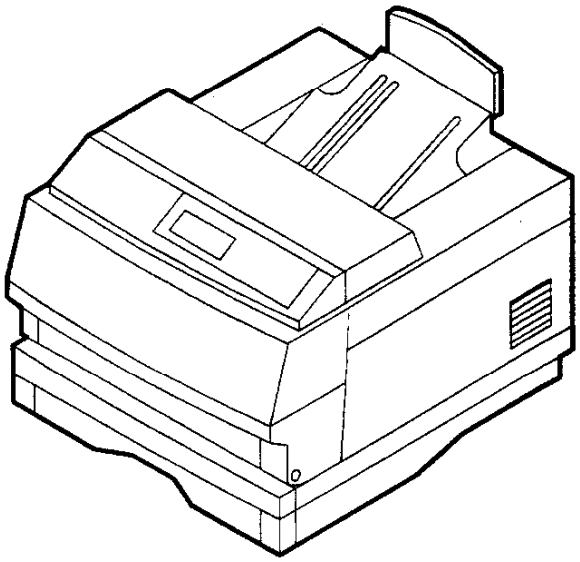
XEROX

Xerox 4505/4510
Service Manual



720P53332

This Service Manual contains information that applies to the Xerox 4505/4510 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.

All service documentation is supplied to Xerox external customers for informational purposes only. Xerox service documentation is intended for use by certified, product trained service personnel only. Xerox does not warrant or represent that such documentation is complete. Nor does Xerox represent or warrant that it will notify or provide to such customer any future changes to this documentation. Customer's service of equipment, or modules, components, or parts of such equipment may void any otherwise applicable Xerox warranties. If Customer services such equipment, modules, components, or parts thereof, Customer releases Xerox from any and all liability for Customer's actions, and Customer agrees to indemnify, defend, and hold Xerox harmless from any third party claims which arise directly or indirectly from such service.

Prepared by:
Curriculum Development Services
Xerox Document University
P.O. Box 2000
Leesburg, VA. 22075

Prepared for:
Office Printing Products Development - West
Customer and Service Support
701 South Aviation Blvd.
El Segundo, California 90245

PostScript is a registered trademark of Adobe Corporation.

Centronics is a trademark of Centronics Data Computer Corporation.

Hewlett-Packard, LaserJet+, LaserJet 500+, LaserJet Series II, DeskJet, 7475A and any other Hewlett-Packard products mentioned in this publication are trademarks of Hewlett-Packard Company.

AppleTalk is a registered trademark of Apple Computer Corporation.

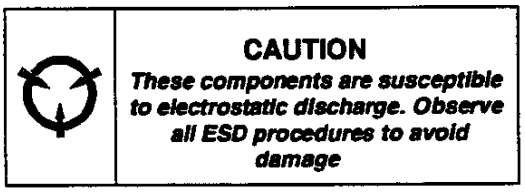
NOVELL is a registered trademark of Novell Inc.

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.

Electrostatic Discharge

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



Shock Hazard

This symbol indicates the presence of potentially hazardous voltages.

asm0-02

CLASS 1 LASER PRODUCT

The Xerox 4505/4505PS/4510/4510PS 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.

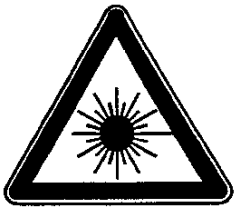
The laser and output of the laser scanner unit produces a beam that, if looked into, could cause eye damage. Service procedures must be followed exactly as written without change.

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.

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.



asm0-03g

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

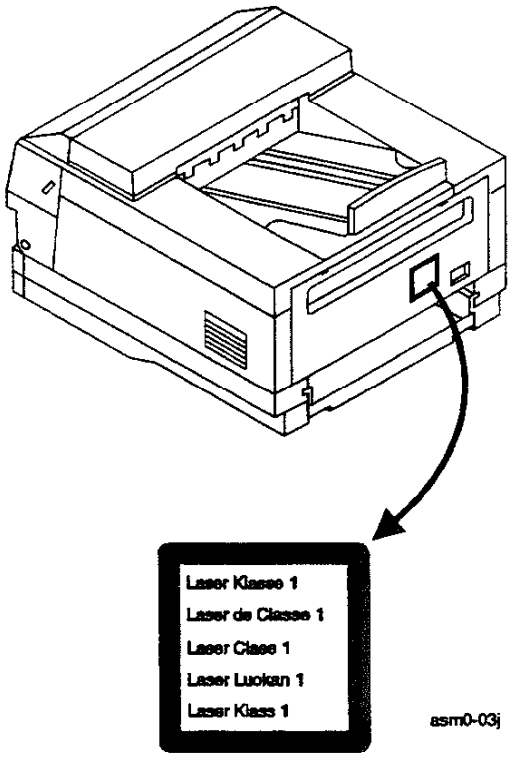
WARNING
Invisible laser radiation when cover open and interlocks defeated. Avoid exposure to beam.

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.

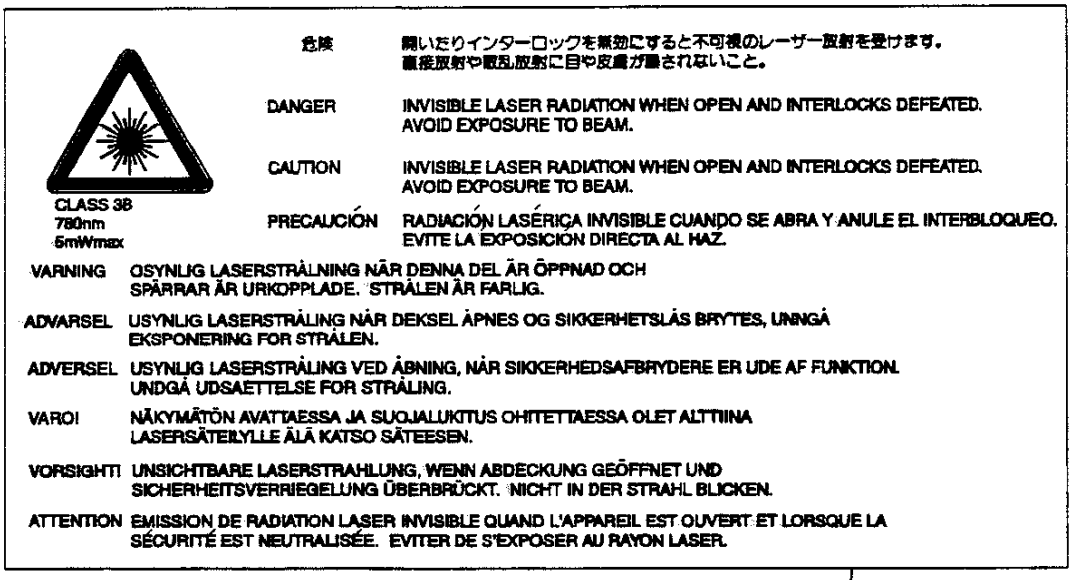
asm0-03f

Each 4505/4510 laser printer has two laser warning labels. One label is located on the Rear Cover as shown below.



asm0-03j

The second label is located on the top of the LASER (ROS) Unit. This label in not visible until the Low Voltage Power Supply is removed. See illustration below for the label location



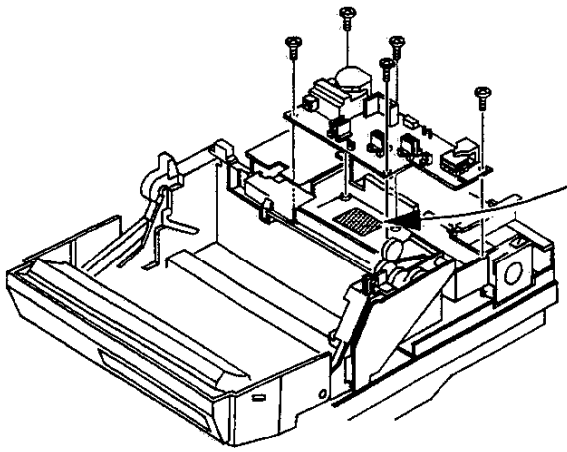


Table of Contents

Introduction

The Xerox 4505/4510 Service Manual is the primary document used for repairing and maintaining the 4505 and 4510 Laser Printers.

This manual contains Service Call Procedures, Diagnostic Procedures, General Information, Repair Analysis Procedures, Copy Quality Analysis Procedures, Wiring Data, and Parts List that will enable the Service Representative to repair 4505 or 4510 failures.

Organization

This manual is divided into seven sections and contains a Machine Service Log at the end of the manual. 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 4505 and 4510 printers.

Section 3 - PARTS LIST

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 and ADJUSTMENT PROCEDURES

This section contains the instructions fro 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 copy quality problems.

Revision Control List

Product	Manual Title	Part Number
4505/4510 Laser Printer	Xerox 4505/4510 Service Manual	720P53332

Page	Date
Title	9/94
ii	9/94
iii	9/94
iv	9/94
v	9/94
vi	9/94
vii	9/94
viii	9/94
1-1	9/94
1-2	9/94
1-3	9/94
1-4	9/94
2-1	9/94
2-2	9/94
2-3	9/94
2-4	9/94
2-5	9/94
2-6	9/94
3-1	9/94
3-2	9/94
3-3	9/94
3-4	9/94
3-5	9/94
3-6	9/94
3-7	9/94
3-8	9/94
3-9	9/94
3-10	9/94
3-11	9/94
3-12	9/94
3-13	9/94
3-14	9/94
3-15	9/94
3-16	9/94
3-17	9/94
3-18	9/94
3-19	9/94
3-20	9/94
4-1	9/94
4-2	9/94
4-3	9/94
4-4	9/94
4-5	9/94

Page	Date
4-6	9/94
4-7	9/94
4-8	9/94
4-9	9/94
4-10	9/94
4-11	9/94
4-12	9/94
4-13	9/94
4-14	9/94
4-15	9/94
4-16	9/94
4-17	9/94
4-18	9/94
4-19	9/94
4-20	9/94
4-21	9/94
4-22	9/94
4-23	9/94
4-24	9/94
4-25	9/94
4-26	9/94
4-27	9/94
4-28	9/94
4-29	9/94
4-30	9/94
4-31	9/94
4-32	9/94
4-33	9/94
4-34	9/94
4-35	9/94
4-36	9/94
4-37	9/94
4-38	9/94
4-39	9/94
4-40	9/94
4-41	9/94
4-42	9/94
4-43	9/94
4-44	9/94
4-45	9/94
4-46	9/94
4-47	9/94
4-48	9/94
4-49	9/94
4-50	9/94
4-51	9/94
4-52	9/94

Page	Date
4-53	9/94
4-54	9/94
4-55	9/94
4-56	9/94
4-57	9/94
4-58	9/94
4-59	9/94
4-60	9/94
5-1	9/94
5-2	9/94
5-3	9/94
5-4	9/94
5-5	9/94
5-6	9/94
5-7	9/94
5-8	9/94
5-9	9/94
5-10	9/94
5-11	9/94
5-12	9/94
5-13	9/94
5-14	9/94
5-15	9/94
5-16	9/94
5-17	9/94
5-18	9/94
5-19	9/94
5-20	9/94
5-21	9/94
5-22	9/94
5-23	9/94
5-24	9/94
5-25	9/94
5-26	9/94
5-27	9/94
5-28	9/94
5-29	9/94
5-30	9/94
5-31	9/94
5-32	9/94
5-33	9/94
5-34	9/94
5-35	9/94
5-36	9/94
5-37	9/94
5-38	9/94

Page	Date
5-39	9/94
5-40	9/94
5-41	9/94
5-42	9/94
5-43	9/94
5-44	9/94
5-45	9/94
5-46	9/94
6-1	9/94
6-2	9/94
6-3	9/94
6-4	9/94
6-5	9/94
6-6	9/94
6-7	9/94
6-8	9/94
6-9	9/94
6-10	9/94
6-11	9/94
6-12	9/94
6-13	9/94
6-14	9/94
6-15	9/94
6-16	9/94
6-17	9/94
6-18	9/94
6-19	9/94
6-20	9/94
6-21	9/94
6-22	9/94
6-23	9/94
6-24	9/94
7-1	9/94
7-2	9/94
7-3	9/94
7-4	9/94
7-5	9/94
7-6	9/94
7-7	9/94
7-8	9/94
7-9	9/94
7-10	9/94
7-11	9/94
7-12	9/94
7-13	9/94

Revision Control List

Product	Manual Title	Part Number
4505/4510 Laser Printer	Xerox 4505/4510 Service Manual	720P53332

Page	Date
7-14	9/94
7-15	9/94
7-16	9/94
7-17	9/94
7-18	9/94
7-19	9/94
7-20	9/94
7-21	9/94
7-22	9/94
7-23	9/94
7-24	9/94
7-25	9/94
7-26	9/94
7-27	9/94
7-28	9/94
7-29	9/94
7-30	9/94
7-31	9/94
7-32	9/94
7-33	9/94
7-34	9/94
7-35	9/94
7-36	9/94
7-37	9/94
7-38	9/94
7-39	9/94
7-40	9/94
7-41	9/94
7-42	9/94
7-43	9/94
7-44	9/94
7-45	9/94
7-46	9/94
7-47	9/94
7-48	9/94
7-49	9/94
7-50	9/94
7-51	9/94
7-52	9/94
7-53	9/94
7-54	9/94
7-55	9/94
7-56	9/94
7-57	9/94
7-58	9/94
7-59	9/94
7-60	9/94

Page	Date
7-61	9/94
7-62	9/94
7-63	9/94
7-64	9/94
7-65	9/94
7-66	9/94
7-67	9/94
7-68	9/94
7-69	9/94
7-70	9/94
7-71	9/94
7-72	9/94
7-73	9/94
7-74	9/94
7-75	9/94
7-76	9/94
7-77	9/94
7-78	9/94
7-79	9/94
7-80	9/94
7-81	9/94
7-82	9/94
7-83	9/94
7-84	9/94
7-85	9/94
7-86	9/94
7-87	9/94
7-88	9/94
7-89	9/94
7-90	9/94
7-91	9/94
7-92	9/94
7-93	9/94
7-94	9/94
7-95	9/94
7-96	9/94
Log	9/94
Log	9/94

Page	Date

Page	Date

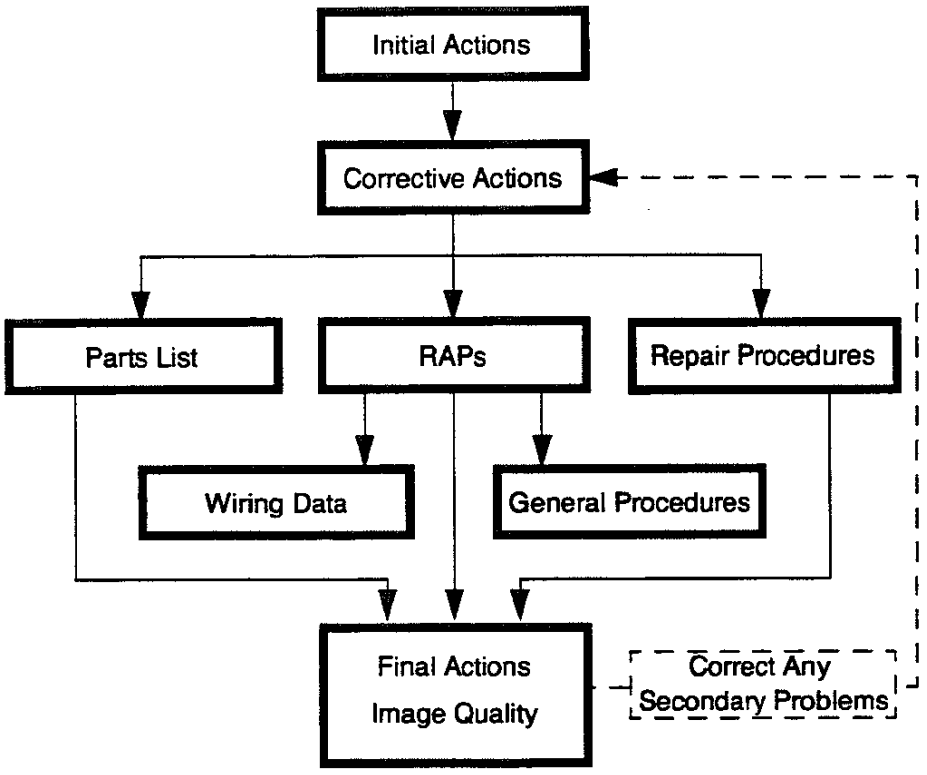
Section 1

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 the printer service log to determine the types of previous calls and service history.

3 Check that the printer paper path is clear of foreign matter such as staples, paper slips, and paper scraps.

4 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.
- The printer is in an appropriate operating environment, with no extremes of heat or humidity.
- The printer is not exposed to direct sunlight.
- The space around the printer meets the requirements.
- 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 or Repair Analysis Procedure (RAP) and begin corrective action.

2 If the fault is not obvious, follow the Entry Level RAP to identify the problem and begin corrective action.

3 After all corrective actions have been made, perform Final Actions.

1.4 Final Actions

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

Section 2

Printer Specifications

2.1 Electrical Specifications

The Xerox 4505/4510 Laser Printer is available with either a 110 or 220 volt power source as shown in Table 2.1.1.

Table 2.1.1 Electrical Specifications

Line Voltage	Line Voltage Tolerance	Frequency	Frequency Tolerance	Power Consumption
110/115 VAC	90 - 132 VAC	50/60 Hz	47 - 63 Hz	450 Watts
220/240 VAC	198 - 264 VAC	50/60 Hz	47 - 63 Hz	500 Watts

2.2 Mechanical Specifications

Table 2.2.1 Mechanical Specifications

Unit	Width	Depth	Height	Weight
Metric	352 mm	393.5 mm	254 mm	12 Kg
SAE	13.86 in.	15.47 in.	10 in	26.4 lbs

2.3 Minimum Space Requirements

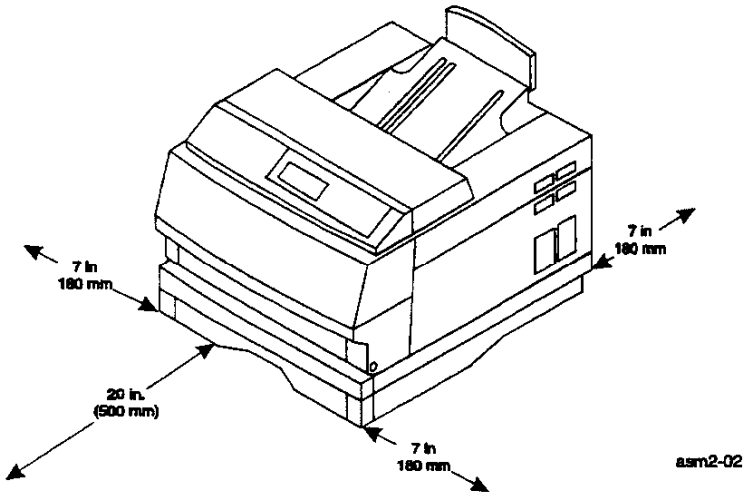


Table Top: The 4505/4510 requires a minimum table top size of 15.5" (39.4 cm) by 16.5" (41.9 cm).

Height Clearance: The 4505/4510 requires a minimum of 30" (76.2 cm) clearance from the top surface of the printer to the nearest overhead obstruction.

2.4 Functional Specifications

- Printing Method: Xerographic Process
- Exposure method:Scanning LASER
- Fusing Method: Heat and Pressure

Table 2.4.1 Print Speed and Resolution

Model	Print Speed - ppm (pages per minute)	Resolution - dpi (Dots per Inch)
4505	5 ppm	300 & 600 dpi
4510	10 ppm	300 & 600 dpi

Table 2.4.2 Operating Environment

Temperature	Humidity	Altitude	Noise	Level
5^{O} - 35^{O} C 41^{O} - 95^{O} F	15 - 80% RH	0 - 2500 m 0 - 8200 Ft.	37 - 45 dB	Within 5^{O}

2.5 Paper Specifications

The recommended standard paper type is Xerox DP, 20 lb., (80 gsm).

Paper Weight Limitations:

- Bond paper - 16 to 28 lbs (60 to 105 g/m2)
- Cardstock - 50 lbs (190 g/m2)

Table 2.5.1 Paper Sizes

Paper Type	Size
A4	8.27 x 11.69 inches 210 x 297 mm
Letter	8.5 x 11 inches 216 x 279 mm
B5 (ISO)	6.93 x 9.84inches 176 x 250 mm
Executive	7.25 x 10.5inches 184 x 267 mm
A5	5.83 x 8.27inches 148 x 210 mm
Folio	8.5 x 13 inches 216 x 330 mm
Legal	8.5 x 14 inches 216 x 356 mm
Com- 10 Envelope	4.13 x 9.5 inches 105 x 241 mm
Monarch Envelope	3.87 x 7.5 inches 98 x 191 mm
DL Envelope	4.33 x 8.66 inches 110 x 220 mm
C5 Envelope	6.38 x 9.02 inches 162 x 229 mm
OHP Film (Transparency)	A4 or Letter
Label Paper	A4 or Letter

Table 2.5.2 Standard Tray Capacity

Paper Type	Capacity (Sheets)
A4, Letter, B5, Executive, & A5	250
OHP Film (transparency)	10
Label Paper	10

Table 2.5.3 MP Tray Capacity

Paper Type	Capacity (Sheets)
A4, Letter, B5, Executive, A5, Folio, & Legal	50
Monarch, COM-10, C5, & DL Envelopes	5
OHP Film (transparency)	35
Label Paper	1 or 2

Table 2.5.4 Optional 250-Size Tray Capacity

Tray Type	Paper Type	Capacity (Sheets)
Legal	Letter, Folio, & Legal	250
Envelope	Monarch, COM-10, C5, & DL Envelopes	30

Table 2.5.5 Options 500-Size Tray

Tray Type	Paper Type	Capacity (Sheets)
A4	A4	500
Letter	Letter	500

Table 2.5.6 Output Tray

Tray Type	Paper Type	Capacity (Sheets)
Output tray	All	250

2.6 Options

The customer may install the following options:

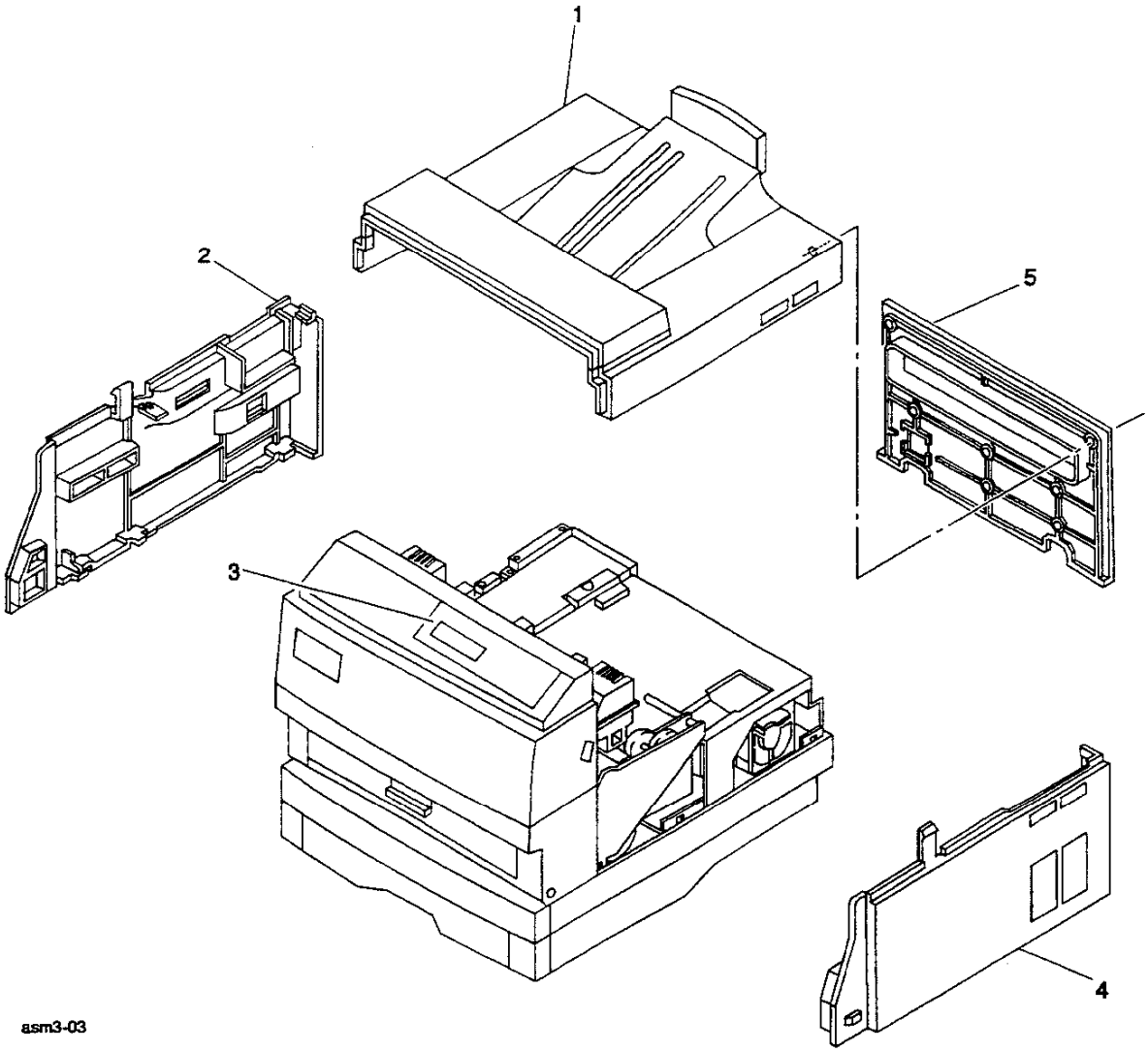
- 250-Sheet Feeder Unit (includes a 250–sheet Universal Paper Tray)
- 500-Sheet Feeder Unit (includes a 500–sheet paper tray, Letter or A4)
- 250–Sheet Legal Tray
- Envelope Tray holds 30 envelopes
- SIMM's (RAM)
- I/O PWB's — Ethernet/LocalTalk/Token Ring
- ROM (PostScript Level 2)

Section 3

Parts Lists

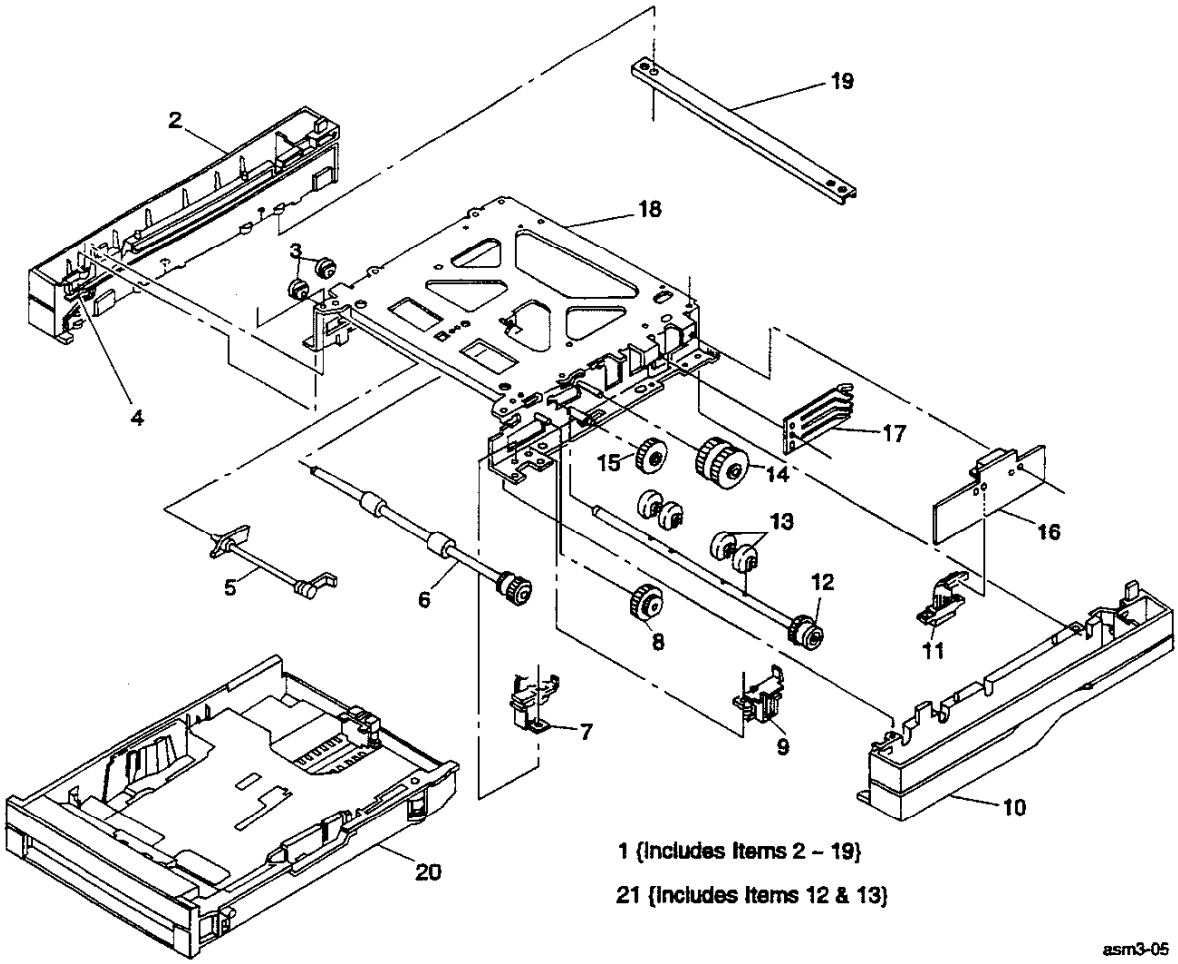
PL 1 Covers

Item	Part	Description
1)	48K04540	Top Cover Assembly
2)	48K04990	Left Cover
3)	600K45120	UI Label (4505) (Kit contains 2 labels, 4505 and 4505PS)
	600K45140	UI Label (4510) (Kit contains 2 labels, 4510 and 4510PS)
4)	48K05001	Right Cover
5)	2E57571	Rear Cover


1
2
3
4
5
asm3-03

PL 2 Paper Feed

Item	Part	Description
1)	22K29714	Feeder Assembly {Includes Items 2 ~ 19}
2)	------	Feed Housing L {P/O Item 1}
3)	------	Feed Bearing {P/O Item 1}
4)	15E23440	Feeder Ground Clip
5)	120E93682	No–paper Actuator
6)	5K80270	Turn Roll Assembly
7)	121E80490	Turn Solenoid
8)	7E87210	Gear Idler Feed
9)	121E80480	Feed Solenoid
10)	------	Feed Housing R {P/O Item 1}
11)	152K44390	Harness Assembly Out
12)	------	Feed Clutch Assembly {P/O Item 21}
13)	59K99951	Segment Feed Roll
14)	7E20131	Gear Idler In
15)	7E87200	Gear Idler Out
16)	140K42930	Feeder PWB
17)	------	Size Spring {P/O Item 1}
18)	------	Feeder Frame Assembly {P/O Item 1}
19)	------	Feeder Tie Plate {P/O Item 1}
20)	109R00029	Universal Paper Tray (250)
	109R00031	Legal Tray (Option)
	109R00026	Envelope Tray (Option)
21)	5K80262	Feed Roll Assembly {Includes Items 12 & 13}
A)	600K97820	Standard Screw Kit (see PL 10)



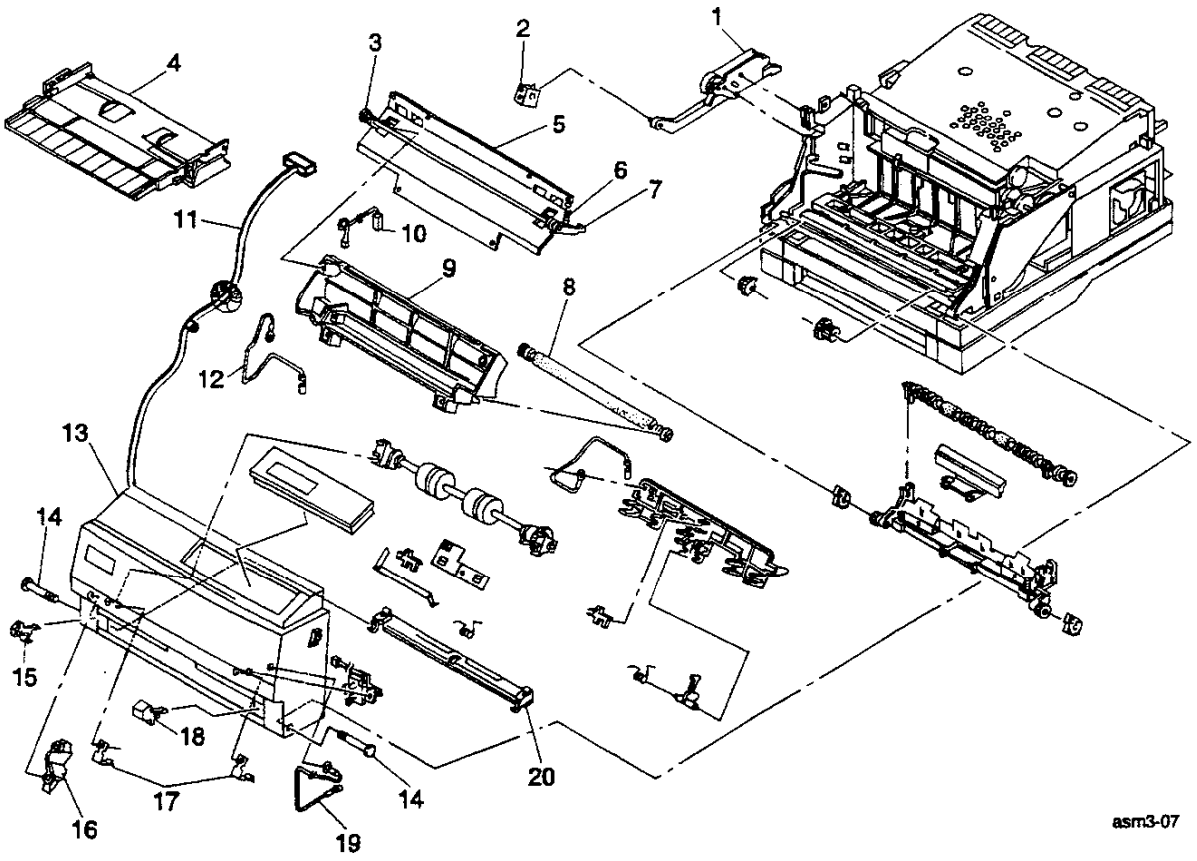
1 (Includes Items 2 – 19)

21 (Includes Items 12 & 13)

asm3-05

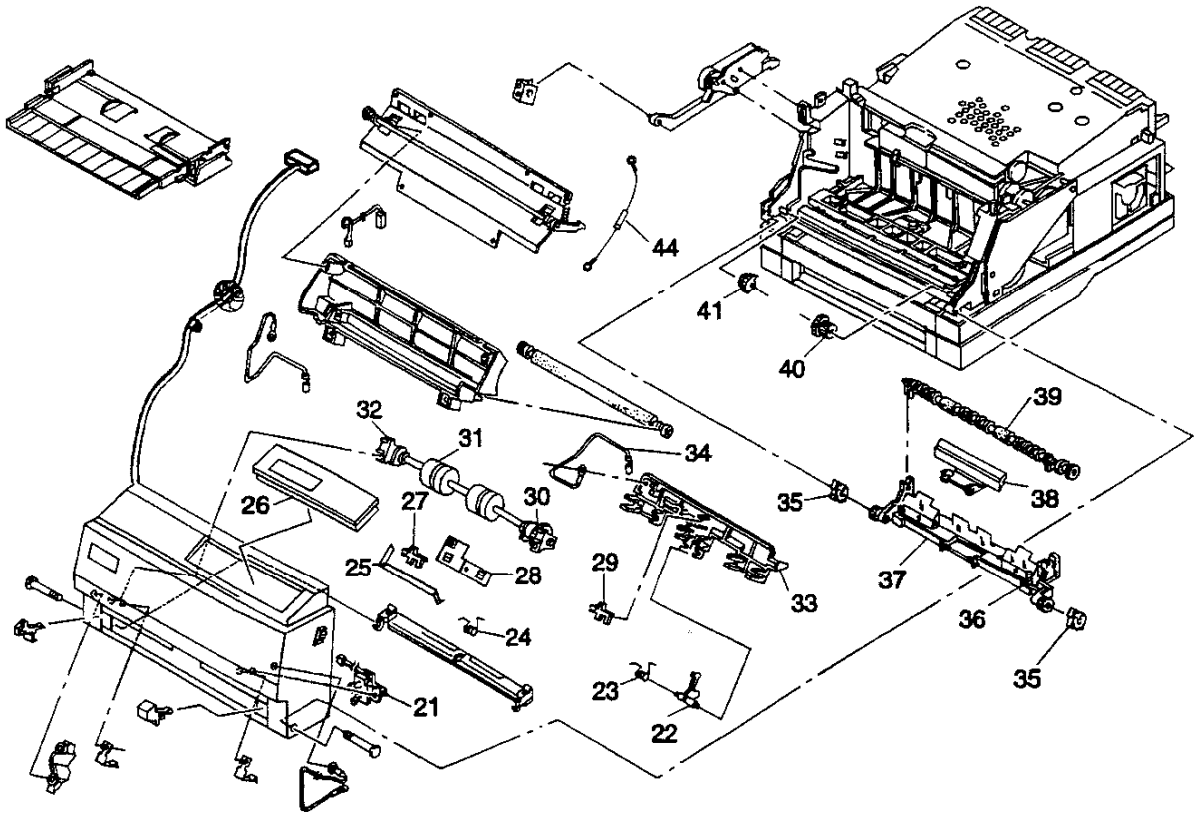
PL 3 Paper Transportation (1 of 2)

Item	Part	Description
1)	12K95863	Link Assembly
2)	9E36950	Link Spring
3)	3E22650	Inner Latch L
4)	73K89791	Multipurpose Tray (MP Tray)
5)	------	Front Plate Assembly
6)	9E37101	Latch Spring
7)	3E22640	Inner Latch R
8)	22K29591	BTR (Bias Transfer Roll) Assembly
9)	54K87282	Transportation Chute Assembly
10)	------	Wire Assembly, BTR {P/O Item 11}
11)	600K97120	PH-1 Harness (4505)
	600K97930	PH-1 Harness (4510)
12)	------	Wire Assembly, Static Eliminator {P/O Item 11}
13)	1K29802	Front Cover
14)	------	Pivot Shaft
15)	------	Tray Hinge L
16)	------	Harness Cover
17)	9E37090	Inlet Spring
18)	------	Tray Hinge R
19)	------	Wire Assembly, Front Cover {P/O Item 11}
20)	15K84313	Bottom Plate Assembly
A)	600K97820	Standard Screw Kit (see PL 10)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
14
asm3-07

PL 4 Paper Transportation (2 of 2)

Item	Part	Description
21)	121E81480	MP Tray Feed Solenoid
22)	------	Registration Actuator {P/O Item 42}
23)	------	Registration Spring {P/O Item 42}
24)	9E37050	MP Tray Spring
25)	120E94670	MP Tray Actuator
26)	101K93090	Control Panel (Also order UI Label PL 1)
27)	130E80420	MP Tray Sensor
28)	------	Sensor Cover
29)	------	Registration Sensor {P/O Item 42}
30)	------	Pickup Clutch {P/O Item 32}
31)	22K21690	Pick Up Rolls
32)	22K21679	Pick-Up Roll Assembly
33)	------	Inlet Chute {P/O Item 42}
34)	------	Wire Assembly, Inlet Chute Baffle {P/O Item 11, PL 3}
35)	7E87234	Gear Front Cover
36)	------	Pickup Spring {P/O Item 43}
37)	------	Lower Chute {P/O Item 43}
38)	------	Retard Pad Assembly {P/O Item 43}
39)	22K29270	Take-away Roll Assembly {P/O Item 43}
40)	7E87242	Gear Double R
41)	7E87252	Gear Double L
42)	54K84874	Inlet Chute Assembly {Includes Items 22, 23, 29, & 33}
43)	54K84427	Lower Chute Assembly (4505) {Includes Items 36-39}
	54K87310	Lower Chute Assembly (4510) {Includes Items 36-39}
44)	107K90570	Diode Harness (4510 only)
A)	600K97820	Standard Screw Kit (see PL 10)



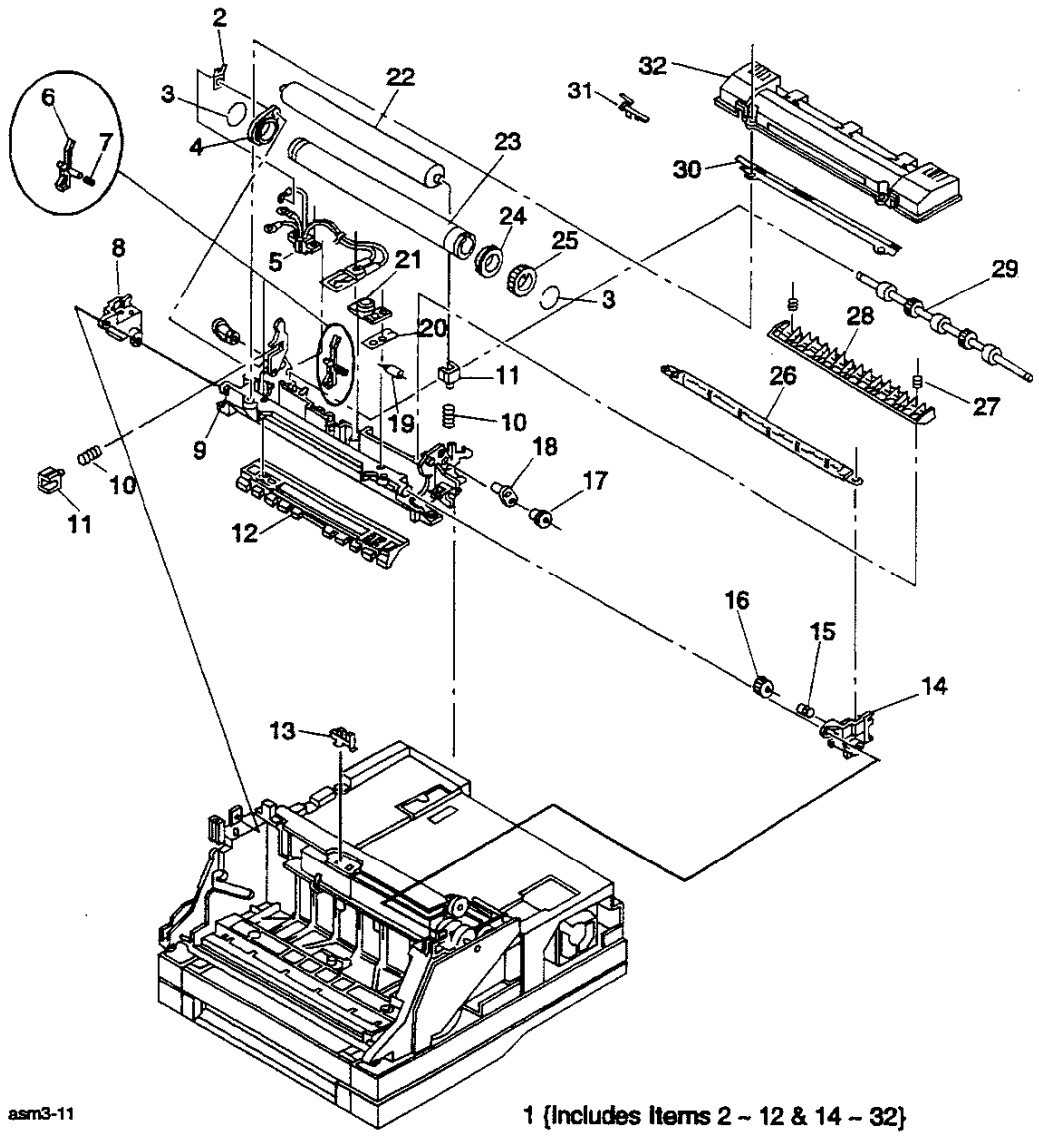
asm3-09

42 {Includes Items 22, 23, 29, & 33}

43 {Includes Items 36~39}

PL 5 Fuser & Paper Exit

Item	Part	Description
1)	73K81517	Fuser Assembly (4505) (110VAC) {Includes Items 2~12 & 14~32}
	73K81527	Fuser Assembly (4505) (220VAC) {Includes Items 2~12 & 14~32}
	73K89913	Fuser Assembly (4510) (110VAC) {Includes Items 2~12 & 14~32}
	73K89923	Fuser Assembly (4510) (220VAC) {Includes Items 2~12 & 14~32}
2)	------	Ground Plate {P/O Item 1}
3)	------	H/R Ring {P/O Item B}
4)	------	H/R Bearing L (4505) {P/O Item B}
	------	H/R Bearing L (4510) {P/O Item B}
5)	130K80712	Temperature Sensor Assembly (4505) (110 VAC)
	130K82841	Temperature Sensor Assembly (4510) (110 VAC)
	130K80942	Temperature Sensor Assembly (4505) (220 VAC)
	130K82851	Temperature Sensor Assembly (4510) (220 VAC)
6)	120E93671	Fuser Exit Actuator
7)	9E43551	Fuser Exit Actuator Spring
8)	------	Fuser Frame L {P/O Item 1}
9)	------	Fuser Frame Assembly {P/O Item 1}
10)	9E43440	Nip Spring (4505)
	9E47311	Nip Spring (4510)
11)	13E80370	Pressure Roll Bearing
12)	------	Fuser Inlet Chute {P/O Item 1}
13)	130K81070	Exit Sensor
14)	------	Fuser Frame R {P/O Item 1}
15)	6E27980	Idler Shaft
16)	7E20020	Gear Idler
17)	7E20040	Gear Exit
18)	13E80210	Exit Bearing
19)	108E91750	Fuse
20)	------	Spring Plate {P/O Item 1}
21)	130K80730	Thermostat
22)	59K99891	Pressure Roll (4505)
	22K26860	Pressure Roll (4510)
23)	59K99873	Heat Roll
24)	------	H/R Bearing R (4505) {P/O Item B}
	------	H/R Bearing R (4510) {P/O Item B}
25)	7E20030	Gear H/R (4505)
	7E22550	Gear H/R (4510)
26)	126K92720	Heater Rod (110 VAC)
	126K92730	Heater Rod (220 VAC)
27)	9E36810	Exit Spring
28)	------	Exit Chute {P/O Item 1}
29)	59K99912	Exit Roll Assembly
30)	125E90730	Static Eliminator
31)	9E42691	Spring Ground E.P.
32)	2K48293	Fuser Cover Assembly (4505)
	48K06921	Fuser Cover Assembly (4510)
A)	600K97820	Standard Screw Kit (see PL 10)
B)	600K92820	Fuser Ring Kit (4505)
	600K94330	Fuser Ring Kit (4510)

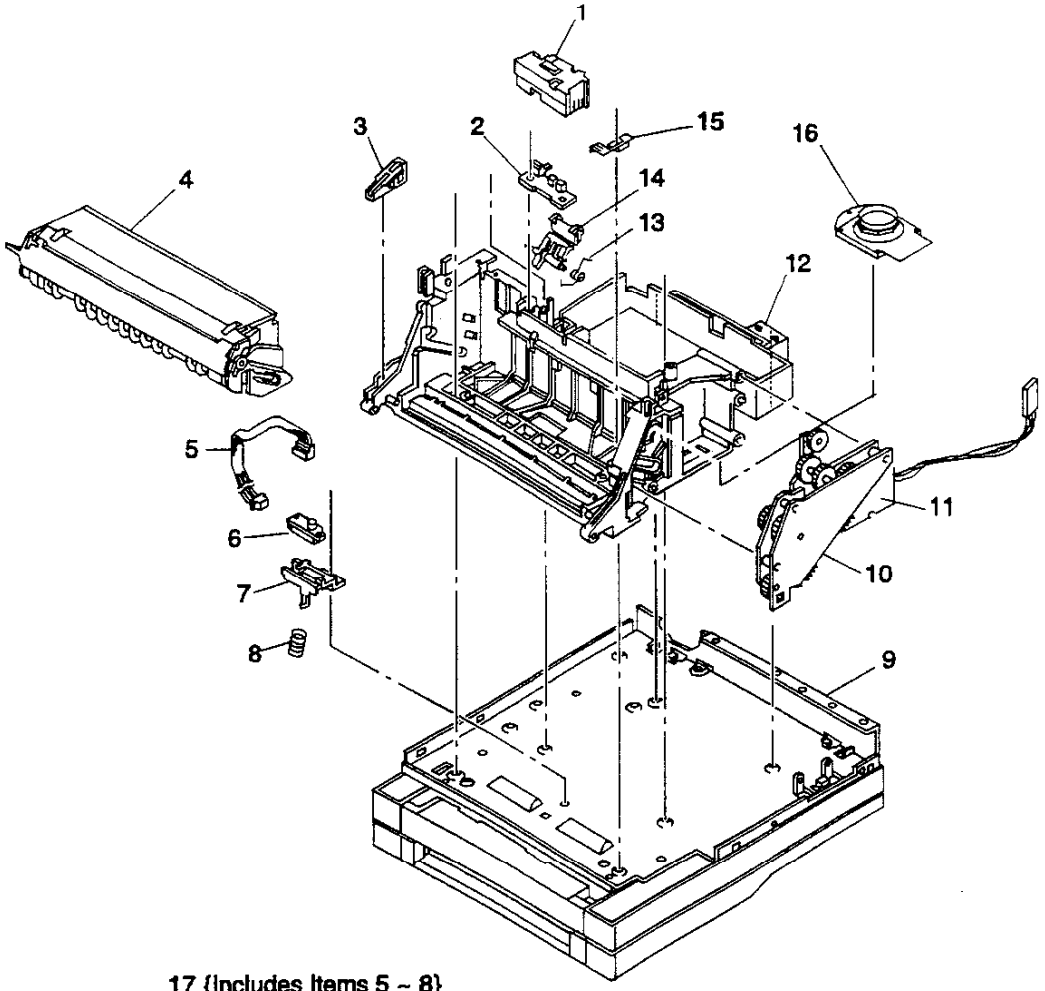


asm3-11

1 {Includes Items 2 – 12 & 14 – 32}

PL 6 Drive & Xerographic Modules

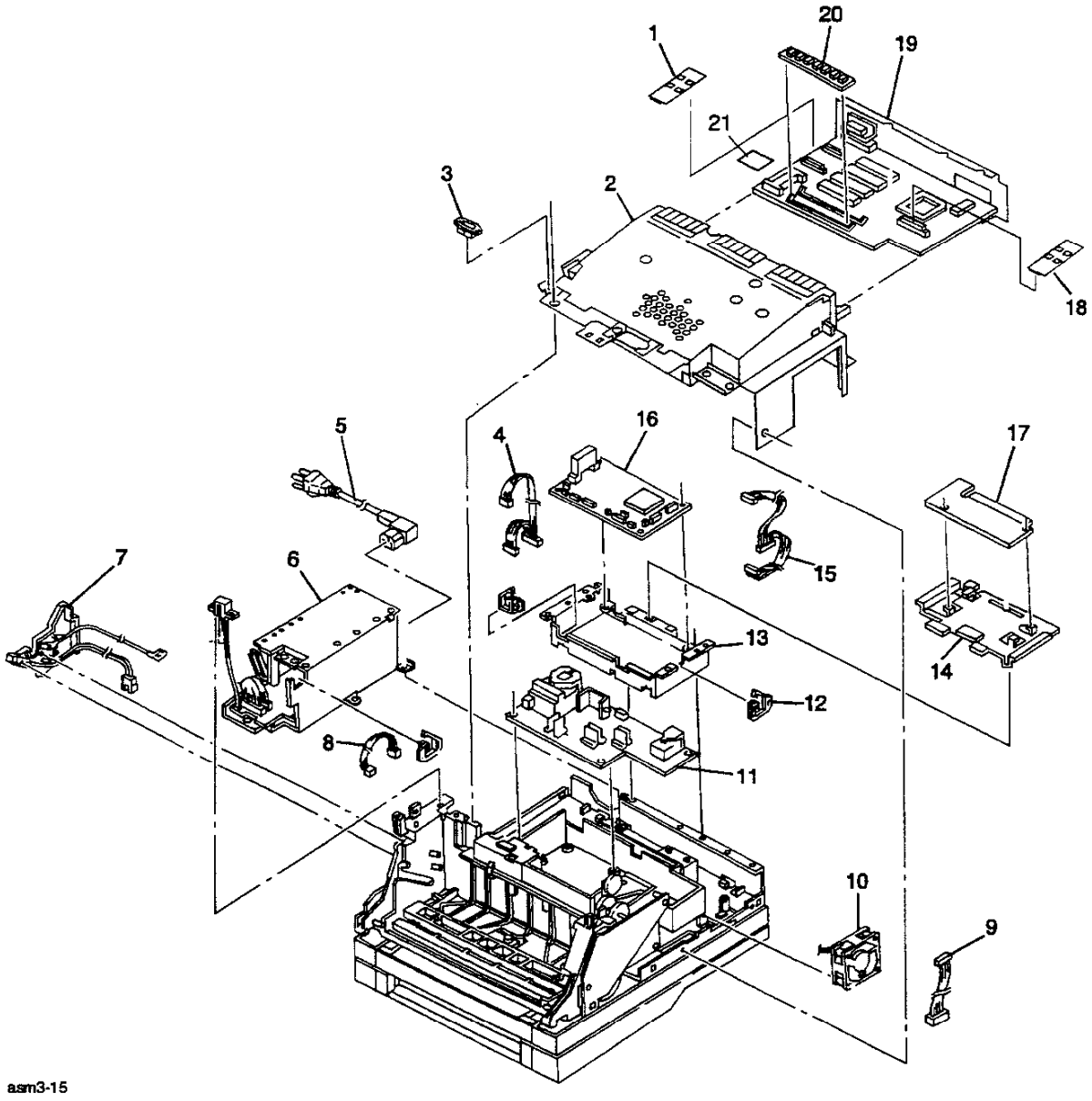
Item	Part	Description
1)	- - - - - -	CRU Sensor Cover {P/O Item 18}
2)	- - - - - -	CRU Sensor PWB {P/O Item 18}
3)	- - - - - -	Cable Cap
4)	113R00005	EP Cartridge
5)	- - - - - -	Harness Assembly Toner (J21 - J123) {P/O Item 17}
6)	- - - - - -	Toner Sensor (Option) {P/O Item 17}
7)	- - - - - -	Toner Sensor Holder {P/O Item 17}
8)	9E40231	Toner Sensor Spring {P/O Item 17}
9)	- - - - - -	Base Frame
10)	7K80874	Drive Assembly
11)	127K85970	Main Drive Motor (4505)
	127K84280	Main Drive Motor (4510)
12)	62K93480	ROS Assembly (4505)
	62K93490	ROS Assembly (4510)
13)	- - - - - -	CRU Actuator Spring {P/O Item 18}
14)	- - - - - -	CRU Actuator Assembly {P/O Item 18}
15)	15E28970	Front Earth Spring
16)	73K89870	Scanner Motor 300/600
17)	600k97290	Toner Sensor Assembly {Includes Items 5 - 8}
18)	600K92860	CRU Sensor Kit {Includes Items 1, 2, 13, 14}
A)	600K97820	Standard Screw Kit (see PL 10)



17 {Includes Items 5 ~ 8}
18 {Includes Items 1, 2, 13, & 14}

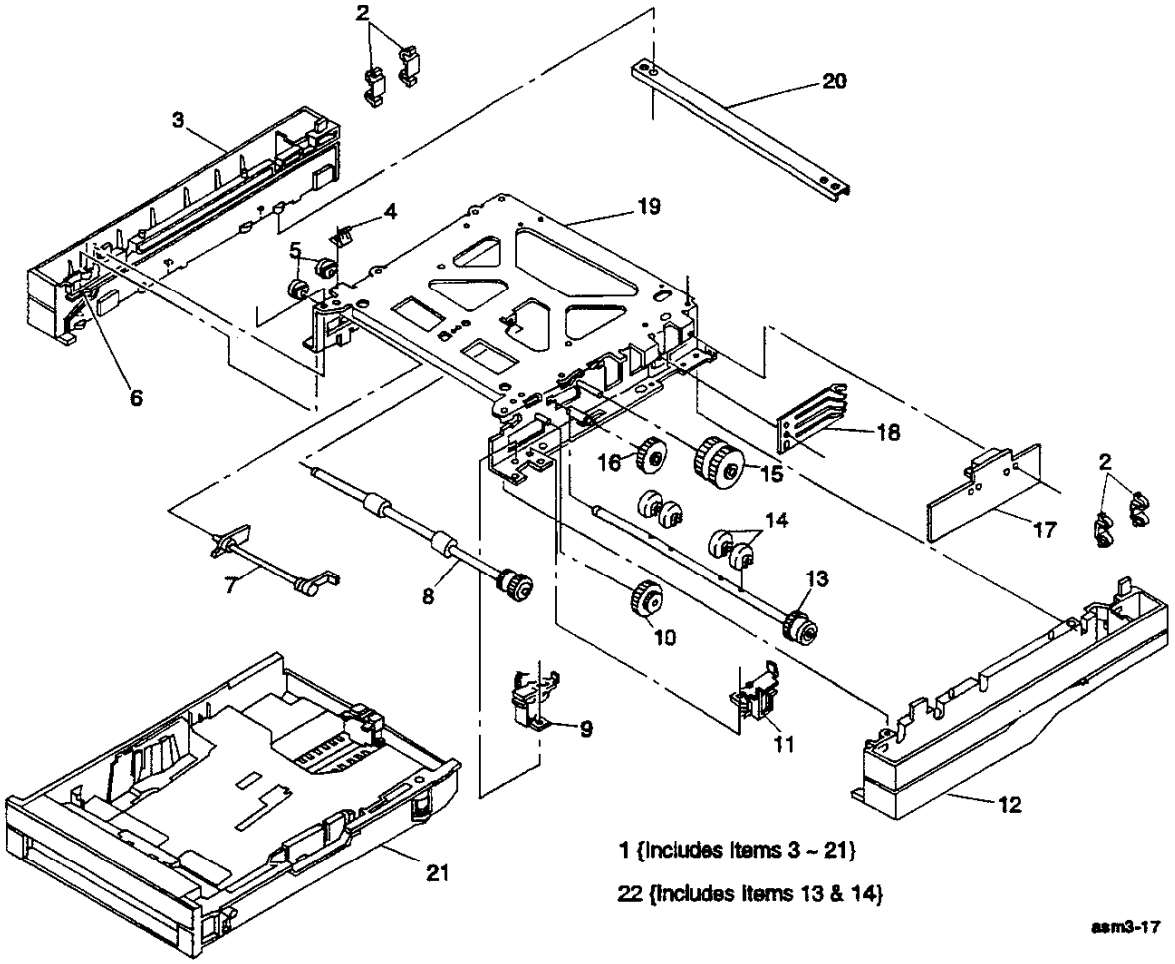
PL 7 Electrical Module

Item	Part	Description
1)	140K59410	PS-Option Board (4505)
	140K65540	PS-Option Board (4510)
2)	- - - - - -	Electronics Box Cover
3)	- - - - - -	Bushing
4)	152K44012	Harness Assembly HVPS
5)	117E12960	Power Cord (110 VAC)
	- - - - - -	Power Cord (220 VAC)
6)	105K10110	LVPS Assembly (115 VAC)
	105K93830	LVPS Assembly (220 VAC)
7)	15K99144	Earth Plate Assembly
8)	152K43990	Harness Assembly. SOS (4505)
	162K3410	Harness Assembly. SOS (4510)
9)	152K44410	Harness Assembly 1 Tray
10)	127E80770	Fan
11)	673K00650	HVPS (4505)
	73K81481	HVPS (4510)
12)	- - - - - -	Saddle Edge H
13)	- - - - - -	Electronics Box Base
14)	- - - - - -	Interface Bracket
15)	152K44000	Harness Assembly. ROS
16)	140K54602	Printer Engine Controller PWB (4505)
	140K49793	Printer Engine Controller PWB (4510)
17)	140K60260	Interface PWB
18)	140K59001	I/O AppleTalk
	140K59360	I/O Ethernet
	140K59010	I/O Token Ring
19)	140K62474	System Controller PWB (4505)
	140K62482	System Controller PWB (4510)
20)	733W03660	4MB SIMM
	733W03642	16MB SIMM
21)	- - - - - -	PCMCIA Cards (Customer purchase item)
A)	600K97820	Standard Screw Kit (see PL 10)


1
20
19
21
3
2
18
5
4
16
17
7
6
15
13
14
12
8
11
10
9
asm3-15

PL 8 Optional Feeder Assembly (Feeder Unit 250)

Item	Part	Description
1)	- - - - - -	Optional 250 Sheet Feeder Assembly {Includes Items 3~ 21}
2)	113E81200	Feeder Tie Clips (1 clip per kit)
3)	- - - - - -	Feed Housing L {P/O Item 1}
4)	9E37032	Earth Spring
5)	- - - - - -	Feed Bearing {P/O Item 1}
6)	15E23440	Feeder Ground Clip
7)	120E93682	No-paper Actuator
8)	5K80270	Turn Roll Assembly
9)	121E80490	Turn Solenoid
10)	7E87210	Gear Idler Feed
11)	121E81350	Feed Solenoid
12)	- - - - - -	Feed Housing R {P/O Item 1}
13)	- - - - - -	Feed Clutch Assembly {P/O Item 22}
14)	59K99951	Segment Feed Roll
15)	7E20131	Gear Idler In
16)	7E87200	Gear Idler Out
17)	140K42940	Feeder PWB
18)	- - - - - -	Size Spring {P/O Item 1}
19)	- - - - - -	Feeder Frame Assembly {P/O Item 1}
20)	- - - - - -	Feeder Tie Plate {P/O Item 1}
21)	109R00029	Universal Paper Tray (250 sheet)
	109R00031	Legal Tray (250 sheet)
	109R00026	Envelope Tray
22)	5K80262	Feed Roll Assembly {Includes Items 13 & 14}
A)	600K97820	Standard Screw Kit (see PL 10)



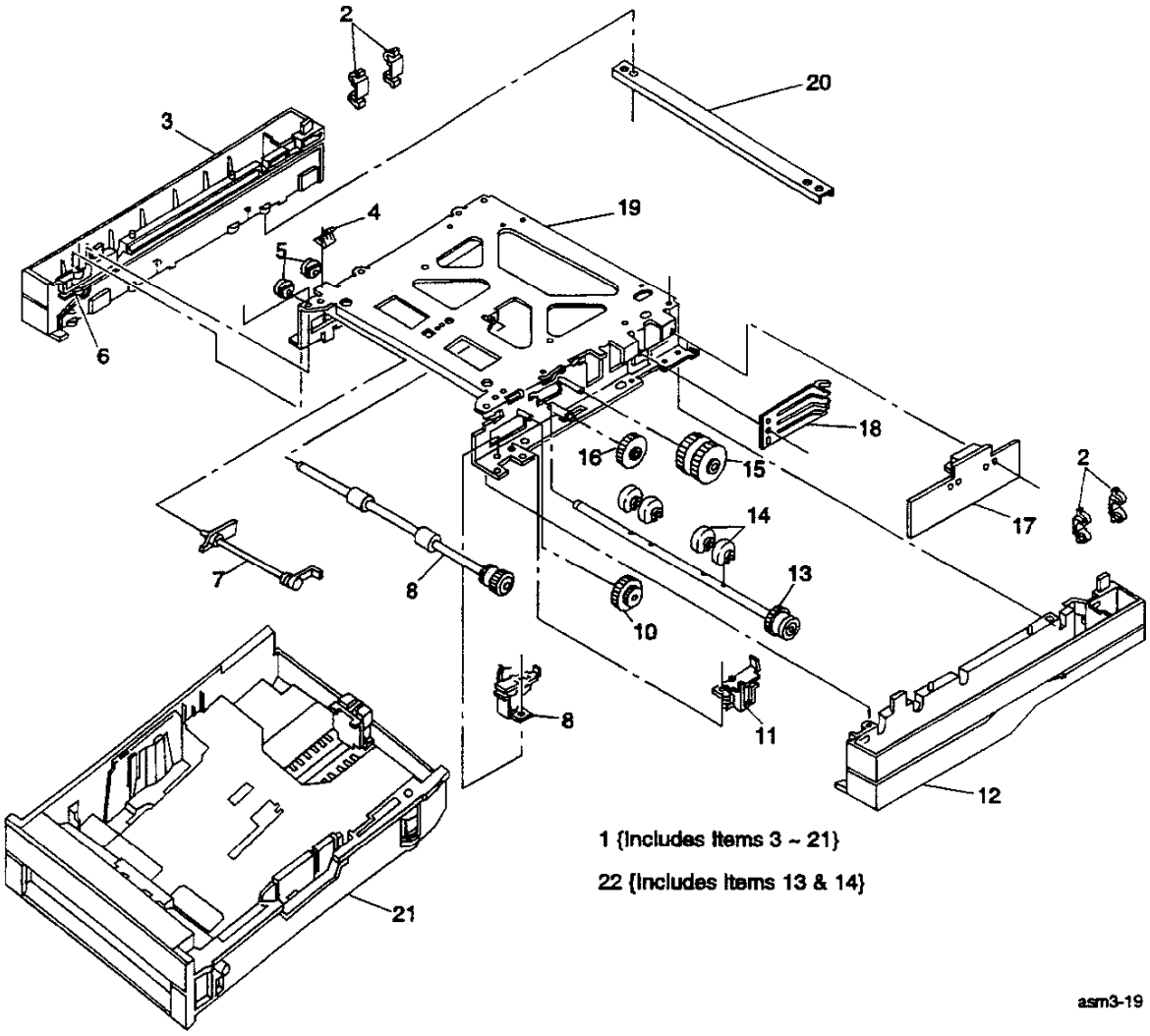
1 {Includes Items 3 ~ 21}

22 {Includes Items 13 & 14}

asm3-17

PL 9 Optional Feeder Assembly (Feeder Unit 500)

Item	Part	Description
1)	- - - - - -	Optional 500 Sheet Feeder Assembly (Includes Items 3~ 21)
2)	113E81200	Feeder Tie Clip (1 Only)
3)	- - - - - -	Feed Housing L
4)	9E37032	Earth Spring
5)	- - - - - -	Feed Bearing
6)	15E23440	Feeder Ground Clip
7)	120E93682	No-paper Actuator
8)	5K80270	Turn Roll Assembly
9)	121E80490	Turn Solenoid
10)	7E87210	Gear Idler Feed
11)	121E81350	Feed Solenoid
12)	- - - - - -	Feed Housing R
13)	- - - - - -	Feed Clutch Assembly (P/O Item 22)
14)	59K99951	Segment Feed Roll (P/O Item 22)
15)	7E20131	Gear Idler In
16)	7E87200	Gear Idler Out
17)	140K42940	Feeder PWB
18)	- - - - - -	Size Spring
19)	- - - - - -	Feeder Frame Assembly
20)	- - - - - -	Feeder Tie Plate
21)	109R00024	8.5 x 11" Tray (500 sheet)
	109R00030	A4 Tray (500 sheet)
22)	5K80262	Feed Roll Assembly (Includes Items 13 & 14)
A)	600K97820	Standard Screw Kit (see PL 10)



1 {Includes Items 3 ~ 21}

22 {Includes Items 13 & 14}

asm3-19

PL 10 Screw Kit 600K97820 Contents

Description	Color	Quanity	Size (mm)
Self-tapping Screw	Silver/Nickel Plating	17	3x6
Self-tapping Screw	Yellow/Zinc Chromate	15	3x8
Self-tapping Screw	Yellow/Zinc Chromate	6	4x8
Self-tapping Screw	Yellow/Zinc Chromate	1	3x6
Machine Screw SEMS	Yellow/Zinc Chromate	2	3x30
Self-tapping Screw	Yellow/Zinc Chromate	3	3x10
Machine Screw SEMS	Yellow/Zinc Chromate	12	3x6
Machine Screw Bind	Silver/Nickel Plating	3	3x8
Self-tapping Screw	Silver/Zinc Chromate	3	3x29
Self-tapping Screw	Yellow/Zinc Chromate	1	3x6
Retaining C-Ring	Black/Phosphate	2	5.6 ID
E-Ring	Silver	2	4 ID

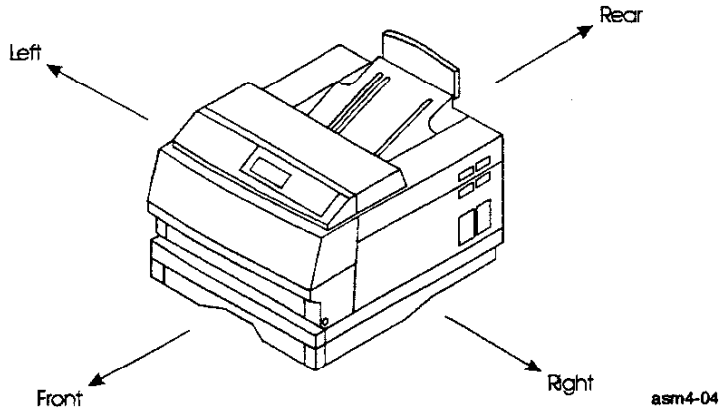
Section 4

Repair Procedures

4.0 Overview

Locations given in the Repair Procedures (REPs) assume you are facing the Control Panel with the following orientation:

Figure 4.0.1 Printer Orientation



The following notations apply:

- Arrows in the illustrations show direction of movement. Follow the numerical order if the arrows are numbered.
- The notation *Figure X.Y* references the illustration corresponding to the REP you are performing.
- Numbers in an illustration refer to the corresponding steps in the procedure being performed. Example, REP 4.1.1, step 2 says to press down on the two plastic tabs. Notice that the two tabs in the illustration are labeled 2, indicating step 2.

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

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

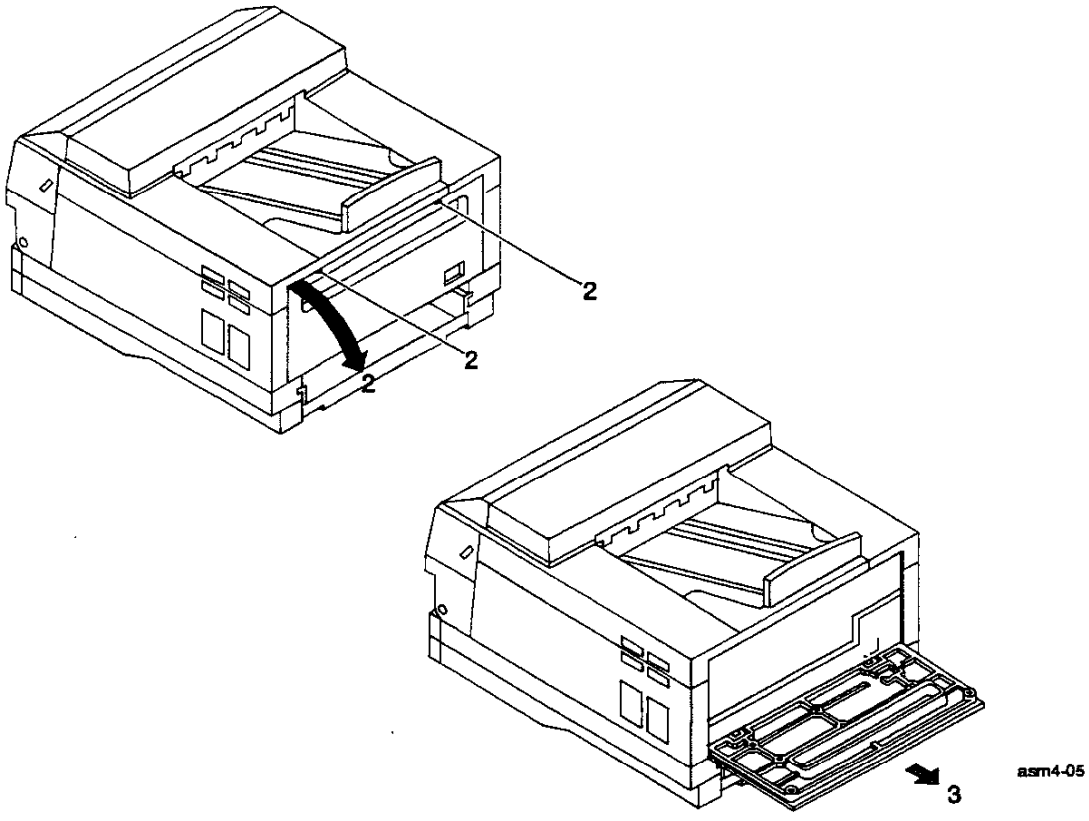
REP 4.1 Covers

REP 4.1.1 Rear Cover

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Press down on the two plastic tabs at the top of the Rear Cover, and swing the cover down and open.
3 Lift and remove the cover.

Figure 4.1.1 Rear Cover removal



Replacement

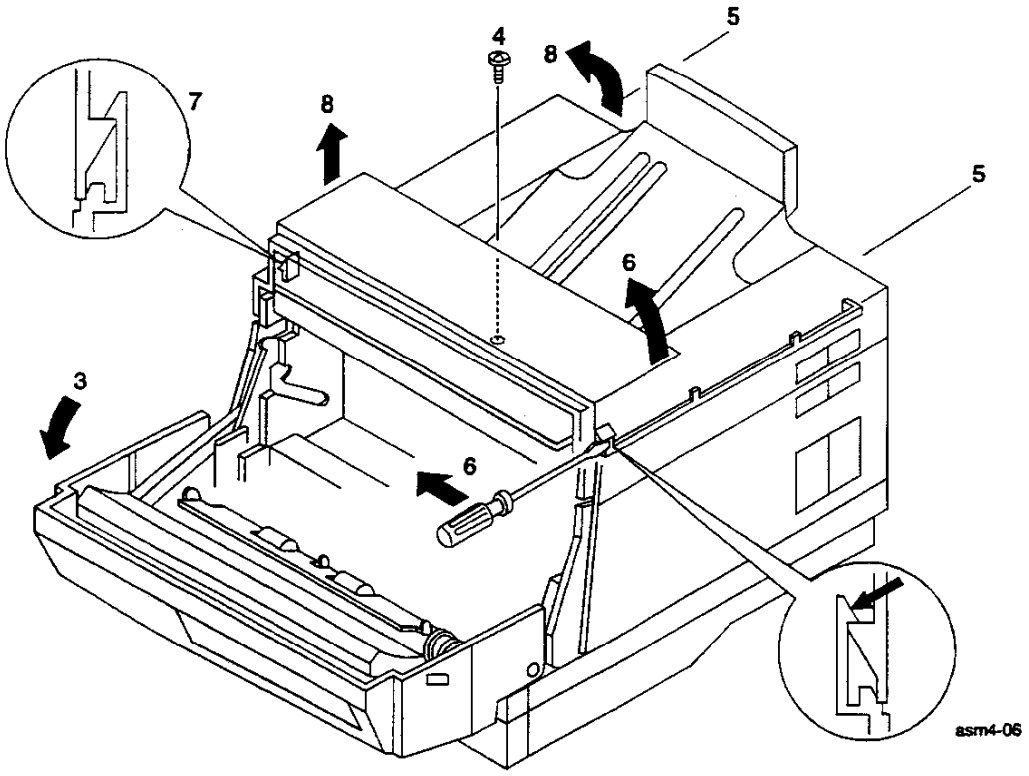
1 Assemble in reverse order.
2 Verify proper operation.

REP 4.1.2 Top Cover Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Rear Cover (see REP 4.1.1).
3 Open the Front Cover Assembly by pressing down on the two slide latches on both sides of the Assembly and pulling the Cover down.
4 Remove the screw at the center of the Top Cover.
5 Remove the two screws on the back of the Top Cover.
6 Use a screwdriver to pry up the right Front Cover latch and lift up the right side of the Top Cover.
7 Use a screwdriver to pry up the left Front Cover latch and lift up the left side of the Top Cover.
8 Lift off the Top Cover.

Figure 4.1.2 Top Cover removal



Replacement

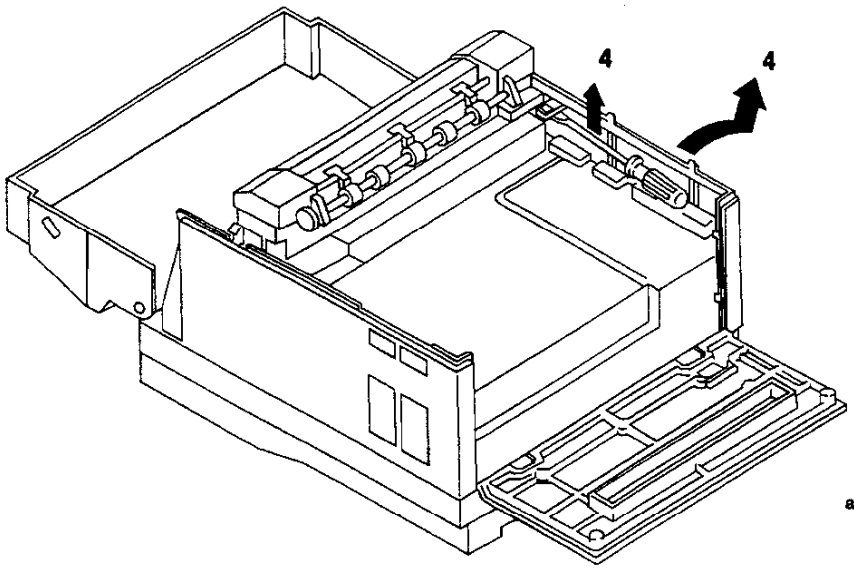
1 Assemble in reverse order.

REP 4.1.3 Left Cover

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover (see REP 4.1.2).
4 Use a screwdriver to pry up the Left Cover latch located at the base of the Fuser Assembly.
5 Remove the Left Cover.

Figure 4.1.3 Left Cover removal



Replacement

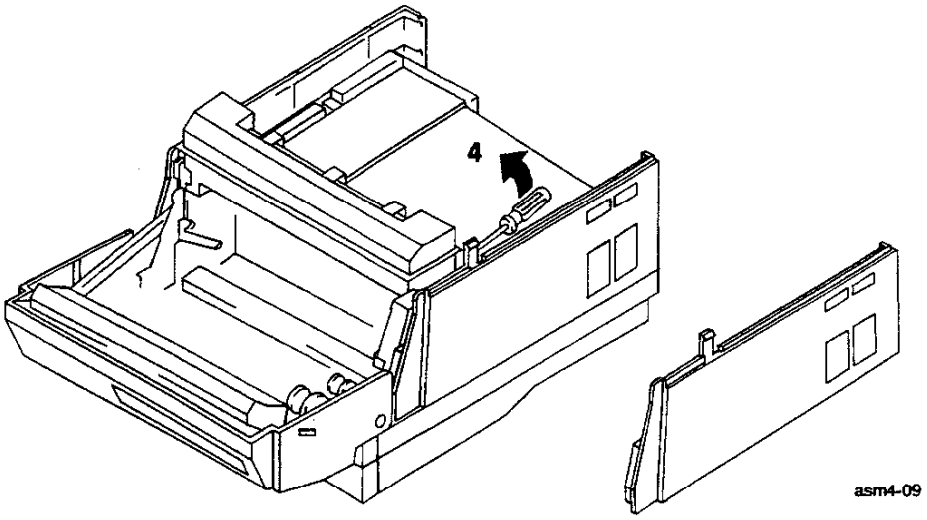
1 Assemble in reverse order.

REP 4.1.4 Right Cover

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover (see REP 4.1.2).
4 Use a screwdriver to pry up the cover latch located at the base of the Fuser Assembly.
5 Remove the Right Cover.

Figure 4.1.4 Right Cover removal



Replacement

1 Assemble in reverse order.

REP 4.2 Paper Feed

REP 4.2.1 Feeder Assembly

NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

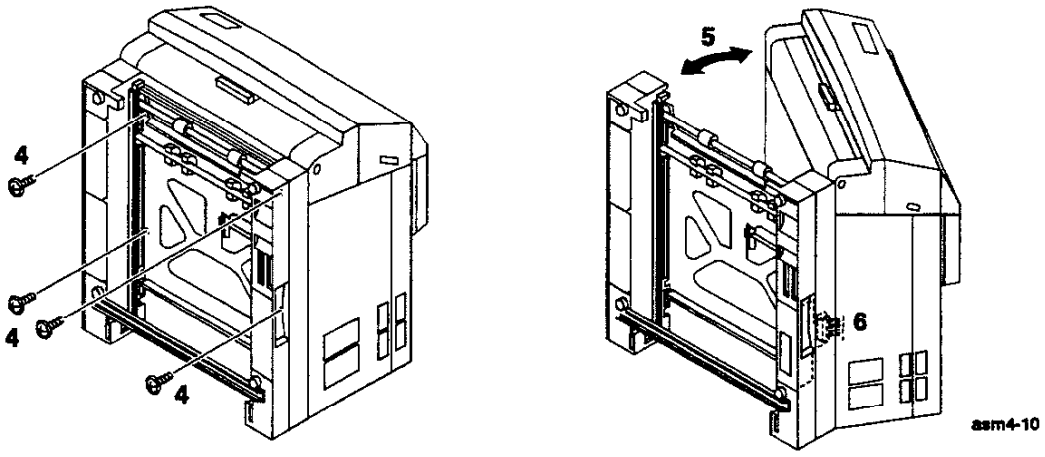
Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Paper Tray.
3 Position the printer on its Rear Cover.

NOTE: Be careful not to scratch the surface of the desk top you are working on.

4 Hold the printer steady while you remove the four screws securing the Feeder Assembly to the bottom of the printer frame.
5 Carefully pull the assembly a few inches away from the printer, exposing the wiring harness connecting the two sections.
6 Unplug P/J 115 from the Feeder PWB.
7 Remove the Feeder Assembly.
8 Return the printer to a normal upright position.

Figure 4.2.1 Feeder Assembly removal



Replacement

1 Assemble in reverse order.

NOTE: Do not pinch the wiring harness between the Feeder Assembly and the printer frame.

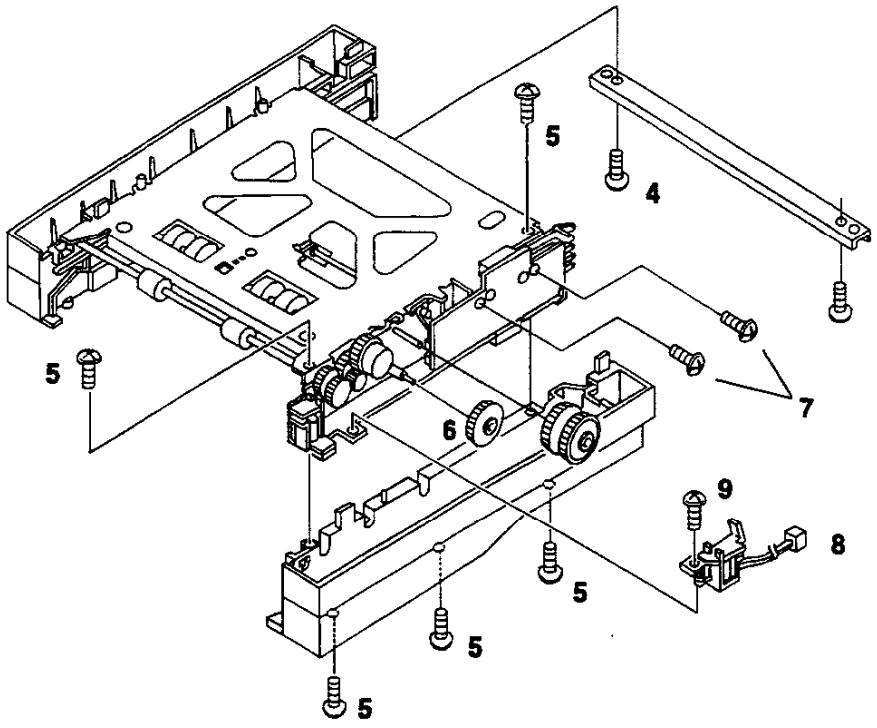
REP 4.2.2 Feed Solenoid

NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1. Switch the printer power OFF and disconnect the Power Cord.
2. Remove the Paper Tray.
3. Remove the Feeder Assembly (see REP 4.2.1).
4. Remove the two screws securing the Feeder Tie Plate, and remove the Plate.
5. Remove the five screws (two on top, and three on the bottom) securing Feed Housing R, and remove Housing.
6. Remove the Gear IN and Gear OUT by sliding them forward and off of their shafts.
7. Remove the two screws securing the Feeder PWB, and pull the PWB away from the frame.
8. Unplug P/J 201 from the Feeder PWB.
9. Remove the screw securing the Feed Solenoid to the Feeder Assembly, and remove the Solenoid.

Figure 4.2.2 Feed Solenoid removal



asm4-12

Replacement

1. Assemble in reverse order.

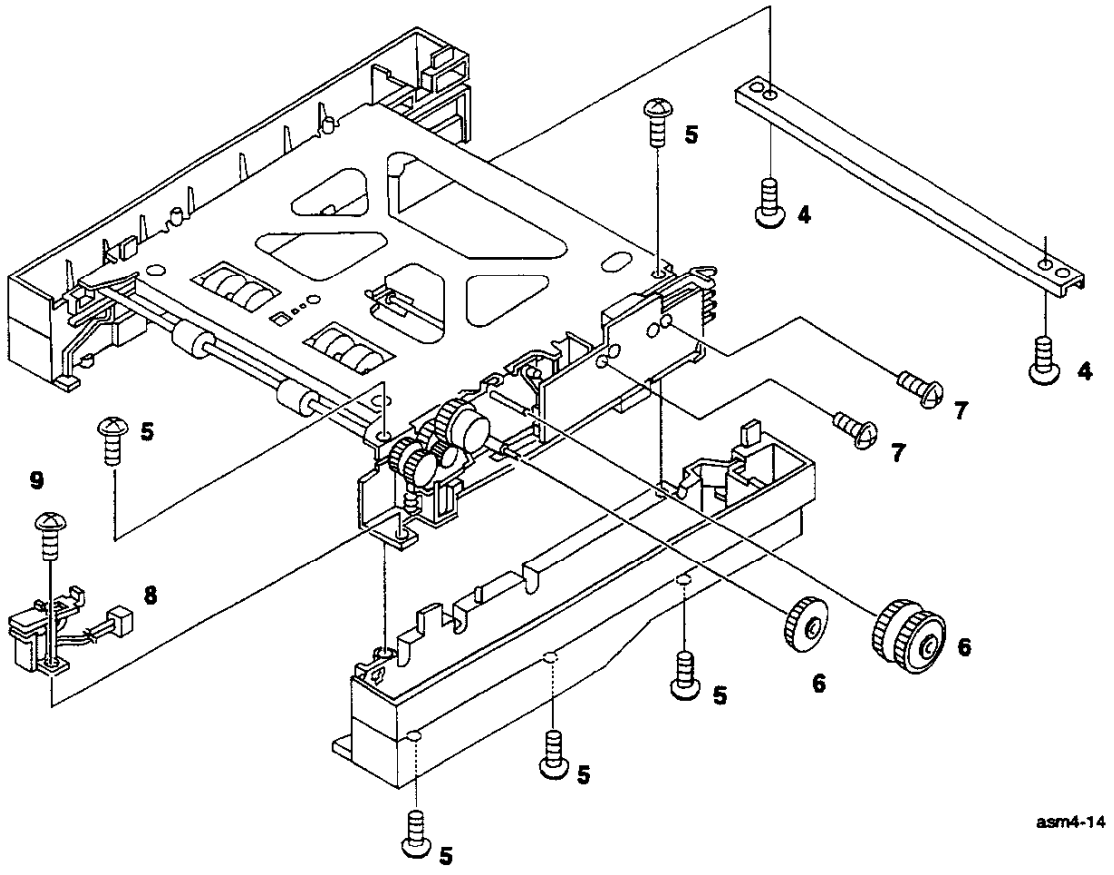
REP 4.2.3 Turn Solenoid

NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Paper Tray.
3 Remove the Feeder Assembly (see REP 4.2.1).
4 Remove the two screws securing the Feeder Tie Plate, and remove the Plate.
5 Remove the five screws (two on top, and three on the bottom) securing Feed Housing R, and remove Housing.
6 Remove the Gear IN and Gear OUT by sliding them off of their shafts.
7 Remove the two screws securing the Feeder PWB, and pull the PWB away from the frame
8 Unplug P/J 201 from the Feeder PWB.
9 Remove the screw securing the Turn Solenoid to the Feeder Assembly, remove the Solenoid.

Figure 4.2.3 Turn Solenoid removal



Replacement

1 Assemble in reverse order.

REP 4.2.4 Feed Roll Assembly

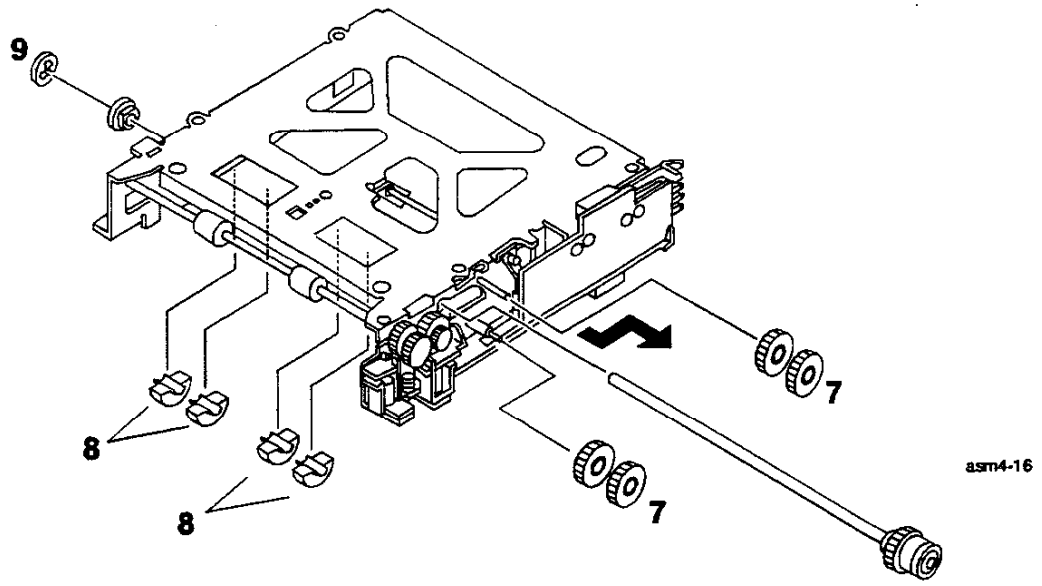
NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Paper Tray.
3 Remove the Feeder Assembly (see REP 4.2.1).
4 Remove the two screws securing the Feeder Tie Plate, and remove the Plate.
5 Remove the five screws (two on top and three on the bottom) securing Feed Housing R, and remove Housing.
6 Remove the five screws (two on top, and three on the bottom) securing Feed Housing L, and remove Housing.
7 Remove the Gear IN and Gear OUT by sliding them off of their shafts.
8 Remove the four Feed Rolls (see REP 4.2.5).
9 Remove the E–Ring located on the left side of the Feed Roll Assembly, and pull the Feed Roll out of the Feeder Assembly.

NOTE: Do not remove the Feed Roll Bearing from Feeder Assembly.

Figure 4.2.4 Feed Roll Assembly removal



Replacement

1 Assemble in reverse order.

REP 4.2.5 Feed Roll

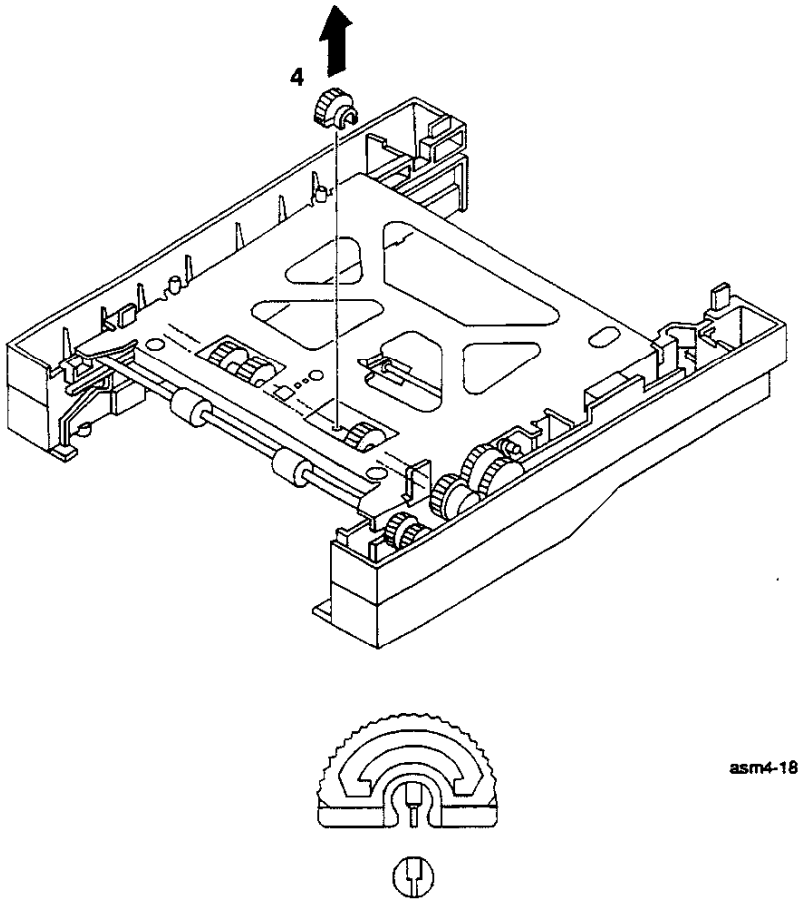
NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Paper Tray.
3 Remove the Feeder Assembly (see REP 4.2.1).
4 Take the Segment Feed Roll between your fingers and carefully rock it while pulling it off of the shaft.

NOTE: It may be a little easier to rotate the Feed Shaft so the flat side of the Feed Rolls are facing you. Then carefully rock the feed roll while pushing it off of the shaft.

Figure 4.2.5 Segment Feed Roll removal



Replacement

1 Assemble in reverse order.

REP 4.2.6 Turn Roll Assembly

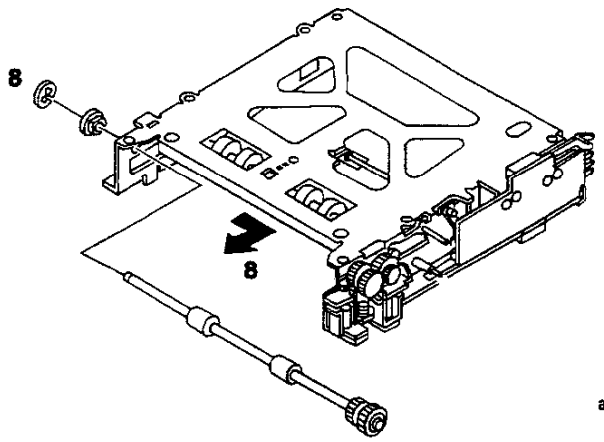
NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1 Switch off AC power and disconnect the AC line cord.
2 Remove the Paper Tray.
3 Remove the Feeder Assembly (see REP 4.2.1).
4 Remove the two screws securing the Feeder Tie Plate, and remove the plate.
5 Remove the five screws (two on top and three on the bottom) securing Feed Housing R, and remove Housing.
6 Remove the five screws (two on top, and three tapped on the bottom) securing Feed Housing L, and remove Housing.
7 Remove the Gear IN and Gear OUT by sliding them off of their shafts.
8 Remove the E-Ring located on the left side of the Turn Roll Assembly, and pull the Turn Roll out of the Feeder Assembly.

NOTE: Do not remove the Turn Roll Bearing from Feeder Assembly.

Figure 4.2.6 Turn Roll Assembly removal



Replacement

1 Assemble in reverse order.

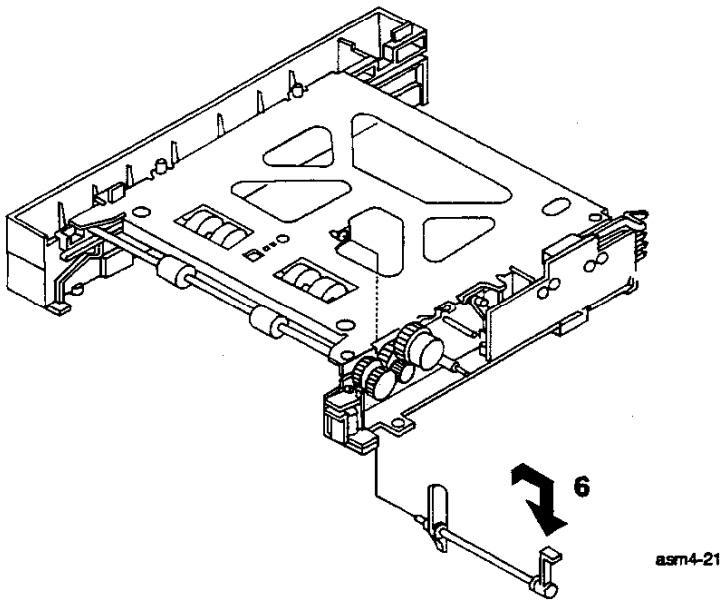
REP 4.2.7 No-Paper Actuator

NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1. Switch the printer power OFF and disconnect the Power Cord.
2. Remove the Paper Tray.
3. Remove the Feeder Assembly (see REP 4.2.1).
4. Remove the two screws securing the Feeder Tie Plate, and remove the plate.
5. Remove the five screws (two on top, and three on the bottom) securing the Feed Housing R, and remove the Housing.
6. Rotate the No-Paper Actuator counter clockwise so the flat part of the actuator bearing lines up with the flat part of the notch in the Feeder Frame Assembly.
7. Remove the No-Paper Actuator from the Feeder Frame Assembly.

Figure 4.2.7 No-Paper Actuator removal



Replacement

1. Assemble in reverse order.

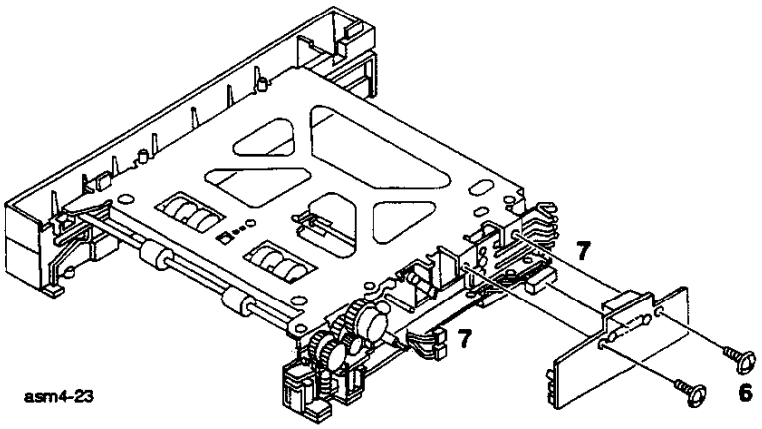
REP 4.2.8 Feeder PWB

NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Paper Tray.
3 Remove the Feeder Assembly (see REP 4.2.1).
4 Remove the two screws securing the Feeder Tie Plate, and remove the Plate.
5 Remove the five screws (two on top, and three on the bottom) securing the Feed Housing R, and remove the Housing.
6 Remove the two screws securing the Feeder PWB, and pull the PWB away from the frame.
7 Disconnect the three connectors P/J 116 (unscrew connector fro the bottom of the housing), P/J 201, and P/J 202 from the Feeder PWB, and remove the PWB.

Figure 4.2.8 Feeder PWB removal



Replacement

1 Assemble in reverse order.

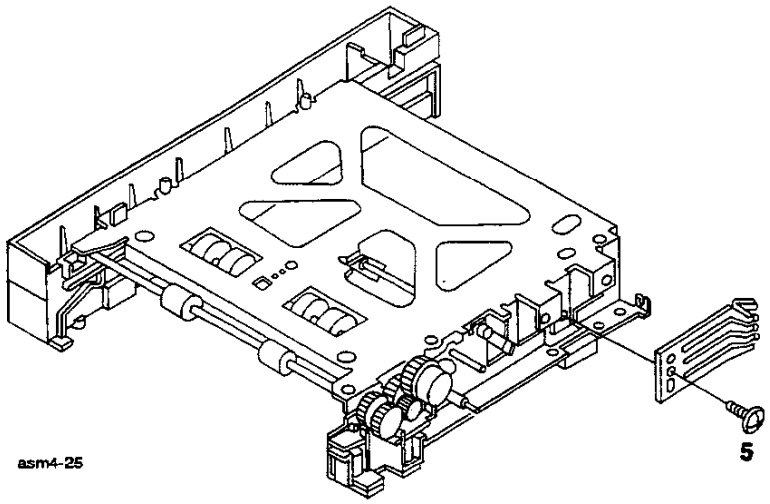
REP 4.2.9 Size Spring

NOTE: If an optional Feeder Assembly is installed, remove it before starting this REP.

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Paper Tray.
3 Remove the Feeder Assembly (see REP 4.2.1).
4 Remove Feeder PWB (see REP 4.2.8).
5 Remove the screw securing the Size Spring to the Feeder Assembly, and remove the spring.

Figure 4.2.9 Size Spring removal



Replacement

1 Assemble in reverse order.

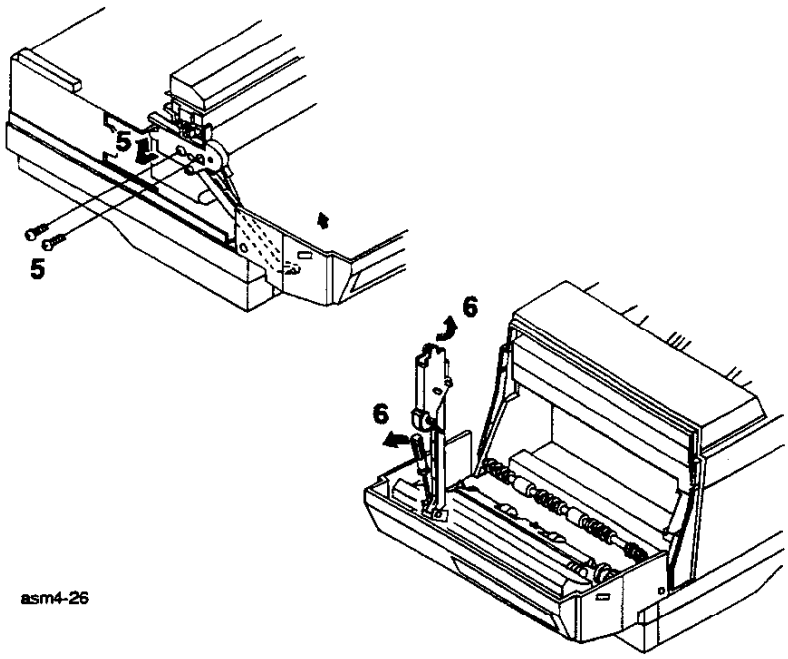
REP 4.3 Paper Transportation

REP 4.3.1 Link Assembly

Removal

1 Switch off AC power and disconnect the AC line cord.
2 Remove the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Open the Front Cover Assembly and remove the two screws securing the Link Assembly to the printer frame just below the fuser area.
6 Use a small screwdriver to open the link spring that holds the Link Assembly to the Front Cover, and remove the Link Assembly.

Figure 4.3.1 Link Assembly removal



Replacement

1 Assemble in reverse order.

REP 4.3.2 Gear Double L (left)

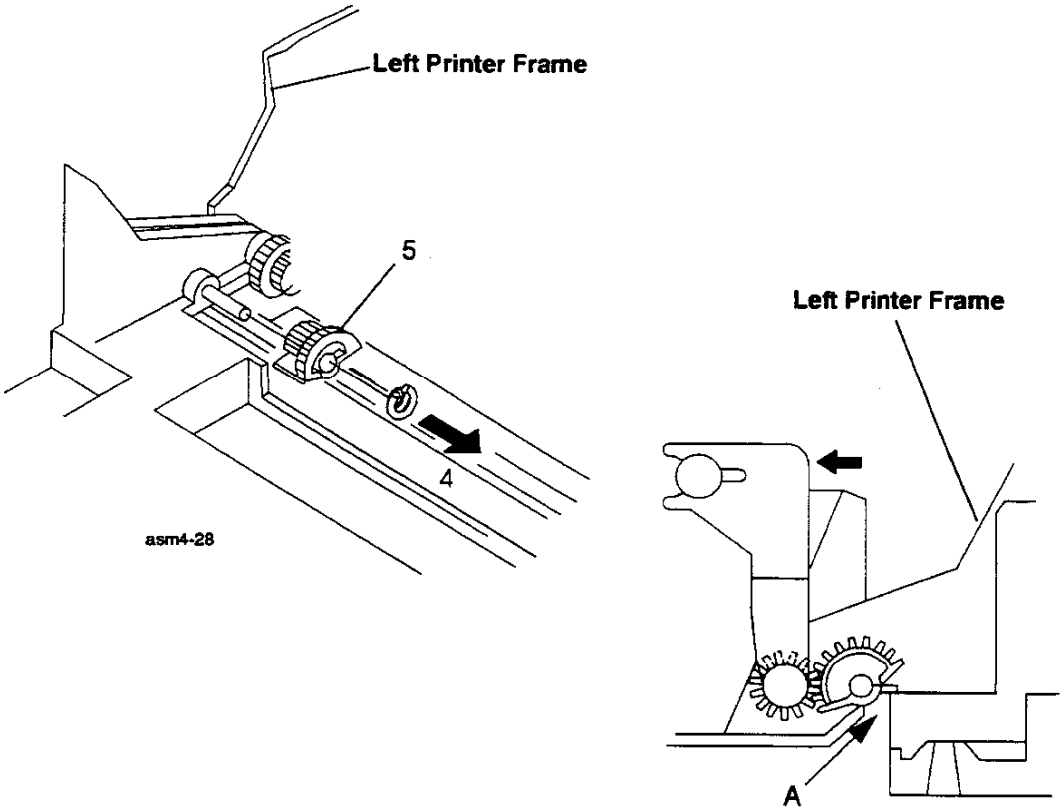
Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the EP Cartridge.
4 Remove the C–Ring holding the Gear Double L to its shaft.

NOTE: Identify the position of the Gear on the shaft for correct replacement; taking special care to realign the gear teeth.

5 Remove the Gear Double L by biasing the Lower Chute Assembly toward the front of the printer while you slide the gear off the shaft.

Figure 4.3.2 Gear Double L removal



Replacement

1 Assemble in reverse order.
2 With the lower chute assembly biased to the front of the printer, slide the gear Double R on the shaft with the tab (A) touching the printer frame.

REP 4.3.3 Gear Double R (right)

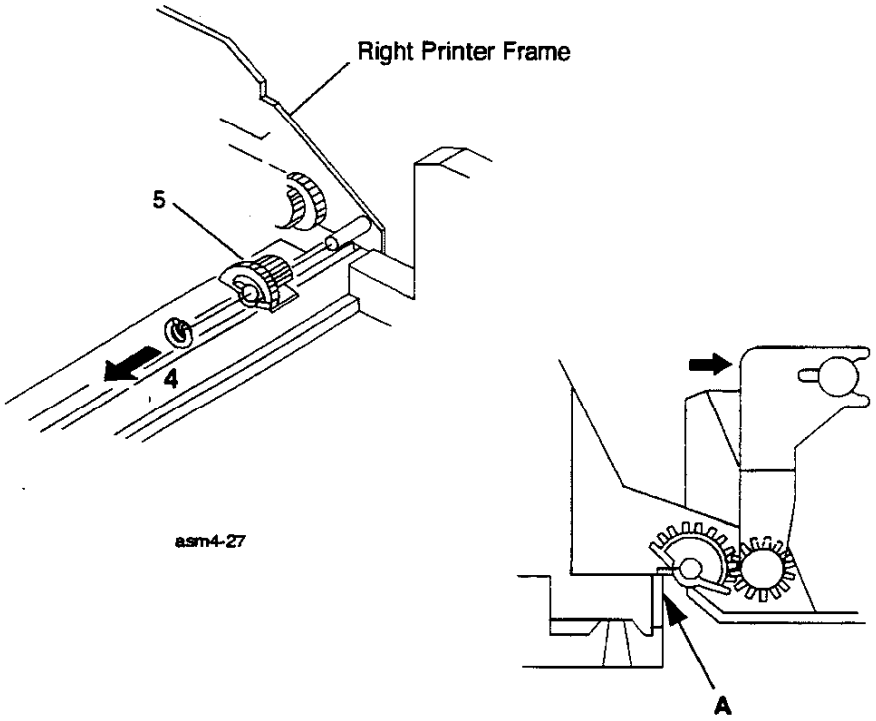
Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the EP Cartridge.
4 Remove the C–Ring holding the Gear Double R to its shaft.

NOTE: Identify the position of the Gear on the shaft for correct replacement.

5 Remove the Gear Double R by biasing the Lower Chute Assembly toward the front of the printer while you slide the gear off the shaft.

Figure 4.3.3 Gear Double R removal



Replacement

1 Assemble in reverse order.
2 With the lower chute assembly biased to the front of the printer, slide the gear Double R on the shaft with the tab (A) touching the printer frame.

REP 4.3.4 Lower Chute Assembly

Removal

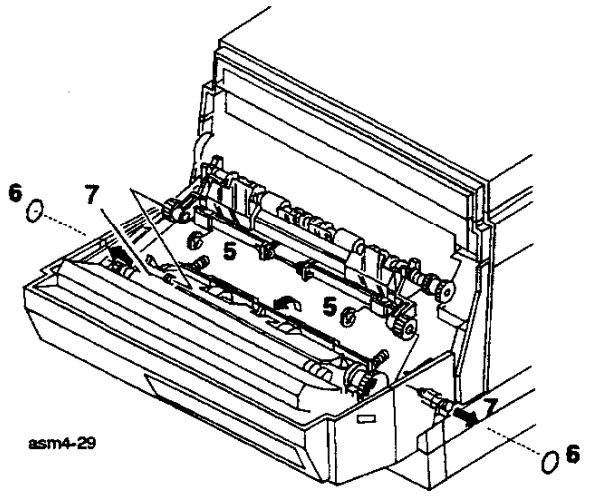
1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the Gear Double L (see REP 4.3.2).
4 Remove the Gear Double R (see REP 4.3.3).
5 Remove the E–Rings that secure the left and right Pivot Shafts.

NOTE: In the next step, do not use a screwdriver to remove the round access covers. The tabs on the cover break very easily.

6 Remove the round access covers located on the Right and Left side covers.
7 Pull both shafts out about 25mm and remove the Lower Chute Assembly.

NOTE: Do not pull the Pivot Shafts completely out of the Front Cover Assembly or Gear Front Cover.

Figure 4.3.4 Lower Chute Assembly removal



Replacement

1 Position the Lower Chute Assembly next to the Pivot Shafts.

NOTE: Position the Lower Chute Assembly mylar strips to ride on top of the Take–Away Roll Assembly.

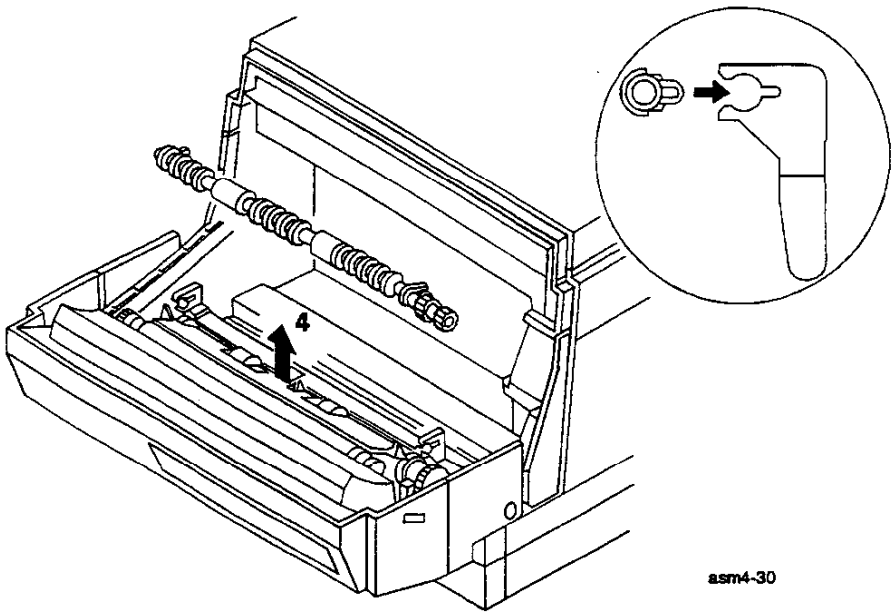
2 Complete the assembly in reverse order.

REP 4.3.5 Take–Away Roll Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the Take–Away Roll Assembly from the Lower Chute Assembly.
4 While taking the left end of the Take–Away Roll Assembly in your left hand and the right end of the Assembly in your right hand, pull the Assembly up while pushing the Lower Chute Assembly away from the Take–Away Roll. The Roll will pop out of the positioning tabs.

Figure 4.3.5 Take-Away Assembly removal



Replacement

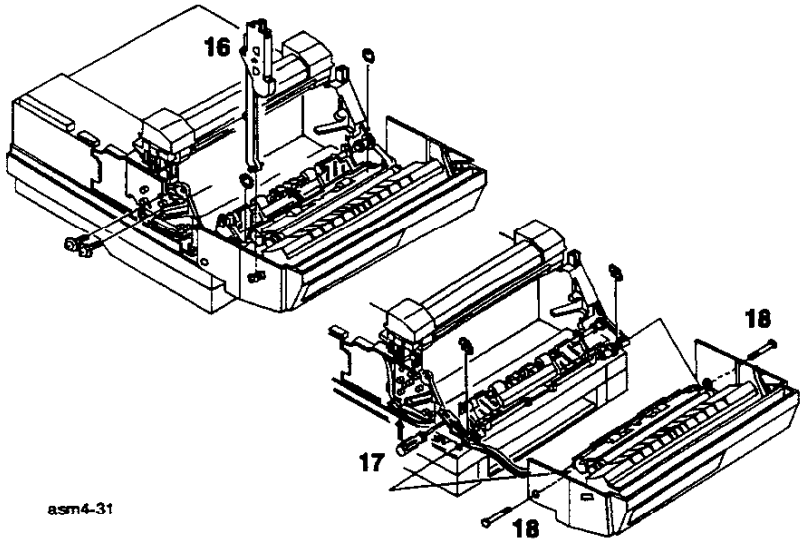
1 Align the bearings at the ends of the Take–Away Roll Assembly with the tabs in the Lower Chute Assembly.
2 Press the Take–Away Roll Assembly bearings into the Lower Chute Assembly tabs.
3 Position the Lower Chute Assembly mylar strips so they ride on top of the Take–Away Roll Assembly.
4 Close the Front Cover Assembly.

REP 4.3.6 Front Cover Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the System Controller PWB (see REP 4.6.1).
8 Remove the Electronics Box Cover (see REP 4.6.3).
9 Remove the screw, securing the Interface Board.
10 Disconnect the two connectors (P/J 16, P/J 17) on the Printer Engine Controller.
11 Disconnect the Transfer Lead (TR) and black and green Return Leads (RTN) from the HVPS Assembly.
12 Remove the screw, securing the green ground wire to the LVPS Housing.
13 Remove the Gear Double L (see REP 4.3.2).
14 Remove the Gear Double R (See REP 4.3.3).
15 Remove the Lower Chute Assembly (See REP 4.3.4).
16 Remove the Link Assembly (See REP 4.3.1).
17 Use a screwdriver to remove the Cable Cap from the ROS Assembly.
18 Hold Front Cover Assembly while you slowly slide the Left and Right Pivot Shafts out, removing the Front Cover Assembly.

Figure 4.3.6 Front Cover Assembly removal



Replacement

1 Position the Front Cover Assembly so the pivot holes align as you reinstall the Left and Right Pivot Shafts.

2 Reinstall the Cable Cap on the ROS Assembly.

NOTE: Make sure the wiring harness doesn't interfere with the Link Assembly.

3 Reinstall the Link Assembly (See REP 4.3.1).

4 Reinstall the Lower Chute Assembly (see REP 4.3.4).

5 Reinstall the Gear Double R (See REP 4.3.3).

6 Follow the remaining removal steps in the reverse order to complete this replacement procedure.

REP 4.3.7 BTR (Bias Transfer Roll) Assembly

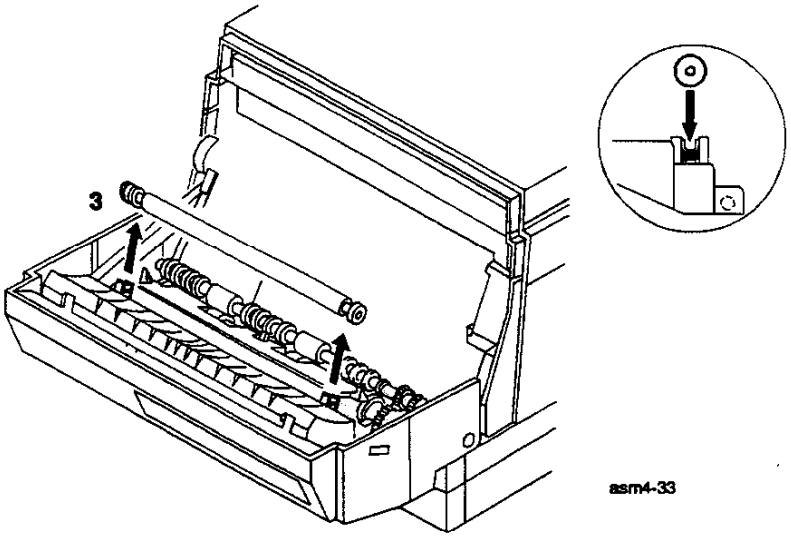
Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the BTR (Bias Transfer Roll) Assembly by pulling the ends of BTR Assembly shaft while pressing against the Transportation Chute Assembly.

NOTE: Do not remove the Transportation Chute Assembly bearing and spring.

CAUTION **Do not touch the BTR (Bias Transfer Roll) surface or the Transportation Chute Assembly Eliminator. After you have removed the BTR Assembly, cover it so it will not get contaminated or damaged.**

Figure 4.3.7 Bias Transfer Roll Assembly removal



Replacement

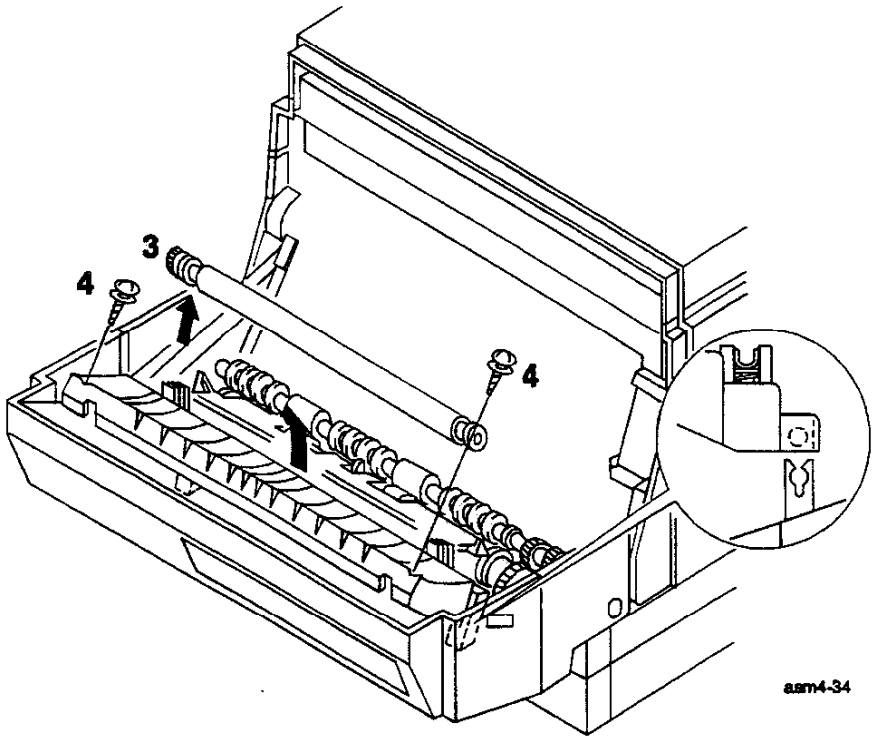
1 Align the BTR Assembly shaft (with the gear to the left side) with the Transportation Chute Assembly bearing.
2 Press the right end of the BTR Assembly shaft into the right bearing on the Transportation Chute Assembly until is snaps into place.
3 Press the left end of the BTR Assembly shaft into the left bearing on the Transportation Chute Assembly until is snaps into place.
4 Close the Front Cover Assembly.

REP 4.3.8 Transportation Chute Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the BTR Assembly (see REP 4.3.7).
4 Remove the two screws that secure the Transportation Chute Assembly to the Front Cover Assembly.
5 Pop loose the Inlet Chute Assembly (see REP 4.3.9).
6 Hold the Front Cover Assembly, and pull the Transportation Chute Assembly away from the Front Cover Assembly, snapping it out of the hinge points.
7 Turn the Transportation Chute Assembly over to unplug P/J TR–T.
8 Remove the screw securing the Wire Assembly to the Eliminator.

Figure 4.3.8 Transportation Chute Assembly removal



Replacement

1 Assemble in reverse order.

REP 4.3.9 Inlet Chute Assembly

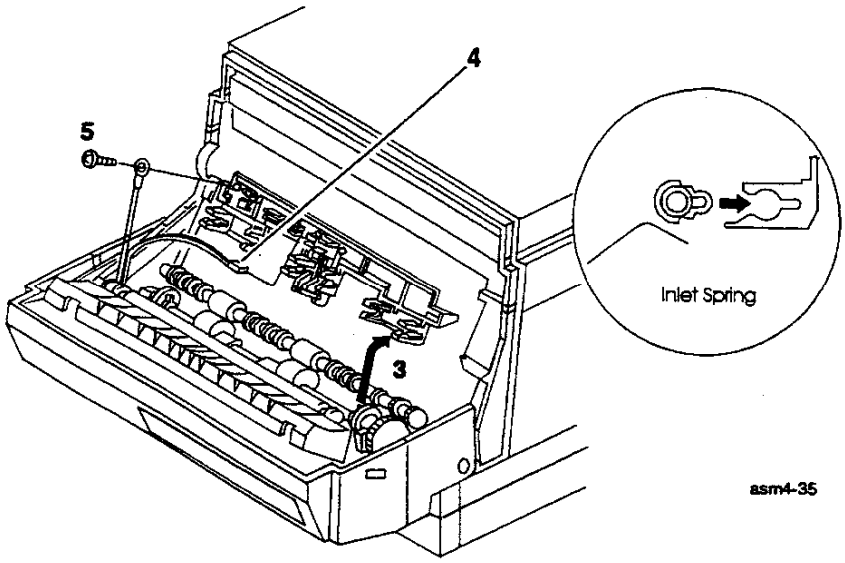
Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the Inlet Chute Assembly from the Pick–Up Roll by holding the chute at both sides of the near edge, and rotating the Assembly back and up.

CAUTION Do not touch the surface of the BTR Assembly.

4 Disconnect P/J 120 from the Registration Sensor.
5 Remove the screw securing the Wiring Assembly to the Inlet Chute Assembly.

Figure 4.3.9 Inlet Chute Assembly removal



Replacement

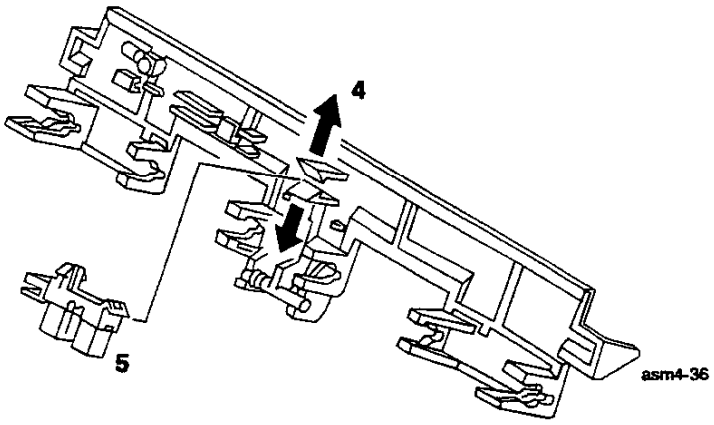
1 Assemble in reverse order.

REP 4.3.10 Registration Sensor

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the Inlet Chute Assembly (see REP 4.3.9).
4 Use your fingers to slightly spread the two plastic latches holding the Registration Sensor in place.
5 Remove the Registration Sensor from the Inlet Chute Assembly.

Figure 4.3.10 Registration Sensor removal



Replacement

1 Assemble in reverse order.

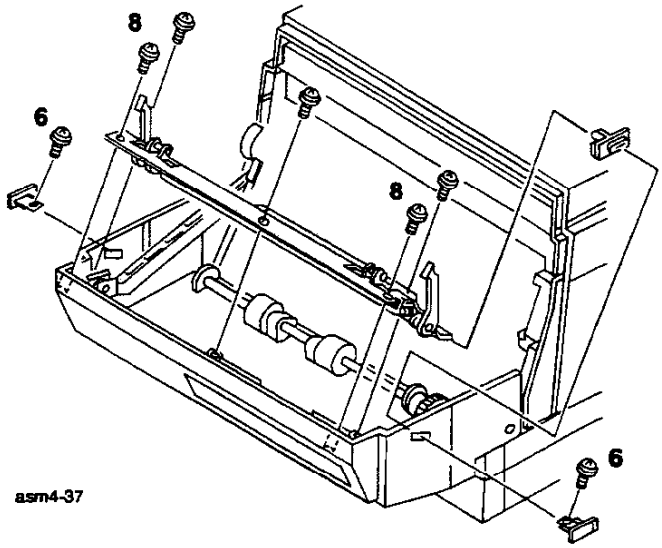
REP 4.3.11 Front Plate Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the BTR Assembly (see REP 4.3.7).
4 Remove the Transportation Chute Assembly (see REP 4.3.8).
5 Remove the Inlet Chute Assembly (see REP 4.3.9).
6 Remove the two screws from the R&L Inner Levers.
7 Remove the R&L Grip Levers and R&L Inner Levers.
8 Remove the seven screws securing the Front Plate Assembly to the Front Cover Assembly.
9 Remove the Front Plate Assembly.

CAUTION Do not deform or stretch the Front Plate Assembly spring.

Figure 4.3.11 Front Plate Assembly removal



Replacement

1 Assemble in reverse order.

REP 4.3.12 Pick–Up Roll Assembly

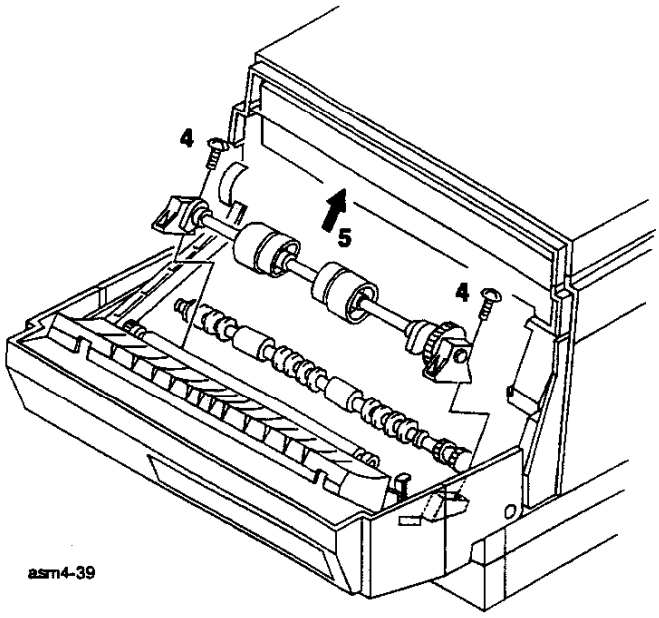
Removal

1 Switch off AC power and disconnect the AC line cord.
2 Open the Front Cover Assembly.
3 Remove the Inlet Chute Assembly (see REP 4.3.9).
4 Remove the two screws securing the Pick–Up Roll Assembly to the Front Cover Assembly.

NOTE: If the Lower Chute Assembly is in the way, close the Front Cover Assembly slightly. Remove the screws while you press the Bottom Plate Assembly away from you.

5 Remove the Pick–Up Roll Assembly.

Figure 4.3.12 Pick-Up Roll Assembly removal



Replacement

1 Assemble in reverse order.

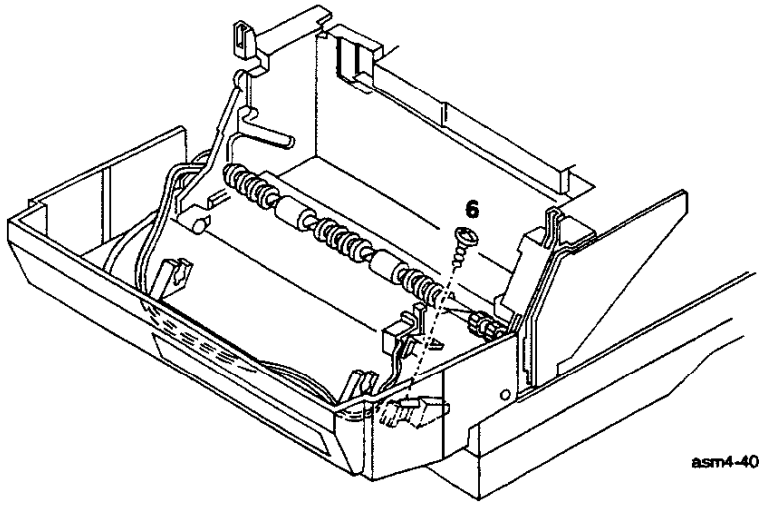
REP 4.3.13 Pick–Up Solenoid

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the Transportation Chute Assembly (see REP 4.3.8).
4 Remove the Inlet Chute Assembly (see REP 4.3.9).
5 Remove the Pick–Up Roll Assembly (see REP 4.3.12).
6 Remove the screw securing the Pick–Up Solenoid to the Front Cover Assembly.
7 Remove the Solenoid, and disconnect the Solenoid wiring harness.

NOTE: The Solenoid wiring harness runs to P/J 17 on the Printer Engine Controller.

Figure 4.3.13 Pick-Up Solenoid removal



Replacement

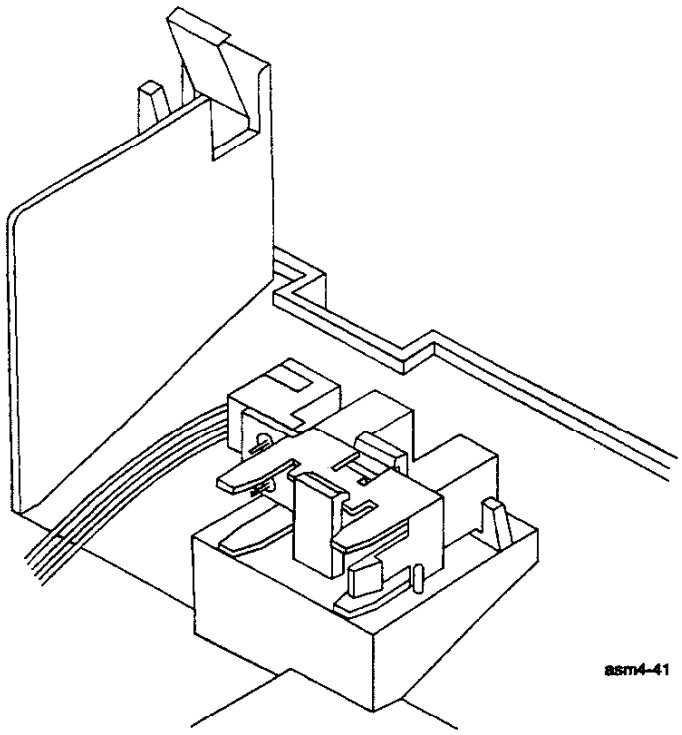
1 Assemble in reverse order.

REP 4.3.14 Multipurpose Tray (MP Tray) Sensor

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the Inlet Chute Assembly (see REP 4.3.9).
4 Remove the Pick–Up Roll Assembly (see REP 4.3.12).
5 Remove the MP Tray Spring from the MP Tray Actuator.
6 Spread the two plastic latches holding the MP Tray Sensor in place.
7 Disconnect the MP Tray Sensor.

Figure 4.3.14 MP Tray Sensor removal



Replacement

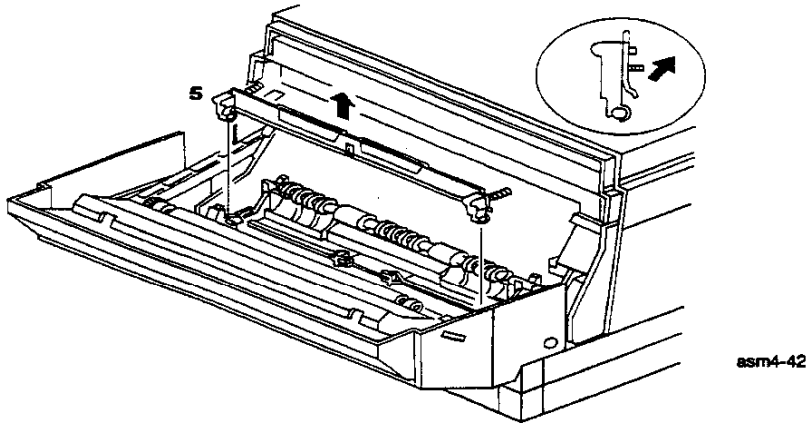
1 Assemble in reverse order.

REP 4.3.15 Bottom Plate Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the Inlet Chute Assembly (see REP 4.3.9).
4 Remove the Pick–Up Roll Assembly (see REP 4.3.12).
5 Hold the Bottom Plate Assembly firmly at both ends and pull up.
6 Remove the Bottom Plate Assembly.

Figure 4.3.15 Bottom Plate Assembly removal



Replacement

1 Align the plastic slots at the base of the Bottom Plate Assembly with the plastic tabs on the Front Cover Assembly.

NOTE: Make sure the two springs on each end of the Bottom Plate Assembly face away from the front of the printer.

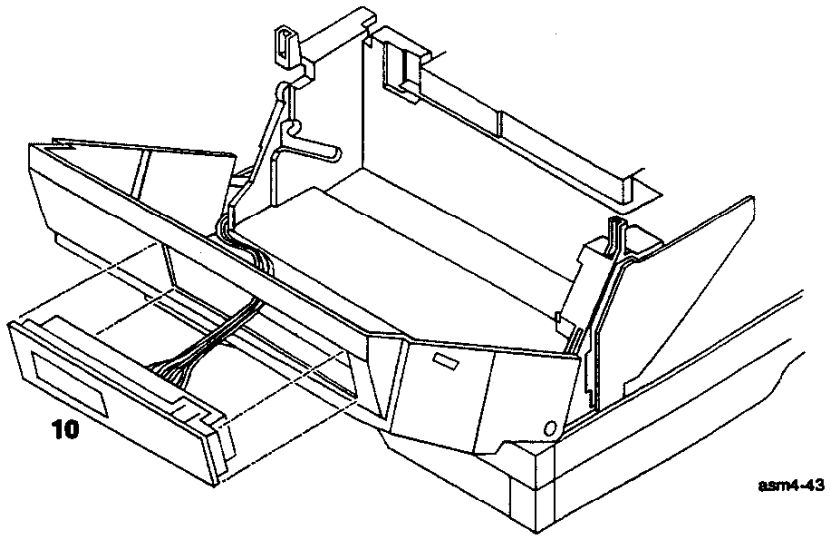
2 Position the MP Tray Sensor Actuator in the cutout in the center of the Bottom Plate Assembly.
3 Press firmly on the Bottom Plate Assembly until is snaps into place.
4 Complete the assembly in reverse order.

REP 4.3.16 Control Panel

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the BTR Assembly (see REP 4.3.7).
7 Remove the Transportation Chute Assembly (see REP 4.3.8).
8 Remove the Inlet Chute Assembly (see REP 4.3.9).
9 Remove the Front Plate Assembly (see REP 4.3.11).
10 Depress the clips securing the Control Panel to the Front Cover Assembly and pull the Panel forward.
11 Disconnect the wiring harness from the Control Panel.

Figure 4.3.16 Control Panel removal



Replacement

1 Assemble in reverse order.

REP 4.3.17 Multipurpose Tray (MP Tray)

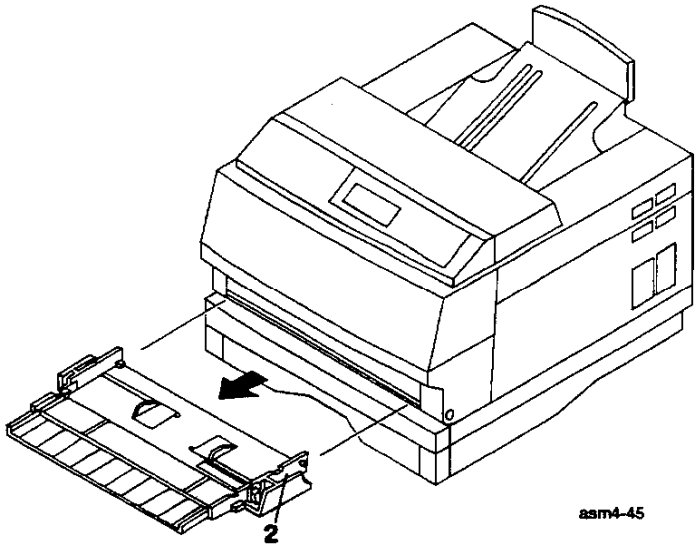
Removal

1 Switch the printer power OFF and disconnect the Power Cord.

2 Press the release tab toward the center of the tray while gently pulling it forward.

NOTE: The tray is fragile. Do not apply excessive force as you pull it forward.

Figure 4.3.17 MP Tray removal



Replacement

1 Press the release while inserting the tray.

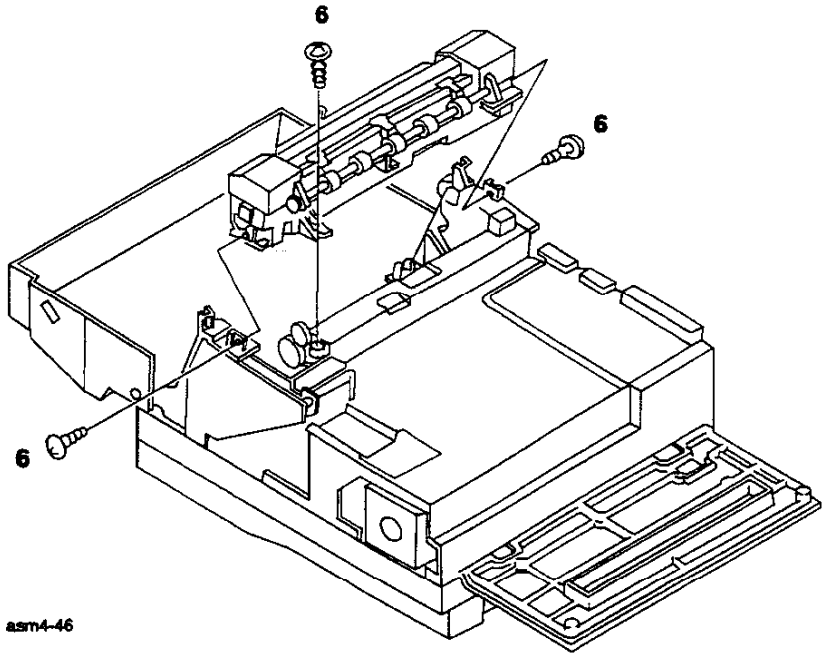
REP 4.4 Fuser and Paper Exit

REP 4.4.1 Fuser Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the three screws securing the Fuser Assembly to the top of the ROS Assembly.
7 Slowly pull up on the Assembly to unplug P/J 101.
8 Remove the Fuser Assembly.

Figure 4.4.1 Fuser Assembly removal



Replacement

1 Align the Fuser Assembly with the holes at the top of the ROS Assembly, and with P/J 101 at the left end of Fuser Assembly.

NOTE: Make sure the Gear Exit on the right end of the Fuser Assembly meshes with the Drive Assembly gear.

2 Press the Fuser Assembly firmly into place.
3 Complete the assembly in reverse order.

REP 4.4.2 Pressure Roll

Removal

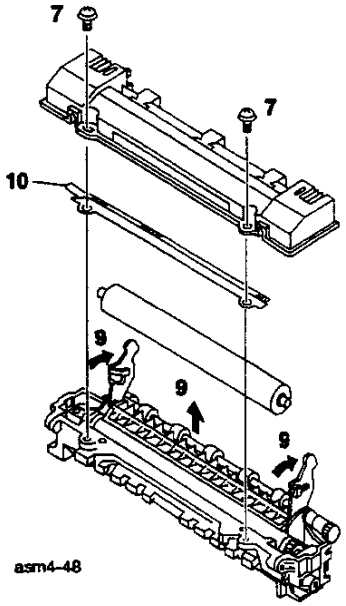
1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the two screws securing the Fuser Cover Assembly to the Fuser Base.
8 Remove the Fuser Cover Assembly.

CAUTION Do not touch the Heat Roll or Pressure Roll.

9 Gently lift out the Pressure Roll from the Pressure Roll Bearings and Nip Springs by grasping the end of the rolls only.
10 Remove the Static Eliminator.

NOTE: The Pressure Roll Bearings and Nip Springs drop off very easily. Do not lose them.

Figure 4.4.2 Pressure Roll removal



Replacement

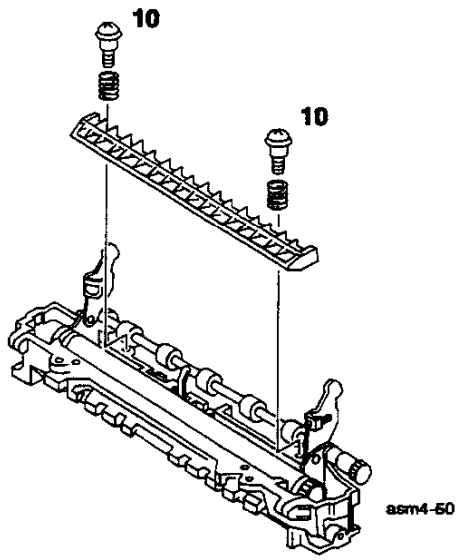
1 Assemble in reverse order.

REP 4.4.3 Exit Chute

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the Fuser Cover Assembly (see REP 4.4.2).
8 Remove the Pressure Roll (see REP 4.4.2).
9 Remove the Static Eliminator (see REP 4.4.2).
10 Remove the two screws and springs securing the Exit Chute to the Fuser Assembly.
11 Remove the Exit Chute.

Figure 4.4.3 Exit Chute removal



Replacement

1 Position the Exit Chute on top of the Heat Roll, threading the Exit Actuator through the rectangular hole in the center of the Chute.

NOTE: Make sure the holes at the ends of the Exit Chute line up with the bosses on the base of the Fuser Assembly.

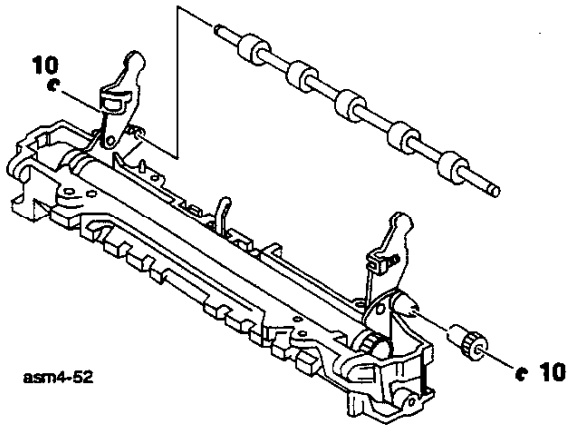
2 Reposition the Static Eliminator (see REP 4.4.2).
3 Complete the assembly in reverse order.

REP 4.4.4 Exit Roll Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the Fuser Cover Assembly (see REP 4.4.2).
8 Remove the Pressure Roll (see REP 4.4.2).
9 Remove the Exit Chute (see REP 4.4.3).
10 Remove the two E–Rings securing the left and the right Exit Roll Assembly to the Fuser Assembly.
11 Remove the Gear Exit located on the right end of the shaft.
12 Slide the Exit Roll Assembly to the left and out of the Fuser Assembly.

Figure 4.4.4 Exit Roll Assembly removal



Replacement

1 Assemble in reverse order.

REP 4.4.5 Temperature Sensor Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the Fuser Cover Assembly (see REP 4.4.2).
8 Remove the Pressure Roll (see REP 4.4.2).
9 Remove the Exit Chute (see REP 4.4.3).
10 Remove the Exit Roll Assembly (see REP 4.4.4).

NOTE: Be careful not to remove the Exit Actuator.

11 Remove the following six screws (Figure 4.4.5a):
- One 10mm gold screw and washer on the thermistor
- Two 8mm gold screws with washers on the wiring harnesses leading to the Heater Rod
- Three tapped 7mm gold screws securing the Temperature Sensor Assembly

12 Remove the Temperature Sensor Assembly.

CAUTION Do not damage the Heat Roll when you remove the Sensor Assembly.

Figure 4.4.5a Temperature Sensor Assembly removal

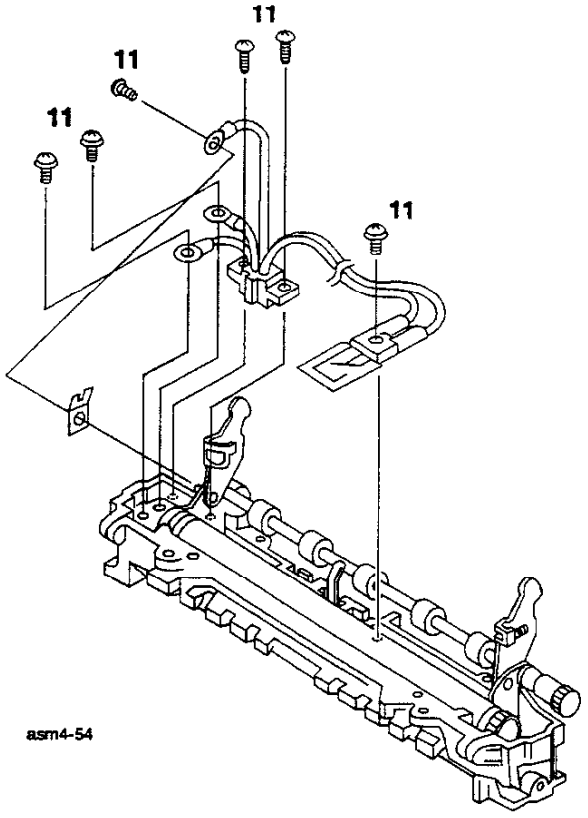
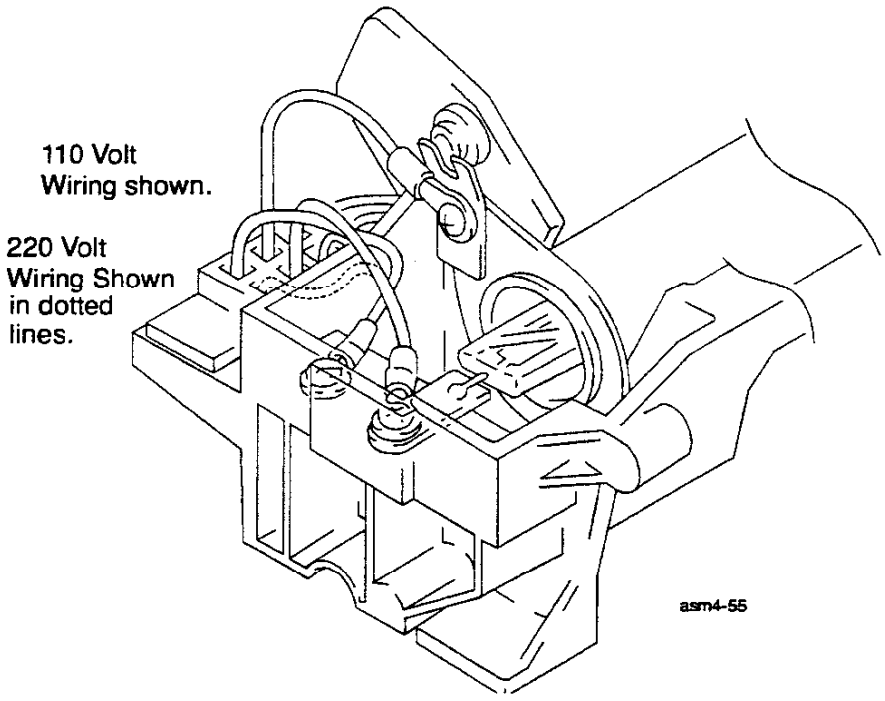


Figure 4.4.5b Temperature Sensor Assembly replacement



Replacement

1 Reinstall the Temperature Sensor Assembly using the six screws from Step 10 above (see Figure 4.4.5b).
2 Reinstall the Exit Roll Assembly (see REP 4.4.4).
3 Reinstall the Exit Chute (see REP 4.4.3).
4 Reinstall the Pressure Roll (see REP 4.4.2).
5 Reinstall the Fuser Cover Assembly (see REP 4.4.2).
6 Complete the assembly in reverse order.

REP 4.4.6 Heater Rod

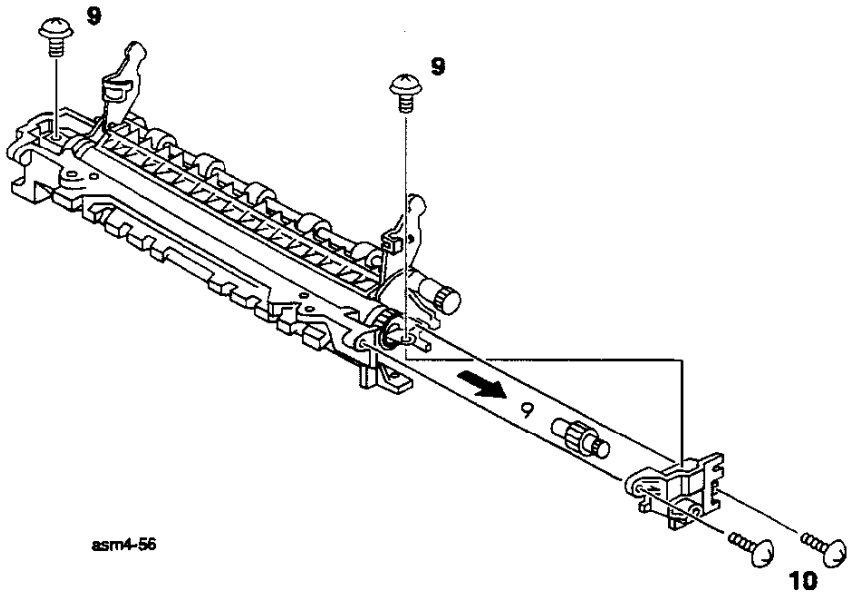
Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the Fuser Cover Assembly (see REP 4.4.2).
8 Remove the Pressure Roll (see REP 4.4.2).
9 Remove the two screws and washers securing the Heater Rod at both ends of the Fuser Assembly.
10 Remove the two screws securing the Fuser Frame R to the Fuser Assembly to remove the Frame along with the Idler Shaft and Gear Idler.

NOTE: Do not touch the Heater Rod when removing these components.

11 Carefully slide the Heater Rod out of the Heat Roll.

Figure 4.4.6 Heater Rod removal



Replacement

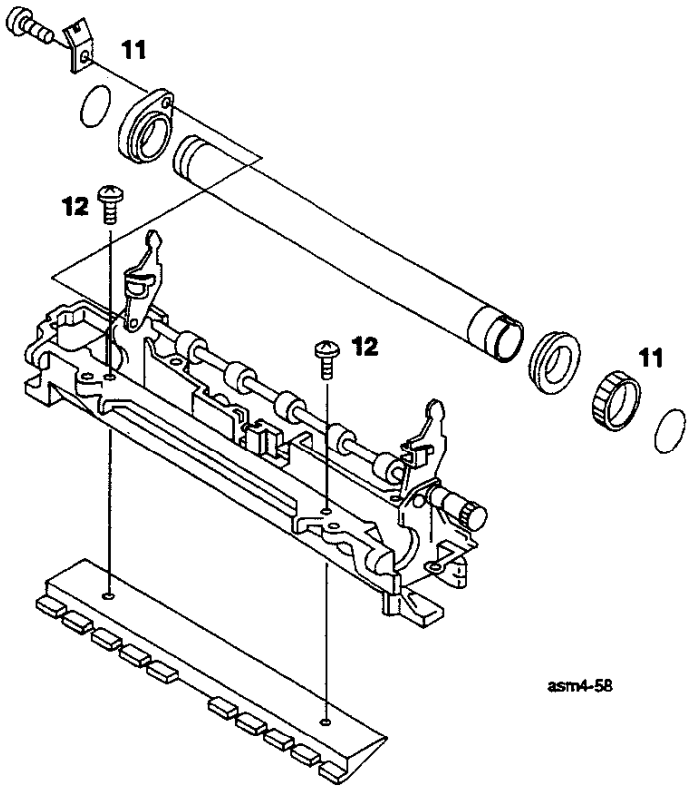
1 Assemble in reverse order.

REP 4.4.7 Heat Roll

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the Fuser Cover Assembly (see REP 4.4.2).
8 Remove the Pressure Roll (see REP 4.4.2).
9 Remove the Exit Chute (see REP 4.4.3).
10 Remove the Heater Rod (see REP 4.4.6).
11 Remove the right Heat Roll Ring (*spring clip*), Gear Heat Roll (*drive gear*), Heat Roll Bearing and Heat Roll Ring L and Ground Plate on Heat Roll Bearing L.
12 Remove the two screws securing the Fuser Inlet Chute.
13 Remove the Heat Roll.

Figure 4.4.7 Heat Roll removal



Replacement

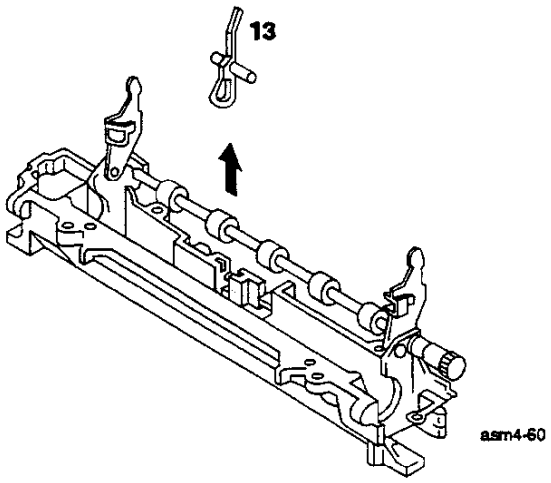
1 Assemble in reverse order.

REP 4.4.8 Exit Actuator

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the Fuser Cover Assembly (see REP 4.4.2).
8 Remove the Pressure Roll (see REP 4.4.2).
9 Remove the Exit Chute (see REP 4.4.3).
10 Remove the Fuser Inlet Chute (see REP 4.4.7).
11 Remove the Heater Rod (see REP 4.4.6).
12 Remove the Heat Roll (see REP 4.4.7).
13 Lift the Exit Actuator and remove it from the Fuser Assembly.

Figure 4.4.8 Exit Actuator removal



Replacement

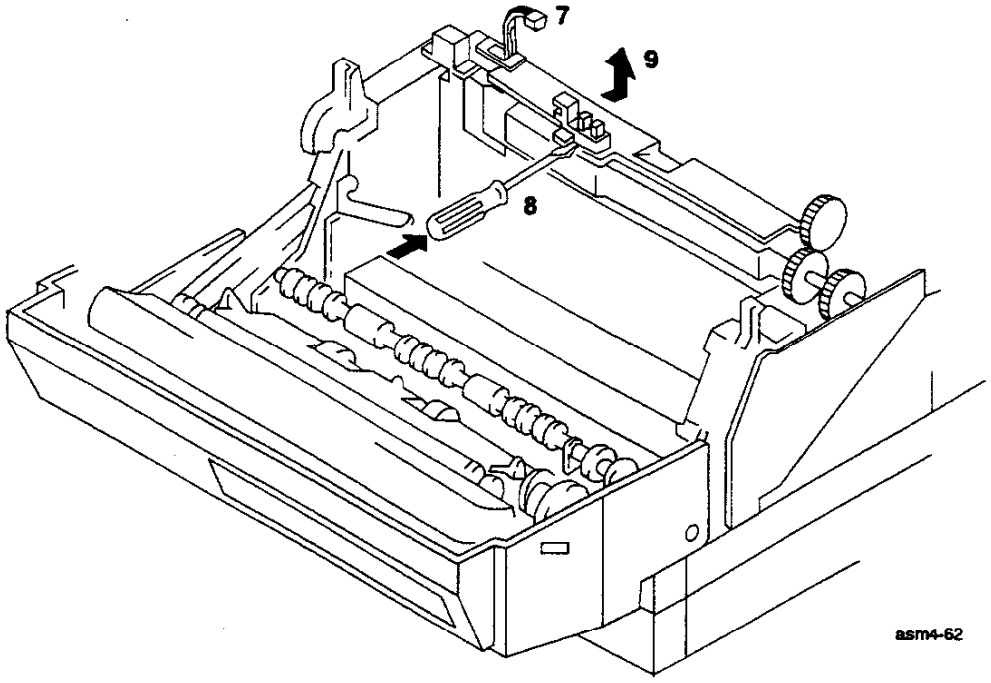
1 Assemble in reverse order.

REP 4.4.9 Exit Sensor

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Unplug P/J 119 from the Exit Sensor.
8 Use a screwdriver to pry open the clips holding the Exit Sensor to the Electronics Cover.
9 Remove the Exit Sensor.

Figure 4.4.9 Exit Sensor removal



Replacement

1 Assemble in reverse order.

REP 4.5 Drive and Xerographic Modules

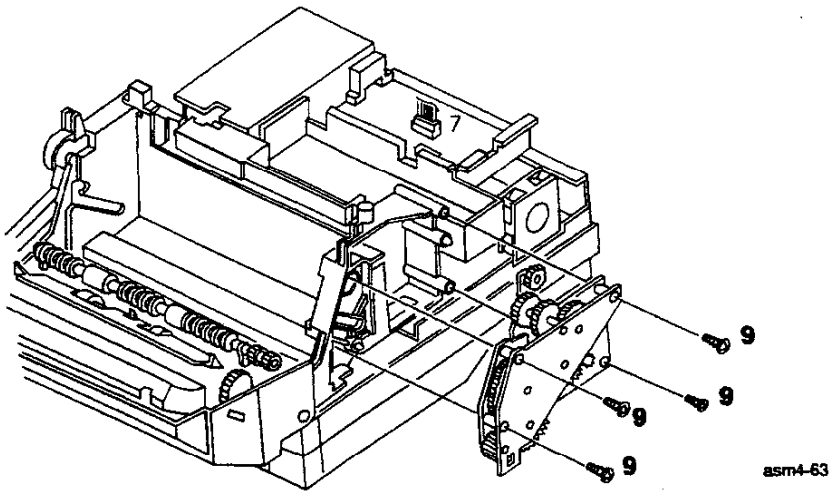
REP 4.5.1 Drive Assembly

Removal

1 Switch off AC power and disconnect the AC line cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the Electronics Box Cover (see REP 4.6.3).
8 Disconnect P/J 14 on the Printer Engine Controller PWB.
9 Remove the following four screws securing the Drive Assembly to the printer frame:
- One 10mm screw at the rear of Drive Assembly
- Three 87mm long screws

10 Remove the Drive Assembly.

Figure 4.5.1 Drive Assembly removal



Replacement

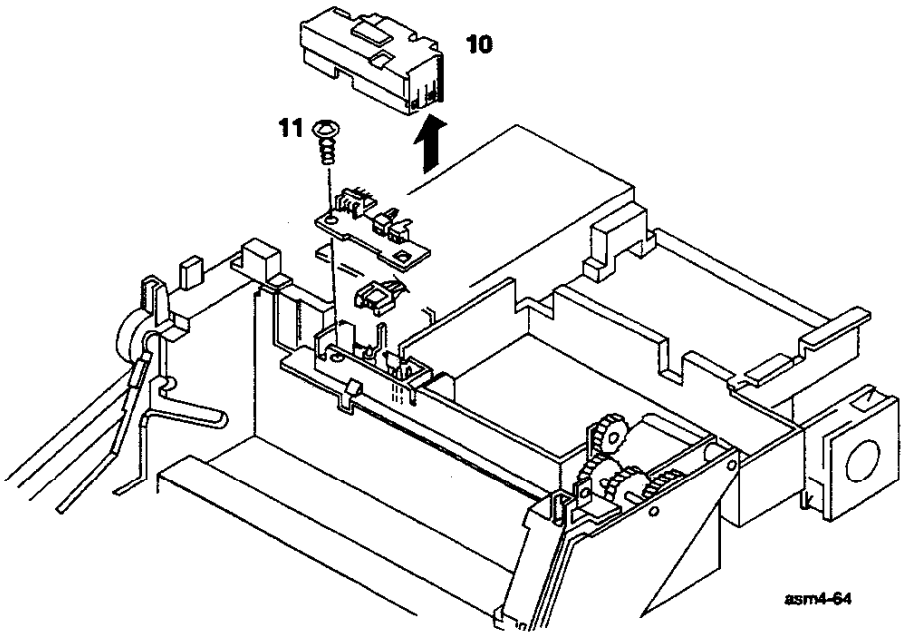
1 Assemble in reverse order.

REP 4.5.2 CRU Sensor PWB

Removal

1 Switch off AC power and disconnect the AC line cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the System Controller PWB (see REP 4.6.1).
8 Remove the Electronics Box Cover (see REP 4.6.3).
9 Disconnect P/J 118 from the CRU Sensor PWB.
10 Remove the CRU Sensor Cover by pulling it straight up.
11 Remove the screw securing the CRU Sensor PWB to the printer frame.
12 Bias the locking tab to one side to remove the PWB.
13 Remove the CRU Sensor PWB.

Figure 4.5.2 CRU Sensor PWB removal



Replacement

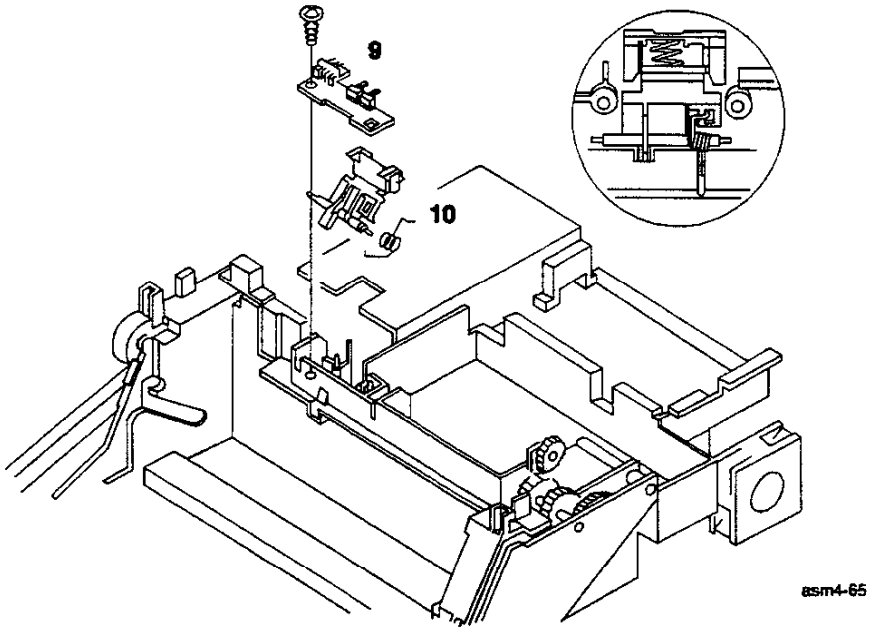
1 Assemble in reverse order.

REP 4.5.3 CRU Actuator Assembly

Removal

1. Switch the printer power OFF and disconnect the Power Cord.
2. Open the Rear Cover (see REP 4.1.1).
3. Remove the Top Cover Assembly (see REP 4.1.2).
4. Remove the Left Cover (see REP 4.1.3).
5. Remove the Right Cover (see REP 4.1.4).
6. Remove the Fuser Assembly (see REP 4.4.1).
7. Remove the System Controller PWB (see REP 4.6.1).
8. Remove the Electronics Box Cover (see REP 4.6.3).
9. Remove the CRU Sensor PWB (see REP 4.5.2).
10. Remove the CRU Actuator Assembly and Actuator Spring. (From the back of the machine, pry up on the actuator shaft with a small screwdriver)

Figure 4.5.3 CRU Actuator Assembly removal



Replacement

1. Reinstall the CRU Sensor Actuator and Spring, in the slot near the CRU Sensor PWB mounting holes.

NOTE: Reattach the spring so it provides the proper return action for the Actuator.

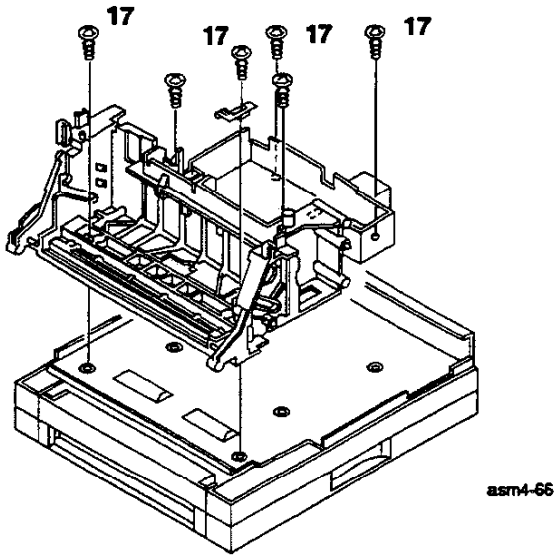
2. Complete the assembly procedure in reverse order.

REP 4.5.4 ROS Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the System Controller PWB (see REP 4.6.1).
8 Remove the Electronics Box Cover (see REP 4.6.3).
9 Remove the LVPS Assembly (see REP 4.6.7).
10 Remove the Gear Double L (see REP 4.3.2).
11 Remove the Gear Double R (see REP 4.3.3).
12 Remove the Link Assembly (see REP 4.3.1).
13 Remove the Earth Plate Assembly (see REP 4.6.4).
14 Use a screwdriver to remove the Cable Cap from the ROS Assembly.
15 Remove the Front Cover Assembly (see REP 4.3.6), Lower Chute Assembly (see REP 4.3.4), and two Gear Front Covers .
16 Disconnect the six High Voltage Power Supply cables.
17 Remove the six screws securing the ROS Assembly (see Figure 4.5.4).
18 Lift the ROS Assembly, along with the ROS and SOS wiring harness assemblies, out of the printer.

Figure 4.5.4 ROS Assembly removal



Replacement

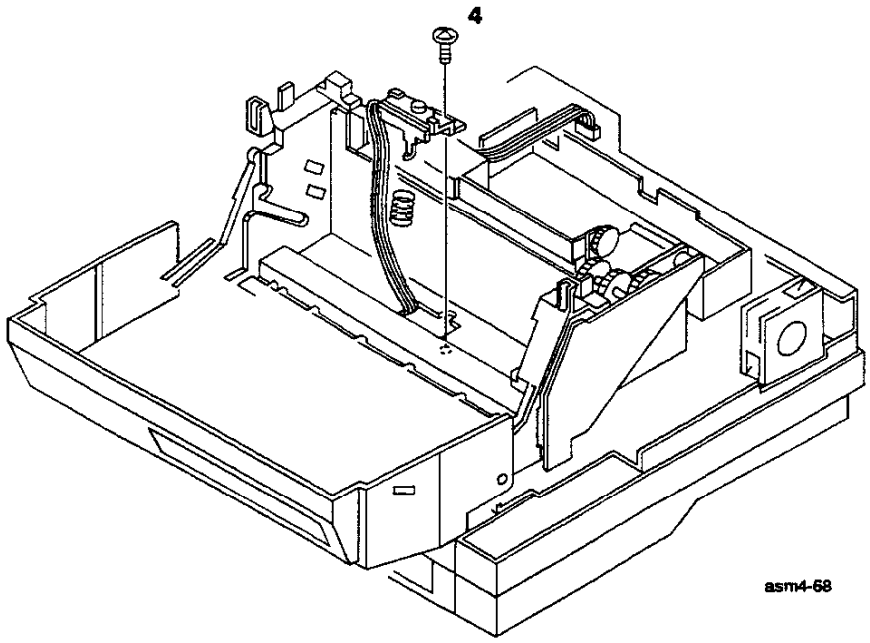
1 Align the ROS Assembly onto the Frame Base.
2 Reconnect P/J 112 and P/J 114 to the ROS Assembly, and connect P/J 113 to the SOS Assembly.
3 Reinstall the six screws securing the ROS Assembly.
4 Reinstall the CRU Actuator Assembly (see REP 4.5.3).
5 Reinstall the CRU Sensor PWB (see REP 4.5.2).
6 Follow the remaining removal steps in reverse order to complete this replacement procedure.

REP 4.5.5 Toner Sensor Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Front Cover Assembly.
3 Remove the EP Cartridge.
4 Remove the screw securing the Toner Sensor Assembly to the ROS Assembly.
5 Unplug P/J 123 from the Toner Sensor Assembly.

Figure 4.5.5 Toner Sensor Assembly removal



Replacement

1 Assemble in reverse order.

REP 4.6 Electrical Modules

REP 4.6.1 System Controller PWB

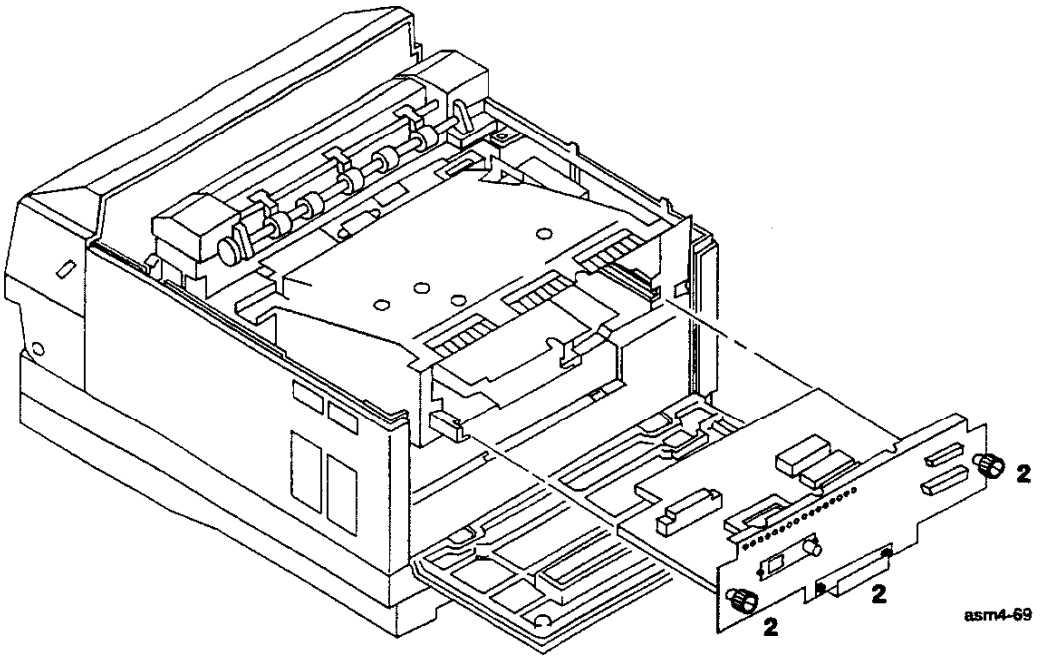
NOTE: This procedure describes the standard System Controller PWB. Minor variations in System Controller configuration may exist between OEM hardware.

Removal

1 Switch the printer power OFF and disconnect the Power Cord.

2 Loosen the two thumb screws and pull out the System Controller PWB by grasping the handle. (Early versions that may not have handles, carefully pry the controller loose with a screwdriver)

Figure 4.6.1 System Controller removal



Replacement

1 Slide the System Controller PWB into position and tighten the two thumb screws fully.

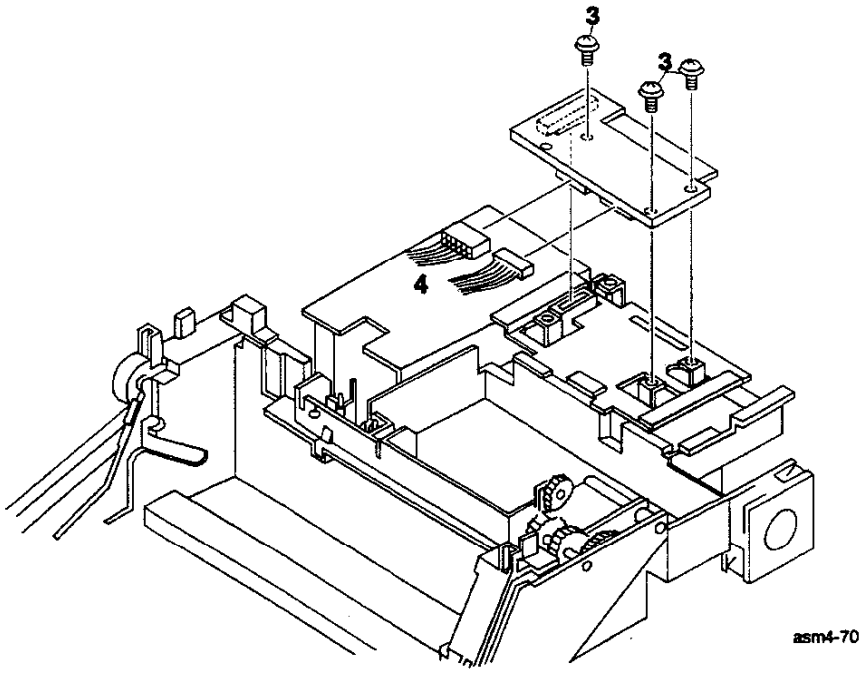
2 If a new System Controller PWB has been installed, you may need to assist the customer in setting the desired operating parameters.

REP 4.6.2 Interface Board

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Remove the Electronics Box Cover (see REP 4.6.3).
3 Remove the three screws securing the Interface Board.
4 Disconnect P/J 50 and P/J 51 from the Interface Board.

Figure 4.6.2 Interface Board removal



Replacement

1 Assemble in reverse order.

REP 4.6.3 Electronics Box Cover

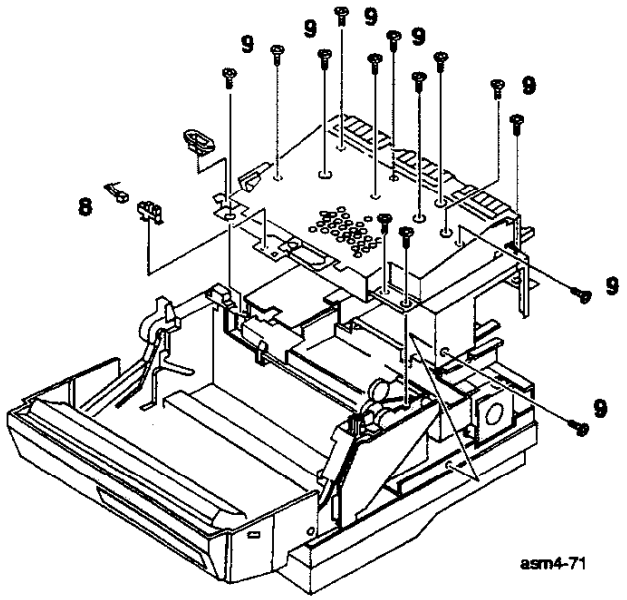
Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the System Controller PWB (see REP 4.6.1).
8 Unplug P/J 119 from the Exit Sensor (see REP 4.4.9).
9 Remove fifteen screws securing the Electronics Box Cover.

NOTE: Several screw types are used to secure the cover. Be sure to relocate the screws properly.

10 Lift off the Electronics Box Cover.

Figure 4.6.3 Electronics Box Cover removal



Replacement

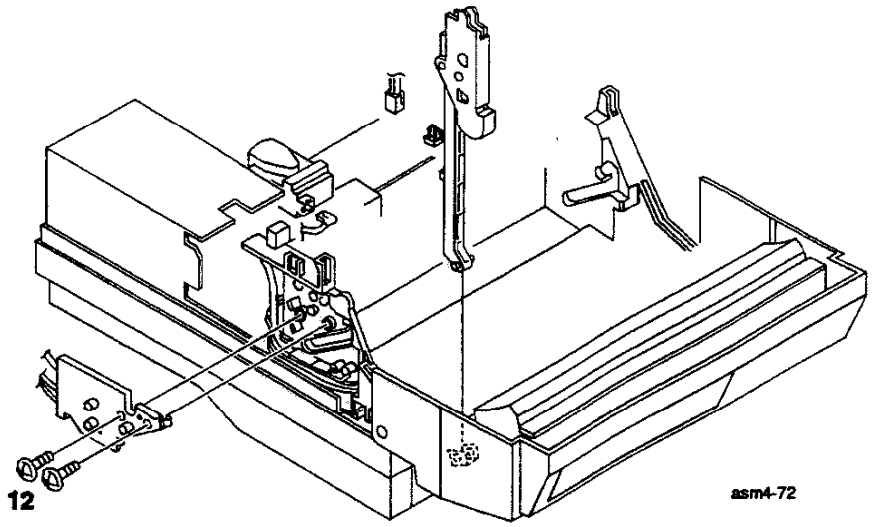
1 Assemble in reverse order.

REP 4.6.4 Earth Plate Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the System Controller PWB (see REP 4.6.1).
8 Unplug P/J 19 from the Exit Sensor (see REP 4.4.9).
9 Remove the Electronics Box Cover (see REP 4.6.3).
10 Disconnect P/J CR and P/J DB from the HVPS.
11 Remove the Link Assembly (see REP 4.3.1).
12 Remove the two screws securing the Earth Plate Assembly to the ROS Assembly.
13 Remove the Earth Plate Assembly.

Figure 4.6.4 Earth Plate Assembly removal



Replacement

1 Assemble in reverse order.

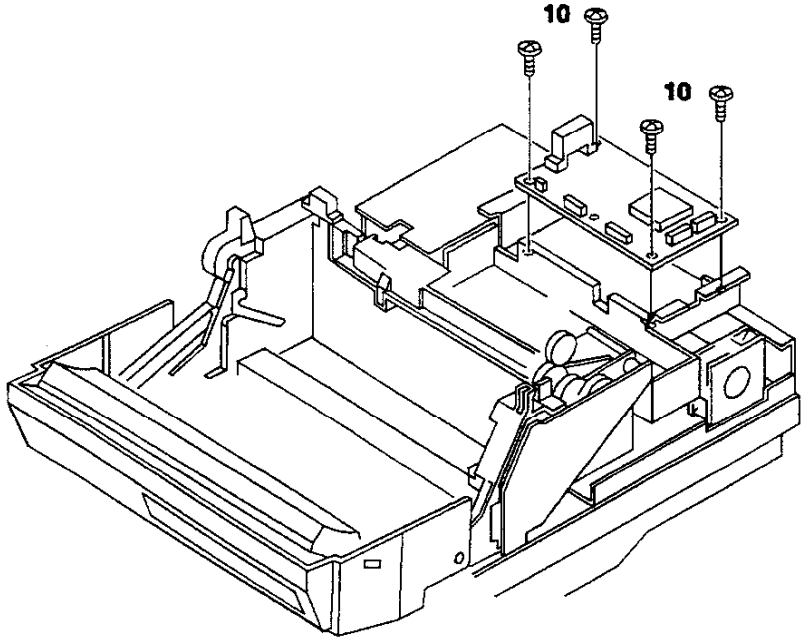
REP 4.6.5 Printer Engine Controller PWB

NOTE: If you replace the Printer Engine Controller PWB, you lose the current Total Print Count data recorded there. Record the Total Print Count data before replacing the Printer Engine Controller PWB.

Removal

1. Switch the printer power OFF and disconnect the Power Cord.
2. Open the Rear Cover (see REP 4.1.1).
3. Remove the Top Cover Assembly (see REP 4.1.2).
4. Remove the Left Cover (see REP 4.1.3).
5. Remove the Right Cover (see REP 4.1.4).
6. Remove the Fuser Assembly (see REP 4.4.1).
7. Remove the System Controller PWB (see REP 4.6.1).
8. Remove the Electronics Box Cover (see REP 4.6.3).
9. Disconnect all P/Js on the Printer Engine Controller PWB (P/J 11 through P/J 20), plus P/J 21 if a Toner Sensor Assembly is installed.
10. Remove the four screws securing the Printer Engine Controller PWB to the Electronics box.
11. Remove the Printer Engine Controller PWB.

Figure 4.6.5 Printer Engine Controller PWB removal



Replacement

1. Position the Printer Engine Controller PWB in the Electronics Box.
2. Assemble in reverse order.

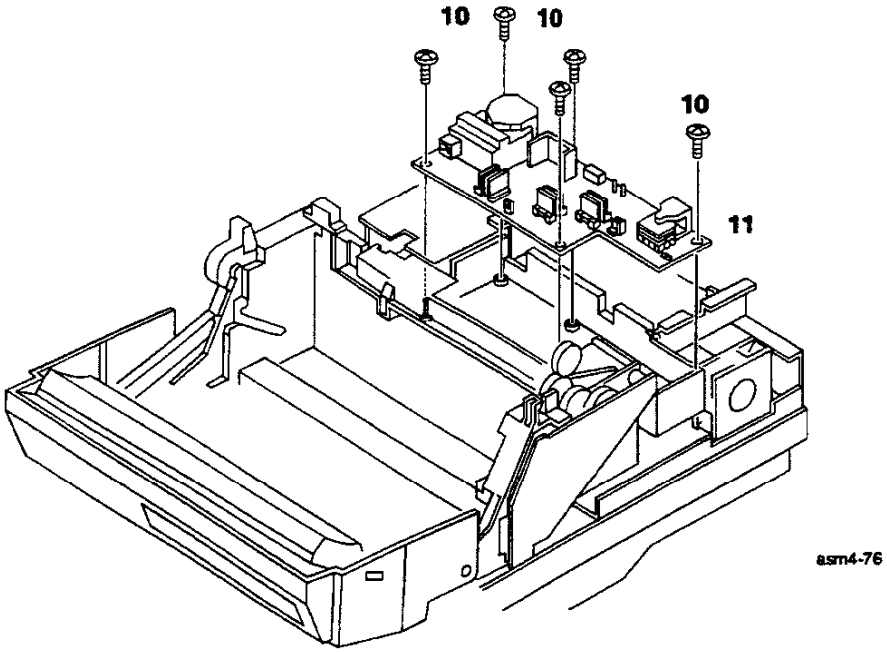
NOTE: Enter the operating parameters into the NVRAM on the new Printer Engine Controller PWB.

REP 4.6.6 HVPS Assembly

Removal

1 Switch off AC power and disconnect the AC line cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the System Controller PWB (see REP 4.6.1).
8 Remove the Electronics Box Cover (see REP 4.6.3).
9 Disconnect all P/Js on the HVPS (P/J 111, P/J CR, P/J DB, P/J TR, and P/J RTN) (2, green and black)
10 Remove the five screws securing the HVPS to the frame.
11 Remove the HVPS from the Electronics Box.

Figure 4.6.6 HVPS Assembly removal



Replacement

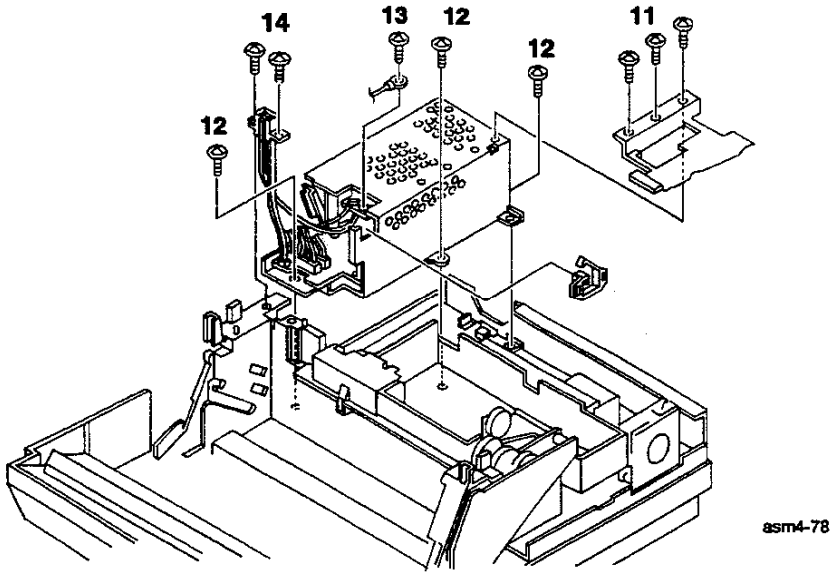
1 Assemble in reverse order.

REP 4.6.7 LVPS Assembly

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the Fuser Assembly (see REP 4.4.1).
7 Remove the System Controller PWB (see REP 4.6.1).
8 Remove the Electronics Box Cover (see REP 4.6.3).
9 Remove the Interface Board bracket.
10 Disconnect all P/Js on the Printer Engine Controller PWB (P/J 11 through P/J 20), plus P/J 21 if a Toner Sensor Assembly is installed.
11 Remove the three screws securing the Electronics box base.
12 Remove the three screws securing the LVPS.
13 Remove the green ground wire from the LVPS.
14 Remove the two screws securing the fuser connector.
15 Disconnect P13 to Interface PWB.
16 Lift off the LVPS Assembly.

Figure 4.6.7 LVPS Assembly removal



Replacement

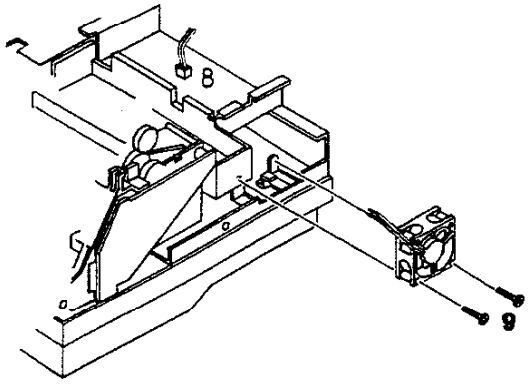
1 Assemble in reverse order.

REP 4.6.8 Fan

Removal

1 Switch the printer power OFF and disconnect the Power Cord.
2 Open the Rear Cover (see REP 4.1.1).
3 Remove the Top Cover Assembly (see REP 4.1.2).
4 Remove the Left Cover (see REP 4.1.3).
5 Remove the Right Cover (see REP 4.1.4).
6 Remove the System Controller PWB (see REP 4.6.1).
7 Remove the Electronics Box Cover (see REP 4.6.3).
8 Disconnect P/J 18 from the Printer Engine Controller PWB.
9 Remove the two screws and washers securing the Fan to the Frame Base.
10 Remove the Fan, making sure you note the correct orientation of the Fan for replacement.

Figure 4.6.8 Fan removal



Replacement

NOTE: Install the Fan so the air flows OUT of the printer.

1 Assemble in reverse order.

Section 5

General Procedures and Information

5.1 Printer Operations

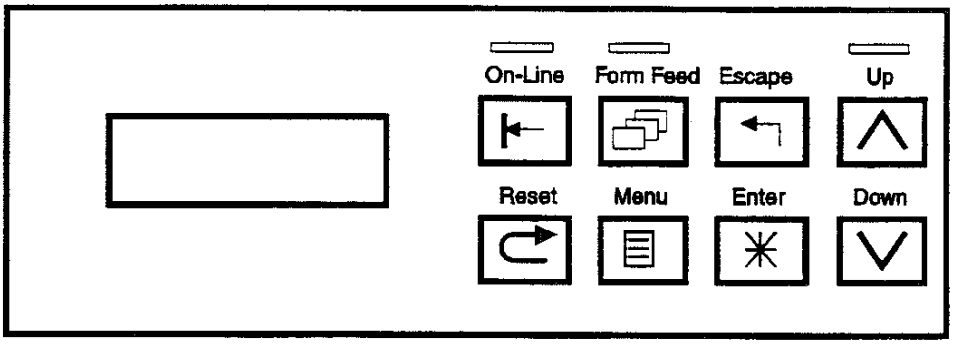
NOTE: The information presented in this section is based on a standard model Xerox 4505/4510 Laser Printer and a defect–free System Controller PWB.

5.1.1 Control Panel

The Control Panel is located on the Front Cover Assembly (Figure 5.1.1), and has one input device and two output devices:

Input Device	The Control Panel key pad is the main user input device. The key pad has eight keys.
Output Devices	The Liquid Crystal Diode (LCD) displays messages sent from the Printer Controller and the System Controller. The LCD displays two lines of text, with sixteen characters per line. Three Light Emitting Diodes (LED) display printer status.

Figure 5.1.1 Control Panel



5.1.2 Printer Modes

The Xerox 4505/4510 Laser Printer has three modes of operation, each with a unique set of options:

1) Online Ready Mode
2) Menu Mode
3) Diagnostic Mode

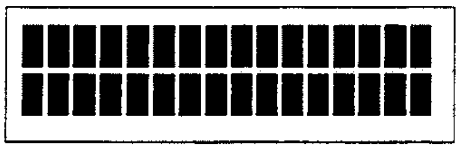
5.1.3 Online Mode

The Online Mode is the normal operating mode for the printer. In this mode, the printer is online, under control of the System Controller, and ready to generate output.

When the printer power is switched on, the printer enters the *Power-On Diagnostic Sequence,* the main drive motor runs, and the fuser warm-up begins. If the printer detects no errors, the Ready Online message will be displayed on the UI when the fuser reaches operating temperature.

During warm up:

1) The three LEDs on the Control Panel light then go out.
2) The LCD display fills with black squares.



asm5-04

3) The display will go blank. During the blank time, the printer is running a *Power-On Diagnostic Sequence.* The length of time the display is blank depends upon the type and number of options installed in the printer.

NOTE: There are two LEDs on the System Controller PWB. As viewed from the rear of the printer, the LED on the left is a +5VDC power indicator. The LED on the right is the diagnostic indicator. When the printer power is switched on, the diagnostic LED will light, then go out, then light again for the duration of the Power On Diagnostic Sequence. At the successful completion of diagnostics, the LED will go out.

4) When the power-on diagnostic sequence completes, the LCD will display the Xerox copyright information.
5) The printer will display "Please Wait" while the fuser warms up.

Please Wait
Warming Up

6) When the fuser reaches operating temperature, and if the Power-On Sequence encounters no problems, the LCD displays a *Online Ready* message.

Online —
Ready

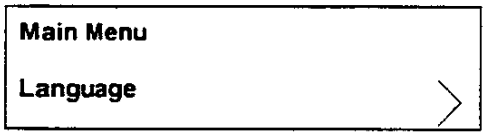
5.1.4 Menu Mode

The Menu Mode allows you to set, change, or adjust the various features/options available in the Xerox 4505/4510 printer. The menus displayed on any particular printer depend upon the options installed in the printer. If an option is not installed, the menu items for that option will not be displayed.

Entering the Menu Mode:

1 With the printer in the "Online Ready" mode, press the On-line key to take the printer "Offline".
2 Press the Menu key. The LCD will display "Main Menu/Language."
3 From the Main Menu you can access the six major menus (see the Menu Tree on the next page).
4 Press the "Up" or "Down" key to scroll through the major menus.
5 When the desired major menu is displayed, press the "Enter" key to select that menu.
6 Each of the six major menus has a number of sub-menus listed under them.

NOTE: The display will indicate that a sub-menu is available by displaying a "greater than" symbol in the lower right corner of the display.



7 Press the "Up" or "Down" key to scroll through the sub-menus.
8 When the desired sub-menu is displayed, press the "Enter" key to select that sub-menu item.
9 In some cases you will have another level of sub-menus. If another level exists, press the "Up" or "Down" key to scroll through the sub-menus, then press the "Enter" key to select the desired sub-menu item.
10 You will now be at the lowest level of the menus. At this level you to set, change, or adjust the feature or option you selected.
11 Use the "Up" or "Down" key to scroll through the settings.
12 When the desired setting is displayed, press the "Enter" key to "Save" your setting to NV RAM.
13 If you wish to go back up one menu level, press the "Escape" key. You will go up one menu level each time the "Escape" key is pressed.
14 When completed with all settings, press the On-Line key to return the printer to the "Online Ready" mode.

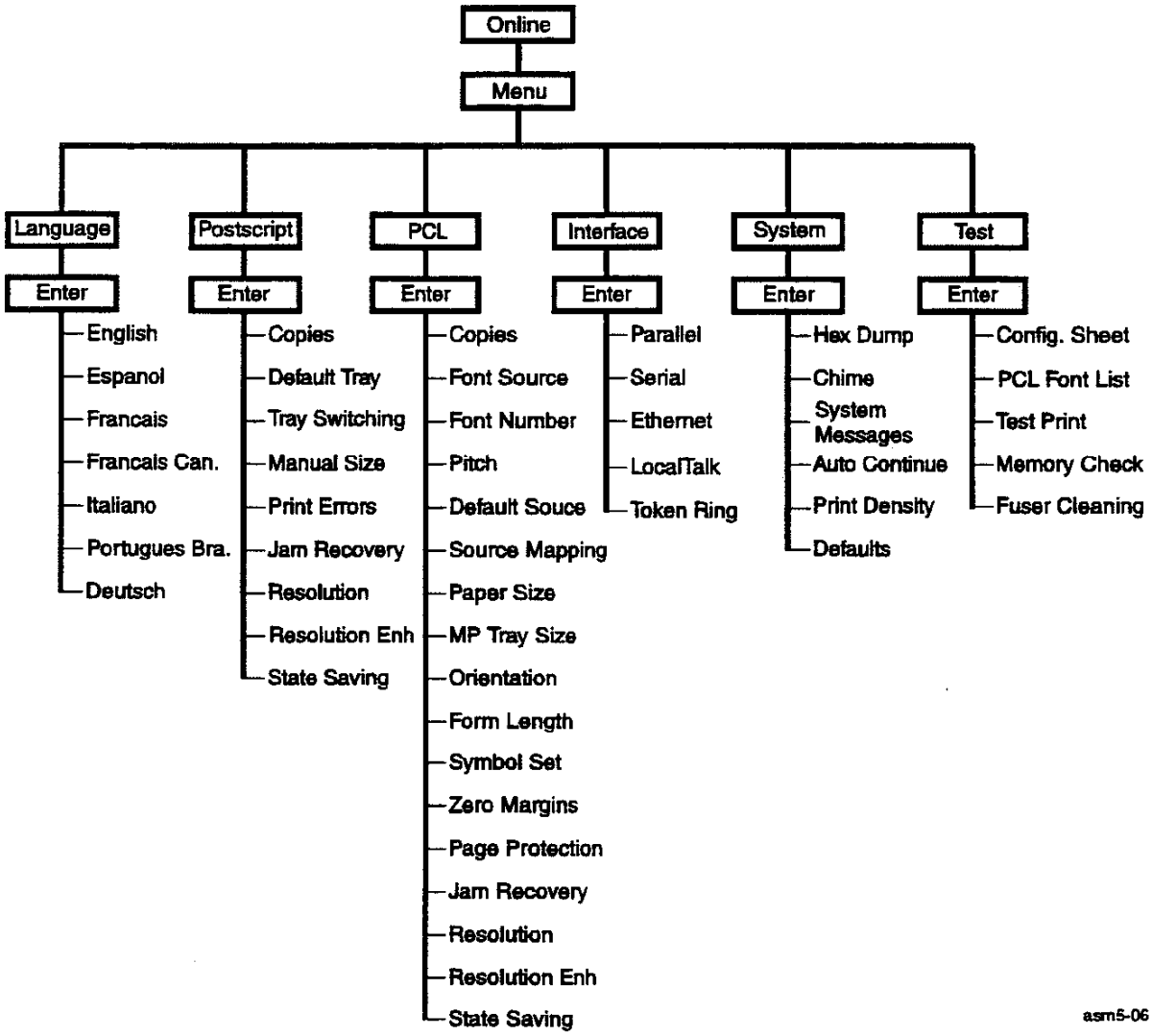
On the following pages, the menu tree and all the possible menu paths will be illustrated. The menu tree may be different on different printers depending upon the options installed. Most of the menu selections are straight forward and can be set to match the customers requirements without any additional information. Where additional information is required, the information will be contained on the page(s) following that menu illustration.

5.1.4.1 Menu Tree

The menu tree illustrates the six major menus that can be accessed from the menu mode. To access the six major menus:

1. From the Online Ready condition press the "Online" key.
2. Press the "Menu" key.
3. Press the "Down" key to move from left to right or the "Up" key to move from right to left through the major menu items.
4. When the desired menu is displayed, press the "Enter" key.

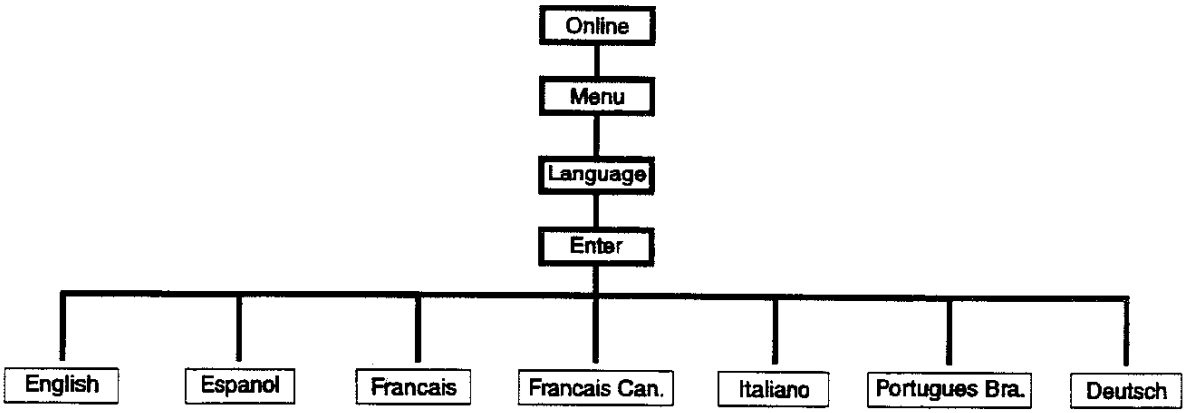
A breakdown of each major menu is illustrated on the following pages.



5.1.4.2 Language Menu

The language menu allows you to select the language that will be used to display information on the control panel and print text on the configuration sheet. To select a language:

1 From the Online Ready condition press the "Online" key.
2 Press the "Menu" key.
3 With "Main Menu" "Language" displayed, press "Enter."
4 Press the "Down" key to move from left to right or the "Up" key to move form right to left through the language sub-menu items.
5 When the desired language is displayed, press "Enter."



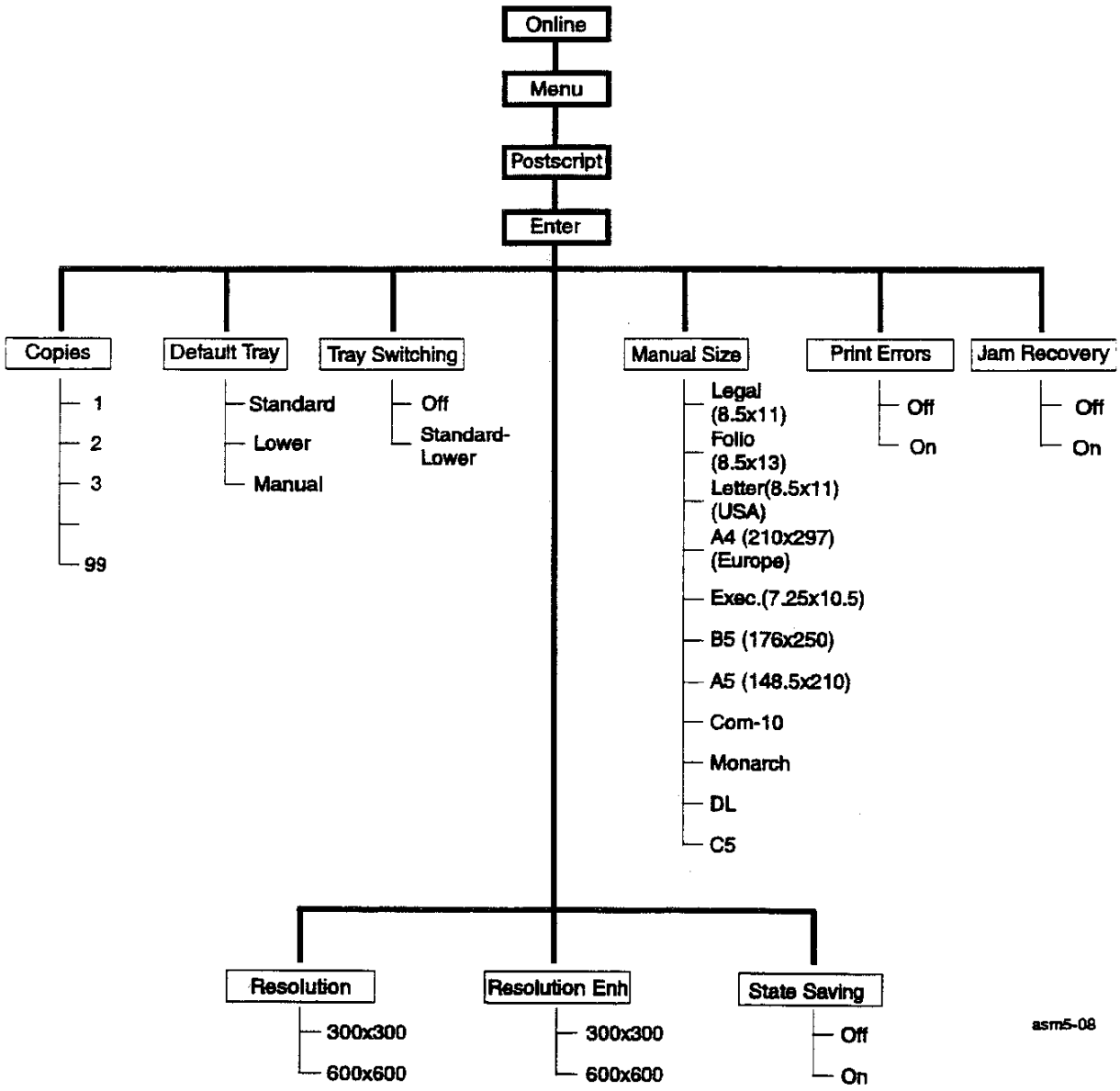
5.1.4.3 PostScript Menu

If the printer has a PostScript PWB installed, the printer will display the "PostScript" menu. The complete PostScript menu is illustrated on the next page. Some of the menu options depend upon hardware options. If the hardware option is not installed on the printer, it will not be displayed on the menu. For example, if you do not have the lower tray option installed, the menu will not give you the menu item "Tray Switching." To select the PostScript Menu:

1 From the Online Ready condition press the "Online" key.
2 Press the "Menu" key.
3 With "Main Menu" "Language" displayed, press the "Down" key until "PostScript" is displayed.
4 Press the "Enter" key.
5 Press the "Down" key to move from left to right or the "Up Arrow" key to move form right to left through the PostScript sub-menu items.
6 When the desired sub-menu is displayed, press "Enter."

7 Press the "Up" or "Down" key to move through the menu settings.

8 When the desired menu setting is displayed, press "Enter."

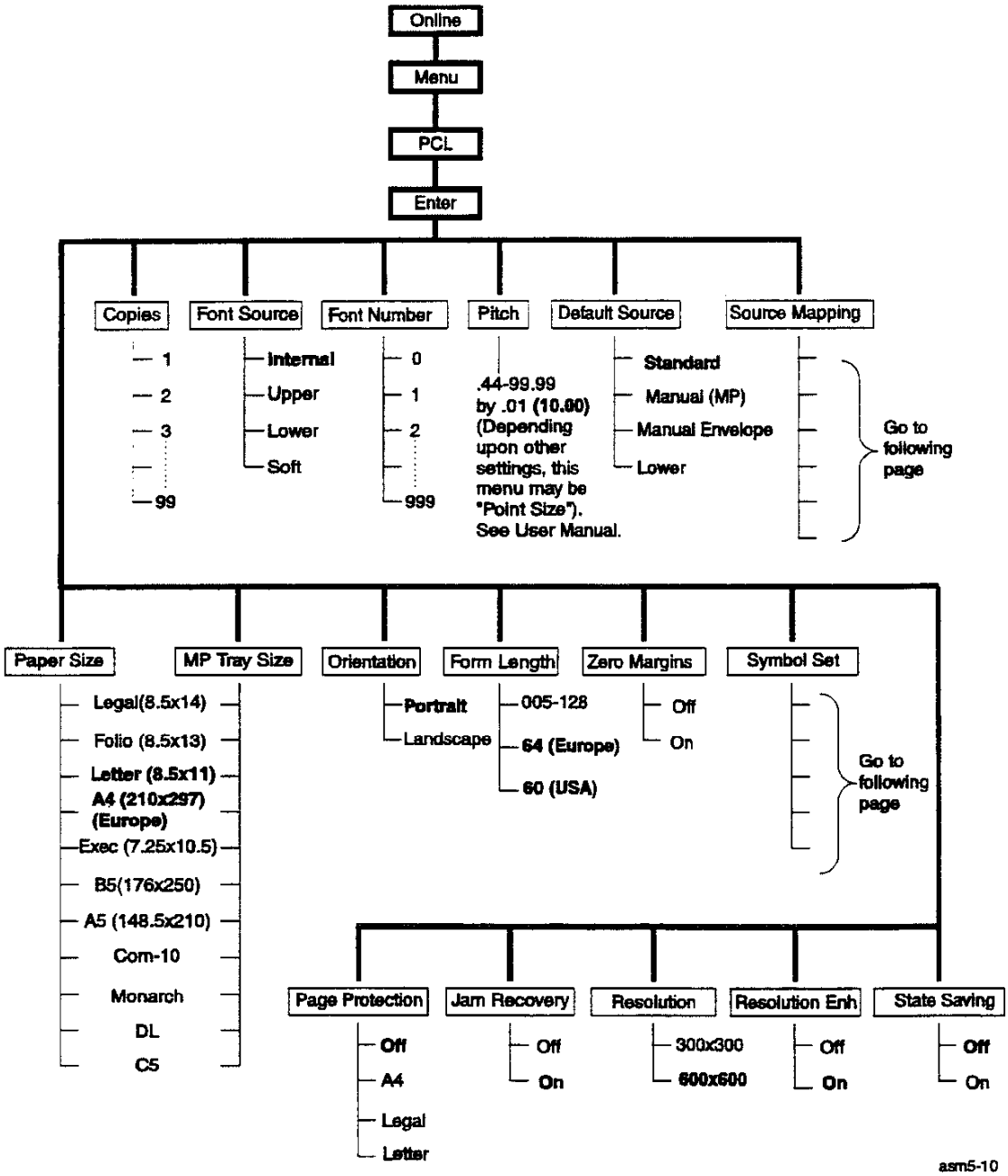


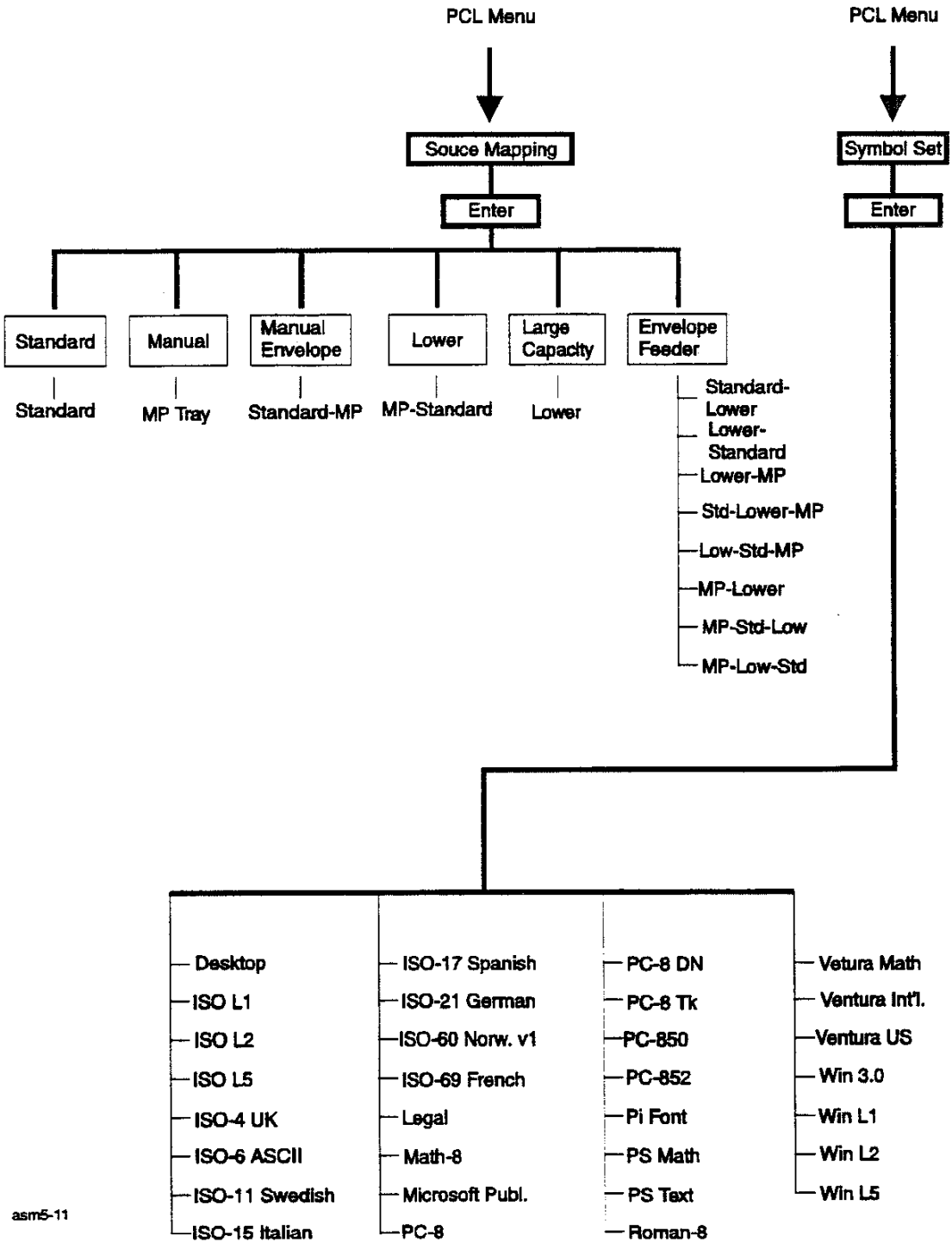
5.1.4.4 PCL Menu

The PCL menu options establishes the default configuration for the printer. PCL (Printer Control Language) is used by the software applications to send information and instructions to the printer. If the software does not send a particular PCL setting to the printer, the printer's PCL default setting will be used. To select the PCL Menu:

1 From the Online Ready condition press the "Online" key.
2 Press the "Menu" key.
3 With "Main Menu" "Language" displayed, press the "Down" key until "PCL Menu" is displayed.
4 Press the "Enter" key.
5 Press the "Down" key to move from left to right or the "Up" key to move form right to left through the PCL sub-menu items.
6 When the desired sub-menu is displayed, press "Enter."
7 Press the "Up" or "Down" key to move through the menu settings.
8 When the desired menu setting is displayed, press "Enter."

PCL menu is illustrated on the next two pages.


Online
Menu
PCL
Enter
Copies
1
2
3
99
Font Source
Internal
Upper
Lower
Soft
Font Number
0
1
2
999
Pitch
.44-99.99
by .01 (10.00)
(Depending
upon other
settings, this
menu may be
"Point Size").
See User Manual.
Default Source
Standard
Manual (MP)
Manual Envelope
Lower
Source Mapping
Go to
following
page
Paper Size
Legal(8.5x14)
Folio (8.5x13)
Letter (8.5x11)
A4 (210x297)
(Europe)
Exec (7.25x10.5)
B5(176x250)
A5 (148.5x210)
Com-10
Monarch
DL
C5
MP Tray Size
Orientation
Portrait
Landscape
Form Length
005-128
64 (Europe)
60 (USA)
Zero Margins
Off
On
Symbol Set
Go to
following
page
Page Protection
Off
A4
Legal
Letter
Jam Recovery
Off
On
Resolution
300x300
600x600
Resolution Enh
Off
On
State Saving
Off
On
asm5-10


PCL Menu
PCL Menu
Souce Mapping
Enter
Symbol Set
Enter
Standard
Manual
Manual Envelope
Lower
Large Capacity
Envelope Feeder
Standard
MP Tray
Standard-MP
MP-Standard
Lower
Standard-Lower
Lower-Standard
Lower-MP
Std-Lower-MP
Low-Std-MP
MP-Lower
MP-Std-Low
MP-Low-Std
Desktop
ISO L1
ISO L2
ISO L5
ISO-4 UK
ISO-6 ASCII
ISO-11 Swedish
ISO-15 Italian
ISO-17 Spanish
ISO-21 German
ISO-60 Norw. v1
ISO-69 French
Legal
Math-8
Microsoft Publ.
PC-8
PC-8 DN
PC-8 Tk
PC-850
PC-852
Pi Font
PS Math
PS Text
Roman-8
Vetura Math
Ventura Int'l.
Ventura US
Win 3.0
Win L1
Win L2
Win L5
asm5-11

5.1.4.5 Interface Menu

The interface menu contains sub-menus for the parallel and serial ports as well as sub-menus for network interface ports when a network option is installed. To select the Interface Menu:

1 From the "Online Ready" condition press the "Online" key.

2 Press the "Menu" key.

3 With "Main Menu" "Language" displayed, press the "Down" key until "Interface Menu" is displayed.

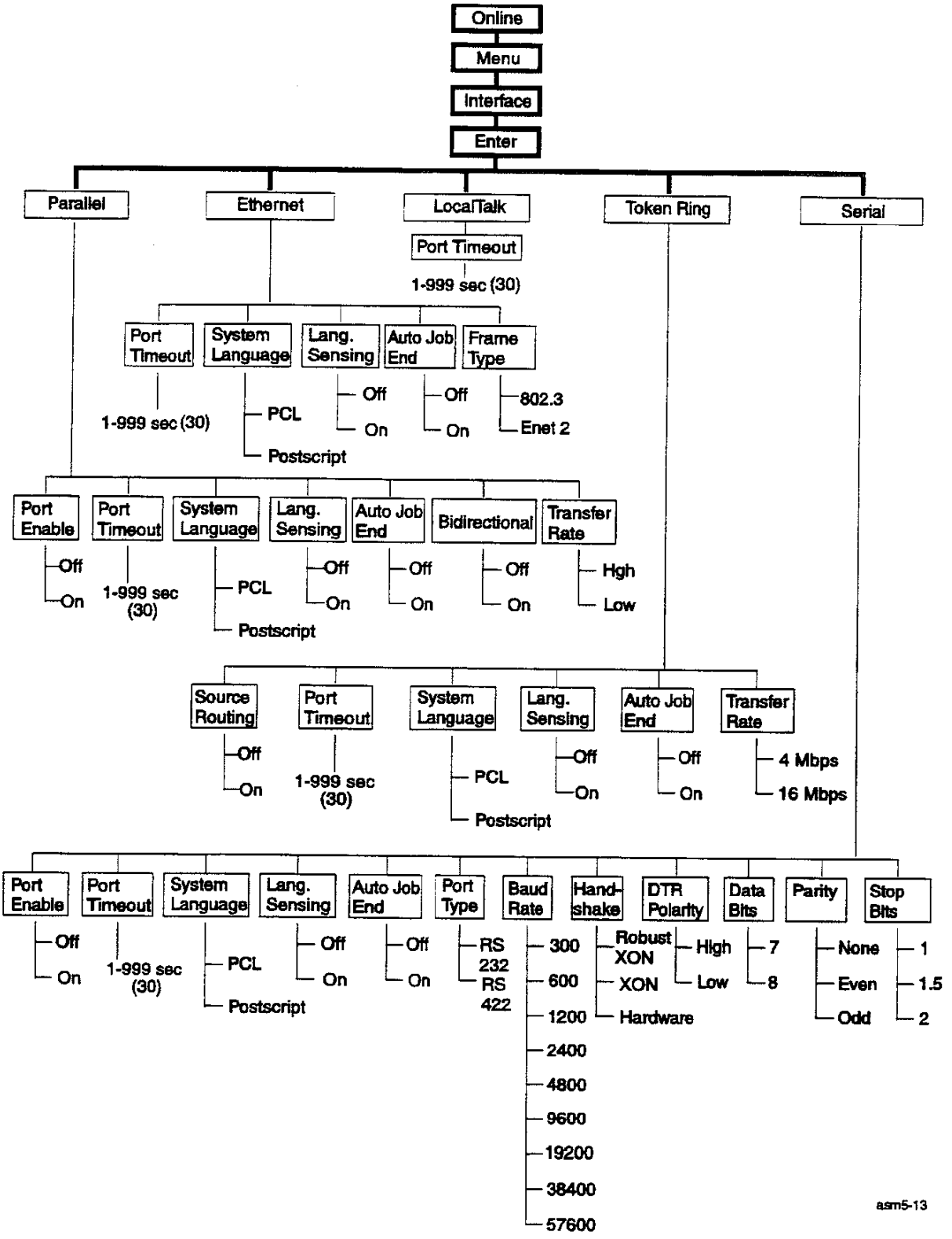
4 Press the "Enter" key.

5 Press the "Down" key to move from left to right or the "Up" key to move form right to left through the Interface sub-menu items.

6 When the desired sub-menu is displayed, press "Enter."

7 Press the "Up" or "Down" key to move through the menu settings.

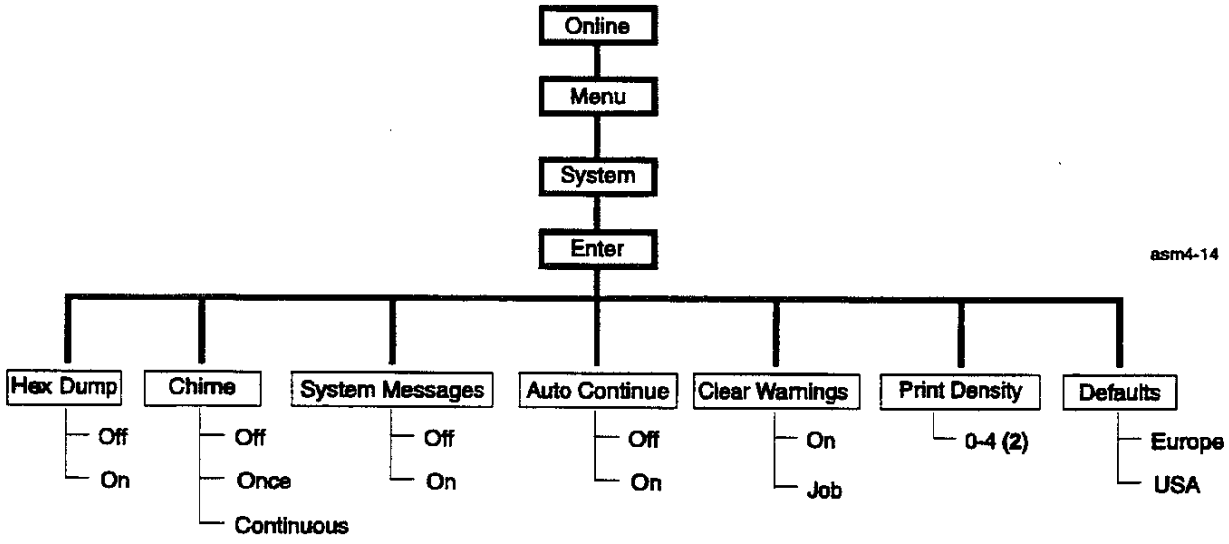
8 When the desired menu setting is displayed, press "Enter."


Online
Menu
Interface
Enter
Parallel
Ethernet
LocalTalk
Token Ring
Serial
Port Timeout
1-999 sec (30)
Port Timeout
System Language
Lang. Sensing
Auto Job End
Frame Type
1-999 sec (30)
PCL
Postscript
Off
On
Off
On
802.3
Enet 2
Port Enable
Port Timeout
System Language
Lang. Sensing
Auto Job End
Bidirectional
Transfer Rate
Off
On
1-999 sec (30)
PCL
Postscript
Off
On
Off
On
Off
On
Hgh
Low
Source Routing
Port Timeout
System Language
Lang. Sensing
Auto Job End
Transfer Rate
Off
On
1-999 sec (30)
PCL
Postscript
Off
On
Off
On
4 Mbps
16 Mbps
Port Enable
Port Timeout
System Language
Lang. Sensing
Auto Job End
Port Type
Baud Rate
Hand-shake
DTR Polarity
Data Bits
Parity
Stop Bits
Off
On
1-999 sec (30)
PCL
Postscript
Off
On
Off
On
RS 232
RS 422
300
600
1200
2400
4800
9600
19200
38400
57600
Robust XON
XON
Hardware
High
Low
7
8
None
Even
Odd
1
1.5
2
asm5-13

5.1.4.6 System Menu

The System Menu has options that allows you to set printer output operations. You can set the operation of the chime, the system messages, etc. To select the System Menu:

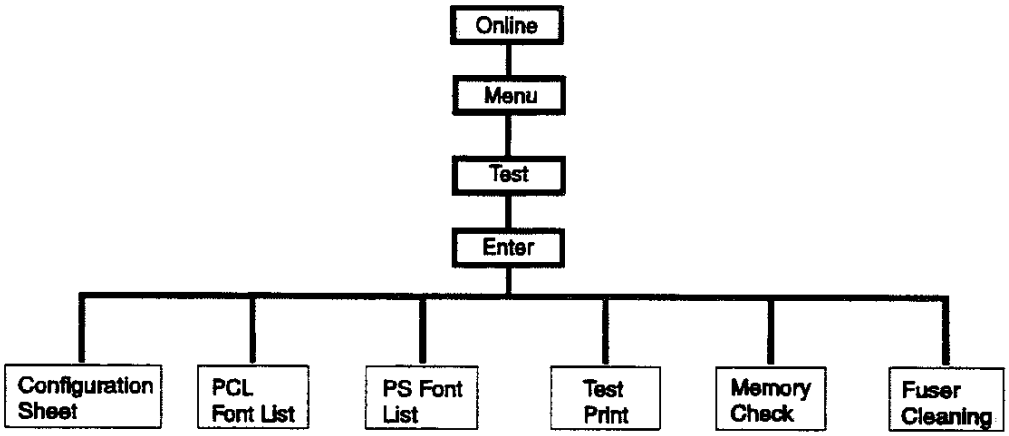
1 From the Online Ready condition press the "Online" key.
2 Press the "Menu" key.
3 With "Main Menu" "Language" displayed, press the "Down" key until "System Menu" is displayed.
4 Press the "Enter" key.
5 Press the "Down" key to move from left to right or the "Up" key to move form right to left through the System sub-menu items.
6 When the desired sub-menu is displayed, press "Enter."
7 Press the "Up" or "Down" key to move through the menu settings.
8 When the desired menu setting is displayed, press "Enter."



5.1.4.7 Test Menu

The Test Menu options are functions that provide output to help you maintain high quality printing. The options in the test menu are functions to be performed by the printer rather than settings. To select the Test Menu:

1 From the "Online Ready" condition press the "Online" key.
2 Press the "Menu" key.
3 With "Main Menu" "Language" displayed, press the "Down" key until "Test Menu" is displayed.
4 Press the "Enter" key.
5 Press the "Down" key to move from left to right or the "Up" key to move from right to left through the Test sub-menu items.
6 When the desired sub-menu is displayed, press "Enter."

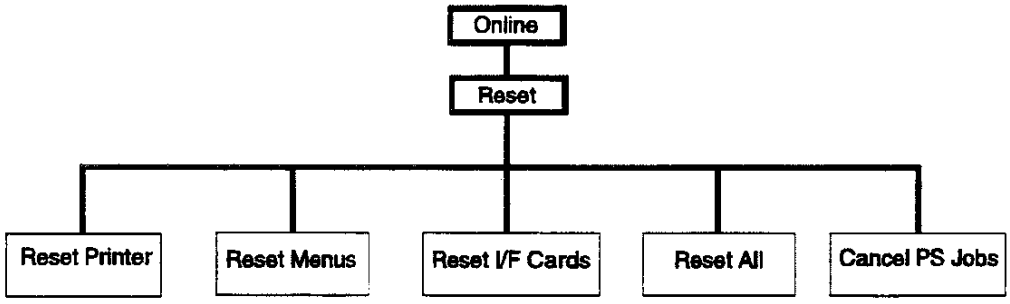


5.1.5 Reset Menu Mode

The Reset Menu Mode allows you to reset various printer functions available in the Xerox 4505/4510 printer. The menu displayed on any particular printer depend upon the options installed in the printer. If an option is not installed, the menu item for that option will not be displayed.

Entering the Reset Menu Mode:

1 With the printer in the "Online Ready" mode, press the On-line key to take the printer "Offline".
2 Press the Reset key. The LCD will display "Reset Menu/Reset Printer."
3 From this point you can access the five functions of the Reset Menu.
4 Press the "Up" or "Down" key to scroll through the menu.
5 When the desired menu is displayed, press the "Enter" key.



Reset Printer: Resets the printer's PCL and PostScript printer languages to their power-on state. It will cancel any print job being processed and clear all temporary fonts and macros.

Reset Printer does not change the menu settings of any network option. However, any current print jobs being processed by a network option will be discarded.

Reset Menus: Resets menus to their factory settings. Reset Menu does not affect the Language setting, the System Menu Defaults setting, or the System Menu Print Density setting.

Reset I/F Cards: Resets the network interface card(s) to their power-on state. Reset I/F Cards appears only if a network card is installed.

Use this type of reset if one or more of the network interfaces is not communicating properly.

Reset All: All Reset functions are performed.
- Reset Printer
- Reset Menus
- Reset I/F Cards

Cancel PS Job: Cancels the current PostScript job. The PostScript job is flushed from memory and the entire print job is discarded. This function appears only if PostScript is installed.

Cancel PS Job is useful when a fault in your software application causes a PS error.

5.2 Diagnostics Mode

The Diagnostics Mode allows you to test various switches and sensors, show printer fuser settings, and display the total number of prints produced. There are three different diagnostic modes. The diagnostic mode and the options available depend upon the mode of entry.

Diagnostic Mode 1 - Pressing and holding the "Down" key as you switch the printer power ON.
This mode allows you to display the print counter, test sensors and HVPS, and display fuser settings.
Diagnostic Mode 2 - Pressing and holding the "Enter" key as you switch the printer power ON.
This mode allows you to print a grid test pattern to check registration.
Diagnostic Mode 3 - Pressing and holding the "Down" and "Enter" keys as you switch the printer power ON.
This mode allows you to set registration and fuser temperature.

5.2.1 Diagnostic Mode 1

Table 5.2.1 lists the tests contained in Diagnostic Mode 1.

Table 5.2.1 Diagnostic Mode 1 Tests

Test Type	DG Code	LCD Display Message	Test Function
Total Print Count	30	PRINT COUNTER	Show the total number of prints made
Input Test	02	SENSOR CHECK	Test a sensor or switch function
Output Test	07	FUSER TEMP SET	Show the fuser temperature setting
Output Test	08	FUSER TEMP	Show the actual temperature of the fuser
Output Test	80	STANDARD TRAY SOLENOID	Test the Pick-Up Solenoid function
Output Test	81	OPTIONAL TRAY SOLENOID	Test the Feed Solenoid function
Output Test	86	MP TRAY SOLENOID	Test the Optional Feed Solenoid function
Output Test	84	STD T CLUTCH	Test the Feed Assembly Turn Solenoid function
Output Test	85	OPT T CLUTCH	Test the Optional Feed Assembly Turn Solenoid function
Output Test	90	MOTOR MAIN	Test the Main Drive Motor function
Output Test	92	HVPS (C.ROLL DC)	Test HVPS D/C voltage to BCR
Output Test	93	HVPS (DEV BIAS)	Test HVPS D/C voltage to Magnet Roll
Output Test	00	EXIT DIAG	Exit current Diagnostic Mode
Output Test	00	SIZE SENSOR	Show switch combination on the Paper Size Switches
Output Test	00	CHECKSUM	Show the ROM check sum

To enter Diagnostic Mode 1:

1 Switch the printer power OFF.

2 Press and hold the "Down" key as you switch the printer power ON.

The LCD displays the *"Print Counter" "Selecting DG* 30". This message indicates that the printer is in the Diagnostics Mode. The number after the *DG* is the diagnostic test currently selected.

PRINT COUNTER	
SELECTING	DG 30

3 To select a test or to view or select other tests, repeatedly press the "Down" key until the test is displayed, then press "Enter."

NOTE: You cannot enter a Diagnostics Mode if Power-On Diagnostic Sequence finds an error in ROM/ RAM Check.

NOTE: Throughout this manual, the use of the term Tray 1 refers to the Standard Feeder Assembly, and the term Tray 2 refers to the Optional (Lower) Feeder Assembly.

NOTE: To exit a test and enter another, repeatedly *press the* "Down" *key until "EXIT DIAG" "DG 00" is displayed, then press* "Enter."

5.2.1.1 DG 30 PRINT COUNTER

This diagnostic test displays the total number of print cycles. This print count is taken from the actuator signals sent to the Feed Solenoid. The total count increments even when paper jams in the paper tray and is not actually output.

Running DG 30

1 Enter Diagnostics Mode 1.

The LCD displays the *Print Counter/ Selecting DG 30* message, indicating the printer is in Diagnostics Mode.

2 Press the "Enter" key.

The LCD displays the print total.

PRINT COUNTER	
013456	DG 30

In this example the total count is 13,456.

3 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

4 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.2 DG 02 SENSOR CHECK

This diagnostic test checks the function of a printer sensor or switch at a variety of internal locations:

- The keypad keys, except the "Down" key
- The LVPS interlock switch
- The CRU switch on the CRU Sensor PWB
- The Paper Size Switches on the Feeder PWB and Feeder PWB Aux
- The No–Paper Sensor on the Feeder PWB and Feeder PWB Aux
- The MP Tray Sensor
- The Registration Sensor
- The Exit Sensor
- The Toner Sensor (Disconnect P/J 118 from the CRU Sensor when testing the Toner Sensor).

Running DG 02

1 Enter Diagnostics Mode.

The LCD displays the *Print Counter/ Selecting DG 30* message, indicating the printer is in Diagnostics Mode.

2 Repeatedly press the "Down" key until the LCD displays *DG 02.*

3 Press the "Enter" key to start the test.

The LCD displays the *Executing DG 00* message.

SENSOR CHECK	
EXECUTING	DG 00

4 Manually actuate the sensor or switch you are testing.

NOTE: When testing the Control Panel Switches, press and hold each switch for at least one second before releasing.

If the sensor or switch is functioning correctly, the number following DG increments by 1 each time you actuate the sensor or switch. If the number does not, you may have a faulty sensor or switch.

SENSOR CHECK	
EXECUTING	DG 01

SENSOR CHECK	
EXECUTING	DG 02

5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.3 DG 07 FUSER TEMPERATURE SET

This diagnostic test displays the current setting for the fuser temperature. The setting is displayed as a two digit hexadecimal code. The setting has 16 steps (Tables 5.2.1.4a & 5.2.1.4b). For a 4505, E1 is the lowest setting, 96 is the highest setting, and B9 is the default setting. For a 4510, D4 is the lowest setting, 89 is the highest setting, and AC is the default setting.

Running DG 07

1 Enter Diagnostics Mode 1.

The LCD displays the *Print Counter/ Selecting DG 30* message, indicating the printer is in Diagnostics Mode.

2 Repeatedly press the "Down" key until the LCD displays *DG 07.*

3 Press the "Enter" key to start the test.

The LCD displays a two-digit temperature code that corresponds to the 16 temperature steps.

4 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

5 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.4 DG 08 FUSER TEMP

This diagnostic test displays the current temperature of the fuser.

Running DG 08

1 Enter Diagnostics Mode 1.

The LCD displays the *Print Counter/ Selecting DG 30* message, indicating the printer is in Diagnostics Mode.

2 Repeatedly press the "Down" key until the LCD displays *DG 08.*

3 Press the "Enter" key to start the test.

The LCD displays a two-digit temperature code that corresponds to the 16 temperature steps. See Tables 5.2.1.4a & 5.2.1.4b to find the actual fuser temperature in Celsius.

4 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

5 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

Table 5.2.1.4a Fuser Temperatures For 4505

NV 90 Fuser Temp. Set	DG 07 Code Displayed	DG 08 Code Displayed	Fuser Temperature
90	E1	DB - E2	118°C
91	DC	D5 - DD	122°C
92	D7	D0 - D8	126°C
93	D2	CB - D3	130°C
94	CD	C7 - CE	134°C
95	C8	C1 - C9	138°C
96	C3	BD - C4	142°C
97	BE	B7 - BF	146°C
98	B9	B2 - BA	150°C
99	B4	AD - B5	154°C
9A	AF	A8 - B0	158°C
9B	AA	A3 - AB	162°C
9C)	A5	9E - A6	166°C
9D	A0	99 - A1	170°C
9E	9B	94 - 9C	174°C
9F	96	8F - 97	178°C

Table 5.2.1.4b Fuser temperatures For 4510

NV 90 Fuser Temp. Set	DG 07 Code Displayed	DG 08 Code Displayed	Fuser Temperature
90	D4	CD - D5	128°C
91	CF	C8 - D1	132°C
92	CA	C3 - CB	136°C
93	C5	BE - C6	140°C
94	C0	B9 - C1	144°C
95	BB	B4 - BC	148°C
96	B6	AF - B7	152°C
97	B1	AA - B2	156°C
98	AC	A5 - AD	160°C
99	A7	A0 - A8	164°C
9A	A2	9B - A3	168°C
9B	9D	96 - 9E	172°C
9C)	98	91 - 99	176°C
9D	93	8C - 94	180°C
9E	8E	87 - 8F	184°C
9F	89	82 - 8A	188°C

5.2.1.5 DG 80 ST TRAY SOLENOID (Standard Tray)

This diagnostic code tests the paper feed solenoid in the standard tray.

Running DG 80

1 Enter Diagnostics Mode 1.

The LCD displays the *Print Counter/ Selecting DG 30* message, indicating the printer is in Diagnostics Mode.

2 Repeatedly press the "Down" key until the LCD displays *DG 80.*

3 Press the "Enter" key to start the test.

The LCD displays the *Executing DG 80* message.

ST TRAY SOLENOID	
EXECUTING	DG 80

4 Verify that when you press the "Enter" key, the standard tray Feed Solenoid energizes momentarily.

5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.6 DG 81 OP TRAY SOLENOID (Optional Tray)

This diagnostic test tests the paper feed solenoid in the optional tray.

Running DG 81

1 Enter Diagnostics Mode 1.

The LCD displays the *Print Counter/ Selecting DG 30* message, indicating the printer is in Diagnostics Mode.

2 Repeatedly press the "Down" key until the LCD displays *DG 81.*

3 Press the "Enter" key to start the test.

The LCD displays the *Executing DG 81* message.

OP TRAY SOLENOID
EXECUTING DG 81

4 Verify that when you press the "Enter" key, the optional tray Feed Solenoid energizes momentarily.

5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.7 DG 86 MP TRAY SOLENOID

This diagnostic code tests the MP tray Pick–Up Solenoid.

Running DG 86

1 Enter Diagnostics Mode 1.

2 Repeatedly press the "Down" key until the LCD displays *DG 86.*

3 Press the "Enter" key to start the test.

The LCD displays the *Executing DG 86* message.

MP TRAY SOLENOID
EXECUTING DG 86

4 Verify that when you press the "Enter" key, the MP tray Feed Solenoid energizes momentarily.

5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.8 DG 84 STANDARD TURN CLUTCH (STD T CLUTCH)

This diagnostic code tests the Feed Assembly Turn Solenoid.

Running DG 84

1 Enter Diagnostics Mode.
2 Repeatedly press the "Down" key until the LCD displays *DG 84.*
3 Press the "Enter" key to start the test.

The LCD displays the *Executing DG 84* message.

STD T CLUTCH	
EXECUTING	DG 84

4 Verify that when you press the "Enter" key, the Feed Assembly Turn Solenoid energizes momentarily.
5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.
6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.9 DG 85 OPTIONAL TURN CLUTCH (OPT T CLUTCH)

This diagnostic code tests the Optional Feed Assembly Turn Solenoid.

Running DG 85

1 Enter Diagnostics Mode.
2 Repeatedly press the "Down" key until the LCD displays *DG 85.*
3 Press the "Enter" key to start the test.

The LCD displays the *Executing DG 85* message.

OPT T CLUTCH	
EXECUTING	DG 85

4 Verify that when you press the "Enter" key, the optional Feed Assembly Turn Solenoid energizes momentarily.
5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.
6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.10 DG 90 MOTOR MAIN

This diagnostic code tests the Main Drive Motor.

WARNING! DG 90 switches on the Main Motor. Be careful around the Motor and Drive Assembly.

Running DG 90

1 Enter Diagnostics Mode 1.

2 Repeatedly press the "Down" key until the LCD displays *DG 90.*

3 Press the "Enter" key to start the test.

The LCD displays the *Executing DG 90* message.

MAIN MOTOR
EXECUTING DG 90

4 Verify that when you press the "Enter" key, the Main Motor and Drive Assembly turn.

5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.1.11 DG 92 HVPS (C. ROLL DC)

This diagnostic code tests the HVPS DC voltage to the BCR (Bias Charge Roll). During this test the high voltage will be present for only a few seconds.

WARNING! DG 92 switches on the HVPS. HIGH VOLTAGE is present in many areas of the printer. Be careful working around the HVPS when in DG 92.

CAUTION HIGH TEMPERATURE exists on the surfaces around the fuser. Be careful working in this area.

Running DG 92

1 Enter Diagnostics Mode 1.

2 Repeatedly press the "Down" key until the LCD displays *DG 92.*

HVPS (C ROLL DC)	
SELECTING	DG 92

3 Remove the EP Cartridge.

4 Set the multimeter range to read 1000VDC.

5 Place your multimeter to read the voltage from the CR Terminal (Spring Plate) of the Earth Plate Assembly to frame ground (Figure 5.2.1.11).

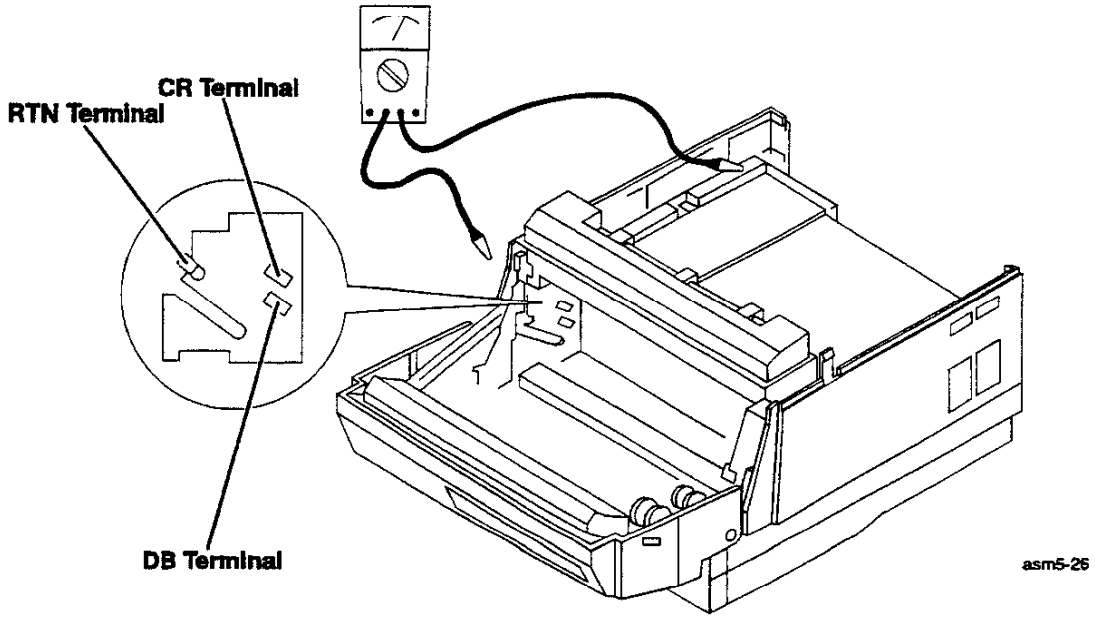
6 Cheat the front door interlock (use the blade of an insulated screwdriver or tape the interlock closed).

7 Press the "Enter" key to start the test.

8 You should get a reading of approximately -360VDC (the test will time out in 10 seconds).

9 To Exit this test: switch the printer power OFF, remove the interlock cheater, reinstall the EP Cartridge, close the front cover and switch the printer power ON.

Figure 5.2.1.11 Probe locations on the HVPS frame



5.2.1.12 DG 93 HVPS (DEV BIAS)

This diagnostic code tests the HVPS D/C voltage to the Magnet Roll.

WARNING! DG 93 switches on the HVPS. HIGH VOLTAGE is present in many areas of the printer. Be careful working around the HVPS when in DG 93.

CAUTION HIGH TEMPERATURE exists on the surfaces around the fuser. Be careful working in this area.

Running DG 93

1 Enter Diagnostics Mode 1.

2 Repeatedly press the "Down" key until the LCD displays *DG 93*.

HVPS (DEV BIAS)	
SELECTING	DG 93

3 Remove the EP Cartridge.

4 Set the multimeter range to read 1000VDC.

5 Place your multimeter to read the voltage from the DB Terminal (Spring Plate) of the Earth Plate Assembly to frame ground (Figure 5.2.1.11).

6 Cheat the front door interlock (tape the interlock closed).

7 Press the "Enter" key to start the test.

8 You should get a reading of approximately -250VDC (the test will time out in 10 seconds).

9 To Exit this test: switch the printer power OFF, remove the interlock cheater, reinstall the EP Cartridge, close the front cover and switch the printer power ON.

5.2.1.13 DG 00 EXIT DIAGNOSTICS

This diagnostic code exits the current Diagnostic Mode.

Running DG 00 EXIT DIAG

1 Repeatedly press the "Down" key to cycle the LCD to *DG 00 Exit Diag.*

EXIT DIAG
SELECTING DG 00

2 Press the "Enter" key.

3 To exit and return to normal operation, switch the printer power OFF, then ON.

5.2.1.14 DG 00 SIZE SENSOR

This diagnostic code checks the switch combination of the Paper Size Switches on Tray 1 or Tray 2.

Running DG 00 SIZE SENSOR

1 Enter Diagnostics Mode 1.

2 Repeatedly press the "Down" key until the LCD displays *DG 00 SIZE SENSOR.*

3 Press the "Enter" key to start the test.

SIZE SENSOR
CB(C5-D3)

The LCD displays a two-digit hexadecimal number that corresponds to the switch combination for Tray 1. Use Table 5.1.6.14 to determine the Paper Size Switch combinations. 0 is OFF. 1 is ON.

4 Press the "Down" key again to display the switch combination for Tray 2.

5 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

6 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

Table 5.2.1.14 Paper size combinations

Sheet Size	SW1	SW2	SW3	SW4	HEX number	Switch Setting
No Tray installed	–	–	–	–	00(00~07)	–
No Tray installed	0	0	0	0	0F(08~15)	–
Monarch	0	0	0	1	1E(16~24)	2
Legal 13"	0	0	1	0	2C(25~32)	9
Postcard	0	0	1	1	3B (33~41)	B
COM-10	0	1	0	0	49 (42~4F)	F
A4	0	1	0	1	58 (50~5E)	4
C5	0	1	1	0	66 (5F~6D)	E
DL	0	1	1	1	75 (6E~7B)	D
Executive	1	0	0	0	83 (7C~8A)	5
B5	1	0	0	1	91 (8B~98)	A
Legal 14"	1	0	1	0	A0(99~A7)	8
–	1	0	1	1	AE(A8~B5)	–
–	1	1	0	0	BD(B6~C4)	–
Letter	1	1	0	1	CB(C5~D3)	6
–	1	1	1	0	D9(D4~E1)	–
A5	1	1	1	1	E8(E2~FF)	7
Nonstandard (Max 14") fed from MP Tray	–	–	–	–	–	0,1,3

5.2.1.15 DG 00 CHECKSUM

This diagnostic code verifies the checksum value of the printer ROM.

Running DG 00 CHECKSUM

1 Enter Diagnostics Mode 1.

2 Repeatedly press the "Down" key until the LCD displays *DG 00 CHECKSUM.*

3 Press the "Enter" key to start the test.

CHECKSUM
CHECKSUM IS XXXX

The LCD displays the checksum value of the printer.

4 If you wish to exit this test and enter another test, repeatedly press the "Down" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Enter" key.

5 To Exit this test and return to normal operation, switch the printer power OFF, then ON.

5.2.2 Diagnostic Mode 2

To enter Diagnostic Mode 2:

1 Switch the printer power OFF.

2 Press and hold the "Enter" key as you switch the printer power ON.

The LCD displays the *"Ready To Print" "Test Print 00"*. This message indicates that the printer is in the Diagnostics Mode and ready to produce test prints. The number after "test print" is the number of test prints produced. Each time a test print is produced, the number will be indexed by one.

READY TO PRINT
TEST PRINT 00

NOTE: You cannot enter a Diagnostics Mode if Power-On Diagnostic Sequence finds an error in ROM/ RAM Check.

To run a test print:

1 Enter Diagnostics Mode 2.

2 Press the "Enter" key once for each test print needed.

3 To exit the test, switch the printer power OFF.

5.2.3 Diagnostic Mode 3

Table 5.2.3 lists the setup parameters contained in Diagnostic Mode 3. The first column of the table lists the LCD Message. The second column lists the range of the parameter along with the default setting in brackets. The third column states if changes are possible.

Table 5.2.3 Document Registration and Fusing Setup

LCD DISPLAY MESSAGE (Function of the routine)	Parameters [Factory default] Contents of the parameter	Are changes possible?
REG.PROCESS 1 Selecting NV 30 (Sets the lead edge registration for paper fed from Tray 1)	0~F (16 steps)[8] 0=Narrowest lead edge registration gap F=Widest lead edge registration gap (approximately 0.56mm per step)	YES, depending on the model of printer used
REG.PROCESS 2 Selecting NV 40 (Sets the lead edge registration for paper fed from Tray 2)	0~F (16 steps)[8] 0=Narrowest lead edge registration gap F=Widest lead edge registration gap (approximately 0.56mm per step)	YES, depending on the model of printer used
REG.PROCESS 3 Selecting NV 50 (Sets the lead edge registration for paper fed from the MP Tray)	0~F (16 steps)[8] 0=Narrowest lead edge registration gap F=Widest lead edge registration gap (approximately 0.56mm per step)	YES, depending on the model of printer used
REG.SCAN 1 Selecting NV 60 (Sets the side edge registration for paper fed from Tray 1)	0~8 (9 steps) [4] 0=Narrowest side edge registration gap 8=Widest side edge registration gap (approximately 0.56mm per step)	YES, depending on the model of printer used
REG.SCAN 2 Selecting NV 70 (Sets the side edge registration for paper fed from Tray 2)	0~8 (9 steps)[4] 0=Narrowest side edge registration gap 8=Widest side edge registration gap (approximately 0.56mm per step)	YES, depending on the model of printer used
REG.SCAN 3 Selecting NV 80 (Sets the side edge registration for paper fed from MP Tray)	0~8 (9 steps)[4] 0=Narrowest side edge registration gap 8=Widest side edge registration gap (approximately 0.56mm per step)	YES, depending on the model of printer used
FUSER TEMP.SET Selecting NV 90 (Sets the rated fuser temperature)	0~F(16 steps)[8] 0=Lowest rated temperature F=Highest rated temperature (approximately 4.0°c per step)	YES
TEST PRINT Selecting NV G0 (The printer generates a test print that you can use to check lead edge and side edge registration.)	NONE	-

To enter Diagnostic Mode 3:

1 Switch the printer power OFF.

2 Press and hold the "Down" key and the "Enter" key as you switch the printer power ON.

The LCD displays the *"Reg. Process 1" "Selecting NV*30". This message indicates that the printer is in the Diagnostics Mode.

REG. PROCESS 1	
SELECTING	NV30

5.2.3.1 Setting Registration

NOTE: The printer will not generate a test print if it detects a fault when you press the "Down" *key, or if the printer is in the Power-On Diagnostic Sequence. The LCD displays a Fault Code for about two seconds, then returns to the status displayed before you pressed the* "Down" *key.*

To set the printer registration, perform the following:

1 Ensure the printer resolution is set for 300x300 DPI.

2 Make sure the printer has all covers in place when you perform the test print.

3 Remove the paper from ALL paper trays. Insert paper in the paper tray you wish to test/adjust.

4 Enter diagnostic mode 3 (see above).

5 Press the "Down" key until "Test Print" "Selecting NV G0" is displayed on the LCD panel.

6 Press the "Enter" key.

NOTE: The registration grid test pattern for the MP Tray is factory set for 8.5"x14" paper. When running the test grid for the MP Tray using a smaller size paper, the grid will extend off the page. To set registration for the MP Tray, use only the Copy Quality test pattern generated in the menu mode.

7 Compare the printed test pattern with Figure 5.2.3.1a.

8 If the printed test pattern is within specifications, Go to step 14.

9 If the test pattern is not within specifications, press the "Down" key until the Registration or Scan message for the tray selected in step 3 is displayed.

10 Press the "Enter" key.

11 The last digit in the NV number is the current printer setting. Press the "Up" key to increase the setting or press the "Down" key to decrease the setting.

12 When the desired setting is reached, press the "Enter" key.

13 Repeat steps 5 through 12 until the printed test pattern is within specification.

14 Switch the printer power OFF to exit the diagnostic mode.

15 Switch the printer power ON. Enter the menu mode, enter the test menu, and run a test print (see Figure 5.2.3.1b). Fold the test print in half in the long direction, then in the short direction. The cross hairs in the center of the test print should be in the center of the folds.

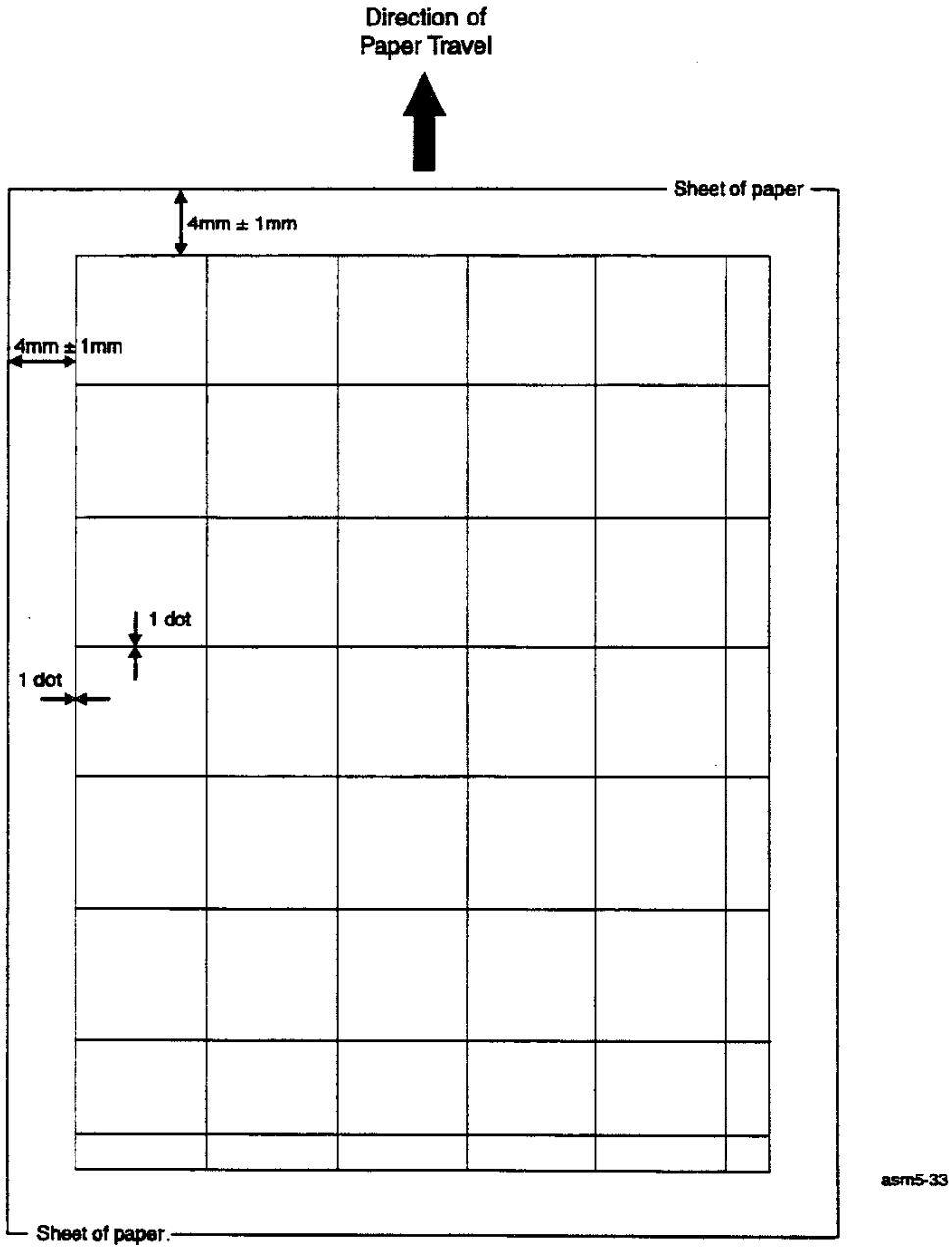
16 If the test print is within specification, exit the menu mode and replace all paper trays/feeders.

17 If the test print is not within specification, enter diagnostic mode 3 and repeat steps 9, 10, 11, 12, 14 and 15.

18 If another tray needs to be checked/adjusted, repeat steps 2 through 16.

The test pattern illustrated in Figure 5.2.3.1a is used to set the initial registration on the 4505/4510 laser printer. This test pattern can be printed using diagnostic mode 2 or diagnostic mode 3. Final registration is performed using the test pattern illustrated in Figure 5.2.3.1b.

Figure 5.2.3.1a Test Pattern Specifications

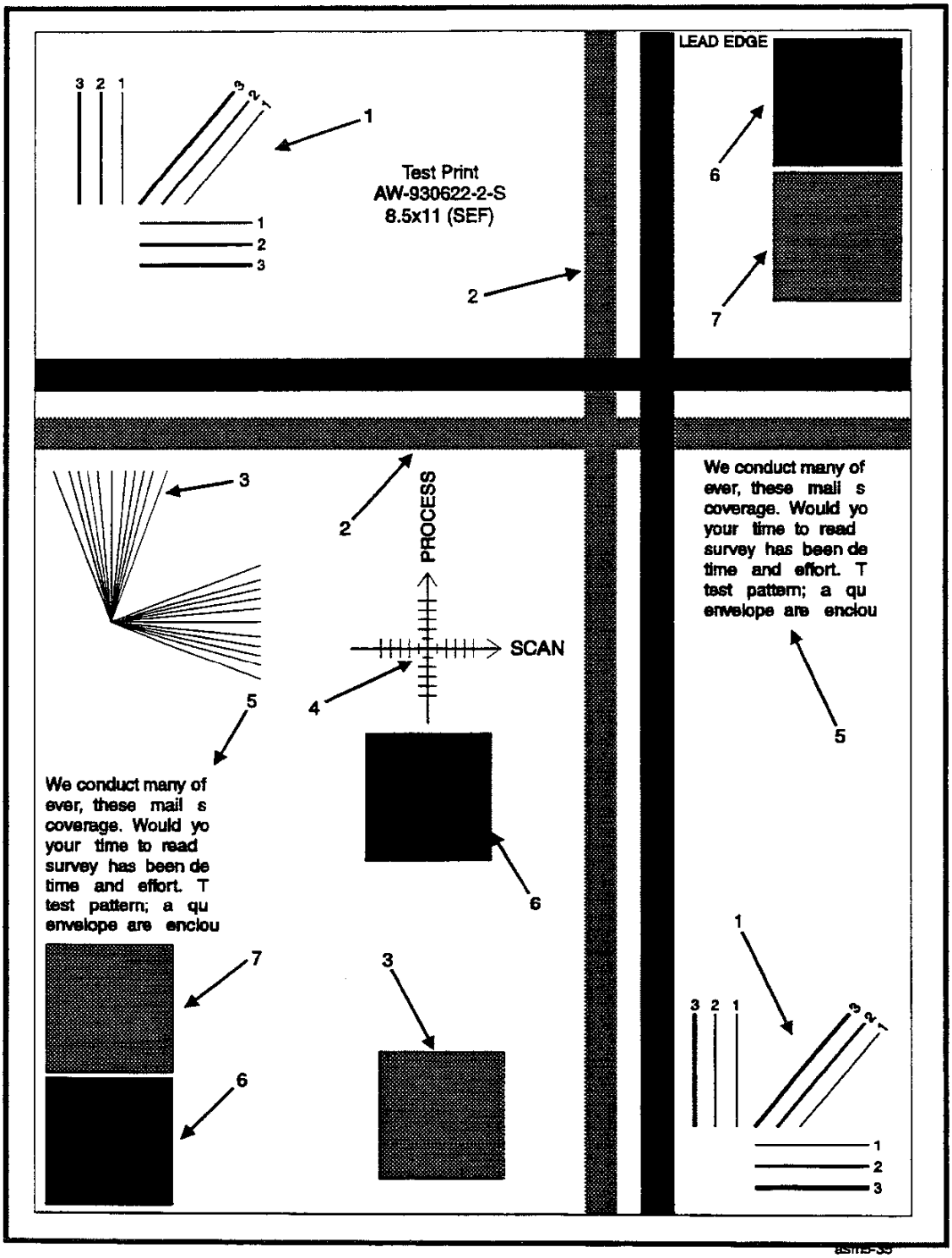


The test pattern illustrated on the following page is to be used for final registration adjustments and copy quality checkout. This test pattern is accessed from the Menu mode.

Each area of the test pattern is used for a copy quality parameter. The areas and the copy quality parameter is listed below

1 Resolution (2 places).
2 Skips and Smears (2 places).
3 True Res Smoothing (2 places).
4 Registration.
5 Resolution and Uniformity (2 places).
6 Solid Area Density (3 places).
7 Half Tone Resolution (2 places)

Figure 5.2.3.1b Test Pattern



5.2.3.2 Setting Fuser Temperature

To enter Diagnostic Mode 3:

1 Switch the printer power OFF.

2 Press and hold the "Down" key and the "Enter" key as you switch the printer power ON.

The LCD displays the *"Reg. Process 1" "Selecting NV* 30". This message indicates that the printer is in the Diagnostics Mode.

REG. PROCESS 1	
SELECTING	DG 30

To set the Fuser Temperature, perform the following:

1 Enter diagnostic mode 3.

2 Press the "Down" key until "Fuser Temp. Set" "Selecting NV 90" is displayed on the LCD panel.

3 Press the "Enter" key.

4 The UI will display "Executing NV 9X." The last digit (X) in the NV number is the current fuser setting.

5 The printer has 16 levels of fuser temperature. The levels are:

0 1 2 3 4 5 6 7 8 9 A B C D E F

6 The lowest level is "0" and the highest level is "F." Each level is approximately 4^{O}C.

7 Eight (8) is the default setting.

8 Press the "Up" key to increase the setting or press the "Down" key to decrease the setting.

9 When the desired setting is reached, press the "Enter" key.

10 When completed, switch the printer power OFF to exit the diagnostic mode.

5.3 Printer Controls

5.3.1 ROS Controls

Scanner Motor Speed and Print Resolution

The scanning speed of the Xerox 4505/4510 laser is the same for 300x300 DPI and 600x600 DPI. At 300 DPI, the laser beam strikes every other mirror surface on the rotating Polygon Mirror Assembly. At 600 DPI the laser beam strikes every surface on the rotating Polygon Mirror Assembly.

5.3.2 Recovery Routine

The Recovery Routine allows the printer to return to normal operation after a print cycle interruption. The routine switches ON the Main Motor and signals the HVPS to switch ON CR (DC) and TR (AC) voltages.

The printer uses the Recovery Routine after the following interruptions:

- Interlock Switch deactuation
- Paper Tray removal
- Exit Sensor actuation

The printer does not perform the Recovery Routine if either the Exit Sensor or the Registration Sensor are actuated when the Interlock Switch is actuated, or when the Paper Tray is installed, or the power is switched ON.

5.3.3 Cleaning Routine

The printer starts the Cleaning Routine when the power is switched ON and the CRU Switch is switched ON, and in-between printing cycles except during continuous printing. During the Cleaning Routine, the Main Motor and HVPS are ON.

There are two types of Cleaning Routines:

Warm-up cleaning	This starts when the printer or CRU switch are switched ON. Warm-up cleaning works only in System Controller Mode. The printer is READY when warm-up cleaning is finished and the Fuser is at operating temperature.
Cycle-out cleaning	This starts at the end of each print cycle.

You can stop the Cleaning Routine by deactivating the Interlock Switch, removing the Paper Tray, or actuating the Exit Sensor. To restart the Cleaning Routine, actuate the Interlock Switch, replace the Paper Tray, or deactuate the Exit Sensor.

5.3.4 Fuser Controls

The printer switches the Heater Rod ON or OFF according to the Rated Fuser Temperature parameters that were set in Fuser Temperature Setup. There are two Rated Fuser Temperature settings:

Standby Mode Temperature	When the fuser is warming up or the Main Motor is idle.
Running Mode Temperature	During a print cycle or in the Recovery Routine. Running Mode Temperature is slightly higher than Standby Mode Temperature.

Heater Rod Control

The printer switches the Heater Rod ON when the surface temperature of the Heat Roll reaches the low temperature range.

The printer switches the Heater Rod OFF when the surface temperature of the Heat Roll reaches the high allowable temperature range.

Fuser Warm-Up

Fuser warm-up begins when the printer switches the Heater Rod ON. Fuser warm-up ends when the Temperature Sensor thermistor senses the Heat Roll surface has reached Standby Mode Temperature.

The Main Motor runs continuously during Fuser warm-up.

Fuser Temperature Table

Table 5.3.4 below shows the Heat Roll temperature parameters for the Xerox 4505/4510 Laser Printer. The Rated Fuser Temperature value is variable. You can change it using Diagnostic Mode 3.

Table 5.3.4 Heat Roll temperature parameters

Fuser Temperature Parameter	Heat Roll Surface Temperature at 5 ppm
Overheating Limit	Approximately 185°C (Standby Mode temperature + approximately 35°C)
High Allowable Temperature	Rated Fuser Temperature ±0°C
Rated Fuser Temperature	150C nominal in Standby Mode 160C nominal in Running Mode
Low Temperature	Rated Fuser Temperature 2°C
Subcooling Limit	Approximately 125°C

5.3.5 Paper Transport Timing Errors

During a print cycle, paper moves through the printer at a specific speed. A paper jam occurs if the paper moves too slowly or too quickly. Figures 5.3.5.1, 5.3.5.2, and 5.3.5.3 show E4, E3, and E2 paper jams and the time windows required to create those jams.

E4 Paper Jam Timing

Table 5.3.5.1 Paper jam timing E4

Printer Model	Paper transport time needed to create an E4 jam Paper smaller than A4	Paper transport time needed to create an E4 jam Legal 13" and Legal 14"
5 PPM	17.96 seconds	22.78 seconds
10 PPM	8.98 seconds	11.39 seconds

E3 Paper Jam Timing

Table 5.3.5.2 Paper jam timing E3

Printer Model	Paper transport time needed to create an E3 jam
5 PPM	6.92 seconds
10 PPM	3.46 seconds

E2 Paper Jam Timing

Table 5.3.5.3 Paper jam timing E2

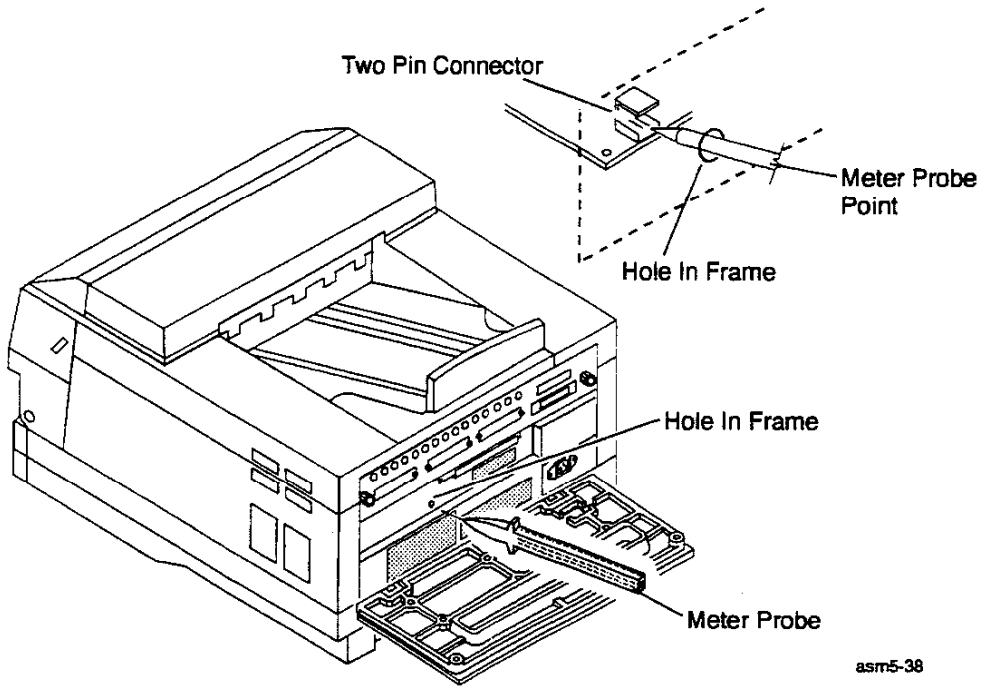
Paper fed from...	Paper transport time needed to create an E2-1 jam Early paper feed	Paper transport time needed to create an E2-2 jam Paper misfeed
Tray 1	5 PPM 3.30-3.60 sec 10 PPM 1.65-1.80 sec	5 PPM 4.30 sec 10 PPM 2.15 sec
Tray 2	5 PPM 5.66-5.96 sec 10 PPM 2.83-2.98 sec	5 PPM 6.66 sec 10 PPM 3.33 sec
MP Tray	5 PPM 0.93 sec 10 PPM 0.47 sec	5 PPM 1.63 sec 10 PPM 0.82 sec

5.3.6 Printer Engine Controller Test Pattern

The 4505/4510 laser printers have the ability to produce a test print without using the UI keypad or a host computer. This test print is helpful in cases where the LCD is blank, the keypad is not functioning correctly, etc. On the Printer Engine Controller PWB there is a small 2-pin connector that can be accessed from the rear of the printer (see Figure 5.3.6). When these two pins are shorted together the printer will print a test pattern. It is possible to print this test pattern with or without the System Controller PWB installed.

To print a test pattern, use a meter probe or a small insulated screwdriver to short the two pins together.

Figure 5.3.6 Test Pattern



5.3.7 Fuser Cleaning Procedure

The fuser cleaning procedure is used to clean residual toner from the fuser roll and the pressure roll. The fuser cleaning pattern produces a large black strip across the paper. As the pattern passes across the fuser roll, any residual toner on the fuser roll will adhere to the paper. On the second pass, the black stripe will be facing the pressure roll. Any residual toner on the pressure roll will adhere to the paper on the second pass.

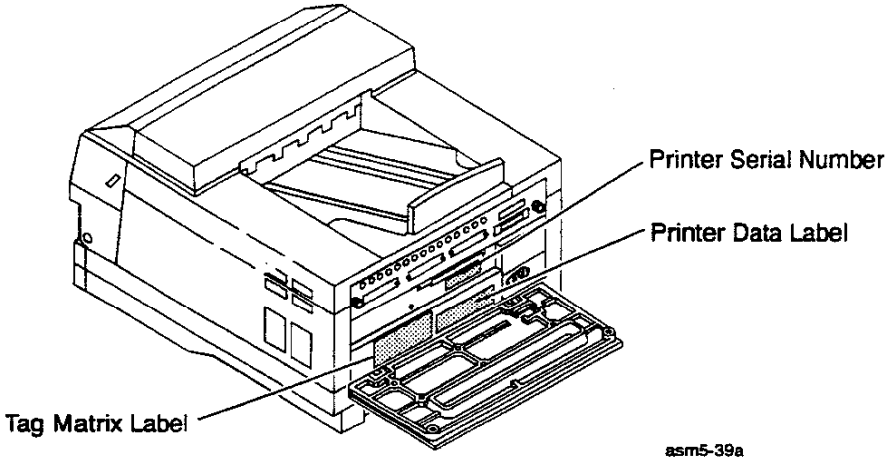
1) Enter Menu Mode.
2) From the main menu select "Test."
3) From the Test menu select "Fuser Cleaning."
4) Press the "Enter" key and the printer will produce three test patterns. During this pass the fuser roll is being cleaned.
5) Place the three test patterns back in the paper tray FACE DOWN.
6) Press the "Enter" key.
7) The three test patterns will clean the pressure roll on this pass.
8) When the test is completed, press the "Online" key to return the printer to normal operation.

5.4 Printer Data and Tag Information

5.4.1 Printer Data Labels

The printer serial number, data label, and tag matrix are located on the printer as illustrated in Figure 5.4.1.

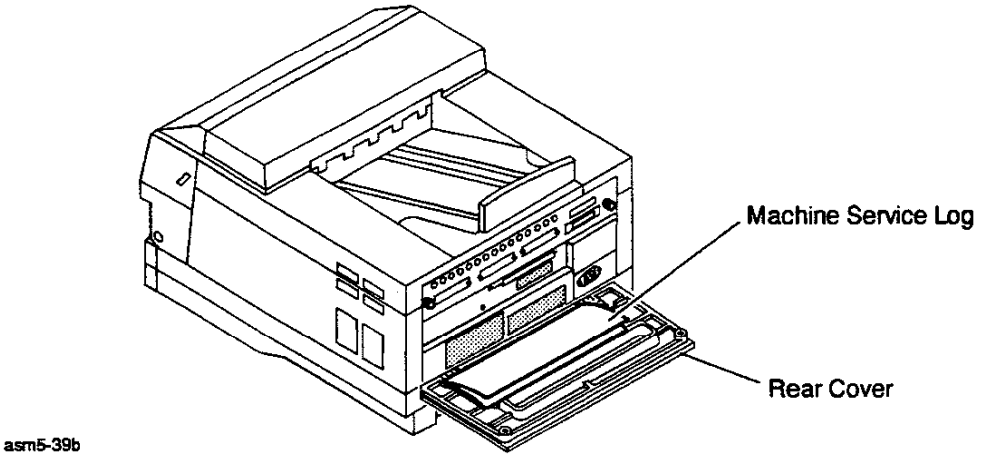
Figure 5.4.1 Printer Labels



5.4.2 Machine Service Log

The Machine Service Log is to be folded in thirds and kept behind the rear cover as illustrated in Figure 5.4.2. A blank copy of the Machine Service Log is at the end of section 7. Make a double-sided copy of the log and place with the printer at installation.

Figure 5.4.2 Machine Service Log



5.4.3 Tag/MOD Matrix

All important modifications are identified by a Tag/MOD number on the matrix card attached to the rear of each 4505 or 4510 printer (see 5.4.1). This section describes all of the tags as well as multinational applicability, classification codes, and permanent or temporary modification information.

Classification codes

A Tag/MOD number may be required to identify differences between parts that cannot be interchanged, or differences in diagnostic, repair, installation, or adjustment procedures. A Tag/MOD number may also be required to identify the presence of optional hardware, special nonvolatile memory programming, or if mandatory modifications have been installed. Each Tag/MOD number is given a classification code to identify the type of change the Tag/MOD has made.

M- Mandatory

N- Not installed in the field

O- Optional

R- Repair

S- Situational

Change Tag/Mod Index

Tag/MOD:

Class:

Mfg. Serial No.:

Name:

Purpose:

Kit Number:

Reference:

Change Tag/Mod Index

Tag/MOD:

Class:

Mfg. Serial No.:

Name:

Purpose:

Kit Number:

Reference:

Change Tag/Mod Index

Tag/MOD:

Class:

Mfg. Serial No.:

Name:

Purpose:

Kit Number:

Reference:

5.4.4 Supplemental Tools And Supplies

Tools

Description	Part Number
150 mm Rule	600T41503
Anacom G80 (or similar)	600T80138
Digital Multimeter	600T1616
ESD Field Service Kit (RX)	600T91802
ESD Field Service Kit (USCO)	600T42001
Eye Loupe	600T42008
Filtration Module	600T1832
Grounded Vacuum Cleaner	600T1820
Meter Leads Kit	600T1617
Metric Multinational Tool Kit	600T1880
Output Reference Document	82P520
Toner Disposal Bag (Vacuum)	99E3270
Visual Scale	82P284
Vacuum Nozzle Tool	600T1940

Supplies

Description	Part Number
Cleaning Cloth (treated)	35P1538
Cleaning Pads	600S4372
Cotton Swabs	35P2162
Disposable Gloves	99P3082
Disposable Plastic Bags	99P3023
Drop Cloth	5P1737
Film Remover	43P45
Formula A Cleaner	43P48
Glue Capsule	63P560
Polyurethane Pads	600S4653
Towel (Heavy Duty)	35P3191

RX Unique

Cleaner	8R90175
Cleaning Pad Kit	600S4372
Cloth	8R90019
Fuser Cleaning Solvent Pads	43P83
General Cleaning Solvent	8R90176
Lens Cleaner	8R90177

Section 6

Wiring Data

6.1 P/J Locations

Use Table 6.1.1 to identify and locate the P/J connectors by their coordinate points. The points correlate to the grid in Figure 6.2.1 and Figure 6.2.2.

Table 6.1.1 P/J locations

P/J	Coordinate location in illustration	P/J location and purpose
2	I-3	On the LVPS. From the Thermistor NOTE: This P/J is labeled P12 on the LVPS Assembly board.
11	G-5	Connects the Printer Engine Controller to LVPS
12	E-6	Connects the Printer Engine Controller to ROS
13a	E-6	Connects the Printer Engine Controller to Feeder PWB
13b	E-6	Connects the LVPS to the Interface PWB
14	E-5	Connects the Printer Engine Controller to Main Drive Motor
15	F-5	Connects the Printer Engine Controller to HVPS and CRU Sensor
16	F-5	Connects the Printer Engine Controller to Registration, Exit, and No Paper Sensors
17	F-5	Connects the Printer Engine Controller to Pick-up Sol.
18	E-5	Connects the Printer Engine Controller to Cooling Fan
19	G-5	Connects the Printer Engine Controller to SOS Sensor
20	G-5	Open
21	F-5	Connects the Printer Engine Controller to Toner sensor
31	G-6	Connects the Printer Engine Controller to the Interface PWB (for an external interface connector only)
53	F-6	Interface Board to the System Controller
50	F-6	Interface Board to Control Panel
51	F-6	Interface Board to LVPS
32	E-6	On the Printer Engine Controller. Used for test printing (for Type D1 interface only)
101	I-3	Connects the LVPS to the Fuser Assembly
111	F-5	On the HVPS
112	F-14	On the rear of the ROS Assembly
113	H-12	On the left side of the ROS Assembly
114	F-13	On the bottom of the ROS Assembly
115	E-27	Connects the Printer Engine Controller to the Feeder PWB NOTE:This P/J is on both Tray 1 and Tray 2.

Table 6.1.1 P/J locations (continued)

P/J	Coordinate location in Illustration	P/J location and purpose
115	E-28	Connects the Standard Feeder Assembly to the Optional Feeder Assembly
116	E-28	On the Feeder PWB
118	H-3	On the CRU Sensor PWB
119	G-3	On the Exit Sensor
120	F-20	On the Registration Sensor
121	G-20	On the MP Tray Sensor
123	G-10	On the Toner Sensor
201	F-28	On the Feeder PWB NOTE: This P/J is on both Tray 1 and Tray 2.
201	F-29	On the Feeder PWB AUX NOTE: This P/J is on both Tray 1 and Tray 2.
202	F-28	On the Feeder PWB NOTE: This P/J is on both Tray 1 and Tray 2.
202	F-29	On the Feeder PWB AUX NOTE: This P/J is on both Tray 1 and Tray 2.
CR	G-4	On the HVPS
DB	E-4	On the HVPS
TR	F-4	On the HVPS
RTN	E-5	On the HVPS
TR-T	H-19	On the back of the Transportation Chute Assembly

6.2 P/J Locator Illustration

The illustrations, Figure 6.2.1 and Figure 6.2.2, show the various plug and jack locations on the 4505/ 4510 Laser Printer.

Figure 6.2.1 P/J Locator

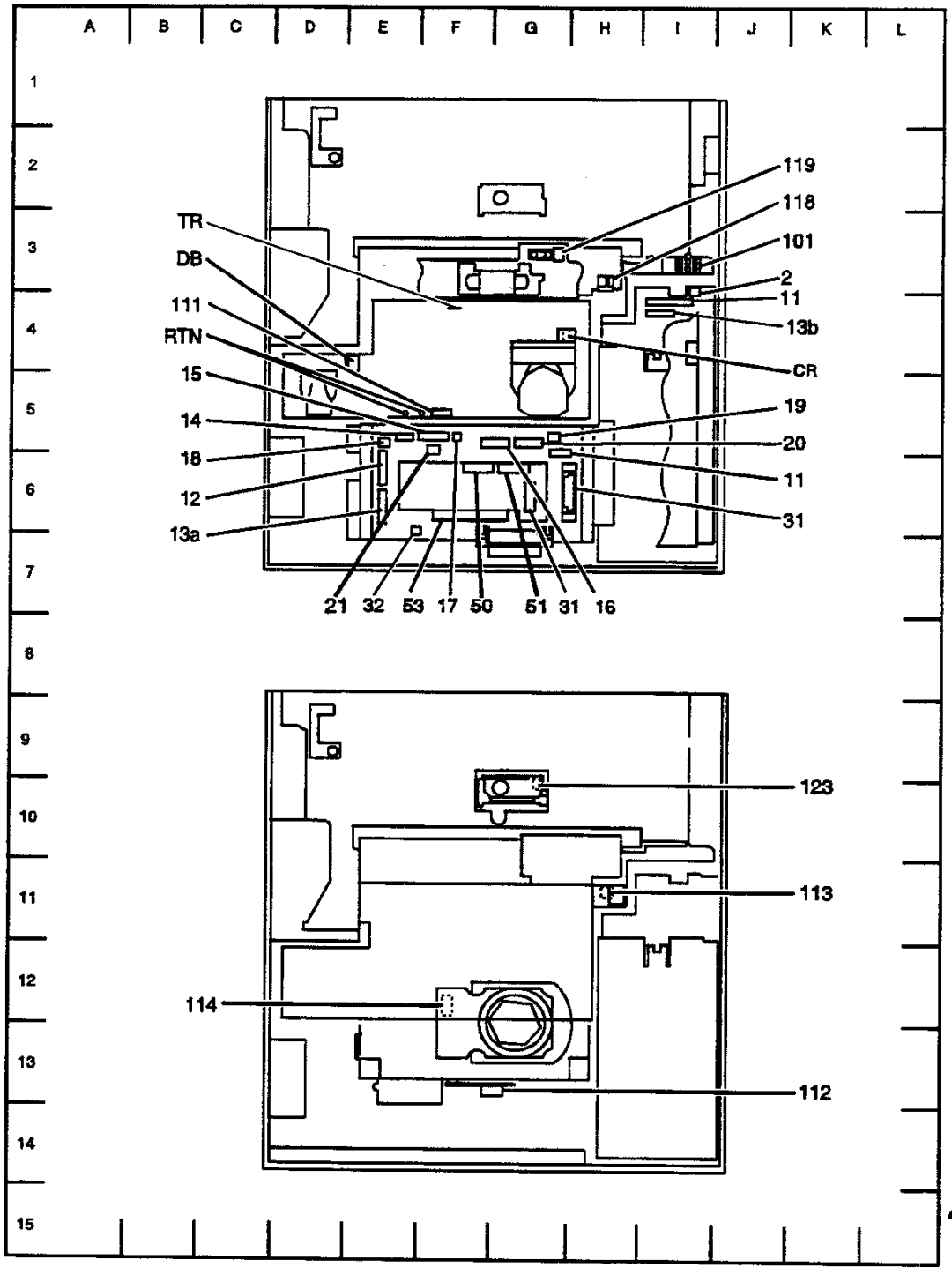
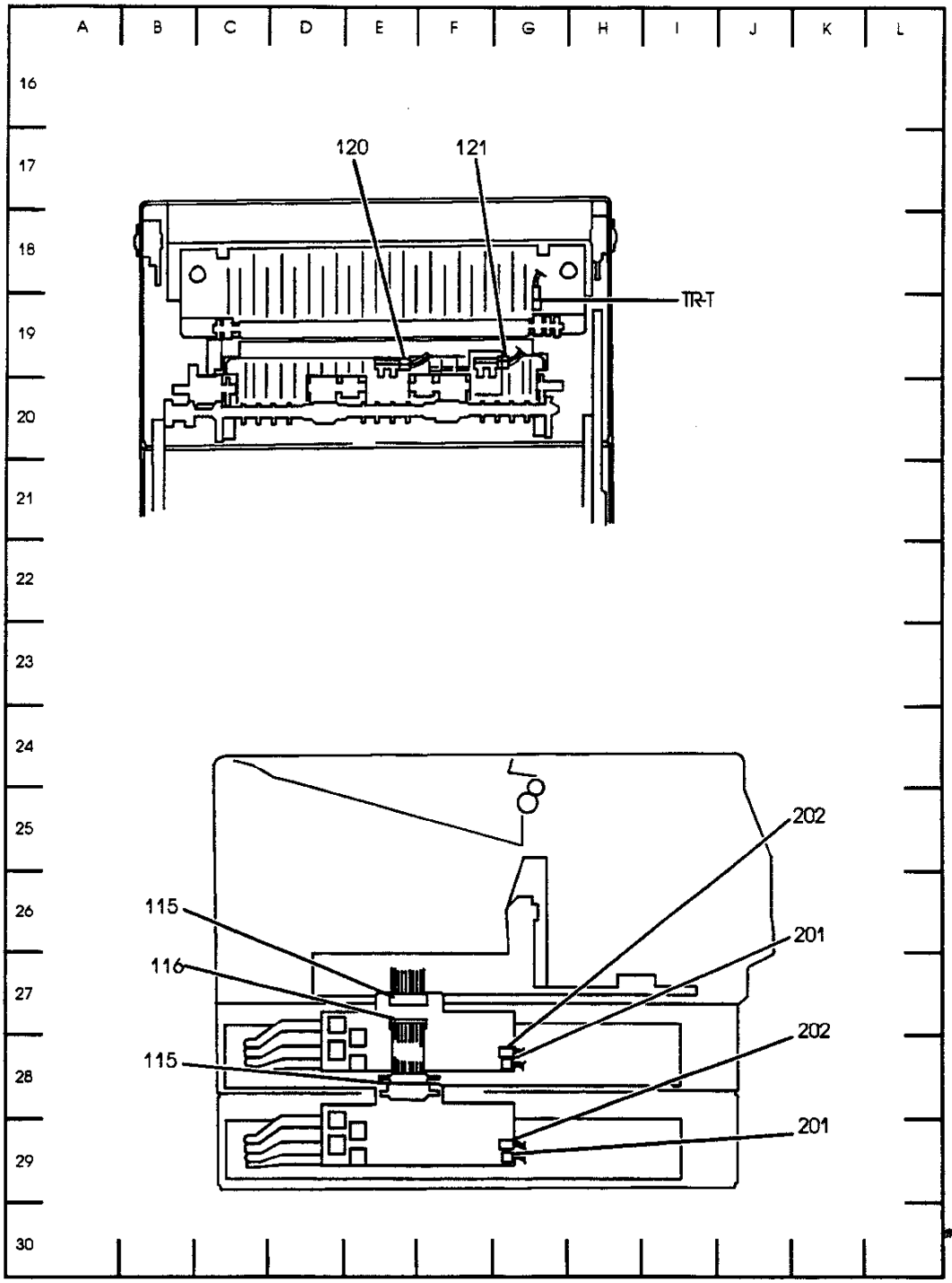
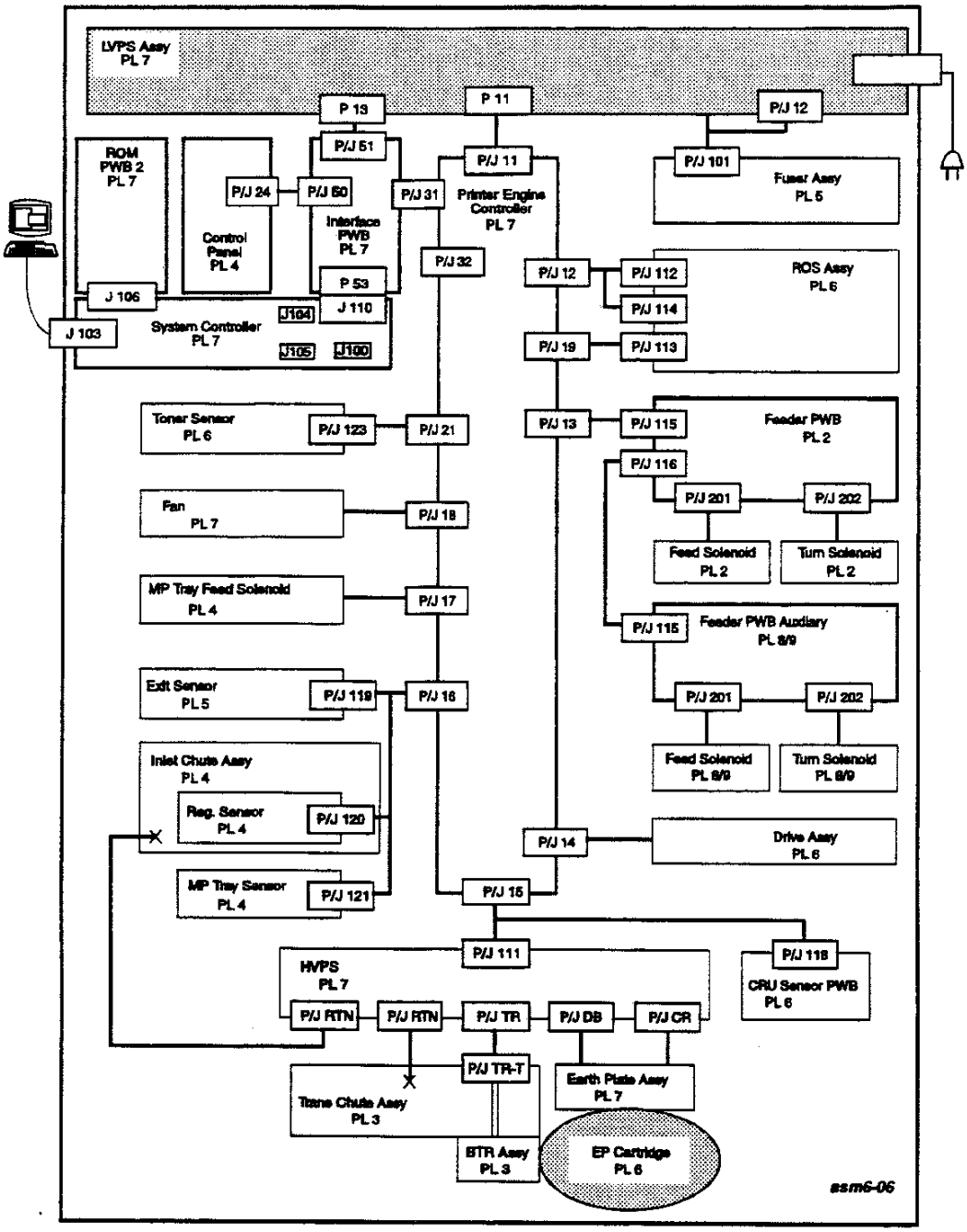


Figure 6.2.2 P/J Locator



6.3 Connection and Wiring Diagrams

Figure 6.3.1 Master connection and wiring diagram



6.4 Wiring Connections and Diagram Sections

The Master Connection and Wiring Diagram is divided into ten sections to better illustrate the electrical relationship between components and assemblies within the printer:

- CRU Sensor PWB and Printer Engine Controller PWB (See 6.4.6).
- Drive Assembly and Printer Engine Controller PWB (See 6.4.5).
- Earth Plate Assembly and Printer Engine Controller PWB (See 6.4.6).
- Exit Sensor and Printer Engine Controller PWB (See 6.4.7).
- Fan and Printer Engine Controller PWB (See 6.4.8).
- Feeder PWB and Printer Engine Controller PWB (See 6.4.4).
- Feeder PWB AUX and Printer Engine Controller PWB (See 6.4.4).
- Feed Solenoid and Printer Engine Controller PWB (See 6.4.4).
- HVPS and Printer Engine Controller PWB (See 6.4.6).
- Inlet Chute Assembly and Printer Engine Controller PWB (See 6.4.6).
- Interface PWB and Control Panel (See 6.4.9).
- Interface PWB and Printer Engine Controller PWB (See 6.4.10).
- LVPS Assembly and Printer Engine Controller PWB (See 6.4.1 and 6.4.10).
- LVPS Assembly and Fuser Assembly (See 6.4.2).
- MP Tray Sensor and Printer Engine Controller PWB (See 6.4.7).
- MP Tray Feed Solenoid and Printer Engine Controller PWB (See 6.4.8).
- Registration Sensor and Printer Engine Controller PWB (See 6.4.7).
- ROS Assembly and Printer Engine Controller PWB (See 6.4.3).
- System Controller and Printer Engine Controller PWB (See 6.4.10).
- Toner Sensor and Printer Engine Controller PWB (See 6.4.8).
- Transportation Chute Assembly and Printer Engine Controller PWB (See 6.4.6).
- Turn Solenoid and Printer Engine Controller PWB (See 6.4.4).

6.4.1 LVPS Assembly and Printer Engine Controller PWB

The connections between the Low Voltage Power Supply Assembly and the Printer Engine Controller PWB are illustrated in Figure 6.4.1.1.

Figure 6.4.1.1 LVPS Assembly and Printer Engine Controller PWB wiring diagram

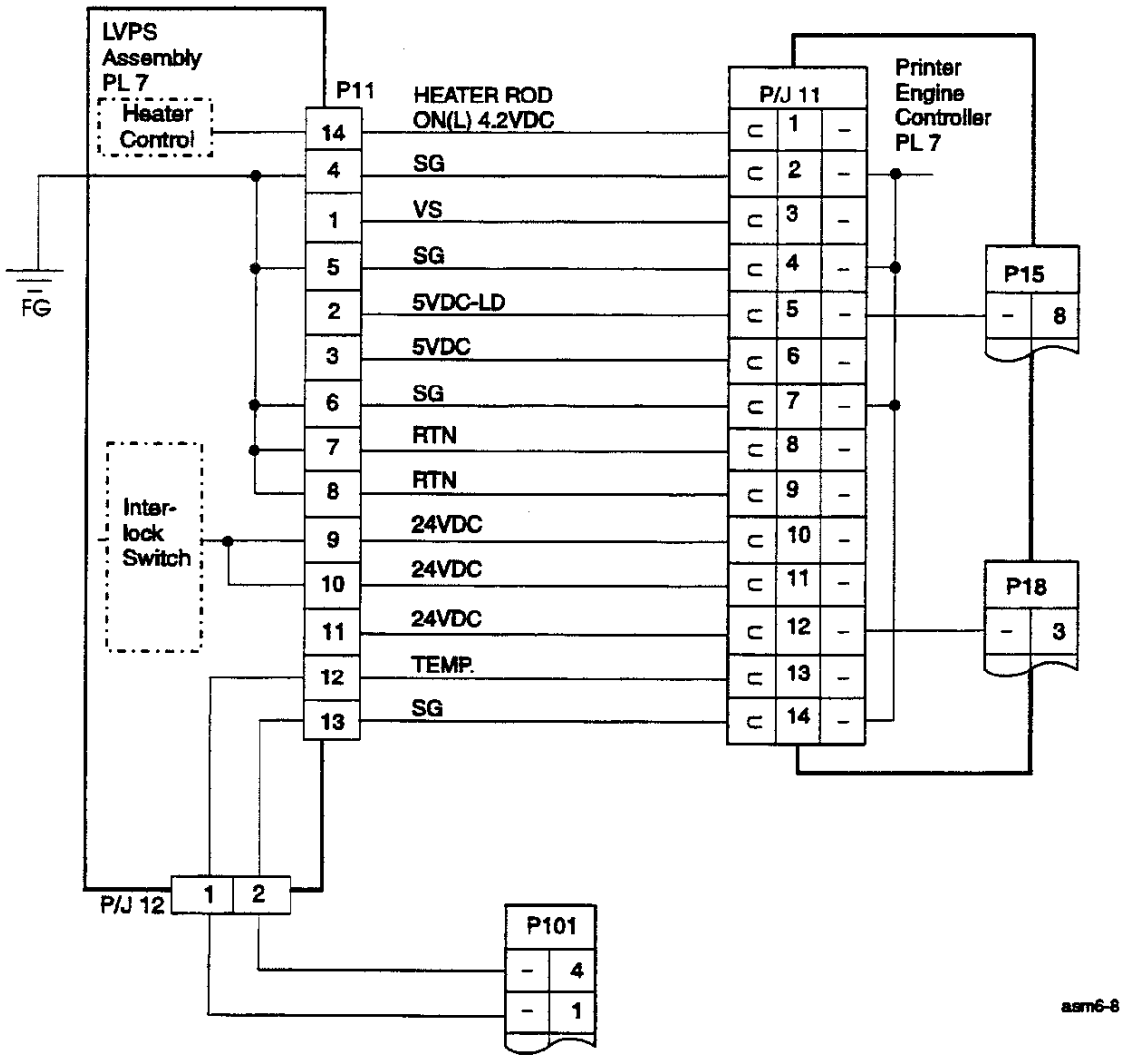


Table 6.4.1.1 provides information on the signal line names used in this section

Table 6.4.1.1 Signal line name and descriptions

Signal Line Name	Signal Line Description
5VDC–LC	Source power for the Laser Diode
VS	Voltage drop signal. 5VDC output voltage when the printer is switched OFF
TEMP	Thermistor data from the Temperature Sensor

NOTE: Power output from the LVPS decreases to 0VDC after approximately 15 seconds if power is switched ON with no load attached to the LVPS (this is referred to as "crowbar"). The LVPS will crowbar if you make a voltage check with P/J 11 disconnected.

To reset the LVPS:

1 Switch the printer power OFF.

2 Reconnect P/J 11 to the Printer Engine Controller PWB.

3 Wait five minutes.

4 Switch the printer power ON.

6.4.2 LVPS Assembly and the Fuser Assembly

The connections between the Low Voltage Power Supply Assembly and the Fuser Assembly are shown in Figure 6.4.2.1

Figure 6.4.2.1 LVPS Assembly and the Fuser Assembly wiring diagram

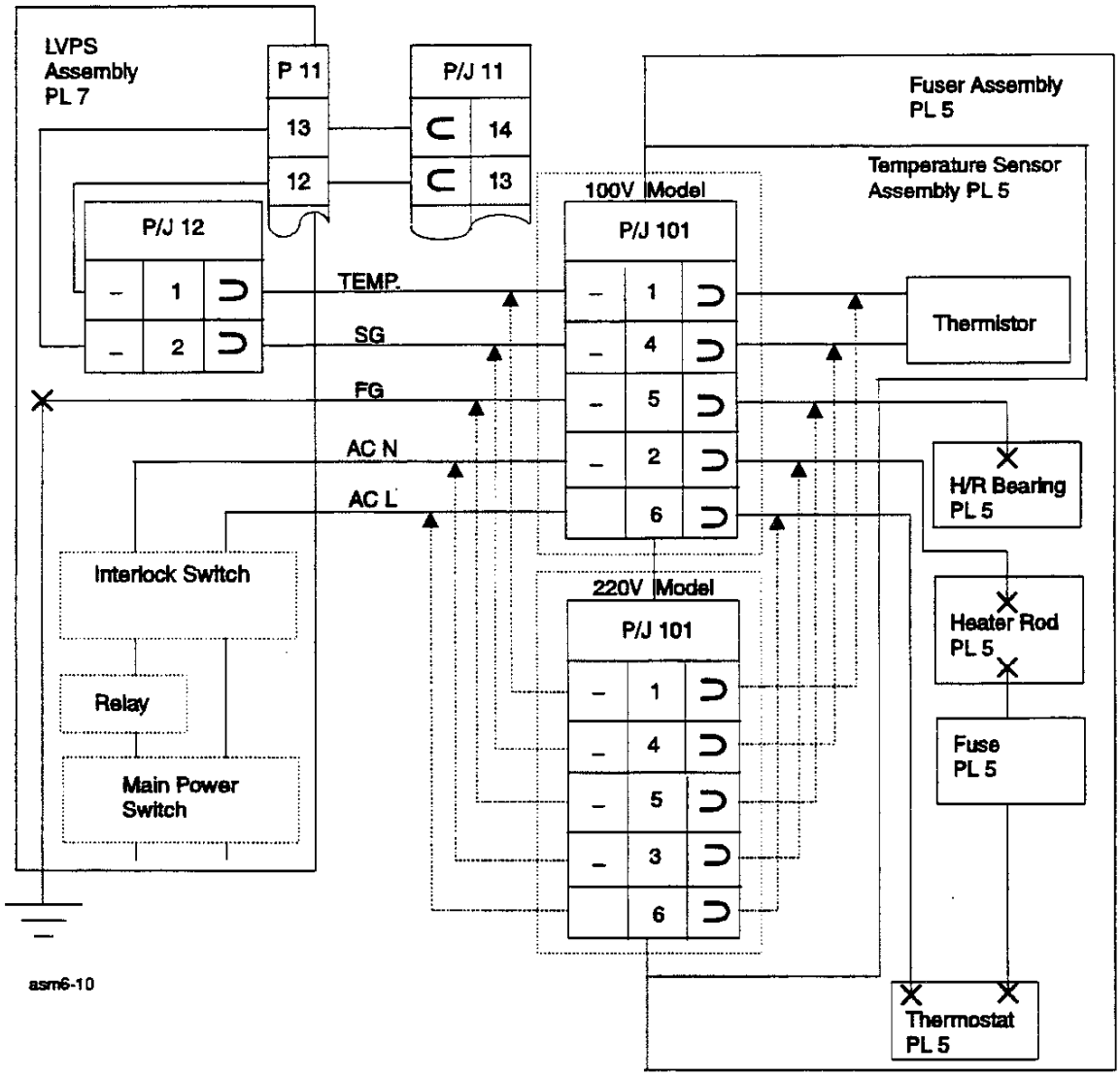


Table 6.4.2.1 provides information on the signal line names used in this section.

Table 6.4.2.1 Signal line name and descriptions

Signal Line Name	Signal Line Description
TEMP	Thermistor data from the Temperature Sensor
AC N	Neutral side of AC input from the AC power source
AC L	Line side of AC input from the AC power source

NOTE: Fuse (PL 5) opens at 141°C.

- *Thermostat (PL 5) opens at the point–of–contact temperature of 185°C.*
- *The rated power of the Heater Rod is 280W ±14W (100V Model) and 350W ±17.5W (220V Model).*

Table 6.4.2.2 shows the Thermistor resistance values at various temperatures.

Table 6.4.2.2 Thermistor resistance values

Thermistor Temperature	10°C	20°C	30°C	150°C	160°C	170°C	180°C
Resistance in K	348~526	223~327	146~209	2.9~3.4	2.3~2.6	1.8~2.1	1.4~1.7

6.4.3 Printer Engine Controller PWB and the ROS Assembly

Figure 6.4.3.1 shows the connections between the Printer Engine Controller and the ROS Assembly.

Figure 6.4.3.1 Printer Engine Controller/ROS Assembly wiring diagram

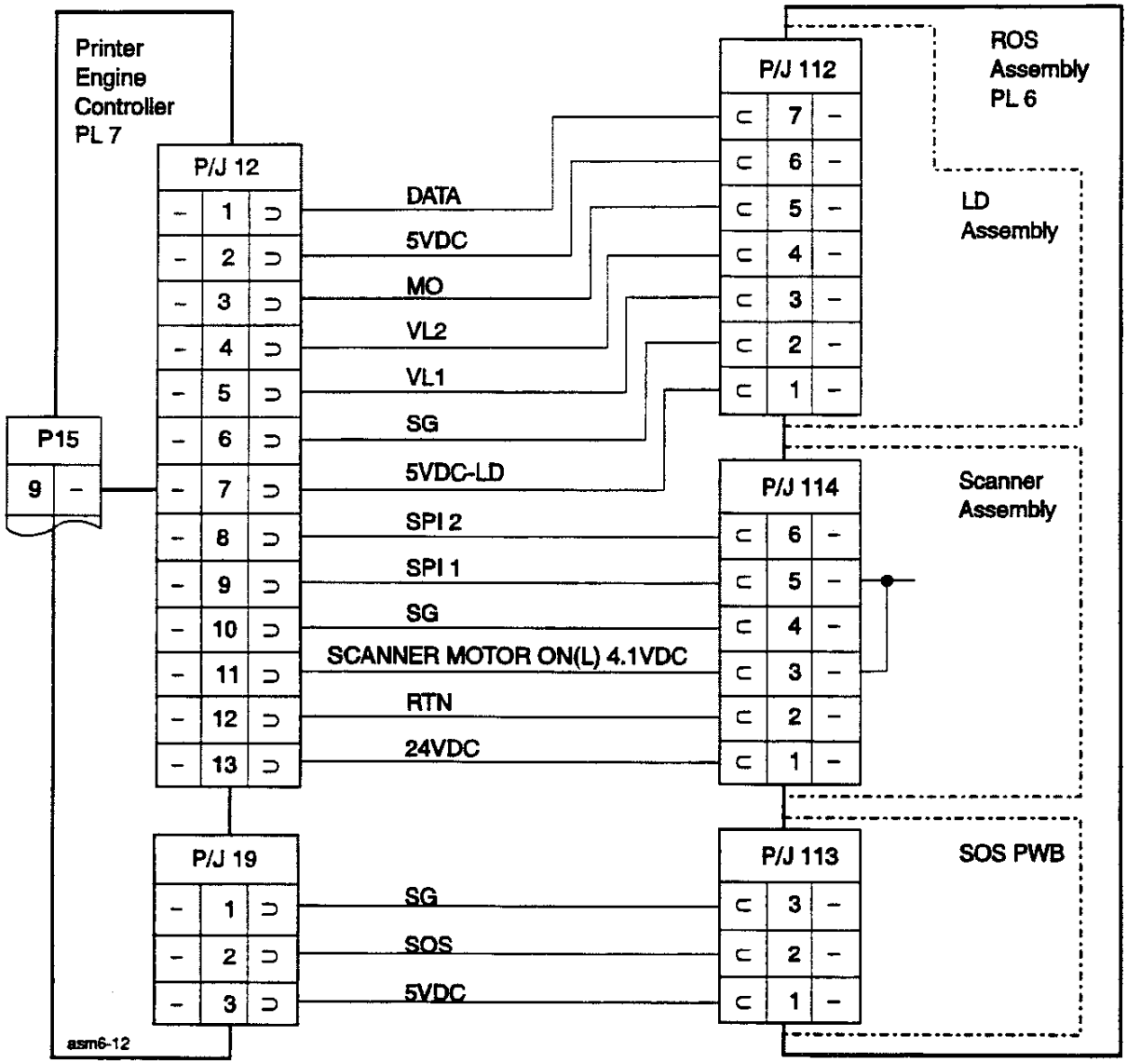


Table 6.4.3.1 shows the signal line descriptions for the Printer Engine Controller and ROS Assembly.

Table 6.4.3.1 Printer Engine Controller and the ROS Assembly

Signal Line Name	Signal Line Description
DATA	Command signal from the Printer Engine Controller to the LD Assembly (LD ON(L) 3.7VDC)

Table 6.4.3.1 Printer Engine Controller and the ROS Assembly (continued)

Signal Line Name	Signal Line Description
MO	Monitor signal that controls LD output
VL2, VL1	LD output control
5VDC–LD	Power source for the LD Assembly
SPI2, SPI1	Rotation control for the Scanner Motor
SOS	Start of Scan reference signal sent to the Scanner Motor when the laser beam strikes the SOS Sensor

Table 6.4.3.2 below shows the logic states of SPI 2 and SPI 1 when they are controlling the rotation of the Scanner Motor.

Table 6.4.3.2 Logic states

Print Resolution	SPI 2 Logic state	SPI 1 Logic state
300 dpi For ROS Assemblies that can be switched to 600 dpi	L	H
300 dpi For ROS Assemblies that cannot be switched to 600 dpi	H	L
600 dpi	H	H

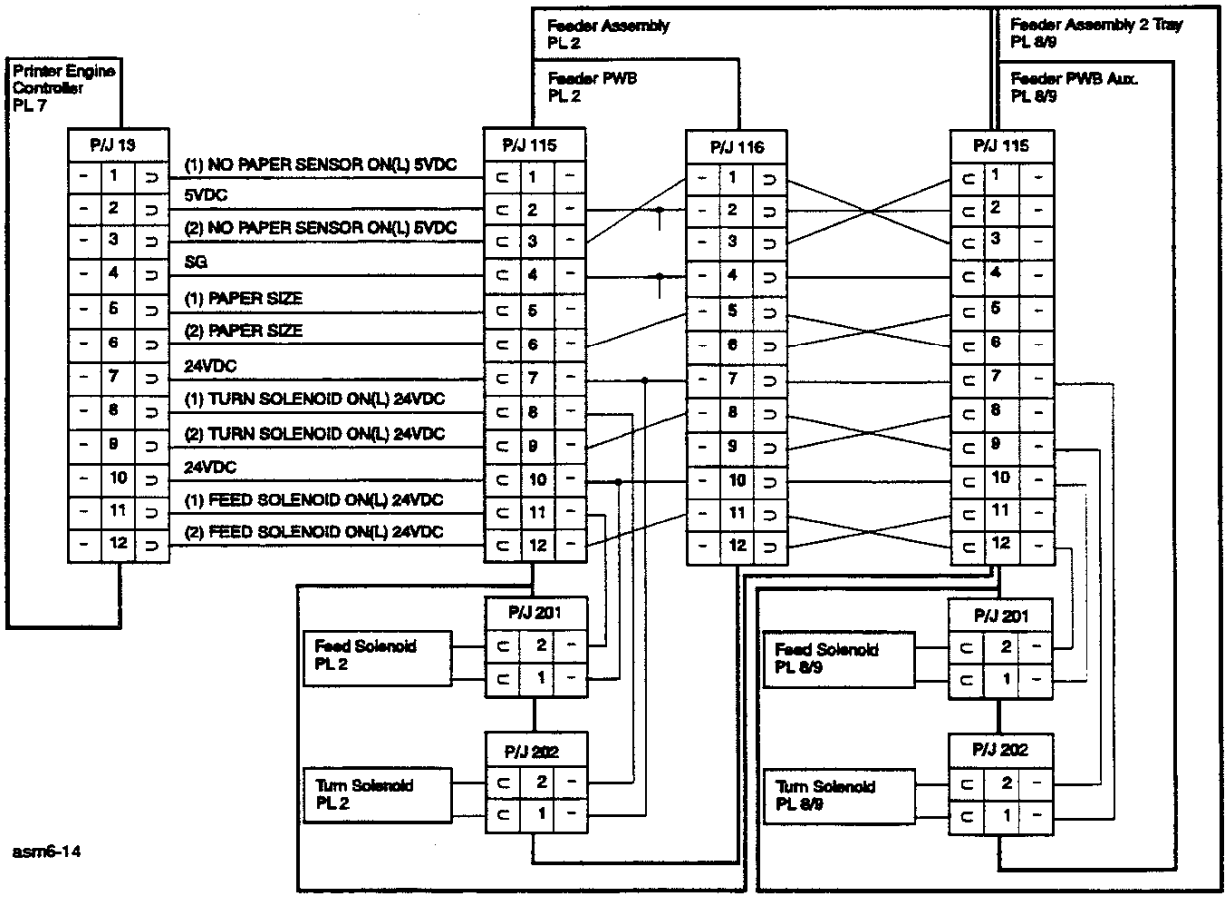
H=High(4.1 VDC). L=LOW (0 VDC)

6.4.4 Printer Engine Controller PWB, Feeder PWB, Feeder PWB AUX, Feed Solenoid, and Turn Solenoid

Figure 6.4.4.1 illustrates the wiring connections between:

- The Printer Engine Controller PWB and the Feeder PWB
- The Feeder PWB and the Feeder PWB AUX
- The Feeder PWB and the Feeder Solenoid
- The Feeder PWB and the Turn Solenoid
- The Feeder PWB AUX and the Feed Solenoid
- The Feeder PWB AUX and the Turn Solenoid

Figure 6.4.4.1 Printer Engine Controller PWB, Feeder PWB, Feeder PWB AUX, Feed Solenoid, and Turn Solenoid wiring diagram



NOTE: Lines with signal names beginning with [1] are connected to Tray 1

- *Lines with signal names beginning with [2] are connected to Tray 2*
- *The line with the signal name PAPER SIZE carries data for the Paper Size Switches*
- *The FEED SOLENOID has a resistance of 120 ohms ±10% at 20°C*
- *The TURN SOLENOID has a resistance of 220 ohms ±10% at 20°C*

Table 6.4.4.1 provides information on the Paper Size Switches. 0 is OFF. 1 is ON.

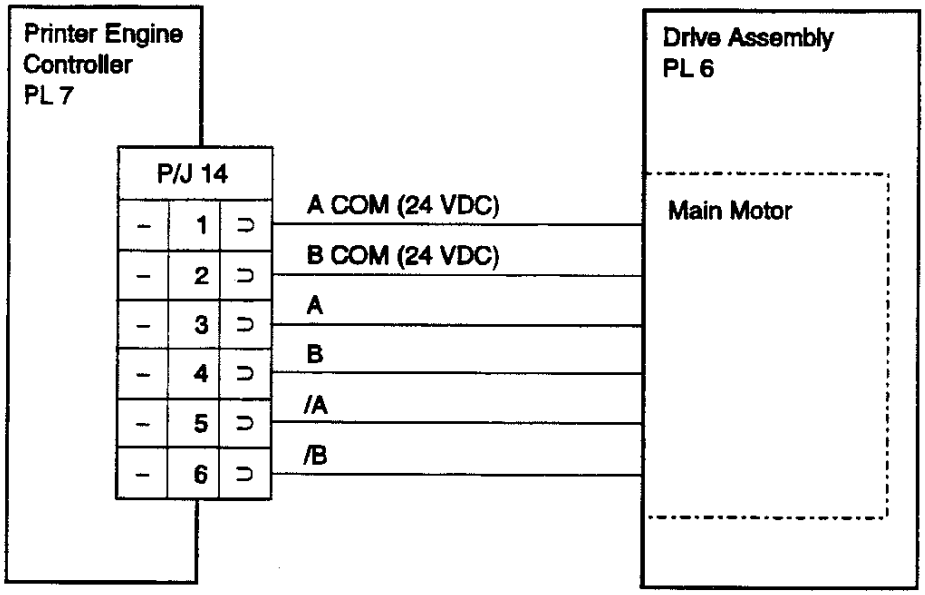
Table 6.4.4.1 Paper Size Switches

Sheet Size	SW1	SW2	SW3	SW4	HEX number	Signal Voltage
No Tray installed	–	–	–	–	00(00~07)	0.0 VDC
No Tray installed	0	0	0	0	0F(08~15)	0.275~0.293 VDC
Monarch	0	0	0	1	1E(16~24)	0.554~0.583 VDC
Legal 13"	0	0	1	0	2C(25~32)	0.834~0.871 VDC
Postcard	0	0	1	1	3B (33~41)	1.116~1.157 VDC
COM-10	0	1	0	0	49 (42~4F)	1.396~1.445 VDC
A4	0	1	0	1	58 (50~5E)	1.680~1.730 VDC
C5	0	1	1	0	66 (5F~6D)	1.962~2.015 VDC
DL	0	1	1	1	75 (6E~7B)	2.248~2.298 VDC
Executive	1	0	0	0	83 (7C~8A)	2.530~2.584 VDC
B5	1	0	0	1	91 (8B~98)	2.814~2.868 VDC
Legal 14"	1	0	1	0	A0(99~A7)	3.098~3.152 VDC
–	1	0	1	1	AE(A8~B5)	3.385~3.433 VDC
–	1	1	0	0	BD(B6~C4)	3.671~3.715 VDC
Letter	1	1	0	1	CB(C5~D3)	3.959~3.996 VDC
–	1	1	1	0	D9(D4~E1)	4.247~4.276 VDC
A5	1	1	1	1	E8(E2~FF)	4.537~4.554 VDC

6.4.5 Printer Engine Controller PWB and Drive Assembly

Figure 6.4.5.1 illustrates the connections between the Printer Engine Controller and the Drive Assembly.

Figure 6.4.5.1 Printer Engine Controller and Drive Assembly wiring diagram



asm6-16

6.4.6 Printer Engine Controller PWB, HVPS, Earth Plate Assembly, Transportation Chute Assembly, Inlet Chute Assembly, and CRU Sensor PWB

Figure 6.4.6.1 illustrates the wiring connections between:

- The Printer Engine Controller PWB and the High Voltage Power Supply
- The HVPS and the Earth Plate Assembly
- The HVPS and the Transportation Chute Assembly
- The HVPS and the Inlet Chute Assembly
- The Transportation Chute Assembly and the BTR Assembly
- The Printer Engine Controller and the CRU Sensor PWB

Figure 6.4.6.1 Printer Engine Controller PWB, HVPS, Earth Plate Assembly, Transportation Chute Assembly, Inlet Chute Assembly, and CRU Sensor PWB wiring diagram

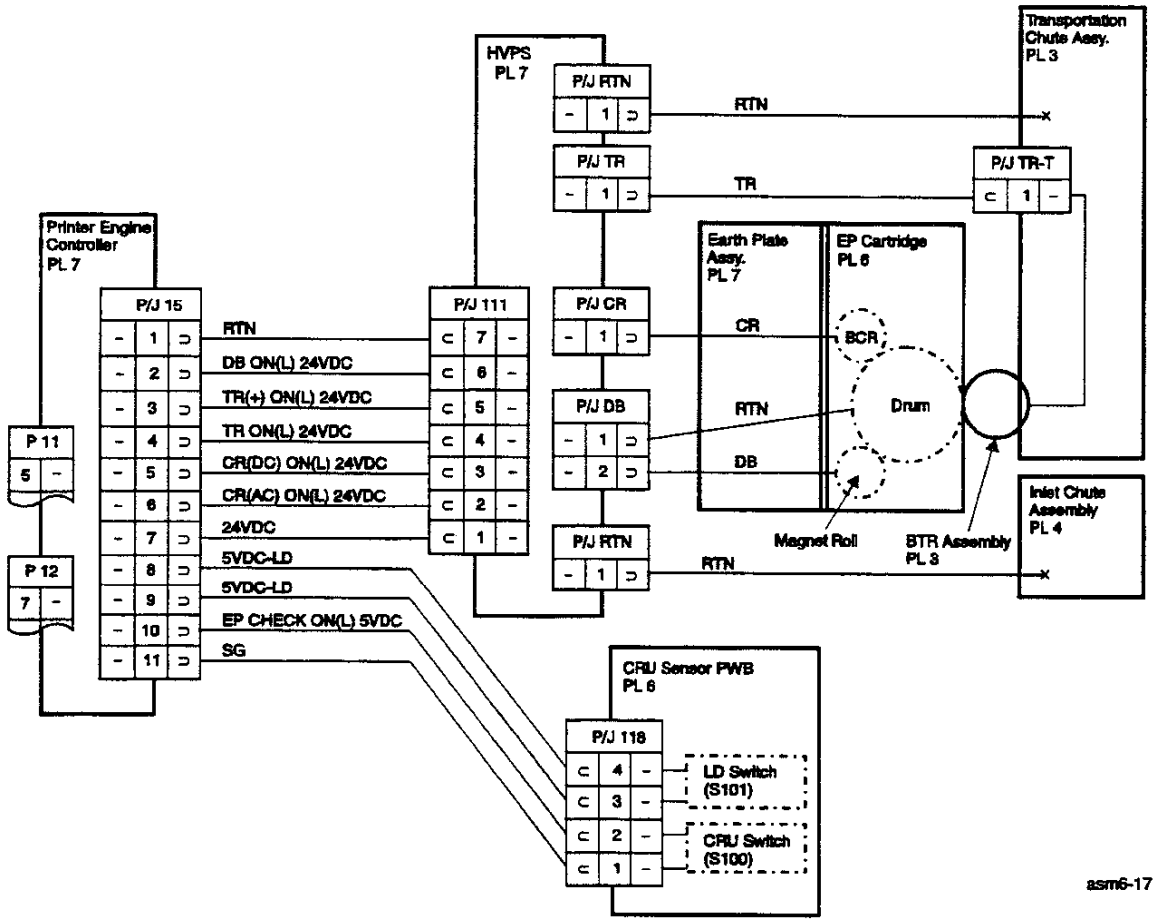


Table 6.4.6.1 provides information on the signal names used in this section.

Table 6.4.6.1 Signal name descriptions

Signal Name	Description of Signal Name
DB ON(L) 24VDC	DB output signal for both AC and DC components
TR(+) ON(L) 24VDC	TR output signal at the + side
TR ON(L) 24VDC	TR output signal at both sides
CR(DC) ON(L) 24VDC	CR output signal, DC component
CR(AC) ON(L) 24VDC	CR output signal, AC component
5VDC–LD	Source power for the LD Assembly
EP CHECK ON(L) 5VDC	Sensor signal for the EP Cartridge
CR	HVPS output to the BCR
DB	HVPS output to the Magnet Roll
TR	HVPS output to the BTR
RTN	Drum grounding at P/J DB–1

Table 6.4.6.2 provides information on HVPS voltages used in this section.

Table 6.4.6.2 HPVS voltages

Output Name	Output Voltage (5 PPM)
CR(AC)	200 µA(rms) / 150 Hz
CR(DC)	–330 VDC
TR(+)	1000 VDC / 1.5 µA
TR(–)	–600 VDC
DB(AC)	2.0KV p-p / 2.4KHz
DB(DC)	–230 VDC

6.4.7 Printer Engine Controller PWB, Exit Sensor, Registration Sensor, and MP Tray Sensor

Figure 6.4.7.1 illustrates the wiring connections between:

- The Printer Engine Controller PWB and the Exit Sensor
- The Printer Engine Controller PWB and the Registration Sensor
- The Printer Engine Controller PWB and the MP Tray Sensor

Figure 6.4.7.1 Printer Engine Controller, Exit Sensor, Registration Sensor, and MP Tray Sensor wiring diagrams

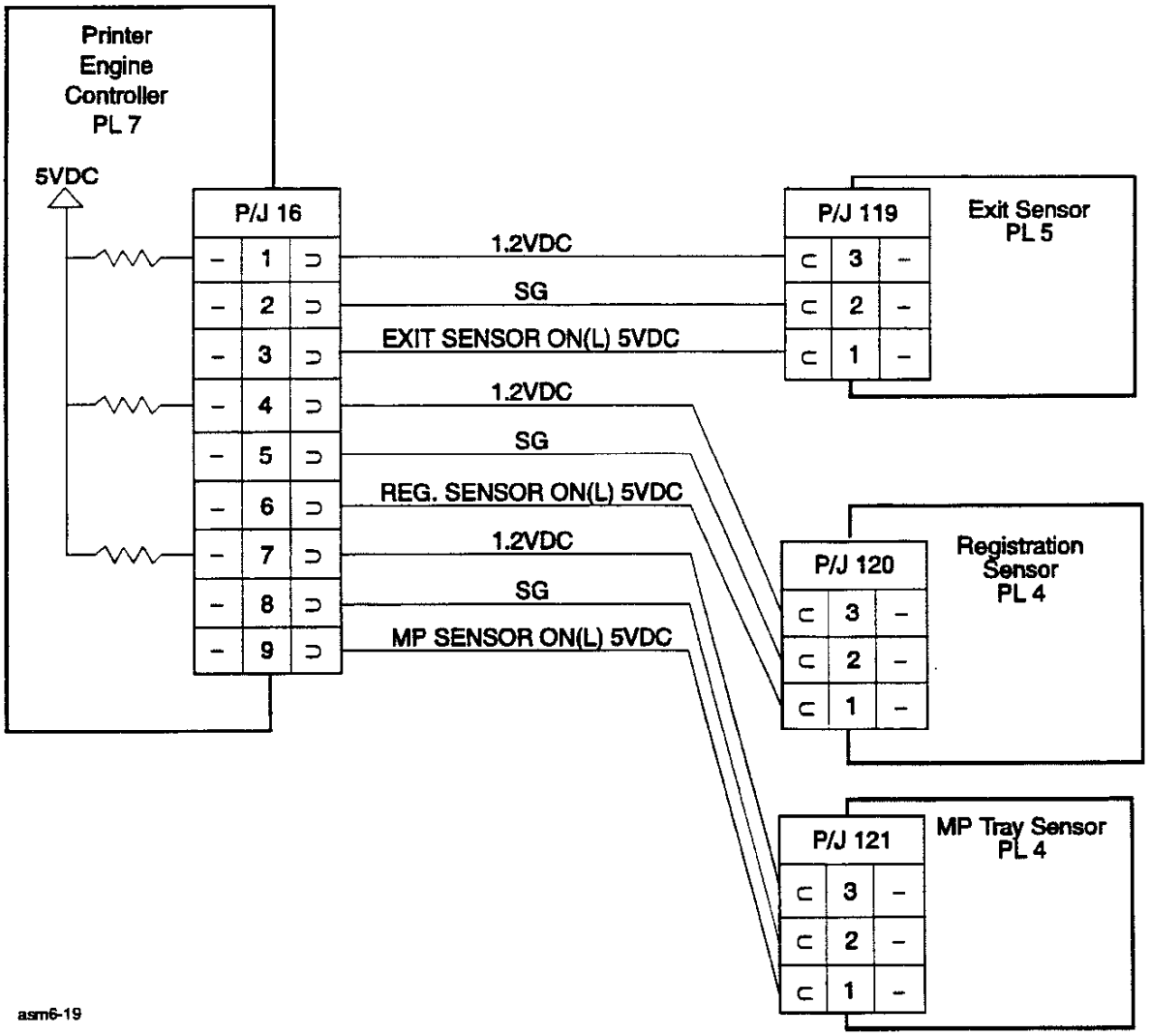


Table 6.4.7.1 provides information on the signal names used in this section.

Table 6.4.7.1 Signal name descriptions

Signal Name	Description of Signal Name
EXIT SENSOR ON(L) 5VDC	Signal for monitoring paper at the Exit Sensor (L) = no paper at the sensor (H) = paper at the sensor
REGISTRATION SENSOR ON(L) 5VDC	Signal for monitoring paper at the Inlet Chute (L) = no paper at the sensor (H) = paper at the sensor
MP Tray SENSOR ON(L) 5VDC	Signal for monitoring paper at the MP Tray Assembly (L) = no paper at the sensor (H) = paper at the sensor

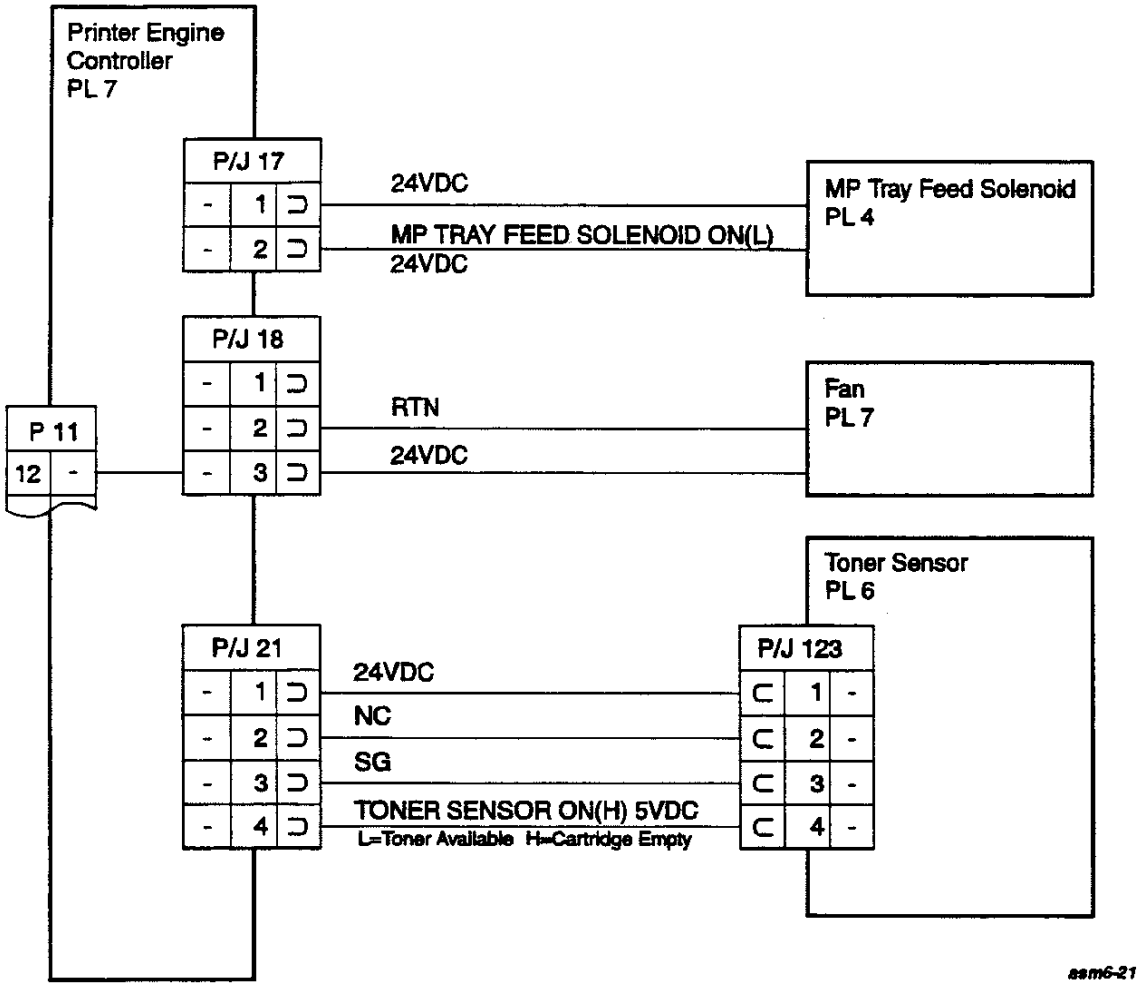
NOTE: Resistance between the LVPS and the Printer Engine Controller PWB reduces voltage to the sensors to approximately 1.2VDC.

6.4.8 Printer Engine Controller PWB, MP Tray Feed Solenoid, Fan, and Toner Sensor

Figure 6.4.8.1 illustrates the wiring connections between:

- The Printer Engine Controller PWB and the MP Tray Feed Solenoid
- The Printer Engine Controller PWB and the Fan
- The Printer Engine Controller PWB and the Toner Sensor

Figure 6.4.8.1 Printer Engine Controller, MP Tray Feed Solenoid, Fan, and Toner Sensor wiring diagram

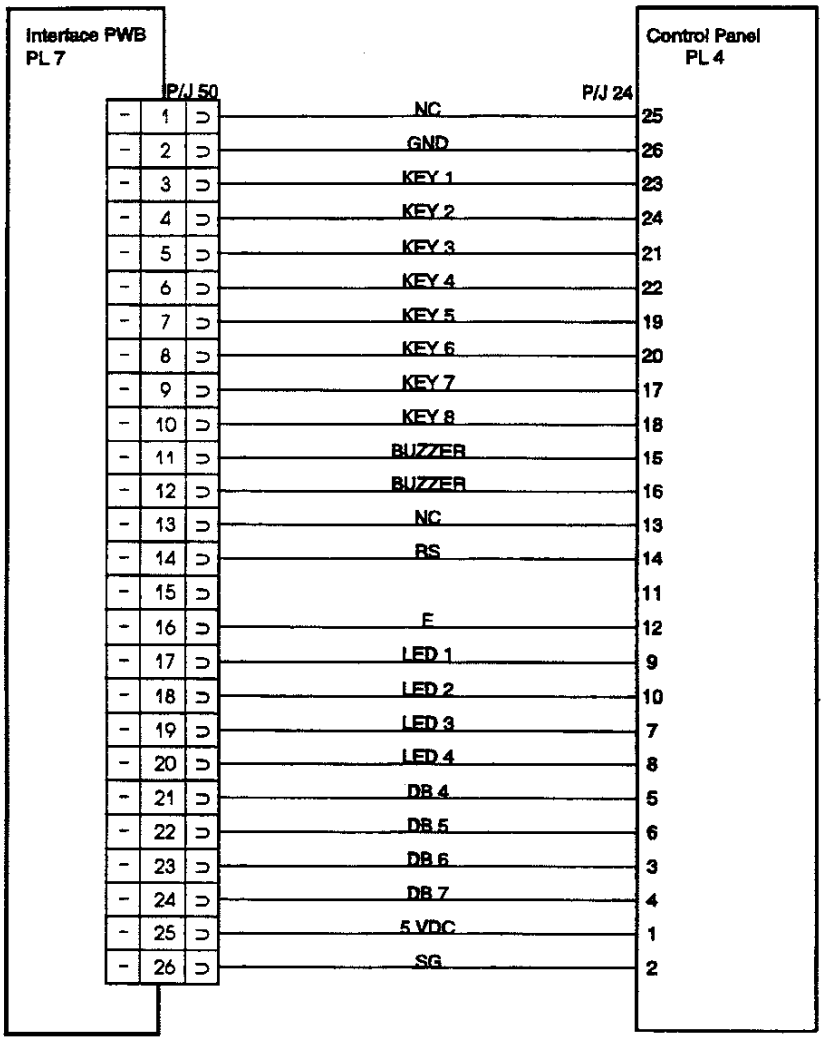


6.4.9 Interface PWB and Control Panel

Figure 6.4.9.1 illustrates the wiring connections between:

- The Interface PWB and the Control Panel.

Figure 6.4.9.1 Interface PWB and Control Panel wiring diagram



asm6-23

Table 6.4.9.1 provides information on the signal names used in this section.

Table 6.4.9.1 Signal name descriptions

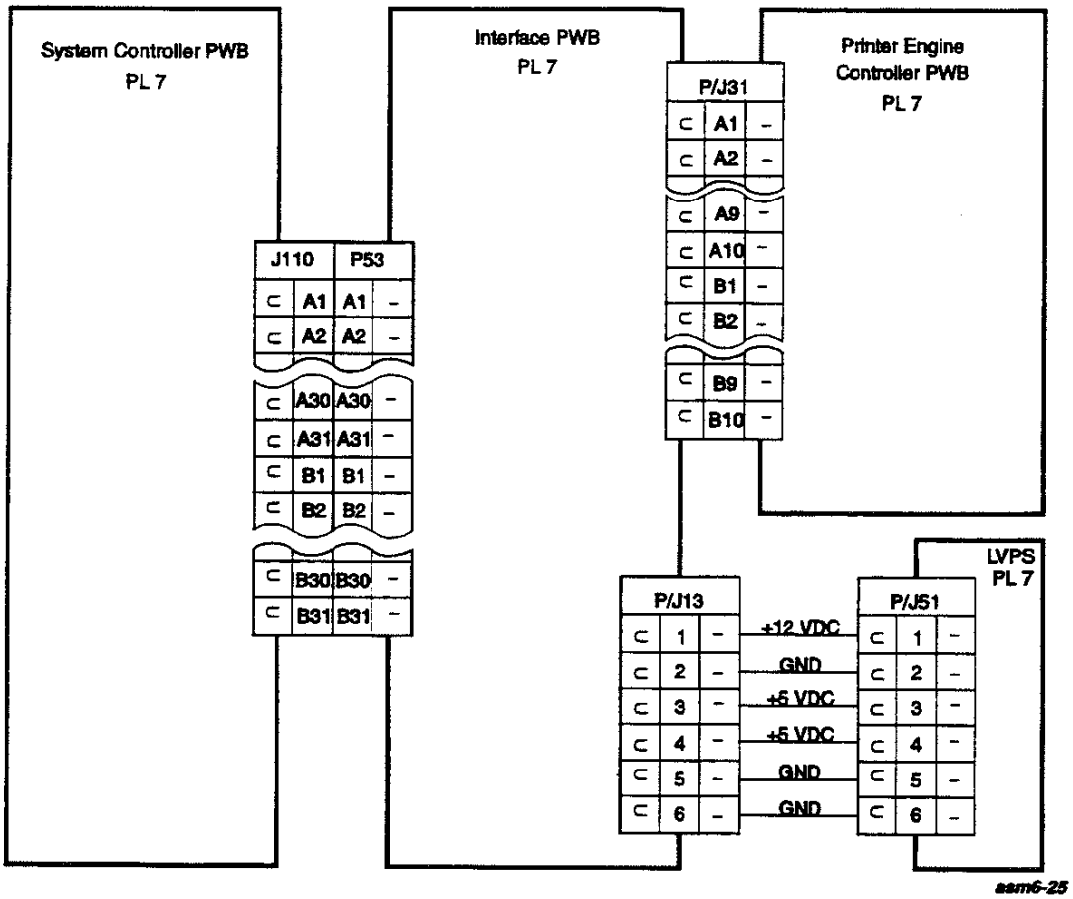
Signal Name	Description of Signal Name
RS, E, DB4~7	For the LCD
KEY0	For Key (0), (1), and (2)
KEY1	For Key (3), (4), and (5)
KEY2	For Key (6) and (7)

6.4.10 LVPS Ass'y, Interface PWB, System and Printer Engine Controller

Figure 6.4.10.1 illustrates the wiring connections between:

- The Low Voltage Power Supply Assembly and the Interface PWB
- The System Controller PWB and the Interface PWB
- The Printer Engine Controller PWB and the Interface PWB.

Figure 6.4.10.1 LVPS Assembly, Interface PWB, System Controller, and Printer Engine Controller wiring diagram



Section 7

Repair Analysis Procedures

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.
- P XX – refers to the plug of P/J XX (except for connectors soldered directly to the board).
- J XX – refers to the jack on 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/J A–B and P/J X-Y" indicates that you should place the red probe (+) of the voltmeter on pin B of P/J A, and place the black probe (-) of the voltmeter on pin Y of P/J X. 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 reading on ALL pins.

4 Unless otherwise instructed by a RAP, take all voltage readings with the EP Cartridge and Paper Trays installed, and with the Front Cover Assembly closed.

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 *replacement* means the named part or parts could be the cause of the initial problem. Replace the entire assembly that a RAP directs you to replace.

Image Quality Problems

Use letter-size paper or A4 paper when troubleshooting an image quality problem.

Use the Test Print Mode to determine whether an image quality problem is being caused by the printer or by the PC. The printer generates the Test Print. If the Test Print is normal, but in the online mode the prints have a image quality problem, the problem may be in the ESS or with the PC.

7.2 Preliminary Steps

If the printer is displaying an obvious failure or fault, go immediately to the appropriate Repair Procedure or Repair Analysis Procedure. If you are not sure where to begin troubleshooting, go to 7.2.1, Entry Level RAP. If the printer exhibits intermittent operation and/or inconsistent failure symptoms, the problem may be due to electrical noise. Try to resolve the problem first by using the Entry Level RAP, then go to the EMI/RFI RAP.

7.2.1 Entry Level RAP

NOTE: If there is an obvious failure or fault message, go immediately to the appropriate Repair Procedure.

1 Switch the printer power OFF, then ON. The fan runs.
   - Y Go to step 2.
   - N Go to 7.4.6, Inoperative Fan.

2 The printer LCD illuminates at power on.
   - Y Go to step 3.
   - N Go to 7.4.1, Malfunctioning LCD Panel.

3 The two LEDs on the Control Panel illuminate.
   - Y Go to step 4.
   - N Go to 7.4.2, Malfunctioning LED Panel.

4 "Online Ready" is displayed within 2 minutes.
   - Y Go to step 5.
   - N Go to step 8.

5 Enter the Test Menu. The Test Menu can be entered.
   - Y Go to step 6.
   - N Go to 7.4.3, Inoperative Keypad.

6 Generate a System Controller Test Print from all trays. All prints are delivered to the Output Tray.
   - Y Go to 7.5.1 Image Quality Entry RAP. Return to this RAP, step 10.
   - N Go to step 7.

7 Press "Enter" a second time. A print is delivered to the output tray.
   - Y Go to step 12.
   - N Go to step 9.

8 Enter Diagnostic Mode 2 and run a test print. If the printer stops during the print cycle, without displaying a Fault/Status Message, press "Enter" a second time without clearing the paper path. A Fault/Status Message is displayed.
   - Y Go to appropriate RAP.
   - N Go to step 11.

9 The Main Drive Motor runs during the Test Print generation.

Y Go to the appropriate Fault/Status Code RAP.

N Go to 7.4.5, Drive Assembly Failure.

10 Request customer to send a print job from the host. The job prints successfully without defects.

Y Go to step 11.

N Go to 7.6.1, Communications Entry RAP.

11 A fault condition exists that has not been identified in the previous steps.

Y Go to Table 1.

N Go to Final Actions.

12 Print a Configuration Sheet. The paper size in the tray matches the Configuration Sheet.

Y Go to 7.3.10, STD Tray Out/Lower Tray Out, Fault/Status Code C3.

N Set configuration or paper tray as necessary.

Table 1

	Printer Problem	RAP
1	Memory Card is not being read on a customer job.	**7.7.1** Memory Card Checkout Procedure RAP.
2	One or all of the LED's on the printer UI does/do not light.	**7.4.2** Malfunctioning LED Panel.
3	The printer starts and stops at random.	**7.4.4** Erratic Operation.
4	The printer will not feed from the MP Tray.	**7.4.12** MP Tray Sensor Failure.

7.3 RAPs With Fault / Status Codes

7.3.1 NV Memory Fail, Fault/Status Code U6

1 Switch the printer power OFF and then ON. The error message reoccurs.

Y Replace the Printer Engine Controller PWB, PL 7, and go to step 2.

N Go to Final Actions.

2 The problem still exists after the Printer Engine Controller PWB replacement.

Y Replace the System Controller PWB, PL 7.

N Go to Final Actions.

7.3.2 Laser Failure, Fault/Status Code U2

There is a problem with the ROS Assembly.

1 Switch the printer power OFF, then ON. Run a System Controller Test Print from the Menu Mode. The error message is redisplayed.

   Y Go to step 2.

   N Problem corrected.

2 Generate a Grid Diagnostic Test Print in Diagnostics Mode 2. The Scanner Motor runs.

   Y Go to 7.4.8, ROS Assembly Failure RAP.

   N Go to step 3.

3 There is +5VDC between P12-7 and frame ground.

   Y Go to 7.4.8, ROS Assembly Failure RAP.

   N Go to 7.4.7, LVPS Assembly Failure RAP.

7.3.3 Fuser Failure, Fault/Status Code U4

1 Switch the printer power OFF, then ON. The error message occurs within 5 minutes.

Y Go to step 2.

N Go to Final Actions.

2 Switch the printer power OFF. Remove printer covers. Switch the printer power ON. With the Front Cover closed, verify the Heat Rod glows within 2 minutes.

Y Go to step 3.

N Go to step 5.

3 The Heater Rod cycles ON and OFF after the power-on sequence.

Y Go to step 4.

N Go to step 6.

4 The Fuser Failure message occurs within 5 minutes.

Y Replace the Printer Engine Controller PWB, PL 7. If the problem persists, replace the System Controller PWB, PL 7. After replacement, perform procedure 5.2.3.2, Setting Fuser Temperature.

N Go to Final Actions.

5 Verify the following:

110 VAC printer: from P/J 101-2 to 101-6: voltage = 90 - 135 VAC.

220 VAC printer: from P/J 101-3 to 101-6: voltage = 198 - 264 VAC.

The voltage is within specifications.

Y Go to 7.4.9, Fuser Analysis.

N Go to step 6.

6 Switch the printer power OFF, then ON. Verify the voltage at P/J11-14 switches from 4.2 VDC (Heat Rod OFF) to 0VDC (Heat Rod ON). The voltage switches.

Y Replace the LVPS, PL 7.

N Go to step 7.

7 Switch the printer power OFF. Disconnect P/J 12 from the LVPS and measure the resistance between P101-1 and P101-4. The resistance measures between 150 ohms to 350K ohms.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the Temperature Sensor Assembly, PL 5.

7.3.4 Close Cover, Fault/Status Code E5

NOTE: Verify the Error Code is E5 by entering Diagnostic Mode 2 and running a test print.

1 Open and close the front cover. E5 is displayed after the front cover is closed.
   - Y Go to step 3.
   - N Go to step 2.

2 Remove all covers. The link assembly actuates the interlock switch on the LVPS.
   - Y Go to Final Actions.
   - N Repair or replace the Link Assembly, PL 3.

3 Verify voltage at P11-9 is +24 VDC when the interlock switch is closed.
   - Y Replace the Printer Engine Controller PWB, PL 7.
   - N Replace LVPS, PL 7.

7.3.5 Open Cover Clear Paper Path, Fault/Status Code E4

The printer senses a jam in the Exit area.

NOTE: Verify the Error Code is E4 by entering Diagnostic Mode 2 and running a test print.

1 Switch the printer power OFF, then ON. The error message appears after the power on sequence.
   - Y Go to step 5.
   - N Go to step 2.

2 Enter DG 90 to check the Exit Roll Assembly. The Exit Roll and Pinch Roll rotate together.
   - Y Go to step 3.
   - N Repair or replace the Exit Roll Assembly and/or Fuser Assembly, PL 5.

3 Make sure the paper guide is properly adjusted. The parameter for DG 00 Size Sensor represents the actual size of the paper used in the Optional tray.
   - Y Go to step 5.
   - N Go to step 4.

4 The Paper Size Switches of the Feeder PWB or Feeder PWB AUX. show the correct switch combination for the paper size present in the tray, 5.2.1.14
   - Y Go to 7.4.15, Paper Size Switch Failure RAP.
   - N Replace the Paper Tray, PL 2.

5 Something is causing the Fuser Exit Actuator to bind or stick.
   - Y Repair or replace the Exit Actuator, PL 5.
   - N Go to step 6.

6 When the Fuser Exit Sensor actuator is actuated, the Exit Sensor window is uncovered.
   - Y Go to step 7.
   - N Repair or replace the Fuser Exit Actuator or Fuser Assembly, PL 5.

7 With no paper striking the Exit Sensor actuator, the Exit Sensor window is covered.
   - Y Go to step 8.
   - N Repair or replace the Fuser Exit Actuator or Fuser Assembly, PL 5.

8 Enter DG 02 to check the Exit Sensor. The Exit Sensor functions correctly.
   - Y Replace the Printer Engine Controller PWB, PL 7.
   - N Go to 7.4.10, Exit Sensor Failure RAP.

7.3.6 Open Covers Clear Paper Jam, Fault/Status Code E3

The printer senses a jam between the Registration Sensor and the Exit Sensor.

NOTE: Verify the Error Code is E3 by entering Diagnostic Mode 2 and running a test print.

1 Switch the printer power OFF, then ON. The error message is redisplayed.
   - Y Go to step 2.
   - N Problem corrected.

2 There is a sheet of paper covering the Fuser Exit Actuator when the E3 code appears.
   - Y Go to step 9.
   - N Go to step 3.

3 The Link Assembly opens the Drum Shutter when you close the Front Cover.
   - Y Go to step 4.
   - N Repair or replace the Link Assembly, PL 3.

4 Open the Front Cover. Manually hold the Drum Shutter open. With the Front Cover open, actuate the interlock switch. The Drum rotates.
   - Y Go to step 5.
   - N Check Drives to EP Cartridge. If OK, replace the EP Cartridge, PL 6.

5 Open Front Cover. Manually rotate the BTR. The BTR rotates smoothly.
   - Y Go to step 6.
   - N Replace the Transportation Chute Assembly, PL 3.

6 Enter DG 90 to check the rotation of the BTR. The BTR rotates (Remove the Right Side Cover to check for rotation).
   - Y Go to step 7.
   - N Replace the BTR Assembly, PL 3.

7 The Transportation Chute Eliminator is clean.
   - Y Go to step 8.
   - N Clean or replace the Transportation Chute, PL 3.

8 There is continuity between the Transportation Chute Eliminator and ground.
   - Y Go to step 9.
   - N Replace the Transportation Chute, PL 3.

9 Enter DG 90 to check the drive to the Heat and Pressure Rolls. The Heat and Pressure Rolls are turning.
   - Y Go to step 10.
   - N Check the Drive Assembly. If OK, replace the Fuser Assembly, PL 5.

10 When paper strikes the Fuser Exit Actuator, the Exit Sensor window is uncovered.
   - Y Replace the Printer Engine Controller PWB, PL 7.
   - N Repair or replace the Fuser Exit Actuator , PL 5.

11 With no paper striking the Fuser Exit Actuator, the Exit Sensor window is covered.

Y Go to step 12.

N Repair or replace the Fuser Exit Actuator or Fuser Assembly, PL 5.

12 Enter DG 02 to check the Exit Sensor. The Exit Sensor functions correctly.

Y Replace the Printer Engine Controller PWB, PL 7.

N Go to 7.4.10, Exit Sensor Failure RAP.

7.3.7 Open Covers Clear Paper Jam, Fault/Status Code E2

The printer senses a jam between the Feed Rolls and the Registration Sensor.

NOTE: Verify Error Code is E2 by entering Diagnostic Mode 2 and running a Test Print.

1 Switch the printer power OFF. Clear all paper from printer paper path. Switch the printer power ON. The error message "Open Cover Clear Paper Path" occurs at Power ON.

   Y Go to step 8.

   N Go to step 2.

2 Generate a System Controller Test Print from all trays. The error message "Open Cover Clear Paper Path" occurs from all trays.

   Y Go to step 7.

   N Go to step 3.

3 The error message "Open Cover Clear Paper Path" occurs from Tray 1.

   Y Go to step 10.

   N Go to step 4.

4 The error message "Open Cover Clear Paper Path" occurs from MP Tray.

   Y Go to step 18.

   N Go to step 5.

5 An Optional Feeder Assembly is installed.

   Y Go to step 6.

   N Go to Final Actions.

6 The error message "Open Cover Clear Paper Path" occurs from the Optional Tray.

   Y Go to step 10.

   N Go to Final Actions.

7 The Main Drive Motor runs during the Test Print generation.

   Y Go to step 8.

   N Go to 7.4.5, Drive Assembly Failure.

8 Manually actuate the Registration Actuator. The Registration Actuator is binding or sticking.

   Y Repair or replace Registration Actuator, PL 4.

   N Go to step 9.

9 Inspect Inlet Chute Assembly for obstructions or damage. The Inlet Chute Assembly is free of damage and obstructions.

Y Go to 7.4.11, Registration Sensor Failure.

N Repair or replace Inlet Chute Assembly, PL 4.

10 Remove Printer Covers. Enter DG 90 to check the Turn Roll Assembly. The Turn Roll Assembly rotates.

Y Go to step 12.

N Go to step 11.

11 Enter DG 84 (Tray 1) or DG 85 (Optional Tray) and verify proper operation of the Turn Solenoid. The Turn Solenoid energizes.

Y Replace the Turn Roll Assembly, PL 2.

N Go to 7.4.17, Turn Solenoid Failure.

12 Enter DG 80 (Tray 1) or DG 81 (Optional Tray), then enter DG 90 (Main Drive Motor). Verify proper operation of the Feed Solenoid. The Feed Solenoid energizes.

Y Go to step 13.

N Go to 7.4.16, Feed Solenoid Failure.

13 Paper is properly fed from the Tray.

Y Go to step 15.

N Verify proper operation of Feed Roll Assembly. If OK, go to step 14. If bad, replace Feed Roll Assembly, PL 2 (Tray 1) or PL 8/PL 9 (Optional Tray).

14 Visually inspect the Tray Size Actuators and Switches on the Feeder PWB. Actuators and Switches are free of damage.

Y Go to step 15.

N Replace the Feeder PWB, PL 2 (Tray 1) or PL 8/PL 9 (Optional Tray).

15 Manually check the No-Paper Actuator for damage or binding. The No-Paper Actuator is free of binding and damage.

Y Go to step 16.

N Repair or replace the No-Paper Actuator, PL 2 (Tray 1) or PL 8/PL 9 (Optional Tray).

16 Visually inspect the Printer Paper Tray Side Rails for damage. Side Rails are free of damage.

Y Go to step 17.

N Show the customer the damage and have the customer order replacement Printer, if damage is found on Tray 1 Side Rails or Optional Feeder, if damage is found in Optional Tray Side Rails.

17 Visually inspect the Paper Tray (Tray 1 or Optional Tray) for damage. The Paper Tray is free of damage.

Y Go to Final Actions.

N If damage exists, replace Paper Tray, PL 2 (Tray 1) or PL 8/PL 9 (Optional Tray).

18 Enter DG 02 and manually actuate the MP Tray Sensor. The MP Tray Sensor operates properly.

Y Go to step 19.

N Go to 7.4.12, MP Tray Sensor Failure.

19 Install paper in MP Tray slot. Enter DG 86, then enter DG 90 (Main Drive Motor). Verify proper operation of the Pick-Up Solenoid. The Pick-Up Solenoid energizes.

Y Go to step 20.

N Go to 7.4.23, MP Tray Feed Solenoid Failure.

20 Paper is properly fed from the MP Tray.

Y Go to Final Actions.

N Replace the Pick-Up Roll Assembly, PL 4.

7.3.8 Install EP Cartridge, Fault/Status Code J3

The printer senses the EP Cartridge is not seated.

1 Enter DG 02 to check the CRU switch. Remove and reinstall the EP Cartridge. The counter increments.

   Y Replace the Printer Engine Controller PWB, PL 7.

   N Go to step 2.

2 The tab on the EP Cartridge actuates the CRU Switch.

   Y Go to 7.4.14, LD Switch Failure.

   N Replace the EP Cartridge, PL 6.

7.3.9 Power Saver On, Fault/Status Code P1

The printer received a" Set Pause" command from the Printer Engine Controller while the printer was online, but no data is being sent to the System Controller. The customer and/or you were unable to exit the power saver mode when a print job was sent.

1 Switch the printer power OFF, then ON. The error message is redisplayed.

Y Replace the System Controller PWB, PL 7.

N Replace the Printer Engine Controller PWB, PL 7.

7.3.10 STD/Lower Load (Paper Size), Fault/Status Code C3

The printer senses that a paper tray is not in place.

1 Enter DG 00 Size Sensor. Fault Code C3 is displayed.

Y Inspect tray for damage. If OK, replace in the following order:

Tray 1:

- Feeder PWB, PL 2.
- Printer Engine Controller PWB, PL 7.
- Harness Assembly Tray 1, PL 7.

Optional Tray:

- Feeder PWB, PL 8/PL 9.
- Printer Engine Controller PWB, PL 7.

N Go to step 2.

2 Refer to Table 5.2.1.14 and verify setting. The settings are correctfor the tray installed.

Y Replace in the following order:

- System Controller PWB, PL 7.
- Printer Engine Controller PWB, PL 7.

N Replace in the following order:

Tray 1:

- Feeder PWB, PL 2.
- Printer Engine Controller PWB, PL 7.
- Harness Assembly Tray 1, PL 7.

Optional Tray:

- Feeder PWB, PL 8/PL 9.
- Printer Engine Controller PWB, PL 7.

7.3.11 Load STD Tray / Load Lower Tray / Load MP (paper size), Fault/Status Code C5

The printer senses no paper in the paper tray.

1 Switch the printer power OFF, then ON. Run a System Controller Test Print. The error message is redisplayed.

- Y Go to step 3.
- N Go to step 2.

2 Verify printer operation. Problem is fixed.

- Y Go to Final Actions.
- N Go to step 3.

3 The code is generated only when using the MP Tray.

- Y Go to step 4.
- N Go to step 7.

4 With the MP Tray empty, the MP Tray Sensor Actuator fits in the cut-out at the bottom of the Plate Assembly.

- Y Go to step 5.
- N Replace the MP Tray Sensor Assembly, PL 4.

5 With paper in the MP Tray, the MP Tray Sensor Actuator touches the top sheet of paper.

- Y Go to step 6.
- N Replace the MP Tray Sensor Assembly, PL 4.

6 Enter DG 02 to check the MP Tray Sensor. The MP Tray Sensor functions correctly.

- Y Replace the following in order:
  System Controller PWB, PL 7.
  Printer Engine Controller PWB, PL 7.
- N Go to 7.4.12, MP Tray Sensor Failure.

7 The paper trays are inserted correctly in the printer.

- Y Go to step 8.
- N Insert the trays correctly. If the code C5 reappears, go to step 9.

8 Enter DG 02 and check the No-Paper Sensor. The No-Paper Sensor functions correctly.

- Y Go to step 9.
- N Go to 7.4.13, No-Paper Sensor Failure.

9 Enter DG 00 Size Sensor. Refer to Table 5.2.1.14 and verify setting. The settings are correct for the tray installed.

Y Replace the System Controller PWB, PL 7. If problem still exists, replace the Printer Engine Controller PWB, PL 7.

N Inspect Tray. If OK, replace in the following order:

Tray 1:

- Feeder PWB, PL 2.
- Printer Engine Controller PWB, PL 7.
- Harness Assembly Tray 1, PL 7.

Optional Tray:

- Feeder PWB, PL 8 or PL 9
- Printer Engine Controller PWB, PL 7

7.3.12 Toner Low, Fault/Status Code J5

The printer senses that the toner is low in the EP Cartridge.

1 Replace the EP Cartridge. The error message is redisplayed.

   Y Go to step 2.

   N Go to Final Actions.

2 Enter DG 02. Unplug P118 from CRU Sensor PWB. Open the Front Cover and cheat the Front Cover Interlock. Remove and reinstall the EP Cartridge. The Sensor Check Counter increments.

   Y Replace the Printer Engine Controller PWB, PL 7.

   N Go to step 3.

3 There is +24VDC between P21-1 and P21-3 when the interlock is actuated.

   Y Go to step 4.

   N Go to step 5.

4 There is +5VDC between P21-4 and P21-3 with the EP Cartridge removed and 0VDC with the EP Cartridge installed.

   Y Replace the Printer Engine Controller PWB, PL 7.

   N Replace the Toner Sensor Assembly, PL 6.

5 There is +24 VDC between P11-10 and P11-2 when the interlock is actuated.

   Y Replace the Printer Engine Controller PWB, PL 7.

   N Replace the Low Voltage Power Supply, PL 7.

7.4 RAPs Without Fault / Status Codes

7.4.1 Malfunctioning LCD Panel

1 Switch the printer power OFF, then ON. The LCD continues to malfunction.

Y Go to step 2.

N Go to Final Actions.

2 Switch the printer power OFF. Reseat the System Controller to the Interface PWB. Switch the printer power ON. The LCD functions correctly.

Y Go to Final Actions.

N Go to step 3.

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

3 At least one segment of the LCD illuminates.

Y Replace the Control Panel, PL 4.

N Go to step 4.

4 There is +5 VDC between P/J50-25 and P/J50-26 (see wiring 6.4.9).

Y Go to step 6.

N Got to step 5.

5 There is +5VDC between P/J51-3 and P/J51-2 (see wiring 6.4.10).

Y Replace the Interface PWB, PL 7.

N Replace the Low Voltage Power Supply, PL 7.

6 Switch the printer power OFF. Remove the System Controller PWB. Switch the printer power ON. The top line of the LCD lights dimly.

Y Replace the System Controller PWB, PL 7.

N Replace the following in order:

- Interface PWB, PL 7
- Control Panel, PL 4
- Printer Engine Controller PWB, PL 7

7.4.2 Malfunctioning LED Panel

1 Switch the printer power OFF and reseat System Controller PWB. Switch the printer power ON and enter Diagnostics Mode 1. All 3 LED's light and remain lit.

Y Go to Final Actions.

N Go to step 2.

2 At least one LED is lit.

Y Replace the following in order:

- Control Panel, PL 4
- PH-1 Harness, PL 3

N Replace the following in order:

- System Controller PWB, PL 7
- Printer Engine Controller PWB, PL 7.

7.4.3 Inoperative Keypad

1 Switch the printer power OFF. Enter Diagnostic Mode 1 and run DG 02. Test DG 02 can be run.

Y Go to step 2.

N Replace the following in order:

- System Controller PWB, PL 7.
- Control Panel, PL 4.
- PH-1 Harness, PL 3

2 Press all keys on keypad, except the <Down Arrow> and <Enter> keys. The pressing of each key is indicated as a count on the Control Panel LCD.

Y Replace the following in order:

- System Controller PWB, PL 7.
- Interface PWB, PL 7.

N Go to step 3.

3 At least one key of the six tested keys is functional.

Y Replace the following in order:

- Control Panel, PL 4
- PH-1 Harness, PL 3

N Replace the following in order:

- System Controller PWB, PL 7.
- Printer Engine Controller PWB, PL 7.

7.4.4 Erratic Operation

Perform the following if the printer is operating erratically.

1. Switch the printer power OFF and unplug from wall outlet.
2. Verify AC outlet is properly grounded by measuring the voltage across ACN and Earth Ground. Voltage should be less than 5 VAC. If voltage is greater than 5 VAC, inform customer to have power problem fixed.
3. Verify the AC voltage is within 90-132 VAC for 115/120 VAC printers or 198-264 VAC 220/240 VAC printers. If voltage is out of tolerance, inform customer to have power problem fixed.
4. Switch the printer power ON and go to 7.4.7, LVPS Failure. If OK, return to this procedure.
5. Replace the EP Cartridge, PL 6 and check printer operation.
6. Check for arcing high voltage components, HV cables, and connectors. Replace the failing component(s).
7. If all checks above are OK, go to 7.4.21, EMI/RFI Noise Isolation Procedure.

7.4.5 Drive Assembly Failure

1 Enter DG 90 to check the Main Drive Motor. The motor functions correctly.

Y Replace the System Controller PWB, PL 7.

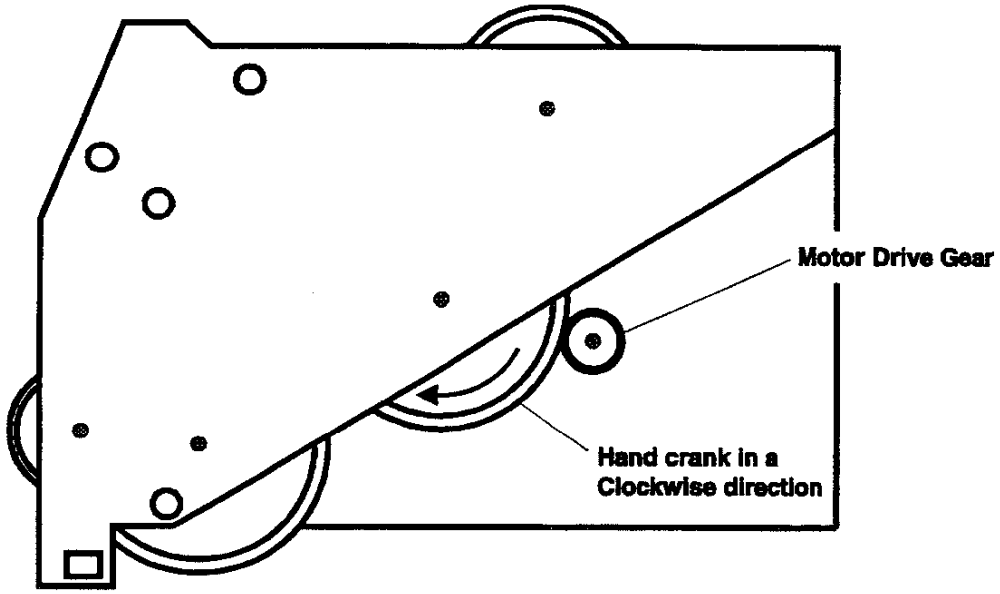
N Go to step 2.

2 Switch the printer power OFF. The Main Drive Motor will rotate counterclockwise when the gear indicated in Figure 7.4.5 is hand-cranked manually in a clockwise direction.

Y Go to step 3.

N Go to step 5.

Figure 7.4.5 Main Drive Motor Assembly



3 Switch the printer power ON. Both of the following voltages are present:

- +24VDC between J14-1 and frame ground (see wiring 6.4.5).
- +24VDC between J14-2 and frame ground (see wiring 6.4.5).

Y Go to step 4.

N Go to 7.4.7, LVPS Assembly Failure RAP.

4 Switch the printer power OFF. There is continuity at all of the following locations:

- Between J14-1 and J14-3
- Between J14-1 and J14-5
- Between J14-2 and J14-4
- Between J14-2 and J14-6

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the Main Drive Motor, PL 6.

5 Remove the EP Cartridge and hand-crank the transmission gears. The Main Drive Motor rotates counterclockwise.

Y Replace the EP Cartridge, PL 6.

N Go to step 6.

6 Remove the Fuser Assembly and hand-crank the transmission gears. The Main Drive Motor rotates counterclockwise.

Y Inspect the Fuser Assembly for binding. Repair/replace as necessary, PL 5.

N Go to step 7.

7 Remove the Take-away Roll Assembly and hand-crank the transmission gears. The Main Drive Motor rotates counterclockwise.

Y Replace the Take-away Roll Assembly, PL 4.

N Go to step 8.

8 Remove the Feeder Assembly and hand-crank the transmission gears. The Main Drive Motor rotates counterclockwise.

Y Replace the Feeder Assembly, PL 2.

N Go to step 9.

9 Remove the Main Drive Motor Assembly. Remove the Main Drive Motor from the Drive Assembly. The Drive Assembly rotates freely.

Y Replace the Main Drive Motor, PL 6.

N Replace the Drive Assembly, PL 6.

7.4.6 Inoperative Fan

1 Manually rotate the Fan to check for smooth operation. The Fan rotates smoothly.

Y Go to step 2.

N Replace the Fan, PL 7.

2 Verify +24 VDC between P11-11 and frame ground on the LVPS (see wiring 6.4.8). The voltage is present.

Y Go to step 3.

N Go to 7.4.7, LVPS Assembly Failure.

3 Verify +24VDC is at P/J18-3. The voltage is present.

Y Replace the Fan, PL 7.

N Go to step 4.

4 Verify +24VDC is at P/J11-12. The voltage is present.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the LVPS, PL 7.

7.4.7 LVPS Assembly Failure

NOTE: The LVPS may shut down due to a no load condition. Perform the following checks within 30 seconds of switching the printer power ON. *You may have to* switch the printer power OFF, then ON *for each check.*

1 All of the following voltages are present:
   - +5VDC +/- 0.25VDC between P11-2 and frame ground (see wiring 6.4.1)
   - +5VDC +/- 0.25VDC between P11-3 and frame ground
   - +24VDC +/-1.2VDC between P11-11 and frame ground
   - +12VDC +/- 0.60VDC between P13-1 and frame ground
   - Actuate the interlock switch. +24VDC between P11-9 and frame ground
   - Deactuate the interlock switch. 0.0 to 2.0 VDC between P11-9 and frame ground.

   Y Return to the RAP that sent you here.

   N Replace the LVPS Assembly, PL 7.

7.4.8 ROS Assembly Failure

1 There is +5VDC between P/J12-7 on the Printer Engine Controller PWB and frame ground (see wiring 6.4.3.

Y Go to step 2.

N Go to step 7.

2 Verify the voltage at P/J12-8 and P/J12-9 to frame ground. The Voltage at P/J12-8 is +4.1VDC and P/J12-9 is +0VDC.

Y Replace the Printer Engine Controller PWB, PL 7.

N Go to step 3.

3 The voltage measured on P/J12-8 or P/J12-9 is +4.1VDC.

Y Go to step 5.

N Go to step 4.

4 The voltage measured at J12-8 or J12-9 is approximately 3.75 VDC when P12 is disconnected from the Printer Engine Controller PWB.

Y Go to 7.4.22, Scanner Assembly Failure.

N Replace the Printer Engine Controller PWB, PL 7.

5 Verify the voltage measured at P/J12-13 is +24VDC when the Interlock Switch is actuated. The voltage is present.

Y Go to step 6.

N Go to step 8.

6 Verify the voltage measured at P/J19-3 is +5VDC. The voltage is present.

Y Replace the ROS Assembly, PL 6. If problem still exists, replace the ROS Harness Assembly, PL 7.

N Go to step 9.

7 Verify the voltage measured at P/J118-3 is +5VDC. The voltage is present.

Y Replace the Printer Engine Controller PWB, PL 7.

N Go to step10.

8 Verify the voltage measured at P/J11-10 or P/J11-11 is +24VDC when the Interlock Switch is actuated. The voltage is present.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the Low Voltage Power Supply, PL 7.

9 Verify the voltage measured at P/J11-6 is +5VDC. The voltage is present.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the Low Voltage Power Supply, PL 7.

10 Verify the voltage measured at P/J 118-4 to frame ground is +5.0 VDC. The voltage is present.

Y Replace the CRU Sensor, PL 6.

N Go to step 11.

11 Verify the voltage measured at P/J11-5 to frame ground is +5VDC. The voltage is present.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the Low Voltage Power Supply, PL 7.

7.4.9 Fuser Analysis

1 Switch the printer power OFF. Measure continuity:

- 110 volt printer, between J101-6 and J101-2
- 220 volt printer, between J101-6 and J101-3

Continuity is measured.

Y Go to step 2.

N Remove Fuser Assembly and verify continuity of the Heater Rod, Fuse, Thermostat, and Temperature Sensor Assembly wiring (see wiring 6.4.2). Replace the failed component, PL 5. Upon replacement, return to 7.3.3, Fuser Failure and troubleshoot possible overheat condition.

2 Switch the printer power OFF, then ON. Verify the voltage at P/J11-1 switches from 4.2 VDC (Heat Rod OFF) to 0VDC (Heat Rod ON) within 2 minutes. The voltage switches.

Y Replace the LVPS Assembly, PL 7.

N Replace the Temperature Sensor Assembly, PL 5. If problem still exists, replace the Printer Engine Controller PWB, PL 7.

7.4.10 Exit Sensor Failure

1 Enter DG 02. Toggle Exit Sensor Actuator. The diagnostic counter increments.

Y Verify the mechanical action of the switch. If problem persists, replace the Exit Sensor, PL 5.

N Go to step 2.

2 There is +5VDC between P119-1 and P119-2 with the sensor blocked.

Y Go to step 3.

N Go to step 4.

3 Toggle the sensor actuator. The voltage measured at P/J119-1 is +5VDC when blocked and 0.0VDC unblocked.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the Exit Sensor, PL 5.

4 There is 1.2VDC between P119-3 and P119-2.

Y Replace the Exit Sensor, PL 5.

N Replace in the order:

- Printer Engine Controller PWB, PL 7.
- PH-1 Harness, PL 3.

7.4.11 Registration Sensor Failure

1 Enter DG 02. Toggle Registration Sensor Actuator. The diagnostic counter increments.

- Y Verify the mechanical action of the switch. If problem persists, replace the Inlet Chute Assembly, PL 4.
- N Go to step 2.

2 There is +5VDC between P16-6 and P16-5 with the sensor blocked.

- Y Go to step 3.
- N Go to step 4.

3 Toggle the sensor Actuator. The voltage measured at P/J16-6 is +5VDC when blocked and 0.0VDC unblocked.

- Y Replace the Printer Engine Controller PWB, PL 7.
- N Replace the Inlet Chute Assembly, PL 4. If problem persists, replace the PH-1 Harness, PL 3.

4 There is 1.2VDC between P16-4 and P16-5.

- Y Replace the Printer Engine Controller PWB, PL 7.
- N Replace the Inlet Chute Assembly, PL 4. If problem persists, replace the PH-1 Harness, PL 3.

7.4.12 MP Tray Sensor Failure

1 Enter DG 02. Toggle MP Tray Sensor Actuator. The diagnostic counter increments.

Y Replace the following in sequence until the problem is solved:

- MP Tray Actuator (if damaged), PL 4.
- MP Tray Sensor, PL 4.

N Go to step 2.

2 There is +5VDC between P16-9 and frame ground (see wiring 6.4.7) with the Sensor deactuated (no paper).

Y Go to step 3.

N Replace the following in sequence until the problem is solved:

- MP Tray Sensor, PL 4.
- Printer Engine Controller PWB, PL 7.
- PH-1 Harness, PL 3.

3 Toggle the sensor actuator. The voltage measured between P/J16-9 and frame ground is +5VDC when the sensor is deactuated and 0.0VDC when actuated.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace in the following order:

- MP Tray Sensor, PL 4.
- PH-1 Harness, PL 3.

7.4.13 No-Paper Sensor Failure

1 Switch the printer power OFF, then ON. The status message reappears.

- Y Go to step 2.
- N Go to step Final Actions.

2 There is +5VDC between P13-1 and P13-4 Standard Tray or P13-2 and P13-4 Optional Tray with the Sensor blocked.

- Y Go to step 3.
- N Go to step 4.

3 Toggle the sensor actuator. The voltage measured at P/J13-1 Standard Tray or P/J13-2 Optional Tray is +5VDC when blocked and 0.0VDC unblocked.

- Y Replace the Printer Engine Controller PWB, PL 7.
- N Replace the Feeder PWB, Standard Tray, PL 2 or Optional Tray, PL 8 or PL 9.

4 There is +5VDC between P13-4 and P13-2.

- Y Replace the Feeder PWB, Standard Tray, PL 2 or Optional Tray, PL 8 or PL 9. If problem still exists, replace Harness Assembly Tray 1, PL 7.
- N Replace the Printer Engine Controller PWB, PL 7.

5 The mechanical actuation of the switch actuator is free of problems.

- Y Replace the Feeder PWB, Standard Tray, PL 2 or Optional Tray, PL 8 or PL 9.
- N Replace the No-Paper Actuator, Standard Tray, PL 2 or Optional Tray, PL 8 or PL 9, if actuator is damaged; otherwise, replace the Feeder PWB, Standard Tray, PL 2 or Optional Tray, PL 8 or PL 9.

7.4.14 LD Switch Failure

1 Switch the printer power OFF. There is continuity between P/J15-10 and P/J15-11.
   Y Replace the Printer Engine Controller PWB, PL 7.
   N Go to step 2.

2 There is continuity between J15 and J118.
   Y Replace the CRU Sensor PWB, PL 6.
   N Replace the HVPS Harness Assembly, PL 7.

7.4.15 Standard Tray Feed Solenoid Failure

1 There is +24VDC between P/J115-10 and frame ground (see Wiring 6.4.4).

Y Go to Step 2.

N Go to step 4.

2 There is +24VDC between P/J115-11 and frame ground (see Wiring 6.4.4).

Y Go to Step 3.

N Replace the Standard Tray Feed Solenoid, PL 2.

3 Enter Test DG 80. Set the meter for negative peak hold. Measure the voltage between P/J115-11 and ground. The Feed Solenoid energizes momentarily each time the "Enter" key is pressed and the meter indicates 0VDC +/- 1.2VDC.

Y Replace in the following order:

- Feed Roll Assembly, PL 2.
- Feed Solenoid, PL 2.

N Replace the Printer Engine Controller PWB, PL 7.

4 There is +24VDC measured between P/J11-10 and frame ground.

Y Replace the Printer Engine Controller PWB, PL 7.

N Go to 7.4.7, LVPS Assembly Failure RAP.

7.4.16 Feed Solenoid Failure

1 There is +24VDC at P/J13-10.

Y Go to step 2.

N Go to step 3.

2 There is +24VDC at P/J13-11 (Tray 1) or P/J13-12 (Optional Tray).

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace in the following order:

Tray 1:

- Feed Solenoid, PL 2.
- Harness Assembly 1 Tray, PL 7.
- Feeder PWB, PL 2.

Optional Tray:

- Feed Solenoid, PL 8 or PL 9.
- Feeder PWB, PL 8 or PL 9.

3 There is +24VDC at P/J11-10.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the LVPS, PL 7.

7.4.17 Turn Solenoid Failure

1 There is +24VDC at P/J13-7.

Y Go to step 2.

N Go to step 3.

2 There is +24VDC at P/J13-8 (Tray 1) or P/J13-9 (Optional Tray).

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace in the following order:

Tray 1:

- Turn Solenoid, PL 2.
- Harness Assembly 1 Tray, PL 7.
- Feeder PWB, PL 2.

Optional Tray:

- Turn Solenoid, PL 8 or PL 9.
- Feeder PWB, PL 8 or PL 9.

3 There is +24VDC at P/J11-10.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the LVPS, PL 7.

7.4.18 HVPS CR (DC) Failure

NOTE: CR denotes the Charge Roll section of the HVPS.

WARNING! Do not touch the HVPS or its components while P/J111 is connected!

1 There is +24VDC between P/J111-1 and frame ground (see wiring 6.4.6).
   Y Go to step 2.
   N Go to step 4.

2 There is continuity between CR (Spring Plate) on the Earth Plate and the Charge lead connector on the HVPS (heavy red lead).
   Y Go to step 3.
   N Replace the Earth Plate Assembly, PL 7.

3 There is continuity between J15 and J111 (all lines).
   Y Replace the HVPS, PL 7. If the problem persists, replace the Printer Engine Controller PWB, PL 7.
   N Replace the HVPS Harness, PL 7.

4 There is +24 VDC between P/J15-7 and frame ground.
   Y Replace the HVPS Harness, PL 7.
   N Replace the Printer Engine Controller PWB, PL 7.

7.4.19 HVPS DB Failure

NOTE: DB denotes the Developer Bias section of the HVPS.

WARNING! Do not touch the HVPS or its components while P/J111 is connected!

1 There is +24VDC between P111-1 and frame ground (see wiring 6.4.6).

Y Go to step 2.

N Go to step 4.

2 There is continuity between DB (Spring Plate) on the Earth Plate and P/J DB(AC)-2 on the HVPS.

Y Go to step 3.

N Replace the Earth Plate Assembly, PL 7.

3 There is continuity between J15 and J111 (all lines).

Y Replace in the following order:

- HVPS, PL 7.
- Printer Engine Controller PWB, PL 7.

N Replace the HVPS Harness, PL 7.

4 There is +24 VDC between P/J15-7 and frame ground.

Y Replace the HVPS Harness, PL 7.

N Replace the Printer Engine Controller PWB, PL 7.

7.4.20 HVPS TR Failure

NOTE: TR denotes the Transfer Roll section of the HVPS.

WARNING! Do not touch the HVPS or its components while P/J111 is connected!

1 There is +24VDC between P/J111-1 and frame ground (see wiring 6.4.6).

Y Go to step 2.

N Go to step 5.

2 Switch the printer power OFF. Set the meter to the 200K ohm scale. Measure continuity from P/J TR on the HVPS to the left end of the Bias Transfer Roll (BTR) shaft. There is continuity.

Y Go to step 4.

N Go to step 3.

3 Partially remove the Transportation Chute assembly (REP 4.3.8) to gain access to the TR wire connector. Measure continuity from P/J TR on the HVPS to P/J TR-T on the Transport Chute. There is continuity.

Y Replace the Transportation Chute Assembly, PL 3.

N Replace the PH-1 Harness, PL 3.

4 There is continuity between P/J15 and P/J111 (all wires).

Y Replace in order:

- Printer Engine Controller PWB, PL 7.
- HVPS, PL 7.

N Replace the HVPS Harness Assembly, PL 7.

5 There is +24 VDC between P/J15-7 and frame ground.

Y Replace the HVPS Harness, PL 7.

N Replace the Printer Engine Controller PWB, PL 7.

7.4.21 EMI/RFI Noise Isolation Procedure

1 Switch the printer power OFF and disconnect the printer from the wall outlet. Measure continuity between the printer cord ground connector and the printer chassis. There is less than 5 ohms resistance.

Y Go to step 2.

N Go to step 12.

2 There is a device in close proximity to the printer that could generate electrical noise.

Y Move the device or the printer to another location.

N Go to step 3.

3 There is continuity between the Inlet Chute ground wire and the Front Cover ground wire (see Figure 7.4.21).

Y Go to step 4.

N Replace the Wire Assembly PH-1, PL 3.

4 The resistor is securely mounted to the Inlet Chute Assembly (see Figure 7.4.21).

Y Go to step 5.

N Replace the Inlet Chute Assembly, PL 4.

5 There is continuity between the Static Eliminator and frame ground (see Figure 7.4.21).

Y Go to step 6.

N Replace the Wire Assembly PH-1, PL 3.

6 There is continuity between P101-5 and frame ground (see wiring 6.4.2).

Y Go to step 7.

N Replace the LVPS Assembly, PL 7.

7 With the Fuser Assembly mounted, there is continuity between the charge dissipating brush support plate on the Fuser Cover and The LVPS frame.

Y Go to step 8.

N Replace the Fuser Cover Assembly, PL 5.

8 Open the Fuser Cover. There is continuity between the Heat Roll and frame ground.

Y Go to step 9.

N Replace the Fuser Assembly, PL 5.

WARNING! High voltages are present on the CR and DB contacts of the Earth Plate when performing DG 92 and DG 93.

9 Follow the instructions in section 5 and run tests DG 92 and DG 93. Both results are within specification and remain steady during the test (readings do not fluctuate more than +/- 5.0VDC).

Y Go to step 10.

N Replace the HVPS, PL 7. If the problem persists, replace the Earth Plate Assembly, PL 7.

10 Switch the printer power OFF. There is continuity between the Return Terminal on the Earth Plate and frame ground.

Y Go to step 11.

N Replace the Earth Plate Assembly, PL 7.

11 Install a new EP Cartridge. The problem is still present.

Y Replace Diode Harness, PL 4 (4510 only). If problem is still present, inspect the Earth Plate Assembly contact points.

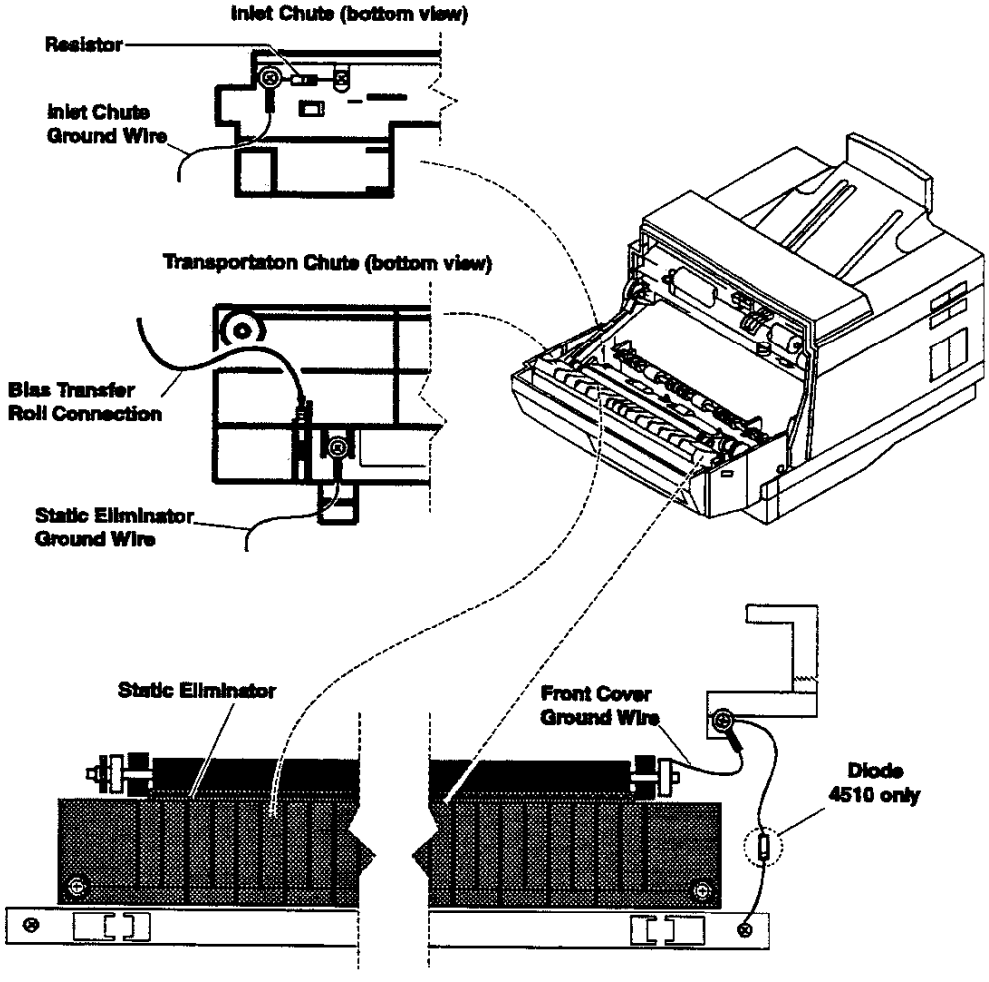
N Go to Final Actions.

12 Disconnect the power cord from the printer. Measure continuity between frame ground and the center connection (ground) on the LVPS AC input. There is less than 5 ohms resistance.

Y Replace the Power Cord, PL 7.

N Replace the LVPS, PL 7.

Figure 7.4.21 Ground Wire Locations



7.4.22 Scanner Assembly Failure

1 There is +4VDC between J12-11 and frame ground when power is switched on (See Wiring 6.4.3).

Y Go to step 3.

N Go to step 2.

2 Switch the printer power OFF. There is continuity between J12 and J114.

Y Replace the ROS Assembly, PL 6.

N Replace the ROS Harness Assembly, PL 7.

3 While monitoring P/J12-11 generate a Printer Engine Controller Test Pattern (5.3.6). Voltage switches from +4VDC to 0.0 +/- 0.75VDC when pattern is being printed.

Y Replace the ROS Assembly, PL 6.

N Replace the Printer Engine Controller PWB, PL 7.

7.4.23 MP Tray Feed Solenoid Failure

1 There is +24VDC at P/J17-1.

Y Go to step 2.

N Go to step 3.

2 There is +24VDC at P/J17-2.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace in the following order:

- Pick-Up Solenoid, PL 4.
- PH-1 Harness, PL 3.

3 There is +24VDC at P/J11-10.

Y Replace the Printer Engine Controller PWB, PL 7.

N Replace the LVPS, PL 7.

7.5 Image Quality Problems - RAPs (Level 3)

This section contains image quality repair procedures to assist in correcting image quality defects. These procedures provide defect samples, definitions and specifications to help identify the type of defect that exists, the test pattern to use, and actions required to correct the defects.

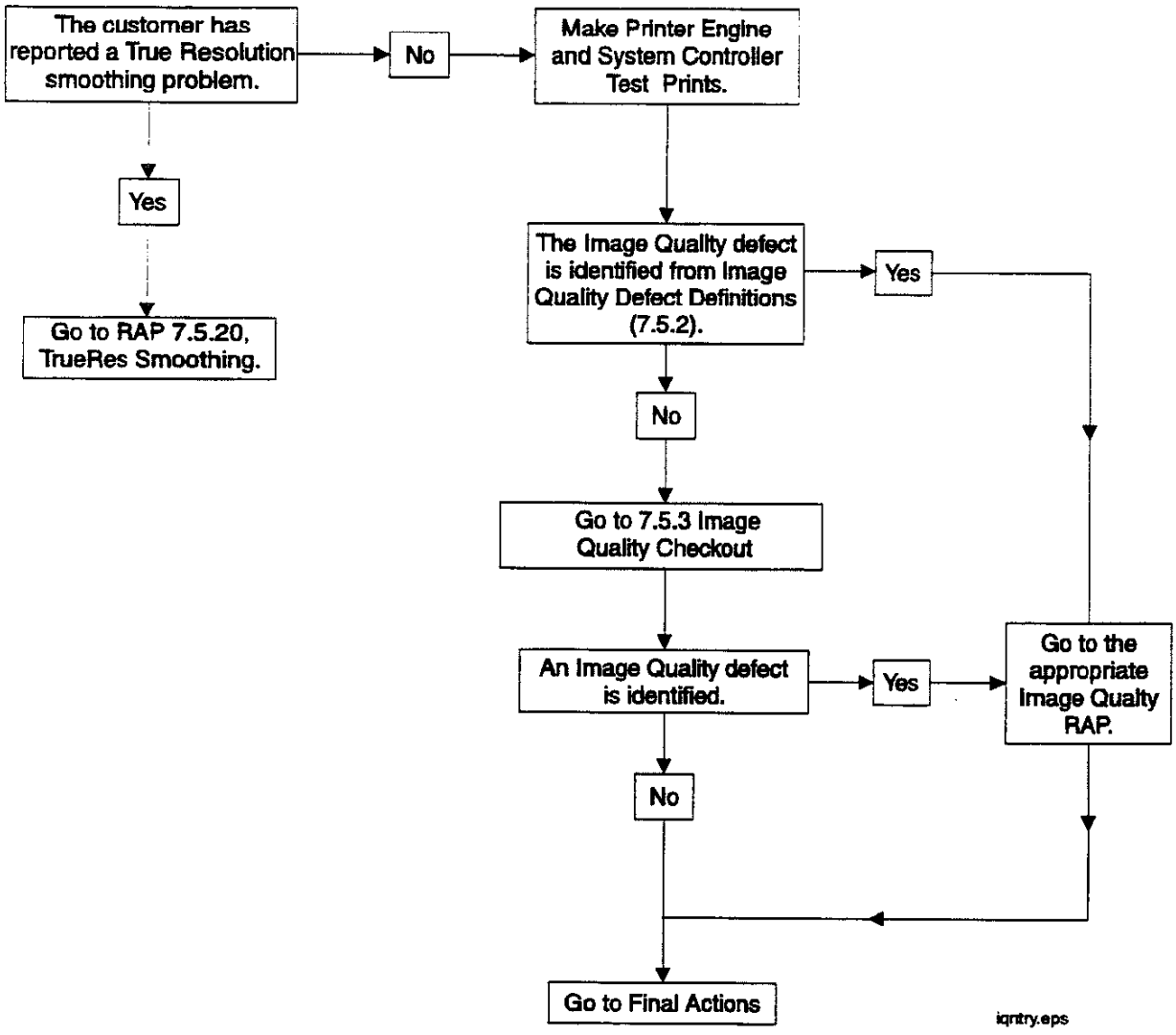
Throughout these procedures, the term "vertical" refers to the process direction (the direction paper travels through the printer); the term "horizontal" refers to the scanning direction (the direction the laser beam scans across the page).

7.5.1 Image Quality Entry Flow Chart

Initial Actions

- Perform Fuser Cleaning Procedure before beginning the Image Quality Entry RAP.
- Replace paper in all trays from a previously unopened ream.

Procedure- Use the following Flow Chart to assist in identifying an Image Quality Defect.



7.5.2 Image Quality Defect Definitions

Defect Definitions	Go to
NON-UNIFORM IMAGE QUALITY: The line darkness and solid area density image varies across the print.	**RAP 7.5.4**
BLACK PRINTS: the print is completely covered with toner and has no visible image.	**RAP 7.5.5**
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.	**RAP 7.5.6**
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.	**RAP 7.5.7**
SPOT DELETIONS: solid areas are marked with irregular white areas.	**RAP 7.5.8**
LIGHT PRINTS: refer to the Solid Area Density specification.	**RAP 7.5.9**
BLANK PRINTS: prints with no visible image.	**RAP 7.5.10**
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.	**RAP 7.5.11**
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.	**RAP 7.5.12**
SPOTS: There are spots of toner on the page.	**RAP 7.5.13**
UNFUSED IMAGE: part of or all of the image is unfused. Refer to the specification.	**RAP 7.5.14**
MISREGISTERED IMAGE (lead edge to trail edge): displacement of the image, in the process direction, from its intended position on the print. **(Inboard to outboard):** displacement of the image, across the process direction, from its intended position on the print.	**RAP 7.5.15**
STREAKS: Extraneous dark lines/bands in or across the process direction. These are Print Engine defects not related to the System Controller or Host Data.	**RAP 7.5.16**
RESIDUAL IMAGES: the image from a previous print, which was not removed during the cleaning process, has been developed on the current print.	**RAP 7.5.17**
BACKGROUND: uniform toner contamination in non image areas. Refer to the Background specification.	**RAP 7.5.18**
DAMAGED PRINTS: creases, wrinkles, excessive curl, cuts, folds or embossed marks.	**RAP 7.5.19**
TRUERES SMOOTHING: Near-vertical and near-horizontal lines are jaggy.	**RAP 7.5.20**
RESOLUTION: At 300 DPI two pixel lines and halftone patches cannot be reproduced clearly on the print.	**RAP 7.5.21**
SKEWED IMAGE: angular displacement of the image from its intended position on the print. Refer to the specification.	**RAP 7.5.22**
SKIPS / SMEARS: Skip-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.	**RAP 7.5.23**

7.5.3 Image Quality Checkout

This procedure is used to check that the quality of the printed image meets the specifications.
The Image Quality Checkout includes the following:

- Non-Uniform Image Quality
- Black Prints
- Horizontal Deletions
- Vertical Deletions
- Spot Deletions
- Light Prints
- Blank Prints
- Extraneous Marks
- Character Defects
- Spots
- Unfused Image
- Misregistered Image
- Streaks
- Residual Image
- Background
- Damaged Prints
- TrueRes Smoothing
- Resolution
- Skewed Image
- Skips/Smears

Go to the **Solid Area Density** checkout on the next page.

Solid Area Density

1 Compare the solid areas on the System Controller Test Patterns, 5.1.4.7 Test Menu, with the Output Reference document 82P520 (refer to Figure 1). There are no solid areas on any print lighter than the 1.20 density square on the scale, and there are no two solid areas on any print that differ in density of more than one density square.

- Y The Solid Area Density is within specifications. Go to the **Background** checkout on the next page.
- N Go to step 2.

2 The solid area density is uniform.

- Y Go to step 3.
- N Go to 7.5.4, Non-Uniform Image Quality RAP.

3 The prints are too faint.

- Y Go to 7.5.9, Light Prints RAP.
- N Go to step 4.

4 The prints are black.

- Y Go to 7.5.5, Black Prints RAP.
- N Replace in the following order: EP Cartridge, PL 6; HVPS, PL 7.

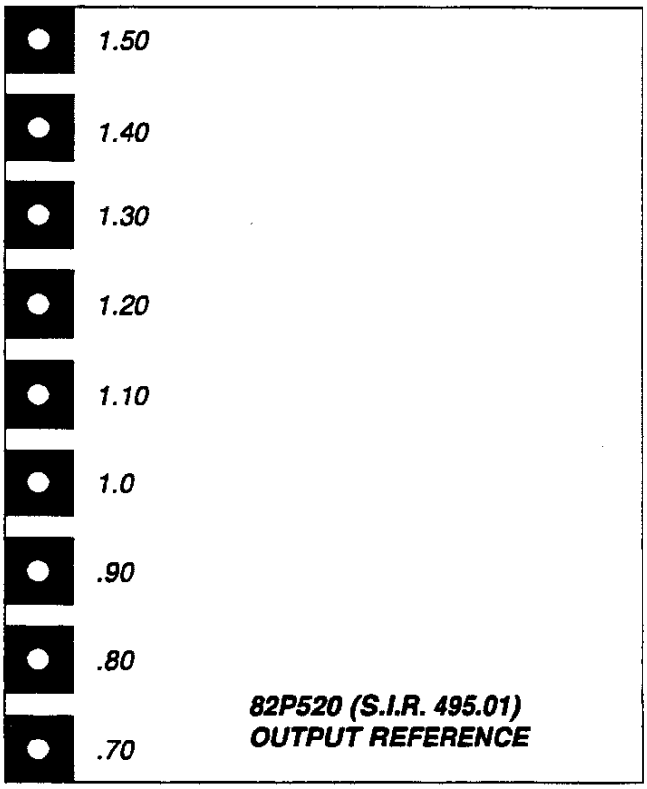


Figure 1.

Background

Compare the Test Prints with the Visual Scale (82P284). The highest Background area on any print should be at, or below, area 3 on the rating guide, Figure 2.

1 The pattern is free from background.

Y The printed test patterns meet the Background specification. Go to the **Deletions** checkout on the next page.

N Go to step 2.

2 The background is uniform.

Y Go to 7.5.18, Background RAP.

N Go to 7.5.4, Non-Uniform Image Quality RAP.

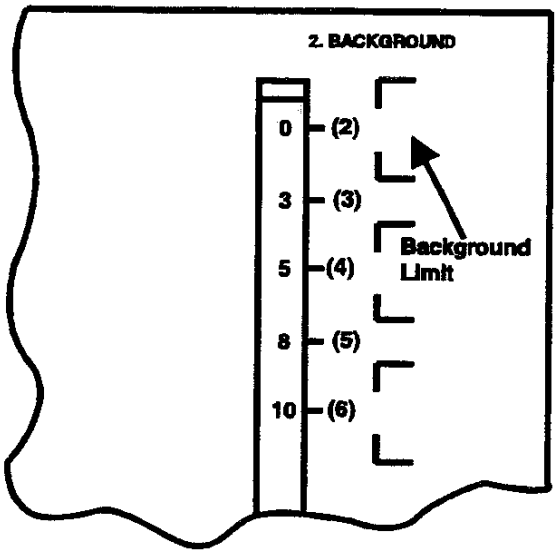


Figure 2.

Deletions (Line, Band, Spot)

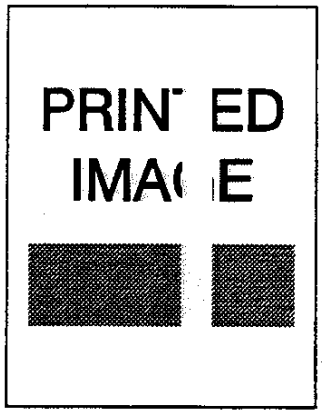
Inspect Test Prints for the presence of deletions (missing image). There should be no deletions with a diameter larger than 0.5 mm visible on test prints, Figure 3.

1 There are deletions on the test prints.
   - Y Go to step 2.
   - N Go to **Fusing** checkout on the next page.

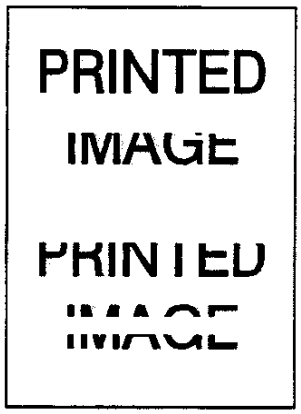
2 There are Vertical (in direction of paper movement) Line/Band deletions present.
   - Y Go to 7.5.7, Vertical Deletions RAP.
   - N Go to step 3.

3 There are Horizontal (in direction of scanning) Line/Band Deletions present.
   - Y Go to 7.5.6, Horizontal Deletions RAP.
   - N Go to step 4.

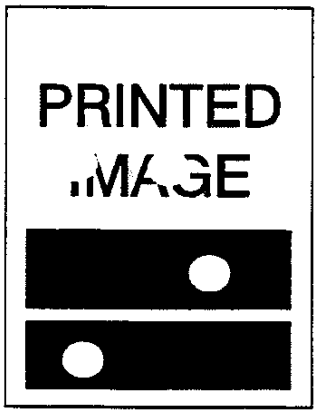
4 There are Spot Deletions present.
   - Y Go to 7.5.8, Spot Deletions RAP.
   - N The defect apparently isn't manifesting as a deletion, continue to the **Fusing** checkout on the following page.



asm7-14



asm7-12



asm7-18

Figure 3.

Fusing

NOTE: The operating environment of the paper is from 10 celsius at 15% relative humidity, to 28 Celsius at 85% relative humidity. The fusing performance of the printer will vary according to the environment.

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

Check the fusing quality of the image of a System Controller test pattern. Rub the image three times with a soft cloth or tissue (Figure 4) . The image should not lift off of the surface of the print.

1 The fusing quality of the image meets the specification.

Y The printed test patterns meet the Fusing specification. Go to the **Resolution** checkout on the next page.

N Go to 7.5.14, Unfused Image RAP.

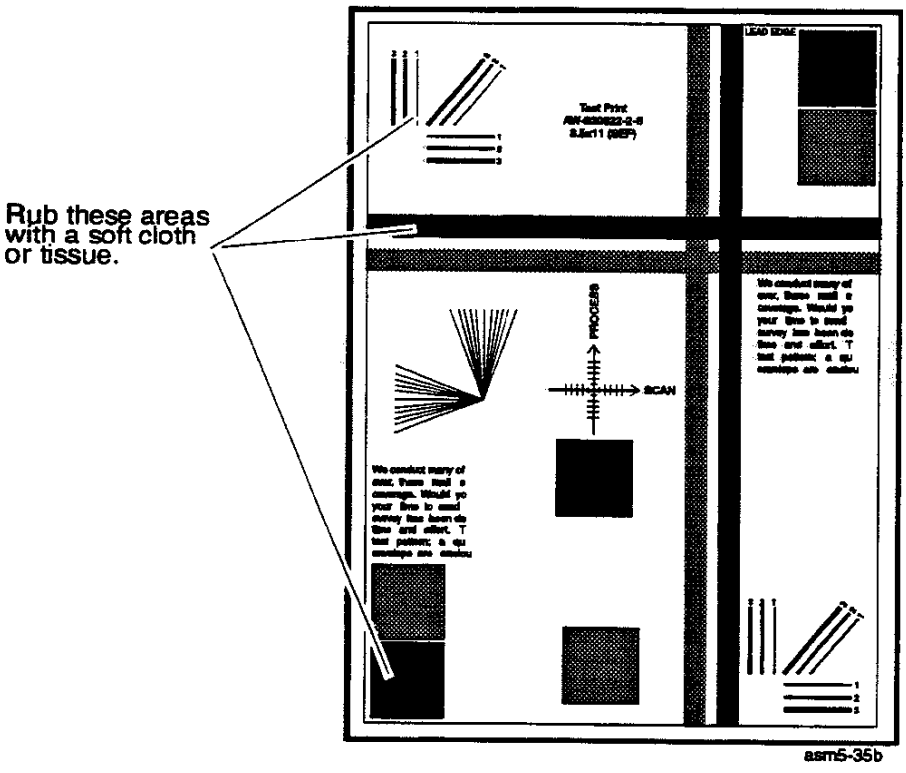


Figure 4.

Resolution

Refer to Figure 5. Observe the three image areas on several System Controller Test Patterns, 5.1.4.7 Test Menu, Check the resolution of the images in each of the areas:

Area 1:

When set at 300 DPI, the two pixel vertical, horizontal and diagonal lines should be clear and continuous. The diagonal lines may appear to be narrower than the others.

Area2:

The text paragraphs should be roughly equal in density.

Area 3:

The 50% half tone patches adjacent to the solid blocks in the corners should measure .70 or greater on the Output Reference document (82P520).

1 The resolution of the image meets the specification.

Y Go to the **Registration** checkout on the next page.

N Go to 7.5.21, Resolution RAP.

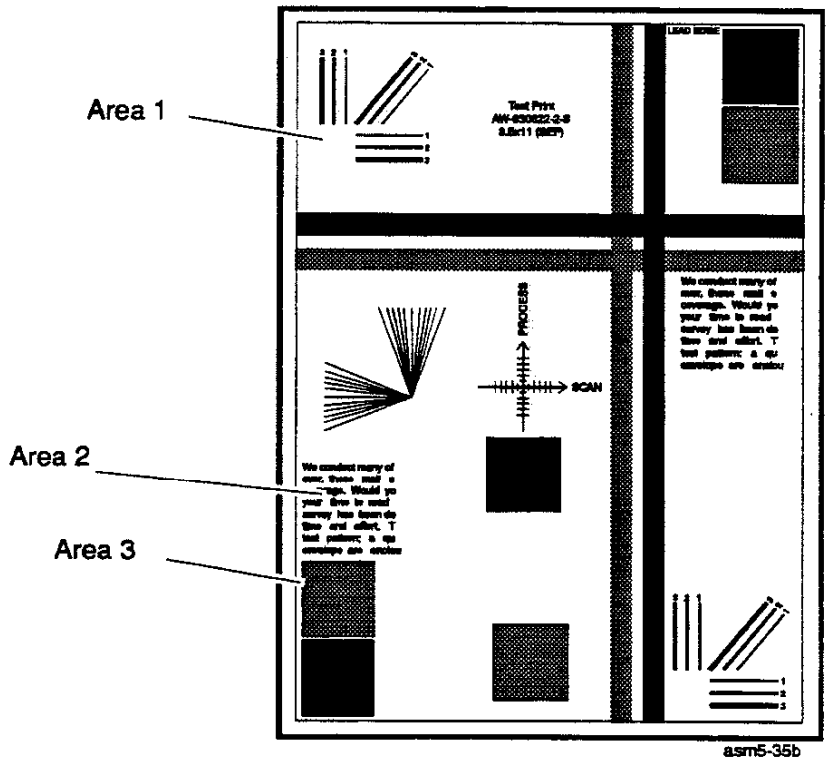


Figure 5.

Registration (Lead Edge to Trail Edge)

Measure the registration on two consecutive System Controller Test Patterns, 5.1.4.7 Test Menu. Fold the lead edge to trail edge and crease the paper. Observe the fold at the zero reference line, Figure 6.

1 The fold is within +/- 2.5 mm from the zero reference line.

Y The test prints meet the Lead Edge to Trail Edge registration specification. Go to the **Registration (Inboard to Outboard)** checkout on the next page.

N Go to 7.5.15, Misregistered Image RAP.

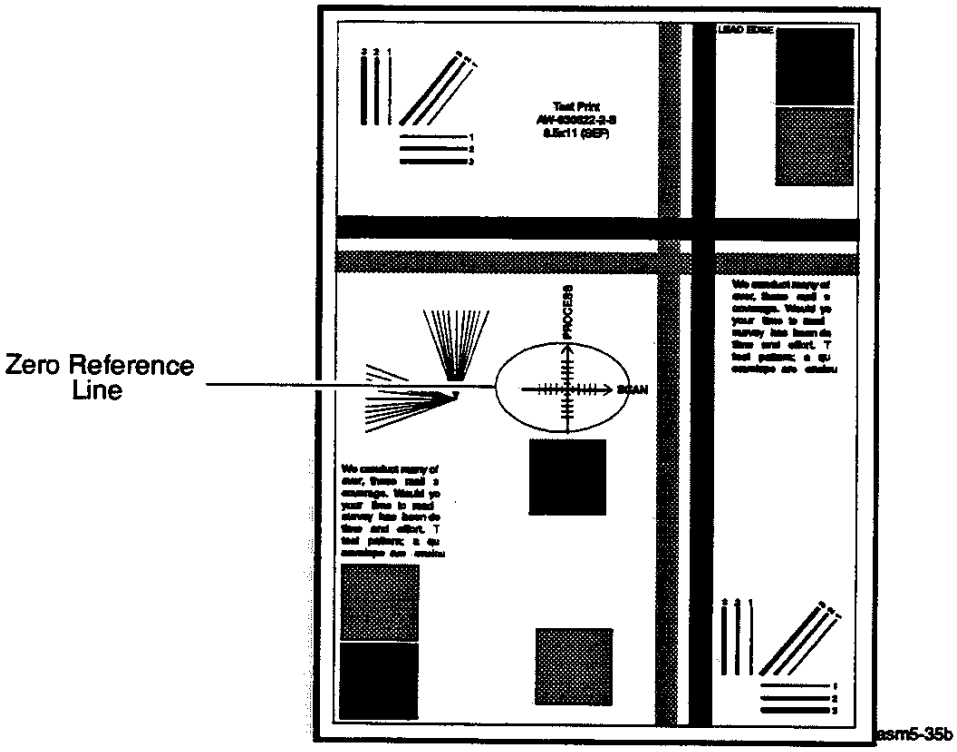


Figure 6.

Registration (Inboard to Outboard)

Measure the registration on two consecutive System Controller Test Patterns, 5.1.4.7 Test Menu. Fold the outboard edge to the inboard edge and crease the paper. Observe the fold at the zero reference line, Figure 7.

1 The fold is within +/- 2.0 mm from the zero reference line.

Y The printed test patterns meet the Inboard to Outboard registration specification. Go to the **Skew** checkout on the next page.

N Go to 7.5.15, Misregistered Image RAP.

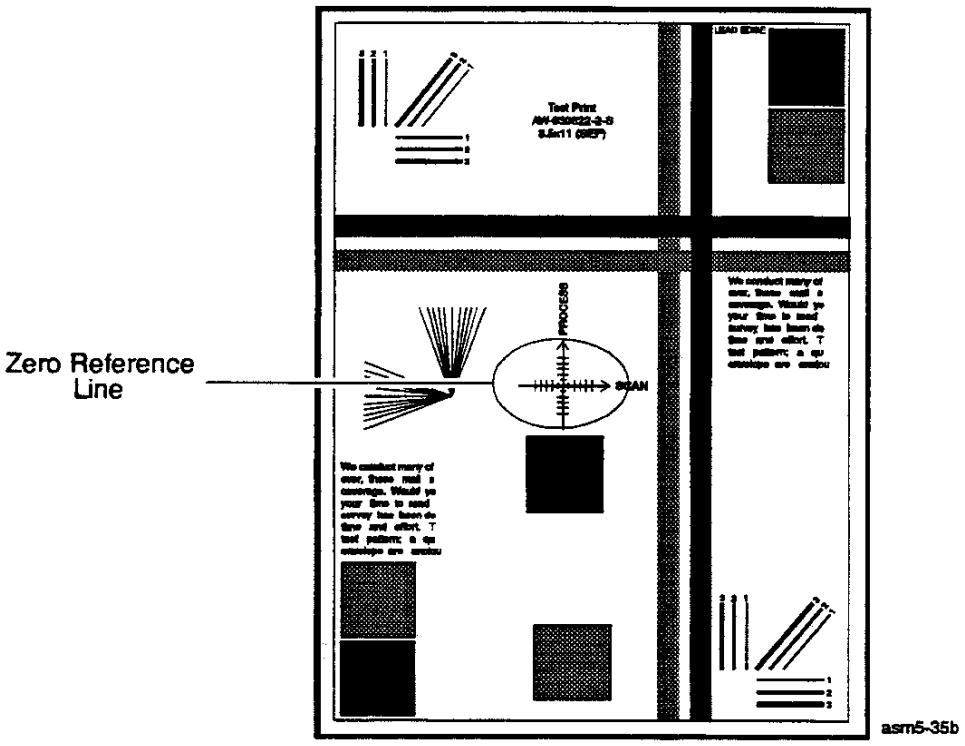


Figure 7.

Skew

Observe the Printer Engine Test Pattern, 5.3.6. Measure the dimensions 'A' and 'B' on two consecutive test patterns and check the following: Figure 8.

- With a distance of 180mm between points 'A' and 'B', the difference in the measurements between these two points should be no greater than 1.6mm.

1 The skew on the test patterns meets the specification.

Y The printed test patterns meet the Skew specification. Go to the **Skips and Smears** checkout on the next page.

N Go to 7.5.22, Skewed Image RAP.

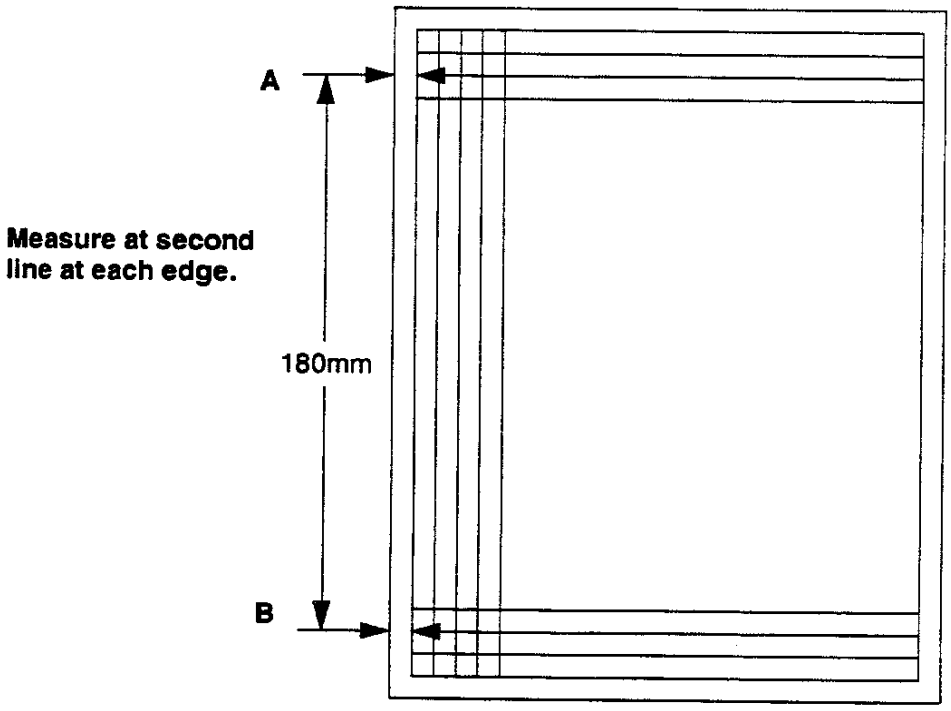


Figure 8.

Skips/Smears

Inspect the 2 on / 2 off ladder chart test patterns. The patterns should be free from skips and smears and lines should exist in the lead edge to trail edge (process) direction, Figure 9.

1 The test prints are free from skips and smears.

Y Go to the **Spots** checkout on the next page.

N Go to 7.5.23, Skip/Smears RAP.

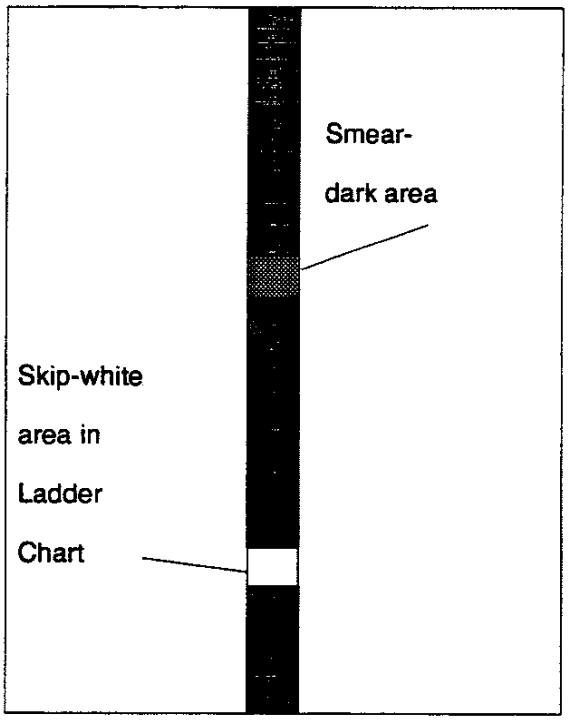


Figure 9.

Spots

(Figure 10) Inspect the test prints for spots:

- There should be no spots larger than or equal to 0.5 mm visible on the prints.
- There should be no more than 1 spot measuring between 0.4 and 0.5 mm visible on the print.
- There should be no more than 16 spots measuring between 0.25 and 0.4 mm visible on the print.
- Any spot measuring less than 0.25 mm is acceptable.

1 The prints are free of spots or the spots that are visible fall within the acceptable range.

Y Go to **Other Print Defects** checkout on the next page.

N Go to 7.5.13, Spots RAP.

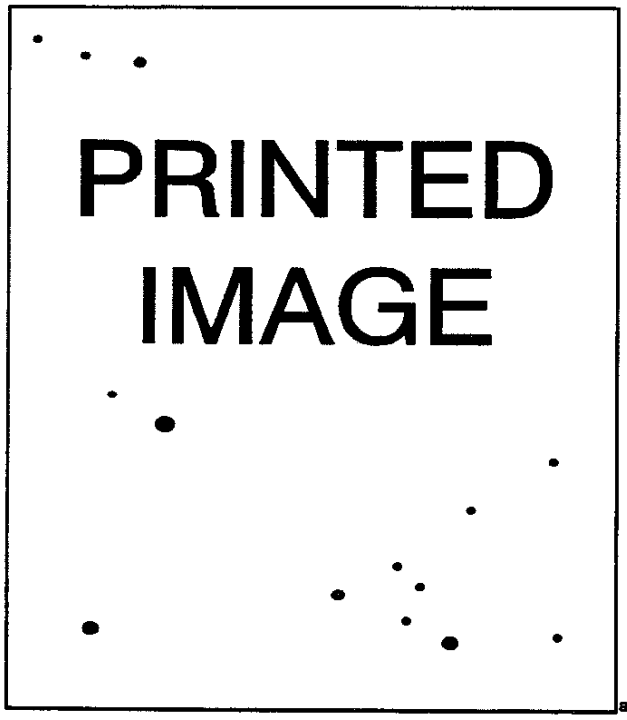


Figure 10.

Other Print Defects

Inspect the Test Patterns for other Print Defects. There should be no other Print Defects.

1 Test Prints are free of defects.

- Y Go to Final Actions
- N Go to step 2.

2 There are dark streaks present on the Test Prints.

- Y Go to 7.5.16, Streaks RAP.
- N Go to step 3.

3 There is a residual image (ghosts) on the Test Prints.

- Y Go to 7.5.17, Residual Image RAP.
- N Go to step 4.

4 There is print damage: wrinkles, creases, tears, etc.

- Y Go to 7.5.19, Damaged Print RAP.
- N Go to step 5.

5 There are extraneous marks caused by incorrect font data.

- Y Go to 7.5.11, Extraneous Marks RAP.
- N Go to step 6.

6 There are character defects on the print sample.

- Y Go to 7.5.12, Character Defects RAP.
- N There are no print defects. Return to step 7 - 7.2.1, Entry Level RAP.

7.5.4 Non-Uniform Image Quality RAP

The line darkness and solid area density image varies across the print.

NOTE: If the problem has not been resolved after completing this RAP, go to 7.5.7 Vertical Deletions.

Initial Actions

- Remove the EP Cartridge and gently rock back and forth to distribute toner evenly in cartridge. Reinstall cartridge.
- Ensure the grounding pin on the EP Cartridge is in proper contact with the Earth Plate Assembly.

Procedure

1 Generate 5 prints of the System Controller test pattern from the Standard Tray. Image quality varies from inboard to outboard.

Y Go to step 3.

N Go to step 2.

2 Image quality varies from lead edge to trail edge.

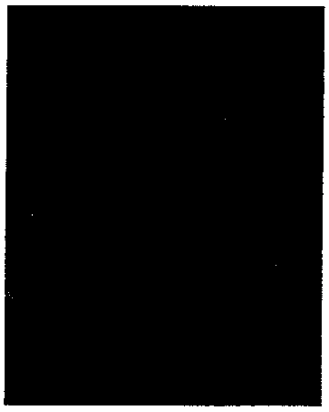
Y Replace the HVPS, PL 7.

N Return to 7.5.1 Image Quality Entry Flow Chart.

3 Perform the following:

- Inspect the BTR for contamination. Clean or replace as necessary, PL 3.
- Inspect the Photoreceptor for deterioration or contamination. Replace the EP Cartridge, PL 6.
- Inspect the ROS window for contamination (clean if necessary).
- Check for laser beam obstructions such as dust, or lint fibers between the ROS Assembly and the EP Cartridge.
- Perform the procedure for Light Prints, 7.5.9.

7.5.5 Black Prints



The entire print is black.

asm7-11

Initial Actions

- Generate both System Controller and Print Engine Test Prints (Diagnostic Mode 2).
- If any image is visible on the prints, go to the Background RAP.

Procedure

1 Remove the System Controller PWB. Generate a Printer Engine test print, 5.3.6. The test print is black.

Y Go to step 2.

N Replace in the following order until the problem is resolved:

- System Controller PWB, PL 7.
- Interface PWB, PL 7.

When the problem has been resolved, return to Image Quality Analysis.

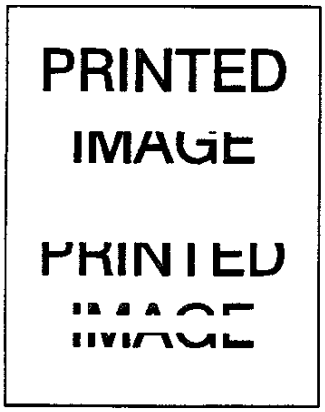
2 Perform 5.2.1.11 and 5.2.1.12 procedures. Voltages measured are within specifications.

Y Replace in the following order until problem is resolved:

- EP Cartridge, PL 6.
- Printer Engine Controller PWB, PL 7.
- ROS, PL 6.

N Go to 7.4.18, HVPS CR(DC) Failure.

7.5.6 Horizontal Deletions



PROBLEM

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 and parallel with the direction of scanning. There should be no Deletions with a diameter larger than 0.5mm visible on Test Prints.

asm7-14

Procedure

1 Remove the System Controller PWB. Generate a Print Engine Test Pattern using procedure 5.3.6. Horizontal Deletion problem still exists.

- Y Go to step 2.
- N Replace the System Controller PWB, PL 7.

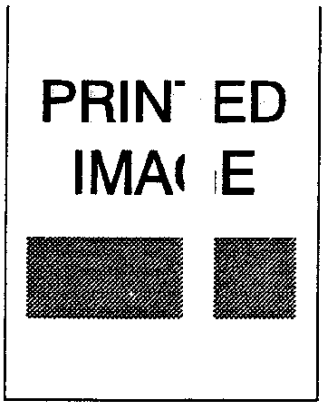
2 Reinstall the System Controller PWB. Install a new EP Cartridge. Generate a System Controller Test Print. Horizontal Deletion(s) are still present.

- Y Go to step 3.
- N Go to Final Actions.

3 Horizontal Deletions appear as missing scan lines. (All data is shown on the page with deletion bands running through the image.)

- Y Replace the following in sequence until the problem is resolved:
  - Print Engine Controller PWB, PL 7.
  - ROS Assembly, PL 6.
  - LVPS, PL 7.
- N Replace the following in sequence until the problem is resolved:
  - BTR, PL 3.
  - HVPS, PL 7.
  - Fuser Assembly, PL 5.

7.5.7 Vertical Deletions



asm7-12

PROBLEM

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 perpendicular to the direction of scanning. There should be no Deletions with a diameter larger than 0.5mm visible on Test Prints.

Procedure

1 Remove the EP Cartridge and gently rock the EP Cartridge back and forth over a drop cloth or waste receptacle to distribute the toner evenly within the cartridge. Reinstall the EP Cartridge. Run 10 test prints. The problem is resolved.

- Y Return to 7.5.3, Image Quality Checkout.
- N Go to step 2.

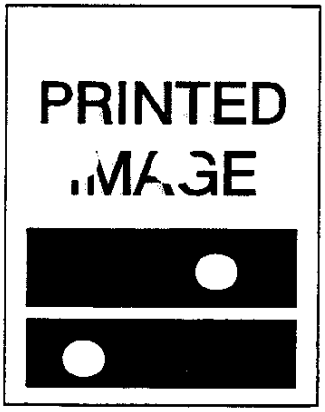
2 Remove the EP Cartridge. The Laser Scanner Window is free of contamination and not damaged.

- Y Go to step 3.
- N Clean the Laser Scanner Window. If necessary, replace the ROS Assembly, PL 6.

3 Remove the Fuser Assembly and inspect both the Heat and Pressure Rolls for damage. The rolls are free of damage.

- Y Replace the EP Cartridge, PL 6.
- N Replace damaged roll(s), PL 5. If necessary, replace the Fuser Assembly, PL 5.

7.5.8 Spot Deletions



asm7-17

PROBLEM

There are areas of the image that are extremely light or missing entirely. These missing areas form spots that are localized to small areas of the page.

Initial Actions

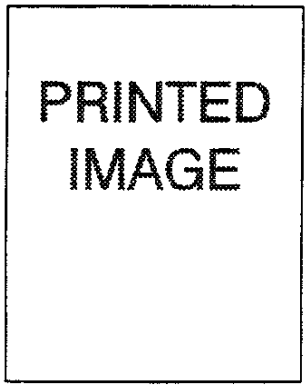
- Ensure that the paper is not damp. Replace with fresh paper from an unopened ream.

Procedure

1 The Spot Deletions repeat at the same interval vertically on the printed page.
   - Y Replace the EP Cartridge, PL 6.
   - N Go to step 2.

2 Inspect the BTR for contamination. BTR has contamination.
   - Y Replace the BTR, PL 3.
   - N Inspect the Fuser Assembly and replace any damaged parts, PL 5.

7.5.9 Light Prints



asm7-7-9

PROBLEM

The overall image density is lighter than normal.

Initial Actions

- Replace the paper with fresh paper from an unopened ream.
- Ensure that the density setting in Test Menu is set to the default value (2).
- Clean the Laser Scanner window.

Procedure

1 Run 3 prints of the System Controller Test Print, 5.1.4.7 Test Menu. Install a new EP Cartridge, PL 6. Run 10 System Controller Test Prints and compare new prints to old prints. Prints are still light.

Y Reinstall old EP Cartridge and go to step 2.

N Go to Final Actions.

2 Perform 5.2.1.11 (DG 92) and 5.2.1.12 (DG 93) procedures. Voltages measured are within specifications.

Y Go to step 3.

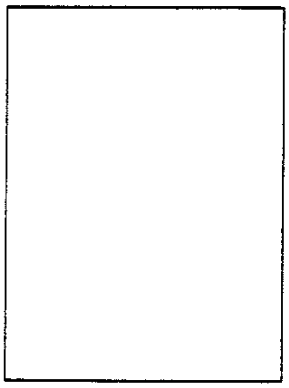
N Replace the HVPS, PL 7.

3 Inspect the BTR for contamination. The BTR has contamination.

Y Replace the BTR, PL 3.

N Replace the HVPS, PL 7.

7.5.10 Blank Prints



The entire print is blank.

asm7-10

Initial Actions

- Specification: The prints should be clearly readable.

Procedure:

1 Switch the printer power OFF. Remove the System Controller PWB.

2 Switch the printer power ON. Generate a Print Engine Test Pattern using procedure 5.3.6. Blank Print problem still exists.

Y Go to step 3.

N Replace System Controller PWB, PL 7.

3 Switch the printer power OFF. Reinstall System Controller PWB and remove EP Cartridge. Verify Drum ground is functioning correctly by measuring continuity between Earth Plate Assembly and the LVPS Assembly Frame. Continuity is measured.

Y Go to step 4.

N Repair open ground from LVPS Assembly Frame and the Earth Plate Assembly.

4 Install a new EP Cartridge. Switch the printer power ON. Run 2 prints of the System Controller Test Print and inspect prints. Prints are still blank.

Y Reinstall old EP Cartridge and go to step 5.

N Go to Final Actions.

5 Perform 5.2.1.11 and 5.2.1.12 procedures. Voltages measured are within specifications.

Y Go to step 6.

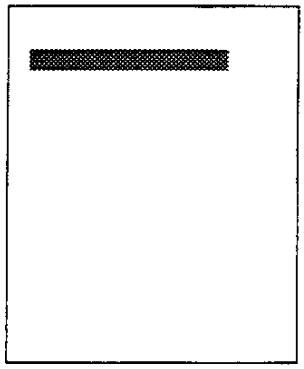
N Go to 7.4.19, HVPS DB Failure.

6 Inspect the BTR for contamination. BTR is contaminated.

Y Replace the BTR, PL 3.

N Go to 7.4.20, HVPS TR Failure.

7.5.11 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 The customer has changed the host software or configurations.

Y The customer will have to reconfigure the system.

N Go to step 2.

2 Extraneous marks can be caused by bad font data from the host. Ask the customer to download different fonts from the host. The problem has been resolved.

Y Go to Final Actions.

N Go to step 3.

3 Generate several System Controller Test prints, 5.1.4.7 Test Menu. The print job exhibits the extraneous markings.

Y Check the Laser Assembly and EP Cartridge grounds for damage or contamination.

N Go to step 4.

4 Open the Top Cover and visually inspect the left drum grounding plate on the EP Cartridge and the grounding spring on the white plastic left drum support. They are free of damage and contamination.

Y Go to step 5.

N Repair or replace the grounding spring or the EP Cartridge if necessary, PL 6.

5 Disconnect the host interface cable. Attempt to generate a test print.

The test print produced correctly.

Y Replace the System Controller PWB, PL 7, then replace the Printer Engine Controller PWB.

N Go to step 6.

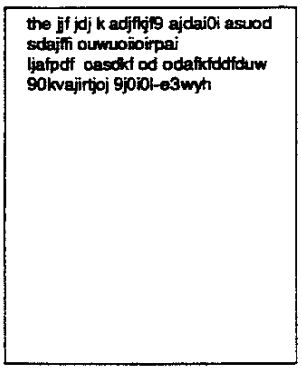
6 Check for a problem with the host interface cable. Ensure that the host interface cable meets specification. The cable is within the maximum length.

- Parallel: 10 ft. (3.0 meters)
- Serial: 50 ft. (15.2 meters)

Y If the problem persists, go to 7.4.4, Erratic Operation procedure.

N Ask the customer to provide a cable of proper length.

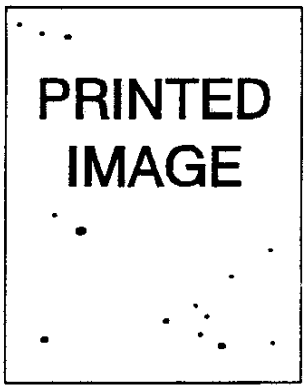
7.5.12 Character Defects



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.

Go to 7.6, Communications RAP.

7.5.13 Spots



asm7-18

PROBLEM

Toner deposits that are in non-image areas.

Initial Action

- Replace the paper from a fresh, unopened ream.
- Clean paper path.
- Perform the Test Menu Fuser Cleaning Procedure, 5.3.7.

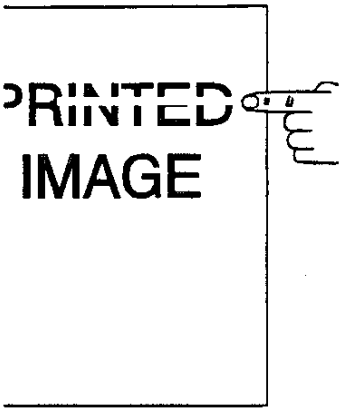
Procedure

1 The Spot Deletions repeat at the same interval vertically on the printed page.

Y Replace the EP Cartridge, PL 6.

N Inspect Fuser Assembly and replace any damaged parts, PL 5.

7.5.14 Unfused Image



asm7-23

PROBLEM

The printed image is not fully fused to the paper. The image easily rubs off. Check the fusing quality of a System Controller Test Pattern. Rub the image three times with a soft cloth or tissue. The image should not lift off of the surface of the print.

1 Ensure that the paper is not extremely rough, heavily textured or of a high rag content. Ensure that the paper is not damp. Replace the paper with paper from an unopened ream.

2 Check the Fuser Heat Roll and Pressure Roll for damage. Replace the Heat Roll and/or Pressure Roll, if damaged, PL 5.

3 Ensure that the Fuser Thermistor is clean and contacting the Heat Roll. Replace the Temperature Sensor Assembly if necessary, PL 5.

4 Check for proper contact between the Heat Roll and Pressure Roll by inspecting the following:

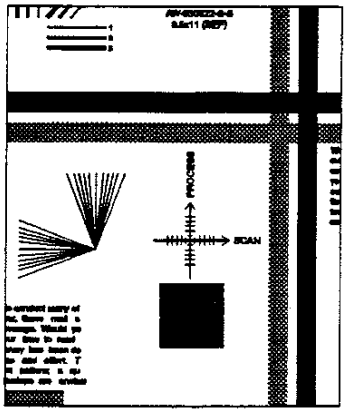
- Tension arms
- Tension springs

5 Ensure that the fuser temperature is set to the factory default value (Section 5, Fuser Temperature Set).

6 If problem still exists, replace Fuser Assembly, PL 5.

7 When problem is resolved, go to Final Actions.

7.5.15 Misregistered Image



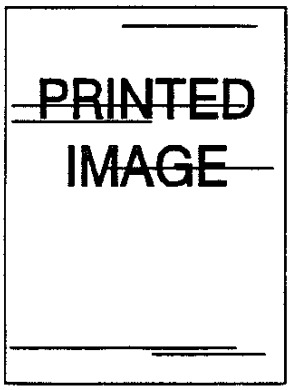
asm5-35c

Displaced position of the image from its intended position on the print.

Perform the following in sequence to resolve the registration problem:

- Inspect Paper Tray(s) for damage. Replace if necessary, PL 2, PL 8, or PL 9.
- Properly install fresh paper into Paper Tray(s).
- Inspect paper transportation rolls for proper operation and wear. Replace worn part(s), if necessary.
- Use procedure 5.2.3.1 and verify printer registration.
- If problem continues, call for assistance.

7.5.16 Streaks



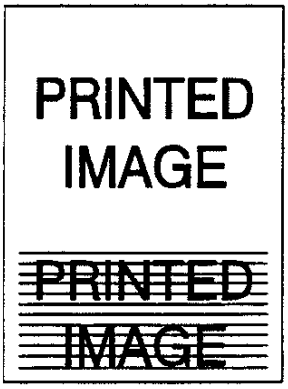
asm7-16

Extraneous dark lines/bands in or across the process direction.

Perform the following in sequence to resolve the Print defect:

- Remove the EP Cartridge and inspect the surface of the Photoreceptor for scratches and bands of toner. Replace the EP Cartridge if necessary.
- Inspect Fuser Heat and Pressure Rolls for contamination or damage. Clean or replace Fuser Assembly.
- Inspect BTR for cleanliness/damage. Clean/replace as necessary.
- Clean/inspect paper path.
- If problem continues, go to 7.4.22, EMI/RFI Noise Isolation Failure.

7.5.17 Residual Image



asm7-19

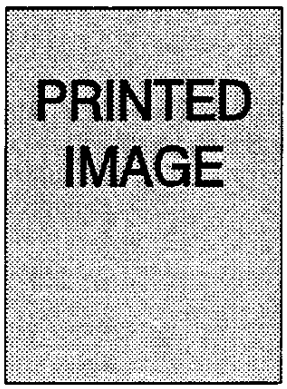
PROBLEM

There are ghost images appearing on the page. The images may be ghosts of the previous page or from the page being printed.

1 The Fuser temperature is set to the proper default setting.
   - Y Go to step 2.
   - N Set the Fuser temperature to the proper level. Go to 7.3.4, Fuser Failure RAP if the temperature cannot be regulated.

2 The residual image repeats at the same interval on the paper.
   - Y Perform the Test Menu Fuser Cleaning Procedure, 5.3.7. If problem continues, Replace the EP Cartridge, PL 6.
   - N Inspect and clean the Fuser Heat/Pressure Roll. Replace the Fuser as necessary.

7.5.18 Background



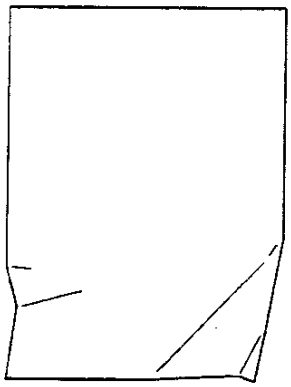
PROBLEM

There is toner contamination in all or part of the page. The contamination appears as a very light gray dusting. Refer to Rating Guide (82P284). The Background area on any print should be at, or below, area 3 on the rating guide.

asm7-20

1 Perform the HVPS DB Failure RAP, 7.4.20. The developer bias is operating properly.
   Y Replace the EP Cartridge, PL 6.
   N Replace the HVPS, PL 7.

7.5.19 Damaged Prints



asm7-22

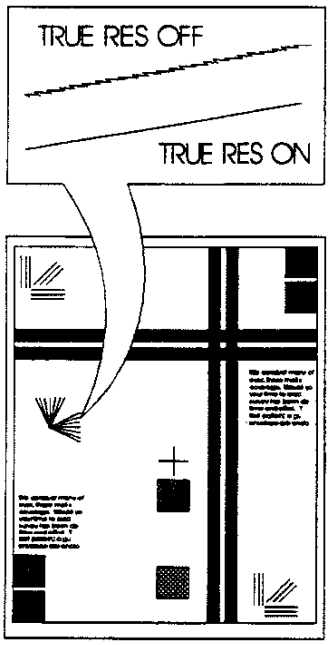
PROBLEM

The printed page is wrinkled, creased, or torn.

Perform the following in sequence to resolve the Damaged Prints problem:

- Inspect Paper Tray(s) for damage. Replace if necessary, PL 2, PL 8, or PL 9.
- Properly install fresh paper into Paper Tray(s).
- Inspect paper transportation rolls for proper operation and wear. Replace worn part(s), if necessary.
- Inspect Fuser Assembly and Feedout Rolls for proper operation and wear. Replace worn part(s), if necessary.
- Replace EP Cartridge, PL 6, if problem persists.

7.5.20 TrueRes Smoothing



trueres

TrueRes Smoothing is a technology that smooths the jaggy lines-most noticeably on curved, near - vertical and near - horizontal lines. The incidence of jaggy lines should be noticeably less on prints with TrueRes enhancement switched on.

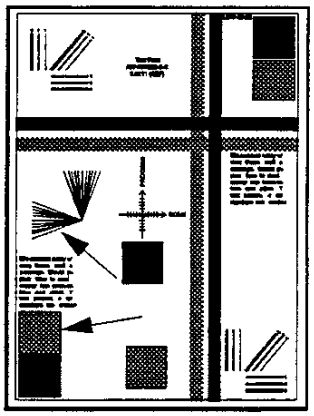
Initial Action

- Ensure that TrueRes Smoothing is switched on.

Procedure

1. Run five System Controller test prints. Save the last two for analysis and mark them TrueRes.
2. Switch off TrueRes and run five prints. Again, save the last two for analysis and mark them TrueRes off.
3. Use an eye loupe or other magnifier to compare the prints in step 1 with the prints in step 2 for differences in jaggy lines on curved, near-vertical, and near-horizontal lines.
4. If no difference is observed, replace the System Controller PWB, PL 7.
5. Ensure that TrueRes Smoothing is set to "ON".

7.5.21 Resolution



asm5-35c

At 300 DPI, two pixel lines and halftone patches cannot be reproduced clearly on the print.

Initial Actions

- Insure Resolution is set to 300 DPI.
- Insure Print Density is set to (2).
- Clean ROS window.

Procedure

1 Replace EP Cartridge. Problem is resolved.

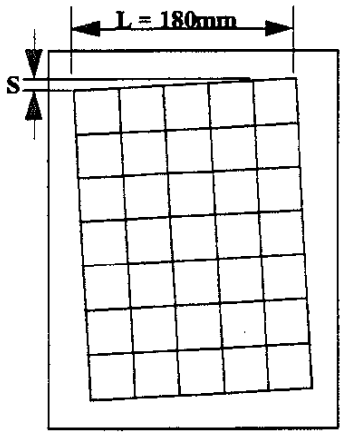
Y Return to 7.5.3, Image Quality Analysis.

N Replace the following in sequence to resolve the problem:

- HVPS, PL 7.
- Laser Assembly, PL 6.

NOTE: *After problem is resolved, re-install the old EP Cartridge.*

7.5.22 Skewed Image



PROBLEM

The printed image is not parallel with the sides of the page.

1 Generate a Print Engine Controller Test Pattern, 5.2.2. Measure the distance per the figure and verify that the skew does not exceed the 1.6mm specification over a length of 180mm. Test pattern is within specification.

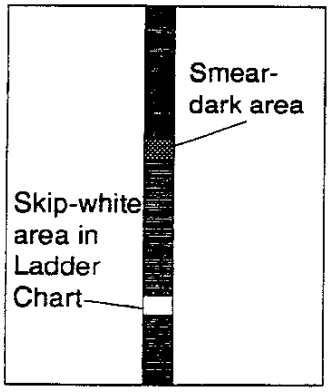
   Y Go to Final Actions.

   N Go to step 2.

2 Perform the following in sequence to resolve the Skewed Image problem:

   - Inspect Paper Tray(s) for damage. Replace if necessary, PL 2, PL 8, or PL 9.
   - Properly install fresh paper into Paper Tray(s).
   - Inspect paper transportation rolls for proper operation and wear. Replace worn part(s), if necessary.
   - Inspect Fuser Assembly and Feedout Rolls for proper operation and wear. Replace worn part(s), if necessary.
   - Replace ROS Assembly, PL 6, if problem still exists.

7.5.23 Skips/Smears



Skip: 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.

Perform the following in sequence to resolve a Skips or Smears problem:

- Inspect Drive Assembly for damaged and worn gears. Replace, if necessary, PL 6.
- Inspect Main Drive Motor for smooth operation and wear of drive gear. Replace, if necessary, PL 6.
- Inspect Fuser Assembly and Feedout Rolls for smooth operation and wear. Replace worn part(s), if necessary.
- Replace EP Cartridge, PL 6, if problem still exists.

7.6 Communications RAPs

7.6.1 Communications Entry RAP

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

1 Print a Configuration Sheet. The Configuration Sheet printed successfully.
   Y Go to step 2.
   N Go to step 8.

2 The printer has HOST Option PWB(s) installed.
   Y Go to step 3.
   N Go to 7.6.2, Serial / Parallel RAP.

3 The Configuration Sheet shows the parameters for each HOST Option PWB installed.
   Y Go to step 4.
   N Go to step 7.

4 The Configuration Sheet indicates that the Parallel Port Enable is "ON".
   Y Go to step 5.
   N Configure the Parallel Port Enable to "ON" and go to step 5.

5 Connect Interface Test Box to the Parallel Port on the System Controller. Select a job and send it to the printer. The job prints successfully.
   Y Go to step 6.
   N Replace the System Controller PWB (PL 7).

6 The job prints free of data corruption.
   Y Go to step 7.
   N Replace the System Controller PWB (PL 7).

7 The AppleTalk / LocalTalk Option PWB is installed in the Printer.
   Y Go to 7.6.3, AppleTalk / LocalTalk RAP.
   N Go to Ethernet RAP.

8 Switch the printer power OFF. Remove all Option PWB's and SIMMs from the System Controller. Switch the printer power ON. Print a Configuration Sheet. The Configuration Sheet printed successfully.
   Y Go to step 9.
   N Replace the System Controller PWB (PL 7).

9 Switch the printer power OFF. Reinstall one of the Option PWB's or SIMMs removed in step 8. Switch the printer power ON. Print a Configuration Sheet. The Configuration Sheet printed successfully.
   Y Repeat this step for each Option PWB/SIMM removed in step eight, one at a time.
   N Replace the Option PWB or SIMM installed in step 9 (PL 7).

7.6.2 Serial / Parallel RAP

You were directed to this RAP because the printer does not respond to commands or the printer responds incorrectly to commands sent from the HOST, however, a configuration sheet can be printed.

Initial Actions

- Switch the printer power OFF.
- Disconnect and reconnect the HOST Interface Cable from the Serial and/or Parallel Interface Port(s). Notify customer if any visual signs of damage to the cable(s) are noticed.
- Switch the printer power ON.
- Generate a Configuration Sheet.

Procedure

1 The interface being used is serial.

Y Go to step 2.

N Go to step 3.

2 Review the Configuration Sheet and verify that the customer's HOST Serial Configuration is the same as the Configuration Sheet. The Configuration matches the HOST computer the customer is using.

Y Go to step 3.

N Configure printer to match customer's computer, then go to step 3.

3 Review the Configuration Sheet. The Serial and/or Parallel Interfaces is(are) indicated as "Port Enable-ON".

Y Go to step 4.

N Configure "Enable Port-ON for interface(s) being used by customer. Once properly enabled, go to step 4.

4 Generate a Configuration Sheet and verify "Enable Port-ON" for interface(s) being used. The Configuration Report indicates "Enable Port-ON" for interface(s) being used.

Y Go to step 5.

N Replace the System Controller PWB, PL 7.

5 Connect the Anacom G80 or similar test box to the printer port(s) and send a test job(s). The job prints correctly.

Y Go to step 6.

N Replace the System Controller PWB, PL 7.

6 The problem is either in the HOST Interface Cable(s) or the HOST System(s). The problem is found and resolved.

Y Go to Final Actions.

N Call for Technical Assistance.

7.6.3 Appletalk / Localtalk RAP

You were directed to this RAP because the printer does not respond to commands or the printer responds incorrectly to commands sent from the HOST, however, a configuration sheet can be printed.

Initial Actions

- Switch the printer power OFF.
- Disconnect the HOST Interface Cable from the AppleTalk/LocalTalk PWB.
- Reseat the AppleTalk/LocalTalk PWB onto the System Controller PWB.
- Reconnect the HOST Interface Cable, notify customer if any visual signs of damage are noticed.
- Switch the printer power ON.
- Generate a Configuration Sheet.

Procedure

1 Review the Configuration Sheet. The AppleTalk/LocalTalk PWB is listed on the Configuration Report.

Y Go to step 2.

N Go to step 5.

2 Ask the customer's System Administrator to select the "CHOOSER" utility on the Apple HOST System. AppleTalk is reported as being "ACTIVE".

Y Go to step 3.

N Ask System Administrator to activate AppleTalk, then go to step 3.

3 While in the "CHOOSER" utility, ask the System Administrator to select one of the LaserWriter Compatible Printer ICONs. The name of the Printer being serviced is listed as being active on the network.

Y Go to step 4.

N The problem is either in the AppleTalk/LocalTalk Interface, Network Cable, Cable Terminators or the Apple HOST. Inform the System Administrator.

4 Ask the System Administrator to send a print job to the printer. The job prints correctly.

Y Go to Final Actions.

N Go to step 7.

5 Xerox Printer Model Type is a 4505.

Y Replace AppleTalk/LocalTalk PWB (PL 7). If problem still exists, replace System Controller PWB (PL 7).

N Go to step 6.

6 Switch the printer power OFF. Move AppleTalk/LocalTalk PWB to another option port on the System Controller PWB. Switch the printer power ON. Generate a Configuration Sheet. The AppleTalk/LocalTalk PWB is listed on the Configuration Sheet.

Y Replace the System Controller PWB (PL 7).

N Replace AppleTalk PWB (PL 7).

7 Put printer in HEX DUMP Mode and have System Administrator resend job. Review results with the System Administrator. The System Administrator corrects problem in job and problem is solved.

Y Go to Final Actions.

N Call for Technical Assistance.

7.6.4 Ethernet RAP

You were directed to this RAP because the printer does not respond to commands or the printer responds incorrectly to commands sent from the HOST, however, a configuration sheet can be printed.

Initial Actions

- Switch the printer power OFF.
- Disconnect the HOST Interface Cable from the Ethernet PWB.
- Reseat the Ethernet PWB onto the System Controller PWB.
- Reconnect the HOST Interface Cable, notify customer if any visual signs of damage are noticed.
- Switch the printer power ON.
- Generate a Configuration Sheet.

Procedure

1 Review the Configuration Sheet. The Ethernet PWB is listed on the Configuration Sheet.

Y Go to step 2.

N Go to step 5 .

2 The HOST environment that the printer is being used in is NOVELL.

Y Go to step 3.

N Go to step 7.

3 Ask the customer's System Administrator to select the "KERMIT" utility on the HOST System. KERMIT reports that the printer is being serviced.

Y Go to step 4.

N The problem is either in the HOST Interface Cable, the Twisted Pair Concentrator, the Coaxial "T" Connectors, or the HOST System. Inform the System Administrator.

4 Ask the System Administrator to send a print job to the printer. The job prints correctly.

Y Go to Final Actions.

N Go to step 9.

5 Xerox Printer Model Type is a 4505.

Y Replace Ethernet PWB (PL 7). If problem still exists, replace System Controller PWB (PL 7).

N Go to step 6.

6 Switch the printer power OFF. Move Ethernet PWB to another option port on the System Controller. Switch the printer power ON. Generate a Configuration Report. The Ethernet PWB is listed on the Configuration Report.

Y Replace the System Controller PWB (PL 7).

N Replace Ethernet PWB (PL 7).

7 Ask the System Administrator to enter the routing table "NETSTAT" on the SUN System and "PING" the printer. The printer responds back to the PING.

Y Go to step 8.

N The problem is either in the HOST Interface Cable, the Routing Table, the IP Address is incorrect, or the HOST System. Inform the System Administrator.

8 Ask the System Administrator to send a print job to the printer. The job prints correctly.

Y Go to Final Actions.

N Go to step 9.

9 Put printer in HEX DUMP Mode and have System Administrator resend job. Review results with the System Administrator. The System Administrator corrects problem in job and problem is solved.

Y Go to Final Actions.

N Call for Technical Assistance.

7.7 Memory

7.7.1 Memory Card Check-Out Procedure RAP

You were directed to this Checkout Procedure RAP because one or both of the Memory Cards is not being detected by the System Controller PWB.

1 There are two Memory Cards installed in the printer.

Y Go to step 2.

N Go to step 5.

2 Switch the printer power OFF. Remove one of the Memory Cards, switch the printer power ON and print a PCL Font List. The Memory Card installed in the printer is identified on the Font Listing.

Y Go to step 3.

N Go to step 6.

3 Switch the printer power OFF. Reinstall the Memory Card removed in step 2. Switch the printer power ON and print a PCL Font List. The Memory Card just installed in the printer is identified on the Font Listing.

Y Go to step 4.

N Go to step 7.

4 Have the customer select at least one font from each Memory Card and print a job using the selected fonts. The job prints correctly for both fonts selected.

Y Go to Final Actions.

N Inform the customer that the Memory Card is defective due to a defective font and that a new Memory Card must be reordered.

5 Have the customer select at least one font from the Memory Card and print a job using the selected font. The job prints correctly for the font selected.

Y Go to Final Actions.

N Inform the customer that the Memory Card is defective due to a defective font and that a new Memory Card must be reordered.

6 Switch the printer power OFF. Move the Memory Card to the other Memory Card slot in the printer. Switch the printer power ON and print a PCL Font List. The Memory Card is identified on the Font Listing.

Y Replace the System Controller PWB, PL 7.

N Inform the customer that the Memory Card is defective and must be reordered.

7 Switch the printer power OFF. Remove the identified Memory Card and move the non-identified Memory Card to other Memory Card slot in printer. Switch the printer power ON and print a PCL Font List. The Memory Card is Identified on the Font Listing.

Y Replace the System Controller PWB, PL 7.

N Inform the customer that the Memory Card is defective and must be reordered.

7.8 Error Codes

7.8.1 Error Code "0001" RAP

You were directed to this RAP because the UI displayed the error code "0001" during the power on diagnostics.

1 Switch the printer power OFF, wait 30 seconds, then switch the printer power ON. The UI displays "ONLINE _ _ _ READY" after 2 minutes.

   Y Go to Final Actions.

   N Go to step 2.

2 Switch the printer power OFF. Remove the System Controller PWB. Remove all Optional PWB's including any SIMMs from the System Controller PWB. Reinstall the System Controller. Switch the printer power ON. The UI displays the error code "0001" during power on.

   Y Replace the System Controller PWB, (PL 7).

   N Go to step 3.

3 Switch the printer power OFF. Reinstall one of the Optional PWB's/SIMMs removed in step 2. Switch the printer power ON. The UI displays the error code "0001"during power on.

   Y Replace Optional PWB installed in step 5 (PL 7).

   N Go to step 4.

4 Repeat step 3 by installing each Optional PWB/SIMM one at a time until error code "0001" is displayed on the UI. Replace PWB/SIMM which causes error code to be displayed.

7.8.2 Error Code "0040" RAP

You were directed to this RAP because the UI displayed the error code "0040" during the power on diagnostics.

1 Switch the printer power OFF, wait 30 seconds, then switch the printer power ON. The UI displays "ONLINE _ _ _ READY" after 2 minutes.

   Y Go to Initial Actions.

   N Go to step 2.

2 Switch the printer power OFF. Remove the System Controller PWB. Remove Postscript Option PWB from the System Controller. Reinstall the System Controller PWB. Switch the printer power ON. The UI displays the error code "0040" during power on.

   Y Replace the System Controller PWB (PL 7).

   N Replace the Postscript Option PWB (PL 7).

7.8.3 Error Code "0100" or "0101" RAP

You were directed to this RAP because the UI displayed the error code "0100 or 0101" during the power on diagnostics.

1 Switch the printer power OFF, wait 30 seconds, then switch the printer power ON. The UI displays "ONLINE _ _ _ READY" after 2 minutes.

   Y Go to Final Actions.

   N Go to step 2.

2 Switch the printer power OFF. Remove the System Controller PWB. Remove all SIMMs installed on the System Controller PWB. Reinstall the System Controller PWB. Switch the printer power ON. The UI displays the error code "0100 or 0101" during power on.

   Y Replace the System Controller PWB (PL 7).

   N Go to step 3.

3 Switch the printer power OFF. Remove the System Controller PWB from the Printer. Install one of the SIMMs removed in step 2 into J108 on the System Controller PWB. Reinstall the System Controller PWB. Switch the printer power ON. The UI displays the error code "0101" during power on.

   Y Replace the SIMM presently installed on the System Controller PWB (PL 7).

   N Go to step 4.

4 Switch the printer power OFF. Remove the System Controller PWB. Install the remaining SIMM removed in step 2 into J107 on the System Controller PWB. Reinstall the System Controller PWB. Switch the printer power ON. The UI displays the error code "0100" during power on.

   Y Replace SIMM installed in J107 on System Controller PWB (PL 7).

   N Problem was probably caused by poor connection between SIMM and System Controller PWB SIMM socket. Make a notation in Machine Service Log and Go to Final Actions.

7.8.4 Error Code "1000" RAP

You were directed to this RAP because the UI displayed the error code "1000" during the power on diagnostics. This error code is displayed when System Controller either does not receive or does not acknowledge a Printer Engine Status when the System Controller sends a command.

1 Switch the printer power OFF, Remove Printer Covers. Reseat the Printer Engine Controller PWB and the System Controller PWB to the Interface PWB. Switch the printer power ON. The UI displays "ONLINE _ _ _ READY" after 2 minutes.

   Y Go to Initial Actions.

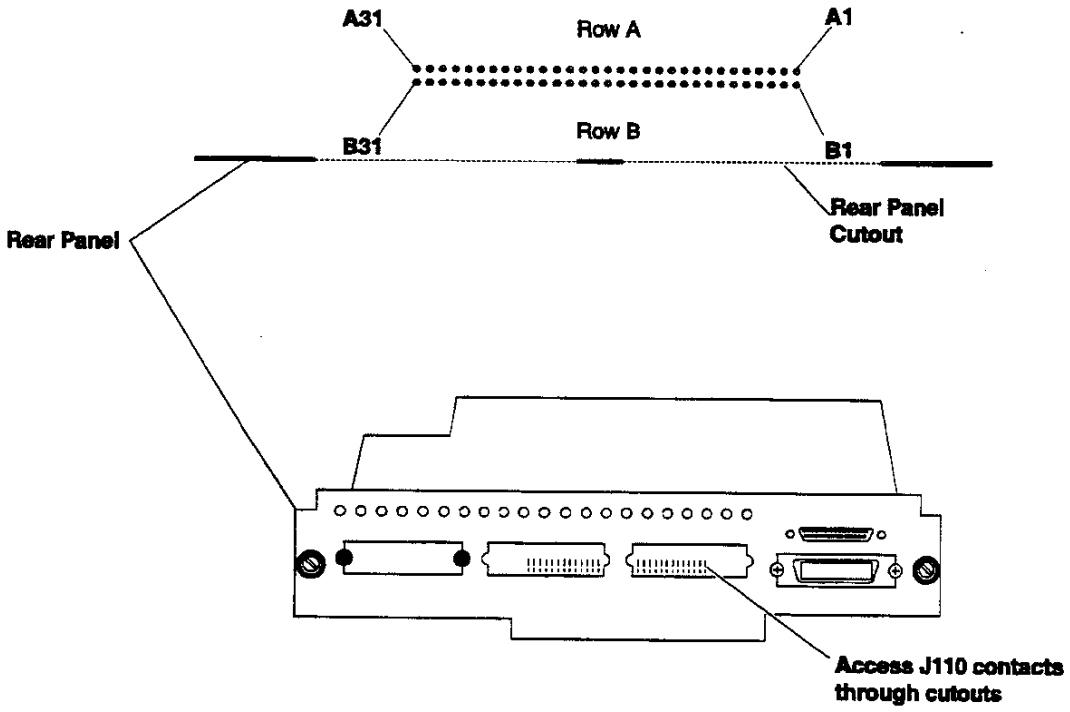
   N Go to step 2.

2 Verify the voltage at J110, pin A5 (see Figure 7.8.4). The voltage is +5.0 +/-0.25VDC at power on and drops to 0.0 +/- 1.5VDC when the System Controller sends information.

   Y Replace the Printer Engine Controller PWB, PL 7. If problem persists, replace the Interface PWB, PL 7.

   N Replace the System Controller PWB, PL 7.

Figure 7.8.4 System Controller PWB J110



7.8.5 Error Code "2000" RAP

You were directed to this RAP because the UI displayed the error code "2000" during the power on diagnostics. This error code is displayed when a key on the UI is stuck in the closed/actuated position.

1 Switch the printer power OFF, wait 30 seconds, then switch the printer power ON. The UI displays "ONLINE _ _ _ READY" after 2 minutes.

Y Go to Initial Actions.

N Go to step 2.

2 Switch the printer power OFF. Visually inspect the Keypad within the Printer UI for any damage. Press each key on the keypad and verify that each key can be pressed. Switch the printer power ON. The UI displays the error code "2000" during power on.

Y Go to step 3.

N Make notation in Machine Service Log of possible intermittent stuck key and go to Initial Actions.

3 Switch the printer power OFF. Remove Printer Covers. Reseat the System Controller PWB to the Interface PWB. Switch the printer power ON. Verify the voltages between the following pins and frame ground (See Figure 7.8.5).

J110 Pins A28, A29, A30, A31, B28, B29, B30, and B31,

The voltage on each pin is 5.0 +/- 0.25VDC in the standby mode.

Y Replace the System Controller PWB, PL 7.

N Go to step 4.

4 Switch the printer power OFF. Remove System Controller from Printer. Switch the printer power ON. Verify voltage at P/J 51-3 on Interface PWB is 5.0 +/-0.25VDC in the standby mode. The voltage is present.

Y Go to step 5.

N Replace the LVPS (PL 7).

5 Switch the printer power OFF. Disconnect wire harness connected to P50 on Interface PWB and P24 on Control Panel. Measure continuity of wire harness for all pins. Continuity is present.

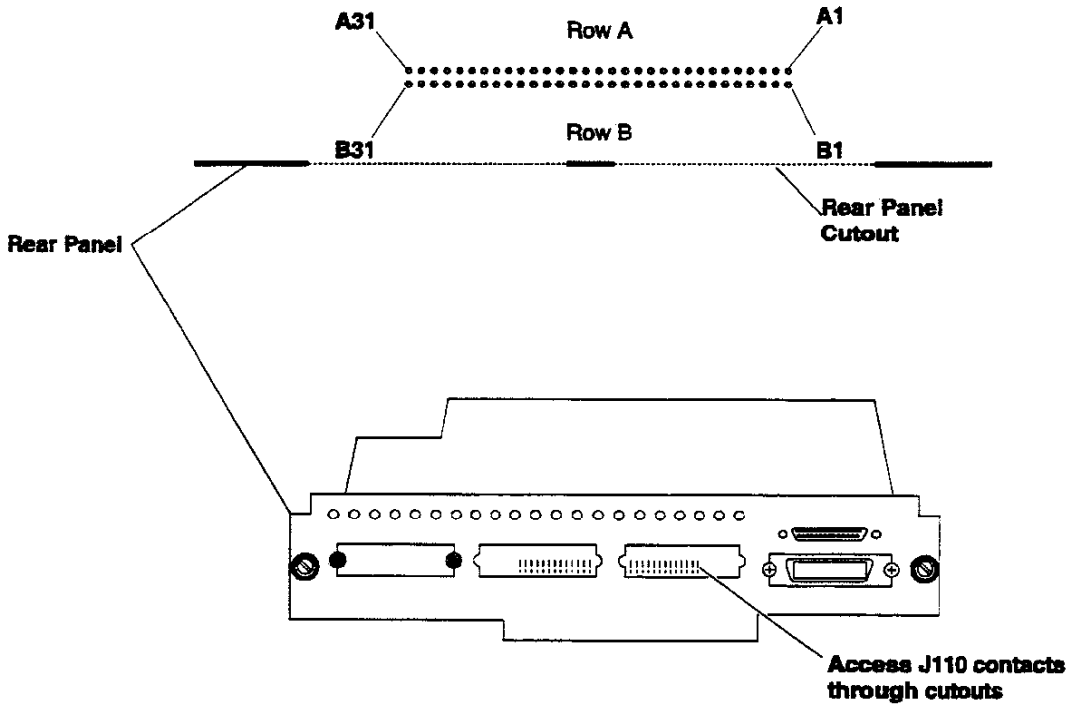
Y Replace each component one at a time in following order until problem is solved:

- Control Panel (PL 4)
- System Controller PWB (PL 7)

N Replace PH-1 Harness (PL 3).

Figure 7.8.5 System Controller PWB J110

Top view of the System Controller PWB



XEROX 4505/4510 Machine Service Log	Account Name	Serial Number	Install Date	Install Print Count

Date	Service Rep	Print Count	Reason for Call / Service Work Performed

XEROX 4505/4510 Machine Service Log	Account Name	Serial Number	Install Date	Install Print Count

Date	Service Rep	Print Count	Reason for Call / Service Work Performed