THE DOCUMENT COMPANY
XEROX®

Phaser™ 4400
Laser Printer

# Service Manual

# PHASER™ 4400
# LASER PRINTER

# Service Manual

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

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# Service Terms

## Manual Terms

Various terms are used throughout this manual to either provide additional information on a specific topic or to warn of possible danger that might be present during a procedure or action. Be aware of all symbols and terms when they are used, and always read **NOTE**, **CAUTION** and **WARNING** messages.

***Note:*** ***A NOTE may indicate an operating or maintenance procedure, practice or condition that is necessary to efficiently accomplish a task.***
***A NOTE may also 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, could result in damage to, or destruction of, equipment.**

**Warning:** **A WARNING indicates an operating, or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.**

**PL:** Corresponds to the FRU Parts List.

**RRP:** Corresponds to the FRU Disassembly Removal and Replacement Procedures.

## 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

DANGER high voltage.

Protective ground (earth) symbol.

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

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

Avoid pinching fingers in the printer. Use caution to avoid personal injury.

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

# Power Safety Precautions

## Power source

For 110 VAC printers, do not apply more than 140 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord and connector. For 220 VAC printers, do not apply more than 264 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord. This manual assumes that the reader is a qualified service technician.

**Warning: Plug the three-wire power cord (with grounding prong) into a grounded AC outlet only. If necessary, contact a licensed electrician to install a properly grounded outlet. If the product loses its ground connection, contact with conductive parts may cause an electrical shock.**

## Disconnecting Power

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

Disconnect the power plug by pulling the plug, not the cord. Disconnect the power cord in the following cases:

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

# Electrostatic Discharge (ESD) Precautions

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

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

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

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

## Warning Labels

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

## Safety Interlocks

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

## CLASS 1 LASER PRODUCT

The Phaser 4400 laser printer is certified to comply with Laser Product Performance Standards set by the U.S. Department of Health and Human Services as a Class 1 Laser Product. This means that this is a class of laser product that does not emit hazardous laser radiation; this is possible only because the laser beam is totally enclosed during all modes of customer operation. When servicing the printer or laser unit, follow the procedures specified in this manual and there will be no hazards from the laser.

# Servicing Electrical Components

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

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

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

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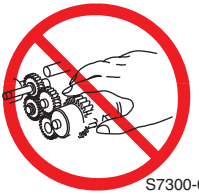
## Servicing Mechanical Components

Manually rotate drive assemblies to inspect drive gears.

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



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## Servicing Fuser Components

This printer uses heat to fuse the toner image to a sheet of paper. The Fuser Assembly is very hot. Turn the printer power OFF and wait at least 5 minutes for the Fuser to cool before you attempt to service the Fuser Assembly or adjacent components.

# Regulatory Specifications

## Federal Communications Commission Compliance

The equipment described in this manual generates and uses radio frequency energy. If it is not installed properly in strict accordance with Xerox instructions, it may cause interference with radio and television reception or may not function properly due to interference from another device. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Changes or modifications not expressly approved by Xerox can affect the emission and immunity compliance and could void the user's authority to operate this product. To ensure compliance, use shielded interface cables. A shielded parallel cable can be purchased directly from Xerox at www.xerox.com/officeprinting/6200supplies.

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

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

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications, ICES-003.

Le présent appareil numérique n'émet pas de bruits radioélectrique dépassant les limits applicables aux appareils numériques de la classe B prescrites dans le Réglement sur le brouillage radioélectrique édicté par le ministere des Communications du Canada, NMB-003.

## Declaration of Conformity

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

## In the European Union

following the provisions of the Low Voltage Directive 73/23/EEC and its amendments:

| | |
|---|---|
| EN 60950 (IEC 950) | “Safety of Information Technology Equipment including Electrical Business Equipment” |

following the provisions of the Electromagnetic Compatibility Directive 89/336/EEC and its amendments:

| | |
|---|---|
| EN55022:1998<br>(CISPR 22) | “Limits and Methods of measurement of radio interference characteristics of Information Technology Equipment.” Class B. |
| EN61000-3-2:1995<br>+A1:1998+A2:1998.<br>(IEC61000-3-2) | “Part 3: Limits - Section 2: Limits for harmonic current emissions (equipment input current less than or equal to 16A per phase).” |
| EN61000-3-3:1995<br>(IEC61000-3-3) | “Part 3: Limits - Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current less than or equal to 16A.” |
| EN55024:1998<br>(CISPR 24) | “Information technology equipment - Immunity characteristics - Limits and methods of measurement. “ |

| **CISPR 24 Immunity Phenomena** | **Basic Standard** | **Test Specification** |
|---|---|---|
| Electrostatic Discharge | IEC61000-4-2:1995 | 6kV Contact, 10kV Air |
| Radio-Frequency Electromagnetic Field (radiated) | IEC61000-4-3:1995 | 80-1000 MHz, 3V/m, 80% AM @ 1KHz |
| Fast Burst Transients | IEC61000-4-4:1995 | 5/50 Tr/Th ns, 5kHz Rep. Freq<br>0.5kV on Signal Lines<br>1kV on AC Mains |
| Line Surge | IEC61000-4-5:1995 | Combination wave<br>2.0kV Common mode<br>2.0kV Differential mode |
| Radio-Frequency Electromagnetic Field (Conducted) | IEC61000-4-6:1996 | 0.15 - 80 MHz, 3V, 80% AM @ 1kHz |
| Line voltage dips | IEC61000-4-11:1994 | >95% dip for ½ cycle @ 50 Hz<br>30% dip for 25 cycles @ 50 Hz |
| Line voltage drop-out | IEC61000-4-11:1994 | >95% dropout for 250 cycles @ 50 Hz |

This product, if used properly in accordance with the user's instructions is neither dangerous for the consumer nor for the environment. A signed copy of the Declaration of Conformity for this product can be obtained from Xerox.

# Safety Standards

Phaser 4400 satisfies the following safety standards:

| Category | Standard Satisfied |
|---|---|
| Laser Safety | 100 V/120 V type is submitted to FDA 21 CFR (Chapter 1, Subchapter J, Section 1010/1040).<br>220 V/240 V type is submitted to IEC 825 Class 1 Laser Product. |
| Ozone Density | Does not exceed 0.02 ppm of ozone density TWA (Time Weight Average), measured according to ECMA 129 standard |
| Other standards | 100 V/120 V type satisfies:<br>UL 1950 3rd Edition, CSA C22.2 no. 950-M95 or equivalent, NOM<br>200 V/220 V satisfies:<br>IEC 950 including amendments 1,2,3 and 4, CE Directive 1, Nordic and other Agency Approval 2, CCIB<br>Notes:<br>1. When the controller is installed, the OEM customer shall be responsible for the submittal of CE and CCIB.<br>2. The OEM customer shall be responsible for the Nordic agency approvals including NEMKO, SEMKO, SETI and DEMKO. |

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# General Information

The Xerox Phaser™ 4400 Laser Printer Service Manual is the primary document used for repairing, maintaining and troubleshooting.

To ensure complete understanding of the product, participation in Xerox Phaser 4400 Service Training is recommended.

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# Phaser 4400 Laser Printer Overview

The Phaser 4400 Laser Printer combines a monochrome print engine with an image processor supporting PostScript 3 and PCL5e/6. The Phaser 4400 is a high performance, 26 ppm desktop laser printer with a resolution up to 1200 x 1200 dpi.

## Configurations

The Phaser 4400 is available in four configurations. A replaceable "Configuration Upgrade Chip" holds configuration information that enables or disables built-in features as described here.

**Phaser 4400B** The Phaser 4400B is the base configuration laser printer. The printer comes standard with 32 Mbytes of memory, 600 x 600 dpi resolution, USB and Parallel support, a built in Multi-Purpose Tray, and a 550-sheet universal paper tray.

*Note:* ***The Phaser 4400B reports 32 Mbytes of memory even though it has a 64-Mbyte DIMM installed. In order to get the full 64 Mbytes of memory to be reported as well as activate other features, users need to upgrade to the N-configuration with a Configuration Upgrade Kit, part number 098S04703.***

**Phaser 4400N** The Phaser 4400N is the networking configuration. This configuration includes all the features of the 4400B, but comes with 64 Mbytes of memory, built-in 10/100 Ethernet networking capabilities, and a resolution up to 1200 x 1200 dpi.

**Phaser 4400DT** The Phaser 4400DT includes all the features of the 4400N but comes standard with built in auto-duplexing, and one added 550-sheet feeder.

**Phaser 4400DX**The Phaser 4400DX includes all the features of the 4400DT, along with a 20-Gbyte hard drive and a Stacker with offset.

### Page Description Languages (PDL)

- PCL5e/6
- Adobe PostScript 3
- PDF

### Resident Fonts

- 39 PostScript Roman fonts available on all models, plus an additional 97 Roman fonts available with the optional Hard Drive.
- 81 PCL fonts (more fonts are available with the optional internal Hard Drive.)

# Printer Memory Configuration

The printer features two slots which accept 32-, 64-, and 128-Mbyte SDRAM DIMMs. All combinations except 32 Mbytes alone are allowed to a maximum of 256 Mbytes.

The Phaser 4400B reports 32 Mbytes of memory, even though it has a 64-Mbyte DIMM installed. In order to get the full 64 Mbytes of memory to be reported as well as activate other features, users must upgrade to the N-model with a Configuration Upgrade Kit, part number 098S04703.

The Startup page and the Configuration pages list the amount of RAM installed in the printer.

If the memory does not meet the following specifications, it is ignored by the printer.

- PC133 DRAM Standard
- 144-Pin SODIMM
- Serial Presence Detect
- 3.3 Volt

# Monitoring Consumables

The status of printer consumables is available through the Supplies Info Menu.

| Replaceable Items | Print Life | |
|---|---|---|
| Print Cartridge (rated at 5% image coverage of letter-size paper) | High-Capacity | 15,000<br>Toner wt. 620 g (1.36 lbs.) |
| | Standard-Capacity | 10,000<br>Toner wt. 420 g. (.9 lbs.) |
| Maintenance Kit (includes Fuser, Transfer Roller, and nine rollers for Feed, Retard, and Nudger Roller assemblies). | up to 200,000 | |

# Repackaging Information

If the printer must be returned to Xerox and the customer has not saved the shipping box and all internal packaging, a repackaging kit is available for order from the local Customer Support Center.

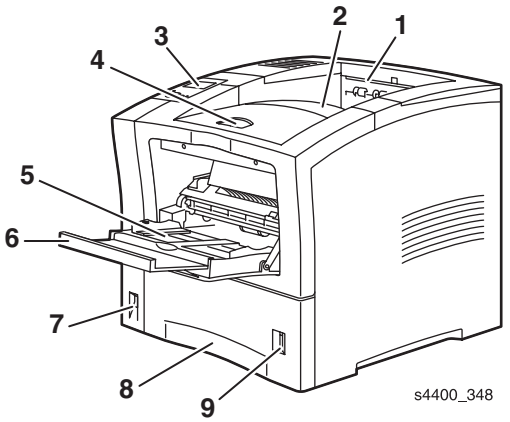
Repackaging Kit: part number 065-0606-00

# Parts of the Printer

The parts of the printer are covered here in three groups:

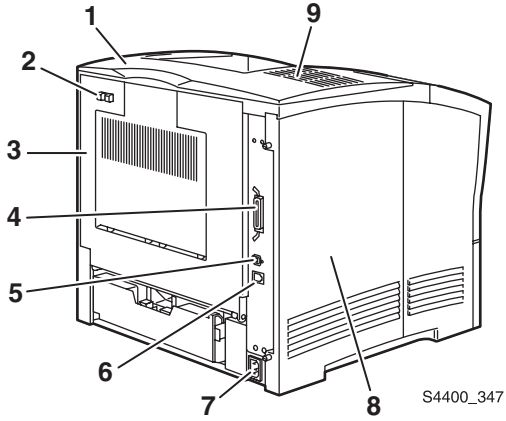
- Base configuration components
- Internal components
- Printer options

## Base Configuration Components




**Front view of base configuration**

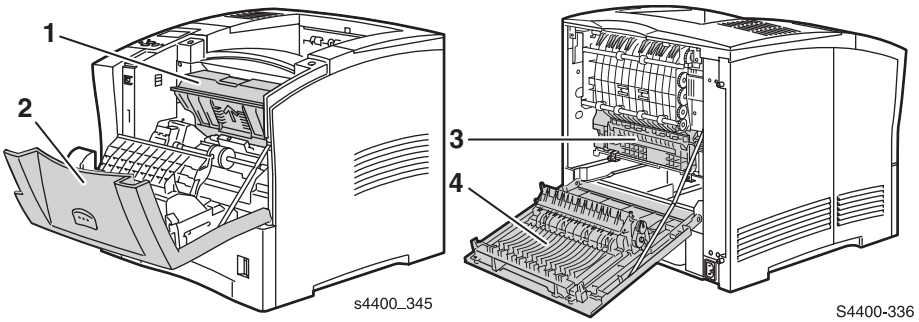
| No. | Description |
|---|---|
| **1.** | Paper exit slot |
| **2.** | Standard Output Tray |
| **3.** | Front panel |
| **4.** | Front cover (shown closed) |
| **5.** | Multi-Purpose Tray (MPT) |
| **6.** | Multi-Purpose Tray extension |
| **7.** | Power switch |
| **8.** | Tray 1 |
| **9.** | Paper level gauge |




**Rear view of base configuration**

| No. | Description |
|---|---|
| **1.** | Option Cover |
| **2.** | Rear cover release |
| **3.** | Rear cover (shown closed) |
| **4.** | Parallel connector |
| **5.** | USB connector |
| **6.** | Ethernet connector |
| **7.** | Power cord receptacle |
| **8.** | Left cover |
| **9.** | Ventilation slots |

# Internal Components



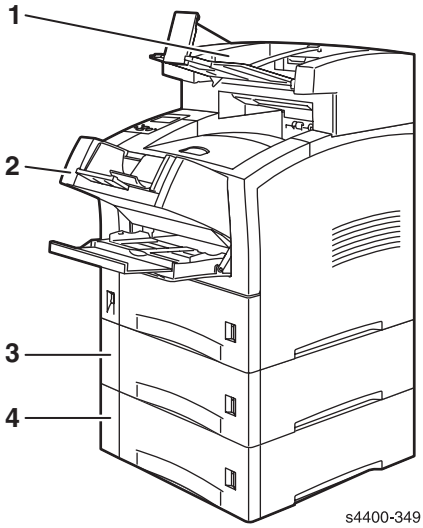

**Front and rear views with covers open**

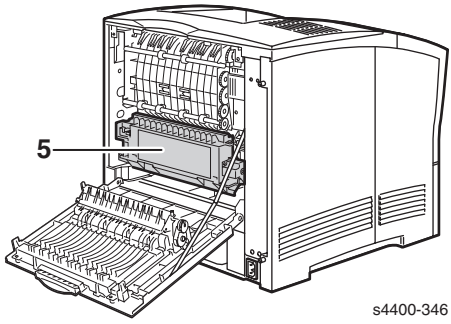
| No. | Description |
|---|---|
| 1. | Print Cartridge |
| 2. | Front cover (shown open) |
| 3. | Fuser |
| 4. | Rear door (shown open) |

# Printer Options

The following customer-installed options are available for the Phaser 4400 printer.

| Option | Customer Order Number | Description |
|---|---|---|
| 32-Mbyte DIMM | 97S02923 | 32-Mbyte Memory |
| 64-Mbyte DIMM | 97S02912 | 64-Mbyte Memory |
| 128-Mbyte DIMM | 97S02913 | 128-Mbyte Memory |
| 16-Mbyte Flash DIMM | 97S02914 | 16-Mbyte Flash ROM for storage of fonts, forms, etc. |
| 4400 Network Upgrade Kit | 98S04703 | Configuration Upgrade Chip upgrades a Base printer to a Network printer. |
| 20+ Gbyte Hard Drive | 97S02917 | Adds hard disk capability to the printer:<br>■ Stores fonts, forms, etc.<br>■ Enables collation, proof, secure and save jobs.<br>■ Provides user documentation, setup and care videos, and printer drivers. |
| 550-Sheet Feeder | 97S02878 | Provides 550-sheet additional input capacity when used in conjunction with the 550-sheet Paper Tray.<br>You can install one or two 550-Sheet Feeders. |
| 550-Sheet Paper Tray | 109R00448 | Used with the 550-Sheet Feeder. The Tray holds 550 sheets of paper. |
| Duplex Unit | 97S02880 | Provides duplex (two sided) printing capability. |
| Stacker | 97S02881 | Adds 500 sheet output capacity with offset capability. |
| Envelope Feeder | 97S02879 | Provides dedicated envelope feed. |




**Printer options**

| No. | Description |
|---|---|
| **1.** | 500-Sheet Stacker |
| **2.** | Envelope feeder |
| **3.** | 550-sheet feeder with tray 2 |
| **4.** | 550-sheet feeder with tray 3 |
| **5.** | Automatic duplex unit |

# Front Panel Configuration

The Front Panel consists of one tricolor LED, a display window and six functional keys. These keys navigate the menu system, perform functions and select modes of operation for the printer.

The LED (light emitting diode) above the Graphics Display can be green, yellow or red, and can be off, blinking or steady.

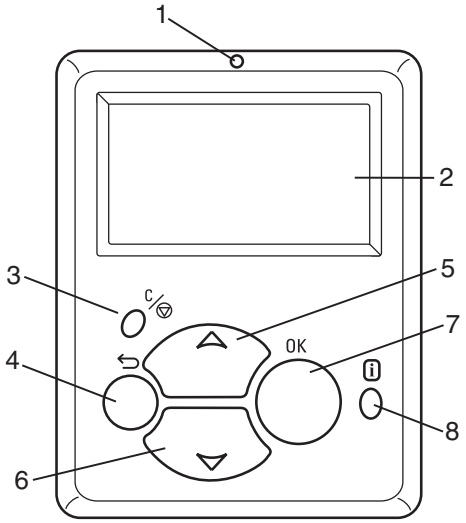
## LED indications:

**Green** — Ready to Print

**Flashing Green** — Receiving, Processing Data or Printing

**Flashing Yellow** — Warning

**Flashing Red** — Error (blinks in unison with Image Processor Health LED)

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**Phaser 4400 Front Panel Configuration**

**Front Panel Key Descriptions**

| | | | |
|---|---|---|---|
| **1** | Status LED | **5** | Up Arrow Key - scrolls up the menu system |
| **2** | Graphic front panel display | **6** | Down Arrow Key - scrolls down the menu system |
| **3** | Cancel Key | **7** | OK (select) Key |
| **4** | Back Key | **8** | INFO Key - for additional explanation or help |

**Front Panel Shortcuts**

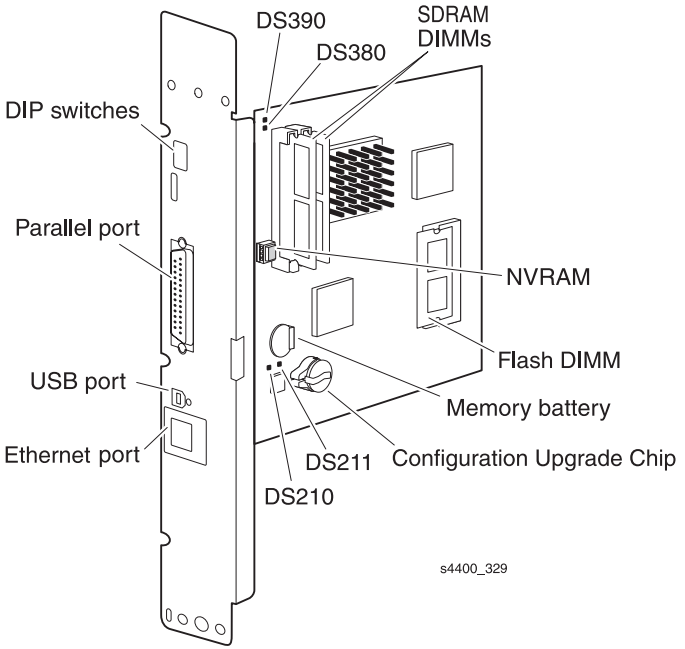
| Mode | Press this selection at power-on |
|---|---|
| Skip execution of POST diagnostics | **OK** |
| Print Service Menu Map | **INFO** |
| Reset PostScript NVRAM | **BACK+OK**<br>**When "Password" appears, press UP + DOWN keys within 2 seconds** |
| Enter Service Diagnostics | **BACK+INFO** |

# Image Processor Board

The following components must be transferred from the old board when installing a new Image Processor Board in the printer:

- SDRAM DIMMs (Slot 1 on the left, slot 2 on the right)
- NVRAM
- Configuration Upgrade Chip
- Flash DIMM

See RRP 9.2 Image Processor Board on page 6-88 for information on replacing the Image Processor Board.




Inside the printer on the Image Processor board are four LEDs shown in the figure.

**DS210** illuminates when the e-net rate is set to 10 Mbits/sec (off indicates 100 Mbits/sec).

**DS211** illuminates when a link is established.

**DS380** is the HEALTH LED. The CPU flashes this LED to indicate that it is “alive”, or in the case of a failure, the CPU flashes this LED (and the Front Panel LED, also) with a code to help diagnose the problem.

**DS390** is the CHECK STOP indicator, which illuminates when various fatal errors occur in the CPU.

## Rear Panel Configuration Interfaces

- IEEE 1284 parallel
- Ethernet 10/100BaseTx
- USB

On the Ethernet port, the green LED is a RECEIVE DATA indicator and the yellow LED is a TRANSMIT DATA indicator.

## Rear Panel DIP Switch Settings

***Note:*** ***The DIP switch setting information presented here is meant to provide a means of returning to as-shipped status in case the switches have been inadvertently changed. Except in extreme circumstances, the DIP switches should be left in the Normal operating mode.***

The DIP switches are defined as follows:

- Switches 1-2 select the modes of operation, as follows:

**DIP Switch Settings**

| Mode of Operation | SW1 | SW2 | SW3 | SW4 |
|---|---|---|---|---|
| Normal (or Customer) | Open | Open | Open | Open |
| Manufacturing | Open | Closed | Open | Open |
| Developer (no POST) | Closed | Closed | Open | Open |
| Disaster Recovery (vxWorks only) | Closed | Open | Open | Open |

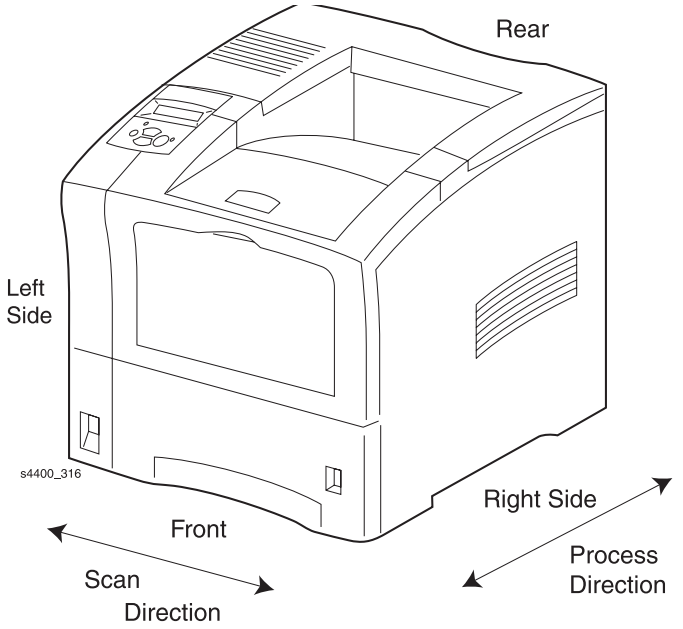
- Switch 3 selects whether the rear panel serial port presents PostScript or vxWorks backchannel messages. OPEN presents PostScript; Closed presents vxWorks.
- Switch 4 is an IP board Reset switch (normally OPEN).

## Processor Information

The processor used on the Image Processor board is a 266 MHz PowerPC processor.

# Machine Orientation

For servicing the Phaser 4400 Laser Printer, all references to machine orientation are as illustrated below.

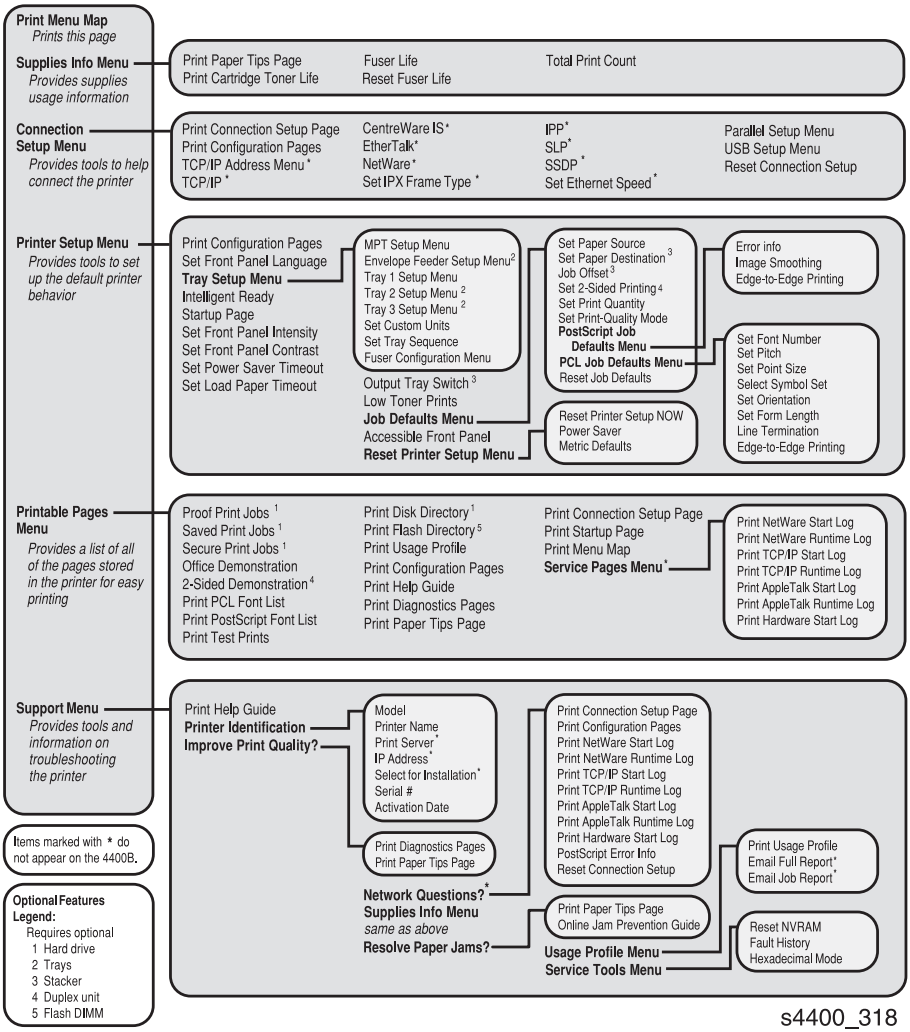



**Machine Orientation**

# Menu Map

The menu map shown here lists the choices available when you select **Menus**, and is printed when you select **Print Menu Map** from the top level of Menus. The order of menus, items, and values found in the Menu Map is the order in which the menus, items, and values are displayed when scrolling through the menu items.

Menus and items in this map marked with a numbered footnote do not appear on the front panel display unless the associated option is installed in the printer. Items in this map marked with an asterisk (*) do not appear on the base configuration 4400B.



# Printer Specifications

## Physical Specifications

**Physical Dimensions - Printer**

| Dimensions | Value |
|---|---|
| Size and weight (not including the Print Cartridge, Image Processor Board or any options) | Width: 422 mm x Depth 439 mm x Height 413 mm (16.5 in. x 17.25 in. x 16.25 in.)<br>Weight: 25 Kg (55 lbs.)<br>Packaged Weight: 32.7 kg (72 lbs.) |

**Printer clearances**

| Clearances | Value |
|---|---|
| Top (to closest overhead object): | With Stacker 102 mm (4.0")<br>Without Stacker 292 mm (11.5") |
| Left: | Minimum 12” or 300 mm |
| Right: | 300 mm (12 in.) |
| Front: | Minimum 600 mm (24 in.) |
| Rear: | Minimum 600 mm (24 in.) |
| Mounting surface flatness: | Horizontal bias within 5° of level |

## Media and Tray Specifications

Refer to the “Paper Tips” pages shown beginning on page 1-15. You can print the Paper Tips pages from the Front Panel by selecting **`Menus | Supplies Info Menu | Print Paper Tips Page`**.

The following table lists the total paper capacities available with the three paper deck combinations:

### Maximum Paper Stack Capacity

| Combination | MBF (standard) | 1st deck (standard) | 2nd deck (option) | 3rd deck (option) | Total Capacity |
|---|---|---|---|---|---|
| 1 | 100 sheets | 550 sheets | — | — | 650 sheets |
| 2 | 100 sheets | 550 sheets | 550 sheets | — | 1200 sheets |
| 3 | 100 sheets | 550 sheets | 550 sheets | 550 sheets | 1750 sheets |

***Note:*** ***Paper stack capacity applies to baseline paper: Xerox 4200/4024 20 lb. Letter and RX 80 A4 (3R91720).***

The Paper Tips Pages shown here list the supported paper and paper sizes, and provide the paper specifications for the printer.

Refer to the following tables to ensure the best print-quality and to avoid paper jams. For best results, use Xerox-branded paper as it is guaranteed to produce excellent results on your Xerox Phaser™ 4400 Laser Printer. Print-quality and paper handling performance may vary depending on vendor and type of paper used.

**Note:** If you change the type of paper or transparencies, you **must** specify the type on the front panel of the printer. For the Multi-Purpose Tray or envelope feeder only: if you change the size of paper, also specify the size on the front panel.

## Supported paper and paper sizes

| | Input | | | Output | |
|---|---|---|---|---|---|
| **Paper Type** | **550-Sheet Tray** | **Multi-Purpose Tray** | **Envelope Feeder** | **Standard Tray** | **500-Sheet Stacker** |
| **A4** (210 x 297 mm) | ● | ● | --- | ● | ● |
| **A5** (148 x 210 mm) | ●(1) | ●(1) | --- | ● | ● |
| **A6** (105 x 148 mm) | custom(1) | ●(1) | ●(1) | ● | ● |
| **ISO B5** (176 x 250 mm) | custom(1) | ●(1) | --- | ● | ● |
| **B5 JIS** (182 x 257 mm) | ● | ● | --- | ● | ● |
| **Index Card** (3 x 5 in.) | --- | ●(1) | --- | ● | --- |
| **Statement** (5.5 x 8.5 in.) | custom(1) | ●(1) | --- | ● | ● |
| **Executive** (7.25 x 10.5 in.) | ● | ● | --- | ● | ● |
| **Letter** (8.5 x 11 in.) | ● | ● | --- | ● | ● |
| **US Folio** (8.5 x 13 in.) | ● | ● | --- | ● | ● |
| **Legal** (8.5 x 14 in.) | ● | ● | --- | ● | ● |
| **Envelopes** | | | | | |
| #10 Commercial (4.12 x 9.5 in.) | custom(1) | ●(1) | ●(1) | ● | ● |
| Monarch (3.87 x 7.5 in.) | custom(1) | ●(1) | ●(1) | ● | ● |
| DL (110 x 220 mm) | custom(1) | ●(1) | ●(1) | ● | ● |
| C5 (162 x 229 mm) | custom(1) | ●(1) | ●(1) | ● | ● |
| B5 (176 x 250 mm) | custom(1) | ●(1) | custom(1) | ● | ● |
| **Transparencies** | | | | | |
| A4 (210 x 297 mm) | ●(1) | ●(1) | --- | ● | ● |
| Letter (8.5 x 11 in.) | ●(1) | ●(1) | --- | ● | ● |
| **Labels** | | | | | |
| A4 (210 x 297 mm) | ●(1) | ●(1) | --- | ● | ● |
| Letter (8.5 x 11 in.) | ●(1) | ●(1) | --- | ● | ● |
| **Capacity(2)** | **550** | **100** | **75** | **500** | **500** |

● = Short-edge feed (1) Simplex (one-sided) printing only. (2) Maximum capacity at 75 g/m$^2$ (20 lb.) paper stock. Capacity is reduced for heavier/thicker stock.

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**Paper Tips Page 1 of 3**

## Custom paper sizes

| | Input | | | Output | |
|---|---|---|---|---|---|
| | 550-Sheet Tray | Multi-Purpose Tray | Envelope Feeder | Standard Tray | 500-Sheet Stacker |
| **Simplex** (one-sided) | | | | | |
| Width | 98 - 216 mm<br>3.87 - 8.5 in. | 76 - 216 mm<br>3.0 - 8.5 in. | 98 - 178 mm<br>3.87 - 7.0 in. | 76 - 216 mm<br>3.0 - 8.5 in. | 98 - 216 mm<br>3.87 - 8.5 in. |
| Length | 148 - 356 mm<br>5.83 - 14.0 in. | 127 - 356 mm<br>5.0 - 14.0 in. | 148 - 254 mm<br>5.83 - 10.0 in. | 127 - 356 mm<br>5.0 - 14.0 in. | 148 - 356 mm<br>5.83 - 14.0 in. |
| **Duplex** (two-sided) | | | | | |
| Width | 182 - 216 mm<br>7.16 - 8.5 in. | 182 - 216 mm<br>7.16 - 8.5 in. | --- | Same as Input | |
| Length | 257 - 356 mm<br>10.12 - 14.0 in. | 257 - 356 mm<br>10.12 - 14.0 in. | --- | Same as Input | |

## Paper weights

The Phaser™ 4400 Laser Printer supports paper weights as follows:

- 16 - 130 lbs. (60 - 216 g/m$^2$) simplex/one-sided
- 16 - 28 lbs. (60 - 105 g/m$^2$) duplex/two-sided

**Plain Paper:** (60 - 120 g/m$^2$) (16 - 32 lb.)

**Card Stock:** (120 - 216 g/m$^2$) (32 - 130 lb.)

## Paper tips

- If excessive jams occur, flip the paper in the tray or install fresh paper from a newly opened ream.
- Transparencies should be fanned prior to loading.
- Other size envelopes may be printed as custom paper sizes.
- Use only paper envelopes. Do not use envelopes with windows or metal clasps.
- Label media should be fanned prior to loading.
- Do not print to label stock once a label has been removed.

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**Paper Tips Page 2 of 3**

## Ordering supplies

See **www.xerox.com/officeprinting/4400supplies** for information on ordering supplies.

### Xerox Branded Paper

| Item | Paper Size | Part Number |
|---|---|---|
| **Plain Paper** | | |
| Xerox Premier 80 | A4 (210 x 297 mm) | 3R91720 |
| Xerox Premier 80 | A5 (148 x 210 mm) | 3R91832 |
| Xerox 4024 DP statement | Statement (5.5 x 8.5 in.) | 3R2072 |
| Xerox 4024 DP | Letter (8.5 x 11 in.) | 3R721 |
| Xerox 4024 DP folio | Folio (8.5 x 13 in.) | 3R725 |
| Xerox 4024 DP legal | Legal (8.5 x 14 in.) | 3R727 |
| **Transparencies** | | |
| Xerox 3M Type L transparencies | A4 (210 x 297 mm) | 3R91334 |
| Xerox Clear transparencies | Letter (8.5 x 11 in.) | 3R4446 |
| **Labels** | | |
| Xerox A4 24-up label | A4 (210 x 297 mm) | 3R96178 |
| Xerox Multi-purpose 30-up label | Letter (8.5 x 11 in.) | 3R12051 |

### Replaceable Items

| Item | Part Number |
|---|---|
| Standard-Capacity Print Cartridge | 113R00627 |
| High-Capacity Print Cartridge | 113R00628 |
| Maintenance Kit<br>Contains: a Fuser Cartridge, 1 Transfer Roll, and 9 Feed Rollers. | 108R00497 for 110 V (60 Hz)<br>108R00498 for 220 V (50 Hz) |

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**Paper Tips Page 3 of 3**

# Functional Specifications

| Characteristic | Specification |
|---|---|
| Printing process | **Recording System** - Electro-photographic system (roller charging, single component magnetic toner development)<br>**Exposure System** - Infrared Laser Diode Beam Scanning<br>Class 1 Laser Product<br>Class 3B Laser, rated at 5 mW output @ 780 nm<br>**Fusing System** - Heat and pressure |
| Resolution / Addressability | 600/1200 dots per inch (dpi), switchable at full engine speed. |
| Operating Modes | **Ready Mode:** Ready to receive data.<br>**Power Saver Mode:** entered after a user-specified period of Print Engine inactivity since completion of the last print to minimize energy consumption. |

**Continuous Operating Printing Speed**

| Paper Size | Fuser Setting Low | Medium | High | Extra High | Duplex (ipm) |
|---|---|---|---|---|---|
| Letter SEF | 18 | 26 | 22 | 8 | 19 |
| A4 SEF | 18 | 25 | 22 | 8 | 18 |
| Legal 14” SEF | 18 | 21.5 | 18 | 7.5 | 16 |
| Legal 13” SEF | 18 | 21.5 | 18 | 7.5 | 16 |
| Executive | 18 | 26 | 22 | 8 | 19 |
| B5 (JIS) SEF | 18 | 26 | 22 | 8 | 19 |

**Fuser Configuration Temperature**

| Low - Medium setting | High - Extra High setting |
|---|---|
| Range: 194-209°C/ 381-408°F | Range: 197-212°C/ 387-414°F |

**First Print Out (Engine speed only)**

| | Tray 1 (t sec) | | Tray 2 (sec) | | Tray 3 (sec) | | MPT (sec) | |
|---|---|---|---|---|---|---|---|---|
| Paper Size | Simp | Dup | Simp | Dup | Simp | Dup | Simp | Dup |
| Letter | 7.5 | 13.8/ 14.6 | 8.3 | 14.6/ 15.4 | 9.2 | 15.5/ 16.3 | 7.7 | 14.0/ 14.8 |
| A4 | 7.6 | 14.0/ 15.4 | 8.4 | 14.8/ 16.2 | 9.3 | 15.7/ 17.1 | 7.8 | 15.9/ 17.3 |

| | |
|---|---|
| Warm-up time | From a cold start (22° C / 71.6° F ambient temperature) to READY TO PRINT within 70 seconds. |

# Electrical Specifications

| Characteristic | Specification |
|---|---|
| Power supply | 120 VAC (98–140 VAC) 50/60 Hz (47 Hz – 63 Hz)<br>220/240 VAC (198–264 VAC) 50/60 Hz (47 Hz – 63 Hz) |
| Power consumption | Maximum - 600 Watts<br>Printing - 525 Watts/hour or 1792 Btus/hour<br>Standby - 110 Watts/hour or 375 Btus/hour<br>Power Saver - 20 Watts/hour or 68 Btus/hour<br><br>Note: No electrical power is supplied to the Fuser assembly in Power Saver Mode. |

# Environmental Specifications

| Characteristic | Specification |
|---|---|
| Operating environment | 5–35° C / 41–95° F @ 15% to 85% Relative Humidity (operating)<br>0 - 3100 meter (10171 ft.) above sea level |
| Storage environment with a packed Print Cartridge | Normal condition:12 months maximum at 0–35° C/32–95° F<br>@ 15–80% Relative Humidity with no condensation present<br>Severe condition: 1 month maximum at -20° to 0° C / -4° to 32° F or 35° to 40° C / 95 to104° F<br>@ 5–15 or 80–95% Relative Humidity with no condensation present |
| Storage environment without a packed Print Cartridge | Normal condition: 12 months maximum at -20 to -50° C / -4 to -58° F<br>@ 5-85% Relative Humidity with no condensation present<br>Severe condition: 48 hours maximum at 50–60° C / 122–140 ° F<br>@ 85-95% Relative Humidity with no condensation present |
| Heat Emission | Maximum - 2730 BTU; Average - 1603; 102 (sleep mode) |
| Acoustic Noise (MPT closed; options are Duplex Unit, two additional feeders, Envelope Feeder, Stacker) | Standby: 4.9 B (35.0 dB(A))<br>Power Saver: 0 dB above background noise<br>Printing (without options): 6.8 B (52.0 dB(A))<br>Printing (with options): 7.1 B (55.5 dB(A)) |
| Dust Emission | No more than 0.075 mg/m3 concentration. |
| Ozone Emission | No more than 0.02 mg/m3 concentration, measured in accordance with BAM Standard. |

# Error Messages and Codes

## Section Contents


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- Service Technician Cautionary Statements . . . . . 2-3
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# Introduction

This section covers troubleshooting procedures for the Phaser 4400 Laser Printer's front panel error messages. Only jams and fatal errors will produce an associated numeric code. Error messages and codes are usually specific, making it important that service personnel and users record errors exactly when reporting problems with the printer.

Any error code associated with an error message or jam can be viewed by pressing the **INFO** key. Jam error are displayed at the beginning of the info menu, while engine errors are display at the end.

Some procedures require running Service Diagnostics tests to verify a specific printer assembly is operating correctly. Refer to Service Diagnostics on page 2-7.

To troubleshoot problems not associated with a front panel error message or code such as ac power, or problems related to print-quality, refer to the section Troubleshooting on page 3-1.

# Service Flowchart

The Service Flowchart outlines one possible approach to troubleshooting and repair of the printer. The Service Flowchart is an overview of the path a service technician could take, using this technical manual, to service the printer and options.

If you choose not to use the Service Flowchart, it is recommended that you start at the appropriate troubleshooting table and proceed from there.

**Step 1: Identify the Problem:**

1. Verify the reported problem does exist.
2. Check for any error codes and write them down.
3. Print 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 Usage Profile Report, 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 free from damage or short circuit and is connected properly.
4. Remove the Print Cartridge and protect it from light.
5. Inspect the printer interior and remove any foreign matter such as paper clips, staples, pieces of paper, dust or toner.
6. Clean the printer interior with a lint-free cloth, dampened slightly with cold water and mild detergent.
   - Do not use solvents or chemical cleaners to clean the printer interior.
   - Do not use any type of oil or lubricant on printer parts.
   - Use only an approved toner vacuum.
7. Clean all rubber rollers with a lint-free cloth, dampened slightly with cold water and mild detergent.
8. Inspect the interior of the printer for damaged wires, loose connections, toner leakage, and damaged or obviously worn parts.
9. If a Print Cartridge appears obviously damaged, replace with a new one.

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

1. Use the Print Engine Error Messages table (page 2-11) or POST Error Code table (page 2-58) to find the cause of the problem.
2. Use Diagnostics to check printer and optional components.
3. Use the Wiring Diagrams and Plug/Jack Locator to locate test points.
4. Take voltage readings at various test points as instructed in the appropriate troubleshooting procedure.
5. Use the Engine Logic Board Test Print on page 3-49, to isolate print capability problems between the print engine the Image Processor Board.

**Step 4: Correct the Problem:**

1. Use the Parts List to locate a part number
2. Use the Removal and Replacement Procedures to replace the part.

**Step 5: Final Checkout:**

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

# Service Technician Cautionary Statements

- Always turn off the printer and remove the AC power cord, unless instructed to do otherwise in a procedure. This is particularly important when checking continuity between wiring.
- If the printer is kept ON, never touch the conductive parts.
- Wear an electrostatic discharge wrist strap to help prevent damage to the sensitive electronics on the printer circuit boards.
- 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.
- If checking a specific part with the covers removed and the interlocks, safety and power switches ON, laser beams may be irradiated from the Laser Unit causing a health hazard. Observe proper precautions at all times.
- When using service diagnostics to turn motors, drives and/or gears, never touch or interrupt the moving parts as damage to the printer will result.

# Procedures

## Using the Troubleshooting Procedures

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

## General Notes on Troubleshooting

1. Unless indicated otherwise, the instruction “switch ON printer main power” means for you to switch ON printer power and let the printer proceed through POST.
2. When instructed to take voltage, continuity or resistance readings on wiring harness, proceed as follows: check P/J 232–1 to P/J 210–5 by placing the red probe (+) of your meter on pin 1 of P/J 232, and place the black probe (–) of your meter on pin 5 of P/J 210.
3. When you are instructed to take voltage readings between “P/J 232 ⇔ P/J 210” (without specified pin numbers), check all pins. Refer to the section Wiring Data on page 9-1 for the location of all wiring harnesses and pins.
4. When you are instructed to take a voltage reading, the black probe (–) is generally connected to a pin that is either RTN (Return) or SG (Signal Ground). You can substitute any RTN pin or test point in the printer, and you can use FG (frame ground) in place of any SG pin or test point.
5. Unless a troubleshooting procedure instructs otherwise; before measuring voltages make sure the printer is switched ON, the Imaging Unit and the paper trays are in place, and the interlock switches are actuated.
6. All voltage values given in the troubleshooting procedures are approximate values. The main purpose of voltage readings is to determine whether or not a component is receiving the correct voltage value from the power supply and if gating (a voltage drop) occurs during component actuation. Gating signals may be nothing more than a pulse, resulting in a momentary drop in voltage that may be difficult or impossible to read on the average multi-meter.
7. When a Troubleshooting Procedure instructs you to replace a non-spared component and that component is part of a parent assembly, you should replace the entire parent assembly.

# Voltage Measurements

Power and signal grounds are connected to frame ground. You can perform all circuit troubleshooting using the metal frame (chassis) as the grounding point. If you need more information to locate connectors or test points, refer to Wiring Data on page 9-1.

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

**Voltage Measurements**

| Stated | Measured |
|---|---|
| +3.3 VDC | +3.0 to 3.6 VDC |
| +5.0 VDC | +4.8 to +5.2 VDC |

| Stated | Measured |
|---|---|
| +24.0 VDC | +21.6 to +26.4 VDC |
| 0.0 VDC | Less than +0.5 VDC |

# Using Fault History

The printer keeps a record of engine errors and jams. You can access Fault History for either engine errors or jams in one of three ways:

- View the Fault History at the Front Panel.
- Print the printer's Usage Profile.
- View or print the Usage Profile from the printer's web page, if the printer is connected to a network.

The errors are presented as a series of one- or two-digit numeric codes. Use the tables in "Interpreting Fault History" to decipher the codes.

When an error first occurs, record the error message and code, then cycle power to the printer to see if the error recurs.

## Accessing Fault History

1. View the printer's fault history on the front panel.
   a. Enter **Menus**, then select **Support Menu** | **Service Tools Menu** | **Fault History**.
   b. Select **Engine Errors** or **Jam Errors** to display the errors.
2. Print (if possible) the **Usage Profile** from the printer's front panel **Support Menu**. Fault history information for Engine Errors and Jams is detailed in this report log.
3. If the printer is connected to a network and has a TCP/IP address, view the printer's web page using a web browser.
   a. Open a web browser.
   b. Enter the printer's IP address as the URL.
   c. Select the "Jobs" tab and click the Usage Profile link. You can then click a link to view or to print the Usage Profile.

## Interpreting Fault History Error Codes

The following tables provide a cross-reference of the numeric fault history codes to the Diagnostic Message and code found in Printer Error Messages on page 2-11. These numeric codes are displayed on the Front Panel for both Engine Errors and Jams; in the Usage Profile, the numeric codes are used only in the Engine Error Log (Item 262).

### Fault History Codes for Engine Errors

| Fault History Code | Error | Fault History Code | Error |
|---|---|---|---|
| 0 | Fan Failure (U5) | 6 | Tray 2/3 Failure (E11) |
| 1 | Fuser Failure (U4) | 7 | Tray 1 Failure (C3) |
| 2 | Motor Failure (U1) | 8 | Tray 2 Failure (C3) |
| 3 | IOT NVM Failure (U6) | 9 | Tray 3 Failure (C3) |
| 4 | Stacker Failure (E9) | 10 | Tray 2 Failure (E11) |
| 5 | Laser failure (U2) | — | — |

### Fault History Codes for Jams

| Fault History Code | Jam Code | Fault History Code | Jam Code |
|---|---|---|---|
| 1 | E7-1 | 12 | E2-12 |
| 2 | E7-2 | 13 | E2-03 |
| 3 | E7-3 | 14 | E2-13 |
| 4 | E4-0 | 15 | E2-0E |
| 5 | E4-2 | 16 | E2-1E |
| 6 | E4-3 | 17 | E6-1 |
| 7 | E2-0M | 18 | E6-2 |
| 8 | E2-1M | 19 | PSE-1 |
| 9 | E2-01 | 20 | E3-1 |
| 10 | E2-11 | 21 | E3-2 |
| 11 | E2-02 | 22 | E7-0 |

# Service Diagnostics

The printer's Service Diagnostics provide the ability to:

- Print the Service Diagnostics Menu Map.
- Check the current print engine status.
- Start the Engine Test Print after selecting the print quantity, the source tray, output tray, and simplex or duplex printing.
- Test the functionality of printer motors and fans, solenoids, and clutches.
- Test some portions of drive trains by engaging combinations of motors and clutches or solenoids.
- Test the functionality of sensors, switches, and options by manually toggling each sensor or installing an option.
- Perform NVRAM adjustments essential to the performance of the printer.
- Check eight different print engine components.
- Reset the PS NVRAM locations to factory defaults (see Resetting NVRAM on page 4-7).

## Entering Service Diagnostics

To enter Service Diagnostics:

While turning on power, press and hold **Back + Info** until the message "Entering Service Diagnostics" appears on the display, then release the keys. The Service Diagnostics Menu appears.

The Service Diagnostic menu has the following selections:

**`General Status`** — Provides current print engine status.

**`Engine Test Print`** — Starts the test print.

**`Motors/Fans Tests`** — Tests the functionality of the printer Motors/Fan.

**`Main Motor + Clutches/Sol Tests`** — Tests the functionality of the main motor plus clutches or Solenoid at the same time.

**`Sensor Tests`** — Tests the functionality of sensors, switches, or the presence of options by manually toggling each sensor or installing an option. Some of the sensor tests require cheating the front and/or rear door interlocks.

***Note:*** ***The Service Diagnostics Sensor Tests do not include a check of the Tray Stack Height Sensor. Refer to the Stack Height Sensor Checkout on page 3-23.***

**`Solenoid Tests`** — Tests the functionality of printer solenoids.

**`Clutch Tests`** — Tests the functionality of printer clutches.

**`Engine NVRAM Adjustments`** — Perform NVRAM adjustments essential to the performance of the printer.

**Component Checks** — Tests print engine component functions.

**NVRAM Access** — Lets you reset the PS NVRAM locations to factory defaults.

**Exit** — Reboots the Printer out of Diagnostics.

# Service Diagnostics Menu Map

The Service Diagnostics Menu Map lists the tests available for testing print engine parts and functions while diagnosing printer problems. When you enter Service Diagnostics, the menu items shown in bold type appear on the front panel. When you select one of these items, the list of individual tests appear.

PHASER™ 4400N PRINTER
**Service Diagnostics Menu Map**

**Print Service Menu Map:** Prints this page

**General Status:** Provides current print engine status.
- Engine ROM Version
- Engine Print Counter
- Engine Configuration
- Print Resolution
- Read Fuser Temperature
- Read Fuser Set Temperature

**Engine Test Print:** Starts the test print.
- Print Test pattern
- Input tray
- Output tray
- Duplex
- Print Quantity

**Motors/Fan Test:** Test the functionality for motors/fan.
- Duplex Motor High
- Duplex Motor Low
- Exit Motor Forward
- Exit Motor Reverse High
- Exit Motor Reverse Low
- Main Motor
- Fan Motor High Speed
- Laser Scan Motor
- Stacker Motor
- Stacker Offset Motor

**Main Motor + Clutch/Sol Tests:** * Runs main drive motor with each individual clutch and MPT solenoid.

**Sensor Tests:** Tests the functionality of sensors/switches/options by manually toggling each sensor or installing an option.
- Front Cover Switch
- Rear Cover Switch
- Paper Tray Size Read (display paper size, for trays)
- Print Cartridge Switch
- Toner Sensor
- Registration Sensor
- Exit Sensor (Fuser)
- Duplex Sensor
- Stacker Sensor
- Stacker Full Sensor
- Output Tray Full Sensor (Printer)
- Tray 1 Low Paper Sensor
- Tray 2 Low Paper Sensor
- Tray 3 Low Paper Sensor
- Tray 1 No Paper Sensor
- Tray 2 No Paper Sensor
- Tray 3 No Paper Sensor
- MPT No Paper Sensor
- Envelope Feeder No Paper Sensor
- Envelope Feeder Presence
- Duplex Unit Presence
- Stacker Unit Presence

**Solenoid Tests:** Test the functionality of printer solenoids
- *MPT Solenoid
- Stacker Direction Solenoid

**Clutch tests:** Test the functionality of printer clutches.
- *Registration Clutch
- *Tray 1 Feed Clutch
- *Tray 2 Feed Clutch
- *Tray 3 Feed Clutch
- *Tray 1 Turn Roll Clutch
- *Tray 2 Turn Roll Clutch
- *Tray 3 Turn Roll Clutch
- *Envelope Feeder Clutch

**Engine NVRAM Adjustments:** Perform NVRAM adjustments essential to the performance of the printer.
- Laser Power Setting
- MPT Paper Size Adjustment
- Envelope Paper Size Adjustment
- Tray 1 Process Direction
- Tray 2 Process Direction
- Tray 3 Process Direction
- Envelope Feeder Process Direction
- MPT Process Direction
- Tray 1 Scan Direction
- Tray 2 Scan Direction
- Tray 3 Scan Direction
- Envelope Feeder Scan Direction
- MPT Scan Direction
- Duplex Process Direction
- Duplex Scan Direction

**Component Checks:**
- Laser Diode
- Detack Saw Output
- Transfer Roll +
- Transfer Roll ñ
- Developer Bias AC
- Developer Bias DC
- Charge Roll AC
- Charge Roll DC

**NVRAM Access:** This menu lets you reset the PS NVRAM locations to factory defaults.
- PostScript NVRAM Reset

**Exit:** Reboots Printer out of Diagnostics.

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

**s4400_328**

# Using the Front Panel with Service Diagnostics

The keys on the Front Panel provide the user interface for Service Diagnostics. The keys and their functions are shown in Front Panel Configuration on page 1-8. After you enter Service Diagnostics, the **Up** and **Down** keys allow you to move or scroll the highlight up and down through a menu. When you have highlighted the item you want to select, press **OK** to enter the selection.

When you are selecting a page quantity in the **Engine Test Print** menu use the **OK** key to move the highlight to the right. then use the Up or Down key to change the value of the selected digit. when you have entered the desired quantity, use the **Back** key to enter the selection.

***Note:*** ***If you moved past the digit you want to change, keep pressing the OK key until the highlight wraps to the desired digit.***

In most of the Service Diagnostics menus, use the **Back** key to exit a menu to the level just above. In most cases, scrolling to the end of a menu and selecting Exit takes you back to the Service Diagnostics Main Menu.

When you select **Read Fuser Temperature** from the **General Status** menu, the temperature is presented in hex values. The following table lists the temperatures that correspond to the hex values displayed.

**Fuser Temperature Cross Reference Table**

| Hex value | Temperature (°C / °F) |
|---|---|
| EE | 0°C / 32°F |
| FE | 10°C / 50°F |
| FD | 20°C / 68°F |
| FC | 30°C / 86°F |
| FB | 40°C / 104°F |
| F9 | 50°C / 122°F |
| F7 | 60°C / 140°F |
| F4 | 70°C / 158°F |
| F0 | 80°C / 176°F |
| EC | 90°C / 194°F |
| E7 | 100°C / 212°F |
| E1 | 110°C / 230°F |
| DA | 120°C / 248°F |
| D3 | 130°C / 266°F |

| Hex value | Temperature (°C / °F) |
|---|---|
| CA | 140°C / 284F |
| C6 | 145°C / 293°F |
| C1 | 150°C / 302°F |
| BD | 155°C / 311°F |
| B8 | 160°C / 320°F |
| B3 | 165°C / 329°F |
| AE | 170°C / 338°F |
| A9 | 175°C / 347°F |
| A4 | 180°C / 356°F |
| 99 | 190°C / 374°F |
| 8F | 200°C / 392°F |
| 85 | 210°C / 410°F |
| 7C | 220°C / 428°F |
| 72 | 230°C / 446°F |

# Engine Test Print

The Engine Test Print test pattern (shown on page 4-4) is stored in the Engine Logic Board and is accessible through Service Diagnostics. You can use the Engine Test Print to identify, repair, and validate the operability of printer xerographics and paper handling from all paper sources, options, and output destinations. When you select Engine Test Print from the main Service Diagnostics menu, the following selections are available:

**`Print Test Pattern`** — Starts the print

**`Input Tray`** — Allows you to select the paper source

**`Output Tray`** — Allows you to select the test print destination

**`Duplex`** — Turns duplexing on or off if the Duplex Unit is installed

**`Print Quantity`** — Allows you to select the number of test prints to run

## Error and Jam Recovery

If the printer encounters a problem while printing the Engine Test Print, it halts printing and displays an error message on the Front Panel. Refer to the Diagnostic Messages in the Print Engine Error Messages table that follows. (The Diagnostic Messages also appear as secondary headings in the Troubleshooting Procedures.)

Printing resumes after the problem has been fixed.

# Engine NVRAM Default Settings

The following table lists the defaults for each of the Engine NVRAM Adjustments except the paper size adjustments, which have no default settings.

**NVRAM Default Table**

| Engine NVRAM Adjustment | Default Value | Range |
|---|---|---|
| Laser Power | 10 | 0 - 15 |
| Tray 1 Process Direction | 8 | 0 - 15 |
| Tray 2 Process Direction | 8 | 0 - 15 |
| Tray 3 Process Direction | 8 | 0 - 15 |
| Envelope Process Direction | 8 | 0 - 15 |
| MPT Process Direction | 8 | 0 - 15 |
| Tray 1 Scan Direction | 4 | 0 - 8 |

| Engine NVRAM Adjustments | Default Value | Range |
|---|---|---|
| Tray 2 Scan Direction | 3 | 0 - 8 |
| Tray 3 Scan Direction | 2 | 0 - 8 |
| Envelope Scan Direction | 4 | 0 - 8 |
| MPT Scan Direction | 6 | 0 - 8 |
| Duplex Process Direction | 8 | 0 - 15 |
| Duplex Scan Direction | 4 | 0 - 8 |

# Printer Error Messages

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# Error Message Summaries

*Note:* ***The messages listed in the "Diagnostic Message" column appear only in Service Diagnostics while printing Engine Test Prints. The code numbers in these messages also appear as part of the Help information displayed when you press i.***

| Front Panel Message | Diagnostic Message | Error Description | Troubleshooting Procedure |
|---|---|---|---|
| Jam At Tray [#]; Open Tray [#] and Front Cover to Clear.<br>Press i. | E2-01: Feed Jam<br>E2-02<br>E2-03 | Paper arrives at Registration Sensor too early. | Open Tray [#].<br>Open Front Cover.<br>Clear Paper Path.<br>Go to Jam at Tray [#]. Open Tray [#] and Front Cover. on page 2-18. |
| | E2-11: Feed Jam<br>E2-12<br>E2-13 | Paper does not arrive at Registration Sensor position within the specified time. | |
| Jam At Envelope Feeder; Remove Feeder and Open Front Cover to Clear.<br>Press i. | E2-0E: Feed Jam | Paper arrives at Registration Sensor too early. | Remove Envelope Feeder.<br>Open Front Cover.<br>Clear Paper Path.<br>Go to Jam at Envelope Feeder; Remove Feeder and Open Front Cover. on page 2-21. |
| | E2-1E: Feed Jam | Paper does not arrive at Registration Sensor position within the specified time. | |
| Jam At MPT; Open Front Cover To Clear.<br>Press i. | E2-0M: Feed Jam | Paper arrives at Registration Sensor too early. | Open Front Cover and remove paper.<br>Go to Jam at MPT; Open Front Cover to Clear. on page 2-22. |
| | E2-1M: Feed Jam | Paper does not arrive at REG Sensor position within the specified time. | |

# Error Message Summaries (cont'd.)

*Note:* ***The messages listed in the "Diagnostic Message" column appear only in Service Diagnostics while printing Engine Test Prints. The code numbers in these messages also appear as part of the Help information displayed when you press i.***

| Front Panel Message | Diagnostic Message | Error Description | Troubleshooting Procedure |
|---|---|---|---|
| Jam at Front; Open Front Cover to Clear.<br>Press i. | E3-1: Registration Jam | Paper Late to Fuser sensor after arrival at Registration Sensor.<br>Exit Sensor did not actuate within time after the Registration clutch is actuated. | Open Front Cover.<br>Remove Print Cartridge.<br>Clear Paper Path.<br>Go to Jam at Front; Open Front Cover to Clear. on page 2-23. |
| | E3-2: Registration Jam | 1. Registration Sensor did not deactuate within time after actuation of Registration sensor.<br>2. Registration Sensor is actuated at power-on. | |
| Jam At Exit; Open Rear Cover To Clear.<br>Press i. | E4-0: Exit Jam | Paper leaves Exit Sensor early. | Open Rear Cover.<br>Clear Paper Path.<br>Go to Jam At Exit; Open Rear Cover To Clear. on page 2-25. |
| | E4-2: Exit Jam | 1. Paper late off Exit Sensor.<br>2. Exit Sensor on at power-on. | |
| | E4-3: Exit Jam | Custom Paper late off Exit Sensor, exceeding the specified time from Registration Sensor. | Open Rear Cover.<br>Clear Paper Path.<br>Change Paper Setting in Custom Mode to correct size.<br>Go to Jam At Exit; Open Rear Cover To Clear. on page 2-25. |
| Jam At Stacker; Open Both Rear Covers to Clear.<br>Press i. | E6-1: Stacker Jam | 1. Paper late to Stacker Sensor. | Open Stacker Rear Door.<br>Clear Paper Path.<br>Open Printer Rear Cover.<br>Clear Paper Path.<br>Go to Jam at Stacker; Open Both Rear Covers to Clear. on page 2-27. |
| | E6-2: Stacker Jam | 1. Paper late off Stacker Sensor.<br>2. Stacker Sensor on at power-on. | |

# Error Message Summaries (cont'd.)

***Note:*** ***The messages listed in the "Diagnostic Message" column appear only in Service Diagnostics while printing Engine Test Prints. The code numbers in these messages also appear as part of the Help information displayed when you press i.***

| Front Panel Message | Diagnostic Message | Error Description | Troubleshooting Procedure |
|---|---|---|---|
| Jam At Front; Open Front Cover To Clear<br>Press i. | E7-0: Duplex Jam | Paper arrives at Registration Sensor early from Duplex Sensor. | Open front cover.<br>Remove print cartridge.<br>Clear paper path.<br>Go to Jam at Front/Rear; Open Front/Rear Cover to Clear. on page 2-29. |
| Jam At Rear; Open Rear Cover To Clear.<br>Press i. | E7-1: Duplex Jam | Paper late to Duplex Sensor. | Open Rear Cover.<br>Remove Duplex Unit.<br>Clear paper path.<br>Go to Jam at Front/Rear; Open Front/Rear Cover to Clear. on page 2-29. |
| | E7-2: Duplex Jam | 1. Paper late off Duplex Sensor.<br>2. Duplex Sensor on at power-up. | |
| | E7-3: Duplex Jam | Paper late to Registration Sensor from Duplex Sensor. | |
| Tray [#] Failure.<br>Open and Close Tray [#].<br>Press i. | C3-#E Tray [#] Not In | ■ Tray [#] is not detected<br>■ Tray motor failure<br>■ Harness problem<br>■ Stack height sensor failure | Inspect and repair Tray [#].<br>Tray [#] Failure. Open and Close Tray [#]. on page 2-43. |
| No (Load) Paper In Envelope Feeder<br>Press i. | Envelope Feeder Empty | Envelope Feeder is out of paper. | Load Paper into Envelope Feeder.<br>Go to Load Envelope Feeder with [paper size] [paper type]. on page 2-55. |
| Load MPT | MPT Paper Empty | MPT is out of paper. | Load paper into MPT.<br>Go to Load MPT with [paper size] [paper type]. on page 2-51. |
| Stacker Is Full, Unload Paper.<br>Press i. | Stacker Output Tray Full | Several prints are delivered to the top tray after the Stacker Full Stack Sensor is actuated. | Empty Stacker Tray.<br>Go to Stacker is Full, Unload Paper. on page 2-54. |
| Standard Output Tray is Full, Unload Paper.<br>Press i. | Output Tray Full | Top Tray is declared full when several prints are delivered to the top tray after the Full Stack Sensor is actuated. | Empty Top Tray.<br>Go to Standard Output Tray is Full. Unload Paper. on page 2-38. |

# Error Message Summaries (cont'd.)

*Note:* ***The messages listed in the "Diagnostic Message" column appear only in Service Diagnostics while printing Engine Test Prints. The code numbers in these messages also appear as part of the Help information displayed when you press i.***

| Front Panel Message | Diagnostic Message | Error Description | Troubleshooting Procedure |
|---|---|---|---|
| No Paper In Tray [#]<br>Press i. | Tray [#] Empty | Tray [#] is out of paper. | Load paper into Tray [#].<br>Go to No Paper in Tray [#]. on page 2-41. |
| Load Tray [#] with [paper size] [paper type]. | PSE-1: Paper Size Error | Paper Size Error. | Load correct size paper in tray.<br>Go to Load Tray [#] with [paper size] [paper type]. on page 2-42 |
| Close Front Cover<br>Close Rear Cover.<br>Press i. | Close Front Cover/Close Rear Cover | 1. Front cover interlock is open.<br>2. Rear cover interlock is open. | Close Front Cover.<br>Close Rear Cover.<br>Go to Close Front Cover/Close Rear Cover. on page 2-31. |
| Install or Reseat The Duplex Unit.<br>Press i. | E9-1: Duplex Unit Fail. | Duplex module removed while power is on. | Reinstall Duplex Module.<br>Go to Install or Reseat the Duplex Unit. on page 2-36. |
| Stacker Failure.<br>Press i. | E9-2: Stacker Unit Fail | Stacker removed while power is on. | Reinstall Stacker.<br>Go to Stacker Failure. on page 2-37. |
| Install or Reseat the Envelope Feeder<br>Press i. | E9-E: Envelope Feeder Fail/Reinstall | Envelope feeder module removed while power-on. | Reinstall Envelope Feeder.<br>Go to Install or Reseat the Envelope Feeder. on page 2-37. |
| Tray 2 or 3 Failure<br>Press i.<br>or<br>Tray 2 Failure<br>Press i. | E11: Tray 2/3 Fail | Either Tray 2 or Tray 3 was disconnected after power-on. | Reinstall Feeder 2/3.<br>Go to Tray 2 or 3 Failure. on page 2-52. |

# Error Message Summaries (cont'd.)

***Note:*** ***The messages listed in the "Diagnostic Message" column appear only in Service Diagnostics while printing Engine Test Prints. The code numbers in these messages also appear as part of the Help information displayed when you press i.***

| Front Panel Message | Diagnostic Message | Error Description | Troubleshooting Procedure |
|---|---|---|---|
| Paper Size Jam; Check Size and Open Rear Cover To Clear.<br>Press i. | PSE-1: Paper Size Error | There is a conflict between the size of the paper, which is detected by the Size Switches, and the length of paper the printer detects by the length of time the Registration Sensor is actuated. | Correct the mismatch.<br>Open Rear Cover.<br>Go to Paper Size Jam; Check Size and Open Rear Cover to Clear. (PSE-1) on page 2-30. |
| Install Or Reseat Print Cartridge<br>Press i. | J3 Missing Print Cartridge. | 1. Print Cartridge is not installed.<br>2. The installed Print Cartridge is not the correct one. | Install the Print Cartridge, or replace with the correct Print Cartridge.<br>Go to Install or Reseat Print Cartridge. on page 2-33. |
| Toner Is Low.<br>Press i. | J5 Toner Low. | Toner Low is detected after 10 prints while Toner Sensor is on. | Go to Toner is Low. on page 2-35. |
| Main Motor Failure<br>Press i. | U1 Motor Fail/Power Off | Main Motor speed is less than specified RPM after 1.3 seconds. | Power Off and On.<br>Go to Main Motor Failure. on page 2-45. |
| Laser Unit Failure<br>Press i. | U2 Laser Fail/Power Off | 1.Transmitting /BD signal is longer than specified value for 10 sec. + t1.<br>2. The laser power does not reach the specified value.<br>3. Laser signal intervals become longer than the Fail time interval after Laser warm-up is completed. | Power Off and On.<br>Go to Laser Unit Failure. on page 2-48. |

# Error Message Summaries (cont'd.)

*Note:* ***The messages listed in the "Diagnostic Message" column appear only in Service Diagnostics while printing Engine Test Prints. The code numbers in these messages also appear as part of the Help information displayed when you press i.***

| Front Panel Message | Diagnostic Message | Error Description | Troubleshooting Procedure |
|---|---|---|---|
| Fuser Failure<br>Press i. | U4 Fuser Fail/Power Off | ■ Low temperature trouble/Power off (Fuser temperature drops below the set temperature after the Fuser warm-up is complete).<br>■ Warm-up fail/Power off (Fuser warm-up does not complete within 110 seconds).<br>■ STS Disconnection fail/Power off (Thermistor circuit is detected to be open).<br>■ High Temperature trouble/Power off (Fuser temperature rises above the set temperature).<br>■ Continuous heat on/Power off (Heat rod is on for 10 seconds when the Main Drive Motor is stopped, after the Fuser warm-up is completed). | Go to Fuser Failure. on page 2-49. |
| Fan Failure<br>Power Off Now<br>Press i. | U5 Fan Fail/Power Off | Main Fan has failed. | Check the Main Fan.<br>Power Off and On.<br>Go to Fan Failure; Power Off Now. on page 2-49. |
| Engine Logic Board NVRAM Failure.<br>Press i. | U6 NVM Fail/Power Off | 1. Read error detected during power-on.<br>2. Write Error detected. | Power Off and On.<br>Go to Engine Logic Board NVRAM Failure. on page 2-50). |

# Jam at Tray [#]. Open Tray [#] and Front Cover.

## (E2-##: Feed Jam)

**E2-0#:** Paper arrives early to the Registration Sensor or is on the sensor at power-on.

**E2-1#:** Paper arrives late to the Registration Sensor.

**Paper Jam/Misfeed Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the paper in all trays. Check for curled, damaged, or damp paper and for paper that is out of specification.<br>**Is the paper in good condition and does it meet specification?** | Go to step 2. | Replace with fresh dry paper that is within specifications. |
| 2 | Check all paper paths for contamination, paper, or other obstructions.<br>**Are all paper paths clean and free of obstructions?** | Go to step 3. | Remove contamination or obstructions. |
| 3 | 1. Enter Service Diagnostics and select Test Print.<br>2. Run five prints from every paper tray.<br>**Does the problem appear when printing from Tray 2 or 3?** | Go to step 9. | Go to step 4. |
| 4 | 1. Remove Tray 1 from the printer.<br>2. Check the Nudger Roller, Feed Roller, and Retard Roller for contamination and wear.<br>**Are all rolls clean and in good condition?** | Go to step 5. | Clean or replace the Nudger, Feed or Retard Roller as necessary (RRP 3.8 on page 6-36/ RRP 2.1 on page 6-18). |
| 5 | 1. Reinsert Tray 1 into the printer.<br>2. From the rear of the printer, watch the Tray 1 Bottom Plate.<br>**Is the Bottom Plate raised fully and evenly?** | Go to step 6. | Go to Tray Motor Assembly Checkout on page 3-26. |
| 6 | From the rear of the printer, watch the paper feed as you print a test print from Tray 1.<br>**Do the Nudger Roller and Feed Roller rotate?** | Go to step 7. | Go to Tray 1 Feed Clutch on page 3-29. |
| 7 | **Is paper fed from the tray to the Turn Roller Assembly?** | Go to step 8. | Replace the Retard, Nudger, and Feed Rollers (RRP 2.1 on page 6-18 and RRP 3.8 on page 6-36). |

**Paper Jam/Misfeed Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 8 | **Does the Turn Roller Assembly move the paper to the Registration Sensor?** | Go to Registration Sensor on page 3-20. | Go to Turn Roller Clutch Assembly on page 3-28. |
| 9 | 1. Remove Tray 1.<br>2. Check the paper chute at the front of the tray (the chute guides paper from Tray 2 to the Tray 1 turn rollers). Check for contamination, paper, or other obstructions.<br>**Is the chute clean and free of obstructions?** | Go to step 10. | Remove obstructions and clean chute. Replace paper tray if necessary (PL 2.1 on page 7-6). |
| 10 | **Do the jams occur when feeding from Tray 3.** | Go to step 14. | Go to step 11. |
| 11 | 1. Remove Tray 2 and place the tray in Feeder 1.<br>2. Place Tray 1 in Feeder 2.<br>3. Enter Service Diagnostics and select Test Print.<br>4. Run 20 to 25 test prints from Tray 2.<br>**Did all prints complete successfully?** | The paper tray currently in Feeder 1 appears to be defective. Go to step 18. | Go to step 12. |
| 12 | 1. Remove the tray currently in Feeder 2.<br>2. Check the Nudger and Feed Rollers in Feeder 2 for contamination and wear.<br>**Are the Feed Rollers clean and in good condition?** | Go to step 13. | Replace the Feed Rollers (RRP 11.11 on page 6-130). |
| 13 | Check the Tray 2 Turn Roller Assembly for obstructions, contamination, or wear.<br>**Are the Turn Rolls clean and in good condition?** | Replace the Feeder PWB (RRP 11.9 on page 6-128). If the problem persists, replace the Size PWB (RRP 11.19 on page 6-139), then the Engine Logic Board (RRP 9.3 on page 6-89). | Remove the obstruction; clean, or replace the Turn Roller Assembly (RRP 11.8 on page 6-127). |
| 14 | Remove Tray 1 and Tray 2. Check the paper chute at the front of both trays (the chute guides paper from Tray 3 to the Tray 2 turn rolls and from Tray 2 to the Tray 1 turn rollers). Check for contamination, paper, or other obstructions.<br>**Is the chute clean and free of obstructions?** | Go to step 15. | Remove obstructions and clean chute. Replace paper tray if necessary (PL 2.1 on page 7-6). |

**Paper Jam/Misfeed Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 15 | 1. Replace Tray 2.<br>2. Remove Tray 3 and place the tray in Feeder 1.<br>3. Place Tray 1 in Feeder 3.<br>4. Enter Service Diagnostics and select Test Print.<br>5. Run 20 to 25 test prints from tray 3.<br>**Did all prints complete successfully?** | The paper tray currently in Feeder 1 appears to be defective. Go to step 19. | Go to step 16. |
| 16 | 1. Remove the tray currently in Feeder 3.<br>2. Check the Nudger and Feed Rolls in Feeder 3 for contamination and wear.<br>**Are the Feed Rolls clean and in good condition?** | Go to step 17. | Replace the Feed Rolls (RRP 11.11 on page 6-130). |
| 17 | Check the Tray 3 Turn Roller Assembly for obstructions, contamination, or wear.<br>**Are the Turn Rolls clean and in good condition?** | Go to step 20. | Remove the obstruction, clean, or replace the Turn Roller Assembly (RRP 11.8 on page 6-127). |
| 18 | Perform Tray Motor Assembly Checkout on page 3-26 to check the tray motor.<br>**Does it operate correctly?** | Check the paper tray for contamination, obstructions, broken or deformed parts. Replace the paper tray if necessary (PL 2.1 on page 7-6). | Follow the repair advice in the checkout procedure. |
| 19 | Perform Tray Motor Assembly Checkout on page 3-26 to check the tray motor.<br>**Does it operate correctly?** | Check the paper tray for contamination, obstructions, broken or deformed parts. Replace the paper tray if necessary (PL 2.1 on page 7-6). | Follow the repair advice in the checkout procedure. |
| 20 | Replace the Feeder PWB (RRP 11.9 on page 6-128). If the problem persists, replace in this order:<br>■ Size PWB (RRP 11.19 on page 6-139)<br>■ Engine Logic Board (RRP 9.3 on page 6-89) | | |

# Jam at Envelope Feeder; Remove Feeder and Open Front Cover.

## (E2-#E: Feed Jam)

**E2-0E:** Paper arrives at Registration Sensor too early.

**E2-1E:** Paper does not arrive at Registration Sensor position within a specified time.

**Envelope Feeder Jam Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Remove all envelopes.<br>2. Check the Envelope Feeder and Printer for contamination, paper scraps, or other obstructions.<br>**Is the printer and Envelope Feeder clean and free of obstructions?** | Go to step 2. | Clean feeder and remove all obstructions. |
| 2 | Check the Feed Belts. Check for dirt or contamination on the top side and the under side of the belt.<br>**Are both sides of the belt clean?** | Go to step 3. | Replace the Feed Belts (RRP 13.17 on page 6-176). |
| 3 | 1. Enter Service Diagnostics and select Clutch Tests.<br>2. Scroll to Envelope Feeder and press **OK**.<br>**Can you hear the clutch energize?** | Go to step 4. | Go to Envelope Feed Clutch on page 3-38. |
| 4 | 1. Press **Back.**<br>2. Scroll to Main Motor+Clutch/Sol Tests and press **OK**.<br>3. Scroll to Motor+Envelope Feeder.<br>4. Press **OK** and watch the Feed Belts and Feed Rollers.<br>**Do all the Feed Belts and Feed Rollers rotate?** | Go to step 7. | Go to step 5. |
| 5 | Ensure the Envelope Feeder is installed properly and is contacting the printer drive gear.<br>**Is the Envelope Feeder installed correctly?** | Go to step 6. | Reinstall the Envelope Feeder correctly. |
| 6 | Remove the Envelope Feeder and check the feeder drive gears.<br>**Are all gears in good condition and operating properly?** | Replace the Envelope Feed Clutch (RRP 13.12 on page 6-168). If the problem persists, Replace the Envelope Feeder PWB (RRP 13.3 on page 6-159). | Replace the gears as necessary (PL 12.2 on page 7-32). |

**Envelope Feeder Jam Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 7 | Perform Registration Sensor on page 3-20 to check the Registration Sensor.<br>**Is the Registration Sensor operating correctly?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Registration Sensor (RRP 5.4 on page 6-61). |

# Jam at MPT; Open Front Cover to Clear.

## (E2-#M: Feed Jam)

**E2-0M:** Paper arrives at REG sensor early.

**E2-1M:** Paper arrives at REG sensor late.

**Feed Jam Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Open the Front Cover.<br>3. Check the MPT Chute for contamination or obstructions.<br>**Is the MPT free of contamination, paper, or other obstructions?** | Go to step 2. | Clean the MPT and remove the paper or obstruction. |
| 2 | Check the MPT Feed Roller for contamination and wear.<br>**Is the feed roller clean and in good condition?** | Go to step 3. | Replace the MPT Feed Roller (RRP 4.3 on page 6-47). |
| 3 | 1. Enter Service Diagnostics and select Solenoid Tests.<br>2. Scroll to MPT and press **OK**.<br>**Can you hear the solenoid energize?** | Go to step 4. | Go to MPT Pick Up Solenoid on page 3-30. |
| 4 | 1. Open the Front Cover and cheat the Front Cover Interlock.<br>2. From the Service Diagnostics menu select Motors/Fans Tests and press **OK**.<br>3. Scroll to Main Motor and press **OK**.<br>**Do the MPT drive gears rotate smoothly?** | Go to step 5. | Check, repair, or replace the Drive Gear (PL 5.1 on page 7-14), Main Drive Gear Assembly (RRP 8.2 on page 6-85), or Main Motor Assembly (RRP 8.1 on page 6-84) as necessary. |

**Feed Jam Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | 1. Scroll to Main Motor + Clutch/Sol Tests and press **OK**.<br>2. Select Main Motor + MPT Sol and press **OK**.<br>**Do all of the following occur?**<br>■ **The Feed Roller Shaft rotates?**<br>■ **The Pick-up Cams move and allow the Bottom Plate to contact the Feed Roller?**<br>■ **The Feed Roller Shaft stops after one complete revolution?** | Check the Registration Sensor (Registration Sensor on page 3-20). | Remove the MPT Chute Assembly (RRP 4.1 on page 6-44) and repair or replace components as necessary. |
| 6 | 1. Check the Registration Sensor (Registration Sensor on page 3-20).<br>**Is the Registration Sensor good?** | If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Follow the repair advice in the Registration Sensor check. |

# Jam at Front; Open Front Cover to Clear.

## (E3-#: Registration Jam)

**E3-1:** Paper is late to the Exit Sensor or paper is late off the Registration Sensor.

**E3-2:** Registration Sensor is actuated at power-on.

**Registration Jam Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Open the Front Cover and remove the Print Cartridge.<br>3. Check the printer for contamination, paper scraps, or other obstructions.<br>**Is the paper path clean and free of obstructions?** | Go to step 2. | Clean components and remove all obstructions. |
| 2 | 1. Open the Rear Cover.<br>2. Remove the Duplex unit if installed.<br>3. Open the Fuser Access Cover.<br>4. Check for contamination, paper scraps, or other obstructions.<br>**Is the paper path clean and free of obstructions?** | Go to step 3. | Clean components and remove all obstructions. |
| 3 | 1. Remove Fuser.<br>2. Rotate the Fuser Gear.<br>**Does the Fuser Idler Gear rotate smoothly?** | Go to step 4. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 4 | Check the paper in all trays.<br>**Is the paper loaded in the paper trays damp, wrinkled, or damaged?** | Replace with fresh, dry paper. | Go to step 5. |

**Registration Jam Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | **Is the paper size used within specifications?** | Go to step 6. | Replace with paper meeting size specifications. |
| 6 | 1. Reinstall the Fuser.<br>2. Close the Rear Cover.<br>3. Cheat the Front Cover Interlock.<br>4. Enter Service Diagnostics, select Clutch Tests, and press **OK**.<br>5. Select Registration and press **OK**.<br>**Can you hear the Registration Clutch energize?** | Go to step 7. | Go to Registration Clutch on page 3-27. |
| 7 | 1. Press **Back** to return to the top Diagnostics menu, then select Main Motor+Clutch/Sol tests and press **OK**.<br>2. Select Motor+Registration and press **OK**.<br>**Do the Registration Rolls rotate smoothly?** | Go to step 9. | Go to step 8. |
| 8 | Repair or replace as necessary:<br>■ Registration Rolls (RRP 5.6 on page 6-62)<br>■ Registration Clutch (RRP 5.5 on page 6-62)<br>■ Main Drive Gear Assembly (RRP 8.2 on page 6-85)<br>■ Main Motor Assembly (RRP 8.1 on page 6-84). | | |
| 9 | Perform Registration Sensor on page 3-20 to test the Registration Sensor.<br>**Is the Registration Sensor working correctly?** | Go to step 10. | Repair or replace the Registration Sensor as necessary (RRP 5.4 on page 6-61). |
| 10 | Perform Exit Sensor on page 3-34 to test the Exit Sensor.<br>**Is the Exit Sensor working correctly?** | Go to step 11. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 11 | 1. Enter Service Diagnostics (if necessary).<br>2. Select Engine Test Print and press **OK**.<br>3. Run test prints.<br>4. When the error code appears, inspect the position of lead edge of the paper.<br>**Does the lead edge of the paper pass between the Transfer Roller and the Print Cartridge Drum?** | Go to step 12. | Clean the Registration Rollers. |
| 12 | **Is the Detack Saw clean and free of contamination?** | Go to step 13. | Clean the Detack Saw or Replace the Transport Chute Assembly (RRP 6.1 on page 6-65). |

**Registration Jam Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 13 | Inspect paper path between Transport Chute Assembly and the Fuser Assembly.<br>**Does the paper pass through the Fuser Assembly.** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |

# Jam At Exit; Open Rear Cover To Clear.

## (E4-#: Exit Jam)

**E4-0:** Paper leaves the Exit Sensor early.

**E4-2:** Paper leaves the Exit Sensor late.
The Exit Sensor is on at power-on.

**E4-3:** Custom paper late off the Exit Sensor within a specified time from the Registration Sensor.

**Exit Jam Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Check the paper in the paper trays. Ensure that:<br>■ The paper is installed correctly and the end guide touches the rear of the paper stack.<br>■ The paper is within specification.<br>■ If Custom Mode is used, the settings are correct.<br>**Are all settings correct and is the paper within specification?** | Go to step 2. | Install fresh paper that is within specification or correct settings. |
| 2 | Check the paper path for contamination, paper, or other obstructions.<br>**Is the paper path clean and free of obstructions?** | Go to step 3. | Remove obstructions and clean components as necessary. |
| 3 | 1. Enter Service Diagnostics and select Engine Test Print.<br>2. Print 25 prints from Tray 1.<br>**When the error code is displayed, is there paper on the Exit Sensor?** | Go to step 6. | Go to step 4. |
| 4 | 1. Open the Rear Cover and the Fuser Access Cover.<br>2. Check the Exit Sensor Actuator.<br>**Does the actuator move freely and return to the home position when released?** | Go to step 5. | Repair actuator or replace the Fuser Assembly (RRP 6.2 on page 6-66). |

**Exit Jam Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Exit Sensor (Fuser) and press **OK**.<br>3. Open the Fuser Access Cover and use a piece of paper to block and unblock the Exit Sensor.<br>**Does the message on the display alternate between "With Paper" and "Without Paper" as you block and unblock the sensor?** | Replace Engine Logic Board (RRP 9.3 on page 6-89). | Go to Exit Sensor on page 3-34. |
| 6 | Open the Rear Cover and check the Face Up Chute Assembly for contamination or obstructions.<br>**Is the chute assembly clean and free of obstructions?** | Go to step 7. | Clean or replace the Face Up Chute Assembly as necessary (PL 1.2 on page 7-4). |
| 7 | 1. Scroll to Motors/Fans Tests and press **OK**.<br>2. Scroll to Exit Motor Forward and press **OK**.<br>**Does the Exit Motor rotate?** | Go to step 8. | Go to Exit Motor on page 3-35. |
| 8 | **Do the Exit Rollers and Pinch Rollers (on the Rear Cover) rotate smoothly?** | Go to step 9. | Replace the Exit Rollers or Exit Chute Assembly as necessary (PL 7.1 on page 7-18). |
| 9 | Check the Fuser Assembly for obstructions or contamination.<br>**Is the Fuser clean and free of obstructions?** | Go to step 10. | Clean or replace the Fuser Assembly (RRP 6.2 on page 6-66), as necessary. |
| 10 | Check the Transport Chute for contamination or obstructions.<br>**Is the Transport Chute clean and free of obstructions?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Clean or replace the Transport Chute as necessary (RRP 6.1 on page 6-65). |

# Jam at Stacker; Open Both Rear Covers to Clear.

## (E6-#: Stacker Jam)

**E6-1:** Paper late to Stacker Sensor.

**E6-2:** Paper late off Stacker Sensor.

### Stacker Jam Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open the printer Rear Cover and the Stacker Rear Cover.<br>2. Check for paper or other obstructions in the paper path.<br>**Is the printer free of jammed paper, paper scraps, or other obstructions?** | Go to step 2. | Clear all jammed paper, paper scraps, and obstructions from the printer and the Stacker. |
| 2 | 1. Enter Service Diagnostics.<br>2. Select Engine Test Print and press **OK**<br>3. Scroll to Print Quantity and press **OK**.<br>4. Set the quantity 15 and press **Back**.<br>5. Scroll to Output Tray and press **OK**.<br>6. Press **Down** to select Stacker and press **OK.**<br>7. Scroll to Print Test Pattern and press **OK**.<br>**Does the error code reappear?** | Go to step 3. | Problem solved. |
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Stacker Sensor test and press **OK**.<br>3. Open the Stacker Rear Cover.<br>4. Press and release the Stacker Exit Sensor Actuator.<br>**Does the message on the display alternate between "With Paper" and "Without Paper" as you press and release the actuator?** | Go to step 5. | Go to step 4. |
| 4 | 1. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>2. On the Engine Logic Board, check the voltage between P/J35 pin 7 and frame ground as you actuate and deactuate the Stacker Exit Sensor Actuator.<br>**Is the voltage +3.3 VDC when deactuated and 0.0 VDC when actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Stacker Exit Sensor (RRP 10.11 on page 6-111). If the problem persists, replace the Stacker PWB (RRP 10.7 on page 6-107). |
| 5 | 1. Exit Sensor Tests and scroll to Motors/Fans Tests.<br>2. Scroll to Stacker Motor and press **OK**. The motor should run for about three seconds.<br>**Does the Stacker Motor run?** | Go to step 8. | Go to step 6. |

**Stacker Jam Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 6 | 1. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>2. Enter Service Diagnostics and select Motors/Fans Tests.<br>3. Scroll to Stacker Motor.<br>4. On the Engine Logic Board, measure the voltage between P/J35 pin 6 and frame ground as you press **OK**.<br>**Does the voltage drop from +3.3 VDC to +0.5 VDC when OK is pressed?** | Go to step 7. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 7 | 1. Switch the printer power OFF.<br>2. Remove the Stacker from the printer (RRP 10.1 on page 6-101) and turn the Stacker upside down.<br>3. Disconnect P/J210 from the Stacker PWB.<br>4. Check the resistance between pins 1 and 4, pins 1 and 6, pins 2 and 3, and pins 2 and 5 on the disconnected plug.<br>**Are all readings 70 ± 10 ohms?** | Replace the Stacker PWB (RRP 10.7 on page 6-107). | Replace the Stacker Motor (RRP 10.8 on page 6-108). |
| 8 | 1. Open the Stacker Rear Cover.<br>2. Press **OK** to run the Stacker Motor.<br>3. Check the Stacker rollers.<br>**Are the Stacker Rollers rotating smoothly?** | Go to step 9. | Repair or replace the Stacker Rollers as necessary (RRP 10.14 on page 6-114/ RRP 10.15 on page 6-115). |
| 9 | 1. Switch the printer power OFF.<br>2. Remove the Stacker (RRP 10.1 on page 6-101).<br>3. Open the printer rear cover and check the movement of the Exit Gate.<br>**Does the Exit Gate move freely in both directions when pressed and released?** | Go to step 10. | Repair or replace the Exit Gate as necessary (RRP 6.4 on page 6-69). |
| 10 | 1. Reinstall the Stacker.<br>**Note: Each time the printer's rear cover or front cover is opened and closed with power applied, the printer performs a reset. At the completion of the reset, the Exit Gate toggles between fully open and fully closed positions.**<br>2. Open the printer rear cover. Remove the Duplex Unit if installed.<br>3. Switch the printer power-on.<br>4. Cheat the Rear Cover Interlock and watch the Exit Gate at the end of reset.<br>5. Remove then replace the Rear Cover Interlock cheater.<br>**Does the Exit Gate toggle at the completion of each reset?** | Replace the Stacker PWB (RRP 10.7 on page 6-107). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Direction Solenoid (RRP 10.10 on page 6-110). If the problem persists, replace the Stacker PWB (RRP 10.7 on page 6-107). |

# Jam at Front/Rear; Open Front/Rear Cover to Clear.

## (E7-#: Duplex Jam)

**E7-0:** Paper arrives at the Registration Sensor early from the Duplex Sensor.

**E7-1:** Paper is late to the Duplex Sensor.

**E7-2:** Paper is late off the Duplex Sensor.
The Duplex Sensor is on at power-on.

**E7-3:** Paper is late to the Registration Sensor from the Duplex Sensor.

**Duplex Jam Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open the printer and check for paper or other obstructions in the paper path.<br>2. Remove the Duplex Unit and check the rear entrance chute to the Paper Handler.<br>**Is the printer free of jammed paper, paper scraps, or other obstructions?** | Go to step 2. | Clear all jammed paper, paper scraps, and obstructions from the printer. |
| 2 | Check the Duplex Belt, Rollers, and gears. Check for contamination, wear, and obstructions.<br>**Are the Duplex rollers, gears, and belt clean and in good condition?** | Go to step 3. | Replace components or Duplex Unit as necessary (RRP 12.1 on page 6-141). |
| 3 | 1. Reinstall the Duplex Unit and enter Service Diagnostics.<br>2. Select Engine Test Print and press **OK**<br>3. Scroll to Print Quantity and press **OK**.<br>4. Set the quantity to 15 and press **Back**.<br>5. Scroll to Duplex and press **OK**. Set duplex to ON.<br>6. Scroll to Print Test Pattern and press **OK**.<br>**Does the error code reappear?** | Clear the jam and press **Back.** Go to step 4. | Problem solved. |
| 4 | 1. Select Motors/Fans Tests.<br>2. Scroll to Duplex Motor High and press **OK**. The motor should run for about three seconds.<br>3. Scroll to Duplex Motor Low and press **OK**. The motor should run for about three seconds.<br>**Can you hear the Duplex Motor run at both speeds?** | Go to step 5. | Go to step 6. |

**Duplex Jam Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | 1. Select Sensor Tests.<br>2. Select Duplex Sensor.<br>3. Open the Rear Cover and use a narrow strip of paper (approximately 1 inch wide) to actuate and deactuate the Duplex Sensor.<br>**Does the message on the display alternate between "With Paper" and "Without Paper" as you press and release the actuator?** | Perform Registration Sensor on page 3-20 to test the Registration Sensor. | Replace the Duplex Sensor (RRP 12.13 on page 6-155). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 6 | 1. Remove the Duplex Unit, then remove the Duplex Cover (RRP 12.3 on page 6-143).<br>2. Disconnect P/J38 from the Duplex PWB.<br>3. Measure the resistance on the disconnected plug between pin 1 and pin 2; between pin 1 and pin 3; between pin 1 and pin 4; and between pin 1 and pin 5.<br>**Are all four readings between 30 and 37 ohms?** | Replace the Duplex PWB (RRP 12.4 on page 6-144). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Duplex Motor Assembly (RRP 12.8 on page 6-149). |

# Paper Size Jam; Check Size and Open Rear Cover to Clear. (PSE-1)

## (PSE-1: Paper size error)

There is a conflict between the size of the paper detected by the printer, and the length of time the Registration Sensor is actuated.

**Paper Size Error Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | **Does the problem appear when using Tray 1, 2, or 3?** | Go to step 3. | Go to step 2. |
| 2 | 1. Verify the size of paper currently in the MPT Tray.<br>2. Select Menus and press **OK**, then<br>3. Select Printer Setup Menu and press **OK**.<br>4. Select Tray Setup Menu and press **OK**.<br>5. Select MPT Setup Menu and press **OK**.<br>6. Select Change Paper Size and press **OK**.<br>**Does the paper size checked in the MPT Setup Menu match the size actually in the MPT?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Set MPT size to the size of paper actually installed, then press **OK**. |

**Paper Size Error Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | **Is the paper size in the problem tray within printer specifications?** | Go to step 4. | Replace with paper that meets specifications. |
| 4 | Check the side guides and the Paper Stack End Guide in the problem tray.<br>**Are all guides properly set for the size of paper installed?** | Go to step 5. | Properly set the guides. |
| 5 | Check the size cam on the left side of the paper tray (see the Paper Size Actuators table below).<br>**Are the cams in good condition (not broken) and do they move freely as the paper tray end guide is moved.** | Go to step 6. | Replace the paper tray (PL 2.1 on page 7-6/PL 11.1 on page 7-26). |
| 6 | 1. Reinstall the paper tray.<br>2. Enter Service Diagnostics and select Sensor Tests.<br>3. Scroll to Paper Tray Size Read and press **OK.**<br>4. Select “Tray 1 Size” and press **OK**.<br>5. Press “Back” and select another tray size until all installed trays are tested.<br>**Does the paper size displayed on the Front Panel display match the size of the paper actually loaded in the tray?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Tray Size PWB (RRP 3.13 on page 6-42/ RRP 11.19 on page 6-139). |

# Close Front Cover/Close Rear Cover.

## (Close Front Cover/Close Rear Cover)

**Close Front/Rear Cover Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open and close the Front Cover.<br>2. Inspect the movement of the Interlock Switch.<br>**Does the actuator tab on the Front Cover press down on the Interlock Switch lever?** | Go to step 2. | Replace the Front Cover Assembly (PL 1.1 on page 7-2). |
| 2 | 1. Open and close the Rear Cover.<br>2. Inspect the movement of the Interlock Switch.<br>**Does the actuator tab on the Rear Cover press down on the Interlock Switch lever?** | Go to step 3. | Replace the Rear Cover Assembly (PL 1.2 on page 7-4). |
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Rear Cover Switch test and press **OK**.<br>3. Open and close the Rear Cover.<br>**Does the message on the display alternate between “Closed” and “Open” as you open and close the Rear Cover?** | Go to step 5. | Go to step 4. |

**Close Front/Rear Cover Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J30 from the Engine Logic Board.<br>4. Measure the resistance between pins 1 and 2 on the disconnected plug as you open and close the Rear Cover.<br>**Is there continuity when the Rear Cover is closed and infinity when the Rear Cover is open?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Check the wiring between P/J30 and the Rear Cover Interlock Switch. Repair or replace the wiring or interlock switch (RRP 9.10 on page 6-97) as required. |
| 5 | Open and close the Front Cover.<br>**Does the message on the display alternate between "Closed" and "Open" as you open and close the Front Cover?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 6. |
| 6 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J284 from the LVPS PWB.<br>4. Measure the resistance between pins 1 and 2 on the disconnected plug as you open and close the Front Cover.<br>**Is there continuity when the Front Cover is closed and infinity when the Front Cover is open?** | Go to step 7. | Check the wiring between P/J284 and the Front Cover Interlock Switch. Repair or replace the wiring or interlock switch (RRP 9.9 on page 6-96) as required. |
| 7 | 1. Connect P/J284 to the LVPS.<br>2. Switch the printer power-on.<br>3. On the Engine Logic Board, check the voltage between P/J28 pin 1 and frame ground.<br>**Is the voltage +24 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |

# Install or Reseat Print Cartridge.

## (J3: Missing Print Cartridge)

1. Print Cartridge is not installed or seated correctly.

2. The installed Print Cartridge is not the correct one.

**Print Cartridge Installation Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open the Front Cover and remove the Print Cartridge.<br>2. Inspect the tab on the top center of the Print Cartridge that actuates the Print Cartridge Sensor Assembly.<br>**Is the tab on the Print Cartridge intact?** | Go to step 2. | Replace the Print Cartridge (PL 8.1 on page 7-20). |
| 2 | Press and release the Print Cartridge Sensor Assembly Actuator.<br>**Does the Print Cartridge Sensor Assembly Actuator move smoothly?** | Go to step 3. | Replace the Print Cartridge Sensor Assembly (RRP 7.3 on page 6-81). |
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Print Cartridge Sensor test and press **OK**.<br>3. Insert and remove the Print Cartridge a few times.<br>**Does the display alternate between "Not Installed" and "Installed" as you remove and replace the Print Cartridge?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), the Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Install the Print Cartridge. Leave the Front Cover open.<br>4. Disconnect P/J25 from the Engine Logic Board.<br>5. On the Engine Logic Board, check for continuity between J21-4 and J25-3, and J25-2 and J25-1 as you insert and remove the Print Cartridge.<br>**Is there continuity between J25-4 and J25-3, and J25-2 and J25-1 when you insert the cartridge and no continuity when you remove the cartridge?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 5. |
| 5 | **Is the Print Cartridge a Xerox Phaser 4400 Print Cartridge?** | Replace the Print Cartridge Sensor Assembly together with the harness (RRP 7.4 on page 6-81). | Replace Print Cartridge with a Xerox Phaser 4400 Print Cartridge (PL 8.1 on page 7-20). |

# Replace Print Cartridge.

## (J5: Toner Low)

The Print Cartridge is in a low toner condition.

**Print Cartridge Low Toner Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Install a new Print Cartridge.<br>**Does the Replace Print Cartridge message still appear?** | Go to step 2. | Problem solved. |
| 2 | 1. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>2. Cheat the Front Cover Interlock Switch.<br>3. On the Connector PWB, check the voltage between P/J42 pin 4 and frame ground.<br>**Is the voltage 0.0 VDC with the print cartridge installed and +3.3 VDC with the print cartridge removed?** | Go to step 5. | Go to step 3. |
| 3 | Check the voltage between P/J42 pin 3 and pin 1.<br>**Is the voltage +24 VDC?** | Replace the Toner Sensor (RRP 5.2 on page 6-59). | Go to step 4. |
| 4 | On the Connector PWB, check the voltage between P/J231 pin 11 and pin 12.<br>**Is the voltage +24 VDC?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Check the Connector Harness Assembly. If OK, replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 5 | On the connector PWB, check the voltage between P/J231 pin 9 and frame ground.<br>**Is the voltage 0.0 VDC with the print cartridge installed and +3.3 VDC with the print cartridge removed?** | Check the Connector Harness Assembly. If OK, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Connector PWB (RRP 9.7 on page 6-94). |

# Toner is Low.

## (J5: Toner Low)

The Print Cartridge is almost empty.

**Print Cartridge Low Toner Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Install a new Print Cartridge.<br>**Does the Replace Print Cartridge message still appear?** | Go to step 2. | Problem solved. |
| 2 | 1. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>2. Cheat the Front Cover Interlock Switch.<br>3. On the Connector PWB, check the voltage between P/J42 pin 4 and frame ground.<br>**Is the voltage 0.0 VDC with the print cartridge installed and +3.3 VDC with the print cartridge removed?** | Go to step 5. | Go to step 3. |
| 3 | Check the voltage between P/J42 pin 3 and pin 1.<br>**Is the voltage +24 VDC?** | Replace the Toner Sensor (RRP 5.2 on page 6-59). | Go to step 4. |
| 4 | On the Connector PWB, check the voltage between P/J231 pin 11 and pin 12.<br>**Is the voltage +24 VDC?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Check the Connector Harness Assembly. If OK, replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 5 | On the connector PWB, check the voltage between P/J231 pin 9 and frame ground.<br>**Is the voltage 0.0 VDC with the print cartridge installed and +3.3 VDC with the print cartridge removed?** | Check the Connector Harness Assembly. If OK, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Connector PWB (RRP 9.7 on page 6-94). |

# Maintenance Kit is Near End of Life.

Indicates that the parts that make up the Maintenance Kit (Fuser, Transfer Roller, Feed and Retard Rollers) are nearing the end of their rated useful life.

**Maintenance Kit Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Install the Maintenance Kit in accordance with the instructions included with it.<br>**Does the warning message reappear?** | Go to step 2. | Problem solved. |
| 2 | Perform the Fuser Reset.<br>**Does the warning message continue to appear?** | Go to step 3. | Problem solved. |
| 3 | Replace the following in order:<br>■ Engine Logic Board (RRP 9.3 on page 6-89)<br>■ Image Processor Board (RRP 9.2 on page 6-88)<br>■ Front Panel (RRP x.x on page 6-14). | | |

# Install or Reseat the Duplex Unit.

## (E9-1: Duplex Unit Fail)

Duplex Unit was removed while power was on.

**Duplex Unit Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove and reinstall the Duplex Unit.<br>3. Switch the printer power-on.<br>4. Print Configuration Pages.<br>**Is the Duplex Unit listed on the Configuration Page (2-sided Printing)?** | Problem solved. | Go to step 2. |
| 2 | 1. Enter Service Diagnostics.<br>2. Select Sensor Tests and press **OK**.<br>3. Scroll to Duplex Unit Presence and press **OK**.<br>**Does the display read "Installed" with the unit present, and "Not Installed" without the unit present?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 3. |
| 3 | Check the wiring harnesses.<br>**Are the wiring harnesses in good condition?** | Replace the Duplex PWB (RRP 12.4, page 6-144). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Duplex Harness Assembly, J32/P341 (RRP 9.12, page 6-99). |

# Stacker Failure.

## (E9-2: Stacker Unit Fail.)

Stacker has failed or was removed while power is on.)

Stacker removed while power is on.

**Stacker Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove and reinstall the Stacker.<br>3. Switch the printer power-on.<br>4. Print a Configuration Page.<br>**Is the Stacker listed on the Configuration Page?** | Problem solved. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Remove the Stacker from the printer. Switch the printer power-on. On the Engine Logic Board, check the voltage between P/J35 pin 1 and frame ground.<br>**Is the voltage 3.3 VDC.** | Go to step 3. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 3 | 1. Switch the printer power OFF.<br>2. Properly install the Stacker on the printer.<br>3. Switch the printer power-on.<br>4. On the Engine Logic Board, check the voltage between P/J35 pin 1 and frame ground.<br>**Is the voltage 0.0 VDC.** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Stacker PWB (RRP 10.7 page 6-107). |

# Install or Reseat the Envelope Feeder.

## (E9-E: Envelope Feeder Fail/Re-install.)

Envelope feeder failed or was removed while power is on.

**Envelope Feeder Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the Printer power OFF.<br>2. Remove and reinstall the envelope feeder.<br>3. Switch the Printer power-on.<br>4. Print a Configuration Page.<br>**Is the Envelope Feeder listed on the Configuration Pages?** | Problem solved. | Go to step 2. |
| 2 | 1. Switch the Printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the Printer power-on.<br>4. Check the voltage on the Engine Logic Board between P/J23 Pin 4 and frame ground.<br>**Is the voltage 0.0 VDC?** | Replace the Envelope Feeder PWB (RRP 13.3 on page 6-159). | Go to step 3. |

**Envelope Feeder Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | 1. Switch the Printer power OFF.<br>2. Remove the Envelope Feeder.<br>3. Check for continuity between J418 Pin 3 (Envelope Connector Assembly) and P/J23 Pin 4 on the Engine Logic Board.<br>**Is there continuity between the two pins?** | Replace the Envelope Feeder PWB (RRP 13.3 on page 6-159). | Go to step 4. |
| 4 | 1. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>2. Check for continuity between P/J 41 Pin 6 on the Connector PWB and P/J 23 Pin 4.<br>**Is there continuity between the two pins?** | Replace the Envelope Connector Assembly (RRP 4.10 on page 6-56). | Go to step 5. |
| 5 | Check the Connector Harness Assembly for proper connection and for defective wires.<br>**Is the Harness in good condition?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Repair or replace if necessary. |

# Standard Output Tray is Full. Unload Paper.

## (Standard Output Tray Full)

Error message indicates the output tray is full.

**Output Tray Full Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | **Is there a paper stack in the standard bin actuating the Output Tray Full Sensor?** | Remove the paper stack. | Go to step 2. |
| 2 | **Is the paper curled?** | Go to step 4. | Go to step 3. |
| 3 | Lift and release the Output Tray Full Actuator a few times.<br>**Does the actuator move freely?** | Go to step 5. | Replace Output Tray Full Actuator (RRP 6.8 on page 6-76) or Output Tray Full Sensor (RRP 6.6 on page 6-72), as necessary. |
| 4 | Replace paper in paper tray with fresh dry paper. Run test prints.<br>**Does the error code reappear?** | Go to step 5. | Problem solved. |

**Output Tray Full Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Output Tray Full Sensor and press **OK**.<br>3. Manually actuate and deactuate the Output Tray Full Actuator.<br>**Does the message on the display alternate between "Full" and "Not Full" as you lift and release the actuator (the indication may have a short delay because of the sensor circuit)?** | Replace Engine Logic Board (RRP 9.3 on page 6-89). | Go to Output Tray Full Sensor on page 3-22. |

# Tray [#] Paper is Low.

Paper stack in the Paper Tray Assembly is below 50 ±30 sheets.

**Low Paper Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Fill the tray in the affected position.<br>**Does the message reappear?** | Go to step 2. | Problem solved. |
| 2 | 1. Remove the affected tray Assembly.<br>2. Push up the Low Paper Actuator manually and then release.<br>**The Low Paper Actuator moves smoothly.** | Go to step 3. | Repair or replace the Low Paper Sensor Assembly (RRP 3.5, page 6-32/ RRP 11.14, page 6-133). |
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Tray [#] Low Paper Sensor and press **OK**.<br>3. Press the Low Paper Actuator manually and then release.<br>**Does the message on the Front Panel display alternate between "Low" and "Not Low" as you press the Low Paper Actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | Check the wiring associated with the specific Low Paper Sensor.<br>**Is the wiring OK?** | Replace the Low Paper Sensor (RRP 3.5, page 6-32/ RRP 11.14, page 6-133) | Replace the faulty wiring. |

# Tray 2 (or Tray 3) Paper is Low.

Paper stack in Tray 2 and/or Tray 3 is below 50 ±30 sheets.

**Low Paper (Tray 2 or Tray 3) Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Fill the affected paper tray with fresh paper.<br>**Is the Error Message still displayed?** | Go to step 2. | Problem solved. |
| 2 | 1. Remove the paper tray from affected Feeder Assembly.<br>2. Manually push up and release the low paper actuator.<br>**Does the low paper actuator move smoothly up and down?** | Go to step 3. | Inspect the Low Paper Actuator. Repair or replace as required. |
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Tray 2 (or Tray 3) Low Paper Sensor and press **OK**.<br>3. Press and release the Low Paper Actuator.<br>**Does the message on the Front Panel display alternate between Low and Not Low as you press and release the actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power-on.<br>4. On the Engine Logic Board, check the voltage between P/J33 pin 8 and frame ground.<br>**Is the voltage +3.3 VDC?** | Go to step 6. | Go to step 5. |
| 5 | On the Engine Logic Board, check the voltage between P/J28 pin 10 and frame ground.<br>**Is the voltage +3.3 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 6 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Tray 2 (or Tray 3) Low Paper Sensor and press **OK**.<br>3. As you actuate the Low Paper Sensor, check the voltages at the following locations on the Engine Logic Board:<br>■For Tray 2, check between P/J33 pin 9 and frame ground.<br>■For Tray 3, check between P/J33 pin 10 and frame ground.<br>**Does the voltage change from +3.3 VDC to 0.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Low Paper Sensor (RRP 11.14, page 6-133) for the affected tray. If the problem persists, replace the Feeder PWB (RRP 11.9, page 6-128) then the Size PWB (RRP 11.19, page 6-139). |

# No Paper in Tray [#].

A tray (Tray 1, Tray 2, or Tray 3) incorrectly indicates that it is empty.

**Tray [#] Empty Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | **Does the problem appear when using Tray 2 or Tray 3?** | Go to step 7. | Go to step 2. |
| 2 | Check the paper level in Tray 1.<br>**Is there paper in Tray 1?** | Go to step 3. | Load paper into Tray 1. |
| 3 | 1. Enter Service Diagnostics and select Test Print.<br>2. Print a test print from Tray 1.<br>**Does the error message reappear?** | Go to step 4. | Return to "Service Flowchart" and restart. |
| 4 | 1. Remove Tray 1 from the printer.<br>2. Remove all paper from the tray.<br>3. Reinsert Tray 1 into the printer.<br>4. From the rear of the printer, watch the Tray 1 bottom plate.<br>**Is the Bottom Plate is raised fully and evenly?** | Go to step 5. | Go to Tray Motor Assembly Checkout on page 3-26. |
| 5 | 1. Remove Tray 1.<br>2. Manually actuate the Tray 1 No Paper sensor.<br>**Does the No Paper Actuator move smoothly?** | Go to step 6. | Replace the Tray 1 No Paper Actuator (RRP 3.3 on page 6-30). |
| 6 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Tray 1 No Paper and press **OK**.<br>3. Manually actuate the Tray 1 No Paper Sensor.<br>**Does the message on the display alternate between "With paper" and "Without paper" as you press and release the actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to Tray 1 No Paper Sensor on page 3-22. |
| 7 | Check the paper level in Tray 2/3.<br>**Is there paper in the tray?** | Go to step 8. | Load paper into Tray 2/3. |
| 8 | 1. Enter Service Diagnostics and select Test Print.<br>2. Print a test print from Tray 2/3.<br>**Does the error message reappear?** | Go to step 9. | Return to "Service Flowchart" and restart. |
| 9 | Remove Tray 2/3 from the printer. Remove all paper from the tray. Reinsert the Tray into the printer. From the rear of the printer, watch the tray bottom plate.<br>**Is the Bottom Plate raised fully and evenly?** | Go to step 10. | Go to Tray Motor Assembly Checkout on page 3-26. |

**Tray [#] Empty Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 10 | 1. Remove Tray 2/3.<br>2. Manually actuate the No Paper Sensor.<br>**Does the No Paper Actuator move smoothly?** | Go to step 11. | Replace the Tray 2/3 No Paper Actuator (RRP 11.7 on page 6-126). |
| 11 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Tray 2 No Paper or Tray 3 No Paper and press **OK**.<br>3. Manually actuate the Tray 2/3 No Paper Sensor.<br>**Does the message on the display alternate between "With paper" and "Without paper" as you press and release the actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the following in order for the problem feeder assembly:<br>■ Feeder PWB (RRP 11.9 on page 6-128)<br>■ Size PWB (RRP 11.19 on page 6-139) |

# Load Tray [#] with [paper size] [paper type].

There is a conflict between the size of the paper detected by the Size Switches, and the length of paper detected by the length of time the Registration Sensor is actuated.

**Paper Size Error Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | **Does the problem appear when using Tray 1, 2, or 3?** | Go to step 2. | Go to step 3. |
| 2 | 1. Verify the size of paper currently in the MPT Tray.<br>2. Select Menus and press **OK**, then<br>3. Select Printer Setup Menu and press **OK**.<br>4. Select Tray Setup Menu and press **OK**.<br>5. Select MPT Setup Menu and press **OK**.<br>**Does the paper size checked in the MPT Setup Menu match the size actually in the MPT?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Set MPT size to the size of paper actually installed, then press **OK**. |
| 3 | **Is the paper size in the problem tray within printer specifications?** | Go to step 4. | Replace with paper that meets specifications. |
| 4 | Check the side guides and the Paper Stack End Guide in the problem tray.<br>**Are all guides properly set for the size of paper installed?** | Go to step 5. | Properly set the guides. |
| 5 | Check the size cam on the left side of the paper tray (see the Paper Size Actuators table below).<br>**Are the cams in good condition (not broken) and do they move freely as the paper tray end guide is moved.** | Go to step 6. | Replace the paper tray (PL 2.1 on page 7-6/PL 11.1 on page 7-26). |

**Paper Size Error Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 6 | 1. Reinstall the paper tray.<br>2. Enter Service Diagnostics and select Sensor Tests.<br>3. Scroll to Paper Tray Size Read and press **OK.**<br>4. Select "Tray 1 Size" and press **OK**.<br>5. Press "Back" and select another tray size until all installed trays are tested.<br>**Does the paper size displayed on the Front Panel display match the size of the paper actually loaded in the tray?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Tray Size PWB (RRP 3.13 on page 6-42/ RRP 11.19 on page 6-139). |

**Paper Size Actuators**

| Actuator Cam Extended | B5 SEF | A5 SEF | 13" SEF | 14" SEF | 8.5" SEF | A4 SEF |
|---|---|---|---|---|---|---|
| Top | X | | X | | | |
| Middle | | | X | X | | X |
| Bottom | | | | | X | X |

# Tray [#] Failure. Open and Close Tray [#].

## (C3-[#]E Tray [#] Not In)

A Tray Assembly (Tray 1, 2, or 3) is not in place.

**Tray Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics,<br>2. Print a test print from every tray.<br>**Does the Error Code specify Tray 2 or Tray 3?** | Go to step 11. | Go to step 2. |
| 2 | Remove and reinstall Tray 1.<br>**Does the C3 error code still appear?** | Go to step 3. | Problem solved. |
| 3 | Measure the voltage from the lower contact of the Feeder Socket (P/J672) to frame ground.<br>**Is the voltage +24 VDC?** | Go to step 8. | Go to step 4. |
| 4 | Measure the voltage from P/J33 pin 6 on the Engine Logic Board to frame ground.<br>**Is the voltage +24 VDC?** | Go to step 5. | Go to DC Power (LVPS) on page 3-4. |
| 5 | 1. Switch off the printer power.<br>2. Remove the Size Sensor Housing (RRP 3.11 on page 6-40).<br>3. Measure continuity between the disconnected P/J33 pin 6 and P/J331 pin 12 on the Tray 1 Size PWB.<br>**Is there continuity between the two pins?** | Go to step 6. | Repair or replace Feeder Harness Assembly (PL 9.1 on page 7-22). |

**Tray Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 6 | On the Tray 1 Size PWB, measure continuity between P/J331 pin 12 to P/J61 pin 1.<br>**Is there continuity between the two pins?** | Go to step 7. | Replace the Tray 1 Size PWB (RRP 3.13 on page 6-42). |
| 7 | Check the wiring between P/J67 pin 5 on the Tray 1 Feeder PWB and the bottom pin on the Paper Feeder Socket (P/J672).<br>**Is the wiring in good condition?** | Replace the Tray 1 Feeder PWB (RRP 3.9 on page 6-37). | Replace the Socket and Harness (PL 3.1 on page 7-10. |
| 8 | On the paper tray, measure the resistance between the middle and bottom terminals on the Paper Feeder Socket.<br>**Is the resistance 90 ±15 ohms?** | Go to step 9. | Go to Tray Motor Assembly Checkout on page 3-26. |
| 9 | On the paper tray, measure the resistance between the top and bottom terminals on the Paper Feeder Socket.<br>**Is there continuity between the two pins?** | Go to step 10. | Replace the Socket and Harness (PL 3.1 on page 7-10. |
| 10 | Replace the following parts one at a time until the problem is resolved:<br>■ Stack Height Sensor (RRP 3.4 on page 6-31)<br>■ Feeder PWB (RRP 3.9 on page 6-37)<br>■ Size 1 PWB (RRP 3.13 on page 6-42)<br>■ Engine Logic Board (RRP 9.3 on page 6-89) | | |
| 11 | Remove and reinstall the Tray indicated.<br>**Does the C3 error code still appear?** | Go to step 12. | Problem solved. |
| 12 | 1. Exchange Tray 1 with the Tray generating the “C3” code.<br>2. Print a test print from each tray.<br>**Does the error code now indicate a Tray 1 failure?** | Go to step 19. | Go to step 13. |
| 13 | **Does the error code indicate a Tray 2 failure?** | Go to step 16. | Go to step 14. |
| 14 | 1. Remove Tray 3 from the feeder.<br>2. Check the voltage between the lower terminal on the Paper Feeder Connector and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 18. | Go to step 15. |
| 15 | Check the wiring harness between the Tray 2 Size PWB (P/J53) and the Tray 3 Size PWB (P/J54).<br>**Is the harness in good condition?** | Replace the Tray 3 Size PWB (RRP 11.19 on page 6-139), then the Tray 3 Feeder PWB (RRP 11.9 on page 6-128. | Replace the Size Harness Assembly (PL 11.1 on page 7-27). |

**Tray Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 16 | 1. Remove Tray 2 from the feeder.<br>2. Check the voltage between the lower terminal on the Feeder Connector and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 18. | Go to step 17. |
| 17 | Check the wiring harness between the Tray 1 Size PWB (P/J51) and the Tray 2 Size PWB (P/J52).<br>**Is the harness in good condition?** | Replace the Tray 2 Size PWB (RRP 11.19 on page 6-139) then the Tray 2 Feeder PWB (RRP 11.9 on page 6-128). | Replace the Size Harness Assembly (PL 11.1 on page 7-27). |
| 18 | Replace the following components, in order, until the problem is resolved:<br>■ Stack Height Sensor (RRP 11.13 on page 6-132)<br>■ Feeder PWB (RRP 11.9 on page 6-128)<br>■ Size PWB (RRP 11.19 on page 6-139)<br>■ Engine Logic Board (RRP 9.3 on page 6-89) | | |
| 19 | Remove the tray now occupying the Tray 1 position and continue with Tray Motor Assembly Checkout on page 3-26. | | |

# Main Motor Failure.

## (U1 Motor Fail/Power Off)

Main Motor speed is less than specified RPM after 1.3 seconds.

There is a problem with the Main Motor.

**Main Motor Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), the Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Open the Rear Cover and, if installed, remove the Duplex Unit.<br>4. Manually rotate the rotor of the Main Motor clockwise (as viewed from the left side of the printer).<br>**Does the rotor of the Main Motor rotate smoothly?** | Go to step 5. | Go to step 2. |
| 2 | 1. Open the Front Cover and remove Print Cartridge.<br>2. Manually rotate the rotor of motor clockwise.<br>**Does the rotor of the Main Motor rotate smoothly?** | Replace the Print Cartridge. | Go to step 3. |

**Main Motor Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | 1. Remove the Fuser Assembly (RRP 6.2 on page 6-66).<br>2. Manually rotate the rotor of the Motor clockwise.<br>**Does the rotor of the Main Motor rotate smoothly?** | Replace the Fuser Assembly (RRP 6.2 on page 6-66). | Go to step 4. |
| 4 | Remove the Main Motor (RRP 8.1 on page 6-84). Manually rotate the rotor of the Motor clockwise.<br>**Does the rotor of the Main Motor rotate smoothly?** | Replace the Main Drive Gear Assembly (RRP 8.2 on page 6-85) | Replace the Main Motor (RRP 8.1 on page 6-84). |
| 5 | Open the Front Cover and remove the Print Cartridge. Rotate the Metal Registration Roller manually.<br>**Do the Metal and Rubber Registration Rolls rotate smoothly?** | Go to step 6. | Replace the Registration Rolls (RRP 5.6 on page 6-62) or clutch (RRP 5.5 on page 6-62), as necessary. |
| 6 | 1. With the Front Cover open, cheat the Front Cover Interlock.<br>2. Enter Service Diagnostics and select Motor/Fans Tests.<br>3. Scroll to Main Motor and press **OK**.<br>4. Visually inspect the Main Motor and Main Drive Gears.<br>**Do the Main Motor and drive gears run smoothly and are all drive gears in good condition?** | Go to step 7. | Go to RRP 8.1 on page 6-84 and RRP 8.2 on page 6-85. |
| 7 | 1. Press the Back key twice to return to top Menu.<br>2. Select Main Motor+Clutches/Sol Tests.<br>3. Scroll to Motor+MPT Sol and press **OK**.<br>**Does the MPT Feed Roller Assembly rotate smoothly?** | Go to step 8. | Replace the MPT Feed Roller components as necessary (RRP 4.2, page 6-45/ RRP 4.3, page 6-47). |
| 8 | Scroll to Motor+Tray 1 Turn Roll and press **OK**.<br>Note: If optional feeders are installed, all turn rollers should actuate when you press **OK**.<br>**Do all Turn Roller Shafts rotate smoothly?** | Go to step 9. | Repair or replace the appropriate Turn Roller Assembly (RRP 3.2, page 6-29 or RRP 11.8, page 6-127). |

**Main Motor Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 9 | Scroll to Motor+Registration and press **OK**.<br>**Does the Registration Roller rotate smoothly?** | Go to step 10. | Repair or replace the Registration Rolls (RRP 5.6, page 6-62) as necessary. |
| 10 | 1. Remove paper from all paper trays.<br>2. Scroll to Motor+Tray 1 Feed and press **OK**.<br>**Does the Main Motor rotate smoothly?** | Go to step 11. | Repair or replace the Tray 1 Feed Clutch or Feed Shaft (RRP 3.6, page 6-33). |
| 11 | **Does the printer have a Tray 2?** | Go to step 12. | Replace the Main Motor Assembly (RRP 8.1, page 6-84). |
| 12 | Scroll to Motor+Tray 2 Feed and press **OK**.<br>**Does the Main Motor rotate smoothly?** | Go to step 13. | Repair or replace the Tray 2 Feed Clutch or Feed Shaft (RRP 11.10, page 6-129). |
| 13 | **Does the printer have a Tray 3?** | Go to step 14. | Replace the Main Motor Assembly (RRP 8.1, page 6-84). |
| 14 | Scroll to Motor+Tray 3 Feed and press **OK**.<br>**Does the Main Motor rotate smoothly?** | Go to Main Motor Assembly on page 3-15. | Repair or replace the Tray 3 Feed Clutch or Feed Shaft (RRP 3.6, page 6-33). |

# Laser Unit Failure.

## (U2 Laser Fail/Power Off)

Laser Failure at warm-up:

- Transmitting /BD signal is longer than specified value for 10 sec. + t1.
- The laser power does not reach the specified value.

Laser Failure after warm-up:

- Laser signal intervals become longer than the Fail time interval after Laser warm-up is completed.

### Laser Failure Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and<br>2. Select Engine NVRAM Adjustments.<br>3. Scroll to Laser Power and press **OK**.<br>**Is the value for Laser Power set to "10"?** | Go to step 2. | Set the value to 10. If the problem persists, replace the Engine Logic Board (RRP 9.3, page 6-89). |
| 2 | Select Motors/Fans Tests then Laser Scan Motor.<br>**Can you hear the Laser Scan Motor spin up?** | Go to step 3. | Go to Laser Assembly on page 3-17. |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), the Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J21 from the Engine Logic Board. Switch the printer power-on.<br>4. On the Engine Logic Board, check the voltage between P21-6 and frame ground.<br>**Is the voltage +5.0 VDC?** | Go to Laser Assembly on page 3-17. | Go to step 4. |
| 4 | On the Engine Logic Board, check the voltage between P25 pin 4 and frame ground.<br>**Is the voltage +5.0 VDC?** | Go to step 6. | Go to step 5. |
| 5 | On the Engine Logic Board, check the voltage between P28 pin 7 and frame ground.<br>**Is the voltage +5.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 6 | On the Engine Logic Board, check the voltage between P25 pin 3 and frame ground.<br>**Is the voltage +5.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to Install or Reseat Print Cartridge. on page 2-33. |

# Fuser Failure.

## (U4 Fuser Fail/Power Off)

- Low temperature trouble/Power off (Fuser temperature drops below the set temperature after the Fuser warm-up is complete.)
- Warm-up fail/Power off (Fuser warm-up does not complete within 110 seconds.)
- STS Disconnection fail/Power off (Thermistor circuit is detected to be open).
- High Temperature trouble/Power off (Fuser temperature rises above the set temperature.)
- Continuous heat on/Power off (Heat rod is on for 10 seconds when the Main Drive Motor is stopped, after the Fuser warm-up is completed.)

**Fuser Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Switch the printer power OFF. Wait a few minutes, then switch the printer power-on.<br>**Does the error message reappear?** | Go to Fuser Assembly on page 3-18. | Go to step 2. |
| 2 | Run 25 to 30 test prints.<br>**Does the error message reappear?** | Go to Fuser Assembly on page 3-18. | Problem solved. |

# Fan Failure; Power Off Now.

## (U5 Fan Fail/Power Off)

The printer is detecting incorrect fan rotation.

**Fan Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Switch the printer power OFF, then ON.<br>**Does the Fan rotate when the main power is switched on?** | Go to step 4. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1, page 6-6), Left Cover (RRP 1.2, page 6-7), and Left Plate (RRP 1.11, page 6-16).<br>3. Switch the printer power-on.<br>4. On the LVPS, check the voltage between P/J283 pin 1 and frame ground.<br>**Is the voltage +19 ±1.9 VDC?** | Replace the Fan Assembly (RRP 9.1 on page 6-87). | Go to step 3. |
| 3 | Check the voltage between P/J281 pin 13 and frame ground.<br>**Is the voltage +0.8 ±0.1VDC?** | Replace the LVPS (RRP 9.5 on page 6-91). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

**Fan Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | 1. Enter Service Diagnostics and select Motors/Fans Tests.<br>2. Scroll to Fan Motor High Speed and press **OK**.<br>**Does the Fan rotate at high speed?** | Go to step 7. | Go to step 5. |
| 5 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1, page 6-6), Left Cover (RRP 1.2, page 6-7), and Left Plate (RRP 1.11, page 6-16).<br>3. Enter Service Diagnostics and select Motors/Fans Tests and press **OK**.<br>4. Scroll to Fan Motor High Speed and press **OK**.<br>5. On the LVPS, check the voltage between P/J283 pin 1 and frame ground.<br>**Is the voltage +21.5 ±2.1 VDC?** | Replace the Fan Assembly (RRP 9.1 on page 6-87). | Go to step 6. |
| 6 | 1. On the LVPS, check the voltage between P/J281 pin 11 and frame ground.<br>2. With the Fan Motor High Speed test still highlighted, press **OK**.<br>**Does the voltage change from 0.8 VDC to 0.0 VDC when you press OK?** | Replace the LVPS (RRP 9.5 on page 6-91). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 7 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1, page 6-6), Left Cover (RRP 1.2, page 6-7), and Left Plate (RRP 1.11, page 6-16).<br>3. On the LVPS, check the voltage between P/J283 pin 2 and frame ground.<br>**Is the voltage less than 1.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Fan Assembly (RRP 9.1 on page 6-87). |

# Engine Logic Board NVRAM Failure.

## (U6 NVM Fail/Power Off)

There is problem with Non-Volatile RAM on the Engine Logic Board.

**NVM Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Switch the printer power OFF then ON.<br>**Does the error message reappear?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | To ensure that the problem is solved, switch the printer power OFF and ON several times.<br>**Does the error message reappear?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Problem solved. |

# Load MPT with [paper size] [paper type].

## (MPT Paper Empty)

**Load MPT Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Sensor Input test and press **OK**.<br>3. Actuate and deactuate the MPT No Paper Sensor.<br>**Does the Front Panel display alternate between "With Paper" and "Without Paper" as you press and release the actuator?** | It appears that the MPT No Paper Sensor is working correctly. If a problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | **Does the actuator move freely and is it in good condition (not broken or damaged)?** | Go to step 3. | Replace the MPT No Paper Sensor Actuator (RRP 4.5 on page 6-50). |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power-on.<br>4. On the Engine Logic Board, measure the voltage between P/J23 pin 14 and frame ground.<br>**Is the voltage +3.3 VDC with the MPT No Paper Sensor deactuated and 0.0 VDC with the Sensor actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Front Cover (RRP 1.7 on page 6-12).<br>3. Switch the printer power-on.<br>4. On the Connector PWB, measure the voltage between P/J45 pin 3 and frame ground.<br>**Is the voltage +3.3 VDC with the MPT No Paper Sensor deactuated and 0.0 VDC with the Sensor actuated?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Go to step 5. |
| 5 | Check the voltage between P/J45 pin 1 and frame ground.<br>**Is the voltage +1.2 ±0.1 VDC?** | Replace the MPT No Paper Sensor (RRP 4.8, page 6-53). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

# Tray 2 or 3 Failure.

## (E11: Tray 2/3 Fail)

Tray 2 or 3 disconnected after power-on.

Controller does not recognize the Feeder Assembly.

**Tray 2 or 3 Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Check the alignment of the printer to the 550-Sheet Feeder and the alignment of the top 550-Sheet Feeder to the second 550-Sheet Feeder, if installed.<br>2. Ensure that the connectors are properly aligned and properly connected.<br>**Are all connectors properly aligned and connected?** | Go to step 2. | Reseat the feeders and printer to obtain proper alignment and connection. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power-on.<br>4. On the Engine Logic Board, check the voltage between P/J33 pin 13 and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 10. | Go to step 3. |
| 3 | On the Engine Logic Board, check the voltage between P/J33 pin 6 and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 4. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 4 | 1. Remove Paper Tray 2.<br>2. Check the voltage between the bottom terminal on the mating connector on the Tray 2 feeder and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 8. | Go to step 5. |
| 5 | 1. Remove paper tray 1.<br>2. Check the voltage between the bottom terminal on the mating connector on the Tray 1 feeder and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 6. | Replace the Tray 1 Size PWB (RRP 3.13 on page 6-42). If the problem persists, replace the Tray 1 Feeder PWB (RRP 3.9 on page 6-36). |
| 6 | Check the resistance between the bottom and top terminals of the mating connector on paper tray 1.<br>**Is there continuity between the two pins?** | Go to step 7. | Replace the paper tray mating connector (PL 2.2 on page 7-8). |

**Tray 2 or 3 Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 7 | Check that the paper tray mating connector and the feeder mating connector are properly aligned when tray 1 is inserted into the feeder.<br>**Are the mating connectors properly connected when the paper tray is inserted?** | Replace the Tray 1 Size PWB (RRP 3.13 on page 6-42). If the problem persists, replace the Tray 1 Feeder PWB (RRP 3.9 on page 6-37). | Repair or replace components as necessary. |
| 8 | Check the resistance between the bottom and top terminals of the mating connector on the paper tray 2.<br>**Is there continuity between the two pins?** | Go to step 9. | Replace the paper tray mating connector (PL 2.2 on page 7-8). |
| 9 | Check that the paper tray mating connector and the feeder mating connector are properly aligned when the tray is inserted into the feeder.<br>**Are the mating connectors properly connected when the paper tray is inserted?** | Replace the Tray 2 Size PWB (RRP 11.19 on page 6-139). If the problem persists, replace the Tray 2 Feeder PWB (RRP 11.9 on page 6-128). | Repair or replace components as necessary. |
| 10 | **Does the printer have two optional 550-Sheet Feeders installed?** | Go to step 11. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 11 | On the Engine Logic Board, check the voltage between P/J33 pin 14 and frame ground.<br>**Is the voltage +24 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 12. |

**Tray 2 or 3 Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 12 | 1. Remove Paper Tray 3.<br>2. Check the voltage between the bottom terminal on the mating connector on the Tray 3 feeder and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 13. | Replace the Tray 3 Size PWB (RRP 11.19 on page 6-139). If the problem persists, replace the Tray 3 Feeder PWB (RRP 11.9 on page 6-128). |
| 13 | Check the resistance between the bottom and top terminals of the mating connector on paper tray 3.<br>**Is there continuity between the two pins?** | Go to step 14. | Replace the paper tray mating connector (PL 2.2 on page 7-8). |
| 14 | Check that the paper tray mating connector and the feeder mating connector are properly aligned when the tray is inserted into the feeder.<br>**Are the mating connectors properly connected when the paper tray is inserted?** | Replace the Tray 3 Size PWB (RRP 11.19 on page 6-139). If the problem persists, replace the Tray 3 Feeder PWB (RRP 11.9 on page 6-128). | Repair or replace components as necessary. |

# Stacker is Full, Unload Paper.

## (Stacker output tray full.)

Error message indicates the Stacker output tray is full.

**Stacker Full Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | **Is there a paper stack in the offset bin actuating the Stack Full Sensor?** | Remove the paper stack. | Go to step 2. |
| 2 | **Is the paper curled?** | Go to step 4. | Go to step 3. |

**Stacker Full Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Lift and release the Stack Full Actuator a few times.<br>**Does the actuator move freely?** | Go to step 5. | Replace Stack Full Actuator (RRP 10.12 on page 6-112) or Stack Full Sensor (RRP 10.13 on page 6-113), as necessary. |
| 4 | 1. Replace paper in paper tray with fresh dry paper.<br>2. Run test prints.<br>**Does the error code reappear?** | Go to step 5. | Problem solved. |
| 5 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Stacker Full Sensor.<br>3. Manually actuate and deactuate the Stack Full Actuator.<br>**Does the message on the display alternate between "Full" and "Not Full" as you lift and release the actuator (the count may have a short delay because of the sensor circuit)?** | Replace Engine Logic Board (RRP 9.3 on page 6-89). | Go to Stacker Full Sensor on page 3-37. |

# Load Envelope Feeder with [paper size] [paper type].

## (Envelope Feeder empty.)

**Load Envelope Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Envelope No Paper and press **OK**.<br>3. Press and release the Envelope Feeder No Paper Sensor Actuator.<br>**Does the message on the display alternate between "With Paper" and "Without Paper" as you press and release the actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | 1. Switch the Printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the Printer power-on.<br>4. On the Engine Logic Board check the voltage between P/J23 Pin 4 and the frame ground.<br>**Is the voltage 0.0 VDC?** | Go to step 3. | Go to Install or Reseat the Envelope Feeder. on page 2-37. |

**Load Envelope Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Check the voltage between P/J23 Pin 3 and frame ground.<br>**Is the voltage 3.3 VDC with the Envelope Feeder No Paper Sensor de-actuated, and 0.0 VDC with the sensor actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the Printer power OFF and remove the Envelope Feeder.<br>2. Check for continuity between J418 (Envelope Connector Assembly) and P/J23 Pin 3 on the Engine Logic Board.<br>**Is there continuity between the pins?** | Replace the Envelope Feeder PWB (RRP 13.3 on page 6-159). If the problem persists, replace the Envelope Feeder No Paper Sensor (RRP 13.10 on page 6-166). | Go to step 5. |
| 5 | 1. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>2. Check for continuity between P/J41 Pin 5 on the Connector PWB and P/J23 Pin 3 on the Engine Logic Board.<br>**Is there continuity between the pins?** | Replace the Envelope Connector Assembly (RRP 4.10 on page 6-56). | Check the Connector Harness Assembly for proper connection and for defective wires. Repair or replace if necessary. If Harness is in good condition, replace the Connector PWB (RRP 9.7 on page 6-94). |

# Install or Reseat Print Cartridge.

## (J3: Missing EP Cartridge)

1. Print Cartridge is not installed or seated correctly.

2. The installed Print Cartridge is not the correct one.

**Print Cartridge Installation Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open the Front Cover and remove the Print Cartridge.<br>2. Inspect the tab on the top center of the Print Cartridge that actuates the Print Cartridge Sensor Assembly.<br>**Is the tab on the Print Cartridge intact?** | Go to step 2. | Replace the Print Cartridge (PL 8.1 on page 7-20). |
| 2 | Press and release the Print Cartridge Sensor Assembly Actuator.<br>**Does the Print Cartridge Sensor Assembly Actuator move smoothly?** | Go to step 3. | Replace the Print Cartridge Sensor Assembly (RRP 7.3 on page 6-81). |
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Print Cartridge Sensor test and press **OK**.<br>3. Insert and remove the Print Cartridge a few times.<br>**Does the display alternate between "Not Installed" and "Installed" as you remove and replace the Print Cartridge?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), the Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Install the Print Cartridge. Leave the Front Cover open.<br>4. Disconnect P/J25 from the Engine Logic Board.<br>5. On the Engine Logic Board, check for continuity between J21-4 and J25-3, and J25-2 and J25-1 as you insert and remove the Print Cartridge.<br>**Is there continuity between J25-4 and J25-3, and J25-2 and J25-1 when you insert the cartridge and no continuity when you remove the cartridge?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 5. |
| 5 | **Is the Print Cartridge a Xerox Phaser 4400 Print Cartridge?** | Replace the Print Cartridge Sensor Assembly together with the harness (RRP 7.4 on page 6-81). | Replace Print Cartridge with a Xerox Phaser 4400 Print Cartridge (PL 8.1 on page 7-20). |

# Image Processor POST Error Codes

The Image Processor Power-On Self-Test (POST) detects two major types of faults:

- Hard faults are those that are known to prevent initialization of the operating system used by the Image Processor board CPU.
- Soft faults are those that are not a core resource to the operating system, and do not prevent it from initializing and becoming available as a tool for troubleshooting. Soft faults are reported on the Startup Page after the system is running.

## Fault Reporting Devices

There are four fault presentation devices: the health LED, the Front Panel LED, the Front Panel display, and the Start Page. (Refer to Image Processor Board on page 1-10 for the health LED location on the Image Processor Board.) These devices are used only after initial tests indicate they are functioning properly.

For hard faults:

- The health LED blinks according to the fault code.
- The Front Panel LED blinks in unison with the health LED.
- The last posted message to the Front Panel display is present.

For soft faults:

- All soft faults are printed on the Start Page.

### LED Blink Patterns

For faults identified as hard faults, the POST firmware blinks the Health LED in a particular pattern of short and long blinks to identify the fault. A long blink is worth 5 and a short blink is worth 1. If a fault blink pattern is flashed as long, long, short, short, this is fault code 5+5+1+1=12. Note that for test 5, the blink pattern is five short blinks.

The exception to the pattern just described is a RAM test error. The RAM tests have a special blink pattern and the front panel displays **`RAM Error`**. During power-on the front panel LED is on. If the RAM tests fail, the Image Processor Board health LED turns off, and the front panel LED is red. At 1/2-second intervals, the health LED and the front panel LED toggle continuously.

## POST Error Code Table

| LED Blink Code | Front Panel Message | Comment |
|---|---|---|
| 1+1 | 2: I/O ASIC | Image Processor Board ASIC failure. Go to Image Processor Isolation on page 3-31. |
| 1+1+1 | 3: LOCAL BUS BRIDGE/FRONT PANEL | Image Processor Board ASIC failure. Go to Image Processor Isolation on page 3-31. |
| 1+1+1+1+1 | 5: Please Install Configuration Chip. | 1. Switch off printer power.<br>2. Remove and re-install the Configuration Chip.<br>3. Switch on printer power.<br>4. If the error message persists, first replace the Configuration Chip, then the Image Processor Board. |
| 5+5 | 10: EEPROM | 1. Switch off printer power.<br>2. Remove and re-install the NVRAM EEPROM.<br>3. Switch on printer power.<br>4. If the error message persists, first replace the NVRAM EEPROM, then the Image Processor Board (RRP 9.2 on page 6-88). |
| 5+5+1 | 11: ETHERNET PHY | Image Processor parallel port failure, USB port failure, E-Net Port Failure.<br>Replace Image Processor Board (RRP 9.2 on page 6-88). |
| 5+5+1+1 | 12: CPU INTERRUPTS | Go to Image Processor Isolation on page 3-31. |
| 5+5+1+1+1 | 13: USB | Image Processor parallel port failure, USB port failure, E-Net Port Failure.<br>Replace Image Processor Board (RRP 9.2 on page 6-88). |
| 5+5+1+1+1+1 | 14: REAL TIME CLOCK | Image Processor Board Timer failure. Go to Image Processor Isolation on page 3-31. |
| 5+5+5 | 15: RAM DIMM | RAM DIMM failure. Go to 15: RAM DIMM (RAM Error) on page 2-60. |
| 5+5+5+1 | 16: RAM LIMIT | Image Processor Board Timer failure. Go to Image Processor Isolation on page 3-31. |
| 5+5+5+1+1+1 | 18: L2 CACHE TEST | Image Processor Board Timer failure. Go to Image Processor Isolation on page 3-31. |
| 5+5+5+1+1+1+1 | 19: PCI BRIDGE | Image Processor Board Timer failure. Go to Image Processor Isolation on page 3-31. |
| 5+5+5+5 | 20: IDE DISK | Hard disk failure.<br>Replace the Hard Disk (PL 10.1 on page 7-24).<br>Replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 5+5+5+5+1 | 21: PARALLEL PORT | Image Processor parallel port failure, USB port failure, E-Net Port Failure.<br>Image Processor Board Timer failure. Go to Image Processor Isolation on page 3-31. |
| 5+5+5+5+1+1 | 22: ENGINE COMMAND | Image Processor Board Timer failure. Go to Image Processor Isolation on page 3-31. |
| 5+5+5+5+1+1+1 | 23: VIDEO DMA TEST | Image Processor Xerox Image Enhanced VDMA failure.<br>Image Processor Board Timer failure. Go to Image Processor Isolation on page 3-31. |
| Continuous 1/2 second interval | RAM Error | Go to 15: RAM DIMM (RAM Error) on page 2-60. |

## Start page Soft Fault Messages

The soft faults that are set by POST diagnostics will print a message on the Start Page in a gray box. The box is large enough to contain all the soft faults encountered, with the upper left corner of the box in the center of the Start Page, and extending to the right margin, similar to the one shown here.

```
Hardware Failure:
  <device>:
    General Failure
```

The following messages are substituted for <device>:

- Real Time Clock: (for POST_DEV_RTC)
- Ram Memory Slot 1 Checksum (for POST_DEV_DIMM)
- Ram Memory Slot 2 Checksum (for POST_DEV_DIMM)
- Ram Memory Slot 1 Rejected (for POST_DEV_DIMM)
- Ram Memory Slot 2 Rejected (for POST_DEV_DIMM)
- IDE Disk: (for POST_DEV_IDEOPT)
- Parallel Port: (for POST_DEV_CENT)

# 15: RAM DIMM (RAM Error)

**RAM DIMM Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6).<br>3. Remove and re-install the RAM DIMM(s).<br>4. Switch the printer power-on.<br>**Does the error code reappear?** | Go to step 2. | Problem solved. |
| 2 | **Does the RAM DIMM meet the specifications listed on page 1-3?** | Go to step 3. | Install a new RAM DIMM (PL 10.1 Electrical on page 7-24). |
| 3 | **Does the RAM function correctly?** | Problem solved. | Install a new RAM DIMM (PL 10.1 Electrical on page 7-24). |

# Troubleshooting

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## Introduction

This section covers two types of troubleshooting procedures:

- Troubleshooting procedures for problems not directly associated with error messages or codes
- Troubleshooting Procedures for Image-quality (IQ) problems

Troubleshooting procedures will normally isolate a problem to a specific component or subassembly, in some cases including the wire harnesses.

In the Yes/No steps of the procedures, a Yes/No response will either lead you to the next step or will indicate a corrective action. When you complete the indicated corrective action, restart the System Check to verify that the problem has been corrected.

## Measurements

Power and signal grounds are connected to frame ground. You can perform all circuit troubleshooting using the metal frame (chassis) as the grounding point. If you need more information to locate connectors or test points, refer to Wiring Data on page 9-1.

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

**Voltage Measurements**

| Stated | Measured |
|---|---|
| +3.3 VDC | +3.0 to 3.6 VDC |
| +5.0 VDC | +4.8 to +5.2 VDC |

| Stated | Measured |
|---|---|
| +24.0 VDC | +21.6 to +26.4 VDC |
| 0.0 VDC | Less than +0.5 VDC |

# Troubleshooting Procedures

## Index of Troubleshooting Procedures


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## Verifying AC Power

There is a possible problem with AC power.

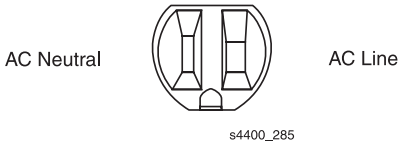
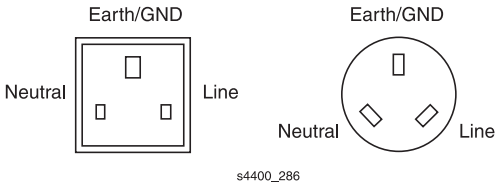
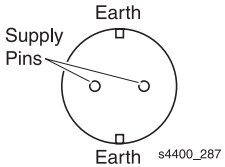
**Warning: Improper connection of the grounding conductor can result in the risk of electrical shock.**

The following must be observed:

- Never use a ground adapter plug to connect the machine to a power source.
- Never attempt any maintenance function that is not specifically called out in the service procedures.
- Never remove any covers that are fastened with screws, unless so instructed in the service procedures.

**Caution: If any of the voltage measurements are not as specified in the following steps, the cause must be corrected. Caution the customer NOT to connect the machine to the wall outlet. Advise the customer that a licensed electrician must correct the wiring. Do not attempt to correct the wiring yourself. If you later find the condition has not been corrected, inform your manager in writing of the improper wiring.**

**AC Power Testing Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 for [115 VAC] | 1. Disconnect the AC power cord from the wall outlet.<br>  <br>2. Measure the AC voltage between AC Line and Neutral, between AC Line and Ground, and between AC Neutral and Ground.<br>3. The voltage between Line and Neutral and between Line and Ground should range from 90 to 140 VAC and the voltage between Neutral and Ground should be less than 3 VAC.<br>**Is the AC voltage within specification?** | Go to step 4 | Inform customer of insufficient voltage or improper wiring. |
| 1 for [220 VAC] | 1. Disconnect the AC power cord from the wall outlet.<br>  <br>2. Measure the AC voltage between Line and Neutral, between AC Line and Earth/Ground, and between Neutral and Earth/Ground.<br>3. The voltage between Line and Neutral and between Line and Earth/Ground should range from 198 to 264 VAC and the voltage between Neutral and Ground should be less than 3 VAC.<br>**Is the AC line voltage within specification?** | Go to step 2. | Inform customer of insufficient voltage or improper wiring. |
| 1 for [220 VAC] | 1. Disconnect the AC power cord from the wall outlet.<br>  <br>2. Measure the AC voltage between Line and Neutral, between AC Line and Earth/Ground, and between Neutral and Earth/Ground.<br>3. The voltage between Line and Neutral and between Line and Earth/Ground should range from 198 to 264 VAC and the voltage between Neutral and Ground should be less than 3 VAC.<br>**Is the AC line voltage within specification?** | Go to step 2. | Inform customer of insufficient voltage or improper wiring. |
| 2 | 1. Check the continuity through all connections of the power cord.<br>2. The measurement should be less than 10 ohms for each connection.<br>**Does continuity test per specification?** | Perform "DC Power (LVPS)" | Replace the power cord ("PL 10.1 Electrical"). |

# DC Power (LVPS)

This procedure is used to troubleshoot the Low-Voltage Power Supply.

***Note:*** ***Perform the AC Power checks before starting this procedure.***

.

**DC (LVPS) Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch printer power OFF.<br>2. Disconnect the power cord.<br>3. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>4. Connect printer power.<br>5. Switch the printer power ON.<br>6. Measure the voltage on the LVPS between P/J285 pins 1 and 2.<br>**Does the voltage match the line voltage?** | Go to step 2. | Replace the AC Power Cord. |
| 2 | 1. On the Low Voltage Power Supply, measure the voltage between both sides of the Fuse F1 and frame ground.<br>**Do both readings match the line voltage?** | Go to step 4. | Go to step 3. |
| 3 | 1. Switch the printer power OFF.<br>2. Replace fuse F1 (125 V - 10 A / 250 V - 3 A).<br>3. Switch the printer power ON.<br>4. Measure the voltage between both sides of the Fuse F1 and frame ground.<br>**Do both readings match the line voltage?** | Problem solved. | Replace the LVPS (RRP 9.5, page 6-91). |
| 4 | 1. Measure the voltage between LVPS P/J281 pin 1 and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 9. | Go to step 5. |
| 5 | 1. On the LVPS, measure the voltage between P/J284 pin 2 and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 7. | Go to step 6. |
| 6 | 1. Switch the printer power OFF.<br>2. Disconnect printer power.<br>3. Disconnect P/J 281.<br>4. Connect printer power.<br>5. Switch the printer power ON.<br>6. Measure the voltage between LVPS P/J 281 pin 1 and frame ground.<br>**Is the voltage +24 VDC?** | Go to "DC Power Loading". | Replace the LVPS (RRP 9.5, page 6-91). |
| 7 | Measure the voltage between P/J 284 pin 1 and frame ground.<br>**Is the voltage +24 VDC?** | Replace the LVPS (RRP 9.5, page 6-91). | Go to step 8. |

**DC (LVPS) Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 8 | Check the Front Cover.<br>**Is the Front Cover closed and actuating the interlock switch?** | Check the continuity through the interlock switch. Replace if necessary. | Repair or replace the defective cover or interlock switch as necessary. |
| 9 | Check the voltages listed in the LVPS Voltages table.<br>**Are all voltage measurements correct?** | Return to Service Flowchart on page 2-2 or to the procedure that sent you here. | Go to DC Power Loading on page 3-6. |

**LVPS Voltages**

| Red Lead | Black Lead | Voltage |
|---|---|---|
| P/J281 pin 7 | Frame Ground | +5.0 VDC |
| P/J281 pin 10 | Frame Ground | +3.3 VDC |
| P/J281 pin 1 | Frame Ground | +24.0 VDC |

# DC Power Loading

*Note:* *Perform "DC Power (LVPS)" before starting this procedure.*

**Warning:** **AC input voltages can be lethal. Use extreme caution while checking the voltages on the LVPS. Disconnect the power cord while checking the continuity of fuses and while removing or reinstalling components.**

### DC Power Loading Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect the following from the LVPS:<br>■ P/J281 (Engine Logic Board)<br>■ P/J282 (Image Processor Board)<br>■ P/J283 (LVPS Fan)<br>■ Pn1 (5 VDC Power Supply)<br>4. Go on to step 2. | | |
| 2 | 1. Switch printer power ON.<br>2. Measure the voltage between P/J281 pin 7, and frame ground. It should be +5.0 VDC.<br>3. Measure the voltage between P/J281 pin 10, and frame ground. It should be +3.3 VDC.<br>4. Measure the voltage between P/J281 pin 1, and frame ground. It should be +24.0 VDC.<br>**Are all the voltages correct?** | Go to step 3. | Replace the LVPS (RRP 9.5 on page 6-91). |
| 3 | 1. Switch the printer power OFF.<br>2. Reconnect P/J281 to the LVPS.<br>3. Switch the printer power ON and measure the voltages listed in Step 2, sub-steps 2 through 4.<br>**Are all the voltages correct?** | Go to step 9. | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Reconnect all the P/Js to the LVPS.<br>3. Disconnect the following from the Engine Logic Board:<br>■ P/J22 (Laser)<br>■ P/J21 (Laser, SOS)<br>■ P/J23 (Connector PWB)<br>■ P/J25 (Print Cartridge Sensor)<br>■ P/J32 (Exit Motor)<br>■ P29 (Main Motor)<br>■ P/J26 (HVPS PWB)<br>■ P/J27 (Exit Sensor)<br>■ P/J31 (Stack Full Sensor)<br>■ P/J33 (Size 1 PWB)<br>■ P/J34 (Duplex PWB)<br>■ P/J35 (Stacker PWB)<br>4. Switch the printer power ON and measure the voltages listed in Step 2, sub-steps 2 through 4.<br>**Are all the voltages correct?** | Go to step 5. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

**DC Power Loading Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | 1. Switch the printer power OFF.<br>2. Reconnect P/J23.<br>3. Switch the printer power ON.<br>4. Measure the voltages listed in Step 2, sub-steps 2 through 4.<br>**Are all the voltages correct?** | Go to step 8. | Go to step 6. |
| 6 | 1. Switch the printer power OFF.<br>2. Disconnect the following from the Connector PWB:<br>■ P/J43 (Registration Sensor, Registration Clutch)<br>■ P/J42 (Toner Sensor)<br>■ P/J45 (Paper Set Sensor)<br>■ P/J44 (Pick Up Solenoid)<br>■ P/J41 (Envelope PWB)<br>3. Switch the printer power ON.<br>4. Measure the voltages listed in Step 2, sub-steps 2 through 4.<br>**Are all the voltages correct?** | Go to step 7. | Replace the Connector PWB. |
| 7 | 1. Switch the printer power OFF.<br>2. Reconnect one of the disconnected plugs.<br>3. Switch the printer power ON.<br>4. Measure the voltages listed in Step 2, sub-steps 2 through 4.<br>**Are all the voltages correct?** | Repeat the step with the next disconnected plug. | Replace the component just connected to the Connector PWB. |
| 8 | 1. Switch the printer power OFF.<br>2. Reconnect one of the disconnected plugs.<br>3. Switch the printer power ON.<br>4. Measure the voltages listed in Step 2, sub-steps 2 through 4.<br>**Are all the voltages correct?** | Repeat the step with the next disconnected plug. | Replace the component just connected to the Engine Logic Board. |
| 9 | 1. Switch the printer power OFF.<br>2. Reconnect one of the disconnected plugs.<br>3. Switch the printer power ON.<br>4. Measure the voltages listed in Step 2, sub-steps 2 through 4.<br>**Are all the voltages correct?** | Repeat the step with the next disconnected plug. | Replace the component just connected to the LVPS. |

# Toner Sensor Failure

Low Toner is not displayed when the Print Cartridge appears to be empty.

**Low Toner Sensor Failure Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Print a Test Print. Inspect the print quality.<br>**Is the print light?** | Go to step 2. | Return to Service Flowchart on page 2-2. |
| 2 | 1. Replace the Print Cartridge (PL 8.1 on page 7-20).<br>2. Run 5 test prints (Configuration Page or Demo Page) and inspect the print quality following the guidelines in Image-Quality Checkout Procedures on page 3-41.<br>**Does the print quality appear acceptable?** | Go to step 3. | Go to Light (Undertoned) Prints on page 3-54. |
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Toner Sensor and press **OK**.<br>3. Open the Front Cover and cheat the Front Cover Interlock.<br>4. Remove and replace the Print Cartridge two or three times.<br>**Does the message on the Front Panel display alternate between Toner Normal and Toner Low as you remove and replace the Print Cartridge?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>3. Cheat the Front Cover Interlock.<br>4. Switch the printer power ON.<br>5. On the connector PWB, check the voltage between P/J42 pin 4 and frame ground.<br>**Is the voltage 0.0 VDC with the print cartridge installed, and +3.3 VDC with the print cartridge removed?** | Go to step 7. | Go to step 5. |
| 5 | Check the voltage between P/J42 pin 3 and pin 1.<br>**Is the voltage +24 VDC?** | Replace the Toner Sensor (RRP 5.2 on page 6-59). | Go to step 6. |
| 6 | On the Connector PWB, check the voltage between P/J231 pin 11 and pin 12.<br>**Is the voltage +24 VDC?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Go to step 8. |
| 7 | On the connector PWB, check the voltage between P/J231 pin 9 and frame ground.<br>**Is the voltage 0.0 VDC with the print cartridge installed, and +3.3 VDC with the print cartridge removed.** | Go to step 8. | Replace the Connector PWB (RRP 9.7 on page 6-94). |

**Low Toner Sensor Failure Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 8 | Check the Connector Harness Assembly.<br>**Is the Connector Harness Assembly OK?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Connector Harness Assembly (PL 8.1 Drive and Xerographics on page 7-20 |

# Inoperative Printer

No response from printer when the main power is switched on.

**Inoperative Printer Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Ensure the power cord is properly connected to the wall outlet and to the Power Receptacle of the printer.<br>**Does the problem still exist?** | Go to step 2. | Problem solved. |
| 2 | Perform Verifying AC Power on page 3-2, then return here.<br>**Did "Verifying AC Power" indicate that correct AC voltage is being supplied to the printer?** | Go to step 3. | Notify customer that the power is out of specification. |
| 3 | Perform DC Power (LVPS) on page 3-4, then return here.<br>**Did "DC Power (LVPS)" indicate that correct DC voltage is being supplied to the printer?** | Go to step 5. | Go to step 4. |
| 4 | **Did "DC Power (LVPS)" instruct you to replace a component?** | Replace component as necessary. | Perform DC Power Loading on page 3-6. |
| 5 | On the Image Processor Board, check the voltage on J910 between pins 1 and 2.<br>**Is the voltage +3.3 VDC?** | Go to step 8. | Go to step 6. |
| 6 | 1. Switch the printer power OFF.<br>2. Disconnect J910 from the Image Processor Board.<br>3. Switch the printer power ON.<br>4. Check the voltage between pins 1 and 2 on the disconnected plug.<br>**Is the voltage +3.3 VDC?** | Go to step 7. | Replace the LVPS (RRP 9.5 on page 6-91). |

**Inoperative Printer Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 7 | 1. Switch the printer power OFF.<br>2. Remove any options connected to the Image Processor Board.<br>3. Reconnect J910 to the Image Processor Board.<br>4. Switch the printer power ON.<br>5. Check the voltage on J910 between pins 1 and 2. (If there are no options installed, follow the No path.)<br>**Is the voltage +3.3 VDC?** | Go to step 13. | Replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 8 | On the Image Processor Board, check the voltage on J910 between pins 3 and 4.<br>**Is the voltage +5.0 VDC?** | Go to step 12. | Go to step 9. |
| 9 | 1. Switch the printer power OFF.<br>2. Disconnect J910 from the Image Processor Board.<br>3. Switch the printer power ON.<br>4. Check the voltage between pins 3 and 4 on the disconnected plug.<br>**Is the voltage +5.0 VDC?** | Go to step 11. | Go to step 10. |
| 10 | On the LVPS, check the voltage between P/J PN1 pin 1 and frame ground.<br>**Is the voltage +24.0 VDC?** | Replace the Image Processor +5.0 VDC Power Supply (RRP 9.4 on page 6-90). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 11 | 1. Switch the printer power OFF.<br>2. Remove any options connected to the Image Processor Board.<br>3. Reconnect J910 to the Image Processor Board.<br>4. Switch the printer power ON.<br>5. Check the voltage on J910 between pin 3 and frame ground (if there are no options installed, follow the No path).<br>**Is the voltage +5.0 VDC?** | Go to step 14. | Replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 12 | On the Engine Logic Board, check for the following voltages between the indicated pin and frame ground:<br>■ +24.0 VDC on P/J28 pin 1<br>■ +5.0 VDC on P/J28 pin 7<br>■ +3.3 VDC on P/J28 pin 10<br>**Are all voltages correct?** | Replace the Image Processor Board (RRP 9.2 on page 6-88). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 13 | 1. Switch the printer power OFF.<br>2. Reinstall the removed options one at a time, switching on the power and checking for 3.3 VDC on J910 between pins 1 and 2 after each one is installed.<br>3. Replace the option just installed when the voltage fails. | | |

**Inoperative Printer Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 14 | 1. Switch the printer power OFF.<br>2. Reinstall the removed options one at a time, switching on the power and checking for 5.0 VDC on J910 between pin 3 and frame ground after each one is installed.<br>3. Replace the option just installed when the voltage fails. | | |

# Malfunctioning Front Panel

There is an erratic display on the Front Panel.

**Front Panel Display Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove or disconnect the following components from the Image Processor Board:<br>■ Hard disk drive<br>■ Flash DIMM<br>■ RAM DIMMs<br>3. Disconnect J790 from the Image Processor Board.<br>4. Switch the printer power ON.<br>5. On the Image Processor Board, check the voltages between each pin of J790 and frame ground.<br><br>**Are all the voltages correct when J790 is disconnected?** | Go to step 8. | Go to step 2. |
| 2 | On the Image Processor Board, check the voltage on J910 between pins 1 and 2.<br><br>**Is the voltage +3.3 VDC?** | Go to step 5. | Go to step 3. |
| 3 | 1. Switch the printer power OFF.<br>2. Disconnect J910 from the Image Processor Board.<br>3. Switch the printer power ON.<br>4. Check the voltage between pins 1 and 2 on the disconnected plug.<br><br>**Is the voltage +3.3 VDC?** | Replace the Image Processor Board (RRP 9.2 on page 6-88). | Go to step 4. |

| Pin | Disconnected | Connected |
|---|---|---|
| 1 | 0.0 VDC | 0.0 VDC |
| 2 | 3.4 VDC | 3.4 VDC |
| 3 | 0.0 VDC | 0.0 VDC |
| 4 | 3.4 VDC | 4.9 VDC |
| 5 | 0.0 VDC | 0.0 VDC |
| 6 | 3.4 VDC | 3.8 VDC |
| 7 | 0.0 VDC | 0.0 VDC |
| 8 | 0.0 VDC | 4.9 VDC |
| 9 | 5.0 VDC | 5.0 VDC |
| 10 | 5.0 VDC | 5.0 VDC |

**Front Panel Display Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | On the LVPS, check the voltage on P/J282 between pins 1 and 2.<br>**Is the voltage +3.3 VDC?** | Repair or replace the harness between the LVPS and the Image Processor Board (PL 10.1, page 7-24). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 5 | On the Image Processor Board, check the voltage on J910 between pins 3 and 4.<br>**Is the voltage +5.0 VDC?** | Go to step 8. | Go to step 6. |
| 6 | 1. Switch the printer power OFF.<br>2. Disconnect J910 from the Image Processor Board.<br>3. Switch the printer power ON.<br>4. Check the voltage between pins 3 and 4 on the disconnected plug.<br>**Is the voltage +5.0 VDC?** | Replace the Image Processor Board (RRP 9.2 on page 6-88). | Go to step 7. |
| 7 | On the LVPS, check the voltage between P/J 1 pins 1 and 2.<br>**Is the voltage +24.0 VDC?** | Replace the Image Processor +5.0 VDC Power Supply (RRP 9.4, page 6-90). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 8 | 1. Switch the printer power OFF.<br>2. Reconnect J790 to the Image Processor Board.<br>3. Switch the printer power ON.<br>4. Check the voltages between the pins listed in the table in step 1and frame ground.<br>**Are all the voltages correct when J790 is connected?** | Go to step 9. | Replace the Front Panel Assembly (PL 1.1, page 7-2). |
| 9 | 1. Switch the printer power OFF.<br>2. Reinstall or reconnect the components removed in step 1 one-at-a-time, switching on the power and checking the voltages between the pins listed in the table in step 1 and frame ground after each component is installed.<br>3. Replace the option just installed if the voltage fails.<br>**After all the components are reinstalled or reconnected, is the Front Panel display still erratic?** | Replace the Front Panel Assembly (PL 1.1, page 7-2). If the problem persists, replace the Image Processor Board (RRP 9.2 on page 6-88). | Problem solved. Return to Service Flowchart on page 2-2 and restart. |

# Inoperative Front Panel

Front Panel is not operative (no backlight or LED).

**Inoperative Front Panel Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Disconnect J790 on the Image Processor Board.<br>2. At J790 on the Image Processor Board, measure the voltage between frame ground and each pin of J790 listed here.<br>**Pin / Voltage / Pin / Voltage**<br>1 / 0.0 VDC / 6 / 3.4 VDC<br>2 / 3.4 VDC / 7 / 0.0 VDC<br>3 / 0.0 VDC / 8 / 0.0 VDC<br>4 / 3.4 VDC / 9 / 5.0 VDC<br>5 / 0.0 VDC / 10 / 5.0 VDC<br>**Are all the voltages are correct?** | Go to step 2. | Replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 2 | 1. Disconnect J550 from the Front Panel.<br>2. Measure continuity on all wires between J550 and J790.<br>**Are all checks good?** | Replace the Front Panel Assembly (PL 1.1, page 7-2). | Replace the Front Panel Harness (PL 1.1, page 7-2). |

# Erratic Printer Operation

**Erratic Printer Operation Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Disconnect all host cables.<br>2. Enter Service Diagnostics and select Test Print. Run 15 to 20 test prints.<br>**Does the printer generate test prints?** | Go to step 4. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Disconnect P/J PN1 from the LVPS Assembly.<br>3. Switch the printer power ON.<br>4. Check the voltage between P/J281 pin 7 and frame ground.<br>**Is the voltage +5.0 VDC?** | Go to step 3. | Switch the printer power OFF and reconnect PN1. Go to Power Supply on page 3-14. |
| 3 | Replace the Engine Logic Board (RRP 9.3 on page 6-89).<br>**Does the problem still appear?** | Go to Electrical Noise on page 3-33. | Problem solved. |
| 4 | **Does the printer RESET while generating test print?** | Go to Power Supply on page 3-14. | Go to step 5. |

**Erratic Printer Operation Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | Replace the Engine Logic Board (RRP 9.3 on page 6-89).<br>**Does the problem still appear?** | Go to step 6. | Problem solved. |
| 6 | Notify customer the cause of the trouble seems to be a communication problem between the host computer and the printer. The customer should contact Customer Support. | | |

# Power Supply

**Power Supply Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Disconnect the power cord.<br>3. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>4. Disconnect the following from the LVPS:<br>■ P/J281 (Engine Logic Board) (RRP 9.3, page 6-89)<br>■ P/J282 (Image Processor Board) (RRP 9.2 on page 6-88)<br>■ P/J11 (Fuser) (RRP 6.2 on page 6-66)<br>■ P/J283 (Main Fan) (RRP 9.1, page 6-87)<br>■ P/J284 (Front Interlock Switch) (RRP 9.9, page 6-96)<br>■ P/J1 (5 VDC Power Supply) (RRP 9.4, page 6-90)<br>5. Connect the power cord.<br>6. Switch the printer power ON and measure the voltages listed here on the LVPS.<br><br>**Red Lead** / **Black Lead** / **Voltage**<br>P/J281 pin 7 / Frame Ground / +5.0 VDC<br>P/J281 pin 10 / Frame Ground / +3.3 VDC<br>P/J281 pin 1 / Frame Ground / +24.0 VDC<br><br>**Are all voltages correct?** | Go to step 2. | Replace the LVPS (RRP 9.5 on page 6-91). |
| 2 | 1. Switch the printer power OFF.<br>2. Reconnect P/J281 to the LVPS.<br>3. Switch the printer power ON and measure the voltages listed in step 1.<br>**Are all voltages correct?** | Go to step 3. | Go to step 4. |
| 3 | 1. Switch the printer power OFF.<br>2. Reconnect one of the plugs disconnected in step 1.<br>3. Switch the printer power ON.<br>4. Measure the voltages listed in step 1.<br>**Are all voltages correct?** | Repeat the step with the next disconnected plug. | Replace the component just connected to the LVPS. |

**Power Supply Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | 1. Switch the printer power OFF.<br>2. Reconnect all the P/Js to the LVPS.<br>3. Disconnect the following from the Engine Logic Board:<br>■ P/J35 (Stacker PWB) (RRP 10.7 on page 6-107)<br>■ P/J34 (Duplex PWB) (RRP 12.4, page 6-144)<br>■ P/J33 (Size 1 PWB) (RRP 3.13 on page 6-42)<br>■ P/J22 (Laser) (RRP 7.4, page 6-82)<br>■ P/J21 (Laser) (RRP 7.4, page 6-82)<br>■ P/J23 (Connector PWB) (RRP 9.7, page 6-94)<br>■ P/J31 (Output Tray Full Sensor) (RRP 6.6, page 6-72)<br>■ P/J30 (Rear Interlock Switch) (RRP 9.10, page 6-97)<br>■ P/J25 (Print Cartridge Sensor) (RRP 7.3, page 6-81)<br>■ P/J32 (Exit Motor) (RRP 6.5, page 6-71)<br>■ P/J29 (Main Motor) (RRP 8.1 on page 6-84)<br>■ P/J26 (HVPS PWB) (RRP 9.6, page 6-92)<br>■ P/J27 (Fuser Sensors) (RRP 6.2 on page 6-66)<br>4. Switch the printer power ON and measure the voltages listed in Step 1.<br>**Are all voltages correct?** | Go to step 5. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 5 | 1. Switch the printer power OFF.<br>2. Reconnect one of the plugs disconnect in step 4.<br>3. Switch the printer power ON.<br>4. Measure the voltages listed in Step 1.<br>**Are all voltages correct?** | Repeat the step with the next disconnected plug. | Replace the component just connected to the Engine Logic Board. |

# Main Motor Assembly

**Main Motor Assembly Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select the Motors/Fan Test.<br>2. Scroll to Main Motor and press **OK**.<br>**Does the Main Motor rotate?** | Problem solved, return to Service Flowchart on page 2-2 and continue. | Go to step 2. |

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Ensure the Rear Cover is closed.<br>4. Switch the printer power ON.<br>5. Measure the Main Motor Harness Voltages listed in the following table.<br><br>**From** / **To** / **Voltage**<br>CN101 - Pin 1 / Frame Ground / +24.0 VDC<br>CN101 - Pin 2 / Frame Ground / +24.0 VDC<br>CN101 - Pin 3 / Frame Ground / +24.0 VDC<br>CN101 - Pin 7 / Frame Ground / +5.0 VDC<br>CN101 - Pin 8 / Frame Ground / +3.3 VDC<br><br>**Are all voltages correct?** | Go to step 9. | Go to step 3. |
| 3 | **Are the voltages on pins 1, 2, and 3 correct?** | Go to step 6. | Go to step 4. |
| 4 | On the Engine Logic Board, check the voltage between P/J28 pins 1, 2, and 3 and frame ground.<br><br>**Are all three readings +24.0 VDC?** | Go to step 5. | Replace the LVPS (RRP 9.5 on page 6-91). |
| 5 | On the Engine Logic Board, check the voltage between P/J30 pin 2 and frame ground.<br><br>**Is the voltage +24.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 10. |
| 6 | **Is the voltage on pin 7 correct?** | Go to step 8. | Go to step 7. |
| 7 | On the Engine Logic Board, check the voltage between P/J28 pin 7 and frame ground.<br><br>**Is the voltage +5.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 8 | On the Engine Logic Board, check the voltage between P/J28 pin 10 and frame ground.<br><br>**Is the voltage +3.3 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 9 | 1. Enter Service Diagnostics and select the Motors/Fan Test.<br>2. Scroll to Main Motor but do not press **OK**.<br>3. On the Engine Logic Board, measure the voltage between P/J29 pin 7 and frame ground.<br>4. Press **OK** to start the Main Motor test.<br><br>**Does the voltage drop from +5.0 VDC to 0.0 VDC?** | Replace the Main Motor Assembly (RRP 8.1 on page 6-84). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

**Main Motor Assembly Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 10 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Rear Cover Switch and press **OK**.<br>3. Open and close the Rear Cover two or three times.<br>**Does the indication on the Front Panel display alternate between Open and Close as you open and close the Rear Cover?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Rear Interlock Switch (RRP 9.10 on page 6-97) or Repair or replace the wiring between the Engine Logic Board and the Rear Interlock. |

# Laser Assembly

**Laser Assembly Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select the Motors/Fan Tests and press **OK**.<br>2. Scroll to Laser Scan Motor and press **OK**.<br>**Can you hear the Laser Scan Motor spin up?** | Go to step 5. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6) Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. Check the voltage between P/J21 pin 10 on the Engine Logic Board and frame ground.<br>**Is the voltage +24.0 VDC?** | Go to step 4. | Go to step 3. |
| 3 | Check the voltage between P/J28 pin 1 on the Engine Logic Board and frame ground.<br>**Is the voltage +24.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 4 | 1. Enter Service Diagnostics and select the Motors/Fan Test.<br>2. Scroll to Laser Scan Motor but do not press **OK**.<br>3. Check the voltage between P/J21 pin 12 and frame ground.<br>4. Press **OK** to start the Laser Scan Motor test.<br>**Does the voltage drop from +5.0 VDC to 0.0 VDC?** | Replace the Laser Assembly (RRP 7.4 on page 6-82). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

**Laser Assembly Troubleshooting Procedure (cont'd.)**

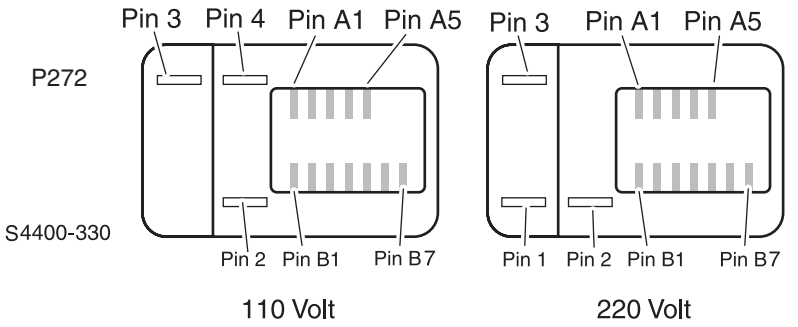
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6) Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. Check the voltage between P21 pin 6 and frame ground.<br>**Is the voltage +5.0 VDC?** | Go to step 8. | Go to step 6. |
| 6 | Check the voltage between P/J28 pin 7 and frame ground.<br>**Is the voltage +5.0 VDC?** | Go to step 7. | Replace the LVPS (RRP 9.5 on page 6-91). |
| 7 | Check the voltage between P/J25 pin 3 and frame ground.<br>**Is the voltage +5.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to Print Cartridge Sensor Assembly on page 3-24. |
| 8 | Measure the voltage between P/J21 pin 9 and frame ground.<br>**Is the voltage +5.0 VDC?** | Replace the Laser Assembly (RRP 7.4 on page 6-82). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

# Fuser Assembly

**Warning: If the printer has been switched on, the fuser may be hot.**

**Fuser Assembly Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove the Fuser Assembly (RRP 6.2 on page 6-66).<br>3. Measure the resistance between pins B3 and B4 of P272 on the Fuser Assembly (refer to the figure).<br>**Is the resistance between 7K and 380K ohms (depending on the temperature of the fuser)?** | Go to step 2. | Replace the Fuser Top Cover (RRP 6.9 on page 6-77). |




**Fuser Connector (P272)**

**Fuser Assembly Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 2 | Measure the resistance between pins 3 and 4 of P272.<br>**Is the resistance less than 5 ohms?** | Go to step 4. | Go to step 3. |
| 3 | 1. Remove the Fuser Heat Rod (RRP 6.9 on page 6-77).<br>2. Measure the resistance of the Heat Rod.<br>**Is the resistance less than 5 ohms?** | Replace the Fuser Top Cover (RRP 6.9 on page 6-77). | Replace the Heat Rod (RRP 6.9 on page 6-77). |
| 4 | 1. Reinstall the Fuser Assembly.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J11 from the LVPS PWB.<br>4. Check the resistance between P11 pin 1 and pin 2.<br>**Is there less than 5 ohms resistance?** | Go to step 5. | Repair or replace the Fuser Harness Assembly (RRP 6.3 on page 6-67). |
| 5 | 1. Reconnect P/J11 and disconnect P/J27 from the Engine Logic Board.<br>2. Measure the resistance between P/J27 pins 1 and 2.<br>**Is the resistance between 7K and 380K ohms (depending on the temperature of the fuser)?** | Go to step 6. | Repair or replace the Fuser Harness Assembly (RRP 6.3 on page 6-67). |
| 6 | 1. Reconnect P/J27.<br>2. Measure the voltage on the LVPS between P/J281 pin 12 and frame ground as you switch the printer power ON.<br>**Is the voltage 0.0 VDC during fuser warm-up, then does it change to 2.8 VDC?** | Replace the LVPS (RRP 9.5 on page 6-91). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

# Registration Sensor

### Registration Sensor Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Registration Sensor and press **OK**.<br>3. Open the Front Cover.<br>4. With a strip of paper, actuate and deactuate the Registration Sensor.<br>**Does the message on the Front Panel display change from "With Paper" to "Without Paper" as you press and release the actuator?** | It appears that the Registration Sensor is working correctly. If a problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | **Does the actuator move freely and is it in good condition (not broken or damaged)?** | Go to step 3. | Replace the Registration Actuator (RRP 5.3 on page 6-60). |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, measure the voltage between P/J23 pin 11 and frame ground.<br>**Is the voltage +3.3 VDC with the Registration Sensor deactuated, and 0.0 VDC with the Registration Sensor actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Front Cover (RRP 1.7 on page 6-12).<br>3. Switch the printer power ON.<br>4. On the Connector PWB, measure the voltage between P/J43 pin 5 and frame ground.<br>**Is the voltage +3.3 VDC with the Registration Sensor deactuated, and 0.0 VDC with the Registration Sensor actuated?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Go to step 5. |
| 5 | Check the voltage between P/J43 pin 3 and frame ground.<br>**Is the voltage 1.2 VDC?** | Replace the Registration Sensor (RRP 5.4 on page 6-61). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

# MPT No Paper Sensor

### MPT No Paper Sensor Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to MPT No Paper Sensor test and press **OK**.<br>3. Actuate and deactuate the MPT No Paper Sensor.<br>**Does the message on the Front Panel display alternate between With Paper and Without Paper as you press and release the actuator?** | It appears that the MPT No Paper Sensor is working correctly. If a problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | **Does the actuator move freely and is it in good condition (not broken or damaged)?** | Go to step 3. | Replace the MPT No Paper Sensor Actuator (RRP 4.5 on page 6-50). |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, measure the voltage between P/J23 pin 14 and frame ground.<br>**Is the voltage +3.3 VDC with the MPT No Paper Sensor deactuated and 0.0 VDC with the Sensor actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Front Cover (RRP 1.7 on page 6-12).<br>3. Switch the printer power ON.<br>4. On the Connector PWB, measure the voltage between P/J45 pin 3 and frame ground.<br>**Is the voltage +3.3 VDC with the MPT No Paper Sensor deactuated and 0.0 VDC with the Sensor actuated?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Go to step 5. |
| 5 | Check the voltage between P/J45 pin 1 and frame ground.<br>**Is the voltage +1.2 VDC?** | Replace the MPT No Paper Sensor (RRP 4.8, page 6-53). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

# Tray 1 No Paper Sensor

**Tray 1 No Paper Sensor Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Remove Tray 1.<br>2. Enter Service Diagnostics and select Sensor Tests.<br>3. Scroll to Tray 1 Low Paper Sensor and press **OK**.<br>4. Actuate and deactuate the Tray 1 No Paper Sensor Actuator.<br>**Does the message on the Front Panel display alternate between With Paper and Without Paper as you press and release the actuator?** | It appears that the Tray 1 No Paper Sensor is working correctly. If a problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | Visually inspect the Tray 1 No Paper Sensor Actuator.<br>**Does the actuator move freely and is it in good condition (not broken or damaged)?** | Go to step 3. | Replace the Tray 1 No Paper Actuator (RRP 3.3 on page 6-30). |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, measure the voltage between P/J33 pin 2 and frame ground as you actuate and deactuate the No Paper Sensor.<br>**Is the voltage 3.3 VDC with the sensor deactuated, and 0.0 VDC with the sensor actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | Check the voltage between P/J33 pin 8 and frame ground.<br>**Is the voltage 3.3 VDC?** | Replace the Tray 1 Feeder PWB (RRP 3.9 on page 6-37). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |

# Output Tray Full Sensor

**Output Tray Full Sensor Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Output Tray Full Sensor test and press **OK**.<br>3. Lift and release the Output Tray Full Sensor Actuator several times.<br>**Does the message on the Front Panel display alternate between "Full" and "Not Full" as you lift and release the actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |

**Output Tray Full Sensor Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 2 | Visually inspect the Output Tray Full Sensor Actuator.<br>**Does the actuator moves freely and is it in good condition (not broken or damaged)?** | Go to step 3. | Replace the Output Tray Full Actuator (RRP 6.8 on page 6-76). |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J31 from the Engine Logic Board.<br>4. Switch the printer power ON.<br>5. On the Engine Logic Board, measure the voltage between P31 pin 1 and frame ground.<br>**Is the voltage +3.3 VDC?** | Go to step 5. | Go to step 4. |
| 4 | On the Engine Logic Board, measure the voltage between P/J28 pin 10 and frame ground.<br>**Is the voltage +3.3 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 5 | 1. Switch the printer power OFF.<br>2. Reconnect P/J31 to the Engine Logic Board. Switch the printer power ON.<br>3. On the Engine Logic Board, measure the voltage between P/J31 pin 3 and frame ground.<br>**Is there +3.3 VDC between P/J31 pin 3 and frame ground when the Output Tray Full Sensor is deactuated, and 0.0 VDC when actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Output Tray Full Sensor (RRP 6.6, page 6-72). |

# Stack Height Sensor Checkout

**Stack Height Sensor Checkout Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Remove the tray from the feeder demonstrating a problem.<br>2. Release the sensor from the feeder frame but do not disconnect the plug from the sensor.<br>3. Measure the voltage on the pins as listed in the “Stack Height Sensor Voltages” table.<br>**Does the voltages on the bottom pin match the voltage listed in the table?** | Go to step 3. | Go to step 2. |
| 2 | Check the wiring harness between the sensor and the Feeder PWB.<br>**Is the wiring in good condition?** | Replace the sensor (RRP 3.4 on page 6-31). | Replace the sensor wiring harness. (Item 14 in PL 3.1 on page 7-10) |

**Stack Height Sensor Checkout Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Check out the Tray Motor (Tray Motor Assembly Checkout on page 3-26).<br>**Is the Tray Motor operating correctly?** | Replace in order:<br>■ Feeder PWB (RRP 3.9 on page 6-37).<br>■ Size PWB (RRP 3.13 on page 6-42 or RRP 11.19 page 6-139)<br>■ Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Motor Assembly (RRP 2.4 on page 6-24). |

**Stack Height Sensor Voltages**

| Test Point | Sensor Unblocked Voltage | Sensor Blocked Voltage |
|---|---|---|
| Top pin on sensor[a] | 0.134 VDC | 3.25 VDC |
| Middle pin on sensor | 0 VDC | 0 VDC |
| Bottom pin on sensor | 1.2 VDC | 1.2 VDC |

a. "Top pin" refers to the pin at the top of the connector when the sensor is installed in the printer.

# Print Cartridge Sensor Assembly

**Print Cartridge Sensor Assembly Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open the Front Cover and remove the Print Cartridge.<br>2. Inspect the tab on the top of the Print Cartridge that actuates the Print Cartridge Sensor Assembly.<br>**Is the tab on the Print Cartridge intact?** | Go to step 2. | Replace the Print Cartridge (PL 8.1 Drive and Xerographics on page 7-20). |
| 2 | Press and release the Print Cartridge Sensor Assembly Actuator.<br>**Does the Print Cartridge Sensor Assembly Actuator lever move smoothly?** | Go to step 3. | Replace the Print Cartridge Sensor Assembly (RRP 7.3 on page 6-81). |

**Print Cartridge Sensor Assembly Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Print Cartridge Switch and press **OK**.<br>3. Slide the Print Cartridge out and back in two or three times.<br>**Does the message on the front panel display alternate between Installed and Not Installed as you slide the print cartridge out and in?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |
| 4 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, check the voltage between P/J25 pin 4 and frame ground.<br>**Is the voltage +5.0 VDC?** | Go to step 5. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 5 | 1. Check the voltage between P/J25 pin 3 and frame ground.<br>2. Slide the Print Cartridge out and back in two or three times.<br>**Is the voltage 0.0 VDC with the Print Cartridge out, and +5.0 VDC with the Print Cartridge in?** | Go to step 6. | Replace the Print Cartridge Sensor Assembly together with the harness (RRP 7.3, page 6-81). |
| 6 | 1. Check the voltage between P/J25 pin 2 and frame ground.<br>2. Slide the Print Cartridge out and back in two or three times.<br>**Is the voltage +3.3 VDC with the Print Cartridge out, and 0.0 VDC with the Print Cartridge in?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Print Cartridge Sensor Assembly together with the harness (RRP 7.3, page 6-81). |

# Tray Motor Assembly Checkout

*Note:* ***Tray 1 interlocks the 24 VDC supply to the Tray 1 Size PWB, Tray 1 Feeder PWB, Tray 2 and Tray 3. Tray 2 interlocks the 24 VDC supply to the Tray 2 Size PWB, Tray 2 Feeder PWB, and Tray 3. Tray 3 interlocks the 24 VDC supply to the Tray 3 Size PWB and the Tray 3 Feeder PWB.***

**Tray Motor Assembly Checkout Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Remove the Paper Tray to be tested.<br>3. Switch the printer power ON.<br>4. Measure the voltage from the lower contact of the Paper Feeder Socket to frame ground.<br>**Is the voltage +24 VDC?** | Go to step 2. | Go to DC Power (LVPS) on page 3-4. |
| 2 | On the left side of the paper tray, measure the motor winding resistance from the middle contact to the lower contact of the Paper Feeder Connector.<br>**Is the resistance reading between 110 - 130 ohms?** | Go to step 4. | Go to step 3. |
| 3 | On the paper tray, disconnect J673 from the Paper Feeder Connector. Measure resistance between pins 1 and 4.<br>**Is the resistance reading between 110 - 130 ohms?** | Replace Paper Feeder Connector (PL 2.2 on page 7-8). | Replace the Motor Assembly (RRP 2.4 on page 6-24). |
| 4 | Check the Paper Tray for damage, contamination, binding, misalignment or obstruction.<br>**Are all components clean, connected properly, aligned properly and without damage?** | Replace the Motor Assembly (RRP 2.4 on page 6-24). | Repair/ replace as necessary. |

# Registration Clutch

### Registration Clutch Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Clutch Tests.<br>2. Scroll to Registration Clutch and press **OK**.<br>**Can you hear the Registration Clutch energize?** | Go to step 6. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J23 on the Engine Logic Board.<br>4. Measure the resistance between pins 6 and 9 on the disconnected plug.<br>**Is the resistance approximately 145 to 165 ohms?** | Go to step 4. | Go to step 3. |
| 3 | 1. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>2. Disconnect P/J43 from the Connector PWB.<br>3. Measure the resistance between pins 1 and 2 on the disconnected plug.<br>**Is the resistance approximately 145 to 165 ohms?** | Replace the Connector PWB 9.7 page 6-98. | Replace the Registration Clutch (RRP 5.5 on page 6-62)<br>Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 4 | 1. Reconnect P/J23.<br>2. Switch the printer power ON.<br>3. Check the voltage between P/J23 pin 6 and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 5. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 5 | 1. Enter Service Diagnostics and select Clutch Tests.<br>2. Scroll to Registration Clutch.<br>3. While measuring the voltage between P/J23 pin 9 and frame ground, press **OK**.<br>**Does the voltage drop from +24 VDC to 0.0 VDC?** | Replace the Registration Clutch (RRP 5.5 on page 6-62) | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 6 | 1. Switch the printer power OFF.<br>2. Open the Front Cover and remove the Print Cartridge.<br>3. With the Front Cover open, cheat the Front Cover Interlock.<br>4. Enter Service Diagnostics and select Main Motor+Clutch/Sol Test.<br>5. Scroll to Motor + Registration and press **OK**.<br>**Do the Registration Rolls rotate smoothly without stalling or jerking?** | Problem solved. | Replace the Registration Clutch (RRP 5.5 on page 6-62) or Registration Rolls (RRP 5.6 on page 6-62). |

# Turn Roller Clutch Assembly

**Turn Roller Clutch Assembly Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Clutch Tests.<br>2. Scroll to Tray 1 Turn Roller Clutch and press **OK**.<br>**Can you hear the Tray 1 Turn Roller Clutch energize?** | Go to step 6. | Go to step 2. |
| 2 | 1. Remove Tray 1.<br>2. Check the voltage between the lower contact of the Paper Feeder Connector and frame ground<br>**Is the voltage +24.0 VDC?** | Go to step 4. | Go to step 3. |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, check the voltage between P/J33 pin 6 and frame ground.<br>**Is the voltage +24.0 VDC?** | Replace the Feeder PWB (RRP 3.9 on page 6-37). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 4 | On the left side of the Paper Tray, measure the resistance between the upper and lower contacts on the Paper Feeder Connector.<br>**Is there continuity between the two contacts?** | Go to step 5. | Replace the Paper Feeder Connector (RRP 2.5 on page 6-26). |
| 5 | 1. Switch the printer power OFF.<br>2. Remove the Paper Feeder Assembly (RRP 3.1, page 6-28).<br>3. Disconnect P/J64 from the Feeder PWB.<br>4. Measure the resistance between pins 1 and 2 on the disconnected plug.<br>**Is there continuity between the two pins?** | Replace the Feeder PWB (RRP 3.9 on page 6-37). If the problem persists, replace the Size PWB (RRP 3.13 on page 6-42). | Replace the Turn Roller Clutch Assembly (PL 3.1, page 7-10). |
| 6 | 1. Switch the printer power OFF.<br>2. Remove the Front Cover (RRP 1.6, page 6-11).<br>3. Enter Service Diagnostics.<br>4. Select Main Motor + Clutch/Sol Tests and press **OK**.<br>5. Scroll to Motor + Tray 1 Turn Roll.<br>6. Cheat the Front Cover Interlock Switch, then press **OK**.<br>**Do the Turn Rolls rotate smoothly without stalling or jerking?** | Replace the Turn Roller Clutch (RRP 3.2, page 6-29). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Turn Roller Assembly (RRP 3.2). |

# Tray 1 Feed Clutch

*Note:* ***Tray 1 interlocks the 24 VDC supply to the Tray 1 Size PWB, Tray 1 Feeder PWB, Tray 2 and Tray 3. Tray 2 interlocks the 24 VDC supply to the Tray 2 Size PWB, Tray 2 Feeder PWB, and Tray 3. Tray 3 interlocks the 24 VDC supply to the Tray 3 Size PWB and the Tray 3 Feeder PWB.***

**Tray 1 Feed Clutch Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Clutch Tests.<br>2. Scroll to Tray 1 Feed and press **OK**.<br>**Can you hear the Tray 1 Feed Clutch energize?** | Replace the Tray 1 Feed Clutch (RRP 3.6 on page 6-33). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2 |
| 2 | 1. Remove Tray 1.<br>2. Check the voltage between the lower contact of the Paper Feeder Connector and frame ground<br>**Is the voltage +24 VDC?** | Go to step 4. | Go to step 3. |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, check the voltage between P/J33 pin 6 and frame ground.<br>**Is the voltage +24 VDC?** | Replace the Feeder PWB (RRP 3.9 on page 6-37). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 4 | On the left side of the Paper Tray, measure the resistance between the upper and lower contacts on the Paper Feeder Connector.<br>**Is there continuity between the two contacts?** | Go to step 5. | Replace the Paper Feeder Connector (RRP 2.5 on page 6-26). |
| 5 | 1. Switch the printer power OFF.<br>2. Remove the Paper Feeder Assembly (RRP 3.1 on page 6-28).<br>3. Disconnect P/J65 from the Feeder PWB.<br>4. Measure the resistance between pins 1 and 4 on the disconnected plug.<br>**Is there continuity between the two pins?** | Replace the Feeder PWB (RRP 3.9 on page 6-37). If the problem persists, replace the Size PWB (RRP 3.13 on page 6-42). | Replace the Tray 1 Feed Clutch (RRP 3.6 on page 6-33). |

# MPT Pick Up Solenoid

**MPT Feed Solenoid Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Solenoid Tests.<br>2. Scroll to MPT and press **OK**.<br>**Can you hear the MPT Pick Up Solenoid energize?** | Go to step 6. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J23 on the Engine Logic Board.<br>4. Measure the resistance between pins 6 and 12 on the disconnected plug.<br>**Is the resistance approximately 75 to 95 ohms?** | Go to step 4. | Go to step 3. |
| 3 | 1. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>2. Disconnect P/J44 from the Connector PWB.<br>3. Measure the resistance between pins 1 and 2 on the disconnected plug.<br>**Is the resistance approximately 75 to 95 ohms?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Replace the MPT Pick Up Solenoid (RRP 4.9, page 6-55). |
| 4 | 1. Reconnect P/J23.<br>2. Switch the printer power ON.<br>3. Check the voltage between P/J23 pin 6 and frame ground.<br>**Is the voltage +24 VDC?** | Go to step 5. | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 5 | 1. Enter Service Diagnostics and select Solenoid Tests.<br>2. Scroll to MPT but do not press **OK**.<br>3. While checking the voltage between P/J23 pin 12 and frame ground, press **OK**.<br>**Does the voltage drop from +24 VDC to 0.0 VDC when you press OK?** | Replace the MPT Pick Up Solenoid (RRP 4.9, page 6-55). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 6 | 1. Switch the printer power OFF.<br>2. Open the Front Cover and remove the Print Cartridge.<br>3. With the Front Cover open, cheat the Front Cover Interlock.<br>4. Enter Service Diagnostics and select Main Motor + Clutch/Sol Tests.<br>5. Scroll to Motor + MPT Sol and press **OK**.<br>**Do the MPT Feed Rolls make one complete revolution then stop?** | The MPT Pick Up Solenoid appears to operate correctly. If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the MPT Pick Up Solenoid (RRP 4.9 on page 6-55). |

# Image Processor Isolation

### Image Processor Isolation Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Disconnect all cables connected to the rear of the Image Processor Board.<br>3. Remove the Left Interface Cover (RRP 1.1 on page 6-6).<br>4. Remove all options from the Image Processor Board. Switch the printer power ON.<br>**Does the printer boot up correctly and is Ready displayed on the Front Panel (if no options are installed, follow the No path)?** | Go to step 3. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove then reinstall the Image Processor Board (RRP 9.2 on page 6-88) to re-seat the connection with the Engine Logic Board.<br>3. Switch the printer power ON.<br>**Does the printer boot up correctly and is Ready displayed on the Front Panel?** | Problem solved. | Replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 3 | 1. Switch the printer power OFF.<br>2. Reinstall one of the removed options or cables.<br>3. Switch the printer power ON.<br>**Does the printer boot up correctly and is Ready displayed on the Front Panel?** | Repeat the last step with the next option or cable until the problem is found. | Replace the option or cable just installed. |

# High-Voltage Power Supply (HVPS) Assembly

### HVPS Assembly Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open the Front Cover.<br>2. Remove the Print Cartridge.<br>3. Inspect both spring-loaded High Voltage contacts on the Transport Chute Assembly and the terminals on the Print Cartridge.<br>**Are the spring-loaded contacts in good condition and making proper contact with the Print Cartridge terminals?** | Go to step 2. | Replace the Transport Chute Assembly (RRP 6.1 on page 6-65) or the Print Cartridge (PL 8.1 on page 7-20) as necessary. |

**HVPS Assembly Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 2 | 1. Cheat the Front Cover Interlock Switch.<br>2. Enter Service Diagnostics and select Component Checks.<br>3. Scroll to each of the high voltage tests listed in High Voltage Power Supply Readings table on page 3-32.<br>4. Measure the voltage between the contact listed and frame ground.<br>5. Press the Enter Key.<br>**Is at least one of the voltages correct?** | Go to step 4. | Go to step 3. |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, check the voltage between P/J26 pin 2 and frame ground.<br>**Is the voltage +24 VDC?** | Replace the HVPS (RRP 9.6 on page 6-92). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 4 | **Are all the voltages correct?** | Problem solved. | Go to step 5. |
| 5 | 1. Replace the Engine Logic Board (RRP 9.3 on page 6-89).<br>2. Cheat the Front Cover Interlock Switch.<br>3. Enter Service Diagnostics and select Component Checks.<br>4. Scroll to each of the high voltage tests (page 3-32).<br>5. Measure the voltage between the contact listed and frame ground. Press the Enter Key.<br>**Are all the voltages correct?** | Problem solved. | Go to step 6. |
| 6 | Check the Transport Chute Assembly for proper installation.<br>**Is the Transport Chute properly installed?** | Go to step 7. | Install the Transport Chute correctly. |
| 7 | Check the HVPS harness for proper connection and for damage.<br>**Is the harness damaged or improperly connected?** | Replace the HVPS (RRP 9.6 on page 6-92). | Repair or replace the HVPS harness as necessary. |

**High-Voltage Power Supply Readings**

| High-Voltage Test | Contact | Reading |
|---|---|---|
| Charge Roller DC | Rear Transport Chute Pin Contact | -425 ±40 VDC |
| Charge Roller AC | Rear Transport Chute Pin Contact | 1000 ± 100 VAC |
| Developer Bias DC | Front Transport Chute Pin Contact | +4.3 ± 3 VDC |
| Developer Bias AC | Front Transport Chute Pin Contact | 555 ± 55 VAC |
| Bias Transfer Roller - | Transfer Roller Bushing | -81 ± 8 VDC |
| Bias Transfer Roller + | Transfer Roller Bushing | 0 VDC |
| Detack Saw | Detack Saw | -930 ± 100 VDC |

# Electrical Noise

**Electrical Noise Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Check if there is other electrical equipment, such as electrical generators, radio transmitters, or devices using electrical motors, within ten feet of the printer.<br>2. Shut off the other electrical equipment, or relocate the printer at least twenty feet away from other devices.<br>**Is the Electrical Noise problem still present?** | Go to step 2. | Problem solved. |
| 2 | 1. Disconnect the AC power cord from the wall outlet.<br>2. Check the AC wall outlet and power cord (see Verifying AC Power on page 3-2).<br>**Is the AC wall outlet correctly wired and grounded?** | Go to step 3. | Inform the customer of insufficient voltage or improper wiring. A licensed electrician must correct the wiring. |
| 3 | 1. Open the Front Cover.<br>2. Remove the Print Cartridge.<br>3. Inspect both spring-loaded High Voltage contacts on the Transport Chute Assembly and the terminals on the Print Cartridge.<br>**Are the terminals in good condition and contacting properly when the cartridge is installed?** | Go to step 4. | Replace as necessary:<br>■ Transport Chute Assembly (RRP 6.1 on page 6-65)<br>■ Print Cartridge (PL 8.1, page 7-20). |
| 4 | 1. Remove the Plate Handle (RRP 1.2 on page 6-7).<br>2. Inspect the grounding screw and wire connected to the Main Power Connector.<br>**Is the cable grounded properly?** | Go to step 5. | Attach the grounding screw properly. |
| 5 | Replace the Print Cartridge (PL 8.1, page 7-20).<br>**Is the Electrical Noise problem is still present?** | Go to step 6. | Problem solved. |
| 6 | 1. Remove the Fuser Assembly (RRP 6.2, page 6-66).<br>2. Remove the end covers (see RRP 6.9, page 6-77).<br>3. Inspect the Heater Rod securing screws and lead wires.<br>**Are the securing screws tight and the lead wires in good condition?** | Go to step 7. | Tighten the securing screws or replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 7 | Disconnect the HVPS (P/J26) from the Engine Logic Board. Run 20 Test Prints (the prints will be blank).<br>**Do the Test Prints run normally?** | Replace the HVPS PWB Assembly (RRP 9.6 on page 6-92). | Go to step 8. |
| 8 | Replace the Engine Logic Board (RRP 9.3 on page 6-89).<br>**Is the problem still present?** | Go to step 9. | Problem solved. |

**Electrical Noise Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 9 | Inspect all of the grounds in the printer.<br>**Are all the grounds securely connected?** | Contact Xerox Escalated HW Support. | Repair the bad grounds. |

# Exit Sensor

**Exit Sensor Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Open the printer Rear Cover.<br>2. Remove the Duplex Module, if installed.<br>3. Open the Fuser Access Cover and check that the Exit Sensor Actuator moves smoothly and is not broken. Make sure the actuator flag blocks the Exit Sensor when the access cover is closed.<br>**Is the actuator in good condition and does it move smoothly?** | Go to step 2. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 2 | 1. Enter Service Diagnostics, select Sensor Tests and press **OK**.<br>2. Scroll to Exit Sensor (Fuser) and press **OK.**<br>3. Open the rear cover and open the Fuser Access Cover.<br>4. Use a folded piece of paper to block and unblock the Fuser Exit Sensor.<br>**Does the message on the Front Panel display alternate between With Paper and Without Paper as you block and unblock the sensor?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 3. |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J27 from the Engine Logic Board. Switch the printer power ON. Check the voltage between P/J27 pin 3 and frame ground.<br>**Is the voltage 3.3 VDC?** | Go to step 5. | Go to step 4. |
| 4 | On the Engine Logic Board, check the voltage between P/J28 pin 10 and frame ground.<br>**Is the voltage 3.3 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 5 | 1. Switch the printer power OFF.<br>2. Reconnect P/J27 to the Engine Logic Board.<br>3. Switch the printer power ON.<br>4. Measure the voltage between P/J27 pin 5 and frame ground as you block and unblock the Fuser Exit Sensor.<br>**Is the voltage 3.3 VDC when the Fuser Exit Sensor is blocked and 0.0 VDC when unblocked?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |

# Exit Motor

### Exit Motor Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Switch the printer power OFF.<br>2. Open the Rear Cover and manually rotate the Exit Chute Assembly.<br>**Does the Exit Chute rotate without binding?** | Go to step 2. | Remove the Exit Chute Assembly (RRP 6.4, page 6-69). Repair or replace components as necessary (PL 7.1, page 7-18). |
| 2 | 1. Enter Service Diagnostics.<br>2. Open the Rear Cover and cheat the Rear Cover Interlock.<br>3. Scroll to Motors/Fans Tests and press **OK**.<br>4. Scroll to Exit Motor Forward and press **OK**.<br>**Does the Exit Motor rotate?** | Go to step 3. | Go to step 5. |
| 3 | Scroll to Exit Motor Reverse High and press **OK**.<br>**Does the Exit Motor run in reverse at high speed?** | Go to step 4. | Go to step 5. |
| 4 | Scroll to Exit Motor Reverse Low and press **OK**.<br>**Does the Exit Motor run in reverse at low speed?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 5. |
| 5 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Disconnect P/J32 from the Engine Logic Board.<br>4. On the disconnected plug, check the resistance between pins 1 and 2, pins 1 and 3, pins 1 and 4, and between pins 1 and 5.<br>**Are all readings 25 to 35 ohms?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Exit Motor (RRP 6.5 on page 6-71). |

# 550-Sheet Feeder Feed Clutch

The 550-Sheet Feeder is not feeding paper or not feeding paper at the correct time.

**550-Sheet Feeder Feed Clutch Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Clutch Tests.<br>2. Scroll to Tray 2 Feed or Tray 3 Feed and press **OK**.<br>**Can you hear the clutch energize?** | Go to step 5. | Go to step 2. |
| 2 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Enter Service Diagnostics and select Clutch Tests.<br>4. Scroll to Tray 2 Feed or Tray 3 Feed and press **OK**.<br>5. Check the voltage between each of the following pins on the Engine Logic Board and frame ground:<br>■ For Tray 2, check P/J33 pin 13<br>■ For Tray 3, check P/J33 pin 14<br>**Is the voltage +24.0 VDC?** | Go to step 4. | Go to step 3. |
| 3 | 1. Remove the Sheet Feeder Drive Assembly (RRP 11.6, page 6-125) for the affected feeder.<br>2. Disconnect P/J651 from the Feed Clutch.<br>3. Measure the resistance between the two pins on the feed clutch.<br>**Does the resistance measure 140 to 170 ohms?** | Replace the Feeder PWB (RRP 11.9, page 6-128). If the problem persists, replace the Size PWB (RRP 11.19, page 6-139). | Replace the Paper Feed Clutch (RRP 11.10, page 6-129). |
| 4 | Press the Enter key.<br>**Does the voltage drop from +24.0 VDC to 0.0 VDC?** | Replace the Paper Feed Clutch (RRP 11.10, page 6-129). | Replace the Engine Logic Board (RRP 9.3 on page 6-89). |
| 5 | 1. Remove the Sheet Feeder Drive Assembly (RRP 11.6, page 6-125) for the affected feeder.<br>2. Check the Paper Feed Rolls for contamination and wear.<br>**Are the Paper Feed Rolls clean and in good condition?** | Go to step 6. | Replace the Paper Feed Rolls (RRP 11.11, page 6-130). |
| 6 | Check the Paper Feed Assembly for binding, obstructions, or contamination.<br>**Is the feed assembly clean and in good condition?** | Go to step 7. | Clean, repair, or replace as necessary (RRP 11.12, page 6-131). |
| 7 | If the problem persists, replace the following in order until the problem is found:<br>■ Engine Logic Board (RRP 9.3 on page 6-89)<br>■ Feeder PWB (RRP 11.9, page 6-128)<br>■ Size PWB (RRP 11.19, page 6-139)<br>■ Paper Feed Clutch (RRP 11.10, page 6-129) | | |

# Stacker Full Sensor

The printer fails to indicate a stack full condition, or incorrectly indicates a stack full condition.

**Stacker Full Sensor Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Stacker Full Sensor and press **OK**.<br>3. Actuate and deactuate the Stacker Stack Full Sensor Actuator.<br>**Does the display alternate between "Full" and "Not Full" as you press and release the actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | Visually inspect the Stack Full Sensor Actuator.<br>**Does the actuator move freely and is it in good condition (not broken or damaged)?** | Go to step 3. | Replace the Stack Full Actuator (RRP 10.12 on page 6-112). |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, measure the voltage between P35 pin 2 and frame ground.<br>**Is the voltage +3.3 VDC?** | Go to step 5. | Go to step 4. |
| 4 | On the Engine Logic Board, measure the voltage between P/J28 pin 10 and frame ground.<br>**Is the voltage +3.3 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the LVPS (RRP 9.5 on page 6-91). |
| 5 | 1. Switch the printer power OFF.<br>2. Reconnect P/J35 to the Engine Logic Board.<br>3. Switch the printer power ON.<br>4. On the Engine Logic Board, measure the voltage between P/J35 pin 2 and frame ground.<br>**Is there +3.3 VDC between P/J35 pin 2 and frame ground when the Stack Full Sensor is deactuated and 0.0 VDC when actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Stack Full Sensor (RRP 10.13 on page 6-113). If the problem persists, replace the Stacker PWB (RRP 10.7 on page 6-107). |

# Stacker Offset Operation Not Performed

**Stacker Offset Operation Not Performed Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Manually move the Offset Assembly from one side to the other.<br>**Does the Offset Assembly move smoothly?** | Go to step 2. | Replace the Offset Roller Assembly (RRP 10.14, page 6-114). |
| 2 | 1. Enter Service Diagnostics and select Motors/Fans Test.<br>2. Scroll to Stacker Offset Motor and press **OK**.<br>**Does the Offset Assembly shift right, then return left?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 3. |
| 3 | 1. Switch the printer power OFF.<br>2. Remove the Inner Exit Chute Assembly (RRP 10.6, page 6-106).<br>3. Disconnect P/J229 from the Stacker PWB.<br>4. On the disconnected plug, measure the resistance between pins 1 and 3, pins 1 and 5, pins 2 and 4, and between pins 2 and 6.<br>**Does the resistance measure between 245 and 265 ohms?** | Replace the Stacker PWB (RRP 10.7 on page 6-107). If the problem persists, replace the Engine Logic Board (RRP 9.3 on page 6-89). | Replace the Stacker Offset Motor (RRP 10.17, page 6-118). |

# Envelope Feed Clutch

Envelopes fail to feed, or feed incorrectly.

**Envelope Feed Clutch Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Clutch Tests.<br>2. Scroll to Envelope Feeder and press **OK**.<br>**Can you hear the clutch energize?** | Go to step 5. | Go to step 2. |
| 2 | 1. Switch Power Off.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Enter Service Diagnostics and select Clutch Tests.<br>4. Scroll to Envelope Feeder.<br>5. On the Engine Logic Board, check voltage between P/J23 Pin 1 and frame ground.<br>6. Press **OK**.<br>**Does the voltage pulse from 0.0 VDC to 3.3 VDC then return to 0.0 VDC?** | Go to step 4. | Go to step 3. |

**Envelope Feed Clutch Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Check the voltage between P/J23 Pin 4 and frame ground.<br>**Is the voltage 0.0 VDC?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to Install or Reseat the Envelope Feeder. on page 2-37. |
| 4 | 1. Remove the Envelope Feeder from the Printer.<br>2. Remove the Bottom Cover (RRP 13.1 on page 6-157) and the Top Chute (RRP 13.2 on page 6-158).<br>3. Disconnect P/J413 from the Envelope Feeder PWB.<br>4. Measure the resistance between Pins 1 and 2 on the disconnected plug.<br>**Is the resistance between 170 and 190 ohms?** | Replace the Envelope Feeder PWB (RRP 13.3 on page 6-159). | Replace the Envelope Feed Clutch (RRP 13.12 on page 6-168). |
| 5 | 1. Check the Envelope Feed Belts for wear and contamination.<br>2. Check for belts slipping.<br>**Are the belts in good condition and not slipping?** | Replace the Envelope Feed Clutch (RRP 13.12 on page 6-168). | Replace the belts as necessary. |

# Envelope No Paper Sensor

The printer incorrectly indicates a No Paper condition in the Envelope Feeder, or fails to indicate a No Paper condition in the Envelope Feeder.

**Envelope No Paper Sensor Troubleshooting Procedure**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Sensor Tests.<br>2. Scroll to Envelope No Paper Sensor and press **OK**.<br>3. Press and release the Envelope No Paper Sensor Actuator.<br>**Does the message on the Front Panel display alternate between Without Paper and With Paper as you press and release the actuator?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 2. |
| 2 | 1. Switch the Printer power OFF.<br>2. Remove the Left Interface Cover (RRP 1.1 on page 6-6), Left Cover (RRP 1.2 on page 6-7), and the Left Plate (RRP 1.11 on page 6-16).<br>3. Switch the Printer power ON.<br>4. On the Engine Logic Board check the voltage between P/J23 Pin 4 and the frame ground.<br>**Is the voltage 0.0 VDC?** | Go to step 3. | Go to Install or Reseat the Envelope Feeder. on page 2-37. |
| 3 | Check the voltage between P/J23 Pin 3 and frame ground.<br>**Is the voltage +3.3 VDC with the Envelope Feeder No Paper Sensor de-actuated and 0.0 VDC with the sensor actuated?** | Replace the Engine Logic Board (RRP 9.3 on page 6-89). | Go to step 4. |

**Envelope No Paper Sensor Troubleshooting Procedure (cont'd.)**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | 1. Switch the Printer power OFF and remove the Envelope Feeder.<br>2. Check for continuity between J418 Pin 4 (Envelope Connector Assembly) and P/J23 Pin 3 on the Engine Logic Board.<br>**Is there continuity between the pins?** | Go to step 7. | Go to step 5. |
| 5 | 1. Remove the Front Cover (RRP 1.6 on page 6-11) and the Left Front Cover (RRP 1.7 on page 6-12).<br>2. Check for continuity between P/J41 Pin 5 on the Connector PWB and P/J23 Pin 3 on the Engine Logic Board.<br>**Is there continuity between the pins?** | Replace the Envelope Connector Assembly (RRP 4.10 on page 6-56). | Go to step 6. |
| 6 | Check the Connector Harness Assembly for proper connection and for defective wires.<br>**Is the harness in good condition?** | Replace the Connector PWB (RRP 9.7 on page 6-94). | Repair or replace as necessary. |
| 7 | Replace the Envelope Feeder PWB (RRP 13.3 on page 6-159). If the problem persists, replace the Envelope Feeder No Paper Sensor (RRP 13.10 on page 6-166). | | |

# Image-Quality Checkout Procedures

## Index of Image-Quality Checkout Procedures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Throughout these procedures, the term “vertical” refers to the process direction (the direction paper travels through the printer); the term “horizontal” refers to the scanning direction (the direction the laser beam scans across the page).

Cleaning procedures should always be performed before beginning any Image-quality Repair procedure.

Be sure that the paper meets printer specifications. Changing the paper, or using paper from a previously unopened ream, will resolve many print-quality issues.

Begin with Deletions (Line, Band, Spots) on page 3-44.

## Image-Quality Defect Definitions

The Test Print (shown on page 3-43) is used to evaluate each of the print-quality parameters. Each area of the test pattern is used for a print-quality parameter. The Image-quality Checkout procedures explain each of the areas and the print-quality parameters. Further assistance in evaluating image-quality problems is available in the Diagnostics Pages on the Printable Pages Menu. These pages contain detailed explanations of print-quality and image-quality problems along with possible causes and solutions for the problems.

**Image-Quality Defect Definitions**

| Defect Definitions | Go To: |
|---|---|
| LIGHT PRINTS: The overall image density is too light. | page 3-54 |
| BLANK PRINTS: Prints with no visible image. | page 3-56 |
| BLACK PRINTS: The print is completely covered with toner and has no visible image. | page 3-58 |
| VERTICAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These areas run vertically along the page in the direction of paper movement. | page 3-59 |
| HORIZONTAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These areas run horizontally across the page in the direction of scanning. | page 3-61 |

**Image-Quality Defect Definitions (cont'd.)**

| Defect Definitions | Go To: |
|---|---|
| VERTICAL STREAKS: Extraneous dark lines/bands in the process direction. | page 3-63 |
| HORIZONTAL STREAKS: Extraneous dark lines/bands in the direction of scan. | page 3-65 |
| SPOTS: There are spots of toner on the page. | page 3-68 |
| UNFUSED IMAGE: Part of or all of the image is unfused. Refer to the specification. | page 3-69 |
| DAMAGED PRINTS: Creases, wrinkles, excessive curl, cuts, folds or embossed marks. | page 3-71 |
| RESOLUTION: At 600 dpi, the two pixel lines and halftone patches cannot be reproduced clearly on the print. | page 3-72 |
| SPOT DELETIONS: Solid areas are marked with irregular white areas. | page 3-73 |
| REPEATING DEFECTS: Recurring marks, spots, lines, or voids. | page 3-74 |
| RESIDUAL IMAGES: The image from a previous print, which was not removed during the cleaning process, has been developed on the current print. | page 3-75 |
| BACKGROUND: Uniform toner contamination in non image areas. Refer to the Background specification. | page 3-76 |
| UNEVEN DENSITY: The text/line darkness and solid area density image varies across the print. | page 3-78 |
| SKEWED IMAGE: Angular displacement of the image from its intended position on the print. Refer to the specification. | page 3-79 |
| REGISTRATION (lead edge to trail edge): Displacement of the image, in the process direction, from its intended position on the print.<br>(inboard to outboard): Displacement of the image, in the direction of scan, from its intended position on the print. | page 3-81 |
| SKIPS / SMEARS: Skip-Loss or stretching of the image in bands across the process direction.<br>Smear-The distortion of the image in bands across the process direction that cause it to appear to be blurred or compressed. | page 3-83 |

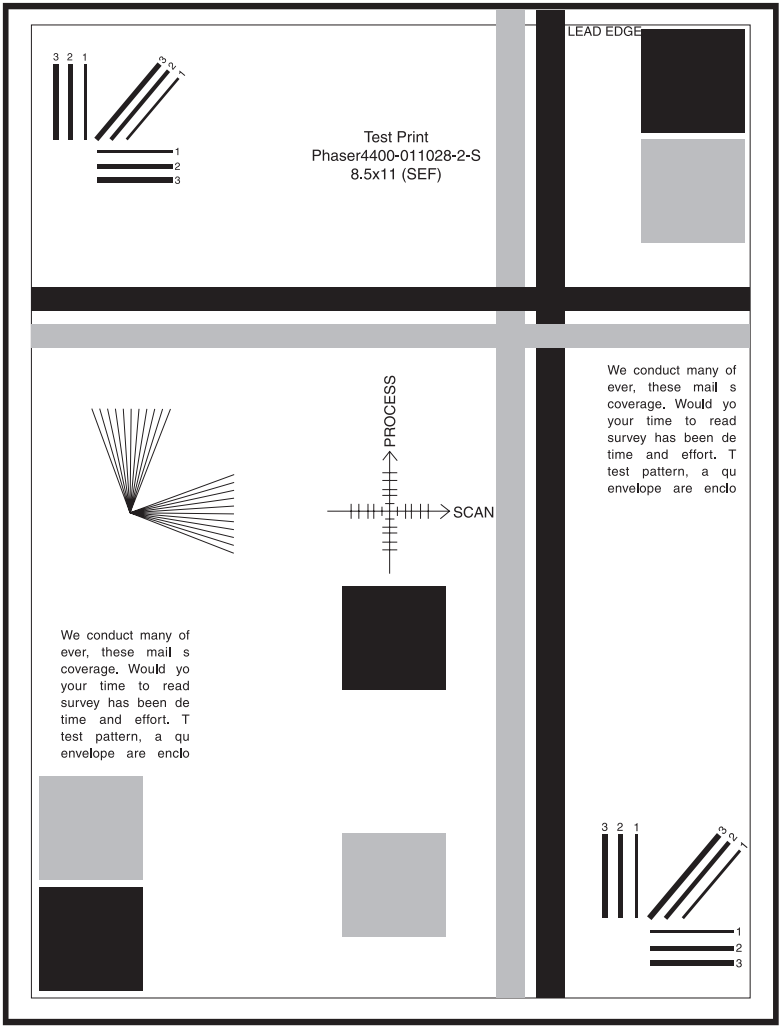
The Test Print shown on page 3-43 is used to evaluate and ensure that the printed image meets the printer specifications. To make test prints:

1. Select **`Printable Pages Menu`** from the Main menu.
2. Scroll to **`Print Test Prints`**.

For more information about printing Test Prints, including changing paper source, destination, print quantity, and duplexing, refer to Test Print on page 4-2.

***Note:*** ***Insure that Edge-to-edge printing is set to OFF in the PCL Job Defaults Menu before starting the Test Print. Otherwise, the image will be shifted left.***

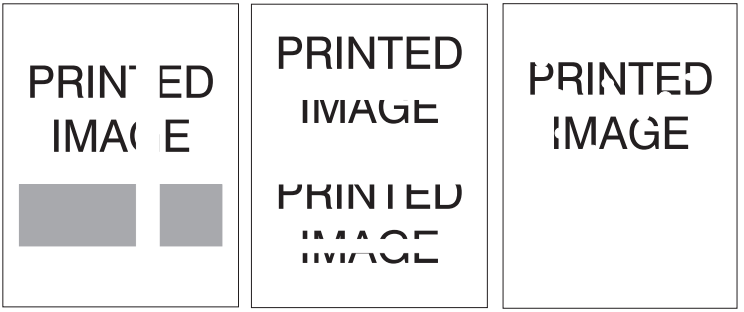
Use new paper, whenever possible, to check the image quality of prints. Make five (5) prints of the Test Print. Discard the first two prints and retain the remaining prints for image-quality analysis.




s4400_217

## Test Print

# Deletions (Line, Band, Spots)

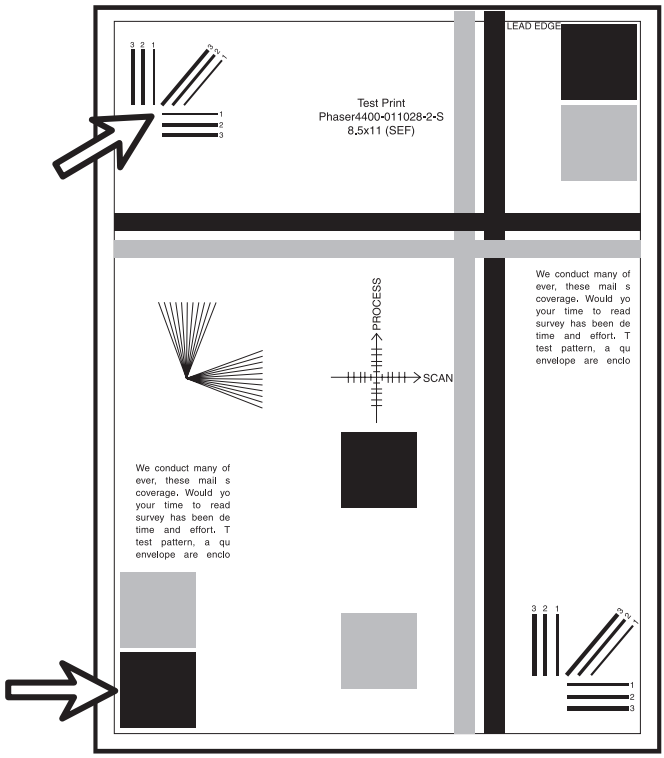



s4400_291

**Line, Band, or Spot Deletions**

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect Test Prints for the presence of deletions (missing image). There should be no deletions with a diameter larger than 0.5 mm visible on test prints.<br>**Are there deletions on the test prints?** | Go to step 2. | Go to Fusing. |
| 2 | **Are there vertical (in process direction) Line/Band deletions present?** | Go to Vertical Deletions on page 3-59. | Go to step 3. |
| 3 | **Are there Horizontal (in direction of scanning) Line/Band Deletions present?** | Go to Horizontal Deletions on page 3-61. | Go to step 4. |
| 4 | **Are there Spot Deletions present?** | Go to Spot Deletions on page 3-73. | Go to Fusing. |

# Fusing




s4400_292

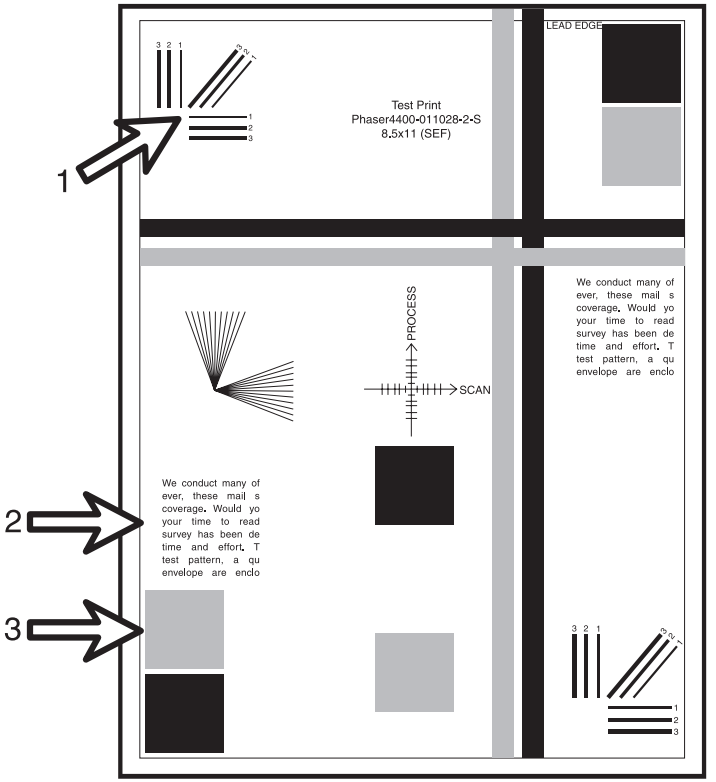
**Fusing Quality Check Points**

*Note:* ***The operating environment of the printer is from 41° F (5° C) at 15% relative humidity to 95° F (35° C) at 85% relative humidity. The fusing performance of the printer will vary according to the environment.***

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

| Actions and Questions | Yes | No |
|---|---|---|
| Rub the image three times at the marked check points with a soft cloth or tissue. The image should not lift off of the surface of the print.<br>**Does the fusing quality of the image appear acceptable?** | Go to Resolution. | Go to page 3-69 Unfused Image. |

# Resolution

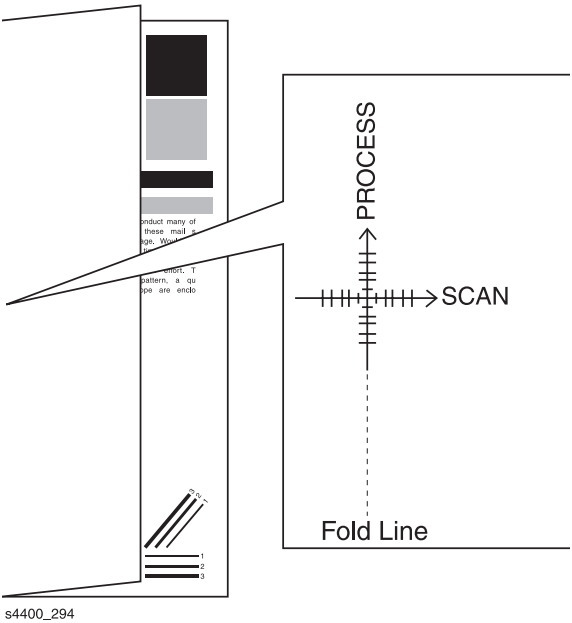



s4400_293

**Resolution check points**

| Actions and Questions | Yes | No |
|---|---|---|
| Observe the three resolution check points on several Test Prints. Check the resolution of the images in each of the areas:<br>**Arrow 1** The two pixel vertical, horizontal and diagonal lines should be clear and continuous. The diagonal lines might appear to be narrower than the others.<br>**Arrow 2** The text paragraphs should be roughly equal in density.<br>**Arrow 3** The half-tone patches adjacent to the solid blocks in the corners should be uniform in appearance.<br>**Are the three checks points (arrows 1, 2, & 3) within specification?** | The printed test patterns meet the Resolution specification. Go to Registration (Side-to-Side) on page 3-47. | Go to Resolution on page 3-72. |

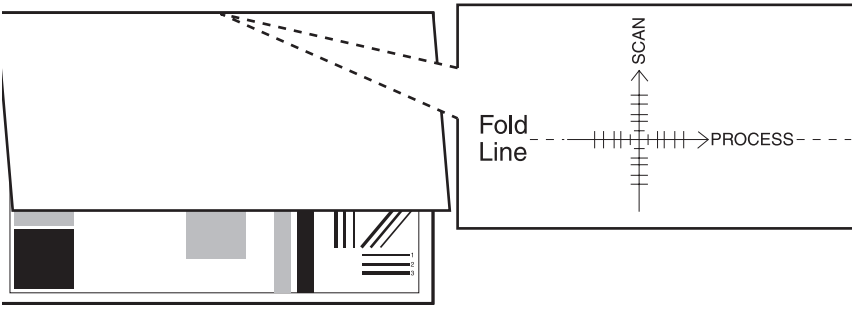
# Registration (Side-to-Side)




**Registration (Side-to-Side)**

| Actions and Questions | Yes | No |
|---|---|---|
| **Note: Insure that Edge-to-edge printing is set to OFF in the PCL Job Defaults Menu before starting the Test Print. Otherwise, the image will be shifted left.**<br>Measure the registration on two consecutive Test Prints. Fold the paper in half (side edge to side edge). Observe the fold line of the paper with reference to the cross hairs of the target.<br>**Is the fold within +/- 2.0 mm of the target cross hairs (each line on the target is 1 mm).** | The Test Prints meet the side to side registration specification. Go to Registration (Lead Edge-to-Trail Edge) on page 3-48. | Go to Registration on page 3-81. |

# Registration (Lead Edge-to-Trail Edge)

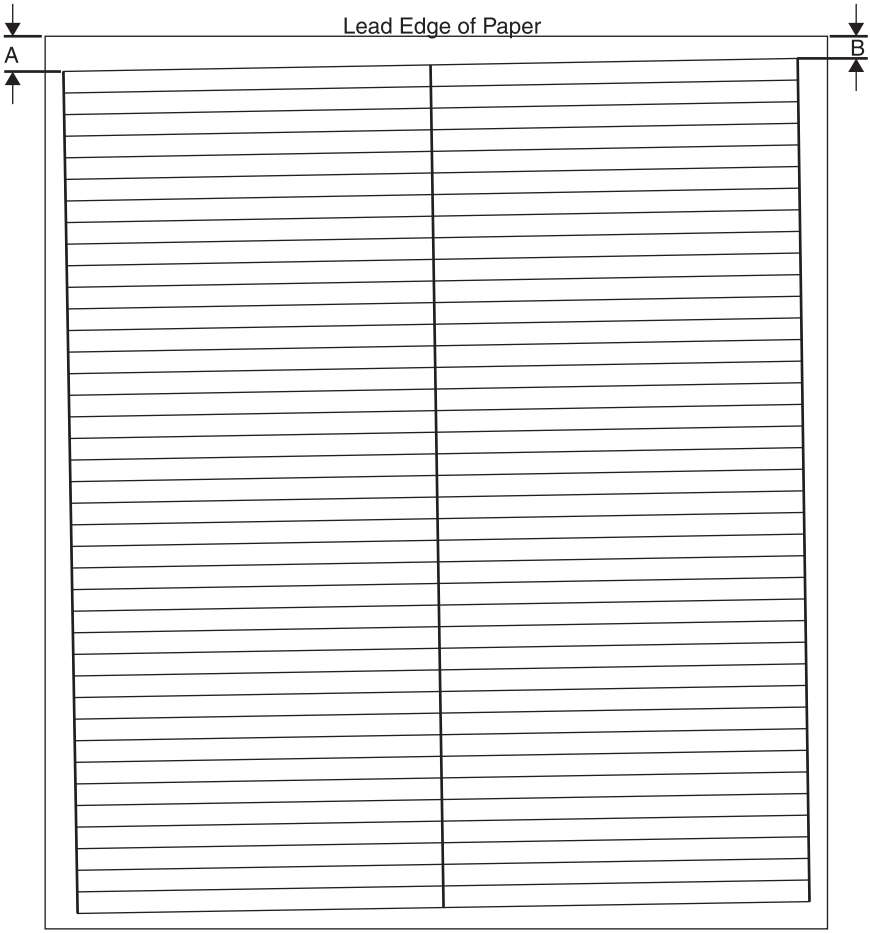



s4400_295

**Registration (Lead Edge-to-Trail Edge)**

| Actions and Questions | Yes | No |
|---|---|---|
| Note: Insure that Edge-to-edge printing is set to OFF in the PCL Job Defaults Menu before printing the Test Print. Otherwise, the image will be shifted left.<br>Measure the registration on two consecutive Test Prints.<br>1. Fold the paper in half (Lead Edge-to-Trail Edge).<br>2. Observe the fold line of the paper with reference to the cross hairs of the target.<br>**Is the fold within +/- 2.0 mm of the target cross hairs (each line on the target is 1 mm)?** | The printed test patterns meet the lead edge-to-trail edge registration specification. Go to Skew on page 3-49. | Go to Registration on page 3-81. |

# Skew

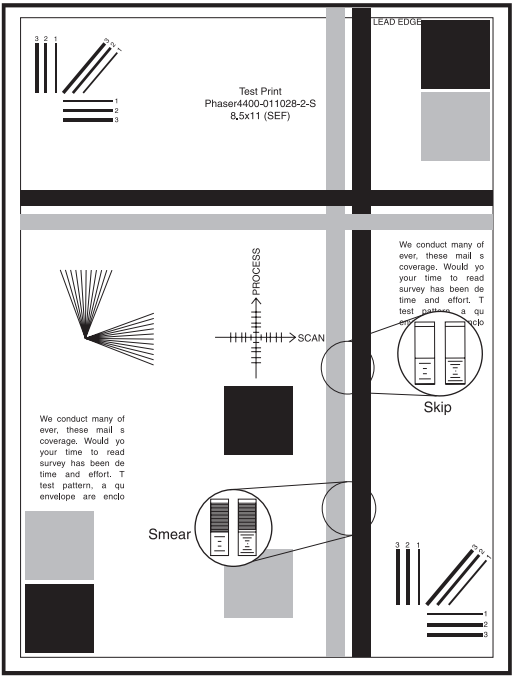



s4400_296

**Engine Logic Board Test Print**

| Actions and Questions | Yes | No |
|---|---|---|
| 1. Enter Service Diagnostics, select Engine Test Print, and press **OK**.<br>2. Scroll to Print Test Pattern and press **OK**.<br>3. Measure the dimensions 'A' and 'B' on two consecutive test patterns.<br>**Is the difference between 'A' and 'B' 1.5 mm or less?** | The printed test patterns meet the Skew specification. Go to "Skips / Smears". | Go to Skewed Image on page 3-79. |

# Skips / Smears




s4400_217

**Skips / Smears**

| Actions and Questions | Yes | No |
|---|---|---|
| 1. On the Main Menu select Printable Pages Menu.<br>2. Scroll to Print Test Prints and press **OK**.<br>3. Inspect the ladder chart test pattern as shown in the figure.<br>**Is the pattern free from skips and smears?** | Go to the Spots checkout. | Go to page 3-83 Skips/Smears. |

# Spots

s4400_298

**Spots**

| Actions and Questions | Yes | No |
|---|---|---|
| 1. From the Printable Pages menu, print Configuration Pages.<br>2. Inspect the print for spots. Within a 208 x 95 mm square:<br>■ There should be no spots larger than or equal to 0.5 mm visible on the prints.<br>■ There should be no more than 1 spot measuring between 0.4 mm and 0.5 mm visible on the print.<br>■ There should be no more than 16 spots measuring between 0.25 mm and 0.4 mm visible on the print.<br>■ Any spot measuring less than 0.25 mm is acceptable.<br>**Are the prints free of spots or the spots that are visible fall within the acceptable range.** | Go to Other Print Defects. | Go to page 3-68 Spots. |

# Other Print Defects

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Inspect the Test Patterns for other Print Defects.<br>**Are the Test Prints free of defects?** | Return to Service Flowchart on page 2-2. | Go to step 2. |
| 2 | **Are there dark streaks present on the Test Prints?** | Go to page 3-63 / page 3-65 Streaks. | Go to step 3. |
| 3 | **Is there a residual image (ghost) on the Test Print?** | Go to page 3-75 Residual Image. | Go to step 4. |
| 4 | **Is there paper damage: wrinkles, creases, tears, etc.?** | Go to page 3-71 Damaged Prints. | The printer meets specifications. Return to Service Flowchart on page 2-2. |

# Image-Quality Troubleshooting Procedures

The image-quality troubleshooting procedures that follow are meant to assist in correcting image-quality defects. These procedures provide defect samples, definitions and specifications to help identify the type of defect that exists, the test pattern to use, and actions required to correct the defects.

Throughout these procedures, the term “vertical” refers to the process direction (the direction paper travels through the printer); the term “horizontal” refers to the scanning direction (the direction the laser beam scans across the page).

Cleaning procedures should always be performed before beginning any Image-quality Repair procedure.

Be sure that the paper meets printer specifications. Changing the paper, or using paper from a previously unopened ream, will resolve many print-quality issues.

After resolving an image-quality problem, return to Image-Quality Checkout Procedures on page 3-41 to verify that no other image-quality defects exist.

## Index of Image-Quality Troubleshooting Procedures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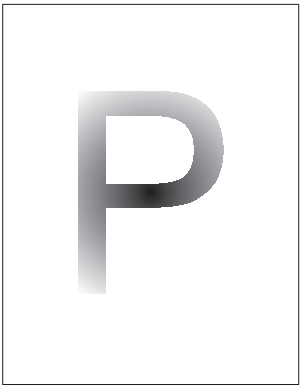
# Light (Undertoned) Prints

The overall image density is too light.



s4400_299

## Initial Actions

- Inspect the printer paper path for items such as staples, paper clips, and paper scraps.
- Check installation of the Print Cartridge.
- Check that the Print Cartridge ground contacts (on the right side of the Print Cartridge and in the Print Cartridge Side Guide in the printer) are clean.
- Ensure there are no obstructions in the Laser path.

## Light Prints Troubleshooting Procedure

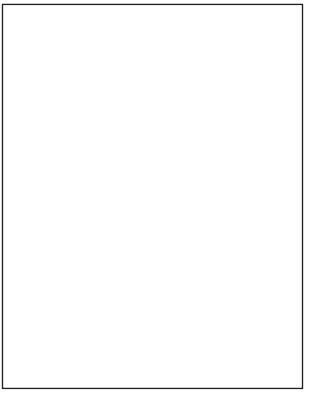
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Load fresh, dry paper.<br>2. Print a test print.<br>**Does the image density meet specifications?** | Problem solved. | Go to step 2. |
| 2 | 1. Install a new Print Cartridge.<br>2. Print a test print.<br>**Does the image density meet specifications?** | Go to Toner Sensor Failure on page 3-8. | Go to step 3. |
| 3 | 1. Remove the Print Cartridge.<br>2. Inspect the Metal Grounding Contact on the Print Cartridge Side Guide.<br>**Is the Metal Grounding Contact intact and free of contamination?** | Go to step 4. | Reform or clean the Metal Grounding Contact, so it makes better contact with the drum shaft, or replace the Print Cartridge Side Guide (RRP 7.5 on page 6-83). |

## Light Prints Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | Check for the continuity between the Metal Grounding Contact and the printer body frame.<br>**Is there continuity between the Metal Grounding Contact and the printer frame?** | Go to step 5. | Replace the Print Cartridge Side Guide (RRP 7.5 on page 6-83). |
| 5 | Inspect Laser beam path between the Laser Assembly and the Drum for obstructions.<br>**Is the laser beam path free of obstructions?** | Go to step 6. | Clean the Laser window and remove any obstructions from the laser beam path. |
| 6 | **Is the Transfer Roller intact and free of contamination?** | Go to step 7. | Replace the Transfer Roller (RRP 7.1 on page 6-79). |
| 7 | Generate a Test Print and switch OFF the printer power halfway through the print cycle. Carefully remove the Print Cartridge and inspect the toner image on the drum just before the transfer area (Transfer Roller).<br>**Is the image on the drum completely developed with sharp, black, easy-to-read areas?** | Go to step 8. | Go to High-Voltage Power Supply (HVPS) Assembly on page 3-31 |
| 8 | Inspect the toner image on the drum immediately after the transfer area (Transfer Roller).<br>**Is the toner image on the drum transferred completely to the paper?** | Go to step 9. | Go to (High-Voltage Power Supply (HVPS) Assembly on page 3-31) |
| 9 | Replace in order until the problem is solved:<br>■ HVPS PWB (RRP 9.6 on page 6-92),<br>■ Laser Assembly (RRP 7.4 on page 6-82),<br>■ Engine Logic Board (RRP 9.3 on page 6-89),<br>■ Transport Chute Assembly (RRP 6.1 on page 6-65). | | |

# Blank Prints

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



s4400_300

## Initial Actions

- Inspect the printer paper path for items such as staples, paper clips and paper scraps.
- Check installation of the Print Cartridge.
- Check that the Print Cartridge ground contacts (on the right side of the Print Cartridge and in the Print Cartridge Side Guide in the printer) are clean.
- Ensure there are no obstructions in the Laser path.
- Ensure the blank prints are not the result of multi-sheet feeds.

## Blank Prints Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Engine Test Print.<br>2. Scroll to Print Quantity and press **OK**.<br>3. Select 5, then press **OK**.<br>4. Scroll to Print Test Pattern and press **OK**.<br>**Are the test prints blank?** | Go to step 3. | Go to step 2. |
| 2 | 1. Exit Service Diagnostics.<br>2. When the printer has restarted, select Printable Pages Menu.<br>3. Scroll to Print Configuration Pages and press **OK**.<br>**Are the prints blank?** | Remove and re-seat the Image Processor Board. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). | The problem appears to be with the host computer or the cables. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 3 | 1. Install a new Print Cartridge.<br>2. Print a test print as in Step 1.<br>**Is there a normal image on the paper?** | Problem solved. | Go to step 4. |

## Blank Prints Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | 1. Remove the Print Cartridge.<br>2. Inspect the Metal Grounding Contact on the Print Cartridge Side Guide.<br>**Is the Metal Grounding Contact intact and free of contamination?** | Go to step 5. | Reform or clean the Metal Grounding Contact, so they make better contact with the drum shaft, or replace the Print Cartridge Side Guide (RRP 7.5 on page 6-83). |
| 5 | Check for continuity between the Metal Grounding Contact and the printer frame.<br>**Is there continuity between the Grounding Contact and the printer frame?** | Go to step 6. | Replace the Print Cartridge Side Guide (RRP 7.5 on page 6-83). |
| 6 | **Is the Transfer Roller intact and free of contamination?** | Go to step 7. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |
| 7 | 1. Generate a Test Print as in step 1 and switch OFF the printer power halfway through the print cycle.<br>2. Carefully remove the Print Cartridge and inspect the toner image on the drum just before the transfer area (Transfer Roller).<br>**Is the image on the drum completely developed with sharp, black, easy-to-read areas?** | Go to step 8. | Go to High-Voltage Power Supply (HVPS) Assembly on page 3-31. |
| 8 | Replace in order until the problem is solved:<br>■ HVPS PWB (RRP 9.6 on page 6-92)<br>■ Laser Assembly (RRP 7.4 on page 6-82)<br>■ Transfer Roller Assembly (RRP 7.1 on page 6-79),<br>■ Engine Logic Board (RRP 9.3 on page 6-89).<br>■ LVPS PWB (RRP 9.5 on page 6-91)<br>■ Print Cartridge Side Guide (RRP 7.5 on page 6-83) | | |

# Black Prints

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

s4400_308

## Initial Actions

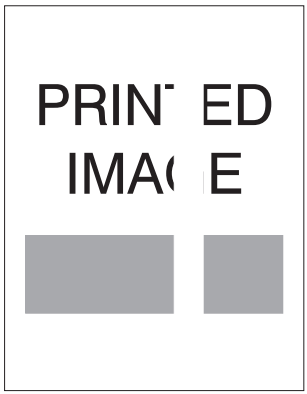
- Inspect the printer paper path for items such as staples, paper clips and paper scraps.
- Check installation of the Print Cartridge.
- Check that the Print Cartridge ground contacts (on the right side of the Print Cartridge and in the Print Cartridge Side Guide in the printer) are clean.
- Ensure the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

## Black Prints Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Install a new Print Cartridge.<br>2. Print a Test Print.<br>**Is the print normal?** | Problem solved. | Go to step 2. |
| 2 | Shield half of the window of the Laser Assembly. Print a Test Print.<br>**Is the print half white and half black?** | Go to Laser Assembly on page 3-17. | Go to Electrical Noise on page 3-33. |

# Vertical Deletions

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




s4400_303

## Initial Actions

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

## Vertical Deletions Troubleshooting Procedure

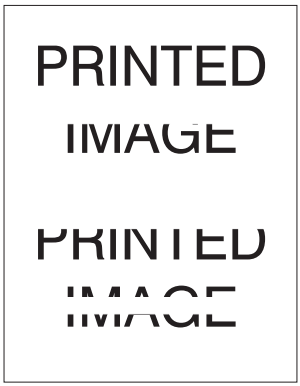
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Load fresh, dry paper.<br>2. Print a test print.<br>**Is the problem still present?** | Go to step 2. | Problem solved. |
| 2 | 1. Install a new Print Cartridge.<br>2. Print a test print.<br>**Is the problem still present?** | Go to step 3. | Problem solved. |
| 3 | Inspect the laser beam path between the Laser Assembly and the Drum.<br>**Is the laser beam path free of obstructions?** | Go to step 4. | Remove any obstructions from the laser beam path. |

## Vertical Deletions Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | Inspect the paper path, between feed and exit, for contamination or obstructions.<br>**Is the paper path free of obstructions?** | Go to step 5. | Remove obstructions or contamination from the paper path. |
| 5 | Inspect the Transfer Roller Assembly for contamination and wear.<br>**Is the Transfer Roller free of contamination and wear?** | Go to step 6. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |
| 6 | **Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover and remove the Fuser Assembly.<br>2. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>3. Open the fuser jam access cover.<br>4. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to step 7. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 7 | Replace in order until the problem is solved:<br>■ Transfer Roller Assembly (RRP 7.1 on page 6-79)<br>■ Laser Assembly (RRP 7.4 on page 6-82)<br>■ Fuser Assembly (RRP 6.2 on page 6-66)<br>■ Engine Logic Board (RRP 9.3 on page 6-89) | | |

# Horizontal Deletions

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




s4400 302

## Initial Actions

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

## Horizontal Deletions Troubleshooting Procedure

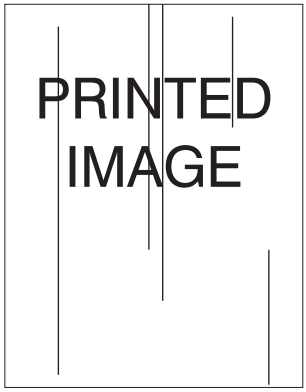
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select Engine Test Print.<br>2. Scroll to Print Quantity and press **OK**.<br>3. Select 5, then press **OK**.<br>4. Scroll to Print Test Pattern and press **OK**.<br>**Do the prints have horizontal deletions?** | Go to step 3. | Go to step 2. |
| 2 | 1. Exit Service Diagnostics.<br>2. When the printer has restarted, select Printable Pages Menu.<br>3. Scroll to Print Configuration Pages and press **OK**.<br>**Do the prints have horizontal deletions?** | Remove and reseat the Image Processor Board. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). | The problem appears to be with the host computer or the cables. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 3 | 1. Load fresh, dry paper.<br>2. Print a test print.<br>**Is the problem still present?** | Go to step 4. | Problem solved. |
| 4 | 1. Install a new Print Cartridge.<br>2. Print a test print.<br>**Is the problem still present?** | Go to step 5. | Problem solved. |
| 5 | Inspect the Transfer Roller Assembly for contamination and wear.<br>**Is the Transfer Roller free of contamination and wear?** | Go to step 6. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |
| 6 | 1. Select the Printable Pages Menu, scroll to Print Test Prints, and press **OK**.<br>2. Switch OFF the printer power halfway through the print cycle.<br>3. Carefully remove the Print Cartridge and inspect the toner image on the drum just before the transfer area (Transfer Roller).<br>**Is the image on the drum completely developed with sharp, black, easy-to-read areas and no horizontal deletions?** | Go to step 7. | Go to High-Voltage Power Supply (HVPS) Assembly on page 3-31. |
| 7 | Inspect the toner image on the drum immediately after the transfer area (Transfer Roller).<br>**Was the toner image on the drum transferred to the paper?** | Go to step 8. | Go to High-Voltage Power Supply (HVPS) Assembly on page 3-31. |

## Horizontal Deletions Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 8 | **Warning: Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover and remove the Fuser Assembly.<br>2. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>3. Open the fuser jam access cover.<br>4. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to step 9. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 9 | Replace in order until the problem is solved:<br>■ HVPS PWB (RRP 9.6 on page 6-92)<br>■ Print Cartridge Side Guide (RRP 7.5 on page 6-83)<br>■ Transfer Roller Assembly (RRP 7.1 on page 6-79)<br>■ Transport Chute Assembly (RRP 6.1 on page 6-65)<br>■ Laser Assembly (RRP 7.4 on page 6-82)<br>■ Engine Logic Board (RRP 9.3 on page 6-89)<br>■ Fuser Assembly (RRP 6.2 on page 6-66)<br>■ MPT Chute Assembly (RRP 4.1 on page 6-44)<br>■ Registration Clutch (RRP 5.5 on page 6-62)<br>■ Turn Roller Assembly (RRP 11.8 on page 6-127) | | |

# Vertical Streaks

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




s4400_305

## Initial Actions

- Check that the paper supply is dry and fresh.
- Inspect the printer paper path for items such as staples, paper clips and paper scraps.
- Check installation of the Print Cartridge.

- Check that the Print Cartridge ground contacts (on the right side of the Print Cartridge and in the Print Cartridge Side Guide in the printer) are clean.
- Check that the paper is within specifications.
- Inspect the paper path, between feed and exit, for contamination or obstructions.

## Vertical Streaks Troubleshooting Procedure

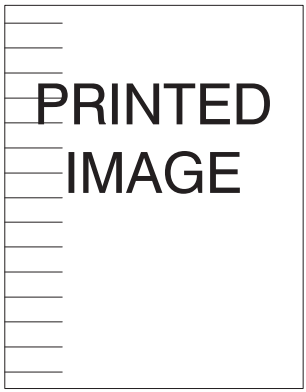
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select “Engine Test Print.”<br>2. Scroll to “Print Quantity” and press **OK**.<br>3. Press **OK** to move the cursor over the last digit, then press the UP key until the last digit is “5.” Press “Back” to return to the Engine Test Print menu.<br>4. Scroll to Print Test Pattern and press **OK**.<br>**Do the test prints have vertical streaks?** | Go to step 3. | Go to step 2. |
| 2 | 1. Exit Service Diagnostics.<br>2. When the printer is Ready, scroll to “Printable Pages” and press **OK**.<br>3. Scroll to “Print Configuration Pages” and press **OK**.<br>**Do the prints have vertical streaks?** | Remove and reseat the Image Processor Board. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). | The problem appears to be with the host computer or the cables. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 3 | 1. Install a new Print Cartridge.<br>2. Print a Test Print.<br>**Are the vertical streaks gone?** | Problem solved. | Go to step 4. |
| 4 | Inspect the laser beam path between the Laser Assembly and the Drum.<br>**Is the laser beam path free of obstructions?** | Go to step 5. | Remove any obstructions from the laser beam path. |
| 5 | Inspect the Transfer Roller Assembly for contamination and wear.<br>**Is the Transfer Roller free of contamination and wear?** | Go to step 6 | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |

## Vertical Streaks Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 6 | **Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover and remove the Fuser Assembly.<br>2. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>3. Open the fuser jam access cover.<br>4. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to Electrical Noise on page 3-33 | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |

# Horizontal Streaks

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




s4400_306

## Initial Actions

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

## Horizontal Streaks Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Enter Service Diagnostics and select “Engine Test Print.”<br>2. Scroll to “Print Quantity” and press **OK**.<br>3. Press **OK** to move the cursor over the last digit, then press the UP key until the last digit is “5.” Press “Back” to return to the Engine Test Print menu.<br>4. Scroll to Print Test Pattern and press **OK**.<br>**Do the test prints have horizontal streaks?** | Go to step 3. | Go to step 2. |
| 2 | 1. Exit Service Diagnostics.<br>2. When the printer is Ready, scroll to “Printable Pages” and press **OK**.<br>3. Scroll to “Print Configuration Pages” and press **OK**.<br>**Do the prints have horizontal streaks?** | Remove and reseat the Image Processor Board. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). | The problem appears to be with the host computer or the cables. If the problems persist, replace the Image Processor Board (RRP 9.2 on page 6-88). |
| 3 | 1. Install a new Print Cartridge.<br>2. Print a Test Print.<br>**Are the horizontal streaks gone?** | Problem solved. | Go to step 4. |
| 4 | 1. Remove the Print Cartridge.<br>2. Inspect the metal grounding contacts on the Print Cartridge Side Guide.<br>**Is the metal grounding contact intact and free of contamination?** | Go to step 5. | Reform or clean the Metal Grounding Contact, so it makes better contact with the drum shaft, or replace the Print Cartridge Side Guide (RRP 7.5 on page 6-83). |
| 5 | Check for the continuity between the metal grounding contacts and the printer body frame.<br>**Is there continuity between the grounding contacts and the Printer Frame?** | Go to step 6. | Replace the Print Cartridge Side Guide (RRP 7.5 on page 6-83). |
| 6 | Inspect the Transfer Roller Assembly for contamination and wear.<br>**Is the Transfer Roller free of contamination and wear?** | Go to step 7. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |

## Horizontal Streaks Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 7 | 1. Select the Printable Pages Menu, scroll to Print Test Prints, and press **OK**.<br>2. Switch OFF the printer power halfway through the print cycle.<br>3. Carefully remove the Print Cartridge and inspect the toner image on the drum just before the transfer area (Transfer Roller).<br>**Is the image on the Drum developed with sharp, black, easily read areas and no horizontal streaks?** | Go to step 8. | Go to High-Voltage Power Supply (HVPS) Assembly on page 3-31. |
| 8 | Inspect the toner image on the Drum immediately after the transfer area (Transfer Roller).<br>**Was the toner image on the Drum transferred to the paper along with any horizontal streaks.** | Go to step 9. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |
| 9 | **Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover and remove the Fuser Assembly.<br>2. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>3. Open the fuser jam access cover.<br>4. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to Electrical Noise on page 3-33 | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |

# Spots

There are spots of toner randomly scattered on the page.

s4400_301

## Initial Actions

- Check that the paper supply is clean, dry and fresh (recycled paper may have spots).
- Ensure there are no obstructions in the Laser path.
- Inspect the printer paper path for items such as staples, paper clips and paper scraps.
- Check installation of the Print Cartridge.
- Check that the Print Cartridge ground contacts (on the right side of the Print Cartridge and in the Print Cartridge Side Guide in the printer) are clean.
- Check that rollers and other components in the paper path are clean and unobstructed.

## Spots Troubleshooting Procedure

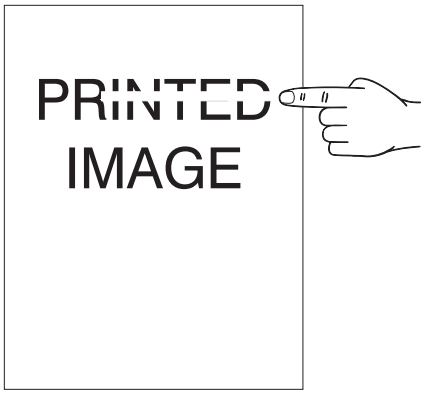
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Install a new Print Cartridge.<br>2. Print a Test Print.<br>**Are the spots gone?** | Problem solved. | Go to step 2. |
| 2 | Inspect the Transfer Roller Assembly for contamination and wear.<br>**Is the Transfer Roller free of contamination and wear?** | Go to step 3. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |

## Spots Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | 1. Generate a Test Print and switch OFF the printer power halfway through the print cycle.<br>2. Carefully remove the Print Cartridge and inspect the toner image on the drum just before the transfer area (Transfer Roller).<br>**Is the image on the drum completely developed with sharp, black, easy-to-read areas and no spots?** | Go to step 4. | Go to High-Voltage Power Supply (HVPS) Assembly on page 3-31. |
| 4 | **Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover.<br>2. Remove the Fuser Assembly.<br>3. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>4. Open fuser jam access cover.<br>5. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to step 5. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 5 | Replace the following, in order, until the defective component is found:<br>■ Transfer Roller Assembly (RRP 7.1 on page 6-79)<br>■ Fuser Assembly (RRP 6.2 on page 6-66)<br>■ Transport Chute Assembly (RRP 6.1 on page 6-65)<br>■ HVPS PWB (RRP 9.6 on page 6-92)<br>■ Laser Assembly (RRP 7.4 on page 6-82)<br>■ Engine Logic Board (RRP 9.2 on page 6-88) | | |

# Unfused Image

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




s4400_315

## Initial Actions

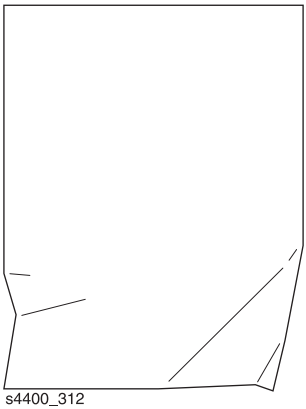
■ Check to ensure that the paper is within specification.

## Unfused Image Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Replace the paper with fresh, dry paper from an unopened ream.<br>2. Print a test print.<br>**Is the problem still present?** | Go to step 2. | Problem solved. |
| 2 | Scroll to Fuser Configuration Menu and change the temperature setting to High for the paper type.<br>**Is the problem still present?** | Go to step 3. | Problem solved. |
| 3 | Scroll to Fuser Configuration Menu and change the temperature setting to Extra High for the paper type.<br>**Is the problem still present?** | Go to step 4. | Problem solved. |
| 4 | **Is the overall print density within specification?** | Go to step 5. | Go to Light (Undertoned) Prints on page 3-54. |
| 5 | 1. Open the Rear Cover.<br>2. Remove the Fuser Assembly.<br>3. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>4. Open the fuser jam access cover. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to step 6. | Clean or replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 6 | 1. Open the fuser jam access cover.<br>2. Rotate the fuser idler gear manually and inspect the contact between the Heat Roller and the Pressure Roller along the rotation.<br>**Are the Heat Roller and the Pressure Roller contacting each other uniformly?** | Go to step 7. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 7 | Replace the following, in order, until the defective component is found:<br>■ Fuser Assembly (RRP 6.2 on page 6-66)<br>■ Engine Logic Board (RRP 9.3 on page 6-89)<br>■ LVPS PWB (RRP 9.5 on page 6-91). | | |

# Damaged Print

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



s4400_312

## Initial Actions

- Check that the paper supply is dry and fresh.
- Check that rollers and other components in the paper path are clean and unobstructed.
- Ensure that paper is within specification.

## Damaged Print Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Observe paper feed as you print a test print.<br>**Did the paper feed crookedly?** | Go to Skewed Image on page 3-79. | Go to step 2. |
| 2 | Replace paper with fresh, dry standard paper. Print a Test Print.<br>**Is the paper still damaged?** | Go to step 3. | Problem solved. |
| 3 | **Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover and remove the Fuser Assembly.<br>2. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>3. Open the fuser jam access cover.<br>4. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to step 4. | Clean or replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 4 | Inspect the paper path between the feed tray and the exit tray for contamination or obstructions.<br>**Is the paper path free of obstructions?** | Go to step 5. | Remove obstructions or contamination from the paper path. |

## Damaged Print Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | Inspect all of the rollers along the paper path, between the feed tray and the exit tray, for contamination, wear or damage.<br>**Are the paper path rollers free of contamination, wear, or damage?** | Go to step 6. | Replace the damaged or worn roller. |
| 6 | 1. Install a new Print Cartridge.<br>2. Print a Test Print.<br>**Is the print still damaged?** | Go to step 7. | Problem solved. |
| 7 | Replace the following, in order, until the defective component is found:<br>■ RRP 6.2 Fuser Assembly on page 6-66<br>■ RRP 6.1 Transport Chute Assembly on page 6-65<br>■ RRP 7.1 Transfer Roller Assembly on page 6-79<br>■ RRP 4.1 MPT Chute Assembly on page 6-44<br>■ RRP 4.7 Retard Pad Assembly on page 6-52<br>■ RRP 11.8 Turn Roller Assembly on page 6-127<br>■ RRP 11.11 Paper Feed Rolls on page 6-130<br>■ RRP 4.4 Bottom Tray Assembly on page 6-48 | | |

# Resolution

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

## Initial Actions

■ Ensure the NVRAM Laser Power adjustment is set to the default, which is 10.

## Resolution Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Install a new Print Cartridge (PL 8.1 Drive and Xerographics on page 7-20).<br>2. Print a Test Print.<br>**Is the Test Print output resolution good?** | Problem solved. | Go to step 2. |
| 2 | Replace the following, in order, until the defective component is found:<br>■ Laser Assembly (RRP 7.4 on page 6-82)<br>■ HVPS PWB (RRP 9.6 on page 6-92) | | |

# Spot Deletions

Solid areas are marked with irregular white areas.

s4400_304

## Initial Actions

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

## Spot Deletions Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Load fresh, dry paper.<br>2. Print a test print.<br>**Is the problem still present?** | Go to step 2. | Problem solved. |
| 2 | 1. Install a new Print Cartridge.<br>2. Print a test print.<br>**Is the problem still present?** | Go to step 3. | Problem solved. |
| 3 | Inspect the toner image on the drum immediately after the transfer area (Transfer Roller).<br>**Was the toner image on the drum transferred to the paper?** | Go to step 4. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |

## Spot Deletions Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | **Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover and remove the Fuser Assembly.<br>2. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>3. Open the fuser jam access cover.<br>4. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to step 5. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 5 | Replace the following, in order, until the defective component is found:<br>■ Transfer Roller Assembly (RRP 7.1 on page 6-79)<br>■ Transport Chute Assembly (RRP 6.1 on page 6-65) | | |

# Repeating Defects

Recurring marks, spots, lines, or voids.

## Initial Actions

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

## Troubleshooting Repeating Defects

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Replace paper with fresh, dry paper.<br>2. Print a test print.<br>**Do the repeating defects still appear?** | Go to step 2. | Problem solved. |
| 2 | **Do the defects occur every:**<br>■ 38 mm (1.5 in.)?<br>■ 50 mm (2.0 in.)?<br>■ 90 mm (3.54 in.)? | Install a new Print Cartridge. | Go to step 3 |
| 3 | **Do the defects occur every:**<br>■ 59 mm (2.32 in.)? | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). | Go to step 4. |

## Troubleshooting Repeating Defects (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | **Do the defects occur every:**<br>■ 94 mm (3.7 in.)?<br>■ 104 mm (4.10 in.)? | Replace the Fuser Assembly (RRP 6.2 on page 6-66) | |

# Residual Image

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

s4400.307

## Initial Actions

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

## Residual Image Troubleshooting Procedure

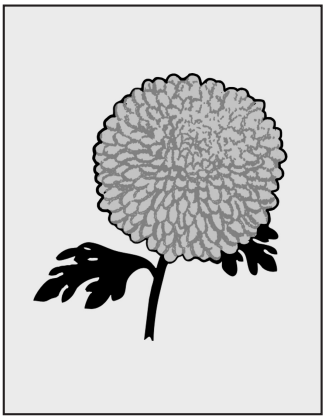
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Replace paper with fresh, dry paper.<br>2. Print a test print.<br>**Do the residual images still appear?** | Go to step 2. | Problem solved. |
| 2 | Install a new Print Cartridge. Print a test print.<br>**Do the residual images still appear?** | Go to step 3. | Problem solved. |

## Residual Image Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 3 | Inspect the Transfer Roller Assembly for contamination and wear.<br>**Is the Transfer Roller free of contamination and wear?** | Go to step 4. | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |
| 4 | **Warning: If the printer has been switched on, the Fuser will be hot.**<br>1. Open the Rear Cover and remove the Fuser Assembly.<br>2. Rotate the fuser idler gear manually and inspect the Heat Roller.<br>3. Open the fuser jam access cover.<br>4. Rotate the fuser idler gear manually and inspect the Pressure Roller.<br>**Are the Heat Roller and the Pressure Roller free of surface defects and contamination?** | Go to step 5. | Clean or replace the Fuser Assembly (page 6-66). |
| 5 | Replace the following, in order, until the defective component is found:<br>■ Transfer Roller Assembly (RRP 7.1 on page 6-79)<br>■ Fuser Assembly (RRP 6.2 on page 6-66)<br>■ HVPS PWB (RRP 9.6 on page 6-92)<br>■ Print Cartridge Side Guide (RRP 7.5 on page 6-83) | | |

# Background

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



s4400_309

## Initial Actions

- Inspect the printer paper path for items such as staples, paper clips and paper scraps.

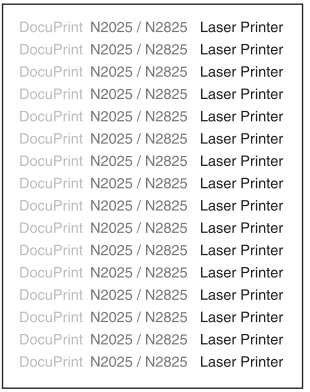
- Check installation of the Print Cartridge.
- Check that the Print Cartridge ground contacts (on the right side of the Print Cartridge and in the Print Cartridge Side Guide in the printer) are clean.
- Ensure the machine covers are in place and fit well so no outside light can enter the machine.

## Background Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | 1. Install a new Print Cartridge.<br>2. Print a Test Print.<br>**Is the background gone?** | Problem solved. | Go to step 2. |
| 2 | 1. Generate a Test Print and switch OFF the printer power halfway through the print cycle.<br>2. Carefully remove the Print Cartridge and inspect the toner image on the drum just before the transfer area (Transfer Roller).<br>**Are the undeveloped areas of the drum clean and without background?** | Go to step 3. | Go to High-Voltage Power Supply (HVPS) Assembly on page 3-31. |
| 3 | Clean or replace the Fuser Assembly (page 6-66).<br>**Is the background is gone?** | Problem solved. | Go to step 4. |
| 4 | Replace the following, in order, until the defective component is found:<br>■ HVPS PWB (RRP 9.6 on page 6-92)<br>■ Fuser Assembly (RRP 6.2 on page 6-66)<br>■ Transport Chute Assembly (RRP 6.1 on page 6-65)<br>■ Laser Assembly (RRP 7.4 on page 6-82)<br>■ Print Cartridge Side Guide (RRP 7.5 on page 6-83)<br>■ Engine Logic Board (RRP 9.3 on page 6-89). | | |

# Uneven Density

Image density varies within the page in either direction.



s4400_310

## Initial Actions

- Load fresh dry paper.
- Check that the correct Print Cartridge is properly installed and not empty.
- Ensure that the machine is reasonably level.
- Check to make sure the Laser path is clean and unobstructed.
- Remove the Print Cartridge and check the Left and Right Guides for wear, contamination, obstructions, etc.
- Clean the Laser window.

## Uneven Density Troubleshooting Procedure

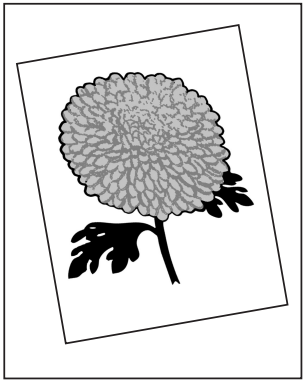
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Print a Test Print.<br>**Does the Test Print output image contain uneven print?** | Go to step 2. | Go to Service Flowchart on page 2-2. |
| 2 | 1. Install a new Print Cartridge (PL 8.1 Drive and Xerographics on page 7-20).<br>2. Print a Test Print.<br>**Does the Test Print output image contain uneven print?** | Go to step 3. | Problem solved. Go to Service Flowchart on page 2-2. |
| 3 | Check the Transfer Roller for contamination, even spring pressure, and proper installation.<br>**Is the Transfer Roller in good condition (not contaminated) and properly installed?** | Go to step 4. | Repair or replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |

## Uneven Density Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 4 | Check the Fuser Assembly for worn parts and for contamination on the Fuser Roller or Pressure Roller.<br>The Fuser Assembly is in good condition. | Go to step 5. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). |
| 5 | Panic stop the printer half way through the print cycle. Look at the image on the drum.<br>The image on the drum has even density. | Go to step 6. | Replace the Laser Assembly (RRP 7.4 on page 6-82). |
| 6 | Look at the print on the paper before the Fuser.<br>The print on the paper has even density. | Replace the Fuser Assembly (RRP 6.2 on page 6-66). | Replace the Transfer Roller Assembly (RRP 7.1 on page 6-79). |

# Skewed Image

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



s4400_311

## Initial Actions

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

## Skewed Image Troubleshooting Procedure

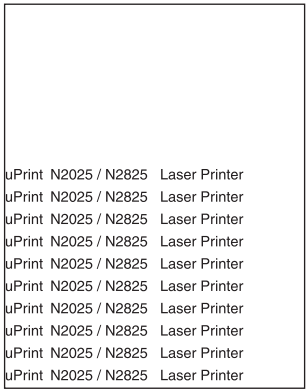
| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Run 5 Test Prints, single sided, from each paper tray. If the printer has a Duplex Unit, run five duplexed prints from each tray.<br>**Does the skewed image appear only on duplexed prints?** | ■ Check the Fuser Assembly. Check for worn parts or rolls. Check for obstructions or contamination. Clean or replace as necessary.<br>■ Check all rolls and drives in the Exit Assembly. Check for obstructions or contamination. Clean or replace as necessary.<br>■ Check the Duplex Unit. Check for worn parts or rolls. Check for obstructions or contamination. Clean or replace as necessary.<br>■ Check the chute between the Duplex Unit and the Registration Rolls. Check for worn parts or rolls. Check for obstructions or contamination. Clean or replace as necessary. | Go to step 2. |
| 2 | **The skewed image occurs on prints fed from all trays.** | ■ Check the Registration Sensor. Check actuation and for obstructions or contamination. Clean or replace as necessary.<br>■ Check the Registration Rolls. Clean or replace if necessary.<br>■ Check the Transfer Roller Roller and bearings. Clean or replace if necessary.<br>■ Check the Print Cartridge. Replace if necessary.<br>■ Check the Chute Transport Assembly. Check for obstructions or contamination. Clean or replace as necessary. | Go to step 3. |
| 3 | **The skewed image occurs on prints fed from the MPT Tray.** | ■ Check the MPT Feed Rolls. Clean or replace if necessary.<br>■ Check the MPT Retard Pad. Clean or replace if necessary.<br>■ Check the MPT Guide. Check for obstructions or contamination. Clean or replace as necessary.<br>■ Check the Registration Sensor. Check actuation and for obstructions or contamination. Clean or replace as necessary. | Go to step 4. |
| 4 | **The skewed image occurs on prints fed from Tray 1.** | ■ Check the Tray 1 Feed Rolls. Clean or replace if necessary.<br>■ Check the Tray 1 Nudger Roller. Clean or replace if necessary.<br>■ Check the Tray 1 Retard Roller. Clean or replace if necessary.<br>Check the feed chute between Tray 1 and the Registration Rolls. Check for obstructions or contamination. Clean as necessary. | Go to step 5. |

## Skewed Image Troubleshooting Procedure (cont'd.)

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 5 | **The skewed image occurs on prints fed from Tray 2.** | ■ Check the Tray 2 Feed Rolls. Clean or replace if necessary.<br>■ Check the Tray 2 Retard Pad/Retard Roller. Clean or replace if necessary.<br>■ Check the Tray 2 Nudger Roller. Clean or replace if necessary.<br>■ Check the Tray 2 Transport Rolls. Check for obstructions or contamination. Clean as necessary.<br>Check the feed chute between Tray 2 and Tray 1. Check for obstructions or contamination. Clean as necessary. | ■ Check the Tray 3 Feed Rolls. Clean or replace if necessary.<br>■ Check the Tray 3 Retard Roller. Clean or replace if necessary.<br>■ Check the Nudger Roller. Clean or replace if necessary.<br>■ Check the Tray 3 Transport Rolls. Check for obstructions or contamination. Clean as necessary.<br>Check the feed chute between Tray 3 and Tray 2. Check for obstructions or contamination. Clean as necessary. |

# Registration

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



s4400_313

## Initial Actions

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

## Registration Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Print a test print.<br>**Is the Test Print output image properly registered?** | Go to step 5. | Go to step 2. |
| 2 | Perform the registration check (Registration on page 4-5).<br>**Is the printer registration set correctly?** | Go to step 3. | Perform the registration procedure (Registration on page 4-5). |
| 3 | **Does misregistration occur in the vertical (process) direction?** | Go to step 6 | Go to step 4. |
| 4 | **Does misregistration occur in the horizontal (scan) direction?** | Go to step 7. | Go to step 5. |
| 5 | Have the customer send another print job.<br>**Is the print image properly registered?** | Problem solved. | Have the customer contact Xerox Customer Support. |
| 6 | Replace in sequence as necessary:<br>■ RRP 5.6 Rubber Registration Roller on page 6-62<br>■ RRP 5.5 Registration Clutch on page 6-62<br>■ RRP 8.2 Main Drive Gear Assembly on page 6-85<br>■ RRP 8.1 Main Motor Assembly on page 6-84<br>■ RRP 5.4 Registration Sensor on page 6-61<br>■ RRP 9.3 Engine Logic Board on page 6-89<br>■ RRP 9.2 Image Processor Board on page 6-88 | | |
| 7 | Replace in sequence as necessary:<br>■ RRP 7.4 Laser Assembly on page 6-82<br>■ RRP 9.2 Image Processor Board on page 6-88 | | |

# Skips / Smears

A disturbance of the image which lengthens or shortens the image in the process direction. A darkening across the process direction or a repeat of the image in the process direction.

## Initial Actions

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

## Skips/Smears Troubleshooting Procedure

| Step | Actions and Questions | Yes | No |
|---|---|---|---|
| 1 | Print a test print.<br>**Does the image have skips or smears?** | Go to step 2. | Problem solved. |
| 2 | Check, clean, or replace as necessary in the following sequence:<br>■ Transport Chute Assembly (page 6-65).<br>■ Main Drive Gear Assembly (RRP 8.2 on page 6-85).<br>■ Fuser Assembly (page 6-66).<br>**Does the defect still occur?** | Replace the Print Cartridge (PL 8.1 Drive and Xerographics on page 7-20). | Problem solved. |

# *Tests Prints, Adjustments, and NVRAM Reset*

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- Fuser Temperature . . . . . 4-6

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## Service Test Prints

There are two test prints stored in the printer that are primarily intended for service use. One is the Test Print that is accessible from the printer's Printable Pages Menu when you select **`Print Test Prints`**. The other is the Engine Test Print, which is stored in the Engine Logic Board and is accessible through the Engine Test Print menu in Service Diagnostics.

# Test Print

This page of blocks, lines, patterns, and text provides an aid in evaluating the quality of printing and in making registration adjustments. The use of the Test Print in evaluating image quality is covered in detail in Image-Quality Checkout Procedures on page 3-41.

***Note:*** ***Insure that Edge-to-edge printing is set to OFF in the PCL Job Defaults Menu before starting the Test Print. Otherwise, the image will be shifted left.***

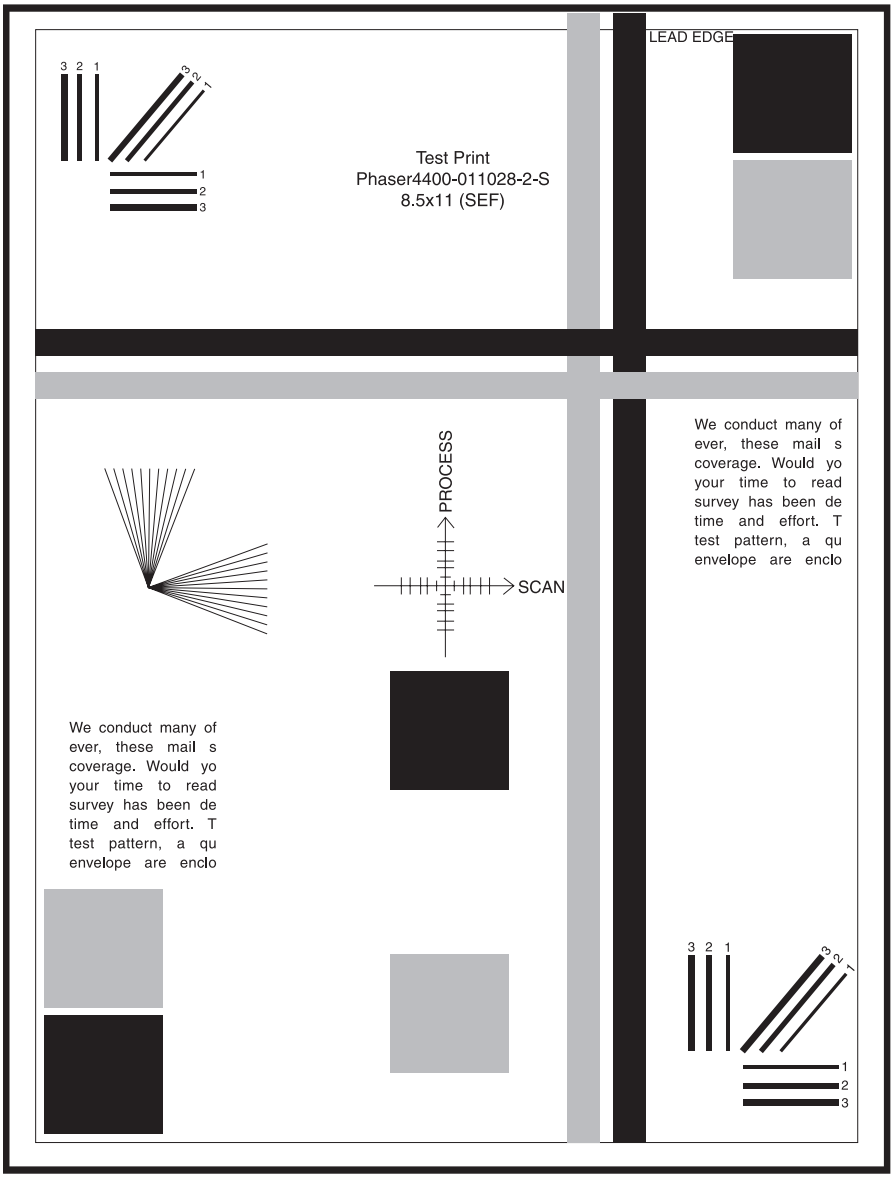
The printer prints the Test Print in accordance with the defaults established in the **`Job Defaults Menu`**. To set the Job Defaults:

1. Select the **`Printer Setup Menu`** and press **OK**.
2. Select the **`Job Defaults Menu`** and press **OK**.
3. Select the print parameter that you want to set or change and press **OK**. In most cases, you are prompted to choose from several alternatives, such as choosing the input tray. In other cases, **`Job Offset`** for instance (if optional Stacker is installed), pressing **OK** toggles the setting from its current state, either from Off to On, or from On to Off. When you set the quantity, it is for a number of image pairs. When Duplexing is off, selecting a quantity of 5 prints ten single-sided prints. When duplexing is on, selecting a quantity of 5 prints five double-sided prints.
4. When you have finished setting all the parameters, scroll to **`Exit`** and press **OK** to return the printer to the Ready state.

To print the Test Print:

1. Select **`Printable Pages Menu`** from the Main Menu and press **OK**.
2. Select **`Print Test Prints`** and press **OK**. The printer automatically prints two images.

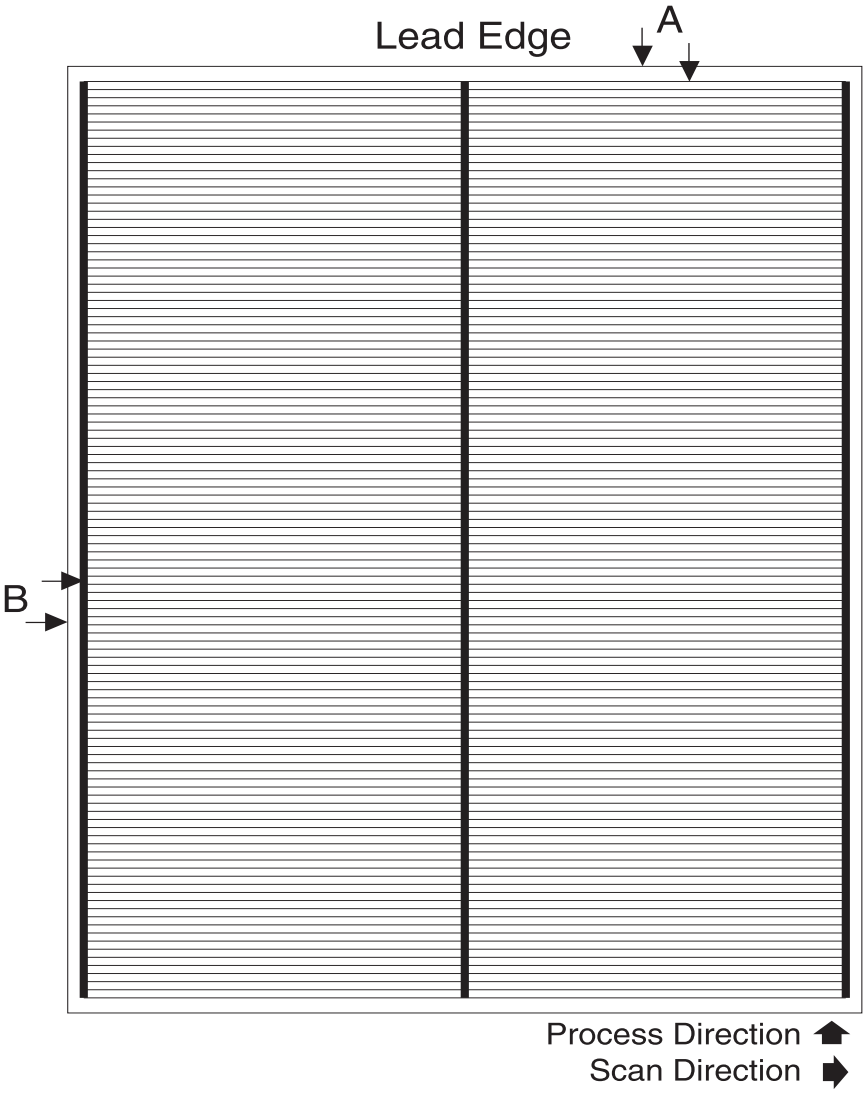
***Note:*** ***If you changed the print quantity, be sure to set it back to 1***


LEAD EDGE
3 2 1
1
2
3
Test Print
Phaser4400-011028-2-S
8.5x11 (SEF)
PROCESS
SCAN
We conduct many of ever, these mail s coverage. Would yo your time to read survey has been de time and effort. T test pattern, a qu envelope are enclo
We conduct many of ever, these mail s coverage. Would yo your time to read survey has been de time and effort. T test pattern, a qu envelope are enclo

s4400_217

# Engine Test Print

The Engine Test Print is stored on the Engine Logic Board and is used for checking the functionality of various print engine components and for making the registration adjustment.



# Adjustments

## Registration

### Check

This procedure checks the printer registration in the horizontal (scan) direction and the vertical (process) direction for both simplex and duplex printing. If any registration measurement does not meet specification, perform the adjustment procedure on page 4-6.

1. Enter Service Diagnostics and select **`Engine Test Print`** and press **OK**.
2. Scroll to **`Input Tray`** and press **OK**.
3. Press the **Down** or **Up** keys to select the input source that requires verification and press **OK**.
4. Scroll to **`Print Quantity`** and press **OK**.
5. Select a quantity of 5.

*Note:* ***Use the* OK *key to move the highlight over the digit you want to change. Use the* Up *and* Down *keys to change the value of the digit. When you have changed each digit so that the quantity is correct, press the* Back *key to enter the selection.***

6. Scroll to **`Print Test Pattern`** and press **OK** to print an Engine Test Pattern.

*Note:* ***The measurement should be made on two consecutive test patterns from the input source.***

7. Measure the distance from the lead edge of the paper to the first horizontal line (measurement A in the figure on page 4-4). The measurement should be 4 mm ±2 mm.
8. Measure the distance from the left edge of the paper to the edge of the thick vertical line. The measurement should be 5 mm ±2 mm.
9. Repeat steps 2 through 8 for each input source.

To test the duplex registration, continue with step 10.

10. From the Engine Test Print menu, scroll to **`Duplex`** and press **OK**.
11. Set Duplex to **`On`** and press **OK** to save the setting.

*Note:* ***If Duplex is Off, press the* Down *key to change it to On, and if Duplex is On, press the* Down *key to change it to Off.***

12. Repeat steps 2 through 8 for each input source. Check the registration for the duplexed prints.

## Adjustment

1. Enter Service Diagnostics and select **Engine NVRAM Adjustments**.
2. Scroll to the process adjustment (**Tray [#] Proc Direction**) or scan adjustment (**Tray [#] Scan Direction**) for the desired tray and press **OK**.
3. Use the **Up** or **Down** keys to set the new value. (Each increment of change equals 0.5mm.)

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

4. Press **OK** to save the setting.
5. Press the **Back** key, then scroll to **Engine Test Print** and press **OK.** Scroll to **Print Test Pattern** to print an Engine Test Pattern.
6. Measure the distance from the lead edge of the paper to the first horizontal line (measurement A in the figure). The measurement should be 4 mm ±2 mm.
7. Measure the distance from the left edge of the paper to the edge of the thick vertical line. The measurement should be 5 mm ±2 mm.
8. Repeat steps 1 through 7 until correct measurements are achieved.
9. Perform Registration (Side-to-Side) on page 3-47 and Registration (Lead Edge-to-Trail Edge) on page 3-48. Repeat this adjustment procedure if the results are incorrect.

# Fuser Temperature

Four temperature ranges, listed in the Fuser Temperatures table, are available for each paper type supported by the printer. The default fuser temperature for each paper type is listed in the Fuser Configuration Defaults table. To set the fuser temperature:

1. Select **Menus** | **Printer Setup Menu** | **Tray Setup Menu** | **Fuser Configuration Menu**.
2. Select **Set Temperature for [paper type]**.
3. Select a temperature from the four available (you must scroll up to see Extra High) and press **OK**.

**Fuser Temperatures**

| Temperature Setting | Low | Medium | High | Extra High |
|---|---|---|---|---|
| Temperature Range | 197 - 203°C<br>354 - 365°F | 197 - 206°C<br>354 - 371°F | 209°C<br>376°F | 210 - 215°C<br>378 - 387°F |

**Fuser Configuration Defaults**

| Plain | Letterhead | Labels | Colored Paper | Card Stock | Envelope | Special |
|---|---|---|---|---|---|---|
| Medium | Medium | High | Medium | High | High | Medium |

# Resetting NVRAM

Resetting NVRAM returns all the Image Processor Board NVRAM-stored parameters to their factory default values. You can reset the PostScript NVRAM using the Customer Menu, the Service Diagnostics Menu, or the Front Panel Shortcut.

## Customer Menu Resets

### Resetting job defaults

Resetting the job defaults resets the paper source, print-quality mode, 2-sided printing, and image smoothing to their default values.

1. From the Main Menu, highlight `Print Setup Menu` and press **OK**.
2. Highlight `Job Defaults Menu` and press **OK**.
3. Scroll to `Reset Job Defaults` and press **OK**.
4. Select `Reset Job Defaults NOW` and press **OK** to reset the job defaults.

### Resetting Printer setup values to default

Resetting the Printer setup values resets the job defaults, front panel language, Intelligent ready, MPT Tray setup, Tray 1 -3 setup, startup page, front panel intensity, front panel contrast, PostScript error information and energy star to their default values.

1. From the Main Menu, select `Printer Setup Menu` and press **OK**.
2. Select `Reset Printer Setup Menu` and press **OK**.
3. Select `Reset Printer Setup NOW` and press **OK**.

### Resetting Connection Setup Values to Default

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

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

**Caution** **Make note of the current network settings or print a configuration page to preserve the customers current network settings prior to resetting the network setup to factory default values.**

### Resetting All Printer Default Settings (PostScript NVRAM)

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

1. From the Main Menu, scroll to **Support Menu** and press **OK**.
2. Scroll to **Service Tools Menu** and press **OK**.
3. **Reset NVRAM** is highlighted — press **OK**.
4. Highlight **Reset NVRAM** and **Reset Printer NOW** and press **OK** to reset all the settings to their factory default values.

### Fuser Reset

The Fuser Reset procedure restarts the counter that tracks Fuser life. The procedure must be performed following installation of the Maintenance Kit. To perform the fuser reset:

1. From the Main Menu, scroll to **Supplies Info Menu** and press **OK**.
2. Scroll to **Reset Fuser Life** and press **OK**.
3. **Reset NVRAM** is highlighted — press **OK**.
4. Highlight **Reset NVRAM** and **Reset Printer NOW** and press **OK** to reset all the settings to their factory default values.

Select **Menus** | **Supplies Info Menu** | **Reset Fuser Life** | **Reset Fuser Life NOW**.

## Service Diagnostics Resets

Resetting the NVRAM restores all printer values stored in the Image Processor controller NVRAM including network, printer setup, job defaults, and margin to their factory default values.

1. Enter Service Diagnostics.
2. Scroll to **NVRAM Access** and press **OK**.
3. **PostScript NVRAM Reset** is highlighted — press **OK**.
4. When "Resetting NVRAM! Are you sure?" is displayed, highlight **Yes** and press **OK**.

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

## Front Panel Shortcut Reset

The following front panel shortcut can be used to reset PostScript NVRAM

| Mode | Press this selection at power-on |
|---|---|
| Reset PostScript NVRAM | **BACK+OK**<br>**When "Password" appears, press UP + DOWN keys within 2 seconds.** |

## Print Engine NVRAM

There is no single reset for the Print Engine NVRAM.

# Cleaning and Maintenance

## Service Preventive Maintenance Procedure

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

The frequency of use and the type of paper a customer prints on determines how critical cleaning the machine is, record the number of sheets printed. You should thoroughly inspect and clean these printers.

### Recommended Tools

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

### Cleaning

**Caution: Never apply alcohol to any parts in the printer.**

***Note:*** ***Never use a damp cloth to clean up toner.***

1. Record number of sheets printed.
2. Print several sheets of paper to check for problems or defects.
3. Turn off the printer and disconnect the Power Cord.
4. Remove the Top Cover and clean the Fan with a brush or dry cloth to remove excess dust.
5. Remove any debris or foreign objects from the Transfer Roller, Fuser Assembly, Laser Assembly, and paper path.
6. Vacuum out any loose toner from the interior of the printer with a Type II toner vacuum only.
7. Remove and clean the paper trays.
8. Clean feeder rollers with a lint-free cloth lightly dampened with water.

# FRU Disassembly

This section contains step-by-step removal procedures for a specific component or assembly. Numbers in the illustrations refer to steps in the procedure. For example: if step 3 in a procedure instructs you to remove a screw, the screw in the illustration is labeled 3. Unless a specific Replacement procedure is included, reassembly is the reverse of disassembly.

Illustrations are used to assist you with the procedures. You should refer to the specific Parts List illustration (listed under the repair title) for locating most components within a procedure.

**Caution: Always reinstall the correct type and size screws. Using the wrong screw can damage tapped holes.**

**Caution: Do not use excessive force to either remove or install a part.**

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

The Print Cartridge should be removed and stored in a dark, safe place when performing any procedure where screws or components may damage the cartridge and where exposure to light could degrade performance.

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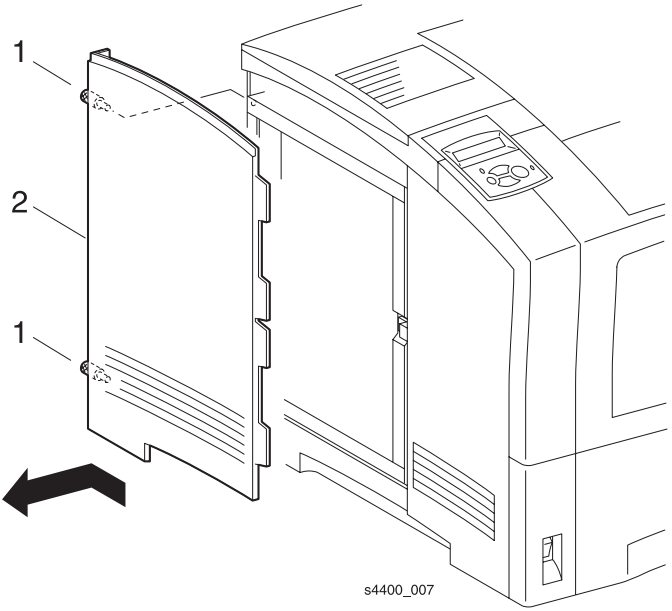
# Covers and Trays

## RRP 1.1 Left Interface Cover

See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Loosen the two thumb screws that secure the Left Interface Cover.
2. Slide the cover to the rear and remove.



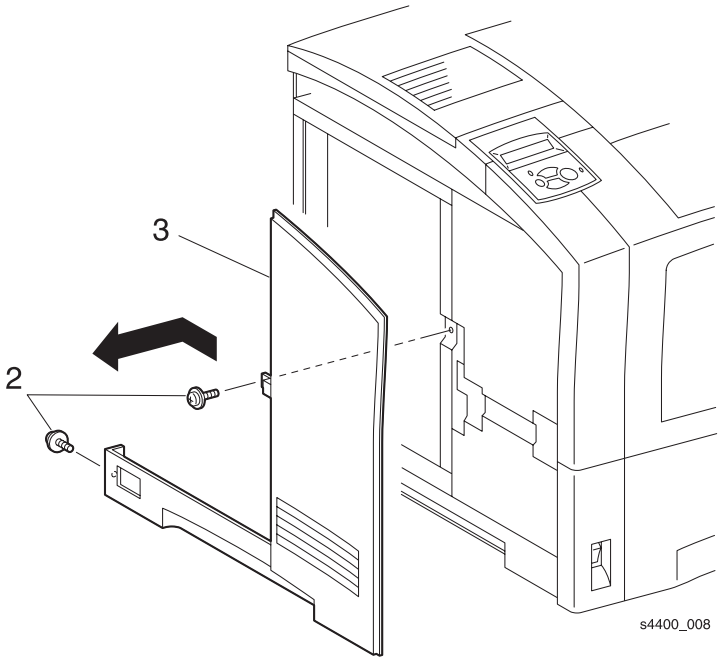

**Left Interface Cover**

# RRP 1.2 Left Cover

See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
2. Remove the two screws securing the Left Cover to the printer. (See figure.)
3. Remove the Left Cover.



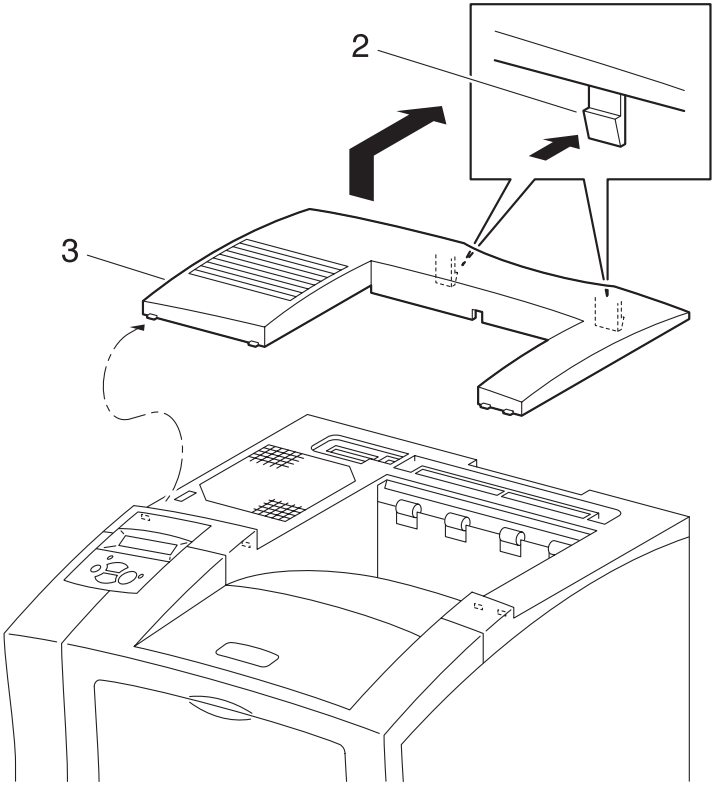

**Left Cover**

# RRP 1.3 Option Cover

See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Squeeze the cover release and open the Rear Cover Assembly.
2. Push the two locking tabs at the rear of Option Cover.
3. Lift and slide the Option Cover to the rear and remove.



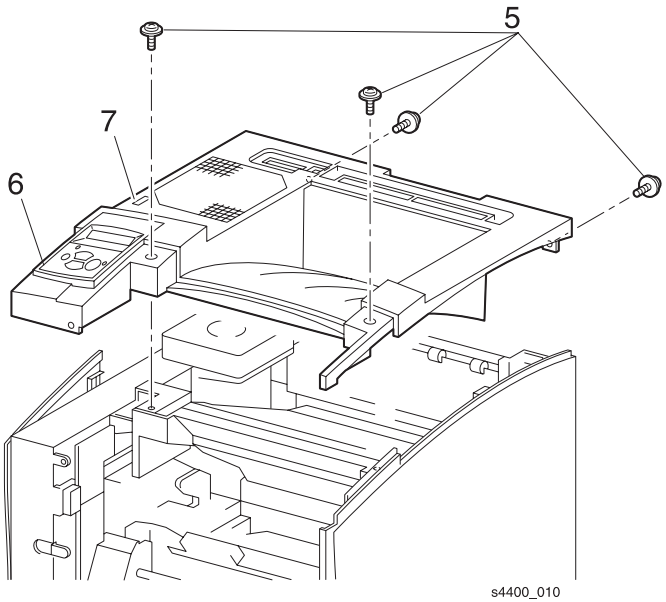

**Option Cover**

# RRP 1.4 Top Cover Assembly

See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Open the Rear Cover Assembly.
5. Remove the four screws securing the Top Cover Assembly.
6. Disconnect the ribbon cable from J790 on the Image Processor Board.
7. Remove the Top Cover Assembly.




**Top Cover Assembly**

# RRP 1.5 Right Cover

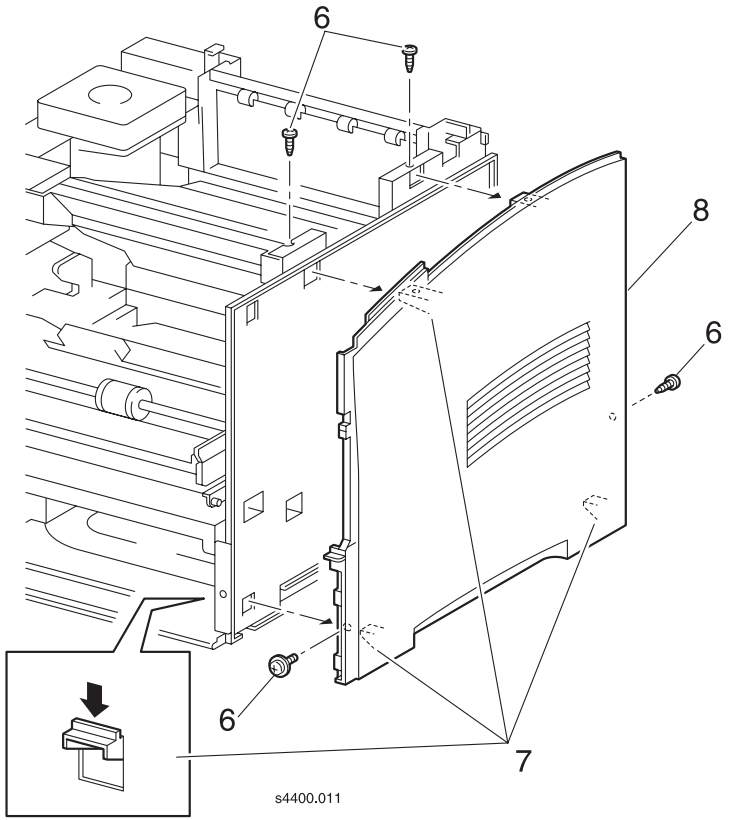
See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Open the Rear Cover Assembly.
5. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
6. Remove the four screws securing the Right Cover.

***Note:*** ***On printers without an optional feeder, slide the right edge of the printer over the edge of the stand/table by approximately 1 inch.***

7. Lower the cover to disconnect the three hooks at the top and bottom of the Right Cover.
8. Remove the Right Cover.



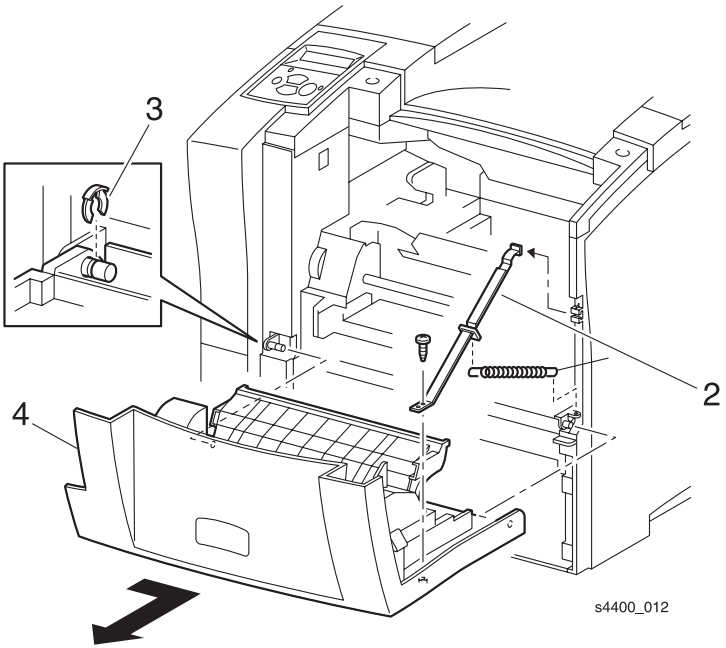

**Right Cover**

# RRP 1.6 Front Cover Assembly

See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Open the Front Cover Assembly.
2. Disconnect the spring, then slide the Cover Stopper to the left or right and remove from the right cover.
3. Remove the K clip that secures the Front Cover Assembly to the left stud of the printer.
4. Slide the Front Cover to the right and remove.



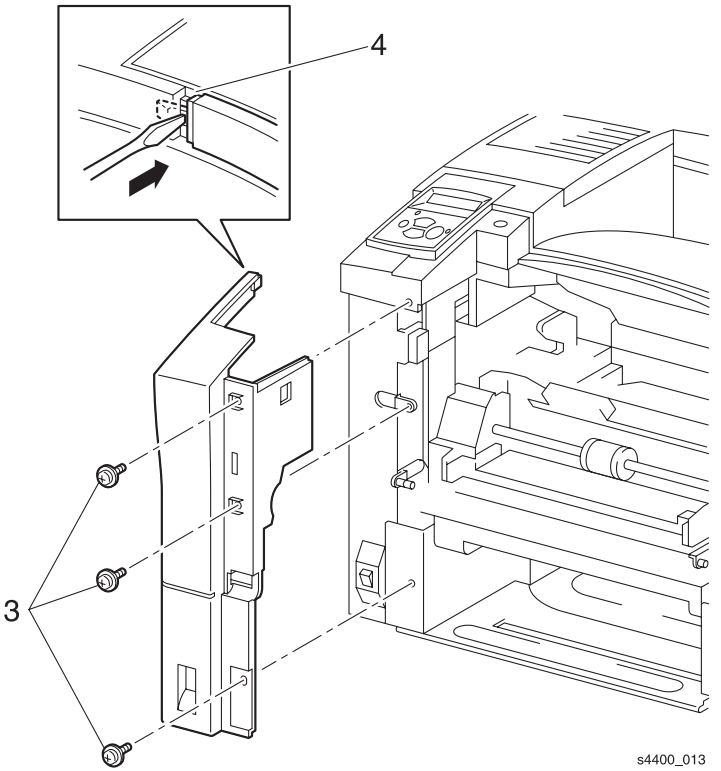

**Front Cover**

# RRP 1.7 Left Front Cover

See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the three screws securing the Left Front Cover.
4. Use a small screwdriver to press on the locking tab and the remove the cover.



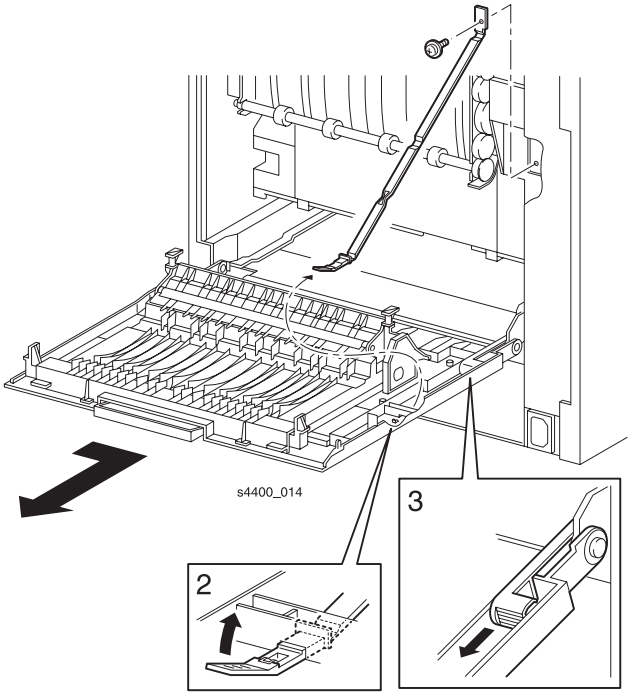

**Left Front Cover**

# RRP 1.8 Rear Cover Assembly

See the Parts List on page 7-4.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Open the Rear Cover Assembly by squeezing the clips.
2. Lift the lead edge of the locking tab to release and remove the Stopper from the cover.
3. Slide the Pivot Stopper that secures the left Rear Cover Assembly.
4. Slide the Rear Cover Assembly to the right (as viewed from the rear).



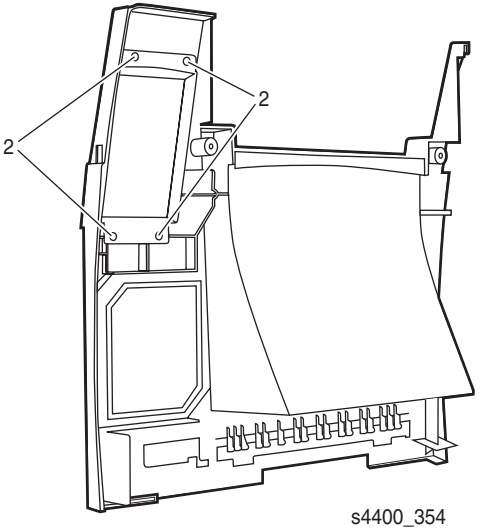

**Rear Cover Assembly**

# RRP 1.9 Front Panel Assembly

See the Parts List on page 7-2.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
2. Remove the four screws securing the Front Panel Assembly to the Top Cover.



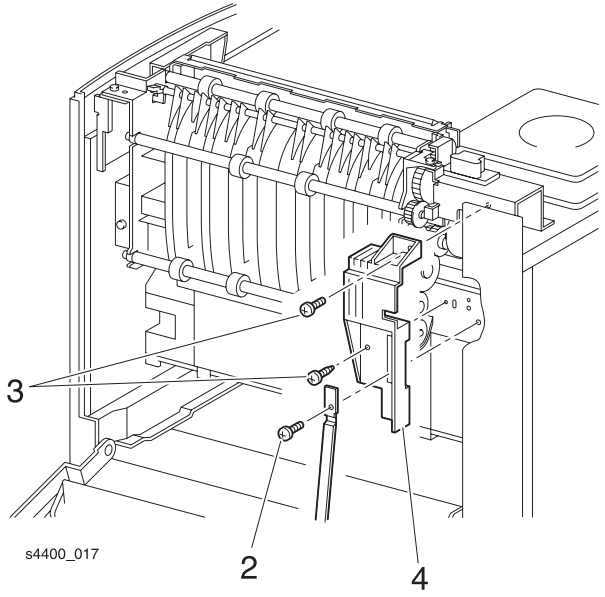

**Front Panel Assembly**

# RRP 1.10 Interlock Cover

See the Parts List on page 7-4.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Rear Cover Assembly (RRP 1.8 Rear Cover Assembly on page 6-13).
2. Remove the screw that secures the Stopper to the printer.
3. Remove the two screws that secure the Interlock Cover to the printer.
4. Remove the Interlock Cover from the printer.



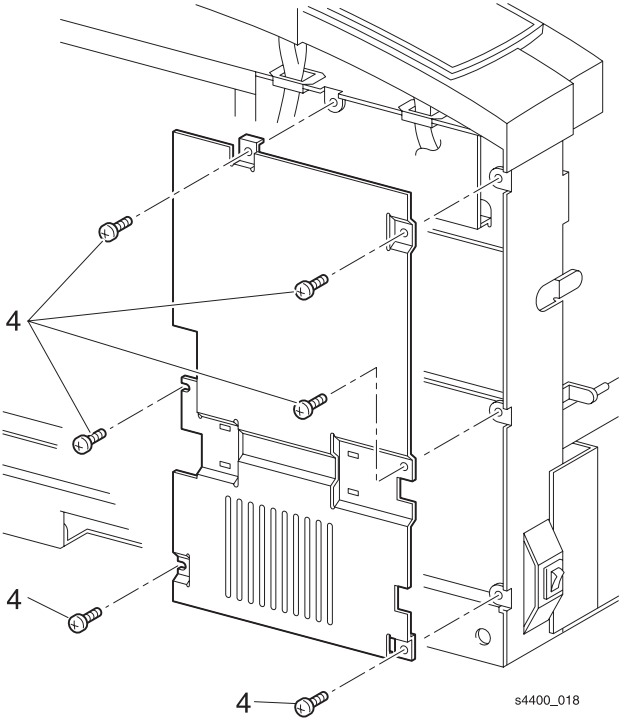

**Interlock Cover**

# RRP 1.11 Left Plate

See the Parts List on page 7-4.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the six screws that secure the Left Plate to the printer and remove the plate.




**Left Plate**

# RRP 1.12 Plate Handle

See the Parts List on page 7-4.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Paper Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the four screws that secure the Plate Handle to the printer and remove the Plate Handle.

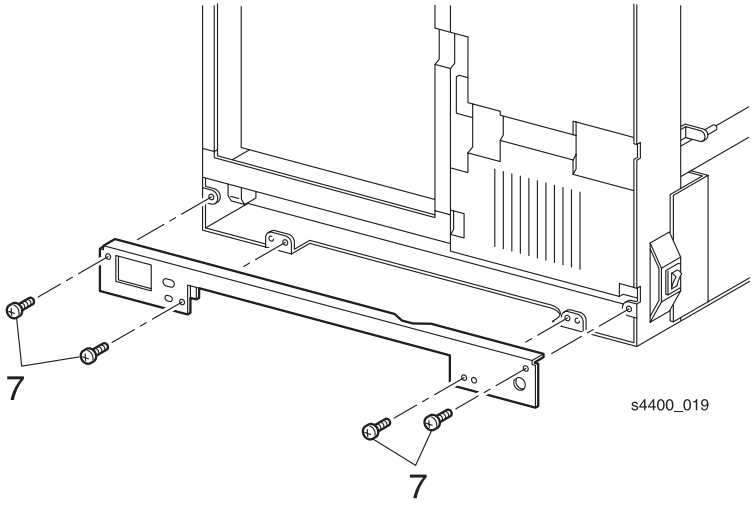


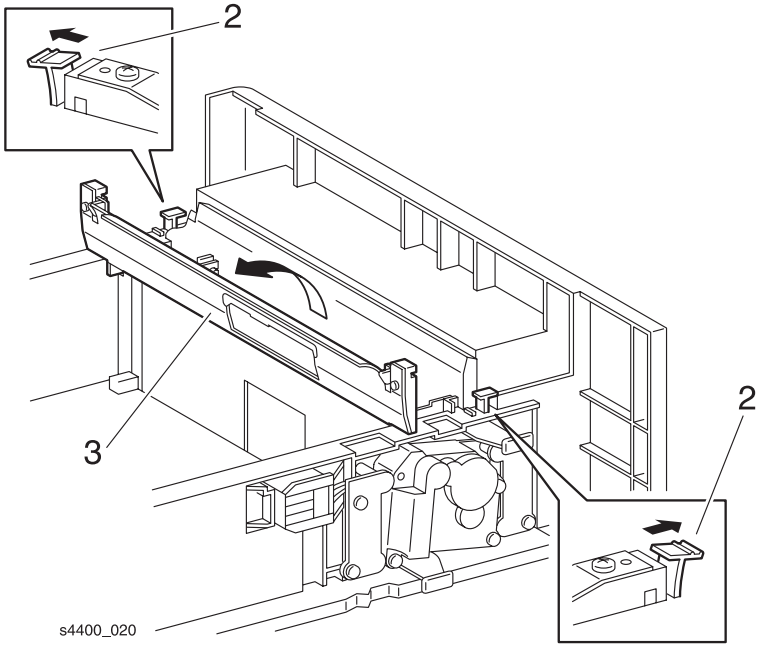

**Plate Handle**

# Tray 1

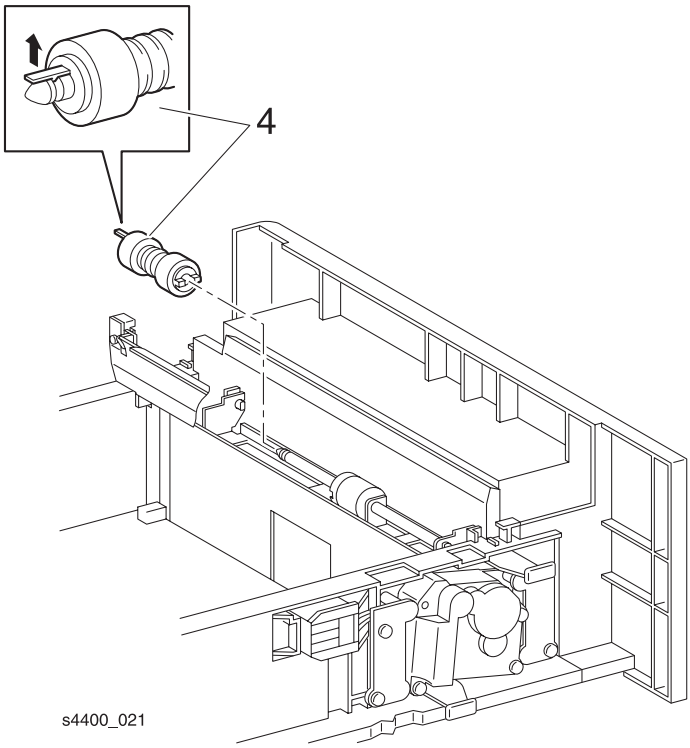
## RRP 2.1 Retard Roller Assembly

See the Parts List on page 7-6.

1. Remove Tray 1.
2. Release the left and right latches of Tray 1.
3. Open the Retard Chute.
4. Lift the locking tab and remove the Retard Roller Assembly.




**Retard Chute**




**Retard Roller Assembly**

# RRP 2.2 Friction Clutch Assembly

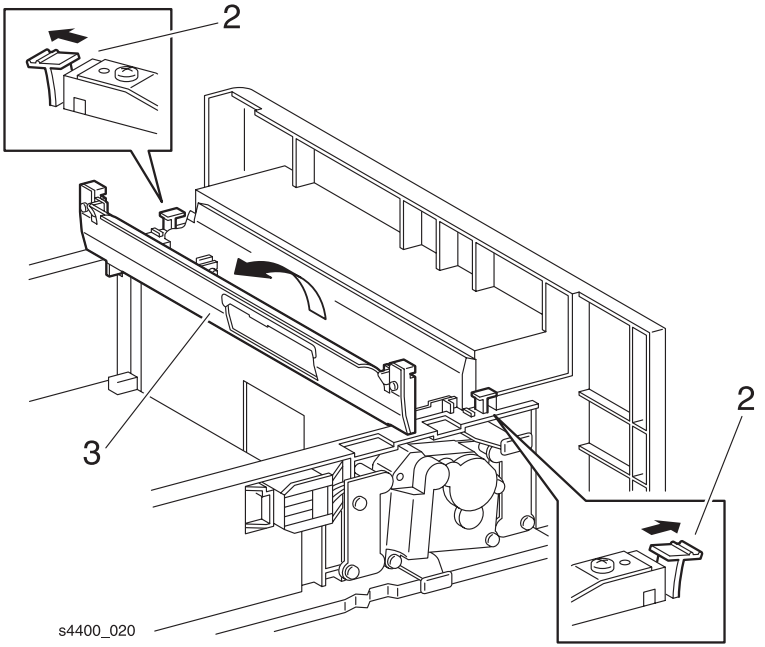
See the Parts List on page 7-14.

1. Remove Tray 1.
2. Release the left and right latches of Tray 1.
3. Open the Retard Chute.
4. Lift the locking tab and remove the Retard Roller Assembly.
5. Remove the Friction Clutch Assembly from the shaft.

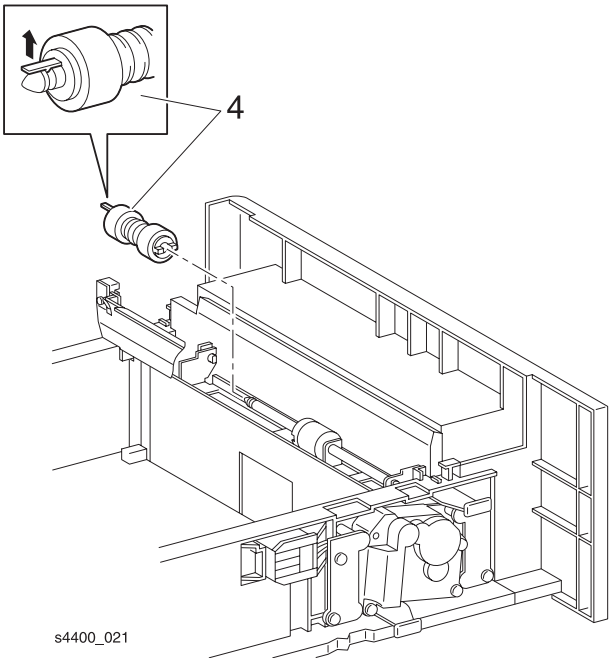
## Replacement

Reinstall the components in the reverse order.

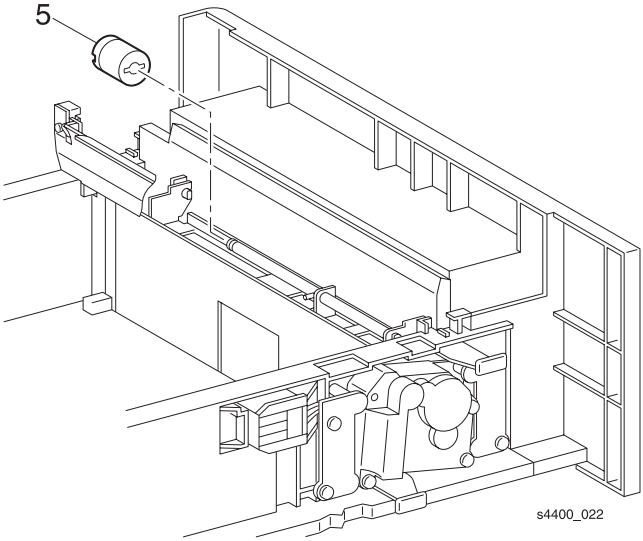
Ensure that the tab on the clutch is positioned on the pin on the Retard Shaft.




**Tray 1 Latches**




**Retard Roller**

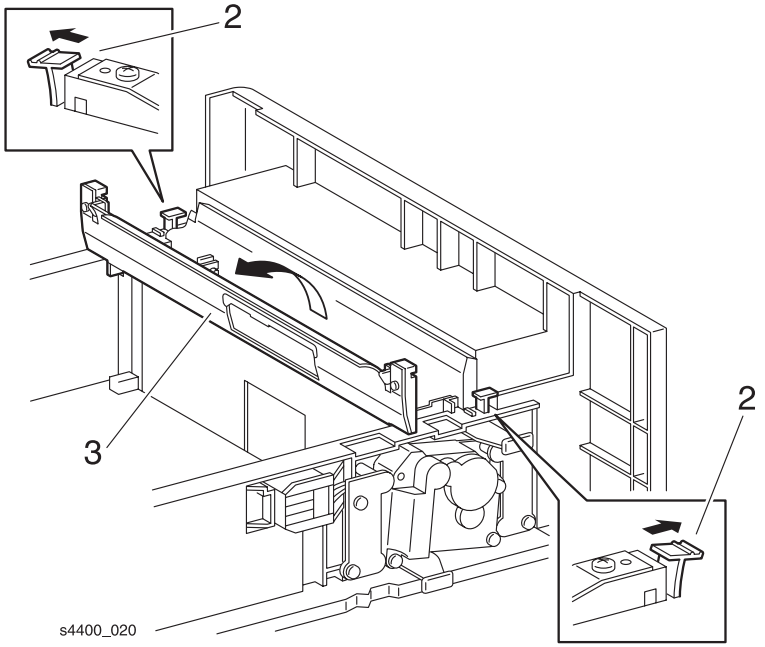



**Friction Clutch Assembly**

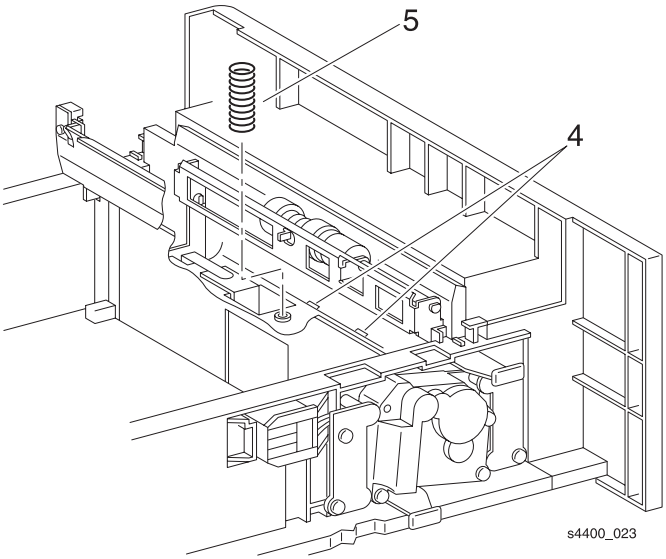
# RRP 2.3 Retard Spring

See the Parts List on page 7-6.

1. Remove Tray 1.
2. Release the left and right latches of Tray 1.
3. Open the Retard Chute.
4. Release the two Locking Tabs and lift the Retard Assembly.
5. Remove the Retard Spring from the Roller Assembly.




**Retard Chute**




**Retard Spring**

## Replacement

Reinstall the components in the reverse order.

Ensure that the tab on the clutch is positioned on the pin on the Retard Shaft.

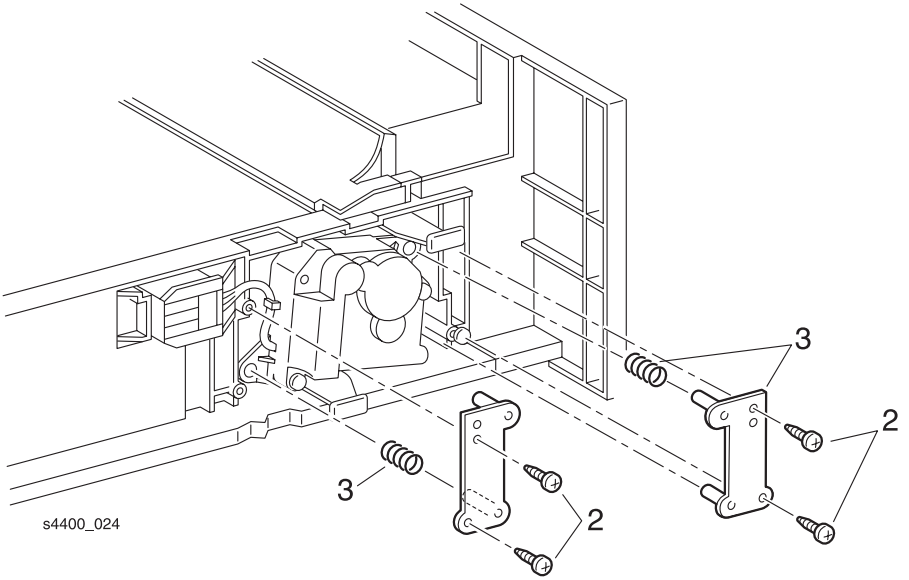
# RRP 2.4 Motor Assembly

See the Parts List on page 7-6.

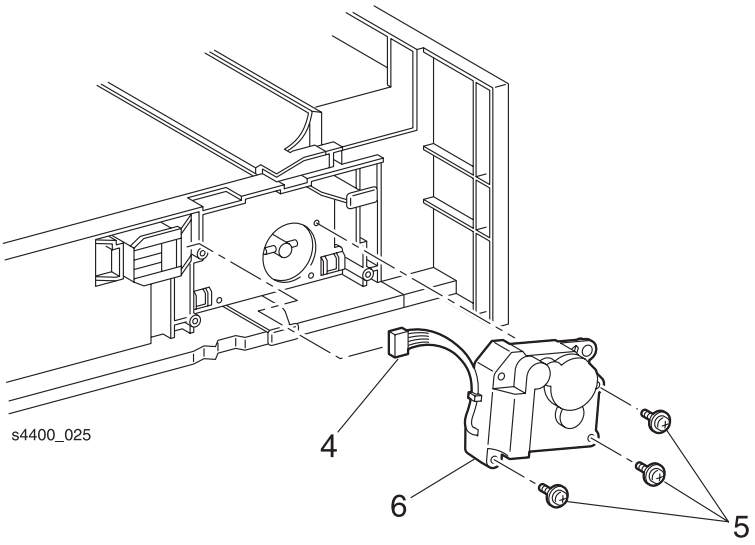
1. Remove Tray 1.
2. Remove the screws that secure the left and right Motor Brackets to the tray.
3. Remove both mounting brackets and motor springs.

***Note:*** ***It may be necessary to use a scribe or small screwdriver to lift the locking tabs to disconnect P/J672.***

4. Press the Socket Guide slightly and disconnect P/J672.
5. Remove the three screws securing the motor to the Motor Assembly.
6. Remove the motor.




**Left and Right Motor Brackets**




**Motor Assembly**

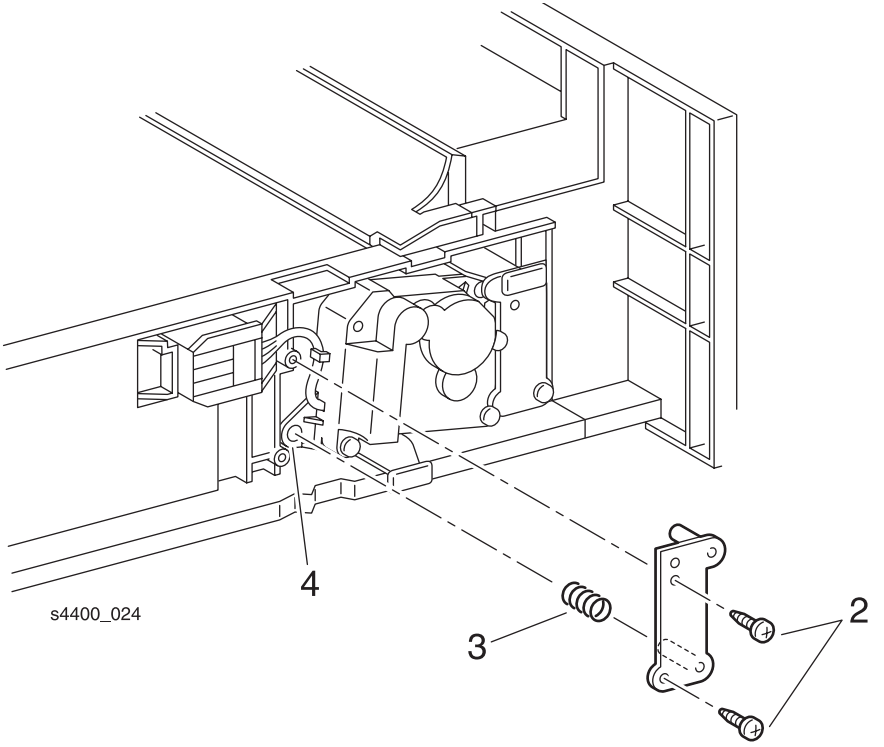
# RRP 2.5 Paper Feeder Connector and Socket Guide

See the Parts List on page 7-6.

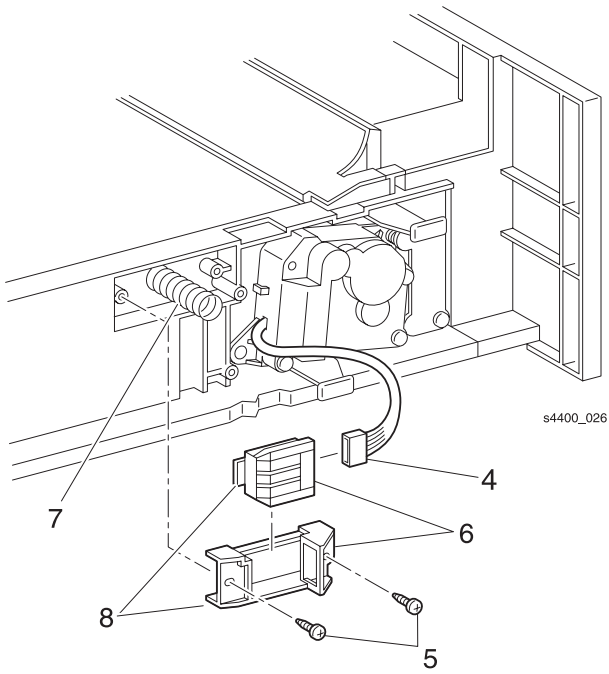
1. Remove Tray 1.
2. Remove the two screws that secure the left Motor Bracket to the tray.
3. Remove the Motor Spring.

***Note:*** ***It may be necessary to use a scribe or small screwdriver to lift the locking tabs to disconnect P/J672.***

4. Disconnect P/J672 from the Socket Guide.
5. Remove the two screws that secure the Socket Guide.
6. Remove the Socket Guide together with the Connector.
7. Remove the Spring.
8. Slide the Connector to disconnect it from the Socket Guide.




**Left Motor Bracket**




**Connector and Socket Guide**

# Paper Feed (Tray 1)

## RRP 3.1 Paper Feeder

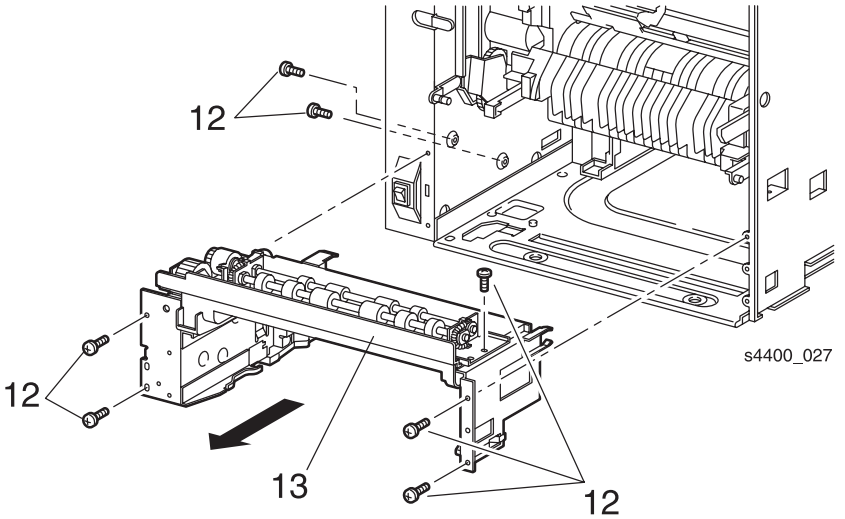
See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.

***Note:*** ***Remove all Optional 550-Sheet Feeders.***

2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
9. Remove the Right Cover (RRP 1.5 Right Cover on page 6-10).
10. Remove the LVPS PWB (RRP 9.5 LVPS PWB on page 6-91).
11. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
12. Remove the seven screws that secure the Paper Feeder to the printer.
13. Pull the Paper Feeder toward the front to remove.



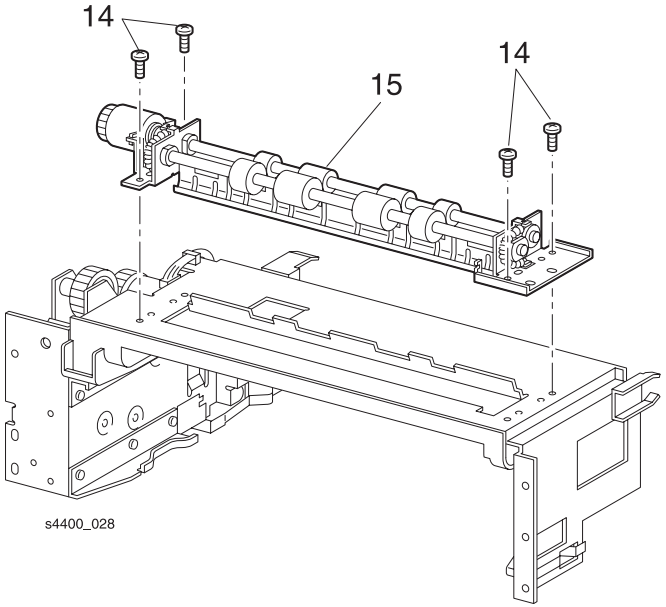

**Paper Feeder**

# RRP 3.2 Turn Roller Assembly

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Open Rear Door.
9. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
10. Remove the Right Cover (RRP 1.5 Right Cover on page 6-10).
11. Remove the LVPS PWB (RRP 9.5 LVPS PWB on page 6-91).
12. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
13. Disconnect P/J64 on the Feeder PWB. Release cable from all cable clamps.
14. Remove the four screws that secure the Turn Roller Assembly to the Paper Feeder Assembly.
15. Remove the Turn Roller Assembly together with the Extension Spring and Chute Spring.




**Turn Clutch Assembly**

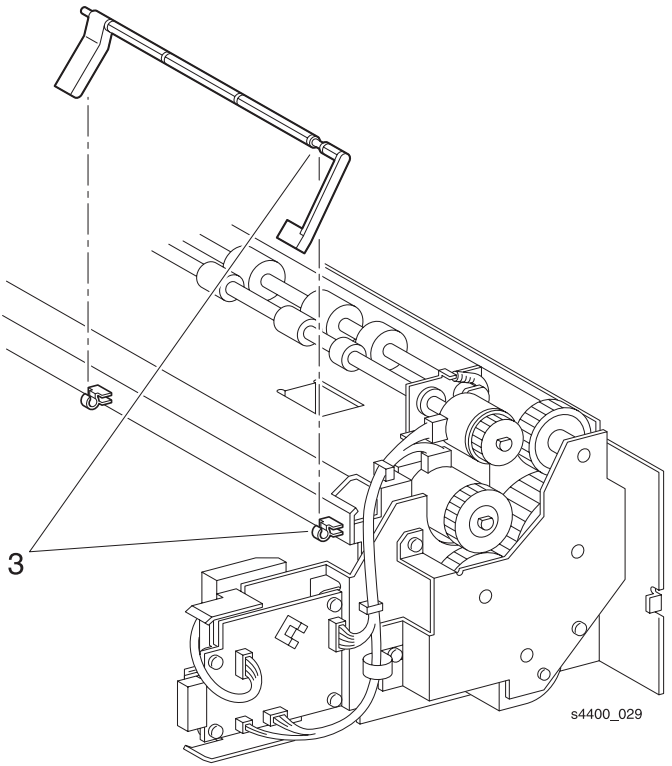
# RRP 3.3 Tray 1 No Paper Actuator

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. If installed, remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
3. Rotate the No Paper Actuator up until the left end of the actuator can be removed from the support. Remove the actuator.

***Note:*** ***If removing or replacing the actuator proves too difficult with the feeder assembly installed, it will be necessary to remove the feeder assembly from the printer (RRP 3.1 Paper Feeder on page 6-28).***




**No Paper Actuator**

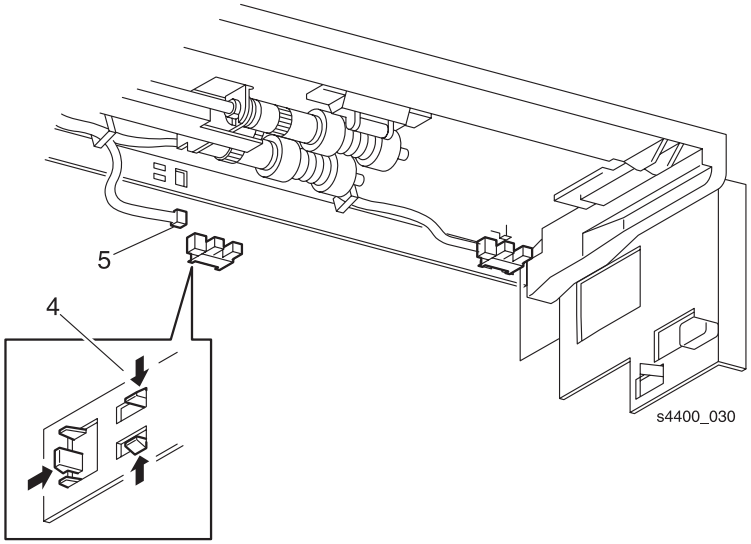
# RRP 3.4 Stack Height Sensor

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Duplex Unit if installed (RRP 12.1 Duplex Unit on page 6-141).
3. Remove the No Paper Actuator (RRP 3.3 Tray 1 No Paper Actuator on page 6-30).
4. Release the five hooks, and remove the Stack Height Sensor.
5. Disconnect P/J662 from the sensor.

*Note:* ***If removing or replacing the sensor proves too difficult with the feeder assembly installed, it will be necessary to remove the feeder assembly from the printer (RRP 3.1 Paper Feeder on page 6-28).***




**Stack Height Sensor**

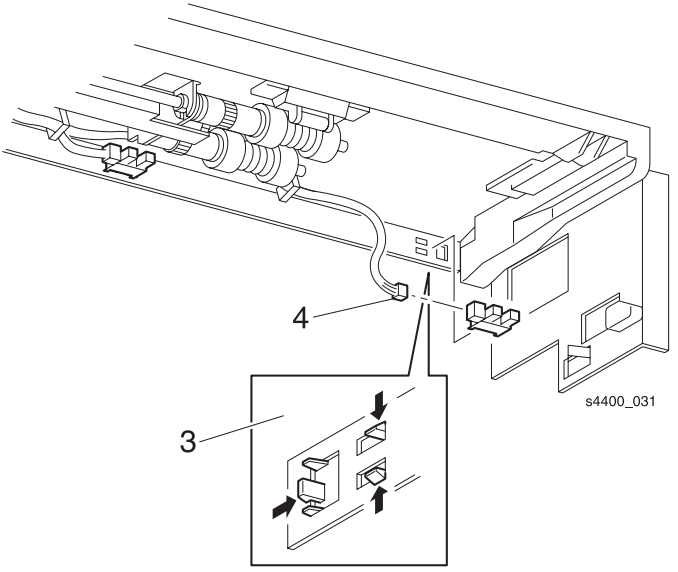
# RRP 3.5 Low Paper Sensor

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Duplex Unit if installed (RRP 12.1 Duplex Unit on page 6-141).
3. Release the five hooks, and remove the Low Paper Sensor.
4. Disconnect P/J661 from the sensor.

***Note:*** ***If removing or replacing the sensor proves too difficult with the feeder assembly installed, it will be necessary to remove the feeder assembly from the printer (RRP 3.1 Paper Feeder on page 6-28).***




**Low Paper Sensor**

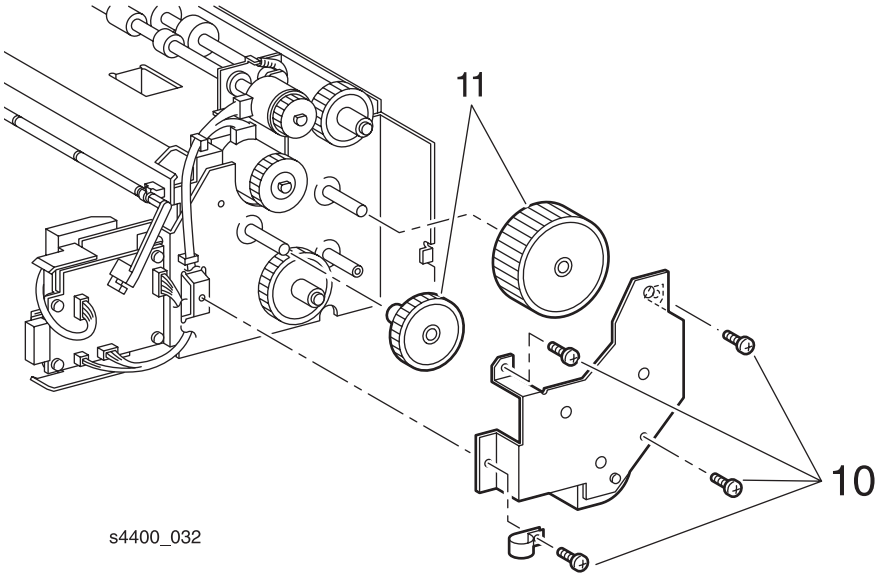
# RRP 3.6 Feed Clutch Assembly

See the Parts List on page 7-10.

## Removal

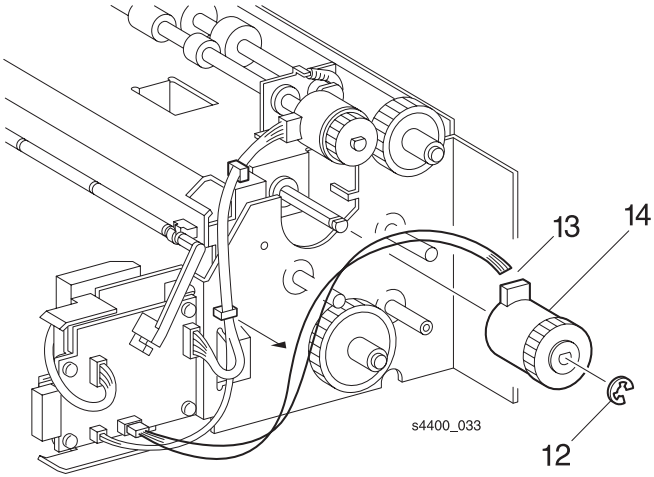
**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
5. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
6. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
7. Remove the Right Cover (RRP 1.5 Right Cover on page 6-10).
8. Remove the LVPS PWB (RRP 9.5 LVPS PWB on page 6-91).
9. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
10. Remove the four screws that secure the bracket to the Paper Feeder and remove the bracket.
11. Remove the Gear 3 and Gear 2 from the shaft of the Paper Feeder.




**Paper Feeder Bracket**

**12.**Remove the E-ring that secures the Feed Clutch Assembly to the Feeder.
**13.**Disconnect P/J651 from the clutch.
**14.**Remove the Feed Clutch Assembly.




**Feed Clutch Assembly**

## Replacement

Reinstall the components in the reverse order.

Ensure that all alignment pins are properly inserted in the bracket holes before replacing the four screws.

# RRP 3.7 Feeder Assembly

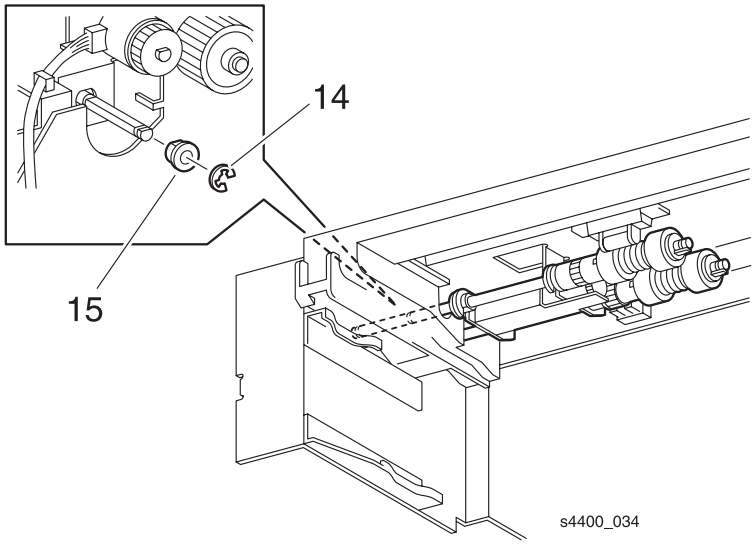
See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

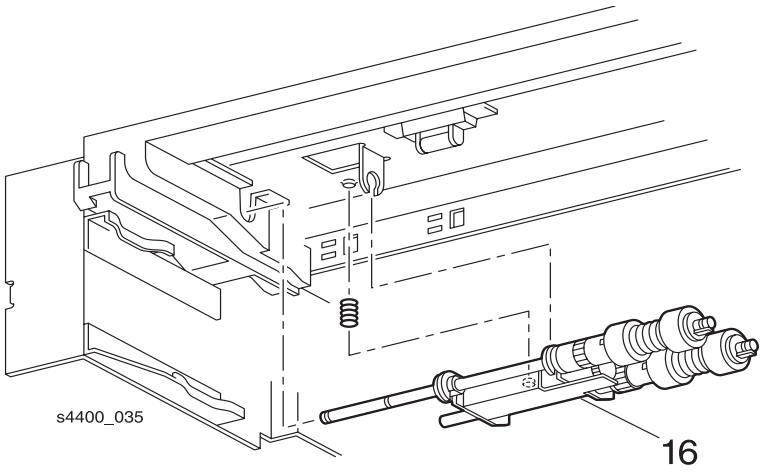
1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Open Rear Door.
9. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
10. Remove the Right Cover (RRP 1.5 Right Cover on page 6-10).
11. Remove the LVPS PWB (RRP 9.5 LVPS PWB on page 6-91).
12. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
13. Remove the Feed Clutch Assembly (RRP 3.6 Feed Clutch Assembly on page 6-33).
14. Remove the E-ring that secures the left shaft of the Feeder Assembly.
15. Remove the left bearing from the left shaft of the Feeder Assembly.

**Caution: Don't lose Bias Spring located under the Feeder Assembly.**

16. Slide the Feeder Assembly to the right and remove.




**Feeder Assembly Bearing**



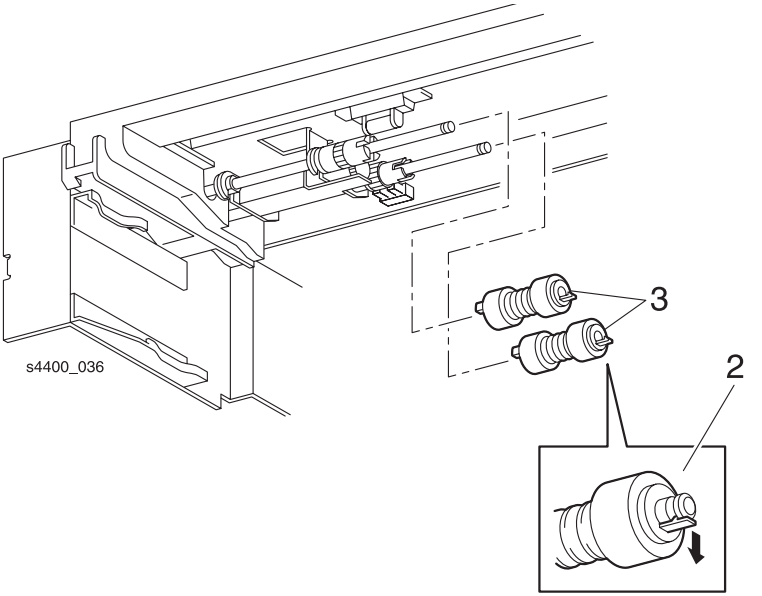

**Feeder Assembly**

## RRP 3.8 Paper Feed Rollers

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Release the locking tab on the Front Feed Roller and slide the roller to the right off the shaft.
3. Repeat step 2 with the Rear Feed Roller.




**Paper Feed Rollers**

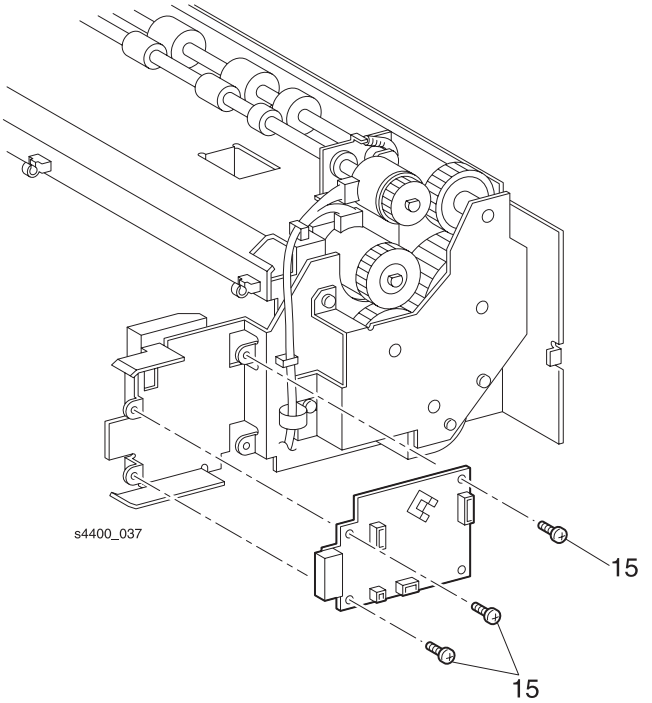
# RRP 3.9 Feeder PWB

See the Parts List on page 7-10.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Open Rear Door.
9. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
10. Remove the Right Cover (RRP 1.5 Right Cover on page 6-10).
11. Remove the LVPS PWB (RRP 9.5 LVPS PWB on page 6-91).
12. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
13. Disconnect P/J64, P/J65, P/J66, and P/J67 from the Feeder PWB.
14. Lift the No Paper Actuator to clear the board.
15. Remove the three screws that secure the Feeder PWB to the Paper Feeder.
16. Remove the Feeder PWB.




**Feeder PWB**

# RRP 3.10 Feeder Socket

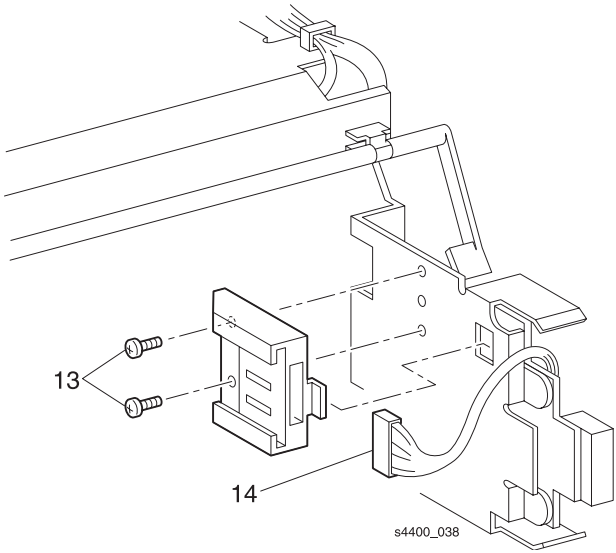
See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Open Rear Door.
9. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
10. Remove the Right Cover (RRP 1.5 Right Cover on page 6-10).
11. Remove the LVPS PWB (RRP 9.5 LVPS PWB on page 6-91).
12. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
13. Remove the two screws that secure the Feeder Socket in the printer.

***Note:*** ***It may be necessary to use a scribe or small screwdriver to lift the locking tabs to disconnect P/J671.***

14. Lift locking tabs and disconnect P/J671 from the Socket.



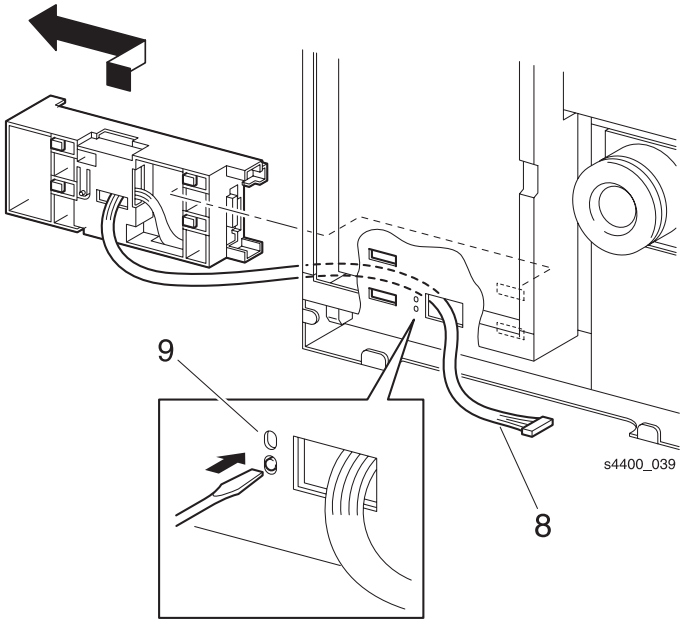

**Feeder Socket**

# RRP 3.11 Size Sensor Housing

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover Assembly (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Disconnect P/J33 from the Engine Logic Board and remove cable from all cable clamps.
9. Press the locking pin, slide the housing to the rear of the printer, and remove the housing.




**Size Sensor Housing**

# RRP 3.12 Size Sensor Actuators

See the Parts List on page 7-10.

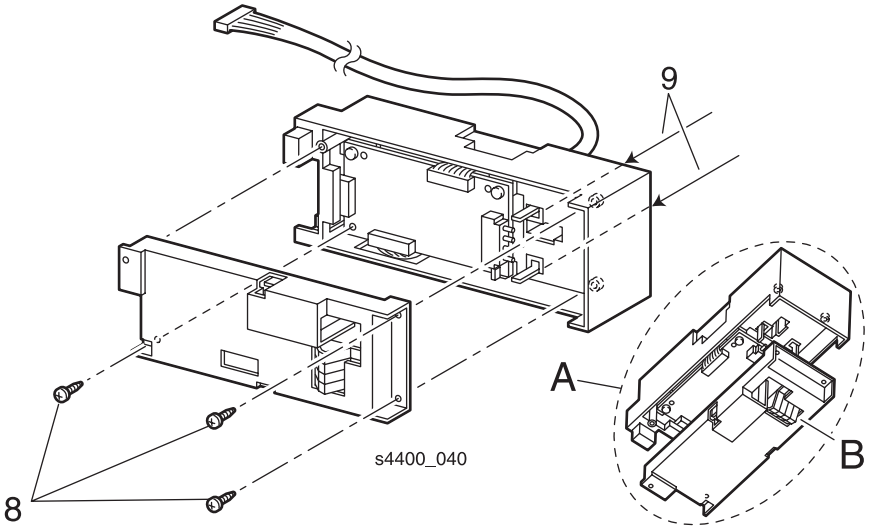
## Removal

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Left Front Cover Assembly (RRP 1.7 Left Front Cover on page 6-12).
5. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
6. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
7. Remove the Size Sensor Housing (RRP 3.11 Size Sensor Housing on page 6-40).

***Note:*** ***Observe orientation of switch actuators before removal.***

8. Remove the three screws that secure the Size Sensor Actuators to the Size Sensor Housing.
9. From the back side, disengage the two Locking Tabs that secure the Size Sensor Actuators to the Housing Assembly and remove the actuators.




**Size Sensor Actuators**

## Replacement

Refer to inset (A).

1. Position the Size Sensor Actuators below the Housing Assembly as shown.
2. Ensure that the actuators (B) are in the correction position.
3. During reassembly ensure that locking tabs slide into position.
4. Reinstall the components in the reverse order.

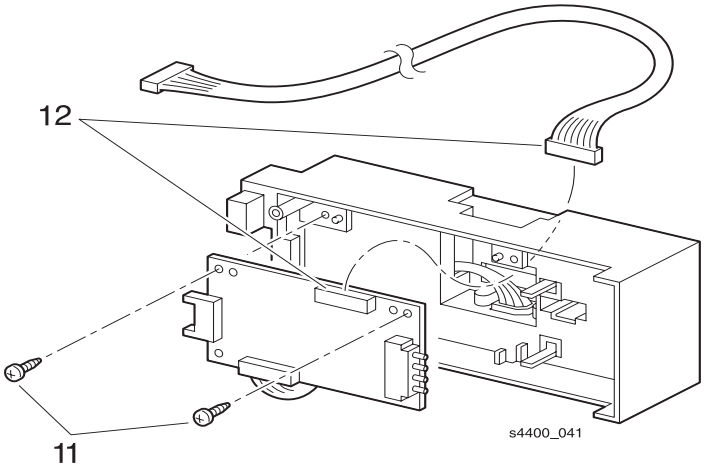
# RRP 3.13 Tray 1 Size PWB

See the Parts List on page 7-16.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove all optional feeders.
3. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
4. Remove Left Cover (RRP 1.2 Left Cover on page 6-7).
5. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
6. Remove the Left Front Cover Assembly (RRP 1.7 Left Front Cover on page 6-12).
7. Remove the Left Plate (RRP 1.1 Left Interface Cover on page 6-6).
8. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
9. Remove the Size Sensor Housing (RRP 3.11 Size Sensor Housing on page 6-40).
10. Remove the Size Sensor Actuators (RRP 3.12 Size Sensor Actuators on page 6-41).
11. Remove the two screws that secure the Tray 1 Size PWB to the Size Sensor Housing
12. Lift the PWB and disconnect P/J51 and P/J331.



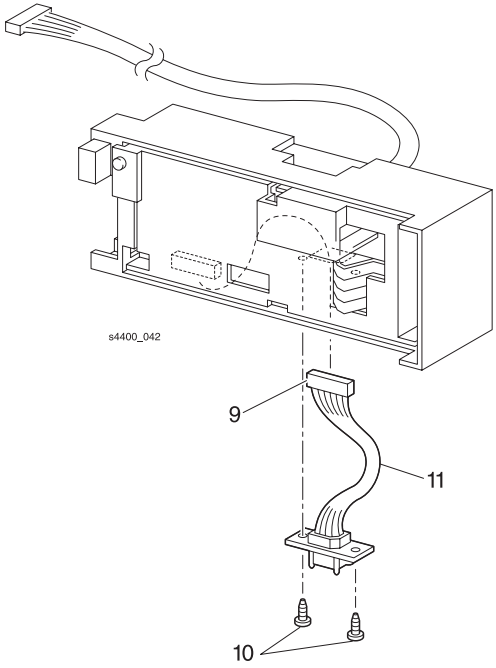

**Tray 1 Size PWB**

# RRP 3.14 Size Harness Assembly

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover Assembly (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Remove the Size Sensor Housing (RRP 3.11 Size Sensor Housing on page 6-40).
9. Disconnect P/J51 from the Tray 1 Size PWB.
10. Remove the two screws that secure the Size Harness Assembly to the Sensor.
11. Remove the Size Harness Assembly.




**Size Harness Assembly**

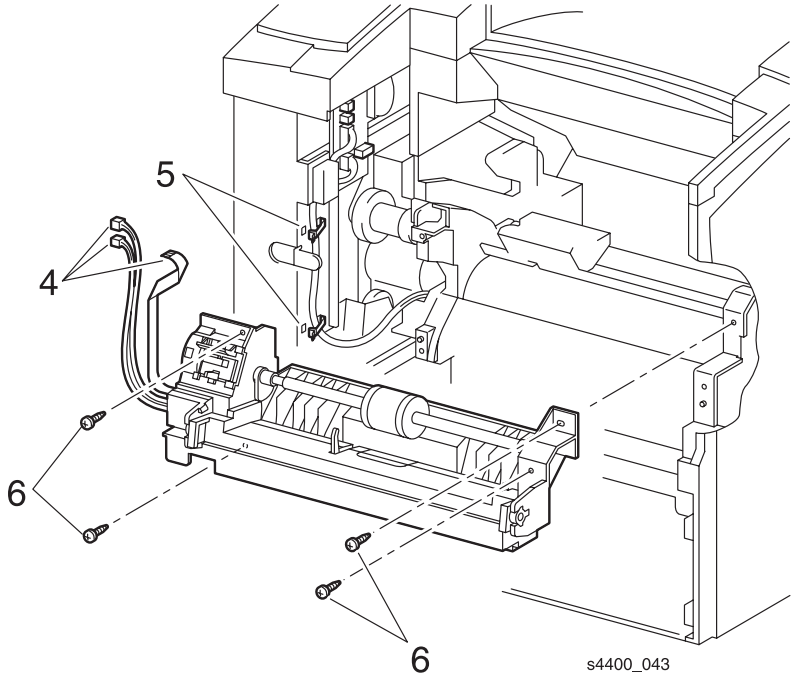
# Paper Feed (MPT)

## RRP 4.1 MPT Chute Assembly

See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Disconnect P/J41, P/J44, and P/J45 from the Connector PWB.
5. Open the two clamps securing the harness of the MPT Chute Assembly to the printer.
6. Remove the four screws that secure the MPT Chute Assembly. Remove the assembly.



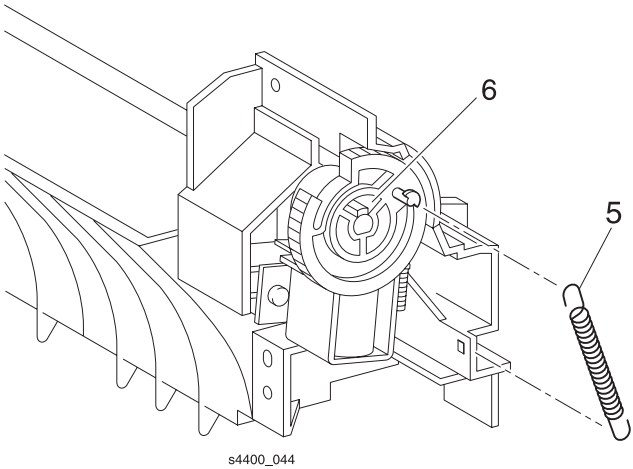

**MPT Chute Assembly**

# RRP 4.2 MPT Feed Roller Assembly

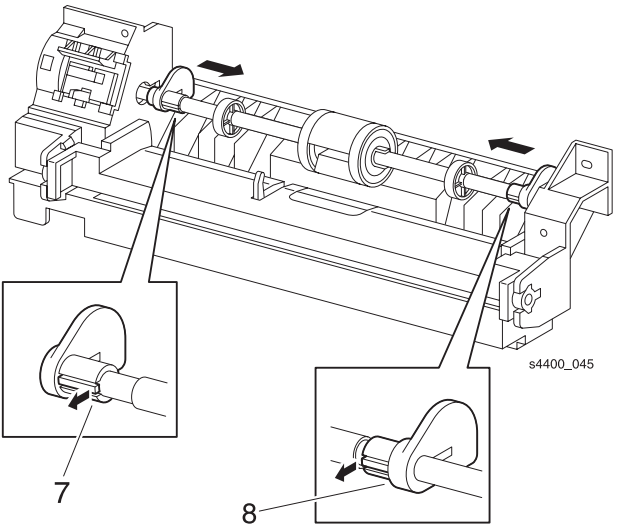
See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

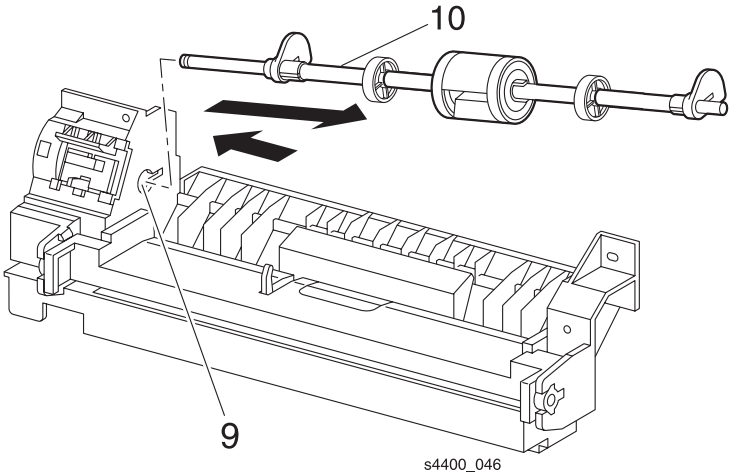
1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the MPT Pick Up Gear Spring.
6. Lift the locking tab and remove the Pick Up Gear.
7. Lift the locking tab and slide the left MPT Pick Up Cam to the right.
8. Lift the locking tab and slide the right MPT Pick Up Cam to the left.
9. Aligning the pin in the shaft with the slit in the assembly, slide the MPT Feed Roller Assembly to the left.
10. Lift the right end of the shaft and remove.




**MPT Pick Up Gear Spring**




**MPT Pick Up Cam**




**MPT Roller Assembly**

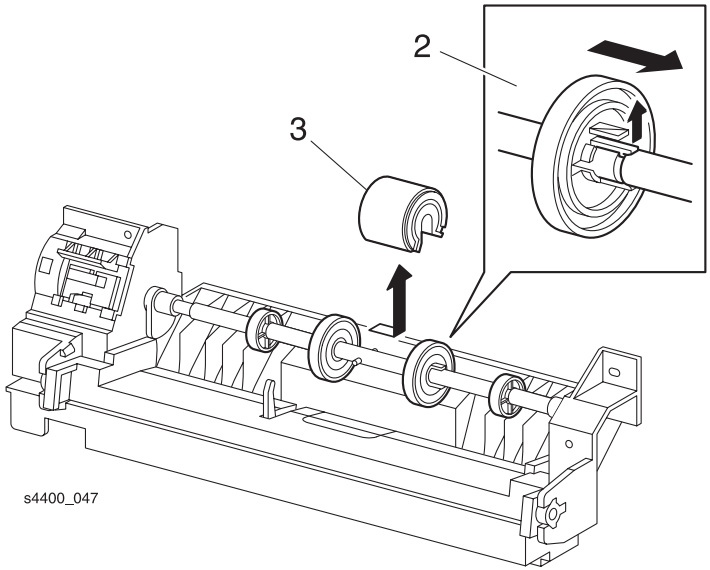
# RRP 4.3 MPT Feed Roller

See the Parts List on page 7-12.

## Removal

**Warning: Switch off the power and disconnect the Power Cord.**

1. Open the Front Cover.
2. Lift the locking tab and slide the right collar to the right.
3. Slide the MPT Feed Roller to the right and remove.




**MPT Feed Roller**

## Replacement

***Note:*** ***Align the MPT Feed Roller with the Drive Pin.***

Reinstall the components in the reverse order.

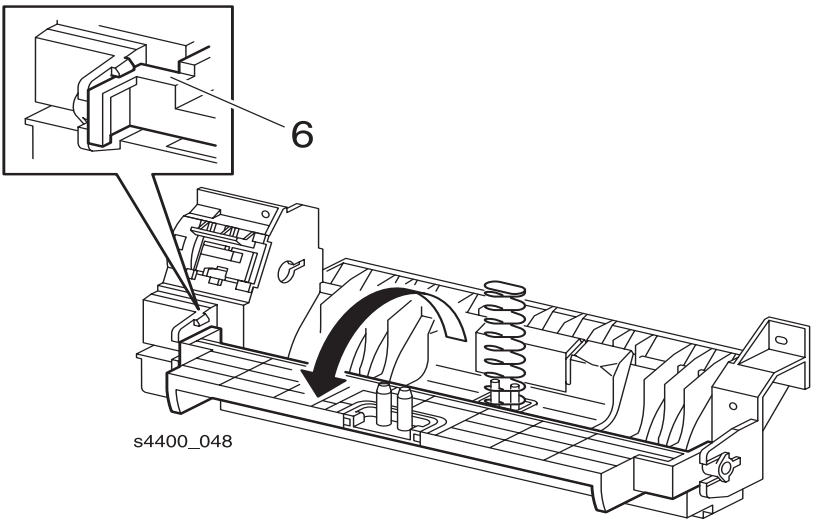
# RRP 4.4 Bottom Tray Assembly

See the Parts List on page 7-12.

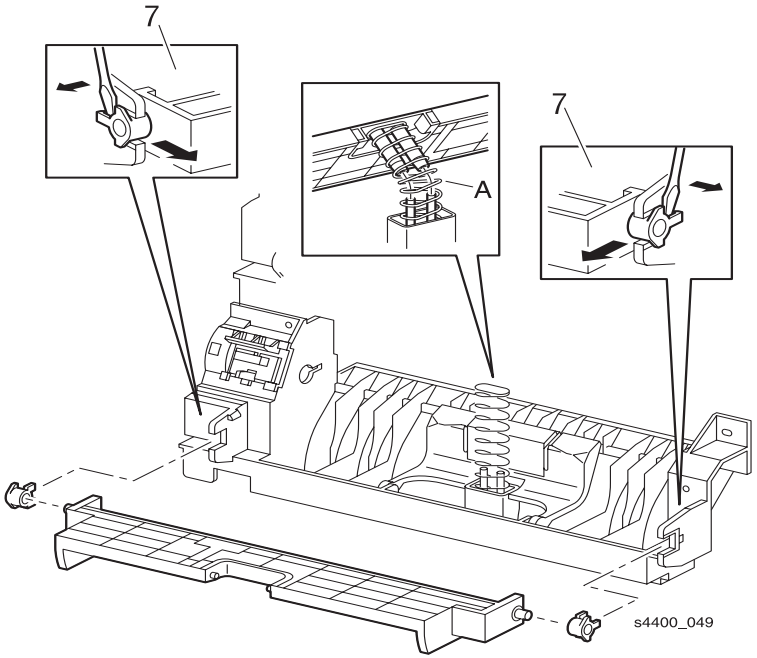
## Removal

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the MPT Feed Roller Assembly (RRP 4.2 MPT Feed Roller Assembly on page 6-45).
6. Clear the hook that secures the Bottom Tray Assembly to the MPT Chute Assembly by biasing the bottom tray to the right.
7. Use a small screwdriver to carefully lift the bearing locking tab and remove the Bottom Tray Assembly.
8. Remove the right Exit Bearing.




**Bottom Tray Assembly Chute**




**Bottom Tray Assembly**

## Replacement

Reinstall the components in the reverse order.

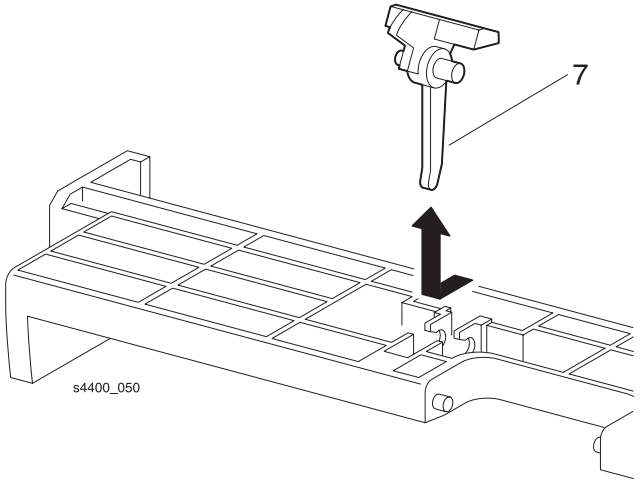
***Note:*** ***After replacing the tray bottom, ensure that the sleeves on the Tray Bottom fit over the two posts on the MPT frame. (See A in the Bottom Tray Assembly illustration.)***

# RRP 4.5 MPT No Paper Actuator

See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the MPT Feed Roller Assembly (RRP 4.2 MPT Feed Roller Assembly on page 6-45).
6. Open the Bottom Tray Assembly (RRP 4.4 Bottom Tray Assembly on page 6-48).
7. Lift the MPT No Paper Actuator from the back of the Bottom Tray and remove the actuator.



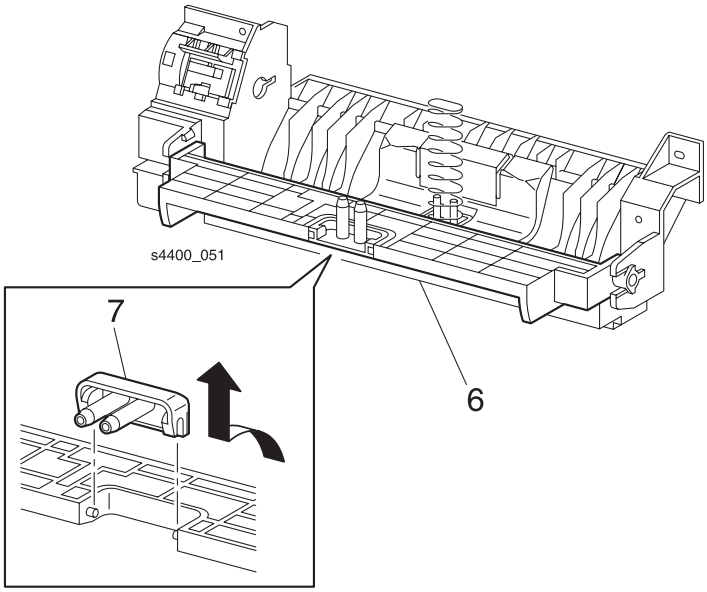

**MPT No Paper Actuator**

# RRP 4.6 Tray Pick Up

See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the MPT Feed Roller Assembly (RRP 4.2 MPT Feed Roller Assembly on page 6-45).
6. Open the Bottom Tray Assembly.
7. Lift the Tray Pick Up from the Bottom Tray Assembly and remove the Tray Pick Up. (RRP 4.4 Bottom Tray Assembly on page 6-48).



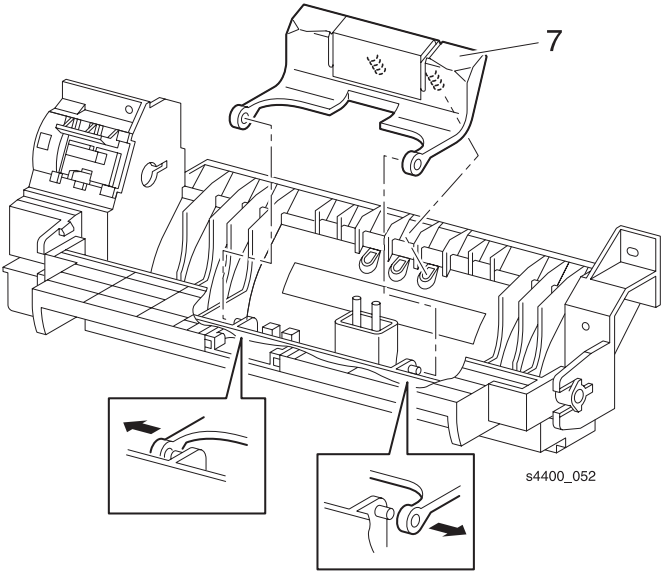

**Tray Pick Up**

# RRP 4.7 Retard Pad Assembly

See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the MPT Feed Roller Assembly (RRP 4.2 MPT Feed Roller Assembly on page 6-45).
6. Open the Bottom Tray Assembly (RRP 4.4 Bottom Tray Assembly on page 6-48).
7. Carefully pry the left and right bracket arms of the Retard Pad Assembly from the MPT Chute Assembly (see the insets) and remove the Retard Pad Assembly.



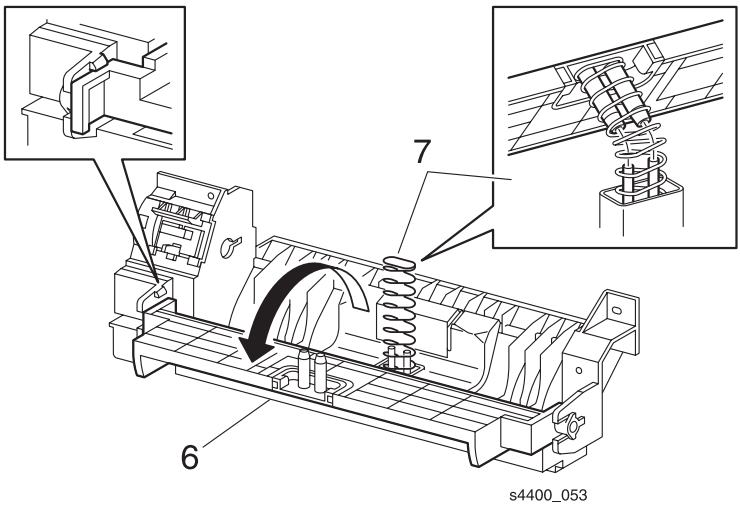

**Retard Pad Assembly**

# RRP 4.8 MPT No Paper Sensor

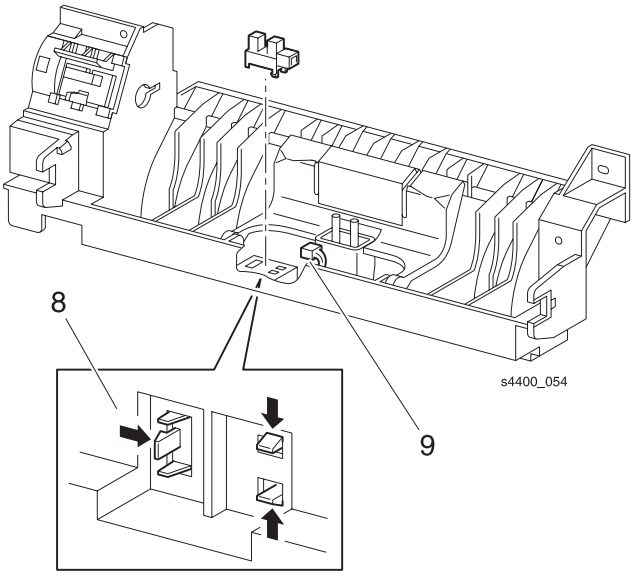
See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the MPT Feed Roller Assembly (RRP 4.2 MPT Feed Roller Assembly on page 6-45).
6. Open the Bottom Tray Pick Up (RRP 4.4 Bottom Tray Assembly on page 6-48).
7. Remove the MPT Bottom Tray Spring from the two studs on the MPT Chute Assembly.
8. Release the five hooks that secure the MPT No Paper Sensor and remove the sensor.
9. Disconnect P/J451 from the sensor.




**Bottom Tray Pick Up**



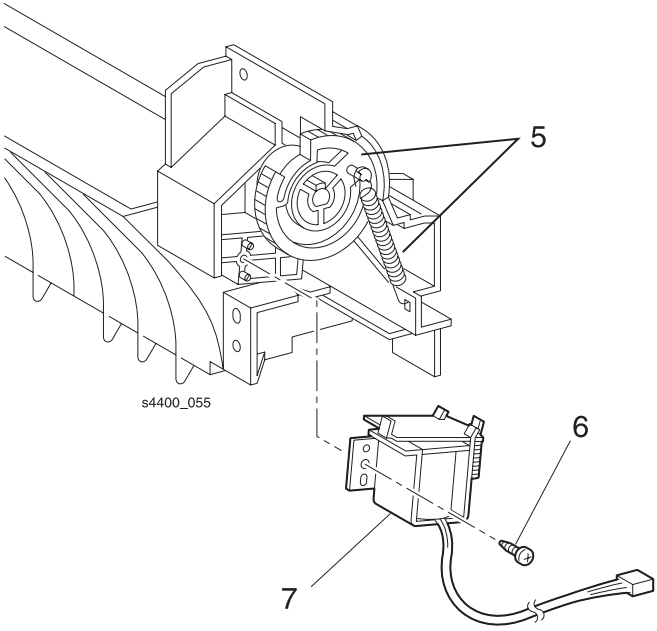

**MPT No Paper Sensor**

# RRP 4.9 MPT Pick Up Solenoid

See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the pick-up gear and spring.
6. Remove the screw that secures the MPT Pick Up Solenoid to the MPT Chute Assembly.
7. Remove the solenoid.



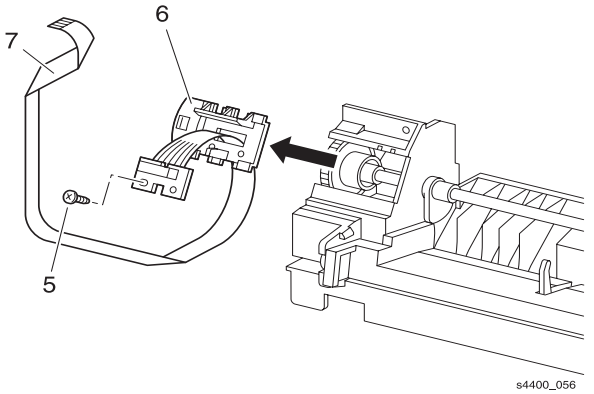

**MPT Pick Up Solenoid**

# RRP 4.10 Envelope Connector Assembly

See the Parts List on page 7-12.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
4. Remove the MPT Pickup Gear and Spring (step 5 in RRP 4.9 MPT Pick Up Solenoid on page 6-55).
5. Remove the screw that secures the Envelope Connector Assembly in the Chute Assembly.
6. Slide the Envelope Connector Assembly and the Mounting to the left and remove.
7. Remove the Envelope Connector Assembly from the MPT Assembly.




**Envelope Connector Assembly**

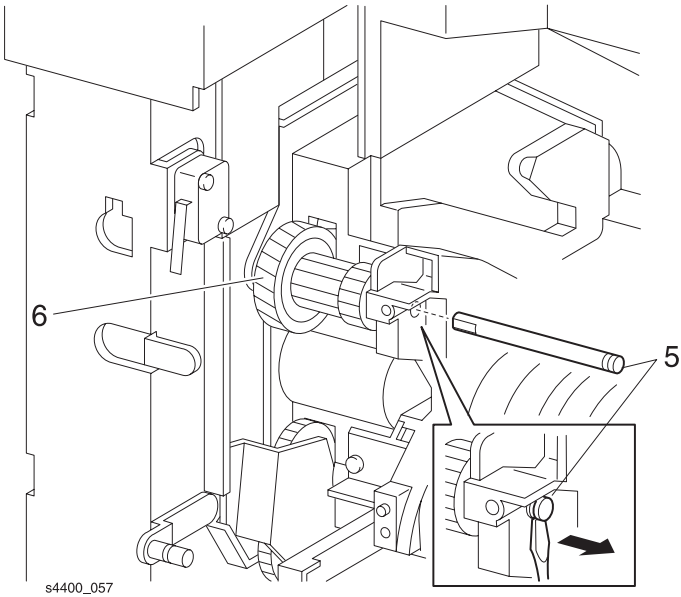
# Paper Transportation

## RRP 5.1 Paper Handler Assembly

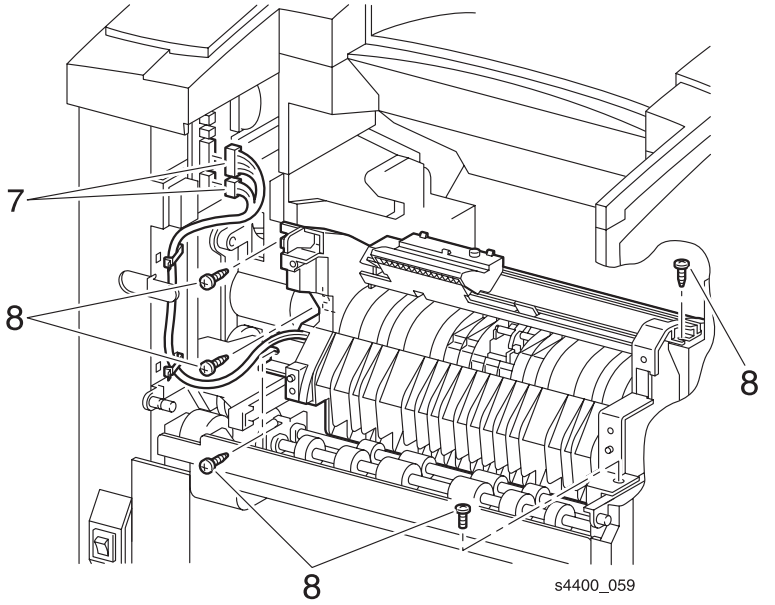
See the Parts List on page 7-14.

**Warning: Switch off the power and disconnect the Power Cord.**

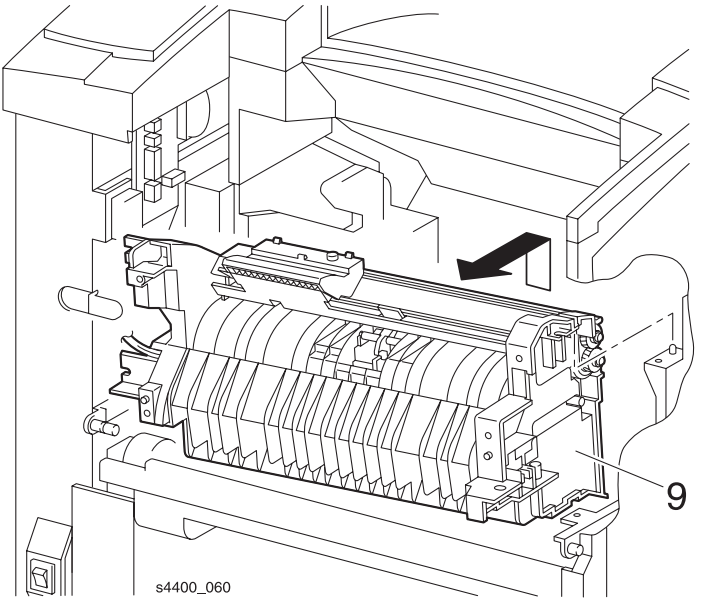
1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Using a screwdriver, slide Shaft 14 from the Printer.
6. Remove Gear 14.
7. Disconnect P/J43 and P/J42 from the Connector PWB.
8. Remove the five screws that secure the Paper Handler Assembly.
9. Lift the right end slightly and remove the Paper Handler.




**Shaft 14 and the Paper Handler Assembly**




**Paper Handler Assembly**



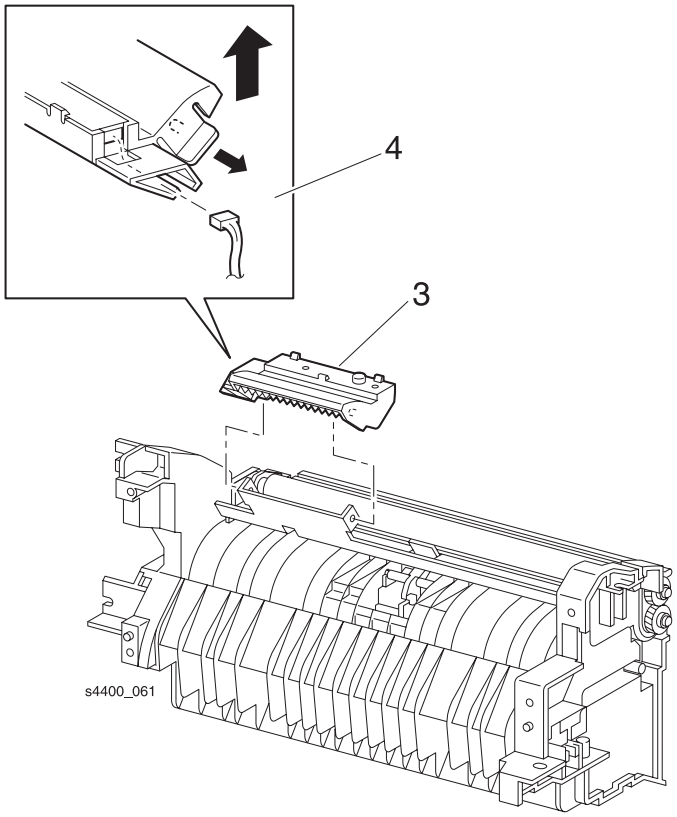

**Paper Handler Assembly Removal**

# RRP 5.2 Toner Sensor

See the Parts List on page 7-14.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Release the left locking tab and remove the Toner Sensor as shown.
4. Disconnect P/J421 from the sensor (shown in the inset).



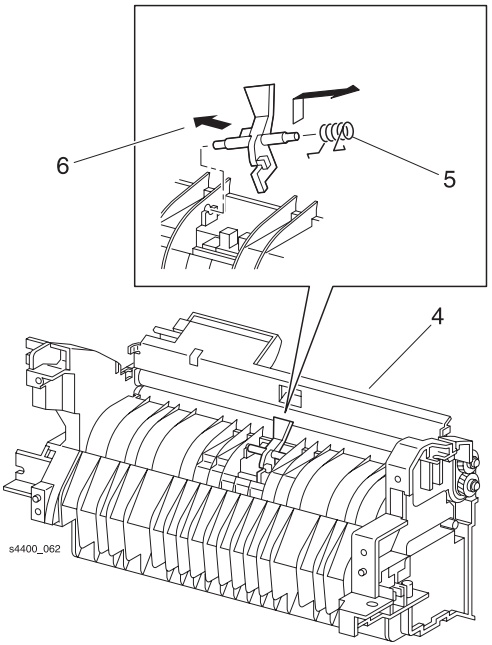

**Toner Sensor Kit**

# RRP 5.3 Registration Actuator

See the Parts List on page 7-14.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
4. Open the Upper Chute.
5. Disconnect the right hook of the Registration Sensor Spring.
6. Move the Registration Actuator to the left until the right end is free.
7. Remove the Registration Actuator.



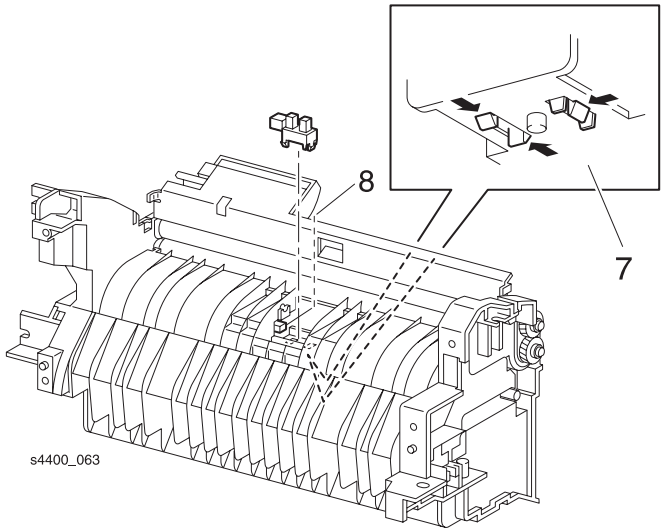

**Registration Actuator**

# RRP 5.4 Registration Sensor

See the Parts List on page 7-14.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
6. Remove the Registration Actuator (RRP 5.3 Registration Actuator on page 6-60).
7. Disengage the five hooks that secure the Registration Sensor (see the inset in the illustration).
8. Remove the sensor out the back of the Paper Handler.
9. Disconnect P/J432 from the sensor.



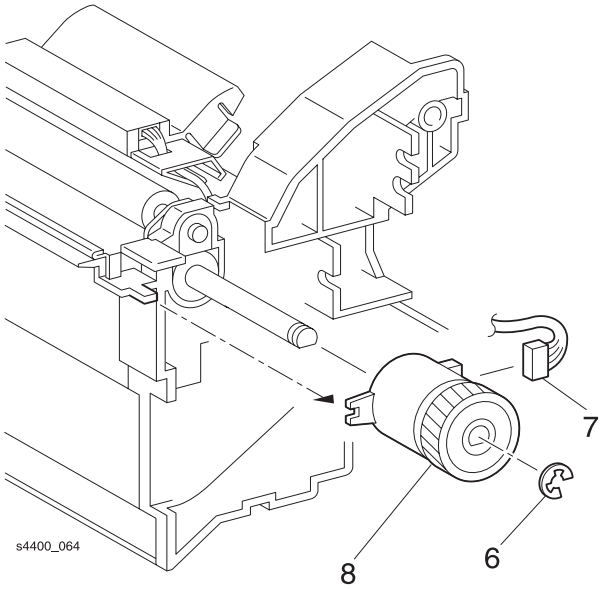

**Registration Sensor**

# RRP 5.5 Registration Clutch

See the Parts List on page 7-14.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
6. Remove the E-ring that secures the Registration Clutch to the Paper Handler Assembly as shown.
7. Slide the clutch out and disconnect P/J453 from the clutch.
8. Remove the clutch.




**Registration Clutch**

# RRP 5.6 Rubber Registration Roller

See the Parts List on page 7-14.

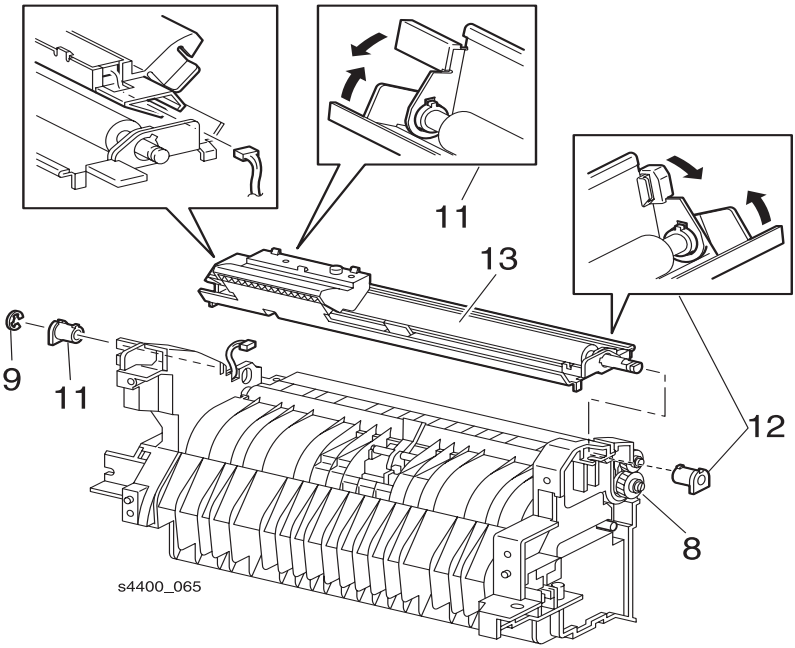
**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
4. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).

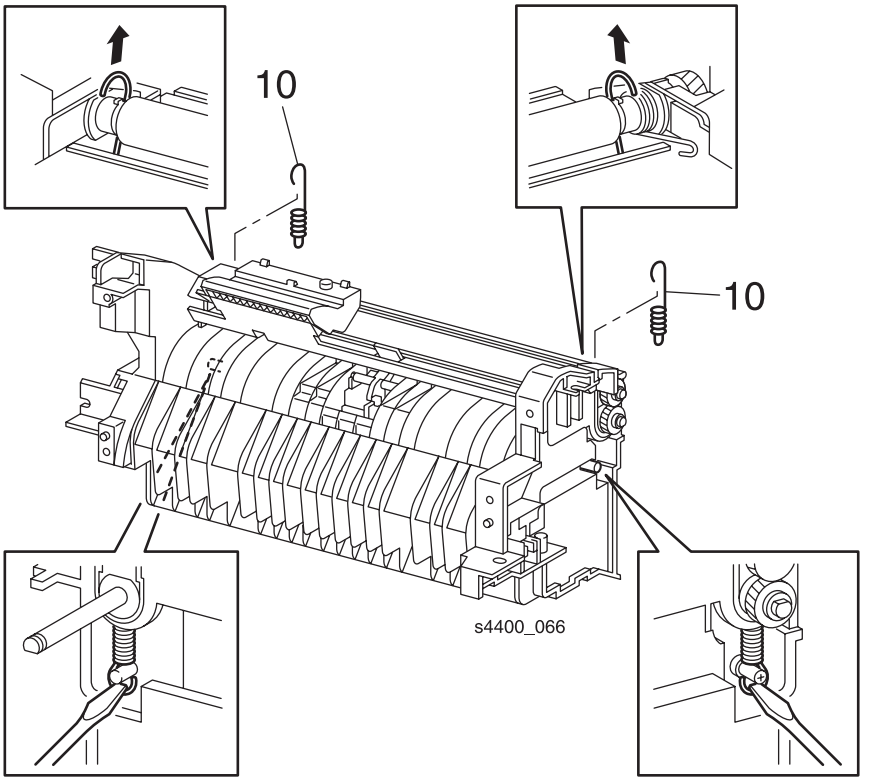
5. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
6. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
7. Remove the Registration Clutch (RRP 5.5 Registration Clutch on page 6-62).
8. Remove the two E-rings that secure the two Registration Gears as shown.
9. Remove the E-ring from the left end of the Metal Registration Shaft.
10. Release the two registration springs from the Metal Registration Roller. The left spring is gold-colored, and the right spring silver-colored.
11. Squeeze and hold the Upper Chute and Inlet Chute together. Align the hole in the chute with the tab on the Left Bearing. Remove the Left Bearing from the Metal Registration Roller.

*Note:* ***Pay attention to the orientation of the Torsion Spring when removing the Right Bearing.***

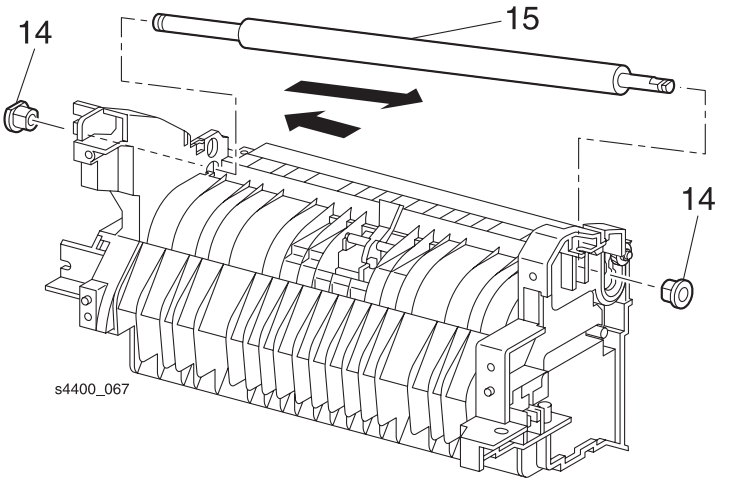
12. Lift the Torsion Spring and slide the Right Bearing out. Squeeze and hold the Upper Chute and Inlet Chute together and align the hole in the chute with the tab on the Right Bearing. Remove the Right Bearing.
13. Slide the Metal Registration Shaft to the right and remove the assembly.
14. Remove the left and right bearings from the Rubber Registration Roller.
15. Lift the right end of the Rubber Registration Roller and remove the roller.




**Registration Roller**




**Registration Springs**




**Rubber Registration Roller**

# Exit Assembly and Fuser

## RRP 6.1 Transport Chute Assembly

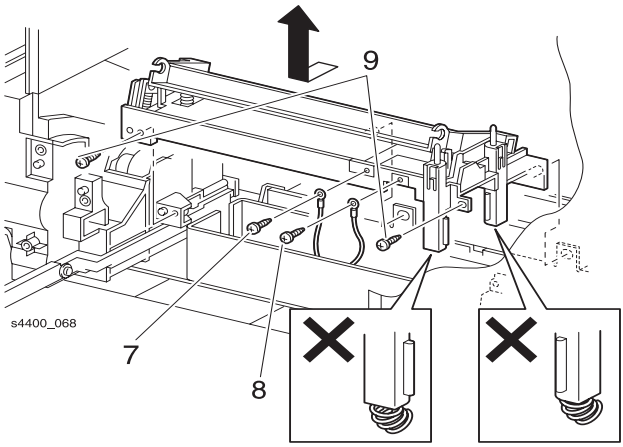
See the Parts List on page 7-16.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
6. Remove the Transfer Roller Assembly (RRP 7.1 Transfer Roller Assembly on page 6-79).
7. Remove the screw that secures the DTS Wire (white) to the Transport Chute Assembly.
8. Remove the screw that secures the TR Wire (red) to the Transport Chute Assembly.

***Note:*** ***Use care not to drop high voltage contact springs when chute is removed.***

9. Remove the two screws that secure the Transport Chute Assembly to the printer.
10. Remove the assembly.




**Transport Chute Assembly**

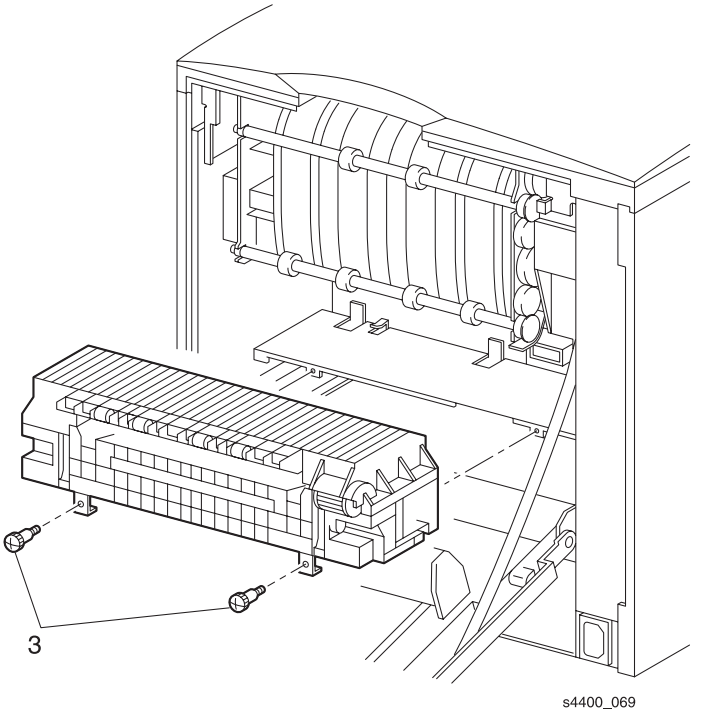
# RRP 6.2 Fuser Assembly

See the Parts List on page 7-16.

**Warning: Switch off the power and disconnect the Power Cord.**

The Fuser may be hot.

1. Open the Rear Cover Assembly.
2. Remove Duplex Unit (if installed) (RRP 12.1 Duplex Unit on page 6-141).
3. Remove the two thumb screws that secure the Fuser Assembly to the printer and remove the Fuser.



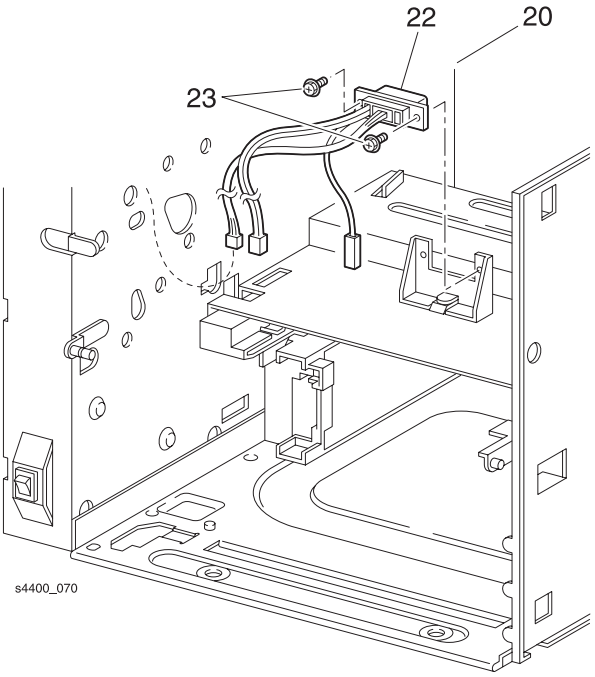

**Fuser Assembly**

# RRP 6.3 Fuser Harness Assembly

See the Parts List on page 7-16.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Open Rear Door.
9. Remove the Fuser Assembly (RRP 6.2 Fuser Assembly on page 6-66).
10. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
11. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
12. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
13. Remove the Transport Chute Assembly (RRP 6.1 Transport Chute Assembly on page 6-65).
14. Remove the Print Cartridge Top Guide Assembly (RRP 7.2 Print Cartridge Top Guide Assembly on page 6-80).
15. Remove the Engine Logic Board (RRP 9.3 Engine Logic Board on page 6-89).
16. Remove the Main Motor Assembly (RRP 8.1 Main Motor Assembly on page 6-84).
17. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
18. Remove the Drive Gear Assembly (RRP 8.2 Main Drive Gear Assembly on page 6-85).
19. Unplug the P/JPRB (red) from the HVPS PWB (RRP 9.6 HVPS PWB on page 6-92).
20. Remove the screw that secures the HVPS Housing to the printer.
21. Remove the HVPS.
22. Pull the Fuser Harness Assembly from the left side of the printer.
23. Remove the two screws that secure the Fuser Harness Assembly to the printer.
24. Remove the Fuser Harness Assembly.



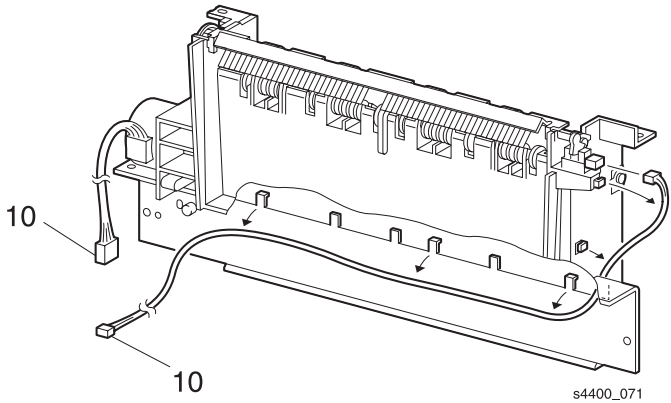

**Fuser Harness Assembly**

# RRP 6.4 Exit Chute Assembly

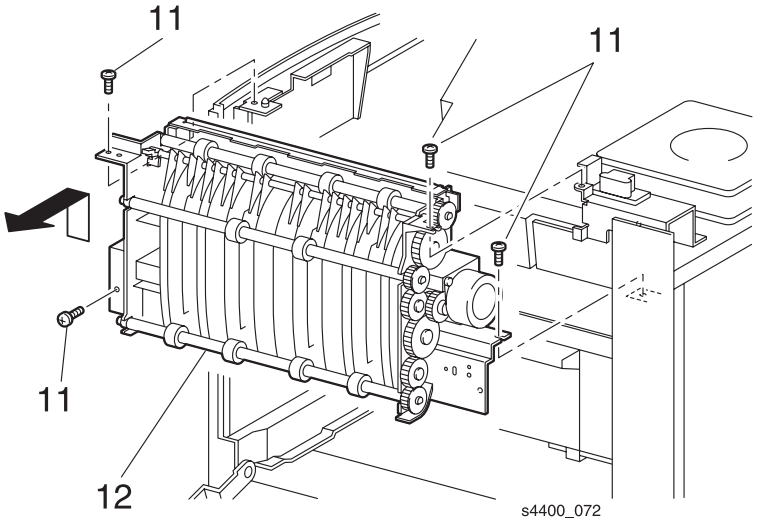
See the Parts List on page 7-18.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
4. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
5. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
8. Remove the Rear Cover Assembly (RRP 1.8 Rear Cover Assembly on page 6-13).
9. Remove the Interlock Cover (RRP 1.10 Interlock Cover on page 6-15).
10. Disconnect P/J31 and P/J32 from the Engine Logic Board.
11. Remove the four screws that secure the Exit Chute Assembly to the printer.
12. Remove the Exit Chute Assembly.




**Exit Chute Harness Assembly**



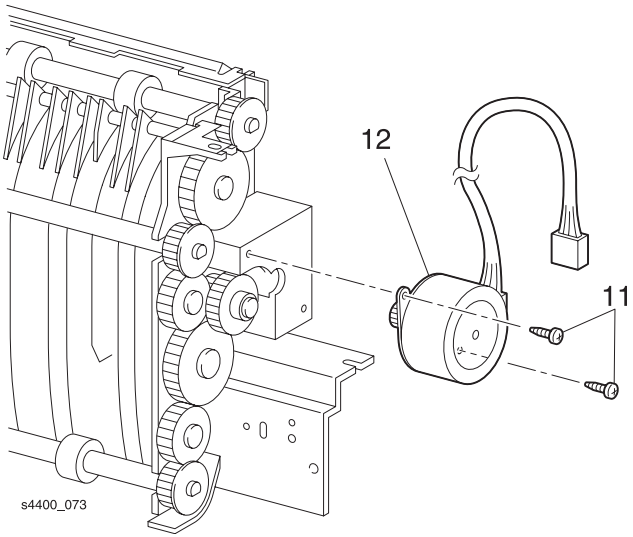

**Exit Chute Assembly**

# RRP 6.5 Exit Motor Assembly

See the Parts List on page 7-18.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
4. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
5. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
8. Remove the Rear Cover Assembly (RRP 1.8 Rear Cover Assembly on page 6-13).
9. Remove the Interlock Cover (RRP 1.10 Interlock Cover on page 6-15).
10. Remove the Exit Chute Assembly (RRP 6.4 Exit Chute Assembly on page 6-69).
11. Remove the two screws that secure the Exit Motor Assembly to the Exit Chute Assembly.
12. Remove the motor.



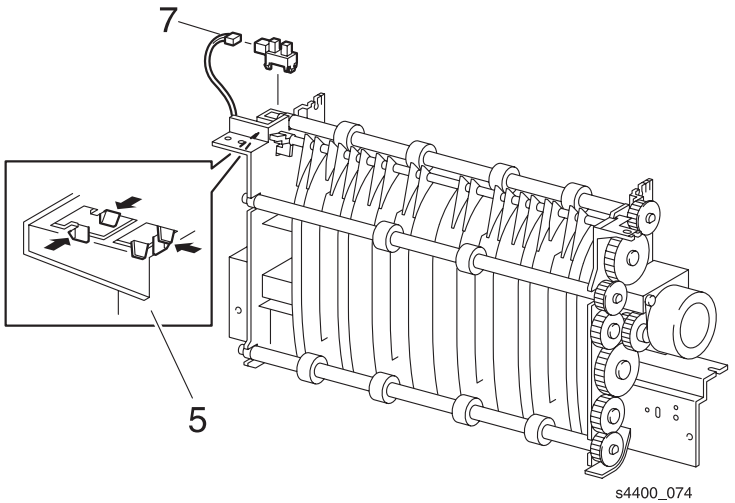

**Exit Motor Assembly**

# RRP 6.6 Output Tray Full Sensor

See the Parts List on page 7-18.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
4. Rotate the Output Tray Full Actuator away from the sensor.
5. Disengage the five hooks securing the Output Tray Full Sensor to the Exit Chute Assembly.
6. Remove the sensor.
7. Disconnect P/J311 from the sensor.




**Exit Sensor**

# RRP 6.7 Mid 1 and Mid 2 Roller Assemblies

See the Parts List on page 7-18.

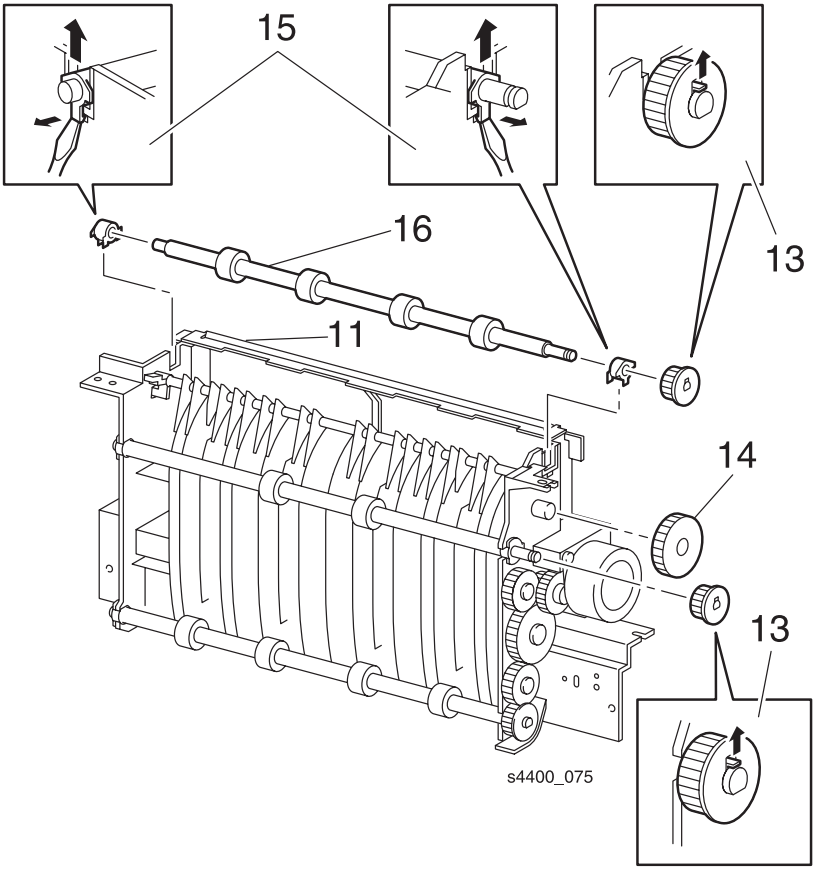
## Removal

**Warning: Switch off the power and disconnect the Power Cord.**

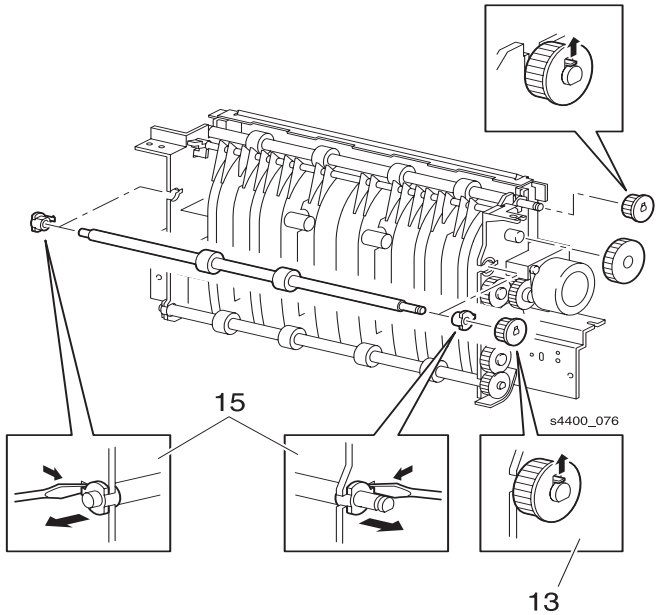
1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
7. Remove the Rear Cover Assembly (RRP 1.8 Rear Cover Assembly on page 6-13).
8. Remove the Interlock Cover (RRP 1.10 Interlock Cover on page 6-15).
9. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
10. Remove the Exit Chute Assembly (RRP 6.4 Exit Chute Assembly on page 6-69).
11. Lift the Static Eliminator Assembly and remove it. (See step 6 of RRP 6.8 Output Tray Full Actuator on page 6-76.)
12. Remove the Output Tray Full Actuator (RRP 6.8 Output Tray Full Actuator on page 6-76).
13. Release the locking tab and remove the Exit-17 Gear from the defective Roller Assembly.
14. Remove the Exit-32 Gear from the Exit Chute Assembly.
15. With a small screwdriver carefully release the locking tab that secures the Exit Bearings to the Exit Chute Assembly.
16. Remove the Roller Assembly together with the Exit Bearing from the Exit Chute Assembly.

## Replacement

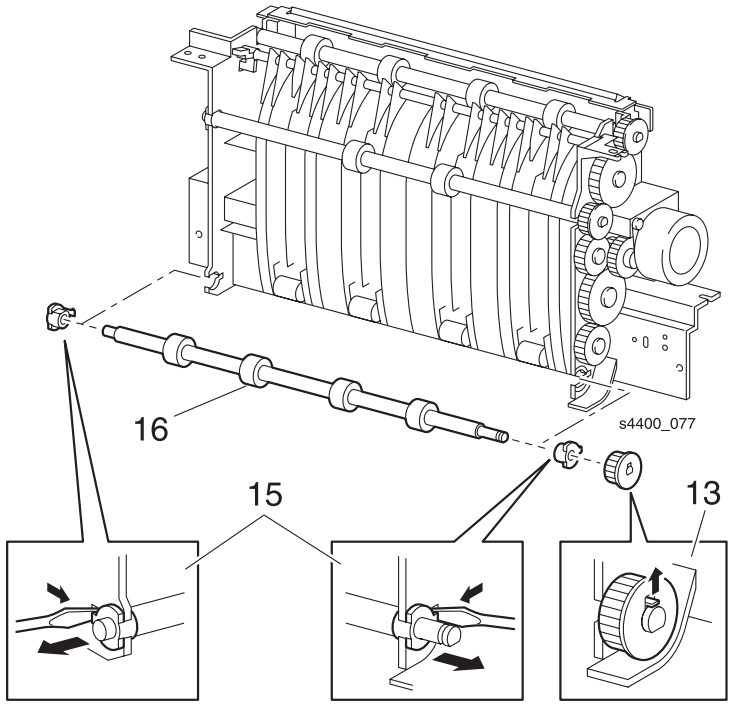
Reinstall the components in the reverse order.




**Exit 17 and Exit 32 Gears**




**Mid 1 Roller Assembly**



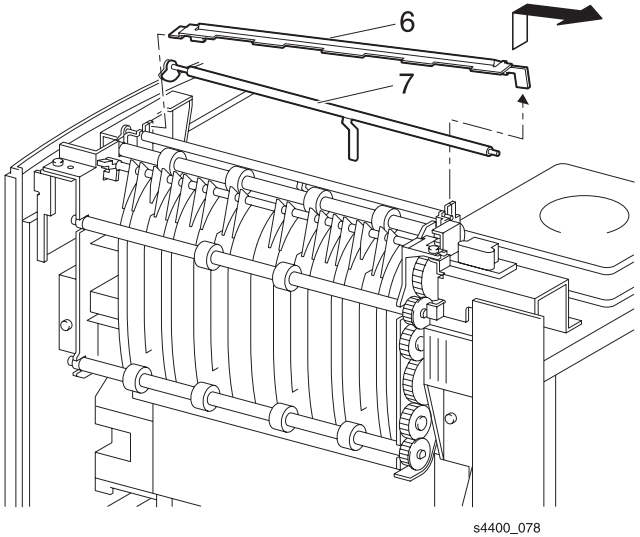

**Mid 2 Roller Assembly**

# RRP 6.8 Output Tray Full Actuator

See the Parts List on page 7-18.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
5. Remove the Rear Cover Assembly (RRP 1.8 Rear Cover Assembly on page 6-13).
6. Release the clips on both ends of the Static Eliminator Assembly and remove.
7. Lift the actuator out of the Exit Chute Assembly.




**Static Eliminator Assembly and Output Tray Full Actuator**

# RRP 6.9 Fuser Upper Cover Assembly/ Heat Rod

See the Parts List on page 7-18.

**Warning: Switch off the power and disconnect the Power Cord.**

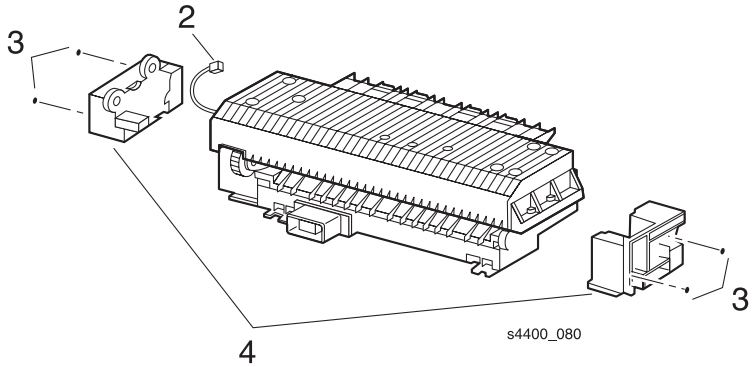
1. Remove Fuser Assembly (RRP 6.2 Fuser Assembly on page 6-66).
2. Disconnect P/J274 from the left end of the Fuser Assembly.
3. Remove the four screws securing the right and left end cover on the Fuser Assembly.
4. Remove both covers while carefully disengaging the wiring harness on each end.

***Note:*** ***The Heat Rod must be removed before the Upper Cover Assembly to avoid breakage.***

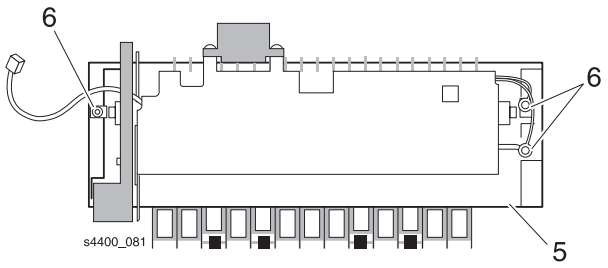
5. Invert the Fuser Assembly to access the Fuser Heat Rod
6. Remove the three screws securing the Fuser Heat Rod and Harness.

***Note:*** ***Avoid touching the glass rod with your fingers. Oil from your skin will contaminate and shorten the life of the Heat Rod.***

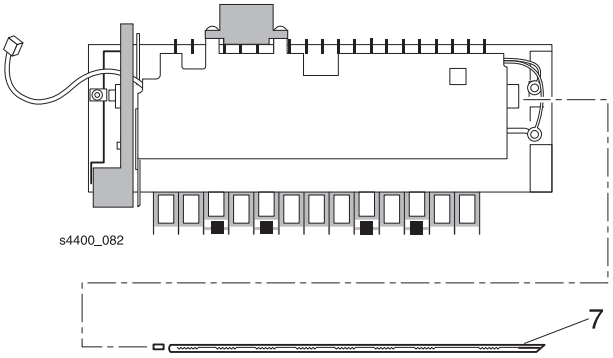
7. Carefully remove the Heat Rod by lifting the right end sliding it out to the right side of the Heat Roller.
8. Return the Fuser Assembly to its right side up position.
9. Remove the four screws and the Fuser Upper Cover.



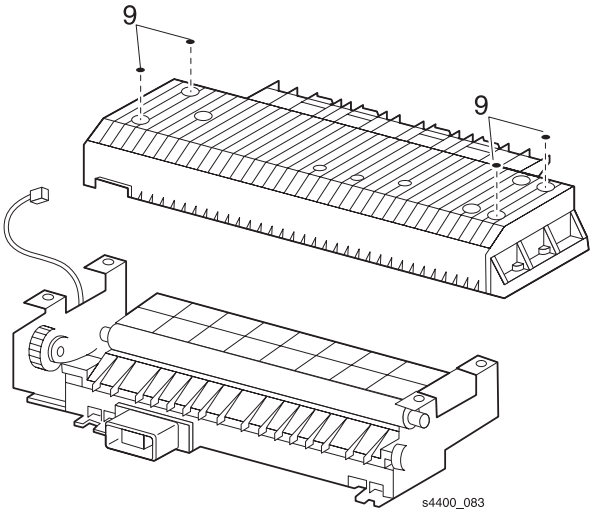

**Fuser Assembly**




**Fuser Heat Rod**




**Heat Rod**




**Fuser Upper Cover**

# Xerographics

## RRP 7.1 Transfer Roller Assembly

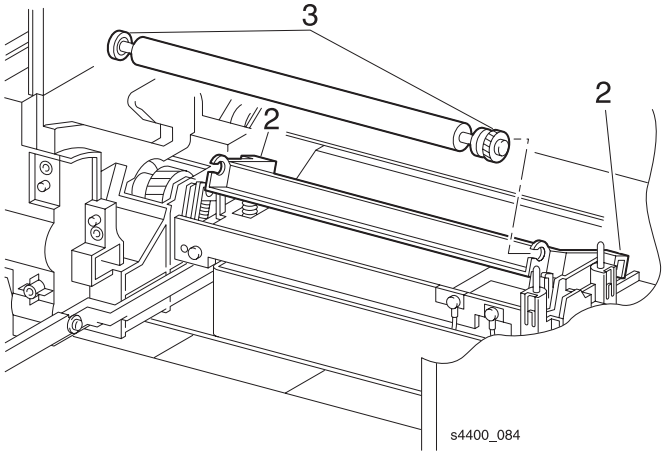
See the Parts List on page 7-20.

**Warning: Switch off the power and disconnect the Power Cord.**

**Caution: Do not touch the surface of the Transfer Roller with your hands. Oil from your hands can cause image-quality problems.**

After removing the Transfer Roller, store the Roller on clean paper and cover with another sheet of paper.

1. Open the Front Cover Assembly and remove the Print Cartridge.
2. Push down to release the left and right latches of the Transfer Roller Assembly.
3. Holding the ends of the Transfer Roller Assembly, remove the assembly.



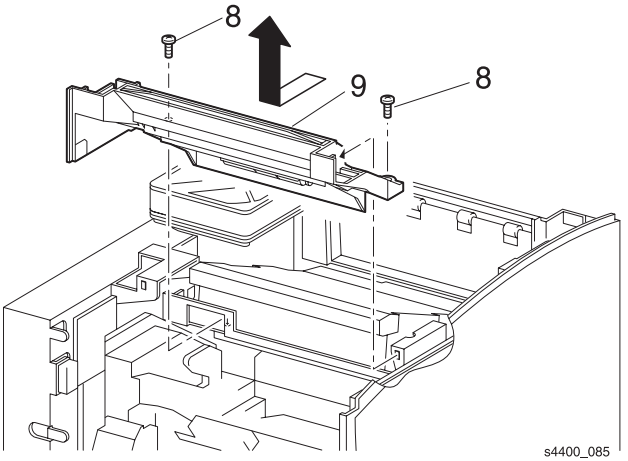

**Transfer Roller Assembly**

# RRP 7.2 Print Cartridge Top Guide Assembly

See the Parts List on page 7-20.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Cover Assembly (RRP 1.2 Left Cover on page 6-7)
3. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
4. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
5. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Disconnect P/J 25 from the Engine Logic Board (RRP 9.3 Engine Logic Board on page 6-89).
8. Remove the two screws that secure the Print Cartridge Top Guide Assembly to the printer.
9. Remove the Print Cartridge Top Guide Assembly together with the Print Cartridge Sensor Assembly from the printer.



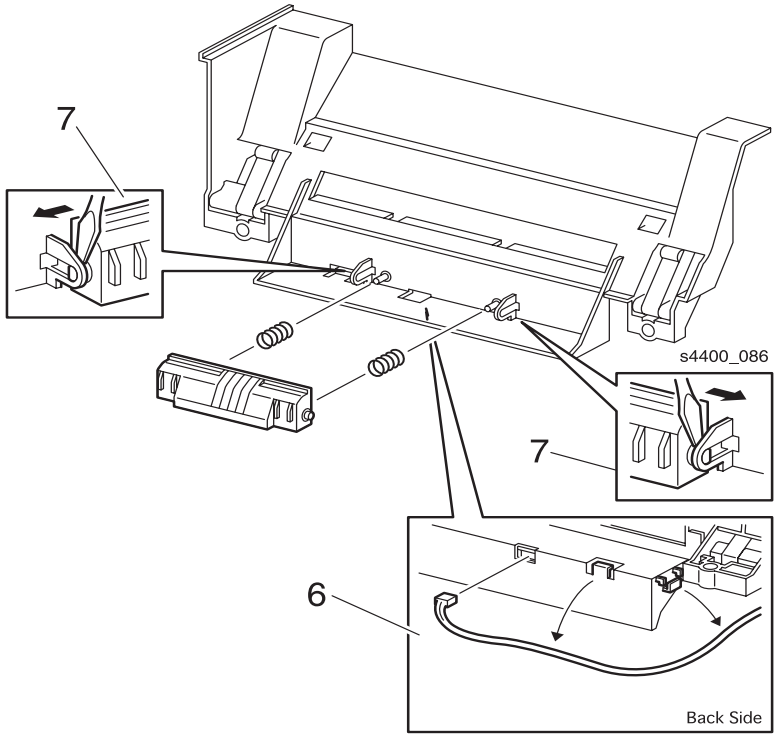

**Print Cartridge Top Guide Assembly**

# RRP 7.3 Print Cartridge Sensor Assembly

See the Parts List on page 7-20.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Cover Assembly (RRP 1.2 Left Cover on page 6-7)
3. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
4. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
5. Remove the Print Cartridge Top Guide Assembly (RRP 7.2 Print Cartridge Top Guide Assembly on page 6-80).
6. Release the harness of the Print Cartridge Sensor Assembly from the three clamps securing it to the Print Cartridge Top Guide Assembly.
7. With a small screwdriver pry the left and right latches free of the pivot pins and remove the sensor assembly.



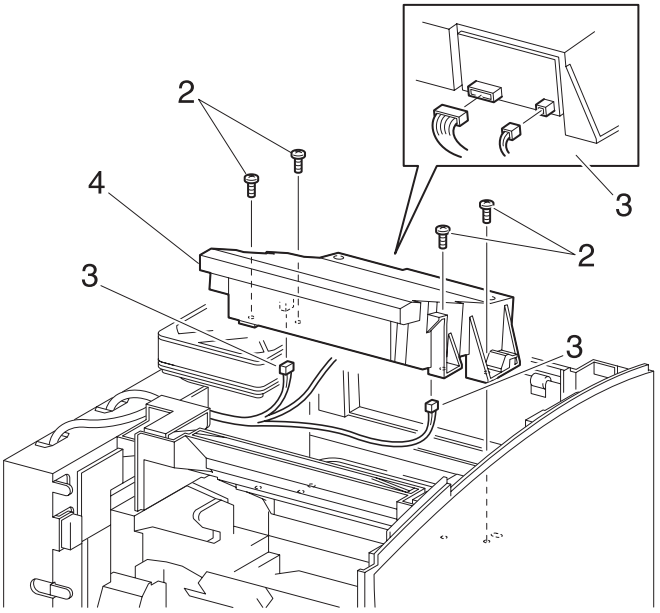

**Print Cartridge Sensor Assembly**

# RRP 7.4 Laser Assembly

See the Parts List on page 7-20.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
2. Remove the four screws securing the Laser Assembly to the printer.
3. Raising the Laser Assembly slightly disconnect P/J213 and P/J223 from the rear and two connectors from the bottom of the Laser Assembly.
4. Remove the Laser Assembly from the printer.



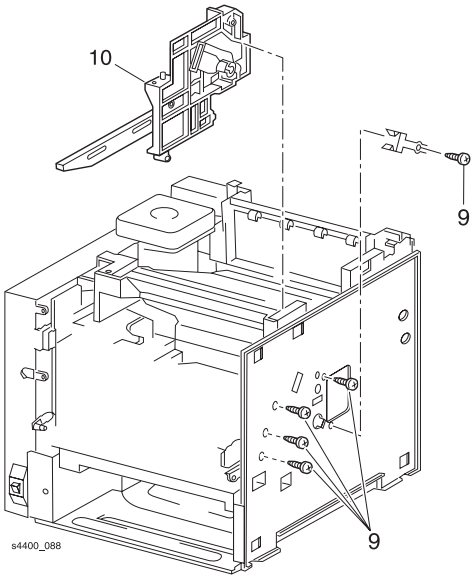

**Laser Assembly**

# RRP 7.5 Print Cartridge Side Guide

See the Parts List on page 7-20.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
4. Remove the Right Cover (RRP 1.5 Right Cover on page 6-10).
5. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
6. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
7. Remove the Transport Chute Assembly (RRP 6.1 Transport Chute Assembly on page 6-65).
8. Remove the K-clip that secures the Print Cartridge Locking Arm.
9. Remove the five screws and the spring clip on the right side of the frame.
10. Remove the Print Cartridge Side Guide.




**Print Cartridge Side Guide**

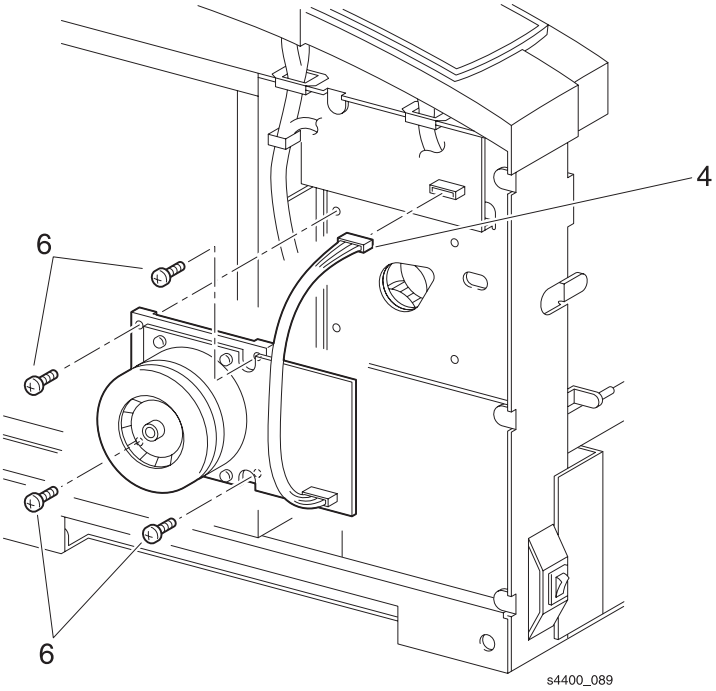
# Main Drive

## RRP 8.1 Main Motor Assembly

See the Parts List on page 7-20.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
2. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
3. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
4. Disconnect P/J29 from the Engine Logic Board.
5. Release Motor Harness from all cable clamps.
6. Remove the four screws that secure the Main Motor Assembly to the printer and remove the assembly.



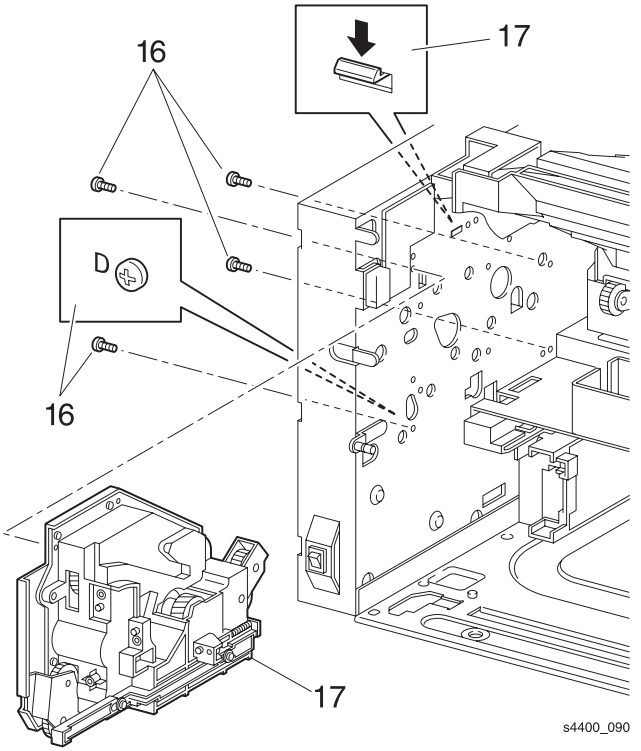

**Main Motor Assembly**

# RRP 8.2 Main Drive Gear Assembly

See the Parts List on page 7-20.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
5. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
6. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
7. Remove the Fuser Assembly (RRP 6.2 Fuser Assembly on page 6-66).
8. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
9. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
10. Remove the Chute Trans Assembly (RRP 6.1 Transport Chute Assembly on page 6-65).
11. Remove the Print Cartridge Top Guide Assembly (RRP 7.2 Print Cartridge Top Guide Assembly on page 6-80).
12. Remove the Image Processor Board (RRP 9.2 Image Processor Board on page 6-88).
13. Remove the Engine Logic Board (RRP 9.3 Engine Logic Board on page 6-89).
14. Remove the Main Motor Assembly (RRP 8.1 Main Motor Assembly on page 6-84).
15. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
16. Remove the four screws that secure the Drive Gear Assembly from the left side of the printer. (Screws are marked with a “D”).
17. Pull bottom of assembly out and lower the assembly to release the locking tab and remove.




**Drive Gear Assembly**

# Electrical

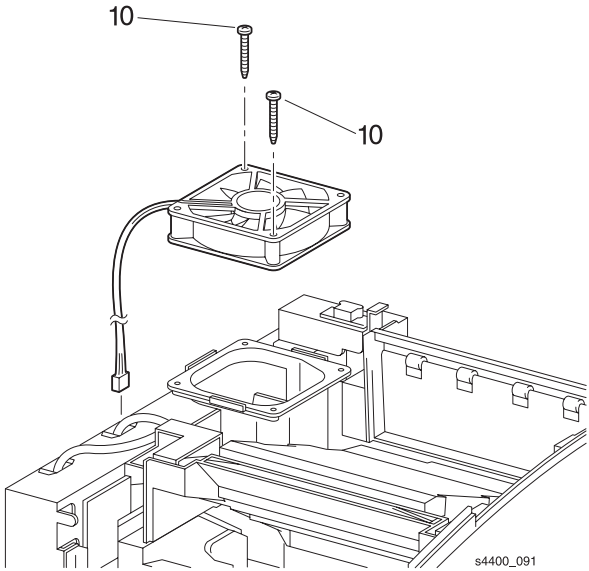
## RRP 9.1 Fan Assembly

See the Parts List on page 7-22.

**Warning: Switch off the power and disconnect the Power Cord.**

### Removal

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
7. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
8. Disconnect P/J283 connected to the Fan Assembly from the LVPS PWB.
9. Release the harness of the Fan Assembly from the two clamps on the printer.
10. Remove the two screws securing the assembly to the printer.
11. Remove the Fan.




**Fan Assembly**

# RRP 9.2 Image Processor Board

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Disconnect host cables connected to the Image Processor Board at the rear panel.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Disconnect J790, J910, and J500 (if a hard drive is present) from the Image Processor Board.
4. Remove the five screws that attach the rear panel to the printer.
5. Remove the three screws that attach the Image Processor Board to the printer.
6. Move the Image Processor Board toward the rear to disconnect P/J960 from the Engine Logic Board (RRP 9.3 Engine Logic Board on page 6-89).
7. Remove the Image Processor Board from the printer.
8. Remove the socketed NVRAM IC (U340) and Configuration Upgrade Chip (U400) for installation on the replacement Image Processor board.

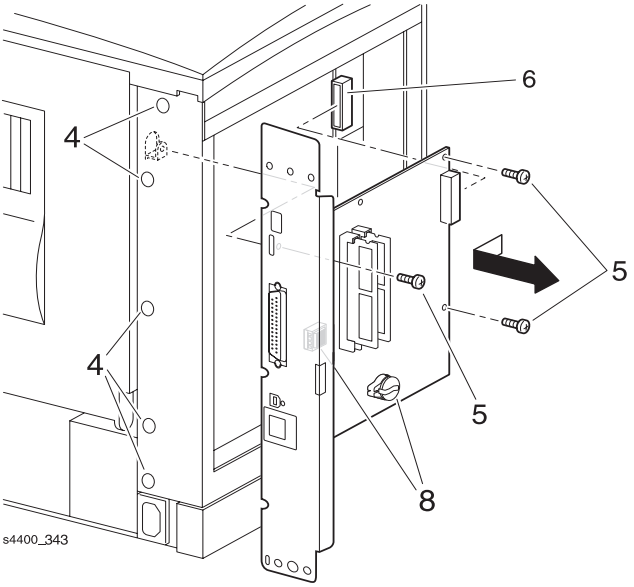



**Image Processor Board**

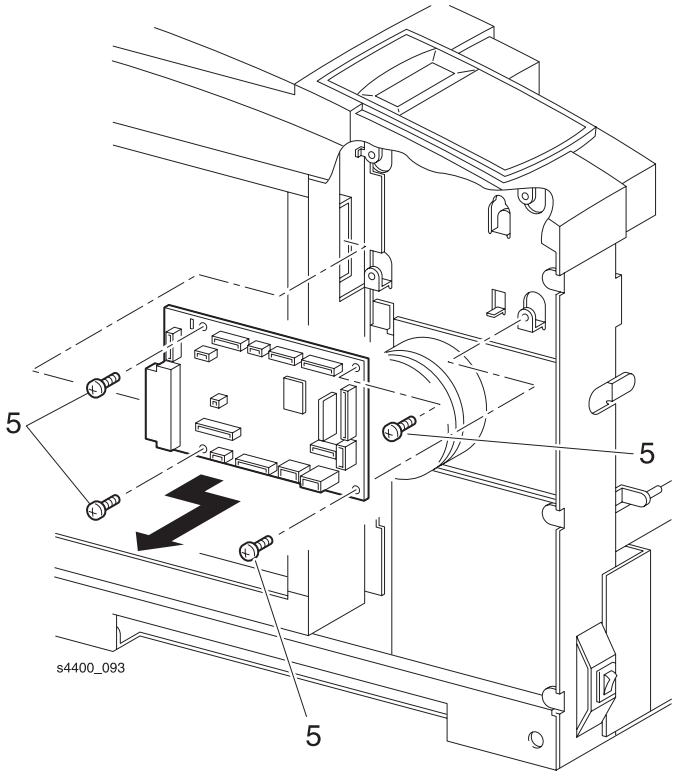
# RRP 9.3 Engine Logic Board

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
2. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
3. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
4. Disconnect all connectors from the Engine Logic Board.
5. Remove the four screws that secure the Engine Logic Board to the printer. Remove the Engine Logic Board.




**Engine Logic Board**

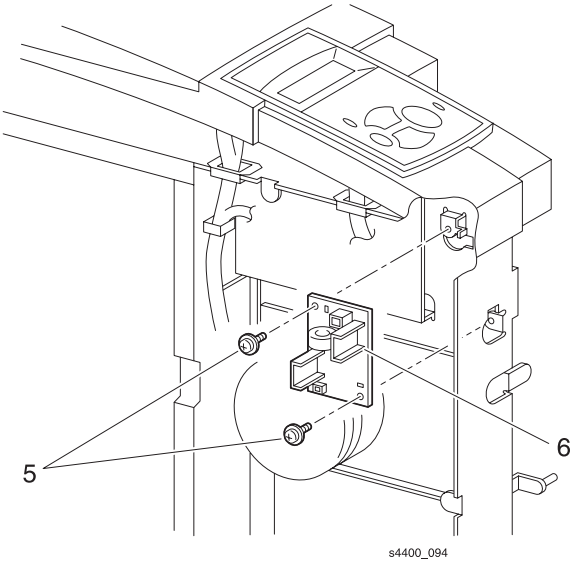
# RRP 9.4 5 VDC PWB

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
2. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
3. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
4. Disconnect PN288 from the 5 VDC PWB and PN1 from the LVPS PWB.
5. Remove the two screws that secure the 5 VDC PWB to the printer.
6. Remove the 5 VDC PWB.




**5 VDC PWB**

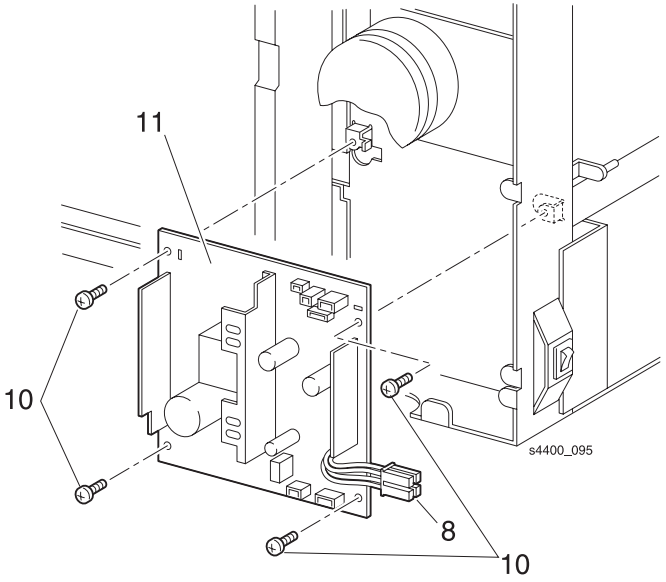
# RRP 9.5 LVPS PWB

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Disconnect the Main Switch.
9. Disconnect P/J11, PN1, P/J282, P/J283, P/J284, P/J285 and P/J281.
10. Remove the four screws that secure the LVPS PWB to the printer.
11. Remove the LVPS PWB.




**LVPS PWB**

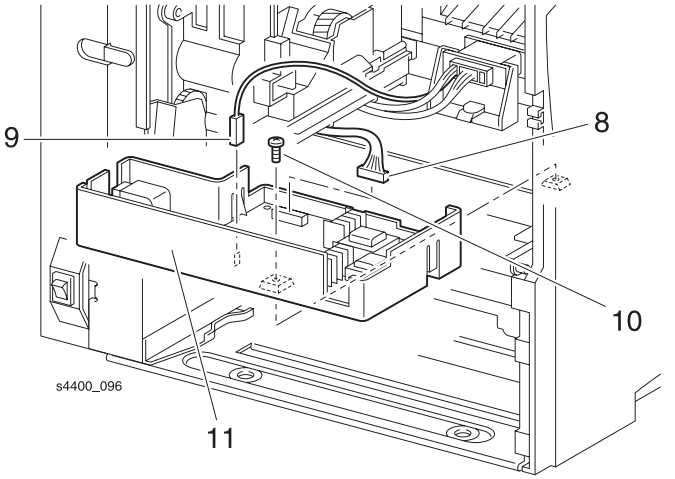
# RRP 9.6 HVPS PWB

See the Parts List on page 7-24.

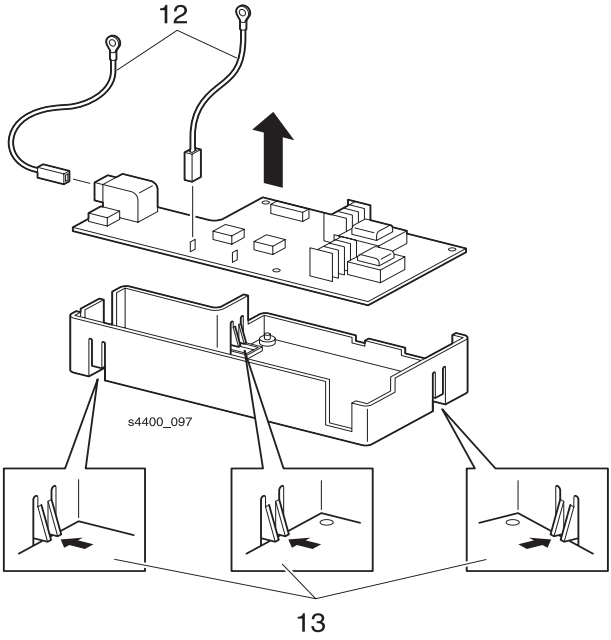
**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
3. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
4. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
5. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
6. Remove the Transfer Roller Assembly (RRP 7.1 Transfer Roller Assembly on page 6-79).
7. Remove the Transport Chute Assembly (RRP 6.1 Transport Chute Assembly on page 6-65).
8. Disconnect P/J261 from the HVPS PWB.
9. Disconnect PRB (red).
10. Remove the screw that secures the HVPS PWB housing to the printer.
11. Remove the HVPS Assembly Housing from the printer.
12. Carefully disconnect the DTS (white) and TR (red) wires from the HVPS.
13. Release the two hooks that secure the HVPS PWB to the Housing, then remove the HVPS PWB.




**High-Voltage Power Supply**




**HVPS PWB**

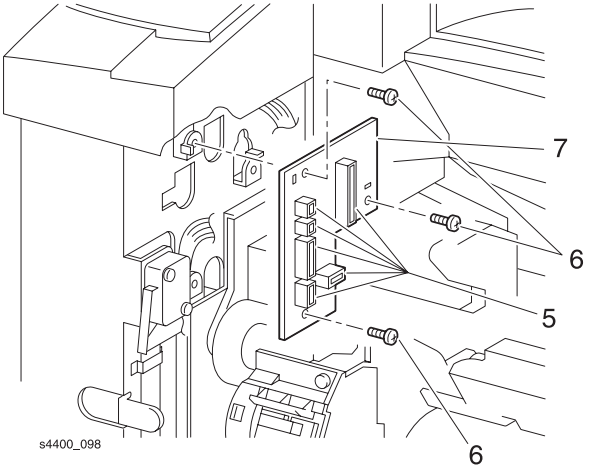
# RRP 9.7 Connector PWB

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Print Cartridge and store in safe place.
3. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
4. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
5. Disconnect P/J41, P/J42, P/J43, P/J44, P/J45 and P/J231 from the Connector PWB.
6. Remove the three screws that secure the Connector PWB to the printer.
7. Remove the Connector PWB.



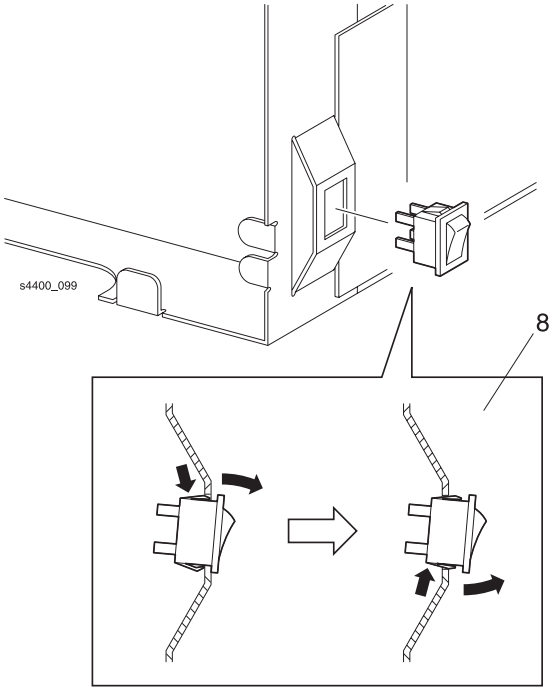

**Connector PWB**

# RRP 9.8 Main Switch

See the Parts List on page 7-24.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
8. Press the locking tabs and push the rear of the Main Switch so that it comes out of the front of the printer.
9. Disconnect the Harness from the Main Switch, and remove the Main Switch from the printer.



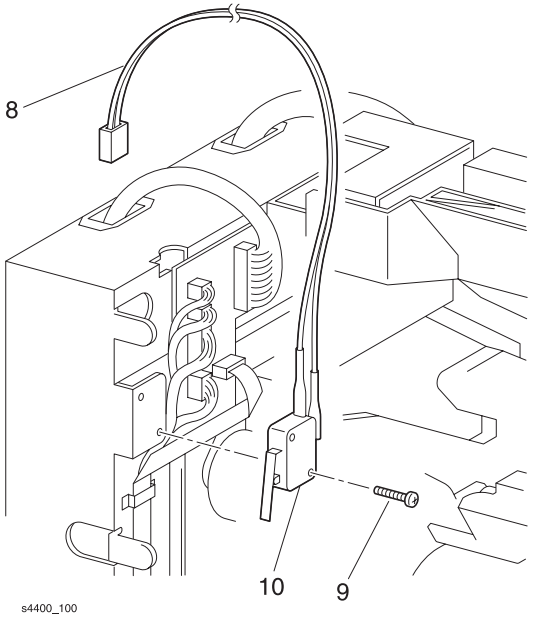

**Main Switch**

# RRP 9.9 Front Interlock Switch Assembly

See the Parts List on page 7-24.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
7. Disconnect P/J284 from the LVPS PWB (RRP 9.5 LVPS PWB on page 6-91).
8. Release the switch harness from all cable clamps.
9. Remove the screw that secures the Front Interlock Switch Assembly to the printer.
10. Remove the Front Interlock Switch Assembly.




**Front Interlock Switch Assembly**

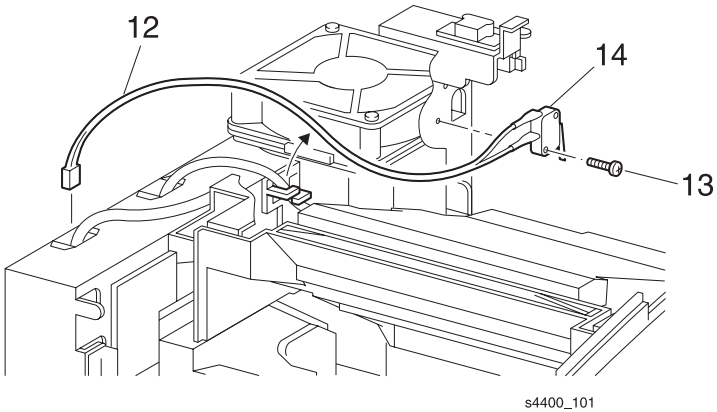
# RRP 9.10 Rear Interlock Switch Assembly

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
7. Open the Rear Cover Assembly.
8. Remove the Interlock Cover (RRP 1.10 Interlock Cover on page 6-15).
9. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
10. Remove the Exit Chute Assembly (RRP 6.4 Exit Chute Assembly on page 6-69).
11. Disconnect P/J30 from Engine Logic Board.
12. Release the Harness from all cable clamps.
13. Remove the screw that secures the Rear Interlock Switch Assembly to the printer.
14. Remove the Rear Interlock Switch Assembly.




**Rear Interlock Switch Assembly**

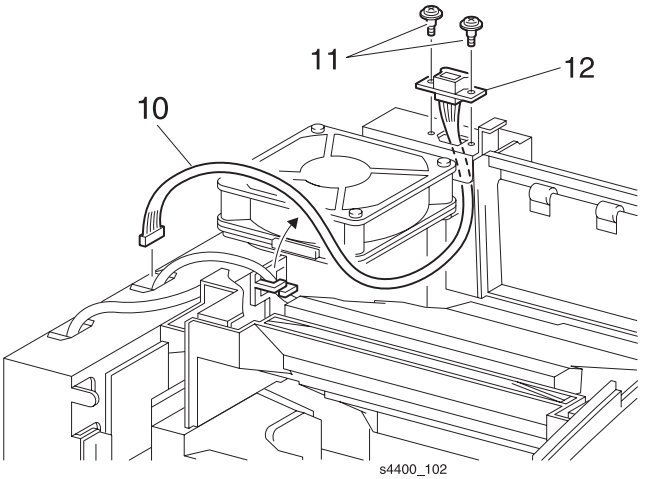
# RRP 9.11 Stacker Harness Assembly

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
7. Remove the Interlock Cover (RRP 1.10 Interlock Cover on page 6-15).
8. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
9. Disconnect P/J35 from the Engine Logic Board (RRP 9.3 Engine Logic Board on page 6-89).
10. Release the Stacker Harness from all cable clamps.
11. Remove the two screws that secure the Stacker Harness Assembly.
12. Remove the Stacker Harness Assembly from the printer.




**Stacker Harness Assembly**

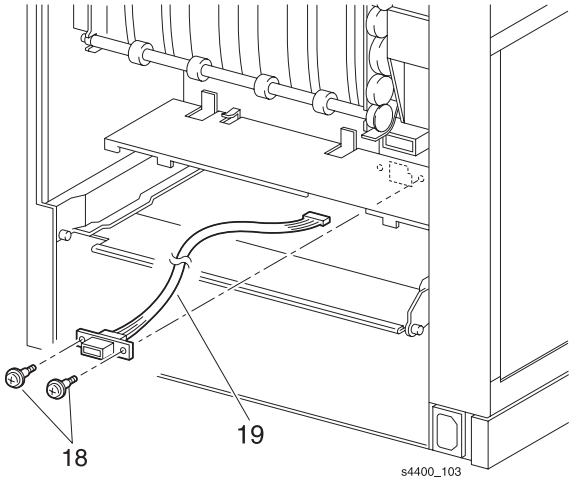
# RRP 9.12 Duplex Harness Assembly

See the Parts List on page 7-24.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove Tray 1.
2. Remove the Left Interface Cover (RRP 1.1 Left Interface Cover on page 6-6).
3. Remove the Left Cover (RRP 1.2 Left Cover on page 6-7).
4. Remove the Front Cover Assembly (RRP 1.6 Front Cover Assembly on page 6-11).
5. Remove the Left Front Cover (RRP 1.7 Left Front Cover on page 6-12).
6. Remove the Top Cover Assembly (RRP 1.4 Top Cover Assembly on page 6-9).
7. Remove the Rear Cover Assembly (RRP 1.8 Rear Cover Assembly on page 6-13).
8. Remove the Left Plate (RRP 1.11 Left Plate on page 6-16).
9. Remove the Plate Handle (RRP 1.12 Plate Handle on page 6-17).
10. Remove the MPT Chute Assembly (RRP 4.1 MPT Chute Assembly on page 6-44).
11. Remove the Paper Handler Assembly (RRP 5.1 Paper Handler Assembly on page 6-57).
12. Remove the Transport Chute Assembly (RRP 6.1 Transport Chute Assembly on page 6-65).
13. Remove the Fuser Assembly (RRP 6.2 Fuser Assembly on page 6-66).
14. Remove the Print Cartridge Top Guide Assembly (RRP 7.2 Print Cartridge Top Guide Assembly on page 6-80).
15. Remove the Main Motor Assembly (RRP 8.1 Main Motor Assembly on page 6-84).
16. Remove the Paper Feeder (RRP 3.1 Paper Feeder on page 6-28).
17. Remove the Drive Gear Assembly (RRP 8.2 Main Drive Gear Assembly on page 6-85).
18. Remove the two screws that secure the Duplex Harness Assembly to the printer.
19. Remove the Duplex Harness Assembly.




**Duplex Harness Assembly**

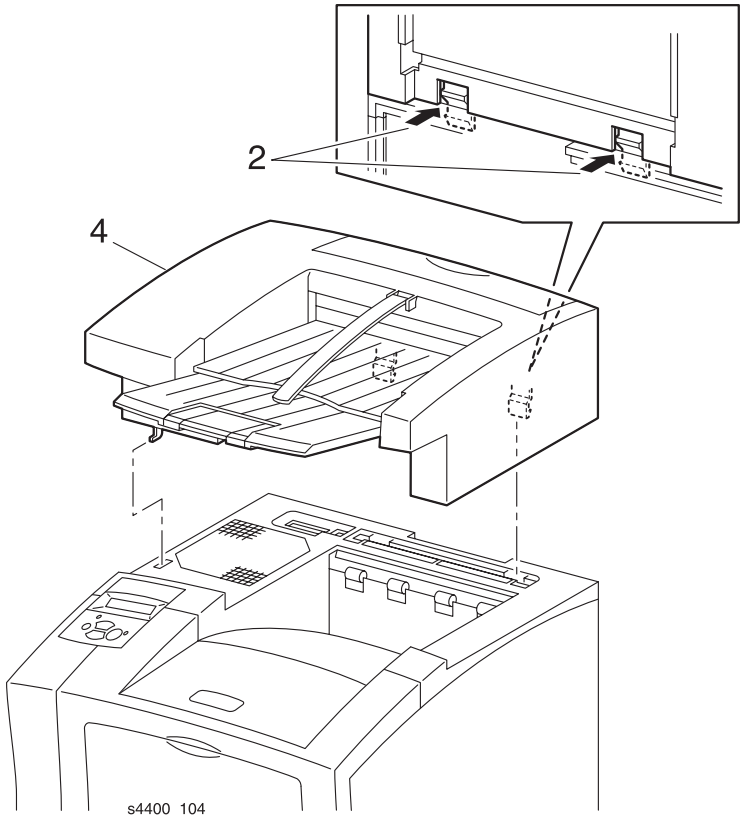
# Stacker

## RRP 10.1 Stacker

See the Parts List on page 7-38.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Open the printer Rear Cover.
2. Press the two locking tabs at the rear of the Stacker.
3. Lift the rear of the Stacker approximately 1 inch (25 mm).
4. Slide the Stacker toward the rear and remove it.



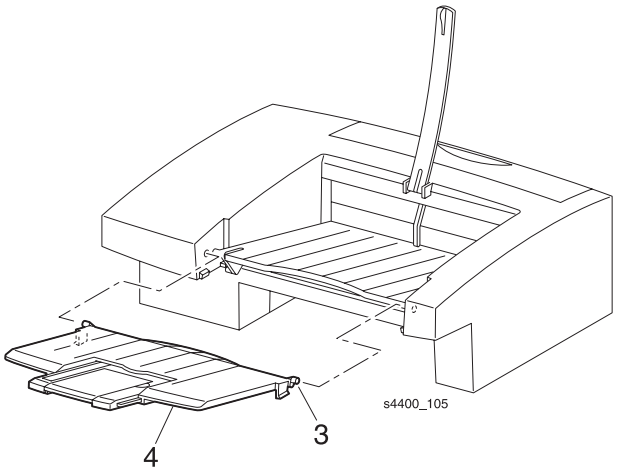

**Stacker**

# RRP 10.2 Exit Tray Extension

See the Parts List on page 7-38.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Open the Exit Tray Extension.
2. Slide the tray to the left.
3. Carefully deflect the center of the tray until the right hinge pin is free.
4. Slide the tray to the right and remove it.



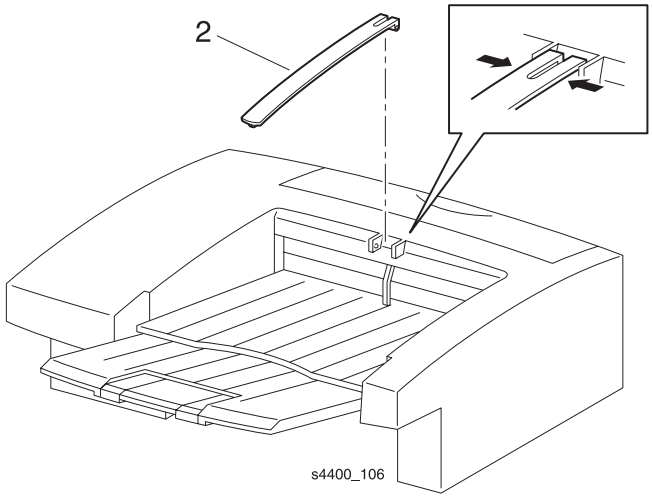

**Exit Tray Extension**

# RRP 10.3 Exit Tray

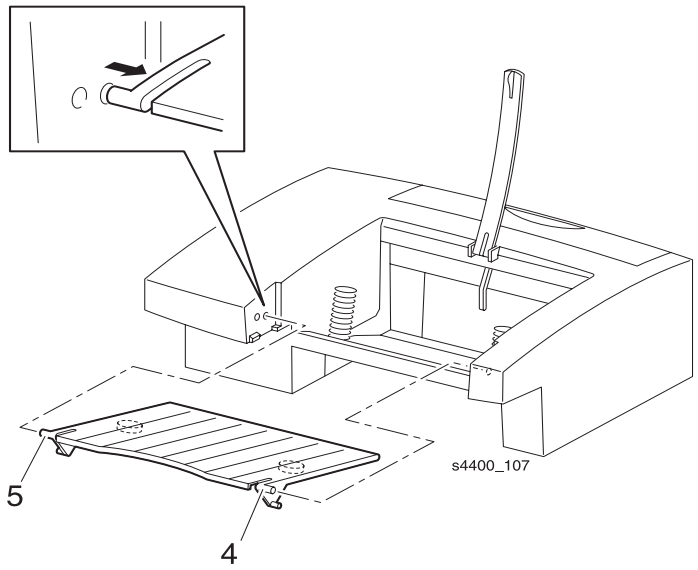
See the Parts List on page 7-38.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Exit Tray Extension (RRP 10.2 Exit Tray Extension on page 6-102).
2. Squeeze the upper end of the Paper Weight and remove.
3. Slide the tray to the left.
4. Push the right hinge pin in until it is free of the Stacker.
5. Push the left hinge pin in until it is free of the Stacker.
6. Remove the Exit Tray.




**Exit Tray Paper Weight**



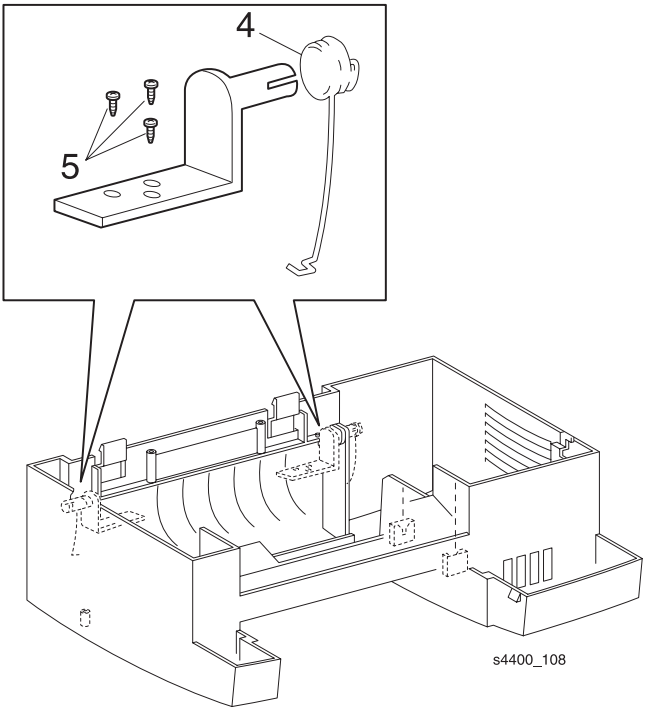

**Exit Tray**

# RRP 10.4 Rear Cover Assembly

See the Parts List on page 7-38.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Release and remove the two Rear Cover Springs.
5. Remove the six screws that secure the Rear Cover.
6. Remove the Rear Cover.




**Rear Cover Assembly**

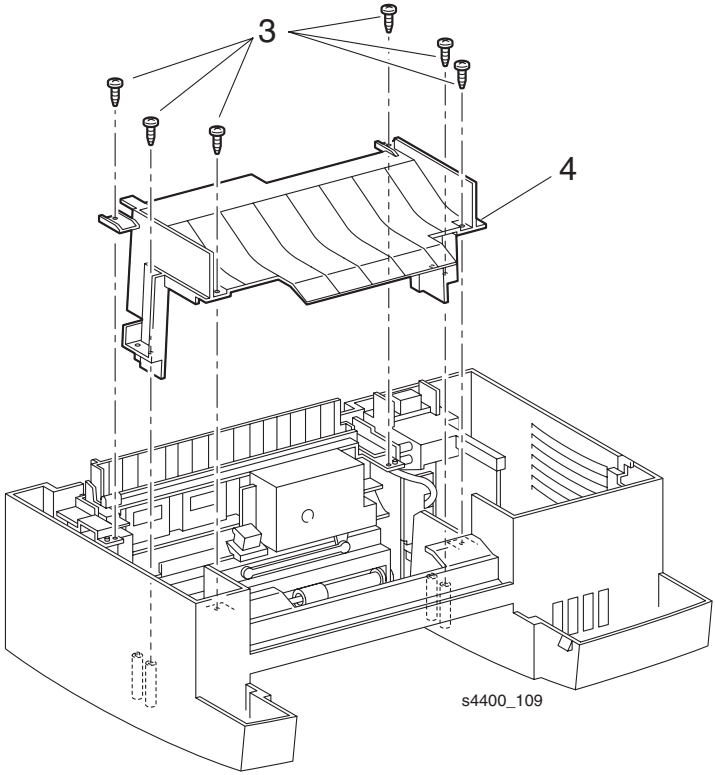
# RRP 10.5 Lower Cover

See the Parts List on page 7-38.

## Removal

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Carefully turn the Stacker upside down.
3. Remove the six screws that secure the lower cover.
4. Remove the Lower Cover.




**Lower Cover**

## Replacement

Hold the Stack Height Sensor Actuator out as you reinstall the lower cover.

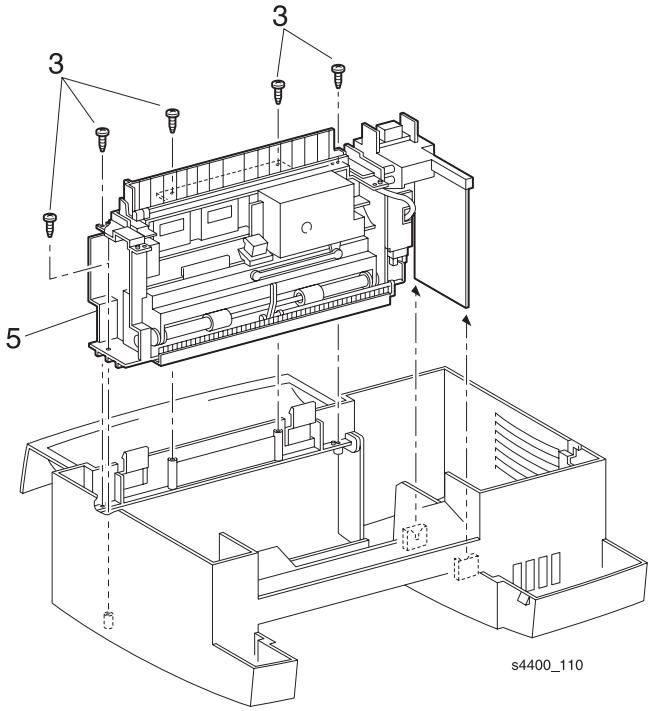
Reinstall the components in the reverse order.

# RRP 10.6 Inner Exit Chute Assembly

See the Parts List on page 7-38.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the five screws that secure the Inner Exit Chute Assembly.
4. Hold open the Rear Cover.
5. Remove the assembly.




**Inner Exit Chute Assembly**

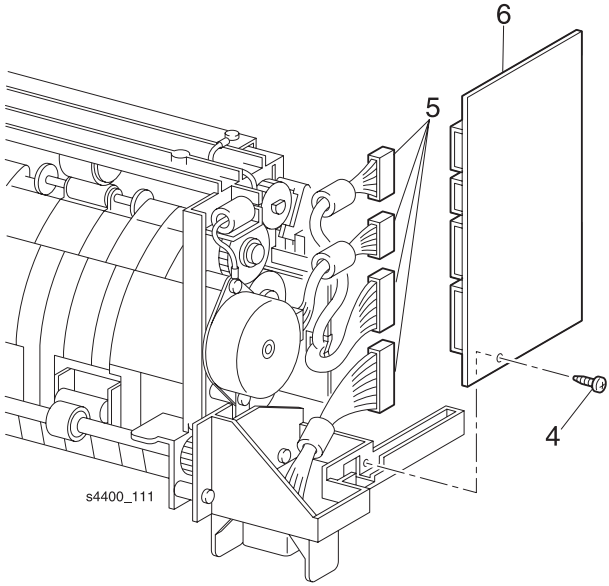
# RRP 10.7 Stacker PWB

See the Parts List on page 7-40.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the screw that secures the PWB to the Inner Exit Chute Assembly.
5. Disconnect P/J209, P/J224, P/J210, and P/J229.
6. Remove the Stacker PWB.




**Stacker PWB**

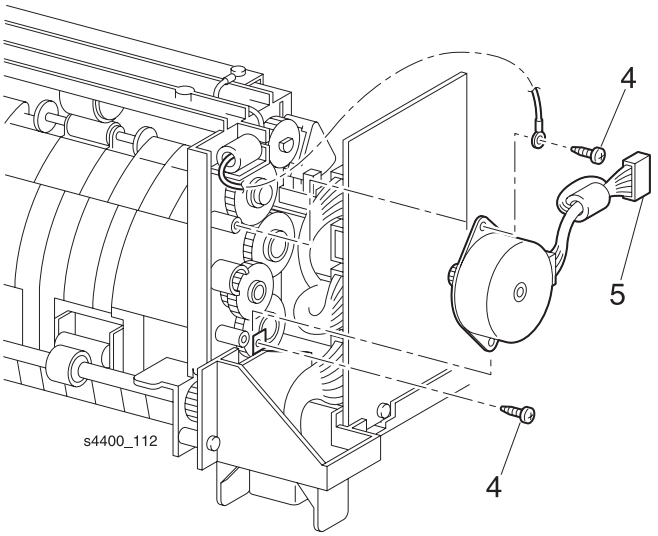
# RRP 10.8 Motor Drive Assembly

See the Parts List on page 7-40.

## Removal

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the two screws that secure the motor to the Inner Exit Chute Assembly.
5. Disconnect P/J210 from the Stacker PWB and remove the motor.




**Motor Drive Assembly**

## Replacement

Install the motor with both tabs touching the plastic standoffs.

The ground wire on top and the earth plate at the bottom should be on the outside.

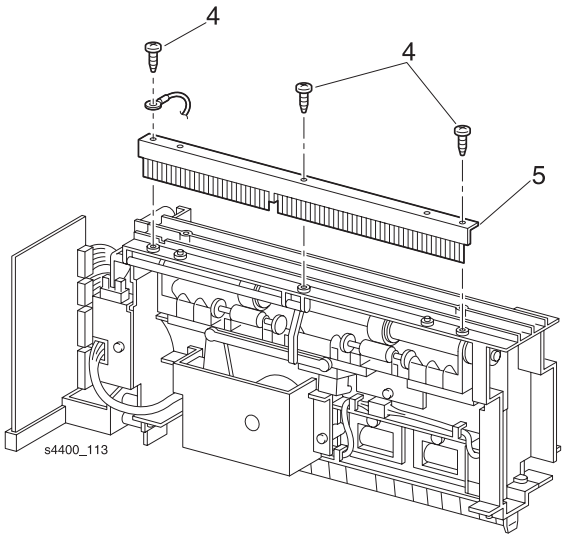
Reinstall the components in the reverse order.

# RRP 10.9 Static Eliminator

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the three screws that secure the Static Eliminator to the Inner Exit Chute.
5. Remove the Static Eliminator.



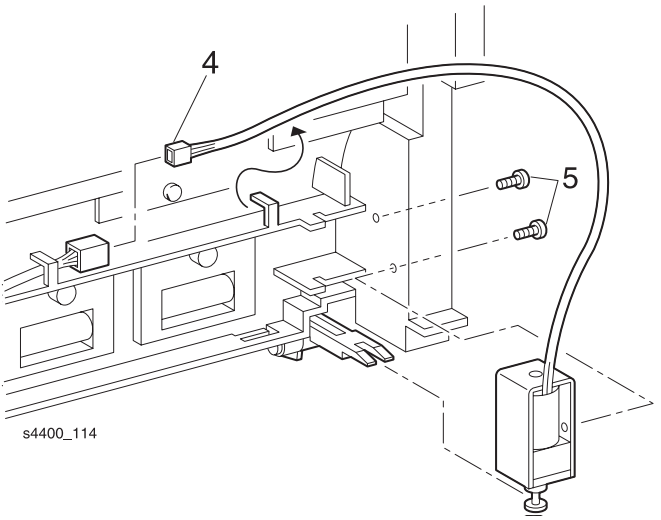

**Static Eliminator**

# RRP 10.10 Direction Solenoid

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Disconnect P/J228 from the Direction Solenoid.
5. Remove the two screws that secure the solenoid to the Inner Exit Chute Assembly.
6. Remove the solenoid.



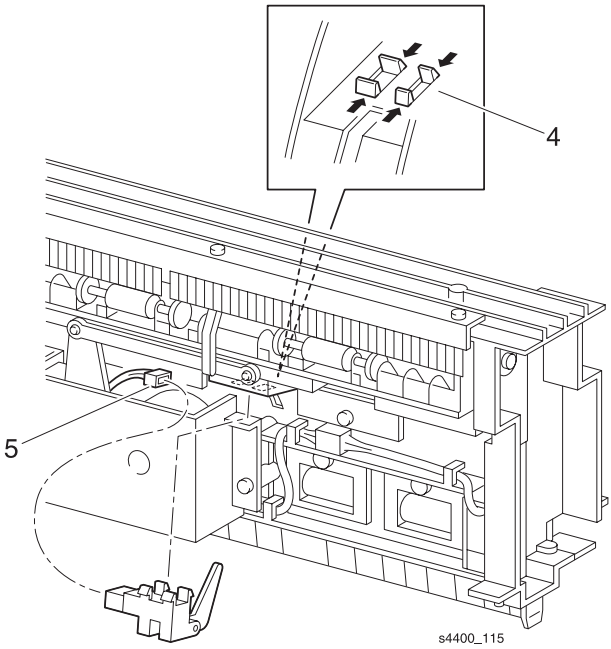

**Direction Solenoid**

# RRP 10.11 Exit Sensor Assembly

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Release the locking tabs and remove the Exit Sensor Assembly.
5. Disconnect P/J227 from the sensor.



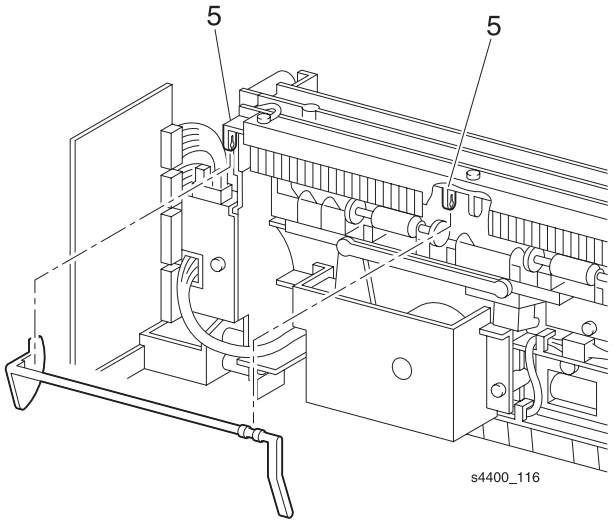

**Exit Sensor Assembly**

# RRP 10.12 Stacker Full Sensor Actuator

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the Static Eliminator (RRP 10.9 Static Eliminator on page 6-109).
5. Remove the Stacker Full Sensor Actuator from the two retaining clips.



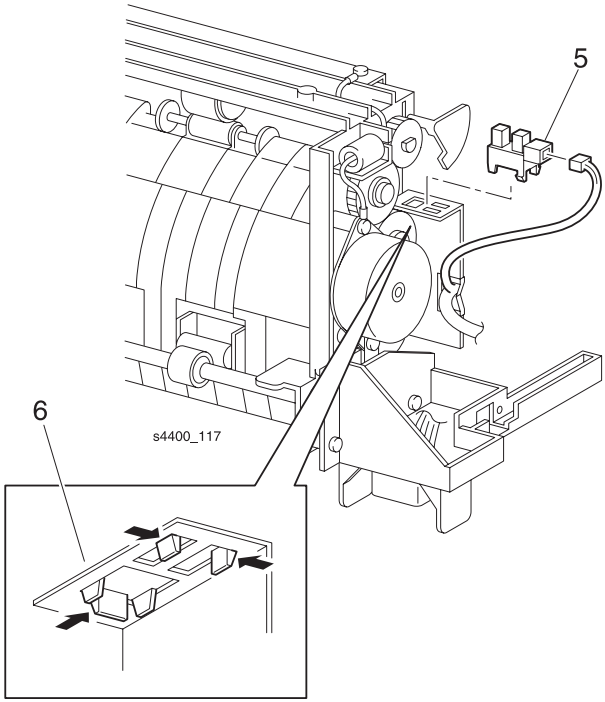

**Stacker Full Sensor Actuator**

# RRP 10.13 Stacker Full Sensor

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the Stacker PWB (RRP 10.7 Stacker PWB on page 6-107).
5. Disconnect P/J225 from the Stacker Full Sensor.
6. Release the locking tabs that secure the sensor.
7. Remove the sensor.



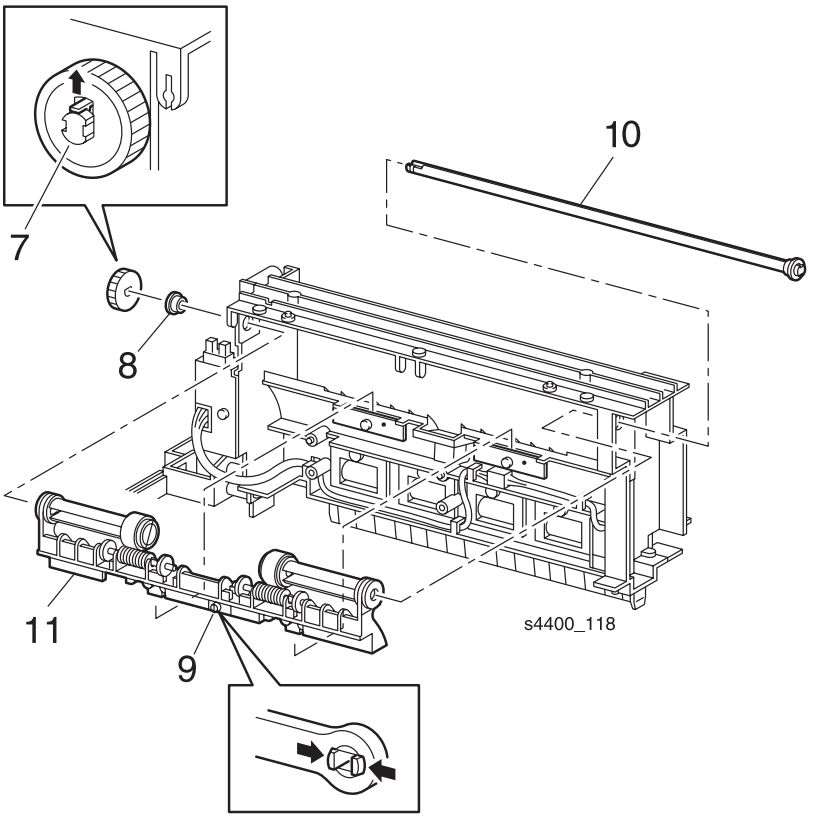

**Stacker Full Sensor**

# RRP 10.14 Offset Roller Assembly

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the Stacker PWB (RRP 10.7 Stacker PWB on page 6-107).
5. Remove the Static Eliminator (RRP 10.9 Static Eliminator on page 6-109).
6. Remove the Stacker Full Sensor Actuator (RRP 10.12 Stacker Full Sensor Actuator on page 6-112).
7. Release the locking tab and remove the Exit Gear.
8. Remove the Exit Gear Bearing.
9. Release the two locking tabs and remove the Offset Lever from the Offset Roller Assembly.
10. Remove the Exit Shaft.
11. Remove the Offset Roller Assembly.



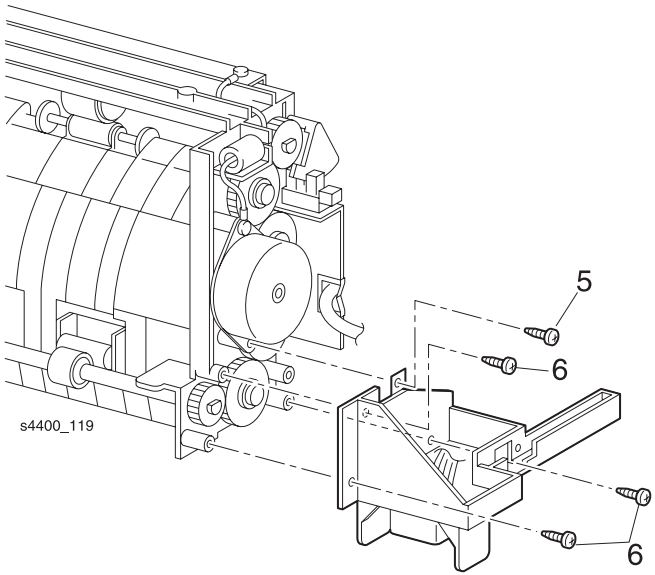

**Offset Roller Assembly**

# RRP 10.15 Mid Roller Assembly

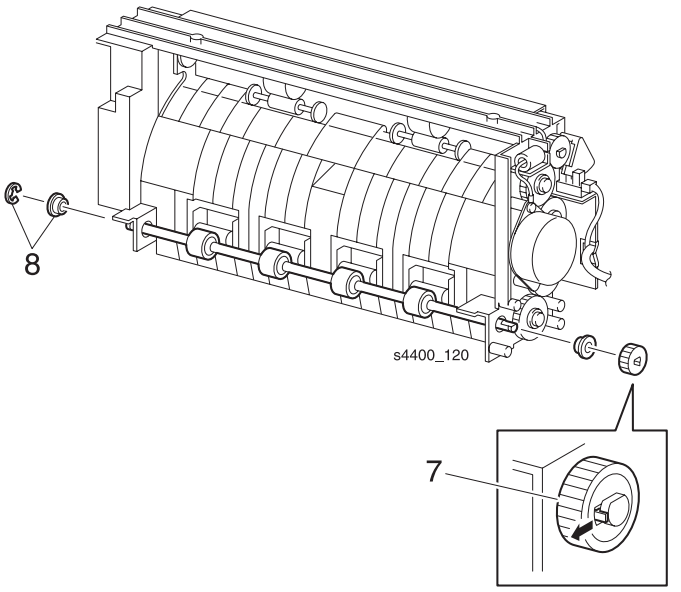
See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

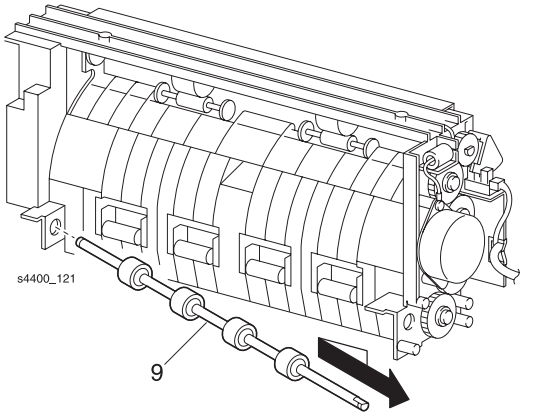
1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the Stacker PWB (RRP 10.7 Stacker PWB on page 6-107).
5. Remove the screw that secures the ground plate to the bottom of the Motor Drive Assembly.
6. Remove the three screws that secure the PWB Holder to the Inner Exit Chute Assembly. Remove the holder.
7. Release the locking tab and remove the Exit Gear and Bearing.
8. Remove the E-Ring and Bearing from the other end of the shaft.
9. Slide the shaft to the right and remove the left end of the Mid Roller Assembly. Remove the assembly.




**Ground Plate**




**Locking Tab, Exit Gear, and Bearings**



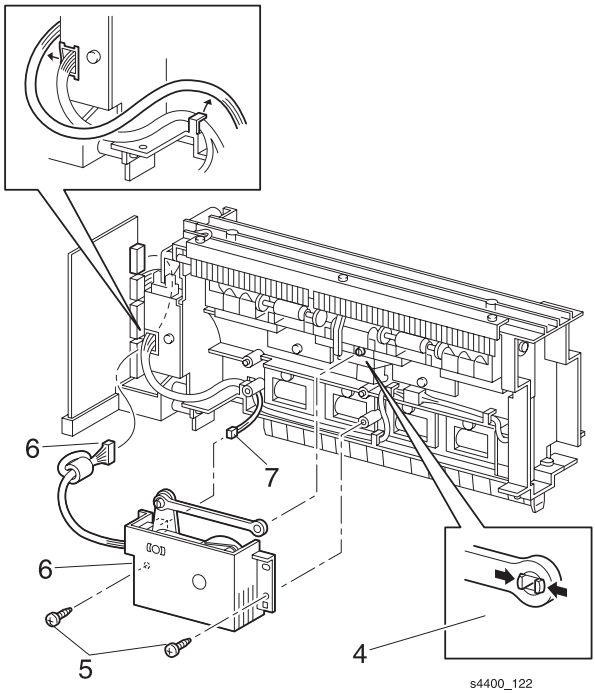

**Mid Roller Assembly**

# RRP 10.16 Offset Assembly

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Release the two locking tabs and remove the Offset Lever from the Offset Assembly.
5. Remove the two screws that secure the Offset Assembly to the Inner Exit Chute Assembly.
6. Disconnect P/J229 from the Stacker PWB.
7. Disconnect P/J226 from the Offset Home Sensor.
8. Remove the harness from all harness clamps.
9. Remove the Offset Assembly.



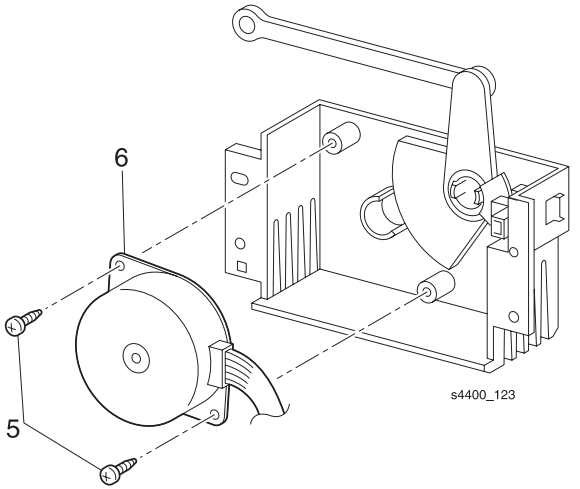

**Offset Assembly**

# RRP 10.17 Offset Motor Assembly

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the Offset Assembly (RRP 10.16 Offset Assembly on page 6-117).
5. Remove the two screws that secure the Offset Motor.
6. Remove the Offset Motor Assembly.



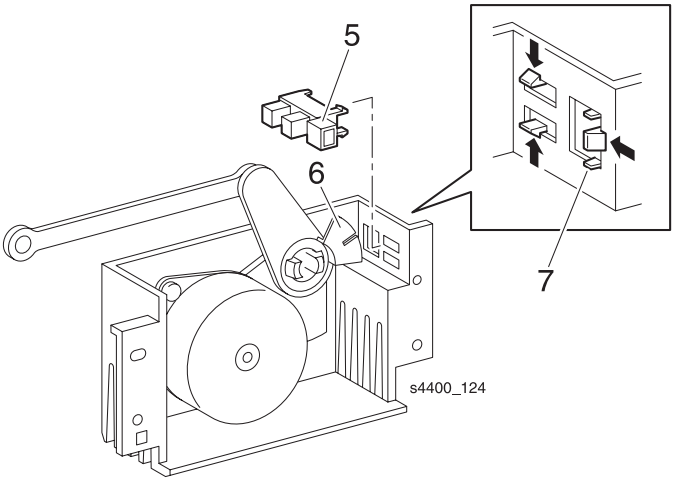

**Offset Motor Assembly**

# RRP 10.18 Offset Assembly Home Sensor

See the Parts List on page 7-40.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Stacker (RRP 10.1 Stacker on page 6-101).
2. Remove the Lower Cover (RRP 10.5 Lower Cover on page 6-105).
3. Remove the Inner Exit Chute Assembly (RRP 10.6 Inner Exit Chute Assembly on page 6-106).
4. Remove the Offset Assembly (RRP 10.16 Offset Assembly on page 6-117).
5. Disconnect P/J226 from the Home Sensor.
6. Move the motor linkage until the flag is clear of the sensor.
7. Release the locking tabs and remove the Offset Assembly Home Sensor.




**Offset Assembly Home Sensor**

# Optional Paper Feeder

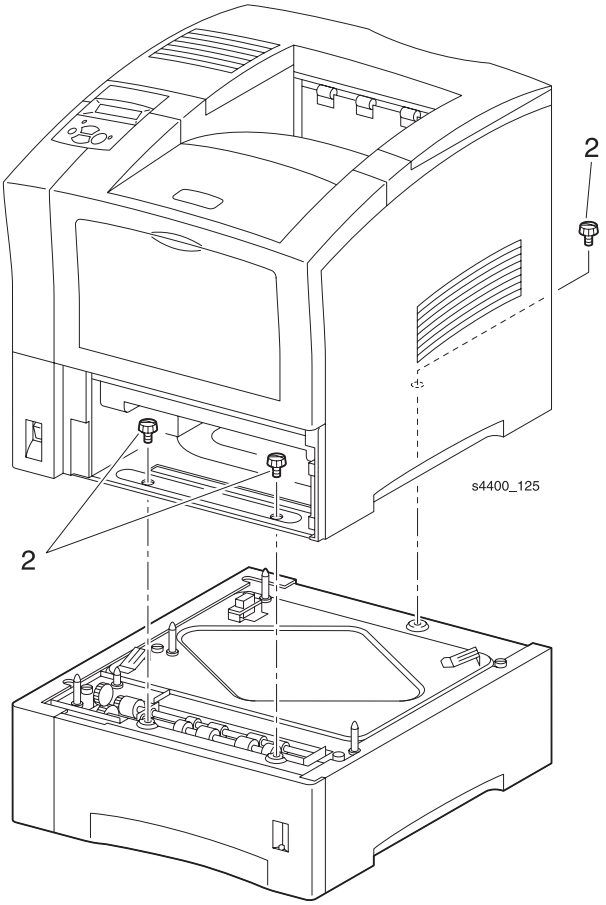
## RRP 11.1 Printer Removal

See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

**Warning: Do not try to lift the printer by yourself. The printer is heavy; lifting it requires two people.**

1. Remove Tray 1 from the Feeder.
2. Remove the three screws that secure the printer to the 550-Sheet Feeder.
3. Lift the printer clear of the 550-Sheet Feeder.



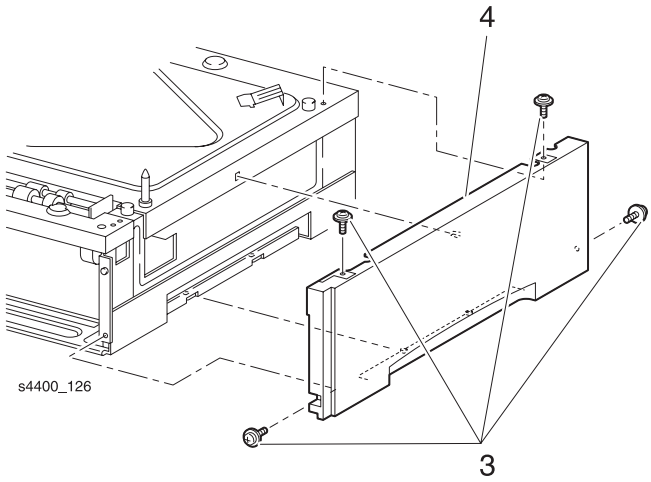

**Optional Feeder Assembly**

# RRP 11.2 550-Sheet Feeder Right Cover

See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the four screws that secure the right cover.
4. Lift slightly to remove the cover.



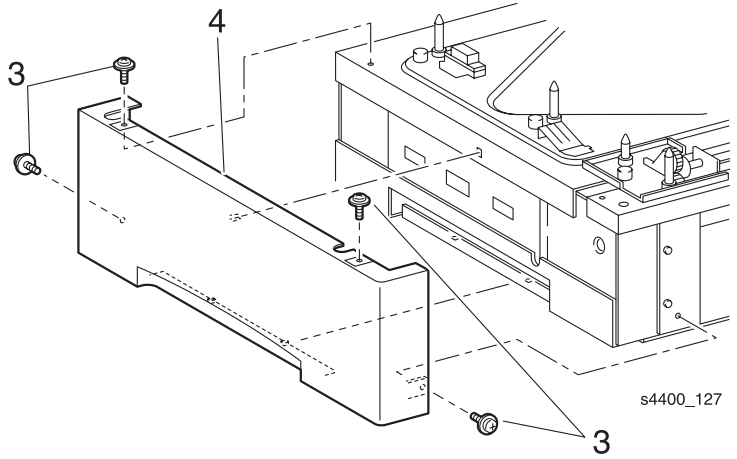

**Right Cover**

# RRP 11.3 550-Sheet Feeder Left Cover

See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the four screws that secure the Left Cover.
4. Pull the top of the cover out and down to remove the cover.



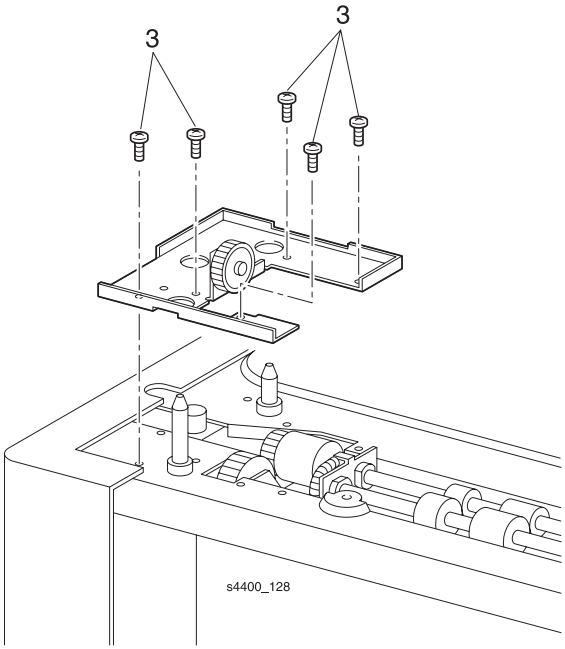

**Left Cover**

# RRP 11.4 550-Sheet Feeder Gear Bracket Assembly

See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the five screws that secure the 550-Sheet Feeder Gear Bracket Assembly to the 550-Sheet Feeder.
4. Remove the Gear Bracket Assembly.



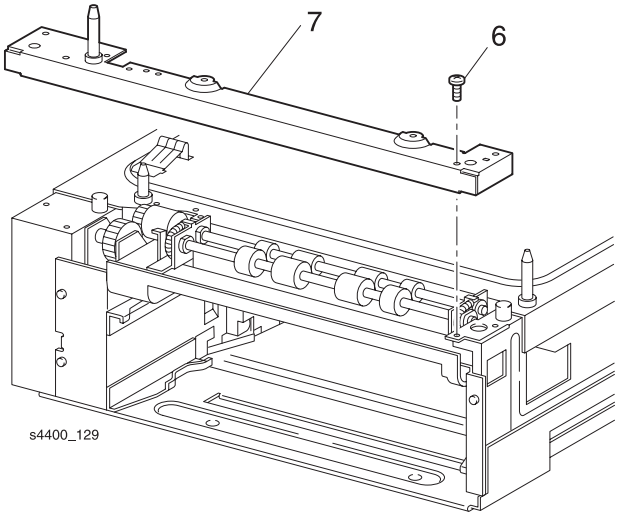

**Gear Bracket Assembly**

# RRP 11.5 Top Plate

See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Right Cover (RRP 11.2 550-Sheet Feeder Right Cover on page 6-121).
4. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
5. Remove 550-Sheet Feeder Gear Bracket Assembly (RRP 11.4 550-Sheet Feeder Gear Bracket Assembly on page 6-123).
6. Remove the screw that secures the Top Plate to the Feeder.
7. Lift and remove the Top Plate from the Feeder.



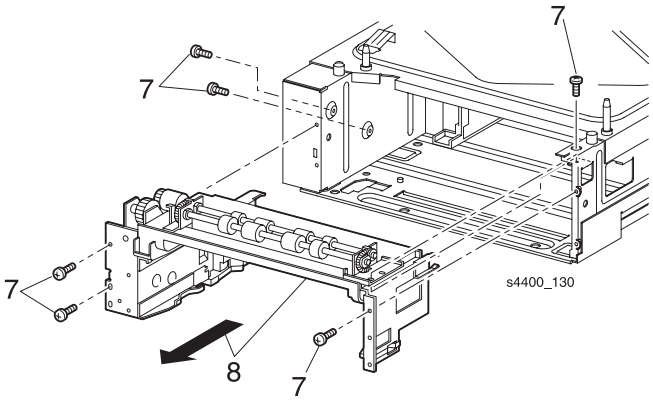

**Top Plate**

# RRP 11.6 550-Sheet Feeder Drive Assembly

See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Right Cover (RRP 11.2 550-Sheet Feeder Right Cover on page 6-121).
4. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
5. Remove 550-Sheet Feeder Gear Bracket Assembly (RRP 11.4 550-Sheet Feeder Gear Bracket Assembly on page 6-123).
6. Remove the Top Plate (RRP 11.5 Top Plate on page 6-124).
7. Remove the six screws that secure the 550-Sheet Feeder Drive Assembly to the 550-Sheet Feeder.
8. Remove the Feeder Drive Assembly.




**Feeder Drive Assembly**

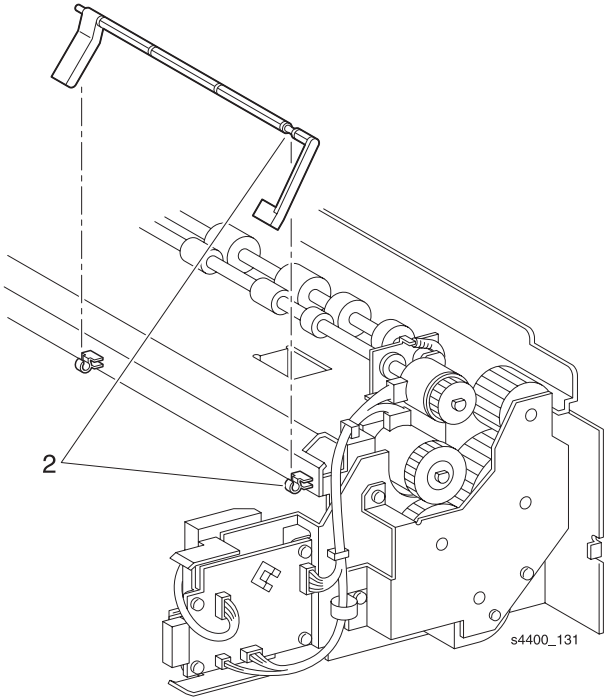
# RRP 11.7 No Paper Actuator

See the Parts List on page 7-28.

**Warning: Switch off the power and disconnect the Power Cord.**

***Note:*** ***The view shown in the illustration is from the rear of the printer.***

1. Remove the Tray from the Feeder.
2. Rotate the No Paper Actuator up until the left end of the actuator can be removed from the support.
3. Remove the actuator.



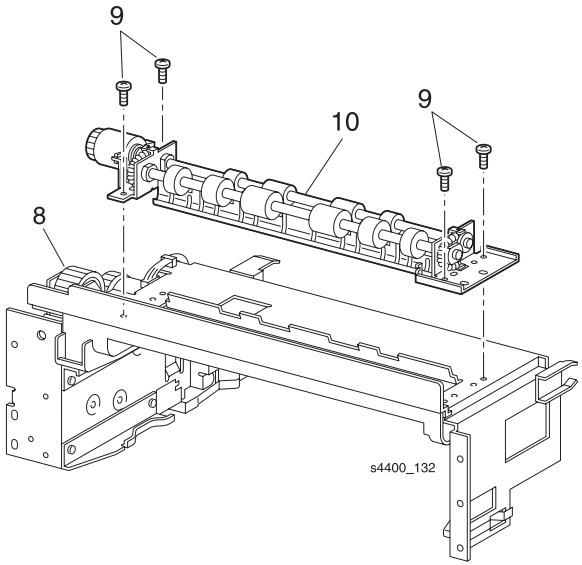

**550-Sheet Feeder No Paper Actuator**

# RRP 11.8 Turn Roller Assembly

See the Parts List on page 7-28.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Right Cover (RRP 11.2 550-Sheet Feeder Right Cover on page 6-121).
4. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
5. Remove 550-Sheet Feeder Gear Bracket Assembly (RRP 11.4 550-Sheet Feeder Gear Bracket Assembly on page 6-123).
6. Remove the Top Plate (RRP 11.5 Top Plate on page 6-124).
7. Remove the 550-Sheet Feeder Drive Assembly (RRP 11.6 550-Sheet Feeder Drive Assembly on page 6-125).
8. Disconnect P/J64 on the Paper Feeder PWB.
9. Remove the four screws that secure the Turn Roller Assembly to the Feeder Assembly.
10. Remove the Turn Roller Assembly.




**Turn Roller Assembly**

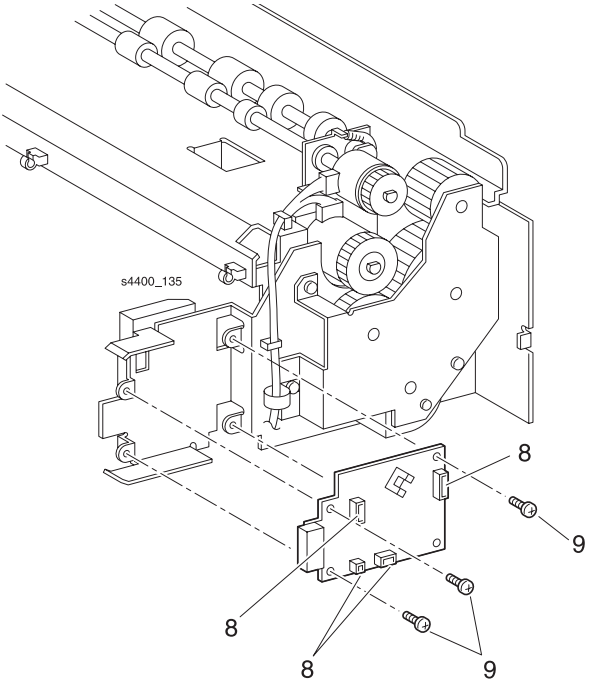
# RRP 11.9 Feeder PWB

See the Parts List on page 7-28.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Right Cover (RRP 11.2 550-Sheet Feeder Right Cover on page 6-121).
4. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
5. Remove 550-Sheet Feeder Gear Bracket Assembly (RRP 11.4 550-Sheet Feeder Gear Bracket Assembly on page 6-123).
6. Remove the Top Plate (RRP 11.5 Top Plate on page 6-124).
7. Remove the 550-Sheet Feeder Drive Assembly (RRP 11.6 550-Sheet Feeder Drive Assembly on page 6-125).
8. Disconnect P/J64, P/J65, P/J66, and P/J67 on the Feeder PWB.
9. Remove the three screws that secure the Feeder PWB and remove the PWB.



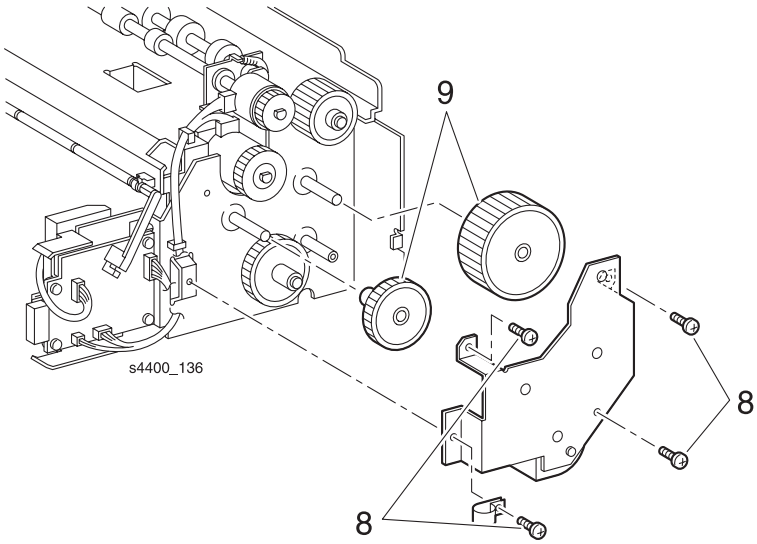

**Feeder PWB**

# RRP 11.10 Feed Clutch Assembly

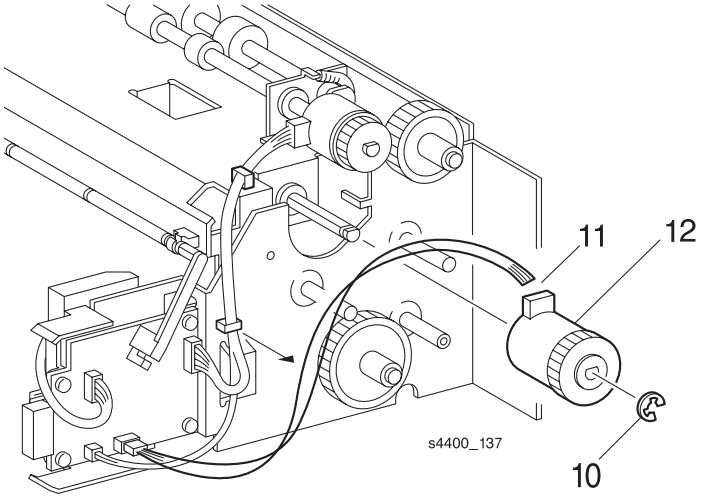
See the Parts List on page 7-28.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Right Cover (RRP 11.2 550-Sheet Feeder Right Cover on page 6-121).
4. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
5. Remove 550-Sheet Feeder Gear Bracket Assembly (RRP 11.4 550-Sheet Feeder Gear Bracket Assembly on page 6-123).
6. Remove the Top Plate (RRP 11.5 Top Plate on page 6-124).
7. Remove the 550-Sheet Feeder Drive Assembly (RRP 11.6 550-Sheet Feeder Drive Assembly on page 6-125).
8. Remove the four screws that secure the bracket to the Paper Feeder.
9. Remove the Gear 3 and 2 from the shaft of the Paper Feeder.
10. Remove the E-ring that secures the Feed Clutch Assembly to the feeder.
11. Disconnect P/J651 From the Feed Clutch.
12. Remove the Feed Clutch.




**Bracket**



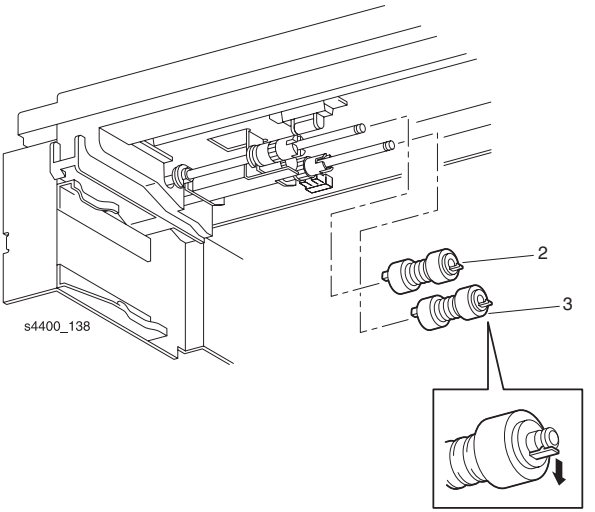

**Feed Clutch Assembly**

## RRP 11.11 Paper Feed Rolls

See the Parts List on page 7-28.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Tray.
2. Release the locking tab on the Front Feed Roller and slide the roller to the right off the shaft.
3. Repeat step 2 with the Rear Feed Roller.




**Paper Feed Rollers**

# RRP 11.12 Feeder Assembly

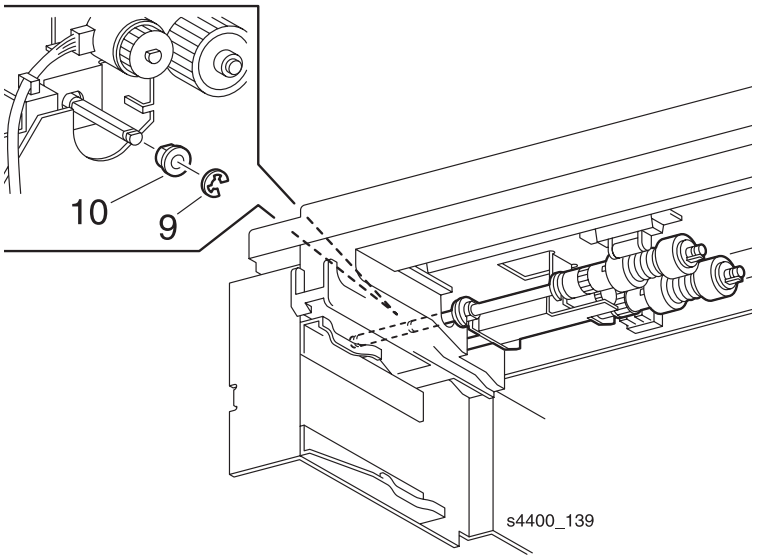
See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

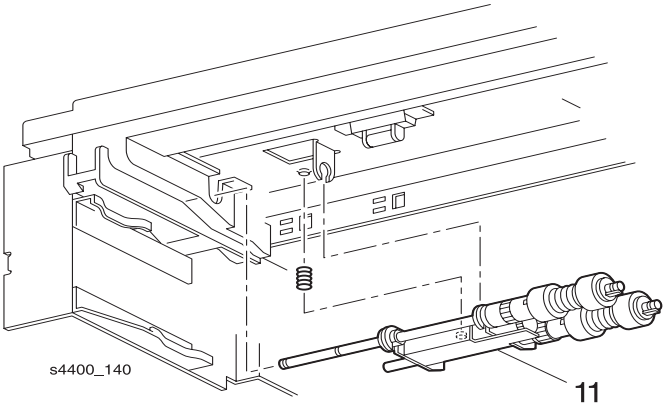
1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Right Cover (RRP 11.2 550-Sheet Feeder Right Cover on page 6-121).
4. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
5. Remove 550-Sheet Feeder Gear Bracket Assembly (RRP 11.4 550-Sheet Feeder Gear Bracket Assembly on page 6-123).
6. Remove the Top Plate (RRP 11.5 Top Plate on page 6-124).
7. Remove the 550-Sheet Feeder Drive Assembly (RRP 11.6 550-Sheet Feeder Drive Assembly on page 6-125).
8. Remove the Feed Clutch Assembly (RRP 11.10 Feed Clutch Assembly on page 6-129).
9. Remove the E-ring that secures the left shaft of the Feeder Assembly.
10. Remove the left bearing from the left shaft of the Feeder Assembly.

**Caution: Be careful not to lose the Bias Spring located under the Feeder Assembly.**

11. Slide the Feeder Assembly to the right and remove.




**E-Ring and Bearing**



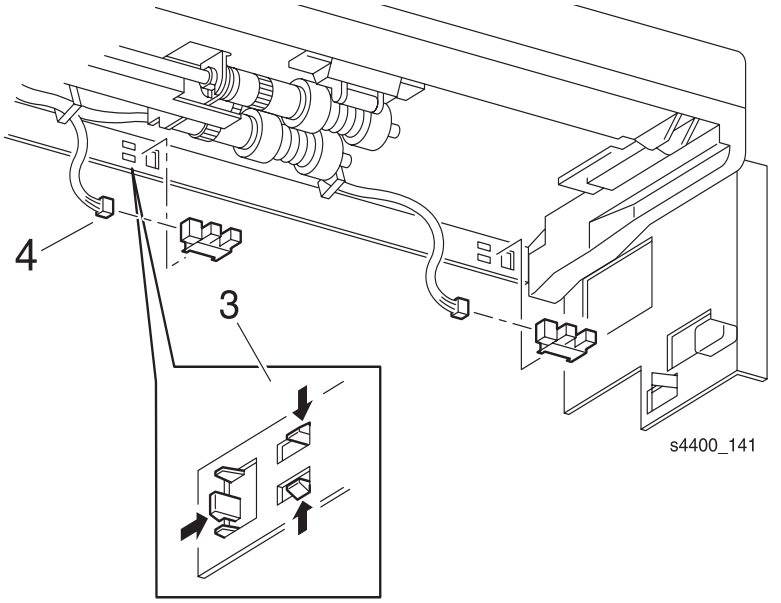

**Feeder Assembly**

## RRP 11.13 Stack Height Sensor

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Tray from the Feeder.
2. Remove the No Paper Actuator (RRP 11.7 No Paper Actuator on page 6-126).
3. Release the five hooks and remove the Sensor.
4. Disconnect P/J662 from the Stack Height Sensor.



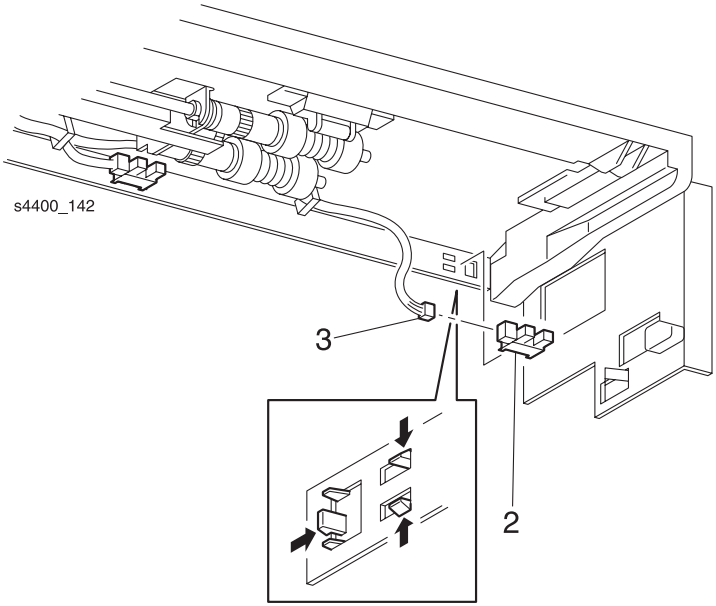

**Stack Height Sensor**

# RRP 11.14 Low Paper Sensor

See the Parts List on page 7-28.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Tray from the Feeder.
2. Release the five hooks and remove the Low Paper Sensor.
3. Disconnect P/J661 from the sensor.



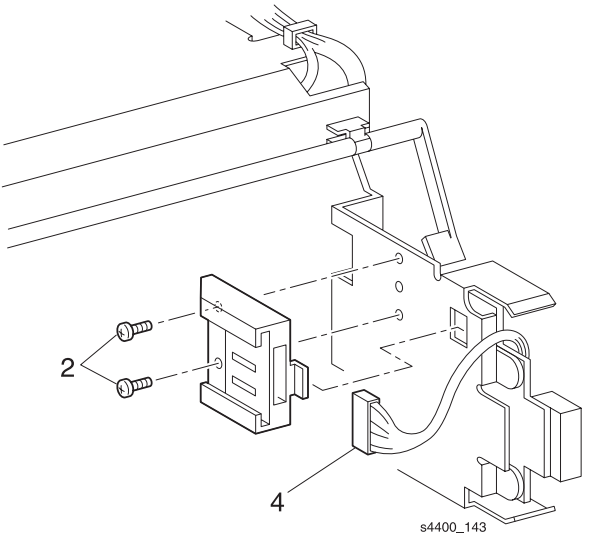

**Low Paper Sensor**

# RRP 11.15 Feeder Socket

See the Parts List on page 7-10.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Tray.
2. Remove the two screws that secure the Socket to the Feeder in the printer.
3. It may be necessary to use a scribe or small screwdriver to lift the locking tabs to disconnect P/J71.
4. Disconnect P/J71 from the Feeder Socket and remove the socket.



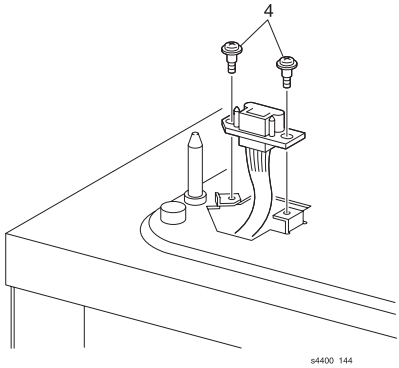

**Feeder Socket**

# RRP 11.16 550-Sheet Feeder Size Harness Assembly

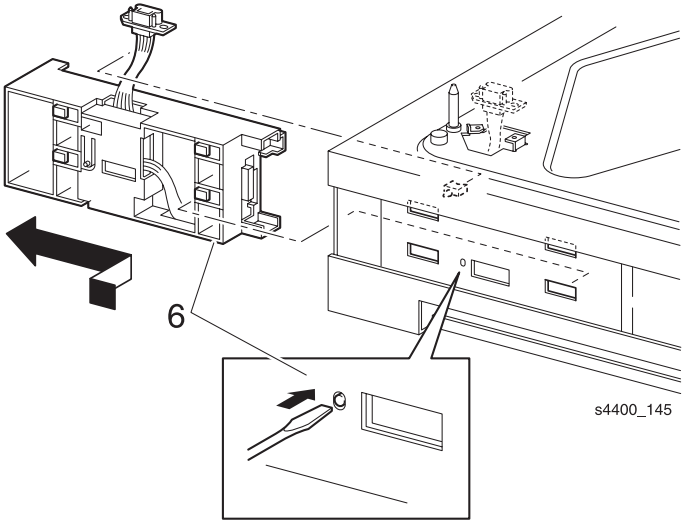
See the Parts List on page 7-26.

**Warning: Switch off the power and disconnect the Power Cord.**

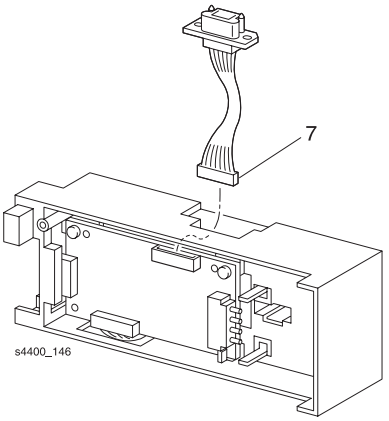
1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
4. Remove the two screws that secure the 550-Sheet Feeder Size Harness Assembly.
5. Release the harness from the plastic clamp.
6. Using a small screwdriver push the locking tab that secures the Size Sensor Housing to the Feeder and remove the housing.
7. Disconnect P/J52 from the Size Option PWB and remove the Harness Assembly.




**Harness Assembly**




**Disconnecting Locking Tab**



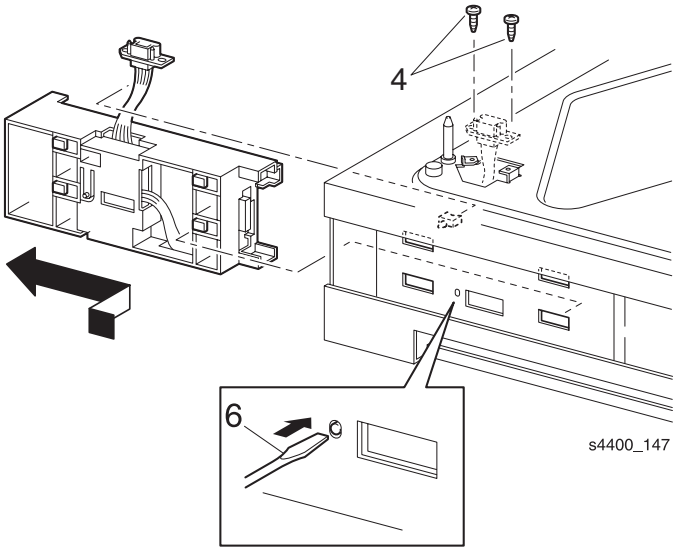

**Size Sensor Harness Assembly**

# RRP 11.17 Size Sensor Housing Assembly

See the Parts List on page 7-22.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
4. Remove the two screws that secure the 550-Sheet Feeder Size Harness Assembly.
5. Release the harness from the plastic clamp.
6. Use a small screwdriver to push the locking tab that secures the Size Sensor Housing Assembly to the 550-Sheet Feeder.
7. Remove the assembly.




**Size Sensor Housing Assembly**

# RRP 11.18 Size Sensor Actuators

See the Parts List on page 7-26.

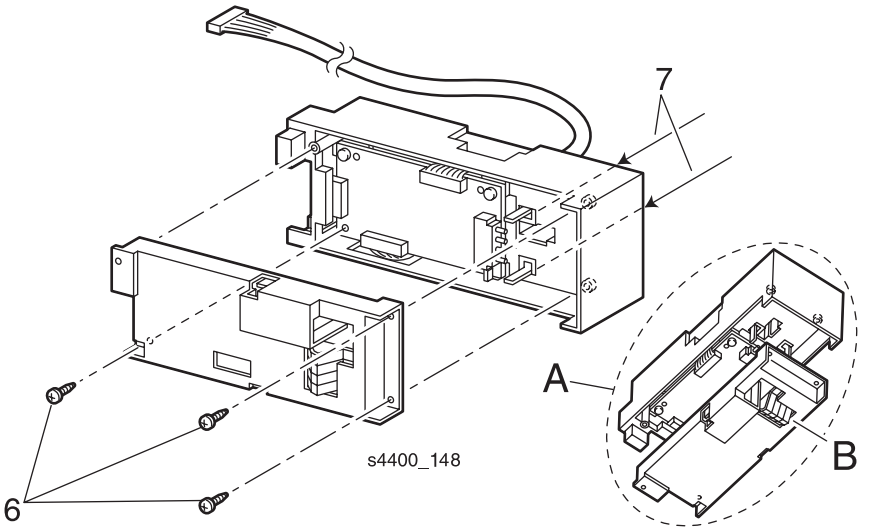
## Removal

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove any lower feeders if installed.
3. Remove the Tray from the Feeder.
4. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
5. Remove the Size Sensor Housing Assembly (RRP 11.17 Size Sensor Housing Assembly on page 6-136).

***Note:*** ***Observe orientation of switch actuators before removal.***

6. Remove the three screws that secure the Size Sensor Actuators to the Size Sensor Housing.
7. From the back side, disengage the two locking tabs that secure the Size Sensor Actuators to the Housing Assembly.
8. Remove the actuators.




**Size Sensor Housing**

## Replacement

1. Refer to inset (A).
2. Position the Size Sensor Actuators below the Housing Assembly as shown.
3. During reassembly ensure that locking tabs slide into position.

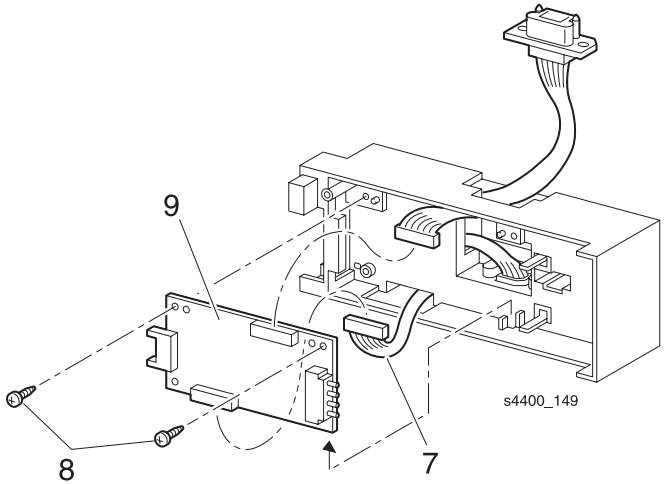
# RRP 11.19 Size PWB

See the Parts List on page 7-22.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
4. Remove the 550-Sheet Feeder Size Harness Assembly (RRP 11.16 550-Sheet Feeder Size Harness Assembly on page 6-135).
5. Remove the Size Sensor Housing Assembly (RRP 11.17 Size Sensor Housing Assembly on page 6-136).
6. Remove the Size Sensor Housing (RRP 11.18 Size Sensor Actuators on page 6-138).
7. Disconnect P/J53 from Tray Size PWB.
8. Remove the two screws that secure the Size PWB to the Size Sensor Housing Assembly.
9. Remove Tray Size PWB.



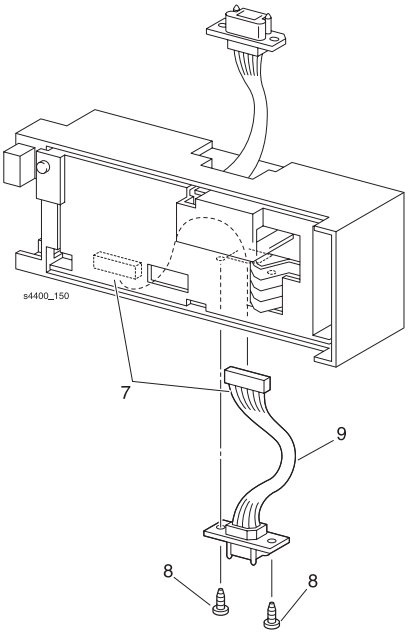

**Tray Size PWB**

# RRP 11.20 Size Harness Assembly

See the Parts List on page 7-22.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the printer from the 550-Sheet Feeder (RRP 11.1 Printer Removal on page 6-120).
2. Remove the Tray from the Feeder.
3. Remove the 550-Sheet Feeder Left Cover (RRP 11.3 550-Sheet Feeder Left Cover on page 6-122).
4. Remove the 550-Sheet Feeder Size Harness Assembly (RRP 11.16 550-Sheet Feeder Size Harness Assembly on page 6-135).
5. Remove the Size Sensor Housing Assembly (RRP 11.17 Size Sensor Housing Assembly on page 6-136).
6. Remove the Size Sensor Housing (RRP 11.18 Size Sensor Actuators on page 6-138).
7. Disconnect P/J53 from the Tray Size PWB.
8. Remove the two screws that secure the Size Harness Assembly.
9. Remove the Size Harness Assembly.




**Size Harness Assembly**

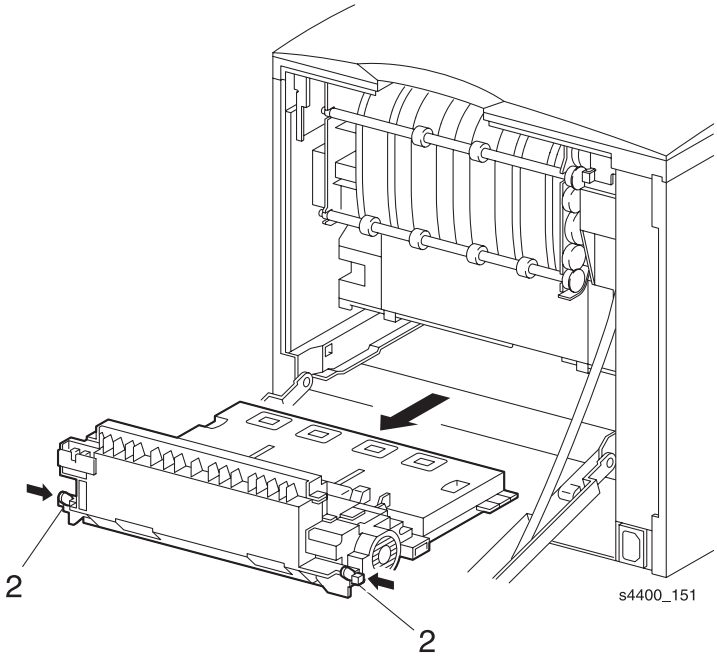
# Duplex Unit

## RRP 12.1 Duplex Unit

See the Parts List on page 7-34.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Open the Printer Rear Cover.
2. Push the left and right latches in, then pull the Duplex Unit out and up to remove.



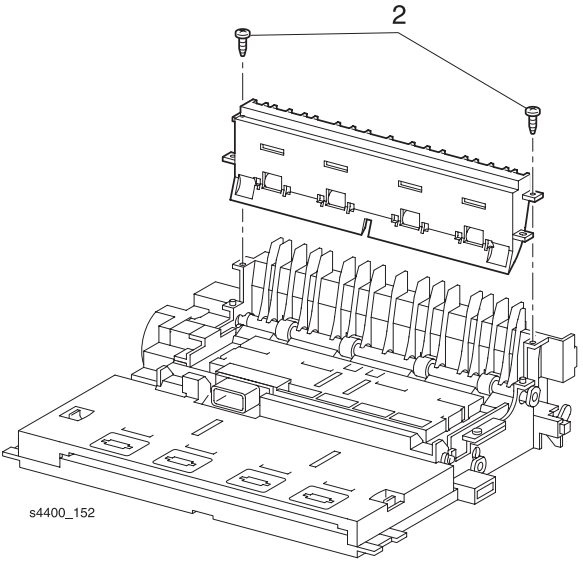

**Duplex Unit**

# RRP 12.2 Turn Chute Assembly

See the Parts List on page 7-34.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the two screws that secure the Turn Chute Assembly.
3. Remove the Turn Chute Assembly.



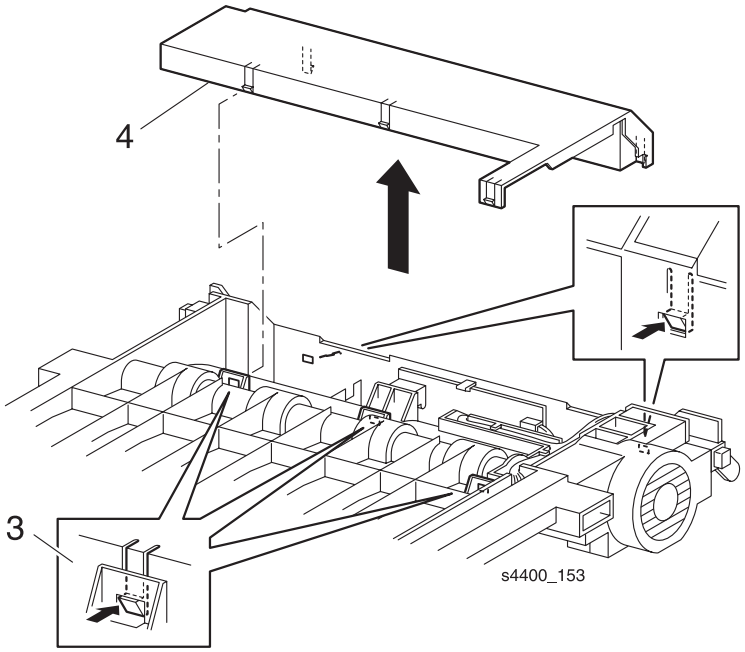

**Turn Chute Assembly**

# RRP 12.3 Duplex Cover

See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Turn the Duplex Unit upside down.
3. Release the three locking tabs that secure the cover.
4. Remove the Duplex Cover.




**Duplex Cover**

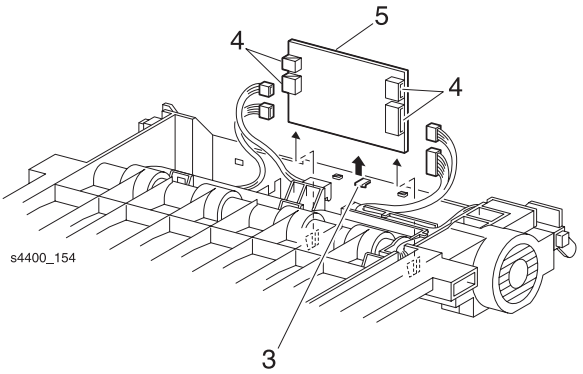
# RRP 12.4 Duplex PWB

See the Parts List on page 7-36.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Duplex Cover (RRP 12.3 Duplex Cover on page 6-143).
3. Carefully release the locking tab and remove the PWB to access the connectors.
4. Disconnect P/J392, P/J37, P/J38 and P/J39.
5. Remove the Duplex PWB.



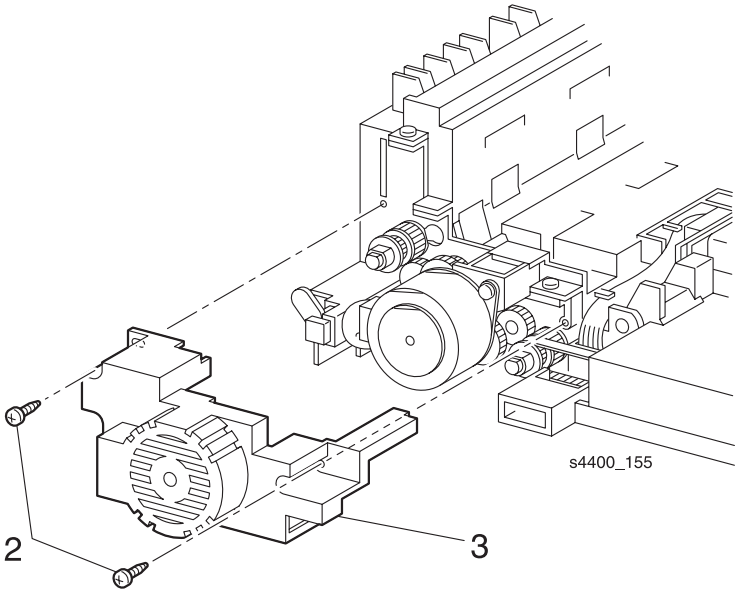

**Duplex PWB**

# RRP 12.5 Drive Cover

See the Parts List on page 7-34.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the two screws that secure the cover.
3. Remove the Drive Cover.



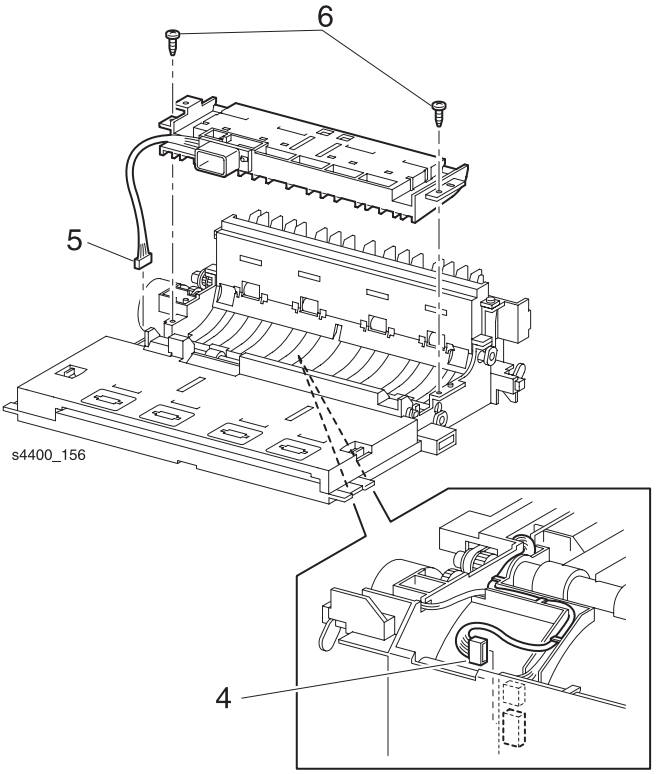

**Drive Cover**

# RRP 12.6 Connector Chute Assembly

See the Parts List on page 7-34.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Duplex Cover (RRP 12.3 Duplex Cover on page 6-143).
3. Remove the Drive Cover (RRP 12.5 Drive Cover on page 6-145).
4. Remove the Duplex PWB (RRP 12.4 Duplex PWB on page 6-144). Only disconnect P/J39.
5. Remove the connector harness from all cable clamps and pull connector through the hole in the frame.
6. Remove the two screws that secure the Connector Chute Assembly.



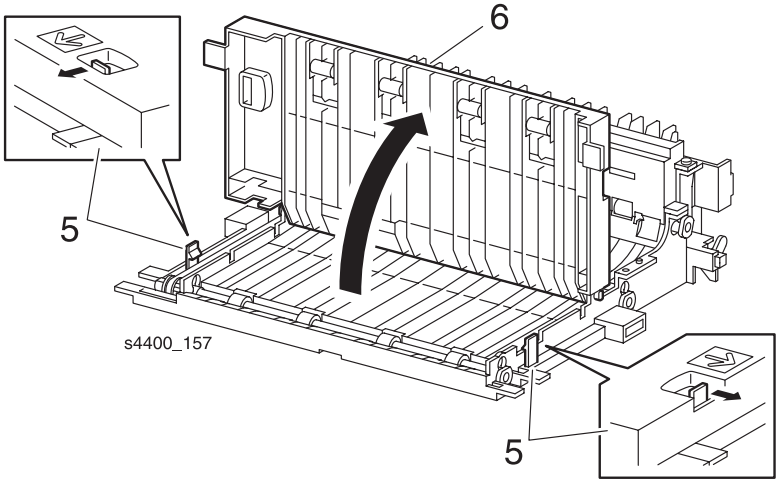

**Connector Chute Assembly**

# RRP 12.7 Upper Chute Assembly

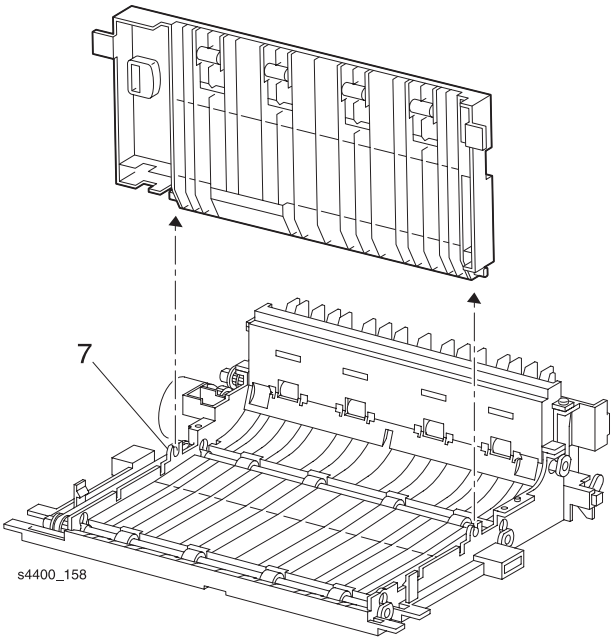
See the Parts List on page 7-34.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Duplex Cover (RRP 12.3 Duplex Cover on page 6-143).
3. Remove the Drive Cover (RRP 12.5 Drive Cover on page 6-145).
4. Remove the Connector Chute Assembly (RRP 12.6 Connector Chute Assembly on page 6-146).
5. Push the two locking tabs out to release the Upper Chute Assembly.
6. Lift the Upper Chute until it is straight up.
7. Lift the right end to remove it from the right mounting.
8. Move the Upper Chute Assembly to the right and remove the assembly.




**Locking Tabs**



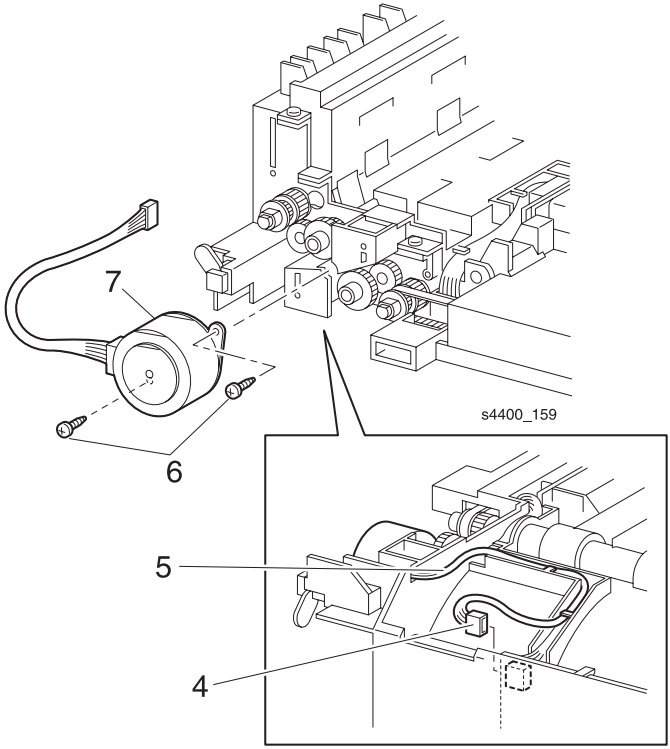

**Upper Chute Assembly**

# RRP 12.8 Motor Assembly

See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Duplex Cover (RRP 12.3 Duplex Cover on page 6-143).
3. Remove the Drive Cover (RRP 12.5 Drive Cover on page 6-145).
4. Disconnect P/J38 from the Duplex PWB.
5. Remove the harness from all cable clamps.
6. Remove the two screws that secure the Motor Assembly.
7. Remove the Motor Assembly.



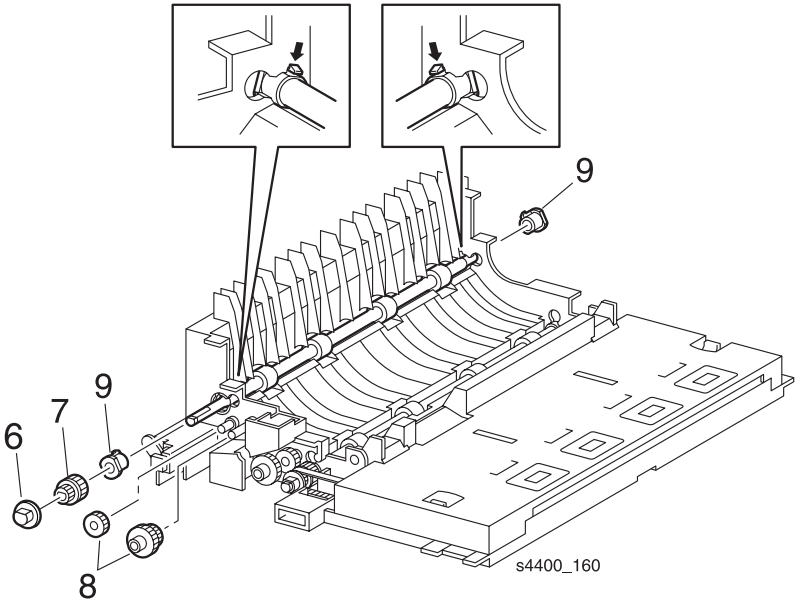

**Motor Assembly**

# RRP 12.9 Rear Roller Assembly

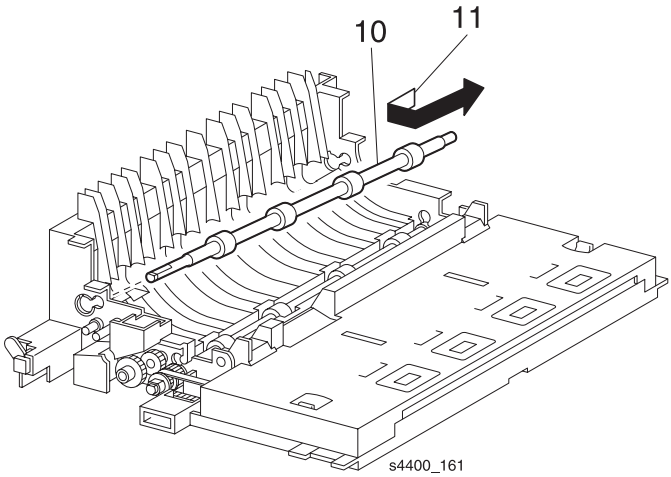
See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Turn Chute Assembly (RRP 12.2 Turn Chute Assembly on page 6-142).
3. Remove the Duplex Cover (RRP 12.3 Duplex Cover on page 6-143).
4. Remove the Drive Cover (RRP 12.5 Drive Cover on page 6-145).
5. Remove the Motor Assembly (RRP 12.8 Motor Assembly on page 6-149).
6. Release the locking tab and remove the retainer flange.
7. Remove the Duplex Gear.
8. Remove Gears 17 and 18.
9. Release the locking tabs and remove both the left and right bearings.
10. Move the Rear Roller Assembly forward, then to the left until the right end is free.
11. Remove the Rear Roller Assembly.




**Locking Tab and Rear Retainer Flange**



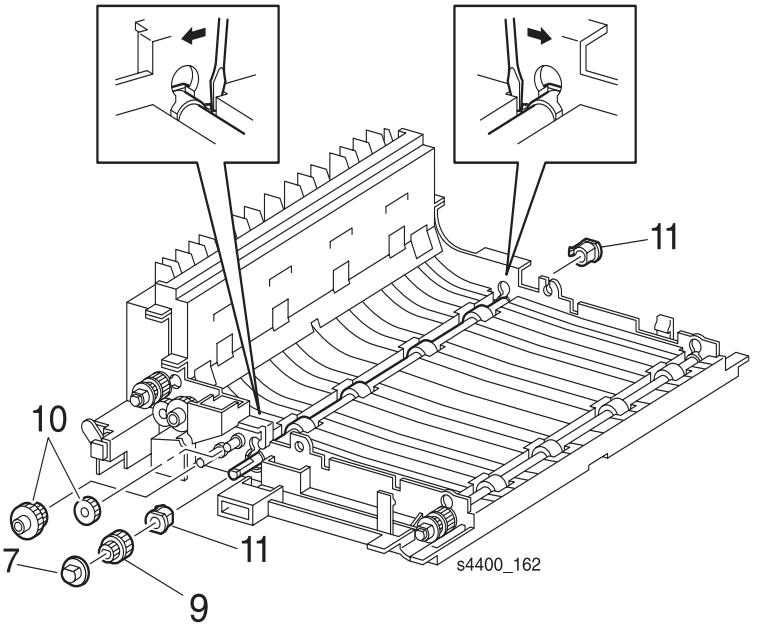

**Rear Roller Assembly**

# RRP 12.10 Middle Roller Assembly

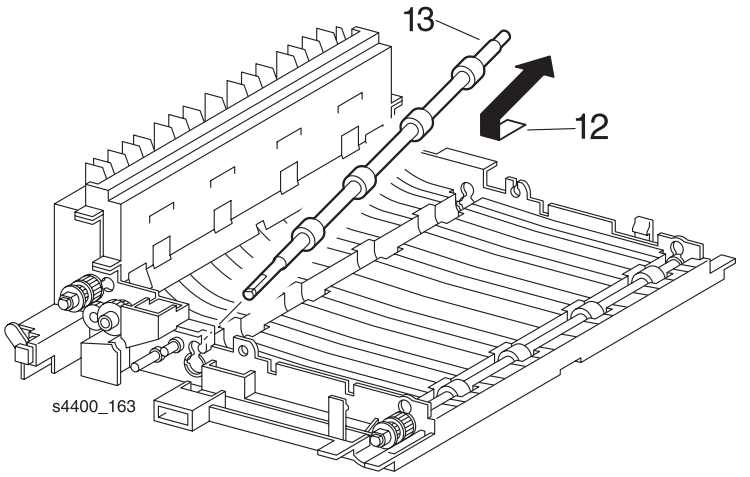
See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Turn Chute Assembly (RRP 12.2 Turn Chute Assembly on page 6-142).
3. Remove the Duplex Cover (RRP 12.3 Duplex Cover on page 6-143).
4. Remove the Drive Cover (RRP 12.5 Drive Cover on page 6-145).
5. Remove the Connector Chute Assembly (RRP 12.6 Connector Chute Assembly on page 6-146).
6. Remove the Motor Assembly (RRP 12.8 Motor Assembly on page 6-149).
7. Release the locking tab and remove the belt retainer flange.
8. Remove the Synchronous Belt from the pulley (RRP 12.12 Synchronous Belt on page 6-154).
9. Remove the Middle Duplex Gear.
10. Remove Gears 17 and 18.
11. Use a small screwdriver to release the left and right bearings.
12. Lift the Middle Roller Assembly then move the roller to the left until the right end is free.
13. Remove the Middle Roller Assembly.




**Locking Tab and Belt Retainer Flange**



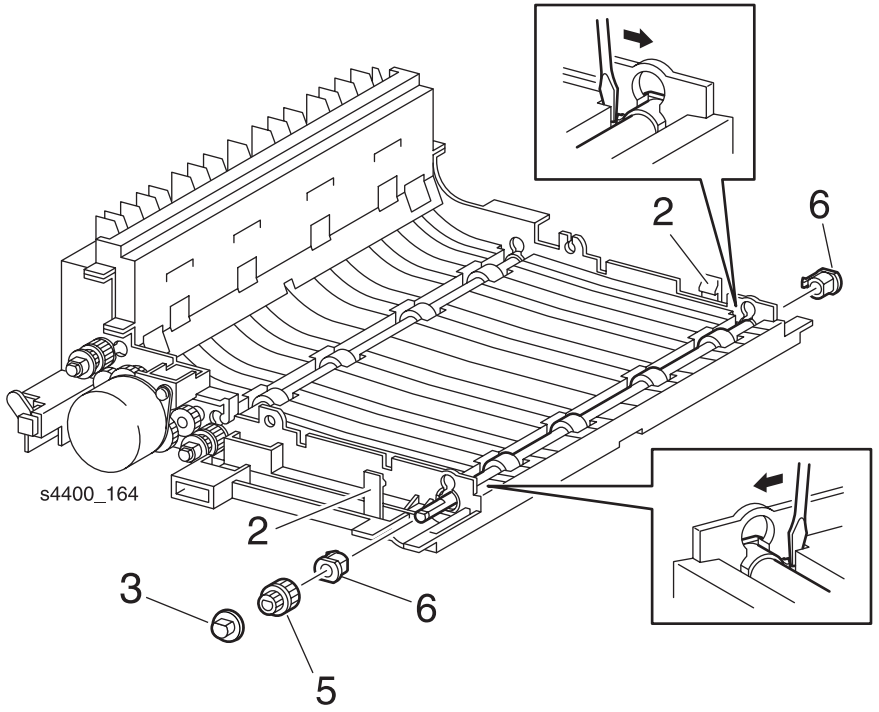

**Middle Roller Assembly**

# RRP 12.11 Front Roller Assembly

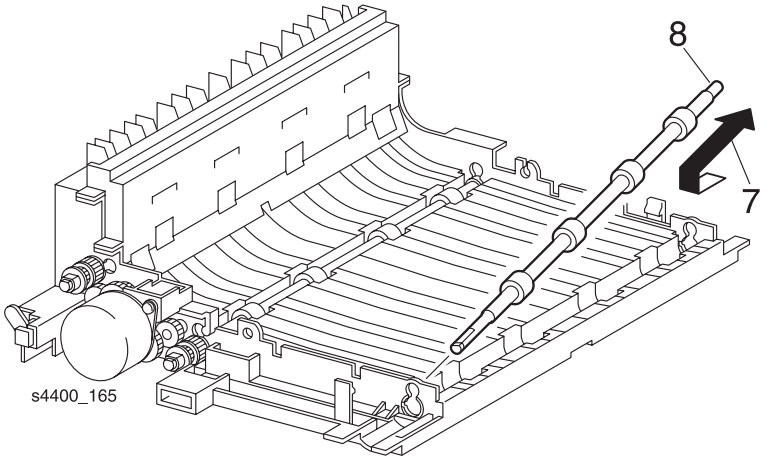
See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Release the tabs and open the Upper Chute Assembly.
3. Release the locking tab and remove the belt retainer flange.
4. Remove the Synchronous Belt from the Pulley (RRP 12.12 Synchronous Belt on page 6-154).
5. Remove the Drive Gear.
6. Use a small screwdriver to release the left and right bearings.
7. Lift the Roller Assembly and move it to the left until the right end is free.
8. Remove the Front Roller Assembly.




**Locking Tab and Front Belt Retainer Flange**



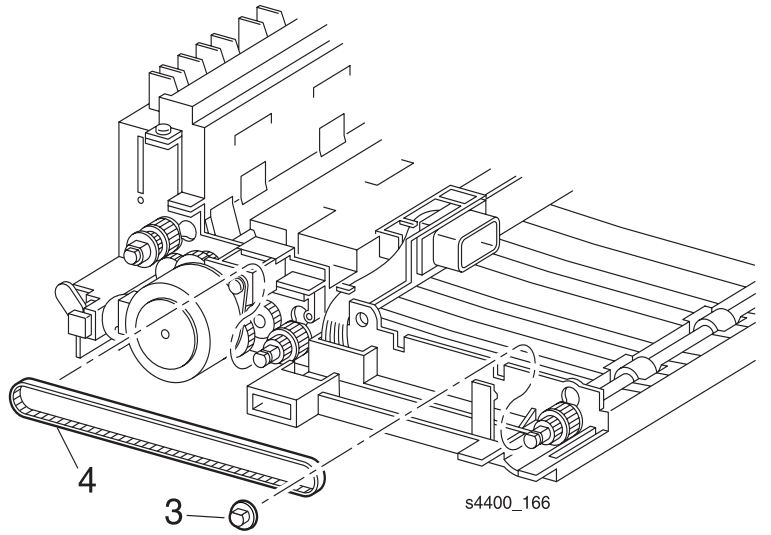

**Front Roller Assembly**

## RRP 12.12 Synchronous Belt

See the See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Drive Cover (RRP 12.5 Drive Cover on page 6-145).
3. Release the locking tab and remove the belt retainer flange.
4. Remove the Synchronous Belt from the pulleys.



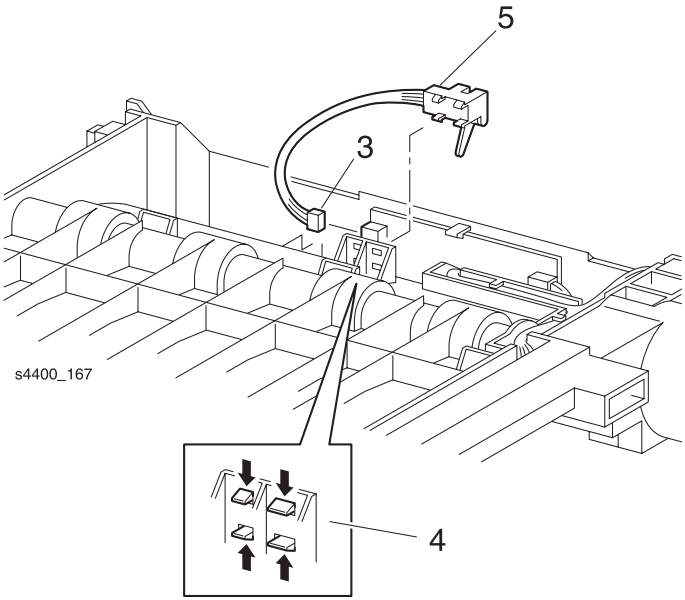

**Synchronous Belt**

# RRP 12.13 Duplex Sensor

See the See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Remove the Duplex Cover (RRP 12.3 Duplex Cover on page 6-143).
3. Disconnect P/J37 from the Duplex PWB.
4. Release the four locking tabs that secure the Duplex Sensor.
5. Remove the sensor.



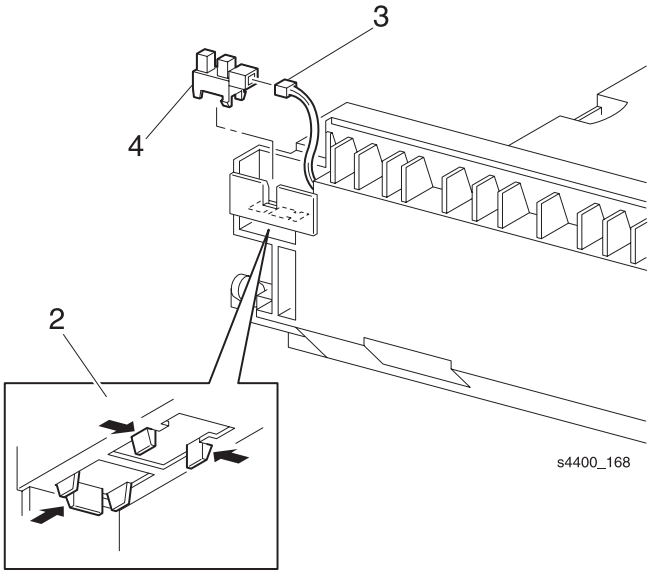

**Duplex Sensor**

# RRP 12.14 Duplex Unit Home Sensor

See the See the Parts List on page 7-36.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Duplex Unit (RRP 12.1 Duplex Unit on page 6-141).
2. Release the four locking tabs that secure the Duplex Unit Home Sensor.
3. Disconnect P/J361 from the Duplex Unit Home Sensor.
4. Remove the sensor.




**Duplex Unit Home Sensor**

# Envelope Feeder

## RRP 13.1 Bottom Cover

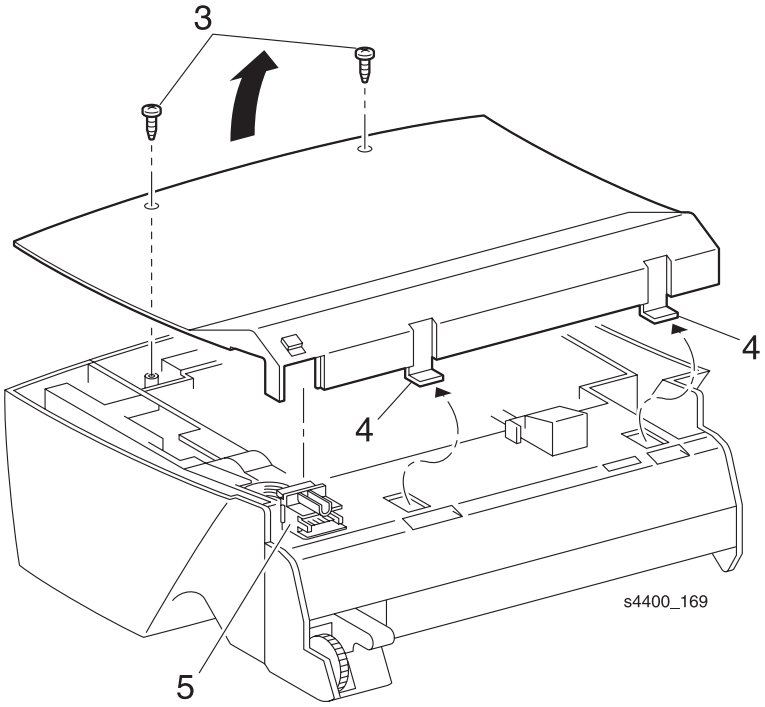
See the Parts List on page 7-30.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Turn the Feeder upside down.
3. Remove the two screws that secure the front of the Bottom Cover.
4. Rotate the front of the Bottom Cover up until the two rear tabs can be removed from the Feeder.

***Note:*** ***Make note of how the Harness Connector is inserted in the Bottom Cover.***

5. Lift the Bottom Cover and remove the harness connector from the cover.



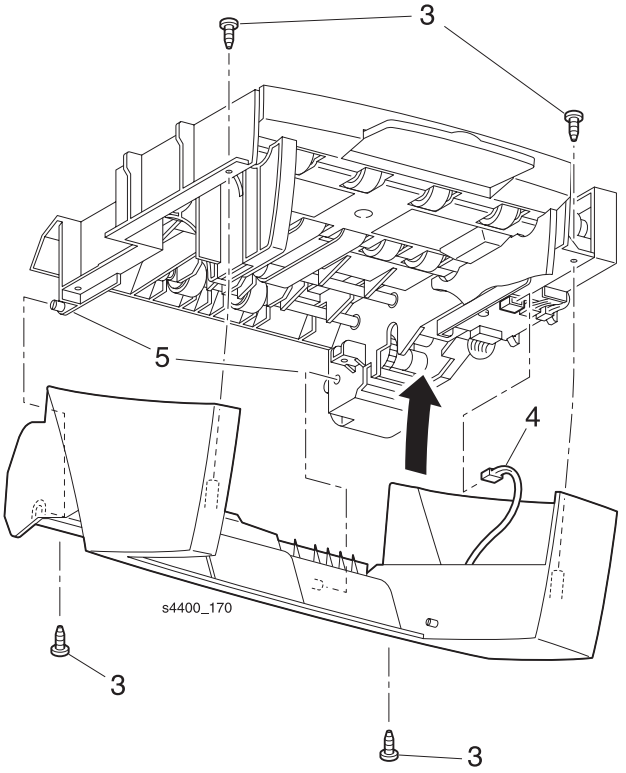

**Bottom Cover**

# RRP 13.2 Top Chute

See the Parts List on page 7-30.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the four screws that secure the Top Chute.
4. Rotate the feeder unit up and disconnect P/J417 from the Exit Sensor.
5. Slide the feeder unit to the right and remove it from the Top Chute.




**Top Chute**

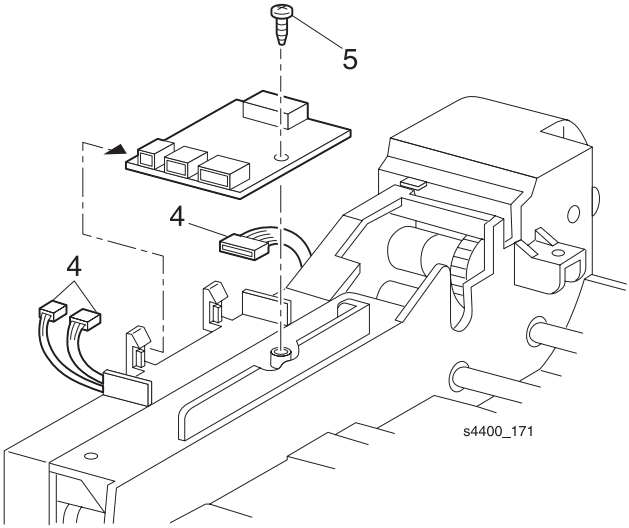
# RRP 13.3 Envelope Feeder PWB

See the Parts List on page 7-32.

**Caution: These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.**

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Disconnect P/J411, P/J 412, P/J413, and P/J414 from the Feeder PWB.
5. Remove the screw that secures the Feeder PWB to the frame.



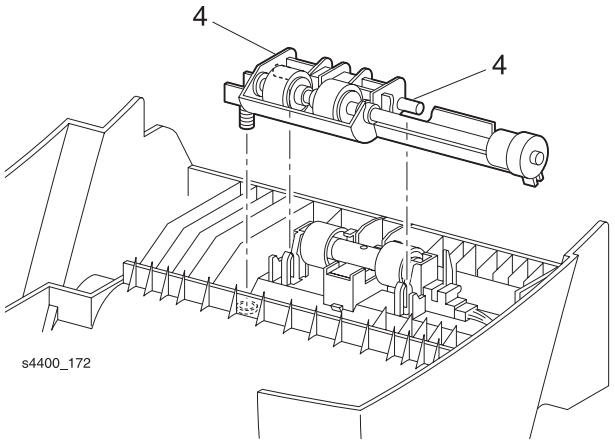

**Envelope Feeder PWB**

# RRP 13.4 Retard Roller Assembly

See the Parts List on page 7-30.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Carefully pry up on the two hinge pins and remove the Retard Roller Assembly.



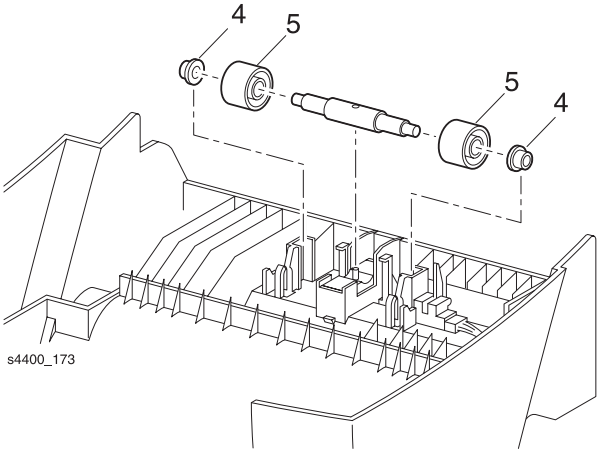

**Retard Roller Assembly**

# RRP 13.5 Exit Pinch Roller

See the Parts List on page 7-30.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Carefully pry up on either end of the Pinch Roller until it is free of the mounting.
5. Remove the Exit Pinch Roller.




**Exit Pinch Roller**

## Replacement

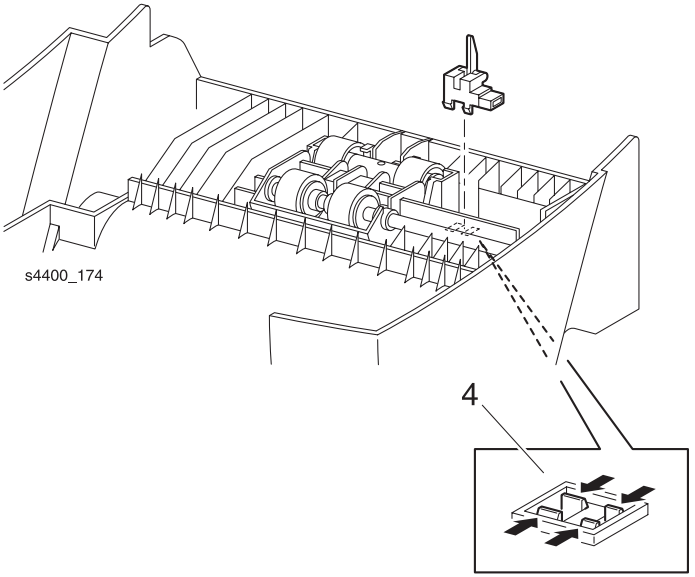
***Note:*** ***Ensure that the hole in the shaft is aligned with the alignment pin in the mounting.***

# RRP 13.6 Exit Sensor Assembly

See the Parts List on page 7-30.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Release the four locking tabs and remove the Exit Sensor Assembly.



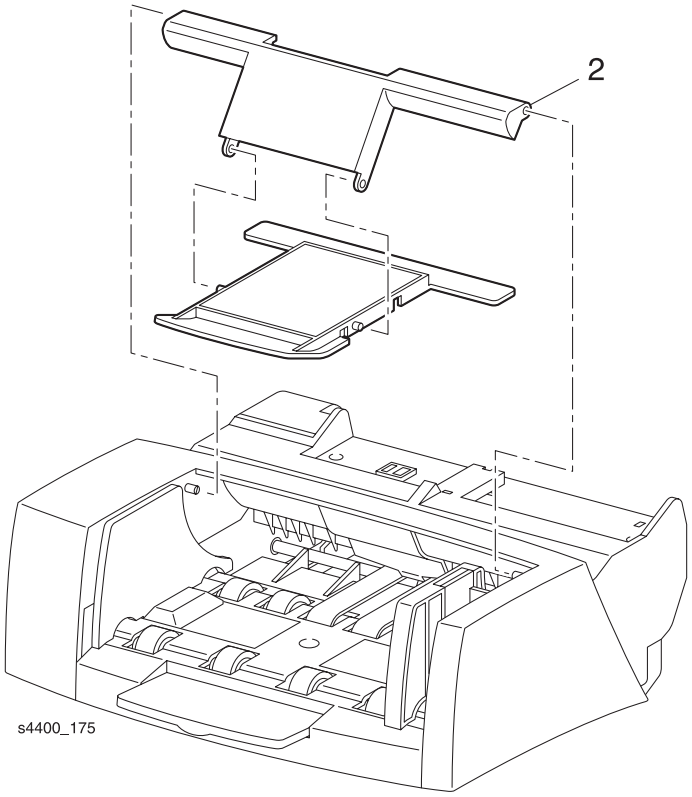

**Exit Sensor Assembly**

# RRP 13.7 Weight Arm

See the Parts List on page 7-30.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Deflect the center of the Weight Arm until the end of the arm is free of the hinge pin, and remove the Weight Arm.



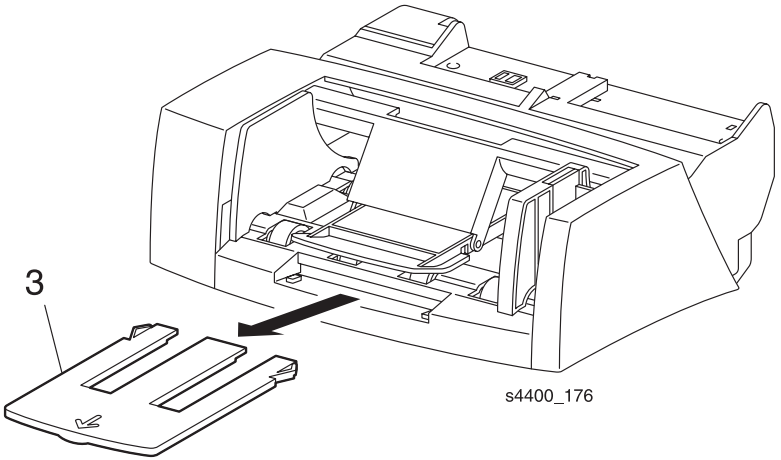

**Weight Arm**

# RRP 13.8 Tray Extension

See the Parts List on page 7-30.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Pull the Tray Extension out at a 45° angle and remove it.



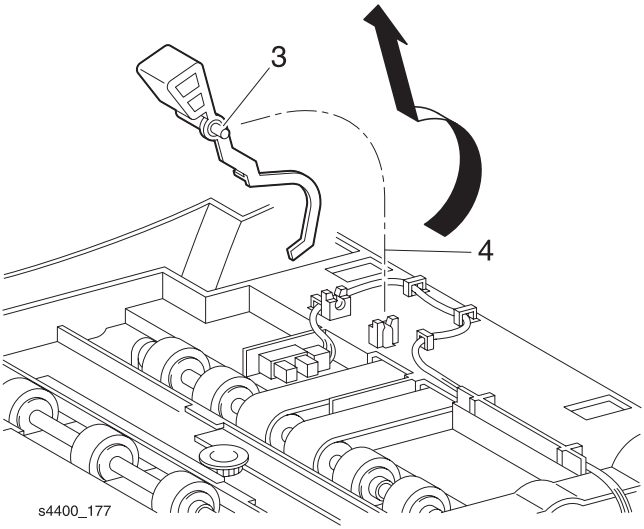

**Tray Extension**

# RRP 13.9 No Paper Actuator

See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Carefully pry up on the hinge pins to remove the actuator from the mounting.
4. Rotate the No Paper Actuator up to remove.



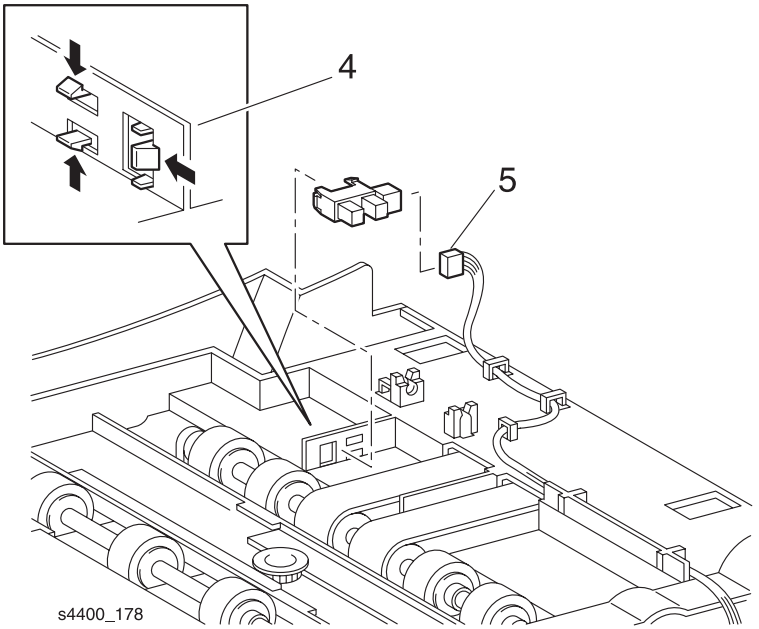

**No Paper Actuator**

# RRP 13.10 No Paper Sensor

See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the No Paper Actuator (RRP 13.9 No Paper Actuator on page 6-165).
4. Release the locking tabs that secure the No Paper Sensor.
5. Disconnect P/J415 from the sensor.




**No Paper Sensor**

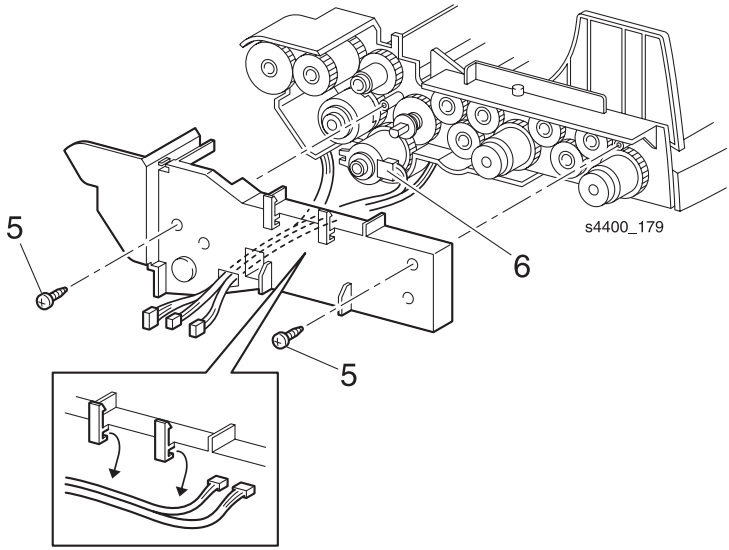
# RRP 13.11 Gear Cover

See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Remove the Envelope Feeder PWB (RRP 13.3 Envelope Feeder PWB on page 6-159).
5. Remove the two screws that secure the Gear Cover.
6. Disconnect P/J416 from the Feed Clutch.
7. Remove the cover. Make note of the harness routing through the cover.

***Note:*** ***The gears are not captive on their shafts and can fall off.***




**Gear Cover**

## Replacement

***Note:*** ***Ensure that the plastic stopper on the cover aligns with the notch on the feed clutch housing.***

# RRP 13.12 Feed Clutch

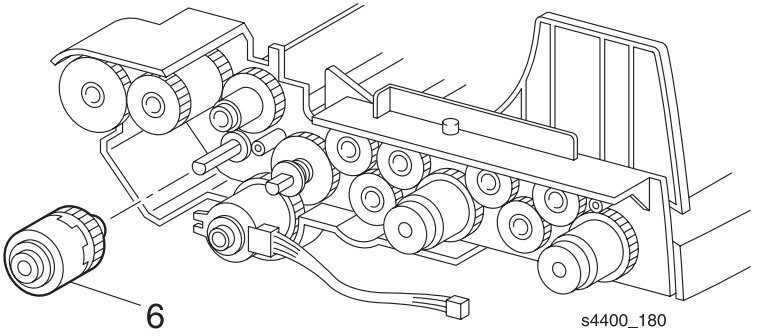
See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

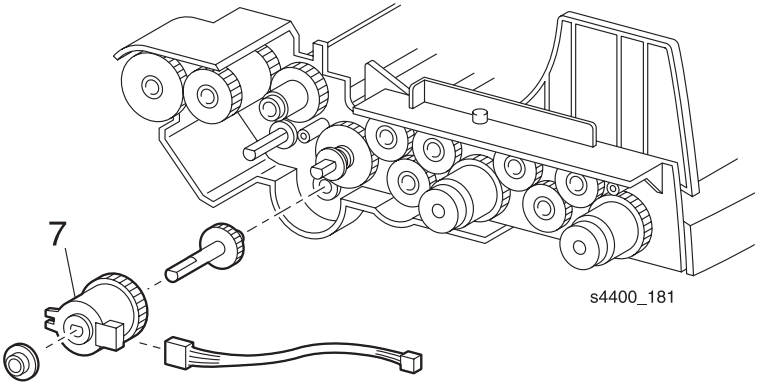
1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Remove the Envelope Feeder PWB (RRP 13.3 Envelope Feeder PWB on page 6-159).
5. Remove the Gear Cover (RRP 13.11 Gear Cover on page 6-167).

***Note:*** ***The gears are not captive on their shafts and can fall off.***

6. Remove the Torque Clutch.
7. Remove the Feed Clutch.




**Torque Clutch**




**Feed Clutch**

# RRP 13.13 Transport Roller Assembly

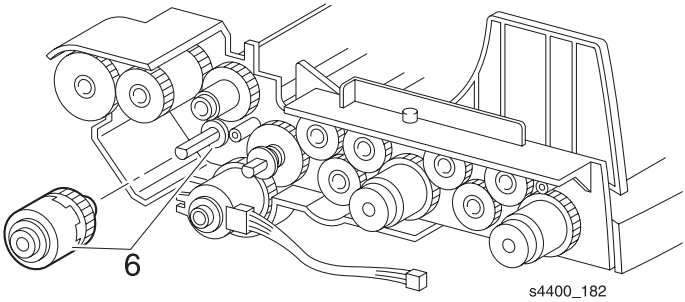
See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

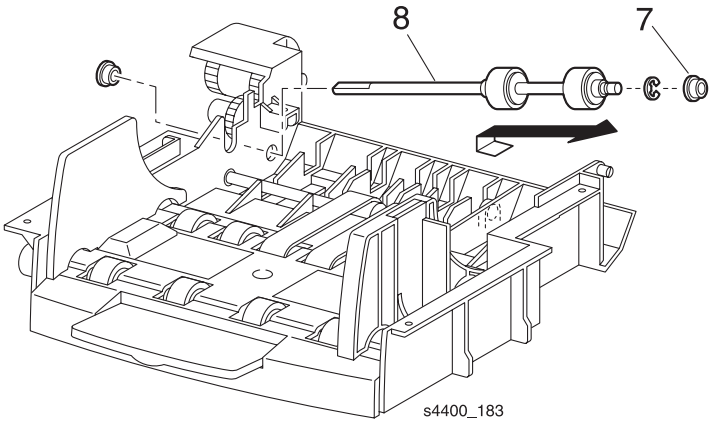
1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Remove the Envelope Feeder PWB (RRP 13.3 Envelope Feeder PWB on page 6-159).
5. Remove the Gear Cover (RRP 13.11 Gear Cover on page 6-167).

***Note:*** ***The gears are not captive on their shafts and can fall off.***

6. Remove the Torque Clutch and Bearing from Transport Roller Assembly.
7. Move the right bearing and Transport Roller Shaft to the left until it is free of the right support.
8. Lift and remove the Transport Roller Assembly.




**Torque Clutch and Bearing**




**Transport Roller Assembly**

# RRP 13.14 Bottom Roller Assembly

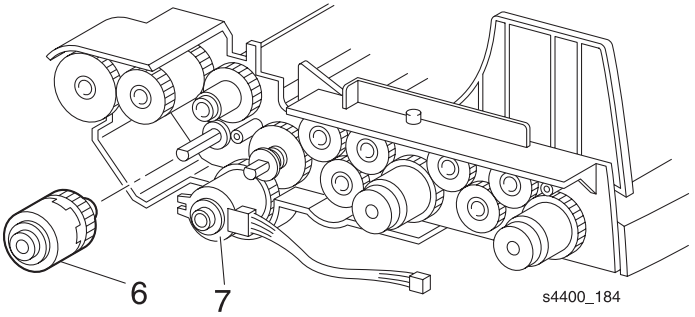
See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

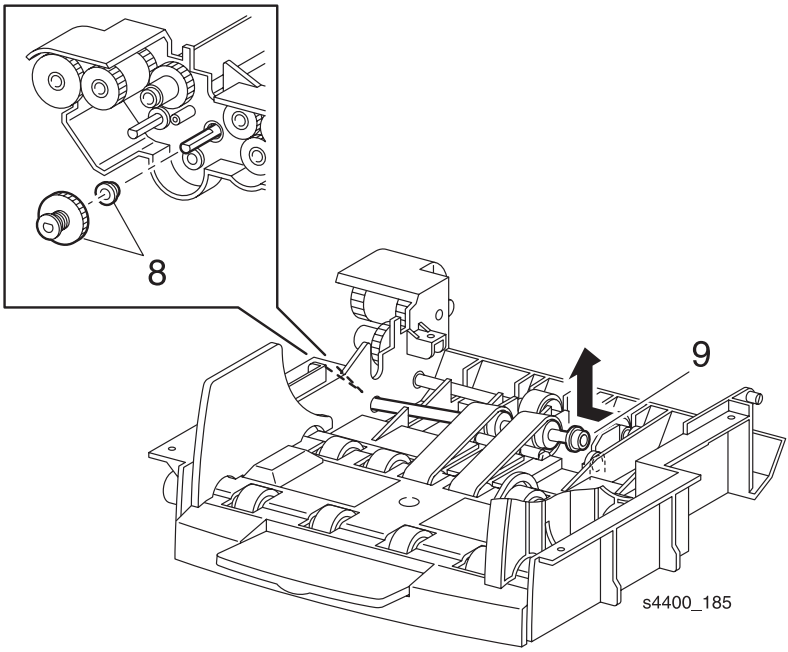
1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Remove the Envelope Feeder PWB (RRP 13.3 Envelope Feeder PWB on page 6-159).
5. Remove the Gear Cover (RRP 13.11 Gear Cover on page 6-167).

***Note:*** ***The gears are not captive on their shafts and can fall off.***

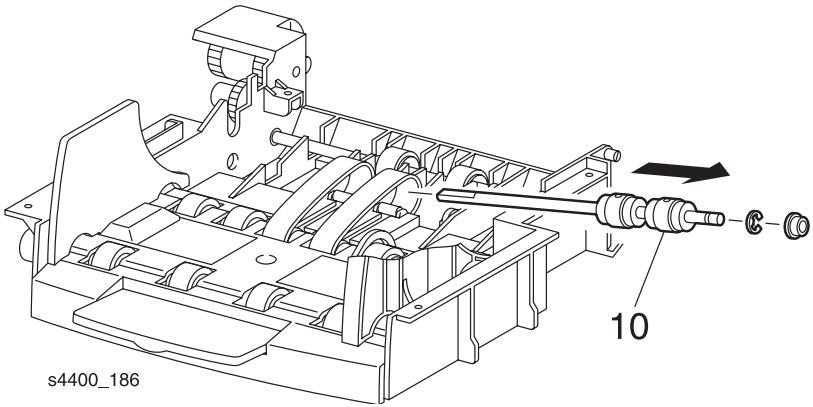
6. Remove the Torque Clutch.
7. Remove the Feed Clutch (RRP 13.12 Feed Clutch on page 6-168).
8. Remove the one way clutch and bearing from the Bottom Roller Assembly shaft.
9. Slide the Bottom Roller Assembly and the right bearing to the left until free of the mounting.
10. Raise the right end of the shaft and remove the assembly.




**Torque Clutch**




**Clutch and Bearing**




**Bottom Roller Assembly**

# RRP 13.15 Feed Roller Assembly 1

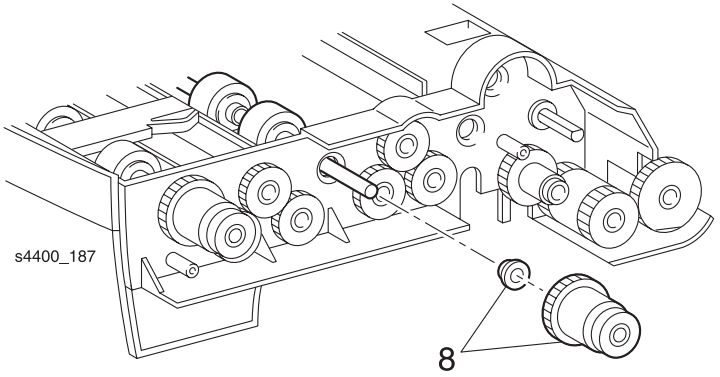
See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

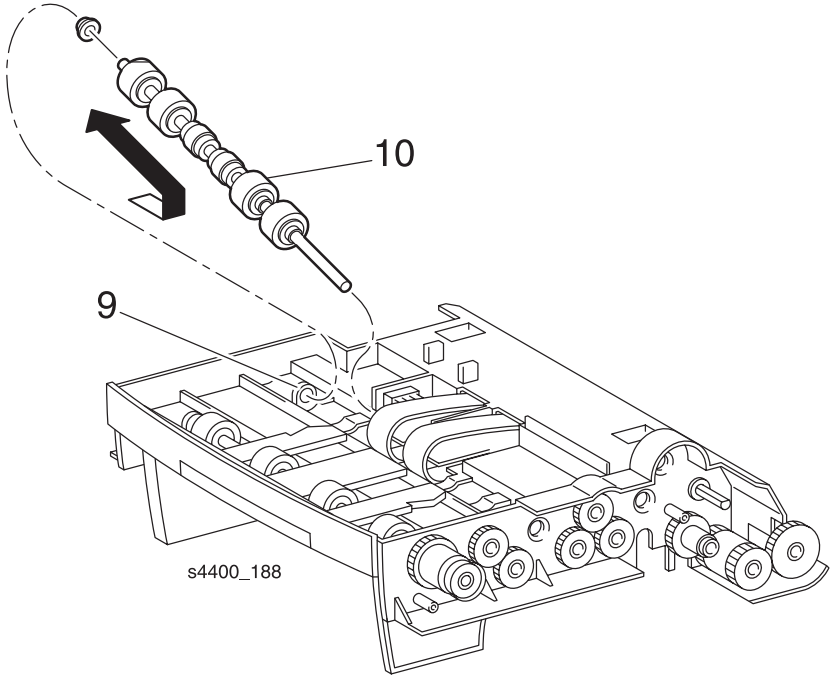
1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Remove the No Paper Actuator (RRP 13.9 No Paper Actuator on page 6-165).
5. Remove the Envelope Feeder PWB (RRP 13.3 Envelope Feeder PWB on page 6-159).
6. Remove the Gear Cover (RRP 13.11 Gear Cover on page 6-167).

***Note:*** ***The gears are not captive on their shafts and can fall off.***

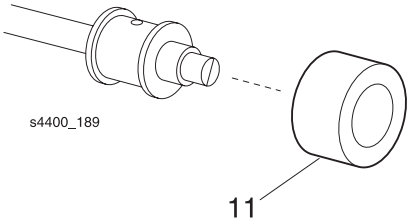
7. Remove the Feed Clutch (RRP 13.12 Feed Clutch on page 6-168).
8. Remove the Torque Clutch, Gear, and Bearing from the Feed Roller shaft.
9. Slide the Feed Roller Shaft and bearing to the right until it is free of the right mounting.
10. Lift the left end and remove assembly from the feed belts.
11. If replacing the feed rollers, remove the feed rollers from the assembly.




**Torque Clutch, Gear, and Bearing**




**Feed Roller Shaft**




**Feed Roller Assembly 1**

# RRP 13.16 Feed Roller Assembly 2

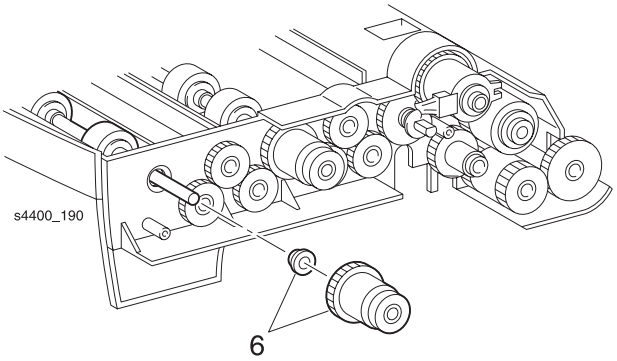
See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

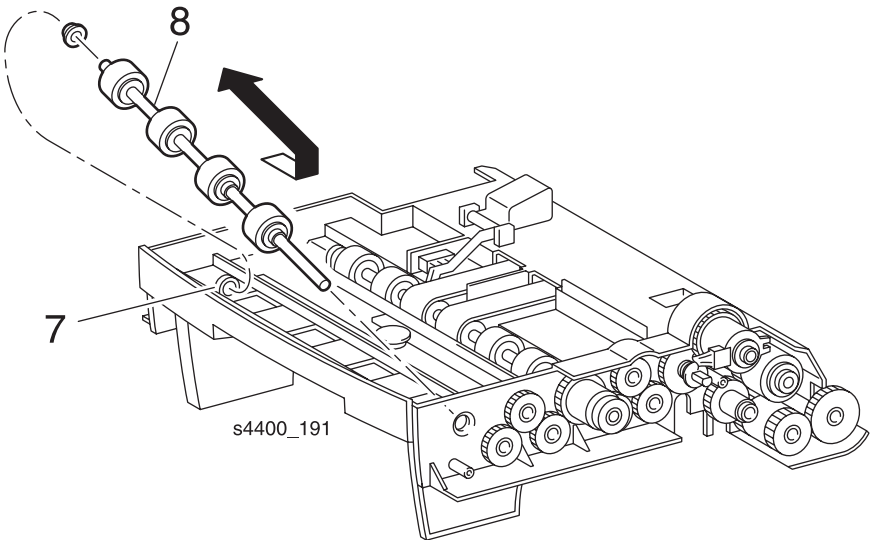
1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Remove the Envelope Feeder PWB (RRP 13.3 Envelope Feeder PWB on page 6-159).
5. Remove the Gear Cover (RRP 13.11 Gear Cover on page 6-167).

***Note:*** ***The gears are not captive on their shafts and can fall off.***

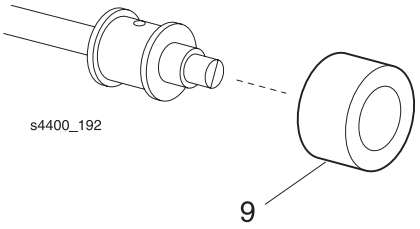
6. Remove the Torque Clutch and Bearing from the Feed Roller Shaft.
7. Slide the Feed Roller Shaft and Bearing to the right until it is free of the left mounting.
8. Remove the Feed Roller Assembly 2.
9. If replacing the feed rollers, remove the feed rollers from the assembly.




**Torque Clutch and Bearing**




**Feed Roller Shaft**



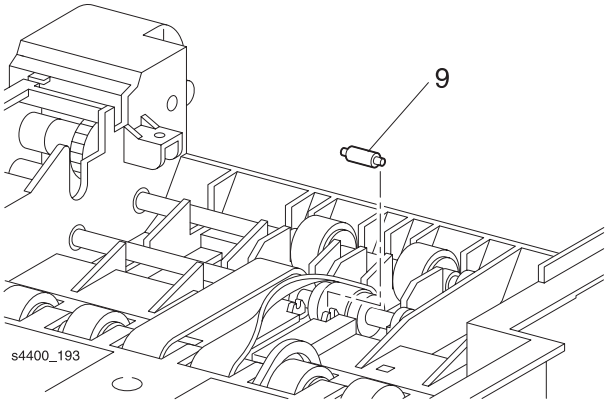

**Feed Roller Assembly 2**

# RRP 13.17 Feed Belts

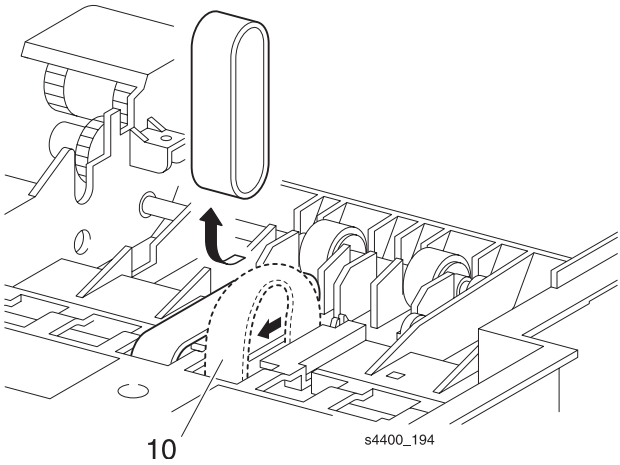
See the Parts List on page 7-32.

**Warning: Switch off the power and disconnect the Power Cord.**

1. Remove the Envelope Feeder from the printer.
2. Remove the Bottom Cover (RRP 13.1 Bottom Cover on page 6-157).
3. Remove the Top Chute (RRP 13.2 Top Chute on page 6-158).
4. Remove the Envelope Feeder PWB (RRP 13.3 Envelope Feeder PWB on page 6-159).
5. Remove the Gear Cover (RRP 13.11 Gear Cover on page 6-167).
6. Remove the Feed Clutch (RRP 13.12 Feed Clutch on page 6-168).
7. Remove the Bottom Roller Assembly (RRP 13.14 Bottom Roller Assembly on page 6-170).
8. Remove the Feed Roller Assembly 1 (RRP 13.15 Feed Roller Assembly 1 on page 6-172).
9. Remove the pinch roller from under both feed belts.
10. Rotate one side of the belt and slide it through the slot in the frame. Remove the belts.




**Pinch Roller**




**Feed Belts**

# *Parts Lists*

## Parts List Index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## Using the Parts Lists

The Parts Lists section provides exploded view illustrations of all spared subsystem components and a listing of the corresponding part numbers. The illustrations show the relationships between parts.

- Each callout number in an illustration corresponds to an item number in the parts list for that illustration.
- The capital letters “C”, “E”, “KL”, and “S”, that appear in some illustrations stand for C-ring, E-ring, KL clip, and Screw, respectively.
- A shaded triangle in an illustration indicates the item is part of an assembly.
- A notation such as “1 (with 2~4),” means part 1 consists of parts 2, 3, and 4.
- An asterisk * following a part name indicates the page contains a note about this part.
- 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 jack 2 is attached to the other end that is plugged into plug 2.
- The following abbreviations are used in the parts lists text and illustrations:

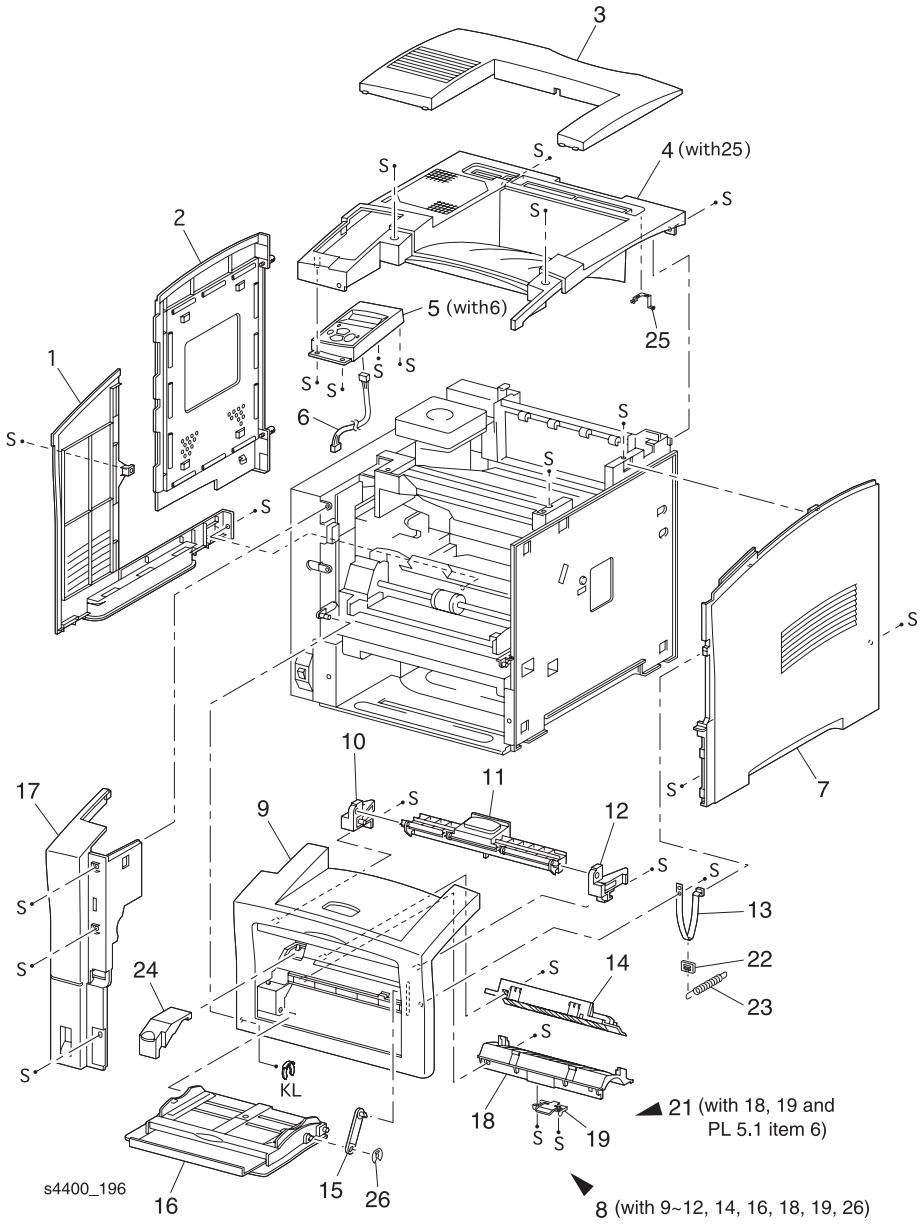
  P/J — Plug/Jack
  P/O — Part of
  W/ — With
  W/O — Without

# Covers (1 of 2)

**PL 1.1 Covers (1 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | 48E64591 | Left Cover |
| 2 | 802K11331 | Left Interface Cover |
| 3 | 48E64642 | Option Cover |
| 4 | 48K76455 | Top Cover Assembly |
| 5 | 101K38280 | Front Panel Assembly |
| 6 | 962K09691 | Front Panel Harness Assembly |
| 7 | 48E64612 | Right Cover |
| 8 | 802K36773 | Front Cover Assembly (with 9-12, 14-16, 18, 19, 26) |
| 9 | - - - - - | Front Cover (P/O item 8) |
| 10 | - - - - - | Left Latch Assembly (P/O item 8) |
| 11 | - - - - - | Lever (P/O item 8) |
| 12 | - - - - - | Right Latch Assembly (P/O item 8) |
| 13 | 3E48991 | Cover Stopper |
| 14 | - - - - - | Envelope Chute |
| 15 | 3E43880 | Tray Stopper |
| 16 | 50K47271 | MPT Tray Assembly |
| 17 | 802K44310 | Left Front Cover |
| 18 | - - - - - | MPT Chute (P/O item 21) |
| 19 | - - - - - | MPT Cleaning Pad Assy. (P/O item 21) |
| 20 | Not used | Not used |
| 21 | 604K04790 | MPT Cleaning Kit (with 18, 19, and PL 4.1 item 5) |
| 22 | - - - - - | Spring joint |
| 23 | - - - - - | Front cover spring |
| 24 | - - - - - | Env gear cover |
| 25 | - - - - - | Exit 2 grounding spring |
| 26 | - - - - - | Clip |
| KL | 354W24254 | KL Clip |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 1.1 Covers (1 of 2) — Exploded View**

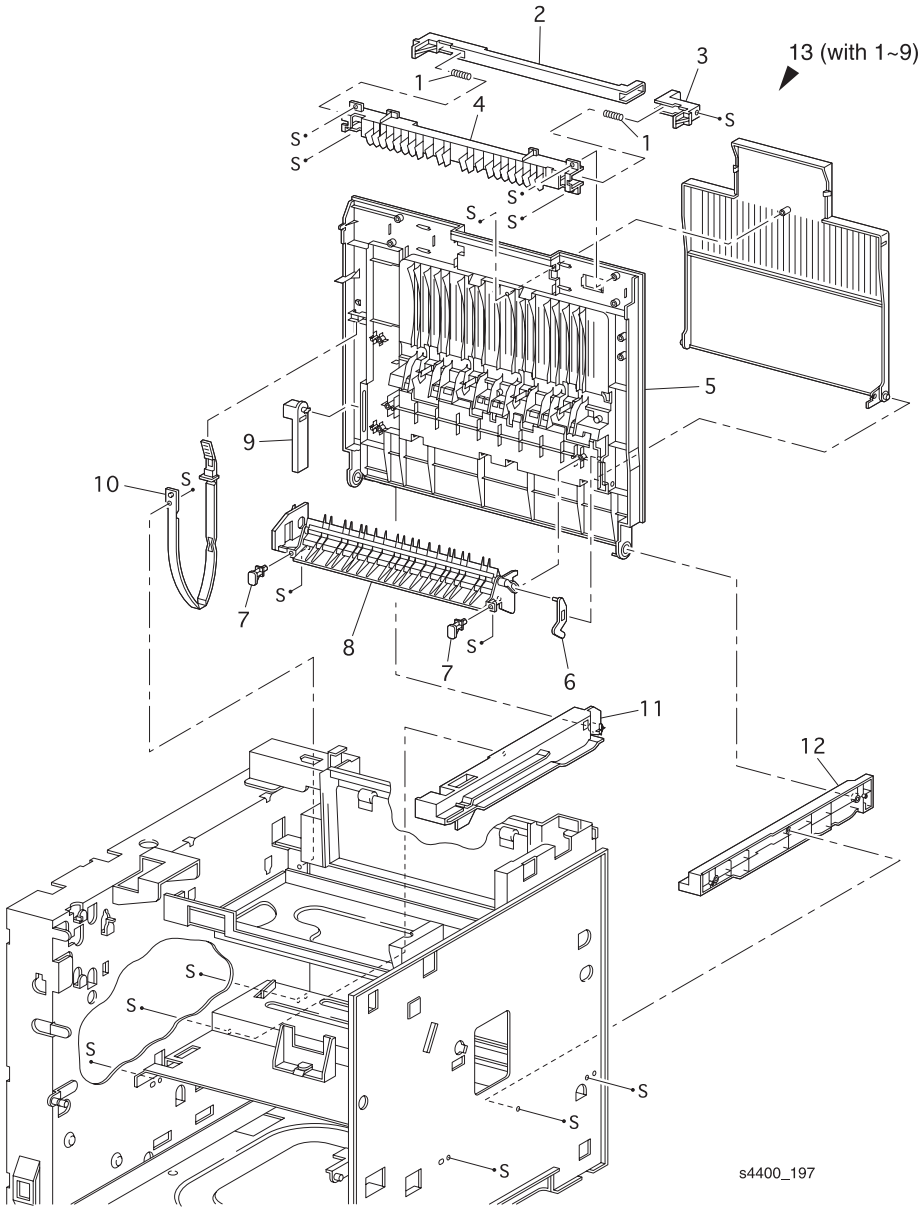


# Covers (2 of 2)

**PL 1.2 Covers (2 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - - | Latch Spring |
| 2 | - - - - - | Left Latch |
| 3 | - - - - - | Right Latch |
| 4 | - - - - - | Latch Cover |
| 5 | - - - - - | Rear Cover |
| 6 | - - - - - | Direction Arm |
| 7 | 600K83121 | Cap Kit (quantity 2) |
| 8 | 54K14992 | Face Up Chute Assembly |
| 9 | - - - - - | Right Pivot Stopper |
| 10 | 3E46120 | Stopper |
| 11 | 32E12671 | Duplex Guide Rail-Left |
| 12 | 32E12681 | Duplex Guide Rail-Right |
| 13 | 802K10013 | Rear Cover Assembly (with 1-9) |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 1.2 Covers (2 of 2) — Exploded View**

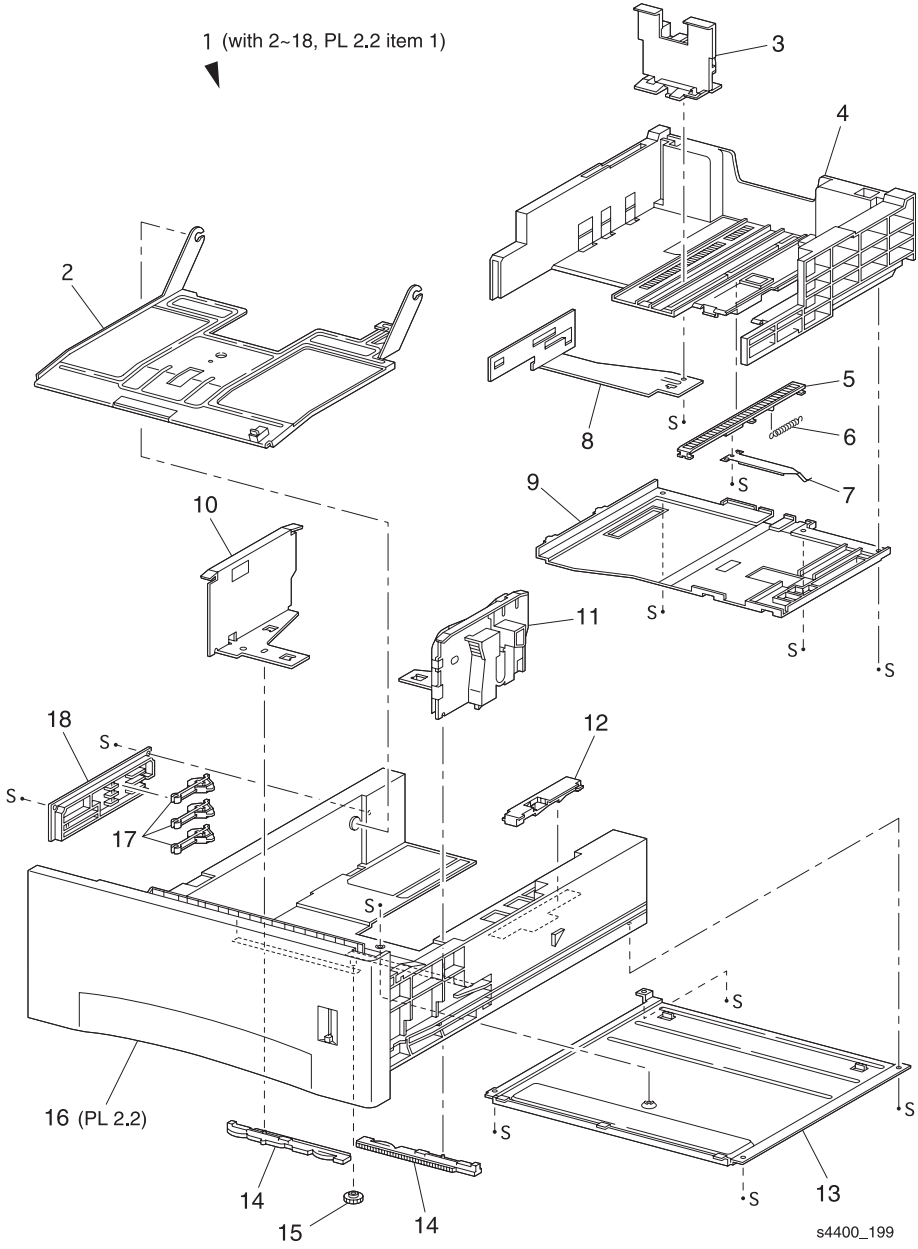


# Paper Tray 1

**PL 2.1 Tray 1 (1 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | 109R00448 | Cassette Assembly (with 2-20 and PL 2.2) |
| 2 | - - - - - | Bottom Plate Assembly |
| 3 | - - - - - | End Guide Assembly |
| 4 | - - - - - | Extension Housing |
| 5 | - - - - - | Rack Slide |
| 6 | - - - - - | Extension Spring |
| 7 | - - - - - | Latch Spring |
| 8 | - - - - - | Size Plate |
| 9 | - - - - - | Base Extension |
| 10 | - - - - - | Left Side Guide Assembly |
| 11 | - - - - - | Right Side Guide Assembly |
| 12 | - - - - - | Link |
| 13 | - - - - - | Tray 1 Base |
| 14 | - - - - - | Rack |
| 15 | - - - - - | Pinion |
| 16 | - - - - - | Cassette Sub-Assembly (PL 2.2) |
| 17 | - - - - - | Tray 1 Actuator |
| 18 | - - - - - | Actuator Cover |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 2.1 Tray 1 (1 of 2) — Exploded View**

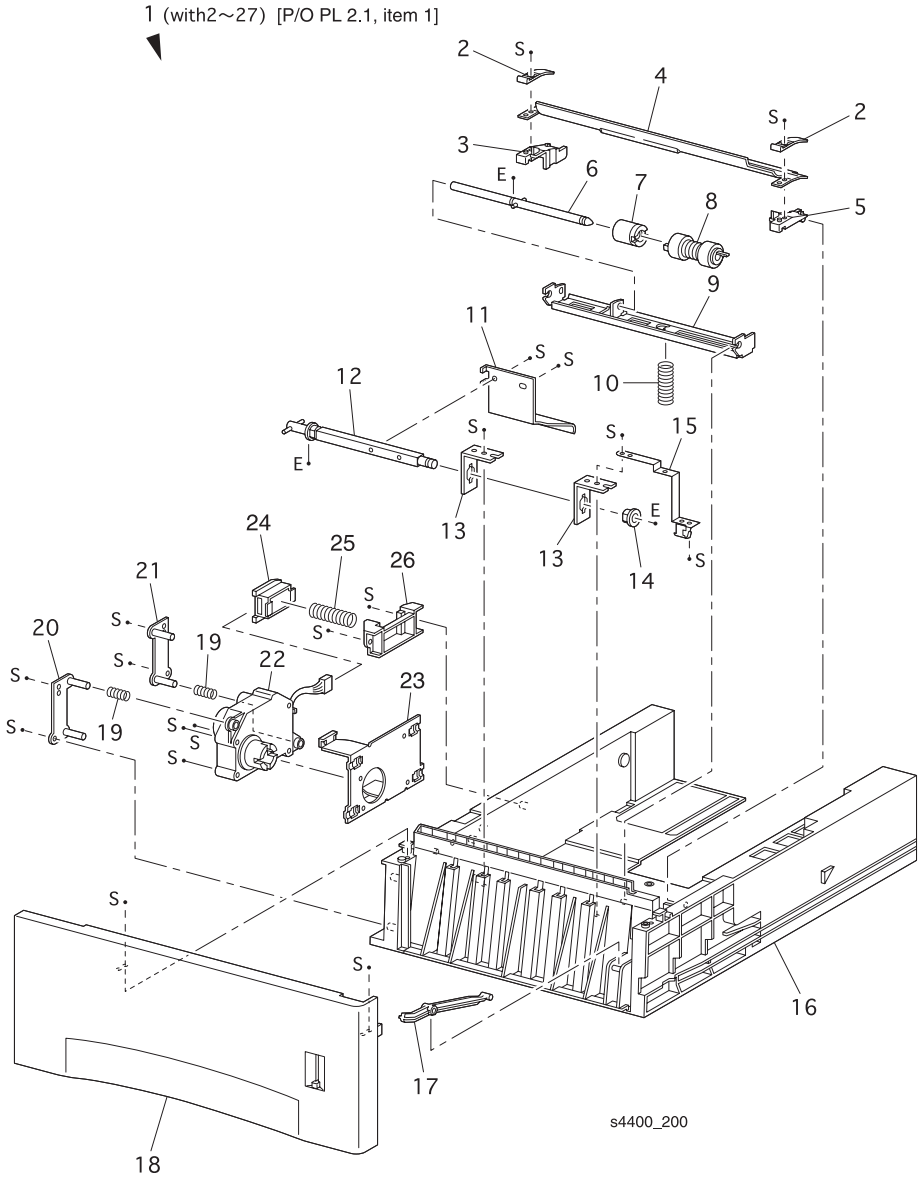


## Paper Cassette 2

**PL 2.2 Tray 1 (2 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - - | Cassette Assembly (with 2-27) (P/O PL 2.1 Item 1) |
| 2 | - - - - - | Retard Cap |
| 3 | - - - - - | Retard Chute Base - Left |
| 4 | - - - - - | Retard Chute |
| 5 | - - - - - | Retard Chute Base - Right |
| 6 | - - - - - | Retard Shaft Assembly |
| 7 | 5K82890 | Friction Clutch Assembly |
| 8 | 600K79550 | Roller Assembly Kit |
| 9 | - - - - - | Retard Bracket |
| 10 | 809E11830 | Retard Spring |
| 11 | - - - - - | Tongue Plate |
| 12 | - - - - - | Tongue Shaft Assembly |
| 13 | - - - - - | Lift Up Shaft Holder |
| 14 | - - - - - | Bearing |
| 15 | - - - - - | Lift Up Ground Spring |
| 16 | - - - - - | Cassette Housing |
| 17 | - - - - - | Lever |
| 18 | - - - - - | Cassette Handle Assembly |
| 19 | - - - - - | Motor Spring |
| 20 | - - - - - | Right Holder |
| 21 | - - - - - | Left Holder |
| 22 | 127K24682 | Motor Assembly |
| 23 | - - - - - | Motor Holder Assembly |
| 24 | 114E11680 | Connector |
| 25 | - - - - - | Spring |
| 26 | - - - - - | Socket Guide |
| S | | Hardware Kit (Includes Screw) |

**PL 2.2 Tray 1 (2 of 2) — Exploded View**

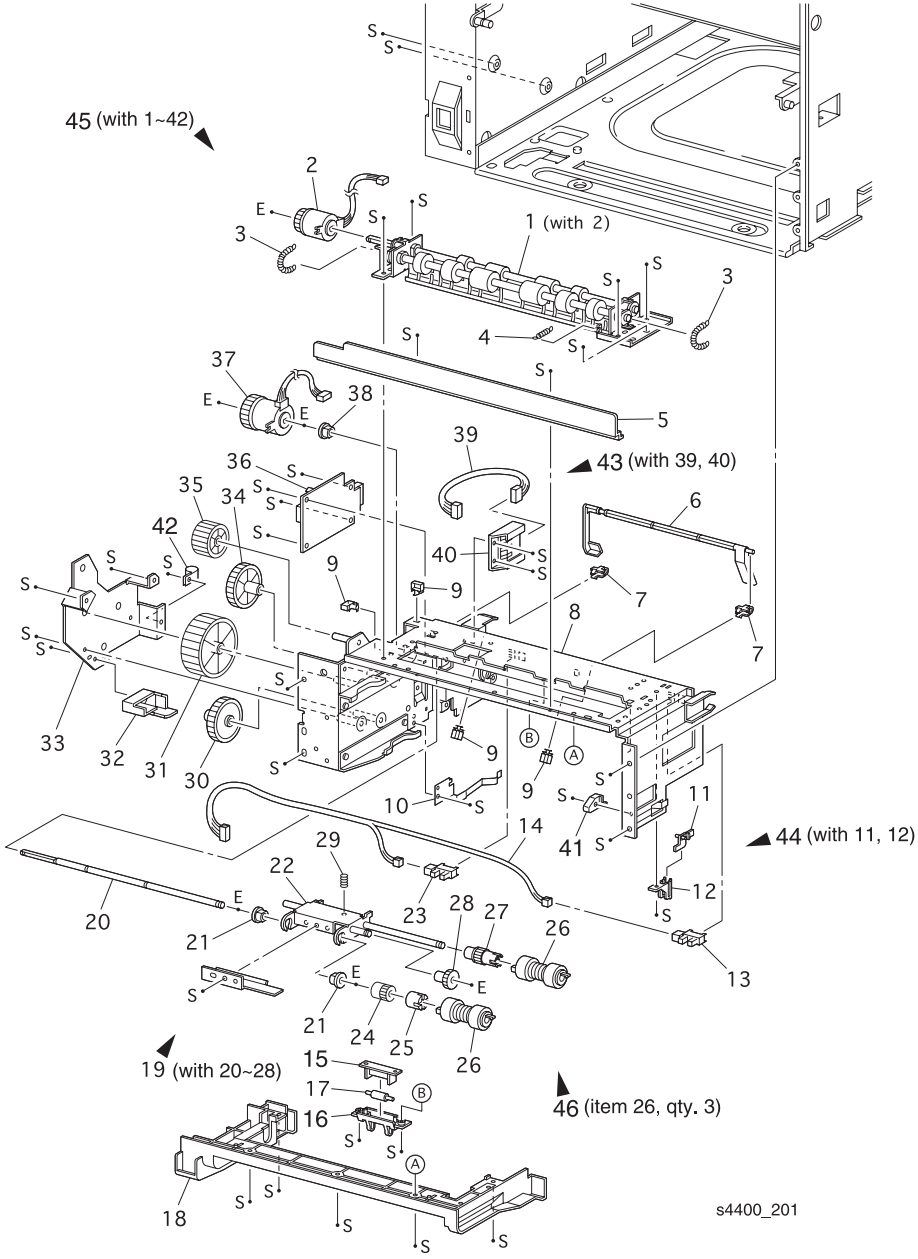


# Paper Feeder

**PL 3.1 Paper Feeder**

| Item | Part | Description | Item | Part | Description |
|---|---|---|---|---|---|
| 1 | 22K51531 | Turn Roller Assembly (with 2) | 25 | - - - - - | O/W Clutch Assembly(P/O item 19) |
| 2 | 121K20151 | Turn Clutch Assembly | 26 | - - - - - | Roller Assembly (P/O item 48) |
| 3 | - - - - - | Extension Spring | 27 | - - - - - | Gear 25T (P/O item 19) |
| 4 | 809E11630 | Chute Spring | 28 | - - - - - | Gear 31T (P/O item 19) |
| 5 | - - - - - | Feed CST Cover | 29 | 809E11610 | Nudger Spring |
| 6 | 120E16960 | No Paper Actuator | 30 | - - - - - | Gear 4 |
| 7 | 830E18132 | Actuator Support | 31 | - - - - - | Gear 2 |
| 8 | - - - - - | Feeder Frame Assembly | 32 | - - - - - | Gear Cover |
| 9 | - - - - - | Clamp | 33 | - - - - - | Bracket |
| 10 | - - - - - | Left Latch Spring | 34 | - - - - - | Gear 3 |
| 11 | - - - - - | Low Paper Actuator (P/O item 46) | 35 | - - - - - | Gear 1 |
| 12 | - - - - - | Low Paper Actuator Support (P/O item 46) | 36 | 160K52781 | Feeder PWB |
| 13 | 130E81970 | Low Paper Sensor | 37 | 121K19010 | Feed Clutch Assembly |
| 14 | 162K47211 | No Paper Sensor Harness Assy. | 38 | - - - - - | Bearing |
| 15 | - - - - - | Roller 7 support | 39 | - - - - - | N/MOT Harness Assembly |
| 16 | - - - - - | Turn Chute | 40 | - - - - - | Socket |
| 17 | - - - - - | Roller 7 | 41 | - - - - - | CST Stopper |
| 18 | - - - - - | Feeder Cover | 42 | - - - - - | Clamp |
| 19 | 600K79320 | Feed Head Assembly (with 20-28) | 43 | 600K79640 | Socket & Harness Kit (with 39, 40) |
| 20 | - - - - - | Feed Shaft (P/O item 19) | 44 | 600K79652 | Actuator & Support Kit (with 11, 12) |
| 21 | - - - - - | Bearing (P/O item 19) | 45 | 22K56902 | Feeder Assembly 1 Kit (with 1-42) |
| 22 | - - - - - | Nudger Support Assembly (P/O item 19) | 46 | 600K79550 | Feed Roller Kit (item 26-quantity 3) |
| 23 | 130E81970 | Stack Height Sensor (P/O item 19) | S | 600K79660 | Hardware Kit (includes screw) |
| 24 | - - - - - | Gear Clutch (P/O item 19) | | | |

**PL 3.1 Paper Feeder — Exploded View**

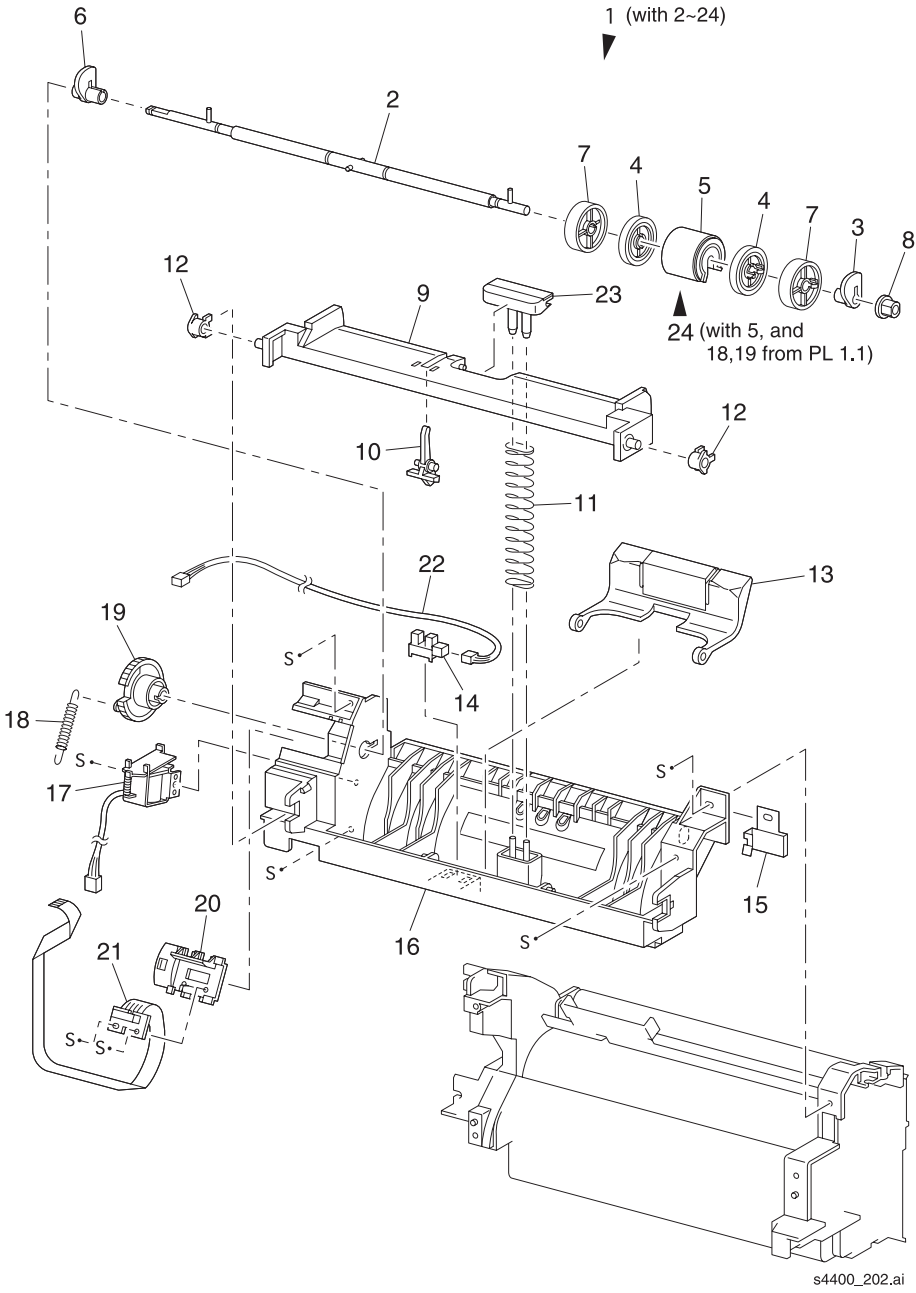


# MPT Chute

**PL 4.1 MPT Chute**

| Item | Part | Description |
|---|---|---|
| 1 | 54K22391 | MPT Chute Assembly (with 2-24) |
| 2 | - - - - - | MPT Shaft Assembly |
| 3 | - - - - - | MPT Pick-up CAM |
| 4 | - - - - - | Core |
| 5 | 22K50815 | MPT Roller Assembly |
| 6 | - - - - - | MPT (Left) Cam Pick-up |
| 7 | - - - - - | Guide Roller |
| 8 | - - - - - | Bearing |
| 9 | - - - - - | Tray Bottom |
| 10 | 120E17121 | MPT No Paper Actuator |
| 11 | - - - - - | MPT Bottom Spring Tray |
| 12 | - - - - - | Exit Bearing |
| 13 | 19K94573 | Retard Pad Assembly |
| 14 | 130E81970 | Paper Set Sensor |
| 15 | - - - - - | MPT Ground Plate |
| 16 | - - - - - | MPT Chute Assembly |
| 17 | 121E85920 | Pick Up Solenoid |
| 18 | 809E20171 | MPT Spring |
| 19 | 7E54661 | Gear Pick Up |
| 20 | - - - - - | Envelope Connector Plate |
| 21 | 113K82141 | Envelope Connector Assembly |
| 22 | 162K47021 | MPT No Paper Harness Assembly (J45-J451) |
| 23 | 19K96830 | Pick Up Pad Assembly |
| 24 | 604K04790 | MPT Cleaning Kit (with 5, and 18 and 19 from “PL 1.1 Covers (1 of 2)”.) |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 4.1 MPT Chute — Exploded View**

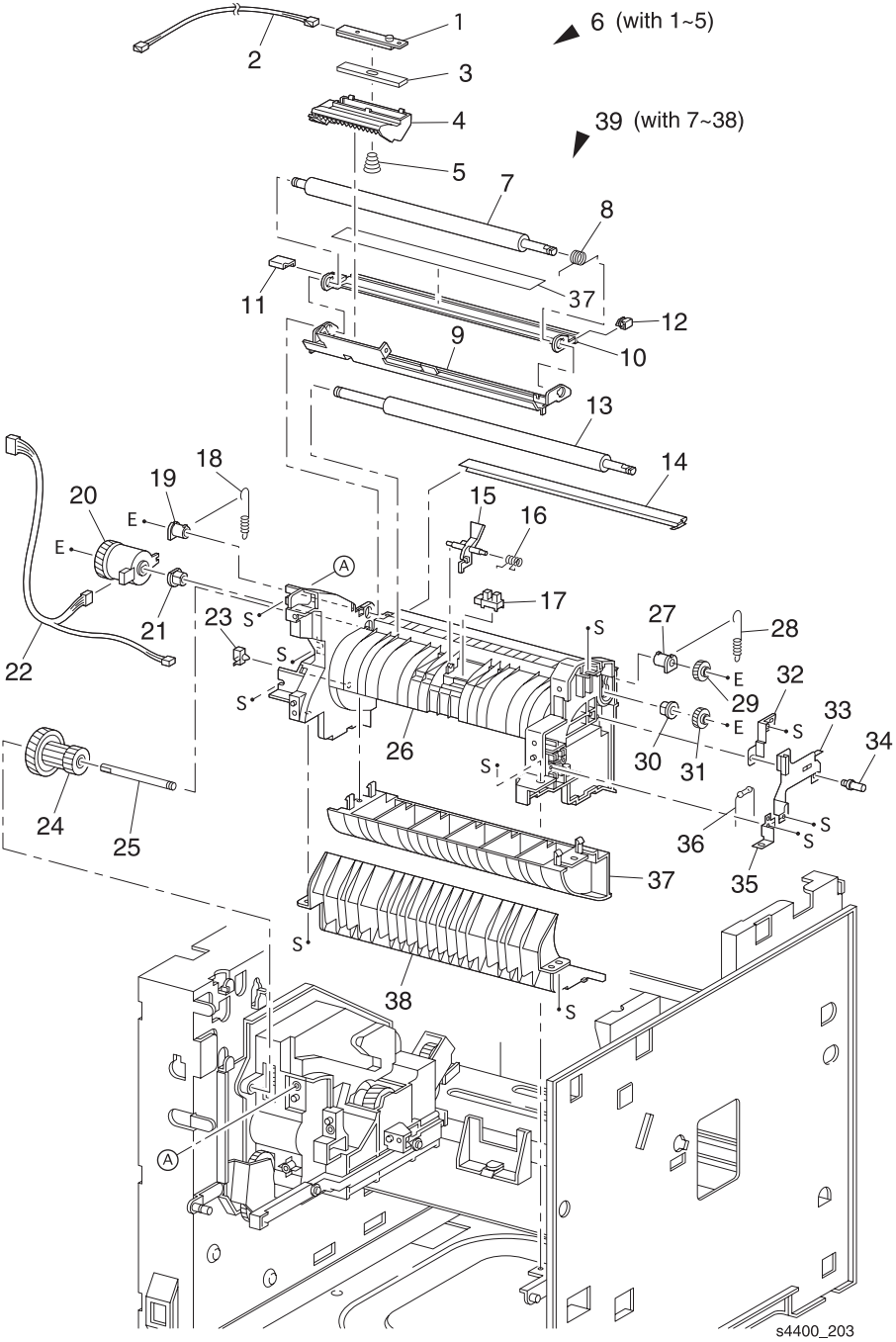


# Paper Transport

### PL 5.1 Paper Handler Assembly

| Item | Part | Description | Item | Part | Description |
|---|---|---|---|---|---|
| 1 | - - - - - | Toner Sensor | 21 | - - - - - | Left Bearing |
| 2 | - - - - - | Toner Sensor Harness Assembly (J42-J421) | 22 | 162K47011 | Registration Harness Assembly (J43-J431, J432) |
| 3 | - - - - - | TNS Cushion | 23 | - - - - - | Clamp |
| 4 | - - - - - | Toner Sensor Holder | 24 | 7E54650 | Gear 14 |
| 5 | - - - - - | Toner Sensor Spring | 25 | 6E60981 | Shaft 14 |
| 6 | 600K79381 | Toner Sensor Kit (with 1-5) | 26 | - - - - - | Upper Chute Bottom |
| 7 | - - - - - | Metal Registration Roller | 27 | - - - - - | Right Bearing |
| 8 | - - - - - | Torsion Spring | 28 | 809E22950 | Registration Spring - Right (Silver) |
| 9 | - - - - - | Upper Chute Assembly | 29 | 7E54671 | Registration Gear (Metal roller) |
| 10 | - - - - - | Chute Inlet | 30 | - - - - - | Right Bearing |
| 11 | - - - - - | Lever Handle | 31 | 7E54681 | Registration Gear (Rubber roller) |
| 12 | - - - - - | Chute Inlet Cap | 32 | - - - - - | Ground Spring - Right |
| 13 | 59K11910 | Rubber Registration Roller | 33 | - - - - - | Ground Spring - Center |
| 14 | - - - - - | Ground Spring - Bottom | 34 | - - - - - | Ground Screw |
| 15 | 120E13331 | Registration Actuator | 35 | - - - - - | Left Spring |
| 16 | 809E19722 | Registration Sensor Spring | 36 | - - - - - | Baffle Resistor |
| 17 | 130E81970 | Registration Sensor | 37 | - - - - - | Lower Chute Bottom |
| 18 | 809E19030 | Registration Spring Left (Gold) | 38 | - - - - - | CST Chute |
| 19 | - - - - - | Bearing | 39 | 54K14986 | Paper Handler Assembly (with 7-38) |
| 20 | 121E85820 | Registration Clutch | S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 5.1 Paper Handler Assembly — Exploded View**

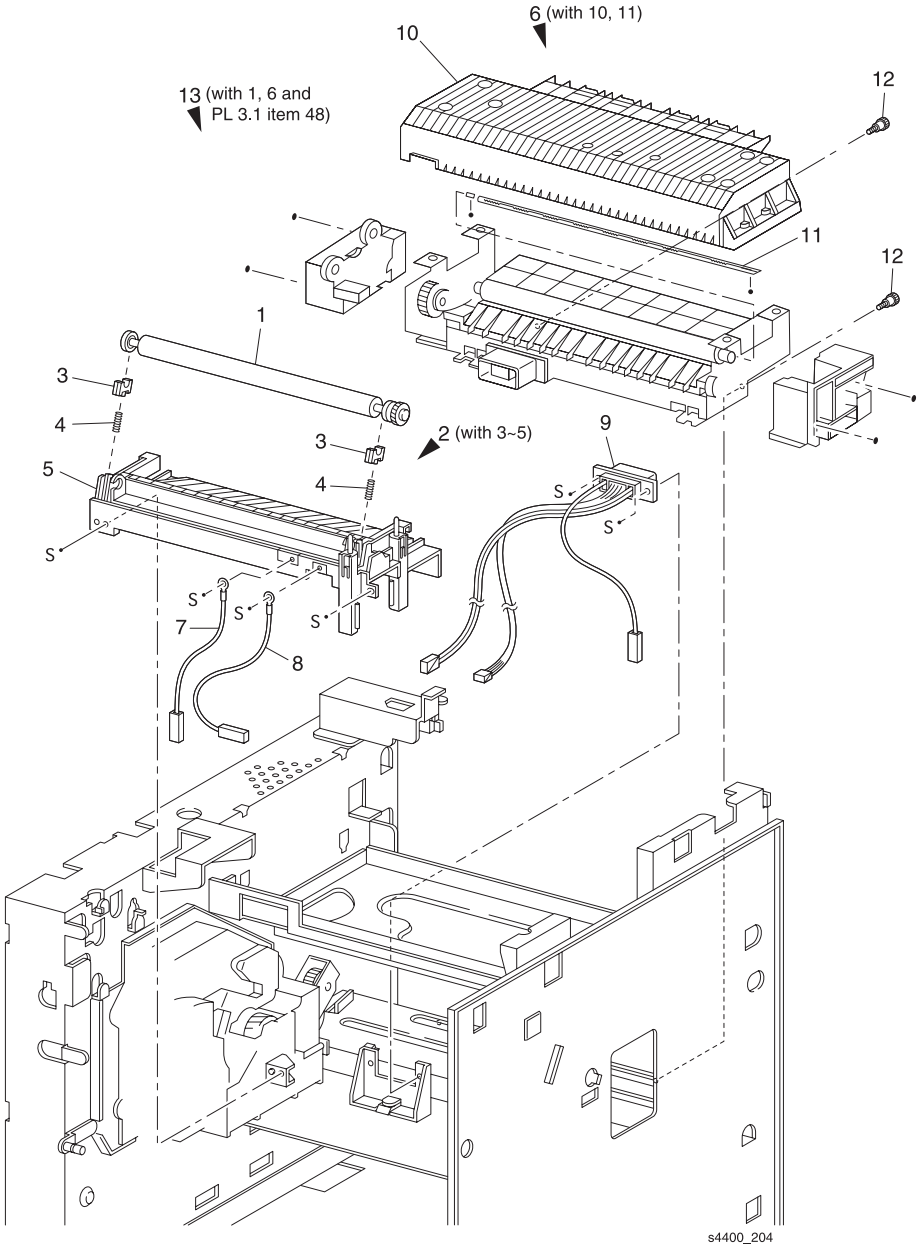


# Chute Transport and Fuser

**PL 6.1 Chute Transport and Fuser**

| Item | Part | Description |
|---|---|---|
| 1 | 22K55010 | Transfer Roller Assembly |
| 2 | 54K15000 | Transfer Chute Assembly (with 3-5) |
| 3 | - - - - - | Bearing Transfer Roller SUP |
| 4 | - - - - - | Spring Transfer Roller |
| 5 | - - - - - | Transport Chute |
| 6 | 126K14933 | Fuser Assembly (120 V) (with 10, 11) |
| | 126K14942 | Fuser Assembly (230 V) (with 10, 11) |
| 7 | - - - - - | DTS Wire Assembly |
| 8 | - - - - - | TR Wire Assembly |
| 9 | 962K06300 | Fuser Harness Assembly (120 V) (J271, J11, J27, J262) |
| | 962K06310 | Fuser Harness Assembly (230 V) (J271, J11, J27, J262) |
| 10 | 802K10003 | Fuser Upper Cover Assembly |
| 11 | 126K08411 | Heat Rod (120 V) |
| | 126K09711 | Heat Rod (230 V) |
| 12 | - - - - - | Thumb Screw |
| 13 | 108R00497 | Maintenance Kit (120 V) (with Fuser, Transfer Roller, 9 Feed Rollers) |
| | 108R00498 | Maintenance Kit (230 V) (with Fuser, Transfer Roller, 9 Feed Rollers) |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 6.1 Chute Transport and Fuser — Exploded View**

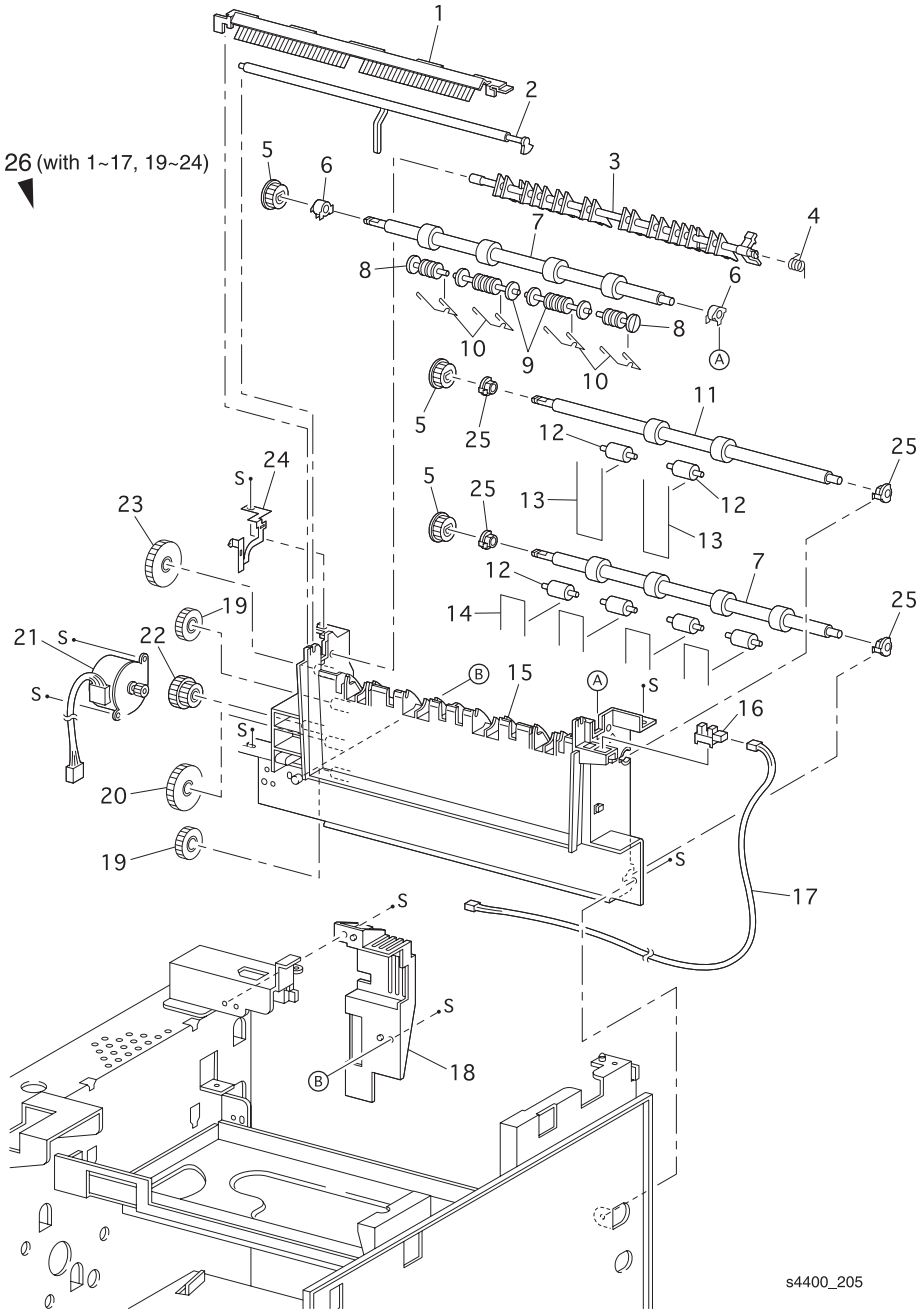


# Exit

**PL 7.1 Exit**

| Item | Part | Description |
|---|---|---|
| 1 | 105K14904 | Static Eliminator Assembly |
| 2 | 120E13350 | Stack Full Actuator |
| 3 | - - - - - | Exit Gate |
| 4 | - - - - - | Exit Spring |
| 5 | - - - - - | Exit Gear 17 |
| 6 | - - - - - | Exit Bearing (P/O item 25) |
| 7 | 59K11950 | MID-1-3 Roller Assembly |
| 8 | - - - - - | Out Exit Pinch Roller |
| 9 | - - - - - | Exit Pinch Roller |
| 10 | - - - - - | Exit Pinch Spring |
| 11 | 59K11960 | MID-2 Roller Assembly |
| 12 | - - - - - | Pinch Roller |
| 13 | - - - - - | MID Pinch Spring |
| 14 | - - - - - | Pinch Spring |
| 15 | - - - - - | Exit Chute |
| 16 | 130E81970 | Exit Photo Sensor |
| 17 | 162K46981 | Stack Full Sensor Harness Assembly (J30-J301) |
| 18 | - - - - - | Interlock Cover |
| 19 | - - - - - | Exit Gear 23 |
| 20 | - - - - - | Exit Gear 33 |
| 21 | 127K35830 | Exit Motor Assembly |
| 22 | - - - - - | Exit Gear 17/47 |
| 23 | - - - - - | Exit Gear 32 |
| 24 | - - - - - | Exit Ground Spring |
| 25 | 600K79540 | Bearing Kit (quantity 6 of item 6) |
| 26 | 54K15893 | Exit Chute Assembly (with 1-17, 19-24) |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 7.1 Exit — Exploded View**

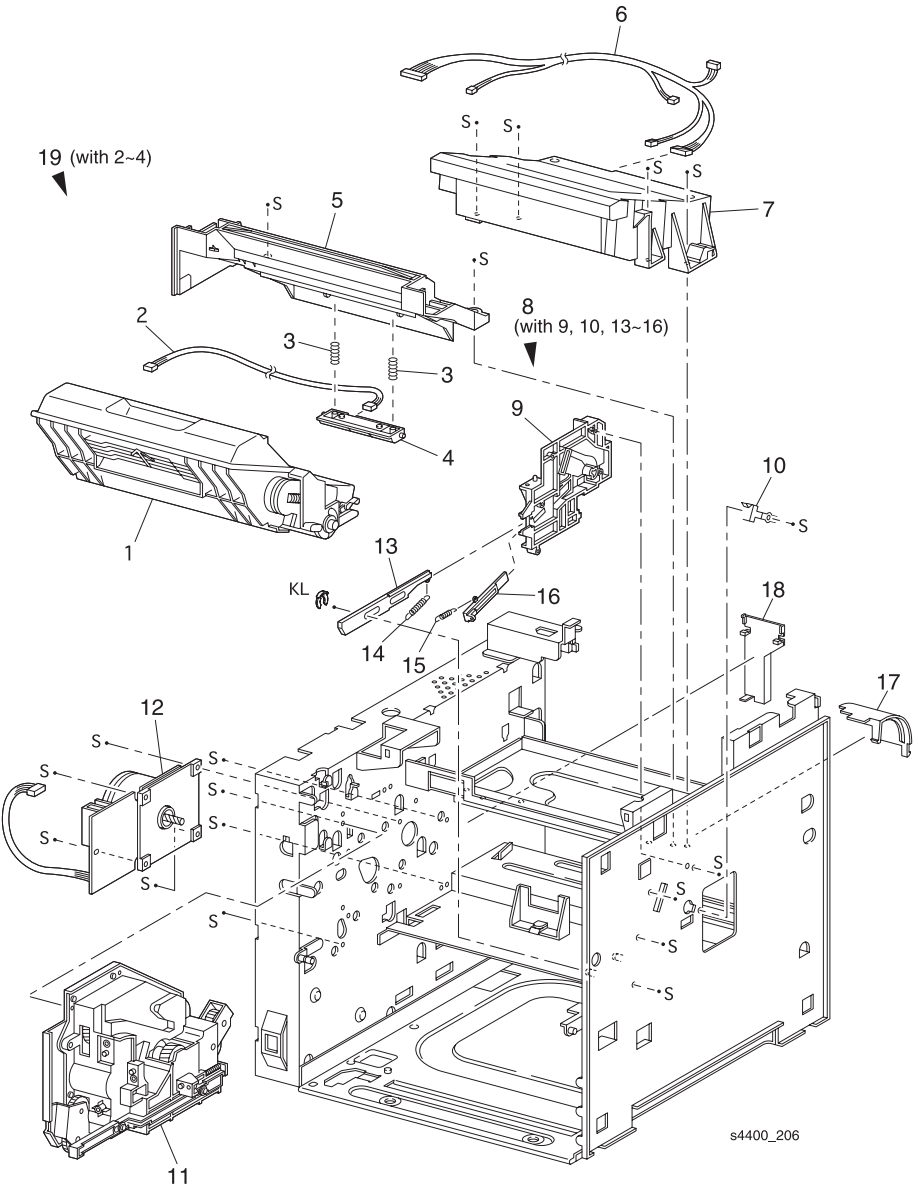


# Drive and Xerographics

**PL 8.1 Drive and Xerographics**

| Item | Part | Description |
|---|---|---|
| 1 | 113R00627 | Print Cartridge (10K) |
| | 113R00628 | Print Cartridge (15K) |
| 2 | - - - - - | Print Cartridge Sensor Harness Assembly (J25-J251) (P/O item 19) |
| 3 | - - - - - | Spring (P/O item 19) |
| 4 | - - - - - | Print Cartridge Sensor Assembly (P/O item 19) |
| 5 | 32K94111 | Print Cartridge Top Guide Assembly |
| 6 | 162K46922 | Laser Harness Assembly (J21-J211, J212, J213) |
| 7 | 62K11210 | Laser Assembly |
| 8 | - - - - - | Print Cartridge Side Guide Assembly-R (with 9, 10, 13-16) |
| 9 | - - - - - | Print Cartridge Side Guide |
| 10 | - - - - - | Spring Clip |
| 11 | 7K87580 | Drive Gear Assembly |
| 12 | 127K35701 | Main Motor Assembly |
| 13 | - - - - - | Guide Arm A |
| 14 | - - - - - | Guide Spring A |
| 15 | - - - - - | Guide Spring B |
| 16 | - - - - - | Guide Arm B |
| 17 | - - - - - | ROS Duct |
| 18 | - - - - - | Fuser Duct |
| 19 | 32K03720 | Print Cartridge Sensor Kit (with 2-4) |
| KL | 354W24254 | KL Clip |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 8.1 Drive and Xerographics — Exploded View**

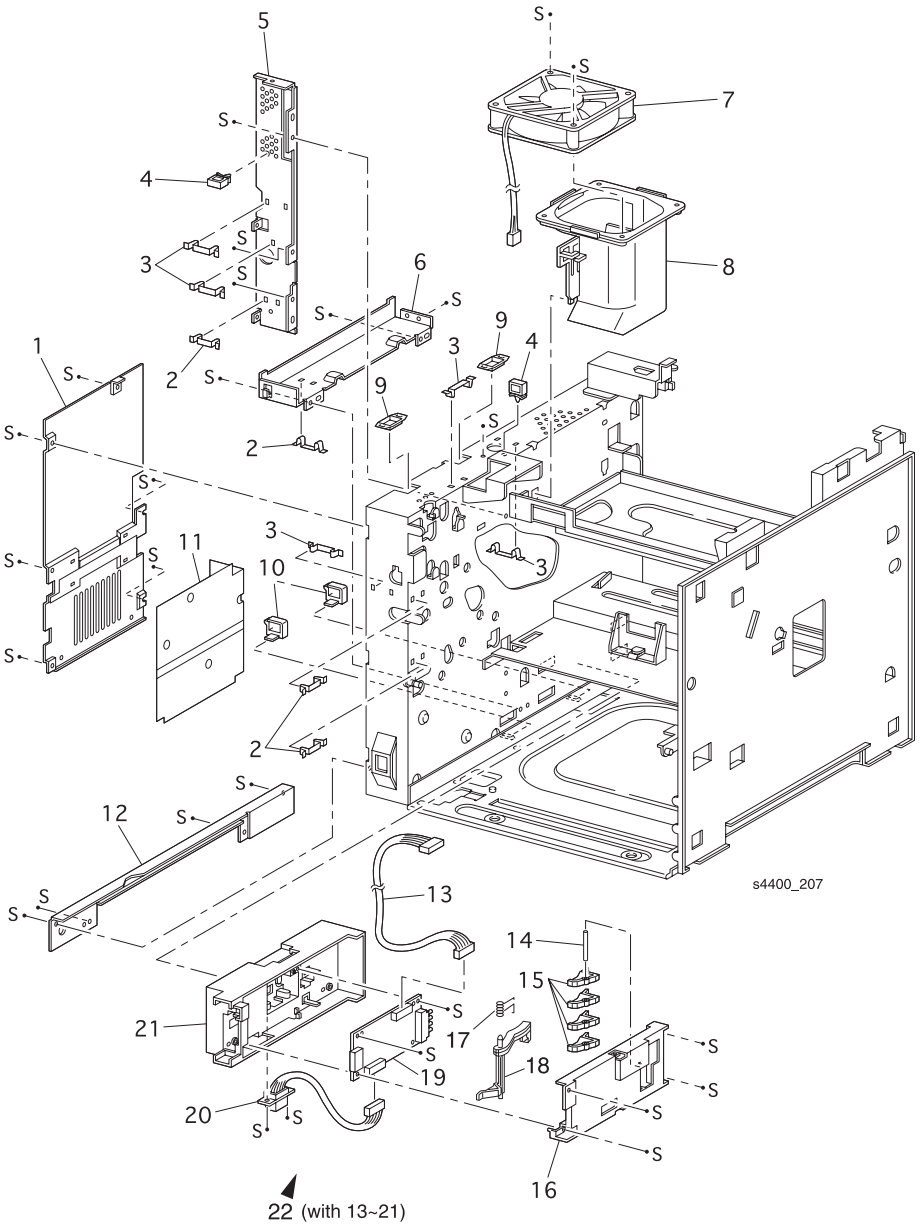


# Frame and Size Sensor

**PL 9.1 Frame and Size Sensor**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - - | Left Plate |
| 2 | - - - - - | Clamp Press |
| 3 | - - - - - | Left Clamp Press |
| 4 | - - - - - | Interface Clamp |
| 5 | - - - - - | Lower B Elec Box |
| 6 | - - - - - | Lower A Elec Box |
| 7 | 127E13840 | Fan Assembly |
| 8 | - - - - - | Duct |
| 9 | - - - - - | Edge Saddle H |
| 10 | - - - - - | AC Clamp |
| 11 | - - - - - | Insulator Plate |
| 12 | - - - - - | Plate Handle |
| 13 | 162K47001 | Feeder Harness Assembly (J33-J331) |
| 14 | - - - - - | CAM Shaft |
| 15 | - - - - - | Size Sensor Actuators |
| 16 | - - - - - | Cover Size Sensor |
| 17 | - - - - - | Spring CAM |
| 18 | - - - - - | Lever CAM |
| 19 | 160K52771 | Tray 1 Size PWB |
| 20 | 162K48420 | Size Harness Assembly (J51-J52) |
| 21 | - - - - - | Size Sensor Housing |
| 22 | 802K09970 | Size Sensor 1 Kit (with 13-21) |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 9.1 Frame and Size Sensor — Exploded View**

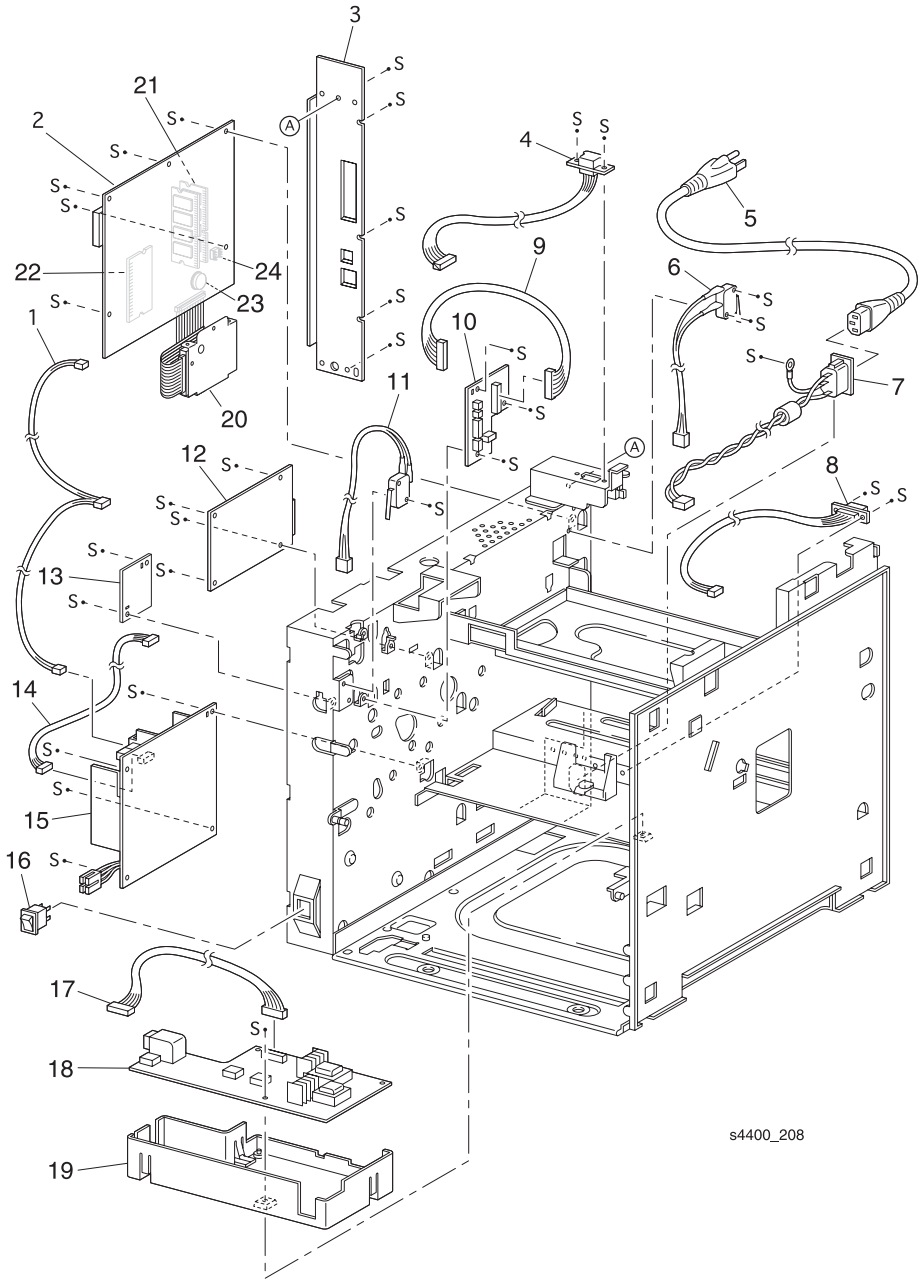


# Electrical

**PL 10.1 Electrical**

| Item | Part | Description | Item | Part | Description |
|---|---|---|---|---|---|
| 1 | 162K47201 | Image Processor Harness Assembly (J910-J282, J288) | 18 | 105K19750 | HVPS PWB |
| 2 | 671-5270-00 | Image Processor Board | 19 | - - - - - | HVPS Housing |
| 3 | - - - - - | Back Panel | 20 | 650-4263-00 | Hard Disk Drive |
| 4 | 162K49271 | Stacker Harness Assembly (J35-P351) | | 97S02917 | 20 MB Hard Drive Kit |
| 5 | - - - - - | Power Cord | 21 | 156-4850-00 | 32 MB DIMM |
| 6 | 110K08571 | Rear Interlock Switch Assembly | | 97S02923 | 32 MB DIMM Kit |
| 7 | - - - - - | AC Wire Assembly (J285) | | 156-4838-00 | 64 MB DIMM<br>ZMD64 |
| 8 | 162K46991 | Duplex Harness Assembly (J34-P341) | | 97S02912 | 64 MB DIMM Kit |
| 9 | 162K46941 | Connector Harness Assembly (J23-J231) | | 156-4837-00 | 128 MB DIMM<br>ZMD128 |
| 10 | 160K52761 | Connector PWB | | 97S02913 | 128 MB DIMM Kit |
| 11 | 110K08561 | Front Interlock Switch Assembly | 22 | 671-5274-00 | 16 MB Flash DIMM |
| 12 | 160K85653 | Engine Logic Board | | 97S02914 | 16 MB Flash DIMM Kit |
| 13 | 105K15402 | 5 VDC PWB | 23 | 98S04703 | 4400 Network Upgrade Kit |
| 14 | 162K46972 | LVPS Harness Assembly (J28-J218) | | 163-1485-00 | Configuration Upgrade Chip (P/0 item 23) |
| 15 | 105K19850<br>105K19860 | LVPS PWB (120V)<br>LVPS PWB (230V) | | 163-1486-00 | Base Configuration Chip |
| 16 | 110E94430 | Main Switch | 24 | 163-1459-00 | NVRAM |
| 17 | 162K46962 | HVPS Harness Assembly | S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 10.1 Electrical — Exploded View**

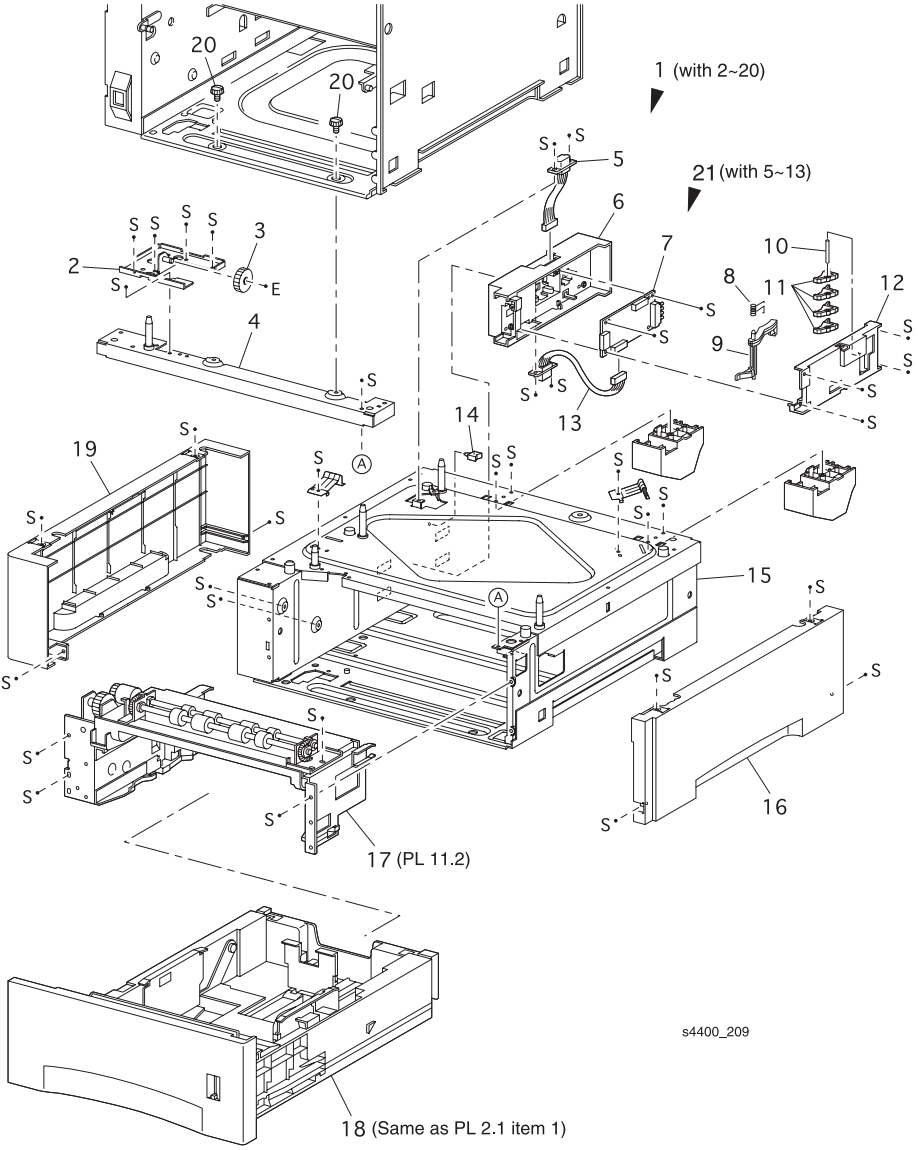


# Optional Feeder 1

**PL 11.1 550-Sheet Feeder (1 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - | Option Feeder Assembly (with 2-20) |
| 2 | - - - - | Gear OPT Bracket Assembly |
| 3 | 7E54920 | Gear OPT I |
| 4 | - - - - | Top Plate |
| 5 | 162K48431 | Option Size Harness Assembly |
| 6 | - - - - | Size Sensor Housing |
| 7 | 160K53061 | Size Option PWB |
| 8 | - - - - | CAM Spring |
| 9 | - - - - | CAM Lever |
| 10 | - - - - | CAM Shaft |
| 11 | - - - - | CAM SW |
| 12 | - - - - | Cover Size Sensor |
| 13 | 162K48420 | Size Harness Assembly |
| 14 | - - - - | Clamp |
| 15 | - - - - | Main Frame Assembly |
| 16 | 802E04931 | Right Side Cover |
| 17 | 22K56912 | Feeder Assembly |
| 18 | 109R00448 | Cassette Assembly (Same as PL 2.1 item 1) |
| 19 | 802E04920 | Left Side Cover |
| 20 | 600K79670 | Screw Kit (quantity 3) |
| 21 | 802K09980 | Size Sensor Housing Assembly (with 5-13) |
| S | 600K79660 | Hardware Kit (Includes Screws) |

**PL 11.1 550-Sheet Feeder (1 of 2) — Exploded View**

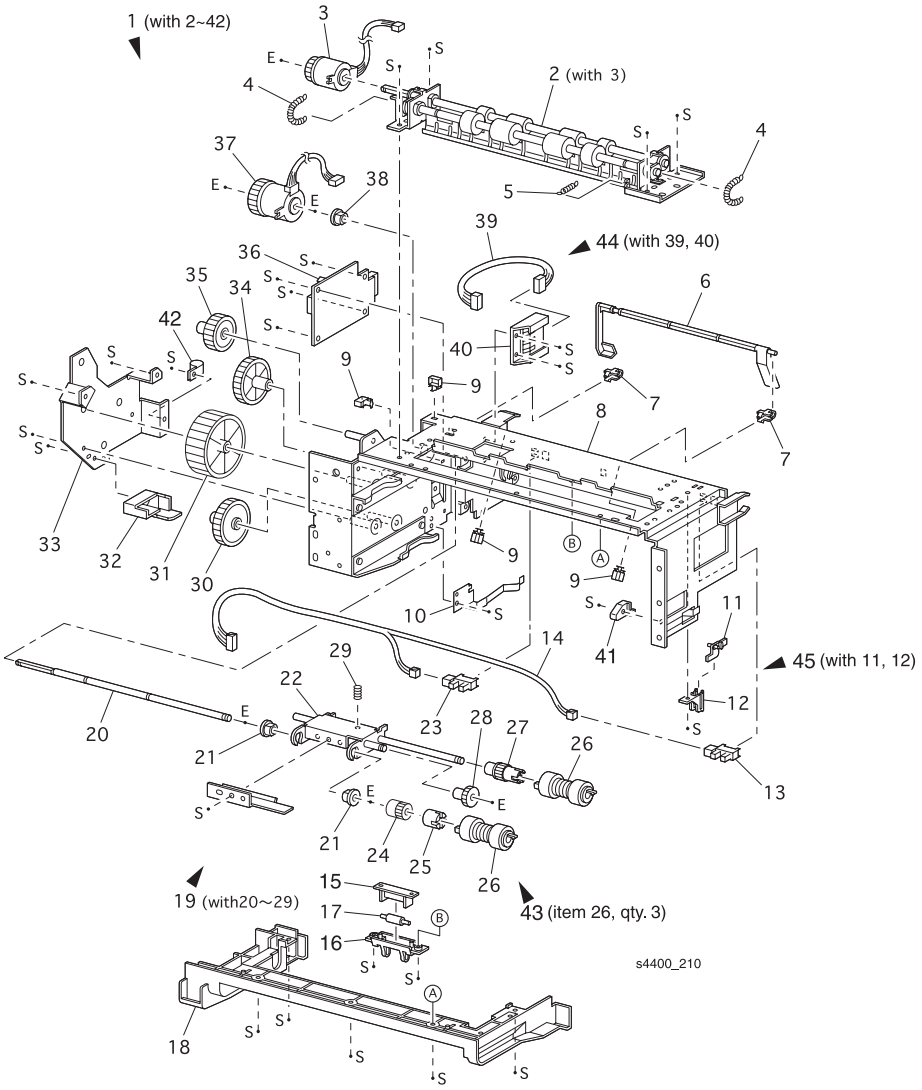


# Optional Feeder 2

**PL 11.2 550-Sheet Feeder (2 of 2)**

| Item | Part | Description | Item | Part | Description |
|---|---|---|---|---|---|
| 1 | 22K56912 | Feeder Assembly 2 Kit (with 2-42) | 26 | - - - - | Roller Assembly (P/O item 43) |
| 2 | 22K55001 | Turn Roller Assembly (with 3) | 27 | - - - - | Gear 25T |
| 3 | 121K20151 | Turn Clutch Assembly | 28 | - - - - | Gear 31T |
| 4 | - - - - | Spring Extension | 29 | 809E11610 | Nudger Spring |
| 5 | 809E11630 | Chute Spring | 30 | - - - - | Gear 4 |
| 6 | 120E16960 | No Paper Actuator | 31 | - - - - | Gear 2 |
| 7 | 830E18132 | Actuator Support | 32 | - - - - | Gear Cover |
| 8 | - - - - | Feeder Frame Assembly | 33 | - - - - | Bracket |
| 9 | - - - - | Clamp | 34 | - - - - | Gear 3 |
| 10 | - - - - | Left Latch Spring | 35 | - - - - | OPT Gear |
| 11 | - - - - | Low Paper Actuator (P/O item 43) | 36 | 160K52781 | Feeder PWB |
| 12 | - - - - | Low Paper Support Actuator (P/O item 43) | 37 | 121K19010 | Feed Clutch Assembly |
| 13 | 130E81970 | Low Paper Sensor | 38 | - - - - | Bearing |
| 14 | 162K47211 | N/Sensor Harness Assembly | 39 | - - - - | N/Motor Harness Assembly |
| 15 | - - - - | Roller 7 Support | 40 | - - - - | Socket |
| 16 | - - - - | Turn Chute | 41 | - - - - | Paper Tray Stopper |
| 17 | - - - - | Roller 7 | 42 | - - - - | Clamp |
| 18 | - - - - | Feeder Cover | 43 | 600K79550 | Feed Roller Kit (item 26-quantity 3) |
| 19 | 600K79320 | Feeder Assembly (with 20-28) | 44 | 600K79640 | Socket & Harness Kit (with 39, 40) |
| 20 | - - - - | Feed Shaft | 45 | 600K79652 | Actuator & Support Kit (with 11, 12) |
| 21 | - - - - | Bearing | S | 600K79660 | Hardware Kit (Includes Screw) |
| 22 | - - - - | Nudger Support Assembly | | | |
| 23 | 130E81970 | Stack Height Sensor | | | |
| 24 | - - - - | Gear Clutch | | | |
| 25 | - - - - | O/W Clutch Assembly | | | |

**PL 11.2 550-Sheet Feeder (2 of 2) — Exploded View**

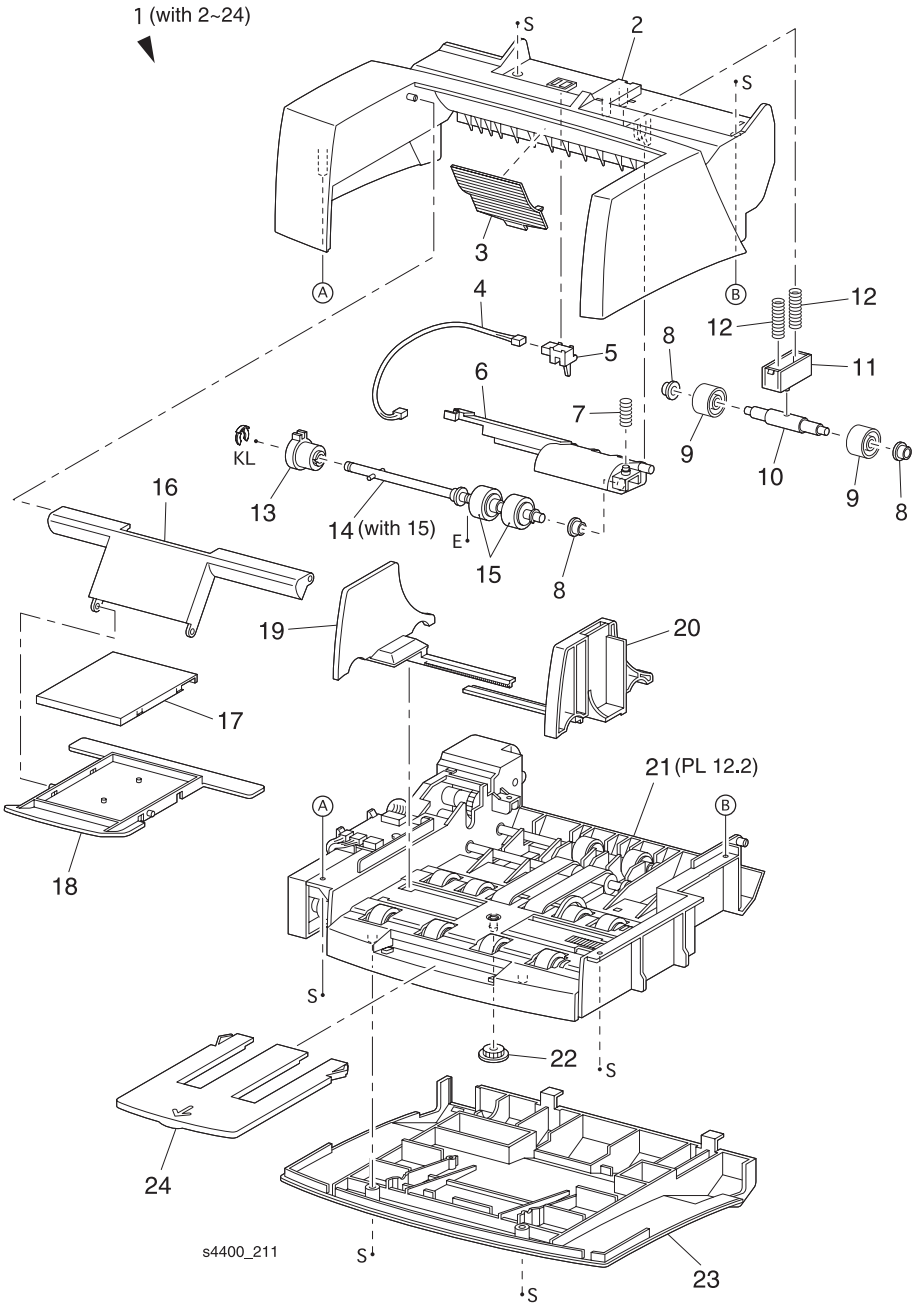


# Envelope Feeder 1

**PL 12.1 Envelope Feeder (1 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - | Envelope Feeder Assembly (with 2-24) |
| 2 | 54E14453 | Top Chute |
| 3 | | Chute Plate |
| 4 | - - - - | Sensor Harness Assembly |
| 5 | 130K60390 | Exit Sensor Assembly |
| 6 | - - - - | Retard Holder |
| 7 | - - - - | Retard Spring |
| 8 | - - - - | Feeder Bearing |
| 9 | 59E93940 | Exit Pinch Roller |
| 10 | - - - - | Pinch Roller Shaft |
| 11 | - - - - | Pinch Cap |
| 12 | - - - - | Pinch Spring |
| 13 | - - - - | Torque 29 Clutch Assembly |
| 14 | 600K79310 | Retard Roller Assembly (with 15) |
| 15 | - - - - | Retard Roller (P/O item 14) |
| 16 | 31E93291 | Weight Arm |
| 17 | - - - - | Weight Cover |
| 18 | - - - - | Weight Holder |
| 19 | - - - - | Envelope Left Side Guide |
| 20 | - - - - | Envelope Right Side Guide |
| 21 | - - - - | Envelope Feeder Sub Assembly |
| 22 | - - - - | Pinion Gear |
| 23 | - - - - | Bottom Cover |
| 24 | - - - - | Tray Extension |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 12.1 Envelope Feeder (1 of 2) — Exploded View**

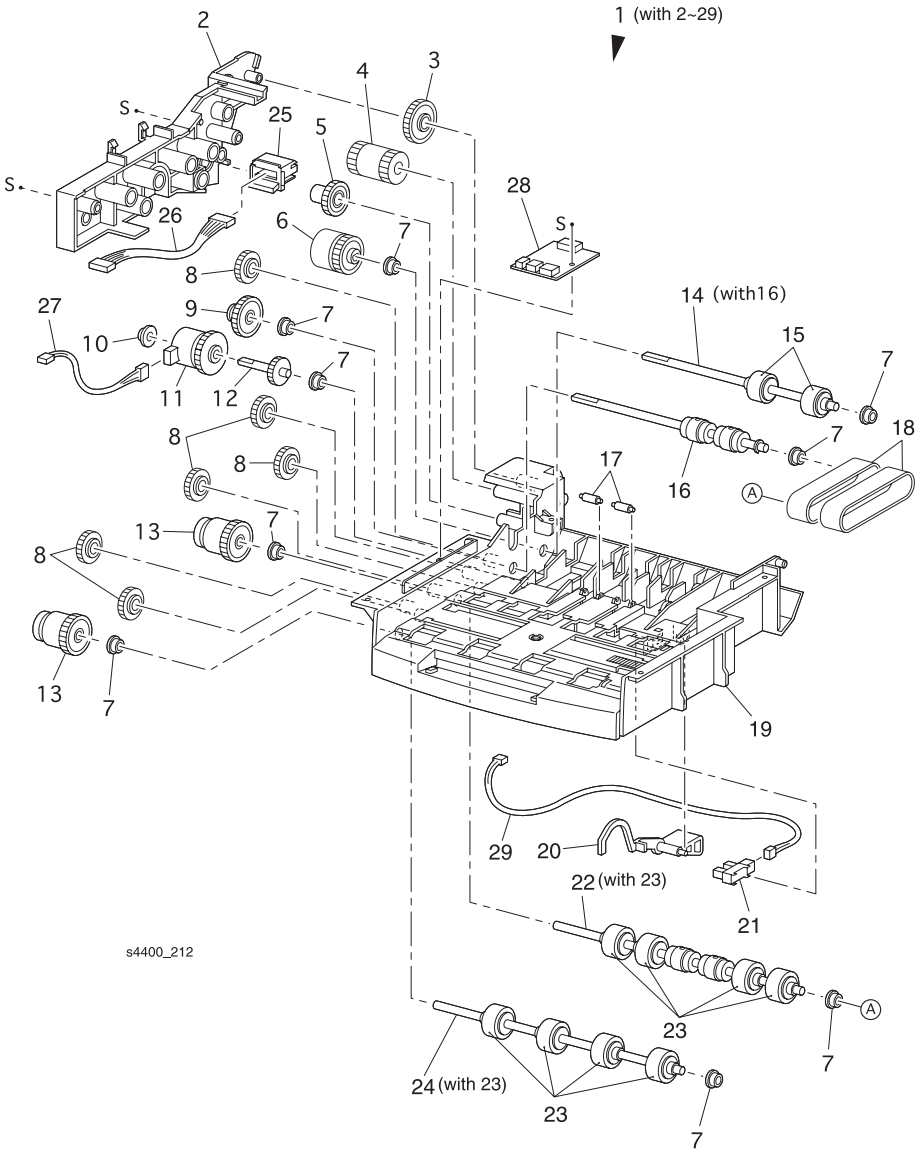


# Envelope Feeder 2

**PL 12.2 Envelope Feeder (2 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - | Envelope Feeder Sub Assembly (with 2-31) |
| 2 | - - - - | Gear Cover |
| 3 | 7E27420 | Gear 29 |
| 4 | - - - - | Gear Drive 21 |
| 5 | 7E36080 | Gear 23 |
| 6 | 121K87180 | Torque 25 Clutch Assembly |
| 7 | - - - - | Feeder Bearing |
| 8 | 7E28780 | Idler 21 Gear |
| 9 | 121K87201 | One Way 26 Clutch Assembly |
| 10 | - - - - | Elec Clutch Bearing |
| 11 | 121K87190 | Feed Clutch |
| 12 | 6E47120 | Clutch Shaft 17 |
| 13 | 121K87210 | One Way Clutch Assembly |
| 14 | - - - - | Transport Roller Assembly (with 16) |
| 15 | - - - - | Transport Roller |
| 16 | - - - - | Bottom Roller Assembly |
| 17 | - - - - | Envelope Pinch Roller |
| 18 | - - - - | Feed Belt |
| 19 | - - - - | Main Chassis |
| 20 | - - - - | No Paper Actuator |
| 21 | 130E81970 | No Paper Sensor |
| 22 | - - - - | Feed Roller Assembly 1 (with 23) |
| 23 | - - - - | Feeder Roller |
| 24 | - - - - | Feed Roller Assembly 2 (with 23) |
| 25 | - - - - | Envelope Connector |
| 26 | - - - - | Main Harness Assembly |
| 27 | - - - - | Clutch Harness Assembly |
| 28 | - - - - | Envelope PWB |
| 29 | - - - - | No Paper Harness Assembly |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 12.2 Envelope Feeder (2 of 2) — Exploded View**

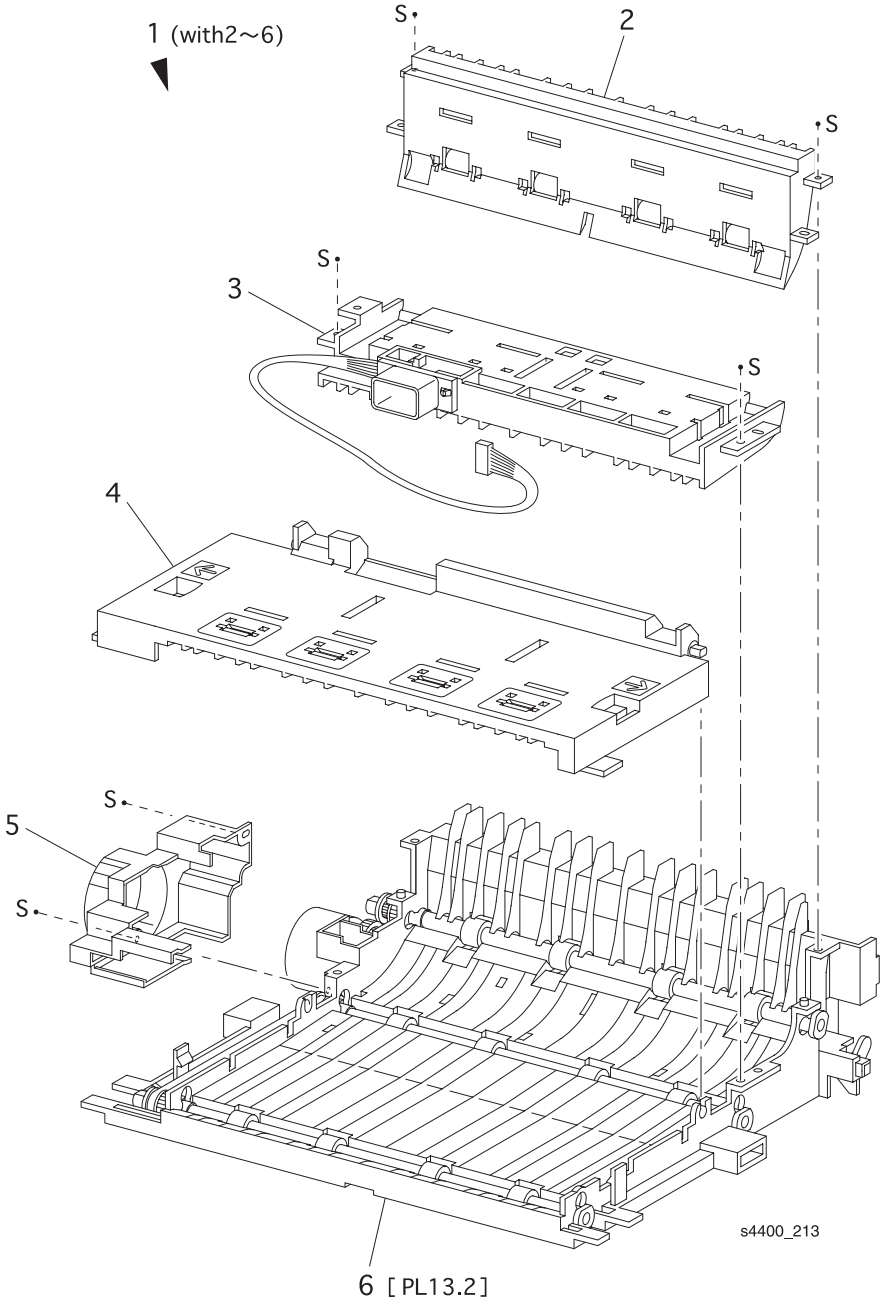


# Duplex 1

**PL 13.1 Duplex (1 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - | Duplex Assembly (with 2-6) |
| 2 | - - - - | Turn Chute Assembly |
| 3 | - - - - | Chute Assembly Connector |
| 4 | 54K15061 | Upper Chute Assembly |
| 5 | - - - - | Duplex Drive Cover |
| 6 | - - - - | Lower Duplex Chute Assembly |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 13.1 Duplex (1 of 2) — Exploded View**

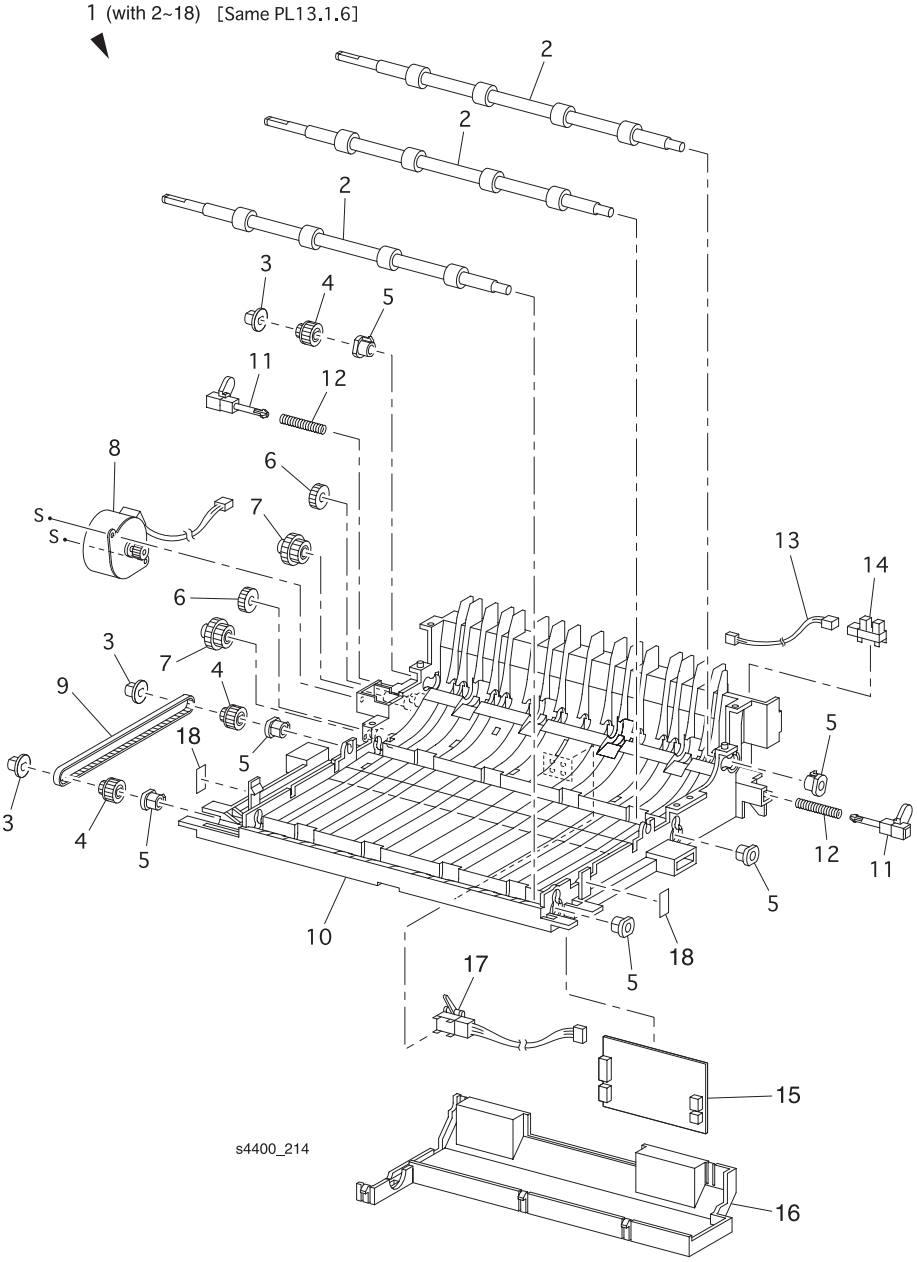


# Duplex 2

**PL 13.2 Duplex (2 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - | Lower Duplex Chute Assembly (with 2-18) |
| 2 | 59K12151 | Duplex Roller Assembly |
| 3 | 3E47580 | Duplex Bearing |
| 4 | - - - - | Duplex Gear 17/Pulley |
| 5 | - - - - | Duplex Bearing |
| 6 | - - - - | Duplex Gear 18 |
| 7 | - - - - | Duplex Gear 17/39 |
| 8 | 127K36520 | Motor Assembly |
| 9 | 423W15455 | Synchronous Belt |
| 10 | - - - - | Lower Duplex Chute |
| 11 | - - - - | Duplex Latch |
| 12 | - - - - | Duplex Latch Spring |
| 13 | - - - - | Duplex Sensor Harness |
| 14 | 130E81970 | Duplex Home Sensor |
| 15 | 160K53051 | Duplex PWB |
| 16 | - - - - | Duplex Cover |
| 17 | 130K83310 | Duplex Sensor |
| 18 | - - - - | Duplex Handle Label |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 13.2 Duplex (2 of 2) — Exploded View**

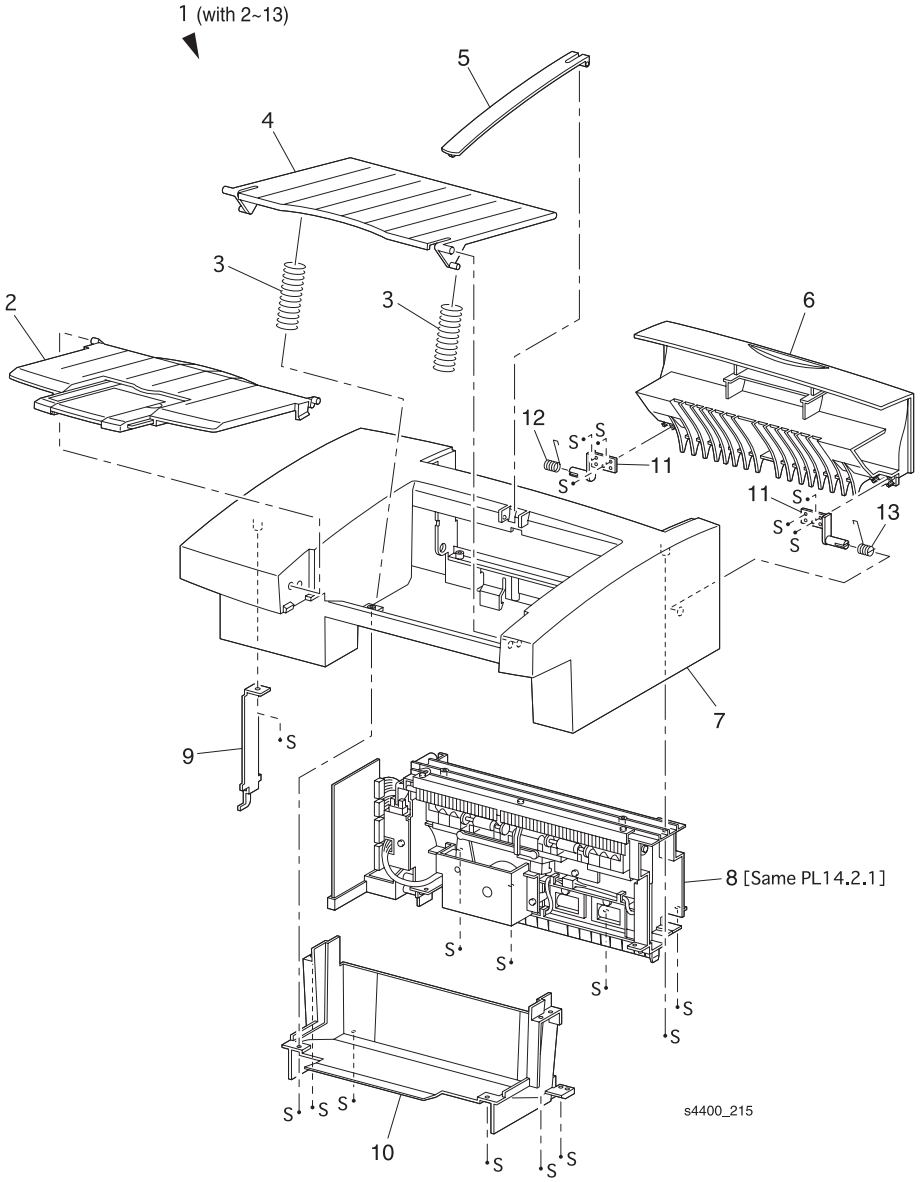


# Stacker 1

**PL 14.1 Stacker (1 of 2)**

| Item | Part | Description |
|---|---|---|
| 1 | - - - - | Stacker Assembly (with 2-13) |
| 2 | 50K38632 | Exit Tray Assembly |
| 3 | - - - - | Tray Spring |
| 4 | 50E89161 | Exit Tray |
| 5 | 12E09550 | Weight Link |
| 6 | 802E02773 | Rear Cover |
| 7 | 802E02755 | Stacker Cover |
| 8 | 54K22380 | Inner Exit Chute Assembly |
| 9 | - - - - | Hook Cover |
| 10 | - - - - | Lower Cover |
| 11 | - - - - | Cover Hinge |
| 12 | - - - - | Left Cover Spring |
| 13 | - - - - | Right Cover Spring |
| S | 600K79660 | Hardware Kit (Includes Screw) |

**PL 14.1 Stacker (1 of 2) — Exploded View**

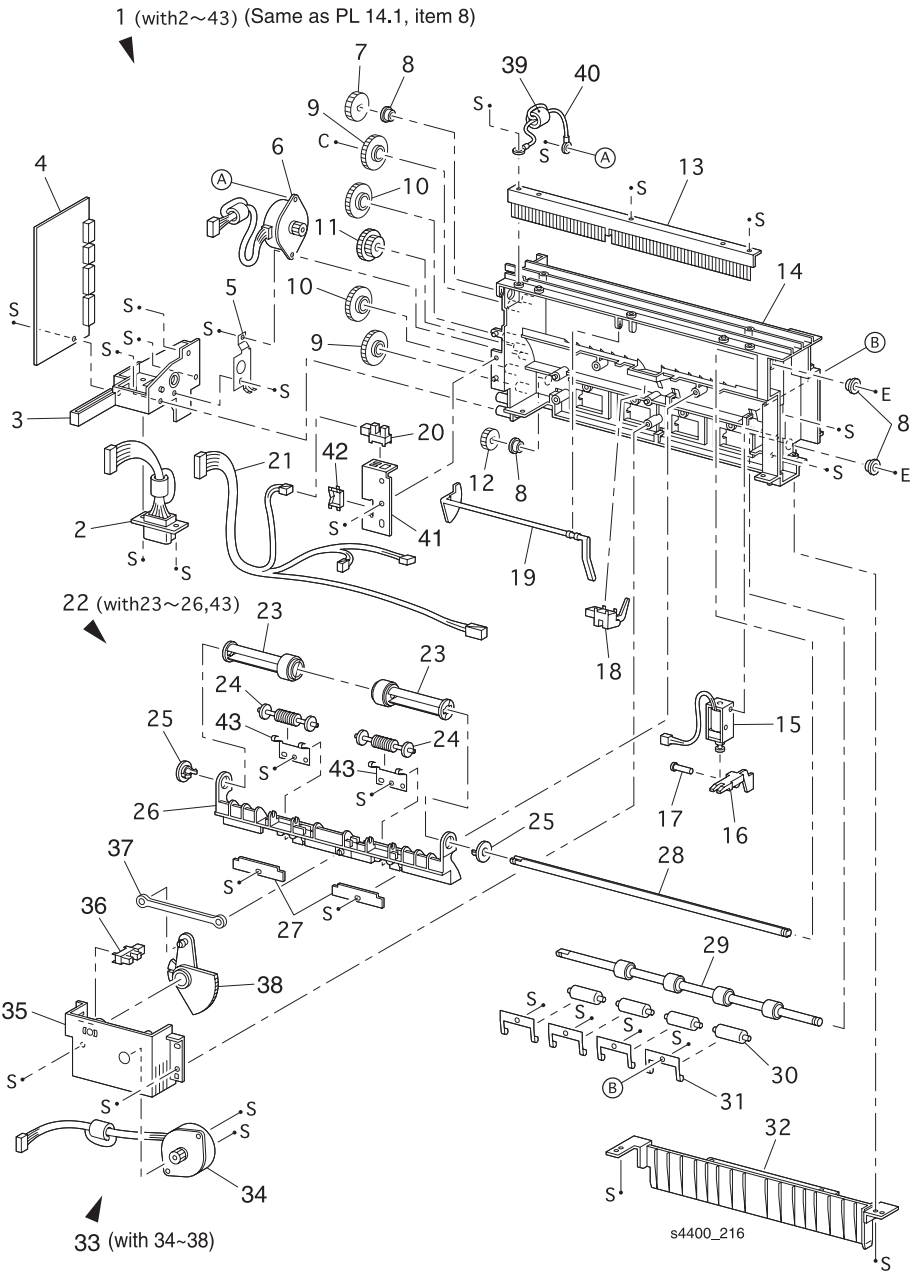


# Stacker 2

**PL 14.2 Stacker (2 of 2)**

| Item | Part | Description | Item | Part | Description |
|---|---|---|---|---|---|
| 1 | 54K22380 | Inner Exit Chute Assembly (with 2-43) | 26 | - - - - | Stacker Guide |
| 2 | - - - - | Stacker Harness Assembly (J21-P202) | 27 | - - - - | Stacker Holder |
| 3 | - - - - | PWB Holder | 28 | - - - - | Exit Shaft |
| 4 | 160K88240 | Stacker PWB | 29 | - - - - | Mid Roller Assembly |
| 5 | - - - - | Ground Plate | 30 | - - - - | Stacker Pinch Roller |
| 6 | 127K28640 | Drive Motor Assembly | 31 | - - - - | Mid Pinch Spring |
| 7 | - - - - | Gear Exit 20 | 32 | 54E14431 | Inner Exit Chute |
| 8 | - - - - | Exit Bearing | 33 | 802K05770 | Offset Assembly (with 34-38) |
| 9 | - - - - | Gear 27 | 34 | - - - - | Offset Motor Assembly |
| 10 | - - - - | Gear 26 | 35 | - - - - | Offset Housing |
| 11 | - - - - | Gear 47W | 36 | 130E81970 | Stacker Home Sensor |
| 12 | - - - - | Gear Exit | 37 | - - - - | Offset Lever |
| 13 | - - - - | Static Eliminator | 38 | - - - - | Core Gear |
| 14 | - - - - | Gear Housing | 39 | - - - - | Ferrite Core |
| 15 | 121K20551 | Direction Solenoid | 40 | - - - - | Stacker Wire Assembly |
| 16 | 11E09450 | Solenoid Lever | 41 | - - - - | Sensor Bracket |
| 17 | - - - - | Solenoid Pin | 42 | - - - - | Saddle Edge |
| 18 | 130K84220 | Exit Sensor Assembly | 43 | - - - - | Exit Pinch Spring |
| 19 | 120E17191 | Stack Full Actuator | S | 600K79660 | Hardware Kit (Includes Screw) |
| 20 | 130E81970 | Stack Full Sensor | | | |
| 21 | - - - - | Stacker Sensor Harness Assembly (J224-225, J226, J227, J228) | | | |
| 22 | - - - - | Offset Roller Assembly (with 23-26, 43) | | | |
| 23 | - - - - | Exit Roller Assembly | | | |
| 24 | - - - - | Exit Pinch Roller | | | |
| 25 | - - - - | Offset Bearing | | | |

**PL 14.2 Stacker (2 of 2) — Exploded View**



# Theory of Operation

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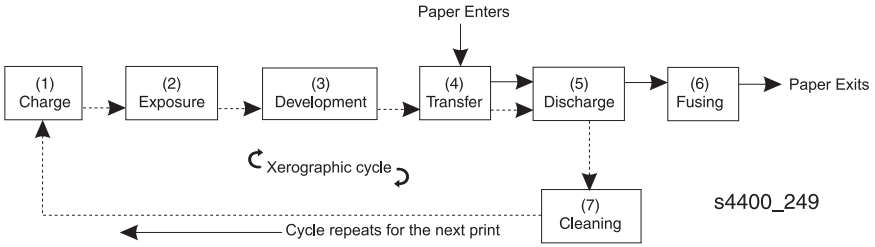
# Print Process Overview

There are seven steps in the Phaser 4400 print process. This seven step cycle is repeated for each sheet of paper that is sent through the printer.

The seven steps in the print process are:

1. Charge — A Bias Charge Roller (BCR) places a uniform negative electric charge on the drum surface.
2. Exposure — The laser scanner scans the drum surface with a very thin beam of laser light modulated according to the signal from the Engine Logic Board to form an invisible electrostatic latent image on the drum surface.
3. Development — Attracts toner to the electrostatic latent image on the drum surface to form a visible toner image.
4. Transfer — Transfers the toner image from the drum surface to the paper.
5. Discharge — Partially neutralizes the charge on the paper to allow the paper to peel off the drum surface.
6. Fusing — Permanently fixes the toner image to the paper by heat and pressure.
7. Cleaning — Cleans the drum surface of the remaining toner.

The block diagram of the Phaser 4400 print cycle shows the sequence of events for the xerographic process and the paper flow into and out of the printer.




**Block Diagram of the Print Cycle**

The cut-away side view of the Phaser 4400 printer shows the location of individual components within the printer, and serves as a side view block diagram that shows the major components that are directly related to the print cycle and to the paper path.

The pages that follow the cut-away side view describe in detail each step of the print cycle.

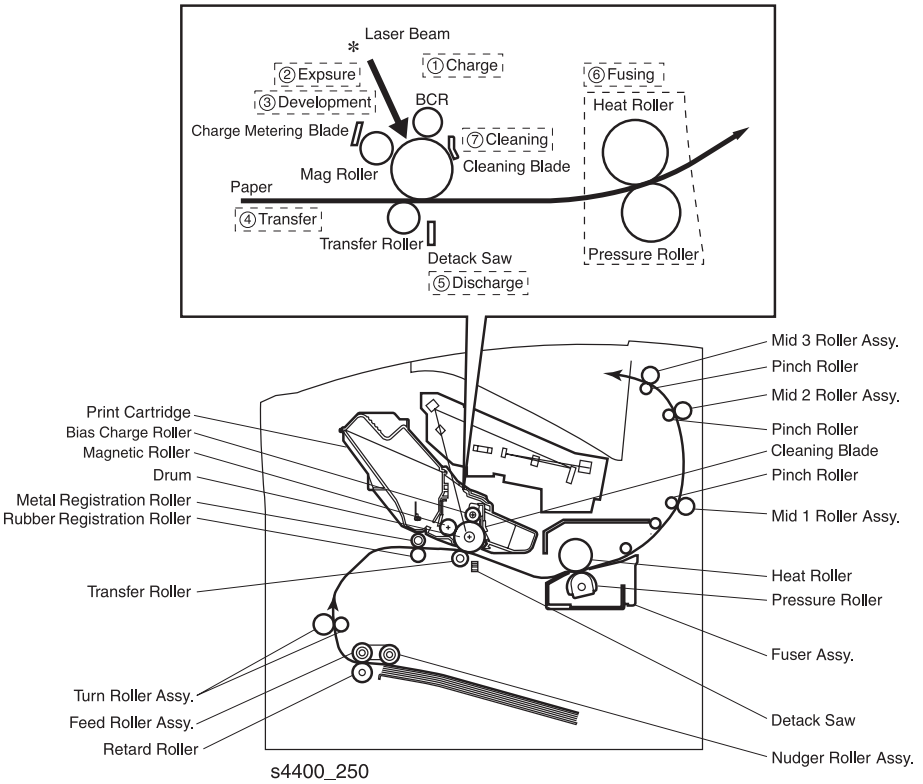


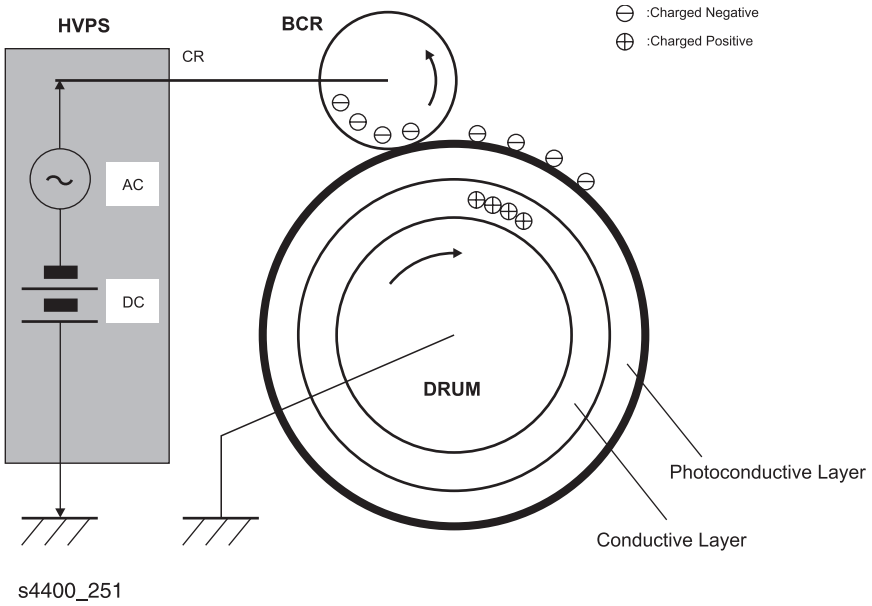

**Diagram of the Print Cycle — Cut-away Side View**

# Print Process Description

## Charge

The Bias Charge Roller (BCR) places a uniform negative electrostatic charge on the drum surface. The drum surface is made of a photoconductive material that holds the electrical charge as long as the drum remains in darkness. Light striking the drum discharges the surface charge.

The BCR is a conductive roller that is positioned slightly above the surface of the drum. The HVPS PWB supplies the BCR with two voltages: a negative DC charge voltage and an AC discharge voltage. The negative DC voltage creates a uniform negative charge across the surface of the drum. The AC voltage removes any residual DC charge that was left from the previous print cycle.




**Block Diagram of the Drum Charge Process — Side View**

## Exposure

The Laser Assembly generates an invisible beam of cohesive light, called a laser beam. Image data received from the Engine Logic Board modulates this beam, turning it on and off according to image information.

Through the use of a series of rotating and stationary mirrors within the Laser Assembly, the beam scans the negatively charged drum surface. Whenever the print controller sends a command to print a black pixel, the laser switches on long enough to shine onto the drum at a single pixel point. That point is now discharged and is less negative, relative to the surrounding negative charge.

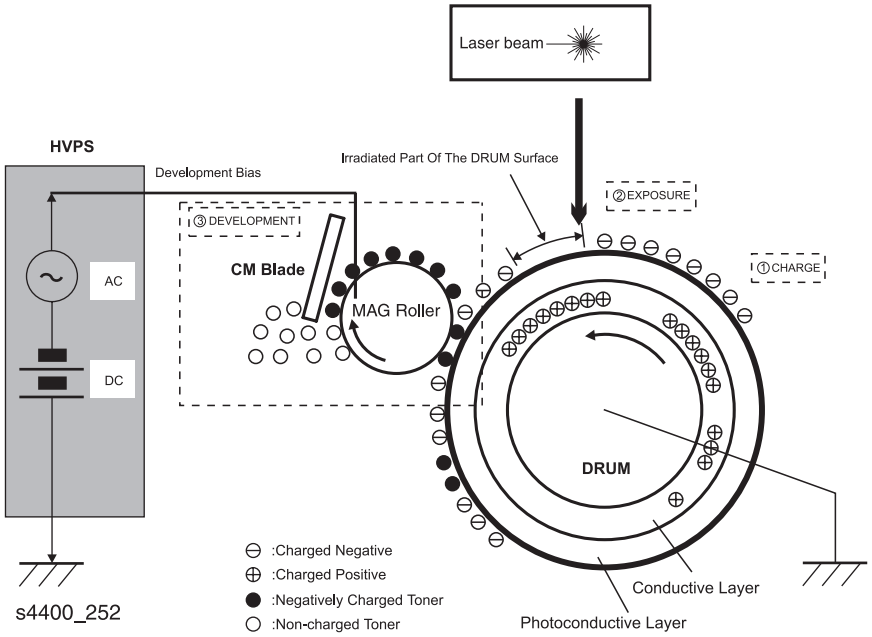
## Development

The toner in the Print Cartridge has a magnetic property that causes it to adhere to the Magnetic Roller. The Charge Metering Blade (CM Blade) spreads the toner into a very thin layer on the Magnetic Roller. Friction between the Magnetic Roller and the CM Blade generates a small electrical charge that is transferred to the toner.

The surface of the Magnetic Roller is made up of a thin sheet of conductive material. The HVPS PWB supplies the Magnetic Roller with two voltages: a negative DC voltage and an AC voltage. The DC voltage is the voltage that is used to transfer toner from the Magnetic Roller to the surface of the drum. The AC voltage agitates the toner on the Magnetic Roller and makes toner transfer easier.

The Magnetic Roller maintains an electrical potential relative to the charged surface of the drum. Negative charged areas of the drum have a lower electrical potential, or higher relative negative value, than the Magnetic Roller. Discharged areas of the drum have a higher electrical potential, or lower relative negative value, than the Magnetic Roller. A discharged point on the surface of the drum now appears less negative, or positive, relative to the negative charge on the Magnetic Roller.

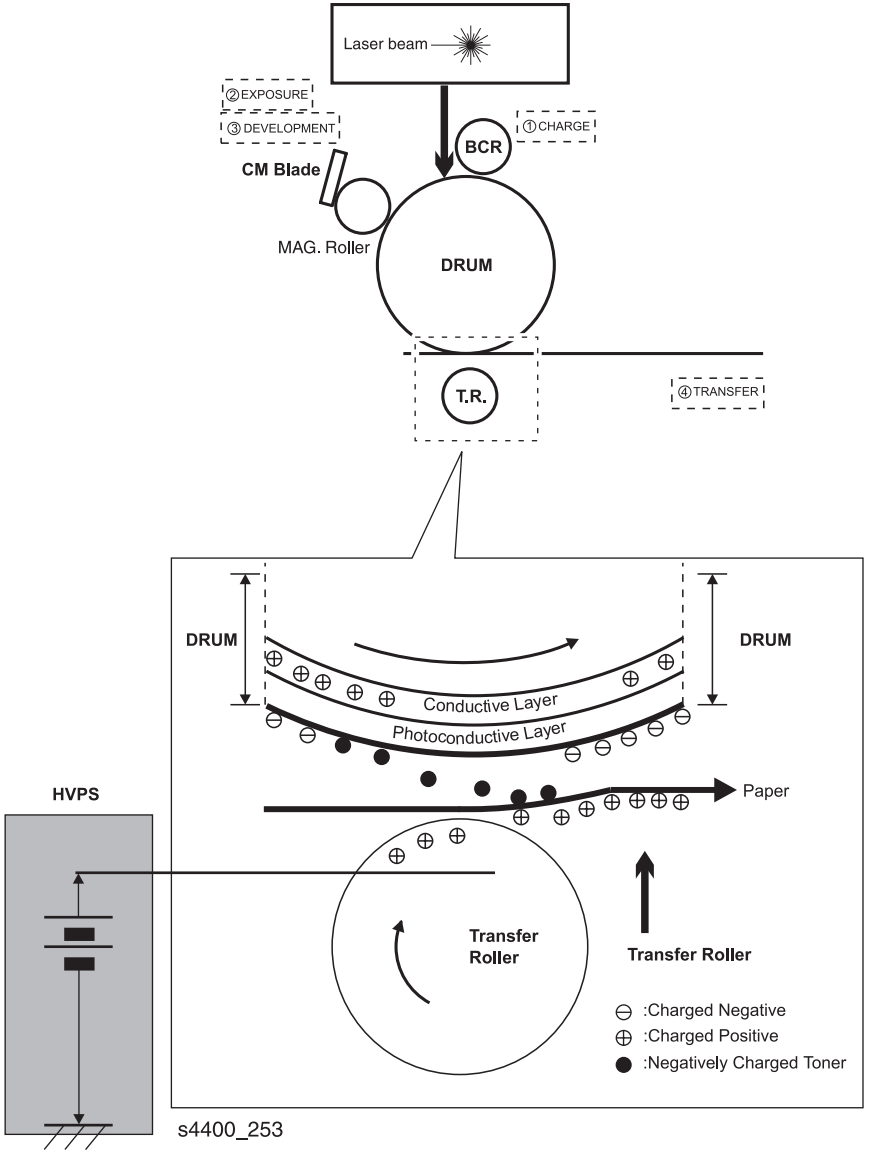
The toner adhering to the Magnetic Roller is always in contact with the drum surface. When a less negative point on the drum (a discharged area) comes in contact with the more negatively charged toner on the Magnetic Roller, toner transfers from the Magnetic Roller to that point on the drum. At this point there is now a visible toner image on the drum surface.




**Block Diagram of the Development Process — Side View**

# Transfer

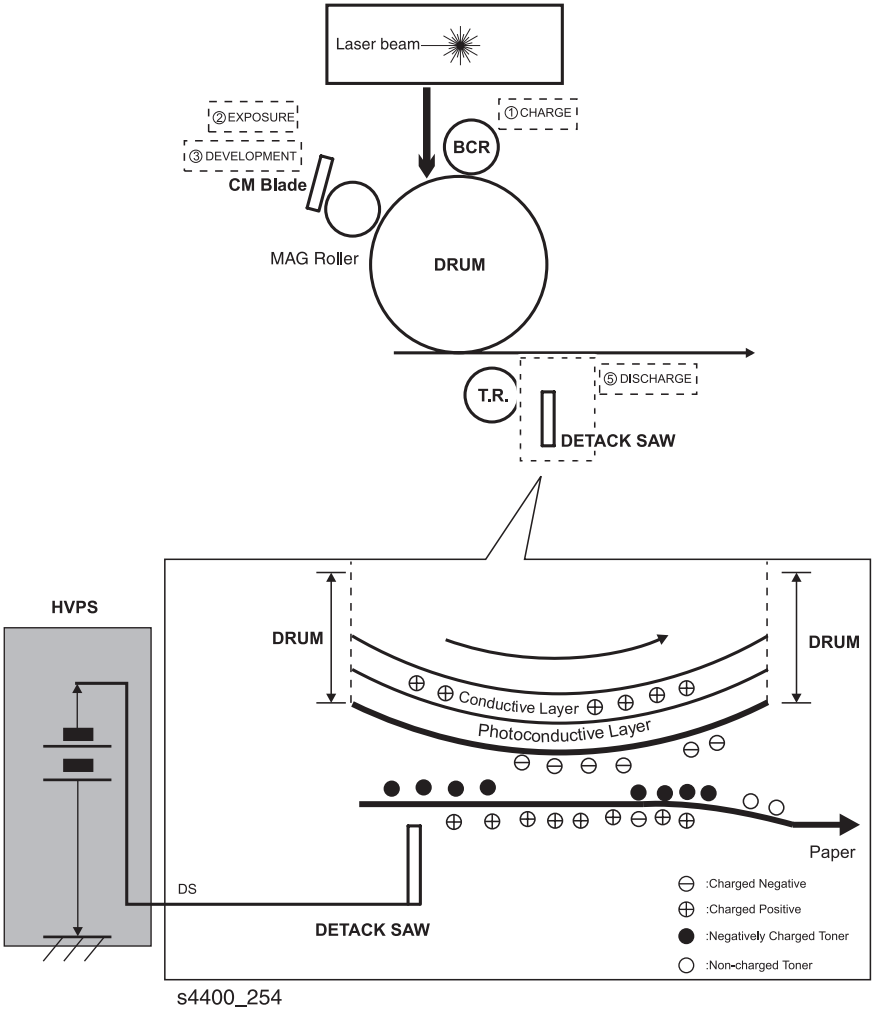
The Transfer Roller applies a positive charge to the back side of the printing paper as the paper travels between the Transfer Roller and the drum surface. This positive charge transfers the negatively charged toner image from the drum surface to the front of the paper. The toner image is now on the paper and the paper is now stuck to the drum surface due to the relative electrical differences.




**Block Diagram of the Transfer Process — Side View**

# Discharge

After the toner image has transferred to the surface of the paper, the Detack Saw (a thin strip of metal that resembles a saw blade) applies a negative charge to the back side of the paper to neutralize the positive voltage that was applied to it by the Transfer Roller. Once the positive voltage is neutralized, the paper strips easily off of the drum surface.



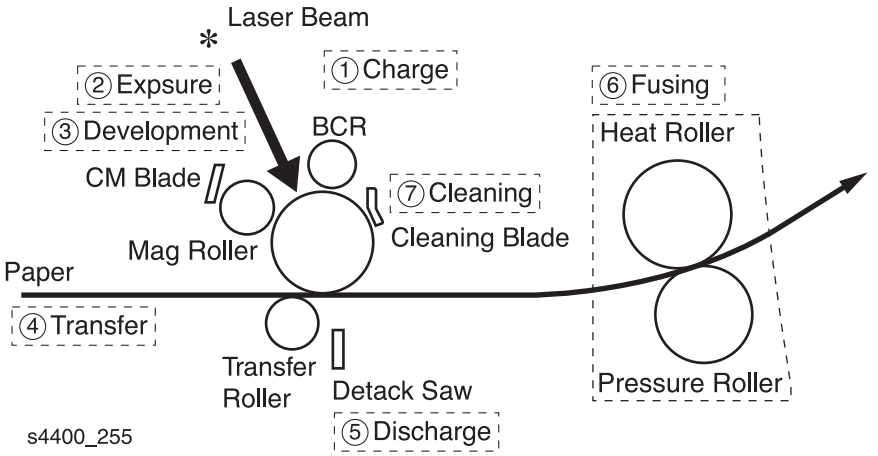

**Block Diagram of the Discharge Process — Side View**

## Fusing

The paper moves to the Fuser Assembly where it passes between the Heat Roller and the Pressure Roller. The Heat Roller melts the toner image and bonds it permanently to the paper. The paper then is transported to the output tray.

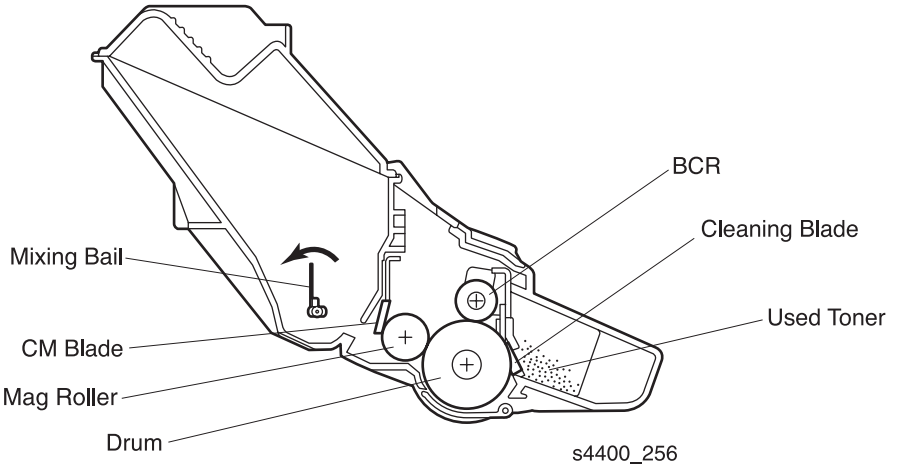
# Cleaning

The Cleaning Blade removes any toner that remains on the drum after the transfer process. Immediately after passing the Cleaning Blade, the drum passes under the BCR. The BCR applies an AC voltage to the surface of the drum to neutralize any electrical patterns remaining from the last print cycle.




**Block Diagram of the Fusing and Cleaning Process — Side View**

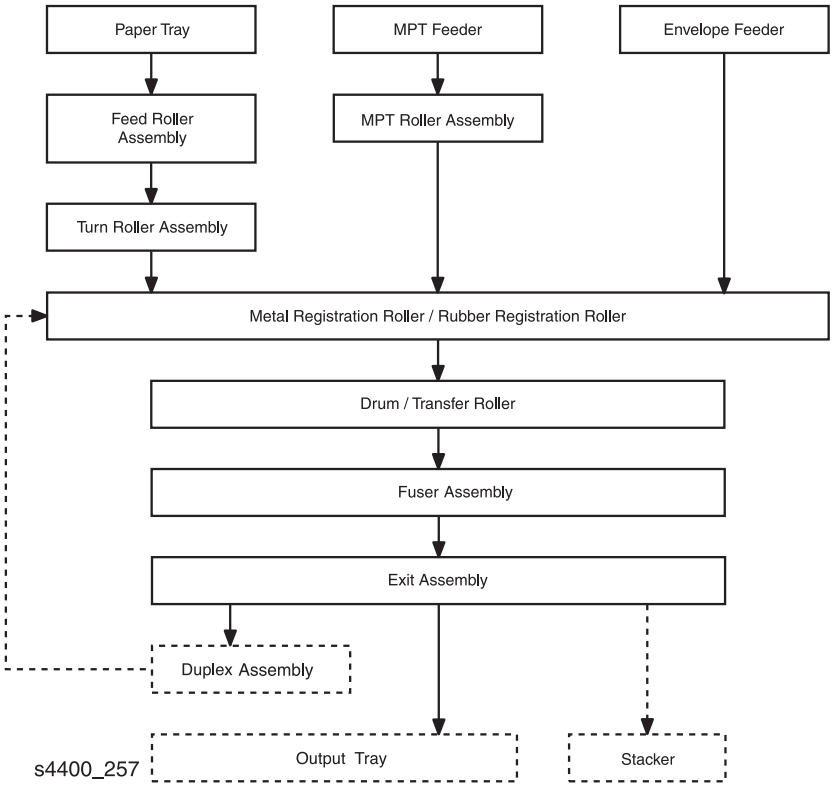
The toner that the Cleaning Blade removes is collected inside the Print Cartridge. Toner that is reclaimed from the drum is not reused by the Print Cartridge.




**Side View of the Print Cartridge**

# The Paper Path

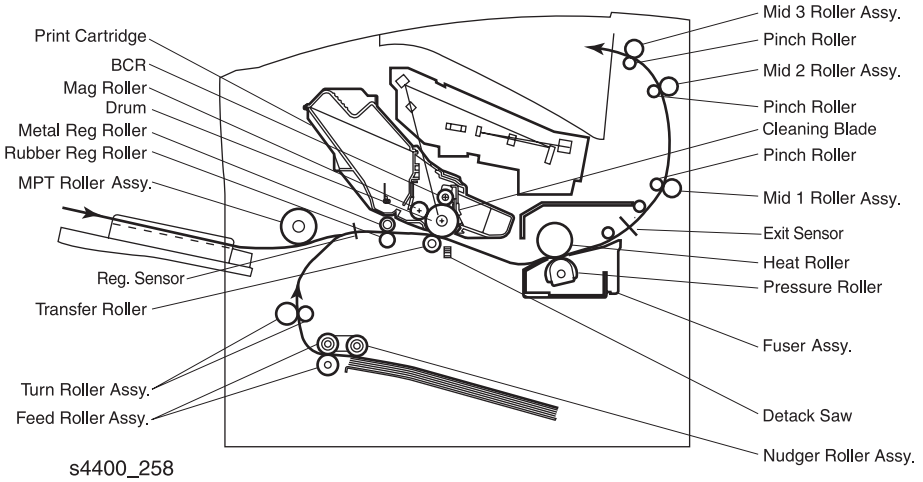
There are three paths that a sheet of paper can follow during a feed cycle. One path is taken if paper is fed from the Paper Tray. Another path is taken if paper is fed from the Multi-Purpose Tray (MPT). A third path is taken if paper is fed from the Envelope Feeder Assembly option.




**Paper Path Flow Diagram**

# The Three Possible Paper Paths

The figure below is a cut-away side view of the Phaser 4400 printer that shows the major components that are directly related to the paper path.




**Side View of the Printer Showing the Paper Path**

The following table lists the error codes that are generated when a paper jam occurs at some point on the paper path.

**Jam Error Codes**

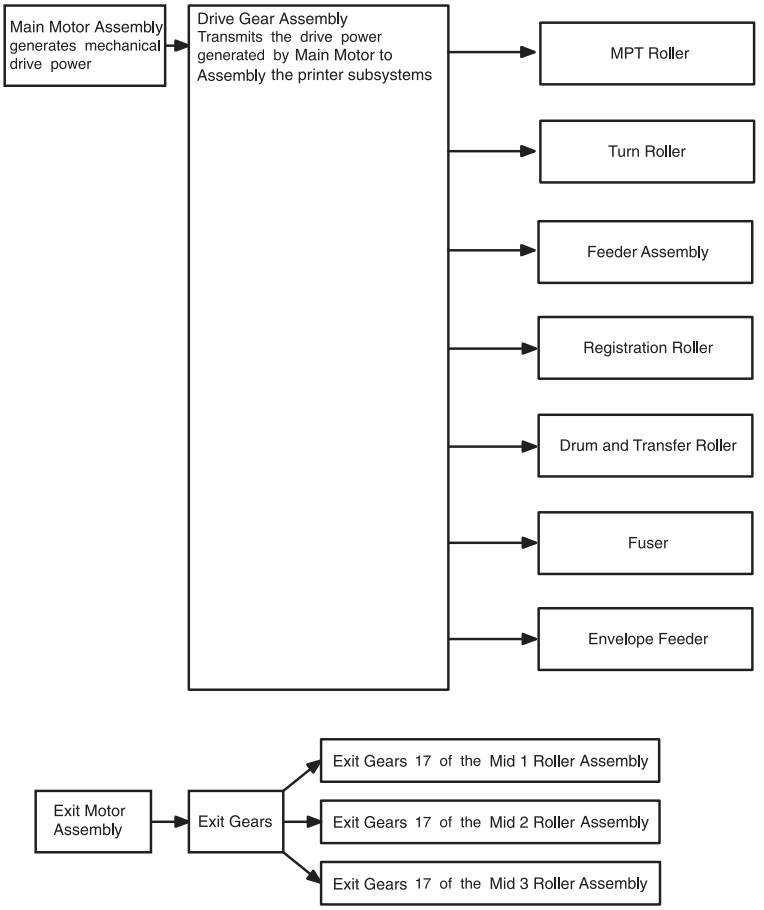
| Error Code | Error Description | Front Panel Message |
|---|---|---|
| E2-0M: Feed Jam | Paper arrives at Registration sensor too early. | Jam At MPT; Open Front Cover To Clear.\\Press i. |
| E2-1M: Feed Jam | Paper does not arrive at Registration Sensor within a specified time. | Jam At MPT; Open Front Cover To Clear.\\Press i. |
| E2-01: Feed Jam | Paper arrives at Registration Sensor too early. | Jam At Tray 1; Open Tray And Front Cover To Clear.\\Press i. |
| E2-11: Feed Jam | Paper does not arrive at Registration Sensor within a specified time. | Jam At Tray 1; Open Tray And Front Cover To Clear.\\Press i. |
| E2-02: Feed Jam | Paper arrives at Registration Sensor too Early. | Jam At Tray 2; Open Tray And Front Cover To Clear.\\Press i. |
| E2-12: Feed Jam | Paper does not arrive at Registration Sensor position within a specified time. | Jam At Tray 2; Open Tray And Front Cover To Clear.\\Press i. |
| E2-03: Feed Jam | Paper arrives at Registration Sensor too Early. | Jam At Tray 3; Open Tray And Front Cover To Clear.\\Press i. |
| E2-13: Feed Jam | Paper does not arrive at Registration Sensor within a specified time. | Jam At Tray 3; Open Tray And Front Cover To Clear.\\Press i. |

**Jam Error Codes (cont'd.)**

| Error Code | Error Description | Front Panel Message |
|---|---|---|
| E2-0E: Feed Jam | Paper arrives at Registration Sensor too early. | Jam At Envelope Feeder; Remove Feeder And Open Front Cover To Clear.\\Press i. |
| E2-1E: Feed Jam | Paper does not arrive at Registration Sensor within a specified time. | Jam At Envelope Feeder; Remove Feeder And Open Front Cover To Clear.\\Press i. |
| E3-1: Registration Jam | Paper late to Fuser Exit Sensor after arrival at Registration Sensor. | Jam At Front; Open Front Cover To Clear.\\Press i. |
| E3-2: Registration Jam | Registration Sensor on at power-on or paper on Registration Sensor | Jam At Front; Open Front Cover To Clear.\\Press i. |
| E4-0: Exit Jam | Paper leaves Fuser Exit Sensor early | Jam At Exit; Open Rear Cover To Clear.\\Press i. |
| E4-2: Exit Jam | 1. Paper late off Fuser Exit Sensor.<br>2. Exit Sensor on at power-on. | Jam At Exit; Open Rear Cover To Clear.\\Press i. |
| E4-3: Exit Jam | Custom Paper late off Fuser Exit Sensor within a specified time from Registration Sensor. | Jam At Exit; Open Rear Cover To Clear.\\Press i. |
| E6-1:Stacker Jam | Paper late to Stacker Sensor. | Jam At Stacker; Open Both Rear Covers To Clear.\\Press i. |
| E6-2:Stacker Jam | Paper late off Stacker Sensor. | Jam At Stacker; Open Both Rear Covers To Clear.\\Press i. |
| E7-0: Duplex Jam | Paper arrives at Registration Sensor early from Duplex Sensor. | Jam At Front; Open Front Cover To Clear.\\Press i. |
| E7-1: Duplex Jam | Paper Late to Duplex Sensor. | Jam At Rear; Open Rear Cover To Clear.\\Press i. |
| E7-2: Duplex Jam | 1. Paper late off Duplex Sensor.<br>2. Duplex Sensor on at power-on. | Jam At Rear; Open Rear Cover To Clear.\\Press i. |
| E7-3: Duplex Jam | Paper late to Registration Sensor from Duplex Sensor. | Jam At Rear; Open Rear Cover To Clear.\\Press i. |

# Drive Flow

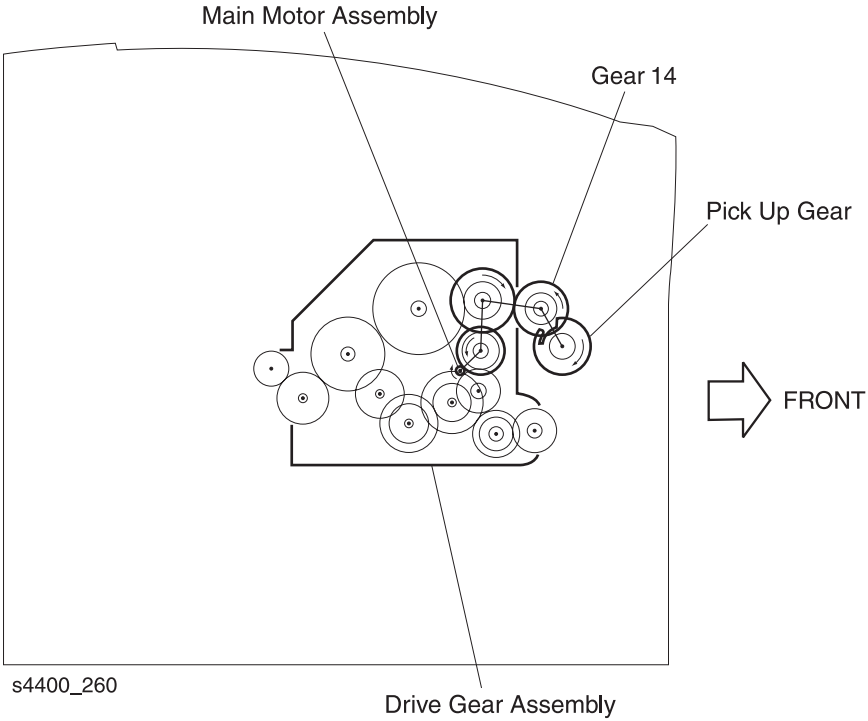
The Drive Gear Assembly transmits the mechanical energy created by the Main Motor Assembly to the printer subsystems: the MPT Roller, Turn Roller, Feeder Assembly, Registration Roller, Drum and Transfer Roller, Fuser, and Optional Envelope Feeder. The Exit Motor Assembly provides the power needed by the exit components. The pages following this figure show each drive section in more detail.




**Drive Flow Through the Printer**

# Drive Transmission to the MPT Roller Assembly

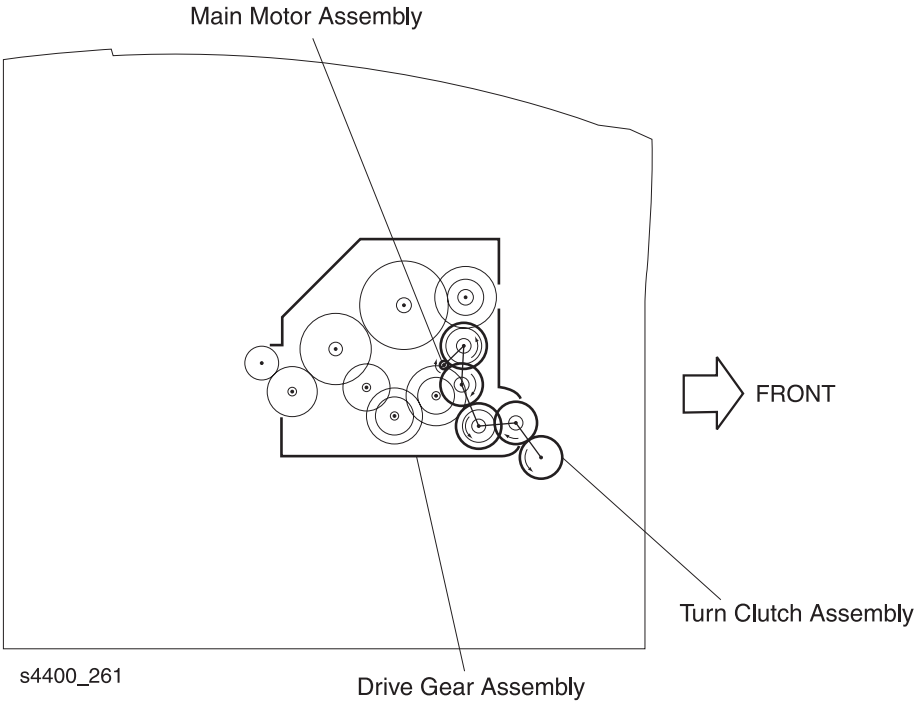
The mechanical energy created by the Main Motor Assembly is transmitted through Gear 14 to the Pick Up Gear that drives the MPT Roller Assembly. When the Pick Up Solenoid actuates, it transmits the energy from Gear 14 to the Pick Up Gear that is located on the end of the MPT Shaft Assembly.




**Drive Transmission to the MPT Roller Assembly**

# Drive Transmission to the Turn Roller Assembly

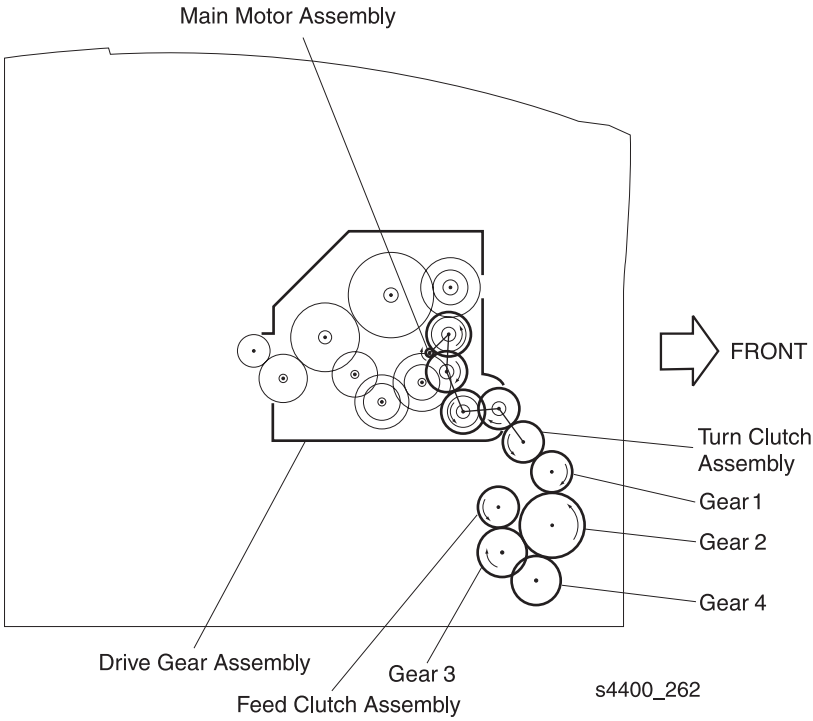
The mechanical energy created by the Main Motor Assembly is transmitted through the Drive Gear Assembly to the Turn Clutch Assembly. When the Turn Clutch Assembly actuates it transmits the energy to the Turn Roller Assembly.




**Drive Transmission to the Turn Roller Assembly**

# Drive Transmission to the Feeder Assembly

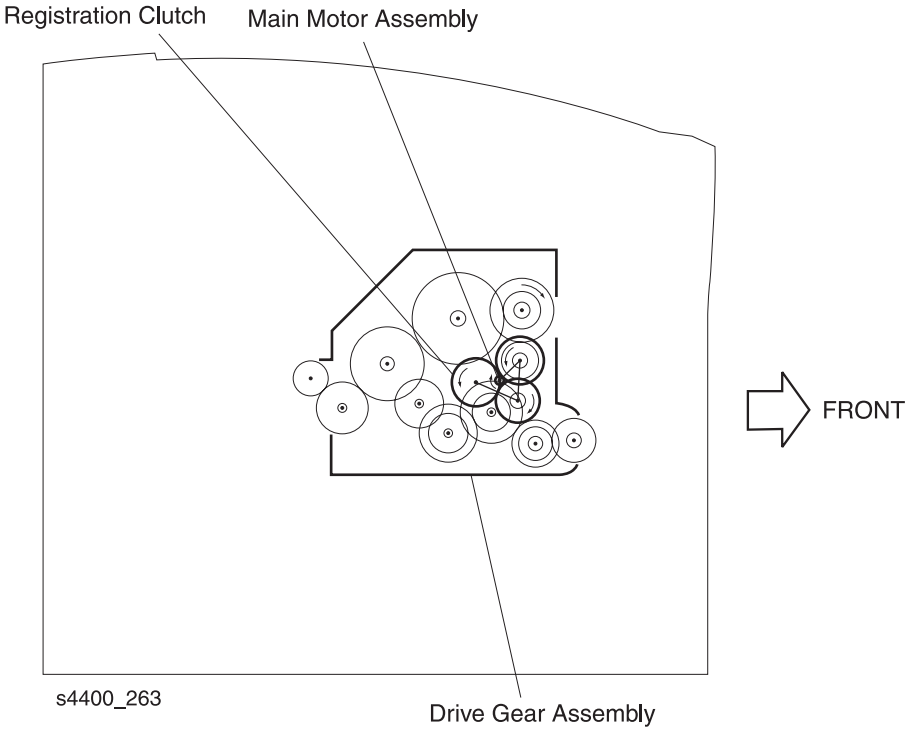
The mechanical energy created by the Main Motor Assembly is transmitted through the Drive Gear Assembly, Turn Clutch Assembly, and idler gears to the Feed Clutch Assembly. When the Feed Clutch Assembly actuates, it transmits the energy to the Feed Roller Assembly.




**Drive Transmission to the Feeder Assembly**

# Drive Transmission to the Rubber Registration Roller Assembly

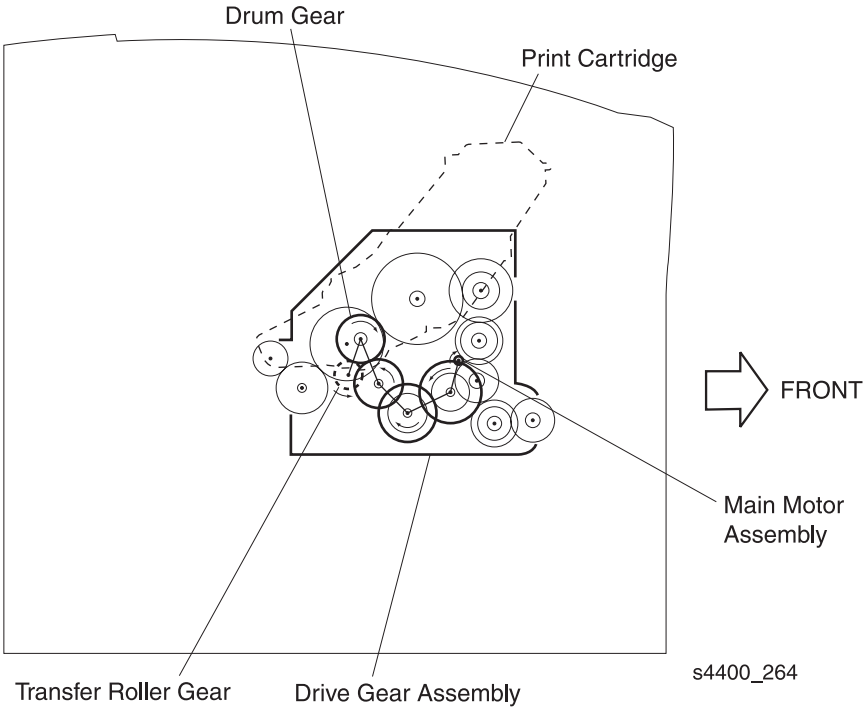
The mechanical energy created by the Main Motor Assembly is transmitted through the Drive Gear Assembly to the Registration Clutch that is located on the end of the Rubber Registration Roller.




**Drive Transmission to the Rubber Registration Roller**

# Drive Transmission to the Drum and the Transfer Roller

The Drive Gear Assembly transmits mechanical energy from the Main Motor Assembly to the Drum drive gear that is located on the end of the Drum. The Drum Gear drives the Transfer Roller Gear that is located on the end of the Transfer Roller Assembly.

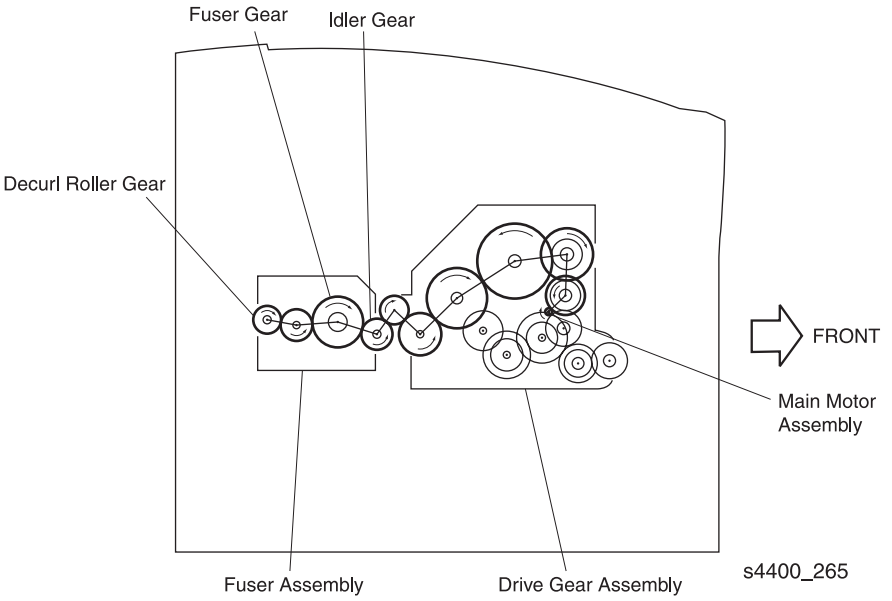



**Drive Transmission to the Drum and Transfer Roller**

# Drive Transmission to the Fuser Assembly

The Drive Gear Assembly transmits the mechanical energy created by the Main Motor Assembly to the Idler Gear of the Fuser Assembly. The Idler Gear transmits energy to the Heat Roller Gear located on the Heat Roller.

***Note:*** ***The Fuser gear disengages from the Idler gear when the Front Cover is opened.***

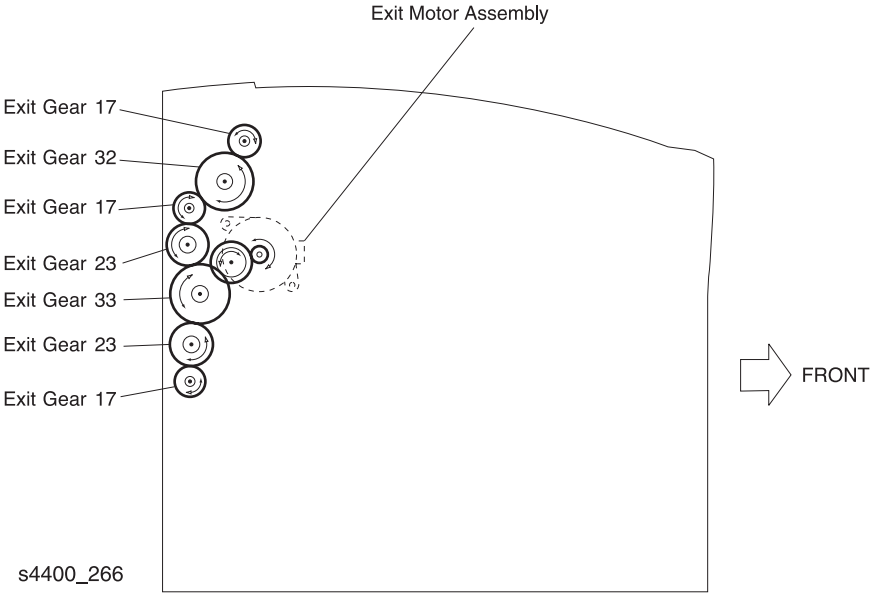



**Drive Transmission to the Fuser Assembly**

# Drive Transmission to the Exit Components

The mechanical energy created by the Exit Motor Assembly provides drive to the gears located on the Exit Chute Assembly.

***Note:*** ***The Rear Door Interlock interrupts the +24 V DC supply to the Exit Motor.***




**Drive Transmission to the Exit Components**

# Engine Logic Board and Front Panel Functions

The Engine Logic Board performs eight main functions:

- Communicates with the Image Processor.
- Controls the print sequence.
- Controls the Fuser Assembly, Laser Assembly, and Drive components.
- Distributes low DC voltages to various printer components.
- Monitors printer status.
- Maintains a running print count.
- Writes the NVRAM settings.
- Controls printer options.

The Engine Logic Board uses a 32 bit microcomputer and Application Specific Integrated Circuits (ASICs). The 32 bit microcomputer includes: ROM, RAM, a 16 bit integrated timer, a programmable timing pattern controller, a watch dog timer, serial communication interfaces, an A/D converter, a D/A converter, I/O ports, a DMA controller, and a refresh controller.

# Image Processor Board

The Image Processor (IP) is one of the major elements that make up the Phaser 4400 printer. The primary function of the Image Process is to receive Host data through one of the following available ports (Parallel, USB, or Ethernet). The received host data is buffered and stored and sent to the print engine in a rasterized format.

The secondary function of the Image Processor is to provide print control, front panel control, configuration setup, error reporting and job recovery.

Before the IP can receive and process data it must first pass the Power On Self Test (POST). This test process verifies proper operation of the Image Processor and prepares it for processing the host data by putting the Image Processor in a known state.

The Image Processor connects to the Engine Logic Board directly. The Front Panel is connected to the Image Processor and signals pass through the Engine Logic Board via the Image Processor.

## 5 VDC PWB

This board converts 24 VDC from the LVPS to 5 VDC, which it supplies to the Image Processor board.

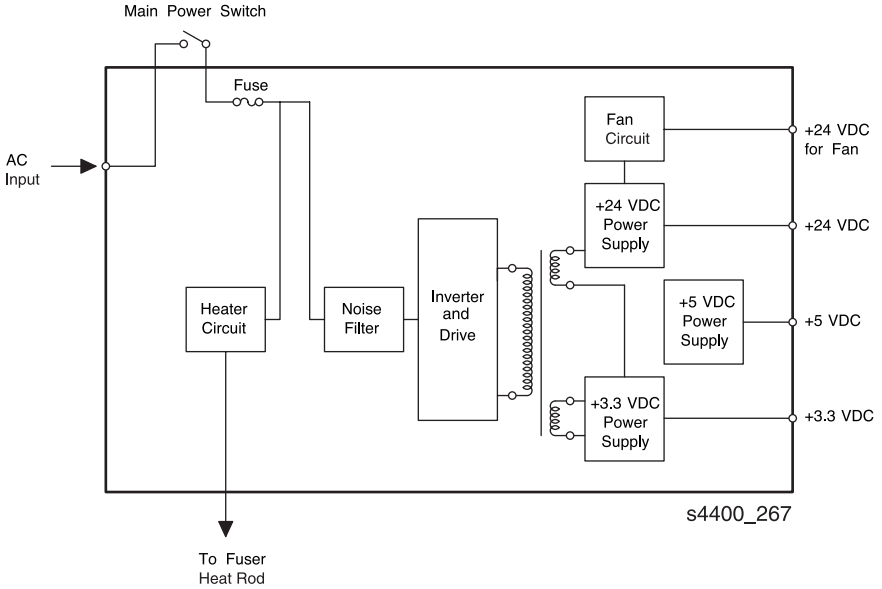
# Power Supplies

## The Low Voltage Power Supply (LVPS)

The LVPS uses a resonance-type switching regulator. The LVPS supplies +24 VDC, +5 VDC, +3.3 VDC.

The LVPS has built-in overcurrent protection. If an excessive current begins to flow the DC supplies are shut down. Switch the power supply OFF for 5 minutes, then ON again to reset the circuit after an overcurrent shutdown.

The LVPS also supplies AC power to the Heat Rod. A circuit, controlled by the Heat ON signal from the Engine Logic Board, switches power to the Heat Rod.




**LVPS Block Schematic Diagram**

## The High Voltage Power Supply (HVPS)

The HVPS supplies high voltages for the Bias Charge Roller (BCS), Transfer Roller (TR), Drum Bias (DB), and Detack Saw (DTS). The HVPS receives +24 VDC input from the LVPS, along with nine control signals from the Engine Logic Board.

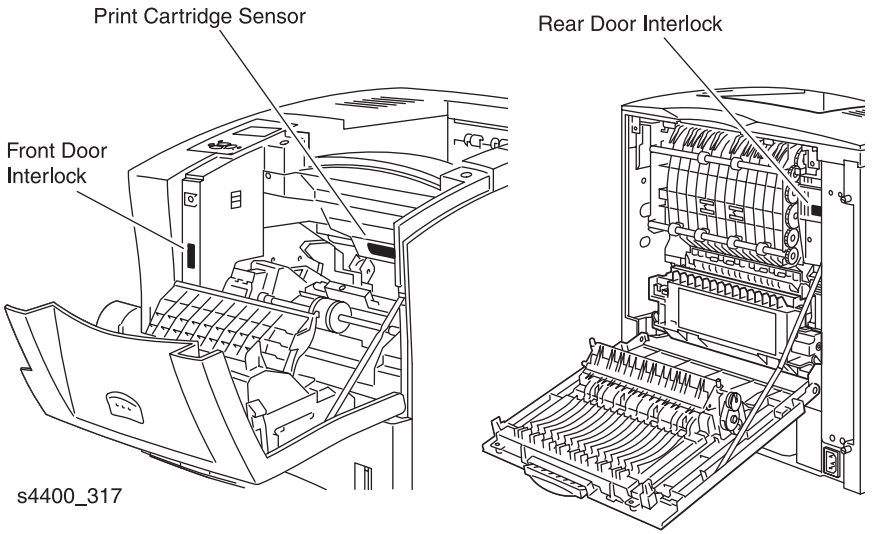
The HVPS has built-in overcurrent protection. If an excessive current begins to flow in any of the four power supplies, all of the supplies are shut down. Switch the power supply OFF, then ON again to reset the circuit after an overcurrent shutdown.

# Interlocks

There are four interlocks in the printer that prevent operation when the interlocks are de-actuated:

- Front Door Interlock — When the interlock switch opens, it interrupts +24 V DC power to the printer, which disables all clutches, motors, and other users of +24 VDC.
- Rear Door Interlock — When the interlock switch opens, it interrupts +24 VDC power to the exit motor.
- Print Cartridge Sensor — When the Print Cartridge is absent from the printer, the sensor interrupts +5 V to the Laser Diode.

This drawing shows the location of the two interlock switches and the Print Cartridge Sensor.




**Interlock Locations in the Printer**

# Laser Control

## Laser Self-Check

The Laser Self-Check is complete when the Laser Diode laser power reaches the value that was set in NVRAM Configuration, and when the READY interval for the SOS signal is approximately 98% of the SOS interval when the Laser Motor is rotating.

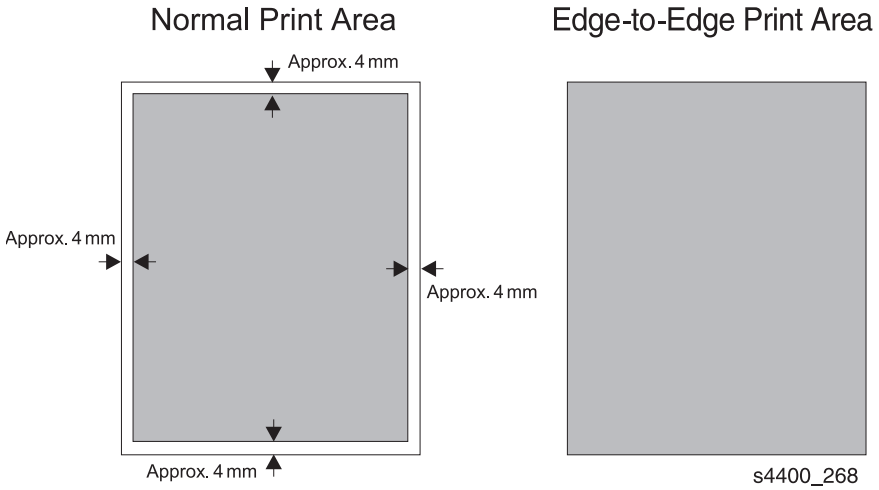
The following table illustrates the Laser Motor and Laser Diode Control in Various Printer Modes:

**Laser Motor and Laser Diode Control in Various Printer Modes**

| Printer Mode | Laser Motor and Laser Diode Control |
|---|---|
| Printing | The Laser Motor and the Laser Diode are both controlled by the Engine Logic Board. |
| Diagnostic | The Laser Motor and the Laser Diode are always on. |

## Printable Area

***Note:*** ***The Printer is capable of edge-to-edge printing. Within the 4 mm border (4 sides) the printer will print any data 6 point Arial or larger.***




**Printable Area**

## Laser Trouble (U2 Error Code)

There are three major causes of U2 errors:

1. Warm-up failure - SOS signal intervals are longer than the READY reference value during three consecutive samplings of the SOS. The actual laser power does not equal the value set in NVRAM.
2. Laser speed too low (Down Failure) - SOS signal intervals are longer than the set Down Failure interval after completion of warm-up. The set Down Failure is a time interval corresponding to 90% of the rated Laser Motor speed of rotation.
3. Laser speed too high (Overrun Failure) - SOS signal intervals are shorter than the set Overrun Failure interval after completion of warm-up. The set Overrun Failure is a time interval corresponding to 102% of the rated Laser Motor speed of rotation.

# Fuser Control

## Fuser Temperature Control

To maintain the temperature of the Fuser Heat Roller at the levels required for proper operation, the Fuser uses a Thermistor to monitor the temperature on the surface of the Heat Roller. The Engine Logic Board compares that temperature with the rated temperature that is set in NVRAM, and switches the Heat Rod on or off depending on how the actual temperature differs from the rated temperature.

## Fuser Temperature Adjustment

You can adjust the rated Fuser temperature by changing the Fuser Configuration from the Tray Setup Menu.

The printer switches on the Heat Rod when the Fuser temperature falls below the current control temperature (approximately 178° C for the standard control temperature). The printer switches off the Heat Rod when the Fuser temperature rises above the current control temperature (approximately 180° C for the standard control temperature).

## Fuser Warm-up

Power to the Heat Rod is applied at the start of printer warm-up. Warm-up is complete when the Heat Roller reaches the current control temperature. If the Fuser temperature is below 100° C at start of warm-up, then warm-up finishes when the Fuser temperature reaches “standby temperature”.

# Fuser Trouble (U4 Error Code)

There are five major causes of a U4 error.

- Warm-up failure — Fuser warm-up does not complete within specified seconds after starting.
- Low Trouble temperature — The Fuser temperature drops to the Low Trouble temperature (approximately current control temperature, minus approximately 25° C.
- High Trouble temperature — The Fuser temperature rises to the High Trouble temperature (approximately current control temperature, plus approximately 35° C.
- Thermistor circuit opened.
- STS failure — The Heat Rod remains on for at least ten seconds after warm-up has completed.

# AC Power Shutoff to the Fuser

There are eight reasons that the printer shuts off AC power to the Fuser.

- Fuser Failure (U4)
- Paper jam
- Open Front/Rear Cover Assembly
- Laser failure (U2)
- CPU or NVRAM problem (U6)
- Main Motor Assembly problem (U1)
- Fan problem (U5)
- FUSER PAUSE command issued

# Fuser Temperature Cycling

**Fuser Temperature Cycling**

| Temperature Name | Temperature Value |
|---|---|
| High Trouble Temperature | Approximately 215° C (Standby temperature + approximately 35° C) |
| Fuser Off Temperature | Fuser control temperature +/- 0 ° C |
| Fuser Control Temperature | Standby temperature (180° C) |
| | Running temperature (195° C) |
| Fuser On Temperature | Fuser control temperature - 2° C |
| Low Trouble Temperature | Approximately 155° C (Standby temperature - approximately 25° C) |

# Erase Cycle

The printer immediately interrupts a print cycle whenever the Front or Rear Covers are opened, there is a paper jam, Tray 1 is removed, or the printer power is switched off. When you remove the cause of the print cycle interruption, such as closing the covers, clearing the paper jam, reinstalling the Paper Tray, or switching on printer power, the printer runs an Erase Cycle before continuing with the next print cycle.

During an Erase Cycle, the printer switches on the Main Motor Assembly and the BCR (AC and DC), Transfer Roller(-) and DB (DC) voltages. The Erase Cycle removes any developed image (toner) on the drum, and any latent image (electrical) on the drum. When the Erase Cycle finishes, the printer returns to normal mode and is ready to resume printing.

# Fan Control

The printer switches between two Fan speeds:

- High Speed, when the Main Motor Assembly is on.
- Low Speed, when the Main Motor Assembly is off.

When printer power is switched on, or when an Interlock Switch is actuated (after being deactuated), the Fan runs at High Speed for one second, then switches to Low Speed.

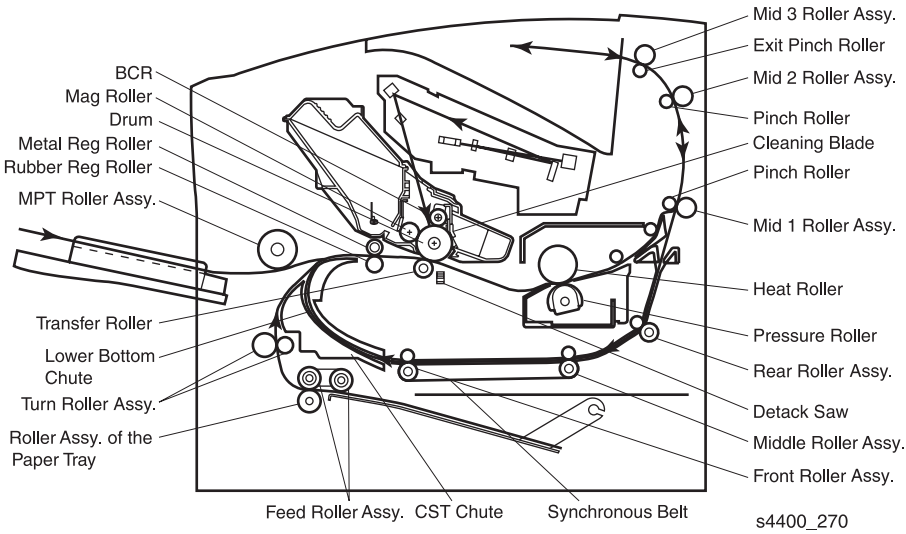
# Duplex Printing

## Duplex Printing Paper Path

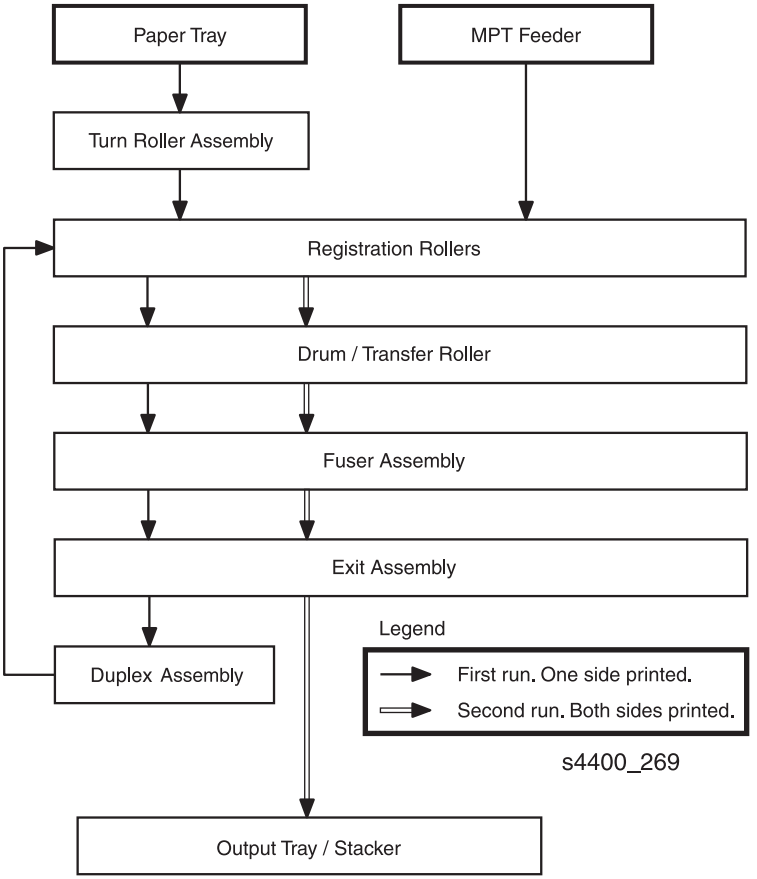
During duplex printing, the printer prints the first side of the paper, then the Exit Assembly reverses direction and re-feeds the paper to the Duplex Unit. The paper is transferred through the Duplex Unit and fed again to the Paper Handler Assembly. When the paper reaches the registration position, the second side of the paper is already face up. Then the printer starts to print the second side of the paper, and transfers the completed duplex sheet to the Output Tray.

To ensure proper collation of the output documents during duplexing, even sides are printed first.

Error codes generated by paper jams in the Duplex Unit are listed in the Paper Jam Error Codes table on page 8-12.




**Duplex Paper Path**




**Duplex Unit Paper Path**

# Duplex Printing Methods

The Duplex Unit uses a single-sheet batch and a multi-sheet batch mode when duplexing a print job.

- Single-sheet batch printing — involving a single sheet of paper.

  The first side of the page is printed, then the second side is printed and the page is sent to the output tray.

  Single-sheet batch is used by the printer when a complex duplex job is received. For example, if the printer received a job that contains complicated graphics, the printer will switch to single-sheet batch mode so it can process the job.

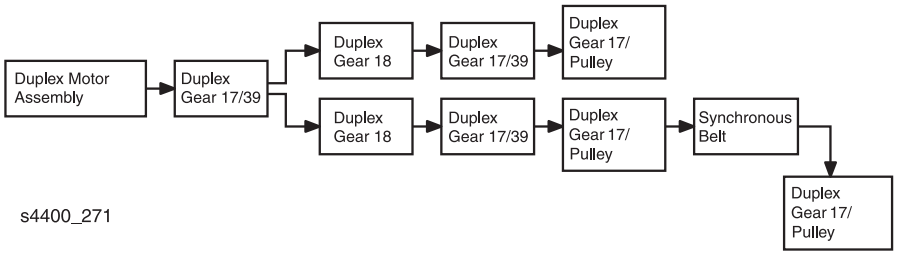
- Multi-sheet batch printing:

  1. The printer prints on one side of the first sheet of paper.
  2. The first sheet is returned to the Duplex Unit and held.
  3. The printer prints on one side of a second sheet of paper.
  4. The Duplex Unit returns the first sheet to the printer as the Exit Assembly returns the second sheet to the Duplex Unit.
  5. The printer prints on the second side of the first sheet.
  6. The printer transports the first sheet to the Output Tray.
  7. A third sheet is fed and printed on one side.
  8. The Duplex Unit returns the second sheet to the printer as the third sheet is returned to the Duplex Unit.
  9. The printer prints on the second side of the second sheet.
  10. The printer transports the duplexed printed second sheet to the output tray.

  This process repeats for additional prints.

# Drive Flow

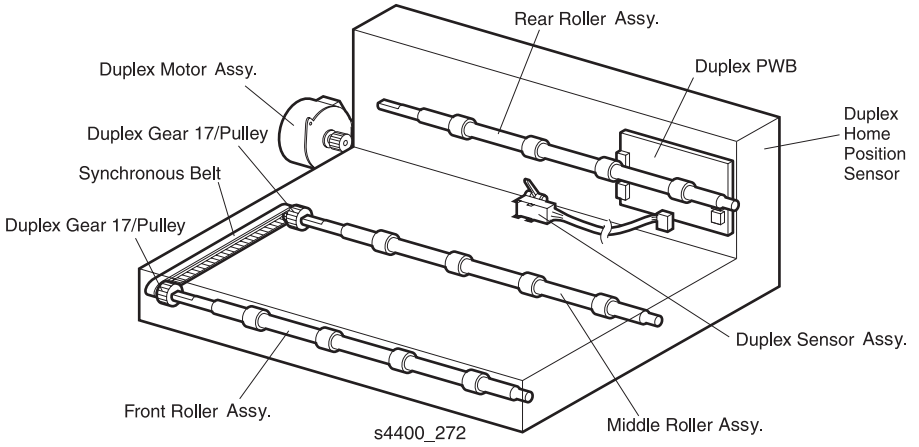
The Duplex Motor Assembly generates the mechanical energy needed to run the Duplex Unit.




**The Drive Flow of the Duplex Unit**

# Function of Major Components

- Duplex Roller Assemblies (Rear, Middle, and Front) — Transfers the paper through the Duplex Unit.
- Duplex Motor Assembly — Generates the drive to the Duplex Unit.
- Gears — Transmit the drive power generated by the Duplex Motor Assembly to the Duplex Roller Assembly.
- Synchronous Belt — Transmits the drive power from the Middle Roller Assembly to the Front Roller Assembly.
- Duplex Sensor Assembly — Detects paper entering and leaving the Duplex Unit.
- Duplex Home Position Sensor — Detects the position of the Duplex unit relative to the Rear Cover.
- Duplex PWB —
  - Receives the control signals for the Duplex Motor Assembly from the Engine Logic Board, and provides the phase signals to operate the Duplex Motor Assembly.
  - Transmits the detection signals of the Duplex Sensor (jam detection) and the Duplex Home Position Sensor to the Engine Logic Board.
  - Provides +24 VDC and +3.3 VDC for the Duplex Motor Assembly and Sensors.

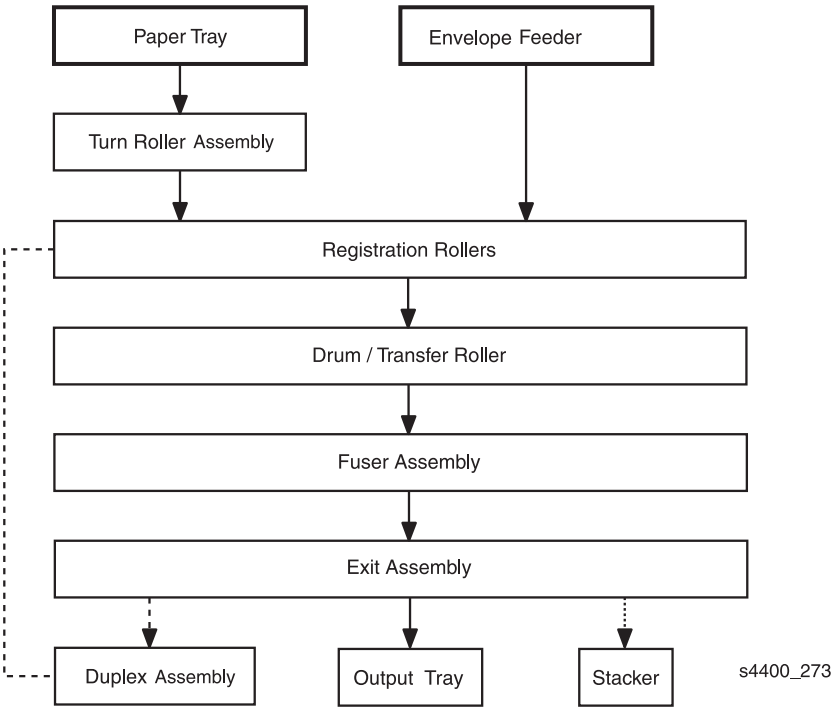



**Major Components of the Duplex Unit**

# Envelope Feeder

## Envelope Feeder Paper Path

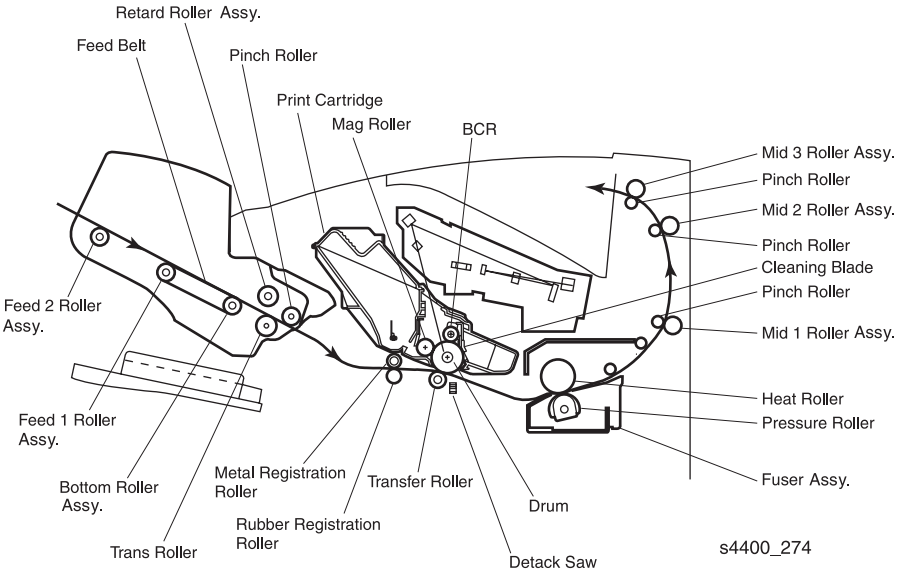
Paper that is fed from the optional Envelope Feeder follows the path shown.




**Envelope Feeder Paper Path**

The figure below shows a cut-away view of the printer, to better illustrate the components involved in the Envelope paper path.

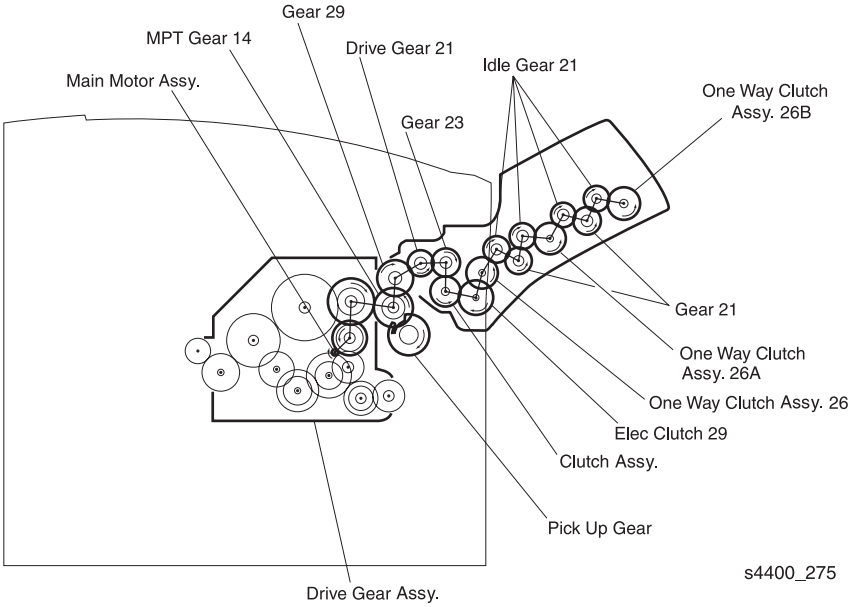
Error codes generated by paper jams in the Envelope Feeder are listed in the Paper Jam Error Codes table on page 8-12.




**Envelope Feeder Paper Path — Cut-away View**

# Drive Flow

As shown, the mechanical power generated by the Main Motor Assembly is transmitted to the gears of the Envelope Feeder.

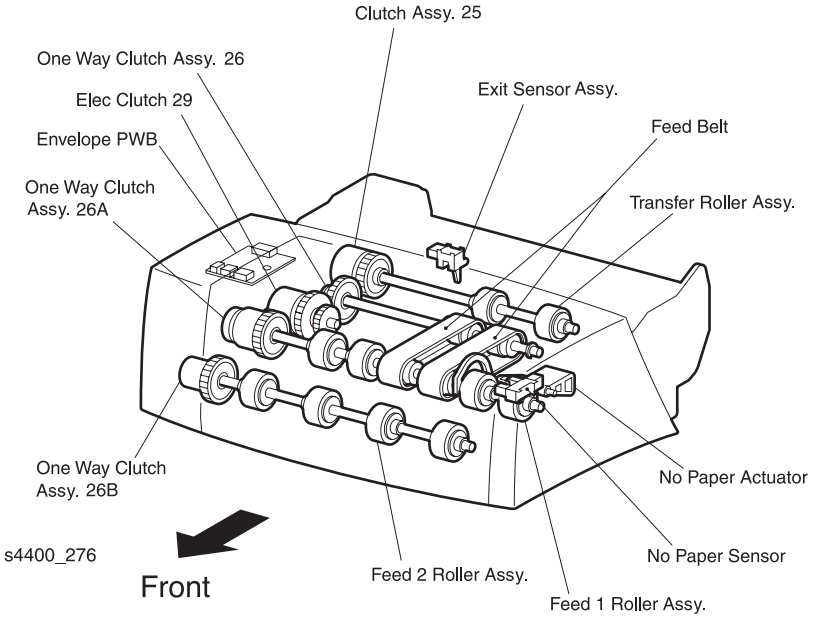



**Drive Flow**

# Function of Major Components

The figure below shows the major components of the Envelope Feeder.

- Clutch 29 — Controls the transmission of the drive power by the actuation of the clutch function.
- Clutch Assembly — One-way Torque: 25, 26, 26A and 26B. Prevents clockwise rotation.
- Feed 1 Roller Assembly — Transfers the envelope by its counterclockwise rotation.
- Feed 2 Roller Assembly and Roller Assembly Bottom — Transfers the envelope by its counterclockwise rotation and transfers the drive power to the Feed Belts at the same time.
- Transfer Roller Assembly — Transfers the envelope to the registration paper path.
- No Paper Sensor — Detects out of envelope condition.
- Envelope Exit Sensor Assembly — Detects exit of the envelope.
- Envelope PWB — Controls the Envelope Feeder and is the signal interface to the Engine Logic Board.

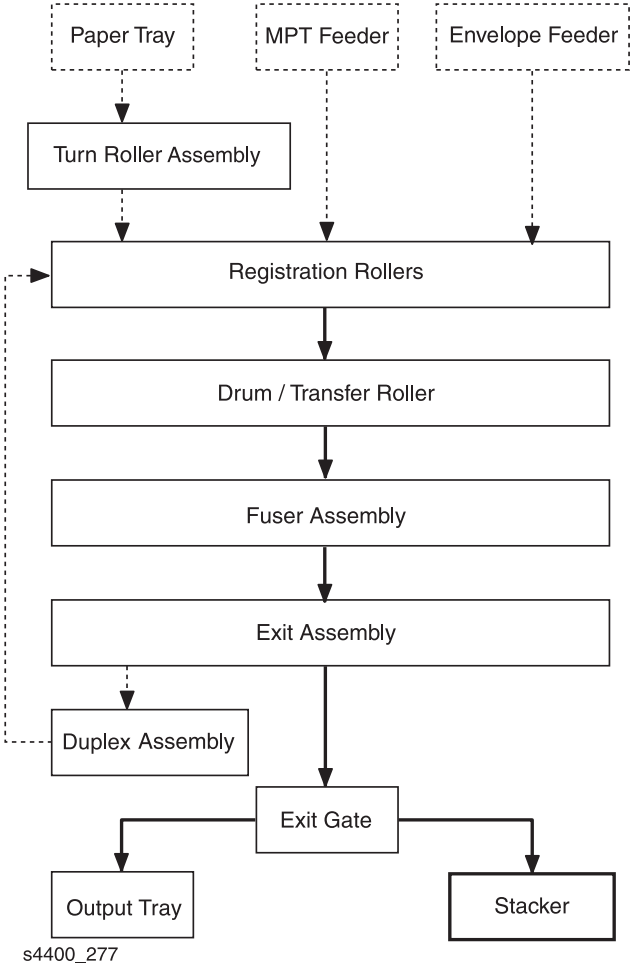



**Major Components of the Envelope Feeder**

# Stacker

## Stacker Paper Path

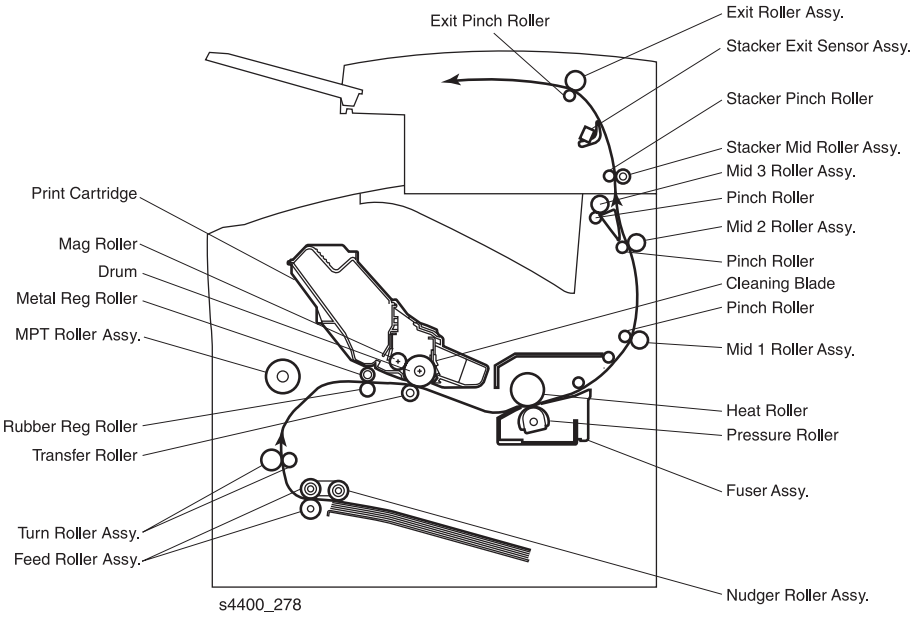
Paper that is fed to the optional Stacker follows the path shown in this diagram.




**Stacker Paper Path**

The figure below shows a cut-away view of the printer to better illustrate the components of the Stacker paper path.

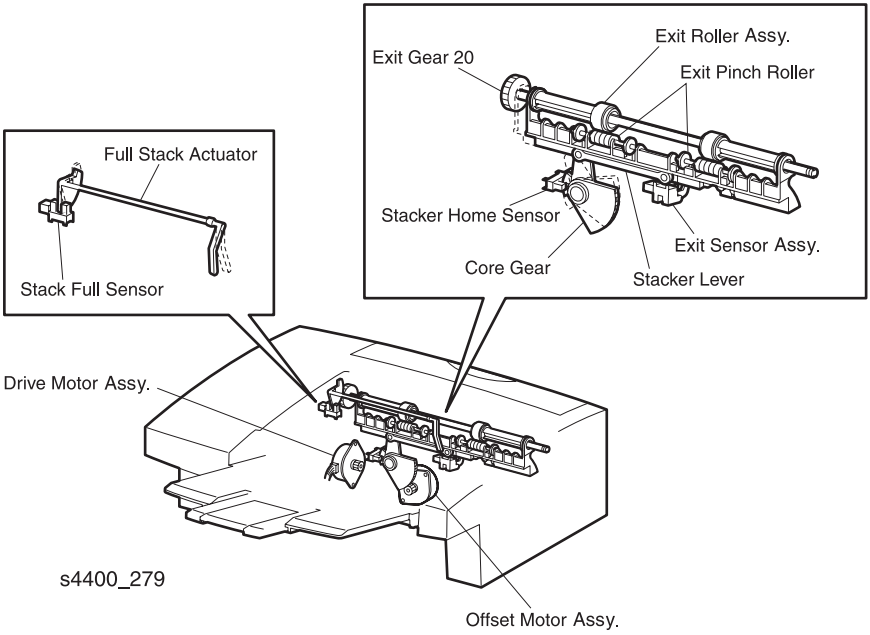
Error codes generated by paper jams in the Stacker are listed in the Paper Jam Error Codes table on page 8-12.



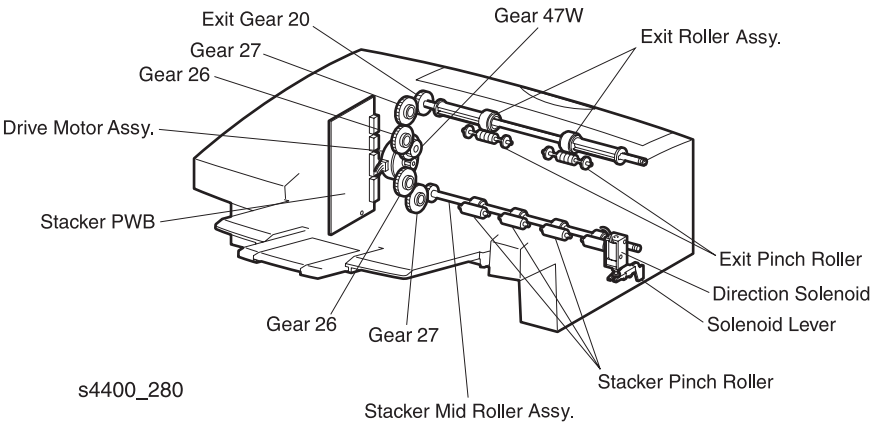

**Stacker Paper Path — Cut-away View**

# Drive Flow

The Drive Motor Assembly generates the mechanical power needed to run the Stacker Mid Roller Assembly and Offset Roller Assembly. The Offset Motor Assembly generates the drive power to move the Offset Roller Assembly in alternating directions.




**Major Components of the Stacker (1 of 2)**




**Major Components of the Stacker (2 of 2)**

# Function of Major Components

The two figures on page 8-39 show the major components of the Stacker.

- Drive Motor Assembly — Drives the Stacker Mid Roller Assembly and the Exit Roller Assembly.
- Offset Motor Assembly — Shifts the Offset Roller Assembly.
- Stack Full Sensor and Stack Full Actuator — Detects when the stacking of the Exit Tray exceeds 500 sheets of paper.
- Stacker PWB — Controls Stacker operations.
- Offset Roller Assembly — Drives printed pages into the Stacker Tray, offsetting each from the normal position.
- Stacker Exit Sensor Assembly — Located between the Mid Stacker Roller Assembly and the Offset Roller Assembly, it detects when paper passes into the Tray Exit.
- Home Sensor — The Stacker Home Sensor detects when the Offset Roller Assembly is in the home position. It is turned On when the Core Gear is located at the sensing point of the Stacker Home Sensor.
- Direction Solenoid and Lever — Switches the paper path between the normal paper path and the Stacker paper path.

# Stacker Control

## Offset Motor Control

When the end of a sheet of paper reaches the Stacker Exit Sensor Assembly, the sensor signal goes Low. The Offset Motor Assembly begins rotating clockwise for a specified time after the signal goes Low. This clockwise rotation shifts the sheet of paper from the normal position. At the specified time after the Sensor Assembly Exit goes Low, the Exit Motor Assembly begins rotating in the counterclockwise direction, moving the Offset Roller Assembly back into home position, until the Sensor Stacker Home signal (/Stacker HOME) goes Low. When the power is first switched on, the Offset Motor Assembly performs this offset operation once to make sure the Offset Roller Assembly is in the home position.

## Duplex Operation

When the printer is running in Duplex mode, the paper partially feeds out into the standard Exit Tray (under the Stacker Assembly). The paper then reverses direction, is printed on the second side, and sent to the Exit Tray of the Stacker.

## Full Stack Detection

The Engine Logic Board examines the state of the Full Stack Sensor after the Sensor Assembly Exit signal goes Low. The Engine Logic Board detects that the Exit Tray is full when the Stack Full Sensor remains High for a set number of successive Exit Sensor Assembly actuations (sheets of paper exiting in the Stacker). The Stack Full condition stays in affect until the Stack Full Sensor goes Low.

## Paper Jam Detection

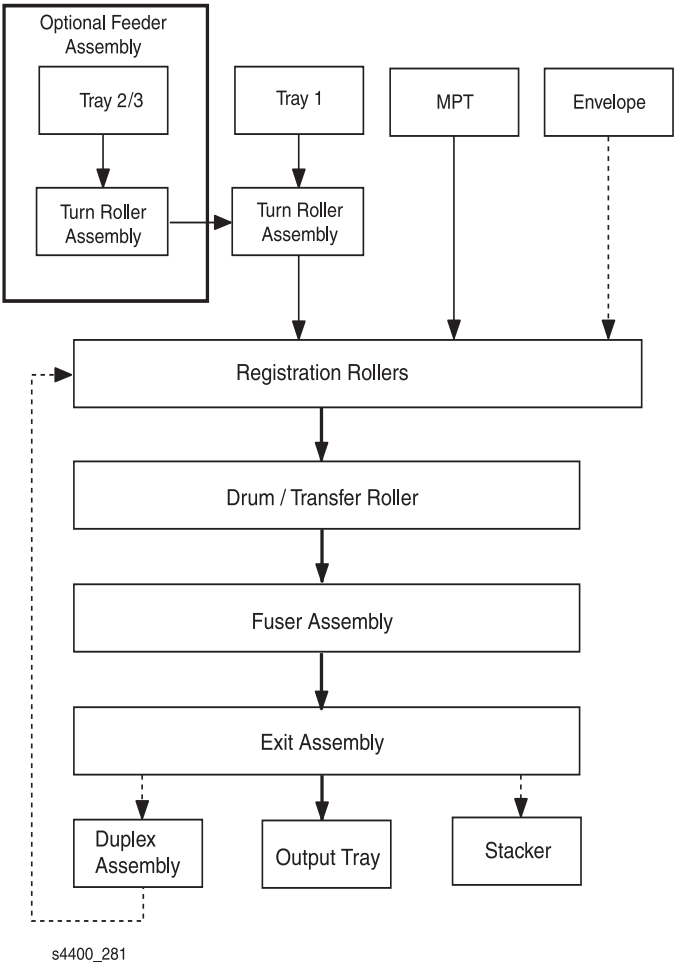
The base printer and the Stacker are designed to move a sheet of paper between the detecting points, i.e., sensors, on the paper path within specific periods of time. If a sheet of paper is either early or late arriving at any point, the Engine Logic Board interprets this deviation as a paper jam.

- E6-1 Jam — The specified time that the paper has to turn the Stacker Sensor Assembly Low after it has turned the Sensor Exit High. If the Sensor Assembly Exit does not go Low after the specified time, the Engine Logic Board detects that a Stacker jam has occurred.
- E6-2 Jam — The specified time that the paper has to leave the stacker sensor, or the Stacker Exit Sensor is actuated at power-on.

# Option Feeder Assembly

## Option Feeder Assembly Paper Path

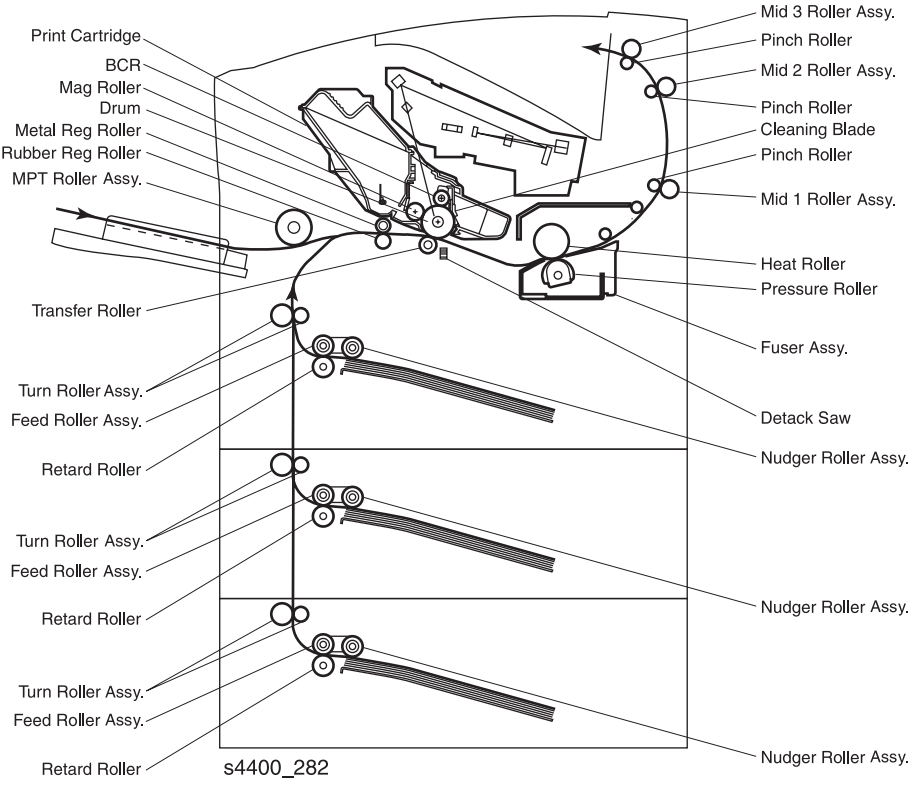
Paper that is fed from the Optional Feeder Assembly follows the path shown here.




**Option Feeder Paper Path Diagram**

The figure below shows a cut-away view of the printer, to better illustrate the components in the Option Feeder Assembly paper path.

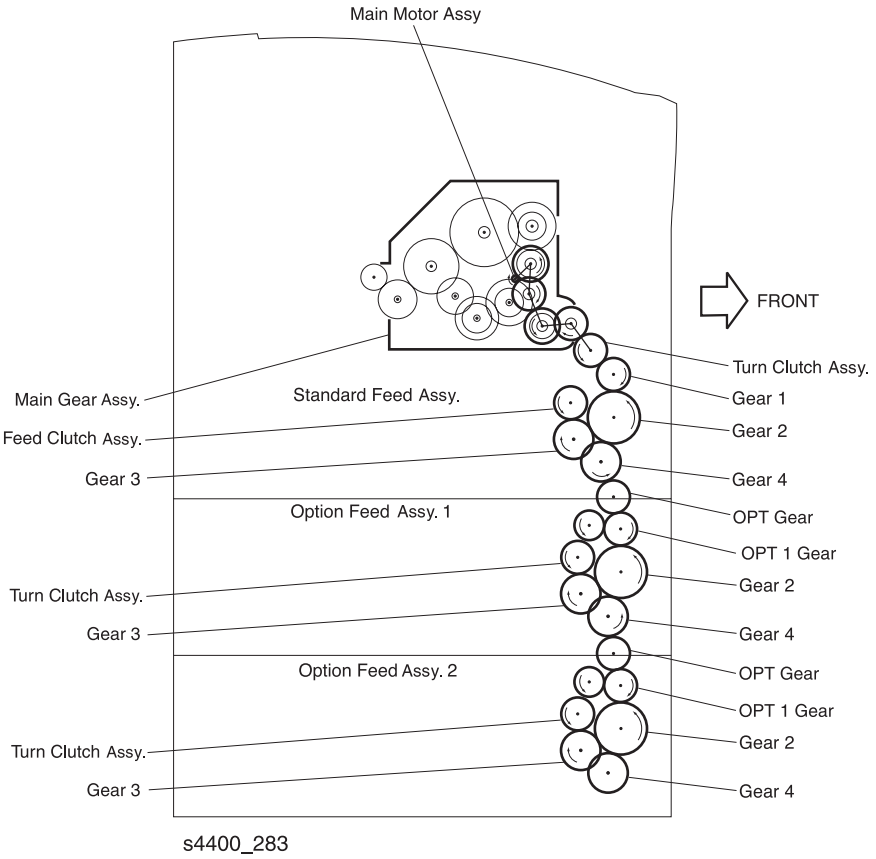
Error codes generated by paper jams in the Optional Feeder Trays are listed in the Paper Jam Error Codes table on page 8-12.




**Option Feeder Paper Path — Cut-away View**

# Drive Flow

As shown here, the mechanical power generated by the Main Motor Assembly is transmitted to the gears of the Option Feeder Assembly

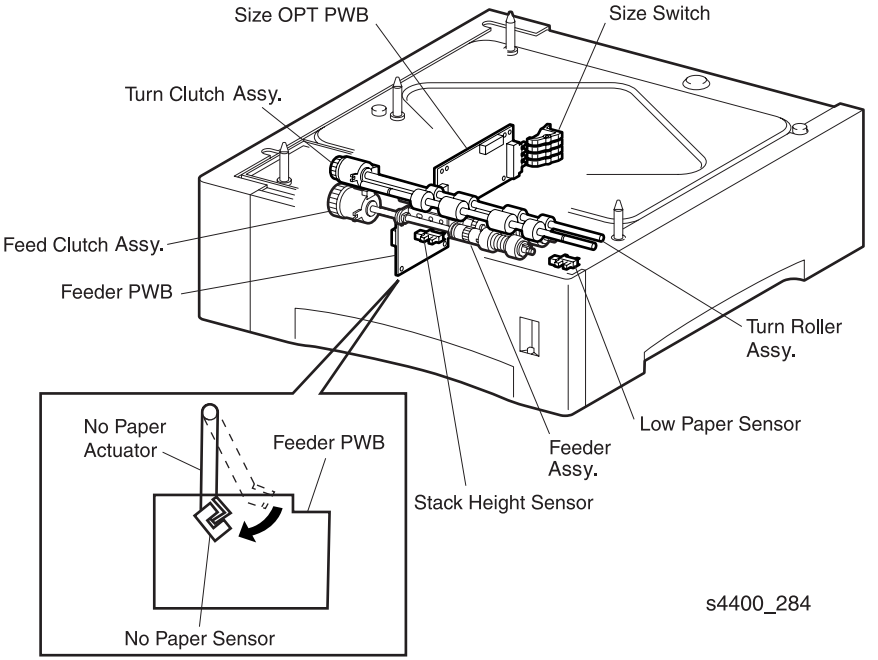



**Option Feeder Drive Flow**

# Function of Major Components

The figure on page 8-46 shows the major components of the Option Feeder Assembly.

- Turn Roller Clutch Assembly — Consists of a gear and an electric clutch located on the end of the Turn Roller Assembly shaft. This clutch controls the transmission of the drive power from Gear 4 of the Standard Feeder Assembly to the Turn Roller Assembly by turning on and off the Turn Roller clutch. When this clutch is activated, the drive power is transmitted to the Turn Roller Assembly through the OPT Gear to the gear of the Feed Clutch Assembly. When Optional feeders are installed, all Turn Roller clutches turn on at the same time.
- Feed Clutch Assembly — Consists of a gear and an electric clutch located on the end of the Feeder Assembly shaft. This clutch controls the transmission of the drive power from Gear 3 through the Turn Clutch Assembly to the Roller Assembly of the Feeder Assembly by turning on and off the Feed clutch. When this clutch is activated, the drive power is transmitted to the Feeder Assembly.
- Feeder Assembly — Consists of the Nudger Support Assembly, Shaft Feed and Roller Assembly. The task of this Assembly is to pick the paper from the Paper Tray and feed it to the Turn Roller. To ensure this task, the Nudger Support Assembly acts as the actuator for the Stack Height Sensor Control by swivelling itself up and down, synchronizing the height of the stacked paper.
- Turn Roller Assembly — This Assembly feeds the paper through the standard paper path. The mechanical activity is the same as the Turn Roller Clutch Assembly.
- Feeder PWB — Connective interface between the Sensors, Clutches and Motor, and the Size Option PWB. This PWB also monitors the No Paper Sensor which detects the out of paper condition of the Paper Tray.
- Size Option PWB — Controls the Option Feeder Assembly, the interface function between the Size Option PWBs, the Feeder PWB, and the Engine Logic Board.
- No Paper Sensor — Detects when the Paper Tray Assembly is out of paper.
- No Paper Actuator — Actuates the No Paper Sensor. When out of paper, this actuator will swivel down and shield the No Paper Sensor.
- Low Paper Sensor — Detects when the paper level in the Paper Tray Assembly falls to approximately 50 +/- 30 sheets of paper.
- Stack Height Sensor — Detects the paper level (the position of the top sheet of paper). This sensor is actuated by the Nudger Support Assembly.
- Size Switch — Mounted on the Feeder PWB and detects the Paper Tray Assembly's paper size setting.




**Major Components of the Option Feeder Assembly**

# *Wiring Data*

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# Introduction

This section of the manual contains wiring diagrams and plug/jack locations for the Phaser 4400 printer. The section is divided into subsections, one for each of the major assemblies that make up the printer and its options:

- Base Engine
- Optional Trays and Feeders
- Envelope Feeder
- Stacker
- Duplex Unit

Each subsection has one or more block diagrams that show the interconnections of the major subsystems within the assembly. This block diagram is followed by one or more individual wiring diagrams that illustrate the electrical relationships between components and assemblies within the printer. Each wire in the block diagram is tagged with a signal name, and each wire is terminated at both ends with a pin number.

## Location of P/J Connectors

Each subsection provides a table listing the P/J connectors in the assembly, and a map showing the location of the connector. Use the P/J table and the P/J Map and to locate a specific P/J connector within the assembly.

1. Locate the P/J connector number in the first column of the table.
2. Locate the corresponding coordinates in the second column, such as I7 or J7.
3. Go to the map.
4. Cross-reference the letter and number of the P/J coordinates with the letters and numbers on the map.
5. The P/J connector is located within the area where the coordinates cross.

# Wiring Diagram Notations

The wiring diagrams in this section use the following circuit notations to describe components and signal paths within the printer.

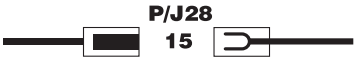
| | |
|---|---|
| SG | Signal Ground |
| FG | Frame Ground |
| RTN | Return<br>There is continuity between SG and RTN. Continuity between FG and SG depends on circuit specifications. |

| | |
|---|---|
| TTL | TTL displayed in the HIGH level or LOW level columns of the signal tables indicate the signal is ECL_CMOS compatible.<br><br>HIGH is approximately 3.3 VDC.<br>LOW is approximately 0 to 0.8 VDC. |

Plug (P)

Jack (J)

Connection of Pin 15 of Connectors P28 and J28




Signal name of a wire

Voltage measured with the negative probe of the meter on SG

Voltage value of a signal
/ = The voltage goes LOW when the signal is ON.

In this case, the HEAT signal is ON, so the normal voltage of 3.3 VDC drops to 0 VDC.

s4400_220

**Wiring Diagram Notations**

# Base Engine Wiring Data

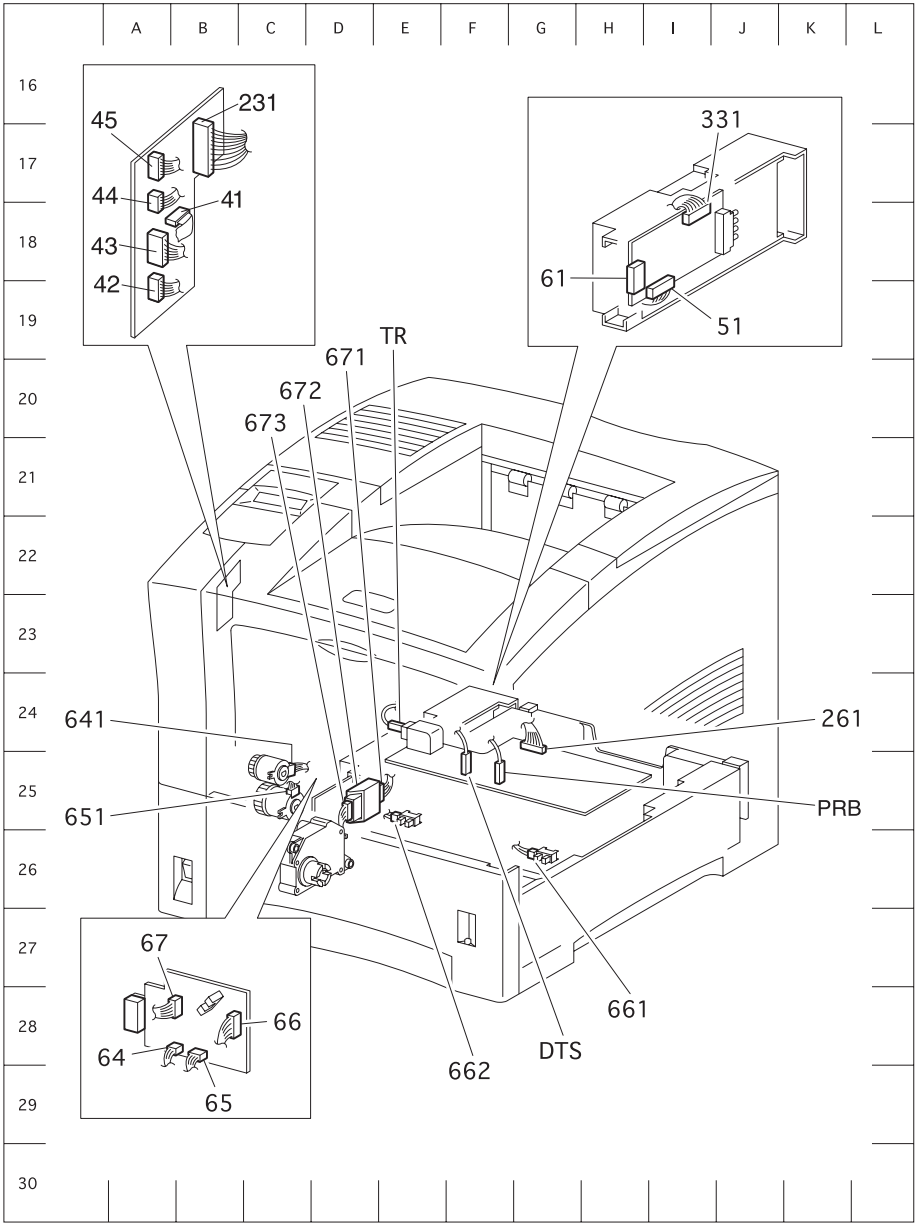
## Base Engine P/J Table

| Connector | Coordinate | Description |
|---|---|---|
| TR | E19 (Map 1) | Connects the Transfer Roller to the HVPS. |
| DTS | G28 (Map 1) | Connects the Detack Saw to the HVPS. |
| P/J231 | C16 (Map 1) | Connects the Engine Logic Board to the Connector PWB. |
| P/J41 | B17 (Map 1) | Connects the Connector PWB to the Env PWB through P/J418. |
| P/J42 | A19 (Map 1) | Connects the Toner Sensor to the Connector PWB |
| P/J43 | A18 (Map 1) | Connects the Register Sensor and Register Clutch to the Connector PWB. |
| P/J44 | A17 (Map 1) | Connects the Pick Up Solenoid to the Connector PWB. |
| P/J45 | A16 (Map 1) | Connects the MPT No Paper Sensor to the Connector PWB. |
| P/J51 | J19 (Map 1) | Connects the Engine Logic Board to the 550-Sheet Feeder PWB. |
| P/J61 | G18 (Map 1) | Connects the Feeder PWB to the Tray 1 Size PWB. |
| P/J64 | A28 (Map 1) | Connects the Turn Clutch Assembly to the Feeder PWB. |
| P/J65 | B29 (Map 1) | Connects the Feed Clutch Assembly to the Feeder PWB. |
| P/J66 | C28 (Map 1) | Connects the Low Paper Sensor to the Feeder PWB. |
| P/J67 | A27 (Map 1) | Connects the Paper Lift Motor to the Feeder PWB. |
| P/J261 | K24 (Map 1) | Connects the HVPS to the Engine Logic Board. |
| PRB | K25 (Map 1) | Connects the Fuser to the HVPS. |
| P/J331 | J16 (Map 1) | Connects the Size PWB to the Engine Logic Board. |
| P/J641 | A24 (Map 1) | Connects the Turn Clutch to the Feeder PWB. |
| P/J651 | A25 (Map 1) | Connects the Feed Clutch to the Feeder PWB. |
| P/J661 | H28 (Map 1) | Connects the Low Paper Sensor to the Feeder PWB. |
| P/J662 | F29 (Map 1) | Connects the Stack Height Sensor to the Feeder PWB. |
| P/J671 | D19 (Map 1) | Connects the Motor Harness Assembly to the Socket. |
| P/J672 | C20 (Map 1) | Connects the Cassette Assembly to the Feeder Assembly. |
| P/J673 | C20 (Map 1) | Connects the Motor Assembly to the Connector. |
| P/J11 | K43 (Map 2) | Connects the Fuser Assembly to the LVPS. |
| P/J21 | H31 (Map 2) | Connects the Laser Assembly to the Engine Logic Board. |
| P/J22 | G34 (Map 2) | Connects the Connects the Laser Assembly to the Engine Logic Board. |
| P/J23 | K32 (Map 2) | Connects the Connector PWB to the Engine Logic Board. |
| P/J25 | I31 (Map 2) | Connects the Print Cartridge Sensor to the Engine Logic Board. |
| P/J26 | H35 (Map 2) | Connects the HVPS to the Engine Logic Board. |
| P/J27 | I35 (Map 2) | Connects the Fuser Exit Sensor and Thermistor to the Engine Logic Board. |
| P/J28 | K35 (Map 2) | Connects the LVPS to the Engine Logic Board. |
| P/J29 | K33 (Map 2) | Connects the Main Motor to the Engine Logic Board. |
| P/J30 | K35 (Map 2) | Connects the Rear Interlock Switch to the Engine Logic Board. |
| P/J31 | G31 (Map 2) | Connects the Stack Full Sensor to the Engine Logic Board. |

| Connector | Coordinate | Description |
|---|---|---|
| P/J32 | K33 (Map 2) | Connects the Exit Motor Assembly to the Engine Logic Board. |
| P/J33 | J35 (Map 2) | Connects the Size 1 PWB to the Engine Logic Board. |
| P/J34 | J31 (Map 2) | Connects the Duplex PWB to the Engine Logic Board. |
| P/J35 | J31 (Map 2) | Connects the Stacker PWB to the Engine Logic Board. |
| J790 | H36 (Map 2) | Connects the Image Processor Board to the Engine Logic Board. |
| P/J37 | G33 (Map 2) | Connects the Duplex Sensor to the Duplex PWB. |
| PN1 | K41 (Map 2) | Connects the LVPS to the 5 VDC PWB. |
| PN101 | K38 (Map 2) | Connects the 5 VDC PWB to the LVPS. |
| P/J211 | A37 (Map 2) | Connects the SOS Sensor to the Engine Logic Board. |
| P/J212 | A39 (Map 2) | Connects the Laser Motor to the Engine Logic Board. |
| P/J213 | A40 (Map 2) | Connects the Laser PWB to the Engine Logic Board. |
| P/J223 | A41 (Map 2) | Connects the Laser PWB to the Engine Logic Board. |
| P271 | C44 (Map 2) | Connects the Engine Logic Board and HVPS to the Fuser. |
| J272 | Not shown. | Located on the Fuser. Connects the Fuser to the Printer. |
| P/J281 | K41 (Map 2) | Connects the LVPS to the Engine Logic Board. |
| P/J282 | I40 (Map 2) | Connects the Image Processor Board to the LVPS. |
| P/J283 | K41 (Map 2) | Connects the Fan Assembly to the LVPS. |
| P/J284 | K40 (Map 2) | Connects the Front Interlock Switch to the LVPS. |
| P/J285 | K42 (Map 2) | Connects the AC Input voltage to the LVPS. |
| J910 | H44 (Map 2) | Connects 3.3 and 5 VDC to the Image Processor Board. |
| P/J288 | K37 (Map 2) | Connects the 5 VDC PWB to the Image Processor Board. |
| P/J291 | K39 (Map 2) | Connects the Main Motor to the Engine Logic Board. |
| P/J341 | D44 (Map 2) | Connects the Duplex PWB to the Engine Logic Board. |
| J790 | G36 (Map 2) | Connects the Front Panel to the Image Processor Board. |
| P/J511 | G44 (Map 2) | Connects the Tray1 Size PWB to the Tray 2 Size PWB. |
| J500 | G41 (Map 2) | Connects the Hard Drive to the Image Processor Board. |

# Base Engine P/J Maps

## Base Engine P/J Location Map (1 of 2)

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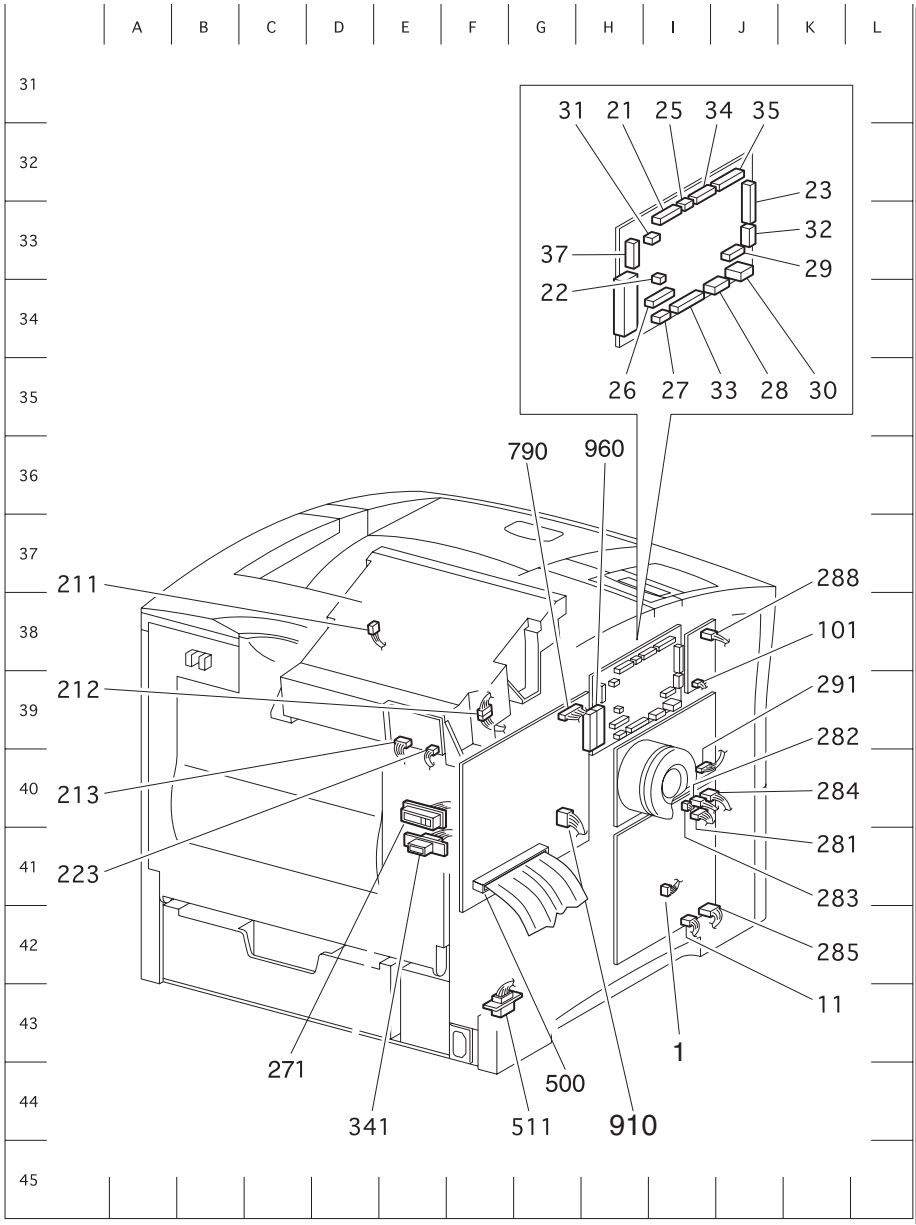
# Base Engine P/J Location Map (2 of 2)

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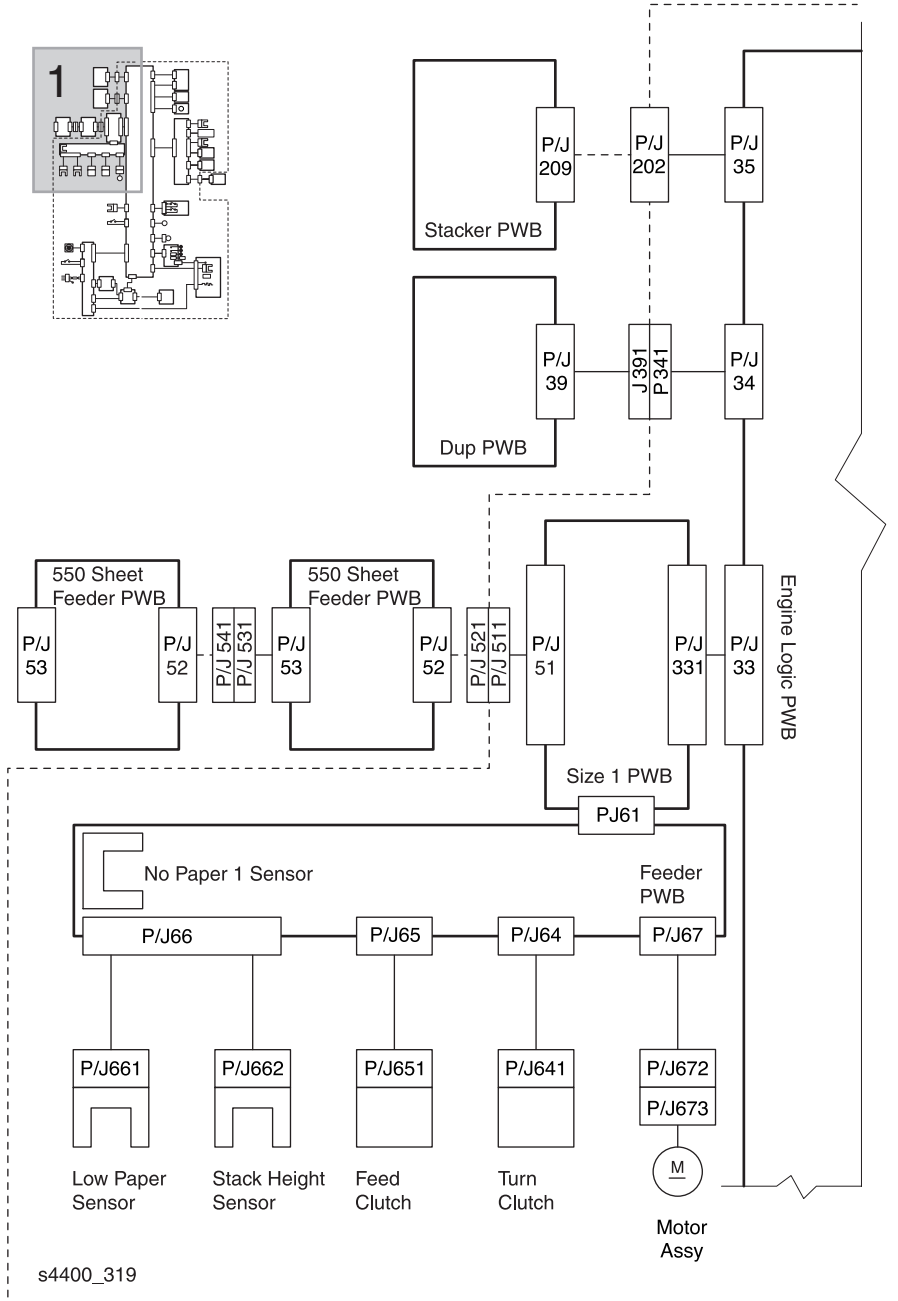
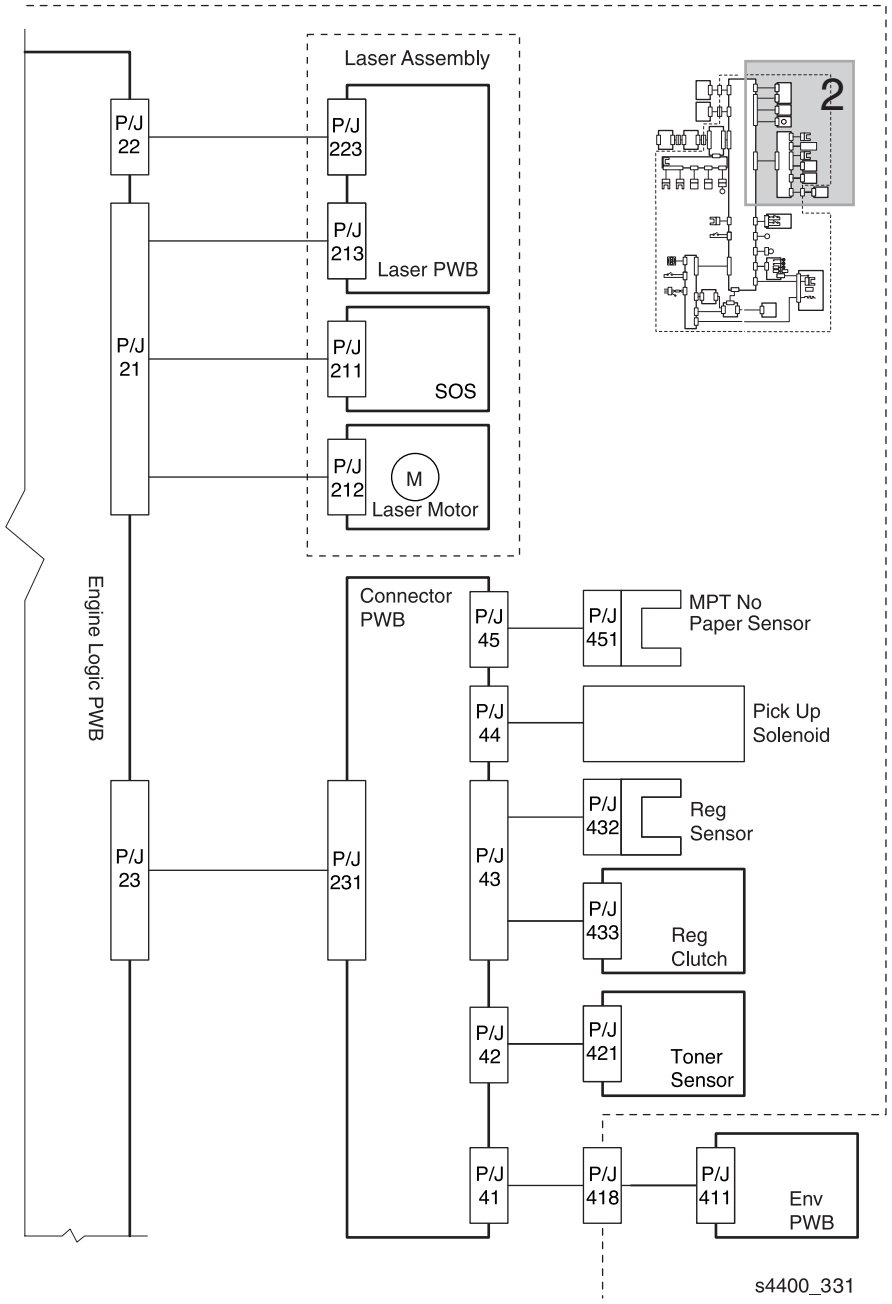
# Base Engine Block Diagrams

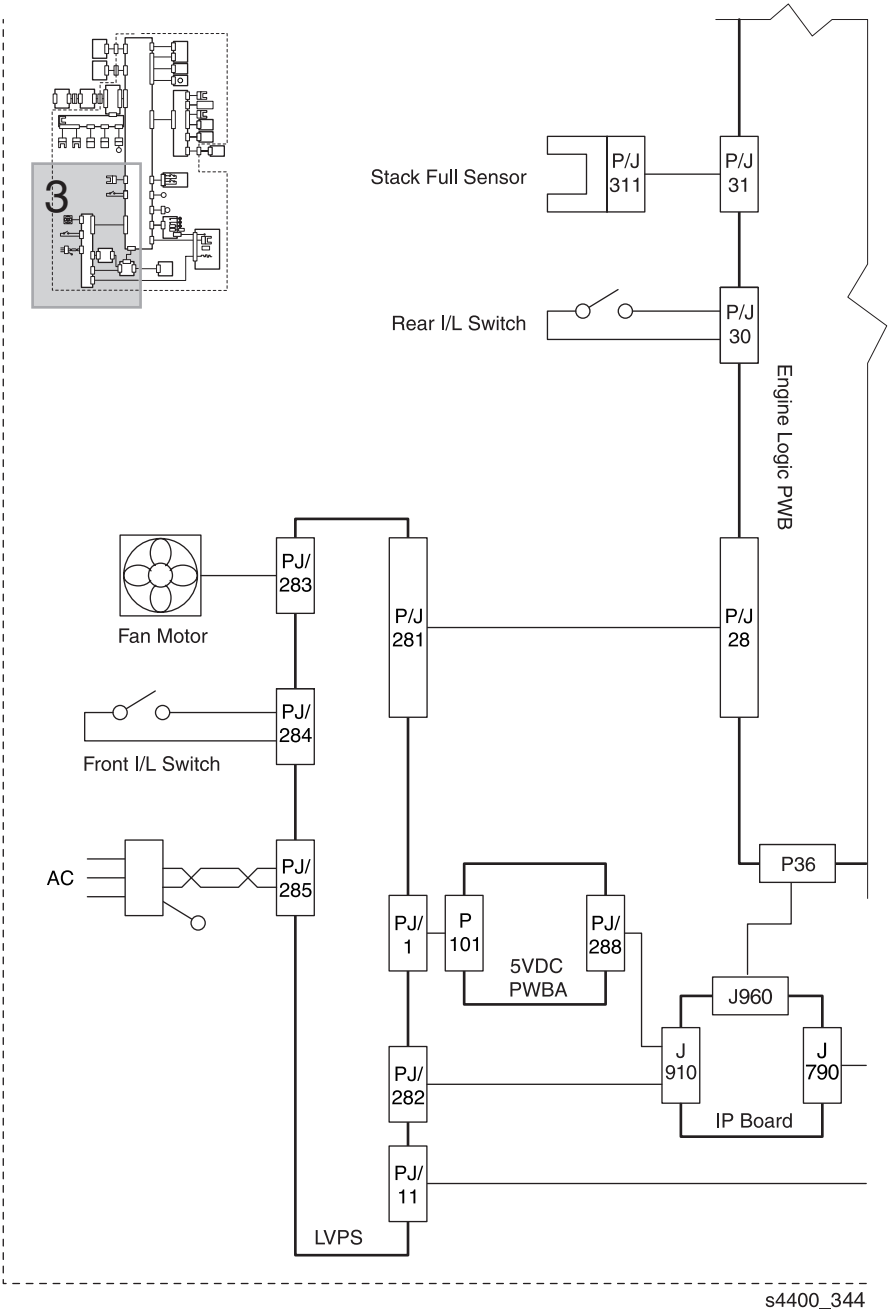
## Base Engine Block Diagram (1 of 4)



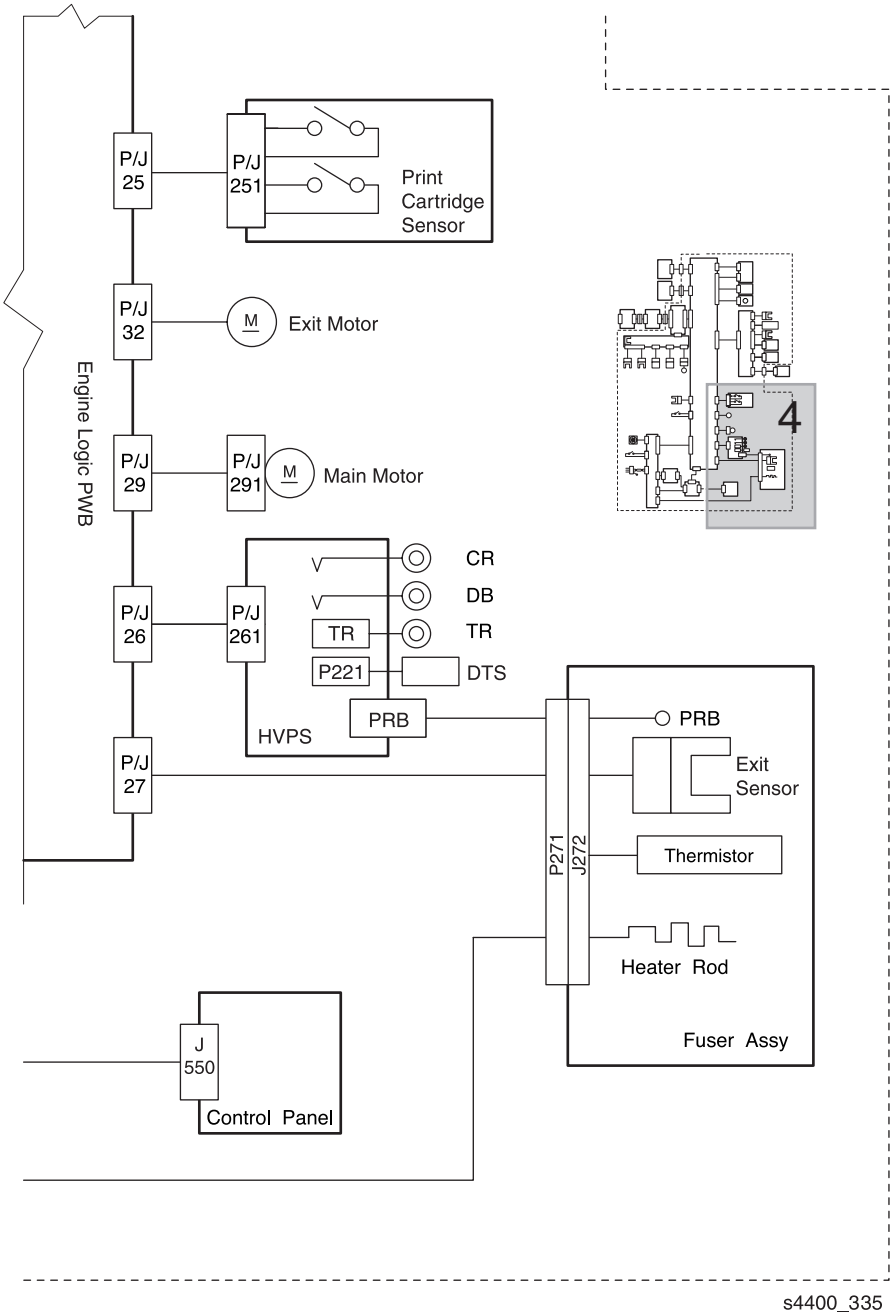
## Base Engine Block Diagram (2 of 4)



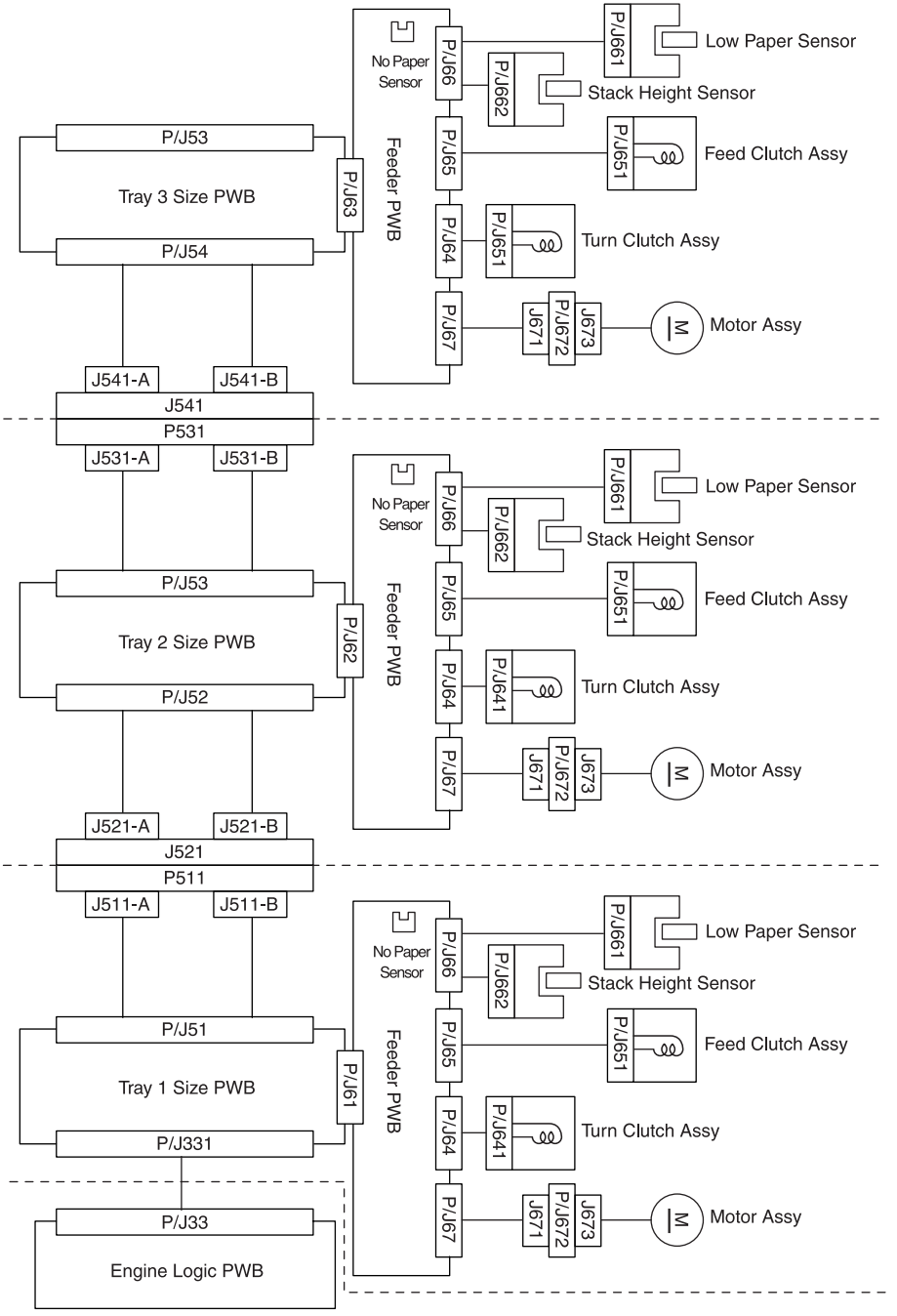
# Base Engine Block Diagram (3 of 4)



# Base Engine Block Diagram (4 of 4)



# Block Diagram Tray 1, Tray 2, and Tray 3

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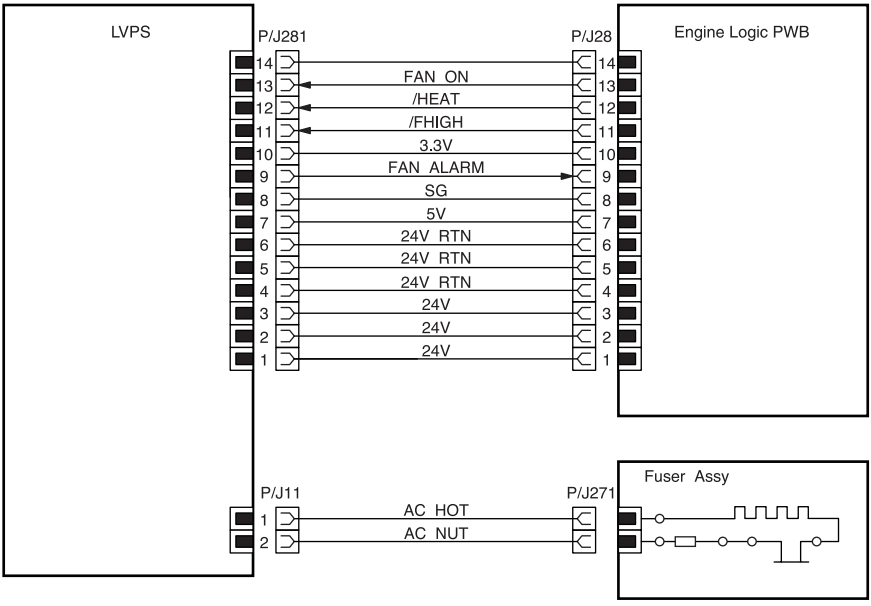
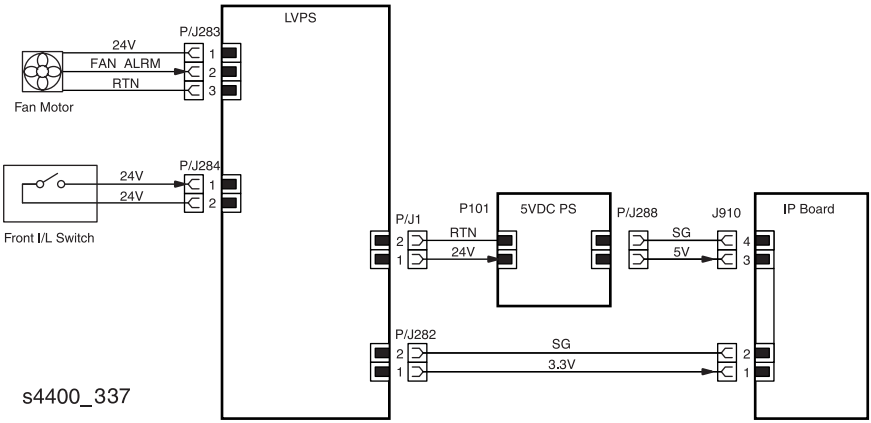
# Wiring Diagrams

## Engine Logic Board to LVPS PWB and Fuser Assembly




s4400_224

## LVPS PWB to Fan Assembly, Front Switch Interlock Assembly, 5 VDC PS and Image Processor Board

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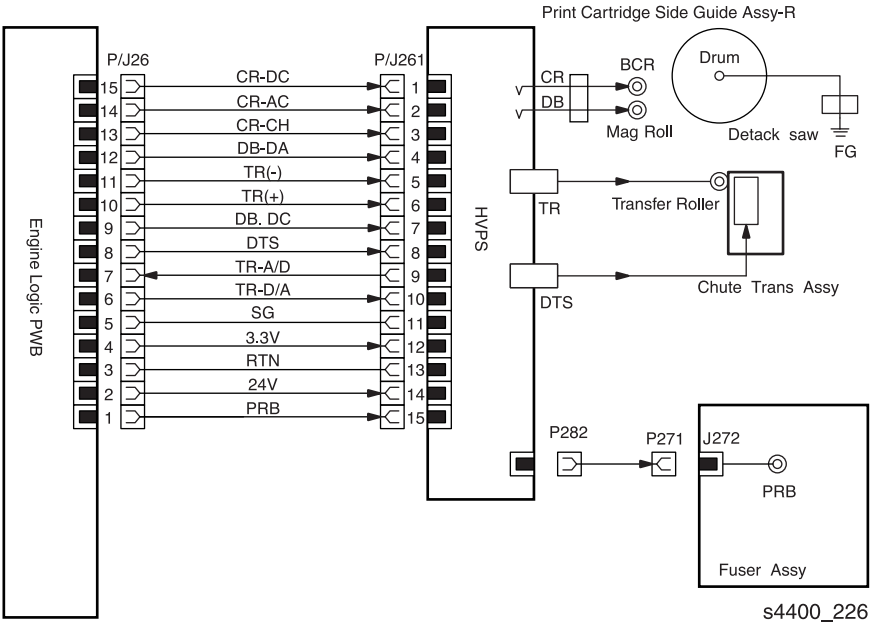
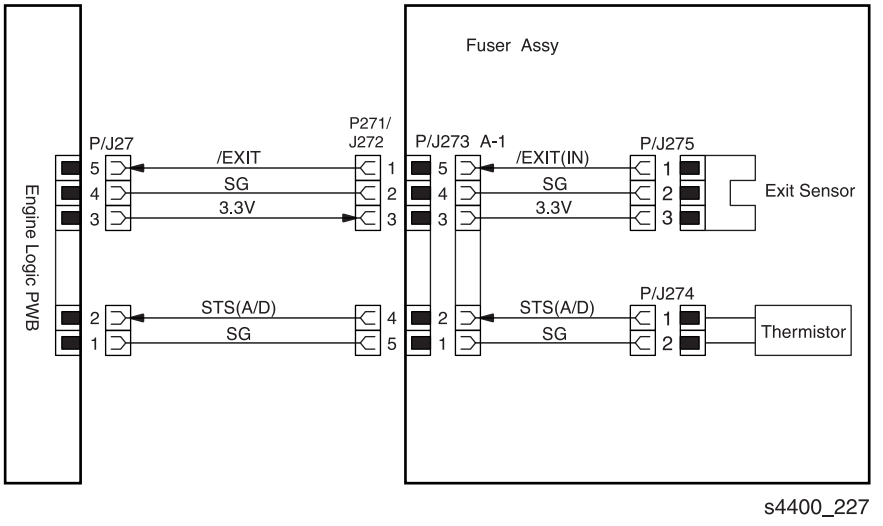
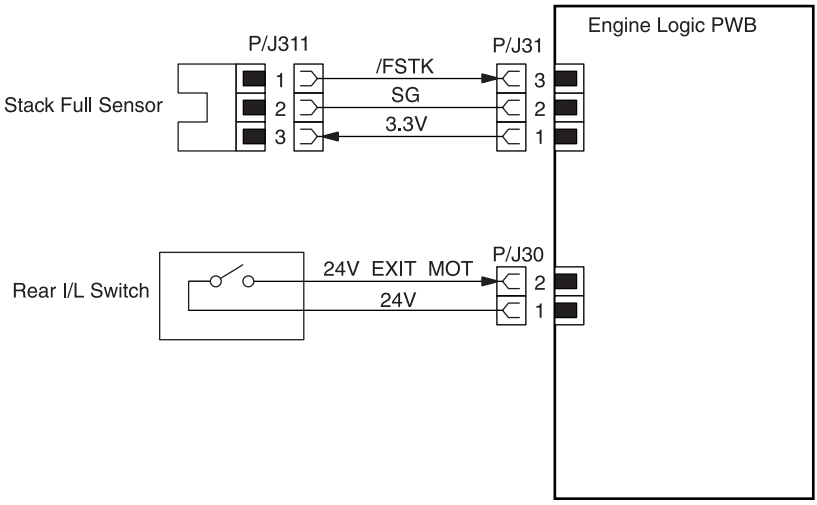
## Engine Logic Board to HVPS PWB to Transfer Roller, Print Cartridge, and Fuser Assembly



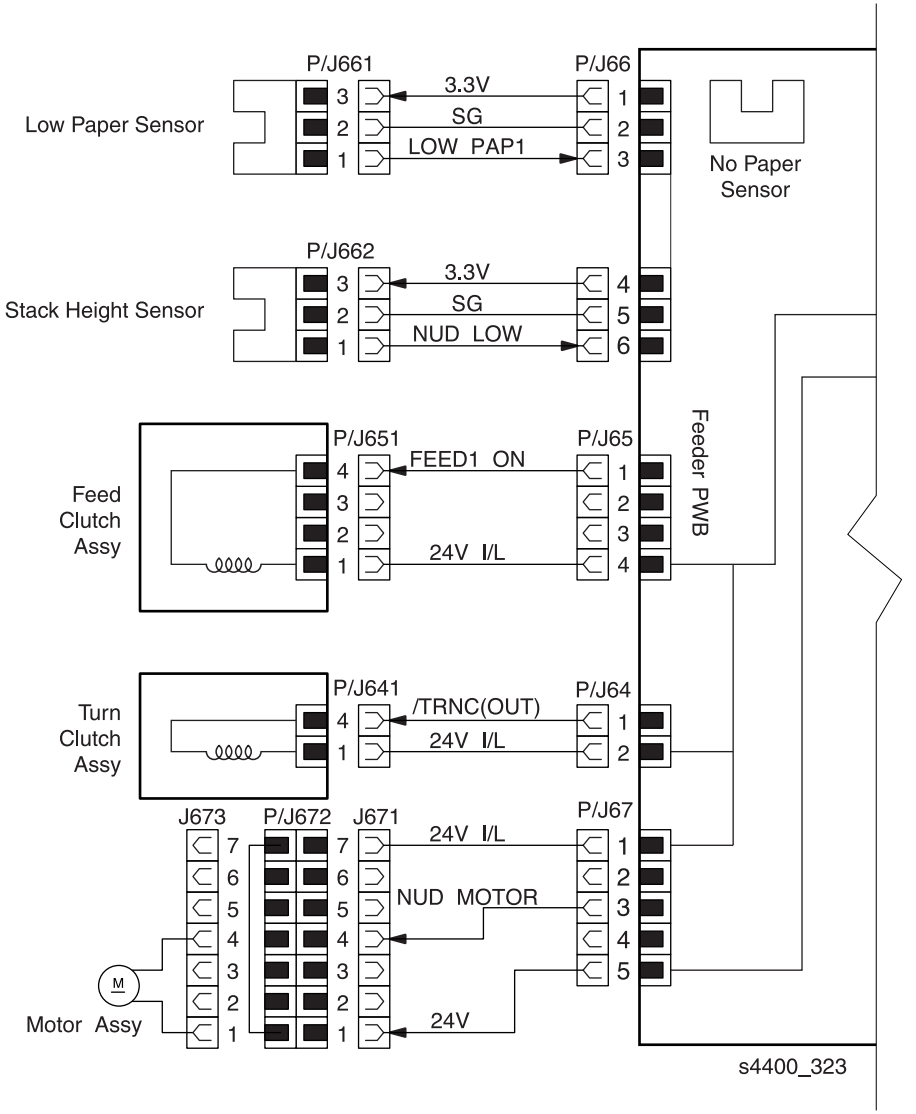

## Engine Logic Board to Fuser Assembly



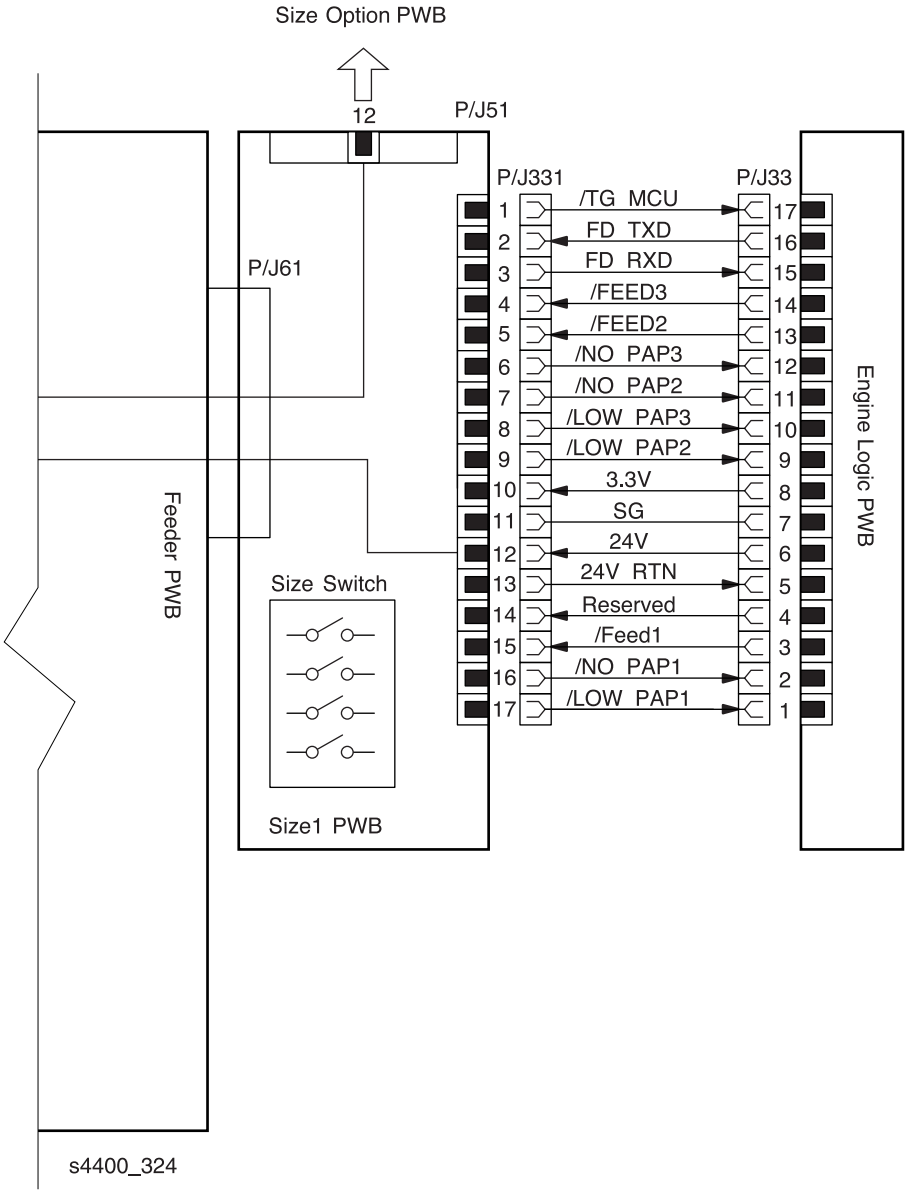
## Engine Logic Board to Stack Full Sensor, and Rear Interlock Switch



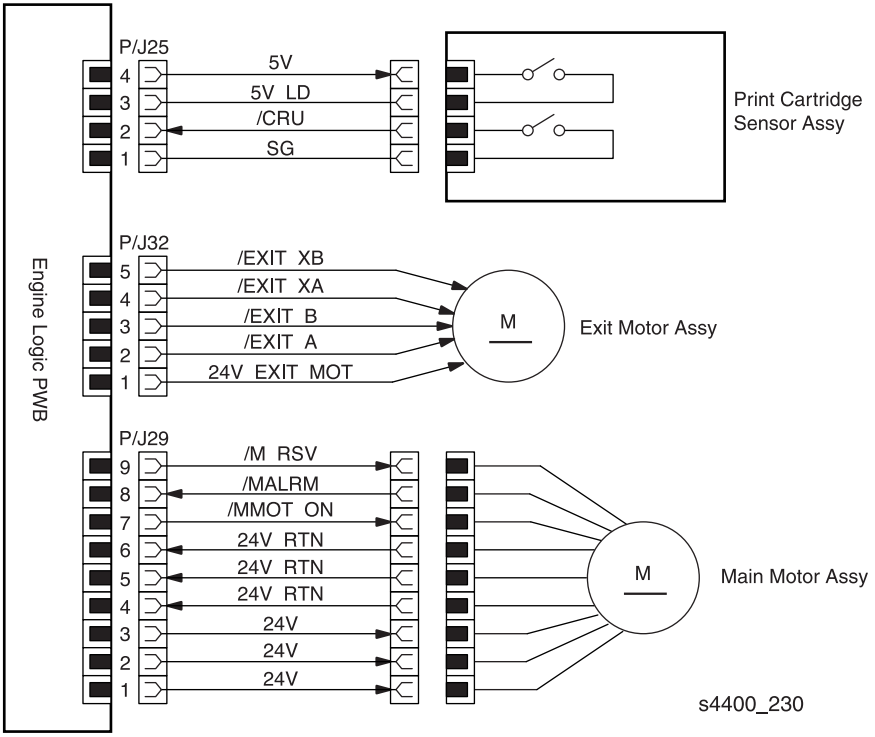
## Feeder PWB to Low Paper Sensor, Stack Height Sensor, Feed Clutch Assembly, Turn Clutch Assembly and Motor Assembly — Diagram 1 of 2



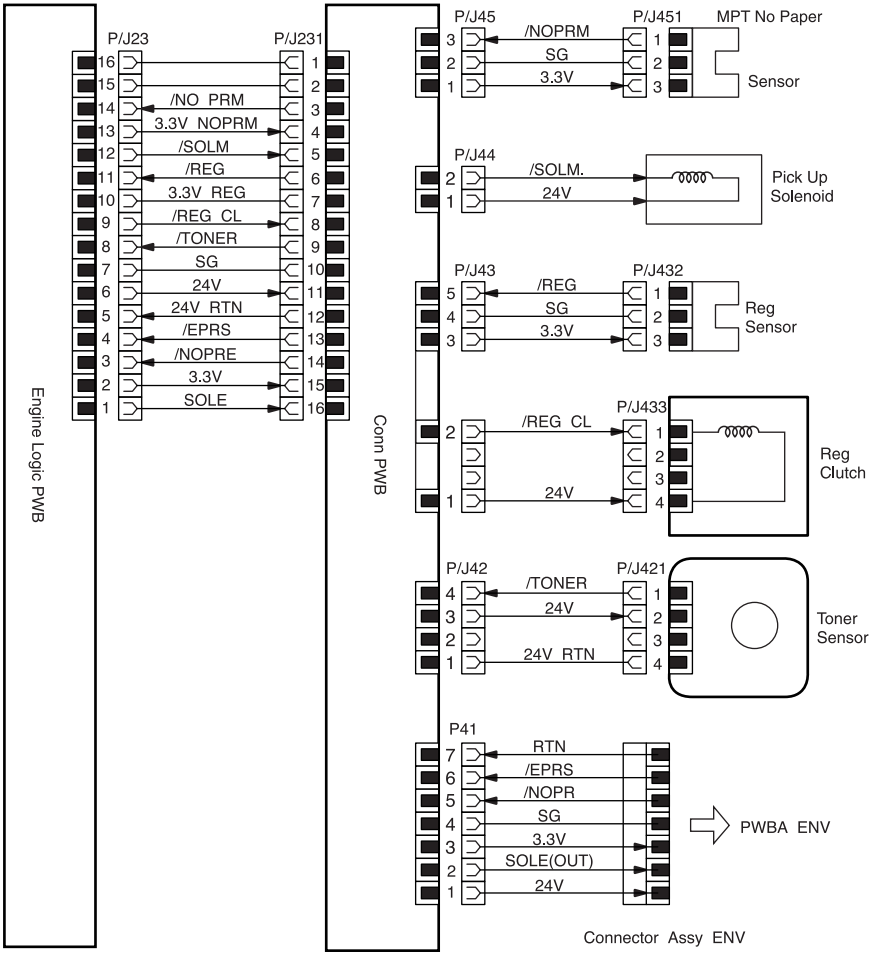
## Engine Logic Board to Size 1 PWB to Feeder PWB — Diagram 2 of 2



## Engine Logic Board to Main Motor Assembly, Exit Motor Assembly and Print Cartridge Sensor Assembly



# Engine Logic Board to Connector PWB to MPT No Paper Sensor, Registration Sensor, Registration Clutch, Toner Sensor, Pick Up Solenoid

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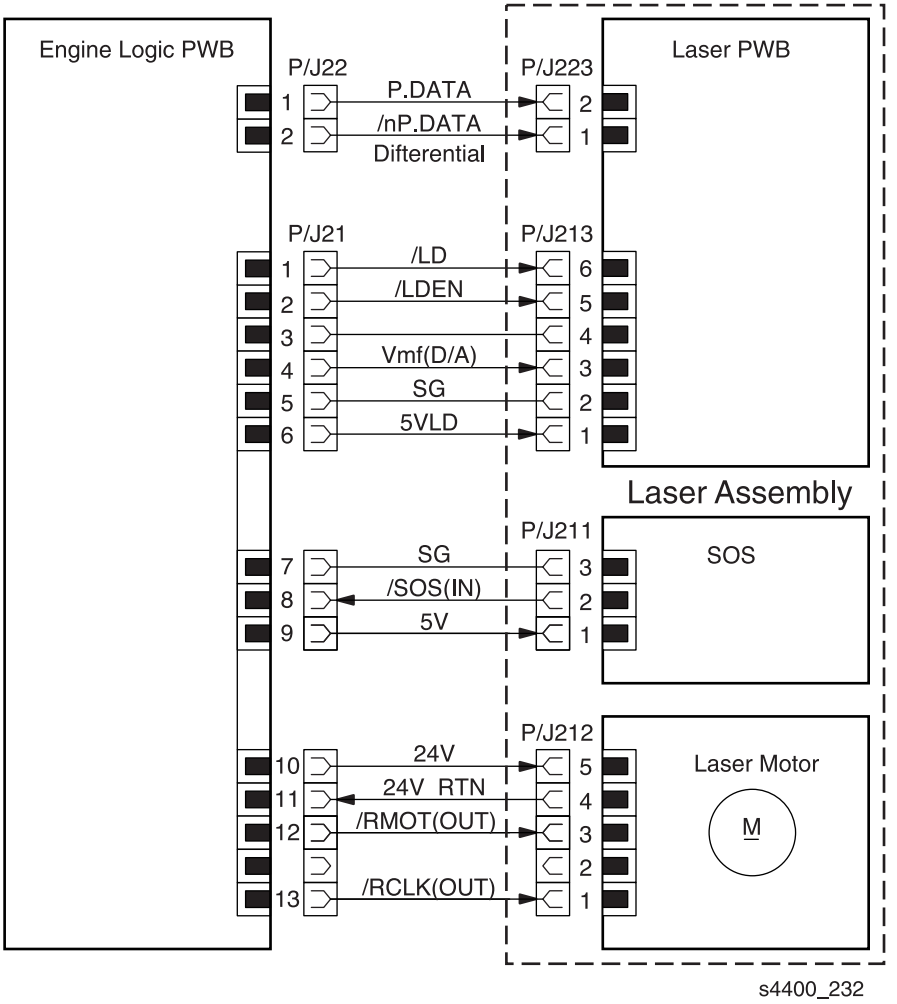
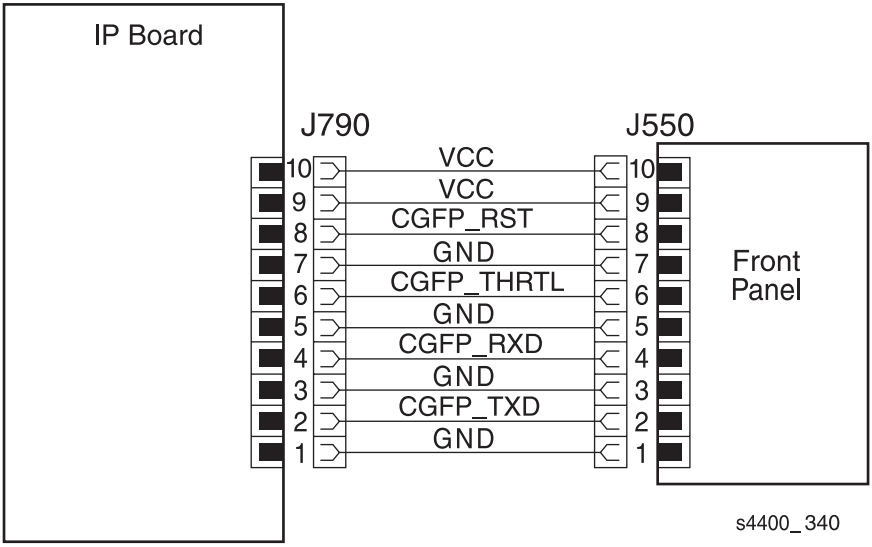
## Engine Logic Board to Laser Assembly



## Image Processor Board to Front Panel

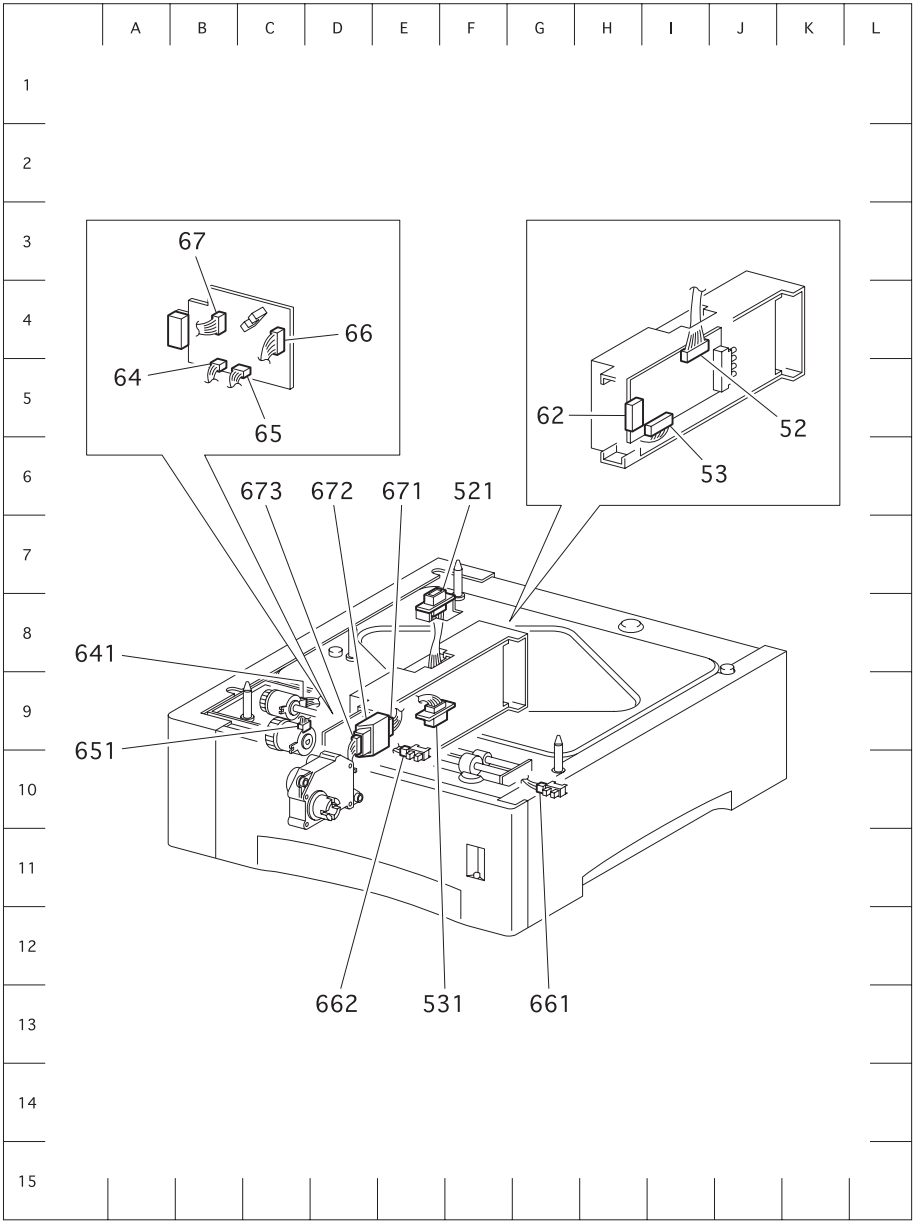


# 550-Sheet Feeder

## 550-Sheet Feeder P/J Table

| Connector | Coordinate | Description |
|---|---|---|
| P/J 52 | I4 | Connects the Size 550-Sheet Harness Assembly to the Size 550-Sheet PWB. |
| P/J 53 | I5 | Connects the Harness Assembly to the Size 550-Sheet Feeder PWB. |
| P/J 62 | H5 | Connects the Size Option PWB to the Feeder PWB. |
| P/J 64 | B5 | Connects the Turn Clutch Harness Assembly to the Feeder PWB. |
| P/J 65 | B5 | Connects the Feed Clutch Harness Assembly to the Feeder PWB. |
| P/J 66 | C4 | Connects the N/SNSR Harness Assembly to the Feeder PWB. |
| P/J 67 | B4 | Connects the N/MOT Harness Assembly to the Feeder PWB. |
| J 521 | E8 | Connects the Size Option Harness Assembly to the Printer Assembly. (Size 1 PWB). |
| P 531 | E9 | Connects the Harness Assembly to the Lower Feeder. |
| P/J 641 | C9 | Connects the Turn Clutch Harness Assembly to the Turn Clutch Assembly. |
| P/J 651 | C9 | Connects the Feed Clutch Harness Assembly to the Feed Clutch Assembly. |
| P/J 661 | G10 | Connects the N/SNSR Harness Assembly to the Low Paper Sensor Paper. |
| P/J 662 | E10 | Connects the N/SNSR Harness Assembly to the Stack Height Sensor. |
| P/J 671 | E9 | Connects the N/MOT Harness Assembly to the Socket. |
| P/J 672 | E9 | Connects the Cassette Assembly to the Feeder Assembly. |
| P/J 673 | D9 | Connects the Motor Assembly to the Connector. |

# 550-Sheet Feeder P/J Map

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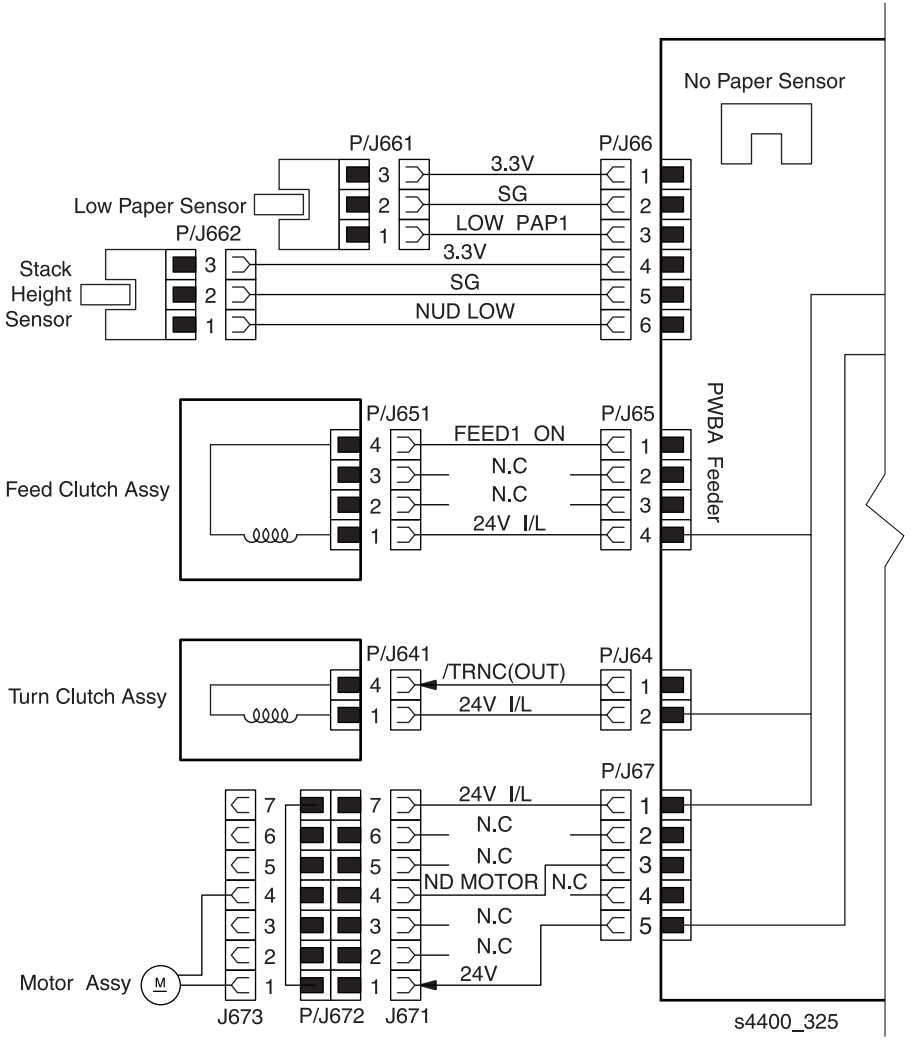
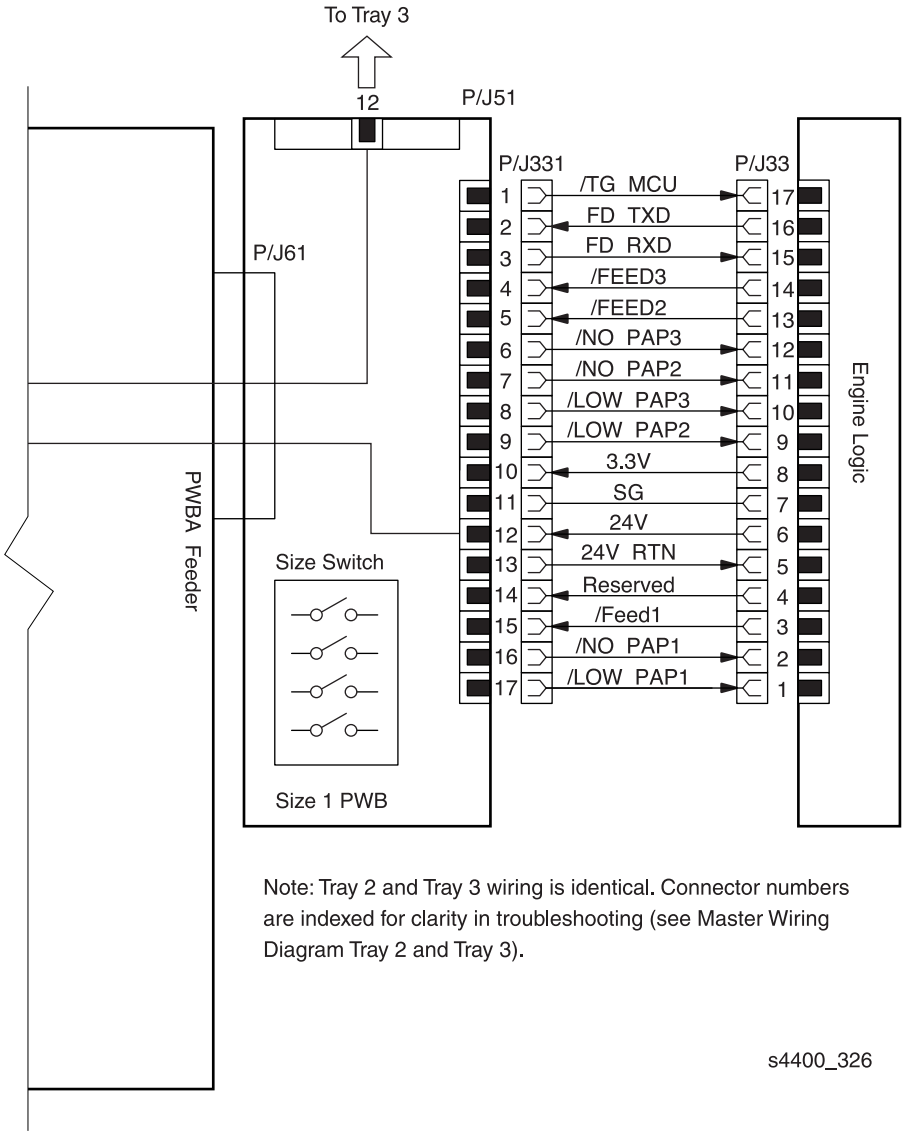
**550-Sheet Feeder P/J Map**

# 550-Sheet Feeder Block Diagram 1 of 2



# 550-Sheet Feeder Block Diagram 2 of 2




Note: Tray 2 and Tray 3 wiring is identical. Connector numbers are indexed for clarity in troubleshooting (see Master Wiring Diagram Tray 2 and Tray 3).

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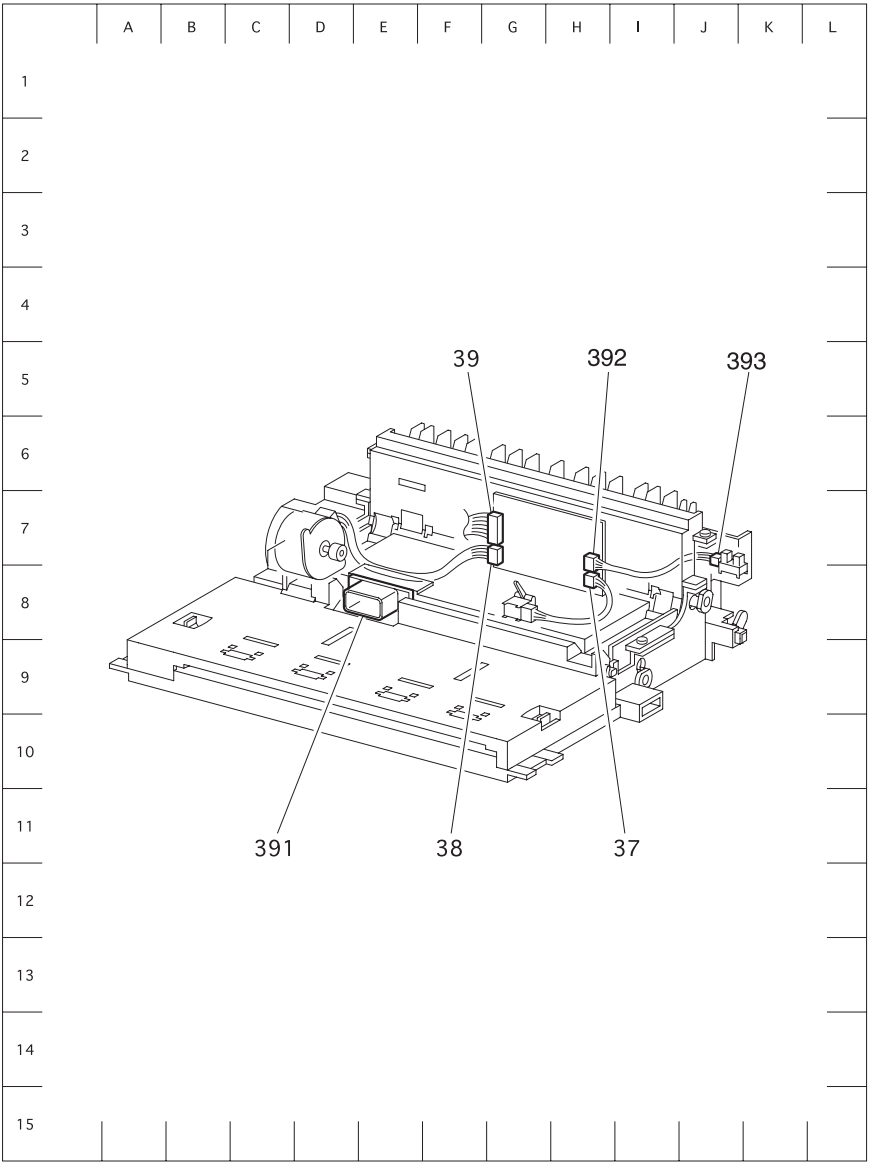
# Duplex Unit

## Duplex Unit P/J Table

| Connector | Coordinate | Description |
|---|---|---|
| P/J 392 | H7 | Connects the Duplex Sensor Harness Assembly to the Duplex PWB. |
| P/J 37 | H8 | Connects the Duplex Sensor Assembly to the Duplex PWB. |
| P/J 38 | G7 | Connects the Duplex Motor Assembly to the Duplex PWB. |
| P/J 39 | G7 | Connects the Duplex Option Harness Assembly to the Duplex PWB. |
| P/J 393 | J7 | Connects the Duplex Sensor Harness Assembly to the Duplex Home Sensor. |
| J 391 | E8 | Connects the Duplex Option Harness Assembly to the Printer Assembly. (Engine Logic Board). |

# Duplex Unit P/J Map

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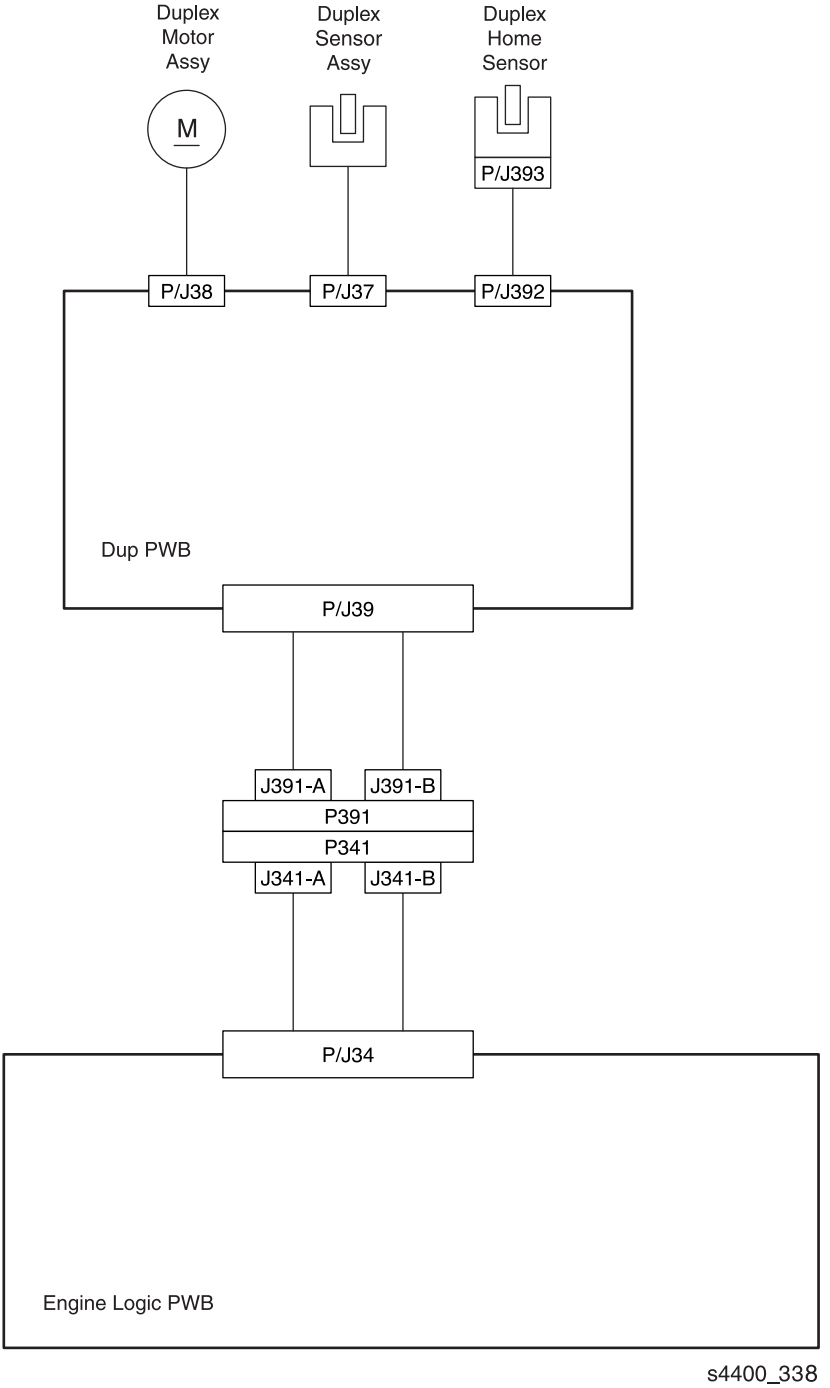
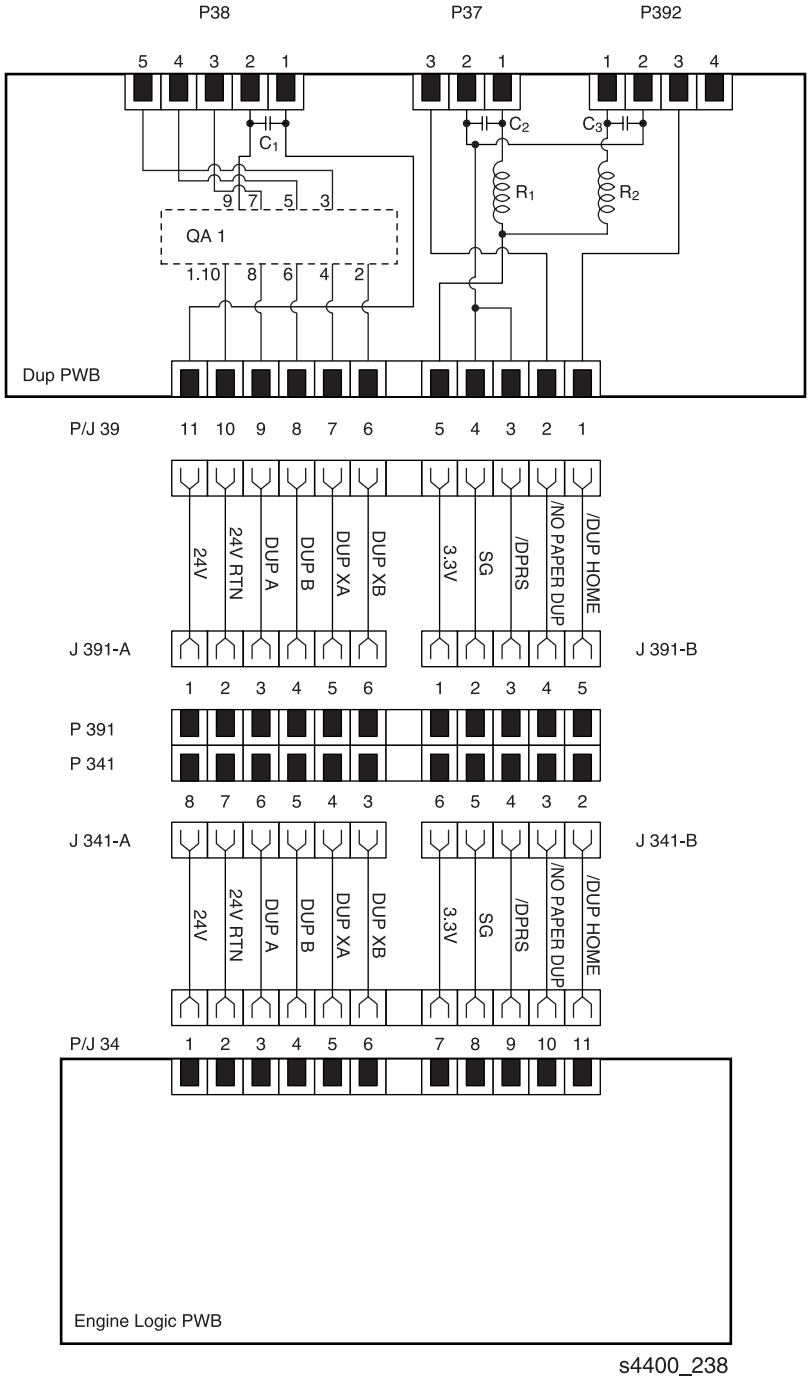
# Duplex Unit Block Diagram



# Engine Logic Board to Duplex PWB

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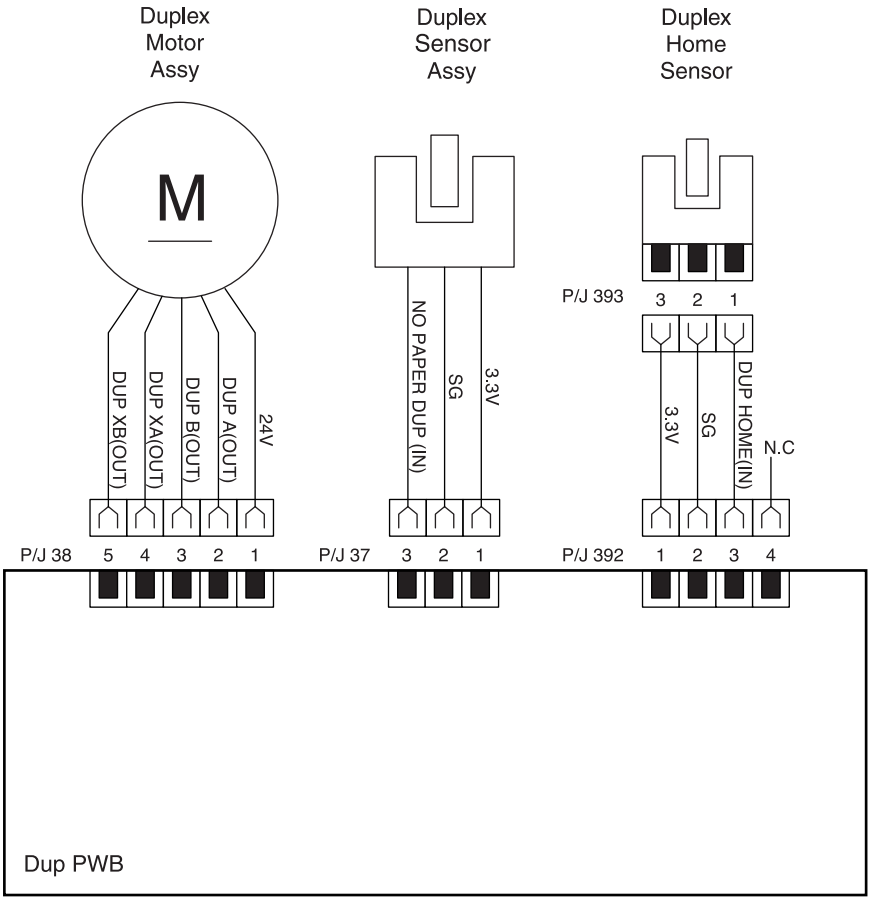
## Duplex PWB to Duplex Motor Assembly, Duplex Sensor Assembly and Duplex Home Sensor



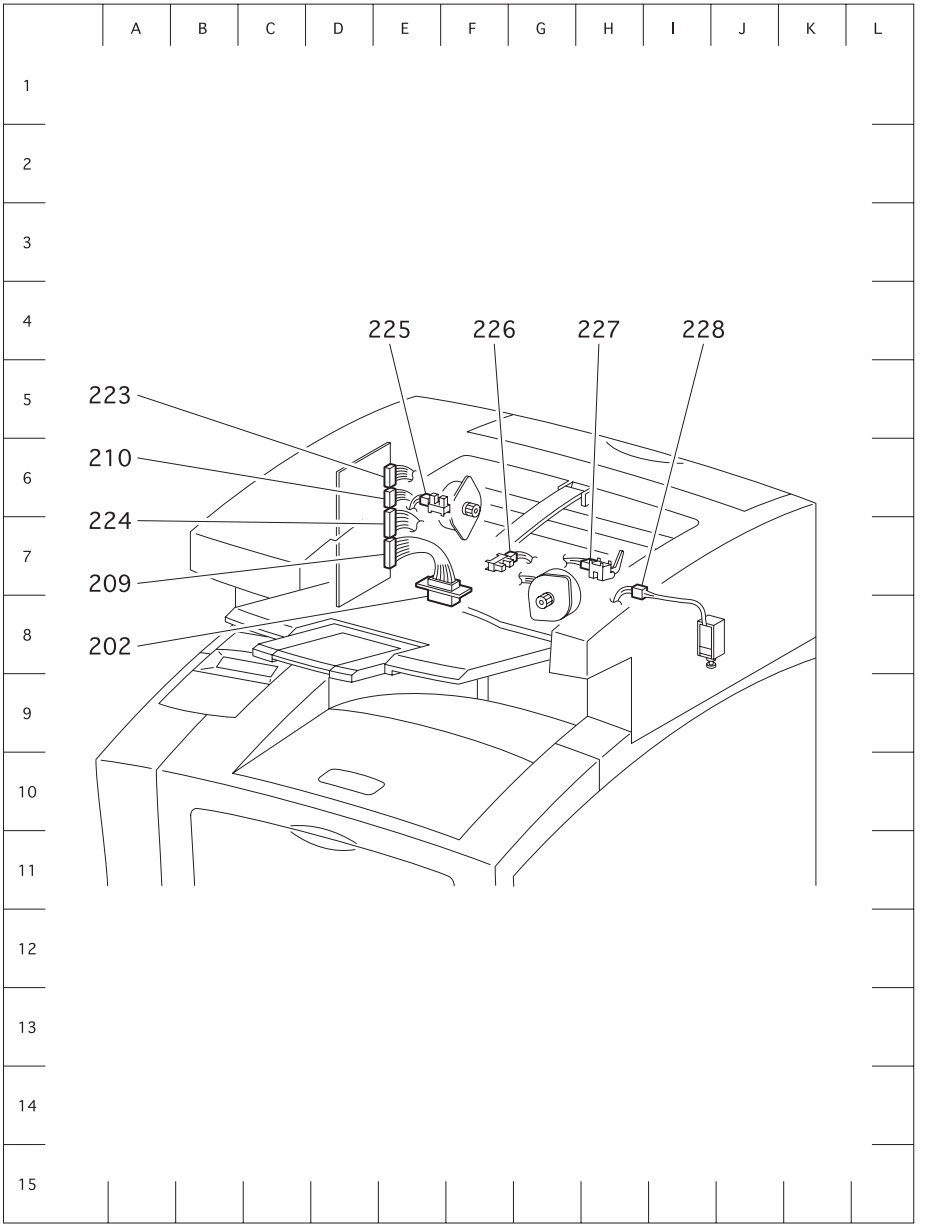

s4400_239

# Stacker

## Stacker P/J Table

| Connector | Coordinate | Description |
|---|---|---|
| P/J 202 | E7 | Connects the Stacker Harness Assembly Unit to the Printer Assembly. (Engine Logic Board). |
| P/J 209 | E7 | Connects the Stacker Harness Assembly Unit to the Stacker PWB. |
| P/J 210 | E6 | Connects the Motor Drive Assembly to the Stacker PWB. |
| P/J 223 | E6 | Connects the Offset Motor Assembly to the Stacker PWB. |
| P/J 224 | E7 | Connects the Stacker Harness Assembly SNR to the Stacker PWB. |
| P/J 225 | E6 | Connects the Stacker Harness Assembly SNR to the Stack Full Sensor. |
| P/J 226 | G7 | Connects the Stacker Harness Assembly SNR to the Stacker Home Sensor. |
| P/J 227 | H7 | Connects the Stacker Harness Assembly SNR to the Stacker Exit Sensor Assembly. |
| P/J 228 | H7 | Connects the Stacker Harness Assembly SNR to the Direction Solenoid. |

# Stacker P/J Map

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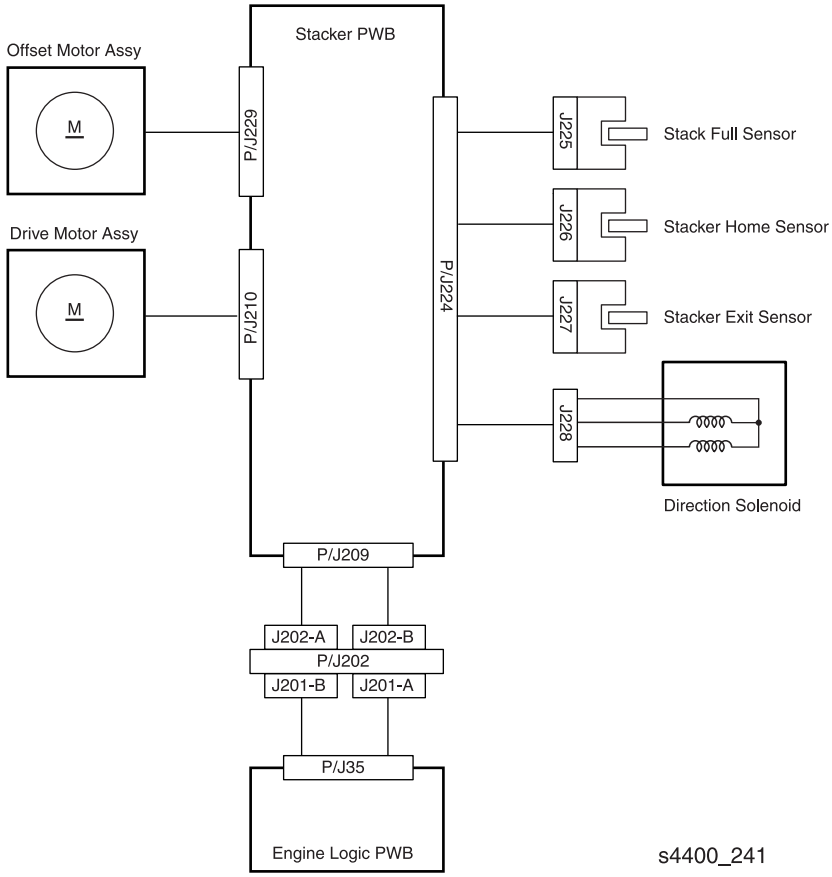
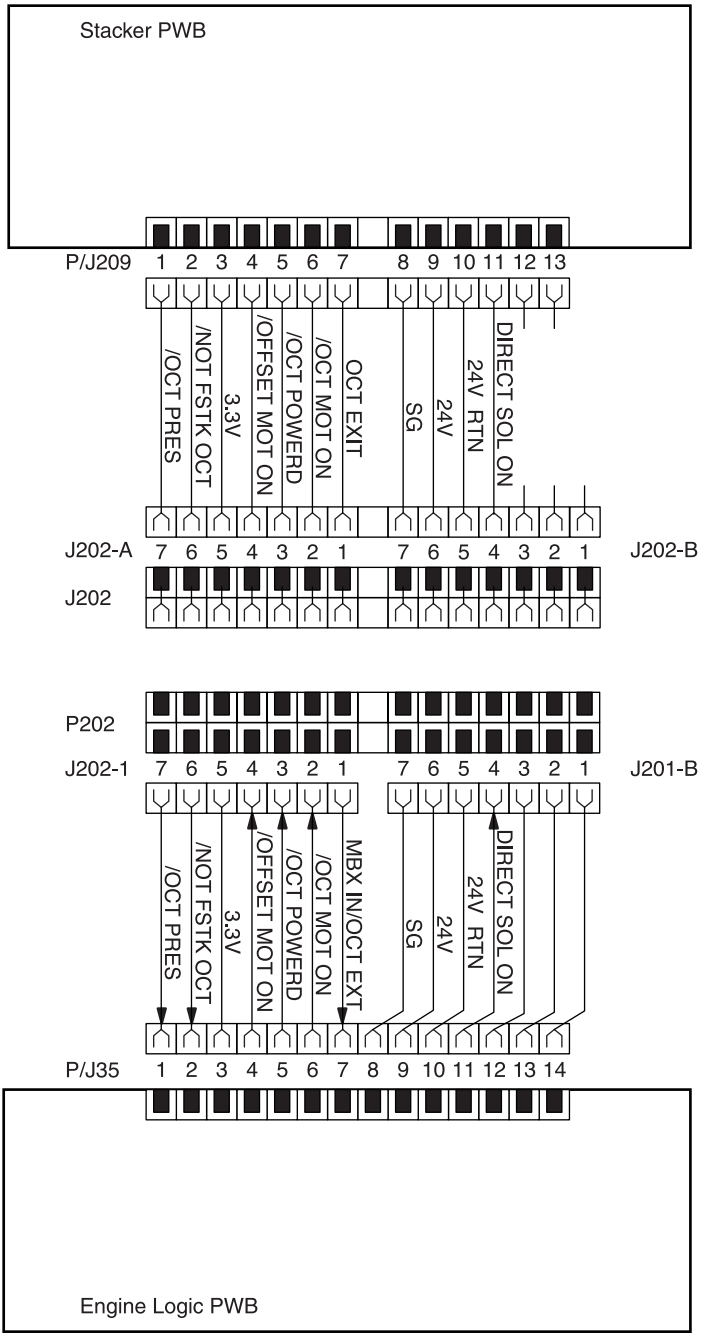
# Stacker Block Diagram

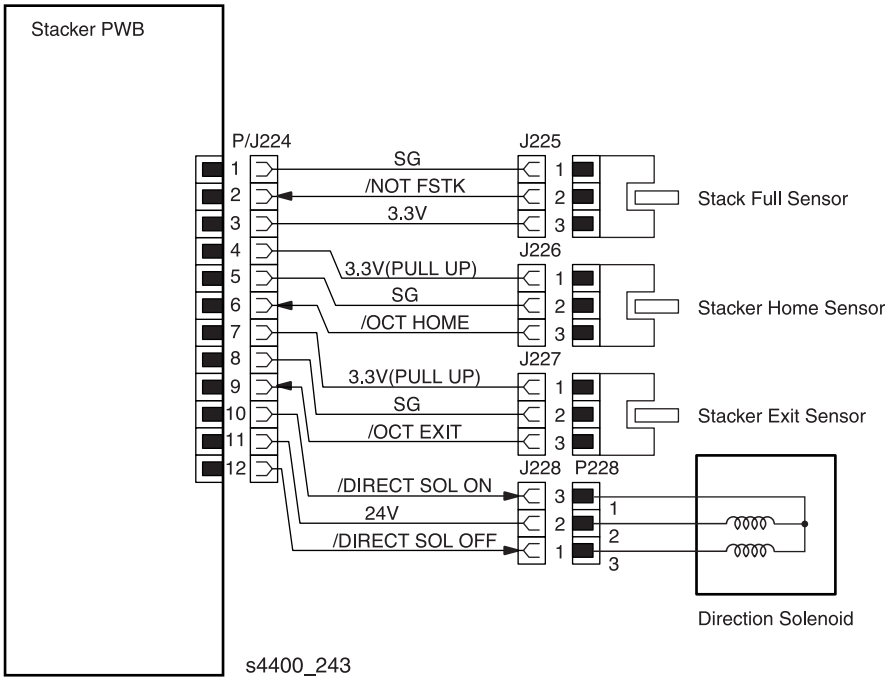


## Engine Logic Board to Stacker PWB

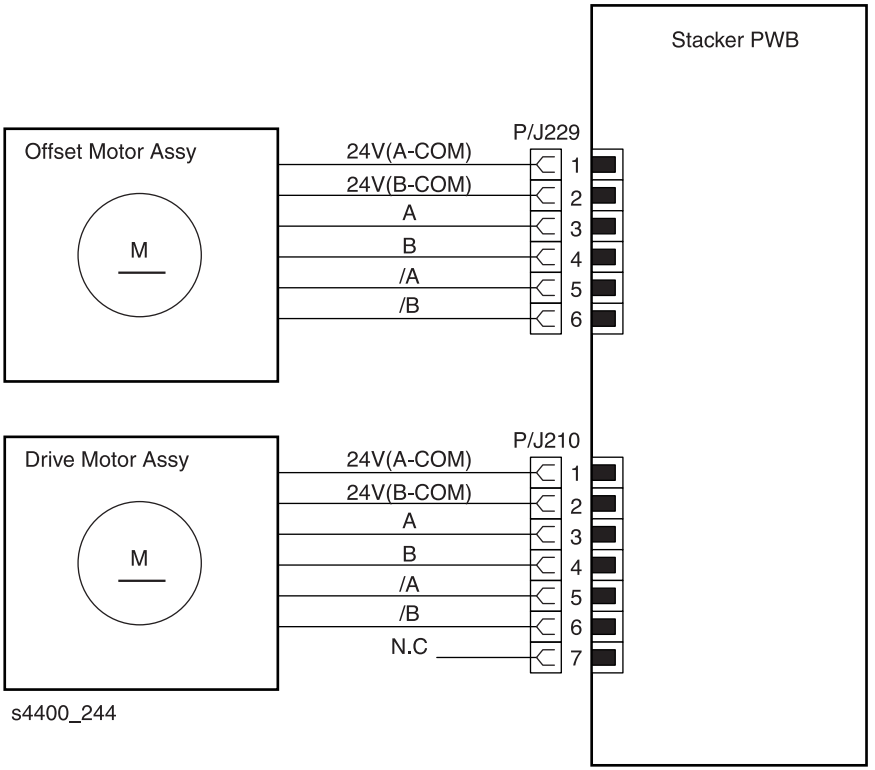



s4400_242

## Stacker PWB to Stack Full Sensor, Stacker Home Sensor, Stacker Exit Sensor Assembly and Direction Solenoid



## Stacker PWB to Drive Motor Assembly and Offset Motor Assembly

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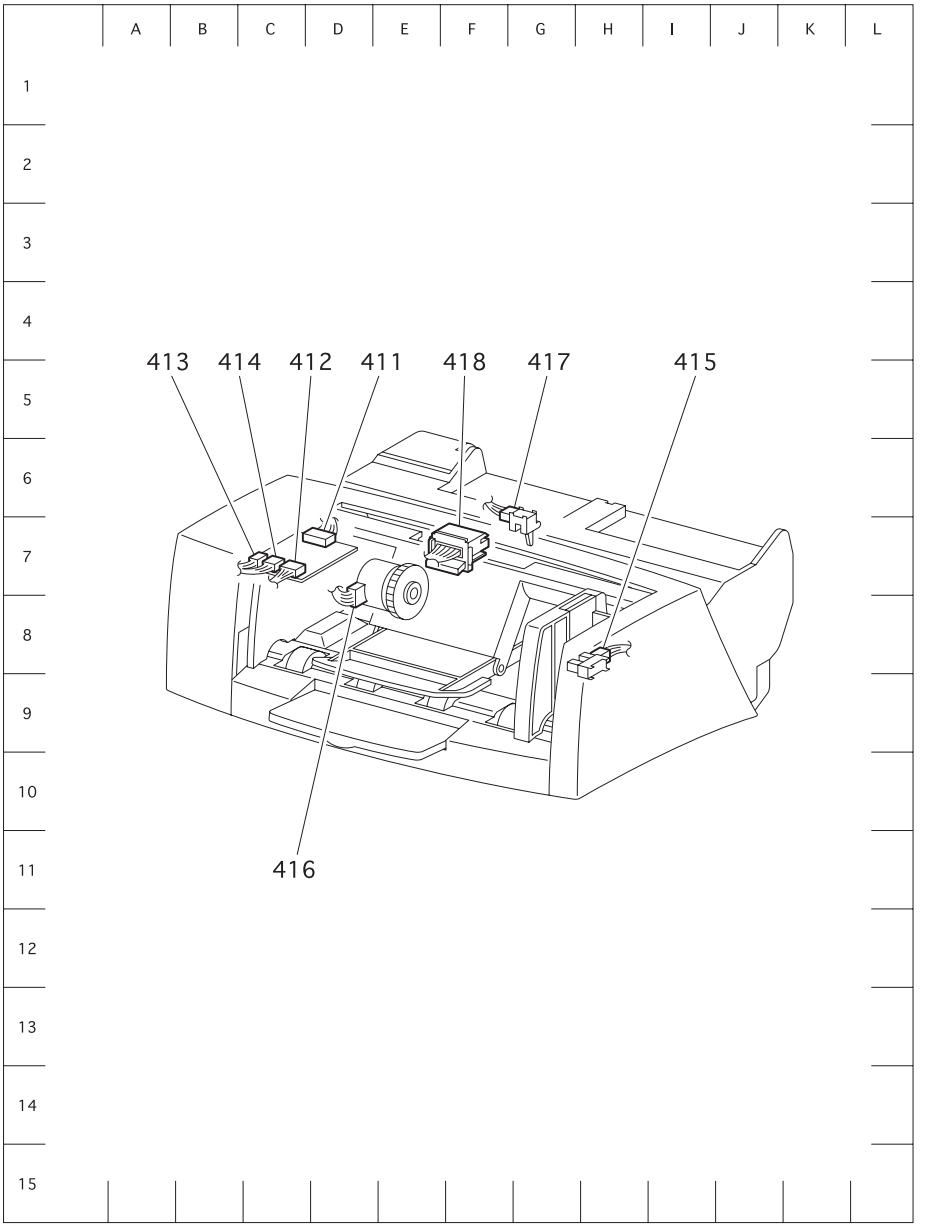
# Envelope Feeder

## Envelope Feeder P/J Table

| Connector | Coordinate | Description |
|---|---|---|
| P/J 411 | D6 | Connects the Main Harness Assembly to the Envelope PWB. |
| P/J 412 | C7 | Connects the Sensor Harness Assembly to the Envelope PWB. |
| P/J 413 | C7 | Connects the Clutch Harness Assembly to the Envelope PWB. |
| P/J 414 | C7 | Connects the No Paper Harness Assembly to the Envelope PWB. |
| P/J 415 | H8 | Connects the No Paper Harness Assembly to the No Paper Sensor. |
| P/J 416 | D8 | Connects the Clutch Harness Assembly to the Clutch. |
| P/J 417 | G6 | Connects the Sensor Harness Assembly to the Envelope Exit Sensor Assembly. |
| P/J 418 | F7 | Connects the Main Harness Assembly to the Envelope Connector. |

# Envelope Feeder P/J Map

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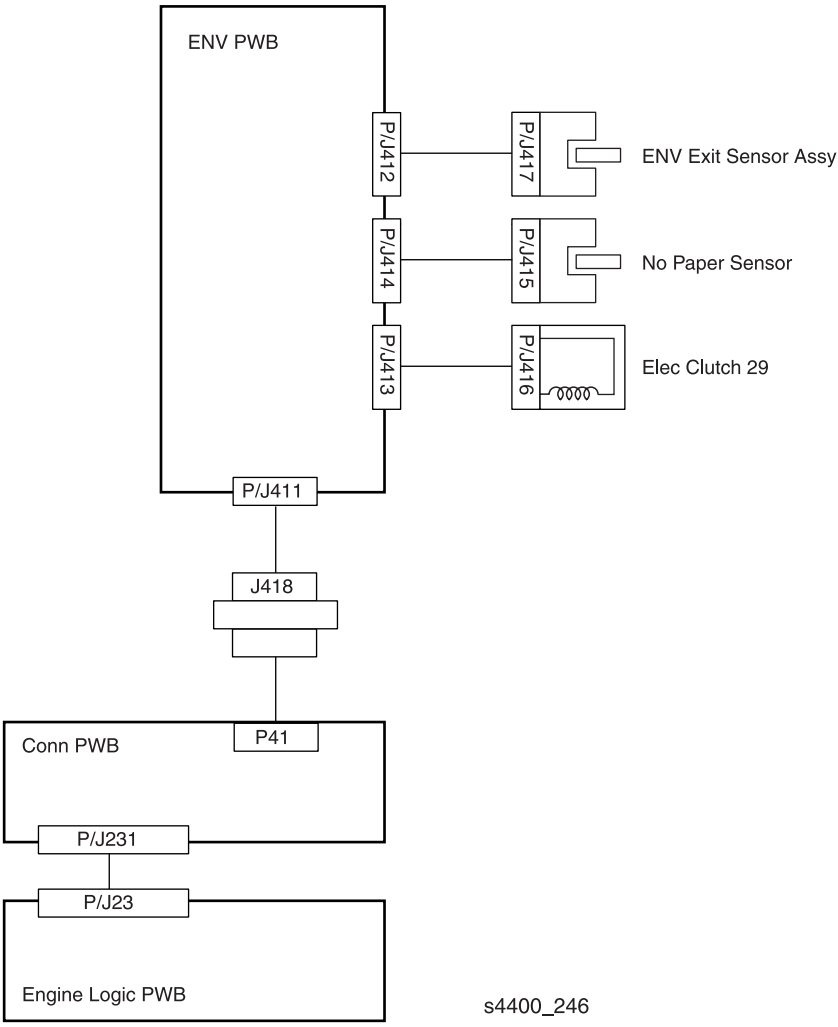
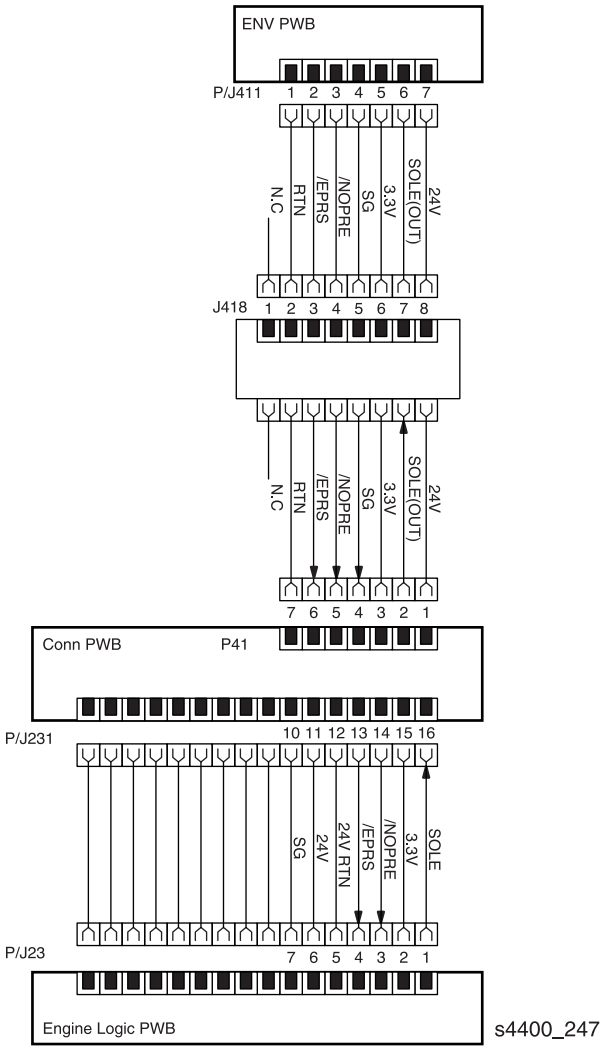
# Envelope Feeder Block Diagram

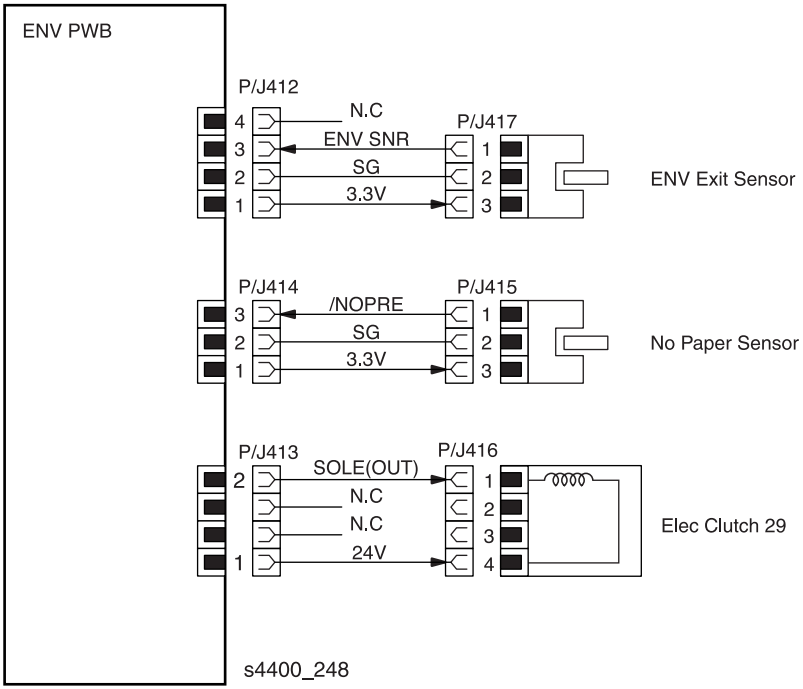


# Envelope Feeder Wiring Diagrams

## Engine Logic Board to Connector PWB to Envelope PWB



## Envelope PWB to Envelope Exit Sensor Assembly, No Paper Sensor, and Clutch



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