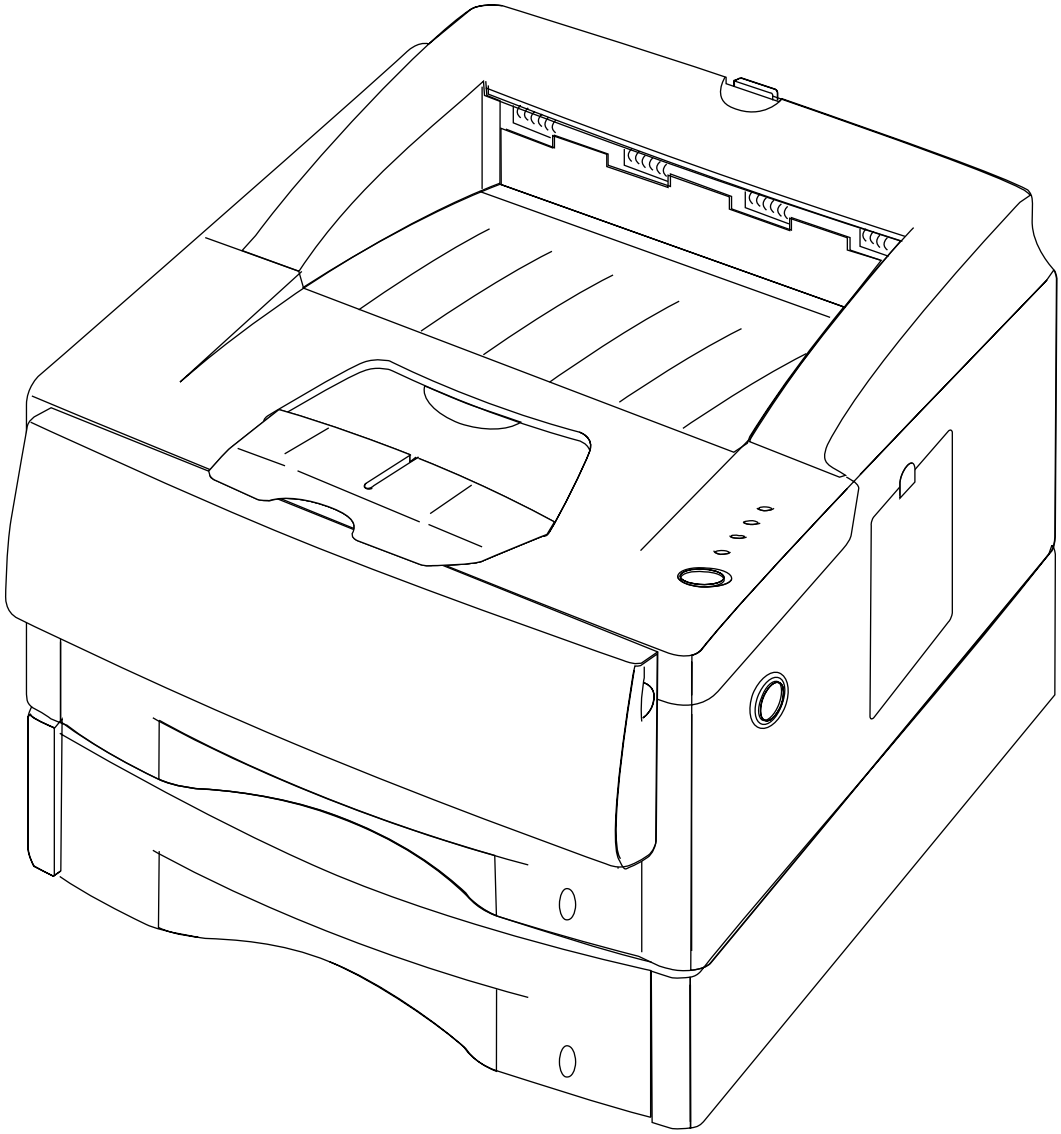
XEROX

Xerox DocuPrint P1202
Service Manual



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720P15700

This Service Manual contains information that applies to the Xerox DocuPrint P1202 Electronic Laser Printer.

NOTICE

This manual is for use by Xerox Technicians and Xerox trained technicians only.

NOTICE

While every care has been taken in the preparation of this manual, no liability will be accepted by Xerox arising out of any inaccuracies or omissions.

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Prepared by:
Xerox Corporation
PSD&E
701 S. Aviation Blvd. Mail Stop: ESM1-058
El Segundo, CA.90245

Prepared for:
Xerox Channels Group
Personal Printer
555 S. Aviation Blvd.
El Segundo, California 90245

The Xerox DocuPrint P1202 uses PCL 5e and PCL6 emulation.

PCL 5e and PCL6 are trademarks of Hewlett Packard Company. These printers contain an emulation of the Hewlett Packard PCL 5e and PCL6 command language, recognizes HP PCL PCL 5e and PCL6 commands, and processes these commands in a manner compatible with Hewlett Packard LaserJet printer products.

Warning

This equipment complies with the requirements in Part 15 of FCC rules for a class A computing device. Operation of the equipment in a residential area may cause unacceptable interference to radio and TV reception, requiring the operator to take whatever steps are necessary to correct the interference.

Product Safety

Electrostatic Discharge

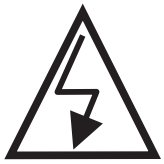
This caution indicates that there are components which are sensitive to damage caused by electrostatic discharge.

CAUTION

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

Shock Hazard

This symbol indicates the presence of potentially hazardous voltages.



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CLASS 1 LASER PRODUCT

The Xerox DocuPrint P1202 laser printers are certified to comply with Laser Product Performance Standards set by the U.S. Department of Health and Human Services as a Class 1 Laser Product. This means that this is a class of laser product that does not emit hazardous laser radiation; this is possible only because the laser beam is totally enclosed during all modes of customer operation.

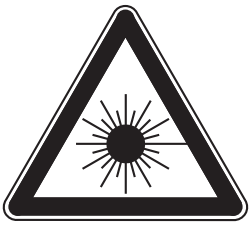
The laser and output of the laser scanner unit produces a beam that, if looked into, could cause eye damage. Service procedures must be followed exactly as written without change.

When servicing the machine or laser module, follow the procedures specified in the manual and there will be no hazards from the laser.

Laser (FDA): Any laser label visible to service must be reproduced in the service manual with location shown or indicated. Safe working procedures and clear warnings concerning precautions to avoid possible exposure must also be included.

The Laser contained in the DocuPrint P1202 meets the following standard: Laser class 3B, maximum 5mW, wavelength 780nm.

The following LASER symbol will be displayed at the start of any procedure where possible exposure to the laser beam exists.



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LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

Each P1202 laser printer has the following laser warning label on the Laser Assembly.

CAUTION - INVISIBLE LASER RADIATION WHEN THIS COVER OPEN. DO NOT OPEN THIS COVER.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.

ATTENZIONE - RADIAZIONE LASER INVISIBLE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.

PRECAUCION - RADIACION LASER IVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.

ADVARSEL. - USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

ADVARSEL. - USYNLIG LASERSTRÅLNING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN. UNNGÅ EKSPONERING FOR STRÅLEN.

VARNING - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN. STRÅLEN ÄR FARLIG.

VARO! - AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN.

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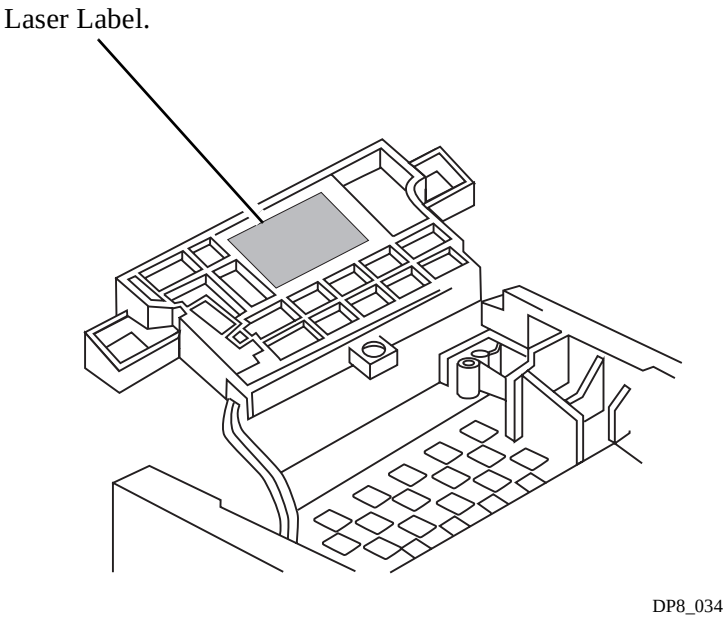
The Laser Label is visible when the Top Cover is removed (Figure 1).

Figure 1. Laser Safety Label



Finland Laser Safety

VARO! - Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

VARNING! - Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

Table of Contents

Introduction

The Xerox DocuPrint P1202 Service Manual is the primary document used for repairing and maintaining the P1202 Laser Printers.

This manual contains Service Call Procedures, Diagnostic Procedures, General Information, Repair Analysis Procedures, Copy Quality Analysis Procedures, Wiring Data, and Parts Lists that will enable the Service Representative to repair P1202 failures.

NOTE: In some of the DocuPrint P1202 documentation the Print Cartridge is referred to as the Image Cartridge. Print Cartridge is the correct term.

Organization

This manual is divided into seven sections. The title and description of each section of the manual is as follows:

Section 1 - SERVICE CALL PROCEDURES

This section is used to identify a suspected problem. It contains Call Flow, Initial Actions, and Final Actions. This part of the service manual should always be used to start the service call.

Section 2 - PRINTER SPECIFICATIONS

This section contains all the specifications for the P1202 printers.

Section 3 - PARTS LISTS

This section contains illustrations of disassembled subsystems and a listing of the spared parts.

Part names are listed in this section of the manual even if the part itself is not spared. All the parts that are spared will have the part number listed. Parts that are not spared will not have a number listed.

Section 4 - REPAIR PROCEDURES

This section contains the instructions for removal, replacement, and adjustment of the spared parts.

Section 5 - GENERAL PROCEDURES

This section contains diagnostic routines, printer setup procedures, and a listing of tools and supplies.

Section 6 - WIRING DATA

This section contains illustrations of the plug/jack locations and the routing of power and signal cables.

Section 7 - REPAIR ANALYSIS PROCEDURES (RAPs)

This section contains the procedures necessary to repair failures in the printer. This section also contains the procedures necessary to troubleshoot print quality problems.

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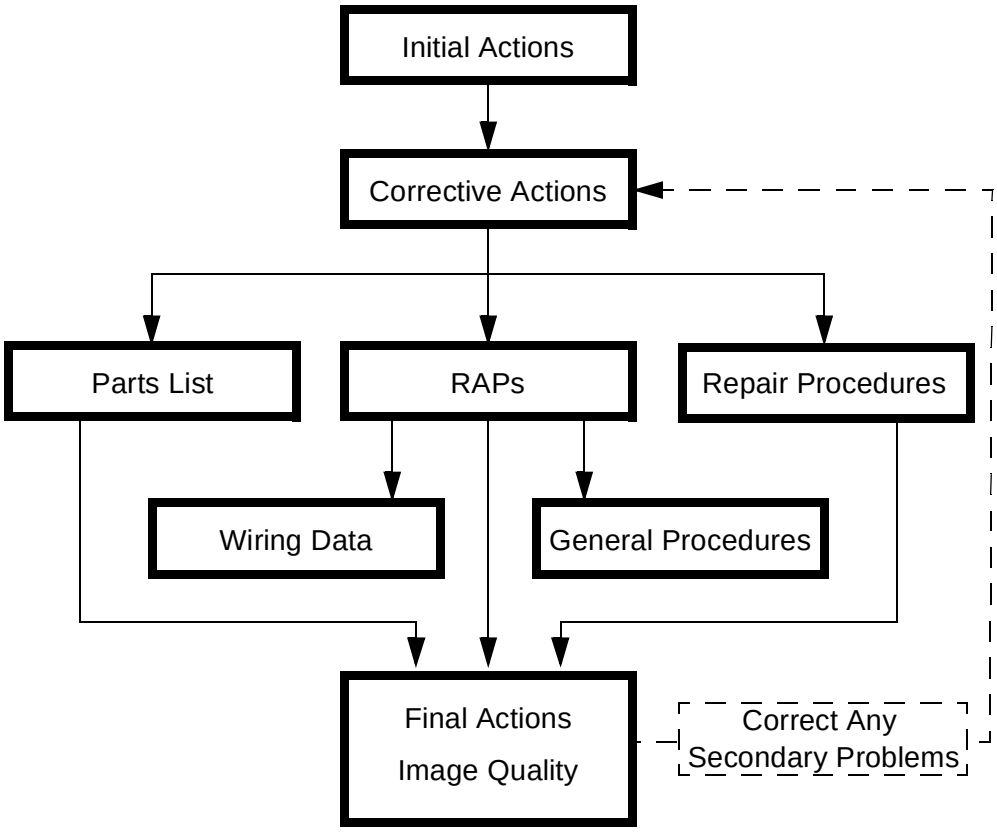
Section 1

Service Call Procedures

1.1 Call Flow Diagram

The basic troubleshooting steps are outlined in the Call Flow Diagram (Figure 1.1). All service calls begin with Initial Actions and end with Final Actions.

Figure 1.1 Call Flow Diagram.



1.2 Initial Actions

1. Question the operator and verify the problem.
2. Check that the printer paper path is clear of foreign matter such as staples, paper clips, and paper scraps.
3. After you have identified the problem symptom, check the following items:
   - The printer is connected to a wall power outlet, and the outlet is supplying the correct voltage.
   - The printer power cord is not frayed or broken.
   - The printer is correctly grounded / earthed.
   - The printer is in an appropriate operating environment, with no extremes of heat, humidity, or dirt.
   - The printer is not exposed to direct sunlight.
   - The printer is on a level and stable surface.

1.3 Corrective Actions

1. If the printer has an obvious failure or fault, you can go directly to the appropriate Repair Procedure (Section 4) or Repair Analysis Procedure (RAP) (Section 7) and begin corrective action.
2. If the fault is not obvious, follow the Entry Level RAP (Section 7) to identify the problem and begin corrective action.
3. After all corrective actions have been made, perform Final Actions.

1.4 Final Actions

1. Run Test Prints to evaluate print quality.
2. Perform the Image Quality Checkout procedures in section 7 to correct any print quality defects.
3. Correct any secondary problems (return to Corrective Actions, if necessary).
4. Reinstall the machine covers.
5. Clean the machine and the work area.
6. Ask the customer to send a print job to verify printer operation.
7. Provide operator training as required.
8. Close the call.

Section 2

Printer Specifications

2.1 Electrical Specifications

Video Controller (Video I/F)

Video Controller Board (Video I/F) is installed in the printer.

Video Interface Specification to be provided, if necessary.

2.1.1 Power Sources and Consumption

The Xerox P1202 printers are available in either a 110 or a 220 volt configuration.

Line Voltage	Line Voltage Tolerance	Frequency	Frequency Tolerance	Running Power Consumption	Power Saver
100/127 VAC	90 - 137 VAC	60 Hz	57 - 63 Hz	300 Watts (Average)	30 Watts
200/240 VAC	189 - 264 VAC	50 Hz	47 - 53 Hz	300 Watts (Average)	30 Watts

2.1.2 Power On/Off

The Xerox P1202 printers have an on/off power switch located on left rear corner of machine. The machine is equipped with a grounded power socket. Printer will power down automatically, (default condition, which can be disabled by the customer), when not used for a period of time (see Power Saver).

2.1.3 Power Saver

The Power Saver reduces power automatically when the printer does not receive data for a period of time. Power Saver is a menu selection in the Remote Control Panel (RCP) software which provides the user with the ability to control, when the printer enters the power saver state. The default value is 30 minutes. In Power Save mode, the power consumption is under 30 watts.

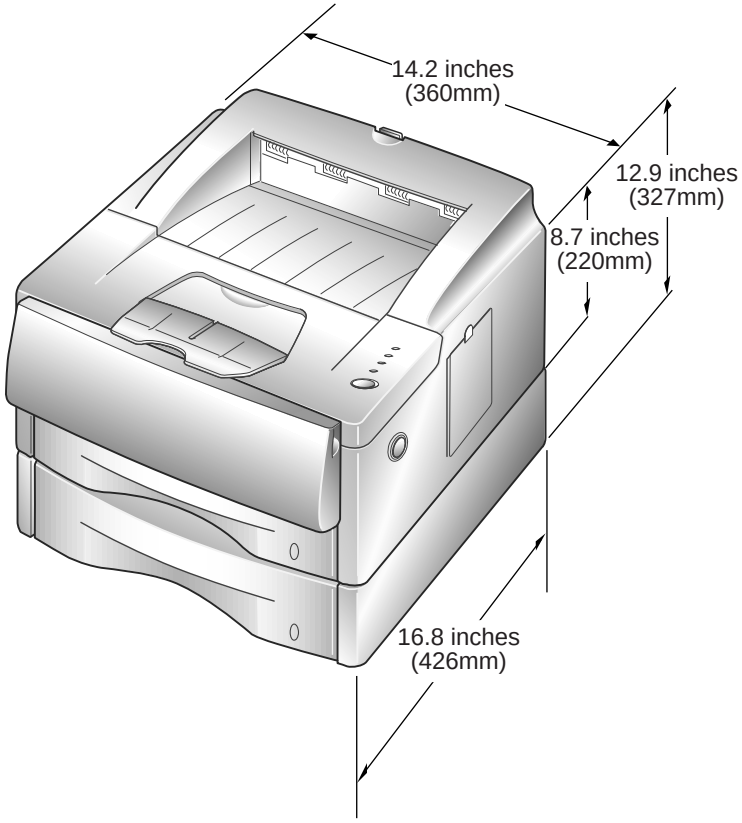
2.1.4 Mechanical

Unit	Width	Depth	Height	Weight
Metric	360 mm	426 mm	220 mm (One Paper Tray) 327 mm (Two Paper Trays)	11 Kg
SAE	14.2 in.	16.8 in.	8.7 in (One Paper Tray) 12.9 in (Two Paper Trays)	15.4 lbs

2.1.5 Consumables

PRINTER CARTRIDGE: 6000 pages at 5% coverage; more with use of the toner saving Econo Mode. The starter kit cartridge shipped with the printer is 3.0 K pages with 5% coverage.

2.2 Physical Location



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Place your printer on a flat, stable surface near your workstation. Leave enough space around the printer, so that you can easily:

- open the printer cover
- load the paper
- retrieve paper
- open the front single sheet output tray and retrieve the paper in the front output tray
- allow air circulation around the vents to prevent the printer from overheating

2.3 Functional Specifications

Warm Up Time	First Print Out	Print Speed - ppm (pages per minute)	Resolution - dpi (Dots per inch)
From Sleep mode to Standby mode under 45 seconds	From Standby mode 20 seconds From Power save mode 30 seconds	12 ppm	True 600 x 600 dpi RET of 1200 x 1200

2.4 Environment

	Temperature	Humidity	Noise	Level
Operating	10^{o} - 32.5^{o} C 50^{o} - 90.5^{o} F	20 - 80% RH	Sleep (Power Saver) - Background Standby - Under 29 dB Printing - Under 47 dB	Within 5^{o}
Shipping	-20^{o} - 40^{o} C -4^{o} - 104^{o} F	10 - 95% RH	- - - - - -	- - - - - -

The printer must not be exposed to:

- abrupt changes in temperature or humidity
- any condensation
- direct sunlight
- chemicals
- vibration
- dusty or dirty environments.

2.5 Options

MEMORY/DRAM: 4MB on board memory standard.

- With the one available memory expansion slot, memory can expand to include a 4, 8, 16, or 32MB SIMM. Maximum memory is 36 MB.
- The SIMM is a customer supplied item (72 pin, 60ns or 50ns, 32 bit, No Parity, EDO SIMM).

2.5.1 PostScript SIMMs

- PostScript requires a total of 12 MB of printer memory. The P1202 comes with 4 MB standard.

NOTE: The PostScript SIMM is an option. (The customer is required to provide the PostScript SIMM).

2.6 Paper Specifications

Papers that meet the specifications may be fed either through the Multipurpose Paper Feeder, or the Manual Single Sheet Feeder. If you use thick paper (from the RCP menu) with a weight of more than 90 g/m^2 (40lb), or envelope, you must insert paper into the Manual Single Sheet Feeder and select Thick Paper.

The Multipurpose Paper Feeder will hold 100 sheets of 60 - 126 g/m^2 (16 - 43 lb), or 10 envelopes, 25 labels, 30 transparency films and 25 paper labels.

The Manual Single Sheet Feeder capacity is 1 sheet 60 - 135 g/m^2.

2.6.1 Paper Limitations

The following are recommended for optimum performance:

- Adhesive label sheets specifically designed for laser printers.
- Transparencies specifically designed for laser printers
- Envelopes with peel-off adhesive strips or more than one fold-over flap to seal must have adhesives compatible with the heat and pressure of the printer's fusing process.
- Avoid:
  - — Paper with embossed lettering, perforations, or rough texture.
  - — Paper to which color was added after the paper was made.
  - — Printed forms whose ink is not for laser printing.

Most papers that meet the above specifications may be fed either through the multisheet or the single sheet paper feeder. Some media meets the specifications but is not ideal for feeding, e.g., paper that is either highly textured, thicker than normal for its weight, or unusually smooth.

Paper types

Size	Input Source/Capacity *	
	Tray 1 or 2	MPF
Paper		
Letter (8.5 x 11 in.)	250	100
Legal (8.5 x 14 1n.)	250	100
Executive (7.25 x 10.5 in.)	250	100
Foilo (8.5 x 13 in.)	250	100
A4 (210 x 297 mm)	250	100
ISO-B5 (176 x 250 mm)	250	100
A5 (148 x 210 mm)	--	100
Envelopes		
Com-10 (4.125 x 9.5 in.)	--	10
Monarch (3.875 x 7.5 in.)	--	10
C5 (162 x 229 mm)	--	10
DL (110 x 220 mm)	--	10
C6 (114 x 162 mm)	--	10
Cards Transparency film Labels	--	1 at a time
*** Depending on paper thickness, maximum capacity may be reduced**		

2.7 Operating Language and Emulation

The Xerox P1202 uses the PCL5e and PCL6 language.

The Xerox P1202 emulates the HP 6P and previous

(PCL6).

2.8 Communication Interfaces

NOTE: IEEE 1284 EPP is not supported.

Parallel port - Centronics IEEE P1284 compatible bi-directional (Nibble, Byte and ECP).

Serial port - RS-232C; supports data transfer up to 11.52K bps.

Auto Interface Switching (AIS), when the serial interface is installed.

LocalTalk - Macintosh Host Interface, 230.4 bps, SDLC, FMO Coding, RS-232C

USB (Universal Serial Bus) port is standard with the P1202 printer.

2.9 Status Display/Controls

The printer's status is controlled and displayed by both:

- a panel with a Front Panel Key and four LED's

Table 1:

READY Green LED	Steady On	Online and Ready to Print
	Blinking	Receiving data, processing, or printing
	Double blink every 2 or 3 seconds	Waiting with data in printer
PAPER Amber LED	Blinking	Out of Paper
	Steady On,(ERROR steady on)	Paper Jam
MANUAL Amber LED	Blinking	Manual Feed
	Steady On (with ERROR LED on)	N/A
ERROR Red LED	Blinking	Recoverable error, Press Panel Key or wait for timeout
	Steady On	Unrecoverable error or cover open

1) Error Light
2) Paper light
3) On-Line light
4) On-Line / Reset Key

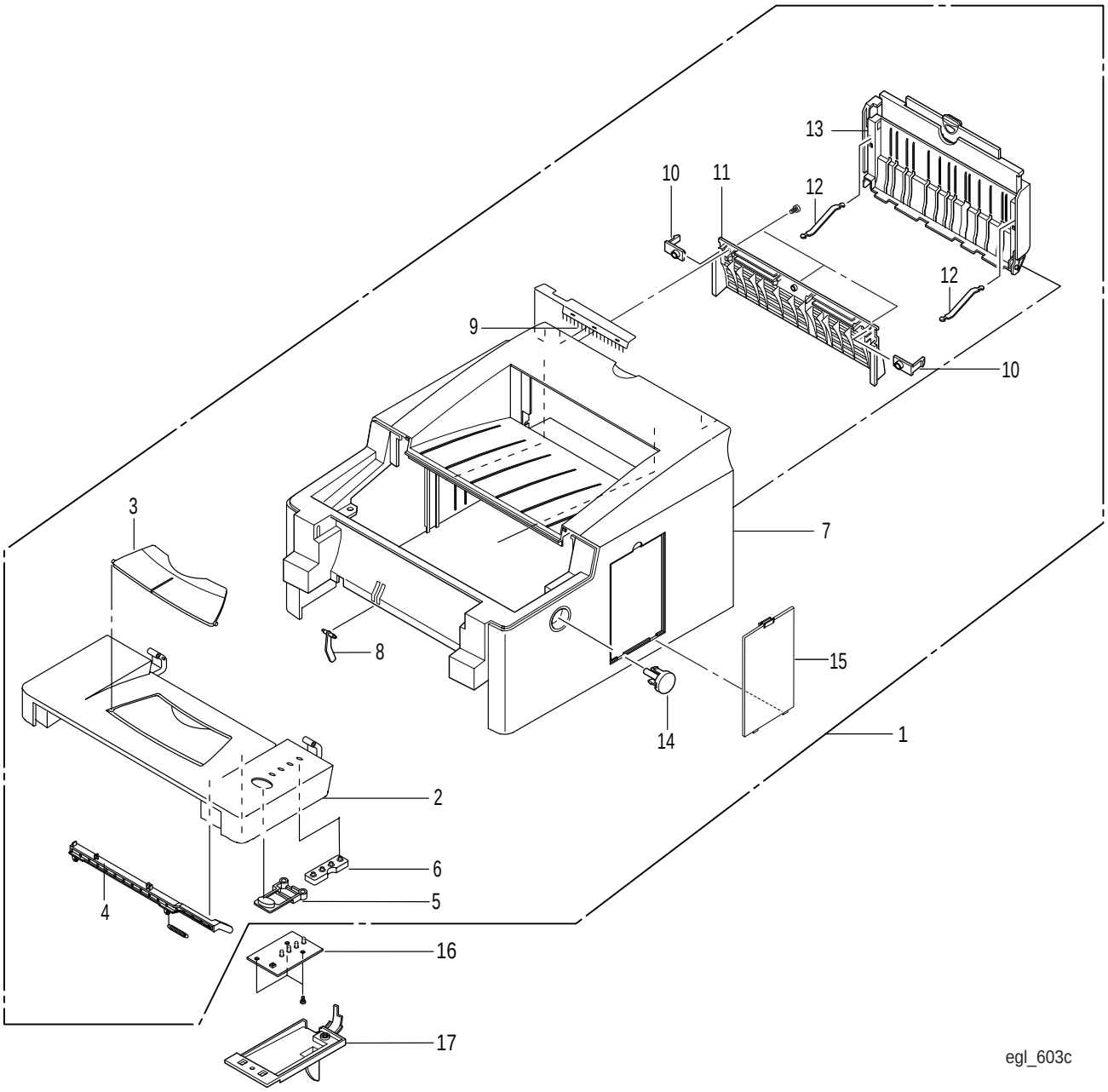
- software programs that enable the user to:
  - — monitor the printer's status on the computer screen (the Status Monitor). The Status Monitor is a program that runs in background and automatically displays a message(s) on your computer screen whenever the printer status changes (not available for NT 4.0).
  - — change printer settings from the computer screen (Remote Control Panel). The Remote Control Panel (RCP) program allows you to view and change print settings for the following operating systems; DOS, Windows 3.1, Windows 95, Windows 98, and NT 4.0.

Section 3

Parts Lists

PL 1 Covers

Item	Part Number	Description
1)	--	Main Cover Assembly (Includes items 2-15)
2)	--	Front Cover
3)	38N00285	Stacker Back Stop
4)	--	Lever
5)	--	Window LED PWB
6)	--	Button Panel LED
7)	--	Main Cover
8)	120N00304	Multi-Purpose Tray Empty Lever
9)	--	Static Brush
10)	--	Exit Lock
11)	--	Exit Guide
12)	3N00706	Exit Stopper (4 per order)
13)	2N01619	Exit Cover Assembly
14)	--	Cover Opener Button
15)	--	Systems Controller Cover
16)	123N00186	LED Panel PWB
17)	--	Panel Cap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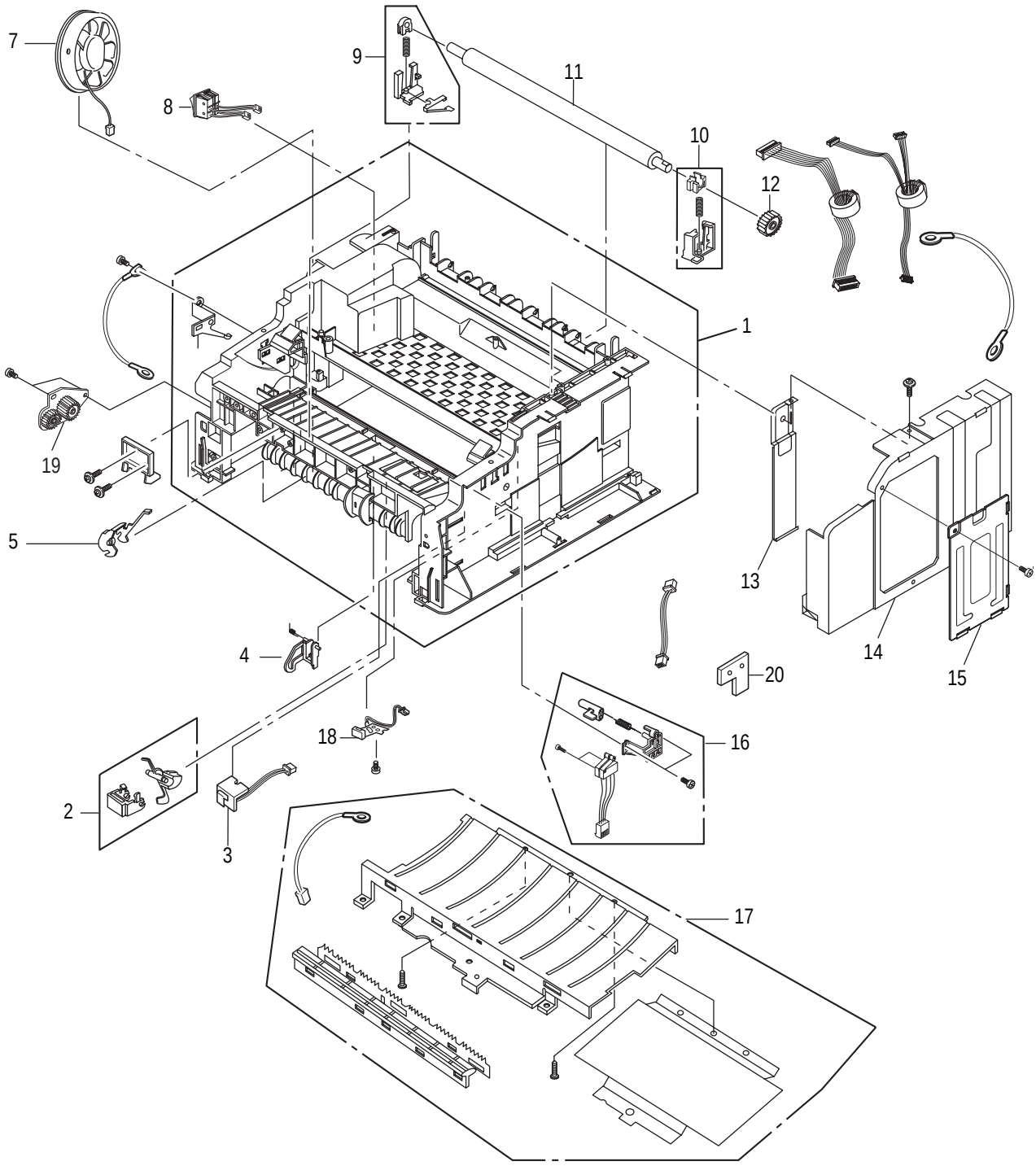
PL 2 Frame Assembly

Item	Part Number	Description
1)	--	Frame Assembly
2)	120N00301	Actuator
3)	130N00906	Cleaning Sensor
4)	120N00303	Paper Empty Actuator
5)	120N00302	Feed Actuator
6)	--	Multi-Purpose Plate Drive Bracket
7)	127N01006	DC Fan
8)	110N00828	Off/On Switch
9)	113N00310	Left Transfer Holder Bracket
10)	113N00311	Right Transfer Holder Bracket
11)	22N01021	Transfer Roller
12)	7N00776	Transfer Gear
13)	--	Wire Shield
14)	--	Systems Controller Shield
15)	--	Simm Cover
16)	130N00900	Cover Open Sensor
17)	38N00284	Transfer Guide Bracket Assembly
18)	130N00907	Thermistor Housing
19)	007N00774	Multi-purpose Tray Drive Bracket
20)	140N05245	Cleaning PWB



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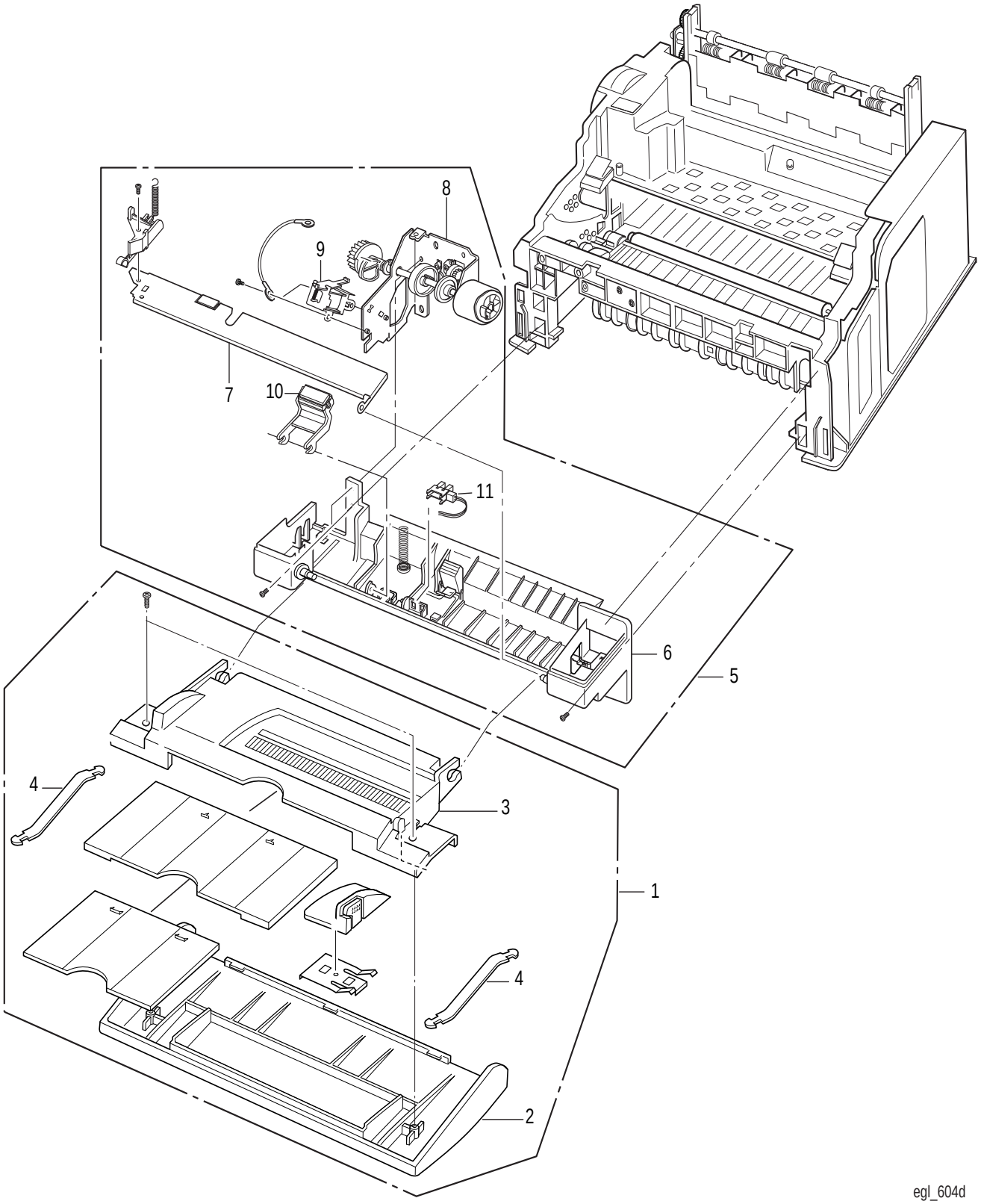
PL 3 Multi-Purpose Tray

Item	Part Number	Description
1)	11N00410	Multi-Purpose Tray Assembly (Includes items 2-4)
2)	--	Tray Cover
3)	--	Output Tray
4)	3N00706	Tray Stoppers (4 per order)
5)	22N01022	Multi-Purpose Rack Assembly (Includes items 6-11)
6)	--	Rack Frame
7)	--	Rack Plate
8)	--	Bracket Assembly
9)	--	Solenoid
10)	19N00433	Holder Pad Assembly
11)	--	Paper Empty Sensor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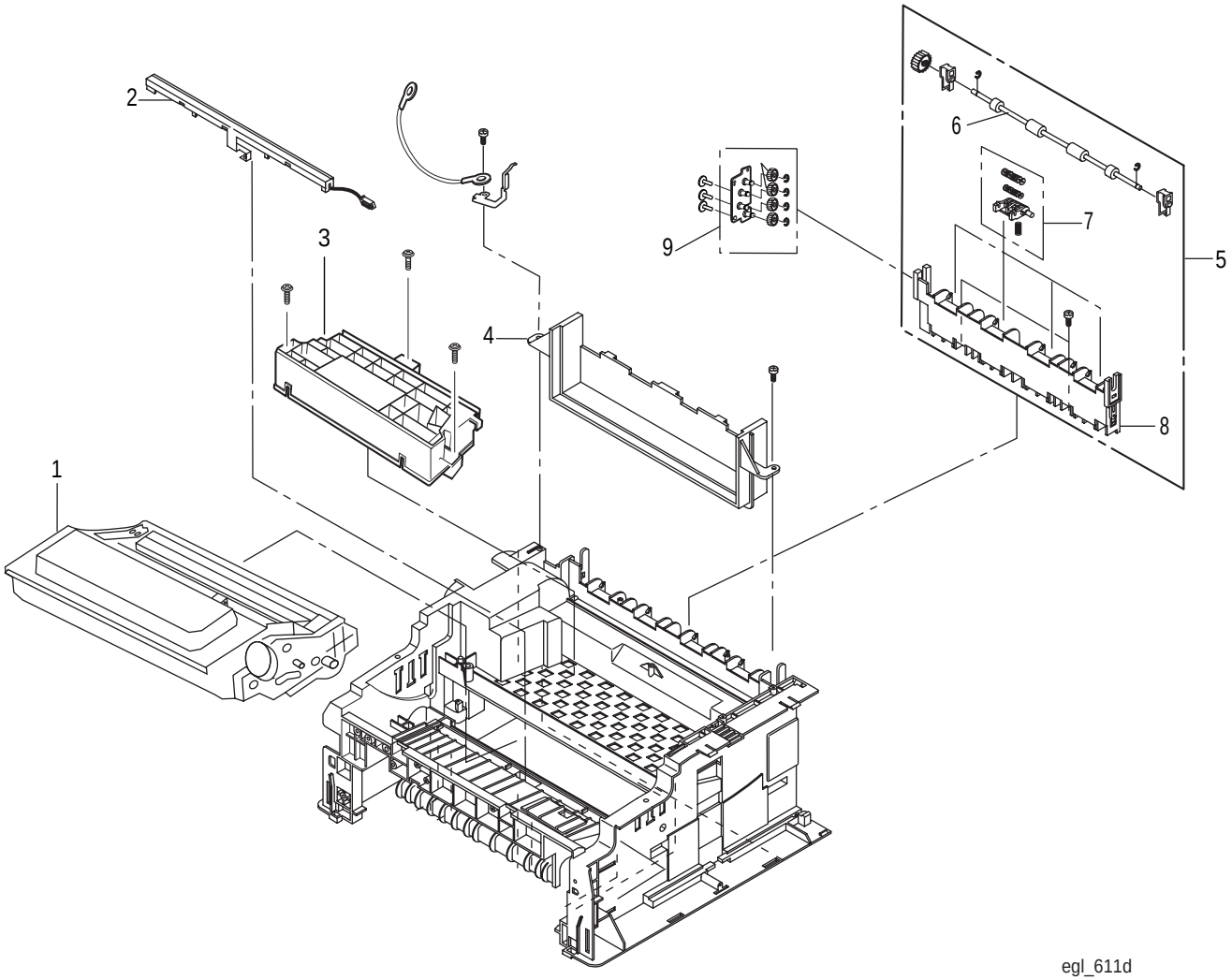
PL 4 Laser Assembly, Exit Assembly, Print Cartridge

Item	Part Number	Description
1)	113R00397	Print Cartridge (No Cycling Campaign)
	113R00398	Print Cartridge (Recycling Campaign)
2)	123N00185	Erase Lamp
3)	122N00138	Laser Assembly
4)	--	Fuser Guide
5)	2N01618	Exit Housing Assembly (Includes items 6-8)
6)	--	Exit Roll
7)	--	Exit Roller
8)	--	Exit Housing
9)	7N00775	Exit Gear/Bracket Assembly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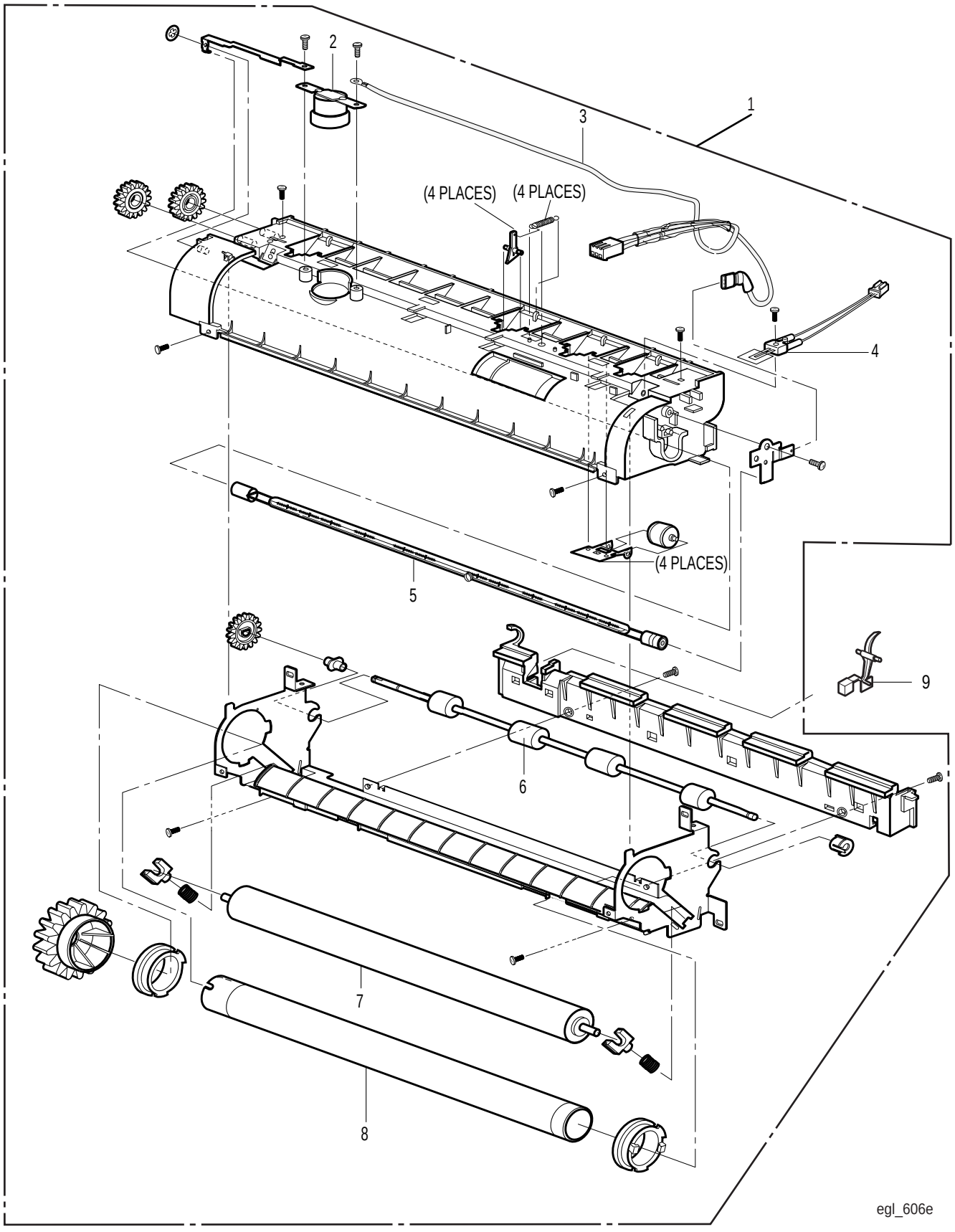
PL 5 Fuser Assembly

Item	Part Number	Description
1)	126N00089	Fuser Assembly (110V)(Includes items 2-8)
	126N00090	Fuser Assembly (220V)(Includes items 2-8)
2)	130N00901	Thermostat
3)	--	Fuser Harness
4)	130N00902	Thermistor
5)	122N00139	Halogen Lamp (110V)
	122N00140	Halogen Lamp (220V)
6)	--	Exit Roll
7)	--	Pressure Roll
8)	--	Heat Roll
9)	126N00088	Exit Actuator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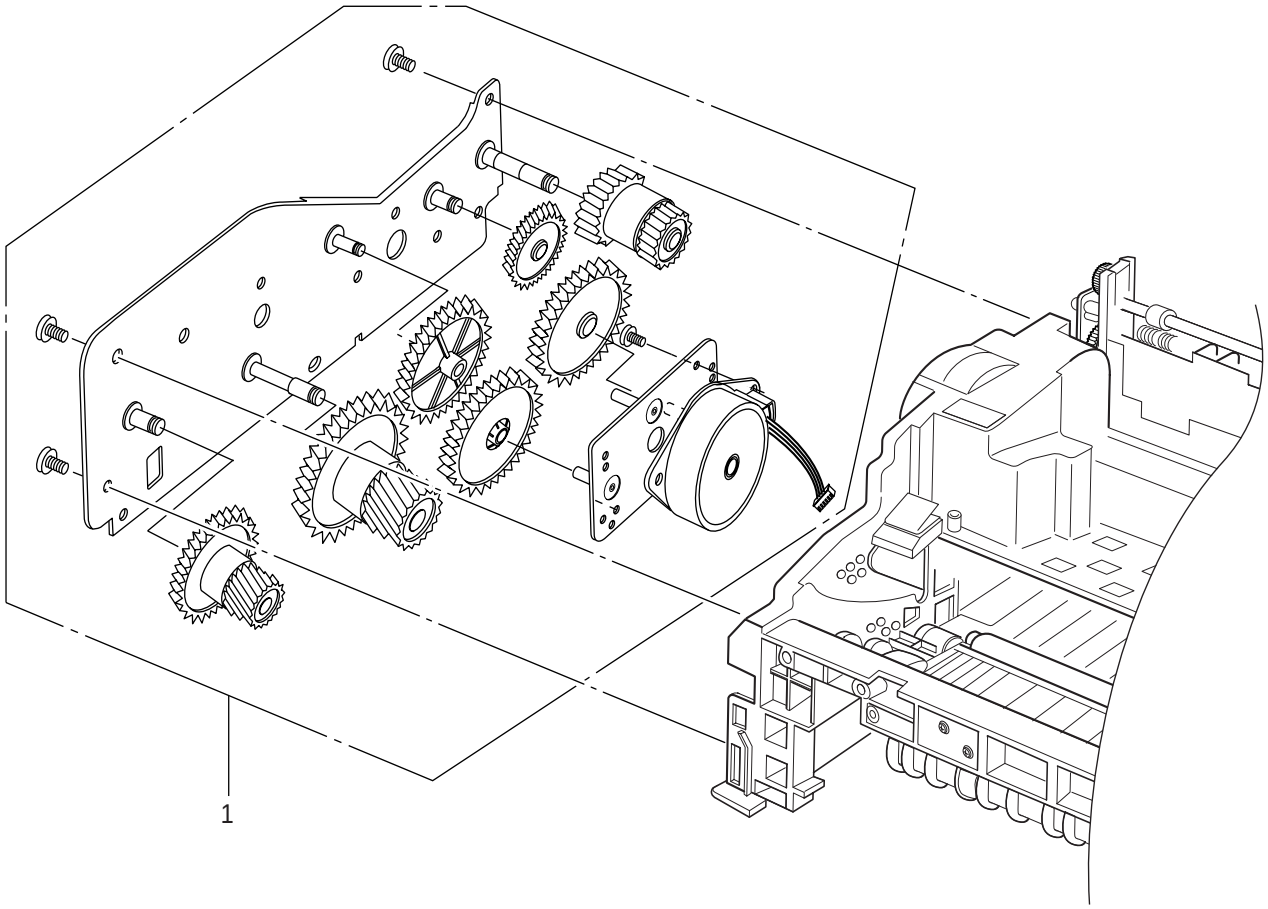
PL 6 Main Drive Assembly

Item	Part Number	Description
1)	5N00619	Main Drive Assembly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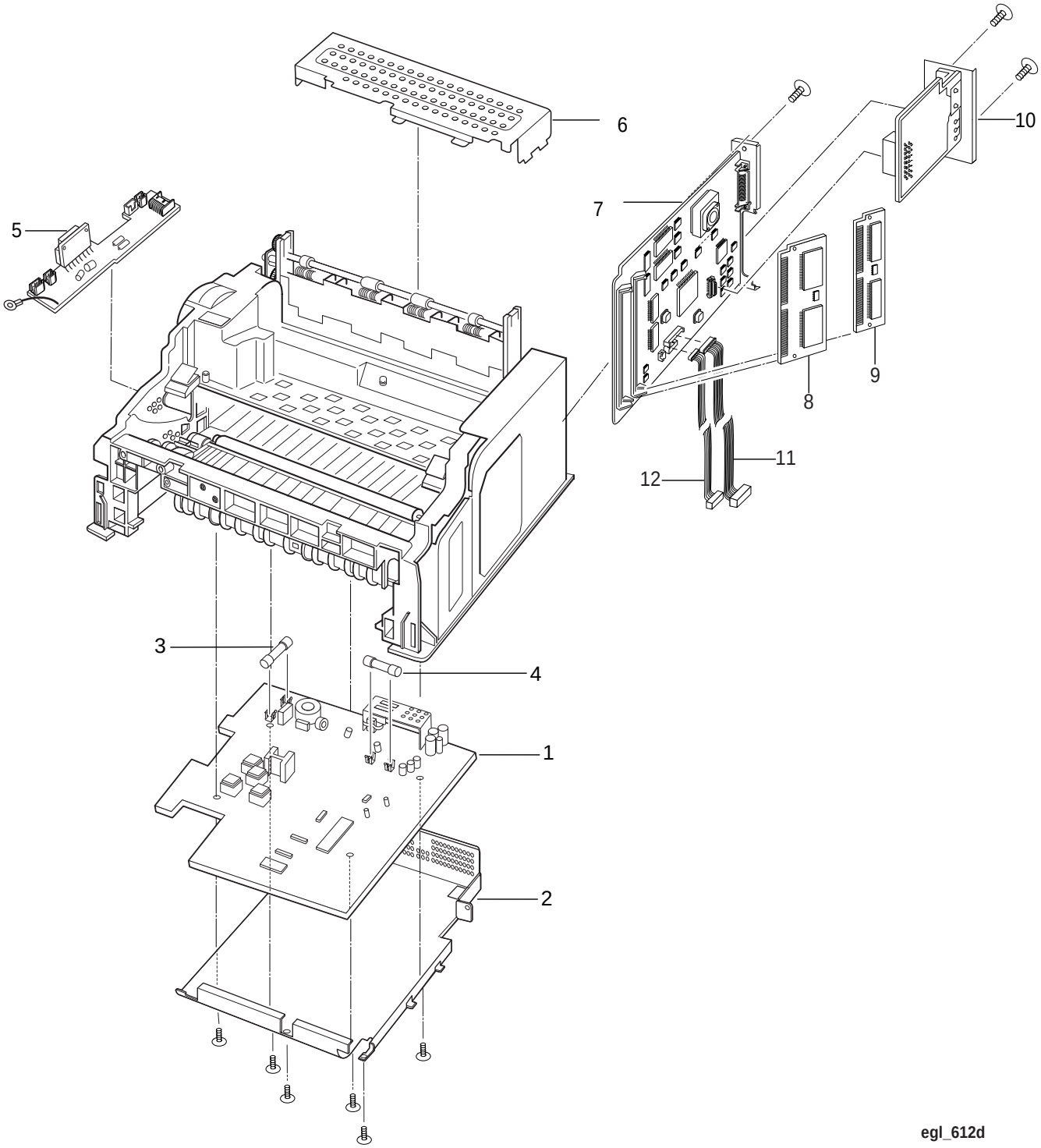
PL 7 Systems Controller and Electronics

Item	Part Number	Description
1)	140N05247	Engine PWB (110V)(Includes Item 3-4)
	140N05251	Engine PWB (220V)(Includes Item 3-4)
2)	--	Engine PWB Frame
3)	108N00398	Fuse
4)	108N00397	Fuse (110V)
	108N00399	Fuse (220V)
5)	140N05246	Motor Drive PWB
6)	--	SMPS Shield
7)	140N05248	Systems Controller PWB (110V)
	140N05250	Systems Controller PWB (220V)
8)	--	Memory Simm
9)	--	Postscript Simm (Option)
10)	--	Serial/Local Talk PWB (Option)
11)	--	Harness (to Engine Board)
12)	--	Harness (to LED Panel Board)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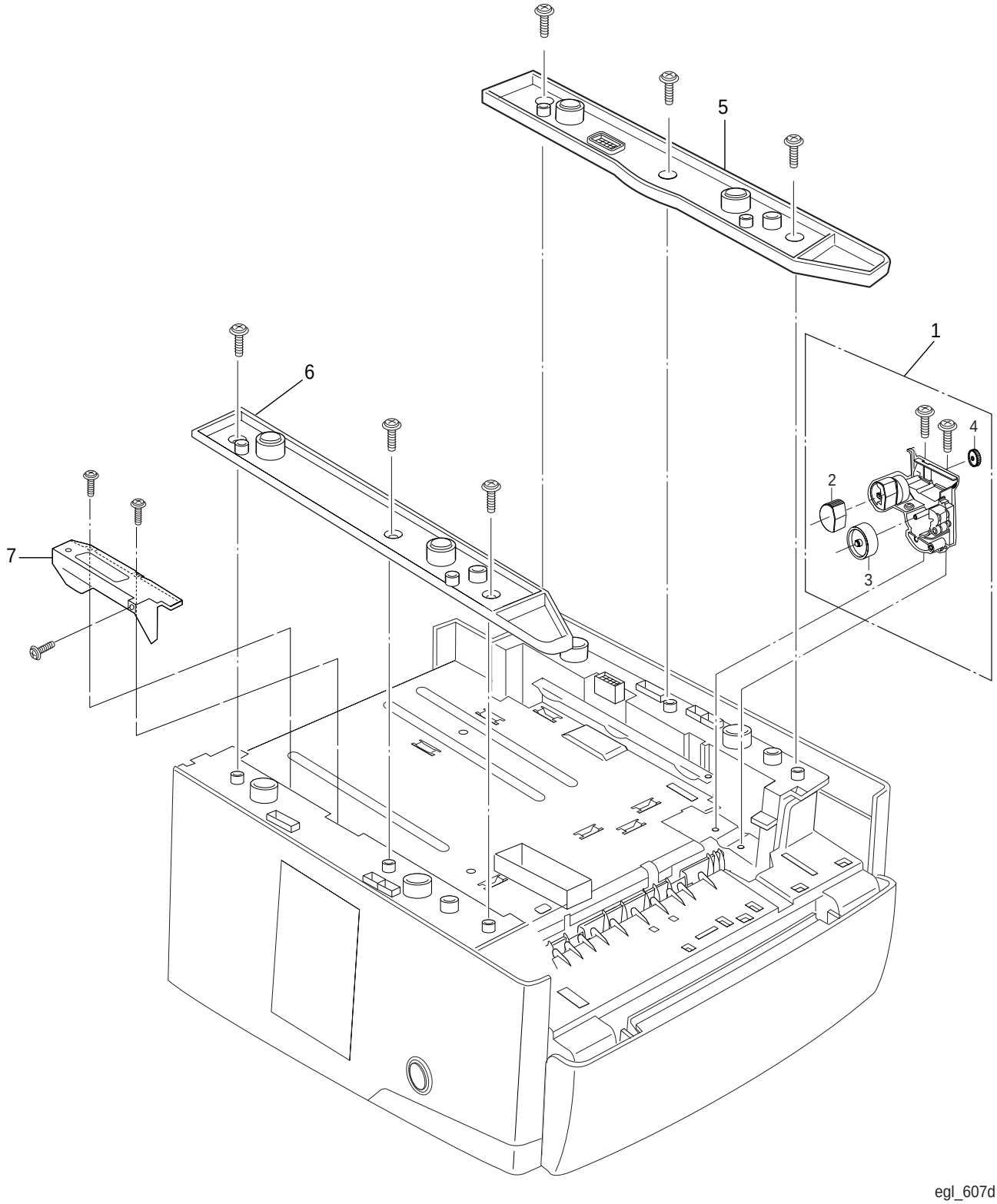
PL 8 Feeder Assembly (Bottom View)

Item	Part Number	Description
1)	130N00903	Feeder Assembly (Includes Items 2-4)
2)	130N00904	Feeder Rubber (2 per order)
3)	130N00905	Feed Drive Roll
4)	--	Pickup Gear
5)	--	Base Bracket (Right)
6)	--	Base Bracket (Left)
7)	--	Ground Plate



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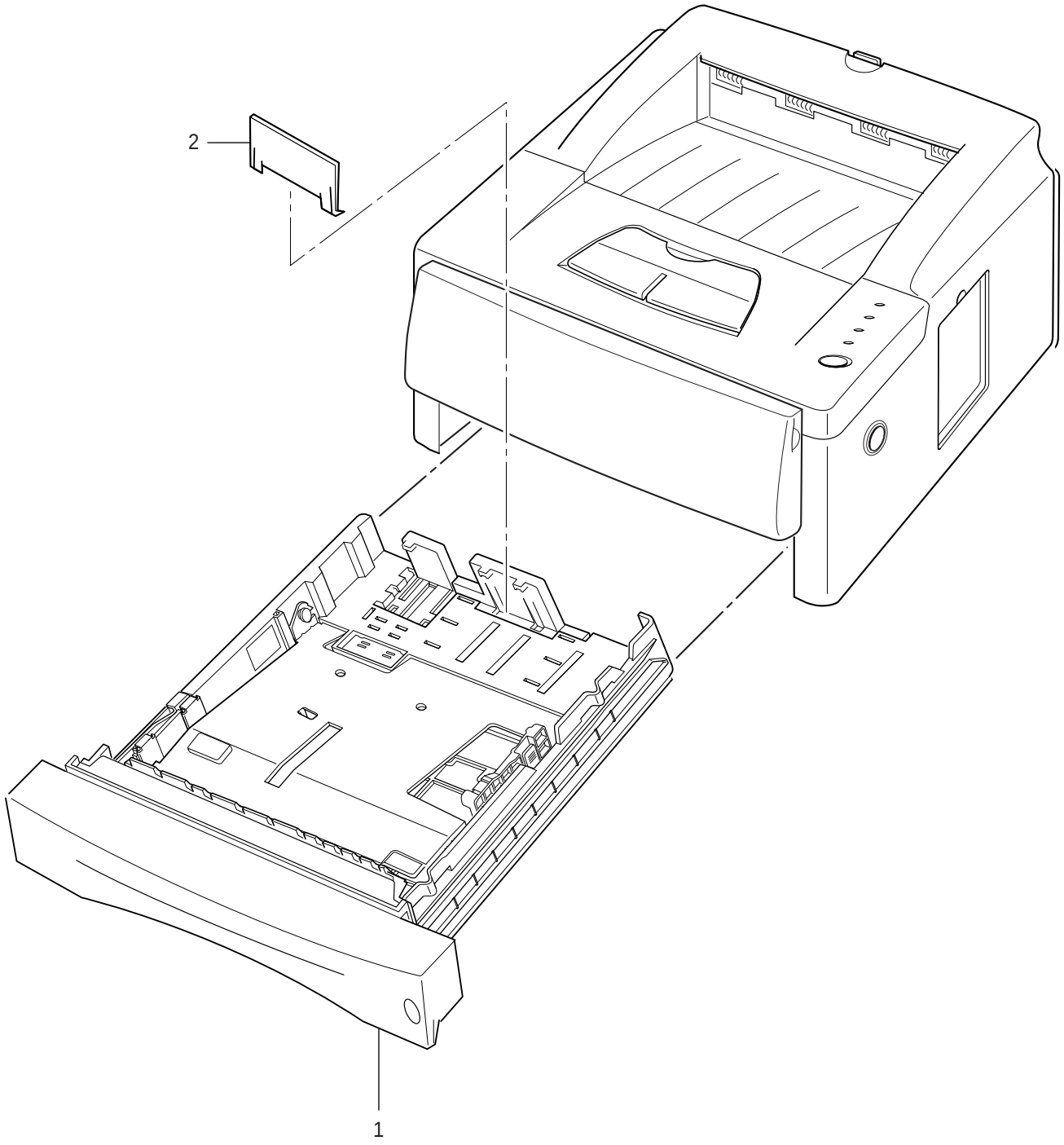
PL 9 Paper Tray, Upper

Item	Part Number	Description
1)	50N00278	Paper Tray (Includes Item 2)
2)	38N00286	Paper Guide



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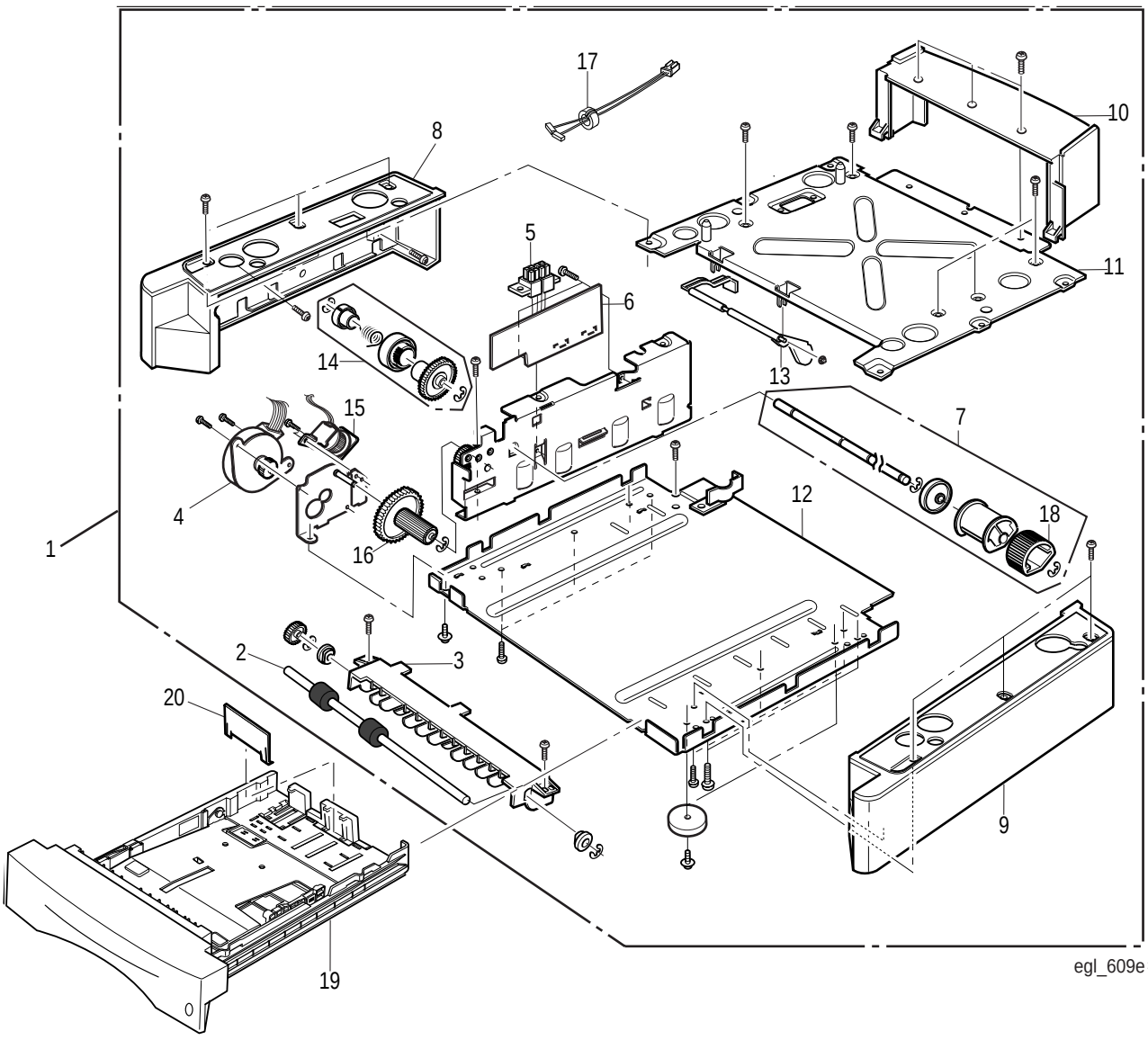
PL 10 Lower Paper Tray Frame and Paper Tray (Option)

Item	Part Number	Description
1)	--	Lower Paper Tray Frame (Includes items 2-18)
2)	22N01024	Inner Upper Roller
3)	--	Inner Upper Guide
4)	127N01007	Step Motor
5)	152N01669	Core Harness
6)	140N05249	Paper Tray Frame Main PWB
7)	--	Feeder Pickup Assembly (Includes Item 18)
8)	--	Left Frame Cover and Shield
9)	--	Right Frame Cover
10)	--	Rear Cover
11)	--	Upper Frame
12)	--	Lower Frame
13)	--	Arm Actuator
14)	--	Feeder Clutch Housing
15)	--	Solenoid
16)	--	Double Option Gear
17)	--	Harness
18)	--	Pickup Rubber
19)	--	Paper Tray (Includes Item 20)
20)	38N00286	Rear Guide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Kits, Tools, and Supplies

Kits and Tools

Item	Part Number	Description
1)	600T80138	Anacom G80
2)	600T80340	Diagnostic Control Unit
3)	600T80345	DCU Overlay Kit
4)	600K72020	Hardware Kit
5)	600T01653	High Voltage Probe

Supplies

Item	Part Number	Description
1)	35P01538	Cleaning Cloth (treated)
2)	600S04372	Cleaning Pads
3)	35P02162	Cotton Swabs
4)	99P03082	Disposable Gloves
5)	99P03023	Disposable Plastic Bags
6)	5P01737	Drop Cloth
7)	43P00045	Film Remover
8)	43P00048	Formula A Cleaner
9)	63P00560	Glue Capsule
10)	600S04653	Polyurethane Pads
11)	35P03191	Towel (heavy duty)

Supplies (XL Xerox)

Item	Part Number	Description
1)	8R90175	Cleaner
2)	600S04372	Cleaning Pad Kit
3)	8R90019	Cloth
4)	43P00083	Fuser Cleaning Solvent Pads
5)	8R90176	General Cleaning Solvent
6)	8R90177	Lens Cleaner

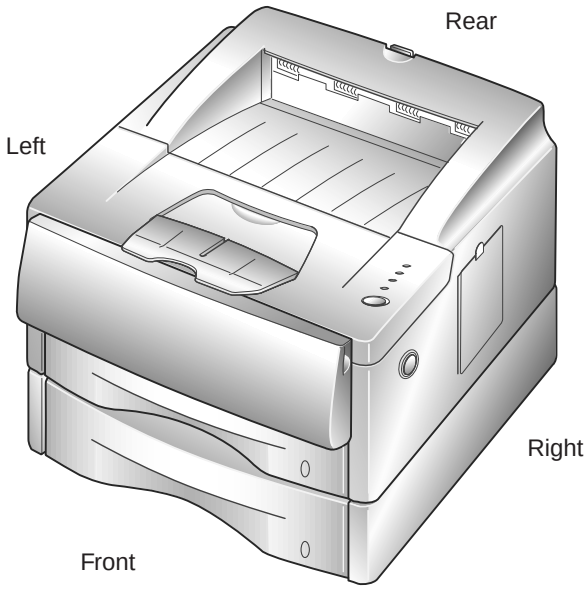
Section 4

Repair Procedures

4.0 Overview

Locations given in the Repair Procedures are always referenced from the front of the printer as you are facing the Control Panel. See figure 4.0.1.

Figure 4.0.1 Printer Orientation.



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The following notations apply:

- Arrows in the illustrations show direction of movement.
- At the bottom of each illustration is a number. In the illustration above the number is EGL_400. This is the art number and is used by the developers for tracking and control of the art.

There are a number of steps you should follow each time before you begin a procedure:

1. Do not use force to remove or install printer components.
2. Use only the screw size and type designated in the REP. The wrong screw could easily damage tapped holes.
3. Wear a wrist strap to dissipate static electricity, which may damage sensitive electronic parts, and use a grounded mat when working with PWBs.
4. See *Section 6* for the precise location of electrical connectors in the printer.

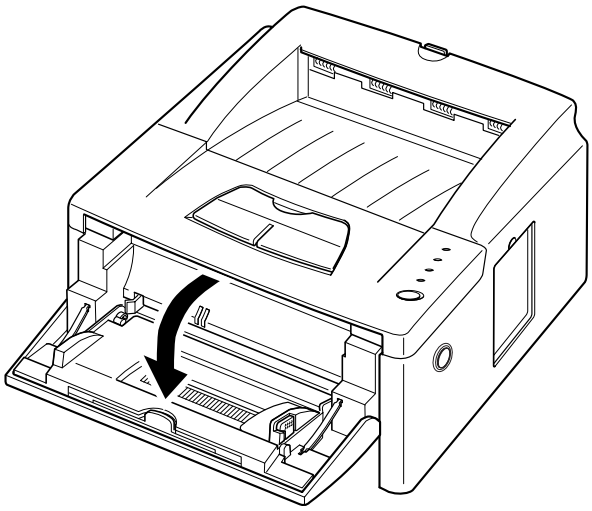
REP 4.1 Covers

REP 4.1.1 Multi-Purpose Feeder (MPF)

Removal

1. Switch the printer power off and disconnect the AC power cord.
2. Open the MPF cover, (Figure 4.1.1a).

Figure 4.1.1a. Opening the MPF Cover.



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3 Carefully unlatch the two stoppers, (Figure 4.1.1b).

4 Hold the MPF cover at a 45 degree angle then remove, (Figure 4.1.1c).

Figure 4.1.1b. Unlatching the MPF Cover Stopsl

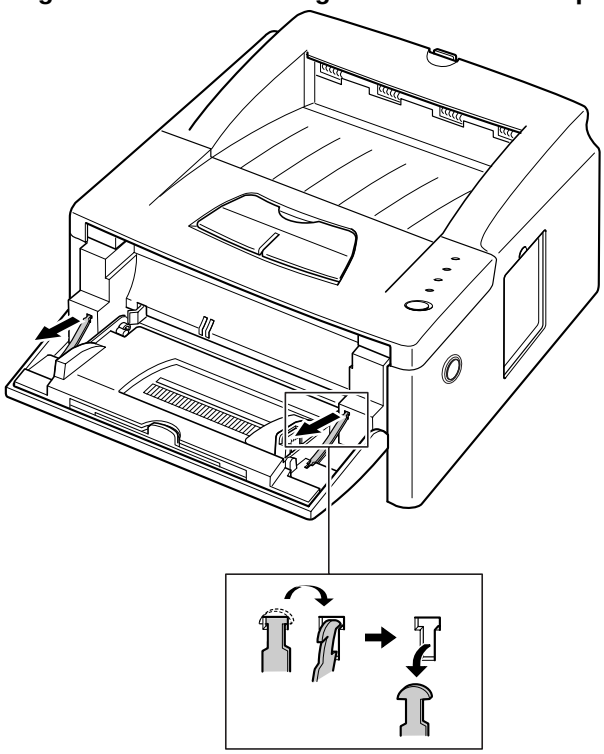

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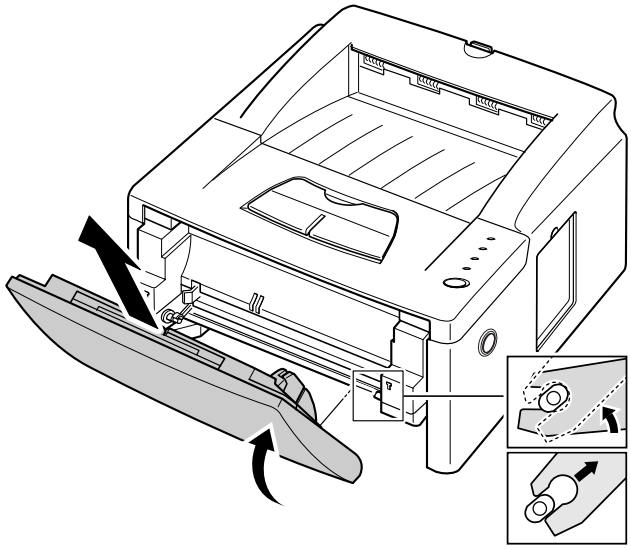
Figure 4.1.1c. MPF Cover Removal.



egl_323a

Replacement

1 Assemble in reverse order.

2 Verify proper operation.

REP 4.1.2 Control Panel Harness Cover

Removal

1. Switch the printer power off and disconnect the AC power cord.
2. Press the cover open button and raise the Printer Cover, (Figure 4.1.2a).
3. Remove the screw and unlatch the Control Panel Harness Cover, (Figure 4.1.2b).

Figure 4.1.2a. Cover Open Button.

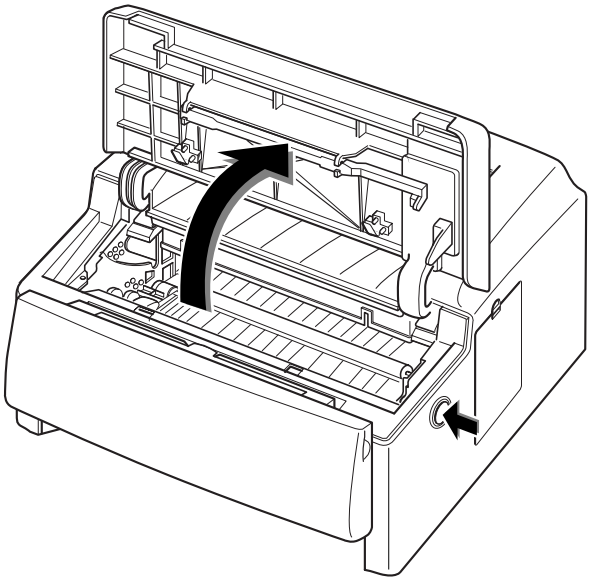


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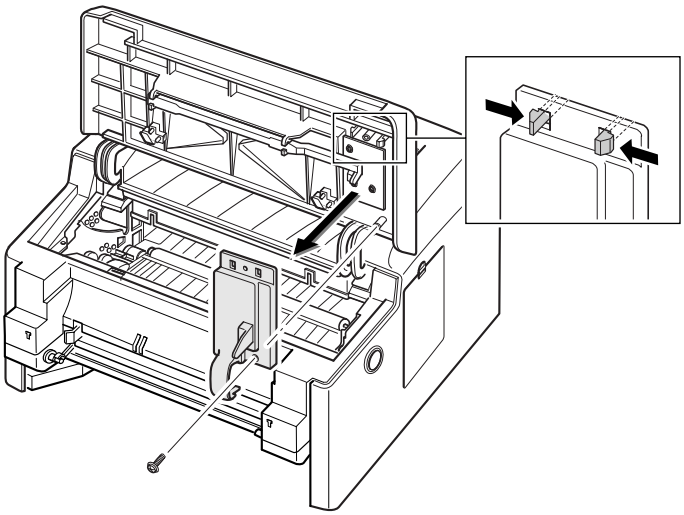
Figure 4.1.2b. Removing the Panel Cap



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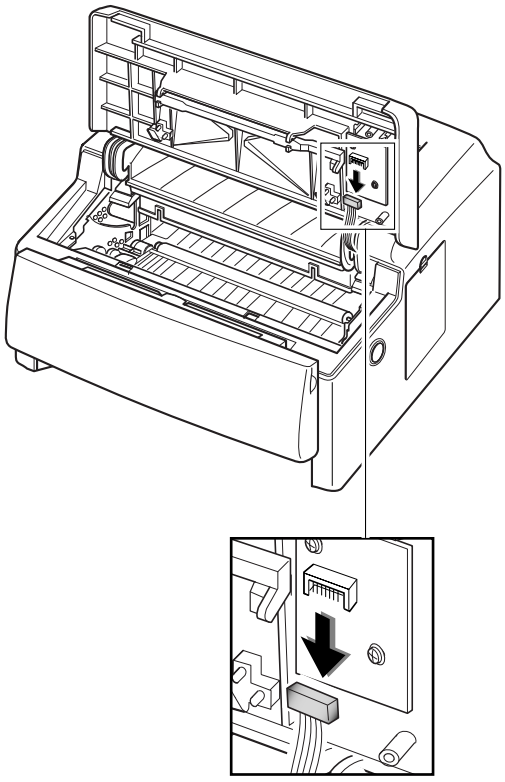
4 Disconnect the data cable from the Panel Board, (Figure 4.1.2c).

Figure 4.1.2c Disconnecting Data Cable



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Replacement

1 Assemble in reverse order.

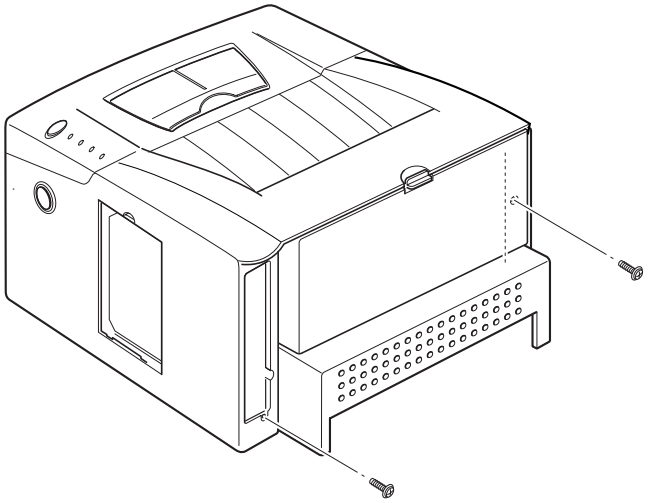
2 Verify proper operation.

REP 4.1.3 Main Cover

Removal

1. Switch the printer power off and disconnect the AC power cord.
2. Remove the Multi-Purpose Feeder (REP 4.1.1)
3. Remove the Controller Board (REP 4.6.2)
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Remove the two screws at the rear of the Main Cover, (Figure 4.1.3a)

Figure 4.1.3a. Rear Screwsl.



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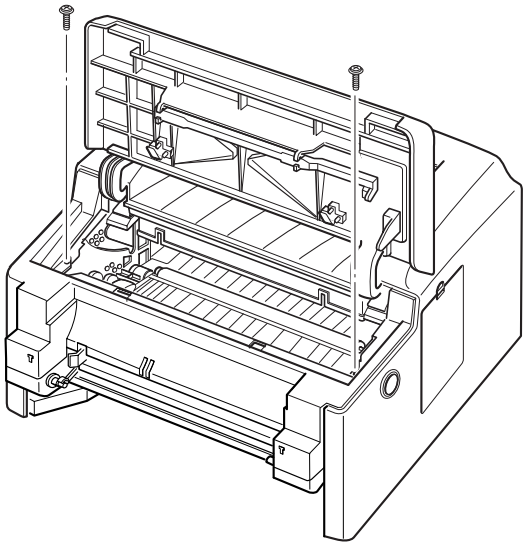
6. Open the printer cover and remove the two screws (Figure 4.1.3b)

Figure 4.1.3b Front Screws



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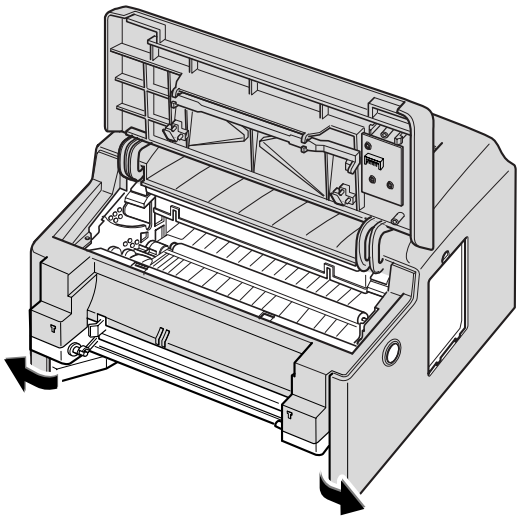
7 Unlatch the front ends of the Main Cover (Figure 4.1.3c)

Figure 4.1.3c Unlatch Front Ends



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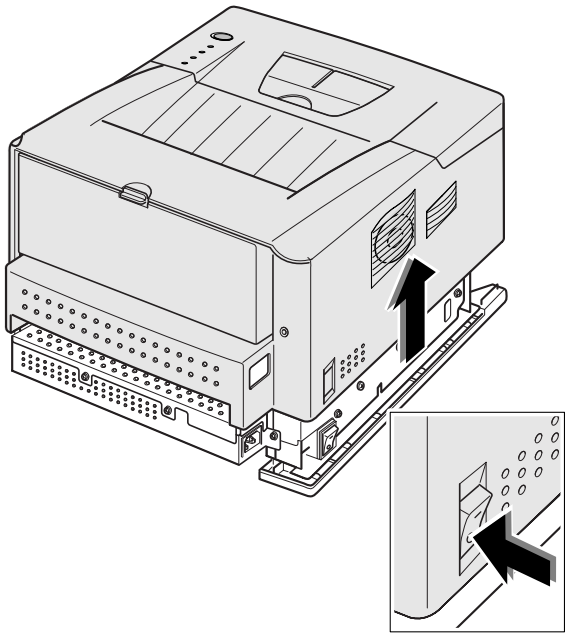
8 Slide the Main Cover upward, off of the Printer, (Figure 4.1.3d).

NOTE: Ensure that the Printer Power On/Off Switch is in the Off position before removing the cover.

Figure 4.1.3d



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Replacement

NOTE: When reassembling the cover, push in the Paper Empty Actuator, which is mounted on the Top Cover.

NOTE: When reinstalling the Main Cover ensure that you have access to the System Controller connectors J3 and J4 .

1 Assemble in reverse order.

2 Verify proper operation.

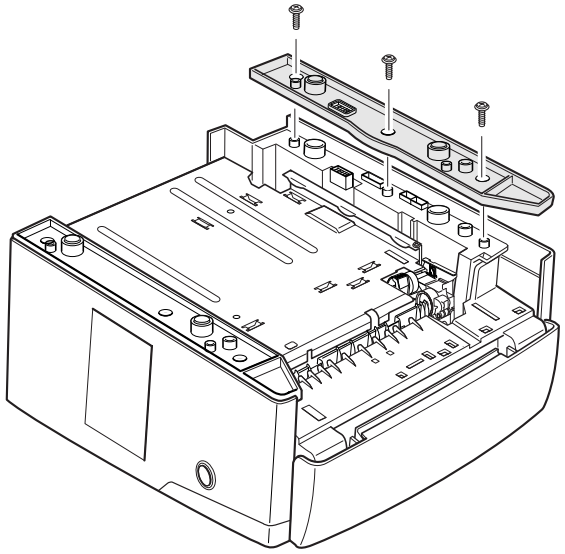
REP 4.2 Paper Feed

REP 4.2.1 Pick-Up Roll Assembly

Removal

1. Switch the printer power off and disconnect the AC power cord.
2. Remove the Paper Tray.
3. Remove the Printer Cartridge (REP 4.5.1).
4. Remove the System Controller PWB (REP 4.6.2).
5. Remove the Control Panel Harness Cover (REP 4.1.2).
6. Disconnect the Control Panel Harness from J1 on the Control Panel.
7. Remove the Main Cover (REP 4.1.3).
8. Turn the Printer over so the buttom is facing upward.
9. Remove the three scews from the left base bracket (Figure 4.2.1a).

Figure 4.2.1a. Left Base Bracket Removal.



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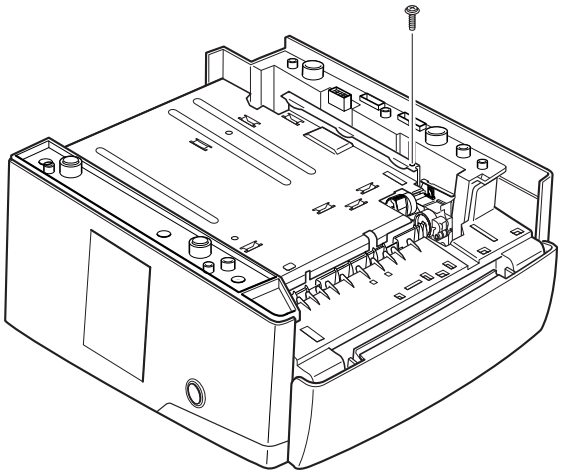
10 Remove the Ground Screw (Figure 4.2.1b).

Figure 4.2.1b Remove Ground Screw



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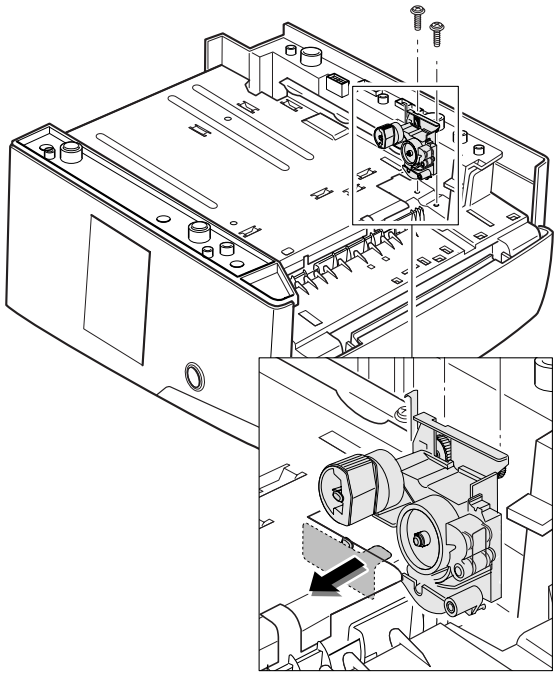
11 Remove the two screws that secure the Pick-Up Roll Assembly to the printer (Figure 4.2.1c).

12 Lift the Pick-Up Roll upward and out of the printer.

Figure 4.2.1c Pick-Up Roll Assembly Removal



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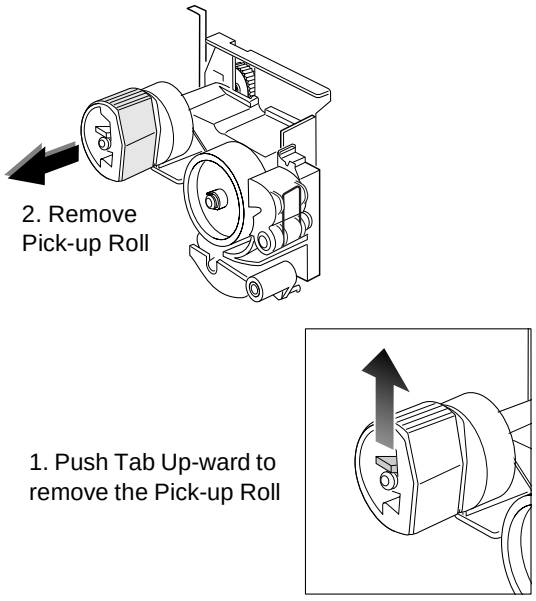
NOTE: If the Pick-Up Roll is to be replaced individually, go to step 13.

13 Check the rubber on the Pick-Up Roll for wear, replace as required (Figure 4.2.1d).

Figure 4.2.1d Removing Pick-up Roll



Replacement

1 Assemble in reverse order.

2 Verify proper operation.

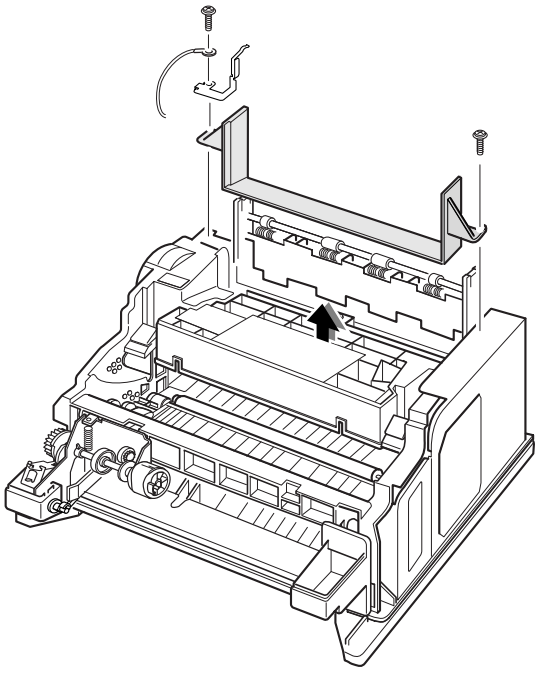
REP 4.3 Paper Transportation

REP 4.3.1 Fuser Exit Assembly

Removal

1. Disconnect the AC power cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Remove the Fuser Cover (Figure 4.3.1a).

Figure 4.3.1a Exit Assembly Removal.



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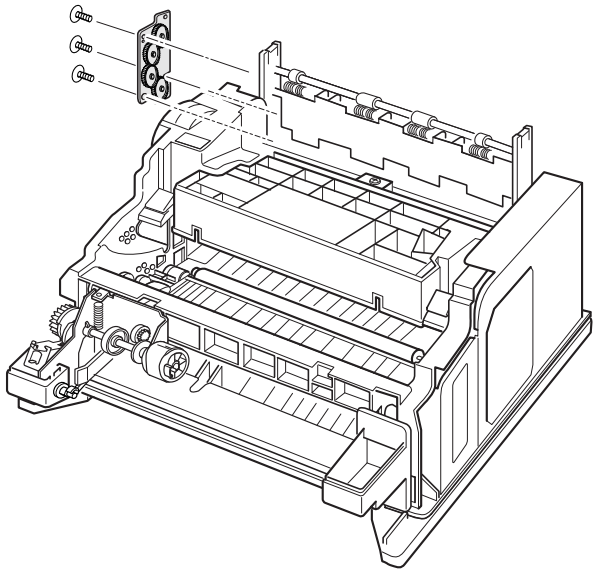
8 Remove the three screws from the Exit Idler Gear Assembly (Figure 4.3.1b).

9 Remove the Exit Gear Assembly.

Figure 4.3.1b Exit Idler Gear Removal



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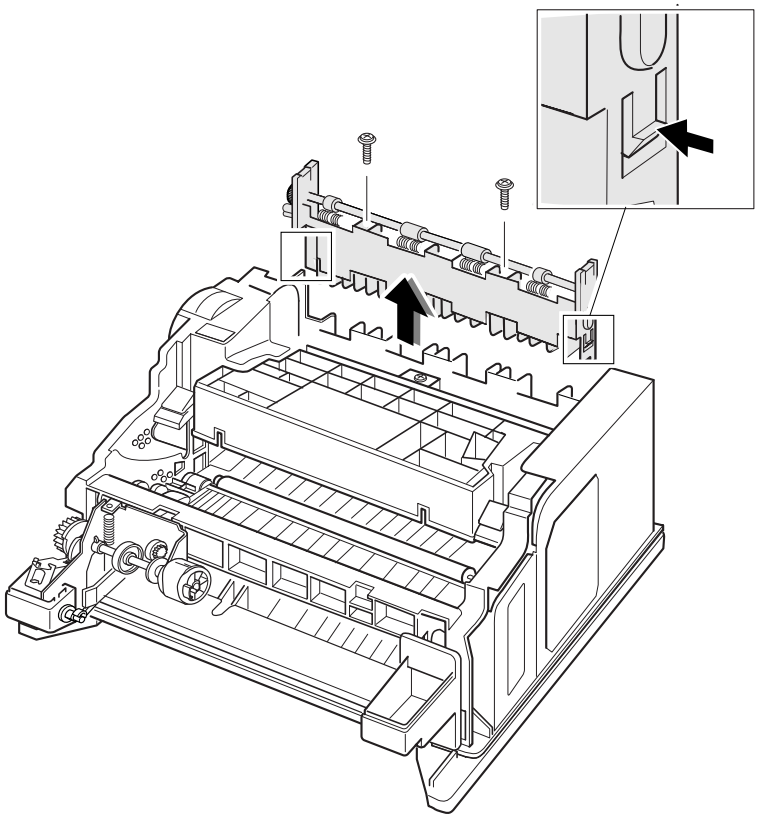
CAUTION **Many parts are held in place using plastic latches. The latches can easily break. Use extreme care when releasing the latches. To remove such parts, press the hook end of the latch away from the part to which it is latched.**

10 Remove the two screws from the Exit assembly and unlatch the two tabs (Figure 4.3.1c).

Figure 4.3.1c Exit Assembly Removal



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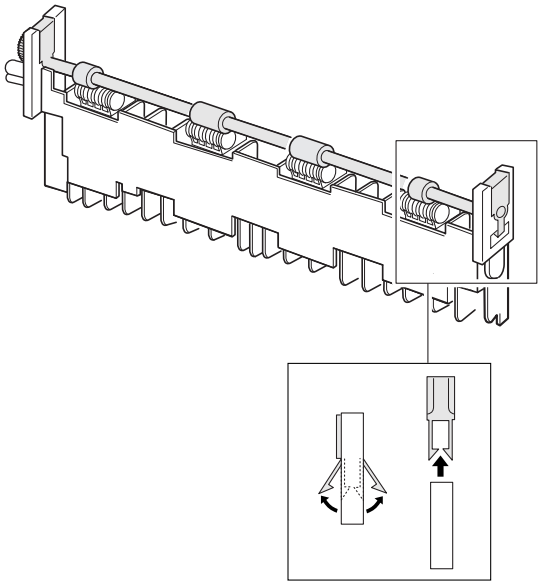
NOTE: If the Exit Roller Shaft is to be replaced individually, go to step 10.

11 Unlatch both ends of the Exit Shaft tabs and lift the shaft upward (Figure 4.3.1d).

Figure 4.3.1d Exit Roller Shaft Removal



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12 To replace the Exit Idler gears, remove the circlips, then remove the idler gears. Use care not to break the gear shafts when removing the circlips.

13 To replace the Exit Rollers, lift the rollers out of the Exit Roller Holder.

14 If the Exit Roller Holder or spring is to be replaced, use care when removing and installing the holder. The mounting pins can break off.

Replacement

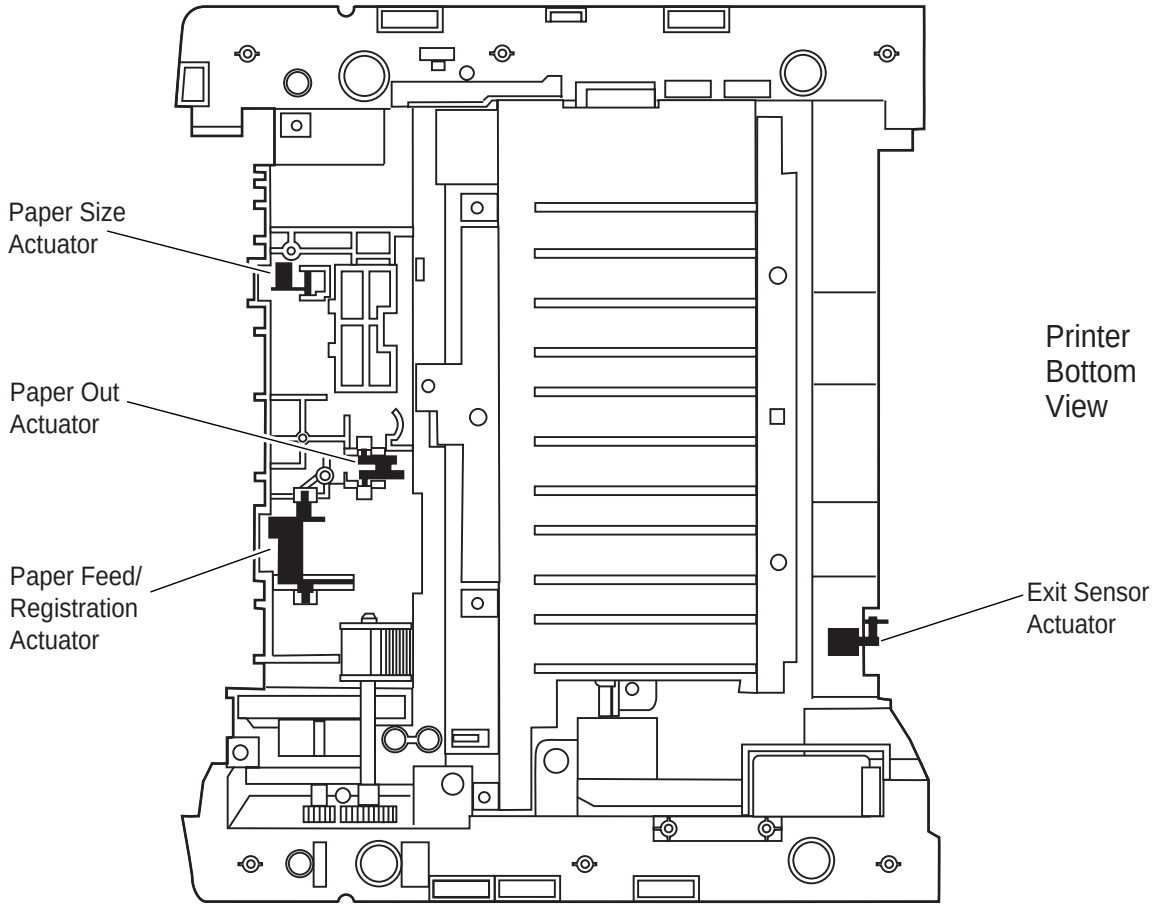
1 Assemble in reverse order.

REP 4.3.2 Paper Out Actuator, Paper Feed / Registration Actuator, Paper Size Actuator, and Exit Sensor Actuator

Removal

1. Disconnect the AC Power Cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Remove the Engine PWB (REP 4.6.1).
8. Remove the desired actuator by gently squeezing the sides of the actuator (Figure 4.3.2a)

Figure 4.3.2a. Paper Empty Sensor Removal.



Replacement

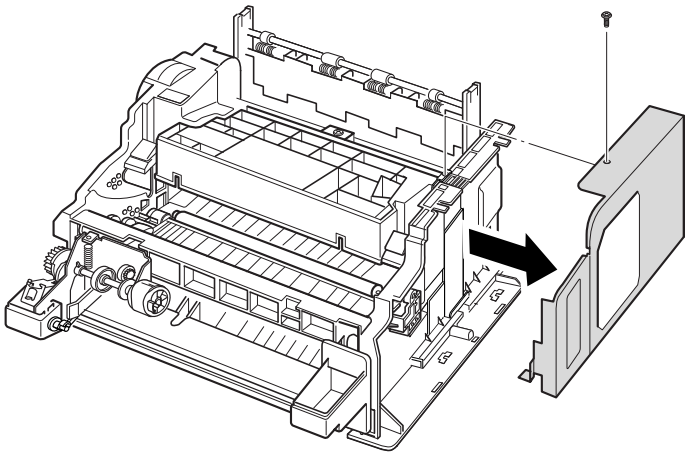
1. Assemble in reverse order.
2. Verify proper operation.
3.

REP 4.3.3 Cover Open Sensor

Removal

1. Disconnect the AC Power Cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Remove the ICU Shield (Figure 4.3.3a).

Figure 4.3.3a. ICU Shield Removal.



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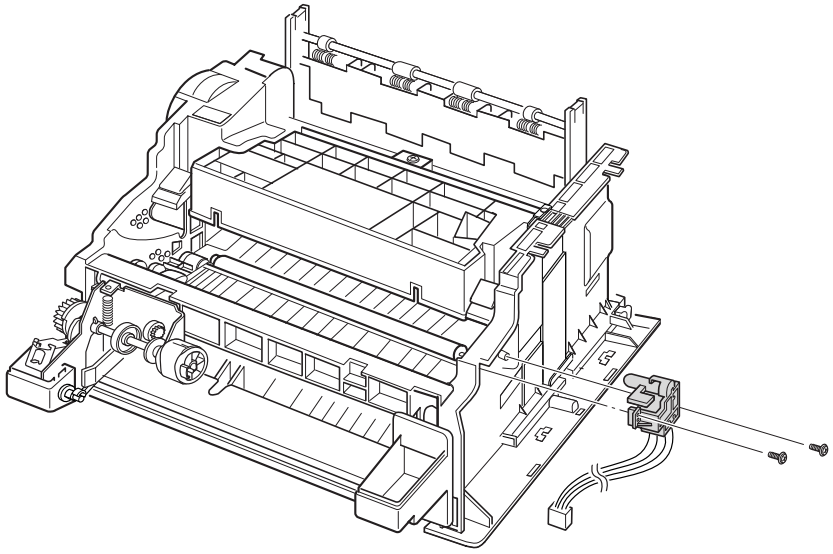
8 Remove the two screws that secure the Cover Open Sensor to the frame (Figure 4.3.2b).

Figure 4.3.3b



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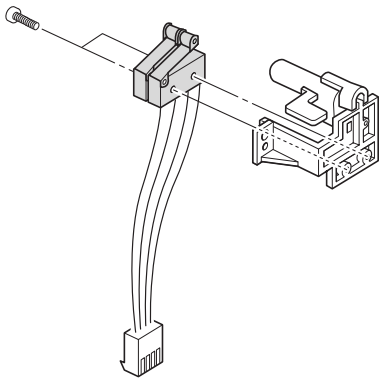
9 Remove the two screws that secure the Sensor to the holder (Figure 4.3.5c).



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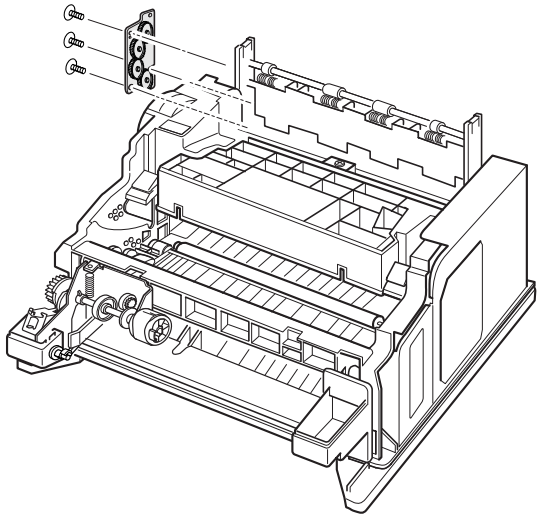
REP 4.4 Fuser

REP 4.4.1 Fuser Assembly

1. Disconnect the AC Power Cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Remove the three screws from the Exit Idler Gear Assembly (Figure 4.4.1a).

Figure 4.4.1a



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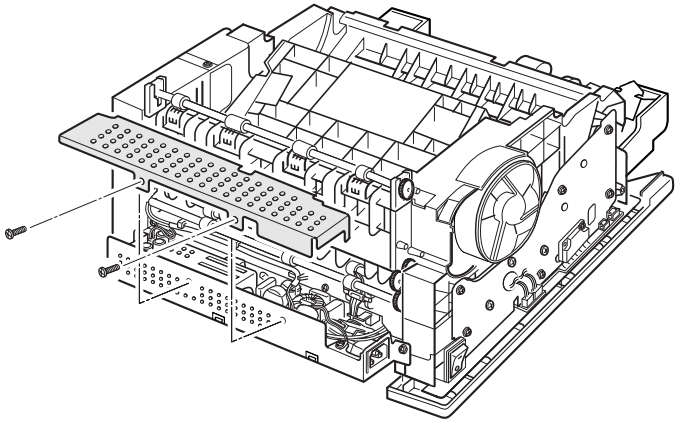
8. Remove the two screws that secure the Printer Engine PWB Cover (Figure 4.4.1b). Remove the cover.

Figure 4.4.1b Fuser Assembly.



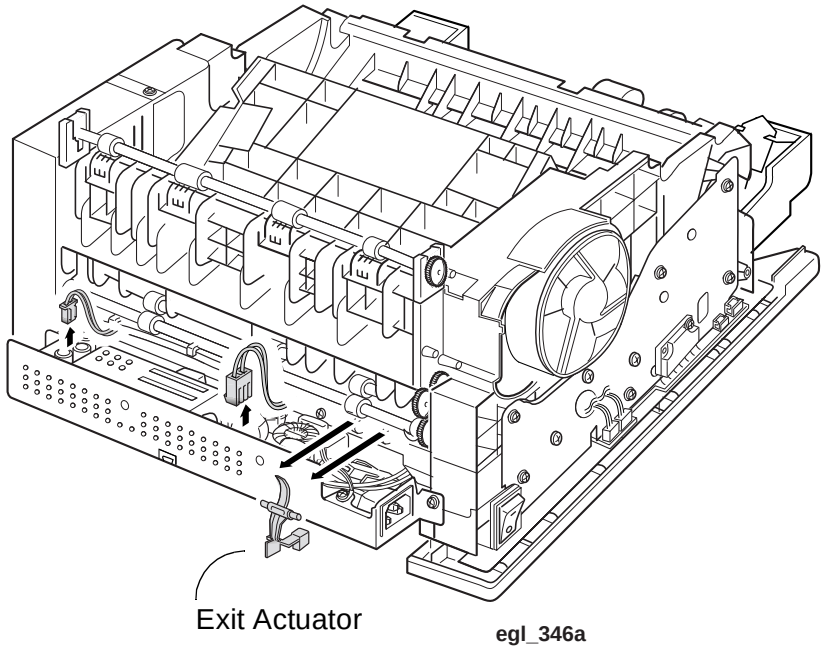
egl_347a

9 Remove the Exit Sensor Actuator (Figure 4.4.1c).

CAUTION **The Exit Sensor Actuator is located on the bottom of the Fuser near the printer's AC input wires. Ensure that the actuator is not damaged as the Fuser is removed.**

10 Disconnect the harnesses from CN102 and CN4 on the Printer Engine PWB (Figure 4.4.1c).

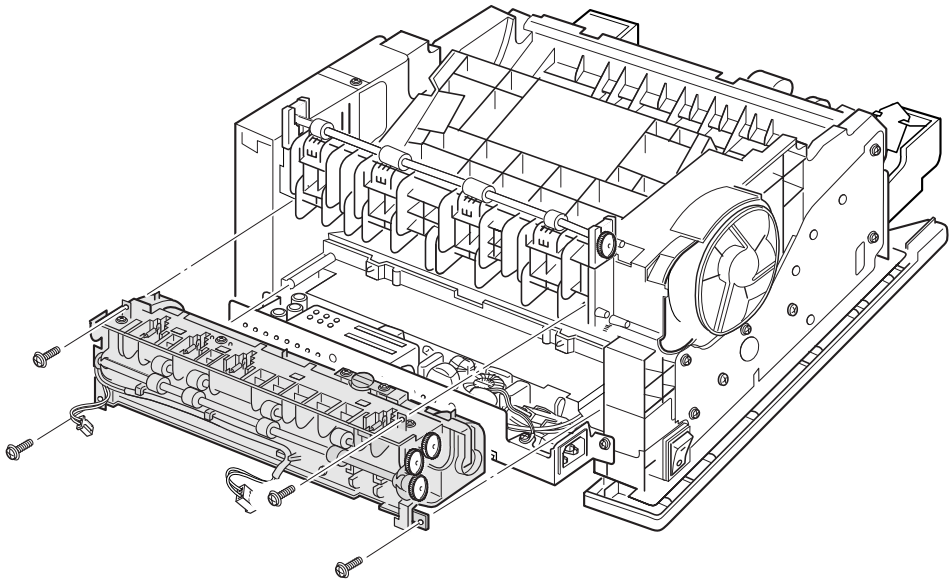
Figure 4.4.1c Exit Actuator Removal



11 Remove the four screws that secure the Fuser Assembly to the printer (Figure 4.4.1d).

12 Remove the Fuser Assembly

Figure 4.4.1d. Fuser Assembly.



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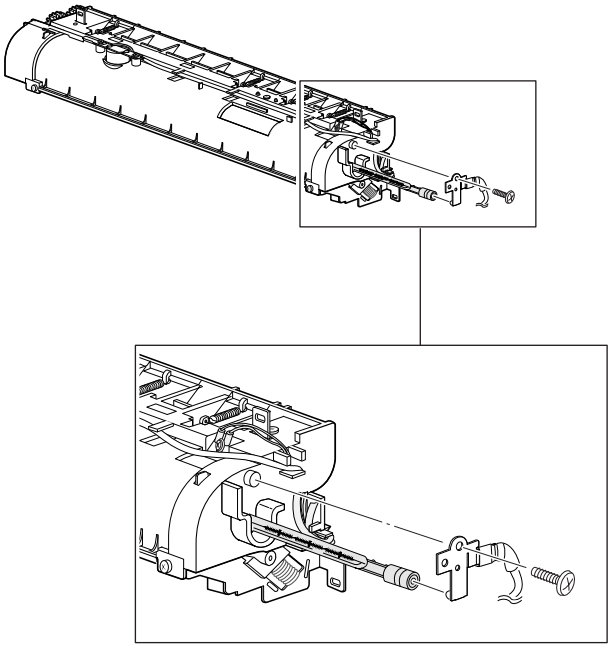
To remove the Fuser Heat Rod:

13 Remove the screw that secures the Heat Rod Terminal to the right end of the Fuser Assembly and slide the Heat Rod out of the Fuser Assembly (Figure 4.4.1e).

Figure 4.4.1e Heat Rod Removal



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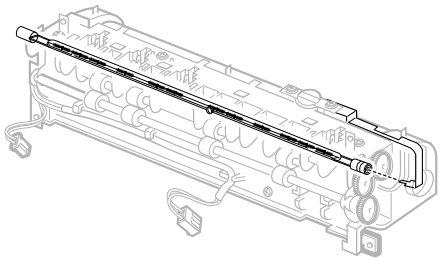
Replacement

NOTE: When you reassemble the Heat rod, ensure that the Heat Rod is properly seated.

1. If installing a new Heat Rod, handle the Heat Rod only by the ends. Do not touch the glass part of the Heat Rod (Figure 4.4.1f).
2. Install the Heat Rod and terminal.

Figure 4.4.1f Seating the Heat ARod.



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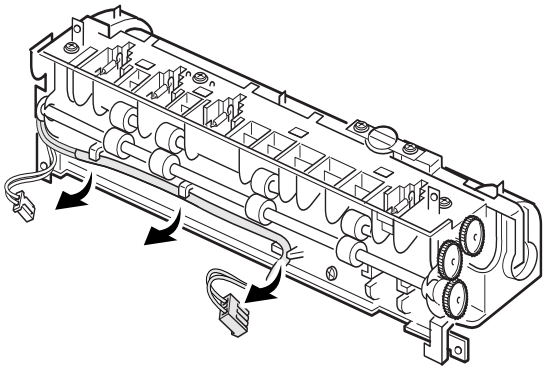
3. Reinstall the Fuser Assembly ensuring that the Exit Sensor Actuator is not damaged and has free movement.
4. Complete the assembly in reverse order.

REP 4.4.2 Fuser Thermistor

Removal

1. Switch the printer power off and disconnect the AC power cord.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Remove the Fuser Assembly (REP 4.4.1).
8. Remove the Thermistor wire harness from the three place holders (Figure 4.4.2a).

Figure 4.4.2a. Fuser Thermistor Removal.



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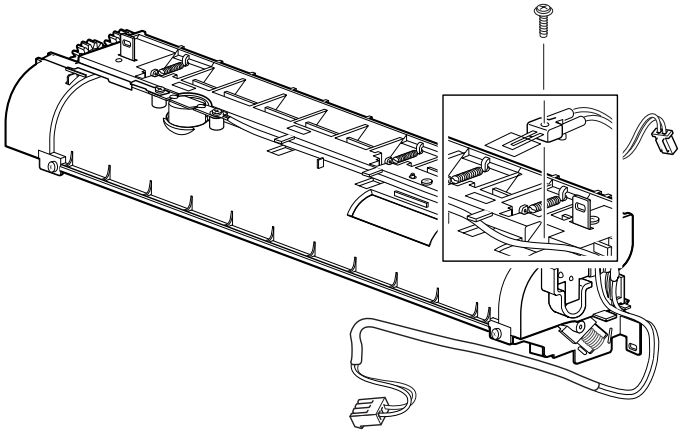
9. Remove the screw that secures the Thermistor to the Fuser Assembly (Figure 4.4.2b).
10. Remove the Thermistor Assembly.

Figure 4.4.2b Fuser Thermistor Removal.



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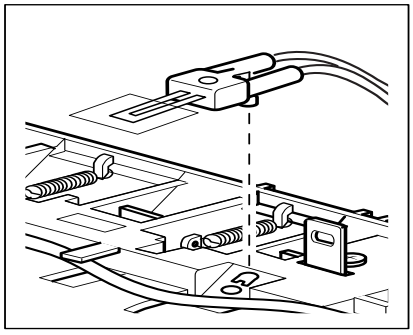
Replacement

1 Ensure that the Thermistor is properly seated when reinstalled (Figure 4.4.2c).

Figure 4.4.2c Reinstalling the Thermistor



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2 Assemble in reverse order.

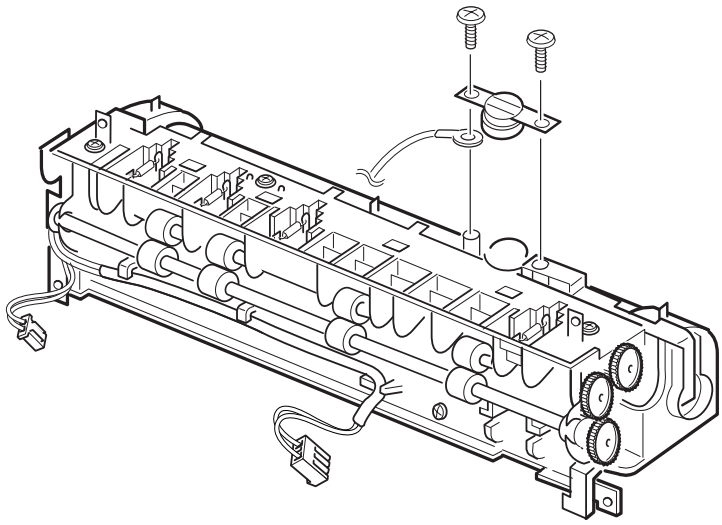
3 Verify proper operation.

REP 4.4.3 Fuser Thermostat

Removal

1. Switch the printer power off and disconnect the AC power cord.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Remove the Fuser Assembly (REP 4.4.1).
8. Remove the two screws that secure the Thermostat to the Fuser Assembly (Figure 4.4.3a)

Figure 4.4.3a. Fuser Thermistor Removal.



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Replacement

1. Assemble in reverse order.
2. Verify proper operation.

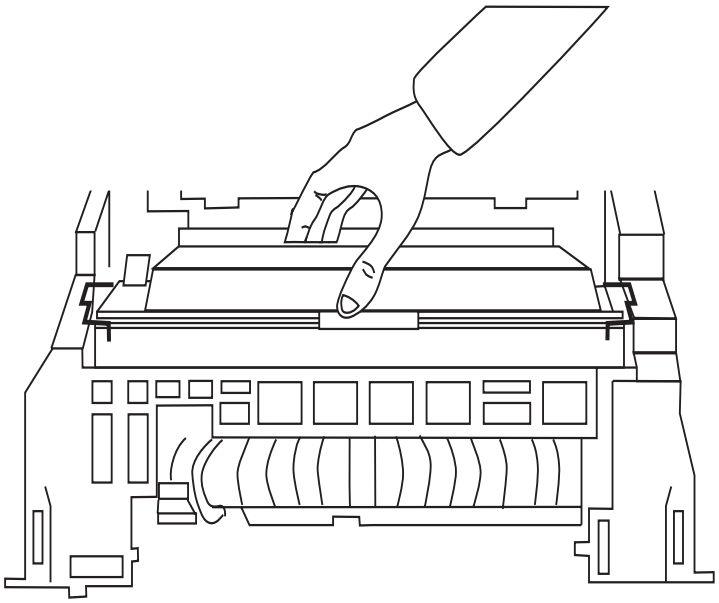
REP 4.5 Drive and Xerographic Modules

REP 4.5.1 Print Cartridge

Removal

1. Open the printer's front cover.
2. Grasp the Printer Cartridge as shown in Figure 4.5.1a. Ensure that your thumb does not interfere with the drum protection door.

Figure 4.5.1a. Printer Cartridge Removal.



3. Remove the Printer Cartridge by rotating it up and out of the printer.
4. If the Printer Cartridge will be out for longer then a few minutes, cover the Cartridge with several sheets of paper to protect it from light.

Replacement

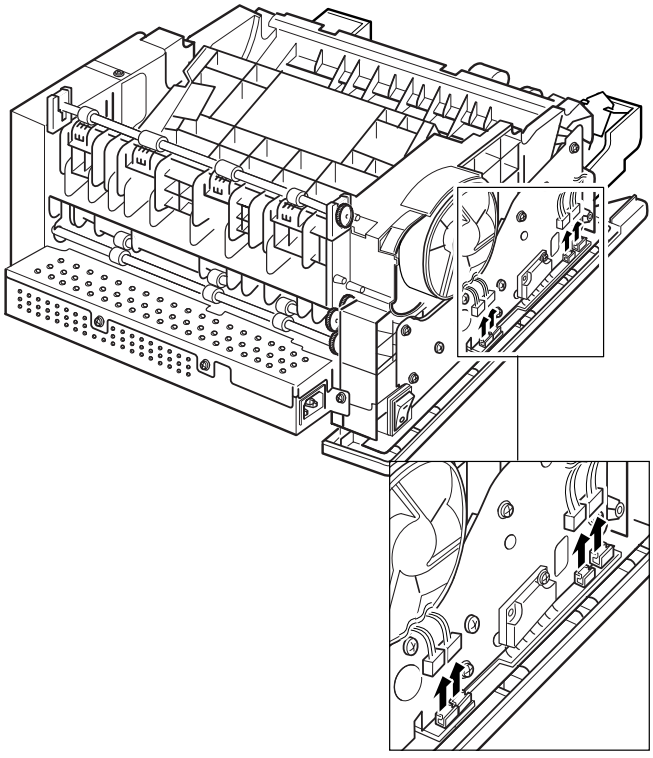
1. Assemble in reverse order.

REP 4.5.2 Main Drive Motor Assembly

Removal

1. Disconnect the AC Power Cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Disconnect the four connectors from the Motor Drive PWB (Figure 4.5.2a).

Figure 4.5.2a. Motor Drive Connector Removal.



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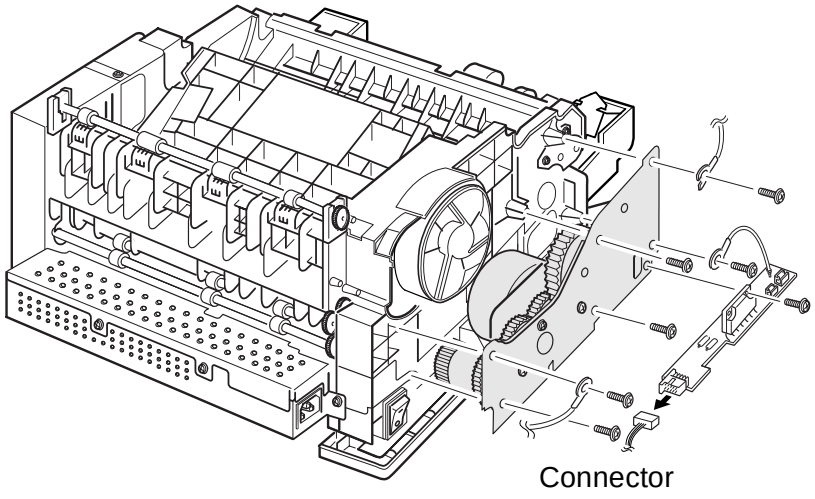
8 Remove the one screw that secures the Motor Drive PWB and remove the six screws that secure the Gear Bracket to the printer frame (Figure 4.5.2b).

9 Disconnect the connector from the Motor Drive PWB (Figure 4.5.2b).

Figure 4.5.2b Motor Drive PWB and Gear Bracket Removal.



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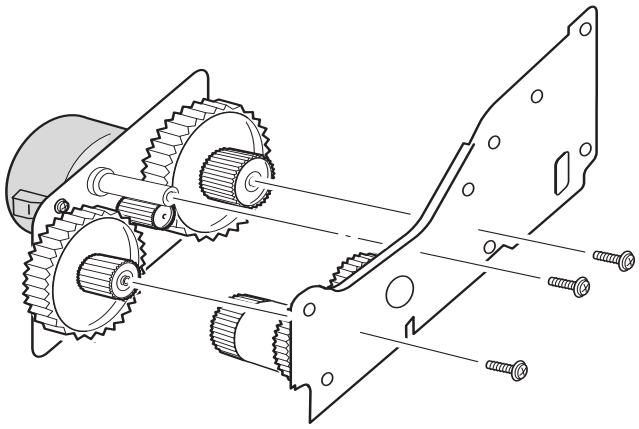
10 Remove the three gold colored screws that secure the Main Drive Motor to the assembly and remove the Main Drive Motror assembly (Figure 4.5.2c).

Figure 4.5.2c Main Drive Motor Removal



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Replacement

1 Assemble in reverse order.

2 Verify proper operation.

REP 4.5.3 Erase Lamp

Removal

1. Disconnect the AC Power Cord and remove the paper tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel
6. Remove the Main Cover (REP 4.1.2).
7. Remove the Engine PWB (REP 4.6.1).
8. Remove the four screws that secure the Transfer Guide (Figure 4.5.3a). Remove the Transfer Guide.
9. Disconnect the harness from CN1 on the Erase Lamp Assembly (Figure 4.5.3b).
10. Remove the two screws that secure the Erase Lamp Assembly, and remove the assembly.

Figure 4.5.3a Transfer Guide.

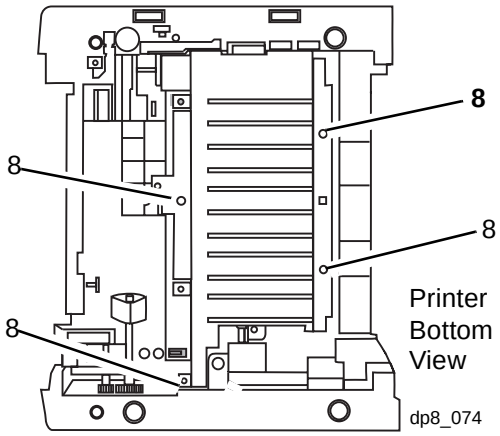
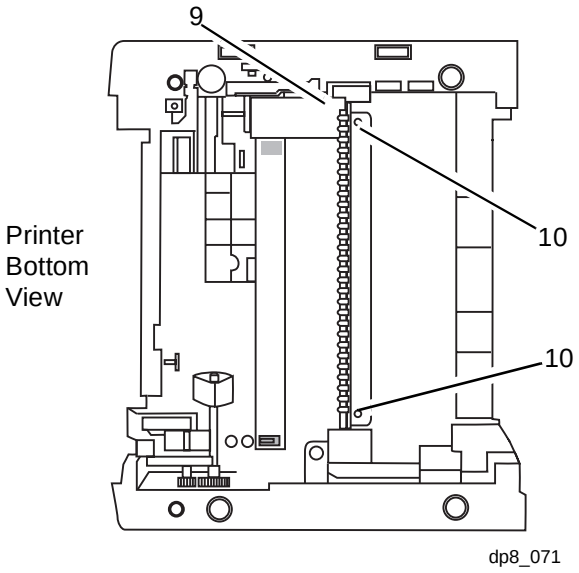


Figure 4.5.3b Erase Lamp Removal.



Replacement

1. Assemble in reverse order.
2. When reinstalling the Printer Engine PWB on the base frame, use care not to bind the four sensor actuators (Paper Out, Paper Registration, Exit, and Printer Cartridge/Front Cover).

REP 4.5.4 Transfer Roller

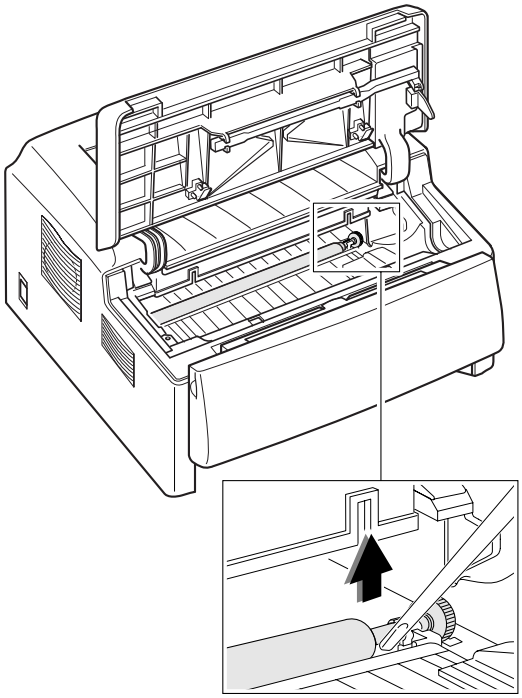
Removal

1. Disconnect the AC Power Cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel
6. Remove the Main Cover (REP 4.1.3).

NOTE: Be careful not to touch the BTR roll with your hands

7. Using a flat head screw driver slowly lift up the right end of the BTR Roller as shown in (Figure 4.5.4a).

Figure 4.5.4a.BTR Roller Remova



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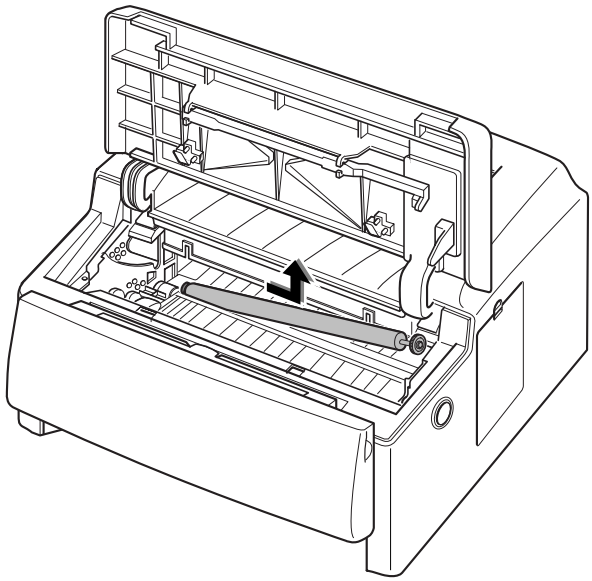
8 Pull the BTR Roller to the right until the left end of the roll is clear of the bushing. Then remove the BTR Roller out of the printer (Figure 4.5.4b).

NOTE: Ensure that the Gear on the right end of the BTR Roll is in place.

Figure 4.5.4b BTR Roll Removal



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Replacement

1 If installing a new Transfer Roller, remove the gear from the old roller and place on the new roller.

2 Assemble components in reverse order.

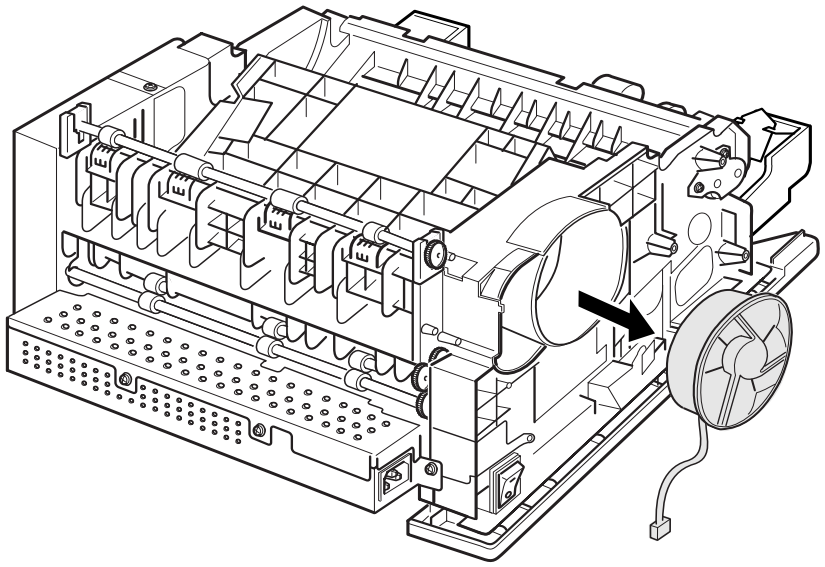
3 Verify proper operation.

REP 4.5.5 DC Fan Motor

Removal

1. Disconnect the AC Power Cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Disconnect the DC Fan from CN2 on the Motor Drive PWB.
8. Remove the DC Fan Motor (Figure 4.5.5a).

Figure 4.5.5a. DC Fan Motor Removal.



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Replacement

1. Assemble in reverse order.
2. Verify proper operation.

REP 4.6 Electrical Modules

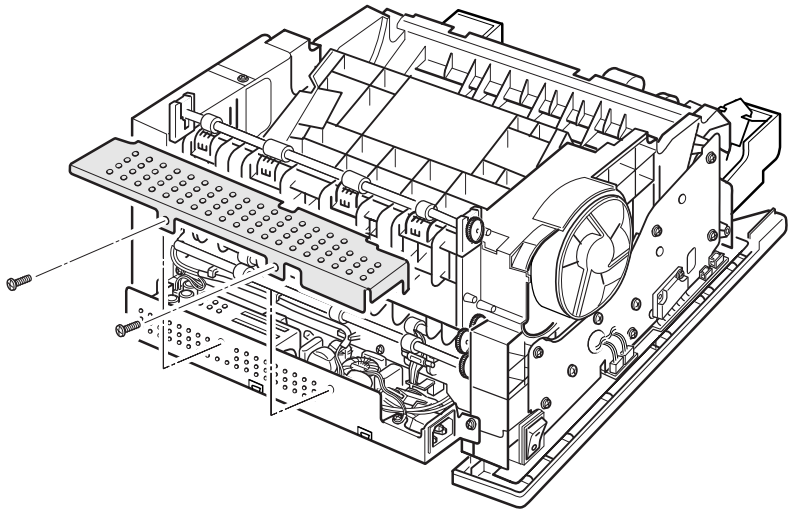
REP 4.6.1 Engine PWB

Removal

CAUTION
These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.

1. Switch the printer power off and disconnect the AC power cord.
2. Remove the System Controller PWB (REP 4.6.2).
3. Remove the Multi-Purpose Feeder (REP 4.1.1).
4. Remove the Paper Tray.
5. Remove the Main Cover (REP 4.1.3).
6. Remove the SMPS bracket (Figure 4.6.1a).

Figure 4.6.1a Removing SMPS Bracket



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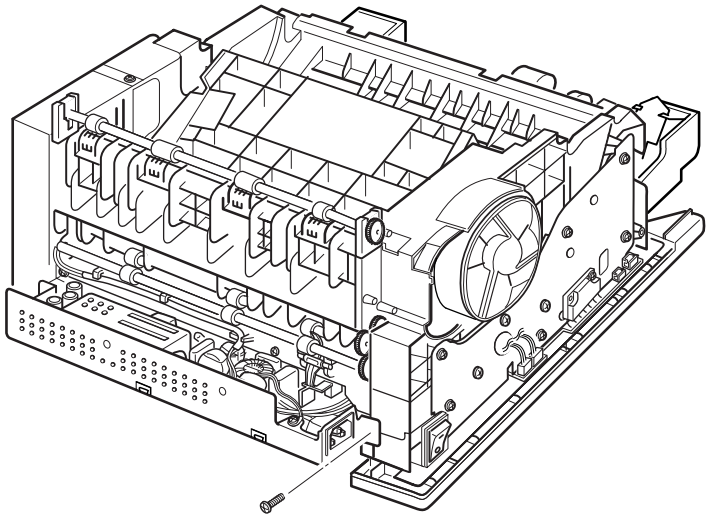
7 Remove the screw from the rear of the Engine PWB Frame (Figure 4.6.1b).

Figure 4.6.1b Removing Engine PWB Bracket



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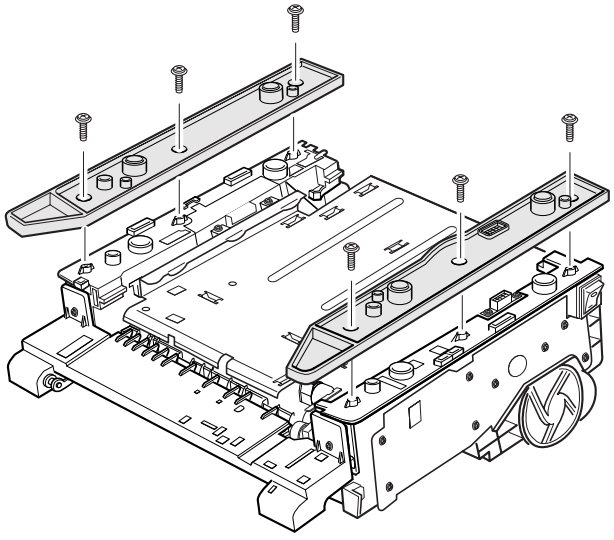
8 Turn the Printer over so the buttom is facing upward.

9 Remove the six scews from the right and left base bracket (Figure 4.6.1c).

Figure 4.6.1c. Right and Left Base Bracket Removal.



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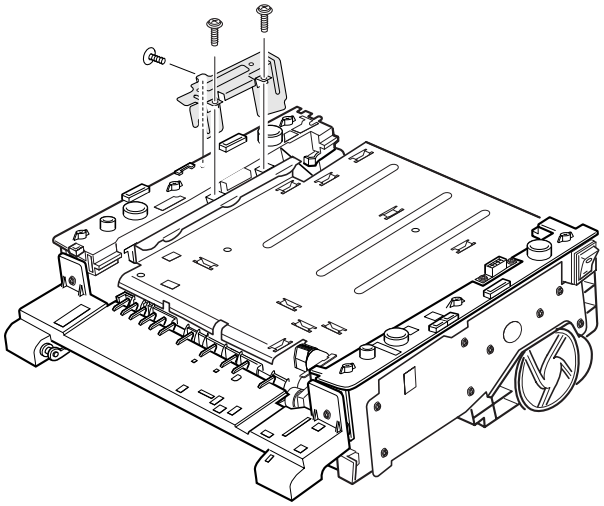
10 Remove the three screws securing the Image Control Unit (ICU), (4.6.1d).

Figure 4.6.1d Remove the ICU



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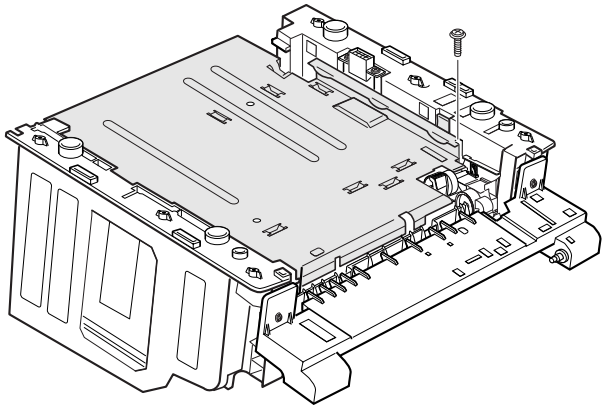
11 Remove the ground screw from the Engine PWB frame (4.6.1e).

Figure 4.6.1e Removing the



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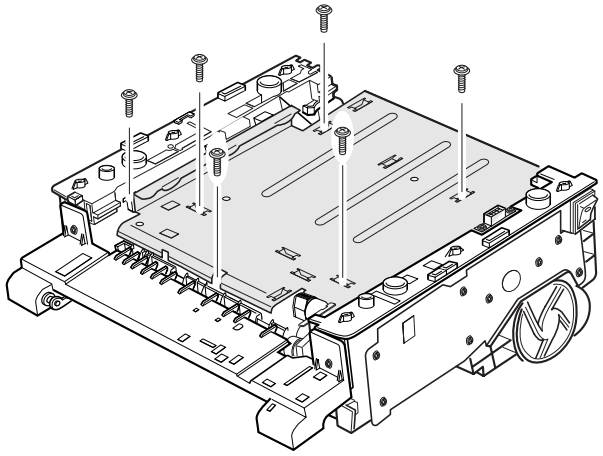
12 Remove the remaining screws that secure the Engine PWB frame to the bottom of the base frame (4.6.1f).

Figure 4.6.1f Engine PWB frame Removal.



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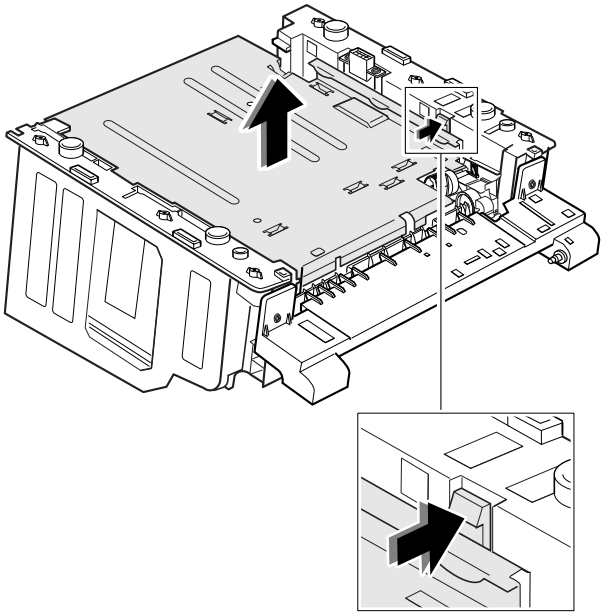
13 Press the plastic Tab back and gently lift up the Engine PWB (4.6.1g). The PWB fits tightly on its locating pins. It may be necessary to gently rock the PWB as you lift it.

Figure 4.6.1g Engine PWB Removal.



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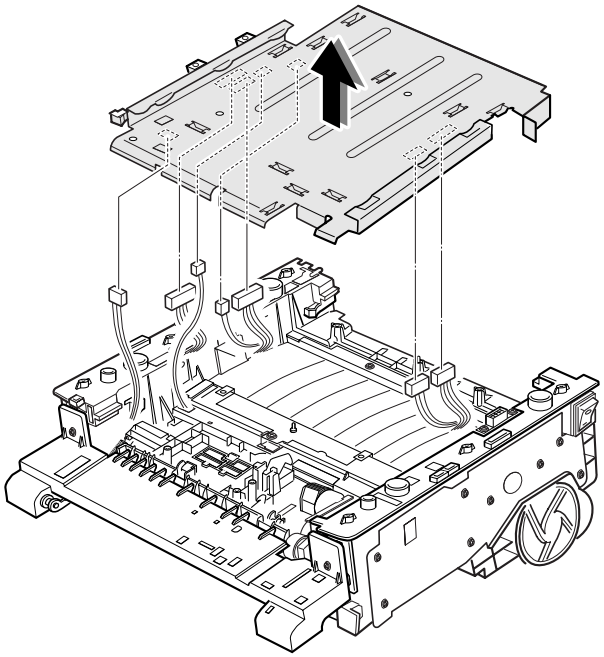
14 Lift the Engine PWB frame far enough to disconnect the Laser Harness from CN3, the Interface Harness from CN5, and the Main Drive from CN1. Remove the Engine PWB (Figure 4.6.2h)

Figure 4.6.1h Engine PWB Removal.



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Replacement

1 Assemble in reverse order.

2 Verify proper operation.

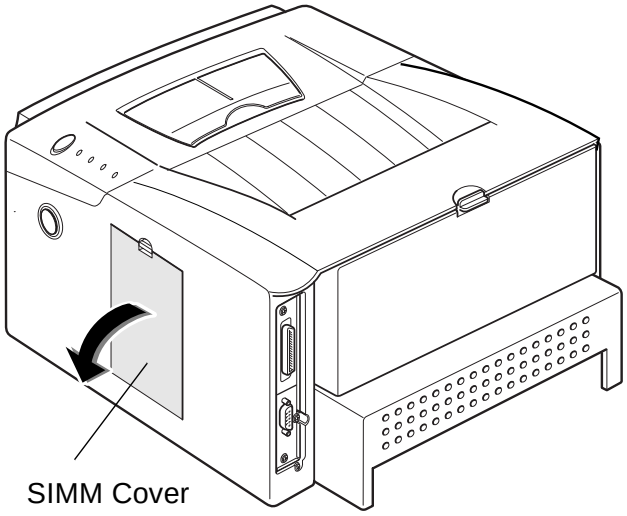
REP 4.6.2 Controller PWB

Removal

CAUTION
These components are susceptible to electrostatic discharge. Observe all ESD procedures to avoid damage.

1. Disconnect the AC Power Cord.
2. Disconnect any cables attached to the rear of the System Controller PWB.
3. Press down on the tab (Figure 4.6.3a) and remove the SIMM Cover.
4. Remove the screw that secures the metal shield and remove the shield (Figure 4.6.2a).

Figure 4.6.2a. SIMM/Cover Shield Removal.



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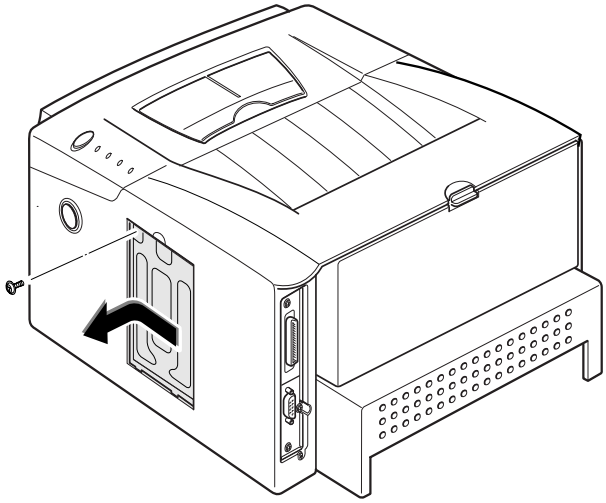

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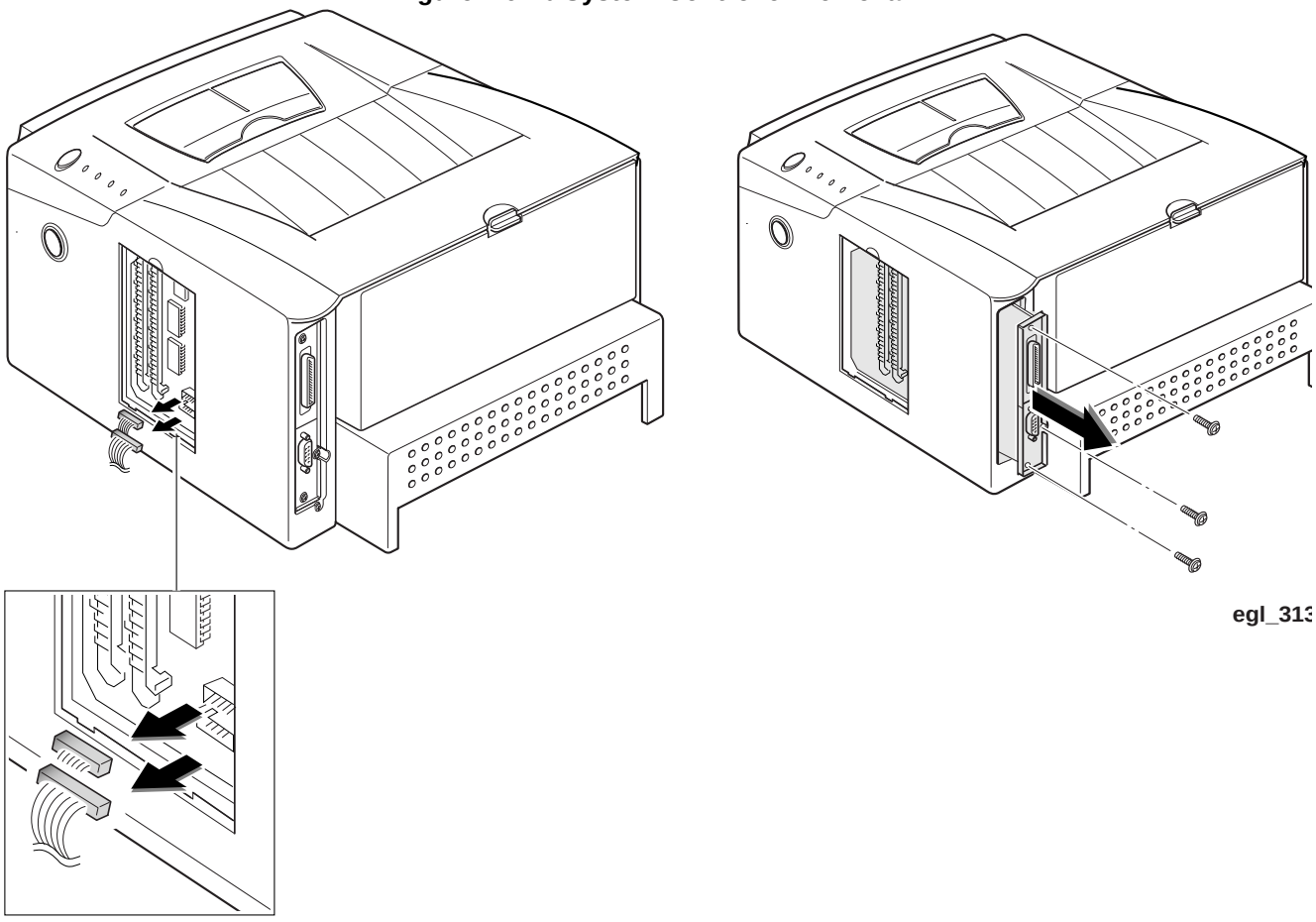
5 Disconnect connectors J3 and J4 from the System Controller PWB (Figure 4.6.2.b).

6 Remove the three screws that secure the System Controller PWB to the rear of the printer (Figure 4.6.2b).

7 Slide the System Controller out the rear of the printer (Figure 4.6.2b).

Figure 4.6.2b System Controller Removal.



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8 If an Optional Serial PWB is installed and the System Controller PWB is being replaced, remove the Optional Serial PWB and install it on the new System Controller PWB.

Replacement

1 Assemble in reverse order.

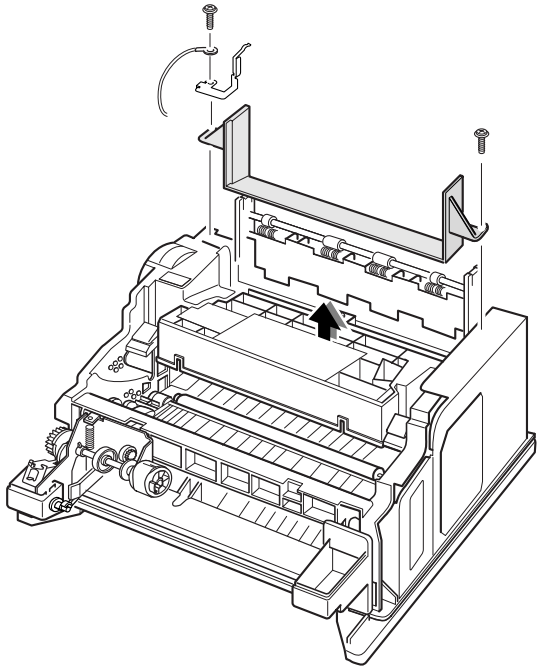
2 Verify proper operation.

REP 4.6.3 LSU (Laser) Assembly

Removal

1. Disconnect the AC Power Cord and remove the Paper Tray.
2. Remove the Printer Cartridge (REP 4.5.1).
3. Remove the System Controller PWB (REP 4.6.2).
4. Remove the Control Panel Harness Cover (REP 4.1.2).
5. Disconnect the Control Panel Harness from J1 on the Control Panel.
6. Remove the Main Cover (REP 4.1.3).
7. Remove the Fuser Cover (Figure 4.6.4a).

Figure 4.6.3aLaser Scanner Motor Harness.



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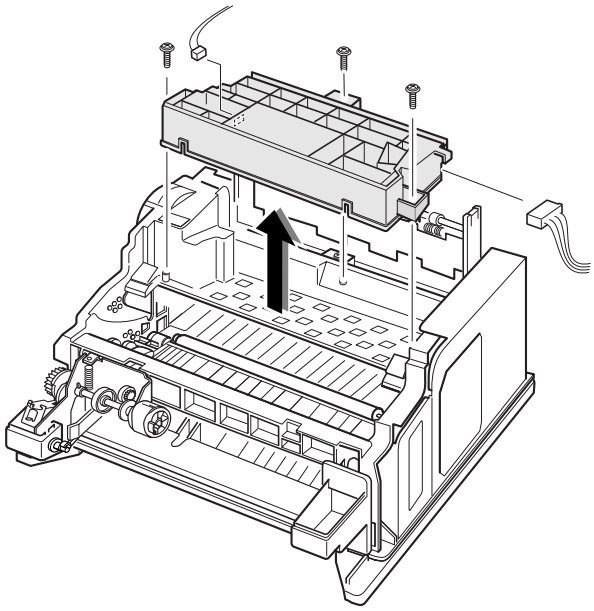
8 Disconnect the Laser Harness from CN1 on the Laser Scanner Motor Control PWB (Figure 4.6.3b).

9 Remove the three screws that secure the Laser Assembly to the printer frame (Figure 4.6.3b).

Figure 4.6.3b Laser Assembly Removal.



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Replacement

1 Clean the Laser window.

1 Assemble in reverse order.

2 Verify proper operation.

REP 4.6.4 Replacing the ROM

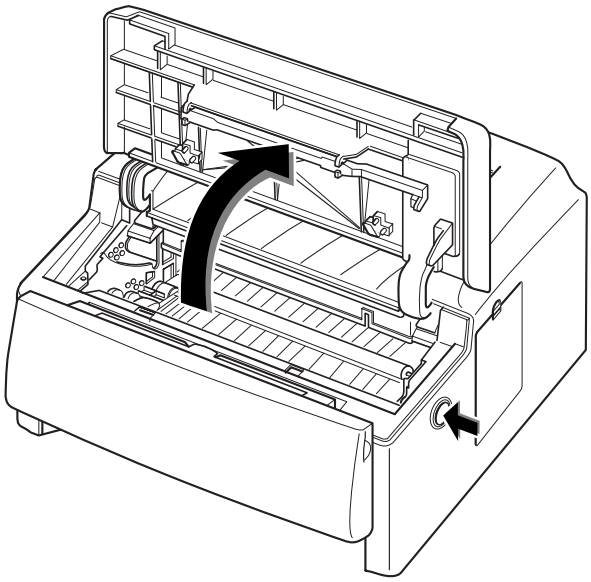
CAUTION

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

Removal

1. Switch the printer power off and disconnect the AC power cord.
2. Press the cover open button and raise the printer front cover (Figure 4.6.5a).
3. Remove the Print Cartridge (REP 4.5.1).

Figure 4.6.4a. Opening Printer Front Cover.



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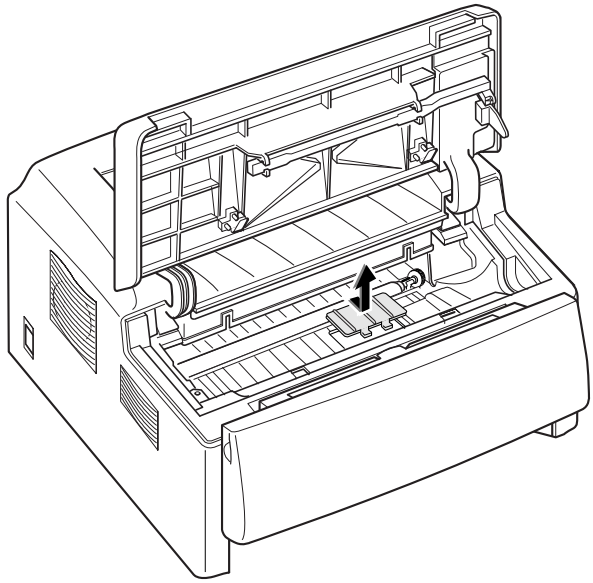
4 Remove the ROM cover (Figure 4.6.4b).

Figure 4.6.4b ROM Cover Removal.



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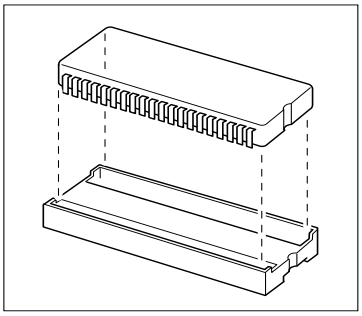
5 Using an IC extractor, remove the ROM (Figure 4.6.4c).

Figure 4.6.4c Removing the ROM.



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Replacement

CAUTION **When installing the ROM, ensure that the notch on the ROM is in line with the notch on the socket.**

1 Assemble in reverse order.

2 Verify proper operation.

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Section 5

General Procedures and Information

5.1 Precautions

The three subsections below focus on three kinds of precautions important to service persons:

- General safety precautions needed by everyone using or handling the printer.
- Precautions needed by anyone servicing the printer.
- Additional service precautions specifically related to Electrostatically Sensitive Devices (ESDs).

Read each of these precautions carefully.

5.1.1 General Safety Precautions

1. Do not use this printer near water, or where any kind of liquid can spill on it, and do not expose it to inclement weather.
2. Make sure the printer is on a stable surface, and that the surface is large enough to keep the printer from being accidentally knocked to the floor.
3. The printer's ventilation slots are designed to prevent overheating. Make sure these slots are not covered or blocked. Don't put the printer in any enclosure that doesn't permit full ventilation.
4. Never insert objects of any kind into the printer through the ventilation slots. Such objects may touch dangerous high voltage points, causing electric shock, a short circuit, or a fire.
5. Use only a grounded / earthed power source. If you are not sure of the type of power available, consult your dealer or the local power company.
6. Make sure no one can trip on the power cord or communication cable, and that no weight is placed on them.
7. Avoid touching the surface of the photo-sensitive drum. The surface is easily marked, and any scratch or mark can affect print quality.
8. Don't expose the print cartridge to direct light for long periods.
9. Follow the directions in Section 2, “Paper Specifications,” on the proper choice of paper.
10. Before cleaning, disconnect the AC power. Use only a damp cloth for cleaning. Do not use liquid cleaners or aerosol sprays.

5.1.2 Service Precautions

1. Before disassembly, disconnect the AC power.
2. Replace parts only with the same Xerox parts.
3. Pay attention to the proper orientation of parts when mounting or inserting them.
4. Pay particular attention to the Electrostatically Sensitive Device (ESD) precautions, since failure to follow them can seriously damage the unit.

5.1.3 ESD Precautions

CAUTION

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

Semiconductor (solid state) devices that are easily damaged by static electricity are called Electrostatically Sensitive Devices. Examples are integrated circuits (ICs), large-scale integrated circuits (LSIs), semiconductor chip components, and some field-effect transistors.

The following techniques are designed to reduce the danger of damage to printer components as a result of static electricity.

1. Check and observe all the safety and servicing precautions.
2. Before handling any circuit board or wiring assembly, perform the ESD procedures.

NOTE: to avoid the danger of shock, be sure to remove the wrist strap before powering up the unit under test.

3. Place any sensitive assemblies on a conductive surface. This will prevent accumulation of static electricity.
4. Do not use freon-propelled chemicals. These can generate enough static charge to damage sensitive components.
5. Do not remove a replacement component from its protective package until you are ready to install it. Most replacement components are packaged with leads that are electrically shorted together by conductive foam, aluminum foil, or other conductive material.
6. Immediately before removing the protective material from the component, touch the protective material to the printer chassis or the circuit assembly in which the device will be installed.
7. Minimize body motions when handling unpackaged replacement components. Even such simple motions as clothes brushing together or a foot being lifted from a carpet can generate enough static electricity to cause damage.

5.1.4 Laser Safety

The DocuPrint P1202 laser printer contains a Class IIIb laser. All laser safety information is contained on pages iii and iv in the front of this manual.

5.2 Printer Operations

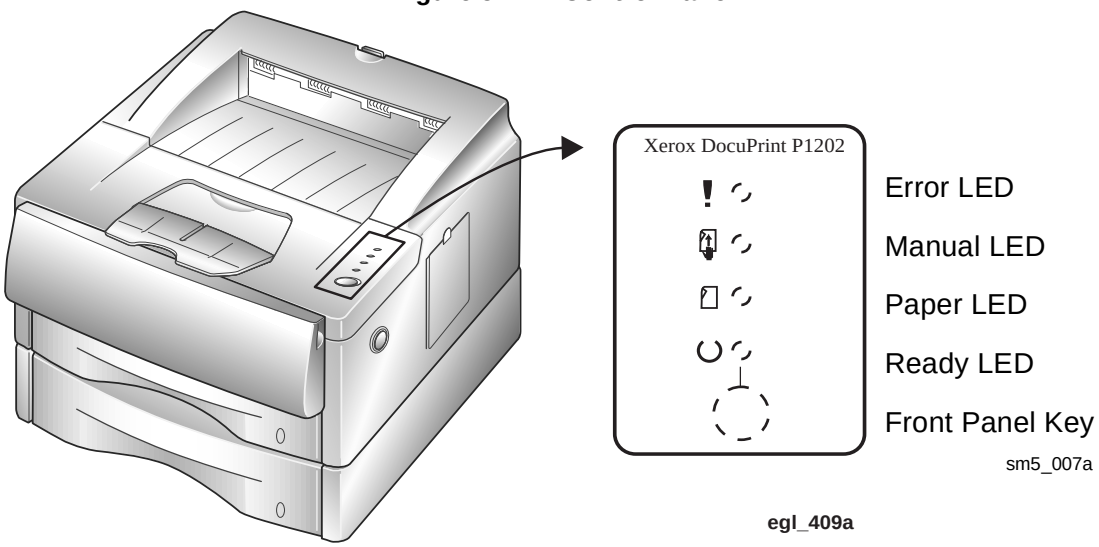
5.2.1 Control Panel

The Control Panel (Figure 5.2.1) is located on the right forward corner of the Front Cover Assembly. The Control Panel includes a single On/Off-line button and three indicator LEDs.

The On/Off-line button has multiple functions that enable the user to select the desired operation.

The four Indicator LEDs: red (Error), (Manual), amber (Paper), and green (Ready). These LEDs indicate the printer's status. (More detailed information about printer status is available through the Status Monitor software utility.)

Figure 5.2.1 Control Panel.



The table below provides various LED conditions and describes their significance.

Indicator	Description
Error LED (on)	There is no print cartridge. The cover is open. There is a paper jam (if the Paper LED is on). Other error condition.
Error LED (blink)	Printer memory is insufficient for print job.
Paper LED (on)	The paper tray is empty. There is a paper jam (if Error LED is also on).
Paper LED (blink)	The printer is on manual feed mode (push On/Off-line button to feed paper from manual feeder).
Ready LED (on)	The printer is ready to receive and process data.
Ready LED (blink)	The printer is receiving or processing data.
Ready LED (off)	The printer is offline
All LEDs (blink)	Possible printer failure.

5.2.2 Printer Modes

The DocuPrint P1202 has two modes of operation, each with its own set of options.

1. Ready Mode (online)
2. Test Mode

5.2.2.1 Ready Mode (Online)

The Ready Mode (Online) is the printer's normal operating mode. In this mode the printer is online and ready to print. Ready Mode occurs automatically when the printer is switched on. The printer can be taken Offline by pressing the On/Off-line button. When the button is pressed the Ready LED will go off. Ready Mode may be restored by pressing the On/Off-line button again.

When the printer is in Ready Mode, the "Ready" LED on the Control Panel is lit. When the "Ready" LED is blinking, the printer is receiving/processing data, or printing. When the Ready LED is OFF, the printer is Offline.

5.2.2.2 Test Mode

In Test Mode, the printer is able to print a one page configuration sheet.

Local Test Mode

To initiate a printer self-test and print a configuration sheet, follow these steps:

1) Make sure the printer in on-line.
2) Press and hold the On/Off-line button until all three LEDs are blinking (approximately four seconds), then release the button. The configuration sheet will be printed.

Remote Test Mode

The Remote Control Panel software can be used to tell the printer to print a one page printer configuration sheet, although it cannot make the printer do a self-test.

5.2.3 Clearing Printer Memory

This function resets the printer, restoring user default settings and clearing all data from the printer's memory except permanent fonts and macros.

To clear printer memory, while the "Ready" LED is OFF (the On/Off-line button has been pressed to take the printer off line), press and hold the On/Off-line button until all three LED's are blinking. When the button is released, all the LEDs except the Ready LED go out.

5.2.4 Print Cartridge Cleaning Procedure

This procedure is used to remove excess toner from the Print Cartridge.

To initiate this procedure, the "Ready" LED must be ON.
Press and Hold the On/Off-line button until all four LED's remain lit (not blinking) and the Printer begins to cycle up (starts the feed of the page).

The printer will produce one page. Depending on the contamination, the page may contain a heavy concentration of background. More than one cleaning cycle may be required to remove contamination. Replace Printer Cartridge if cleaning cycles do not resolve the print quality problem.

5.3 Printer Software

The customer has a choice of different software configurations depending upon their needs. The DocuPrint P1202 can be configured for Windows 3.1x, Windows 95/98 or Windows NT 4.0. The printer software includes: Print Drivers, Remote Control Panel (RCP), and Status Monitor. This section describes each of the software selections.

These programs enable the user to:

- be alerted of any printer changes (Status Monitor)
- configure the printer (driver) (RCP for DOS programs inside Windows)
- set default parameters for the current print job (driver) (RCP for DOS programs inside Windows)
- adjust toner usage (RCP)
- print a configuration sheet, handle printer fonts and print a demo page (RCP)

5.3.1 Installing Software

To install the software, the printer does not need to be connected to the computer or be on. However, in order to start the RCP or SM programs, the printer must be powered on and properly connected by a IEEE-1284 compliant parallel printer cable.

5.3.1.1 Installing Printer Drivers

Use the following instructions to install the PCL 6 and/or PCL 5e printer drivers on a Windows-based PC. For other software installation procedures, including printer utilities, consult the *Reference Guide* on the DocuPrint P1202 CD-ROM.

Installing the software for Windows 95/98/NT 4.0

1. Turn on the printer, then turn on the computer and start Windows.
   - If Windows 95/98 Plug and Play is in effect, continue with Step 2.
   - If Window 95/98/NT 4.0 does not recognize the new printer, skip to Step 4.
2. At the 'New Hardware Found' dialog box, click on the **OK** button, then insert the Xerox DocuPrint P1202 CD-ROM into your CD-ROM drive.
3. Using the Browse button, select **d:\win95.inf** (where **"d"** is your CD-ROM drive letter), then click **OK**. Skip to Step 7.
4. Insert the Xerox DocuPrint P1202 CD-ROM into your CD-ROM drive.
   - If window automatically runs the CD-ROM, skip to Step 7.
5. Select **Run** from the **Start** menu.
6. Type **d:\setup.exe** on the command line (where **"d"** is your CD-ROM drive letter), then click **OK**.
7. Follow the on-screen instructions to complete the installation.

Installing the software for Windows 3.1x

1. Turn on the printer, then turn on the computer and start Windows.
2. Insert the Xerox DocuPrint P1202 CD-ROM into your CD-ROM drive.
3. Open the Program Manager and select Run from the File menu.
4. Type **d:\setup16.exe** on the command line (where **"d"** is your CD-ROM drive letter), and press **<Enter>**.
5. Select the desired language from the Language Menu.
6. From the Main Installation Menu select **Printer Driver**.
7. Follow the on-screen instructions to complete the installation.

5.3.1.2 Installing Status Monitor and Remote Control Panel

Installing the software for Windows 95/98/NT 4.0

1. From the Start Menu, select **Run**.
2. Type **d:\setup.exe** on the command line (where **"d"** is your CD-ROM drive letter), and select **OK**.
3. Select the desired language from the Language Menu.
4. From the Main Installation Menu select one of the following:
   - **RCP** for Windows NT
   - **RCP&SM** for Windows 95/98.
5. Follow the on-screen instructions to complete the installation.

Installing the software for Windows 3.1x

1. Turn on the printer, then turn on the computer and start Windows.
2. Insert the Xerox DocuPrint P1202 CD-ROM into your CD-ROM drive.
3. Open the Program Manager and select Run from the File menu.
4. Type **d:\setup16.exe** on the command line (where **"d"** is your CD-ROM drive letter), and press **<Enter>**.
5. Select the desired language from the Language Menu.
6. From the Main Installation Menu select **RCP&SM**.
7. Follow the on-screen instructions to complete the installation.

5.3.2 Status Monitor

NOTE: The Status Monitor is not available with Windows NT 4.0.

The Status Monitor program runs in background mode. When selected, the Status Monitor automatically displays messages from the printer on the computer screen whenever the printer's status changes.

NOTE: On some machines Window's Print Manager must be disabled to get the Status Monitor to operate correctly.

Status Monitor Messages

ON-LINE: The printer is in Ready Mode, online and is ready to receive print data. The printer may be in standby mode or Power Save mode. When first turned on, the printer goes to this mode.

OFF-LINE: The printer is off-line and not ready to receive print data. The user needs to press the On/Off-line button in order to go to ON-LINE mode.

Cover Open or Missing Cartridge: This message could either mean one or both of the following conditions have occurred:

- The printer's front cover is not closed properly

- The image cartridge is not installed or installed improperly.

Can’t communicate with printer. Please check printer.: This error usually indicates some sort of hardware-related problem such as:

- The printer is turned off.
- The printer cable is not connected or not connected properly.
- The printer cable is defective.
- The printer port and software driver settings don't match.

Technician’s Note: In the current release of the printer and software, sometimes this message pops up for a few seconds and goes back down again when the printer is busy: i.e. printing a job or warming up the fuser.

Paper Tray Open or Empty.: There is no paper either in the Multipurpose Paper Feeder or Manual Feeder.

Paper jam near input feeder.: The printer had problems grabbing paper from either the Multipurpose Paper Feeder or Manual Feeder. Paper should be pulled out, arranged carefully, and put back into the feeder. If there are only a few sheets of paper in the MPF and/or the paper in there has excessive curl, paper jams of this type will occur.

Paper jam near inside rear of printer.: The printer had a jam while feeding paper into the xerographic area. To remedy the problem, the user should open the cover, remove the image cartridge, and paper cleared.

Paper jam near front of printer.: The printer had a jam in the area from the fuser to face-up stacker or fuser to face-down stacker. To remedy the problem, the user should clear any paper from the stackers, open the cover, tear off any jammed paper, remove the image cartridge, and clear any remaining paper - without using excessive force. If any paper is still jammed in the roller assembly to the face-down stacker, this will clear when the printer cover is closed and the printer warmed-up.

Memory Full.: The printer is unable to print the current print job because of insufficient memory due to the complexity of the print job or too many fonts. For this current release, this status error message is not implemented but is planned for future releases.

Unknown Error.: A catastrophic printer failure such as a laser or fuser error has occurred. For this current release, it is not known whether this error message has been implemented.

5.3.3 Remote Control Panel (RCP)

The Remote Control Panel (RCP) has several different functions. As opposed to the driver which allows the user to control how Windows applications drive the printer, the RCP is used to control printer defaults for DOS applications run from inside Windows, i.e. MS-DOS Command Prompt. The RCP is also used to set printer-specific features such as econo mode and Power Save time. These latter features are stored in non-volatile memory in the printer. The RCP provides six different tabbed control panels:

- **Printing** enables choice of page layout, paper type, orientation, number of copies.
- **Config** enables adjustment of general printing parameters.
- **Job** enables adjustment of printing parameters, Resolution Enchanchment, Memory Enchancement Paper Type (weight).
- **Interface** enables adjustment of the serial port options.
- **Test** enables printing of a demonstration page and a configuration page. NOTE: This view is called About/Test Printer in Windows NT.
- **PCL5e** ables acceptane of default PCL font, default numbers of lines per page, and the PCL font listing.
- **PSII** enables listing of the resident PostScript fonts.

To start the Remote Control Panel for Windows:

Windows 95/98 and Windows NT 4.0 - Select Program from the Start menu. Select Xerox DocuPrint P1202, then Remote Control Panel from the drop down list.

Windows 3.1x - Double click the Xerox RCP folder in Program Manager. Double click the RCP&SM icon.

The RCP window (shown on the next page) contains three main areas. The top area is a series of tabs enabling the choice of any of five RCP views: Total View, Printer, Page, Font, Quality and Test. To select a view, click on the appropriate tab. Beneath the row of tabs is the content for the current tab selection.

At the bottom of the screen is an array of six buttons: Send, Default, Reset, Form Feed, Status Monitor, and Exit. These six selections appear in all six RCP views. Their uses are as follows:

Send: Works like the “Enter” command. When a parameter is changed, “Send” is boldfaced. Selecting it writes the change in the Printers’ System Controller's non-volatile memory (NVM).

Default: Resets all printer parameters to *factory* default values.

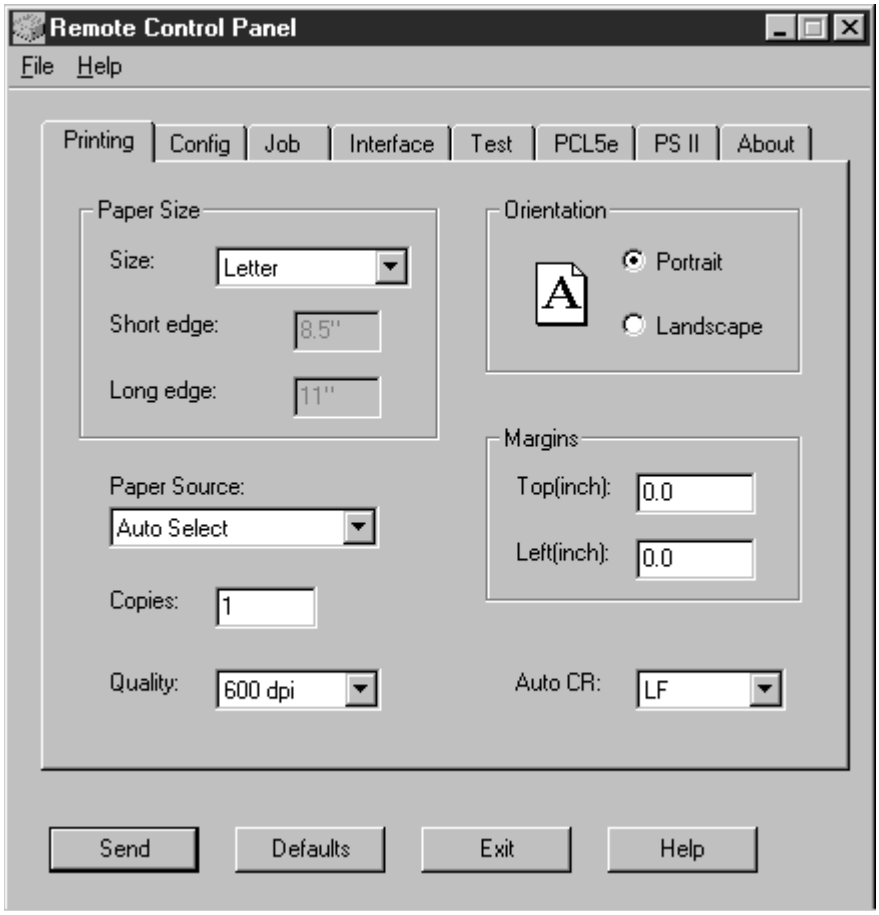
Reset: Resets any changes in the RCP the user may have considered implementing but not yet sent to the printer. Changes RCP to values older values - settings from the printer.

Form Feed: The program sends a form feed character to the printer. In most cases, the printer should print a page with whatever was in printer memory. However, if the printer was accepting graphics information before the RCP was started, the printer may interpret the form feed character to be data and thus not eject a page.

Status Monitor: Displays the current printer status.

Exit: Closes the Remote Control Panel.

5.3.3.1 Printing Tab



sm5_002

egl_432a

The Printer tab (shown above) enables the following printer settings:

Paper Size set the paper size.

Paper Source sets the default paper source.

Orientation determines how the printing is oriented on the page.

Top Margin sets the top margin of the print material.

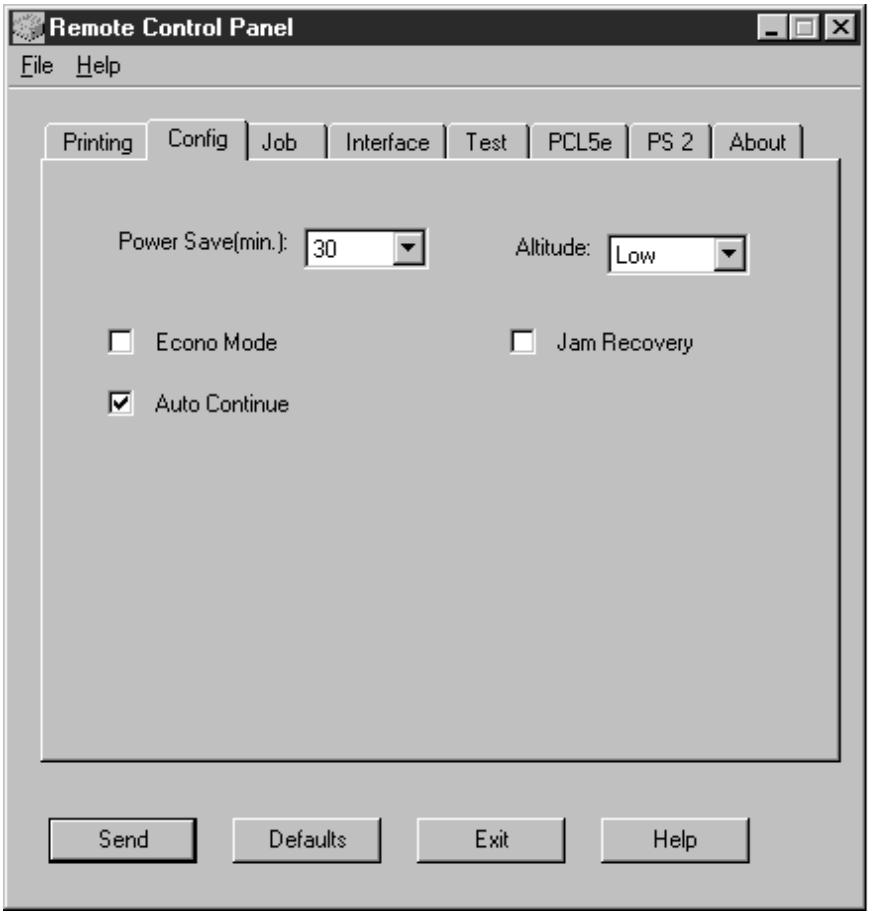
Left Margin set the left margin of the print material.

Copies sets the number of copies printed for each page.

AUTO CR sets how the printer performs a carriage return.

Quality sets the printer resolution to either 300 or 600 dpi. The higher the setting, the sharper the clarity of printed characters and graphics.

5.3.3.2 Configuration Tab



5_003

egl_428a

The Config tab (shown above) enables the following printer settings:

Power Save determines the length of time the printer waits after a job is printed before it goes to a reduced power state. If the printer is used frequently, select OFF which keeps the printer ready to print with the minimum warm-up time. This uses more electricity to keep the printer warm and ready to print.

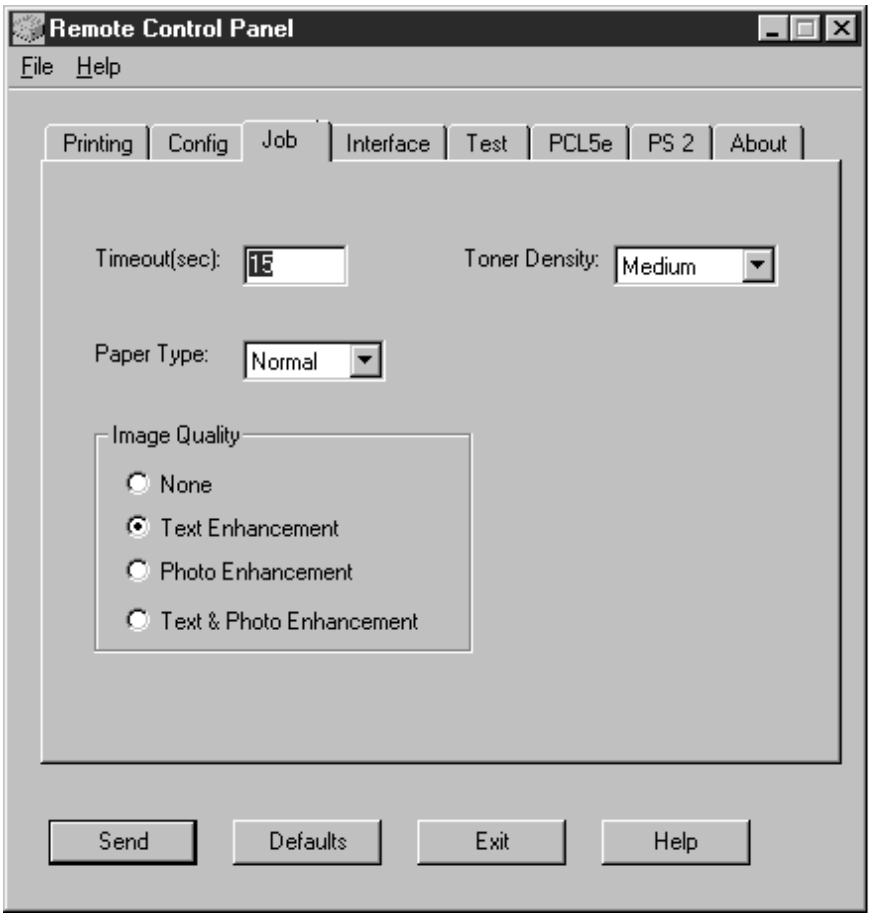
Econo Mode determines the toner quantity the printer should use when printing. If set to *ON*, the printer conserves toner when printing. The default value is *OFF*, which provides 100% usage.

Auto Continue determines what action the printer should take when a manual feed print job is sent to the printer and there is no paper in the MSF. If set to *ON*, the printer will pick up the paper from Tray 1 after ten seconds. Otherwise, the printer will wait for you to load paper in the MSF.

Jam Recovery determines what action the printer should take when a paper jam occurs. When set to *OFF*, the printer does not reprint a page that has jammed. When set to *ON*, the printer keeps the image in memory for a printed page until the printer signals that the page has successfully printed. The printer reprints all jammed pages.

Fast Print turns the fast print mode on or off.

5.3.3.3 Job Tab



egl_430a

The Job tab (shown above) enables the following printer settings:

Timeout determines the amount of time (in seconds) the printer will wait before printing the last page of a print job that does not end with a command to print the page or a formfeed character.

Paper Type provides the printer with information about the type of paper to be used for a print job. If you use paper with a weight of more than 42lb. (90 g/m^2), or an envelope, set this to *THICK* and use the MSF's manual feed slot.

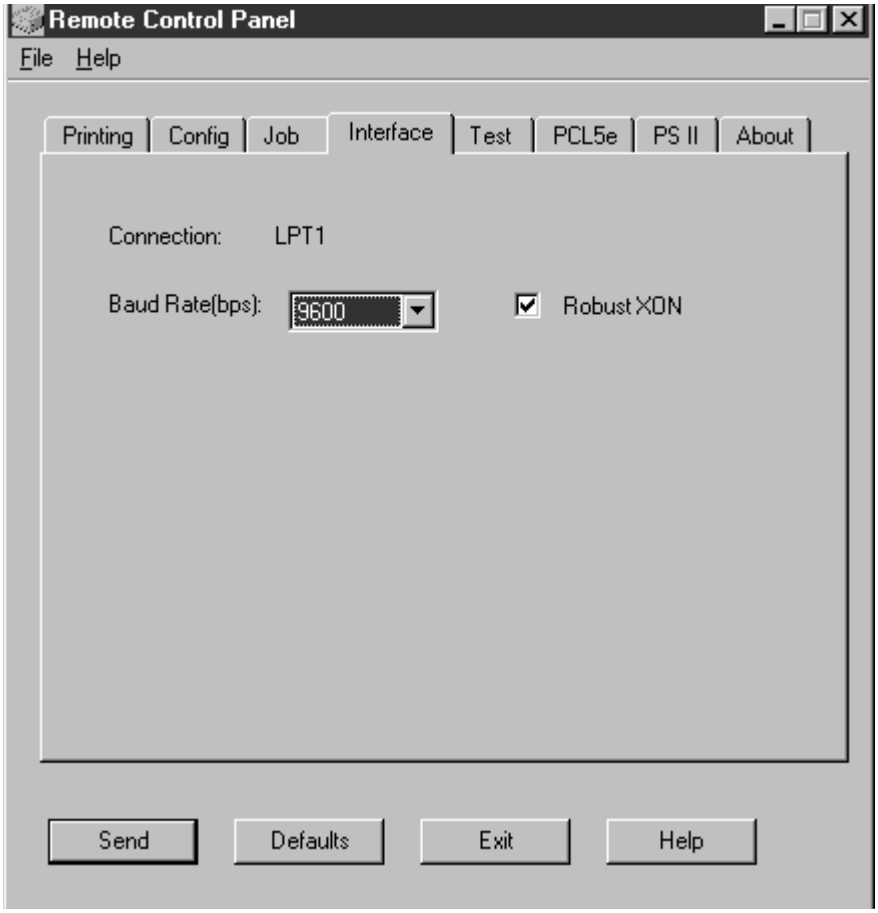
Density determines the overall density of the printed image.

Memory Enhancement mode makes the printer process more data by optimizing the memory. When set to *ON*, the complex data can be processed.

Resolution Enhancement mode makes the printer optimize the print quality to 1200 dpi image quality.

5.3.3.4 Interface Tab

.



sm5_005

egl_429a

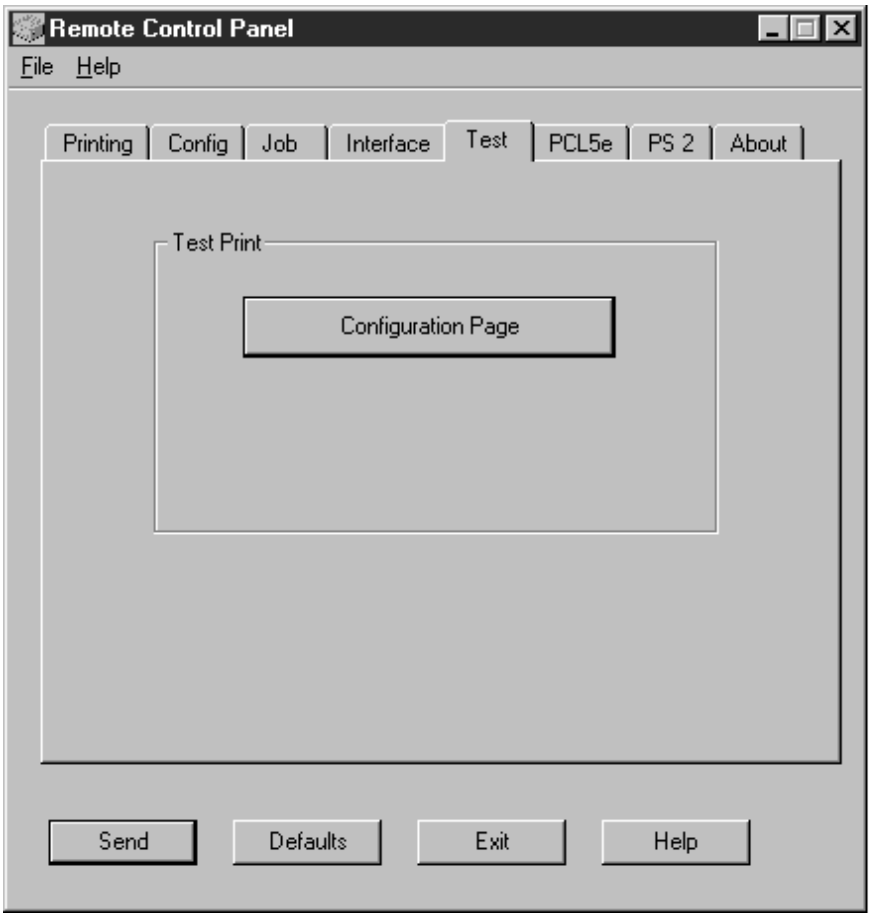
The Interface tab (shown above) enables the following printer settings:

Baud rate sets the rate at which data is being sent to or from the computer.

Robust XON sets XON/XOFF pacing (if the handshaking protocol uses XON/XOFF pacing). When set to *ON*, the printer send a continuous stream of XONs to the host computer to indicate that the serial port is ready to receive more data. An XON is sent every second as long as no data is received across the serial port in the last second, the last XON is accepted by the host computer, and the printer is ready to receive data from the serial port.

5.3.3.5 Test Tab

.



egl_434a

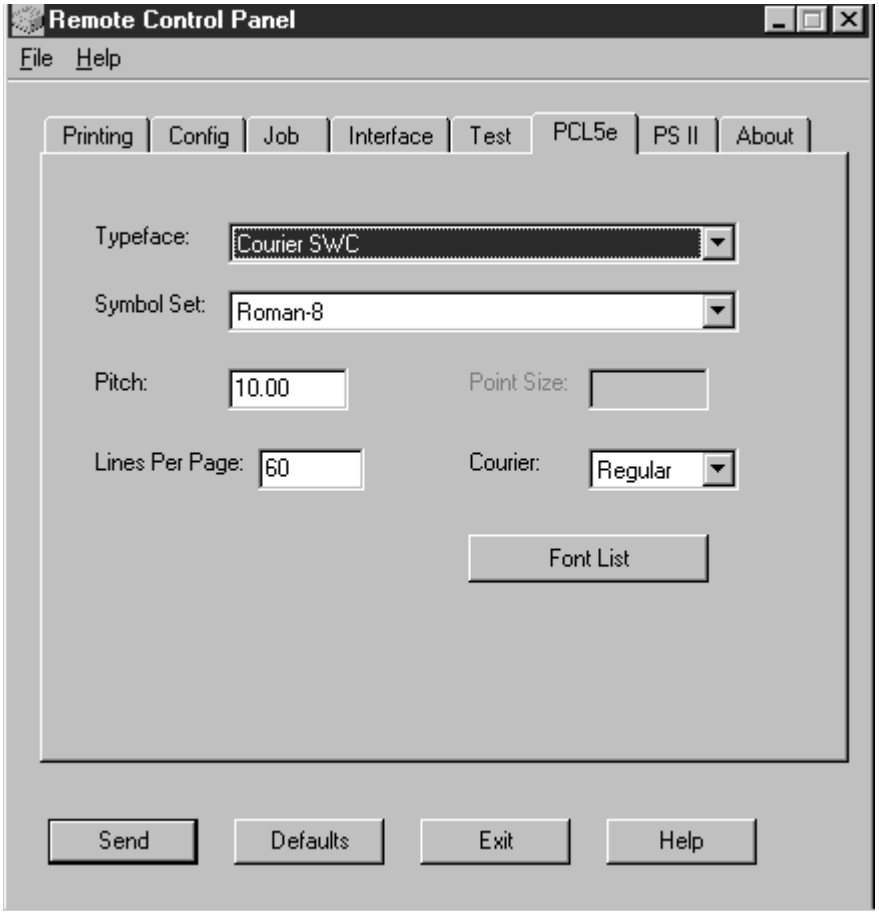
The Test tab (shown above) contains the software copyright notice and version level. It also enables the printing of the following test documents:

Configuration Page prints the configuration sheet. A list of the user default settings, the installed options, and the amount of printer memory available prints.

Demo Page prints the standard demonstration page.

5.3.3.6 PCL5e Tab

.



sm5_006

egl_431a

The PCL5e tab (shown above) enables the following printer settings:

Typeface allows you to select the desired typeface. This setting is ignored when the software application specifies a font.

Symbol determines the symbol set. A symbol set is a set of alphabetic and numeric characters, punctuation, and special symbols used wen printing with a selected font.

Pitch set s the font pitch (only if you have selected a scalable monospaced font). Pitch refers to the number of fixed-space characters in a horizontal inch of type.

Point Size sets the font point size (only if you have selected a scalable typographic font). Point size refers to the height of the characters in the font. One point equals approximately 1/72 of an inch. You can select point sizes from1 to 1008 in increments of 0.25 points.

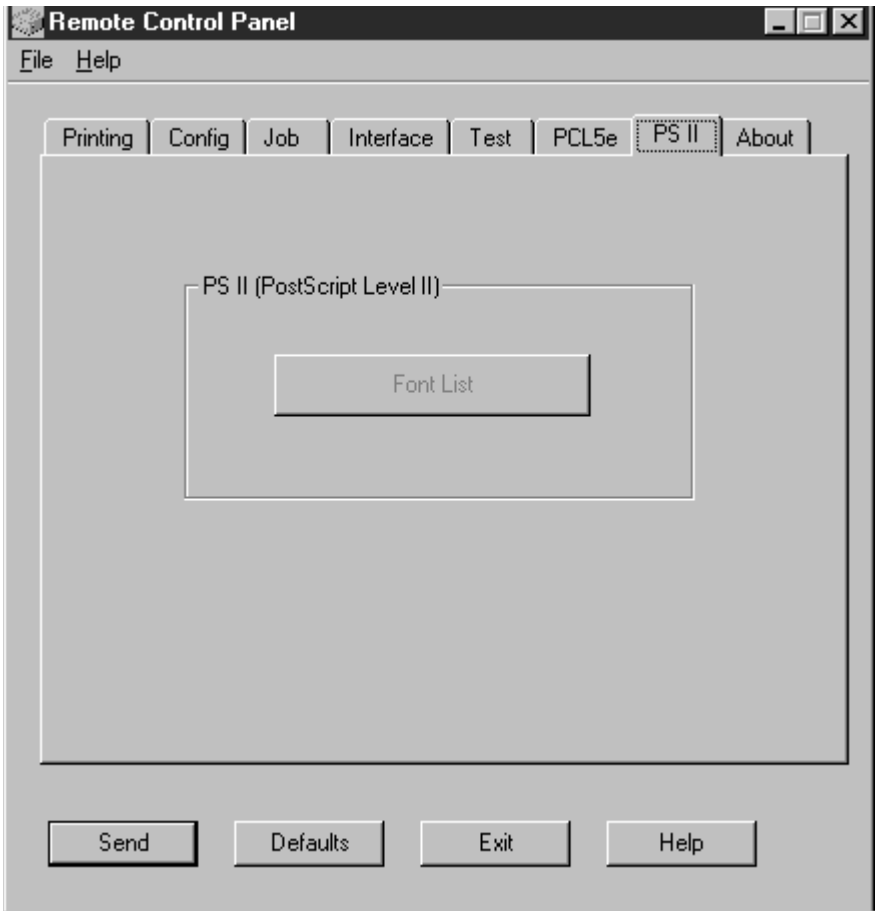
Lines Per Page sets the number of lines that print on each page. The setting can range from 1 to 225 lines per page.

Courier determines the courier font type: *Regular* or *Dark.*

Font List prints the font list showing all the fonts available for PCL emulation.

5.3.3.7 PostScript Tab (PS II)

.



sm5_006

egl_433a

The PS II tab (shown above) enables the following printer settings. Use this tab to control the following printer feature (only when the PostScript option is installed).

Font List prints the font list showing all the fonts available for PostScript.

5.4 The Diagnostic Control Unit (DCU)

The Diagnostic Control Unit (DCU) (600T80340) is a pocket-sized test instrument that enables a variety of diagnostic tests and provides a coded digital readout which is used to monitor printer functions.

NOTE: Ensure that you use the correct DCU overlay for the printer you are servicing. The P1202 printer requires the use of the Model : ML-6000 Series DCU overlay.

5.4.1 Connecting the DCU

Follow the instructions below to connect the DCU to the Engine Controller PWB.

1. Switch off the printer and disconnect the AC power cord. NEVER ATTEMPT TO CONNECT THE DCU WHILE THE PRINTER POWER IS ON.
2. Remove the face up Cover.
3. Remove the front cover.
4. Remove the bottom panel.
5. Install the front cover.
6. Plug the DCU's four-pin connector into Controller Board connector J6 or into the Engine Controller PWB connector CN2.
7. **The Front Cover / Print Cartridge Interlock Switch must be actuated to perform the DCU tests.** The Print Cartridge must be in place and the Front Cover closed or the interlock cheated to run the tests.
8. Reconnect AC power and switch on the printer.

5.4.2 The DCU's Operating Modes

Operation of the DCU is simpler than it might appear from the variety of indicators and labels on the DCU's face. (see Figure 5.4.2a). Only some of them are involved at any given time, depending on the DCU's current operating mode.

The DCU has two operating modes:

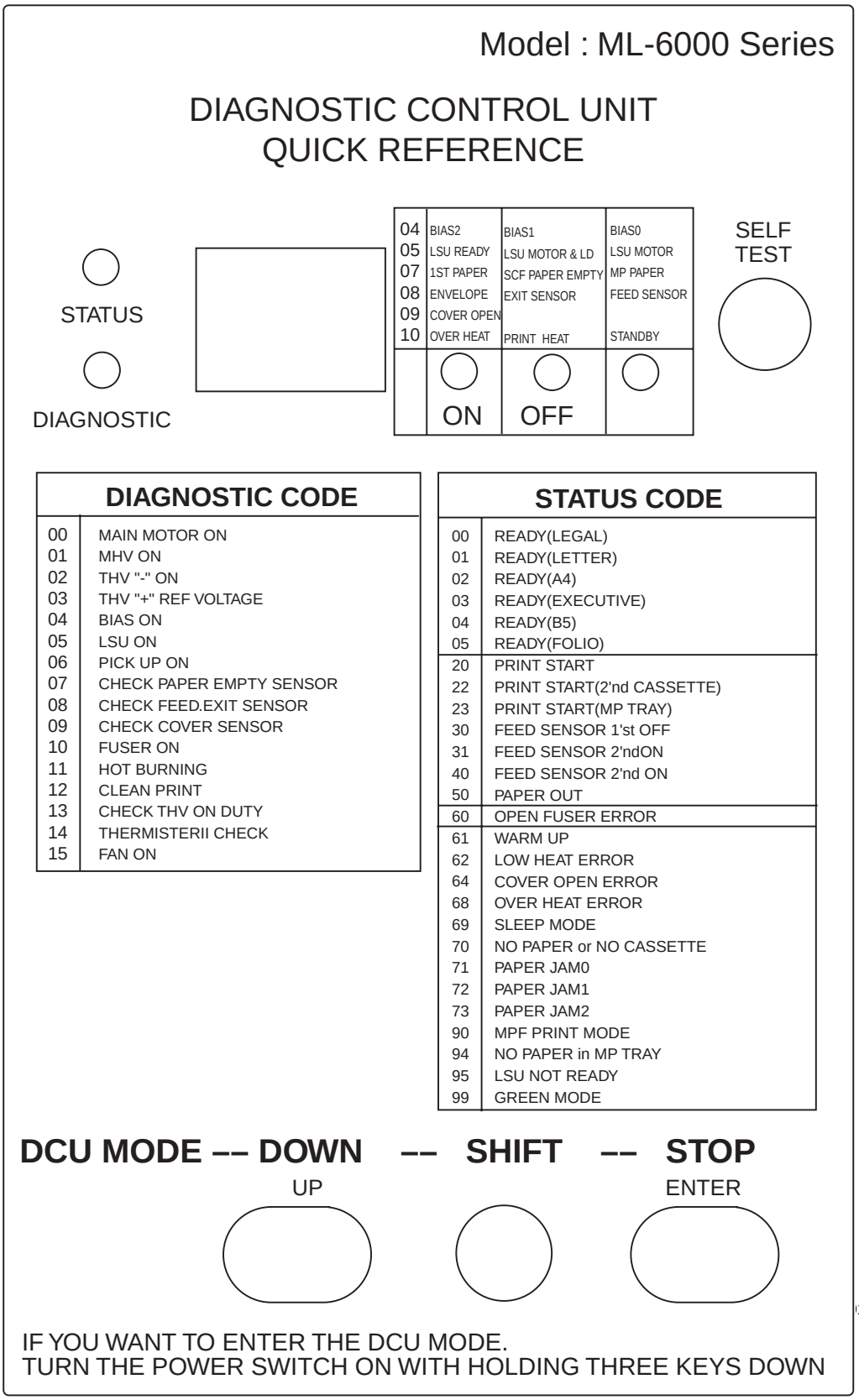
- Status Mode
- Diagnostic Mode

Two LEDs on the upper left of the DCU's face correspond to the two modes. One or the other will always be lit to indicate the DCU's current mode.

In both Status and Diagnostic modes, double-digit numeric codes are displayed in the readout window on the upper left. The meaning of any particular code depends on the DCU's current mode. The two modes of operation and the associated codes are explained in the next two sections.

NOTE: If there is any discrepancy between the information here and labels on the DCU, ignore the DCU labels and follow this information.

Figure 5.4.2a Diagnostic Control Unit



egl_410b

5.4.2.1 Status Mode

When the printer is powered on after connecting the DCU, the DCU automatically enters the Status Mode. The Status Mode monitors the status of printer functions during normal operations. As each function is executed, its Status/Error Code is displayed. If any function fails, the Status/Error Code for that function is displayed until the problem or error has been corrected. (A list of codes and status/error parameters is in Table 5.4.3 on the following page.)

If the problem is resolved without disconnecting power, Status Mode removes the error code displayed and resumes normal operation.

If power is disconnected, powering on once again causes Status Mode to repeat its status review until another problem is detected, or the review is successfully completed.

Whenever Status Mode no longer detects any problem, the displayed Status Code will be one of the three Ready codes (00, 01, 02), depending on which paper size has been selected.

Status Mode can be interrupted only by disconnecting power to the printer.

Table 5.4.2 Status Mode Indications

Code	Indication	Code	Indication
00	Ready (legal)	47	Second feed sensor off
01	Ready (letter)	50	Paper Exit
02	Ready (A4)	60	Open fuser error
20	Print start	61	Warm up
21	Print start (manual)	62	Low heat error
23	Print start (second paper)?	64	Cover open sensor
30	Feed sensor 1st on	68	Overheating error
31	Feed sensor 1st off	70	No paper
33	Feed sensor 1st on (second paper)	71	Paper jam (between feeder and feed sensor)
34	Feed sensor 1st off (second paper)	72	Jam1 (between feed sensor and exit sensor
40	Second feed sensor on	73	Jam2 (at exit sensor)
43	Second feed sensor on (second paper)	90	Manual mode
		95	LSU not ready

The Test Print Function

The Test Print Function is available in Status Mode when any of the three Ready codes (00, 01, 02) are displayed. Pressing the Self-Test button (upper right) initiates the printing of a single page and checks all functions required to produce a printed image. The Test Print is a page covered with vertical lines about a quarter inch apart.

While the test print is being produced, the display changes as the Status monitor displays the codes for each function involved in making the test print. If no problems occur during the Test Print operation the DCU will again display one of the three Ready codes.

5.4.2.2 Diagnostic Mode

Diagnostic Mode enables the individual testing of thirteen different printer functions.

Diagnostic Mode is entered by simultaneously pressing three keys--**[DOWN]**, **[SHIFT]**, and **[STOP]**--at the time the printer is switched on. If the printer is already connected and in the Status Mode, it is necessary to switch off the printer, hold down the three keys, and switch on the printer.

When the DCU enters Diagnostic Mode, the readout window displays “00” and all LEDs on the printer's Control Panel start to blink. The Control Panel LEDs continue to blink as long as the DCU is in Diagnostic Mode.

The “00” readout is the Diagnostic Code for testing the main motor. The **[UP]** and **[SHIFT] + [DOWN]** keys are used to scroll the Diagnostic Code list up and down in the readout window to select other diagnostic tests.

5.4.3 General Test Procedures

As you read each of the paragraphs in this section, refer to the Diagnostic Test Table (Table 5.4.5b). This will enable you to understand the similarities and differences among the thirteen test procedures. It will also familiarize you with the use of the table as a guide while performing test procedures.

All thirteen main Diagnostic tests are started in the same way. After the Diagnostic test code has been selected (see Column 1 in the table), the test is started by pressing the **[ENTER]** key (see Column 3).

Except for two, all the diagnostic tests are ended in the same way (see Column 6). After the test procedure has been completed, the test is ended by pressing **[SHIFT] + [STOP]**. The exceptions are tests 11 and 12, which are ended by switching off the printer.

What happens between starting and stopping a test varies according to the type of test.

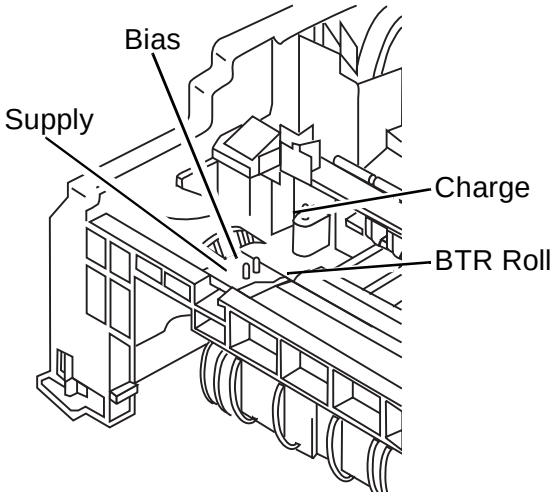
The four voltage tests (01-04) require use of a multimeter and probes. Test results are determined from the multimeter readings (Column 3). Figure 5.4.5a illustrates the locations of the high voltage test points and Table 5.4.5a indicates the voltage for each.

Table 5.4.5a High Voltage Readings.

All readings are Volts DC, +/- 5%

DCU Test	Test Point	Voltage Reading with PCU Version:		
		4.4.5, 4.4.6, 5.3.0	5.3.1	5.3.2
01	Charge	-1500	-1500	-1500
02	Metal end of BTR Roller	-1100 to -1300	-1100 to -1300	-1100 to -1300
03	Metal end of BTR Roller	1000 to 4000 Nominal 2000	1100 to 4000 Nominal 2000	1000 to 4000 Nominal 2000
04 Bias Medium	Bias	-430	-430	-430
Bias Medium	Supply	--630	-630	-630

Figure 5.4.5a High Voltage Test points.



Seven diagnostic tests (00, and 05 - 12) (Table 5.4.5b) require no additional equipment, and indicate results in two ways: by LEDs (Column 5), and/or by obvious activity--sound or movement--as the printer responds (Column 4).

The results of most tests are indicated by the three LEDs to the right of the readout window. Two of the LEDs are labeled ON and OFF, and the third is unlabeled. However, these labels can be ignored when reading results, since it is the pattern of lit LEDs which indicates test results.

For example, consider test 08, the test of the Feed and Exit Sensors. If the feed sensor circuit is working properly, the “unlabeled” LED, and only that LED, will be lit when the Feed Sensor is actuated. If either of the other two LEDs light, or if the “unlabeled” LED fails to light, the Feed Sensor circuit is not operating properly.

Three of the thirteen tests (04, 05, and 10) are multiple tests. After the first test in the series is started by pressing [ENTER], the remaining tests in the series are initiated by pressing the UP key, once in succession for each remaining test.

Three of the thirteen (07, 08, 09) are tests involving sensors. Pressing [ENTER] starts the tests. Manually actuating and deactuating the sensor verifies the operation.

Table 5.4.5b DCU Test Procedures

Diagnostic Code	Diagnostic Test	To Conduct Test	Response	LEDs On	LEDs Off	LEDs ___	To End Test
00	Main Drive Motor	Press [ENTER]	Main Drive Motor Runs	Lit			[SHIFT] + [STOP]
01	Charge Voltage	Press [ENTER]	Voltage On	Lit			[SHIFT] + [STOP]
02	Transfer Negative	Press [ENTER]	Voltage On	Lit			[SHIFT] + [STOP]
03	Transfer Positive	Press [ENTER]	Voltage On	Lit			[SHIFT] + [STOP]
04	Developer Bias Bias Medium Bias Dark	Press [ENTER] Press [UP]	Voltage On Voltage On	Lit	Lit	Lit	Pressing [UP] stops one test and starts next [SHIFT] + [STOP]
05	Laser Assembly Laser Diode & Motor ON  SM5_014	Press [ENTER] Press [UP]	Laser Motor On Laser Diode On	Lit	Lit	Lit	[SHIFT] + [STOP]
06	Pick-Up Solenoid	Press [ENTER]	Solenoid Activates	Lit			[SHIFT] + [STOP]
07	Paper Out Sensor	Press [ENTER] Remove Paper	- - - - - - - - - -	Lit			[SHIFT] + [STOP]
08	Feed & Exit Sensor	Press [ENTER] Actuate Feed Sensor Actuate Exit Sensor	- - - - - - - - - - - - - - -		Lit	Lit	[SHIFT] + [STOP]
09	Cover Open Sensor	Press [ENTER] Actuate Sensor Deactuate Sensor	- - - - - - - - - - - - - - -	Lit			[SHIFT] + [STOP]
10	Fuser Circuit Standby Heat Print Heat Overheating	Press [ENTER] Press [UP] Press [UP]	Fuser Warms At Print Temp Fuser Overheat	Lit	Lit	Lit	[SHIFT] + [STOP]
11	Continous Printing	Press [ENTER]	Prints test prints		Lit		Unplug Printer
12	Print Cartridge Cleaning Cycle (continous)	Press [ENTER]	Cleaning Prints		Lit		Unplug Printer
13	Transfer Transfer Trigger Transfer Duty	Press [ENTER] Automatically Switches	Voltage On Voltage On	Lit Lit	Lit	Lit	[SHIFT] + [STOP]
14	Transfer Duty	Press [ENTER]	Voltage On	Lit			[SHIFT] + [STOP]

5.5 Engine Controller PWB

The Engine Controller PWB:

- Includes a motor driver that provides the signal necessary to turn the Main Motor.
- Provides the control signal that energizes the paper pick-up solenoid.
- Includes a temperature control circuit that monitors the fuser temperature and turns the heat rod on and off.
- Monitors the signal from the Cover Open Sensor. If the front cover is open or the Developer unit is out of the machine or installed correctly the printer will not operate.
- Provides the control signals necessary to operate the laser.
- Identifies the installation of a new Print Cartridge.

The Engine Controller PWB monitors four paper sensors.

- **Feed Sensor:** Located before the transfer process. Senses if paper is feeding and starts the process of sending image data to the laser.
- **Exit Sensor:** The Exit Sensor is located next to the fuser and monitors paper travel in the fuser area.
- **Paper Detect Sensor:** This sensor senses if there are papers in the Multipurpose Paper Feeder.
- **Paper Width Sensor:** Located on the side of the paper path, this sensor is used to detect narrow paper.

5.6 Installing Additional Memory

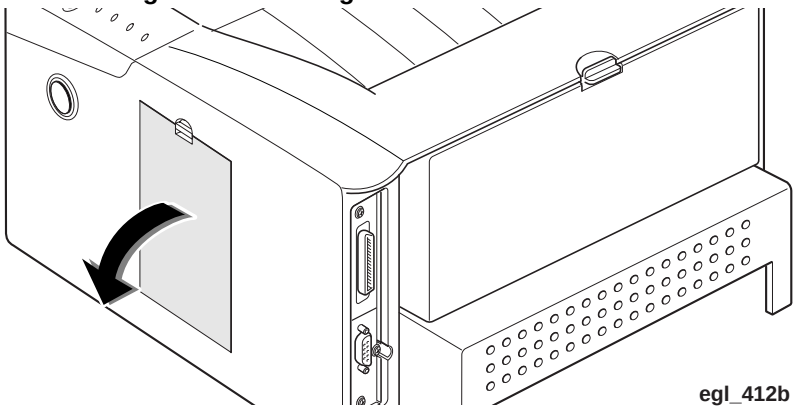
The printer is equipped with 4Mb of resident base memory which is expandable to a total of 36Mb. The base memory may be expanded by installing an additional Single Inline Memory Module (SIMM). By doing this, the size of the receive buffer and the size of the font download buffer are increased. This also enables the printing of more complex pages.

On the Controller PWB, there is only one SIMM slot dedicated to increase the printer memory. There are four available SIMM options to increase the printer memory up to a total of 36Mb. All SIMMs are industry standard EDO 72 pin 32-bit memory (no parity, 60 ns or faster), and are available in sizes of 4, 8, 16, or 32MB. When the SIMM is installed, the Controller PWB will automatically detect the memory and increase the printer buffer size.

To install an additional memory module:

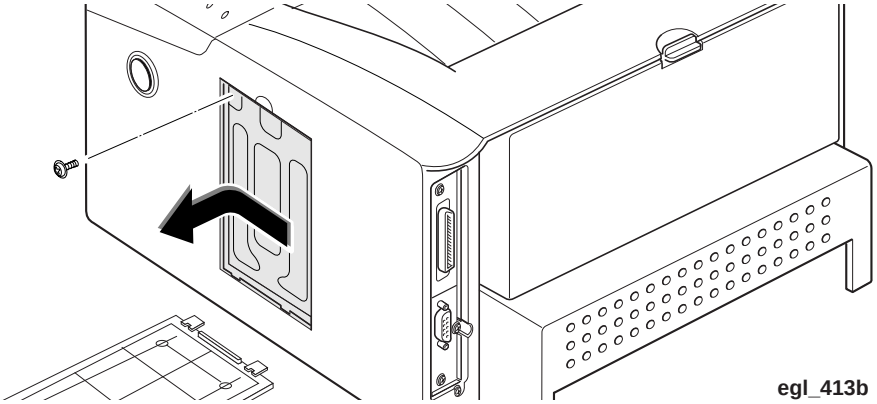
1. Switch off printer and disconnect the AC power.
2. Disconnect all cables from the back of the printer.
3. Remove the right side cover panel by pressing the latch down and pulling it out and up (Figure 5.6.0a).

Figure 5.6.0a Right Side Cover Removal



4. Remove the metal plate by removing the screw holding it in place (Figure 5.6.0b).

Figure 5.6.0a . Shield Removal

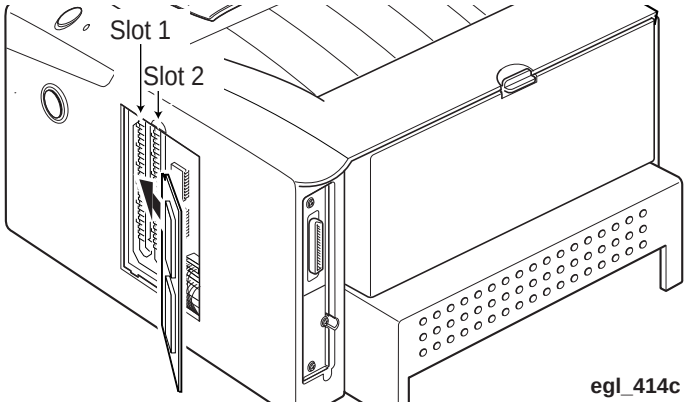


NOTE: Ensure that you install the Memory SIMM into slot 2 of the Controller PWB.

NOTE: The SIMM slots are not interchangeable, you may damage the PWB if you attempt to install either SIMM in the wrong slot.

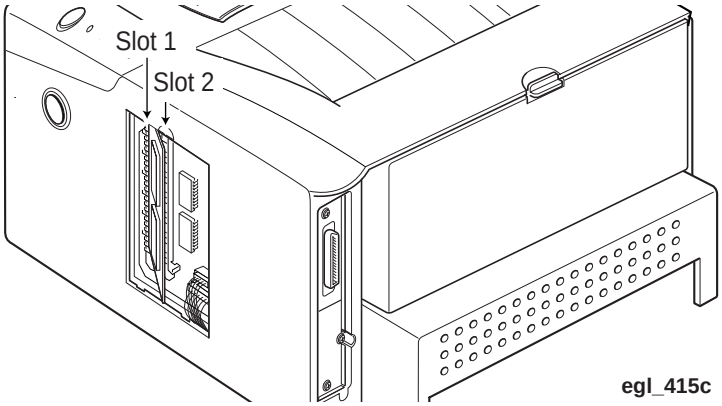
5 Orient the new memory module so that the side with the contacts is closest to the printer, and the notched end of the module is on the top (Figure 5.6.0c).

Figure 5.6.0a



6 Hold the SIMM at a vertical 30 degree angle and firmly push it with your thumbs into the slot. Push the module into the back of the slot to fully seat it (Figure 5.6.0d)).

Figure 5.6.0a



7 Rotate the module to the right until the clips on the edges of the slot snap/click onto the module.

8 Reinstall the Shield and the right side cover panel.

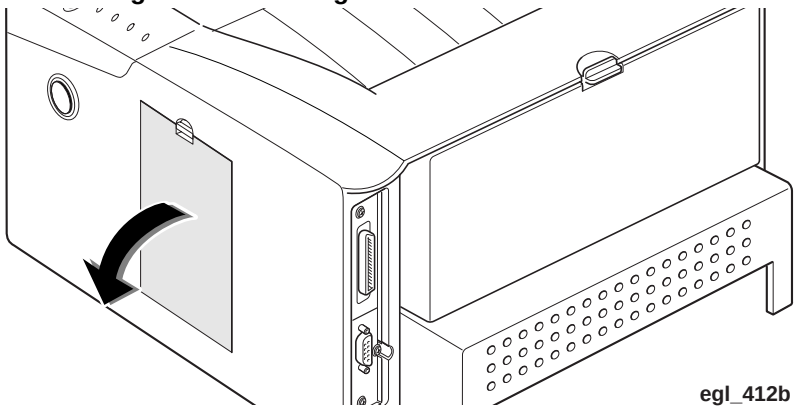
9 Run a Status Page to verify memory has been installed correctly and system recognizes the installation of additional memory

5.7 Installing the Optional Serial Port (RS 232C)

1 Disconnect the AC power.

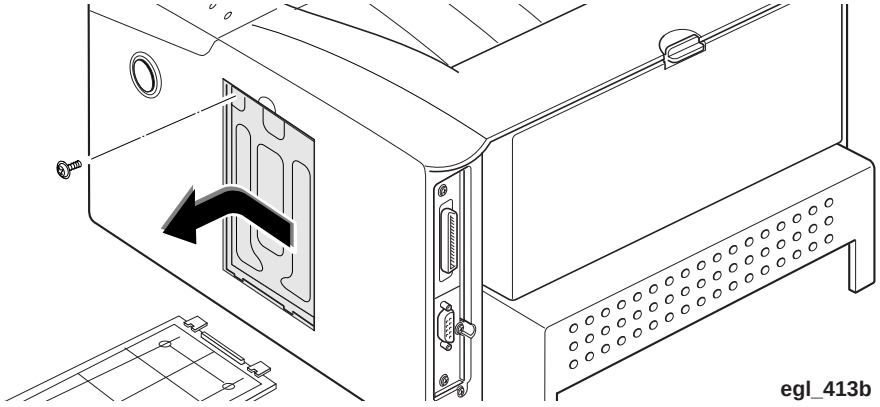
2 Remove the right side cover panel by pressing the latch down and pulling it out and up (Figure 5.7.0a).

Figure 5.7.0a . Right Side Cover Removal



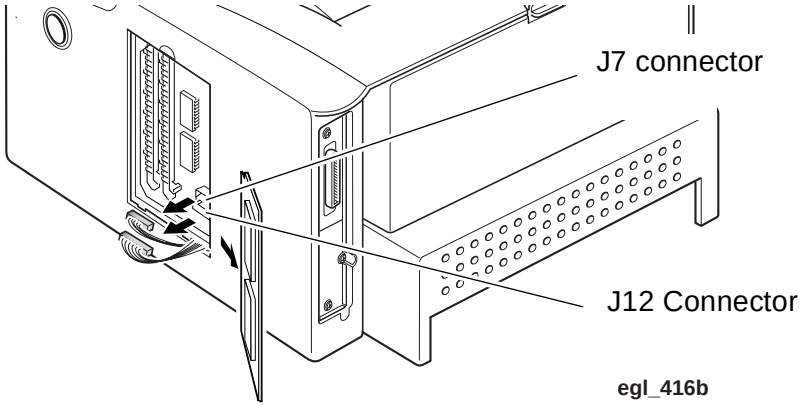
3 Remove the metal plate by removing the screw holding it in place (5.7.0b).

Figure 5.7.0a Shield Removal



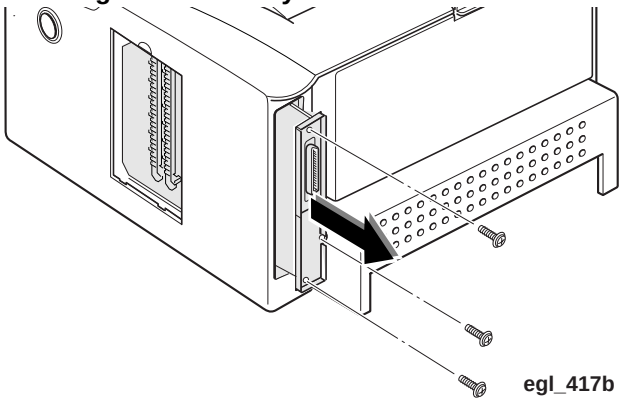
4 Disconnect the two wire harnesses at J3 and J4 from the System Controller PWB (Figure 5.7.0c).

Figure 5.7.0a Disconnecting J7 and J12.



5 Remove the three screws securing the back plate of the System Controller PWB (Figure 5.7.0d).

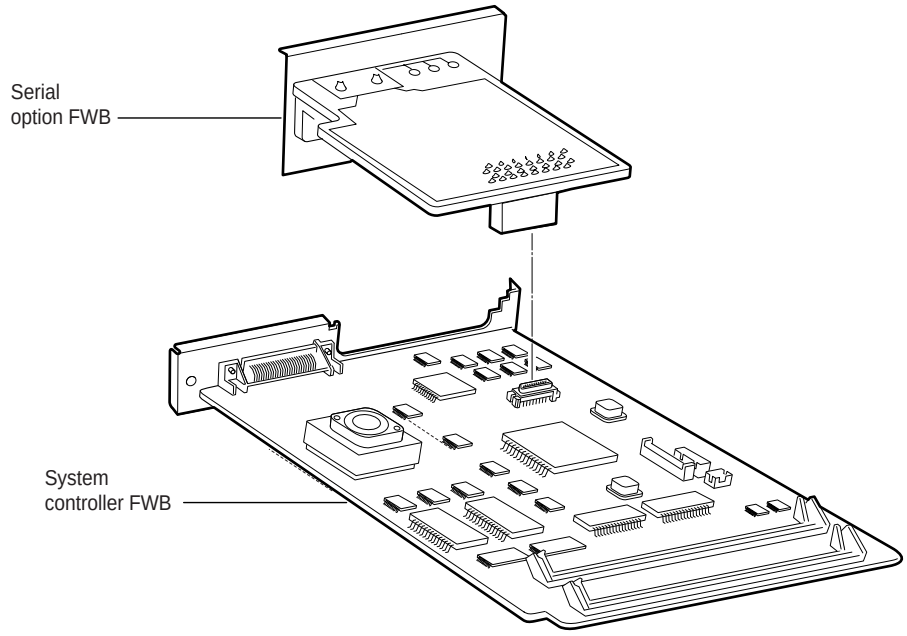
Figure 5.7.0a System Controller Removal.



6 Slide the System Controller PWB from the printer and place it on a flat surface. Discard the metal filler plate.

7 Carefully match the connector on the System Controller PWB with the connector on the Serial Board. Press the Serial Board to fully seat it on the System Controller PWB (Figure 5.7.0e).

Figure 5.7.0a Serial Option PWB Installation



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8 Slide the controller board back into the printer, and replace the three screws to secure it.

9 Connect the two System Controller PWB connectors (wire harnesses at J7 and J12).

10 Replace the right side cover panels.

11 Connect the serial interface cable.

12 Have the user set the appropriate transmission speed in the RCP.

13 Confirm the serial option setup for the printer matches the PC values.

5.8 Update Procedure

There are two components in the P1202 printer that may be upgraded in the field, a Flash EPROM and an EPROM. The Flash EPROM contains the OS Version and PCL5e Version. The Flash EPROM can be upgraded without any physical work on the printer. The EPROM, on the other hand, must be upgraded by physically changing a chip on a circuit board. The EPROM contains the Engine Version. The two work together, you can not mix and match different version numbers.

The update procedure works in the following environments:

- MS-DOS version 6.22
- Windows 95, F8 Command Prompt Only boot
- Windows 95, MS-DOS Command Prompt
- Windows 95, Shutdown - Restart computer in MS-DOS mode
- Windows 3.1, Exit Windows and go to plain DOS version 6.22

NOTE: This procedure does not work with the Windows NT Version 4.0 MS-DOS Command Prompt.

The procedure requires two zipped files which contain the following files:

- fprt.exe
- xerox-lt.110 (if default paper size is letter)
  or xerox-a4.220 (if default paper size is A4)
- rom.XXX (XXX represents the version level, i.e. 103 for version 1.03)
- boot.XXX (XXX represents the version level, i.e. 103 for version 1.03)

The computer's parallel port should be assigned as standard LPT1 (hex 378) before beginning the procedure.

Procedure

1. Unzip the files to a temporary directory.
2. Make sure the printer is powered off and the parallel cable is IEEE-1284 compliant and connected properly.
3. Hold the On/Off-line button and switch on the printer. Continue holding the button for 3-4 seconds until the LEDs are scrolling in this fashion: error, paper, ready, error, paper, error. Release the On/Off-Line button.
4. At the C> prompt, type: **fprt boot.XXX lpt1** (XXX represents the version level, i.e. 103 for version 1.03).
5. When all the LEDs are blinking simultaneously, approximately 10 seconds, switch off the printer.
6. Hold the On/Off-line button and switch on the printer. Continue holding the button for 3-4 seconds until the LEDs are scrolling in this fashion: error, paper, ready, error, paper, error. Release the On/Off-Line button.
7. At the C> prompt, type: **fprt rom.XXX lpt1** (XXX represents the version level, i.e. 103 for version

1.03).

8. Wait approximately 1-2 minutes until the message “The printing is completed!” is displayed and the LED’s are blinking simultaneously. Switch off the printer.
9. Switch the printer back on. The printer should go to an on-line condition with the ready LED on.
10. At the C> prompt, type: **fprt xerox-lt.XXX lpt1** (XXX represents the version level, i.e. 103 for version 1.03). This tests 115 VAC systems with a default for letter size paper
    OR
    At the C> prompt, type: **fprt xerox-a4.XXX lpt1** (XXX represents the A4letter size paper.

    The ready LED should stay on.
11. Switch off the printer and then switch it back on.
12. Print a configuration sheet by holding the On/Off-line button down for about 5 seconds until all the LEDs are blinking, then release the button.
13. The configuration sheet should list a OS version that corresponds with the version you have just installed.

5.9 Abbreviations

Abbreviation	Stands for
BCR	Bias Charge Roll
BIOS	Basic Input/Output System
BPS	Bits Per Second
BTR	Bias Transfer Roll
CBUSY	Command busy
CCLK	Command clock
clk	clock
cm	centimeter(s)
CMOS	Complementary Metal Oxide Semiconductor
CMSG	Command message
CON	connector
CPU	Central Processing Unit
DCU	Diagnostic Control Unit
DMA	Direct Memory Access
DMAC	Direct Memory Access Controller
DOS	Disk Operating System
DPI	Dots Per Inch
DRAM	Dynamic Random Access Memory
DS	Data Strobe
DVM	Digital Voltmeter
EBUSY	Engine Status Busy
EEPROM	Electrically Erasable Programmable Read Only Memory
EMSG	Engine Status message
HSYNC	Horizontal sync
INT	Interrupt
INTA	Interrupt Acknowledge
INTR	Interrupt Request
I/O	Input and Output
lb	Pound(s)
LDON	Laser Diode On
LED	Light Emitting Diode
lin	linearity
LSU	Laser Scanner Unit
MHV	Main High Voltage
motor_pa	Motor phase A
motor_pb	Motor phase B
MPU	Micro Processor Unit
NC	No Connection
neg	negative
OSC	oscillator
PCU	Printer Control Unit
PPM	Pages Per Minute
PRINT	Print command
psync	page synchronization
pwr	power
RAM	Random Access Memory
READY	Engine ready to print
ROM	Read Only Memory
SCC	Serial Comm. Controller
THV	Transfer High Voltage
Vcc	collector supply voltage (dc)
VCU	Video Control Unit
VDI	Video data from controller
VDO	Video data output
Image Cartridge	Print Cartridge

Section 6

Wiring Data

6.1 Introduction

This wiring section contains the master connection diagram, the circuit board layouts, and the circuit board wiring diagrams.

The master connection and wiring diagram illustrates all the circuit boards and electrical components and how they are connected.

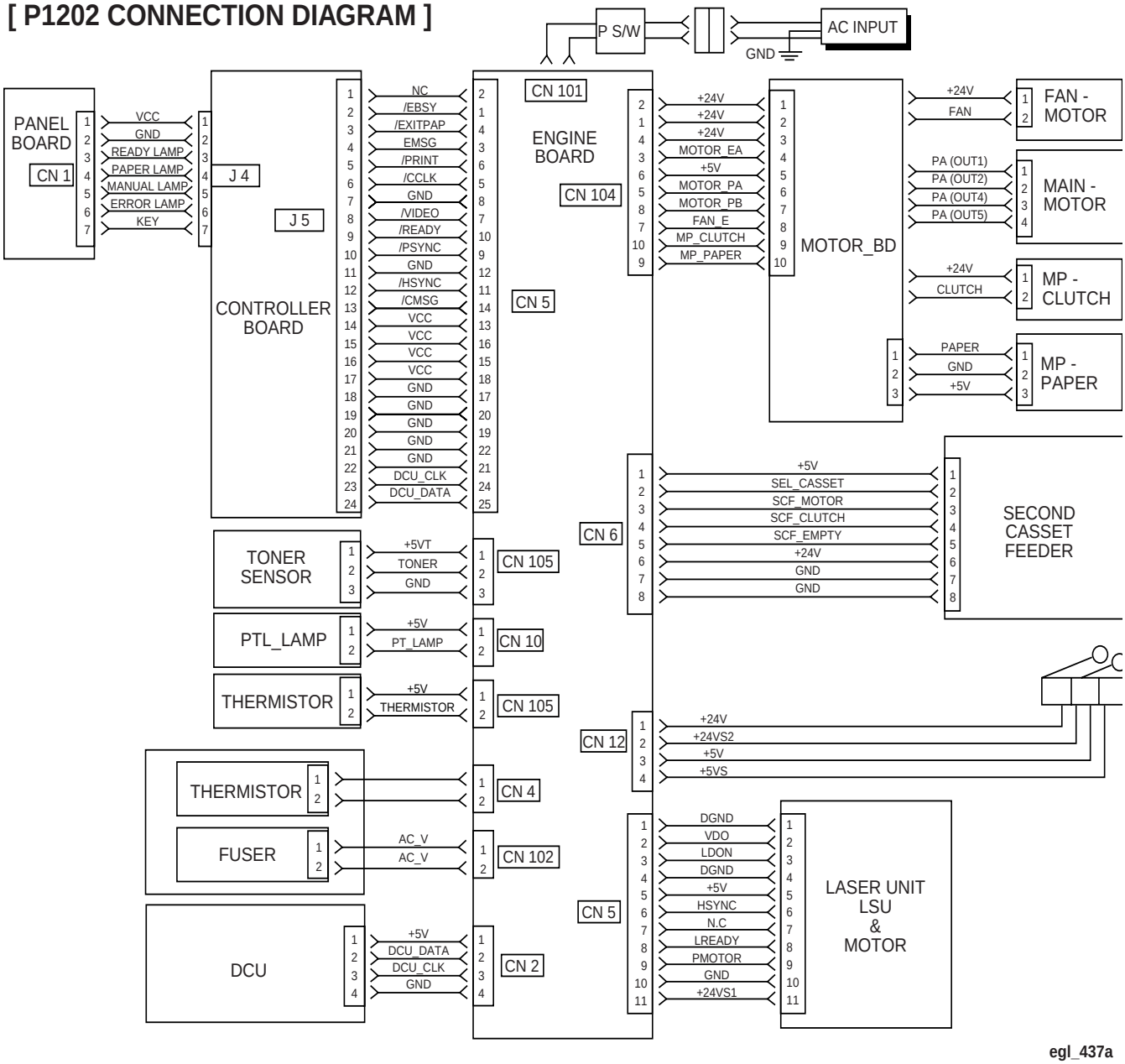
The circuit board layout section contains the circuit board layouts and the wiring connectors. The circuit board illustrations show the locations of the connectors and any sensors located on the board. Each connector has an arrow that indicates the position of pin one for that connector.

The wiring diagrams illustrate the wiring connections between the circuit boards and between circuit boards and components.

6.2 Connection and Wiring Diagrams

6.2.1 Connection Diagram

[P1202 CONNECTION DIAGRAM]



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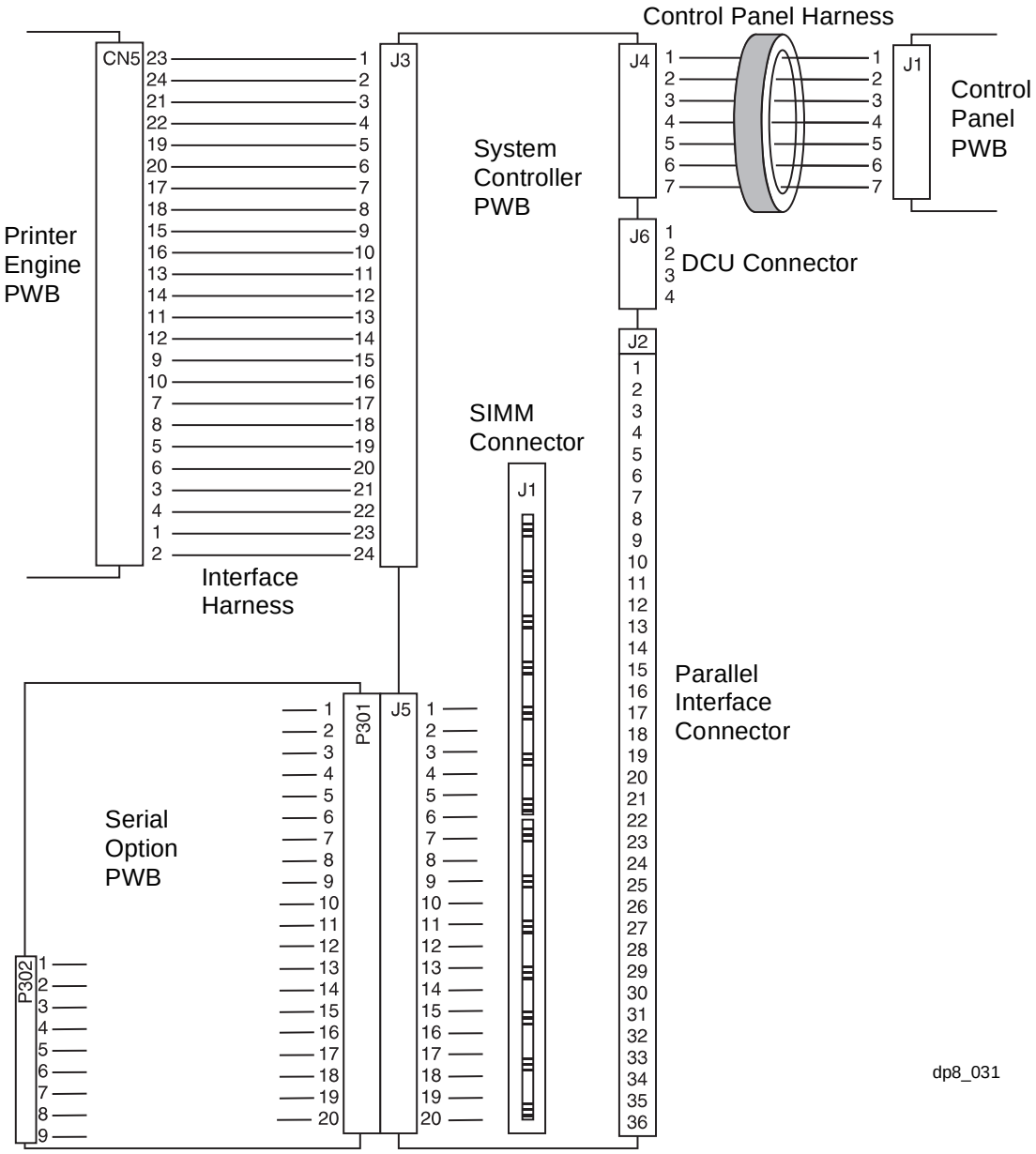
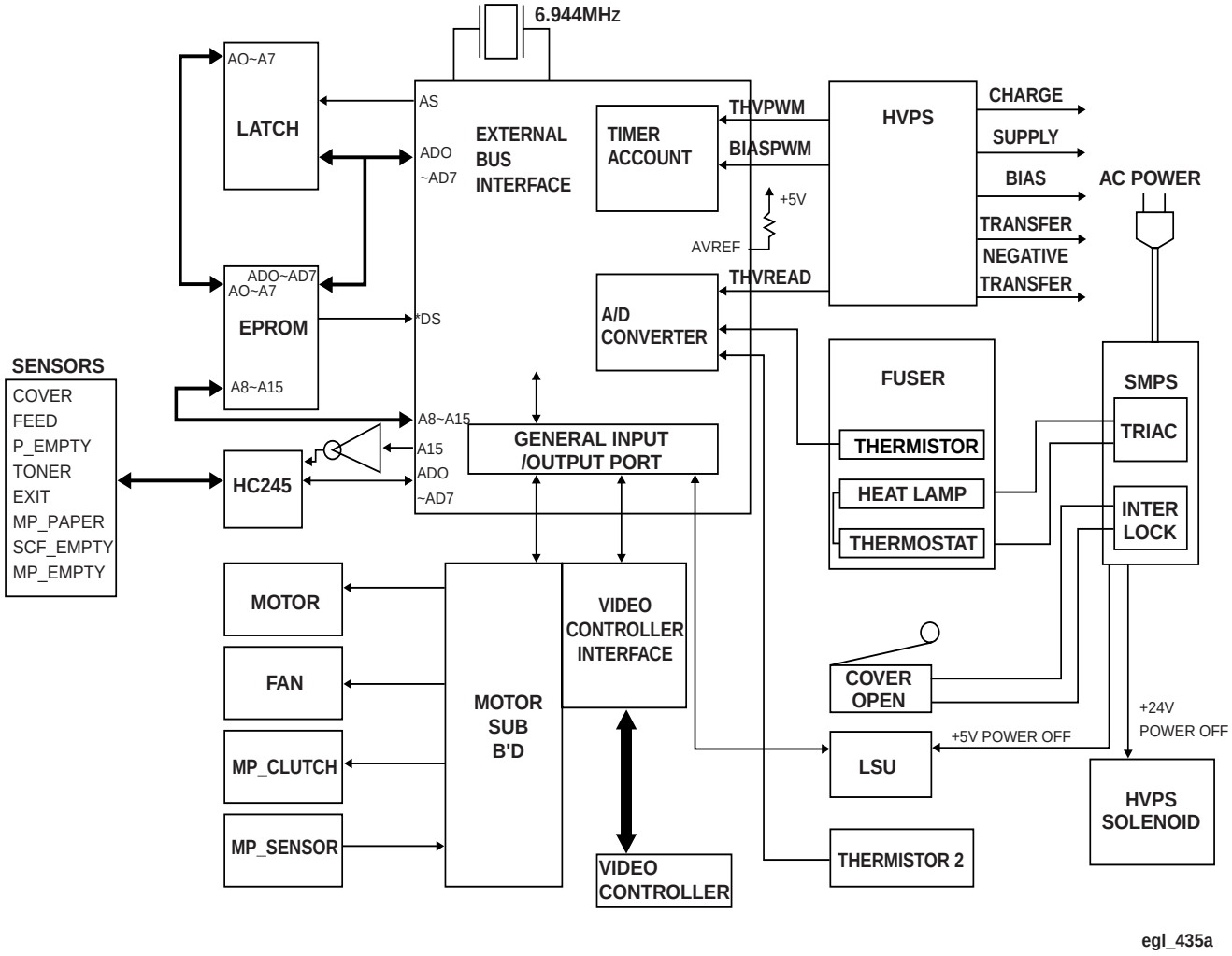
6.2.2 System Controller PWB



6.2.3 Engine PWB

ENGINE BLOCK DIAGRAM



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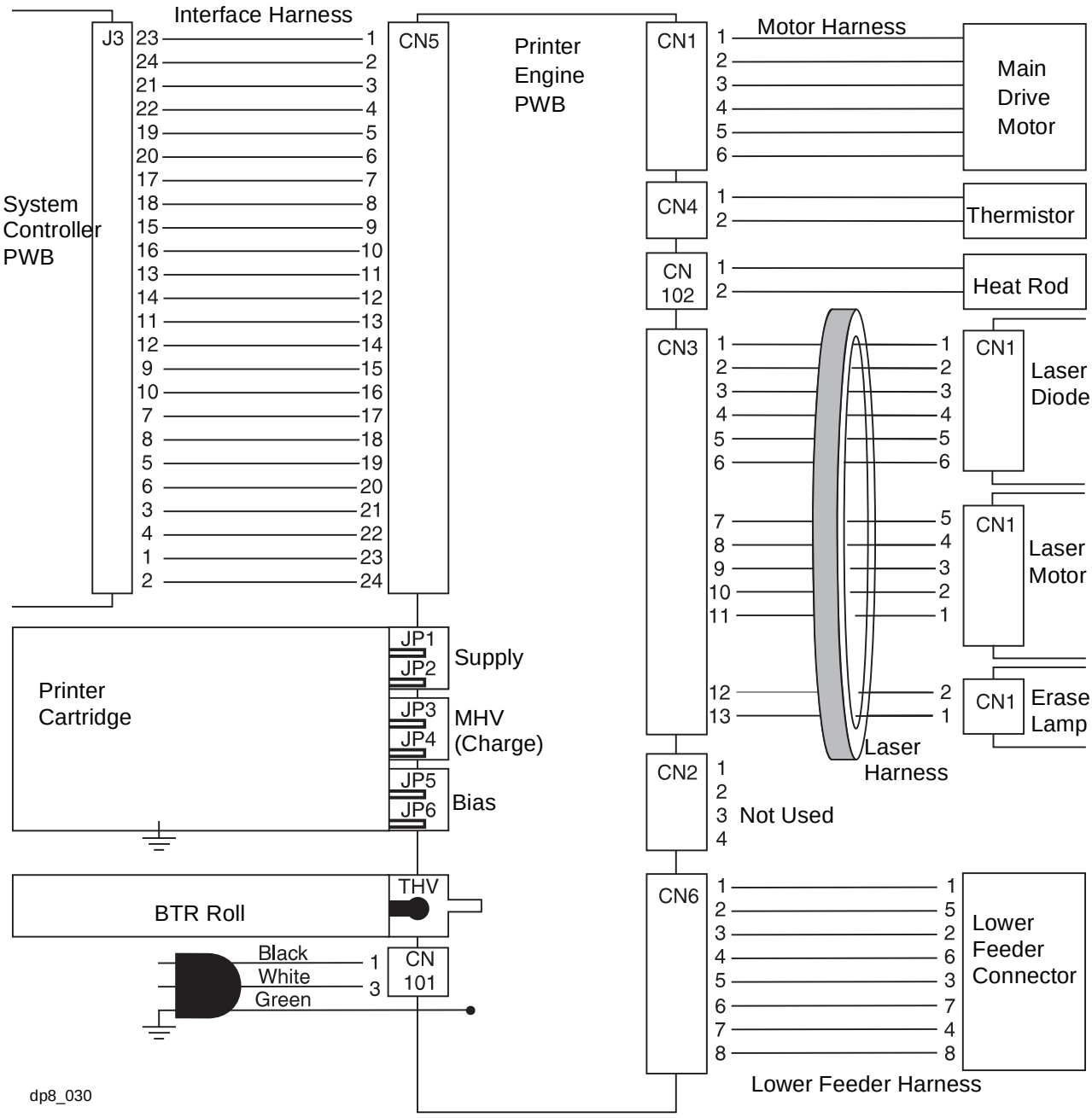
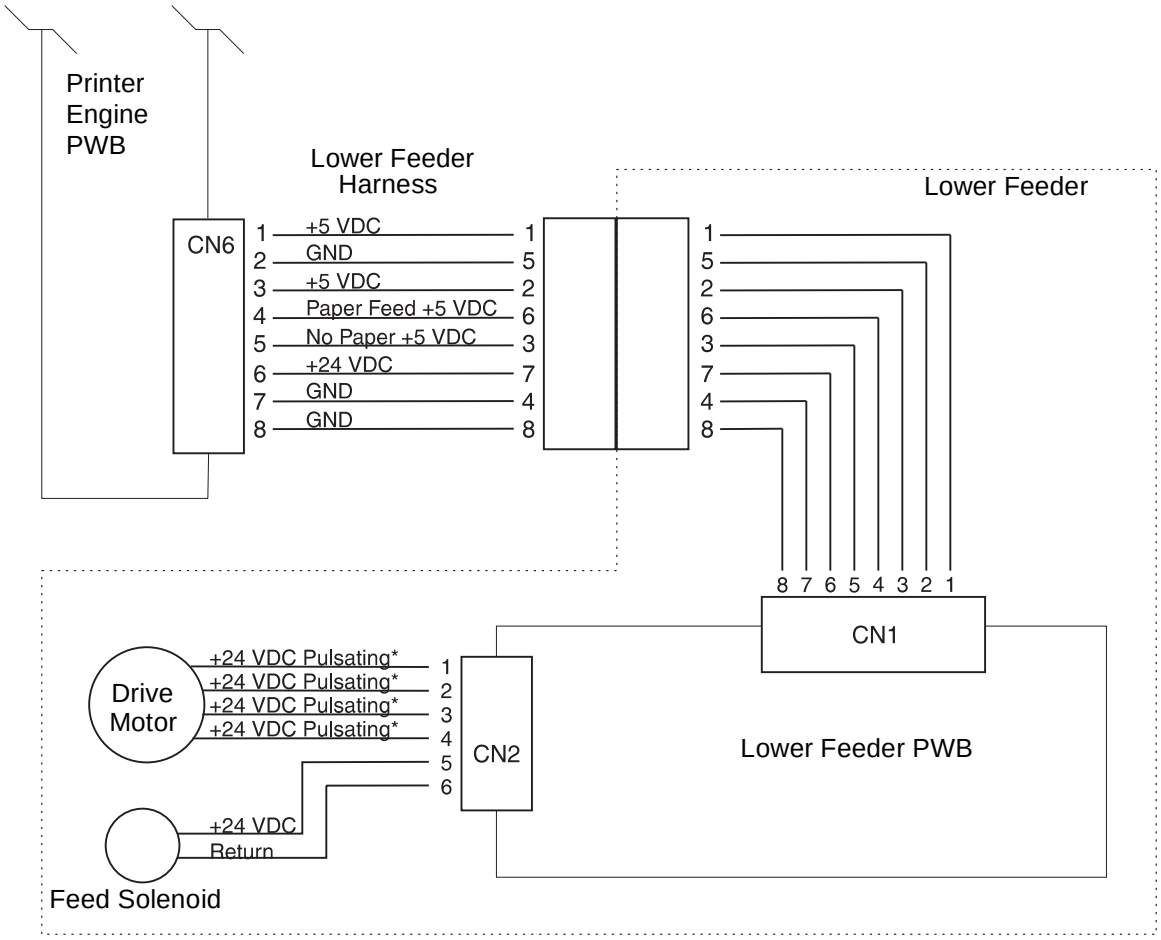
6.2.3.1 Engine PWB



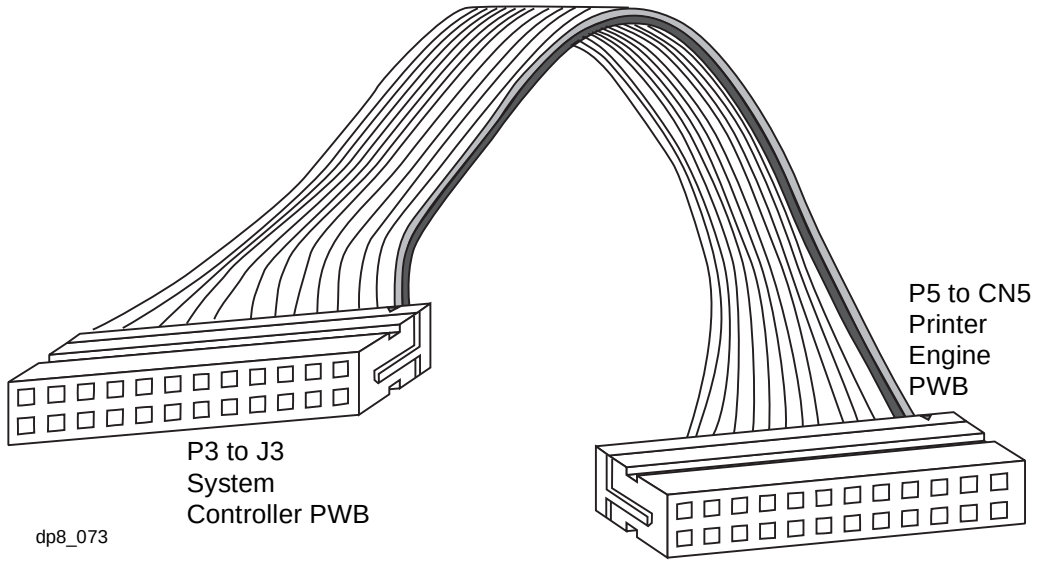
6.2.4 Lower Feeder



* Meter will read approxmately +11.3 VDC

6.3 Wiring Harnesses

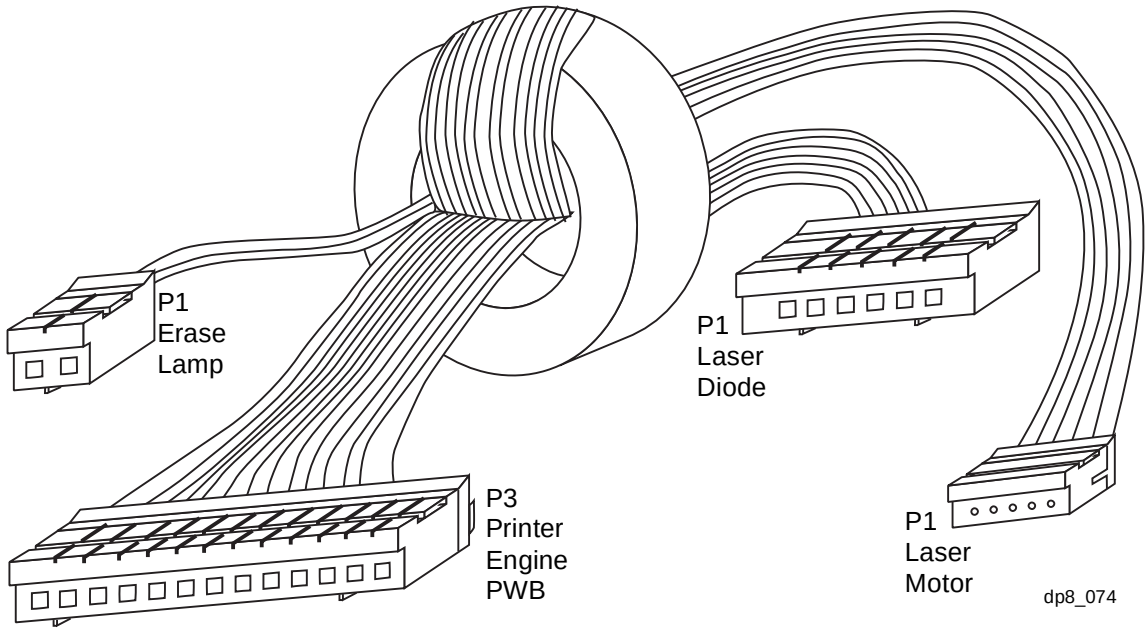
6.3.1 Interface Harness



P3/J3 Pin Number	CN5 Pin Numbers	Signal Name
1	23	/CSBY
2	24	/EBSY
3	21	/EXITPAPP
4	22	/EMSG
5	19	/PRINT
6	20	/CCLK
7	18	/NC
8	17	/VDATA
9	15	//RADY
10	16	/PSYNC
11	13	NC
12	14	/HSYNC

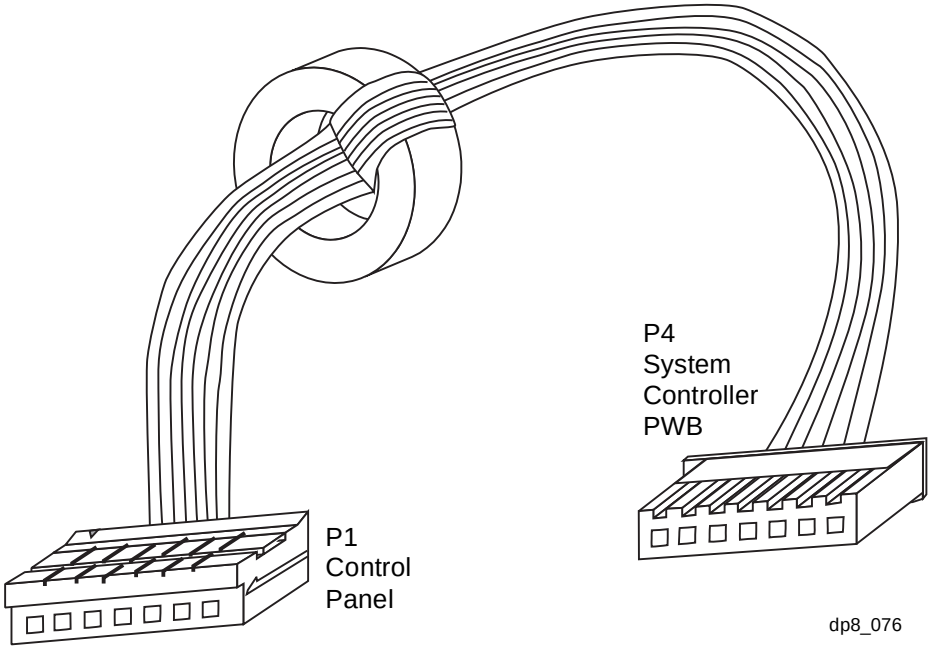
P3/J3 Pin Number	P5/CN5 Pin Numbers	Signal Name
13	11	/CMSG
14	12	+5.0 VDC
15	9	+5.0 VDC
16	10	+5.0 VDC
17	7	+5.0 VDC
18	8	GND
19	5	GND
20	6	GND
21	3	GND
22	4	GND
23	1	/DCU CLOCK
24	2	/DCU DATA

6.3.2 Laser Harness



P3/CN3 Pin Number		Signal Name
1	P1/CN1 Laser Diode Pin 1	DGND
2	P1/CN1 Laser Diode Pin 2	VDO
3	P1/CN1 Laser Diode Pin 3	LDON
4	P1/CN1 Laser Diode Pin 4	DGND
5	P1/CN1 Laser Diode Pin 5	+5.0 VDC
6	P1/CN1 Laser Diode Pin 6	HSYNC
7	P1/CN1 Laser Motor Pin 5	NC
8	P1/CN1 Laser Motor Pin 4	LREADY
9	P1/CN1 Laser Motor Pin 3	PMOTOR
10	P1/CN1 Laser Motor Pin 2	AGND
11	P1/CN1 Laser Motor Pin 1	+24.0 VDC
12	P1/CN1 Erase Lamp Pin 2	+5.0 VDC
13	P1/CN1 Erase Lamp Pin 1	ERASE LAMP

6.3.3 Control Panel Harness



P4 to J4 Pin Number	P1 to J1 Pin Numbers	Signal Name
1	1	+5.0 VDC
2	2	GND
3	3	READY LED
4	4	PAPER LED
5	5	MANUAL LED
6	6	ERROR LED
7	7	FRONT PANEL KEY

6.3.4 Motor Harness

P1 Pin Number	Signal Name
1	+24.0 VDC
2	+24.0 VDC
3	MOTOR A
4	MOTOR B
5	MOTOR A/
6	MOTOR B/

6.3.5 DCU Connector

J6 Pin Number	Signal Name
1	+5.0 VDC
2	/DCU DATA
3	/DCU CLOCK
4	GND

6.3.6 Thermistor

P4 Pin Number	Signal Name
1	THERMISTOR
2	THERMISTOR

6.3.7 Heat Rod

P102 Pin Number	Signal Name
1	LAMP
2	LAMP

6.3.8 AC Input

CN101 Pin Number	Signal Name
1	AC IN (LINE)
3	AC IN (NEUTRAL)

6.3.9 Lower Feeder Harness

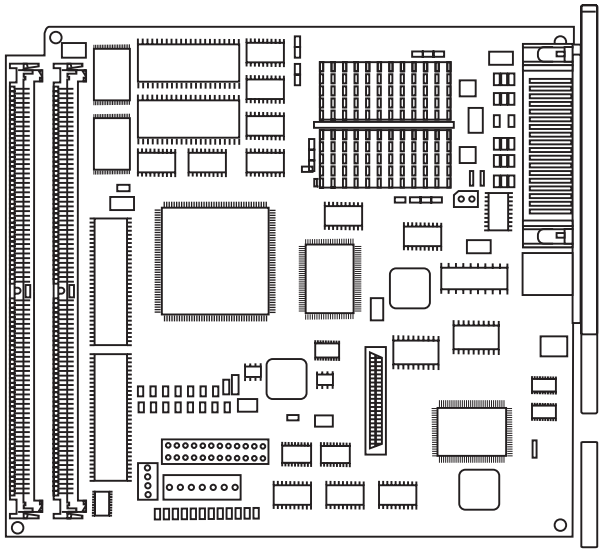
CN6 Pin Number	Lower Feeder Harness Connectors	CN1 Pin Numbers Lower Feeder PWB
1 - Red	1	1 - Red
2 - Orange	5	2 - Orange
3 - Yellow	2	3 - Yellow
4 - Green	6	4 - Green
5 - Blue	3	5 - Blue
6 - Purple	7	6 - Purple
7 - White	4	7 - White
8 - Black	8	8 - Black

6.3.10 Serial Port

Serial Port Pin Number	Purpose
1	Request to Send (RTS)
2	Transmit Data (TXD)
3	Receive Data (RXD)
4	Date Set Ready (DSR)
5	Ground (GND)
6	Data Terminal Ready 1 (DTR1)
7	Not Connected (NC)
8	Data Terminal Ready 1 (DTR1)
9	Not Connected (NC)

6.4 PWB Layout

6.4.1 System Controller PWB



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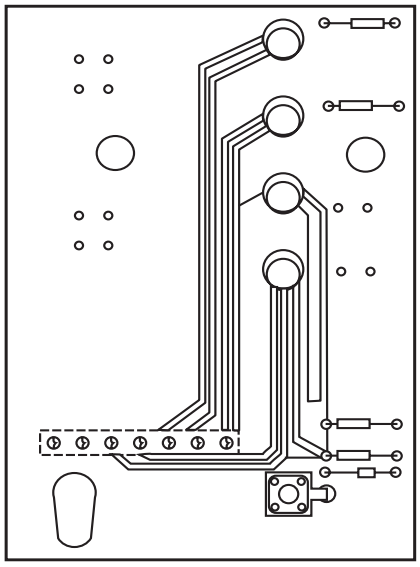
6.4.2 Control Panel PWB



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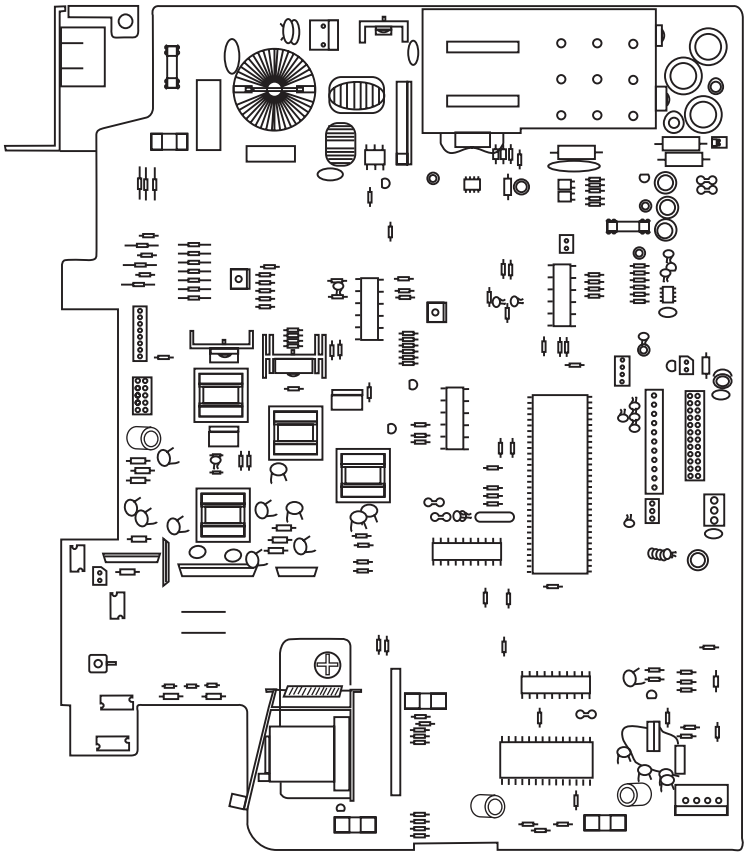
6.4.3 Engine PWB



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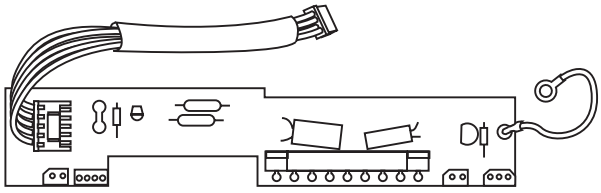
6.4.4 Motor Drive PWB



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Section 7

Repair Analysis Procedures

RAP 7.1 Using RAPs

In each of the following repair analysis procedures you are instructed to perform certain actions and make observations. The instruction is followed by a statement. If your response to the statement is yes, perform the action following the “Y”. If your response to the question is no, perform the action following the “N.”

In addition, keep the following points in mind while performing any RAP:

1 RAPs use the following notation when referring to printer connections:

- P/J XX – indicates Plug/Jack XX is connected to a component.
- CN XX – indicates connector XX is connected to a component.
- P XX – refers to the plug of P/J XX (except for connectors soldered directly to the board).
- J XX – refers to the jack of P/J XX (except for connectors soldered directly to the board).

CAUTION! Use an Electrostatic Discharge Kit (ESD) when handling sensitive electrical components.

2 When you take a voltage reading at a P/J location, the notation “P/J3-5 and P/J 2-6” indicates that you should place the red probe (+) of the voltmeter on pin 5 of P/J 3, and place the black probe (-) of the voltmeter on pin 6 of P/J 2. In most cases the second P/J pin in the notation is a Return (RTN), Frame Ground (FG), or Signal Ground (SG).

3 When a RAP tells you to take a voltage reading between P/J X and P/J Y, with no pin numbers given, refer to the Wiring and Connection Diagrams in Section 6 and take readings on ALL pins.

4 Unless otherwise instructed by a RAP, take all voltage readings with the Print Cartridge/Front Cover Interlock cheated, AC power applied, and the printer power switched on.

5 Voltage values stated in RAPs are approximate. Actual voltages you get may differ slightly. A small difference in voltage is acceptable.

6 Refer to the appropriate Repair Procedures if you must remove, replace or reinstall a component.

7 The term *replace* means the named part or parts could be the cause of the initial problem. Example: the phrase “replace the Fuser Assembly” means to remove the current Fuser Assembly and replace with a new Fuser Assembly.

Image Quality Problems

Use A4 or letter-size paper when troubleshooting an image quality problem. Use the local Test Print Mode to determine whether an image quality problem is being caused by the printer or by the PC. If the test prints are normal, but in the online mode the prints have a image quality problem, the problem may be in the Controller PWB, Interface Cable, or with the Host Computer.

RAP 7.2 Entry Level RAP

If the Status Monitor is displaying a fault message, or there is an obvious failure or fault, go immediately to the appropriate Repair Procedure or Repair Analysis Procedure. If you are not sure where to begin, continue troubleshooting using the following steps. If the printer exhibits intermittent operation and/or inconsistent failure symptoms, the problem may be due to electrical noise.

1 Perform the following:

— Ensure the customer has the RCP Paper Feed selection in the Page Tab set for 1st Cassette.

— Disconnect the AC power

— Check the printer paper path for jammed paper or other obstacles

— Ensure that the paper tray has a good supply of fresh paper and is fully inserted in the printer

— Ensure the Printer Cartridge is properly installed

— Ensure that all covers are properly closed.

2 Connect the AC power. The Main Drive Motor runs.

Y **N**
| Go to RAP 7.3.

3 The Ready LED illuminates and all other LEDs are off.

Y **N**
| Go to RAP 7.4.

4 The Main Drive Motor stops (dependant upon PCU version, motor can run for up to 60 seconds).

Y **N**
| Replace the Engine PWB (PL 7).

5 Wait for approximately 60 seconds. The Ready LED remains illuminated and all other LEDs remain off.

Y **N**
| Go to RAP 7.7.

6 Press and hold the Front Panel Key until all four LEDs flash.

Y **N**
| Replace in order: System Controller PWB (PL 5), Control Panel PWB (PL 1).

7 Release the Front Panel Key. All LEDs go out and the Ready LED flashes.

Y **N**
| Replace in order: System Controller PWB (PL 7), Control Panel PWB (PL 1).

NOTE: If during steps 8 through 14, all four LEDs begin to flash, go to RAP 7.7.

8 Paper is fed from the main Paper Tray.

Y **N**
| Go to RAP 7.5.

9 The Error LED and Paper LED remain off.

Y **N**
| Go to RAP 7.6.

10 Three sheets of paper (Status Report, Font List 1, and Font List 2) are delivered to the output

tray.

Y **N**
| Remove the Main Cover and verify the operation of the Exit Roll Assembly and drive gears. Repair or replace as necessary.

11 All printed pages are undamaged (no wrinkles, folded corners, rips, etc.).

Y **N**
| Check the paper path for obstructions, damaged or out of place components, gears, or rollers.

12 The print quality is acceptable.

Y **N**
| Perform procedure 5.2.5 (Print Cartridge Cleaning Procedure), then go to RAP 7.8.

13 Insert a sheet of paper in the manual feed slot. The paper is fed in approximately 1/4 inch and stops.

Y **N**
| Clean and inspect the Pick-up Roll assembly, replace if necessary (PL 3). Ensure that the slot in the paper feed actuator is clean.

14 The Manual LED is illuminated.

Y **N**
| Replace the System Controller PWB (PL 7).

15 Press and hold the Front Panel Key until all four LEDs flash. Release the key. The manually fed page is printed correctly.

Y **N**
| Replace the Engine PWB (PL 7).

16 Ask the customer to enter the Remote Control Panel (RCP), select the Test Menu, and print a Demo List. The Demo List prints successfully.

Y **N**
| Go to RAP 7.9.

17 Ask the customer to print a document from an application program. The document prints successfully.

Y **N**
| Have the customer validate the application and printer setup.

18 Ask the customer to change a printer parameter using the Remote Control Panel. Print a configuration list. The selected parameter is changed on the status report.

Y **N**
| Replace the System Controller PWB (PL 7).

19 The customer has indicated a problem with the memory SIMM.

Y **N**
| Go to step 22.

20 Go to RAP 7.10.

21 This is a P1202 printer and a lower feeder is installed.

Y **N**
| Go to step 24.

22 Request the customer to set the RCP Page Tab to 2nd Cassette. Press and hold the Front Panel Key until all four LEDs flash. Release the Front Panel Key. Paper is fed from the lower Paper Tray.

Y **N**
| Go to RAP 7.11.

23 The printer appears to be functioning properly. If the customer reported a Status Monitor Fault / Message that has not been corrected, see Table 7.2. Status Monitor Fault / Message Table.

Table 7.2. Status Monitor Fault / Message Table.

Status Monitor Message	Corrective Action
On Line	Normal Operation, no action required.
Off line	Press the Front Panel Key to go Online. The Ready LED is illuminated.
Warming Up	Normal Operation, fuser is warming to operating temperature.
Paper Tray Open or Empty	Place paper in the paper tray. Ensure that the paper tray is fully inserted into the printer. Verify that the paper empty actuator moves freely. Replace the Engine PWB (PL 5).
Cover Open or Missing Printer Cartridge	Verify that the Printer Cartridge is properly installed. Verify that the Front Cover is properly closed. Verify that the printer cartridge/front cover interlock actuator moves freely. Replace the Engine PWB (PL 5).
Paper Jam 0	Go to RAP 7.6.
Paper Jam 1	Go to RAP 7.6.
Paper Jam 2	Go to RAP 7.6.
Scanner Error (LASER)	Replace the LASER Assembly (PL 4).
Fuser Error	Replace the Fuser Heat Rod (PL 5). Replace the Fuser Assembly (PL 5). Replace Print Engine PWB (PL 7).
Input/Output (I/O) Error	Inspect printer cable for damage and for proper connection, replace if necessary. Cable supports bi-directional operation. Verify settings of host computer match printer settings. Replace the System Controller PWB (PL 7).
Memory Full	Print job too large for printer memory. Add additional memory to printer or reduce the page complexity.
Band Error	Print job too large for printer memory. Add additional memory to printer or reduce the page complexity.
Port Not Available	Communications problem, go to RAP 7.9.
Unknown Status	Using the DCU, verify the Laser and Fuser operation, replace if necessary (PL 4) or (PL 5).

RAP 7.3 Main Drive Motor

1 The Error LED on the Control Panel is illuminated.

Y **N**
| Go to step 5.

2 Disconnect the AC power. Connect the DCU and reconnect the AC power. The DCU displays the error code 64.

Y **N**
| Replace in order: System Controller PWB (PL 7), Control Panel (PL 1).

3 Using the DCU, enter the diagnostic mode and run diagnostic code 09. Test the Printer Cartridge/Front Cover Interlock Sensor. The sensor functions normally.

Y **N**
| Verify the operation of the Printer Cartridge/Front Cover Interlock Sensor Actuator. If functioning normally, replace the Engine PWB (PL 7).

4 Replace the System Controller PWB (PL 7).

5 Remove the Main Drive Motor Assembly. The Main Drive Motor Assembly Harness is properly connected to the Engine PWB.

Y **N**
| Properly reconnect the harness, repair, or replace as necessary (PL 6).

6 With the Main Drive Motor Assembly Harness properly connected lay the Main Drive Motor Assembly on the table next to the printer. Cheat the Front Cover Interlock. Reconnect the AC power. The Main Drive Motor Assembly runs normally.

Y **N**
| Go to step 10.

7 Disconnect the AC power. Rotate the Pick-Up Assembly gears. The gears rotate freely.

Y **N**
| Check the gears for obstructions. Repair or replace the Pick-Up Assembly as necessary (PL 8).

8 Rotate the Fuser Drive Gears. The Fuser Drive and Exit Drive Gears rotate freely.

Y **N**
| Check the gears for obstructions. Repair or replace the Fuser Assembly or Exit Drive Assembly as necessary (PL 5) or (PL 4).

9 Replace the Printer Cartridge (PL 4). If problem persists, replace the Main Drive Motor (PL 6).

10 With AC power applied, Printer Cartridge/Front Cover Interlock closed, and the Main Drive Motor not running, measure the voltage on the Main Drive Motor harness connector CN1. The voltage between pin 1 and frame ground and between pin 2 and frame ground is +24.0 +/- 2.0 VDC on both pins.

Y **N**
| Replace the Engine PWB (PL 7).

11 With AC power applied and the Main Drive Motor not running, measure the voltage between pins 3, 4, 5, & 6 and frame ground. The voltage is +24.0 +/- 2.0 VDC on all pins.

Y **N**
| Replace the Main Drive Motor Assembly (PL 6).

12 Disconnect the AC power. Reconnect the AC power and measure the voltages in Table 7.3. The voltages must be measured during the first 9 seconds after AC power is applied, with the Main Drive Motor running. All the voltages in column 5 (interlock closed 1 to 9 seconds) are correct.

Y **N**

| Replace the Engine PWB (PL 7).

13 Replace the Main Drive Motor Assembly (PL 6).

Table 7.3. Main Drive Motor Voltages

Measure Voltage from CN1 Pin	To	Interlock Open	Interlock Closed (after 10 Seconds)	Interlock Closed (1 to 9 Seconds)
3	Frame Ground	24.4 +/- 2.0 VDC	23.8 +/- 0.5 VDC	21.8 +/- 1.0 VDC
4	Frame Ground	24.4 +/- 2.0 VDC	23.8 +/- 0.5 VDC	21.8 +/- 1.0 VDC
5	Frame Ground	24.4 +/- 2.0 VDC	23.8 +/- 0.5 VDC	21.8 +/- 1.0 VDC
6	Frame Ground	24.4 +/- 2.0 VDC	23.8 +/- 0.5 VDC	21.8 +/- 1.0 VDC

RAP 7.4 Control Panel

1 Reconnect the AC power. After 10 seconds, all the LEDs are off.

Y **N**
| Go to step 8.

2 Remove the Control Panel Harness Cover and measure the voltage from J1 pin 1 to pin 2. The voltage is +5.0 +/- 0.5 VDC.

Y **N**
| Go to step 4.

3 Reseat the Control Panel Harness at J1 on the Control Panel and on J4 on the System Controller PWB. If the problem persists, replace in the following order: System Controller PWB (PL 5), Control Panel PWB (PL 7).

4 Measure the voltage on the System Controller PWB between J4 pin 1 and frame ground. The voltage is +5.0 +/- 0.5 VDC.

Y **N**
| Go to step 6.

5 Repair or replace the Control Panel Harness (PL 7).

6 Measure the voltage on the System Controller PWB between J4 pin 14 and frame ground. The voltage is +5.0 +/- 0.5 VDC.

Y **N**
| Verify the System Controller PWB to Engine PWB Harness. If harness is OK, replace the Engine PWB (PL 7).

7 Replace the System Controller PWB (PL 7).

8 Use Table 7.4 to isolate the problem.

Table 7.4. Control Panel LEDs.

Control Panel LEDs	Possible Cause	Solution
All four LEDs blink.	Defective Laser Defective Fuser	Go to RAP 7.7.
Error LED only is illuminated.	No Printer Cartridge Open Front Cover Defective Front Cover Actuator Engine PWB	Properly reinstall or replace Printer Cartridge. Close Front Cover. Verify / replace Front Cover Actuator. Replace the Engine PWB (PL 5).
Flashing Paper LED.	No paper Low Paper Sensor Actuator Engine PWB	Add paper or properly adjust paper in tray. Verify / replace Low Paper Actuator. Replace the Engine PWB (PL 5).
Error and Paper LEDs are illuminated	Paper Jam 0, 1, or 2	Go to RAP 7.6.
Manual LED is illuminated.	Paper Feed/Registration Sensor Actuator Engine PWB (PL 5)	Verify Paper Feed/Registration Sensor Actuator. Replace the Engine PWB (PL 5).

RAP 7.5 Paper Feed

1 Reconnect the AC power. After ten seconds, remove the paper tray. Manually actuate and hold the Paper Empty Sensor Actuator. Press and hold the Online/Off-line Button until all four LEDs blink. Release the button. Observe the Paper Feed Solenoid. The solenoid energizes.

Y	N
|	Replace the Engine PWB (PL 7).

2 Observe the Pick-Up Assembly. The Pick-Up Assembly rotates.

Y	N
|	Replace the Pick-Up Assembly (PL 8).

3 Clean or replace as necessary: the Pick-Up Roll (PL 8), the Pick-Up Roll Assembly (PL 8).

RAP 7.6 Paper Jam

1 Visually inspect the paper for folded corners, lead edge damage, rips, or tears. The paper is free of damage.

Y **N**
| Check paper path for obstructions, components out of place, damp or improperly installed paper.

2 Check paper path for obstructions. Check BTR Roller for binding and for proper operation. Check for defective Printer Cartridge. All items check OK.

Y **N**
| Repair or replace as necessary.

3 Disconnect the AC power. Connect the DCU and reconnect the AC power. Run a test print. The DCU indicates a jam. Use Table 7.6 to isolate the problem.

Table 7.6. Paper Jams.

Indication	Possible Cause	Solution
Paper Jam 0.	Paper Feed / Registration Sensor or Sensor Actuator	Use DCU test 08 to verify sensor. If OK replace the Engine PWB (PL 7).
Paper Jam 01	Paper Feed / Registration Sensor or Sensor Actuator	Use DCU test 08 to verify sensor. If OK replace the Engine PWB (PL 7).
	Fuser Assembly	Verify Fuser Assembly is operational. Remove or replace as necessary (PL 5). Inspect Exit Sensor Actuator. Repair of replace as necessary (PL 5). Using DCU test 08, verify Fuser Exit Sensor is operational. If OK, replace the Engine PWB (PL 7)
Paper Jam 02	Exit Drive Assembly	Inspect Exit Assembly. Repair or replace as necessary (PL 4).
	Fuser Assembly	Verify Fuser Assembly is operational. Remove or replace as necessary (PL 5). Inspect Exit Sensor Actuator. Repair of replace as necessary (PL 5). Using DCU test 08, verify Fuser Exit Sensor is operational. If OK, replace the Engine PWB (PL 7).

RAP 7.7 Printer Problem

A printer problem is indicated by all three LEDs flashing. If the customer has Status Monitor running, an Unknown Status, Laser Error, or Fuser Error indication will be displayed.

1 Switch the AC power off, then on. Wait for 60 seconds. All three LEDs are flashing.

Y **N**
| Return to the Entry Level RAP and continue.

2 Switch the AC power off. Connect the DCU and switch the AC power on. After 60 seconds compare the code displayed on the DCU with Table 7.7.

Table 7.7. DCU Codes.

DCU Code	Status	Solution
00	Ready (Legal Paper)	Normal Operation, no action required.
01	Ready (Letter Paper)	Normal Operation, no action required.
02	Ready (A4 Paper)	Normal Operation, no action required.
03	Ready (Executive)	Normal Operation, no action required
04	Reday (B5)	Normal Operation, no action required
05	Ready (Folio)	Normal Operation, no action required
60	Open Fuser Error	Go to step 3.
61	Warm Up	Normal Operation, No action required.
62	Low Heat Error	Go to step 3.
68	Over Heat Error	Go to step 3.
95	Laser Ready Error	Go to step 6.

3 Switch the AC power off. Remove the Left Side Cover REP 4.1.5 and the Fuser Wire Cap. Remove one of the screws that secure the AC wire to the Fuser Assembly. Measure the resistance between the two AC terminals on the Fuser. The resistance is less than 5 ohms.

Y **N**
| Replace the Fuser Lamp (REP 4.4.3) (PL 5).

4 Disconnect CN1 (Fuser Thermister) from the Engine PWB. Measure the resistance between pins 1 and 2 on the disconnected plug. The resistance is between 4K ohms and 200K ohms.

Y **N**
| Replace the Thermister (PL 5).

5 Replace the Engine PWB (PL 7).

6 Disconnect the AC power. Remove the Laser Assembly and verify proper connection of both Laser harness connectors. Both connectors are properly connected and the harnesses are undamaged.

Y **N**
| Properly connect, repair, or replace as necessary (PL 2).

7 Replace in order: Laser Assembly (PL 4), Engine PWB (PL 7).

RAP 7.8 Image Quality Problems

This section contains image quality repair procedures to assist in correcting image quality defects. These procedures provide definitions, causes and solutions.Throughout these procedures, the term “vertical” refers to the process direction (the direction paper travels through the printer); the term “horizontal” refers to the scanning direction (the direction the laser beam scans across the page).

7.8.1 Image Quality Defect Definitions, Causes and Solution

Defect Definitions	Possible Causes	Solutions
NON-UNIFORM IMAGE QUALITY: The line darkness and solid area density image vary across the print.	1. Print Cartridge. 2. Print Cartridge ground. 3. Unstable high voltage output. 4. BTR contamination. 5. LSU Laser window contamination.	1. Inspect drum for deterioration or contamination. If defective, replace the Print Cartridge. 2. Verify Print Cartridge ground. Check continuity between cartridge contact and the Controller PWB metal cover. Ensure that the drum contact is clean and undamaged. 3. Verify that all high voltage outputs are to specification (refer to section 5, DCU operation). 4. Inspect Transfer Roller spring tension and bearings. Remove the Transfer Roller and clean (dust off). Replace Transfer Roller if necessary (PL 2). 5. Remove the LSU (Laser) Assembly, clean or replace as necessary (PL 4).
BLACK PRINTS: the print is completely covered with toner and has no visible image.	1. Controller PWB. 2. Incorrect charge voltage. 3. Print Cartridge. 4. Engine PWB. 5. Laser on all the time.	1. Using the DCU, print a DCU test print. If the test print is OK, replace the Controller PWB. If test print is black, continue. 2. Verify charge voltage output. Charge voltage equals - 1.3 KVDC +/- 100 VDC. If not replace the HVPS PWB. 3. Replace Print Cartridge (PL 4). 4. Replace Engine PWB (PL 7). 5. Replace LSU (LASER) Assembly (PL 4).
HORIZONTAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These missing areas form wide bands that run horizontally across the page in the direction of scanning.	1. Controller PWB. 2. Print Cartridge grounding problem. 3. Print Cartridge. 4. Transfer Roller. 5. Laser Assembly 6. Engine PWB. 7. Fuser Assembly.	1. Using the DCU, print a DCU test print. If the test print is OK, replace the Controller PWB (PL 7). 2. Verify Print Cartridge ground. Check continuity between cartridge contact and the Controller PWB metal cover. Ensure that the drum contact is clean and undamaged. 3. If deletion repeats every: 94.3 mm (3.8in) - Drum defect 37.7 mm (1.5in) - Charge Roll 40.0 mm (1.2in) - Supply Roll 46.1 mm (1.8in) - Developer Roll Replace the Print Cartridge (PL 4). 4. If deletion repeats every 47.1 mm (1.9 in.), replace the Transfer Roller (PL 2). 5. Replace Laser Assembly (PL 4). 6. Replace Engine PWB (PL 7). 7. If deletion repeats every 56.1 mm (2.2 in) Heat Roll or 56.2 mm (2.2in) Pressure Roll, replace the Fuser Assembly (PL 5)

Defect Definitions	Possible Causes	Solutions
VERTICAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These missing areas form wide bands that run vertically along the page in the direction of paper movement.	1. Print Cartridge. 2. Laser Assembly. 3. Fuser Assembly. 4. Transfer Roller.	1. Replace the Print Cartridge (PL 4). 2. Inspect the LSU (LASER) beam path for contamination. Clean as necessary. 3. Inspect fuser rolls for damage and replace as necessary. 4. Inspect Transfer Roller spring tension and bearings. Remove the Transfer Roller and clean (dust off). Replace Transfer Roller if necessary (PL 2).
SPOT DELETIONS: Solid areas are marked with irregular white areas.	1. Print Cartridge. 2. Transfer Roller. 3. Damp Paper.	1. Deletions repeat every 94.3 mm (3.7 in.). Replace Print Cartridge. 2. Remove the Transfer Roller and clean (dust off). If deletion repeats every 47.1 mm (1.9 in.), replace the Transfer Roller (PL 2). 3. Replace paper.
LIGHT PRINTS:	1. Remote Control Panel (RCP) settings. 2. Print Cartridge not installed correctly. 3. Incorrect high voltage output. 4. Low toner in cartridge.	1. Verify the RCP print quality settings. 2. Re-install the Print Cartridge. 3. Verify that all high voltage outputs are to specification (refer to section 5, DCU operation). 4. Remove the Print Cartridge and shake to redistribute toner. Replace Print Cartridge if necessary (PL 4).
BLANK PRINTS: Prints with no visible image.	1. Seal tape not removed from Print Cartridge. 2. Defective ground on Print Cartridge. 3. Controller PWB. 4. Incorrect high voltage output. 5. Defective LASER. 6. Transfer Roller pressure 7. Paper	1. Inspect cartridge for removal of seal tape. 2. Verify Print Cartridge ground. Check continuity between cartridge contact and the Controller PWB metal cover. Ensure that the Print Cartridge ground contact is clean and undamaged. 3. Using the DCU, print a DCU test print. If the test print is OK, replace the Controller PWB. 4. Verify that all high voltage outputs are to specification (refer to section 5, DCU operation). 5. Using the DCU, verify the Laser operation. Replace the LSU (LASER) Assembly (PL 4) if necessary. 6. Inspect Transfer Roller spring tension and bearings. Remove the Transfer Roller and clean (dust off). Replace Transfer Roller if necessary (PL 2). 7. Install fresh paper in the Multipurpose Feeder.
EXTRANEOUS MARKS: Horizontal or vertical bands, or other marks that are print defects caused by bad or incorrect font data, print drivers, electrical noise or other causes not directly related to the electrophotographic process.	1. Defective font download. 2. Loose / defective cables, cables out of specification (too long, etc.). 3. Electromagnetic interference. 4. Controller PWB. 5. Engine PWB.	1. Customer may have recently changed/modified host software or drivers. Reconfigure if necessary. 2. Inspect cable connections for proper installation and for damage. Parallel cable must be a good quality and comply with the IEEE 1284 bi-directional specification. 3. Relocate printer to another location or to another power outlet. 4. Replace the Controller PWB (PL 7). 5. Replace the Engine PWB (PL 7).

Defect Definitions	Possible Causes	Solutions
CHARACTER DEFECTS: Garbled print, missing, repeating, or scrambled characters are problems relating to font data or character generation. These are print defects not related to the electrophotographic process.	1. Defective font download. 2. Loose / defective cables, cables out of specification (too long, etc.). 3. Electromagnetic interference. 4. Defective SIMM. 5. Controller PWB. 6. Engine PWB.	1. Customer may have recently changed/modified host software or drivers. Reconfigure if necessary. 2. Inspect cable connections for proper installation and for damage. Parallel cable must be a good quality and comply with the IEEE 1284 bi-directional specification. 3. Relocate printer to another location or to another power outlet. 4. Replace the SIMM (PL 7). 5. Replace the Controller PWB (PL 7). 6. Replace the Engine PWB (PL 7).
SPOTS: There are spots of toner on the page.	1. Paper. 2. Paper path contaminated. 3. Print Cartridge 4. Fuser Assembly. 5. Transfer Roller.	1. Replace paper from a fresh unopened ream. 2. Clean paper path. 3. Replace Print Cartridge (PL 4). 4. Inspect/clean/replace Fuser Assembly as necessary (PL 5). 5. If spot repeats every 47.1 mm (1.9 in.), replace the Transfer Roller (PL 2).
UNFUSED IMAGE: part of or all of the image is unfused.	1. Damp paper. 2. Paper quality. 3. Light image density 4. Fuser Assembly. 5. Engine PWB.	1. Replace paper from a fresh unopened ream. 2. Be sure that the paper is not extremely rough, heavily textured, or of a high rag content. 3. Check Remote Control Panel print quality settings. 4. Inspect/clean/replace Fuser Assembly as necessary (PL 5). 5. Replace the Engine PWB (PL 7).
STREAKS: Extraneous dark lines/bands in or across the process direction. These are Engine defects not related to the Controller PWB or Host Data.	1. Print Cartridge. 2. Fuser Assembly. 3. Transfer Roller. 4. Contaminated paper path.	1. Inspect drum surface for scratches or bands. If defective, replace the Print Cartridge (PL 4). 2. Inspect fuser rollers for scratches or contamination. If defective, replace the Fuser Assembly (PL 5). 3. Inspect Transfer Roller. If defective, replace the Transfer Roller (PL 2). 4. Clean the paper path.
RESIDUAL IMAGES: The image from a previous print, which was not removed during the cleaning process, has been developed on the current print.	1. Print Cartridge. 2. Fuser Assembly. 3. Erase Lamps. 4. High Voltage Contacts	1. Replace Printer cartage (PL 4). 2. Inspect/clean/replace Fuser Assembly as necessary (PL 5). 3. Remove the Print Cartridge, attach the DCU and perform diagnostic test 04. Verify operation of the Erase Lamps. Replace as necessary. 4. Verify that all high voltage outputs are to specification (refer to section 5, DCU operation). Clean all high voltage contacts.
BACKGROUND: Uniform toner contamination in non image areas.	1. Print Density. 2. High voltage output. 3. Print Cartridge.	1. Verify print quality setting in the Remote Control Panel. 2. Verify that all high voltage outputs are to specification (refer to section 5, DCU operation). Clean all high voltage contacts. 3. Replace the Print Cartridge (PL 4).

Defect Definitions	Possible Causes	Solutions
DAMAGED PRINTS: Creases, wrinkles, excessive curl, cuts, folds or embossed marks.	1. Paper 2. Paper source and transportation. 3. Fuser Assembl.y 4. Print Cartridge.	1. Properly install fresh paper into the Multipurpose Paper Feeder. 2. Inspect paper transportation system for proper operation. Replace worn parts. 3. Inspect/clean/replace Fuser Assembly as necessary (PL 5). 4. Replace Print Cartridge (PL 4).
SKIPS / SMEARS: Skips, loss, or stretching of the image in bands across the process direction. Smear-The distortion of the image in bands across the process direction that cause it to appear to be blurred or compressed.	1. Paper transportation. 2. Main Drive Motor Assembly. 3. Fuser Assembly. 4. Print Cartridge	1. Inspect paper transportation system for proper operation. Replace worn parts. 2. Inspect Main Drive Motor Assembly for damaged or worn gears. Replace as necessary. 3. Inspect/clean/replace Fuser Assembly as necessary (PL 5). 4. Replace Print Cartridge (PL 4).
Skewed Image: Angular displacement of the image from its intended position on the print. The printed image is not parallel with the sides of the page.	1. Paper Feed. 2. Paper transportation. 3. Fuser Assembly.	1. Inspect Multipurpose Paper Feeder for damage. Replace parts as necessary. Properly install fresh paper in the paper tray. 2. Inspect paper transportation system for proper operation. Replace worn parts. 3. Inspect/clean/replace Fuser Assembly as necessary (PL 5).

RAP 7.9 Communications RAP

You were directed to this RAP because a problem exists where the customer is unable to communicate to the printer from the host computer.

1 A serial option PWB is installed in the printer.

Y **N**
| Go to step 9.

2 The serial port is being used for printer communications.

Y **N**
| Go to step 9.

3 Print a Status Report. The Status Report indicates that a serial interface is installed.

Y **N**
| Go to step 7.

4 Connect the Anacom G80 or similar interface test box to the serial port and generate a test print. The test print completes successfully.

Y **N**
| Replace the following in order: Serial Option PWB (PL 7), System Controller PWB (PL 7).

5 The Remote Control Panel serial setup parameters match the host computer's setup parameters.

Y **N**
| Have the customer reconfigure the serial interface setup parameters.

6 Disconnect and reconnect the host interface cable from the serial interface port. Inspect for any visual signs of damage to the cable. Replace interface cable if necessary (customer purchased item). Have customer send a print job using another application.

7 Remove and reinstall the serial PWB to ensure that it is properly installed. Print a Configuration Sheet. The configuration sheet indicates that a serial interface is installed.

Y **N**
| Replace the following in order: Serial Option PWB (PL 7), System Controller PWB (PL 7).

8 Return to the Entry Level RAP and continue.

9 Connect the Anacom G80 or similar interface test box to the parallel port and generate a test print. The test print completes successfully.

Y **N**
| Replace the System Controller PWB (PL 7).

10 Disconnect and reconnect the host interface cable from the parallel interface port. Inspect for any visual signs of damage to the cable. Replace interface cable if necessary (customer purchased item). Have customer send a print job using another application.

RAP 7.10 SIMM Check-Out Procedure

1 Remove and reinstall the SIMM. Print a Status Report. The RAM size indicated on the Status Report matches the memory actually installed in the printer.

Y	**N**
|	Go to step 3.

2 Return to the Entry Level RAP and continue.

3 Replace the System Controller PWB (PL 7). Print a configuration sheet. The RAM size indicated on the Status Report matches the memory actually installed in the printer.

Y	**N**
|	Inform the customer that the SIMM appears defective or is not compatible with the printer. A compatible SIMM is a 72 pin, 50ns or faster, no parity.

4 Problem is resolved. Return to the Entry Level RAP and continue.

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