cooling Fan Motor Malfunction

## Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Engine Control Board, PL4.19.15<br>■ Scanner Cooling Fan Motor, PL4.8.10<br>■ DC Power Supply 1, PL4.19.3<br>■ DC Power Supply 2, PL4.5.4 | ■ Boards and Power Supplies Locator (page 1-14)<br>■ Motors and Fans Locator (page 1-15)<br>■ Image Processor Board to Laser and Scanner Wiring (page 10-21)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Scanner Cooling Fan Motor connector CN9 for proper connection. Is the connector seated properly? | Go to Step 2. | Reseat the connector. If the problem persists, go to Step 2. |
| 2 | Check the Engine Control Board connector MP/J1 for proper connection. Is the connector seated properly? | Go to Step 3. | Reseat the connector. If the problem persists, go to Step 3. |

### Troubleshooting Procedure Table (Continued)

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 3 | Check the operation of the Scanner Cooling Fan Motor.<br>Is the motor operational? | Go to Step 4. | Check pulse output of L-9 from MP/J1, pin 1 (ON) and MP/J1, pin 3 (LOCK). If no output, go to Step 5. |
| 4 | Replace the Engine Control Board (page 8-57).<br>Is the system operational? | Complete | Go to Step 5. |
| 5 | Replace the DC Power Supply 2 (page 8-68).<br>Is the system operational? | Complete | Go to Step 6. |
| 6 | Replace the DC Power Supply 1 (page 8-60). | Complete | |

## 101H Scanner Motor Malfunction

Inoperative Scanner motor.

### Applicable Status Code

**101H:** Scanner Motor Malfunction

### Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Engine Control Board, PL4.19.15<br>■ Scanner Motor, PL4.8.11<br>■ DC Power Supply 1, PL4.19.3<br>■ DC Power Supply 2, PL4.5.4 | ■ Boards and Power Supplies Locator (page 1-14)<br>■ Motors and Fans Locator (page 1-15)<br>■ Image Processor Board to Laser and Scanner Wiring (page 10-21)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the lock lever of the scanning unit. Is the lever locked? | Unlock the lock lever. If the problem persists, go to Step 2. | Go to Step 2. |
| 2 | Check the Scanner Motor connector CN10 for proper connection. Is the connector seated properly? | Go to Step 3. | Reseat the connector. If the problem persists, go to Step 3. |
| 3 | Check the Engine Control Board connector P/J8 for proper connection. Is the connector seated properly? | Go to Step 5. | Reseat the connector, then go to Step 5. |
| 4 | Check the operation of the Scanner Motor.<br>Is the motor operational? | Go to Step 5. | Check pulse output pins 1 thru 4 on P/J8. If no output, go to Step 5. |
| 5 | Replace the Engine Control Board (page 8-57).<br>Is the system operational? | Complete | Go to Step 6. |
| 6 | Replace the DC Power Supply 2 (page 8-68).<br>Is the system operational? | Complete | Go to Step 7. |
| 7 | Replace the DC Power Supply 1 (page 8-60). | Complete | |

## 102H Faulty Scanner Exposure Lamp

Incorrect printer exposure.

### Applicable Status Code

**102H:** Faulty Scanner Exposure Lamp

### Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Engine Control Board, PL4.19.15<br>■ Image Processor Board, PL4.19.1<br>■ Scanner Unit, PL3.1.1 | ■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Print Engine Wiring Map (page 10-12)<br>■ Engine Control Board to DC Power Wiring (page 10-18)<br>■ Image Processor Board to Laser and Scanner Wiring (page 10-21) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control Board connector P2.<br>Is the connector seated properly. | Go to Step 2. | Reseat the connector, then go to Step 2. |
| 2 | Check the Image Processor Board connector P/J6.<br>Is the connector seated properly. | Go to Step 3. | Reseat the connector, then go to Step 3. |
| 3 | Check the exposure lamp when power is applied. Is the lighting normal? | Complete | Go to Step 4. |
| 4 | Replace the scanner unit (page 8-25).<br>Is the system operational? | Complete | Go to Step 5. |
| 5 | Replace the Engine Control Board (page 8-57). Is the system operational? | Complete | Go to Step 6 |
| 6 | Replace the Image Processor Board (page 8-55). | Complete. | |

# Machine is Not Energized

Machine is not energized at all (operational check)

## Applicable Status Code

**N/A**

## Initial Actions

- Remove power from the system and reboot.
- Print a test page.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Power Switch, PL4.5.6<br>■ Engine Control Board, PL4.19.15<br>■ DC Power Supply 1, PL4.19.3 | ■ Solenoids and Power Switch Locator (page 1-17)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Is power source voltage being applied to connector CN3 of the DC Power Supply 1? | Go to Step 2. | Check wiring from the AC power plug through the Power Switch. If problem persists, go to Step 2. |
| 2 | Are fuses (F1 and F2) on the DC Power Supply 1 conducting? | Go to Step 3. | Replace the DC Power Supply 1 (page 8-60). If problem persists, go to Step 3. |
| 3 | Is DC24V and DC5V being applied to PJ2 on the Engine Control Board? | Complete | Go to Step 4. |
| 4 | Replace the Engine Control Board (page 8-57). | Complete | |

# Control Panel Indicators Do Not Light

No Control Panel or Faulty Indicator lights.

## Applicable Status Code

**N/A**

## Initial Actions

- Remove system power and reboot.
- View any control panel activity.
- Run printer test print.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Image Processor Board, PL4.19.1<br>■ Control Panel Board, PL3.1.2<br>■ DC Power Supply 1, PL4.19.3 | ■ Boards and Power Supplies Locator (page 1-14)<br>■ Print Engine Board Plug/Jack Designators (page 10-3)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing these procedures.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Is power source voltage being applied to connector CN3 of the DC Power Supply 1? | Go to Step 2. | Check wiring from the AC power plug through the Power Switch. If problem persists, go to Step 2. |
| 2 | Are fuses (F1 and F2) on the DC Power Supply 1conducting? | Go to Step 3. | Replace the DC Power Supply 1 (page 8-60). If the problem persists, go to Step 3. |

### Troubleshooting Procedure Table (Continued)

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 3 | Is P/J7 on the Image Processor Board properly connected? | Go to Step 4. | Reseat the connector. If the problem persists, go to Step 4 |
| 4 | Replace the Control Panel Board (page 8-53). Is the system operational? | Complete | Go to Step 5. |
| 5 | Replace the Image Processing Board (page 8-55). | Complete | |

## Fusing Heaters Do Not Operate

Inoperative fusing heaters.

### Applicable Status Code

**N/A**

### Initial Actions

- Remove system power and reboot.
- Run printer test print.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Fusing Unit, PL4.18.12<br>■ DC Power Supply 1, PL4.19.3 | ■ Print Engine Wiring Map (page 10-12)<br>■ Engine Control Board to DC Power Wiring (page 10-18) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Is power source voltage being applied to CN3 on the DC Power Supply 1?<br>**NOTE** The top and front cover should be in the closed position at this time. | Go to Step 2. | At J-7, check wiring from PG1 to CN1. If problem persists, go to Step 2. |

**Troubleshooting Procedure Table (Continued)**

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 2 | Is the power source voltage being applied to CN2 on DC Power Supply 1? | Replace the Fusing Unit (page 8-36). | Replace the DC Power Supply 1 (page 8-60). |

# FAX/Transmission Error Codes

## Communication Errors

Error caused by a problem of communication functioning. Five possible causes of errors are:

1. Communication is discontinued by a machine error.
2. Communication is discontinued by a machine trouble.
3. Communication is discontinued by an error occurring at the destination station.
4. Communication is discontinued by a protocol error.
5. ADF Error on trouble.

When communication is discontinued due to item 3 or 4, transmission is retried. In other case, transmission is canceled without retry.

## Error occurring during transmission

The transmission error before “Phase-B” performs redial according to the redial interval of each country and the number of times.

The transmission error after “Phase-C” performs redial only one time. Transmission is cancelled when an error occurs again. (can change in Soft SW)

When an error occurs by ADF TX, transmission is canceled without redial.

(Picure here, Perhaps - with explanation).

## FAX Error Codes

| Code | Possible Causes of Error. |
|---|---|
| 0001 | No G3 signal received within 35 sec. in manual receive mode. |
| 0003 | Received DIS after sending DIS signal. |
| 0004 | Received DCN after sending DTC signal. |
| 0006 | Detect busy tone within receiving phase B. |
| 0009 | Can not receive any signal within 35 sec. in manual polling mode. |
| 0010 | Received DCN signal after sending DTC signal in polling RX. |
| 0011 | Can not receive any correct response after sending three DTC signals. |
| 0012 | Remote side Password does not match in polling RX/our side no file to be polled. |
| 0013 | Can not receive carrier signal within 6 sec. after sending CFR in data phase C. |
| 0014 | Can not receive T.30 signal after sending FTT signal. |
| 0015 | Line polarity change within receiving phase B to D. |
| 0016 | Receive DCN signal after sending PTT signal. |
| 0017 | Can not receive any response from remote side after sending type of xxx_EOM signal. |
| 0018 | Can not detect energy within 6 sec. after sending FTT command. |
| 0019 | Received DCN signal after sending CFR signal. |
| 001A | No energy on line over 6 sec. within phase C before any corrected ECM frame. |
| 001D | Detect flag but nothing after CFR. |
| 0020 | Can not correct frame within 6 sec., or in non-ECM mode, one decoding line over 6 sec. |
| 0021 | File full. |
| 0022 | Owing to noise interference on the line, receiving side can't receive correct data within specified time (no ECM). |
| 002A | Line Problem |
| 0030 | Did not receive any signal within 6 sec.at phase D. |
| 0031 | Received incorrect signal at phase D (not EOP, MPS, EOM, DCS PPS_Q, PPS_Q, etc.). |
| 0032 | Can not receive carrier within 6 sec. After sending MCF. Or RTP, RTN signal. |
| 0033 | Received DCN signal at phase D within pages (not last page). |
| 0039 | In non-ECM mode, when machine already received the data but next line data doesn't receive within 13TX and RX machines both have different “machine ID (FAX model ID)” code in RSD. |
| 003F | Remote side TSI not programmed in machine one touch or speed dial directory. |

## FAX Error Codes

| Code | Possible Causes of Error. |
|---|---|
| 0040 | Did not receive carrier signal within 6 sec. after sending CTR. |
| 0041 | Did not receive carrier signal within 6 sec. after sending PPR. |
| 0042 | Did not receive correct signal after sending RNR signal. |
| 0043 | Received incorrect signal at phase D in ECM mode. |
| 0044 | Did not receive carrier signal /FSK signal within 6 sec. after sending MCF in ECM mode. |
| 0045 | Did not receive any correct signal after sending RNR response with ERR signal. |
| 0046 | Receive incorrect signal when sending RNR response with ERR signal. |
| 0047 | Did not receive correct signal after sending ERR signal. |
| 0048 | Did not receive correct signal after receiving PPS_PRI_Q or PRI_Q, EOR_PRI_Q. |
| 0049 | Did not receive correct signal after sending PIP/PIN signal within 13 sec. |
| 004A | Line energy over threshold lasts for 60 seconds after MCF and can not detect FSK or carrier signal in ECM mode. |
| 004B | Can not detect correct FSK signal even though detected FSK tone within 6 sec. |
| 004C | Handshake fail during re-train or between page in V34 RX. |
| 004E | Receive DCN signal after sending DIS in V.34. |
| 004F | Remote side disconnected after sending ANSam in V.8 phase. |
| 0050 | Did not receive any correct signal after sending CJ signal in V.8 phase. |
| 0051 | Did not receive phase 3 signal after phase 2 within 20 seconds in V.34. |
| 0052 | Did not receive phase 4 signal after phase 3 within 20 seconds in V.34. |
| 0053 | Modem disconnect after phase 4 in V.34. |
| 0054 | Remote side disconnected after phase 4 in V.8. |
| 0055 | Receive incorrect signal after sending DIS signal in V.34. |
| 0056 | Modem disconnect after sending CFR in V.34. |
| 0057 | Did not detect image signal within 6 seconds after sending CFR. |
| 0058 | Did not detect image signal within 6 seconds after modem enter to primary phase in V.34. |
| 005A | Modem can not detect any correct ECM frame within 3 minutes in phase C. |
| 005B | Did not detect phase 5 signal after primary channel within 6 seconds. |
| 005C | Detect busy tone within control channel after phase C. |
| 005D | Modem can not detect any correct ECM frame with 12 Sec in phase C. |
| 005E | Did not detect control channel signal after received RCP frame within 6 seconds. |
| 005F | Did not detect silence after sending JM signal for polling TX function. |
| 0060 | There are no bulletin files to be polled in V.34. |

## FAX Error Codes

| Code | Possible Causes of Error. |
|---|---|
| 0061 | Machine can not detect V.21 or V.8 signal within 35 seconds. |
| 0062 | Modem disconnect in phase D after our side sending out flag sequence in control channel. |
| 0063 | Did not receive any flag sequence in control channel within 6 seconds in phase D. |
| 0064 | Did not detect any control channel signal in phase D within 60 seconds even though energy still on the line. |
| 0065 | Did not detect any control channel signal within 60 seconds after detect silence in phase D. |
| 0066 | Did not receive T.30 signal or carrier signal after sending CFR in V.34. |
| 0070 | User presses stop key during receiving. |
| 0071 | Memory full during receiving. |

## Transmission Error Codes

| Code | Possible Causes of Error. |
|---|---|
| 0080 | Did not detect any G3 signal within 35 sec. specified by ITU-T in phase B. |
| 0081 | Received DTC signal in transmission phase. |
| 0082 | Transmitting unit receives a signal other than DIS or DTC. and DCN in phase B. |
| 0083 | Detected FSK signal, but did not receive any signal within 35 seconds. |
| 0084 | Detect DCN signal in phase B. |
| 0085 | Transmitting unit sending DCS 3 times consecutively, but each time responds with DIS/DTC. |
| 0086 | Detected response signal other than DTC, DIS, FTT, DCN or CFR after sending DCS. |
| 0087 | Training attempt has failed because speed unit cannot adjust to low lower speed. |
| 0088 | Received DCN signal after sending out DCS signal. |
| 008B | Receiver's protocol of DIS is received, but it is not compatible with our machine. |
| 008D | Receiver's protocol of DIS is received, but remote side can't receive document temporary, may be cause by run out of paper or other reason. |
| 008E | Remote side CSI number not defined in machine one touch or speed dial directory. |
| 008F | Modem not ready to receive V.34 data during 6 seconds after receiving CFR signal. |
| 0090 | Called side document not ready for our polling. |

### Transmission Error Codes

| Code | Possible Causes of Error. |
|---|---|
| 0091 | Sending out DCS+TCF signal 3 times consecutively but no signal in response from receiver. |
| 0092 | Remote side disconnected during transmitting phase. |
| 0093 | Received DCN signal after sending out DCS signal for V.34. |
| 0094 | Time out during transmit ECM frame or RCP command. |
| 0095 | Wrong ID number when Polling RX. |
| 0099 | Remote side disconnect after primary channel. |
| 009A | Did not detect any signal after sending CI signal. |
| 009C | Received DCN after sending DTC in V.34 polling RX. |
| 009D | Remote side hang up before V.34 modem enters phase 2 state in V.34 polling RX. |
| 009F | Did not receive any response from other side after sending PPS_EOM signal. |
| 00A0 | User stops or cancels transmission job. |
| 00A1 | Document JAM during transmission. |
| 00AE | Did not finish V.8 procedure or detect V.21 signal after CM signal within 30 seconds. |
| 00AF | Modem can not enter into control channel after TX side sends out RCP signal for V.34. |
| 00B0 | Did not receive any command after our side retry three DCS signal in V.34 TX. |
| 00B1 | Did not finish V.8 procedure or detect V.21 signal after ANSam signal within 35 seconds. |
| 00B2 | Did not detect phase 2 signal after our side sending CJ signal within 30 seconds. |
| 00B3 | Did not detect correct V.21 or JM signal after sending CM signal. |
| 00B4 | Did not detect correct phase 2 signal within 25 second after CM/JM signal exchange. |
| 00B5 | Did not detect phase 3 signal after phase 2 within 25 seconds. |
| 00B6 | Did not detect phase 4 signal within 25 seconds after CM/JM exchange. |
| 00B7 | Did not detect phase 5 signal after phase 4 within 30 seconds. |
| 00B8 | Remote side disconnect after our side sent DCS signal in V.34. |
| 00B9 | Receive T.30 signal other than DIS,DCS,CFR after sending DCS signal in V.34. |
| 00BA | Did not receive correct signal after our side sent DTC signal in V.34. |
| 00BB | Every time our side received DIS signal after sending DTC in V.34. |
| 00BC | Modem not ready within 10 second after entering primary channel in V.34. |
| 00BD | Can not detect correct V.21 or JM signal after detected FSK frequency. |
| 00BE | Remote side no document to be polled after V8 handshaking. |

### Transmission Error Codes

| Code | Possible Causes of Error. |
|---|---|
| 00BF | Capability not match after V8 handshaking. |
| 00C0 | Remote side disconnect before entering primary channel in V.34. |
| 00C1 | At phase-D, transmitting unit sends out EOP 3 times consecutively, but receives no answer from receiving unit. |
| 00C2 | Remote side disconnect after sending out V.8 CM signal. |
| 00C4 | After sending MPS signal, the received signal is not one of MCF, RTN, PIP, PIN, RTP, DCN. |
| 00C5 | Received DCN signal after sending MPS signal. |
| 00C9 | At phase-D, sending MPS 3 times consecutively, but no answer from receiving unit. |
| 00CA | After sending EOP signal, the received signal is not one of MCF, RTN, PIP, PIN, PRI-EOP, DCN. |
| 00CB | After sending EOP signal, the received signal is DCN signal. |
| 00CC | After sending EOM signal, the received signal is not one of MCF, RTN, PIP, PIN, RTP, DCN. |
| 00CD | At phase-D, transmitting unit sends out EOM 3 times consecutively, but receives no answer. |
| 00CE | At phase-D, transmitting unit sends out EOM, but receives DCN. |
| 00CF | Received incorrect signal after sending DTC signal for V.34 polling. |
| 00D0 | Received ERR signal after sending EOR_NULL. |
| 00D1 | Received incorrect response after sending PPS_EOP signal in V.34. |
| 00D2 | Receive DCN after send command PPS_EOP signal. |
| 00D3 | Received DCN after sending PPS_NULL signal. |
| 00D4 | Received DCN after sending PPS_EOM signal. |
| 00D8 | Did not detect correct phase 3 signal for polling within 25 seconds. |
| 00D9 | Did not detect correct phase 3 signal after detecting silence after phase 2. |
| 00DA | Did not detect phase 4 signal within 30 seconds or remote side hang up over 6 seconds. |
| 00DB | Did not receive any T.30 signal within 15 seconds in phase 4. |
| 00DC | Received T.30 signal in phase 4 other than DCS, DIS or DTC. |
| 00DE | Remote side no SUB capability in V.34. |
| 00E0 | At phase-D, transmitting unit sends out PPS_NULL 3 times consecutively but receives no answer. |
| 00E1 | Received incorrect response after sending PPS_NULL. |
| 00E2 | Did not receive any response in RR response procedure after sending PPS_NULL. |
| 00E4 | At phase-D, transmitting unit sends out PPS_MPS 3 times consecutively but no answer. |
| 00E5 | Received incorrect response after sending PPS_MPS. |

### Transmission Error Codes

| Code | Possible Causes of Error. |
|---|---|
| 00E6 | Did not receive any response in RR response procedure after sending PPS_MPS. |
| 00E7 | Received DCN after sending PPS_MPS. |
| 00E8 | At phase-D, transmitting unit sends out PPS_EOP 3 times consecutively but no answer. |
| 00E9 | Receive PIN signal after sent last page three times. |
| 00EA | Did not receive any response in RR response procedure after sending PPS_EOP. |
| 00EB | At phase-D, transmitting unit sends out PPS_EOM 3 times consecutively but no answer. |
| 00EC | Received incorrect response after sending PPS_EOM. |
| 00ED | Did not receive any response in RR response procedure after sent out PPS_EOM. |
| 00EE | At phase-D, transmitting unit sends out EOR_NULL 3 times consecutively but no answer. |
| 00EF | Received incorrect response after sending EOR_NULL. |
| 00F0 | Did not receive any response procedure after sending EOR_NULL. |
| 00F1 | At phase-D, transmitting unit sends out EOR_MPS 3 times consecutively but no answer. |
| 00F2 | Received incorrect response after sending EOR_MPS. |
| 00F3 | Received ERR signal after sending EOR_MPS. |
| 00F4 | Did not receive any response in RR response procedure after sending EOR_MPS. |
| 00F5 | At phase-D, transmitting unit sends out EOR_EOP 3 times consecutively but no answer. |
| 00F6 | Received incorrect response after sending EOR_EOP. |
| 00F7 | After Received ERR, our side can not receive response after sending EOR_EOP command. |
| 00F8 | At phase-D, transmitting unit sends out EOR_EOM 3 times consecutively but no answer. |
| 00F9 | Received incorrect response after sending EOR_EOM. |
| 00FA | Received ERR signal after sending EOR_EOM. |
| 00FB | Did not receive any response in RR response procedure after sending EOR_EOM. |
| 00FC | Did not receive any response after sending CTC. |
| 00FD | Can't speed down to lower speed in ECM mode. |
| 00FE | Memory full for transmission. |
| 00FF | Redial all fail. |

# General Troubleshooting

## In this chapter...



Chapter 4

# Servicing Instructions

The service checklist below is an overview of the path a service technician should take when servicing the printer and printer optional equipment.

**Step 1 - Identify the Problem**

1. Verify the reported problem does exist. Verify failure symptoms/behavior/noises with customer/end user.
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 Status page, if the printer is able to print.
8. View the fault history under the Service Tools Menu.
9. Verify the AC input power supply is within proper specifications.

**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 serviceable.
4. Remove the Imaging Unit and protect it from light.
5. Inspect the printer interior and remove any foreign matter, dust or loose toner.
   a. Do not use solvents or chemical cleaners to clean the printer interior.
   b. Do not use any type of oil or lubricant on printer parts.
   c. Do not use canned air to clean spilled toner or dust from the printer.
   d. Use only an approved toner vacuum.
6. Clean all rubber rollers with a lint-free cloth, dampened slightly with cold water.
7. Inspect the interior of the printer for damaged wires, loose connections, toner leakage, and damaged or obviously worn parts.
8. Replace damaged or empty Toner Cartridges with new, customer-supplied ones.

**Step 3 - Find the Cause of the Problem**

1. Read and understand the theory of how the printer operates.
2. Use the troubleshooting procedures to find the cause of the problem.
3. Use Service Diagnostics to check printer and optional components.
4. Use the wiring diagrams and plug/jack locator to locate test points.
5. Take voltage readings at various test points as instructed in the appropriate troubleshooting procedure.

**Step 4 - Correct the Problem**

1. Use the Parts List to locate a part number.
2. Use the Disassembly Procedures to replace the part.

**Step 5 - Final Check**

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

# Main Print Engine Troubleshooting

## Media-Based Problems

1. Check that the correct type of media is being used; for the correct media types and weights, see “Product Specifications” on page 1-6. The customer should be using a quality laser printer paper. The printer may have trouble picking glossy or overly smooth paper.
2. Only Phaser 25-Series Premium Transparency Film can be used in this machine.
3. Inspect the paper for bent, torn, or folded corners.
4. Check the paper path for obstructions or debris.
5. Ensure that the correct media type is set in the Control Panel.
6. Ensure that the paper guides are set correctly.
7. Ensure that the media is a supported type for the tray. See “Product Specifications” on page 1-6, for the correct media types, sizes and weights for each tray.
8. Load a fresh ream of paper in the tray.

## Multiple-Sheet Pick

1. Ensure that the paper is in good condition and is listed on the Paper Tips page as supported media; quality office laser printer paper works best.
2. Ensure that the printer is printing within its environmental specifications by printing and reviewing the Status page.
3. Remove the tray and remove fan, and reload the media. Ensure that the guides are securely against the paper and the tray has not been over filled.
4. Try loading paper from a fresh ream, fan the paper, and then insert into the tray or flip existing paper over.
5. Check the tray’s Retard Roller for damage.
6. Clean the Feed Rollers with a clean, dry, lint-free wipe.
7. Replace the Feed Rollers.
8. Replace the paper tray.

## Mis-Pick

1. Check that the correct type of media for the tray is being used and the paper guides are set correctly.
2. Remove fan, and reload the media. Ensure that the tray has not been over filled.
3. Try loading paper from a fresh ream, fan the paper, and then insert into the tray or flip existing paper over.
4. Clean the Feed Rollers with a clean, dry, lint-free wipe.
5. Troubleshoot the Paper Pick Assembly.

# Misfeed at Paper Feed Section

The leading edge of the paper does not block the Registration Sensor even after the lapse of a predetermined period of time after the Tray 1 Paper Pick-up Solenoid has been energized.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Registration Sensor, PL4.17.2<br>■ Tray 1 Pick-up Solenoid, PL5.2.16<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14)<br>■ Sensors and Switches Locator (page 1-16)<br>■ Solenoids and Power Switch Locator (page 1-17)<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13)<br>■ Engine Control Board to Power Supply and Laser Unit Wiring (page 10-14) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control Board connectors P/J12 and P/J18. Are the connectors seated properly? | Go to Step 2. | Reseat the connectors. If the problem persists, go to Step 2. |
| 2 | Check the Registration Sensor at P/J39 (pin 3). Does the sensor read ON? | Go to Step 3. | Replace the sensor (page 8-116). |
| 3 | Check the Tray 1 Paper Pick-Up Solenoid operation at P/J18 (pin 18). Is the solenoid operational. | Go to Step 4. | Replace the solenoid (page 8-102). |
| 4 | Replace the Engine Control Board (page 8-57). | Complete. | |

# Misfeed at 2nd Transfer Section

For misfeed detection, the paper does not unblock the Registration Sensor even after the lapse of a predetermined period of time following the activation of the Registration Roller Solenoid. In some cases, the Fusing Paper Loop Sensor is not blocked by the paper that has moved past the position where the sensor is blocked.

For detection of paper, the Registration Sensor is blocked when the power switch is turned ON, a cover is opened and closed, or a misfeed or malfunction is reset. In some cases, the Fusing Paper Loop Sensor is blocked when the power switch is turned ON, a cover is opened and closed, or a misfeed or malfunction is reset.

## Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Registration Sensor, PL4.17.2<br>■ Fusing Paper Loop Sensor, PL4.17.2<br>■ Registration Roller Solenoid, PL4.12.3<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14)<br>■ Sensors and Switches Locator (page 1-16)<br>■ Solenoids and Power Switch Locator (page 1-17)<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

## Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control connectors P/J14, P/J12, and P/J11. Are the connectors seated properly. | Go to Step 2. | Reseat the connectors. If the problem persists, go to Step 2. |
| 2 | Check the Registration Sensor at P/J12 (pin 3). Is the sensor operational? | Go to Step 3. | Replace the sensor (page 8-116). |
| 3 | Check the Fusing Paper Loop Sensor at P/J14 (Pin 6). Is the sensor operational. | Go to Step 4. | Replace the sensor (page 8-114). |
| 4 | Check the Registration Roller Solenoid at P/J11 (Pin 4). Is the solenoid operational? | Go to Step 5. | Replace the solenoid (page 8-104). |
| 5 | Replace the Engine Control Board (page 8-57). | Complete | |

# Misfeed at Fusing Section

For detection of misfeeds, the paper does not block the Exit Sensor even after the lapse of a predetermined period of time following the activation of the Registration Roller Solenoid. In some cases, the Exit Sensor is unblocked within a predetermined period of time after it has been blocked by the paper, the Main Motor, the Polygon Motor, and Rack Motor are energized even after the lapse of a predetermined period of time after paper information has been created.

For detection of paper left, the Exit Sensor is blocked when the power switch is turned ON, a cover is opened and closed, or a misfeed or malfunction is reset.

## Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Exit Sensor, PL4.18.9<br>■ Registration Roller Solenoid, PL4.12.3<br>■ Image Processor Board, PL4.19.1<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14)<br>■ Sensors and Switches Locator (page 1-16)<br>■ Solenoids and Power Switch Locator (page 1-17)<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13)<br>■ Engine Control Board to Miscellaneous Motor and Sensor Wiring (page 10-17) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

## Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check all Image Processor Board connectors.<br>Are the connectors seated properly? | Go to Step 2. | Reseat the connectors. If the problem persists, go to Step 2. |
| 2 | Check all Engine Control Board connectors.<br>Are the connectors seated properly? | Go to Step 3. | Reseat the connectors. If the problem persists, go to Step 3. |
| 3 | Check the Exit Sensor at P/J6 (pin 3). Is the sensor operational? | Go to Step 4. | Replace the sensor (page 8-122). |
| 4 | Check the Registration Roller Solenoid at P/J11 (pin 4). Is the solenoid operational? | Go to Step 5. | Replace the solenoid (page 8-104). |

### Troubleshooting Procedure Table (Continued)

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 5 | Replace the Image Processor Board (page 8-55). Does the problem still persist? | Go to Step 6. | Complete |
| 6 | Replace the Engine Control Board (page 8-57). | Complete | |

## Misfeed at Exit Section

For detection of misfeed, the Exit sensor is not unblocked even after the lapse of a predetermined period of time after it has been blocked by the paper. In some cases, the Exit Tray Full sensor is not blocked even after the set period of time has elapsed after the exit sensor has been blocked by the paper.

For detection of paper left in the exit section, the Exit Sensor is blocked when the power switch is turned ON, a cover is opened and closed, or a misfeed or malfunction is reset. For detection of paper loaded fully in the exit section, the Exit Tray Full sensor is blocked when the power switch is turned ON, a cover is opened and closed, or a misfeed or malfunction is reset.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Exit Sensor, PL4.18.9<br>■ Exit Tray Full Sensor, PL4.1.7<br>■ Registration Roller Solenoid, PL4.12.3<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14)<br>■ Sensors and Switches Locator (page 1-16)<br>■ Solenoids and Power Switch Locator (page 1-17)<br>■ Engine Control Board to Miscellaneous Motor and Sensor Wiring (page 10-17)<br>■ Engine Control Board to Main Motor and Positioning Sensor Wiring (page 10-16) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check all Engine Control Board connectors.<br>Are the connectors seated properly? | Go to Step 2. | Reseat the connectors. If the problem persists, go to Step 2. |
| 2 | Check the Exit sensor at P/J6 (pin 3). Is the sensor operational? | Go to Step 3. | Replace the sensor (page 8-122). |

### Troubleshooting Procedure Table (Continued)

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 3 | Check the Exit Tray Full Sensor at P/J9 (pin 14). Is the sensor operational? | Go to Step 4. | Replace the sensor (page 8-107). |
| 4 | Check the Registration Roller Solenoid at PRCB PJ11PRCB-4 (J-1). Is the solenoid operational? | Go to Step 5. | Replace the solenoid (page 8-104). |
| 5 | Replace the Engine Control Board (page 8-57). | Complete | |

## Undefined Misfeed

For detection of an undefined misfeed, conflicting settings are made in the printer driver.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Image Processor Board, PL4.19.1<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14).<br>■ Engine Control Board to Miscellaneous Motor and Sensor Wiring (page 10-17)<br>■ Engine Control Board to Main Motor and Positioning Sensor Wiring (page 10-16) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check printer driver settings.<br>Are the settings correct? | Go to Step 2. | Reset the settings to the default level. If the problem persists, go to Step 2. |
| 2 | Check the Image Processing Board connectors.<br>Are the connectors seated properly? | Go to Step 3. | Reseat the connectors. If the problem persists, go to Step 3. |

### Troubleshooting Procedure Table (Continued)

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 3 | Check the Engine Control Board connectors.<br>Are the connectors seated properly? | Go to Step 4. | Reseat the connectors. If the problem persists, go to Step 4. |
| 4 | Replace the Engine Control Board (page 8-57). | Complete | |

# Auto Document Feeder Troubleshooting

## Misfeed at the Document Feeding Section

For detection of misfeed, the Paper Feed Sensor in the Automatic Document Feeder (ADF) is not unblocked even after the lapse of a predetermined period of time after the Main Motor has been energized. For detection of paper left at the document feeding section, the Paper Feed Sensor in the Automatic Document Feeder is unblocked when the power switch is turned ON, the cover is opened and closed, or a misfeed or malfunction is reset.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ ADF Unit, PL1.1.1 | ■ Document Feeder Control Board to Optional Feeder Tray Wiring (page 10-23) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the media specifications (page 1-7).<br>Does the selected paper meet specifications? | Go to Step 2. | Reload the printer with the proper media and go to Step 2. |
| 2 | Clean the ADF Pick Roller (page 7-9).<br>Does the problem persist? | Go to Step 3. | Complete. |
| 3 | Replace the ADF Unit (page 8-11). | Complete | |

# Misfeed at the Document Transport Section

For detection of misfeed at the document transport section, the Paper Leading Edge detection Sensor is not blocked even after the lapse of a predetermined period of time after the paper feed sensor has been unblocked.

For detection of paper left at the document transport section, the Paper Feed Sensor is unblocked and the paper leading edge detection sensor is blocked when the power switch is turned ON, the cover is opened and closed, or a misfeed or malfunction is reset.

## Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ ADF Unit, PL1.1.1 | ■ Document Feeder Control Board to Optional Feeder Tray Wiring (page 10-23) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

## Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the media specifications (page 1-7).<br>Does the selected paper meet specifications? | Go to Step 2. | Reload the printer with the proper media and go to Step 2. |
| 2 | Clean the ADF Pick Roller (page 7-9).<br>Does the problem persist? | Go to Step 3. | Complete. |
| 3 | Replace the ADF Unit (page 8-11). | Complete | |

# Misfeed at the Document Exit Section

For detection of misfeed at the document exit section, the Paper Leading Edge Detection Sensor is not unblocked even after the lapse of a predetermined period of time after the Paper Feed Sensor has been unblocked.

For detection of paper left at the document exit section, the Paper Leading Edge Detection Sensor is blocked when the power switch is turned ON, the cover is opened and closed, or a misfeed or malfunction is reset.

## Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ ADF Unit, PL1.1.1 | ■ Document Feeder Control Board to Optional Feeder Tray Wiring (page 10-23) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

## Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the media specifications (page 1-7).<br>Does the selected paper meet specifications? | Go to Step 2. | Reload the printer with the proper media and go to Step 2. |
| 2 | Clean the ADF Pick Roller (page 7-9).<br>Does the problem persist? | Go to Step 3. | Complete. |
| 3 | Replace the ADF Unit (page 8-11). | Complete | |

# Lower Feeder Unit Troubleshooting

## Misfeed at Tray 2 Paper Feed Section

For detection of misfeed at tray 2 paper feed section, the leading edge of the paper does not block the Registration Sensor, even after the lapse of a predetermined period of time after the Paper Pick-up Solenoid has been energized.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Registration Sensor, PL4.17.2<br>■ Paper Pick-up Solenoid, PL5.2.16<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14).<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13)<br>■ Engine Control Board to Duplex Unit and Feeder Wiring (page 10-19) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Engine Control Board connector P/J22.<br>Is the connector seated properly? | Go to Step 2. | Reseat the connector. If the problem persists, go to Step 2. |
| 2 | Check the Registration Sensor at P/J12 (Pin 3). Is the sensor operational? | Go to Step 3. | Replace the sensor (page 8-116). |
| 3 | Check the Paper Pick-up Solenoid at connector<br>P/J22 (Pin 4). Is the solenoid operational? | Go to Step 4. | Replace the solenoid (page 8-131). |
| 4 | Replace the Engine Control Board (page 8-57). | Complete | |

# Duplexer Troubleshooting

## Misfeed at Duplex Option Reverse Drive/Storage Section

For detection of misfeed at the duplex option reverse drive/storage section, the Transport Sensor is not unblocked even after the lapse of a predetermined period of time when the Reverse Motor has been energized for reverse drive.

### Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Transport Motor, PL6.1.6<br>■ Reverse Motor, PL6.1.6<br>■ Duplex Option Replacement, PL6.1.27<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14).<br>■ Engine Control Board to Duplex Unit and Feeder Wiring (page 10-19) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

### Troubleshooting Procedures Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Transport Motor at connector P/J2 (Pin 1 - 4). Is the motor operational? | Go to Step 3. | Replace the motor (page 8-145). |
| 2 | Check the Reverse Motor at connector P/J2 (Pin 5 - 8). Is the motor operational? | Go to Step 3. | Replace the motor (page 8-146). |
| 3 | Replace the Duplex Option (page 8-134). Does the problem persist? | Complete | Go to Step 4. |
| 4 | Replace the Engine Control Board (page 8-57). | Complete | |

# Misfeed at Duplex Option Paper Feed Section

For the detection of a misfeed at the Duplex Option paper feed section, the Fusing Paper Loop Sensor is not unblocked even after the lapse of a predetermined period of time after a duplex paper feed sequence has been started. Another indication could be that the Fusing Paper Loop Sensor is not blocked even after the lapse of a predetermined period of time after a duplex paper feed sequence has been started.

In some cases, the Transport Sensor is not blocked even after the lapse of a predetermined period of time after a duplex paper feed sequence has been started.

## Troubleshooting Reference Table

| Applicable Parts | Wiring and Plug/Jack References |
|---|---|
| ■ Transport Motor, PL6.1.6<br>■ Fusing Paper Loop Sensor, PL4.17.2<br>■ Duplex Option Replacement, PL6.1.27<br>■ Engine Control Board, PL4.19.15 | ■ Boards and Power Supplies Locator (page 1-14).<br>■ Engine Control Board to Duplex Unit and Feeder Wiring (page 10-19)<br>■ Engine Control Board to Solenoid and Sensor Wiring (page 10-13) |

**Warning**

To avoid the potential of electric shock, ensure the power to the printer is off and the power cord is disconnected from the wall outlet prior to performing each step of the following troubleshooting procedure.

## Troubleshooting Procedure Table

| Step | Action and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Transport Motor at connector CN7B (Pins 3and 4). Is the motor providing a pulse output? | Go to Step 2. | Replace the motor (page 8-145). |
| 2 | Check the Fusing Paper Loop Sensor connector CN7B (Pin 5). Is the sensor operational? | Go to Step 3. | Go to Step 4. |
| 3 | Replace the Duplex Option (page 8-134). Does the problem persist? | Go to Step 4 | Complete |
| 4 | Replace the Engine Control Board (page 8-57). | Complete. | |

# Print-Quality Troubleshooting

## In this chapter...



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, eliminate as many variables as possible. The first step is to generate prints using printable pages embedded in the printer on laser paper from the supported media list. Use paper from a fresh ream that is acclimated to room temperature and humidity.

See “Product Specifications” on page 1-6 or the Paper Tips page for media that has been tested and approved for use in Phaser 6115 printers. If the print-quality defect is still present when printing on approved media from an unopened ream, then investigate software applications and environmental conditions.

**Note**

There is a Control Panel command which obtains environmental temperature and humidity levels. However, this command is for internal use only and not available from the service menus.

Phaser 6115 printers use separate Developer Assemblies to develop a latent image for each color on the Imaging Unit where the colors are combined to form the final image. In most cases, print-quality defects are the result of one particular component in the print engine.

When analyzing a print-quality defect, first determine if the defect occurs in all colors or only one color and if it is repeating or random. Continuous defects in the process direction, such as voids and lines, are the most difficult to diagnose. Inspect the visible surfaces of all rollers for obvious defects. If no defects are observed, replace the Imaging Unit, Developer Assembly, Transfer Roller, and Fusing Unit one at a time until the defect is eliminated.

# Defects Associated with Specific Printer Components

Some print-quality problems can be associated with specific assemblies. The most common problems and associated assemblies are listed below. Refer to the specific print-quality troubleshooting procedure for more information.

## Developer Assembly

- Blank Prints
- Light Prints
- Uneven Density
- Voids (White spots)
- Streaks (Dark/ light)
- Repeating Defects

## Imaging Unit

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

**Note**

See “Imaging Unit” on page 7-15 for instructions on how to clean the Imaging Unit rollers.

## Transfer Roller

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

## Fusing Unit

- Hot or Cold Offsetting
- Repeating Defects

### Repeating Defects

| Maintenance Item | Component | Distance between Defects |
|---|---|---|
| Developer Assembles | Magnetic (Mag) Roller [YMCK] | 34 mm (1.34 in.) |
| Imaging Unit | Drum Charge (RTC) Rollers | 31 mm (1.22 in.) |
| | OPC Drum Rollers | 74 mm (2.91 in.) |
| | IDT Rollers | 132 mm (5.20 in.) |
| Transfer Roller | Transfer Roller | 64 mm (2.52 in.) |
| Fusing Unit | Heat Roller | 83 mm (3.26 in.) |
| | Belt | 94 mm (3.70 in.) |

# Print Quality Troubleshooting Summary

The following table provides a list of possible print quality problems and lists pages for more information.

## Print Quality Summary

| Print Quality Problem | Go to Page |
|---|---|
| **Scanner System** | |
| Blank Copy or Black Copy | 5-6 |
| Low Image Density or Rough Image | 5-7 |
| Foggy Background | 5-9 |
| Black Streaks or Bands | 5-10 |
| Black Spots | 5-11 |
| White Streaks or Bands | 5-13 |
| Uneven Pitch | 5-14 |
| **Image Processing System** | |
| White or Colored Lines and Bands in Feed Direction | 5-16 |
| White or Colored Lines and Bands in Scan Direction | 5-17 |
| Uneven Density in the Feed Direction | 5-19 |
| Uneven Density in The Scan Direction | 5-20 |
| Low Image Density | 5-22 |
| Gradation Reproduction Failure | 5-23 |
| Foggy Background | 5-24 |
| Poor Color Reproduction | 5-26 |
| Void Areas and White Spots | 5-27 |
| Colored Spots | 5-28 |
| Blurred Image | 5-30 |
| Black or Blank Copy | 5-31 |
| Incorrect Color Image Registration | 5-32 |
| **Fusing Unit** | |
| Poor Fusing Performance or Offset | 5-34 |
| Brush Effect or Blurred Image | 5-35 |
| Back Marking | 5-36 |
| Uneven Pitch | 5-37 |

# Automatic Document Feeder (ADF) Print Quality Problems

The source of print quality problems from the Automatic Document Feeder (ADF) Unit generally come from two sources:

1. **Skewing when copying from the ADF.** If skewing occurs when using the ADF, try using the platen and repeat the copy. If the image is fine from the platen, but skews from the ADF itself, perform the skew adjustment. See “Leading Edge Skew Adjustment” on page 53. If this adjustment does not resolve the issue then replace the ADF Unit (page 8-11).
2. **Banding defects that occur as a result of uneven feeding motion.** In this condition, the original page will pause every so often at uneven intervals. This causes a banding pattern on the output copy. In this case, clean the feed rollers and validate the thickness of the original document. Any media out of specification should be copied from the document glass. If cleaning does not solve the problem, then replace the ADF Unit (page 8-11.

# Scanner System

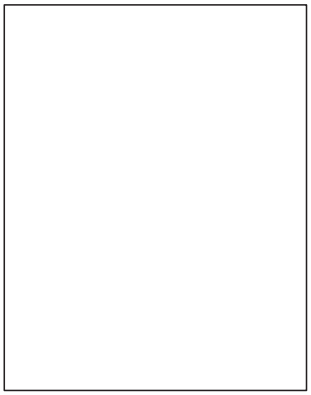
## Blank Copy or Black Copy

The printed copies are either blank or solid black.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

#### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Scanner Unit, PL3.1.1 |  Blank Print  Black Print |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Execute a print job sent from a computer.<br>Does the defect occur on the printed output? | The problem is not with Scanner Unit, it is a problem within the print image system. Go to page 5-31 to continue troubleshooting the image print image process. | The problem is associated with the scanner system. Go to Step 2. |
| 2 | Open the ADF and visually inspect the scanner exposure lamp.<br>Is the exposure lamp on? | Go to Step 3. | Problem could be related to the DC Power Supply 2. Go to Step 4 |
| 3 | Reseat all connectors and cables between the scanner and image processing board, and then make another copy.<br>Does the defect still occur? | Replace the Scanner Unit (page 8-25). | Complete. |
| 4 | Does the Control Panel display any text? | Go to Step 5. | Replace the Image Processing Board (page 8-55). |
| 5 | Reseat all connectors and cables between DC Power Supply 2 and the Image Processor Board, and then recheck the expopsure lamp. Is the exposure lamp on? | Complete. | Replace the DC Power Supply 2 (page 8-68). |

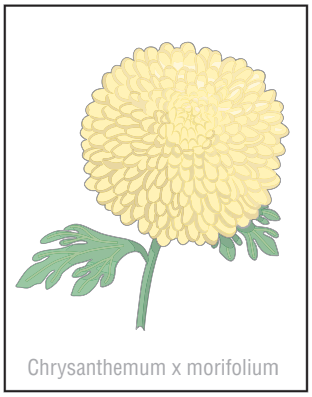
## Low Image Density or Rough Image

The overall image density is too light.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Scanner Unit, PL3.1.1 |  Light or Undertone Print |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Execute a print job sent from a computer.<br>Does the defect occur on the printed output? | The problem is not with the Scanner Unit, it is a problem within the print image system.<br><br>Go to page 5-22 to continue troubleshooting the image print image process. | The problem is associated with the scanner system.<br><br>Go to Step 2. |
| 2 | Increase the copy darkness level using the control panel adjustment, and then make another copy.<br>Does the defect still occur? | Go to Step 3. | Complete. |
| 3 | Reseat all connectors and cables between the Scanner Unit and the Image Processor Board, and then make another copy.<br>Does the defect still occur? | Replace the Scanner Unit (page 8-25). | Complete. |

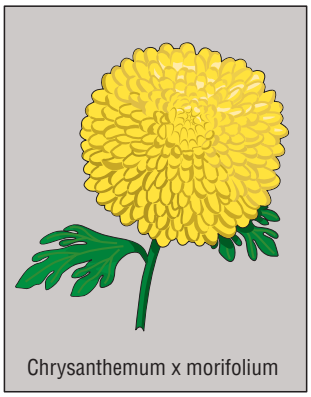
# Foggy Background

The background image is either distorted or foggy.

## Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Scanner Unit, PL3.1.1 |  Background Contamination |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Execute a print job sent from a computer. Does the defect occur on the printed output? | The problem is not with the Scanner Unit, it is a problem within the print image system. Go to page 5-24 to continue troubleshooting the print image process. | The problem is associated with the scanner system.<br><br>Go to Step 2. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 2 | This defect often occurs when copying books or other material that prevents the ADF from fully closing. If the ADF does not fully close, external light can be collected by the scanhead and produce background on output.<br>Open and Close the ADF and verify it closes completely. Does the defect still occur? | Go to Step 3. | Complete. |
| 3 | Reseat all connectors and cables between the Scanner Unit and the Image Processor Board, and then make another copy.<br><br>Does the defect still occur? | Replace the Scanner Unit (page 8-25). | Complete. |

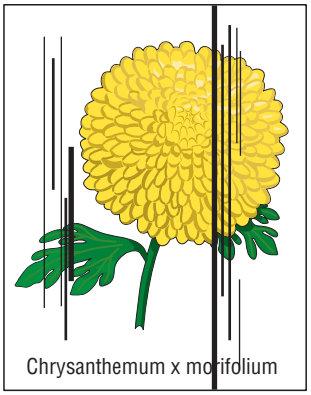
## Black Streaks or Bands

The overall image density is too light.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Scanner Unit, PL3.1.1 |  <br>Vertical Stripes |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Execute a print job sent from a computer.<br><br>Does the defect occur on the printed output? | The problem is not with Scanner Unit, it is a problem within the print image system.<br><br>Go to page 5-28 to continue troubleshooting the image print image process. | Go to Step 2. |
| 2 | This defect often occurs when foreign material (i.e. paper dust, toner or other material) deposits on the document glass or CVT window. The scanhead will detect the foreign material while scanning, and the defect will appear as streaks or spots on the copy output.<br>Thoroughly clean both the document glass and CVT window.<br>Does the defect still occur? | Go to Step 3. | Complete. |
| 3 | Reseat all connectors and cables between the scanner and image processing board, and then make another copy.<br>Does the defect still occur? | Replace the Scanner Unit (page 8-25). | Complete. |

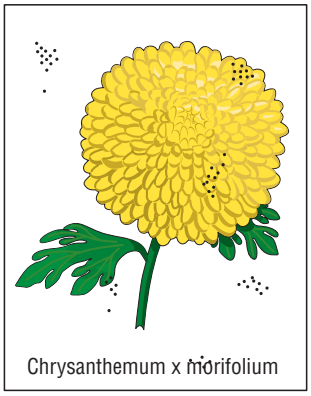
## Black Spots

The background image of all copies includes black spots.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

## Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Scanner Unit, PL3.1.1 |  Random Spots |

## Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Execute a print job sent from a computer.<br><br>Does the defect occur on the printed output? | The problem is not with Scanner Unit, it is a problem within the print image system.<br><br>Go to page 5-28 to continue troubleshooting the image print image process. | The problem is associated with the scanner system.<br><br>Go to Step 2. |
| 2 | This defect often occurs when foreign material (i.e. paper dust, toner or other material) deposits on the document glass or CVT window. The scanhead will detect the foreign material while scanning, and the defect will appear as streaks or spots on the copy output.<br><br>Thoroughly clean both the document glass and CVT window. Does the defect still occur? | Print out new original. If problem persists, go to Step 3. | Complete. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Reseat all connectors and cables between the Scanner Unit and the Image Processor Board, and then make another copy.<br><br>Does the defect still occur? | Replace the Scanner Unit (page 8-25). | Complete. |

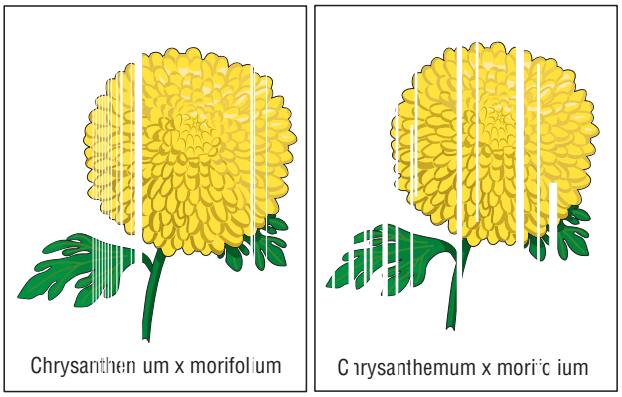
## White Streaks or Bands

The copy includes white streaks or bands.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Scanner Unit, PL3.1.1 |  <br>Random Light Stripes<br>Vertical Blank Lines |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Execute a print job sent from a computer.<br><br>Does the defect occur on the printed output? | The problem is not with Scanner Unit, it is a problem within the print image system.<br><br>Got to page 5-17 to continue troubleshooting the image print image process. | The problem is associated with the scanner system.<br><br>Go to Step 2. |
| 2 | This defect often occurs when foreign material (i.e. paper dust, toner or other material) deposits on the document glass or CVT window. The scanhead will detect the foreign material while scanning, and the defect will appear as streaks or spots on copy output.<br>Thoroughly clean both the document glass and CVT window.<br>Does the defect still occur? | Go to Step 3. | Complete. |
| 3 | Reseat all connectors and cables between the Scanner Unit and the Image Processor Board, and then make another copy.<br>Does the defect still occur? | Replace the Scanner Unit (page 8-25). | Complete. |

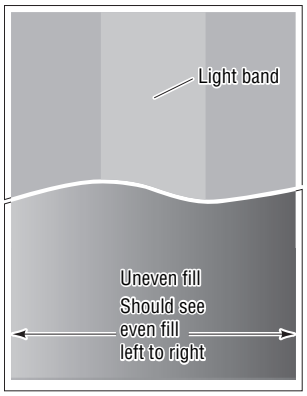
## Uneven Pitch

The print on the copy is on an uneven skew from the original.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

## Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Scanner Unit, PL3.1.1 |  <br>TP6 Grey Fill |

## Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Execute a print job sent from a computer.<br><br>Does the defect occur on the printed output? | The problem is not with Scanner Unit, it is a problem within the print image system. Got to page 5-37 to continue troubleshooting the image print image process. | The problem is associated with the scanner system.<br><br>Go to Step 2. |
| 2 | This defect often occurs when copying with the ADF partially closed. The ADF will not evenly press the original document against the Document Glass or CVT Window. Uneven pressure will allow segments of the page to slightly lift off the glass surface, and the scanhead will detect different density levels. Open and Close the ADF and verify it closes completely.<br>Does the defect still occur? | Go to Step 3. | Complete. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Reseat all connectors and cables between the scanner and image processing board, and then make another copy.<br>Does the defect still occur? | Replace the Scanner Unit (page 8-25). | Complete. |

# Image Processing System

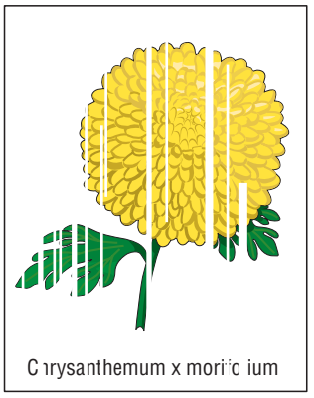
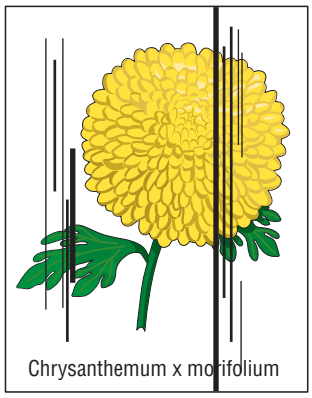
## White or Colored Lines and Bands in Feed Direction

Vertical lines or bands in the copy indicate problems in the feed direction.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ Fusing Unit, PL4.18.12<br>■ Laser Unit, PL4.14.1 |  Vertical Blank Lines  Vertical Stripes |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit. Are there scratches on the photo conductor surface? | Replace the Imaging Unit (page 8-13). | Go to Step 2. |
| 2 | Is the outside of the surface dirty? | Carefully clean the surface. If the problem persists, go to Step 3. | Go to Step 3. |

**Troubleshooting Procedure Table (Continued)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Is the developing bias contact terminal of the Toner Cartridge in good contact? | Go to Step 4. | Clean the contact terminal. |
| 4 | Check the connectors and terminal contacts of the Laser Unit.<br>Are the connectors, window surface, and contact terminals connected properly? | Go to Step 5. | Reseat the connectors and clean the terminal contacts. If the problem persists, go to Step 5. |
| 5 | Check the Transfer Belt Unit.<br>Is the transfer belt dirty or scratched? | If the surface is dirty, wipe the surface clean with a soft cloth. If the transfer belt is scratched, replace the unit (page 8-33). | Go to Step 6. |
| 6 | Is the Transfer Roller scratched? | Replace the roller (page 8-86). If the problem persists, go to Step 7. | Go to Step 7. |
| 7 | Check the paper path.<br>Is there a foreign object or obstruction in the path? | Remove the object and reprint the test sheet. If the problem persists, go to Step 8. | Go to Step 8. |
| 8 | Inspect the Fusing Unit.<br>Is the fusing entrance guide plate or the separation claw dirty or scratched? | Clean the guide plate and reprint the test sheet. If the problem persists, replace the Fusing Unit (page 8-36) and go to Step 9. | Go to Step 9. |
| 9 | Has the problem been eliminated? | Complete | Replace the toner cartridge (page 7-11) and the Laser Unit (page 8-15). |

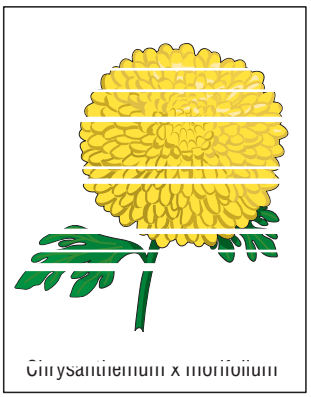
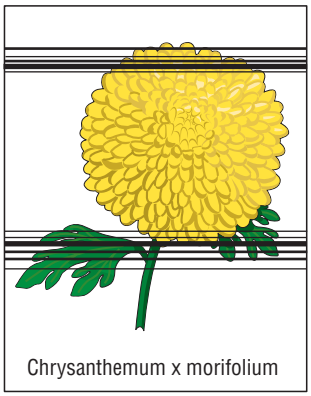
## White or Colored Lines and Bands in Scan Direction

Horizontal lines or bands in the copy indicate problems in the scan direction.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

## Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ Transfer Roller, PL4.16.3<br>■ Fusing Unit, PL4.18.12<br>■ Laser Unit, PL4.14.1 |  Horizontal Band, Void, or Streaks  Horizontal Stripes |

## Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit. Are there scratches on the photo conductor surface? | Replace the Imaging Unit. | Go to Step 2. |
| 2 | Is the outside of the surface dirty? | Carefully clean the surface. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Is the developing bias contact terminal of the Toner Cartridge in good contact? | Go to Step 4. | Clean the contact terminal. |
| 4 | Check the connectors and terminal contacts of the Laser Unit. Are the connectors and contact terminals connected properly? | Go to Step 5. | Reseat the connectors and clean the terminal contacts. If the problem persists, go to Step 5. |
| 5 | Check the Transfer Belt Unit. Is the transfer belt dirty or scratched? | If the surface is dirty, wipe the surface clean with a soft cloth. If the transfer belt is scratched, replace the unit. | Go to Step 6. |
| 6 | Is the Transfer Roller scratched? | Replace the roller (page 8-84). If the problem persists, go to Step 7. | Go to Step 7. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 7 | Check the paper path.<br>Is there a foreign object or obstruction in the path? | Remove the object and reprint the test sheet. If the problem persists, go to Step 8. | Go to Step 8. |
| 8 | Inspect the Fusing Unit.<br>Is the fusing entrance guide plate or the separation claw dirty or scratched? | Clean the guide plate and reprint the test sheet. If the problem persists, replace the Fusing Unit (page 8-36) and go to Step 9. | Go to Step 9. |
| 9 | Has the problem been eliminated? | Complete | Replace the toner cartridge (page 7-11) and the Laser Unit (page 8-15). |

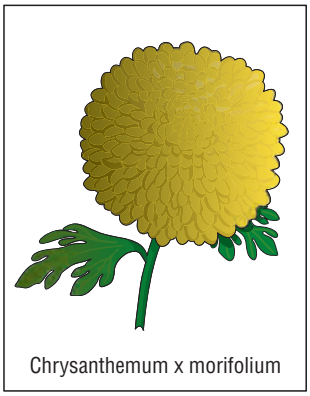
## Uneven Density in the Feed Direction

The density of the print along the length of the copy is inconsistent.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ High Voltage Unit, PL4.19.6<br>■ Laser Unit, PL4.14.1<br>■ Toner Cartridge (See consumables parts list) |  <br>Chrysanthemum x morifolium<br>Color Uneven or Wrong (Scan Direction) |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit.<br>Is the outside of the surface dirty? | Carefully clean the surface. If problem persists, go to Step 2. | Go to Step 2. |
| 2 | Are there scratches on the photo conductor? | Replace the Imaging Unit (page 8-13). | Go to Step 3. |
| 3 | Is the window surface dirty on the laser? | Carefully clean the surface. If problem persists, go to Step 4. | Go to Step 4. |
| 4 | Check the Transfer Belt Unit.<br>Is the transfer belt dirty or scratched? | Clean the unit with a soft cloth. If the belt is scratched, replace the Transfer Belt Unit (page 8-33). | Go to Step 5. |
| 5 | Is the Transfer Roller scratched? | Replace the roller (page 8-86). If the problem persists, go to Step 6. | Go to Step 6. |
| 6 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Toner Cartridge (page 7-11)<br>■ Laser Unit (page 8-15)<br>■ High Voltage Unit (page 8-50) |

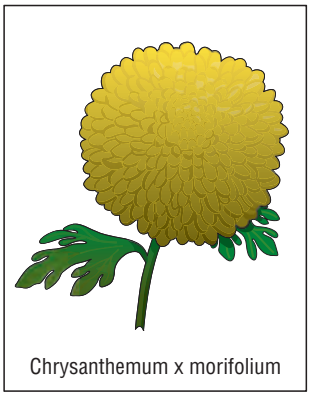
## Uneven Density in The Scan Direction

The density of the print along the width of the copy is inconsistent.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ Transfer Roller, PL4.16.3<br>■ High Voltage Unit, PL4.19.6<br>■ Toner Cartridge (See consumables parts list) |  <br>Color Uneven or Wrong (Process Direction) |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit. Is the outside of the surface dirty? | Carefully clean the surface. If problem persists, go to Step 2. | Go to Step 2. |
| 2 | Are there scratches on the photo conductor? | Replace the Imaging Unit (page 8-13). | Go to Step 3. |
| 3 | Check the Transfer Belt Unit. Are the mounting shafts on the assembly fully seated and installed | Go to Step 4 | Reseat and align properly. |
| 4 | Does the Transfer Belt Unit have fingerprints, dirt, or oil on it? | Clean the unit with a soft cloth. If the belt is scratched, replace the Transfer Belt Unit (page 8-33) and go to Step 5. | Go to Step 5. |
| 5 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Toner Cartridge (page 7-11)<br>■ High Voltage Unit (page 8-50) |

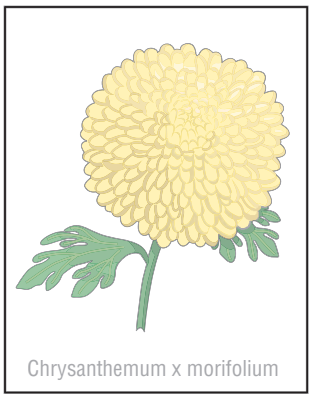
# Low Image Density

The overall image density is too light.

## Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ Transfer Roller, PL4.16.3<br>■ High Voltage Unit, PL4.19.6<br>■ Laser Unit, PL4.14.1 |  <br>Light or Undertone Print |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit. Is the outside of the unit dirty? | Clean the unit. If the problem persists, go to Step 2 | Go to Step 2. |
| 2 | Inspect the laser window. Is the outside of the surface dirty? | Carefully clean the surfaces. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Check the Transfer Belt Unit. Are the mounting shafts on the assembly fully seated and installed | Go to Step 4 | Reseat and align properly. If the problem persists, go to Step 4. |
| 4 | Is the Transfer Belt Unit dirty or scratched? | Clean the unit with a soft cloth. If the belt is scratched, replace the Transfer Belt Unit (page 8-33). | Go to Step 5. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | Is the Transfer Roller scratched? | Replace the roller (page 8-86). If the problem persists, go to Step 6. | Go to Step 6. |
| 6 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until the problem is eliminated:<br>■ Transfer Belt Unit (page 8-33)<br>■ Transfer Roller (page 8-86)<br>■ Laser Unit (page 8-15)<br>■ High Voltage Unit (page 8-50) |

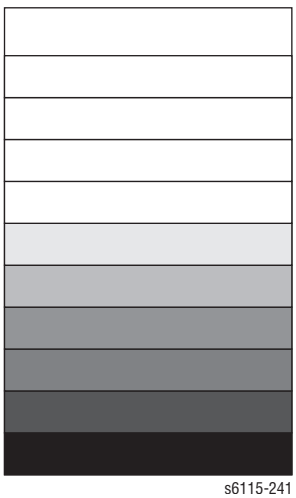
## Gradation Reproduction Failure

The overall image becomes less and less clear with each copy.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Laser Unit, PL4.14.1<br>■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ High Voltage Unit, PL4.19.6<br>■ Toner Cartridge (See consumables parts list) |  s6115-241  s6115-242 |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit. Is the outside of the unit dirty? | Clean the unit. If problem persists, go to Step 2 | Go to Step 2. |
| 2 | Inspect the laser window. Is the outside of the surface dirty? | Carefully clean the surfaces. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Check the Transfer Belt Unit.<br>Is the transfer belt dirty or scratched? | Clean the unit with a soft cloth. If the transfer belt is scratched, replace the unit (page 8-33). | Go to Step 3. |
| 4 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Toner Cartridge (page 7-11)<br>■ Laser Unit (page 8-15)<br>■ High Voltage Unit (page 8-50) |

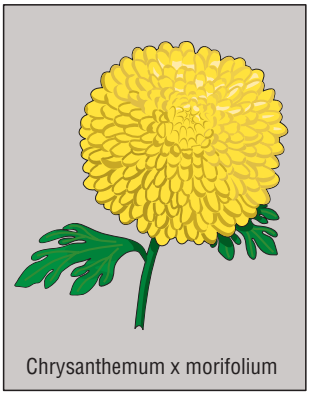
## Foggy Background

Background image of copy is distorted or foggy.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Toner Cartridge (See consumables parts list)<br>■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ Laser Unit, PL4.14.1 |  <br>Background Contamination |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit. Are there scratches on the photo conductor surface? | Replace the Imaging Unit (page 8-13). | Go to Step 2. |
| 2 | Is the outside of the surface dirty? | Carefully clean the surface. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Is the developing bias contact terminal of the Toner Cartridge in good contact? | Go to Step 4. | Clean the contact terminal. |
| 4 | Check the connectors and terminal contacts of the Laser Unit.<br>Are the connectors, window surface, and contact terminals connected properly? | Go to Step 5. | Reseat the connectors and clean the terminal contacts. If the problem persists, go to Step 5. |
| 5 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Laser Unit (page 8-15)<br>■ Toner Cartridge (page 7-11)<br>■ Transfer belt Unit (page 8-33) |

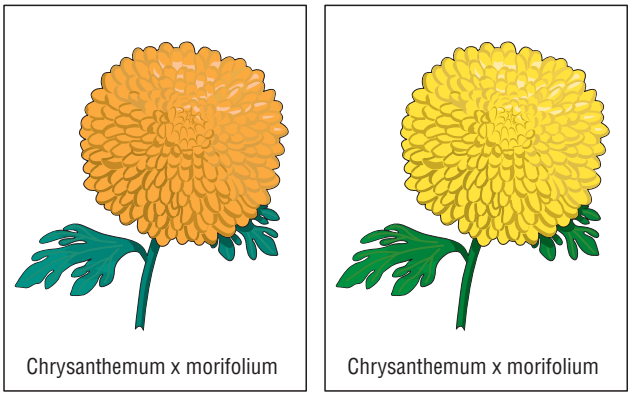
# Poor Color Reproduction

The colors in the copy is not a good reproduction of the original.

## Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Transfer Belt Unit, PL4.15.5<br>■ Engine Control Board, PL4.19.15<br>■ High Voltage Unit, PL4.19.6 |  <br>Unexpected Colors |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the media.<br>Is the paper damp? | Replace with new, unwrapped paper. | Go to Step 2. |
| 2 | Inspect the Transfer Belt Unit.<br>Is the terminal dirty? | Clean the contacts. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Transfer Belt Unit (page 8-33)<br>■ Engine Control Board (page 8-57)<br>■ High Voltage Unit (page 8-50) |

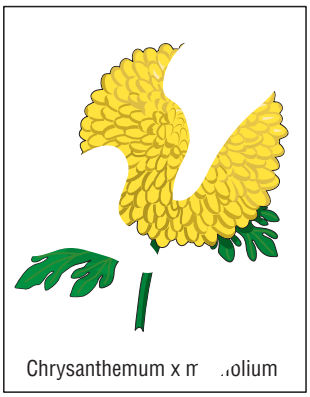
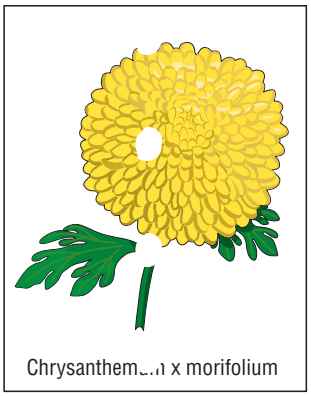
# Void Areas and White Spots

Missing spots or areas on the copy.

## Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Toner Cartridge (See consumables parts list)<br>■ Transfer Belt Unit, PL4.15.5<br>■ Fusing Unit, PL4.18.12 |  <br>Partial Band<br>  <br>Repeating Defects |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Imaging Unit. Is the outside of the surface dirty? | Clean the surface. If the problem persists, go to Step 2. | Go to Step 2. |
| 2 | Are there scratches on the photo conductor surface? | Replace the Imaging Unit. | Go to Step 3. |
| 3 | Check the Transfer Belt Unit. Are the mounting shafts on the assembly fully seated and installed | Go to Step 4. | Reseat and align properly. If the problem persists, go to Step 4. |
| 4 | Is the transfer belt dirty or scratched? | If the surface is dirty, wipe the surface clean with a soft cloth. If the transfer belt is scratched, replace the unit (page 8-33). | Go to Step 5. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | Is the Transfer Roller scratched? | Replace the roller (page 8-86). If the problem persists, go to Step 6. | Go to Step 6. |
| 6 | Check the paper path. Is there a foreign object or obstruction in the path? | Remove the object and reprint the test sheet. If the problem persists, go to Step 7. | Go to Step 7. |
| 7 | Inspect the Fusing Unit. Are the green nip release levers in the closed position? | Close the green nip release levers and go to Step 8. | Go to Step 8. |
| 8 | Has the problem been eliminated? | Complete | Replace the toner cartridge (page 7-11) and the Laser Unit (page 8-15). |

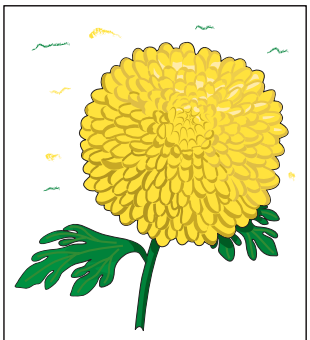
## Colored Spots

Random colored spots on copies.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Toner Cartridge (see Consumables Parts List)<br>■ Transfer Belt Unit, PL4.15.5<br>■ Fusing Unit, PL4.18.12 |  <br>Chrysanthemum x morifolium<br>White Portion is Colored |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Does the paper size loaded in the tray match the selected paper size? | Go to Step 2. | Correct the paper size mismatch. If problem persists, go to Step 2. |
| 2 | Inspect the Imaging Unit. Are the spots in a single color? | Replace the Imaging Unit (page 8-13). If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Is there dirt or scratches on the photo conductor surface? | If there is dirt on the surface, carefully clean the surface. If there are scratches, replace the Imaging Unit (page 7-11). If the problem persists, go to Step 4. | Go to Step 4. |
| 4 | Check the Transfer Belt Unit.<br>Is the Transfer Belt dirty or scratched? | If the surface is dirty, wipe the surface clean with a soft cloth. If the belt is scratched, replace the Transfer Belt Unit (page 8-33) then go to Step 5. | Go to Step 5. |
| 5 | Is the Transfer Roller scratched? | Replace the roller (page 8-84). If the problem persists, go to Step 6. | Go to Step 6. |
| 6 | Check the paper path.<br>Is there a foreign object or obstruction in the path? | Remove the object and reprint the test sheet. If the problem persists, go to Step 7. | Go to Step 7. |
| 7 | Inspect the Fusing Unit.<br>Is the Fuser Roller dirty or scratched? | Replace the Fusing Unit (page 8-36). If the problem persists, go to Step 8. | Go to Step 8. |
| 8 | Has the problem been eliminated? | Complete | Replace the problem toner cartridge (page 7-11). |

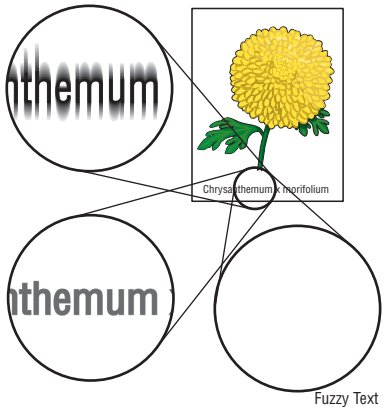
# Blurred Image

The overall image density is blurry.

## Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Laser Unit, PL4.14.1<br>■ Imaging Unit, PL4.15.9<br>■ Toner Cartridge (See consumables parts list) |  <br>Fuzzy Text |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Laser Unit.<br>Is the window surface dirty? | Carefully clean the window surface. If the problem persists, go to Step 2. | Go to Step 2. |
| 2 | Inspect the Imaging Unit.<br>Is the outside of the surface dirty? | Clean the surface. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Toner Cartridge (page 7-11)<br>■ Laser Unit (page 8-15)<br>■ Imaging Unit (page 8-13) |

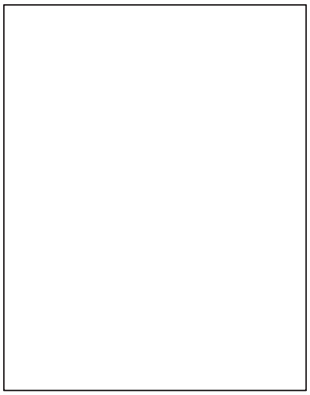
# Black or Blank Copy

Black or blank copy due to a faulty image reproduction system.

## Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Engine Control Board, PL4.19.15<br>■ Imaging Unit, PL4.15.9<br>■ Laser Unit, PL4.14.1<br>■ High Voltage Unit, PL4.19.6 |  Blank Print<br>  Black Print |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the image.<br>Does a blank print occur? | Check the connectors to the Laser Unit. If seated properly, go to Step 2. | If the image is black, go to Step 2. |
| 2 | Inspect the Imaging Unit. Is the gear of the Imaging Unit drive mechanism installed properly? | Go to Step 3. | Check or correct the drive transmitting section. If the problem persists, go to Step 3. |
| 3 | Is the charge corona voltage contact or photo-conductor ground contact of the Imaging Unit connected properly? | Go to Step 4. | Check, clean, or correct the contact. If the problem persists, go to Step 4. |
| 4 | Are connectors and cables securely connected to the High Voltage Unit? | Go to Step 5. | Reseat the connectors. If the problem persists, go to Step 5. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Imaging Unit (page 8-13)<br>■ Engine Control Board (page 8-57)<br>■ Laser Unit (page 8-15)<br>■ High Voltage Unit (page 8-50) |

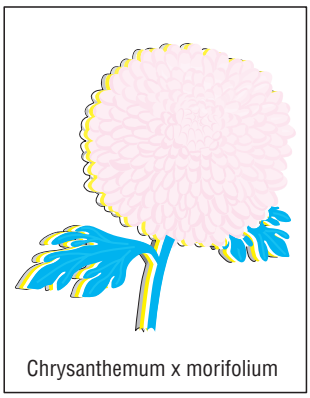
## Incorrect Color Image Registration

The composite color image may be misaligned or present an incorrect color scheme.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Transfer Belt Unit, PL4.15.5<br>■ Imaging Unit, PL4.15.9<br>■ Transfer Roller, PL4.16.3<br>■ Laser Unit, PL4.14.1 |  <br>Color Registration |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the Transfer Belt Unit.<br>Is the transfer belt dirty or scratched? | If the surface is dirty, wipe the surface clean with a soft cloth. If the transfer belt is scratched, replace the Transfer Belt Unit (page 8-33). | Go to Step 2. |
| 2 | Is the drive coupling to the machine dirty? | Clean. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Is the Transfer Roller scratched? | Replace the roller (page 8-86). If the problem persists, go to Step 4. | Go to Step 4. |
| 4 | Inspect the Imaging Unit.<br>Is the unit installed in the proper position? | If there is dirt on the drum, carefully clean the surface. If there are scratches, replace the unit (page 8-13). If the problem persists, go to Step 5 | Reinstall the Imaging Unit. If problem persists, go to Step 5. |
| 5 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Engine Control Board (page 8-57)<br>■ Laser Unit (page 8-15) |

# Fusing System

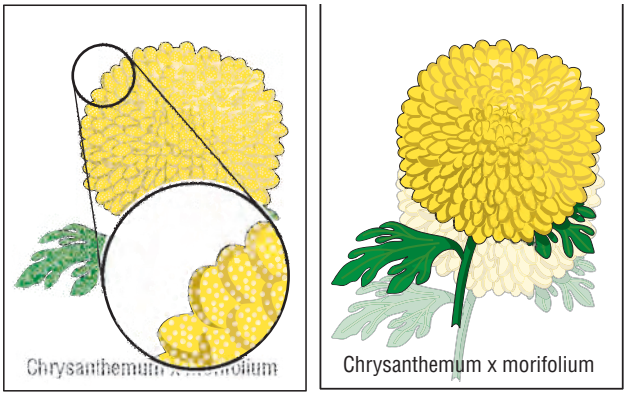
## Poor Fusing Performance or Offset

The fusing process or offset is incorrect.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

#### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Engine Control Board, PL4.19.15<br>■ Fusing Unit, PL4.18.12 |  <br>Incomplete Transfer<br>Residual Image/Ghosting |

#### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the media. Does the media conform to the specifications of the printer? | Go to Step 2. | Replace the paper. If the problem persists, go to Step 2. |
| 2 | Inspect the Fusing Unit. Are the green fuser separator levers in the correct position? | Clean the original glass and reprint the test sheet. Then, go to Step 3. | Close the levers. If the problem persists, go to Step 3. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Engine Control Board (page 8-57)<br>■ Fusing Unit (page 8-36) |

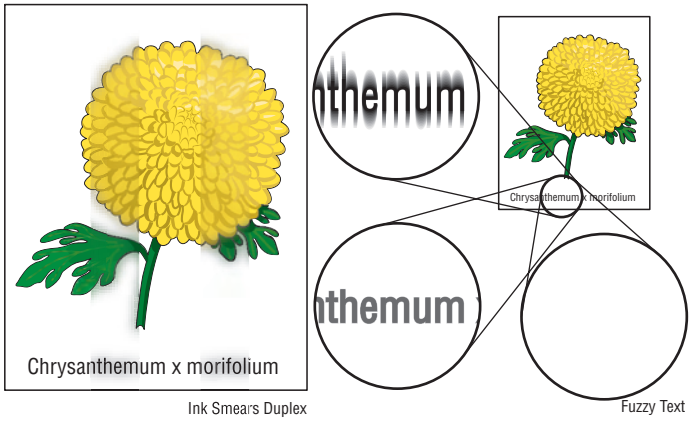
## Brush Effect or Blurred Image

The image on the copy appears blurry or smeared.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ Fusing Unit, PL4.18.12 |  |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the media.<br>Is the paper damp or the incorrect media for the printer? | Replace with paper that meets the specifications for the printer. If the problem persists, go to Step 2. | Go to Step 2. |

### Troubleshooting Procedure Table (Continued)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 2 | Inspect the Imaging Unit. Are there scratches on the photo-conductor surface? | Replace the Imaging Unit. If the problem persists, go to Step 3. | Go to Step 3. |
| 3 | Check the Transfer Belt Unit. Is the transfer belt dirty with oil or fingerprints, or scratched? | If the surface is dirty, wipe the surface clean with a soft cloth. If the belt is scratched, replace the Transfer Belt Unit (page 8-33). If the problem persists, go to Step 4. | Go to Step 4. |
| 4 | Inspect the Fusing Unit. Is the fusing entrance guide plate dirty or scratched? | Clean the guide plate. If the problem persists, replace the Fusing Unit (page 8-36). | |

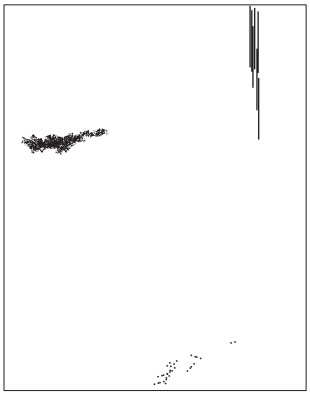
## Back Marking

The copy includes markings on the backside of the image.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

### Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Transfer Belt Unit, PL4.15.5<br>■ Transfer Roller, PL4.16.3<br>■ Fusing Unit, PL4.18.12<br>■ High Voltage Unit, PL4.19.6 |  <br>Toner on Back of Print |

### Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the media.<br>Is there a foreign object in the paper path? | Remove the obstruction. If the problem persists, go to Step 2. | Go to Step 2. |
| 2 | Inspect the Fusing Unit.<br>Is the fusing entrance guide plate dirty, or is the Fusing Roller scratched? | Replace the Fusing Unit. If the problem persists (page 8-36), then go to Step 3. | Go to Step 3. |
| 3 | Check the Transfer Belt Unit. Is the unit dirty? | Clean the surfaces with a clean soft cloth. If the problem persists, go to Step 4. | Go to Step 4. |
| 4 | Check the Transfer Roller.<br>Is the roller dirty or scratched? | If the roller is dirty, clean the surfaces with a clean soft cloth. If the roller is scratched, replace the Transfer Roller (page 8-86). If the problem persists, go to Step 5. | Go to Step 5. |
| 5 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Transfer Belt Unit (page 8-33)<br>■ Fusing Unit (page 8-36)<br>■ High Voltage Unit (page 8-50) |

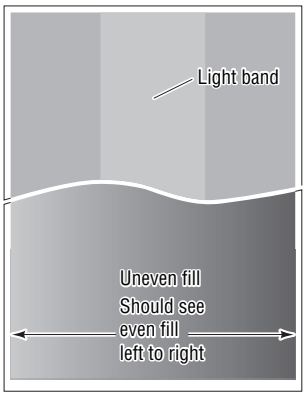
## Uneven Pitch

The pitch along the scan direction is uneven or inconsistent.

### Initial Actions

- Verify the media used is supported by this printer.
- Verify the media settings are correct at the Control Panel.

## Troubleshooting Reference Table

| Applicable Parts | Example Print |
|---|---|
| ■ Toner Cartridge (see Consumables Parts List)<br>■ Imaging Unit, PL4.15.9<br>■ Transfer Belt Unit, PL4.15.5<br>■ Transfer Roller, PL4.16.3<br>■ Fusing Unit, PL4.18.12 |  <br>TP6 Grey Fill |

## Troubleshooting Procedure Table

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the toner cartridge. Is the drive mechanism clean?<br>Are the cartridges for each color in place? | Go to Step 2. | Clean the mechanism and reinstall the cartridge. If the problem persists, go to Step 2. |
| 2 | Inspect the Laser Unit. Is the unit secured in position with the fixing screw? | Go to Step 3. | Secure it in position. If the problem persists, go to Step 3. |
| 3 | Inspect the Imaging Unit. Is the photo-conductor surface dirty or scratched? | Replace the Imaging Unit (page 8-13). If the problem persists, go to Step 4. | Go to Step 4. |
| 4 | Check the Transfer Roller. Is the roller dirty, deformed, or worn? | Replace the Transfer Roller (page 8-86). If the problem persists, go to Step 5. | Go to Step 5. |
| 5 | Inspect the Fusing Unit. Are the rollers and drive mechanism dirty, scratched, or worn? | Replace the Fusing Unit (page 8-36). If problem persists, then go to Step 6. | Go to Step 6. |
| 6 | Has the problem been eliminated? | Complete | Replace the following units, listed in order, until problem is eliminated:<br>■ Toner Cartridge (page 7-11)<br>■ Transfer Belt Unit (page 8-33) |

# Adjustments and Print Function Settings

## In this chapter...

- Adjust Function Procedures
- Service Mode Functions
- Maintenance Mode Functions

Chapter 6

# Adjust Function Procedures

## Using the Adjust Functions

The Adjustment Setting section contains detailed information on the adjustment items and procedures for this machine. Throughout this “Adjustment/Setting,” the default settings are indicated by “”.

1. Advance Checks

**Note**

Before attempting to solve the customer problem, the following advance checks must be made:

- The power supply voltage meets the specifications.
- The power supply is properly grounded.
- The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
- The original has a problem that may cause a defective image.
- The density is properly selected.
- The original glass, slit glass, or related part is dirty.
- Correct paper is being used for printing.
- The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished.
- Toner is not running out.

2. Precautions for Service Jobs
   - Unplug the power cord of the machine before starting the service job procedures.
   - If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the exposure unit.
   - Special care should be used when handling the Fusing Unit which can be extremely hot.
   - The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
   - Take care not to damage the PC Drum with a tool or similar device.
   - Do not touch IC pins with bare hands.

# Service Mode Functions

## Service Mode Entry Procedure

**Caution**

Ensure appropriate security for the Service Mode entry procedure. It should NEVER be given to any unauthorized person.

### Procedure:

1. On the initial screen, press the Menu/Select key to call [MACHINE SETUP] to the screen.
2. Press the following keys in this order.
   Stop→0→0→Stop→0→1

   The window will display the following:

   SERVICE MODE
   1. System default
3. Press the down key to locate all command lines in the function tree (page 6-4).
4. Once you find the desired function, press the Menu/Select again to enter the subcommands.
5. Press the down arrow from the subcommand level to locate the desired subfunction. Pressing the Menu/Select key at this level will execute the selected command.

**Note**

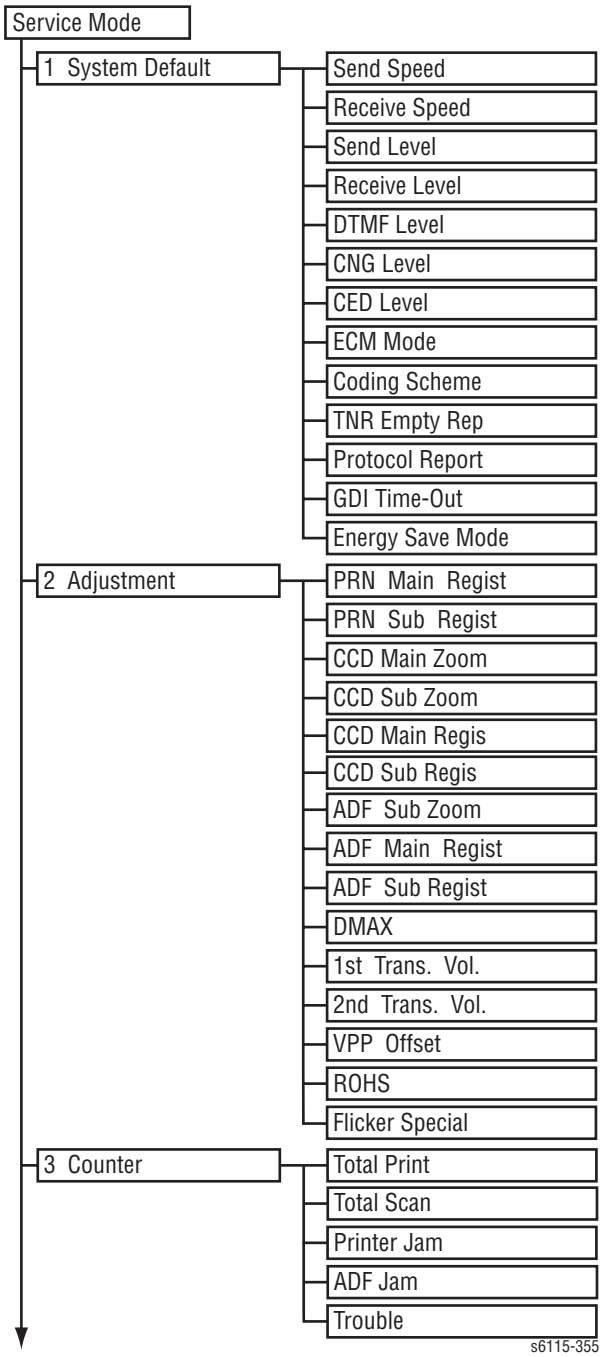
Pressing the Cancel key at any level will bring you up to the previous command level.

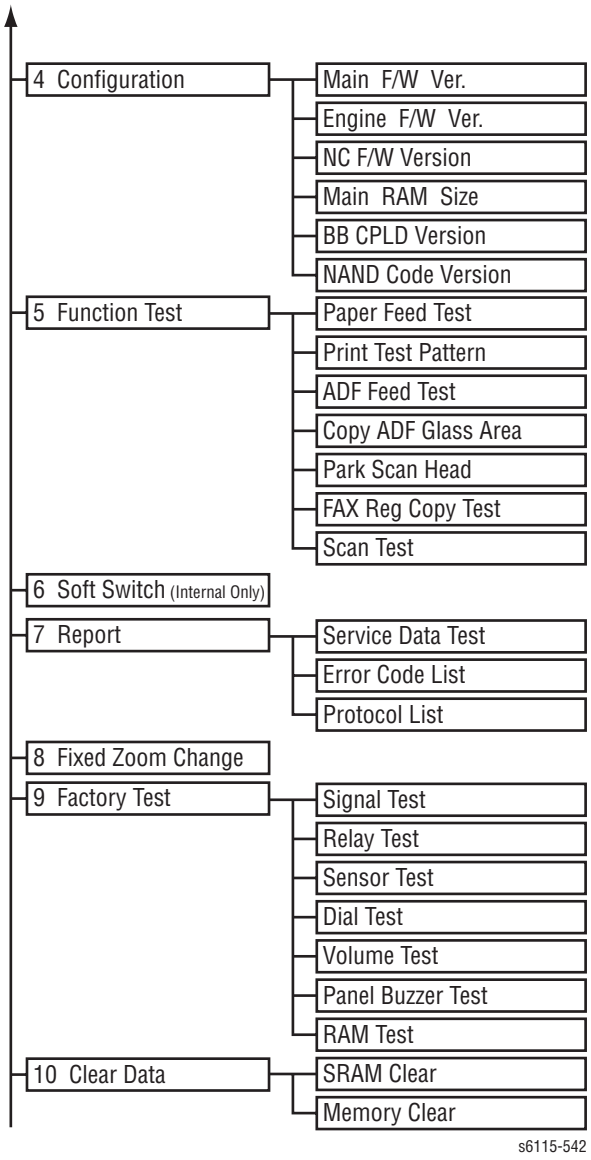
### Exiting:

1. Press the Stop key to exit.

## Service Mode Function Tree

The function tree complies with the following format displayed on the screen (2 pages).




4 Configuration
Main F/W Ver.
Engine F/W Ver.
NC F/W Version
Main RAM Size
BB CPLD Version
NAND Code Version
5 Function Test
Paper Feed Test
Print Test Pattern
ADF Feed Test
Copy ADF Glass Area
Park Scan Head
FAX Reg Copy Test
Scan Test
6 Soft Switch (Internal Only)
7 Report
Service Data Test
Error Code List
Protocol List
8 Fixed Zoom Change
9 Factory Test
Signal Test
Relay Test
Sensor Test
Dial Test
Volume Test
Panel Buzzer Test
RAM Test
10 Clear Data
SRAM Clear
Memory Clear
s6115-542

# 1 System Default

## Send Speed

### Function:

Sets the transmit start speed.

### Settings:

Choose the mode from among the following.

- V.34: 33600 (default), 31200, 28800, 26400, 24000, 21600, 19200, 16800
- V.17: 14400, 12000, 9600, 7200
- V.29: 9600, 7200
- V.27: 4800, 2400

## Receive Speed

### Function:

Sets the reception start speed.

### Settings:

- V.34: 33600 (default), 31200, 28800, 26400, 24000, 21600, 19200, 16800
- V.17: 14400, 12000, 9600, 7200
- V.29: 9600, 7200
- V.27: 4800, 2400

## Send Level

### Function:

PSK/FSK signal output level.

### Setting:

-17 to -10 dBm, -9 dBm (default), or -8 to -2 dBm

## Receive Level

Function Reception sensitivity level.

### Setting:

-49 to -44 dBm, -43 dBm (default), or -42 to -36 dBm

## DTMF Level

### Function:

Dual tone output level.

### Setting:

-17 to -10 dBm, -9 dBm (default), or -8 to -2 dBm

## CNG Level

### Function:

Calling tone output level.

### Setting:

-17 to -12 dBm, -11 dBm (default), or -10 to -2 dBm

## CED Level

### Function:

Answer tone output level.

### Setting:

-17 to -12 dBm, -11 dBm (default), or -10 to -2 dBm

## ECM Mode

### Function:

Select error correction mode.

### Setting:

- ON (default): When an error occurs during communication, re-send the frame where the error occurs.
- OFF: Any error is ignored during communication.

## Coding Scheme

### Function:

Select compression method in TX/ RX mode.

### Settings:

- MMR: A compression method.
- MR: A compression method.
- MH: The simplest compression method.
- JBIG (default): The most complex compression method that generates the smallest code than any of following ones.

## TNR Empty Rep (Toner Empty Report)

Function:

Select to generate a report to a specific destination when toner empty status occurs in the engine.

Settings:

- ON: Generate a report to report destination.
- OFF (default): Not to generate report.

1. If “ON” is selected, select generate report and send to remote side when toner runs out.
2. Enter the telephone number for which the report is to be produced.

**Note**

Fax number specifications: An up-to-20-digit number that may consist of [0-9], [*], [#], [pause], and [space]. (0-9, #, *, pause, _)

The report will generate after 20 minutes, 24 hours, 48 hours, or 72 hours after the event has occurred or until the condition is gone.

## Protocol Report

### Function:

Print communication report.

Choose one from among the following.

### Settings:

1. OFF (default): Disable T.30 communication report.
2. ON: Print T.30 communication report.
3. ON ERROR: Print T.30 communication report when an error occurs.

## GDI Time-out

### Function:

Specifies the time for GDI time out.

### Settings:

- 0 (5sec), 1 (10sec), 2 (20sec), 3 (30sec), 4 (40sec), 5 (50sec), 6 (default), or (60sec)

## Energy Save Mode

### Function:

Set to either activate Energy Save mode when print job receiving, or specify panel operation for a given period.

### Setting:

- ON (default)
- OFF

# 2 Adjustment

## PRN Main Regist

### Function:

To vary and adjust the print start position in the main scanning direction.

### Use:

If the image on the copy deviates in the main scan direction or when the Laser Unit has been replaced.

### Adjustment:

Adjust the amount that widths A and B in the printed test pattern1 are shifted so that the following specification is met.

### Specification:

0 ± 2.0 mm

### Adjustment Range:

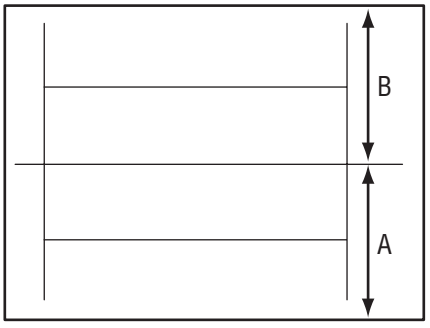
-4.0 (-4.0 mm), ~ 0.0 (0.0 mm default), ~ +4.0 (+4.0 mm)

### Step:

0.1 mm

### Procedure:

1. Print the test pattern 1 (page 6-27).



s6115-503

2. Check the amount that widths A and B in the test pattern 1 are shifted. If the shift is out of specification, adjust it according to the following procedure.
   a. Enter the [2. ADJUST] menu in the service mode.
   b. Select [PRN MAIN REGIST] of [2. ADJUST] and press the Menu Select key twice.

c. Using the p/q key, change the setting value and then press the Menu Select key.
d. Print a test pattern 1 again and check it.

### Adjustment Instructions:

- If the width of A is less than the width of B..... Increase the setting.
- If the width of B is less than the width of A..... Decrease the setting.

## PRN Sub Regist

### Function:

To vary and adjust the print start position in the sub-scanning direction.

### Use:

If the image on the copy deviates in the sub scan direction, or when the Laser Unit has been replaced.

**Note**

After the PRN MAIN REGIST adjustment has been performed

### Adjustment:

Adjust the width of C in the printed test pattern 1 so that the following specification is met.

### Specification:

20 ± 2.5 mm

### Adjustment Range:

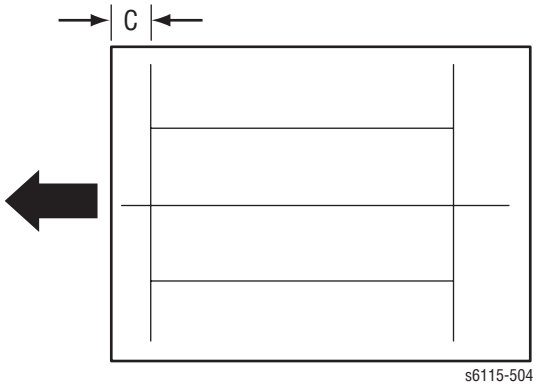
-6.00 (-6.00 mm, ~ 0 (0 mm default), ~ +6.00 (+6.00 mm)

### Step:

0.33 mm

### Procedure:

1. Print the test pattern 1.




2. Check width C on the printed page produced.
3. Check that the width of C in the test pattern 1 meets the specification. If the width of C is out of specification, adjust it according to the following procedure.
   a. Enter the [2. ADJUST] menu in the service mode.
   b. Select [PRN SUB REGIST] of [2. ADJUST] and press the Menu Select key twice.
   c. Using the p/q key, change the setting value and then press the Menu Select key.
   d. Print a test pattern 1 again and check it.

### Adjustment:

- Instructions If the width of C in the test pattern is longer than the specified width..... Increase the setting.
- If the width of C in the test pattern is shorter than the specified width..... Decrease the setting.

## CCD Main Zoom

### Function:

To adjust for variations in the accuracy of Scanner parts and their mounting accuracy by varying the scanning zoom ratio in the main scanning direction.

Use:

When the Scanner unit has been replaced.

**Note**

After the [PRN MAIN REGIST] and [PRN SUB REGIST] adjustments have been performed

### Adjustment:

Adjust the width of D in the copy of the test pattern 1 so that the following specification is met.

## Specification:

100 ± 0.5% (Zoom Ratio = Full Size:100%)

## Adjustment Range:

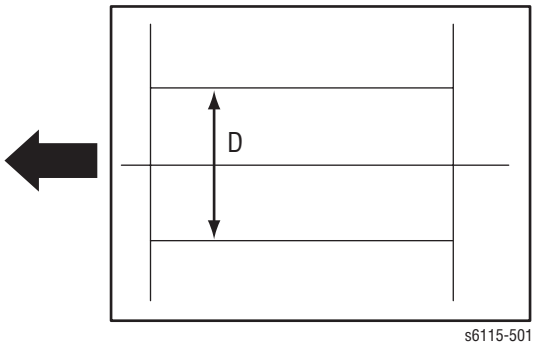
-2.0%, ~ 0% (default), ~ +2.0%

## Step:

0.4%

## Procedure:

1. Print the test pattern 1 (page 6-27).




2. Enter the [2. ADJUST] menu in the service mode.
3. Select [CCD MAIN ZOOM] of [2. ADJUST] and press the Menu Select key.
4. Place the test pattern 1 on the Original Glass and make a test copy.

   **Note**

   The test pattern 1 should be positioned vertically.

5. Use A4 or Letter paper loaded into tray1 to make the test copy.
6. Check that the width of D in the copy of the test pattern 1 meets the specification. **Calculation:** (1 - Width of D in the document ³ Width of D in the copy) ¥ 100

   If the width of D is out of specification, adjust it according to the following procedure:

   a. Press the Menu Select key.
   b. Using the p/q key, change the setting value and then press the Menu Select key.
   c. Place the test pattern 1 on the Original Glass. Then, make a test copy again and check it.

## Adjustment:

- Instructions If the width of D in the test pattern is longer than the specified width..... Decrease the setting.
- If the width of D in the test pattern is shorter than the specified width..... Increase the setting.

# CCD Sub Zoom

## Function:

To adjust for variations in the accuracy of Scanner parts and their mounting accuracy by varying the scanning zoom ratio in the sub-scanning direction.

## Use:

When the Scanner unit has been replaced.

**Note**

Use this command only after the [PRN MAIN REGIST] and [PRN SUB REGIST] adjustments have been performed.

## Adjustment:

Adjust the width of E in the copy of the test pattern 1 so that the following specification is met.

## Specification:

200 ± 0.5% (Zoom Ratio = Full Size:100%)

## Adjustment Range:

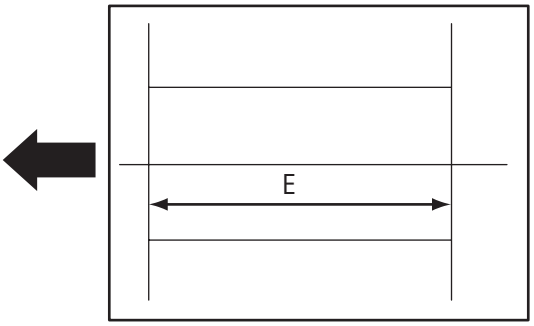
-2.0% ~, 0% (default), ~ +2.0%

## Step:

0.4%

## Procedure:

1. Print the test pattern 1 (page 6-27).

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2. Enter the [2. ADJUST] menu in the service mode.
3. Select [CCD SUB ZOOM] of [2. ADJUST] and press the Menu Select key.
4. Place the test pattern 1 on the Original Glass and make a test copy.

**Note**

The test pattern 1 should be positioned vertically.

5. Use A4 or Letter paper loaded into tray1 to make the test copy.
6. Check that the width of E in the copy of the test pattern 1 meets the specification. **Calculation:** (1 - Width of E in the document ³ Width of E in the copy) ¥ 100.

   If the width of E is out of specification, adjust it according to the following procedure:

   a. Press the Menu Select key.
   b. Using the p/q key, change the setting value and then press the Menu Select key.
   c. Place the test pattern 1 on the Original Glass. Then, make a test copy again and check it.

### Adjustment Instructions:

- If the width of E in the test pattern is longer than the specified width..... Decrease the setting.
- If the width of E in the test pattern is shorter than the specified width..... Increase the setting.

## CCD Main Regist

### Function:

To adjust for variations in the accuracy of Scanner parts and their mounting accuracy by varying the scanning start position in the main scanning direction.

### Use:

When the original glass is replaced or when the Scanner unit has been replaced.

**Note**

Use this command after the [PRN MAIN REGIST] and [PRN SUB REGIST] and [CCD MAIN ZOOM] adjustments have been performed.

### Adjustment Specification:

Adjust the amount that widths A and B in the copy of the test pattern 1 so that the following specification is met.

0 ± 2.0 mm

### Adjustment Range:

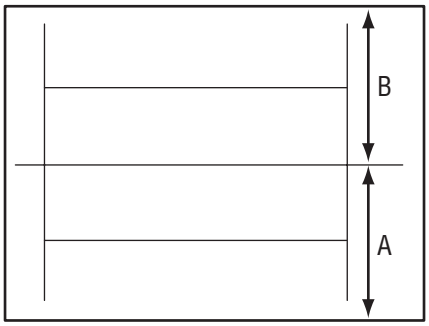
-5.0 (-5.0 mm), ~ 0.0 (0.0 mm default), ~ +5.0 (+5.0 mm)

### Step:

0.5 mm

### Procedure:

1. Print the test pattern 1 (page 6-27).




2. Enter the [2. ADJUST] menu in the service mode.
3. Select [CCD MAIN REGIST] of [2. ADJUST] and press the Menu Select key.
4. Place the test pattern 1 on the Original Glass and make a test copy.

**Note**

The test pattern 1 should be positioned vertically.

5. Use A4 or Letter paper loaded into tray1 to make the test copy.
6. Check the amount that widths A and B in the copy of the test pattern are shifted. If the shift is out of specification, adjust it according to the following procedure:
   a. Press the Menu Select key.
   b. Using the p/q key, change the setting value and then press the Menu Select key.
   c. Place the test pattern 1 on the Original Glass. Then, make a test copy again and check it.

### Adjustment Instruction:

- If the width of A is less than the width of B..... Increase the setting.
- If the width of B is less than the width of A..... Decrease the setting.

## CCD Sub Regist

### Function:

To adjust for variations in the accuracy of Scanner parts and their mounting accuracy by varying the scanning start position in the sub-scanning direction.

## Use:

When the original glass is replaced or when the Scanner unit has been replaced.

**Note**

Use this command after the [PRN MAIN REGIST] and [PRN SUB REGIST] and [CCD SUB ZOOM] adjustments have been performed.

## Adjustment Specification:

Adjust the width of C in the copy of the test pattern 1 so that the following specification is met:

20 ± 2.5 mm

## Adjustment Range:

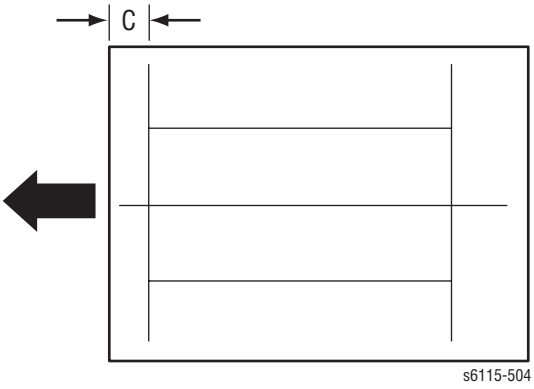
-5.0 (-5.0 mm), ~ 0 (0 mm default), ~ +5.0 (+5.0 mm)

## Step:

0.5 mm

## Procedure:

1. Print the test pattern 1 (page 6-27).




2. Enter the [2. ADJUST] menu in the service mode.
3. Select [CCD SUB REGIST] of [2. ADJUST] and press the Menu Select key.
4. Place the test pattern 1 on the Original Glass and make a test copy.

   **Note**

   The test pattern 1 should be positioned vertically.

5. Use A4 or Letter paper loaded into tray1 to make the test copy.
6. Check that the width of C in the copy of the test pattern are shifted. If the width of C is out of specification, adjust it according to the following procedure:
   a. Press the Menu Select key.

b. Using the p/q key, change the setting value and then press the Menu Select key.
c. Place the test pattern 1 on the Original Glass. Then, make a test copy again and check it.

### Adjustment Instructions:

- If the width of C in the test pattern is longer than the specified width..... Increase the setting.
- If the width of C in the test pattern is shorter than the specified width..... Decrease the setting.

## ADF Sub Zoom

### Function:

To adjust for variations in the accuracy of all parts and their mounting accuracy by varying the scanning zoom ratio in the sub-scanning direction (when using the Automatic Document Feeder).

### Use:

When the original glass is replaced, or when a new Auto Document Feeder Unit is mounted.

**Note**

Use this command after the [PRN MAIN REGIST] and [PRN SUB REGIST] and [CCD SUB ZOOM] adjustments have been performed.

### Adjustment Range:

-2.0% to +2.0%, Step: 0.4%.

### Setting/Procedure

1. Print the test pattern 1(page 6-27).
2. Enter the [2. ADJUST] menu in the service mode.
3. Select [ADF SUB ZOOM] of [2. ADJUST] and press the Menu Select key.
4. Place the test pattern 1 into the Automatic Document Feeder and make a test copy.

   **Note**

   The test pattern 1 should be positioned vertically. Use A4 or Letter paper loaded into tray1 to make the test copy.

5. Check that the width of E in the copy of the test pattern 1 meets the specification.
   - Calculation: (1 - Width of E in the document ÷ Width of E in the copy) × 100
   - If the width of E is out of specification, adjust it according to the following procedure.

6. Press the Menu Select key.
7. Using the ../.. key, change the setting value and then press the Menu Select key.
8. Place the test pattern 1 into the Automatic Document Feeder. Then, make a test copy again and check it.

# ADF Main Regist

## Function:

To adjust for variations in the accuracy of all parts and their mounting accuracy by varying the scanning start position in the main scanning direction when using the Automatic Document Feeder.

## Use:

When the original glass is replaced, or when a new Auto Document Feeder Unit is mounted.

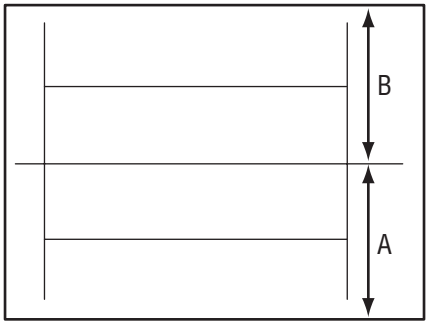
**Note**

Use this command after the [PRN MAIN REGIST] and [PRN SUB REGIST] and [CCD SUB ZOOM] adjustments have been performed.

After the [ADF SUB ZOOM] adjustments have been performed, perform the adjustment procedure.

## Adjustment Specification

Adjust the amount that widths A and B in the copy of the test pattern 1 so that the following specification is met



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## Settings/Procedure

1. 1. Print the test pattern 1(page 6-27).
2. Enter the [2. ADJUST] menu in the service mode.
3. Select [ADF MAIN REGIST] of [2. ADJUST] and press the Menu Select key.
4. 4. Place the test pattern 1 into the Automatic Document Feeder and make a test copy.

5. The test pattern 1 should be positioned vertically. Use A4 or Letter paper loaded into tray1 to make the test copy.
   - Check the amount that widths A and B in the copy of the test pattern are shifted.
   - If the shift is out of specification, adjust it according to the following procedure.
   - Press the Menu Select key.
   - Using the ../.. key, change the setting value and then press the Menu Select key.
   - Place the test pattern 1 into the Automatic Document Feeder. Then, make a test copy again and check it.
   - If the width of A is less than the width of B..... Increase the setting.
   - If the width of B is less than the width of A..... Decrease the setting.

## ADF Sub Regist

### Function:

To adjust for variations in the accuracy of all parts and their mounting accuracy by varying the scanning start position in the sub-scanning direction when using the Automatic Document Feeder.

### Use:

When the original glass is replaced, or when a new Auto Document Feeder Unit is mounted.

**Note**

After the [PRN MAIN REGIST] and [PRN SUB REGIST] and [CCD SUB ZOOM] adjustments have been performed

After the [ADF SUB ZOOM] adjustments have been performed, refer to the Adjustment Range section of the Auto Document Feeder Unit.

## DMAX (Manufacturing Only)

### Function:

To adjust the density of each color.

## 1st Transfer Voltage (Manufacturing Only)

### Function:

To adjust the voltage applied to the Transfer Roller for each color.

## 2nd Transfer Voltage (Manufacturing Only)

### Function:

Adjusts image characteristics according to user requirements for each type of media by varying the second transfer voltage.

### Use:

To adjust the second transfer voltage when an image problem (void areas, white spots) occurs due to the characteristics of the type of media being used.

- If white spots occur, decrease the 2nd transfer voltage (adjust in the minus direction) See page 5-27.
- If void areas occurs, increase the 2nd transfer voltage (adjust in the plus direction). See page 5-27

### Adjustment range:

-1500V ~ +1500V

Step: 0 (default), 100V

### Types of paper to be adjusted:

PLAIN TRANS., LABELS, LETTERHEAD, J-POSTCARD, THICK STOCK GLOSSY

## VPP Offset

### Function:

Optimizes the image by varying the output value of the developing bias when an image problem occurs due to the atmospheric pressure at high altitudes.

### Use:

To adjust the developing when an image problem (uneven density) occurs in an environment of low atmospheric pressure in places such as at high altitudes.

### Adjustment range:

STEP0 (0V default), STEP1 (-100V, STEP2 (-200V), STEP3 (-300V)

## ROHS

### Function:

Sets supportability of the temperature/humidity sensor (TEM/HRMS) for ROHS.

### Use:

When the temperature/humidity sensor has been replaced with a new one.

### Setting:

- ON (Sensor not supporting RoHS)
- OFF (Sensor supporting RoHS - default)

## Flicker Special

### Function:

Eliminates flickers of a room fluorescent light when it occurs due to power source use environment or similar reason.

### Use:

Use when the fluorescent light flickers due to power source use environment or similar reason.

### Setting:

- ON
- OFF (default)

# 3 Counter Functions

## Total Print

### Mono Copy

#### Function:

Displays the number of monochrome copies made.

#### Use:

When checking the number of monochrome copies made

### Color Copy

#### Function:

Displays the number of color copies made.

#### Use:

When checking the number of color copies made

### Mono Print

#### Function:

Displays the number of monochrome printed pages produced.

#### Use:

When checking the number of monochrome printed pages produced

### Color Print

#### Function:

Displays the number of color printed pages produced.

#### Use:

When checking the number of color printed pages produced.

### FAX Print

#### Function:

Displays the number of FAX printed pages produced.

#### Use:

When checking the number of FAX printed pages produced.

## Total Scan

#### Function:

Display the number of scans made.

#### Use:

When checking the number of scans made

## Printer Jam

#### Function:

Displays the number of misfeeds that have occurred.

#### Use:

When checking for the number of misfeeds that have occurred

## ADF Jam

#### Function:

Displays the number of misfeeds that have occurred in the Auto Document Feeder Unit.

#### Use:

When checking for the number of misfeeds that have occurred in the Auto Document Feeder Unit.

## Trouble

#### Function:

Displays the number of malfunctions detected.

### Use:

When checking for the number of malfunctions detected.

# 4 Configuration

## Main F/W Version.

### Function:

Displays the version of the controller firmware.

### When to Use:

- When upgrading the firmware
- When the image processing board has been replaced with a new one.

## Engine F/W Version

Displays the version of the engine firmware.

### When to Use:

- When the printer control board has been replaced with a new one.

## NIC F/W Version

### Function:

Displays the version of the NIC firmware.

### When to Use:

- When checking for the Firmware version.

## Main Ram Size

Displays the size of the main memory.

### When to Use:

- When checking for the memory size.

## BB CPLD Version

### Function:

Displays the version of the BB CPLD version.

### When to Use:

When checking for the BB CPLD version.

## NAND Code Version

### Function:

Displays the version of the NAND flash code version.

### When to Use:

To verify the NAND Code version.

# 5 Function Test

## Paper Feed Test

### Function:

To check the paper feeding in the paper take-up/transport sections without printing on the paper.

### Use:

When a paper misfeed occurs

### Procedure:

1. Select the paper tray.
2. Press the Start key to begin testing paper feeding.
3. Press the Stop key to stop testing paper feeding.

**Note**

Do not use this procedure when warming up the printer.

# Print Test Pattern

## Pattern 1

### Function:

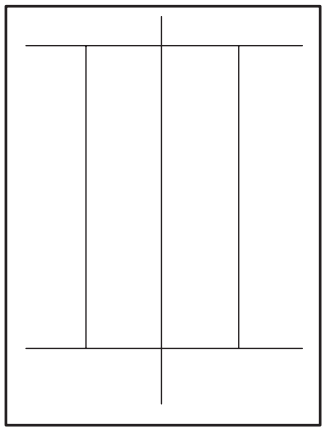
To print the test pattern for adjusting the image.

### Use:

If there is tilt or when registration or zoom ratio adjustments are performed

### Procedure:

1. Select the paper tray.
2. Select the [PATTERN 1].
3. Press the “B&W” key to print the test pattern.



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## Pattern 2

### Function:

To print the test pattern for halftones and gradations.

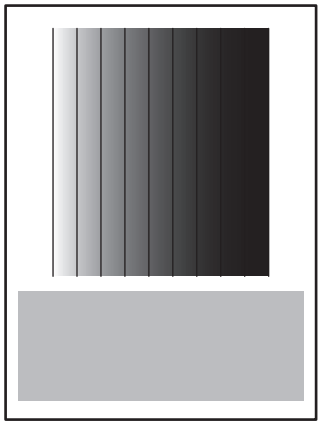
### Use:

When checking density and pitch irregularities, or when checking reproducibility of gradations.

Procedure:

1. Select the paper tray.
2. Select the [PATTERN2].

3. Press the Start key to print the test pattern.



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## ADF Feed Test

### Function:

To check the paper feeding in the paper take-up/transport sections in the Automatic Document Feeder.

### Use:

When a document misfeed occurs

### Procedure:

1. Load paper into the Automatic Document Feeder.
2. Press the Start key to begin testing paper feeding.
3. Press the Stop key to stop testing paper feeding.

## Copy ADF Glass Area

**Note**

This command is currently inoperable. Refer to the User's Guide for using this command in the customer mode.

### Function:

To check for dirt in the scanning section of the Automatic Document Feeder.

### Use:

If spots appear in the copies

### Procedure:

1. Load A4S or LetterS paper into Tray1.
2. Press the Start key to start the [COPY ADF GLASS AREA] function. Two copy samples are fed out.
3. Check that no spots appear in the copy samples.
4. Press the Stop key to stop the [COPY ADF GLASS AREA] function.

## Park Scan Head

### Function:

Moves the scanner unit to its home position for locking.

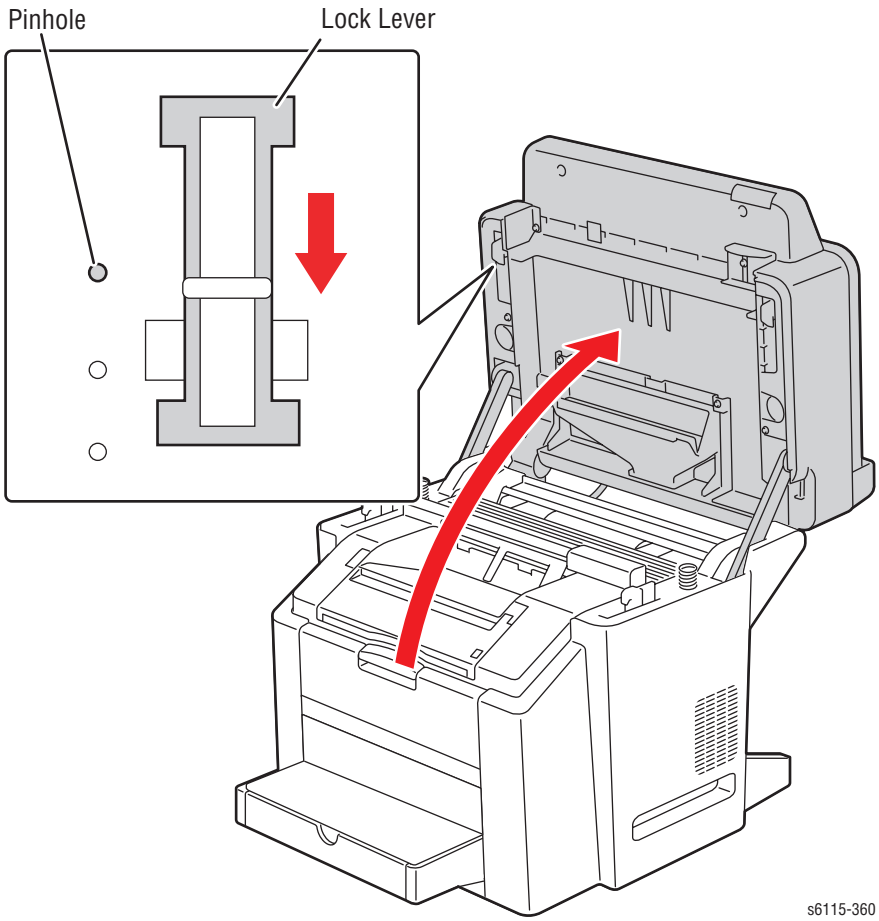
### Use:

Use when transporting the machine.

### Procedure:

1. Enter the user service mode.
2. Select [Park Scan Head] and press the Menu Select key.
3. The Scanner Unit moves to the home position when the start key is pressed.
4. Turn OFF the machine's main switch.

5. Open the Scanner unit. Then, inserting a pin or similar object into the hole at portion [1], lower the lock lever [2].




**Note**

After the transportation of the machine, make sure to unlock the scanner unit by raising the lock lever before turning on the machine's main switch.

## FAX Reg Copy Test

### Function:

Stores a FAX image in memory and provides a printed copy.

### Use:

To test the creation of a FAX image.

### Procedure:

- Press the Menu key to begin the FAX Reg copy test.
- Command delivers a printed copy to the output tray.

## Scan Test

### Function:

To check the lighting of the Exposure Lamp and the movement of the Scanner Unit.

### Use:

If the scanner malfunctions.

### Procedure:

- Press the Start key to begin the scanner test.
- Press the Stop key to stop the scanner test.

# 6 Soft Switch Functions (Internal Only)

Soft Switch Information unavailable. Used for internal development.

# 7 Reports

## Service Data List

### Function:

Print service data list report and Error log history list.

### Service Data List:

Includes the following items:

- COMMUNICATION HISTORY and COUNTER
- ADJUST
- RX IN MEMORY
- MAIN RAM SIZE
- ROM ID

### Retrieving the Service Data List:

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Menu Select key.
3. Select [SERVICE DATA LIST] and press the Menu Select key.

SERVICE DATA LIST

NAME :
TEL :
DATE :JUN. 05. 2006 13:58

--SOFT SWITCH –

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW01-SW16 | 00 | 20 | 80 | 0C | 00 | 00 | 07 | 61 | 00 | 81 | 00 | 80 | 10 | 00 | 01 | 03 |
| SW17-SW32 | 00 | 00 | 68 | 00 | 80 | 06 | 00 | 00 | 00 | 28 | 00 | A7 | 14 | 68 | 00 | 00 |
| SW33-SW48 | C0 | 82 | 10 | 8A | 00 | C1 | 00 | 08 | 00 | 00 | 00 | 04 | 00 | 06 | 00 | 89 |
| SW49-SW64 | 01 | 00 | 00 | 00 | 00 | B0 | 00 | 00 | 00 | 00 | 00 | 21 | 0F | 00 | 80 | 10 |

--COMMUNICATION HISTORY & COUNTER –

| | |
|---|---|
| 000001: ECM RX TIME | 000000: ECM TX TIME |
| 000008: G3 RX TIME | 000000: G3 RX PAGE |
| 000000: V.17 14.4K | 000000: V.17 12K |
| 000000: V.17 9.6K | 000000: V.17 7.2K |
| 000000: V.29 9.6K | 000000: V.29 7.2K |
| 000000: V.27 4.8K | 000001: V.27 2.4K |
| 000001: G3 TX TIME | 000000: G3 TX PAGE |
| 000000: V.17 14.4K | 000000: V.17 12K |
| 000000: V.17 9.6K | 000000: V.17 7.2K |
| 000000: V.29 9.6K | 000000: V.29 7.2K |
| 000000: V.27 4.8K | 000000: V.27 2.4K |
| 000027: V.34 RX TIME | 000007: V.34 RX PAGE |
| 000002: 33.6K | 000005: 31.2K |
| 000000: 28.8K | 000000: 26.4K |
| 000000: 24.0K | 000000: 21.6K |
| 000000: 19.2K | 000000: 16.8K |
| 000000: 9.6K | 000000: 7.2K |
| 000000: 4.8K | 000000: 2.4K |
| 000000: V.34 TX TIME | 000015: V.34 TX PAGE |
| 000002: 33.6K | 000005: 31.2K |
| 000000: 28.8K | 000000: 26.4K |
| 000000: 24.0K | 000000: 21.6K |
| 000000: 19.2K | 000000: 16.8K |
| 000000: 9.6K | 000000: 7.2K |
| 000000: 4.8K | 000000: 2.4K |
| 000007: JBIG TX TIME | 000007: JBIG RX TIME |
| 000000: TOTAL COUNTER | |
| 000849: COPY PRINT | 000000: FAX PRINT |
| 000127: REPORT PRINT | 000000: PC PRINT |

-- ADJUST --

| | |
|---|---|
| PRN MAIN REGIST: +0.4 | PRN SUB REGIST: |
| CCD MAIN ZOOM: 0 | CCD SUB ZOOM: 0 |
| CCD MAIN REGIST: +1.0 | CCD SUB REGIST: -1.0 |
| ADF MAIN REGIST: +1.0 | ADF SUB ZOOM: 0 |
| ADF SUB REGIST: -2.0 | |

RX IN MEMORY:
MAIN RAM SIZE: 128MB

-- ROM ID --
2006/06/05 V0.38

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## Error Log History List:

Includes the following items:

- Index: Index number from 0 - 9999
- Error: Error code number
- Maker: NSF frame maker code
- Tell.: Remote side or TX side telephone number for that transaction

## Retrieving the Error Log History List:

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Menu Select key.

Select [ERROR Log History List] and press the Menu Select key.

ERROR LOG HISTORY LIST

| Index | Error | Maker | Tele. |
|---|---|---|---|
| 0001 | :00A0 | 4230 | 88634733507 |
| 0002 | :00A0 | 49EE | |
| 0003 | :0070 | 0000 | |
| 0004 | :0070 | 0000 | |
| 0005 | :0070 | 0000 | |
| 0006 | :0070 | 0000 | |
| 0007 | :0070 | 0000 | |
| 0008 | :0070 | 0000 | |

## Error Code List

### Function:

Print error code (CODE) and error occurrence time (ERROR TIMES).

### Procedure:

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Menu Select key.
3. Select [ERROR CODE LIST] and press the Menu Select key.

## Protocol List

### Function:

Print out T.30 or V8 protocol after communication with the following data:.

- SESSION: Session number
- FUNCTION: Function Name
- DESTINATION STATION: Destination Name/Tel. No.
- DATE/TIME: Communication Date & Time
- PAGE: Total page number for this session
- MODE: Communication speed and ECM mode
- RESULT: Communication result
- TX: T.30 command sent by local Fax
- RX: T.30 command received from remote Fax
- DATA: T.30 frame that include address & control & Data

### Procedure:

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Menu Select key.
3. Select [T.30 PROTOCOL LIST] and press the Menu Select key.

# 8 Fixed Zoom Change

### Function:

The fixed zoom ratios can be changed.

### Procedure:

1. Enter the [SERVICE MODE].
2. Select [FIXED ZOOM CHANGE] and press the Menu Select key.
3. Select the fixed zoom ratio that you wish to change and press the Menu Select key.
4. Use the 10-Key Pad to type in the following metric (or inch) fixed zoom ratio.

### Metric Values

| Setting name | Initial fixed zoom ratio | Setting range |
|---|---|---|
| REDUCTION2 | 70% | 51% to 70% |
| REDUCTION1 | 81% | 71% to 99% |
| EXPANSION1 | 115% | 101% to 140% |
| EXPANSION2 | 141% | 141% to 199% |

### Inch Values

| Setting name | Initial fixed zoom ratio | Setting range |
|---|---|---|
| REDUCTION2 | 64% | 51% to 64% |
| REDUCTION1 | 78% | 65% to 99% |
| EXPANSION1 | 129% | 101% to 153% |
| EXPANSION2 | 154% | 154% to 199% |

# 9 Factory Test

The following tests are only for factory adjustment only and should not be used.

## Signal Test

This test is for factory adjustment only and should NOT be used.

## Relay Test

This test is for factory adjustment only and should NOT be used.

## Sensor Test

This test is for factory adjustment only and should NOT be used.

## Dial Test

This test is for factory adjustment only and should NOT be used.

## Volume Test

Checks the volume of the speaker.

## Panel Buzzer Test

Checks the operation of the display and all indicators and buttons. When the panel buzzer test is finished, press the panel reset key twice.

## RAM Test

Tests reading and writing of RAM memory.

# 10 Clear Data Functions

## SRAM Clear

### Function:

To clear the errors and reset settings for the functions listed below to their default settings.

- MENU: Set to default
- USER SERVICE MODE: Set to default
- DISPLAY: [Print Report] - [TX/RX Result] Clear
- FAX function: Clear
- SERVICE'S CHOICE: Set to default

### Notes:

- Before executing [SRAM CLEAR], be sure to record the setting values that are to be initialized through [SRAM CLEAR].
- For the record of the setting values, it is a good idea to have reports and lists printed.
- Some setting values are not included any of these reports or lists. Be sure to make a note of them separately.
- After [SRAM CLEAR] has been executed, make necessary entries of data again based on the setting values recorded.

# Memory Clear

## Function:

To clear the settings for the functions listed below and return the functions to their default settings:

- SERVICE'S CHOICE: Set to default
- FIXED ZOOM CHANGE: Set to default

## Notes:

- Before executing [MEMORY CLEAR], be sure to record the setting values that are to be initialized through [MEMORY CLEAR].
- For the record of the setting values, it is a good idea to have reports and lists printed.
- Some setting values are not included any of these reports or lists. Be sure to make a note of them separately.
- After [MEMORY CLEAR] has been executed, make necessary entries of data again based on the setting values recorded.

# Maintenance Mode Functions

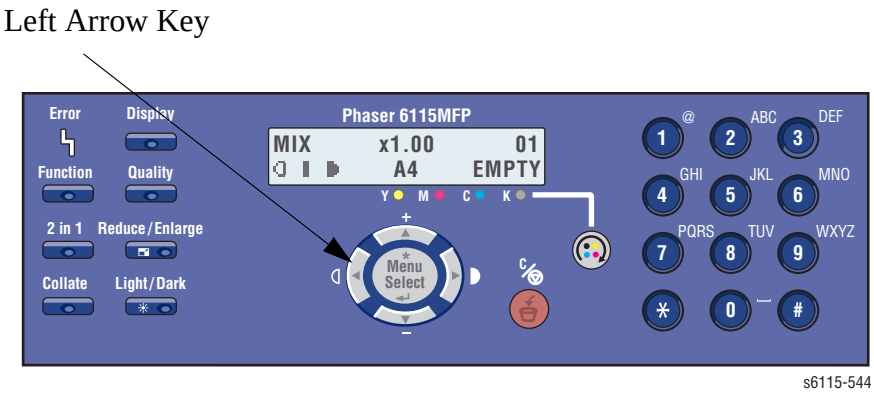
## Maintenance Mode Entry Procedure

**Caution**

Ensure appropriate security for the Maintenance Mode entry procedure. It should NEVER be given to any unauthorized person.

### Procedure:

1. On the initial screen, press the Menu/Select key to call [MACHINE SETUP] to the screen.
2. Press and hold down the Left Arrow key (for at least 2 seconds).

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3. The window will display the following:

   MAINTENANCE
   1. FAX Maintenance
4. Press the down key to locate all command lines in the displayed function tree (page 6-39).
5. Press the down arrow from the subcommand level to locate the desired subfunction. Pressing the Menu/Select key at this level will execute the selected command.

**Note**

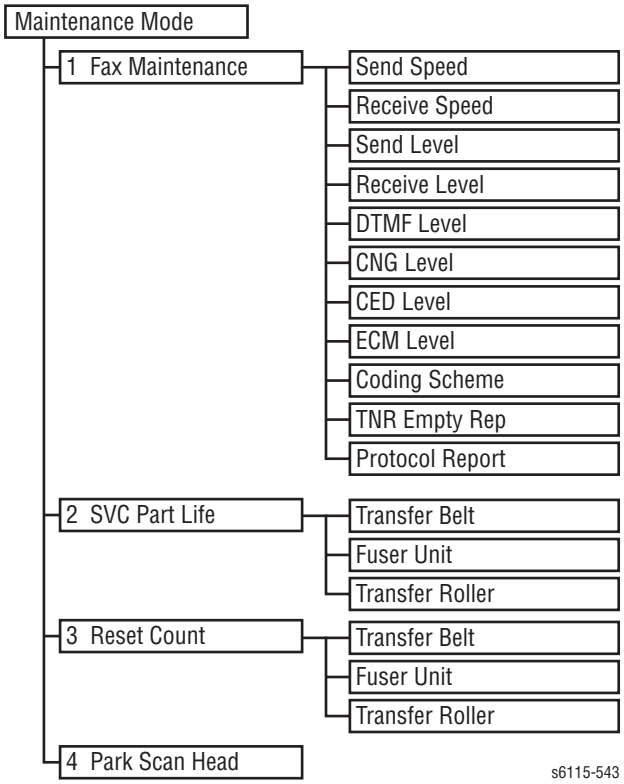
Pressing the Cancel key at any level will bring you up to the previous command level.

### Exiting:

1. Press the Stop key to exit.

## Maintenance Mode Function Tree

The following Maintenance Function tree complies with the format displayed on the control panel screen.




# 1 FAX Maintenance

## Send Speed

### Function:

Transmit start speed setting.

### Settings:

Choose the mode from among the following.

- V.3 (default): 33600 (default), 31200, 28800, 26400, 24000, 21600, 19200, 16800
- V.17: 14400, 12000, 9600, 7200, V.29: 9600, 7200,
- V.27: 4800, 2400

## Receive Speed

### Function:

Sets the reception start speed.

### Settings:

- V.3 (default) 33600 (default), 31200, 28800, 26400, 24000, 21600, 19200, 16800
- V.17: 14400, 12000, 9600, 7200
- V.29: 9600, 7200
- V.27: 4800, 2400

## Send Level

### Function:

Sets the PSK/FSK signal output level.

### Settings:

-17 to -10 dBm or -9 dBm” -8 to -2 dBm. The default setting is “-9 dBm”.

## Receive Level

### Function:

Sets the reception sensitivity level.

### Setting:

-49 to -44 dBm, -43 dBm, or -42 to -36 dBm. The default setting is -43 dBm.

## DTMF Level

### Function:

Sets the Dual tone output level.

### Setting:

-17 to -10 dBm, -9 dBm, or -8 to -2 dBm. The default setting is “-9 dBm”.

## CNG Level

### Function:

Sets the Calling tone output level.

### Setting:

-17 to -12 dBm, -11 dBm, or-10 to -2 dBm. The default setting is “-11 dBm”.

## CED Level

### Function:

Sets the Answer tone output level.

### Setting:

-17 to -12 dBm, -11 dBm, or -10 to -2 dBm. The default setting is “-11 dBm”.

## ECM Mode

### Function:

Selects the error correction mode.

### Settings:

- ON (default): When an error occurs during communication, re-send the frame where the error occurs.
- OFF: Any error is ignored during communication.

## Coding Scheme

### Function:

Selects compression method in the TX/ RX modes.

### Settings:

- MMR: A compression method.
- MR: A compression method.
- MH: The simplest compression method.

- JBIG (default): The most complex compression method that generates the smallest code than any of following ones.

## Toner Empty Report

### Function:

Generates a report to a specific destination when the toner empty status occurs in the engine.

### Settings:

- ON: Generate a report to report destination.
- OFF (default): Not to generate report.

If “ON” is selected, select generate report and send to remote side when toner runs out. Enter the telephone number for which the report is to be produced.

Fax number specifications: An up-to-20-digit number that may consist of [0-9], [*], [#], [pause], and [space]. (0-9, #, *, pause, _)

**Note**

The report will generate after 20 minutes, 24 hours, 48 hours, or 72 hours after the event has occurred or until the condition is gone.

## Protocol Report

### Function:

Prints a communication report.

### Setting:

- OFF (default): Disable T.30 communication report.
- ON: Print T.30 communication report.
- ON (ERROR): Print T.30 communication report when an error occurs.

# 2 SVC Part Life

## Transfer Belt

### Function:

Displays the remaining life of the transfer belt.

### Use:

Use To check the remaining life of the maintenance service parts.

## Fusing Unit

### Function:

Displays the remaining life of the Fusing Unit.

### Use:

Checks the remaining life of the maintenance service parts.

## Transfer Roller

### Function:

Displays the remaining life of the Transfer Roller.

### Use:

Checks the remaining life of the maintenance service parts.

# 3 Reset Count

## Transfer Belt

### Function:

Resets the counter value of the transfer belt unit and executes the image stabilization sequence.

### Use:

Use after the Transfer Belt Unit is replaced.

### Procedure:

1. Enter the Maintenance Mode and call [3. RESET COUNT] to the screen.
2. Select [TRANSFER BELT] and press the Menu/Select key.
3. Press the Menu Select key.
4. Turn OFF the machine's main switch.

When the machine's main switch is turned ON, the image stabilization is automatically executed.

## Fusing Unit

### Function:

Resets the counter value of the Fusing Unit.

### Use:

Use after the Fusing Unit is replaced.

### Procedure:

1. Enter the Maintenance Mode and call [3. RESET COUNT] to the screen.
2. Select [FUSER UNIT] and press the Menu Select key.
3. Press the Menu Select key.

## Transfer Roller

### Function:

Resets the counter value of the Transfer Roller and executes the image stabilization sequence.

### Use:

Use after the Transfer Roller is replaced.

### Procedure:

1. Enter the Maintenance Mode and call [3. RESET COUNT] to the screen.
2. Select [TRANSFER ROLLER] and press the Menu Select key.
3. Press the Menu Select key.
4. Turn OFF the machine's main switch.

When the machine's main switch is turned ON, the image stabilization is automatically executed.

# 4 Park Scan Head

### Function:

Moves the scanner unit to its home position for locking.

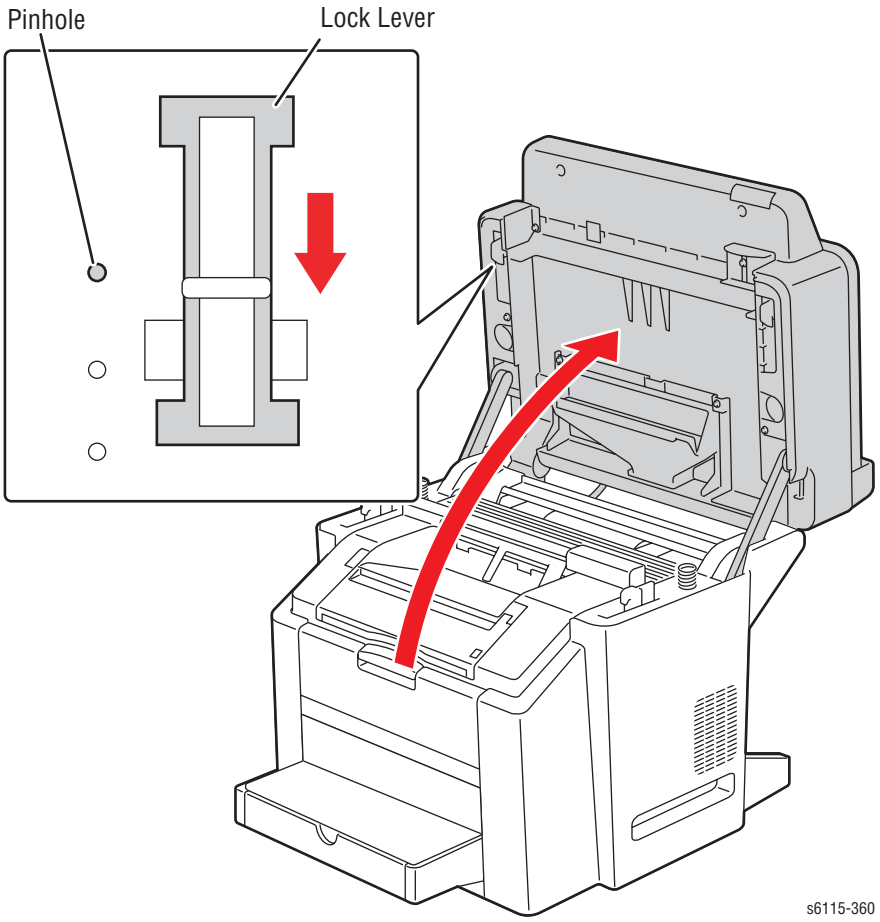
### Use:

When transporting the machine

### Procedure:

1. Enter the Maintenance Mode.
2. Select [Park Scan Head] and press the Menu/Select key.
3. The scanner unit moves to the home position when the start key is pressed.
4. Turn OFF the machine's main switch.

5. Open the Scanner unit. Then, inserting a pin or similar object into the hole at portion [1], lower the lock lever [2].




**Note**

After the transportation of the machine, make sure to unlock the scanner unit by raising the lock lever [2] before turning on the machine's main switch.

# Additional Scanner Adjustment Procedures

## Scanner CD Registration

Adjusts for variations in machining and installation accuracy of different Scanner parts. The adjustment varies the scanning zoom ratio in the main scanning direction.

### When to Use:

- When the original glass is replaced.
- When the scanner unit is with a new one.

## Specification:

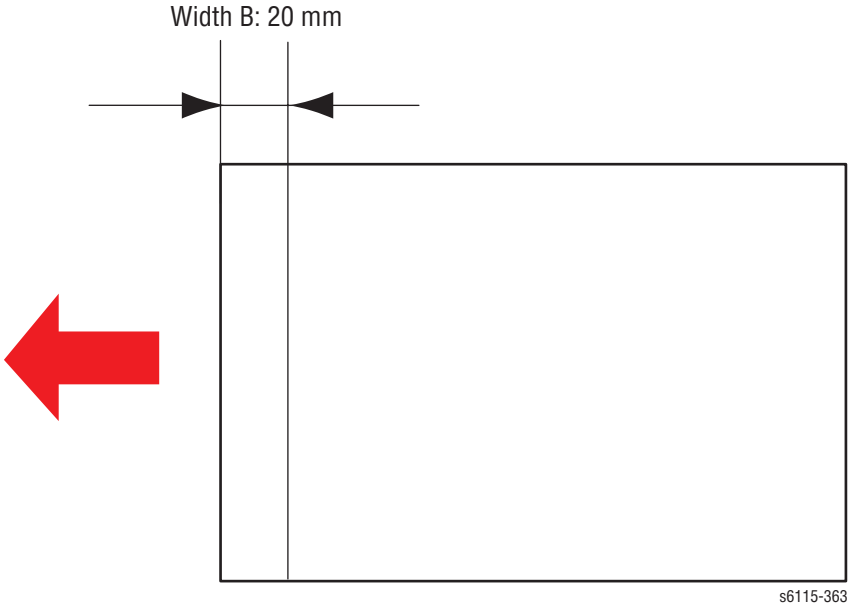
- 20mm +/- 1.0mm

## Adjustment Range:

- The default setting is 0.00.
- Adjustment range: -5.00 (-5.00 mm) ~ “0.00 (0.00 mm)” ~ +5.00 (+5.00 mm).

## Procedure:

1. Complete “PRN Main Regist” on page 6-10.
2. Prepare a chart (A4S or 11 x 8 1/2S) by drawing a reference line on a sheet of paper at a position 20 mm away from the edge as illustrated below.




3. Enter the Service mode.
4. Select [SCANNER CD REGIST] of [1 ADJUST] and press the Menu/Select key.
5. Place the chart on the original glass and press the Start key.
6. Measure dimension A on the copy produced to check to see if it falls within the specified range.
7. Press the Menu/Select key, adjust using the +/- key, and then press the Menu/Select key to validate the setting.
8. Repeat steps 5 to 7 until the measurement of dimension A falls within the specified range.
9. If dimension A on the copy falls outside the specified range:
   a. Increase the setting value if dimension A falls short of the specified range.
   b. Decrease the setting value if dimension A exceeds the specified range.

## Scanner FD Registration

Adjusts for variations in machining and installation accuracy of different Scanner parts. The adjustment varies the scanning zoom ratio in the sub scanning direction.

### When to Use:

- When the original glass is replaced.
- When the scanner unit is with a new one.

### Specification:

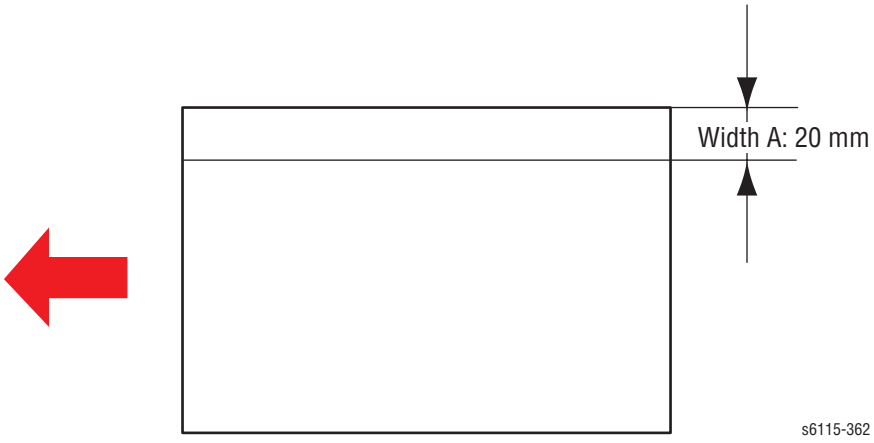
- 20mm +/- 1.0mm

### Adjustment Range:

- The default setting is 0.00.
- Adjustment range: -5.00 (-5.00 mm) ~ “0.00 (0.00 mm)” ~ +5.00 (+5.00 mm).

### Procedure:

1. Complete “PRN Sub Regist” on page 6-11.
2. Prepare a chart (A4S or 11 x 8 1/2S) by drawing a reference line on a sheet of paper at a position 20 mm away from the edge as illustrated below.



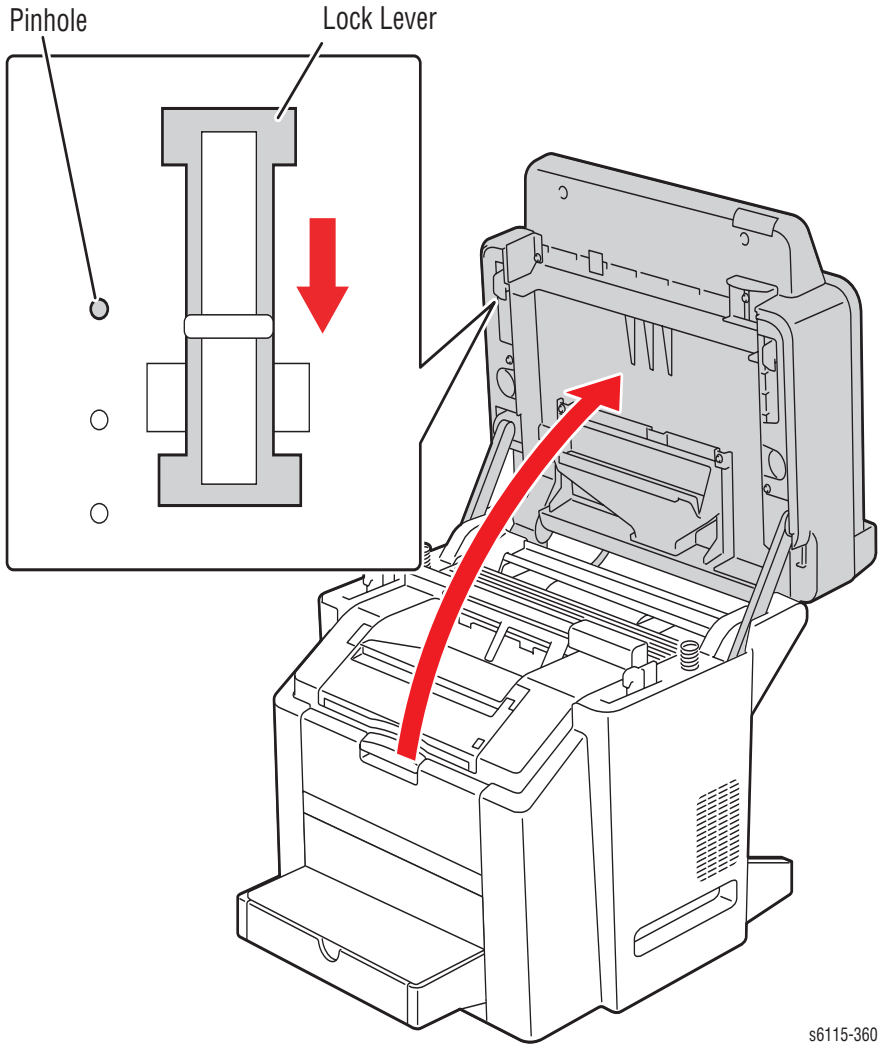

3. Enter the Service mode.
4. Select [SCANNER FD REGIST] of [1 ADJUST] and press the Menu/Select key.
5. Place the chart on the original glass and press the Start key.
6. Measure dimension B on the copy produced to check to see if it falls within the specified range.
7. Press the Menu/Select key, adjust using the +/- key, and then press the Menu/Select key to validate the setting.
8. Repeat steps 5 to 7 until the measurement of dimension A falls within the specified range.

9. If dimension B on the copy falls outside the specified range:
   a. Increase the setting value if dimension B falls short of the specified range.
   b. Decrease the setting value if dimension B exceeds the specified range.

## Scanner Function Setting Procedure

Use this procedure to lock in all scanner functions

1. Open the Scanner unit. Then, inserting a pin or similar object into the hole at portion, lower the lock lever



# Additional ADF Adjustment Procedures

## ADF FD Magnify

Adjusts the scanning zoom ratio in the FD (feed) direction of the Auto Document Feeder Unit.

### When to Use:

■When a new Auto Document Feeder Unit is mounted.

### Specification:

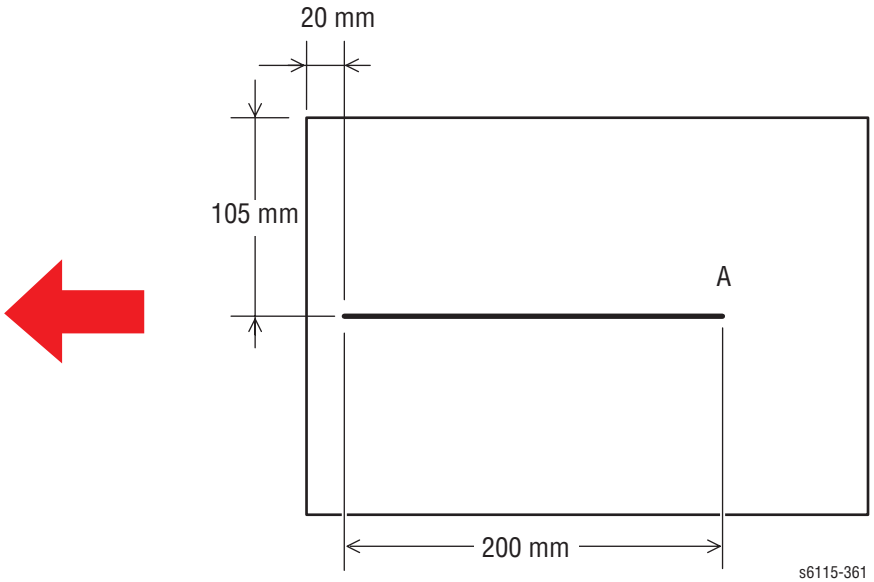
- 200 mm ± 1.4 mm

### Adjustment Range:

- The default setting is 0%.
- Adjustment Range: -5% ~ +5%

### Procedure:

1. Prepare a test chart (A4 or 11 x 8 1/2) as shown below:
   - Draw a 200-mm-long straight line A, starting with a point 20 mm from the left edge and 105 mm from the top edge




2. Enter the SERVICE MODE.
3. Select [ADF FD MAGNIFY] of [1 ADJUST] and press the Menu/Select key.
4. Load the test chart in the ADF and press the Start key.
5. Measure the length of line A on the copy to check that it falls within the specified range.

6. Press the Menu/Select key, adjust the setting value using the +/- key, and then press the Menu/Select key to validate the setting.
7. Repeat steps 4 through 6 until the length of line A falls within the specified range.
8. If dimension A on the copy falls outside the specified range:
   a. Increase the setting value if dimension A falls short of the specified range.
   b. Decrease the setting value if dimension A exceeds the specified range.

## ADF CD Registration

Adjusts the image scan start position in the CD direction of the Auto Document Feeder Unit.

### When to Use:

- When a new Auto Document Feeder Unit is mounted.

### Specification:

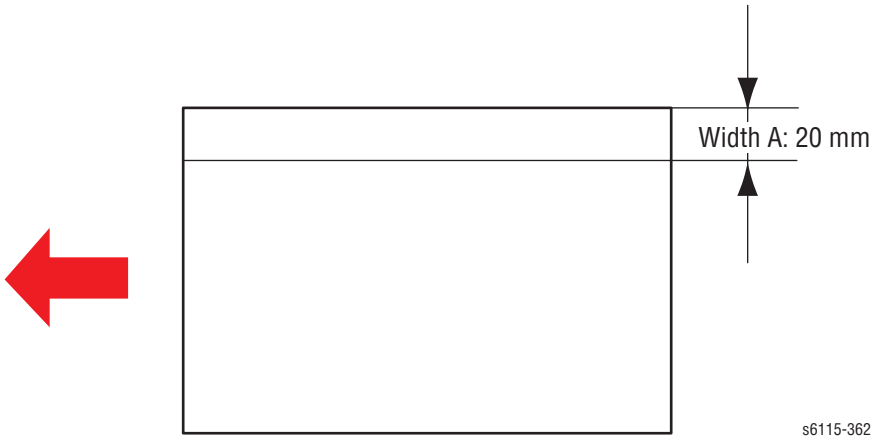
- 20mm +/- 1.0mm

### Adjustment Range:

- The default setting is 0.00.
- Adjustment Range: -5.00 (-5.00 mm) ~ “0.00 (0.00 mm)” ~ +5.00 (+5.00 mm)

### Procedure:

1. Prepare a chart (A4S or 11 x 8 1/2S) by drawing a reference line on a sheet of paper at a position 20 mm away from the edge as illustrated below




2. Enter the SERVICE MODE.
3. Select [ADF CD REGIST] of [1 ADJUST] and press the Menu/Select key.
4. Load the test chart in the ADF and press the Start key.

5. Measure the length of width A on the copy to check that it falls within the specified range.
6. Press the Menu/Select key, adjust the setting value using the +/- key, and then press the Menu/Select key to validate the setting.
7. Repeat steps 4 through 6 until the length of width A falls within the specified range.
8. If dimension A on the copy falls outside the specified range:
   a. Increase the setting value if dimension A falls short of the specified range.
   b. Decrease the setting value if dimension A exceeds the specified range.

## ADF FD Registration

Adjusts the image scan start position in the FD direction of the Auto Document Feeder Unit.

### When to Use:

- When a new Auto Document Feeder Unit is mounted.

### Specification:

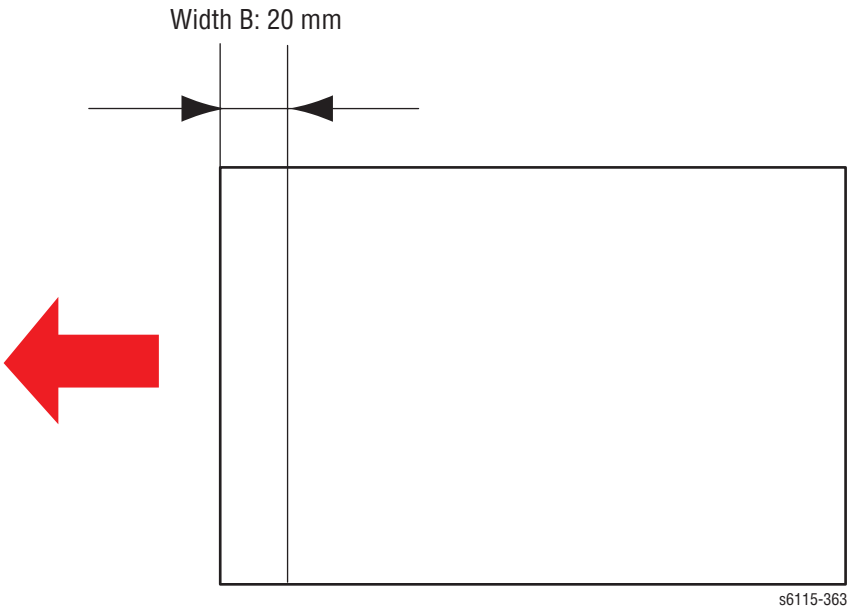
- 20mm +/- 1.0mm

### Adjustment Range:

- The default setting is 0.00.
- Adjustment Range: -5.00 (-5.00 mm) ~ “0.00 (0.00 mm)” ~ +5.00 (+5.00 mm)

### Procedure:

1. Prepare a chart (A4S or 11 x 8 1/2S) by drawing a reference line on a sheet of paper at a position 20 mm away from the edge as illustrated below.




2. Enter the SERVICE MODE.
3. Select [ADF FD REGIST] of [1 ADJUST] and press the Menu/Select key.
4. Load the test chart in the ADF and press the Start key.
5. Measure the length of width B on the copy to check that it falls within the specified range.
6. Press the Menu/Select key, adjust the setting value using the +/- key, and then press the Menu/Select key to validate the setting.
7. Repeat steps 4 through 6 until the length of width B falls within the specified range.
8. If dimension B on the copy falls outside the specified range:
   a. Increase the setting value if dimension B falls short of the specified range.
   b. Decrease the setting value if dimension B exceeds the specified range.

## Leading Edge Skew Adjustment

Adjusts problems associated with leading skew images.

### When to Use:

- when image skew occurs.

### Specification:

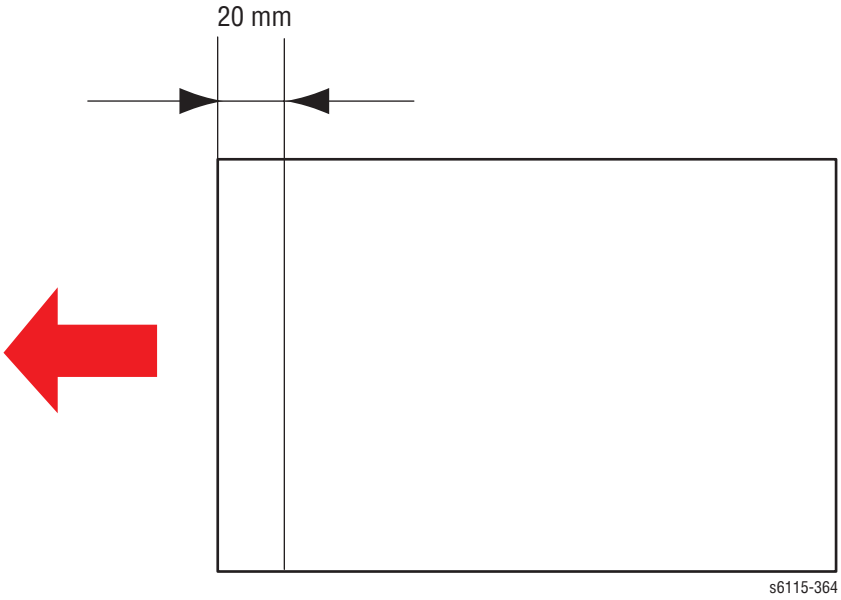
- 10mm +/- 2.0mm

## Adjustment Range:

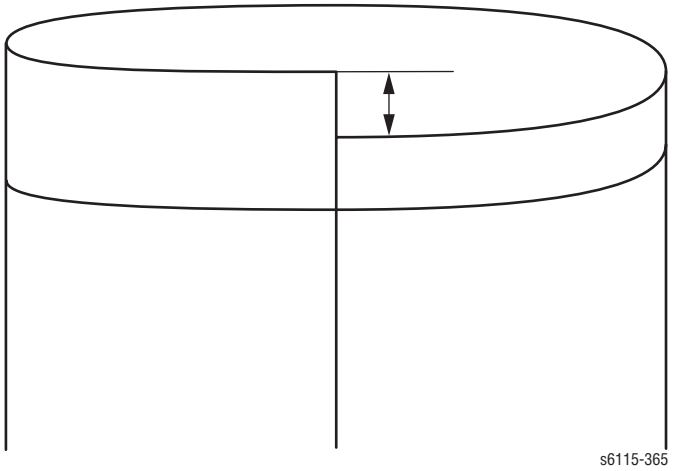
- The default setting is 0.00.
- Adjustment range: -4.00 (-4.00 mm) ~ “0.00 (0.00 mm)” ~ +4.00 (+4.00 mm)

## Procedure:

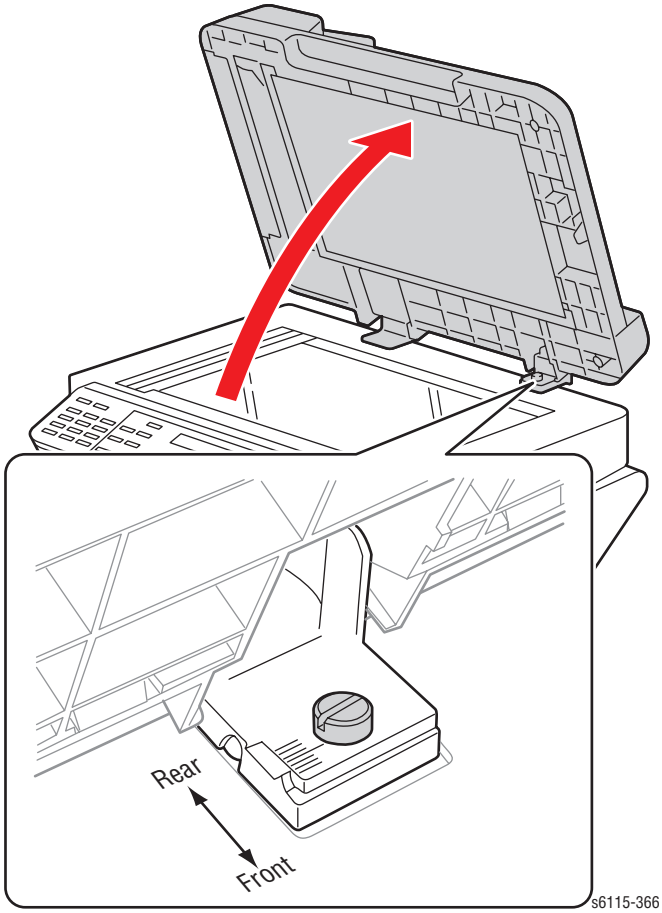
1. Prepare a chart (A4S or 11 x 8-1/2S) by drawing a reference line on a sheet of paper at a position 20 mm away from the edge as illustrated on the left.
2. Load the chart in the Auto Document Feeder Unit and make five 1-sided copies of the chart.




3. Align each copy sample as shown and check the deviation.
4. If the deviation is outside the specified range, perform the adjustment within the specification range of 0 ± 1.0 mm.

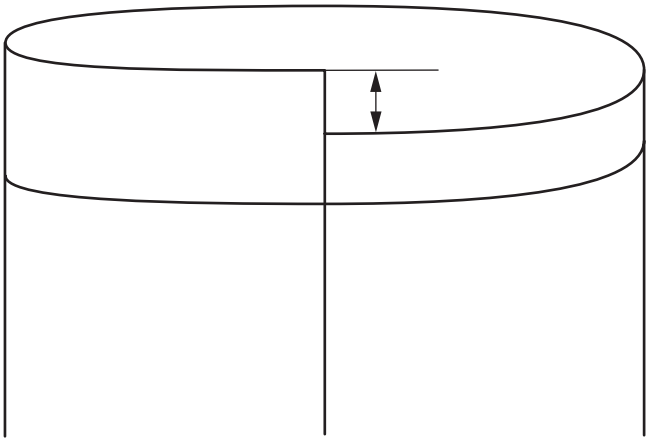


5. Loosen the one screw (wide top, 10mm) in the back to the right.




6. If the deviation is as shown to the left, move the graduations of the duplexing document feeder to the front.

7. Tighten the screw that has been loosened in step 5.



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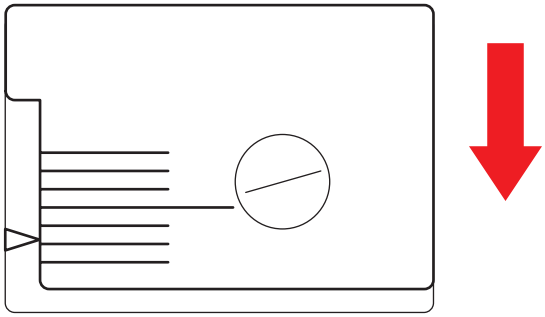

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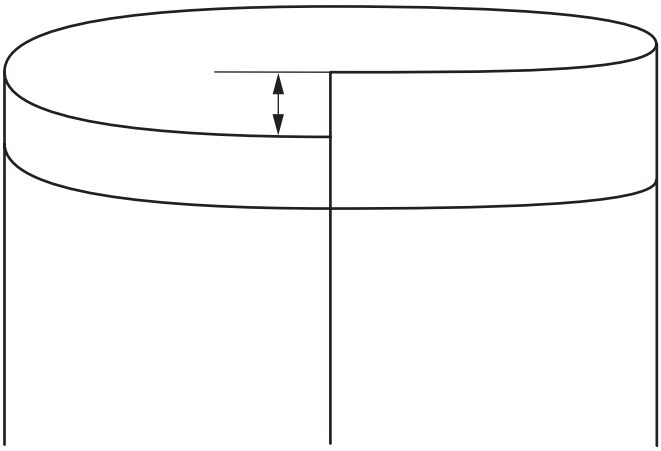
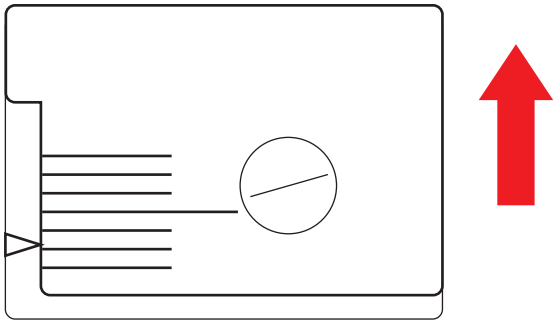
8. If the deviation is as shown to the left, move the graduations of the duplexing document feeder to the back.

9. Tighten the screw that has been loosened in step 5.





# Cleaning and Maintenance

## In this chapter…

- Service Maintenance Procedures
- Consumables/Routine Maintenance Items
- Cleaning Procedures
- Maintenance Replacement Procedures

Chapter 7

# Service Maintenance Procedures

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

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

# Consumables/Routine Maintenance Items

To ensure that the machine produces good print quality and to extend its service life, it is recommended that the maintenance procedures described in this section are followed.

The maintenance parts should be replaced following the quoted page counts in the life expectancy column in the following table.

**Note**

Maintenance conditions are based on A4 or Letter, Standard mode, and Energy Saver.

### User Replaceable and Maintenance Parts

| No | Classification | Part Name | Number of prints | Clean | Replace |
|---|---|---|---|---|---|
| 1 | Processing section | Toner Cartridge * (C, Y, M, K) | 1,500 Standard-capacity<br>4,500 High-capacity | | ● |
| 2 | | Imaging Unit | Monochrome<br>45,000<br>(continuous printing) | | ● |
| | | | Monochrome<br>20,000<br>(3-4 pages per job) | | |
| | | | Full Color<br>11,250<br>(continuous printing) | | |
| | | | Full Color<br>10,000<br>(3-4 pages per job) | | |

| No | Classification | Part Name | Number of prints | Clean | Replace |
|---|---|---|---|---|---|
| 3 | Image Transfer section | Transfer Belt | Monochrome 135,000 (continuous printing) | | ● |
| | | | Monochrome 75,000 (3 pages per job) | | |
| | | | Full Color 33,700 (continuous printing) | | |
| | | | Full Color 28,000 (3 pages per job) | | |
| 4 | | Laser Unit Window | When a print-quality defect is visible. | ● | |
| 5 | Tray1 paper pick-up section | Pick-Up Roller | When a paper jam occurs | ● | |

* The high capacity toner cartridges have a life expectancy of 4,500 printed pages at 5% coverage. Maximum life for the toner cartridge is 6,000 prints. There are components in the cartridge that degrade beyond 6,000 prints.

### Service Replaceable Maintenance Parts (FRU)

| No | Classification | Part name | Number of prints | Clean | Replace |
|---|---|---|---|---|---|
| 1 | Image Transfer section | Transfer Roller | 120,000 | | ● |
| 2 | Fusing section | Fusing Unit | 120,000 | | ● |

### Maintenance Parts Life Count Explanation

| Component | Description | Near Life Value | Life Value |
|---|---|---|---|
| Imaging Unit | The period of time during which the Main Motor is energized is counted. | 43,200 prints | 45,000 continuous prints |
| Fusing Unit | The number of printed pages is counted. | - | 120,000 prints |
| Transfer Roller | The number of printed pages is counted. | - | 120,000 prints |
| Transfer Belt | The period of time during which the Main Motor is rotated and the number of printed pages are both counted. | - | 135,000 continuous prints |
| Toner Cartridge C,M,Y,K * | The number of printed pages compared with the pixel counter value, whichever reaches the life specifications value, is detected. | 1,200 prints | 1,500 prints** |
| | | 3,600 prints | 4,500 prints** |

* Standard-Capacity Toner Cartridges (C,M,Y), High-Capacity Toner Cartridges (C,M,Y,K).

** In the Quality menu you can specify whether to continue or stop printing when there is a toner empty condition.

# Cleaning Procedures

**Note**

This section uses detailed artwork to highlight specific parts. For photographic views of the basic wiring views for this machine, refer to page 10-25.

## Recommended Tools

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

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

**Caution**

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

1. Record number of sheets printed.
2. Print several sheets of paper to check for problems or defects.
3. Turn off the printer.
4. Remove the Toner Cartridges, Imaging Unit, and side covers before cleaning.
5. Ensure that all cover vents are clean and free of obstructions.
6. Remove any debris or foreign objects from the Transfer Roller, Fusing Unit, and Imaging Unit.
7. Vacuum loose toner from the printer interior using a Type II toner vacuum only.
8. Remove and clean the paper trays.
9. Clean all rubber rollers with a lint-free cloth slightly dampened with cold water.

This section describes regular maintenance procedures.

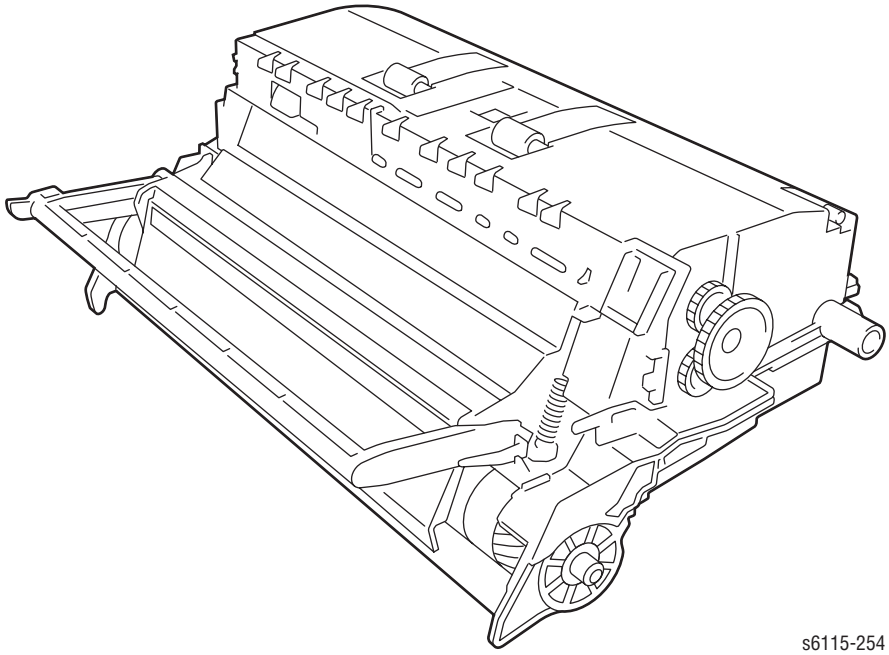
## Paper Feed Roller

1. Pull the lever to release the Scanner Unit.

**Note**

The Scanner Unit cannot be opened with the Auto Document Feeder unit in the raised position.

2. Open the Top Cover (page 8-4)
3. Remove the Imaging Unit (page 8-13).
4. Position the removed Imaging Unit as shown.



s6115-254

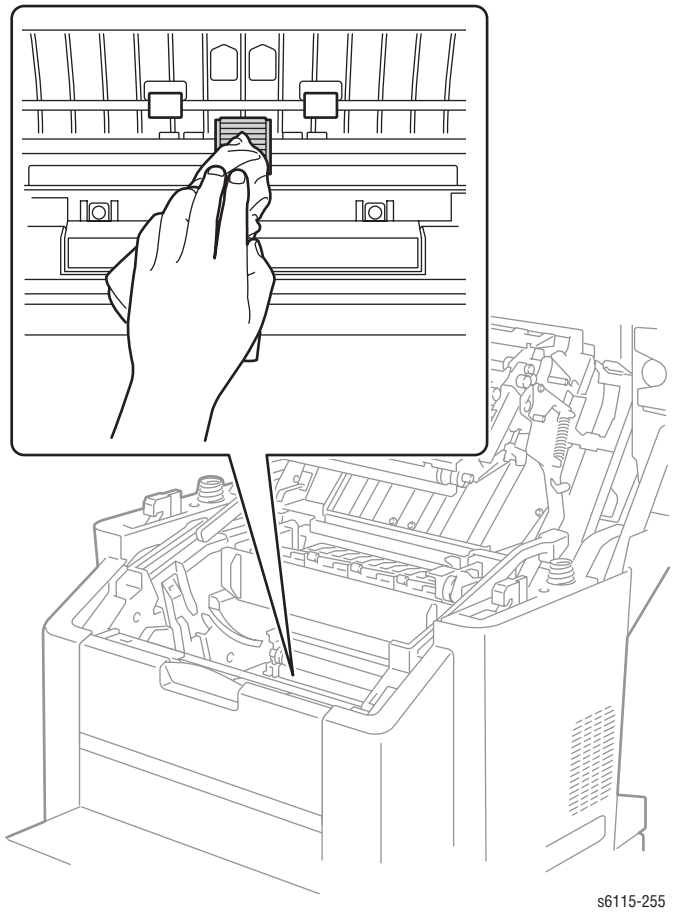
**Note**

Be sure to keep the Imaging Unit horizontal and place it where it will not become dirty.

**Note**

Do not leave the Imaging Unit removed for more than 15 minutes, and do not place the removed Imaging Unit in a location where it will be exposed to direct light (such as sunlight).

5. Using a soft cloth dampened with alcohol, wipe any dirt or dust from the pick up roller.




## Laser Window

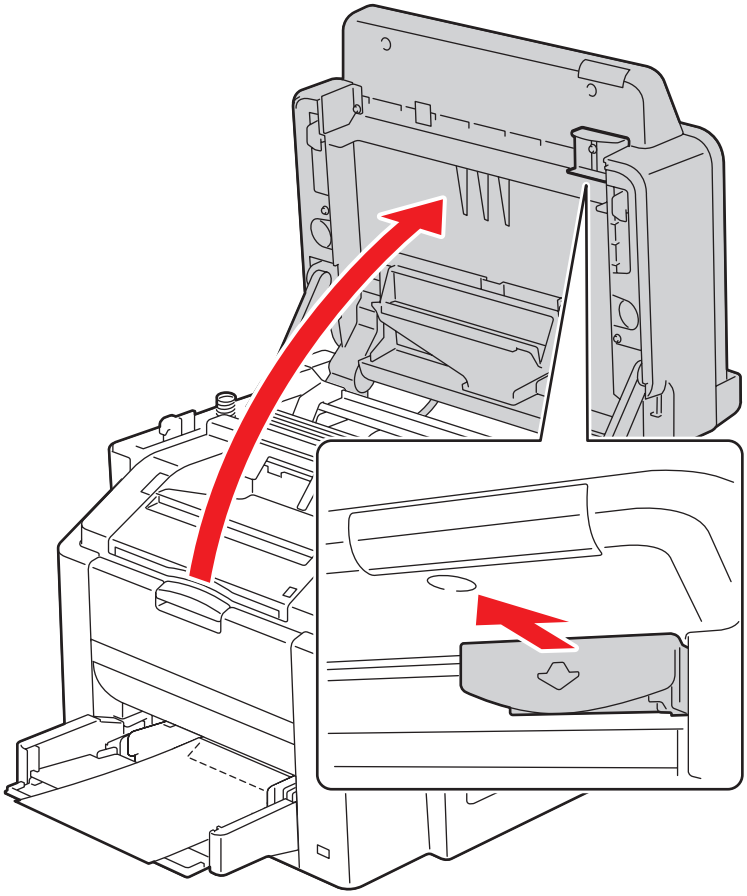
1. Pull the lever to release the Scanner Unit.

**Note**

The Scanner Unit cannot be opened with the Auto Document Feeder unit in the raised position.

2. Open the Top Cover (page 8-13).

3. Remove the Imaging Unit (page 8-13).

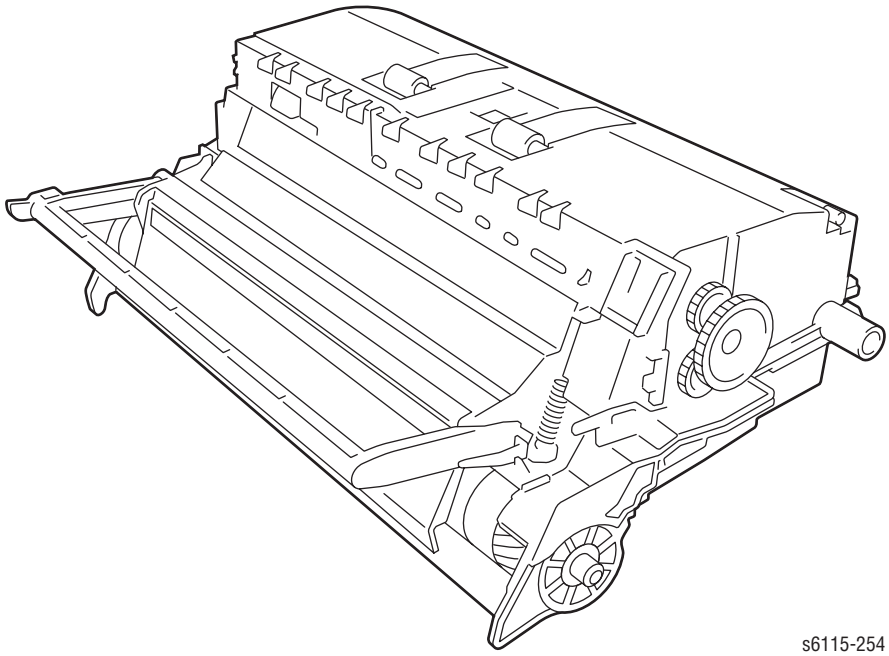


s6115-257

4. Position the removed Imaging Unit as shown below.

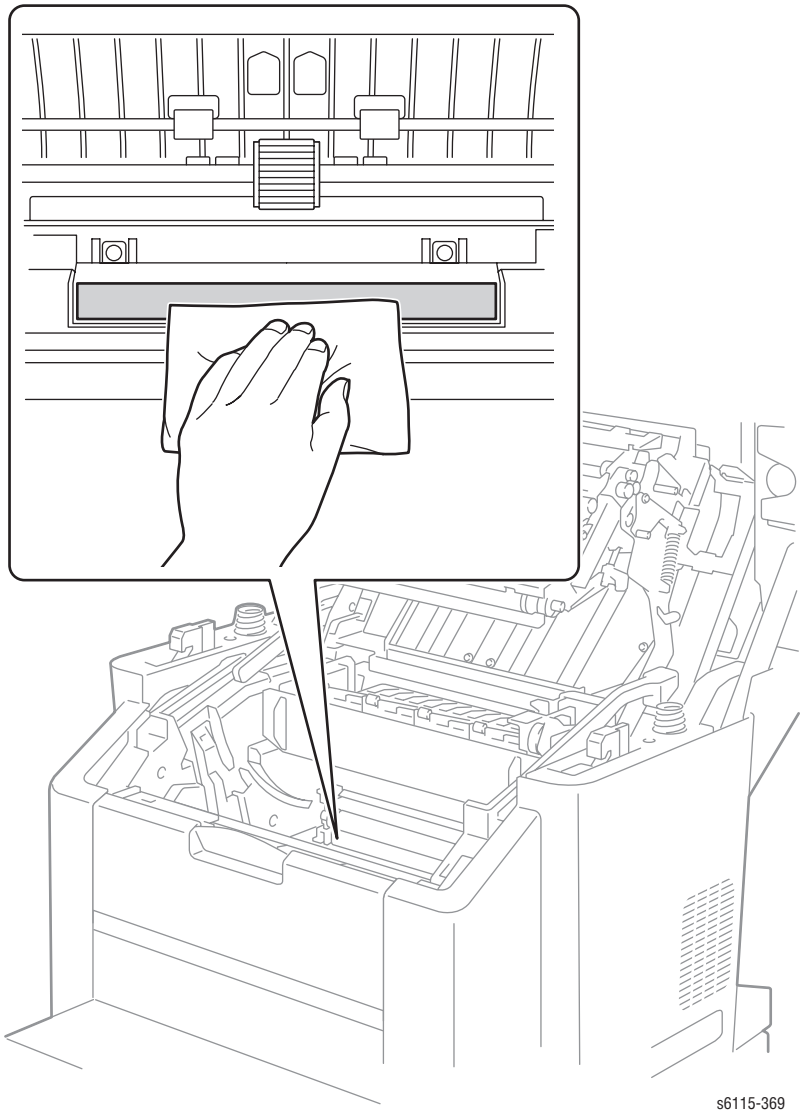
**Note**

Be sure to keep the Imaging Unit horizontal and place it where it will not become dirty.



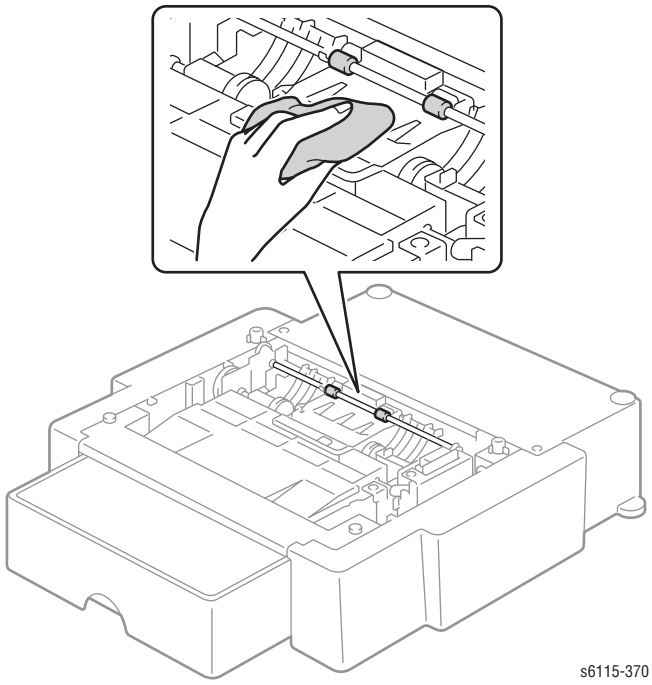
s6115-254

5. Using a soft cloth dampened with alcohol, clean the Laser window.



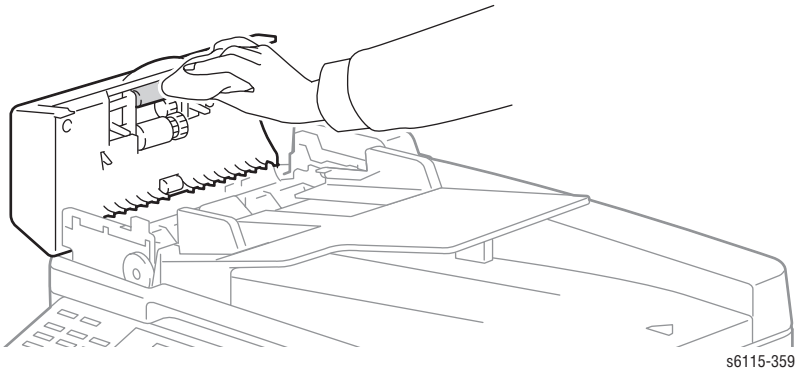
## 500-Sheet Feeder Paper Pick-up Roller

1. Remove the 500-Sheet Feeder Unit from the main unit (page 8-125).
2. Wipe the Paper Pick-up Roller clean of dirt using a soft cloth dampened with alcohol.



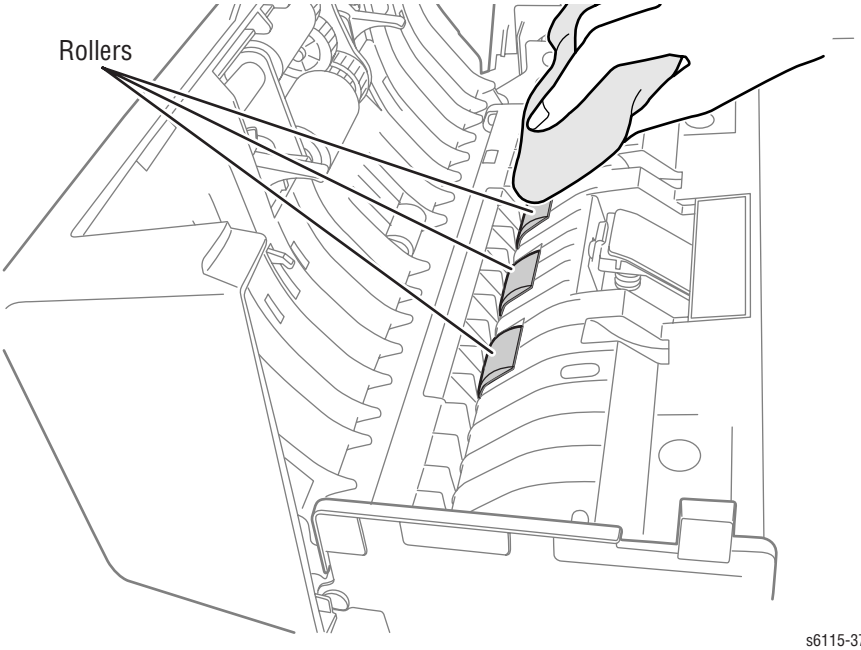

## ADF Pick Up Roller

1. Open the Top Cover.
2. Wipe the Pick-up Roller clean of dirt using a soft cloth dampened with alcohol.



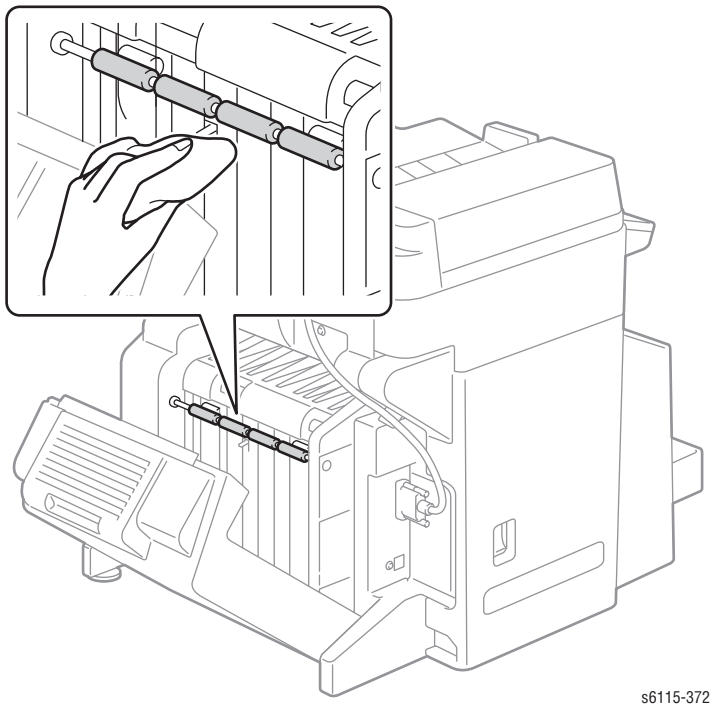
## ADF Registration Roller

1. Open the Top Cover.
2. Wipe the Registration Rollers clean of dirt using a soft cloth dampened with alcohol.




## Duplexer Transport Roller

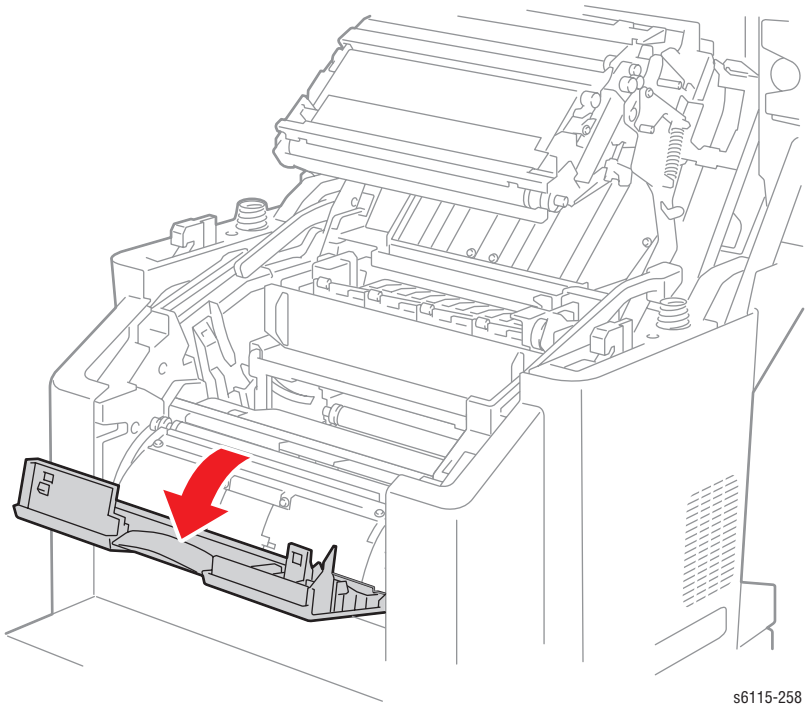
1. Open the duplex door.
2. Using a soft cloth dampened with alcohol, wipe the transport roller clean of dirt.



# Maintenance Replacement Procedures

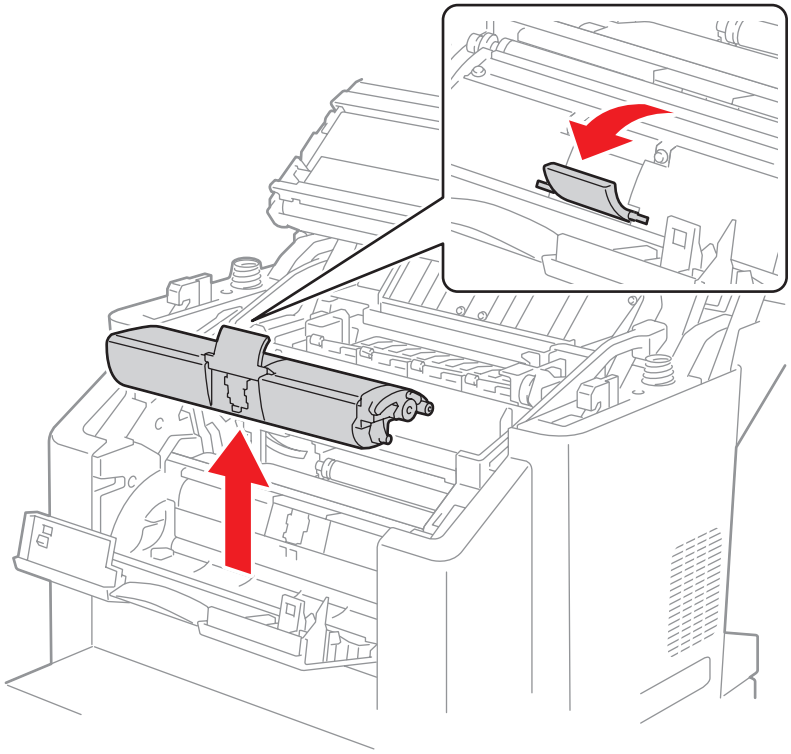
## Toner Cartridge Removal

1. Check the color of the Toner Cartridge to be replaced on the control panel.
2. Press the TC Changer key until the color of the toner cartridge to be replaced with a new one is displayed.
3. Open the top cover (page 8-4).
4. Open the front cover and make sure that the specific Toner Cartridge to be replaced is in the front.



s6115-258

5. Hold onto the handle of the Toner Cartridge and pull to remove it.

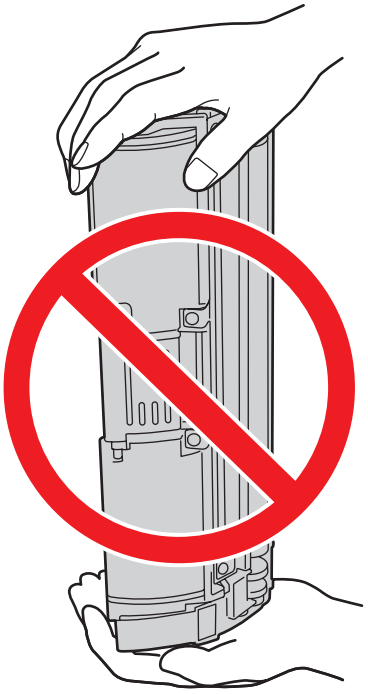


s6115-259

**Note**

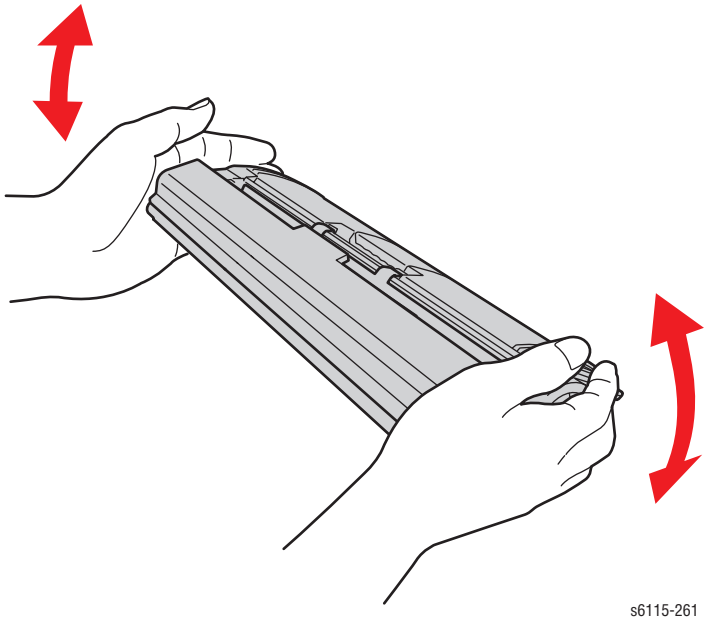
When you use the remaining instructions to reinstall a new Toner Cartridge, do not let the cartridge stand on end or keep it in that position.

6. Prepare a new Toner Cartridge.



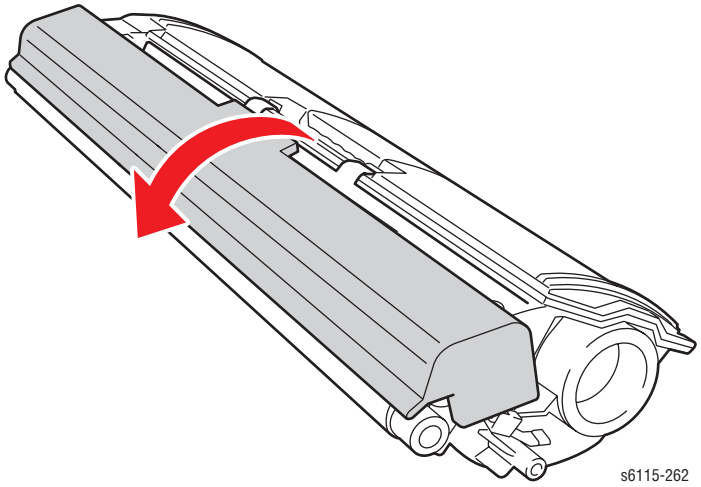
s6115-260

7. Shake the cartridge a few times to distribute the toner.



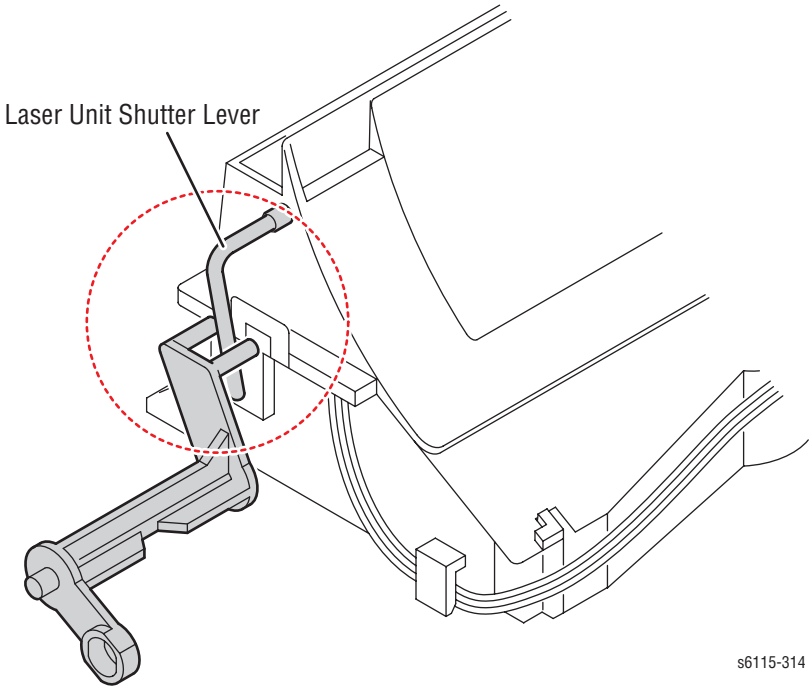
s6115-261

8. Remove the protective cover.



s6115-262

9. Aligning the shaft on both sides of the Toner Cartridge with the rails in the machine, install the cartridge.

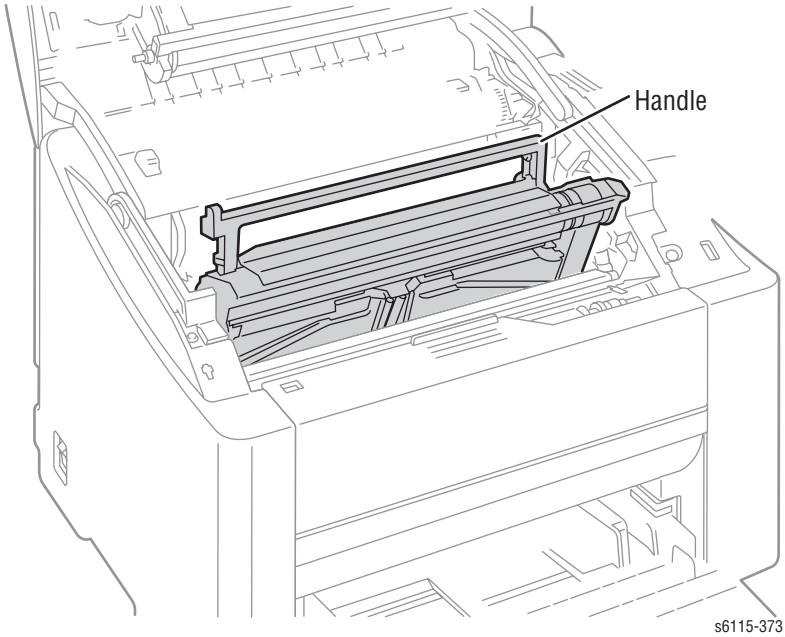



10. Press down on the Toner Cartridge until it snaps into place.
11. Close the Front Cover.
12. Close the Top Cover.

# Imaging Unit

## Replacement Procedure

1. Open the Top Cover (page 8-4).
2. Hold onto the handle of the Imaging Unit and slowly lift the Imaging Unit out of the machine.




3. To reinstall, reverse the order of removal.

**Note**

There is a first-use fuse. Once you have installed the imaging unit, the fuse is blown. If you are using a new imaging unit to troubleshoot a print-quality problem, the fuse can be removed until you confirm that the imaging unit is the cause of the defect.

**Replacement Note**

Remember to re-install the fuse so the life counter will work.

# Service Parts Disassembly

## In this chapter...



Chapter 8

# Overview Of Disassembly Procedures

This section contains the removal procedures for field-replaceable parts of the printer listed in the Parts List. In most cases, the replacement procedure is simply the reverse of the removal procedure. In some instances, additional steps are necessary and are provided for replacement of the parts. For specific assemblies and parts, see the "Parts List" on page 9-1.

**Note**

This section uses detailed artwork to highlight specific parts. For photographic views of the basic wiring views for this machine, refer to page 10-25.

## 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 Imaging Unit 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 Fusing Unit or wait at least 5 minutes after you have switched Off the 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.

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

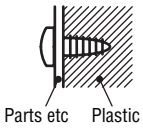
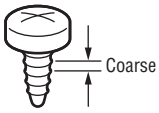
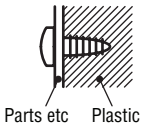
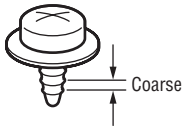
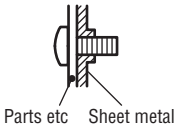
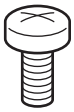
**Warning**

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

## Fastener Types

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

### Posi-Drive Screw Types used in the Printer

| Type | Application | Shape | Characteristics |
|---|---|---|---|
| Self-tapping, plastic |  |  | 1. Silver colored<br>2. Screw thread is coarse compared to metal screw.<br>3. Screw tip is thin. |
| Self-tapping, plastic with flange |  |  | 1. Silver colored<br>2. It has a flange.<br>3. Screw thread is coarse compared to metal screw.<br>4. Screw tip is thin |
| Sheet Metal, silver |  |  | 1. Silver colored<br>2. Diameter is uniform<br>3. Typically 6 mm in length |

**Caution**

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

## Notations in the Disassembly Text

- The notation “(item X)” points to a numbered callout in the illustration corresponding to the disassembly procedure being performed.
- The notation “PL*X.X.X*” indicates that this component is listed in the Parts List.
- Bold arrows in an illustration show direction of movement when removing or replacing a component.
- The notation “(self-tapping, plastic 10 mm)” or “(metal, 6 mm)” refer to the type of screw being removed.

**Note**

Provides information specific to the replacement of parts or assemblies.

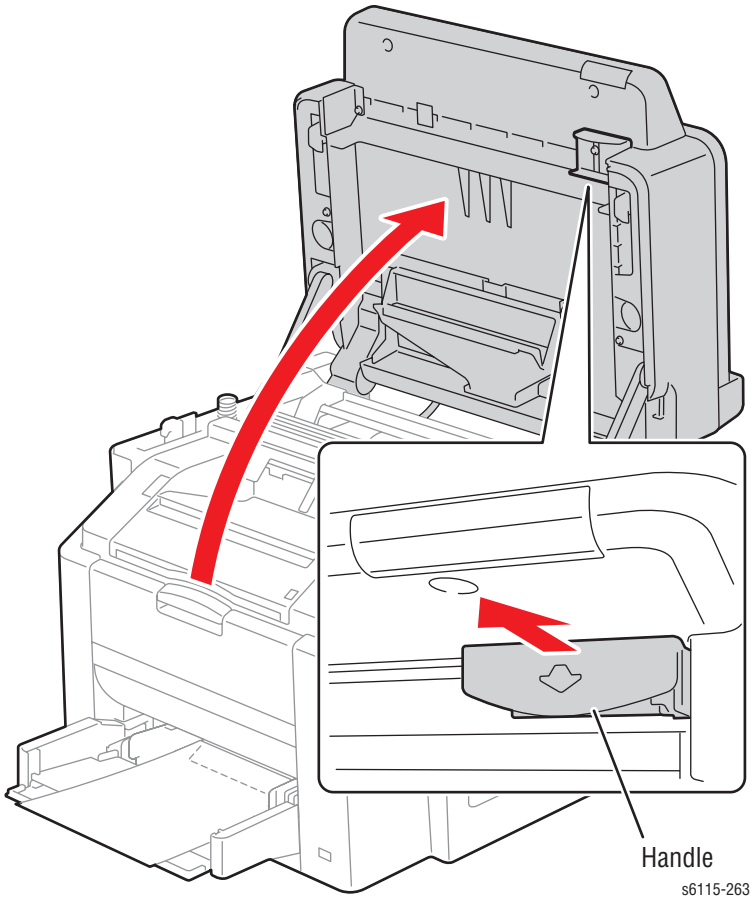
# Cover Disassembly Procedures

## Top Cover (PL4.1.3)

1. Pull the lever of the Scanner Unit Cover to open.

**Caution**

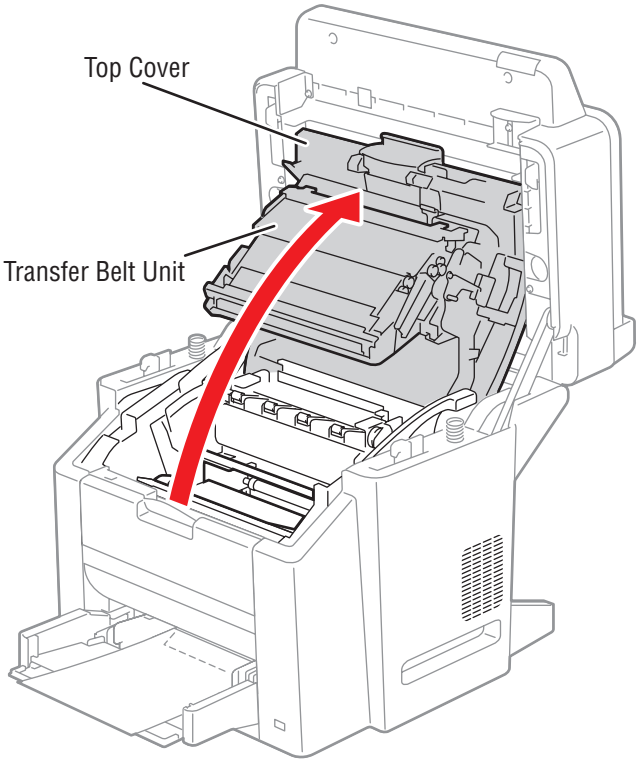
Keep the platen lid closed or the lever will not operate.



2. Pull the lever of the top cover and lift to open.

**Caution**

When working on the printer with the cover open, be careful *not* to touch the Transfer Belt.



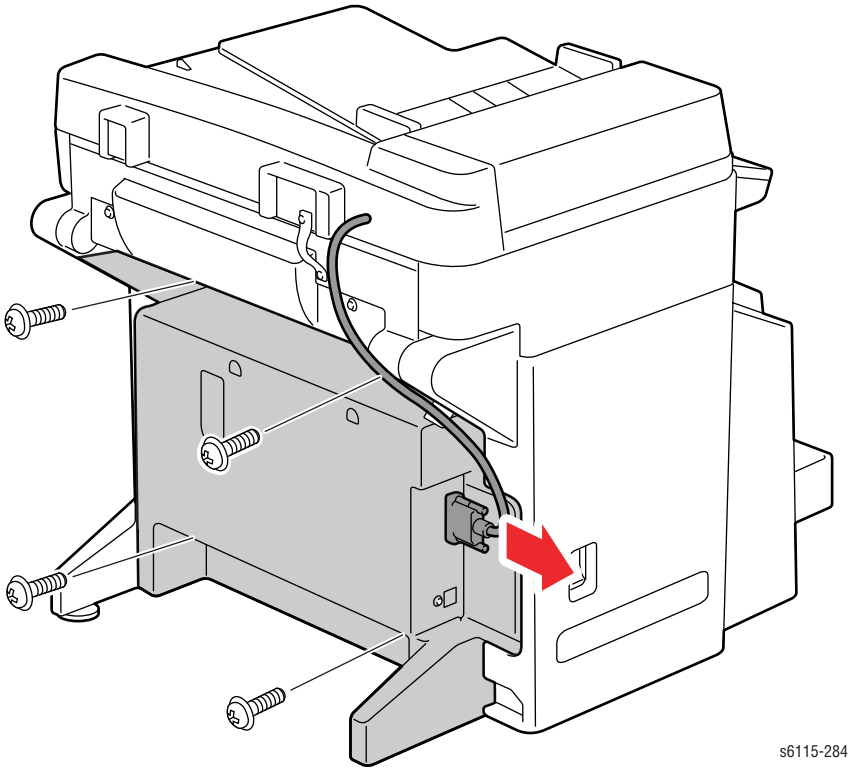

s6115-043

# Rear Cover (PL2.1.1)

**Caution**

Removing the cover also removes one foot from the printer. Be careful not to lean on the printer.

1. Lift the Scanner Unit Cover. This will allow you to free the Rear Cover in a later step.
2. Disconnect the ADF hookup cable.




3. Remove 3 screws (metal, 10mm).
4. Remove the cover. You may need to press in the top left and top right side of the cover to remove.

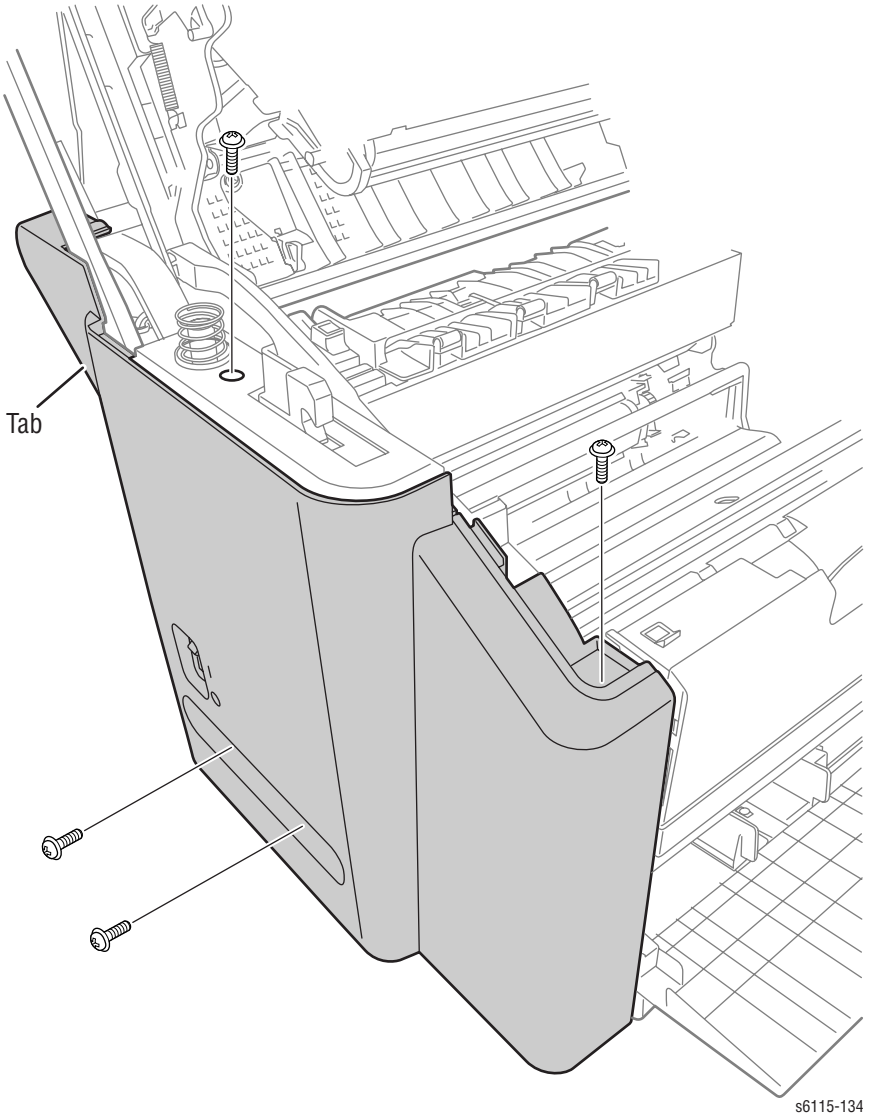
## Left Cover (PL2.1.13)

1. Lift the Top Cover (page 8-4).
2. Remove the Rear Cover (page 8-6).
3. Remove 4 screws (metal, 10mm).
4. Partially close the Top Cover to expose the tab.

**Caution**

Use care not to break the tab during removal and reinstallation of the Left Cover.

5. Release the tab to remove the Left Cover.

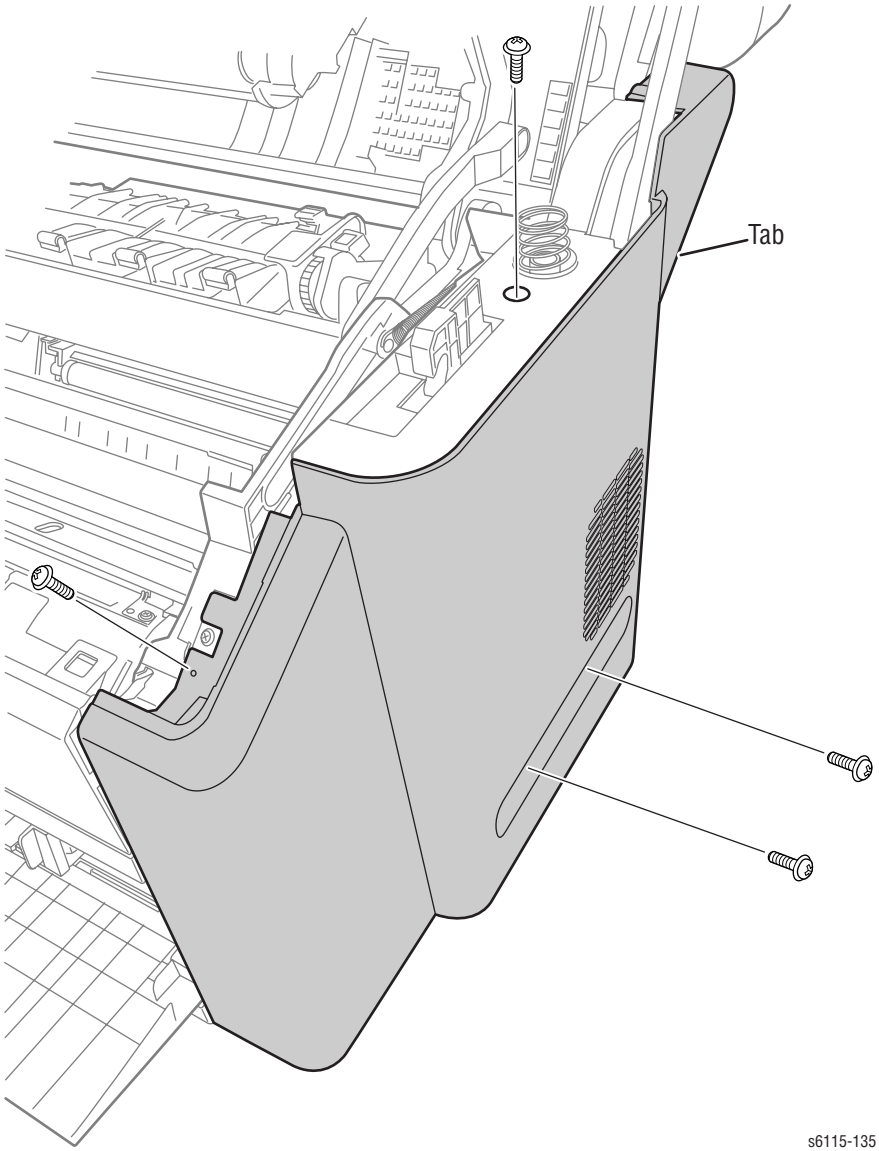


# Right Cover (PL2.1.10)

**Caution**

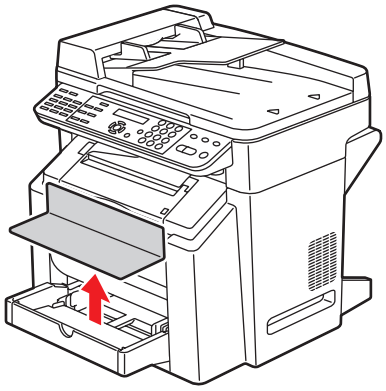
Use care not to break the tab during removal and reinstallation of the Right Cover.

1. Open the Top Cover (page 8-4).
2. Remove the Rear Cover (page 8-6).
3. Remove 3 screws (metal, 10mm).
4. Pull the cover slightly from the top-right side to release the tab.
5. Remove the Right Cover.



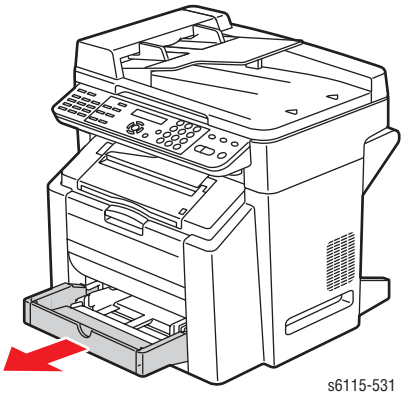
## Tray 1 and Cover (PL4.21.1)

1. Remove the Tray 1 cover lid (and any paper left in the tray).



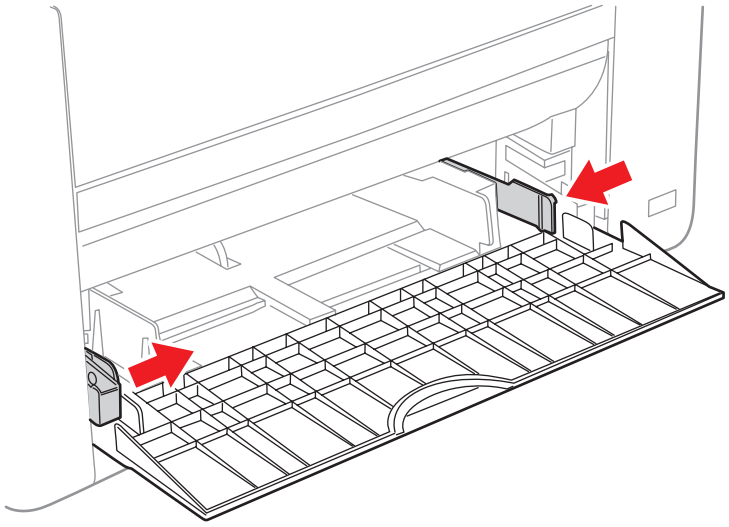
s6115-530

2. Push in on each side of the plastic tray to release and remove the Paper Holder.



s6115-531

3. Gently pry one side of the Tray 1 cover hinge to remove the cover.



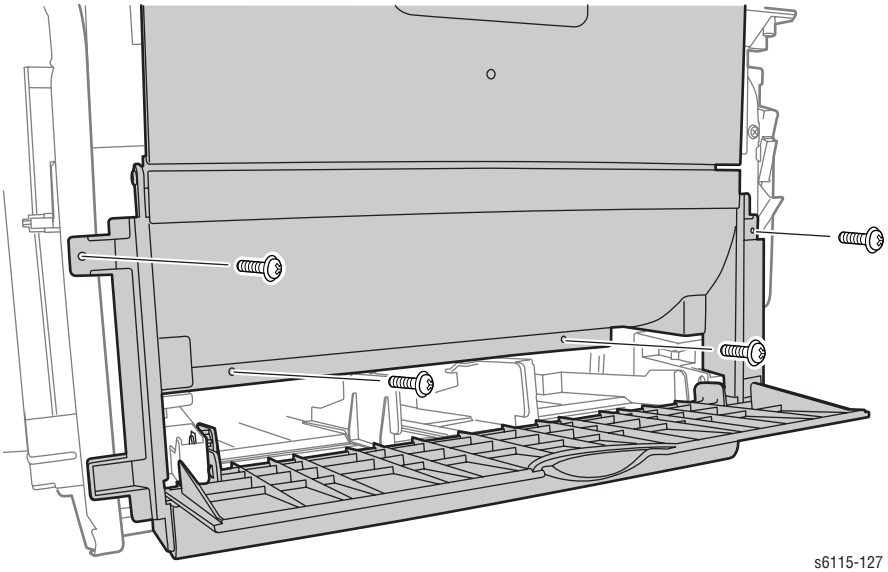
s6115-286

# Front Cover (PL2.1.12)

**Caution**

When removing and reinstalling the Front Cover, use care not to touch the Developing Roller of the Toner Cartridge.

1. Open the Top Cover (page 8-4).
2. Remove the Rear Cover (page 8-6).
3. Remove the Left Cover (page 8-7).
4. Remove the Right Cover (page 8-8).
5. Before removing the Front Cover, reposition the Tray 1 Paper Guides to provide access to the screws.
6. Remove 2 screws (metal, 10mm) near the bottom of the cover, and 1 more screw (metal, 10mm) on each side of the frame.
7. Remove the Front Cover.



s6115-127

**Replacement Note**

When remounting the Front Cover, make sure that both hooks are properly fitted in position.

When tightening the screws, make sure that there is no clearance between the machine frame and Front Cover. If there is any clearance, press the cover against the frame while tightening the screws.

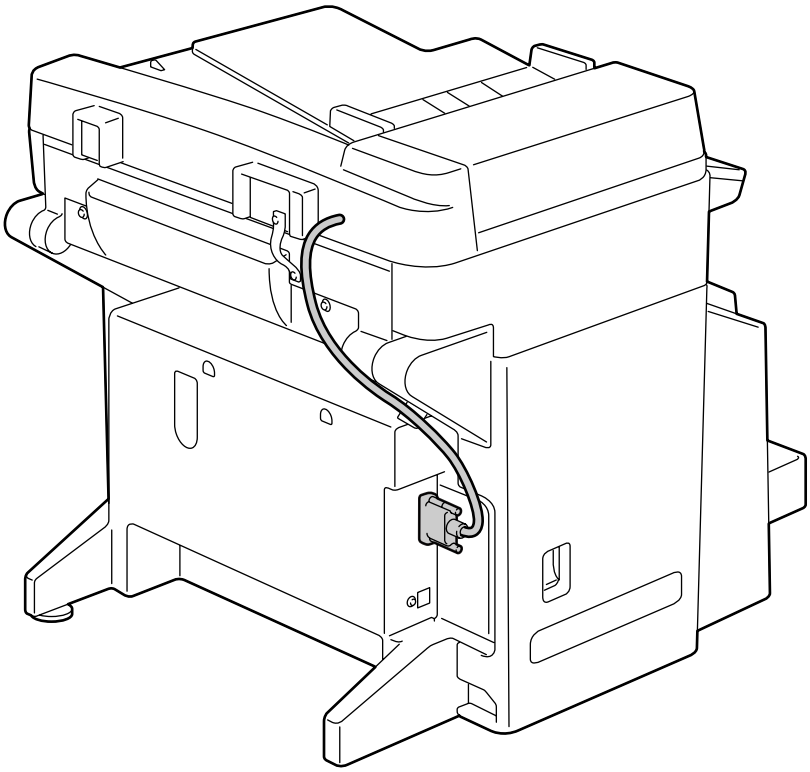
# Unit Disassembly Procedures

## Auto Document Feeder Unit (PL1.1.1)

1. If the printer includes a Duplex Unit, follow the instruction for removing it (page 8-134).
2. Disconnect the ADF hookup cable.

**Caution**

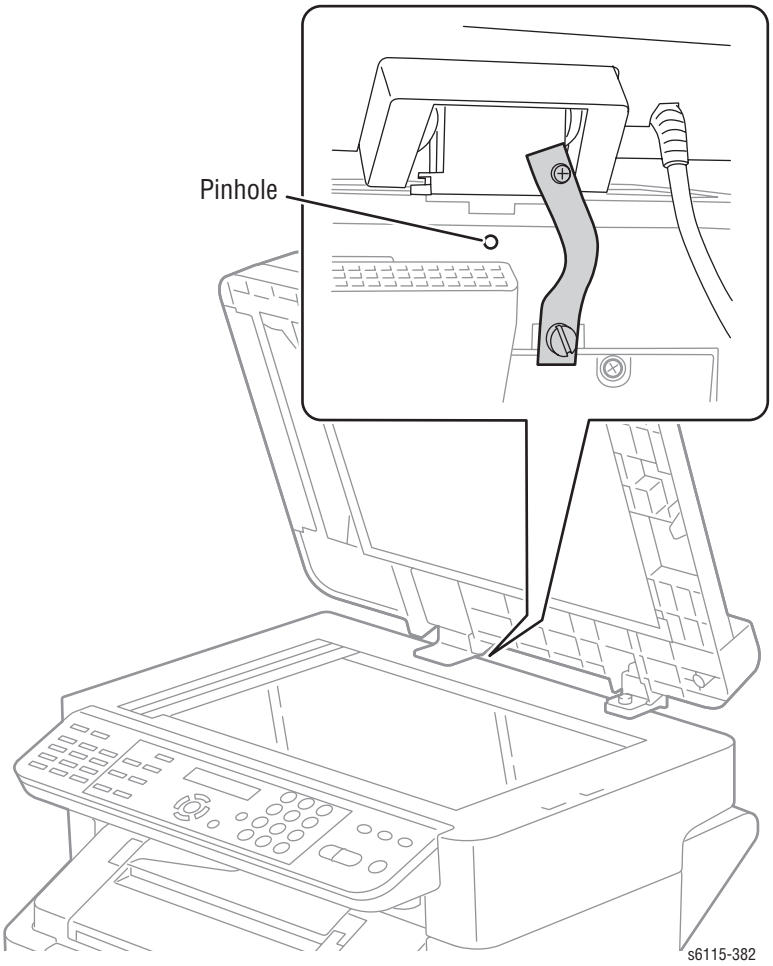
NEVER disconnect and reconnect the ADF hookup cable with the power switch turned ON, as a damaged Image Processing Board could result.



s6115-381

3. Make sure the Auto Document Feeder Unit is closed.

4. Remove the large silver mounting screw (self-tapping, 12mm).




5. While inserting a pin or small screwdriver into the hole, carefully lift and remove the Auto Document Feeder Unit.

**Replacement Note**

Make the following adjustments (in order) when a new Auto Document Feeder Unit has been mounted:

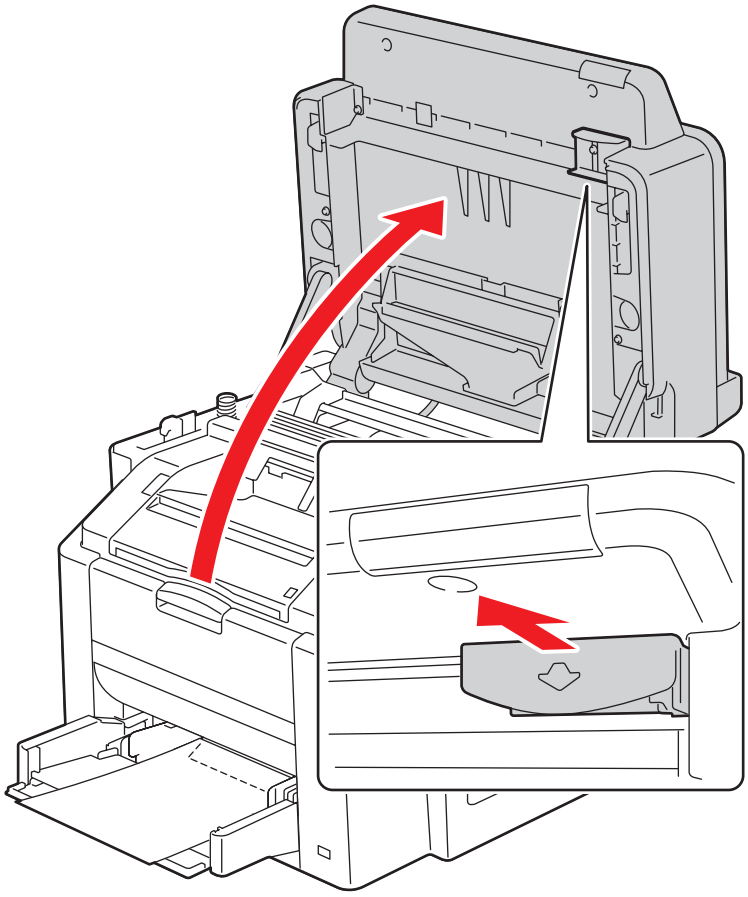
| |
|---|
| 1. Perform an ADF SUB ZOOM (page 6-18). |
| 2. Perform an ADF MAIN REGIST (page 6-19) |
| 3. Perform a ADF SUB REGIST (page 6-20). |
| 4. Perform a ADF FD MAGNIFY (page 6-50). |
| 5. Perform a ADF CD REGIST (page 6-51). |
| 6. Perform a ADF FD REGIST (page 6-51). |
| 7. Perform a leading edge skew adjustment (page 6-53). |

## Imaging Unit (PL4.15.9)

1. Pull the lever to release the Scanner Unit.
2. Open the Top Cover (page 8-4).

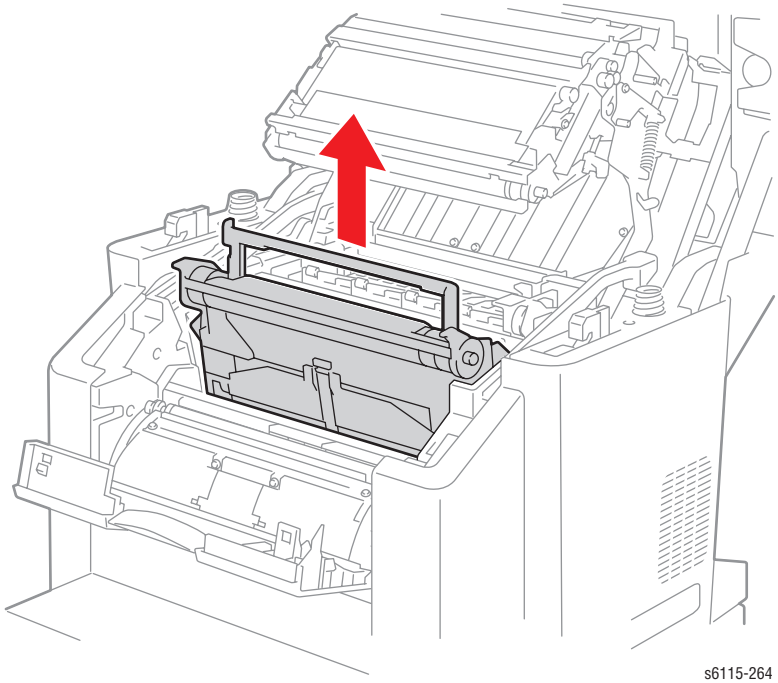
**Note**

The Scanner Unit cannot be opened with the Auto Document Feeder unit in the raised position.



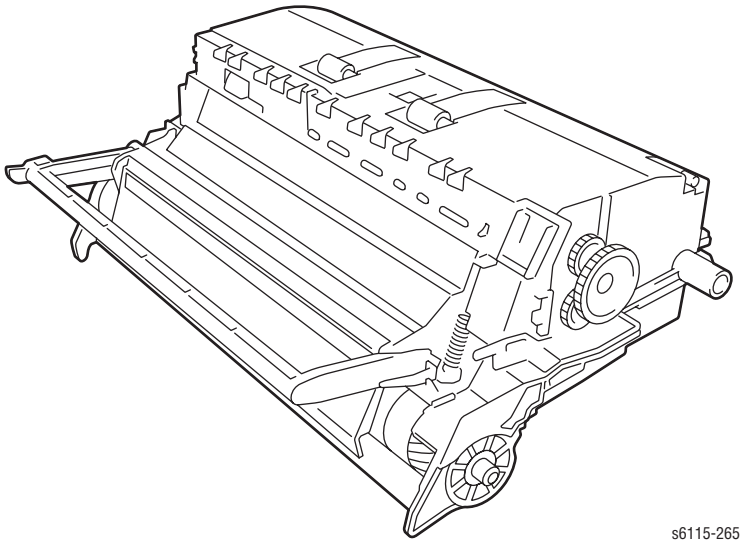
s6115-257

3. Hold onto the handle of the Imaging Unit and slowly lift out of the machine.



s6115-264

4. Position the removed Imaging Unit as shown in the illustration below.



s6115-265

**Note**

Do not expose the Imaging Unit to light for more than 15 minutes, and do not place the unit in a location where it will be exposed to direct light (such as sunlight).

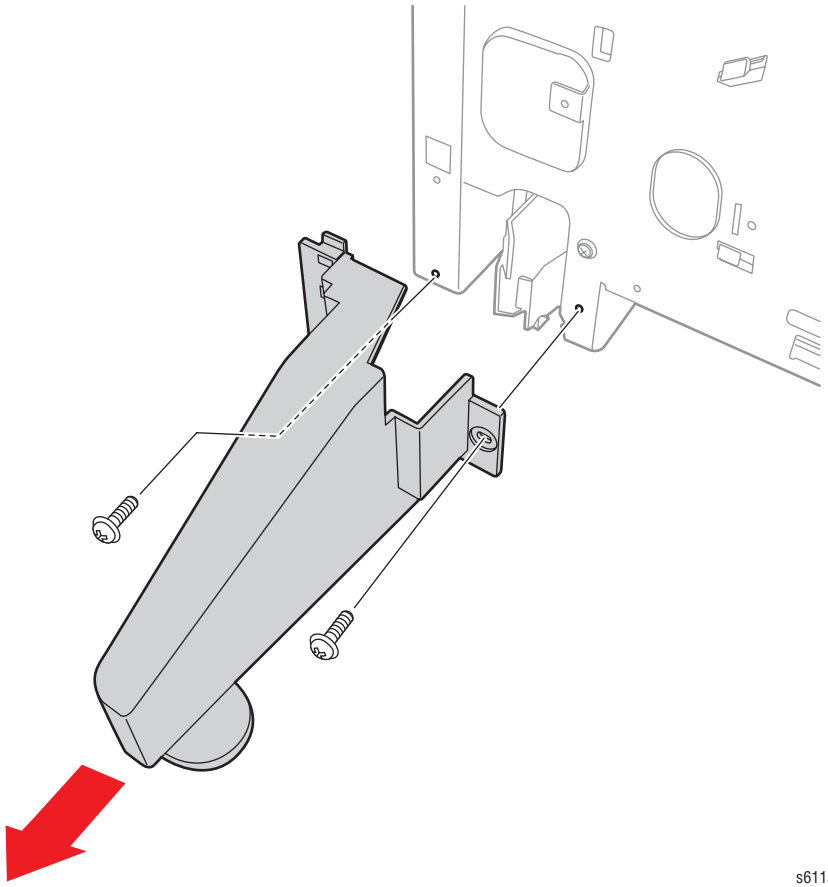
# Laser Unit (PL4.14.1)

**Note**

Ensure that the power is turned off and the power cord is disconnected from the printer before performing this procedure.

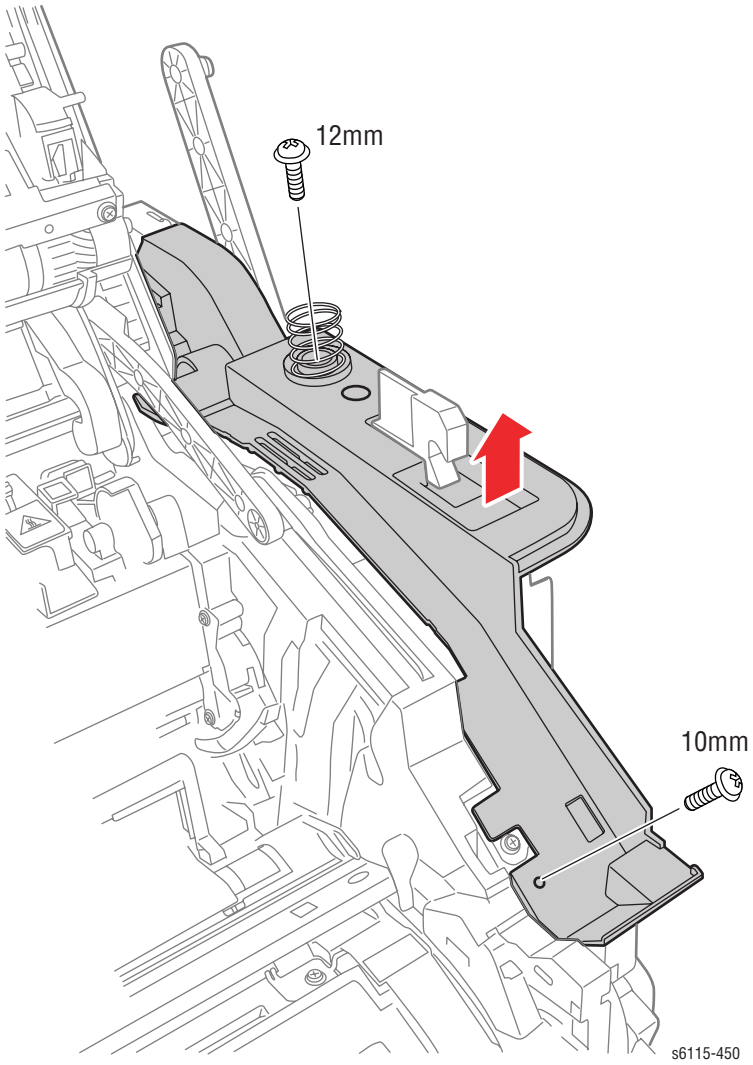
Do not attempt to disassemble or adjust the Laser Unit.

1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Right Cover (page 8-8).
4. Remove the Front Cover (page 8-10).
5. Remove the Scanner Unit (page 8-25).
6. Remove two screws (metal, 10mm) and the fixing base foot.



s6115-434

7. Remove 2 screws (one metal, 10mm, and one metal, 12mm) from the top right cover.

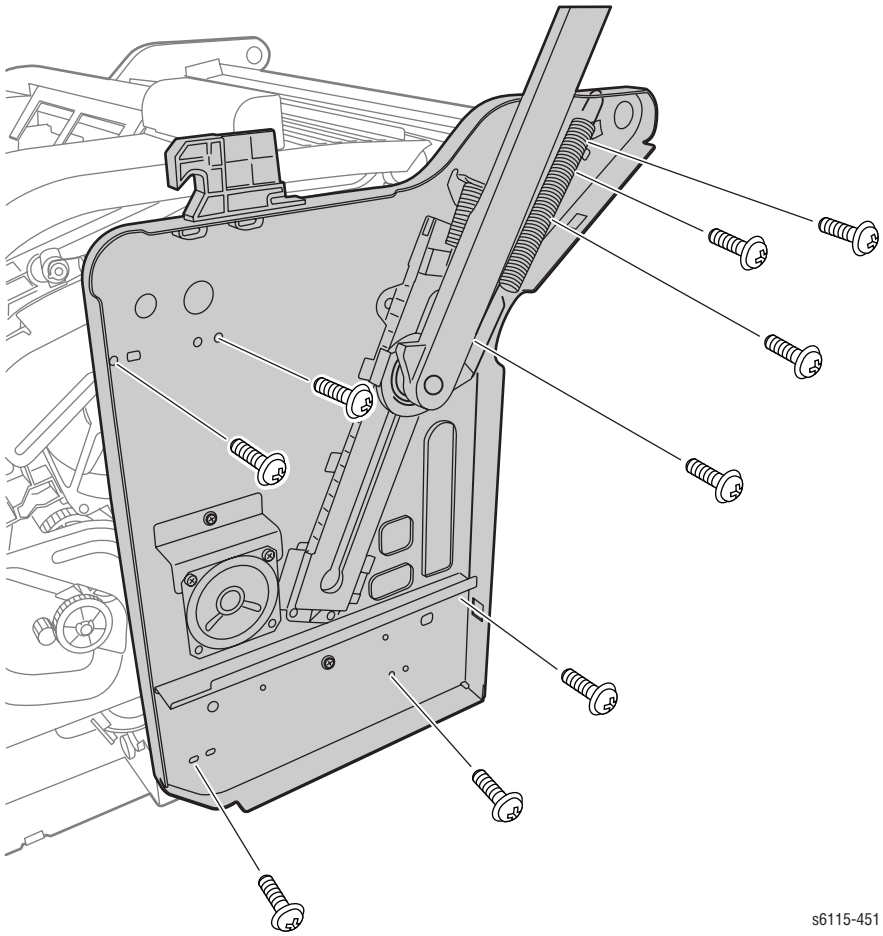



8. Lift and remove the top right cover.

**Note**

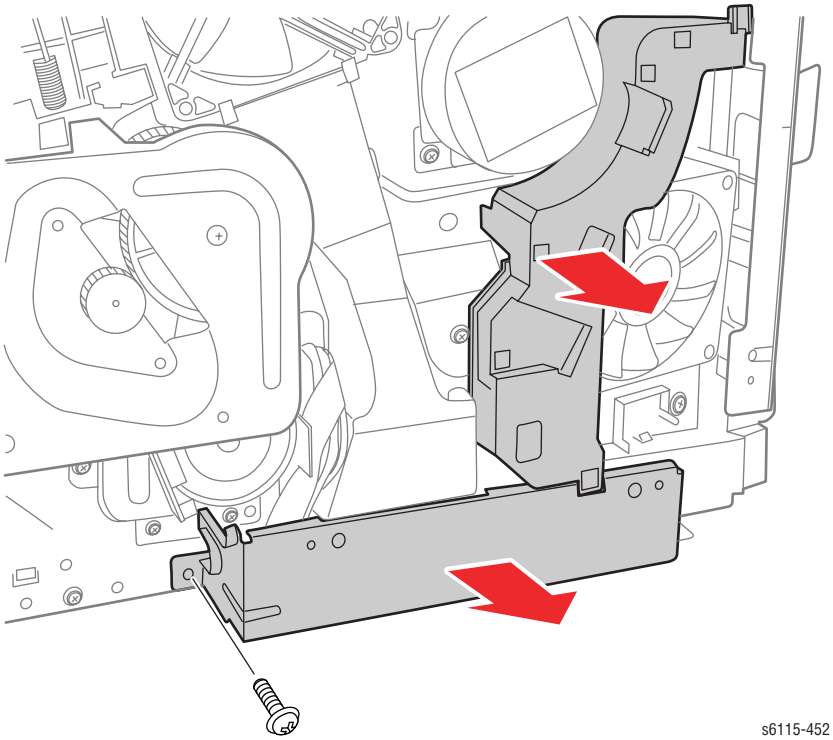
You may need to raise the Top Cover to allow for clearance when removing the top right cover.

9. Remove 9 screws (metal, 8mm) from the right frame.



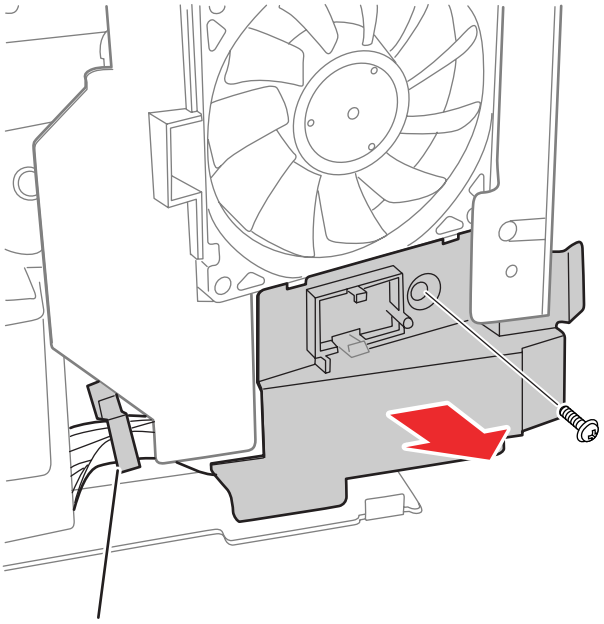
s6115-451

10. Disconnect the speaker wire, remove it from the retaining clamp, and remove the right frame.
11. Remove the screw (metal, 10mm) from the metal bracket.

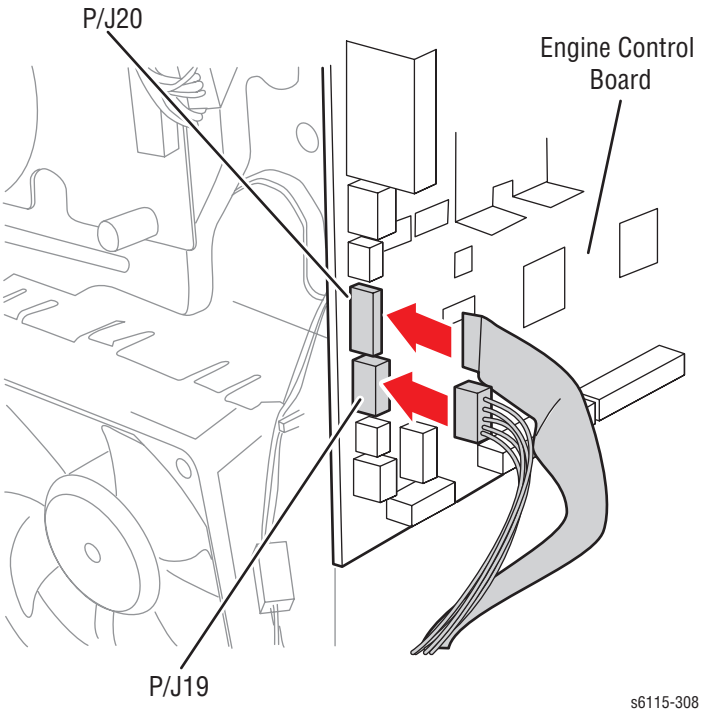


s6115-452

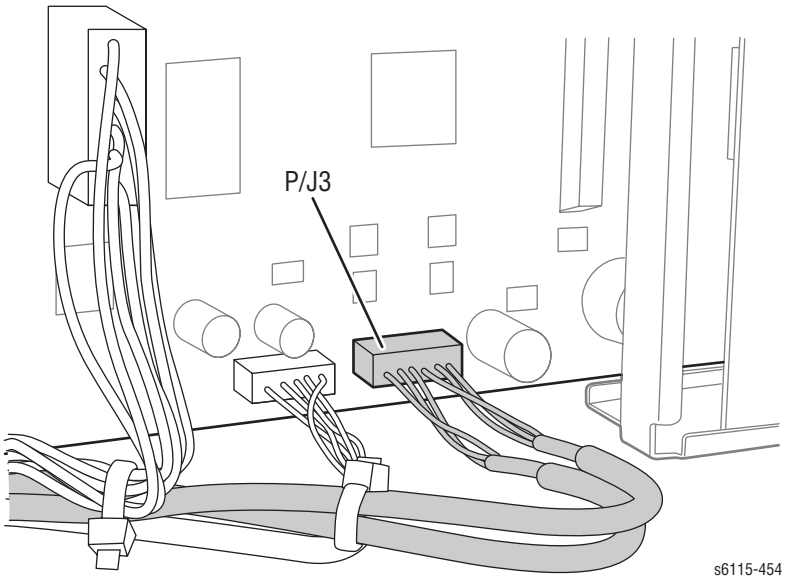
12. Remove the metal bracket and plastic guide.
13. Remove 1 screw (self-tapping, 10mm) to remove the harness cover.




14. Disconnect the connector (P/J19) and the flat cable (P/J20) from the Engine Control Board.



15. Disconnect the connector (P/J3) from the Image Processing Board.




16. Remove the clamps and cable ties to free the cables.
17. Grab the handle of the Imaging Unit and remove.

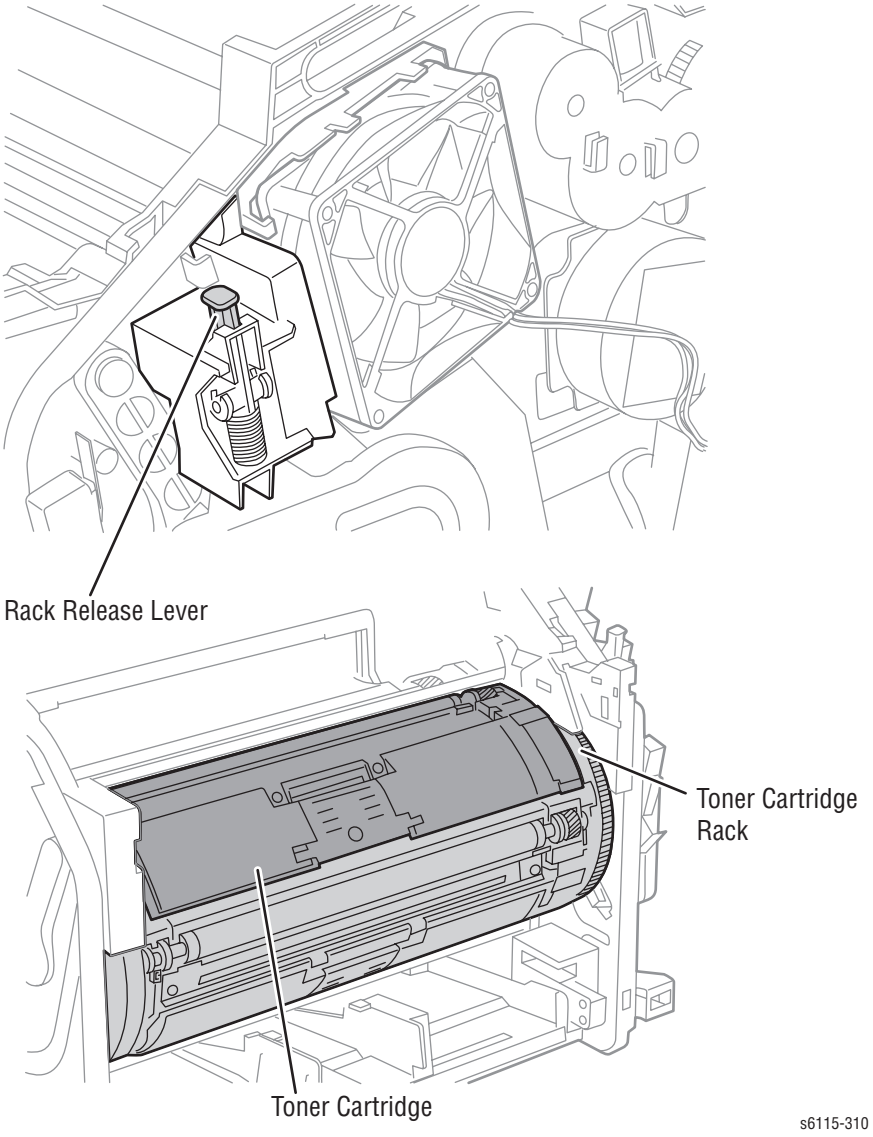
**Note**

Be sure to keep the Imaging Unit horizontal and place it where it will not become dirty.

18. Press the Rack Release Lever and then rotate the cartridge rack so that the Toner Cartridge is moved to a position where it can be easily removed.

**Caution**

When rotating the rack, use care not to touch the Developing Rollers.

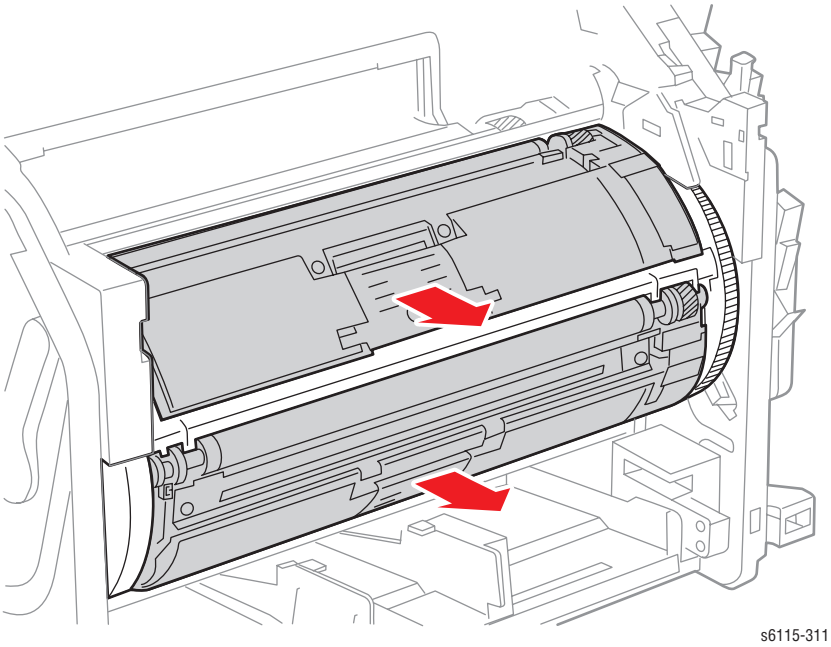



19. Hold onto the handle, pull it and remove the Toner Cartridge.

**20.** Repeat steps 18 and 19 to remove all Toner Cartridges.

**Caution**

Do not leave the Imaging Unit or the cartridges removed for more than 15 minutes. Also, do not place the Imaging Unit or the Toner Cartridges in a location where it will be exposed to direct light (such as sunlight).



s6115-311

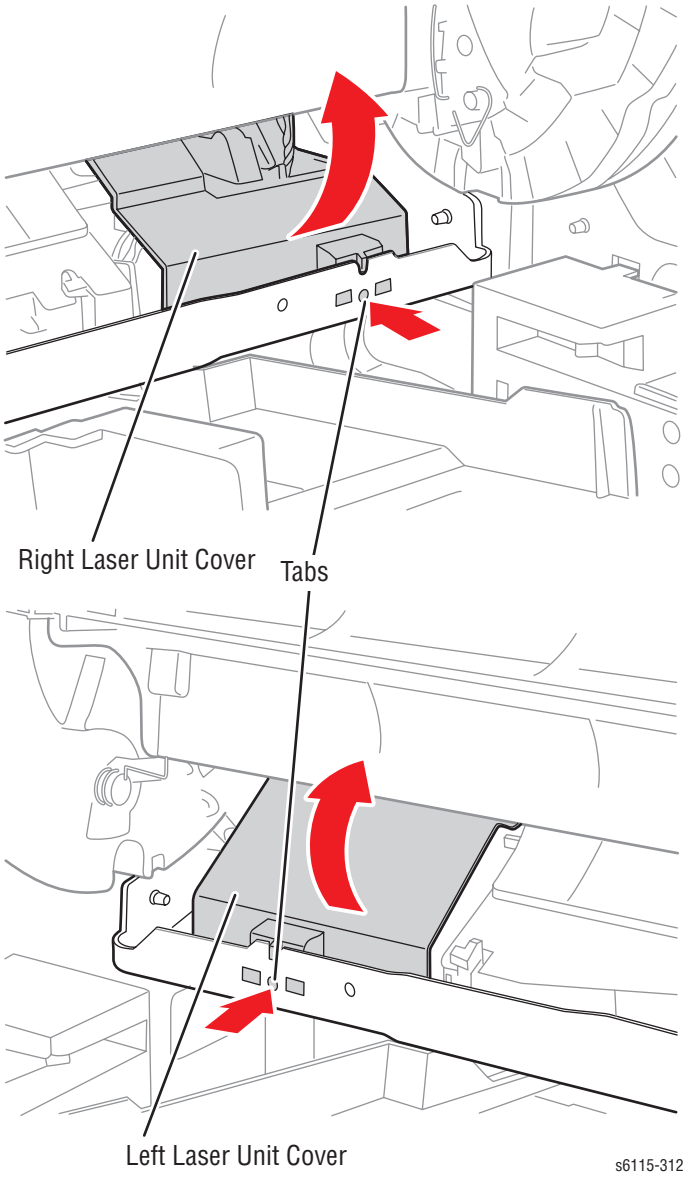
21. Remove the right and left Laser Unit covers.

**Note**

Through the hole at the location shown on the left, push the tab of the unit cover and remove.

**Caution**

Use care not to pull the right cover with an excessive force, so you don't break the connector wiring.

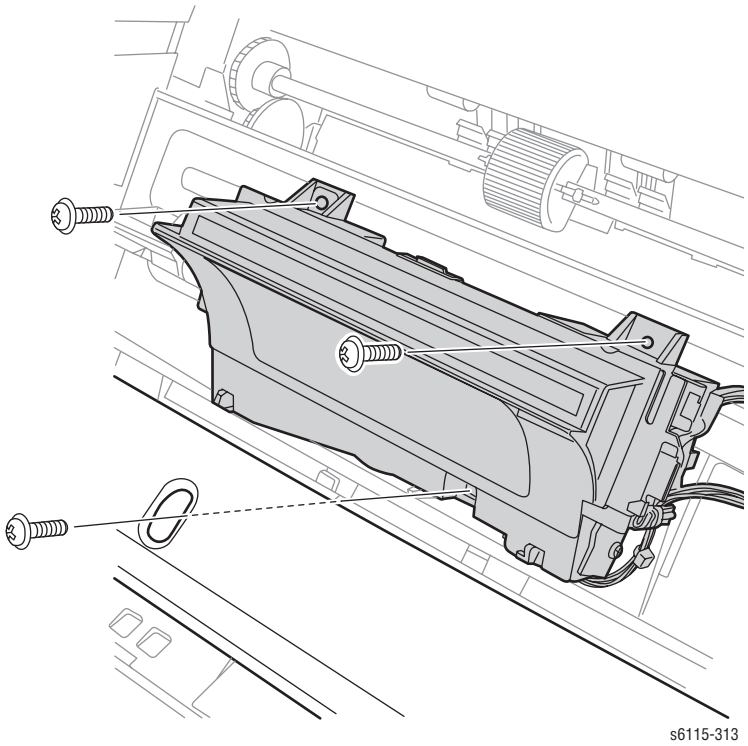



22. Pull the 3 unplugged harnesses through the chassis.
23. Press the Rack Release Lever and turn the toner rack so that the screw securing the Laser Unit to the chassis can be accessed through the hole in the metal cross plate.

**24.** Remove 3 screws (metal, 10mm) and the Laser Unit.

**Caution**

When you lift the Laser Unit free from the chassis, take care when pulling any connected cables through the routing holes.



## Precautions for Reinstallation of the Laser Unit

**Replacement Note**

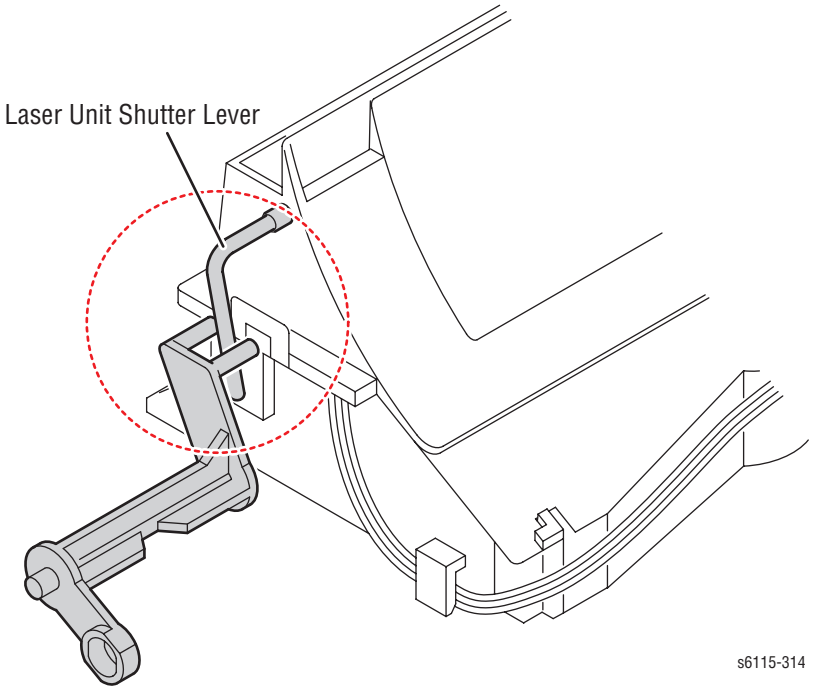
When reinstalling the Laser Unit, make sure that you insert the lever of the Laser shutter into the lever of the machine.

Be sure to use the original screws and that the gear is in place when reinstalling the unit.

To reinstall the laser covers, insert the two back tabs before the front tab to align properly.

Reconnect the blue connector before you reinstall the cover.

To reinstall the ribbon cable, loosen the lower tab on the plastic air duct to provide access to the route.

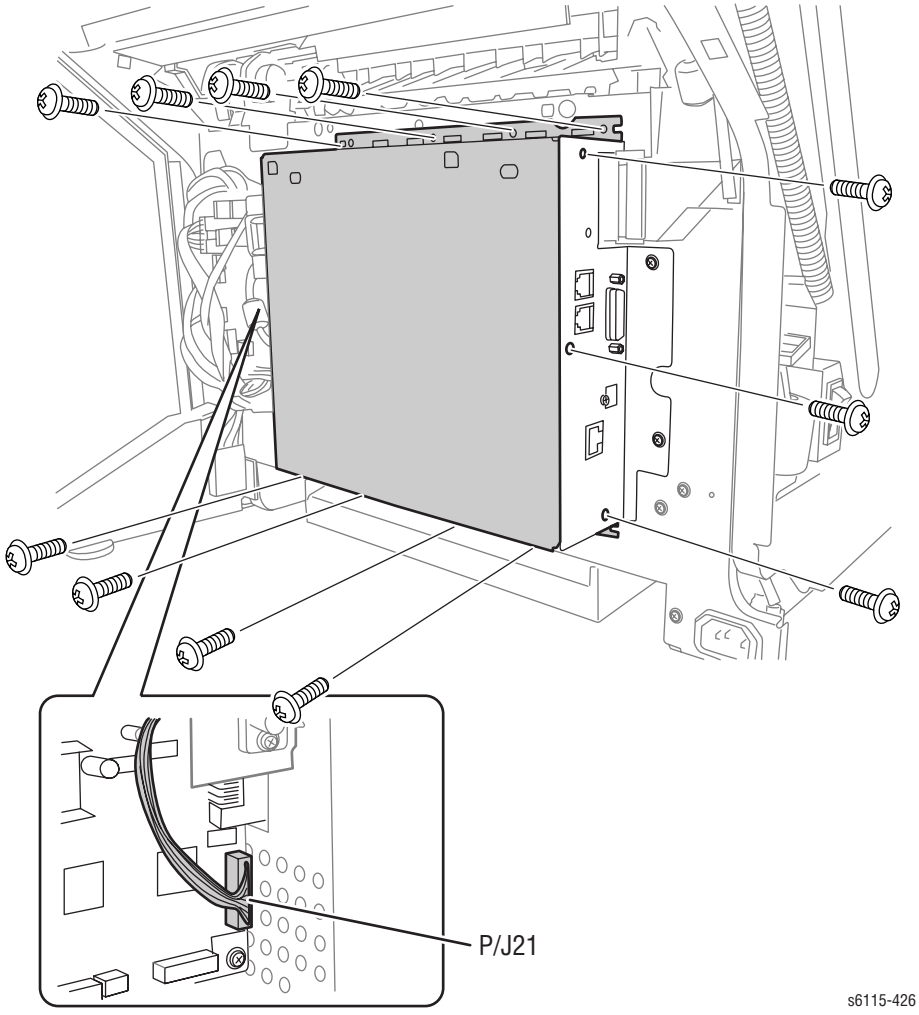


## Scanner Unit (PL3.1.1)

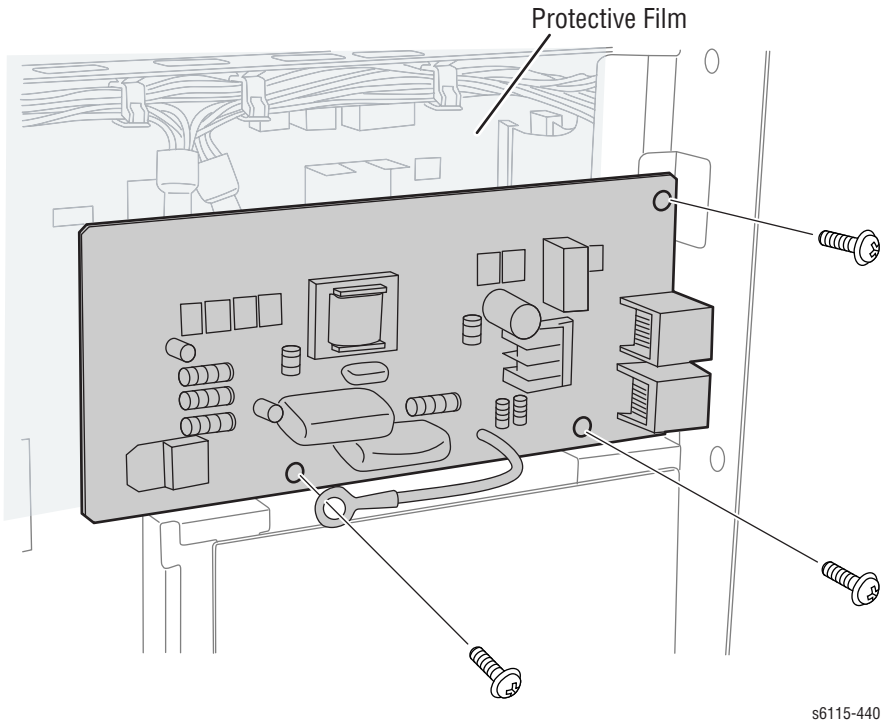
1. Remove the Auto Document Feeder Unit (page 8-11).
2. Remove the Rear Cover (page 8-6).
3. Remove the Left Cover (page 8-7).
4. Remove the Right Cover (page 8-8).
5. Close the Top Cover and the Scanner lid.
6. Remove the ADF Unit (page 8-11).
7. Remove 11 screws (metal, 8mm), disconnect the connector P/J21, and remove the Image Processing Board metal protective cover.

**Note**

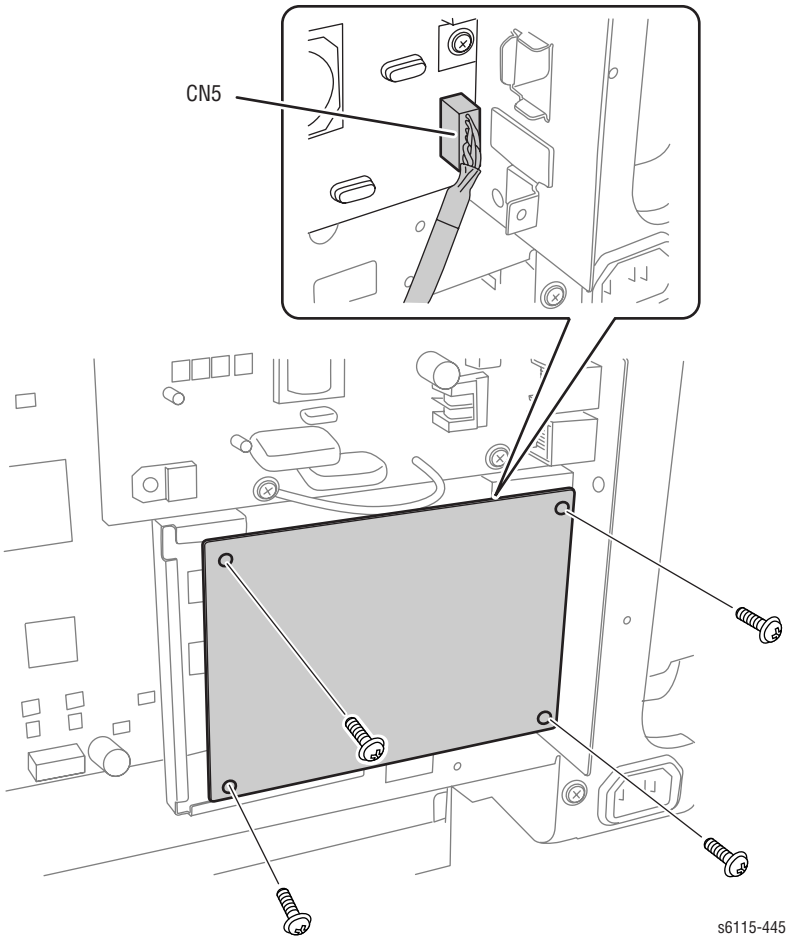
Lift up on the metal hooks to remove.



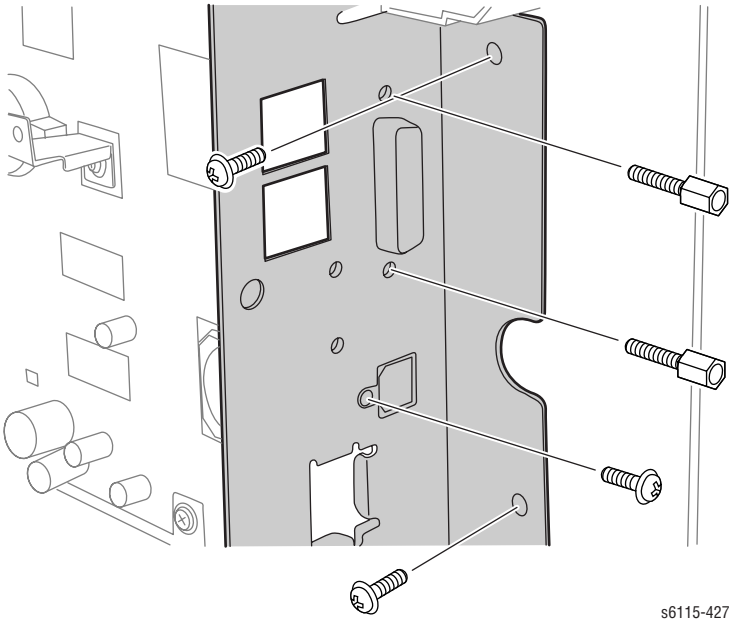
8. Remove 3 screws (metal, 8mm) to remove the LAN (and FAX Modem) board and protective film.



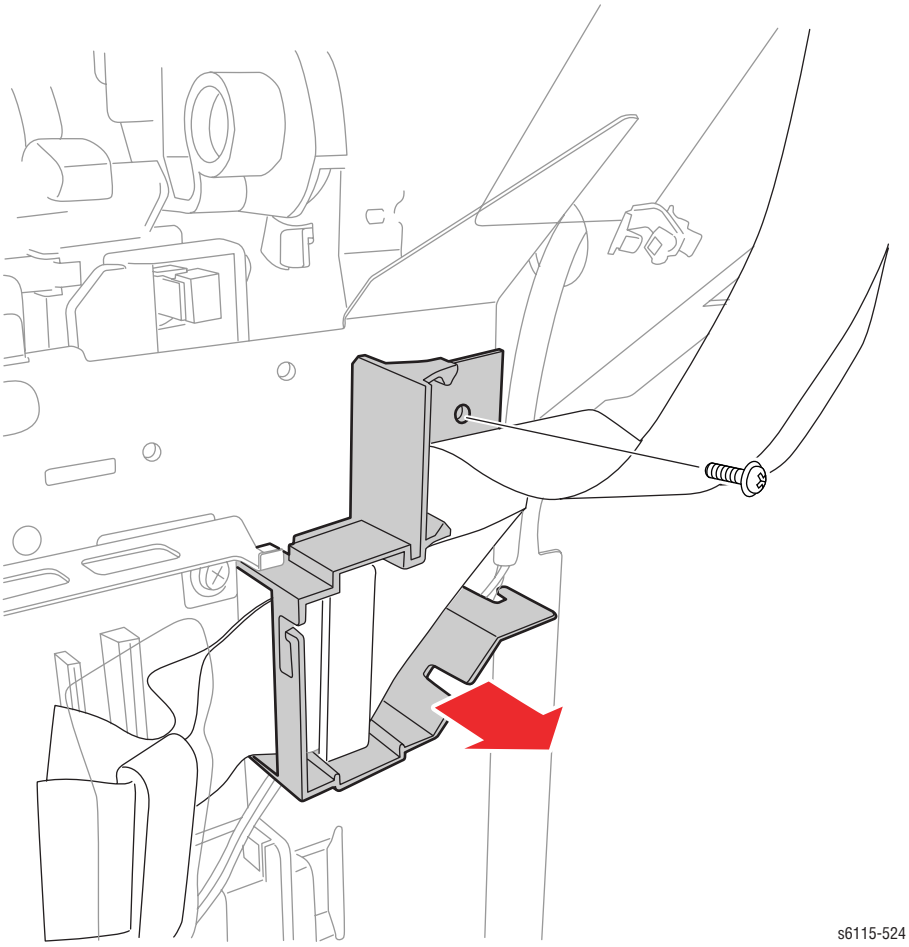
9. Remove 4 screws (metal, 8mm) to remove the NCU (Network Card) Board.



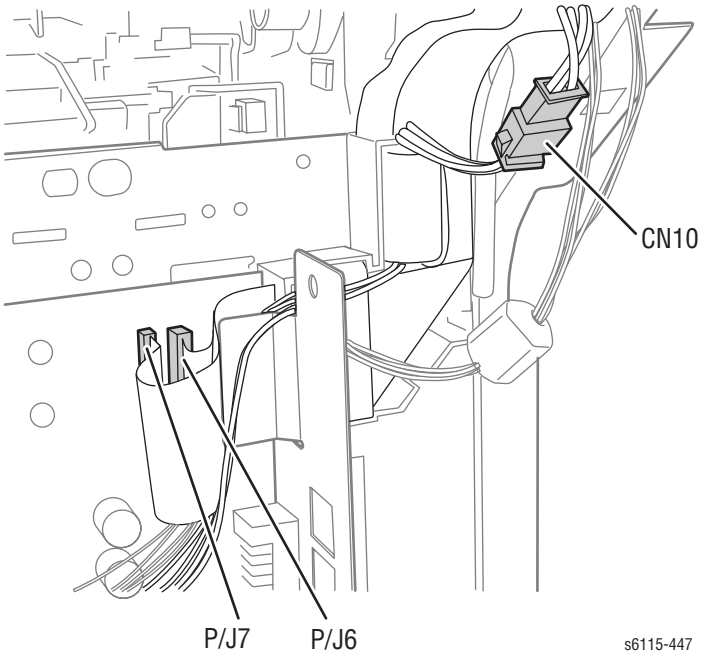

10. Remove 3 screws (metal, 8mm) and two standoffs to remove the board holding bracket.



**11.** Remove 1 screw (metal, 10mm) to remove the cable holding bracket.

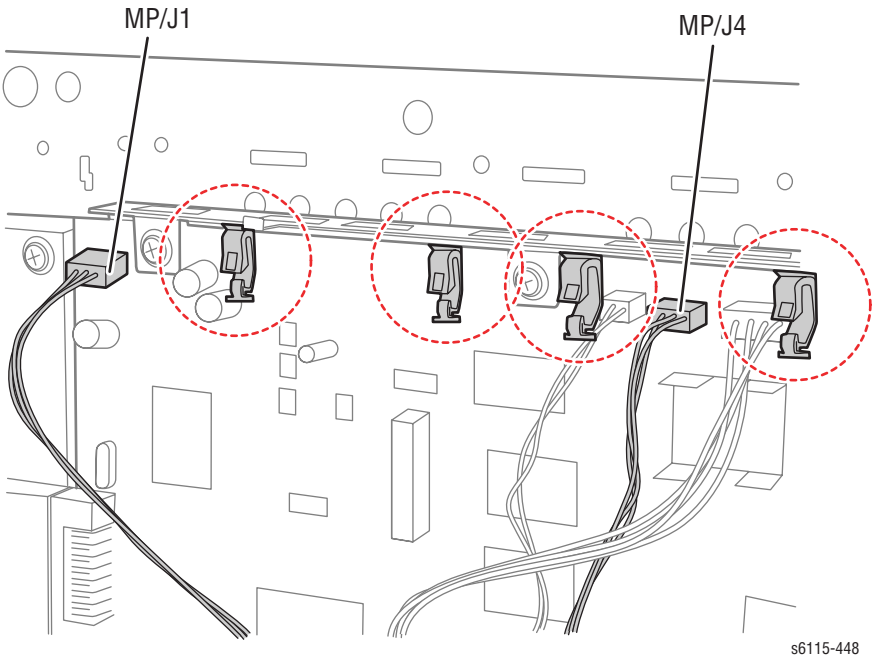



**12.** Disconnect connector CN10 and 2 flat cables from the Image Processor Board.




**13.** Open 4 cable clamps to allow access to the wiring harnesses.

14. Disconnect 2 connectors (MP/J1 and MP/J4) from the Image Processing Board and pull the wiring harness out of the clamps.

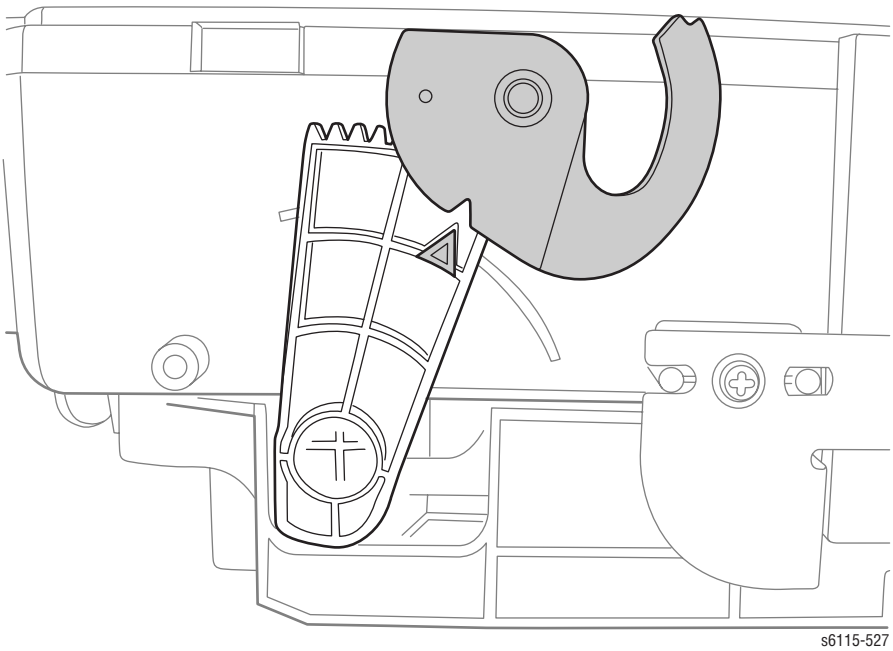



15. Open the Scanner Unit.

16. Remove 2 screws (self-tapping, 10mm), to remove the Scanner Unit left cover and right cover.

**Caution**

With the ADF Unit removed, you must press the Interlock Switch in order to open the scanner cover.




**Caution**

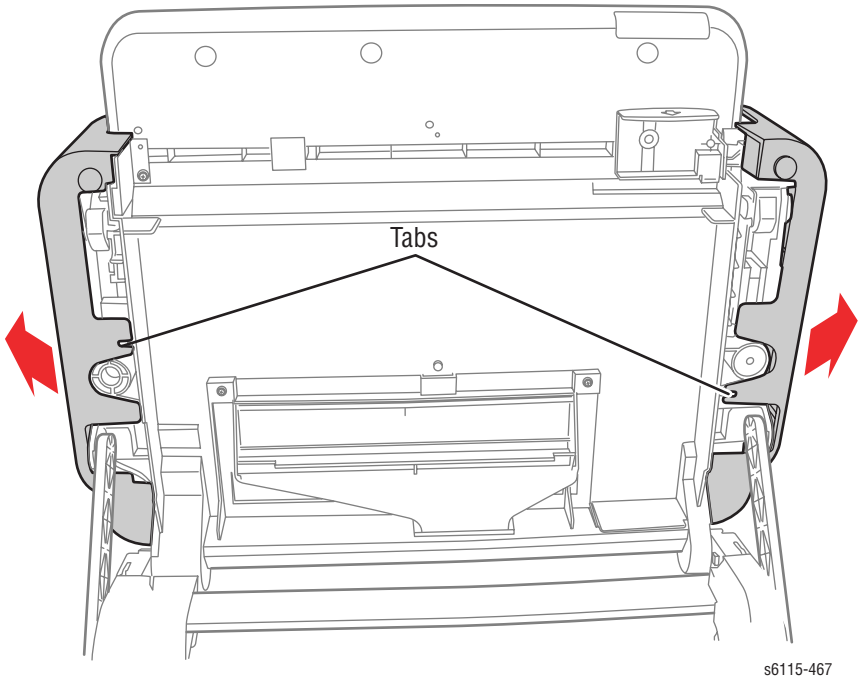
The plastic Scanner Unit cover latch will become loose when the right cover is removed.

**Note**

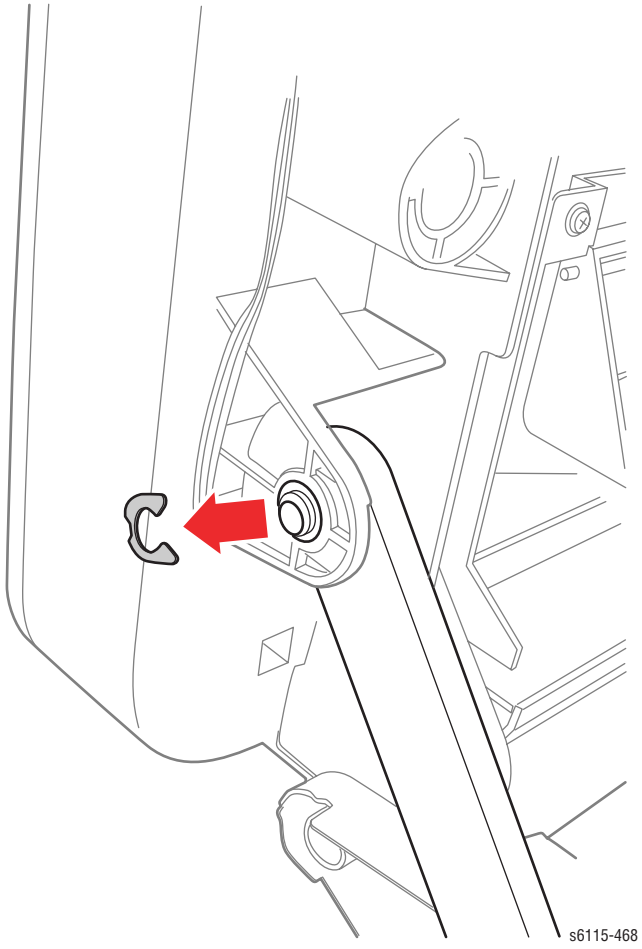
Be sure to note the alignment notch of the latch when reinstalling.

**Note**

To unhook the tab, insert your finger into the hole below the hinge and push the cover outward.



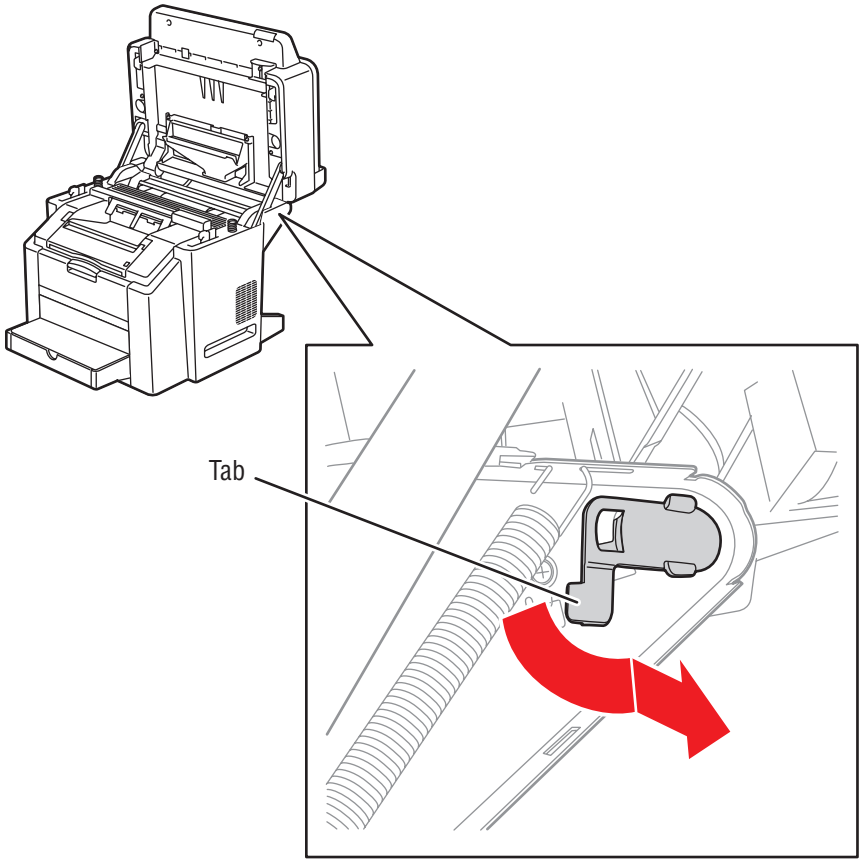

**17.** Remove the left hinge C-clip and right hinge C-clip of the Scanner Unit.



18. Release the tab to free the stopper.
19. You can now rotate the holding tab of the stopper, then lift to remove the stopper.

**Note**

Be careful to hold the Scanner Unit securely while you pull it free from the printer.




s6115-449

**Replacement Note**

After replacing the Scanner Unit, be sure to perform the following adjustment procedures:

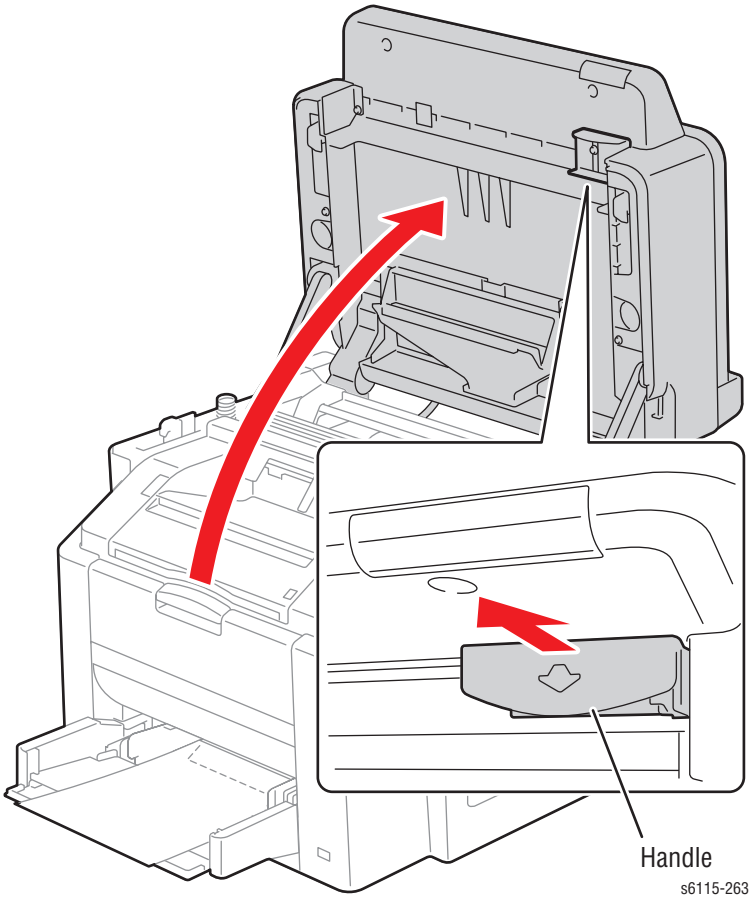
| |
|---|
| 1. Perform an CCD MAIN ZOOM (page 6-12). |
| 2. Perform an CCD SUB ZOOM (page 6-14) |
| 3. Perform a CCD MAIN REGIST (page 6-15). |
| 4. Perform a CCD SUB REGIST (page 6-16). |
| 5. Scanner CD Registration (page 6-46). |
| 6. Scanner FD Registration (page 6-48). |

## Transfer Belt Unit (PL4.15.5)

1. Pull the lever to release the Scanner Unit.

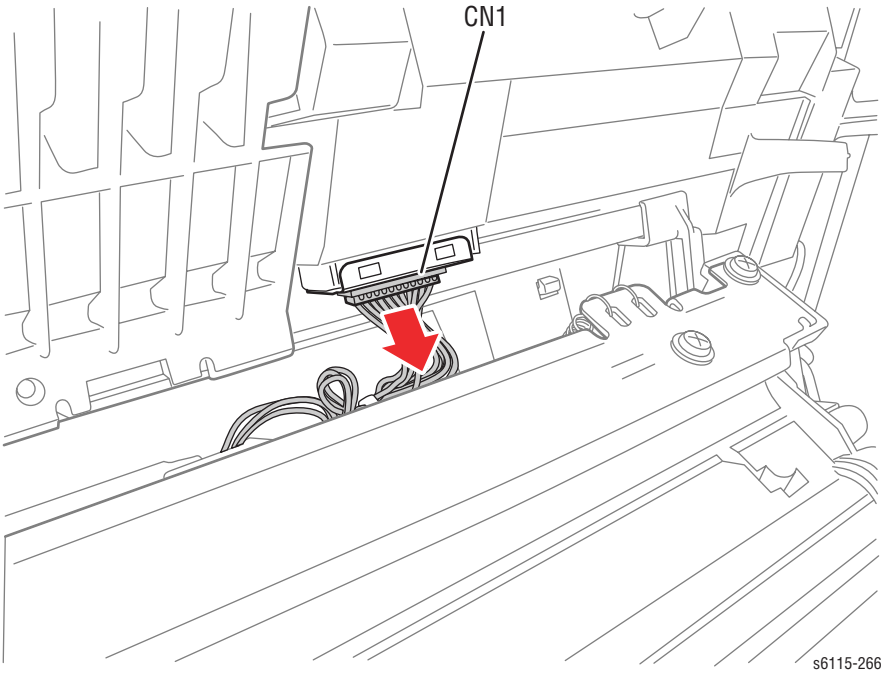
**Note**

Note that the Scanner unit cannot be swung up with the Auto Document Feeder Unit in its raised position.




2. Open the Top Cover (page 8-4).

3. Disconnect the connector.

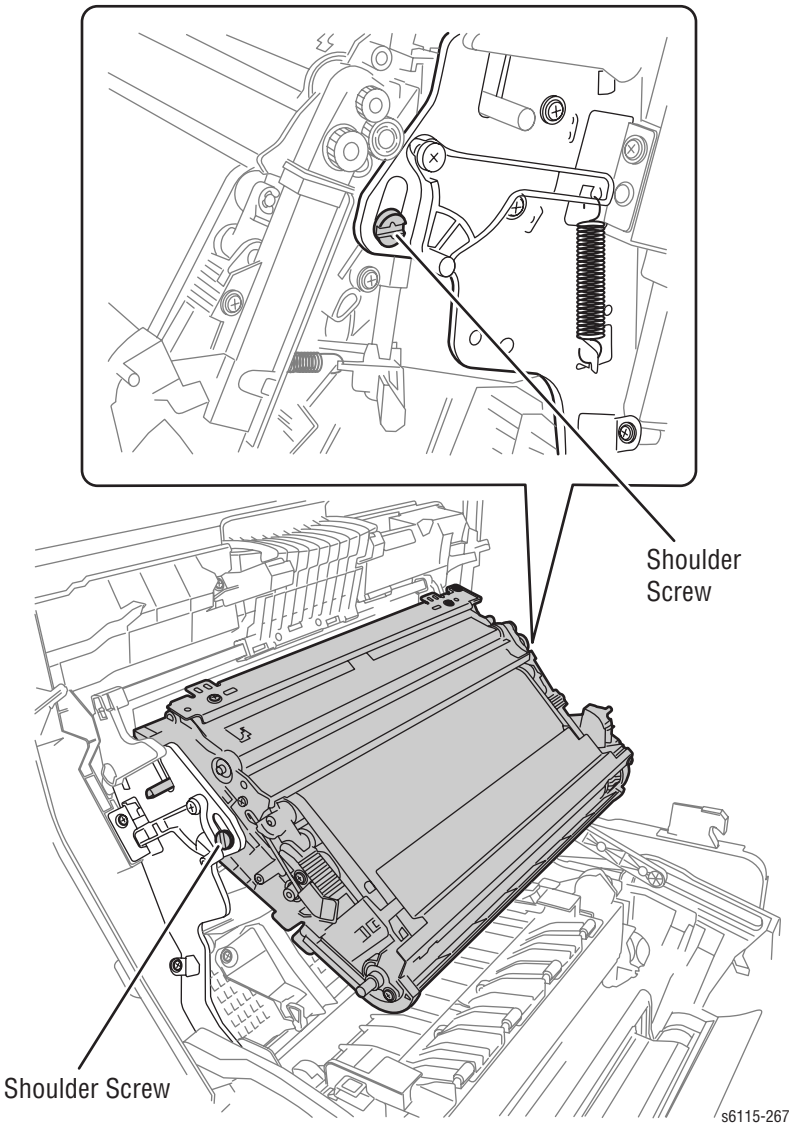



4. Remove the two shoulder screws (silver metal, 12mm).

5. Lift and slide the Transfer Belt Unit out of the metal slots to remove.

**Note**

When replacing the Transfer Belt Unit, use care not to touch the surface of the belt. A scratchy or dirty belt could result in image problems.




6. To reinstall, reverse the order of removal.

**Note**

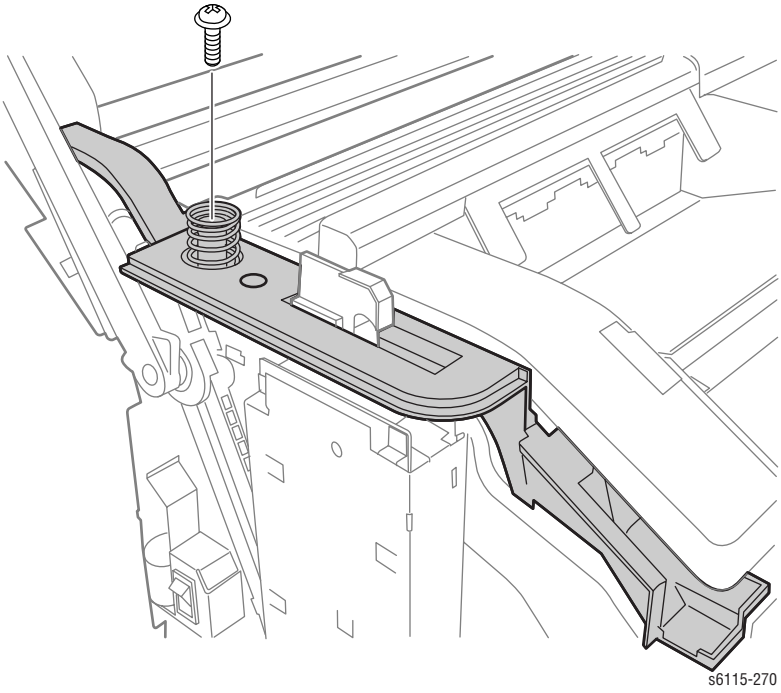
After the transfer belt unit has been replaced with a new one, reset the maintenance counter of the Transfer Belt Unit (page 6-44).

## Fusing Unit (PL4.18.12)

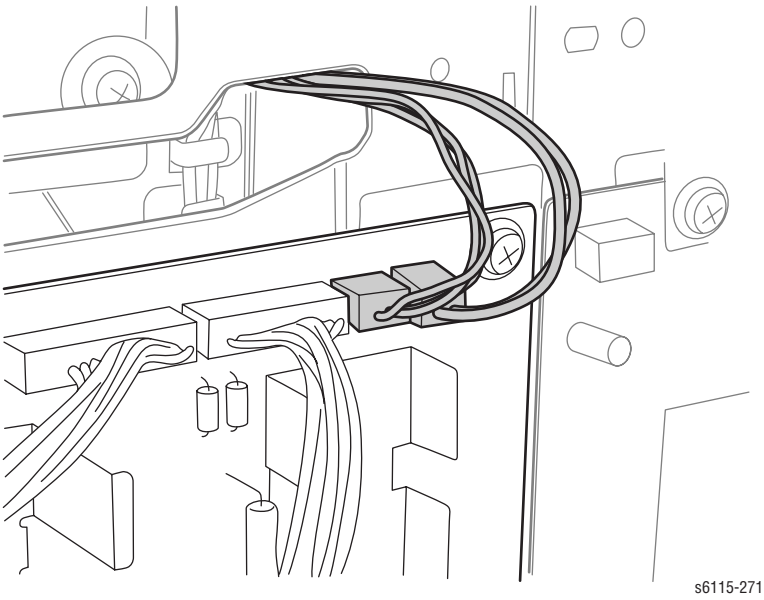
1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Transfer Belt Unit (page 8-33).
4. Remove 1 screw (metal, 8mm) and remove the Top Left Cover.

**Note**

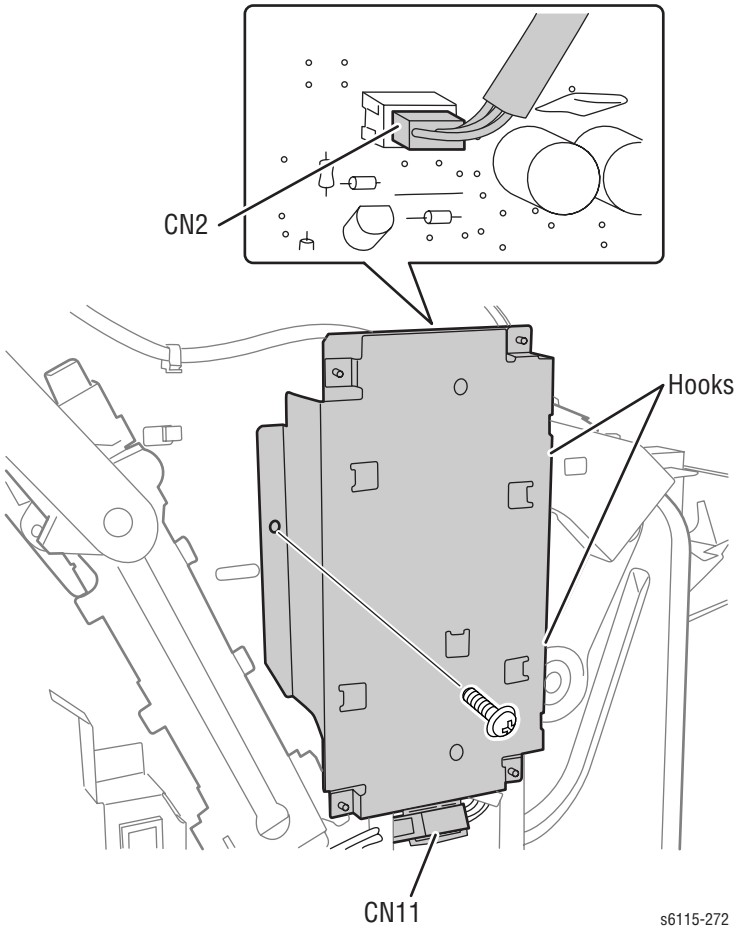
You may need to raise or lower the Top Cover as necessary to allow for clearance.




5. Disconnect two connectors (P/J6 and P/J7) from the Engine Control Board.



6. Remove 1 screw (metal, 6mm) holding the DC Power Supply 2.




7. Open the 2 clamps and disconnect 2 connectors (CN2 and CN11). Then, remove the DC power supply 2 and protective cover.

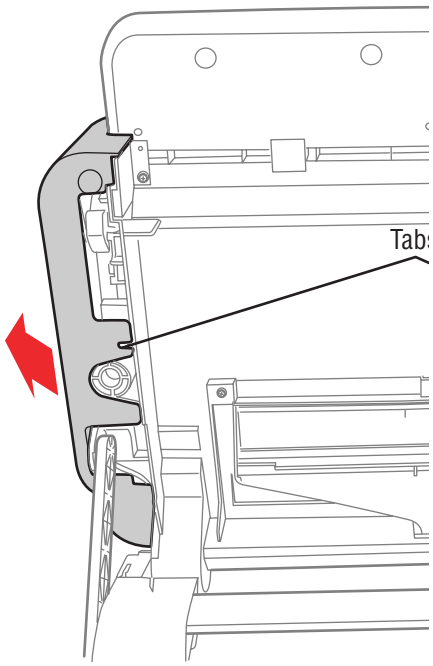
**Note**

Depress the plastic release on CN11 to release the connector.

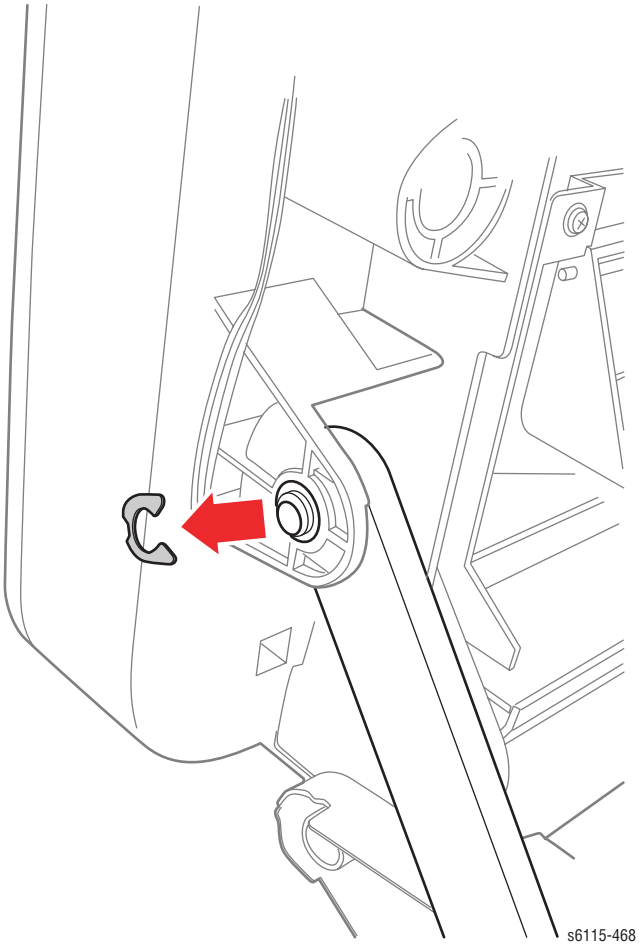
**Replacement Note**

When replacing, be sure to place the 2 cover tabs in the hook slots.

8. Remove 1 screw (self-tapping, 10mm) to remove the Scanner Unit left cover.



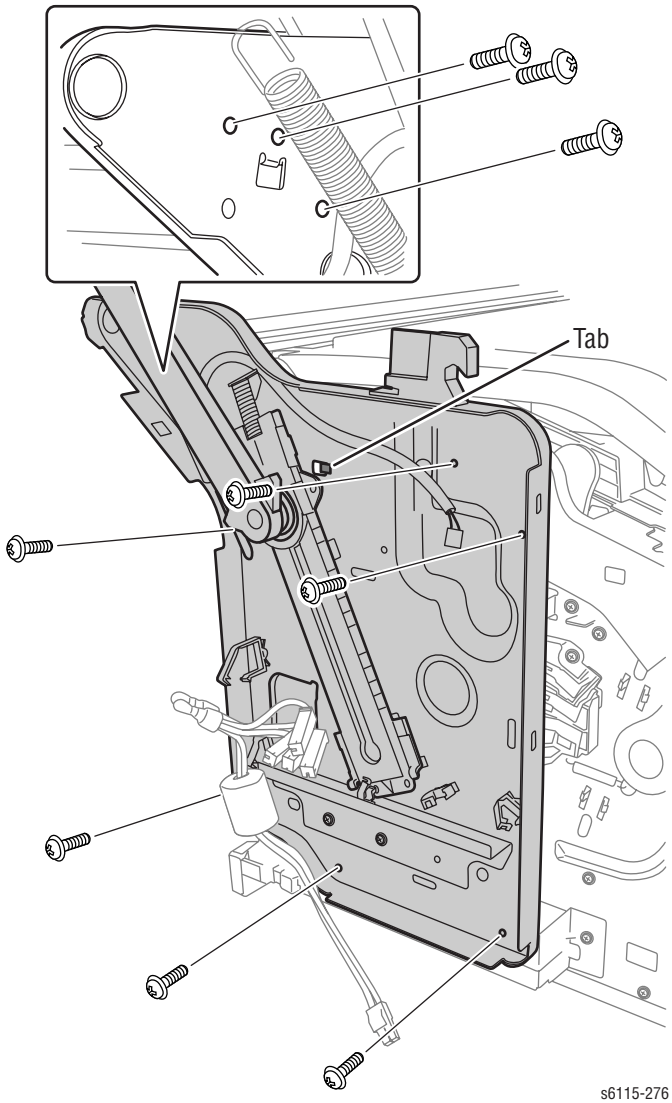
9. Remove the left hinge C-clip and right hinge C-clip of the Scanner Unit to free the hinged arm.




**Note**

Be careful not to lose the C-clip.

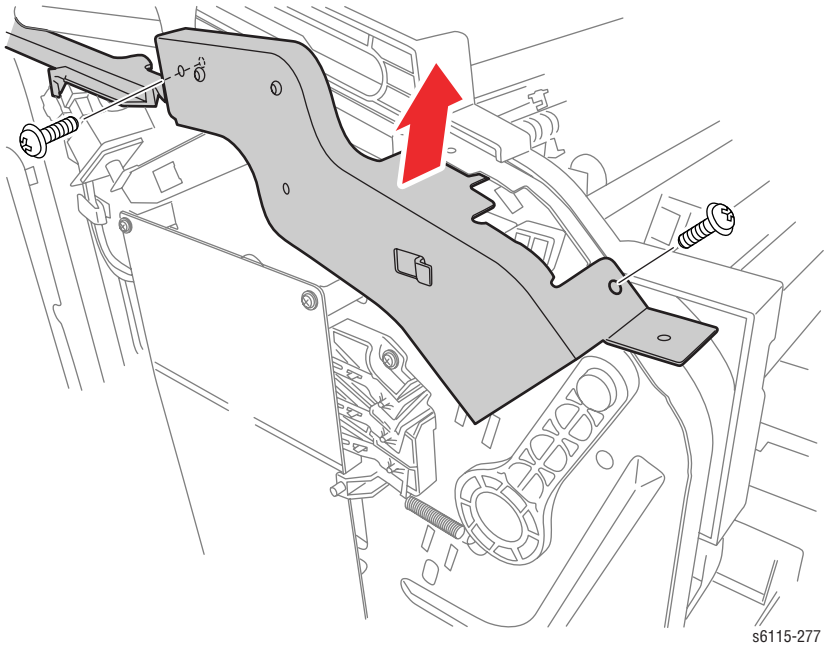
10. Remove 3 screws (metal, 8mm) shown in the inset below and 4 screws (6 mm) from the chassis to free and remove the left frame.




**Replacement Note**

Carefully place the hook on the tab when replacing the frame.

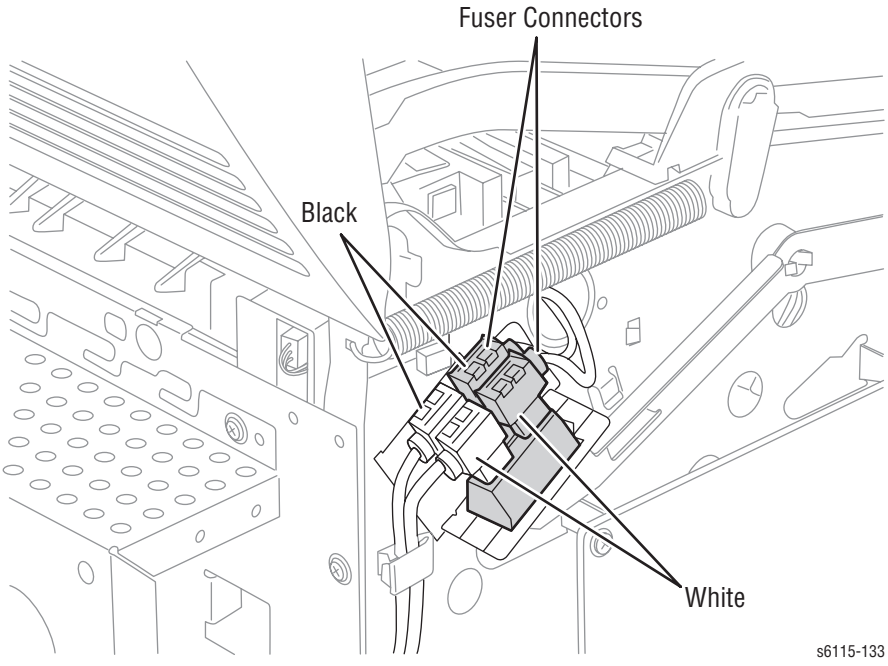
11. Remove 2 screws (metal, 8mm) and remove the Left Guide Assembly.



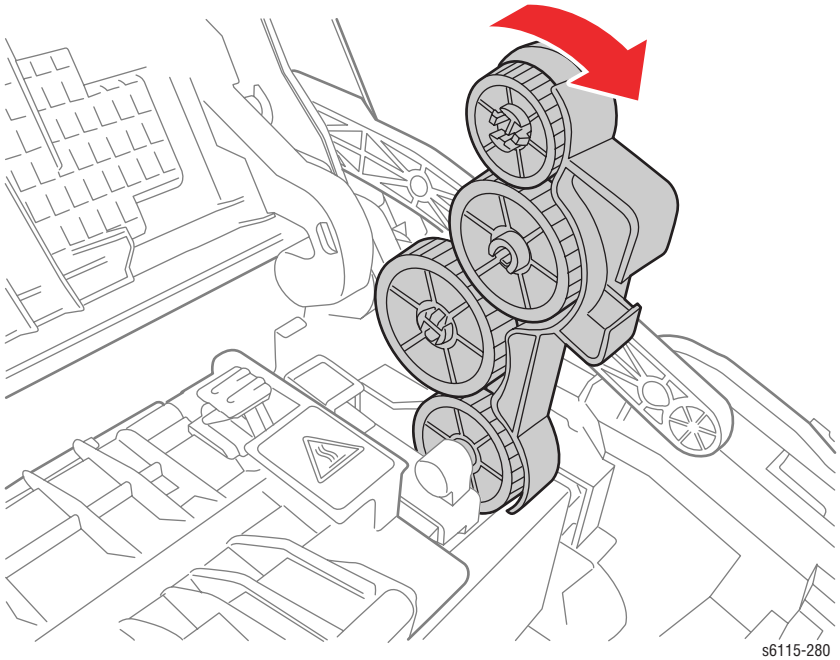

12. (Steve - is this a continuation of the previous step?)Remove 1 screw from the top of the guide then pry apart and remove the plastic cover from the frame.
13. Unplug 2 Fuser connectors from the top.

**Note**

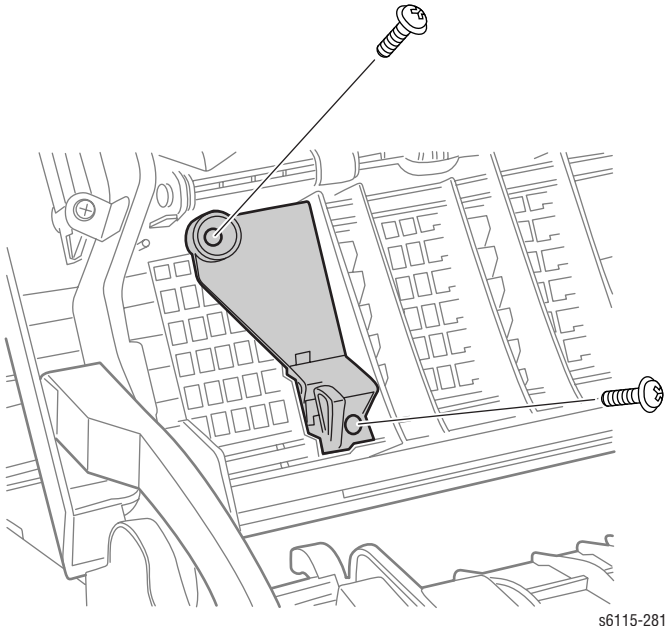
You can also gain access to the connectors through the metal frame.



**14.** Swing open the Fusing Unit gear cover.



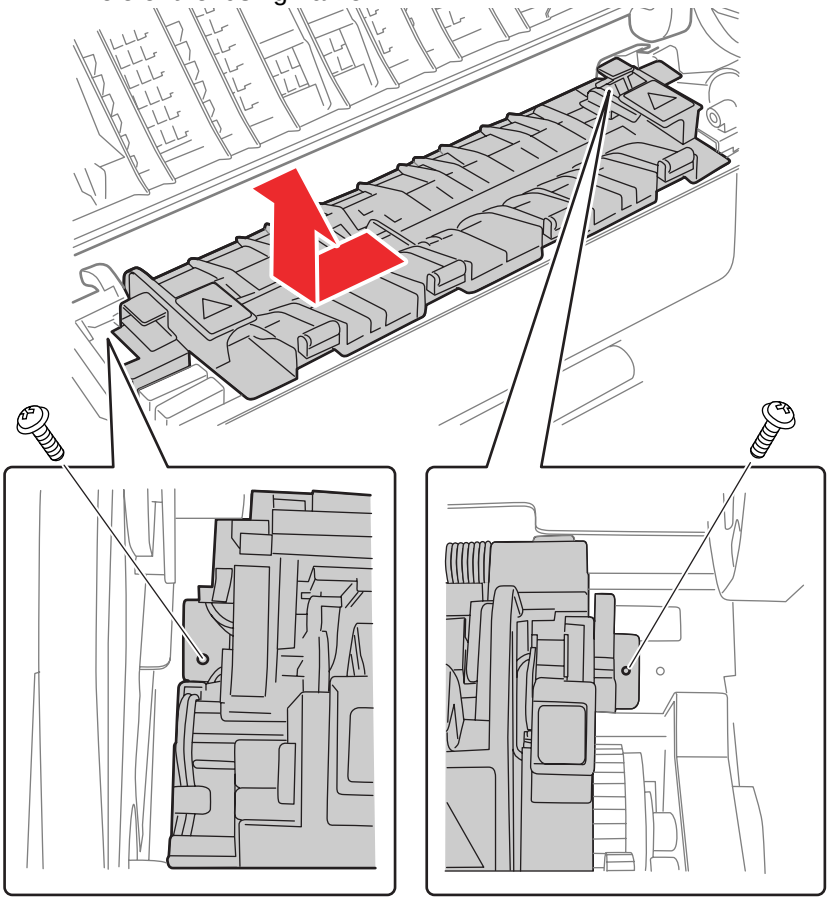

**15.** Remove 1 screw (self-tapping, 10mm) and remove the holder.



16. Remove 2 screws (metal, 10mm) and remove the Fusing Unit.

**Note**

Make sure that the docking gear shaft of the Fusing Unit fits in the hole of the fusing frame.



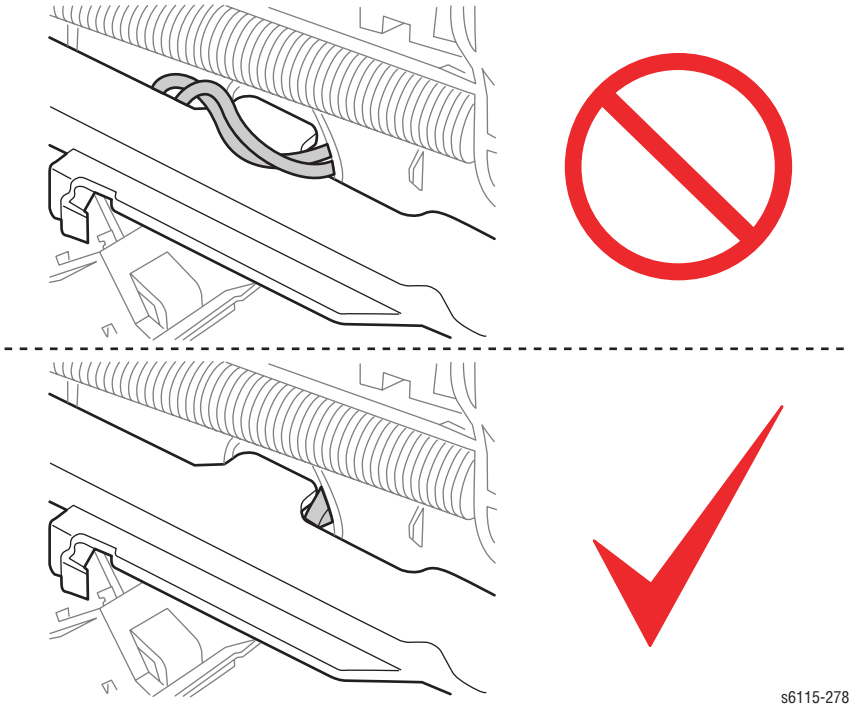

**Replacement Note**

Reinstall the Fuser Unit in the reverse order of the previous steps.

When reinstalling the left cover after reinstalling the Fusing Unit, make sure that the harness of the Fusing Unit is located below the rib of the left cover.

**Caution**

When the left guide assembly is mounted after the Fusing Unit has been installed, make sure that the harness of the Fusing Unit is placed under the left guide assy.




**Replacement Note**

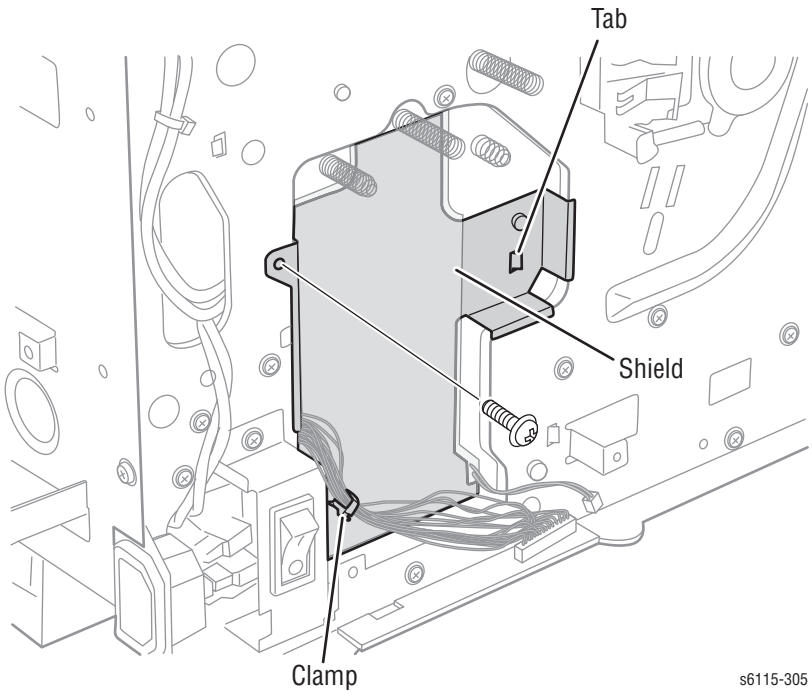
Be sure to route all wires and wiring harnesses in their original position and that all positioning tabs are secure.

**Caution**

Be sure not to over-tighten self tapping (plastic) screws.

## Paper Take-Up Unit (PL4.20.1)

1. Remove the Rear Cover (page 8-6).
2. Remove the Right Cover (page 8-8).
3. Remove the Left Cover (page 8-7).
4. Remove the High Voltage Unit (page 8-50).
5. Remove 1 screw (metal, 10mm), unlock the tab, and release the wiring harness from the clamp. Then, remove the shield.

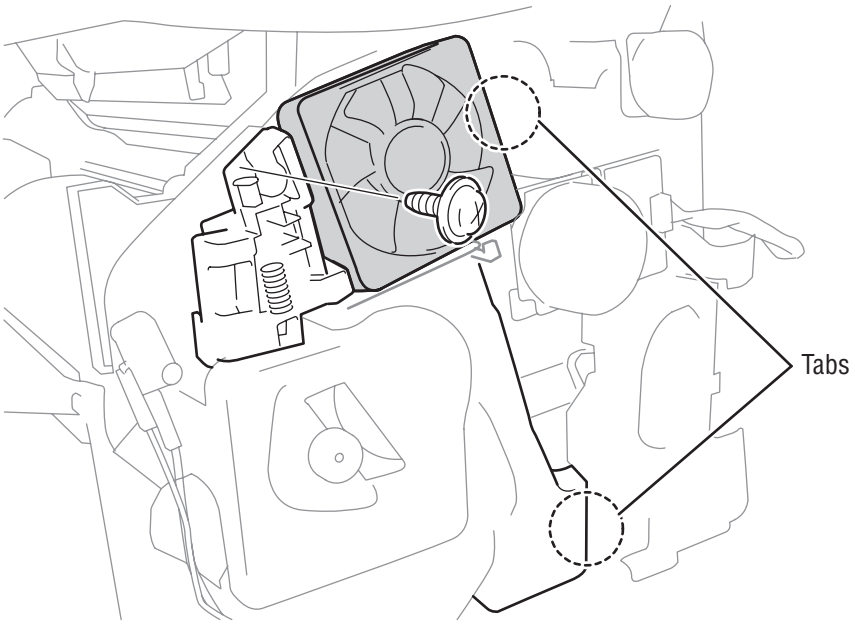



**Caution**

When reinstalling the shield, make sure that no part of the harness is wedged in the mechanism.

6. Remove the Rack Drive Assembly. See the removal procedure steps 4 to 6 when disassembling the “Developing Motor (PL4.13.8)” on page 98.
7. Remove the Ventilation Fan Motor (page 8-96).
8. Remove 1 screw (metal, 8mm) and unlock two tabs.

9. Loosen the 4 wiring harnesses that feed the laser, and then remove the Ventilation Fan Duct.

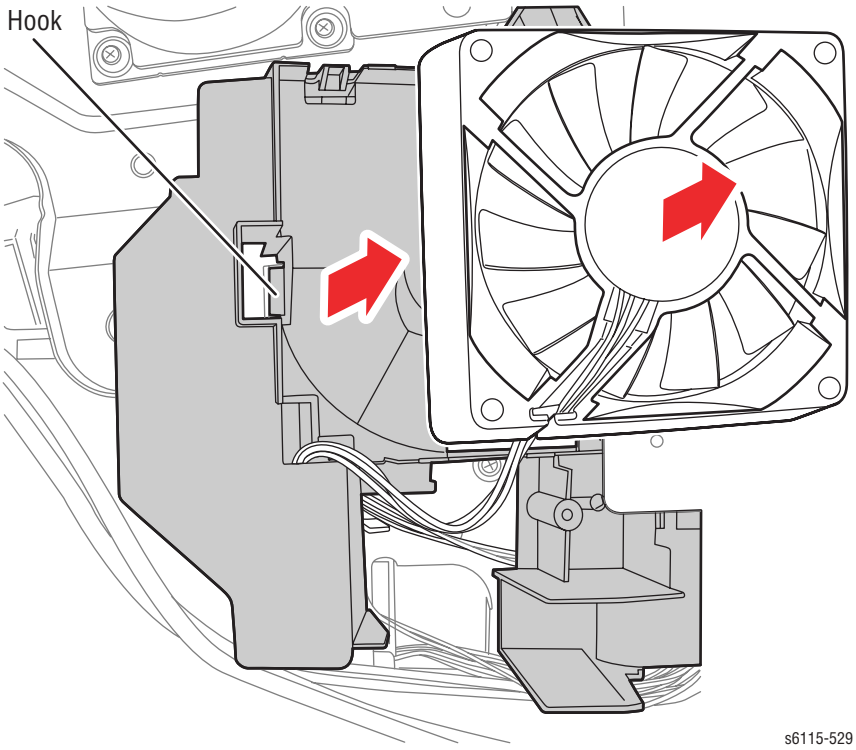



s6115-315

**Caution**

Be careful not to pinch the wires on the back of the printer.

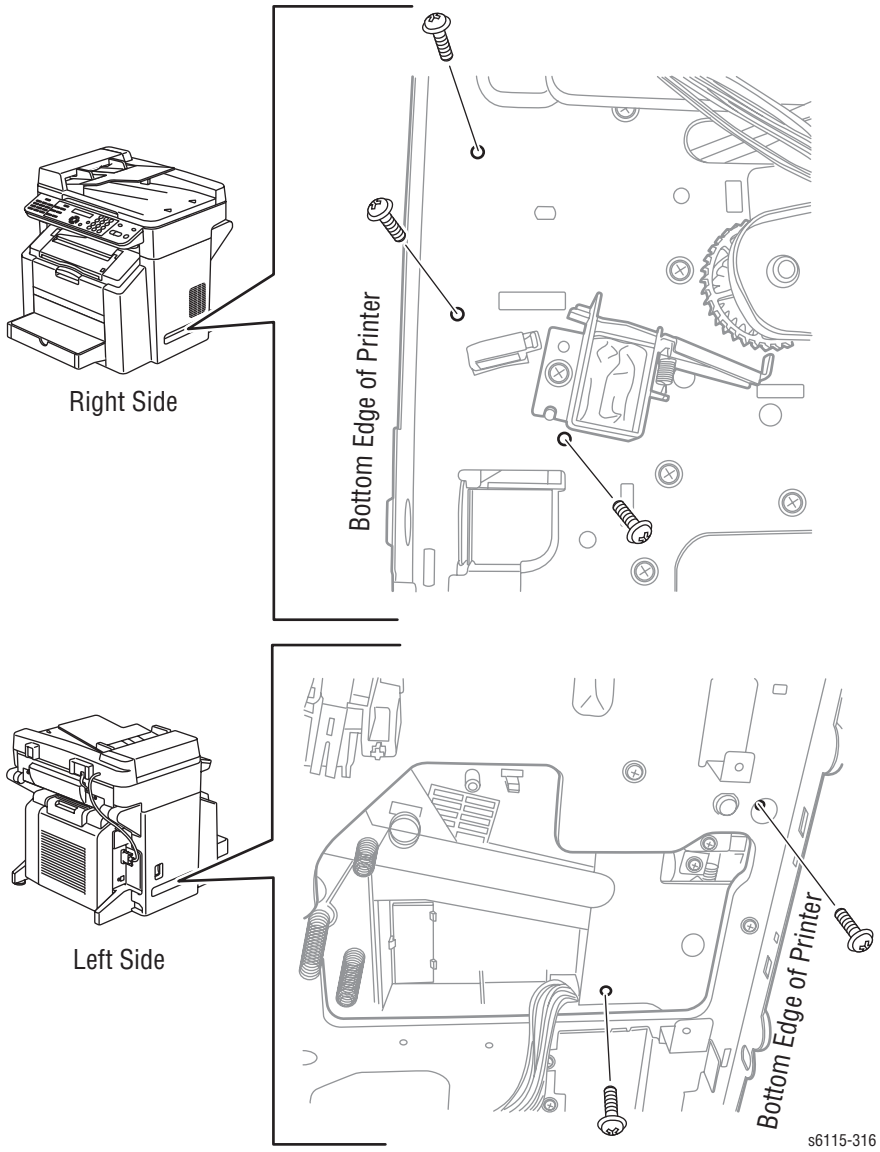
10. Remove the PJ/22 connector from the Engine Control Board.
11. Disconnect the cooling fan wires from the Engine Control Board and unsnap the fan from the two hooks of the shroud.




s6115-529

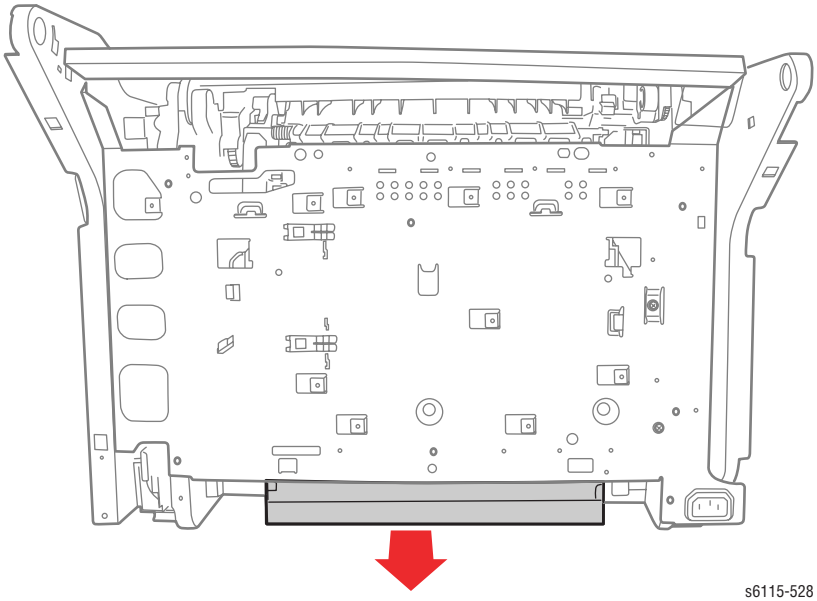
12. unhook 2 tabs of the shroud to pull the fan free from the chassis.

13. Lay the main body of the printer on its back.
14. Remove 3 screws (one metal, 10mm, two self-tapping 10mm) from the right side of the printer, and 2 screws (self-tapping, 10 mm) from the left side.




15. Remove 1 screw (metal, 10mm) and the metal plate from the right side, rear of the printer.

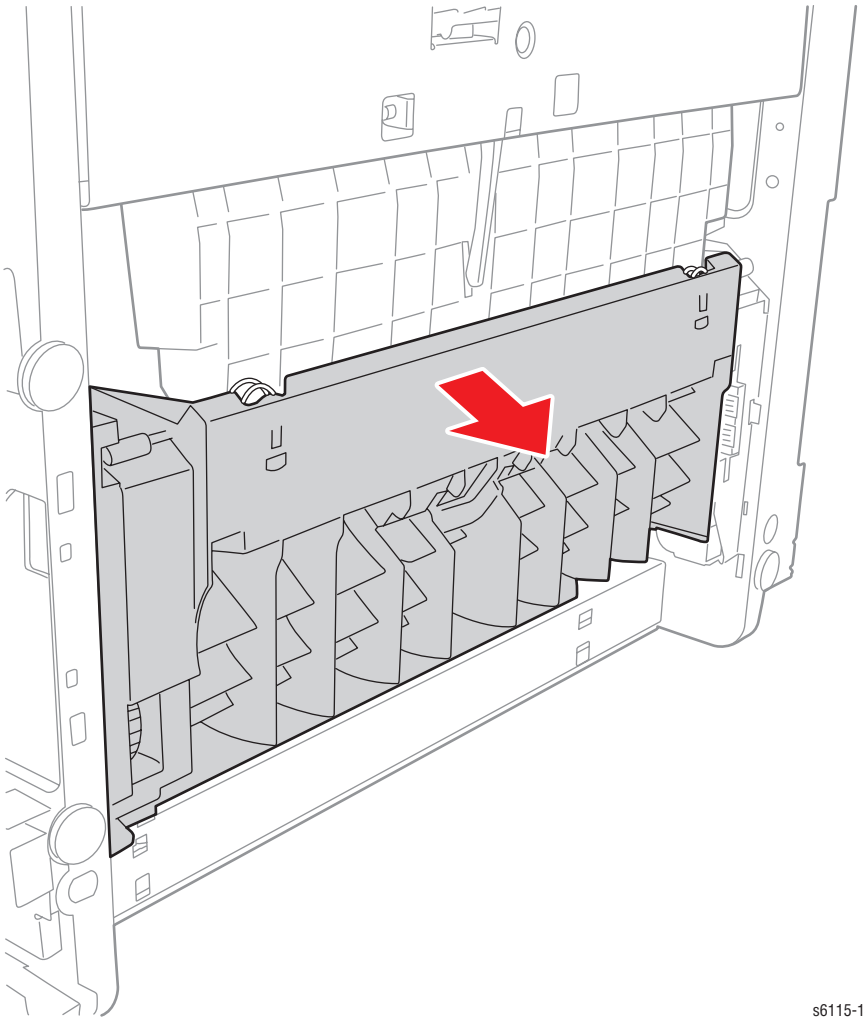
16. Remove the black plastic guide by pushing the locking tab on the right side, and then allow the guide to fall.




**Replacement Note**

Notice the orientation of the black plastic guide and reinstall it in the same orientation

17. Pull the tray completely towards you and remove the Paper Pick-up Unit.




## Notes for Reassembly

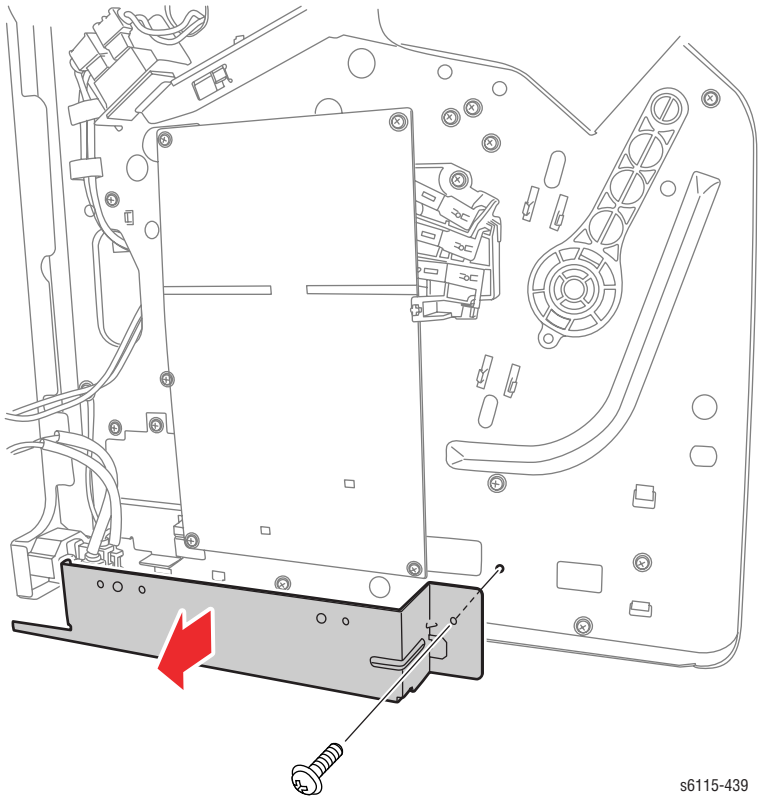
1. Ensure that the cams on the take-up assembly are in the up position.
2. Insert the black and red solenoid harness through the opening on the left side of the chassis.
3. Reinsert PJ22 through the opening of the chassis on the right side of the printer.
4. Align the top pin on the left side of the take-up assembly with the groove on the chassis.
5. Pull the tray forward until it rests underneath the cams on the take-up assembly.
6. Using the lower alignment pin, as a reference, reinstall the unit into the printer.
7. Reinstall the springs.

# High Voltage Unit (PL4.19.6)

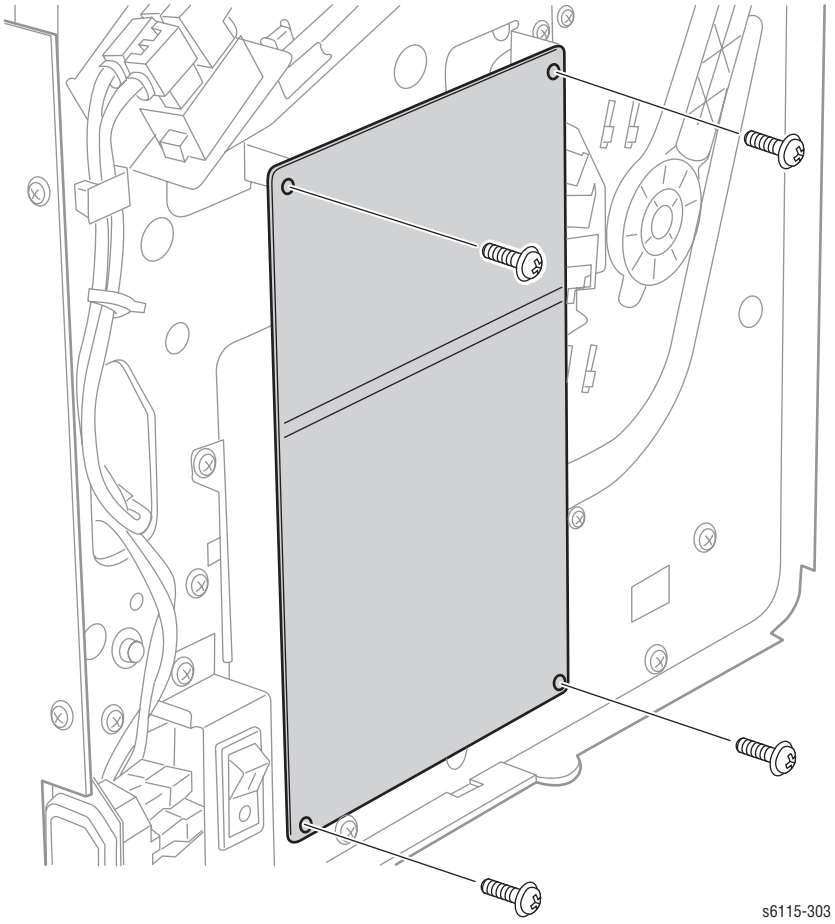
**Warning**

Make sure the power switch is off and the cord is unplugged prior to starting this (or any other) disassembly procedure.

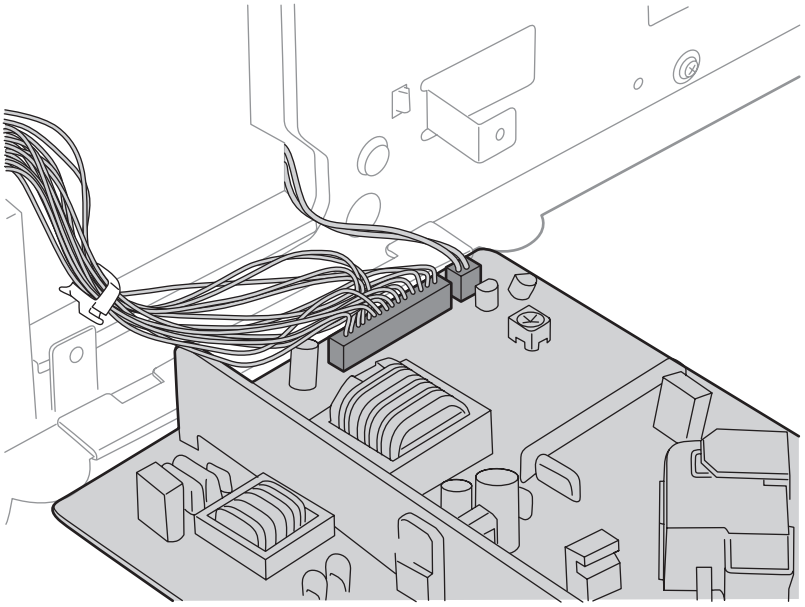
1. Remove the Left Cover (page 8-7).
2. Remove the DC Power Supply 2 (page 8-68).
3. Remove 1 screw (metal, 8mm) and the bracket.



4. Remove 4 screws (metal, 8mm).



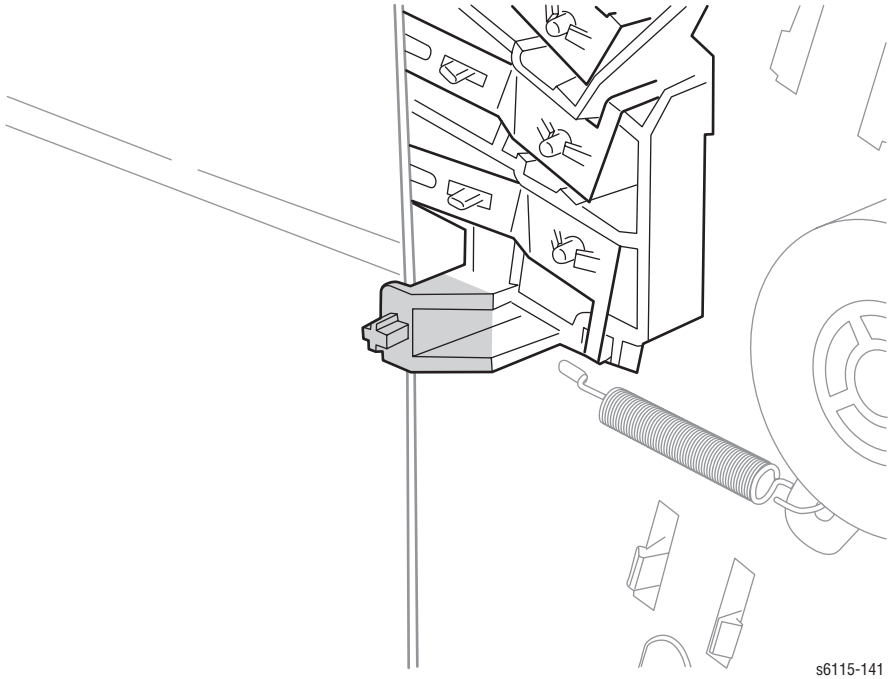
5. Disconnect two connectors and remove the High Voltage Unit.




**Replacement Note**

Make sure that the High Voltage Unit fits underneath the tab as shown in the following illustration.

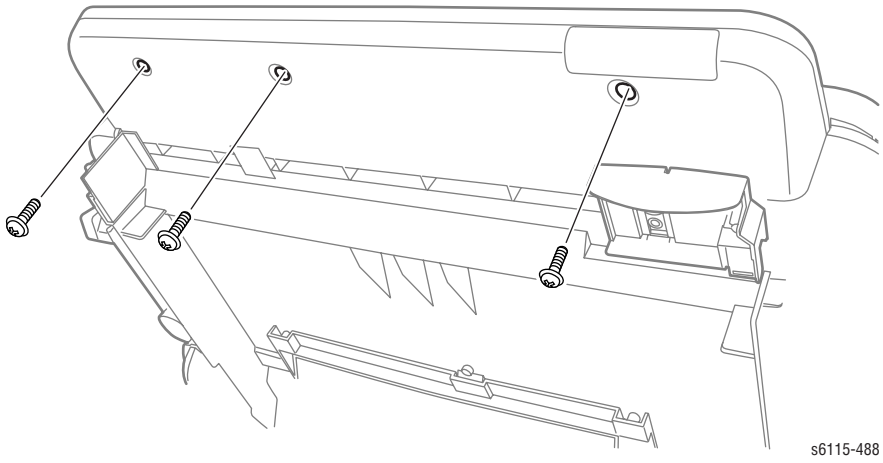
.



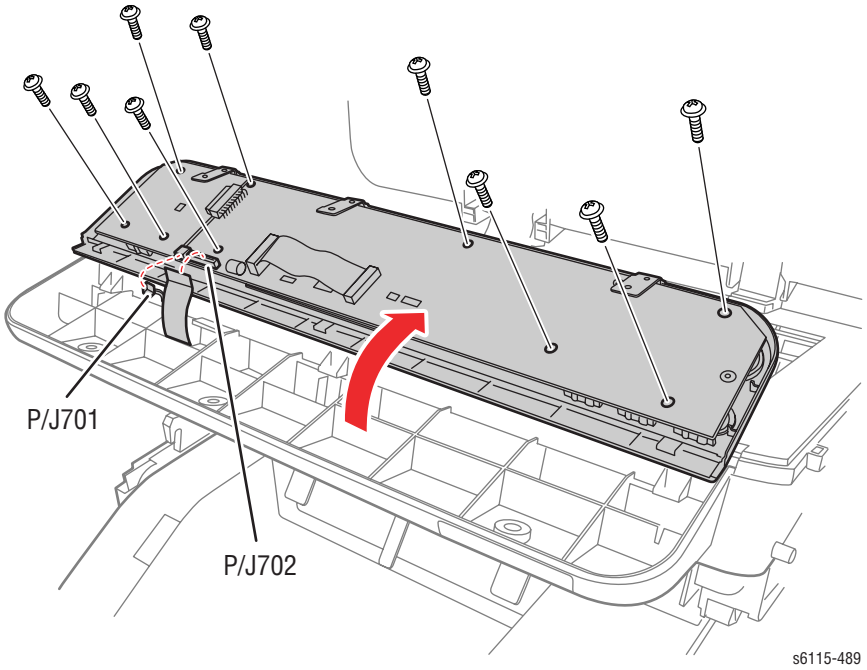
# Disassembly/Assembly Procedures (Main Engine)

## Control Panel (PL3.1.2)

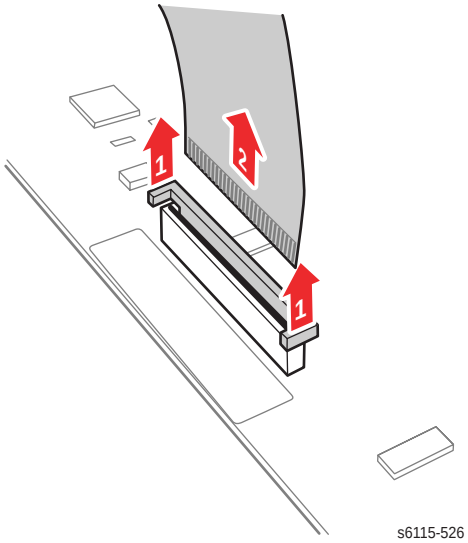
1. Open the Top Cover.
2. Disconnect the connector from the Transfer Belt.
3. Remove 3 screw caps and screws (metal, 8mm) from the Control Panel Cover.




4. Disconnect the 2-wire ADF set switch connector (P/J701).



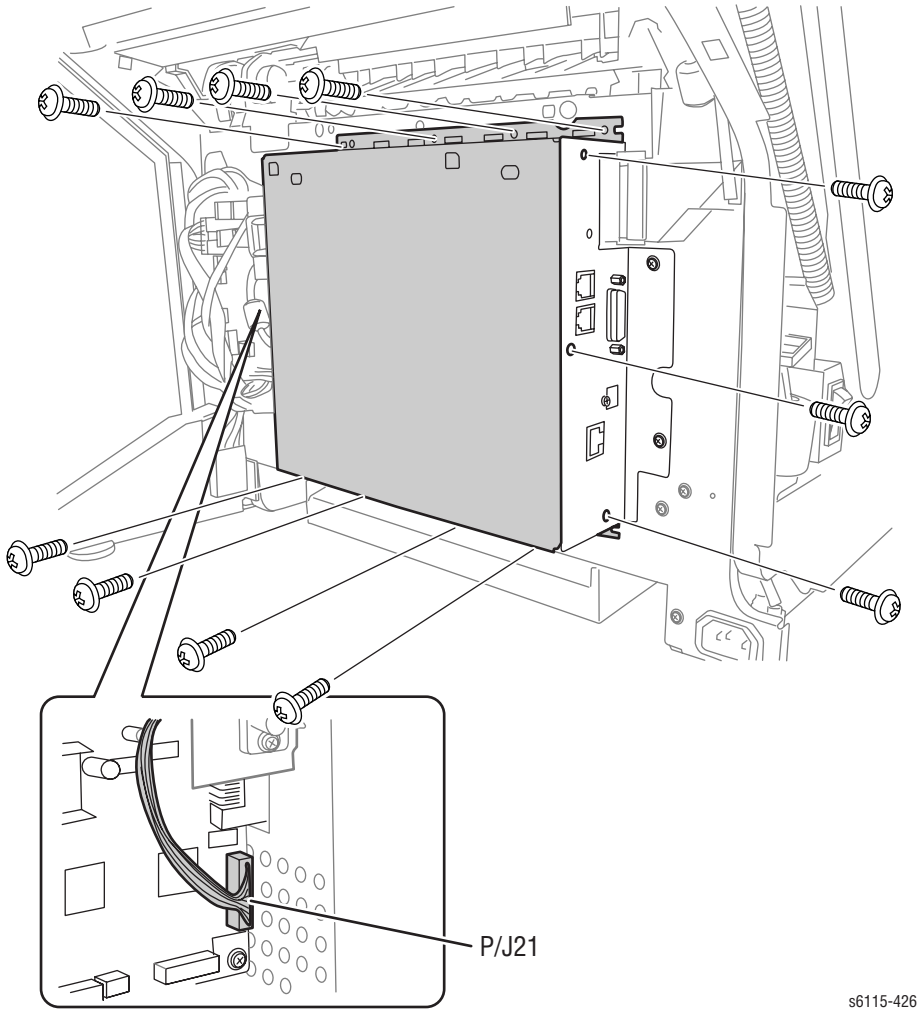
5. Loosen the plastic ribbon cable holder, and then disconnect the ribbon cable connector (P/J702).




6. Remove the ground wire cable.
7. Replace the Control Panel and Assembly.

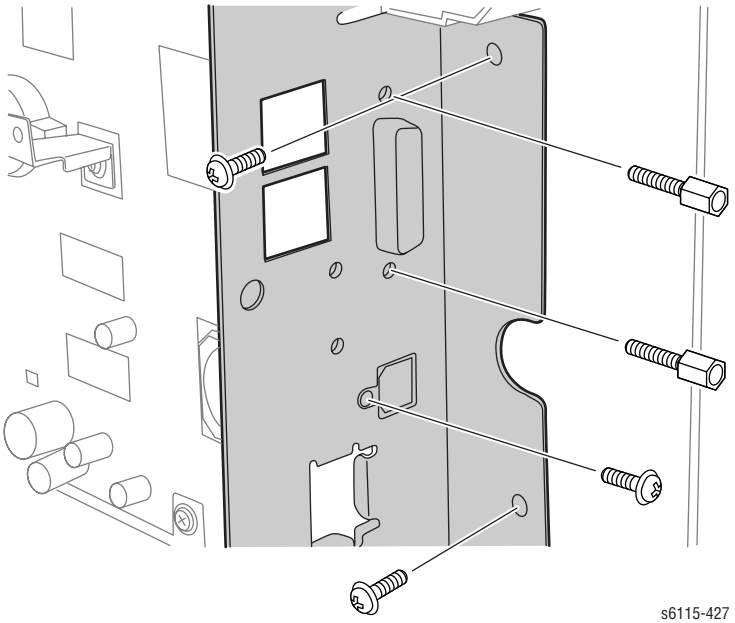
## Image Processor Board (PL4.19.1)

1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Right Cover (page 8-8).
4. Remove 11 screws (metal, 8mm) and disconnect the connectors.
5. Remove the cover of the Image Processor Board.

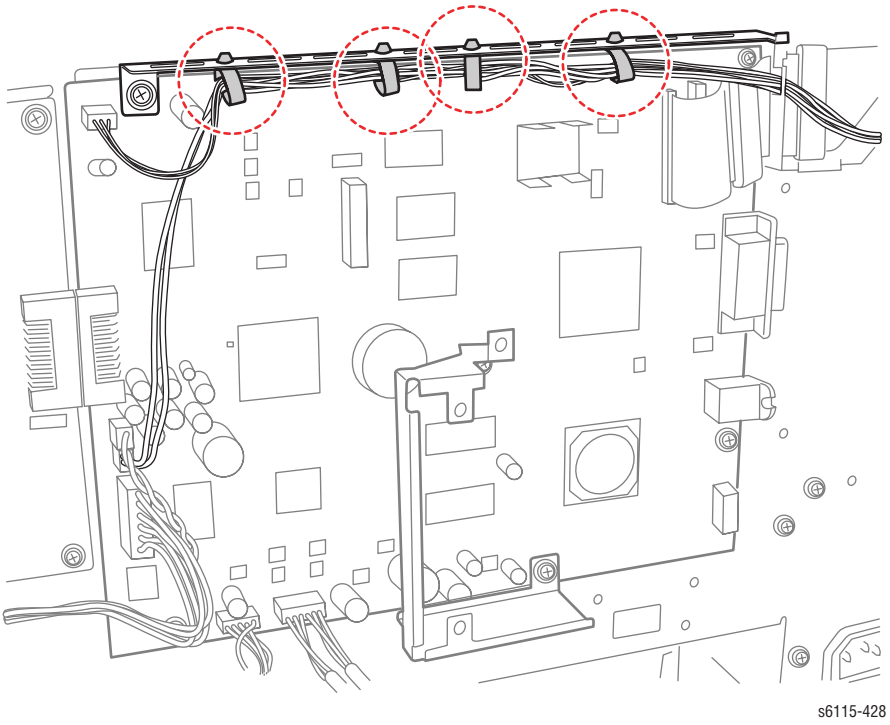



6. Remove the LAN (and FAX Modem) Board (page 8-72).
7. Remove the Network Communication (NCU) Board (page 8-74).

8. Remove 2 screws (metal, 8mm) and two standoff screws to the Rear Panel.

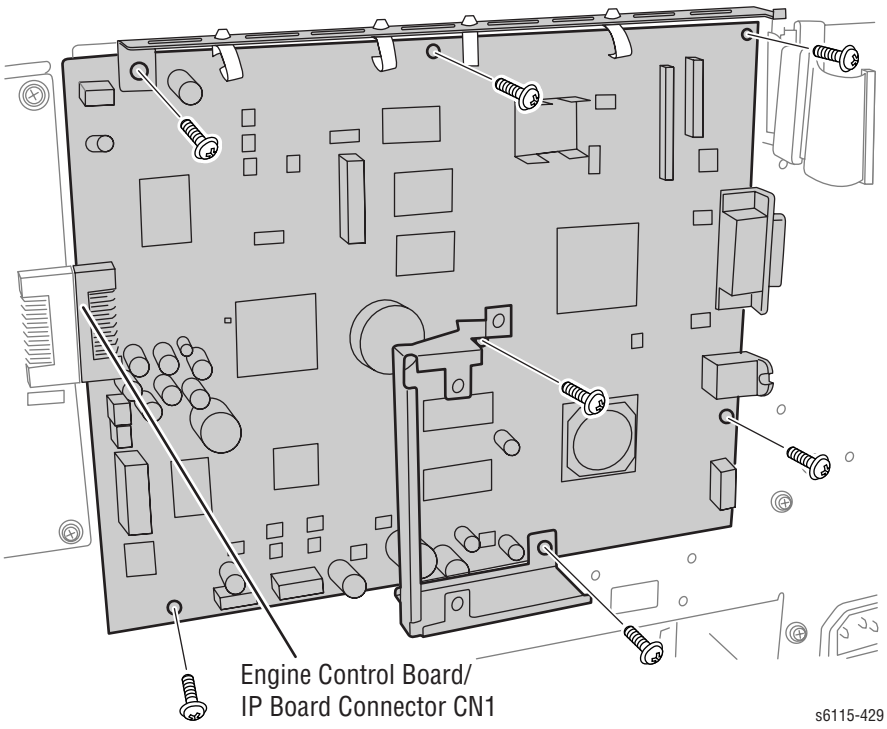



9. Release the 4 plastic cable restraints and disconnect all connectors.




10. Remove 2 screws (metal, 8mm) and remove the bracket on the top portion of the Engine Control Board.

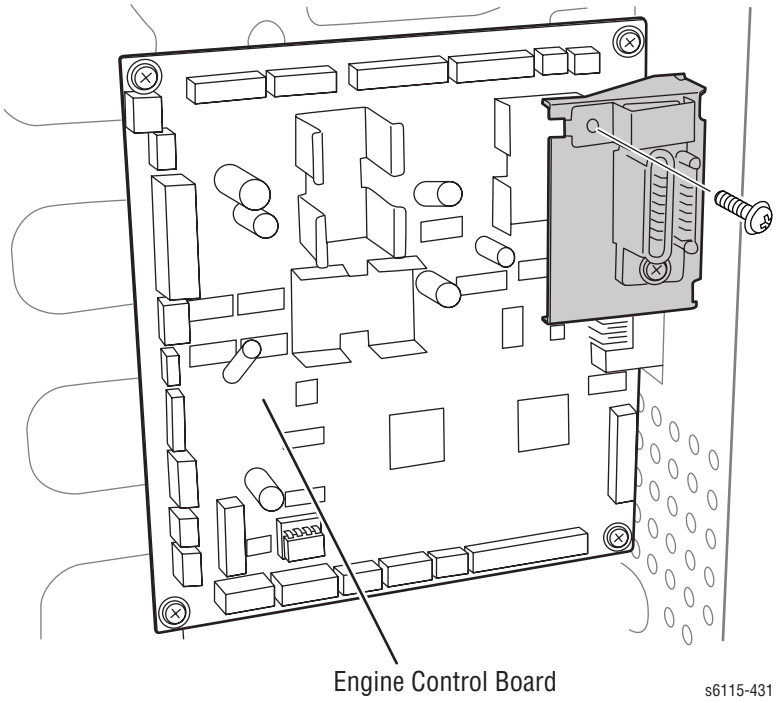
11. Remove 7 screws (metal, 8mm), then disconnect the interconnecting connector from the Engine Control Board to remove the Image Processor Board.



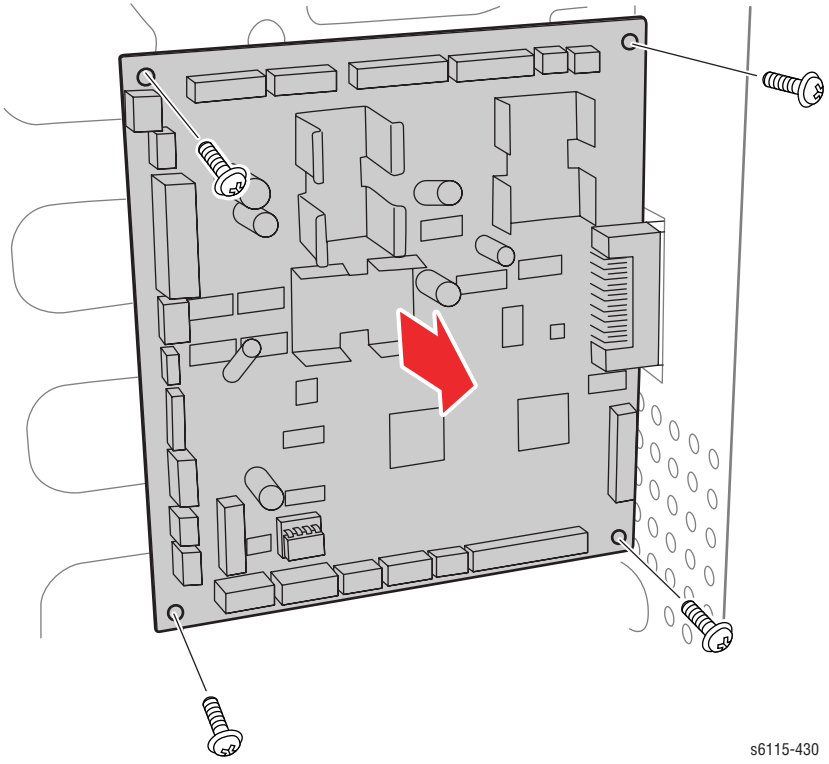

## Engine Control Board (PL4.19.15)

1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Right Cover (page 8-8).
4. Remove the Image Processing Board (page 8-55).
5. Remove 11 screws (metal, 8mm) and disconnect the connectors.
6. Remove the metal protective covering of the Image Processor Board.
7. Remove 1 screw (metal, 8mm) and the connector protective bracket.

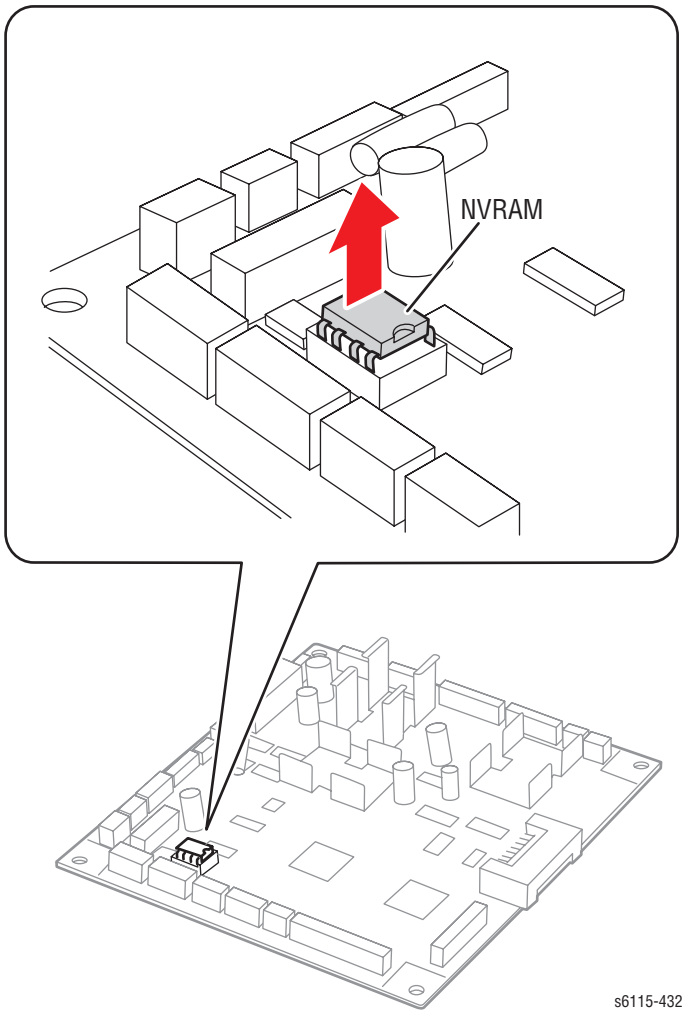
8. Disconnect all connections and flat cables from the Engine Control Board.




9. Remove 4 screws (metal, 8mm) and disconnect the connector from the image processing board.
10. Remove the Engine Control Board.

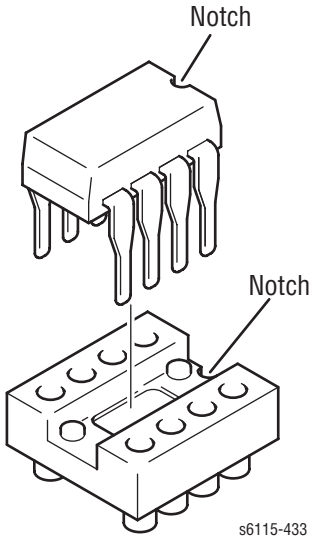


**11.** Remove the Parameter Chip (NVRAM) from the Engine Control Board and move it to the replacement board.



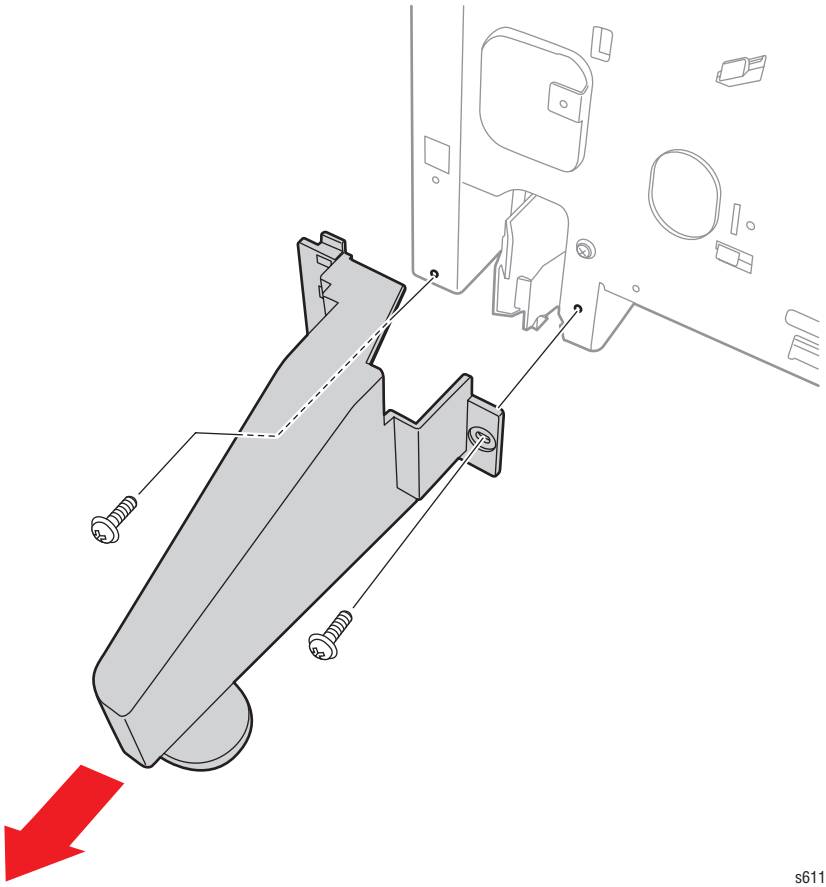

**Replacement Note**

When removing the NVRAM from the old Engine Control Board and mounting it on the new Engine Control Board, be sure to align the NVRAM chip properly to the mounting socket.



## DC Power Supply 1 (PL4.19.3)

1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Right Cover (page 8-8).
4. Remove the Scanner Unit (page 8-25).
5. Remove the NCU Board (page 8-74).
6. Remove the Image Processor Board (page 8-55).
7. Remove the Engine Control Board (page 8-57).
8. Remove 2 screws (metal, 10mm) and the remaining printer foot.



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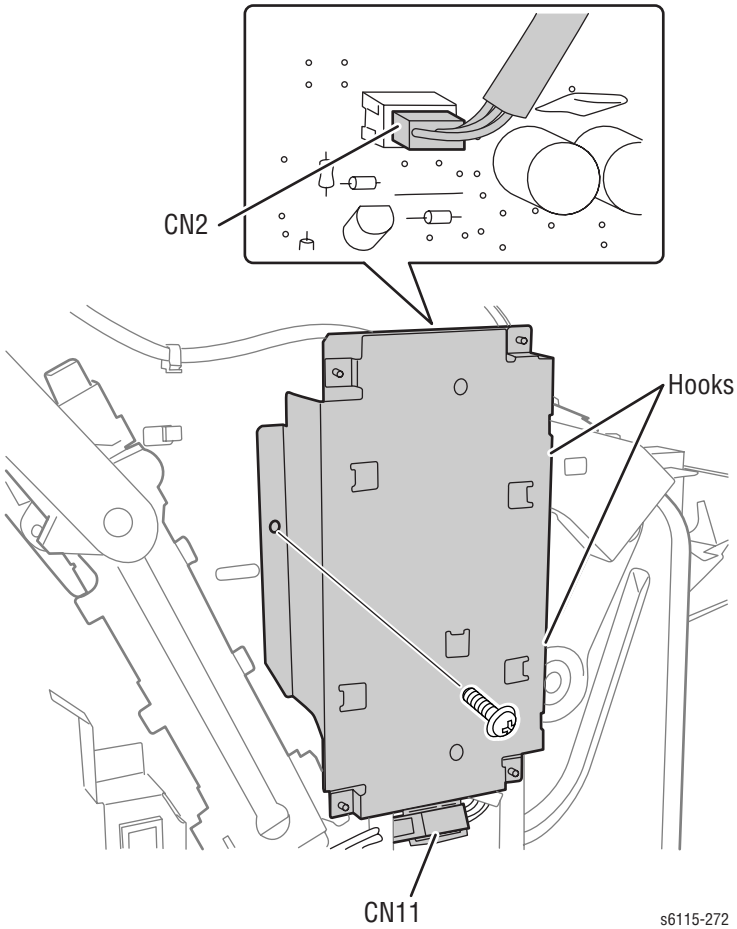
9. Remove 1 screw (metal, 6mm) holding the DC Power Supply 2.




10. Open 2 clamps and disconnect 2 connectors (CN2 and CN11). Then, remove the DC power supply 2 and protective cover.

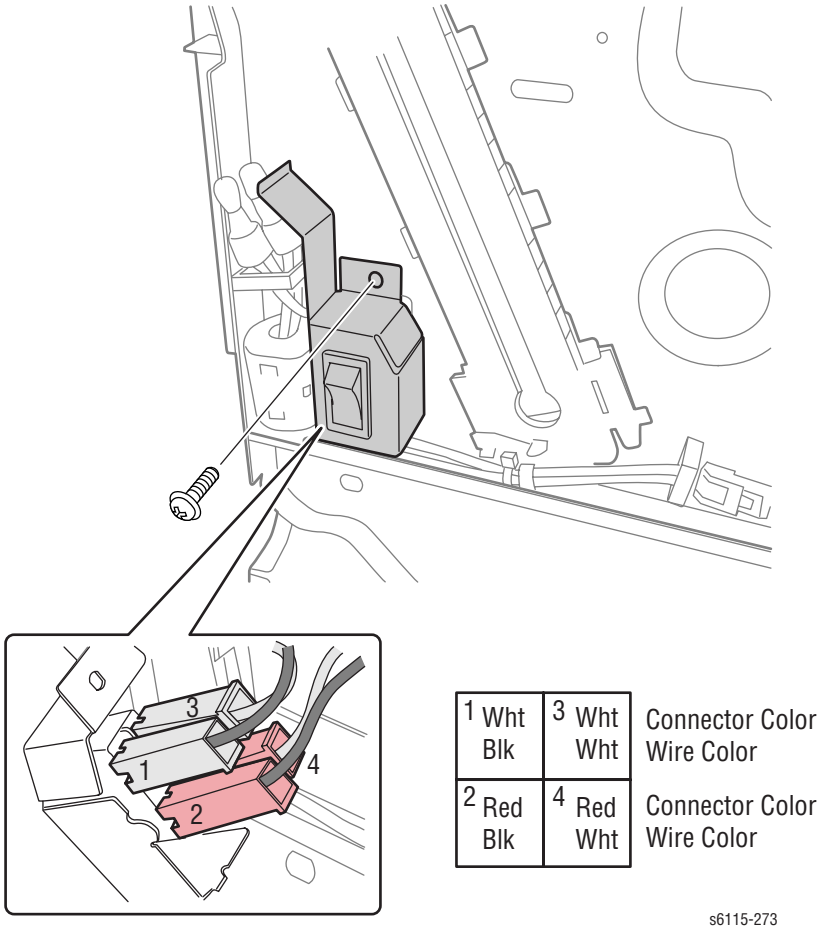
**Note**

Depress the plastic release on CN11 to release the connector.

**Replacement Note**

When replacing, be sure to place the two cover tabs in the hook slots.

**11.** Remove 1 screw (metal, 8mm) from the Power Switch holder.



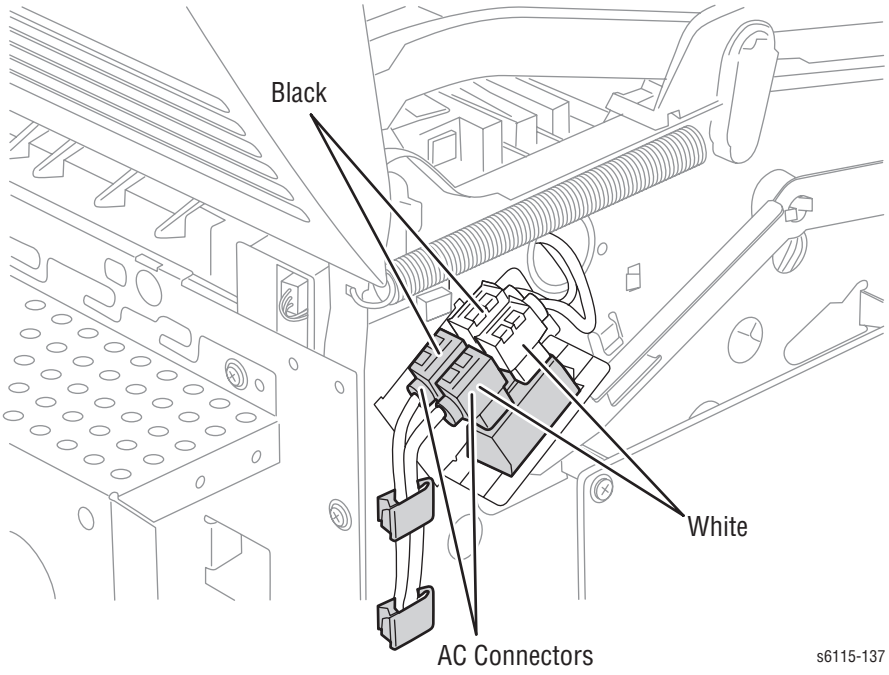

**12.** Disconnect 4 connectors and remove the Power Switch.

**Caution**

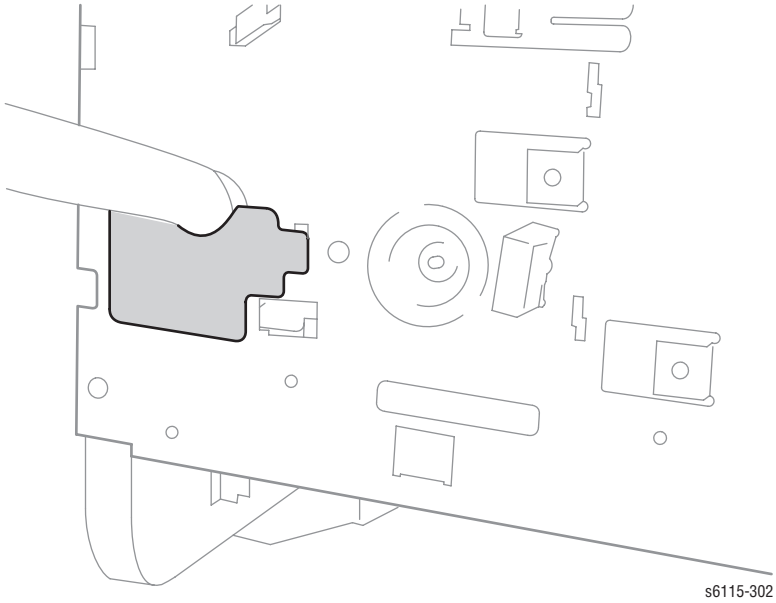
At reinstallation, make sure each connector is in its proper position.

| | Color of connector | Color of harness |
|---|---|---|
| 1 | White | Black |
| 2 | Red | Black |
| 3 | White | White |
| 4 | Red | White |

13. Disconnect the rear white and black connectors of the Fuser Interlock Switch and remove the wire from 2 wiring clamps.




14. Remove the harness protective plate.

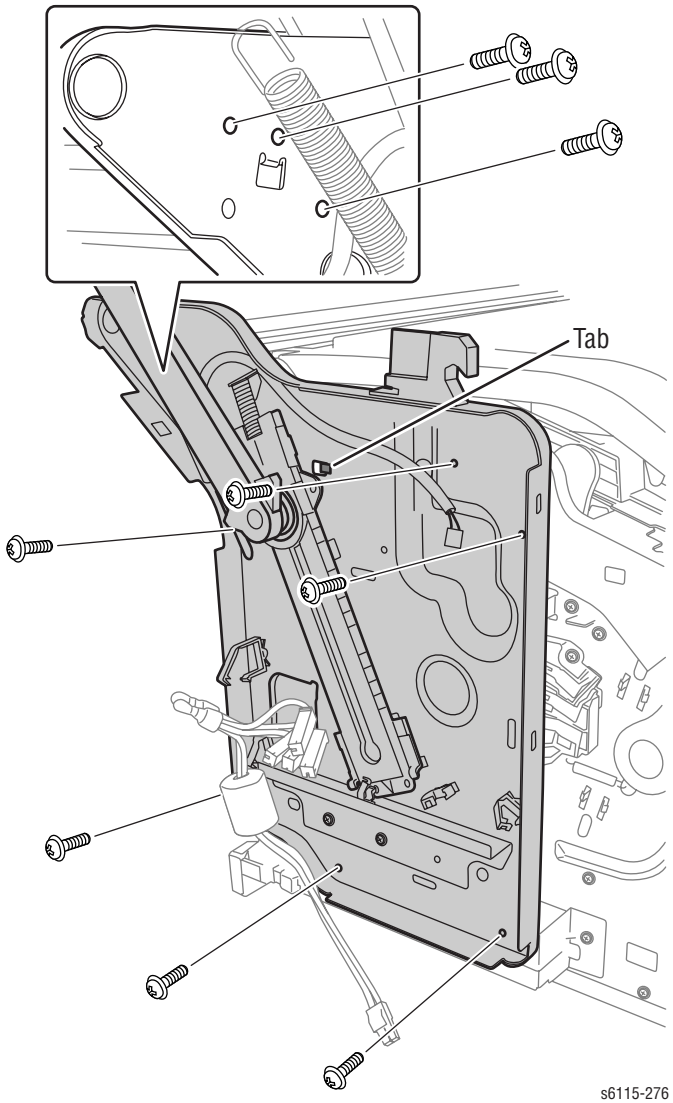



15. Disconnect all AC power harnesses to free the left side brace.

**Note**

Remove the green grounding wire from the AC Unit.

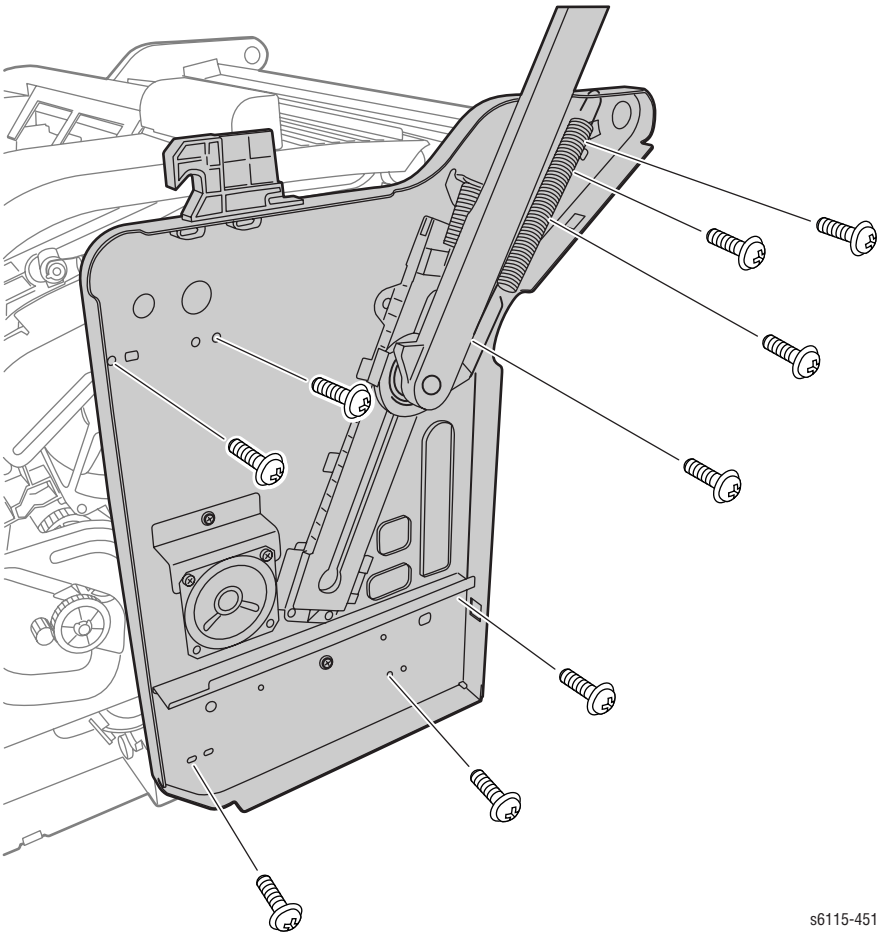
**16.** Remove 9 screws (metal, 8mm) and one 6mm screw (and washer), and free the left frame from the chassis.




**Replacement Note**

Carefully place the hook on the tab when replacing the frame.

17. Remove 9 screws (metal, 8mm) from the right frame.

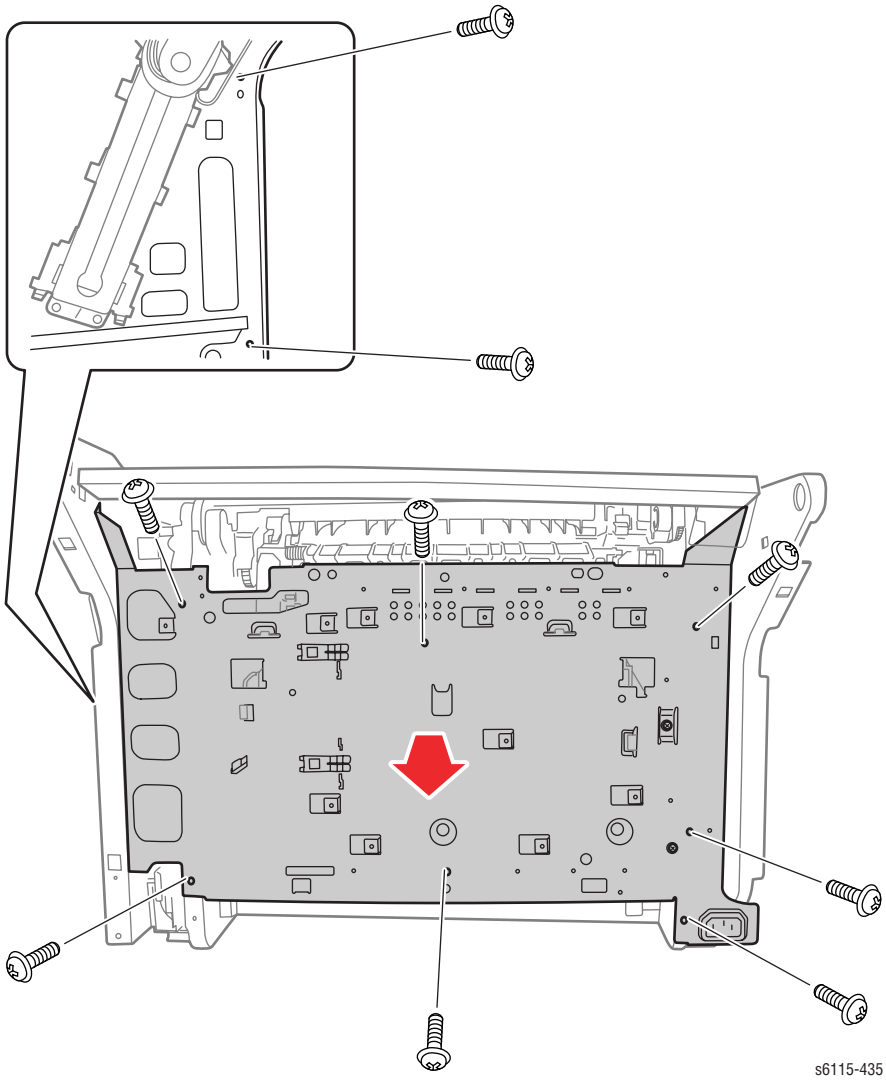



18. Disconnect the speaker wire and remove it from the retaining clamp, then remove the right frame, leaving only the cross-member of the right frame.

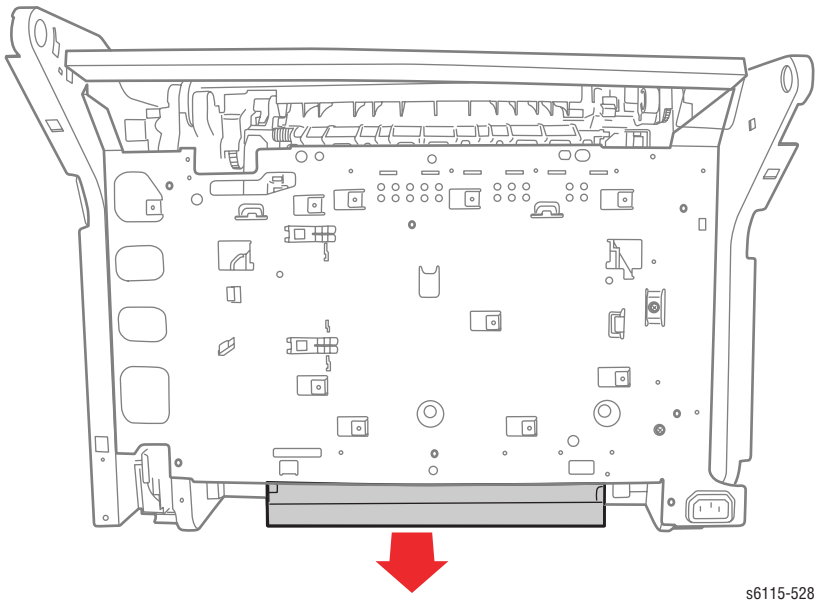
**Caution**

Be careful in the following step when freeing the assembly from the wiring harnesses.

19. Remove 9 screws (metal, 8mm) and pull the DC power supply assembly toward you.

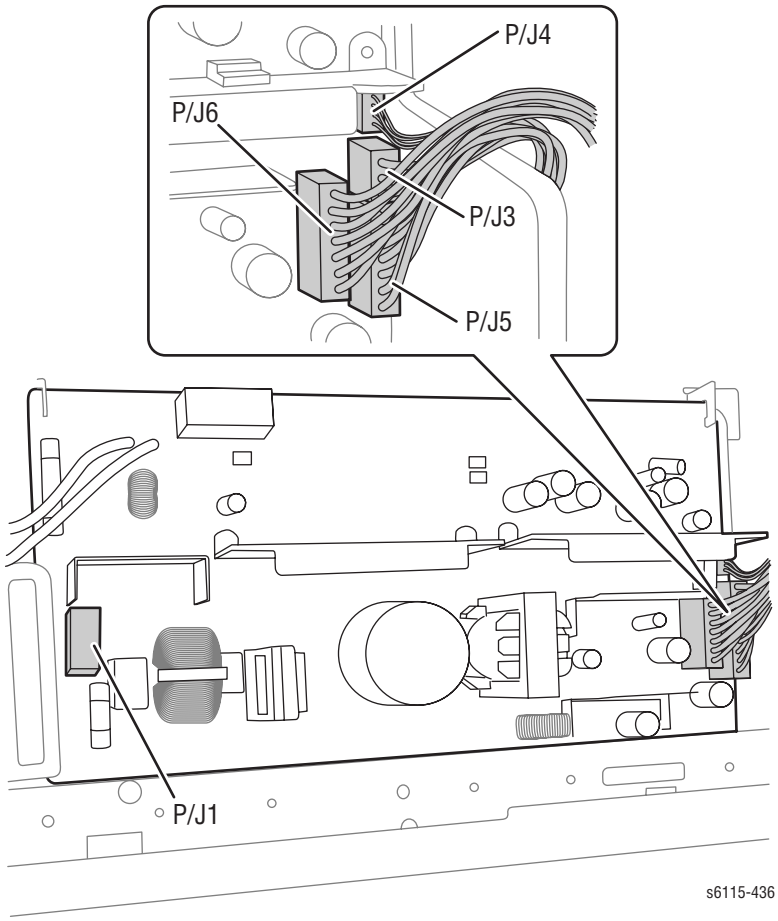


20. From the bottom of the chassis, loosen 2 tabs from two hooks and remove the Plastic Paper Guide.

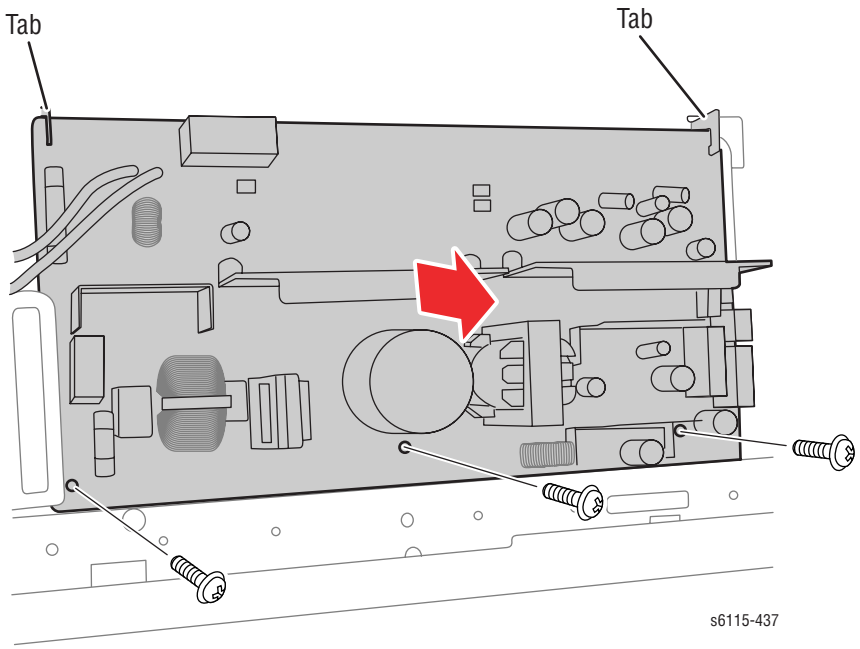



21. To access the connectors, push the exposed wiring through the hole in the plate until you can pull the assembly far enough away from the chassis to reach the connectors.

22. Disconnect 5 connectors from the DC Power Supply 1 board.



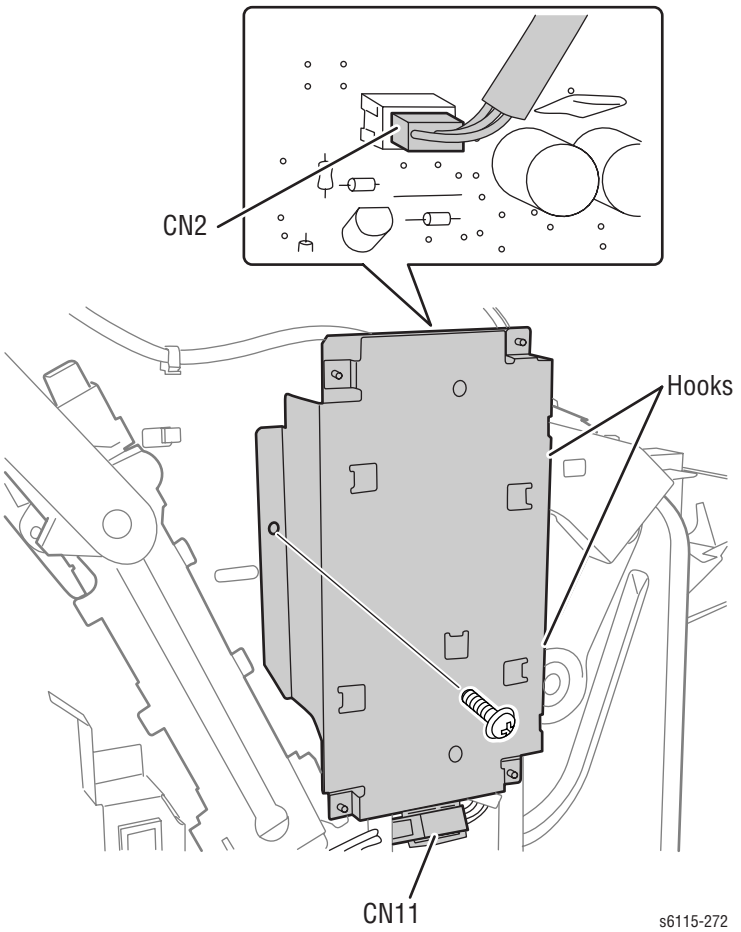
23. Remove 3 screws (metal, 8mm), release two tabs, then remove the DC Power Supply 1.



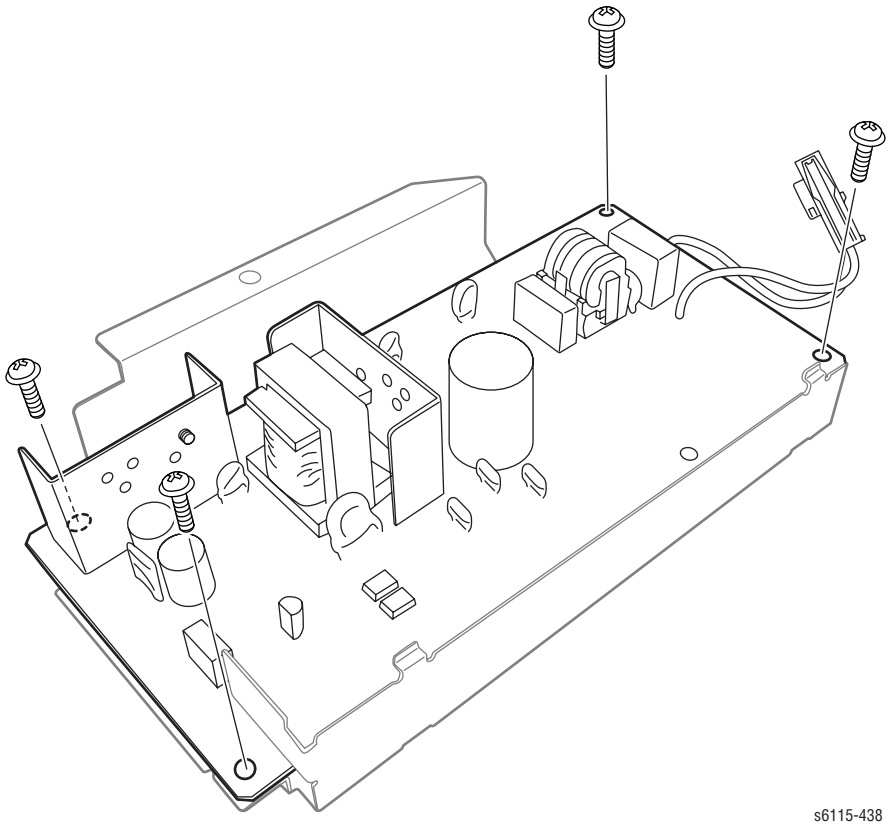

## DC Power Supply 2 (PL4.5.4)

1. Remove the Left Cover (page 8-7).
2. Remove 1 screw (metal, 8mm).
3. Remove 2 saddle harnesses and disconnect connectors CN2 and CN11 (see illustration).

4. Remove the power supply cover plate.




5. Remove 4 screws (metal, 8mm) and the DC Power Supply 2.

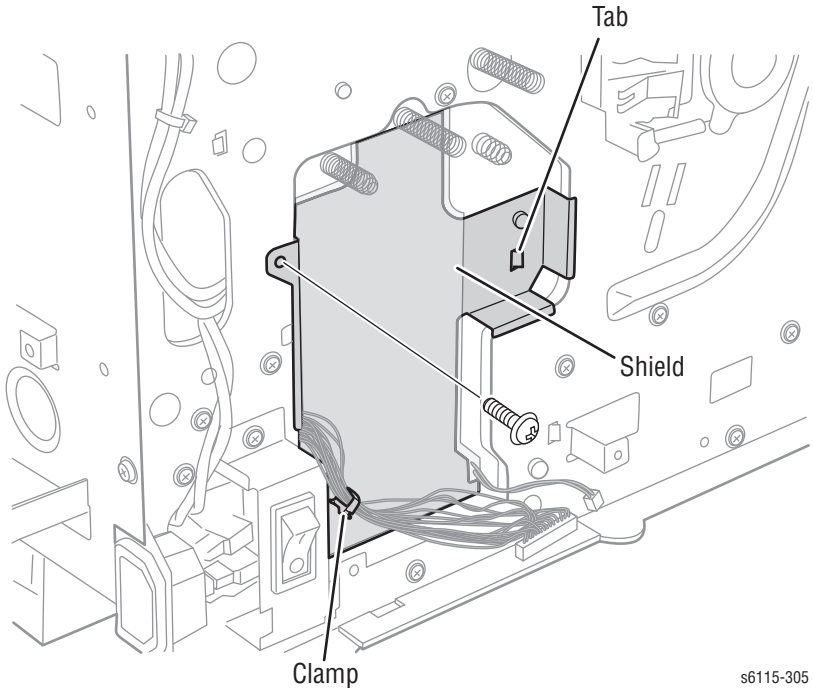


## Waste Toner Near Full Detection Board/LED (PL4.6.6)

1. Remove the High Voltage Unit (page 8-50).
2. Remove 1 screw (metal, 10mm), unlock the tab and the wiring clamp, then remove the shield.

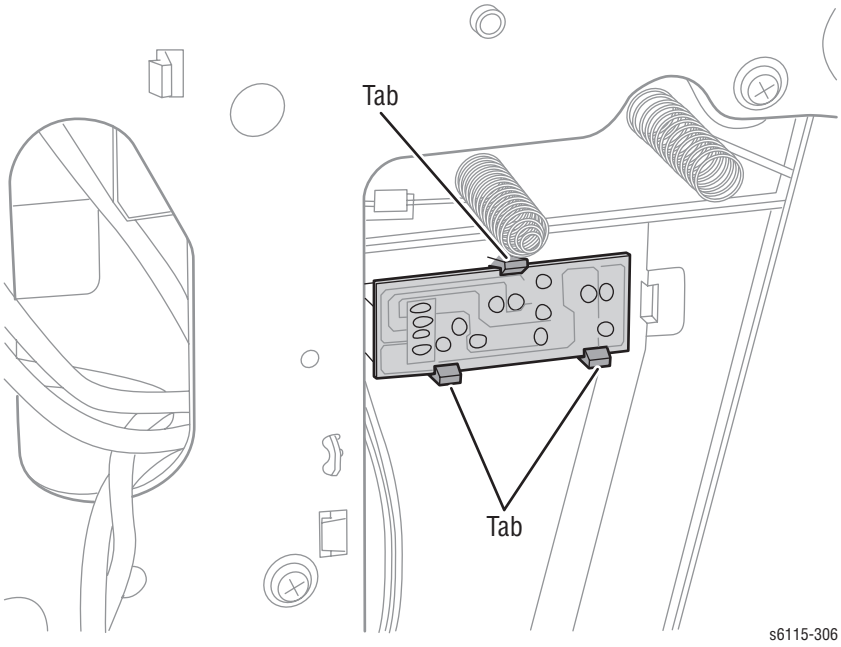
**Caution**

Use caution when unlocking the tab.
,

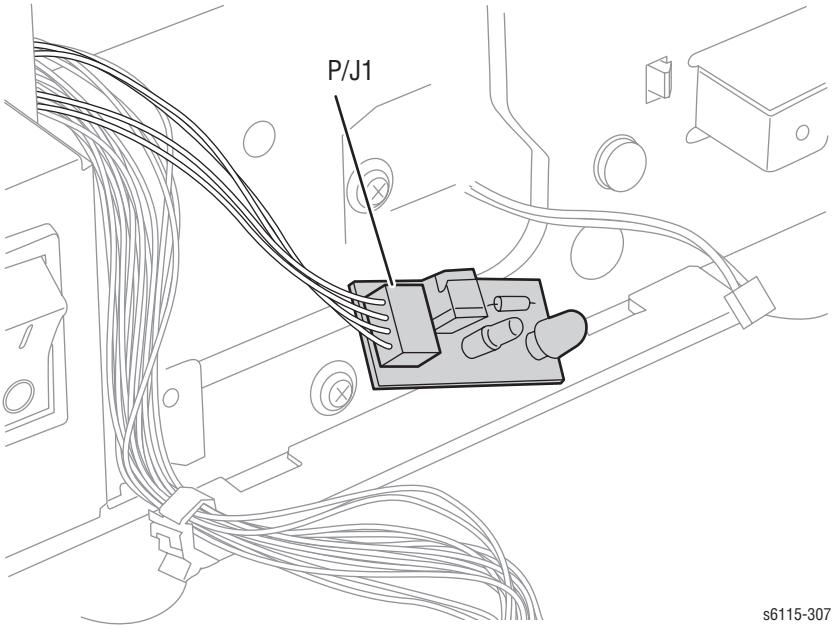



**Note**

When reinstalling the shield, make sure that no part of the wiring harness is wedged in the mechanism.



3. Unlock 3 tabs and disconnect the connector (P/J1) of the Waste Toner Near Full Detection Board/LED to remove.

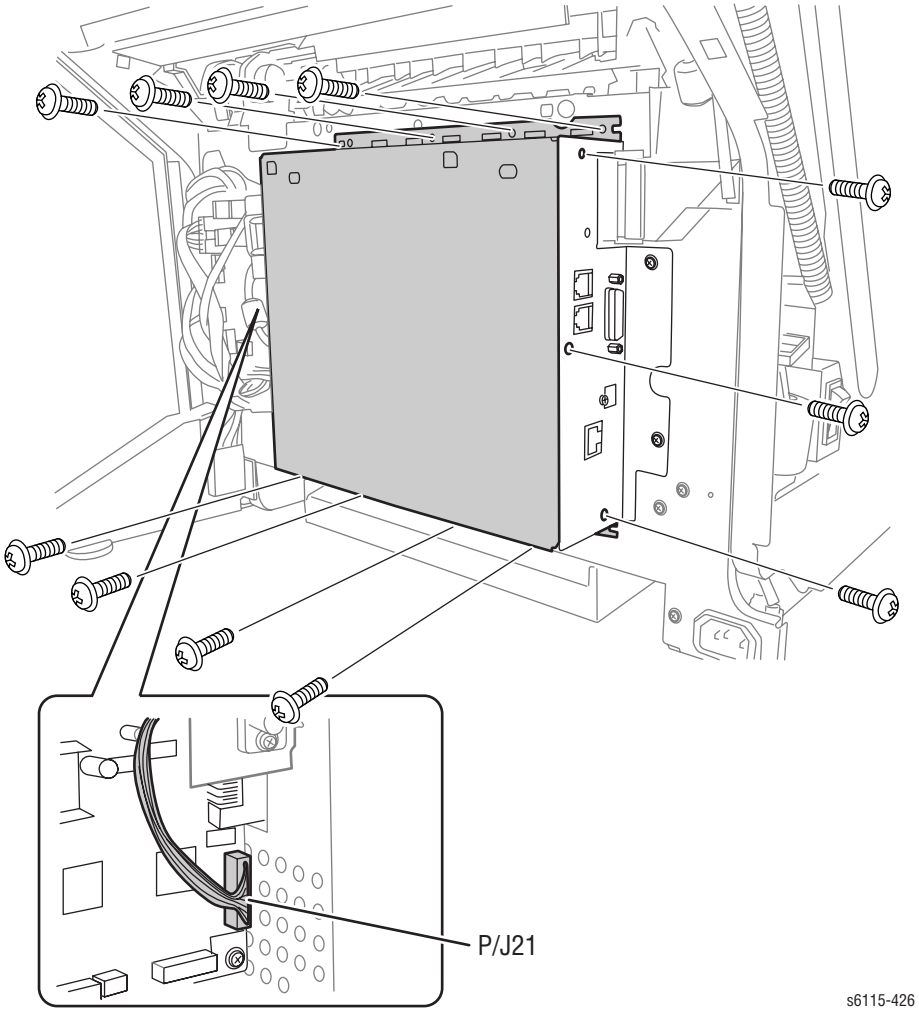


## LAN (and FAX Modem) Board (PL4.19.11)

1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove 11 screws (metal, 10mm) and disconnect the connector.
4. Remove the protective covering of the Image Processing Board.

**Caution**

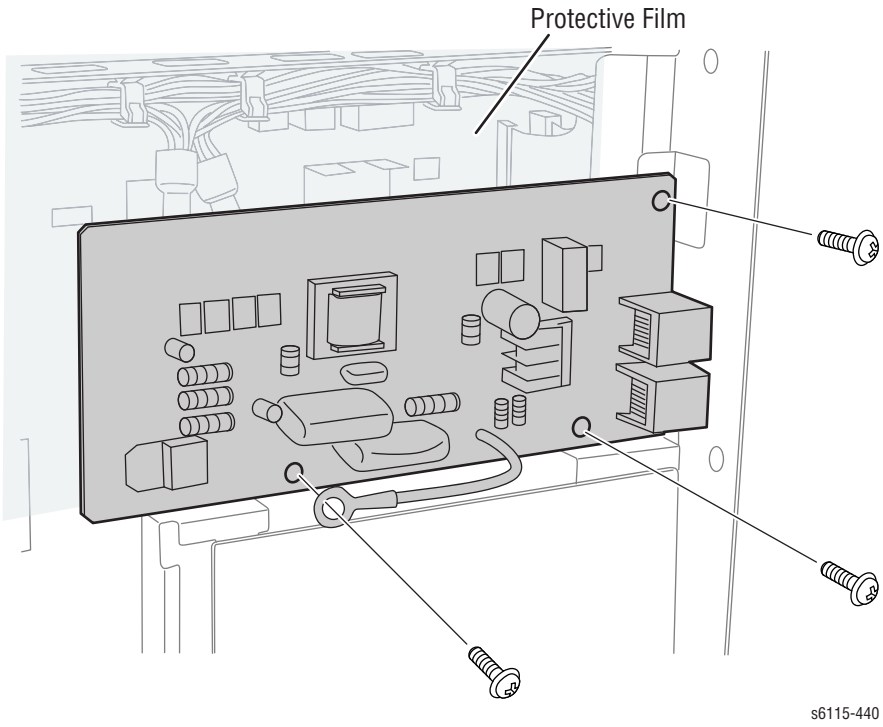
To avoid damage to the cover, use caution when unlocking the tabs.



5. Remove 3 screws (metal, 8mm) from the LAN (and FAX Modem) board and disconnect the board from the connector.

**Replacement Note**

When reinstalling the board, be sure to reinstall the protective cover.

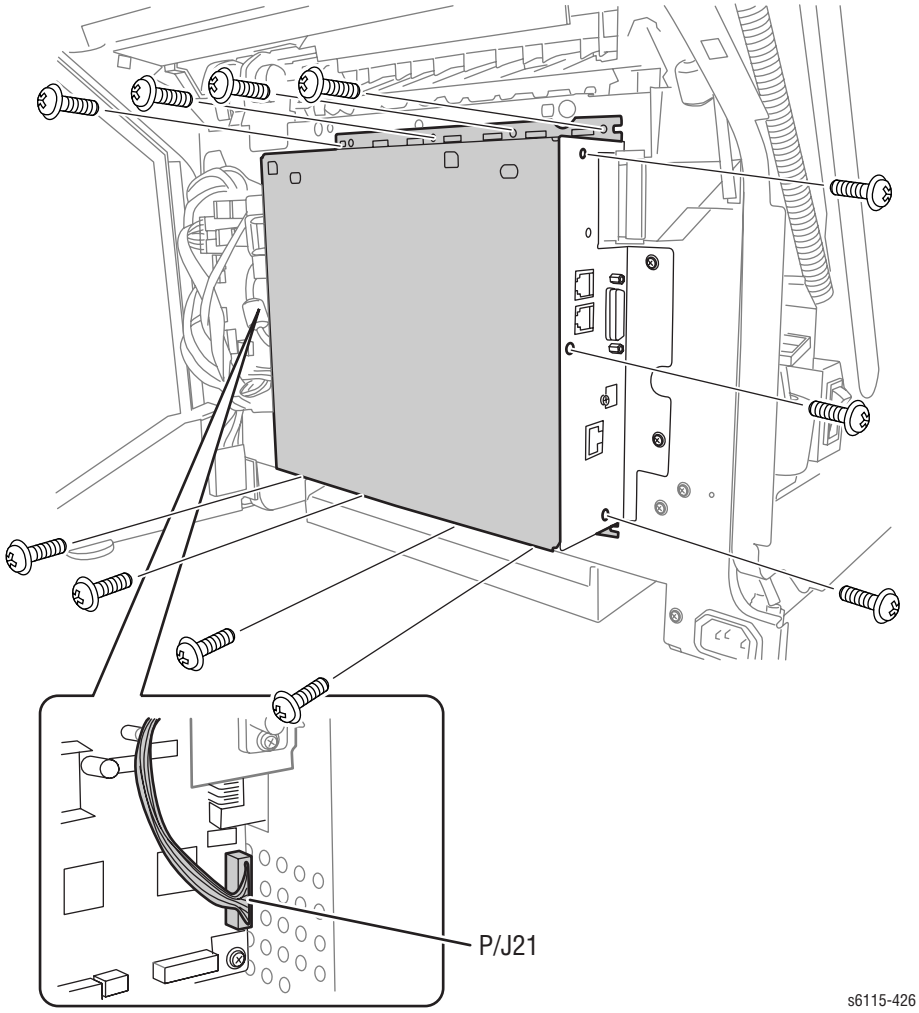


## NCU (Network Card) Board (PL4.19.14)

1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove 11 screws (metal, 10mm) and disconnect the connector.
4. Remove the protective covering from the board.

**Caution**

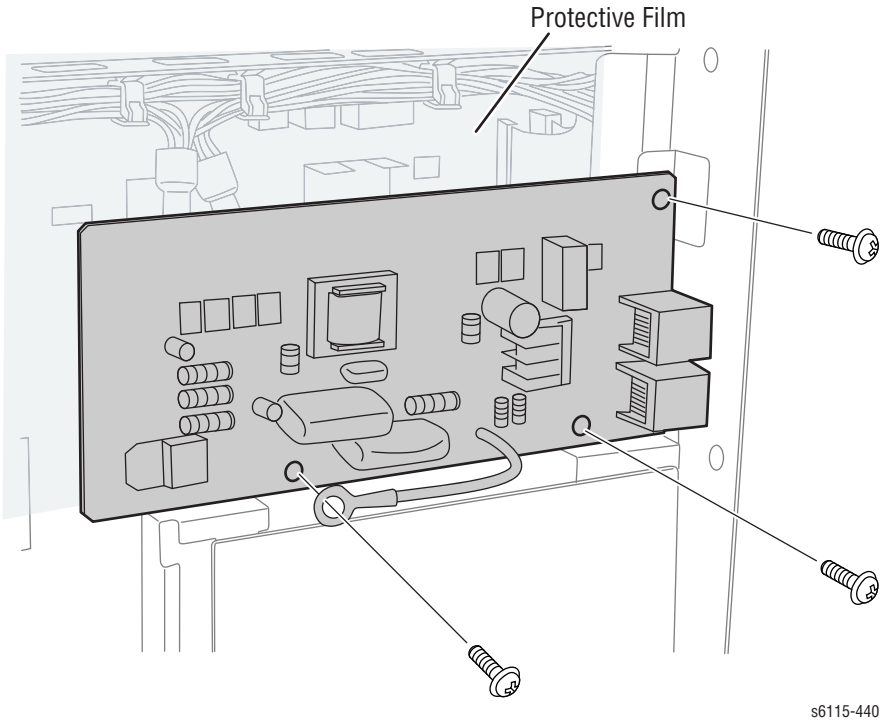
When reinstalling the board, be sure to reinstall the protective covering.



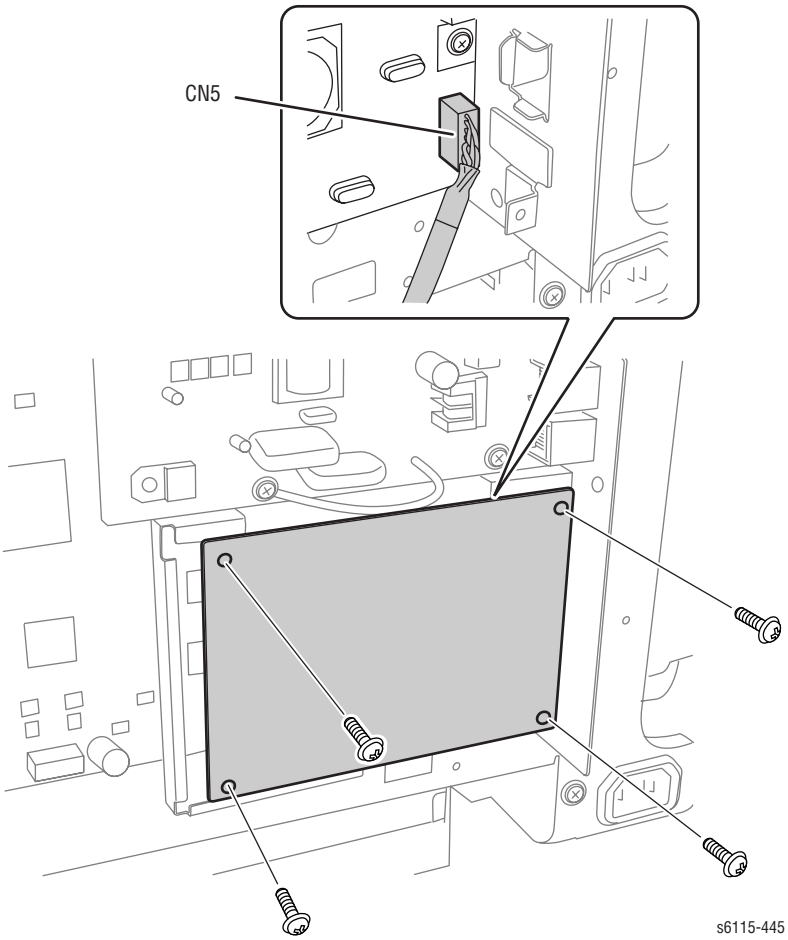
5. To provide access to the NCU board, first remove 3 screws (metal, 8mm) from the LAN (and FAX Modem) board and disconnect it from the connector.

**Note**

When reinstalling the board, be sure to reinstall the protective cover.



6. Remove the NCU board.

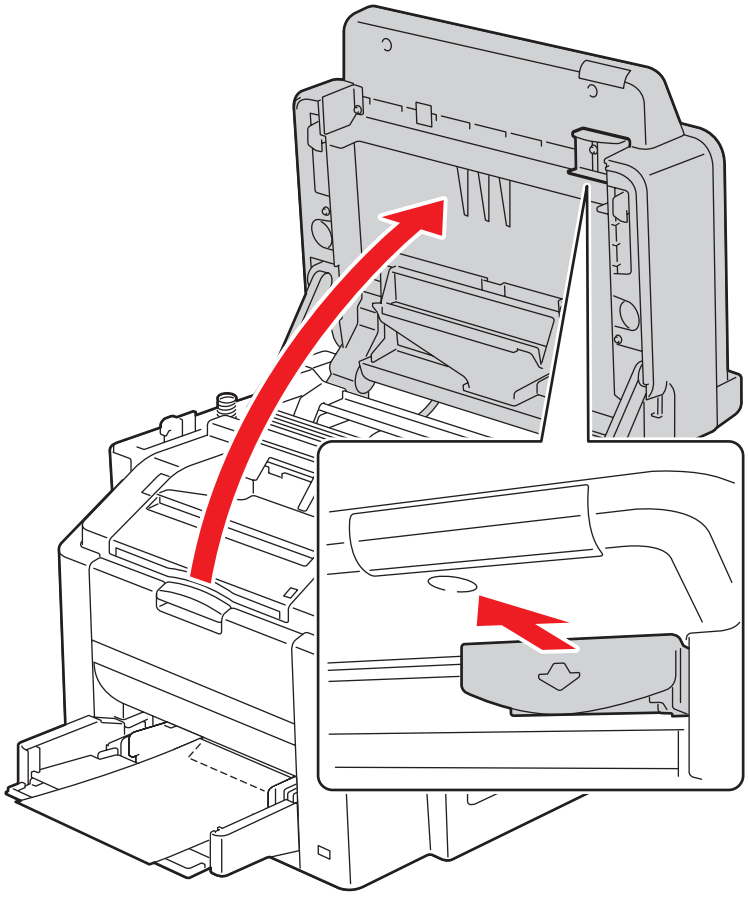


## AC Inlet Harness (PL4.19.7)

1. Pull the lever to release the Scanner Unit.

**Note**

Note that the Scanner Unit cannot be swung up with the Auto Document Feeder Unit in its raised position.



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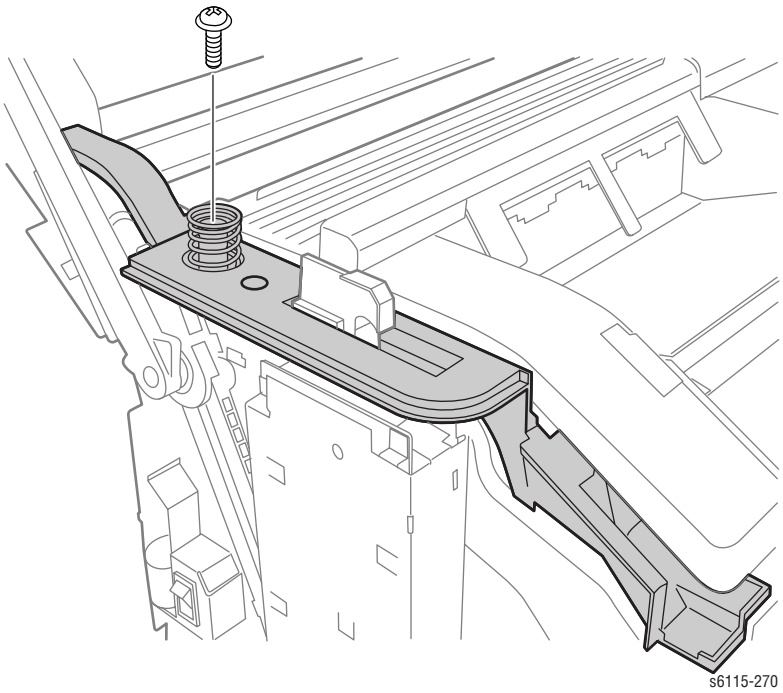
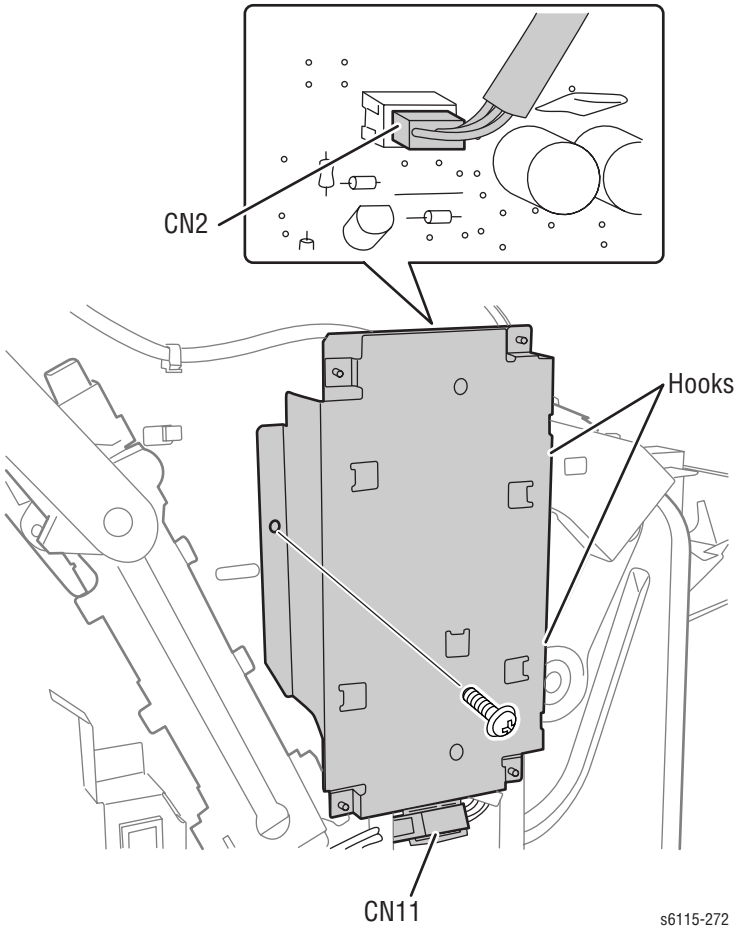
2. Remove the Auto Document Feeder Unit (page 8-11).
3. Remove the Scanner Unit (page 8-25).

4. Remove 1 screw (metal, 10mm) and the top left cover.



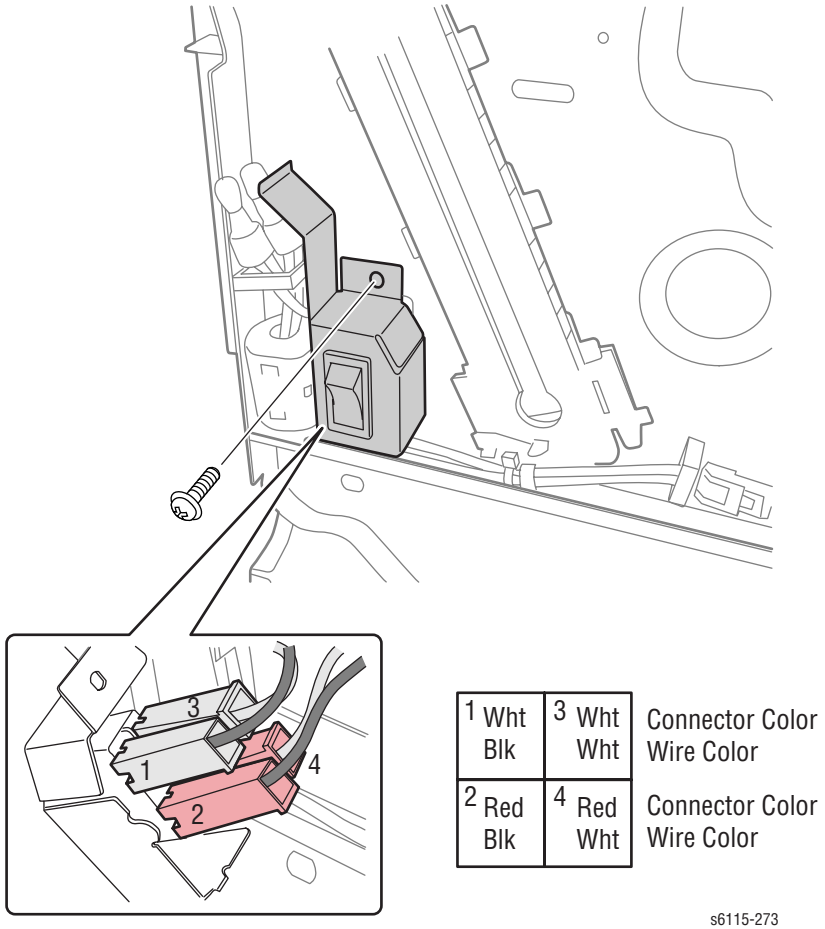

5. Remove 1 screw (metal, 10mm) from the protective cover.
6. Remove two clamps and disconnect two connectors (CN1 and CN11). Then, remove the DC power supply 2 protective cover from the hooks.



7. Remove 1 screw (metal, 10mm) from the Power Switch.
8. Disconnect 4 connectors and remove the Power Switch.

**Replacement Note**

At reinstallation, make sure of the correct position of each connector..




| | | | |
|---|---|---|---|
| 1 Wht Blk | 3 Wht Wht | Connector Color Wire Color |
| 2 Red Blk | 4 Red Wht | Connector Color Wire Color |

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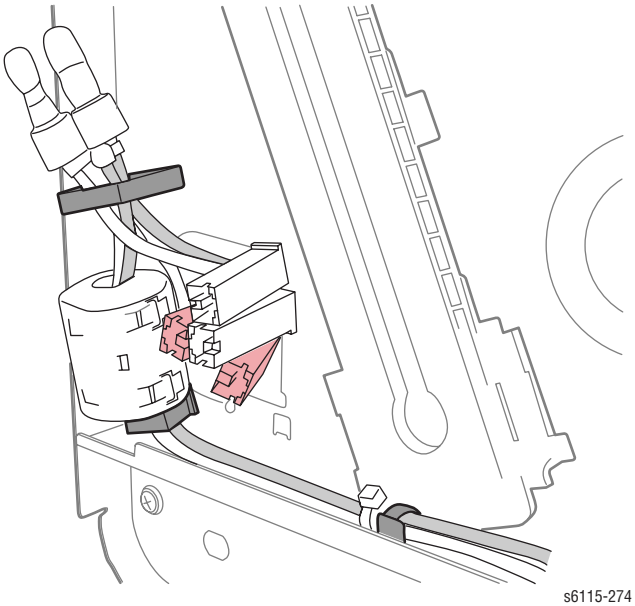
| | Color of connector | Color of harness |
|---|---|---|
| 1 | White | Black |
| 2 | Red | Black |
| 3 | White | White |
| 4 | Red | White |

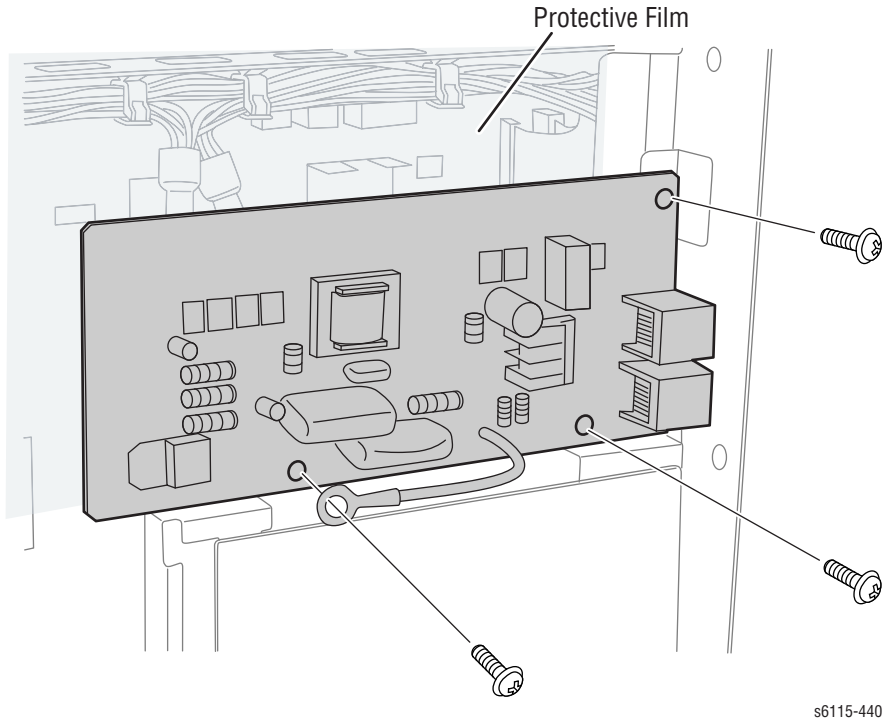
9. Remove 3 clamps and release the harness.



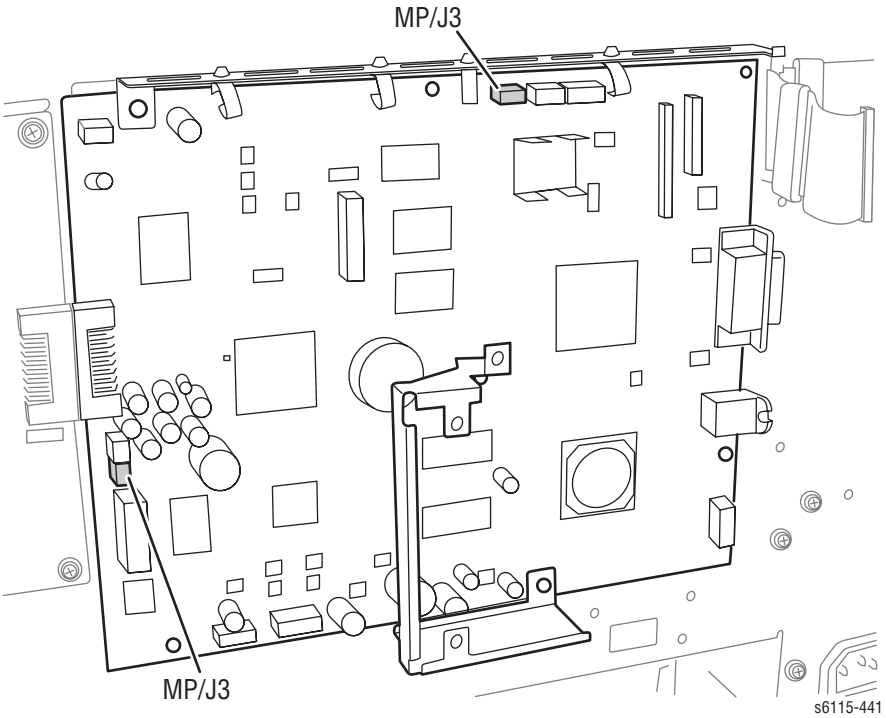

10. Remove 3 screws (metal, 8mm) and the NCU board. Then, remove the protective film.

**Replacement Note**

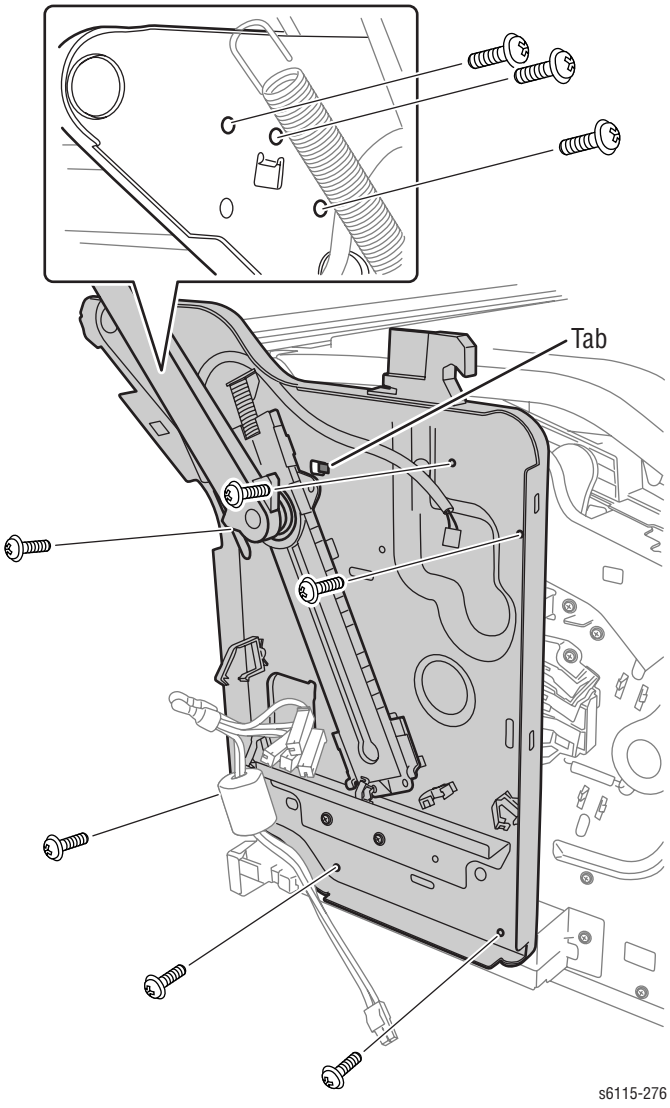
Make sure to reinstall the protective film when reinstalling the board.



11. Disconnect 2 connectors (MPJ2, MPJ3) from the Image Processing Board.



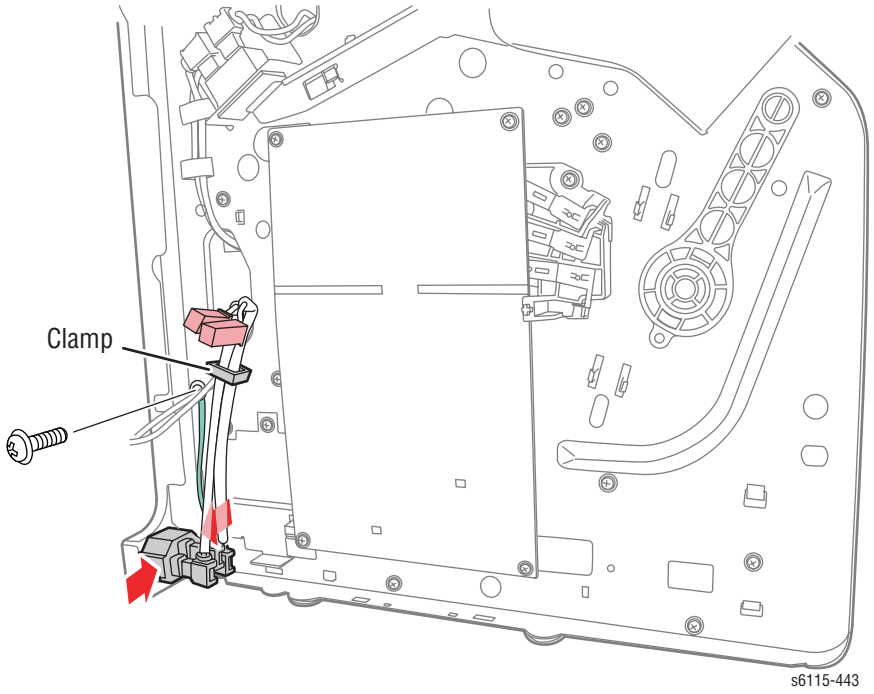
**12.** Remove 9 screws (metal, 10mm) and the left frame.




**13.** Remove 1 screw (metal, 10mm) and remove the bracket.

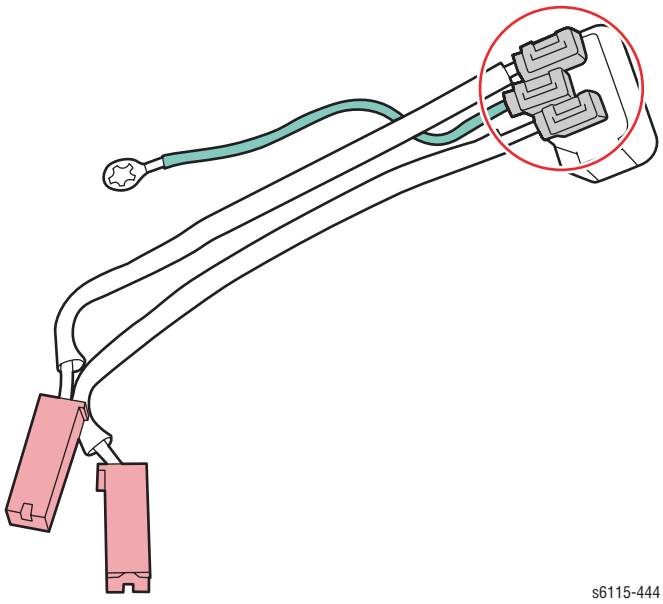
**14.** Remove 1 screw (metal, 12mm) and the ground.

15. Remove the clamp. Then, holding down the tabs, remove the AC Inlet Harness.




**Caution**

Never unplug the faston terminals from the Inlet. If the terminals are unplugged, do not use the AC Inlet Harness. Be sure to use a new harness.

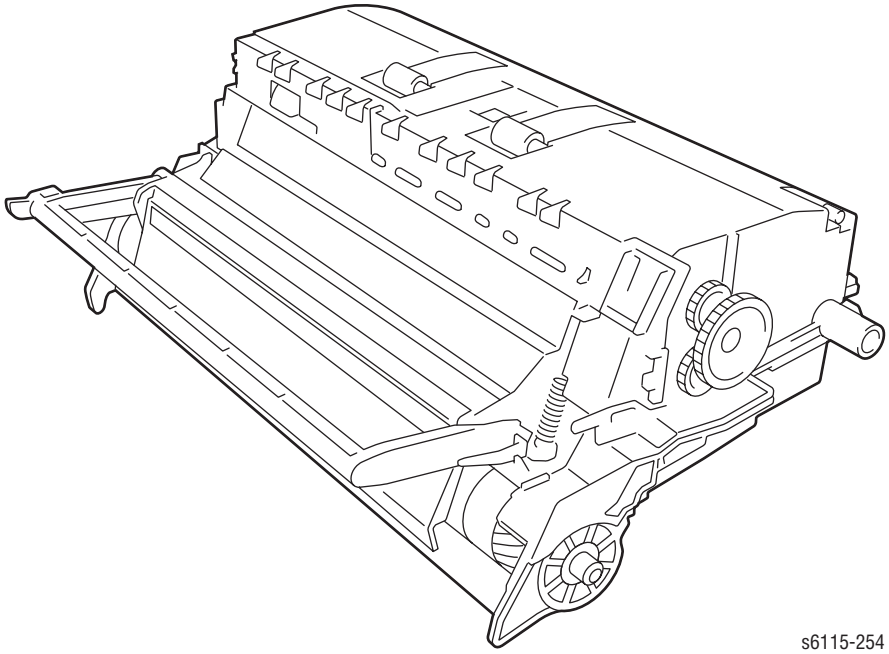


## Paper Feed Roller (PL4.20.17)

1. Open the Top Cover (page 8-4).
2. Remove the Imaging Unit and place it in a horizontal position.

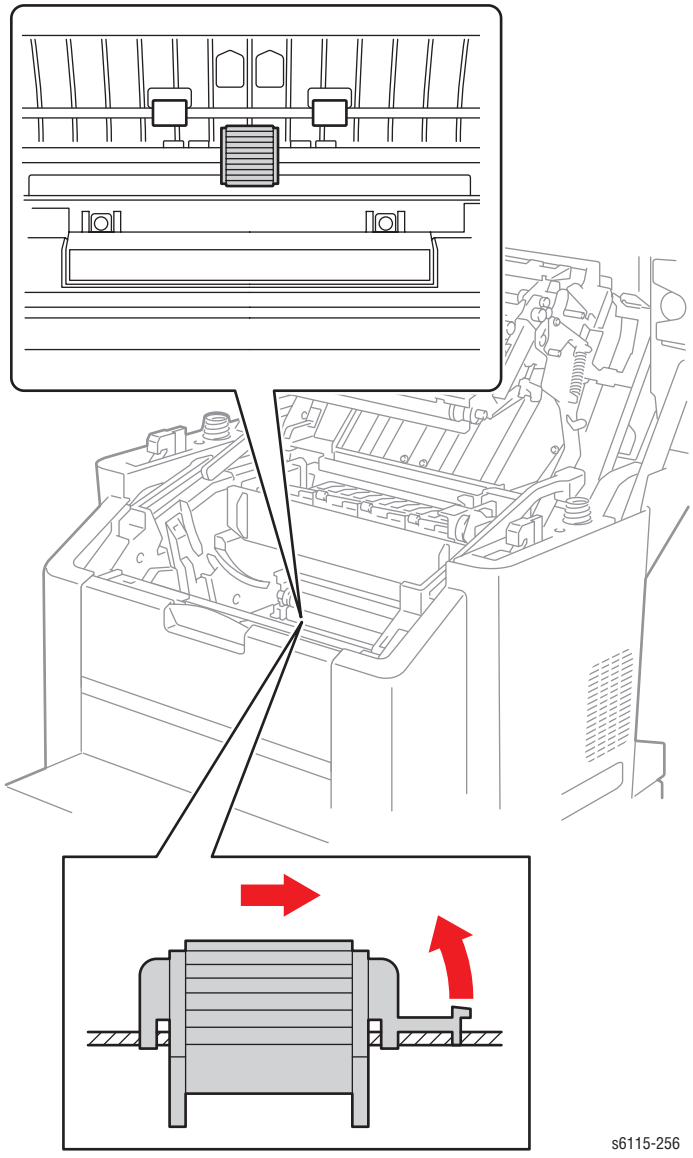
**Note**

Do not leave the Imaging Unit removed for more than 15 minutes, and do not place the removed Imaging Unit in a location where it will be exposed to direct light (such as sunlight).



s6115-254

3. Remove the Paper Feed Roller

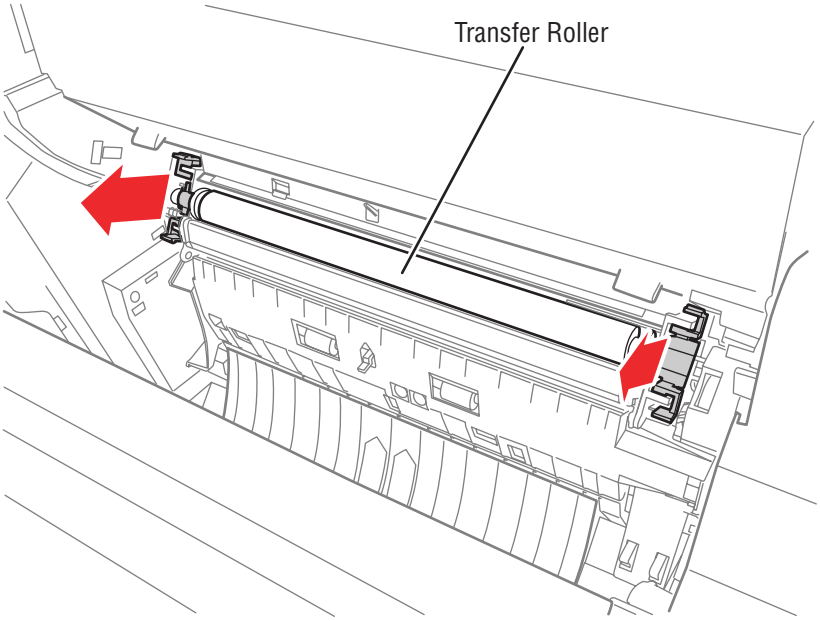


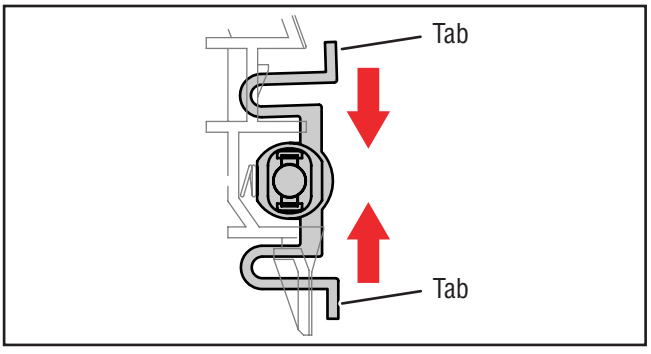
## Transfer Roller (PL4.16.3)

1. Open the Top Cover.
2. Remove the Imaging Unit (page 7-15).
3. Remove the Transfer Roller Assembly as follows. While squeezing the white tabs of the holders located on both sides, pull out the roller.

**Caution**

Use care not to lose the two springs of the assembly. They can easily come off.

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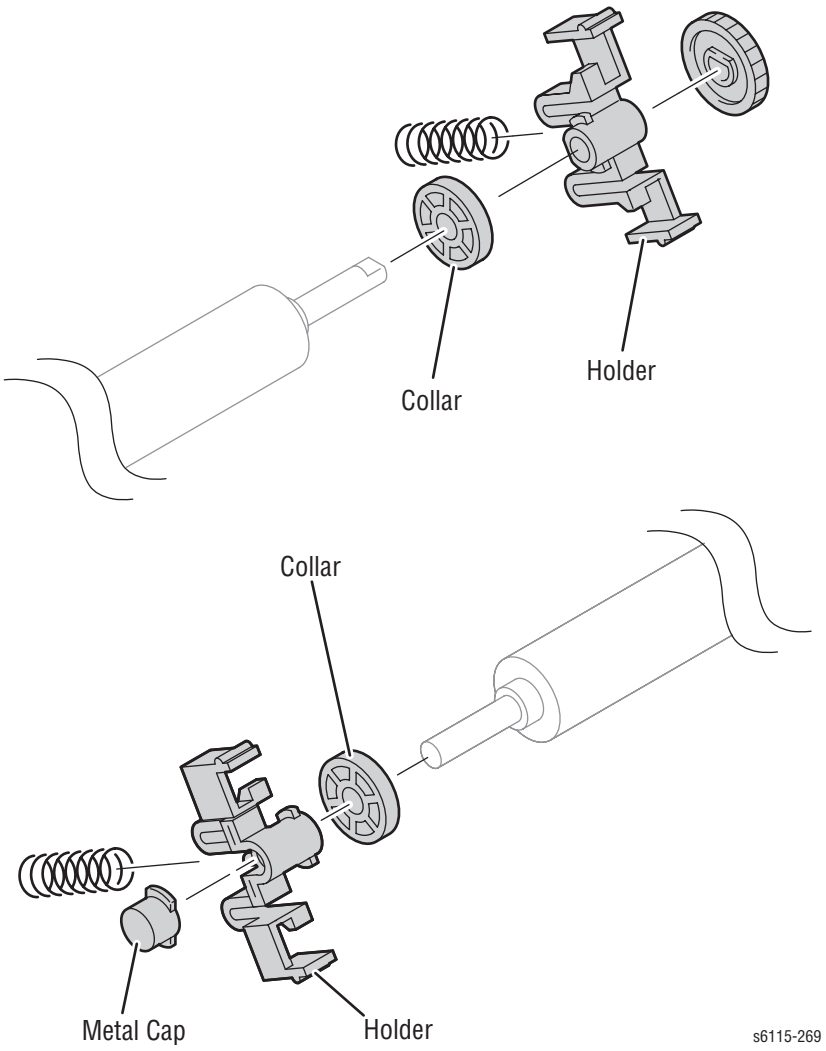
4. Remove the conductive material, gear (PL4.16.7), two springs (PL4.16.5), two holders (PL4.16.6), and two collars (PL4.16.2).

5. To reinstall, move the pieces in Step 4 to the new roller.

**Caution**

Do not touch the surface of the roller.




6. Snap the roller into position.
7. When the Transfer Roller is replaced with a new one, it is necessary to reset the life counter in the Service menu.

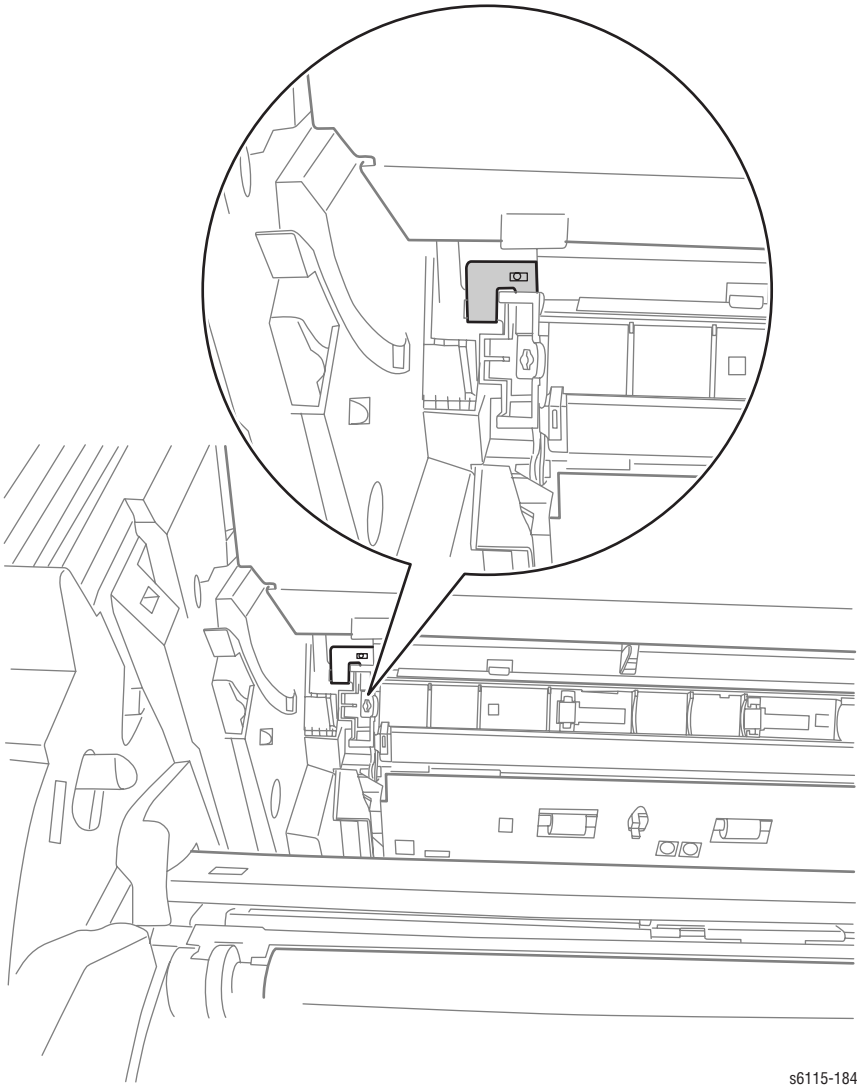
## Reassembly Procedures

1. Align the spring with the post on the plastic housing.
2. Make sure that the drive gear on the Transfer Roller is aligned with the coupling on the right side of the printer.

3. Make sure that the spring action of the roller is working correctly.

**Replacement Note**

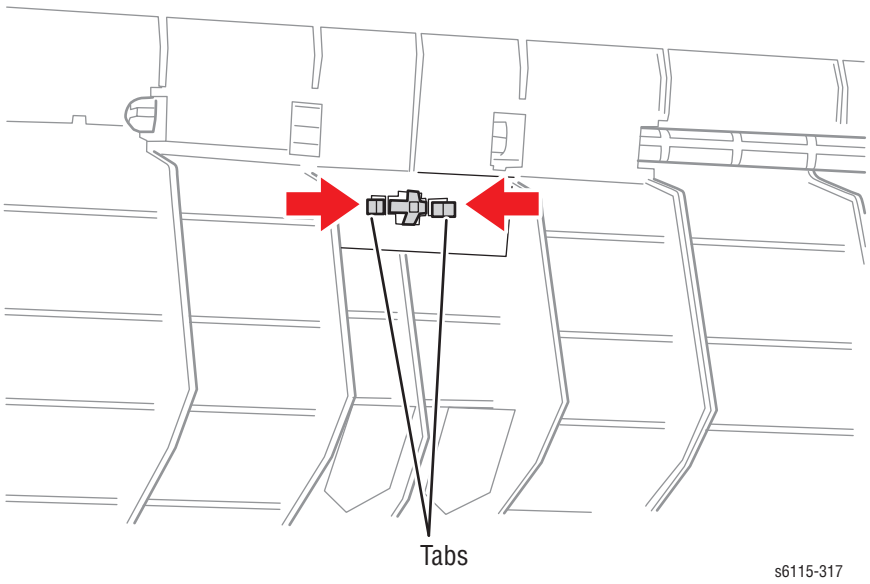
Ensure that the High-Voltage Bias Spring is making contact with the Transfer Roller Bias Contact Plate.



s6115-184

## Tray 1 Separation Pad (PL4.20.7)

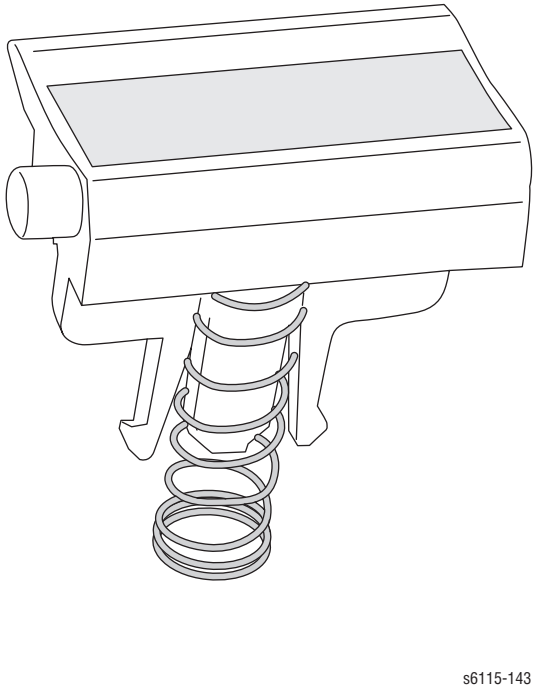
1. Remove the Paper Pick-Up Unit (page 8-45).
2. Unlock tabs and remove the Separation Pad.




3. Unhook the spring.

**Note**

When replacing the Separation Pad, reattach the spring to the new pad. Line the spring up with the locator tab, and then snap the pad into the slots. Push on the pad to confirm that the spring is moving correctly.



### Removal Procedure Shortcut

1. Open the Top Cover (page 8-4).
2. Remove Tray 1.
3. Remove the Imaging Unit (page 8-13).
4. Move the tray to the down position by turning the Pick Roller Shaft.
5. Unlock tabs and remove the Separation Pad.

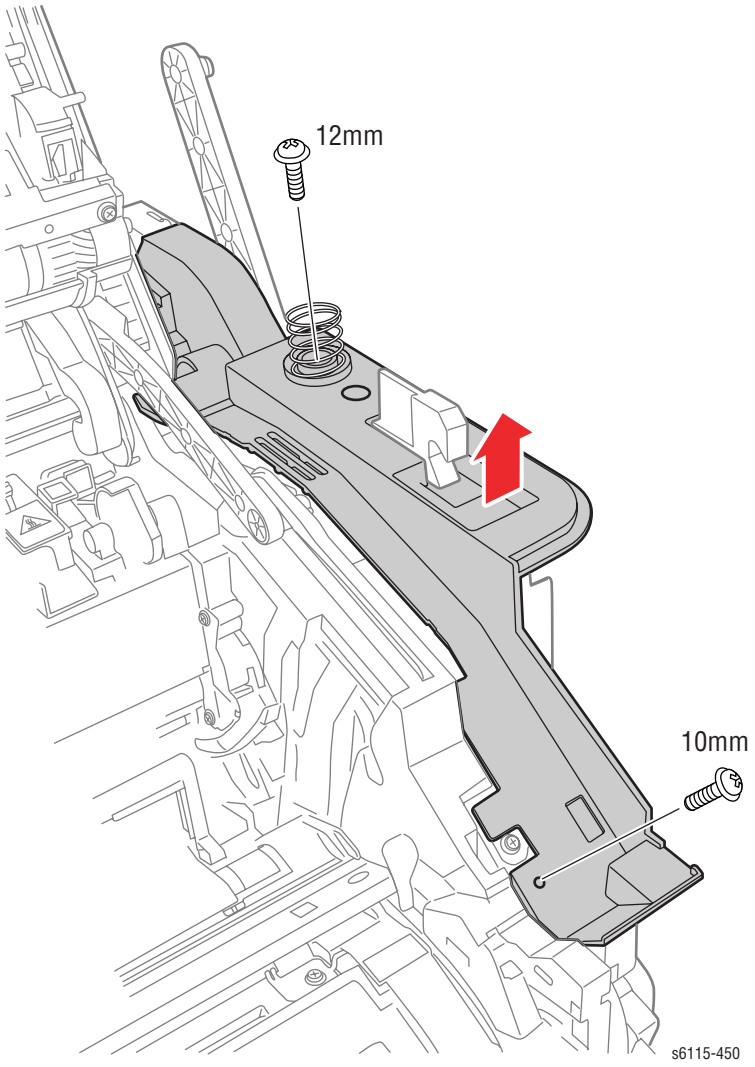
## Print Engine Motors and Fans Disassembly Preparation

Use the following procedure to prepare for the disassembly of the:

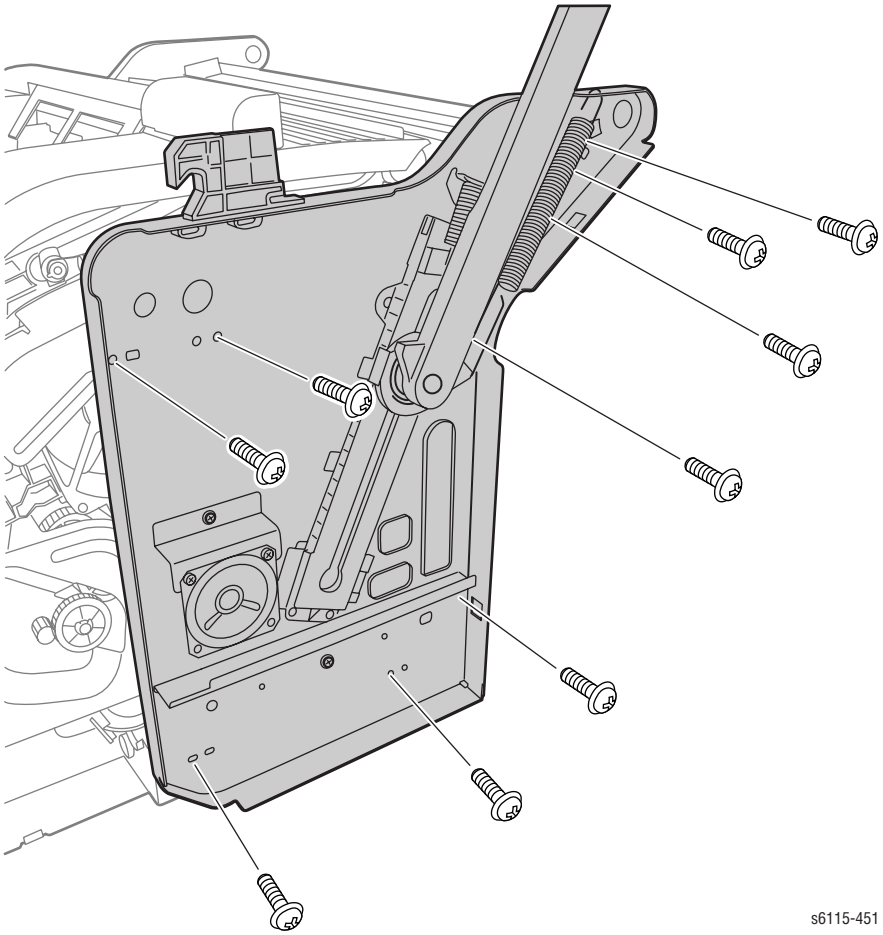
- Top Right Cover
- Right Frame
- Main Motor
- Power Supply Cooling Fan
- Ventilation Fan
- Fusing Motor

1. Remove the Scanner Unit (page 8-25).

2. Remove 1 screw (metal, 10mm) and the Top Right Cover.

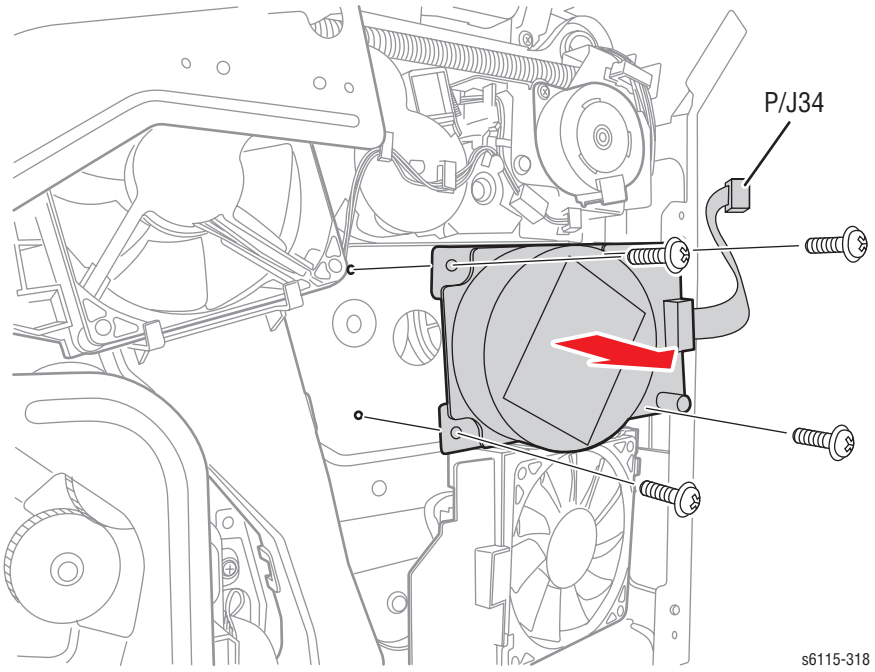


Remove 9 screws (metal, 10mm) and the Right Frame.



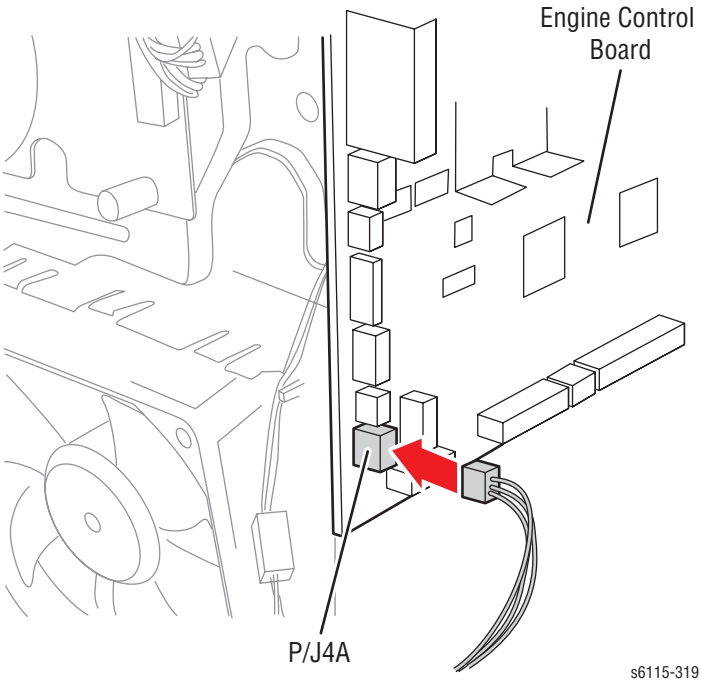
## Main Motor (PL4.12.1)

1. Use the procedures for removing the right cover (page 8-8).
2. Remove the Right Frame (page 8-90).
3. Remove four screws (metal, 10mm), disconnect the connector, and remove the Main Motor.

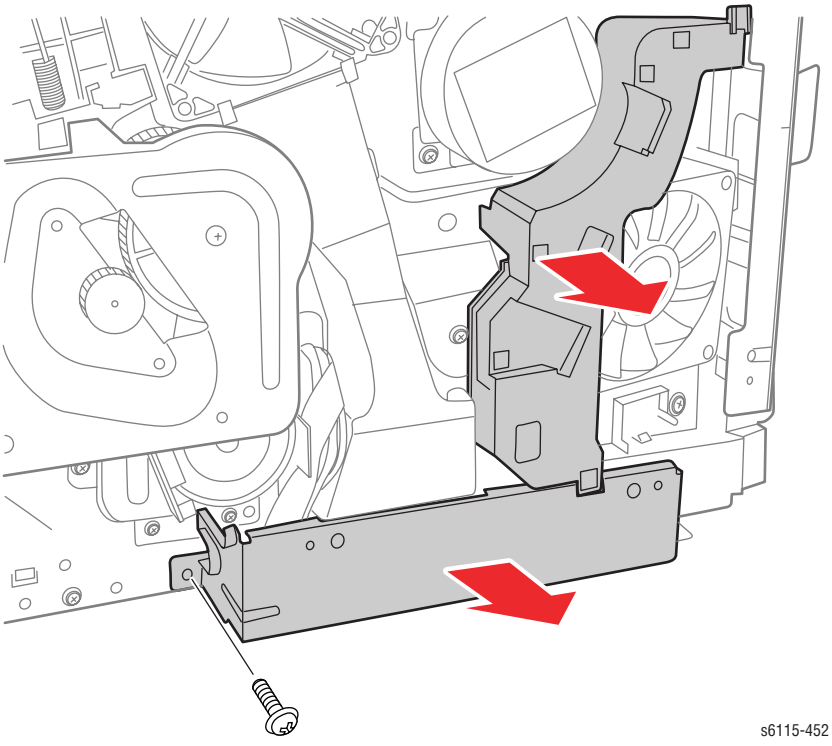


## Power Supply Cooling Fan Motor (PL4.8.1)

1. Use the procedures for removing the right cover (page 8-8).
2. Remove the Right Frame (page 8-90).
3. Disconnect the connector (PJ4A) from the Engine Control Board.

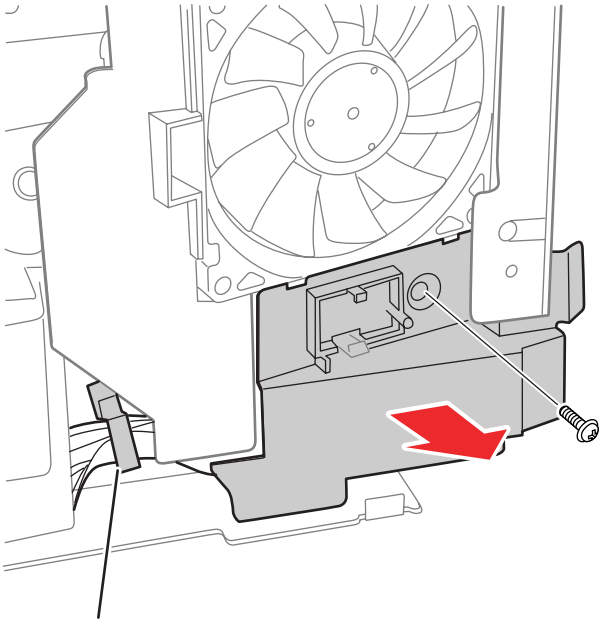



4. Remove 1 screw (metal, 8mm), bracket, and guide.

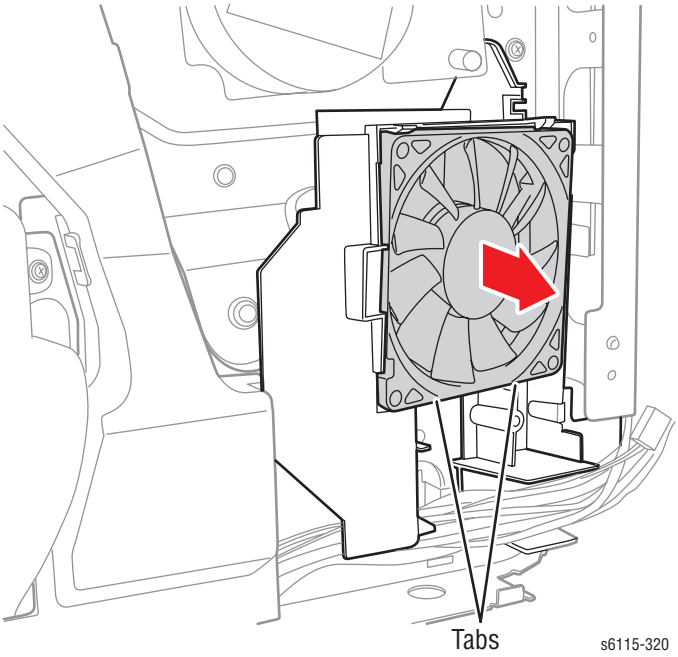



5. Remove the wiring clamp.

6. Remove 1 screw (metal, 8mm) and the harness cover.

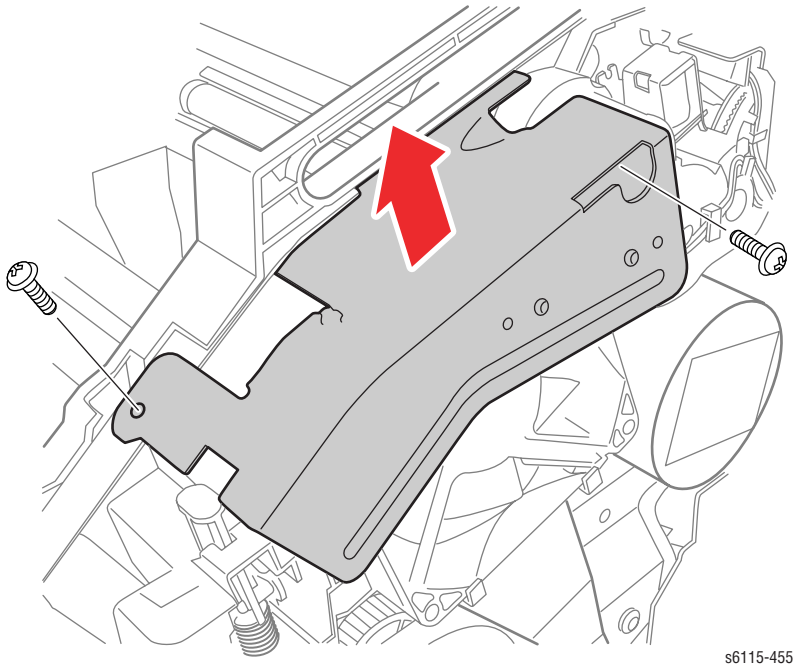



7. Unlock tabs and remove the Power Supply Cooling Fan Motor.



## Ventilation Fan Motor (PL4.8.2)

1. Use the procedures for removing the Right Cover (page 8-8).
2. Remove the Right Frame (page 8-90).
3. Remove 2 screws (metal, 8mm) and the Fan Cover Bracket.

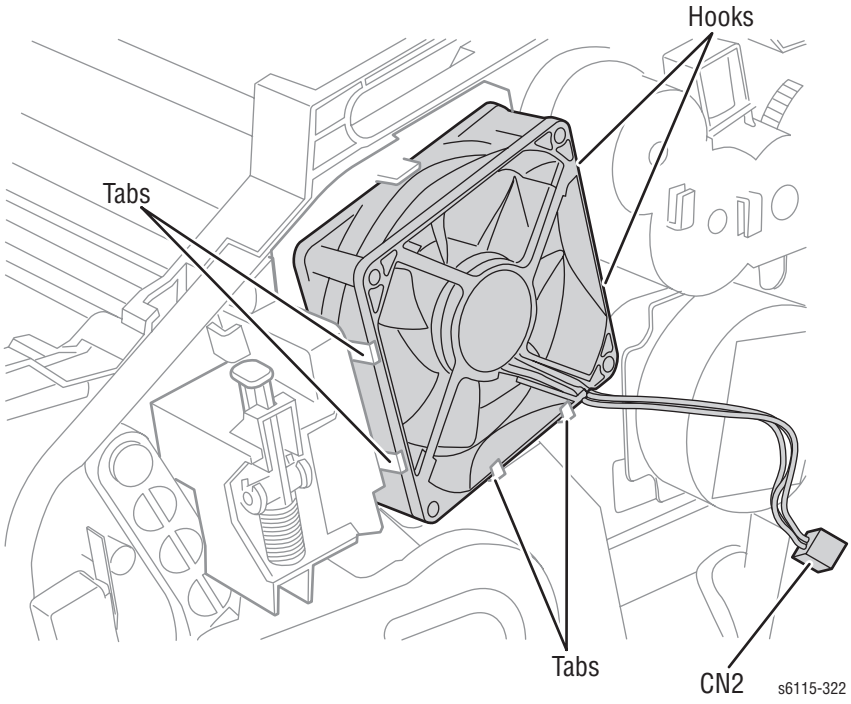



4. Remove the harness from the wiring clamp and disconnect the connector (CN2) of the Ventilation Fan Motor.

5. Unlock the two hooks and remove the Ventilation Fan Motor from the 2 tabs.

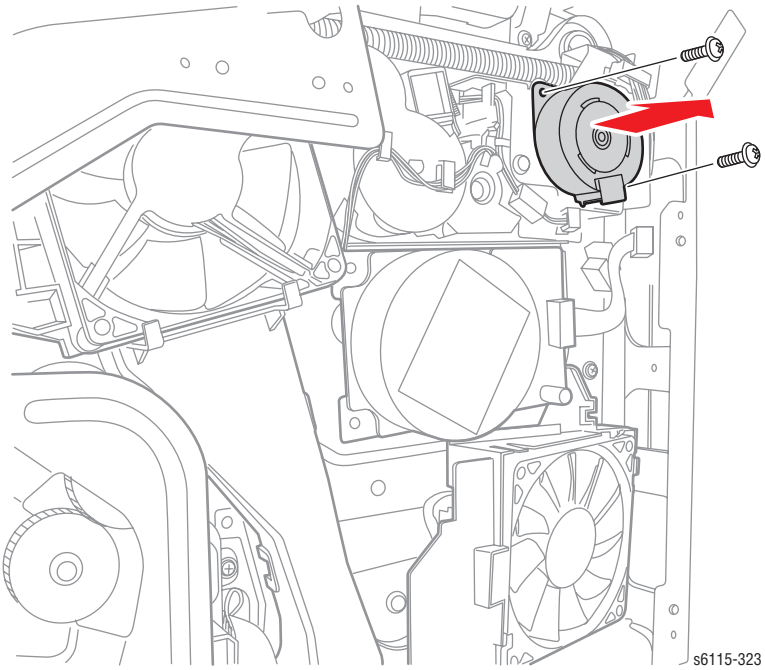
**Note**

Notice the position of the fan for reassembly.



## Fusing Motor (PL4.11.1)

1. Use the procedures for removing the Right Cover (page 8-8).
2. Remove the Right Frame (page 8-90).
3. Remove 2 screws (metal, 10mm) and disconnect the connector.
4. Remove the harness from the wiring clamp and then remove the Fusing Motor.



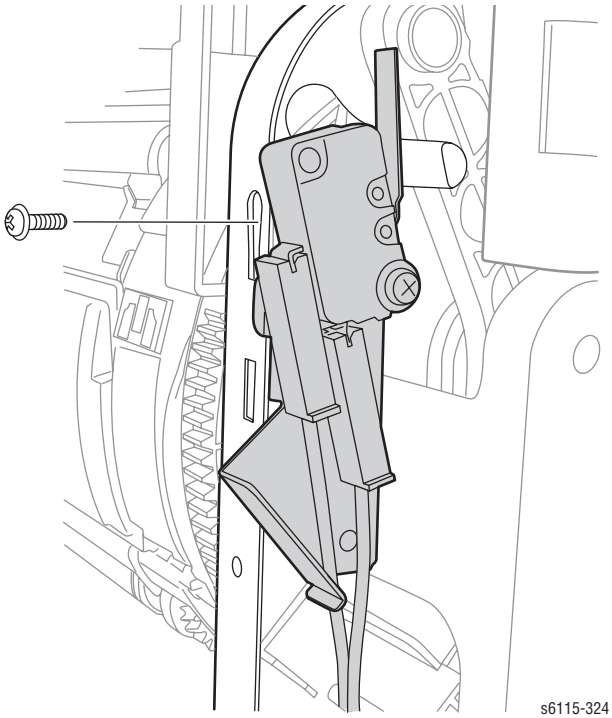

**Replacement Note**

Be sure to use the original screws and that the gear is in place when reinstalling the motor.

## Developing Motor (PL4.13.8)

1. Open the Top Cover (page 8-4).
2. Remove the Right Cover (page 8-8).
3. Remove the Front Cover (page 8-10).

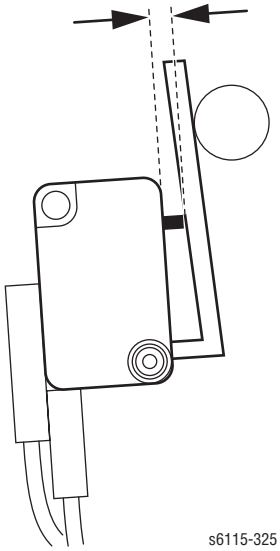
4. Remove the switch bracket with the Safety Switch in place.




**Note**

Precautions for Reinstallation of the Safety Switch Assembly.

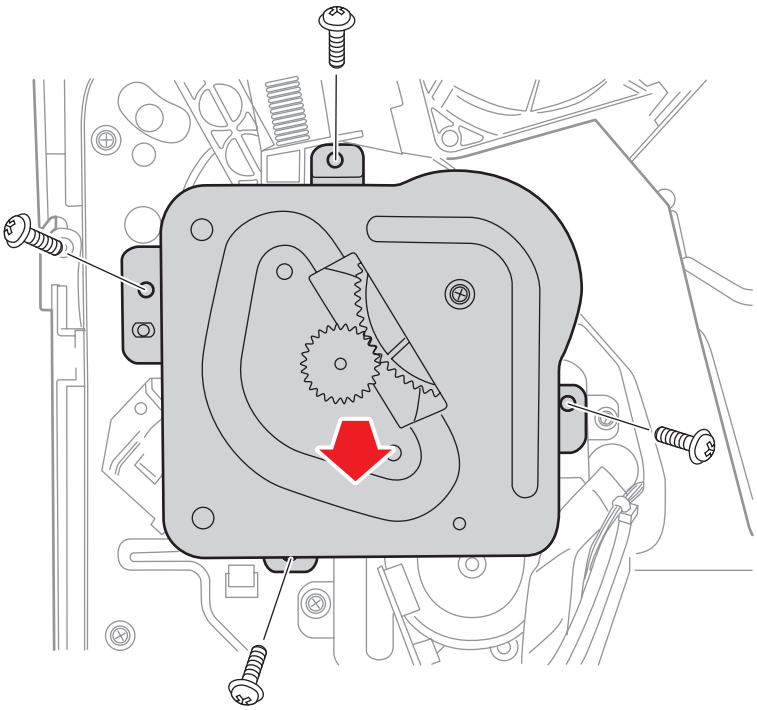
- Check that the switch is actuated with the Front Cover and the Top Cover closed.
- If the screw is not in the original position, make sure that the distance between the switch lever and switch case (with the switch in the actuated position) falls within the specified range.
  Specifications: 0.1 to 1.0 mm



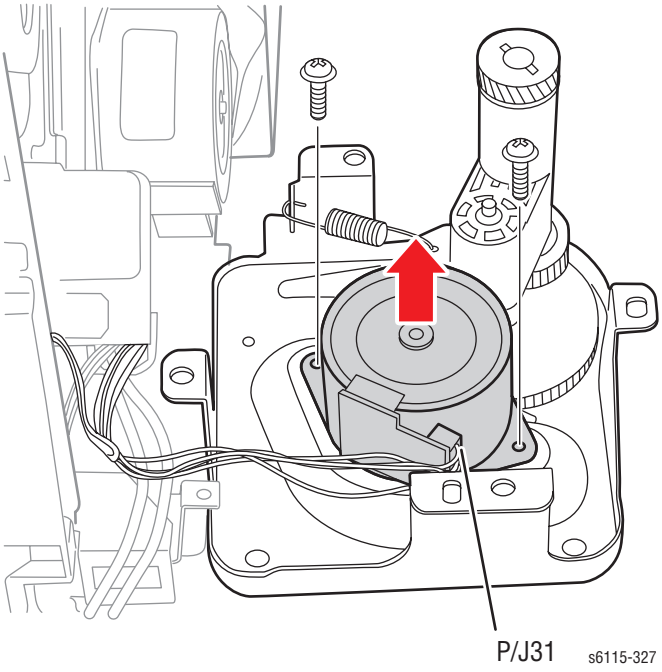
5. Remove 4 screws (metal, 10mm) and remove the Rack Drive Assembly by pulling it straight out of the printer.

**Note**

If difficult, depress the gear assembly first before pulling out.

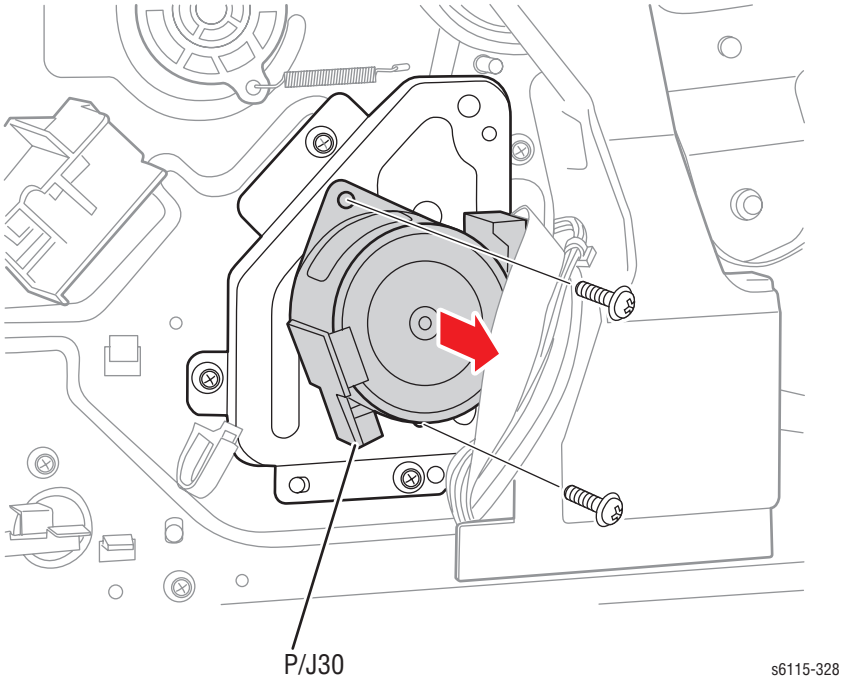



6. Remove 2 screws (metal, 10mm), disconnect the connector, and remove the Developing Motor.



## Rack Motor (PL4.13.9)

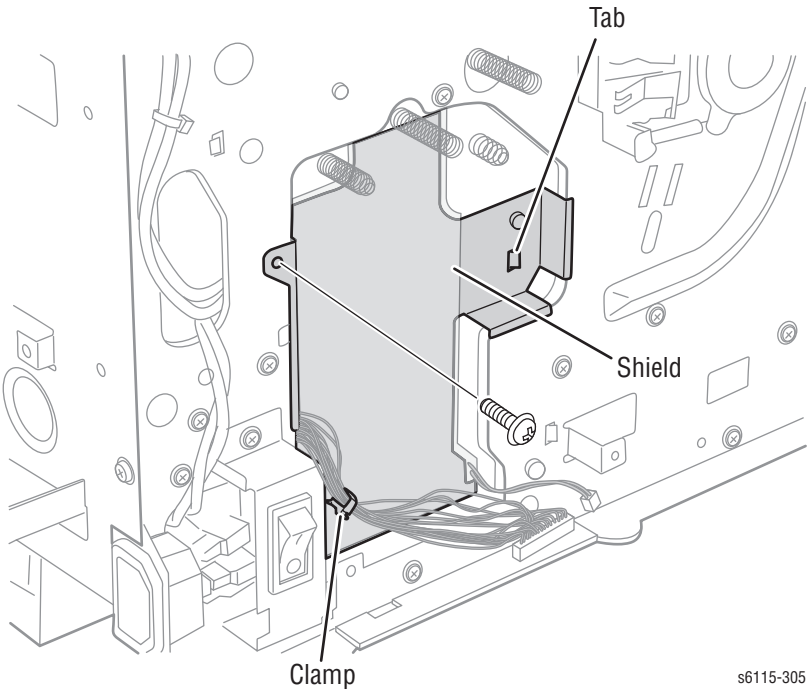
1. Open the Top Cover (page 8-4).
2. Remove the Scanner Unit (page 8-25).
3. Remove the Right Frame, which is Step 9 of the Laser Unit Removal procedures on page 8-15.
4. Remove the Developing Motor (page 8-98).
5. Remove 2 screws (metal, 10mm), disconnect the connector (P/J30), and remove the Rack Motor.



# Print Engine Solenoids and Sensors

## Tray 1 Paper Pick Solenoid (PL4.20.20)

1. Remove the High Voltage Unit (page 8-50).
2. Remove 1 screw (metal, 10mm), unlock the tab, and release the wiring clamp from the saddle. Then, remove the shield.




**Caution**

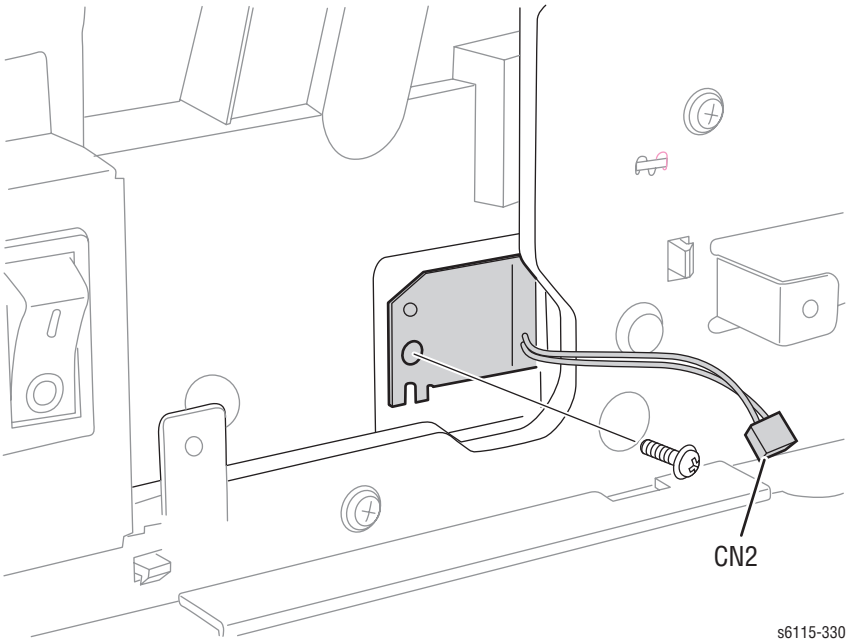
When reinstalling the shield, make sure that no part of the harness is wedged in the mechanism.

3. Remove 1 screw (metal, 8mm) and disconnect connector (CN2).

4. Remove the Tray 1 Paper Pick Solenoid.

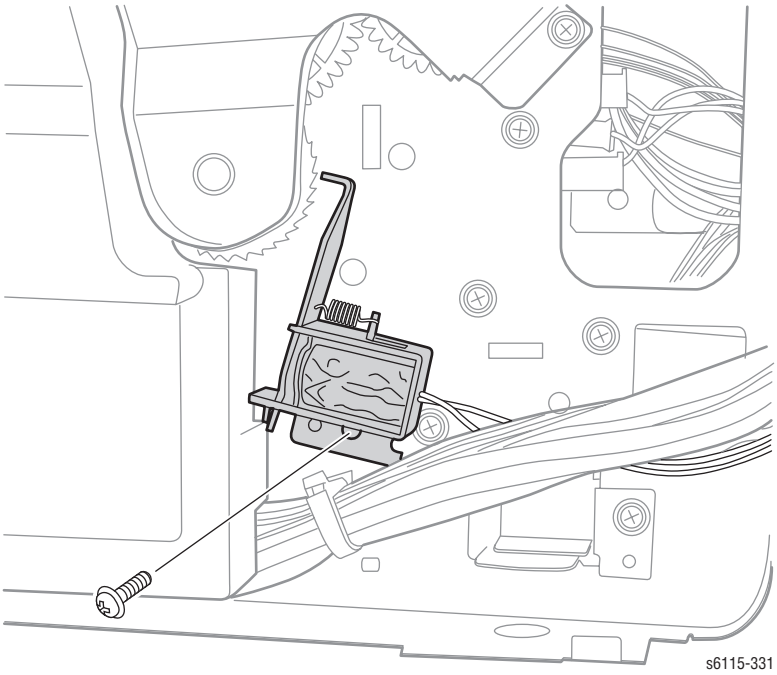
**Replacement Note**

When reinstalling the solenoid, place the back end of the solenoid into the chassis first. Then, apply a small amount of pressure on the actuator arm, sliding it in between the teeth of the gear assembly.



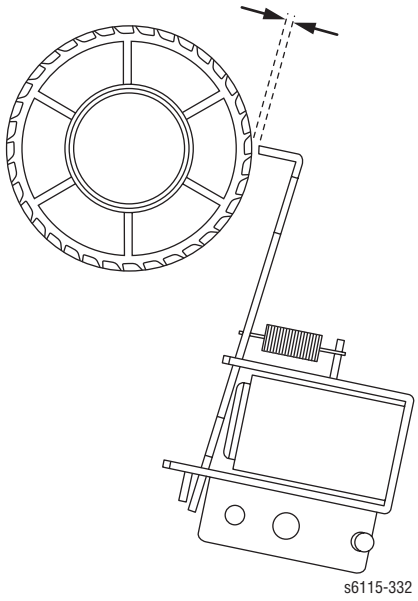
## Registration Roller Solenoid (PL4.12.3)

1. Remove the Right Cover (page 8-8).
2. Remove the Power Supply Cooling Fan Motor Assembly (page 8-94).
3. Lift upwards on the tab and the guide.
4. Disconnect the connector, remove 1 screw (metal, 8mm), and then remove the Registration Roller Solenoid.




### Precaution for Reinstallation

- Confirm that the registration roller solenoid is securely seated on the alignment pins, before securing screw to the chassis.
- Reinstall the solenoid so that the clearance between the gear of the registration roller clutch and flapper falls within the specified range (1.0 ± 0.2 mm).

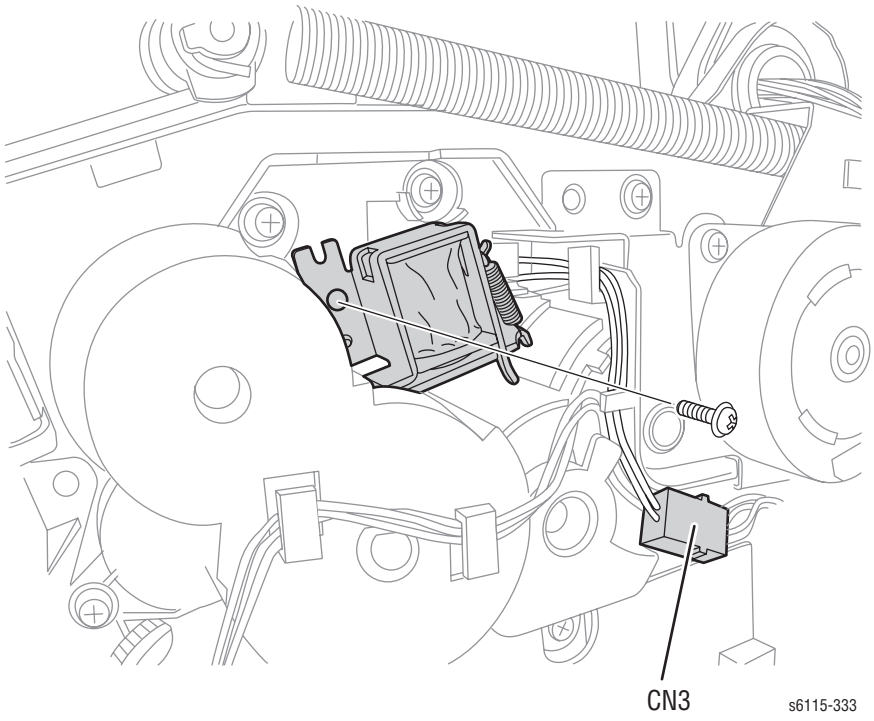



## Cleaning Blade Solenoid (PL4.11.2)

1. Use the procedures for removing the right cover (page 8-8).
2. Remove the Right Frame (page 8-90).
3. Remove 1 screw (metal, 8mm), disconnect the connector, and remove the Cleaning Blade Solenoid.

**Replacement Note**

When reinstalling, make sure the actuator is behind the gear.

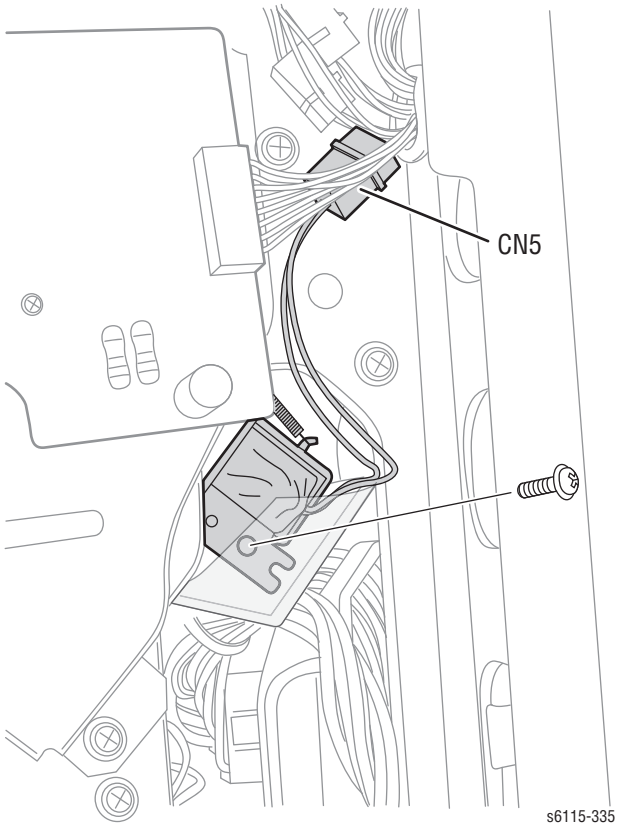


## Image Transfer Solenoid (4.10.14)

1. Remove the Right Cover (page 8-8).
2. Remove the Power Supply Cooling Fan Motor Assembly (page 8-94).
3. Disconnect the connector (CN5) from the solenoid.
4. Move the mylar sheet out of the way, and then remove 1 screw (metal, 8mm) and the Image Transfer Solenoid.

**Caution**

Be careful not the damage the mylar.

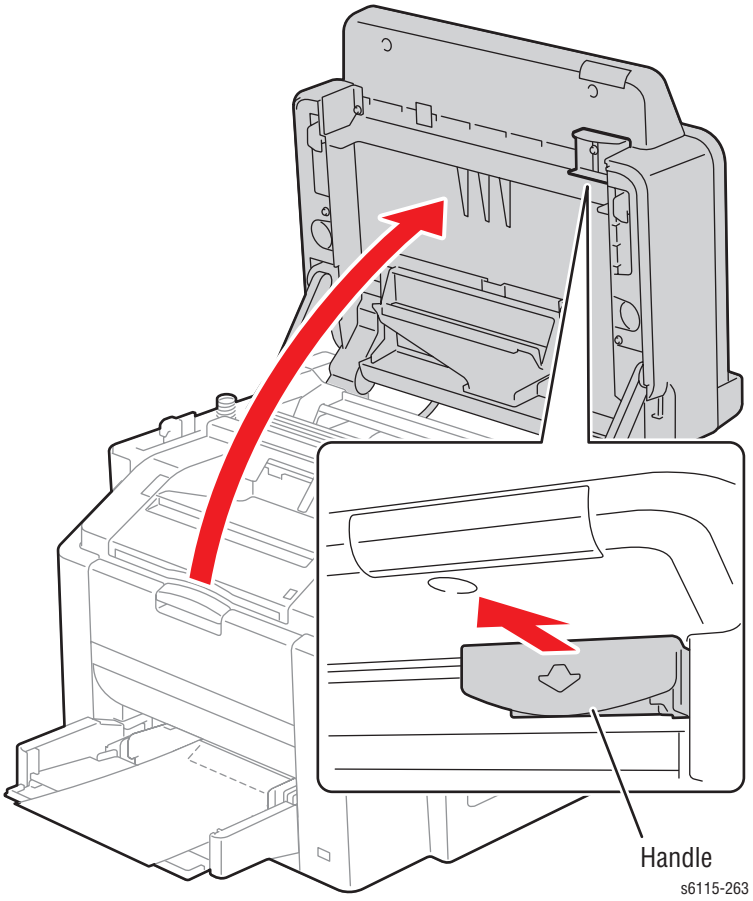


## Exit Tray Full Sensor (PL4.1.7)

1. Pull the lever to release the Scanner Unit.

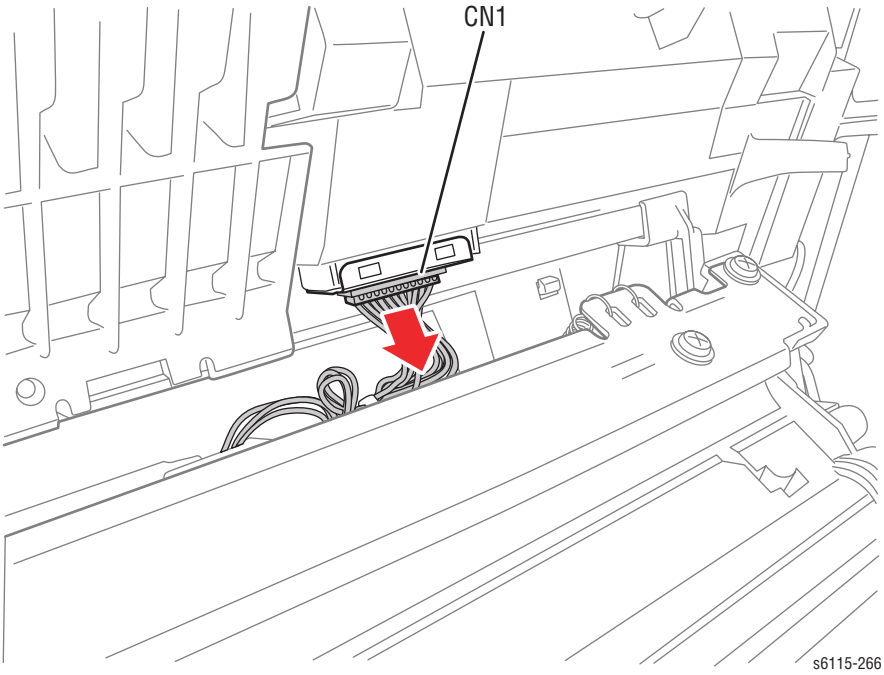
**Note**

Note that the Scanner Unit cannot be swung up with the Auto Document Feeder Unit in its raised position.




2. Open the Top Cover (page 8-4).

3. Disconnect the connector (CN1).

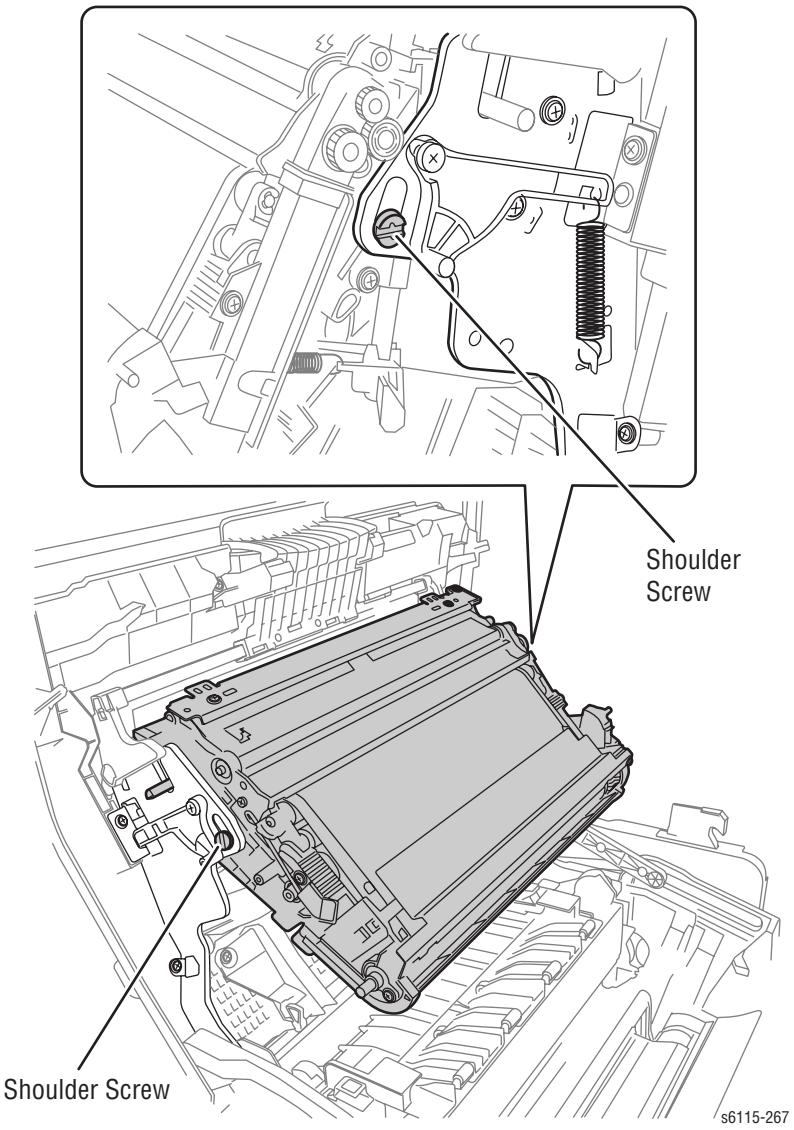



4. Remove 2 shoulder screws (PL4.15.4).

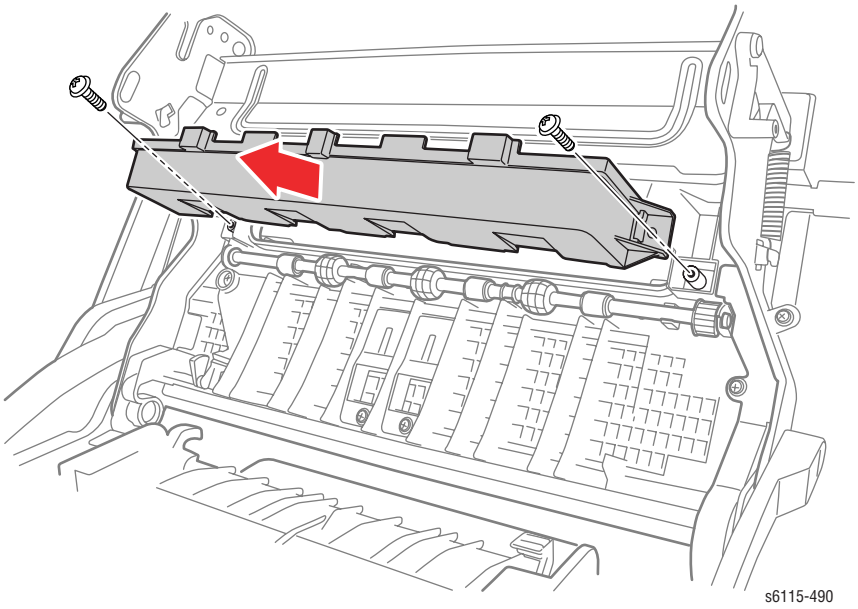
5. Lift and slide the Transfer Belt Unit out of the metal slots to remove.

**Note**

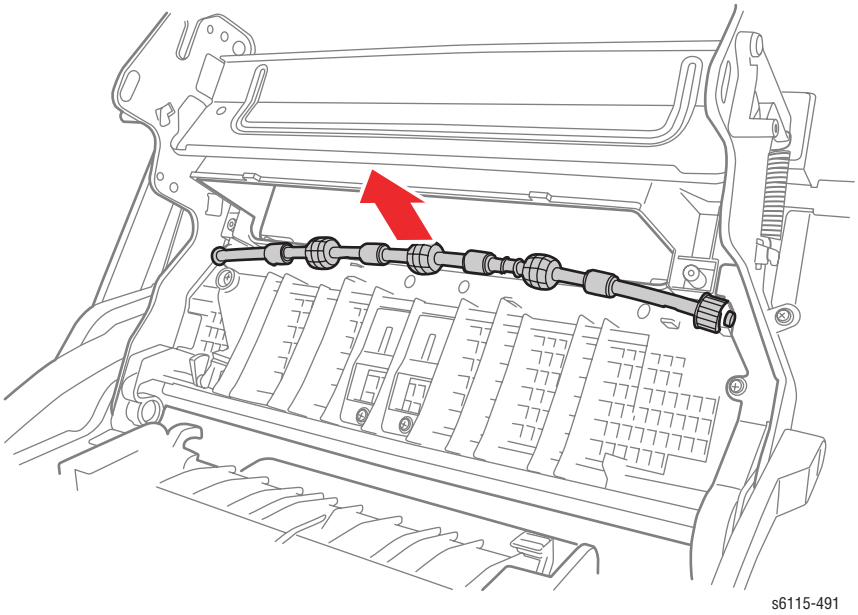
When replacing the Transfer Belt Unit, use care not to touch the surface of the belt. A scratchy or dirty belt could result in image problems.



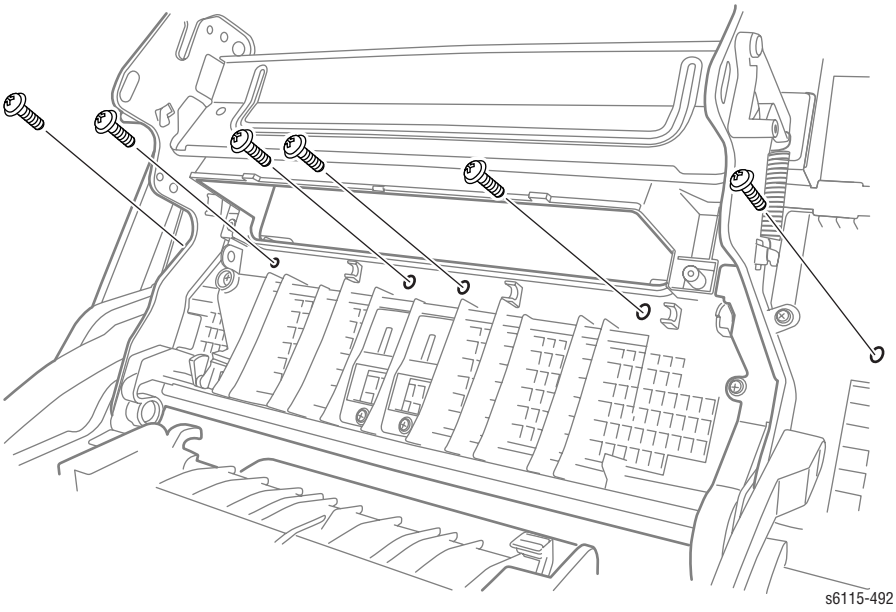
6. Remove the plastic roller cover.



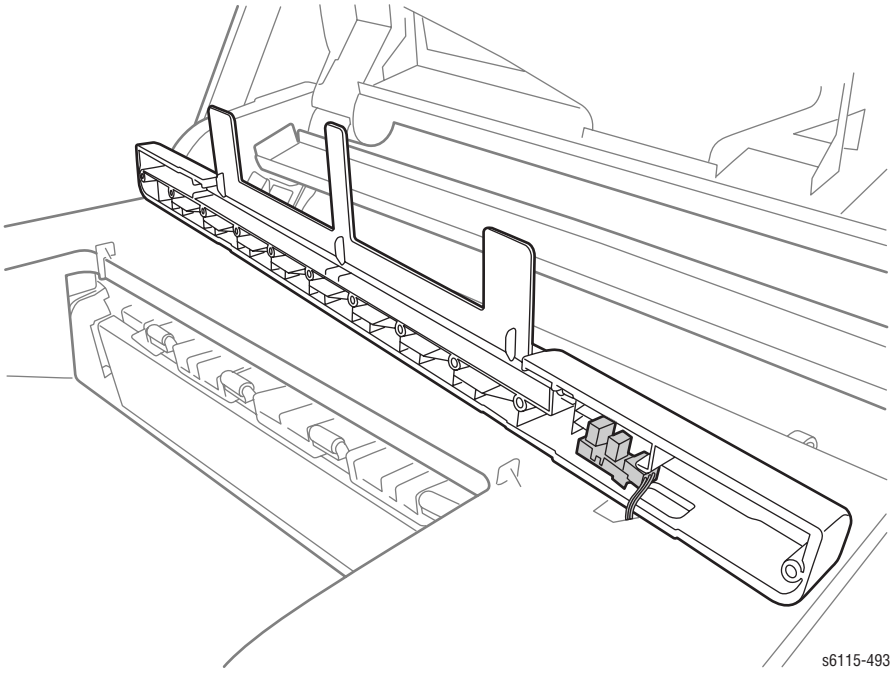

7. Remove the plastic roller.



8. Remove 6 plastic screws from the plastic sensor cover, exposing the sensor and actuator.

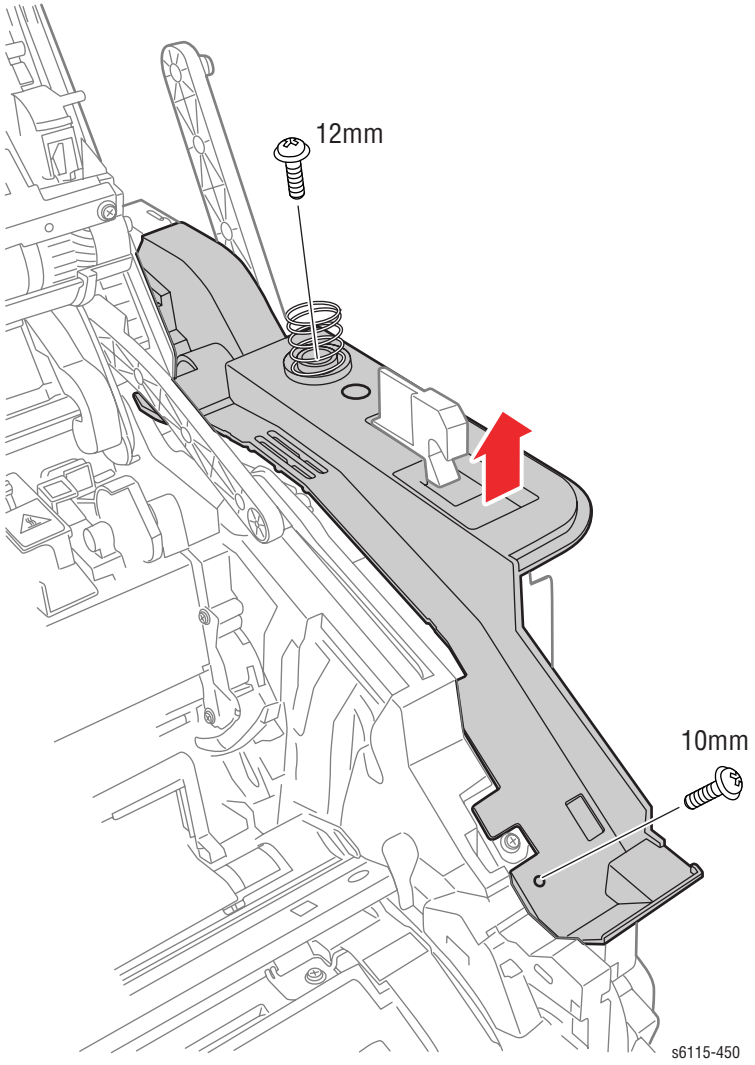



9. Squeeze the tabs to remove the sensor.

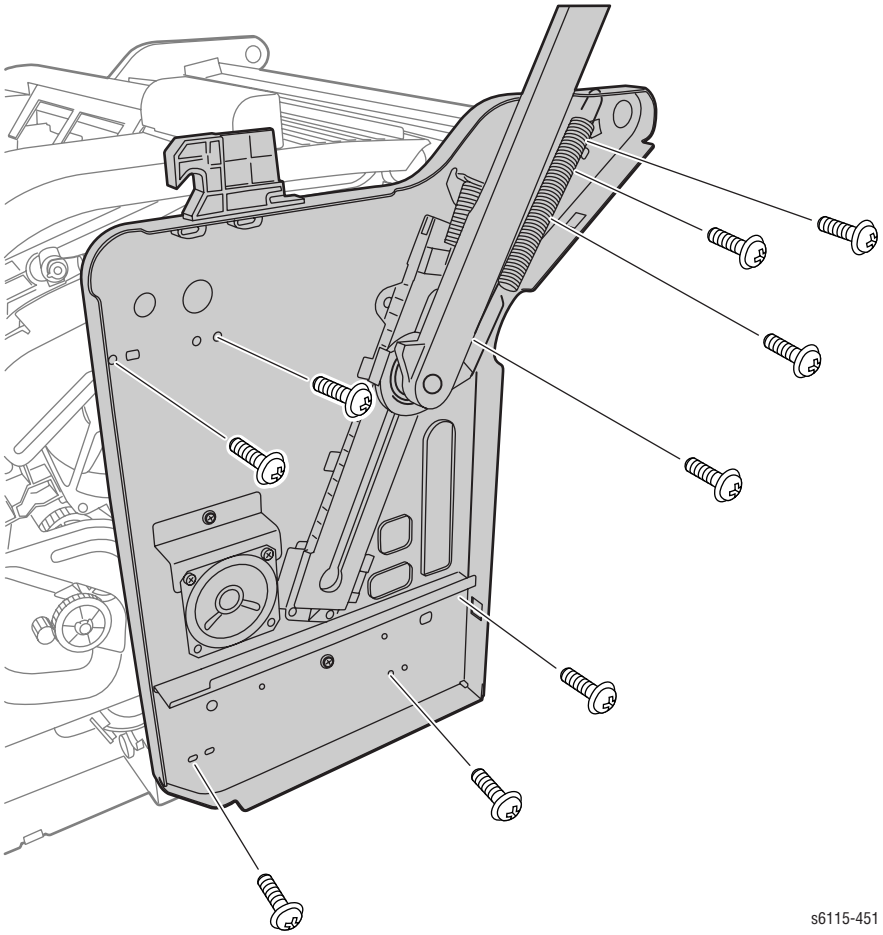


## Rack Positioning Sensor (PL4.3.12)

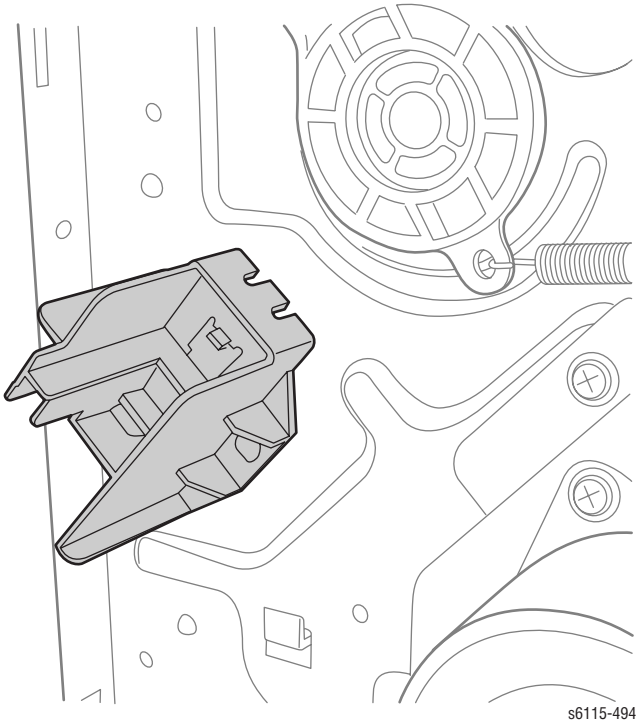
1. Remove the ADF Unit (page 8-11).
2. Remove the Scanner unit (page 8-25).
3. Remove 1 screw (metal, 10mm) and the Top Right Cover.



4. Remove 9 screws (metal, 10mm) and the Right Frame.




5. Using a flathead screwdriver, push in the plastic hook of the sensor holder.



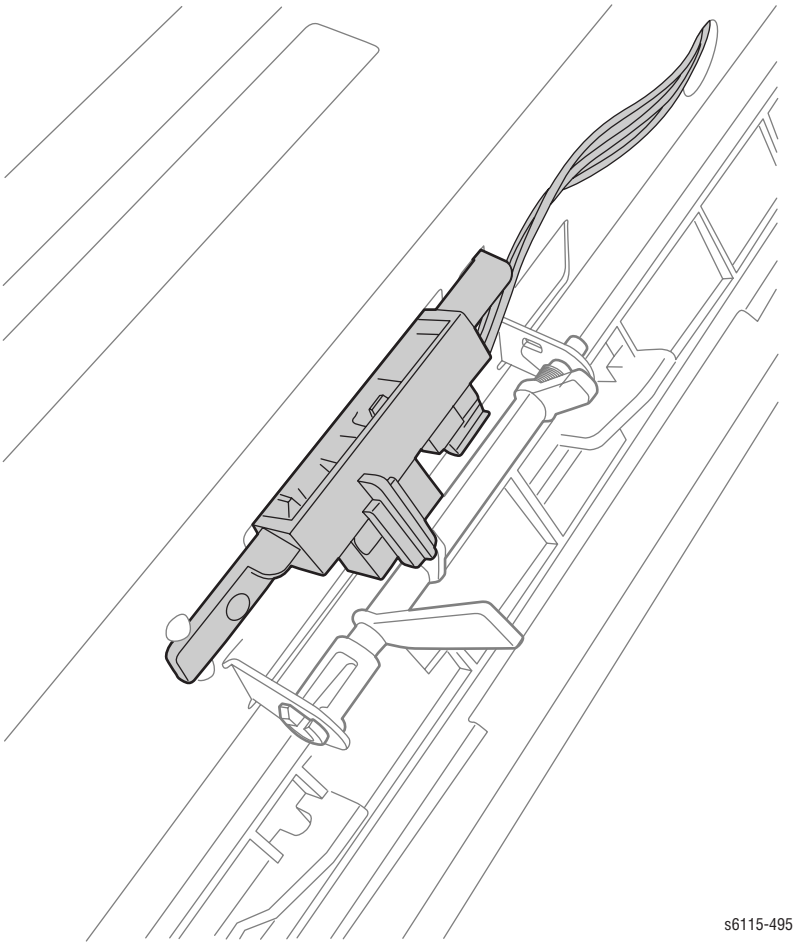

6. Pinch the plastic sides of the sensor to free and remove from the holder.

## Fusing Paper Loop Sensor (PL4.17.2)

1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Right Cover (page 8-8).
4. Remove the Scanner Unit (page 8-25).
5. Remove the Transfer Belt Unit (page 8-33).
6. Disconnect the 3-wire connector (P/J42).
7. Remove a single screw (metal, 8mm), release the plastic hook on the left side of the actuator to remove.

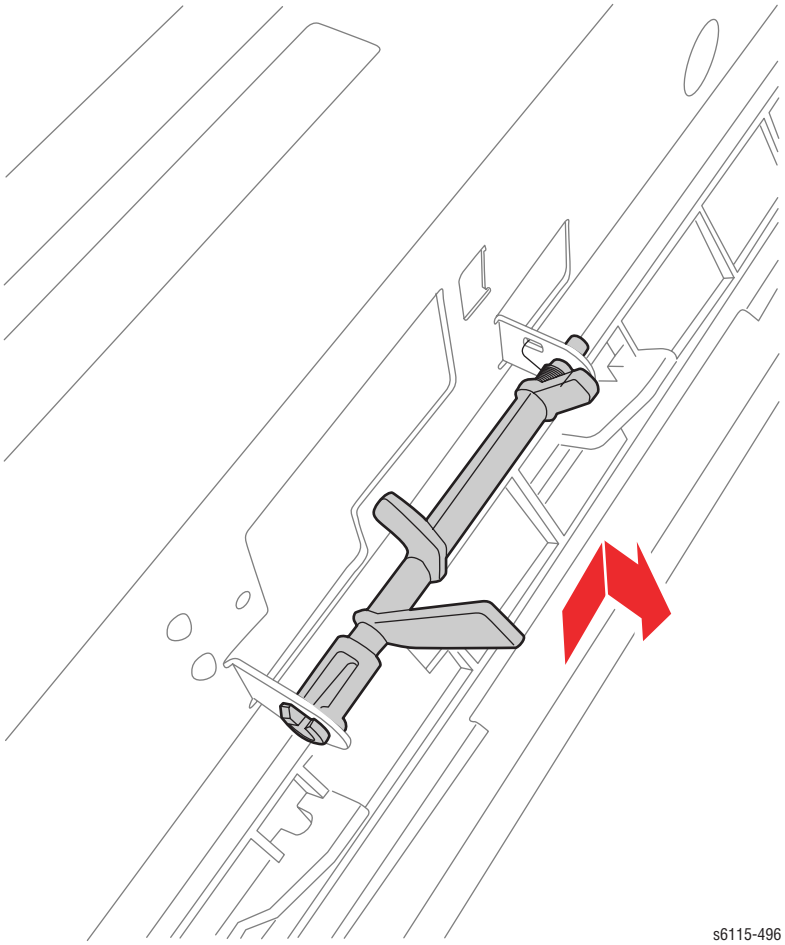
**Note**

This step will also expose the actuator underneath the sensor.



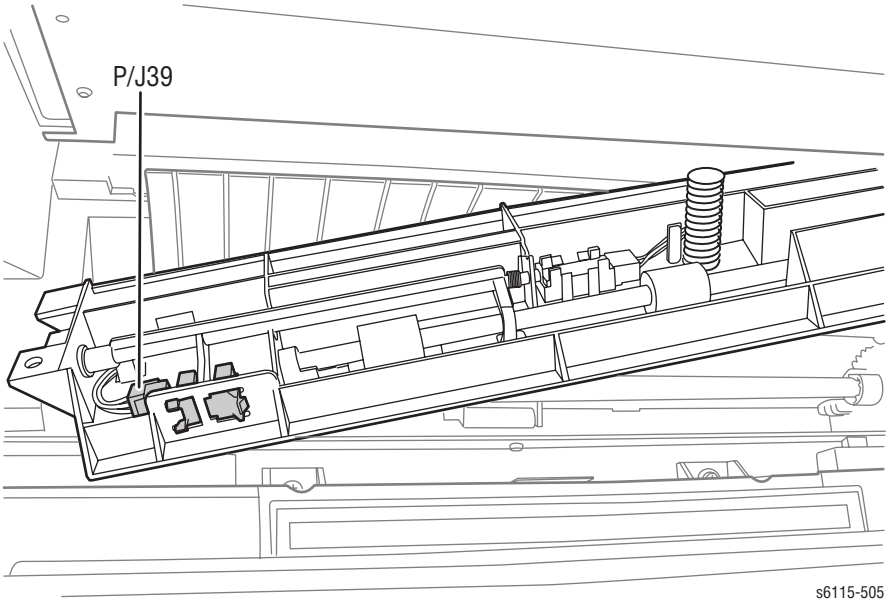
s6115-495

8. Release the flexible plastic actuator from one side to remove.



## Registration Sensor (PL4.17.2)

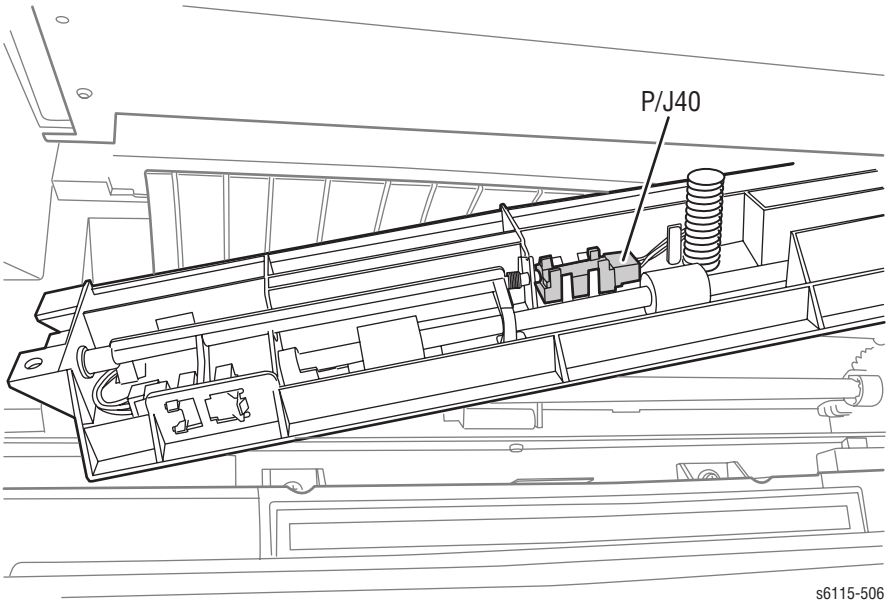
1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Right Cover (page 8-8).
4. Remove the Scanner Unit (page 8-25).
5. Remove the Transfer Belt Unit (page 8-33).
6. Disconnect the 3-wire connector (P/J39).




7. Remove 1 screw (metal, 8mm) to remove the sensor.
8. Pinch the plastic release hook to remove the actuator.

## Transparency Sensor (PL4.17.16)

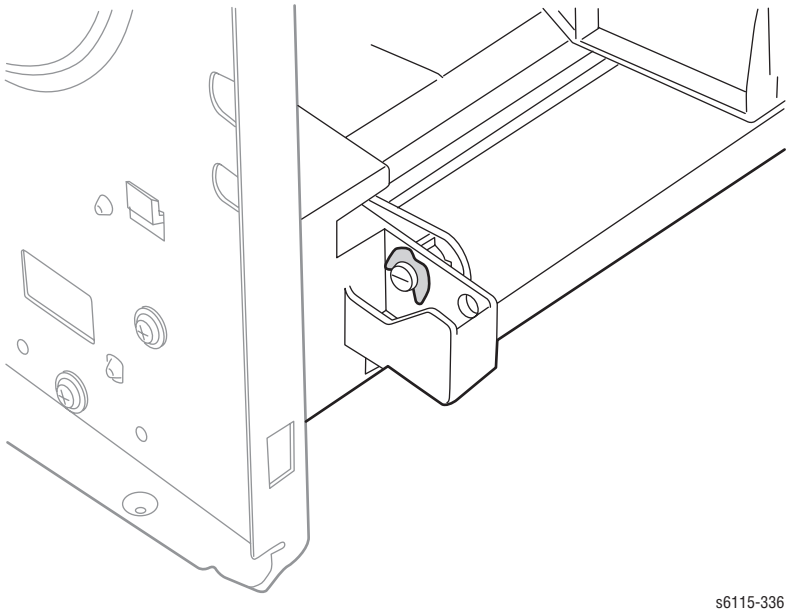
1. Remove the Rear Cover (page 8-6).
2. Remove the Left Cover (page 8-7).
3. Remove the Right Cover (page 8-8).
4. Remove the Scanner Unit (page 8-25).
5. Remove the Transfer Belt Unit (page 8-33).
6. Remove 1 screw (metal, 8mm) to remove the sensor.




7. Pinch the plastic release hook to remove the sensor and actuator.

## Temperature/Humidity Sensor (PL4.20.37)

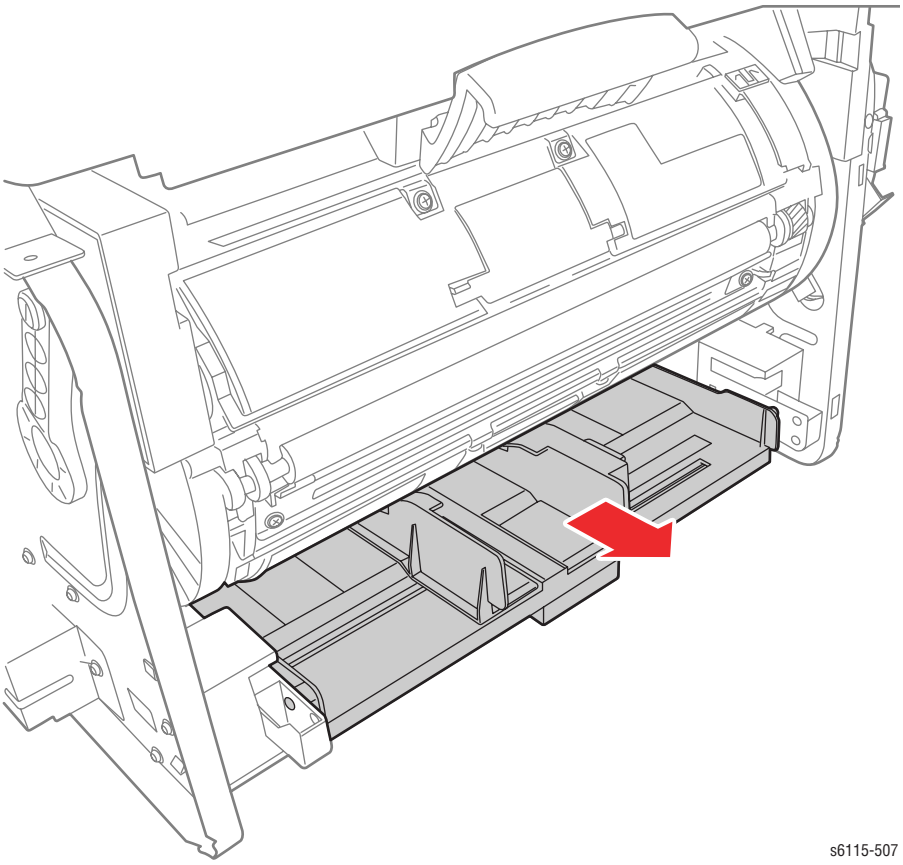
1. Remove the Front Cover (page 8-10).
2. Rotate the printer on its back and remove the C-clip.



s6115-336

3. Remove the clip on the left side of the tray.
4. From the right side of the tray, lift the tray free from the “boss.”

5. Remove the springs from between the feed unit and the paper tray.

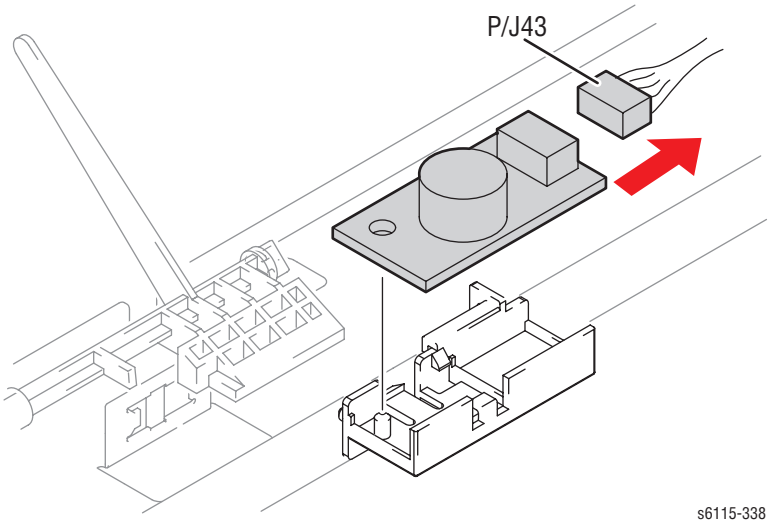


s6115-507

**Caution**

Use care not to lose the two springs. Also, be careful not to damage the actuator of the Tray 1 No Paper Empty Sensor.

6. Push in the tab that secures the housing to the frame.
7. Release the tab of the sensor holder.
8. Disconnect the 4-wire connector (P/J43), then release the plastic hooks to remove the sensor.



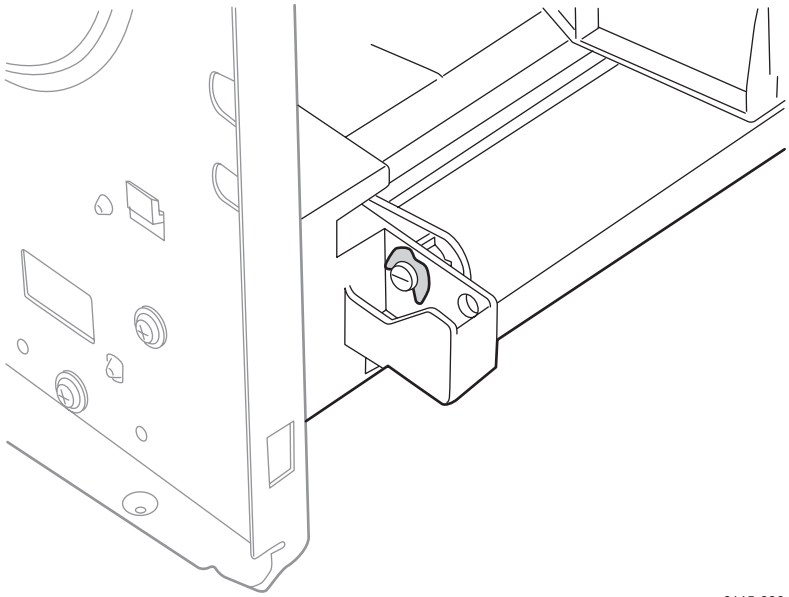

s6115-338

### Notes for Reassembly

- When re-attaching the paper tray, make sure that the cam lobes are in the up position, pointing into the printer.
- If the tray or cams have slipped out of position, rotate the pick roller to position the cams in relation to the tray.
- When reinstalling, place the actuator in through the hole before reinstalling the C-clip.

## Tray 1 No Paper Sensor (PL4.20.39)

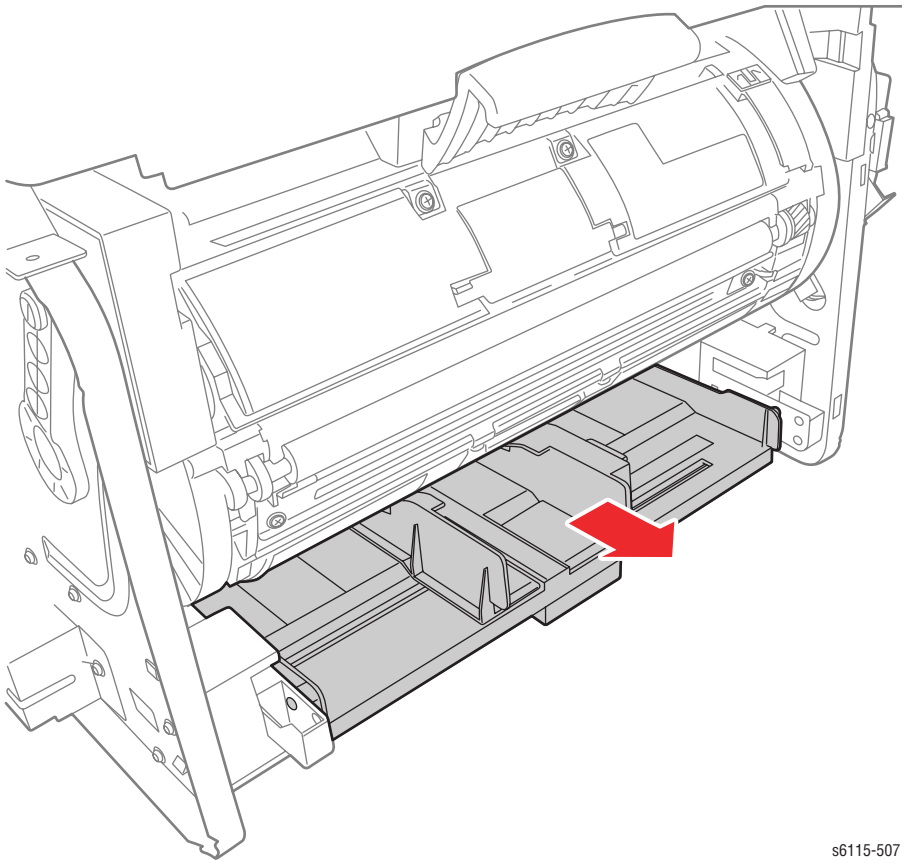
1. Remove the Front Cover (page 8-10).
2. Rotate the printer on its back and remove the C-clip.



s6115-336

3. Remove the clip on the left side of the tray.
4. Remove the springs from between the feed unit and the paper tray.

5. From the right side of the tray, lift the tray free from the “boss”.



s6115-507

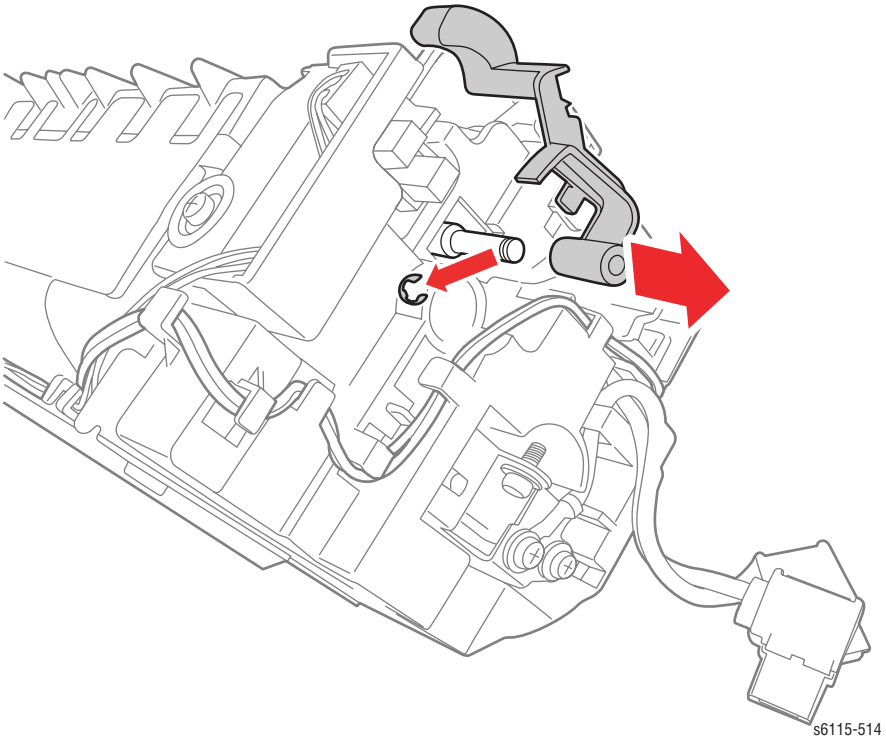
**Caution**

Use care not to lose the 2 springs. Also, be careful not to damage the actuator of the Tray 1 No Paper Empty Sensor.

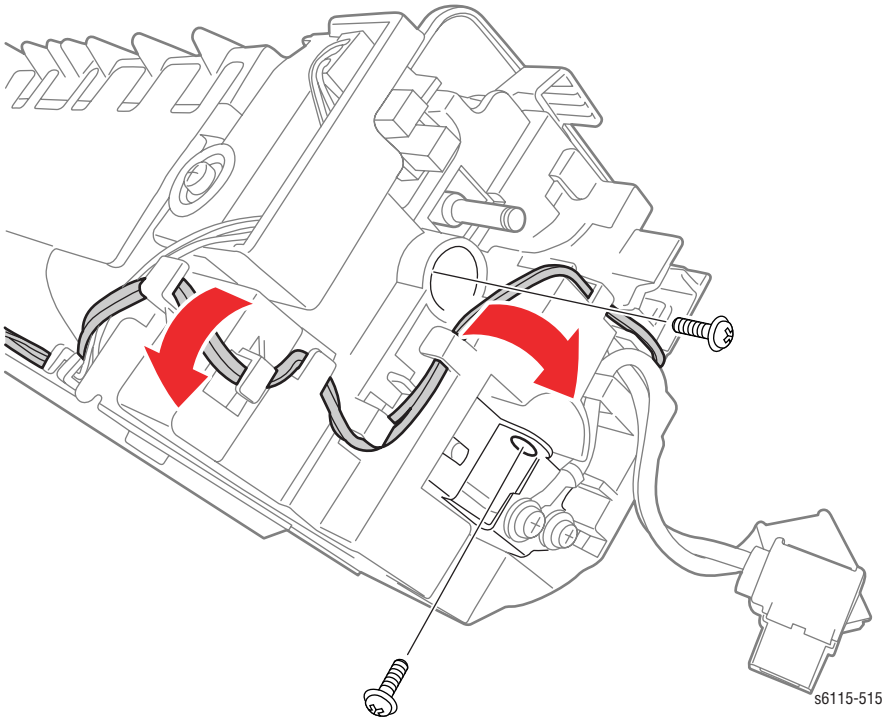
6. With the tray removed, pinch the plastic hooks to release the sensor.
7. To remove the actuator, first rotate the actuator to align with the key, then remove.

## Exit Sensor (PL4.18.9)

1. Remove the Fusing Unit (page 8-36).

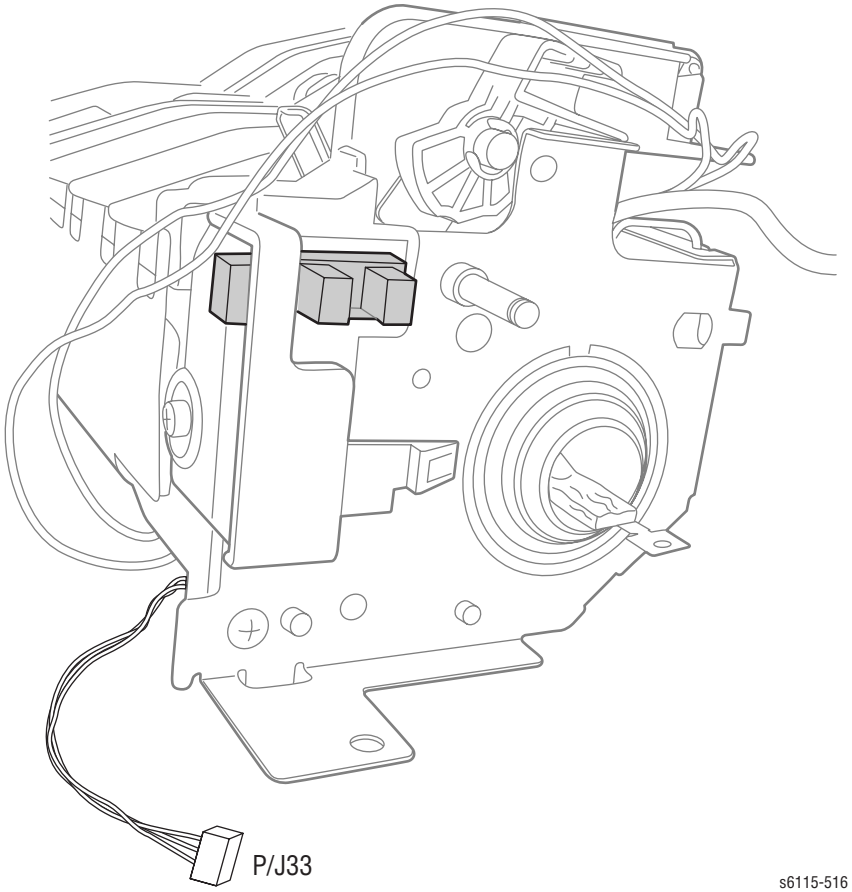



2. Remove the C-ring to remove the plastic cover.

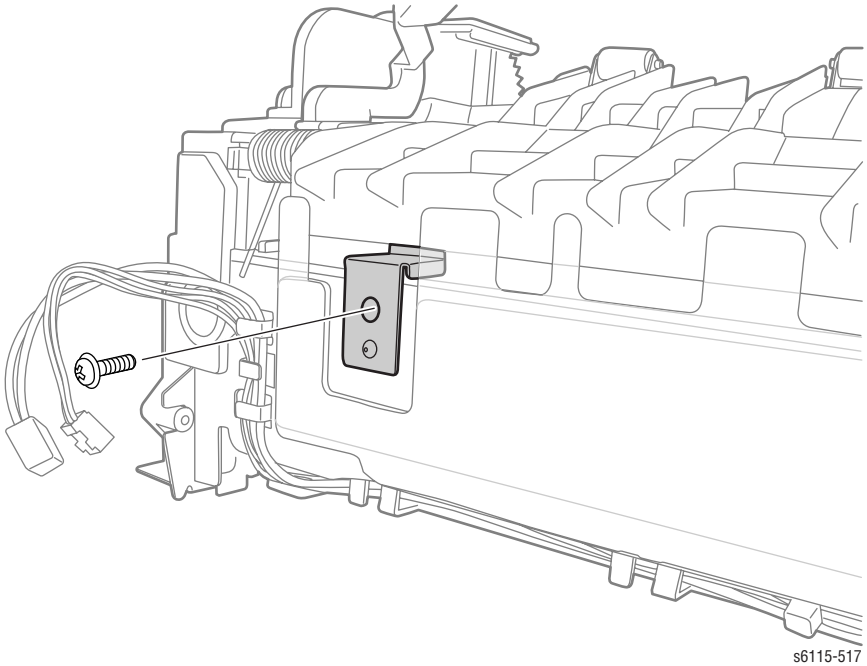



3. Unlace the wiring. This will allow you to pull the side holder free from the Fusing Unit.
4. Remove 2 screws (metal, 8mm) and carefully remove the side holder.

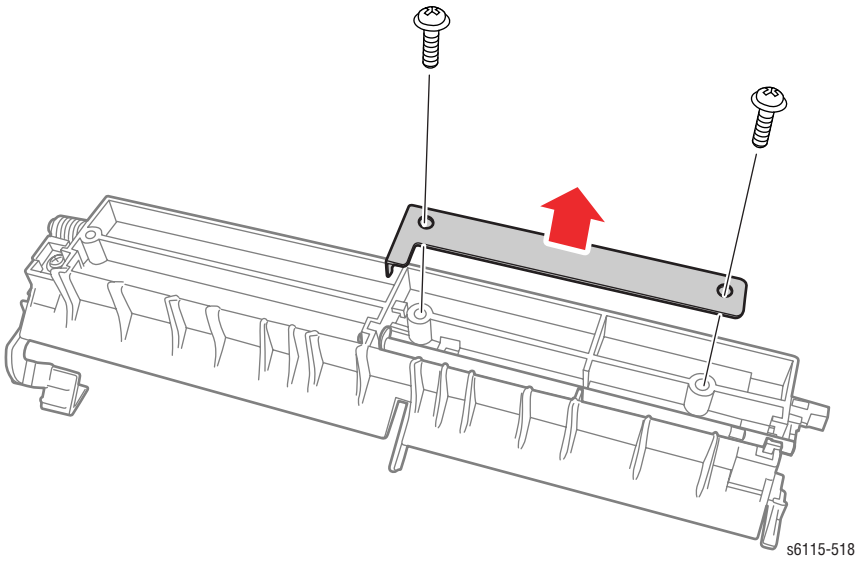
5. Release the plastic tabs to remove the sensor.



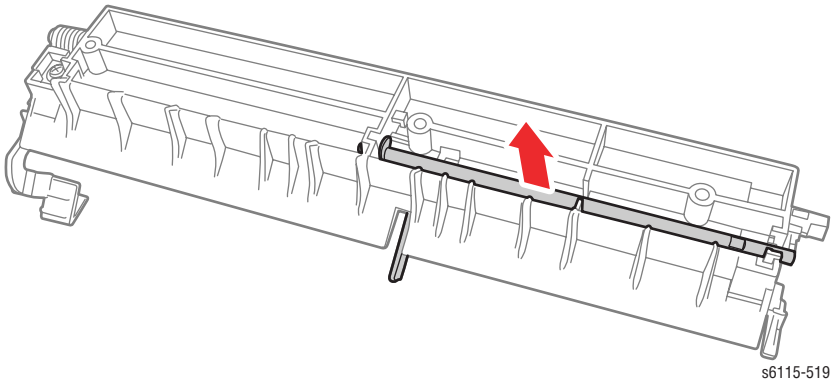

6. Remove the stop tab.



7. To gain access to the actuator, remove the metal cover.




8. Rotate the flexible plastic actuator to the keyed slot and remove.



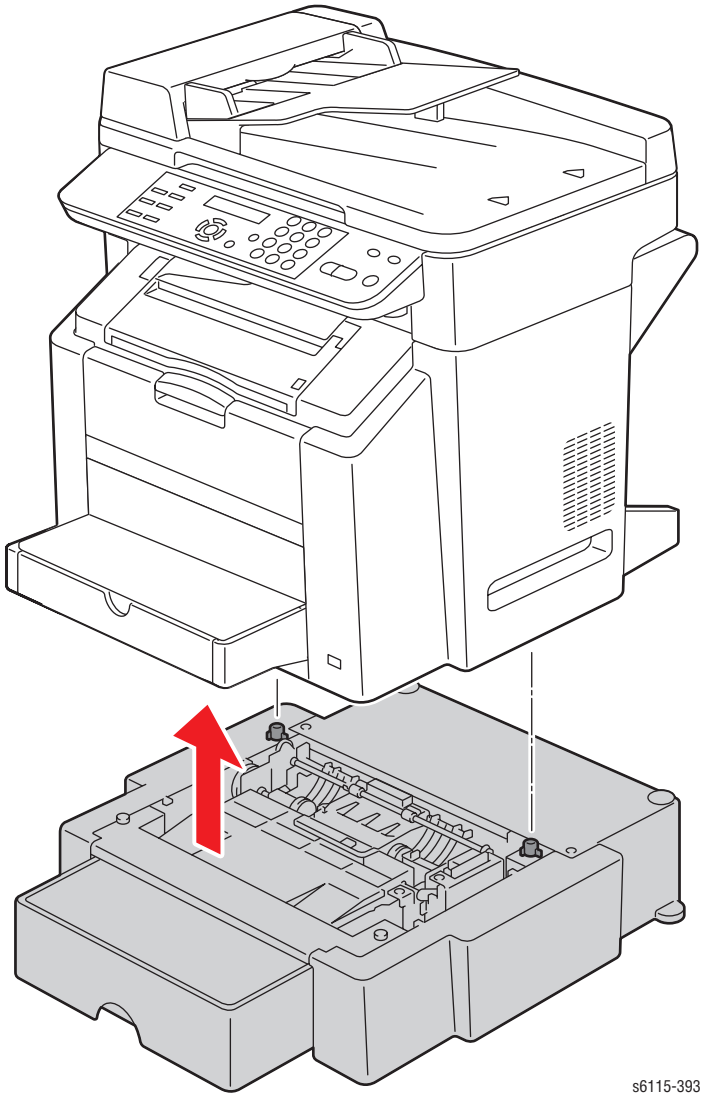
# Disassembly/Assembly Procedures (500-Sheet Feeder Tray)

## 500-Sheet Feeder Unit (PL5.1.17)

**Caution**

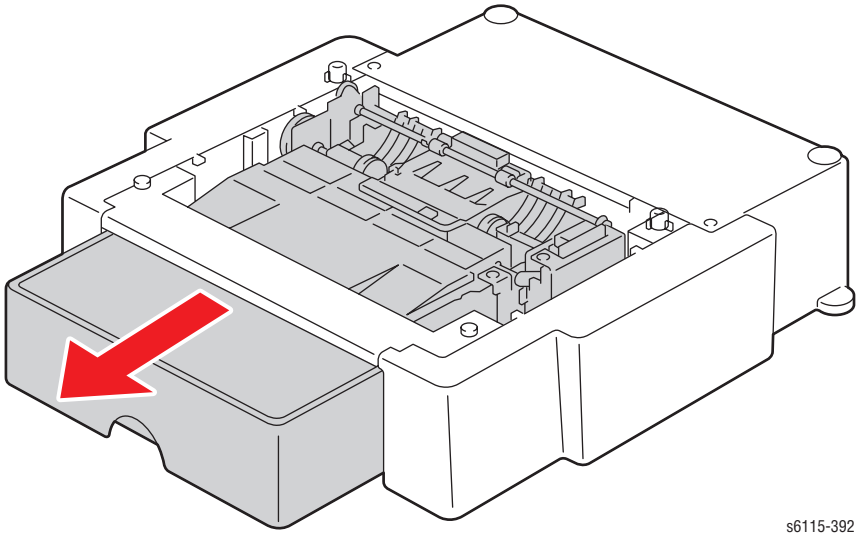
Whenever removing or reinstalling the feeder, be sure to first unplug the power cord of the printer from the power outlet.

1. Lift the printer main body and then remove the 500-Sheet Feeder Unit from the printer.



## Tray Removal (PL5.3.1)

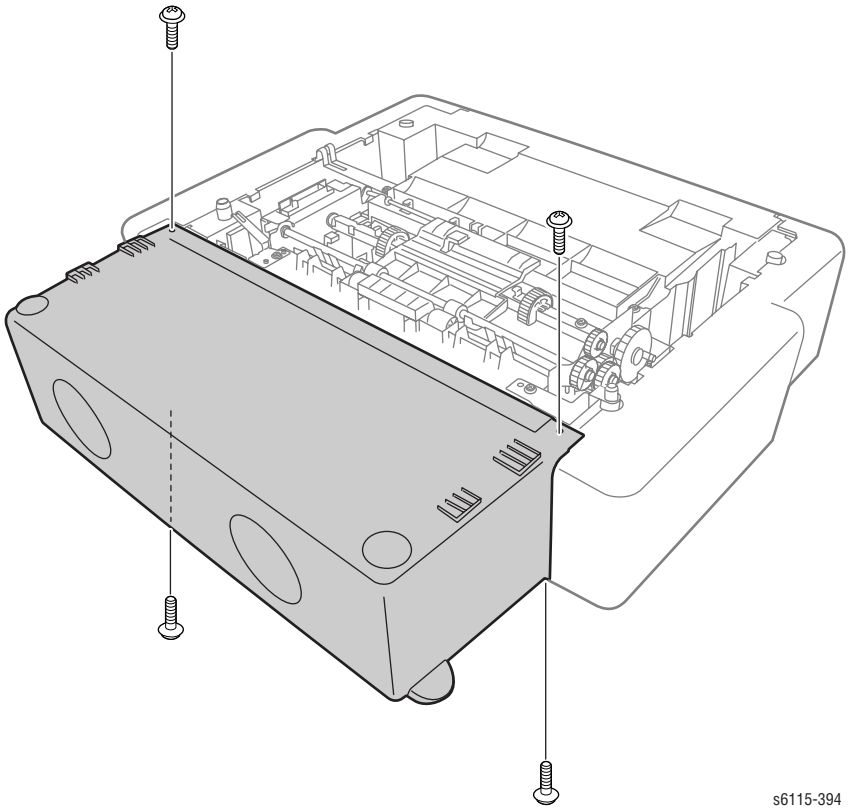
1. Remove the 500-Sheet Feeder Unit from the main unit (page 8-125).
2. Slide out the tray.




## Rear Cover (PL5.1.1)

1. Slide out the tray (page 8-126).

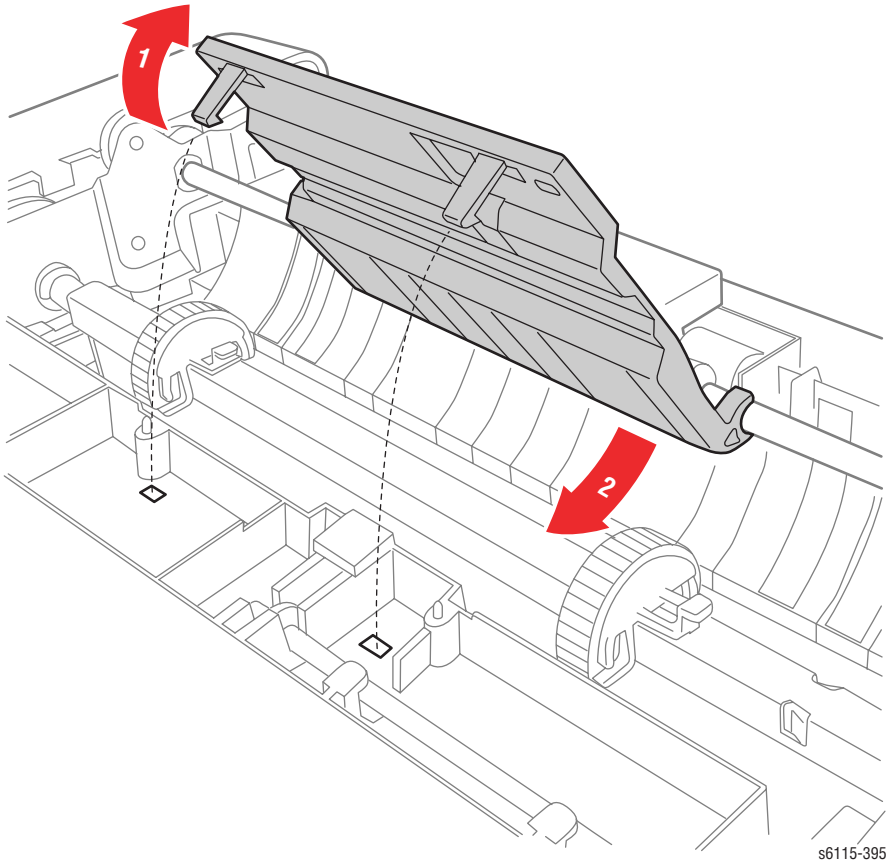
2. Remove 4 screws (plastic, 10mm), and remove the rear cover.



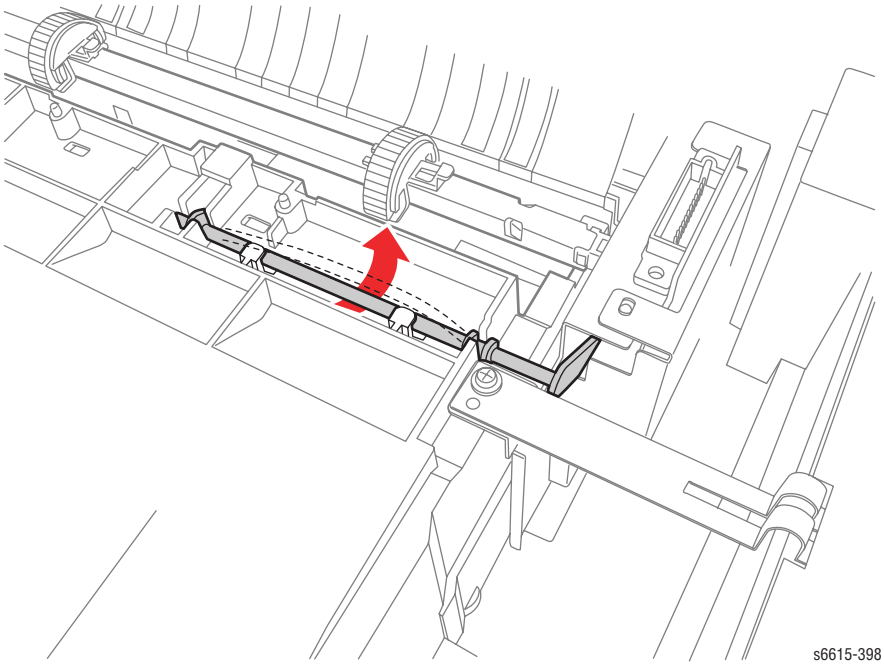

## Pick Roller and Holder (PL5.2.10)

1. Remove the Rear Cover (page 8-126).
2. Using a screwdriver, release two tabs to free the plastic cover.

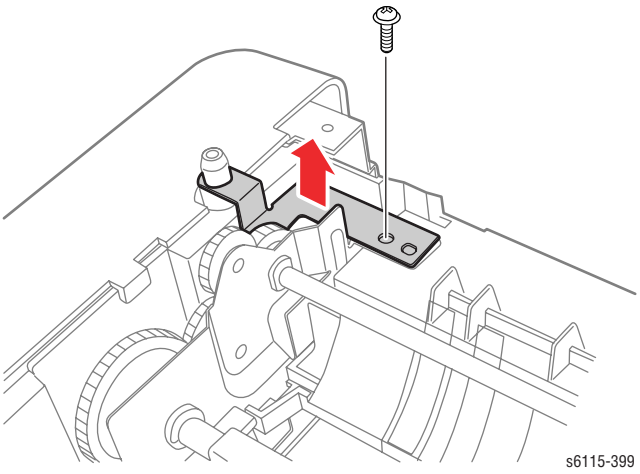
3. Push down on plastic clips to release the cover.



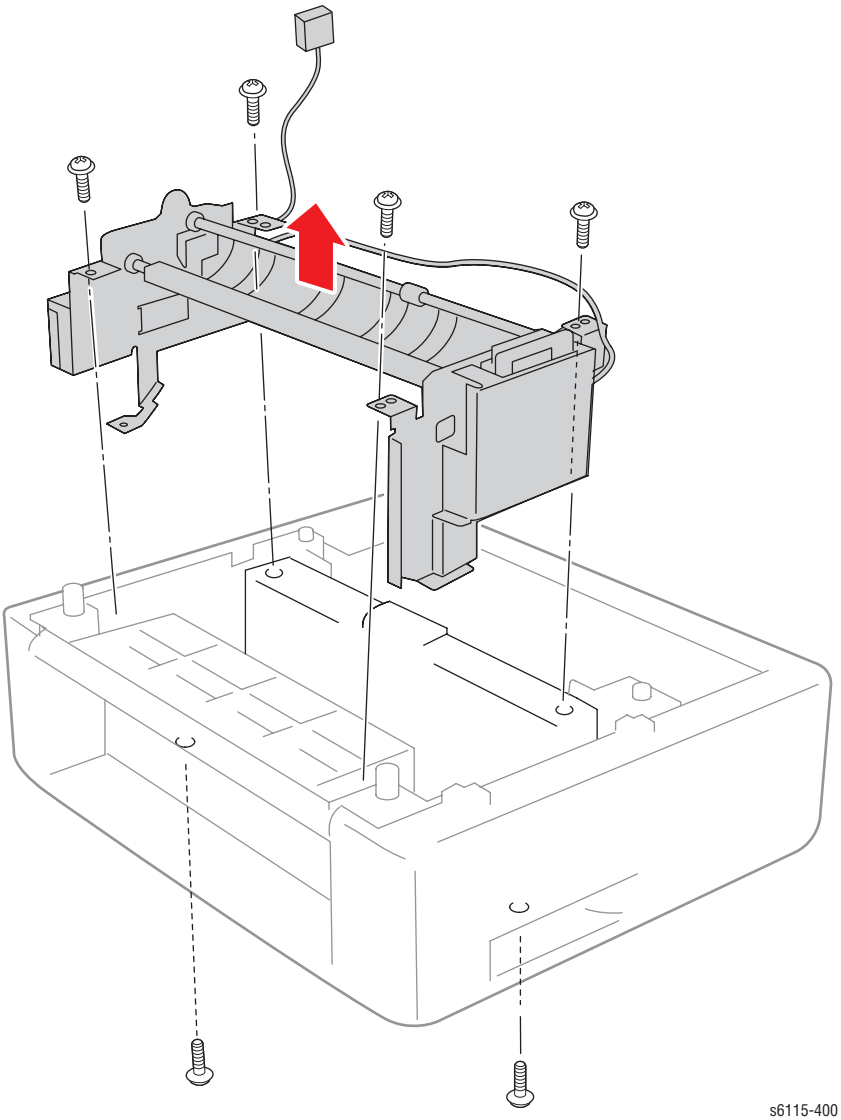

4. Remove the actuator. To do this, flex the plastic free from the tabs, lift and remove the actuator.



5. Remove 1 screw (plastic, 10mm) and the metal plate.

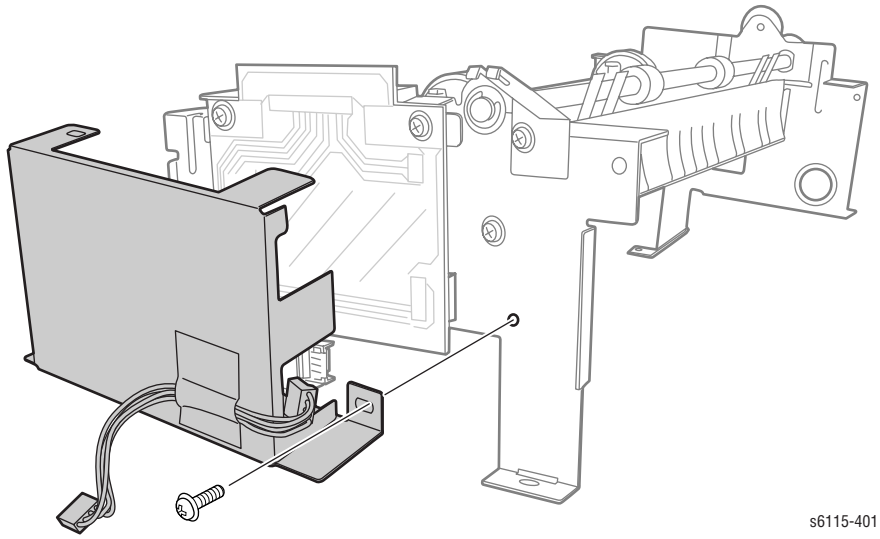



6. Remove 5 screws (plastic, 10mm), disconnect the connector, remove the metal plate holder and Pick Roller.
.



## Paper Feed Drive Board (PL5.2.9)

1. Remove the Pick Roller and Holder (page 8-127).
2. Disconnect 2 connectors from the Paper Feed Drive Board.
3. Remove 1 screw (metal, 8mm) and the protective cover.



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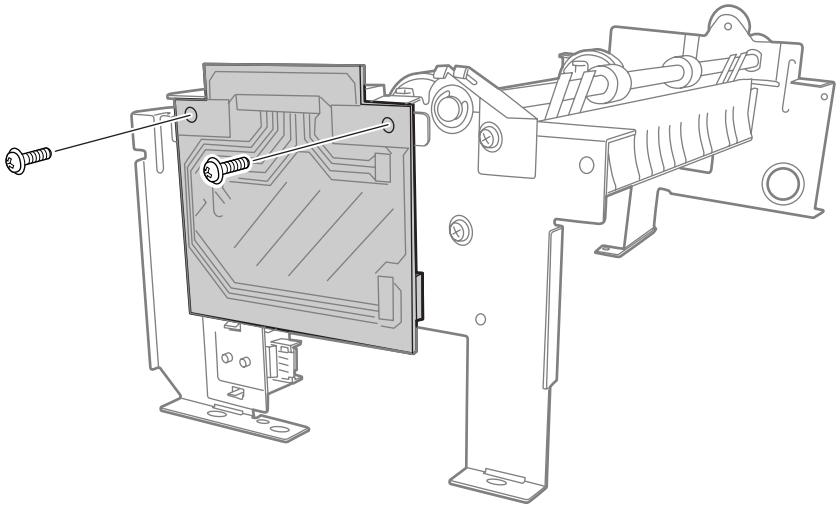
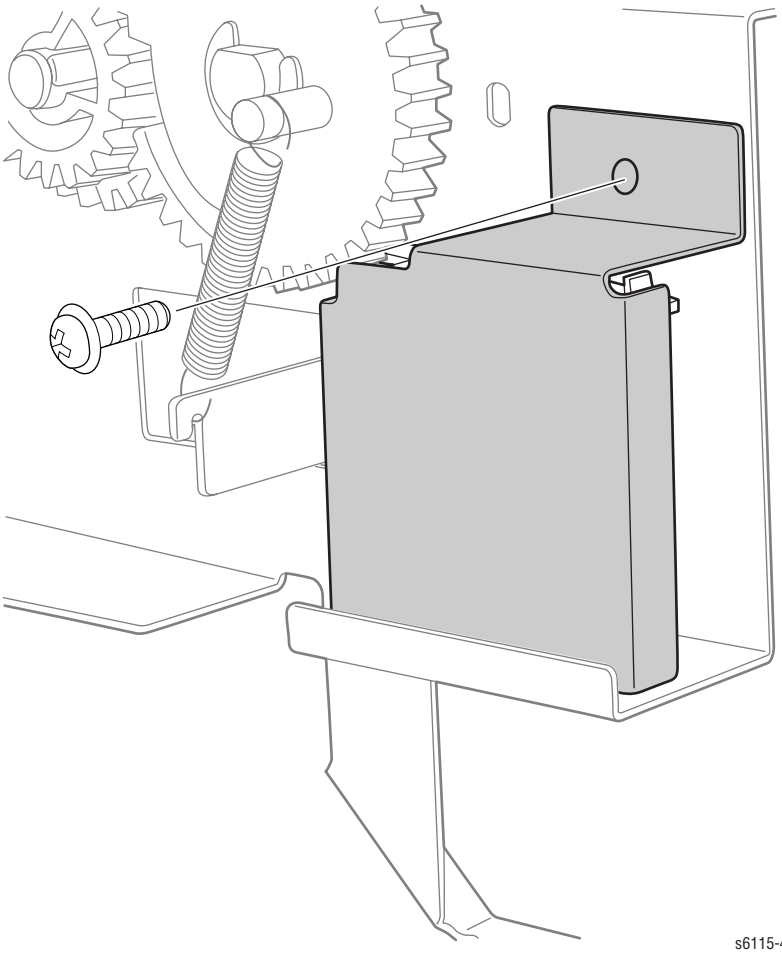
4. Remove two screws (metal, 8mm) and the Printer Feed Drive Board.



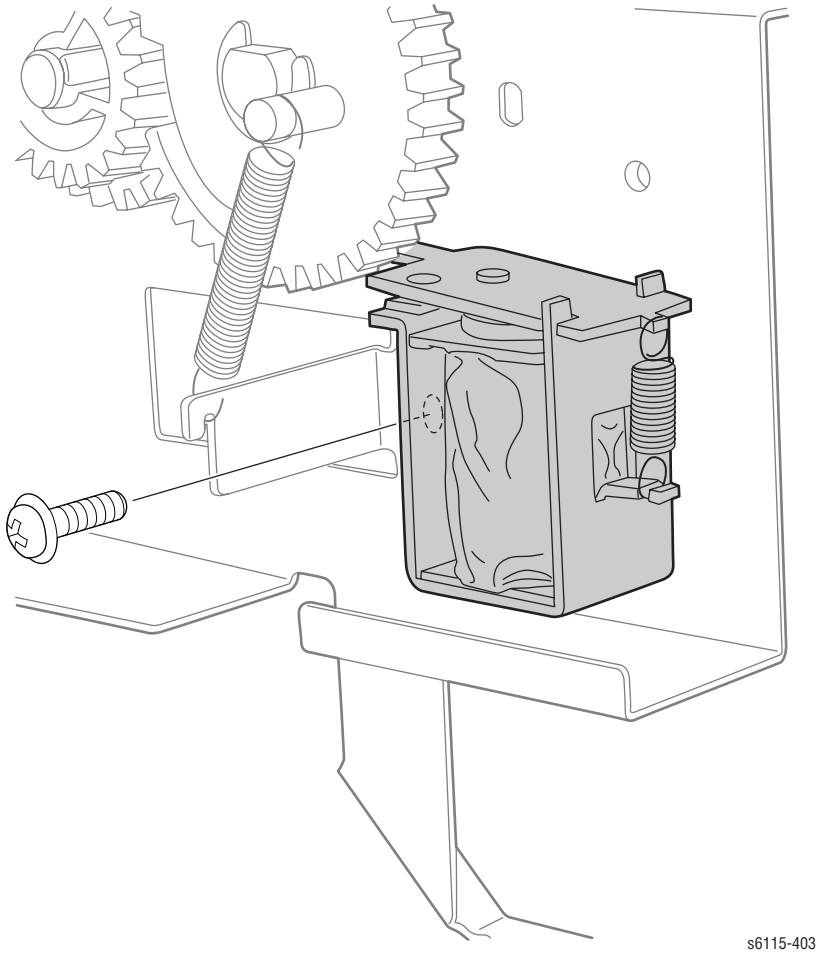
s6115-402

## Paper Pick-Up Solenoid (PL5.2.16)

1. Remove the Pick Roller and Holder (page 8-127).
2. Disconnect the connector.
3. Remove 1 screw (metal, 10mm) and the protective cover.

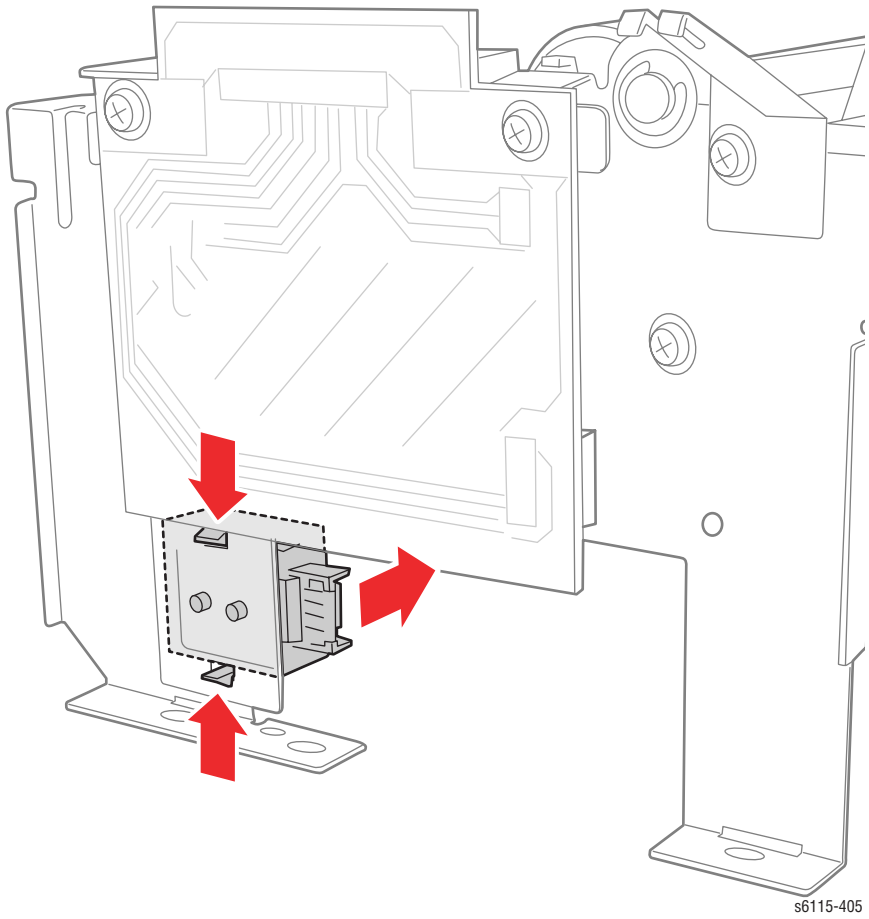


4. Remove 1 screw (metal, 8mm) and the Paper Pick-Up Solenoid.



## Paper Size Switch (PL5.2.12)

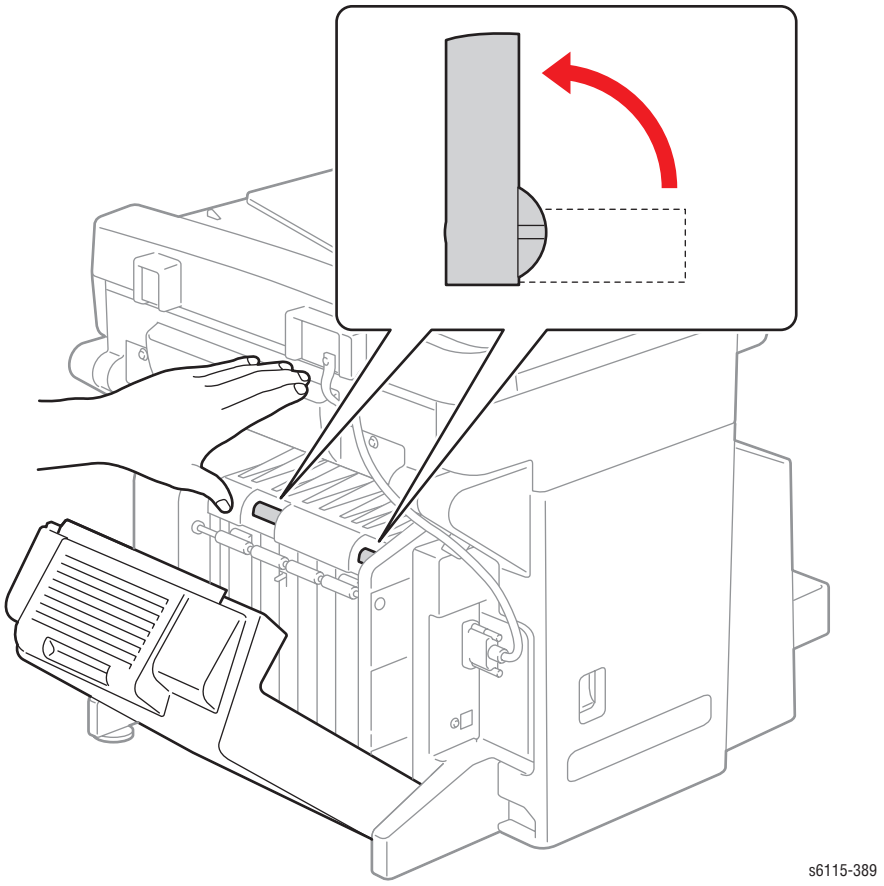
1. Remove the Paper Pick Roller and Holder (page 8-127).
2. Unlock two tabs, disconnect the connector and remove the Paper Size Switch.



# Disassembly/Assembly Procedures (Duplexer)

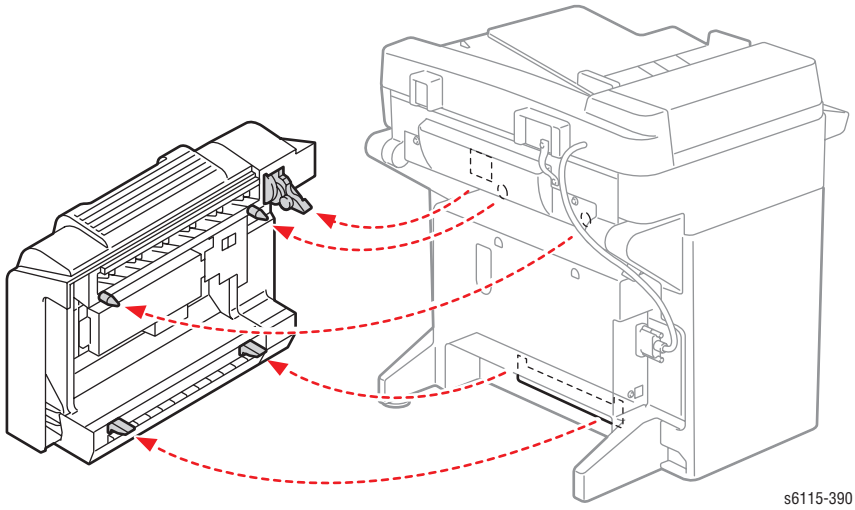
## Duplex Unit Replacement (PL6.1.27)

1. Open the Duplex Cover.
2. Turn the two locking levers (PL6.1.2) to unlock the Duplex Unit.



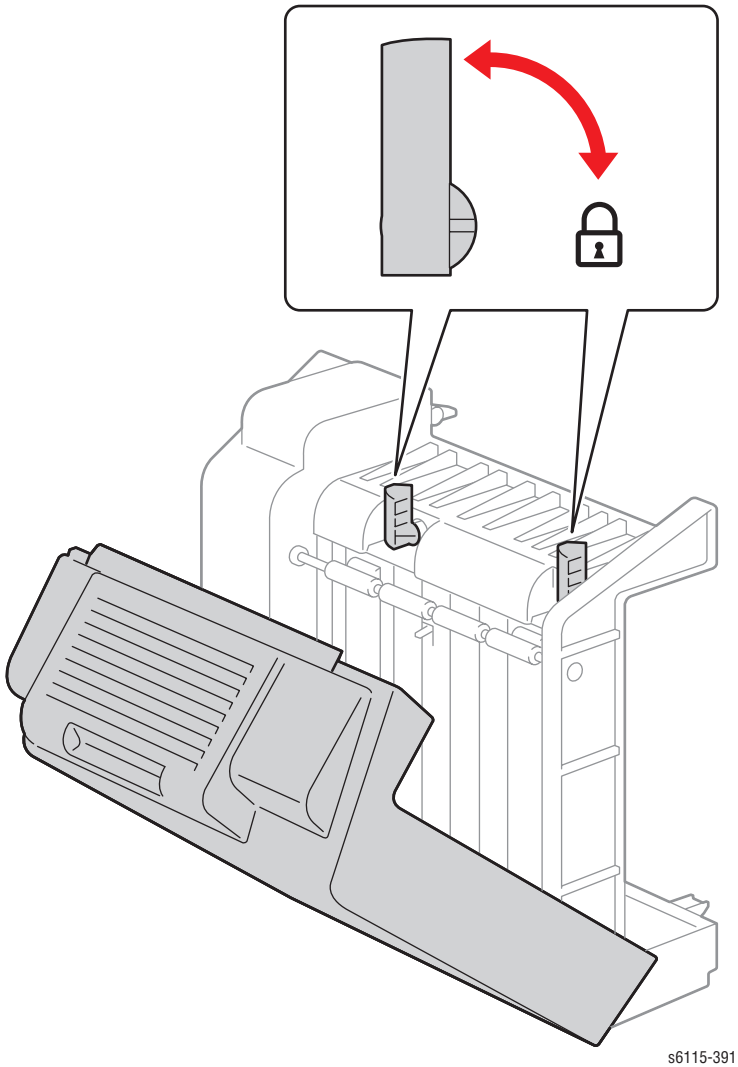
s6115-389

3. Remove the Duplex Unit.

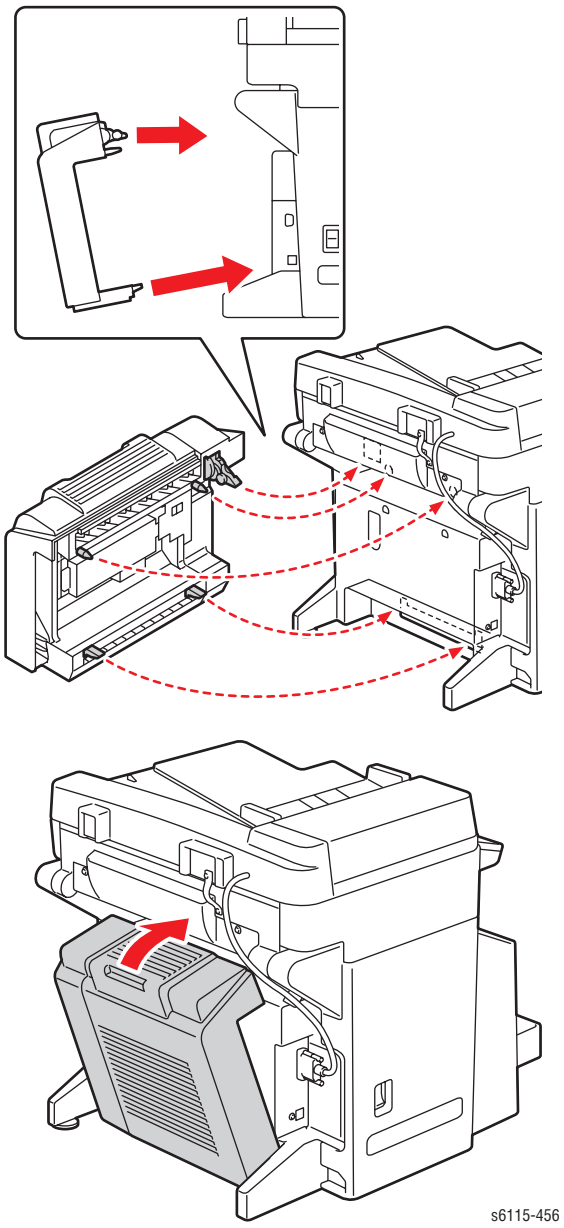


s6115-390

4. To reinstall a new Duplex Unit, open the Duplex Cover and turn the two locking levers to unlock.



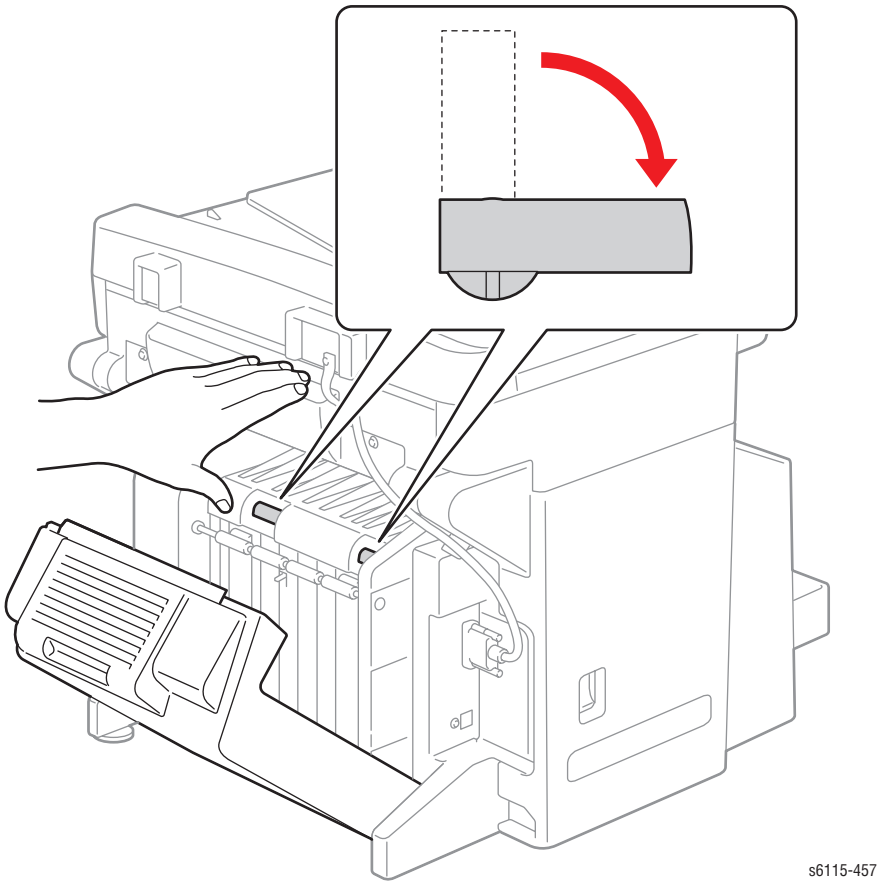
5. Mount the Duplex Unit onto the printer main body.



6. Turn the two locking levers to lock the Duplex Unit into position.

**Note**

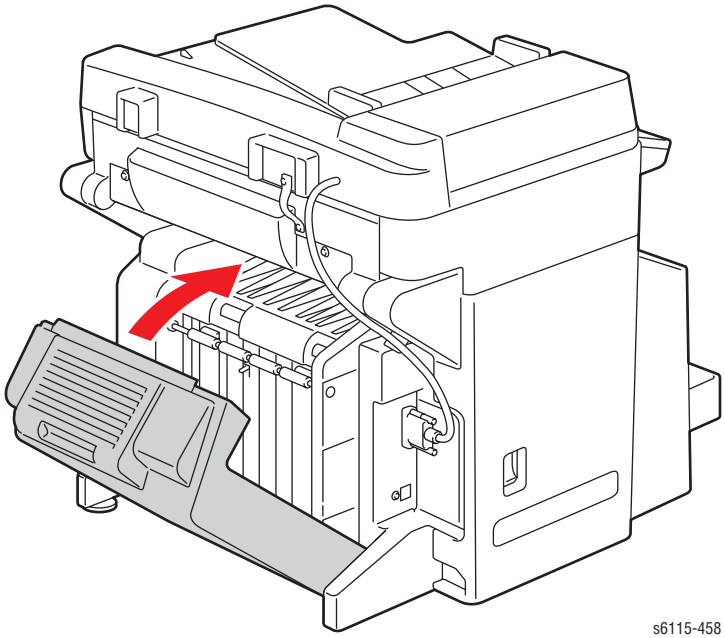
When locking the Duplex Unit into position, you may need to hold the unit with one hand and, at the same time, press it up against the printer main body.




**Note**

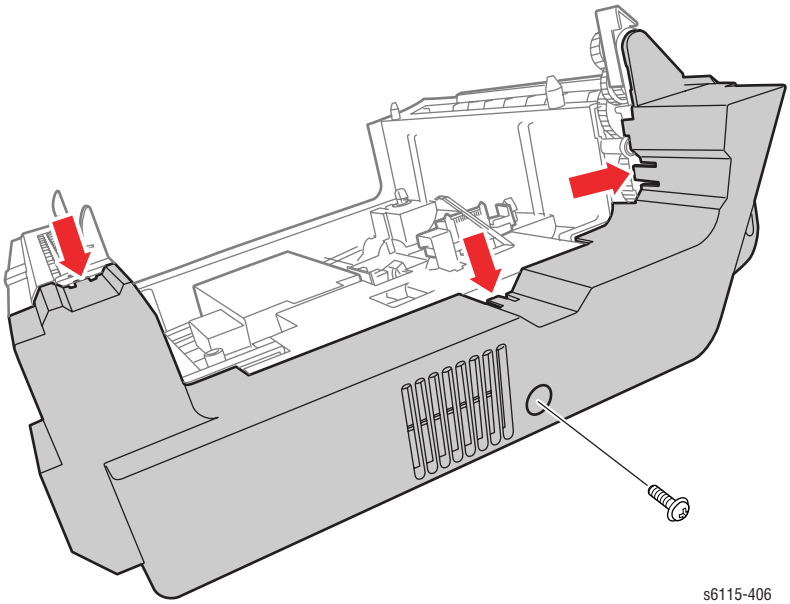
After the Duplex Unit has been locked into position, check that the two locking levers are in the correct locked position.

7. Close the Duplex Cover.



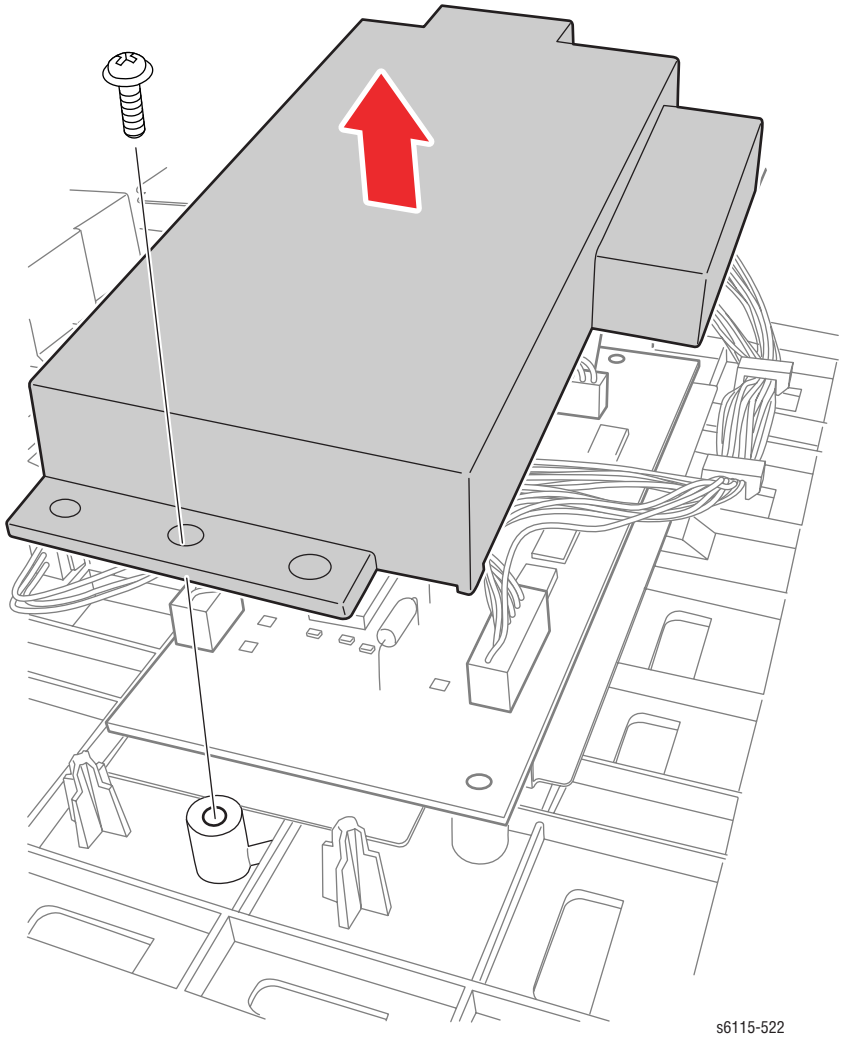

## Duplex Right Cover (6.1.13)

1. Remove 1 screw (plastic, 10mm).
2. Unlock three tabs and remove the Duplex Right Cover.

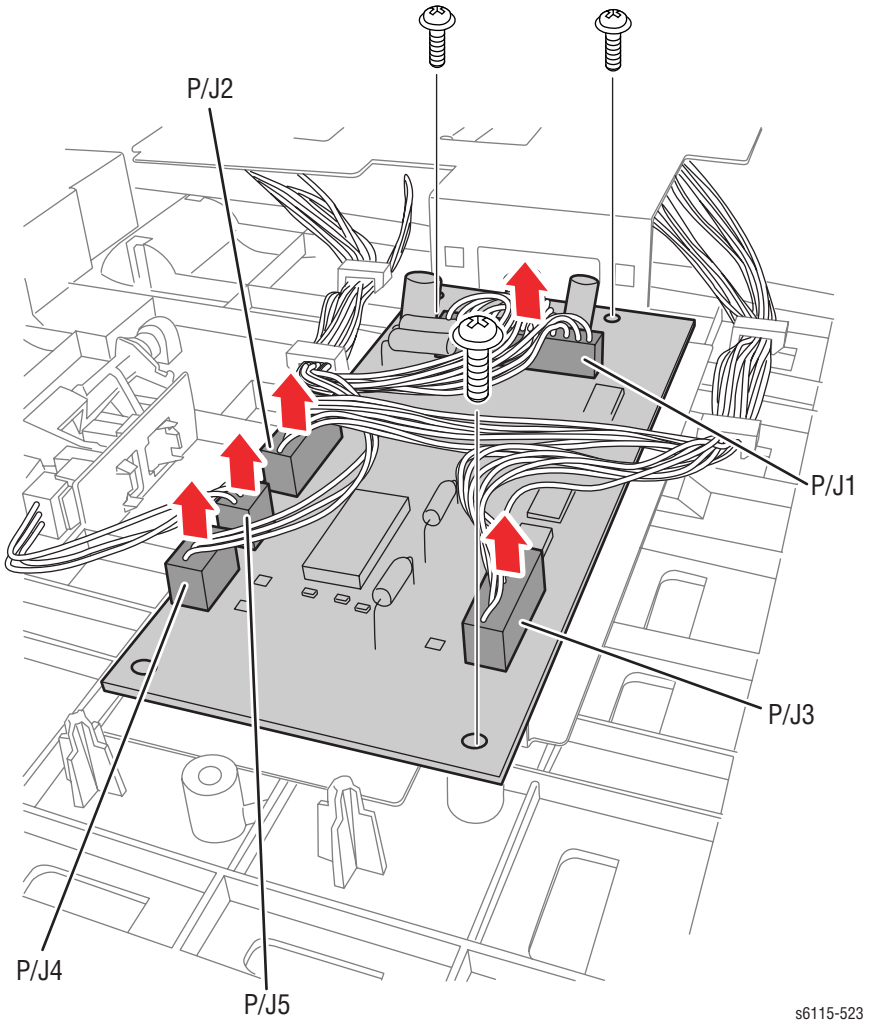


## Duplex Drive Board Removal (PL6.1.19)

1. Remove the right cover (page 8-138).
2. Remove the screw (metal, 8mm) and the Duplex Drive Board cover.

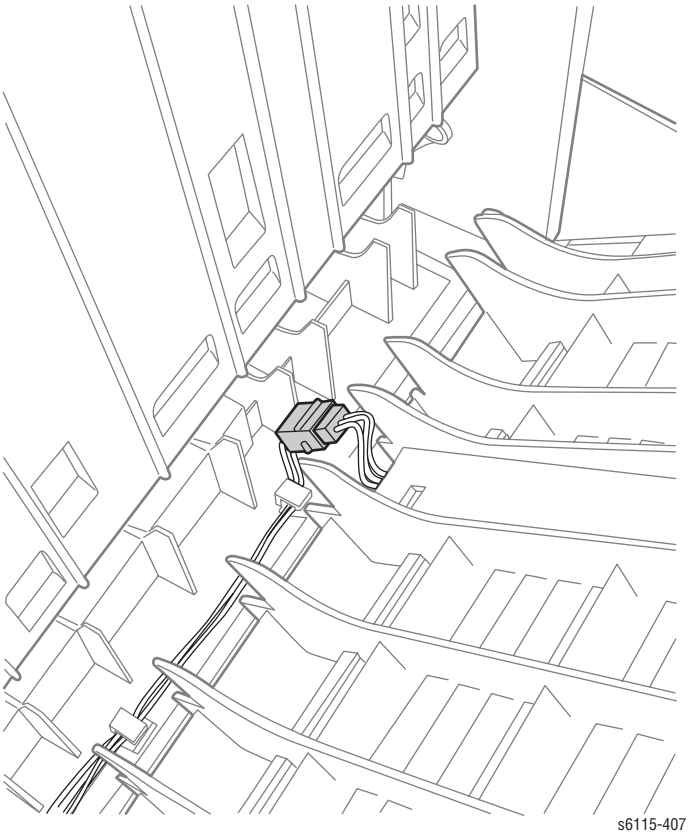


3. Disconnect all connectors from the board.

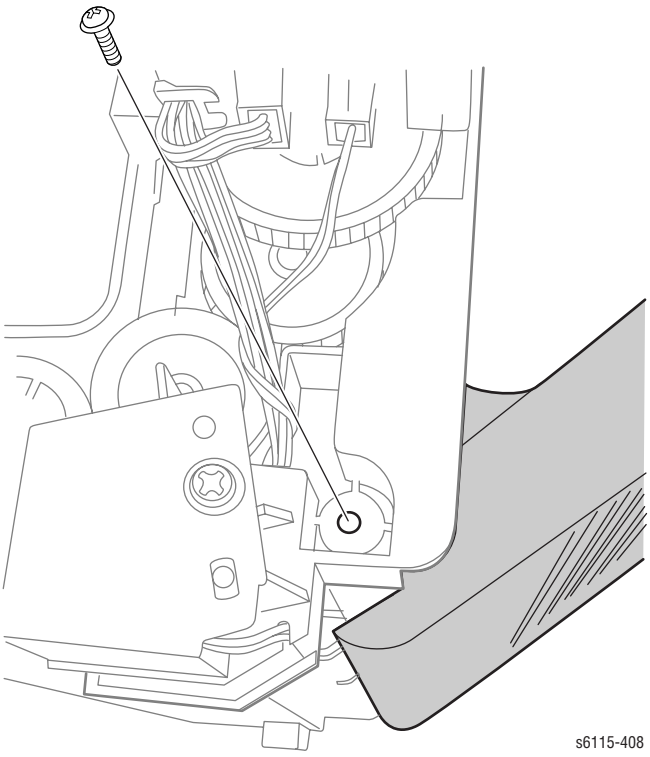



4. Remove 3 screws (metal, 8mm) and the Duplex Drive Board Cooling Fan Motor (PL6.2.3)
5. Remove the right cover (page 8-138).

6. Open the Duplex door and disconnect the connector.




7. Remove 1 screw (plastic, 10mm).

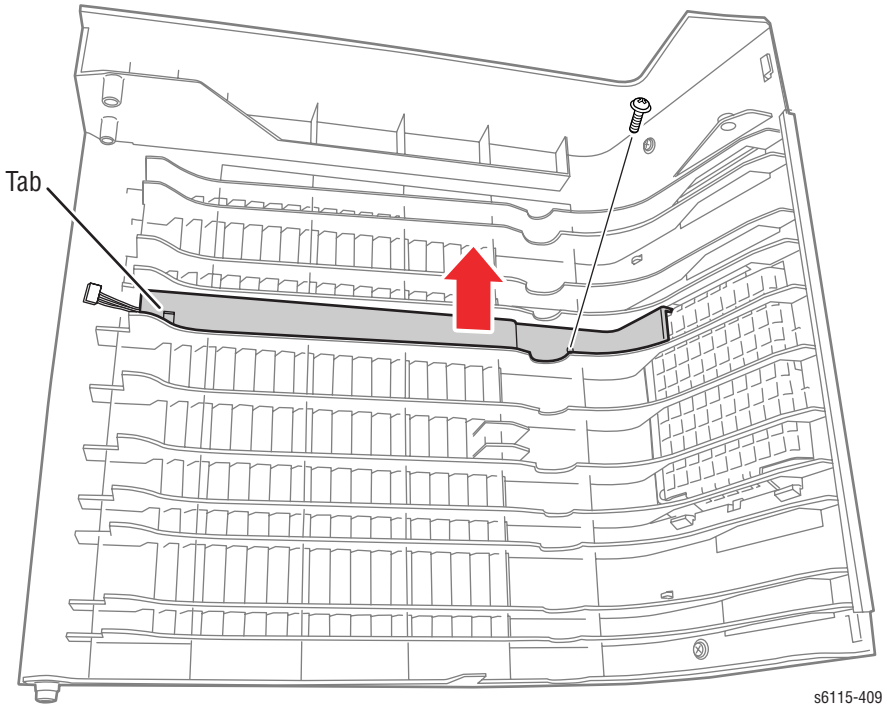



8. Unhook the 2 dowel pins and remove the Duplex Door.

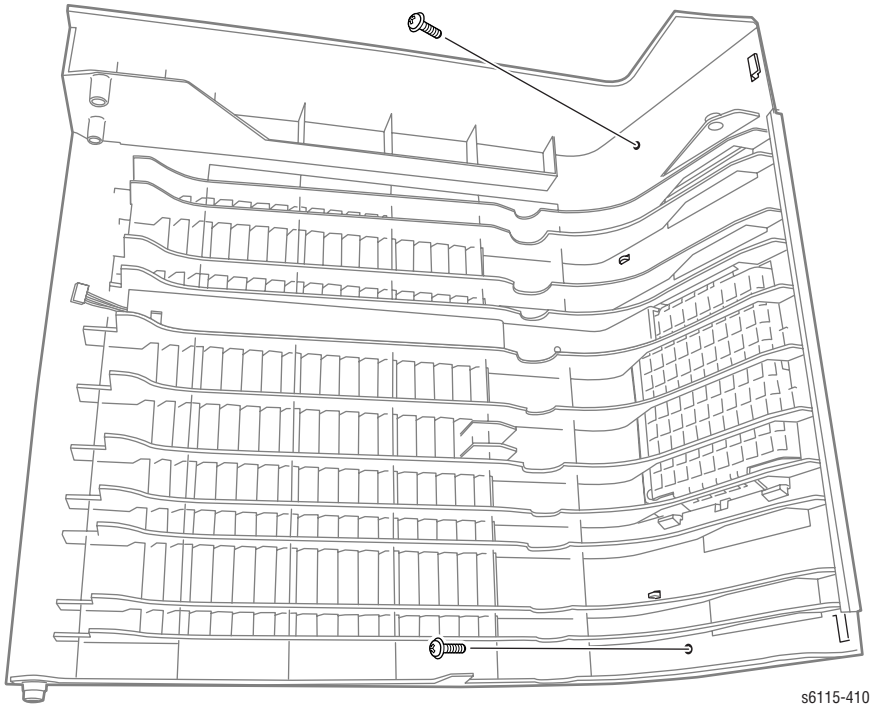
9. Disconnect one connector.
10. Remove 1 screw (plastic, 10mm), unlock the tab and remove the harness cover.

**Replacement Note**

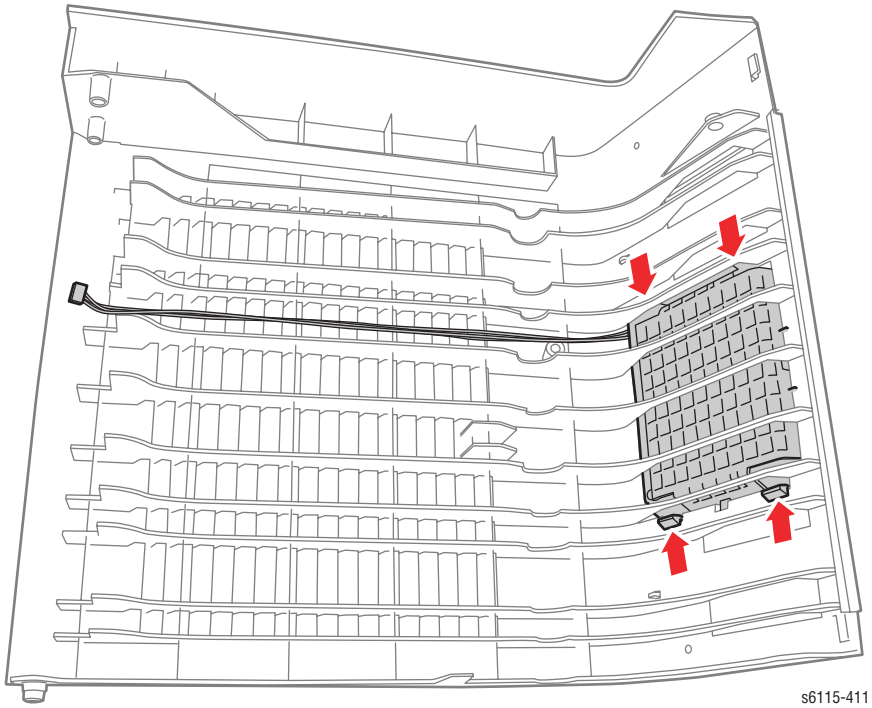
Be sure to place the tab into the slot first before replacing the screw.




11. Remove 2 screws (plastic, 10mm), unlock two tabs and remove the Duplex Door upper cover.

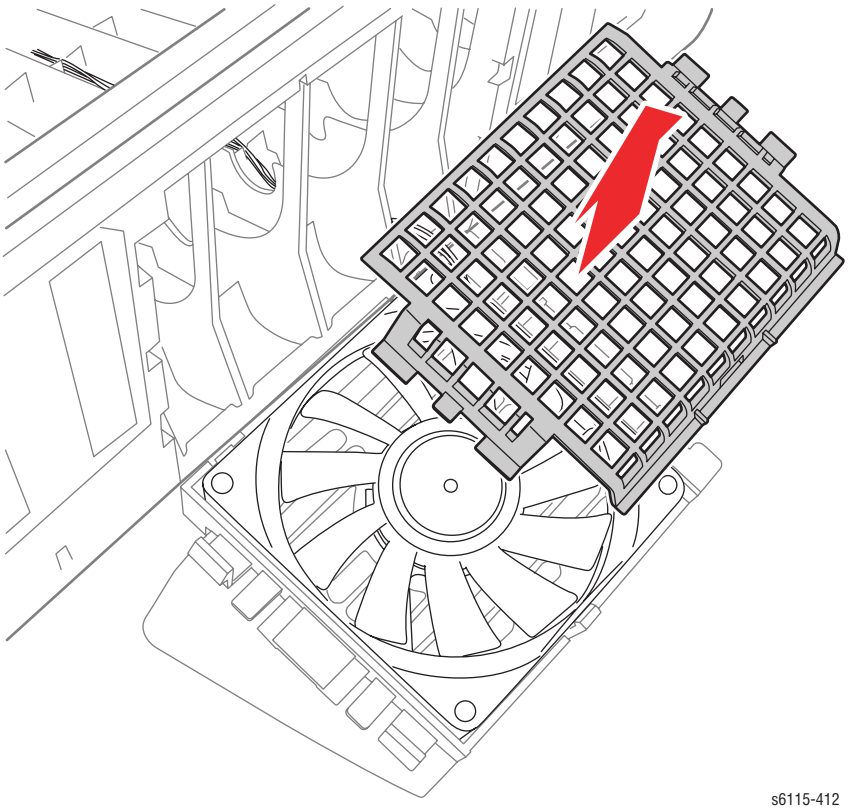


12. Unlock 4 tabs and remove the Cooling Fan Motor assembly.



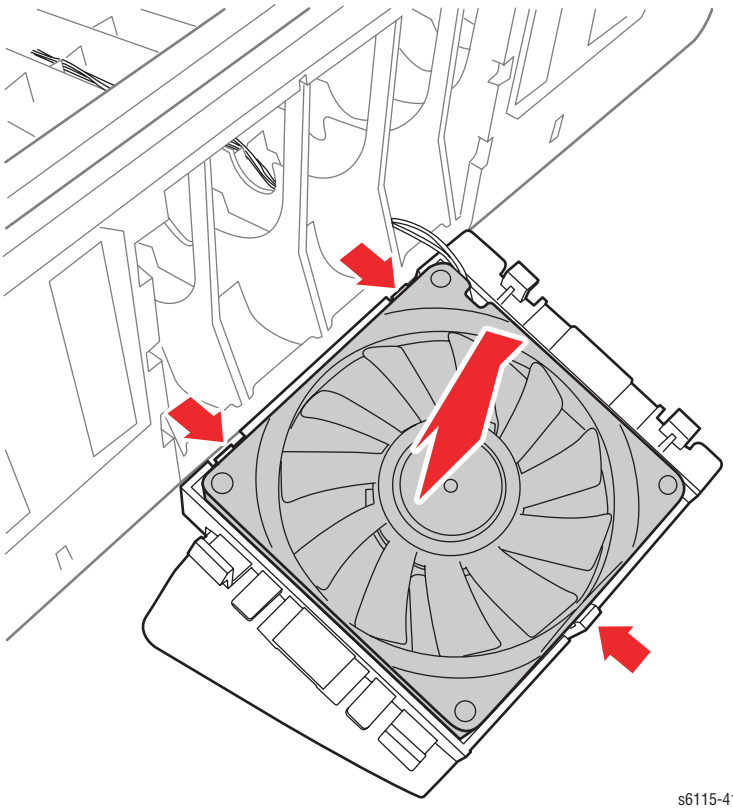
s6115-411

13. Remove the Cooling Fan Motor cover.



s6115-412

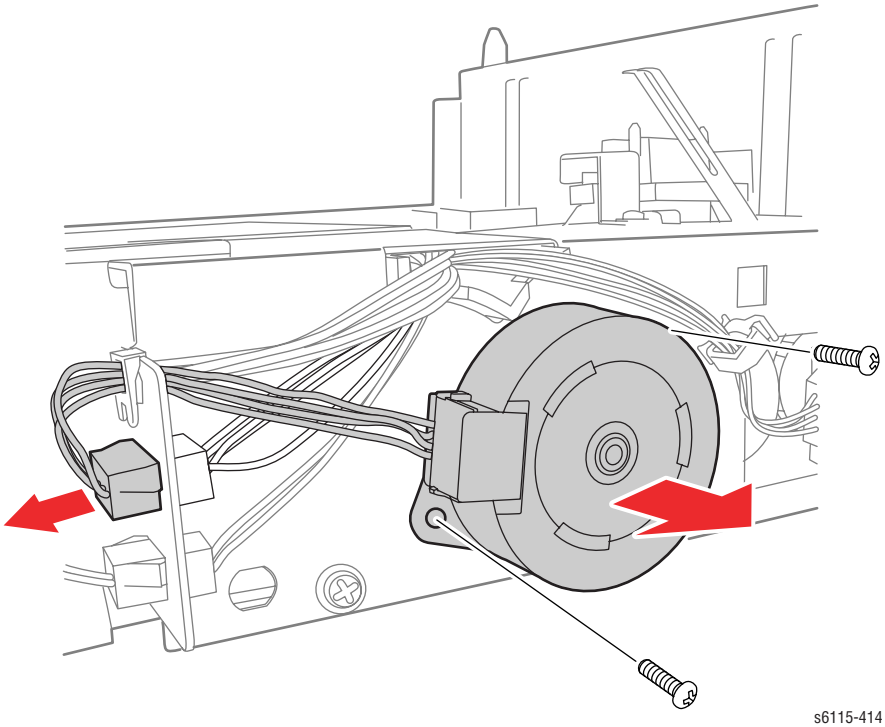
**14.** Release 3 tabs and remove the Cooling Fan Motor.



s6115-413

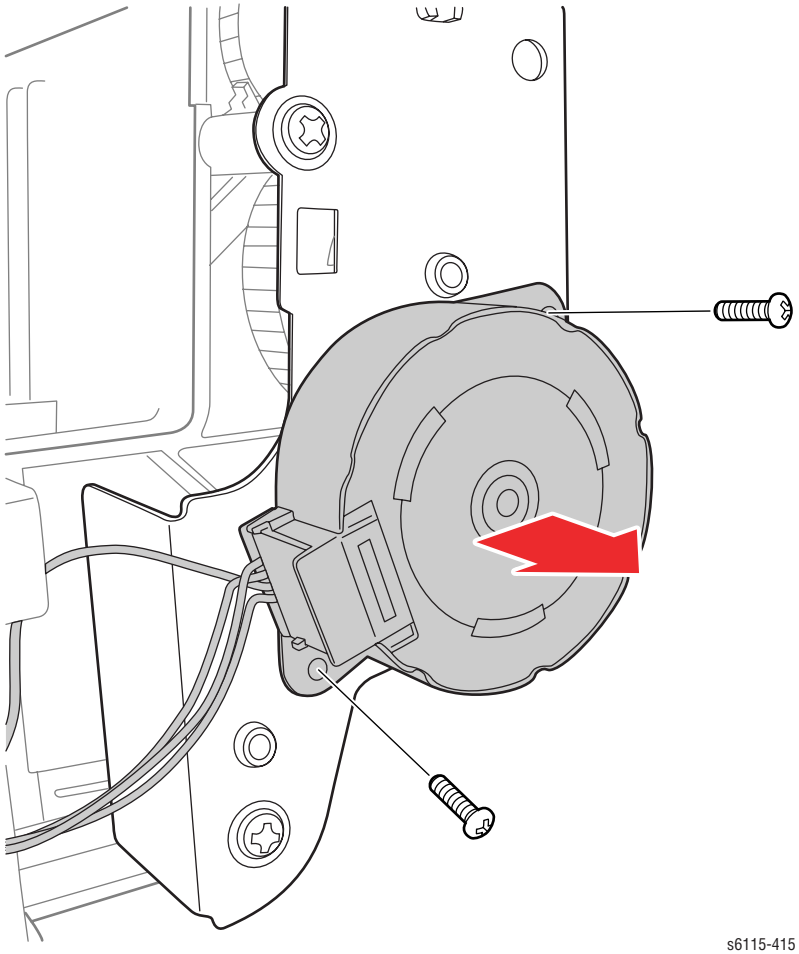
## Transport Motor (PL6.1.6)

1. Remove the Duplex Right Cover (page 8-138).
2. Remove 2 screws (metal, 10mm) and disconnect the connector.
3. Release the harness from the holder and remove the Transport Motor.



## Reverse Motor (PL6.1.6)

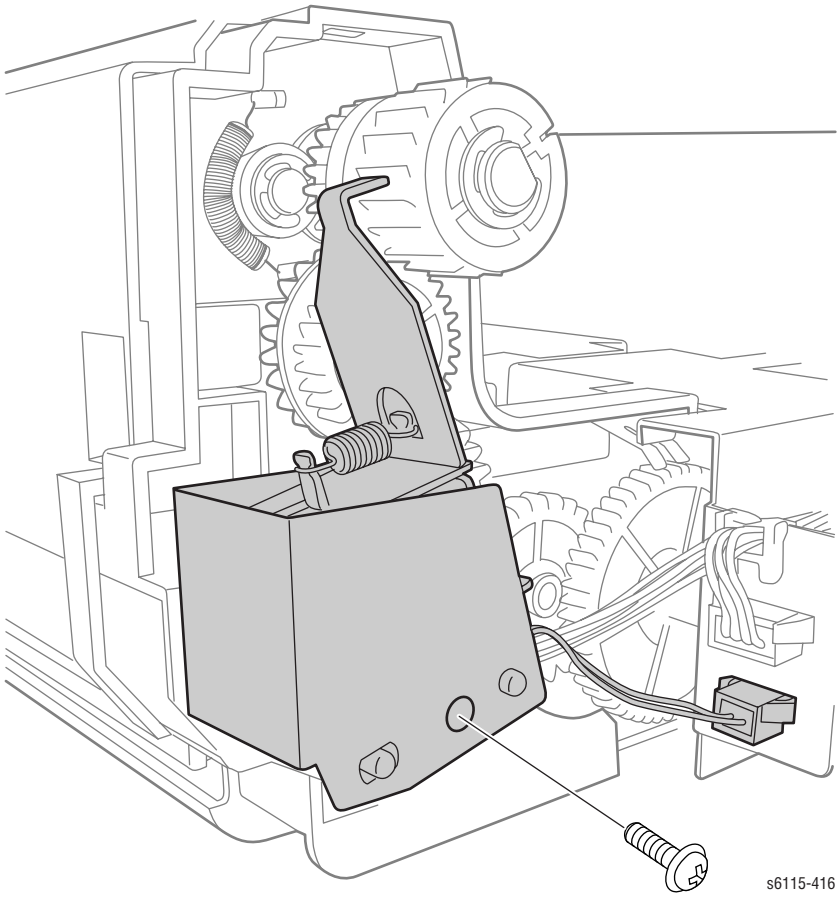
1. Remove the Duplex Right Cover (page 8-138).
2. Remove 2 screws (metal, 10mm), disconnect the connector, and remove the Reverse Motor.



s6115-415

## Registration Solenoid (PL6.3.15)

1. Remove the Duplex Right Cover (page 8-138).
2. Disconnect the connector.
3. Remove 1 screw (metal, 10mm) and the protective cover.



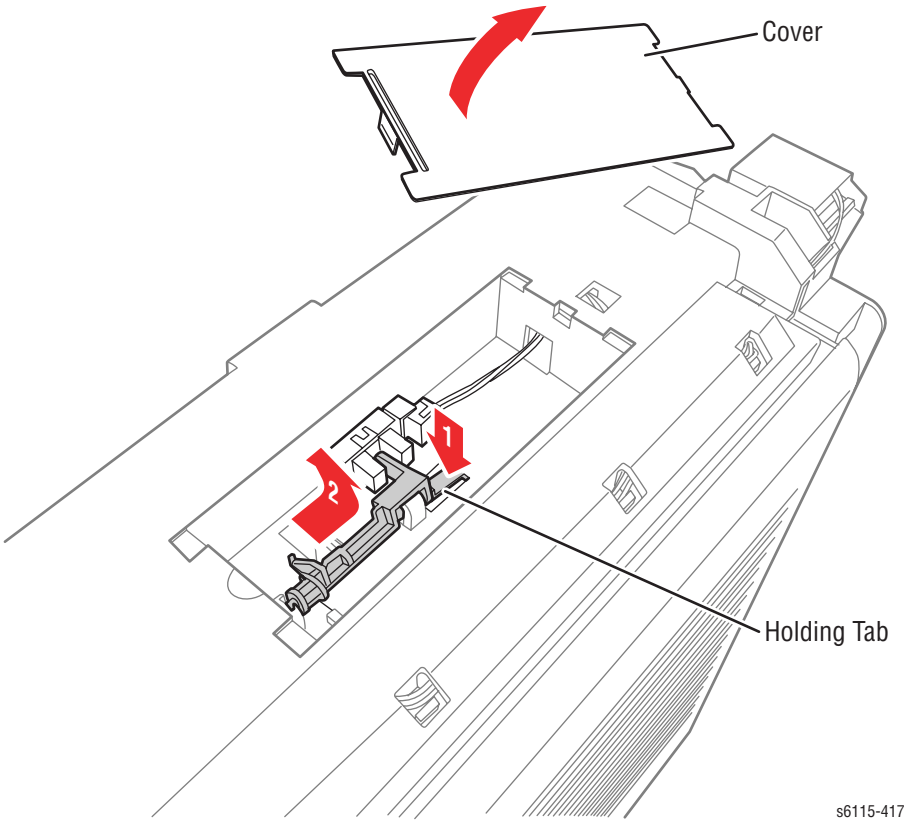

4. Remove the Registration Solenoid.

## Tray Set Actuator (PL6.1.17)

1. Remove the cover door (page 8-138).
2. Pressing the holding tab, remove the Tray Set Actuator.

**Replacement Note**

Be sure to hook the spring around the plastic nodule.



# Parts Lists

## In this chapter...



Chapter 9

# Serial Number Format

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

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

The serial number is found on a label located on the frame of the printer, inside the Tray 2 opening. Tray 2 must be removed to locate the Serial Number.

The nine-digit serial number has the following format:

**PPP-SSSSSS**

**PPP =** product code, as shown in the following table.

| Product Code | Product | Configuration |
|---|---|---|
| | 6115MFP/N | Phaser 6115MFP, 110 V, Base |
| | 6115MFP/DN | Phaser 6115MFP, 110V, Duplex |

**SSSSSS =** Numeric serial number.

For example, a printer having PMT219638 as its Serial Number:

- Is a 110 V Phaser 6115MFP Printer
- Has a 219638 serial number

# Using the Parts List

Only those parts listed with part numbers are available for order. Parts listed without a corresponding part number are only available as part of a parent assembly.

- **No.:** The callout number from the exploded part diagram.
- **Part Number:** The material part number used to order that specific part.
- **Name/Description:** The name of the part to be ordered and the number of parts supplied per order.
- Parts identified throughout this manual are referenced **PL#.#.#**; For example, PL3.1.10 means the part is item 10 of Parts List 3.1.

  **Note**

  The spares list for this product is limited, Therefore, not all disassembly procedures have an associated **PL** number. The procedures without a part number are necessary to reach other parts that do have **PL** number.

- 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.
- 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.

### Abbreviations

| Abbreviation | Meaning |
|---|---|
| C | C-ring |
| E | E-ring |
| KL | K-clip |
| S | Screw |

# Parts List Index

## Phaser 6115MFP Parts List Index

| Number | Title |
|---|---|
| PL 1.1 | Automatic Document Feeder (1/3) |
| PL 2.1 | External Parts |
| PL 3.1 | Scanner Platen and Drive |
| PL 4.1 | Top Cover |
| PL 4.2 | Top Cover Latch |
| PL 4.3 | Main Frame |
| PL 4.5 | Left Side Frame |
| PL 4.6 | Left Frame |
| PL 4.7 | Right Side Frame |
| PL 4.8 | Chassis Fans and Ducts |
| PL 4.9 | Right Frame |
| PL 4.10 | Drive (1 of 4) |
| PL 4.11 | Drive (2 of 4) |
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| PL 4.14 | Imaging |
| PL 4.15 | Transfer |
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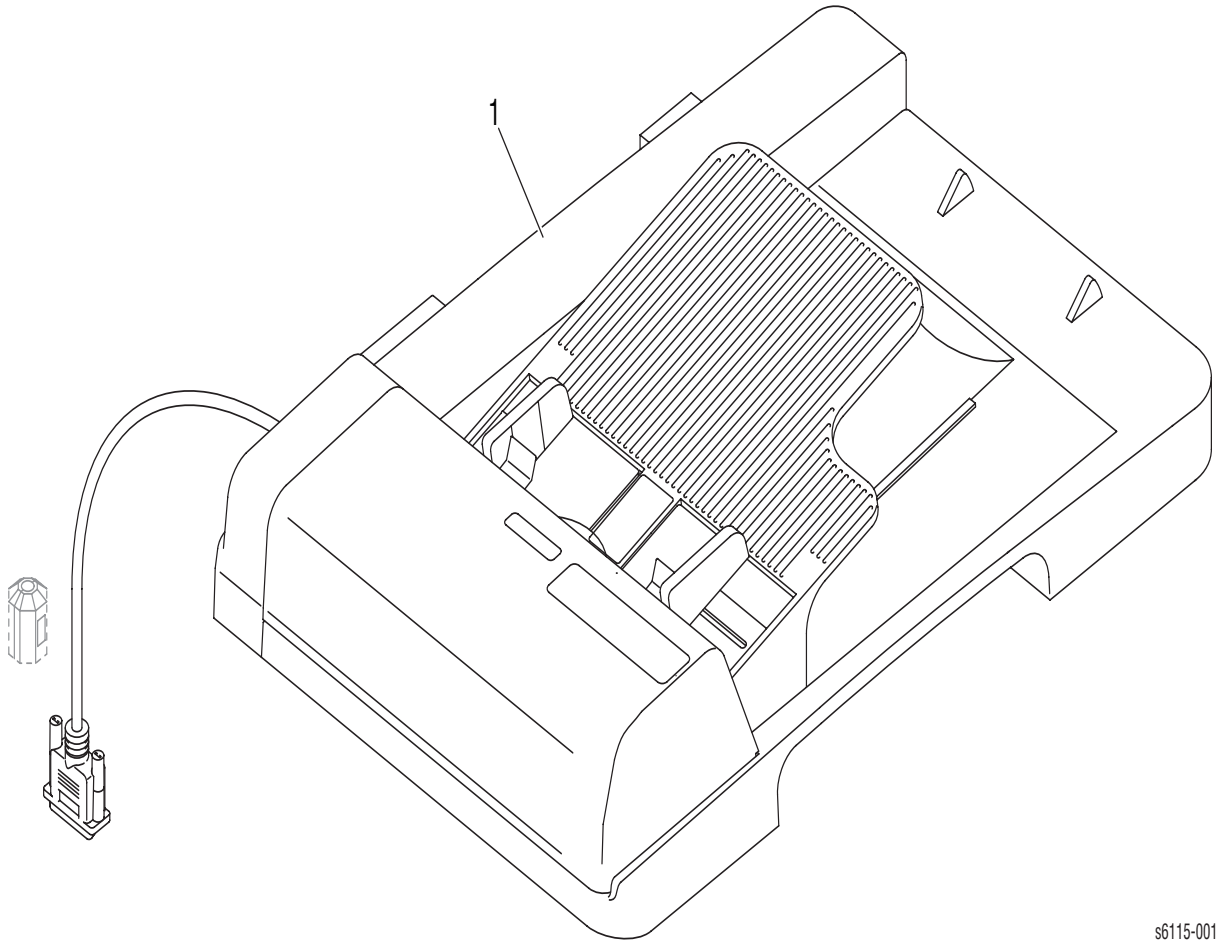
| PL 4.24 | Wiring Harnesses (3 of 3) |
| PL 5.1 | Feeder Housing |
| PL 5.2 | Feeder |
| PL 5.3 | Feeder Tray |
| PL 5.4 | Tray Wiring Harnesses |
| PL 6.1 | Duplex Assembly |
| PL 6.2 | Cover and Fan |
| PL 6.3 | Transport |
| PL 6.4 | Wiring Harnesses |
| PL 7.1 | Xerox Supplies |

# Automatic Document Feeder Parts

## Parts List 1.1 ADF

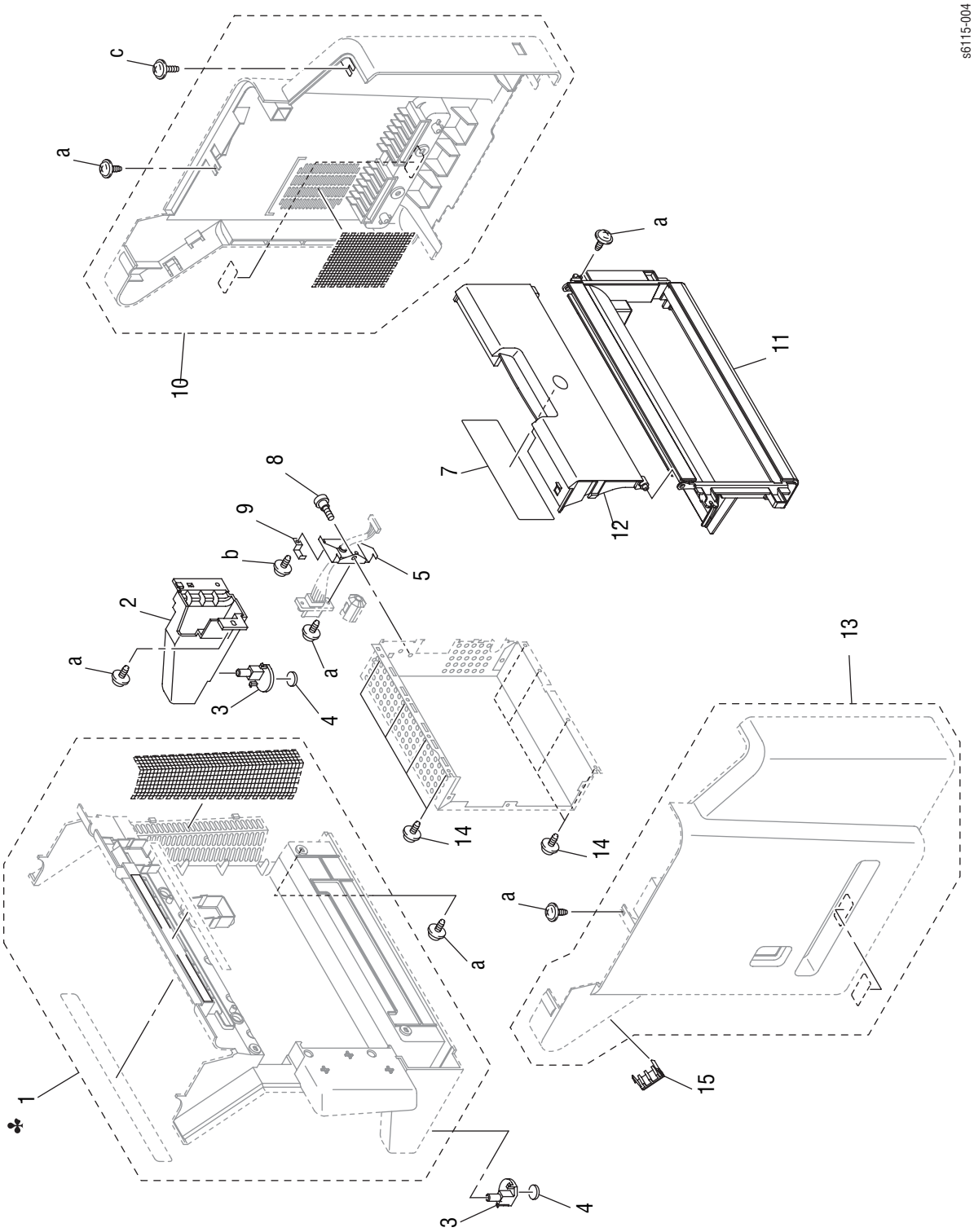


## Parts List 1.1 Automatic Document Feeder - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 059K59130 | ADF Assembly |

# Covers

## PL 2.1 External Parts

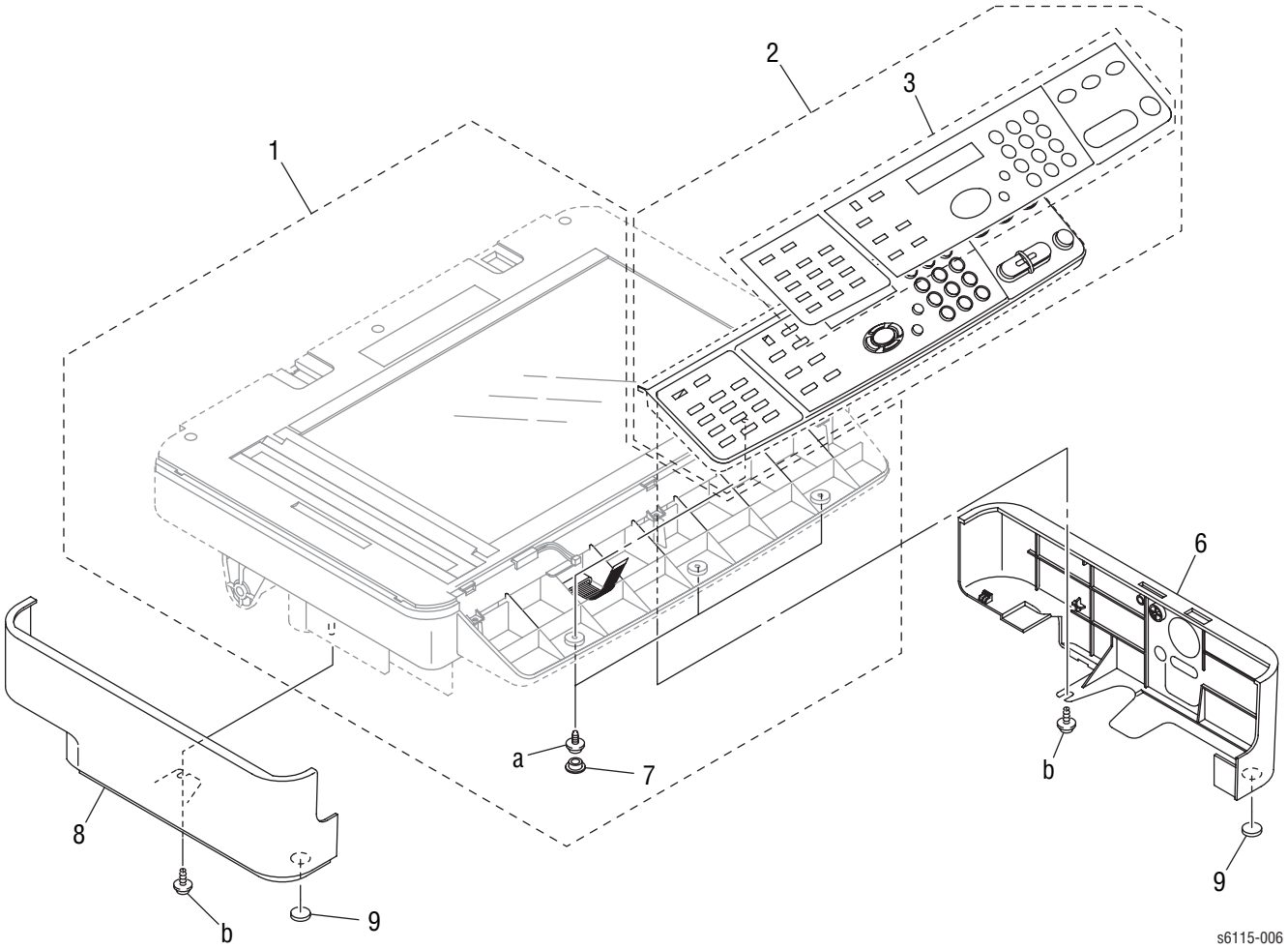


## Parts List 2.1 External Parts - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 848K12220 | Rear Cover Assembly |
| 2. | | Rear Cover Assembly |
| 3. | 017E11820 | Stay (Support foot) |
| 4. | | Supporter |
| 5. | 017E11810 | Rubber Foot |
| 6. | | Bracket |
| 7. | 893E86110 | Instructions |
| 8. | | Shoulder Screw |
| 9. | | Regulating Plate |
| 10. | 848K12230 | Right Cover Assembly |
| 11. | 848E17460 | Front Lower Cover |
| 12. | 848E17470 | Front Cover |
| 13. | 848K12240 | Left Cover Assembly |
| 14. | | Screw |
| 15. | | Holder |

# Scanner Parts

## PL 3.1 Scanner Platen and Drive

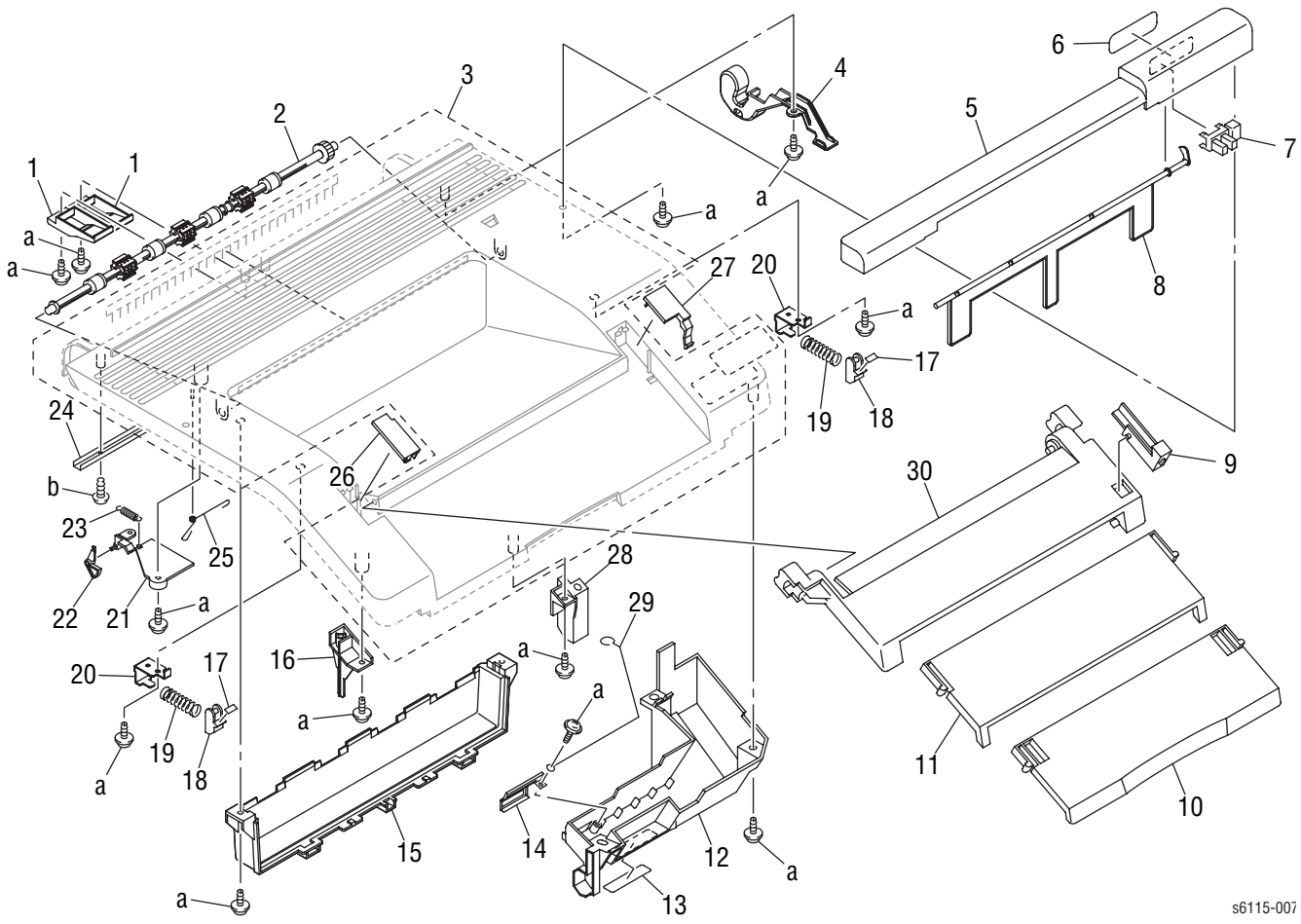


### Parts List 3.1 Scanner Base - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 062K22690 | Scanner Assembly |
| 2. | 848K12210 | Control Panel Assembly (Overlays not included) |
| 3. | 650K27650<br>650K27660<br>650K27670 | Overlay Kit (French)<br>Overlay Kit (Portuguese)<br>Overlay Kit (Spanish) |
| 4. | | Scanner Right Cover |
| 5. | | Cap |
| 6. | | Scanner left Cover |
| 7. | 017E11810 | Rubber Foot |

# Print Engine Parts

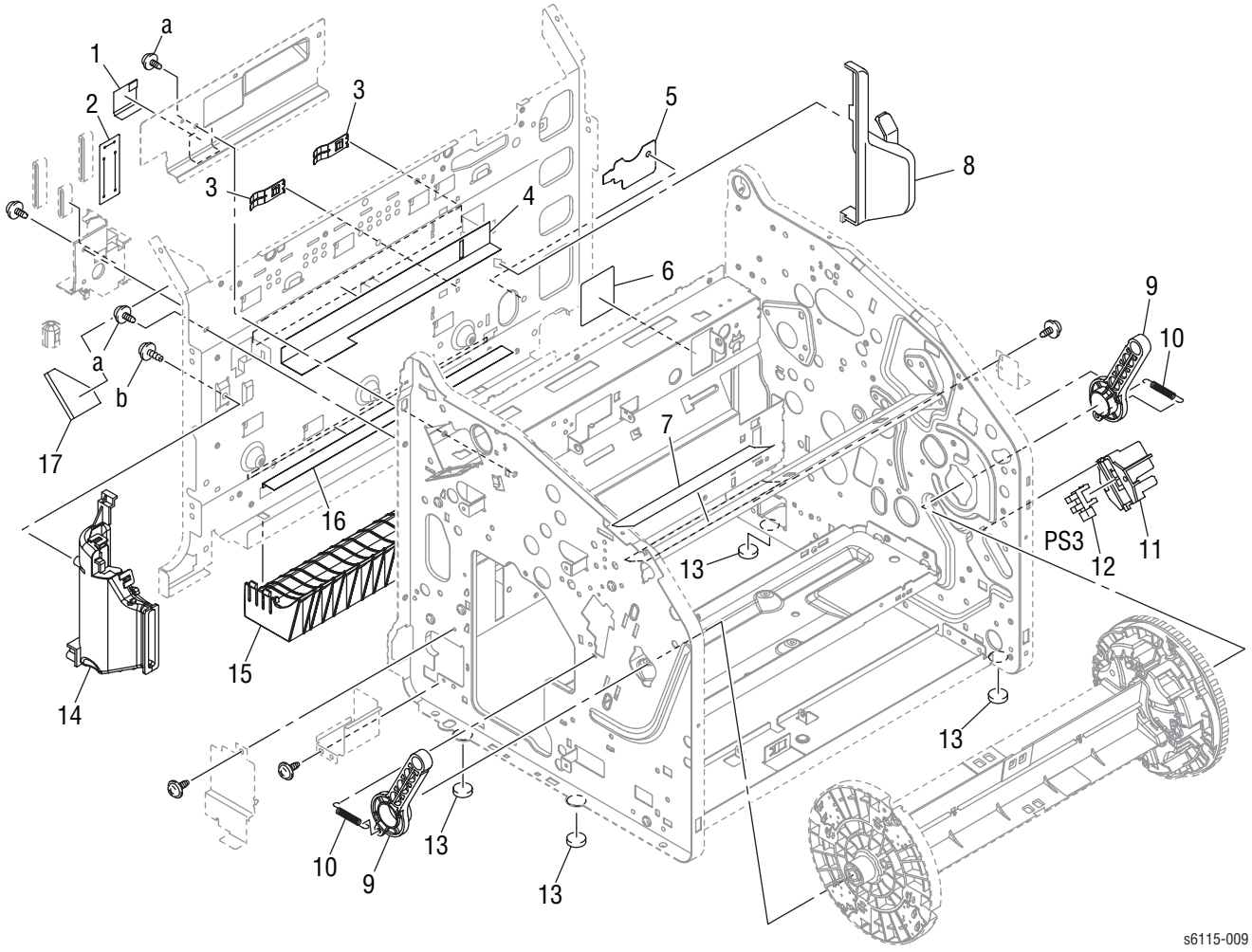
## PL 4.1 Top Cover



### Parts List 4.1 Top Cover - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Guide |
| 2. | | Roller |
| 3. | 848K12250 | Top Cover Assembly |
| 4. | | Cover |
| 5. | | Holder |
| 6. | | Seal |
| 7. | 130E11800 | Exit Tray Full Sensor |
| 8. | 120E30930 | Actuator |
| 9. | | Lever |
| 10. | 050E23610 | Tray |
| 11. | 050E23620 | Tray |
| 12. | | Cover |
| 13. | | Label |
| 14. | | Earth Ground |
| 15. | | Holder |
| 16. | | Lever |
| 17. | | Sound Shield |
| 18. | | Cam |
| 19. | | Pressure Spring |
| 20. | | Bracket |
| 21. | | Holder |
| 22. | | Lever |
| 23. | | Tension Spring |
| 24. | | Reinforce Plate |
| 25. | | Contact |
| 26. | | Lid |
| 27. | | Lid |
| 28. | | Shield Plate |
| 29. | | Earth Ground |
| 30. | 05OE23630 | Tray |

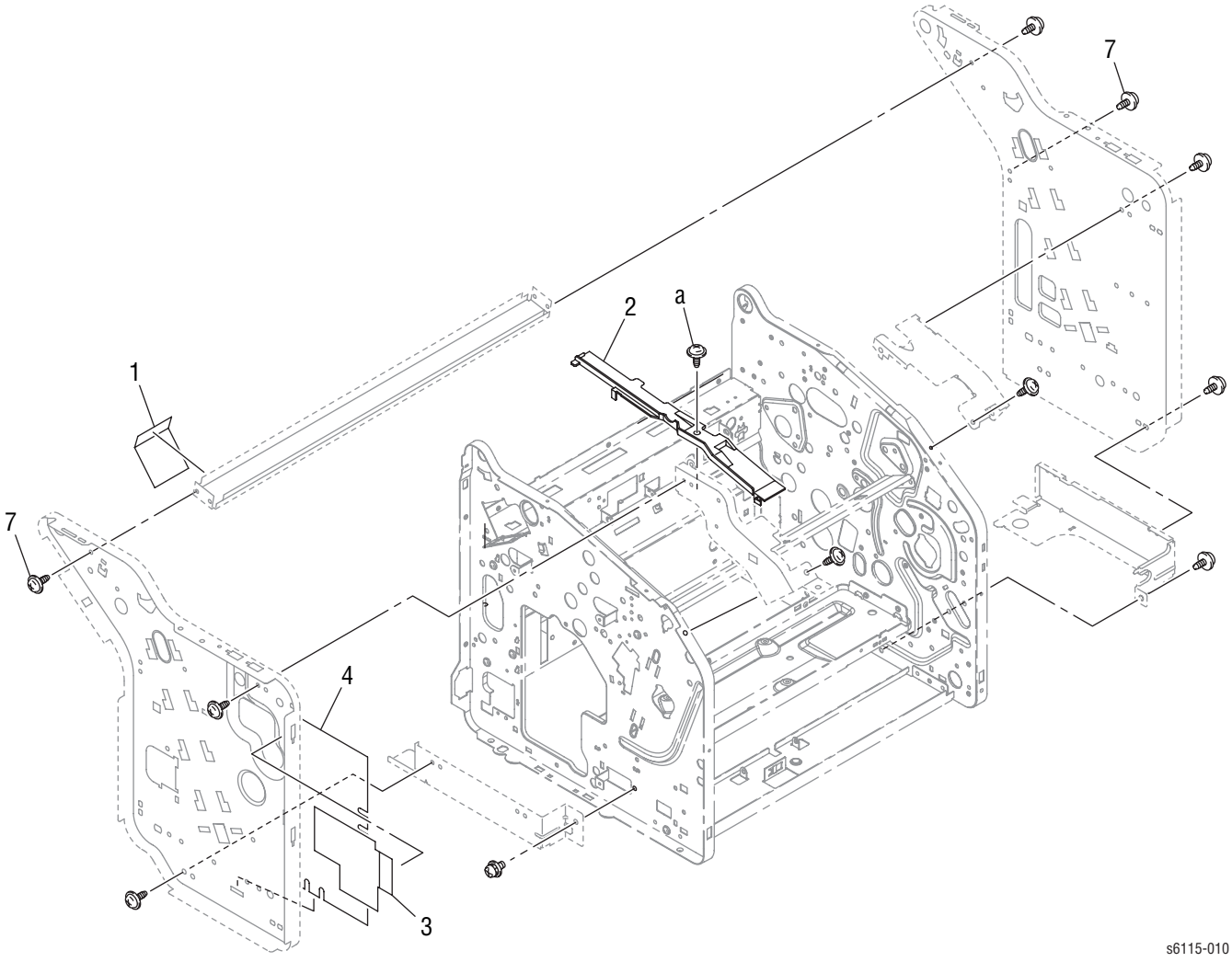
# PL 4.3 Main Frame



### Parts List 4.3 Main Frame - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Seal |
| 2. | | Member |
| 3. | | Earth Ground |
| 4. | | Seal |
| 5. | | Seal |
| 6. | | Seal |
| 7. | | Label, consumables reorder |
| 8. | | Duct |
| 9. | | Lever |
| 10. | | Tension Spring |
| 11. | 019E74390 | Holder |
| 12. | 130E11800 | Rack Positioning Sensor |
| 13. | 017E11810 | Rubber Foot |
| 14. | | Duct Assy |
| 15. | | Guide |
| 16. | | Seal |
| 17. | | Spacer |

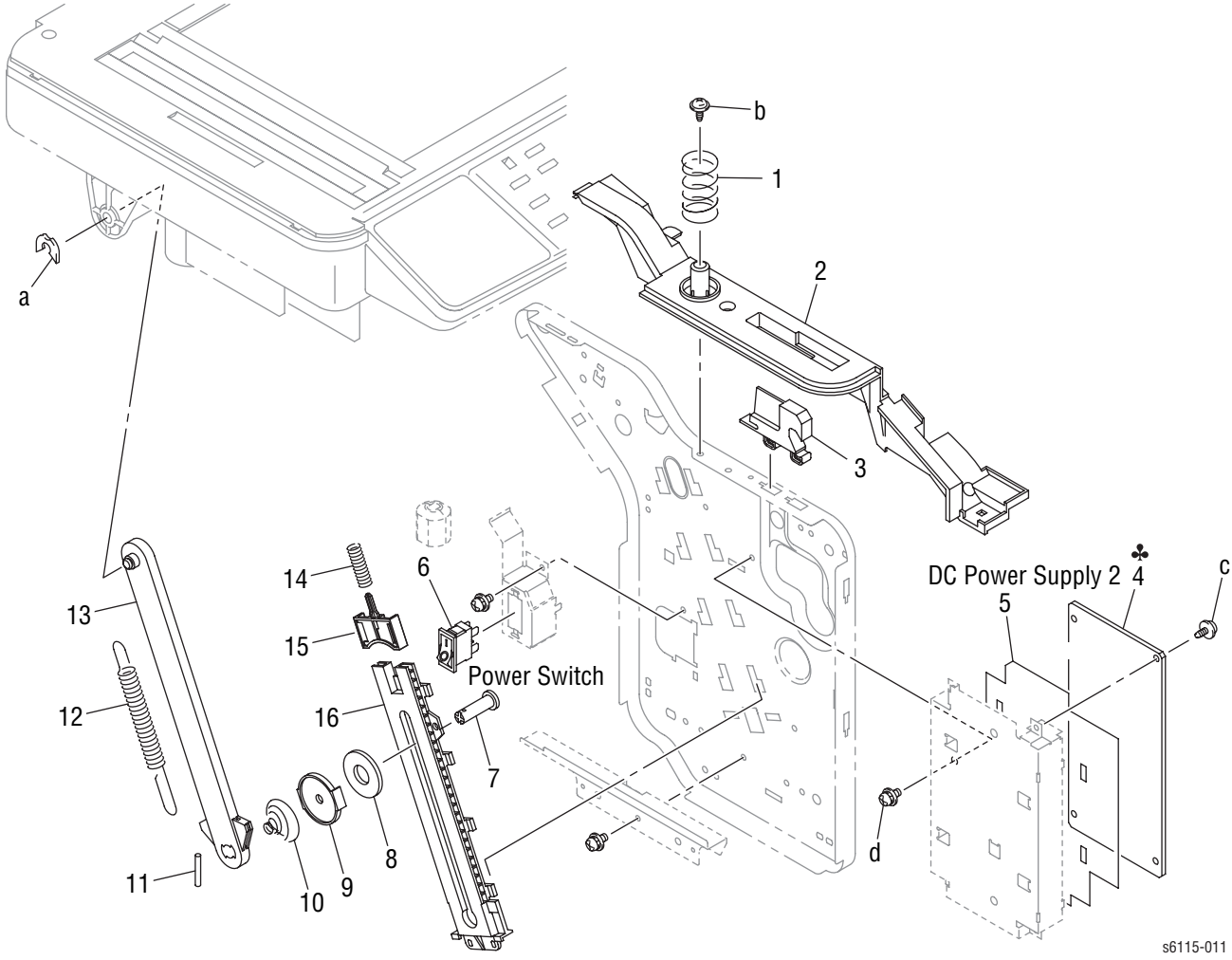
# PL 4.4 Side Plates



### Parts List 4.4 Side Plates - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Guide |
| 2. | | Guide |
| 3. | | Protection |
| 4. | | Protection |
| 5. | | Screw |

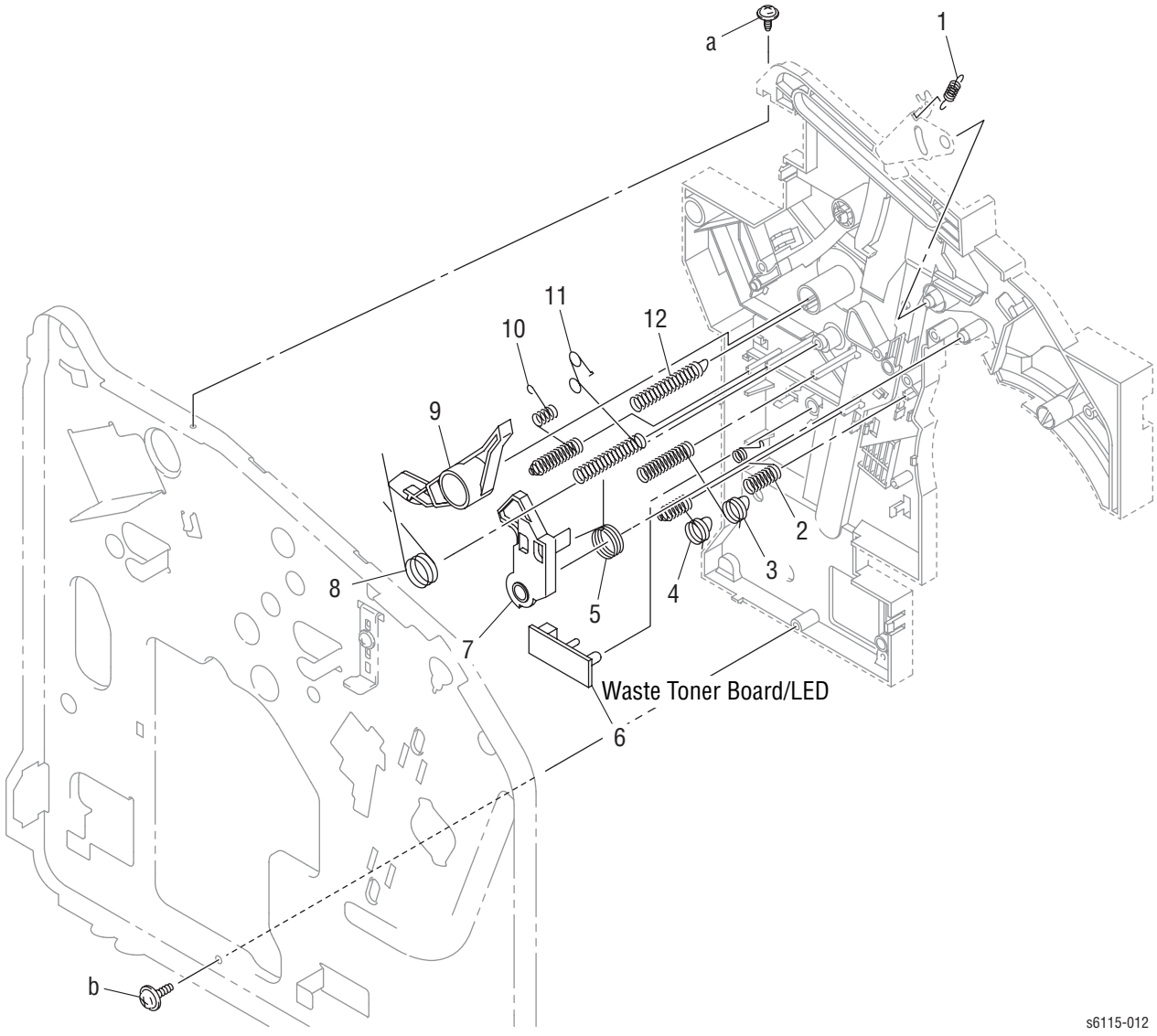
## PL 4.5 Left Side Frame



### Parts List 4.5 Left Side Frame - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Pressure Spring |
| 2. | | Left Cover |
| 3. | | Pawl |
| 4. | 105E23940<br>105E23950 | DC Power Supply 2 (100V)<br>DC Power Supply 2 (200V) |
| 5. | | Protection |
| 6. | 110E19910 | Power Switch |
| 7. | | Pin |
| 8. | | Friction Sheet |
| 9. | | Holder |
| 10. | | Pressure Spring |
| 11. | | Pin |
| 12. | | Tension Spring |
| 13. | | Lever |
| 14. | | Pressure Spring |
| 15. | | Holder |
| 16. | | Rail |

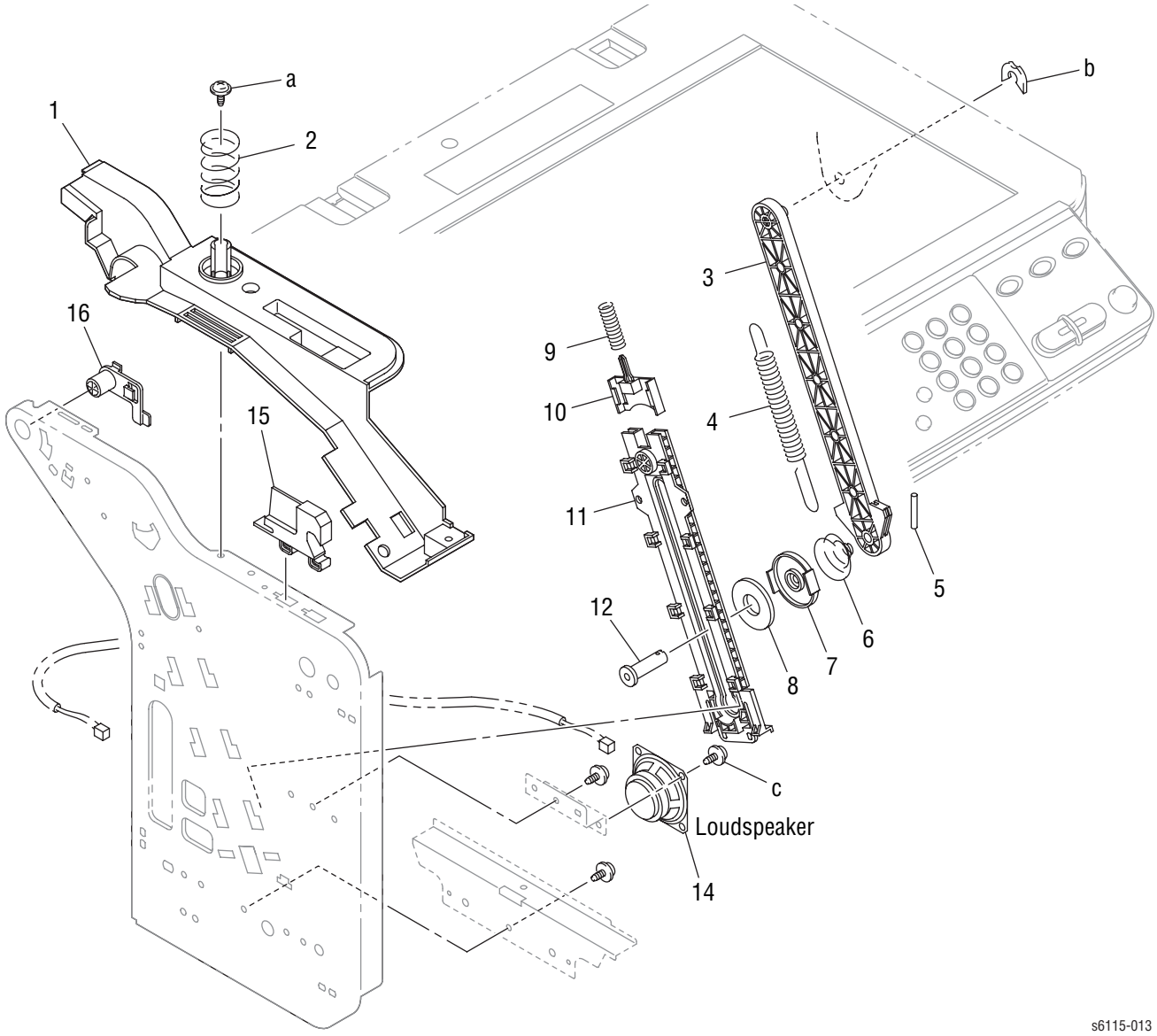
# PL 4.6 Left Frame



### Parts List 4.6 Left Frame - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Tension Spring |
| 2. | | Earth Ground |
| 3. | | Contact |
| 4. | | Contact |
| 5. | | Torsion Spring |
| 6. | 960K25450 | Waste Toner Near Full Board/LED |
| 7. | | Pawl |
| 8. | | Torsion Spring |
| 9. | | Lever |
| 10. | | Contact |
| 11. | | Contact |
| 12. | | Contact |

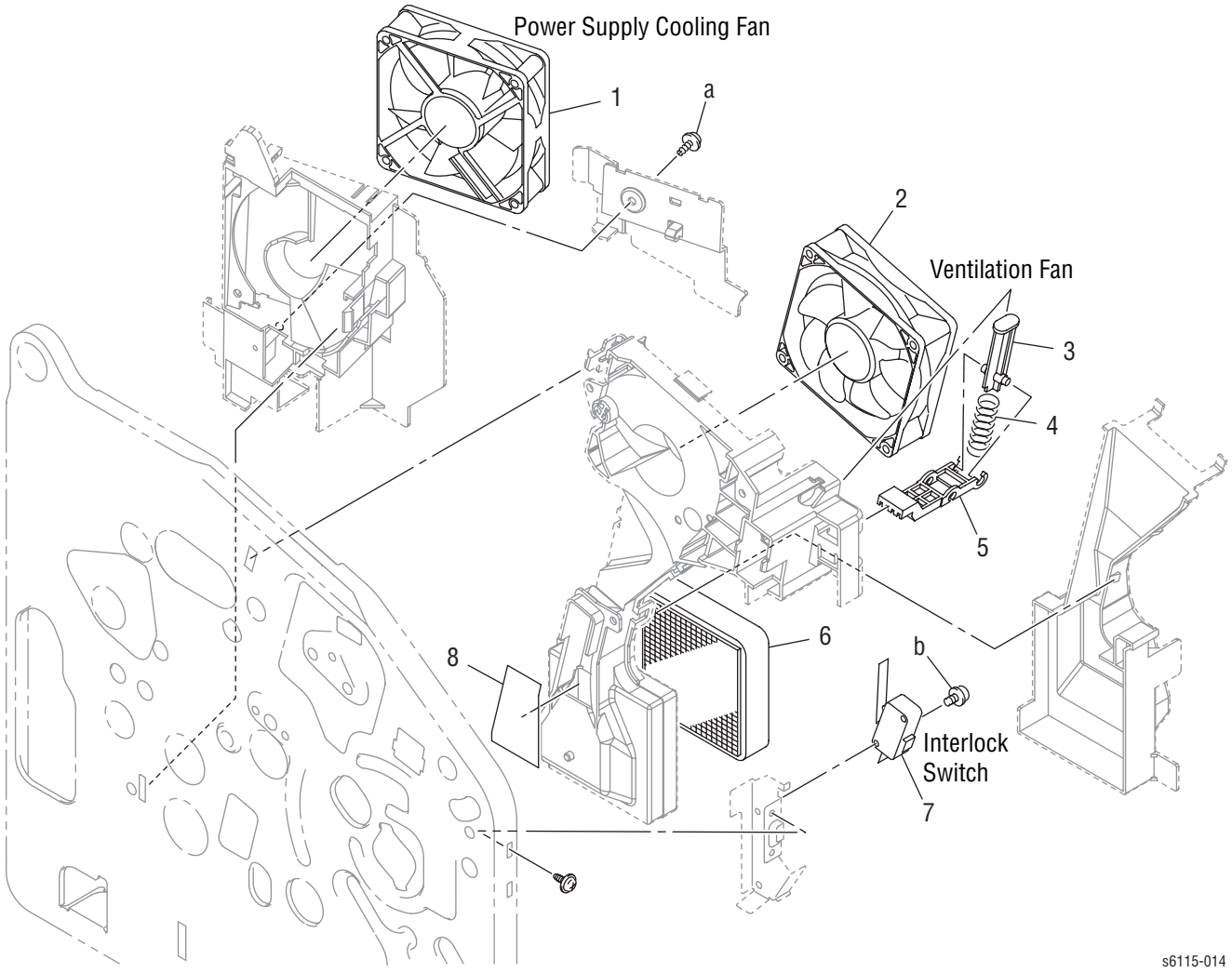
# PL 4.7 Left Side Frame



### Parts List 4.7 Left Side Frame - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Right Cover |
| 2. | | Pressure Spring |
| 3. | | Lever |
| 4. | | Tension Spring |
| 5. | | Pin |
| 6. | | Pressure Spring |
| 7. | | Holder |
| 8. | | Friction Sheet |
| 9. | | Pressure Spring |
| 10. | | Holder |
| 11. | | Rail |
| 12. | | Pin |
| 13. | | N/A |
| 14. | | Loudspeaker |
| 15. | | Pawl |
| 16. | | Bushing |

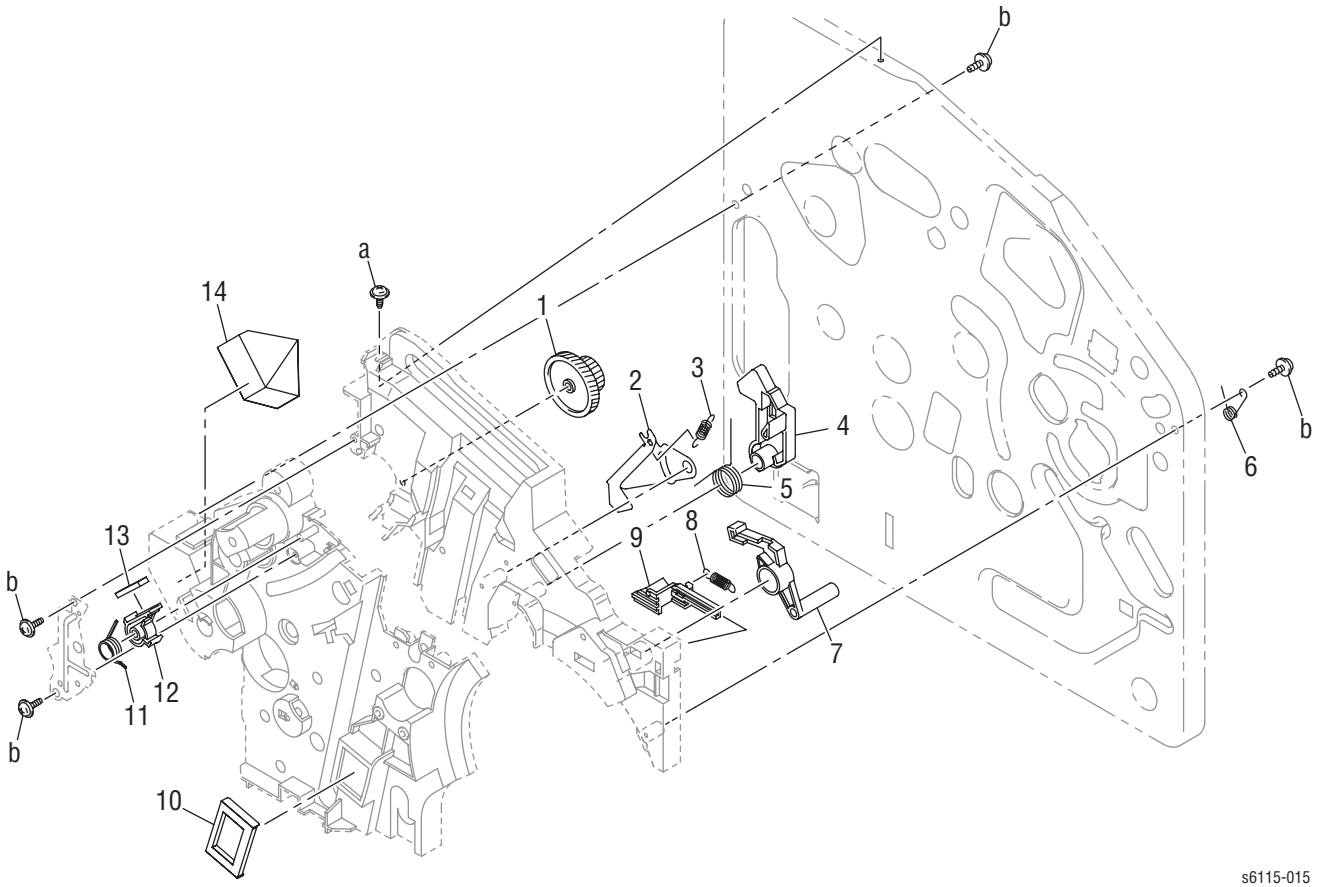
# PL 4.8 Right Frame (1 of 2)



### Parts List 4.8 Right Frame (1 of 2)- Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 127E15240 | Power Supply Cooling Fan Motor |
| 2. | 127E16150 | Ventilation Fan Motor |
| 3. | | Lever |
| 4. | | Pressure Spring |
| 5. | | Pawl |
| 6. | 053E07470 | Filter |
| 7. | 110K15620 | Safety Switch |
| 8. | | Seal |

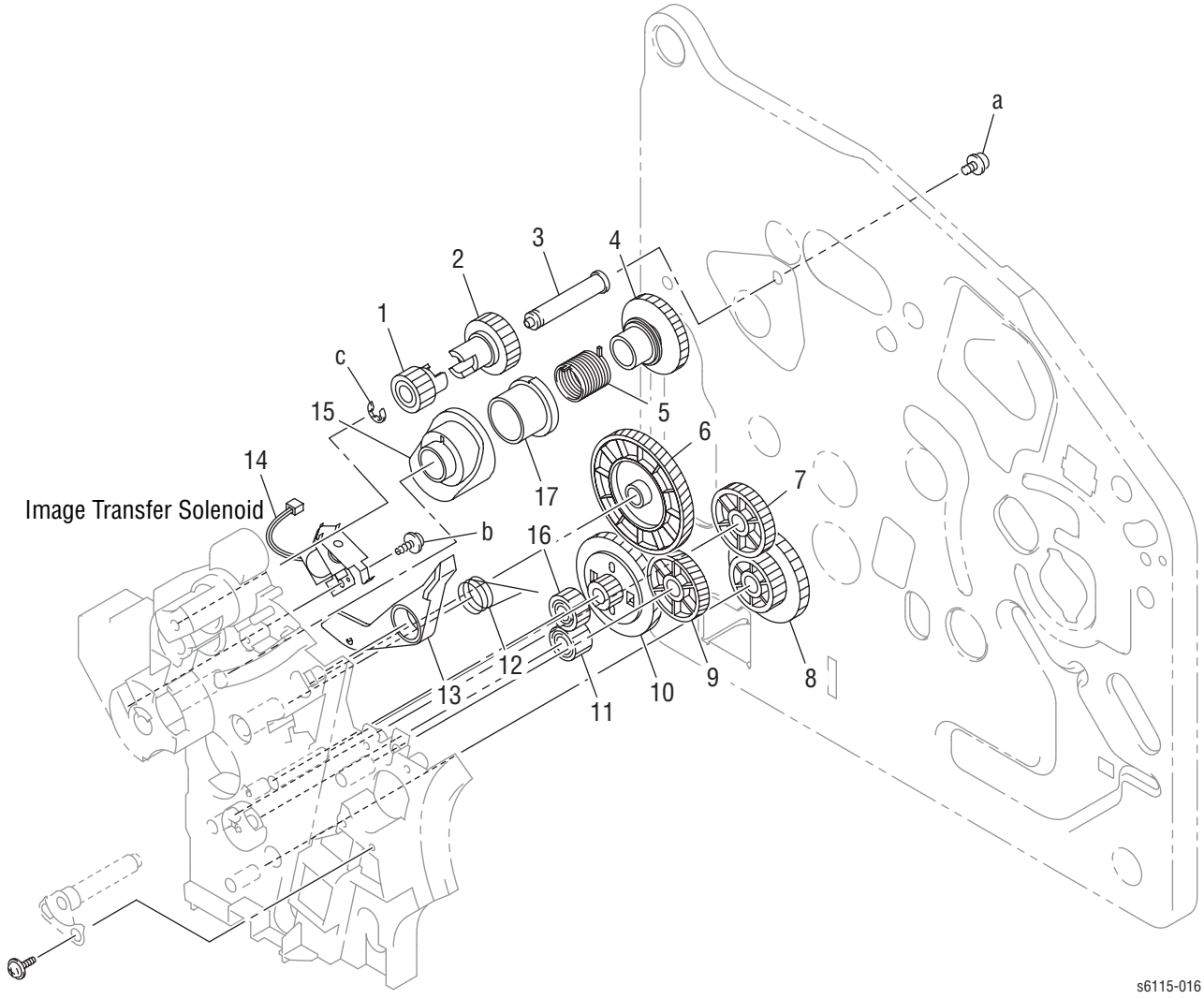
# PL 4.9 Right Frame (2 of 2)



### Parts List 4.9 Right Frame (2 of 2) - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Gear 22/64t |
| 2. | | Lever |
| 3. | | Tension Spring |
| 4. | | Pawl |
| 5. | | Torsion Spring |
| 6. | | Torsion Spring |
| 7. | | Lever |
| 8. | | Tension Spring |
| 9. | | Lever |
| 10. | | Seal |
| 11. | | Torsion Spring |
| 12. | | Holder |
| 13. | | Friction Sheet |
| 14. | | Seal |

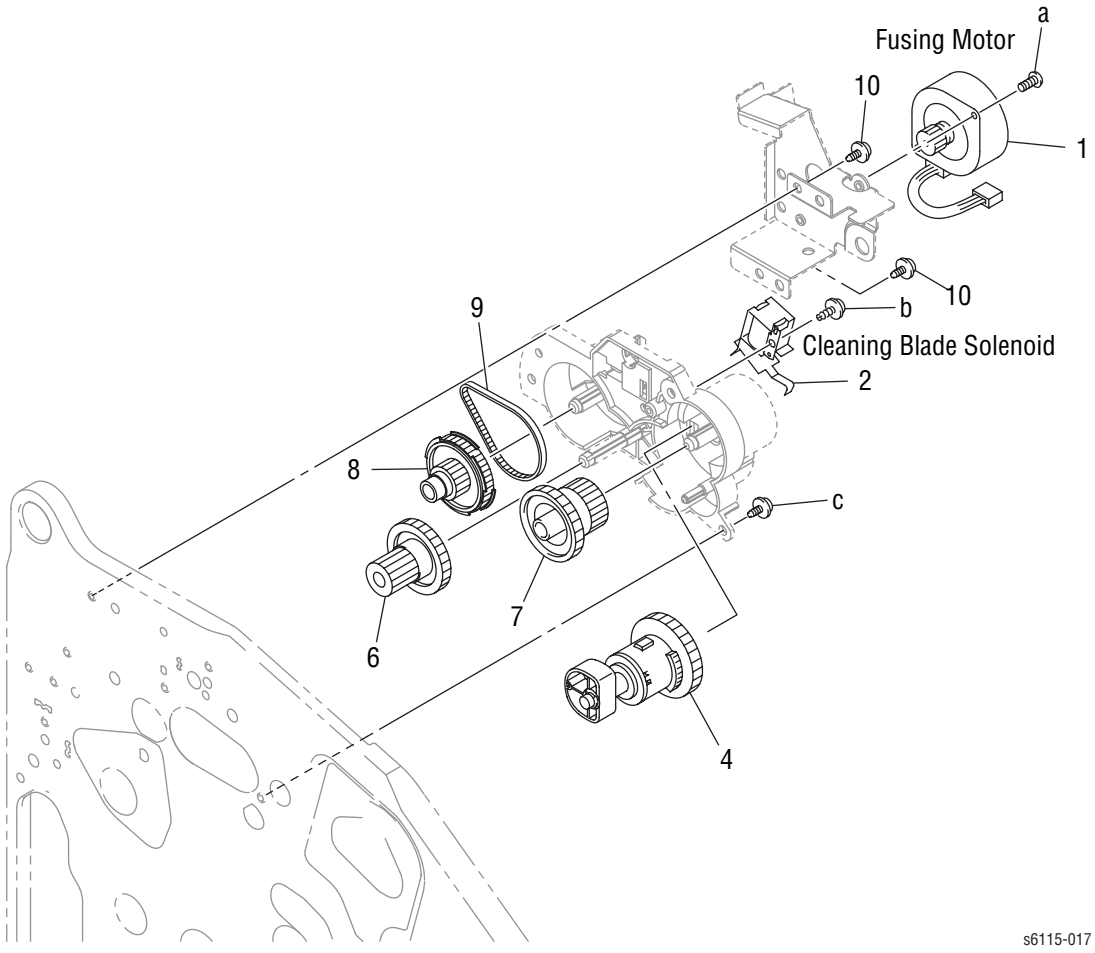
# PL 4.10 Drive (1/4)



## Parts List 4.10 Drive (1/4) - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Gear 16t |
| 2. | | Gear 19t |
| 3. | | Shaft |
| 4. | | Drum |
| 5. | | Torsion Spring |
| 6. | | Gear 108t |
| 7. | | Gear 31t |
| 8. | | Gear 25/42t |
| 9. | | Gear 60t |
| 10. | | Gear 15/90t |
| 11. | | Gear 19t |
| 12. | | Torsion Spring |
| 13. | | Lever |
| 14. | 121E20250 | Image Transfer Solenoid |
| 15. | | Cam |
| 16. | | Gear 20t |
| 17. | | Ratchet |

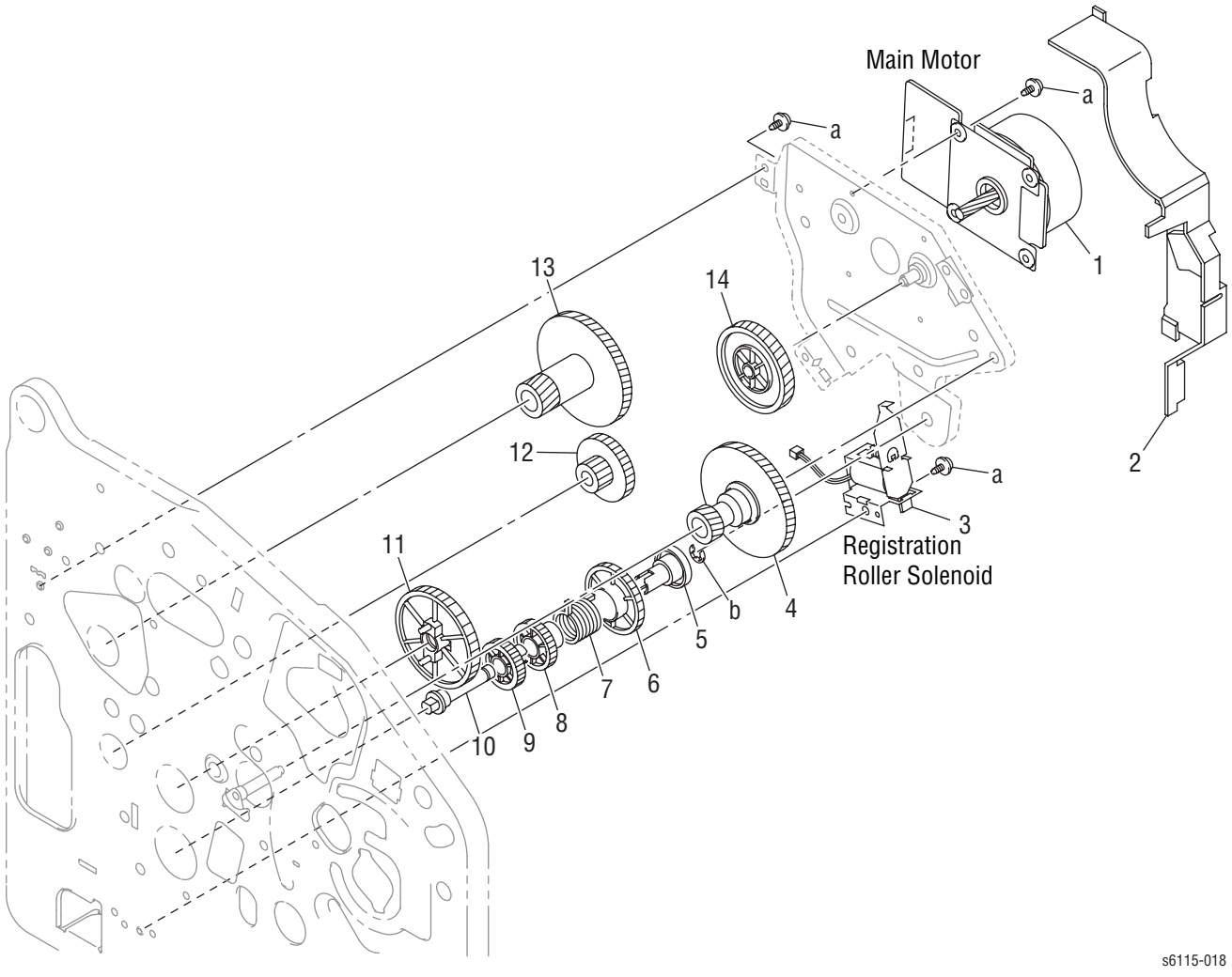
# PL 4.11 Drive (2/4)



### Parts List 4.11 Drive (2/4) - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 127E16160 | Fusing Motor |
| 2. | 121E20250 | Cleaning Blade Solenoid |
| 3. | | N/A |
| 4. | 008K02240 | Cam Assembly |
| 5. | | N/A |
| 6. | | Gear 14/32T |
| 7. | | Gear 27/40T |
| 8. | | Gear 14/55T |
| 9. | 023E31210 | Timing Belt 134L |
| 10. | | Screw |

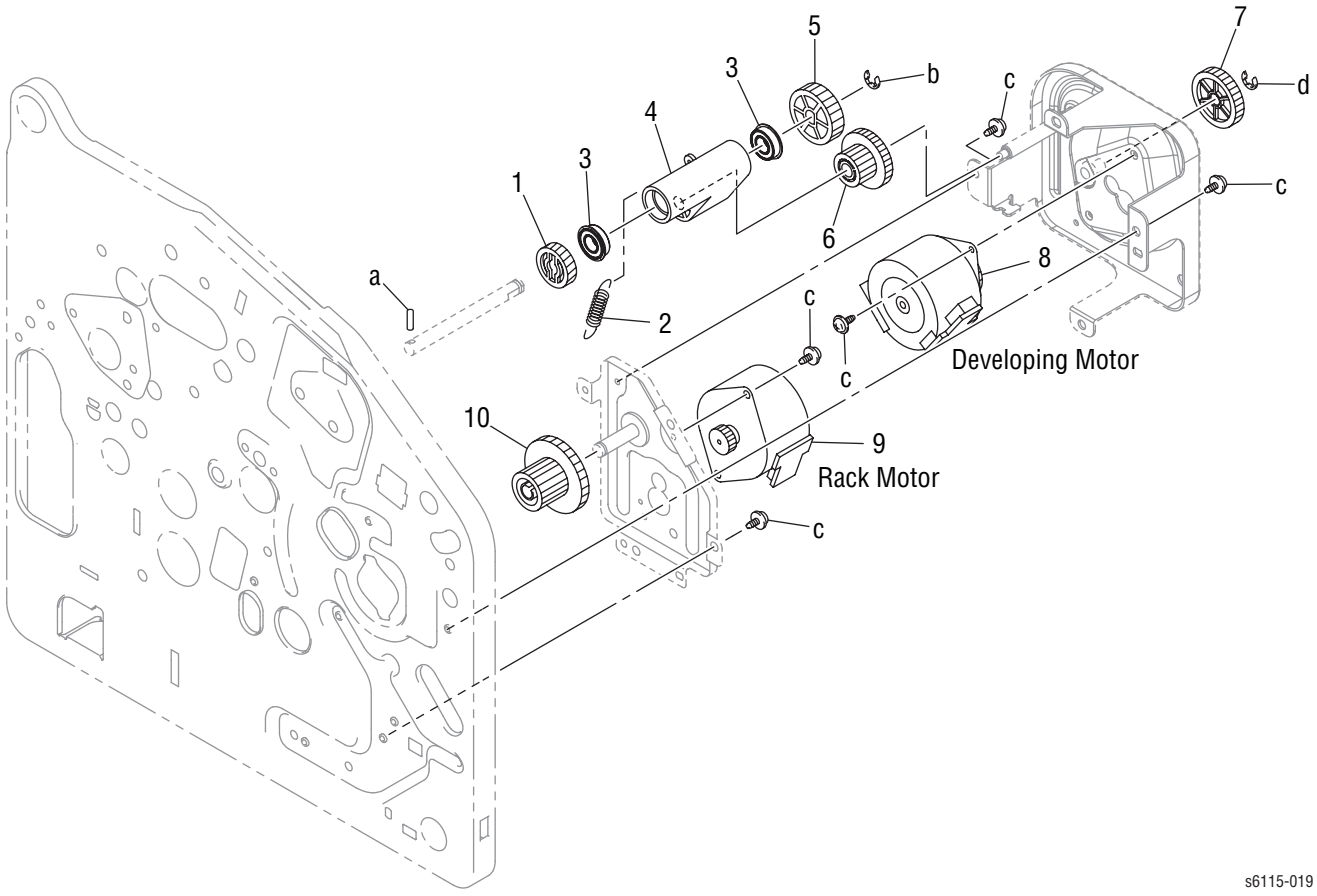
# PL 4.12 Drive (3/4)



### Parts List 4.12 Drive (3/4) - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 127E15270 | Main Motor |
| 2. | | Guide |
| 3. | 121E26000 | Registration Roller Solenoid |
| 4. | | Gear 20/117t |
| 5. | | Drum |
| 6. | | Ratchet |
| 7. | | Torsion Spring |
| 8. | | Gear 24t |
| 9. | | Gear 24t |
| 10. | | Shaft |
| 11. | | Gear 52t |
| 12. | | Gear 14/33t |
| 13. | | Gear 20/117t |
| 14. | | Gear 91t |

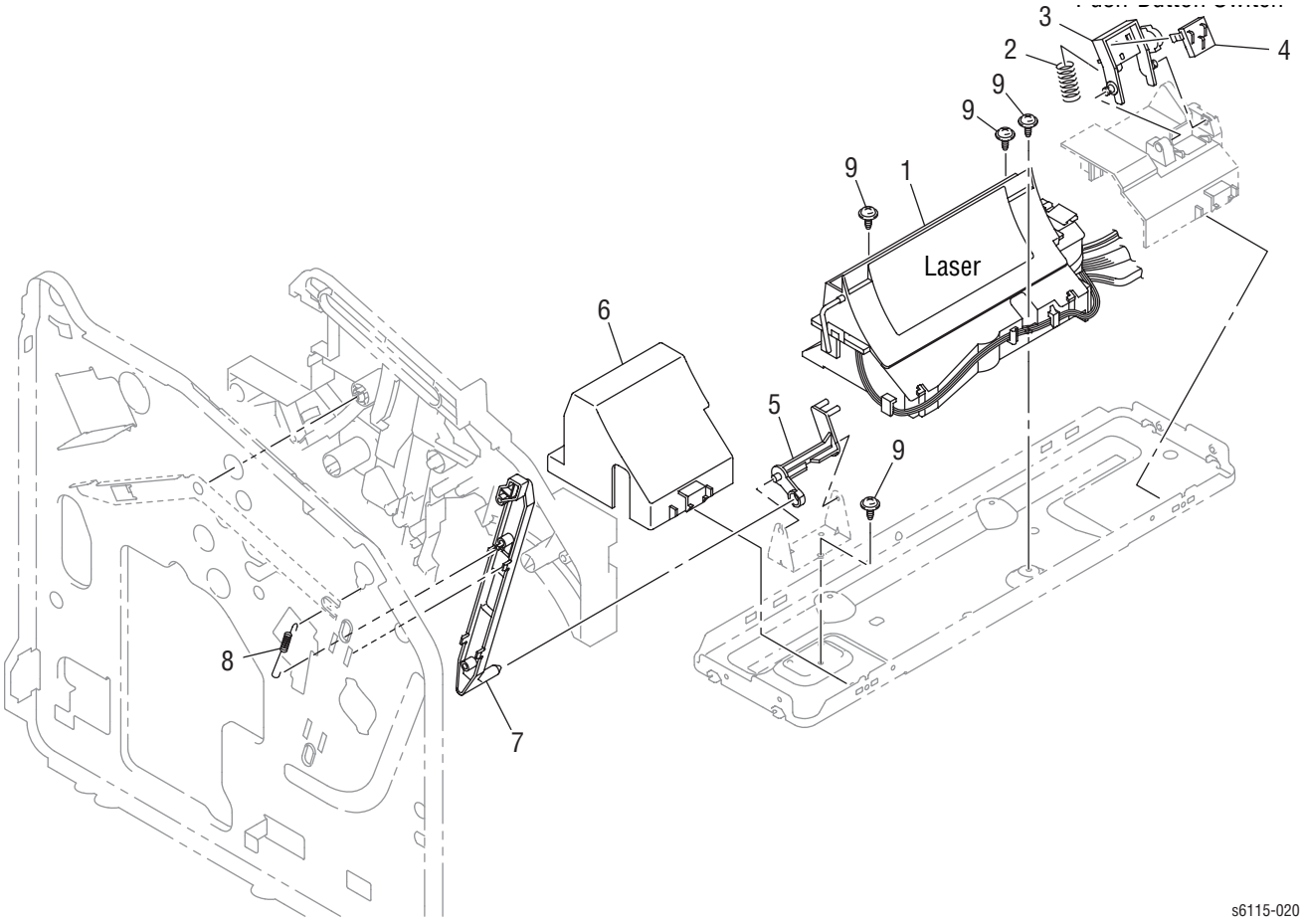
# PL 4.13 Drive (4/4)



## Parts List 4.13 Drive (4/4) - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 807E17730 | Rack Gear 24t |
| 2. | | Tension Spring |
| 3. | | Ball Bearing |
| 4. | | Lever |
| 5. | | Gear 35t |
| 6. | | Gear 20/35T |
| 7. | | Gear 35t |
| 8. | 127E16170 | Developing Motor |
| 9. | 127E15290 | Rack Motor |
| 10. | | Gear 19/48t |

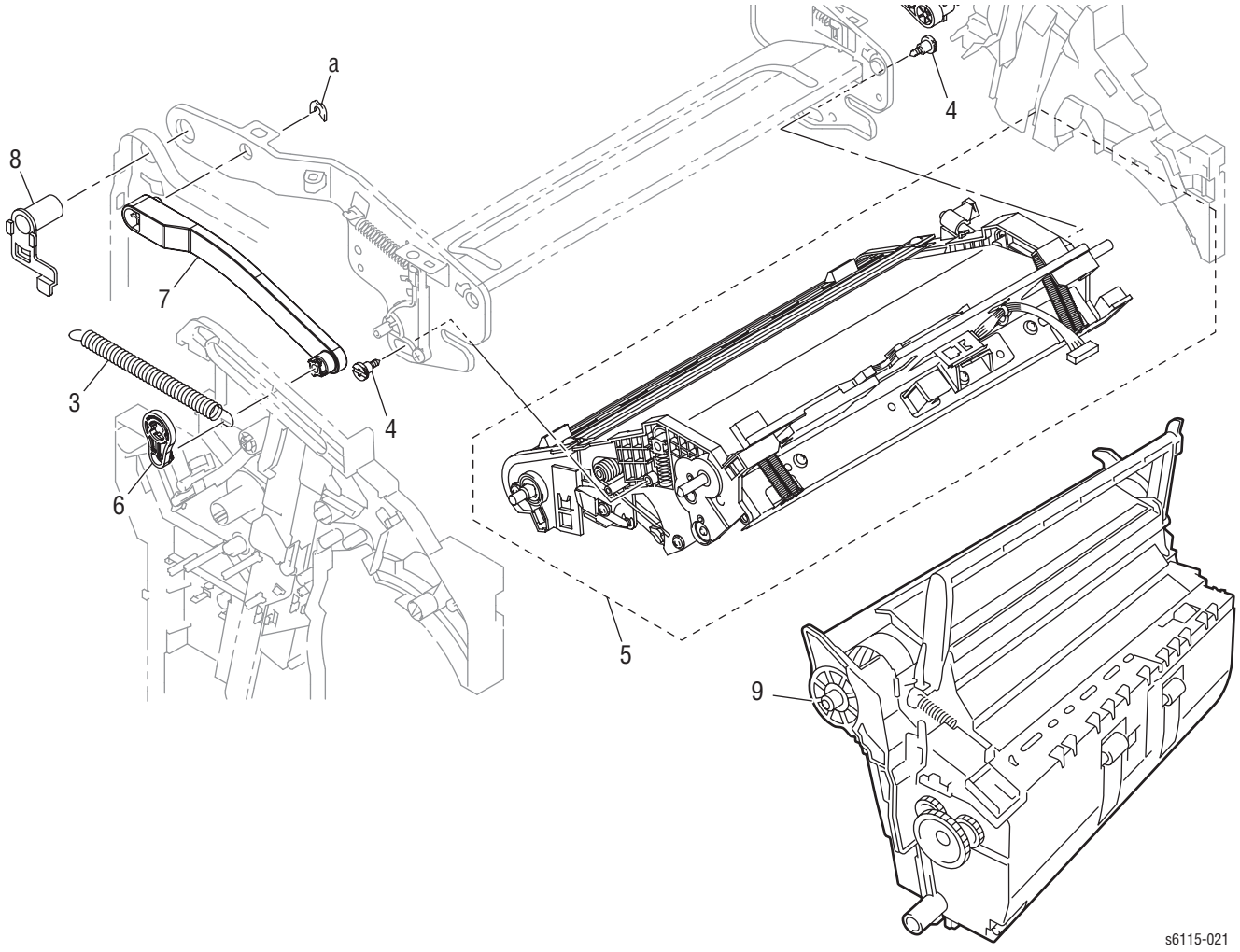
# PL 4.14 Laser Imaging



### Parts List 4.14 Laser Imaging - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 122K02590 | Printer Head Assy (Laser) |
| 2. | | Pressure Spring |
| 3. | | Holder |
| 4. | 110E19941 | Push button (CRUM) Switch (w/spring and holder) |
| 5. | | Lever |
| 6. | | Cover |
| 7. | 011E20120 | Lever |
| 8. | | Tension Spring |
| 9. | | Lever |

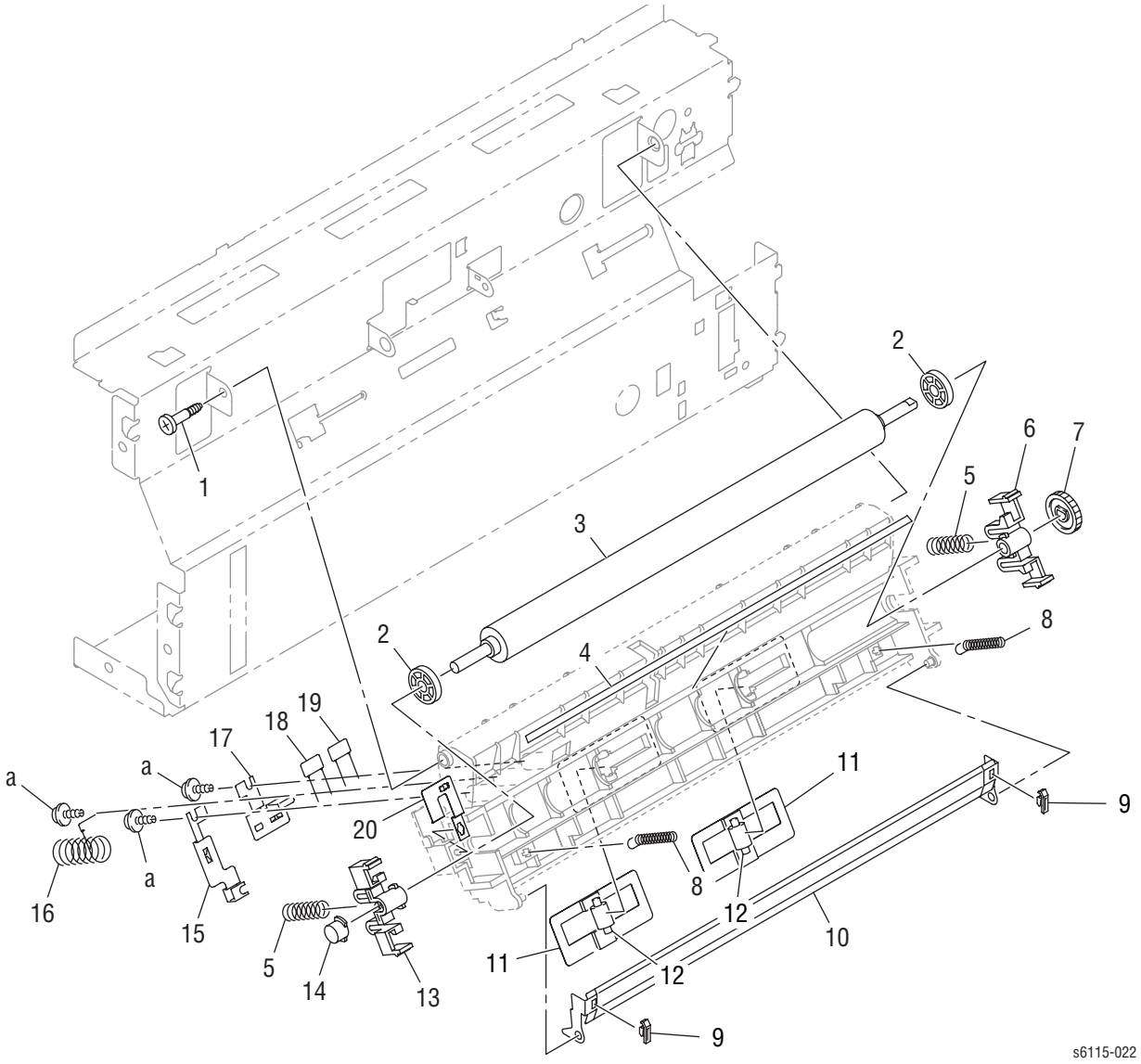
# PL 4.15 Transfer



### Parts List 4.15 Transfer - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Spacer |
| 2. | | Lever |
| 3. | | Tension Spring |
| 4. | 826E27450 | Shoulder Screw |
| 5. | 023E30891 | Transfer Belt Unit |
| 6. | | Holder |
| 7. | | Lever |
| 8. | | Holder |
| 9. | 108R00691 | Imaging Unit |

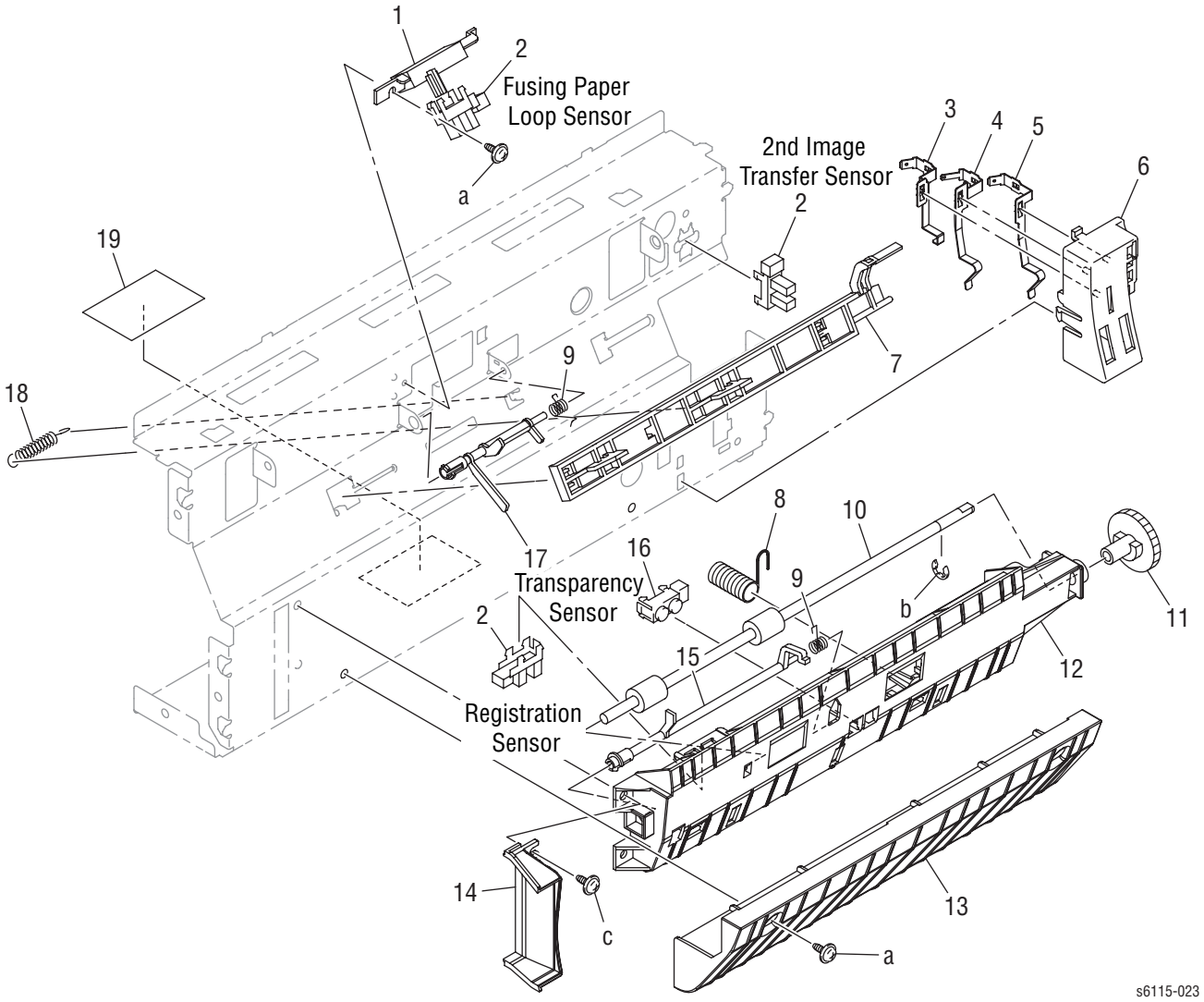
# PL 4.16 Transfer Roller



### Parts List 4.16 Transfer Roller - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 826E33710 | Shoulder Screw |
| 2. | 005E23460 | Collar |
| 3. | 059E05450 | Transfer Roller |
| 4. | | Neutralizing Member |
| 5. | 809E71890 | Pressure Spring |
| 6. | 019E74400 | Holder |
| 7. | 807E17740 | Gear 16t |
| 8. | 809E71900 | Pressure Spring |
| 9. | | Spacer |
| 10. | | Guide |
| 11. | | Cushion |
| 12. | | Roll |
| 13. | 019E74410 | Transfer Roller Holder |
| 14. | 101E23500 | Conductive Member |
| 15. | | Contact |
| 16. | 809E71910 | Pressure Spring |
| 17. | | Contact |
| 18. | | Resistor |
| 19. | | Resistor |
| 20. | | Contact |

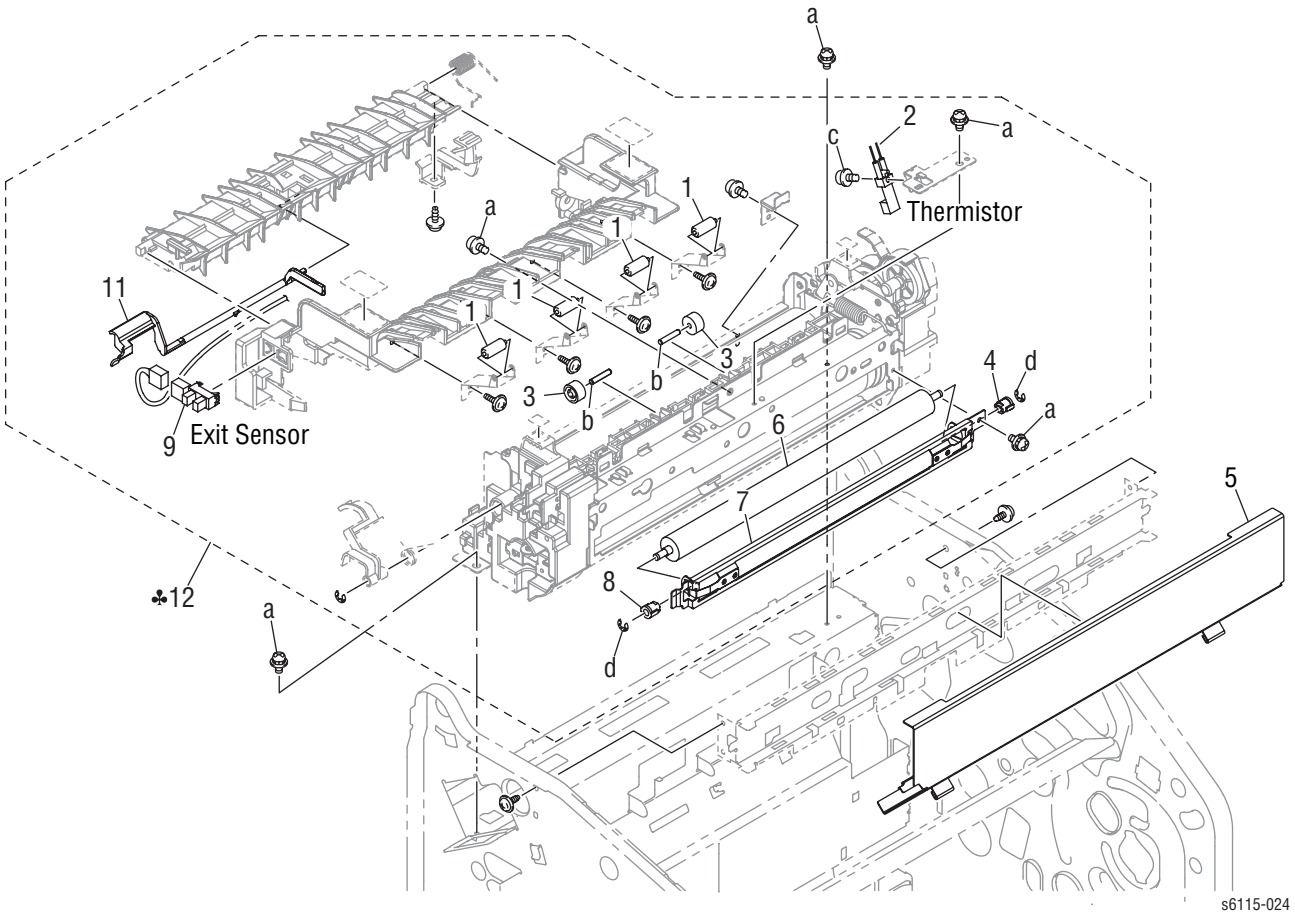
# PL 4.17 Vertical Transport



### Parts List 4.17 Vertical Transport- Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Holder |
| 2. | 130E11800 | Registration and Fusing Loop Sensors |
| 3. | | Contact |
| 4. | | Contact |
| 5. | | Contact |
| 6. | | Holder |
| 7. | | Slider |
| 8. | | Earth Ground |
| 9. | | Torsion Spring |
| 10. | | Roller |
| 11. | | Gear 28t |
| 12. | | Guide |
| 13. | | Guide |
| 14. | | Duct |
| 15. | 120E29270 | Actuator |
| 16. | 130E11820 | Transparency Sensor |
| 17. | 120E29280 | Actuator |
| 18. | | Tension Spring |
| 19. | | Seal |

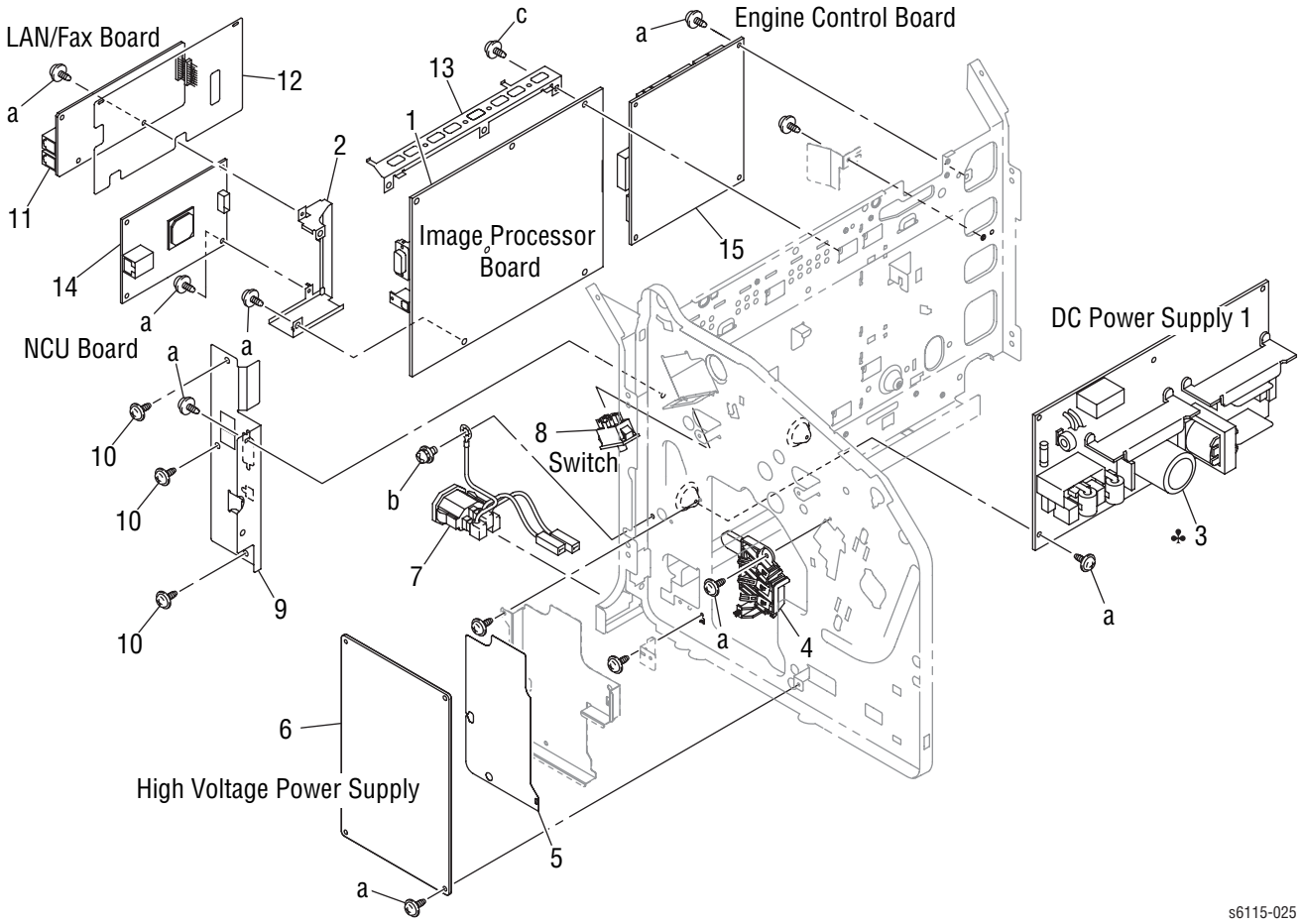
# PL 4.18 Fusing Unit



## Parts List 4.18 Fusing Unit - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Roll |
| 2. | | Thermistor |
| 3. | | Collar |
| 4. | | Bushing |
| 5. | | Seal |
| 6. | | Transfer Roller |
| 7. | | Bracket |
| 8. | | Bushing |
| 9. | 130E11800 | Exit Sensor |
| 10. | | N/A |
| 11. | 120E29290 | Actuator |
| 12. | 126K23192<br>126K23202 | Fusing Unit 110v<br>Fusing Unit 220v |

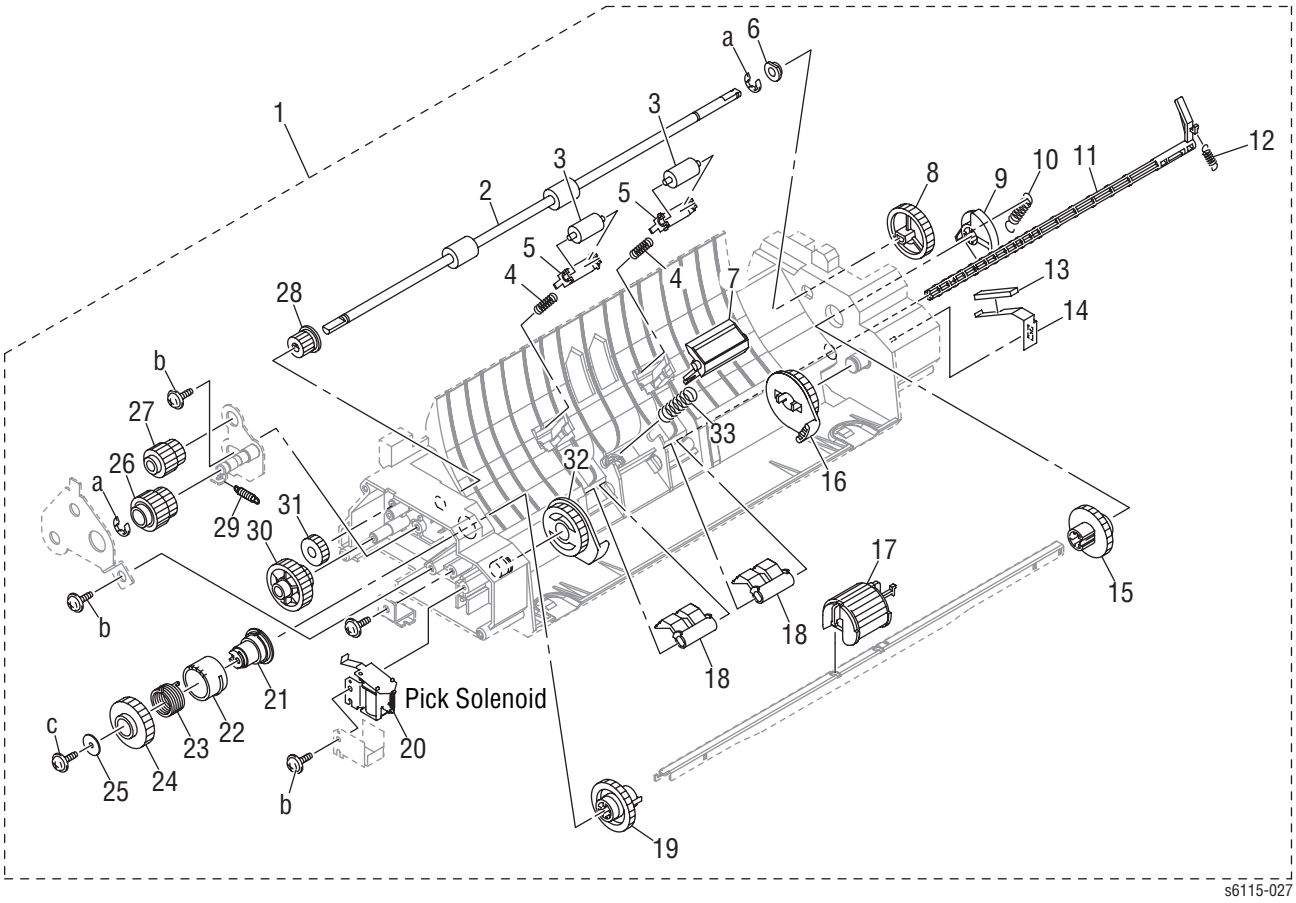
# PL 4.19 Electrical



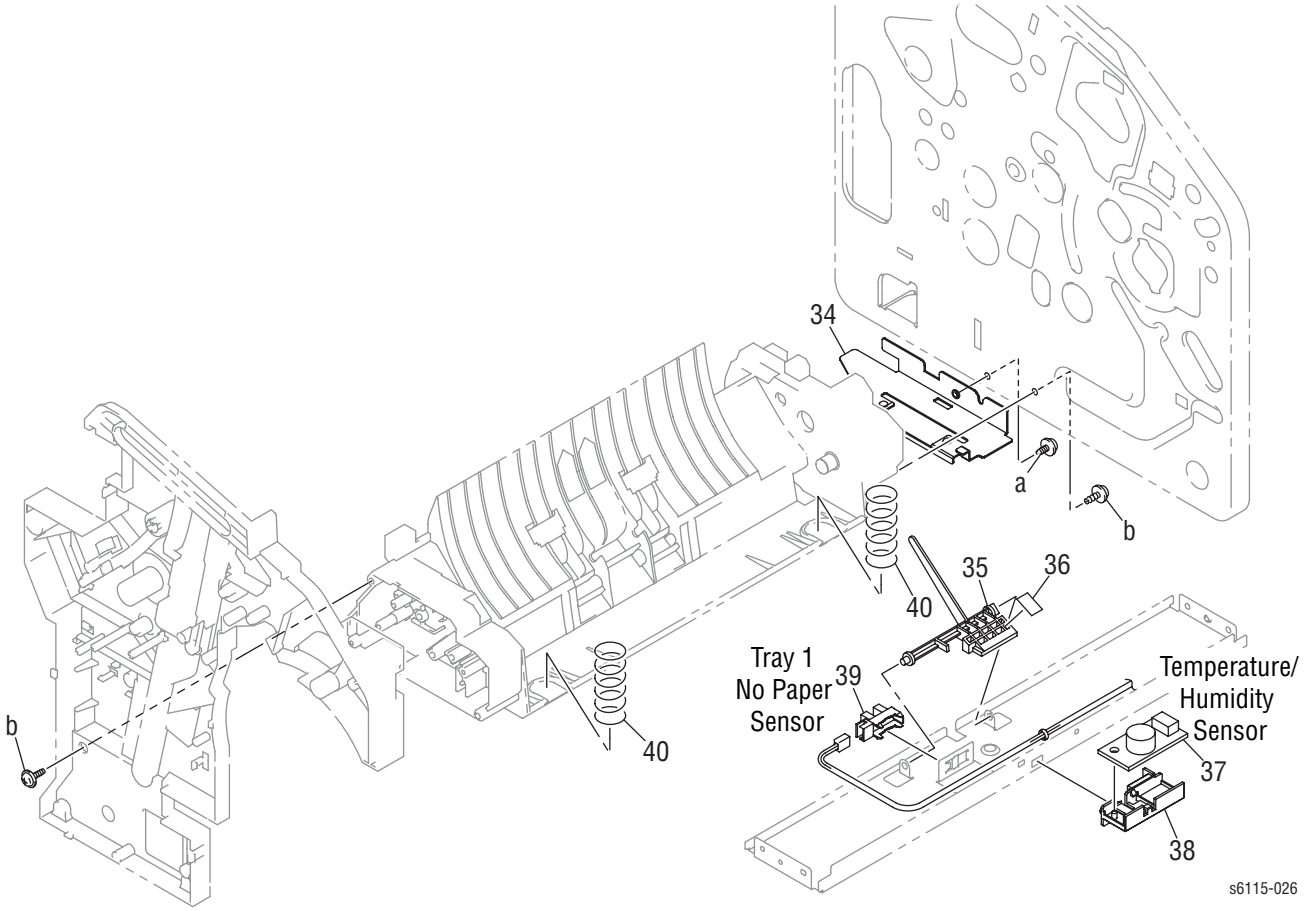
## Parts List 4.19 Electrical - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 960K41460 | Image Processor Board |
| 2. | | Bracket |
| 3. | 105E18501<br>105E18511 | DC Power Supply 1 (100V)<br>DC Power Supply 1 (200V) |
| 4. | 802K94021 | Rack Terminal Assy |
| 5. | | Shield |
| 6. | 105E18520 | High Voltage Power Supply |
| 7. | 962K63450 | Inlet Assembly |
| 8. | 110E19920 | Switch |
| 9. | | Bracket |
| 10. | | Screw |
| 11. | 960K41470 | LAN (and FAX Modem) Board |
| 12. | 055E61390 | Protection Sheet |
| 13. | | Bracket |
| 14. | 960K41480 | NCU Board Network Board |
| 15. | 960K41490 | Engine Control Board |

# PL 4.20 Media Feeder Assembly (1/2)



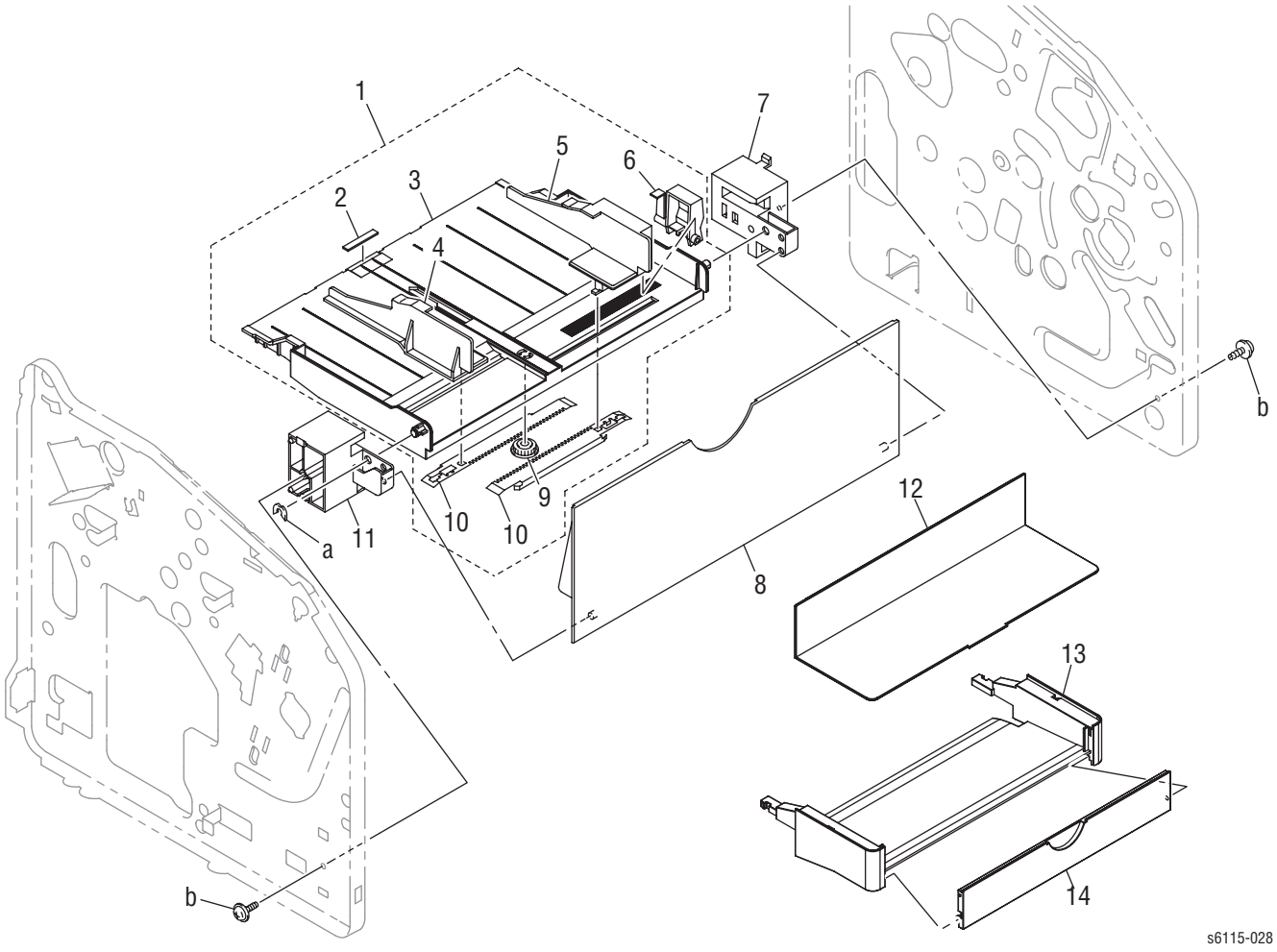
# PL 4.20 Media Input (2/2)



## Parts List 4.20 Media Feeder Assembly - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 130K74271 | Paper Take-up Assy |
| 2. | | Roller |
| 3. | | Guide |
| 4. | | Pressure Spring |
| 5. | | Holder |
| 6. | | Bushing |
| 7. | 019K13070 | Tray 1 Separation Pad |
| 8. | | Gear 28t |
| 9. | | Cam |
| 10. | | Tension Spring |
| 11. | | Lever |
| 12. | | Tension Spring |
| 13. | | Friction Sheet |
| 14. | | Plate Spring |
| 15. | | Gear 27t |
| 16. | | Cam |
| 17. | 059E05460 | Paper Feed Roller |
| 18. | | Stopper |
| 19. | | Gear 27t |
| 20. | 121E20250 | Tray 1 Paper Pick Solenoid |
| 21. | | Drum |
| 22. | | Ratchet |
| 23. | | Torsion Spring |
| 24. | | Gear 35t |
| 25. | | Washer |
| 26. | | Gear 21/25t |
| 27. | | Gear 14/20t |
| 28. | | Gear 14t |
| 29. | | Tension Spring |
| 30. | | Gear 17/26t |
| 31. | | Gear 20t |
| 32. | | Cam |
| 33. | | Pressure Spring |
| 34. | | Bracket |
| 35. | 120E29300 | Actuator |
| 36. | | Bracket |
| 37. | 130E11840 | Temperature/Humidity Sensor |
| 38. | | Holder |
| 39. | 130E11800 | Tray 1 No Paper Sensor |
| 40. | 809E71920 | Pressure Spring |

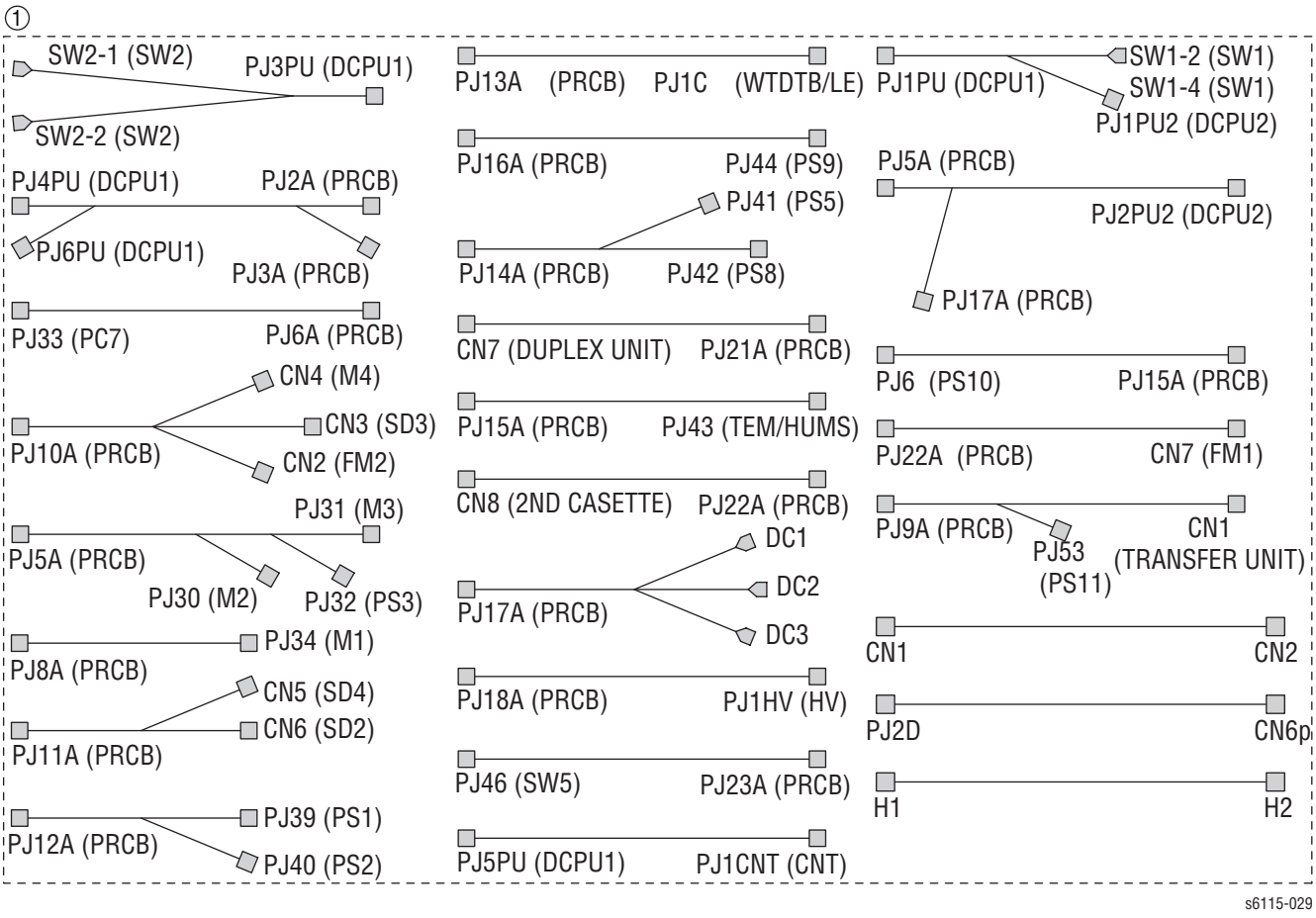
# PL 4.21 Tray 1



### Parts List 4.21 Tray 1 - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 053K04740 | Regulating Plate Assembly |
| 2. | | Friction Sheet |
| 3. | | Lifting Plate |
| 4. | | Regulating Plate |
| 5. | | Regulating Plate |
| 6. | | Lever |
| 7. | 109E74420 | Holder |
| 8. | 050E23640 | Tray Cover |
| 9. | | Gear 14t |
| 10. | | Rack |
| 11. | 019E74430 | Holder |
| 12. | 802E99630 | Cover |
| 13. | 050E23650 | Tray |
| 14. | 802E99640 | Cover |

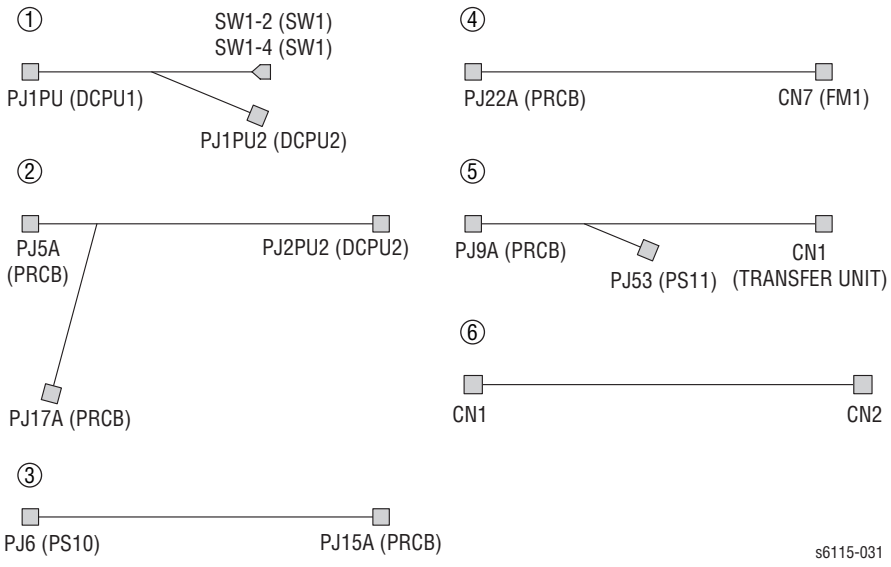
## PL 4.22 Wiring Harnesses



## Parts List 4.22 Wiring Harnesses - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 604K48230 | Wire Harness Kit |

# PL 4.24 Accessory Parts

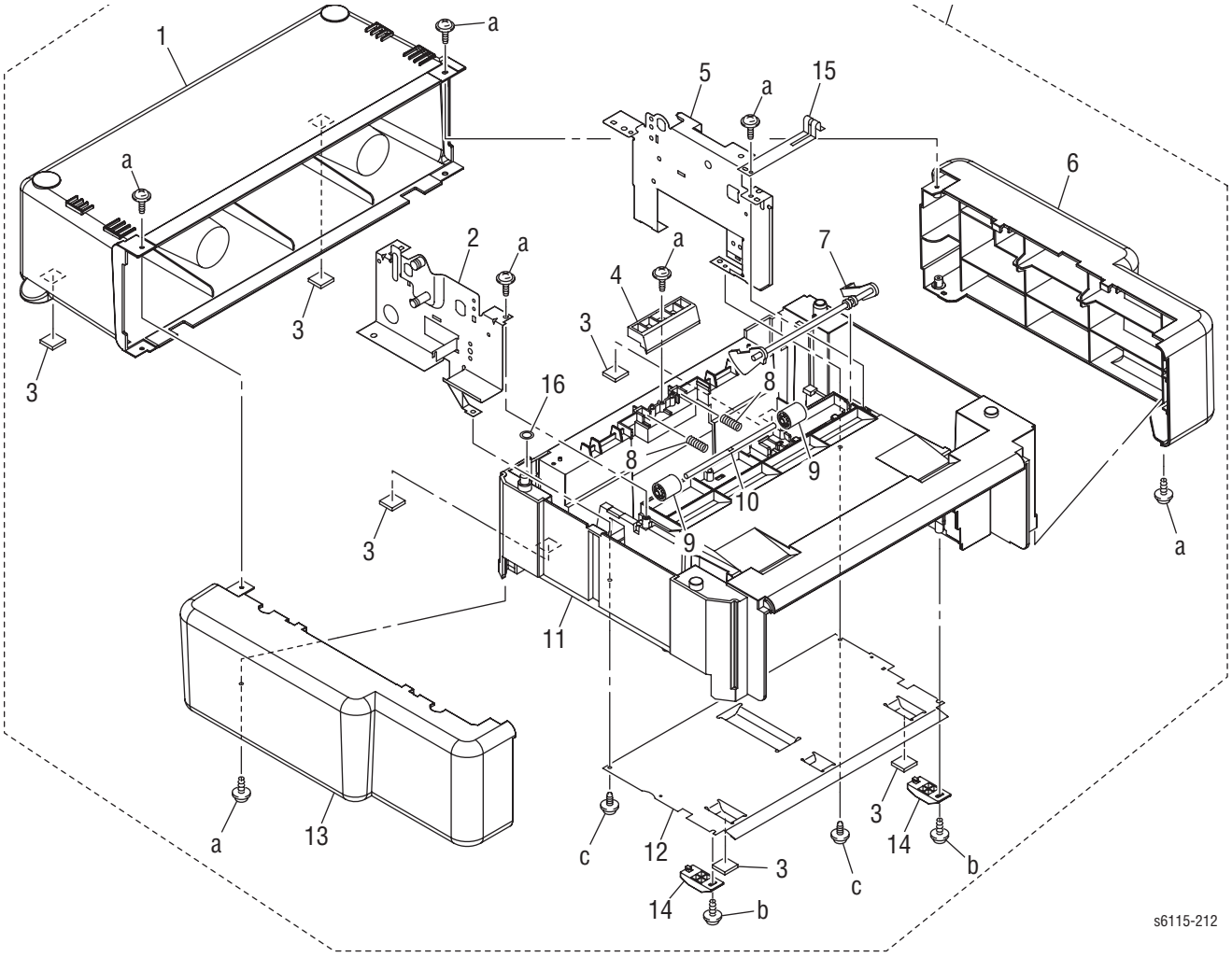


## Parts List 4.24 Wiring Harnesses (3/3) - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 117E29500<br>117E29520 | Power Cord (Europe)<br>Power Cord (USA/Canada) |
| 2. | 802E99630 | Cover |
| 3. | 050E23650 | Tray |
| 4. | 848E17480 | Cover |
| 5. | | Wire Harness Assy |
| 6. | | Label |
| 7. | | Label |
| 8. | | Label |
| 9. | | Face Sheet Kit (USA/Canada) |

# 500-Sheet Feeder

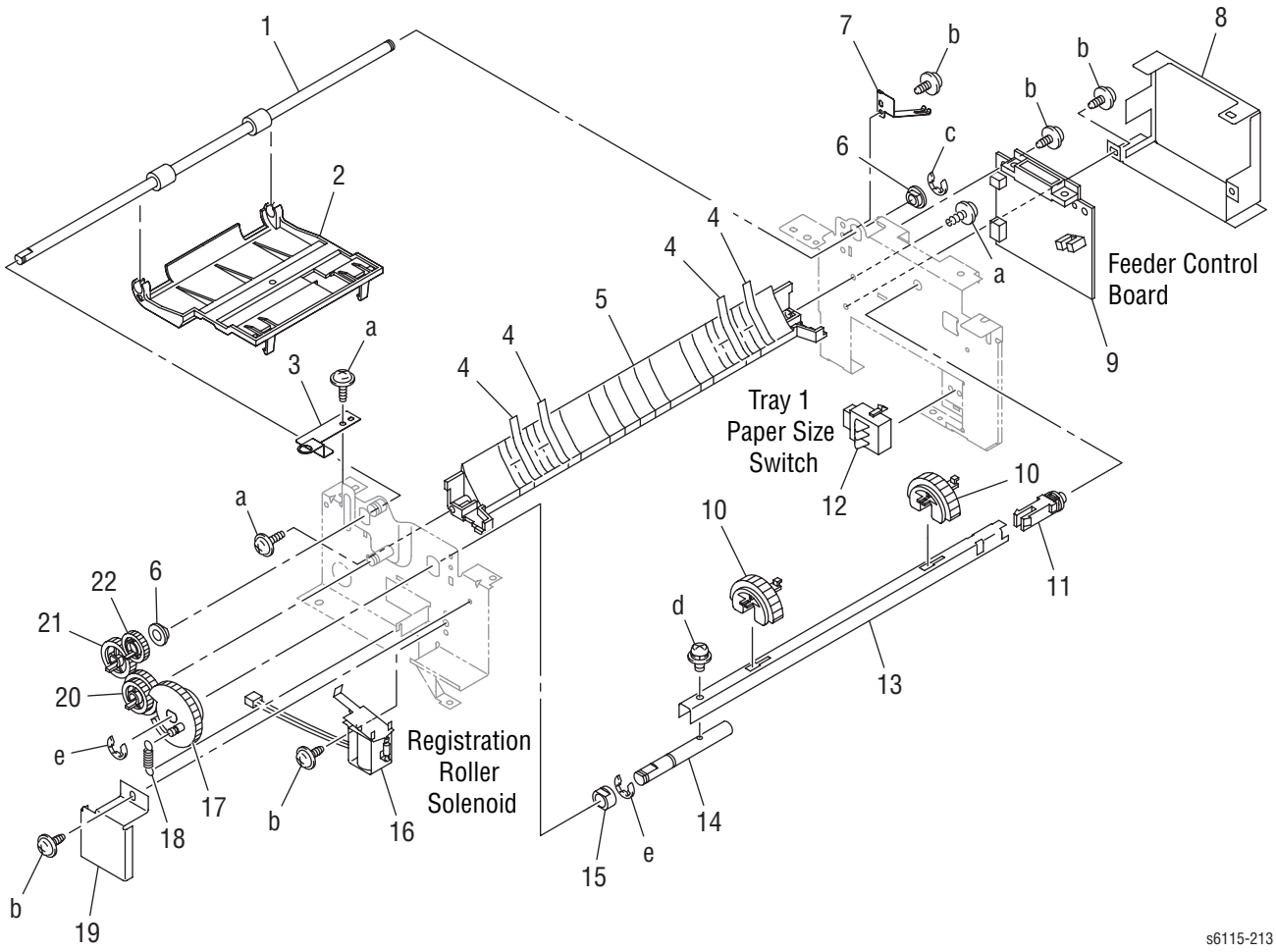
## PL 5.1 Feeder Housing



## Parts List 5.1 Feeder Housing - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Rear Cover |
| 2. | | Bracket Assy |
| 3. | 017E11450 | Rubber Foot |
| 4. | | Bracket |
| 5. | | Frame |
| 6. | | Right Cover |
| 7. | | Actuator |
| 8. | | Pressure Spring |
| 9. | | Roll |
| 10. | | Shaft |
| 11. | | Base Frame |
| 12. | | Reinforce Plate |
| 13. | | Left Cover |
| 14. | | Holder |
| 15. | | Plate Spring |
| 16. | | Washer |
| 17. | 059K59620<br>059K59630 | Feeder (letter size)<br>Feeder (A4 Size) |

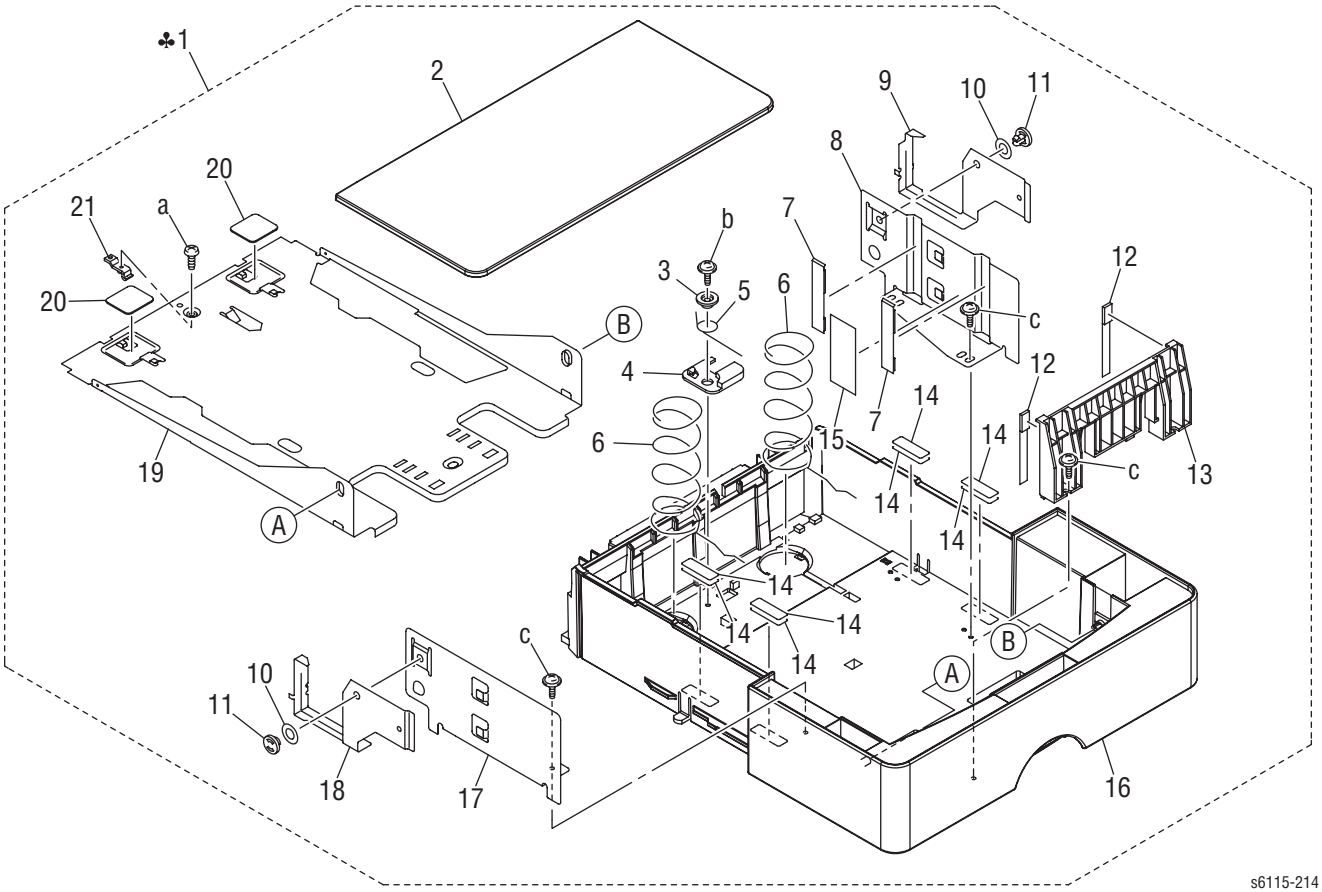
## PL 5.2 Feeder


1
2
3
a
4
5
6
7
b
8
c
9
10
11
12
13
14
15
16
17
18
19
20
21
22
d
e
Feeder Control Board
Tray 1 Paper Size Switch
Registration Roller Solenoid
s6115-213

## Parts List 5.2 Feeder - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Roller |
| 2. | | Guide |
| 3. | | Earth Ground |
| 4. | | Guide |
| 5. | | Guide |
| 6. | | Bushing |
| 7. | | Earth Ground |
| 8. | | Cover |
| 9. | 960K25600 | (500-Sheet Feeder Control Board) |
| 10. | 059E05470 | Pick Roller |
| 11. | | Shaft |
| 12. | 110E19930 | Switch (Tray Detect) |
| 13. | | Bracket |
| 14. | | Shaft |
| 15. | | Bushing |
| 16. | 121E20310 | Paper Pick-Up Solenoid |
| 17. | | Gear 38t |
| 18. | | Tension Spring |
| 19. | | Cover |
| 20. | | Gear 20/26t |
| 21. | | Gear 22t |
| 22. | 807E17790 | Gear 17t |

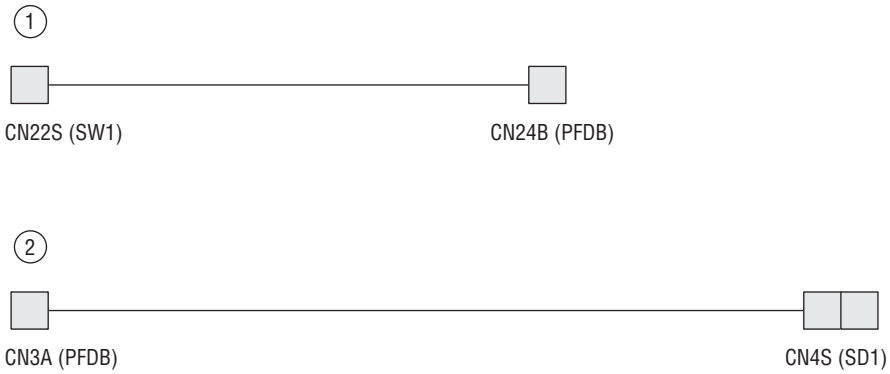
# PL 5.3 Tray



### Parts List 5.3 Tray - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 050E23380<br>050E23390 | Cassette Assy (AA)<br>Cassette Assy (Letter) |
| 2. | | Cover |
| 3. | | Collar |
| 4. | | Cam |
| 5. | | Torsion Spring |
| 6. | | Pressure Spring |
| 7. | | Cushion |
| 8. | | Regulating Plate |
| 9. | | Separator |
| 10. | | Washer |
| 11. | | Pin |
| 12. | | Cushion |
| 13. | | Regulating Plate |
| 14. | | Spacer |
| 15. | | Label |
| 16. | | Cassette |
| 17. | | Regulating Plate |
| 18. | | Separator |
| 19. | | Lifting Plate |
| 20. | | Friction Plate |
| 21. | | Lock Lever |

## PL 5.4 Feeder Wiring Harness

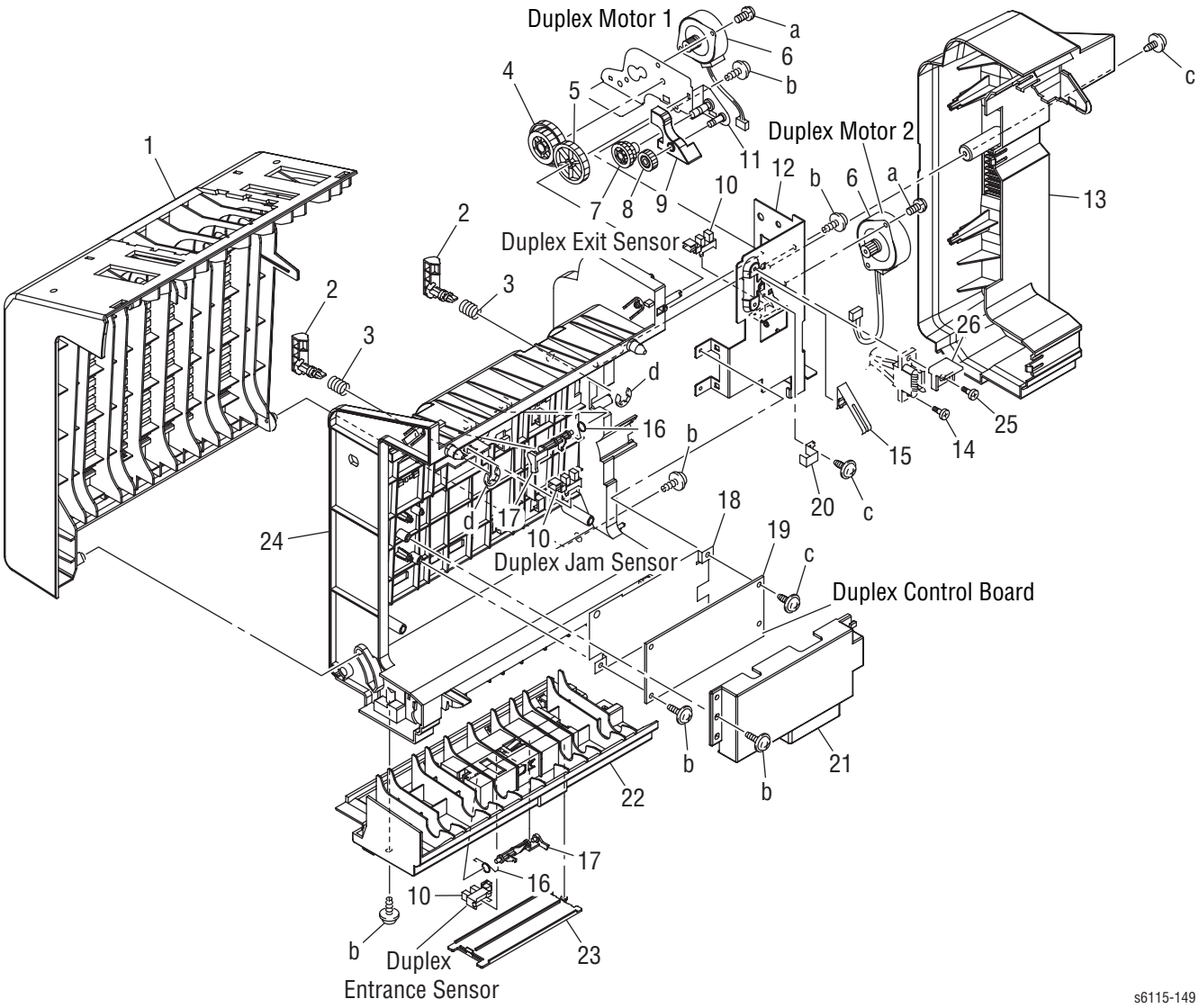


## Parts List 5.4 Wiring Harnesses - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Wire Harness Assy |
| 2. | | Wire Harness Assy |

# Duplex Module

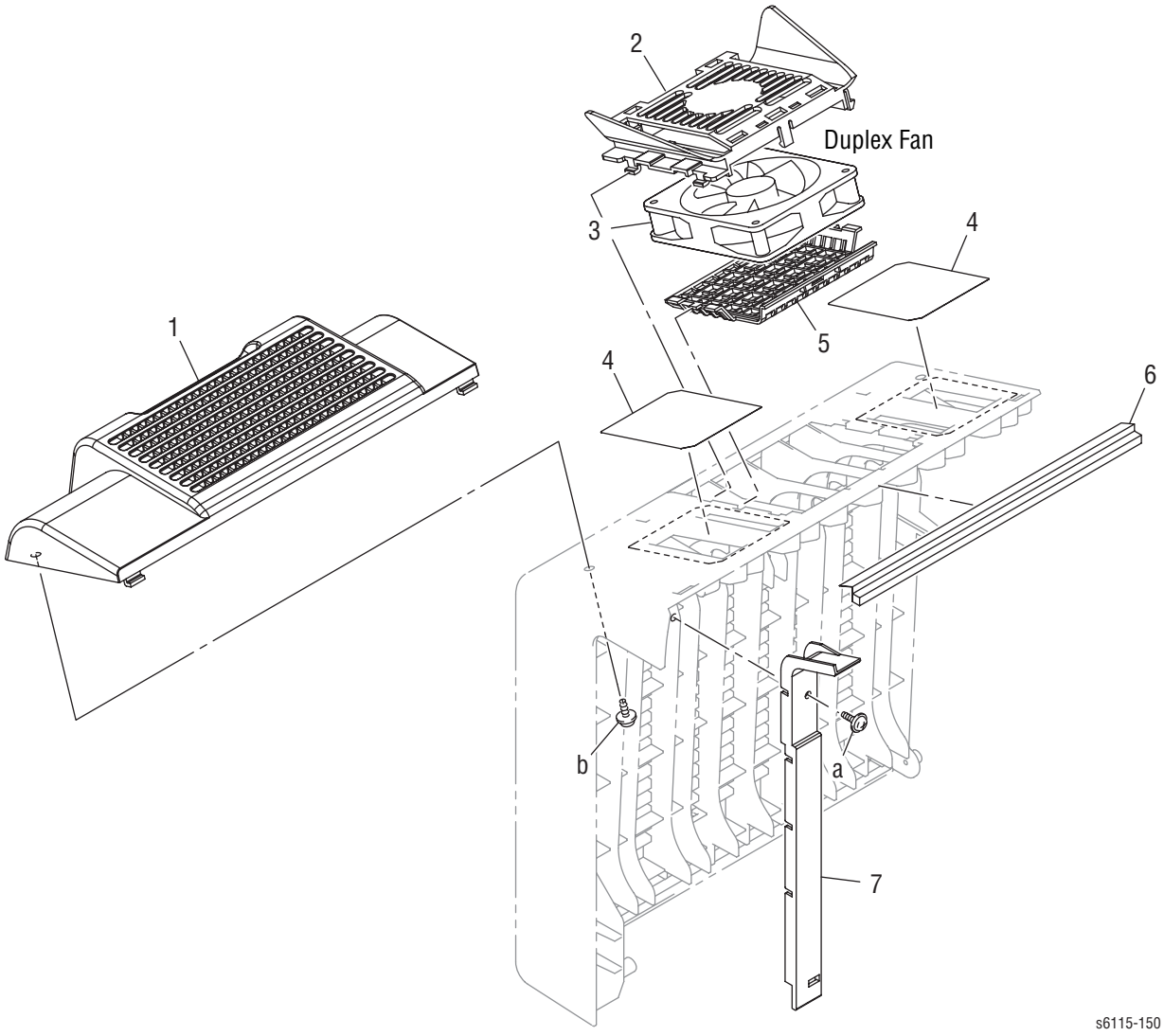
## PL 6.1 Duplex Assembly



## Parts List 6.1 Duplex Assembly - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Top Cover |
| 2. | 011E20130 | Locking Lever |
| 3. | | Pressure Spring |
| 4. | | Gear 33/50t |
| 5. | | Gear 12/47t |
| 6. | 127E15300 | Motor (Duplex Reverse and Transport Motors) |
| 7. | | Gear 16/27t |
| 8. | | Gear 16t |
| 9. | | Collar |
| 10. | 130E11800 | Photo Interrupter |
| 11. | | Bracket Assy |
| 12. | | Bracket |
| 13. | | Right Cover |
| 14. | | Shoulder Screw |
| 15. | | Plate Spring |
| 16. | | Torsion Spring |
| 17. | 120E29310 | Tray Set Actuator |
| 18. | | Shield |
| 19. | 960K25590 | Duplex Drive Board |
| 20. | | Regulating Plate |
| 21. | | Cover |
| 22. | | Lower Cover |
| 23. | | Cover |
| 24. | | Frame |
| 25. | | Shoulder Screw |
| 26. | | Stopper |
| 27. | 084K36390 | Duplex Unit |

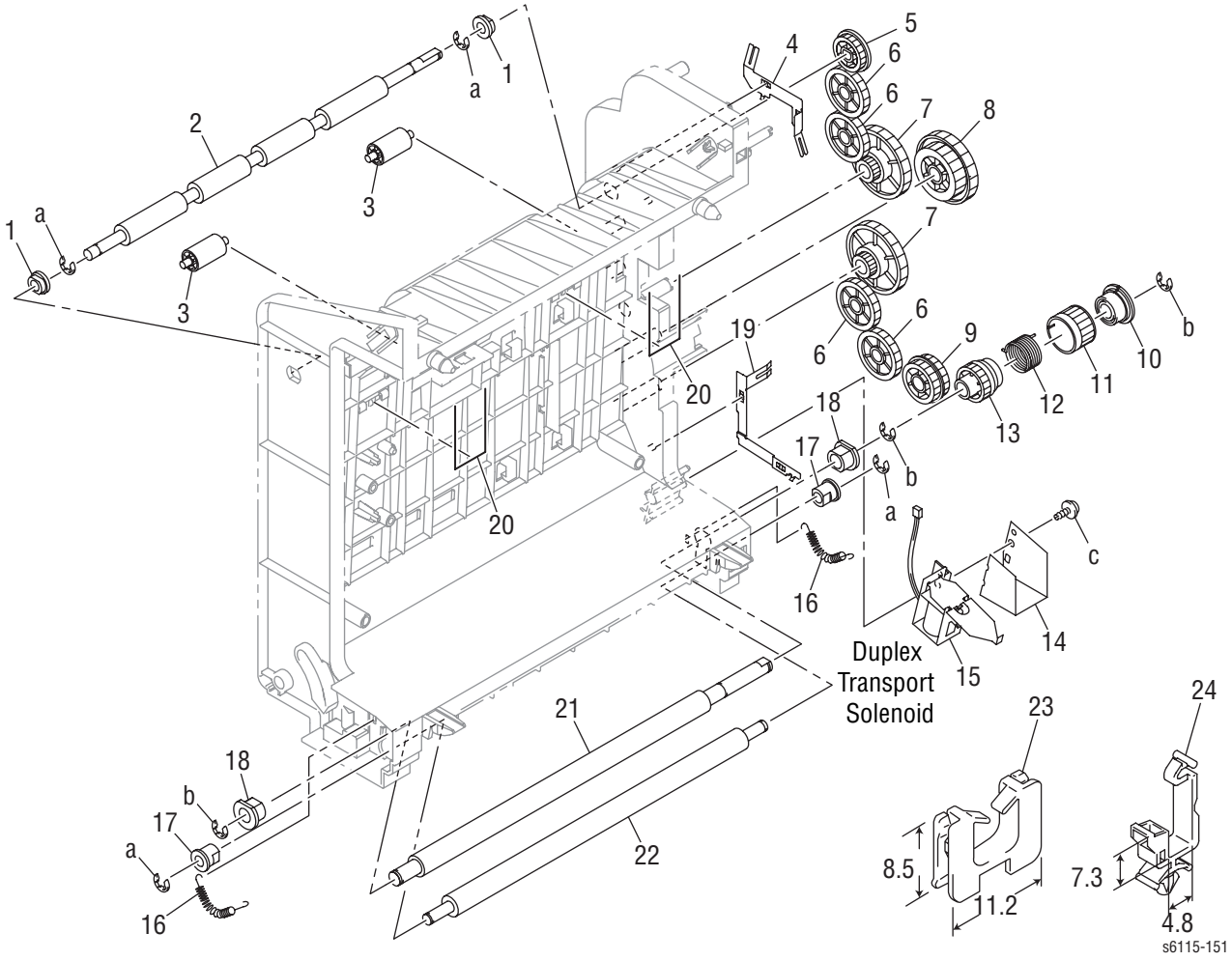
## PI 6.2 Duplex Cover and Fan



### Parts List 6.2 Cover and Fan - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Cover |
| 2. | | Holder |
| 3. | 127E15240 | Fan Motor |
| 4. | | Seal |
| 5. | | Cover |
| 6. | | Seal |
| 7. | | Cover |

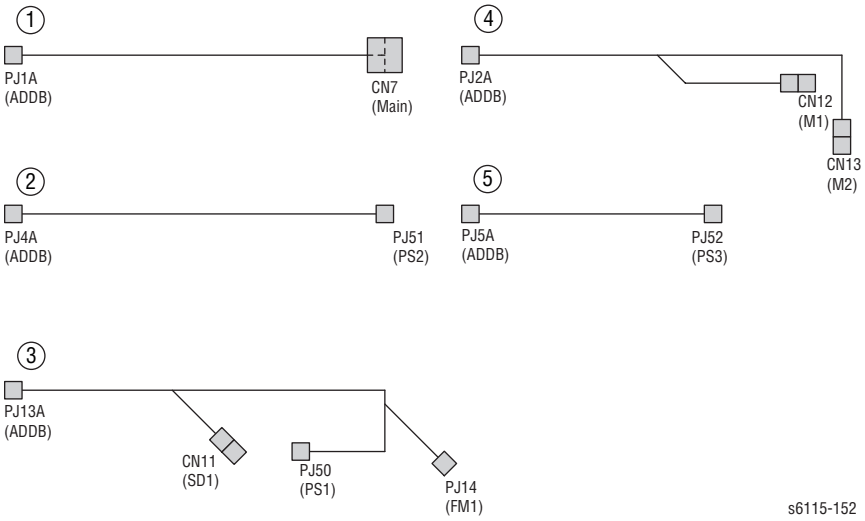
## PL 6.3 Duplex Transport



### Parts List 6.3 Transport - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Bushing |
| 2. | | Roller |
| 3. | | Roll |
| 4. | | Plate Spring |
| 5. | | Gear 20t |
| 6. | | Gear 28t |
| 7. | | Gear 13/53t |
| 8. | | Gear 33/50t |
| 9. | | Gear 23/29t |
| 10. | | Drum |
| 11. | | Ratchet Wheel |
| 12. | | Torsion Spring |
| 13. | | Gear 26t |
| 14. | | Shield |
| 15. | 121E20270 | Duplex Registration Solenoid |
| 16. | | Tension Spring |
| 17. | | Bushing |
| 18. | | Bushing |
| 19. | | Plate Spring |
| 20. | | Spring |
| 21. | | Roller |
| 22. | | Roller |
| 23. | | Edge Cover 8.5h |
| 24. | | Wiring Saddle |

# PL 6.4 Duplex Wiring Harnesses



## Parts List 6.4 Wiring Harnesses - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | | Wire Harness Assy |
| 2. | | Wire Harness Assy |
| 3. | | Wire Harness Assy |
| 4. | | Wire Harness Assy |
| 5. | | Wire Harness Assy |

# PL 7.1 Xerox Supplies

### Parts List 7.1 Xerox Toner and Maintenance Kit Supplies - Service Parts List

| No. | Part Number | Name/Description |
|---|---|---|
| 1. | 113R00689 | CYAN STANDARD CAPACITY PRINT CARTRIDGE, PHASER 6120/6115mfp |
| 2. | 113R00691 | MAGENTA STANDARD CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP |
| 3. | 113R00690 | YELLOW STANDARD CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP |
| 4. | 113R00693 | CYAN HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP |
| 5. | 113R00695 | MAGENTA HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP |
| 6. | 113R00694 | YELLOW HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP |
| 7. | 113R00692 | BLACK HIGH CAPACITY PRINT CARTRIDGE, PHASER 6120/6115MFP |
| 8. | 604K35500 | HARDWARE MAINTENANCE KIT, PHASER 6120/6115MFP |

# Wiring Diagrams

## In this chapter…



Chapter 10

# Plug/Jack Locator Diagrams

The P/J Locator diagrams show the location of primary connections within the printer. and optional sheet feeders. Use these illustrations to locate connections called out in the troubleshooting procedures presented in Sections 3, 4, and 5.

To find the location of a Plug or Jack:

1. Locate the P/J connector designator in the first column of the table.
2. With this information, go to the map listed in the second column.
3. Use the coordinates to quickly locate the connection indicated on the map with its P/J designation number.

## Print Engine Board Plug/Jack Designators

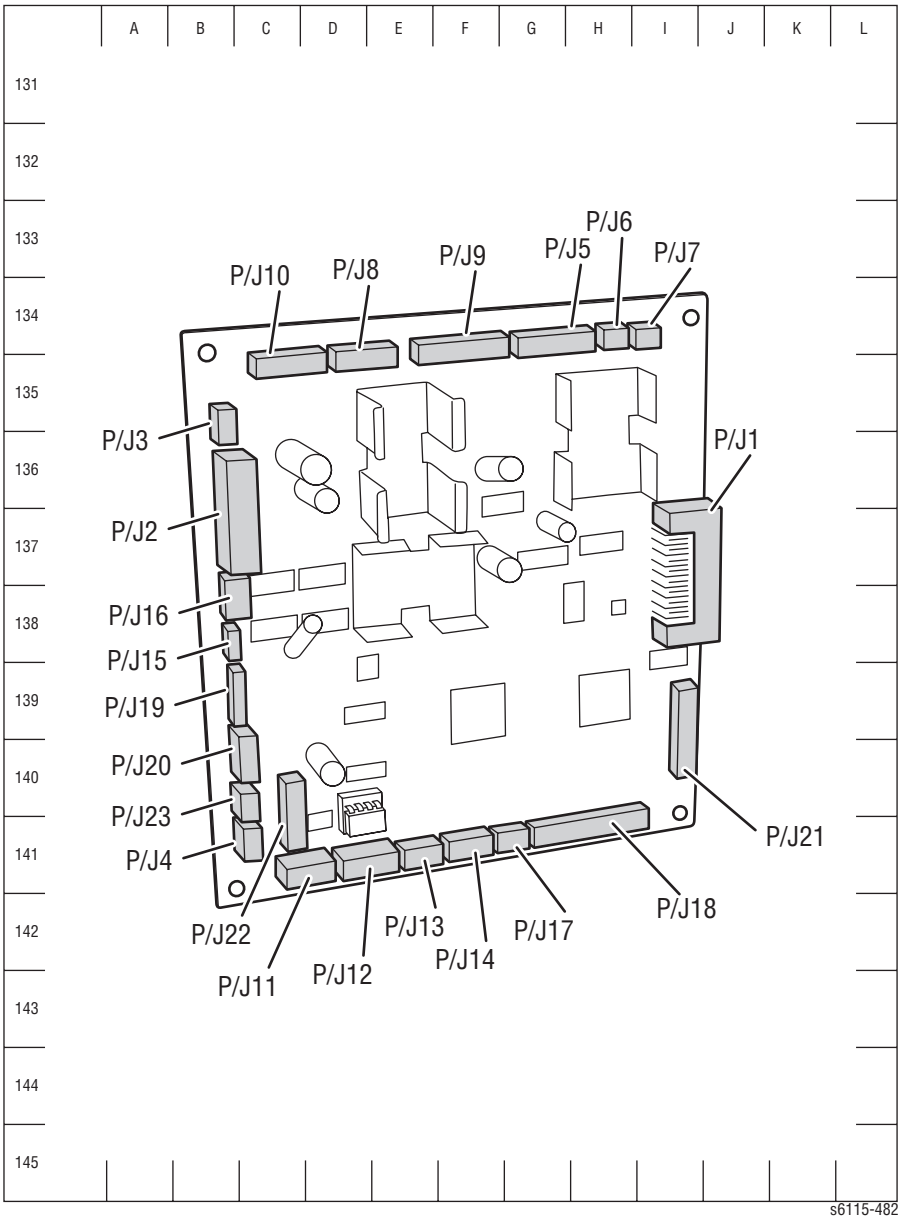
**Print Engine Plug/Jack Designators**

| Map | P/J | Coordinates | Remarks |
|---|---|---|---|
| 1 | P/J1 | J-137 | Connects the Engine Control Board to CN1 of the Image Processor Board. |
| 1 | P/J2 | B-137 | Connects the Engine Control Board to CN4 of the DC Power Supply 1. |
| 1 | P/J3 | B-135 | Connects the Engine Control Board to CN6 of the DC Power Supply 1. |
| 1 | P/J4 | C-141 | Connects the Engine Control Board to the Power Supply Cooling Fan. |
| 1 | P/J5 | G-135 | Connects the Engine Control Board to the Rack Positioning sensor, and the Rack and Developing motors. |
| 1 | P/J6 | H-134 | Connects the Engine Control Board to the Exit Sensor. |
| 1 | P/J7 | I-134 | Connects the Engine Control Board to the Thermistor. |
| 1 | P/J8 | D-135 | Connects the Engine Control Board to the Main Motor. |
| 1 | P/J9 | F-134 | Connects the Engine Control Board through CN1 to the IDC, Belt Positioning, and cleaning Blade Sensors. |
| 1 | P/J10 | C-135 | Connects the Engine Control Board to the Fusing and Ventilation Motors, and the cleaning blade solenoid. |
| 1 | P/J11 | C-141 | Connects the Engine Control Board to the Registration Solenoid and the 2nd Image Transfer Solenoid. |
| 1 | P/J12 | D-141 | Connects the Engine Control Board to the Registration and Transparency Sensors. |
| 1 | P/J13 | E-141 | Connects the Engine Control Board through to the Fusing Paper Loop and 2nd Image Transfer Sensors. |
| 1 | P/J14 | F-141 | Connects the Engine Control Board through CN1 to the Waste Toner Detect Board and the DC Power Supply 1. |
| 1 | P/J15 | D-138 | Connects the Engine Control Board to the Temperature/Humidity Sensor. |
| 1 | P/J16 | C-138 | Connects the Engine Control Board to the Tray 1 Paper Empty Sensor. |
| 1 | P/J17 | G-141 | Not connected. |
| 1 | P/J18 | H-141 | Connects the Engine Control Board to the High Voltage Power Supply. |
| 1 | P/J19 | B-139 | Connects the Engine Control Board to the Laser Unit through connector P/J1 on the Laser. |
| 1 | P/J20 | C-140 | Connects the Engine Control Board directly to the Laser Unit. |
| 1 | P/J21 | I-139 | Connects the Engine Control Board to the Duplex Control Board. |
| 1 | P/J22 | C-141 | Connects the Engine Control to the 500-Sheet Feeder Control Board. |
| 1 | P/J23 | C-140 | Not connected. |
| 2 | P/J1 | B-139 | Connects the Image Processor Board to the speaker. |
| 2 | P/J2 | A-140 | Connects the Image Processor Board to DC Power Supply 1. |
| 2 | P/J3 | D-141 | Connects the Image Processor Board to the Laser Unit. |
| 2 | P/J4 | E-136 | Connects the Image Processor Board to the NCU Board. |
| 2 | P/J6 | I-135 | Connects the Image Processor Board to the Scanner Board. |
| 2 | P/J7 | J-135 | Connects the Image Processor Board to the Control Panel Board. |
| 2 | P/J8 | H-134 | Connects the Image Processor Board to the Scanner Motor through Connector CN10. |

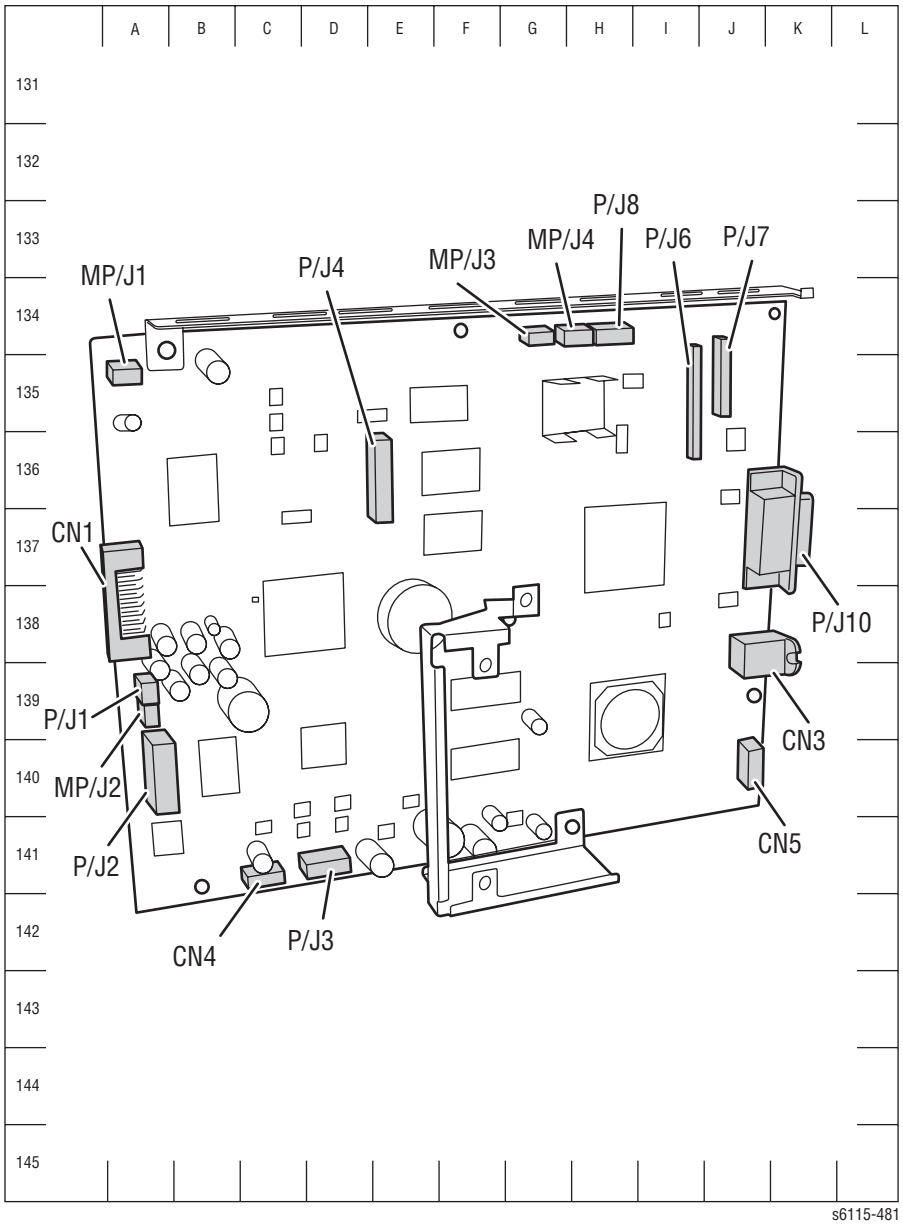
**Print Engine Plug/Jack Designators (Continued)**

| Map | P/J | Coordinates | Remarks |
|---|---|---|---|
| 2 | PJ/10 | E-133 | Connects the Image Processor Board to the Document Feeder Control Board. |
| 2 | MP/J1 | A-135 | Connects the Image Processor Board to the Scanner Cooling Fan. |
| 2 | MP/J2 | B-140 | Connects the Image Processor Board to the DC Power Supply 2. |
| 2 | MP/J3 | G-134 | Connects the Image Processor Board to the DC Power Supply 2. |
| 2 | MP/J4 | H-134 | Connects the Image Processor Board to the NCU Board. |
| 2 | CN/1 | A-138 | Connects the Image Processor Board to the Engine Control Board. |
| 2 | CN/3 | J-138 | Not connected. |
| 2 | CN/4 | C-141 | Connects the Image Processor Board to the USB Board (not available). |
| 2 | CN/5 | J-140 | Connects the Image Processor Board to the LAN (Fax) Board. |
| 3 | CN/1 | A-138 | Connects the DC Power Supply 1 Board to the Power Switch. |
| 3 | CN/3 | K-138 | Connects the DC Power Supply 1 Board to the Safety Switch. |
| 3 | CN/4 | J-138 | Connects the DC Power Supply 1 Board to the Engine Control Board. |
| 3 | CN/5 | K-135 | Connects the DC Power Supply 1 Board to the Image Processor Board. |
| 3 | CN/6 | K-137 | Connects the DC Power Supply 1 Board to the Engine Control Board. |
| 4 | CN/2 | C-139 | Connects the DC Power Supply 2 to the Image Processor Board. |
| 4 | CN/11 | J-135 | Connects the DC Power Supply 2 to the Power Switch. |
| 5 | CN/1 | E-137 | Connects the High Voltage Power Supply to the Engine Control Board. |
| 5 | CN/2 | F-136 | Connects the High Voltage Power Supply to the Tray 1 Paper Pick-up Solenoid. |
| 6 | P/J2 | B-137 | Connects the LAN (and FAX) Board to the Image Processor Board. |
| 7 | P/2 | B-138 | Connects the NCU Board to the Image Processor Board. |

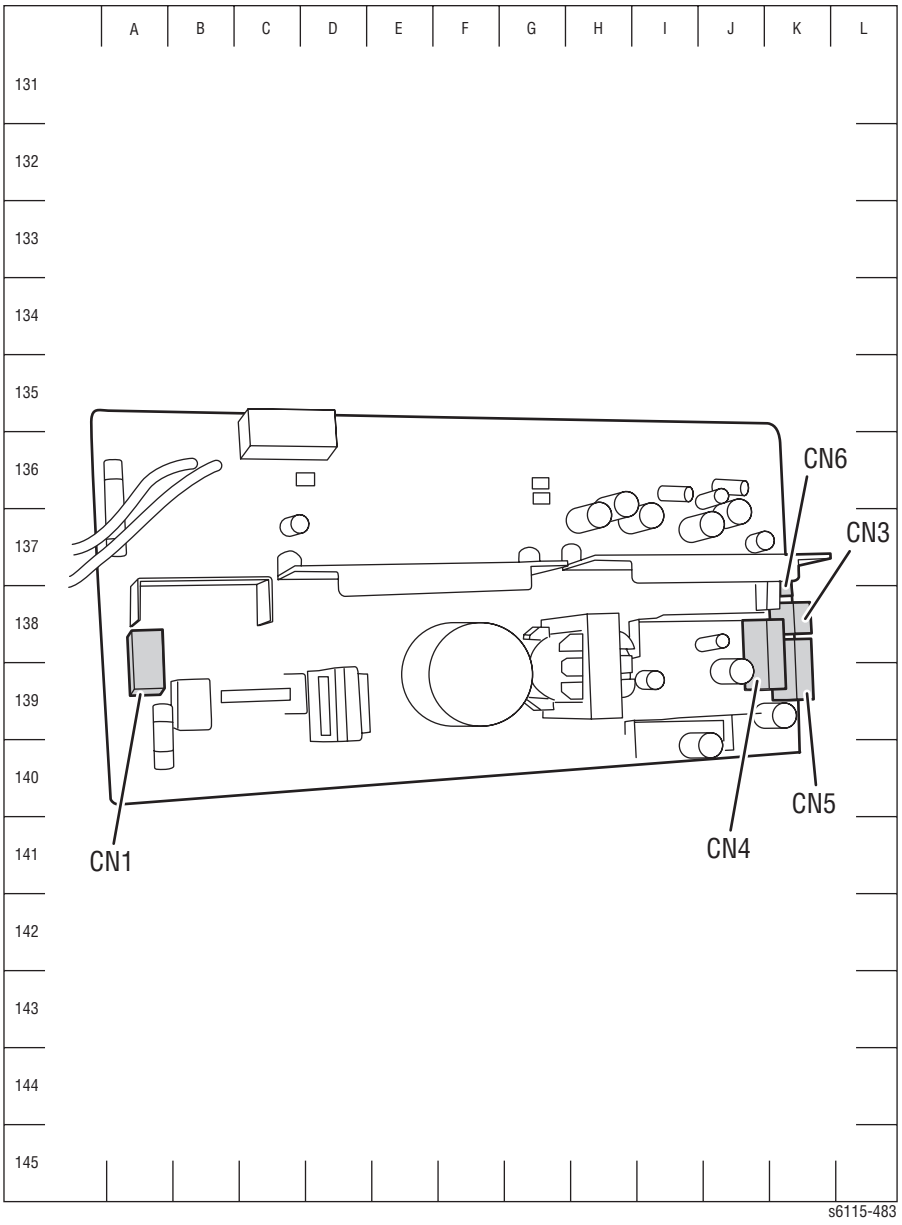
# Map 1 - Engine Control Board Plug/Jack Locator



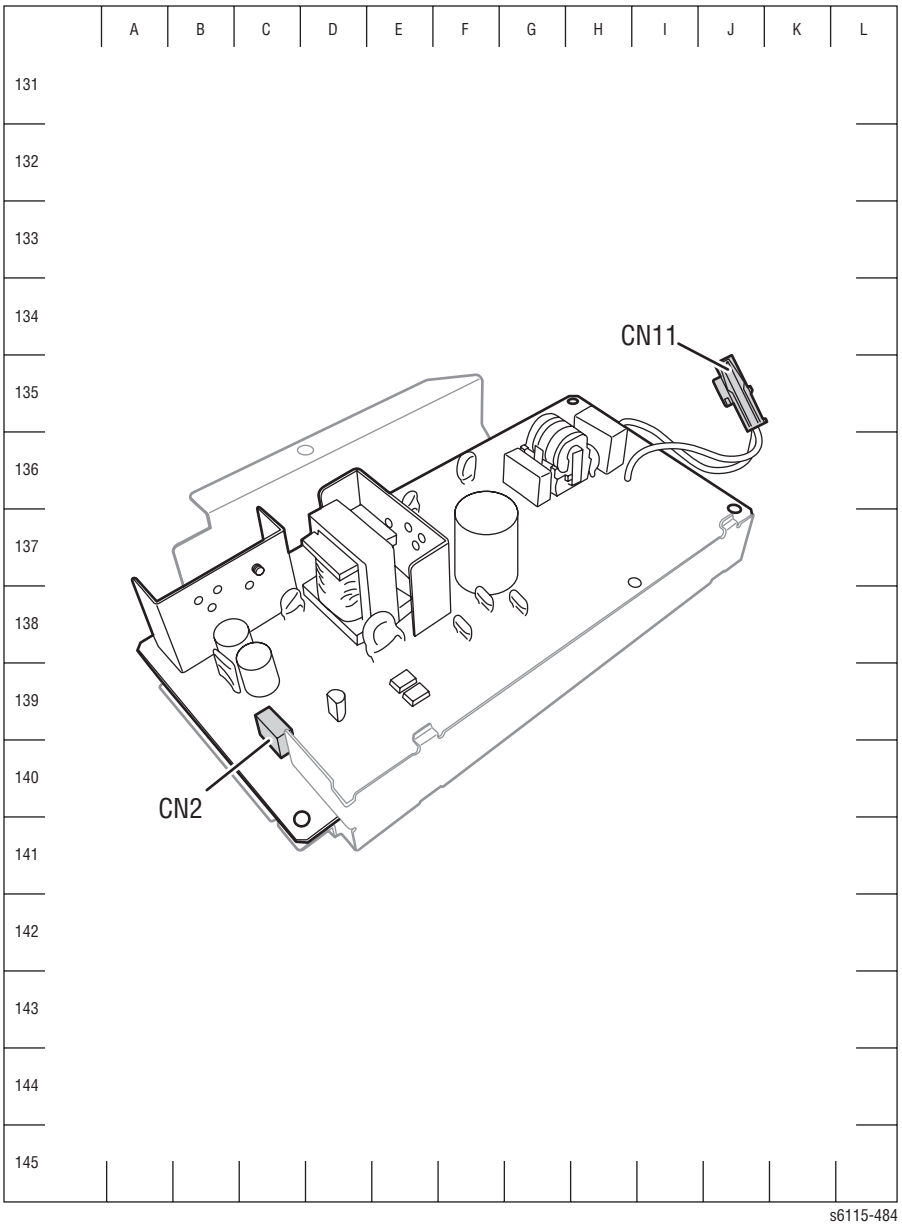
## Map 2 - Image Processor Board Plug/Jack Locator



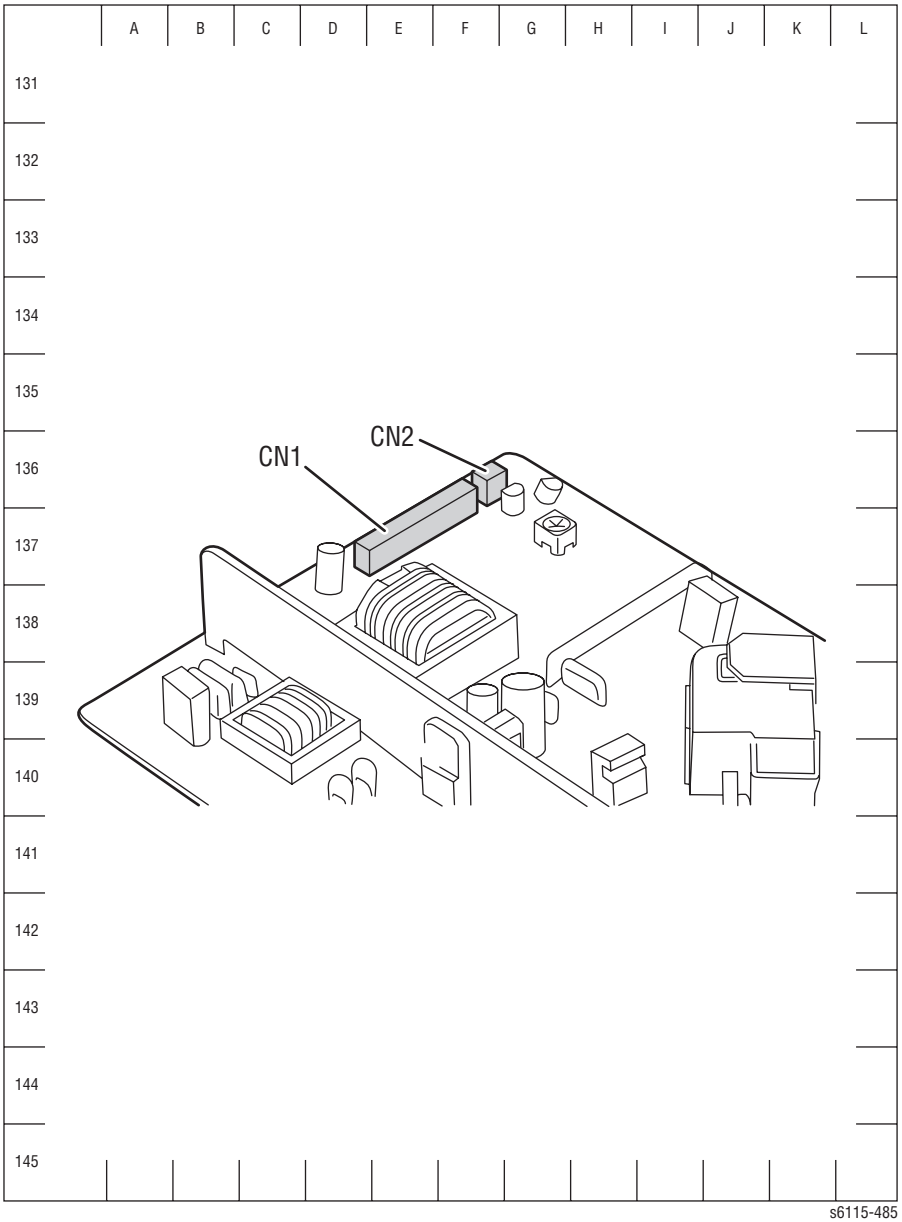
# Map 3 - DC Power Supply 1 Board Plug/Jack Locator



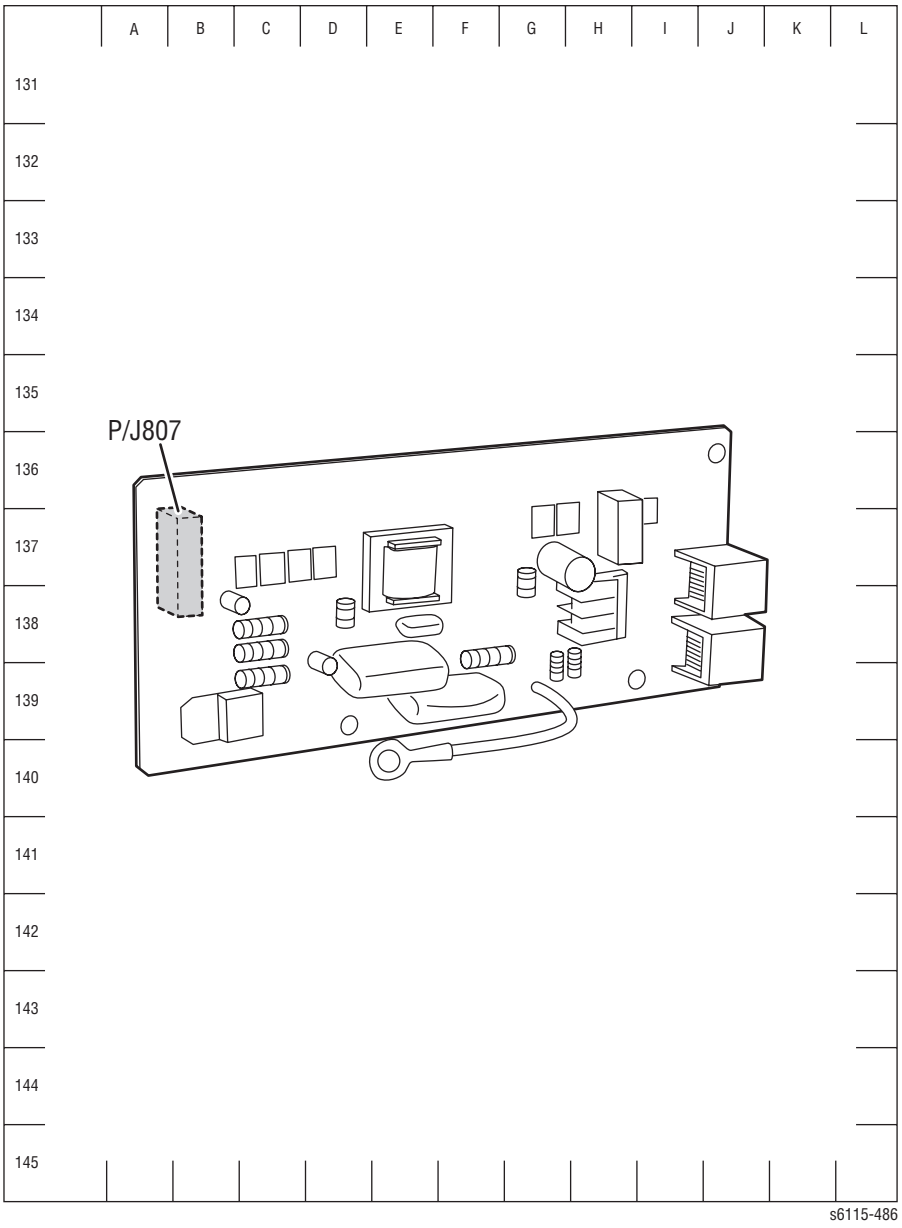
# Map 4 - DC Power Supply 2 Board Plug/Jack Locator



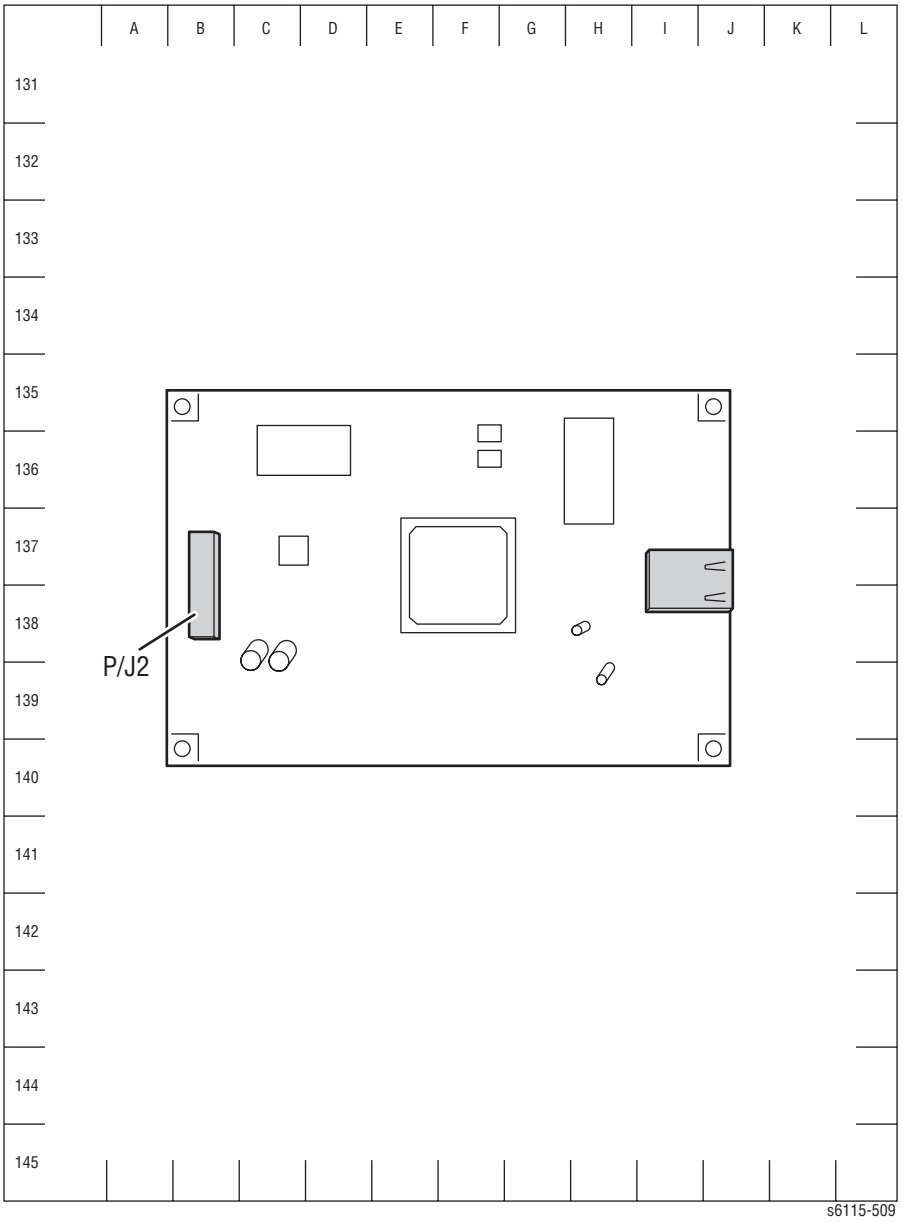
# Map 5 - High Voltage Power Supply Board Plug/Jack Locator



# Map 6 - LAN (and FAX) Board Plug/Jack Locator

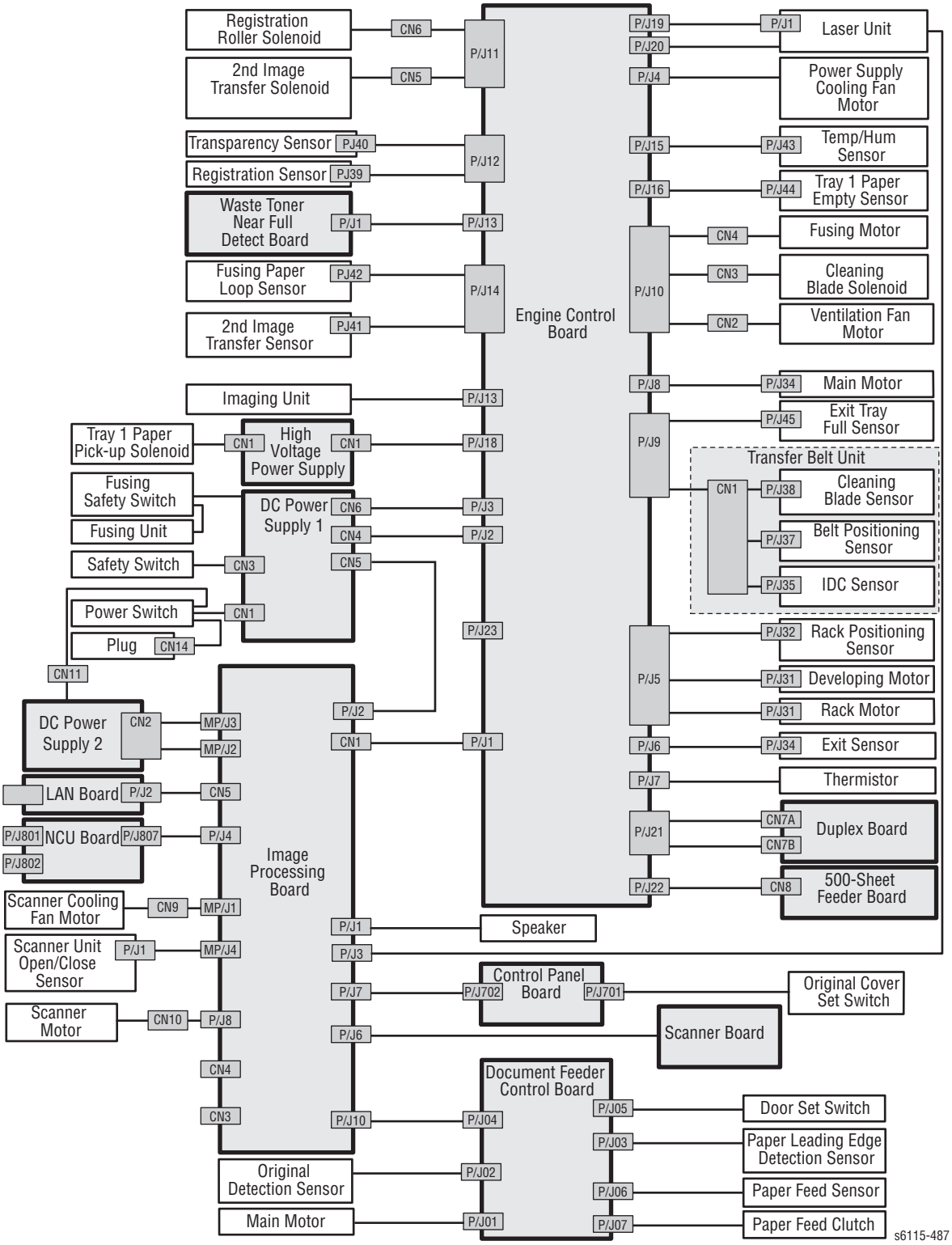


# Map 7 - NCU Board Plug/Jack Locator

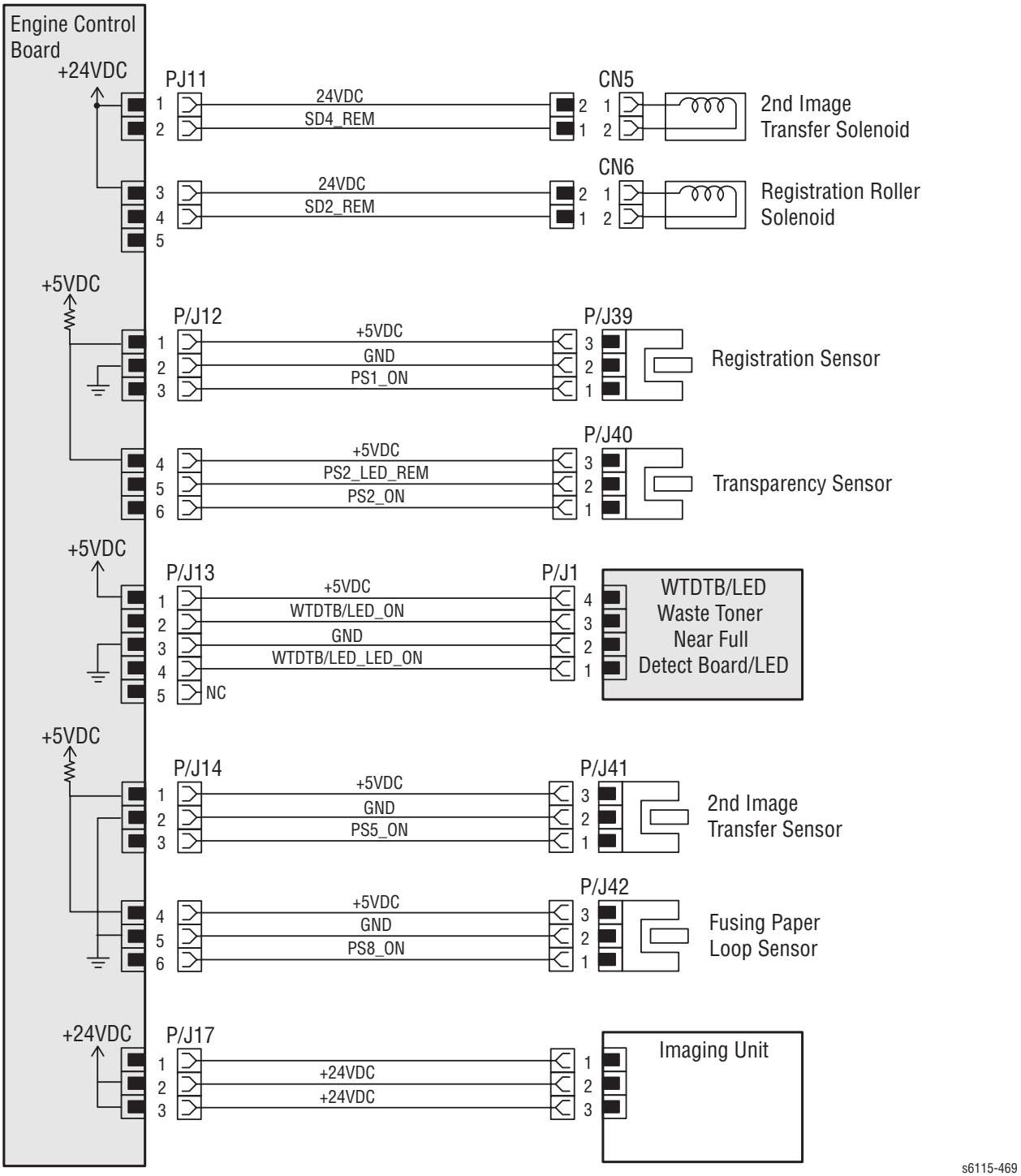


# Print Engine Wiring Diagrams

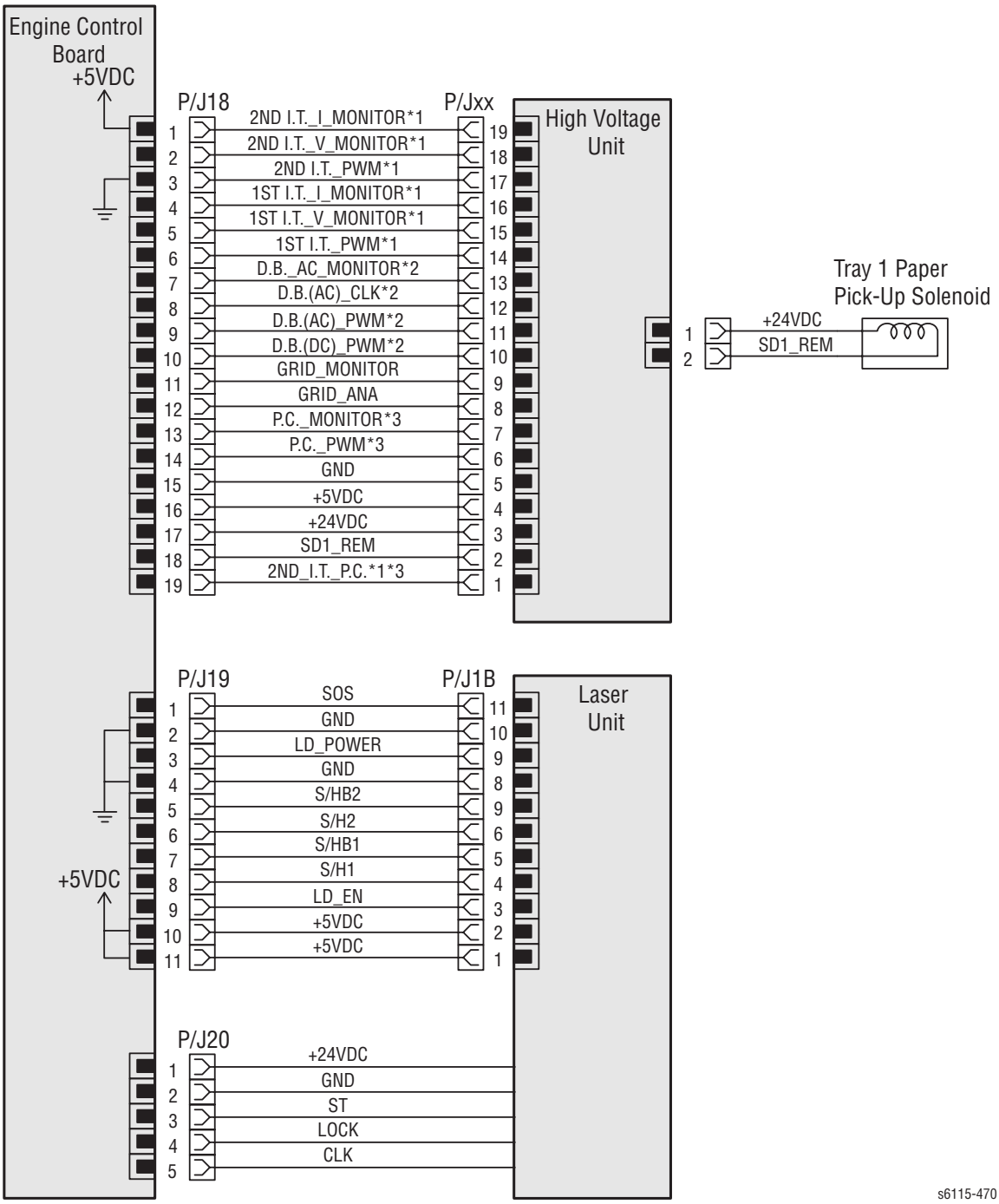
## Print Engine Wiring Map



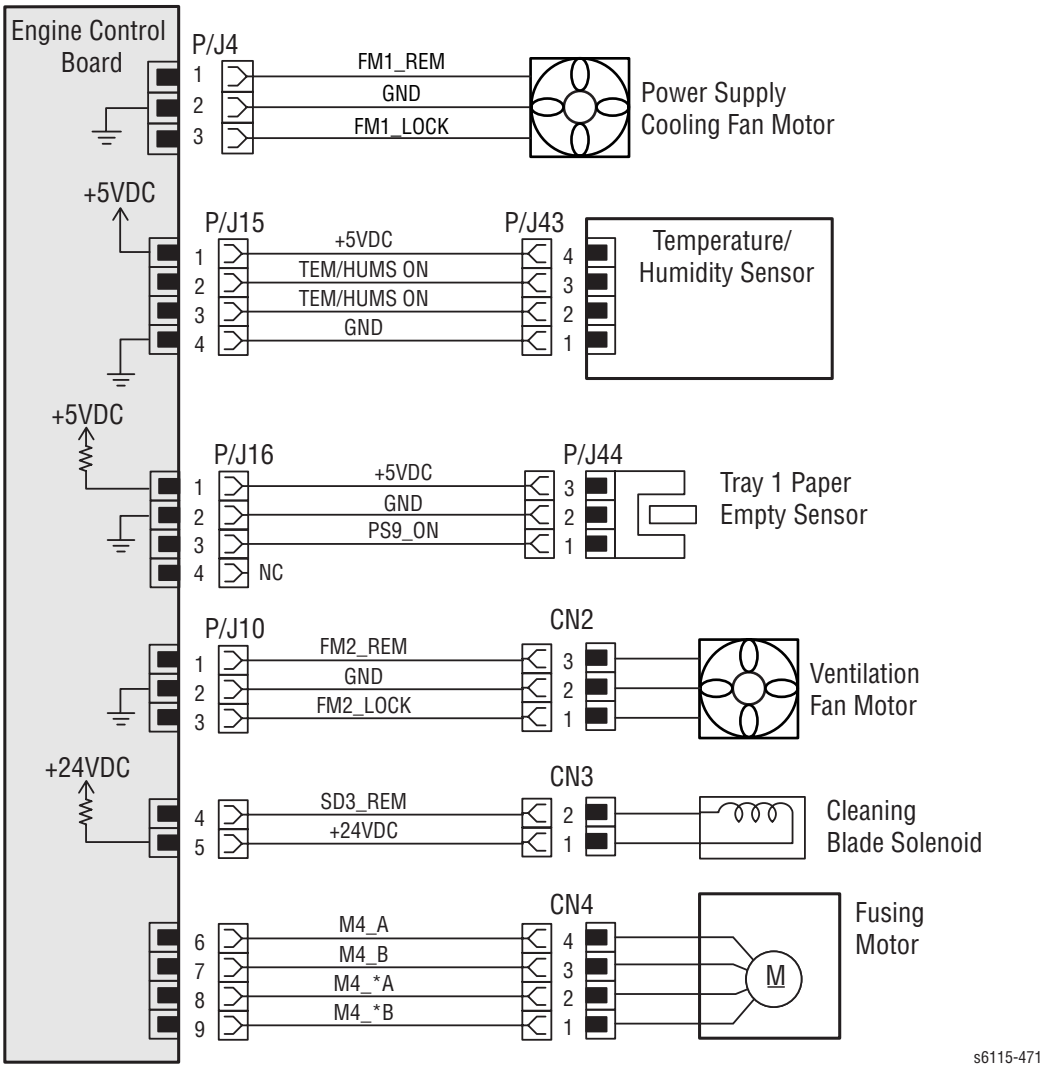
## Engine Control Board to Solenoid and Sensor Wiring



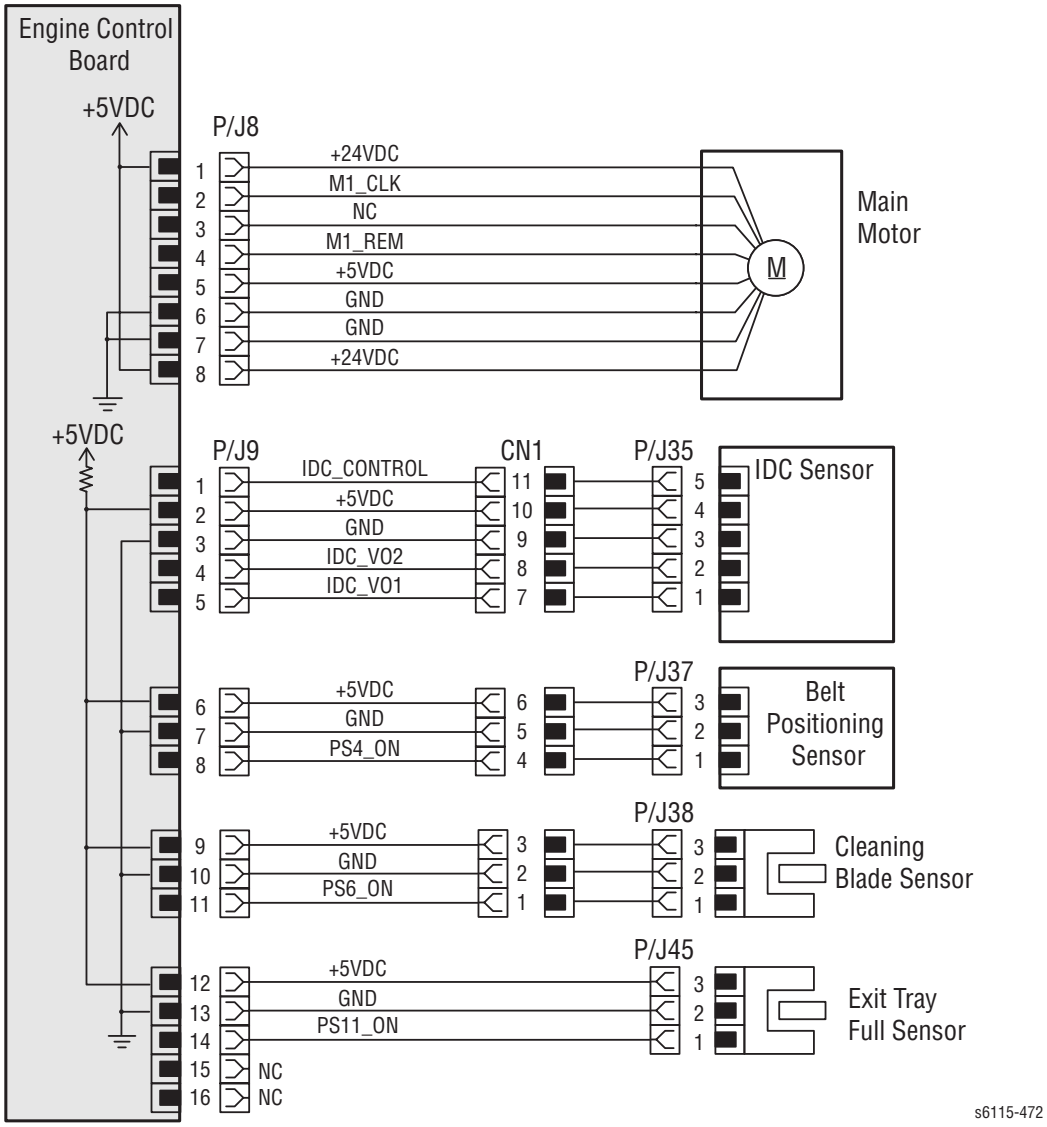
## Engine Control Board to Power Supply and Laser Unit Wiring



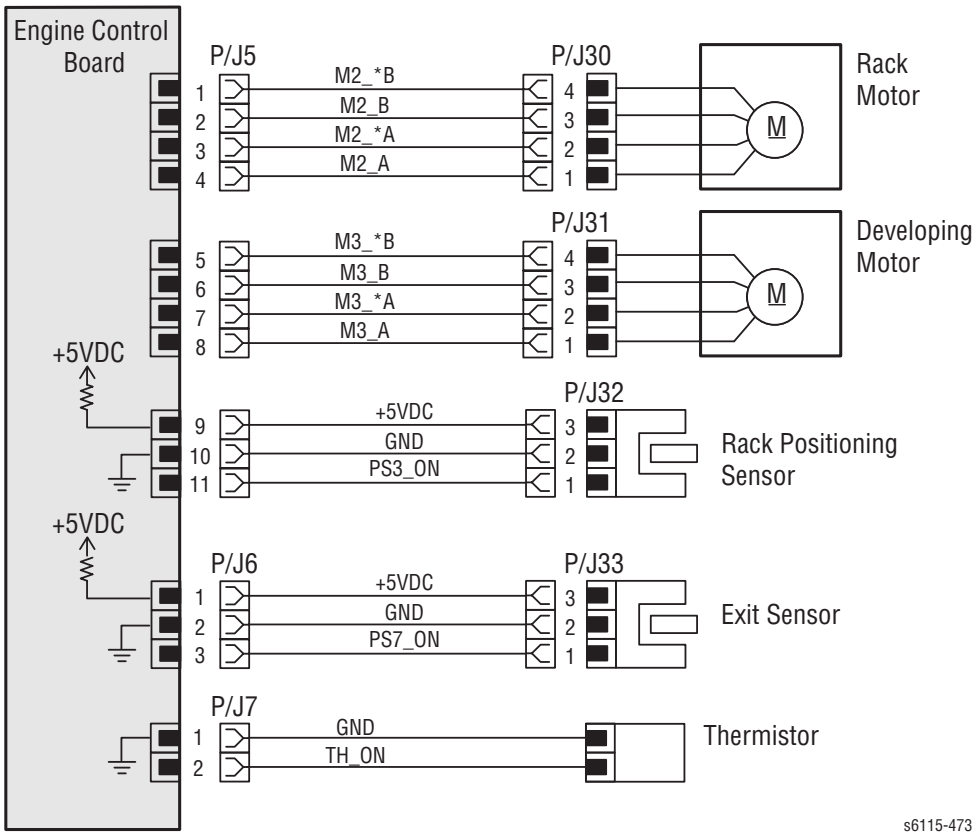
## Engine Control Board to Motor Wiring



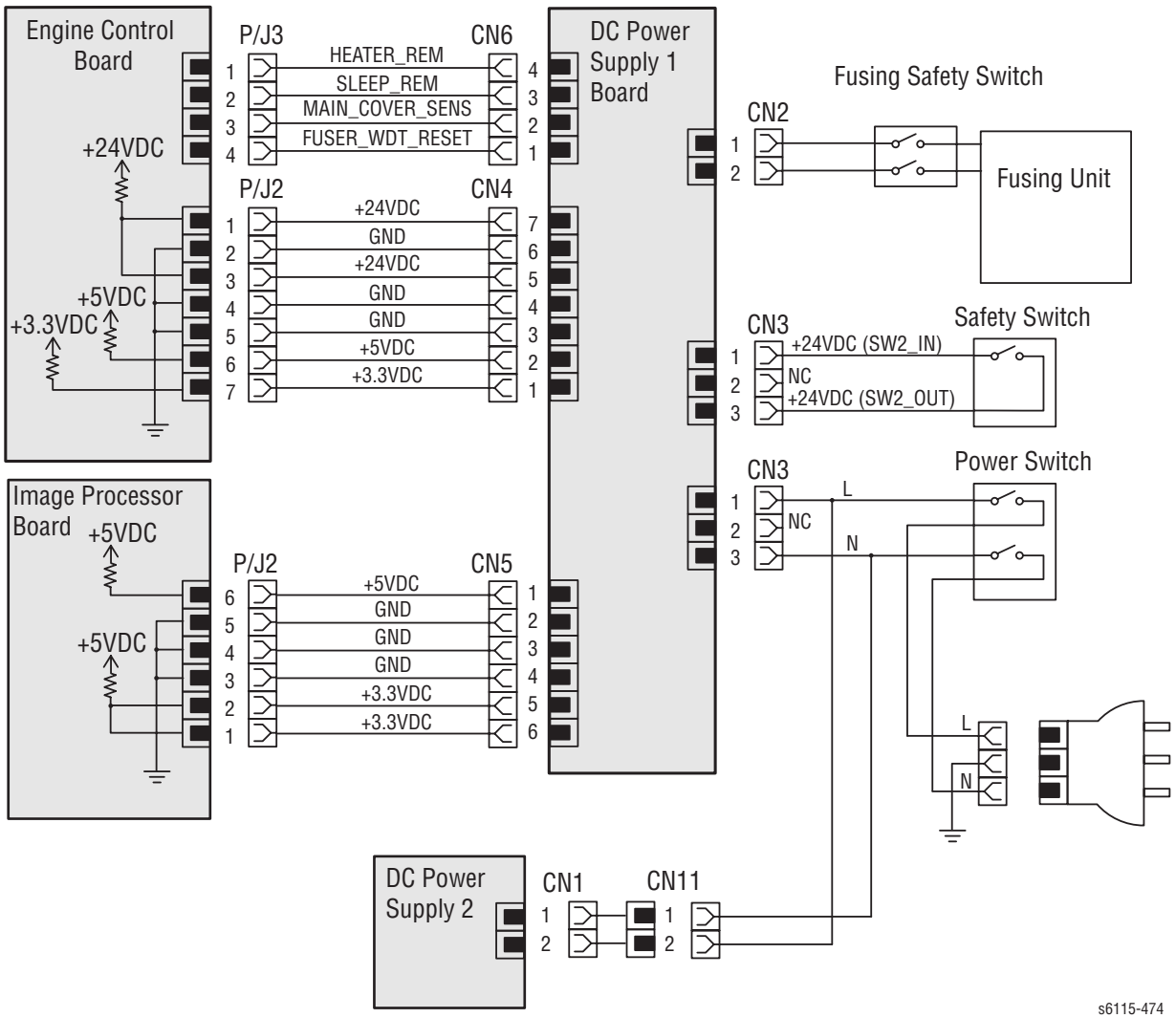
## Engine Control Board to Main Motor and Positioning Sensor Wiring



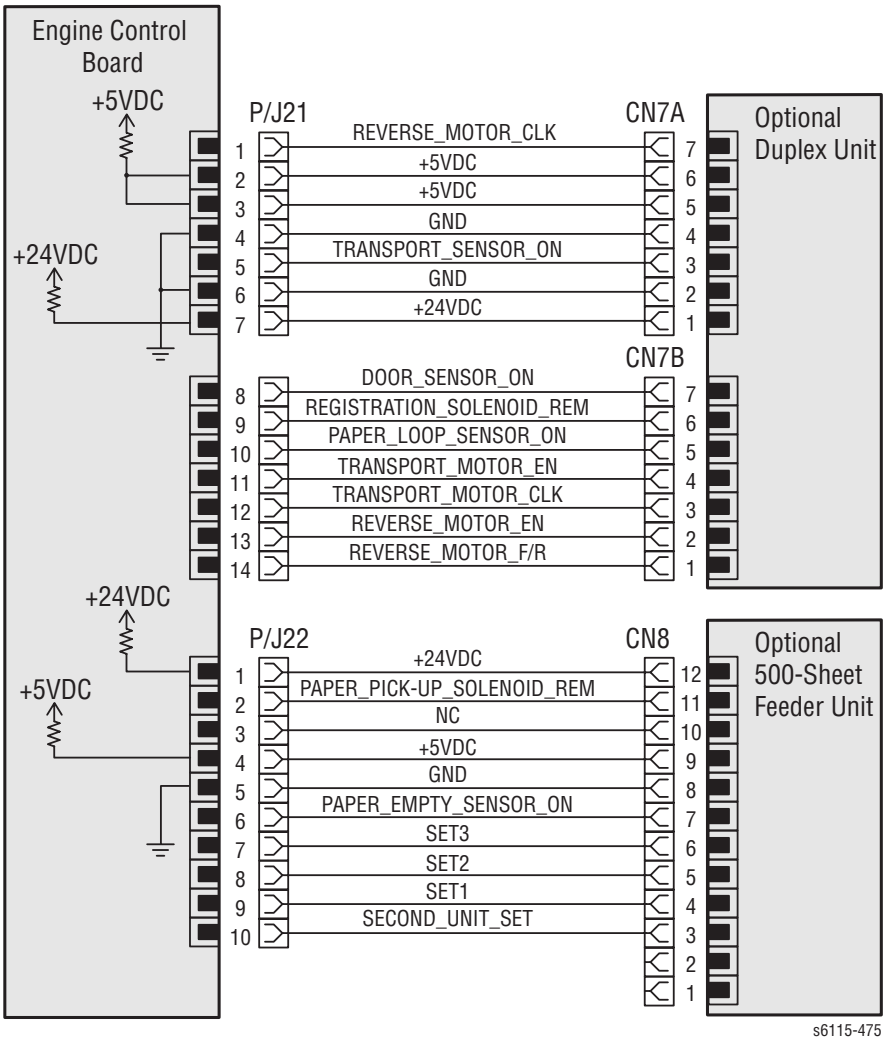
## Engine Control Board to Miscellaneous Motor and Sensor Wiring



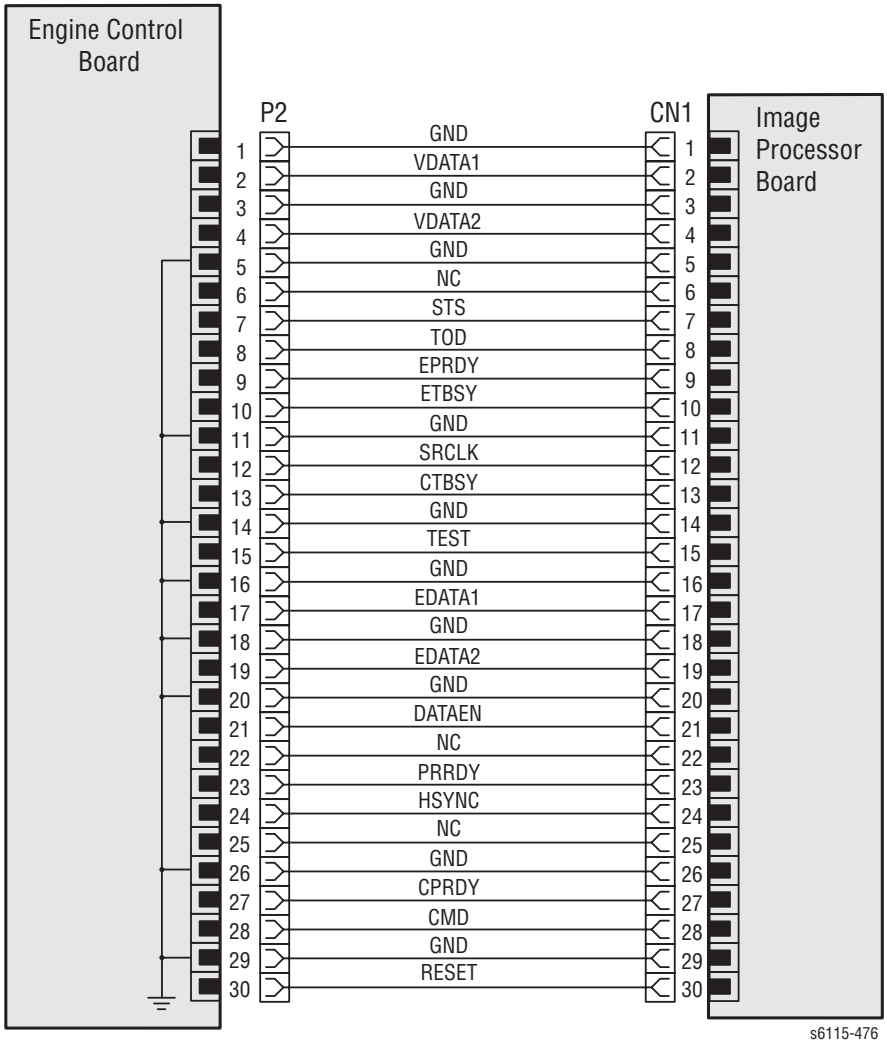
## Engine Control Board to DC Power Wiring



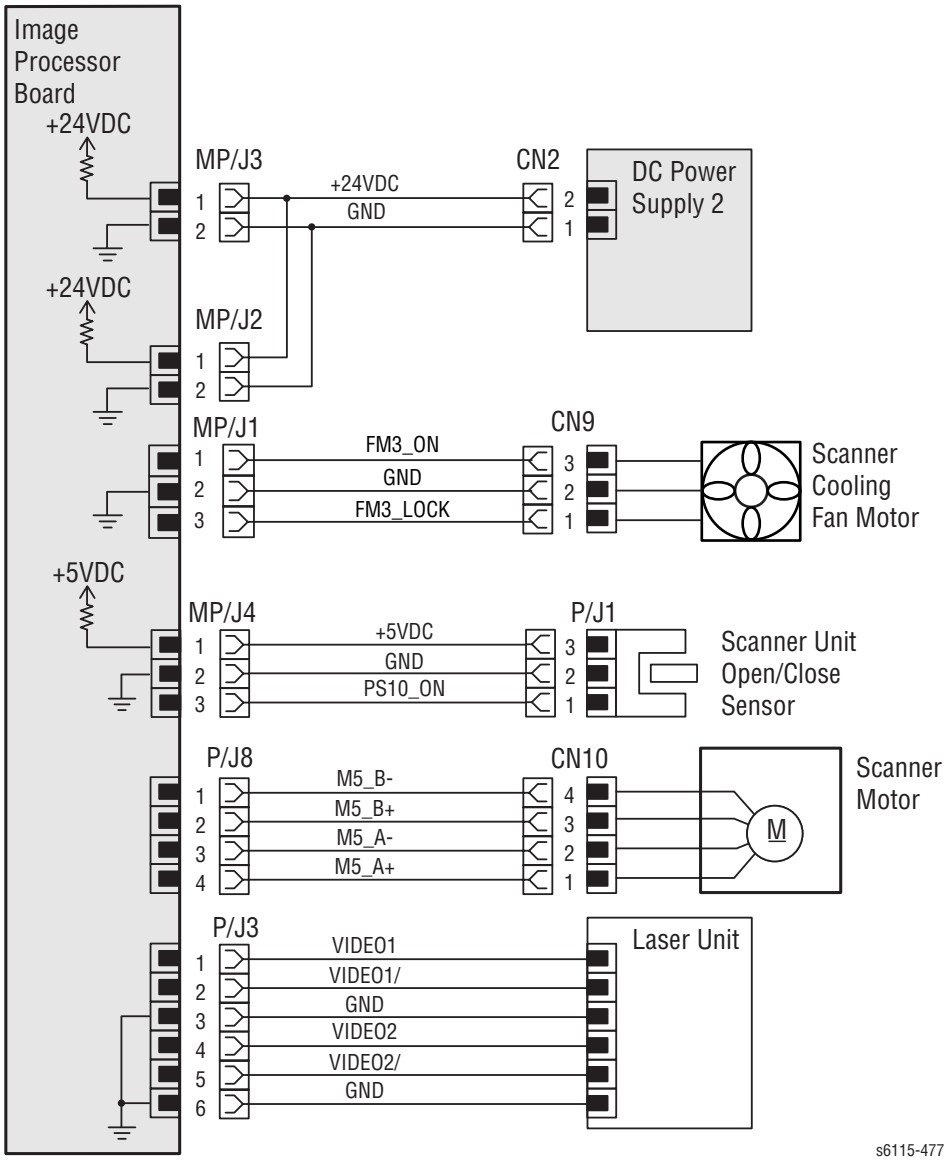
# Engine Control Board to Duplex Unit and Feeder Wiring



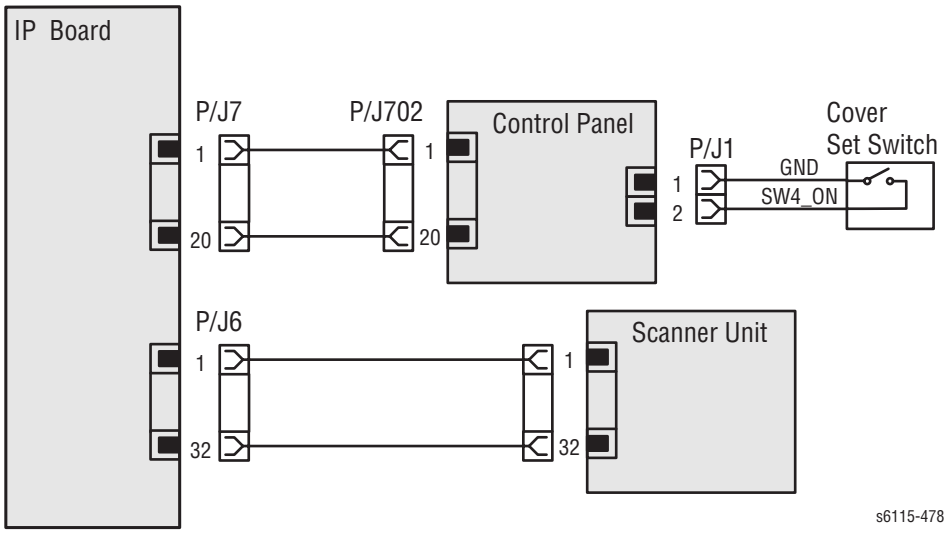
## Engine Control Board to Image Processor Board Wiring



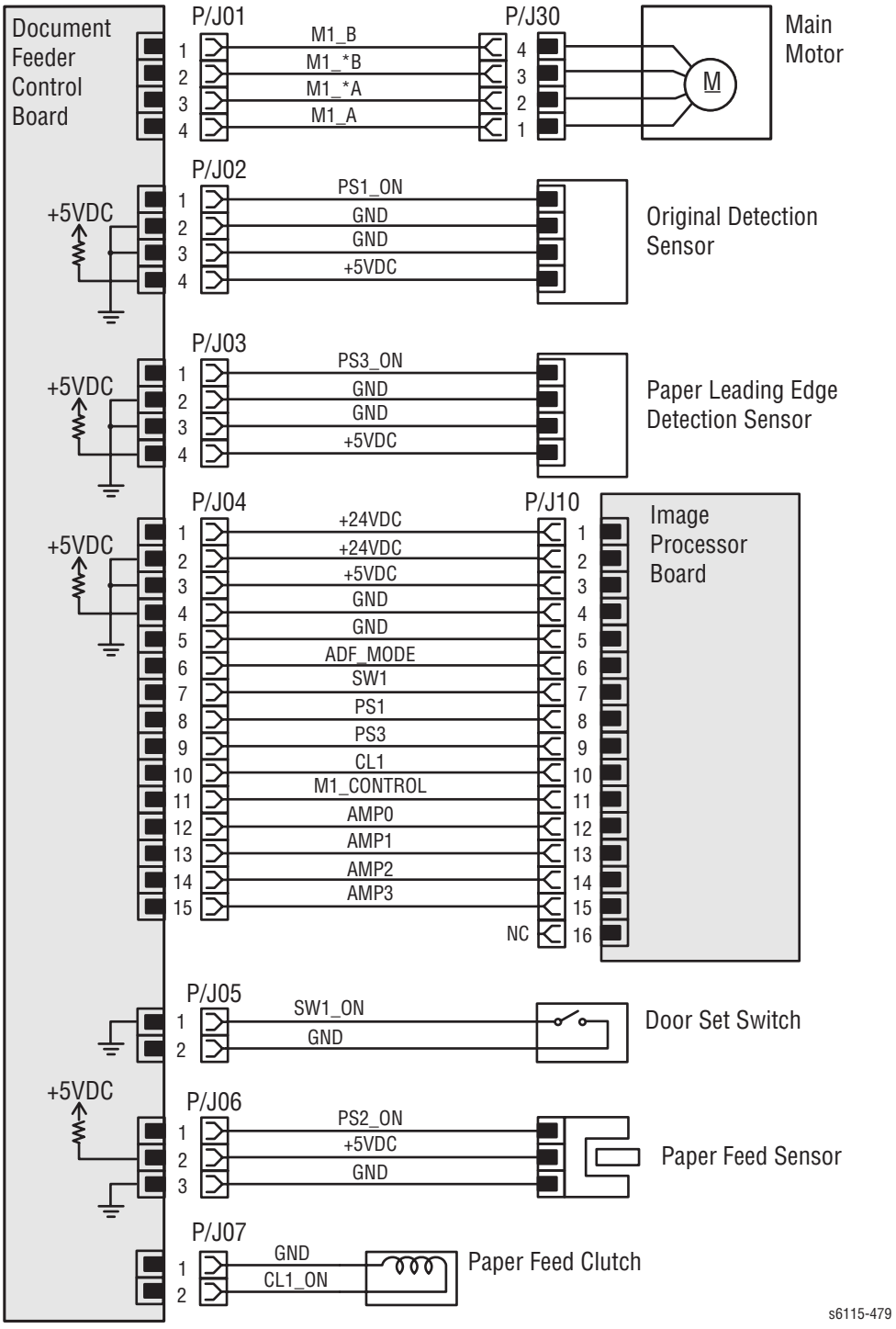
## Image Processor Board to Laser and Scanner Wiring



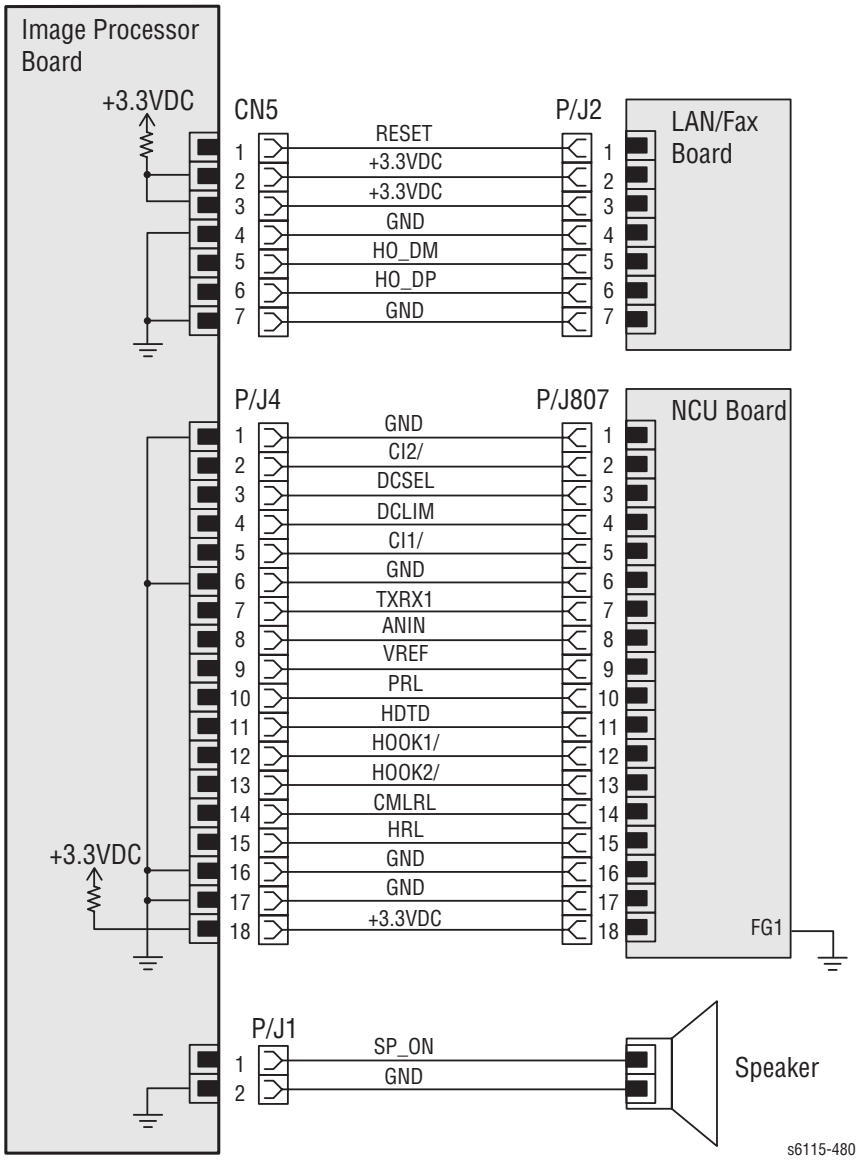
## Image Processor Board to Scanner and Control Panel Wiring



## Document Feeder Control Board to Optional Feeder Tray Wiring

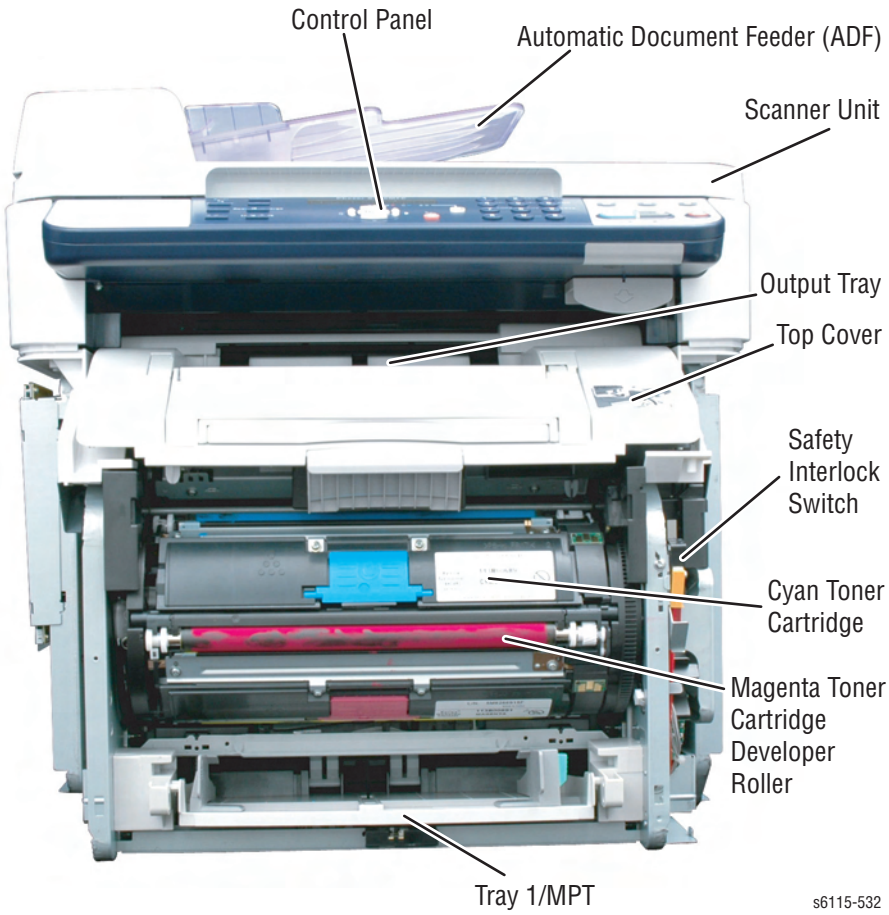


## Image Processor Board to LAN and NCU Board Wiring

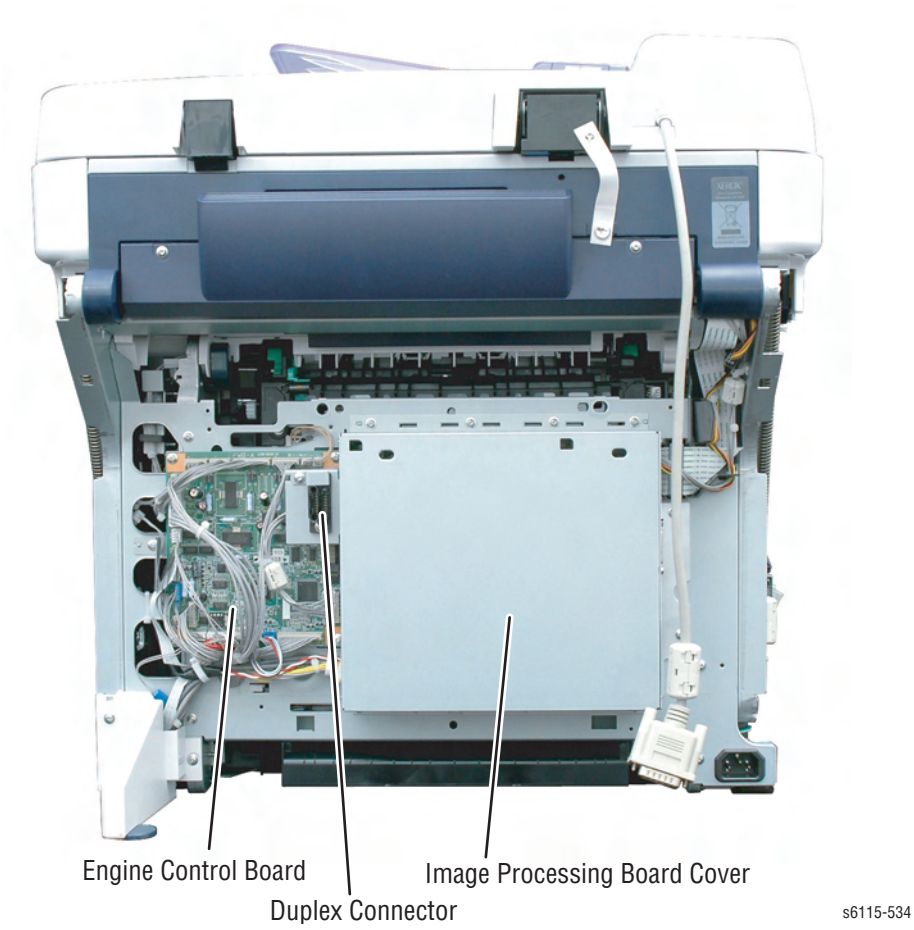


# Service Wiring Views

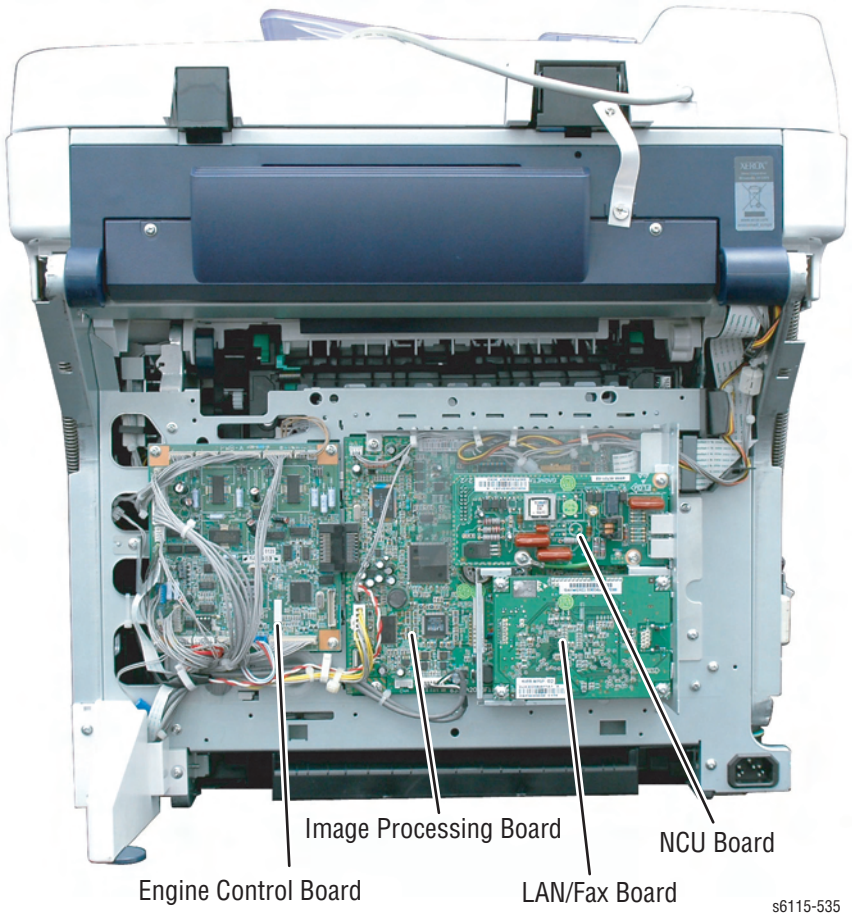
## Front View: Covers Removed



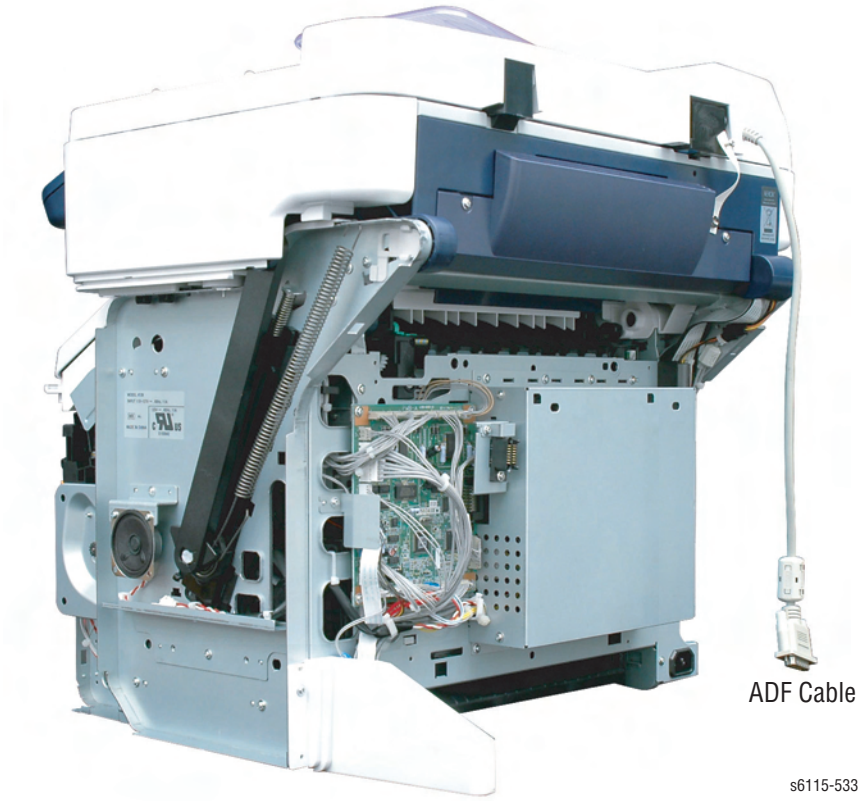
## Rear View: Covers Removed



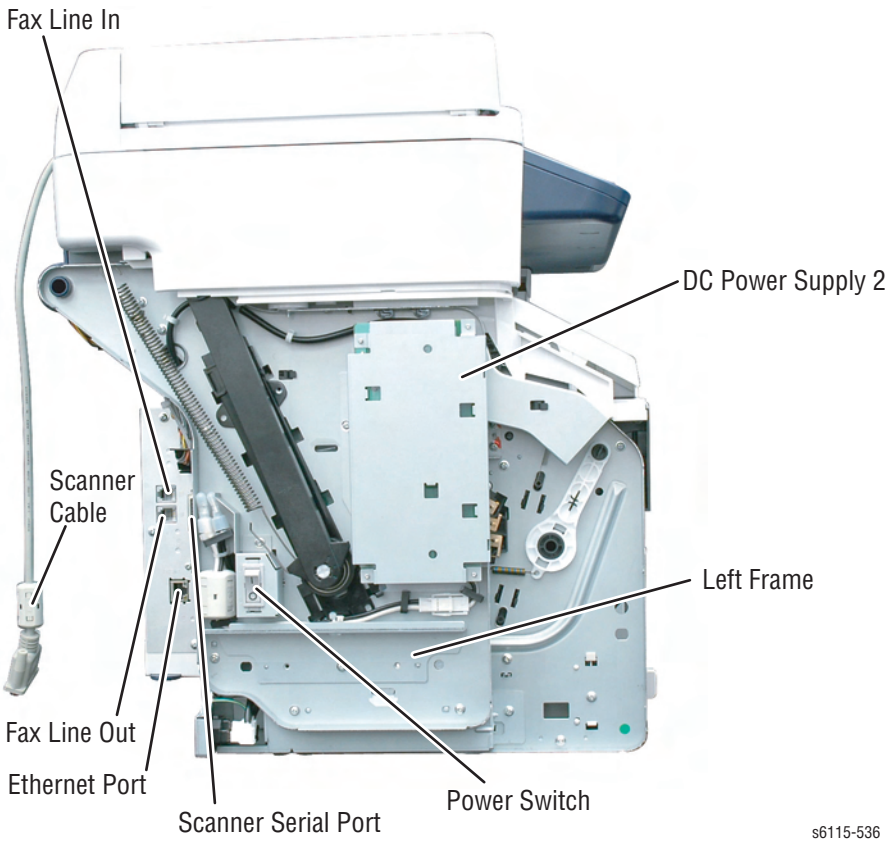
## Rear View: Image Processor Board Cover Removed



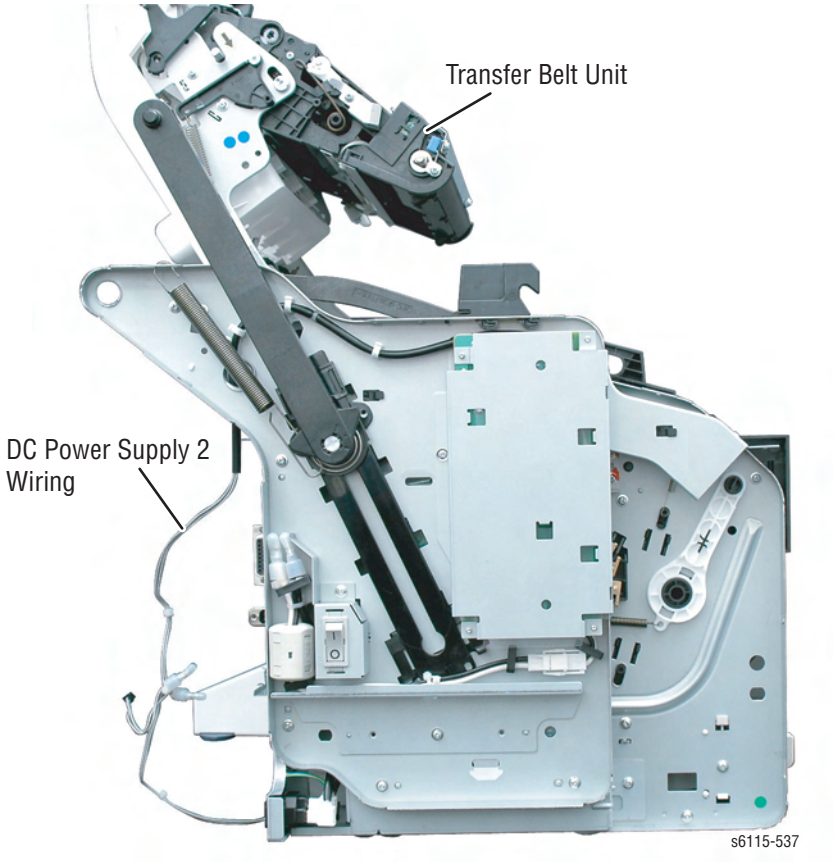
## Right Rear View: Covers Removed



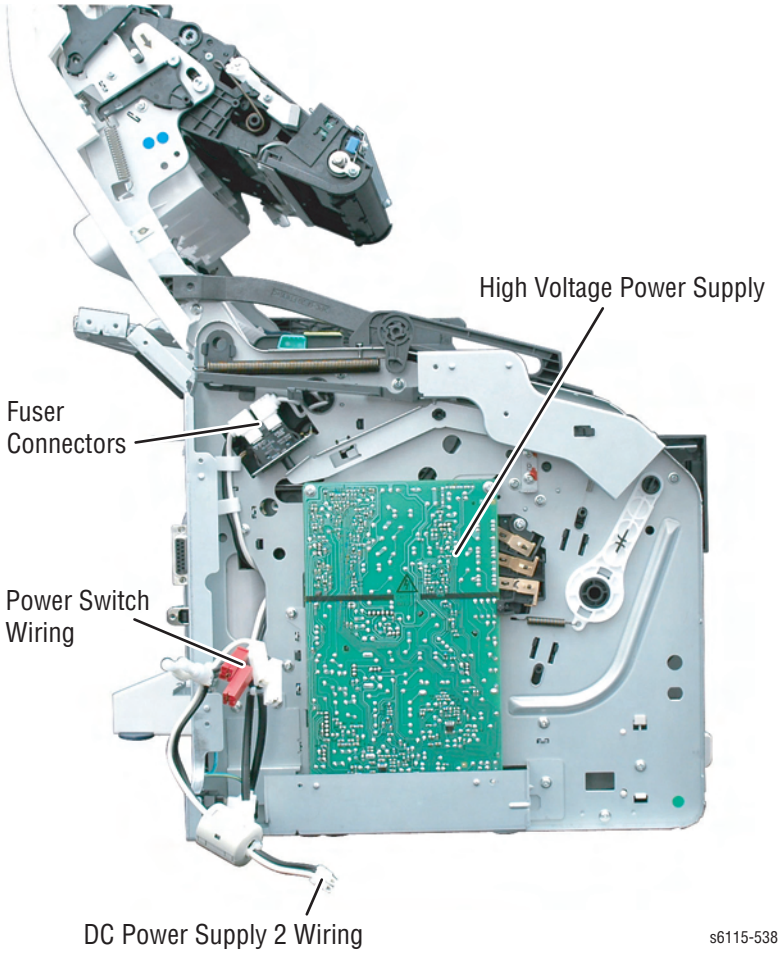
## Left Side View: Covers Removed



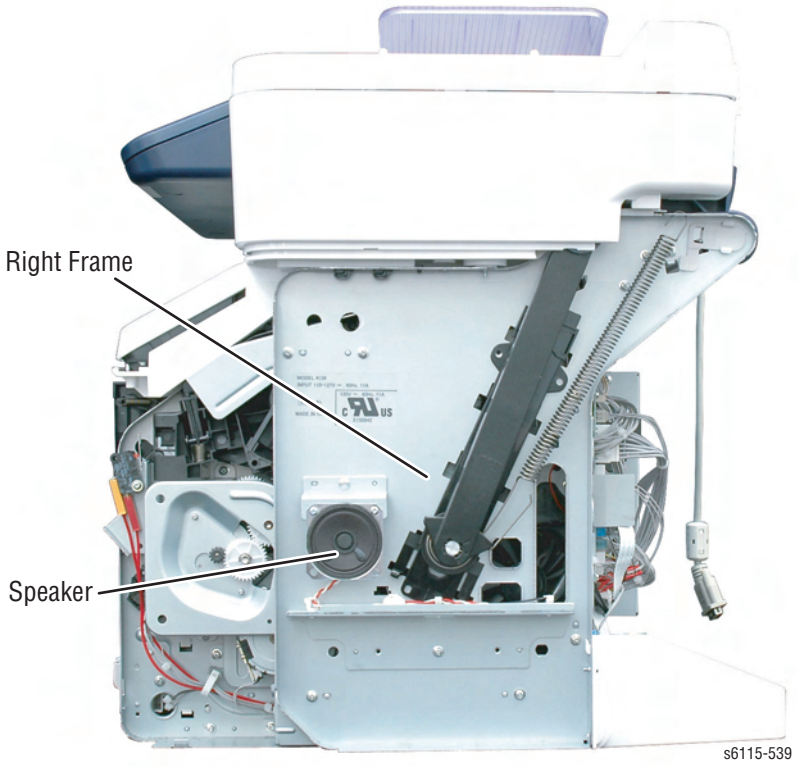
## Left Side View: Scanner Removed



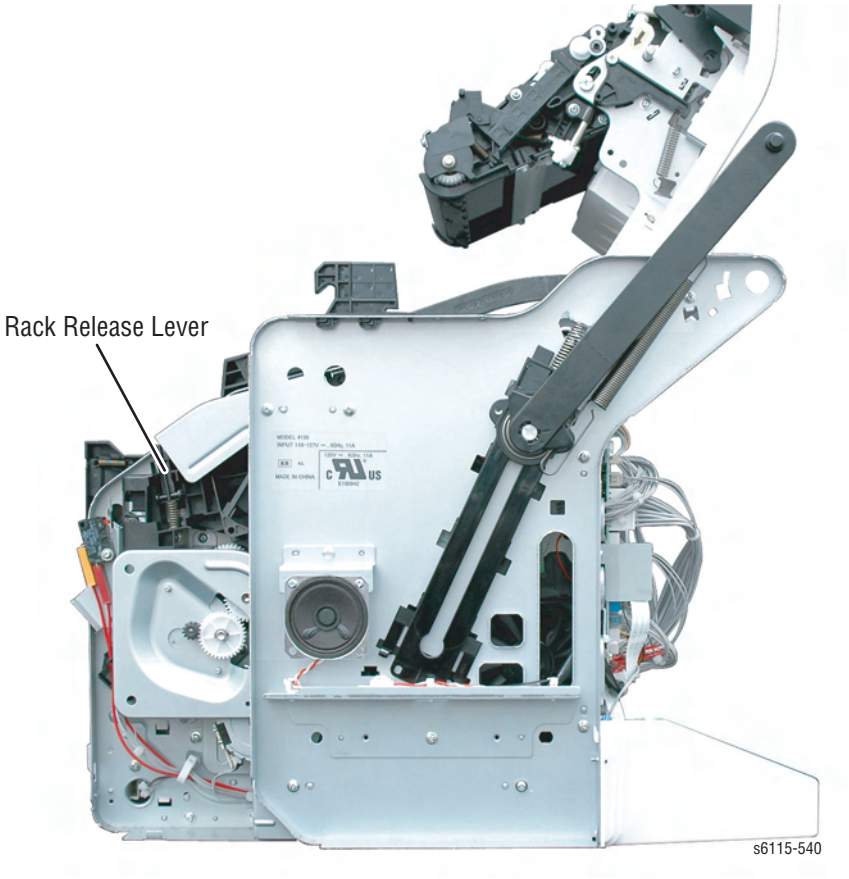
## Left Side View: Left Frame Removed



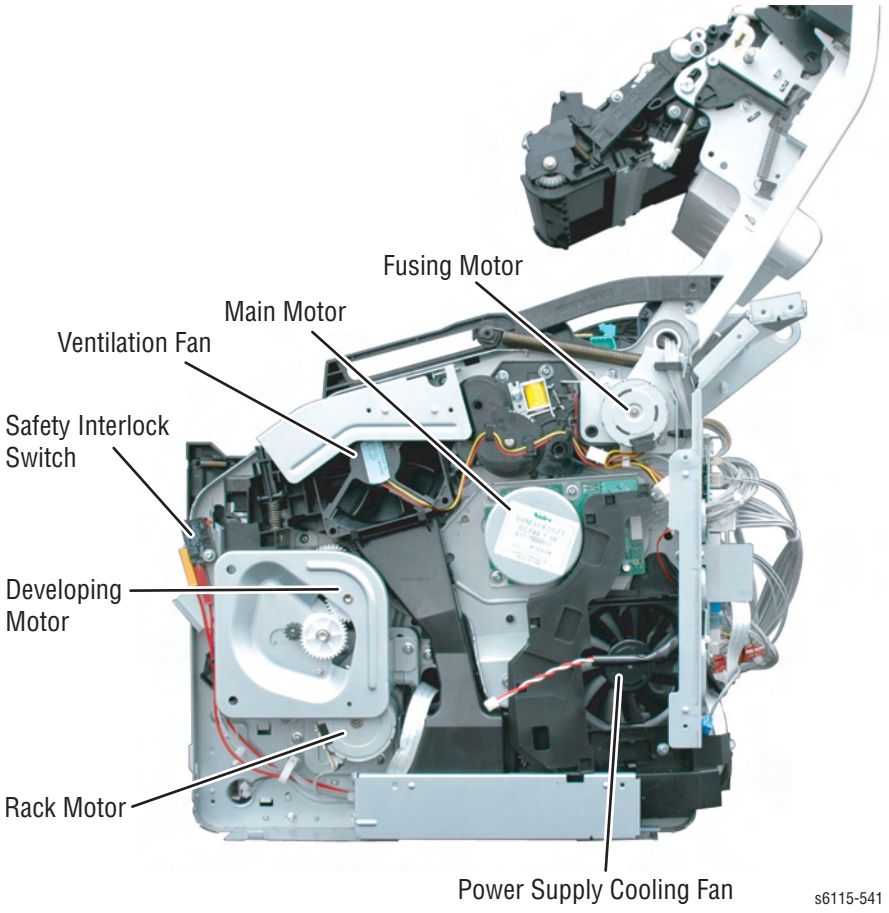
## Right Side View: Covers Removed



## Right Side View: Scanner Removed



## Right Side View: Right Frame Removed



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