Service
Manual

PHASER® 7300
COLOR 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 operating instructions unless you are qualified to do so.**

Safety 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.

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.

Power Safety Precautions

Power Source

For 110 VAC printers, do not apply more than 127 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 240 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 it's 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 plug if the power cord or plug is frayed or otherwise damaged,

■ Or if any liquid or foreign material is spilled into the case,

■ Or if the printer is exposed to moisture,

■ Or if the printer is dropped or damaged,

■ Or if you suspect that the product needs servicing or repair,

■ Or 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 and observe all other safety precautions.**

- Immediately before handling any semiconductor component 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 it's anti-static bag, place it on a grounded conductive surface such as aluminum foil. If the anti-static bag is conductive, you may ground the bag and use it as a conductive surface.

- Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage some devices.

- Do not remove a replacement component or electrical sub-assembly from its protective package until you are ready to install it.

- Immediately before removing the protective material from the leads of a replacement device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

- Minimize body motions when handling unpackaged replacement devices. Motion such as your clothes brushing together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an electro-statically sensitive device

- Handle IC's and EEPROM's carefully to avoid bending pins.

- Pay attention to the direction of parts when mounting or inserting them on Printer Circuit Boards (PCB's).

Service Safety Summary

General Guidelines

For qualified service personnel only: Refer also to the preceding Users Safety Summary.

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 250 volts rms for a 220 volt AC outlet or 130 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 all 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.

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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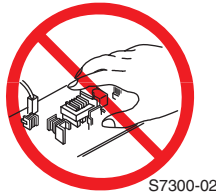
Servicing Mechanical components

Manually rotate drive assemblies to inspect sprockets and gears.

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

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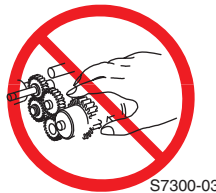
Servicing Fuser Components

Warning: This printer uses heat to fuse the toner image to a sheet of paper. The Fuser Assembly is very hot. Switch off printer power and wait at least 30 minutes for the Fuser to cool before you attempt to service the Fuser Assembly or adjacent components.

Regulatory Information

The equipment described in this manual generates and uses radio frequency energy. If it is not installed properly in strict accordance with Xerox's 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/7300supplies.

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, ICES-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 (CISPR 22)	"Limits and Methods of measurement of radio interference characteristics of Information Technology Equipment." Class B.
EN61000-3-2:1995 +A1:1998+A2:1998. (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 (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 (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 @ 1 KHz
Fast Burst Transients	IEC61000-4-4:1995	5/50 Tr/Th ns, 5kHz Rep. Freq 0.5kV on Signal Lines 1kV on AC Mains
Line Surge	IEC61000-4-5:1995	Combination wave 2.0kV Common mode 2.0kV Differential mode

CISPR 24 Immunity Phenomena	Basic Standard	Test Specification
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
		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.

Canadian Notice

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as described in the radio interference regulations of the Canadian Department of Communications.

Avis Canadien

Cet appareil numerique est conforme aux limites émission de bruits radioélectriques pour les appareils de classe B stipulés das le réglement sur le brouillage radioéletrique du Ministére des Communcations du Canada.

European Notice

This equipment was tested and is determined to be compliant with VDE requirements for a Class B device.

Hinweis

Hiermit wird bescheinigt, dass der Babe Laserdrucker, in bereinstimmung mit den Betimmunngen der Vfg 104ß 984 funkenstört ist. Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gertées angqeigt und die Berechtigung zur berprufung der Serie auf Einhaltung der Bestimmungen eingeräumt.

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Troubleshooting

Test Prints, Adjustments, and NVRAM Resets

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General Information

The Xerox Phaser® 7300 Color Printer Service Manual is the primary document used for repairing, maintaining, and troubleshooting the printer.

To ensure a complete understanding of the product, Xerox recommends participation in Phaser 7300 printer service training.

Contents

The Phaser 7300 Color Printer Overview

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S7300-05

Phaser 7300 Printer with Lower Tray Assembly (LTA) and Lower Tray Deck (LTD)

The Phaser 7300 Printer combines a 4-color, LED-based, tandem-design tabloid print engine, with an Xerox OPB Image Processor Board (IP) that supports Adobe's PostScript Level 3 page description language. The IP Board features a bi-directional parallel interface. An optional Ethernet port for host communication is also available. The Ethernet port supports EtherTalk 10/100baseT, Novell and TCP/IP. All printer versions support the color PCL5c printer language.

A replaceable "Configuration Upgrade Chip" contains configuration information that enables or disables built-in features as described below to allow customer upgrades from7300B to 7300N models.

Phaser 7300 Printer Configurations

The printer is available in five configurations:

Features	Printer Model				
	7300B	**7300N**	**7300DN**	**7300DT**	**7300DX**
Max print speed (see page 1-14)	30/37	30/37	30/37	30/37	30/37
Memory	128*	192*	192*	256*	384*
PostScript Fonts 136 Type 1 115 Central European Type 1	136	136	136	136	136
PCL5c 46 PCL fonts (more fonts are available with the optional internal hard drive)	Std	Std	Std	Std	Std
Job Pipelining	Std	Std	Std	Std	Std
Proof print, Secure print, Saved jobs	Opt**	Opt**	Opt**	Std	Std
PDF Direct print	Opt**	Opt**	Opt**	Std	Std
2400 dpi resolutions	No	Std	Std	Std	Std
A3 Bleeds	No	Std	Std	Std	Std
Job Collation	Opt**	Opt**	Opt**	Std	Std
Auto-Duplex	Opt	Opt	Std	Std	Std
Printer Cart	Opt	Opt	Opt	Opt	N/A
550-Sheet Feeder (LTA)	Opt	Opt	Opt	Std	Opt
1650-High-Capacity Feeder (LTD)	Opt	Opt	Opt	Opt	Std
10/100 Ethernet Network Capable	No	Std	Std	Std	Std
USB, Parallel	Std	Std	Std	Std	Std
Optional Hard Drive	Opt	Opt	Opt	Std	Std
* All configurations support 2 memory slots; the maximum memory is 512 Mbytes. ** Requires the optional internal hard drive.					

Secure Prints, Proof Prints, Saved Prints and PDF Direct Printing

These features are available only if the printer has a hard drive installed.

Note: *These jobs are stored on the printer's optional hard drive and remain in the printer even when it is powered off. There is a limit of 100 jobs on the hard drive, per type. When the printer reaches the limit, it deletes the oldest job per type automatically before adding the new one.*

- **Secure Print:** Print confidential documents. A 4-digit numeric password-protected job is stored on the printer's hard drive. The job prints only after entering the 4-digit number on the printer's front panel.

- Proof Print: Prints only one copy of a multiple copy job so the user can proof the copy. The user assigns a job name to the print job and the first set is printed immediately for proofing. To print the remaining copies, select the job name on the printer's front panel. If the user does not want the remaining copies the job can be cancelled from the printer's front panel.

- **Saved Print:** Stores jobs on the printer's hard drive for print on demand.

- **PDF Direct Printing:** The printer supports a native PDF image processor. PDF Direct printing uses the printer's currently defined imaging settings. Auto sensing of PDF files are included in the emulation sensing and switching logic when the PDF option is installed.

Power Saver Mode

To conserve power, the printer switches into *Power Saver Mode* after being idle for user-selected amount of time. The printer consumes less than 70 watts of power in *Power Saver Mode*. The printer leaves *Power Saver Mode* or "awakens" upon receiving data or user interaction at the front panel.

Resolutions: The printer supports the following resolutions:

- 600 x 600 dpi (Draft/Standard Mode)
- 600 x 2400 dpi (Enhanced Mode)

The printer also accepts 300 x 300 dpi files from PCL legacy drivers, PCL bit map fonts, and PCL bit map images, although these are imaged at 600 x 600 dpi.

The printer supports these optional lower tray combinations:

- One 550-Sheet Feeder (LTA)
- Two 550-Sheet Feeder
- One 1650-Sheet High-Capacity Feeder (LTD)
- One 550-Sheet Feeder and one 1650-Sheet High-Capacity Feeder

Printer Memory and RAM Capabilities

The printer features two memory slots each of which can contain a 64-, 128-, or 256-Mbyte, 144 pin, SODIMM modules. Any slot may be used for any memory size SODIMM. Therefore, slot combinations are allowed providing configurations of 128, 192, 256, 320, 384, and up to 512 Mbytes.

The image processor board also contains 16-kilobytes of non-volatile memory (NVRAM). NVRAM is used to store configuration values that can be set on the printer.

RAM modules have the following characteristics:

- 144 pin SODIMM
- Serial presence detect
- 3.3 Volt
- 100 MHz PC100 or 133 MHz PC133

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

If a SODIMM does not meet the image processor board's specifications one of the following will occur:

- POST fails and displays "RAM Error" on the front panel.
- POST will continue, but the printer will display a soft fault "RAM DIMM presence".
- The image processor board will not boot at all.

Parts of the Printer

Print Engine Base Configuration
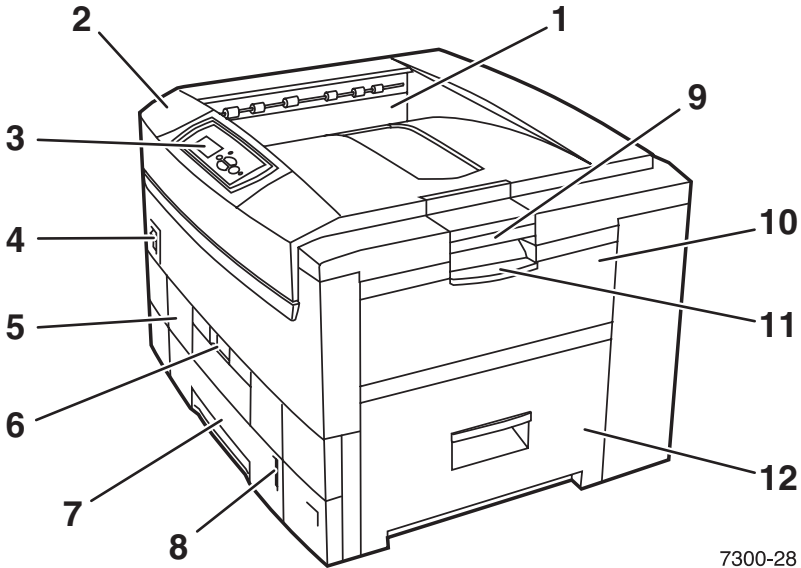
7300-28

Base Configuration, right-front view

Item Description Table

No.	Description	No.	Description
1	Top Output Tray	**7**	Tray 1
2	Top Cover	**8**	Paper Level Gauge
3	Front Panel	**9**	Top Cover Release
4	Power Switch	**10**	Multi-Purpose Tray
5	Duplex Unit (optional - shown closed)	**11**	Multi-Purpose Tray Release
6	Duplex Unit Release	**12**	Right Cover Door A

Printer Options - Lower Tray Deck (LTD) and Lower Tray Assembly (LTA)
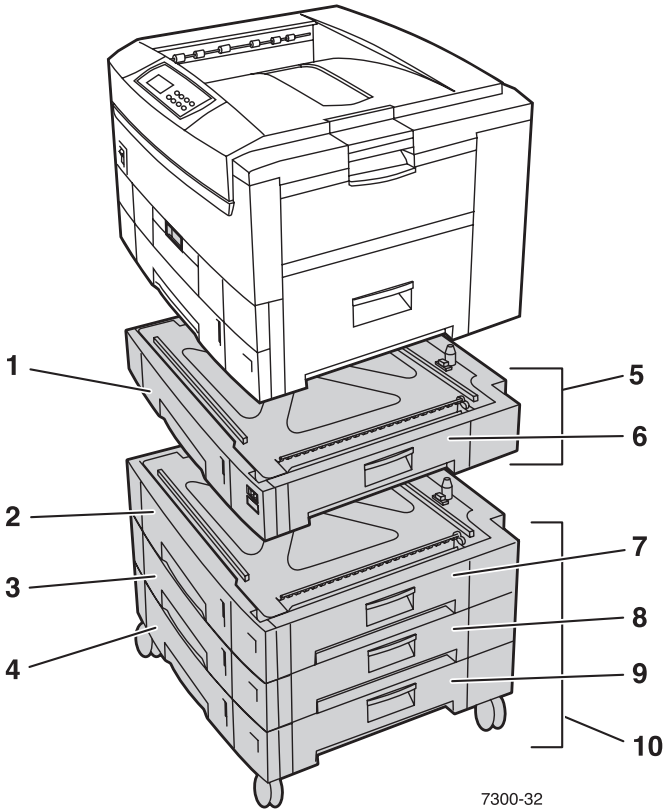
7300-32

Item Description Table

No.	Description	No.	Description
1	Tray 2	**6**	Right Door B
2	Tray 3	**7**	Right Door C
3	Tray 4	**8**	Right Door D
4	Tray 5	**9**	Right Door E
5	Lower Tray Assembly 550-sheet feeder (LTA)	**10**	Lower Tray Deck 1650 High-Capacity Feeder (LTD)

Printer Options (cont'd) - Duplex Unit
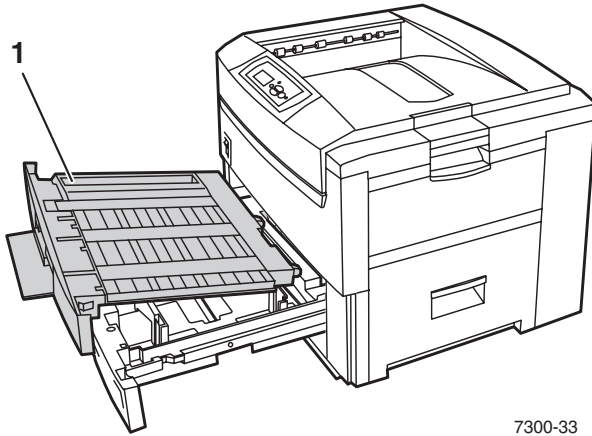
7300-33

Duplex Unit shown with Tray 1

1. Duplex Unit

- The Duplex Unit attaches to the top of Tray 1.
- When opening the Duplex Unit, Tray 1 opens also to support the 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.

Front Panel LED indicators:

- Green = Ready to Print or Printing
- Flashing Green = Receiving, Processing Data, Printing or Power Saver Mode
- Flashing Yellow = Warning
- Flashing Red = Error
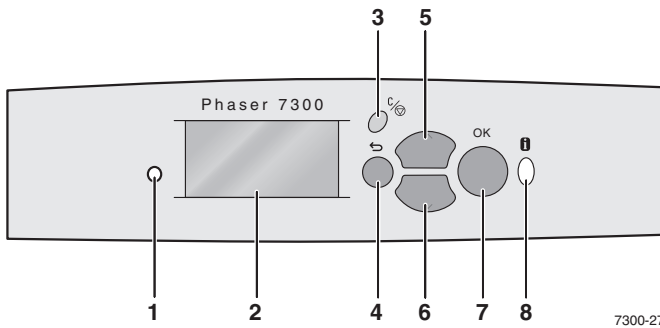
Phaser 7300 Printer Front Panel Configuration

Front Panel Key Descriptions

1	LED (Power/Status)	**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 - cancels printing	**7**	OK (select) Key
4	Back Key - moves back to the previous menu.	**8**	Information Key - for additional explanation or help

Front Panel Shortcuts

Mode	Press this selection at Power On
Skip execution of POST diagnostics	**OK**
Print Service Diagnostics Map	**INFO**
Reset PostScript NVRAM	**BACK+OK**
Password Bypass	**UP+DOWN**
Enter Service Diagnostics	**BACK+INFO**

Image Processor (IP) Board Components
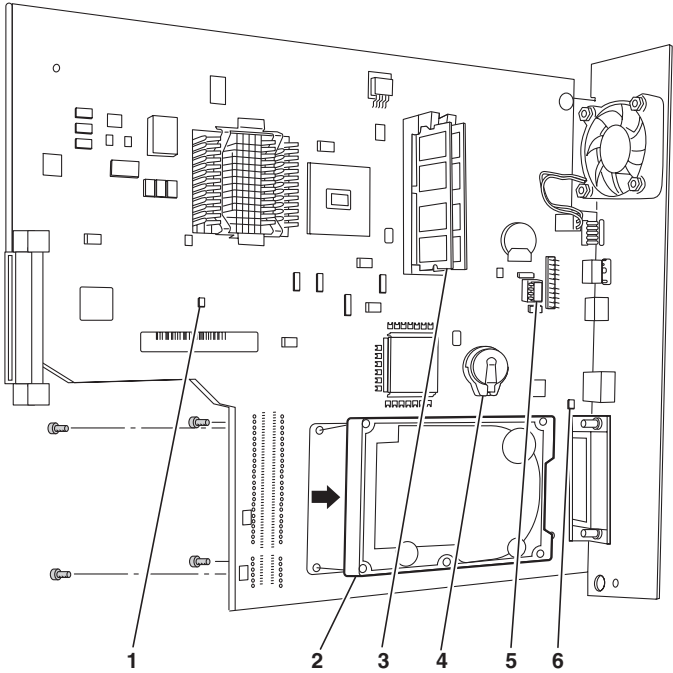
S7300-152

No.	Description
1	LED GI02 "health" : Flashes to indicate proper CPU operation.
2	Hard Drive (optional)
3	Memory (RAM) SODIMM 1 and SODIMM 2
4	Configuration Upgrade Chip ("i" Button)
5	NVRAM
6	LED GI03: *On* indicates 10baseT connection and *Off* indicates a 100baseT connection.

Rear Panel Configuration of the IP Board
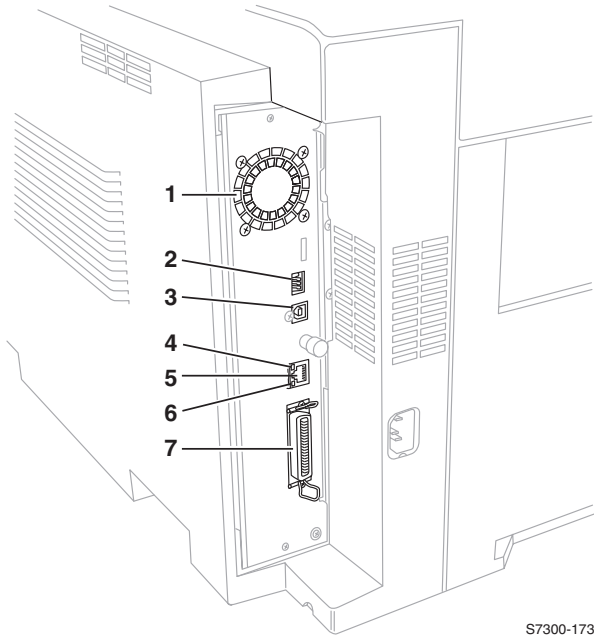
S7300-173

No.	Description
1	Image Processor Board Fan
2	DIP switches
3	USB Port
4	The ethernet port LED TD light is *Off* when the printer is connected to an ethernet network. It blinks yellow while data is transmitted to the host
5	Ethernet Port (Not supported on the 7300B)
6	The ethernet port LED RD light is off when the printer is not connected to an ethernet network. It blinks green when data is received from the host.
7	Parallel Port

DIP Switches

Open   Closed

4
3
2
1

Back   Front
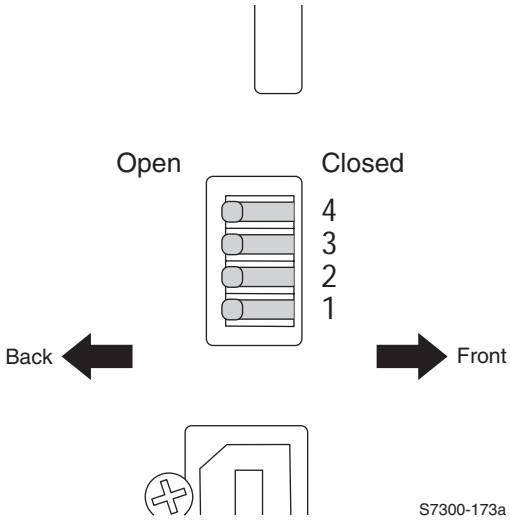
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The DIP switches are defined as follows:

Mode	Switch 1	Switch 2	Switch 3*	Switch 4**
Customer Mode	Open	Open		
Service Mode	Open	Closed		
Developer Mode (no POST)	Closed	Closed		
Disaster Recovery (Vx Works only)	Closed	Open		

* Switch 3 selects whether PostScript (CLOSED) or Vx Works (OPEN) is available on the rear panel serial port.

** Switch 4 is an Image Processor CPU **Reset** switch, normally (OPEN). **Do not** leave in the (CLOSED) position.

Printer Specifications

Physical Dimensions - Print Engine

Dimensions	Specification
Height:	460 mm (18.1 in.)
Width:	666 mm (26.2 in.)
Depth:	626 cm (24.6 in.)
Weight:	68 kgs (149 lbs.)

Physical Dimensions - Options

Dimensions	Specification
Optional 550-Sheet Feeder (Tray 2)	
Width:	666 mm (26.2 in.)
Depth:	626 cm (24.6 in.)
Weight:	23 kgs (50 lbs.)
Optional 1650 Sheet High-Capacity Feeder (Trays 3 - 5)	
Width:	666 mm (26.2 in.)
Depth:	626 cm (24.6 in.)
Weight:	74 kgs (163 lbs.)

Printer Clearances
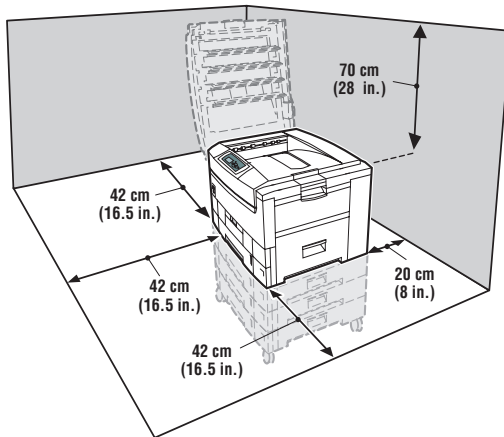
Functional Specifications

Characteristic	Specification
Printing process	Electro-photographic, four color (CMYK) tandem transfer printing
Color medium	Four toner cartridges, each contain one of four colors: cyan, magenta, yellow or black. The toner is a nonmagnetic, monocomponent contact medium.
Resolution / Addressability	Standard and Draft 600 x 600 dpi (Factory Default) Enhanced 600 x 2400 dpi* * Not available on the Phaser 7300B. ** Not Available on the Phaser 7300B or Phaser 7300N.
Operating Modes	Running Mode: Print Engine capable of making prints immediately. Ready Mode: 15 seconds from completion of a print. Power Saver Mode: Entered after a specified period of Print Engine inactivity since completion of the last print.
Warm-up time	30 seconds from cold start (power off condition)

Print Speeds

Print Mode (Color)	Ltr / A4	Ltr/A4 Duplex	A3/Tabloid	A3/Tabloid Duplex
600 x 600	30/37	28/32	16/20	15/18
2400 x 600	16/16	16/16	9/9	9/9
Transparencies	10/15	N/A	N/A	N/A
Thick Card Stock Thin Card Stock	10/10	N/A	6/6	N/A
Envelopes Glossy Business Card Greeting Card CD/DVD Labels and Inserts	10/10	N/A	N/A	N/A

Electrical Specifications

Characteristic	Specification	
Primary line voltages	110 - 127 VAC (115 VAC nominal) 220 to 240 VAC (230 VAC nominal)	
Primary voltage frequency range	50 (48 to 52) or 60 (58 to 62) Hz	
Power consumption	Peak: 1600 W Normal Operation: 800 W Idle: 250 W Power Saver: 70 W	
Primary voltage fusing	115 VAC configuration – 20 Amp 230 VAC configuration – 15 Amp	
Frequency	50Hz or 60Hz $\pm$2%	
Power Supplies	**Low-Voltage Power Supply**	
	+5V	Logic circuit power supply, LED Head
	+34V	Motor and drive voltage, high-voltage power supply
	+12V	High-voltage power supply, Paper thickness sensor power supply
	High-Voltage Power Supply	
	(CH) -1000 to -1400$\pm$50V	Voltage to charge roller
	(DB) -50 to -300V/+300V	Voltage to developing roller
	(SB) -300 to -450/0V	Voltage to toner supply roller
	(TR) C: 0 to 7KV K,Y,M: 0 TO 6KV	Voltage to transfer unit (variable)

Environmental Specifications

Characteristic	Specification
Temperature Operating Storage Transport	 10 to 32 ^{o}C (50 to 89.6 ^{o}F) 0 to 43 ^{o}C (32 to 109.4 ^{o}F) -10 to 43 ^{o}C (-14 to 109.4 ^{o}F)
Humidity	Relative Humidity (50 - 70% to assure the best print-quality)
Operating Storage Transport	20 - 80% 10 - 90% 10 - 90%
Altitude Operating Non-operating	 0 to 2500 m (8,000 ft.) at 25 ^{o}C 0 to 6000 m (20,000 ft.)

Environmental Specifications (cont'd.)

Characteristic	Specification
Vibration/shock	
Operating	May drop any side or corner 50 mm (2 in.) without impairment of subsequent operation.
Non-Operating (vibration)	On five mutually perpendicular axes: 0.5 g, 25-minute sweep, 5 to 200 to 5 Hz, 100 to 200 sec./sweep cycle. No resonant frequencies below 50 Hz.
Non-operating (shock)	15 g, trapezoidal flared pulse, 20 msec each axis.
Acoustic Noise (operating)	Standby: 45 dBa, Running: 54 dBa, Impulse: 57 dBa

Media and Tray Specifications

	Specification	Supported Tray(s)
Printable Area	Minimum margins = 5 mm (0.2 in.) on all sides Maximum paper size = 304.8 mm x 914.40 mm (12 in. x 36 in.) Minimum paper size = 105 mm x 148 mm (4.13 in. x 5.83 in.)	
Supported Paper Sizes	**Paper Type** **Size**	**Trays**
	Letter 8.5 x 11 in.	All Trays
	Legal 8.5 x 14 in.	All Trays
	Executive 7.25 x 10.5 in.	All Trays
	Tabloid 11 x 17 in.	All Trays
	Tabloid Extra 12 x 18 in.	All Trays
	Statement 5.5 x 8.5 in.	MPT Only
	US Folio 8.5 x 13 in.	All Trays
	A4 210 x 297 mm	All Trays
	A3 297 x 420 mm	All Trays
	SRA3 320 x 450 mm	All Trays
	A5 148 x 210 mm	All Trays
	A6 105 x 148 mm	MPT / Tray 1
	ISO B5 176 x 250 mm	MPT Only
	B5 JIS 182 x 257 mm	All Trays
	B4 JIS 257 x 364 mm	All Trays
	Custom Sizes	MPT / Tray 1
	Banner 12.9 x 36 in.	MPT Only
Supported Paper Types And Weights	**Type** **Weight**	
	Plain Paper 64 - 120 g/m^2 (17 - 32 lb. Bond)	All Trays
	Light Paper 64 - 75 g/m^2 (17 - 20 lb. Bond)	MPT / Tray 1
	Medium Paper 75 - 90 g/m^2 (20 - 24 lb. Bond)	MPT / Tray1
	Medium Heavy Paper 90 - 105 g/m^2 (24 - 28 lb. Bond)	MPT / Tray 1
	Heavy Paper 105 - 120 g/m^2 (28 - 32 lb. Bond)	MPT / Tray 1
	Transparency Phaser® 35-Series ONLY	MPT / Tray 1
	Thin Card Stock 120 - 163 g/m^2 (44 - 60 lb. Cover)	All Trays
	Thick Card Stock 163 - 203 g/m^2 (60 - 75 lb. Cover)	MPT Only
	Labels N/A	MPT Only
	Letterhead 64 - 120 g/m^2 (17 - 32 lb. Bond)	All Trays
	Glossy Coated Paper 120 - 163 g/m^2 (81 - 110 lb. Book	MPT / Tray 1
	Business and Greeting Card N/A	MPT Only
	CD/DVD Labels and Inserts N/A	MPT Only

Media and Tray Specifications (cont'd.)

	Specification		Supported Tray(s)
Supported Envelopes Supported Weight: 20 - 24 lb. Bond	Commercial #10 Monarch Envelope A7 Envelope Custom DL Envelope C4 Envelope C5 Envelope C6 Envelope B5 Envelope	4.12 x 9.5 in 3.87 x 7.5 in 5.25 x 7.25 in 110 x 220 mm 229 x 324 mm 162 x 229 mm 114 x 162 mm 176 x 250 mm	All Envelopes print from the MPT Only
	Use only paper envelopes. Do not use envelopes with windows or metal clasps.		

Tray Capacity		**Trays 1 - 5**	**MPT**	
	Standard Paper	550 Sheets	100 Sheets	*Tray 1 / MPT only
	Transparency*	100 Sheets*	50 Sheets	
	Envelopes	N/A	10 each	

Error Messages and Codes

This section covers troubleshooting procedures for the Phaser 7300 printer's front panel error messages and codes. Only jams and fatal errors will produce an associated alphanumeric code.

When an error first occurs, record the error message and code, then cycle power to the printer to see if the error reoccurs. Error messages and codes are generally specific, making it important that service personnel and users record errors exactly when reporting problems with the printer.

Some procedures require running service diagnostic test functions to verify a specific printer part is operating correctly. For information on Service Diagnostics and all internal printer test functions, see the table "Service Diagnostics" on page 2-26.

To troubleshoot problems and electrical failures not associated with a front panel message or code, refer to the section"Troubleshooting" on page 3-67.

If an error message or code is not visible on the front panel, the usage profile report and fault history list errors reported by the printer.

The lists can be accessed one of three ways:

Accessing Error Codes and Fault History

1. Print (if possible) the `Usage Profile` Report Log from the printer's front panel `Support Menu`. The fault history is detailed in this report log.
2. View the printer's fault history on the front panel.
   a. Go to `Support Menu --> Service Tools --> Fault History`.

   b. Any **alphanumeric code** associated with an error message or jam can be viewed by pressing the **Information** key and scrolling to the bottom of the help text displayed on the front panel.
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 Troubleshoot link and the fault history is displayed.

Error Messages and Codes Index

Error Code	Front Panel Message	Usage Profile Code	Page
A6	Jam at Top Cover	6	2 - 37
A7	Jam at Top Cover	9	2 - 37
A10	Jam at Top Cover	11	2 - 37
A11	Jam at Door A	13	2 - 39
A22	Jam at Top Cover	12 or 13	2 - 37
B8	Jam at Duplex	10	2 - 41
B13	Jam at Duplex	8	2 - 41
B21	Jam at Door A	7 or 10	2 - 39
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C3	Insert Tray 3	62	2 - 43
C4	Insert Tray 4	61	2 - 43
C5	Insert Tray 5	60	2 - 43
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E12	Top Output Tray is Full, Unload Paper	113	2 - 43
T1	Fuser Upper Failure	126	2 - 56
T2	Fuser Lower Failure	127	2 - 56
T29	Temp Sensor Failure	128	2 - 56
T30	RH Sensor Failure	129	2 - 57
T32	LED Over Temperature Failure	130	2 - 57
T34	IU Motor Overheating Failure	164	2 - 57
U0	Engine ROM Failure	131	2 - 58
U1	Engine RAM Failure	132	2 - 58
U2	Engine EEPROM Failure	133	2 - 58
U3	Engine EEPROM Missing Failure	134	2 - 58
U4	Engine SRAM Failure	135	2 - 58

Error Code	Front Panel Message	Usage Profile Code	Page
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U6	Power Supply Failure	137	2 - 58
U7	Feeder Home Failure	138	2 - 59
U8	Controller Fan Failure (Electrical Card Cage Fan)	139	2 - 59
U9	Power Supply Fan Failure	140	2 - 60
U12	Duplex Interface Failure	141	2 - 60
U13	Tray 3 Interface Failure	143	2 - 61
U14	Tray 2 Interface Failure	142	2 - 61
U16	Tray 4 Interface Failure	144	2 - 61
U17	Tray 5 Interface Failure	145	2 - 61
U18	Yellow LED Failure	146	2 - 61
U19	Magenta LED Failure	147	2 - 61
U20	Cyan LED Failure	148	2 - 61
U21	Black LED Failure	149	2 - 61
U26	Yellow Imaging Unit Failure	150	2 - 62
U27	Magenta Imaging Unit Failure	151	2 - 62
U28	Cyan Imaging Unit Failure	152	2 - 62
U29	Black Imaging Unit Failure	153	2 - 62
U30	Flash Hardware Failure	161	2 - 63
U31	Flash Software Failure	162	2 - 63
U32	Fuser Fan Failure	163	2 - 63
U33	Fuser 110v/220v Mismatch Failure	154	2 - 64
U34	Unsupported Duplex Unit ROM	169	2 - 64
U35	Unsupported Tray 2 ROM	165	2 - 64
U36	Unsupported Tray 3 ROM	166	2 - 64
U37	Unsupported Tray 4 ROM	167	2 - 64
U38	Unsupported Tray 5 ROM	168	2 - 64
W16	Fuse Cut Error in Fuser	155	2 - 65
W17	Fuse Cut Error in Transfer Unit	156	2 - 65
W18	Fuse Cut Error in Cyan Imaging Unit	159	2 - 65
W19	Fuse Cut Error in Magenta Imaging Unit	158	2 - 65

Error Code	Front Panel Message	Usage Profile Code	Page
W20	Fuse Cut Error in Yellow Imaging Unit	157	2 - 65
W21	Fuse Cut Error in Black Imaging Unit	160	2 - 65
Error Messages not associated with an alphanumeric code			
	Adjust Tray [1] Size	55	2 - 47
	Adjust Tray [2] Size	56	2 - 47
	Adjust Tray [3] Size	57	2 - 47
	Adjust Tray [4] Size	58	2 - 47
	Adjust Tray [5] Size	59	2 - 47
	Replace Cyan Toner Cartridge	65	2 - 53
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	Replace Yellow Toner Cartridge	67	2 - 53
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	Replace Cyan Imaging Unit	69	2 - 52
	Replace Magenta Imaging Unit	70	2 - 52
	Replace Yellow Imaging Unit	71	2 - 52
	Replace Black Imaging Unit	72	2 - 52
	Replace Transfer Unit	73	2 - 55
	Close Right Door A	74	2 - 49
	Close Right Door B	75	2 - 49
	Close Right Door C	76	2 - 49
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	Close Top Cover	80	2 - 48
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	Tray [1] Empty, Load Paper	95	2 - 44
	Tray [2] Empty, Load Paper	96	2 - 44
	Tray [3] Empty, Load Paper	97	2 - 44
	Tray [4] Empty, Load Paper	98	2 - 44
	Tray [5] Empty, Load Paper	99	2 - 44

Error Code	Front Panel Message	Usage Profile Code	Page
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	Load Tray [3] with [*size**] [*type**]	103	2 - 46
	Load Tray [4] with [*size**] [*type**]	104	2 - 46
	Load Tray [5] with [*size**] [*type**]	105	2 - 46
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	Install or Reseat Cyan Imaging Unit	118	2 - 52
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	Install or Reseat Yellow Imaging Unit	120	2 - 52
	Install or Reseat Black Imaging Unit	121	2 - 52
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Service Flowchart

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

Always follow the safety measures detailed in the front of the manual when servicing the printer. See "Service Safety Summary" on page vi of this manual.

Step 1: Identify the Problem:

1 Verify the reported problem does exist.
2 Check for any error codes and write them down.
3 Print normal customer prints and service test prints.
4 Make note of any print quality problems in the test prints.
5 Make note of any mechanical or electrical abnormalities present.
6 Make note of any unusual noise or smell coming from the printer.
7 Print a 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 by measuring the voltage at the electric outlet while the printer is running.

Step 2: Inspect and Clean the Printer:

1 Switch OFF printer power.
2 Disconnect the AC power cord from the wall outlet.
3 Verify the power cord is free from damage or short circuit and is connected properly.
4 Remove the Imaging Unit and protect it from light.
5 Inspect the printer interior and remove any foreign matter such as paper clips, staples, pieces of paper, dust or loose toner.
   - 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 a type II approved toner vacuum.
6 Clean all rubber rollers with a lint-free cloth, dampened slightly with cold water and mild detergent.
7 Inspect the interior of the printer for damaged wires, loose connections, toner leakage, and damaged or obviously worn parts.
8 If a toner cartridge appears obviously damaged, replace with a new one.

Step 3: Find the Cause of the Problem:

1 Use the Error Messages and Codes and troubleshooting procedures to find the cause of the problem.
2 Use Diagnostics to check printer and optional components.
3 Use the Wiring Diagrams to locate test points.
4 Take voltage readings at various test points as instructed in the appropriate troubleshooting procedure.
5 Use the Service Test Prints to isolate problems with 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.

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 to test a component using service diagnostics, See "Service Diagnostics" on page 2-26 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 Diagrams" on page 10-251 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 6-129 provides detailed steps for removing and replacing all major parts of the printer. The section "Field Replaceable Units (FRU) Parts List" on page 7-193 details the location, quantity and part number for all spared parts of the printer.

General Notes on Troubleshooting

1. Unless indicated otherwise, the instruction "cycle power to the printer" means for you to switch OFF and then back ON the printer power and let the printer proceed through POST to a 'Ready' condition.
2. When instructed to take voltage, continuity or resistance readings on wiring harnesses, refer to the wiring diagrams for specific locations not called out in a procedure.
3. 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.
4. 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.

Service Diagnostics

The Phaser 7300 Color Printer has built-in diagnostics to aid in troubleshooting problems with the printer. The Service Diagnostics Menu provides a means to test sensors, motors, switches, clutches, fans and solenoids. Diagnostics also contain built-in test prints, adjustments and calibrations, printer status and some NVRAM access and resets.

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

Enter without rebooting the printer (Hidden Service Menu):

1. From the printer's main menu, scroll to the `Support Menu`, press **OK** and then scroll to the `Service Tools Menu` and press **OK**.
2. Hold down the **Up Arrow** key and press the **Down Arrow** key.
3. Scroll to `Run Diagnostics` and press **OK**.

Enter by rebooting the printer:

1. Turn the printer power OFF.
2. Hold down the **Back** and **Information** keys simultaneously and turn the printer back ON.
3. Continue to hold the keys until the following message is displayed on the front panel: `Service Diagnostics V#.##, Initializing...,` and then release the keys.
4. The front panel displays the Service Diagnostics Menu.

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

Service Diagnostics Key Press and Function Table

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

Service Diagnostics Tests and Functions Table

Menu Item	Front Panel Display Results	Functional Definition
Print Service Menu Map - Prints the service diagnostics menu map, exits diagnostics, runs POST and returns printer to Ready.		
General Status - Displays user-selected engine information.		
Engine Status	<No Status to Report> *<Error Message>*	**No Status to Report** = the printer is online and ready to print. **Error Message** = Displays an error message that will prevent printing. Status is displayed sequentially, one line at a time.
Jam Status	<Jam @> <Jam2 @>	**Jam @** indicates the original reason for the jam, only 1 should be listed. **Jam2 @** Engineering use only.
Engine Board ROM Version	Engine Version is n.n.n Duplex Version is n.n.n Tray 2 Version is n.n.n Tray 3 Version is n.n.n Tray 4 Version is n.n.n Tray 5 Version is n.n.n	Displays the engine firmware version, duplex version and trays 2, 3, 4, and 5 versions, if installed. <press **Back** or **Cancel** to abort>
Printer Configuration	Memory: nnnMB Hard Drive is Present/Absent Duplex is Present/Absent Tray 1-n Installed	Displays current memory installed. Detects presence of Hard Drive option. Detects presence of Duplex option. Detects presence of Tray 1,2,3,4,5. <press **Back** or **Cancel** to abort>
Ambient Temperature/ Humidity	Amb. Temp. is nnn deg.C (Celsius) Amb. Hum. is nnn % (relative percent)	Displays the current Temperature and Humidity for the printer. <press **Back** or **Cancel** to abort>
Fuser Temperature	Fuser Temp Upper is nnn deg.C Fuser Temp Lower is nnn deg.C Fuser (UpperSide) is nnn deg.C	Displays engine reported upper, lower and upper-side fuser temperature in degrees Celsius <press **Back** or **Cancel** to abort>
Consumable Status	■ Total Pages ■ Fuser Unit Life (total sheets) ■ transfer unit Life (total images) ■ Black IU Life (total images) ■ Yellow IU Life (total images) ■ Cyan IU Life (total images) ■ Magenta IU Life (total images) ■ Black Toner Life (% used) ■ Yellow Toner Life (% used) ■ Magenta Toner Life (% used) ■ Cyan Toner Life (% used)	Displays current consumable life counts. <press **Arrow Down** for more data>

Front Panel Control	Contras:t
	     Current Contrast: n
	
	 Intensity:
	     Current Intensity: n
		Contrast range n is 1 - 10
		 Intensity range n is 0 - 10
		
		 <press **Up/Down** to increase/decrease value>

Service Diagnostics Tests and Functions Table (cont'd.)

Menu Item	Front Panel Display Results	Functional Definition
Test Prints - Prints test prints stored on the Engine Controller Board. The prints are used by service personnel to identify, repair and validate the operability of the printer. Used to isolate print problems to the engine or Image Processor by eliminating the normal image data transfer process from the Image Processor Board to the Engine Controller Board.		
Execute Print	\<Engine Status\>	Not used here
	\<Engine Temperature\> P=nnn T=nnn U=nnn[nnn] H=nn% L=nnn[nnn]	**P**=Sheets **T**=Ambient Temp. **U**=Upper Fuser Temp[Setpoint] **H**=Ambient Hum. % **L**=Lower Fuser Temp[Setpoint]
	\<Engine Transfer Voltages\> KTR=n.nn KV MTR=n.nn KV YTR=n.nn KV CTR=n.nn KV	Transfer voltage set values (KV) for each color.
	\<Engine Transfer Resistances KR=n.nn uA MR=n.nn uA YR=n.nn uA CR=n.nn uA	Transfer roller resistance values (micro Amps) for each color.
	\<Engine Media Thickness\> Thick=nn um Temp=nn degC Regist=nnnh Exit=nnnh	Thick=Media thickness (microns) Temp=Fuser Temp(deg.C) Regist=Regist Motor speed Exit=Exit Motor Speed
	Test print Cancelled *\<if cancelled\>* Please wait...	\<press **Up/Down** - more reports\> \<press **Cancel** to abort\>
	Engine Delivering Pages Please wait...	
Select page Count	Engine Page Count: nnn	0000 means continuous printing. \<press **Cancel** to terminate printing\>
	Please wait...	\<Press **Info** to shift digits\> \<Press **OK** to accept value\> \<Press **Back** or **Cancel** to abort\>
	Page Count set to n	**Note:** If Duplex mode is on and the user enters an odd number of pages, the next higher even number of pages will be set.
Select Test Patterns	Blank Pattern Color Registration Adjust Pattern Gray Pattern Thin Lines Pattern Color Stripes Pattern	These are print engine generated test prints that bypass the Image Processor Board.
	Please wait...	
Select Media Source	Source Tray: n -or- MPT	
	Please wait...	\<Press **Up/Down** to change\> \<Press **OK** to accept value\> \<Press **Back** or **Cancel** to abort\>
	Set to Tray n -or- MPT	
Select Color /Monochrome	Select: Color / Monochrome	
	Please wait...	\<Press **Info** to change\> \<Press **OK** to accept value\> \<Press **Back** or **Cancel** to abort\>
	Color Mode set to Color/Monochrome	

Service Diagnostics Tests and Functions Table (cont'd.)

Menu Item	Front Panel Display Results	Functional Definition
Select Duplex /Simplex	Select Duplexing: On/Off Please wait... Duplex is set to On/Off	<Press **Info** to change> <Press **OK** to accept value> <Press **Back** or **Cancel** to abort>
Select Job Offset	Select Offset: On/Off Please wait... Offset set to On/Off	Controls how print jobs are staggered in the top tray. <Press **Info** to change> <Press **OK** to accept value> <Press **Back** or **Cancel** to abort>
Select Output Path	Select: Face Down/Face Up Please wait... Output set to Face Down/Face Up	Controls how print jobs are delivered, face-up or face-down <Press **Info** to change> <Press **OK** to accept value> <Press **Back** or **Cancel** to abort>
Motors/Fans Tests - Tests the functionality of motors and fans by giving service personnel the ability to energize/de-energize the motors and fans one at a time.		
Tray Feed Motors	Tray 1 Feed Motor <if installed> Tray 2 Feed Motor Tray 3 Feed Motor Tray 4 Feed Motor Tray 5 Feed Motor Tray Feed Motor On/Off	The tray must be removed to run this test. <Press **OK** to continue> <Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>
Registration Motor A	Motor is On/Off	<Press **OK** to start motor> <Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>
Registration Motor B	Remove MPT Media! Motor is On/Off If MPT media present, will jam	<Press **OK** to continue> <Press **OK** to start motor> <Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>
Imaging Unit Motors (CMYK)	[Black] [Yellow] [Magenta] [Cyan] IU Motor is On/Off	Remove the appropriate Imaging Unit before proceeding with the test. After removing the IU, defeat the interlock switch, then resume the test. <Press **OK** to start motor> <Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>
Imaging Unit Up/Down	Motor is On/Off	<Press **OK** to start motor> <Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>

Service Diagnostics Tests and Functions Table (cont'd.)

Menu Item	Front Panel Display Results	Functional Definition
transfer unit Motor	Transfer Motor is On/Off	Remove all the Imaging Units before proceeding with the test. Defeat the top cover interlock switch, then resume the test. <Press **OK** to start motor> <Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>

Fuser Unit Motor	Fuser Motor Forward
	   Fuser Motor is On/Off
	
	Fuser Motor Reverse
	   Fuser Motor is On/Off
	
	Fuser Motor Release
	   Fuser Motor is On/Off	

Duplex Unit Motor	Motor is On/Off	<Press **OK** to start motor> <Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>
Job Offset Motor	Motor is On/Off	
Chassis Fan	Fan is On/Off	
Rear Fuser Fan	Fan is On/Off	
Top Fuser Fan	Fan is On/Off	
Sensor/Switch Tests - Tests the functionality of the sensors and switches by giving service personnel the ability to input state changes and observe proper function.		

Interlock Switches	Top Cover Interlock
	   Top Cover is Open/Closed
	
	Right Door Interlocks
	   Door A is Open/Closed
	   Door B is Open/Closed
	   Door C is Open/Closed
	   Door D is Open/Closed
	   Door E is Open/Closed
		<If Tray 2 is installed>
		<If Tray 3 is installed>
		<If Tray 4 is installed>
		<If Tray 5 is installed>

Tray 1 Switches
Tray 2, 3, 4 Switches (Optional)
	Tray is Empty / Not Empty,
	   Low / Not Low
	
	Lift is H/L, Hop is H/L, Feed H/L
	
	Size: SW 1=H/L 2=H/L 3=H/L 4=H/L
	   5=H/L <media name>
		Note: Media name is one of: Letter-SEF, A6-SEF, 11x17-SEF, A3nobi-SEF, Executive-SEF, Legal14-SEF, A3-SEF, B4-SEF, A4-SEF, A5-SEF, Letter-LEF, A4-LEF, B5-SEF, Legal13-SEF, B5-LEF, Tray Missing
		
		See "Paper Size Sensing" on page 8-236 for more information.

MPT Tray Switches	MPT Roller Home is Home/Not Home MPT Empty switch is Paper/No Paper MPT OHP is Paper/Transparency	Actuate and Deactuate the switch.

Menu Item	Front Panel Display Results	Functional Definition
Registration Entrance Sensor	Registration is Media Present / Not Present	Toggle the actuator to change sensor state.
MPT Entrance Sensor	MPT Entrance Paper is Present / Not Present	
transfer unit Entrance Sensor	transfer unit Paper is Present / Not Present	
Fuser Exit Sensor	Fuser Exit Paper is Present / Not Present	
Face-Up Door Switch	Face Up door is Open / Closed	
Stack Full Sensor	Stack Full is Full / Not Full	
Duplex Unit Sensors	Entrance Paper is Present / Not Present	
	Middle Paper is Present / Not Present	
	Exit Paper is Present / Not Present	
Color Registration Sensor	Color Reg. Front is nnnh	ENGINEERING USE ONLY
	Color Reg. Rear is nnnh	
Density Sensor	Density is nnnh	ENGINEERING USE ONLY
Media Weight Sensor	Media Weight is nnnh	ENGINEERING USE ONLY
Fuser Temp Sensors	Fuser Temp Upper is nnn deg.C	See "Fuser and Paper Exit" on page 8-233 for information regarding Fuser temperature ranges.
	Fuser Temp Lower is nnn deg.C	
	Fuser Temp (UpperSide) is nnn deg.C	
Ambient Temp/Hum Sensor	Amb. Temp. is nnn deg.C	See "Environmental Specifications" on page 1-15 for the optimal printer operating range.
	Amb. Hum. is nnn %	
CMYK LED Temp Sensor	Black Temp is nnn (adc)	ENGINEERING USE ONLY
	Yellow Temp is nnn (adc)	
	Magenta Temp is nnn (adc)	
	Cyan Temp is nnn (adc)	
CMYK IU Sensor	Cyan is Present / Missing	Remove the Imaging Unit and defeat the top cover interlock switch and depress the 3-pins to change state.
	Magenta is Present / Missing	
	Yellow is Present / Missing	
	Black is Present / Missing	

Service Diagnostics Tests and Functions Table (cont'd.)

Menu Item	Front Panel Display Results	Functional Definition
CMYK Toner Cart Sensor	Black Missing / Installed Yellow Missing / Installed Magenta Missing / Installed Cyan Missing / Installed	Toggle the actuator to change sensor state.
Read Fuses	Fuser is Cut / Not Cut TBelt is Cut / Not Cut CIU is Cut / Not Cut MIU is Cut / Not Cut YIU is Cut / Not Cut KIU is Cut / Not Cut	
Clutch Tests - Tests the functionality of the clutches by activating one component at a time. Test runs for 10 seconds or until the test is aborted.		
Tray 1 Feed Clutch	Clutch is On/Off	Listen carefully to hear the clutch engage.
(Optional) Tray 2, 3, 4 Feed Clutch	Clutch is On/Off	
Feed Roller 1 Clutch	Clutch is On/Off	
Feed Roller 2, 3, 4, 5 Clutch	Clutch is On/Off	<Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>
Reg Roller A Clutch	Clutch is On/Off	
Right Duplex Clutch	Clutch is On/Off	
Left Duplex Clutch	Clutch is On/Off	
Solenoid Tests - Tests the functionality of the solenoids by activating one component at a time. Test runs for 10 seconds or until the test is aborted.		
Registration Shutter Solenoid	Shutter is Open/Closed	
Exit Gate Solenoid (Duplex)	Solenoid is On/Off	<Press **Back** or **Cancel** to abort> <Auto abort in 10 seconds>
Face-Up Gate Solenoid (Top/Side Output Tray)	Solenoid is On/Off	

Service Diagnostics Tests and Functions Table (cont'd.)

Menu Item	Front Panel Display Results	Functional Definition
Adjustments/Calibrations - Performs adjustments, calibrations or operations essential to the performance of the printer. For complete walk-through procedures, refer to the section "Test Prints, Adjustments, and NVRAM Resets" on page 4-111.		
(ADC) Auto Density Control - Density Calibration: Verifies ADC operation, replacement ADC tag number is entered, then the operation is tested. The following functions are all part of the Auto Density Control.		
Edit Density Data - Enter the last two digits from the tag number that is attached to the underside of the Color Registration Shutter.		
	Current Tag Number: nnnnnnnnhh Change Tag Number? Yes No	Find the tag number on the bottom of the Registration Shutter. Enter the last two digits (hh) <Press **OK** to select> <Press **Back** or **Cancel** to abort>
	Enter Tag Number: nnnnnnnnhh	<Press **Up/Down** to change> <Press **OK** to select value> <Press **Back** or **Cancel** to abort>
	Tag Number set to nnhh	<Press **Back** or **Cancel** to abort>
Execute Density Calibration - Density Calibration: Engine is prepared for calibration run, and the ADC operation is verified.		
	Density Adj. Test Passed / Failed	<Press **Back** or **Cancel** to abort>
Density Calibration Results - Results from Calibration run during this power on session.		
	Passed / Calibration Error / Density Sensor Error / Density Shutter Error / Density ID Error / Unknown Error YMC: V=nnn DAC=nnH KP: V=nnn DAC=nnH RD: V=nnn DAC=nnH	Example: YMC: V=120 D: V=130 RD: V=119 <Press **Back** or **Cancel** to exit>
(ATS) Auto Thickness Sensor **ATS 4-Sheet Calibration** - Verifies ATS operation. Test requires 4 sheets of premeasured media. Media is picked from the MPT. See "Automatic Thickness Sensor (ATS) Calibration Procedure" on page 4-118 for the detailed procedure. The following tests are all part of the ATS Thickness Sensor.		
Edit Thickness Data - Thickness Calibration: Premeasured media thickness can be entered here in units of mils or microns, the calibration procedures use **Microns**.		
	Select Thickness Units Mils Microns	<Press **OK** to select> <Press **Back** or **Cancel** to abort> **Microns** are used in test examples.
	Enter Thickness: xxx Microns	**Default** thickness is **140** microns. <Press **Up/Down** to modify> <Press **Info** to change digit> <Press **OK** to select value> <Press **Back** or **Cancel** to abort>

Menu Item	Front Panel Display Results	Functional Definition
Execute Thickness Calibration - Thickness Calibration: Engine is prepared for calibration run, then media is picked from the MPT. Cycle power to the printer if repeated failures are encountered.		
	Test Fault <if unexpected results occur> Media Feed Sheet n Thickness Calibration Passed / Failed	<Press **Back** or **Cancel** to abort>
Thickness Calibration Results - Thickness Calibration: Results from calibration run during this power on session.		
	Curr MPT/Tray1 Thick = nnn um No extended data to display - or - Cal. Result: Passed / Non-Paper ADC Error / Thickness Error / Slant Error / Sensor ADC Error / Sensor Failure / Unknown	<only when test failed> <Press **Down** for more data> <Press **Info** for help> <Press **Back** or **Cancel** to exit>
The next data screens are information screens. While viewing the data, press **Info**... press **Info** again to see data. <Press **Back** or **Cancel** to exit>		
	Paper Thickness: 1=nnn um 2=nnn um 3=nnn um CHK=nnn um <Press **Down** for more data>	Measured Paper Thickness in microns. <Press **Info** for help> <Press **Back** or **Cancel** to exit>
	Calc. Values: (mV/um) 1=n.n 2=n.n 3=n.n AVE=n.n <Press **Down** for more data>	Where 1.40mV/micron is the standard sensivity value. <Press **Info** for help> <Press **Back** or **Cancel** to exit>
	No Paper Samples: 1=nnV, 2=nnV, 3=nnV, CHK=nnV Paper Samples: 1=nnV, 2=nnV, 3=nnV, CHK=nnV, <Press **Down** for more data>	Measured samples without and with media present in sensor. No-Paper Samples = 3.33V. <Press **Info** to toggle display> <Press **Back** or **Cancel** to exit>
	No Paper Average: 1=nnV, 2=nnV, 3=nnV, CHK=nnV Paper Average: 1=nnV, 2=nnV, 3=nnH, CHK=nnV <Press **Down** for more data>	Measured averages without and with media present in sensor. No-Paper Average = 3.33V <Press **Info** to toggle display> <Press **Back** or **Cancel** to exit>
	Corr. Sens. = n.n mV/um <Press **Back** or **Cancel** to exit>	The corrected sensitivity after calibration (in mVolts/microns).

Service Diagnostics Tests and Functions Table (cont'd.)

Menu Item	Front Panel Display Results	Functional Definition
ATS Gauge Calibration - Verifies ATS Calibration. FOR ENGINEERING USE ONLY.		
Edit Gauge Data	Enter Thickness: nn Microns	<Press **Down** for more data> <Press **Info** for help> <Press **Back** or **Cancel** to exit>
Execute Gauge Measurement	Insert thickness gauge, then press OK Test Fault - try again! Gauge Calibration Passed / Failed You may need to cycle power	<Press **Back** or **Cancel** to abort>
Gauge Measurement Results		
	Cal. Result: Passed / Non-Paper ADC Error / Thickness Error / Slant Error / Sensor ADC Error / Sensor Failure / Unknown	<Press **Down** for more data> <Press **Info** for help> <Press **Back** or **Cancel** to exit>
	Calc. Values: (mV/um) 1=n.n 2=n.n 3=n.n AVE=n.n <Press **Down** for more data>	Where 1.40mV/micron is the standard sensivity value. <Press **Info** for help> <Press **Back** or **Cancel** to exit>
	No Paper Samples: 1=nnV, 2=nnV, 3=nnV, CHK=nnV Paper Samples: 1=nnV, 2=nnV, 3=nnV, CHK=nnV, <Press **Down** for more data>	Measured samples without and with media present in sensor. No-Paper Samples = 3.33V. <Press **Info** to toggle display> <Press **Back** or **Cancel** to exit>
	No Paper Average: 1=nnV, 2=nnV, 3=nnV, CHK=nnV Paper Average: 1=nnV, 2=nnV, 3=nnH, CHK=nnV <Press **Down** for more data>	Measured averages without and with media present in sensor. No-Paper Average = 3.33V <Press **Info** to toggle display> <Press **Back** or **Cancel** to exit>
ATS Anvil Adjustment- Adjust anvil and read media voltage. See "Automatic Thickness Sensor (ATS) Calibration Procedure" on page 4-118 for procedures on adjusting the ATS Anvil.		
	Anvil Measure: V=n.nn FOR ENGINEERING USE ONLY	<Press **OK** to repeat test> <Press **Cancel** to exit>
NVRAM Access - This menu lets you read, set or reset selected NVRAM address locations.		
PostScript NVRAM Reset	PostScript will now reset NVRAM Are you sure? Yes No Exiting Service Diagnostics	Restores the printers setup values to their factory defaults. For more information on resetting NVRAM, See "PostScript NVRAM Resets" on page 4-122.
CRU Counter Read	Total Pages = nnn Fuser pages = nnn Trans.Belt Images = nnn	<Press **Down** for more data>

Service Diagnostics Tests and Functions Table (cont'd.)

Menu Item	Front Panel Display Results	Functional Definition
	IUs: Y = nnn images M = nnn images C = nnn images K = nnn images	<Press **Down** for more data>
	Toner: Y = nnn % used M = nnn % used C = nnn % used K = nnn % used	<Press **Down** to repeat data>
CRU Counter Resets: Resets the selected Customer Replaceable Consumable count on the engine. This resets the image count only, not the pixel count.		
Reset Toner Counts	Reset Black Toner Count Resetting Toner Count	ENGINEERING USE ONLY
	Reset Yellow Toner Count Resetting Toner Count	
	Reset Magenta Toner Count Resetting Toner Count	
	Reset Cyan Toner Count Resetting Toner Count	
	No Reset	
Reset IU Counts	Reset Black IU Count Resetting IU Count	<Press **OK** to select value> <Press **Back** or **Cancel** to abort>
	Reset Yellow IU Count Resetting IU Count	
	Reset Magenta IU Count Resetting IU Count	
	Reset Cyan IU Count Resetting IU Count	
	No Reset	
Reset Fuser Count	Reset Fuser Count? Y / N Resetting Fuser Count	<Press **Info** to toggle choice> <Press **OK** to execute reset> <Press **Back** or **Cancel** to abort>
Reset transfer unit Count	Reset transfer unit Count? Y / N Resetting transfer unit Count	<Press **Info** to toggle choice> <Press **OK** to execute reset> <Press **Back** or **Cancel** to abort>
IP Controller Diagnostics - Tests the basic functionality of the Image Processor Board.		
RAM Read/Write Test	Executing..... <approx. 6 seconds per 256MB> Passed / Failed	Performs an extended memory test on the Image Processor Board. **Note: Cycle power to the printer after executing this test.**
Exit - Exits service diagnostics to PostScript without running power on self test.		

Error Messages and Codes Procedures

Jam at Top Cover

A6: Jam at the MPT or under Imaging Units.
A7: Jam at Fuser Exit.
A10: Jam at output area.
A22: Jam in the paper feed path, including under the Imaging Units.

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the correct weight and type of paper is loaded in the tray. See "Media and Tray Specifications" on page 1-16 for approved media types and weights.	Go to step [2].	Load approved media and run a set of test prints through the printer. If a jam still occurs, go to step [2].
2	Check the Registration Rollers and Transfer Unit for any spilled toner or obstructions.	Clean and remove any obstruction in the paper path. Complete	Go to step [3].
3	Check the fuser for fuser wrap, debris or contamination. Remove the Fuser covers and ensure the thermistors are not broken or dislodged.	Replace the Fuser.	Go to step [4].
4	Check the following rollers for excessive wear, and clean to free from dirt or debris: MPT Pick Rollers Eject Guide Assembly Rollers Fuser Rollers Exit Rollers Feeder Assembly Rollers Registration Rollers and grounding strap Did this fix the problem?	Go to step [5].	Replace the appropriate roller assembly.
5	Inspect the following actuators for damage and use service diagnostics to test the sensor operation: MPT Entrance Sensor Registration Entrance Sensor Fuser Exit Sensor Transfer Unit Entrance Sensor Do the actuators and sensors operate correctly?	Go to step [8].	Replace the problem actuator For a problem sensor, go to step [6]

Troubleshooting Procedure Table (cont'd.)

Steps	Actions and Questions	Yes	No
6	Check the sensor for debris that could interfere with normal operation. Is there debris present?	Clean the sensor or remove debris.	Go to step [7].
7	Verify the wiring harness for the problem sensor is free from damage or defects.	Replace the sensor.	Replace the wiring harness.
8	Use service diagnostics to test the following: Exit Gate Solenoid (Duplex) Face-up Solenoid (Top-Side Output) Do the solenoids operate correctly?	Go to step [9].	Replace the solenoid.
9	Visually inspect the Registration Rollers for gaps between rollers and ensure the grounding strap is in place properly. Is there a gap between the Registration Rollers?	Replace the Registration Roller Assembly.	Go to step [10].
10	Use service diagnostics to test the following motors/clutches. Main Feed Motor Transfer Unit Motor Registration Motor Registration Clutch Fuser Motor Does the motor/clutch function correctly?	Replace the Engine Controller Board.	Go to step [11].
11	Inspect the wiring harness for each motor and clutch. Are the wiring harnesses properly connected and free from defects?	Replace the Engine Controller Board.	Replace the wiring harness and/or the problem motor/clutch.

Jam at Door [A] [B] [C] [D] [E]

A11: Jam at Door A
B21: Jam at Duplex Unit

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the correct weight and type of paper is loaded in the tray. See "Media and Tray Specifications" on page 1-16 for approved media types and weights.	Go to step [2].	Load approved media and run a set of test prints through the printer. If a jam still occurs go to step [2].
2	Check in and around the Registration Rollers, Imaging Units, Duplex Unit and Transfer Unit for any dirt, spilled toner, or debris.	Remove any obstruction in the paper path. Complete	Go to step [3].
3	Verify the door reporting the error condition closes fully. Is the door damaged or warped?	Replace the damaged door.	Go to step [4].
4	Clean the pick and feed rollers for the problem tray: Did this fix the problem?	Go to step [5].	Replace the problem roller.
5	Inspect the paper tray and pick area to see if the paper is picked and feeds correctly from the tray.	Go to step [6].	Replace the paper Tray or Feed Assembly.
6	Use service diagnostics to test the Hop and Feed sensors for the problem tray. Do the sensors function correctly?	Go to step [7].	Replace the Feed Assembly.
7	Inspect the following actuators for damage and use service diagnostics to test the sensors operation: Registration Entrance Sensor Transfer Unit Entrance Sensor Do the actuators and sensors operate correctly?	Go to step [10].	Replace the problem actuator For a problem sensor: Go to step [8]
8	Check the sensor for debris that could interfere with normal operation. Is there debris present?	Clean the sensor or remove debris.	Go to step [9].
9	Verify the wiring harness for the problem sensor is free from damage or defects.	Replace the sensor.	Replace the wiring harness.

Steps	Actions and Questions	Yes	No
10	Use service diagnostics to test the tray feed motor and clutch. Note: Feed rollers located behind each right door are driven by the feed motor in the tray below. Example: The feed rollers behind Right Door A are driven by the tray 2 feed motor. Does the motor/clutch operate correctly?	Go to step [12].	Replace the Feed Assembly for a bad clutch. For a bad motor go to step [11].
11	Verify the wiring harness for the problem motor is free from damage or defects. Check the wiring to the LTA Controller Board for lower trays. Is the wiring free from damage or defects?	Go to step [12].	Replace the Feed Assembly for the problem Tray. Replace the LTA Controller Board.
12	Use service diagnostics to test the Duplex Unit motor and clutches. Does the motor/clutch function correctly?	Go to step [14].	Go to step [13].
13	Inspect the wiring harness for the Duplex Unit. Is the wiring harness properly connected and free from defects?	Replace the Duplex Unit.	Replace the Engine Controller Board.
14	Use service diagnostics to test the Registration Motor and Registration Clutch. Does the motor/clutch function correctly?	Go to step [16].	Go to step [15].
15	Inspect the wiring harness for each motor and clutch. Are the wiring harnesses properly connected and free from defects?	Replace the Engine Controller Board.	Replace the problem wiring harness, clutch or motor.
16	Visually inspect the Registration Rollers for gaps between the rollers and ensure the grounding strap is in place properly. Is there a gap between the Registration Rollers?	Replace the Registration Roller Assembly.	Go to step [17].
17	Check the connections from the Tray to the Engine Controller Board and/or LTA Controller Board.	Replace the Engine Controller Board. Replace the LTA Controller Board.	Replace the wiring harnesses.

Jam at Duplex Unit

B8: Jam inside Duplex Unit.
B13: Jam inside Duplex Unit.

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the correct weight and type of paper is loaded in the tray. See "Media and Tray Specifications" on page 1-16 for approved media types and weights.	Go to step [2].	Load approved media and run a set of test prints through the printer. If a jam still occurs go to step [2].
2	Check for and remove any dirt, debris or obstructions in the paper path around the Duplex Unit. Did this correct the problem?	Complete	Go to step [3].
3	Clean and check the Duplex Unit's rollers. Do the rollers move freely and are free of dirt or debris?	Go to step [4].	Replace the Duplex Unit.
4	Use Service Diagnostics to ensure the Duplex Unit Entrance, Middle and Exit actuators and sensors are functioning correctly.	Go to step [5].	Replace the Duplex Unit.
5	Use service diagnostics to test the duplex motor and right and left duplex clutches. Do the motors and clutches function correctly?	Go to step [6].	Replace the Duplex Unit.
6	Inspect the duplex unit's wiring harness. If defective, replace the wiring harness. Is the harness properly seated and free from defects?	Replace the Engine Controller Board.	Replace the Duplex Unit.

Misfeed at Tray [1] [2] [3] [4] [5]

E1: Tray 1 **E2:** Tray 2 **E3:** Tray 3 **E4:** Tray 4 **E5:** Tray 5

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the correct weight and type of paper is loaded in the tray. See "Media and Tray Specifications" on page 1-16 for approved media types and weights.	Go to step [2].	Load approved media and run a set of test prints through the printer. If a jam still occurs go to step [2].
2	Inspect the tray for damage or defects and ensure the tray is inserted and properly connected.	Go to step [3].	Install or replace tray.
3	Inspect the pick and feed rollers for dirt, debris, defects or excessive wear.	Clean or replace the pick rollers.	Go to step [4].
4	Use service diagnostics to test the Tray Feed Motor and feed clutch. Do the motor and clutch operate correctly?	Go to step [6].	Go to step [5].
5	Check the wiring from the Feed Motor and feed clutch to the Engine Controller Board (Tray 1) or to the LTA Controller Board (Tray 2, 3, 4, 5). Is the wiring free from damage or defects?	Replace the Tray Feed Assembly or Feed Motor.	Replace the wiring harness.
6	Visually inspect and use service diagnostics to check the tray hop sensor is operating correctly.	Tray 1 - Replace the Engine Controller Board. Tray 2, 3, 4, 5 - Replace the LTA Controller Board.	Replace the Feed Assembly.

Insert Tray [1] [2] [3] [4] [5]

C1: Tray 1 **C2:** Tray 2 **C3:** Tray 3 **C4:** Tray 4 **C5:** Tray 5

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the tray is properly installed and seated correctly.	Go to step [2].	Reseat the Paper Tray.
2	Inspect the tray for damage or defects.	Replace the Tray.	Go to step [3].
3	Use service diagnostics to test the paper size sensors. Do the sensors function correctly?	Replace the Tray.	Go to step [4].
4	Check the wiring from the paper size sensing board to the Engine Controller Board or the LTA Controller Board. Is the wiring free from damage or defects?	Tray 1 - Replace the Engine Controller Board. Tray 2, 3, 4, 5 - Replace the LTA Controller Board.	Replace the wiring harness.

E12: Top Output Tray is Full, Unload Paper

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Visually inspect the Stack Full Actuator and use service diagnostics to test the Stack Full Sensor. Does the sensor and actuator operate correctly?	Go to step [3].	Replace the actuator if broken. If the sensor is not working, go to step [2}.
2	Check Pin 6 OPTN cable at the Engine Controller Board for +5 volts.	Replace the Engine Controller Board.	Go to step [3].
3	Check the Stack Full Sensor wiring harness to the Toner Sensor Board Pin 3 for +5 volts.	Go to step [4].	Replace the Stack Full Sensor and wiring.
4	Check for +5 volts at Pin 6 OPTN cable to the Toner Sensor Board.	Replace the ribbon cable (OPTN)	Replace the Toner Sensor Board.

MPT Empty, Load Paper

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Visually inspect the MPT Actuator. Is the actuator damaged?	Replace the MPT Pick Assembly.	Go to step [2].
2	Use service diagnostics to check the MPT Empty sensors. Does the sensor operate correctly?	Go to step [4].	Go to step [3].
3	Is the MPT Empty Sensor wiring harness free from defects?	Go to step [4].	Replace the MPT Empty Sensor and wiring harness.
4	Load media into the MPT. Check the wiring harness from the MPT to the Engine Controller Board MPT LOADED Pin 2 for 0 volts.	Replace the Engine Controller Board.	Replace the MPT Pick Assembly.

Tray [1] [2] [3] [4] [5] Empty, Load Paper

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the paper is loaded correctly in the tray and that the guides are snug against the paper.	Go to step [2].	Reload the paper and reset the guides.
2	Use service diagnostics to test the Tray Empty Sensor. Does the sensor operate correctly?	Go to step [3].	Replace the Feeder Assembly.
3	Verify the tray lift motor is functioning by loading approved media in the tray and closing. Visually inspect the paper level indicator on the side of the tray for movement. Is the lift functioning correctly?	Replace the Engine Controller Board.	Go to step [4].
4	Verify +34 volts are supplied to the tray lift motor.	Replace the Feeder Assembly.	Replace the Engine Controller Board.

Load MPT with [size*] [type*]

Note: **This is a media mis-match error.**

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the correct weight and type of paper is loaded in the tray. See "Media and Tray Specifications" on page 1-16 for approved media types and weights.	Go to step [2].	Load approved media and run a set of test prints through the printer. If an error still occurs, go to step [2].
2	Verify the orientation of the paper loaded in the MPT is correct and matches the front panel and driver settings.	Go to step [3].	Change the orientation of the paper.
3	Use service diagnostics to test the MPT Entrance Sensor and Actuator. Does the sensor operate correctly and does the actuator move freely?	Go to step [5].	For a broken actuator, replace the MPT Pick Assembly. For a sensor, go to step [4].
4	Check the wiring harness for damage or defects. Is the wiring harness free from defects?	Replace the MPT Pick Assembly	Replace the wiring harness.
5	Use service diagnostics to test the MPT OHP sensor. Does the sensor function correctly?	Replace the Engine Controller Board.	Go to step [6].
6	Check the MPT OHP sensor wiring harness at the Engine Controller Board pin 5 REG connector for +5 volts	Replace the MPT Pick Assembly.	Replace the Engine Controller Board.

Load Tray [1] [2] [3] [4] [5] with [size*] [type*]

Note: **This is a media mis-match error.**

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Verify the paper loaded in the tray is the correct size and the orientation matches the front panel and driver settings.	Go to step [2].	Match the orientation of the paper and settings.
2	Verify the guides in the tray are set snug against the paper loaded in the tray.	Go to step [3].	Set the guides properly.
3	Swap trays (2, 3, 4 or 5) and try printing again. Note: If the error is for tray 1 you cannot swap this tray, go on. Does the problem move with the tray?	Replace the tray.	Go to step [4].
4	Inspect the paper size plate on the back of the tray. Does the plate move while adjusting the tray guides?	Go to step [5].	Replace the tray.
5	Use service diagnostics to test the paper size sensors. Do the sensors function correctly?	Go to step [7].	Go to step [6].
6	Check the wiring from the paper size sensing board to the Engine Controller Board or the LTA Controller Board. Is the wiring free from damage or defects?	Replace the Paper Size Sensing Board.	Replace the wiring harness.
7	Use service diagnostics to test the MPT OHP sensor. Does the sensor function correctly?	Replace the Engine Controller Board.	Go to step [8].
8	Check the MPT OHP sensor wiring harness at the Engine Controller Board pin 5 REG connector for +5 volts	Replace the MPT Pick Assembly.	Replace the Engine Controller Board.

Adjust Tray [1] [2] [3] [4] [5] Size

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Verify the paper loaded in the tray is the correct size and the orientation matches the front panel and driver settings.	Go to step [2].	Match the orientation of the paper and settings.
2	Verify the guides in the tray are set snug against the paper loaded in the tray.	Go to step [3].	Set the guides properly.
3	Swap trays (2, 3, 4 or 5) and try printing again. Note: If the error is for tray 1 you cannot swap this tray, go on. Does the problem move with the tray?	Replace the tray.	Go to step [4].
4	Inspect the paper size plate on the back of the tray. Does the plate move while adjusting the tray guides?	Go to step [5].	Replace the tray.
5	Use service diagnostics to test the paper size sensors. Do the sensors function correctly?	Replace the Engine Controller Board.	Go to step [6].
6	Check the wiring from the paper size sensing board to the Engine Controller Board or the LTA Controller Board. Is the wiring free from damage or defects?	Replace the Paper Size Sensing Board.	Replace the wiring harness.

Close Top Cover

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Cycle power to the printer and open and close the top cover. Does the error still appear?	Go to step [2].	Complete
2	Use service diagnostics to test the top cover interlock switch. Does the switch operate correctly?	Go to step [3].	Go to step [5].
3	Visually inspect the switch for defects, damage or possible debris which could prevent the printer for recognizing the top cover is closed. Is the switch free from defects?	Go to step [4].	Clean or replace the Top Cover Interlock Switch.
4	Check to see if the Top Cover actuator, located on the Top Cover Inner frame, is broken or damaged. Is the actuator damaged or broken?	Replace the Top Cover Inner Frame.	Replace the Engine Controller Board.
5	Close the top cover and verify +34 volts on the Engine Controller Board at the COVOPEN Pin 1.	Go to step [6].	Go to step [7].
6	Check for +34 volts on the Engine Controller Board at the COVOPEN Pin 3.	Replace the Engine Controller Board.	Replace the Top Cover Interlock Switch.
7	Verify the Low Voltage Power Supply to the Power connector on the Engine Controller Board is supplying +34 volts to pins 12, 13, and 14.	Replace the Engine Controller Board.	Replace the Low Voltage Power Supply and/or wiring harness.

Close Duplex Unit

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Is the Duplex Unit installed correctly and properly seated?	Go to step [2].	Reseat the Duplex Unit.
2	Remove the Duplex Unit and cycle power to the printer. Does the error message still appear?	Replace the Engine Controller Board.	Go to step [3].
3	Visually inspect the connector on the back of the Duplex Unit for damage.	Replace the Duplex Unit.	Go to step [4].
4	Visually inspect the mating connector on the Printer Unit Chassis for damage.	Replace the connector.	Go to step [5].
5	Inspect the Duplex Unit's wiring harness. If defective, replace the wiring harness. Is the harness properly seated and free from defects?	Replace the Engine Controller Board.	Replace the Duplex Unit.

Close Right Door A

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Inspect the Door A actuator for damage or defects.	Replace the Right Cover Door A.	Go to step [2].
2	Inspect the Right Door A Switch for damage, defects or obstructions.	Replace the Door A Interlock Switch.	Go to step [3].
3	Use service diagnostics to test the Right Cover Door A Interlock Switch. Does the switch function correctly?	Replace the Engine Controller Board.	Go to step [4].
4	Close Door A and check for +5 volts at pin 3 of the STDUCOV on the Engine Controller Board.	Replace the wiring harness and/or Door A Interlock Switch.	Replace the Engine Controller Board.

Close Right Door [B] [C] [D] [E]

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Inspect the door actuator for damage or defects.	Replace the Tray	Go to step [2].
2	Inspect the door switch for damage, defects or obstructions.	Replace the Switch.	Go to step [3].
3	Use service diagnostics to test the switch. Note: Switch tests for all the doors are located under the Interlock Switches Menu. Does the switch function correctly?	Replace the Engine Controller Board.	Go to step [4].
4	Close the door and check for +5 volts at pin 3 of the STDUCOV on the LTA Controller Board.	Replace the wiring harness and/or Switch.	Replace the LTA Controller Board.

Open Left Side Output Tray

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Inspect the switch for damage, defects or obstructions.	Replace the Switch.	Go to step [2].
2	Use service diagnostics to test the switch. Does the switch function correctly?	Replace the Engine Controller Board.	Go to step [3].
3	Close the door and check for +5 volts at pin 1 of the STDUCOV on the Engine Controller Board.	Replace the Engine Controller Board.	Replace the wiring harness and/or Switch.

Humidity Too High to Print

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Use service diagnostics to verify the printers current operating humidity. Is the printer operating within the humidity specifications? See "Environmental Specifications" on page 1-15	Go to step [2].	Advise the customer on humidity specifications.
2	Use service diagnostics to verify the printers current operating humidity. For example: If the printer is reporting 100% humidity, the sensor is not functioning correctly. Is the sensor operating correctly?	Replace the Engine Controller Board.	Replace the Temp/Humidity Sensor Board.

Install or Reseat [CMYK] Imaging Unit

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Is the Imaging Unit installed and seated properly?	Go to step [2].	Reseat the Imaging Unit.
2	If the keys are not set properly on the Imaging Units they may not seat properly. Are the keys on the side of the Imaging Units correctly set?	Go to step [3].	Reset the keys properly.
3	Visually inspect the Imaging Unit Contact Assembly and springs. Are the contacts free from damage and debris?	Go to step [4].	Clean or replace the Imaging Drum Contact Assembly.
4	Use service diagnostics to test the CMYK IU Sensor. Does the sensor function correctly?	Replace the Engine Controller Board.	Go to step [5].
5	Verify continuity between the IU Sensor Board and the Engine Controller Board at the JODEN connector. Y pin 9 to pin 12 M pin 1 to pin 3 C pin 5 to pin 6 K pin 10 to pin 13	Replace the Engine Controller Board.	Go to step [6].
6	Check the wiring for defects and proper connection.	Replace the wiring harness	Replace the Back Plate Assembly.

Replace [CMYK] Imaging Unit

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Cycle power to the printer and ensure all error messages are cleared. Did the error reappear?	Go to step [2].	Complete.
2	Use service diagnostics, or print a Supplies Page, to verify if the Imaging Unit is at or near end-of-life? Note: If the Imaging Unit count is reset using service diagnostics, the gas gauge will not return to 100% because pixel counts are not reset.	Have the customer replace the Imaging Unit.	Go to step [3].
3	Install a new Imaging Unit and check to see if the fuse blew after installation.	Replace the EEPROM on the Engine Controller Board.	Replace the Engine Controller Board.

Install or Reseat [CMYK] Toner Cartridge

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Has all the tape and packaging material been removed from the Toner Cartridge?	Go to step [2].	Remove the material.
2	Is the Toner Cartridge installed and seated properly?	Go to step [2].	Reseat the Toner Cartridge.
3	Remove the toner cartridge and tap on a hard surface to break up any compacted toner in the toner cartridge. Reinstall the toner cartridge. Does the error still appear?	Go to step [4].	Complete.
4	Verify the toner sensor magnets are properly seated in the toner sensor actuators. Are the magnets seated properly?	Go to step [5].	Replace the Toner Sensor Actuator.
5	Use service diagnostics to check the CMYK Toner Cartridge Sensor. Does the sensor function correctly?	Replace the Engine Controller Board.	Go to step [6].
6	Is the toner sensor board wiring harness free from defects and securely connected?	Replace the Engine Controller Board.	Replace the wiring harness or Toner Sensor Board.

Replace [CMYK] Toner Cartridge

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Is the toner cartridge installed and seated properly and all packaging material has been removed?	Go to step [2].	Reseat the toner cartridge or remove packing material.
2	Use service diagnostics to verify if the Toner Cartridge is at or near end-of-life?	Replace the toner cartridge)	Go to step [3].
3	Remove the toner cartridge and tap on a hard surface to break up any compacted toner in the toner cartridge. Reinstall the toner cartridge. Does the error still appear?	Go to step [4].	Complete.
4	Remove the toner cartridge and visually check to see if there is toner in the cartridge. Is the toner cartridge empty?	Have the customer replace the Toner Cartridge.	Replace the Engine Controller Board.

Install or Reseat Fuser

Steps	Actions and Questions	Yes	No
1	Is the Fuser Unit installed and seated properly?	Go to step [2].	Reseat the Fuser.
2	Visually inspect the Fuser latches. Are the latches damaged or defective?	Replace the Fuser latches.	Replace in the following order: Fuser Engine Controller Board Low Voltage Power Supply and wiring harness.

Replace Fuser

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Use service diagnostics to check the Fuser life. Is the fuser at or near end-of-life?	Have the customer replace the Fuser.	Go to step [2].
2	Verify that all other errors have been cleared on the printer and install a new fuser. Did the fuse on the new Fuser blow?	Replace the Engine Controller Board EEPROM.	Replace in the following order: Fuser Engine Controller Board Low Voltage Power Supply and wiring harness.

Install or Reseat Transfer Unit

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Is the transfer unit installed and seated properly?	Go to step [2].	Reseat the transfer unit.
2	Check the Transfer Unit voltage contacts for corrosion, dirt or debris.	Clean with a pencil eraser.	Replace in the following order: Engine Controller Board. High Voltage Power Supply and wiring harness.

Replace Transfer Unit

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Use service diagnostics to check the life of the Transfer Unit. Is the Transfer Unit at or near end-of-life?	Have the customer replace the Transfer Unit.	Go to step [2].
2	Verify that all other errors have been cleared on the printer and install a new Transfer Unit. Did the fuse blow?	Replace the Engine Controller Board EEPROM.	Go to step [3].
3	Check the wiring harness from the Imaging Unit Sensing Board to the Engine Controller Board. Is the wiring defective?	Replace the wiring harness.	Replace the Engine Controller Board.

T1: Fuser Upper Failure
T2: Fuser Lower Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Reseat the Fuser Unit. Did the error reappear?	Go to step [2].	Complete
2	Check the resistance of the lamps. See "Fuser Roller Resistances" on page 3-75	Go to step [3].	Replace the Fuser.
3	Check the Fuser thermistors. Are the thermistors damaged or misaligned, not in contact with the rollers?	Replace the Fuser.	Go to step [4].
4	Is there AC voltage to the low voltage power supply CN1 connector?	Replace the Engine Controller Board.	Replace Low Voltage Power Supply.

T29: Temp Sensor Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Use Service Diagnostics to check the current ambient humidity inside the printer. Verify proper operation of the sensor by blowing on it. Is the sensor operating correctly? See "Environmental Specifications" on page 1-15. Is the printer operating temperature within its optimal range?	Replace the Temp/Humidity Sensor Board Replace the Engine Controller Board.	Notify customer of the environmental specifications.

T30: RH Sensor Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Use Service Diagnostics to check the current ambient humidity inside the printer. Is the sensor operating correctly? See "Environmental Specifications" on page 1-15. Is the printer operating humidity within its optimal range?	Replace the Temp/Humidity Sensor Board. Replace the Engine Controller Board.	Notify customer of the environmental specifications.

T32: LED Over Temperature Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Check for proper clearances around the printer and ensure proper fan operation.	Go to step [2].	Advise customer on clearance for the printer. Replace an inoperable fan.
1	Verify the ribbon cables and wiring harness to the LED are properly seated and not crimped or damaged down to the Engine Controller Board.	Reseat or replace damaged wiring harness.	Replace in the following order: LED Engine Controller Board.

T34: IU Motor Overheating Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Cycle power to the printer. Does the error still appear?	Go to step [2].	Complete.
2	Inspect the Electrical Card Cage Fan for proper operation and adequate airflow. Is the fan operating and installed correctly?	Replace the Engine Controller Board.	Replace the Electrical Card Cage Fan.

U0: Engine ROM Failure
U1: Engine RAM Failure
U2: Engine EEPROM Failure
U3: Engine EEPROM Missing Failure
U4: Engine SRAM Failure
U5: Engine Control Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Cycle power to the printer. Does the error still appear?	Go to step [2].	Complete
2	Perform an NVRAM Reset. Does the error still appear?	Replace the EEPROM for U2 or U3 errors. Replace the Engine Controller Board.	Complete

U6: Power Supply Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Visually inspect the LVPS fans for proper operation and airflow. Are the fans operating correctly?	Go to step [4].	Go to step [2].
2	Verify +34 volts is being supplied to fuse F7 on the Engine Controller Board. Is there +34 volts?	Replace the fan.	Go to step [3].
3	Verify the Low Voltage Power Supply to the POWER connector on the Engine Controller Board is supplying +34 volts to pins 12, 13, and 14.	Replace the Engine Controller Board.	Replace the Low Voltage Power Supply and/or wiring harness.
4	Turn the printer off, remove the Duplex Unit, then turn the printer back on. Does the error still appear?	Replace in the following order: Transfer Unit LVPS HVPS Engine Controller Board.	Replace the Duplex Unit.

U7: Feeder Home Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Visually inspect the MPT Liftplate by printing a job to the MPT. Does the liftplate operate correctly?	Go to step [3].	Go to step [2].
2	Use service diagnostics to check the registration motor. Is the motor operating correctly?	Replace the MPT Pick Assembly.	Replace the Registration Motor.
3	Use service diagnostics to test the MPT Roller Home sensor. Does the sensor function correctly?	Replace the Engine Controller Board.	Go to step [4].
4	Inspect the wiring harness to the MPT. Is the wiring harness defective?	Replace the wiring harness.	Replace the Engine Controller Board.

U8: Controller Fan Failure (Electrical Card Cage)

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Visually inspect the Electrical Cage Fan operation and airflow. Does the fan operate correctly?	Replace the Engine Controller Board.	Go to step [2].
2	Inspect the wiring harness to the fan. Is the wiring harness defective?	Replace the Electrical Cage Fan.	Go to step [3].
3	Verify +34 volts is being supplied to fuse F7 on the Engine Controller Board. Is there +34 volts?	Replace the Engine Controller Board.	Replace the Low Voltage Power Supply.

U9: Power Supply Fan Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Visually inspect the front and rear LVPS fans for proper operation and airflow. Run service diagnostics to test the Rear Fuser Fan. Do the fans operate correctly.	Replace the Engine Controller Board.	Go to step [2].
2	Verify +34 volts is being supplied to fuse F7 on the Engine Controller Board. Is there +34 volts?	Replace the defective fan and wiring harness.	Go to step [3].
3	Verify the Low Voltage Power Supply to the POWER connector on the Engine Controller Board is supplying +34 volts to pins 12, 13, and 14.	Replace the Engine Controller Board.	Replace the Low Voltage Power Supply and/or wiring harness.

U12: Duplex Interface Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Remove the Duplex Unit and cycle power to the printer. Does the error still appear?	Replace the Engine Controller Board.	Go to step [2].
2	Inspect the Duplex Unit and connector. Is the connector damaged or defective?	Replace the Duplex Unit.	Go to step [3].
3	Inspect the wiring harness from the Duplex Unit to the Engine Controller Board for defects.	Replace Engine Controller Board	Replace wiring harness or connector.

Tray [2] [3] [4] [5] Interface Failure

U14: Tray 2 **U13:** Tray 3 **U16:** Tray 4 **U17:** Tray 5

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Cycle power to the printer. Does the error still appear?	Go to step [2].	Complete
2	Check each of the lower tray connectors between the LTA Controller Board(s) and the Engine Controller Board. Is there continuity between the wiring harness?	Replace in the following order: LTA Controller Board Engine Controller Board	Replace the problem wiring harness or connector.

[Yellow] [Magenta] [Cyan] [Black] LED Failure

U18: Yellow **U19:** Magenta **U20:** Cyan **U21:** Black

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Cycle power to the printer. Does the error still appear?	Go to step [2].	Complete
2	Try to isolate the problem LED Head by swapping with another LED Head. Does the error move with the LED Head?	Replace the LED Head.	Go to step [3].
3	Ensure the wiring harness to the LED Head is properly connected and not damaged, misaligned or crimped. Is the wiring harness defective?	Reconnect or replace wiring harness.	Go to step [4].
4	Check continuity between the Toner Sensor Board and the Engine Controller Board. Is there continuity?	Replace the Engine Controller Board.	Replace the Toner Sensor Board and/or Wiring Harness.

[Yellow] [Magenta] [Cyan] [Black] Imaging Unit Failure

U26: Yellow **U27:** Magenta **U28:** Cyan **U29:** Black

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Is the Imaging Unit installed and seated properly?	Go to step [2].	Reseat the imaging unit.
2	Visually inspect the Imaging Unit Drum Contact Assembly and springs. Are the contacts damaged or dirty?	Replace the IU Drum Contact Assembly.	Go to step [3].
3	Use service diagnostics to test the CMYK IU Sensor. Does the sensor function correctly?	Go to step [6}	Go to step [4].
4	Verify continuity between the IU Sensor Board and the Engine Controller Board at the JODEN connector. Y pin 9 to pin 12 M pin 1 to pin 3 C pin 5 to pin 6 K pin 10 to pin 13	Replace the Engine Controller Board.	Go to step [5].
5	Check the wiring harness. Is the wiring harness defective?	Replace the wiring harness	Replace the Back Plate Assembly.
6	Use service diagnostics to check the IU Up/Down motor. Is the Transfer Unit functioning properly by lifting the Imaging Unit?	Go to step [11].	Go to step [7].
7	Visually inspect the Transfer Unit gears and lifting arm. See "Transfer Unit Arm and Gear Up/Down Movement of the Imaging Units" on page 8-232. The gears should lift the arm when rotated in one direction and stop rotating. Does the gear stop rotating when the arm is in the raised position?	Go to step [8].	Replace the Transfer Unit.
8	Check the appropriate fuse on the Engine Controller Board to see if it is blown. Cyan = F5 Magenta = F2 Yellow = F3 Black = F4	Go to step [10].	Go to step [9].

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
9	Verify the Low Voltage Power Supply to the POWER connector on the Engine Controller Board is supplying +34 volts to pins 12, 13, and 14.	Replace the Imaging Unit Motor.	Replace the Low Voltage Power Supply and/or wiring harness.
10	Check the Imaging Unit wiring harness. Is the wiring harness defective?	Replace the wiring harness.	Replace the Engine Controller Board.
11	Inspect the Printer Unit Chassis for warping or damage.	Replace the Printer Unit Chassis.	Replace the Engine Controller Board.

U30: Flash Hardware Failure
U31: Flash Software Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Cycle power to the printer. Does the error reappear?	Replace the Engine Controller Board.	Complete

U32: Fuser Fan Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
2	Verify +34 volts is being supplied to fuse F7 on the Engine Controller Board. Is there +34 volts?	Replace the defective fan and wiring harness.	Go to step [2].
3	Verify +34 volts is being supplied to fuse F7 on the Engine Controller Board. Is there +34 volts?	Replace the defective fan and wiring harness.	Go to step [3].
4	Verify the Low Voltage Power Supply to the POWER connector on the Engine Controller Board is supplying +34 volts to pins 12, 13, and 14.	Replace the Engine Controller Board.	Replace the Low Voltage Power Supply and/or wiring harness.

U33: Fuser 110v/220v Mismatch Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Ensure the proper Fuser (110v vs. 220v) is installed in the printer. Is the correct Fuser installed?	Replace the Engine Controller Board.	Have the customer replace the Fuser Unit.

U34: Unsupported Duplex Unit ROM Failure

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Verify the correct Phaser 7300 Duplex Unit is installed.	Go to step [2].	Replace the Duplex Unit.
2	Check that the Duplex Unit is correctly installed and fully seated.	Replace in the following order: Duplex Unit. Engine Controller Board.	Reseat the Duplex Unit

Unsupported Tray [2] [3] [4] [5] ROM Failure

U35: Tray 2 **U36:** Tray 3 **U37:** Tray 4 **U38:** Tray 5

Note: **The printer has detected an incompatible LTA or LTD assembly.**

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Verify the correct Phaser 7300 LTA or LTD is installed.	Replace in the following order: LTA Controller Board Engine Controller Board	Replace the tray.

W16: Fuse Cut Error in Fuser

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Install a new Fuser and verify the fuse blows. Does the error still appear?	Go to step [2].	Complete
2	Check the wiring harness between the LVPS to the POWER connector on the Engine Controller Board. Is there a short in the wiring harness?	Replace the wiring harness.	Replace in the following order: Engine Controller Board LVPS

W17: Fuse Cut Error in Transfer Unit

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Install a new Transfer Unit and verify the fuse blows. Does the error still appear?	Go to step [2].	Complete
2	Check the JODEN wiring harness between Imaging Unit Sensor Board and Engine Controller Board. Is there a short in the wiring harness?	Replace the wiring harness.	Replace in the following order: Engine Controller Board Replace the Back Plate w/Drive Gear.

Fuse Cut Error in [CMYK] Imaging Unit

W18: Cyan **W19:** Magenta **W20:** Yellow **W21:** Black

Troubleshooting Procedure Table

Steps	Actions and Questions	Yes	No
1	Install a new Imaging Unit and verify the fuse blows. Does the error still appear?	Go to step [2].	Complete
2	Check the Imaging Unit Contacts (3-pin) for shorts, damage or defects. Are the contacts defective?	Replace the Imaging Unit Contacts.	Go to step [3].
3	Check the wiring from the Imaging Unit Sensor Board to the Engine Controller Board. Is the wiring shorted or damaged?	Replace the wiring harness and Back Plate w/Drive Gears	Replace the Engine Controller Board.

Phaser 7300 Color Printer Service Manual

Troubleshooting

This section is for troubleshooting electrical, print-quality, media jams and paper path problems not associated with an error message or code. For information on troubleshooting error codes and messages, see "Error Messages and Codes" on page 2-19.

Contents

System Boot Sequence

1. When the main power switch is turned on, the health LED on the Image Processor Board turns on immediately.

2. The boot loader checks for RAM presence and functionality. If not present or functioning, it posts a very large "RAM ERROR" on the front panel and blinks the LED 1/2 second on/off continuously.

3. The boot loader then runs POST diagnostics.

4. POST turns off the health LED.

5. POST checks the front panel.

6. If keys have been pushed, the front panel displays "Processing Input".

7. The front panel LED cycles: Green, Yellow, Red, and then off.

8. The front panel turns on, the LED turns Green and the POST tests are finished.

Power On Self Test (POST)

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

POST diagnostics are intended to provide a quick means of isolating a defective subsystem associated with the Image Processor Board and SDRAM. POST returns control to the boot loader and the operating system is loaded. The operating system then loads the imaging processing software. If POST detected any soft errors, a message is printed in a red box on the start page. If POST detects any hard errors, both the front panel and health LED blink the error code pattern, see "LED Blink Patterns" on page 3-69.

POST Startup indications

■ At power-on the hardware default is to turn on the IP board 'health' LED.

■ The front panel display is reset (addressable area becomes "gray").

■ The front panel LED cycles: Green, Yellow, Red, and then off.

■ The backlight is turned on (high intensity), with nominal contrast display.

■ The front panel display area is turned on, dark black for 1 second.

■ The front panel display is cleared.

■ The backlight is turned on with nominal intensity.

■ The POST Vn.nn message appears, and tests are quickly executed.

■ After the POST tests have finished running, the Xerox 'splash screen' is posted to the front panel and PostScript begins initialization.

POST Faults

There are two kinds of faults: soft and hard.

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

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

Fault Reporting Devices

There is one soft fault presentation method:

■ All soft faults are printed on the StartPage.

and three hard fault presentation methods:

■ The Image Processor Board health LED flashes according to the fault code.

■ The front panel LED flashes in unison with the Image Processor Board health LED.

■ The most recent fault is posted to the front panel.

LED Blink Patterns

For faults identified as hard faults, the POST firmware causes the Image Processor Board health LED to blink in a repetitive pattern to identify the fault. There are short and long blinks. A long blink is worth 5 and a short blink is worth 1. If a fault blink pattern is flashed as long, long, short, short, this is fault code 5+5+1+1=12, which indicates a failure in the CPU interrupt test, see "POST Diagnostics Test Descriptions Table" on page 3-70.

Note: **The exception to the above pattern is a RAM test error. The RAM tests have a special blink pattern and the front panel displays "RAM Error".**

POST Diagnostics Test Descriptions

POST Diagnostics Test Descriptions Table

Test	Fault Code	Description
SDRAM	**1**	(Hard Special) This test fails if the boot loader finds no RAM present or faulty RAM.
		Boot loader posts the message "RAM error" to the front panel and blinks the front panel LED.
I/O ASIC	**2**	(Hard) This test determines if the I/O chip is functioning properly.
Local Bus/ Front Panel	**3**	(Hard) Performed during the POST firmware initialization phase.
		If the front panel is not functioning, a hard fault is indicated by the heath LED.
"i" Button (Configuration Chip)	**5**	(Hard) This test checks to see if the "i" button (configuration chip) is present. If no chip is present the test will fail and the front panel message "Please Install "i" Button" will display.
Extended Memory	**7**	(Soft) (POST_TEST_DIMM1,2)
EEPROM	**10**	(Hard) This test checks addressing of the EEPROM.
Ethernet	**11**	(Hard) This test checks the ethernet core.
CPU Interrupts	**12**	(Hard) This test checks that each interrupt source to the CPU is functioning.
USB	**13**	(Hard) This test checks that the USB core is functioning properly.
Real Time Clock	**14**	(Soft) The real time clock is tested.
RAM DIMM Presence	**15**	(Soft) This test checks for bad or incompatible RAM DIMMs.
RAM Limits	**16**	(Soft) Checks that there is at least 128 Mbytes installed and ignores more than 512 Mbytes.
L2 Cache	**18**	(Hard)
PCI Bridge	**19**	(Hard)
IDE Disk	**20**	(Soft) Checks the disk controller core, and runs a DIAGNOSE command on the hard drive.
Parallel Port	**21**	(Soft)
Engine Command	**22**	(Hard)
Video DMA	**23**	(Hard)

Printer Malefactions or Inoperable Printer Problems

No Front Panel Display After Power Switch is Turned ON.

1. Verify the AC power source, see "Measuring Power Supply Voltages" on page 3-72.

2. Verify the +5 volt loop is complete, see "The +5 VDC Loop" on page 3-74.

3. If the front panel has no display, backlighting or LED, replace the Front Panel and Wiring Harness.

4. Check the Image Processor Board health LED for a front panel fault, see "POST Diagnostics Test Descriptions" on page 3-70 for more information on fault blink patterns.

5. Verify the Image Processor Board has not failed by performing Step 3 from the troubleshooting procedure below.

6. Systematically remove all printer options to isolate a possible problem component.

The Printer Continuously Displays "Booting", "Initializing" "Warming Up", or will not come to a "Ready" state.

The most likely cause is that the Image Processor Board has not successfully loaded its NVRAM contents (instructions) into RAM. All print engine operation halts, and will only become ready when the Image Processor Board successfully boots.

1. Check for unreported jams within the printer and clear the jam area.

2. Power cycle the printer.

3. Verifying Image Processor Board failure:

    a. Power-off the printer, and remove the Image Processor Board.

    b. Power-on the printer. Wait at least 5 minutes while the print engine initializes. If there was a problem with the Image Processor Board, it will now not affect the Engine Controller Board.

    c. If a traveling "✱" appears across the Front Panel display, the engine board is functional and the problem is most likely with the Image Processor Board.

    d. Turn off the printer and reseat the image processor board and turn on the printer to determine if seating was the problem.

    e. Perform a PostScript NVRAM reset, see "Service Diagnostics PostScript NVRAM Resets" on page 4-124

    f. Turn off the printer and systematically remove, in the order listed below, an individual components from the Image Processor Board to isolate a possible problem component.

        ■ RAM DIMM (one at a time, as at least one RAM DIMM must be present)

        ■ Hard Drive

    g. Download the current PostScript code to the Image Processor Board.

    h. Replace the Image Processor Board.

Verifying Power Supply Operation

Verifying the power supply involves four steps:

- Measuring the input and output voltages.
- Checking the safety interlocks.
- Ensuring the +5 VDC loop is complete.
- Testing for a shorted motor or defective wiring which would shut down the power supply or damage the Engine Controller Board.

Measuring Power Supply Voltages

1. **AC Input:** With the DMM set to measure AC voltages, measure for power being supplied to the printer. It should measure between 110 to 127 VAC (110 VAC nominal) or 220 to 240 VAC (220 VAC nominal).

2. **DC Output:** With the DMM set to measure DC voltages, measure the voltages at the POWER connector on the bottom of the Engine Controller Board for +5 VDC, +12 VDC and +34 VDC, see the POWER Connector Pinout below.

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POWER Connector Pinout

Pin	Voltage/Signal Level	Pin	Voltage/Signal Level
1	Ground (0V)	14	+34 V
2	Ground (0V)	15	+12 V
3	Ground (0V)	16	Upper Thermistor
4	Ground (0V)	17	Side Thermistor
5	+5 V	18	Lower Thermistor
6	+5 V	19	Fuser Fuse
7	+5 V	20	Duplex Gate Solenoid
8	+5 V	21	Front Fan Signal
9	COM (0V)	22	Face Up Solenoid
10	COM (0V)	23	Power Signal
11	COM (0V)	24	Power Signal
12	+34 V	25	Power Signal
13	+34 V	26	Power Signal

Safety interlocks

The printer features two safety interlock switches:
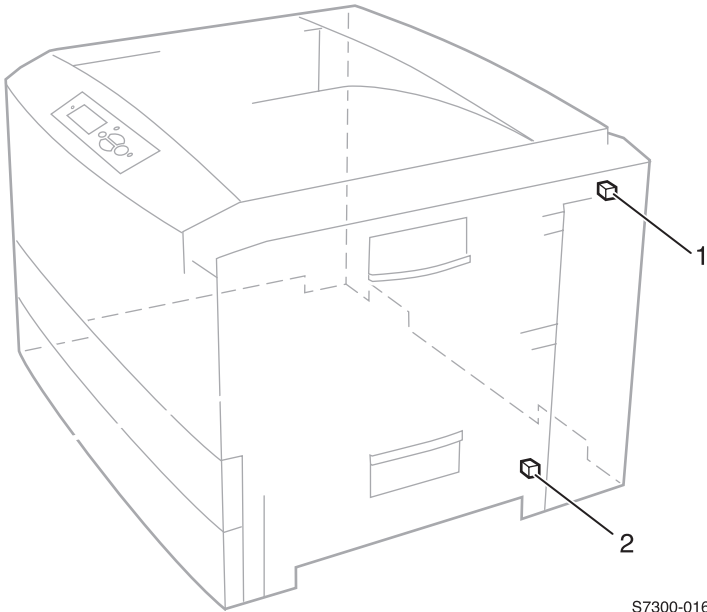
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Door safety interlock switches
1: Top Cover Interlock Switch
2: Right Cover (Door A) Interlock Switch

When the Top Cover or Right Door A are open, the +34 VDC supply and the high-voltage power supply are shut down. Generally a "Close Right Door A" or "Close Top Cover"error message will display on the front panel.

The +5 VDC Loop

Refer to the wiring diagram, "The +5 Volt Loop" on page 10-258 for all procedures listed under this topic.

Upon power-up the low-voltage power supply (LVPS) generates a +5 volt signal which is routed out of the LVPS through the engine control board to the toner sensor board and then back out the toner sensor board to the low-voltage power supply. Once the +5 volt signal is returned to the LVPS, the LVPS will then turn on all other supply voltages.

If the low-voltage power supply does not detect the return of +5 volts, the LVPS will immediately shut-down. You may see the Engine Controller Board LED flash immediately after power-on.

To verify the +5 volt loop is complete:

1. Test fuse F6 on the Engine Controller Board for continuity. If the fuse is blown (open circuit), check the circuit for a short to ground.

   Note: **Disconnect the POWER harness from the Engine Controller Board prior to checking for a short.**

   a. If a short to ground is found, systematically disconnect wiring harnesses on the Engine Controller Board to isolate the short. Replace the defective wiring harness or component and the Engine Controller Board.

2. Verify all wiring harnesses are connected, seated correctly and not damaged. Replace any damaged wiring harnesses.

3. Check for continuity between the Engine Controller Board OPTN and the interconnect wiring harness between the toner sensor board and LVPS. If continuity is not found, the problem is the OPTN wiring, the toner sensor board or the interconnect wiring harness.

4. Verify proper operation of the LVPS by bypassing the Engine Controller Board and the toner sensor board.

   a. Disconnect the power connector from the Engine Controller Board and disconnect the interconnect between the LVPS and the toner sensor board.

   b. Run a jumper wire between pin 5 on the POWER harness and pin 14 on the wiring harness interconnect, as shown on the +5 Volt Loop wiring diagram.

   c. Turn the printer on. If the jumper connection is correct, the low-voltage power supply will start and the power supply fans will run. This indicates the problem lies with the Engine Controller Board or the toner sensor board or their wiring. If the low-voltage power supply does not turn on, it is probably bad.

5. Replace the Low Voltage Power Supply if all other components are operating correctly.

Fuser Roller Resistances

Remove the Fuser from the printer and turn the Fuser upside down to locate the connectors on the bottom.

Fuser	Measure between...	Resistance (ohms)
Fuser unit New fuser: The fuse between pins C and D of the lower roller should be blown within seconds of the printer being powered on. Used fuser: The fuse between pins C and D of the lower roller will be open. The fuse indicates a new fuser and is blown within seconds of being installed to indicate a fuser now in use. Upper: Pins C - D and E - F are thermistor resistances. Lower: Pins E - F are thermistor resistances. Note: Resistance depends highly on temperature.	Upper Roller Between Pins A and B Between Pins C and D Between Pins E and F Lower Roller Between Pins A and B Between Pins C and D Between Pins E and F	Between 200k - 250k ohms when hot. 0 ohms or open (fuse) Between 200k - 250k ohms when hot.
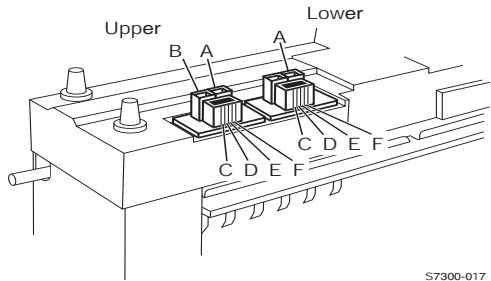
S7300-017

Multi-Sheet Pick

1. Ensure the correct weight and type of media is loaded in the tray. See "Media and Tray Specifications" on page 1-16 for approved media types and weights.

2. Verify that the media settings at the front panel and the driver settings match the media loaded in the tray.

3. Fan the media and reload into the tray.

4. Use service diagnostics to verify the printer is printing within its environmental specifications.

5. Ensure the media is correctly loaded in the tray and that the guides fit snug against the media.

   Note: **Guides can move away from the media loaded in the tray if the tray is shut too firmly or closed too rapidly.**

6. Clean the pick and feed rollers with a clean, dry, lint-free wipe if debris is visible. Check the rollers for excessive wear or damaged.

Media Skewing

1. Ensure the correct weight and type of media is loaded in the tray. See "Media and Tray Specifications" on page 1-16 for approved media types and weights.

2. Make sure that the media is properly installed in the tray and that the guides fit snug against the media. For larger size media, use the additional guides located on the left side of the tray.

   Note: **Guides can move away from the media loaded in the tray if the tray is shut too firmly or closed too rapidly.**

3. Load a fresh ream of paper, or ensure that the media loaded is not torn, wrinkled, bent or otherwise damaged.

4. Check for and remove any debris or obstructions in the paper path.

5. Verify that the registration rollers are in contact with one another along the entire length of the roller and that no gaps exist between them.

6. If the problem occurs in only one tray or the MPT:
   a. Clean the pick and feed rollers with a clean, dry, lint-free wipe if debris is visible. Check for excessive wear or damaged.
   b. Check the tray for dirt, debris or obstructions.
   c. Check the tray for damage.
   d. Replace the tray.

Operating System and Application Problems

Print an internal test print from the printer's front panel to ensure the problem is not printer related. Troubleshooting tips and more information are also available on the Xerox web site at: **www.xerox.com/officeprinting/support**.

Macintosh Printing Problems

Image Never Prints

The printer acts as if it is receiving data, but nothing comes out of the printer or it goes back to "Ready" mode without printing. The most likely cause is a PostScript error occurred in the printer.

1. Power cycle to the printer and try printing again.
2. Make sure that the correct Phaser 7300 printer icon was selected in the **Chooser**. Try printing the job again.
3. In the **Chooser** or the print dialog, switch background printing to *off*. Try printing the job again.
4. If the error returns, turn ON the PostScript error handler through the front panel PostScript Error Info under the Support menu, or CentreWare IS and print the document again. Take note of the information on the error page that was printed.
5. Select the appropriate Phaser 7300 PPD with the LaserWriter Driver or application. Not selecting the appropriate PPD can cause PostScript errors.
6. Select a different document from the application and try to print. If the PostScript error does not occur, then the original document may be causing the problem.

Image Prints in Black-and-white

1. Ensure the driver setting for the TekColor tab is not set to "Black & White".

Image is Rotated 90 Degrees

1. In the application's **Page Setup**, make sure that the image is selected to print in portrait or landscape orientation to match the document. Also, ensure the selected paper size is correct.

Windows printing problems

Image Never Prints

1. Power cycle to the printer and try printing again.

2. Try printing a test page from the printer driver's properties dialog box.

3. Try printing from another application.

4. Try printing to another printer.

5. Try printing from another computer.

6. If the error returns, turn ON the PostScript error handler through the front panel PostScript Error Info in the Support menu, or CentreWare IS and print the document again. Take note of the information on the error page that just printed.

Image Prints in Black-and-white

1. Ensure the driver setting for the TekColor tab is not set to "Black & White".

Image is Rotated 90 Degrees

1. In the application's **Page Setup**, make sure that the image is selected to print in portrait or landscape orientation to match the document. Also, ensure the selected paper size is correct.

Network Problems

The Phaser 7300 printer maintains 4 logs in memory detailing network functions. The logs contain TCP/IP, NetWare and AppleTalk initialization events. The logs can be viewed from the front panel or accessed remotely via CentreWare IS.

The logs list events chronologically. The log is limited in length; when the log is full the printer deletes the oldest record off the list as a new error occurs.

There is a Connection Setup Page, Configuration Page and a Network Reset Menu available for troubleshooting Network problems.

To print an Event Log, Runtime Log or Configuration Page:

1. Enter normal 'Customer Mode'.

2. From the main menu, highlight **Support Menu** and press **OK.**

3. Scroll and highlight **Network Questions?** and press **OK.**

4. Highlight the appropriate menu item from the list and select **OK.**

5. The page should now print.

Print-Quality Problems

Print-quality defects can be attributed to printer components, consumables, media, internal software, external software applications or environmental conditions. To successfully troubleshoot print quality problems, as many variables as possible must be eliminated before replacing printer parts.

When analyzing a print-quality defect, first determine if the defect occurs in all colors or only one color and if it is repeating or random. Defects occurring in only one color are usually attributable to the Imaging Units or Toner Cartridges.

BEFORE USING ANY TROUBLESHOOTING PROCEDURE FOR PRINT-QUALITY PROBLEMS, PERFORM THE FOLLOWING STEPS:

- See "Media and Tray Specifications" on page 1-16 for media that has been tested and approved for use in the Phaser 7300 printer. If the print-quality defect is still present when printing on approved media from an unopened ream of paper, software applications, environmental conditions, and printer hardware need to be researched.

- Ensure the front panel and driver settings match the media loaded in the tray.

- Use service diagnostics to determine if the temperature and humidity meet the environmental specifications, see "Environmental Specifications" on page 1-15. Temperature and humidity extremes can adversely effect the Xerographic and fusing characteristics of the printer.

- Cycle power to the printer. This will initiate the Color Registration and Automatic Density Control (ADC) Calibrations.

- Use the printer's internal test prints to verify the problem is with the printer and not with the user settings or application.

    - Color Reference Page

    - Graphics Demonstration Page

    - Office Demonstration Page

- To isolate repeating defect problems to a specific part, print the Repeating Defects Page.

- Clean and remove any debris or obstructions from the printers paper path.

- Vacuum any obvious toner spills within the printer.

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

- Imaging Units - generally seen in only one color.
    - Streaks in Process Direction (in the direction of paper feed, parallel with paper travel)
    - Banding in Scan Direction (across the page, perpendicular to paper travel)
    - Uneven Density
    - Voids
    - Repeating Defects
    - Mis-registration
- Transfer Unit
    - Toner on the back side of the printed page (simplex mode)
    - Light Prints
    - Repeating Defects
    - Mis-registration - only when there is obvious damage to the belt.
- Fuser Unit
    - Hot or Cold Offsetting
    - Repeating Defects
    - Dark Streaks in Process Direction
- LED Head
    - Streaks in the Process Direction
    - Uneven Density in the Scan Direction

Repeating Defects Identification Chart

FRU or CRC	Distance between Defects
Imaging Unit	94 mm (3.70 in.)
	50 mm (1.97 in.)
	44 mm (1.73 in.)
Transfer Unit	58 mm (2.29 in.)
Fuser Assembly	143 mm (5.62 in.)

Light Prints in All Colors
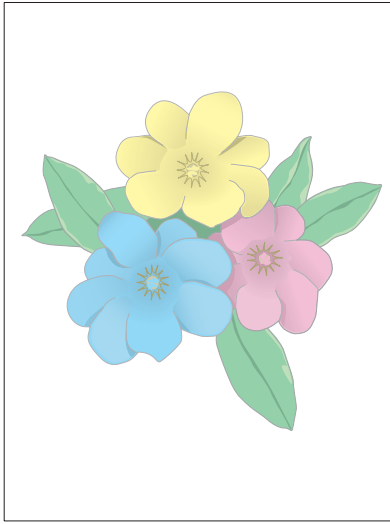
The overall image density is too light in all colors. If the image is light in only one color, see "Light Prints in Only One Color" on page 3-83.

S7300-019

Troubleshooting Procedure

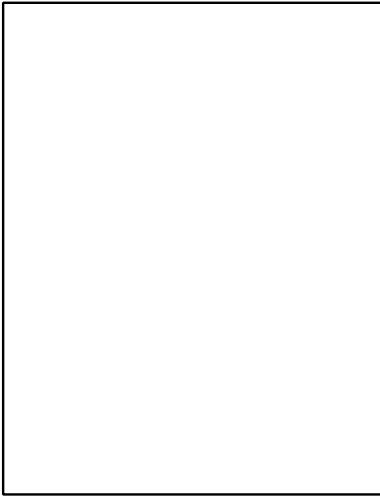| Step	Question or Action	Yes	No
1	Verify all packaging material has been removed form the toner cartridges.	Go to step [2].	Remove the packing material.
2	Verify the correct color correction setting is selected in the printer driver? Note: The TekColor correction set to Automatic provides the best results for most documents	Go to step [3].	Set the color correction to automatic and reprint the job.
3	Perform the Light and Darkness Color Balance Procedure. Did this correct the problem?	Complete	Go to step [4].
4	Remove the Imaging Units and the Transfer Unit and check for toner contamination on the high voltage contacts.	Clean the contacts.	Go to step [5]
5	Are the LED heads dirty? Clean each head with a clean, lint-free cloth. Did this correct the problem?	Complete	Go to step [6].
6	Are the wiring harnesses on the LED heads undamaged, properly routed and seated?	Go to step [7].	Replace or reseat the wiring harness.
7	Is +5V supplied to Pin 1 of each LED Head assembly? KPOW2 YPOW2 MPOW2 CPOW2	Go to step [9].	Go to step [8].

Troubleshooting Procedure (cont'd.)

Step	Question or Action	Yes	No
8	Is +5V supplied to the POWER connector pins 1, 2, 3, 4, 5, 6, 7 and 8 on the Toner Sensor Board?	Replace the Toner Sensor Board.	Replace the LVPS.
9	Is +34V supplied to the POWER connector pins 12, 13, and 14 on the Engine Controller Board?	Go to step [10].	Replace the LVPS or wiring harness.
10	Is +34V supplied to the HVOLT connector Pin 2 on the Engine Controller Board.	Go to step [11].	Replace the Engine Control Board.
11	Inspect the high-voltage wiring harness.	Replace defective wiring harness.	Replace the Transfer Unit. Replace the HVPS.

Light Prints in Only One Color
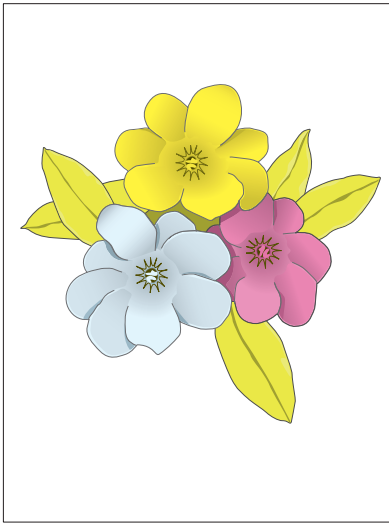
Only one color, yellow, magenta, cyan, or black is too light on the printed image.

In the example to the left, cyan is printing too light causing the blue flower to look too light and effecting the true green of the leaves.

Print the 100% Solid Fill Test Pattern.

S7300-020

Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Verify all packaging material has been removed form the toner cartridges.	Go to step [2].	Remove the packing material.
2	Verify the correct color correction setting is selected in the printer driver? Note: The TekColor correction set to Automatic provides the best results for most documents	Go to step [3].	Set the color correction to automatic and reprint the job.
3	Print the 100% Solid Fill test print. Can the problem be isolated to only one primary color?	Go to step [4].	see "Light Prints in All Colors" on page 3-81
4	Remove the toner cartridge and check for toner starvation inside the Imaging Unit. Is there evidence of toner starvation?	Replace the toner cartridge.	Go to step [5]
5	Remove the Imaging Units and the Transfer Unit and check for toner contamination on the high voltage contacts. Are the contacts contaminated?	Clean the contacts.	Go to step [6]
6	Is the LED Head dirty? Clean the head with a clean, lint-free cloth. Did this correct the problem?	Complete	Go to step [7].
7	Swap the LED Head of the problem color with any other LED Head. Print a Solid Fill Test Pattern. Has the problem moved with the LED Head?	Replace the LED Head.	Go to step [8].

Troubleshooting Procedure (cont'd.)

Step	Question or Action	Yes	No
8	Are the wiring harnesses on the LED heads undamaged, properly routed and seated?	Go to step [9].	Replace or reseat the wiring harness.
9	Is +5V supplied to Pin 1 of the problem LED Head assembly? KPOW2 YPOW2 MPOW2 CPOW2	Replace the Imaging Unit.	Go to step [10].
10	Is +5V supplied to the POWER connector pins 1, 2, 3, 4, 5, 6, 7 and 8 on the Toner Sensor Board.	Replace the Toner Sensor Board.	Replace in the following order: Transfer Unit LVPS

Blank Prints

The entire page is blank, no image is printed.

S7300-021

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Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Print a 100% Solid Fill Test Print from the printer's front panel. Is the entire test print blank?	Go to step [2].	Have the customer check there application and printer settings.
2	Verify all packaging material has been removed from the toner cartridges.	Go to step [3].	Remove the packaging material.
3	Remove the toner cartridge and check for toner starvation inside the Imaging Unit. Is there evidence of toner starvation?	Replace the toner cartridge.	Go to step [4].
4	Are the wiring harnesses on the LED heads undamaged, properly routed and seated?	Go to step [5].	Replace or reseat the wiring harness.
5	Is +5V supplied to Pin 1 of each LED Head assembly? KPOW2 YPOW2 MPOW2 CPOW2	Go to step [7].	Go to step [6].
6	Is +5V supplied to the POWER connector pins 1, 2, 3, 4, 5, 6, 7 and 8 on the Toner Sensor Board?	Replace the Toner Sensor Board.	Replace the LVPS.

Troubleshooting Procedure (cont'd.)

Step	Question or Action	Yes	No
7	Is +34V supplied to the POWER connector pins 12, 13, and 14 on the Engine Controller Board?	Go to step [8].	Replace the LVPS or wiring harness.
8	Is +34V supplied to the HVOLT connector Pin 2 on the Engine Controller Board?	Go to step [9].	Replace the Engine Control Board.
9	Inspect the high-voltage wiring harnesses.	Replace any defective wiring harnesses.	Replace the Transfer Unit. Replace the HVPS.

Mottled or Splotchy Prints

S7300-022

The print image has a mottled appearance.

Note: This defect is know to occur when manually duplexing, at low humidity, on the following types of media:

- OPB Branded Greeting Cards
- OPB Branded CD Inserts
- OPB Branded Business Cards
- Other Thick Card Stock Media

.

Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Ensure the media is approved for this printer and that the printer front panel and driver settings match the media loaded in the tray. see "Media and Tray Specifications" on page 1-16 for a list of approved media.	Go to step [2].	Have the customer load approved media or correct the settings.
2	Use service diagnostics to verify the printers operating within it's environmental specifications. Low humidity, less than 20% relative humidity can cause mottling on prints.	Go to step [3]	Advise customer regarding the environmental specifications for this printer.
3	Set the Color Correction to a setting other than "Automatic" in the printer driver and try a different print quality mode. Most mottled prints occur in backgrounds using "Black" only color. Using other Color Correction settings will utilize the "Composite Black" colors which will reduce the appearance of mottling. Did this correct the problem?	Complete	Go to step [4].
4	Remove the Imaging Units and the Transfer Unit and check for toner contamination on the high voltage contacts. Is there contamination?	Clean the contacts.	Go to step [5].
5	Is +34V supplied to the POWER connector pins 12, 13, and 14 on the Engine Controller Board?	Go to step [6].	Replace the LVPS or wiring harness.

Troubleshooting Procedure (cont'd.)

Step	Question or Action	Yes	No
6	Is +34V supplied to the HVOLT connector Pin 2 on the Engine Controller Board.?	Go to step [7].	Replace the Engine Control Board.
7	Inspect the high-voltage wiring harnesses. Are the wiring harnesses defective?	Replace any defective wiring harnesses.	Replace in the following order: Transfer Unit. HVPS.

Unexpected Colors
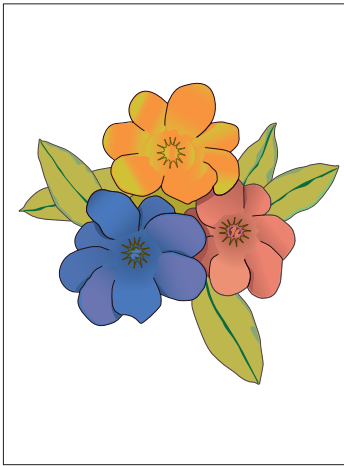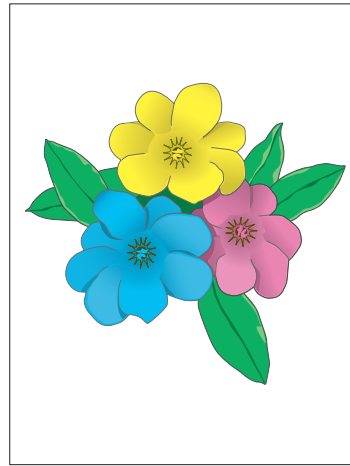
| Printed Image | Color Expected |

S7300-023

The colors produced by the printer are dramatically different from the color expected.

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Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Print the Color Reference Page and evaluate the colors. Are the colors on the Color Reference Page representative of what the customer expects?	Complete, the problem is with the customer application.	Go to step [2].
2	Perform the Light and Dark Color Balance procedure. Did this fix the problem?	Complete	Go to step [3].
3	Print a Supplies Page to check the Imaging Unit life remaining. If the imaging unit is reaching it's maximum image count, the printer will not hard stop due to pixel count, but this can reduce print-quality.	Have the customer replace the Imaging Unit.	Go to step [4].
4	Print the 100% Solid Fill Test pattern and check for any missing primary colors. Is the problem with a single color?	Go to step [5].	Go to step [7].
5	Is there debris or contamination on the LED Head?	Clean them with a dry, lint free cloth.	Go to step [6].
6	Swap the LED Head of the problem color with any other LED Head. Print a Solid Fill Test Pattern. Has the problem moved with the LED Head?	Replace the defective LED Head.	Go to step [7].

Troubleshooting Procedure (cont'd.)

Step	Question or Action	Yes	No
7	Swap the Imaging Unit of the problem color with any other Imaging Unit. Note: Remove the keys before swapping. Print a Solid Fill Test Pattern to check for defects. Has the problem color moved with the Imaging Unit?	Replace the Imaging Unit.	Go to step [8].
8	Remove the Imaging Units and the Transfer Unit and check for toner contamination on the high voltage contacts. Is there contamination on the contacts?	Clean the contacts.	Go to step [9].
9	Are the wiring harnesses on the LED heads undamaged, properly routed and seated?	Go to step [10].	Replace or reseat the wiring harness.
10	Is +5V supplied to Pin 1 of each LED Head assembly? KPOW2 YPOW2 MPOW2 CPOW2	Go to step [12].	Go to step [11].
11	Is +5V supplied to the POWER connector pins 1, 2, 3, 4, 5, 6, 7 and 8 on the Toner Sensor Board wiring harness or at the 16-pin interconnect?	Replace the Toner Sensor Board.	Replace the LVPS.
12	Is +34V supplied to the POWER connector pins 12, 13, and 14 on the Engine Controller Board?	Go to step [13].	Replace the LVPS or wiring harness.
13	Is +34V supplied to the HVOLT connector Pin 2 on the Engine Controller Board?	Go to step [14].	Replace the Engine Control Board.
14	Inspect the high-voltage wiring harnesses. Are the wiring harnesses defective?	Replace any defective wiring harnesses.	Replace the Transfer Unit. Replace the HVPS.

Background Contamination

S7300-024

There is a very light covering of toner across the entire page. Background contamination can appear in one of the primary colors or gray.

Note: Printing on some speciality papers, such as glossy finish paper, may show background contamination.

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Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Is the printer in direct sun light?	Move the printer.	Go to step [2].
2	Does the background appear to be in only one of the primary colors?	Go to step [3].	Go to step [4].
3	Remove the Imaging Unit of the problem color. Visually inspect the Imaging Unit's green OPC drum for toner contamination. Is there a film of toner across the surface of the drum?	Replace the Imaging Unit.	Go to step [4].
4	Verify the printer is operating within it's environmental specifications, see "Environmental Specifications" on page 1-15. High humidity environments will increase the degree of background toner.	Go to step [5].	Advise the customer of the environmental specifications for the printer.
5	Is the customer printing on high-gloss media?	Advise the customer of the limitation of this printer.	Go to step [6].
6	Were the Imaging Units exposed to light for an extended amount of time?	Replace the Imaging Unit.	Go to step [7].
7	Use service diagnostics to help verify both Power Supply Fans are functioning. Heat build-up under the Imaging Units can cause toner to stain the background. Are the fans operating correctly?	Go to step [8].	Replace the defective fan.

Troubleshooting Procedure (cont'd.)

Step	Question or Action	Yes	No
8	Check the Imaging Unit contacts (3-pin contacts) and make sure they are in good working condition and not contaminated.	Clean the or replace the Drum Contacts.	Go to step [9].
9	Remove the Imaging Units and the Transfer Unit and check for toner contamination on the high voltage contacts.	Clean the contacts.	Replace in the following order: Transfer Unit HVPS

Toner on Back of Print
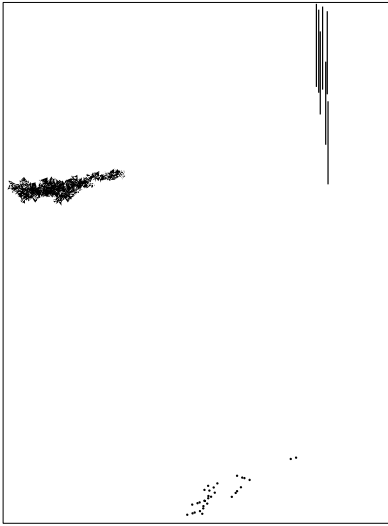
There is toner on the back of the printed sheet of paper.

S7300-025

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Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Clean the interior of the printer. Check the exit rollers and paper guides for toner debris. Does this correct the problem?	Complete	Go to step [2].
2	Verify the printer is operating within it's environmental specifications, see "Environmental Specifications" on page 1-15.	Go to step [3].	Advise customer on the environmental settings for this printer.
3	Inspect the Transfer Unit cleaning blade. See "Transfer Unit" on page 8-230 for information on blade flipping. Has the blade flipped or is failing to clean the Transfer Unit?	Replace the Transfer Unit.	Go to step [4].
4	Inspect and clean the Fuser. Did this correct the problem?	Complete	Go to step [5].
5	Select the "Special" type setting from the front panel and experiment with alternate paper type settings, such as the next heaviest or lightest paper type. See "Fuser Temperature Settings" on page 8-237. Does this correct the problem?	Complete	Go to step [6].

Troubleshooting Procedure (cont'd.)

Step	Question or Action	Yes	No
6	Remove the covers on the Fuser and ensure the thermistors are in contact with the upper and lower rollers.	Go to step [7].	Replace the Fuser.
7	Use service diagnostics to generate an engine test print and monitor the upper and lower fuser roller temperatures to verify they are operating within specifications. See "Fuser Temperature Settings" on page 8-237.	Replace the Fuser.	Replace Engine Controller Board.

Repeating (Defects) Bands, Lines, Marks or Spots
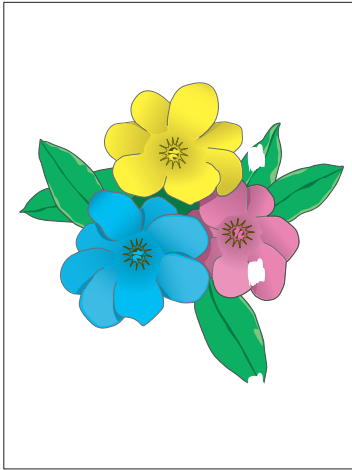
S7300-026

This is usually caused by a damaged roller in the Imaging Unit, Fuser or Transfer Unit.

In some instances, the spots may be dark instead of white and may also be in any shape, but the defect is *repeated* on the print.

■ Print the Color Test Pages from the printer's front panel.

■ Identify the primary color causing the defect.

■ Print the Repeating Defects Page

■ Measure the defect and compare it to the Repeating Defects Page to identify the problem component.

■ Replace the component causing the problem.

Repeating Defects Identification Chart

FRU or CRC	Distance between Defects
Imaging Unit	94 mm (3.70 in.)
	50 mm (1.97 in.)
	44 mm (1.73 in.)
Transfer Unit	58 mm (2.29 in.)
Fuser Assembly	143 mm (5.62 in.)

Example of Scan Direction Banding
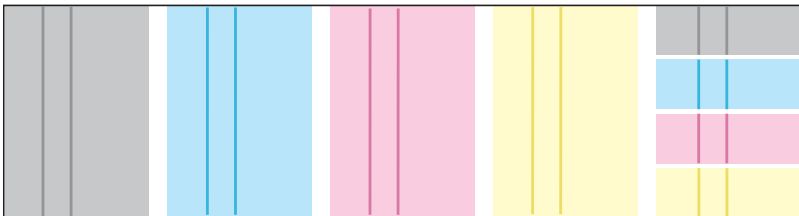
S7300-027

Random Bands, Lines, Marks or Spots
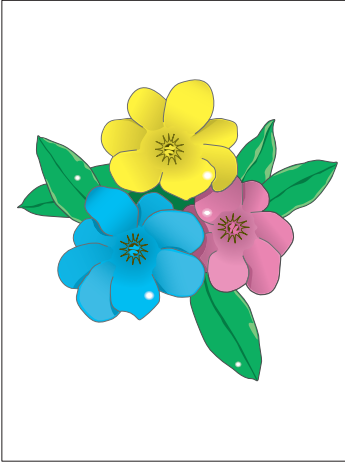
S7300-026

Random "missing" spots

There are areas of the image extremely light or are missing entirely and do not appear to be a repeating defect or in a single color.

■ This printer supports custom page sizes. When troubleshooting, print a test print on at least letter size paper for diagnosing this problem. The problem may be a repeating defect that is not noticeable on smaller media. If the areas look like a repeating defect, see "Repeating (Defects) Bands, Lines, Marks or Spots" on page 3-95.

■ Random missing spots can also be associated with "Cold Offset", which lifts toner off the page in certain areas. Usually this will occur in high-coverage areas where the fuser temperature is not high enough to fuse the toner on the media. This causes toner to be redeposited further down the page. For Cold Offset, see "Cold Offset - Unfused Image or Image Easily Rubs off the Paper" on page 3-100.

Random Spotting
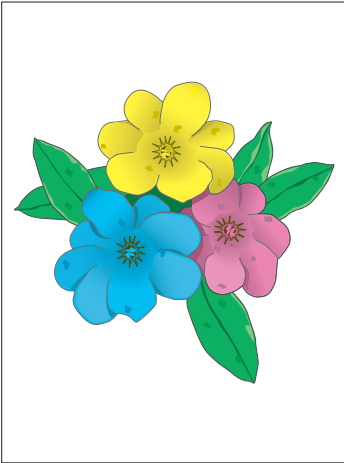
There are spots of toner randomly scattered across the page.

Toner melting off the Fuser thermistors can also place random spots onto prints.
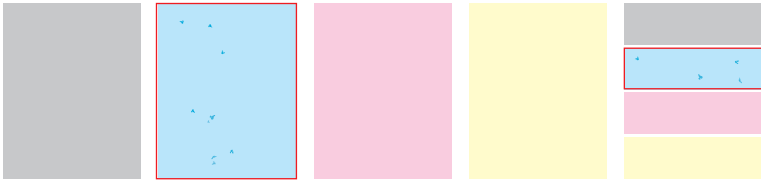
S7300-029b

S7300-029

Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Is there toner spilled inside the printer?	Vacuum inside the printer and remove all visible toner.	Go to step [2].
2	Check the media loaded in the tray for spots or contamination that exists prior to printing.	Replace with fresh paper.	Go to step [3].
3	Print the Color Test Pages to determine which primary color(s) are spotting or missing. Is the problem with one color?	Replace the Imaging Unit.	Go to step [4].
4	Run the Remove Print Smears from the printer's front panel. Did this fix the problem?	Complete	Go to step [5].
5	Inspect the fuser. Is there dirt, debris, paper or contamination on the fuser housing or rollers?	Clean the fuser	Replace the Fuser.

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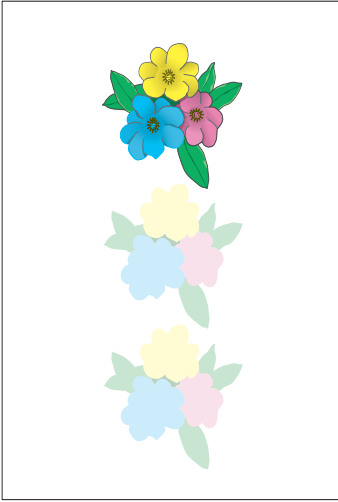
There are faint, repeating images appearing on the page. The images may be either from a previous page or from the page currently being printed

If the colors are offset by only a small amount (10 mm maximum), this is ***mis-registration***, not ghosting, see "Color Mis-Registration" on page 3-101.

S7300-031

There are two reasons for image ghosting:

Fuser Hot Offset: This can be characterized by a repeating image at every 143 mm. The fuser temperature is set too high for the given media and the toner will adhere to the fuser rollers causing the image to be deposited further down the page or on the following pages.

Hot Offsetting and Fuser temperature. Offsetting occurs on media if the fuser's temperature setting does not match the media type loaded in the tray.

See "Media and Tray Specifications" on page 1-16 to identify the media types approved for this printer. The media type settings may need to be changed to match the Fuser's temperature with the given media. See Theory of OP for media and fuser settings

Imaging Unit Ghosting: This can be the Imaging Unit (green roller) where a residual image is left on the green film, which is then deposited further down the page. This is most noticeable on images that have a dark background with light text. The text is ghosted down the page at 94 mm intervals. This is caused by a defective erase lamp in the Imaging Unit.

Ghosting every 50 mm is caused by the developer roller in the Imaging Unit and is a limitation of the Imaging Unit design; therefore, technicians should not replace Imaging Units for this type of ghosting.

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Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Print the Repeating Defects page and compare to the customer's print to determine if the defect is Fuser or Imaging Unit related. Is the defect repeating at 94 mm?	Replace the Imaging Unit.	Go to step [2].
2	Perform the Remove Print Smears from the printer's front panel to clean the fuser. Reprint. Did this correct the problem?	Complete	Go to step [3].
3	Check the front panel media settings. Is the customer using the correct setting for the media loaded in the tray?	Go to step [4].	Advise the customer of the correct media settings.
4	Try setting the front panel media type to the **next lightest** type of paper than that loaded in the tray. See "Fuser Temperature Settings" on page 8-237. Did this correct the problem?	Advise customer of the appropriate media type selection.	Go to step [5].
5	Remove the covers on the Fuser and ensure the thermistors are in contact with the upper and lower rollers.	Replace the Fuser.	Go to step [6].
6	Use service diagnostics to run a test print and monitor the Fuser temperature. Is the temperature within it's optimal range? See "Fuser Temperature Settings" on page 8-237.	Replace the Fuser.	Replace the Engine Controller Board.

Cold Offset - Unfused Image or Image Easily Rubs off the Paper
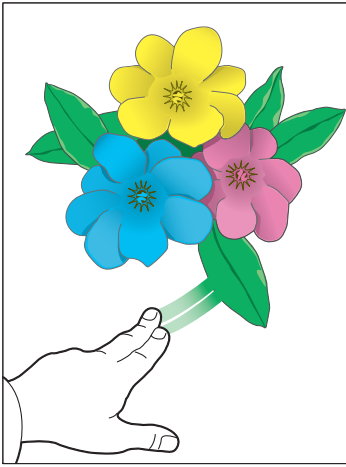
S7300-032

The Fuser temperature is set too low for the media loaded in the tray causing the toner to not completely fuse on the printed page, rubbing off easily.

This generally occurs on high-coverage prints.

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Troubleshooting Procedure

Step	Question or Action	Yes	No
1	Inspect the fuser. Is there dirt, debris, or paper wrapped around or on the fuser roller?	Replace the Fuser.	Go to step [2].
2	Try setting the front panel media type to the **next heaviest** type of paper than that loaded in the tray. See "Fuser Temperature Settings" on page 8-237. Did this correct the problem?	Advise customer on the appropriate media type selection.	Go to step [3].
3	Perform the ATS 4-Sheet Calibration procedure. Did the calibration procedure pass?	Go to step [4].	Perform the entire "Automatic Thickness Sensor (ATS) Calibration Procedure" on page 4-118
4	Remove the covers on the Fuser and ensure the thermistors are in contact with the upper and lower rollers.	Replace the Fuser.	Go to step [6].
5	Use service diagnostics to run a test print and monitor the Fuser temperature. Is the temperature within it's optimal range? See "Fuser Temperature Settings" on page 8-237.	Replace the Fuser.	Replace in the following order: Engine Controller Board LVPS

Color Mis-Registration

S7300-033

The image appears blurred and the primary colors are not aligning correctly into one image.

For a page oriented Long-Edge Feed, as the one shown here, the following applies:

If the colors are shifted from left to right, this is mis-registration in the *process direction.*

If the colors are shifted from top to bottom, this is mis-registration in the *scan direction.*

.

Troubleshooting Procedure

Step	Check	Yes	No
1	Cycle power to the printer. This will perform a Color Registration Calibration. Did this correct the problem?	Complete	Go to step [2].
2	Load media long-edge feed into Tray 1 or the MPT. Print the Supplies Page and hold the print out in a portrait orientation to evaluate: Are the colors shifted left to right?	Go to step [3]	Go to step [9].
3	**Process Direction:** Remove the Imaging Units and Transfer Unit. Inspect the registration sensors for dirt, debris or toner build-up. Are the sensors clean and free from debris?	Go to step [4].	Clean the sensors.
4	Verify the Color Registration Shutter opens and closes by actuating the registration shutter solenoid from service diagnostics. Is the shutter functioning correctly?	Go to step [5].	Replace the solenoid and wiring harness.
5	Inspect the Transfer Unit for tears or damage on the edges of the belt. Is the belt damaged?	Replace Transfer Unit	Go to step [6].
6	Visually inspect the Imaging Unit drive gears for missing or worn gear teeth. Use service diagnostics to run the Imaging Unit Motors test to visually inspect the gears. Are the gears working correctly?	Go to step [7].	Replace the Imaging Unit Drive Gear.

Troubleshooting Procedure (cont'd.)

Step	Check	Yes	No
7	Replace the Color Registration Sensor. Did this fix the problem?	Complete	Go to step [9].
8	Replace the Engine Controller Board EEPROM. Did this fix the problem?	Complete.	Replace the Engine Controller Board.
9	**Scan Direction**: Use the Supplies Page to identify the problem color. Remove the Imaging Unit of the suspect color. Inspect the grounding shaft. See "Imaging Unit Cleaning" on page 8-225 Has the shaft shifted?	Replace the Imaging Unit.	Go to step [10].
10	Visually inspect the Imaging Unit guides, on the Printer Unit Chassis, for debris or damage. Are the guides damaged or obstructed?	Clean the guides on the Printer Unit Chassis or Replace the damaged assembly.	Go to step [11].
11	Check the Color Registration Sensor for dirt or debris. Be sure to check in and around the registration shutter.	Clean the sensor.	Go to step [12].
12	Verify the Color Registration Shutter opens and closes by actuating the registration shutter solenoid from service diagnostics. Is the shutter and solenoid functioning correctly?	Go to step [13].	Replace the solenoid and wiring harness.
13	Are the LED Head ribbon cables undamaged, properly routed and seated?	Go to step [14].	Reseat, correctly route or replace the wiring harness.
14	Swap the LED Head of the problem color with any other LED Head. Print a Supplies Page. Has the problem moved with the LED Head?	Replace the defective LED Head.	Go to step [15].
15	Replace the suspect LED Head assembly. Did this correct the problem?	Complete	Go to step [16].
16	Replace the Color Registration Sensor. Did this correct the problem?	Complete	Go to step [17].
17	Replace the Engine Controller Board EEPROM. Did this fix the problem?	Complete	Replace the Engine Controller Board.

Image is Not Centered or Positioned Correctly on the Paper

The image is not centered on the page correctly.
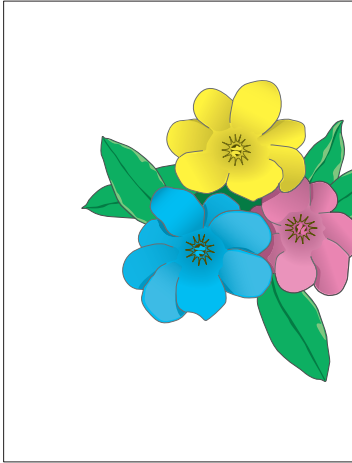
S7300-034

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Troubleshooting Procedure

Step	Check	Yes	No
1	Check the user's application and printer driver settings to ensure the problem is with the printer and not with the printer or application settings. ■ Print an internal page to verify the printer is functioning properly. ■ Check the tray setup menu front panel settings and ensure Custom is set to OFF. Is the problem with the printer?	Go to step [2].	Advise the customer of the problem with the application.
2	Are the paper guides set snugly against the paper in the tray?	Go to step [3].	Adjust the guides.
3	Run the Calibrate for Margins procedure. Does this fix the problem?	Complete	Go to step [4}.
4	Verify the size of media loaded in the tray reported by the printer is the actual size.	Go to step [8].	Go to step [5].
5	Use service diagnostics to ensure the paper size sensor is functioning correctly.	Go to step [6].	Go to step [7].
6	Check the backside of the paper tray for proper movement of the paper size plate while adjusting the tray guides. Did the plate move with the guides?	Go to step [8].	Replace the tray.

Troubleshooting Procedure

Step	Check	Yes	No
7	Check the wiring harness to the Paper Size Sensor for damage or defects. Is the wiring harness defective?	Replace the wiring harness.	Replace in the following order: Paper Size Sensor Engine Controller Board or LTA Controller Board.
8	Inspect the tray pick and feed rollers for dirt, debris or excessive wear.	Clean or replace the roller.	Go to step [9].
9	Generate a service test print pattern from within service diagnostics. This will test the Engine Controller Board. Did the test pattern print correctly?	Replace the Image Processor Board.	Replace Engine Controller Board.

Missing Bands, Voids or Streaks in a Single Color or All Colors Parallel to the Leading Edge of the Paper (Scan Direction)

S7300-035
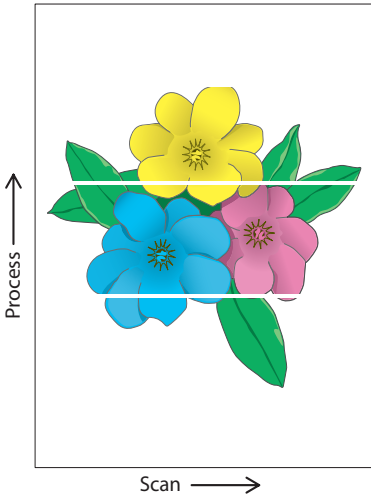
There are areas of the image that are extremely light or missing entirely. These missing areas form wide bands that run along the page parallel to the leading edge of the paper.

This can be caused by Imaging Unit oil lines that develop on the green roller, if the printer is not used for extended periods of time, like overnight. The mark will disappear after the first print and might not leave a repeating bar.

.

Troubleshooting Procedure

Step	Check	Yes	No
1	Print the 100% Solid Fill Test print. Is the problem with one primary color?	Replace the defective Imaging Unit.	Go to step [2].
2	Is the paper wrinkled, dimpled or show signs of having high moisture content? Load a fresh ream of paper. Did this correct the problem?	Complete	Go to step [3].
3	Print the Repeating Defects page. Do the defects correspond to a customer Replaceable Consumable? see "Repeating Defects Identification Chart" on page 3-80	See "Repeating (Defects) Bands, Lines, Marks or Spots" on page 3-95	Go to step [4].
4	Inspect the Fuser housing for warping or damage.	Replace the Fuser.	Replace the Engine Controller Board.

Missing Bands, Voids or Streaks in a Single Color or All Colors in the Direction of Paper Travel (Process Direction)

S7300-036
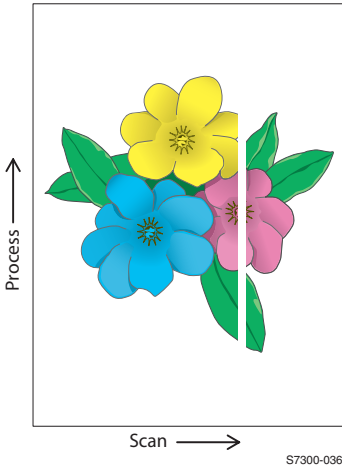
There are areas of the image that are extremely light or are missing entirely. The missing areas form bands that run along the page from the leading edge to the trailing edge in the direction of paper travel.

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Troubleshooting Procedure

Step	Check	Yes	No
1	Print the 100% Solid Fill test print. Are the missing bands in the process direction?	Go to step [2].	See "Missing Bands, Voids or Streaks in a Single Color or All Colors Parallel to the Leading Edge of the Paper (Scan Direction)" on page 3-105
2	Are there any obstructions, dirt or debris in the printer's paper path?	Clean or remove obstructions.	Go to step [3].
3	Clean the LED Heads with at dry, lint-free cloth. Did this fix the problem?	Complete.	Go to step [4].
4	Remove the each toner cartridge and check for toner starvation within the Imaging Unit(s).	Replace the Toner Cartridge.	Go to step [5].
5	Swap the LED Head of the problem color with any other LED Head. Print a Solid Fill Test Pattern. Has the problem moved with the LED Head?	Replace the defective LED Head.	Go to step [6].

Troubleshooting Procedure (cont'd.)

Step	Check	Yes	No
6	Swap the Imaging Unit of the problem color with any other Imaging Unit. Note: Remove the keys before swapping. Print a Solid Fill Test Pattern to check for defects. Has the problem color moved with the Imaging Unit?	Replace the defective Imaging Unit.	Go to step [7].
7	Check the Fuser housing for damage or warping.	Replace the Fuser.	Go to step [8].
8	Verify the ribbon cables and wiring harnesses on the LED Heads are seated, connected and routed properly.	Replace the Engine Controller Board.	Reseat, reconnect or replace damaged wiring harnesses.

Dark Streaks in a Single Color or All colors Parallel to the Leading Edge of the Paper
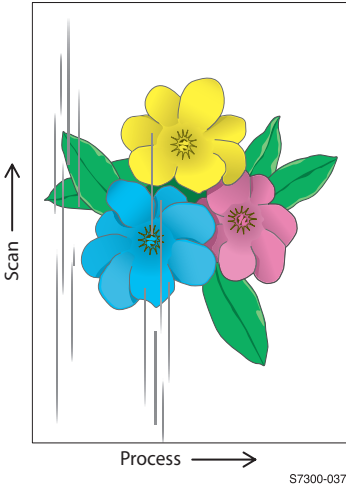
There are dark lines running parallel with the leading edge of the print.

Scan →

Process →

S7300-037

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Troubleshooting Procedure

Step	Check	Yes	No
1	Print the Color Test Pages. Does the problem occur in one primary color?	Replace the Imaging Unit of the defective color.	Go to step [2].
2	Perform the Remove Print Smears routine from the printer's front panel. Did this fix the problem?	Complete	Go to step [3].
3	Inspect the Fuser rollers for contamination. Is the Fuser contaminated?	Replace the Fuser.	Go to step [4].
4	Generate a service test print pattern from within service diagnostics. This will test the Engine Controller Board. Did the test pattern print correctly?	Replace the Image Processor Board.	Replace Engine Controller Board.

Dark Streaks in a Single Color or All Colors in the Direction of Paper Travel
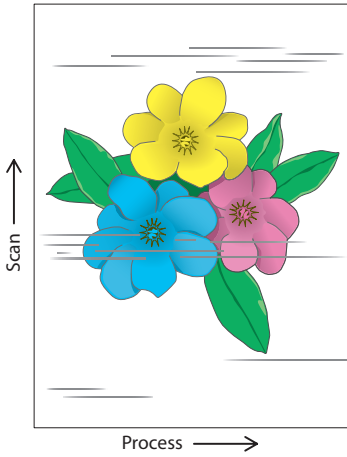
.There are dark lines running along the page in the direction of paper travel from the leading edge to the trailing edge

This is generally due to fuser, paper path roller and/or exit guides contaminated with toner debris.

Scan →

Process ⟶

S7300-038

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Troubleshooting Procedure

Step	Check	Yes	No
1	Run the Remove Print Smears routine from the printers front panel. Did this fix the problem?	Complete	Go to step [2].
2	Are there any obstructions, dirt or debris in the printer's paper path. Check for toner spills inside the printer.	Clean and remove obstructions.	Go to step [3].
3	Visual inspect the Imaging Units and rollers for signs of damage. **Note: Exposure to light can damage the Imaging Unit, examine the unit quickly and out of direct sunlight.**	Replace the defective Imaging Unit.	Go to step [4].
4	Check the Fuser where paper enters for spilled toner or contamination. Clean if dirty. Did this fix the problem?	Complete	Go to step [5].
5	Verify the ribbon cables and wiring harnesses on the LED Heads are seated, connected and routed properly.	Go to step [6].	Reseat, reroute or replace any damaged wiring harnesses.
6	Generate a service test print pattern from within service diagnostics. This will test the Engine Controller Board. Did the test pattern print correctly?	Replace the Image Processor Board.	Replace Engine Controller Board.

Test Prints, Adjustments, and NVRAM Resets

This section includes test prints, adjustments, calibrations and resets produced by the printer. The topic "Print-Quality Problems" on page 3-79 discusses solutions to problems revealed in the test prints.

Test Prints

A variety of test prints are available to aid in determining the quality of output from the printer and to assist in troubleshooting print-quality problems. Test prints produced by the Engine Controller Board, that bypass the Image Processor Board, are found in the Service Diagnostics Test Print Menu. See "Service Diagnostics Tests and Functions Table" on page 2-27 for information on these test prints.

Adjustments

Adjustments for print-quality and margin issues are explained in this section. The main adjustments are: Auto Thickness Sensor (ATS), Automatic Density Control (ADC), Color, and Margin Calibration procedures.

Resetting NVRAM

Resetting NVRAM returns all the Image Processor Board NVRAM-stored parameters to their factory default values. The details and parameters for resetting NVRAM are detailed in this section.

Contents

Test Print Samples

Analyzing the 100% Solid Fill Pages

S7300-174

This print consists of 6 pages,100% solid fill in CMYK, Blue and Green.

Things to look for on the 100% Solid Fill:

- Wrinkling
- Creases
- Roller marks
- Scratches
- Repeating defects or banding
- Missing Color(s)
- Streaks
- Voids

Analyzing the Color Test Pages

S7300-175
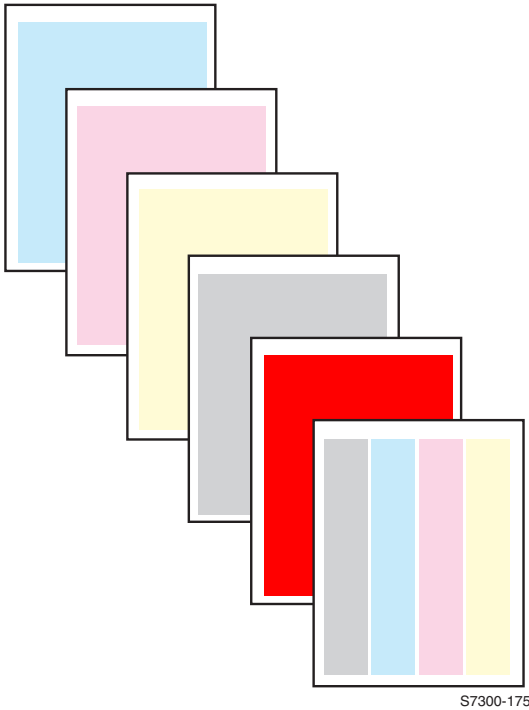
This print consists of 6 pages, 25% fill in CMYK and a 100% solid fill red.

Things to look for:

- Repeating defects or banding
- Missing Color(s)
- Streaks
- Voids

1. Consistent fills in each primary color. Each color should be consistent across the width of the page with no voids.

2. No separation or misconvergence where each bar meets its neighbor. Each bar is separated by a thin black line.

3. Look for thin white lines that would indicate a dirty LED lens or a scratched Imaging Unit.

4. Look for dark lines that would indicate a dirty or damaged Imaging Unit.

5. Look for complete fusing. Cold or hot offset fusing could indicate the incorrect paper weight has been selected.

Analyzing the PS Pattern A Print

S7300-093
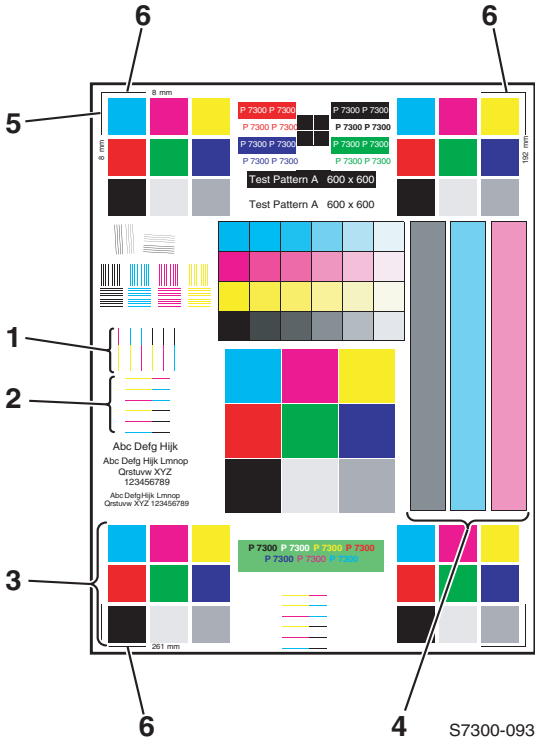
This print is found in the hidden service menu.

Things to look for include:

1. Color Registration (Horizontal): The colored lines should match up. Perform the color registration procedure. Clean the Color Registration Sensor and cycle power to the printer.

2. Color Registration (Vertical): The colored lines should match up. See "Color Calibration" on page 4-121.

3. Uniform RGB: The secondary color squares should be uniformly colored with no mottling.

4. Density: The color bars should have even density from top to bottom.

5. Margins: Margins should be 8 mm from the edge of the paper to the line.

6. Image Size: The image height should be 261 mm between the top and bottom lines. The image width should be 192 mm between the left and right lines.

Analyzing the 100% Color Stripe Pattern
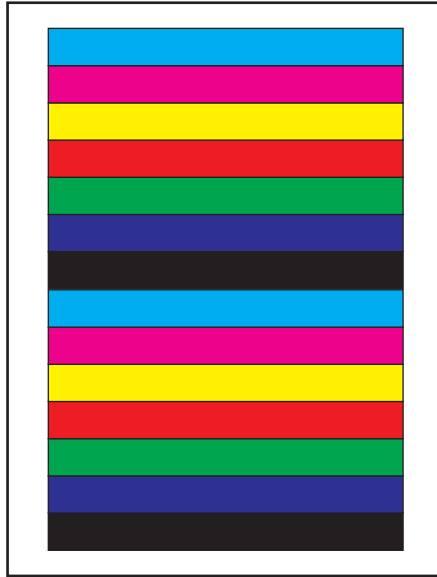
S7300-96

The 100% Color Stripe Pattern consists of 100% solid fills of the primary colors (cyan, magenta, yellow, and black) and the secondary colors (red, green, and blue). This print is found in the hidden service menu.

Things to look for:

1. Consistent fills in each primary color. Each color should be consistent across the width of the page with no voids.

2. No separation or mis-registration where each bar meets its neighbor. Each bar is separated by a thin black line.

3. Color Registration (Horizontal): The colored lines should match up. Perform the color registration procedure. Clean the Color Registration Sensor and cycle power to the printer.

4. Color Registration (Scan Direction): The colored lines should match up.

5. Uniform RGB: The secondary color squares should be uniformly colored with no mottling.

6. Density: The color bars should have even density from left to right.

Automatic Density Control (ADC) Calibration Procedure

To insure optimal print quality, each color image must be predictable and repeatable. Therefore, the print engine must know how much toner to use to create the proper color density. The ADC sensor is built into the middle of the color registration sensor assembly. For more information on the ADC Sensor, see the section "Theory of Operation" on page 8-219.

The print engine will perform a density adjustment when:

- A new Imaging Unit is installed
- A new Toner Cartridge is installed
- At 100, 300 and 500 Imaging Unit images, then every 500 images
- At power-on

Service technicians must initiate an ADC calibration upon replacement of the following parts:

- Color Registration Sensor
- Color Registration Shutter (contains Color Chip)
- Print Engine EEPROM
- Print Engine Controller Board

Caution: **Clean the color chip with API to remove any oil that may have been left by your fingers from handling the color chip. It is critical the color chip is clean.**

1. Entering the New Tag Number:

The color chip has a reference value (tag number) that adjusts the ADC sensor to the color chip. The last two digits of the tag number must be input using service diagnostics. The tag number is located on the bottom of the registration shutter next to the color chip.

- **a.** Scroll to `Adjustments/Calibrations`, then press **OK**.
- **b.** Scroll to `Auto Density Control`, then press **OK**.
- **c.** Select `Edit Density Data` and press **OK**. After a short delay, the display will indicate the `Current Tag Number` and ask if you want to `Change Tag Number`.
- **d.** Select **Yes** and press **OK**.
- **e.** When the display prompts to `Enter Tag Number`, use the **Up/Down** keys to enter the tag number on the Registration Shutter Color Chip. When the new number is entered, press **OK**.
- **f.** After a short delay, the display will indicate the new `Tag Number`. Press the **Back** key to return to the `Automatic Density Control` menu.

2. Calibration:

    a. Scroll to **Execute Density Calibration** and press **OK**.

    b. The printer will perform the calibration, then report whether the **Density Control Calibration** has **Passed** or **Failed**.

    c. If the procedure fails, repeat the calibration routine.

    d. If the procedure passes, no further calibration is required.

Automatic Thickness Sensor (ATS) Calibration Procedure

The thickness of media being printed on can affect print-quality. The Phaser 7300 printer has the ability to measure the thickness of print media and adjust the fuser temperature and print speed accordingly.

This procedure is part of the ATS sensor disassembly/reassembly procedure. The Anvil "adjustment" is performed prior to reinstalling the Pickup Plate and Pickup Cover Assemblies. After reinstalling the Pickup Plate and Pickup Cover Assemblies, the 4-Sheet Calibration procedure must be completed through service diagnostics.

Warning: **In order to properly calibrate the ATS Sensor, you MUST use Phaser 35-Series Premium Transparencies. Using any other transparency will cause significant damage to the fuser and fail the adjustment.**

1. ATS Anvil Adjustment

a. Open the Right Cover - Door A and manually feed a sheet of transparency through the MPT up to about 12 mm (.5 in.) past the Registration Rollers A, see diagram below.

S7300-115
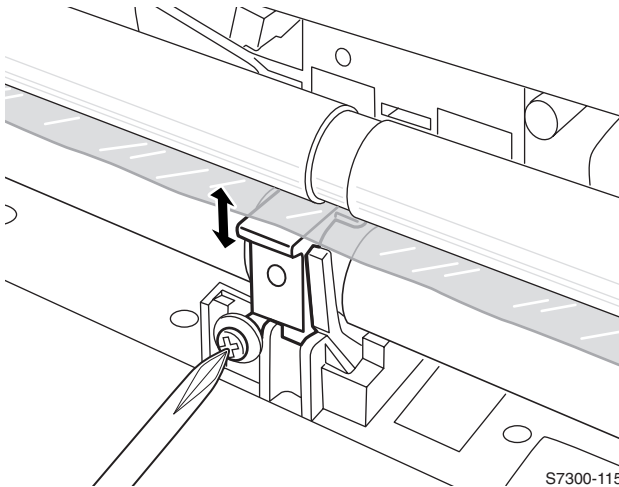
b. To adjust the anvil, loosen the screw and slide it up or down as required, until the anvil just touches the transparency. The anvil should be tight against the bottom of the transparency, without causing the sheet to bow.

Warning: **If the anvil is set too high, media jams at registration rollers can occur. If the anvil is set too low, the sensor can measure an incorrect media thickness.**

Note: **Ensure the Transfer Unit Belt Entrance Sensor does not interfere with the transparency sheet, holding the Anvil out of proper adjustment.**

c. After the anvil is properly adjusted, tighten the screw and feed the transparency the rest of the way through the registration roller to remove it.

d. After installing the Pickup Plate and Cover Assemblies, verify the sensor indicator is in the correct position as shown below. If not, use the adjustment gear to raise or lower the indicator to the correct position.

Caution   **Do not over torque the adjustment gear. This will break the gear causing the indicator to no longer move up or down.**

S7300-118
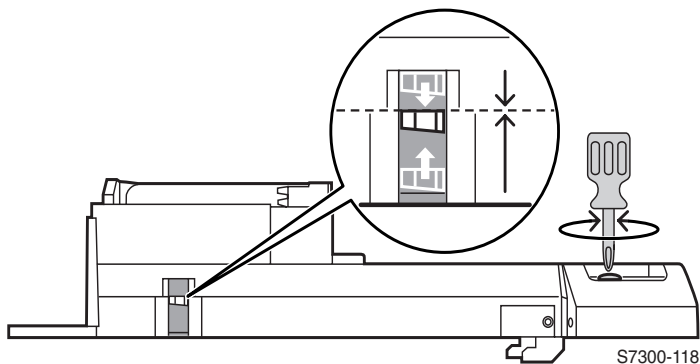
e. Perform the 4-Sheet Calibration procedure after reassembly.

2. ATS 4-Sheet Calibration

a. Enter Service Diagnostics.

b. Scroll to `Adjustments/Calibrations` and press **OK**.

c. Select `ATS 4-Sheet Calibration` and press **OK**.

d. Select `Edit Thickness Data` and press **OK**.

e. When prompted to `Select thickness units`, select `microns` and press **OK**.

f. The printer enters the `Edit Thickness Data` menu.

g. Change the thickness value to 140, using the **Up/Down** keys to change the first number to 1. Press the **Information** key to move the cursor to the second digit, then the third digit. Once the value is set to 140 press **OK**.

Note: **The value set in Step g, 140 microns, is the average thickness of Phaser 35-Series Premium Transparencies. Using another type of transparency for this procedure will produce inaccurate results or cause the calibration to fail.**

h. Open the MPT and load 4 sheets of Phaser 35-Series Premium Transparency.

i. On the front panel, select **`Execute Thickness Calibration`** and press **OK**.

j. The printer indicates that it is ready to run the calibration and picks 3 consecutive sheets of media from the MPT, using them as a reference thickness.

k. After the reference is set, the printer picks and measures the fourth sheet to test the calibration. If the fourth sheet falls within the expected thickness range, the printer displays **`Thickness Calibration Passed`**.

l. If the fourth sheet does not measure as expected, the calibration displays **`Thickness Calibration Failed`**. Perform the ATS 4-Sheet Calibration again.

If this procedure fails for a second time, you will need to perform the ATS Anvil Adjustment and the ATS 4-Sheet Calibration procedures again until they pass.

Note: **If a failure occurs, you may need to power cycle the printer to recover.**

Color Calibration

Note: **Color Calibration and Margin Calibration procedures are found under the normal customer menu and not in service diagnostics.**

Color calibration procedures adjust the printer for optimal color output. Color settings may need adjustment during initial printer setup or when toners and imaging units are replaced. There are two procedures: Lighten/Darken Colors and Balance Colors.

If the overall image appears either too light or dark, use the Lighten/Darken Colors procedure. If a finer adjustment of the primary colors: cyan, magenta, and yellow is needed, continue with the Balance Colors Procedure.

Print the `Color Calibration Tutorial` from the printer's front panel and follow the instructions detailed on the page.

Margin Calibration

The Calibrate Margins Menu allows you to adjust the printer's imaging area relative to the edges of the paper. The imaging area is shown as a dashed rectangle on the front side of the print; the printer does not print outside this rectangle. The dashed rectangle should line up with the solid rectangle printed on the back side of the page. Hold up to strong light for verification.

Print the `Calibrate Margins Page` from the printer's front panel and follow the instructions detailed on the page.

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 or the Service Diagnostics Menu.

PostScript NVRAM Resets

Restore Factory Settings (Color)

You can reset settings for density and color balance to the factory-default values.

1. From the Main Menu, highlight **Support** and press **OK**.

2. Highlight **Improve Print-Quality** and press **OK**.

3. Highlight **Calibrate Colors Menu** and press **OK**.

4. Highlight **Restore Factory Settings** and press **OK** to reset the color settings to factory defaults.

Restore Previous Settings (Color)

You can return the color settings to the ones that existed before you saved the last color balance adjustments.

1. From the Main Menu, highlight **Support** and press **OK**.

2. Highlight **Improve Print-Quality** and press **OK**.

3. Highlight **Calibrate Colors Menu** and press **OK**.

4. Highlight **Restore Previous Settings** and press **OK** to restore the previous color settings.

5. Highlight **Restore Previous Settings NOW** and press **OK** to reset the color settings to factory defaults.

Restore Factory Settings (Margins)

You can reset margin settings to the factory-default values.

1. From the Main Menu, highlight **Support** and press **OK**.

2. Highlight **Improve print-quality** and press **OK**.

3. Highlight **Calibrate Margins Menu** and press **OK**.

4. Highlight **Restore Factory Settings** and press **OK**.

5. Highlight **Restore Factory Settings NOW!** and press **OK** to reset the margin settings.

Reset Calibrations (Color and Margins)

1. From the Main Menu, highlight **Support** and press **OK**.

2. Highlight **Improve print-quality** and press **OK**.

3. Highlight **Reset Calibrations NOW** and press **OK** to reset the color and margins settings to factory defaults.

Resetting Job Defaults

Resetting the job defaults resets the following: paper source, print-quality mode, 2-sided printing, image smoothing and TekColor corrections 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. **Reset Job Defaults** is displayed, press **OK**.

4. Highlight **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 following: job defaults, front panel language, MPT Tray setup, Tray 1 -3 setup, startup page, front panel intensity, front panel contrast, PostScript error information and power saver mode to their default values.

1. From the Main Menu, highlight **Connection Setup Menu** and press **OK**.

2. Highlight **Reset Connection Setup** and press **OK**.

3. **Reset Connection Setup NOW** is displayed, press **OK**.

Note: **Print a Configuration Page to provide a reference of the current network settings prior to using any of the following resets.**

Resetting Network Setup Values To Default

Resetting the network 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, highlight `Connection Setup Menu` and press **OK**.

2. Highlight `Reset Connection Setup` and press **OK**.

3. `Reset Connection Setup NOW` is displayed, press **OK**.

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, color, margin, and calibrations 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, highlight `Support` and press **OK**.

2. Highlight `Service Tools Menu` and press **OK**.

3. `Reset NVRAM` is displayed, press **OK**.

4. Highlight `Reset NVRAM and Reset Printer NOW` and press **OK** to reset all the settings to their factory default values.

Service Diagnostics PostScript NVRAM Resets

Resetting NVRAM restores all printer values stored on the Image Processor Board NVRAM including printer setup, job defaults, color, margin, and calibrations to their factory default values. The consumable counts, network settings, and the Adobe firmware serial number are not affected by this reset.

1. Enter Service Diagnostics.

2. Highlight `NVRAM Access` and press **OK**.

3. Highlight `PostScript NVRAM Reset` and press **OK**.

4. `Resetting NVRAM! Are you sure?` is displayed, highlight `Yes` and press **OK**.

5. The printer will exit Service Diagnostics, reboot, and reset the NVRAM.

Cleaning and Maintenance

Whenever you check, service, or repair a printer, you should perform the following procedures. Cleaning the printer, as outlined in the following steps, insures proper operation of the printer and reduces the probability of having to service the printer in the future. Cleaning is based on the frequency of use and the type of paper used for printing.

Recommended tools

■ Toner Type II vacuum cleaner
■ Clean water
■ Lint-free wipes
■ Cotton swabs
■ Light-proof bag or cover for imaging units

Periodically Replaced Parts

Customer-Replaceable Consumables

Part Name	Display or Warning Condition	Recommended Condition for Replacement	Adjustment after Replacement
Toner Cartridge	OK, Low, Empty	When 15,000 (high-capacity cartridge) or 7,500 (standard-capacity cartridge) pages are printed (5% print density).	Verify color calibration. Clean LED lens.
Imaging Units	At/Near end-of-life	When 30,000 pages are printed out or when the pixel counts are exceeded.	A fuse in the new imaging unit will blow upon installation, resetting the counter.
Fuser	At/Near end-of-life	When 80,000 pages are printed out.	A fuse in the new fuser will blow upon installation, resetting the counter.
Transfer Unit	At/Near end-of-life	When 80,000 pages are printed out.	A fuse in the new imaging unit will blow upon installation, resetting the counter.

Service Preventive Maintenance Procedures

Cleaning

Periodically clean the inside and outside of the printer with a soft cloth and toner vacuum when necessary.

Contacts

Contacts can be cleaned with a standard pencil eraser or a soft brush and toner vacuum cleaner.

Cleaning the LED Lens

Caution: **Do not touch the terminals of the Drum Contacts, the LED Head lens, or the LED Head connector block. Clean with an alcohol wipe, if necessary.**

The LED lens must be cleaned when the printed paper has white lines or irregular colors (such as a void or light printing) running in the direction of paper travel or process direction.

Clean the LED lens with an alcohol wipe. (An alcohol wipe always comes with the replacement toner cartridge.)

Print the 100% Solid Fill Pattern. If a light or white stripe appears in any primary color or a secondary color has an irregular color streak, clean the LED lens of the affected color.

White line or irregular color
(void, light printing)

6058
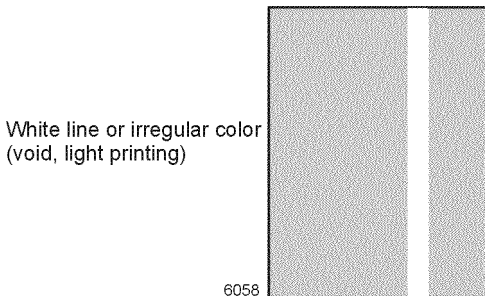
Print problem caused by dirty LED lens

Cleaning the Pick and Feed Rollers

When mis-picks occur, clean the pick and feed rollers, registration rollers A, and registration rollers B.

Caution: **The rollers should be cleaned with a clean, dry, lint-free cloth to avoid damage.**

Cleaning the ADC Sensor

Prints producing the wrong colors can be the result of dirt, debris or toner build up on the ADC Sensor or Color Chip. Clean both the ADC Sensor and Color Chip (located on the underside of the Registration Shutter), with a slightly dampened, lint-free, cloth.

Cleaning the Registration Sensor

Color mis-registration can occur when the registration sensor lenses become contaminated. Clean the lenses with a lint-free cloth.

Cleaning the Contacts

Multiple print-quality problems can occur when the Imaging Unit or Transfer Unit Contacts are corroded, have toner build-up, or dirt on them. Clean the contacts with a soft lint-free cloth or pencil eraser to remove corrosion or build-up.

Phaser 7300 Color Printer Service Manual

FRU Disassembly

This section contains the removal and replacement procedures for selected parts of the printer according to the Field Replaceable Units (FRUs) Parts List. Not all Replacement Procedures are included in this Service Manual. In most cases, to reinstall a part, simply reverse the Removal Procedure shown. In some instances, the Replacement Procedure is included, because it may contain special steps. For specific assemblies and parts, refer to the "Field Replaceable Units (FRU) Parts List" on page 7-193.

Contents

Orientation of the Printer

Left

Back

Front

Right

S7300-148

General Notes on Disassembly

Preparation

BEFORE you begin any disassembly procedure:

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

Work Notes

Note: **Many parts are secured by plastic tabs. DO NOT over-flex or force these parts. Do not over-torque the screws threaded into plastic parts. When re-inserting a screw into plastic, rotate the screw backwards until the threads match, then tighten the screw.**

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

Caution: **Metal edges within the printer are sharp!**

Notations in the Disassembly Text

■ The orientation of the printer is called out in the procedure for locating printer parts, the direction is always given in reference to the print engine, not the individual part. Refer to the printer orientation graphic on page 6 - 131, for locating the Right, Left, Front and Back sides of the printer.

■ The notation "(item #X)" points to the part in the illustration.

■ The notation "(PL *X.X*)" specifies the location of the part listed in the FRU Parts List.

■ Bold arrows in an illustration show direction of movement when removing or replacing a component.

About Screw Colors

Black screws are coarse-thread screws used to join plastic to plastic. In the illustrations the black screws are marked with a **B.**

Gold-colored screws are fine-thread screws used to join metal to metal or to mount plastic to metal. In the illustrations the gold-colored screws are marked with a **G.** There are two types of gold screws in this printer. A screw called out as **GB** is a larger or wider screw.

Disassembly Procedures

Top Cover (PL 1.1)

1. Remove the Image Processor Board (see pg. 6-142).

2. Remove the Rear Cover (see pg. 6-135).

3. Remove the 10 **B** screws securing the top cover to the Top Cover Inner Frame (item #1).

Note: The screws circled in the illustration are difficult to locate, one is positioned behind cables.

4. Remove the Top Cover (item #2).
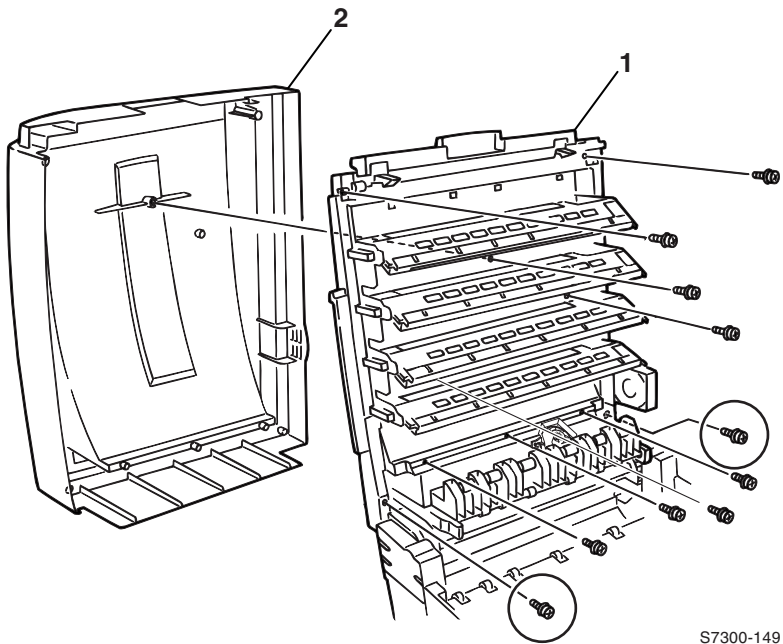
S7300-149

Front Panel (PL 4.1) and Front Panel Harness (PL 4.2)

1. Remove the Top Cover (see pg. 6-133).

2. Carefully separate the Front Panel from the Top Cover by releasing the tabs.

3. Lift the Front Panel and disconnect the wiring harness (item #1) from the back of the panel.

4. Remove the Front Panel.
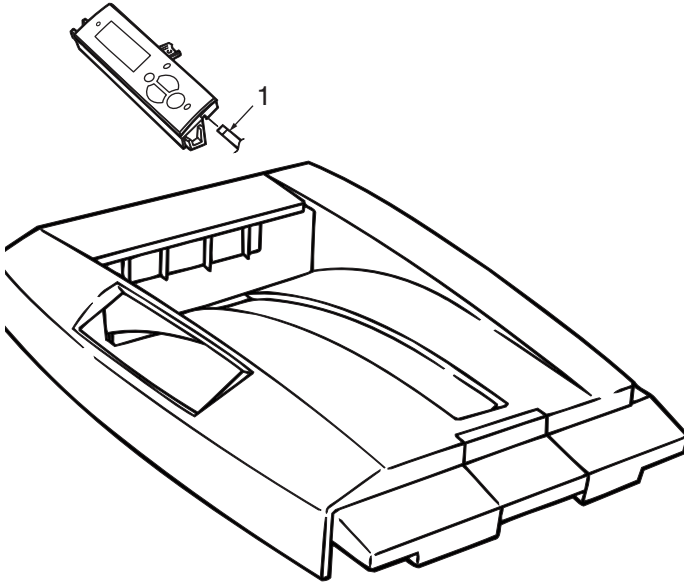
S7300-155

Rear Cover (PL 1.14)

1. Remove the Image Processor Board (see pg. 6-142).

2. Remove 3 **G** screws and 1 **B** screw from the top of the Rear Cover.

3. Remove 3 **G** screws from the back of the Rear Cover.

4. Route wiring harnesses out of the slot in the Rear Cover. Note routing for reinstallation.

5. Pull out at the top of the cover, then lift to remove it from the printer.
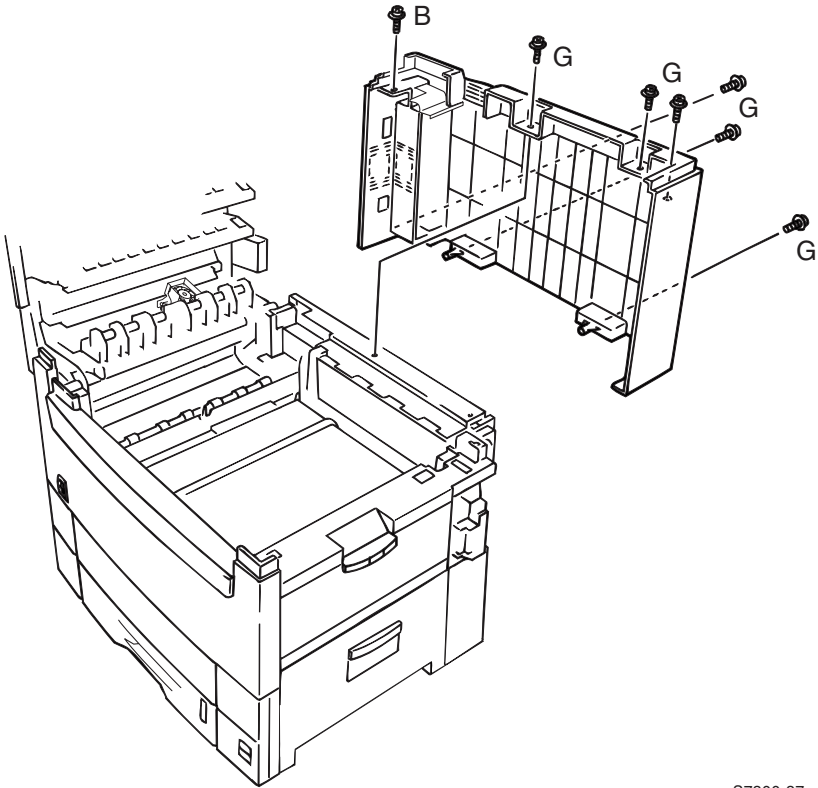
S7300-37

Reassembly

Caution: When reinstalling the rear cover, insure that all of the harnesses go through the slot in the back of the rear cover. If any of the cables are caught behind the tab it will cause damage to the wires and connectors.

Front Cover (PL 1.9)

1. Remove the Duplex Unit and Tray 1 (see pg. 6-154).
2. Remove 3 **B** and 1 **G** screws from the top of the Front Cover.
3. Remove 3 **G** screws from the lower front of the Front Cover.
4. Lift the Front Cover straight up to remove it from the printer.
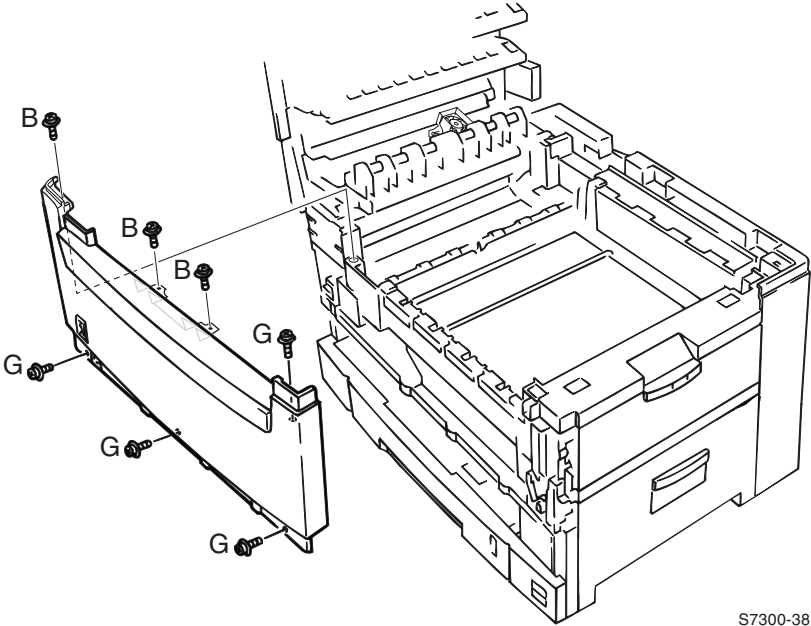
S7300-38

Side Output Tray (PL 1.3) and Links (PL 1.2)

1. Open the Side Output Tray (item #1) approximately 1 inch.

2. Free the end of the Side Output Tray Links (item #2) from the sides of the tray.

3. To free the links from the printer, rotate them up so they are parallel with the cabinet face. Remove the keyed end of the links from the Left Side Cover.
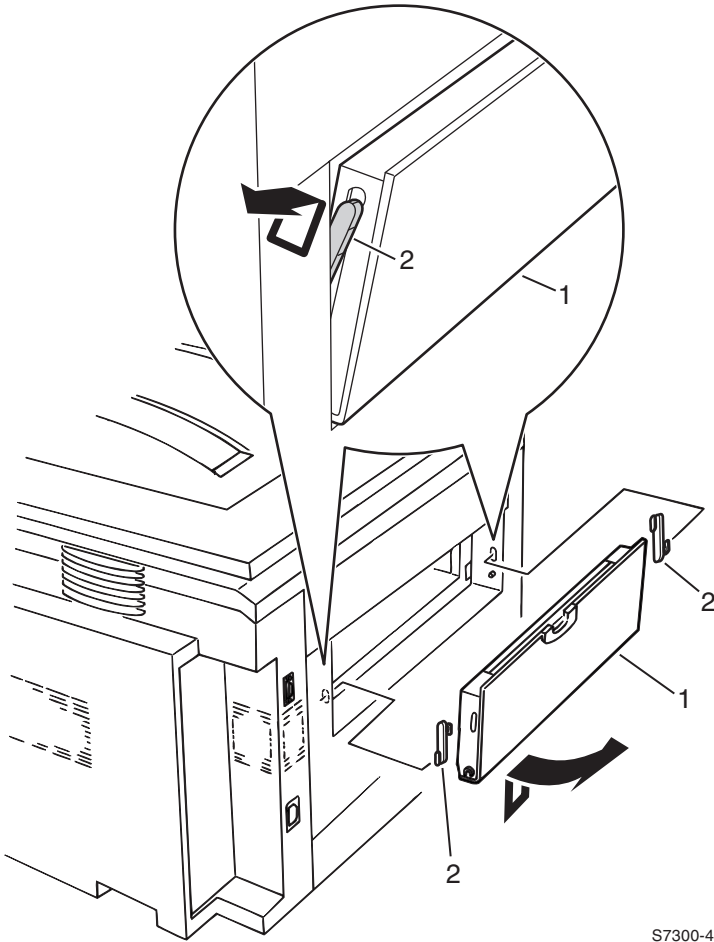
S7300-40

Left Side Cover (PL 1.4)

1. Remove the Rear Cover (see pg. 6-135).
2. Remove the Front Cover (see pg. 6-136).
3. Remove the Side Output Tray (see pg. 6-137).
4. Remove the 2 **B** and 2 **G** screws from the Left Side Cover.
5. Pull the top of the cover out and up to remove.
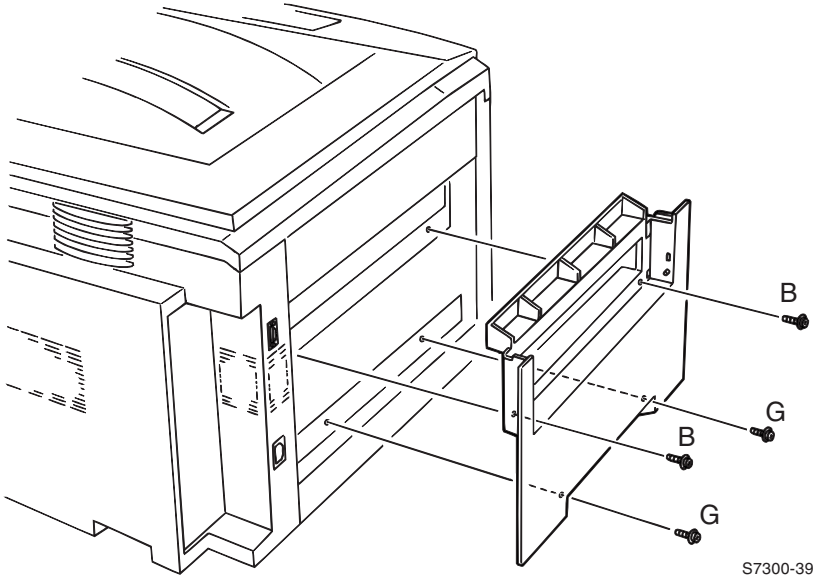
S7300-39

Right Side Cover (Door A) (PL 1.19)

1. Open the Right Side Cover (Door A) and remove 1 screw securing the link strap (item #2) to the printer frame.

2. Open the right door about 30°. Using a small screwdriver (see callout in the illustration below) push the tab toward the back of the printer to release it from the hinge-pin.

3. Press down on the cover, then pull out to release it from the printer.
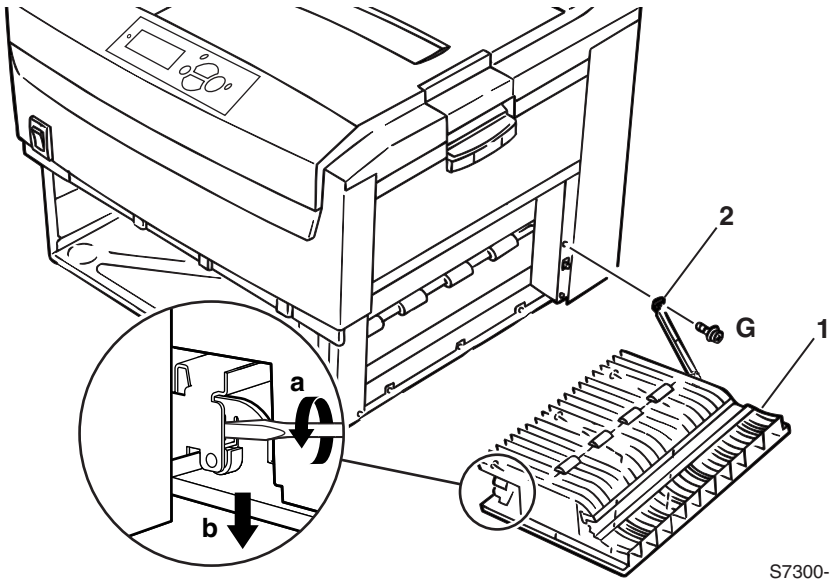
S7300-150

Multi-Purpose Tray (MPT) Pick Assembly (PL 2.0)
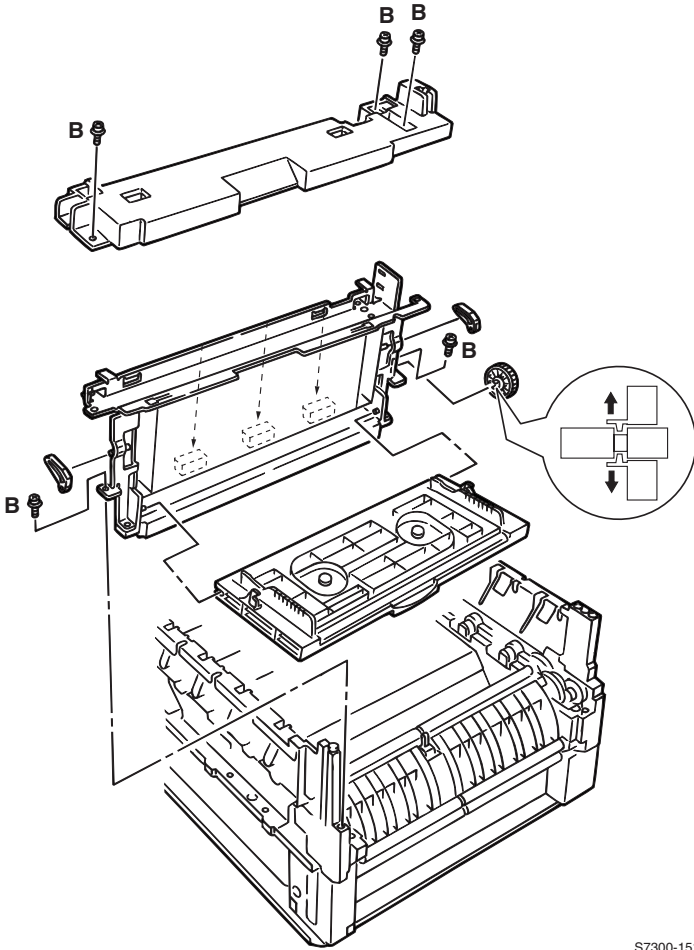
S7300-151

1. Remove the Front Cover (see pg. 6-136).

2. Remove the Rear Cover (see pg. 6-135).

3. Remove the Rear Shield Plate (see pg. 6-146).

4. Disconnect the wiring harness for the REG connector from the Engine Controller Board. Remove harnesses from EMI suppressors as needed, but note the routing for reassembly.

5. Remove 2 **B** screws securing the Multi-Purpose Tray Top Cover and remove the cover.

6. Squeeze the latches of the top cover switch and release it from the MPT frame. Let it hang to the right of the printer.

7. Remove 1 **B** screw and 1 **G** screw on the left and 1 **G** screw on the right that secure the Multi-Purpose Tray to the printer.

8. Disconnect the wiring harness to the ATS Sensor.

9. Lift and remove the Multi-Purpose Tray.

   Note: **If replacing the Multi-purpose Tray Drive Gear, continue with Step 11.**

Drive Gear (PL 2.3)

10. Remove the ground strap at the end of the drive gears shaft, it is held in place by 1 **B** screw.

11. If replacing the drive gear, release the two locking tabs on the inside of the drive gear and remove the gear from the shaft.

Multi-Purpose Tray Sensors (PL 2.0)

12. Disconnect the sensor wiring harness from the MPT Entrance Sensor, MPT Roller Home and the OHP Sensor and unclip the sensor from the Multi-Purpose Tray.

Temperature/Humidity Sensor Board (PL 1.22)

13. Remove the Temperature/Humidity Sensor Board cover by releasing the 3 tabs and lifting up.

14. Disconnect the wiring harness from the board.

15. Remove 1 **B** screw securing the board in place.

Image Processor Board (IP) (PL 3.6)

Warning: Switch off power and disconnect the power cord. The Image Processor Board contains static sensitive devices.

Caution: Follow proper Electrostatic Discharge (ESD) precautions when handling the Image Processor Board to avoid damaging this devices.

Note: If the Image Processor Board is to be replaced, there are several components that must be transferred to the replacement board before it is reinstalled.

Note: Print a Configuration Page, prior to removing the IP Board. This provides a record of the network and default settings stored in NVRAM. If a Configuration Page cannot be printed, use CentreWare IS or CentreWare DP to view the current settings.

1. Disconnect all cables/peripherals from the rear of the Image Processor Board.

2. Remove 2 screws securing the Image Processor Board to the printer.

3. Using the knob, pull the Image Processor Board straight out of the printer.
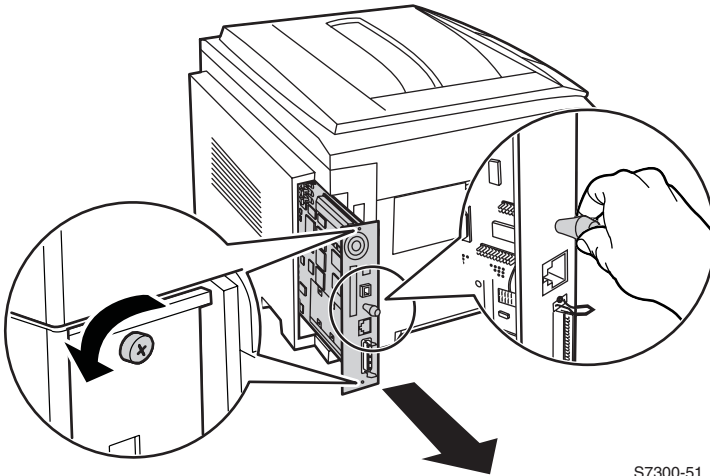
S7300-51

Replacement

Note: **After replacing the Image Processor Board, print a Configuration Page to verify printer options. Use the previously printed Configuration Page to restore the printer's configuration. If a Configuration Page could not be printed, use CentreWare IS or CentreWare DP to restore the settings.**

1. Transfer the following items from the old board to the new board before installing the new Image Processor Board.

- RAM DIMMS

- Optional Hard Drive

- Configuration Chip

- NVRAM chip.

RAM DIMMs (PL 3.2)

Warning: **Switch off the power and disconnect the power cord. RAMM SODIMMS are highly static sensitive devices. Follow Electrostatic Discharge (ESD) precautions when handling the RAMM SODIMMS.**

1. Spread apart the latches securing each end of the RAM SODIMM connector.

2. Lift the SODIMM out of the connector.

3. Reverse these steps to install the RAM SODIMM(s).

S7300-187
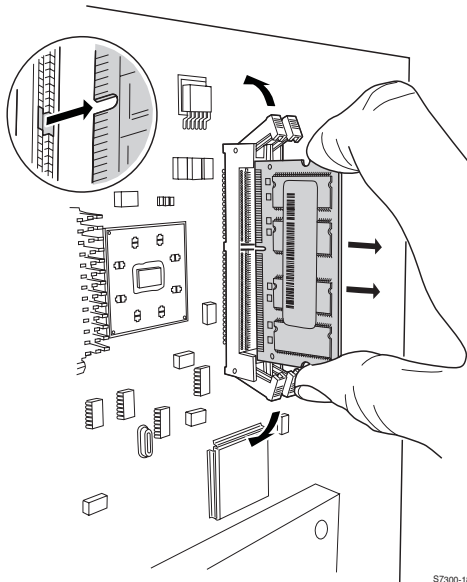
Optional Hard Drive (PL 3.5)

Warning: **Switch off the power and disconnect the power cord. Some portions of the Image Processor Board are highly static sensitive. Follow Electrostatic Discharge (ESD) precautions when handling the board. Avoid touching the Image Processor Board as much as possible to prevent ESD damage.**

4. Remove 4 screws, located on the back of the board, securing the Hard Drive to the board.

5. Carefully lift the back of the Hard Drive about 1/4 inch away from the Image Processor Board (to clear surface mount parts) and gently slide the Hard Drive from it's connector.

S7300-53
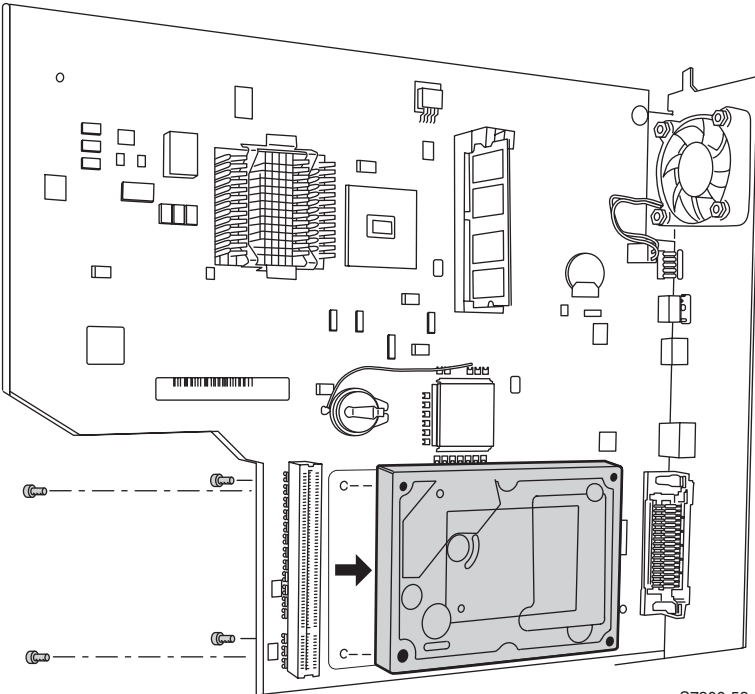
6. Reinstall the Image Processor Board. Ensure the board slides into the guides in the printer.

Note: **When reinstalling the hard drive, ensure the screw holes line up correctly. There is a 4-pin connector at the front of the drive that does not plug into the Image Processor Board connector. If you have connected the hard drive incorrectly, the screws will not align properly.**

1. Configuration Chip (PL 3.4)
2. NVRAM (PL 3.3)
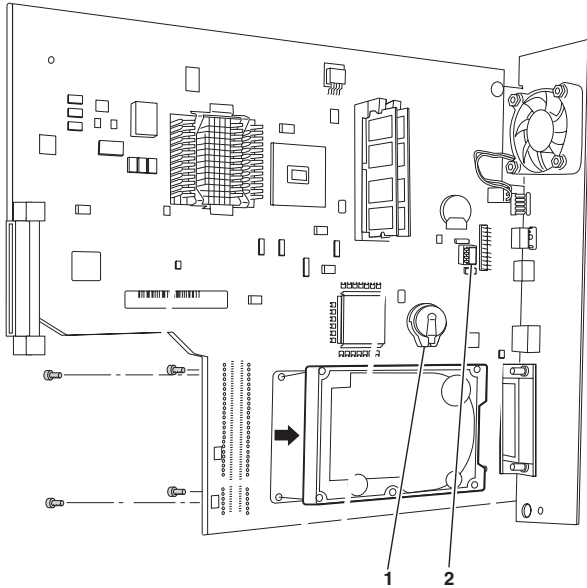
S7300-152

1. Lift the restraint latch slightly and pull out the configuration chip.

Warning: Do not lift the Configuration Chip restraint too far or it will break.

Caution: Do not confuse the Configuration Chip with the battery. The battery is soldered to the board and cannot be removed.

Rear Shield Plate (PL 3.1)

1. Remove the Rear Cover (see pg. 6-135).

2. Remove 34 **G** screws securing the Rear Shield Plate.

3. Remove the Rear Shield Plate.

S7300-45
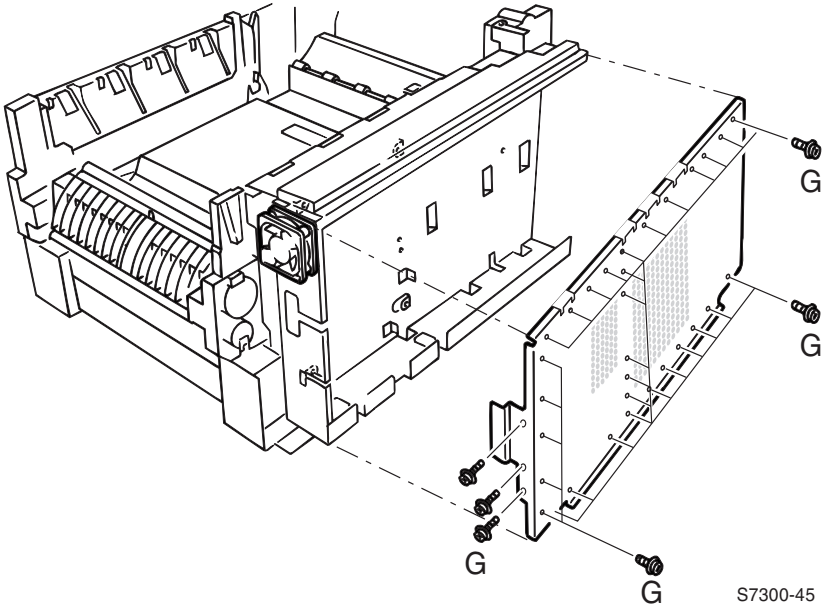
Electrical Card Cage (PL 3.10) and Electrical Cage Fan (PL 3.9)

Fan Removal

1. Remove the Rear Cover (see pg. 6-135).

2. Remove the Rear Shield Plate (see pg. 6-146).

3. Disconnect the fan harness from the Engine Controller Board.

4. Remove 2 screws and the spacers securing the fan to the Electrical Card Cage.

5. Remove the Electrical Cage Fan.
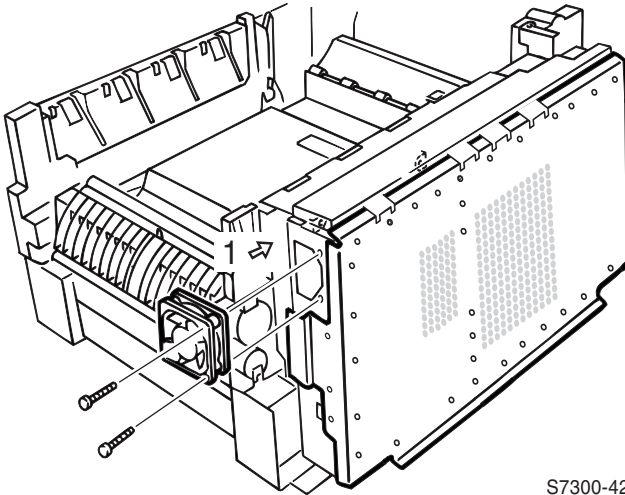
S7300-42

> **Note:** **When replacing the fan, note the air flow direction. The fan should blow into the cage. Improper replacement of the fan will damage the printer.**

Card Cage Removal

1. Remove the Image Processor Board (see pg. 6-142).

2. Remove the Rear Shield Plate (see pg. 6-146).

3. Remove 4 **G** and 4 **B** screws securing the Top Shield Plate (item #1) to the electrical card cage. Remove the top shield plate.

4. Disconnect all connectors and ribbon cables from the print engine controller board.

> **Note:** **Label harnesses and ribbon cables to aid in reconnecting them.**

5. Pull out disconnected cable harnesses routed through the top of the Printer Unit Chassis.

6. Remove disconnected cable harnesses from the card cage.

7. Remove the 3 **G** and 1 **B** screws securing the EMI shield (covering the ribbon cables) from the top of the Electrical Card Cage.

Note: **Tape the open side of the shield to prevent cables from falling out.**

Note: **When replacing the power wiring harness, route the harness under the EMI shield instead of with the other ribbon cables.**

8. Remove the 5 screws securing the print Engine Controller Board.

9. Remove the Engine Controller Board (see pg. 6-149).

10. Remove the harnesses from the front of the electrical card cage.

11. Remove the 13 **G** screws securing the electrical card cage to the printer frame.

12. Guide the bottom harnesses as you carefully remove the electrical card cage.

Note: **A grounding tab is attached to the back of the Electrical Card Cage. As you install the Printer Unit Chassis, make sure that the grounding tab is not deformed and that it is positioned on the end of the paper feed shaft.**
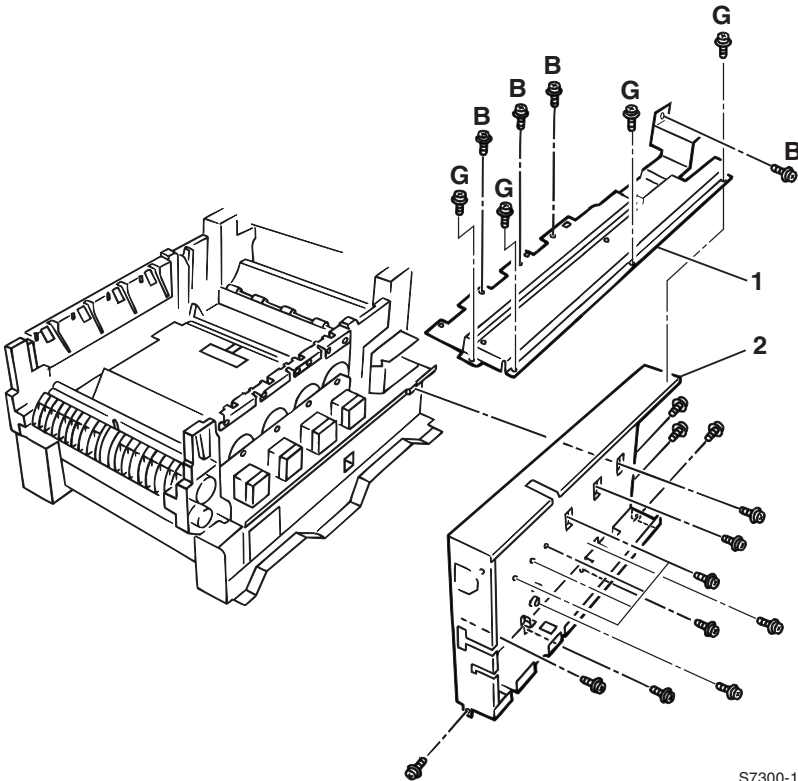
S7300-153

Print Engine Controller Board (PL 3.8)

Note: **If replacing the Engine Controller Board, transfer the socketed, 8-pin EEPROM (PL 3.7) (item #1) from the old board to the new board.**

Caution: **Follow proper Electrostatic Discharge (ESD) precautions.**

1. Remove the Image Processor Board (see pg. 6-142).
2. Remove the Rear Cover (see pg. 6-135)
3. Remove the Rear Shield Plate (see pg. 6-146).

Wiring

4. Disconnect all connectors to the Engine Controller Board. Remove EMI suppressor coils and cable ties as necessary.
5. Remove 5 screws securing the Engine Controller Board to the Electrical Card Cage.
6. Remove the Engine Controller Board.

S7300-54
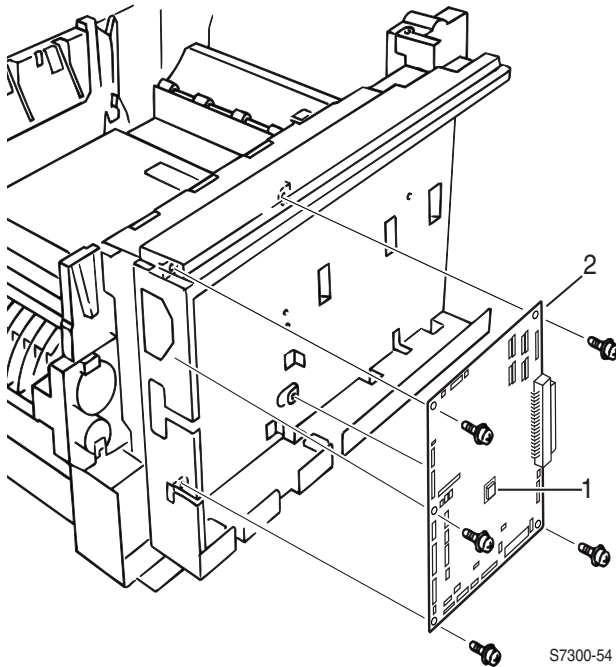
Top Cover Inner Frame (PL 4.16)
Front Damper (PL 1.8), Rear Damper (PL 1.11),
Top Cover Hinge Spring, Front (PL 1.5),
Top Cover Hinge Spring, Rear (PL 1.7)
Top Cover Hinge Shaft (PL 1.6)
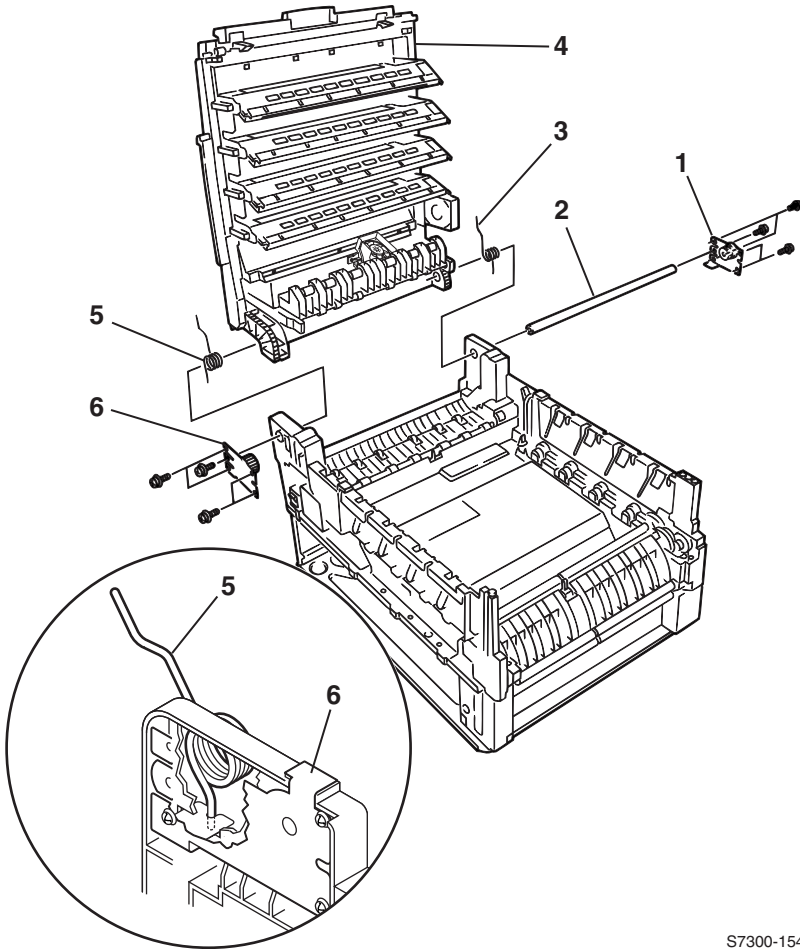
S7300-154

1. Remove the Top Cover (see pg. 6-133).
2. Remove the Left-side Cover (see pg. 6-138).
3. Remove the Front Cover (see pg. 6-136).
4. Remove the Front Shield Plate, 5 **G** screws and 3 **B** screws.
5. Remove the Rear Shield Plate (see pg. 6-146).

6. Remove the 4 **G** and 4 **B** screws securing the Top Shield Plate to the Electrical Card Cage and remove.

7. Remove 5 screws securing the Top Cover Rear Damper (item #1). Tilt the top cover forward slightly and remove the damper.

8. Disconnect all 9 LED flat wiring harnesses from the Engine Controller Board.

9. Remove 4 screws securing the cable shield to the top of the Electrical Card Cage. Free the flat wiring harnesses from the card cage.

Note: **Tape the open side of the EMI Shield to keep the ribbon cables in place.**

10. Disconnect the 4 top-cover (inner frame) wiring harness interconnects located next to the rear hinge.

11. Remove the 5 screws securing the Top Cover Front Damper (item #6). Tilt the Top Cover forward slightly and remove the damper.

12. Supporting the weight of the Top Cover Inner Frame, gently lower the inner frame into its closed position.

13. Carefully slide the Top Cover Hinge Shaft (item #2) toward the rear of the printer to free it. The two Top Cover Hinge Springs (items #3 and #5) will be freed as the shaft is removed.

14. Remove the Top Cover Inner Frame. (item # 4).

Caution: **Set the Top Cover Inner Frame upside down on a flat surface to protect the LED assemblies from damage. Do not set the Top Cover Inner Frame face down or the LED Heads and the LED Head Holders will be damaged.**

Reassembly

Note: **Note the placement of the springs when replacing the Top Cover Inner Frame. There is a small notch (see callout on previous page) on the Front and Rear Dampers that must slide over the hinge spring for proper reassembly.**

Toner Sensor Board (PL 4.19)

1. Remove the Top Cover (see pg. 6-133).

2. From the underside of the Top Cover Inner Frame, disconnect the 4 LED power harnesses from the Toner Sensor Board.

3. Close the Top Cover Inner Frame.

4. Remove 3 **B** screws securing the Toner Sensor Board.

5. Rotate the board to expose the underside of the board.

   Note: **When reassembling, the ribbon cables are routed under the sensor board in the following steps.**

6. Disconnect the 7 harnesses from the Toner Sensor Board.

7. Remove the Toner Sensor Board.
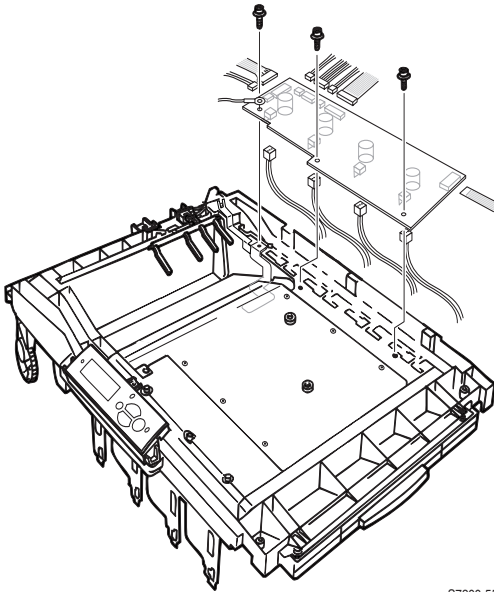
S7300-55

Caution: **Ensure the ribbon cables are properly routed and dressed. Do not crunch or fold the ribbon cables while reinstalling the toner sensor board.**

Toner Cartridge Sensor Actuators (PL 4.18)

1. Remove the Toner Sensor Board (item #3) and LED Harnesses (item #2) (see pg. 6-152).

2. Rotate the board up to expose the component side of the board.

3. From the underside of the Top Cover Inner Frame, use a small screwdriver to carefully push up the arms of the actuator until they pop free.

4. Remove the Toner Cartridge Sensor Actuator (item #1).
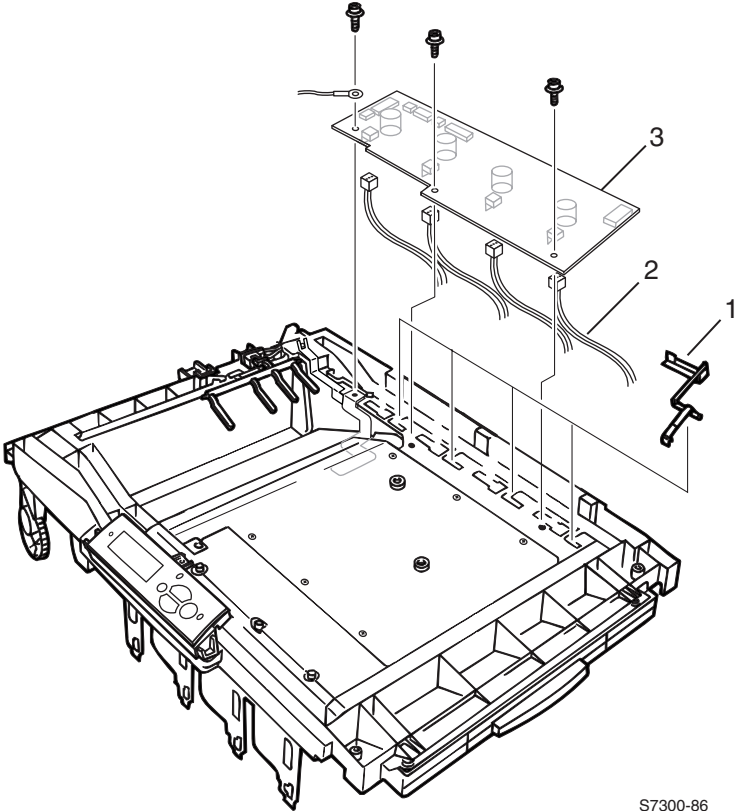
S7300-86

Caution: **Ensure the ribbon cables are properly routed and dressed. Do not crunch or fold the ribbon cables while reinstalling the toner sensor board.**

Duplex Unit Assembly (PL 1.15)

Note: **The Duplex Unit and Tray 1 are interlocked.**

1. Pull out the Duplex Unit and Tray 1 together.

2. On the right side locate the release lever (next to the guide pin) and pull forward to release the Duplex Unit from Tray 1.

3. Holding tray 1, force the duplex unit backwards about 5 cm and lift the duplex unit to separate it from the paper tray.
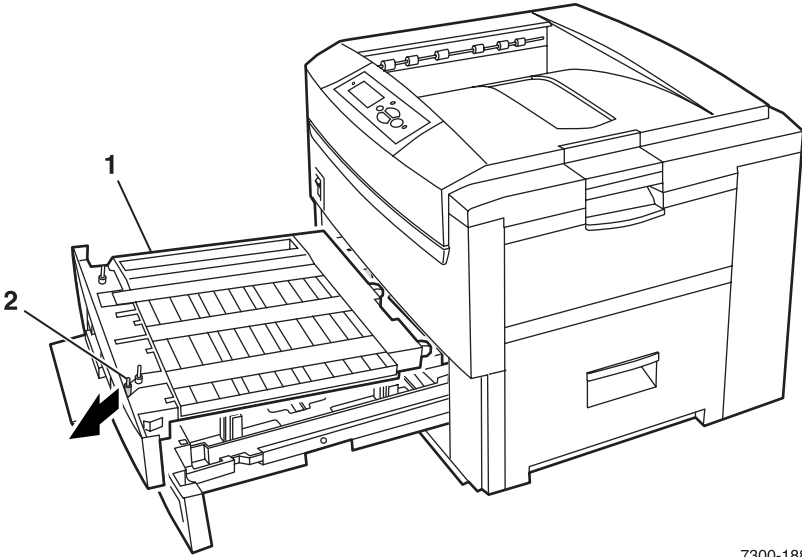
7300-188

Reassembly

1. Align the guide pins carefully then push down on the guide pins to lock the Duplex unit in place. The release lever will snap back to the locked position when seated properly.

Front Chassis Fan (PL 5.2.4)

1. Remove the Front Cover (see pg. 6-136).

2. Remove the Duplex Unit and Tray 1 (see pg. 6-154).

3. Remove the Front Shield Plate, 5 **G** screws and 3 **B** screws.

4. Disconnect the Front Power Supply Fan's wiring harness (item #1) from the Low Voltage Power Supply Board.

5. Remove 2 **B** screws securing the fan and slide the Front Power Supply Fan out of the printer frame.

S7300-43
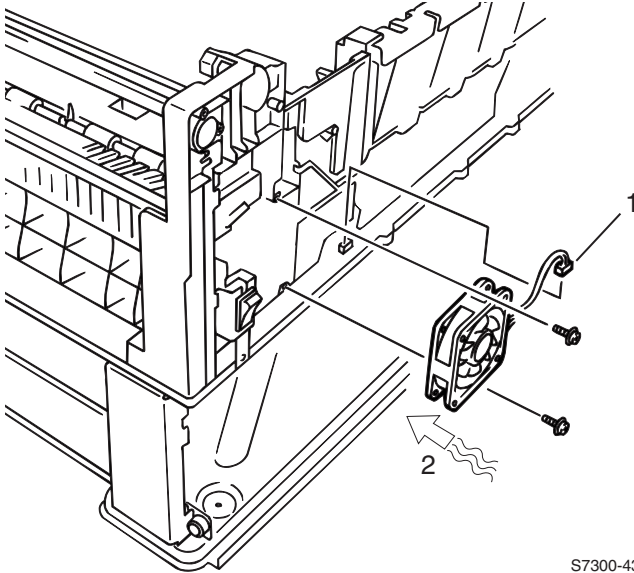
Caution: When replacing the fan, note the air flow direction (item #2). Improper replacement of the fan can cause damage to the printer.

Printer Unit Chassis (PL 5.1.14)

1. Remove the Fuser and the Transfer Unit.

2. Remove the Image Processor Board (see pg. 6-142).

3. Remove the Rear Cover (see pg. 6-135).

4. Remove the Front Cover (see pg. 6-136).

5. Remove the Left Side Cover (see pg. 6-138).

6. Remove the 5 **G** and 2 **B** screws securing the Left Side Shield Plate and remove the plate.

7. Remove the 5 **G** screws and the 3 **B** screw securing the Front Shield Plate and remove.
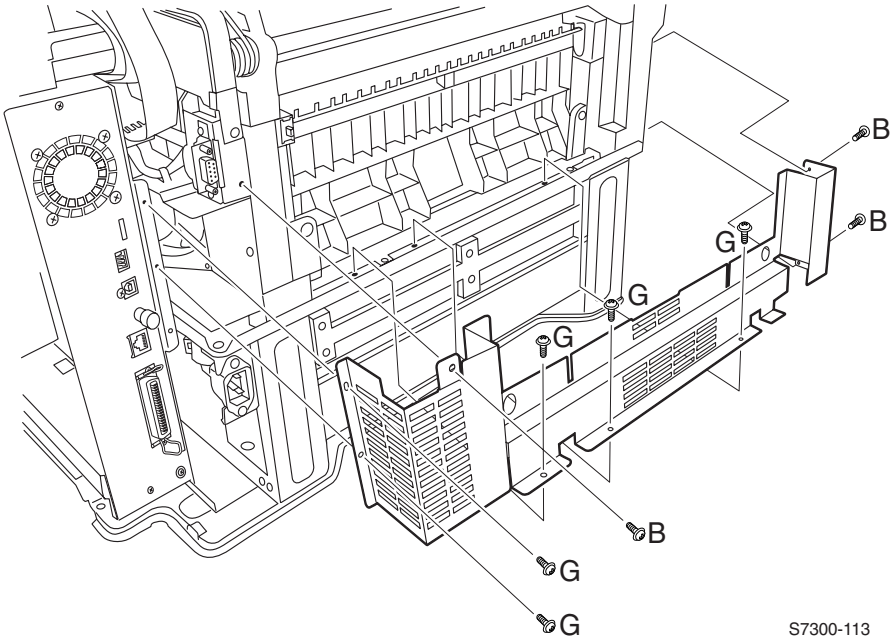
S7300-113

8. Remove the Multi-Purpose Tray (see pg. 6-140).

9. Remove the 4 **G** and 4 **B** screws securing the Top Shield Plate to the Electrical Card Cage and remove the plate.

10. Disconnect the LED ribbon connectors located at the upper right corner of the Engine Controller Board.

  Note: **Label harnesses and ribbon cables to aid in reassembly.**

11. Remove all the screws securing the EMI shield (covering the ribbon cables) from the top of the Electrical Card Cage.

12. Pull the disconnected ribbon cables through the top of the electrical card cage. Tape the open edge of the EMI Shield to keep the cables in place.

Note: **When replacing the power wiring harness, route the harness under the EMI shield instead of with the other ribbon cables.**

13. Disconnect the following top cover intermediate power connectors and clear them from the fan duct retainer:

- Toner Sensor Board connector

- Top Fuser Fan connector

- Rear Fuser Fan connector

14. Disconnect the serial port wiring harness at the left-rear of the Printer Unit Chassis.

15. Remove the Side Output Tray Sensor Harness and pull it through the chassis.

16. Disconnect the wiring harness from the Registration Motor.
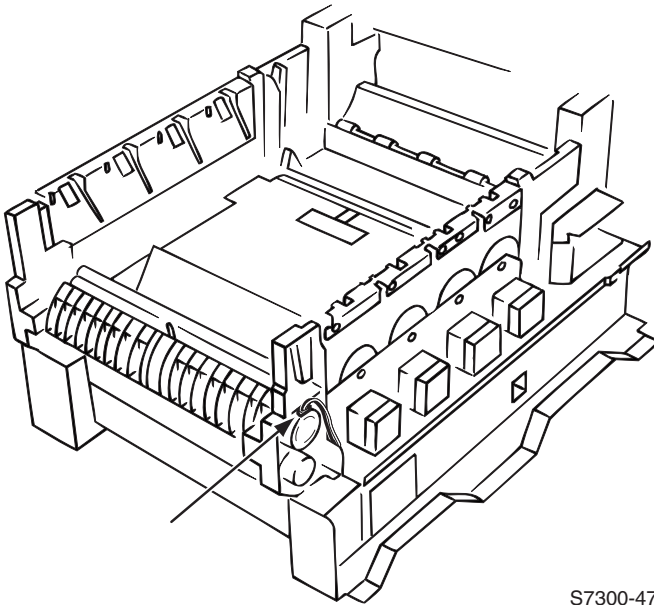
S7300-47
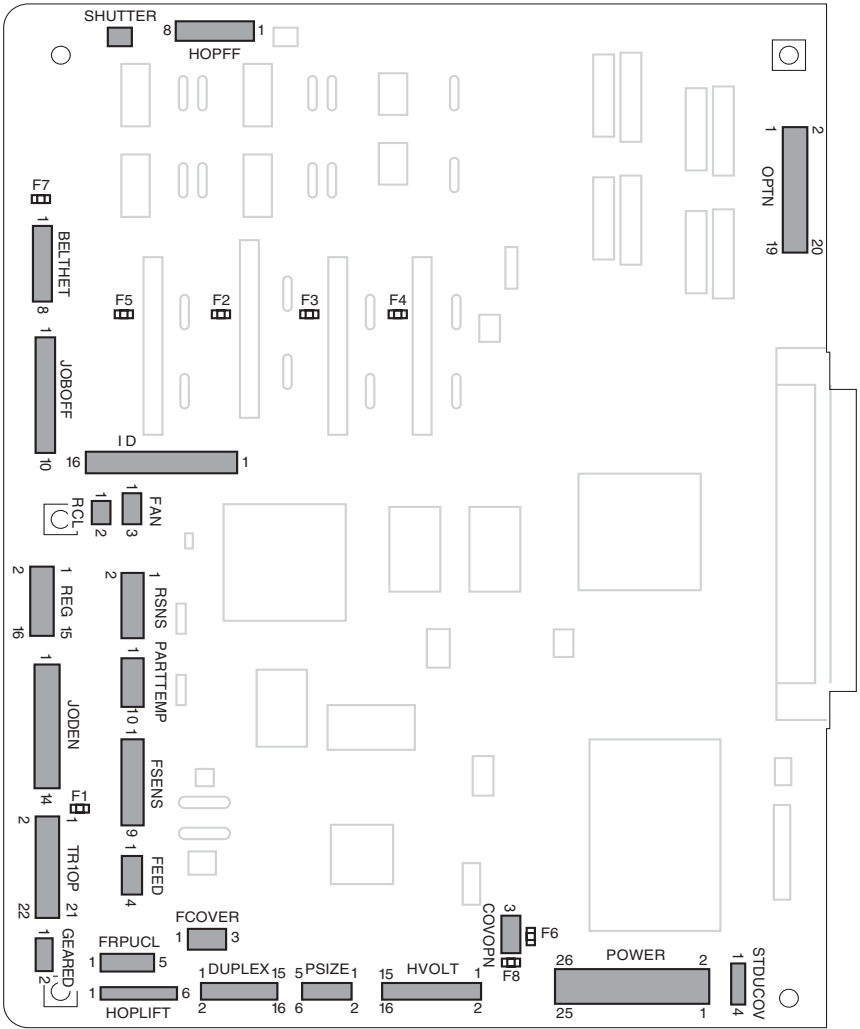
S7300-158

Diagram of Engine Controller Board connectors to aid in removal.

17. Disconnect and label the following connectors from the Engine Controller Board:
- The REG, FSENS, RSNS and JODEN connectors.

- The Fuser Exit Sensor connector (Red-Black-Blue wire) located immediately above the FSENS connector.

- The Shutter Solenoid connector (SHUTTER).

- The Registration Clutch connector (RCL).

Note: **Route loose wiring harnesses and connectors through chassis openings and EMI suppressors. Note routing for reassembly.**

18. Disconnect the following at the front of the printer:
- The Front Chassis Fan

- The Front Power Supply Fan

- The Rear Power Supply Fan

- The Duplex Solenoid connectors from the front of the Low Voltage Power Supply.

- The Face-Up Solenoid connector.

19. Remove 1 screw securing the AC power switch (item #1) to the printer frame.

20. Free the power switch from the Printer Unit Chassis and let it hang.
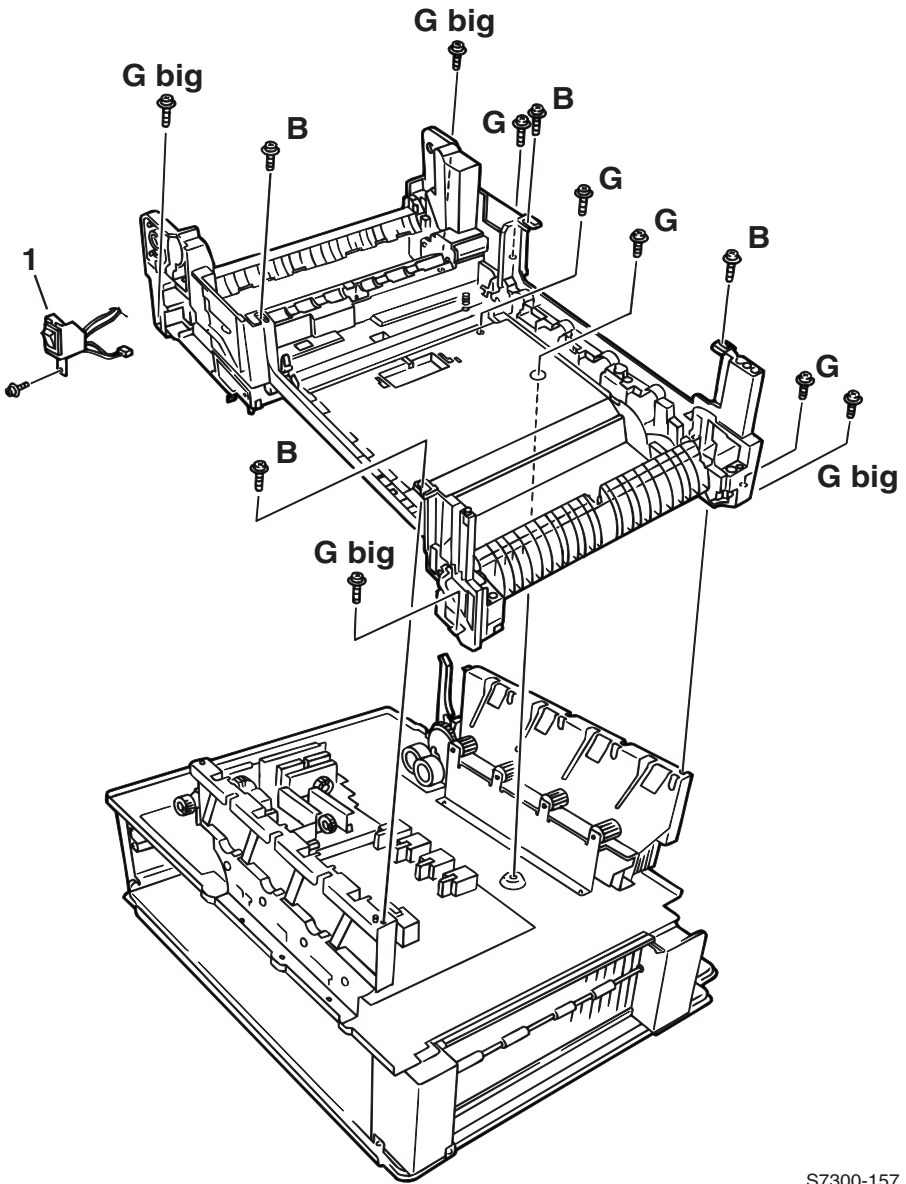
S7300-157

Note: **1 G screw is located in the channel at the back, left side of the printer.**

21. Remove 12 screws securing the Printer Unit Chassis to the frame, 4 **GB** screws 4 **G** and 4 **B** screws.

22. Lift each corner carefully to make certain the chassis is free.

23. Elevate the Printer Unit Chassis from the printer frame and place a ream of paper or large screwdriver handle between the chassis and frame. Placing the chassis on these blocks creates a space between the chassis and the frame so that the Low Voltage Power Supply Fan connector is accessible. When access to the connector is achieved, remove the connector using needle nose pliers. The chassis is now free to be removed.

24. Carefully lift the chassis straight up from the printer frame. Rest the chassis upside-down on a table.

Replacement

1. Reverse these steps to install the printer unit chassis. Ensure the front shield plate rests behind the lower lip of the bottom frame.

Note: **Before reassembling the printer unit chassis, make sure that:**

- The Low Voltage Power Supply connector is on.

- The 3-pin spring loaded Imaging Drum Contacts are properly seated and the springs are not bent.

Rear Power Supply Fan (PL 5.1.31)

1. Remove the Printer Unit Chassis (see pg. 6-156).

> **Note:** **Make sure that the Low Voltage Power Supply Fan connector is on before reassembling the chassis.**

2. Remove 1 screw securing the fan to the fan duct.

**3.** Slide the Rear Power Supply Fan out of the duct, 2 screws secure the duct in place
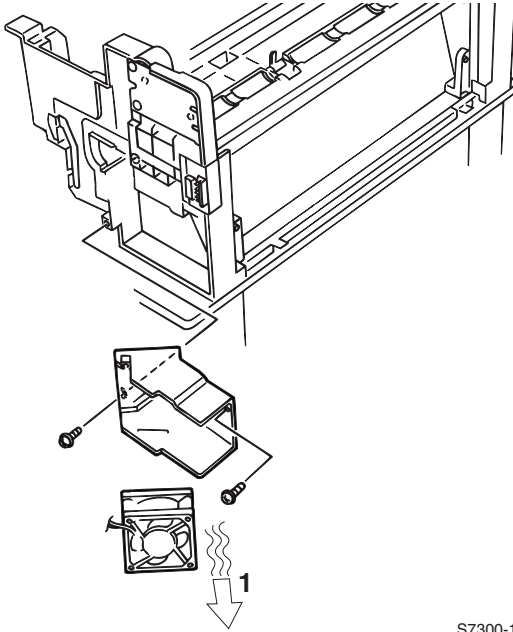
S7300-156

> **Caution:** **When replacing the fan, note the outward air flow direction (item #1). Improper replacement of the fan can cause damage to the printer.**

Entrance Sensor Board (PL 5.1.17)

1. Remove the Multi-Purpose Tray (see pg. 6-140).

2. Remove the Printer Unit Chassis (see pg. 6-156).

3. Turn the chassis upside-down and remove the Registration Roller B Assembly (see pg. 6-178).

4. Remove the spring loaded Registration Entrance Sensor Actuator (see pg. 6-170).

   Note: **Note the orientation of the actuator's spring for reassembly.**

5. Remove 2 **B** screws securing the Entrance Sensor Board.

6. Remove the board and disconnect the wiring harness from FSNS.
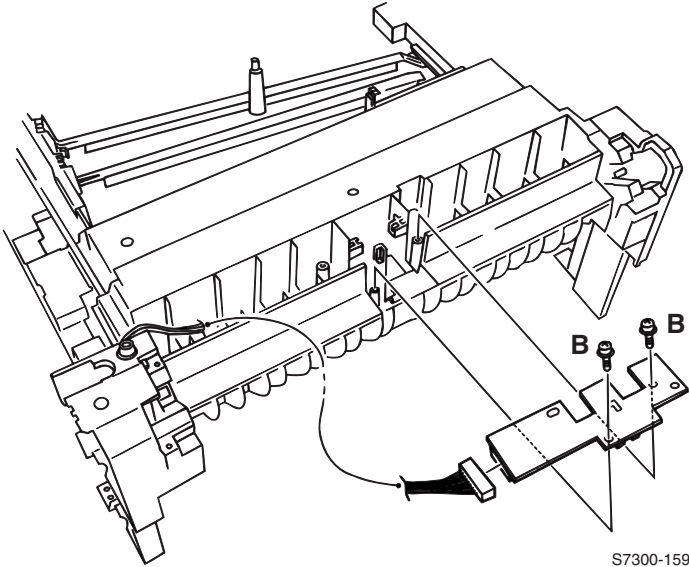
S7300-159

Front Plate Assembly (PL 5.2.3)

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Remove 2 screws from the Front Power Supply Fan. Let the fan rest on the front of the lower plate.

3. Disconnect the Front Chassis Fan from the front of the low-voltage power supply board (item #1).

4. Remove 4 **G** screws securing the Front Plate Assembly (item #2) to the lower plate (item #3) and remove the front plate.
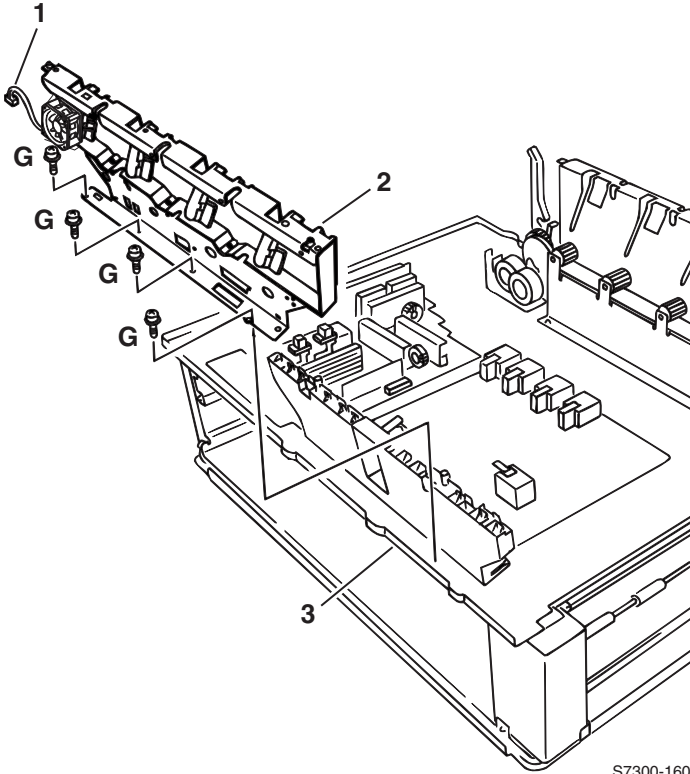
S7300-160

High Voltage Power Supply (PL 5.2.9)

Warning: **Switch off the power and disconnect the power cord. To avoid electrical shock, avoid touching the contacts of capacitors that may have retained high voltage charges.**

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Disconnect CN1 from the High Voltage Power Supply.

3. Disconnect CN3 from the Low Voltage Power Supply.

4. Remove 3 screws securing the High Voltage Power Supply to the chassis.

5. Lift the High Voltage Power Supply and the contact assembly from the Printer Unit Chassis to remove.

Note: **When replacing this board, be sure to retain the original contact assembly and place it on the new board prior to reinstallation.**

6. Remove the contact assembly from the High Voltage Power Supply.
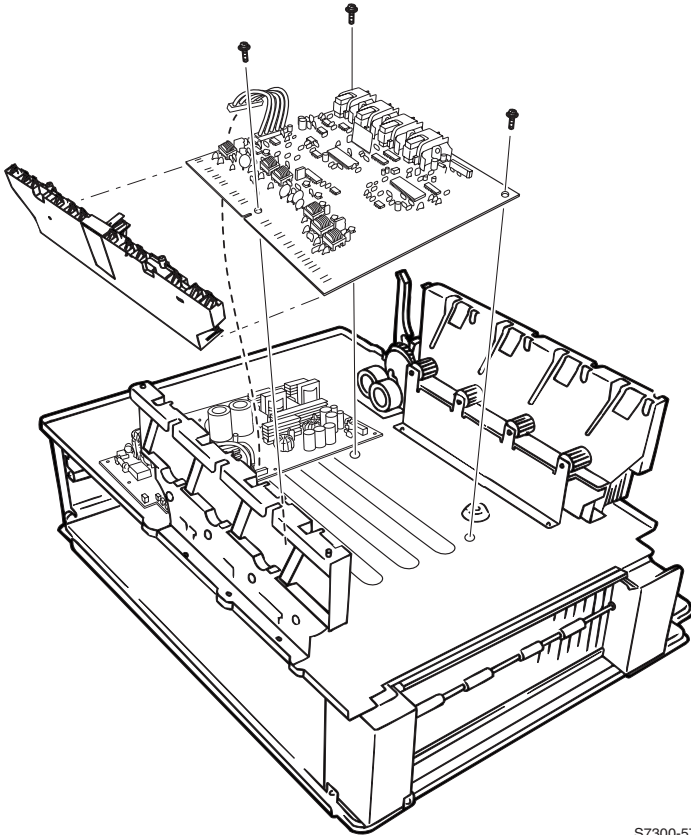
S7300-57

Low Voltage Power Supply (PL 5.2.12)

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Unplug connectors CN1, CN2, CN3 and AC-IN from the Low Voltage Power Supply.

3. Disconnect the AC power switch wiring harness interconnect.

4. Remove the 8 **B** screws securing the Low Voltage Power Supply to the printer.

5. Remove the Low Voltage Power Supply.
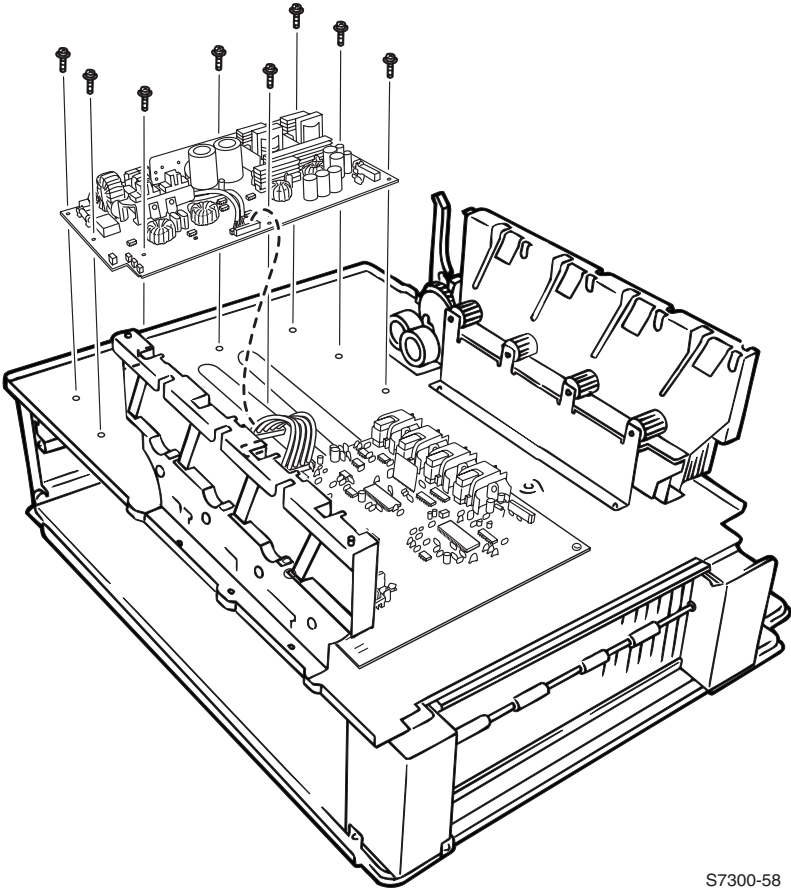
S7300-58

Tray 1 Pick and Feed Rollers (PL 6.1.2) (set of 3 interchangeable rollers),
Torque Limiter (PL 6.1.4), and
Bearing, One-Way, Feed Roller (PL6.1.3)

1. Remove Tray 1.

2. Reach into the cavity and release the locking tab on the front end of the feed rollers.

3. Slide the **feed rollers** to the front to remove them.

Note: **Note the position of the clutch on the shaft behind the upper roller and the torque limiter on the shaft behind the lower feed roller.**

4. Release the locking tab on the front end of the nudger roller.

5. Slide the nudger roller to the front and remove.
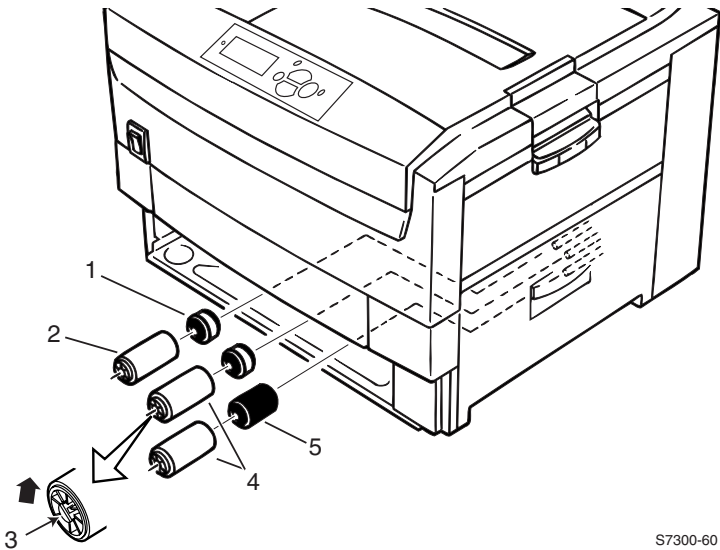
S7300-60

1	Bearing, One-Way Feed Roller
2	Nudge Roller
3	Locking Tab
4	Feed Rollers
5	Torque Limiter

# Paper Size Sensor Board (PL 6.1.1)

1. Remove Tray 1.

2. Reach in through the printer cavity left by tray 1 and disconnect the ribbon cable attached to the Paper Size Sensor Board.

3. Remove the 4 **G** screws securing the Paper Size Sensor Board to the printer.

4. Remove the Paper Size Sensor Board.
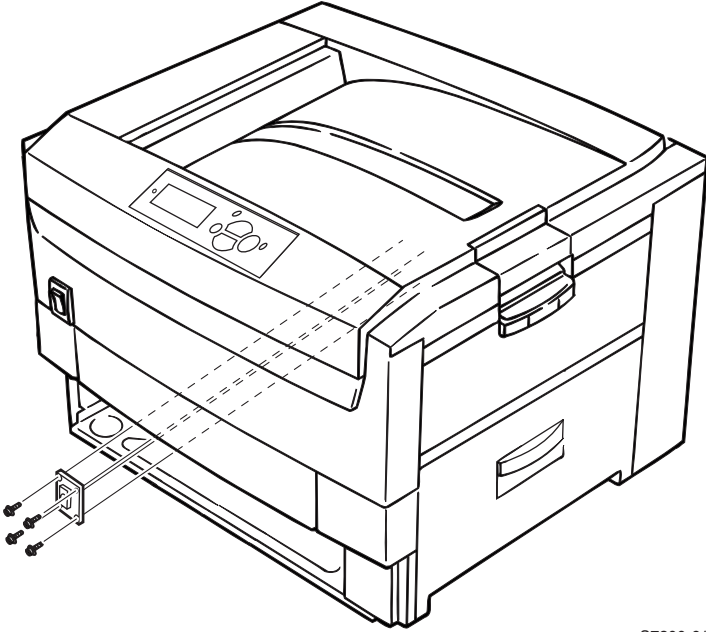
S7300-61

Main Feeder Assembly (PL 6.1.6)

1. Remove Tray 1.

2. Remove the Rear Cover (see pg. 6-135).

3. Remove the Right Cover (Door A) (see pg. 6-139).

4. Disconnect the 8 wiring connectors leading to the Main Feeder Assembly. There are 5 intermediate connectors, and 3 additional connectors that are brown, black and red.

5. Remove the main feeder cross brace; it is held in place with 5 screws.

6. Remove the 4 **G** screws around the outer edge of the Main Feeder Assembly.

   Note: **Do not remove the screws from the center of the frame.**

7. On the right side of the printer, remove the 2 **G** screws from the front of the assembly.

8. Reach into the printer cavity left by Tray 1 and remove the 2 screws securing the Main Feeder Assembly.

Do Not Remove
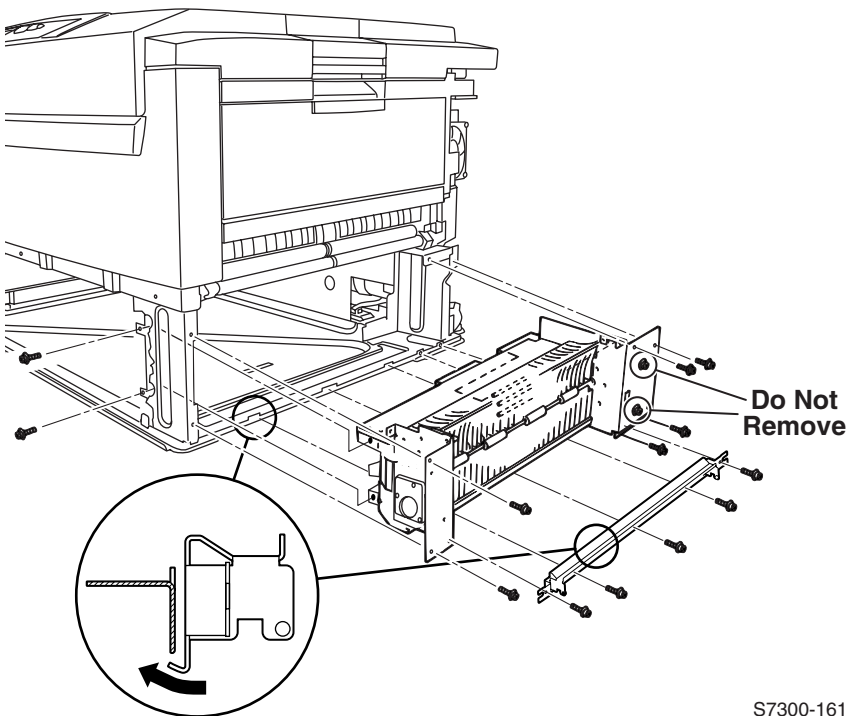
S7300-161

Registration Entrance Sensor Actuator (B) (PL 5.1.15)

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Turn the Printer Unit Chassis upside-down and carefully squeeze the actuator's two locking tabs to remove the sensor.

Note: **Be careful not to lose the spring.**
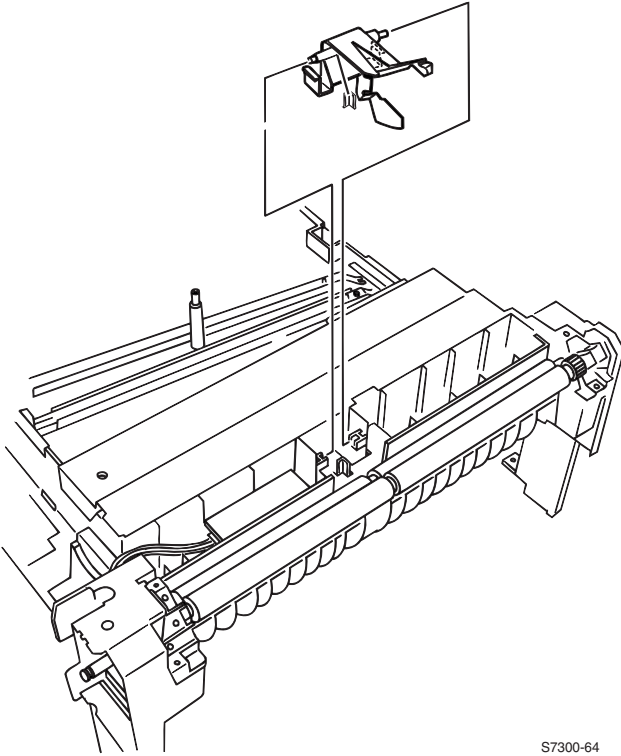
S7300-64

Transfer Belt Entrance Sensor Actuator (PL 5.1.18) MPT Entrance Sensor Actuator (PL 5.1.19)

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Remove the Registration Entrance Sensor Actuator (see pg. 6-170).

3. Remove the Entrance Sensor Board (see pg. 6-163).

4. From the bottom, squeeze the two locking tabs securing the MPT Entrance Sensor Actuator (item #1) and remove the actuator.

5. From the bottom, squeeze the two locking tabs securing the Transfer Belt Entrance Sensor Actuator (item #2) and remove the actuator.
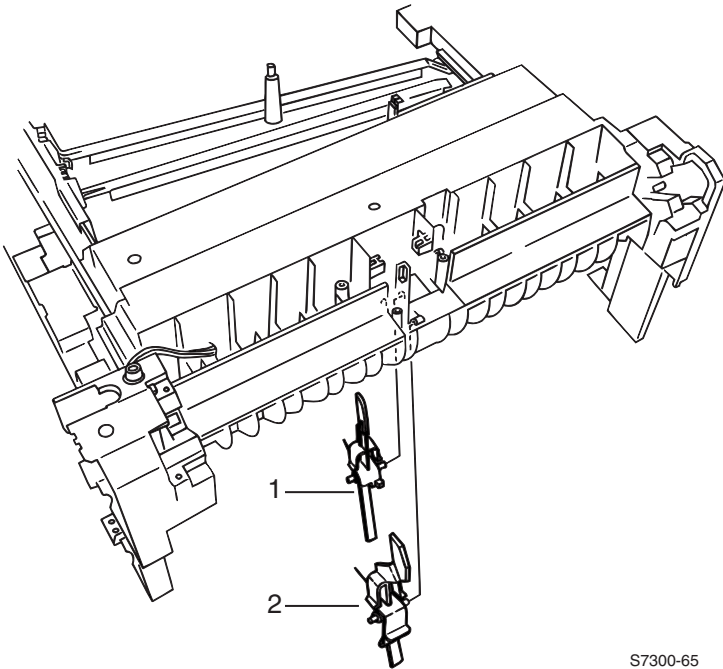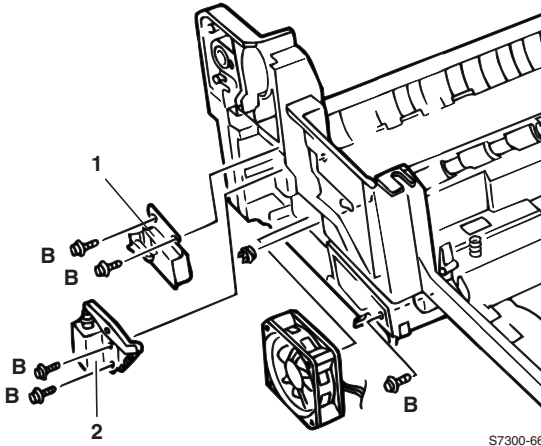
S7300-65

Note: **For reassembly, install the sensor actuator and ensure the spring arm is properly located in the notch in the Printer Unit Chassis.**

# Top/Side Output Solenoid (PL 5.1.6) and Duplex Gate Solenoid (PL 5.1.8)

1. Remove the Front Cover (see pg. 6-136).

2. Remove the Front Shield Plate.

3. Free the Front Power Supply Fan and let it hang.

4. Disconnect the wiring harness from the Top/Side Output Solenoid (item #1).

5. Disconnect the wiring harness from the Duplex Gate Solenoid (item #2).

6. Remove 2 **B** screws securing the each solenoid and remove from the Printer Unit Chassis.

S7300-66

Registration Clutch (PL 5.1.20)

1. Remove the Rear Shield Plate (see pg. 6-146).
2. Disconnect the RCL connector from the Engine Controller Board.
3. Remove 1 screw securing the ground strap to the motor bracket.
4. Remove the e-ring (item #1) securing the clutch to the registration shaft B.
5. Remove the Registration Clutch (item #2).

S7300-68
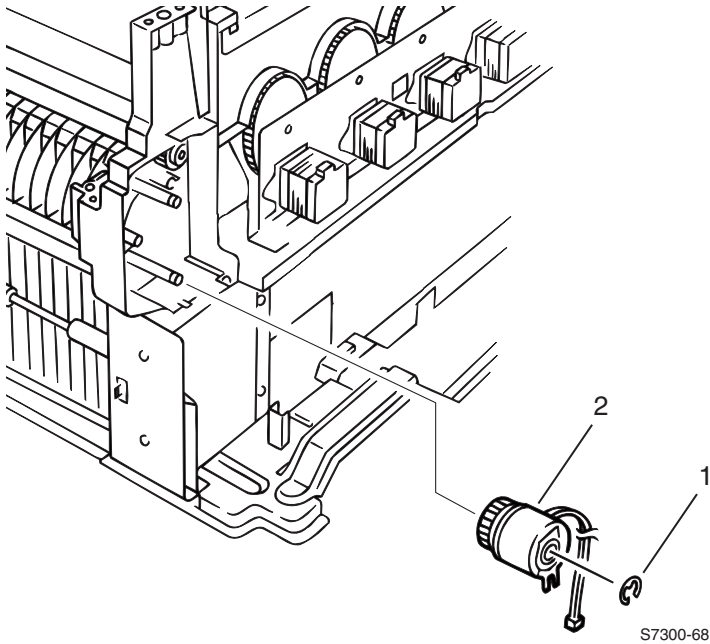
Reassembly

Note: Be sure the fork on the bottom of the registration clutch straddles the plastic tab on reassembly.

Registration Motor Assembly (PL 5.1.21)

1. Remove the Rear Cover (see pg. 6-135).
2. Remove the Rear Shield Plate (see pg. 6-146).
3. Remove the Registration Clutch (see pg. 6-173).
4. Remove 1 small **G** and 3 **B** screws securing the motor to the bracket (item #1).
5. Disconnect the harness to the Registration Motor Assembly.
6. Remove the Registration Motor Assembly (item #2).

.
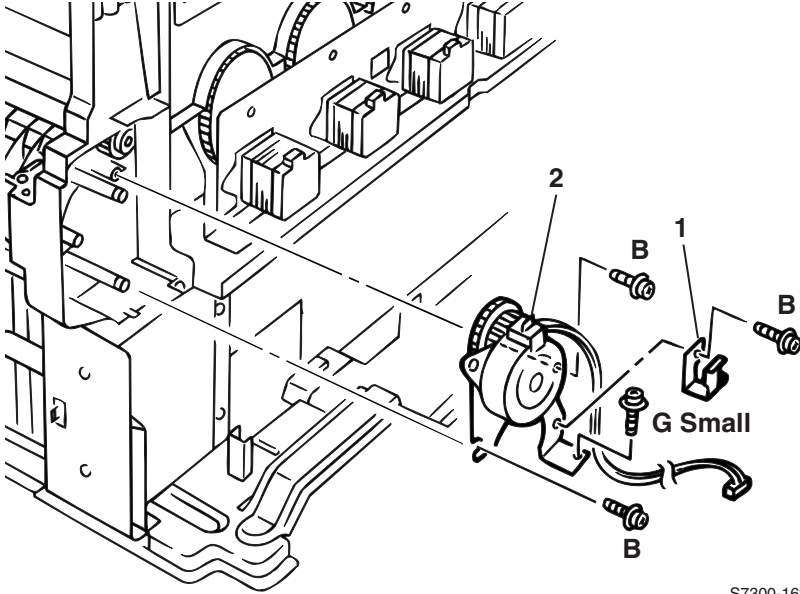
S7300-163

# Auto Thickness Sensor (ATS) - Pickup Cover Assembly (PL 5.1.25) and Pickup Plate Assembly (PL 5.1.24)

Note: The ATS 4-Sheet Calibration Procedure, (see pg. 4-118), needs to be performed after reinstalling.

1. Remove the Front Cover (see pg. 6-136)

2. Remove the Rear Cover (see pg. 6-135)

3. Remove the MPT Pick Assembly (see pg. 6-140)

4. Remove the Pickup Cover Assembly from the Pickup Plate Assembly.

Caution: The tabs break easily.

S7300-117
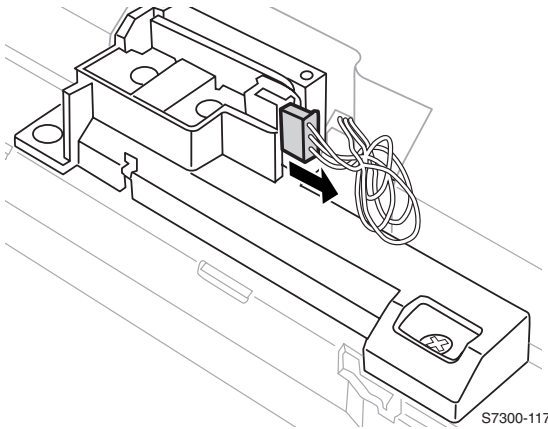
5. Disconnect the wiring harness from the sensor.

6. Remove 2 screws securing the Pickup Plate Assembly and remove.

7. Remove the ATS sensor.

S7300-116
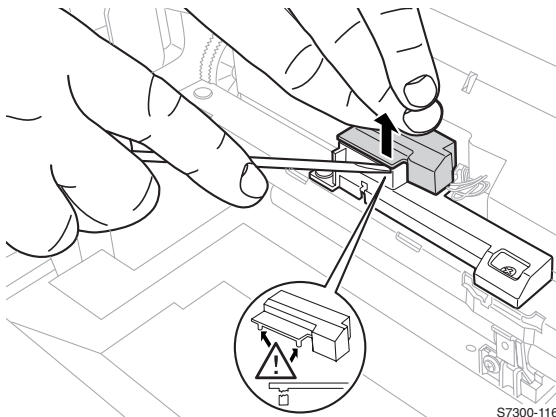
ATS Anvil (not spared, part of Registration Roller A)

Note: **The ATS Anvil and 4-Sheet Calibration Procedures, (see pg. 4-118), need to be performed after reinstalling.**

1. Remove the Registration Roller (A) Assembly (see pg. 6-177)

**2.** Remove 1 screw securing the Anvil and remove the Anvil.
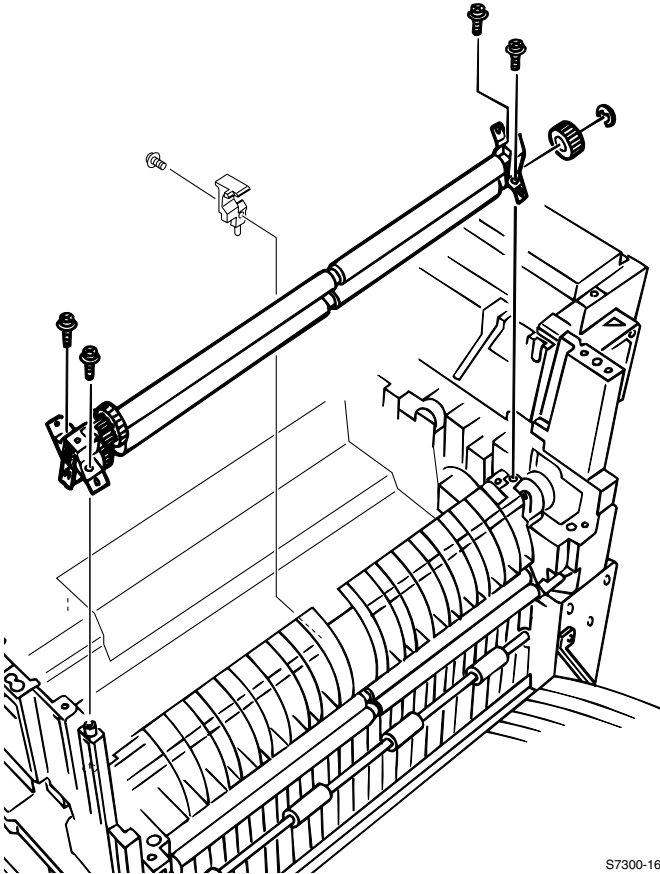
S7300-164a

Registration Roller Assembly A (PL 5.1.22) and Drive Gear (PL 5.1.26)

1. Remove the Transfer Unit.
2. Remove the Rear Shield Plate (see pg. 6-146).
3. Remove the MPT Pick Assembly (see pg. 6-140).
4. Remove the ATS Anvil (see pg. 6-176).
5. Remove the 4 **B** screws securing the Registration Roller Assembly A.
6. Lift the roller assembly and remove.

   Note: **If replacing the Drive Gear, continue with Step 7.**

7. Remove the E-ring securing the drive gear to the back end of the Registration Roller Assembly.
8. Remove the Drive Gear.
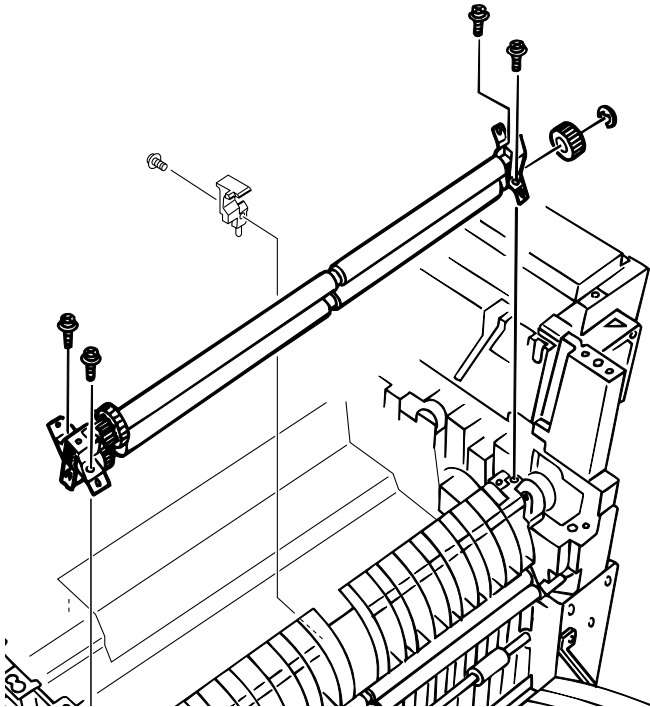
Caution: **When reinstalling the Drive Gear, ensure it drives the roller in the direction of paper travel. The blue plastic face should face the outside, next to the E-ring.**

Note: **The ATS Anvil and 4-Sheet Calibration Procedures, (see pg. 4-118), need to be performed after reinstalling.**

Registration Roller Assembly B (PL 5.1.16)

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Turn the Printer Unit Chassis upside-down and remove the 4 **B** screws securing Registration Roller Assembly B to the underside of the Printer Unit Chassis.

3. Lift the roller up and toward the front of the printer and remove.

Front of
Printer
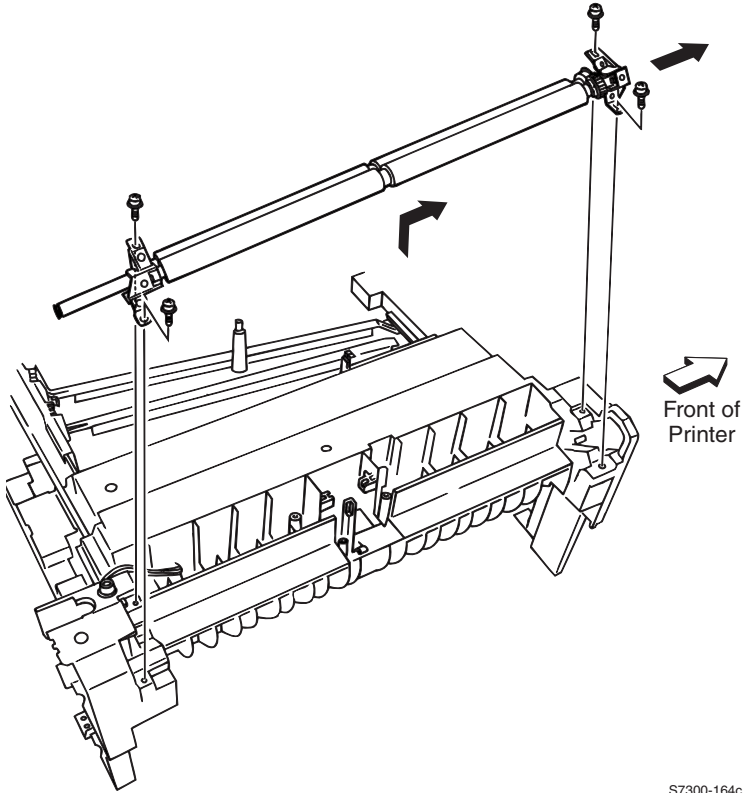
S7300-164c

Duplex Guide Assembly (PL 5.1.2)

1. Grasp the Duplex Guide Assembly and pull the assembly straight up and out of the printer.

Note: **Be careful not to lose the springs when removing the Duplex Guide Assembly. Leave the springs in the printer.**

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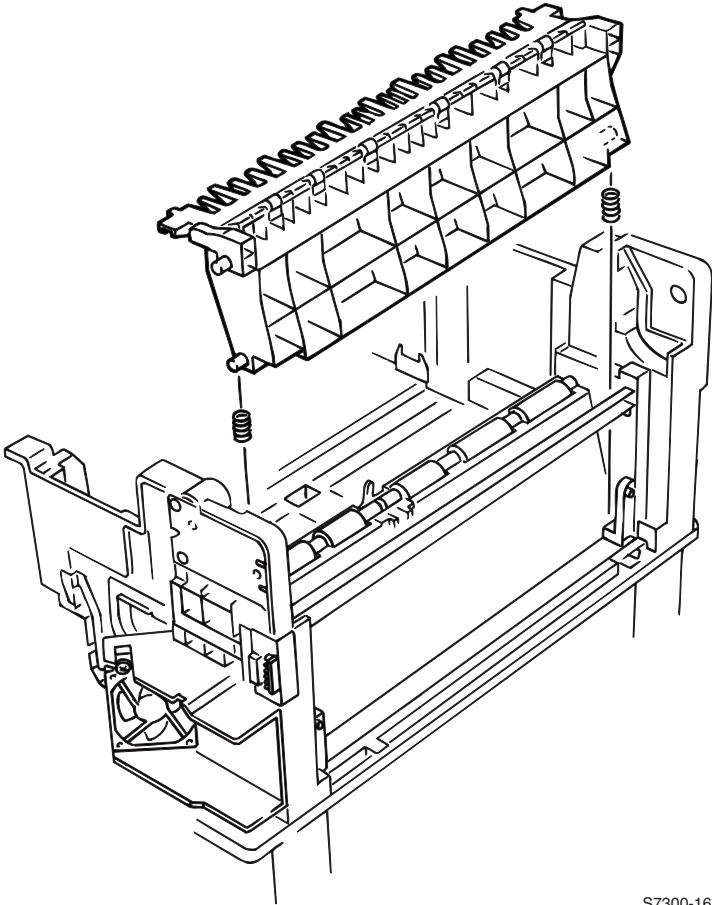
S7300-165

Fuser Latching Handle (Front) (PL 5.1.4)

1. Remove the Front Cover (see pg. 6-136).
2. Remove the Fuser.
3. Release the fuser latching handle spring (item #2).
4. Remove 2 **B** screws securing the Fuser Latching Handle (item #1) to the Printer Unit Chassis and remove the latch.

S7300-73
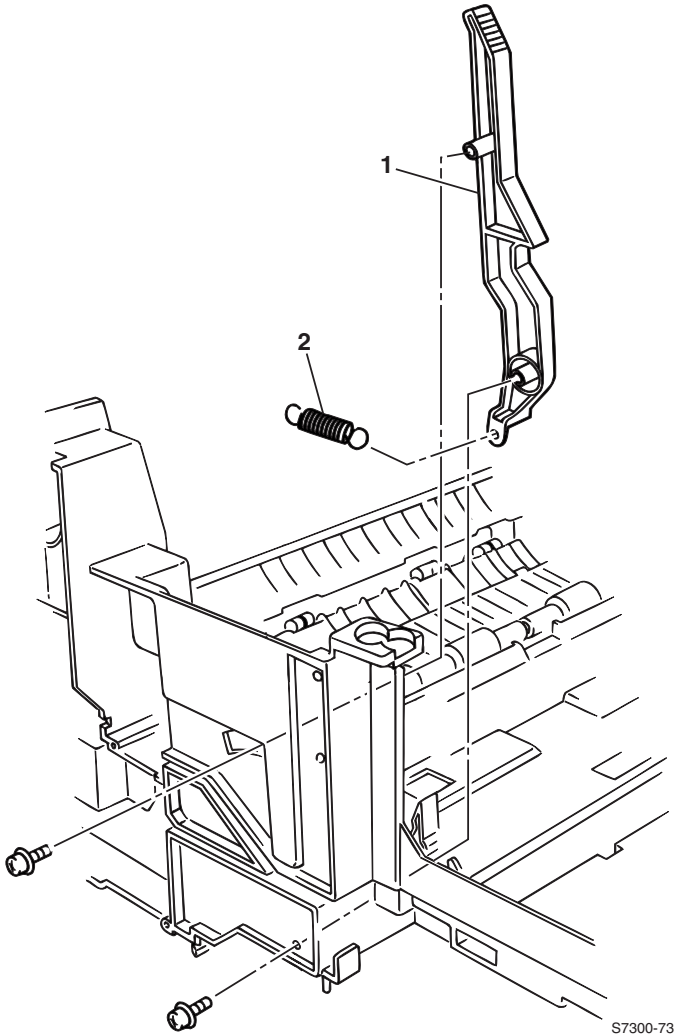
Fuser Latching Handle (Rear) (PL 5.2.1)

1. Remove the Printer Unit Chassis (see pg. 6-156).
2. Release the fuser latching handle spring (item #3).
3. Remove the e-ring (item #2) securing the Rear Fuser Latching Handle to its shaft.
4. Slide the rear Fuser Latching Handle (item #1) off the shaft to remove.
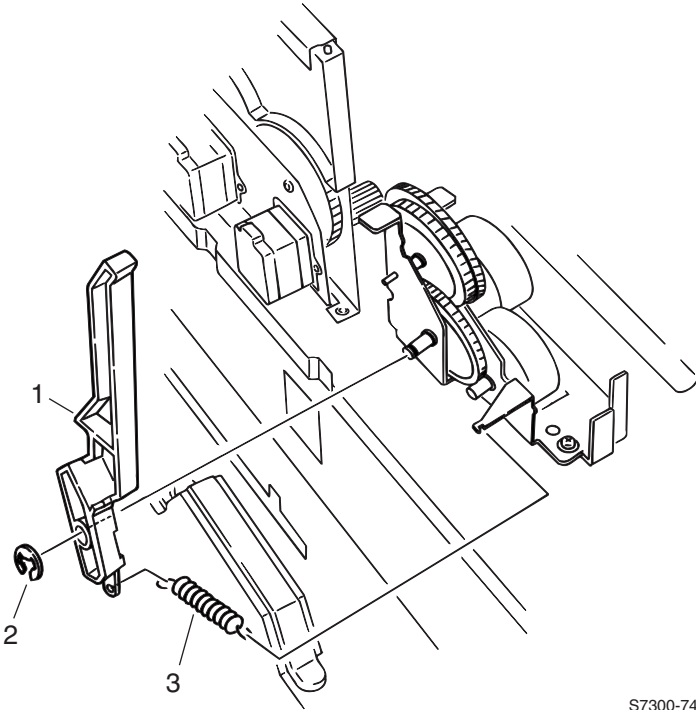
S7300-74

Fuser Exit Roller (PL 5.1.1)

1. Remove the Front Cover (see pg. 6-136).

2. Remove the Rear Shield Plate (see pg. 6-146).

3. Remove the Rear Power Supply Fan and Duct (see pg. 6-162).

4. Remove the Front Chassis Fan (see pg. 6-155).

5. Remove the Electrical Card Cage (see pg. 6-147).

6. Lift and remove the Duplex Guide Assembly (see pg. 6-179).

7. At the rear of the Fuser Exit Roller (item #2), remove 1 **G** screw securing the ground contact (item #3).

8. Remove the bearing, 1 **B** screw, and the fuser drive gear.

9. At the front of the Fuser Exit Roller, release the two locking tabs and remove the bearing (item #1) from the front end of the shaft.

10. Slide the Fuser Exit Roller to the rear of the printer until the front end of the shaft is free, and remove the shaft.
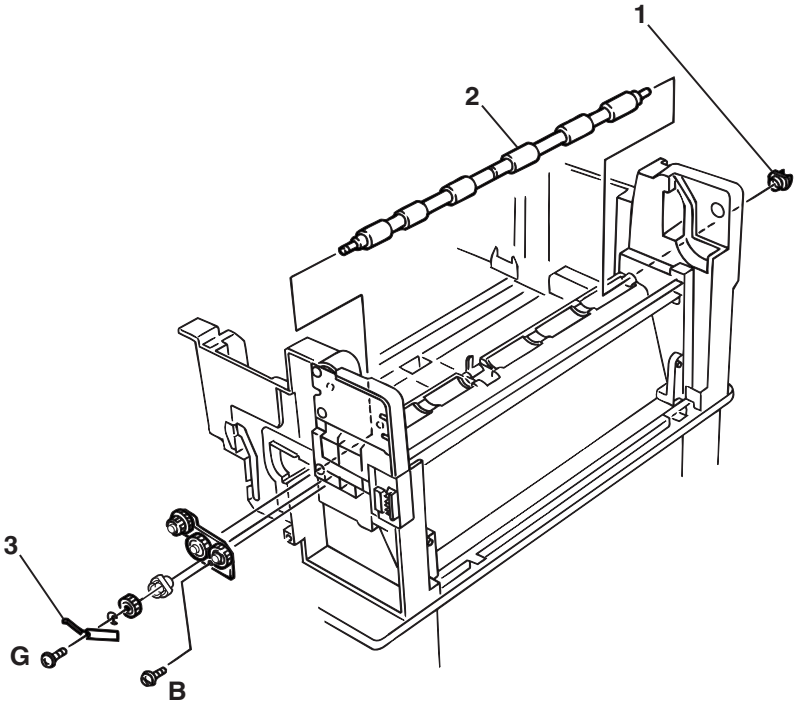
S7300-167

Fuser Exit Sensor Assembly (PL 5.1.3)

1. Remove the Fuser Exit Roller (see pg. 6-182).

2. Remove the Print Unit Chassis (see pg. 6-156).

3. From the Engine Controller Board, remove the connector to the Fuser Exit Sensor Assembly (PARTTEMP).

4. Lift and remove the Duplex Exit Gate.

5. Remove 1 **B** screw securing the Fuser Exit Sensor Assembly.

6. Guide the sensor wiring harness through the chassis as you remove the assembly.
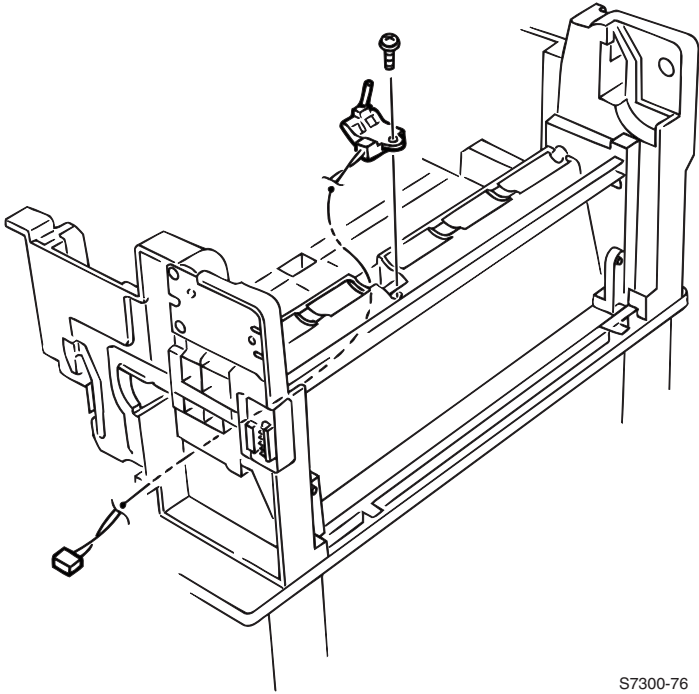
S7300-76

Eject Guide Assembly (PL 4.8)

1. Remove the Top Cover Inner Frame (see pg. 6-150).
2. Remove 7 **B** screws securing the Eject Guide Assembly to the Top Cover Inner Frame.
3. Remove the assembly.
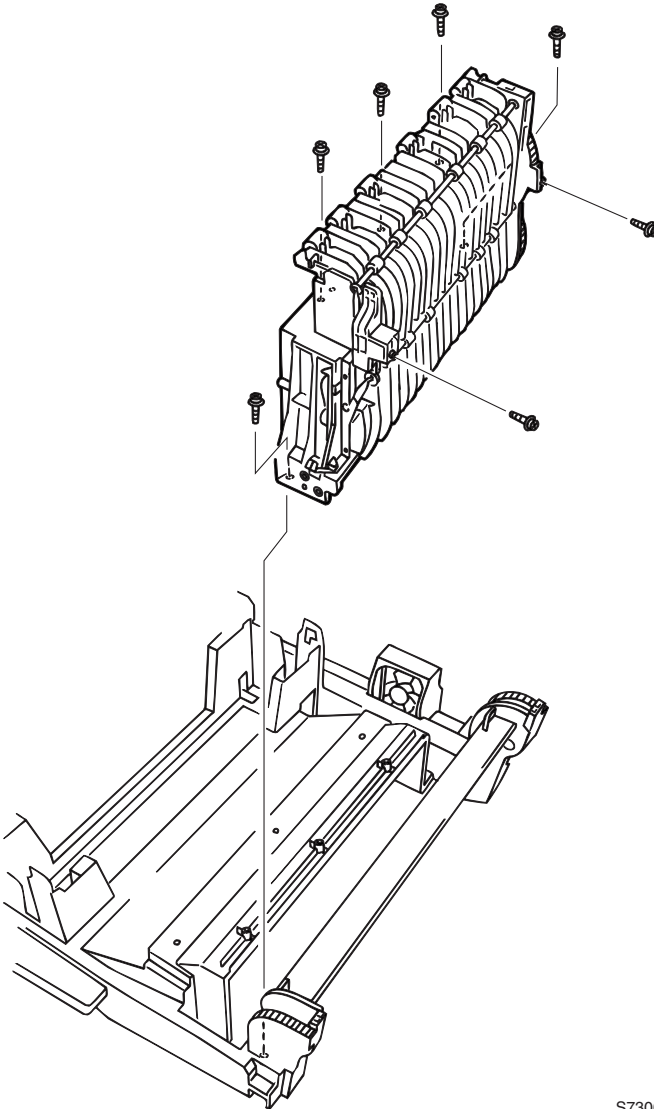
S7300-77

Stack Full Sensor (PL 4.5) and Actuator (PL 4.4)

1. Remove the Top Cover (see pg. 6-133).

2. Disconnect the cable from the Stack Full Sensor.

3. Release the 4 locking tabs securing the Stack Full Sensor (item #2), and remove the sensor and actuator (item #1).
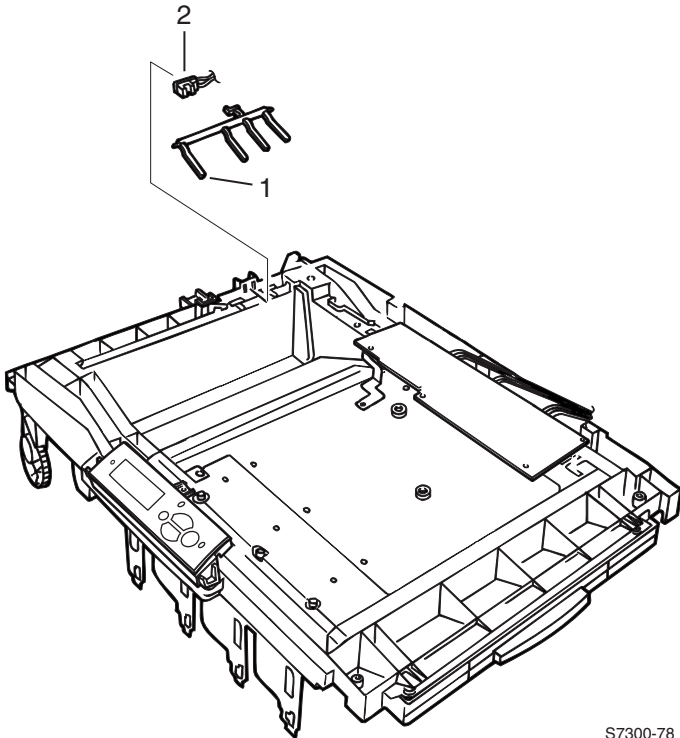
S7300-78

Back Plate Assembly w/Drive Gears (PL 5.2.11) and Imaging Unit Motors (PL 5.2.13)

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Remove the 5 **G** screws securing the Back Plate Assembly to the frame.

3. Disconnect the wiring harnesses from all four Imaging Unit Motors.

4. Lift the front of the Back Plate Assembly about 2 cm (3/4 in.) and carefully guide the ribbon cable through the assembly as you lift it from the chassis to remove.
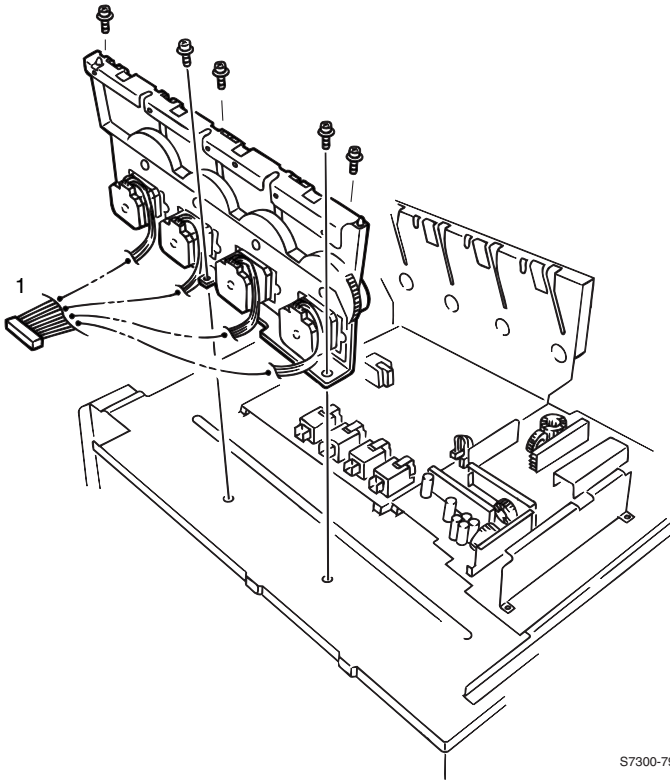
S7300-79

Imaging Unit Motors

1. Remove 2 **G** screws securing the Imaging Unit Motor to the Back Plate Assembly.

2. Disconnect cable.

3. Remove the motor.

Transfer Unit Motor Assembly (PL 5.2.2) (contains Fuser Motor)

1. Remove the Print Unit Chassis (see pg. 6-156).

2. Remove 2 **G** screws securing the Fuser Motor and Transfer Unit Motor Assembly to the chassis and tilt the assembly into the chassis.

3. Disconnect the two in-line connectors (item #2) leading to the Fuser Motor and Transfer Unit Motor Assembly and remove the motors.
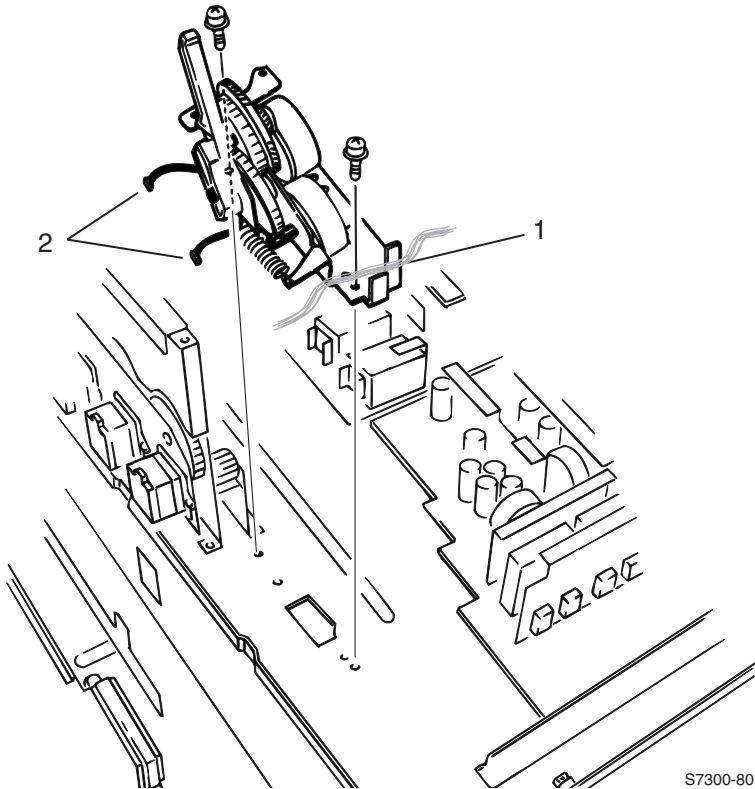
S7300-80

Note: **On reassembly, ensure the wiring harnesses are correctly routed (item #1) and tie-wrapped through the restraint posts.**

Color Registration Plate Shutter (PL 5.1.11)

Note: **The Color Registration Plate Shutter contains the "Color Chip" and ADC Tag number. Perform the ADC Calibration (see pg. 4-116) if you replace the shutter.**

1. Carefully remove the shutter spring through the opening in the plate shutter.

2. Open the shutter plate to the full open position.

Caution: **Be careful not to break the "T" shaped plastic guides which can happen if lifting the plate shutter to far.**

3. Carefully lift the tabs on the right end of the shutter over the stopper and continue to move the shutter toward the right of the printer.

4. Remove the shutter.
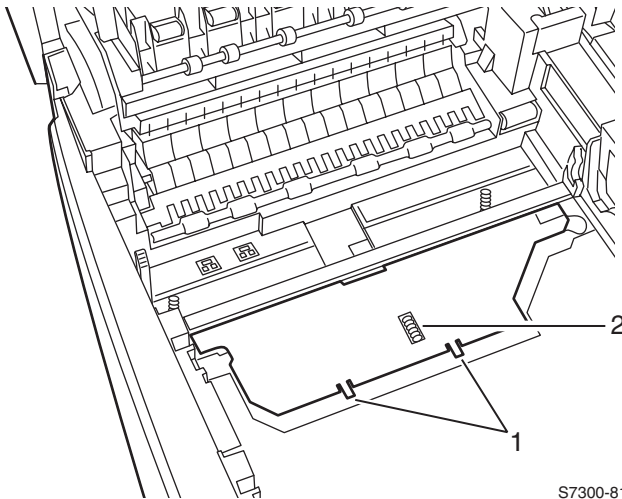
S7300-81

Reassembly

Note: **Reverse these steps to install the shutter. Make sure that all guide pins on the shutter plate are properly aligned when reinstalling. Move the shutter to the fully closed position then insert the shutter spring.**

Caution: **Clean the color chip with API to remove any oil that may have been left by your fingers from handling the color chip.**

Color Registration Sensor Assembly (PL 5.1.10)

Note: The Color Registration Sensor Assembly contains the ADC Sensor. If replacing with a new assembly, write down the tag number located on the Color Registration Shutter Plate and perform the ADC Calibration Procedure (see pg. 4-116).

1. Remove the Color Registration Plate Shutter (see pg. 6-188).

2. Remove 2 **B** screws securing the Color Registration Sensor Assembly.

3. As you lift the assembly, carefully disconnect the 3 harnesses connected to the assembly.
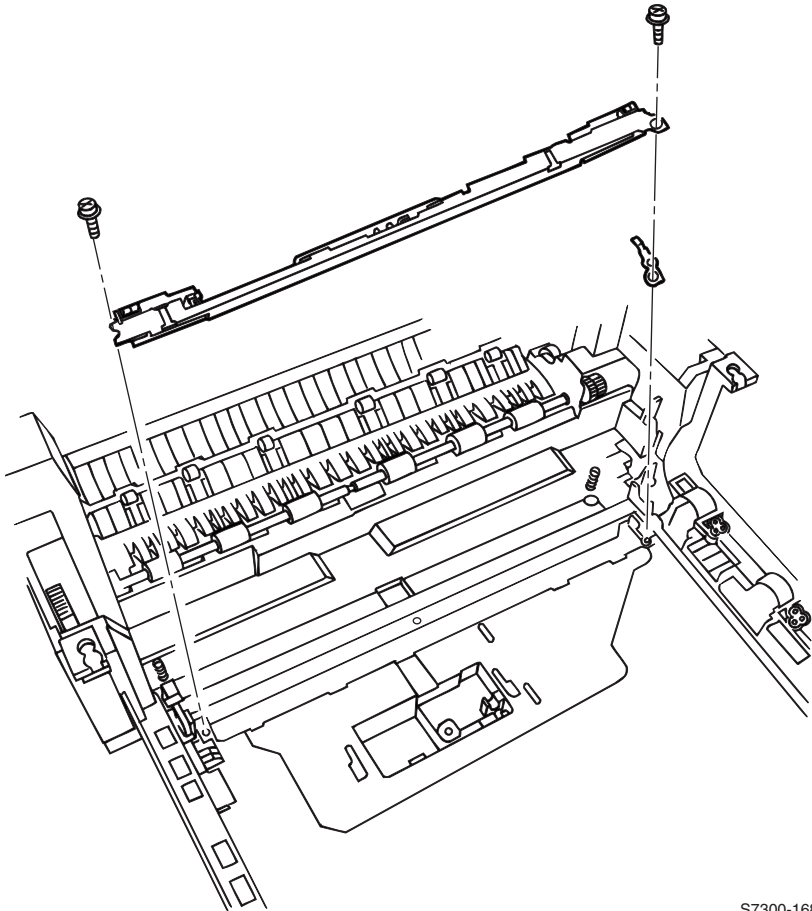
S7300-168

Reassembly

Caution: Ensure the grounding wire is in place when reinstalling the shutter.

Color Registration Shutter Solenoid (PL 5.1.13)

1. Remove the Printer Unit Chassis (see pg. 6-156).

2. Remove the Color Registration Plate Shutter (see pg. 6-188).

3. Disconnect the Color Registration Shutter Solenoid's in-line connector.

4. Release the solenoid harness (item #2) from all cable clamps.

5. Remove the screw securing the solenoid (item #1) to the Printer Unit Chassis to remove the solenoid.
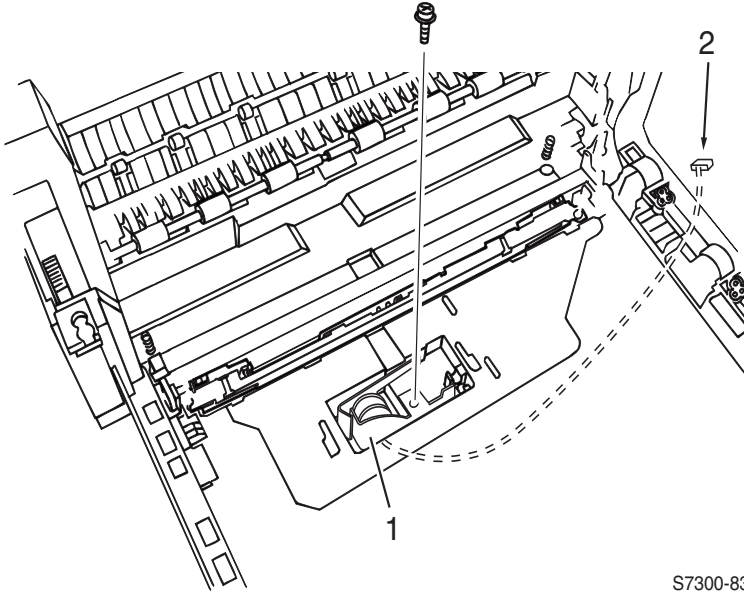
S7300-83

LED Head 600 dpi (PL 4.9a) and
LED Head Holder (PL 4.9b)

1. Disconnect the LED Head y power harness from the Toner Sensor Board.

2. Carefully disconnect both cables (item C) from the LED Head. Note the cable routing for reassembly.

3. With small screwdriver, carefully release the LED Head from the LED Head Holder.

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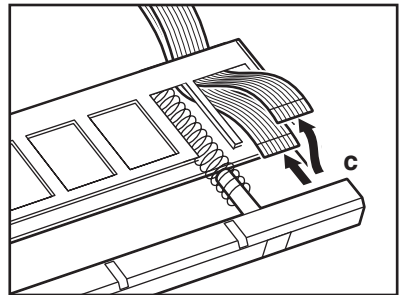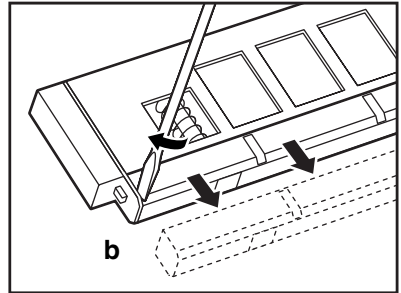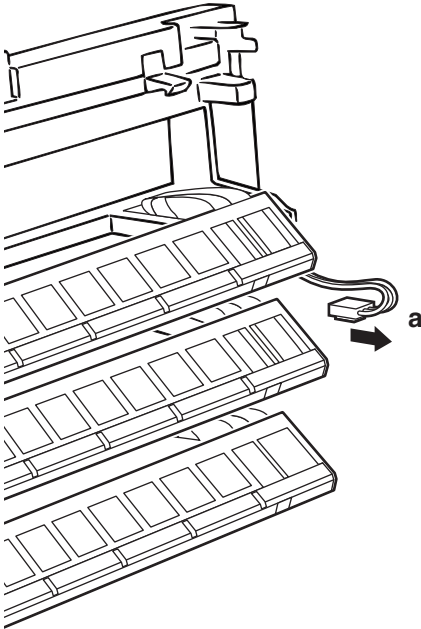
S7300-170

(Imaging Unit) Drum Contact Assembly (PL 5.1.27)

1. Use a small screwdriver to carefully pry the Drum Contact Assembly from the Printer Unit Chassis.
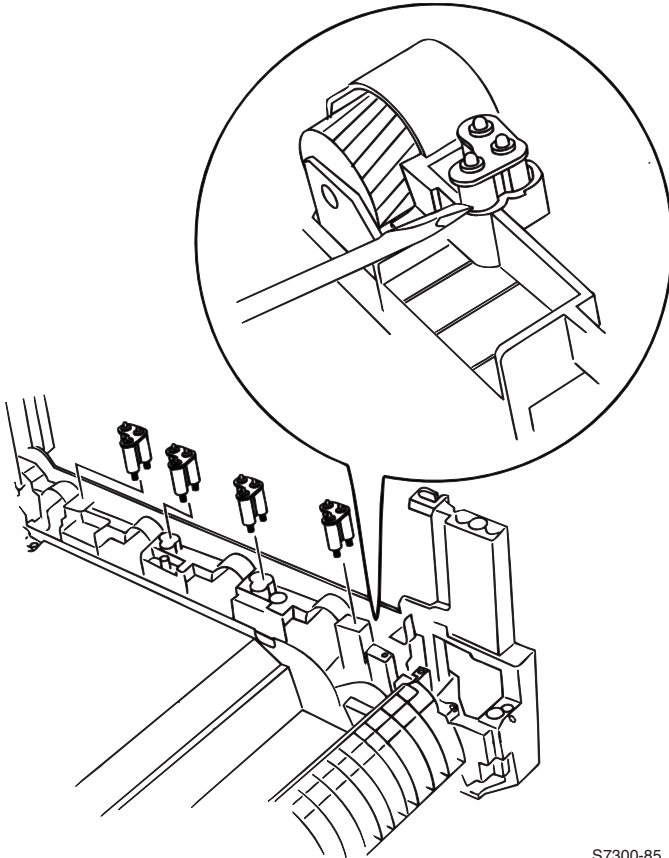
S7300-85

Caution: **When reinstalling, ensure the springs are straight and not bent.**

Field Replaceable Units (FRU) Parts List

This chapter provides a list of field replaceable units (FRU's) for the printer.

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

■ Component part number.

■ Printer serial number.

Using the parts list

■ The numbers shown in each illustration correspond to the parts list number for that illustration.

■ The notation "with X~Y" following a part name indicates an assembly that is made up of components X through Y. For example, "1 (with 2~4)" means part 1 consists of part 2, part 3, and part 4.

■ An asterisk * following a part name indicates the page contains a note about this part.

■ A notation "(part of item 1.1)" indicates that the part is included with parent assembly Part 1.1 (PL1.0, line item 1).

■ A part called out in an illustration with *kit* as the part number, indicates the part is available in a kit and the part number is found in the Kit section of the parts list.

Contents

PL 1.0 - Covers

S7300-100a

FRU Parts List 1.0 - Covers

No.	Part Number	Qty	Name / Description
1	116-0998-00	1	Top Cover
2	116-1061-00	2	Side Output Tray Links
3	116-1083-00	1	Side Output Tray
4	116-1006-00	1	Left Side Cover
5	116-1051-00	1	Top Cover Hinge Spring - Front
6	116-1053-00	1	Top Cover Hinge Shaft
7	116-1052-00	1	Top Cover Hinge Spring - Rear
8	116-1055-00	1	Top Cover Damper - Front
9	116-1551-00	1	Front Cover
10	116-1039-00	1	Duplex Slot Cover
11	116-1056-00	1	Top Cover Damper - Rear
12	116-1005-00	1	Rear Cover
13	116-1561-00	1	MPT Pick Assembly (PL 2.0)
14	116-1066-00	1	Front PS Fan
15	119-6403-00	1	Duplex Transport Assembly
16	116-1552-00	1	Universal Paper Tray 1 (PL 6.0)
17	116-1565-00	1	Top Fuser Fan Duct
18	116-1008-00	4	Foot
19	116-1084-00	1	Right Side Cover (Door A)
20	116-1564-00	1	Top Fuser Cooling Fan
21	116-1018-00	1	MPT Top Cover
22	116-1213-00	1	Temperature/Humidity Sensor Board
23	116-1577-00	1	Pickup Plate Assembly
24	116-1578-00	1	Pickup Cover Assembly

PL 2.0 - MPT Pick Assembly
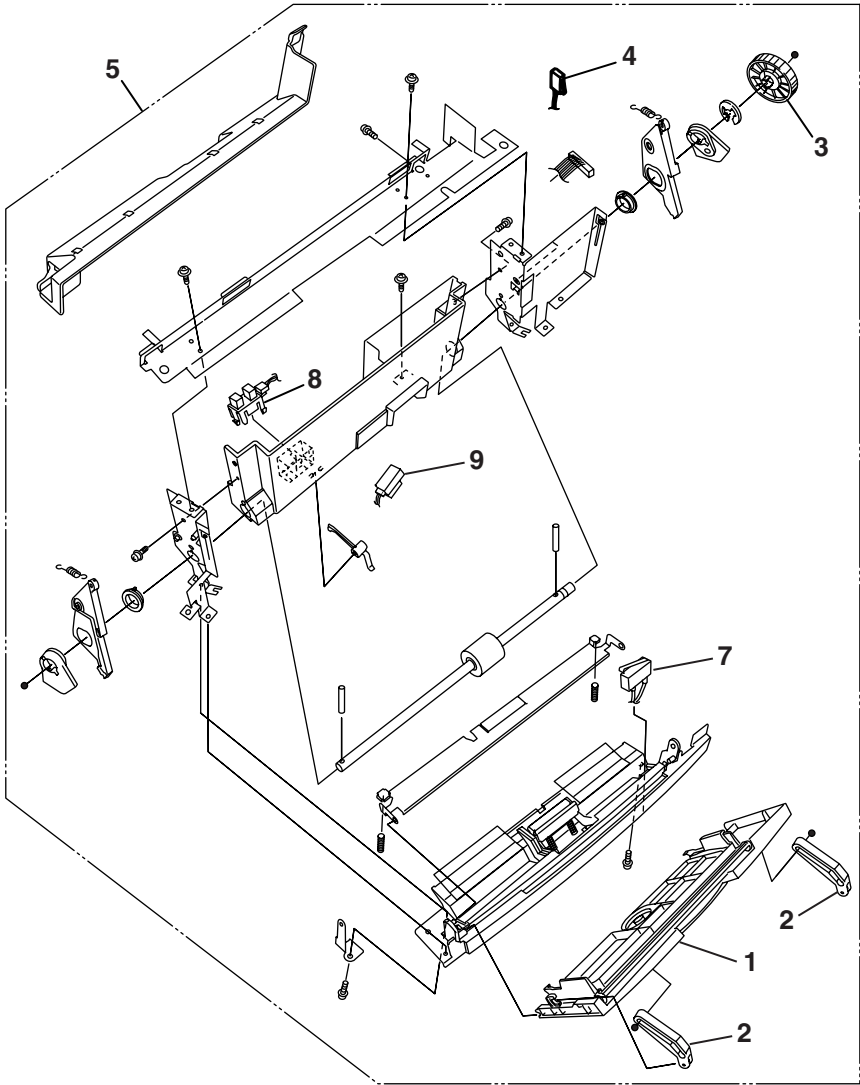
S7300-101

FRU Parts List 2.0 - MPT Pick Assembly and Components

No.	Part number	Qty	Name / description
1	116-1017-00	1	MPT Tray
2	012E12690	2	MPT Links (Front and Rear)
3	Gear Kit	1	MPT Drive Gear
4	116-1025-00	1	Top Cover Interlock Switch
5	116-1561-00	1	MPT Pick Assembly (with 5, 7, 8, 9)
6			
7	not spared	1	MPT Roller Home Sensor (part of MPT Pick Assembly)
8	not spared	1	MPT Empty Sensor (part of MPT Pick Assembly)
9	not spared	1	MPT OHP Sensor (part of MPT Pick Assembly)

PL 3.0 - Printer Control Components Boards
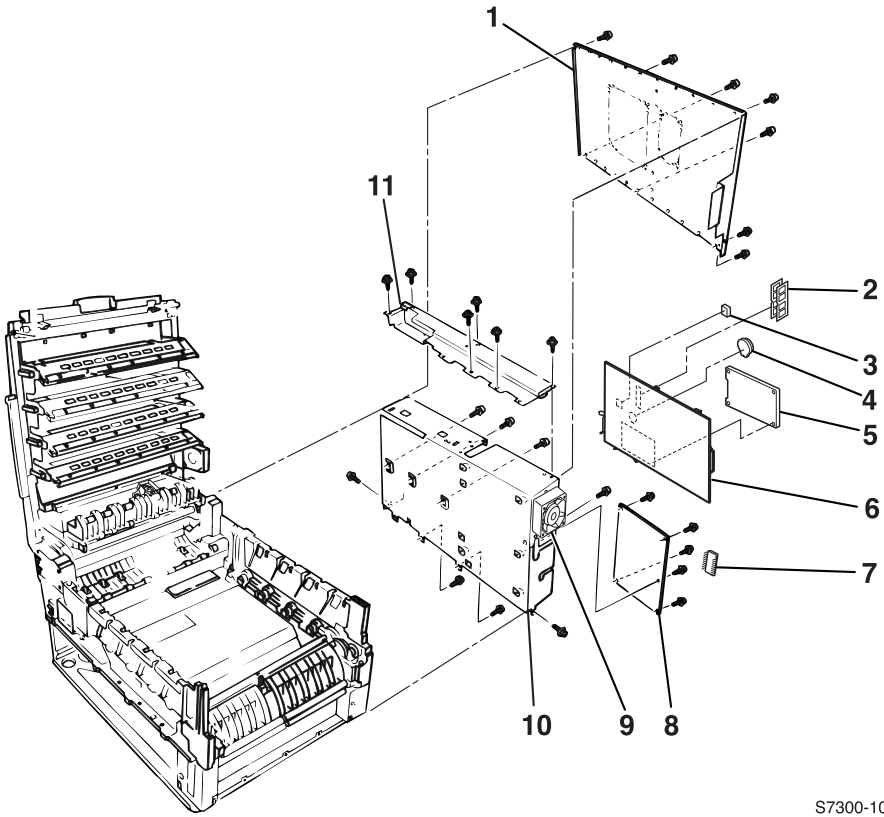
S7300-105

FRU Parts List 3.0 - Printer Control Components - Boards

No.	Part number	Qty	Name / Description
1	116-1060-00	1	Rear Shield Plate
2	156-4838-00 156-4837-00 156-4663-00	1 1 1	IC Memory; CMOS; SDRAM; 64MB; PC133; SODIMM 128MB; PC133; SODIMM; 256MB; PC133; SODIMM;
3		1	NVRAM
4	163-1481-00 163-1484-00	1 1	Configuration Chip: Base Network Upgrade
5	650-4240-00	1	Optional Hard Drive
6	671-5273-80	1	Image Processor Board
7	116-1572-00	1	Print Engine Controller Board EEPROM
8	116-1538-00	1	Print Engine Controller Board
9	116-1023-00	1	Electrical Cage Fan
10	116-1050-00	1	Electrical Card Cage
11	116-1059-00	1	Top Cable Shield

PL 4.0 - Top Cover Inner Frame
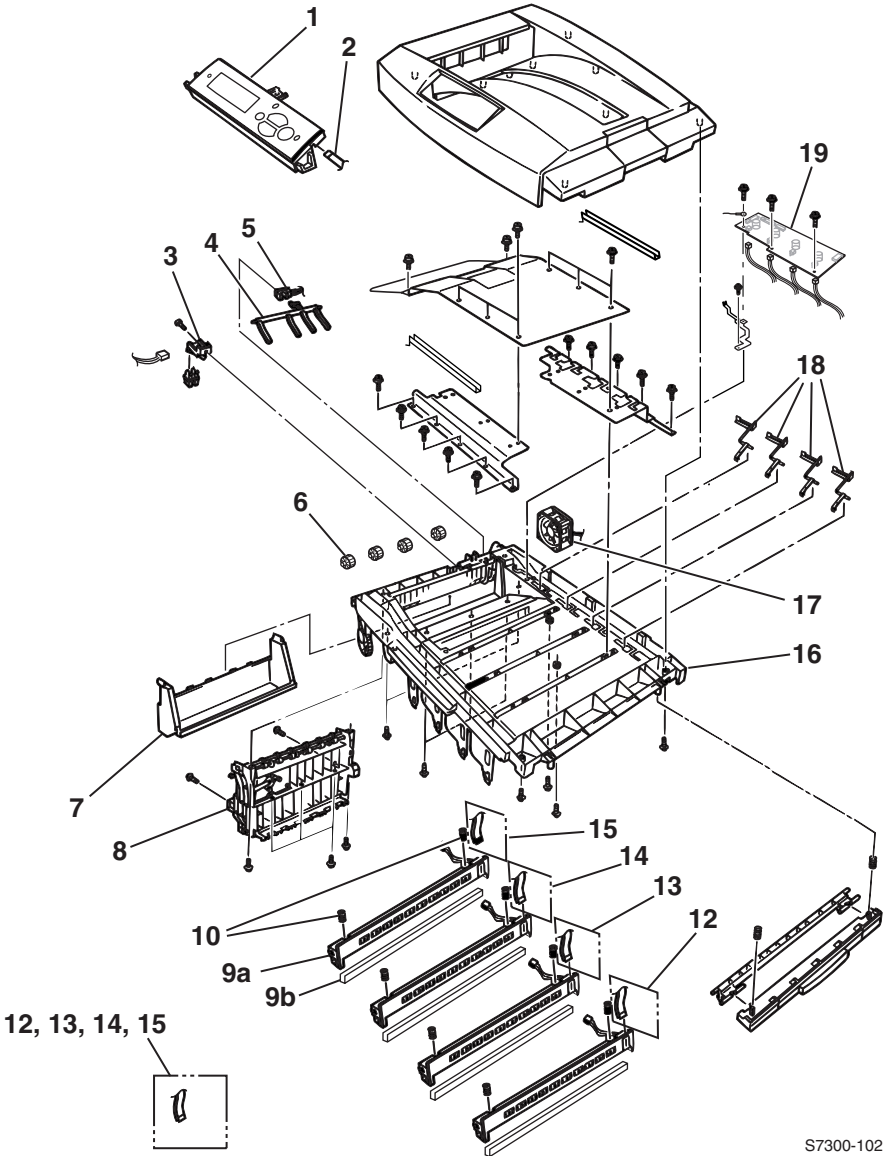
S7300-102

FRU Part List 4.0 - Top Cover Inner Frame Components

No.	Part number	Qty	Name / Description
1	333-4383-00	1	Front Panel Assembly
2	Harness Kit	1	Front Panel Harness
3	116-1054-00	1	Top Output Eject Sensor
4	Flag Kit	1	Stack Full Sensor Actuator
5	116-1000-00	1	Stack Full Sensor
6	Hardware Kit		Exit Rollers
7	116-1057-00	1	Top Output Tray
8	116-1549-00	1	Eject Guide Assembly
9a 9b	116-1547-00 116-0012-00	4 4	LED Head 600 dpi LED Head Holder
10	Hardware Kit	1	LED Assembly Spring
11			
12	LED Harness Kit	1	Black LED Wiring Harness
13	LED Harness Kit	1	Yellow LED Wiring Harness
14	LED Harness Kit	1	Magenta LED Wiring Harness
15	LED Harness Kit	1	Cyan LED Wiring Harness
16	116-1548-00	1	Top Cover Inner Frame
17	116-1024-00	1	Rear Fuser Cooling Fan
18	Flag Kit	1	Toner Cartridge Sensor Actuator
19	116-1586-00	1	Toner Sensor Board

PL 5.1 - Printer Unit Chassis (1 of 2)
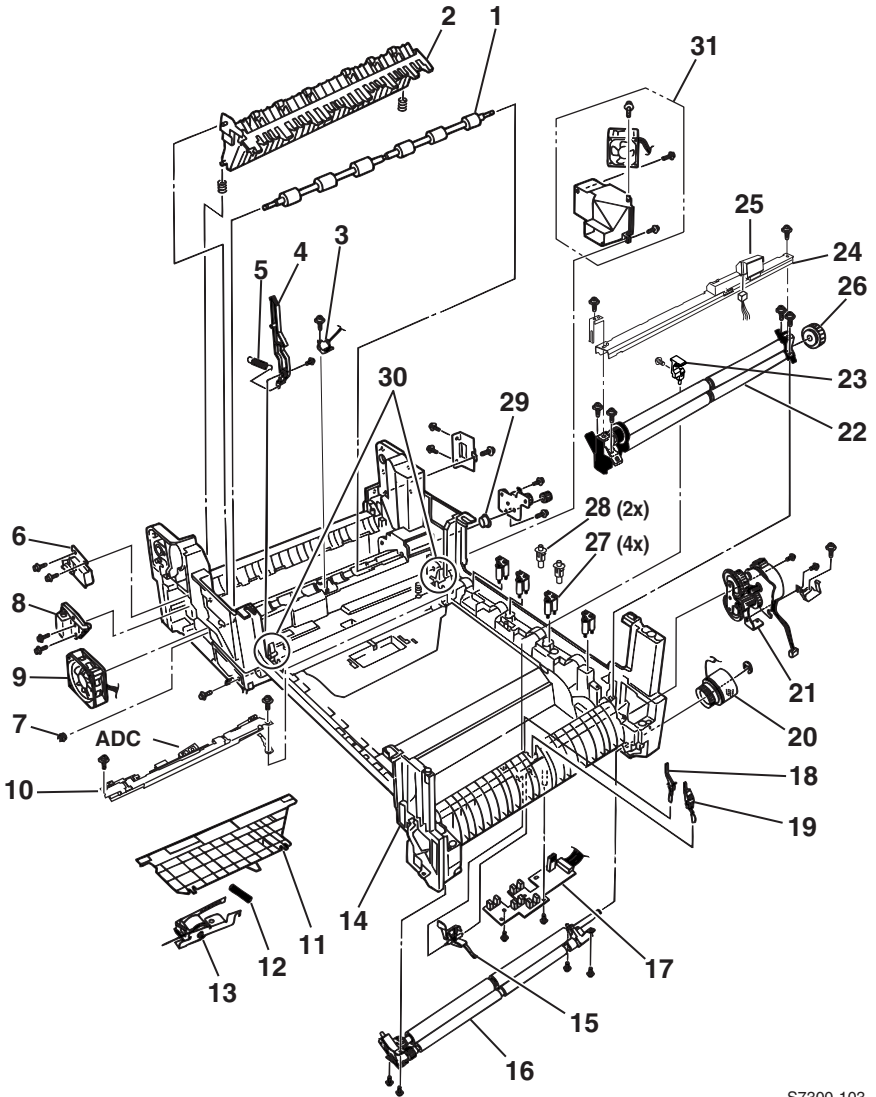
S7300-103

FRU Part List 5.1 - Printer Unit Chassis (1 of 2)

No.	Part number	Qty	Name / Description
1	116-1022-00	1	Fuser Exit Roller
2	116-1019-00	1	Duplex Guide Assembly
3	116-1587-00	1	Fuser Exit Sensor Assembly
4	003E55690	1	Fuser Latching Handle (Front)
5	Hardware Kit	1	Fuser Latch Handle Spring
6	116-1021-00	1	Top/Side Output Solenoid
7	Hardware Kit	1	Fuser Exit Roller Bushing (Front)
8	116-1020-00	1	Duplex Gate Solenoid Assembly
9	116-1066-00	1	Front Power Supply Fan
10	116-1573-00	1	Color Registration Sensor Assembly (includes ADC Sensor)
11	116-1570-00	1	Color Registration Plate Shutter (includes Color Chip for ADC and Tag number)
12	Hardware Kit	1	Registration Shutter Spring
13	116-1569-00	1	Color Registration Shutter Solenoid
14	116-1558-00	1	Printer Unit Chassis
15	Flag Kit	1	Registration Entrance Sensor Actuator (B)
16	116-1015-00	1	Registration Roller Assembly (B)
17	160K79190	1	Entrance Sensor Board
18	Flag Kit	1	Transfer Belt Entrance Sensor Actuator)
19	Flag Kit	1	MPT Entrance Sensor Actuator
20	116-1563-00	1	Registration Clutch
21	116-1559-00	1	Registration Motor Assembly
22	116-1560-00	1	Registration Roller Assembly (A)
23	not spared	1	Auto Thickness Sensor Anvil
24	116-1577-00	1	Pickup Plate Assembly
25	116-1578-00	1	Pickup Cover Assembly
26	Gear Kit	1	Registration Drive Gear (A)
27	115K01970	4	Drum Contact Assembly (3-Pin)
28	116-1068-00	2	Transfer Unit Contact Assembly
29	Hardware Kit	1	Fuser Exit Roller Bushing (Back))
30	650-4242-01	1	Transfer Unit Latch
31	116-1028-00	1	Rear Power Supply Fan

PL 5.2 - Printer Unit Chassis (2 of 2) and Power Supplies
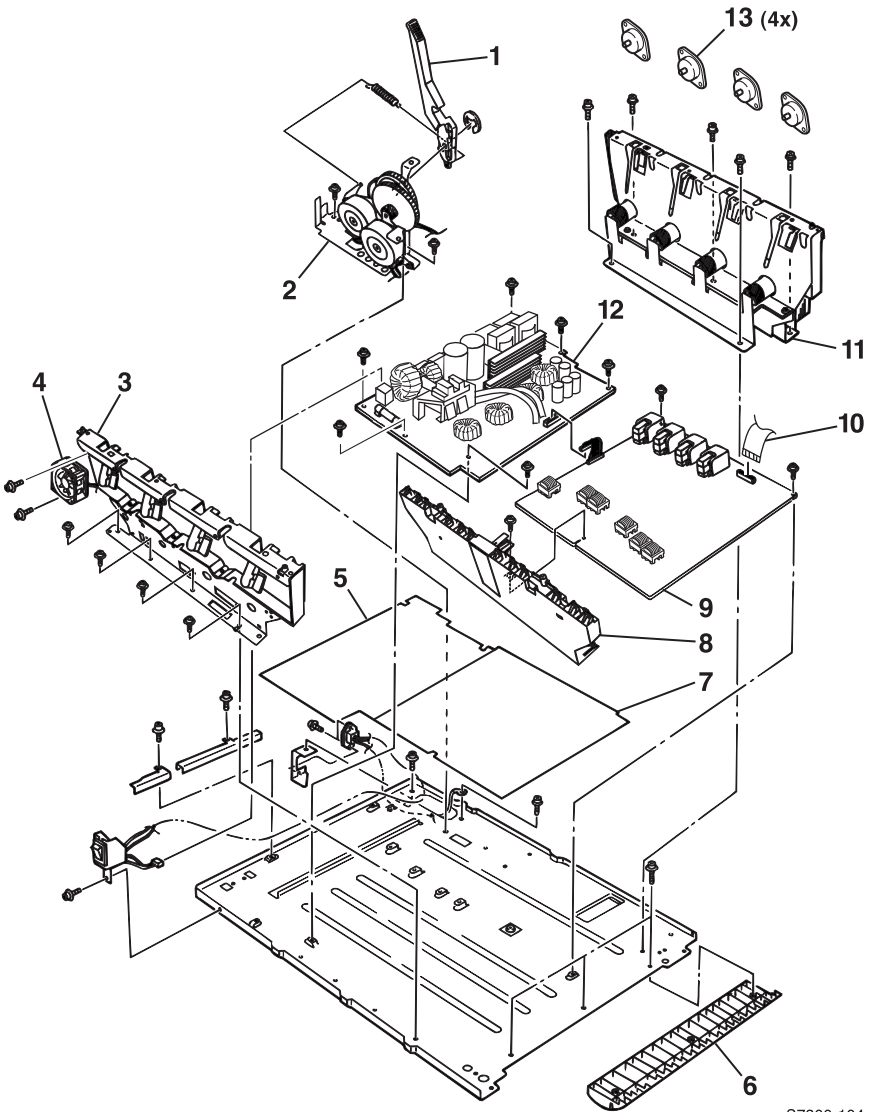
S7300-104

FRU Parts List 5.2 - Printer Unit Chassis (2 of 2) and Power Supplies

No.	Part number	Qty	Description
1	003E55700	1	Fuser Latching Handle (Rear)
2	116-1556-00	1	Transfer Unit Motor Assembly
3	116-1029-00	1	Front Plate Assembly
4	116-1215-00	1	Front Chassis Fan
5	116-1034-00	1	LVPS Insulator
6	116-1067-00	1	Duplex Exit Paper Guide
7	116-1033-00	1	HVPS Insulator
8	116-1557-00		Imaging Unit Contact Assembly (HV)
9	116-1568-00	1	High Voltage Power Supply
10	Harness Kit	1	High Voltage Harness
11	116-1554-00	1	Back Plate Assembly w/Drive Gears
12	116-1536-00 116-1537-00	1 1	(115 VAC) Low Voltage Power Supply (220 VAC) Low Voltage Power Supply
13	116-1064-00	1	Imaging Unit Motor

PL 6.1 - Paper Tray 1
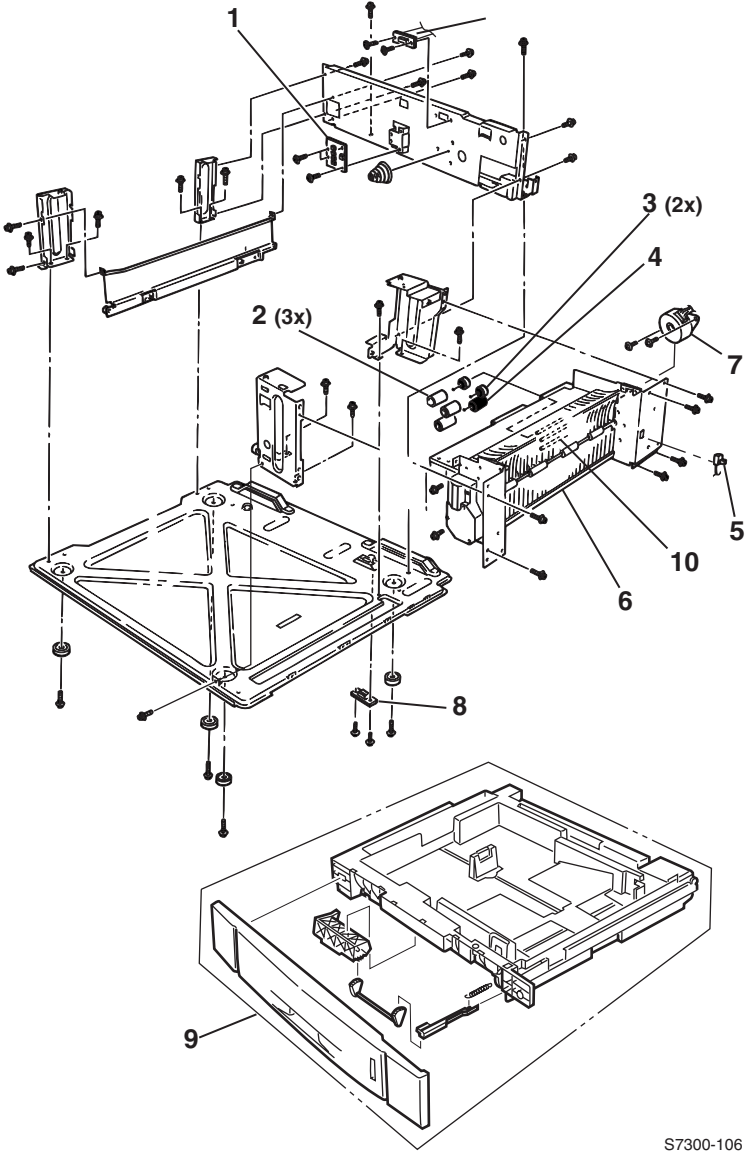
S7300-106

FRU Parts List 6.1 - Paper Tray 1

No.	Part number	Qty	Name / Description
1	116-1007-00		Paper Size Sensor Board with Ribbon Harness
2	116-1062-00		Paper Feed Roller Kit (3 Rollers)
3	116-1216-00		Bearing, One-Way, Feed Roller
4	116-1562-00		Torque Limiter, Retard Roller
5	116-1065-00		Door A Interlock Switch
6	116-1553-00		Main Feeder Assembly
7	116-1555-00		Paper Feed Motor
8	116-1085-00		Bottom LTA Connector
9	116-1552-00		Paper Tray Cassette (Tray 1 only)
10	116-1643-00		Jam Access Shutter w/ Return Spring

PL 6.2 - Lower Tray Deck & Lower Tray Assembly (Trays 2, 3, 4, 5)

7300LTA   ▶ 99 (1-9)

7300LTD

S7300-107
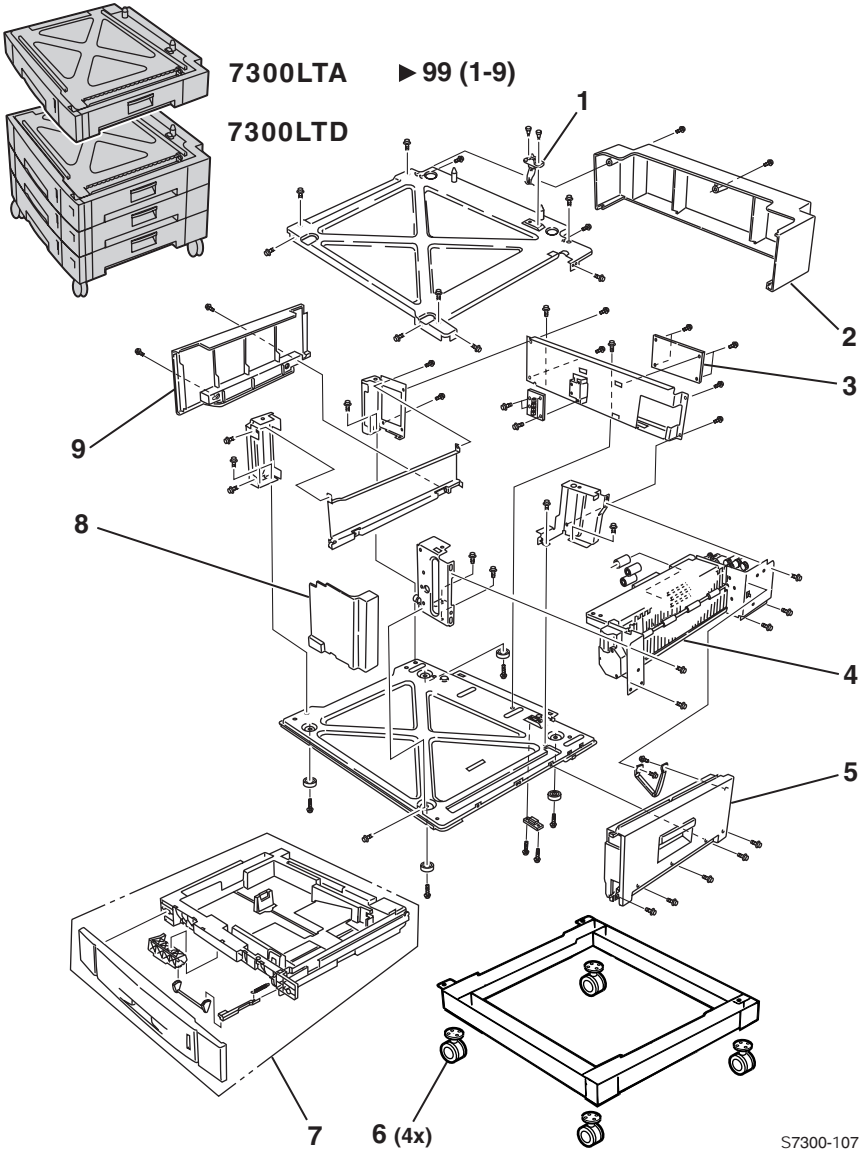
FRU Parts List 6.2 - Lower Tray Deck and Lower Tray Assembly (Trays 2, 3 4, 5)

No.	Part number	Qty	Name / Description
	119-6402-00	1	Lower Tray Deck (LTD) w/ Trays
	119-6401-00	1	Lower Tray Assembly (LTA)
1	116-1040-00	1	LTA Top Connector
2	116-1044-00	1	LTA Rear Cover
3	116-1581-00	1	LTA Controller Board
4	116-1047-00	1	Lower Feeder Assembly (LTA, 1st & 2nd Tray of LTD)
	116-1645-00	1	LTD Feeder Assembly (3rd Tray of LTD)
5	116-1046-00	1	LTA Right Side Cover (Door)
6	116-1013-00	4	Caster Wheel
7	116-1580-00	1	LTA/LTD Media Tray (Trays 2, 3, 4, 5)
8	116-1043-00	1	LTA Front Right Cover
9	116-1045-00	1	LTA Left Cover

Kits

Hardware Kit

Part number	Name / Parts Included
116-1038-01	**Hardware Kit**
	LED Assembly Spring Kit
	Fuser Exit Roller Bushing (Front)
	Fuser Exit Roller Bushing (Back)
	Registration Shutter Spring
	Fuser Latch Handle Springs
	Screw (T3x8)
	Screw (T3x10)
	Screw (T4x10)
	Screw (M2x8)
	Screw (M3x6)
	Screw (M3x8)
	Screw (M4x8)
	Screw (SP3x10)
	Screw (T4X6)
	Screw (T4X8)
	Exit Rollers

Gear kit

Part number	Name / Parts Included
116-1037-01	**Gear Kit**
	Main Feeder Drive Gear
	Fuser Drive Gear A
	Fuser Drive Gear B
	Fuser Drive Gear C
	Registration Drive Gear A
	Multi-Purpose Tray Drive Gear
	Imaging Unit Drive Gear

Harness kit

Part number	Name / Parts Included
116-1590-00	Harness Kit
	Front Panel Harness
	High Voltage Harness
	Fuser Motor, Transfer Unit Motor
	MPT Entrance Sensor, Entrance Sensor Board, OHP Sensor
	Tray 1 Paper Empty Sensor, Paper Low Sensor
	Tray Lift Motor
	Tray 1 Paper Feed Sensor
	Color Registration Sensor and ADC Sensor
	Imaging Unit Sensor Board
	Entrance Sensor Board
	Tray Sensors
	Duplex Unit
	Engine Controller Board, LVPS
	Right Door A / Face Up Tray
	Inline Connector
	Job Offset, Fuser Fan
	Imaging Unit Motor
	Tray 1 Feed Motor, Registration Motor
	Tray 1 Pick Motor, Feed Motor
	Temperature/Humidity Sensor
	MPT Empty Sensor, Near Empty Sensor
	Paper Size Board
	OPTN Cable
	Toner Sensor Board

LED Harness Kit

Part number	Name / Parts Included
116-1584-00	LED Harness Kit
	LED Harness M
	LED Harness C
	LED Harness Y
	LED Harness K

Flag Kit

Part number	Name / Parts Included
116-1036-01	**Flag Kit**
	Stack Full Sensor Actuator
	Toner Sensor Actuator (qty of 4)
	Exit Sensor Actuator
	Registration Entrance Sensor A Actuator
	Registration Entrance Sensor B Actuator
	Registration A Exit Sensor Actuator
	Tray 1 Paper Low Actuator
	Tray 1 No Paper Sensor Actuator
	Transfer Unit Waste Full Sensor Actuator

Supplies and Accessories

Toner Vacuum and Accessories

Description	Part Number
Vacuum, Toner, 110V	003-1496-00
Vacuum, Toner, 220V	003-1497-00
Filter for Toner Vacuum, Type II	003-1498-00

Packaging

Description	Part Number
Repackaging Kit, Phaser 7300	065-0617-00
Repackaging Kit, Phaser 7300	065-0621-00
7300 Shipping Box	004-5229-00
Replacement Shipping Box (LTD)	004-4523-00
Replacement Shipping Box (LTA)	004-5290-00

Manuals and CD's

Description	Part Number
Service Manual	071-0862-00
Printer Installation and Utilities CD-ROM	063-3417-00
Printer Management Software Tools CD-ROM	063-3418-00
Interactive Documentation CD-ROM	063-3426-00
World Kit Plus A-size Media Sample Pack	061-4464-00
World Kit Plus A4-size Media Sample Pack	061-4465-00

Customer Replaceable Consumables

7300-30
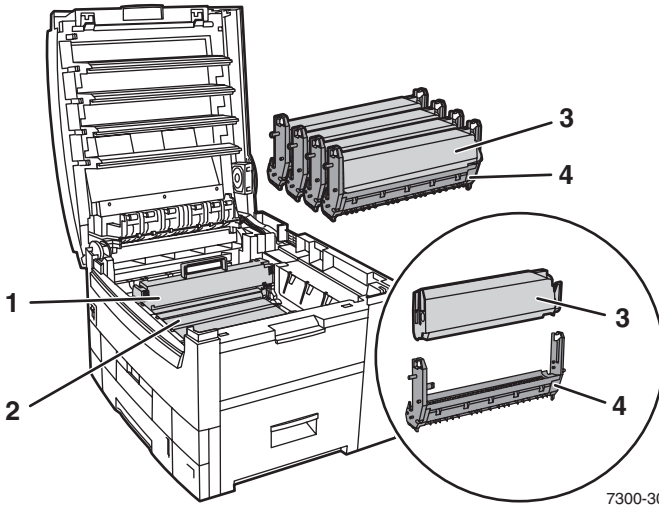
No.	Consumable	Part Number
1	**Fuser**	
	110 Volt	016-1998-00
	220 Volt	016-1999-00
2	**Transfer Unit**	016-2000-00
3	**Toner Cartridges:**	
	Standard Capacity Yellow	016-1975-00
	Standard Capacity Magenta	016-1974-00
'	Standard Capacity Cyan	016-1973-00
	Standard Capacity Black	016-1976-00
	High Capacity Yellow	016-1979-00
	High Capacity Magenta	016-1978-00
	High Capacity Cyan	016-1977-00
	High Capacity Black	016-1980-00
4	**Imaging Units**	
	Cyan	016-1993-00
	Magenta	016-1994-00
	Yellow	016-1995-00
	Black	016-1996-00

Paper and Media

Phaser Professional Printing Paper

Item	Size	Description	Part Number
Phaser Premium Color Printing Paper 90 g/m^2 (24 lb. bond)	A/Letter (U.S.) 8.5 x 11 in.	500 sheets	016-1368-00
	A4 (Metric Letter) 210 x 297 mm	500 sheets	016-1369-00
	B 11 x 17 in.	500 sheets	016-1699-00
	A3 297 x 420 mm	500 sheets	016-1700-00
	SRA3 320 x 450 mm	500 sheets	016-1901-00
	Tabloid Extra 12 x 18 in.	500 sheets	016-1900-00
Phaser Glossy Coated Paper 148 g/m^2 (100 lb. book)	A/Letter (U. S.) 8.5 x 11 in.	100 sheets	016-1704-00
	A4 (Metric Letter) 210 x 297 mm	100 sheets	016-1705-00
	11 x 17 in.	50 sheets	016-1718-00
	A3	50 sheets	016-1719-00
	SRA3	50 sheets	016-1941-00
	12 x 18 in.	50 sheets	016-1940-00

Phaser 35 Series Transparency Film

Item	Size	Description	Part Number
Premium	A/Letter (U. S.) 8.5 x 11 in.	50 sheets	016-1896-00
Premium	A4 (Metric Letter) 210 x 297 mm	50 sheets	016-1897-00
Standard	A/Letter (U. S.) 8.5 x 11 in.	50 sheets	016-1894-00
Standard	A4 (Metric Letter) 210 x 297 mm	50 sheets	016-1895-00

Phaser Color Laser Labels

Size	Description	Part Number
A/Letter (U. S.) 8.5 x 11 in. (108 lb. label)	100 sheets / 30 labels per sheet (1.0 x 2.625 in. labels)	016-1812-00

Phaser Color Laser Labels

Size	Description	Part Number
A/Letter (U. S.) 8.5 x 11 in. (108 lb. label)	100 sheets / 6 labels per sheet (3.33 x 4.0 in. labels)	016-1813-00
A4 (Metric Letter) 210 x 297 mm (176 g/m^2)	100 sheets / 14 labels per sheet (38.1 x 99.1 mm labels)	016-1814-00
A4 (Metric Letter) 210 x 297 mm (176 g/m^2)	100 sheets / 8 labels per sheet (67.7 x 99.1 mm labels)	016-1815-00

Phaser Premium Cover Paper

Item	Description	Part Number
A/Letter (U.S.) 8.5 x 11 in. (60 lb., 163 g/m^2)	100 sheets	016-1823-00
A4 (Metric Letter) 210 x 297 mm (60 lb., 163 g/m^2)	100 sheets	016-1824-00

Phaser CD/DVD Labels and Inserts

Item	Description	Part Number
A/Letter (U.S.) 8.5 x 11 in.	10 sheets / 2 labels per sheet 20 sheets / 1 insert per sheet A/Letter (U.S.) 8.5 x 11 in. cards	016-2011-00
A4 (Metric Letter) 210 x 297 mm	10 sheets / 2 labels per sheet 20 sheets / 1 insert per sheet A4 (Metric Letter) 210 x 297 mm cards	016-2026-00

Phaser Premium Business Cards

Item	Description	Part Number
A/Letter (U.S.) 8.5 x 11 in. (70 lb.)	25 sheets / 10 cards per sheet 2.0 x 3.5 in. cards	016-1898-00
A4 (Metric Letter) 210 x 297 mm (190 g/m^2)	25 sheets / 10 cards per sheet 51 x 89 mm cards	016-1899-00

Phaser Premium Greeting Cards with Envelopes (Size A7)

Item	Description	Part Number
A/Letter (U.S.) 8.5 x 11 in. (70 lb.)	25 sheets /envelopes	016-1987-00
A4 (Metric Letter) 210 x 297 mm (190 g/m^2)	25 sheets / envelopes	016-1988-00

Cleaning Kit

Item	Description	Part Number
Cleaning Kit	Contains instructions and five alcohol wipes	016-1845-00

Phaser 7300 Color Printer Service Manual

Theory of Operation

Contents

# Mechanical Process of the Printer

S7300-185

Summary of the Printing Process

The following steps summarize the xerographic print process for the Phaser 7300 Printer.

1. **Paper Pick and Transport** - For the entire paper path, see page 8 - 226.

2. **Charging -** DC voltage applies a negative charge to the charge roller and the surface of the imaging unit drum.

3. **Exposure -** The LED head emits light to the negatively charged surface of the drum. Areas of the drum surface receiving the light attenuate the negative charge based on light intensity and surface potentials, forming the latent electrostatic image on the drum surface.

4. **Developing and recovery of excessive toner -** Toner is attracted to the electrostatic image on the drum (the areas exposed by the LED light), forming a visible image on the drum surface. Excessive toner is simultaneously transferred from the drum surface to the development roller.

5. **Transfer -** The transfer roller applies a positive charge to the back side of the paper. The toner image on the imaging unit drum is attracted to the positive charge and adheres to the paper.

6. **Cleaning -** A cleaning blade, located on the transfer unit, scrapes off excess toner left on the imaging unit after transfer.

7. **Fusing -** The fuser permanently fixes the toner image to the paper using a combination of heat and pressure.

Charging

DC voltage supplied by the high voltage power supply (HVPS) is applied to the charge roller. The charge roller, through direct contact with the imaging unit, places the negative charge onto the drums surface.
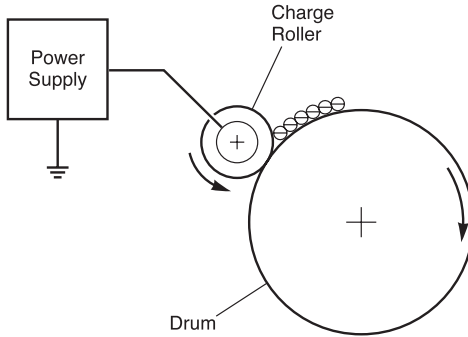
S7300-131

Exposure

Light from the LED heads are applied to the negatively charged surface of the drum. The negative charge on the illuminated surface of the drum is reduced according to the magnitude of the light. A latent image is formed on the surface of the drum according to the resulting surface potentials.
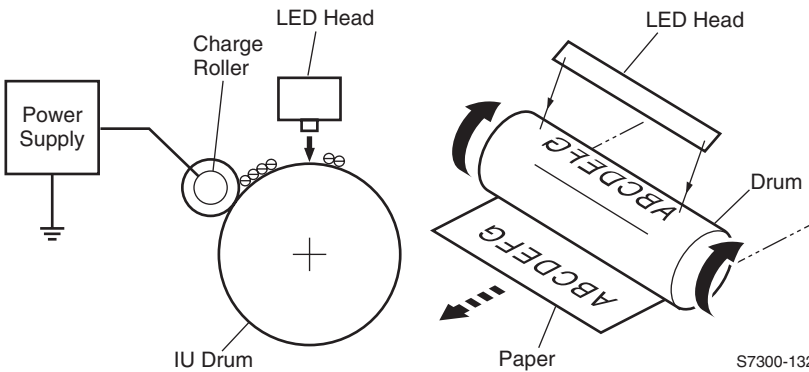
S7300-132

Developing

Developing applies toner to the latent image formed on the surface of the drum to form a visible toner image. The developing roller makes contact with and deposits toner on the charge-less areas of the drum that correspond to the latent image.

1. The sponge roller transfers toner to the developing roller. The toner is negatively charged.

2. The toner cleaning blade scrapes away excessive toner on the developing roller to form a thin film of toner on the surface of the developing roller.

3. The toner is attracted to the latent image on the surface of the drum at the point where the drum is in contact with the developing roller. The latent image on the surface of the drum is made visible from the applied toner.

Toner
Cleaning
Blade

Charge
Roller

Drum

Developer
Roller

Sponge
Roller

S7300-133
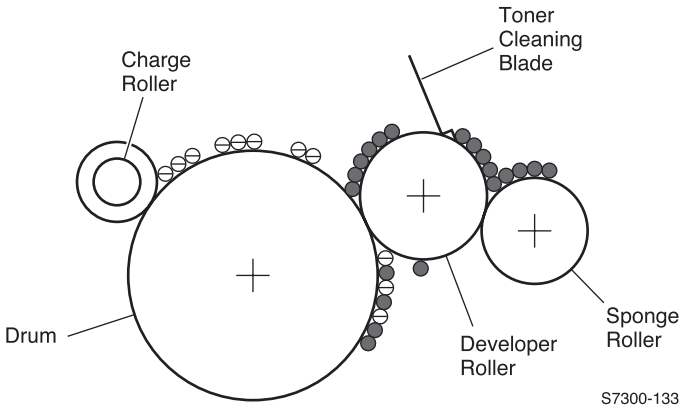
Transfer

The transfer roller, made of a conductive sponge, presses the paper against the surface of the drum. This process sandwiches the paper between the surface of the drum and the transfer roller. When the positive charge, supplied by the high voltage power supply, is applied to the transfer roller the positive charge on the roller jumps to the surface of the paper. At that time, the transfer roller touches the paper and attracts the negatively-charged toner from the surface of the drum onto the surface of the paper

.

Drum

Media

Transfer Unit
Belt

Transfer
Roller

Power
Supply

S7300-134
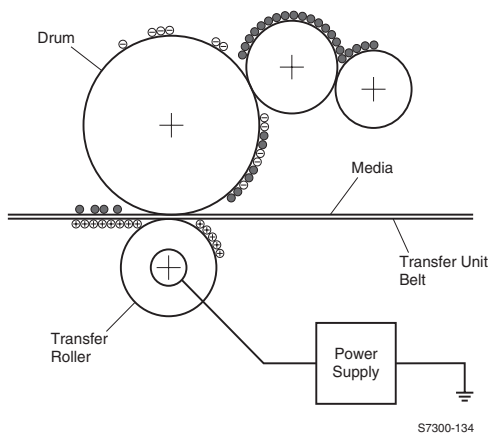
Fusing

The toner image transferred to the paper is fused and fixed to the paper through a combination of heat and pressure as the paper passes through the fuser's upper roller and lower roller. The lower roller is evenly pushed against the upper roller by two end springs. The fluorine-coated surface of the upper roller is heated by an 800-watt heater (a halogen lamp) located on the heat roller. Similarly, the fluorine-coated surface of the lower roller is heated by a 500-watt heater (a halogen lamp). The temperature of the upper and lower roller surfaces are controlled by the thermistors in contact with the surface of the upper roller. Thermostats are provided for safety. When the upper roller or lower roller temperature goes higher than the preset temperature, the thermostat opens and shut off power to the heater in the upper roller. Fuser temperatures are set as a result of the printers current media weight and type settings, for more information on the temperature settings for the fuser, see the table on page 8 - 233.
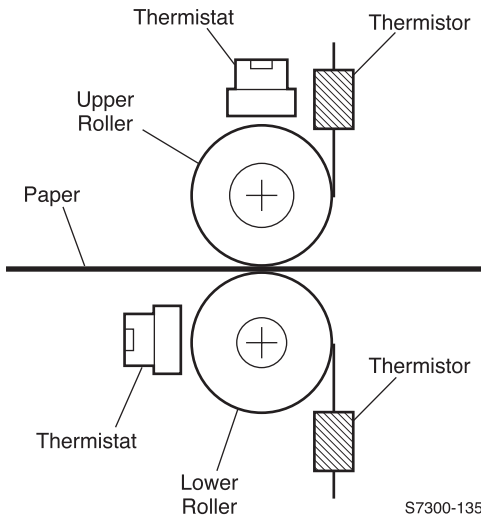
S7300-135

Imaging Unit Cleaning

Toner remaining on the imaging unit, without being transferred to paper, is scraped off by a cleaning blade and collected into the waste toner bin located on the inside of the toner cartridge.

Waste toner area
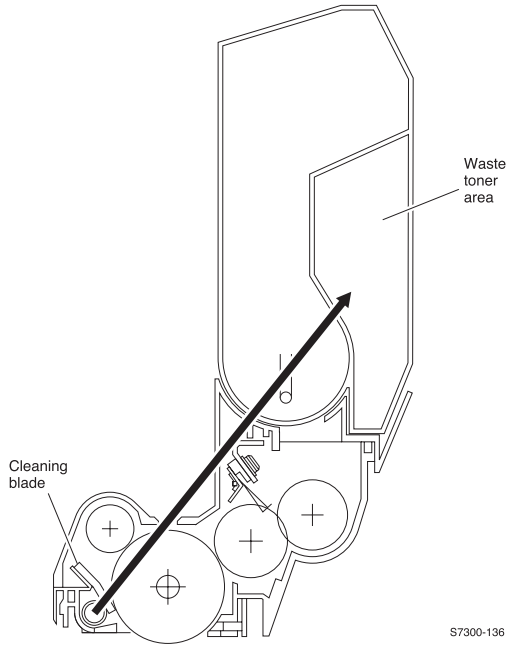
Cleaning blade

S7300-136

Transfer Unit Cleaning

Toner remaining on the transfer unit is scraped off by a cleaning blade and collected into the waste toner box within the transfer unit.

Cleaning blade

Waste toner-box
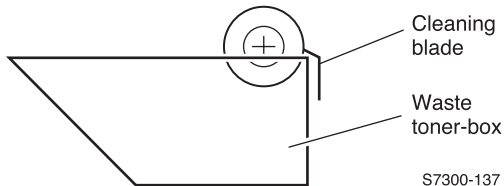
S7300-137

Summary of the Paper Path

Top Output Tray

Upper Fuser Roller

Fuser

4 x LED Heads

4 x IU Units and Toner Cartridges

Registration Roller Assy (A)

MPT Pick Roller

MPT

Eject Roller

Eject roller

Lower Fuser Roller

Low-voltage power supply

Transfer Unit

High-voltage power supply

Registration Roller Assy (B)

Tray 1

Tray 2

Feed Rollers

Tray 3

Pick Rollers

Tray 4

Tray 5
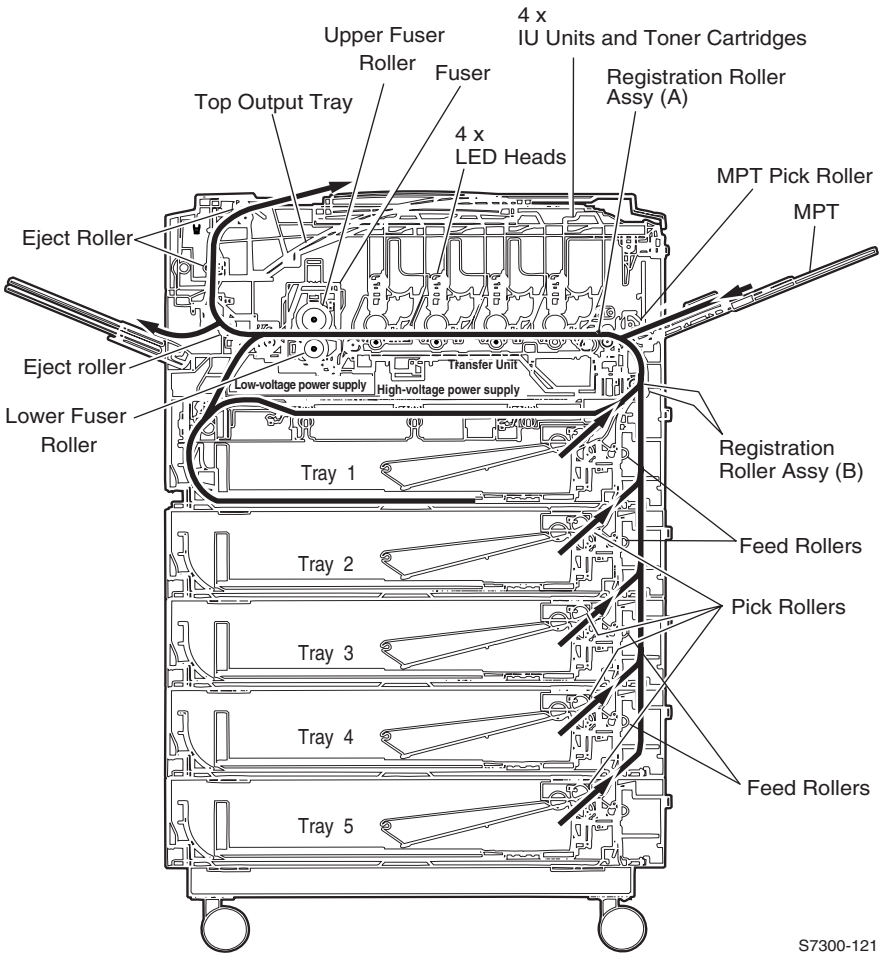
Feed Rollers

S7300-121

Paper Fed from Tray 1

1. The feed motor, rotating in the direction shown, drives the pick and feed rollers, feeding a sheet of paper from the tray.

2. After the leading edge of the paper comes in contact with the registration entrance sensor, the paper moves forward a specified distance. When the paper's leading edge reaches the registration roller assembly (B), the feed motor stops.

3. The registration motor, rotating in the direction shown, synchronizes with the paper feed operation when the paper's leading edge touches the registration roller assembly (A). With this rotation, the registration roller assembly (A) and the registration clutch are engaged.

4. At this time the feed motor stops rotating. The rollers free-wheel as the remainder of the sheet of paper is drawn from the tray.

5. The registration motor moves the paper until the trailing edge passes the transfer belt entrance sensor.
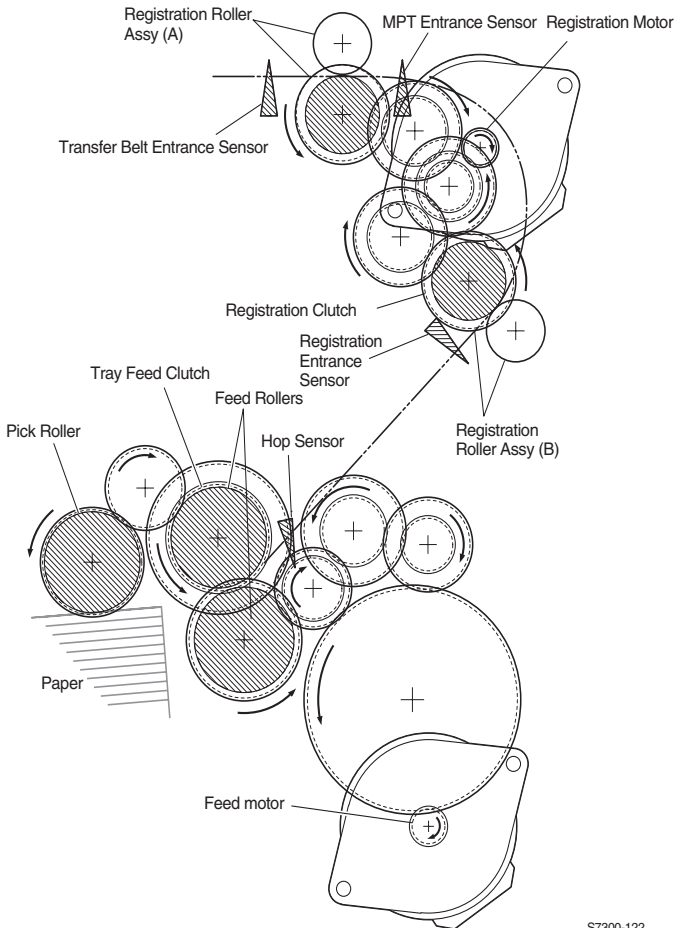
S7300-122

Paper Fed from Optional Trays

Feed Roller

Feed Roller

Feed Sensor

Feed Roller

Tray Feed Clutch

Upper tray

Optional paper loading tray

Hop Sensor

Pick Roller

Feed Roller

Feed Motor

S7300-123
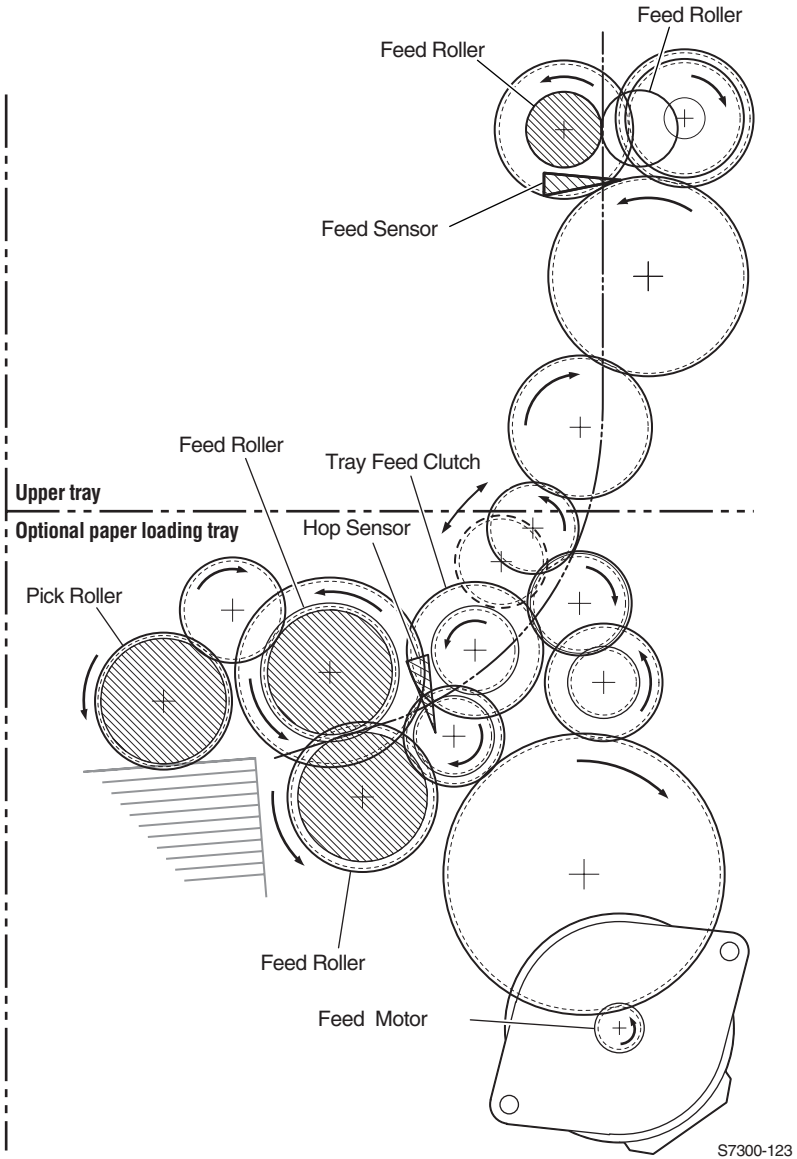
Paper Fed from the Multi-Purpose Tray

1. The hopper-plate is pushed down by the release lever to signalling the MPT roller home position sensor (A).

2. The registration motor rotates in the direction shown, driving the MPT feed roller causing the cam to turn. The cam pushes the release lever allowing the hopper plate to pick the paper from the MPT feed roller. At this time, the registration roller assembly does not move, as its one-way clutch gear idles.

3. After the transfer belt entrance sensor senses the leading edge of the paper, the paper is transported forward for a specified length. The paper stops when its leading edge reaches the registration roller assembly (A).

4. Concurrently, the cam pushes down the hopper plate, which is locked by the spring-loaded release lever (C).

5. After completing the paper feed operation, the registration motor rotates to drive the registration roller assembly (A). During this time, the MPT feed roller does not rotate because of the one-way clutch gear.
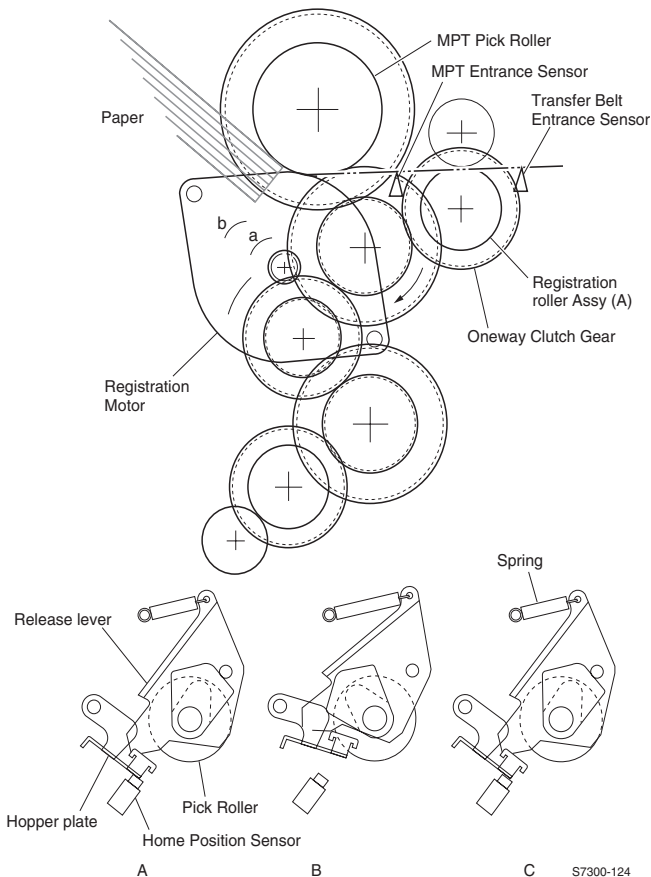
Transfer Unit

The transfer unit motor turns clockwise driving the transfer unit belt. Inside the transfer unit, a transfer roller is located just under the imaging unit for each color, with the transfer belt sandwiched between them. When the transfer-belt motor and imaging unit motors are activated, they carry the paper on the transfer belt to the fuser. The voltages applied to the transfer rollers transfer the toner image to each colors imaging unit drum.

S7300-138
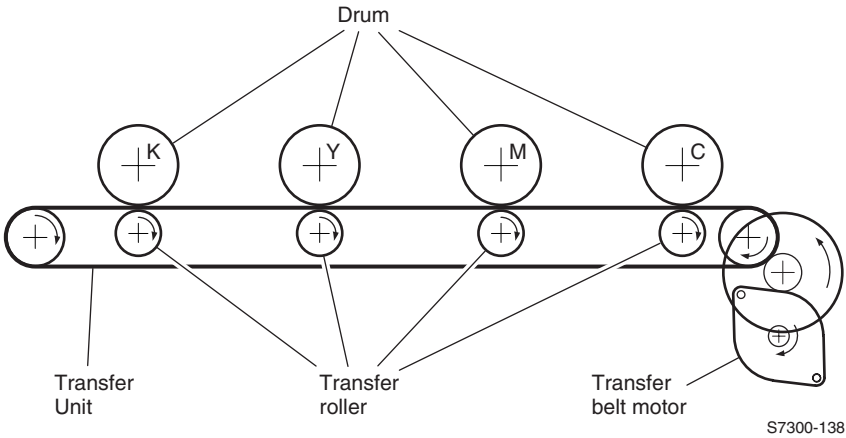
Imaging Unit Up/Down Movement

1. Rotation and up/down operation of the imaging unit are conducted by a single pulse motor. The main motor rotating counter-clockwise (a) turns lever 1 to the left. As a result, lever 2, supported by lever 1, moves down, lowering the imaging unit. With the imaging drum contacts (3-pin) sensing its position, the imaging unit descends to the lowest position (or printing position) based on a timed-rotation of the imaging unit motor. There, the drum gear engages with the driving gear and starts rotating to transfer the image from the imaging unit to the sheet of paper as it passes by. At this time, when the lever 2 reaches the lowest position, the one-way gear idles.

2. Rotating the imaging unit main motor in the direction of the arrow (b) causes lever 1 to push up the imaging unit via lever 2. Once the imaging drum contacts are activated, lever 1 continues to raise the imaging unit creating a gap between the drum and the transfer unit. At this time, the drum gear does not rotate as it is separated from the driving gear.

3. The imaging drum contacts sense "on" when two pins are pushed up by the springs on the board to touch the conductive plate positioned above them. The imaging drum contacts sense "off" when two pins are pushed down by the Imaging Unit to separate the pins from the plate, opening the connection between the pins. The imaging drum contacts also verify installation of the imaging unit.

S7300-139

Plate

Pin

Board   Spring

Imaging Drum Contact
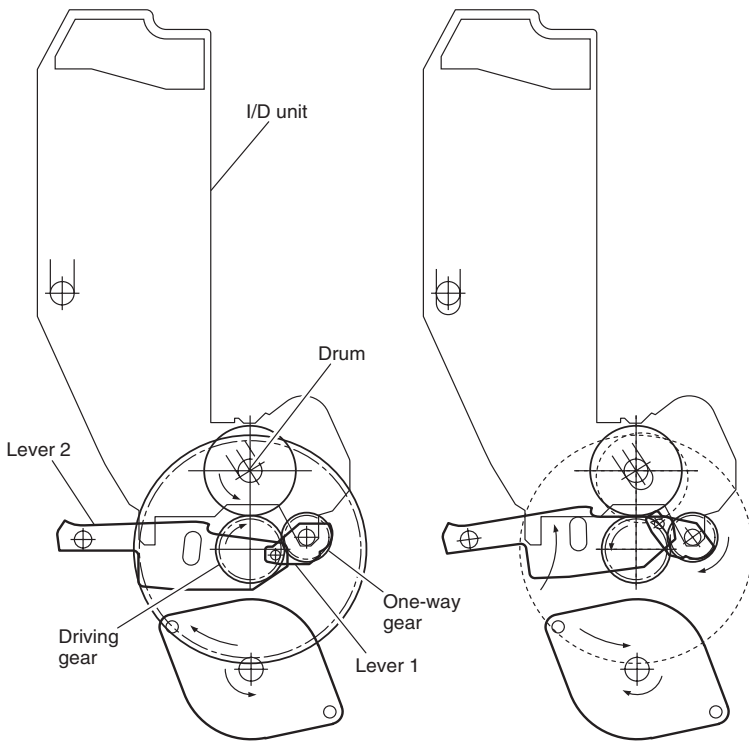
S7300-140
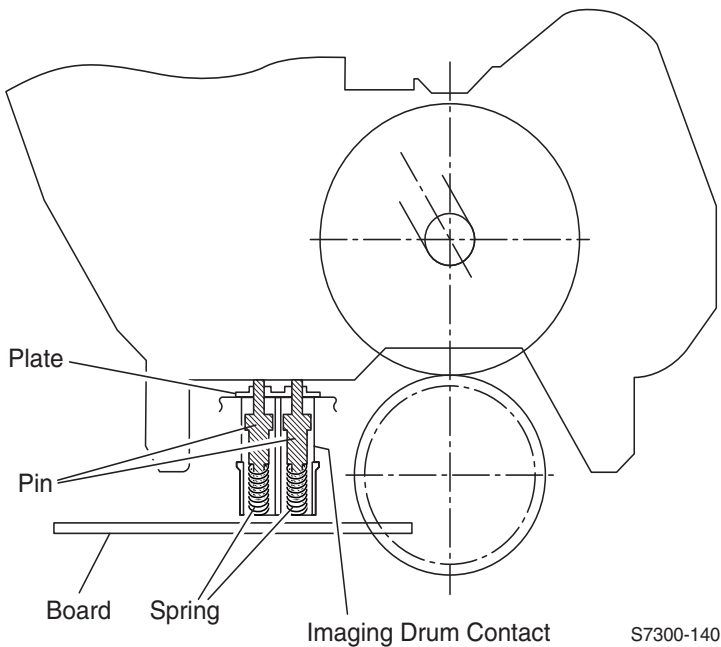
Transfer Unit Arm and Gear Up/Down Movement of the Imaging Units

Note: **The Black Imaging Unit does not move.**

Arm   Gears

Transfer Unit

S7300-186
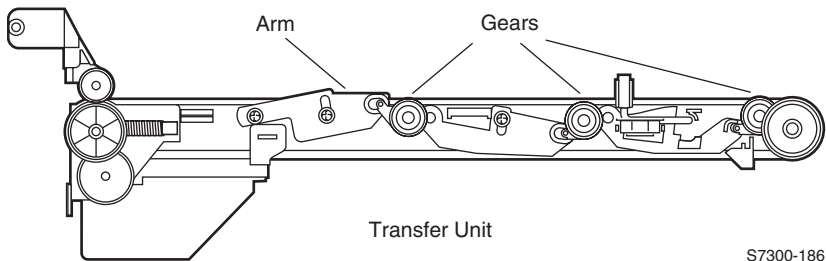
Fuser and Paper Exit

1. The fuser motor drives the fuser unit and eject rollers. As the fuser motor rotates counter-clockwise (a), it rotates the upper roller, which fixes the toner image on the paper with heat and pressure.

2. At the same time, the four sets of eject rollers rotate to eject the print.

3. The eject route to the left side output tray is selected by a spring-loaded separator gate. With the left side output tray open, the face-up gate directs the print to the left side output tray. With the face-up gate closed, the paper separator tilts steeply and directs the print to the top output tray.
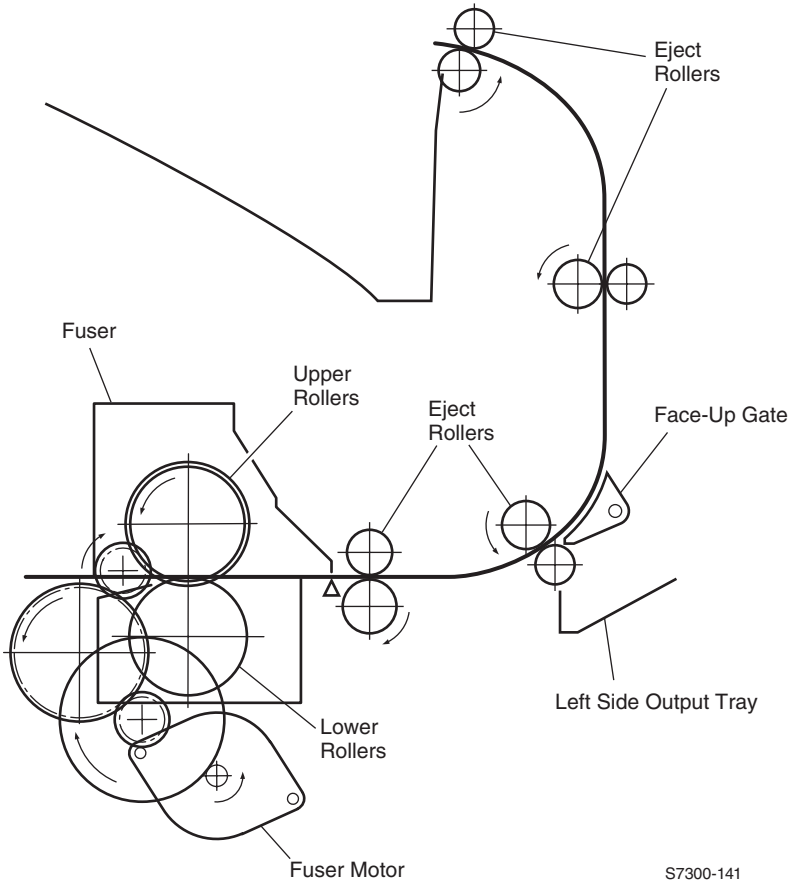
S7300-141

Duplex Unit

1. When the duplex unit receives instructions from the printer to print on both sides of a sheet of paper, the exit gate (duplex) solenoid opens the exit gate (duplex) after completion of the first side of the print. The path of the paper is switched when roller 1 turns, just as the paper begins to exit, and the paper is retracted back into the printer.

2. When the leading edge of the paper passes through the duplex entrance sensor, the rollers reverse and feed the paper through the duplex unit. The paper is carried across all the rollers in the duplex unit and through the printer with the other side printed.

Exit Gate (Duplex)
Exit Gate (Duplex) Solenoid
Duplex Entrance Sensor
Roller(1)
a
b
Motor   Roller(2)   Roller(3)   Roller(4)   S7300-125
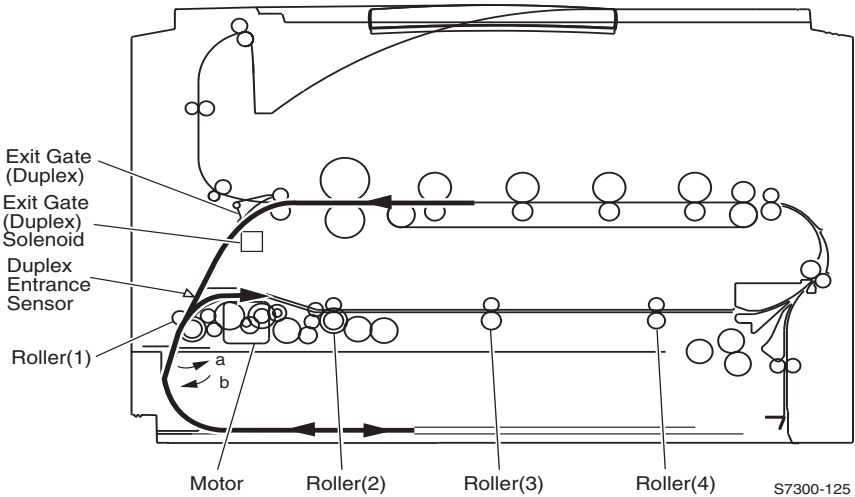
Paper Jam Detection

The printer checks for a paper jam when the printer is powered on and during printing. When a paper jam is detected, the printer immediately halts the printing process. Below is a diagram of jam locations within the printer.

Media Jams occur in the paper path if the associated sensor does not turn ON within a specified amount of time, meaning the jam occurs prior to reaching the sensor, or if the sensor does not turn OFF within a specified amount of time, meaning the jam occurs along the path of the sensor.

Misfeeds occur when the paper can not be loaded from the tray.

Paper size errors occur when the registration entrance sensor does not turn OFF within a specified amount of time.

S7300-127
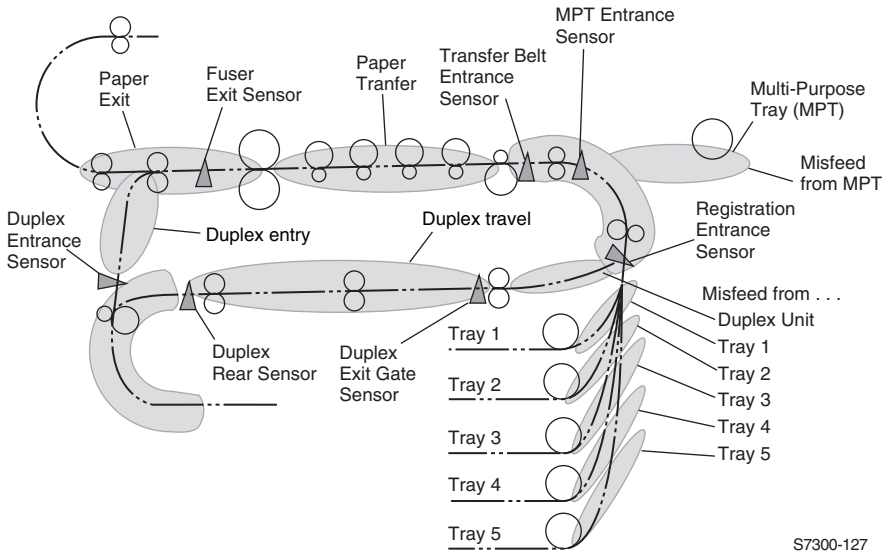
Paper Size Sensing

The position of a multi-slotted plate, at the rear of the paper tray, is set according to the position of the tray's paper guides. Upon insertion of the tray in the printer, the plate's four rows activate four switches on the paper size sensor board. The combinations of the slot positions indicate to the paper size sensor board, the size of the paper in the tray.

Paper Size Detection

State of Microswitch				Paper Size
SW1 (top)	SW2	SW3	SW4 (bottom)	
0	0	0	0	No tray installed
1	1	1	1	A/Letter (portrait)
1	0	1	0	A/Letter (landscape)
1	0	0	1	A3
0	0	1	1	A3-Nobi
1	1	1	0	A4 (portrait)
0	0	1	0	A4 (landscape)
0	1	1	0	A5
0	1	1	1	A6
0	0	0	1	B4
1	1	0	0	B5 (portrait)
1	0	0	0	B5 (landscape)
1	0	1	1	B/Tabloid
1	1	0	1	Executive
0	1	0	0	Legal 13 in.
0	1	0	1	Legal 14 in.

S7300-12
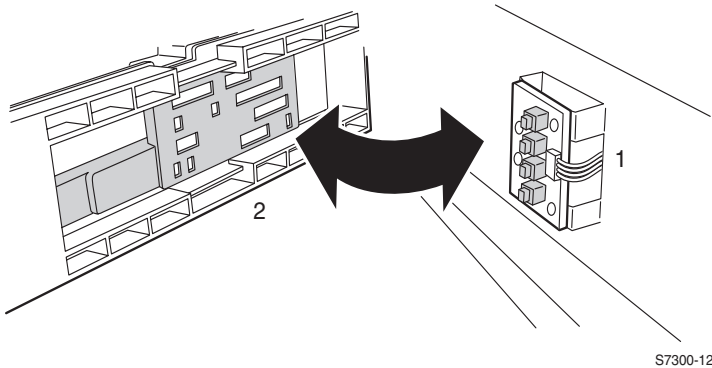
1. Paper Size Sensor Board

2. Plate on the back of the Paper Tray

Fuser Temperature Settings

Fuser temperature settings utilize the Auto-Thickness Sensor to measure the media weight and adjust the fuser temperature and engine speed. These ranges are approximate and are to be used as a reference point in isolating problems associated with fuser temperature. Light, Medium, Medium Heavy and Heavy Paper are found in the "Special Menu".

Media Type	Upper Roller Temperature	Lower Roller Temperature	Order from Lowest to Highest Fuser Temperature	Media Weight
Plain Paper (Default)	152-185 ^{o}C	126-170 ^{o}C	1 - 4	64-120 g/m^2
Light Paper			1	64-75 g/m^2
Medium Paper			2	75-90 g/m^2
Medium Heavy Paper		Not available	3	90-105 g/m^2
Heavy Paper			4	105-120 g/m^2
Thin Card Stock			5	120-163 g/m^2
Thick Card Stock			6	163-203 g/m^2

Cover Open Detection

When the top cover or the right cover (Door A) are opened, the interlock switch is deactuated shutting off the +34 volts supplied to the high voltage power supply. The engine controller board receives a signal (CVOPN) indicating the status and reporting the error message "Close Top Cover" or "Close Right Door A". At this time, the engine controller board receives the FCOVER signal and implements the cover open processing.

S7300-128
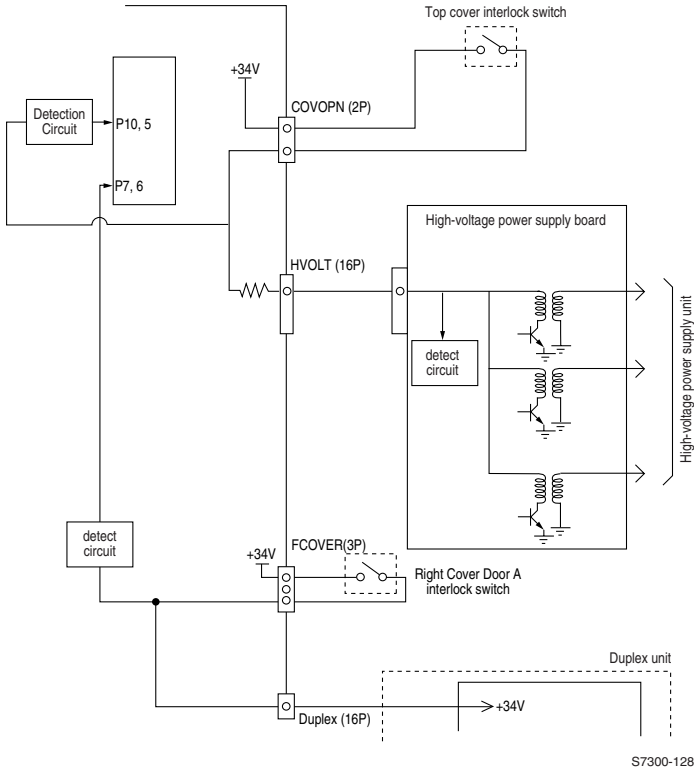
Toner Detection

The used toner amount is detected by counting the printed pixel numbers. The printer starts counting pixels after a "Toner Low" error is received by the printer and stores the count on the engine controller board EEPROM. When the "Toner Empty" condition is met, the consumed amount is set to 100%.

The toner cartridge contains a stirring gear (which rotates at a constant rate), a stirring bar and a magnet on the stirring bar. The toner state is detected by measuring the contact time between the toner cartridge sensor actuator and the magnet on the stirring bar.

Stirring gear   Link   Stirring bar
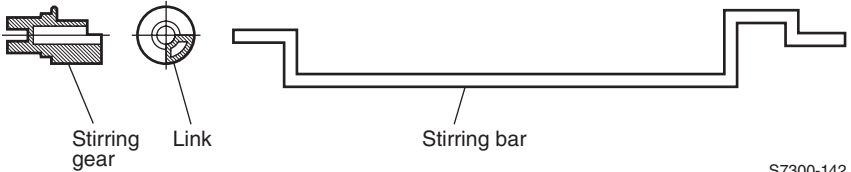
S7300-142

Toner Full State

The stirring bar turns with the stirring gear. Since the opposite side is in toner, the stirring bar turns by the force of the stirring gear even when the stirring magnet is placed in its highest position.

Toner Cartridge Sensor Actuator   Toner Low Sensor

Sensor lever B

Toner cartridge

Stirring bar

Toner full state
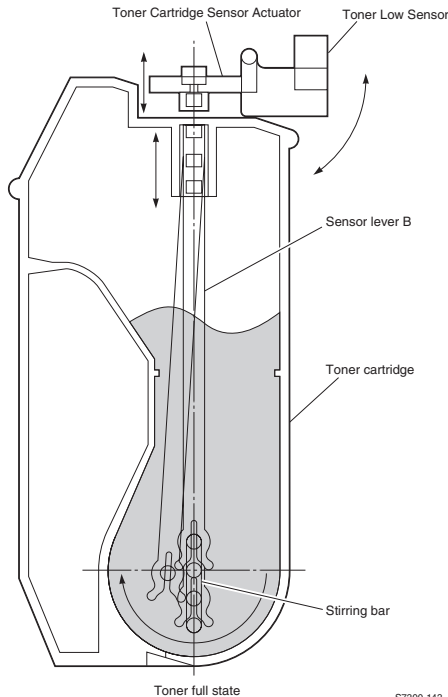
S7300-143

Toner Low State

If the stirring bar reaches its highest position and then falls to its lowest position under its own weight because of the absence of toner resistance, the magnet contact time measured is reported as too long and a toner low condition is reported by the printer.

When the toner low state is detected 3 consecutive times, a toner low state is established.

When the toner full state is detected 2 consecutive times, the toner low state is cancelled.

When there is no change with the toner sensor for 2 cycles (2.25 sec. by 2) or more, the replace condition is activated.

The toner sensor is not monitored while the drum motor is not rotating.
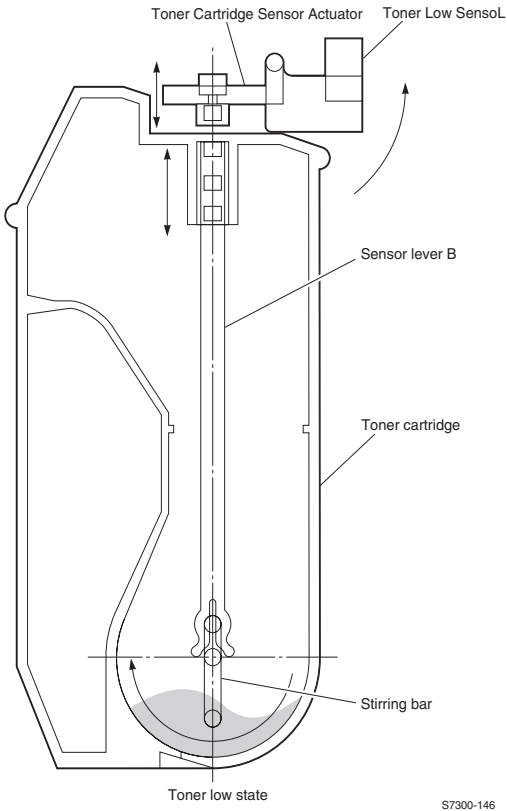
Color Registration Detection

Reflection-type optical sensors, for detecting color registration, are mounted under the transfer unit, one on the right and one on the left in front of the cleaning blade. A solenoid-activated shutter opens up so the sensors can "see" the transfer unit. On the right and left edges of the belt, an alignment pattern (a series of primary color toner patches) is printed, which the reflection-type optical sensors read to measure the amount of misalignment base on the position of the black toner patch. According to this measurement, the printer determines the correct value and automatically adjusts color registration in the main scanning, sub-scanning and diagonal directions. This operation is implemented when the printer is turned on and when 400 sheets have been printed.
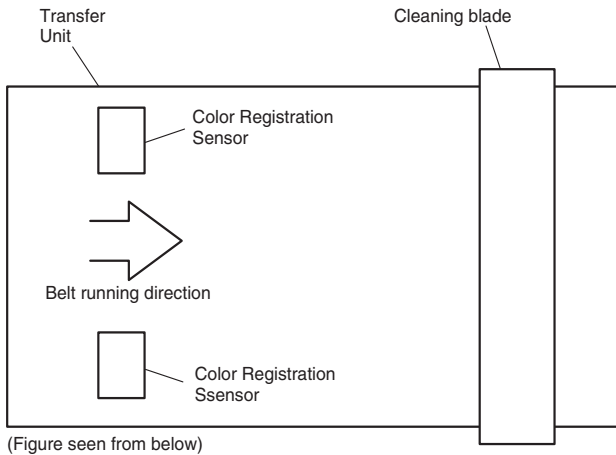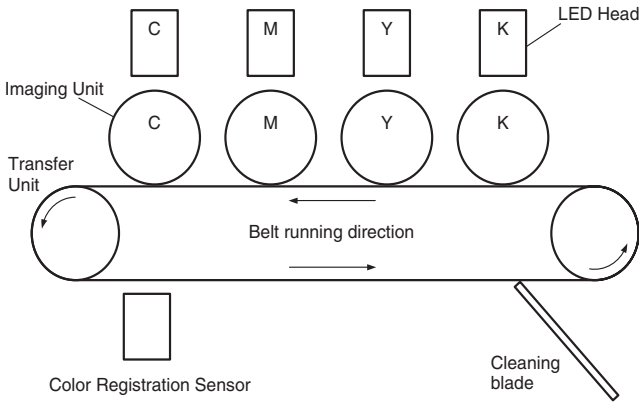
S7300-145

Customer Replaceable Consumable Detection

The new/replace condition of units is judged on whether a "blown" fuse is detected in the unit. If the fuse of a unit is intact, the unit is recognized as a new one. This determination is made when the printer is turned on and when its cover is closed. Finding a new unit, the printer resets the life counter of the unit and blows (overcurrents) the fuse for version detection. The count will not indicate it has been reset until two pages have been printed.

Customer Replaceable Consumable (CRC) Life Counter Behavior

Internal counters track Customer-Replaceable Consumable (CRCs) life usage and store the values on the Engine Controller Board EEPROM. The image processor board stores the pixel count information in NVRAM and monitors these counters in order to display the consumable *near end-of-life* and *at end-of-life* messages.

The toner states displayed are OK, Low, and Empty. When an empty state is reached, the printer terminates printing at the end of the current page and displays the appropriate message on the Front Panel. No further jobs are accepted. All printer CRCs wait for the current print job to finish before declaring a Low or Empty state.

7300-30
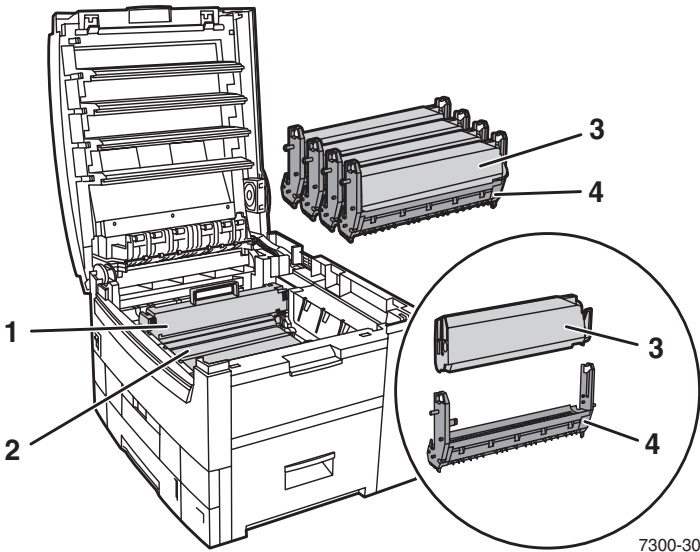
Note: ***Consumable life is based on letter-size, continuous print at 5% coverage per color. New Toner Cartridges installed on new imaging drums will experience reduced life. Life ratings are based on averages over 2 to 4 toner cartridges.***

Customer-Replaceable Consumable (CRC)		Print Life
1	**Fuser**	80,000
2	**Transfer Unit**	80,000
3	**Toner Cartridges** Standard High-Capacity	7,500 15,000
4	**Imaging Units** Note: Imaging Unit life is determined by images and pixel count. If the pixel count is reached, the printer will display a specific end-of-life message but will continue to print. There is no hard stop with pixel counts.	30,000

Printer Components
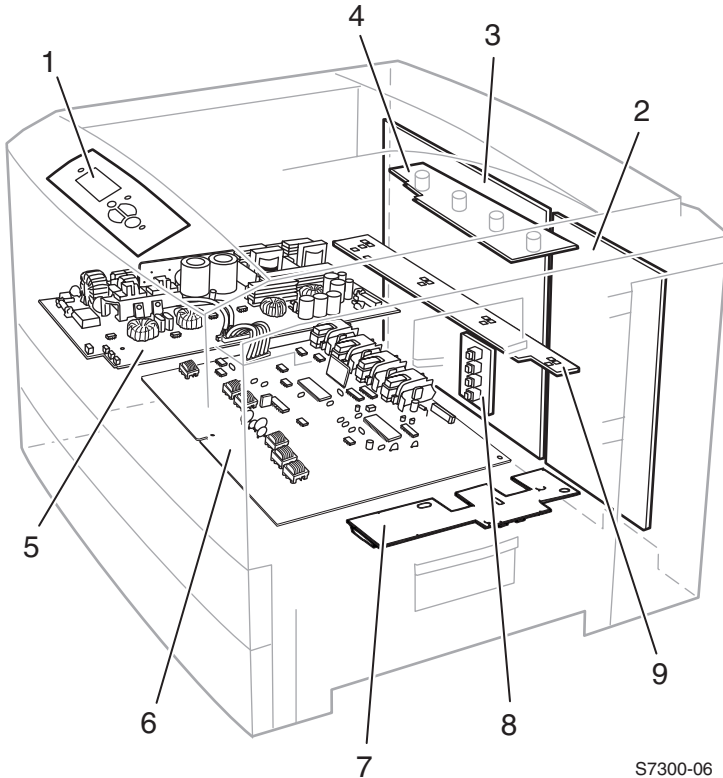
S7300-06

1. **Front Panel** - The front panel provides the user interface to the printer.

2. **Image Processor Board** - The image processor board converts the data from the print jobs into bitmap images. The data passes through the engine controller board, to switch the laser diode on and off during the printing process. The image processor board contains:
   - Memory - RAM
   - Flash DIMM
   - NVRAM - Front panel and network settings.
   - Configuration Chip - determines the printer configuration.
   - Optional Hard Drive

3. Engine Controller Board - The engine controller board synchronizes the print process by controlling the LED head assemblies, motors, fans, sensors, solenoids, clutches and fuser temperatures. The engine controller board also controls the voltages to the imaging units and the print speed to compensate for changes in media and environmental conditions. The engine controller board contains:
   - EEPROM
   - Fuses - See "Engine Controller Board Connectors" on page 8-246
   - Connectors - See "Engine Controller Board Connectors" on page 8-246

4. Toner Sensor Board -

5. Low Voltage Power Supply

6. High Voltage Power Supply

7. Entrance Sensor Board - contains the following sensors:
   - Transfer belt entrance sensor
   - Registration entrance sensor
   - MPT entrance sensor
   - Waste toner full sensor

8. Paper Size Sensor Board - The position of a multi-slotted plate, at the rear of the paper tray, is set according to the position of the tray's paper guides. Upon insertion of the tray in the printer, the plate's four rows activate four switches on the paper size sensor board. The combinations of the slot positions indicate to the paper size sensor board, the size of the paper in the tray.

9. Imaging Unit Sensor Board

Engine Controller Board Connectors
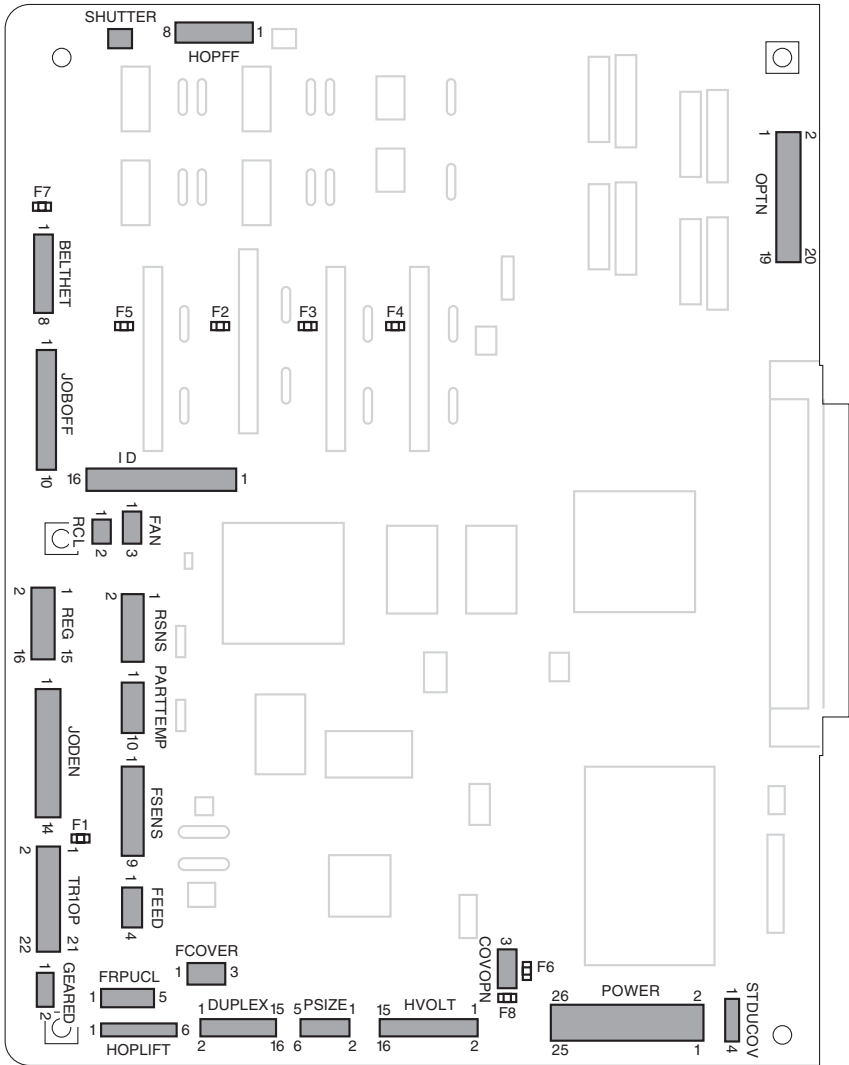
S7300-158

Engine Controller Board Connectors

Name	Connected to...
SHUTTER	Color registration shutter solenoid
HOPFF	Registration and tray 1 motor
OPTN	Toner sensor board
BELTHET	Fuser and Transfer Motors
JOBOFF	Top and rear fuser fans, right and left offset solenoids

Engine Controller Board Connectors (cont'd.)

Name	Connected to...
ID	Imaging Unit Motors
FAN1	Card cage fan
RCL	Registration clutch
REG	MPT paper, OHP, liftplate, temp/humidity and thickness sensors
RSENS	ADC sensor, left and right registration sensor
JODEN	Imaging unit sensor board
PARTTEMP	Fuser exit sensor
FSENS	Entrance sensor board
TR1OP	Tray 1 empty sensor, tray 1 near empty sensor, optional lower tray controller board.
GEARED	Tray 1 lift motor
FEED	Tray 1 paper feed sensor
FRPUCL	Tray 1 paper feed clutch, tray 1 pickup clutch
HOPLIFT	Tray 1 lift sensor, tray 1 paper sensor
FCOVER	No longer used
DUPLEX	Duplex unit
PSIZE	Paper size sensor board
HVOLT	High voltage power supply
COVOPN	Top cover interlock switch
POWER	Low voltage power supply board CN1
STDUCOV	Right Door A interlock and side output tray switches

Engine Controller Board Fuses

Fuse	Supplies
F1	+34 Volts to the Optional Trays (LTD/LTA)
F2	+34 Volts to the Magenta Imaging Unit
F3	+34 Volts to the Yellow Imaging Unit and Fuser Motor
F4	+34 Volts to the Black Imaging Unit and Registration Motor
F5	+34 Volts to the Cyan Imaging Unit and Transfer Unit Motor
F6	+5 Volts for Engine Controller Board functions
F7	+34 volts to the: ■ Electrical Card Cage Fan ■ Front LVPS Fan ■ Rear LVPS Fan ■ Rear Fuser Fan ■ Top Fuser Fan
F8	+34 volts to the Top Cover Interlock Switch

Sensors

Top Side Output Sensor

Paper Eject Rollers

Stack Full Sensor

Upper Fuser Roller

Imaging Units

C M Y K

Transfer Belt Entrance Sensor

MT Pick Roller

Fuser Exit Sensor

Lower Fuser Roller

Transfer Unit

Belt Cleaning Blade

Registration Roller B

Registration Roller A

Registration Entrance Sensor

Duplex Entrance Sensor

Duplex Exit sensor

MPT Entrance Sensor

Duplex Rear Sensor

Duplex Feed Rollers

Tray 1 Feed Roller

Feed Rollers

Duplex Roller

Tray 2 Feed Roller

Feed Sensor

S7300-126

S7300-07

Sensor Location and Function

No.	Sensor	Function
1.	MPT Entrance Sensor	Detects incoming paper to determine the timing for switching from hopper to carriage.
2.	OHP Sensor	Detects the presence or absence of transparency media.
3.	MPT Empty Sensor	Detects paper present in the MPT.
4.	Black Toner Cartridge Sensor	Detects full, low, and empty state of toner cartridges.
5.	Y Yellow Toner Cartridge Sensor	
6.	Magenta Toner Cartridge Sensor	
7.	Cyan Toner Cartridge Sensor	
8.	Top Side Output (Face-Up) Sensor	Detects paper exit to determine the timing for job offset operation.
9.	Stack Full Sensor	Detects the height of the stack of prints in the Face-up tray (top output).
10.	Exit Sensor	Detects the leading and trailing edges of media and determines whether the paper has exited the printer.
11.	ADC Sensor (Color Registration Assembly)	Measures the density pattern printed on the transfer belt.
12.	ATS Sensor	Adjusts the fuser temperature according to the thickness of media loaded in the tray. This only functions when the front panel media type is set to plain or letterhead.
13.	Temp/Humidity Sensor Board	Measures the printer's temperature and relative humidity in order to calculate the optimal transfer voltage under the current environmental conditions.
14.	Transfer Belt Entrance Sensor	Detects the beginning of media transfer and based on the time it takes to for the leading edge to reach the sensors, determines media length.
15.	Registration Sensor	Determines job offset.
16.	Entrance Sensor	Determines movement of media through the printer.
17.	Waste Toner Full Sensor	Detects a full state of waste toner in the transfer belt waste toner bin.
18.	Tray 1 Paper Empty	Detects the absence of media in the tray.
19.	Tray 1 Low Paper	Detects a low condition of media loaded in the tray.
20.	Door A Open Switch (Interlock)	Detects a right door open condition and shuts off the +34 volt supply.
21.	Top Cover Open Switch	Detects a top cover open condition and shuts off the +34 volt supply.

Clutches, Motors and Solenoids

S7300-08
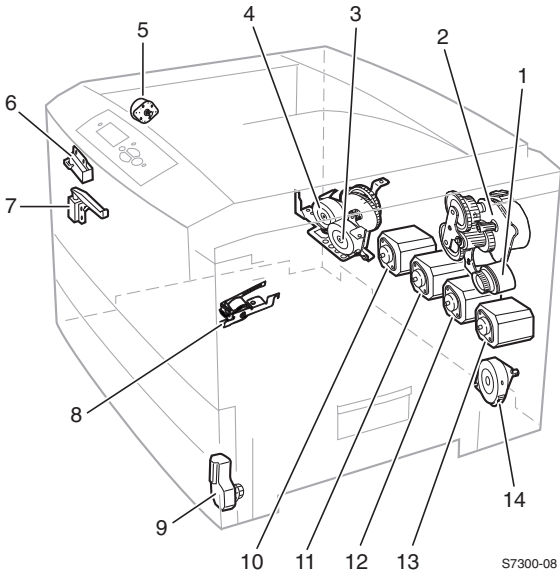
No.	Part
1	Registration Clutch
2	Registration Motor
3	Transfer Unit Motor
4	Fuser Motor
5	Job Offset Motor
6	Exit Solenoid
7	Duplex Solenoid
8	Color Registration Shutter Solenoid
9	Tray Lift Motor
10	Cyan Imaging Unit Motor
11	Magenta Imaging Unit Motor
12	Yellow Imaging Unit Motor
13	Black Imaging Unit Motor
14	Paper Feed Motor

Wiring Diagrams

This section contains all the wiring diagrams for the Phaser 7300 Printer.

Contents

Motors and Drum Contacts

S7300-176

S7300-177

Toner Sensor Board

POWER

CPOW2
3. GND — Green
2. +5V — Black
1. COM(3.8V) — Red

MPOW2
3. GND — Green
2. +5V — Black
1. COM(3.8V) — Red

YPOW2
3. GND — Green
2. +5V — Black
1. COM(3.8V) — Red

KPOW2
3. GND — Green
2. +5V — Black
1. COM(3.8V) — Red

Duplex Gate Solenoid
Face Up Gate Solenoid

2. GND — Red
1. FUGATESOL(32V) — Red

2. GND — Red
1. DUPGATESOL(32V) — Red

Front Fuser Fan
2. GND — Black
1. FFUSERFANON(34V) — Red

Front Power Supply Fan
3. FPSFANERROR — White
2. GND — Black
1. FPSFANON(34V) — Red

Rear Power Supply Fan
1. RPSFANON(34V) — Red
2. GND — Black
3. RPSFANERROR — White

Black

Low Voltage Power Supply Board

CN5 3 1
CN10 3 1
CN8 3 1
CN9 2 1 2 1

FAN 0 3 1
CN2 14 1
CN1 26 ... 1

1. +5V
2. +5V
3. +5V
4. +5V
5. +5V
6. +5V
7. COM(0V)
8. COM(0V)
9. COM(0V)
10. COM(0V)
11. COM(0V)
12. COM(0V)
14. 5VLOOP

Black

Card Cage Fan

3. CCAGEFANERROR — White
2. GND — Black
1. CCAGEFANON(34V) — Red

Rear Fuser Fan
Top Fuser Fan
Right Offset Solenoid
Left Offset Solenoid

10. REARFUSFANERROR — Red
9. GND — Red
8. REARFUSFANON(34V) — Red
7. MIDFUSFANERROR — Red
6. GND — Red
5. MIDFUSFANON(34V) — Red
4. OFFSETSOLR- — Yellow
3. OFFSETSOLR+ — Yellow
2. OFFSETSOLL- — Yellow
1. OFFSETSOLL+ — Yellow

Engine Controller Board

26 POWER 2
25 ... 1

FAN1 1 3
JOBOFF 1 ... 10

Black

1. GND(0V)
2. GND(0V)
3. GND(0V)
4. GND(0V)
5. +5V
6. +5V
7. +5V
8. +5V
9. COM(0V)
10. COM(0V)
11. COM(0V)
12. +34V
13. +34V
14. +34V
15. +12V
16. UPRTHRMSTR
17. SIDETHRMSTR
18. LWRTHRMSTR
19. FUSERFUSE
20. DPLXGATESOL
21. FRONTFANSIG
22. FACEUPSOL
23. PWRSIG
24. PWRSIG
25. PWRSIG
26. PWRSIG

Power and Fans

Paper Path Sensors - A

S7300-178

S7300-180

Paper Path Sensors - B

Front Panel and Toner Sensor Board

S7300-179

S7300-182

Low Voltage
Power Supply Board

CN3 1 ... 8

CN1 1 / 26

High Voltage Power Supply Board

CN2 8 ... 1

1.	+5V	Red
2.	+5V	Red
3.	+12V	Yellow
4.	+12V	Yellow
5.	GND	Black
6.	GND	Black
7.	GND	Black
8.	GND	Black

CN1 1 / 16

1.	GND(0V)	Black
2.	GND(0V)	"
3.	GND(0V)	"
4.	GND(0V)	"
5.	+5V	"
6.	+5V	"
7.	+5V	"
8.	+5V	"
9.	COM(0V)	"
10.	COM(0V)	"
11.	COM(0V)	"
12.	+34V	"
13.	+34V	"
14.	+34V	"
15.	+12V	"
16.	UPRTHRMSTR	"
17.	SIDETHRMSTR	"
18.	LWRTHRMSTR	"
19.	FUSERFUSE	"
20.	DPLXGATESOL	"
21.	FRONTFANSIG	"
22.	FACEUPSOL	"
23.	PWRSIG	"
24.	PWRSIG	"
25.	PWRSIG	"
26.	PWRSIG	"

Engine Controller Board

POWER 1 / 26

COVOPN 3 1

HVOLT 1 / 16

White Flexcable

1.	GND	
2.	+32V	"
3.	GND	"
4.	+32V	"
5.	GND	"
6.	HVSIG	"
7.	HVSIG	"
8.	HVSIG	"
9.	HVSIG	"
10.	HVSIG	"
11.	HVSIG	"
12.	HVSIG	"
13.	GND	"
14.	GND	"
15.	GND	"
16.	GND	"

3. 32V(INTLK)
1. +32V

Top Cover
Interlock
Switch

High Voltage and Low Voltage Power Supplies

The **+5 Volt Loop**

Light
Gray

Interconnect

Dark
Gray

S7300-181

POWER

OPTN 20

Toner Sensor Board

11. +5V   Black
10. +5V   Black

Low Voltage
Power Supply Board

CN2   1
14   1

CN1   1
26

Black

14. 5VLOOP

(+5 Volt Loop)

Jumper Wire

5.   +5V   Black
6.   +5V   Black
7.   +5V   Black
8.   +5V   Black

1   OPTN   20

Engine Controller Board

POWER   1
26   POWER

FUSE
F6
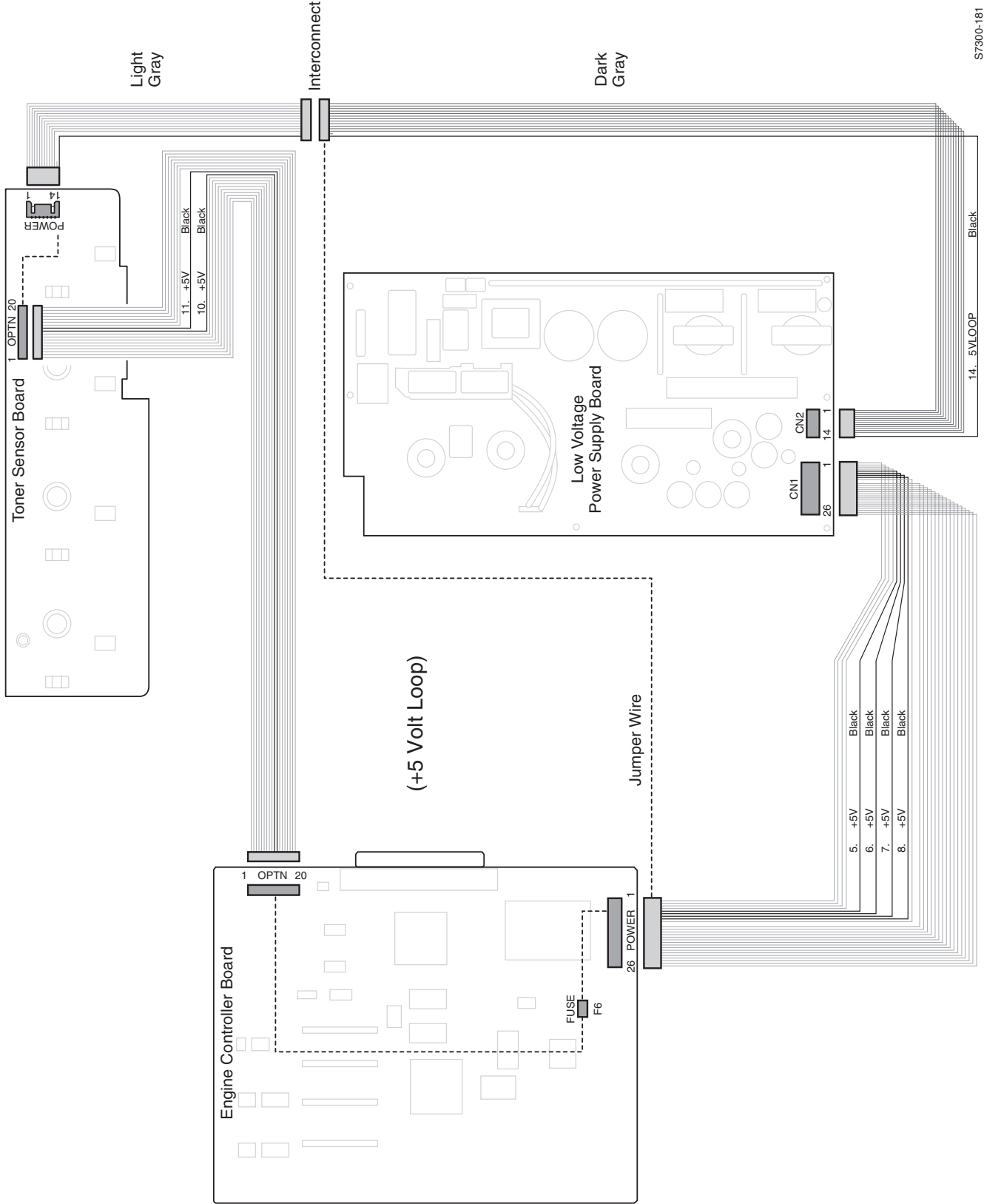
Optional LTA/LTD Controller Board

S7300-184

Optional Duplex Unit and LTA/LTD Controller Board

S7300-183
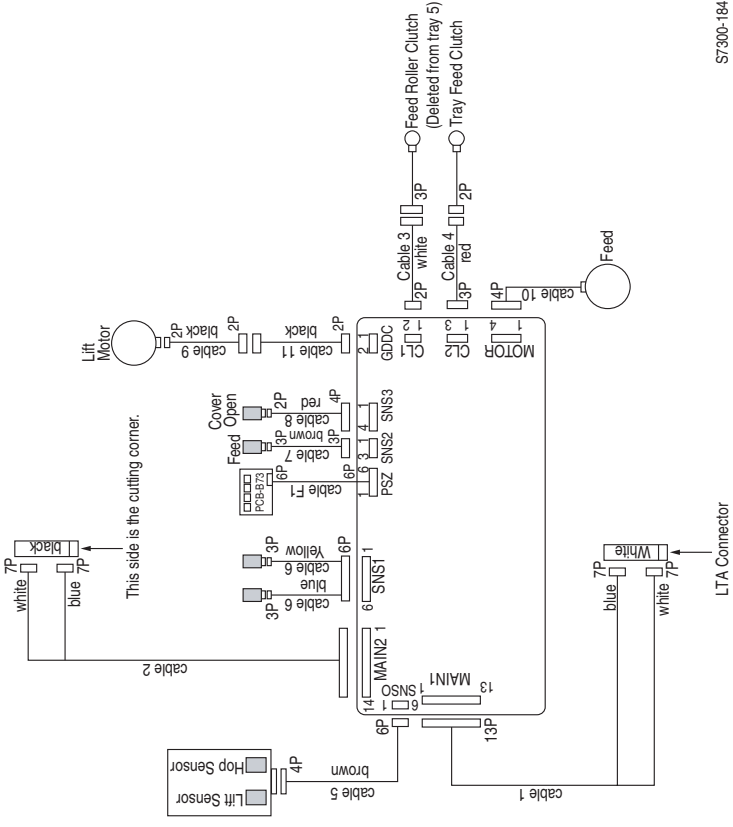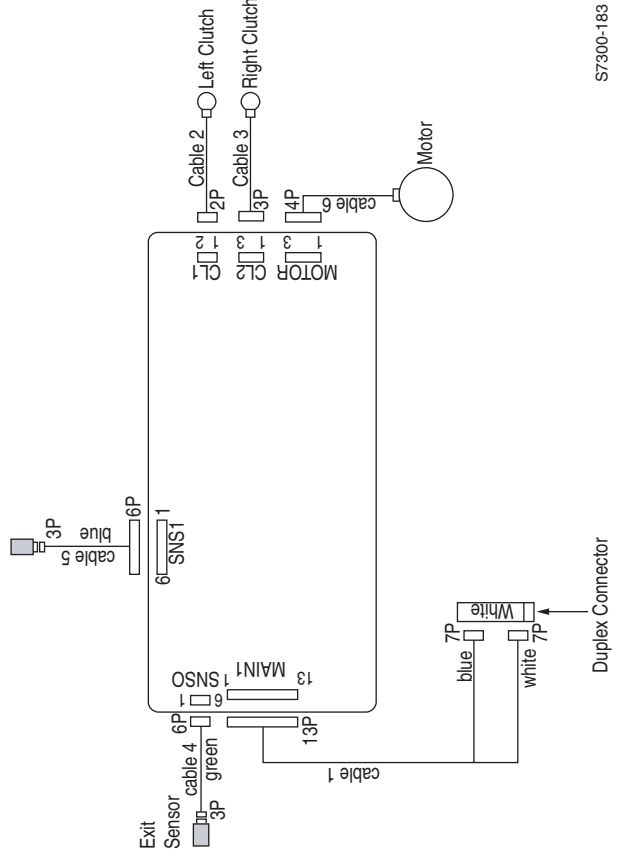
Duplex-Unit

Optional Duplex Unit and LTA/LTD Controller Board

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