PRINTRONIX®

L7032 Laser Printer

User's Manual



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Follow all instructions, cautions, and warnings given in this user's manual.

Follow all instructions, cautions, and warnings marked on the printer.

Before you plug the printer into a power outlet, make sure that the voltage at the power outlet matches the printer's voltage requirement. A label on the back of the printer identifies the printer's voltage.

Always use the power cord supplied with the printer. A substitute power cord may overheat and cause a fire.

Do not damage or modify the power cord. Do not place anything on the power cord. Do not coil the power cord around anything. Do not step on or kick the power cord. Any of these actions may cause an electric shock or a fire.

If you smell smoke, feel excessive heat when you touch the printer, or hear strange sounds, immediately turn the printer off and disconnect the power cord from the power outlet. Any of these conditions may cause an electric shock or a fire.

Do not store any combustible materials near the printer.

Unplug the printer's power cord before you perform the monthly cleaning procedure, clean inside the printer, or replace any operating components. If your hand or a wet cleaning cloth comes in contact with a high voltage component while the printer is running, you may receive a dangerous electrical shock. Unplugging the printer is not required when you change a consumable such as the toner cartridge, the OPC module, or the developer unit.

Only trained technicians should open any printer covers or components that are fastened with screws. Laser printers contain components with high voltages, high temperatures, and laser light sources. Direct contact with these components may result in electric shock, fire, or loss of eyesight.

Always turn the printer off before you install or remove the interface cable.

Always place the printer on a stable surface that supports its weight. The printer may tip over if you place it on an unstable surface.

Always operate the printer in a room with adequate ventilation. The air in the room should change a minimum of five times per hour.

Do not operate the printer in a humid or dusty environment. The printer may be damaged, or its performance may be degraded. Extreme humidity or dust may result in electric shock or fire.

Do not cover the printer's ventilation slots. If heat builds up inside the printer, the printer can be damaged.

Do not push objects of any kind through the ventilation slots and other openings in the printer's cabinet. These objects may cause an electric shock or a fire.

Do not spill liquids of any kind on the printer. Do not place containers filled with liquid, such as a cup or a vase of flowers, on top of the printer. Any liquid that enters the printer may cause an electric shock or a fire.

Do not put any accessories or consumables on top of the printer.

Never attempt to lift the printer by yourself. At least two people are required to lift the printer.

To avoid injury, do not stick your hand into the printer's moving parts.

While the printer is operating, the fusing area is hot. When you turn off the printer, the fusing area remains hot. Do not clear a paper jam in the fusing area, change the fuser cleaning roller, or touch any parts in the fuser drawer until you have given the fusing area enough time to cool down.

Do not touch the paper while printing. Touching the paper may cause a paper jam, and the paper exiting the printer may be hot.

Do not open the front access door while the printer is printing. If you do, the paper will jam. To clear the paper jam, you may have to realign the paper and resend the print job to the printer.

Always follow the instructions in this user's manual to clear a paper jam. If paper remains in the paper path after you have attempted to clear a jam, the printer may jam again or print quality may be degraded.

The developer unit is heavy. Always hold the developer unit with both hands. Do not try to remove it from the printer with one hand.

Handle toner cartridges with care. Avoid breathing toner. Try not to get toner in your mouth or eyes. Although toner is non-toxic, it may irritate your eyes and lungs, and it may get on your clothes. If you get toner on your hands, wash them with *cold* water. Hot water makes the toner more difficult to remove.

Store toner in a cool, dry place.

Do not put used toner, toner cartridges, or waste toner bottles in the fire. Dispose of these consumables in the trash.

If you are going to ship the printer, repackage it using the original packing materials and adhesive fasteners to avoid damage to the internal components.

If the developer contains mix or toner, be sure to also remove the developer unit from the printer prior to shipping. If you must also ship a "charged" developer, be sure to double-bag the developer with plastic bags and ship it in its own box, separate from the printer.

Regulatory Information

Safety Conformity

This equipment conforms to the following guidelines and regulations:

- UL 60950-1:2003, First Edition
- CSA C22.2 No. 60950-1-03 1st Ed. April 1, 2003
- UL E301242

FCC

This device complies with the FCC rules and regulations for CISPR-22 class B (subject J, part 15) corresponding to high frequency interference.

This device produces, employs and possibly radiates high frequency energy. Because of this, incorrect installation can disturb radio communications.

Laser Safety Regulations

This printer is certified as an FDA/CDRH21 CFR Class 1 laser product (DHHS, Department of Health and Human Services).

No radiation is emitted because the laser beam is sealed during the printing process and all maintenance processes.

When carrying out certain operational processes, some caution labels will be seen on the machine cover.

These labels are located on covers that are NOT allowed to be removed by the user. Disregarding handling or procedures contained in this manual may release dangerous laser radiation.



Chapter 1 Product Description

1.1 Contents

This chapter contains the following sections:

- 1.2 Overview
- 1.3 User's Manual Conventions
- 1.4 Location of Printer Components
- 1.5 Consumables
- 1.6 Environment
- 1.7 Printer Cleaning and Maintenance

1.2 Overview

The L7032 is a 32 page per minute (ppm) continuous-form laser printer. It features 600 dots per inch (dpi) addressability, high toner capacity, user-replaceable and long-life components, a reversible drive system, and a leading-edge sensor to reduce forms waste. The printer supports three emulations: PCL, PGL, and VGL.

1.3 User's Manual Conventions

Information that you need to pay special attention to is presented in the following way:

Note: Extra information for you to consider.

Important: Information that helps you work with the printer efficiently.

Caution: Possible equipment or data damage may occur.

Warning: Possible danger to you.

1.4 Location of Printer Components

The illustrations in this section show the mechanical and electronic components of your printer. Please review the illustrations so you will be familiar with the printer's components when you operate the printer, clean and maintain it, and replace consumables.

1.4.1 Front of Printer

Figure 1-1 shows the front of the printer.

The use of LEFT and RIGHT always assumes you are viewing the front of the printer (unless otherwise noted). For instance, the paper enters on the **RIGHT** side of the printer and exits on the **LEFT** side of the printer.

Figure 1-1 shows the components on the front of the printer:

- **1** Operator panel
- **2** Front access door

The door grip **3** is on the front left side of the printer. The door opens from left to right.



Figure 1-1. Front of Printer

1.4.2 Operator Panel

Figure 1-2 shows the buttons on the operator panel, which is on the top front of the printer:

- Ready/Stop
- On Line
- Shift
- Menu
- Feed/Left Arrow ◀
- Exit/Up Arrow ▲
- Enter/Down Arrow ▼
- Reset
- Feed/Right Arrow ►

Note: Using the Shift button, there are also the following functions:

- Shift/Left Arrow ◀ = Feed paper forward
- Shift/Up Arrow \blacktriangle = Exit
- Shift/Down Arrow ▼ = Enter
- Shift/Right Arrow ► = Feed paper backward

Figure 1-2 also shows the three status lights on the operator panel:

- Ready
- Data
- On Line

The operator panel displays messages, menus, and printing parameters on a liquid crystal display (LCD).



Figure 1-2. Operator Panel

For more information about the operator panel, see Chapter 2, Printer Operation.

1.4.3 Components on Paper Input Side of Printer

Figure 1-3 shows the electronic controls on the paper-input (right) side of the printer:

- Paper Loaded button
- **2** Paper fold switch
- **9** Power on/off switch

Important: Note the location of the *power on/off switch*. If a printer emergency occurs, use this switch to turn the printer off.

If you run out of paper, reload paper and press the Paper Loaded button to start printing again.

The *paper fold switch* tells an optional power paper stacker how to stack the output paper. This switch is used only with power paper stackers (see list of models in Appendix A, Specifications). If you do not have the power paper stackers, you do not need to use this switch. See Section 3.4 Loading Paper for information about how to use this switch with an optional power paper stacker.

Figure 1-3 also shows the mechanical components on the paper-input (right) side of the printer:

- Two tractor covers
- **6** Two tractor locks (adjustable self-centering paper tractors)
- **6** Paper sensor
- **7** Top-of-form sensor

The paper sensor tells the printer whether paper is loaded and when the paper runs out.

When you reload paper, the *top-of-form sensor* tells the printer where the top of the first page is. The printer uses this information to start the printed image at the correct position on the paper.



1.4.4 Components on Paper Exit Side of Printer

Figure 1-4 shows the component on the paper-exit (left) side of the printer:

O Paper exit slot



Figure 1-4. Paper Exit Side of Printer

1.4.5 Components on Back of Printer

Figure 1-5 shows the communication ports on the top back of the printer:

- Ethernet port (TCP/IP)
- **2** Parallel port (IEEE-1284)

Figure 1-5 also shows the components on the back of the printer:

- **③** Opening for ozone filter
- Communication port for optional power paper stacker accessory (see list of models in Appendix A, Specifications)
- Plug for printer's power cord
- **6** Product label and voltage identification



Figure 1-5. Back of Printer

1.4.6 Components Inside Printer's Door

Open the printer's front access door by placing your fingers in the door grip on the left front side of the printer and pulling out on the door.

Figure 1-6 shows the components attached to the printer's front access door:

- Main charger unit sensor
- **2** Seal for waste toner bottle



Figure 1-6. Inside of Printer's Front Access Door

The seal provides a closed connection between the OPC module's cleaner and the waste toner bottle.

The main charger unit sensor prevents the front access door from closing when the main charger unit is missing.

1.4.7 Components inside Printer

When you open the printer's front access door, the printer should look like Figure 1-7. If the printer doesn't look like Figure 1-7, you need to install one or more consumables.

Figure 1-7 shows the consumables that are visible when the printer's door is open:

- Toner cartridge, part of Toner Kit P/N 251749-001 (MICR: 251742-001)
- **2** Developer unit, P/N 251746-001
- **6** OPC module, P/N 251748-001)
- Main charger unit, P/N 251902-001
- **G** Transfer charger unit (P/N 251745-001)
- **6** Waste toner bottle, part of Toner Kit P/N 251749-001 (MICR: 251742-001)



Figure 1-7. Consumables Inside Printer

Figure 1-8 shows the locking components, which are visible when the printer's door is open:

- Latch bar
- 2 Latch
- B Fuser latch

The wire cleaning brush \bullet is also visible in Figure 1-8.



Figure 1-8. Latching Components and Wire Cleaning Brush

1.5 Consumables

Consumables are the components of the laser printer that you can easily replace by yourself, just as you would replace the toner cartridge on a personal laser printer. By replacing consumables yourself at the recommended intervals, you save the cost of printer service and you help the printer provide high-quality images and trouble-free operation.

1.5.1 Replacing Consumables

The laser printer has five consumables kits that should be replaced at recommended intervals (specified in 8 $\frac{1}{2}$ x 11-inch landscaped pages):

- Toner kit (for intervals, see below)
- OPC module kit (400,000)
- Transfer charger kit (400,000)
- Developer/Developer Mix kit (800,000)
- Fuser kit (800,000)

The toner kit contains:

- Two toner cartridges (32,000 each)
- Two waste toner bottles (32,000 each)
- Fuser cleaning roller (64,000)

The OPC (Organic Photo-Conductor) module kit contains:

- OPC module
- Main charger unit
- Wire cleaning brush

The transfer charger kit contains:

• Transfer charger unit

The developer consists of two kits and includes:

- Developer unit
- Developer mix kit with a bag of developer mix, an ozone filter, a cleaning kit, and two plastic sheets.

The <u>fuser kit</u> contains:

- Fuser unit
- Exit rollers

See Chapter 3 for information about replacing consumables.

1.5.2 Disposing of Spent Consumables

All the consumables used in the printer are safe to handle. None of them are toxic. They do not contain any substances that damage the environment. You can safely dispose of the consumables in the trash.

1.6 Environment

An office environment with relatively low humidity and moderate temperatures is the best environment for your printer. High humidity and high or low temperatures will shorten the life of both the printer and its consumables and can impact print quality.

1.7 Printer Cleaning and Maintenance

To prevent the fuser from getting dirty, you should never power down the printer while it is printing. If it is necessary to power down the printer in the middle of a job, place the printer Offline first; then wait for printing to stop. Once the printer has completely stopped, turn the power switch off.

You should clean and maintain your printer on a regular basis to ensure high-quality print images, trouble-free service, and a long printer lifespan.

If you do not clean and maintain your printer, you may have degraded print images, paper jams, frequent service calls, and a shorter printer lifespan.

For information about cleaning and maintaining your printer, see Chapter 5.

2.1 Operator Panel

The printer's operator panel has nine buttons, three status lights, and a two-line liquid crystal display (LCD). See Figure 2-1.



Figure 2-1. Operator Panel

2.1.1 Buttons

Figure 2-1 shows the nine buttons on the operator panel:

- Ready/Stop
- On Line
- Shift
- Menu
- Form Feed ◀
- Exit ▲
- Enter ▼
- Reset (This button silences the beeper or prints out the contents of the buffer if the printer hangs with data while waiting for a form feed at the end of a page.)
- Back Feed ▶

2.1.2 Status Lights

Figure 2-1 shows the three status lights on the operator panel:

- Ready
- Data
- On Line

2.1.3 Status Display

The operator panel has a two-line liquid crystal display (LCD). Each status line can show up to 16 characters.



2.2 Printer Operation Menus

The printer's functions are controlled by completing menu selections by pressing the buttons on the operator panel. When you set the printer up, you can use the operator panel to select various parameters for the particular job at hand. These parameters can be saved and re-used later as individual "pre-saved" configurations.

This section summarizes the printer operations menus. By pressing combinations of the four arrow buttons $(\blacktriangleleft \blacktriangleright \blacktriangle \lor)$ and the **SHIFT** button when necessary, you can navigate through these menus and set various printer parameters.

To enter the menu system, press the **MENU** button. You will see MAIN MENU with CONFIGURATIONS displayed below it. By pressing the left and right arrow buttons (◀►), you can scroll to the main menu selections. These are:

- Configurations
- Consumables
- Form Configuration
- Print Engine Configuration
- Page Menu (if *only* the PCL emulation is installed. If the PGL or VGL emulation option is installed, this menu displays "PCL Setup", "PGL Setup", or "VGL Setup", depending on which emulation is active)
- Interface Configuration
- Operations Menu
- Test Print
- Active Emulation (this menu only appears if IGP software is installed in the printer)

Press $\mathbf{\nabla}$ button to select the desired menu. Follow the chart below to navigate the menu structure.

S/ means press the Shift button and another button simultaneously. **S/** \checkmark = Shift plus Enter, **S/** \blacktriangle = Shift plus Exit, **S/** \blacktriangleleft = Shift plus Form Feed, **S/** \triangleright = Shift plus Back Feed.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Info	
Configurations	<►	•	Configurations XXXX	<►		Use ◀► to display desired configuration. Press S/ ▼ to select, ▲ to exit.	Load pre-saved configurations
			Save Config	••	•	Use ◀► to select column, ▲▼ to select letter or number. Press S/▼ to save, ▲ to exit.	Name and save configurations
			Delete Config	••	•	Use ◀► to select desired configuration. Press S/ ▼ to delete, ▲ to exit.	Delete pre- saved configurations
			Factory Config	4>		Press S/▼ to select factory configuration. Press ▲ to exit.	Sets printer to factory configuration
Consumables	•		Init Developer			Press S /▼ to initiate. Remove paper. Use ◀► to select No or Yes to continue. Press S /▼ to select. Replace paper and press the green button to continue	Resets Developer counter, begins developer mixing process which lasts 190 seconds.
			Initialize OPC			Press S/▼ to initiate.	Resets OPC counter
			Fuser			Press S/ ▼ to initiate.	counter

Display	Scrol1	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
Form Configuration	••	•	Width	4>	▼	Use ◀► to select column, ▲▼ to select number. Press S/ ▼ to save, S/ ▲ to exit.	Sets form width from 3.50 to 13.88 inches.
			Length	4	•	Use ◀► to select column, ▲▼ to select number. Press S/▼ to save, S/▲ to exit.	Sets form length from 3 to 33 inches.
			Thickness	<►	•	Press ◀► to select. Press S/▼ to save, ▲ to exit.	Sets form thickness to either normal or label/cardstock
			Print Policy	▲ ►	•	Press ◀► to select. Press S/▼ to save, ▲ to exit.	Sets printer to either display form size difference error or ignore it
Print Engine Configuration	••	•	Image X Position	4>	V	Use ◀► to select column, ▲▼ to select number. Press S/ ▼ to save, S/ ▲ to exit.	Adjusts starting print position horizontally -100 to +100 pixels
			Image Y Position	••	V	Use ◀► to select column, ▲▼ to select number. Press S/▼ to save, S/▲ to exit.	Adjusts starting print position vertically -100 to +100 pixels
			Fuser Temperature	••	•	Use ◀► to select temperature. Press S/ ▼ to save, ▲ to exit.	Sets fusing temperature at 160, 170, 180, 190, or 200 degrees C

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Retraction Mode	4>	•	Use ◀► to select mode. Press S/ ▼ to save, ▲ to	Sets retraction at End, Start, or not at all between jobs
			Contrast	4>	▼	Use ◀► to select. Press S/▼ to save, ▲ to exit.	Sets contrast to medium, darker, or lighter
			Toner Management Mode	↓	•	Use ◀► to select. Press S/▼ to save, ▲ to exit.	Sets toner usage as normal, less, least, or more
			Barcode Mode	<►	▼	Use ◀► to select. Press S/▼ to save, ▲ to exit.	Decreases laser power for a finer line for bar code printing
Page Menu (If the PGL or VGL emulation option is installed, this menu displays "PCL Setup." See PGL Setup and VGL Setup below.)	•	•	Line Spacing	•	•	Use ◀▶ to select. Press S/▼ to save, ▲ to exit.	Sets how many lines per inch between print lines. Choices are 6 (default), 8, 12, 16, 24, 48, 1, 2, 3, 4.
			Orientation	4>	•	Use ◀▶ to select. Press S/▼ to save, ▲ to exit.	Sets image as portrait, landscape, reverse portrait, or reverse landscape
			Default Margins		▼	Use ◀► to select top, bottom, left, right. Use ◀► to select column, ▲▼ to select number. Press S/▼ to save, S/▲ to evit	Determines what margins (0-20,000 pixels) will be used if the print job doesn't specify any

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
			- I - J			Parameter	
						Info	
			# of Copies		▼	Use ◄ ► to	Sets number of
			-			select	copies from 1-
						column, ▲ ▼	100 if the host
						to select	doesn't request
						number.	any certain
						Press S/▼ to	number
						save, S/ ▲ to	
						exit.	
			EOL	•	▼	Use ◄ ► to	"No
			Conversion			select. Press	Conversion" is
						S/▼ to save,	default.
						\blacktriangle to exit.	"Convert CR"
							converts CR to
							CR+LF.
							"Convert LF,
							FF" converts LF
							to CR+LF and
							FF to CR+FF.
							"Convert CR,
							LF, FF
							converts CR to
							CR+LF, LF to
							CR+LF, FF to
			Educ to Educ		-		CR+FF .
			Eage-to-Eage		•	Use $\triangleleft \triangleright$ to	Allows normal
						No. Drogo	margins to be
						NO. PIESS S/T to solve	for adge to
						$\mathbf{S} \neq 10 \text{ save},$	101 Euge-10-
			Perf Skin		T		Selects
			ТСП Экір		•	select Ves or	whether or not
						No Press	to skip the
						S/V to save	nage
						\blacktriangle to exit	perforation
						_ to exit.	when printing
Interface	Refer to	the pro	cedures listed aft	er this te	able.		when printing
Configuration		I					
Operations		▼	Cut		▼	Press S/▼ to	Performs an
Menu						select.	on-demand
							("manual") cut.
			Clear Buffers		▼	Press S/▼ to	Flushes all
						Print and	data from the
						Clear, \blacktriangle to	print buffers
						exit.	-
			Auto Cut		▼	Use ◀ ▶ to	"Off" is default.
			Mode			select On or	"On" activates
						Off, press	"Auto Cut
						S/▼ to	Mode" and the
						select, \blacktriangle to	"Cut Wait
						exit.	Time" menu.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Cut Wait Time	•	•	Use ▲ ▼ to select a number. Press S/ ▼ to select, S/ ▲ to exit.	Sets time between completion of last print operation and arrival of any new data. Default: 0.5 seconds Maximum: 3.0 seconds
			Power Save Time	•	V	Use ◀► to select column, ▲▼ to select number. Press S/ ▼ to save, S/ ▲ to exit.	Determines when printer goes into power save mode – from 0 to 90 minutes.
			I/O Timeout	4	•	Use ◀► to select column, ▲▼ to select number. Press S/ ▼ to save, S/ ▲ to exit.	Determines when printer assumes an end-of-job – from 0 to 90 seconds.
			Beep On Error	~	•	Use ◀► to select Yes or No. Press S/▼ to select option, ▲ to exit.	"Yes" is default, causing printer to beep when there is a jam or other fault.
			Toner Low Stop	▲ ►	▼	Use ◀► to select. Press S/▼ to save, ▲ to exit.	Determines whether printer stops at toner low message
Test Print Menu	↓	•	Configuration	▲ ►		Press S/▼ to select. Press▲ to exit.	Prints current configuration*
			Menu Map	4>		Press S/▼ to select. Press▲ to exit.	Prints current menu*
			5% Coverage	4		Press S/ ▼ to select. Press▲ to exit.	Prints a 5% coverage test page*

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter	
						Info	
			Error Log			Press S/▼ to	Prints contents
			_			select.	of the error log*
						Press▲ to	
						exit.	
			Form Feed	▲ ►		Press S/▼ to	Moves paper
						select.	one page
						Press▲ to	forward
						exit.	
			Back Feed			Press S/ ▼ to	Moves paper
						select.	one page back
						Press \blacktriangle to	
			Devet Lint			exit.	Duinte list of
			Font List			Press S/ V to	Prints list of
						Select.	Ionts/mes
						Press 10	currently
* Drinting of these	o roport	0.0001170	when the printer	in place	t hools in	to the Deady sta	to
			PCI 5		I DACK III	Press S/ V to	Selects the
Emulation		•	I CLS			select	PCI 5
(only appears if						Press 1 to	emulation to
PGL or VGL						exit	use for
software option						onic.	printing.
is installed in							p
the printer)							
, ,			PGL			Press S/▼ to	Selects the PGL
						select.	emulation to
						Press▲ to	use for
						exit.	printing.*
			VGL	•		Press S/▼ to	Selects the
						select.	VGL emulation
						Press▲ to	to use for
						exit.	printing.*
* This menu allo	ws the u	ser to sp	ecify the emulation	on that is	s expecte	d to process the	input data
stream. If the jo	b stream	is a well	l formed PCL5 job	o (contai	ning the	PJL UEL comma	nd, esc%-
12345X), then the	ie active	emulatio	n setting will be i	ignored,	and the j	printer will proce	ess the PCL5 job.
If the job stream	does no	t contain	the UEL comman	nd, then	the prin	ter firmware will	honor the Active
Emulation Settin	ig.	_	0.1 / 0700		_		
PGL Setup		▼	Select SFCC	◀▶	▼	◄► to select	Select Special
See Appendix						column, ▲ ▼	runction Code.
						io select	Ralige is 1 to
each monu						S/T to solve	200. Delault 18
each menu						S/ \bullet to exit	120.
			Select Font		▼		Standard Sets
			(For selections		•	column	(default)
			in each set			to select	Arabic Cyrillic
			refer to the			option. Press	Euro, Greek
			PGL			S/ ▼ to save.	Hebrew.
			Programmer's			S/ \blacktriangle to exit.	Turkish. UTF-8
			Reference			,	
			Manual.)				

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Standard Sets	•	•	 ↓ to select column, ▲ ♥ to select option. Press S/♥ to save, S/▲ to exit. 	ASCII (default), German, Swedish, Danish, Norwegian, Finnish, English, Dutch, French, Spanish, Italian, Turkish, CP437, CP850
			Orientation	••	•	 ↓ to select column, ▲ ♥ to select option. Press S/♥ to save, S/▲ to exit. 	Select page orientation: Portrait (default), Landscape, Inv. Portrait
			Slash 0	••	•	 ↓ to select column, ▲ ♥ to select option. Press S/ ▼ to save, S/ ▲ to exit. 	Prints 0 with or without a slash: Disable (default), Enable
			Forms Handling	••	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Disable (Default), Auto Eject, Auto TOF (Top of Form)
			Auto Uppercase	<►	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Print text in all uppercase when using the ALPHA command.
			Skip Cmd Prefix	<	V	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Determine if data preceding a PGL command will be ignored.
			Ext Execute Copy	<►	•	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Permit use of form count in EXECUTE with dynamic data.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			UPC Descenders	••	V	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit 	How to handle descenders with EAN and UPC bar codes: Always (default), Never, Only with PDF
			I-2/5 Selection	•	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit 	To work with IGP-X00 to handle I2/5 bar code: Leading Zero (default), Trailing Space, X2 DPD, Modulo7 CD
			AI 00 Spaces	••	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Control how PDF is formatted for UCC/EAN-128 with AI 00.
			Select SO Char	4>	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Select control code for C128 bar code: 0 to 255; 14 is default
			User-Def Ratio	<►	•	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Determine how PGL processes user-defined variable bar code ratios.
			C39 Compatbl.	4>	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Be compatible with IGP-X00 for handling C39 bar code on alternative character.
			Host Form Length	•	•	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Determine if host form length command will override menu Label Length under MEDIA CONTROL.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
J						Parameter Info	
			Var Form Adjust	4>	•	↓ to select column, ↓ ↓ to select option. Press S/ ↓ to save, S/ ↓ to exit	Amount to add to length of variable length form: 0.0 inches (default) to 3.0 inches
			Var Form Type	4>	•	 ✓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Determine the form type for the form of the variable: Add Nothing (default), Add;0 or Add;X
			Do FF at TOF	•	•	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Determine whether PGL processes the FF when the current position is already at TOF.
			IGP 100 Compatbl.	4>	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Be compatible with an old IGP-100 printer.
			Expanded Font	4>	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Select the type of expanded character: Scalable (default), Block, or Alt Block1.
			Lead PDF Dist	••	•	 ↓ to select column, ▲ ▼ to select option. Press S/ ▼ to save, S/ ▲ to exit. 	Adjust leading & trailing character spacing distance of PDF for UPC/EAN bar code: 0.01 to 1.10 inches. (0.10 inches default)
			Scalable Size	••	V	 ↓ to select Normal (default) or Block. Press S/▼ to save, ▲ to exit. 	Determine if scalable characters are sized based on normal scaling or on the size of block characters.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Ignore Mode	↓	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Enables or disables the menu "Select Char."
			Select Char	<►	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Select which character to ignore: 0 (default) to 255.
			Error Report	<►	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	How to handle error messages: Off (default), On, or Debug.
			Ignore Text	<►	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Allow users to ignore text in Normal mode.
			Vertical Adjust	◆	V	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Adjust printer dpi to expand or shrink the verical position: 0 dots (default), -10 dots, or -20 dots.
			Trunc Dyn Data	<►	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Permit truncating dynamic data up the max data length specified in Create mode.
			Boundary Check	<►	V	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit 	Turn the page boundary on or off.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
Display	Seron	Ditter	Display	Seron	Ditter	Parameter Info	
			Repeat Form Opt	4>	•	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Increase the speed of repeated form printing.
			Define CR Code	4	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Define the Carriage Return code: CR = CR (default), or CR = CR + LF.
			Define LF Code	••	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Define the Line Feed code: LF = LF (default), or LF = CR + LF.
			CR Edit	••	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Determine if a Carriage Return (CR) will be followed by a Line Feed (LF).
			Autowrap	••	•	 ↓ to select Disable (default) or Enable. Press S/ ▼ to save, ▲ to exit. 	Determines whether text wraps to the next line when a line exceeds page width.
			Select CPI	••	•	 ↓ to select column, ▲ ♥ to select option. Press S/♥ to save, S/▲ to exit. 	Select the characters per inch: 10 (default), 12, 13, 15, 17, or 20.
			Select LPI	••	•	 ↓ to select column, ▲ ♥ to select option. Press S/♥ to save, S/▲ to exit. 	Select the lines per inch: 1 to 1000. (6 is default.)
			Left Margin	4>	V	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Set left margin. Range 0 to 6 inches in 1/10 inch increments. Default is 0 inches.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Max Font		▼	▲ ► to select	Set font buffer
			Buffer			column, ▲▼	size: 400KB
						to select	(default), 7200
						option. Press	KB maximum.
						S/▼ to save,	
						S/ \blacktriangle to exit.	
			Max Cache	▲ ►	▼	▲► to select	Set cache
			Memory			column, ▲ ▼	memory:
						to select	1800KB
						option. Press	(default), max
						S/▼ to save,	value 3600KB
						S/ ▲ to exit.	~
			Max Cached		▼	▲► to select	Set cached
			Char			column, ▲ ▼	characters:
						to select	8KB (default),
						option. Press	max value
						S/ \lor to save,	20KB.
			Ston dand		-	S/ = 10 exit.	240 in defeat
			Choro		•		(This
			Chars			to solvet	(1111S
						option Press	parameter mas
						S/V to save	L7032 printer)
						S/ \blacktriangle to save,	Drooz printer.j
			Bold Chars		V	\triangleleft to select	448 is default.
						column. ▲ ▼	
						to select	
						option. Press	
						$\mathbf{S}/\mathbf{\nabla}$ to save,	
						S/ ▲ to exit.	
			Extra Bold	•	▼	▲► to select	504 is default.
			Char			column, ▲ ▼	
						to select	
						option. Press	
						S/V to save,	
					-	S/ \blacktriangle to exit.	004:16:1
			OCR-A		•	♦► to select	384 is default.
						column, \blacktriangle \lor	
						to select	
						S/T to solve	
						$S_{I} \bullet 10 \text{ save},$	
			OCR-B		▼		304 is default
						$column \land \blacksquare$	out is utiauit.
						to select	
						option. Press	
						S/ ▼ to save	
						S/ \blacktriangle to exit.	

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Tall Characters	4>	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, 	Permit tall characters. (This parameter has no effect in the
						\blacktriangle to exit.	L7032 printer.)
			300 dpi Compatbl	4	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Determines if 300 dpi images or bar codes need to be scaled to 600 dpi.
VGL Setup (See Appendix C for complete descriptions of each menu option)	4>	•	SFCC	4	•	 ↓ to select column, ▲ ♥ to select option. Press S/♥ to save, S/▲ to exit. 	Select Special Function Code. Range is 17 to 255. Default is 94.
			Power-up ^F	••	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Select Free Format mode as the power- up default.
			Orientation	4>	•	 ♦ to select column, ▲ ♥ to select option. Press S/♥ to save, S/▲ to exit. 	Select page orientation: Portrait (default), Landscape, Inv. Portrait, Inv. Landscape
			Autoeject	•	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Automatically eject the printed page.
			Copy Count	4>	•	 ↓ to select column, ▲ ♥ to select option. Press S/♥ to save, S/▲ to exit. 	Set the number of copies: 1 to 999, with 1 as default.
			Host Form Length	<►	V	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Set the printer page size.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Slash 0	4	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Prints 0 with or without a slash: Disable (default), Enable
			Ignore Dots	<►	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Specify the position in 1/10 inches only and ignore additional dots.
			Append Rotated	~	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Append logos to an alphanumeric string rotated in CW, CCW, or inverted.
			Truncate Alpha	<►	•	 ↓ to select Ensable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Truncate alpha text instead of printing offpage error.
			True Vert 1/10	••	•	 ↓ to select Disable (default) or Enable. Press S/▼ to save, ▲ to exit. 	Determine if one inch = 70/72 or 72/72 inch.
			Absorb After ^PY	••	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Define motion line terminator after ^PY: Absorb Motion (default), Absorb All, Disable.
			UPC Descenders	<►	•	 ↓ to select Ensable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Print UPC bar code descenders or not.
			Rot. Char Size	••	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Handle the size of rotated characters: Adjusted (default) or Not Adjusted.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Ignore Spaces		▼	▲ to select	Delete or
			Ignore opaces		•	Disable	ignore trailing
						(default) or	spaces in the
						Enable Press	alpha string
						S/▼ to save	aipila string.
						\blacktriangle to exit.	
			Ignore ^Lxx		▼	▲► to select	Ignore the ^Lxx
			Cmd.			Disable	form length
						(default) or	command.
						Enable. Press	
						S/ ▼ to save,	
						\blacktriangle to exit.	
			MidLine PY		▼	\blacktriangleleft to select	Allow PY
						Disable	command in
						(default) or	the middle of
						Enable. Press	the line.
						S/ \checkmark to save,	
						\blacktriangle to exit.	
			Width Limit		▼	▲► to select	Determine the
						Disable	handling for
						(default) or	the length and
						Enable. Press	width of
						\mathbf{S}/\mathbf{V} to save,	expanded
					-	\blacktriangle to exit.	characters.
			ADSOLD AITEL		•	■ to select	How to handle
			. FIN			(default) or	the motion me
						Frable Press	
						S/V to save	111.
						\blacktriangle to exit	
			Expanded		▼	▲ to select	Select Scalable
			Font			column, ▲▼	or Block font
						to select	for the
						option. Press	expanded font:
						S/ ▼ to save,	Scalable is
						S/ \blacktriangle to exit.	default.
			Prop. Char	▲►	▼	▲► to select	Adjust or Not
			Size			column, ▲ ▼	Adjust the
						to select	proportional
						option. Press	tont size:
						S/ \checkmark to save,	Adjusted is
			Intoners		-	S/ \blacktriangle to exit.	default.
			Cmd		•	To select	Adjust or Not
			Cilia.			to soloct	Aujust the
						ontion Dress	position with
						S/T to solve	the Interment
						S/ to save,	command (AI)
	I						Commanu (~1).

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Select SO	<►	▼	♦► to select	Select the Shift
			Chai			to select	out (SO)
						ontion Press	Code 128 bar
						S/V to save	code: Range is
						S/ \blacktriangle to exit.	0 to 255, with
						-,	14 default.
			Auto FF at	•	▼	∢ ► to select	Automatically
			^PN			Disable	do a form feed
						(default) or	when ^PN is
						Enable. Press	encountered.
						S/V to save,	
			L50XX Comp.	4	▼	▲ to exit: ▲ to select	Compatibility
			-			Disable	with older
						(default) or	L50XX
						Enable. Press	printers.
						S/ \checkmark to save,	
					_	▲ to exit.	D 111 11
			PDF Size		V	♦► to select	For old build
			Comp.			Disable (default) or	the font size of
						Enable Press	the bar code
						S/V to save	PDF
						\blacktriangle to exit.	101.
			C128 Mode	▲ ►	▼	\blacktriangleleft to select	For old build
			Comp.			Disable	compatibility to
						(default) or	the auto mode
						Enable. Press S/T to cove	C108 har and
						\bullet to exit.	C120 bai coue.
			C39	<	▼	▲ ► to select	for old build
			Compatbl.			Disable	compatibility
						(default) or	on decoding
						Enable. Press	C39 alternative
						S/ \mathbf{V} to save,	characters.
			Demost D		_	\blacktriangle to exit.	0
			Repeat Form		•	◄► to select Disable	Speed up the
						(default) or	of the repeated
						Enable Press	form
						S/ ▼ to save	101111.
						\blacktriangle to exit.	
			Error Msgs	<	▼	▲► to select	Print error
						Disable	messages.
						(default) or	
						Enable. Press	
						>/ ▼ to save,	
1	1	1	1		1	\blacksquare 10 CXII.	1
Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
---------	--------	-------	-------------------	----------	-------	---------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------
						Parameter Info	
			Error Markers	4>	V	 ↓ to select Enable (default) or Disable. Press S/ ▼ to save, ▲ to exit. 	Print error markers with the error message.
			Offpage Errors	<►	•	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Print and error message for the out of boundary error.
			Barcode Errors	<►	•	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to exit. 	Print an error message for illegal bar code or incorrect syntax.
			Ignore Chars	4>	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Set ignore characters or not: Disable (default), Char1, Char2, or Char1&2
			Ignore Ch#1	4>	•	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Specify the character for char#1: 0 to 255, with 0 default.
			Ignore Ch#2	4>	V	 ↓ to select column, ▲ ▼ to select option. Press S/▼ to save, S/▲ to exit. 	Specify the character for char#2: 0 to 255, with 0 default.
			Data Bit 8	↓	V	 ↓ to select Enable (default) or Disable. Press S/▼ to save, ▲ to evit 	Sets the handling for the data on the 8 th data bit.

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
- F J			- I J			Parameter	
						Info	
			Cmd		▼	▲► to select	Select Low or
			Resolution		•	column A V	High resolution
			Resolution			to select	mode Low
						ontion Press	Resolution is
						\mathbf{S}/\mathbf{V} to solve	default
						S/ \bullet to save,	uciauit.
			ADmm Dat		-	S/ = 10 exit.	Coloct Lorry on
					•		Juich resolution
			Slew			Column, \blacktriangle	fign resolution
						to select	for dot siew
						option. Press	command
						S/ ▼ to save,	Dnn: Low
						S/ \blacktriangle to exit.	Resolution is
					_		default.
			Barcode Var.		▼	♦ to select	Select IGP dots
						column, ▲ ▼	or printer dots
						to select	for bar code
						option. Press	user-defined
						S/ \mathbf{V} to save,	ratio: Low
						S/ \blacktriangle to exit.	Resolution is
							default.
			300 dpi	▲ ►	▼	\blacktriangleleft to select	Determines if
			Compatbl.			Disable	300 dpi images
						(default) or	or bar codes
						Enable. Press	need to scaled
						S/▼ to save,	to 600 dpi.
						\blacktriangle to exit.	
			Font Set	▲ ►	▼	▲► to select	Selects font
			(For selections			column, ▲▼	sets: Standard
			in each font			to select	Sets (default),
			set, refer to			option. Press	Arabic Sets,
			the VGL			S /▼ to save,	Cyrillic Sets,
			Programmer's			S/ ▲ to exit.	European Sets,
			Reference				Greek Sets,
			Manual.)				Hebrew Sets,
			,				Turkish Sets.
			Standard Sets	▲ ►	▼	∢ ► to select	ASCII (default),
						column, ▲ ▼	German,
						to select	Swedish,
						option. Press	Danish,
						$\mathbf{S}/\mathbf{\nabla}$ to save.	Norwegian.
						S/ \blacktriangle to exit.	Finnish,
						,	English.
							Dutch, French
							Spanish.
							Italian.
							Turkish
							CP437, CP850

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter Info	
			Prop Line	▲ ►	▼	∢ ► to select	Sets character
			Length			Disable	spacing for
						Enable Press	font
						S/▼ to save.	10111.
						\blacktriangle to exit.	
			Select LPI	•	▼	▲► to select	Select the lines
						column, ▲ ▼	per inch: 6 to
						to select	10, with 6
						S/V to save	uciauit.
						S/ \blacktriangle to exit.	
			Select CPI		▼	▲► to select	Select the
						column, ▲ ▼	characters per
						to select	inch: 10
						option. Press S/V to save	(aeiauit), 12, 13, 15, 17, 6
						S/ \blacktriangle to save, S/ \blacktriangle to exit.	or 20.
			Btm Margin			▲► to select	Set bottom
			Ctl			column, ▲▼	margin.
						to select	Disable
						option. Press	(default),
						S/V to save,	Enable
			Text Length		•	$\mathbf{S} \neq \mathbf{to} exit.$	The printable
			Text Deligti		·	column. ▲ ▼	length on page
						to select	for text: 1 to
						option. Press	255, with 66
						S/ \checkmark to save,	default.
			Loft Morgin		•	S/ \blacktriangle to exit.	Sot loft margin:
			Leit Margin		•		0.0 to 6.0
						to select	inches in $1/10$
						option. Press	inch
						S/▼ to save,	increments,
						S/ \blacktriangle to exit.	with 0 inches
			Max Font		▼		default.
			Buffer				size: 400KR
			241101			to select	(default).
						option. Press	7200KB
						S/ ▼ to save,	maximum.
						S/ ▲ to exit.	
			Max Cache	▲►	▼	▲ ► to select	Set cache
			Memory			column, ▲ ▼	memory:
						ontion Press	(default) max
						S/▼ to save	value 3600KB
						S/ \blacktriangle to exit.	

Display	Scroll	Enter	Display	Scroll	Enter	Set	Comment
						Parameter	
						Info	
			Max Cached	▲ ►	▼	\blacktriangleleft to select	Set cached
			Char			column, ▲ ▼	characters:
						to select	8KB (default),
						option. Press	max value
						S/ \lor to save,	20KB.
			0, 1, 1		_	S/ \perp to exit.	
			Standard		•	♦► to select	340 is default.
			Chars			to solvet	(IIIIS
						option Press	parameter mas
						S/T to save	I 7032 printer)
						S/ \bullet to save,	Drooz printer.)
	1		Bold Chars		▼	\blacksquare to select	448 is default
			Dola Charo		•	column A V	1 to is deladit.
						to select	
						option. Press	
						S/ \mathbf{V} to save,	
						S/ \blacktriangle to exit.	
			Extra Bold	▲ ►	▼	▲ to select	504 is default.
			Char			column, ▲▼	
						to select	
						option. Press	
						S/▼ to save,	
						S/ \blacktriangle to exit.	
			OCR-A		▼	\blacktriangleleft to select	384 is default.
						column, ▲ ▼	
						to select	
						option. Press	
						S/▼ to save,	
					-	\mathbf{D}/\mathbf{A} to exit.	201 in 1-f1+
			UCK-B	◀▶	▼	To select	304 is default.
						to column, \blacktriangle	
						option Press	
						S/V to save	
						S/ \downarrow to save,	
			Tall	▲ ►	▼	\checkmark to select	Permit tall
			Characters		,	Disable	characters.
						(default) or	(This
						Enable. Press	parameter has
						S/ ▼ to save,	no effect in the
						▲ to exit.	L7032 printer.)

2.3 Selecting Printer - Host I/O Interface

There are three methods of selecting the appropriate printer – host I/O interface configuration.

2.3.1 <u>Selecting the Ethernet Interface Using DHCP* Auto-Configuration</u>

***D**ynamic **H**ost **C**onfiguration **P**rotocol: enables automatic configuration of the ethernet interface to the local area network.

- 1. Set the power switch to O (Off).
- 2. Attach the ethernet interface cable (customer supplied) to the ethernet port at the rear of the printer.
- Set the power switch to I (On). The printer will initiate its load routines and warm up. Wait until you see the following message on the display: "READY / ONLINE"
- 4. On the control panel, press the **MENU** button. The following message appears: "MAIN MENU / CONFIGURATIONS"
- 5. Press the ◀ arrow until you see the following message: "MAIN MENU / INTERFACE CFG"
- 6. Press the ▼ arrow. The display will show the following:
 "INTERFACE CFG / Ethernet I/O"

Note: If the ethernet I/O is already selected skip steps 7 through 14 and resume at step 15.

- Press SHIFT + ▼ simultaneously to Enable the ethernet interface. The display will show the following:
 - "Ethernet I/O / Enable? <u>N</u>O yes"
- Press SHIFT + ▼ simultaneously to confirm your choice. The display will show: "Ethernet I/O / Working..." Then:

"Enable Ethernet / *RESTART PRINTER* "

- 10. Set the power switch to O (Off), wait 10 seconds, then set the power switch to 1 (On).
- 11. When the display reads "READY / ONLINE" press the **MENU** button: "MAIN MENU / CONFIGURATIONS"
- 12. Press the ◀ arrow until you see the following message: "MAIN MENU / INTERFACE CFG"
- 13. Press the ▼ arrow. The display will show the following: "INTERFACE CFG / Ethernet I/O"
- 14. Press the ▼ arrow. The display will show the following: "Ethernet I/O / DHCP Auto-Config"
- 15. Press the ▼ arrow. The display will show the following: "DHCP Auto-Config / *Disabled"
- 16. Press the ▲ arrow. The display will show the following: "DHCP Auto-Config / Enabled"
- 17. Press **SHIFT** + ▼ simultaneously to confirm your choice. The display will show: "DHCP Auto-Config / Working..." Then:
 - "DHCP Auto-Config / *Enabled"

The printer has automatically downloaded the address and mask information from your network. The ethernet interface is now the active printer port. Go to the next step.

- 18. Press the **READY / STOP** button **twice** to go to the READY / ONLINE state.
- Now make and store a configuration printout that shows the ethernet addresses for this printer. Press the **MENU** button: "MAIN MENU / CONFIGURATIONS"
- 20. Press the ◀ arrow until you see the following message: "MAIN MENU / TEST PRINT MENU"

- 21. Press the ▼ arrow. The display will show: "TEST PRINT MENU / Configuration"
- 22. Press **SHIFT** + ▼ simultaneously to select the current printer configuration. The display will quickly show:

"Configuration / Working..." Then: "Configuration / Ready to Print" Then:

"TEST PRINT MENU / Configuration"

23. Press the **READY / STOP** button **twice** to print the configuration:

"Processing" Then:

"Printing"

24. Verify that the network parameters are assigned correctly to the printer NIC (network interface card) – shown on the configuration printout items under "Network Config." To verify connectivity, at the DOS prompt type **ping <IP Address>**. Save the configuration printout with the printer documentation.

2.3.2 Selecting the Ethernet Interface Manually

- 1. Set the power switch to O (Off).
- 2. Attach the ethernet interface cable (customer supplied) to the ethernet port at the rear of the printer.
- 3. Set the power switch to I (On). The printer will initiate its load routines and warm up. Wait until you see the following message on the display: "READY / ONLINE"
- 4. On the control panel, press the **MENU** button. The following message appears: "MAIN MENU / CONFIGURATIONS"
- 5. Press the ◀ arrow until you see the following message: "MAIN MENU / INTERFACE CFG"
- 6. Press the ▼ arrow. The display will show the following:
 "INTERFACE CFG / Ethernet I/O"
 Note: If the ethernet I/O is already selected skip steps 7 through 14 and resume at step 15.
- 7. Press SHIFT + ▼ simultaneously to Enable the ethernet interface. The display will show the following:
 - "Ethernet I/O / Enable? <u>N</u>O yes"
- 9. Press SHIFT + ▼ simultaneously to confirm your choice. The display will show:
 "Ethernet I/O / Working..."
 Then:
 "Encode Ethernet (*PESTAPT PPINTER*"

"Enable Ethernet / *RESTART PRINTER* "

- 10. Set the power switch to O (Off), wait 10 seconds, then set the power switch to 1 (On).
- 11. When the display reads "READY / ONLINE" press the **MENU** button: "MAIN MENU / CONFIGURATIONS"
- 12. Press the ◀ arrow until you see the following message: "MAIN MENU / INTERFACE CFG"
- 13. Press the ▼ arrow. The display will show the following: "INTERFACE CFG / Ethernet I/O"
- 14. Press the ▼ arrow. The display will show the following: "Ethernet I/O / DHCP Auto-Config"
- 15. Press the ◀ arrow. The display will show the following: "Ethernet I/O / Config Network"
- 16. Press the ▼ arrow. The display will show the following: "Config Network / IP Address"

- 17. Press the ▼ arrow. The display will show: "IP Address / --0.--0.--1"
- 18. To enter values: 1) Use < and > to move to the number you want to change; 2) Use ▲ and ▼ to select the desired number; 3) Press SHIFT + ▲ to go back up a level. Now press > to go to the next parameter. The display will show:
 "Config Network / Subnet Mask"
- 19. Press the ▼ arrow. The display will show the following: "Subnet Mask / --0.--0.--1"
- 20. To enter values: 1) Use < and
 to move to the number you want to change; 2) Use
 and
 to select the desired number; 3) Press SHIFT +
 to go back up a level. Now press
 to go to the next parameter. The display will show:
 "Config Network / Broadcast Adres"

Note: This address is automatically set by the system after you set the Subnet Mask above, so you do not set this parameter.

- 21. Press ► to go to the next parameter. The display will show: "Config Network / Gateway Address"
- 22. Press the ▼ arrow. The display will show the following: "Gateway Address / --0.--0.--1"
- 23. To enter values: 1) Use < and > to move to the number you want to change; 2) Use ▲ and ▼ to select the desired number; 3) Press SHIFT + ▲ to go back up a level. Now press > to go to the next parameter. The display will show:
 "Config Network / Server IP Adres"

Note: You do not set this parameter. It is reserved for TFTP firmware upgrades.

- 24. Press \blacktriangle to go back up a level.
- 25. Press the **READY / STOP** button **twice** to go to the READY / ONLINE state.
- 26. Now make and store a configuration printout that shows the ethernet addresses for this printer. Press the **MENU** button:"MAIN MENU / CONFIGURATIONS"
- 27. Press the ◀ arrow until you see the following message: "MAIN MENU / TEST PRINT MENU"
- 28. Press the ▼ arrow. The display will show: "TEST PRINT MENU / Configuration"
- 29. Press **SHIFT** + ▼ simultaneously to select the current printer configuration. The display will quickly show:

"Configuration / Working..."

Then:

"Configuration / Ready to Print"

Then:

"TEST PRINT MENU / Configuration"

- 30. Press the **READY / STOP** button **twice** to print the configuration:
 - "Processing" Then: "Printing"
- 31. Verify that the network parameters are assigned correctly to the printer NIC (network interface card) shown on the configuration printout items under "Network Config." To verify connectivity, at the DOS prompt type **ping <IP Address>**. Save the configuration printout with the printer documentation.

2.3.3 <u>Selecting the Parallel Interface</u>

- 1. Set the power switch to O (off).
- 2. Attach the parallel interface cable (customer supplied) to the parallel port at the rear of the printer.
- 3. Set the power switch to I (on). The printer will initiate its load routines and warm up. Wait until you see the following message on the display: "READY / ONLINE"
- 4. On the control panel, press the **MENU** button. The following message appears: "MAIN MENU / CONFIGURATIONS"
- 5. Press the ◀ arrow until you see the following message: "MAIN MENU / INTERFACE CFG"
- 6. Press the ▼ arrow. The display will show the following: "INTERFACE CFG / Ethernet I/O"
- 7. Press the ◀ arrow until you see the following: "INTERFACE CFG / Parallel I/O"
- 8. Press **SHIFT** + ▼ simultaneously to Enable the parallel interface. The display will show the following:
- "Parallel I/O / Enable? <u>N</u>O yes"
 9. Press the *◄* arrow until you see the following message: "Parallel I/O / Enable? no YES"
- 10. Press **SHIFT** + ▼ simultaneously to confirm your choice. The display will show: "Parallel I/O / Working..." Then:

"Parallel I/O / *RESTART PRINTER* ".

11. Set the power switch to O (off), wait 10 seconds, then set the power switch to 1 (on).

The parallel interface is now the active printer port.

2.4 Using the Cutter

The optional cutter is a versatile device which permits you to cut printed sheets automatically ("Auto Cut Mode") and on-demand ("manually"). Even with the Auto Cut Mode set to On you can cut manually whenever you want, because manual cut and host cut commands take precedence over auto cut.

2.4.1 On-Demand ("Manual") Cutter Operation

With the cutter installed you can use the **FEED** \triangleleft button to cut on-demand. Press \triangleleft to move the paper to the position just below the last printed sheet then cut the sheet. If the printer does not have a cutter, the **FEED** \triangleleft button operates as previously defined (Form Feed). You can also use the "Cut" menu option under the "Operations" menu to cut on demand (see page 20).

2.4.2 Auto Cut Mode

When the printer has a cutter you set Auto Cut Mode to On or Off by using the **Operations Menu** shown in section 2.2. Whether Auto Cut Mode is On or Off, when and how the cutting operation occurs varies depending upon the type of print code terminator sent by the host computer. This is summarized in the table below:

Code	Auto Cut Mode = On		Auto Cut I	Notes	
terminator at	I/O Timeout	I/O Timeout	I/O Timeout	I/O Timeout	
last page of	= 0	> 0	= 0	> 0	
job, <u>after</u>					
printing					
stops or Host					
Cut					
Command ¹					
Terminator:	Cuts after	Cuts after	Cuts after	Cuts after	
PCL	"Cut Wait	"Cut Wait	operator	operator	
ASCII: ESC E	Time" reached	Time"	presses FEED	presses FEED	
HEX: 1B 45		reached;	<	▲	
DEC: 27 69		ignore "I/O			
		Timeout"			LTT ' 1
Terminator:	Cuts after	Cuts after	Cuts after	Cuts after	* Universal
PJL UEL*	"Cut Wait	"Cut Wait	operator	operator	Exit Language
ASCII: esc % -	Time" reached	lime"	presses FEED	presses FEED	
12343A		reached;			
ПЕА: ID 25 0D 21 20 22		Timoout"			
20 31 32 33		Timeout			
DFC · 27 37					
45 49 50 51					
52 53 88					
Terminator:	Cuts after	Cuts after	Cuts after	Cuts after	
FF for PCL	operator	both "Cut	operator	operator	
Jobs	presses	Wait Time"	presses FEED	presses FEED	
ASCII: FF	RESET	and "I/O	✓ then	◀	
HEX: 0x0C		Timeout"	RESET to		
DEC: 12		reached	clear		
			"Processing"		
			from LCD		
Terminator:	Printer stops,	Cuts after	Cut after	Cut after	
No FF	LEDs light,	"I/O Timeout"	operator	operator	
(PCL-5 files)	prints job,	is reached	presses	presses FEED	
	then cuts		RESET , then		
	after operator		FEED ◀ or		
	presses		vice-versa		
	RESET				
				~ ~	
No FF	Printer stops,	Cuts after	Cut after	Cut after	
(text files)	LEDs light,	"I/O Timeout"	operator	operator	
	prints job,	is reached	presses	presses FEED	
	then cuts		RESET , then	◀	
	atter operator		FEED <		
	RESET				

FF for PGL/VGL Jobs	Cuts after "Cut Wait Time" reached	Cuts after "Cut Wait Time"	Cut after operator presses FEED	Cut after operator presses FEED	Since PGL/VGL have no
		reached. Ignore host timeout	•	•	terminator, FF assumed to be an EOJ
No FF for PCL, PGL/VGL Jobs	Printer stops with LED's blinking, prints, then cuts after operator presses RESET	Printer stops with LED's blinking, prints, then cuts after operator presses RESET	Cut after operator presses FEED ◀	Cut after operator presses FEED ◀	With no FF, page has not printed yet, so need to print page before cutting
Host Cut Command: PCL ASCII: esc & 1T HEX: 1B 26 6C 31 54 DEC: 27 38 108 49 84	Cuts at end of page containing host command	Cuts at end of page containing host command	Cuts at end of page containing host command	Cuts at end of page containing host command	
Host Cut Command: PJL ASCII: @ PJL CUT HEX: 40 50 4C 20 43 55 54 DEC: 64 80 76 32 67 85 84	Cuts at end of page containing host command	Cuts at end of page containing host command	Cuts at end of page containing host command	Cuts at end of page containing host command	Command must be inserted between PJL UEL terminators, e.g.: ESC %- 12345X @ PJL CUT ESC %- 12345X

By studying this table you can determine whether you want Auto Cut Mode on or off, and adapt your cutting requirements to the type of print applications the host computer sends to the printer.

NOTE: A host cut command and manual cut always take precedence over Auto Cut; thus when a host cut or manual cut is done the Auto Cut mechanism is ignored.

2.4.3 Retraction Mode

Retraction Mode determines when the paper will move in relation to the cutting operation. You select Retraction Mode using the **Print Engine Configuration** menu shown in section 2.2. The operations of the retraction options vary, depending upon when the paper is cut manually or by Auto Cut Mode. These actions are summarized in the tables below:

Retraction Mode	Print Job Sequence	Manual Cut Process and Cut Command
Retract @ End	Print → Retract Paper	Feed \rightarrow Cut \rightarrow Retract (if press FEED \triangleleft <i>before</i> job finishes printing and retracting)
	Print	Cut \rightarrow Retract (if press FEED \triangleleft <i>after</i> job finishes printing and retracting)
Retract @ Start	Retract Paper → Print Note : Will not retract if paper is already at TOF ("park") position.	Cut → Retract
No Retract	Print	Cut

Retraction Mode	Print Job Sequence	Auto Cut Process
		(Terminator, Host Cut Cmd)
Retract @ End	$Print \rightarrow Retract Paper$	Feed \rightarrow Cut \rightarrow Retract (if Cut
	_	Wait Time ≥ 2.0 seconds)
Retract @ End	Print	$Cut \rightarrow Retract$ (if Cut Wait
		Time < 2.0 seconds)
Retract @ Start	Retract Paper \rightarrow Print	Immediately Cut \rightarrow Retract
	Note : Will not retract if paper	
	is already at TOF ("park")	
	position.	
No Retract	Print	Immediately Cut

2.4.4 Adjusting the Cutter

There are two adjustment knobs on the front of the cutter:

- Turning both knobs clockwise move the cut position to the right; turning both knobs counterclockwise moves the cut position to the left.
- Turning either knob by itself moves the cut position on that side either right (turning the knob clockwise) or left (turning the knob counterclockwise).

Adjust the position of the cut so that it is on the perforation of the paper. It is acceptable to cut the paper just short of the perforation, but if the cut position is just *past* the perforation the small strip of paper created may jam the printer or the cutter.

Chapter 3 Paper Loading

3.1 Contents

This chapter contains the following sections:

- 3.2 Recommended Media
- 3.3 Storing Paper
- 3.4 Loading Paper

3.2 Recommended Media

The printer works with a large variety of media. Recommended media consist of:

- Continuous fanfold 16-42 lb. (60-158 grams per square meter gsm) paper
- Matrix-on label stock
- Card stock
- Tag stock

Paper width should be 6.5 to 15 inches pin to pin.

The length of each form should be 3 to 33 inches in 1/8 inch or 1/6 inch increments.

Paper weight of 20-24 lb. (75-90 gsm) produces the best print quality.

Important: To ensure that label stock and other non-standard media will provide the print quality you want, always order and test a small quantity of the media before purchasing a large quantity.

If possible, avoid label stock with the matrix removed. Although the printer will print labels with the matrix removed, you may encounter occasional printing problems. These labels have a tendency to peel and cause paper jams.

3.3 Storing Paper

The best way to store paper is in the original packaging in a cool, dry area.

Avoid storing paper on the floor where it can pick up moisture from spills, floor cleaning, and so on. Moist paper can damage the printer and its consumables.

You should store paper and other media in the same environment as the printer. The printer gives the highest print quality when both printer and media have the same relative humidity and temperature.

3.4 Loading Paper

Follow these instructions to load continuous fanfold paper in the printer.

1. Release the two slender green tractor locks ³ by rotating them toward the inside of the printer. See Figure 3-1.

When the locks are released, you can move the paper tractors back and forth easily. Note that <u>both</u> locks must be released for either tractor to move.



Figure 3-1. Paper Tractors, Paper Sensor, and Top-of-Form Sensor

- 2. Open each of the two tractor covers by grasping the inner edge of the cover and raising it all the way up.
- 3. Place the paper evenly on the paper tractors so that the lower rows of tractor pins fit through the holes in the paper. <u>The paper must cover the black paper sensor</u>. The paper must **not** extend over the top-of-form sensor. Figure 3-1 shows the paper sensor and top-of-form sensor.

Caution: If you put paper over the top-of-form sensor, the printer will not be able to start the printed image at the correct position on the paper.

- 4. Close the tractor covers.
- 5. Adjust the width of the tractors so the paper is moderately tight between them.

6. Lock the tractors in place by rotating the locks toward you. Figure 3-2 shows paper loaded in the printer.



Figure 3-2. Paper Loaded in the Printer

7. If you are not using an optional auto-fed power paper stacker, go to the next step.

If you are using an optional auto-fed power paper stacker (see list of models in Appendix A Specifications), set the paper fold switch to match the direction of the paper's first fold as shown on the label next to the switch.

If the first fold makes a valley, press down on the lower half of the switch.

If the first fold makes a mountain, press down on the upper half of the switch.

- **Caution:** If you are using an optional auto-fed power paper stacker and you do not set the paper fold switch correctly, the paper output from the printer may go into the power paper stacker with the paper folding in the wrong direction at the perforations. When this happens, the paper is likely to jam in the power paper stacker or printer.
- 8. Press the green Paper Loaded button on the paper-input side of the printer. See Figure 3-2. The printer is now ready to print.

Chapter 4 Replacing Consumables

4.1 Contents

This chapter contains the following sections:

- 4.2 Overview
- 4.3 Replacement Intervals
- 4.4 Ordering Consumables
- 4.5 Storing Consumables
- 4.6 Using the Maintenance & Service Log
- 4.7 Adding Toner
- 4.8 Replacing the OPC Module
- 4.9 Replacing the Transfer Charger Unit
- 4.10 Replacing the Developer Unit
- 4.11 Replacing the Fuser Unit and Exit Rollers

4.2 Overview

The printer has five consumables kits that should be replaced at recommended intervals (specified in 11-inch long pages):

- Toner kit (for intervals, see Section 4.2.1 Toner Kit below)
- OPC module kit (300,000 pages)
- Transfer charger kit (300,000 pages)
- Developer/Developer Mix kit (600,000 pages)
- Fuser kit (600,000 pages)

You can replace all of these consumables yourself by following the simple replacement procedures in this chapter.

If you maintain your printer properly and operate it in an optimal environment, you will obtain the longest possible life from both your printer and its consumables.

4.2.1 Toner Kit

The toner kit contains:

- Two toner cartridges (32,000 pages each)
- Two waste toner bottles (32,000 pages each)
- Fuser cleaning roller (64,000 pages)

Toner is the powder mixture that makes the black images on a page.

Excess toner from the printing process is collected in a plastic waste toner bottle.

The fuser cleaning roller cleans the fuser roller of any remaining toner after a page is fused.

4.2.2 OPC Module Kit

The OPC (Organic Photo-Conductor) module kit contains:

- OPC module
- Main charger unit
- Wire cleaning brush

The OPC module contains the OPC drum, which carries the latent laser-generated image.

The main charger unit, which includes the main charger grid, creates a uniform electrical charge on the OPC drum.

The wire cleaning brush allows you to clean the delicate corona wires in the main charger unit and the transfer charger unit with little risk of breaking the wires.

4.2.3 Transfer Charger Kit

The transfer charger kit contains a transfer charger unit, which pulls the toner from the OPC drum onto the paper.

4.2.4 Developer Replacement

When print quality requires developer replacement, two items must be considered, usually replaced at the same time:

- Developer unit
- Developer mix kit

The <u>developer unit</u> holds the toner (from the toner cartridge) and the developer mix and supplies them to the OPC module for making images on the paper.

The <u>developer mix kit</u> contains:

- Bag of developer mix
- Ozone filter
- Cleaning kit
- Two plastic sheets

The <u>developer mix</u> enables the toner to assume an electrical charge so the toner will be deposited on the OPC drum in a controlled manner to develop the latent image.

The <u>activated carbon ozone filter</u> absorbs a certain amount of ozone, a gas that is generated by the corona wires in the printer.

The <u>cleaning kit</u> provides all the supplies you need to clean and maintain the printer.

The <u>plastic sheets</u> are provided to help you keep your area clean when replacing developer parts.

4.2.5 Fuser Kit

The fuser kit contains:

- Fuser unit
- Exit rollers

The fuser unit melts and fuses the toner powder onto the paper using a hot roller and an opposing pressure roller.

The exit rollers move the paper with the fused image out of the printer.

4.3 Replacement Intervals

Consumables are replaced at various intervals.

4.3.1 Recommended Replacement Intervals

The toner cartridge and waste toner bottle are replaced when an Add Toner message appears on the operator panel's status display. The fuser cleaning roller is replaced every other time the toner cartridge and waste toner bottle are replaced.

Consumable	Replacement Interval in 8 ½ x 11 Inch Landscaped Pages	Part Number
OPC Module Kit	400,000	251748-001
Transfer Charger Unit	400,000	251745-001
Developer Kit	800,000	251746-001
Developer Mix Kit	800,000	251747-001
Toner Kit (Two Bottles)	32,000 per bottle	251749-001
Fuser Kit, 230V	800,000	251743-001
Fuser Kit, 115V	800,000	251744-001
MICR* Developer Kit	800,000	251803-001
MICR Developer Mix Kit	800,000	251804-001
MICR Toner Kit (Two	32,000 per bottle	251742-001
Bottles)		
* Magnetic Ink Character	Recognition	

The table below shows the recommended intervals for replacing the printer's other consumables.

Consumables replacement intervals will vary based on your individual printer usage. If your usage differs from the typical printer usage described in Section 4.3.2 Assumptions about the Recommended Replacement Intervals, you may need to replace consumables at more or less frequent intervals.

These recommended intervals are typical life expectancies for each consumable. An individual consumable may produce slightly more or fewer printed pages than a typical consumable.

Important: Replace consumables promptly. If you wait too long to replace a worn-out consumable, printer performance may degrade and lower the lifespan of the printer and the other consumables.

4.3.2 Assumptions about the Recommended Replacement Intervals

The recommended replacement intervals are based on the following assumptions:

• Toner coverage is 4 percent (black) on each 8 $\frac{1}{2}$ x 11-inch (93.5 square inch) page

If you print pages with high toner coverage, you will have to replace the toner cartridge more often. Higher toner coverage may contribute to wear on all the other consumables. If you print pages with high toner coverage, you may have to replace both your toner cartridge and fuser unit more often.

• Paper is high quality, smooth (well-calendared) 20 lb. (75 gsm) weight

Heavier paper and non-standard media reduce the lifespan of the fuser unit and the OPC module.

• Continuous printing or print jobs of at least 1,000 pages

All laser printers must make several additional rotations between print jobs. These rotations increase the wear on the consumables. If you print small jobs regularly, it is recommended that you put them in a print queue and send them to the printer at the same time to limit increased wear.

• Best operating environment, which has a relative humidity of 40-65%

- Room temperature between 60-85 degrees F (15-30 degrees C)
- Regular replacement of all consumables
- Regular weekly and monthly cleaning and maintenance of the printer
- Prompt printer service if a problem occurs

To determine whether your consumables replacement intervals will be longer or shorter than those in Section 4.3.1 Recommended Replacement Intervals, examine the typical media you use and print jobs that you will run on the printer and compare them with the assumptions in this section. Heavy toner coverage and/or non-standard media may reduce the lifespan of your consumables.

4.4 Ordering Consumables

For best quality printing results, always use Printronix consumables. See Chapter 7 for information about ordering consumables.

It is always a good idea to keep spare toner on hand so that you do not run out. A spare OPC unit may also prove useful in maintaining the best image quality.

4.5 Storing Consumables

You should store consumables in an environment with relatively low humidity and moderate temperature. An environment with high humidity and hot or cold temperature will reduce the amount of time that the consumables can be stored without degradation. Do not leave consumables out on the shipping and receiving dock or in an unheated warehouse where they can freeze or overheat.

To ensure that your printer runs smoothly with minimum down time, always have at least one spare in stock for each consumable.

4.6 Using the Maintenance & Service Log

Every printer should have a maintenance & service log. The log should be set up when your printer is installed. Table 4-1 shows a sample log page. If you need to start or add pages to a maintenance & service log, you can copy Table 4-1.

Each time that you replace a consumable, record in the maintenance & service log:

- Date
- Total number of pages that the printer has printed
- Name of consumable
 - Note: Print a configuration page with the machine life count to find the total number of pages the printer has printed.

In addition, when you clean the printer on a monthly basis, or after printing 150,000 11-inch pages (as explained in Chapter 5 Printer Cleaning), record in the log the date and the total number of pages that the printer has printed.

When your printer is serviced, the service technician will also record the service work in the log.

The log helps service technicians diagnose printer problems. They will review the printer's service history and check the dates on which the printer was last cleaned and each consumable was replaced.

Maintenance & Service Log

Date of printer installation:

Serial number:

Date	Pages Printed	Error Message or Reason for Service	Maintenance or Service Performed

Table 4-1. Maintenance & Service Log

4.7 Adding Toner

Recommendation: Always add toner at the first convenient point after you see the Add Toner message on the operator panel's status display. If you wait too long, the Toner Empty message will appear, and the printer will stop printing until you change the toner cartridge.

When you add toner, replace the toner cartridge <u>and</u> the waste toner bottle. Every other time that you replace the toner cartridge, replace the fuser cleaning roller.

Follow these instructions to replace the toner cartridge, the waste toner bottle, and the fuser cleaning roller.

4.7.1 Open the Toner Kit Box

1. Open the toner kit box. See Figure 4-1.



Figure 4-1. Contents of Toner Kit

2. Make sure the box contains two toner cartridges, two waste toner bottles, and a fuser cleaning roller.

4.7.2 Remove the Spent Toner Cartridge

- 1. Prepare a place to put the spent toner cartridge. For example, you might put it in a small plastic trash bag or on sheets of paper. The spent toner cartridge may drop black toner dust.
 - **Important:** Black toner dust may be released when you replace the toner cartridge. Be careful not to get toner on your clothing. If you get toner dust on your hands, wipe it off with a <u>dry</u> cloth or wash it off with <u>cold</u> water. **Do not use hot water**; it will make the toner more difficult to remove.
- 2. Make sure all your print jobs are finished. Then stop the printer and take it off-line.

Caution: Do not open the front access door while the printer is printing. If you do, the paper will jam.

3. Open the printer's front access door.

- 4. Rotate the green handle on the spent toner cartridge clockwise as far as you can. After you rotate it almost three-quarters of a full rotation (225 degrees), you will not be able to rotate it any farther. See Figure 4-2.
 - Note: Do not try to pull the toner cartridge out of the developer until you rotate the handle all the way.



Figure 4-2. Removing the Toner Cartridge

- 5. <u>Slowly</u> pull the spent toner cartridge out of the developer unit and put it in the place you prepared for it. If you pull the cartridge out fast, it will release more toner dust.
- 6. Wrap up the spent toner cartridge so it doesn't spill toner dust and dispose of it in the trash.
- 7. Clean up any toner dust that was released when you removed the toner cartridge.

4.7.3 Install the New Toner Cartridge

1. Hold the new toner cartridge by both ends. The two pins should point upward. The plastic sealing strip will be near the top of the cartridge. See Figure 4-3.



Plastic sealing tape Shake the toner cartridge in this direction.

Figure 4-3. Holding the New Toner Cartridge

- 2. Shake the toner cartridge back and forth along its length to distribute the toner evenly across the cartridge. See Figure 4-3.
- 3. Match the two pins on the toner cartridge to the pin channel on the developer unit. See Figure 4-4.



Figure 4-4. Preparing to Install the New Toner Cartridge

- 4. <u>Slowly</u> push the new toner cartridge into the developer unit.
- 5. When the toner cartridge is all the way into the developer unit, turn the cartridge counterclockwise slightly so that the pins on the cartridge are engaged with the developer unit and hold the cartridge in place. The plastic sealing strip should be facing up.

- 6. Unfasten the white tape holding the opaque toner cartridge sealing strip in place. The white tape has a tab; pull the tab to release the white tape.
 - Note: The tab may not be obvious. It tends to cling to the underside of the green handle laying flat against the bottom of the green handle.
- 7. <u>Slowly</u> remove the toner cartridge plastic sealing strip by pulling it gently away from the printer. See Figure 4-5.
 - Tip: Roll or fold the sealing strip as you pull. This avoids snapping the sealing strip when it reaches the end of the toner cartridge and scattering any loose toner on the sealing strip.



Figure 4-5. Pulling the Plastic Sealing Tape

8. When you cannot easily pull farther, fold the plastic strip over itself (or roll it up) to hold any loose toner, and gently pull the tape fully off the cartridge. See Figure 4-6.



Figure 4-6. Removing the Sealing Tape from the Toner Cartridge

9. Continue to rotate the green handle on the toner cartridge counterclockwise as far as you can. After you have rotated it almost three-quarters of a full rotation (225 degrees), you will not be able to rotate it any farther, and the toner cartridge will lock into position. The toner cartridge's handle will be horizontal. See Figure 4-7.



Figure 4-7. New Toner Cartridge Installed in Printer

4.7.4 Replace the Waste Toner Bottle

- 1. With the printer's front access door open, remove the spent waste toner bottle. Grasp it from both sides and pull it forward. See Figure 4-7.
- 2. The spent toner bottle has a seal attached to the outside of the bottle. See Figure 4-7. Remove the tape backing from the seal, and fold the seal over the opening in the top of the bottle. Pull the seal tight across the opening and fasten the tape to the bottle.
- 3. Dispose of the spent waste toner bottle in the trash.
- 4. Clean up any toner dust that you can see with the waste toner bottle removed.
- 5. Push the new waste toner bottle into the steel clips on the front of the printer. See Figure 4-8.



Figure 4-8. Installing the New Waste Toner Bottle

- 6. Record the replacement of the toner cartridge and waste toner bottle in the maintenance & service log.
- 7. If you have just opened a new toner kit and installed one of the two toner cartridges, go to Section 4.7.5 Replace the Fuser Cleaning Roller below.

If you have just installed the remaining toner cartridge in an open toner kit, close the printer's front access door. Put the printer on line and make it ready.

4.7.5 Replace the Fuser Cleaning Roller

The lifespan of a fuser cleaning roller is twice the lifespan of a toner cartridge. Every time that you open a new toner kit and install the first new toner cartridge, install the new fuser cleaning roller. When you install the second new toner cartridge, you do not need to install a new fuser cleaning roller.

- 1. Make sure there is no paper loaded in the printer.
- 2. With the printer's front access door open, turn the fuser latch counterclockwise slightly until it releases the fuser drawer on the left side of the printer. See Figure 4-9.



Figure 4-9. Releasing the Fuser Drawer

3. Make sure that the fuser drawer is all the way out of the printer. The drawer should be latched open. See Figure 4-10.



Figure 4-10. Fuser Drawer Open

4. Open the top of the fuser unit by pushing the black tab toward the inside of the printer. See Figure 4-11.



Caution: If the printer has been in operation, the fuser unit and the fuser cleaning roller may be very hot.

Figure 4-11. Opening the Fuser Unit

5. Lift out the spent fuser cleaning roller by its green handles. See Figure 4-12.



Figure 4-12. Removing the Spent Fuser Cleaning Roller

- 6. Dispose of the spent fuser cleaning roller in the trash.
- 7. Hold the new fuser cleaning roller by its handles and lower it into the fuser unit.
- 8. Close the top of the fuser unit.
- 9. Turn the fuser latch counterclockwise slightly and hold it while you push the fuser drawer back into the printer. Once the fuser drawer starts to go into the printer, you can release the fuser latch. Push the fuser drawer into the printer until it latches.
- 10. Close the printer's front access door.
- 11. Put the printer on line and make it ready.
- 12. Record the replacement of the fuser cleaning roller in the maintenance & service log.

4.8 Replacing the OPC Module

Follow these instructions to replace the OPC module. You should always remove the developer unit and clean the printer when you replace the OPC module.

4.8.1 Open the OPC Module Kit Box

1. Open the OPC module kit box. See Figure 4-13.



Figure 4-13. Contents of OPC Module Kit

2. Make sure the box contains an OPC module and wire cleaning brush. The main charger unit should be preinstalled in the OPC module.

4.8.2 Clean the Printer and Replace the Spent OPC Module

Follow the instructions in Section 5.6 Monthly Cleaning Procedure. When you are done with those instructions, return to this section.

- 1. Dispose of the spent OPC module in the trash.
- 2. Record the replacement of the OPC module and main charger unit in the maintenance & service log.

4.8.3 Initialize the OPC Module's counter

Use this menu option to reset the counter so you can track the usage of the newly installed OPC module.

- 1. Press the Menu button.
- 2. Using the Feed/ \blacktriangleright button, navigate to the Consumables menu and press Enter/ $\mathbf{\nabla}$.
- 3. Using the Feed/ \blacktriangleright button, navigate to the Initialize OPC. This resets the counter to zero.

4.9 Replacing the Transfer Charger Unit

Follow these instructions to replace the transfer charger unit.

- 1. Open the transfer charger kit box and remove the transfer charger unit.
- 2. Make sure all your print jobs are finished. Stop the printer and take it off line. Remove the paper from the printer.
- 3. Use the on/off switch on the paper-input side of the printer to turn the printer off.
- 4. Open the printer's front access door.
- 5. Pull out the spent transfer charger unit. See Figure 4-14.



Figure 4-14. Removing the Transfer Charger Unit

- 6. Dispose of the spent transfer charger unit in the trash.
- 7. Push the new transfer charger unit into the printer.
- 8. Close the front access door on the front of the printer.
- 9. Use the on/off switch to turn the printer on.
- 10. Put the print on-line and make it ready.
- 11. Record the replacement of the transfer charger unit in the maintenance & service log.

4.10 Replacing the Developer Unit

Follow these instructions to replace the developer unit. You should always remove the OPC module and clean the printer when you replace the developer unit.

4.10.1 Open the Box

1. Open the developer unit box. See Figure 4-15.



Figure 4-15. Contents of Developer Kit

- 2. Make sure that you also have a developer mix kit. Figure 4-15 does not show the developer mix kit.
- 3. Open the developer mix kit box. See Figure 4-16.



Figure 4-16. Contents of Developer Mix Kit

4. Make sure the box contains a bag of developer mix, an ozone filter, a cleaning kit, and two plastic sheets.

4.10.2 Fill the New Developer Unit with Developer Mix

1. Remove the new developer unit from its packaging.

Important: The black developer mix powder can make a mess. Use care when working with it. Be careful not to get developer mix on your clothing.

- 2. Spread out the plastic sheet and put the developer unit on top of it. The plastic sheet will catch any spilled developer mix.
- 3. Open the metal door on the top of the developer unit by pressing on the small metal tabs at each end and pulling the tabs toward you. These tabs hold the door very firmly, and you may need to pry the tabs with a small screwdriver, which can bend the tabs. If the tabs are bent make sure to carefully bend them back to the correct orientation so the metal door can be closed after the develop mix is added to the developer unit. See Figure 4-17.



Figure 4-17. Opening the Metal Door on the Developer Unit

- Note: Figure 4-17 shows a developer unit with a toner cartridge. A new developer unit will not have a toner cartridge.
- 4. Cut off one corner of the developer mix bag to make a spout. See Figure 4-18.



Figure 4-18. Bag of Developer Mix with Corner Cut Off

5. Carefully pour the developer mix into the trough of the developer unit. Move slowly along the trough, gently shaking the bag and distributing the developer mix in the trough as evenly as possible. See Figure 4-19.



Figure 4-19. Adding Developer Mix to the Developer Unit
- 6. Close the metal door that covers the developer unit's trough.
- 7. Pick up the developer unit by grasping its handle with your left hand and placing your right hand underneath it.
- 8. Gently shake the developer unit from side to side to distribute the developer mix evenly across the developer unit's trough.

4.10.3 Clean the Printer and Replace the Spent Developer Unit

Follow the instructions in Section 5.6 Monthly Cleaning Procedure. When you are done with those instructions, return to this section.

Dispose of the spent developer unit in the trash.

4.10.4 Replace the Ozone Filter

- 1. Pull the spent ozone filter out of the back of the printer.
- 2. Dispose of the spent ozone filter in the trash.
- 3. Install the new ozone filter in the ozone filter opening on the back of the printer. Push it all the way into the opening.

4.10.5 Initialize the Developer Unit

- **Caution:** You must initialize the developer unit, or the printer will not apply toner properly. If this happens, a service technician must remove the developer mix from the developer unit and replace it with new mix. (Do **not** install a new toner cartridge until **after** you have initialized the new developer unit.)
- 1. Press the **MENU** button. The LCD will display MAIN MENU CONFIGURATIONS
- Press ◀ or ► until you see MAIN MENU CONSUMABLES on the display.
- 3. Press ▼ to select the CONSUMABLES menu.
- Press ◀ or ► until you see CONSUMABLES INIT DEVELOPER on the display.
- 5. Press **SHIFT +** \mathbf{V} to select.
- 6. Use ◀ or ► to select No or Yes to continue, then use **SHIFT** + ▼ to begin initialization. Initializing the developer takes about 190 seconds (a little more than three minutes) and resets the Developer counter to zero.
- 7. When you see the "DEVELOPER INITIALIZED" message, press SHIFT + ▲ to exit the menu system. "Off line" appears on the status display.

Record the replacement and initialization of the developer unit in the maintenance & service log.

4.10.6 Install a New Toner Cartridge

Install a new toner cartridge. Follow the instructions in Section 4.7 Adding Toner to install the new toner cartridge, the new waste toner bottle, and (if you are installing the first toner cartridge in the toner kit) the new fuser cleaning roller.

4.11 Replacing the Fuser Unit and Exit Rollers

Follow these instructions to replace the fuser unit and the exit rollers.

4.11.1 Open the Fuser Kit Box

1. Open the fuser kit box. See Figure 4-20.



Figure 4-20. Contents of Fuser Kit

2. Make sure the box contains a fuser unit and exit rollers: six soft black rollers on a metal shaft.

4.11.2 Remove the Spent Fuser Unit and Exit Rollers

- 1. Make sure all your print jobs are finished. Stop the printer and take it off-line.
- 2. Use the on/off switch on the paper-input side of the printer to turn the printer off. Remove the paper from the printer.
- 3. Open the printer's front access door.
- 4. Turn the fuser latch counterclockwise slightly until it releases the fuser drawer on the left side of the printer.
- 5. Make sure that the fuser drawer is all the way out of the printer. The drawer should be latched open.Caution: If the printer has been in operation, the fuser unit may be very hot.

- 6. Unplug the two electrical connectors attached to the fuser drawer as follows:
 - Unplug the smaller connector on top by pressing the clip on the top of the connector and pulling it firmly away from the printer.
 - Unplug the larger connector by pressing the two clips, one on each side, and pulling the connector firmly away from the printer.

See Figure 4-21.



Figure 4-21. Unplugging the Electrical Connectors

7. Lift up the back-up exit rollers (the row of six white rollers) using the black handle on the side of the rollers nearest the front of the printer. See Figure 4-22.



Handle for back-up exit rollers

Figure 4-22. Lifting the Back-up Exit Rollers

- 8. Grasp the ends of the paper guide, which covers the exit rollers (the row of six black rollers). Lift the exit roller paper guide all the way up. See Figure 4-23.
 - Note: If the exit roller paper guide catches on the fuser unit, push the fuser unit toward the inside of the printer as far as it will go.



Figure 4-23. Lifting the Exit Roller Paper Guide

9. Grasp the fuser unit's two black handles and pull it forward and out of the printer. See Figure 4-24.



Handles

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Figure 4-2	24. Remo	ving the F	user Unit

- 10. Turn the two white tabs at each end of the metal shaft with the exit rollers so that the white tabs are pointing up. See Figure 4-25.
 - Tip: The easiest way to turn the white tabs so they point up is to roll the metal shaft down with your finger.



Figure 4-25. Removing the Exit Rollers

- 11. Grasp the two white tabs and lift the exit rollers up and out of the printer.
- 12. While the fuser unit is out of the printer, vacuum the paper dust out of the area around the fuser unit.

4.11.3 Install the New Fuser Unit and Exit Rollers

- 1. Install the new exit rollers by grasping the two white tabs and lowering the exit rollers into the printer. See Figure 4-25 above.
- 2. Push the two white tabs all the way down.
- 3. Install the new fuser unit by grasping its two handles. Lower the fuser unit into the fuser drawer and push the fuser unit back until it fits snugly against the back of the drawer.
- 4. Grasp the ends of the exit roller paper guide and return it to its original position. The exit roller paper guide should click into place. The inside edge of the exit roller paper guide should be just beneath the edge of the fuser unit. See Figure 4-26.

Important: If the exit roller paper guide does not click into place, you will be able to close the fuser drawer and operate the printer, but the paper will not feed properly.



Make sure exit roller paper guide clicks into place. It's inside edge should be just beneath the edge of the fuser unit.

Figure 4-26. Returning the Exit Roller Paper Guide to Its Operating Position

- 5. Return the back-up exit rollers to their original position using the black handle on the side of the rollers nearest the front of the printer.
- 6. Plug the fuser unit's two electrical connectors into the printer. Plug in the larger connector and then plug in the smaller connector. Both of them will click into place.
- 7. Turn the fuser latch counterclockwise slightly and hold it while you start to push the fuser drawer back into the printer. Once the fuser drawer starts to go into the printer, you can release the fuser latch. Push the fuser drawer into the printer until it latches.
- 8. Close the printer's front access door.
- 9. Use the on/off switch to turn the printer on.
- 10. Put the printer on-line and make it ready.
- 11. Dispose of the spent fuser unit and the spent exit rollers in the trash.
- 12. Record the replacement of the fuser unit and the exit rollers in the maintenance & service log.

Chapter 5 Printer Cleaning

5.1 Contents

This chapter contains the following sections:

- 5.2 Overview
- 5.3 Giving the Printer a Tune-Up
- 5.4 Cleaning Supplies
- 5.4 Weekly Cleaning Procedure
- 5.5 Monthly Cleaning Procedure

5.2 Overview

To help ensure trouble-free printer operation, always clean and maintain the printer on a regular basis.

Perform these cleaning tasks as needed on a weekly basis or after printing 30,000 11-inch pages:

- Clean the Main Charger Unit
- Clean the Transfer Charger Unit

Perform these cleaning tasks as needed on a monthly basis or after printing 150,000 11-inch pages:

- Remove All the Consumables
- Clean Inside the Printer
- Reinstall the Consumables

Although these are the recommended weekly and monthly cleaning tasks, you should base your cleaning schedule on print quality. Printers in heavy use need to be cleaned more often than printers in normal or light use. Clean your printer as often as you need to maintain high print quality. Other factors that should influence your cleaning schedule are the amount of toner coverage on a printed page as well as the use of non-standard, low quality, or "contaminated" media. Section 4.3.2 Assumptions about the Recommended Replacement Intervals lists more factors that may influence how often you need to clean the printer.

5.3 Giving the Printer a Tune-Up

If you replace consumables on a regular schedule before they wear out and clean the printer on a regular schedule, the printer should provide trouble-free operation through its lifespan of 6,000,000 11-inch pages.

If the printer produces poor quality prints or jams frequently even after you have cleaned the printer and replaced spent consumables, the printer may need a tune-up. Contact an authorized service representative to perform the tune-up.

Important: Always use an authorized service representative and approved parts to service the printer.

5.4 Cleaning Supplies

Most of the supplies you need for cleaning and maintenance come with the printer and its consumables. In addition to these cleaning supplies, a particle vacuum is recommended.

5.4.1 Wire Cleaning Brush

The wire cleaning brush comes with the printer and is stored inside the printer's front access door. The brush fits into slots on the main charger unit and the transfer charger unit so that you can clean the fragile corona wires without breaking them.

Each OPC module kit includes a wire cleaning brush.

5.4.2 Cleaning Kit

A cleaning kit comes with the printer, and each developer kit includes a replacement cleaning kit.

The cleaning kit contains:

- Soft brush
- Several cleaning swabs
- Several moist cleaning cloths

If you need a new cleaning kit before you need to replace the developer unit, you can order one. See Chapter 7 for ordering information.

5.5 Weekly Cleaning Procedure

Follow these instructions on a weekly basis or whenever the printer prints 30,000 11-inch pages.

5.5.1 Clean the Main Charger Unit

- 1. Make sure all your print jobs are finished. Then stop the printer and take it off-line.
- 2. Use the on/off switch on the paper-input side of the printer to turn the printer off.
 - **Caution:** Do not turn the printer off, unplug the power cord, or open the front access door while the printer is printing. If you do, the paper will jam, and you will lose the data that has been sent to the printer.
- 3. Remove the paper from the printer.
- 4. Open the front access door on the front of the printer.
- 5. Grasp the main charger unit by its black handle and pull it straight out of the OPC module. See Figure 5-1.

Caution: The grid on the bottom of the main charger unit is fragile. Be careful not to damage it.



Figure 5-1. Removing the Main Charger Unit

- 6. Hold the main charger unit over a trash container or a sheet of paper or plastic.
- 7. Use the soft brush in the cleaning kit to brush black toner powder off the metal ends and sides of the unit.
- 8. Turn the unit upside down and brush toner off the ends and sides of the unit.
- 9. Use the soft brush to gently clean the grid on the bottom of the unit. Be careful not to damage the grid.
- 10. Turn the main charger unit right-side up and put it on a flat surface.





Wire cleaning brush

Figure 5-2. Wire Cleaning Brush

- 12. Position the wire cleaning brush as shown in Figure 5-3, place it in the main charger unit, and run it back and forth once to clean the corona wires.
 - **Caution:** The two wires are fragile. Be careful not to damage them. Never clean the wires with a cloth or cotton swab. A stray fiber left on a wire may damage the printer.
 - Note: The wire cleaning brush will fit into the main charger unit only one way. If you are having a problem, make sure that you have the wire cleaning brush positioned exactly as shown in Figure 5-3.



Figure 5-3. Cleaning the Wires in the Main Charger Unit

- 13. When you are done, push the main charger unit into the OPC module until it slides into place.
 - **Caution:** The grid on the bottom of the main charger unit is fragile. Be careful not to damage it.

5.5.2 Clean the Transfer Charger Unit



1. Grasp the transfer charger unit by its black handle and pull it straight out of the printer. See Figure 5-4.

Figure 5-4. Removing the Transfer Charger Unit

- 2. Hold the transfer charger unit over a trash container or a sheet of paper or plastic.
- 3. Use the soft brush in the cleaning kit to brush black toner powder off the metal ends and sides of the unit.
- 4. Turn the unit upside down and brush toner off the ends and sides of the unit.
- 5. Put the unit on a flat surface.

6. Position the wire cleaning brush as shown in Figure 5-5, place it in the transfer charger unit, and run it back and forth once to clean the corona wires.



Caution: The two wires are fragile. Be careful not to damage them. Never clean the wires with a cloth or cotton swab. A stray fiber left on a wire may damage the printer.

Figure 5-5. Cleaning the Wires in the Transfer Charger Unit

- 7. Turn the transfer charger unit right-side up.
- 8. Push the transfer charger unit into the printer until it slides into place.
- 9. Place the wire cleaning brush in its storage area behind the metal tab below the developer unit. See Figure 5-2.
 - Note: If you do not position the wire cleaning brush correctly, you will not be able to close the printer's front access door.
- 10. Close the printer's front access door.
- 11. Use the on/off switch to turn the printer on.
- 12. Put the print on-line and make it ready.

5.6 Monthly Cleaning Procedure

Follow these instructions every month or whenever the printer prints 150,000 11-inch pages.

Recommendation: A toner vacuum cleaner will help you clean the printer fast and efficiently.

Warning: Turn the printer off and unplug the power cord before you clean the printer. If a wet cleaning cloth comes in contact with a high voltage component, you can receive a dangerous electric shock.

5.6.1 Prepare to Remove the Consumables

- 1. Prepare a towel or a sheet of plastic or paper to put the OPC module, developer unit, fuser unit, transfer charger unit, and waste toner bottle on. The consumables will have black toner dust on them. The towel or sheet will catch the dust.
- 2. Get an opaque covering ready to cover the OPC module when you remove it from the printer. Use any convenient opaque covering, such as a cardboard box, a large sheet of paper, or a large cloth.
 - Note: If you are replacing the OPC module, you do not need to cover it. You will dispose of it at the end of the procedure.
- 3. Make sure all your print jobs are finished. Then stop the printer and take it off-line.
 - **Caution:** Do not turn the printer off, unplug the power cord, or open the front access door while the printer is printing. If you do, the paper will jam, and you will lose the data that has been sent to the printer.
- 4. Use the on/off switch on the paper-input side of the printer to turn the printer off.
- 5. Remove the paper from the printer.
- 6. Unplug the printer's power cord.
- 7. Open the printer's front access door.
- 8. Rotate the green latch clockwise to release the latch bar. See Figure 5-6.



Latch for latch bar

5-6. Releasing the Latch Bar

9. Open the latch bar by swinging it to the left. See Figure 5-7.



Figure 5-7. Printer with Latch Bar Open

5.6.2 Remove the OPC Module

- 1. Grasp the OPC module's black handle and pull it forward. See Figure 5-8.
 - **Caution:** Avoid exposing the surface of the OPC drum to ambient light for more than five minutes. Exposing the OPC drum to light for an extended period will degrade the photoconductors.



Figure 5-8. Pulling the OPC Module Forward

2. Lift the OPC module out of the printer using the white plastic handle on top of the OPC module. See Figure 5-9.



Figure 5-9. Removing the OPC Module

- 3. Set the OPC module on a clean, flat surface. Cover the OPC module with the opaque covering so that no light can reach the OPC drum.
 - Note: If you are replacing the OPC module, you do not need to cover it. You will dispose of it at the end of the procedure.

5.6.3 Remove the Developer Unit

- 1. Remove the developer unit carefully. Grasp its green handle with your left hand and pull it forward slowly to avoid getting toner dust on your clothes. See Figure 5-10.
 - **Caution:** The developer unit is heavy. Do not pull it all the way out of the printer with one hand.



Figure 5-10. Pulling the Developer Unit Forward

- 2. When the developer unit is halfway out of the printer, reach under it with your right hand to support it. See Figure 5-11.
 - **Caution:** Do not grasp the developer unit's handle with your right hand and reach under the unit with your left hand. The lower left side of the developer unit has a roller, which may be covered with toner. Avoid touching the roller.



Figure 5-11. Supporting the Developer Unit

3. Place the developer unit on the towel or sheet you prepared for it.

5.6.4 Remove the Transfer Charger Unit

- <image>
- 1. Grasp the transfer charger unit by its handle and pull it straight out of the printer. See Figure 5-12.

Figure 5-12. Removing the Transfer Charger Unit

2. Place the transfer charger unit on the towel or sheet you prepared for it.

5.6.5 Remove the Fuser Unit

- 1. Turn the fuser latch counterclockwise slightly until it releases the fuser drawer on the left side of the printer.
- 2. Make sure that the fuser drawer is all the way out of the printer. The drawer should be latched open.

Caution: If the printer has been in operation, the fuser unit may be very hot.

- 3. Unplug the two electrical connectors attached to the fuser drawer as follows:
 - Unplug the smaller connector on top by pressing the clip on the top of the connector and pulling it firmly away from the printer.
 - Unplug the larger connector by pressing the two clips, one on each side, and pulling the connector firmly away from the printer.

See Figure 5-13.



Figure 5-13. Unplugging the Electrical Connectors

4. Lift up the back-up exit rollers using the black handle on the side of the rollers nearest the front of the printer. See Figure 5-14.



Handle for back-up exit rollers

Figure 5-14. Lifting the Back-up Exit Rollers

- 5. Grasp the ends of the exit roller paper guide and lift it all the way up. See Figure 5-15.
 - Note: If the exit roller paper guide catches on the fuser unit, push the fuser unit toward the inside of the printer as far as it will go.



Figure 5-15. Lifting the Exit Roller Paper Guide

6. Grasp the fuser unit's two black handles and pull it forward and out of the printer. See Figure 5-16.



Handles

Figure 5-16. Removing the Fuser Unit

5.6.6 Remove the Waste Toner Bottle

- 1. Grasp the waste toner bottle from both sides and pull it forward.
- 2. Place the waste toner bottle on the sheet or towel you prepared for it. Be careful not to knock it over and spill the toner.

5.6.7 Clean Inside the Printer

- 1. Using a toner vacuum cleaner, clean up all loose toner, paper dust, and chads. Vacuum the following areas:
 - Fuser drawer
 - Inside of front access door
 - Cavity for OPC module and developer unit
 - Paper-input and tractor area
 - Any other part of the printer that would benefit from vacuuming
- 2. With a clean, damp cloth, clean the erase LED array, which is the narrow green metal strip on the upper surface inside the printer. See Figure 5-17.



Figure 5-17. Cleaning the Erase LED Array

3. With a cotton swab, clean the glass lens, which is the narrow rectangular glass area on the upper surface inside of the printer. See Figure 5-18.



Figure 5-18. Cleaning the Glass Lens

4. With a damp cloth, clean the surface in front of the fuser. See Figure 5-19.



Clean Clean

Figure 5-19. Cleaning in Front of the Fuser

5. With a damp cloth, clean the five surfaces shown in Figure 5-20.



Figure 5-20. Cleaning Inside the Printer

- Note: Figure 5-20 shows the transfer charger unit installed. You should remove the transfer charger unit before you start to clean.
- 6. With a damp cloth, clean the front of the printer including the area around the waste toner bottle.
- 7. With a damp cloth, clean paper particles and other debris from the paper input area on the right side of the printer.

- 8. While the OPC module is out of the printer, clean any toner off the metal ledge, which is next to the drum. See Figure 5-21.
 - **Caution:** Avoid touching the OPC drum, as touching it may contaminate the surface and degrade the print quality.
 - Note: If you are replacing the OPC module, you do not to clean it. You will dispose of it in the trash at the end of the procedure.



Figure 5-21. Cleaning the OPC Module

9. When you are done cleaning the metal ledge on the OPC module, cover the OPC module with the opaque covering so no light reaches the OPC drum.

5.6.8 Install the Waste Toner Bottle

Push the waste toner bottle into the steel clips on the front of the printer.

5.6.9 Install the Fuser Unit

- 1. Install the fuser unit by grasping its two handles. Lower the fuser unit into the fuser drawer and push the fuser unit back until it fits snugly against the back of the drawer.
- 2. Grasp the ends of the exit roller paper guide and return it to its operating position. See Figure 5-22. The exit roller paper guide should click into place. The inside edge of the exit roller paper guide should be just beneath the edge of the fuser unit.
 - **Important:** If the exit roller paper guide does not click into place, you will be able to close the fuser drawer and operate the printer. However, the paper will not feed properly, and you may get paper jam errors.



Make sure lower paper guide clicks into place. It's inside edge should be just beneath the edge of the fuser unit.

Figure 5-22. Returning the Exit Roller Paper Guide to Its Operating Position

- 3. Return the back-up exit rollers to their original position using the black handle on the side of the rollers nearest the front of the printer.
- 4. Plug the fuser unit's two electrical connectors into the fuser drawer. Plug in the larger connector and then plug in the smaller connector. Both of them will click into place.
- 5. Turn the fuser latch counterclockwise slightly and hold it while you start to push the fuser drawer back into the printer. Once the fuser drawer starts to go into the printer, you can release the fuser latch. Push the fuser drawer into the printer until it latches.

5.6.10 Install the Transfer Charger Unit

Push the transfer charger unit into the printer until it fits securely in place.

5.6.11 Install the Developer Unit

- 1. Pick up the developer unit by grasping its handle with your left hand and placing your right hand underneath it.
- 2. As you move the developer unit into the printer, make sure that the semi-circular metal piece on the lower right side of the developer unit fits over the black plastic guide, which is connected to the latch. See Figure 5-23. To avoid catching the developer unit on the upper part of the printer, you may need to angle the developer unit down slightly as you move it into the printer.



Figure 5-23. Putting the Developer Unit in the Printer

- 3. After the developer unit is on the black plastic guide and has cleared the upper part of the printer, push it all the way into the printer. The developer unit will not lock into place until you close the latch at the end of this procedure.
- 4. If you have any toner on your hands, clean it off.

5.6.12 Install the OPC Module

- 1. Grasp the OPC module by its plastic handle, and put the OPC module back in the printer. Fit the guides on the top of the OPC module into the metal channel on the printer. See Figure 5-24.
 - **Caution:** Avoid exposing the surface of the OPC drum to ambient light for more than five minutes. Exposing the OPC drum to light for an extended period will degrade the photoconductors.
 - **Caution:** Avoid touching the OPC drum, as touching it may contaminate the surface and degrade the print quality.
- 2. After the OPC is in place, press in on the main charger to be sure that it is properly seated.



Guides on Metal top of OPC channel module on printer

Figure 5-24. Installing the OPC Module

5.6.13 Finish the Procedure

- 1. Close the latch bar by swinging it to the right until it is up against the printer.
- 2. Rotate the green latch counterclockwise until it latches the bar in place. This action also locks the developer unit in place. See Figure 5-25.



Figure 5-25. Closing the Latch on the Latch Bar

- 3. Close the printer's front access door.
- 4. Clean the area around the printer.
- 5. If you are replacing the OPC module, return to Section 4.8.2 Clean the Printer and Replace the Spent OPC Module.

If you are replacing the developer unit, return to Section 4.10.3 Clean the Printer and Replace the Spent Developer Unit.

If you are performing the monthly cleaning procedure, continue with the steps below.

- 6. Plug in the printer's power cord.
- 7. Use the on/off switch to turn the printer on.
- 8. Put the print on-line and make it ready.
- 9. In the maintenance & service log, record the date, the total number of pages that the printer has printed, and "monthly cleaning."
 - Note: For more information, see Section 4.6 Using the Maintenance & Service Log.

Chapter 6 Troubleshooting

6.1 Overview

This chapter contains the following sections:

- 6.2 Print Quality Problems
- 6.3 Clearing a Paper Jam

6.2 Print Quality Problems

This section shows samples of common problems with printed images and describes the steps you should take to fix the problems.

6.2.1 Samples of Print Quality Problems



No image - no toner on paper (white page): see page 108



No image - toner covers paper (black page): see page 110



Image is too light: see page 111



Gray image in white areas: see page 112



Black edge on one side of paper: see page 113



White vertical line: see page 113



Black vertical line: see page 114



Black horizontal line: see page 115



White spots: see page 116


Black spots: see page 117



Grainy image: see page 118



Toner does not stick to all parts of image: see page 119



Bottom edges of image are rough: see page 119



Paper is creased: see page 120



Distorted image: see page 121



Part of image does not print: see page 122



Offset image ("ghost" of image): see page 123



Blurred image: see page 124



Spattered toner near top edge of paper: see page 125



Spattered toner near bottom edge of paper: see page 126



Out-of-position image: see page 127

6.2.2 No Image - No Toner on Paper (White Page)

1. If you just installed a new developer unit, did you install the developer mix? If you have an unopened bag of developer mix in the kit containing the developer unit you installed, install the developer mix.

Follow the instructions in:

- Section 4.10.2 Fill the New Developer Unit with Developer Mix and
- Section 4.10.5 Initialize the Developer Unit
- 2. Make sure that all consumables are installed in the printer.
- 3. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 4. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.

While you are cleaning the transfer charger unit, make sure that the corona wires are not broken. If they are broken, replace the transfer charger unit with a new transfer charger unit.

5. Make sure developer unit is installed correctly. Remove it from the printer.

Follow the instructions in:

- Section 5.6.1 Prepare to Remove the Consumables and
- Section 5.6.3 Remove the Developer Unit
- 6. While you have the developer unit out of the printer, check the electrical connectors between the developer unit and the printer. See Figure 6-1 and Figure 6-2.

If the electrical connectors are damaged, call a service technician.

- 7. Check the gear coupling between the developer unit and the main drive assembly:
 - Check the developer unit's gear. See Figure 6-1.
 - Look inside the printer and check the gear that drives the gear on the developer unit. See Figure 6-2.

If the gear on the main drive assembly or the gear on the developer unit is damaged, call a service technician.



Figure 6-1. Checking Electrical Connector and Gear Coupling on Developer Unit



Figure 6-2. Checking Electrical Connector on Printer and Gear Coupling on Main Drive Assembly

8. If the electrical connectors and gears do not appear to be damaged, reinstall the developer unit in the printer.

Follow the instructions in: Section 5.6.11 Install the Developer Unit and Section 5.6.13 Finish the Procedure

9. Replace the transfer charger unit with a new transfer charger unit.

If replacing the transfer charger unit does not fix the problem, reinstall the old transfer charger unit in the printer.

- 10. Replace the OPC module with a new OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

11. Call a service technician.

6.2.3 No Image - Toner Covers Paper (Black Page)

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.

While you are cleaning the main charger unit, make sure that the corona wires are not broken. If they are broken, replace the OPC module, which includes the main charger unit.

- 4. Replace the OPC module with a new OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6.2.4 Image Is Too Light

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. If you just installed a new toner cartridge, make sure that the plastic seal has been removed from the toner cartridge.
- 4. If the operator panel is displaying a "Toner empty" message, make sure that the toner cartridge is not empty.
- 5. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 6. Are you printing with Economy Mode on, with Print Density set to Lighter Image, or with both? If you are, turn off Economy Mode, set Print Density to its default, or both.

A cross-reference to OEM data controller information that explains how to set Economy Mode and Print Density goes here.

7. Make sure the developer unit is installed correctly. Remove it from the printer.

Follow the instructions in:

- Section 5.6.1 Prepare to Remove the Consumables and
- Section 5.6.3 Remove the Developer Unit
- 8. While you have the developer unit out of the printer, check the electrical connectors between the developer unit and the printer. See Figure 6-1 and Figure 6-2 in Section 6.2.2 No Image No Toner on Paper (White Page).

If the electrical connectors are damaged, call a service technician.

- 9. Check the gear coupling between the developer unit and the main drive assembly:
 - Check the developer unit's gear. See Figure 6-1 in Section 6.2.2 No Image No Toner on Paper (White Page).
 - Look inside the printer and check the gear that drives the gear on the developer unit. See Figure 6-2.

If the gear on the main drive assembly or the gear on the developer unit is damaged, call a service technician.

10. If the electrical connectors and gears do not appear to be damaged, reinstall the developer unit in the printer.

Follow the instructions in:

- Section 5.6.11 Install the Developer Unit and
- Section 5.6.13 Finish the Procedure

- 11. Replace the OPC module with a new OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

12. Replace the transfer charger unit with a new transfer charger unit.

If replacing the transfer charger unit does not fix the problem, reinstall the old transfer charger unit in the printer.

13. Call a service technician.

6.2.5 Gray Image in White Areas

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
 - Note: Pay particular attention to the recommended replacement interval for the developer unit. The developer unit should be replaced after you have printed 600,000 11-inch pages. If you have reached the recommended replacement interval for the developer unit, follow the instructions in Section 4.10 Replacing the Developer Unit.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6.2.6 Black Edge on One Side of Paper

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedureand 5.6 Monthly Cleaning Procedure.
- 4. Replace the OPC module by following the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

5. Replace the fuser unit by following the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

6. Call a service technician.

6.2.7 White Vertical Line

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Replace the fuser unit by following the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

6.2.8 Black Vertical Line

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check to see if there are any scratches on the OPC drum.

If there are scratches on the OPC drum, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.

- 5. Even if there are not any scratches on the OPC drum, there may be a problem with the parts inside the OPC module. To check for a problem, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6. Replace the fuser unit by following the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

6.2.9 Black Horizontal Line

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check whether the fuser cleaning roller is dirty. Follow the instructions in Section 4.7.5 Replace the Fuser Cleaning Roller.

If the fuser cleaning roller is dirty, replace it.

If the problem continues after you replace the fuser cleaning roller, reinstall the old fuser cleaning roller.

5. Remove the OPC module and check for scratches on the OPC drum.

If there are scratches on the OPC drum, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.

Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If there are not any scratches on the OPC drum, reinstall the OPC module.

6.2.10 White Spots

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedureand 5.6 Monthly Cleaning Procedure.
- 4. Check to see whether the paper is damp or creased.

If the paper is damp, replace it with dry paper.

If the paper is creased, replace it with uncreased paper.

- Note: For information about proper storage conditions for paper, see Section 3.3 Storing Paper.
- 5. Remove the OPC module and check for scratches on the OPC drum.

If there are scratches on the OPC drum, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.

Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6. Replace the fuser unit by following the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

6.2.11 Black Spots

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check the surface of the paper. Paper with a rough surface may reduce print quality. To determine whether rough paper is causing the problem, print on smooth 20 lb. (75 gsm) bond and see if the print quality improves.
- 5. Replace the fuser unit by following the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

6. Remove the OPC module and check to see if there are any scratches on the OPC drum.

If there are scratches on the OPC drum, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.

- 7. Even if there are not any scratches on the OPC drum, there may be a problem with the parts inside the OPC module. To check for a problem, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6.2.12 Grainy Image

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check the surface of the paper. Paper with a rough surface may reduce print quality. To determine whether rough paper is causing the problem, print on smooth 20 lb. (75 gsm) bond and see if the print quality improves.
- 5. Check to see whether the paper is damp.

If the paper is damp, replace it with dry paper.

- Note: For information about proper storage conditions for paper, see Section 3.3 Storing Paper.
- 6. Replace the transfer charger unit with a new transfer charger unit.

If replacing the transfer charger unit does not fix the problem, reinstall the old transfer charger unit in the printer.

- 7. Replace the OPC module by following the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6.2.13 Toner Does Not Stick to All Parts of Image

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check the fuser unit for problems by replacing it with a new unit. Follow the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

5. Call a service technician.

6.2.14 Bottom Edges of Image Are Rough

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Call a service technician.

6.2.15 Paper Is Creased

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check to see whether the paper is damp or curled.

If the paper is damp or curled, replace it with dry, straight paper.

5. Check to make sure the paper is positioned directly under the paper tractors on the input side of the printer.

If the paper is off to one side, center it between the two paper tractors.

6. Make sure that the paper is placed evenly on the paper tractors and that the paper is held moderately tight between them.

If the paper is not even on the tractors, reload it evenly.

If the tractors are holding the paper too tightly or too loosely, make the necessary adjustment.

Follow the instructions in Section 3.4 Loading Paper.

- 7. If the paper is loaded correctly and the problem continues, check the exit rollers. If the exit rollers are dirty, clean them. If the exit rollers are worn, replace them.
- 8. Replace the fuser unit with a new fuser unit. Follow the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

Note: For information about proper storage conditions for paper, see Section 3.3 Storing Paper.

6.2.16 Distorted Image

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Replace the OPC module by following the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

- 5. Inspect the exit rollers for dirt, wear, or damage. If the exit rollers are dirty, clean them. If the exit rollers are worn or damaged, replace them.
- 6. Check the fuser unit for problems by replacing it with a new unit. Follow the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

7. If performing the monthly cleaning procedure does not fix the problem, call a service technician.

6.2.17 Part of Image Does Not Print

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

5. Replace the transfer charger unit with a new transfer charger unit.

If replacing the transfer charger unit does not fix the problem, reinstall the old transfer charger unit in the printer.

6.2.18 Offset Image ("Ghost" of Image)

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Replace the OPC module by following the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module.

5. Replace the fuser unit by following the instructions in 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

6.2.19 Blurred Image

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Replace the OPC module by following the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module.

- 5. Inspect the exit rollers for dirt, wear, or damage. If the exit rollers are dirty, clean them. If the exit rollers are worn or damaged, replace them.
- 6. Replace the fuser unit by following the instructions in 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

6.2.20 Spattered Toner Near Top Edge of Paper

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check whether the fuser cleaning roller is dirty. Follow the instructions in Section 4.7.5 Replace the Fuser Cleaning Roller.

If the fuser cleaning roller is dirty, replace it.

If the problem continues after you replace the fuser cleaning roller, reinstall the old fuser cleaning roller.

5. Check the fuser unit for problems by replacing it with a new unit. Follow the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

- 6. There may be scratches or foreign substances on the OPC drum. To check for a problem, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6.2.21 Spattered Toner Near Bottom Edge of Paper

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check whether the fuser cleaning roller is dirty. Follow the instructions in Section 4.7.5 Replace the Fuser Cleaning Roller.

If the fuser cleaning roller is dirty, replace it.

If the problem continues after you replace the fuser cleaning roller, reinstall the old fuser cleaning roller.

5. Check the fuser unit for problems by replacing it with a new unit. Follow the instructions in Section 4.11 Replacing the Fuser Unit and Exit Rollers.

If replacing the fuser unit does not fix the problem, reinstall the old fuser unit in the printer.

- 6. There may be scratches or foreign substances on the OPC drum. To check for a problem, replace the OPC module. Follow the instructions in Section 4.8 Replacing the OPC Module.
 - Note: Because the OPC module may not be the cause of the problem, cover the OPC module with an opaque covering (such as a cardboard box, a large sheet of paper, or a large cloth) when you remove it from the printer. The covering protects the OPC module from damage by exposure to light.

If replacing the OPC module does not fix the problem, reinstall the old OPC module in the printer.

6.2.22 Out-of-Position Image

- 1. Make sure that all consumables are installed in the printer.
- 2. Make sure that all consumables are within their expected lifespan by checking the information in the maintenance & service log. Replace any consumable that has been in use longer than its expected lifespan. Follow the instructions in Chapter 4, Replacing Consumables.
- 3. Clean the printer. Follow the instructions in 5.5 Weekly Cleaning Procedure and 5.6 Monthly Cleaning Procedure.
- 4. Check to make sure the paper is positioned directly under the paper tractors on the input side of the printer.

If the paper is off to one side, center it between the two paper tractors.

5. Make sure that the paper is placed evenly on the paper tractors and that the paper is held moderately tight between them.

If the paper is not even on the tractors, reload it evenly.

If the tractors are holding the paper too tightly or too loosely, make the necessary adjustment.

Follow the instructions in Section 3.4 Loading Paper.

- 6. Reload the paper and restart the print job.
- 7. If the paper is loaded correctly and the problem continues, call a service technician.

6.3 Clearing a Paper Jam

This section explains how to clear:

- 6.3.1 First Occurrence of Paper Jam
- 6.3.2 Reoccurrence of Paper Jam

6.3.1 First Occurrence of Paper Jam

The first time a paper jam occurs, follow these instructions.

- 1. If paper has exited the printer, tear the paper off at the fuser end of the printer.
- 2. At the paper input side of the printer, open the tractor covers, and pull the paper back out of the printer.

Note: For a figure showing the tractor covers, see Chapter 3, Paper Loading.

3. Open the fuser drawer and inspect it for paper. Remove any paper that you find in the fuser drawer.

Note: For instructions on opening the fuser drawer, see Chapter 4, Maintenance.

4. Remove the developer unit and inspect the inside of the printer for paper. Remove any paper that you find inside the printer.

Note: For instructions on removing the developer unit, see Chapter 4, Maintenance.

5. Reload paper and restart the print job.

Note: For instructions on loading paper, see Chapter 3, Paper Loading.

6.3.2 Reoccurrence of Paper Jam

If a paper jam reoccurs after you clear it the first time, follow these instructions.

1. Check the paper to make sure it isn't torn or damaged. The paper should meet the requirements for recommended media.

Note: For information about recommended media and storing paper, see Chapter 3, Paper Loading.

- 2. Find out where the lead edge of the paper is when the jam occurs:
 - 6.3.2.1 Lead Edge of Paper Is in Fuser Drawer
 - 6.3.2.2 Lead Edge of Paper Is in Area around Transfer Charger Unit

6.3.2.1 Lead Edge of Paper Is in Fuser Drawer

- 1. Clear the paper jam by following the instructions in Section 6.3.1 First Occurrence of Paper Jam.
- 2. Open the fuser drawer.

Note: For instructions, see Chapter 4, Maintenance.

Caution: Do not remove the OPC module. Leave it in place. If you remove the OPC module while paper is in the area around the OPC drum, you may scratch the OPC drum.

- 3. Lift up the back-up exit rollers (the row of six white rollers) using the black handle on the side of the rollers nearest the front of the printer.
 - Note: For photographs showing how to lift up the back-up exit rollers and the exit roller paper guide, see the instructions to replace the fuser unit and the exit rollers in Chapter 4, Maintenance.
- 4. Grasp the ends of the paper guide, which covers the exit rollers (the row of six black rollers). Lift the exit roller paper guide up and return it to its original position. The exit roller paper guide should click into place. The inside edge of the exit roller paper guide should be just beneath the edge of the fuser unit.
- 5. Use the black handle to return the back-up exit rollers to their original position.
- 6. If the paper continues to jam after you have made sure that the exit rollers are clicked into place, check whether the fuser unit has reached the end of its expected life.
 - Note: Consult the maintenance & service log to see when the fuser unit was replaced. For information about recommended replacement intervals for the fuser unit and about the maintenance & service log, see Chapter 4, Maintenance.
- 7. If the fuser unit has reached the end of its life, replace it.

Note: For instructions on replacing the fuser unit, see Chapter 4, Maintenance.

6.3.2.2 Lead Edge of Paper Is in Area around Transfer Charger Unit

The lead edge of the paper is **not** in the fuser unit. (If it is, see the instructions in Section 6.3.2.1 Lead Edge of Paper Is in Fuser Drawer.)

- 1. At the paper input side of the printer, release the tractor locks, open the tractor covers, and pull the paper back out of the printer.
- 2. Remove the OPC module and transfer charger unit. Inspect the area for debris and loose paper. Clean up any debris or loose paper that you find.
 - Note: For instructions on removing the OPC module and transfer charger unit, see Chapter 4, Maintenance.

6.4 Status and Error Messages

The operator panel will display various messages to alert the operator of the status of the printer and the print jobs. There are four categories of messages:

- Status
- Output device
- Warning
- Error

If a message is longer than one line, it will scroll across the bottom line of the display.

If two or more conditions require attention, the printer displays the message with the highest priority first. After the condition with the highest priority is resolved, the printer displays the message with the next highest priority, and so on.

6.4.1 Status Messages

Message Text	Explanation	Resolution
Warming up * * * * * *	The printer is warming up, or the page coverage is greater than 17.5%	Wait until printer is warmed up and READY message appears.
READY/ONLINE XXXX	Printer is ready to receive a print job.	None. The XXXX indicates the current configuration.
NOT READY/ONLINE XXXX	Printer is online but not ready.	Press the Ready/Stop button.
READY/NOT ONLINE XXXX	Printer is ready but not online.	Press Online button.
STOPPED/ONLINE XXXX	Printer is online but not ready.	Press the Ready/Stop button.
Printing XXXX	A page is printing.	The XXXX indicates the current configuration.
Processing	The printer is waiting for more data because the datastream ended with FF instead of the correct terminator command.	Add the correct terminator command (e.g., ESC E or ESC%12345X) or use "I/O Timeout" to end a job with the printer's timer (see pages 21 and 26).
Power Save Mode	Printer is in Power Save Mode. This message appears in place of a Ready message while printer is in Power Save Mode.	To exit Power Save Mode, see "Set the Power Save Time" in Chapter 2, Printer Operation.

6.4.2 Output Device Full Messages

Message Text	Explanation	Resolution
Paper Tray Full	Optional full power paper stacker's paper tray is full.	Empty paper from stacker's paper tray.

6.4.3 Warning Messages (Informational – does not stop printing)

Message Text	Explanation	Resolution
Toner Low	Toner is low after toner mixing.	Add toner at your earliest convenience. Note that printing will stop if toner runs out.
Engine EEPROM is near end-of-life	The EEPROM has a limited number of read/write cycles.	The EEPROM needs to be replaced before it fails.
Refurbish drive system soon	The drive system is approaching the time when new parts are required to maintain print quality.	Call a service technician for drive system refurbishment requirements.

6.4.4 Printer Error Messages (Printing has stopped – requires operator action)

Message Text	Explanation	Resolution
Dev. Initializing XX% complete	Developer is initializing.	Wait until printer has initialized developer and Ready message appears. The printer will ask the user to load paper when this process is complete.
Door Open Please close the door	Front access door is open.	 Close front access door. If door will not close: Check wire cleaning tool. Make sure its tab fits through slot on frame. Check main charger unit. If it is not installed, install it.
Out of Paper Please load XX" x XX" paper.	The printer has no paper.	Load the size paper called for by the LCD display. Press the green Paper Loaded button.

Message Text	Explanation	Resolution
Wrong Paper Size Please load XX" x XX" paper	A job has been processed and is ready to print; printer thinks its paper is not the same size as paper requested by job.	If size of paper loaded in printer does not match size of paper requested by job, change paper and press Paper Loaded button.
	Note: First number shows width of requested paper. Second number shows length of requested paper.	If size of paper loaded in printer matches size of paper requested by job, press Ready/Stop button.
		If you want to use paper loaded in printer even though it does not match size of paper requested by job, press Ready Stop button.
Paper Jam Jam Sensor	An unspecified jam in the paper path has occurred.	Check the paper path and remove any paper jams.
Paper Jam Top Sensor	The Top-of-Paper sensor detected no paper motion.	Check the paper input area of the printer and remove the paper jam.
Paper Jam Exit Sensor	Exit sensor did not detect paper after paper motion time out.	Check the paper exit area of the printer and remove the paper jam.
Paper Jam Paper Feed Sensor	Paper tractor mechanism has malfunctioned.	Call a service technician.
Paper Jam Drive System Error	A cam error occurred during paper motion.	Turn the printer off, check the paper path and clear any jams, and make sure the printer door is completely closed. Power the printer on. If this does not clear the error, call a service technician.
Paper Jam Jam code		Call a service technician.
HV Error PLEASE CALL SERVICE	Excessive current draw to main charger	Call a service technician.
No OPC Unit Please install	No OPC unit was detected.	Install an OPC unit.
No Developer Unit Please install	No Developer unit was detected.	Install a Developer unit.

Message Text	Explanation	Resolution
No Waste Toner Bottle Please install	No Waste Toner Bottle was detected.	Install a Waste Toner Bottle.
Toner Empty Please add toner	No toner was detected.	Add toner and a new waste toner bottle.
Heater Failure PLEASE CALL SERVICE	The fuser unit has not heated properly.	Call a service technician.
LSU Failure PLEASE CALL SERVICE	The LSU unit has failed.	Call a service technician.
Drive Failure PLEASE CALL SERVICE	Failure has occurred in paper drive unit.	Call a service technician.
Stacker Failure PLEASE CALL SERVICE	The stacker has reported an error.	Check the paper stacker. If it is not jammed or full of paper, call a service technician.
Cutter Failure PLEASE CALL SERVICE	The cutter has failed.	Check the cutter. If it seems in order, call a service technician.
Engine EEPROM Failure PLEASE CALL SERVICE	The engine EEPROM has failed.	Call a service technician.
No Toner	Printer has run out of toner.	Add toner. Printer will not print without sufficient toner.

7.1 Ordering Consumables and Supplies

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas (800) 733-1900 Europe, Middle East, and Africa (33) 1 46 25 1900 Asia Pacific (65) 6548 4116 or (65) 6548 4182

http://www.printronix.com/public/supplies/default.aspx

7.2 Requesting Printer Service

Please have the following information available before you call the Printronix Customer Support Center:

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout (see Chapter 2)
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing of these samples may be required)

Americas (714) 368-2686 Europe, Middle East, and Africa (31) 24 6489 410 Asia Pacific (65) 6548 4114

http://www.printronix.com/public/servicessupport/default.aspx

Appendix A L7032 Specifications

Speed	Up to 32 ppm in landscape mode; 25 ppm in portrait mode; 275 ips; 1650 lines per minute @ 6 LPI 3590 cps @ 17 cpi (printer may occasionally pause if the page coverage is greater than 17.5%)
Media Types	 16-42 lb. (60-158 gsm) continuous fanfold media up to 15 inches wide Matrix-on label stock Card stock Tag stock
Paper Width	6.5 inches to 14.5 inches pin-to-pin
Print Width	13.6 inches
Paper Length	3 inches to 33 inches in 1/8 inches or 1/6 inches increments
Print Method	Electrophotographic (diode laser)
Photosensitive Material	OPC (organic photoconductor)
Printing Addressability	600 x 600 dpi
Fusing Method	Heat and Pressure
Warm-up	 3 minutes after power on 15 seconds warm
First Print	<20 seconds from warm <30 seconds from standby
Keypad/Display	 Display – 16x2 Alphanumeric (ASCII) liquid crystal LED Indicators – Ready, On-line, and Data Indicators Buttons – Ready/Stop, On Line, Menu, Exit/Up arrow, Reset, Shift, Feed/Left arrow, Enter/Down arrow, Feed/Right arrow
Electrical Requirements:	100-120/220-240 VAC @50/60 Hz "Universal" Start-up Power – 1.3 KW Operating Mode – 700 Watts Power Saving Mode – 70 Watts
Controller Power Available	+5 VDC @ 10 A max +12VDC @ 750 mA max -12VDC @ 250 mA max
Noise Level	<55 dBA

Operating Environment	• 50-90.5° F (10-32.5° C) • 20-80% RH
Dimensions:	W 24 inches (609 mm) H 17.5 inches (445 mm) D 24 inches (609 mm)
Weight	134 lb. (60.78 kg) with consumables installed
User-Serviceabl	e Items*
	 Two toner cartridges each with 32,000 page capacity at 4% density (black) Two toner waste bottles each with 32,000 page capacity One fuser cleaning roller with 64,000 page capacity <u>OPC Module Kit</u> One OPC module with 400,000 page capacity One main charger unit with 300,000 page capacity
	• One wire cleaning brush
	• One transfer charger unit with 400,000 page capacity <u>Developer Kit</u>
	• One developer unit with 800,000 page capacity
	 Developer Mix Kit One bag of developer mix with 800,000 page capacity One ozone filter with 800,000 page capacity
	One cleaning kit Two plastic sheets
	Fuser Kit
	 One fuser unit with 800,000 page capacity
	 One exit roller assembly with 600,000 page capacity
	 MICR (Magnetic Ink Character Recognition) Toner Kit Two MICR toner cartridges, each with 32,000 page capacity at 4% density
	(DIACK) Two toper waste bottles, each with 32,000 page capacity
	 One fuser cleaning roller with 64 000 page capacity
	MICR (Magnetic Ink Character Recognition) Developer Kit
	 One developer unit with 800,000 page capacity
	 <u>MICR (Magnetic Ink Character Recognition) Developer Mix Kit</u> One bag of MICR developer mix with 600,000 page capacity One ozone filter with 800,000 page capacity
	One cleaning kitTwo plastic sheets
	* Based on 20 lb. (75 gsm) bond fanfold paper (8.5 inch x 11 inch landscape) – other media may change these estimates.
Certifications	CISPR-22 Class B* EN50082-1:1994 compliant* FDA/CDRH21CFR compliant* IEC 825 compliant CSA 950/NRTL-C (recognized component) (US 1950)* EN60950 (TUV) (recognized component)*

Service life	18,500,000 pages	
	A page is defined as one 11 inch sheet of computer stock.	f 20 lb. (75 gsm) continuous-form
Emulation	PCL5 (optional: PGL, VGL)	
Interfaces	Ethernet; Centronics Parallel	
Optional Accessories	Cabinet, Printer, L7032 Cutter Unit, L7032 Stacker, Full Power, L7032 Stacker, Power Assist, 115V, L7032 Stacker, Power Assist, 230V, L7032	P/N 251752-001 P/N 251750-001 P/N 251753-001 P/N 251751-001 P/N 251802-001
Appendix B PGL Setup Commands

The following descriptions are listed in alphabetical order. See the *PGL Programmer's Reference Manual* for more information.

300 dpi Compatbl

This option allows you to print files designed for 300 dpi printers at full size on a 600dpi printer. It determines whether or not 300 dpi images/barcodes need to be scaled to 600 dpi.

Disable. The images/barcodes are not scaled to 600 dpi – the printed image will be $\frac{1}{2}$ the size it printed on a 300 dpi printer.

Enable. The images/barcodes are scaled to 600 dpi – the image will print at the same size it printed on a 300 dpi printer (the number of dots will be doubled in both directions).

The factory default is Disable.

AI 00 Spaces

This option is designated for EAN/UCC-128 barcodes whose application identifier (AI) is 00.

Disable. The printable data field is printed with the AI enclosed in parentheses. This is the standard EAN/UCC-128 format.

Enable. The printable data field is printed with the UCC fields separated by spaces. This option is IGP-X00 compatible.

The factory default is Disable.

Auto Uppercase

This parameter enables the printer to print text in all uppercase when using the ALPHA command.

Disable. The printer will print text in upper and lowercase.

Enable. The printer will print text in uppercase only.

The factory default is Disable.

Autowrap

This parameter determines if text will wrap to the next line when the line of text exceeds the right margin.

Disable. Truncates the text beyond the right margin until a CR or CR + LF is received.

Enable. Automatically inserts a CR + LF after a full print line.

The factory default is Disable.

Bold Chars.

The Bold chars option specifies the thickness or stroke weight of the text fonts. The allowable range is 0 to 512, in increments of 1. The default is 448.

Boundary Check

This option turns on or off the page boundary check for all print elements.

Enable. When enabled, an out of bound error is reported if the print element is out of the page boundary.

Disabled. When disabled, no out of bound error is reported. The out of bound print element prints over the page boundary.

The factory default is Enable.

C39 Compatbl.

This menu makes the old method of decoding C39 alternative character set compatible with the new.

Enable. Matches the old method of decoding.

Disable. Uses the current way of decoding.

The factory default is Disable.

Character Group and Character Sets (IGP/PGL)

This menu item selects the character set used by the printer. The available character sets are shown below.



Printing UTF-8 Encoded Unicode Text

Normally, to print multinational characters on a printer, the user needs to select a character set that contains the correct characters. Character sets are groups of 256 locations; the first 128 locations are occupied by the ASCII set, and the locations in the upper half are reserved for graphics, symbols, or multinational characters. For example, to print Cyrillic, the user would select a Cyrillic set. To print Italian, the user would select a different set.

Unicode allows any character to be selected without switching character sets because it specifies a different number for every character in all languages. Thus Unicode has become the standard for multinational printing.

UTF-8 is a popular encoding of Unicode in which the first 128 characters are still occupied by the ASCII set. This makes it backwards compatible with older applications which use only ASCII data. It also allows the printing of all Unicode characters.

UTF-8 encoded Unicode can be enabled on the printer from the front panel or from a host command in the PGL emulation.

CR Edit

This parameter determines if a carriage return will be followed by a line feed.

Disable. The printer ignores all carriage returns that are not followed by line feeds.

Enable. The printer processes all carriage returns, even for those that are not followed by line feeds.

The factory default is Disable.

Define CR code

This option controls the action of the printer when it receives a Carriage Return code (0D hex) from the host computer. If this feature is enabled, each time the printer receives a carriage return, it inserts an additional Line Feed code (0A hex) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

CR = CR. Does not insert an extra line feed after each carriage return.

CR = CR + LF. Inserts an extra line feed after each carriage return. The next print position will be print position 1 of the next line.

The factory default is CR = CR.

Define LF code

This parameter forces the printer to insert an automatic Carriage Return code into the data stream whenever a Line Feed code occurs. This can be used in most installations, but it is required if the host computer does not send carriage returns to the printer.

LF = **LF**. Does not perform an automatic carriage return. The next print position will be at the current print character position on the next line.

LF = CR + LF. Performs an automatic carriage return. The next print position will be print position 1 of the next line.

The factory default is LF = LF.

Do FF at TOF

Determines whether the printer, with media already set at the TOF (Top-of-Form) position, will advance media to the next TOF position upon receipt of an FF command.

Enable. The printer will advance media from the present TOF position to the next TOF position upon receipt of an FF command, causing a blank form.

Disable. The printer will not advance media from the present TOF position to the next TOF position upon receipt of an FF command.

The factory default is Enable.

Error Report

This item sets the error reporting capability of the printer for PGL forms as follows:

On. Full error checking reported. Any element that falls off the current page is reported as an error.

Debug Mode. Puts the printer in debug mode whenever a form is defined in CREATE mode. Each line of the CREATE form will be printed along with an error if one has occurred.

Off. There is no error checking whatsoever. Graphic elements such as alpha, line, barcodes, etc. will be clipped if they are beyond the page boundaries.

The factory default is On.

Expanded Font

Expanded font allows you to print characters in different sizes with specified parameters and to select which font face to use.

Scalable. Uses scalable fonts.

Block. Uses block fonts.

The factory default is Scalable.

Ext Execute Copy

Disable. Dynamic data, overlay data, etc. are not allowed if the optional Form Count parameter (number of forms to print) is specified as part of the Execute command. (This setting is IGP-100 compatible.)

Enable. Dynamic data, overlay data, etc. are allowed within a form where the Form Count parameter is specified in the Execute command. In this case, the same form is printed for whatever the Form Count is. Incremental data is not incremented since the printing page is the same. The overlay data is only printed with the first form and not on subsequent forms, and each form is printed on a separate page.

The factory default is Disable.

Extra Bold Char.

The Extra Bold Char option specifies the thickness or stroke weight of the text fonts. The allowable range is 0 to 512, in increments of 1. The default is 504.

Forms Handling

This submenu allows the user to handle the form in the following ways:

Disable (the default). No effect.

Auto Eject. Automatically ejects a page at the end of the job to spill out the last page.

Auto TOF. Automatically does a form feed (FF) at the end of each form to the next top of form.

Host Form Length (PGL)

Determines how the physical label length (see Label Length under the MEDIA CONTROL menu) is affected upon receiving an EXECUTE command.

Enable. The physical label length will change to match the form length (specified in CREATE command). The physical label size remains at the new setting until another EXECUTE command is received, or the PRINTER CONTROL menu settings are changed.

Disable. Forms printed in EXECUTE mode do not change the physical label size. Therefore, the size of the form (defined in CREATE mode) must fit within the current label dimensions, or errors may occur.

Changing the form length via the EXECUTE command changes the LP+ Emulation logical dimensions.

The factory default is Disable.

I-2/5 Selection

This option is added to be compatible with a special IGP-X00 customization. Usually, if nterleaved 2/5 bar codes have an odd number of digits, a leading zero is inserted in front of the data. However, this special IGP-X00 customization gives you the option of adding a space character at the end of the bar code instead.

Leading Zero. A leading zero is inserted in front of the data.

Trailing Space. A space is inserted at the end of the data instead of a leading zero.

X2 DPD. When selected, I-2/5 bar code with a magnification X2 will use the specially configured ratios 3:3:6:5 rather than 3:6:9:12 for compatibility issues.

Modulo 7 CD. The I-2/5 bar code uses a modulo 7 check digit instead of the default modulo 10 check digit.

The factory default is Leading Zero.

Ignore Mode

This parameter instructs the IGP to ignore the character selected under the Select Character menu.

Disable. The IGP does not ignore any characters.

Enable. The IGP ignores the character specified in the Select Character menu.

The factory default is Disable.

Ignore Text

Disable. When disabled, text in normal mode will be printed.

Enable. When enabled, any line of text (non-PGL commands) in normal mode will be ignored.

The factory default is Disable.

IGP100 Compatibl.

This parameter forces the output to correspond with IGP-100 printer output in cases where there are differences.

The options are Disable (the factory default) and Enable.

Lead PDF Dist

Adjusts the leading and trailing character spacing distance of the PDF for UPC/EAN barcodes. The range is 0.01- 0.10 inches in 0.01 inch increments, and the factory default is 0.10 inches.

Left Margin

Set in inches. Zero is defined as the far left edge of the page, and numbering increments from left to right.

The range is 0.0 - 6.0 inches in $1/10^{\circ}$ increments. The factory default is 0.

Max Font Buffer

The maximum amount of DRAM allocated to store the global font information of any resident and downloaded scalable font (e.g. Intellifont, TrueType). Each font contains its own global font information that is required for all character generation from that font. Some fonts may require more font buffer memory than others to generate characters. Insufficient font buffer memory causes characters to be missing on the page and prints blank. If a font needs more memory for character generation, increase the Max Font Buffer value to allow the printer to print the missing character.

The range is from 100 to 7200 Kbytes, and the factory default is 400 Kbytes.

Max Cache Memory

The Maximum Cache Memory option specifies the size of the memory block that can be allocated to the font cache. The font cache stores bitmaps that are created on demand from the font outlines stored in Flash memory. The cache allows the printer to print scalable fonts at optimum speed. To calculate the memory required, use this equation:

Horizontal resolution x vertical resolution x character height (inches) x character width (inches) x # of characters to be cached / 8

The allowable range is 50 KBytes to 3600 KBytes, in 50 KByte increments. The default value for this parameter is 1800 KBytes.

Maximum Cached Char

The Maximum Cached Characters option specifies the size of the largest character that can be stored in the font cache. To calculate the memory requirement, use this equation:

```
Horizontal resolution x vertical resolution x character height (inches) x character width (inches)
8
```

For example, if an application requires the use of a character that is 1 inch high by 1 inch wide, calculate the Maximum Cached Characters value as follows:

 $\frac{300 \times 300 \times 1 \times 1}{8} = 11,250$

Therefore, select a value that is equal to or greater than 11,250. The closest available value is 12 KBytes.

The allowable range is 1 KBytes to 20 KBytes, in 1-KByte increments. The default value for this parameter is 8 KBytes.

OCR-A Chars.

Character weight adjustment of resident OCR-A characters. The factory default is 384 and the range is from 0 to 512.

OCR-B Chars.

Character weight adjustment of resident OCR-B characters.

The factory default is 304 and the range is from 0 to 512.

Optimized Ratio

This option selects different bar code ratios for certain bar codes including Code 39 and Interleaved 2 of 5. It is included for compatibility with the IGP-X00 printers.

Disable (the default). Use standard bar code ratios.

Enable. Select the alternate bar code ratios.

Orientation

This menu item selects the image orientation to be used when printing the label.

Portrait. Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the leading edge of the media. The following illustration is an example, with the operator viewing the front of the printer.

Portrait orientation applies to PGL and VGL emulations.



Landscape. Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is the left edge of the media. The following illustration is an example, with the operator viewing the front of the printer.

Landscape orientation applies to PGL and VGL emulations.



Inv. Portrait. Inverse Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the trailing edge of the media. The following illustration is an example, with the operator viewing the front of the printer.

Inverse Portrait orientation applies to PGL and VGL emulations.



Inv. Landscape. Inverse Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is the right edge of the media (the left edge of the image is the trailing edge of the media). The factory default is Portrait. The following illustration is an example, with the operator viewing the front of the printer.

Inverse Landscape orientation applies to PGL and VGL emulations.



Repeat Form Opt

Enable (the default). Speeds up the processing of repeated forms for PGL, thereby resulting in increased printer throughput. This option provides no speed benefit for forms that are unrelated to one another and should be disabled under those circumstances.

Disable. Should be selected when subsequent forms are unrelated to one another.

Scalable Size

This option determines whether scalable characters are sized based on normal scaling or based on the size of block characters. If the option Block is set, then the scalable character are made to be the same size as block characters in the old IGP-X00 printers.

The options are Normal (the factory default) and Block.

Select Char

Instructs the IGP which decimal character (0-255) to ignore from the host.

The range is 0-255, and the factory default is 0.

Select CPI

This item selects the characters per inch (CPI) value.

The options are 10.0, 12.0, 13.0, 15.0, 17.0, and 20.0 CPI.

The factory default is 10.0 CPI.

Select LPI

This is the number of lines to be printed per inch. For example, at 6 lpi there is 1/6 inch from the top of one print line to the top of the next print line.

The options are 1 - 1000 LPI.

The factory default is 6.0 LPI.

Select SFCC

You can specify which decimal code (1-255) will be used as the Special Function Control Code (SFCC). The SFCC denotes that the following data is a PGL command.

The range is 1-255, and the factory default is 126.

Select SO Char

Allows you to specify a decimal code from 0 through 255 to be used in place of SO (Shift Out) as the control code which allows access for the alternate set of control function characters. See the description of the Code 128 barcodes in the *PGL Programmer's Reference Manual* for details.

The range is 0-255, and the factory default is 14.

Skip Cmd Prefix

Stands for Skip Command Prefix. This parameter determines if the printer will print any data before a PGL command is received.

Enable (the default). The printer ignores all data before a PGL command.

Disable. The printer will print all data before a PGL command.

Slash 0

This parameter allows you to print the numeral "0" with or without the slash. This option applies to all character sets except OCR A and OCR B.

Disable (the default). Zero is printed without a slash.

Enable. Zero is printed with a slash.

Standard Chars.

The Standard Chars option specifies the thickness or stroke weight of the text fonts. The allowable range is 0 to 512, in increments of 1. The default is 340. (*This parameter has no effect in the L7032 printer.*)

Standard Sets

This item allows you to select various character sets available from the "Character Group" item. The options are Standard, Arabic, Cyrillic, European, Greek, Hebrew, Turkish Set, and UTF-8. The factory default is Standard Sets.

Tall Characters

Increases the point height of resident Intellifont characters.

Enable. Increases the point height of resident Intellifont characters approximately 10%.

Disable. Standard resident font character point height is maintained.

The factory default is Disable.

(This parameter has no effect in the L7032 printer.)

Trunc Dyn Data

This submenu allows the user to truncate the dynamic data up to the maximum data length specified in Create Mode.

Disable (the default). If the dynamic data exceeds the maximum data length, an error will report.

Enable. If the dynamic data exceeds the maximum data length, the data truncates.

UPC Descenders

This parameter allows you to print bar code descenders when human readable data is not presented in the UPC/EAN bar codes.

Always (the default). UPC/EAN bar codes are printed with descenders, even if there is no human readable data.

Never. UPC/EAN bar codes are printed without descenders if the PDF command is present.

Only With PDF. UPC/EAN bar codes are printed with descenders only when the PDF command is presented.

User-Def Ratio

This option allows you to ignore the user-defined barcode ratio and replace it with the default ratio (X1).

Enable (the default). Allows the user-defined barcode ratio.

Disable. The user-defined barcode ratio will be replaced with the default ratio (X1).

Var Form Adjust

This specifies an amount (in tenths of inches) to add to the length of variable-length forms. Variable-length forms use a semicolon at the end of the CREATE command: ~CREATE;<FORMNAME>;0.

Typically, variable-length forms are determined by the elements within the form. The longest form element becomes the overall form length. This option allows an additional space to be added to the form length.

The range is 00.0 to 03.0 inches, and the factory default is 00.0 inches.

Var Form Type

Add Nothing (the default). When selected, no action is taken.

Add ;O. When selected, the form length ends at the longest printed element. (Same as ~CREATE;filename;0)

Add ;X. When selected, the form length is the same as the physical page length (the Label Length menu under MEDIA CONTROL). (Same as ~CREATE;filename;X)

Vertical Adjust

This option is to adjust printer dpi to expand or shrink the vertical position of graphic elements and the height of the vertical line. The default is 0 dots. The adjustment range is from -10 dots to 20 dots with respect to the current printer dpi.

Appendix C VGL Setup Commands

The following descriptions are listed in alphabetical order. See the *VGL Programmer's Reference Manual* for more information.

300 dpi Compatbl

This option allows you to print files designed for 300 dpi printers at full size on a 600dpi printer. It determines whether or not 300 dpi images/barcodes need to be scaled to 600 dpi.

Disable. The images/barcodes are not scaled to 600 dpi – the printed image will be $\frac{1}{2}$ the size it printed on a 300 dpi printer.

Enable. The images/barcodes are scaled to 600 dpi – the image will print at the same size it printed on a 300 dpi printer (the number of dots will be doubled in both directions).

The factory default is Disable.

^Dnn Dot Slew

Low Resolution. Sets the dot slew command dot values to be interpreted as 60 dpi P-Series dots.

High Resolution. Sets the dot slew command dot values to be interpreted as print engine dots.

The factory default is Low Resolution.

Absorb After ^PN

Disable. The paper motion line terminators that immediately follow the ^PN command are sent to the printer and processed.

Enable. The paper motion line terminators that immediately follow the ^PN command are ignored.

The factory default is Disable.

Absorb After ^PY

Absorb Motion. The paper motion line terminator immediately following the graphics ^PY command will be ignored.

Absorb All. The system ignores all the data following ^PY until a host generated terminator is detected and ignored.

Disable. System terminators following a graphics command are sent to the printer and result in paper motion.

The factory default is Absorb Motion.

Append Rotated

Disable. Logos and alphanumeric strings are treated as separate elements.

Enable. Appends logos to an alphanumeric string rotated in a clockwise, counterclockwise, or inverted orientation.

The factory default is Disable.

Auto FF at ^PN

When enabled, an FF will be generated automatically to slew to the end of form when the PN command is encountered and when the current vertical position is not at the top-of-form.

The options are Disable (the factory default) and Enable.

Autoeject

Determines paper handling upon exiting the VGL Repeated Form and Dynamic Form commands.

Disable. Holds the print position at the bottom of the form.

Enable. Issues a form feed after the last form is printed so all pages will be physically printed.

The factory default is Disable.

Barcode Errors

Enable. An error message will print when invalid bar code data is encountered.

Disable. VGL will not print an error for illegal bar code data; the bar code will be skipped.

When Barcode Errors is disabled, the VGL emulation will try to make the best use of invalid data by either truncating extra digits or adding zeros to the end of bar code data to meet minimum data length requirements for some bar codes. Not all errors will be corrected.

The factory default is Enable.

Barcode var.

This command only applies for IBARC barcode command format.

Low Resolution. Sets barcode ratio dot values to be interpreted as line matrix printer dots (60 x72).

High Resolution. Sets barcode ratio dot values to be interpreted as print engine dots (300 x 300 or 203×203).

The factory default is Low Resolution.

Bold Chars.

The Bold chars option specifies the thickness or stroke weight of the text fonts. The allowable range is 0 to 512, in increments of 1. The default is 448.

Btm Margin Ctl

This menu determines whether or not the page's bottom margin is set. The bottom margin is calculated based on the setting of the menus "Text Length" and "Select LPI" and the current page length.

Disable. The bottom margin is not set.

Enable. The bottom margin is set.

The factory default is Disable.

C39 Compatbl.

This menu makes the old method of decoding C39 alternative character set compatible with the new.

Enable. Matches the old method of decoding.

Disable. Uses the current way of decoding.

The factory default is Disable.

C128 Mode Comp.

The menu is for compatibility of the old build in auto mode switch.

Enable. Matches the old build on the auto mode switch.

Disable. Uses auto mode switch.

The factory default is Disable.

Character Group and Character Sets

This menu item selects the character set used by the printer. The available character sets are shown below.

Character Group (IGP/VGL)				
Standard Sets* 0) AS CII* 1) German 2) Swedish 3) Danish 4) Norwegian 5) Finnish 6) English 7) Dutch 8) French 9) Spanish 10) Italian 11) Turkish 12) CP 437 13) CP 850	Arabic Sets ASMO 449 ⁺ ASMO 449+ ASMO 708+ MS DOS CP710 MS DOS CP720 Sakr CP714 Aptec CP715 CP 786 IBM CP864 IBM CP1046 Arabic Lam One Arabic Lam One Arabic Lam One Arabic Lam Ivo Win. CP 1256 Farsi 1 Farsi 2 1098 Farsi 1285	Cyrillic Sets Code Page 866* Cyrillic CP 437 Cyrillic 133 Cyrillic 8859-5 ISO 915 Code Page 855 Cyrillic 7-bit Ukrainian Bulgarian Win. CP 1251 Latvian 866	Europe an Sets Latin 2 8859-2* Code Page 852 Mazovia Kamenicky Roman 8 PC-437 Slavic Slavic 1250 Code Page 860 Latin 1 8859-1 Latin 5 8859-9 Latin 9 8859-15 Polish POL1 Win. CP 1250 Win. CP 1250 Win. CP 1257 CP 858 EURO Lith. CP 773 Serbo Croatic 1 Serbo Croatic 1 Serbo Croatic 1 Serbo Croatic 2 CP 774 CP 775 ISO 8859-4	Greek Sets DEC 256 Greek* ELOT 928 Greek Greek 3 ABY Greek ABG Greek ELOT 927 Greek Greek 851 Greek 437 Greek 859-7 Win. CP 1253 Greek 813 E uro Greek 869 E uro
Hebrew Sets	Turkish Sets			
Hebrew New Hebrew DEC Latin-1 Hebrew	DEC Turkish IBM Turkish Siemens Turkish			

Latin-1 Hebrew Win. CP 1255

> Notes: * = Factory Default.

Printing UTF-8 Encoded Unicode Text

PTT Turkish

IBC Turkish Bull Turkish AS400 Turkish

Unisys Turkish NCR Turkish

PST Turkish UNIS-1 Turkish Code Page 853 INFO Turkish Win. CP 1254 Code Page 857 Azeri

Normally, to print multinational characters on a printer, the user needs to select a character set that contains the correct characters. Character sets are groups of 256 locations; the first 128 locations are occupied by the ASCII set, and the locations in the upper half are reserved for

graphics, symbols, or multinational characters. For example, to print Cyrillic, the user would select a Cyrillic set. To print Italian, the user would select a different set.

Unicode allows any character to be selected without switching character sets because it specifies a different number for every character in all languages. Thus Unicode has become the standard for multinational printing.

UTF-8 is a popular encoding of Unicode in which the first 128 characters are still occupied by the ASCII set. This makes it backwards compatible with older applications which use only ASCII data. It also allows the printing of all Unicode characters.

UTF-8 encoded Unicode can be enabled on the printer from the front panel or from a host command in the LP+, PGL, or ZGL emulation.

Cmd Resolution

Low Resolution. Sets a low command resolution mode.

High Resolution. Sets a high command resolution mode.

The factory default is Low Resolution.

Copy Count

Determines the number of identical copies of each physical page that will be printed.

The range is 1-999, and the factory default is 1.

Data Bit 8

Enable. The PI line is not passed directly from host to printer; all 8 bits are used for data bits, and characters in the hex 80-FF range can be accessed.

Disable. When the host PI line is enabled, data bit 8 internally indicates PI line status. To use the PI line, disable data bit 8, and enable the Host PI configuration option (under the PI Ignored option).

Data bit 8 is interpreted as either data bit 8 or PI signal, but never both. When enabled as data bit 8, data bit 8 has priority over the PI signal, and all data above hex 7F is used to access character data and not to interpret PI line data.

Conversely, when data bit 8 is disabled and the PI signal is used, data bit 8 of the data is reserved for use as the PI function, and you cannot access characters in the hex 80-FF range. Therefore, to access characters in the hex 80-FF range, data bit 8 must be enabled.

The factory default is Enable.

Error Markers

Enable. Prints the following error markers for those elements that print beyond the page boundaries:

>> for elements that begin off the right side of the page;

<< for elements that begin at the indicated position but end off the page;

 \blacklozenge for elements where the starting position of the command contains an error other than an off-page error.

Disable.

The factory default is Enable.

Error Msgs

Enable. Command syntax is checked and error messages printed when command parameters are incorrect.

Disable. Error checking and error messages are suppressed.

The factory default is Disable.

Expanded Font

Expanded font allows you to print characters in different sizes with specified parameters and allows you to select block or non-block font face.

Scalable. Uses Gothic font as default. Other font faces can be selected by using the IFONT command.

Block. Uses Block font.

The factory default is Scalable.

Extra Bold Char.

The Extra Bold Char option specifies the thickness or stroke weight of the text fonts. The allowable range is 0 to 512, in increments of 1. The default is 504.

Host Form Length

Sets the printer page size.

Enable. Sets the printer label size equal to Label Length from the host form length command. (For more information, refer to the *IGP/VGL Programmer's Reference Manual*.)

Disable. Sets the printer label size equal to the Label Length set in the front panel under the PRINTER CONTROL menu.

The factory default is Disable.

Ignore Ch#1

Specifies character 1 for the character filtering option. Valid decimal values are from 0 through 255.

The factory default is 0.

Ignore Ch#2

Specifies character 2 for the character filtering option. Valid decimal values are from 0 through 255.

The factory default is 0.

Ignore Chars

Disable. Character filtering is not enabled.

Char 1. Character 1 will be filtered. Select the option "Ignore ch#1" to specify character 1.

Char 2. Character 2 will be filtered. Select the option "Ignore ch#2" to specify character 2.

Char 1&2. Characters 1 & 2 will be filtered. Select the options "Ignore ch#1" and "Ignore ch#2" to specify values for these characters.

The factory default is Disable.

Ignore Dots

Disable. The VGL expects position values to be specified in tenth inches and dot rows.

Enable. Causes the VGL to expect position values to be specified in only 1/10ths of an inch. If the dot position is also given, it is treated as text.

The factory default is Disable.

Ignore ^Lxx Cmd.

Disable. The factory default.

Enable. The Form Length commands ^Lxx and ^Hxx will be ignored, and the form length will be determined by the "Form Length" menu in the LP+ menu.

The factory default is Disable.

Ignore Mode

This parameter instructs the IGP to ignore the character selected under the Select Character menu.

Disable. The IGP does not ignore any characters.

Enable. The IGP ignores the character specified in the Select Character menu.

The factory default is Disable.

Ignore Spaces

Disable. Trailing spaces are not deleted from alphanumeric elements in a graphics pass.

Enable. Trailing spaces are deleted from alphanumeric elements in a graphics pass.

The factory default is Disable.

Interrupt Cmd.

Adjusted. Adjusts the vertical position with Interrupt command (^I).

Not Adjusted. Does not adjust the vertical position with Interrupt command (^I).

The factory default is Adjusted.

L50XX Comp.

Disable. Printer will not be compatible with older L50xx software.

Enable. Printer will be compatible with older L50xx software.

The factory default is Disable.

Left Margin

Set in inches. Zero is defined as the far left edge of the page, and numbering increments from left to right.

The range is 0.0 - 6.0 inches in $1/10^{\circ}$ increments. The factory default is 0.

Max Font Buffer

The maximum amount of DRAM allocated to store the global font information of any resident and downloaded scalable font (e.g. Intellifont, TrueType). Each font contains its own global font information that is required for all character generation from that font. Some fonts may require more font buffer memory than others to generate characters. Insufficient font buffer memory causes characters to be missing on the page and prints blank. If a font needs more memory for character generation, increase the Max Font Buffer value to allow the printer to print the missing character.

The range is from 100 to 7200 Kbytes, and the factory default is 400 Kbytes.

Max Cache Memory

The Maximum Cache Memory option specifies the size of the memory block that can be allocated to the font cache. The font cache stores bitmaps that are created on demand from the font outlines stored in Flash memory. The cache allows the printer to print scalable fonts at optimum speed. To calculate the memory required, use this equation:

Horizontal resolution x vertical resolution x character height (inches) x character width (inches) x # of characters to be cached / 8

The allowable range is 50 KBytes to 3600 KBytes, in 50 KByte increments. The default value for this parameter is 1800 KBytes.

Maximum Cached Char

The Maximum Cached Characters option specifies the size of the largest character that can be stored in the font cache. To calculate the memory requirement, use this equation:

Horizontal resolution x vertical resolution x character height (inches) x character width (inches) 8

For example, if an application requires the use of a character that is 1 inch high by 1 inch wide, calculate the Maximum Cached Characters value as follows:

 $\frac{300 \times 300 \times 1 \times 1}{8} = 11,250$

Therefore, select a value that is equal to or greater than 11,250. The closest available value is 12 KBytes.

The allowable range is 1 KBytes to 20 KBytes, in 1-KByte increments. The default value for this parameter is 8 KBytes.

Midline PY (includes ^PN)

Disable. The Graphics mode Enabled command, ^PY, must be the first three characters of a line.

Enable. The ^PY or ^PN can occur anywhere in a line.

The factory default is Disable. **OCR-A Chars.**

Character weight adjustment of resident OCR-A characters. The factory default is 384 and the range is from 0 to 512.

OCR-B Chars.

Character weight adjustment of resident OCR-B characters. The factory default is 304 and the range is from 0 to 512.

Offpage Errors

Disable (the default). Does not report errors for elements that start or end beyond the right edge of the page.

Enable. Reports errors for elements that start or end beyond the right edge of the page.

Orientation

This menu item selects the image orientation to be used when printing the label.

Portrait. Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the leading edge of the media. The following illustration is an example, with the operator viewing the front of the printer.

Portrait orientation applies to PGL and VGL emulations.



Landscape. Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is the left edge of the media. The following illustration is an example, with the operator viewing the front of the printer.

Landscape orientation applies to PGL and VGL emulations.



Inv. Portrait. Inverse Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the trailing edge of the media. The following illustration is an example, with the operator viewing the front of the printer.

Inverse Portrait orientation applies to PGL and VGL emulations.



Inv. Landscape. Inverse Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is the right edge of the media (the left edge of the image is the trailing edge of the media). The factory default is Portrait. The following illustration is an example, with the operator viewing the front of the printer.

Inverse Landscape orientation applies to PGL and VGL emulations.



PDF Size Comp

This option is for compatability of the font size of the barcode printable data field on the old build.

Enable. Matches the font size of the old build.

Disable. Uses the normal font size.

The factory default is Disable.

Power-up ^F

Disable (the default).

Enable. Selects free format mode as the power-up default, and selects the graphics mode ^PY as the power-up default. Free format causes the VGL to ignore carriage returns, line feeds, and all characters below 20 hex sent from the host.

Prop Char Size

Adjusted. The proportional font size will be adjusted.

Not Adjusted. The proportional font size will not be adjusted.

The factory default is Adjusted.

Prop Line Length

Enable (the default). The position of the next graphic element will be determined by the physical length of a text string (when using a proportional spaced font).

Disable. The position of the next graphic element will be determined as if the font was monospaced (all characters had the same specified width).

Repeat Form

When enabled, this menu speeds up the label printing for repeated form. This only applies to forms where the entire form is enclosed in the ^IREPV...^IREPE command.

Enable (the default). Speeds up the processing of repeated forms for PGL, thereby resulting in increased printer throughput. This option provides no speed benefit for forms that are unrelated to one another and should be disabled under those circumstances.

Disable. Should be selected when subsequent forms are unrelated to one another.

Rot. Char Size

Adjusted. Rotated (clockwise/counterclockwise), expanded characters have a different size than an unrotated character with the same size parameters.

Not Adjusted. Rotated, expanded characters will be the same size as unrotated characters with the same size parameters.

The factory default is Adjusted.

Select CPI

This item selects the characters per inch (CPI) value.

The options are 10.0, 12.0, 13.3, 15.0, 17.6, and 20.0 CPI.

The factory default is 10.0 CPI.

Select LPI

This is the number of lines to be printed per inch. For example, at 6 lpi there is 1/6 inch from the top of one print line to the top of the next print line.

The options are 6 - 10 LPI.

The factory default is 6 LPI.

Select SO Char

Allows you to specify a decimal code from 0 through 255 to be used in place of SO (Shift Out) as the control code which allows access for the alternate set of control function characters. See the description of the Code 128 barcodes in the *VGL Programmer's Reference Manual* for details.

The range is 0-255, and the factory default is 14.

Select SFCC

This option selects the Special Function Control Code. The default value is the caret ^ (decimal 94). Valid values are 17 through 255. Run a configuration printout to determine the currently selected SFCC.

The range is 17-255, and the factory default is 94.

Slash 0

This parameter allows you to print the numeral "0" with or without the slash. This option applies to all character sets except OCR A and OCR B.

Disable (the default). Zero is printed without a slash.

Enable. Zero is printed with a slash.

Standard Chars.

The Standard Chars option specifies the thickness or stroke weight of the text fonts. The allowable range is 0 to 512, in increments of 1. The default is 340. (*This parameter has no effect in the L7032 printer.*)

Standard Sets

This item allows you to select various character sets available from the "Character Group" item. The options are Standard, Arabic, Cyrillic, European, Greek, Hebrew, and Turkish Sets. The factory default is Standard Sets.

Tall Characters

Increases the point height of resident Intellifont characters.

Enable. Increases the point height of resident Intellifont characters approximately 10%.

Disable. Standard resident font character point height is maintained.

The factory default is Disable. (This parameter has no effect in the L7032 printer.)

Text Length

Text Length is the printable length on the page below the top margin. The range is 1-255, and the factory default is 66.

True Vert 1/10

Disable (the default). When disabled and in High Resolution, a vertical line's length in one inch and 1/10 inch increments is interpreted as 70/72 inch and 7/72 inch respectively.

Enable. When enabled, a vertical line's length is interpreted exactly, which is 72/72 inch in one inch increments.

Truncate Alpha

Enable (the default). Prevents the printing of Error 48 (Element Off Page Error) if alphanumeric data, including spaces, extends beyond the right side of the form.

Disable.

UPC Descenders

Enable (the default). UPC/EAN bar codes are printed with descenders, even if there is no human readable data.

Disable. UPC/EAN bar codes are printed without descenders if there is no human readable data.

Width Limit

When enabled, the system will limit the length and width for expanded characters to a limit shown in the table below, which shows the maximum width allowed for a specific height in the range of 00 through 40 (0.0 through 4.0 inches).

The factory default is Disable.

	Width L	imit Table	
Height	Max. Width	Height	Max. Width
Param.	Allowed	Param.	Allowed
00	99	21	51
01	99	22	53
02	3	23	56
03	6	24	58
04	8	25	61
05	11	26	63
06	13	27	66
07	16	28	68
08	18	29	71
09	21	30	73
10	23	31	76
11	26	32	78
12	28	33	81
13	31	34	83
14	33	35	86
15	36	36	88
16	38	37	91
17	41	38	93
18	43	39	96
19	46	40	98
20	48		

Appendix D Downloading Software

Flash memory is contained in a SIMM (single in-line memory module) located on the controller PCBA. Printer control languages (the "emulations") and printer operating system software are loaded into flash memory at the factory, but there are occasions when you may have to download this software:

- You have replaced the controller PCBA
- You have replaced flash memory
- You need to upgrade printer software
- You buy the PGL or VGL graphics language option after the printer is installed

Emulation and operating system software are included as files on a CD that comes with the printer. You will copy the appropriate file from the CD to a computer's hard disk, then download the file from the computer into printer memory.

You can download software through the parallel or Ethernet port of the printer, and you can do it three ways:

- You can use a command prompt session to download software through the parallel port of a Windows based system.
- You can use a command prompt session to download software through the Ethernet port of a Windows based system.
- You can 'unzip' the file and print the extracted .PJL file to the printer using a Windows, Unix, Linux, or Macintosh based system.

Downloading Software Through The Parallel Port of a Windows based system

- 1. Make a configuration printout of all saved configurations.
- 2. Set the printer power switch to O (Off).
- 3. Connect a parallel data printer cable to the LPT1 port of a computer running the Windows (98, Me, NT, 2000, XP, Server 2003, or Vista) operating system.
- 4. Connect the parallel data cable to the appropriate I/O port of the printer.
- 5. Set the printer power switch to | (On).
- 6. Set the printer interface port to "PARALLEL" in the front panel menu (you will need to cycle power after completing this step.)
- 7. Using Windows Explorer, create a directory named **download** at the root level of your C: hard drive (C:\download).

8. Insert the printer emulation software CD into your computer's CD drive. Open the readme.txt file on the CD. There are three emulation sets with corresponding part number files from which to choose:

PCL

PCL/PGL

PCL/VGL

There is also a file named 368745.exe. If the current Printer Firmware Part Number is 367814, 367979, 368428, or 368751 (as shown on the configuration printout), this file **must** be downloaded to the printer prior to downloading the emulation software.

- 9. Copy the 368745.exe file to the **download** directory you created in step 7 if your Printer Firmware Part Number is one of the four listed above.
- 10. Start a command prompt session. (The Start Menu icon is usually labeled **MS-DOS**[®] Prompt or **Command Prompt**.)
- 11. At the command prompt type:

C:<Enter>
cd \download<Enter>

12. If the current Printer Firmware Part Number is 367814, 367979, 368428, or 368751, enter the following command; if it is not one of these four numbers, go to step 15:

```
368745.exe -pb<Enter>
```

This command takes the file on the hard drive and copies it as a binary file into the flash memory on the printer controller board.

Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA incompletely loaded, and the printer may not boot up.

While the file is copied into memory, the printer LCD informs you of the download process and status.

You only need to download the 368745.exe file to the printer once. It will be stored in the printer and will not need to be downloaded again even if you acquire future software updates.

- 13. When the printer goes "ONLINE", the download is complete.
- 14. Identify which emulation set on the CD you want to download into the printer and note the filename that corresponds to that emulation. The filename is a six digit number plus **.exe**. For example: 123456.exe. **This is the emulation file you will download into the printer.**
- 15. Copy the emulation set file to the **download** directory you created in step 7.
- 16. Using the emulation set file name you selected in step 15, download the emulation set file to the printer by entering the following command:

xxxxx.exe -**pb**<Enter> where *xxxxxx* is the emulation set file name

Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA incompletely loaded, and the printer may not boot up.

While the file is copied into memory, the printer LCD informs you of the download process and status.

- 17. When the printer goes "ONLINE", the download is complete.
- 18. Remove the CD from the host computer and store it with the printer.
- 19. If required, remove the parallel data cable from the printer.

20. Using the configuration printout(s) you made in step 1, restore the printer configurations.

Downloading Software Through The Ethernet Port of a Windows based system

- 1. Make a configuration printout of all saved configurations.
- 2. Set the printer power switch to O (Off).
- 3. Connect the Ethernet cable to the printer interface.
- 4. Set the printer power switch to | (On).
- 5. Set the printer interface port to "ETHERNET" in the front panel menu (you will need to cycle power after completing this step.)
- 6. Using Windows Explorer, create a directory named **download** at the root level of your C: hard drive (**C:\download**).
- 7. Insert the printer emulation software CD into your computer's CD drive.
- 8. Open the readme.txt file on the CD. There are three emulation sets with corresponding part number files from which to choose:

PCL

PCL/PGL

PCL/VGL

There is also a file named 368745.exe. If the current Printer Firmware Part Number is 367814, 367979, 368428, or 368751 (as shown on the configuration printout), this file **must** be downloaded to the printer prior to downloading the emulation software.

- 9. Copy the 368745.exe file to the **download** directory you created in step 6 if your Printer Firmware Part Number is one of the four listed above.
- 10. Start a command prompt session. (The Start Menu icon is usually labeled **MS-DOS**[®] Prompt or **Command Prompt**.)
- 11. At the command prompt type:
 C:<Enter>
 cd \download<Enter>
- 12. If the current Printer Firmware Part Number is 367814, 367979, 368428, or 368751, enter the following command; if it is not one of these four numbers, go to step 14:
 368745.exe -mj -n yyy.yyy.yyy

where *yyy.yyy.yyy.yyy* is the IP address of the printer. This command takes the file on the hard drive and copies it as a binary file into the flash memory on the printer controller board.

Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA incompletely loaded, and the printer may not boot up.

While the file is copied into memory, the printer LCD informs you of the download process and status.

You only need to download the 368745.exe file to the printer once. It will be stored in the printer and will not need to be downloaded again even if you acquire future software updates.

13. When the printer goes "ONLINE", the download is complete.

- 14. Identify which emulation set on the CD you want to download into the printer and note the filename that corresponds to that emulation. The filename is a six digit number plus **.exe**. For example: 123456.exe. **This is the emulation file you will download into the printer.**
- 15. Copy the emulation set file to the **download** directory you created in step 6.
- 16. Using the emulation set file name you selected in step 14, download the emulation set file to the printer by entering the following command:

xxxxxx.exe -mj -n yyy.yyy.yyy <Enter> where *xxxxxx* is the emulation set file name and *yyy.yyy.yyy* is the IP address of the printer.

Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA incompletely loaded, and the printer may not boot up.

While the file is copied into memory, the printer LCD informs you of the download process and status.

- 17. When the printer goes "ONLINE", the download is complete.
- 18. Remove the CD from the host computer and store it with the printer.
- 19. If required, remove the Ethernet data cable from the printer.
- 20. Using the configuration printout(s) you made in step 1, restore the printer configurations.

Downloading Software Through The Printer Port of a Unix, Linux, or Macintosh based system

The firmware file *xxxxxx*.exe is a ZIP archive containing a PJL (*xxxxxx*.pjl) file. If you know how to print a PJL file to the L7032, you can 'unzip' the release file to get the PJL file, then just print the *xxxxxx*.pjl file to the printer to upgrade the firmware.

Do not interrupt the downloading process once it has started. Interrupting a download will leave the flash memory on the controller PCBA incompletely loaded, and the printer may not boot up.

While the file is copied into memory, the printer LCD informs you of the download process and status.

Appendix E Downloading Printable Files (PGL/VGL Only)

To download printable files to the printer (fonts, logos and forms), you must:

- 1. Add a download header to the file.
- 2. Download the file to the printer.

Once a file is downloaded, it will be stored in the Flash File System as a resident file. Regardless of printer power cycles, the downloaded file will stay in the printer until you delete it. You can print the list of all printer resident files by going to the **Test Print Menu** /**Font List** menu in the front panel. To delete a downloaded file from the Flash File System, you must use the emulation delete commands.

Adding the Download Header

The utility to add a download header to a printable file is *cnvt2fls*. The utility works by reading the file to be downloaded and creating another one with the specified header. You then download the created file to the printer.

The parameters to use the utility are:

cnvt2fls <file 1> <file 2> <file 3> A <type> [perm]

Where <	file 1>	The name of the file that contains the printable file to be
where,		downloaded. This is the input file. If there is already a
		ubwindaucu. This is the input life. If there is already a
		recognizable download header in the file, it will be stripped on and
		a new header will be written to the output file (file 2)
<	<file 2=""></file>	The name of the file that will be created that contains the header
		and the printable file to be downloaded. This is the output file.
		You may use any letters for the file extension.
<	<file 3=""></file>	The name of the printable file when it is in the printer
A	A	The letter A. It must be there.
<	<tvne></tvne>	The type of printable file Either FONT LOGO or FORM
r	orm	This must be specified
P		musi be specifica.

Example 1: cnvt2fls arial.ttf arial.pjl arial.ttf A FONT perm **Example 2:** cnvt2fls mylogo.gif mylogo.pjl mylogo A LOGO perm

In the examples above, Example 1 creates the downloadable file arial.pjl that contains a download header and the font file arial.ttf. Example 2 creates the downloadable file mylogo.pjl that contains a download header and the logo file mylogo.gif which will be called mylogo on the printer.

TrueType Fonts

If TrueType fonts are being downloaded, then there is an extra utility that may make the downloadable file creation work a little easier. It is called *addthdr*. It is exclusively for TrueType fonts. All that is needed is the name of the font file without the .ttf extension. All the other file names will be created based on the given file name. The utility adds the extension .dwn to the new file name. The parameters are:

addtthdr <file 1> [perm]

Where:	<file 1=""></file>	The name of the file that contains the printable file to be downloaded. This is the input file. If there is already a
		recognizable download header in the file, it will be stripped off and
		a new header will be written to the output file
	perm	This <u>must</u> be specified.

Example 3: addtthdr arial perm

In the example above, Example 3 creates the downloadable file arial.dwn that contains a download header and the font file arial.ttf. The file name on the printer will be arial.ttf. This is identical to example 1.

There are a few restrictions with using addtthdr. First, the font file name must have the extension of ttf. And second, the font file must be in the current directory. You must not specify a path to the font file.

Downloading TrueType Fonts and Printable Files

You can download TrueType fonts and printable files to your printer by using any of the following methods:

- Send the output file created above by *cnvt2fls* or *addtthdr* to the printer as a regular print job through your parallel or Ethernet port
- Send the output file created above by *cnvt2fls* or *addtthdr* to the printer with the DOS command **copy/b** *filename* LPT1: through your parallel printer port
- PGL Emulation (Online)

Using TrueType Fonts with PGL

TrueType fonts allow you to customize the look of your forms and labels. You are able to download TrueType fonts purchased from various sources into your printer. The fonts are available for purchase on websites such as www.fonts.com and www.myfonts.com.

PGL Emulation (Online)

A TrueType font can also be downloaded by creating a file that appends a PGL command to the font and then sending that file to the printer. Use the PGL FONTLOAD command:

~FONTLOAD;FontName;FontSize;DISK where

FontName - TrueType font name, e.g. arial.ttf *FontSize* - TrueType font size, e.g. file size for arial.ttf *DISK* - Specify the download location to Flash

For example:

~FONTLOAD;arial.ttf;60548;DISK

Insert binary data of arial.ttf here... **END**

After the file is created, it can be copied to the appropriate I/O port of the printer while the printer is online, just like any other print file (for example: copy/b filename.ext 1pt1).

Select And Print Downloaded TrueType Fonts

After downloading the TrueType font using any of the above methods, you can access the downloaded TrueType font by using the FONT;NAME command as described in the PGL Programmer's Reference Manual.

For Example:

~CREATE;FORM FONT;NAME ARIAL.TTF ALPHA 10;10;2;2;\$01234\$ STOP END ~EXECUTE;FORM;1

Deleting Stored Fonts and Files

Fonts and files that have been stored in the printer may be deleted by using the PGL 'DELETE' commands, or the PJL 'FSDELETE' command. (The VGL emulation does not provide a way to delete downloaded files through internal commands.)

Deleting a font or file can be accomplished by using the following PJL FSDELETE command:

<ESC>%-12345X@PJL

@PJL FSDELETE NAME="7:\name"

<ESC>%12345X

Where <ESC> is 0x1B and *name* is the name of the file to be deleted. For example, to delete a file named 'myfont.ttf', use the command line @PJL FSDELETE NAME="7:\myfont.ttf" (you *must* include the 7:\ in the command line).

To create the PJL command file, type the PJL command lines into a file with a hex editor and save the file. When the printer is ON LINE and READY, send the PJL command file to the printer. (This command file will delete fonts and files in both the PGL and VGL emulations.)

Once the PJL command file is sent to the printer, the file with the name specified in the command line will be deleted from the memory. If you want to verify the font/file has been deleted, print the flash file list by selecting the "Test Print Menu / Font List" menu. The deleted file should not appear in the list.

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