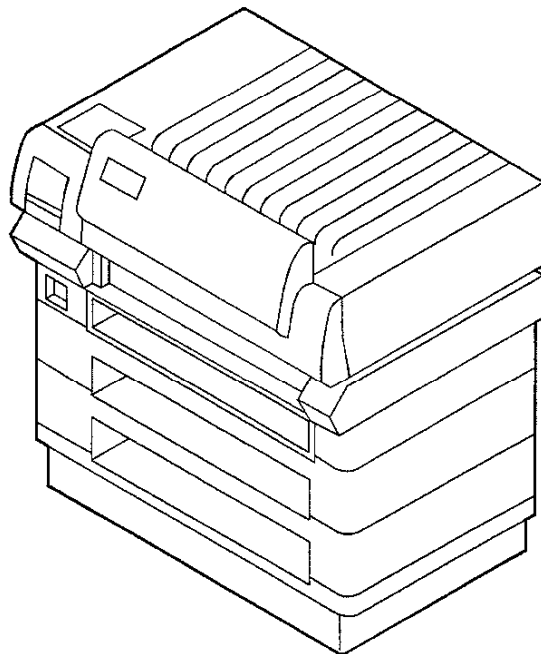


XEROX

Xerox 4520/4520mp Laser Printer Service Manual



720P53291

This Service Manual contains information that applies to the Xerox 4520/4520mp Electronic Laser Printer.

NOTICE

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

NOTICE

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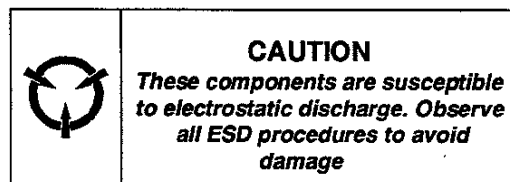
PostScript is a registered trademark of Adobe Corporation.

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.

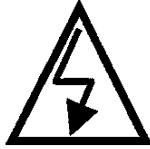
Electrostatic Discharge

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.



wsm0-02

CLASS 1 LASER PRODUCT

The Xerox 4520/4520 mp laser printer is certified to comply with Laser Product Performance Standards set by the U.S. Department of Health and Human Services as a Class 1 Laser Product. This means that this is a class of laser product that does not emit hazardous laser radiation; this is possible only because the laser beam is totally enclosed during all modes of customer operation.

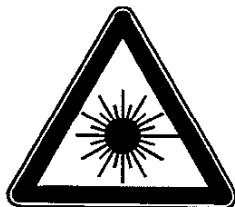
The laser and output of the laser scanner unit produces a beam that, if looked into, could cause eye damage. Service procedures must be followed exactly as written without change.

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!

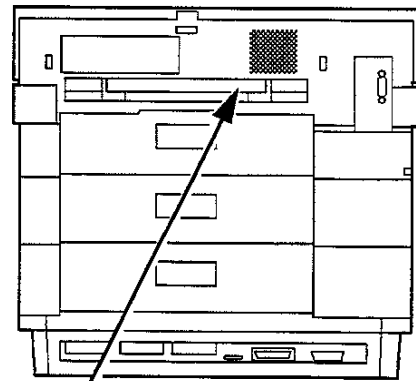
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

WARNING!

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

asm0-03f

Each 4520/4520mp laser printer has three laser warning labels. The first label is located on the Rear Cover as shown below. The second and third labels are located on the top of the LASER (ROS) Unit. These labels are visible when the laser shield is lifted. See the illustrations on the next page for the label location.



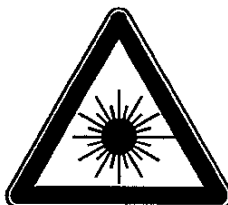
wsm0-03a



wsm0-03b

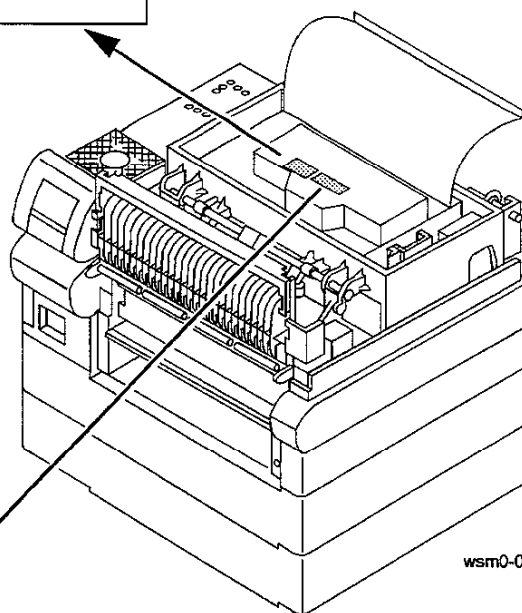
DANGER

AVOID DIRECT EXPOSURE TO BEAM
Invisible laser radiation when opened.
Internal 5mW 760-800 (nm) Class 3B LASER
This Component does not require compliance with
Laser Product Performance Standard 21 CFR 1040.
Instructions for safe replacement are in SERVICE
MANUAL.



Vorsicht !

Unsichtbare Laserstrahlung, Wenn Abdeckung
Geöffnet und Sicherheitsverriegelung Überbrückt.
Nicht in der Strahl blicken.



wsm0-04b

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

ATTENTION Rayonnement laser invisible dangereux en cas d'ouverture et lorsque la sécurité est neutralisée. éviter de s'exposer au rayon laser.

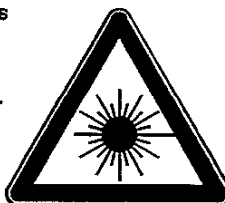
VORSICHT! Unsichtbare laserstrahlung wenn abdeckung geöffnet und sicherheitsverriegelung überbrückt. Nicht dem strahl aussetzen.

VAROI Avattaessa ja suodjalukitus ohitettaessa olet alltiina näkymättömälle lasersätelylle. Älä katso säteeseen.

VARNING Osnylig laserstrålning när denna del är öppnad och spärrar är urkopplade. Strålen är farlig.

ADVARSEL Usnylig laserstråling når deksel åpnes og sikkerhetslås brytes. Unngå eksponering for strålen.

ADVARSEL Usnylig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.



wsm0-04

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Introduction

The Xerox 4520/4520mp Service Manual is the primary document used for repairing and maintaining the 4520 and 4520mp Laser Printers.

This manual contains Service Call Procedures, Diagnostic Procedures, General Information, Repair Analysis Procedures, Copy Quality Analysis Procedures, Wiring Data, and Parts Lists that will enable the Service Representative to repair 4520 or 4520mp 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 4520 and 4520mp 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 /ADJUSTMENT PROCEDURES

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

Section 5 -GENERAL PROCEDURES

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

Section 6 -WIRING DATA

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

Section 7 -REPAIR ANALYSIS PROCEDURES (RAPs)

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

Revision Control List

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Section 1

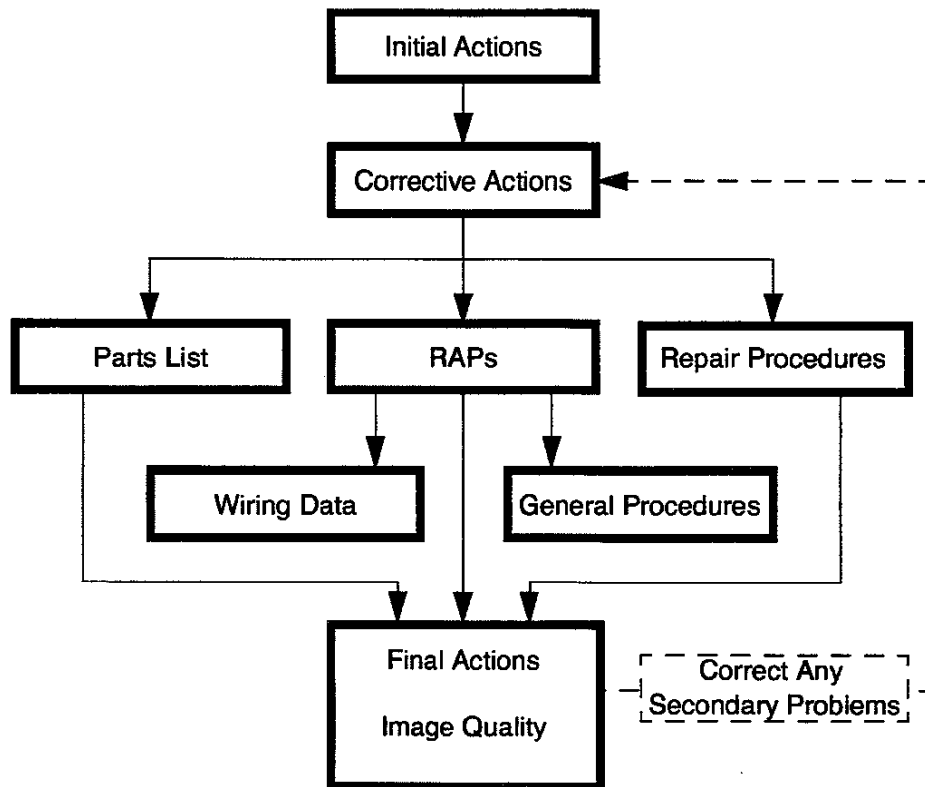
Service Call Procedures

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<i>1.4 Final Actions</i>	<i>1-4</i>

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 clips, 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.
- 5 Perform Corrective Actions

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.
- 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

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2.1 Electrical Specifications

The Xerox 4520 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	98 - 127 VAC	50/60 Hz	47 - 63 Hz	450 Watts
220/240 VAC	198 - 264 VAC	50/60 Hz	47 - 63 Hz	500 Watts

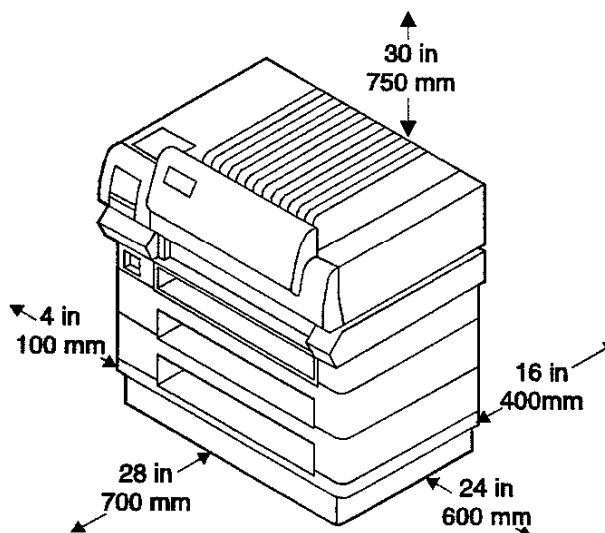
2.2 Mechanical Specifications

Table 2.2.1 Mechanical Specifications

Unit	Width	Depth	Height	Weight
Metric	519 mm	423 mm	483 mm	37.8 Kg
SAE	20.4 in.	16.7 in.	19 in	83.3 lbs

2.3 Minimum Space Requirements

Figure 2.3.1



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)
4520/4520mp	20 ppm	300, 400, 600 & 800 dpi

Table 2.4.2 Operating Environment

Temperature	Humidity	Altitude	Noise	Level
5° - 35° C 50° - 90° F	15 - 85% RH	0 - 2500 m 0 - 8200 Ft.	53 - 65 dB	Within 5°

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 9.84 inches 176 x 250 mm
Executive	7.25 x 10.5 inches 184 x 267 mm
A5	5.83 x 8.27 inches 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 MBF Tray Capacity

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

Table 2.5.4 Optional High Capacity Feeder

Tray Type	Paper Type	Capacity (Sheets)
Letter/A4	Letter/A4	1500

Table 2.5.5 Optional High Capacity Envelope Feeder

Tray Type	Paper Type	Capacity (Envelopes)
Envelope DL / #10	Envelopes DL / #10	250

2.6 Options

The customer may install the following options:

- 50-Sheet Multi-Sheet Bypass Feeder Unit
- 1500-Sheet High Capacity Feeder Unit
- High Capacity Envelope Feeder
- SIMM's (RAM)
- I/O PWB's — Ethernet/LocalTalk/Token Ring
- FAX
- ROM (PostScript Level 2)
- Hard Drive
- PCMCIA Cards
- Paper Trays

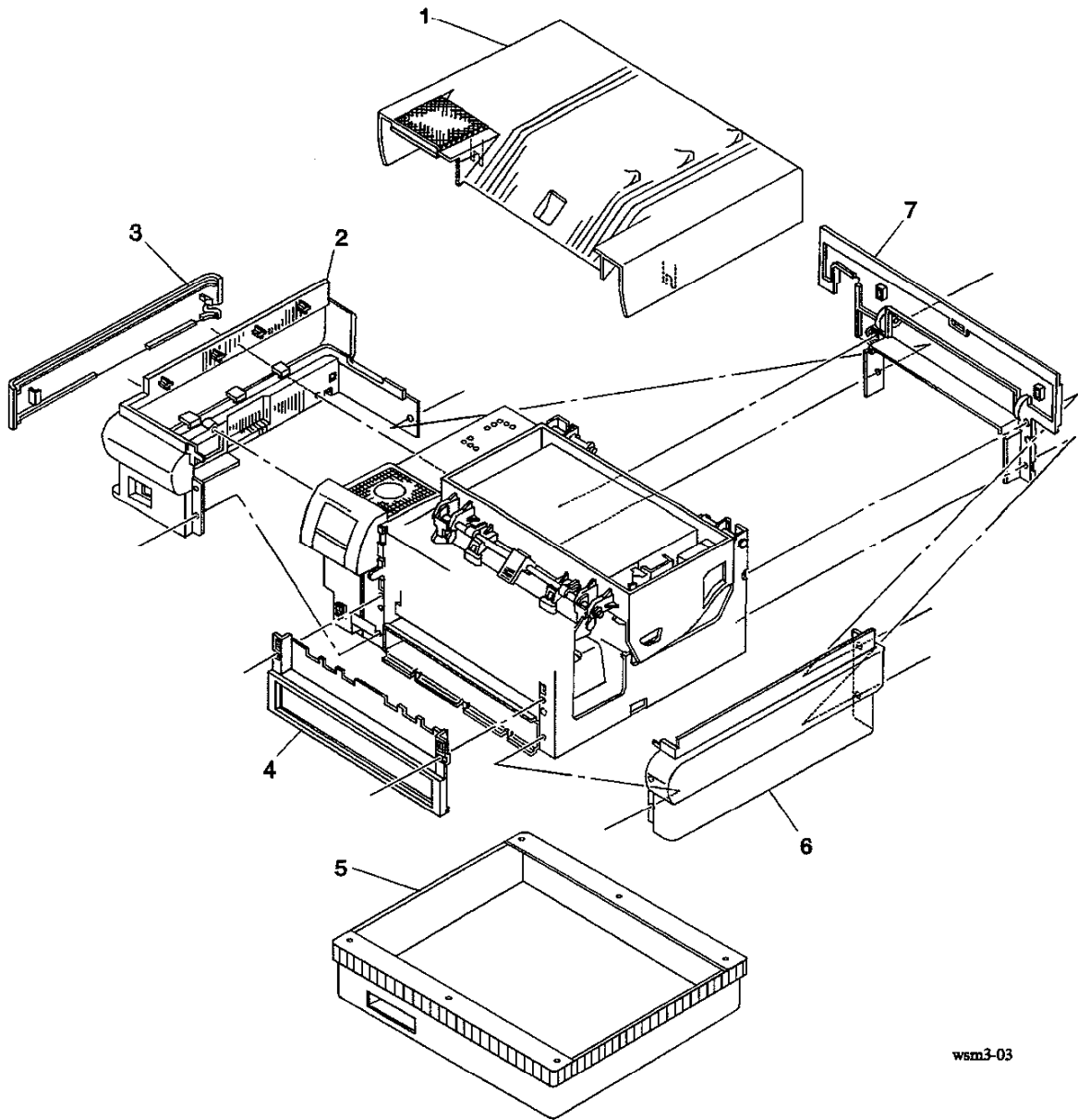
Section 3

Parts Lists

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PL 4	Paper Feed, Tray 2 & 3	3-8
PL 5	Paper Transportation and Fusing	3-10
PL 6	Laser Assembly and Main Drive Motor.....	3-12
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PL 8	Power Supplies and Engine Control.....	3-16
PL 9	System Controller.....	3-18
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PL 11	HCF/HCEF Elevator and Feed Shafts.....	3-22
PL 12	HCF/HCEF Feed Drive and PWB.....	3-24
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PL 1 Covers

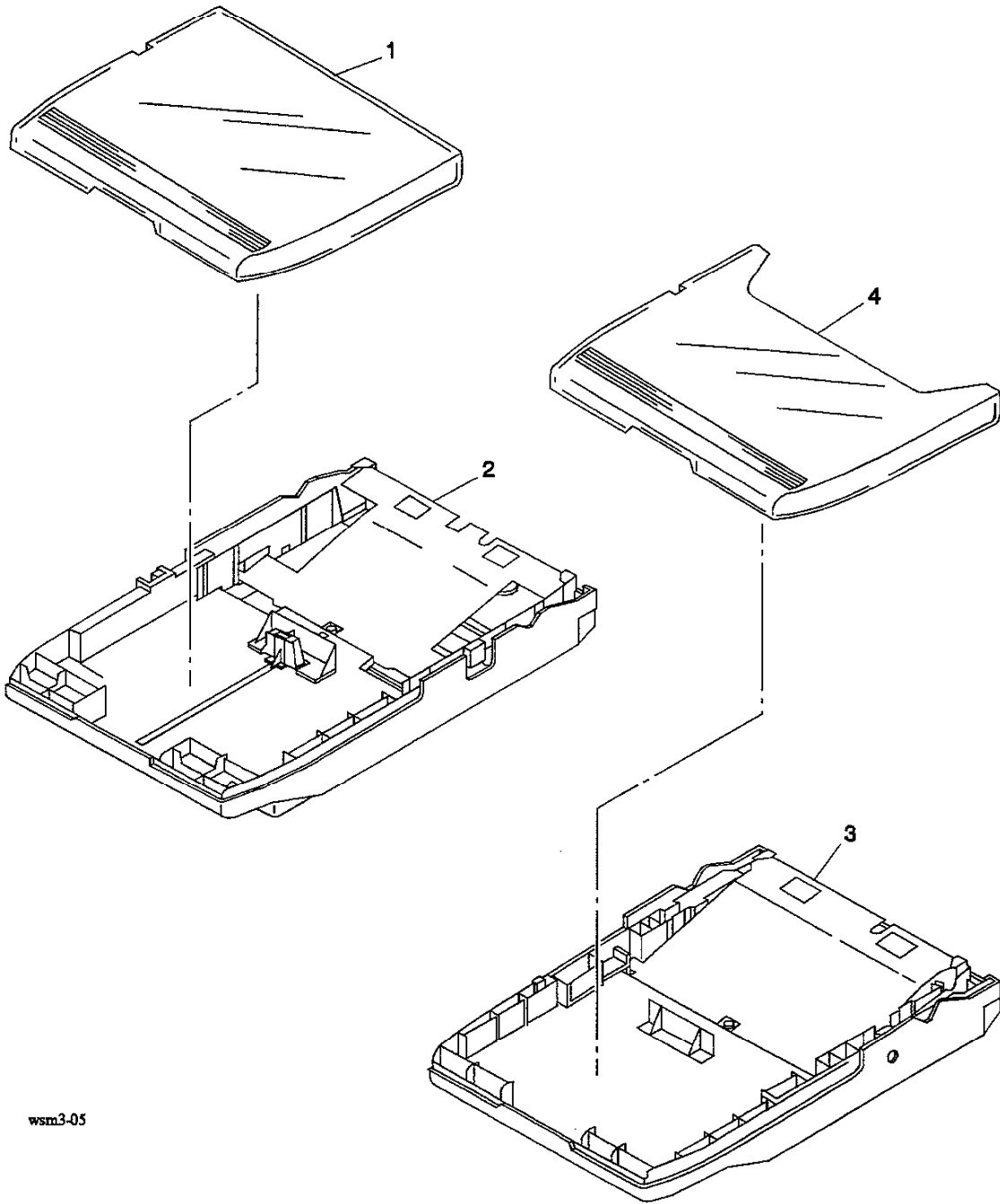
Item	Part	Description
1)	48K25080	Top Cover
2)	48K4450	Left Cover
3)	2E59660	Power Cord Cover
4)	2E59671	Front Cover
5)	44E90520	Bottom Cover Assembly
6)	48K4950	Right Cover
7)	48K5031	Rear Cover
A)	600K96591	Printer Hardware Kit



wsm3-03

PL 2 Paper Trays

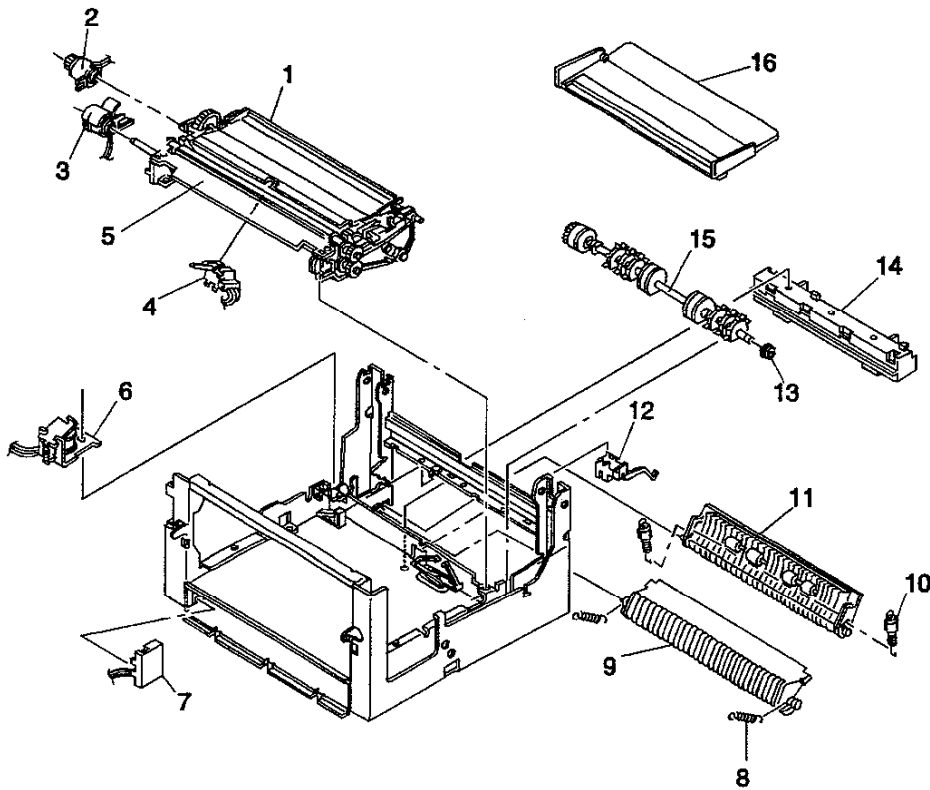
Item	Part	Description
1)	2E45500	Paper Tray Cover, Adjustable Tray
2)	109R00020	Paper Tray, Adjustable
3)	109R00023	Paper Tray, 8.5 x 11 (fixed)
	109R00022	Paper Tray, Legal
	109R00016	Paper Tray, A3
	109R00018	Paper Tray, A5
	109R00017	Paper Tray, A4 (fixed)
	109R00021	Paper Tray, 11 x 17
4)	2E79670	Paper Tray Cover, Fixed Tray
A)	600K96591	Printer Hardware Kit



wsm3-05

PL 3 Paper Feed and Registration, Tray 1

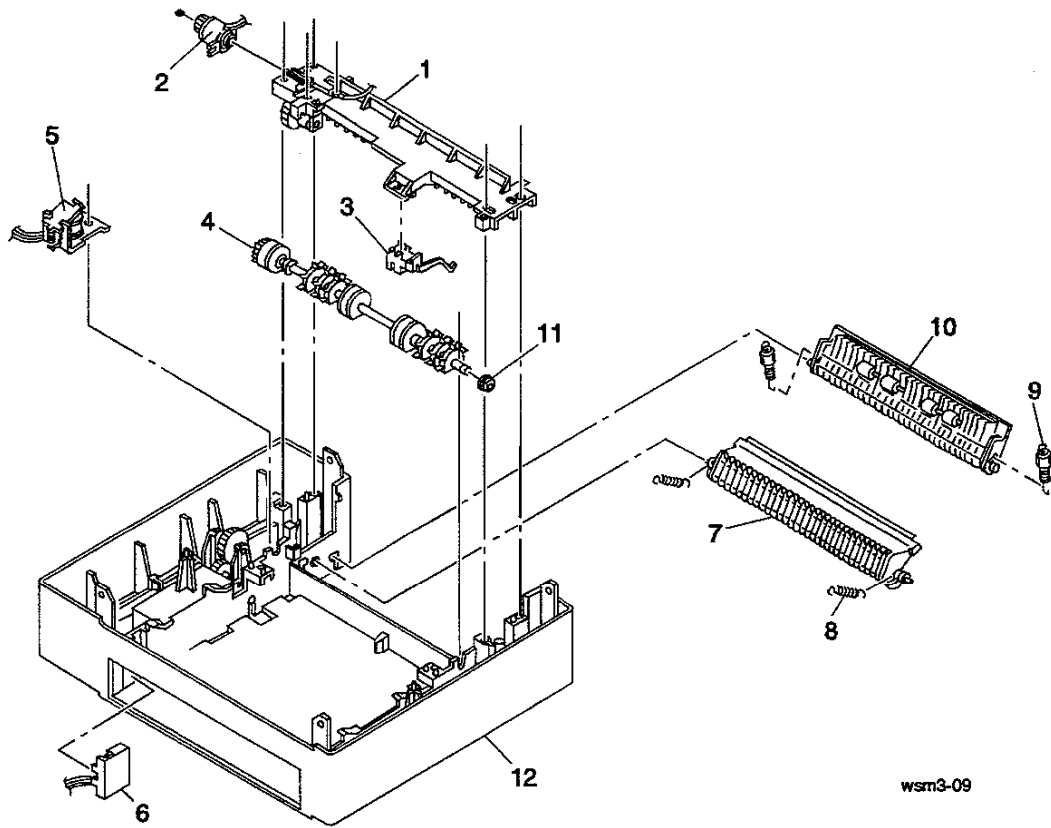
Item	Part	Description
1)	59K95828	Registration Transport {Includes Items 2, 3, & 4}
2)	121E97220	Tray 1 Clutch (Transport Clutch)
3)	121E82690	Registration Clutch
4)	130K98100	Pre-Registration Sensor
5)	54K97182	Registration Paper Guide
6)	121K98462	Tray 1 Feed Solenoid
7)	130K98811	Tray 1 Paper Size Sensor
8)	9E87931	Jam Door Spring, Inner
9)	54K87140	Jam Door, Inner, Tray 1, 2, or 3
10)	9K95272	Jam Door Spring, Outer
11)	54K87150	Jam Door, Outer, Tray 1
12)	130K80460	Tray 1 No Paper Sensor
13)	13E95490	Bearing ('D' shaped)
14)	50K87460	Inlet Chute
15)	59K96012	Feed Roll Assembly
16)	50K87470	Manual Tray Assembly
A)	600K96591	Printer Hardware Kit



wsm3-07

PL 4 Paper Feed, Tray 2 & 3

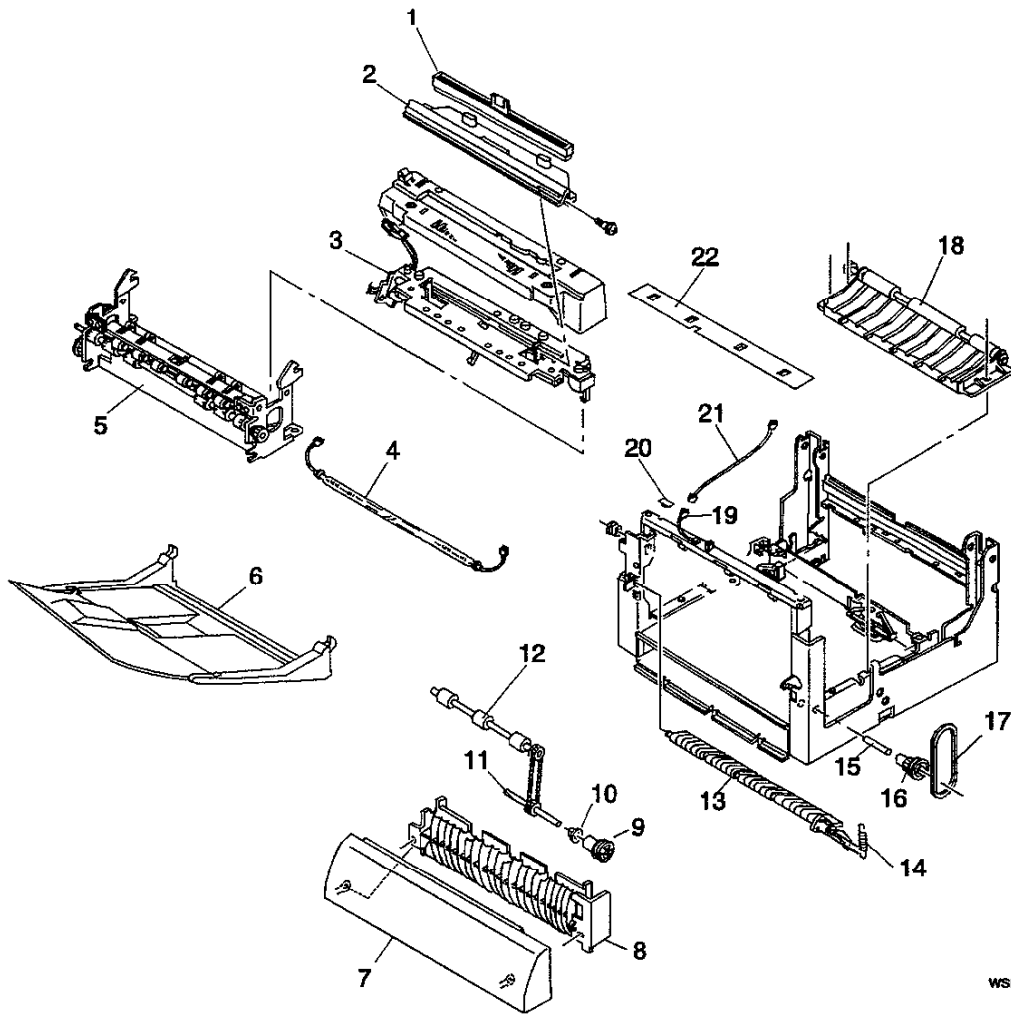
Item	Part	Description
1)	54K87180	Turn Roll Assembly, Tray 2 {Includes Items 2 & 3}
	54K87190	Turn Roll Assembly, Tray 3 {Includes Items 2 & 3}
2)	121E97331	Transport Clutch, Tray 2 (Turn Roll Clutch)
	121E97341	Transport Clutch, Tray 3 (Turn Roll Clutch)
3)	130K80470	No Paper Sensor, Tray 2
	130K80480	No Paper Sensor, Tray 3
4)	59K96012	Feed Roll Assembly
5)	121K98472	Feed Solenoid, Tray 2
	121K98483	Feed Solenoid, Tray 3
6)	130K98821	Paper Size Sensor, Tray 2
	130K98831	Paper Size Sensor, Tray 3
7)	54K87140	Jam Door, Inner, Tray 2 or 3
8)	9E87931	Jam Door Spring, Inner
9)	9K95272	Jam Door Spring, Outer
10)	54K87170	Jam Door, Outer, Tray 2 or 3
11)	13E95490	Bearing ('D' shaped)
12)	22K29290	Feeder Unit (Includes Items 2 ~11), Tray 2
	22K29300	Feeder Unit (Includes Items 2 ~11), Tray 3
A)	600K96591	Printer Hardware Kit



wsm3-09

PL 5 Paper Transportation and Fusing

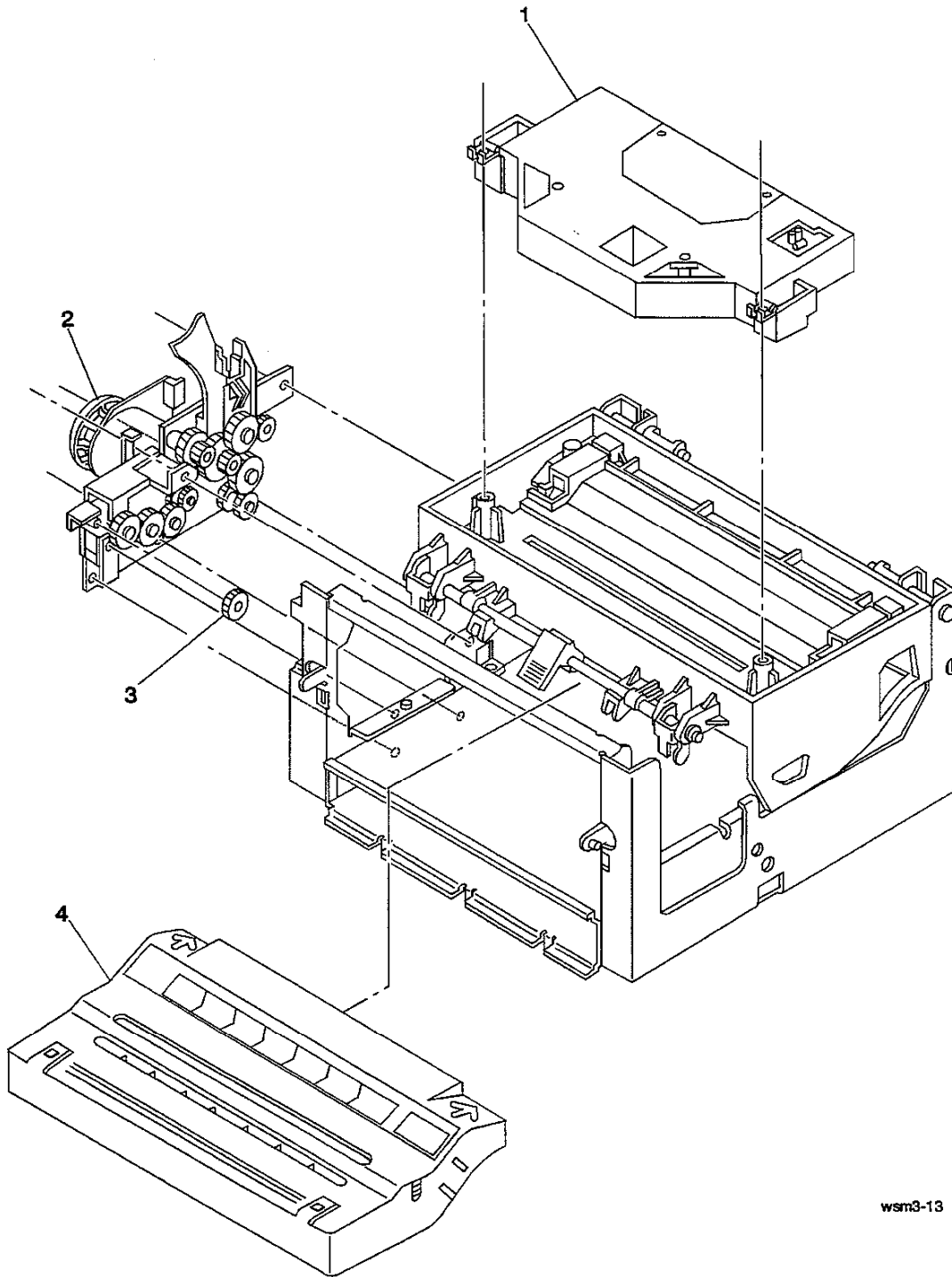
Item	Part	Description
1)	94K95051	Fuser Cleaning Felt
2)	48K4760	Fuser Cleaning Felt Cover
3)	48K10920	Fuser Sensor Assembly
4)	126K92581	Heat Lamp, 110V
	126K92591	Heat Lamp, 220V
5)	73K89193	Fuser, 110V {Includes Items 1~4}
	73K89203	Fuser, 220V {Includes Items 1~4}
6)	50K87450	Face Up Tray
7)	54K2910	Exit Door
8)	-----	Exit Baffle, Inner
9)	20E96850	Exit Pulley
10)	13E80210	Exit Bearing
11)	6K12491	Shaft Assembly Intern HCS
12)	6K12880	Shaft Assembly Exit HCS
13)	54E97393	Diverter Gate
14)	9E88110	Diverter Gate Spring
15)	6E87621	Idler Shaft
16)	7E98991	Exit Gear Pulley
17)	23E7690	Exit Drive Belt
18)	54K83470	Pre-Fuser Transport
19)	130K82580	Full Stack Sensor
20)	120P60559	Cable Clamp
21)	152K65560	Harness Assembly Sensor Full Stack
22)	55E25680	Paper Deflector
A)	600K96591	Printer Hardware Kit



wsm3-11

PL 6 Laser Assembly and Main Drive Motor

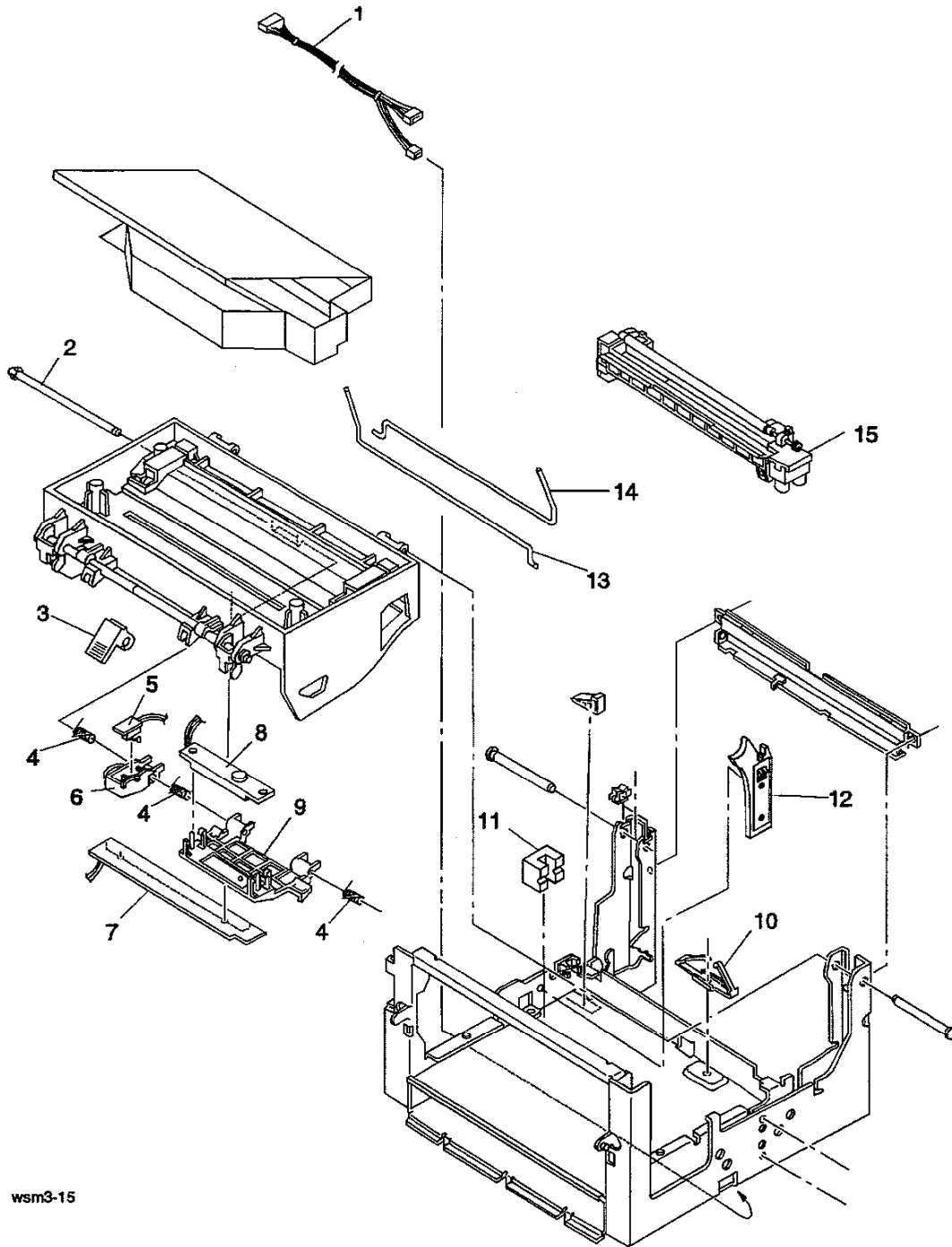
Item	Part	Description
1)	62K93260	Laser Assembly
2)	7K80672	Main Drive Motor
3)	7E23650	Gear Q
4)	113R00002	EP Cartridge
A)	600K96591	Printer Hardware Kit



wsm3-13

PL 7 Transfer Corotron and Upper Unit

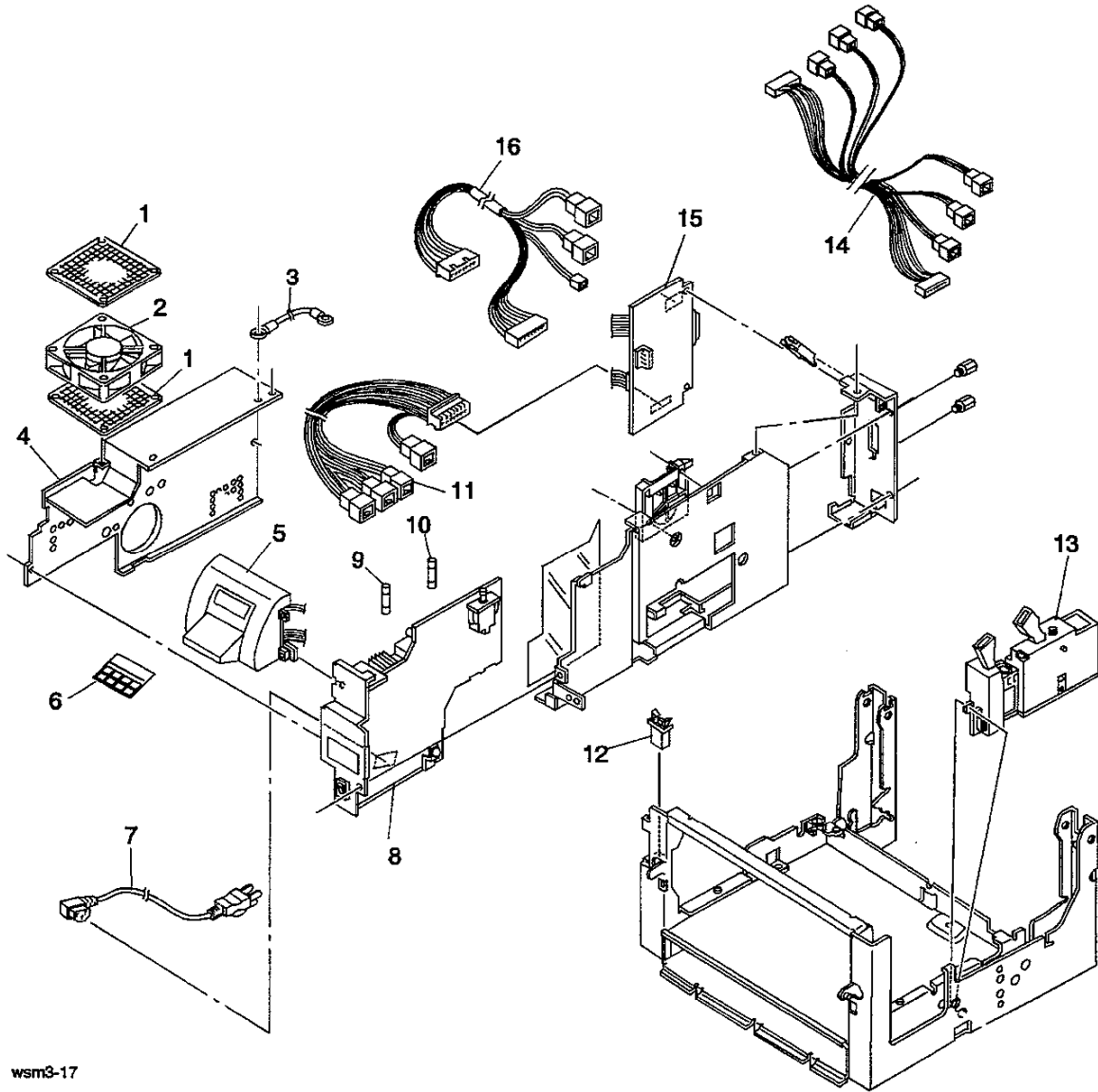
Item	Part	Description
1)	152K75220	High Voltage Power Supply Harness
2)	-----	Sensor Shaft
3)	11E97710	Latch Lever
4)	9E88250	EP Cartridge Plate Spring (3 places)
5)	130K98191	EP Cartridge Sensor
6)	15E88821	EP Cartridge Sensor Plate
7)	122K95440	Erase Board
8)	130K98182	Toner Sensor
9)	15E88812	Toner Sensor Plate
10)	15E97281	Transfer Corotron Ground Spring
11)	38E98790	Guide Frame, Transfer Corotron
12)	9E88021	EP Ground Spring
13)	9E87631	Spring Torsioner Inboard
14)	9E87641	Spring Torsioner Outboard
15)	125K92041	Transfer Corotron
A)	600K96591	Printer Hardware Kit



wsm3-15

PL 8 Power Supplies and Engine Control

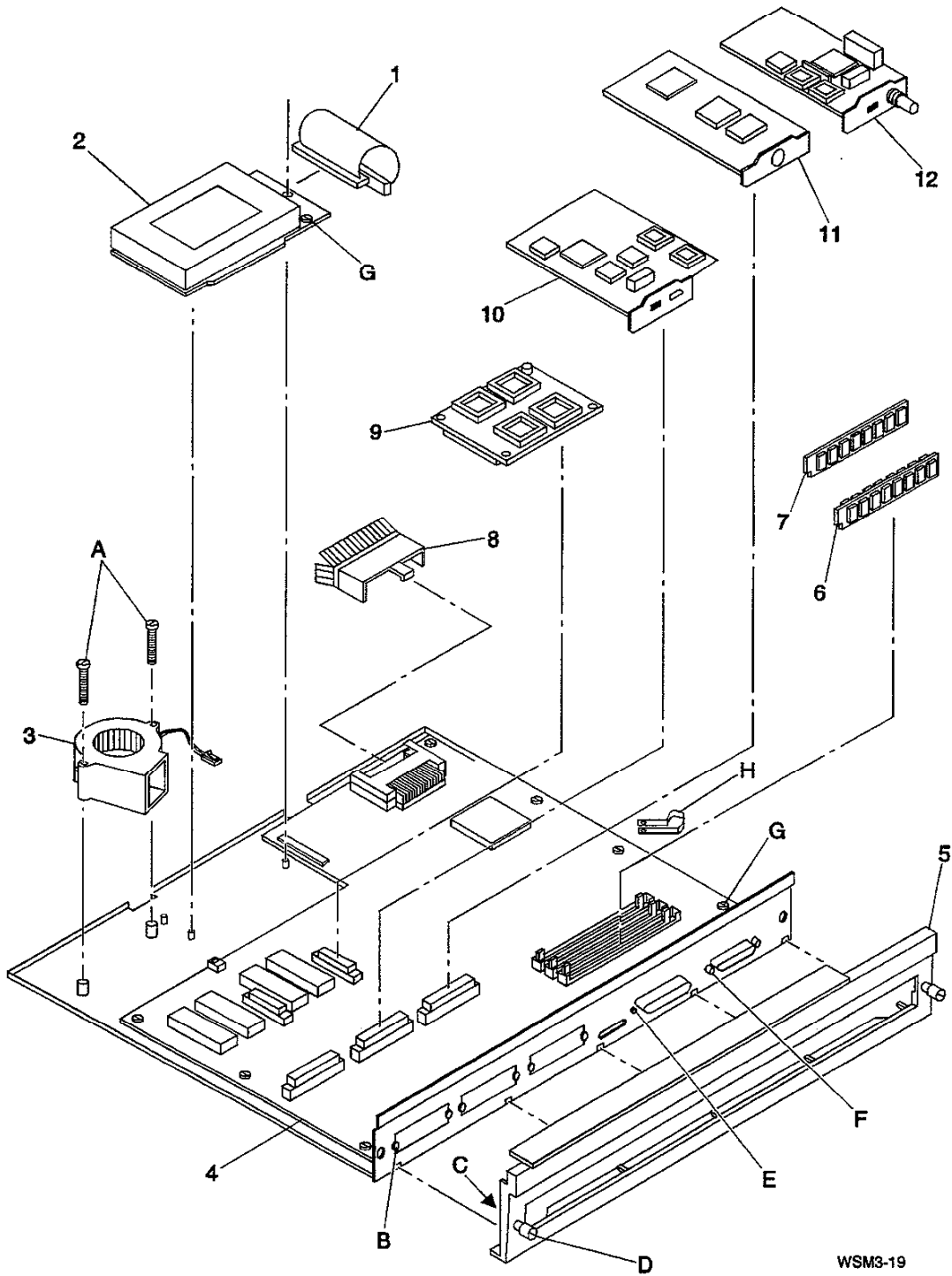
Item	Part	Description
1)	48E95331	Fuser Exhaust Fan Cover (two places)
2)	127K82040	Fuser Exhaust Fan
3)	117K99800	ROS Earth Harness
4)	48E83151	Low Voltage Power Supply Cover
5)	48K5011	Control Panel (also order Item 6)
6)	600K45110	Label Kit
7)	117K12960	Power Cord, 60Hz
8)	105K93560	Low Voltage Power Supply (LVPS), 110V
	105K93570	Low Voltage Power Supply (LVPS), 220V
9)	108E91610	Fuse 4A (F102)
10)	108E91620	Fuse 5A (F103)
11)	152K43720	Fan/Fuser Sensor Harness
12)	3E22380	User Key Pad Latch
13)	105K6053	High Voltage Power Supply (HVPS)
14)	152K55002	Engine/System Controller Harness
15)	140K49883	Printer Engine Controller PWB
16)	152K75180	Laser Scanner Harness
A)	600K96591	Printer Hardware Kit



wsm3-17

PL 9 System Controller

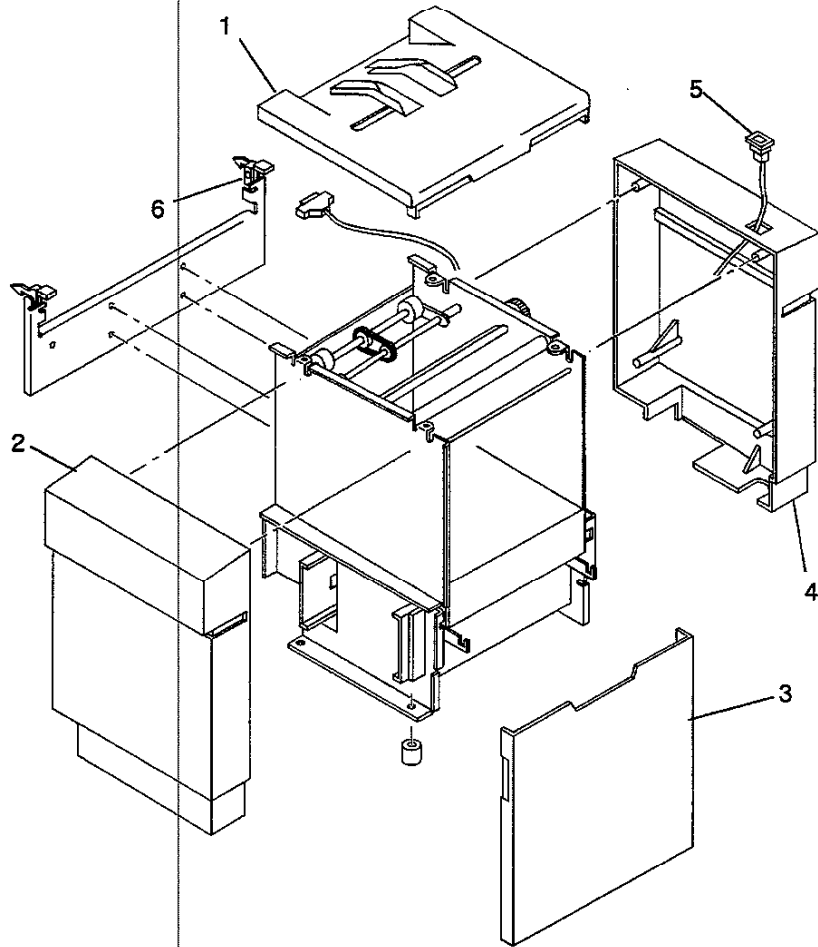
Item	Part	Description
1)	113E12220	Ribbon Cable
2)	121K07700	Rigid Drive Assembly
3)	127K10620	Fan
4)	140K62423	System Controller PWB
5)	2E59040	System Controller Rear Cover
6)	733W03660	4 Meg SIMM
7)	733W03642	16 Meg SIMM
8)	101E08801	Memory Card Guide
9)	140K58990	PostScript PWB
10)	140K59010	Token Ring Card
11)	140K59001	AppleTalk/LocalTalk PWB
12)	140K59360	Novell/Ethernet Card
A)	113W11255	Screw
B)	158W35352	Screw
C)	120E07910	Retainer
D)	29E17391	Captive Fastener
E)	113W16802	Screw
F)	713W80737	Screw Lock Kit (Female) (2 per Kit)
G)	158W35452	Screw
H)	19E19600	P Clamp
I)	600K96591	Printer Hardware Kit



WSM3-19

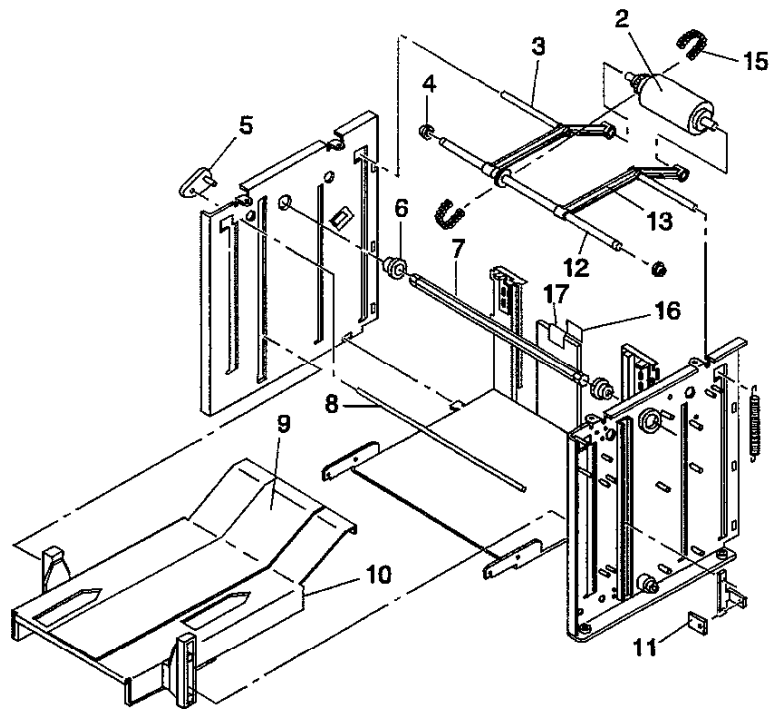
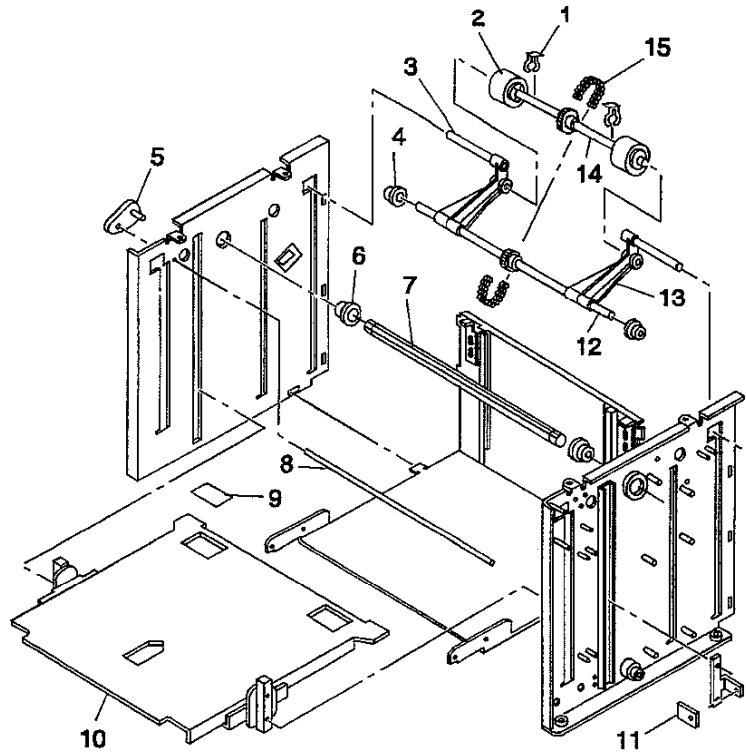
PL 10 HCF/HCEF Covers

Item	Part	Description
1)	-----	Top Cover
2)	-----	Right Cover
3)	-----	Elevator Cover
4)	-----	Left Cover
5)	110K5140	Elevator Down Switch
6)	9E54070	Latch Spring Kit (2 per Kit)
A)	600K32820	HCF Hardware Kit (See PL 15)



PL 11 HCF/HCEF Elevator and Feed Shafts

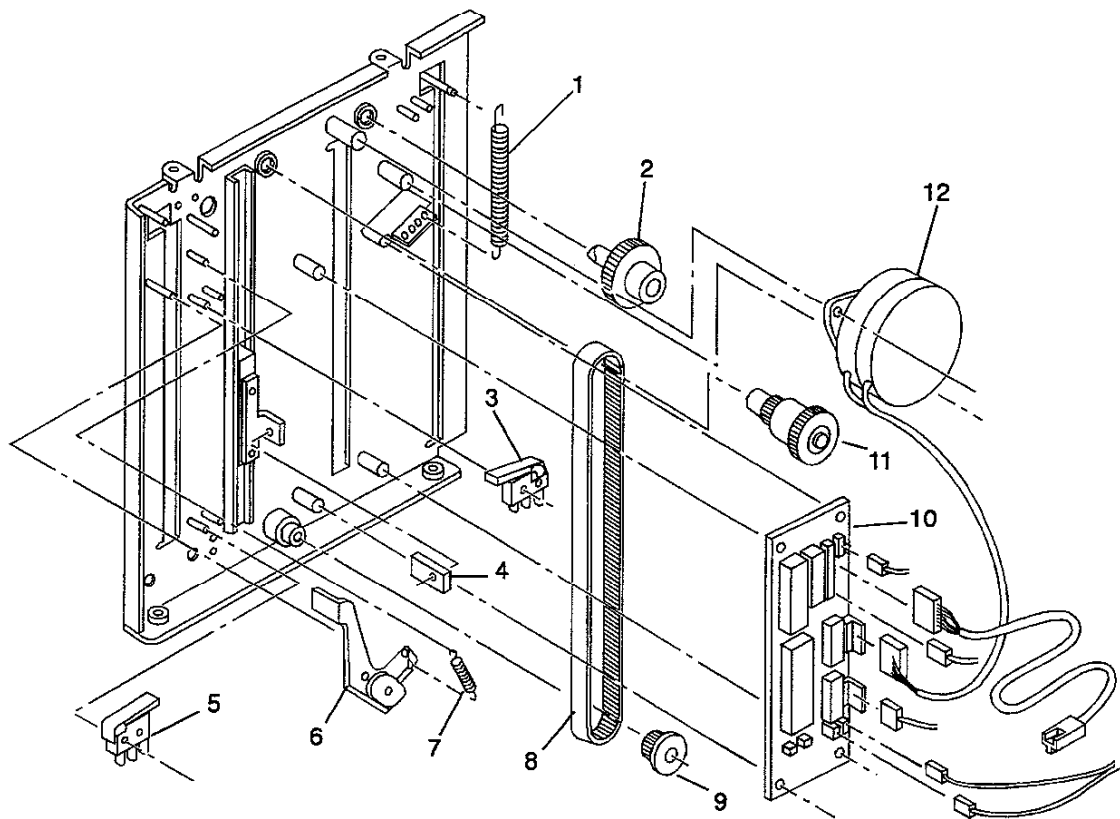
Item	Part	Description
1)	19E21070	Retainer Kit, HCF (4 retainers)
2)	22K18830	Feed Roll Kit, HCF (2 rolls)
	22K32880	Feed Roll Kit, HCEF (1 roll)
3)	-----	Left Feed Roll Arm, HCF
	-----	Left Feed Roll Arm, HCEF
4)	-----	Bearing
5)	120E10350	Tray Empty Actuator Arm HCF
	120E8000	Tray Empty Actuator Arm HCEF
6)	-----	Bearing
7)	-----	Elevator Shaft, HCF
	-----	Elevator Shaft, HCEF
8)	-----	Tray Empty Shaft, HCF
	-----	Tray Empty Shaft, HCEF
9)	19E17160	Cork Pad Kit, HCF (2 Pads)
	19E24860	Cork Pad HCEF
10)	-----	Elevator Tray, HCF (8 1/2 x 11)
	-----	Elevator Tray, HCF (A4)
	-----	Envelope Tray, HCEF
11)	-----	Belt Clamp
12)	-----	Drive Shaft, HCF (8 1/2 x 11)
	-----	Drive Shaft, HCF (A4)
	-----	Drive Shaft, HCEF
13)	-----	Right Feed Roll Arm, HCF
	-----	Right Feed Roll Arm, HCEF
14)	-----	Feed Shaft (8 1/2 x 11)
	-----	Feed Shaft (A4)
	-----	Feed Shaft, HCEF
15)	23E6680	Feed Roll Drive Chain, HCF
	23E11170	Feed Roll Drive Chain, HCEF
16)	19K03530	Outer Retard Pad, HCEF
17)	19K03550	Inter Retard Pad, HCEF
A)	600K32820	HCF Hardware Kit (See PL 15)



wsm3-23

PL 12 HCF/HCEF Feed Drive and PWB

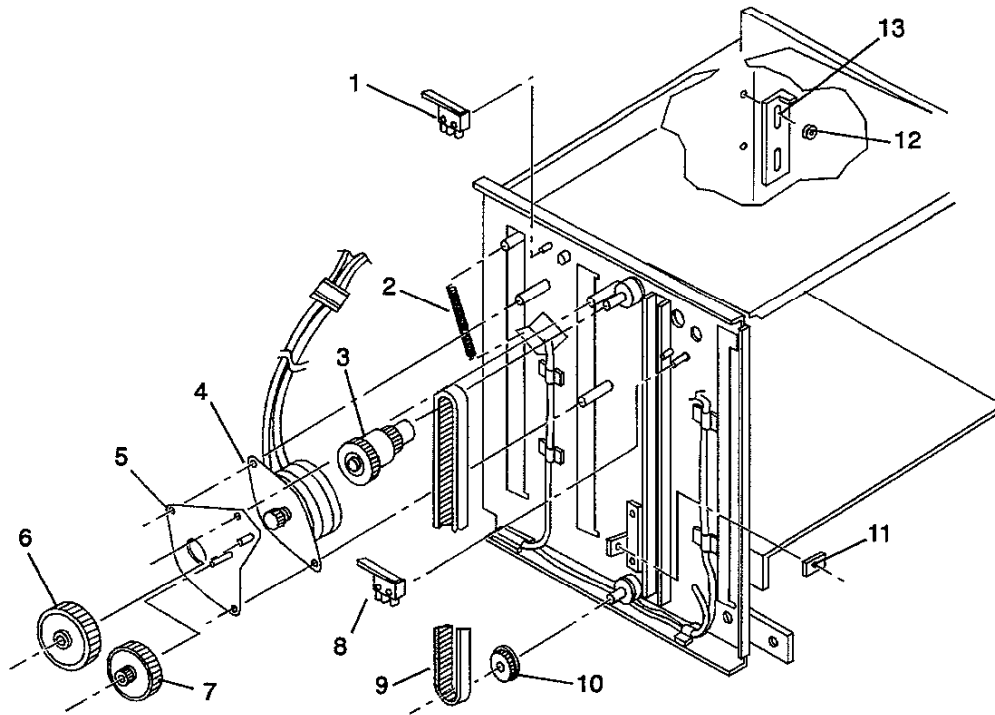
Item	Part	Description
1)	9E32840	Feed Roll Tension Spring Kit (2 springs)
2)	-----	Gear (44T)
3)	110E4570	Elevator Door Interlock Switch (HCF)
	110E6600	Elevator Door Interlock Switch (HCEF)
4)	-----	Belt Clamp
5)	110E6490	Lower Limit Switch
6)	120E5680	Switch Actuator Arm
7)	9E41270	Spring
8)	23E6690	Drive Belt
9)	-----	Lower Pulley
10)	140K63261	HCF PWB
	160K06920	HCEF PWB
11)	7E26660	Gear Pulley (12G) (28T)
12)	127K09100	Paper Feed Motor
A)	600K32820	HCF Hardware Kit (See PL 15)



wsm3-25

PL 13 HCF/HCEF Elevator Drive

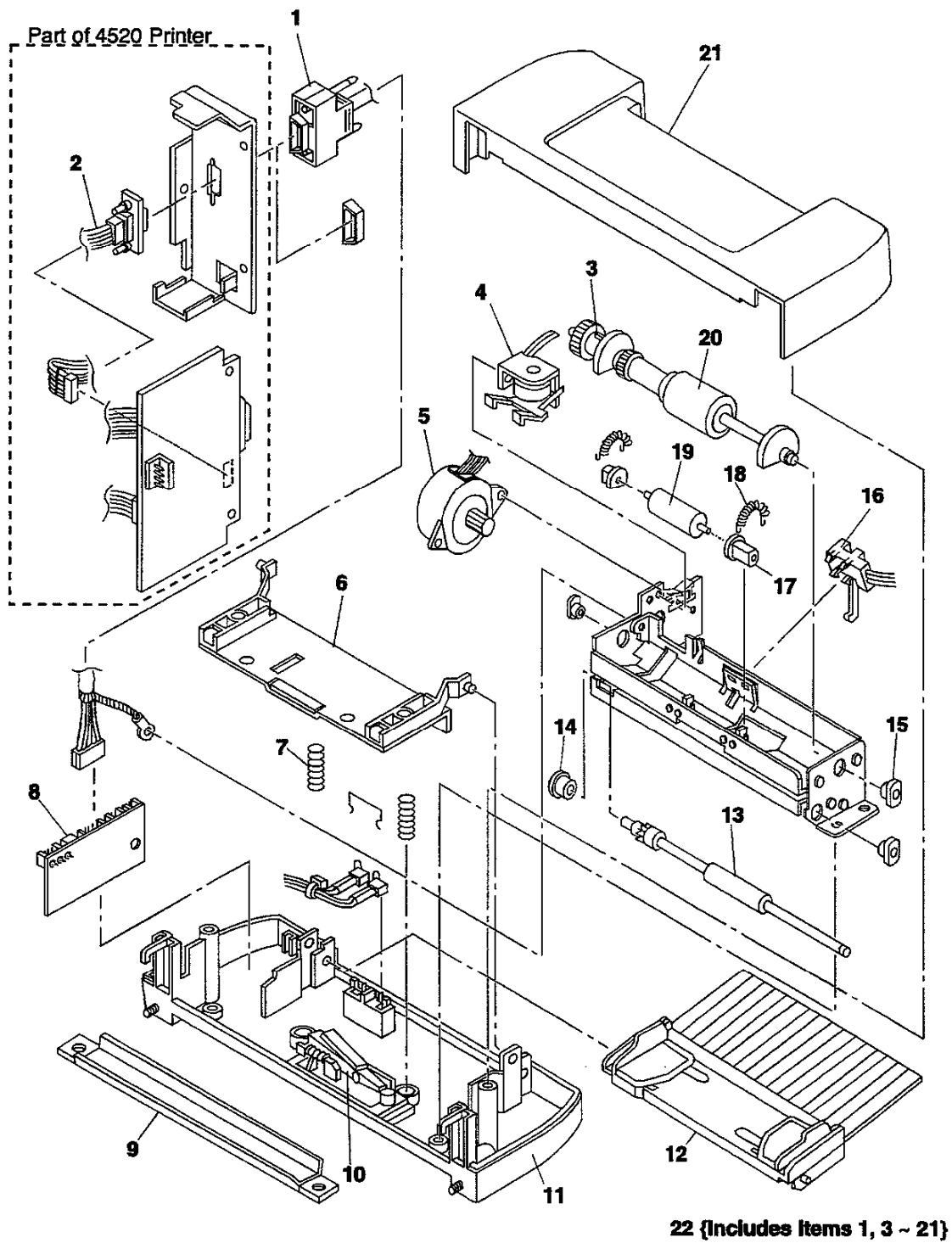
Item	Part	Description
1)	110E4560	Upper Limit Switch, HCF
	110K07160	Upper Limit Switch, HCEF
2)	9E32840	Feed Roll Tension Spring Kit (2 springs)
3)	7E26660	Gear Pulley (12G) (28T)
4)	127K9090	Elevator Motor
5)	-----	Motor Mounting Plate
6)	7E27150	Outboard Gear, Large
7)	-----	Elevator Drive Gear
8)	110K5151	Tray Empty Switch, HCF
	110E6490	Tray Empty Switch, HCEF
9)	23E6690	Drive Belt
10)	-----	Pulley (10G)
11)	-----	Belt Clamp
12)	27E2140	Snubber Nut Kit (2 nuts)
13)	19E17200	Left Corner Snubber
	19E17190	Right Corner Snubber
A)	600K32820	HCF Hardware Kit (See PL 15)



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PL 14 Multi-Sheet Bypass Feeder (MBF)

Item	Part	Description
1)	152K75510	MBF Interface Harness
2)	152K77820	Interface Harness, Optional Feeders
3)	-----	Transport Clutch (P/O Item 22)
4)	121K98650	Feed Solenoid
5)	127K99170	Motor Assembly
6)	-----	Inlet Tray (P/O Item 22)
7)	-----	Inlet Tray Springs (P/O Item 22)
8)	140K26250	Feeder Control PWB (MBF PWB)
9)	54K98210	Inlet Chute
10)	22K89452	Retard Pad Assembly
11)	48K05110	Lower Cover
12)	50K87540	Input Tray
13)	22K89460	Takeaway Roll
14)	-----	Takeaway Roll Bearing (P/O Item 22)
15)	-----	Feed Roll Bearing (P/O Item 22)
16)	130K98640	No Paper Sensor
17)	-----	Idler Roll Bearing (P/O Item 22)
18)	-----	Idler Roll Spring (P/O Item 22)
19)	-----	Idler Roll (P/O Item 22)
20)	22K89440	Feed Roll Assembly
21)	48K05100	Upper Cover
22)	22K29370	MBF Feeder Assembly



wsm3-29

PL 15 HCF Hardware Kit

Item	Part Number	Description
1)	600K32820	HCF Hardware Kit {Includes Items 2~16}
2)	-----	Screw #4-40 x 3/16 L Slotted Pan Head
3)	-----	Screw #6-32 x 1/4 L Slotted Pan Head
4)	-----	Screw #6-32 x 3/8 L Slotted Pan Head
5)	-----	Screw #6-32 x 3/4 L Phillips Pan Head
6)	-----	Screw #6-19 x 3/8 L Phillips Flanged Hex Head
7)	-----	Screw #6-19 x 3/8 L Slotted Washer Face Hex Head
8)	-----	Flat Washer Plain #6
9)	-----	Flat Washer Plain #8
10)	-----	Lock Washer Split #6
11)	-----	E-Ring 5/32
12)	-----	E-Ring 7/32
13)	-----	E-Ring 1/4
14)	-----	E-Ring 5/16
15)	-----	Hex Nut
16)	-----	Cotter Pin 3/32 x 3/4 L

PL 16 Hardware Kit

Item	Part	Description
1)	600K98470	Hardware Kit {Includes Items 2~ 18}
2)	-----	Screw, Flange
3)	-----	Screw, Flange
4)	-----	Screw, Flange
5)	-----	Screw, Fan
6)	-----	Screw, Tapping
7)	-----	Screw
8)	-----	Screw, Deitite
9)	-----	Ring, E
10)	-----	Ring, E
11)	-----	Ring, KL
12)	-----	Screw, DEL M3x6
13)	-----	Screw, Trans (M/N)
14)	-----	Screw, Fan 65
15)	-----	Ring, E
16)	-----	Ring, E
17)	-----	Screw, Flange
18)	-----	Screw, DT

Section 4

Repair Procedures

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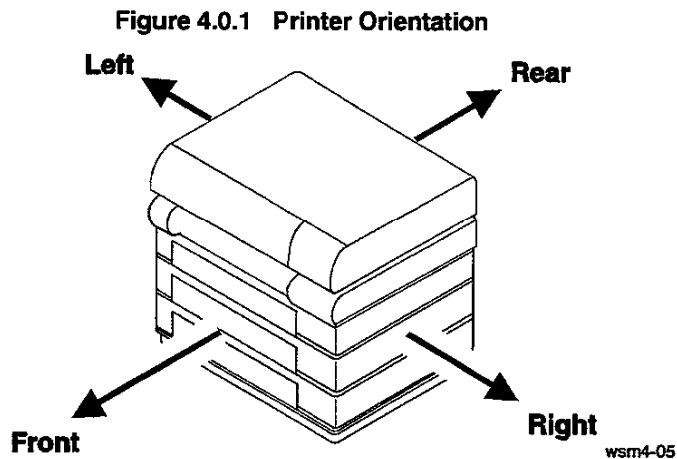
4.0 Overview

This section contains eight groups of Warhawk repair procedures (REPs):

- REP 1 Covers
- REP 2 Electrical
- REP 3 Main Drive Motor
- REP 4 Paper Feed and Registration
- REP 5 Imaging
- REP 6 Paper Transportation and Fusing
- REP 7 High-Capacity Feeder and High-Capacity Envelope Feeder
- REP 8 Multi-Sheet Bypass Feeder

4.0.1 Notations in the REP Text

Locations given in the REPs assume you are facing the Control Panel with the following orientation:



The following notations apply:

- Arrows in the illustrations show direction of movement. Follow the numerical order if the arrows are numbered.
- The notation *screw (number, type, length of thread)* identifies individual screws.
- The notation *REP X.Y* in a REP step directs you to another REP to see how to perform a related procedure.
- The notation *Figure X.Y* references the illustration corresponding to the REP you are performing.
- A number followed by a parenthesis, e.g., 8), references the corresponding REP step.

4.0.2 Before You Start Any REP

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

- 1 Switch the printer main power OFF and disconnect the power cord from the wall outlet.
- 2 Remove the EP Cartridge from the printer, and store it in a safe, dark place.
- 3 Do not use force to remove or install printer components.
- 4 Use only the screw size and type designated in the REP. The wrong screw could easily damage tapped holes.
- 5 Wear a wrist strap to dissipate static electricity, which may damage sensitive electronic parts.
- 6 See *Section 5, General Procedures and Wiring Diagrams*, for detailed wiring diagrams.

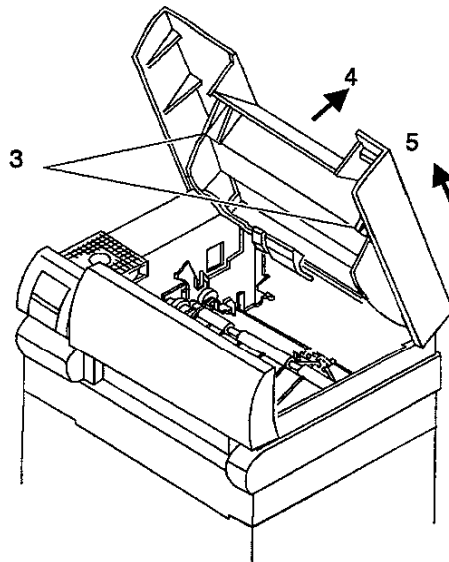
4.1 COVERS

4.1.1 Top Cover

Removal

- 1 Cancel pending jobs, take printer off-line and disconnect power cord.
- 2 Open the Top Cover.
- 3 Loosen the two screws securing the Top Cover.
- 4 Lift the front of the cover upwards slightly to clear the mounting screws.
- 5 Slide the cover forward to disengage the rear mounting hooks from the top of the Laser Assembly.
- 6 Remove the cover.

Figure 4.1.1 Removing the Top Cover



wsm4-07

Replacement

- 1 To reinstall the Top Cover, engage the rear hooks in the top of the Laser Assembly first, then reverse Steps 1 through 5.

4.1.2 Exit Door

Removal

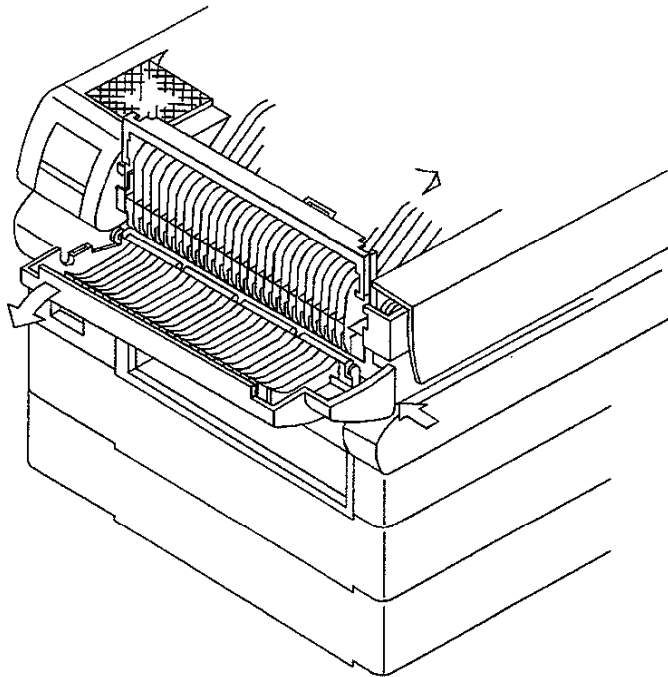
- 1 Cancel pending jobs, take printer off-line and disconnect power cord.
- 2 Open the Exit Door.



CAUTION The Exit Door hinges can be broken if the door is moved too far. Use caution when removing the door.

- 3 Carefully move the door to the right to disengage the hinge from the pivot pin.
- 4 Move the door to the left to disengage the left hinge from the pivot pin.
- 5 Remove the Exit Door.

Figure 4.1.2 Removing the Exit Door



wsm4-08

Replacement

- 1 To reinstall the Exit Door, reverse Steps 1 through 4.

4.1.3 Front Cover

Removal



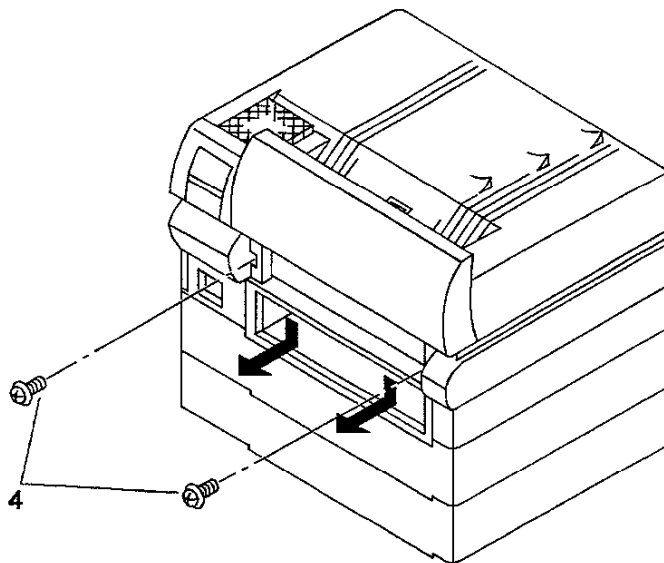
CAUTION Front Covers break easily. Handle with care.

- 1 Cancel pending jobs, take printer off-line and disconnect power cord.
- 2 Remove the Face Up Tray, or the Front Door Cover, whichever is installed.
- 3 Remove Tray 1.
- 4 Remove the two screws securing the Front Cover.

NOTE: To disengage the left hook, press down, in and then out.

- 5 Press down slightly on the lower portion of the Front Cover to disengage the left and right hooks.
- 6 Remove the cover.

Figure 4.1.3 Removing the Front Cover



wsm4-09

Replacement

- 1 To reinstall the Front Cover, reverse Steps 1 through 5.

4.1.4 Left Cover

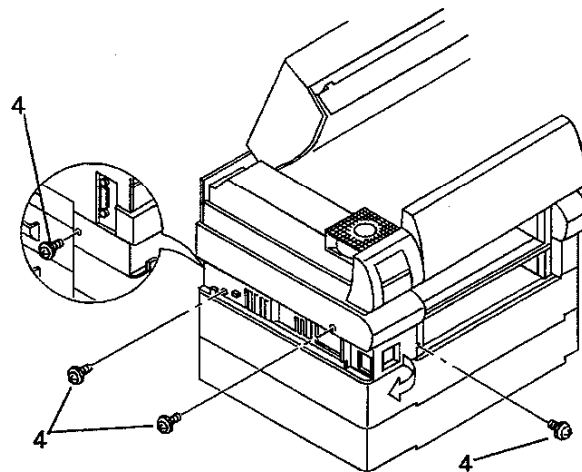
Removal

- 1 Remove the Power Cord Cover.
- 2 Remove the Top Cover (REP 4.1.1).
- 3 Remove the Front Cover (REP 4.1.3).
- 4 Remove the four screws securing the Left Cover.

NOTE: The Left Cover and Rear Cover are interlocked at the Left Rear corner. It may also help to remove the Power Cord Cover first.

- 5 Pull the Left Cover up slightly to disengage it from the panel below.
- 6 Slide the rear portion of the Left Cover out slowly while guiding it past the interlocking positions of the Rear Cover.
- 7 Move the front portion of the cover outwards slightly to clear the Main Power Switch.
- 8 Remove the cover.

Figure 4.1.4 Removing the Left Cover



wsm4-10

Replacement

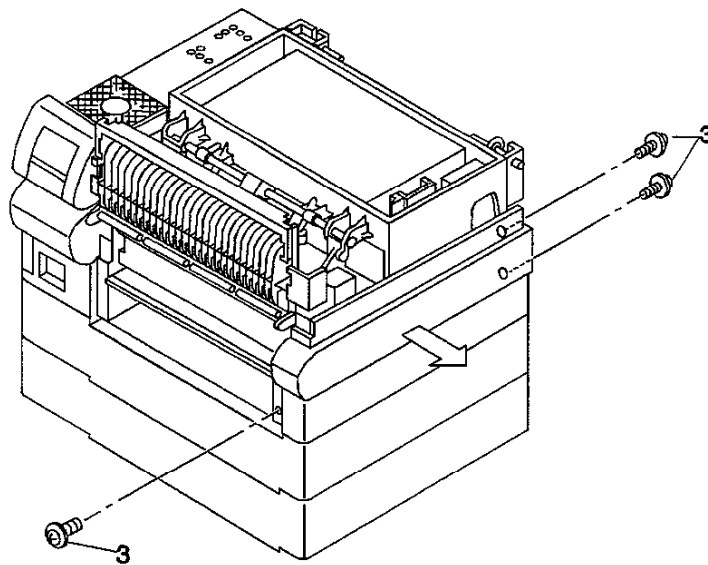
- 1 To reinstall the Left Cover, reverse Steps 1 through 8.

4.1.5 Right Cover

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the three screws securing the Right Cover.
- 4 Remove the cover by lifting it slightly to disengage the hook from the frame between the Fuser and the Laser Assembly.

Figure 4.1.5 Removing the Right Cover



wsm4-11

Replacement

- 1 To reinstall the Right Cover, reverse Steps 1 through 4.

4.1.6 Low Voltage Power Supply Cover

Removal

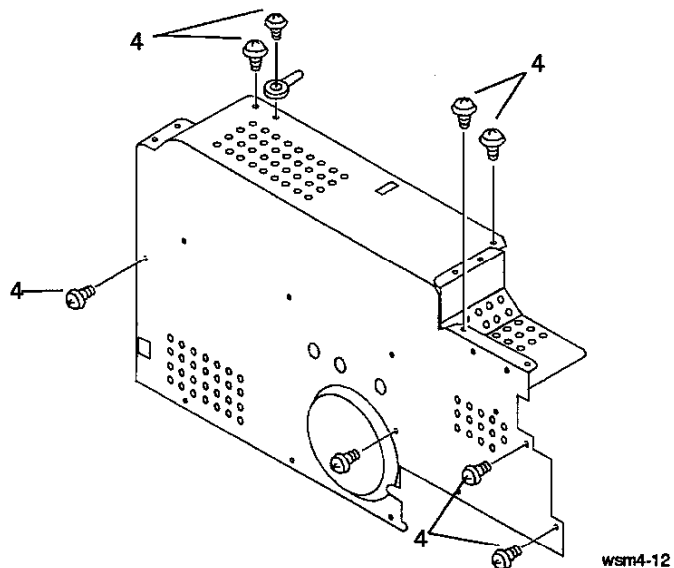
- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the seven screws securing the Low Voltage Power Supply Cover.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching on the printer power.

- 5 Remove the Low Voltage Power Supply Cover (see Figure 4.1.6).

Figure 4.1.6 Removing the Low Voltage Power Supply Cover



Replacement

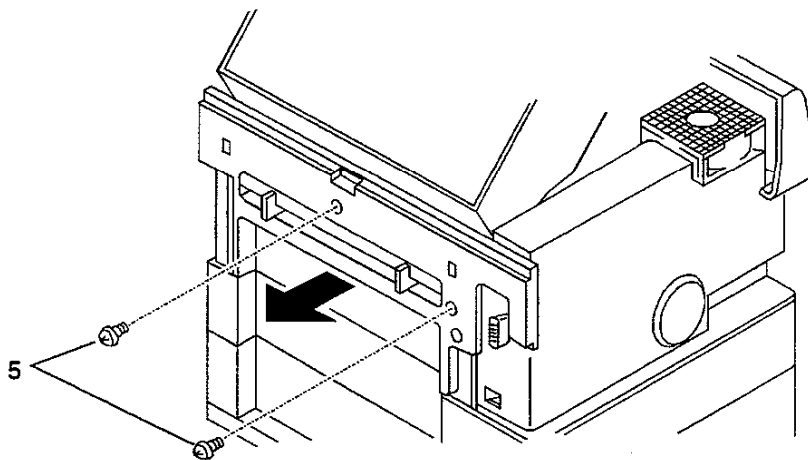
- 1 To reinstall the Low Voltage Power Supply Cover, reverse Steps 1 through 5.

4.1.7 Rear Cover

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Right Cover (REP 4.1.5).
- 5 Remove the two screws securing the Rear Cover.
- 6 Remove the Rear Cover.

Figure 4.1.7 Removing the Rear Cover



wsm4-13

Replacement

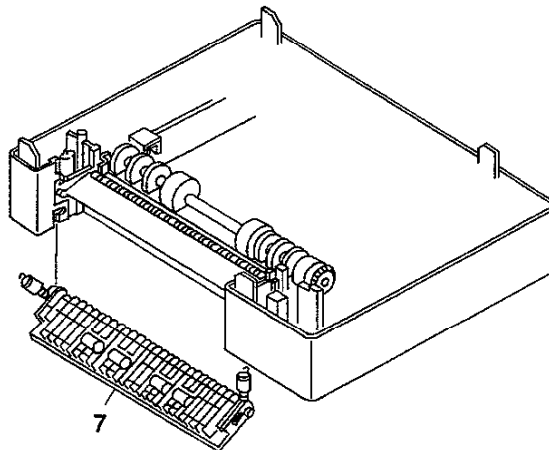
- 1 To reinstall the Rear Cover, reverse Steps 1 through 6.

4.1.8 Tray 1 Jam Doors

Outer Door Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Rear Cover (REP 4.1.7).
- 5 Remove the Registration Transport (see 4.4.1).
- 6 Using a spring hook or needle-nosed pliers, carefully disengage the right and left Outer Door Springs from the tabs on the frame (see Figure 4.1.8a).
- 7 Open and remove the Tray 1 Outer Jam Door by pulling it straight out from the back of the printer.

Figure 4.1.8a Removing the Tray 1 Outer Jam Door



wsm4-14

Outer Door Replacement

- 1 To reinstall the Tray 1 Outer Jam Door, reverse Steps 1 through 7.

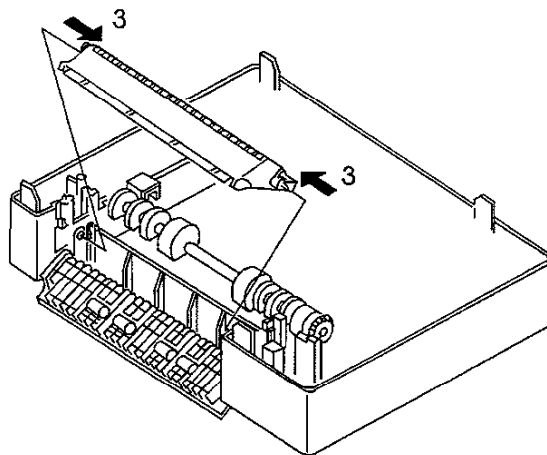
Inner Door Removal

- 1 Remove the Outer Door.
- 2 Using a spring hook or needle-nosed pliers, carefully remove the small springs holding the Inner Door.
- 3 Remove the Inner Door by gently moving the hinge pins inward to disengage them from the pivot holes in the frame (see Figure 4.1.8b).



CAUTION The Inner Door Springs are small and easy to lose. Make sure you grip them firmly before disengaging.

Figure 4.1.8b Removing the Tray 1 Inner Jam Door



wsm4-15

Inner Door Replacement

NOTE: Ensure that the door is not installed backwards. To prevent the loss of the small Inner Door Springs, it may be advisable to install them after the door is in place.

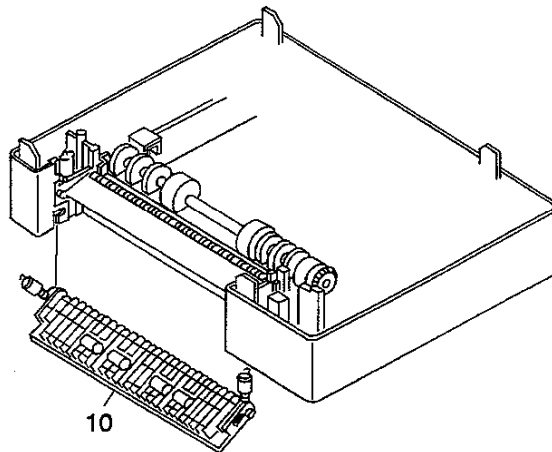
- 1 To reinstall the Inner Door, reverse Steps 1 through 3.

4.1.9 Tray 2 Jam Doors

Outer Door Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Rear Cover (REP 4.1.7).
- 5 Remove the Tray 1 Module (REP 4.4.3).
- 6 Remove the Tray 2 Turn Roll Assembly (REP 4.4.9).
- 7 Using a spring hook or needle-nosed pliers, carefully disengage the right and left springs (see Figure 4.1.9a).
- 8 Remove the four screws securing the Tray 2 Module to the Tray 3 Module (REP 4.4.4).
- 9 Lift the back of the Tray 2 Module upwards slightly, and slide the Tray 2 Outer Jam Door toward the back of the printer and then down.
- 10 Remove the Tray 2 Outer Jam Door by pulling it straight out from under the Tray 2 Module.

Figure 4.1.9a Removing the Tray 2 Outer Jam Door



wsm4-14

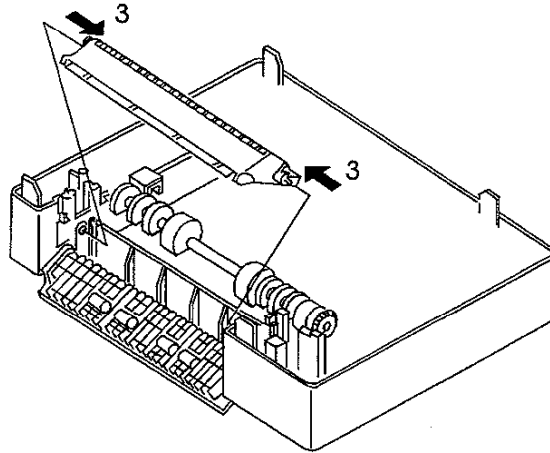
Outer Door Replacement

- 1 To reinstall the Tray 2 Outer Jam Door, reverse Steps 1 through 10.

Inner Door Removal

- 1 Remove the Outer Door.
- 2 Using a spring hook or needle-nosed pliers, carefully disengage the springs holding the Inner Door.
- 3 Remove the Inner Door by gently moving the hinge pins inward to disengage them from the pivot holes in the frame (see Figure 4.1.9b).

Figure 4.1.9b Removing the Tray 2 Inner Jam Door



wsm4-15

Inner Door Replacement



CAUTION Ensure that the door is not installed backwards. To prevent the loss of the small Inner Door Springs, it may be advisable to install them after the door is in place.

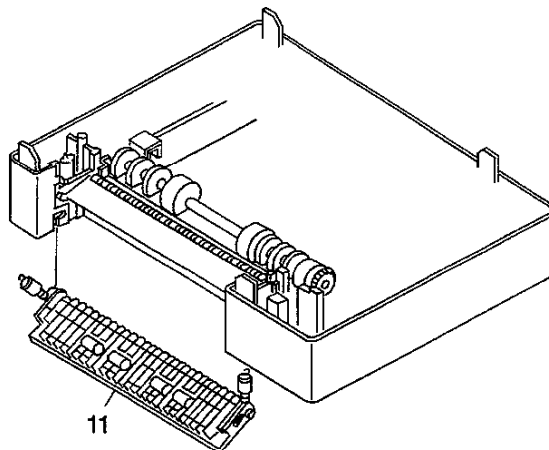
- 1 To reinstall the Inner Door, reverse Steps 1 through 3.

4.1.10 Tray 3 Jam Doors

Outer Door Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Rear Cover (REP 4.1.7).
- 5 Remove the Tray 1 Module (REP 4.4.3).
- 6 Remove the Tray 2 Module (REP 4.4.10).
- 7 Remove the Tray 3 Turn Roll Assembly (see 4.4.10).
- 8 Using a spring hook or needle-nosed pliers, carefully disengage the right and left springs.
- 9 Remove the four screws securing the Tray 3 Module to the System Controller Housing (REP 4.4.5 and see Figure 4.1.10a).
- 10 Lift the rear of the Tray 3 Module upward slightly, and slide the Tray 3 Outer Jam Door toward the rear of the printer and then down.
- 11 Remove the Outer Jam Door by sliding it from between the Tray 3 Module and the System Controller Housing.

Figure 4.1.10a Removing the Tray 3 Outer Jam Door



wsm4-14

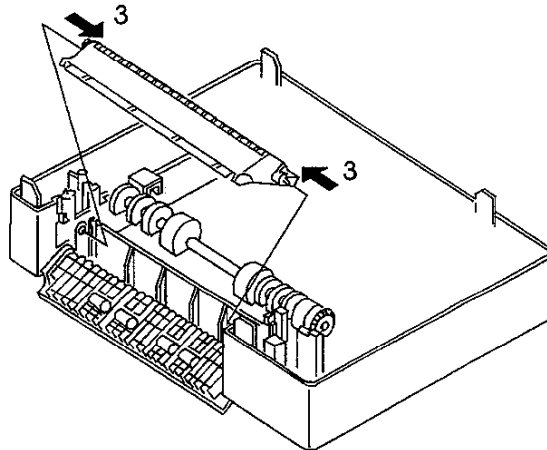
Outer Door Replacement

- 1 To reinstall the Tray 3 Outer Jam Door, reverse Steps 1 through 11.

Inner Door Removal

- 1 Remove the Outer Door.
- 2 Using a spring hook or needle-nosed pliers carefully remove the springs holding the Inner Door.
- 3 Remove the Inner Door by gently moving the hinge pins inwards to disengage them from the pivot holes in the frame (see Figure 4.1.10b).

Figure 4.1.10b Removing the Tray 3 Inner Jam Door



wsm4-15

Inner Door Replacement



CAUTION Ensure that the door is not installed backwards. To prevent the loss of the small Inner Door Springs, it may be advisable to install them after the door is in place.

- 1 To reinstall the Inner Door, reverse Steps 1 through 3.

4.1.11 Latch Lever

Removal

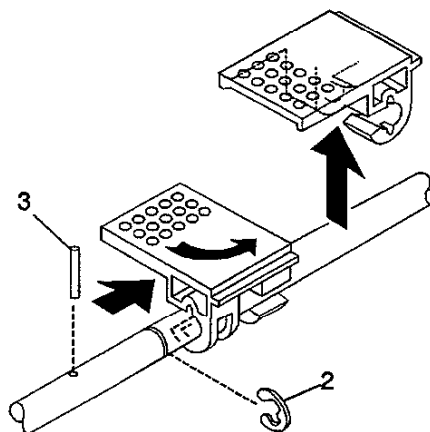
- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the E Ring on the left side of the Latch Lever.



CAUTION Be careful not to lose the Latch Lever pin during the following step.

- 3 Slide the Latch Lever to the left and remove the pin.
- 4 Twist the lever counterclockwise to remove it from the latch shaft.

Figure 4.1.11 Removing the Latch Lever



wsm4-20

Replacement

- 1 To reinstall the Latch Lever, reverse Steps 1 through 4.

4.2 ELECTRICAL

4.2.1 Low Voltage Power Supply

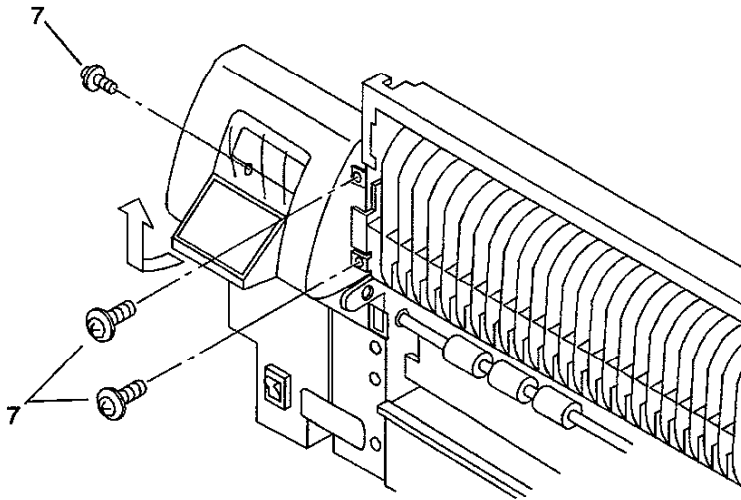
Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 5 Remove the Fuser Exhaust Fan (REP 4.6.6).
- 6 Open the Control Panel Keypad.
- 7 Remove the three screws securing the Control Panel Assembly (see Figure 4.2.1a).
- 8 Allow the Control Panel to hang by its harness.



CAUTION Be careful not to damage the wires of the Control Panel harness.

Figure 4.2.1a Removing the Three Control Panel Screws

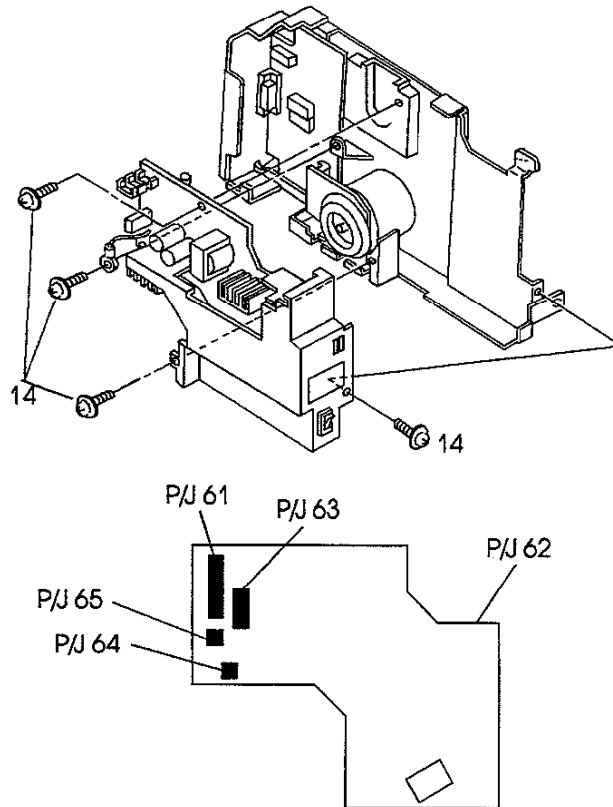


wsm4-21

- 9 Disconnect P/J 62, from the power supply side of the PWB, using a pair of needle-nosed pliers to remove P/J 62 from the bracket, and then unclip the wire from the frame (see Figure 4.2.1b).
- 10 Disconnect P/J 61 from the Low Voltage Power Supply (see Figure 4.2.1b).
- 11 Disconnect P/J 63 from the Low Voltage Power Supply (see Figure 4.2.1b).
- 12 Disconnect P/J 64 from the Low Voltage Power Supply (see Figure 4.2.1b).

- 13 Disconnect P/J 65 from the Low Voltage Power Supply (see Figure 4.2.1b).
- 14 Remove the four screws securing the Low Voltage Power Supply and remove the Low Voltage Power Supply from the printer (see Figure 4.2.1b).
- 15 Slide the Low Voltage Power Supply out slightly and remove the plastic insulating panel that is glued to the front edge of the Low Voltage Power Supply.
- 16 Remove the Low Voltage Power Supply from the printer (see Figure 4.2.1b).

Figure 4.2.1b Removing the Low Voltage Power Supply



wsm4-24

Replacement

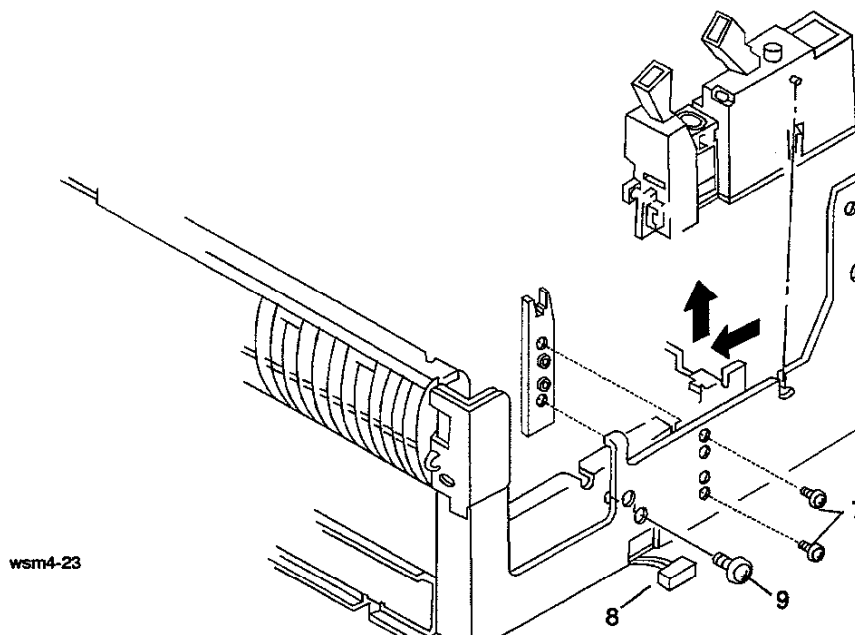
- 1 To reinstall the Low Voltage Power Supply, reverse Steps 1 through 16.

4.2.2 High Voltage Power Supply

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Right Cover (REP 4.1.5).
- 4 Remove the Transfer Corotron.
- 5 Remove the Registration Transport (REP 4.4.1).
- 6 Remove the Tray 1 Feed Roll and Clutch (REP 4.4.11).
- 7 Remove the two hex head screws securing the white plastic right side drum support and remove the support.
- 8 Disconnect P/J 41 from the High Voltage Power Supply.
- 9 Remove the screw securing the High Voltage Power Supply.
- 10 Remove the High Voltage Power Supply.

Figure 4.2.2 Removing the High Voltage Power Supply



Replacement



CAUTION Ensure that the tie wrap securing the High Voltage Power Supply Harness is positioned inside the relief hole in the frame so that it does not interfere with the fit of the Right Cover.

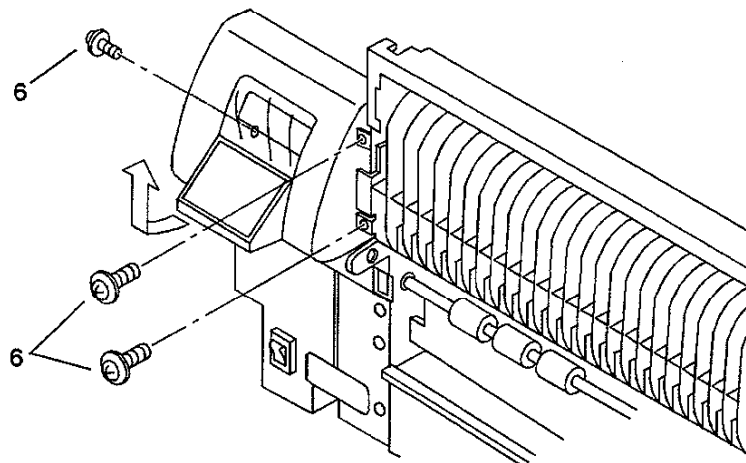
- 1 To reinstall the High Voltage Power Supply, reverse Steps 1 through 10.

4.2.3 Control Panel

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 5 Remove the Fuser Exhaust Fan (REP 4.6.6).
- 6 Remove the three screws securing the Control Panel (see Figure 4.2.3a).
- 7 Remove the Electronics Module (REP 4.2.4).
- 8 Disconnect J 2 and J 3 from the Printer Engine Controller PWB.
- 9 Remove the Control Panel Assembly.

Figure 4.2.3a Removing the Control Panel



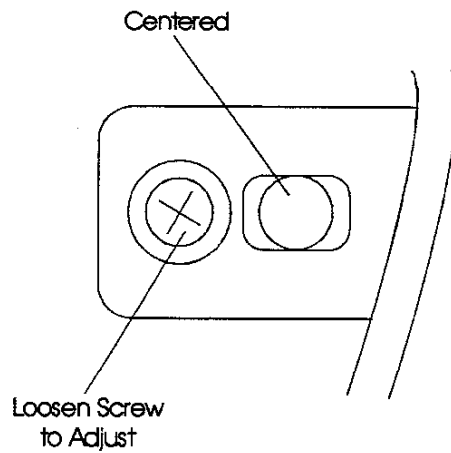
wsm4-21

Replacement

NOTE: Ensure that the keypad latches and unlatches properly.

- 1 Adjust the position of the left side mounting screw until the locating pin is centered within the locating cutout (see Figure 4.2.3b).

Figure 4.2.3b Adjusting the Control Panel



wsm4-25

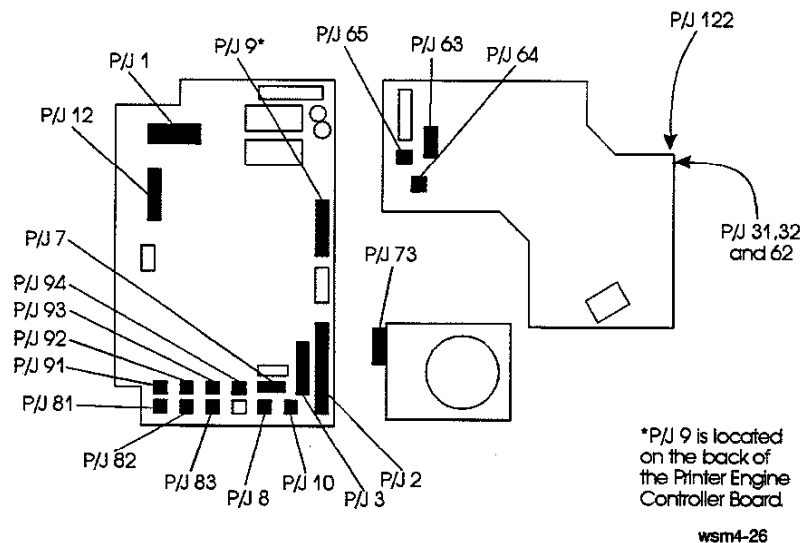
- 2 To complete the reinstallation of the Control Panel, reverse Steps 1 through 9.

4.2.4 Electronics Module

Removal

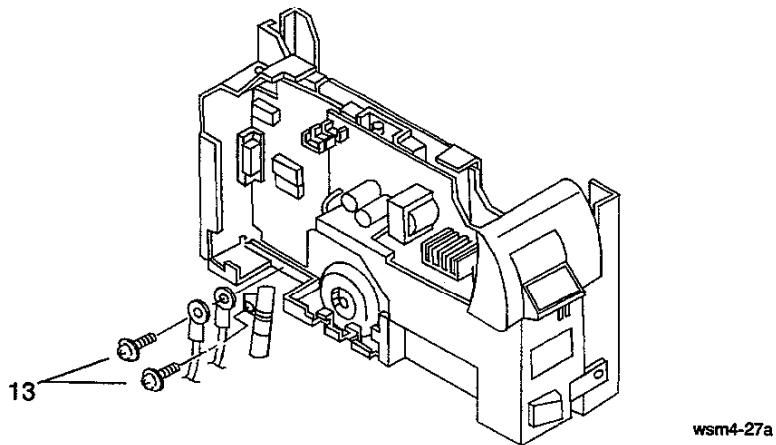
- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 5 Remove the Fuser Exhaust Fan (see 4.6.6).
- 6 Open the Control Panel Keypad.
- 7 Disconnect P/Js 1, 2, 3, 7, 8, 10, 12, 81, 82, 83, 91, 92, 93, and 94 from the Printer Engine Controller PWB (see Figure 4.2.4a).
- 8 Open the Top Cover and disconnect P/J 9 from the back of the Printer Engine Controller PWB.
- 9 Disconnect P/Js 31, 32, and 62 from the Fuser.
- 10 Disconnect P/J 122 leading to the Full Stack Sensor.
- 11 Disconnect P/Js 63, 64, and 65 from the Low Voltage Power Supply.
- 12 Disconnect P/J 73 from the Main Drive Motor.

Figure 4.2.4a Disconnect the Indicated P/Js



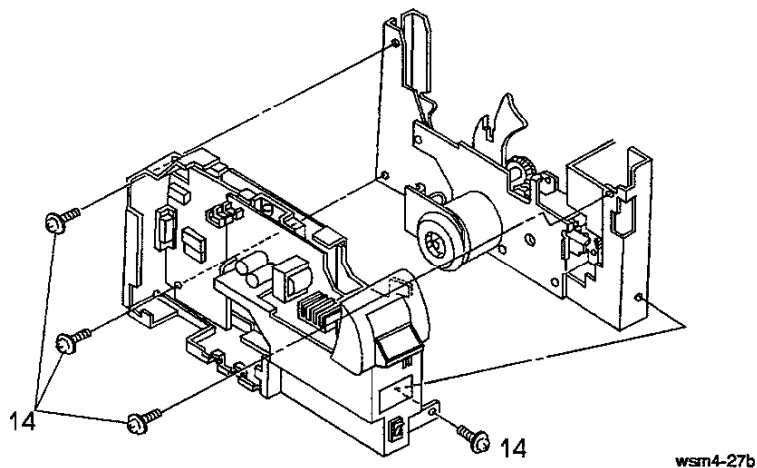
- 13 Remove the two ground screws at the top of the wiring channel (see Figure 4.2.4b).

Figure 4.2.4b Removing the Ground Screws



14 Remove the four screws securing the Electronics Module (see Figure 4.2.4c).

Figure 4.2.4c Removing the Electronics Module



15 Remove the Electronics Module by lifting it slightly to clear the wiring channel.

16 Carefully feed the wire harnesses through the module as you move it away from the printer.

NOTE: Be aware of the location and routing of the wire harnesses for reassembly.

Replacement

1 To reinstall the Electronics Module, reverse Steps 1 through 16.



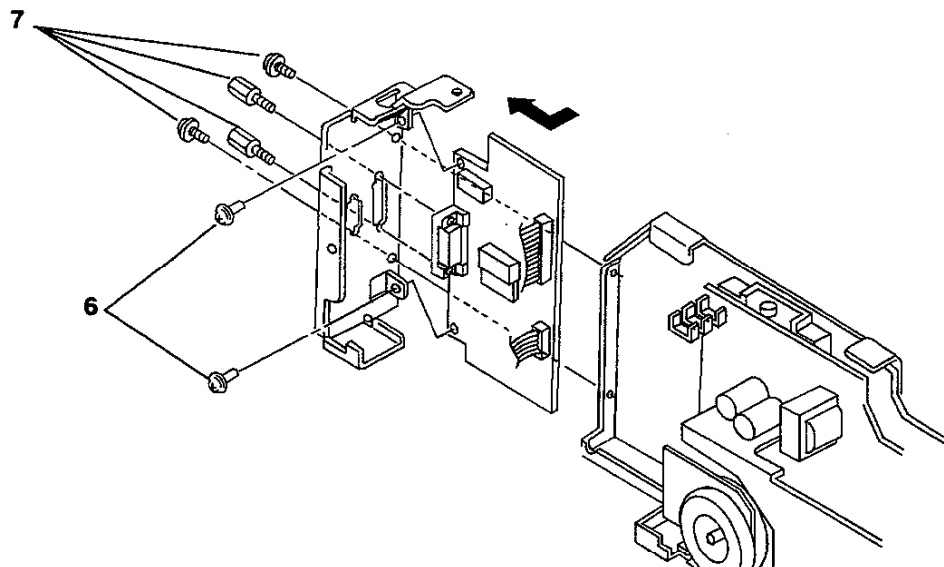
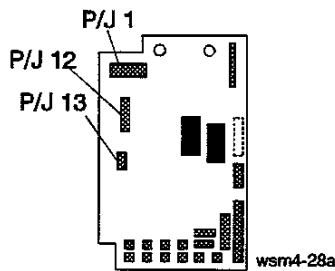
CAUTION Carefully route the harnesses under the Main Drive Motor to avoid any moving parts.

4.2.5 Printer Engine Controller PWB

Removal

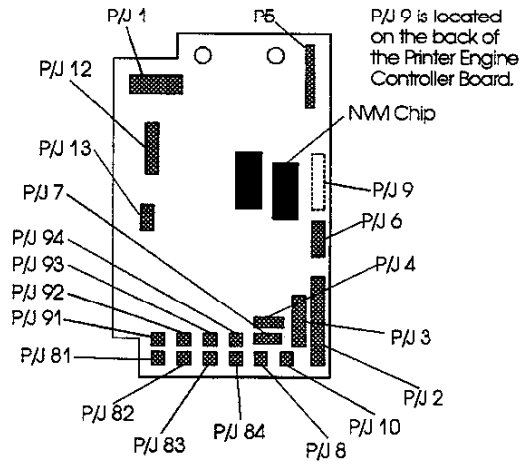
- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 5 Disconnect P/J 13 from the Printer Engine Controller PWB (see Figure 4.2.5a).
- 6 Remove the two screws securing the Printer Engine Controller PWB to the Multi-Sheet Bypass Feeder connector frame.
- 7 Remove the four screws securing the Multi-Sheet Bypass Feeder connector frame (see Figure 4.2.5a)).
- 8 Remove the frame.

Figure 4.2.5a Disconnecting Print Engine Controller PWB



- 9 Disconnect P/J 1, 2, 3, 4, 8, & 9 (open the Top Cover to access P/J 9 from inside the printer), P/J 10, 81, 82, 83, 84, 91, 92, 93, & 94 from the Printer Engine Controller PWB (see Figure 4.2.5b).

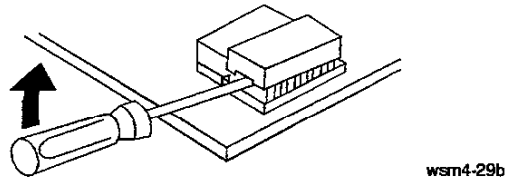
Figure 4.2.5b Disconnect the Indicated Connectors



10 Remove the Printer Engine Controller PWB.

NOTE: If you are replacing a defective Printer Engine Controller PWB with a new one, move the Printer Engine Nonvolatile Memory (NVM) chip from the old board to the new one. This chip contains the print count memory and configuration settings (see Figure 4.2.5c).

Figure 4.2.5c Removing the Engine Controller NVM Chip



Replacement

- 1 To reinstall the Printer Engine Controller PWB, reverse Steps 1 through 10.

4.2.6 System Controller PWB

Removal



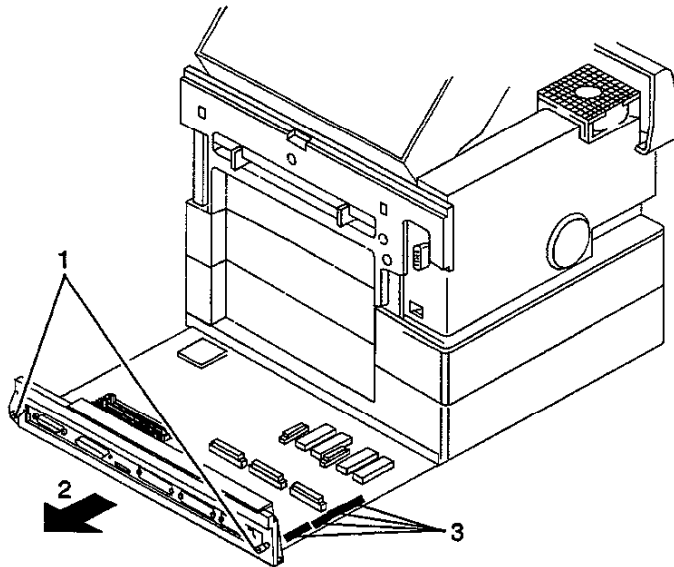
WARNING! Disconnect any modem cables to avoid electrical shock.

- 1 Loosen the two thumb screws securing the System Controller PWB.
- 2 Slide the System Controller out approximately 8 inches (20 cm).
- 3 Disconnect J 205, J 206, J 207, and J 208 from the System Controller PWB.
- 4 Remove the screw securing the P clamp to the System Controller PWB.
- 5 Lift the System Controller PWB slightly and slide it completely out.



CAUTION Be careful not to damage the PCMCIA shroud.

Figure 4.2.6 Removing the System Controller PWB



wsm4-sys

Replacement

- 1 To reinstall the System Controller PWB, reverse Steps 1 through 5.

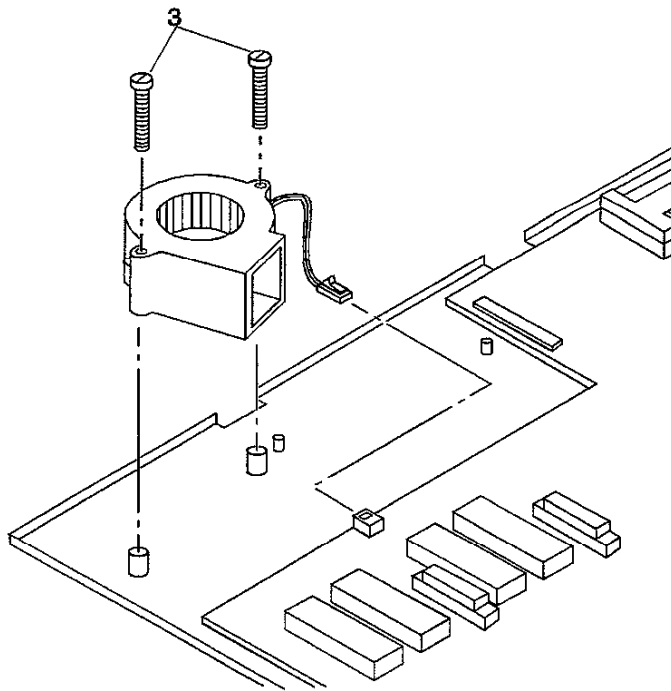
NOTE: Lift and position wiring harness as necessary to safely reposition the System Controller PWB before you slide it back in.

4.2.7 System Controller Fan

Removal

- 1 Remove the System Controller PWB(REP 4.2.6).
- 2 Disconnect P/J 217.
- 3 Remove the two screws securing the Fan.
- 4 Remove the Fan.

Figure 4.2.7 Removing the System Controller Fan



wsm4-31

Replacement

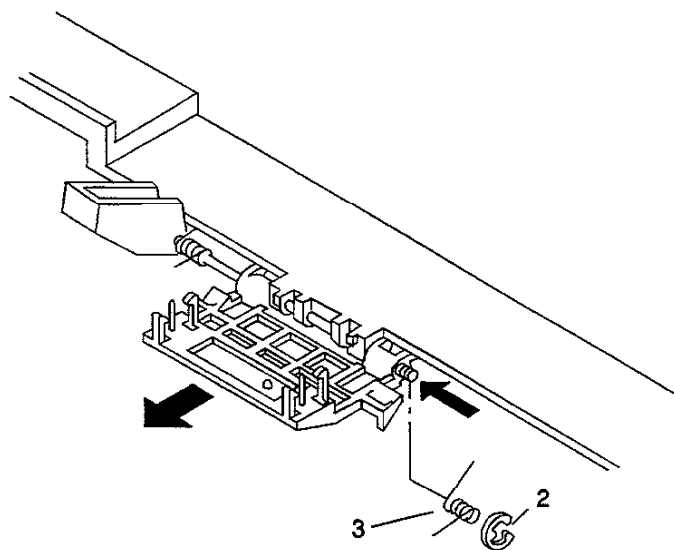
- 1 To reinstall the Fan, reverse Steps 1 through 4

4.2.8 Toner Sensor Plate

Removal

- 1 Remove the Toner Sensor (REP 4.2.9).
- 2 Remove the small E Ring on the right end of the pivot shaft.
- 3 Remove the spring.
- 4 Slide the pivot shaft to the left.
- 5 Remove the plate.

Figure 4.2.8 Removing the Toner Sensor Plate



wsm4-32

Replacement

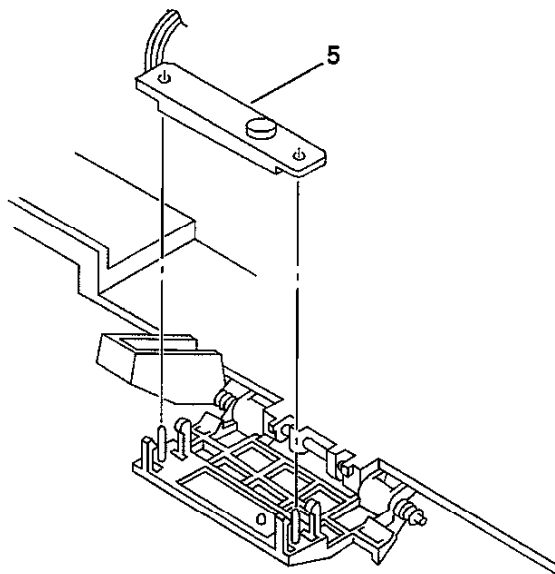
- 1 To reinstall the Toner Sensor Plate, reverse Steps 1 through 5.

4.2.9 Toner Sensor

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the EP Cartridge and store it in a safe, dark place.
- 3 Disconnect the Toner Sensor at P/J 23 behind the Laser Assembly.
- 4 Cut the tie wrap securing the wiring harness to the Toner Sensor Plate.
- 5 Remove the Toner Sensor from the Toner Sensor Plate by moving the clips outwards.

Figure 4.2.9 Removing the Toner Sensor



wsm4-35

Replacement

- 1 To reinstall the Toner Sensor, reverse Steps 1 through 5.

NOTE: Install a new tie wrap securing the wiring harness to the Toner Sensor Plate.

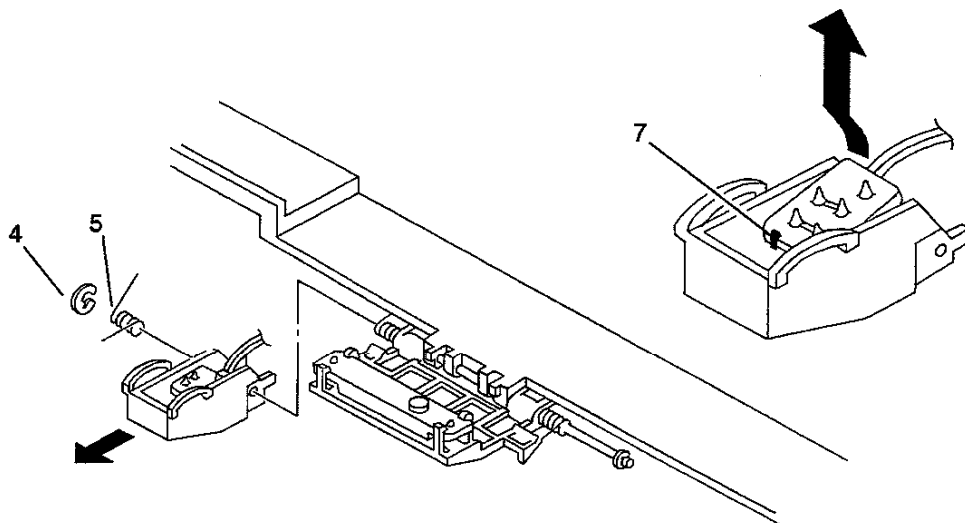
NOTE: Ensure that the Toner Sensor is installed with the round sensor knob facing the EP Cartridge.

4.2.10 EP Cartridge Sensor

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the EP Cartridge and store it in a safe, dark place.
- 3 Disconnect the EP Cartridge Sensor at P/J 24 behind the Laser Assembly.
- 4 Remove the small E Ring on the left end of the sensor pivot shaft.
- 5 Slide the spring off the shaft.
- 6 Slide the sensor off the shaft.
- 7 Remove the sensor from the EP Cartridge Sensor Plate by pressing the clips outward.

Figure 4.2.10 Removing the EP Cartridge Sensor



wsm4-36

Replacement

- 1 To reinstall the EP Cartridge Sensor, reverse Steps 1 through 7.

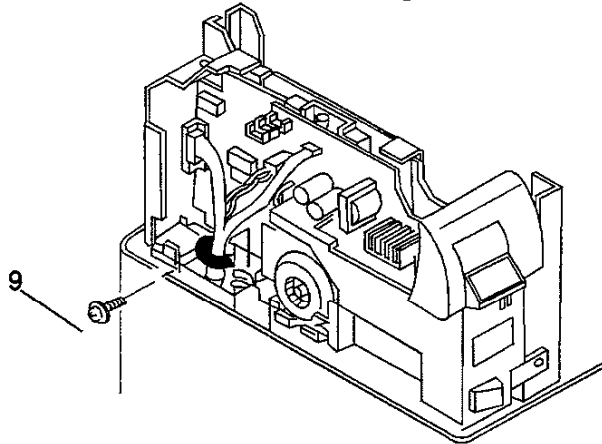
NOTE: Route the wires to the Cartridge Sensor between the spring shaft and the Laser Assembly.

4.2.11 Engine/System Controller Harness

Removal

- 1 Remove the System Controller PWB(REP 4.2.6).
- 2 Remove the Top Cover (REP 4.1.1).
- 3 Remove the Front Cover (REP 4.1.3).
- 4 Remove the Left Cover (REP 4.1.4).
- 5 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 6 Disconnect the Engine/System Controller Harness at P/J 12 on the Printer Engine Controller PWB.
- 7 Disconnect P/J 121 leading to the Full Stack Sensor.
- 8 Disconnect P/J 63, P/J 64, and P/J 65 from the Low Voltage Power Supply.
- 9 Remove the screw securing the clamp and ground wires at the top of the wiring channel.
- 10 Carefully feed the harness up through the wiring channel.

Figure 4.2.11 Removing the Harness



wsm4-37

Replacement

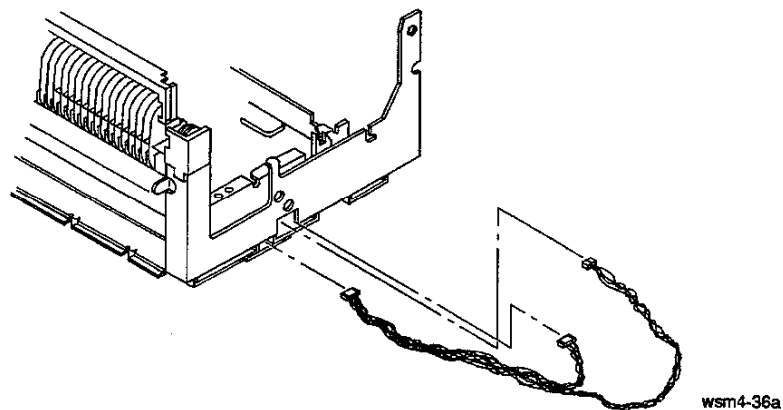
- 1 To reinstall the harness, reverse Steps 1 through 10.

4.2.12 High Voltage Power Supply Harness

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Right Cover (REP 4.1.5).
- 5 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 6 Remove the Registration Transport (REP 4.4.1).
- 7 Remove the Pre-Fuser Transport (REP 4.6.3).
- 8 Disconnect P/J 42 from the Tray 1 No Paper Sensor and remove the harness from the clamps.
- 9 Disconnect P/J 41 from the High Voltage Power Supply.
- 10 Remove the Electronics Module (REP 4.2.4).
- 11 Remove the harness by carefully pulling it through the channel toward the right side of the printer.

Figure 4.2.12 Removing the High Voltage Power Supply Harness



Replacement

- 1 To reinstall the harness, reverse Steps 1 through 11.

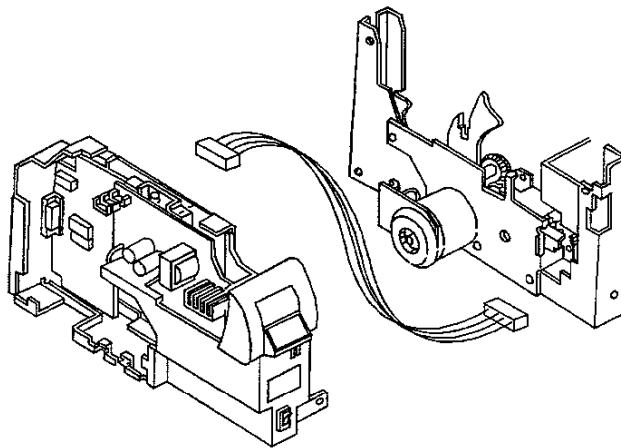
NOTE: Observe how the Harness is routed. Replace the Harness in the proper harness clips.

4.2.13 Output Full Harness

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Right Cover (REP 4.1.5).
- 5 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 6 Remove the Low Voltage Power Supply (REP 4.2.1).
- 7 Disconnect P/J 122 leading to the Full Stack Sensor.
- 8 Disconnect P/J 121 leading to the Engine/System Interface Harness.

Figure 4.2.13 Removing the Output Full Harness



wsm4-37x

Replacement

- 1 To Reinstall the Output Full Harness, reverse Steps 1 through 8.

NOTE: Ensure that P/J 122 is positioned below the clamp on the exit frame so that there is enough free wire to reach P/J 121 leading to the Engine/System Interface Harness (see 4.2.11).

4.3 MAIN DRIVE MOTOR

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Pre-Fuser Transport (REP 4.6.3).
- 4 Remove the Fuser (REP 4.6.1).
- 5 Remove the Fuser Exhaust Fan (REP 4.6.6).
- 6 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 7 Remove the Electronics Module (REP 4.2.4).
- 8 Using a pair of needle-nosed pliers, disconnect the tension spring to the Fuser drive gear.



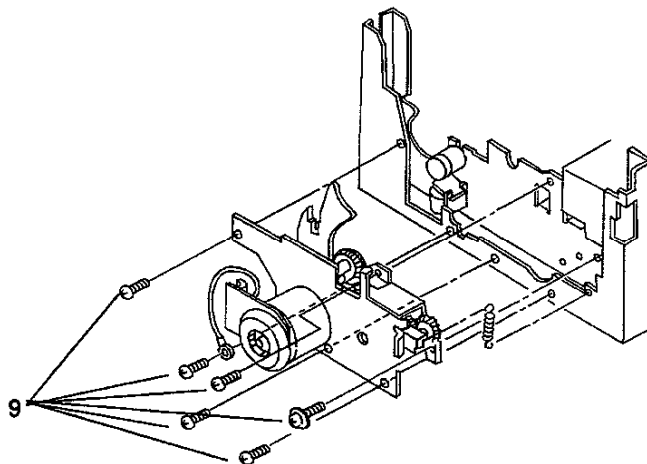
CAUTION The Main Drive Motor transmission gears are not secured to their shafts. Do not tip the motor during removal or the gears may slide off.

- 9 Remove the six screws securing the Main Drive Motor (see Figure 4.3.0a).

NOTE: Be aware of the location of ground wire.

- 10 Remove the motor.

Figure 4.3.0a Removing the Main Drive Motor



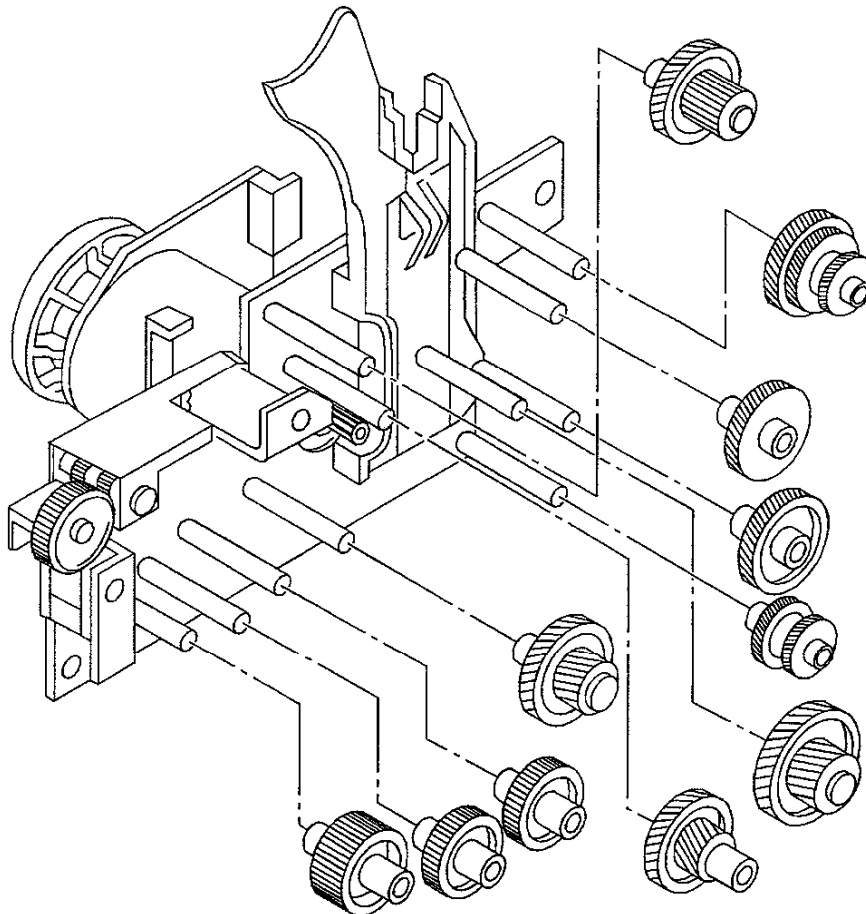
wsm4-40

Replacement

- 1 To reinstall the Main Drive Motor, remove the spare motor from the shipping bracket and reverse Steps 1 through 10 (see Figure 4.3.0b).

NOTE: Ensure that the tension spring is reconnected.

Figure 4.3.0b Main Drive Motor Gear Assembly



wsm4-39

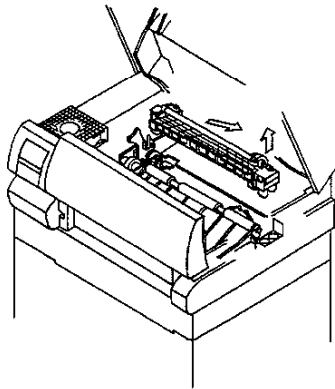
4.4 PAPER FEED AND REGISTRATION

4.4.1 Registration Transport

Removal

- 1 Cancel any pending jobs, take the printer off-line, and unplug the power cord.
- 2 Open the Top Cover.
- 3 Remove the EP Cartridge and store it in a safe, dark place.
- 4 Remove the Transfer Corotron by gripping and raising the right end until it just clears the white EP Cartridge guide, and then pulling the corotron towards the right to disengage the left end (see Figure 4.4.1a).

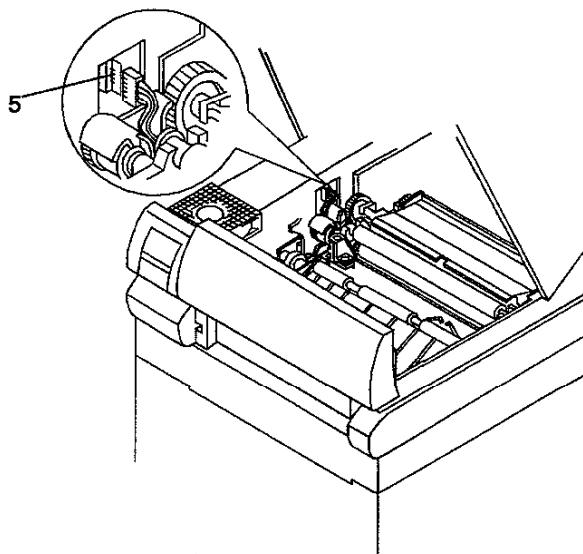
Figure 4.4.1a Removing the Transfer Corotron



wsm4-40a

- 5 Disconnect P/J 9 from the back of the Printer Engine Controller PWB(see Figure 4.4.1b).

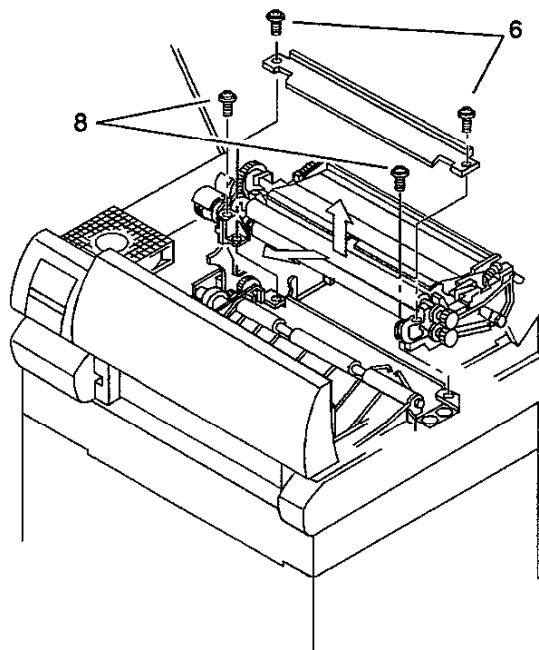
Figure 4.4.1b Disconnect P/J 9



wsm4-40b

- 6 Remove the two self-tapping screws securing the inlet chute (see Figure 4.4.1c).
- 7 Remove the inlet chute. Note the orientation of the chute for reassembly.
- 8 Remove the two screws securing the Registration Transport (see Figure 4.4.1c).

Figure 4.4.1c Removing the Registration Transport



wsm4-41a

- 9 Remove the Registration Transport.

NOTE: Be aware of the location of ground wire on the right side and the ground clip.

Replacement

- 1 To reinstall the Registration Transport, reverse Steps 1 through 9.



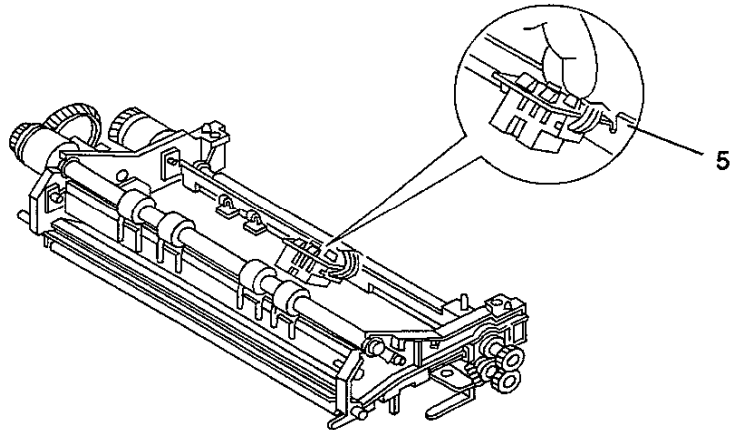
CAUTION The Inlet Chute should be installed with the Mylar side down, and the lip facing up and closest to the Registration Roll.

4.4.2 Pre-Registration Sensor

Removal

- 1 Remove the Registration Transport (REP 4.4.1).
- 2 Turn the Registration Transport upside down.
- 3 Unclip the wiring harness from the bottom of the Registration Transport.
- 4 Disconnect P/J 52 leading to the Pre-Registration Sensor.
- 5 Remove the sensor by carefully pressing inward on the four tabs.

Figure 4.4.2 Removing the Pre-Registration Sensor



wsm4-45

Replacement

- 1 To reinstall the Pre-Registration Sensor, reverse Steps 1 through 5.



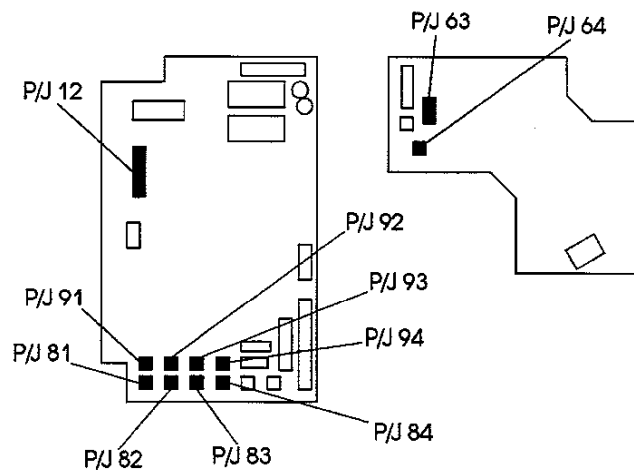
CAUTION Be careful not to bend the mounting bracket when reinstalling the Pre-Registration Sensor.

4.4.3 Tray 1 Module Removal

Removal

- 1 Remove Paper Tray 1.
- 2 Remove the Top Cover (REP 4.1.1).
- 3 Remove the Front Cover (REP 4.1.3).
- 4 Remove the Left Cover (REP 4.1.4).
- 5 Remove the Right Cover (REP 4.1.5).
- 6 Remove the Rear Cover (REP 4.1.7).
- 7 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 8 Disconnect P/Js 12, 81, 82, 83, and 84 from the Printer Engine Controller PWB (see Figure 4.4.3a).
- 9 Disconnect P/Js 91, 92, 93, and 94 from the Printer Engine Controller PWB (see Figure 4.4.3a).
- 10 Disconnect P/Js 63 and 64 from the Low Voltage Power Supply (see Figure 4.4.3a).

Figure 4.4.3a Disconnect the Indicated P/Js

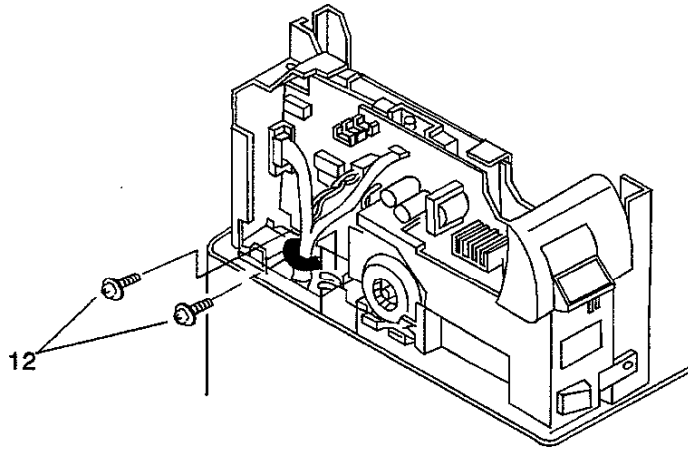


wsm4-43

- 11 Disconnect the connector P/J 121 leading to the Full Stack Sensor.
- 12 Remove the two screws at the top of the wiring channel.

NOTE: Be aware of the location of the ground wires (see Figure 4.4.3b).

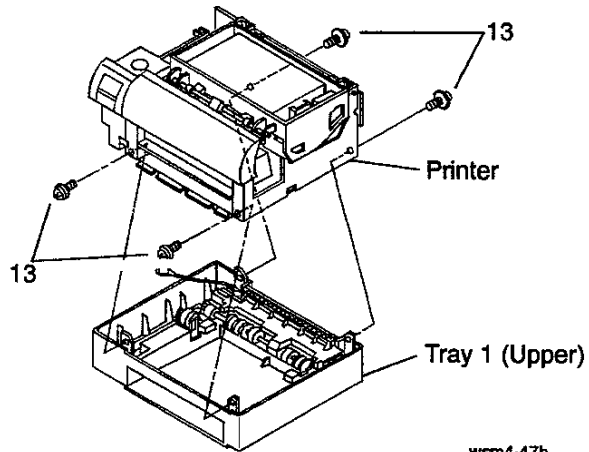
Figure 4.4.3b Disconnecting the Ground Wires



wsm4-47a

- 13 Remove the four screws securing the Tray 1 Module (see Figure 4.4.3c).
- 14 Lift off the Tray 1 Module.

Figure 4.4.3c Disconnect P/J 120 and Remove Tray 1 Module



wsm4-47b

Replacement

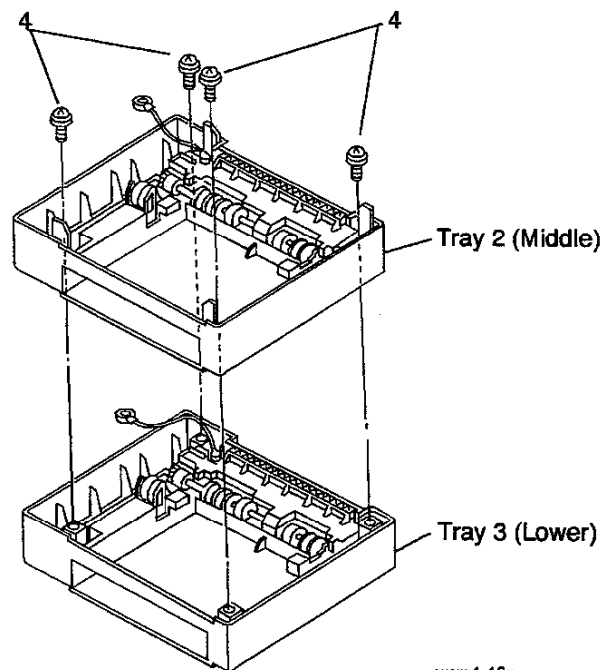
- 1 To reinstall the Tray 1 Module, reverse Steps 1 through 14.

4.4.4 Tray 2 Module

Removal

- 1 Remove Paper Tray 2.
- 2 Remove the Tray 1 Module (REP 4.4.3).
- 3 Pull the Tray 2 Module wire harness out of the wiring channel.
- 4 Remove the four screws securing the Tray 2 Module (see Figure 4.4.4) and lift the module upwards.

Figure 4.4.4 Removing the Tray 2 Module



Replacement

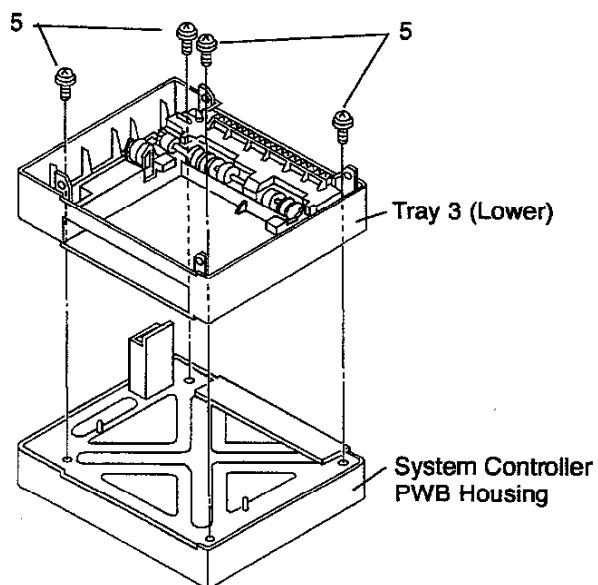
- 1 To reinstall the Tray 2 Module, reverse Steps 1 through 4.

4.4.5 Tray 3 Module

Removal

- 1 Remove Paper Tray 3.
- 2 Remove the Tray 1 Module (REP 4.4.3).
- 3 Remove the Tray 2 Module (REP 4.4.4).
- 4 Pull the wiring harness leading to the Tray 3 components out of the wiring channel.
- 5 Remove the four screws securing the Tray 3 Module and lift it upwards.

Figure 4.4.5 Removing the Tray 3 Module



Replacement

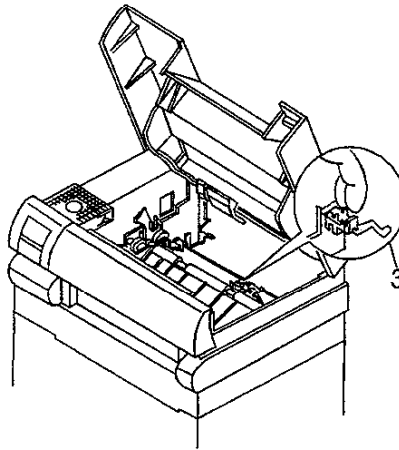
- 1 To reinstall the Tray 3 Module, reverse Steps 1 through 5.

4.4.6 Tray 1 No Paper Sensor

Removal

- 1 Remove the Registration Transport (REP 4.4.1).
- 2 Disconnect the wires leading to the Tray 1 No Paper Sensor at P/J 42.
- 3 Remove the sensor by pressing inward on the four mounting tabs.

Figure 4.4.6 Removing the Tray 1 No Paper Sensor



wsm4-48

Replacement

- 1 To reinstall the Tray 1 No Paper Sensor, reverse Steps 1 through 3.



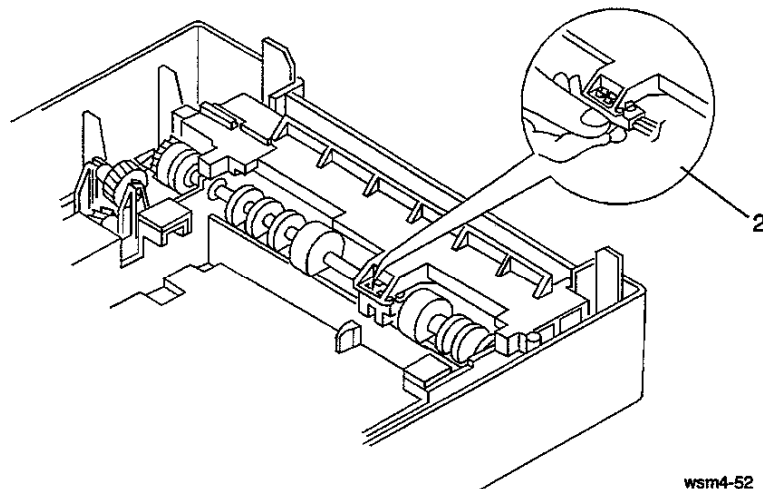
CAUTION Ensure that the sensor arm is positioned under the Feed Roll shaft when reinstalling the sensor.

4.4.7 Tray 2 No Paper Sensor

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Unclip the wires leading to the Tray 2 No Paper Sensor.
- 3 Remove the sensor by pressing inwards on the four mounting tabs.

Figure 4.4.7 Removing the Tray 2 No Paper Sensor



wsm4-52

Replacement

- 1 To reinstall the Tray 2 No Paper Sensor, reverse Steps 1 through 3.



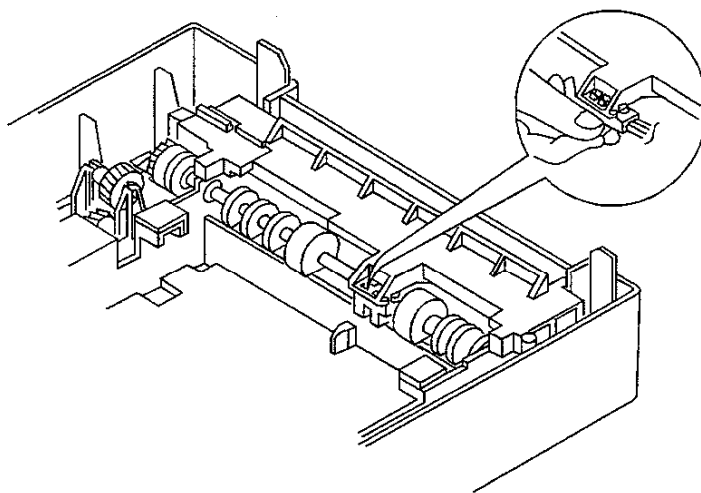
CAUTION Ensure that the sensor arm is positioned under the Feed Roll shaft when reinstalling the sensor.

4.4.8 Tray 3 No Paper Sensor

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Remove the Tray 2 Module (REP 4.4.4).
- 3 Unclip the wires leading to the Tray 3 No Paper Sensor.
- 4 Remove the sensor by pressing inwards on the four mounting tabs.

Figure 4.4.8 Removing the Tray 3 No Paper Sensor



Replacement

- 1 To reinstall the Tray 3 No Paper Sensor, reverse Steps 1 through 4.



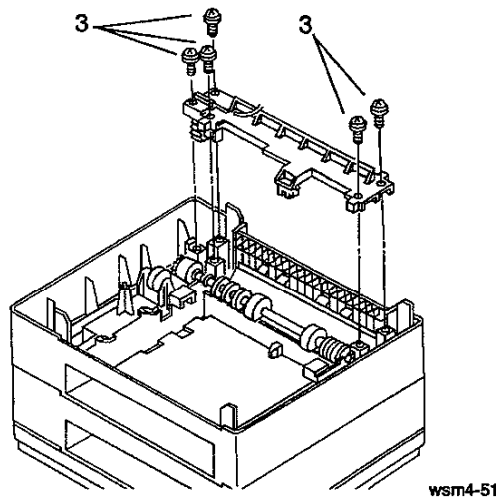
CAUTION Ensure that the sensor arm is positioned under the Feed Roll shaft when reinstalling the sensor.

4.4.9 Tray 2 Turn Roll Assembly

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Unclip the Tray 2 No Paper Sensor and remove the sensor wiring harness.
- 3 Remove the five screws securing the assembly to the Tray 2 frame.

Figure 4.4.9 Removing the Tray 2 Turn Roll Assembly



wsm4-51

Replacement

- 1 To reinstall the Tray 2 Turn Roll Assembly, reverse Steps 1 through 3.



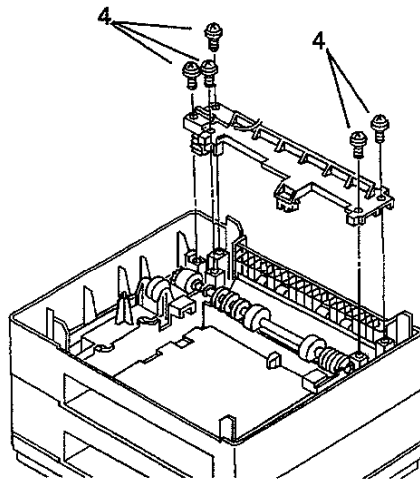
CAUTION Ensure that the Tray 2 No Paper Sensor arm is positioned under the Feed Roll shaft when reinstalling the Turn Roll Assembly.

4.4.10 Tray 3 Turn Roll Assembly

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Remove the Tray 2 Module (REP 4.4.4).
- 3 Unclip the Tray 3 No Paper Sensor and remove the sensor wiring harness.
- 4 Remove the five self-tapping screws securing the assembly to the bottom cover.

Figure 4.4.10 Removing the Tray 3 Turn Roll Assembly



wsm4-51

Replacement

- 1 To reinstall the Tray 3 Turn Roll Assembly, reverse Steps 1 through 4.



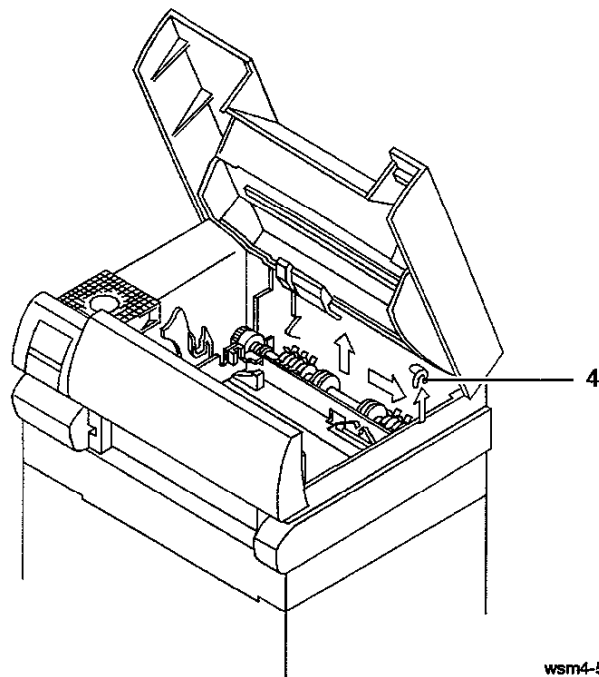
CAUTION Ensure that the Tray No Paper Sensor arm is positioned under the Feed Roll shaft when reinstalling the Turn Roll Assembly.

4.4.11 Tray 1 Feed Roll and Clutch

Removal

- 1 Open the Top Cover.
- 2 Remove the EP Cartridge and store it in a safe, dark place.
- 3 Remove the Registration Transport (REP 4.4.1).
- 4 Remove the KL clip from the right side of the feed roll shaft, and slide the shaft bushing to the left.
- 5 Push the assembly to the right side of the machine, then lift the assembly out.

Figure 4.4.11 Removing the Tray 1 Feed Roll and Clutch



wsm4-53

Replacement

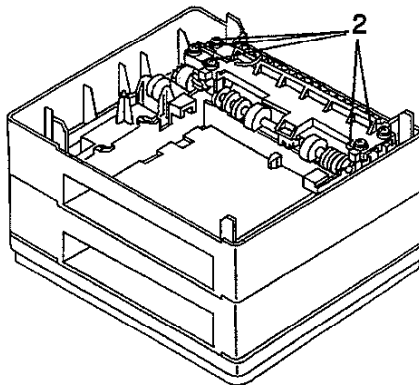
- 1 To reinstall the Tray 1 Feed Roll and Clutch, reverse Steps 1 through 5.

4.4.12 Tray 2 Feed Roll and Clutch

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Remove the five self-tapping screws securing the Tray 2 Turn Roll Assembly (see Figure 4.4.12a).

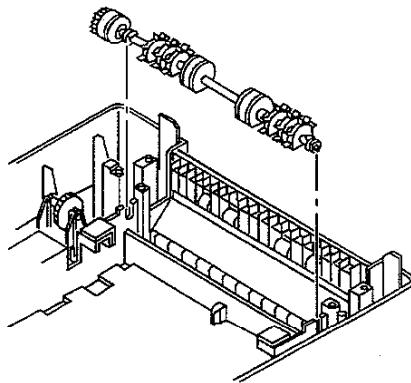
Figure 4.4.12a Removing the Tray 2 Turn Roll Assembly



wsm4-54a

- 3 Lay the Turn Roll Assembly aside, being careful not to damage the wiring harness.
- 4 Lift the Feed Roll and Clutch out of the printer (see Figure 4.4.12b).

Figure 4.4.12b Removing the Tray 2 Feed Roll and Clutch



wsm4-54b

Replacement

- 1 To reinstall the Tray 2 Feed Roll and Clutch, reverse Steps 1 through 4.



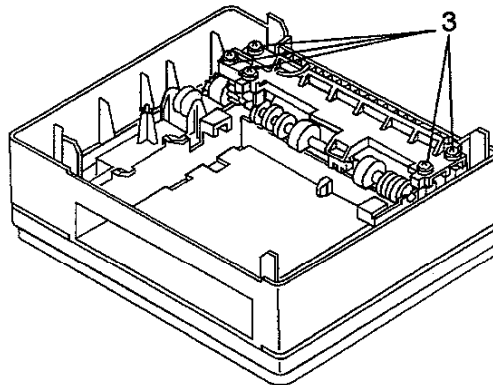
CAUTION When reinstalling the Tray 2 Turn Roll Assembly, ensure that the Tray 2 No Paper Sensor is positioned beneath the Feed Roll shaft.

4.4.13 Tray 3 Feed Roll and Clutch

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Remove the Tray 2 Module (REP 4.4.4).
- 3 Remove the five self-tapping screws securing the Tray 3 Turn Roll Assembly (see Figure 4.4.13a).

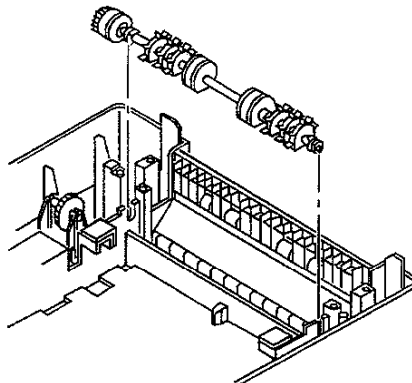
Figure 4.4.13a Removing the Tray 3 Turn Roll Assembly



wsm4-55a

- 4 Lay the Turn Roll assembly aside being careful not to damage the wiring harness.
- 5 Lift the Feed Roll and Clutch out of the printer (see Figure 4.4.13b).

Figure 4.4.13b Removing the Tray 3 Feed Roll and Clutch



wsm4-55b

Replacement

- 1 To reinstall the Tray 3 Feed Roll and Clutch, reverse Steps 1 through 5.



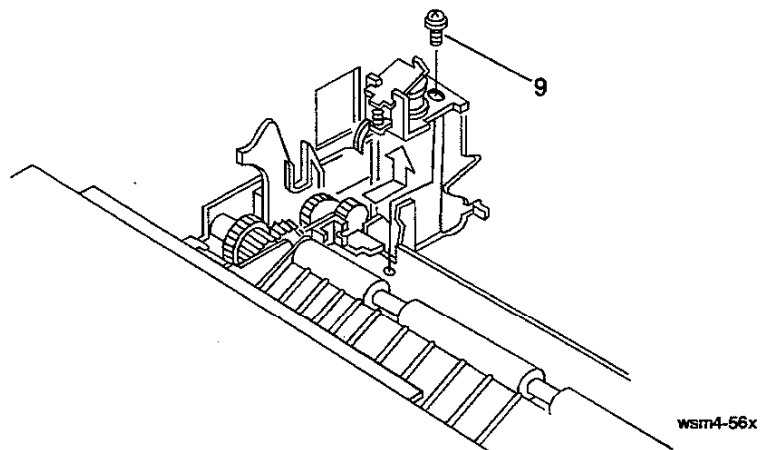
CAUTION When reinstalling the Tray 3 Turn Roll Assembly, ensure that the Tray 3 No Paper Sensor is positioned beneath the Feed Roll shaft.

4.4.14 Tray 1 Feed Solenoid

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Registration Transport (REP 4.4.1).
- 5 Remove the Tray 1 Feed Roll and Clutch (REP 4.4.11).
- 6 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 7 Disconnect P/J 8 from the Electronics Module.
- 8 Remove the Electronics Module (REP 4.2.4).
- 9 Remove the screw securing the Tray 1 Feed Solenoid.
- 10 Remove the solenoid.

Figure 4.4.14 Removing the Tray 1 Feed Solenoid



Replacement

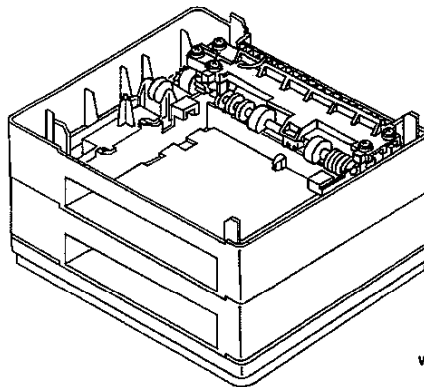
- 1 To reinstall the Tray 1 Feed Solenoid, reverse Steps 1 through 10.

4.4.15 Tray 2 Feed Solenoid

Removal

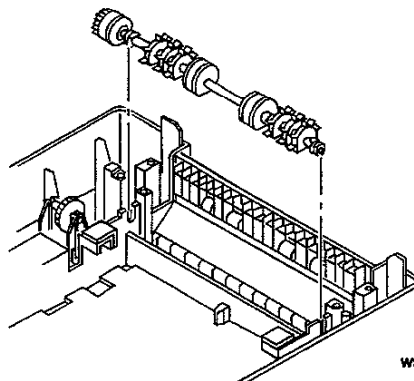
- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Remove the Tray 2 Turn Roll Assembly (REP 4.4.9 and see Figure 4.4.15a).
- 3 Remove the Tray 2 Feed Roll and Clutch (REP 4.4.12 and see Figure 4.4.15b).

Figure 4.4.15a Removing the Tray 2 Turn Roll Assembly



wsm4-54a

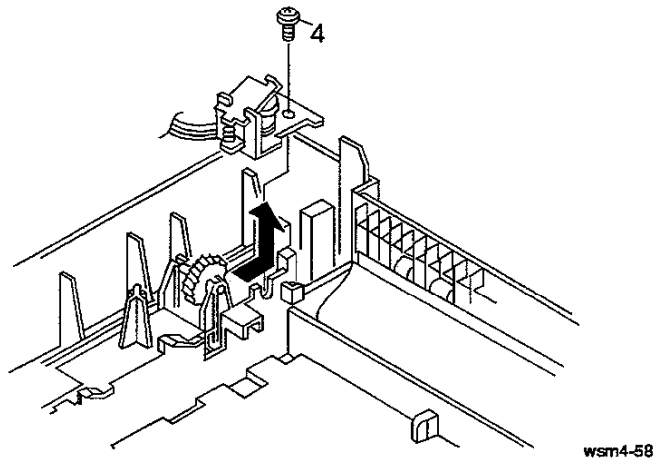
Figure 4.4.15b Removing the Tray 2 Feed Roll Assembly



wsm4-54b

- 4 Remove the screw securing the Tray 2 Feed Solenoid (see Figure 4.4.15c).
- 5 Slide to rear and remove the solenoid (see Figure 4.4.15c).

Figure 4.4.15c Tray 2 Feed Solenoid Removal



Replacement

- 1 To reinstall the Tray 2 Feed Solenoid, reverse Steps 1 through 5.



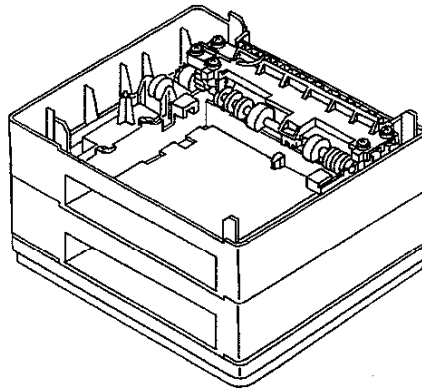
CAUTION When reinstalling the Tray 2 Turn Roll Assembly, ensure that the Tray 2 No Paper Sensor is positioned beneath the Feed Roll shaft.

4.4.16 Tray 3 Feed Solenoid

Removal

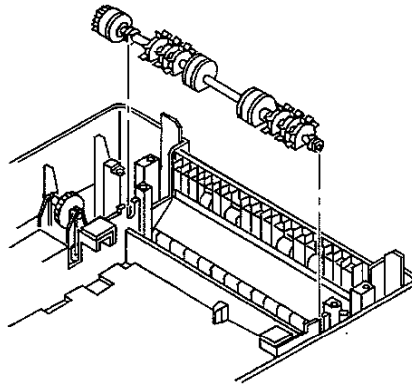
- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Remove the Tray 2 Module (REP 4.4.4).
- 3 Remove the Tray 3 Turn Roll Assembly (REP 4.4.10 and see Figure 4.4.16a).
- 4 Remove the Tray 3 Feed Roll and Clutch (REP 4.4.13 and see Figure 4.4.16b).

Figure 4.4.16a Removing the Tray 3 Turn Roll Assembly



wsm4-54a

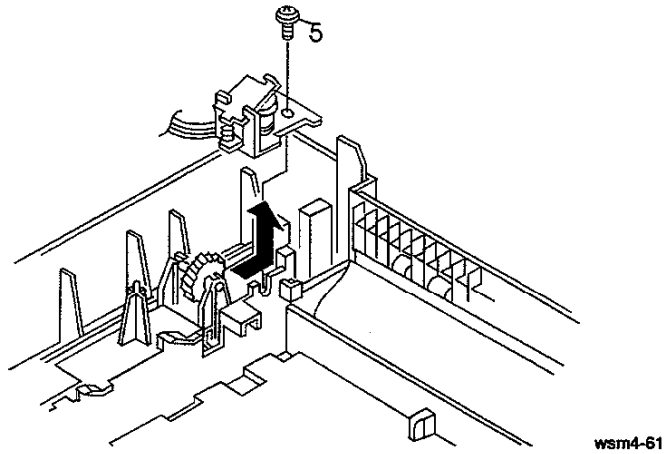
Figure 4.4.16b Removing the Tray 3 Feed Roll



wsm4-54b

- 5 Remove the screw securing the Tray 3 Feed Solenoid (see Figure 4.4.16c).
- 6 Slide to rear and remove the solenoid (see Figure 4.4.16c).

Figure 4.4.16c Removing the Tray 3 Feed Solenoid



Replacement

- 1 To reinstall the Tray 3 Feed Solenoid, reverse Steps 1 through 6.



CAUTION When reinstalling the Tray 3 Turn Roll Assembly, ensure that the Tray 3 No Paper Sensor is positioned beneath the Feed Roll shaft.

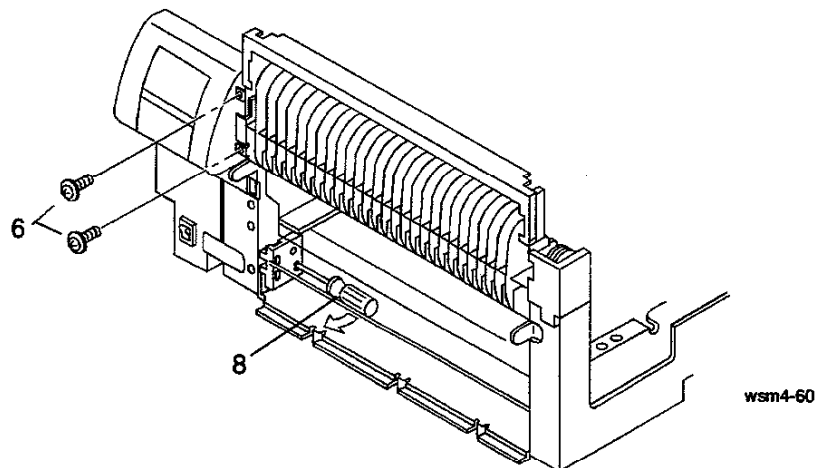
4.4.17 Tray 1 Paper Size Sensor

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the Front Cover (REP 4.1.3).
- 3 Remove the Left Cover (REP 4.1.4).
- 4 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 5 Remove the Electronics Module (REP 4.2.4).
- 6 Remove the two screws securing the left side of the upper paper guide to allow access to the wire harness.
- 7 Unclip the wire harness leading to the Tray 1 Paper Size Sensor.
- 8 Remove the sensor by moving it towards the front of the printer, using a screwdriver to disengage the front clips from their recesses in the frame while pushing the sensor from the left side.
- 9 Remove the sensor.

NOTE: Be aware of the routing of the wire harness for reassembly.

Figure 4.4.17 Removing the Tray 1 Paper Size Sensor



Replacement

- 1 To reinstall the Tray 1 Paper Size Sensor, reverse Steps 1 through 9.

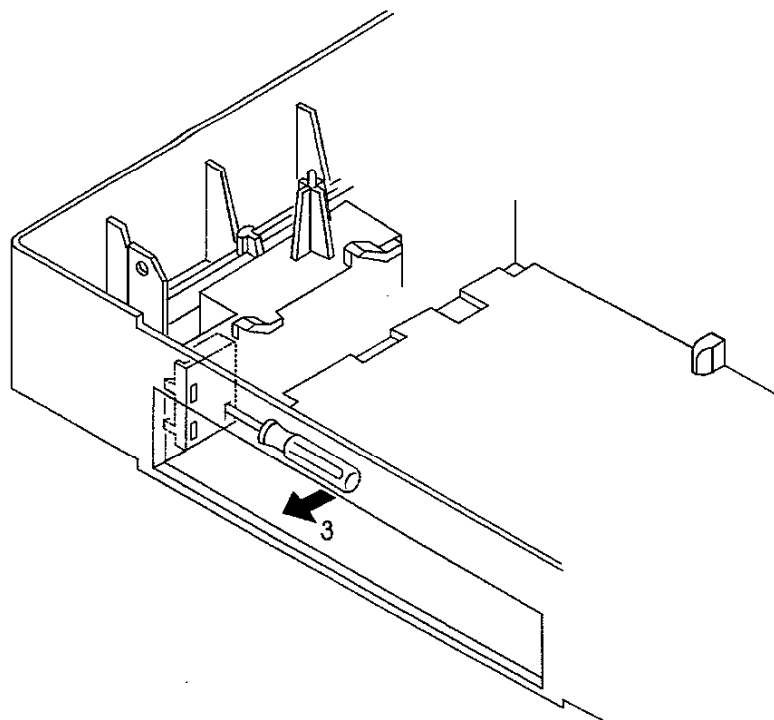
4.4.18 Tray 2 Paper Size Sensor

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Cut the tie wrap holding the Tray 2 Paper Size Sensor harness.
- 3 Remove the sensor by moving it towards the front of the printer using a screwdriver to disengage the front clips from their recesses in the frame while pushing the sensor from the left side.
- 4 Remove the sensor.

NOTE: Be aware of the routing of the wire harness for reassembly.

Figure 4.4.18 Removing the Tray 2 Paper Size Sensor



wsm4-62

Replacement

- 1 To reinstall the Tray 2 Paper Size Sensor, reverse Steps 1 through 4.

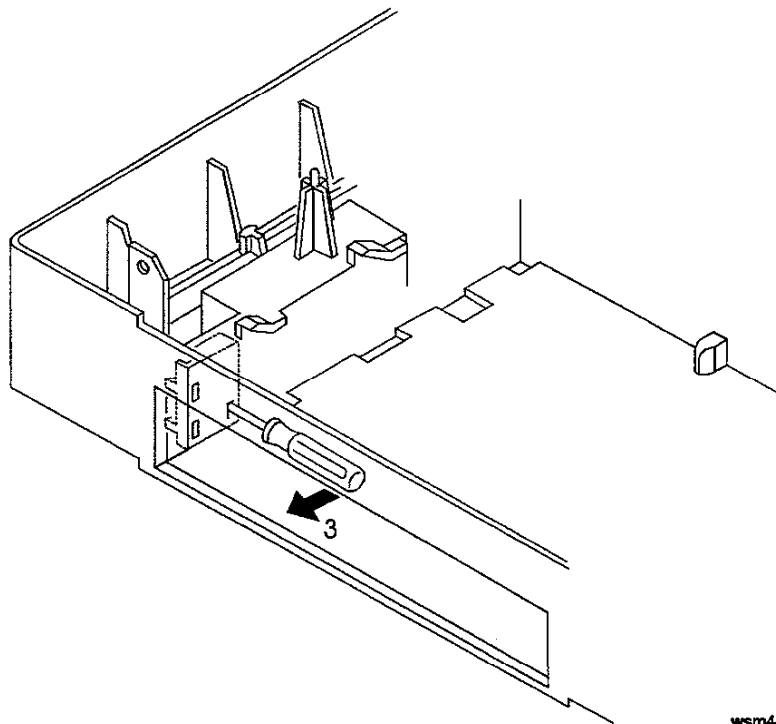
4.4.19 Tray 3 Paper Size Sensor

Removal

- 1 Remove the Tray 1 Module (REP 4.4.3).
- 2 Remove the Tray 2 Module (REP 4.4.4).
- 3 Cut the tie wrap holding the Tray 3 Paper Size Sensor harness.
- 4 Remove the sensor by moving it towards the front of the printer, using a screwdriver to disengage the front clips from their recesses in the frame while pushing the sensor from the left side.
- 5 Remove the sensor.

NOTE: Be aware of the routing of the wire harness for reassembly.

Figure 4.4.19 Removing the Tray 3 Paper Size Sensor



wsm4-62

Replacement

- 1 To reinstall the Tray 3 Paper Size Sensor, reverse Steps 1 through 5.

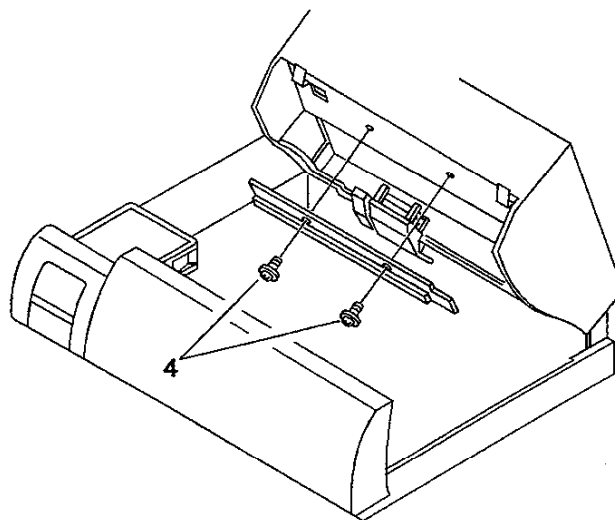
4.5 IMAGING

4.5.1 Erase Board

Removal

- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the EP Cartridge and store it in a safe, dark place.
- 3 Disconnect P/J 22, located on the Erase Board.
- 4 Remove the two screws securing the Erase Board, and remove the board.

Figure 4.5.1 Removing the Erase Board



wsm4-64

Replacement

- 1 To reinstall the Erase Board, reverse Steps 1 through 4.

4.5.2 Laser Assembly

Removal

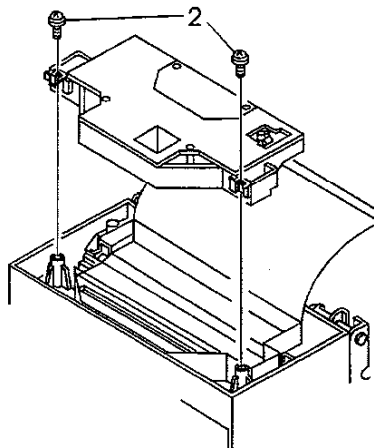
- 1 Remove the Top Cover (REP 4.1.1).
- 2 Remove the two screws securing the Laser Assembly to the upper module.
- 3 Lift the front edge of the Laser Assembly just slightly and loosen the adhesive tab in the center of the copper noise shield covering the Laser Assembly.
- 4 Peel back the copper noise shield covering the Laser Assembly.
- 5 Disconnect P/J 21 from the left side of the Laser Assembly.



CAUTION Do not touch the Laser Scanner window. Oils from your fingers will cause image quality problems. Clean the window with a lint-free cloth only when necessary.

- 6 Carefully remove the Laser Assembly from the printer.

Figure 4.5.2 Removing the Laser Assembly



wsm4-65

NOTE: There are no field-replaceable parts within the Laser Assembly. Do not disassemble the Laser Assembly.

Replacement

- 1 To reinstall the Laser Assembly, reverse Steps 1 through 6.

4.6 PAPER TRANSPORTATION AND FUSING

4.6.1 Fuser

Removal

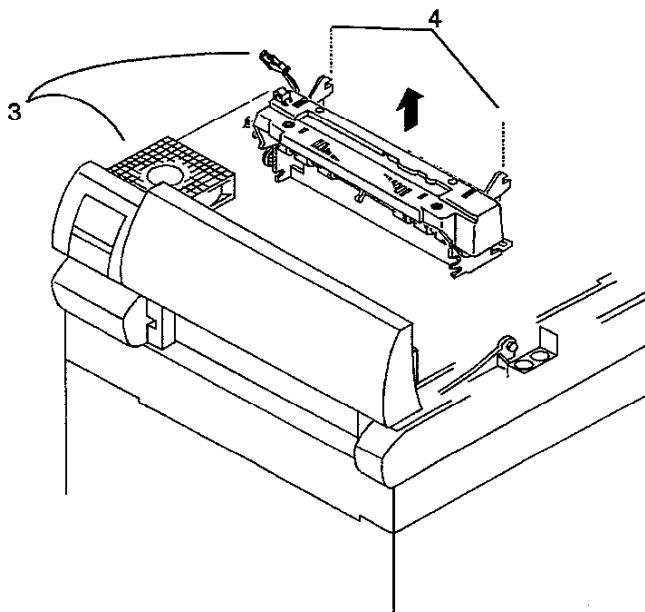
- 1 Open the Top Cover.



WARNING! The fuser area may be hot. Allow the fuser to cool before proceeding with the following steps.

- 2 Remove the Pre-Fuser Transport (REP 4.6.3).
- 3 Disconnect the three connectors near the left side of the Fuser under the Fuser Exhaust Fan:
 - P/J 31 leading to the Thermistor.
 - P/J 32 leading to the Fuser Exit Sensor.
 - P/J 62 leading to the Heat Lamp.
- 4 Loosen the two thumbscrews securing the Fuser and lift the Fuser out of the printer.

Figure 4.6.1 Removing the Fuser



wsm4-fsr

Replacement

- 1 To reinstall the Fuser, reverse Steps 1 through 4.
- 2 Check Fuser Temperature setting (See section 5).

NOTE: Ensure that the Fuser fits flush against the floor of the upper module.

4.6.2 Fuser Cover

Removal

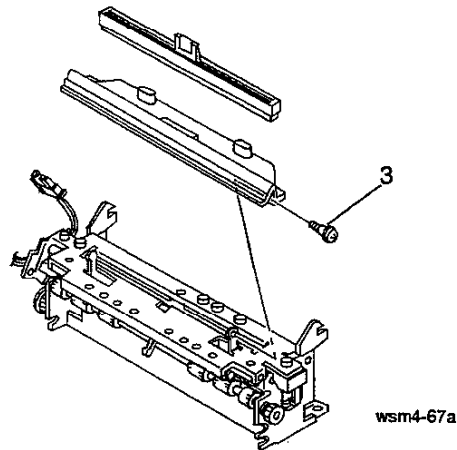
- 1 Remove the Fuser (REP 4.6.1).



WARNING! The fuser area may be hot. Allow the fuser to cool before proceeding with the following steps.

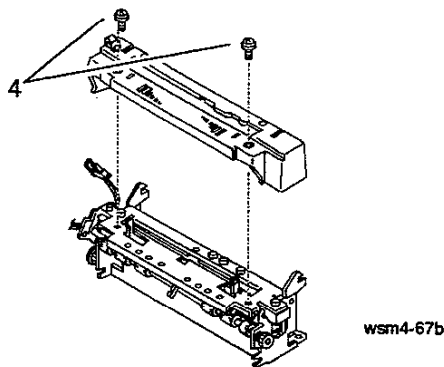
- 2 Remove the Fuser Cleaning Felt.
- 3 Remove the brass shoulder screw securing the Fuser Cleaning Felt Cover and remove the cover (see Figure 4.6.2a).

Figure 4.6.2a Removing the Fuser Cleaning Felt Cover



- 4 Remove the two screws securing the Fuser Cover, then lift off the cover (see Figure 4.6.2b).

Figure 4.6.2b Removing the Fuser Cover



Replacement

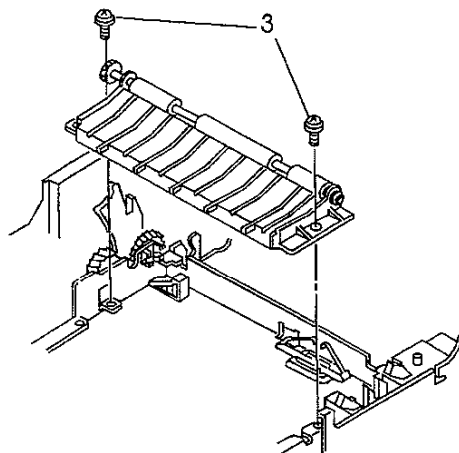
- 1 To reinstall the Fuser Cover, reverse Steps 1 through 4.

4.6.3 Pre-Fuser Transport

Removal

- 1 Remove the EP Cartridge and place it in a safe, dark place.
- 2 Remove the Transfer Corotron (REP 4.4.1, see Step 4).
- 3 Loosen the two thumbscrews securing the transport to the frame, then lift out the Pre-Fuser Transport.

Figure 4.6.3 Removing the Pre-Fuser Transport



wsm4-68

Replacement

- 1 To reinstall the Pre-Fuser Transport, reverse Steps 1 through 3.

NOTE: Ensure that the gears mesh properly with the main transmission.

4.6.4 Heat Lamp

Removal

- 1 Cancel all pending print jobs, take the printer off-line, and disconnect the power cord.
- 2 Open the Top Cover.
- 3 Remove the EP Cartridge and store it in a safe, dark place.



WARNING! The fuser area may be hot. Allow the fuser to cool before proceeding with the following steps.

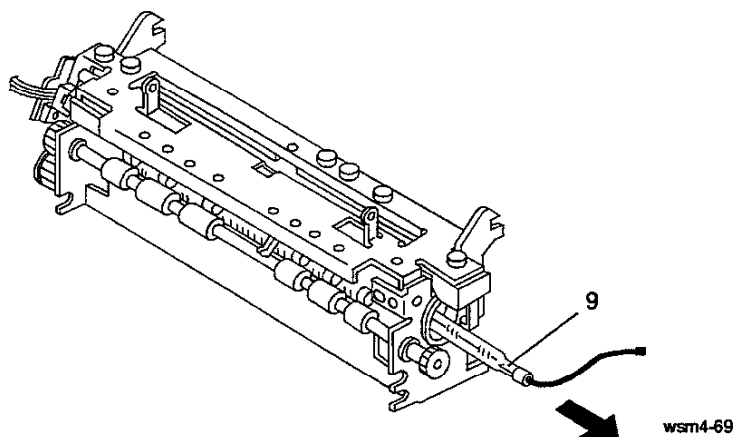
- 4 Remove the Pre-Fuser Transport (REP 4.6.3).
- 5 Remove the Fuser (REP 4.6.1).
- 6 Remove the Fuser Cover (REP 4.6.2).



CAUTION The ceramic ends of the Heat Lamp are fragile and can be damaged easily. Do not touch the Heat Lamp with your bare hands. Oil from your skin will damage the Heat Lamp.

- 7 Disconnect the Heat Lamp from the spade connectors at each end of the Fuser Sensor Assembly.
- 8 Loosen the screw securing the Heat Lamp support.
- 9 Slide the heat rod out of the heat roll.

Figure 4.6.4 Removing the Heat Lamp



Replacement

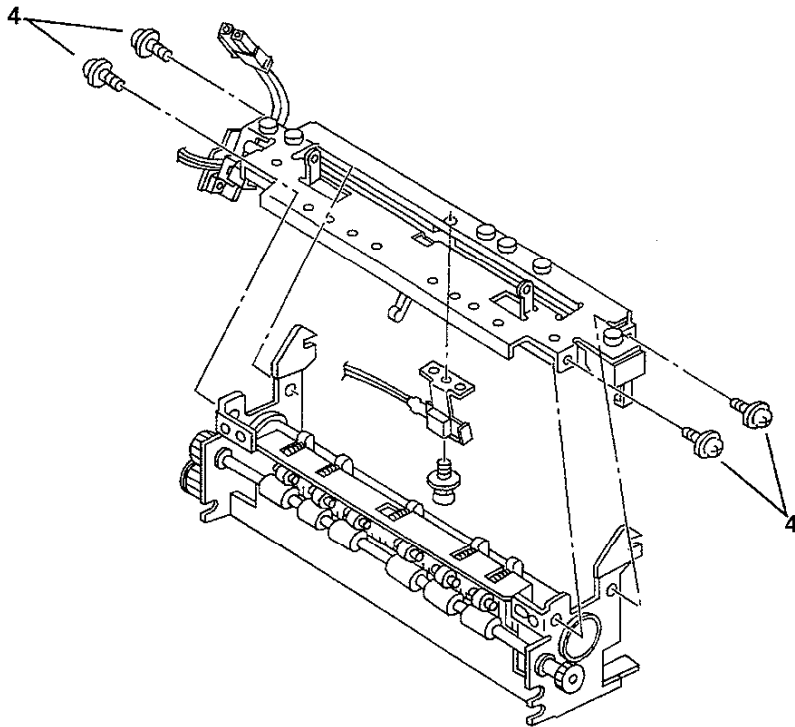
- 1 To reinstall the Heat Lamp, reverse Steps 1 through 9.

4.6.5 Fuser Sensor

Removal

- 1 Remove the Fuser (REP 4.6.1).
- 2 Remove the Fuser Cover (REP 4.6.2).
- 3 Remove the Heat Lamp (REP 4.6.4).
- 4 Remove the four screws securing the Fuser Sensor.

Figure 4.6.5 Removing the Fuser Sensor



WSM4-74

- 5 Remove the Fuser Sensor by rotating it away from the Fuser frame, being careful not to damage the actuator of the Fuser Exit Sensor.

Replacement

- 1 To reinstall the Fuser Sensor, reverse Steps 1 through 5.

NOTE: Ensure that the Fuser Exit Sensor fits through the hole in the Fuser frame.



CAUTION Be careful not to torque or twist the Fuser Sensor when reinstalling it. This may cause the Fuser Exit Sensor to operate improperly.

4.6.6 Fuser Exhaust Fan

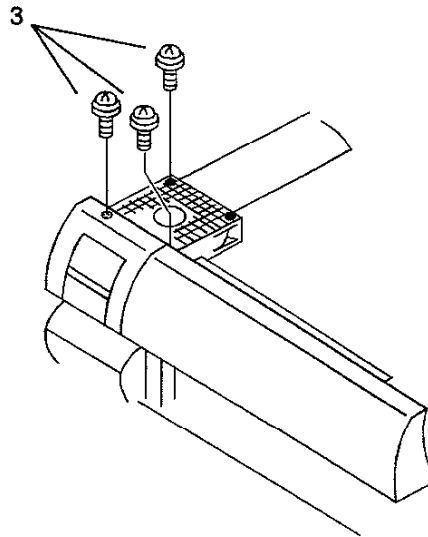
Removal

- 1 Open the Top Cover.
- 2 Disconnect the Fuser Exhaust Fan at P/J 33.

NOTE: Observe the direction of airflow and the routing of the wiring harness for reinstallation.

- 3 Remove the three screws securing the Fuser Exhaust Fan and grids.
- 4 Remove the fan and the top and bottom grids.

Figure 4.6.6 Removing the Fuser Exhaust Fan



wsm4-71

Replacement

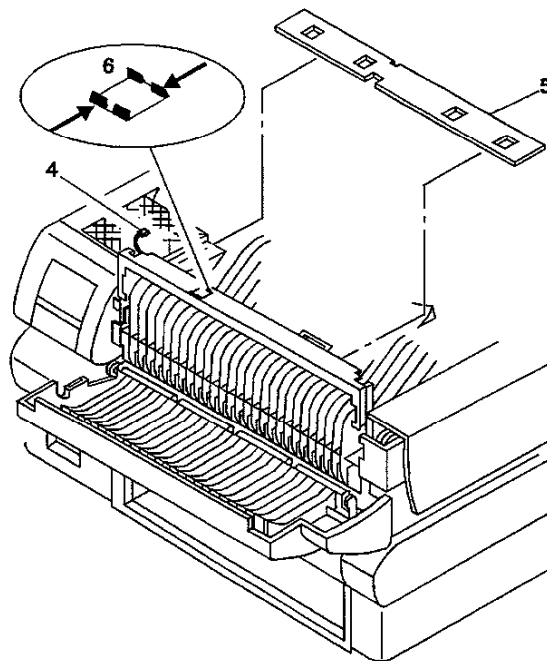
- 1 To reinstall the Fuser Exhaust Fan, reverse Steps 1 through 4.

4.6.7 Full Stack Sensor

Removal

- 1 Cancel all pending print jobs, take the printer off-line, and disconnect the power cord.
- 2 Open the Top Cover.
- 3 Open the Exit Door.
- 4 Disconnect the Full Stack Sensor at P/J 122 (the in-line connector below the Fuser Exhaust Fan).
- 5 Remove the Paper Deflector by sliding it off the frame.
- 6 Remove the sensor by pressing inward on the tabs protruding through the Paper Deflector.

Figure 4.6.7 Removing the Full Stack Sensor



wsm4-72a

Replacement

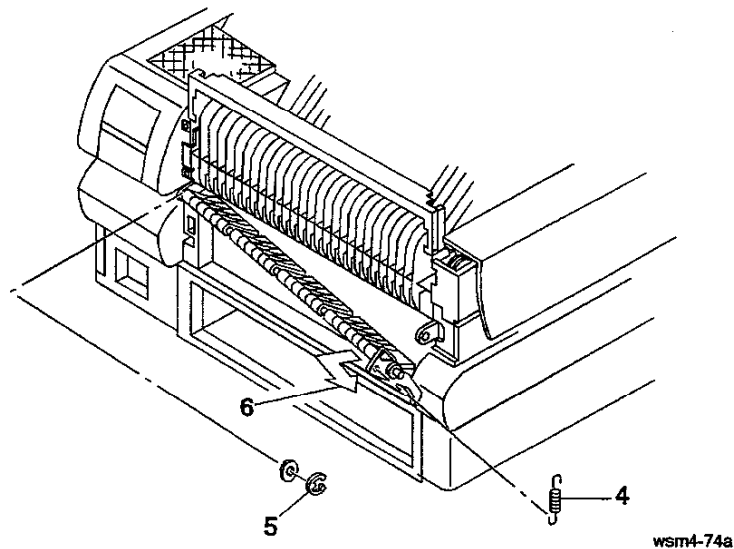
- 1 To reinstall the Full Stack Sensor, reverse Steps 1 through 6.

4.6.8 Diverter Gate

Removal

- 1 Cancel all pending print jobs, take the printer off-line, and disconnect the power cord.
- 2 Remove Tray 1.
- 3 Remove the Exit Door (REP 4.1.2).
- 4 Disconnect the Diverter Gate Spring from the right side of the gate.
- 5 Remove the E Ring from the left end of the Diverter Gate shaft.
- 6 Remove the gate by moving it to the left out of the pivot hole.

Figure 4.6.8 Removing the Diverter Gate



Replacement

- 1 To reinstall the Diverter Gate, reverse Steps 1 through 6.

4.6.9 High-Capacity Stacker

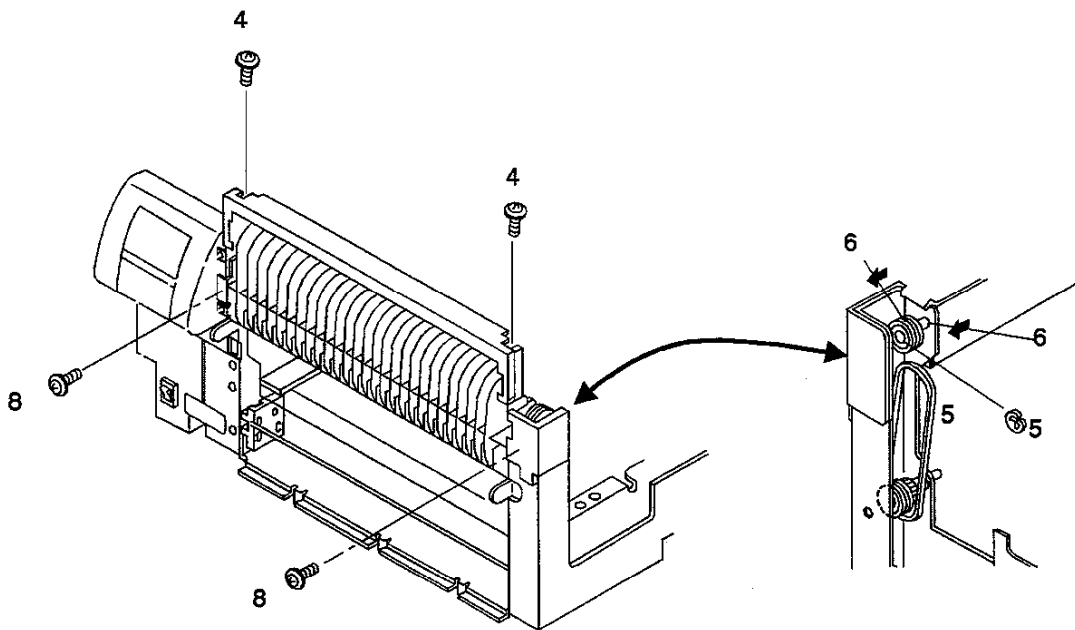
Removal

- 1 Open the Exit Door.
- 2 Remove the Exit Door (REP 4.1.2).
- 3 Disconnect the Full Stack Sensor P/J 122.

NOTE: Hold the Full Stack Sensor in its free position when performing Step 4.

- 4 Remove the two screws securing the Output Sensor Frame, which holds the Full Stack Sensor.
- 5 Remove the C Ring and Exit Drive Belt from the Exit Roll Pulley.
- 6 Slide the pulley to the end of the shaft and free the sleeve bearing.
- 7 Remove the Diverter Gate Spring.
- 8 Remove the two retaining screws and lift out the High-Capacity Stacker.

Figure 4.6.9 Removing the High-Capacity Stacker



wsm4-73

Replacement

- 1 To reinstall the High-Capacity Stacker, reverse Steps 1 through 8.

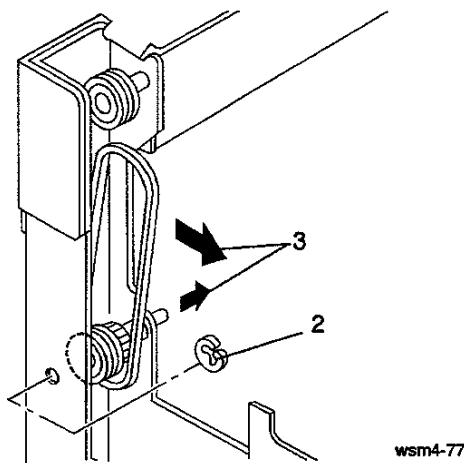
NOTE: Hold the Diverter Gate level when you reinstall the Diverter Gate Spring.

4.6.10 Exit Roll

Removal

- 1 Remove the High-Capacity Stacker (see 4.6.9).
- 2 Remove the E Ring on the left end of the Exit Roll shaft.
- 3 Slide the shaft to the right, removing the Exit Drive Belt and bushing from the right end of the shaft, and sliding them out of the frame.
- 4 Lift the Exit Roll out.

Figure 4.6.10 Removing the Exit Roll



Replacement

- 1 To reinstall the Exit Roll, reverse Steps 1 through 4.



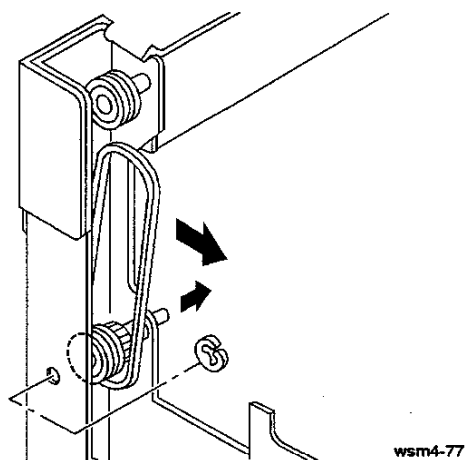
CAUTION Lift and hold the wire harness out of the way when you reinstall the Exit Roll.

4.6.11 Exit Drive Belt

Removal

- 1 Remove Tray 1 (Upper Tray).
- 2 Remove the Exit Door (REP 4.1.2).
- 3 Remove the Front Cover (REP 4.1.3).
- 4 Remove the Right Cover (REP 4.1.5)
- 5 Slip the Exit Drive Belt off the Exit Roll Pulley.
- 6 Remove the E Ring on the end of the lower Exit Roll shaft.
- 7 Slide the shaft to the left and remove the drive belt.

Figure 4.6.11 Removing the Exit Drive Belt



Replacement

- 1 To reinstall the Exit Drive Belt, reverse Steps 1 through 7.

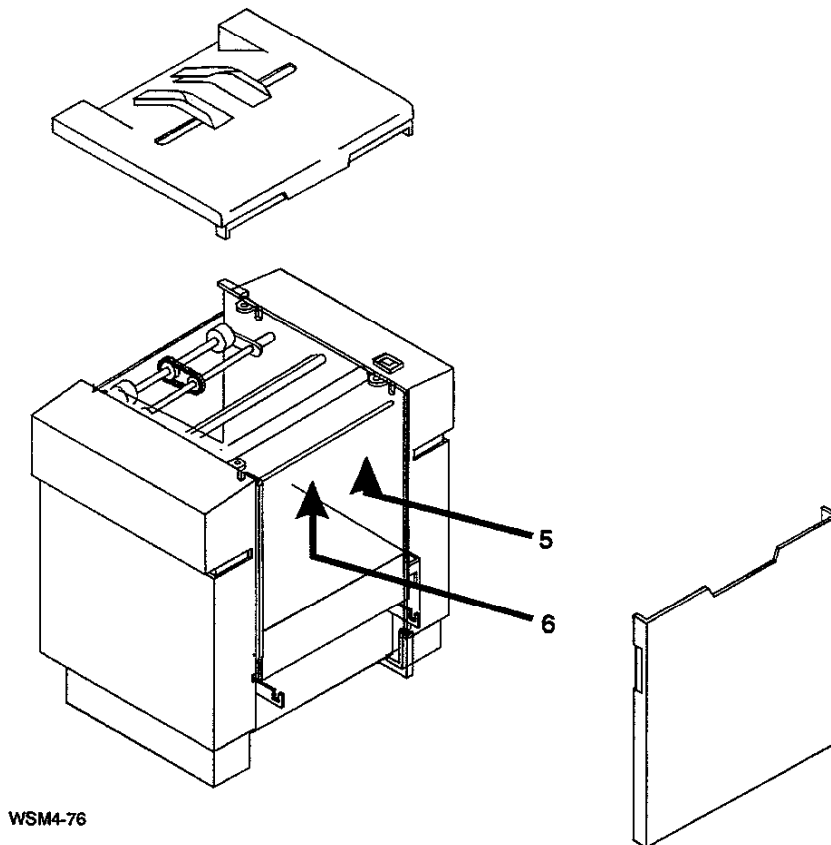
4.7 High-Capacity Feeder (HCF) and High-Capacity Envelope Feeder (HCEF)

The repair procedures outlined in this section apply to both the HCF and HCEF unless otherwise noted.

4.7.1 HCF/HCEF Top Cover

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove Top Cover screw(s).
- 6 Gently squeeze latch tabs and lift off the Top Cover.

Figure 4.7.1 Removing the HCF/HCEF Top Cover



WSM4-76

Replacement

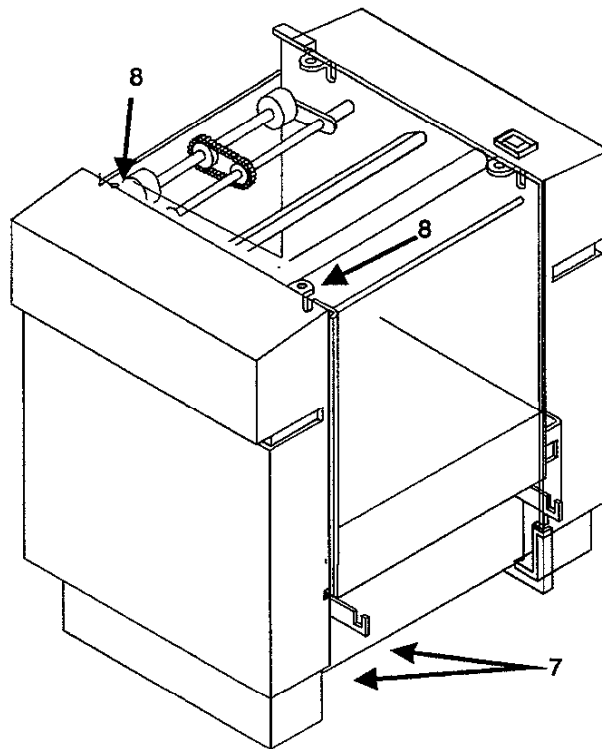
- 1 To reinstall the HCF/HCEF Top Cover, reverse Steps 1 through 6.

4.7.2 HCF/HCEF Right Cover

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove Elevator Tray Door.
- 6 Remove the HCF/HCEF Top Cover (see 4.7.1).
- 7 Loosen lower screws.
- 8 Remove the two top screws securing the Right Cover.

Figure 4.7.2 Removing the HCF/HCEF Right Cover



Replacement

- 1 To reinstall the HCF/HCEF Right Cover, reverse Steps 1 through 8.

4.7.3 HCF/HCEF Left Cover

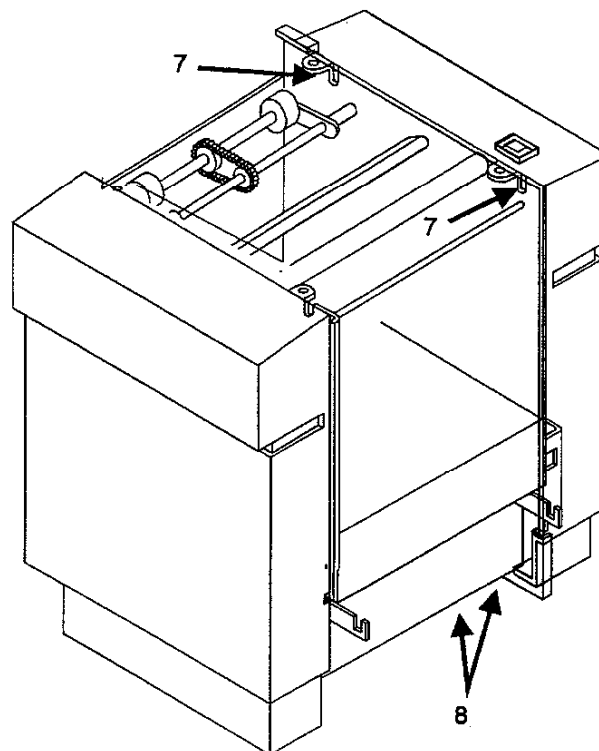
Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove Elevator Tray Door.
- 6 Remove the HCF/HCEF Top Cover (REP 4.7.1).
- 7 Remove the two top screws securing the HCF/HCEF Left Cover.
- 8 Loosen the two screws securing the bottom of the Left Cover.

NOTE: Be careful not to damage the harness to the elevator down switch when removing the cover.

- 9 Move the Left Cover away from the HCF/HCEF slightly.
- 10 Unplug the elevator down switch harness (P/J 5) from the HCF/HCEF PWB.
- 11 Remove the Left Cover.

Figure 4.7.3 Removing the HCF/HCEF Left Cover.



Replacement

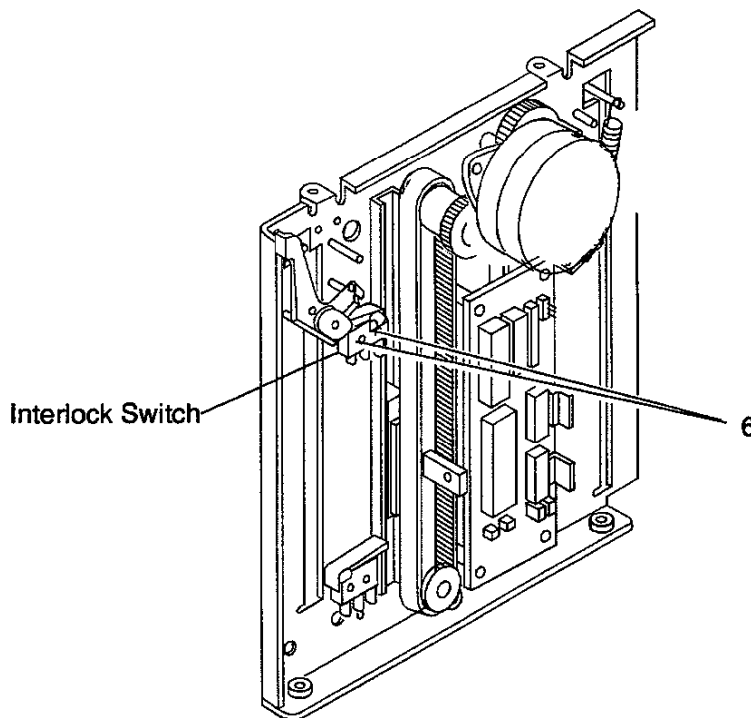
- 1 To reinstall the HCF/HCEF Left Cover, reverse Steps 1 through 11.

4.7.4 Elevator Door Interlock Switch

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the Left Cover (REP 4.7.3).
- 6 Remove the two nuts securing the Elevator Door Interlock Switch.
- 7 Unplug the two wires leading to the switch, and remove the switch.

Figure 4.7.4 Removing the Elevator Door Interlock Switch



WSM4-79

Replacement

- 1 To reinstall the Elevator Door Interlock Switch, reverse Steps 1 through 7.

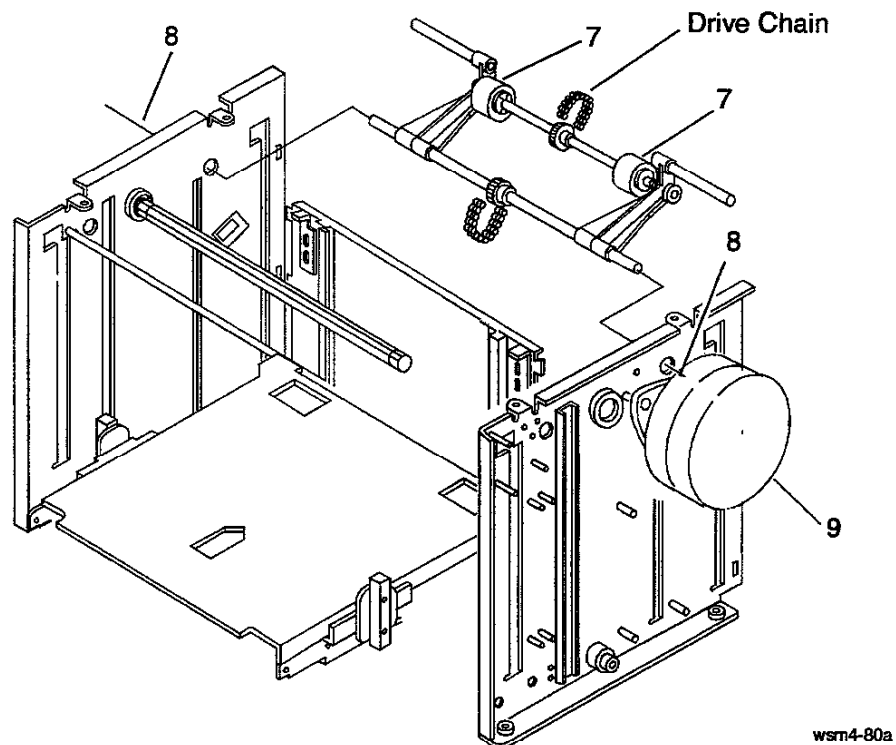
NOTE: Ensure that wires are connected to normally open (N.O.) and common (C.) pins of switch.

4.7.5 Feed Roll Drive Chain

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Top Cover (REP 4.7.1).
- 6 Remove the feeder Right and Left Covers (REP 4.7.2 and REP 4.7.3).
- 7 Remove the HCF Feed Rolls. (The HCEF has one Feed Roll.) (REP 4.7.12)
- 8 Remove the E Rings on the feed roll drive shaft.
- 9 Remove the Paper Feed Motor (REP 4.7.13).
- 10 Slide the feed roll drive shaft towards the left of the feeder until the right end of the shaft is clear of the right frame.
- 11 Remove the right feed roll pressure arm.
- 12 Remove the Drive Chain.

Figure 4.7.5 Removing the Feed Roll Drive Chain



Replacement

- 1 To reinstall the Feed Roll Drive Chain, reverse Steps 1 through 12.

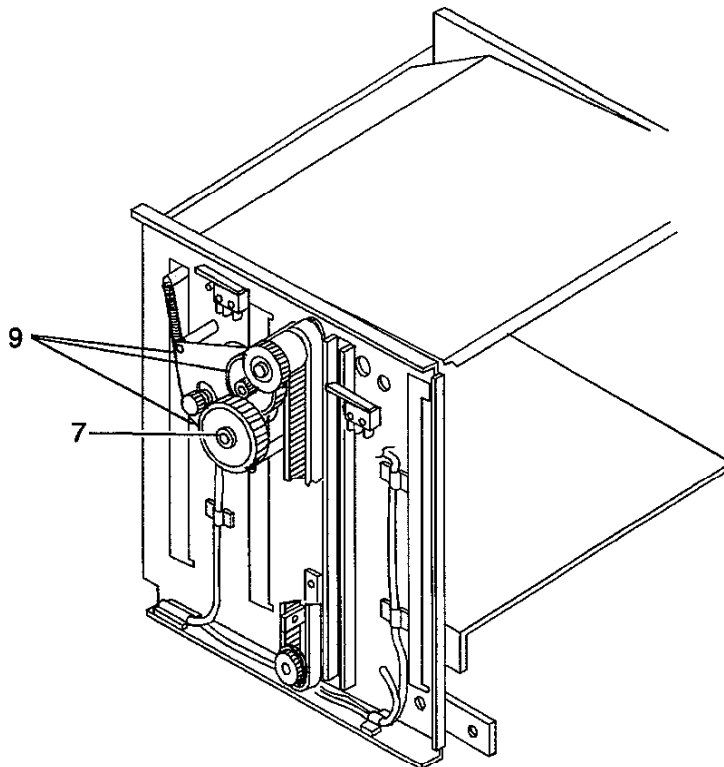
4.7.6 Elevator Motor

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Top and Right Covers (REP 4.7.1 and REP 4.7.2).
- 6 If the elevator has not lowered fully, the elevator motor has failed. Carefully lower the tray by turning the gear on the right of the feeder.
- 7 Remove the small E Ring securing the large elevator drive gear and remove the gear.
- 8 Unplug the Elevator Motor wiring harness (P/J 2).
- 9 Remove the three screws securing the Elevator Motor and remove the motor.

NOTE: Assemble the motor and gear plate assembly to the side frame, making sure all gears turn freely with slight backlash between item 1 (elevator drive gear) and item 5 (gear pulley 12g / 28t). See HCF/HCEF parts list in Section 3.

Figure 4.7.6 Removing the Elevator Motor



wsm4-81

Replacement

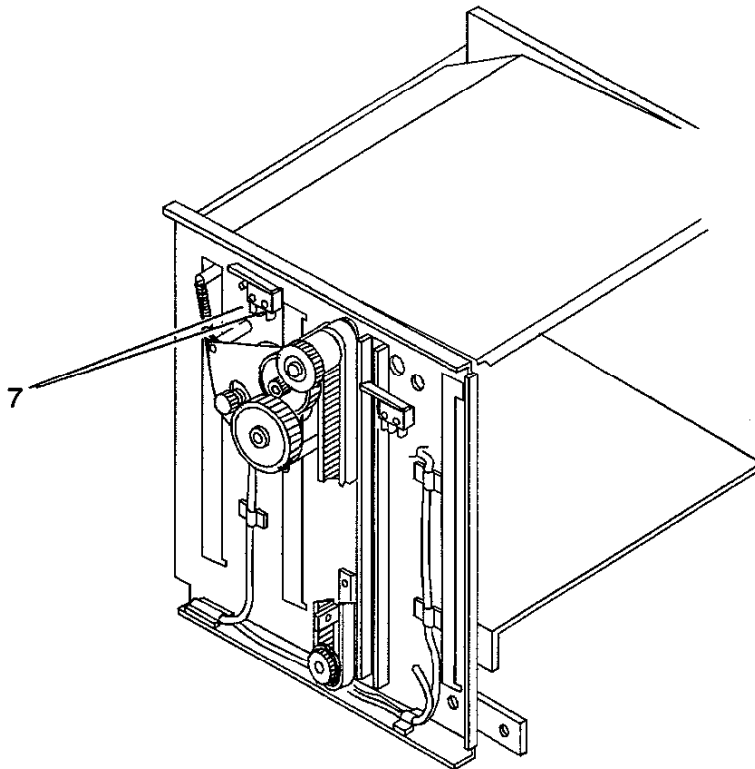
- 1 To reinstall the Elevator Motor, reverse Steps 1 through 9.

4.7.7 Upper Limit Switch

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Top Cover (REP 4.7.1).
- 6 Remove the HCF Right Cover (REP 4.7.2).
- 7 Remove the two nuts securing the Upper Limit Switch.
- 8 Disconnect the wires leading to the switch and remove the switch.

Figure 4.7.7 Removing the Upper Limit Switch



wsm4-81

Replacement

- 1 To reinstall the Upper Limit Switch, reverse Steps 1 through 8.

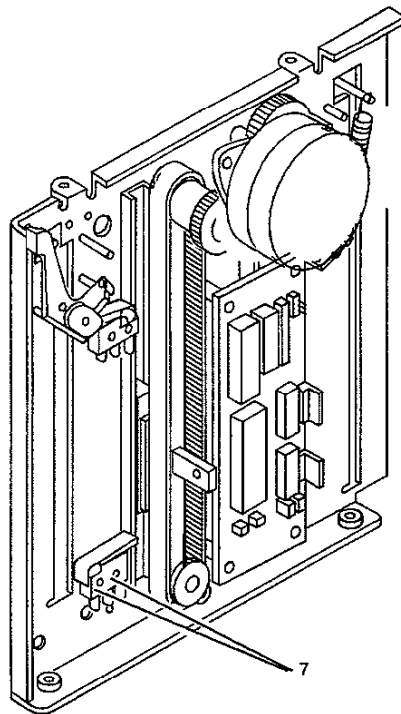
NOTE: Ensure that wires are connected to normally closed (N.C.) and common (C.) pins of switch.

4.7.8 Lower Limit Switch

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Top Cover (REP 4.7.1).
- 6 Remove the HCF Left Cover (REP 4.7.3).
- 7 Remove the two screws securing the Lower Limit Switch.
- 8 Disconnect the wires leading to the switch and remove the switch.

Figure 4.7.8 Removing the Lower Limit Switch



wsm4-79

Replacement

- 1 To reinstall the Lower Limit Switch, reverse Steps 1 through 8.

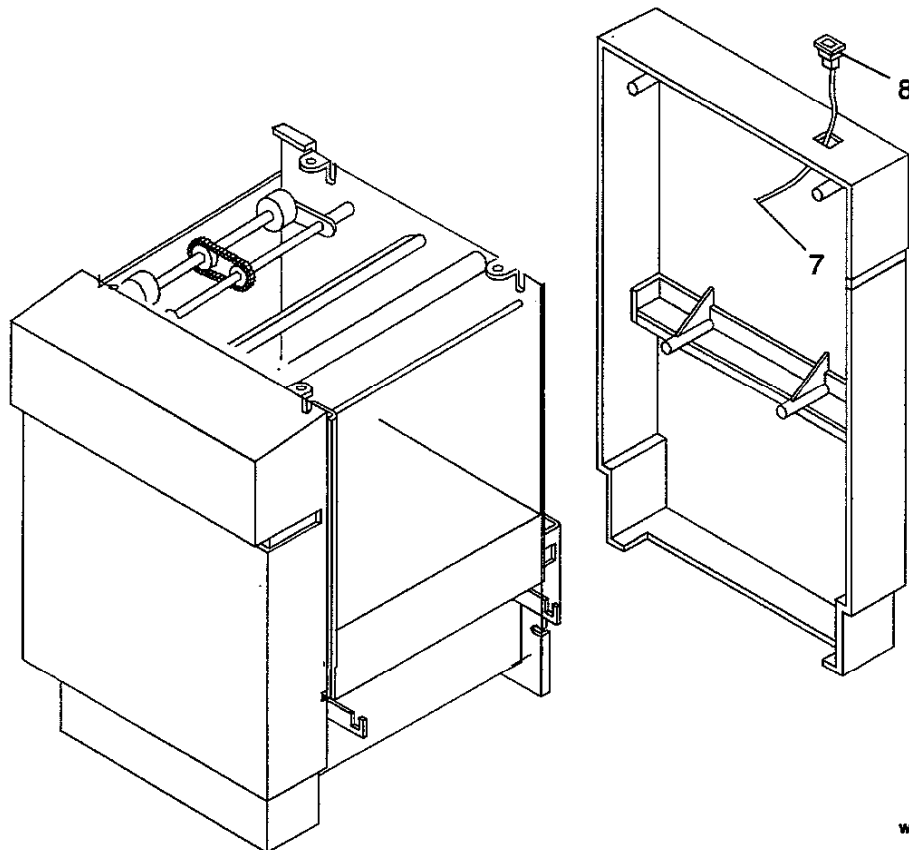
NOTE: Ensure that wires are connected to normally open (N.O.) and common (C.) pins of switch.

4.7.9 Elevator Down Switch

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Top Cover (REP 4.7.1).
- 6 Remove the HCF Left Cover (REP 4.7.3).
- 7 Remove the quick disconnect wires from the switch.
- 8 Carefully press the switch upwards to remove it from its mounting hole in the cover.

Figure 4.7.9 Removing the Elevator Down Switch



wsm4-84

Replacement

- 1 To reinstall the Elevator Down Switch, reverse Steps 1 through 8.

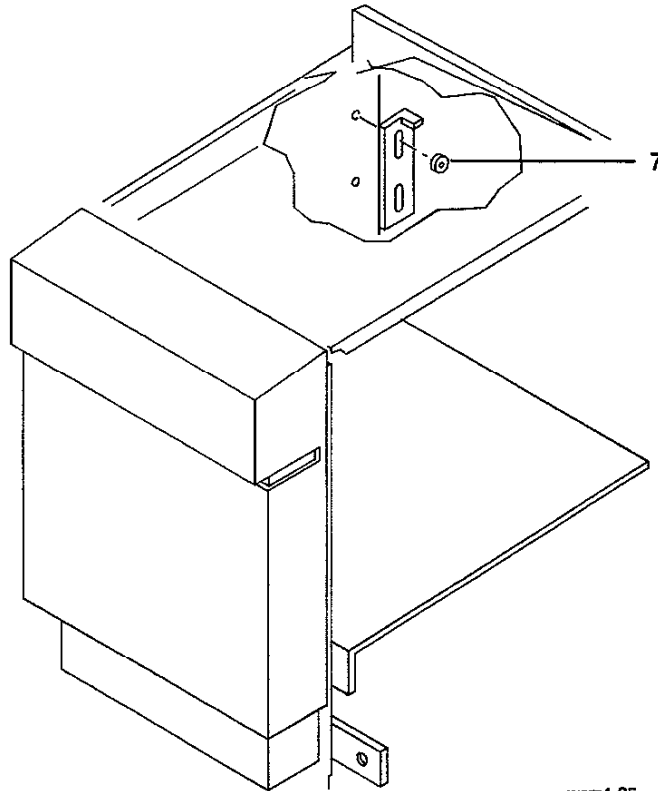
NOTE: Ensure that wires are connected to normally open (N.O.) and common (C.) pins of switch.

4.7.10 HCF Paper Tray Snubbers

Removal

- 1 Press the Elevator Down Switch to fully lower the elevator.
- 1 Open the elevator door and remove the paper from the HCF.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Disconnect the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder, and move the feeder away from the printer.
- 5 Remove the Top Cover (REP 4.7.1).
- 6 Remove four screws and remove the mounting bracket.
- 7 Remove the two screws and threaded washers, securing each snubber and remove the snubbers.

Figure 4.7.10 Removing the HCF Paper Tray Snubbers



wsm4-85

Replacement

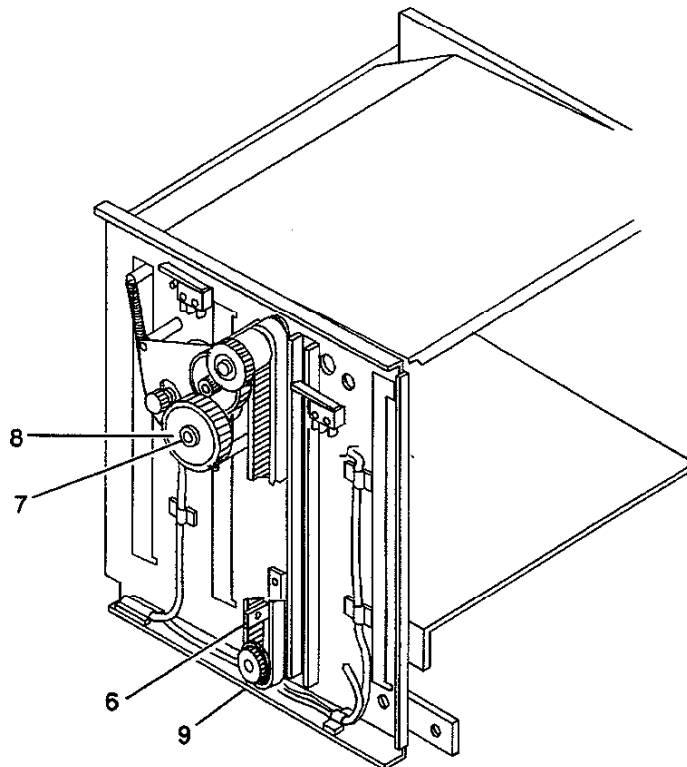
- 1 To reinstall the HCF Paper Tray Snubbers, reverse Steps 1 through 7.

4.7.11 Elevator Drive Belts

Removal (Right Drive Belt)

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Right Cover (REP 4.7.2).
- 6 Remove the screw securing the clamp to the drive belt.
- 7 Remove the E Ring securing the large elevator drive gear to its shaft.
- 8 Remove the gear from the shaft.
- 9 Remove the drive belt by sliding it off of the lower pulley first, then removing it from the upper shaft.

Figure 4.7.11a Removing the Right Elevator Drive Belt

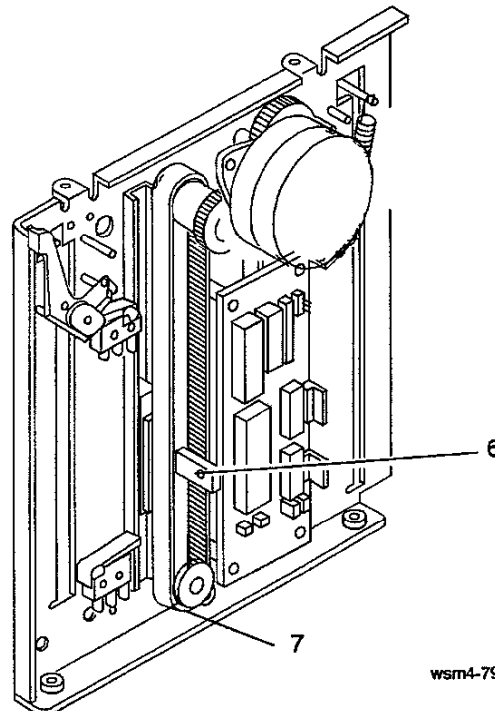


wsm4-81

Removal (Left Elevator Drive Belt)

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Left Cover (see 4.7.3).
- 6 Remove the screw securing the clamp to the drive belt.
- 7 Remove the belt by sliding it off of the lower pulley first.

Figure 4.7.11b Removing the Left Elevator Drive Belt



Replacement

NOTE: It is easiest to remove the Left lower pulley from its shaft, place the drive belt around the pulley and slide them onto the shaft together.

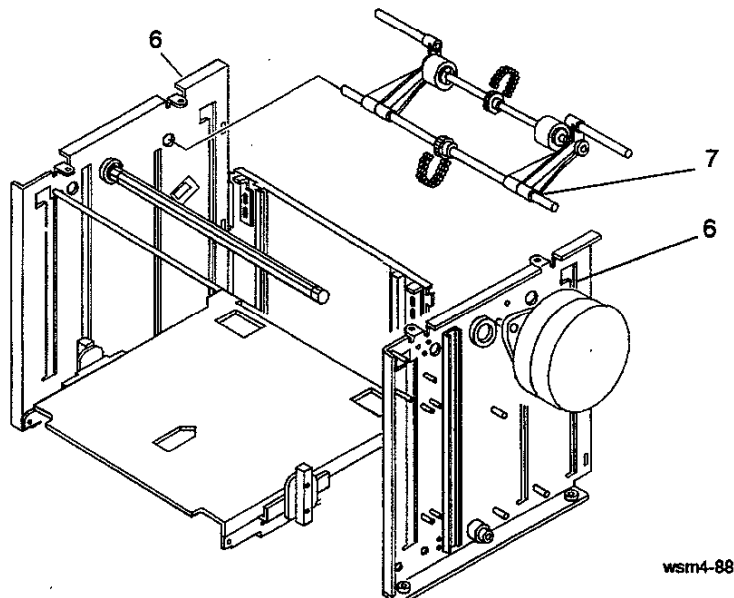
- 1 To reinstall the Elevator Drive Belts, reverse the Steps for the appropriate Drive Belt.
- 2 Check the Tray Parallelism (4.12).

4.7.12 HCF/HCEF Feed Roll(s)

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF/HCEF Top, Right, and Left Covers (REP 4.7.1, REP 4.7.2, and REP 4.7.3).
- 6 Unhook the two feed roll tension springs from the feed roll arms.
- 7 Remove the right E Ring holding the right feed roll arm in place on the drive shaft.
- 8 Slide the feed roll arm outwards until the feed roll shaft is free.
- 9 Remove the shaft.
- 10 Slide the feed rolls off the shaft.

Figure 4.7.12 Removing the HCF/HCEF Feed Roll(s)



Replacement

NOTE: Ensure that the one way clutches in the feed roll hubs are oriented properly. Feed rolls should freewheel in a clockwise direction when viewed from the right side of the feeder.

NOTE: Replace the feed rolls as a set only.

NOTE: To obtain the optimum feed force, the feed roll tension springs are normally placed in the second hole from the top on the HCF frame brackets. The spring position may be adjusted to increase the amount of feed force or to equalize the feed force from side to side.

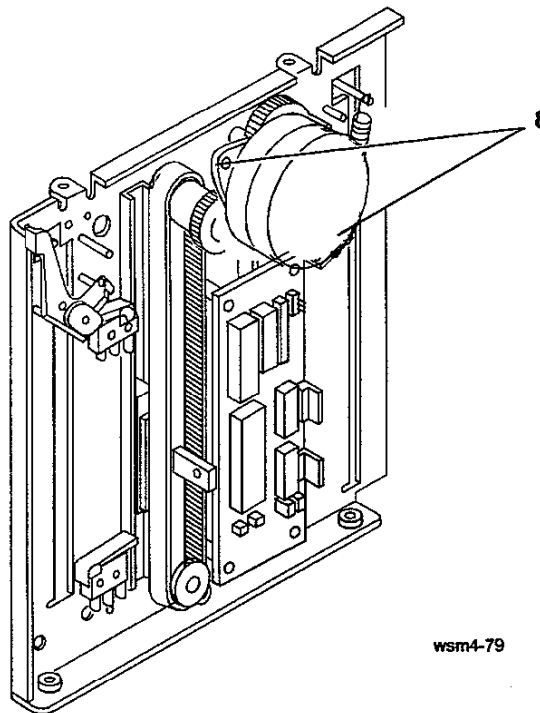
- 1 To reinstall the Feed Roll(s), reverse Steps 1 through 10.
- 2 On HCF, perform Tray Parallelism (4.12).

4.7.13 HCF/HCEF Paper Feed Motor

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF/HCEF Left Cover (REP 4.7.3).
- 6 Unplug P/J 3 from the HCF/HCEF PWB.
- 7 Unclip the wiring harness.
- 8 Remove the two screws securing the Paper Feed Motor and remove the motor.

Figure 4.7.13 Removing the HCF/HCEF Paper Feed Motor



wsm4-79

Replacement

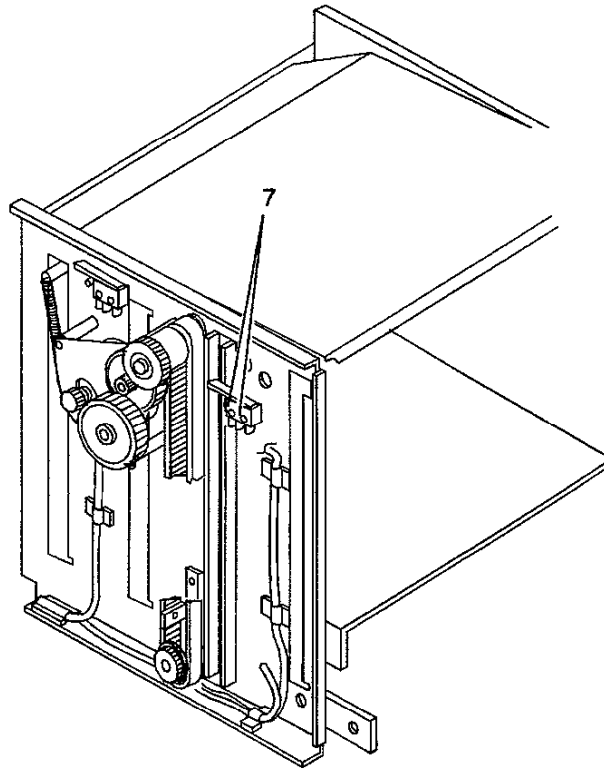
- 1 To reinstall the HCF/HCEF Paper Feed Motor, reverse Steps 1 through 8.

4.7.14 HCF/HCEF Tray Empty Switch

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove HCF/HCEF Right Cover (see 4.7.2).
- 6 Remove the quick disconnect wires from the switch.
- 7 Remove the two screws securing the Tray Empty Switch and remove the switch.

Figure 4.7.14 Removing the HCF/HCEF Tray Empty Switch



Replacement

- 1 To reinstall the HCF/HCEF Tray Empty Switch, reverse Steps 1 through 7.

NOTE: Ensure that wires are connected to normally open (N.O.) and common (C.) pins of switch.

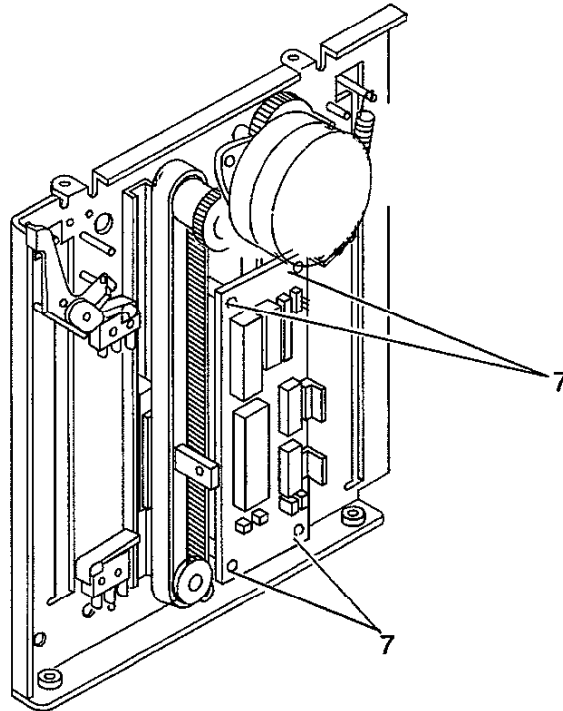
4.7.15 HCF/HCEF PWB

Removal

- 1 Press the Elevator Down Switch to lower the elevator fully.
- 2 Switch the printer power OFF and disconnect the power cord.
- 3 Unplug the HCF interface cable from the printer at P/J 74.
- 4 Press down on the two latch levers on the feeder and move feeder away from printer.
- 5 Remove the HCF Left Cover (REP 4.7.3).
- 6 Unplug the P/Js from the HCF PWB.
- 7 Remove the four screws securing the HCF/HCEF PWB and remove the PWB.

NOTE: The PWB is common for all high capacity feeder types. Feeder discrimination is accomplished through a series of jumpers in the D-shell connector of the interface cable.

Figure 4.7.15 Removing the HCF/HCEF PWB



Replacement

- 1 To reinstall the HCF/HCEF PWB, reverse Steps 1 through 7.

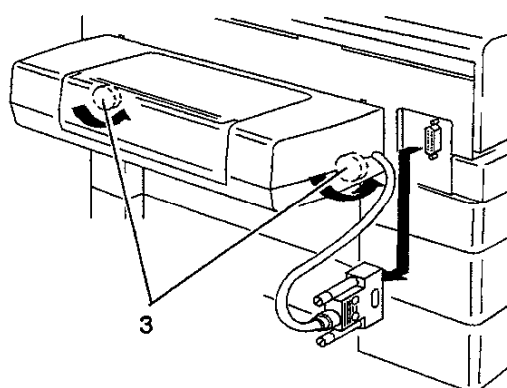
4.8 Multi-Sheet Bypass Feeder (MBF)

4.8.1 MBF Top Cover

Removal

- 1 Switch the printer power OFF and remove the power cord.
- 2 Disconnect the MBF interface cable (see Figure 4.8.1a).
- 3 Turn the two thumb screws to remove the MBF from the printer (see Figure 4.8.1a).

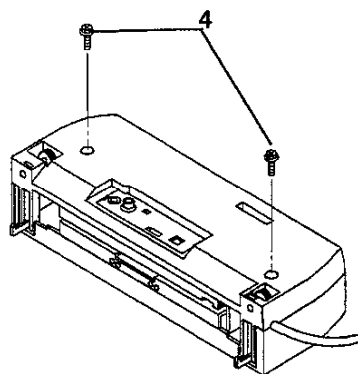
Figure 4.8.1a Removing the MBF



wsm4-95a

- 4 Turn the MBF upside down, and remove the two screws securing the Top Cover to the MBF (see Figure 4.8.1b).

Figure 4.8.1b Removing the two screws



wsm4-95

- 5 Carefully turn the MBF right side up and lift off the Top Cover.

Replacement

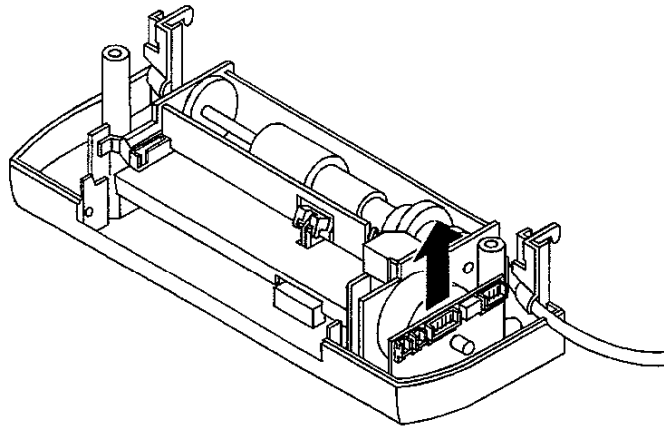
- 1 To reinstall the MBF Top Cover, reverse Steps 1 through 5.

4.8.2 MBF PWB

Removal

- 1 Remove the MBF Top Cover (REP 4.8.1).
- 2 Disconnect the connectors on top of the MBF PWB.
- 3 Lift the PWB out of the cavity.

Figure 4.8.2 Removing the MBF PWB



wsm4-96

Replacement

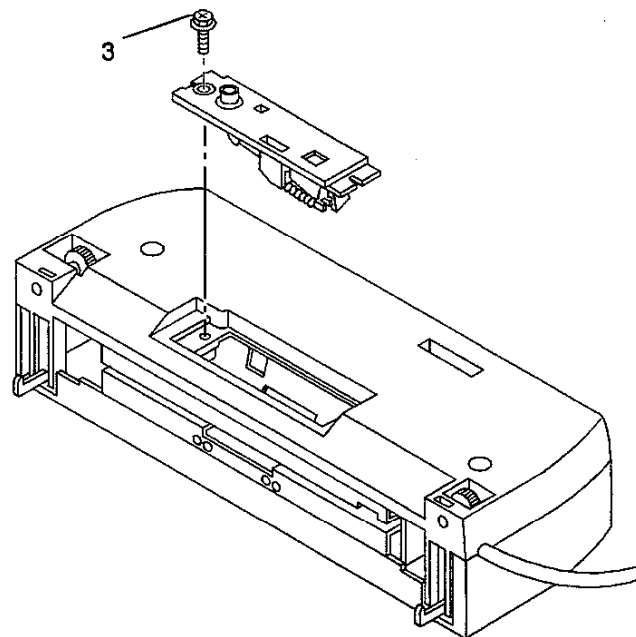
- 1 To reinstall the MBF PWB, reverse Steps 1 through 3.

4.8.3 Retard Assembly

Removal

- 1 Remove the MBF (REP 4.8.1).
- 2 Turn the MBF upside down.
- 3 Remove the screw securing the Retard Assembly (Figure 4.8.3).
- 4 Lift the Retard Assembly out of the MBF.

Figure 4.8.3 Removing the Retard Assembly



wsm4-97

Replacement

- 1 To reinstall the Retard Assembly, reverse Steps 1 through 4.

4.8.4 Feed Sensor

Removal

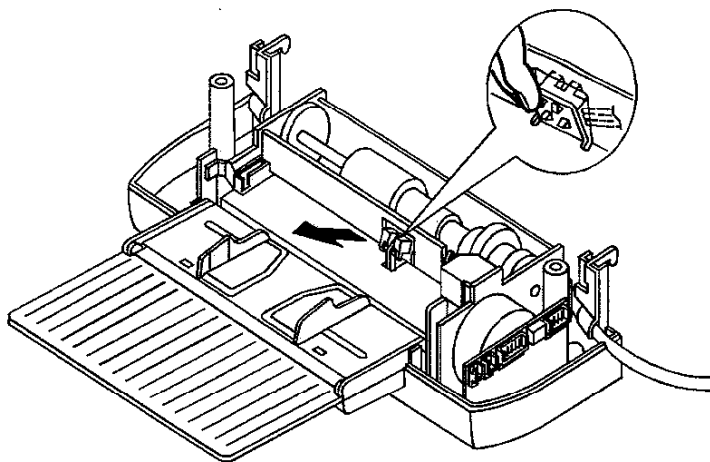
- 1 Remove the MBF Top Cover (REP 4.8.1).



CAUTION The sensor retainers can be easily damaged.

- 2 Remove the sensor by pushing the retainers towards the center of the sensor housing.

Figure 4.8.4 Removing the Feed Sensor



wsm4-98

Replacement

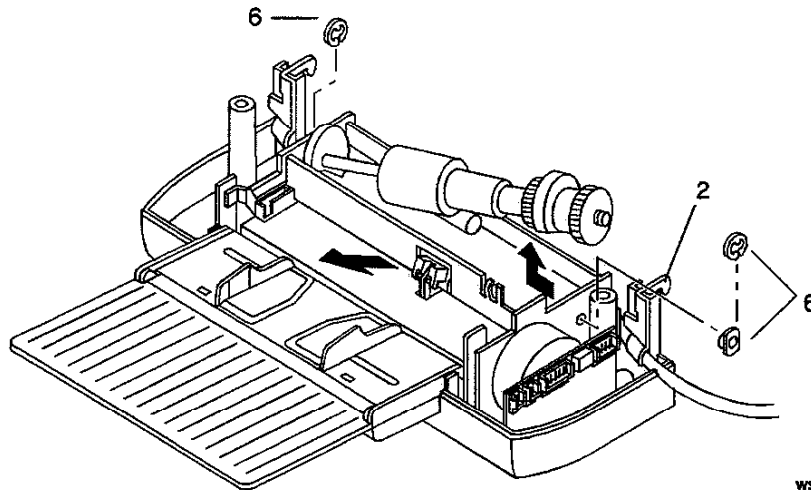
- 1 To reinstall the Feed Sensor, reverse Steps 1 through 2.

4.8.5 MBF Feed Roll Assembly

Removal

- 1 Remove the MBF Top Cover (REP 4.8.1).
- 2 Remove the one screw holding the Rear latch.
- 3 Remove the Retard Assembly (REP 4.8.3).
- 4 Remove the four screws holding the Feed Assembly.
- 5 Remove the MBF Feed Solenoid (REP 4.8.7).
- 6 Remove the E-Rings and Feed Roll Bearings.
- 7 Lift out the Feed Roll Assembly.

Figure 4.8.5 Removing the MBF Feed Roll Assembly



wsm4-99

Replacement

- 1 To reinstall the MBF Feed Roll Assembly, reverse Steps 1 through 7.

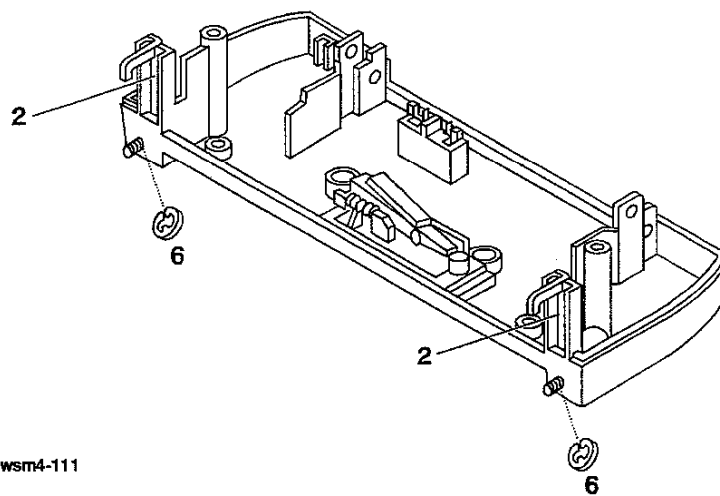
NOTE: Orient the cams in the same position on the Feed Roll before reassembly.

4.8.6 MBF Lower Cover

Removal

- 1 Remove the MBF Top Cover (REP 4.8.1).
- 2 Remove the two screws holding the Front and Rear Latches.
- 3 Remove the Retard Assembly (REP 4.8.3).
- 4 Remove the Input Tray.
- 5 Remove the MBF Feed Roll Assembly (REP 4.8.5) and lift off the Plate and Plate Springs.
- 6 Remove the E-Rings from the thumb screws and slide out the screw shafts, retaining washers and knobs.

Figure 4.8.6 Removing the MBF Lower Cover



Replacement

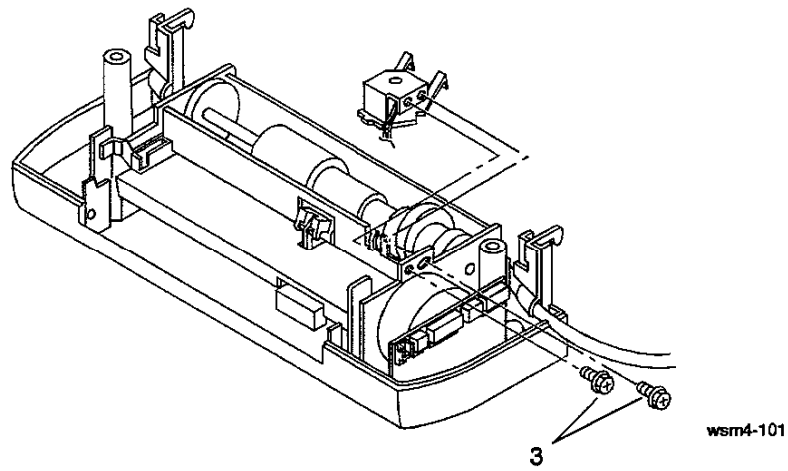
- 1 To reinstall the MBF Lower Cover, reverse Steps 1 through 6.

4.8.7 MBF Feed Solenoid

Removal

- 1 Remove the MBF Top Cover (REP 4.8.1).
- 2 Disconnect P/J CN3 from the MBF PWB.
- 3 Remove the two screws securing the Feed Solenoid to the MBF assembly, and remove the solenoid.

Figure 4.8.7 Removing the MBF Feed Solenoid



Replacement

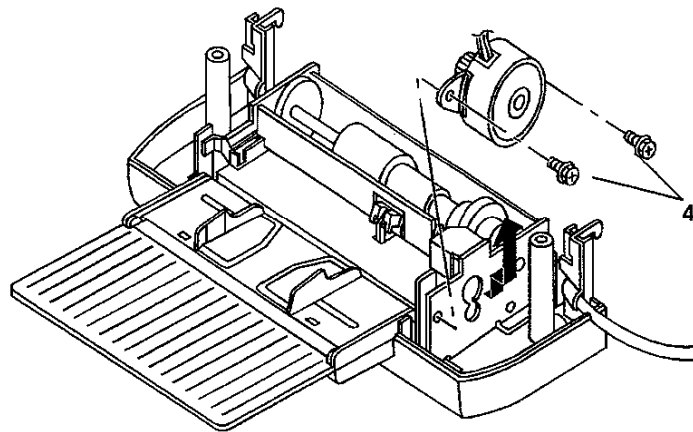
- 1 To reinstall the MBF Feed Solenoid, reverse Steps 1 through 3.

4.8.8 MBF Motor

Removal

- 1 Remove the MBF Top Cover (REP 4.8.1).
- 2 Disconnect CN2.
- 3 Lift the MBF Feeder PWB out of the way.
- 4 Remove the two screws and lift out MBF Motor.

Figure 4.8.8 Removing the MBF Motor



wsm4-102

Replacement

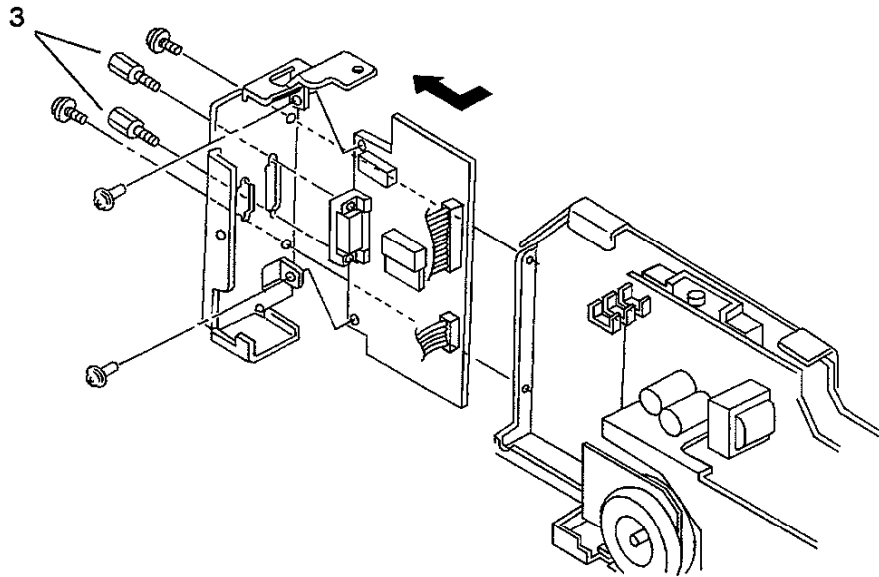
- 1 To reinstall the MBF Motor, reverse Steps 1 through 4.

4.8.9 MBF Interface Harness, Optional Feeders

Removal

- 1 Remove the Low Voltage Power Supply Cover (REP 4.1.6).
- 2 Disconnect P/J 13 from the Printer Engine Controller Board.
- 3 Remove the two quarter-inch hex screws securing the MBF Harness (Figure 4.8.9).
- 4 Remove the Harness.

Figure 4.8.9 Removing the Interface Harness



wsm4-30b

Replacement

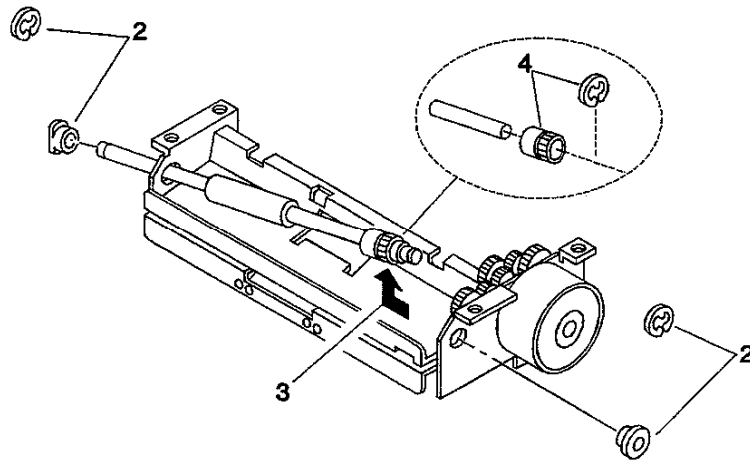
- 1 To reinstall the MBF Interface Harness, reverse Steps 1 through 4.

4.8.10 MBF Take-Away Roll

Removal

- 1 Remove the MBF Feed Roll Assembly (REP 4.8.5).
- 2 Remove E-Rings and bearings on the Take-Away Roll.
- 3 Slide out the Roller Shaft.
- 4 Remove the one-way clutch and E-Ring.

Figure 4.8.10 Removing the MBF Take-Away Roll



wsm4-104

Replacement

- 1 To reinstall the MBF Take-Away Roll, reverse Steps 1 through 4.

4.9 Developer Bias Adjustment

- 1 Switch the printer power OFF.



CAUTION Use only a dry cotton swab when cleaning the High Voltage Power Supply spring contact and the corresponding contacts on the Print Cartridge.

- 2 Inspect for proper contact and clean the HVPS spring contacts and ground contacts. Clean the corresponding contact on the print cartridge. If the spring contacts are missing, replace the HVPS (REP 4.2.2).
- 3 Follow the instructions in section 5 and enter diagnostic mode 1. Run DG 92.



WARNING! High voltages can be dangerous. Use care when measuring the developer bias.

- 4 Open the top cover and cheat the top cover interlock switch.
- 5 Measure the voltage from the developer bias spring contact (rear contact) and frame ground.
- 6 Rotate the green bias adjustment knob stopping at its center position.
- 7 If the voltage is between -200 VDC and -230 VDC the developer is set correctly.
- 8 If there is no voltage present, go to the HVPS Checkout Procedure in section 7.
- 9 If there is voltage present but is not within the proper range or has a wide fluctuation, replace the HVPS (REP 4.2.2)
- 10 If the voltage did not change when the developer bias knob was turned, replace the HVPS (REP 4.2.2).

4.10 Registration Adjustment



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

To set the printer registration, perform the following:

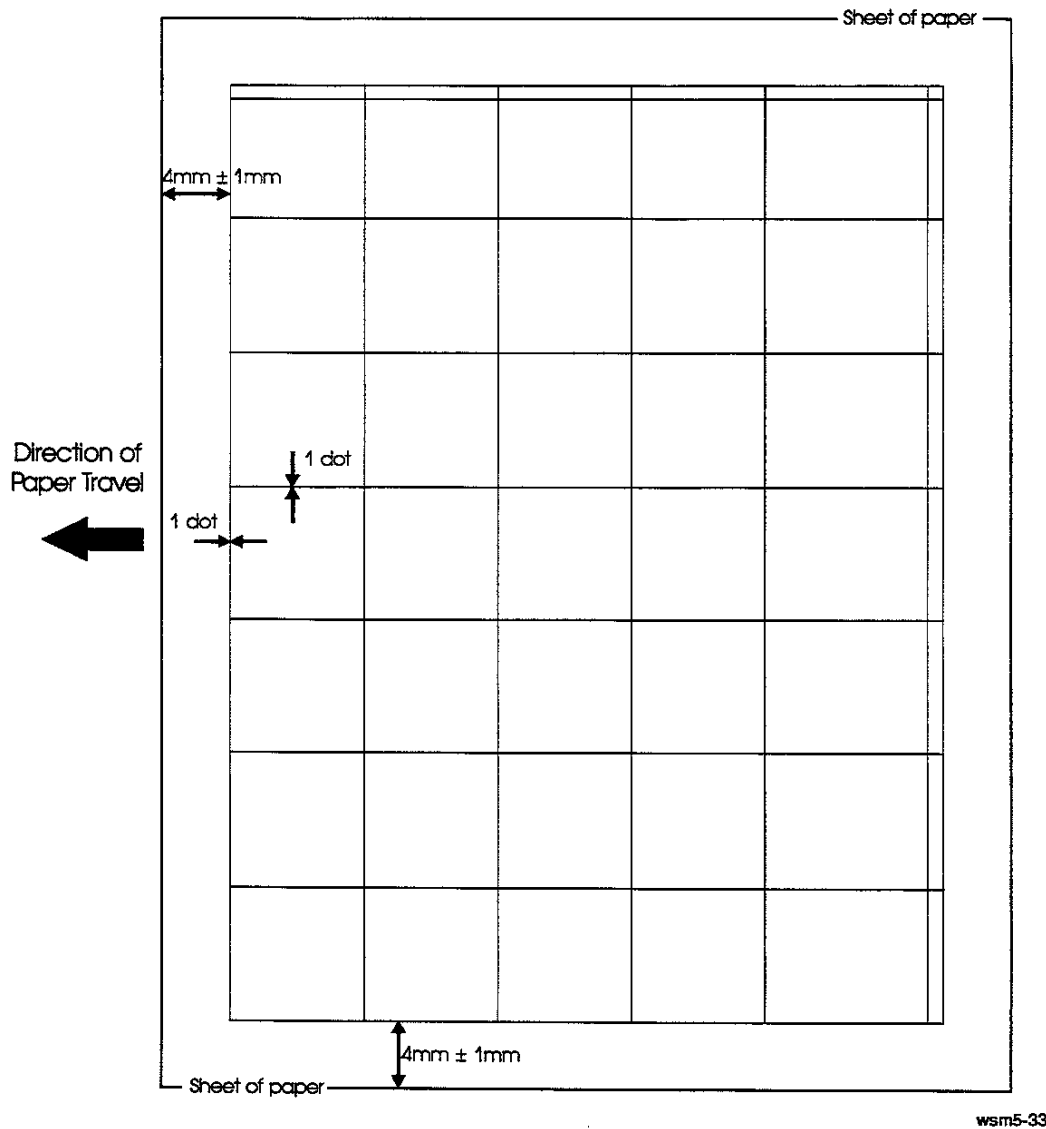
- 1 Ensure the printer is set for 300x300 DPI.
- 2 Remove ALL paper trays/feeders. Insert the paper tray/feeder you wish to test/adjust.
- 3 Enter diagnostic mode 3.
- 4 Press the "Enter" key until "Test Print" "Selecting NV 4" is displayed on the LCD panel.
- 5 Press the "Down" key.
- 6 Compare the printed test pattern with Figure 4.10a.
- 7 If the printed test pattern is within specifications, go to step 12.
- 8 If the test pattern is not within specifications, press the "Enter" key until the Registration message for the tray selected in step 1 is displayed (NV 2- for registration in the process direction, NV 3- tray 1 side to side, NV A- for tray 2 side to side, or NV D- for tray 3 side to side).

NOTE: Registration has 9 steps from "0" through "8." The last digit in the NV number is the current printer setting. If you wish to increase the distance between the edge of the paper and the test pattern, adjust the setting toward "8." If you wish to decrease the distance between the edge of the paper and the test pattern, adjust the setting toward "0."

- 9 Note the current setting displayed on the LCD panel.
- 10 Repeatedly press the "Down" key until the desired setting is displayed.
- 11 Repeat steps 4 through 10 until the printed test pattern is within specification.
- 12 Switch the printer power OFF, then switch the printer power ON.
- 13 Enter the menu mode, enter the test menu, and run a test print (see Figure 4.10b). 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.
- 14 If the test print is within specification, exit the menu mode and replace all paper trays/feeders.
- 15 If the test print is not within specification, enter diagnostic mode 3 and repeat steps 8, 9, 10, 12, 13, and 14.
- 16 If another tray needs to be checked/adjusted, repeat steps 2 through 15.

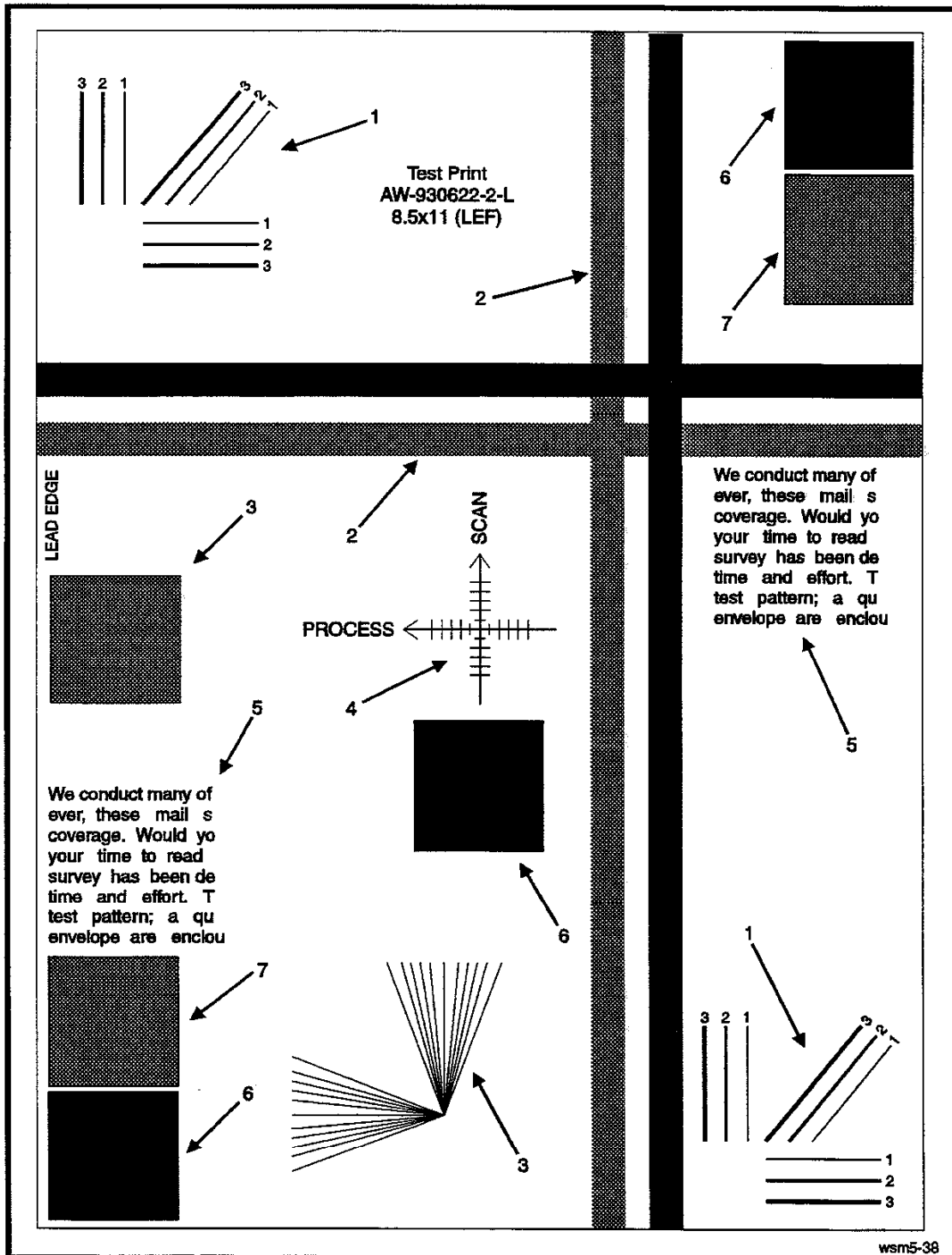
The test pattern illustrated in Figure 4.10a is used to set the initial registration on the 4520 laser printer. This test pattern can be printed using diagnostic mode 2 or diagnostic mode 3. Final registration is preformed using the test pattern illustrated in Figure 4.10b.

Figure 4.10a Test Pattern Specifications



The test pattern illustrated is to be used for final registration adjustments (area 4). This test pattern is accessed from the menu mode.

Figure 4.10b Test Pattern



4.11 Fuser Temperature Set

To check the current fuser temperature, see Diagnostic Mode 1, DG 07 and DG 08. In order to set the fuser temperature you must enter Diagnostic Mode 3 and perform "Fuser Temp. Set" NV 50. Instructions for all three tests are located in section 5 of this manual.

4.12 Tray Parallelism

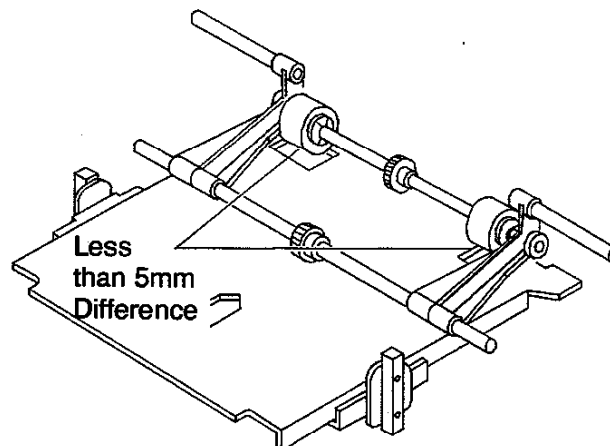
Check

- 1 Press the Elevator Down Switch and allow the elevator to lower fully. Remove the paper from the HCF.
- 2 Raise the elevator by actuating the elevator door switch. Allow the elevator to rise until one or both feed roll(s) just contact the tray surface. Stop the elevator by releasing the door switch.
- 3 If there is a gap between the tray surface and one of the feed rolls greater than 5mm (one belt tooth) go to Adjustment.

Adjustment

- 1 Switch the printer power OFF and disconnect the power cord.
- 2 Press down on the two latch levers on the feeder and move feeder away from printer.
- 3 Remove the HCF Top, Right, and Left Covers (REP 4.7.1, REP 4.7.2, and REP 4.7.3).
- 4 Loosen the clamps holding the elevator drive belts and adjust the tray so that it is parallel with the feed rolls.
- 5 Tighten the belt clamps.
- 6 Replace all covers.

Figure 4.12.0 Adjusting the Tray Parallelism



wsm4-92

Section 5

General Procedures and Information

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5.1 Printer Operations

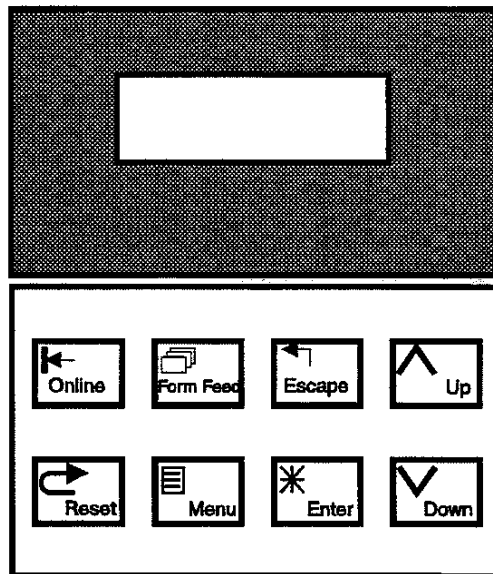
NOTE: The information presented in this section is based on a standard model Xerox 4520 Laser Printer and a defect-free System Controller PWB.

5.1.1 Control Panel

The Control Panel is located to the left of the Front Cover Assembly (Figure 5.1.1), and has one input device and one output device:

Input Device	The Control Panel keypad is the main user input device. The keypad has eight keys.
Output Device	The Liquid Crystal Display (LCD) displays messages sent from the Printer Controller and the System Controller. The LCD displays two lines of text, with sixteen characters per line.

Figure 5.1.1 Control Panel



wsm5-03

5.1.2 Printer Modes

The Xerox 4520 Laser Printer has three modes of operation, each with a unique set of options:

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

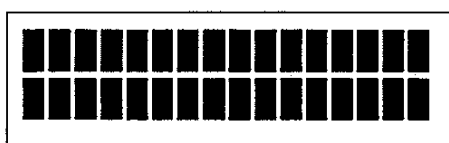
5.1.3 Online Mode

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.

Switch the printer power ON. If the printer detects no errors, it enters System Controller Mode. The printer then enters a warm-up state called the *Power-On Diagnostic Sequence*. The fuser comes up to operating temperature and the Main Motor starts running.

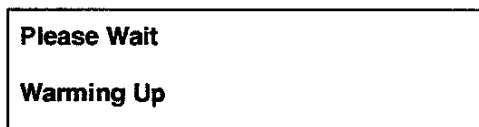
During warm up:

- 1) The LCD display fills with black squares.



wsm5-04

- 2) 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.
- 3) When the power-on diagnostic sequence completes, the LCD will display the Xerox copyright information.
- 4) The printer will display "Please Wait" while the fuser warms up.



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



5.1.4 Menu Mode

The Menu Mode allows you to set, change, or adjust the various features/options available in the Xerox 4520 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.

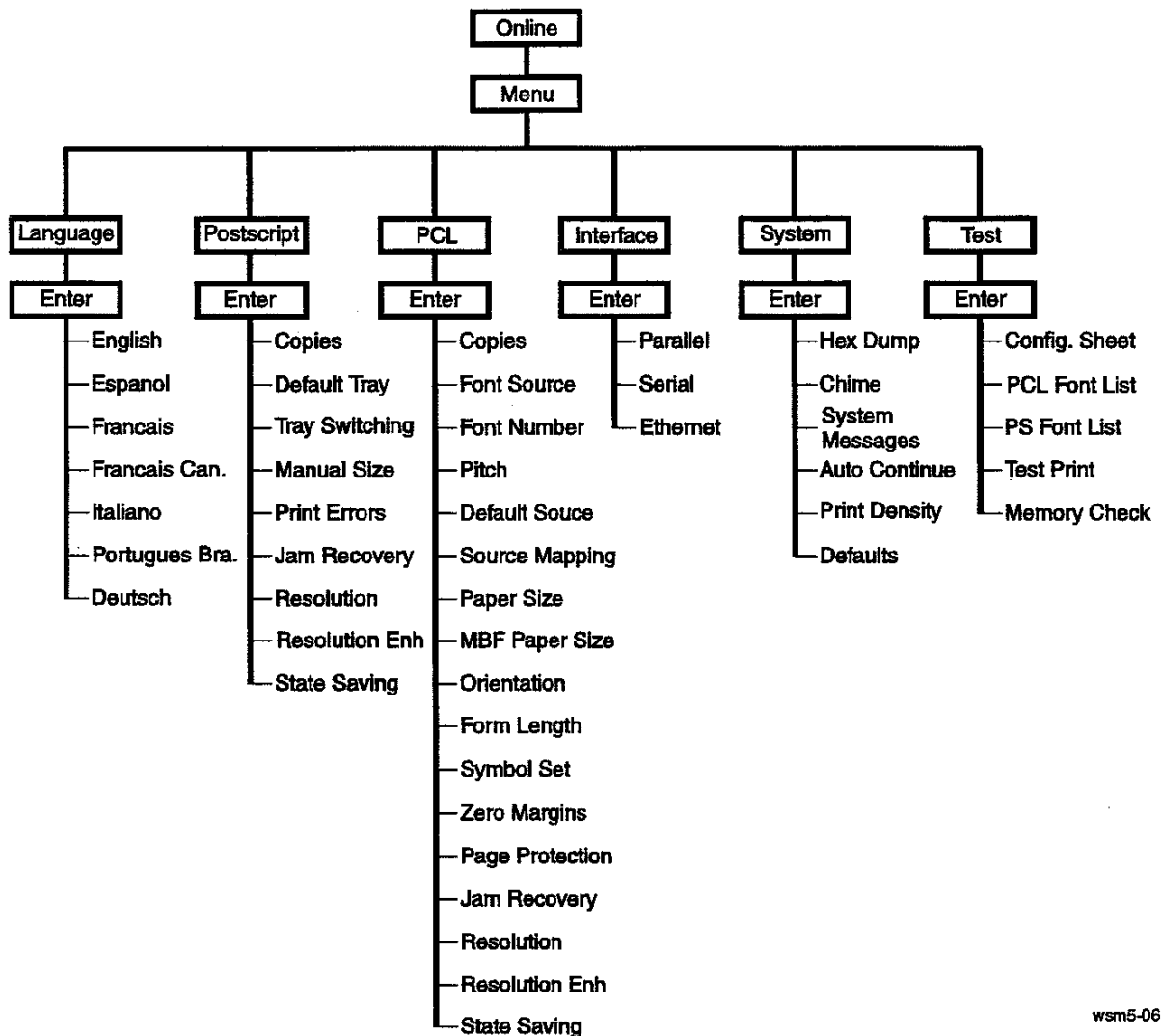
On the following pages, the menu tree and all the possible menu paths will be illustrated. The menu tree may be different on different printers depending upon the options installed. Most of the menu selections are straight forward and can be set to match the customers requirements without any additional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

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 "Enter."

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

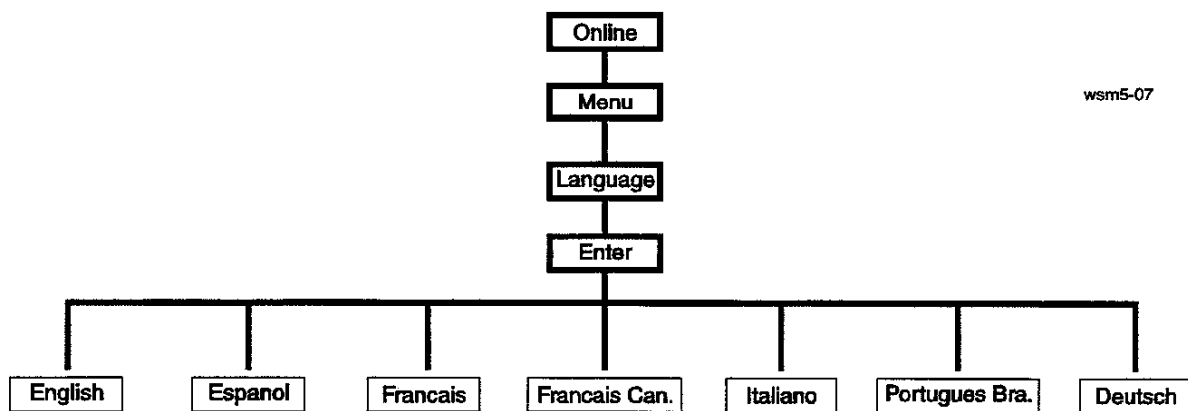


wsm5-06

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."

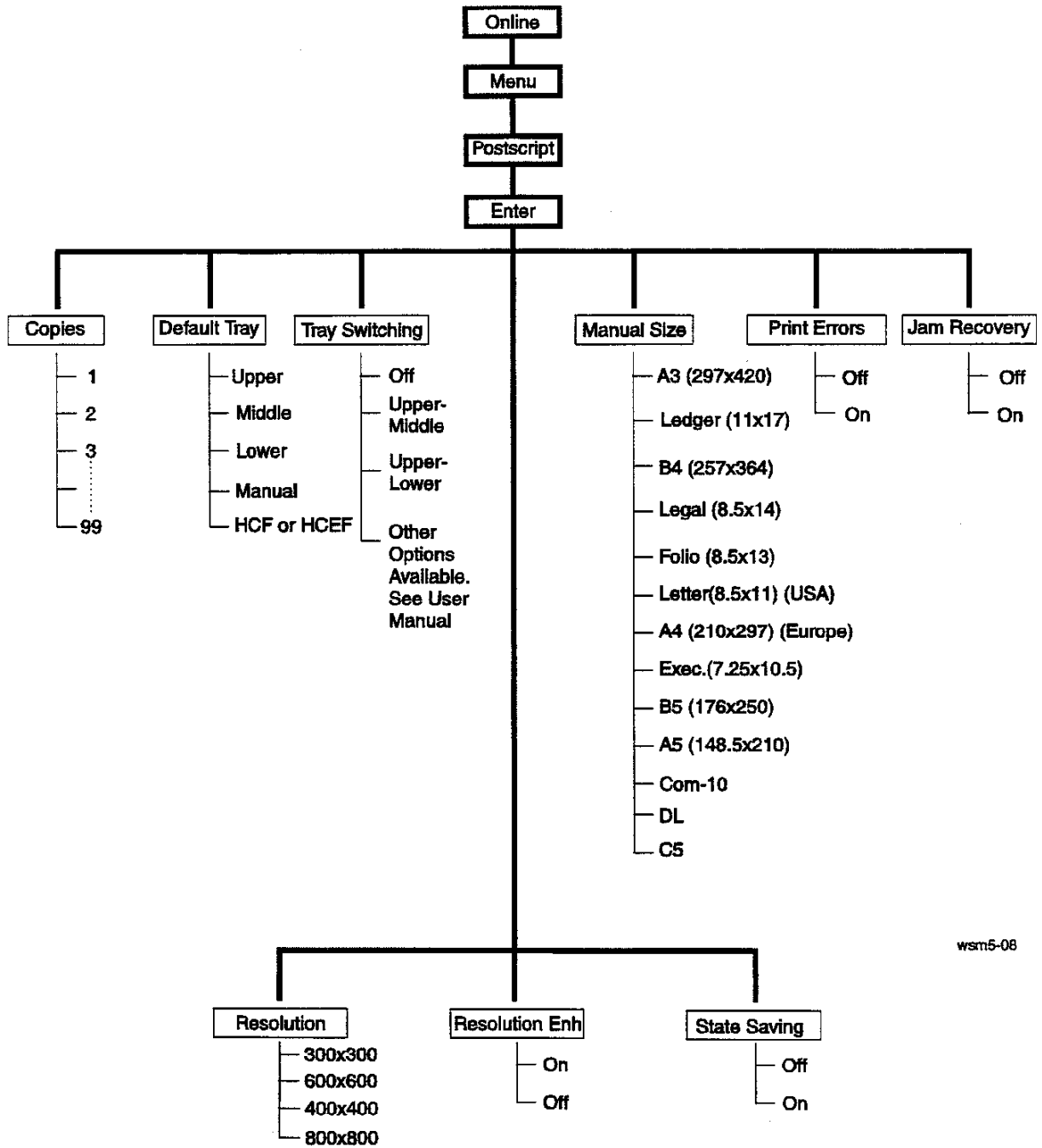


5.1.4.3 PostScript Menu

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 High Capacity Feeder option installed, the menu will not give you the menu item "HCF." 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" 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."



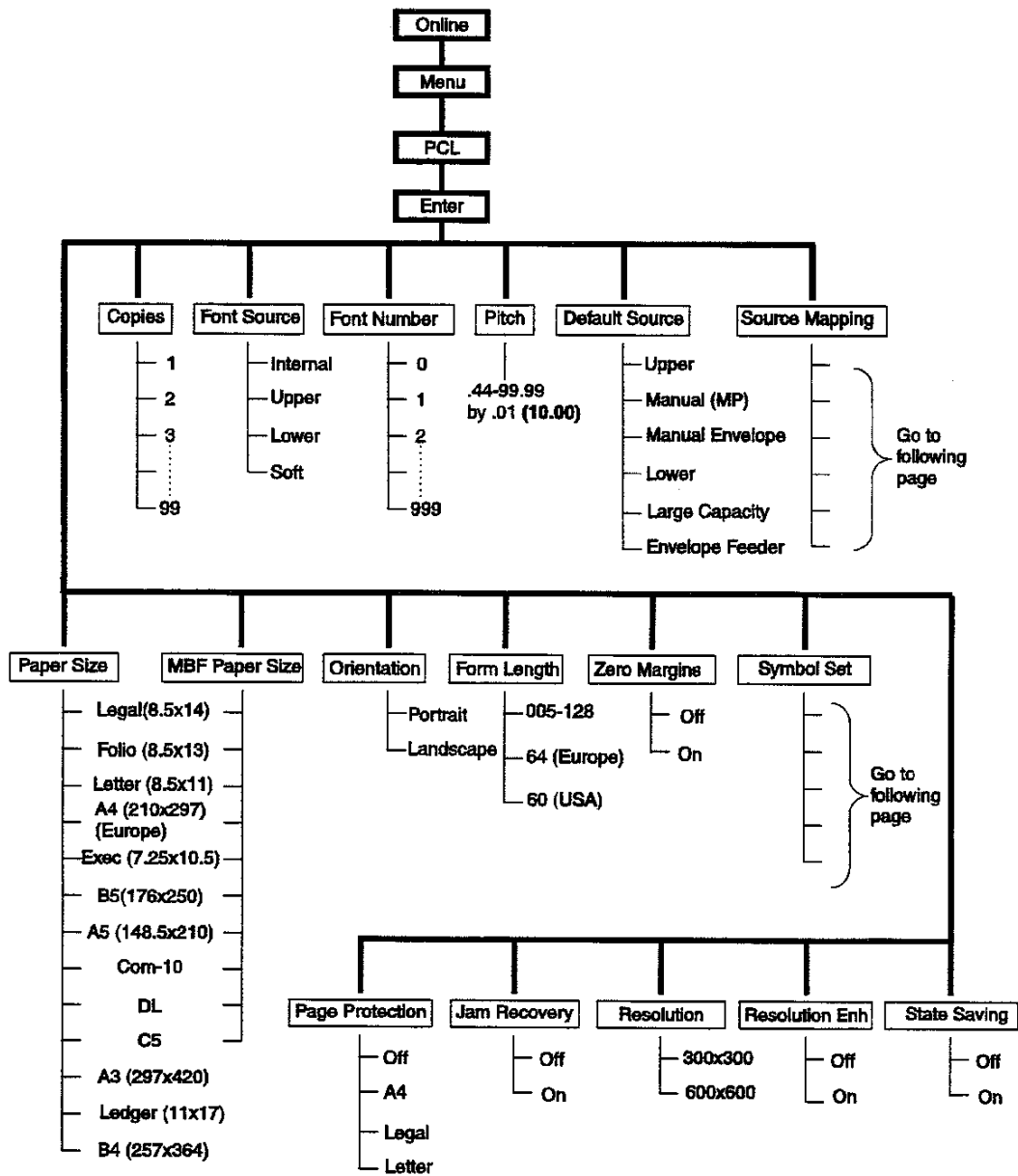
wsm5-08

5.1.4.4 PCL Menu

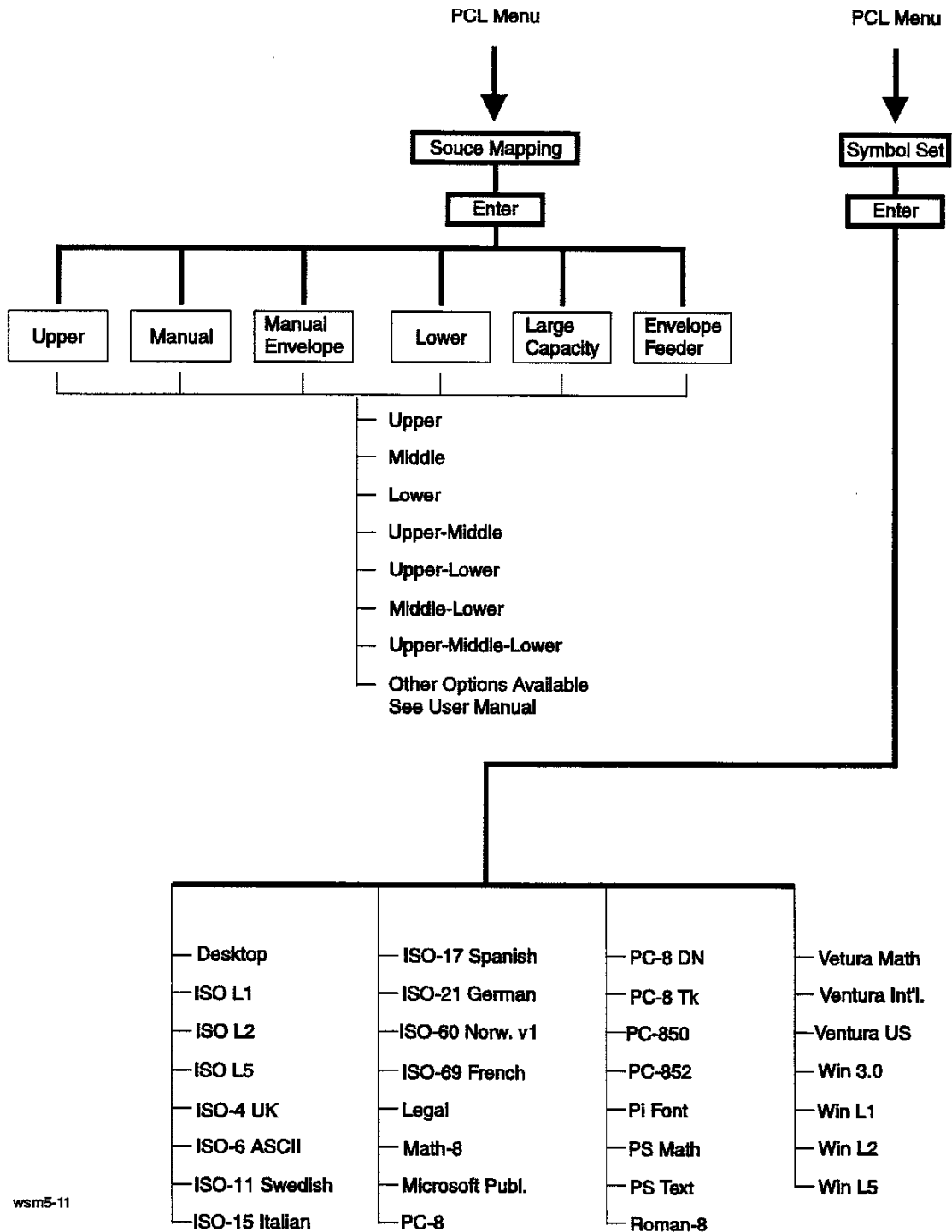
The PCL (Printer Control Language) menu options establishes the default configuration for the printer. PCL is used by the software applications to send information and instructions to the printer. If the software does not send a particular PCL setting to the printer, the printer's PCL default setting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



wsm5-10

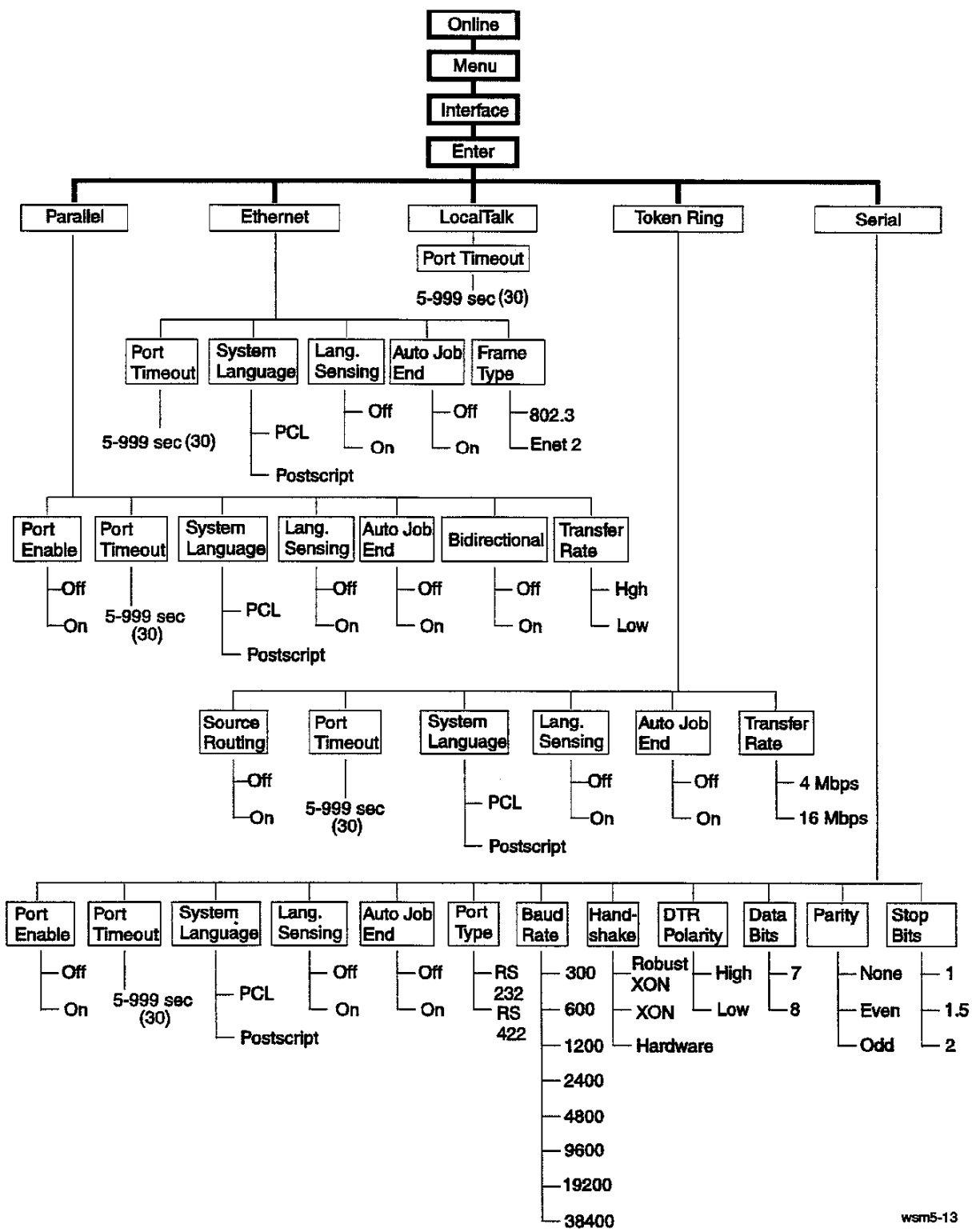


wsm5-11

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 from 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."

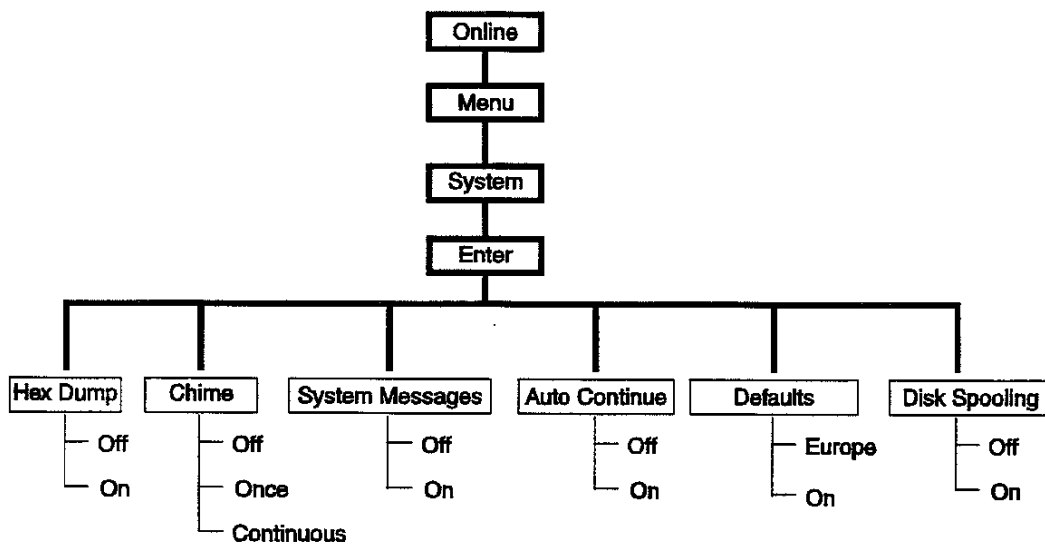


wsm5-13

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."

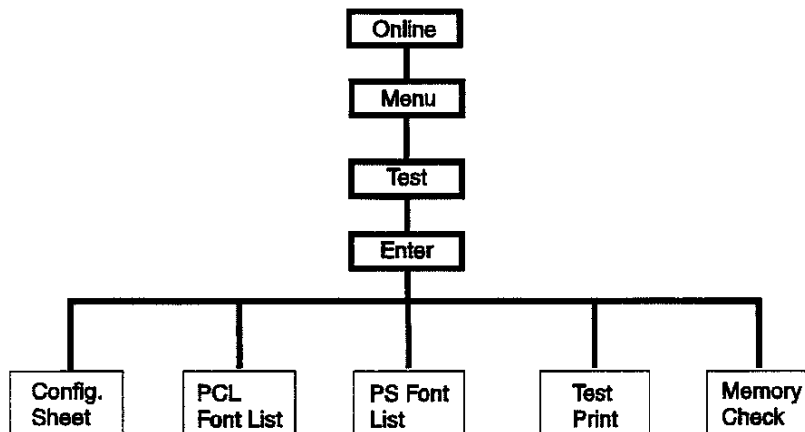


wsm4-14

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."



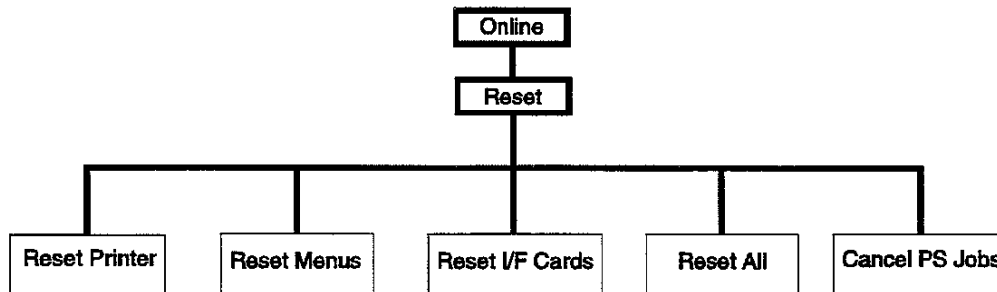
wsm5-15

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.

Test various switches and sensors, show printer fuser settings.

Diagnostic Mode 2 - Pressing and holding the "Enter" key as you switch the printer power ON.

Prints a grid test pattern.

Diagnostic Mode 3 - Using the "Down" and the "Enter" keys as you switch the printer power ON.

Allows the adjustment of the setup parameters.

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	SOLENOID TRAY 1	Test the Feed Solenoid function
Output Test	81	SOLENOID TRAY 3	Test the Feed Solenoid function
Output Test	86	SOLENOID TRAY 2	Test the Feed Solenoid function
Output Test	82	REG. CLUTCH	Test the Registration Clutch
Output Test	84	T CLUTCH TRAY 1	Test the Feed Assembly Turn Solenoid function
Output Test	85	T CLUTCH TRAY 2 & 3	Test the Feed Assembly Turn Solenoid function
Output Test	83	SOLENOID MBF	Test the MBF Solenoid function
Output Test	87	MOTOR MBF	Test the MBF Drive Motor function
Output Test	90	MOTOR MAIN & LEDs	Test the Main Drive Motor function
Output Test	91	HVPS (C. COROTRON)	Test HVPS D/C voltage to the charge corotron
Output Test	92	HVPS (DEV. BIAS)	Test HVPS D/C voltage to the developer bias
Output Test	93	HVPS (T. COROTRON)	Test HVPS D/C voltage to transfer corotron
Output Test	00	EXIT DIAG	Exit current Diagnostic Mode
Output Test	31	ERR LOGING (FAN)	Report Fan failures

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; DG 30 is the default test.

PRINT COUNTER	
SELECTING	DG 30

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 upper tray, Tray 2 refers to the middle tray, and Tray 3 refers to the lower tray.

NOTE: When running any diagnostic test, repeatedly press the "Enter" key to get to "EXIT DIAG" "DG 00," then press the "Down" key to exit the test and enter another DG.

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 "Down" 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 "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 4 To Exit this test and return to normal operation, switch the printer power OFF, then switch it 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 Registration Sensor
- The Exit Sensor
- The Toner Sensor

Running DG 02

- 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 "Enter" key until the LCD displays *DG 02*.
- 3 Press the "Down" 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.

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 "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it ON.

5.2.1.3 DG 07 FUSER TEMPERATURE SET

NOTE: DG 07 and DG 08 display current fuser settings. If you wish to change the fuser settings, you must enter Diagnostic Mode 3 and perform "Fuser Temp. Set" (NV 50).

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 (Table 5.2.1.4). 75 is the lowest setting, 66 is the highest setting, and 6D 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 "Enter" key until the LCD displays *DG 07*.
- 3 Press the "Down" key to start the test.

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

- 4 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 5 To Exit this test and return to normal operation, switch the printer power OFF, then switch it 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 "Enter" key until the LCD displays *DG 08*.
- 3 Press the "Down" key to start the test.

The LCD displays a two-digit temperature code that corresponds to the 16 temperature steps (see Table 5.2.1.4).

- 4 The temperature code displayed will continually change as the fuser heats up and cools down.
- 5 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it ON.

Table 5.2.1.4 Fuser Codes

Code Displayed in NV 50	Code Displayed in DG 07	Code Displayed in DG 08	Fuser Temperature
50	75	71 - 76	168 ^o C
51	74	70 - 75	172 ^o C
52	73	6F - 74	176 ^o C
53	72	6E - 73	180 ^o C
54	71	6D - 72	184 ^o C
55	70	6C - 71	188 ^o C
56	6F	6B - 70	192 ^o C
57	6E	6A - 6F	196 ^o C
58	6D	69 - 6E	200 ^o C
59	6C	68 - 6D	204 ^o C
5A	6B	67 - 6C	208 ^o C
5B	6A	66 - 6B	212 ^o C
5C	69	65 - 6A	216 ^o C
5D	68	64 - 69	220 ^o C
5E	67	63 - 68	224 ^o C
5F	66	62 - 67	228 ^o C

5.2.1.5 DG 80 SOLENOID TRAY 1

This diagnostic code tests the paper feed solenoid in tray 1.

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 "Enter" key until the LCD displays *DG 80*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 80* message.

SOLENOID TRAY 1	
EXECUTING	DG 80

- 4 Verify that when you press the "Down" key, tray 1 Feed Solenoid energizes momentarily.
- 5 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it ON.

5.2.1.6 DG 81 SOLENOID TRAY 3

This diagnostic code tests the paper feed solenoid in tray 3.

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 "Enter" key until the LCD displays *DG 81*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 81* message.

SOLENOID TRAY 3	
EXECUTING	DG 81

- 4 Verify that when you press the "Down" key, tray 3 Feed Solenoid energizes momentarily.
- 5 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it ON.

5.2.1.7 DG 86 SOLENOID TRAY 2

This diagnostic code tests the paper feed solenoid in tray 2.

Running DG 86

- 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 "Enter" key until the LCD displays *DG 86*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 86* message.

SOLENOID TRAY 2	
EXECUTING	DG 86

- 4 Verify that when you press the "Down" key, tray 2 Feed Solenoid energizes momentarily.
- 5 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it ON.

5.2.1.8 DG 82 REG CLUTCH

This diagnostic code tests the registration clutch.

Running DG 82

- 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 "Enter" key until the LCD displays *DG 82*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 82* message.

REG CLUTCH	
EXECUTING	DG 82

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

5.2.1.9 DG 84 T CLUTCH TRAY 1

This diagnostic code tests the turn clutch in tray 1.

Running DG 84

- 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 "Enter" key until the LCD displays *DG 84*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 84* message.

T CLUTCH TRAY 1	
EXECUTING	DG 84

- 4 Verify that when you press the "Down" key, tray 1 Turn Clutch energizes momentarily.
- 5 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it ON.

5.2.1.10 DG 85 T CLUTCH TRAY 2 & 3

This diagnostic code tests the turn clutch in trays 2 & 3.

Running DG 85

- 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 "Enter" key until the LCD displays *DG 85*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 85* message.

T CLUTCH TRAY 2 & 3	
EXECUTING	DG 85

- 4 Verify that when you press the "Down" key, trays 2 & 3 Turn Clutches energizes momentarily.
- 5 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it ON.

5.2.1.11 DG 83 SOLENOID MBF

This diagnostic code tests the MBF Pick-Up Solenoid.

Running DG 83

- 1 Enter Diagnostics Mode 1.
- 2 Repeatedly press the "Enter" key until the LCD displays *DG 83*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 83* message.

SOLENOID MBF	
EXECUTING	DG 83

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

5.2.1.12 DG 87 MOTOR MBF

This diagnostic code tests the MBF Drive Motor.



WARNING! DG 87 switches on the MBF Motor. Be careful around the Motor and Drive Assembly.

Running DG 87

- 1 Enter Diagnostics Mode 1.
- 2 Repeatedly press the "Enter" key until the LCD displays *DG 87*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 87* message.

MOTOR MBF
EXECUTING DG 87

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

5.2.1.13 DG 90 MOTOR MAIN & LEDS

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 "Enter" key until the LCD displays *DG 90*.
- 3 Press the "Down" key to start the test.

The LCD displays the *Executing DG 90* message.

MOTOR MAIN & LEDS	
EXECUTING	DG 90

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

5.2.1.14 DG 91 HVPS (C. COROTRON)

This diagnostic code tests the HVPS DC voltage to the Charge Corotron. During this test the high voltage will be present for only a few seconds.



WARNING! DG 91 switches on the HVPS. HIGH VOLTAGE is present in many areas of the printer. Be careful working around the HVPS when in DG 91.



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

Running DG 91

NOTE: At this time, there is not an effective procedure for testing the charge corotron voltage directly. The procedure you are about to perform will test a bleeder voltage through the high voltage power supply. If this bleeder voltage is present, the charge corotron voltage is correct.

- 1 Enter Diagnostics Mode 1.
- 2 Repeatedly press the "Enter" key until the LCD displays *DG 91*.

HVPS (C COROTRON)	
SELECTING	DG 91

- 3 Remove the Transfer Corotron.
- 4 Set the multimeter range to read 200VDC.
- 5 Place your multimeter to read the voltage from the transfer corotron socket to frame ground (Figure 5.2.1.15).
- 6 Cheat the top cover interlock switch.
- 7 Press the "Down" key to start the test.
- 8 You should get a reading of approximately 61 VDC (test will run for about 10 seconds).
- 9 To Exit this test: switch the printer power OFF, remove the interlock cheater, reinstall the transfer corotron, close the top cover and switch the printer power ON.

5.2.1.15 DG 92 HVPS (DEV. BIAS)

This diagnostic code tests the HVPS DC voltage to the Developer Bias. 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.

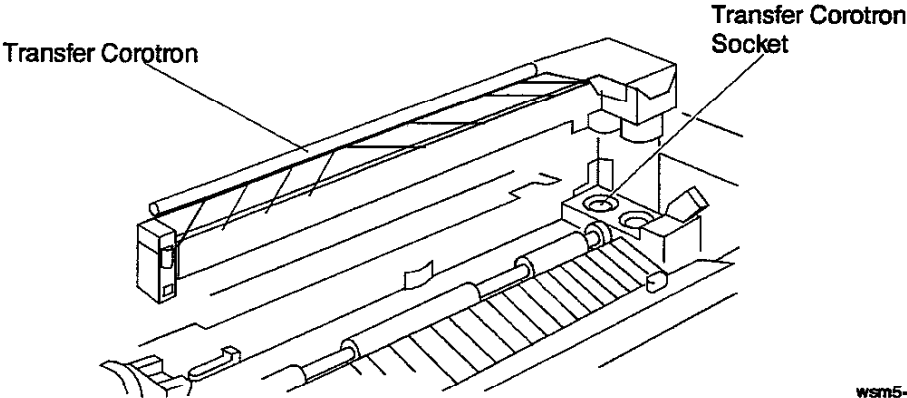
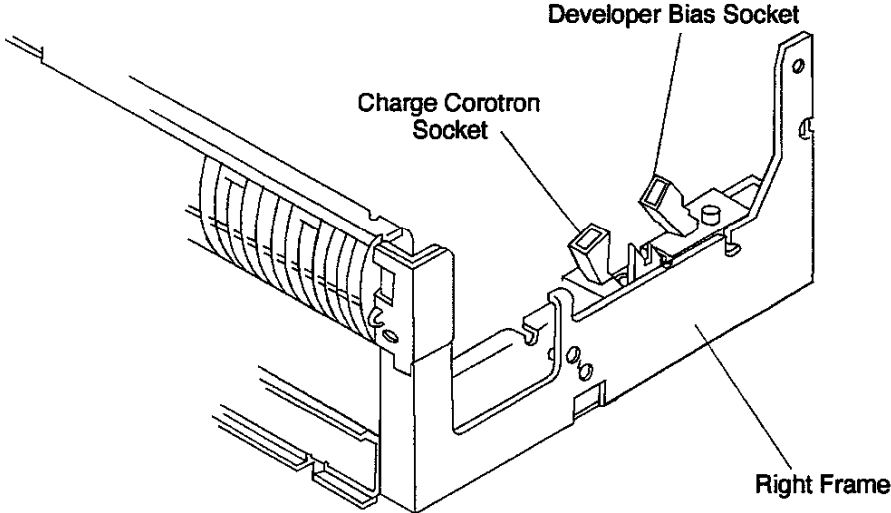
Running DG 92

- 1 Enter Diagnostics Mode 1.
- 2 Repeatedly press the "Enter" key until the LCD displays "DG 92".

HVPS (DEV. BIAS)	
SELECTING	DG 92

- 3 Set the multimeter range to read 1000VDC.
- 4 Place your multimeter to read the voltage from the developer bias socket to frame ground (Figure 5.2.1.15).
- 5 Cheat the top cover interlock switch
- 6 Press the "Down" key to start the test.
- 7 You should get a reading of approximately -210VDC (See Developer Bias Adjustment, REP 4.9).
- 8 To Exit this test: switch the printer power OFF, remove the interlock cheater, close the top cover and switch the printer power ON.

Figure 5.2.1.15 Probe locations on the HVPS



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5.2.1.16 DG 93 HVPS (T. COROTRON)

This diagnostic code tests the HVPS D/C voltage to the Transfer Corotron.



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

NOTE: At this time, there is not an effective procedure for testing the transfer corotron voltage directly. The procedure you are about to perform will test a bleeder voltage through the high voltage power supply. If this bleeder voltage is present, the charge corotron voltage is correct.

- 1 Enter Diagnostics Mode 1.
- 2 Repeatedly press the "Enter" key until the LCD displays DG 93.

HVPS (T. COROTRON)	
SELECTING	DG 93

- 3 Remove the Transfer Corotron.
- 4 Set the multimeter range to read 200VDC.
- 5 Place your multimeter to read the voltage from the charge corotron socket to frame ground (Figure 5.2.1.15).
- 6 Cheat the top cover interlock switch.
- 7 Press the "Down" key to start the test.
- 8 You should get a reading of approximately -62VDC.
- 9 To Exit this test: switch the printer power OFF, remove the interlock cheater, reinstall the transfer corotron, close the top cover and switch the printer power ON.

5.2.1.17 DG 00 EXIT DIAGNOSTICS

This diagnostic code exits the current Diagnostic Mode.

Running DG 00 EXIT DIAG

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

EXIT DIAG	
SELECTING	DG 00

- 2 Press the "Down" key.
- 3 To exit and return to normal operation, switch the printer power OFF, then switch it ON.

5.2.1.18 DG 31 ERR LOGING (FAN)

This diagnostic code reports the number of times the fan has failed.

Running DG 31 ERR LOGING (FAN)

- 1 Enter Diagnostics Mode 1.
- 2 Repeatedly press the "Enter" key until the LCD displays *DG 31 ERR LOGING (FAN)*.
- 3 Press the "Down" key to start the test.

ERR LOGING (FAN)	
000000	DG 31

The LCD displays the number of times the fan has failed.

- 4 Pressing the "Down" key will reset the count to zero.
- 5 If you wish to exit this test and enter another test, repeatedly press the "Enter" key until the LCD displays "EXIT DIAG" "DG 00," then press the "Down" key.
- 6 To Exit this test and return to normal operation, switch the printer power OFF, then switch it 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 "Down" key to start printing test patterns.
- 3 The printer will continue to print test patterns until the "Down" key is pressed a second time.
- 4 To exit the test, switch the printer power OFF.

5.2.3 Diagnostic Mode 3

To enter Diagnostic Mode 3:

- 1 Switch the printer power OFF.



WARNING! When entering Diagnostic mode 3, it is possible to access areas of the software that is intended for manufacturing use only. If you release the Enter key when the LCD displays 5, you will enter an area of the software that is not intended for your use. In this area you can accidentally reset the copy count set into NV RAM. Do not enter this area and NEVER inform the customer of this area.

- 2 Press and hold the "Down" key and the "Enter" key as you switch the printer power ON. Release the "Down" key but continue to hold the "Enter" key. The LCD display will start counting. Release the "Enter" key when the LCD displays 3. If you pass 3, continue to hold the "Enter" key until the display cycles around to 3 again, then release the "Enter" key.



- 3 The LCD displays the "CONFIGURATION" "Selecting NV 0X". This message indicates that the printer is in the Diagnostics Mode.

NOTE: The printer will not generate a test print if it detects a fault when you press the "Enter" 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 "Enter" key.

To select, adjust, change any of the functions in diagnostic mode 3, perform the following:

- 1 Enter diagnostic Mode 3.
- 2 Press the "Enter" key until the desired test is displayed on the LCD panel.
- 3 Press the "Down" key to select the test.
- 4 Press the "Enter" key until the desired setting is displayed.
- 5 Press the "Down" key to lock in the setting.
- 6 Switch the printer power OFF to exit the diagnostic mode.

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 or the default setting.

Table 5.2.3 Document Setup

LCD DISPLAY MESSAGE (Function of the routine)	Parameters [Factory default] Contents of the parameter	Are changes possible?
CONFIGURATION Selecting NV 00 (Sets the paper tray options)	0-F (16 steps) [9] All printers come with 3 paper trays and a manual tray, so this parameter is always set to 9.	Always set to 9.
VIDEO MODE Selecting NV 10	0-3 (4 steps)[0]	Always set to 0.
REG.PROCESS Selecting NV 20 (Sets the lead edge registration for all paper trays in the process direction)	0-F (16 steps)[8] 0=Narrowest lead edge registration gap F=Widest lead edge registration gap (approximately 0.5mm per step)	YES
REG.SCAN 1 Selecting NV 30 (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 0.5mm per step)	YES
TEST PRINT Selecting NV 4 (The printer generates a test print that you can use to check lead edge and side edge registration.)	Remove all paper trays from the printer. Disconnect the MBF, HCF, or HCEF. Reinstall the paper tray or feeder you are testing/ setting registration. Press the "Down" key to run a test print.	
FUSER TEMP. SET Selecting NV 50 (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
LASER POWER Selecting NV 60 (Sets laser Power)	0-F(16 steps)[F] 0=Lowest power F=Highest power	Always set to F
RESOLUTION Selecting NV 70	0-F(16 steps)[1]	Always set to 1
PAPER MATRIX Selecting NV 80	0-F(16 steps)[8]	Always set to 8.
OPTION Selecting NV 90	0-F(16 steps)[0] 0=Standard 1=Auto, manual, or MBF/HCF/HCEF 2 - F=Not Used	YES
REG.SCAN 2 Selecting NV A0 (Sets the side edge registration for paper fed from Tray 2)	0-8 (9 steps)[6] 0=Narrowest side edge registration gap 8=Widest side edge registration gap (approximately 0.5mm per step)	YES

Table 5.2.3 Document Setup (Continued)

LCD DISPLAY MESSAGE (Function of the routine)	Parameters [Factory default] Contents of the parameter	Are changes possible?
TEST FLAG 1 Selecting NV B0	0~F(16 steps)[0] 0=Lowest F=Highest	Always set to 0. NOT USED
ERROR Disable Selecting NV C0	0~F(16 steps)[0] 0=Lowest F=Highest	Always set to 0. NOT USED
REG.SCAN 3 Selecting NV D0 (Sets the side edge registration for paper fed from Tray 3)	0~8 (9 steps)[6] 0=Narrowest side edge registration gap 8=Widest side edge registration gap (approximately 0.5mm per step)	YES
TEST FLAG 4 Selecting NV E0	0~F(16 steps)[0] 0=Lowest F=Highest	Always set to 0. NOT USED
REG. SCAN MANUAL Selecting NV F0 (Sets the side edge registration for paper fed from the manual Tray)	0~8 (9 steps)[4] 0=Narrowest side edge registration gap 8=Widest side edge registration gap (approximately 0.5mm per step)	YES

5.2.3.1 Setting Registration



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

To set the printer registration, perform the following:

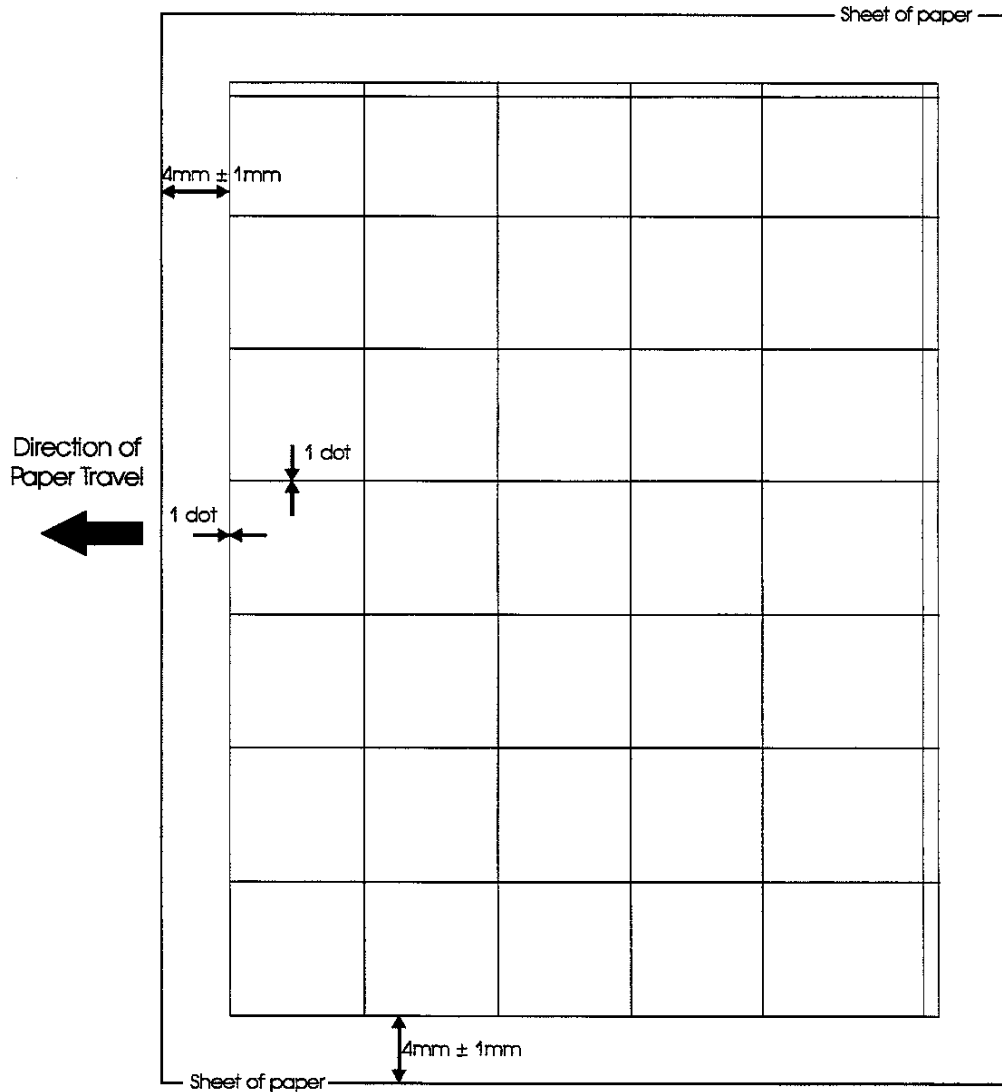
- 1 Ensure the printer is set for 300x300 DPI.
- 2 Remove ALL paper trays/feeders. Insert the paper tray/feeder you wish to test/adjust.
- 3 Enter diagnostic mode 3.
- 4 Press the "Enter" key until "Test Print" "Selecting NV 4" is displayed on the LCD panel.
- 5 Press the "Down" key.
- 6 Compare the printed test pattern with Figure 5.2.3.1a.
- 7 If the printed test pattern is within specifications, go to step 12.
- 8 If the test pattern is not within specifications, press the "Enter" key until the Registration message for the tray selected in step 1 is displayed (NV 2- for registration in the process direction, NV 3- tray 1 side to side, NV A- for tray 2 side to side, or NV D- for tray 3 side to side).

NOTE: Registration has 9 steps from "0" through "8." The last digit in the NV number is the current printer setting. If you wish to increase the distance between the edge of the paper and the test pattern, adjust the setting toward "8." If you wish to decrease the distance between the edge of the paper and the test pattern, adjust the setting toward "0."

- 9 Note the current setting displayed on the LCD panel.
- 10 Repeatedly press the "Down" key until the desired setting is displayed.
- 11 Repeat steps 4 through 10 until the printed test pattern is within specification.
- 12 Switch the printer power OFF, then switch the printer power ON.
- 13 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.
- 14 If the test print is within specification, exit the menu mode and replace all paper trays/feeders.
- 15 If the test print is not within specification, enter diagnostic mode 3 and repeat steps 8, 9, 10, 12, 13, and 14.
- 16 If another tray needs to be checked/adjusted, repeat steps 2 through 15.

The test pattern illustrated in Figure 5.2.3.1a is used to set the initial registration on the 4520 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



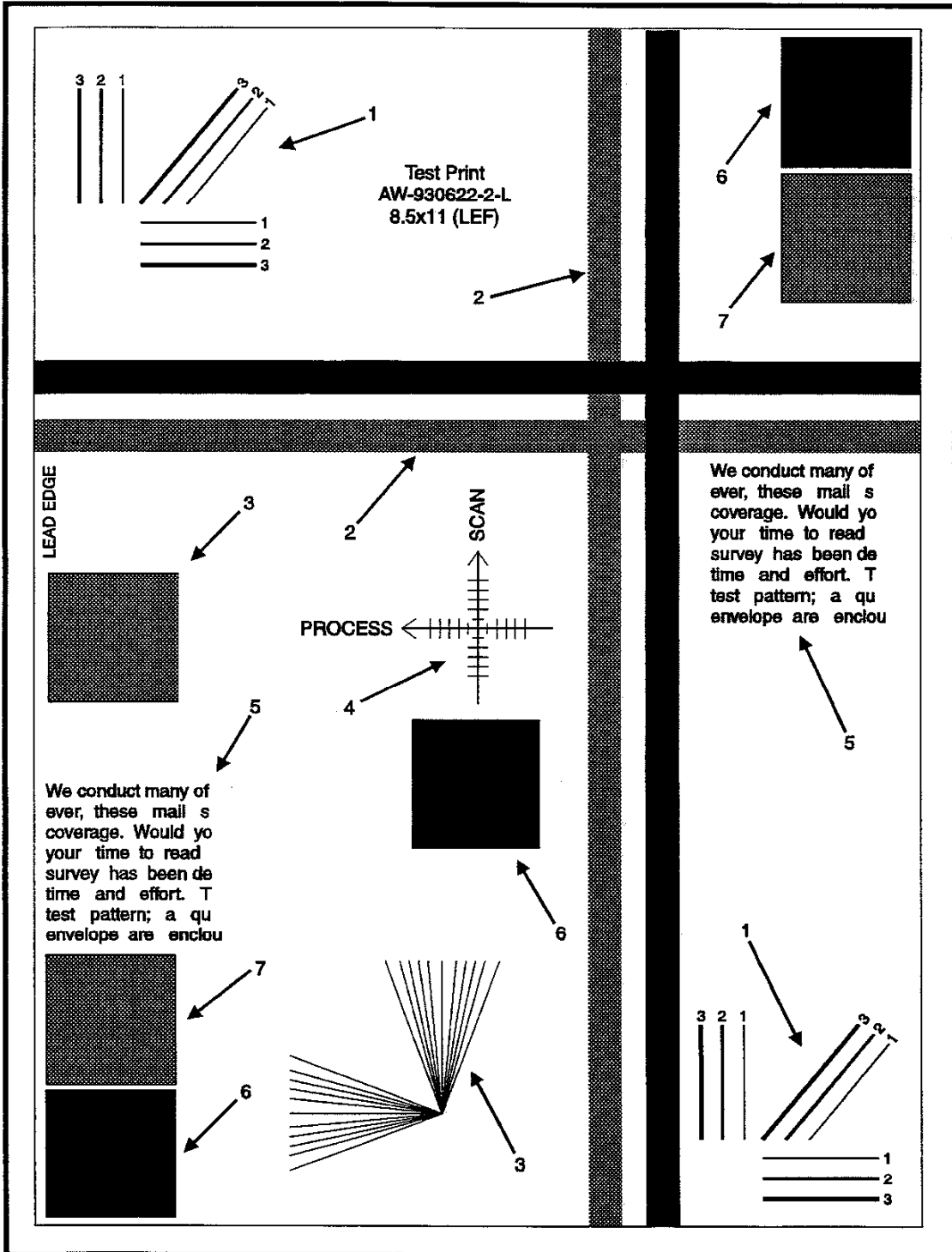
wsm5-33

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



wsm5-38

5.3 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
Interlock Cheater.....	3E85271
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

5.4 Service Cleaning Procedure

Proper diagnosis of printer problems requires that the printer be cleaned before troubleshooting begins. This section directs you in performing the cleaning and preliminary checkout procedures.

5.4.1 Preparation Procedure

- 1) Switch the printer power OFF.
- 2) Disconnect the power cord from the AC outlet.
- 3) Remove the power cord cover and disconnect the power cord from the printer.
- 4) Open the Top Cover.
- 5) Remove the EP Cartridge and store it in a safe, dark place.
- 6) During the cleaning procedure, check for foreign objects, such as staples, paper clips, etc., in the printer. Also check for other problems, such as damaged or crimped wires, loose connectors or terminals, and worn or damaged parts.

5.4.2 Transfer Corotron Cleaning Procedure

- 1) Remove the Transfer Corotron.
- 2) Carefully clean the detack channel with a soft brush or by gently blowing on it to remove any paper particles.
- 3) Clean the outer surfaces of the corotron assembly with a cotton swab or a soft brush.
- 4) Inspect the underside of the Transfer Corotron at the ground spring contact point for pitting or contamination. Clean or replace the Transfer Corotron as necessary.
- 5) Inspect the Transfer Corotron socket, and the Transfer Corotron Receptacle of the HVPS for evidence of arcing or damage. Repair or replace the Transfer Corotron or HVPS as necessary.
- 6) Clean the Transfer Corotron wire with a soft brush.
- 7) Clean the Transfer Corotron roller with a cotton swab.
- 8) Reinstall the Transfer Corotron.

5.4.3 Paper Path Cleaning Procedure

- 1) Remove any loose or spilled toner or paper dust from inside the printer.
- 2) Clean the feed rolls in each tray.
- 3) Clean the following parts with a lint-free towel moistened with alcohol:
 - Registration Roll
 - Registration Pinch Roll
 - Pre-Fuser Transport Roll
 - Tray 1 Turn Roll
 - Tray 2 Turn Roll
 - Tray 3 Turn Roll.

5.4.4 Laser Scanner Window Cleaning Procedure

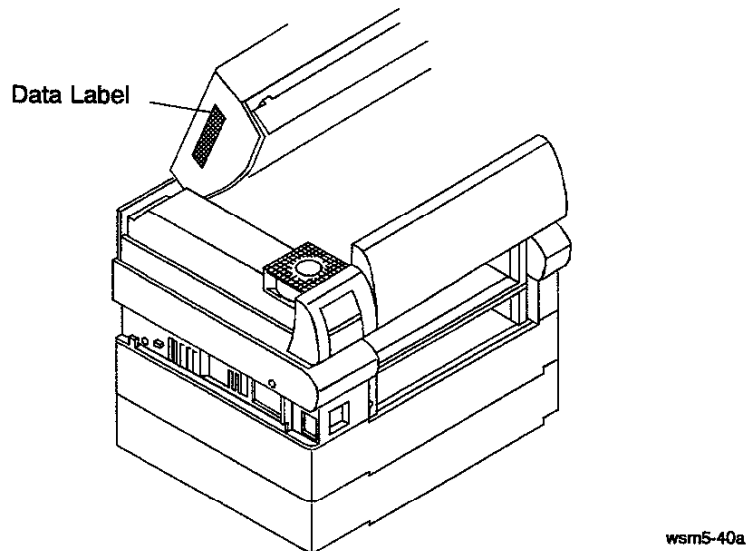
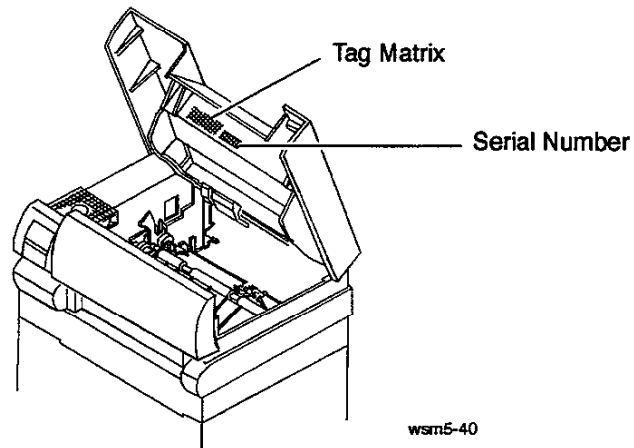
- 1) Use a lint free cloth moistened with alcohol to remove any dirt or contamination from the Laser Scanner window and the Erase Board.
- 2) Use a soft, dry, lint-free cloth to dry the Laser Scanner window and the Erase Board.
- 3) Ensure that there are no scratchers or other marks on the Laser Scanner window.
- 4) Reinstall the EP cartridge and close the Top Cover.
- 5) Clean the outside covers with a damp towel.

5.5 Printer Data and Tag Information

5.5.1 Printer Data Labels

The printer serial number, data label, and tag matrix are located on the printer as illustrated in Figure 5.5.1.

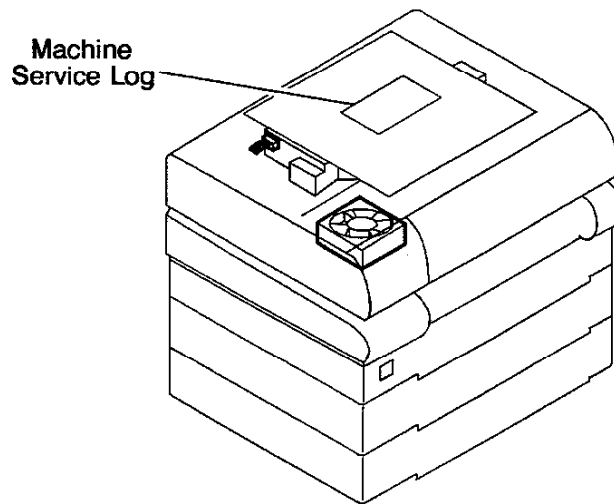
Figure 5.5.1 Printer Labels



5.5.2 Machine Service Log

The Machine Service Log is to be folded and kept under the Top Cover on top of the LASER shield as illustrated in Figure 5.5.2. 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 5.5.2 Machine Service Log



wsm5-80

5.5.3 Tag/MOD Matrix

All important modifications are identified by a Tag/MOD number on the matrix card attached to the front frame of each 4520/4520mp printer (see 5.5.1). 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

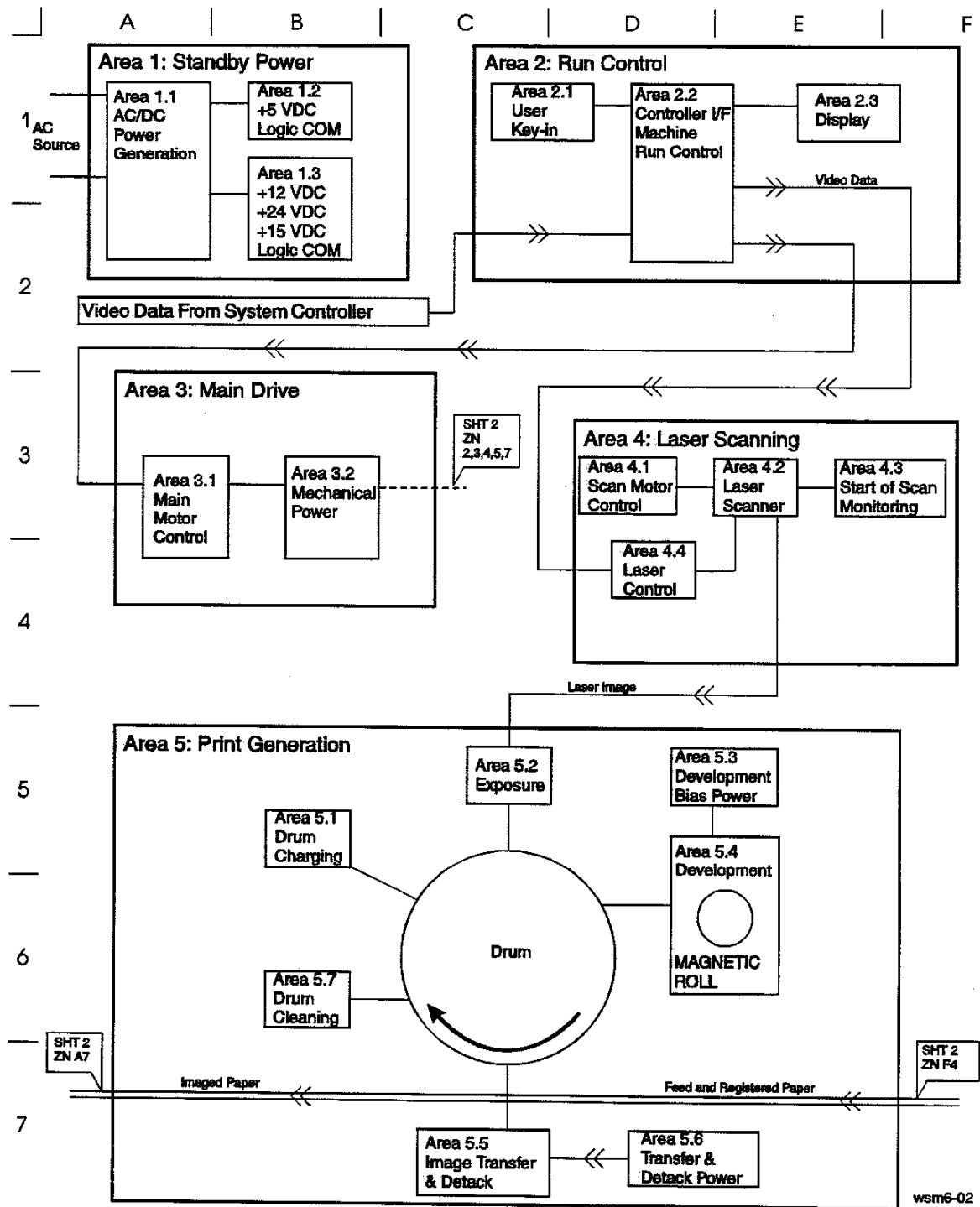
S- Situational

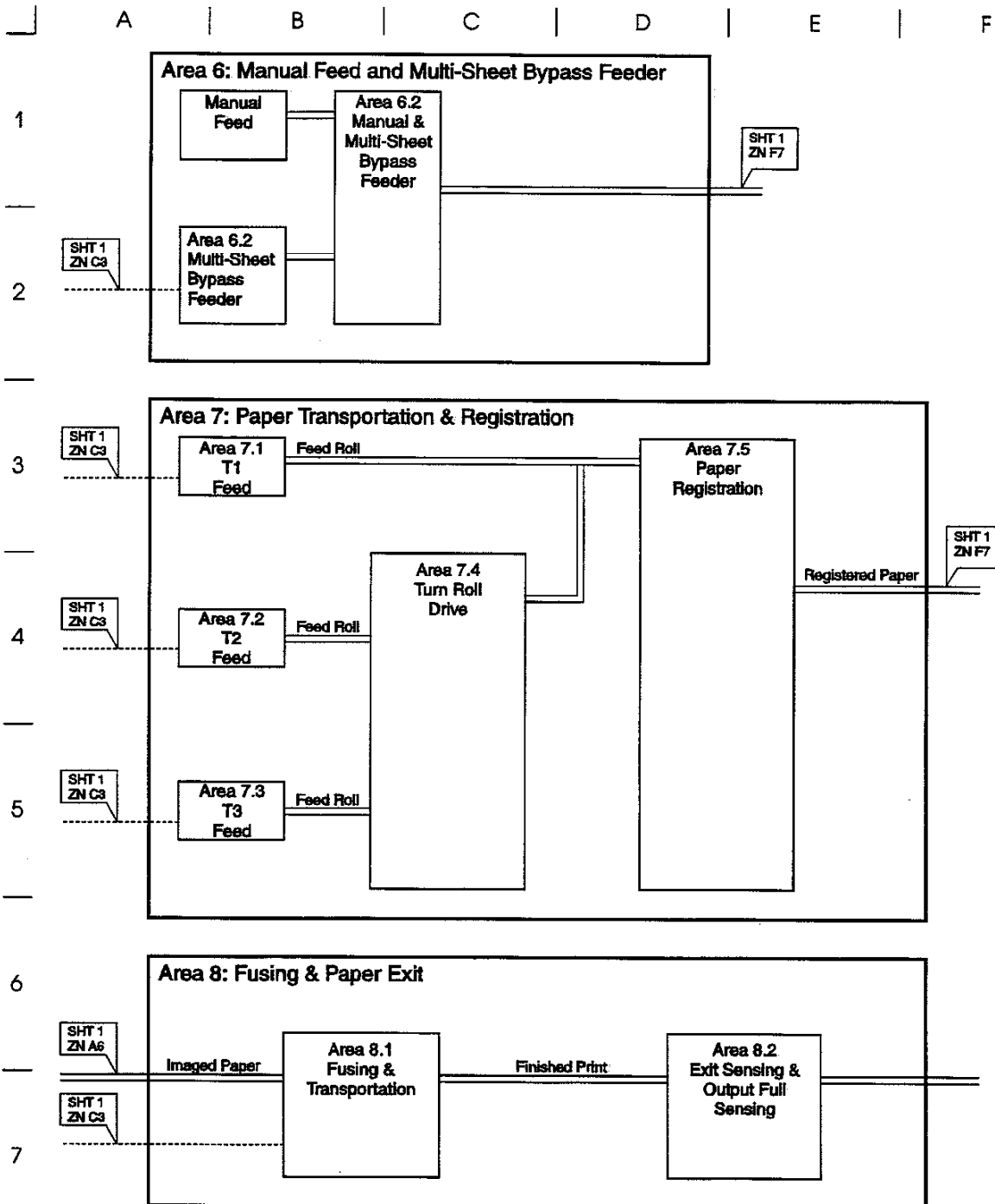
Section 6

Wiring Data

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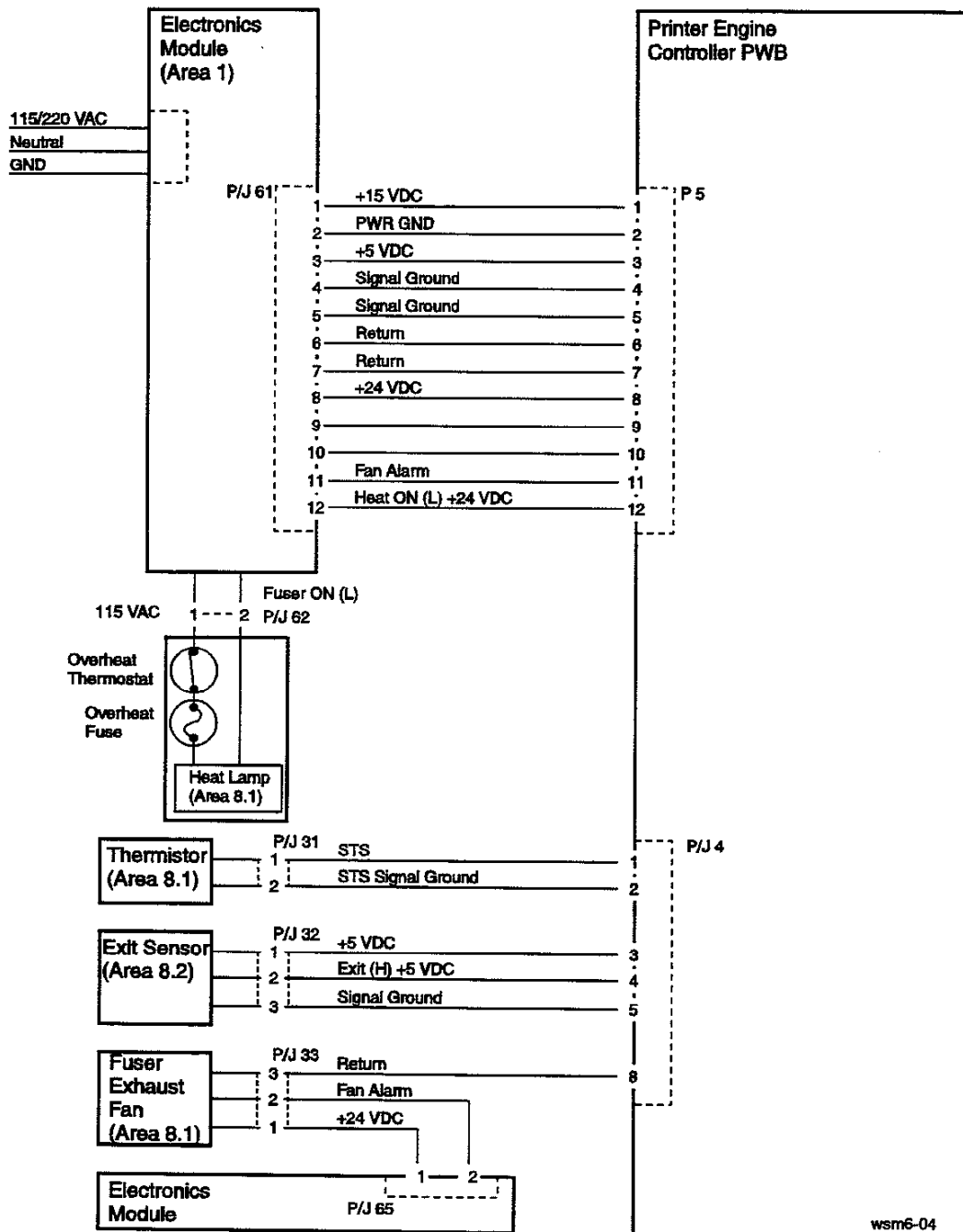
6.1 Functional Block Diagram



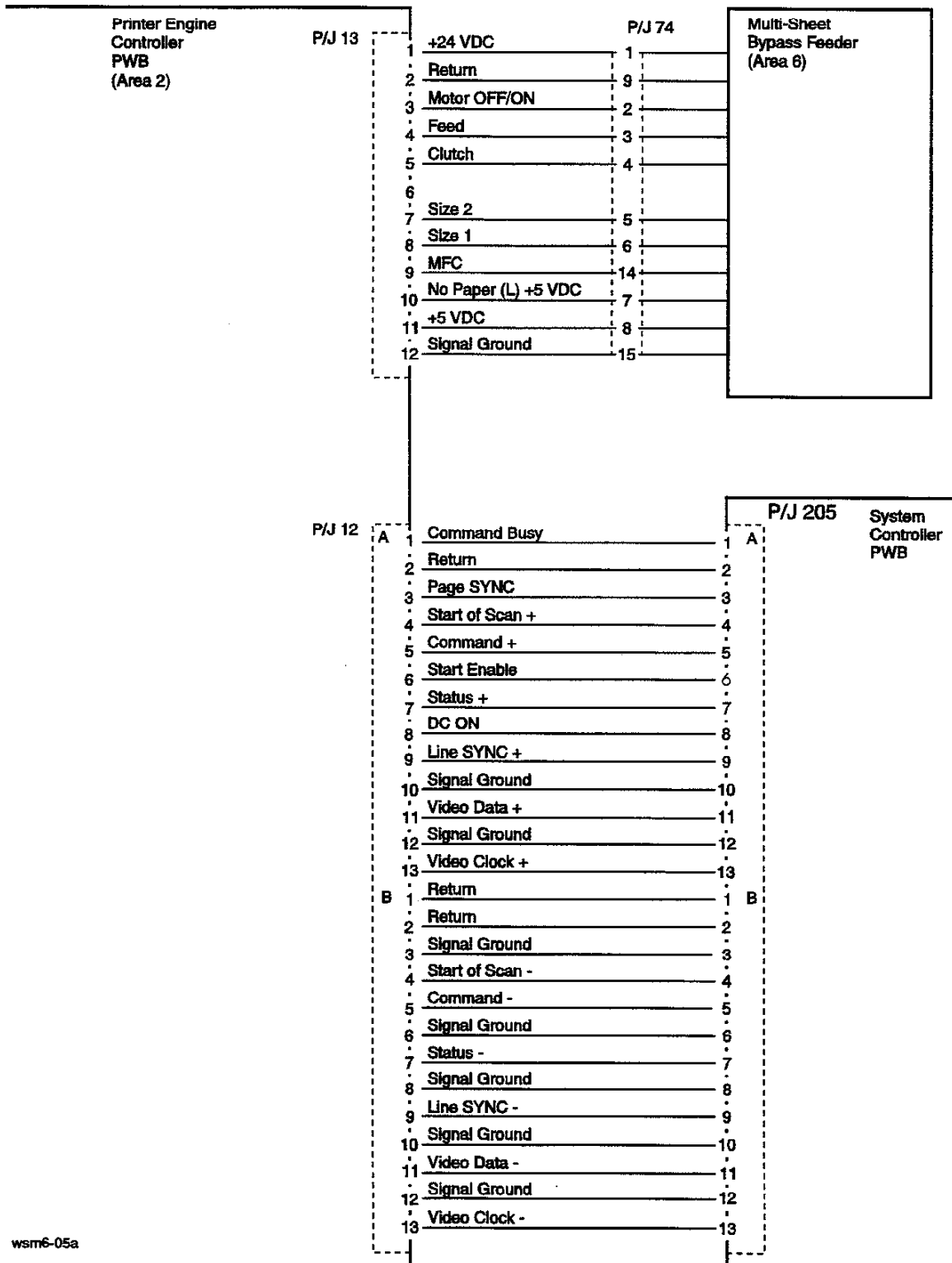


wsm6-03

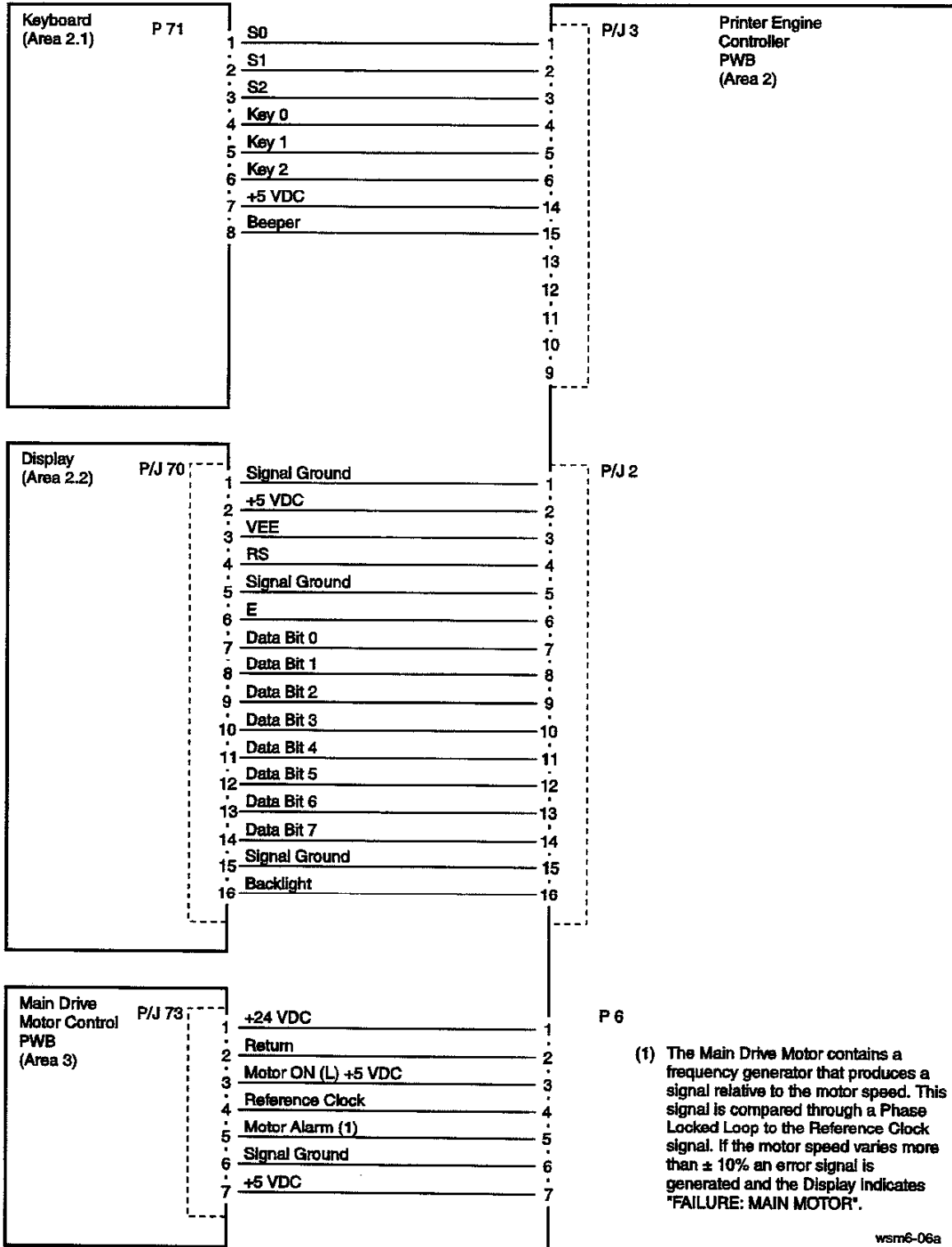
6.2 Main Wiring Diagrams



wsm6-04

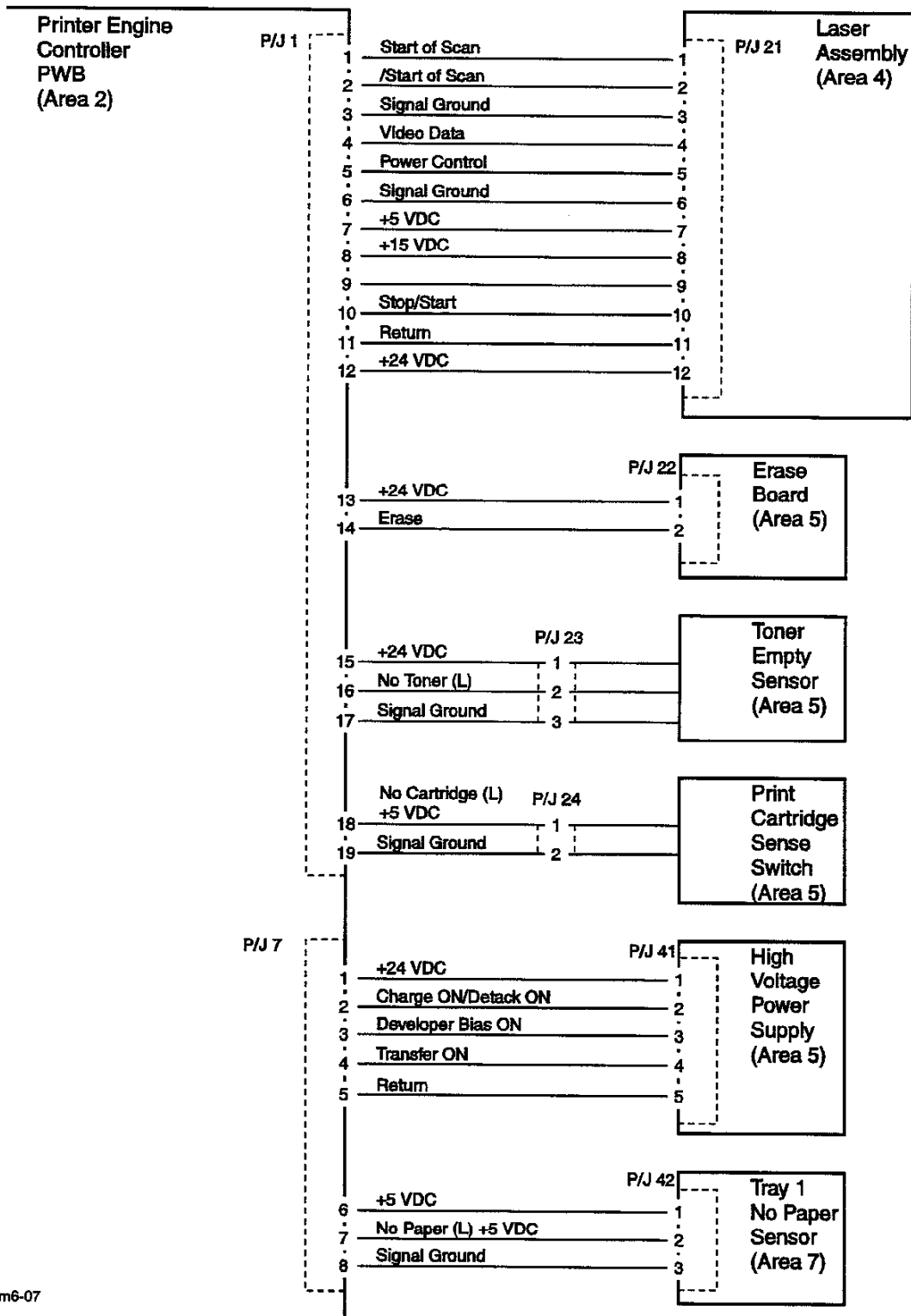


wsm6-05a

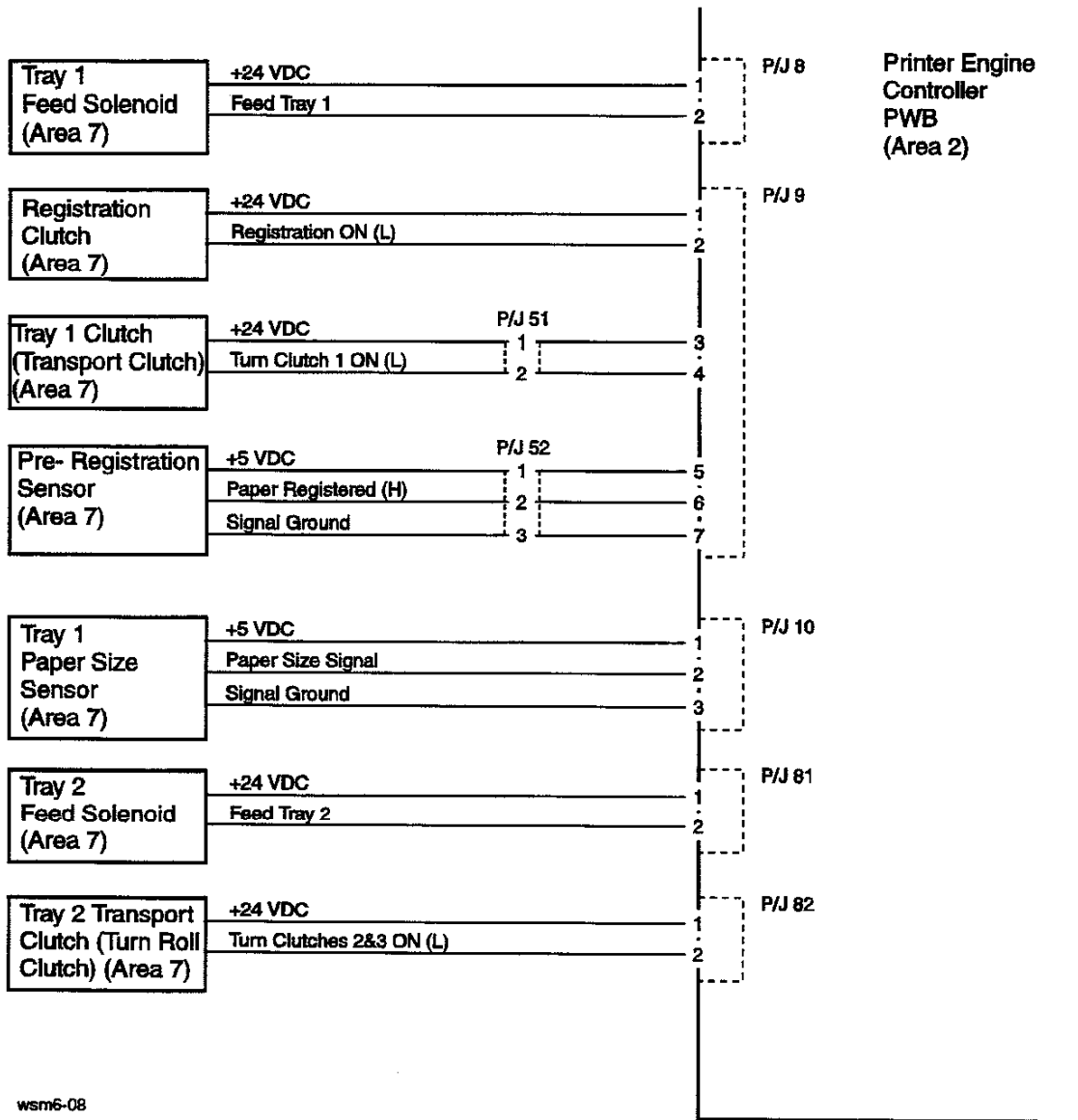


(1) The Main Drive Motor contains a frequency generator that produces a signal relative to the motor speed. This signal is compared through a Phase Locked Loop to the Reference Clock signal. If the motor speed varies more than $\pm 10\%$ an error signal is generated and the Display indicates "FAILURE: MAIN MOTOR".

wsm6-06a

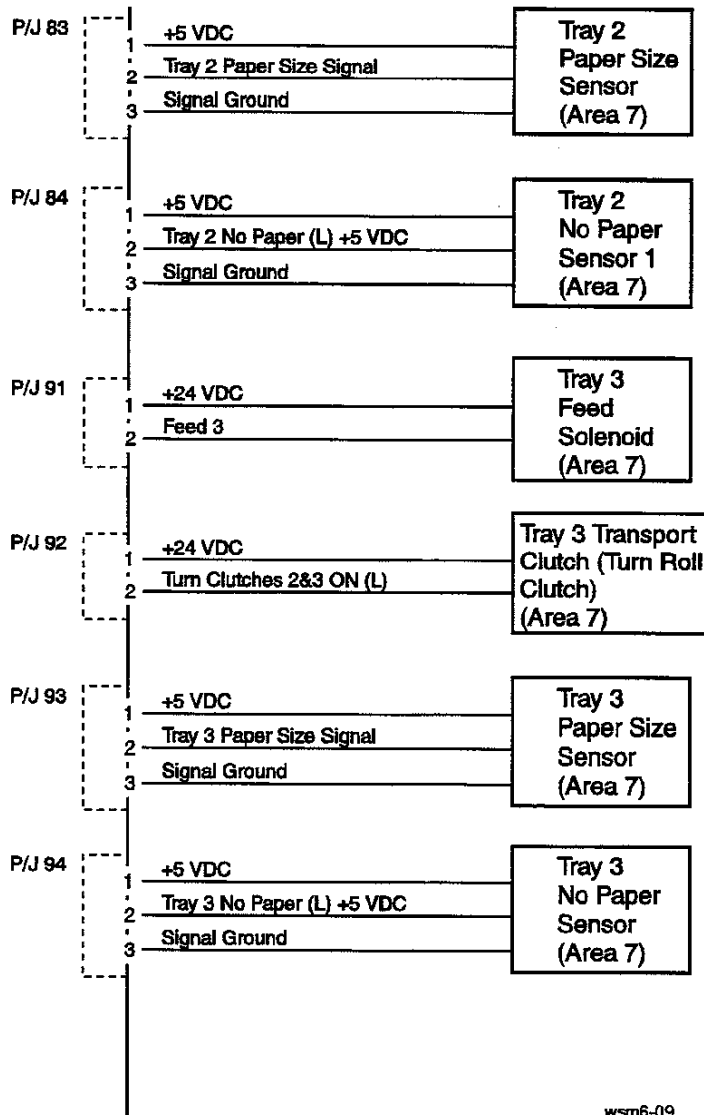


wsm6-07

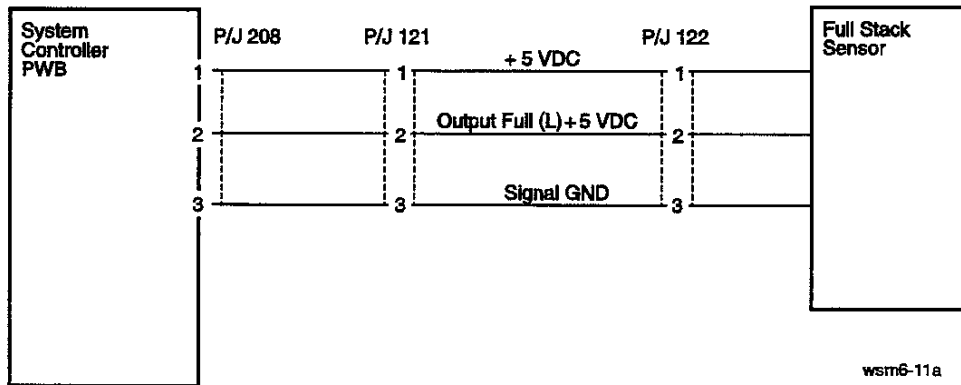


wsm6-08

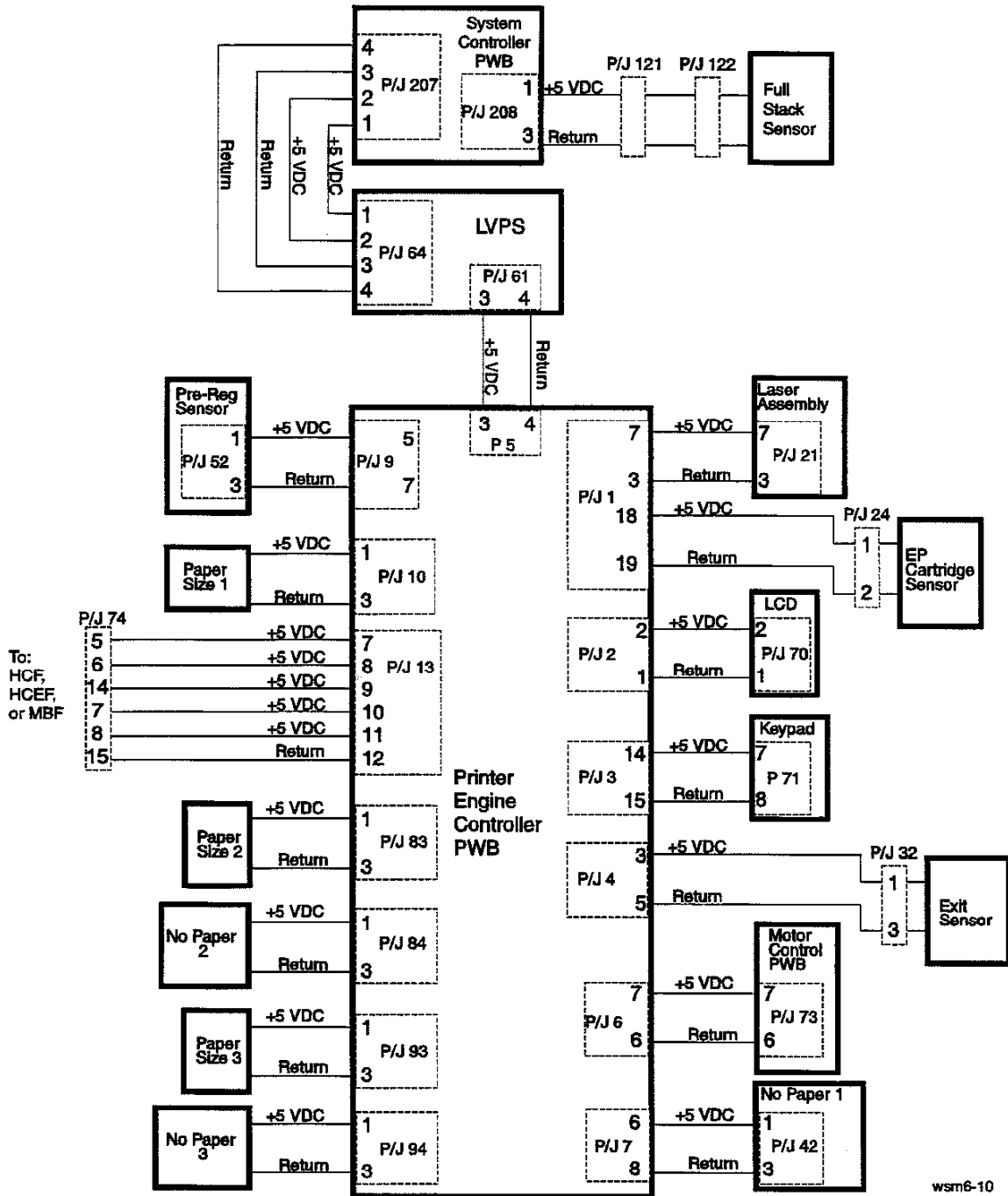
Printer Engine
Controller
PWB
(Area 2)



wsm6-09

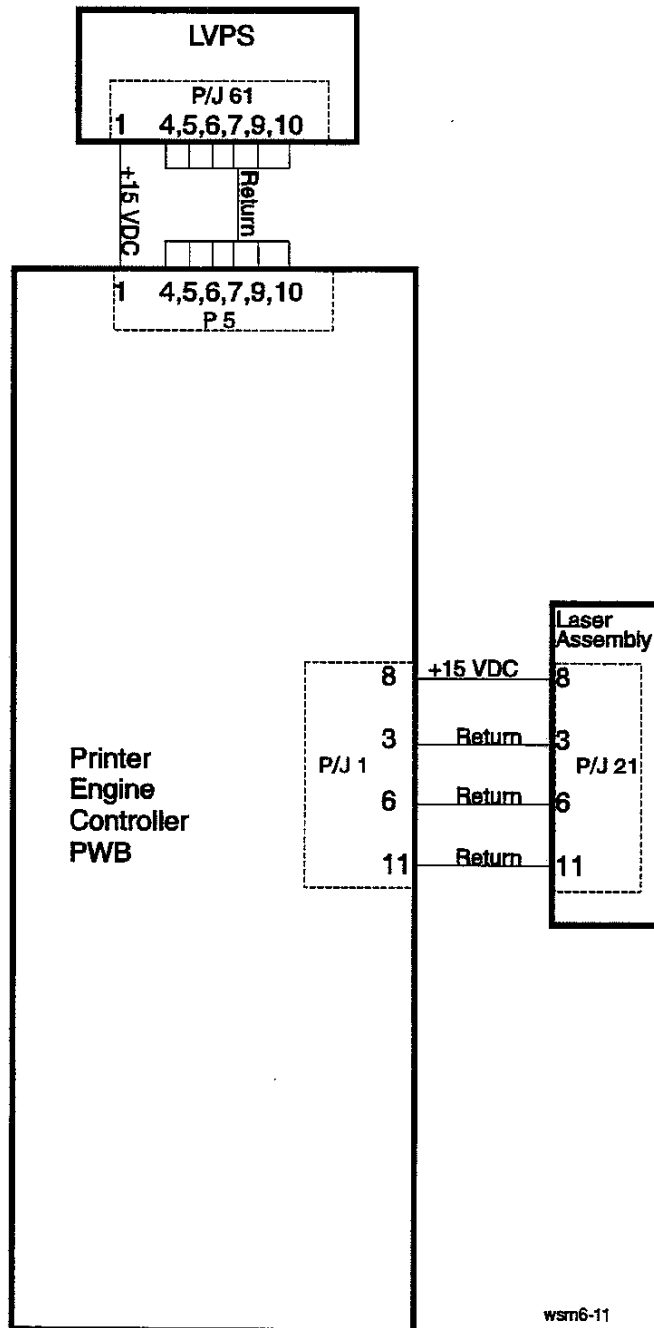


6.3 +5 VDC Distribution



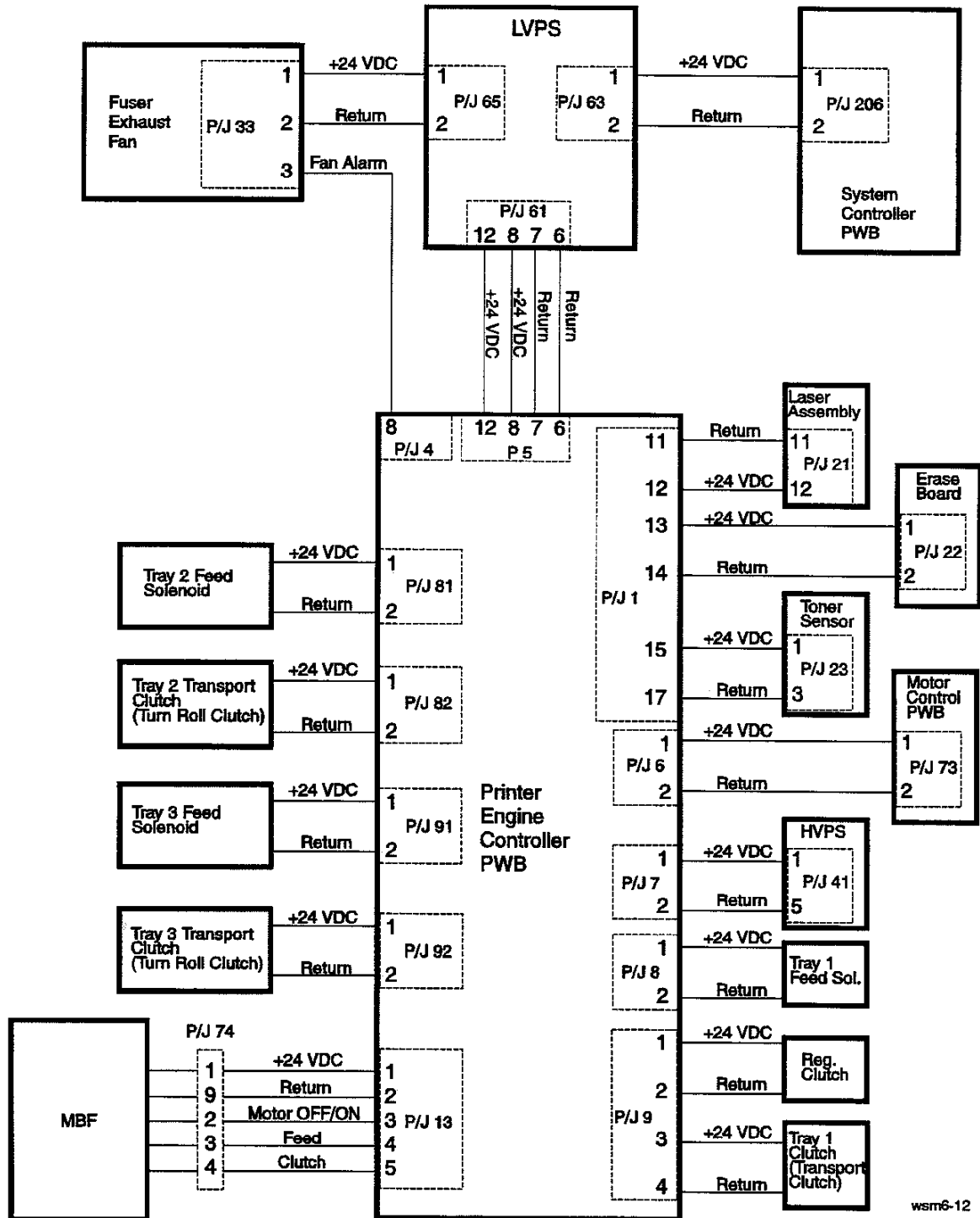
wsm6-10

6.4 +15 VDC Distribution



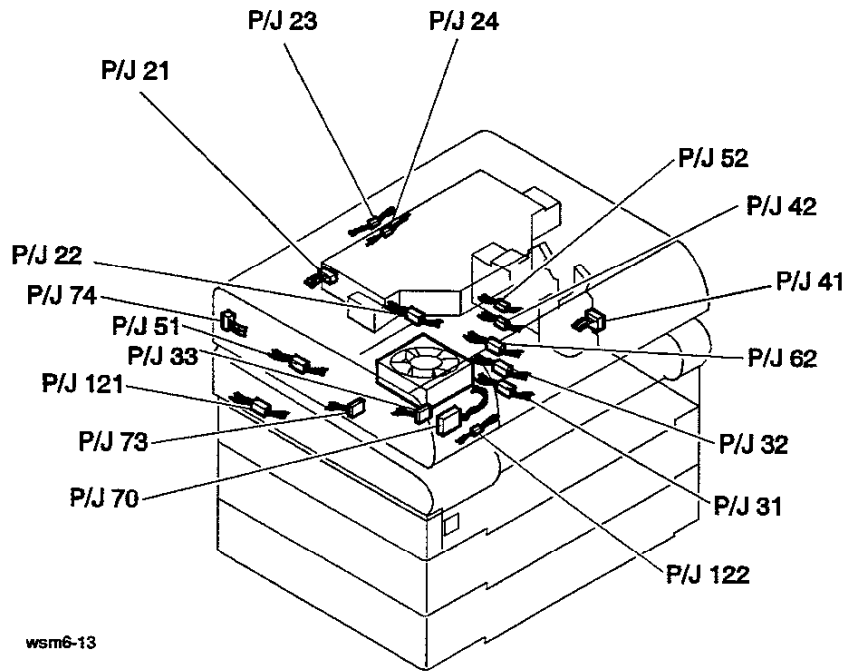
wsm6-11

6.5 +24 VDC Distribution



wsm6-12

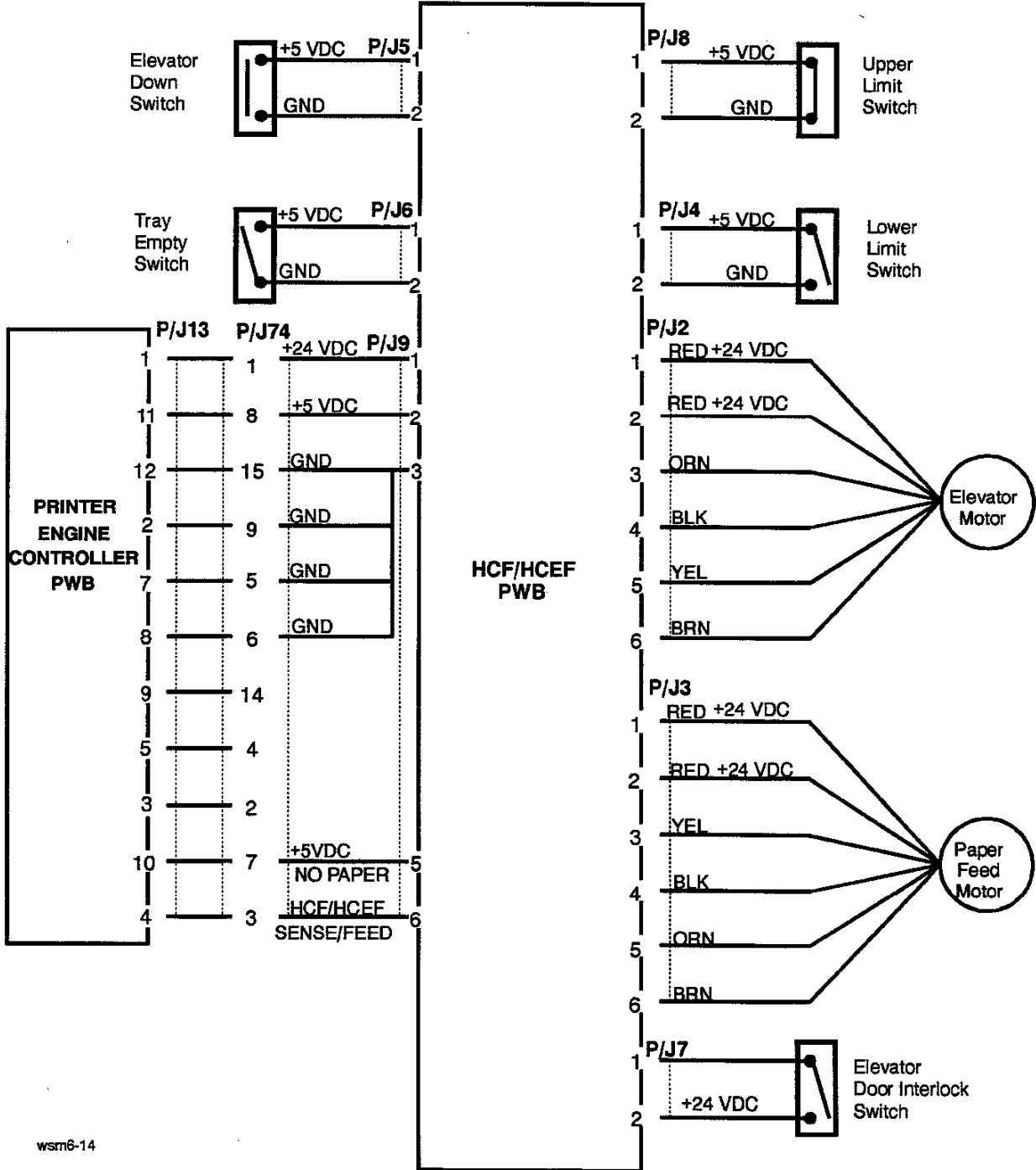
6.6 Plug / Jack Locations



wsm6-13

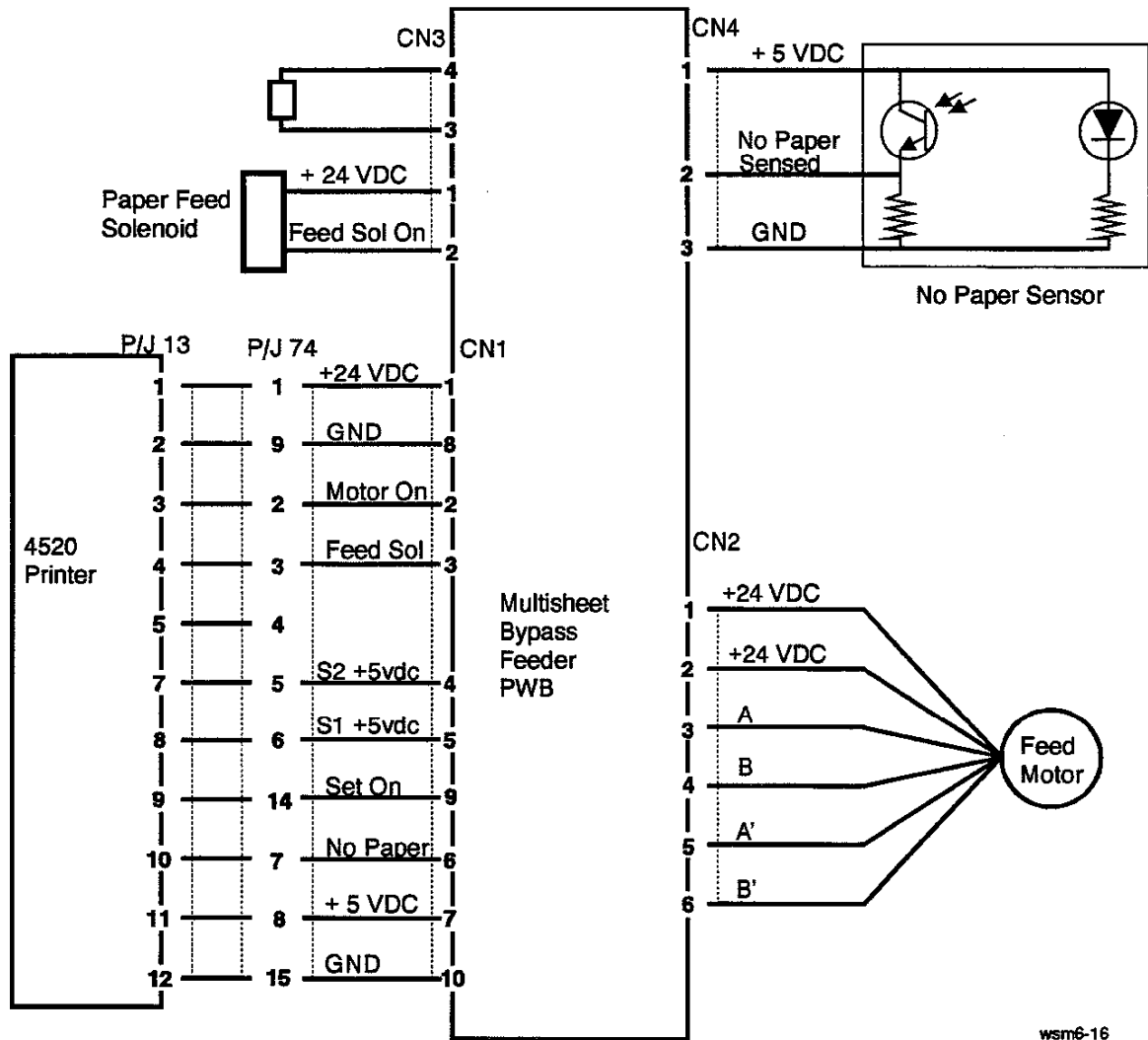
P/J	Purpose	Wiring Diagram
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6.7 HCF/HCEF Wiring Diagram



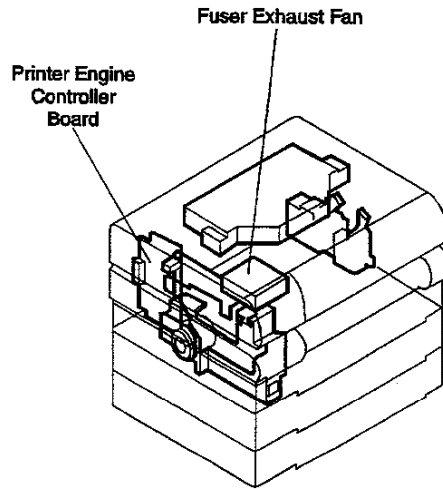
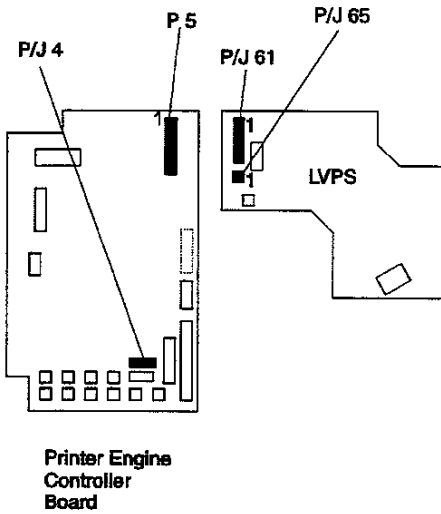
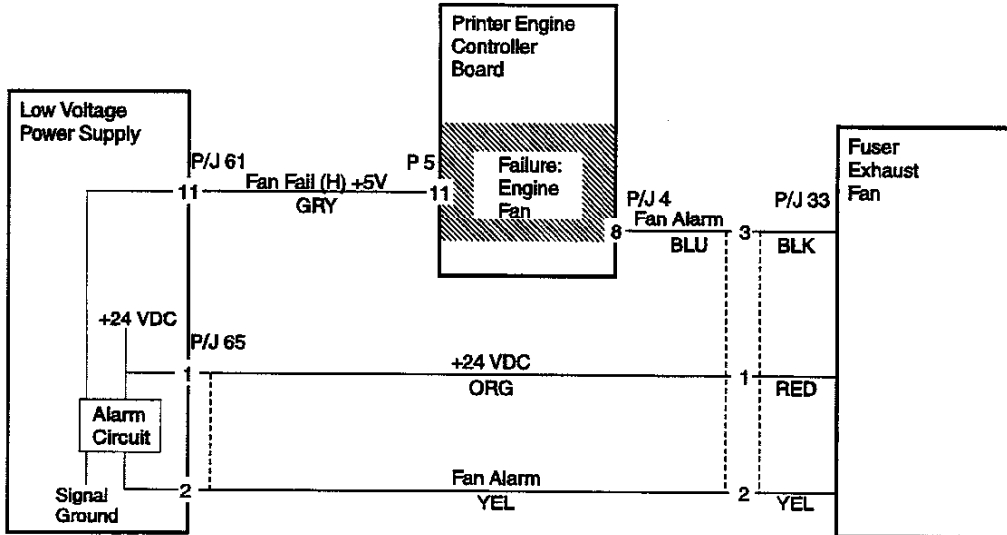
wsm6-14

6.8 MBF Wiring



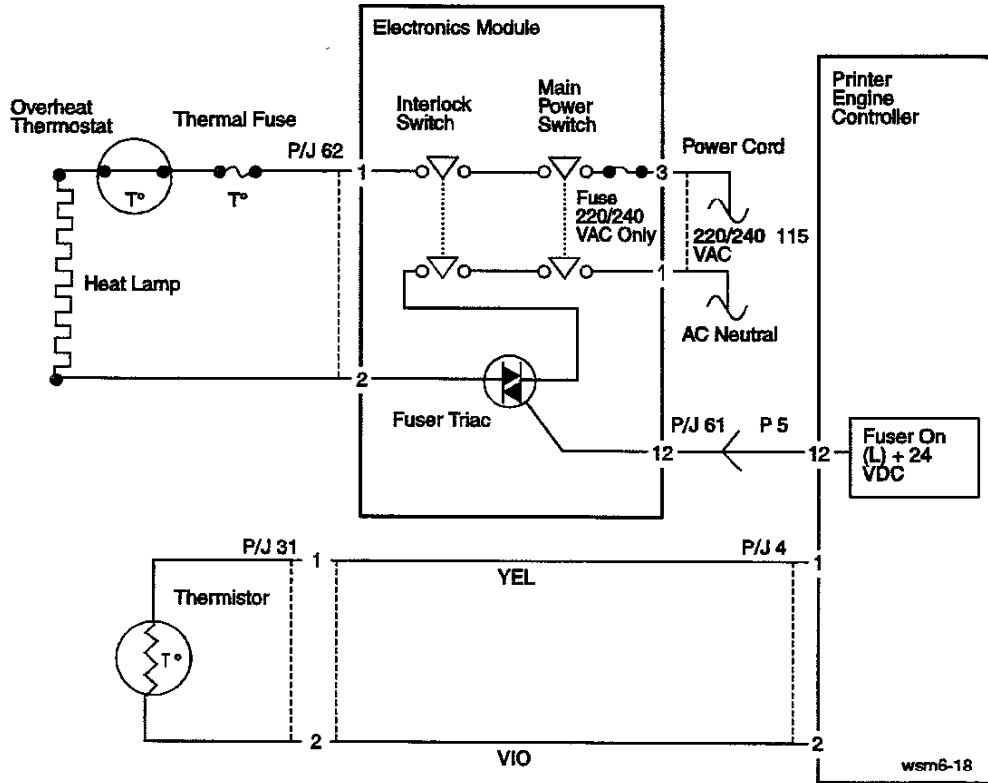
wsm6-16

6.9 Fuser Fan Wiring

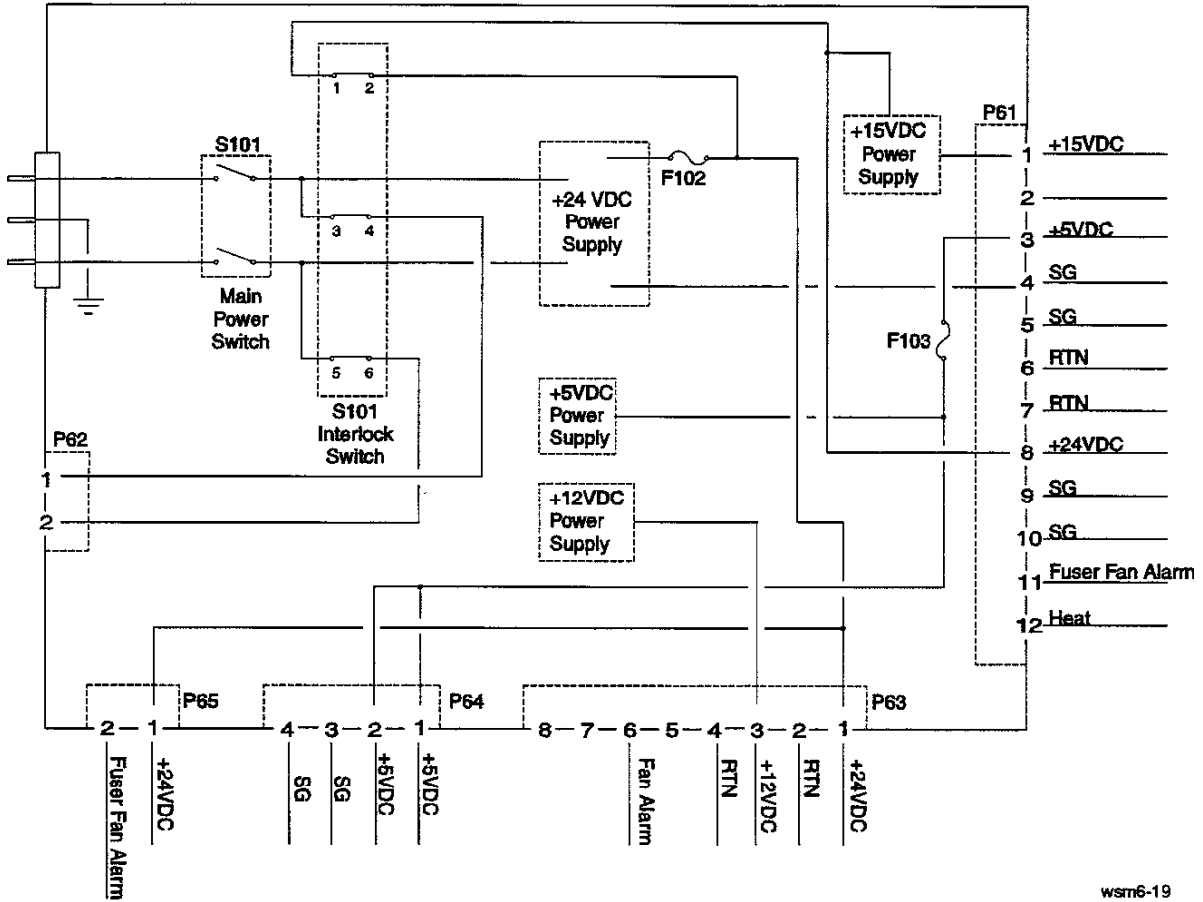


wsm6-17

6.10 Fuser Circuit Wiring

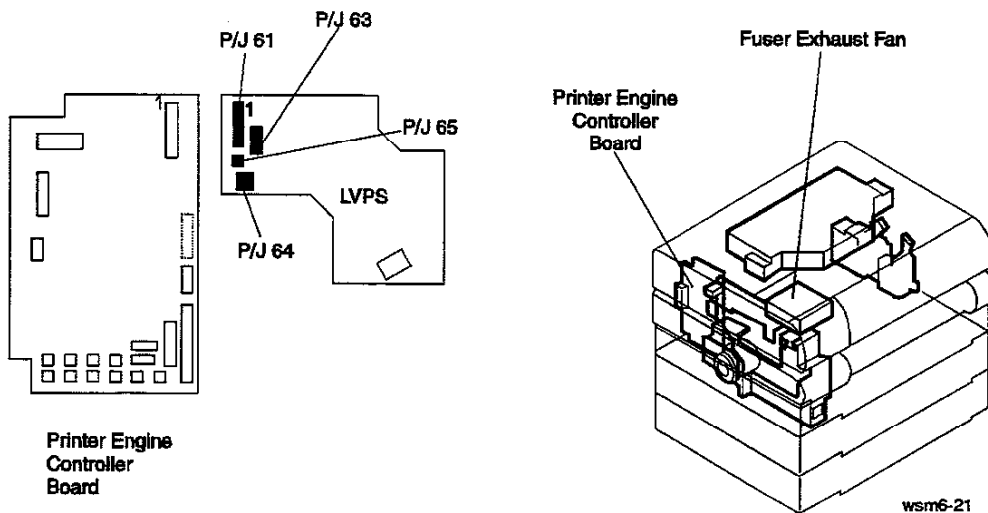
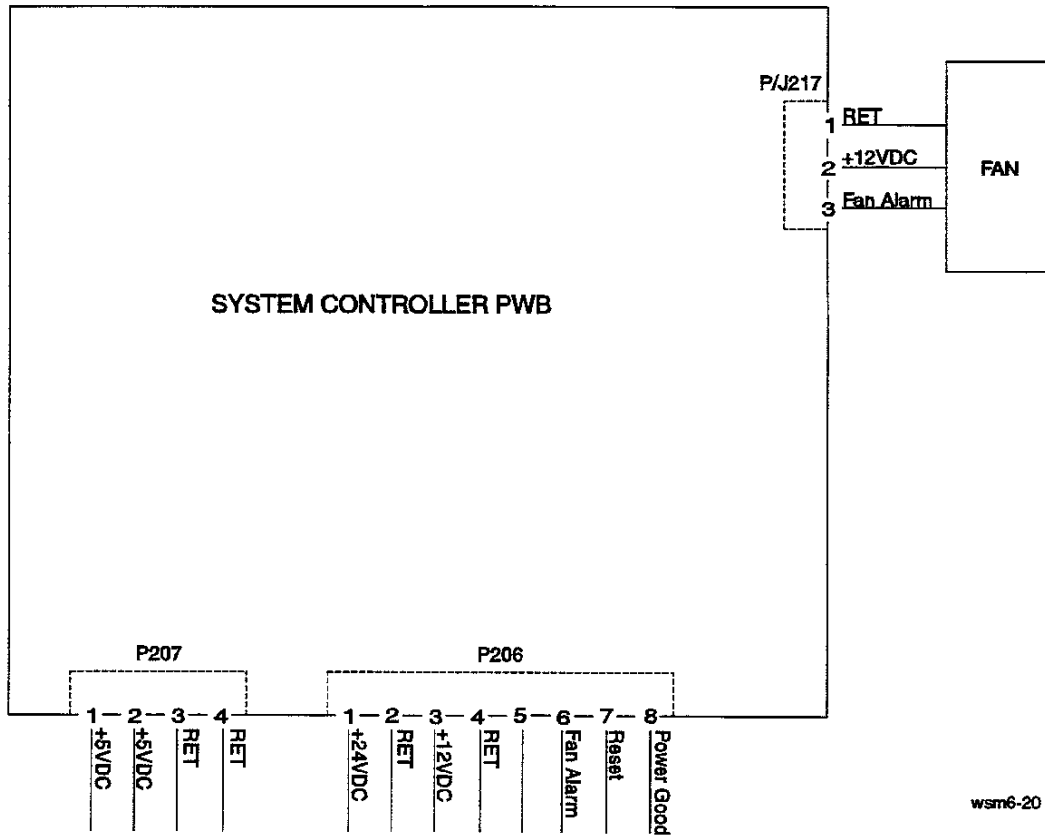


6.11 LVPS Wiring



wsm6-19

6.12 System Controller Fan Wiring



Section 7

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7.1 Using RAPs

In each of the following repair analysis procedures (RAPs) 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 If possible, have a spare EP Cartridge on hand. Some RAPs use this component as a troubleshooting tool.
- 2 RAPs use the following notation when referring to printer connections:
 - P/JXX – 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 Electronic Discharge Kit (ESD) when handling sensitive electrical components.

- 3 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).
- 4 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.
- 5 Unless otherwise instructed by a RAP, take all voltage readings with the EP Cartridge and Paper Trays installed, and with the Top Cover and Exit Door closed.
- 6 Voltage values stated in RAPs are approximate. Actual voltages you get may differ slightly. A small difference in voltage is acceptable.
- 7 Refer to the appropriate Repair Procedures if you must remove or replace a component.
- 8 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 (11") or A4 paper when troubleshooting an image quality problem.

Use the Test Print option, 5.1.4.7 Test Menu (System Controller Test Print), 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 the regular prints have an image quality problem, the problem may be 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 Entry Level RAP.

7.2.1 Entry Level RAP

- 1 Switch the printer power OFF, then ON. Within 2 minutes the printer displays "ONLINE _ _ _ _ READY" on the UI.
 - Y Go to Step 4.
 - N Go to Step 2.
- 2 The printer displays a Fault Message or Error Code.
 - Y Go to appropriate Fault Message/Error Code RAP.
 - N Go to Step 3.
- 3 The LCD is blank and illuminated.
 - Y Go to 7.4.2, Blank UI Display RAP.
 - N Go to 7.4.1, Black UI Display RAP.
- 4 Enter the Test Menu. The Test Menu can be entered.
 - Y Go to step 5.
 - N Go to 7.4.3, Inoperative Keypad RAP.
- 5 Generate a System Controller Test Print, 5.1.4.7, from all trays. The printer displays a Fault Message/Error Code.
 - Y Go to appropriate Fault Message/Error Code RAP.
 - N Go to 7.5.1, Image Quality Entry Flow Chart to identify Image Quality defects. Return here and go to Step 6 when completed with the Image Quality RAPs.
- 6 Request Customer to send print job from HOST. The job prints successfully without defects.
 - Y Go to Step 7.
 - N Go to 7.6.1, Communications Entry RAP.
- 7 A fault condition exists that has not been identified in the previous steps.
 - Y Go to Table 7.1.
 - N Return to Final Actions.

Table 7.1

PRINTER PROBLEM	RAP
1. Memory Card is not being read on a customer job.	7.7.1, Memory Card Check-Out Procedure RAP
2. Mechanical noise is coming from the printer.	7.4.4, Mechanical Noise RAP
3. HOST Communications.	7.6.1, Communications Entry RAP
4. HCF/HCEF Feeder will not allow the Elevator Tray to go down into the Load Paper condition.	7.4.8, HCF/HCEF Elevator Motor RAP

7.3 RAPs With Fault / Status Codes

7.3.1 "FAN FAILURE" Message (U5)

You were directed to this RAP because the UI displayed "FAN FAILURE" and one or both of the fans or related components within the printer has failed.

- 1 Enter diagnostic mode 1. UI displays "U5: POWER OFF THEN ON AGAIN"
 - Y Go to step 2.
 - N Go to step 13.
- 2 Verify air movement of Fuser Exhaust Fan by placing hand over fan exhaust opening located on Top Cover. Air movement is felt.
 - Y Replace the Printer Engine Controller PWB, PL8.
 - N Go to step 3.
- 3 Switch the printer power OFF. Remove printer covers. Check Fuser Exhaust Fan for binding by manually rotating Fan blades. Fan rotates smoothly.
 - Y Go to Step 4.
 - N Replace Fuser Exhaust Fan, PL 8.
- 4 Remove LVPS Cover. Verify that the Fuser Fan Harness is properly attached to P/J65 on the LVPS and at P/J33 at the Fuser Exhaust Fan and both are free of damage (See wiring 6.9). The Harness is properly connected and free of damage.
 - Y Go to Step 5.
 - N Properly attach Harness, repair, or replace Fan/Fuser Sensor Harness, PL 8.
- 5 There is continuity between P/J33-1 and P/J65-1, P/J33-2 and P/J65-2, and P/J33-3 and P/J4-8.
 - Y Go to Step 6.
 - N Replace Fan/Fuser Sensor Harness, PL 8.
- 6 Switch the printer power ON. Measure the voltage on the LVPS from P/J65-1 to frame ground (See wiring 6.9). The voltage is +24.0 +/- 1.2 VDC.
 - Y Go to Step 7.
 - N Go to Step 9.
- 7 Disconnect P/J 33 (Fuser Fan). Measure the voltage on the LVPS from P/J65-1 to P/J 4-8 on the Printer Engine Controller PWB and from P/J65-2 on the LVPS to P/J 4-8 on the Printer Engine Controller PWB. The voltage is +24.0 +/- 1.2 VDC.
 - Y Replace the Fuser Fan, PL 8. If the problem persists, replace the Printer Engine Controller PWB, PL 8.
 - N Go to step 8.

- 8** Measure the voltage on the LVPS from P/J65-1 to P/J61-11 and from P/J65-2 to P/J61-11. The voltage is +19.0 +/- 1.0 VDC.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Low Voltage Power Supply, PL 8.
- 9** Switch the printer power OFF. Remove fuse (F102) on Low Voltage Power Supply and check continuity (See Wiring 6.11). Fuse is OK.
 - Y Replace the Low Voltage Power Supply, PL 8.
 - N Go to step 10.
- 10** Replace Fuse F102, PL 8 and verify printer operation. The fuse opens when printer power is switched ON.
 - Y Go to step 11.
 - N Return to Final Actions.
- 11** Switch the printer power OFF. Disconnect P65 (Fuser Fan Motor), P63 and P64 (System Controller PWB), and P61 (Printer Engine Controller PWB) on LVPS (See Wiring 6.11). Replace Fuse F102. Switch the printer power ON. The voltage from J65-1 to frame ground is +24.0 +/- 1.2 VDC.
 - Y Go to step 12.
 - N Replace the Low Voltage Power Supply, PL 8.
- 12** Switch the printer power OFF. Reconnect one of the plugs disconnected in step 11. Switch the printer power ON. The fuse opens when printer power is switched ON.
 - Y Replace the component just connected.
 - N Repeat step 12 with the next disconnected plug.
- 13** Switch the printer power OFF. Unscrew the System Controller PWB and slide it out from the System Controller cavity approximately 4 inches. Switch the printer power ON. The System Controller PWB Fan rotates.
 - Y Go to step 17.
 - N Go to step 14.
- 14** Measure the voltage on the System Controller PWB from P/J206-3 to frame ground (See wiring 6.12). The voltage is +12.0 +/- 0.60 VDC.
 - Y Go to step 16.
 - N Go to Step 15.
- 15** Measure the voltage on the LVPS from P/J63-3 to frame ground (See wiring 6.11). The voltage is +12.0 +/- 0.60 VDC.
 - Y Replace the Engine/System Controller Harness, PL 8.
 - N Replace the Low Voltage Power Supply, PL 8.

- 16** Switch the printer power OFF. Remove the System Controller PWB. Rotate the System Controller PWB 90 degrees CCW and reconnect the four P/J connectors. Switch the printer power ON. Measure the voltage on the System Controller PWB from P/J217-2 to P/J217-1. The voltage is +12.0 +/- 0.60 VDC.
- Y Replace the System Controller PWB Fan, PL 9.
 - N Replace the System Controller PWB, PL 9.
- 17** Switch the printer power OFF. Remove the System Controller PWB. Rotate the System Controller PWB 90 degrees CCW and reconnect the four P/J connectors. Disconnect P/J217(Fan). Switch the printer power ON. Measure the voltage on the System Controller PWB from J217-3 to J217-1. The voltage is +5.0 +/- 0.25 VDC.
- Y Go to step 18.
 - N Go to step 19.
- 18** Switch the printer power OFF. Reconnect P/J217(Fan). Switch the printer power ON. Measure the voltage on the System Controller PWB from P/J217-3 to P/J217-1. The voltage is approximately +0.1 VDC.
- Y Replace the System Controller PWB, PL 9.
 - N Replace the System Controller PWB Fan, PL 9.
- 19** Switch the printer power OFF. Reconnect P/J217(Fan). Switch the printer power ON. Measure the voltage on the System Controller PWB from P/J206-6 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the System Controller PWB, PL 9.
 - N Go to step 20.
- 20** Measure the voltage from P/J63-6 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the Engine/System Control Harness, PL8.
 - N Replace the LVPS, PL8.

7.3.2 "MOTOR FAILURE" Message (U1)

You were directed to this RAP because the UI displayed "MOTOR FAILURE" and a failure of the Main Drive Motor or related components within the printer has failed. This is caused by either the Main Drive Motor reducing normal rotational speed or failing to rotate during a print cycle.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. The cable that connects to P/J73 on Main Drive Motor PWB is properly connected and free of damage. The Cable is free of damage.
 - Y Go to Step 2.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 2 With Top Cover closed, manually rotate the Main Drive Motor cooling fan counterclockwise with your finger to test for any mechanical binding of the drive components. The Main Drive Motor rotates smoothly.
 - Y Go to Step 3.
 - N Go to Step 12.
- 3 Install Interlock Cheater across Top Cover Interlock Switch. Enter Diagnostic Mode 2. Press the <DOWN> key, while observing the Main Drive Motor. The Main Drive Motor rotates.
 - Y Go to Step 4.
 - N Go to Step 9.
- 4 Using the Test Pattern generated in Step 3, measure from lead edge to trail edge of the Grid Pattern in the process direction. The length is between 206mm to 212mm.
 - Y Go to Step 5.
 - N Go to Step 6.
- 5 Measure the voltage from P/J6-5 on the Printer Engine Controller PWB to frame ground. The voltage is less than +0.5 VDC during a print cycle.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Verify connectors at P/J73 on Main Drive Motor. If OK, replace Main Drive Motor Assembly, PL 6.
- 6 With the black lead attached to frame ground, measure the voltage across P/J61-8 on the Low Voltage Power Supply. The voltage measured is +24.0 +/- 1.2 VDC.
 - Y Go to Step 7.
 - N Go to Step 15.

7 Measure the voltage from P/J73-7 on the Main Drive Motor PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.

Y Replace Main Drive Motor, PL 6.

N Go to Step 8.

8 Measure the voltage at P/J61-3 on the LVPS. The voltage is +5.0 +/- 0.25 VDC.

Y Replace the Printer Engine Controller PWB, PL 8.

N Go to Step 19.



WARNING! When Test DG 90 is enabled, the Main Drive Motor will run. Be extremely careful around moving parts.

9 Measure the voltage from P/J73-1 on the Main Drive Motor PWB to frame ground. The voltage is +24.0 +/- 1.2 VDC.

Y Go to Step 10.

N Replace the Printer Engine Controller PWB, PL 8.

10 Enter Diagnostic Mode 1. Select DG 90. Measure the voltage from P/J6-3 on the Printer Engine Controller PWB to frame ground. The voltage changes from +5.0 VDC to less than +1.0 VDC when the <DOWN> key is pressed.

Y Go to Step 11.

N Replace the Printer Engine Controller PWB, PL 8.

11 With the output component tests still enabled, measure the voltage at P/J6-4. The voltage is +2.5 +/- 0.15 VDC.

Y Replace Main Drive Motor, PL 6.

N Replace the Printer Engine Controller PWB, PL 8.

12 Remove EP Cartridge and check for binding. EP Cartridge is binding.

Y Replace EP Cartridge, PL 6.

N Go to Step 13.



WARNING! Allow the Fuser Assembly to cool before checking Fuser for binding.

13 Remove Fuser Assembly from printer and visually check for binding. Fuser Assembly is binding.

Y Replace Fuser Assembly, PL 5.

N Go to Step 14.

14 Manually rotate the following components to test for binding:

- Upper, Middle, & Lower Feed Rolls.
- Upper, Middle, & Lower Turn Rolls.
- Registration Roll.

One or more of the above tested components were bound.

Y Repair or Replace, if necessary, the binding component(s).

N Replace Main Drive Motor Assembly, PL 6.

15 Switch the printer power OFF. Disconnect P61, P63, P64 and P65 from Low Voltage Power Supply. Switch the printer power ON. Measure the voltage from P61-8 to frame ground. The voltage is +24.0 +/- 2.5 VDC.

Y Go to Step 16.

N Replace Low Voltage Power Supply, PL 8.

16 Switch the printer power OFF. Reconnect P61, P63, P64 and P65 to Low Voltage Power Supply. Disconnect plug P6 from Printer Engine Controller PWB. Switch the printer power ON. Measure the voltage from P61-8 to frame ground. The voltage is +24.0 +/- 2.5 VDC.

Y Replace Main Drive Motor, PL 6.

N Go to Step 17.

17 Switch the printer power OFF. Disconnect the following plugs from the Printer Engine Controller PWB: P1, P6, P7, P8, P9, P13, P81, P82, P91, P92, and P65 on the LVPS. Measure the voltage from P61-8 to frame ground. The voltage is +24.0 +/- 2.5 VDC.

Y Go to +24 VDC Distribution BSD in Section 6 and troubleshoot +24 VDC Problem.

N Replace Printer Engine Controller PWB, PL 8.

18 Switch the printer power OFF. Reconnect one of the plugs disconnected in step 17. Switch the printer power ON. Measure the voltage from P61-8 to frame ground. The voltage is +24.0 +/- 2.5 VDC.

Y Repeat step 18 with the next disconnected plug.

N Go to Section 6 Wiring and troubleshoot component(s) just connected.

19 Switch the printer power OFF. Disconnect P61, P63, P64 and P65 from Low Voltage Power Supply. Switch the printer power ON. Measure the voltage from P61-3 to frame ground. The voltage is +5.0 +/- 0.25 VDC.

Y Go to Step 20.

N Replace Low Voltage Power Supply, PL 8.

20 Switch the printer power OFF. Reconnect P61, P63, P64 and P65 to Low Voltage Power Supply. Disconnect plugs (P1, P2, P3, P4, P6, P7, P9, P10, P13, P83, P84, P93, P94) from Printer Engine Controller PWB. Switch the printer power ON. Measure the voltage from P61-3 to frame ground. The voltage is +5.0 +/- 0.25 VDC.

Y Go to +5 VDC Distribution BSD in Section 6 and troubleshoot +5 VDC Problem.

N Replace Printer Engine Controller PWB, PL 8.

21 Switch the printer power OFF. Reconnect one of the plugs disconnected in step 20. Switch the printer power ON. Measure the voltage from P61-3 to frame ground. The voltage is +5.0 +/- 0.25 VDC.

Y Repeat step 21 with the next disconnected plug.

N Go to Section 6 Wiring and troubleshoot component(s) just connected.

7.3.3 "LASER FAILURE" Message (U2)

You were directed to this RAP because the UI displayed "LASER FAILURE" and a failure of the LASER or related components within the printer has failed.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. The cable that connects to P/J1 on Printer Engine Controller PWB and to P/J21 on LASER Assembly is properly connected and free of damage.
 - Y Go to Step 2.
 - N Repair/replace as necessary the Laser Scanner Harness, PL 8.
- 2 The cable that connects to P/J5 on Printer Engine Controller PWB and to P/J61 on Low Voltage Power Supply Assembly is properly connected and free of damage.
 - Y Go to Step 3.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 3 Install Interlock Cheater across Top Cover Interlock Switch. Switch the printer power ON. Measure the voltage on the Laser Assembly from P/J21-7, to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 4.
 - N Go to Step 11.
- 4 Measure the voltage from P/J21-8, to frame ground. The voltage is +15.0 +/- 0.75 VDC.
 - Y Go to Step 5.
 - N Go to Step 11.
- 5 Measure the voltage from P/J21-12 to frame ground. The voltage is +24.0 +/- 1.2 VDC.
 - Y Go to Step 6.
 - N Go to Step 11.
- 6 Enter Diagnostic Mode 2 and print a Test Print. The Laser Motor spins up.
 - Y Go to step 9.
 - N Go to step 7.
- 7 Run a Configuration Sheet from the Menu Mode. Measure the voltage from P/J21-10 to frame ground. The voltage goes from +5.0 VDC to 0 VDC while Laser Motor is spinning.
 - Y Replace the Laser Assembly, PL 6.
 - N Go to step 7.

- 8** Run a Configuration Sheet from the Menu Mode. Measure the voltage from P/J1-10 to frame ground. The voltage goes from +5.0 VDC to 0 VDC while Laser Motor is spinning.
- Y Replace the Laser Scanner Harness, PL 8.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 9** Switch the printer power OFF. Connect the DVM from P/J21-1 to frame ground. Select (+) Peak Hold. Switch the printer power ON. The voltage is approximately + 3.25 VDC.
- Y Go to Step 10.
 - N Replace the Laser Assembly, PL 6.
- 10** Switch the printer power OFF. Connect the DVM from P/J1-1 to frame ground. Select (+) Peak Hold. Switch the printer power ON. The voltage is approximately + 3.25 VDC.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Laser Scanner Harness, PL 8.
- 11** All of the following voltages are present:
- P/J1-7 to frame ground: + 5.0 +/- 0.25 VDC
 - P/J1-8 to frame ground: + 15.0 +/- 0.75 VDC
 - P/J1-12 to frame ground: + 24.0 +/- 1.25 VDC
- Y Replace Laser Scanner Harness, PL8.
 - N Go to step 12.
- 12** All of the following voltages are present on the LVPS:
- P/J61-3 to frame ground: + 5.0 +/- 0.25 VDC
 - P/J61-1 to frame ground: + 15.0 +/- 0.75 VDC
 - P/J61-8 to frame ground: + 24.0 +/- 1.25 VDC
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the LVPS, PL8.

7.3.4 "FUSER FAILURE" Message (U4)

You were directed to this RAP because the UI Displayed "FUSER FAILURE" and the printer would not allow printing.

- 1 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Use Interlock Cheater and actuate Top Cover Interlock Switch. Switch the printer power ON. Verify the Fuser Heat Lamp turns on at power on. The Fuser Heat Lamp is on.
 - Y Go to Step 2.
 - N Go to Step 5.
- 2 The Fuser Heat Lamp begins to pulse ON and OFF within 80 seconds after switching the printer power ON.
 - Y Replace the Printer Engine Controller PWB, PL8.
 - N Go to Step 3.
- 3 Switch the printer power OFF. Disconnect P/J31 at the Fuser (The bottom connector of the three connectors below the Fuser Exhaust Fan.). Switch the printer power ON and observe the Fuser Heat Lamp. The Fuser Heat Lamp is ON.
 - Y Go to Step 4.
 - N Replace the Fuser Sensor Assembly, PL 5.
- 4 Switch the printer power OFF. With P/J31 disconnected, check DC voltage with red lead on P/ J61-12 and black lead on chassis ground. Switch the printer power ON. There is less than +1.0 VDC.
 - Y Replace Printer Engine Controller PWB, PL 8.
 - N Replace Low Voltage Power Supply, PL 8.
- 5 Switch the printer power OFF. Using multimeter set for 200 or greater on OHMs scale. Unplug P/ J62 and measure the resistance between P62-1 and P62-2. There is less than 10 ohms of resistance across P62-1 and P62-2.
 - Y Go to Step 6.
 - N Go to Step 7.
- 6 Set multimeter to (+) Peak Hold. Measure from P5-12to frame ground. Using Interlock Cheater, actuate the Top Cover Interlock Switch. Switch the printer power ON. The voltage reads approximately +24.0 VDC.
 - Y Replace the Low Voltage Power Supply, PL 8.
 - N Replace Printer Engine Controller PWB, PL 8.
- 7 Remove the Fuser Cover. Check the continuity through the Heat Lamp only. The resistance across the Heat Lamp is less than 10 ohms.
 - Y Replace the Fuser Sensor Assembly, PL 5. After replacing the Fuser Sensor Assembly, return to this RAP to determine cause of the overheat condition.
 - N Replace the Heat Lamp, PL 5.

7.3.5 "MEMORY FAILURE" Message

You were directed to this RAP because the UI displayed "MEMORY FAILURE" and a failure of the Memory or System Controller PWB has occurred.

- 1 Switch the printer power OFF. Switch the printer power ON. The UI displays "Memory Failure Service Required".
 - Y Go to Step 2.
 - N Go to Step 9.
- 2 Switch the printer power OFF. Slide the System Controller PWB out approximately four inches. Remove all SIMMs from System Controller PWB. Switch the printer power ON. The UI displays "Memory Failure Service Required".
 - Y Replace System Controller PWB, PL 9.
 - N Go To Step 3.
- 3 Switch the printer power OFF. Reinstall one of the SIMMs into slot 0. Switch the printer power ON. The UI displays "Memory Failure Service Required".
 - Y Go to Step 4.
 - N Go To 5.

NOTE: If printer contains only one SIMM PWB, replace the SIMM PWB, PL 9 and check printer operation. If problem still exists, replace System Controller PWB, PL 9.

- 4 Switch the printer power OFF. Remove the SIMM installed in Step 3 and install a different SIMM into slot 0. Switch the printer power ON. The UI displays "Memory Failure Service Required".
 - Y Replace System Controller PWB, PL 9.
 - N Replace SIMM, PL 9, which was removed from System Controller PWB in Step 4.
- 5 Switch the printer power OFF. Reinstall one of the SIMMs into slot 1. Switch the printer power ON. The UI displays "Memory Failure Service Required".
 - Y Go to Step 6.
 - N Go To 7.
- 6 Switch the printer power OFF. Remove the SIMM installed in Step 5 and install a different SIMM PWB into slot 1. Switch the printer power ON. The UI displays "Memory Failure Service Required".
 - Y Replace System Controller PWB, PL 9.
 - N Replace SIMM, PL 9 which was removed from System Controller PWB in Step 6.
- 7 Switch the printer power OFF. Reinstall the final SIMM PWB into slot 2. Switch the printer power ON. The UI displays "Memory Failure Service Required".
 - Y Go to Step 8.
 - N Go to Step 9.

- 8** Switch the printer power OFF. Remove the SIMM PWB installed in Step 7 and install a different SIMM PWB into slot 2. Switch the printer power ON. The UI displays "Memory Failure Service Required".
- Y Replace System Controller PWB, PL 9.
 - N Replace SIMM PWB, PL 9 which was removed from System Controller PWB in Step 8.
- 9** Allow Printer to display "ONLINE ___ / READY". Enter the MENU Mode. Enter Test Menu, Memory Check. Memory Test finds a faulty SIMM.
- Y Replace faulty SIMM PWB, PL 9.
 - N Possible intermittent connection of SIMM in System Controller PWB. Make a notation in machine service log and return to Final Actions.

7.3.6 “NVM MEMORY FAILURE” Message

You were directed to this RAP because the UI displayed “NV MEMORY FAIL” and a failure of the Non-Volatile Memory on the Printer Engine Controller PWB or System Controller PWB has occurred.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Slide out the System Controller PWB and disconnect all cables. Enter Diagnostic Mode 2. The UI displays “READY TO PRINT” after 1 minute.
 - Y Replace System Controller PWB, PL 9.
 - N Replace Printer Engine Controller PWB, PL 8.

7.3.7 "OPEN REAR COVER CLEAR PAPER PATH" Message (E2)

You were directed to this RAP because the UI Displayed "Open Rear Cover Clear Paper Path". This error occurred because the lead edge of the paper being fed did not actuate the Pre-Registration Sensor in a specified time or a problem exists with the Pre-Registration Sensor.

INITIAL ACTIONS:

- Remove any paper from paper path.
- Check paper path for obstructions or foreign objects.
- Check paper stock and tray loading.

PROCEDURE:

- 1 Enter Diagnostic Mode 2. Press the <DOWN> key. The UI displays "Open Rear Cover Clear Paper Path" then toggles to display "Paper Fed From Upper Tray".
Y Go to Step 2.
N Go to Step 8.
- 2 Remove any paper from paper path. Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the Pre-Registration Sensor. The UI increments when the Pre-Registration Sensor is actuated and deactuated.
Y Go to Step 3.
N Go to Step 5.
- 3 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Open the Top Cover and verify that both P8 and P9 are properly connected on the Printer Engine Controller PWB. Install the interlock cheater. Enter Diagnostic Mode 1. Select and execute "DG 80" (Tray 1 Solenoid). An audible clicking noise is heard each time you press the DOWN key.
Y Go to Step 4.
N Go to Step 6.
- 4 Exit "DG 80" (see 5.2.1.17). Select and execute "DG 84" (Tray 1 Clutch). An audible click is heard when you press the DOWN key.

NOTE: The Tray 1 Clutch will stay energized until the "Exit Diagnostics" routine is entered or the printer power is switched OFF.

- Y Clean or replace Tray 1 Feed Roll Assembly, PL 3.
N Go to Step 7.
- 5 Switch the printer power OFF. Disconnect P/J9 on the Printer Engine Controller PWB. Switch the printer power ON. The voltage at J9-6 on the Printer Engine Controller PWB is +5.0 +/- 0.25 VDC.
Y Replace the Pre-Registration Sensor, PL 3.
N Replace the Printer Engine Controller PWB, PL 8.

- 6 Measure the voltage from P/J8-2 on the Printer Engine Controller PWB to frame ground. The voltage toggles from +24.0 VDC to 0 VDC each time the DOWN key is pressed.
 - Y Replace the Tray 1 Feed Solenoid, PL 3.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 7 Exit 'DG 84" (see 5.2.1.17). Select, but do not execute DG 84. Measure the voltage from P/J9-4 on the Printer Engine Controller PWB to frame ground. The voltage toggles from +24.0 VDC to 0 VDC when DG84 is executed.
 - Y Replace the Tray 1 Clutch, PL 3.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 8 The UI displays "Open Rear Cover Clear Paper Path" then toggles to display "Paper Fed From Middle Tray".
 - Y Go to Step 9.
 - N Go to Step 14.
- 9 Remove any paper from paper path. Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the Pre-Registration Sensor. The UI increments when the Pre-Registration Sensor is actuated and deactuated.
 - Y Go to Step 10.
 - N Go to Step 5.
- 10 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Open the Top Cover and verify that both P81 and P9 are properly connected on the Printer Engine Controller PWB. Install the interlock cheater. Enter Diagnostic Mode 1. Select and execute "DG 86" (Tray 2 Solenoid). An audible clicking noise is heard each time you press the DOWN key.
 - Y Go to Step 12.
 - N Go to Step 11.
- 11 Measure the voltage from P/J81-2 on the Printer Engine Controller PWB to frame ground. The voltage toggles from +24.0 VDC to 0 VDC each time the DOWN key is pressed.
 - Y Replace the Tray 2 Feed Solenoid, PL 4.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 12 Exit 'DG 86" (see 5.2.1.17). Disconnect P/J92 on the Printer Engine Controller PWB. Select and execute "DG 85" (Tray 2&3 Clutch). An audible click is heard when you press the DOWN key.

NOTE: *The Tray 2&3 Transport Clutch will stay energized until the "Exit Diagnostics" routine is entered or the printer power is switched OFF.*

- Y Reconnect P/J92 on the Printer Engine Controller PWB. Clean or replace Tray 2 Feed Roll Assembly, PL 4.
- N Go to Step 13.

- 13 Switch the printer power OFF. Reconnect P92 on the Printer Engine Controller PWB. Enter Diagnostic Mode 1. Select, but do not execute DG 85. Measure the voltage from P/J82-2 on the Printer Engine Controller PWB to frame ground. The voltage toggles from +24.0 VDC to 0 VDC when DG85 is executed.
- Y Replace the Tray 2 Transport Clutch, PL 4.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 14 The UI displays "Open Rear Cover Clear Paper Path" then toggles to display "Paper Fed From Lower Tray".
- Y Go to Step 15.
 - N Return to Initial Actions and continue.
- 15 Remove any paper from paper path. Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the Pre-Registration Sensor. The UI increments when the Pre-Registration Sensor is actuated and deactuated.
- Y Go to Step 16.
 - N Go to Step 5.
- 16 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Open the Top Cover and verify that both P91 and P9 are properly connected on the Printer Engine Controller PWB. Install the interlock cheater. Enter Diagnostic Mode 1. Select and execute "DG 81" (Tray 3 Solenoid). An audible clicking noise is heard each time you press the DOWN key.
- Y Go to Step 17.
 - N Go to Step 19.
- 17 Exit "DG 81" (see 5.2.1.17). Disconnect P/J82 on the Printer Engine Controller PWB. Select and execute "DG 85" (Tray 2&3 Clutch). An audible click is heard when you press the DOWN key.

NOTE: The Tray 3 Transport Clutch will stay energized until the "Exit Diagnostics" routine is entered or the printer power is switched OFF.

- Y Switch the printer power OFF. Reconnect P82 to Printer Engine Controller PWB. Clean or replace Tray 3 Feed Roll Assembly, PL 4.
 - N Go to Step 18.
- 18 Switch the printer power OFF. Reconnect P82 on the Printer Engine Controller PWB. Enter Diagnostic Mode 1. Select, but do not execute DG 85. Measure the voltage from P/J92-2 on the Printer Engine Controller PWB to frame ground. The voltage toggles from +24.0 VDC to 0 VDC when DG85 is executed.
- Y Replace the Transport Clutch Tray 3, PL 4.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 19 Measure the voltage from P/J91-2 on the Printer Engine Controller PWB to frame ground. The voltage toggles from +24.0 VDC to 0 VDC each time the DOWN key is pressed.
- Y Replace the Tray 3 Feed Solenoid, PL 4.
 - N Replace the Printer Engine Controller PWB, PL 8.

7.3.8 "OPEN TOP COVER CLEAR PAPER PATH" Message (E3)

You were directed to this RAP because the UI Displayed "Open Top Cover Clear Paper Path". This error occurred because the paper being fed did not actuate the Exit Sensor within a specified time after the Pre-Registration Sensor was actuated.

INITIAL ACTIONS:

- Check Pre-Fuser Transport roll drive gear for damage or wear.
- Verify that the Transfer Corotron Assembly is properly installed.
- Check paper path for obstructions or foreign objects.

PROCEDURE:

- 1 Open all covers and clear any jammed paper in paper path. Close all covers. The Error Message is cleared from the UI.
 - Y Go to Step 2.
 - N Go to Step 6.
- 2 Run System Controller test prints. The printer operates normally.
 - Y Go to Final Actions.
 - N Go to step 3.
- 3 Switch the printer power OFF. Open Top Cover and verify P/J32 is properly connected (the middle connector of the three connectors below the Fuser Exhaust Fan). Close the Top Cover. Enter Diagnostic Mode 1. Select DG 02. With the Face Up Tray removed, open the Diverter Gate and actuate the Exit Sensor. The UI increments one count for each actuation of the sensor.
 - Y Go to Step 4.
 - N Go to Step 6.
- 4 Enter Diagnostic Mode 2. Press the <DOWN> key. The paper jams in fuser area.
 - Y Go to Step 5.
 - N Go to Step 8.
- 5 Switch the printer power OFF. Remove the Fuser Assembly. Gear Q is damaged (PL6).
 - Y Replace the Gear Q, PL 6.
 - N Replace the Fuser, PL 5.
- 6 Switch the printer power OFF and remove the printer covers. Switch the printer power ON. Measure the voltage from P/J4-4 on the Printer Engine Controller PWB to frame ground. The voltage changes from approximately 0.0 +/- 0.25 to +5.0 +/- 0.25 VDC when the Exit Sensor is actuated.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Go to step 7.

- 7** Measure the voltage from P/J4-3 on the Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the Fuser Sensor Assembly, PL5.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 8** With Top Cover open and the interlock cheated, measure the voltage from P/J9-6 on the Printer Engine Controller PWB (for location of P/J 9 see procedure 4.4.1) to frame ground. Open the Registration Transport Baffle to gain access to the actuator. The voltage changes from 0.0 +/- 0.25 to 5.0 VDC when the Pre-Registration Sensor is actuated.
- Y Go to Step 9.
 - N Go to step 10.
- 9** Enter Diagnostic Mode 1. Select DG 82. Open the Top and cheat the Top Cover Interlock Switch. Measure the voltage from P/J9-2 on the Printer Engine Controller PWB to frame ground while entering the diagnostic test. The voltage toggles from +24.0 +/- 1.2 VDC to 0 VDC when the test is entered.
- Y Replace the Registration Clutch, PL 3.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 10** Measure the voltage from P/J9-5 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the Pre-Registration Sensor, PL3.
 - N Replace the Printer Engine Controller PWB, PL 8.

7.3.9 "OPEN COVERS CLEAR PAPER PATH" Message (E4)

You were directed to this RAP because the UI Displayed "Open Front Cover Clear Paper Path". This error occurred because the paper being fed actuated the Exit Sensor in the Fuser, but either stopped before the sensor was deactuated or didn't deactuate the sensor within a given time.

INITIAL ACTIONS:

Check the following components for damage or warpage:

- Fuser Drive Belt
- Diverter Gate
- Exit Door
- Paper Deflector
- Full Stack Sensor Actuator
- Diverter Gate Spring
- Exit Drive Belt/Pulley

PROCEDURE:

- 1 Enter Diagnostic Mode 2. Run a Test Print. The paper is jammed in the fuser area.
 - Y Go to Step 2.
 - N Go to Step 6.
- 2 Open all covers and clear paper path. Close all covers. The Error Message is cleared from the UI.
 - Y Go to Step 3.
 - N Go to Step 6.



WARNING! When Test DG 90 is enabled, the Main Drive Motor will run. Be extremely careful around moving parts.

- 3 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. With Top Cover open, use Interlock Cheater and actuate Top Cover Interlock Switch. Verify that P/J4 is properly connected on the Printer Engine Controller PWB. Enter Diagnostic Mode 1. Select and execute DG 90. With the Exit Door closed, observe the Upper Feed Out Rollers (Shaft Assembly Exit HCS). The Upper Feed Out Rollers rotate.
 - Y Replace the Fuser, PL 5.
 - N Go to Step 4.

- 4 While still executing DG 90, open the Exit Door and observe the Exit Drive Belt. The Exit Drive Belt is free of slippage.
 - Y Go to Step 5.
 - N Replace Exit Drive Belt, PL 5.
- 5 Remove the Fuser Assembly. Inspect the Heat and Pressure Rolls. The rollers rotate smoothly.
 - Y Inspect Gear Q (Fuser Drive Gear) for damage, replace if necessary, PL 6. Reinstall Fuser and return to Final Actions.
 - N Replace the Fuser, PL 5.
- 6 Switch the printer power OFF. Verify P/J32 is properly installed (the middle connector of the three connectors below the Fuser Exhaust Fan). Enter Diagnostic Mode 1. Select and execute DG 02. With the Face Up Tray removed, open the Diverter Gate and actuate the Exit Sensor. The UI increments one count for each actuation of the sensor.
 - Y Go to Step 3.
 - N Go to Step 7.
- 7 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Switch the printer power ON. Measure the voltage from P/J4-4 on the Printer Engine Controller PWB to frame ground. The voltage changes from approximately 0V to +5.0 +/- 0.25 VDC when the Exit Sensor is actuated.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Go to Step 8.
- 8 Measure the voltage from P/J4-3 on the Printer Engine Controller PWB to frame ground. The voltage measured is +5.0 +/- 0.25 VDC.
 - Y Replace the Fuser Sensor Assembly, PL 5.
 - N Replace the Printer Engine Controller PWB, PL 8.

7.3.10 “CLOSE TOP COVER” Message (E5)

The Top Cover Interlock Switch or related components have failed.

- 1** Switch the printer power OFF. Open Top Cover and verify that the Top Cover Interlock Actuator, located underneath the Top Cover, is free of damage and that the Top Cover is properly installed. The Top Cover is properly installed and free of damage.
 - Y** Go to Step 2.
 - N** Properly install or replace the Top Cover, PL 1.

- 2** Switch the printer power OFF. Remove printer covers. Remove the LVPS Cover. Switch the printer power ON. Measure the voltage from P61-8 on the LVPS to frame ground. Voltage changes from 0 VDC to +24.0 +/- 1.2 VDC when the Top Cover Interlock Switch is actuated.
 - Y** Go to Step 3.
 - N** Replace the LVPS, PL 8.

- 3** The voltage between P5-8 and the frame (ground) is +24.0 +/- 1.2 VDC when the Top Cover Interlock Switch is actuated.
 - Y** Replace the Printer Engine Controller PWB, PL 8.
 - N** Repair open or broken wire between P61-8 and P5-8. If the wire cannot be repaired, replace the Printer Engine Controller PWB, PL 8.

7.3.11 "INSTALL EP CARTRIDGE" Message (J3)

You were directed to this RAP because the UI displays "INSTALL EP CARTRIDGE". The EP Cartridge is installed.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove and then reinstall EP Cartridge. Switch the printer power ON. The UI displays "INSTALL EP CARTRIDGE".
 - Y Go to Step 2.
 - N Return to Final Actions.
- 2 Switch the printer power OFF. Remove the System Controller PWB. Switch the printer power ON. The UI displays "J3: CARTRIDGE NOT IN POSITION".
 - Y Go to Step 3.
 - N Replace the System Controller PWB, PL 9.
- 3 Switch the printer power OFF. Remove all printer covers. Remove LVPS Cover. Verify that the wire harness coming from the EP Cartridge Sensor is properly connected at P/J24 (see Wiring 6.6). The harness is properly connected.
 - Y Go to Step 4.
 - N Properly connect harness.
- 4 The wire harness P/J1 on Printer Engine Controller PWB is properly connected.
 - Y Go to Step 5.
 - N Properly connect harness.
- 5 Disconnect P/J1 from Printer Engine Controller PWB. There is continuity between P1-18 and P1-19 with the EP Cartridge installed.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Go to Step 6.
- 6 Disconnect P24 from J24. Measure continuity between P1-18 and J24-1 and between P1-19 and J24-2. There is continuity between the connections.
 - Y Replace the EP Cartridge Sensor, PL 7.
 - N Replace the Laser Scanner Harness, PL 8.

7.3.12 "TONER LOW" Message

You were directed to this RAP because the UI displays "TONER LOW". A new EP Cartridge has been installed.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove the EP Cartridge, shake the EP Cartridge in an attempt to distribute toner within the Cartridge, and then reinstall the Cartridge. Switch the printer power ON. The UI displays "TONER LOW" after / during a twenty print job.
 - Y Go to Step 2.
 - N Return to Final Actions.
- 2 Switch the printer power OFF. Remove the System Controller PWB. Switch the printer power ON. The UI displays "CARTRIDGE NEED TO REPLACE" after running the IOT TEST PRINT for at least twenty prints.
 - Y Go to Step 3.
 - N Replace the System Controller PWB, PL 9.
- 3 Switch the printer power OFF. Remove all printer covers. Remove LVPS Cover. Examine the wire harness coming from the Toner Sensor to P/J23. The harness is properly connected and free of damage.
 - Y Go to Step 4.
 - N Properly connect harness or replace the Toner Sensor, PL 7.
- 4 Install Interlock Cheater. Switch the printer power ON. Measure the voltage from P/J1-15 on Printer Engine Controller PWB to frame ground. The voltage is +24.0 +/- 1.2 VDC.
 - Y Go to Step 5.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 5 Measure the voltage from P/J1-16 on Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC when the EP Cartridge is removed from the printer.
 - Y Go to Step 6.
 - N Go to Step 7.
- 6 The voltage at P/J1-16 on the Printer Engine Controller PWB is approximately 0 VDC when the EP Cartridge is installed in the printer.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Toner Sensor, PL 7
- 7 Disconnect P/J23 and measure the voltage from P/J1-16 on Printer Engine Controller PWB to frame ground. The voltage is approximately +5.0 +/- 0.25 VDC.
 - Y Replace the Toner Sensor, PL 7.
 - N Replace the Printer Engine Controller PWB, PL 8.

7.3.13 "REMOVE PAPER FROM OUTPUT" Message

You were directed to this RAP because the UI Displayed "REMOVE PAPER FROM OUTPUT". This error occurred because the Output Stacker has detected that the Stacker is either full of paper or a malfunction of the Full Stack Sensor has been detected.

INITIAL ACTIONS:

- Verify the actuator on the Full Stack Sensor is free of mechanical binding. Replace sensor, if necessary.

PROCEDURE:

- 1 Switch the printer power OFF. Unscrew the System Controller PWB and slide it out from the System Controller cavity approximately 4 inches. Switch the printer power ON. The voltage from P/J208-2 to frame ground changes from 0.0 +/- 0.25 to +5.0 +/- 0.25 VDC when Full Stack Sensor is actuated.
 - Y Replace the System Controller PWB, PL 9.
 - N Go to Step 2.
- 2 Measure the voltage from P/J208-1 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 3.
 - N Replace System Controller PWB, PL 9.
- 3 Switch the printer power OFF. Check for continuity from P/J122 to P/J121, and from P/J121 to P/J208, on the System Controller PWB (see Wiring 6.3). Continuity checks OK.
 - Y Replace Full Stack Sensor, PL 5.
 - N Replace or repair damage wire(s) or the Harness(s), PL 5 or PL 8.

7.3.14 "CLOSE HCF/HCEF COVER" Message

You were directed to this RAP because the UI Displayed "CLOSE HCF/HCEF COVER". This error occurred because the Elevator Door Interlock Switch sensed an open HCF/HCEF Cover when the printer is in the print or standby mode or the HCF/HCEF Elevator Motor was not in the ready mode.

- 1 Open HCEF Elevator Door and verify that the HCF/HCEF Elevator Door Interlock Switch Actuator, located inside the Left Cover, is free of damage and that the cover is properly installed. The Cover is properly installed and free of damage.
 - Y Go to Step 2.
 - N Properly install HCF/HCEF Cover. If cover is damaged, replace cover/HCF/HCEF.
- 2 Switch the printer power OFF. Remove HCF/HCEF Left and Right Covers. Switch the printer power ON. Measure the Elevator Door Interlock Switch voltage from P/J7-1 to frame ground (see Wiring 6.7). The voltage is +24.0 +/- 1.2 VDC when switch is actuated.
 - Y Go to Step 3.
 - N Go to Step 15.
- 3 Measure the voltage at P/J9-2 on the HCF/HCEF PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 4.
 - N Go to Step 19.
- 4 Switch the printer power OFF. Manually hand crank Elevator Tray to the middle position. Switch the printer power ON. The voltage between P/J8-1 on the HCF/HCEF PWB and frame ground is +5.0 +/- 0.25 VDC when the Upper Limit Switch is actuated (with the tray in mid position, the Feed Rollers are actuating the Upper Limit Switch).
 - Y Go to Step 5.
 - N Replace the HCF/HCEF PWB, PL 12.
- 5 Place the Elevator Tray in the Ready to Feed position (if the elevator does not move, switch the printer power OFF and manually hand crank the Elevator Tray to the feed position). Switch the printer power ON. The voltage between P/J8-1 on the HCF/HCEF PWB and frame ground is +0.0 +/- 0.25 VDC.
 - Y Go to step 6.
 - N Repair or replace the Upper Limit Switch, PL 13 or its associated wiring as necessary.
- 6 Ensure the Elevator Door Interlock Switch is closed. Press the Elevator Down Switch. Measure the voltages from P/J2-1 and P/J2-2 to frame ground. Both readings are +24.0 +/- 1.2 VDC.
 - Y Replace the Elevator Motor, PL 13. If the problem persists, replace the HCF/HCEF PWB, PL12.
 - N Go to Step 7.
- 7 The voltage measured in step 6 is approximately +4.3 VDC.
 - Y Go to Step 8.
 - N Replace the Elevator Motor, PL 13.

- 8 Ensure the Elevator Door Interlock Switch is closed. Measure the voltages from P/J3-1 and P/J3-2 to frame ground. The voltage is +24.0 +/- 1.2 VDC.
 - Y Go to Step 10.
 - N Go to Step 9.
- 9 The voltage measured is approximately +2.5 VDC.
 - Y Replace the HCF/HCEF PWB, PL 12.
 - N Replace the Paper Feed Motor, PL 12.
- 10 Ensure the Elevator Door Interlock Switch is closed and the elevator is in the feed position. The voltage between P/J9-5 and frame ground is +5.0 +/- 0.25 VDC.
 - Y Go to Step 12.
 - N Go to Step 11.
- 11 Ensure the Elevator Door Interlock Switch is closed and the elevator is in the feed position with paper loaded. The voltage between P/J6-1 and frame ground is +5.0 +/- 0.25 VDC.
 - Y Replace the HCF/HCEF PWB, PL 12.
 - N Replace the Tray Empty Switch, PL13, and/ or associated wiring. If problem persists, replace the HCF/HCEF PWB, PL 12.
- 12 There is continuity between P/J9-3 and frame ground.
 - Y Replace the HCF/HCEF PWB, PL 12.
 - N Go to Step 13.
- 13 There is continuity between P/J9-3 and P/J74-15.
 - Y Go to Step 14.
 - N Repair wire or replace HCF/HCEF as necessary.
- 14 There is continuity between P/J74-15 and P/J13-12.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Repair wire or replace the Optional Feeder Interface Harness, PL 14.
- 15 The voltage between P/J7-2 and frame ground is +24.0 +/- 1.2 VDC.
 - Y Repair or replace the Elevator Door Interlock Switch, PL 12 or its associated wiring as necessary.
 - N Go to Step 16.
- 16 The voltage between P/J9-1 on the HCF/HCEF PWB and frame ground is +24.0 +/- 1.2 VDC.
 - Y Replace the HCF/HCEF PWB, PL 12.
 - N Go to Step 17.
- 17 The voltage between P/J74-1 located on the printer chassis and frame ground is +24.0 +/- 1.2 VDC.
 - Y Repair wire or replace HCF/HCEF as necessary.
 - N Go to Step 18.

- 18** Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Switch the printer power ON. The voltage between P/J13-1 on the Printer Engine Controller PWB and frame ground is +24.0 +/- 1.2 VDC.
- Y Repair wire or replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 19** The voltage between P/J74-8 located on the printer chassis and frame ground is +5.0 +/- 0.25 VDC.
- Y Repair wire or replace HCF/HCEF as necessary.
 - N Go to Step 20.
- 20** Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Switch the printer power ON. The voltage between P/J13-11 on the Printer Engine Controller PWB and frame ground is +5.0 +/- 0.25 VDC.
- Y Repair wire or replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8.

7.3.15 "OPEN HCF/HCEF COVER CLEAR PAPER PATH" Message (C9)

You were directed to this RAP because the UI Displayed "Open HCF/HCEF Cover Clear Paper Path". This error occurred because the lead edge of the paper being fed from the HCF/HCEF did not actuate the Pre-Registration Sensor in a specified time.

INITIAL ACTIONS:

- Remove any paper from paper path.
- Check paper path for obstructions or foreign objects.
- Check paper stock and tray loading.

PROCEDURE:

- 1** Enter Diagnostic Mode 2. Press the <DOWN> key. The UI displays "Open HCF/HCEF Cover Clear Paper Path".
 - Y Go to Step 2.
 - N Return to Final Actions.
- 2** Open the Printer Top Cover and observe the paper jam. The paper fed out of the HCF/HCEF and is observed to be on the Pre-Registration Sensor.
 - Y Go to Step 3.
 - N Go to Step 6.
- 3** Remove any paper from the registration area. Close the Top Cover. Enter Diagnostic Mode 1. Select and execute DG 02. Open the Top Cover and actuate the Pre-Registration Sensor. The UI increments one count for each actuation of the sensor.
 - Y Go to Step 4.
 - N Go to Step 5.
- 4** Clean HCF/HCEF Feed Roll(s) and check operation. Problem is resolved.
 - Y Return to Final Actions.
 - N Call for assistance.
- 5** Disconnect P9 from the back of the Printer Engine Controller PWB. Install Interlock Cheater. While still in DG 02, measure the voltage at J9-6 on the Printer Engine Controller PWB. The voltage is +5.0 +/- 0.25 VDC.
 - Y Replace the Pre-Registration Sensor, PL 3.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 6** Switch the printer power OFF. Close the Top Cover. Remove the HCF/HCEF Left Cover. Enter Diagnostic Mode 2. Press the <DOWN> key. The HCF/HCEF Paper Feed Motor energizes and feeds paper.
 - Y Go to Step 7.
 - N Go to Step 8.

- 7 Switch the printer power OFF. Check the following, one at a time and verify operation:
- Verify the HCF/HCEF Feed Roll one-way clutches are functional and clean the HCF/HCEF Feed Roll(s). Replace Feed Roll(s), PL 11, if necessary.
 - Inspect the Elevator Tray Snubbers for damage. Replace Snubbers, PL 13, if damaged.
 - Check the cork pads for damage. Replace Cork Pads, PL 11, if damaged.
- Problem is resolved.
- Y Return to Final Actions.
- N Perform ADJ 4.12, Tray Parallelism Adjustment. If problem still exists after parallelism adjustment, call for assistance.
- 8 Switch the printer power OFF. There is continuity between P/J9-3 on the HCF/HCEF PWB and ground on both the HCF/HCEF frame and the Printer Frame (see Wiring 6.7).
- Y Go to Step 9.
- N Go to Step 14.
- 9 Switch the printer power ON. The voltage between P/J7-1 on the HCF/HCEF PWB and frame ground is +24.0 +/- 1.2 VDC when the HCF/HCEF Elevator Door Interlock Switch is actuated.
- Y Go to Step 10.
- N Go to Step 16.
- 10 The voltage between P/J9-5 on the HCF/HCEF PWB and frame ground is +5.0 +/- 0.25 VDC when the HCF/HCEF Elevator Door Interlock Switch is actuated.
- Y Go to Step 11.
- N Go to Step 20.
- 11 Enter Diagnostic Mode 2. Measure the voltage between P/J9-6 on the HCF/HCEF PWB and frame ground. Press the <DOWN> key. The voltage changes from +5.0 VDC to less than +1.0 VDC each time a print is initiated.
- Y Replace the HCF/HCEF Paper Feed Motor, PL 12. If problem persists, replace the HCF/HCEF PWB, PL 12.
- N Go to Step 12.
- 12 Switch the printer power OFF. There is continuity between P/J9-6 on the HCF/HCEF PWB and P/J74-3 on the printer chassis.
- Y Go to Step 13.
- N Repair wire or replace HCF/HCEF as necessary.
- 13 There is continuity between P/J13-4 on the Printer Engine Controller PWB and P/J74-3 on the printer chassis.
- Y Replace the Printer Engine Controller PWB, PL 8.
- N Replace the Optional Feeder Interface Harness, PL 14.
- 14 There is continuity between P/J9-3 on the HCF/HCEF PWB and P/J74-15 on the printer chassis.
- Y Go to Step 15.
- N Repair wire or replace HCF/HCEF as necessary.

- 15 There is continuity between P/J13-12 on the Printer Engine Controller PWB and P/J74-15 on the printer chassis.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Optional Feeder Interface Harness, PL 14.
- 16 The voltage between P/J7-2 on the HCF/HCEF PWB and frame ground is +24.0 +/- 1.2 VDC.
 - Y Replace the HCF/HCEF Elevator Door Interlock Switch, PL 12.
 - N Go to Step 17.
- 17 The voltage between P/J9-1 on the HCF/HCEF PWB and frame ground is +24.0 +/- 1.2 VDC.
 - Y Replace the HCF/HCEF PWB, PL 12.
 - N Go to Step 18.
- 18 The voltage between P/J74-1 on the printer and frame ground is +24.0 +/- 1.2 VDC.
 - Y Repair wire or replace HCF/HCEF as necessary.
 - N Go to Step 19.
- 19 The voltage between P/J13-1 on the Printer Engine Controller PWB and ground is +24.0 +/- 1.2 VDC.
 - Y Replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8
- 20 With paper loaded in the HCF/HCEF paper tray and in the feed position, measure the voltage between P/J6-1 on the HCF/HCEF PWB and frame ground. The voltage is +5.0 +/- 0.25 VDC when the HCF/HCEF Elevator Door Interlock Switch is actuated.
 - Y Replace the HCF/HCEF PWB, PL 12.
 - N Replace the HFC Tray Empty Switch, PL 13.

7.3.16 “DISK” Related Failure Messages

You were directed to this RAP because the UI displayed "DISK" and a failure of the Rigid Disk Drive or System Controller has occurred.

- 1 Switch the printer power OFF, then ON. The UI displays one of the following messages:
 - "DISK"
 - "DISK FAILURE"
 - "DISK FORMAT BAD"
 - "DISK READ ERROR"
 - "DISK WRITE ERROR"
 - "UNKNOWN DISK"

Y Go to Step 2.

N Go to Final Actions.
- 2 Switch the printer power OFF. Remove the System Controller PWB. The Rigid Ribbon Cable, Rigid Disk Drive connector, and / or System Controller PWB connector J216 have visible signs of damage.

Y Repair or replace damaged part.

N Replace Rigid Disk Drive, PL 9. If problem still persists, replace the System Controller PWB, PL 9.

7.3.17 "LOAD A3, A4, A5, B4, B5, C5, COM-10, DL, EXEC, FOLIO, LEDGER, LEGAL, LETTER" (C3/C5)

You were directed to this RAP because the UI displays one of the following C3/C5 LOAD errors: "LOAD A3" "LOAD A4" "LOAD A5" "LOAD B4" "LOAD B5" "LOAD C5" "COM-10 " " DL " "LOAD EXEC" "LOAD FOLIO" "LOAD LEDGER" "LOAD LEGAL" "LOAD LETTER" and a possible failure of the printer has occurred.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 The LOAD paper problem occurs with:
 - Upper Tray - Go to step 2.
 - Middle Tray - Go to step 10.
 - Lower Tray - Go to step 17.
 - HCF - Go to step 24.
 - MBF - Go to step 33.
 - HCEF - Go to step 42.
- 2 Remove paper tray from the Upper Paper Feeder and verify that all the magnets are present and in proper position (See Table 1). The Paper Tray contains all magnets for the appropriate size paper.
 - Y Go to Step 3.
 - N Replace Paper Tray, PL 2.
- 3 Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Remove paper tray and manually actuate the No Paper Sensor. The UI increments when the No Paper Sensor is actuated and deactuated.
 - Y Go to Step 4.
 - N Go to Step 7.
- 4 Verify operation of Tray Size Sensor. Remove the paper from the tray. Test sensor by installing and removing Paper Tray. The UI increments each time the tray is installed or removed.
 - Y Go to Step 6.
 - N Go to Step 5.
- 5 Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. Measure the voltage from P/J10-1 on the Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 6.
 - N Replace the Printer Engine Controller PWB, PL 8.

- 6** Measure the Paper Size Voltage from P/J10-2 to frame ground, as stated in Table 1. With the Paper Tray installed the voltage is correct.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Tray 1 Paper Size Sensor, PL 3.
- 7** Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. Measure the voltage from P/J7-6 on the Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Go to Step 8.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 8** Measure the voltage from P/J7-7 to frame ground. The voltage changes from 0.0 to +5.0 VDC when the No Paper Sensor is Actuated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Go to Step 9.
- 9** Switch the printer power OFF. Check the continuity of the wires which runs from P/J7 on Printer Engine Controller PWB to P/J42 at No Paper Sensor. Continuity is OK.
- Y Replace the Tray 1 No Paper Sensor, PL 3.
 - N Replace the HVPS Harness, PL 7.
- 10** Remove paper tray from the Middle Paper Feeder and verify that all the magnets are present and in proper position (See Table 1). The Paper Tray contains all magnets for the appropriate size paper.
- Y Go to Step 11.
 - N Replace Paper Tray, PL 2.

Table 1.

Paper Size	MAGNET PLACEMENT				Paper Size Voltage
	Top	Middle Top	Middle Bottom	Bottom	
Letter	ON	ON	ON	ON	2.12 VDC
Folio	OFF	ON	ON	OFF	3.13 VDC
Legal	OFF	ON	OFF	OFF	2.62 VDC
Ledger	OFF	OFF	ON	ON	0.49 VDC
A5	ON	OFF	ON	OFF	3.71 VDC
A4	ON	OFF	ON	ON	1.72 VDC
B4	OFF	ON	OFF	ON	0.87 VDC
A3	OFF	ON	ON	ON	1.21 VDC

- 11 Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the No Paper Sensor (Middle Tray). The UI increments when the No Paper Sensor is actuated and deactivated.
 - Y Go to Step 12.
 - N Go to Step 15.
- 12 Verify operation of Tray Size Sensor. Remove paper from Paper Tray and test sensor by installing and removing Paper Tray. The UI increments each time the tray is installed or removed.
 - Y Go to Step 14.
 - N Go to Step 13.
- 13 Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. Measure the voltage from P/J83-1 on the Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 14.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 14 Measure the Paper Size Voltage from P/J83-2 to frame ground, as stated in Table 1. With the Paper Tray installed the voltage is correct.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Tray 2 Paper Size Sensor, PL 4.
- 15 Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. Measure the voltage from P/J84-1 on the Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 16.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 16 Measure the voltage from P/J84-2 to frame ground. The voltage changes from 0.0 to +5.0 VDC when the No Paper Sensor is Actuated.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Tray 2 No Paper Sensor, PL 4.
- 17 Remove paper tray from the Lower Paper Feeder and verify that all the magnets are present and in proper position (See Table 1). The Paper Tray contains all magnets for the appropriate size paper.
 - Y Go to Step 18.
 - N Replace Paper Tray, PL 2.
- 18 Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the No Paper Sensor (Lower Tray). The UI increments when the No Paper Sensor is actuated and deactivated.
 - Y Go to Step 19.
 - N Go to Step 22.

- 19** Verify operation of Tray Size Sensor. Remove paper from Paper Tray and test sensor by installing and removing Paper Tray. The UI increments when the tray is installed and removed.
- Y Go to Step 21.
 - N Go to Step 20.
- 20** Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. Measure the voltage from P/J93-1 on the Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Go to Step 21.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 21** Measure the Paper Size Voltage from P/J93-2 to frame ground, as stated in Table 1. With the Paper Tray installed the voltage is correct.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Tray 3 Paper Size Sensor, PL 4.
- 22** Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. Measure the voltage from P/J94-1 on the Printer Engine Controller PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Go to Step 23.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 23** Measure the voltage from P/J94-2 to frame ground. The voltage changes from 0.0 to +5.0 VDC when the No Paper Sensor is Actuated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Tray 3 No Paper Sensor, PL 4.
- 24** Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the Tray Empty Switch (HCF). The UI increments when the Tray Empty Switch is actuated and deactivated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Go to Step 25.
- 25** Switch the printer power OFF. Remove HCF Left and Right Side Covers. Switch the printer power ON. Measure the voltage from P/J6-1 on the HCF PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC, when the HCF Tray Empty Switch is deactivated.
- Y Go to Step 26.
 - N Go to Step 27.
- 26** Measure the voltage from P/J6-1 to frame ground. The voltage changes from 5.0 to + 0.0 VDC when the Tray Empty Switch is Actuated.
- Y Go to step 30.
 - N Verify the wiring from P/J6 on the HCF PWB to the HCF Tray Empty Switch is free of damage. If OK, replace the HCF Tray Empty Switch, PL 13.

- 27** Measure the voltage at P/J9-2 on the HCF PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the HCF PWB, PL 12.
 - N Go to Step 28.
- 28** Measure the voltage at P/J74-8 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Tell Customer HCF needs to be replaced. Have customer order replacement HCF.
 - N Go to Step 29.
- 29** Measure the voltage at P/J13-11 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 30** The voltage at P/J9-5 on the HCF PWB changes from +5.0 VDC to 0 VDC when the HCF Tray Empty Switch is Actuated.
- Y Go to Step 31.
 - N Replace the HCF PWB, PL 12.
- 31** Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. The voltage at P/J74-7 changes from +5.0 VDC to 0 VDC when the HCF Tray Empty Switch is Actuated.
- Y Go to Step 32.
 - N Tell Customer HCF needs to be replaced. Have customer order a replacement HCF.
- 32** The voltage at P/J13-10 changes from +5.0 VDC to 0 VDC when the HCF Tray Empty Switch is Actuated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Optional Feeder Interface Harness, PL 14.
- 33** Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the No Paper Sensor (MBF). The UI increments when the No Paper Sensor is actuated and deactuated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Go to Step 34.
- 34** Switch the printer power OFF. Remove the MBF Top Cover. Switch the printer power ON. The voltage at CN4-1 on the MBF PWB is +5.0 +/- 0.25 VDC.
- Y Go to Step 35.
 - N Go to Step 36.
- 35** The voltage at CN4-2 changes from +5.0 VDC to 0 VDC when the MBF No Paper Sensor is Actuated.
- Y Go to Step 39.
 - N Replace the No Paper Sensor, PL 14.
- 36** Measure the voltage at CN1-7 on the MBF PWB. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the MBF PWB, PL 14.
 - N Go to Step 37.

- 37** Measure the voltage at P/J74-8. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the MBF Interface Harness, PL 14.
 - N Go to Step 38.
- 38** Measure the voltage at P/J13-11. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 39** The voltage at CN1-6 on the MBF PWB changes from +5.0 VDC to 0 VDC when the MBF No Paper Sensor is Actuated.
- Y Go to Step 40.
 - N Replace the MBF PWB, PL 14.
- 40** Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. The voltage at P/J74-7 changes from +5.0 VDC to 0 VDC when the MBF No Paper Sensor is Actuated.
- Y Go to Step 41.
 - N Replace the MBF Interface Harness, PL 14.
- 41** The voltage at P/J13-10 changes from +5.0 VDC to 0 VDC when the MBF No Paper Sensor is Actuated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Optional Feeder Interface Harness, PL 14.
- 42** Enter Diagnostic Mode 1. Select DG 02 and execute the Sensor Check (5.2.1.2). Manually actuate the Tray Empty Switch (HCEF). The UI increments when the Tray Empty Switch is actuated and deactuated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Go to Step 43.
- 43** Switch the printer power OFF. Remove HCEF Left and Right Side Covers. Switch the printer power ON. Measure the voltage from P/J6-1 on the HCEF PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC when Tray Empty Switch is deactuated.
- Y Go to Step 44.
 - N Go to Step 45.
- 44** Measure the voltage from P/J6-1 to frame ground. The voltage changes from 5.0 to + 0.0 VDC when the Tray Empty Switch is Actuated.
- Y Go to step 48.
 - N Verify the wiring from P/J6 on the HCEF PWB to the HCEF Tray Empty Switch is free of damage. If OK, replace the HCEF Tray Empty Switch, PL 13.
- 45** Measure the voltage at P/J9-2 on the HCEF PWB to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the HCEF PWB, PL 12.
 - N Go to Step 46.

- 46** Measure the voltage at P/J74-8 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Tell Customer HCEF needs to be replaced. Have customer order replacement HCEF.
 - N Go to Step 47.
- 47** Measure the voltage at P/J13-11 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
- Y Replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 48** Measure the voltage from P/J9-5 on the HCEF PWB to frame ground. The voltage changes from +5.0 VDC to 0 VDC when the HCEF Tray Empty Switch is Actuated.
- Y Go to Step 49.
 - N Replace the HCEF PWB, PL 12.
- 49** Switch the printer power OFF. Remove covers. Install Interlock Cheater and switch the printer power ON. Measure the voltage from P/J74-7 to frame ground. The voltage changes from +5.0 VDC to 0 VDC when the HCEF Tray Empty Switch is Actuated.
- Y Go to Step 50.
 - N Tell Customer HCEF needs to be replaced. Have customer order a replacement HCEF.
- 50** Measure the voltage from P/J13-10 to frame ground. The voltage changes from +5.0 VDC to 0 VDC when the HCEF Tray Empty Switch is Actuated.
- Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace the Optional Feeder Interface Harness, PL 14.

7.4 RAPs Without Fault / Status Codes

7.4.1 Black UI Display

You were directed to this RAP because the Control Panel is "BLACK" and is not illuminated.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove the System Controller PWB. Enter Diagnostic Mode 2. The Control Panel displays "READY TO PRINT - TEST PRINT 00" after 1 minute.
 - Y Replace the System Controller PWB, PL 9.
 - N Go to step 2.
- 2 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Switch the printer power ON. Measure the voltage from the AC power input on the LVPS PWB (heavy white wire and heavy grey wire) to frame ground. The voltage measures 98-127 VAC for 115/120 VAC printers or 198-264 VAC for 220/240 VAC printers.
 - Y Go to step 3.
 - N Go to step 4.
- 3 Install Interlock Cheater across Top Cover Interlock Switch. Measure the voltage from P/J61-3 on the Low Voltage Power Supply to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 6.
 - N Go to Step 10.
- 4 Switch the printer power OFF. Unplug the line cord from the printer. Measure the following voltages on the output side of the line cord (see Table 1).

Table 1.

Measure from:	Reading 110/115 VAC	Reading 220/240 VAC
Line to neutral	98-127 VAC	198-264 VAC
Line to ground	98-127 VAC	198-264 VAC
Neutral to ground	less than 5 VAC	less than 5 VAC

All voltage readings are correct.

Y Replace the LVPS, PL8.

N Go to step 5.

- 5 Use Table 1 to check the voltages at the wall outlet. All voltages are correct.
 - Y Replace the line cord.
 - N Inform customer to have problem fixed.
- 6 Measure the voltage from P/J5-3 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 7.
 - N Replace Printer Engine Controller PWB, PL 8.
- 7 Measure the voltage from P/J2-2 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Replace Control Panel, PL 8.
 - N Go to Step 8.
- 8 Switch the printer power OFF. Disconnect P/J70 from Control Panel. Switch the printer power ON. Measure the voltage from P70-2 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Replace Control Panel, PL 8.
 - N Go to step 9.
- 9 Switch the printer power OFF. Disconnect P2 from Printer Engine Controller PWB. Switch the printer power ON. Measure the voltage from J2-2 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Problem exists in wire harness. Check harness for damage. If necessary, replace Control Panel Harness, PL 8.
 - N Replace Printer Engine Controller PWB, PL 8.
- 10 Switch the printer power OFF. Remove fuse (F103) on Low Voltage Power Supply and check continuity. Fuse is OK.
 - Y Replace Low Voltage Power Supply, PL 8.
 - N Go to step 11.
- 11 Replace Fuse F103 (5.0 Amp). Switch the printer power ON and verify printer operation. The fuse opens at power up.
 - Y Go to step 12.
 - N Go to Final Actions.
- 12 Switch the printer power OFF. Replace Fuse F103. Using Wiring 6.3, +5 VDC Distribution as a reference, disconnect the following connectors from the Printer Engine Controller PWB: P/J1, P/J2, P/J3, P/J4, P/J6, P/J7, P/J9, P/J10, P/J13, P/J83, P/J84, P/J93, P/J94, and P/J64 from the LVPS. Switch the printer power ON. The fuse opens at power up.
 - Y Replace Low Voltage Power Supply, PL 8.
 - N Go to step 13.
- 13 Switch the printer power OFF. Reconnect one of the P/J's disconnected above and switch the printer power ON. If the fuse opens, replace the component(s) associated with that connector. If the fuse does not open, repeat the process with each connector, one at a time until the fuse opens. Replace the component(s) associated with that connector.

7.4.2 Blank UI Display

You were directed to this RAP because the Control Panel is "BLANK", but is illuminated. The Printer Engine Controller PWB or related components have failed.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove the System Controller PWB. Enter Diagnostic Mode 2. The Control Panel displays "READY TO PRINT" after 1 minute.
 - Y Replace the System Controller PWB, PL 9.
 - N Go to Step 2.
- 2 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. The NVM Chip on the Printer Engine Controller PWB is properly installed.
 - Y Go to Step 3.
 - N Properly install or replace Printer Engine Controller PWB, PL 8.
- 3 Install Interlock Cheater. Switch the printer power ON. Measure the voltage from P/J61-3 on the Low Voltage Power Supply to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y Go to Step 4.
 - N Replace Low Voltage Power Supply, PL 8.
- 4 Measure the voltage from P/J61-1 to frame ground. The voltage is +15.0 +/- 0.75 VDC.
 - Y Go to Step 5.
 - N Replace Low Voltage Power Supply, PL 8.
- 5 Measure the voltage from P/J61-8 to frame ground. The voltage is +24.0 +/- 1.2 VDC.
 - Y Go to Step 6.
 - N Replace Low Voltage Power Supply, PL 8.
- 6 Switch the printer power OFF. P/J2 is properly connected to the Printer Engine Controller PWB and free of damage.
 - Y Go to Step 7.
 - N Repair/replace Harness as necessary, and/or replace Control Panel, PL 8.
- 7 Verify P/J70 is properly connected to the Control Panel. The Harness is properly connected and free of damage.
 - Y Replace Control Panel, PL 8. If problem persists, replace Printer Engine Controller PWB, PL 8.
 - N Properly connect Harness to connector on Control Panel or replace Control Panel, PL 8.

7.4.3 Inoperative Keypad

You were directed to this RAP because the Keypad failed to indicate a key press.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Enter Diagnostic Mode 1. The Control Panel displays "PRINTER COUNTER / SELECTING DG 30".
 - Y Go to Step 2.
 - N Go to Step 4.
- 2 Press the <ENTER> key to select "SENSOR CHECK / SELECTING DG 02". The Control Panel displays "SENSOR CHECK / SELECTING DG 02".
 - Y Go to Step 3.
 - N Go to Step 4.
- 3 Press the <DOWN> key. Press all keys, one at a time except the <ENTER> and <DOWN> key. The Diagnostic counter increments when each key is pressed.
 - Y Return to Final Actions.
 - N Go to Step 4.
- 4 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. P/J3 is properly connected to the Printer Engine Controller PWB and free of damage.
 - Y Replace the Control Panel, PL 8. If problem still exists, replace the Printer Engine Controller PWB, PL 8.
 - N Repair Keypad Harness. If unrepairable, replace Control Panel (PL 8).

7.4.4 Mechanical Noise

You were directed to this RAP because an audible noise is noticed coming from within the printer. Use this RAP to diagnose and repair the mechanical noise.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 The noise is present in the standby mode.
 - Y Perform the following checks and repair/replace any faulty component:
 - Inspect the Fuser Exhaust Fan for foreign material.
 - Inspect the routing of the wiring harness under the Fuser Exhaust Fan.
 - Inspect the System Controller Fan.
 - Inspect the Laser Assembly.
 - N Go to Step 2.



WARNING! When Test DG 90 is enabled, the Main Drive Motor will run. Be extremely careful around moving parts.

- 2 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Install Interlock cheater. Ensure P/J4 is properly connected on the Printer Engine Controller PWB. Enter Diagnostic Mode 1. Select and execute DG90. The noise is present.
 - Y Go to Step 3.
 - N Go to Step 5.
- 3 Inspect the following components:
 - Feedout Rollers and Drives.
 - Main Drive Motor and Transmission for wear or foreign material.
 - Pre-Fuser Transport Roll and Drives.After inspection and repair or replacement of defective component, the noise is still present.
 - Y Go to Step 4.
 - N Return to Final Actions.

- 4 While still in DG90, open the Top Cover and remove the EP Cartridge. Close the Top Cover and press the <DOWN> key to start DG 90 test. The noise is present.
 - Y Replace the Main Drive Motor Assembly, PL 6.
 - N Replace the EP Cartridge, PL 6.
- 5 Switch the printer power OFF. Remove the Middle and Lower Trays from the printer. Enter Diagnostic Mode 2 and run a Test Print. The noise is present.
 - Y Go to Step 6.
 - N Go to step 7.
- 6 Switch the printer power OFF. Remove the Top Tray from the printer and reinstall the Middle Tray. Enter Diagnostic Mode 2 and run a Test Print. The noise is present.
 - Y Inspect the following components. Repair or replace damaged or defective components as required.
 - Registration Roll and Clutch.
 - N Inspect the following: Repair or replace damaged or defective components as required.
 - Upper Tray Feed Rollers and associated Clutch.
 - Upper Turn Rolls and associated Clutch.
- 7 Switch the printer power OFF. Remove the Top Tray from the printer and reinstall the Middle Tray. Enter Diagnostic Mode 2 and run a Test Print. The noise is present.
 - Y Inspect the following: Repair or replace damaged or defective components as required.
 - Middle Tray Feed Rollers and associated Clutch.
 - Middle Turn Roll Assembly and Clutch.
 - N Inspect the following: Repair or replace damaged or defective components as required.
 - Lower Tray Feed Rollers and associated Clutch.
 - Lower Turn Roll Assembly and Clutch.

7.4.5 "READY TO PRINT" is displayed

You were directed to this RAP because the UI displays "READY TO PRINT" in 2 minutes or less following power on.

- 1 Switch the printer power OFF. Remove the System Controller PWB. Inspect Engine/System Controller Harness connections and wiring for damage. Harness is damaged.
 - Y Repair or Replace Engine/System Controller Harness, PL 8.
 - N Go to Step 2.
- 2 Position the System Controller PWB adjacent to printer and reconnect all cables to System Controller PWB. Switch the printer power ON. The UI displays "Ready To Print" in 2 minutes or less after power on.
 - Y Go to Step 3.
 - N Inspect the System Controller PWB for contamination such as staples and the System Controller cavity for debris that may cause shorting of the System Controller PWB. Reinstall the System Controller PWB and go to Final Actions.

NOTE: The System Controller PWB contains two LED's mounted next to the parallel port. The Power LED is labeled CR5. The Diagnostic LED is labeled CR1 and is mounted nearest the parallel port.

- 3 The Power LED on the System Controller PWB is lit.
 - Y Go to Step 4.
 - N Go to Step 6.
- 4 Switch the printer power OFF. While observing the GREEN Diagnostic LED on the System Controller PWB, switch printer ON and check the operation of the System Controller Diagnostic LED. The System Controller Diagnostic LED should operate as follows:
 - ON at Power ON.
 - The Diagnostic LED stays lit for approximately 10 seconds then turns OFF at the same time the UI goes blank.The System Controller Diagnostic LED operates as stated above.
 - Y Go to Step 5.
 - N Go to Step 10.
- 5 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. The Engine/System Controller Harness is properly connected and is free of damage.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Repair or replace Engine/System Controller Harness, PL 8.
- 6 Switch the printer power OFF. Remove all option, I/O, & SIMM PWBs from System Controller PWB. Switch the printer power ON. The Power LED is ON.
 - Y Switch the printer power OFF. Reinstall PWBs removed in Step 6, one at a time. Switch printer power ON. Verify which PWB causes the Power LED to go OFF. Replace the PWB that causes the problem.
 - N Go to Step 7.

- 7** Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. The Engine/System Controller Harness is properly connected and is free of damage.
 - Y** Go to Step 8.
 - N** Repair or replace Engine/System Controller Harness, PL 8.
- 8** Disconnect the Engine/System Controller Harness connectors from the System Controller (P/J 205, P/J 206, P/J 207, and P/J 208). Switch the printer power ON and measure the voltage from P/J61-3 to frame ground. The voltage is +5.0 +/- 0.25 VDC.
 - Y** Go to Step 9.
 - N** Replace LVPS, PL 8.
- 9** Measure the voltage between P207-1 (Gray) and P207-3 (Purple), and between P207-2 (Gray) and P207-4 (Purple). The voltage is +5.0 +/- 0.25 VDC.
 - Y** Replace System Controller PWB, PL 9.
 - N** Replace Engine/System Controller Harness, PL 8.
- 10** Switch the printer power OFF. Remove all option PWBs, I/O PWBs, & SIMM PWBs from System Controller PWB. Switch the printer power ON. The System Controller Diagnostic LED operates as stated in Step 4.
 - Y** Switch the printer power OFF. Reinstall PWBs removed in Step 10, one at a time. Switch printer power ON. Verify which PWB causes the Power LED to go OFF. Replace the PWB that causes the problem.
 - N** Go to Step 11.
- 11** The Diagnostic LED blinks 4 times.
 - Y** Go to Step 12.
 - N** Replace the System Controller PWB, PL 9.
- 12** Switch the printer power OFF. The Engine/System Controller Harness is properly connected and is free of damage.
 - Y** Replace the Engine/System Controller Harness, PL 8. If problem still exists, replace the Printer Engine Controller PWB, PL 8. If problem still exists, replace the System Controller PWB, PL 9.
 - N** Properly install Harness or replace the Engine/System Controller Harness, PL 8.

7.4.6 HVPS Checkout Procedure

Your were directed to this procedure from another RAP. After completing this procedure, return to the RAP that directed you here.

INITIAL ACTIONS:

- Verify that the Transfer Corotron wire is not broken and/or shorted to the shield.
- Ensure that the Transfer Corotron is seated properly and the Transfer Corotron Earth Plate is contacting the underside of the shield.
- Verify that P/J7 is seated properly on the Printer Engine Controller PWB, PL 8.
- Verify that P/J41 is connected properly to the High Voltage Power Supply.
- Ensure that the high voltage contacts between the EP Cartridge and the upper unit are not bent or contaminated.
- Replace the EP Cartridge. If there is no change in the prints, reinstall the old cartridge.



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Install the interlock cheater. Switch the printer power ON. Measure the voltage from P/J41-1 to frame ground. The voltage reading is +24.0 +/- 1.2 VDC.
 - Y Go to step 3.
 - N Go to step 2.
- 2 Install the interlock cheater. Measure the voltage from P/J7-1 to frame ground. The voltage reading is +24.0 +/- 1.2 VDC.
 - Y Replace the High Voltage Power Supply Harness, PL 8.
 - N Replace the Printer Engine Controller PWB, PL 8.



WARNING! DG 91, DG 92, and DG 93 switch on the HVPS. HIGH VOLTAGE is present in many areas of the printer. Be careful during the following steps.

- 3** Enter Diagnostic Mode 1. Press the <ENTER> key until "HVPS(C. COROTRON) / SELECTING DG 91" is displayed. Measure the voltage from P/J7-2 to frame ground. Press the <DOWN> key. The voltage falls from +24.0 VDC to less than +1.0 VDC.
 - Y Go to Step 4.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 4** Press the <ENTER> key until "HVPS(DEV. BIAS) / SELECTING DG 92" is displayed. Measure the voltage from P/J7-3 to frame ground. Press the <DOWN> key. The voltage falls from +24.0 VDC to less than +1.0 VDC.
 - Y Go to Step 5.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 5** Press the <ENTER> key until "HVPS(T. COROTRON) / SELECTING DG 93" is displayed. Measure the voltage from P/J7-4 to frame ground. Press the <DOWN> key. The voltage falls from +24.0 VDC to less than +1.0 VDC.
 - Y Go to Step 6.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 6** Press the <ENTER> key to select "EXIT DIAG. / SELECTING DG 00". Press the <DOWN> key. Checkout the HVPS Harness for continuity and/or damage. The HVPS Harness checks out OK.
 - Y Replace the High Voltage Power Supply, PL 8.
 - N Replace the High Voltage Power Supply Harness, PL 8.

7.4.7 Erase Board



CAUTION To prevent damage to the Laser Assembly, always reconnect the ground wire to the frame before switching the printer power ON.

- 1 Switch the printer power OFF. Remove printer covers. Remove LVPS Cover. Install the interlock cheater. Switch the printer power ON. Measure the voltage from P/J22-13 on the Erase Board to frame ground. The voltage reading is +24.0 +/- 1.2 VDC.
 - Y Go to Step 3.
 - N Go to step 2.
- 2 Measure the voltage from P/J1-13 on the Printer Engine Controller PWB to frame ground. The voltage reading is +24.0 +/- 1.2 VDC.
 - Y Repair/replace the wiring between P/J1 and P/J22 as required.
 - N Replace the Printer Engine Controller PWB, PL 8.



WARNING! When Test DG 90 is enabled, the Main Drive Motor will run. Be extremely careful around moving parts.

- 3 Enter Diagnostic Mode 1. Select and enter DG 90. Measure the voltage from P/J1-14 to frame ground. Press the <DOWN> key. The voltage falls from +24.0 VDC to less than +1.0 VDC.
 - Y Replace the Erase Board, PL 7.
 - N Replace the Printer Engine Controller PWB, PL 8.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout.

7.4.8 HCF/HCEF Elevator Motor

You were directed to this RAP because of a possible problem with the HCF/HCEF Elevator Motor.

INITIAL ACTIONS:

- Switch the printer power OFF.
- Disconnect and reconnect the HCF/HCEF Interface Harness attached to J74.
- Hand crank the Elevator Tray to the middle position.
- Switch the printer power ON.

PROCEDURE:



WARNING! When actuating the Elevator Door Interlock Switch, the Elevator Motor may run. Be extremely careful around moving parts.

- 1 Remove the HCF/HCEF Right and Left Side Covers. Actuate the Elevator Door Interlock Switch. The Elevator Tray goes down when the Elevator Down Switch is pressed.
 - Y Go to Step 2.
 - N Go to Step 4.
- 2 The Elevator Motor continues to run after the Lower Limit Switch has been actuated.
 - Y Go to Step 8.
 - N Go to Step 3.
- 3 Deactuate then Actuate the Elevator Door Interlock Switch. The Elevator Motor continues to run after the Upper Limit Switch has been actuated.
 - Y Go to Step 6.
 - N Return to Final Actions.
- 4 Actuate the Elevator Door Interlock Switch. The voltage between P/J5-1 on the HCF/HCEF PWB and frame ground is +5.0 +/- 0.25 VDC when the Elevator Down Switch is Deactuated.
 - Y Go to Step 5.
 - N Go to Step 14.
- 5 Actuate the Elevator Door Interlock Switch. The voltage between P/J5-1 and frame ground goes from +5.0 VDC to 0 VDC when the Elevator Down Switch is Actuated.
 - Y Go to Step 6.
 - N Replace the Elevator Down Switch, PL 10.

- 6 Switch the printer power OFF. Manually hand crank Elevator Tray to the middle position. Switch the printer power ON. The voltage between P/J8-1 on the HCF/HCEF PWB and frame ground is +5.0 +/- 0.25 VDC when the Upper Limit Switch is actuated (with the tray in mid position, the Feed Rollers are actuating the Upper Limit Switch).
- Y Go to Step 7.
 - N Go to Step 14.
- 7 Manually raise the Feed Rollers. The voltage between P/J8-1 and frame ground goes from +5.0 VDC to 0 VDC when the Upper Limit Switch is deactivated.
- Y Go to Step 8.
 - N Replace the Upper Limit Switch, PL 13.
- 8 Switch the printer power OFF. Manually hand crank Elevator Tray to the middle position. Switch the printer power ON. The voltage between P/J4-1 on the HCF/HCEF PWB and frame ground is +5.0 +/- 0.25 VDC when the Lower Limit Switch is Deactivated.
- Y Go to Step 9.
 - N Go to Step 14.
- 9 The voltage between P/J4-1 and frame ground changes from +5.0 VDC to 0 VDC when the Lower Limit Switch is Actuated.
- Y Go to Step 10.
 - N Replace the Lower Limit Switch, PL 12.
- 10 On the HCF/HCEF PWB, measure the voltage between P/J2-1 and frame ground and between P/J2-2 and frame ground. Both voltages are 24.0 +/- 1.2 VDC when both the Elevator Down Switch and the Elevator Door Interlock Switch are Actuated.
- Y Replace the Elevator Motor, PL13.
 - N Go to Step 11.
- 11 The voltage between P/J9-1 on the HCF/HCEF PWB to frame ground is +24.0 +/- 1.2 VDC.
- Y Replace the HCF/HCEF PWB, PL12.
 - N Go to Step 12.
- 12 The voltage between P/J74-1 to frame ground is +24.0 +/- 1.2 VDC.
- Y Repair wire or replace HCF/HCEF as necessary.
 - N Go to Step 13.
- 13 The voltage between P/J13-1 on the Printer Engine Controller PWB to frame ground is +24.0 +/- 1.2 VDC.
- Y Replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 14 The voltage between P/J9-2 on the HCF/HCEF PWB and frame ground is +5.0 +/- 0.25 VDC.
- Y Replace the HCF/HCEF PWB, PL 12.
 - N Go to Step 15.

- 15 The voltage between P/J74-8 and frame ground is +5.0 +/- 0.25 VDC.
- Y Repair wire or replace HCF/HCEF as necessary.
 - N Go to Step 16.
- 16 The voltage between P/J13-11 on the Printer Engine Controller PWB and ground is +5.0 +/- 0.25 VDC.
- Y Replace the Optional Feeder Interface Harness, PL 14.
 - N Replace the Printer Engine Controller PWB, PL 8.

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).

Be sure to check the paper tray to determine whether paper is being fed long edge or short edge first. This determines "vertical" and "horizontal" for paper fed from that particular tray.

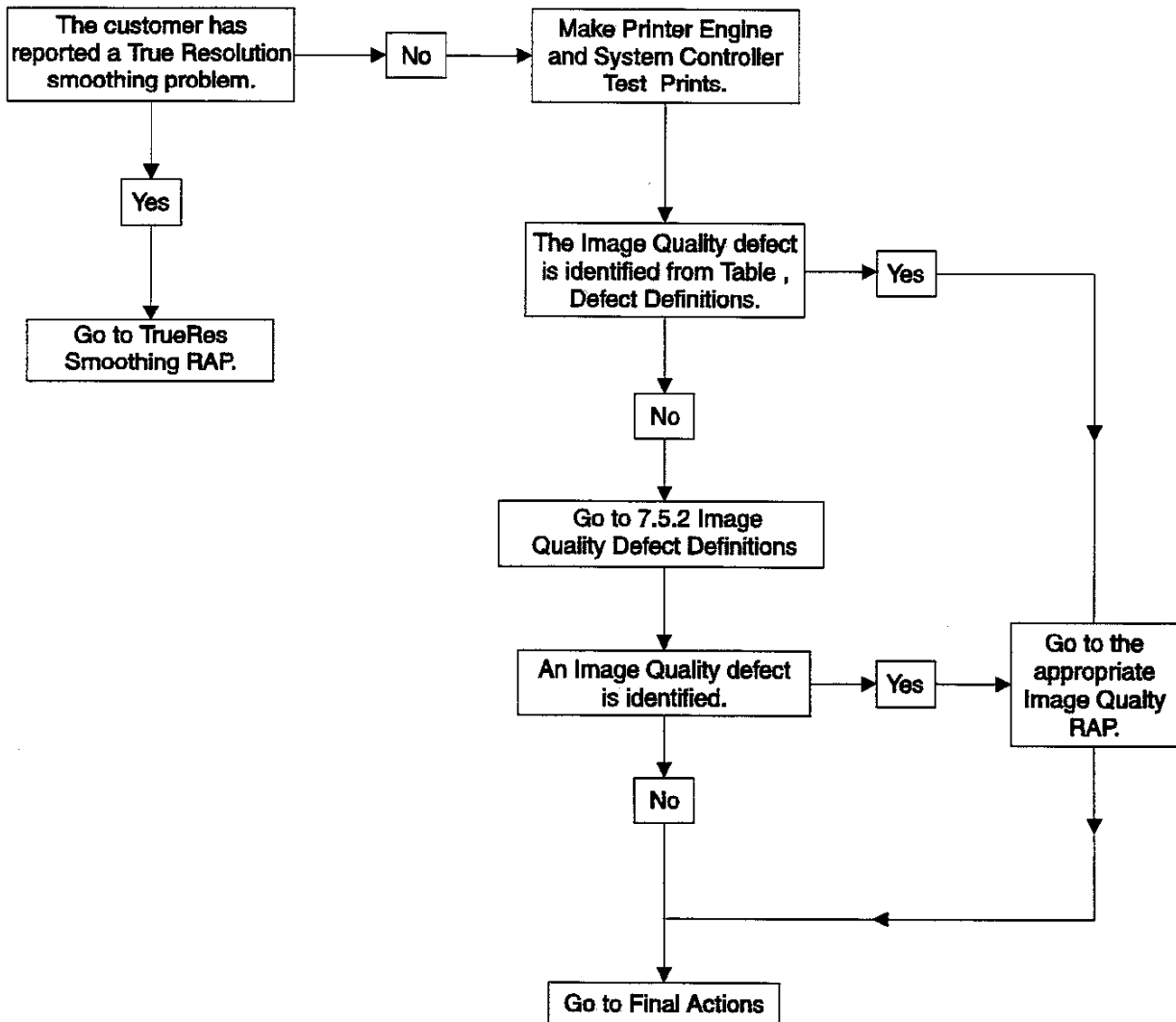
Cleaning procedures should always be performed before beginning any Print Quality Repair procedure.

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

After resolving an image quality problem, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.1 Image Quality Entry Flow Chart

Procedure- Use the Image Quality Entry Flow Chart to understand the structure and call flow through the Image Quality section.



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
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 7.5.11
SPOTS: There are spots of toner on the page.	RAP 7.5.12
UNFUSED IMAGE: part of or all of the image is unfused. Refer to the specification.	RAP 7.5.13
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 7.5.14
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 7.5.15
RESIDUAL IMAGES: the image from a previous print, which was not removed during the cleaning process, has been developed on the current print.	RAP 7.5.16
BACKGROUND: uniform toner contamination in non image areas. Refer to the Background specification.	RAP 7.5.17
DAMAGED PRINTS: creases, wrinkles, excessive curl, cuts, folds or embossed marks.	RAP 7.5.18
TRUERES SMOOTHING: Near-vertical and near-horizontal lines are jaggy.	RAP 7.5.19
RESOLUTION: At 300 DPI two pixel lines and halftone patches cannot be reproduced clearly on the print.	RAP 7.5.20
SKEWED IMAGE: angular displacement of the image from its intended position on the print. Refer to the specification.	RAP 7.5.21
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 7.5.22

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
- Character Defects
- Spots
- Unfused Image
- Misregistered Image
- Streaks
- Residual Image
- Background
- Damaged Prints
- TrueRes Smoothing
- Resolution
- Skewed Image
- Skips/Smears

Procedure

Use new paper, whenever possible, to check the Image Quality of prints. Make 5 prints of the Printer Engine Controller PWB Test Pattern, 5.2.2 Diagnostic Mode 2, and 5 prints of the System Controller Test Pattern, 5.1.4.7 Test Menu. Discard the first two prints and retain the remaining prints for Image Quality analysis. Go to the **Solid Area Density** checkout on the next page.

Solid Area Density

- 1 Compare the solid areas on the System Controller test pattern (5.1.4.7 Test Menu) with the Output Reference document 82P520, 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 Go to the Developer Bias Adjustment Procedure.

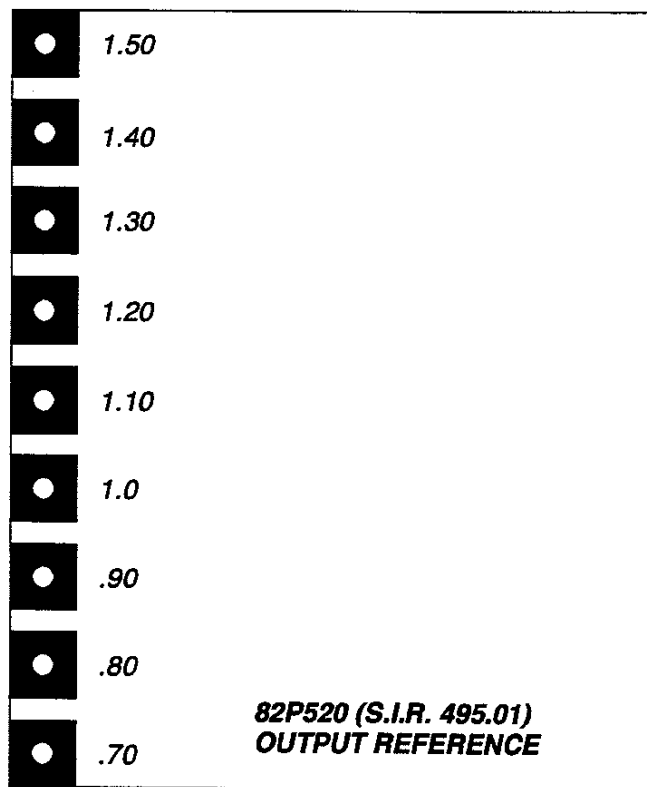


Figure 1.

Background

Compare the Test Prints with the Visual Scale (82P284). The worse 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 7.5.17, Background RAP.
 - N Go to 7.5.4, Non-Uniform Image Quality RAP.

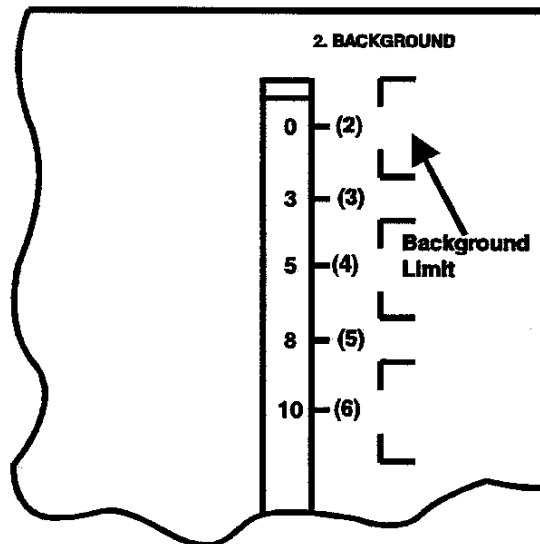
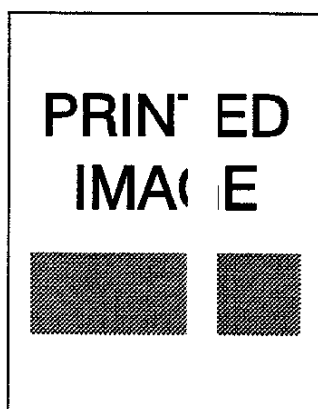


Figure 2.

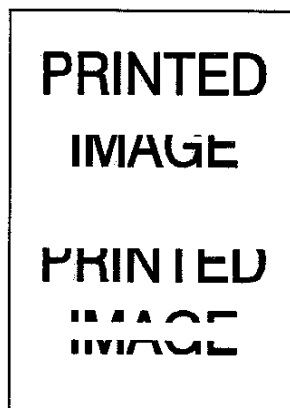
Deletions (Line, Band, Spot)

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.

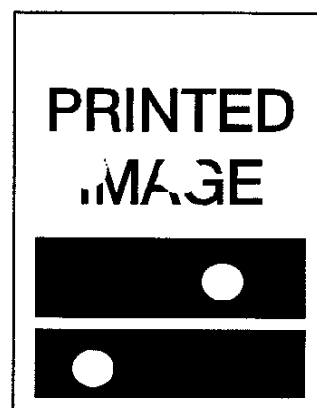
- 1 There are deletions on the test prints.
 - Y Go to Step 2.
 - N Go to **Fusing** checkout on the next page.
- 2 There are Vertical (in direction of paper movement) Line/Band deletions present.
 - Y Go to 7.5.7, Vertical Deletions RAP.
 - N Go to Step 3.
- 3 There are Horizontal (in direction of scanning) 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.

(Figure 4) Check the fusing quality of the image 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.

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 7.5.13, Unfused Image RAP.

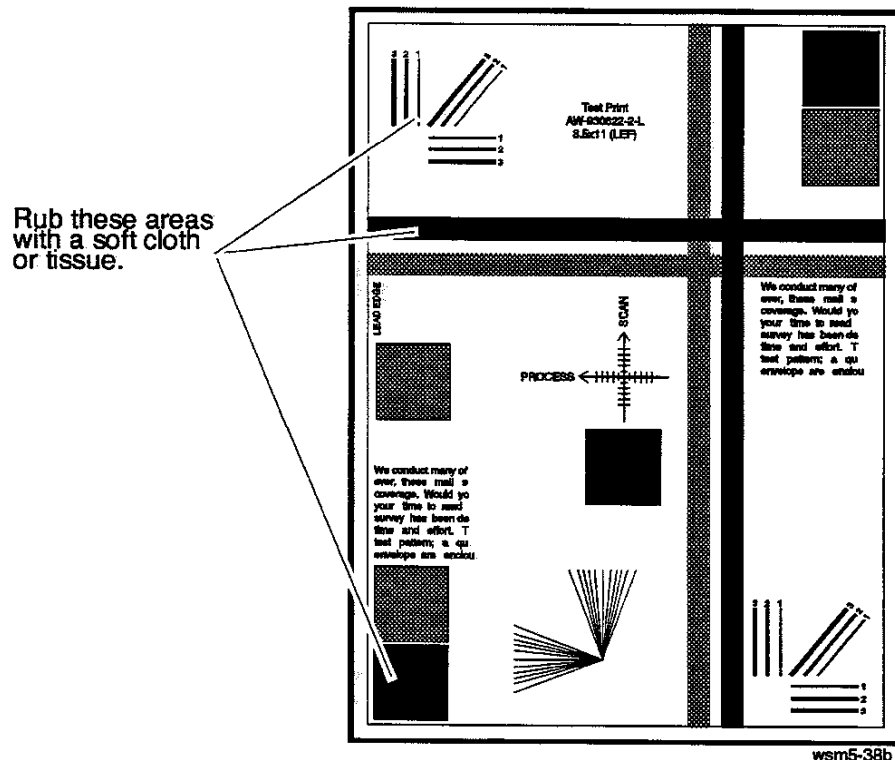


Figure 4.

Resolution

Refer to Figure 5. Observe the three image areas on several System Controller test patterns. 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.

Area 2:

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 Step 2.
N Go to 7.5.20, Resolution RAP.
- 2 The printed test patterns meet the Resolution specification. Go to the **Registration** checkout on the next page.

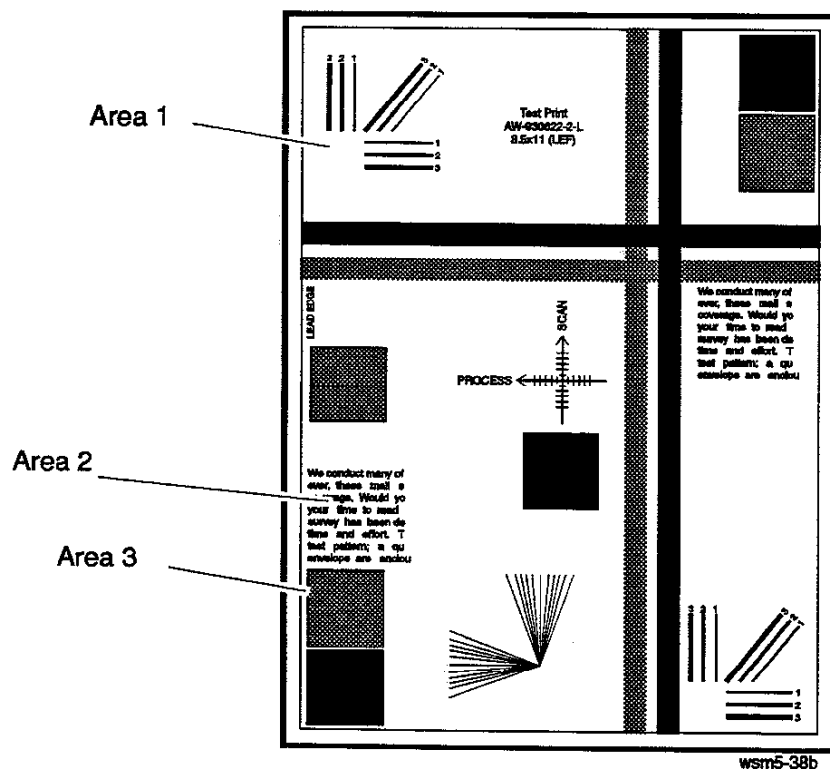


Figure 5.

Registration (Lead Edge to Trail Edge)

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

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 7.5.14, Misregistered Image RAP.

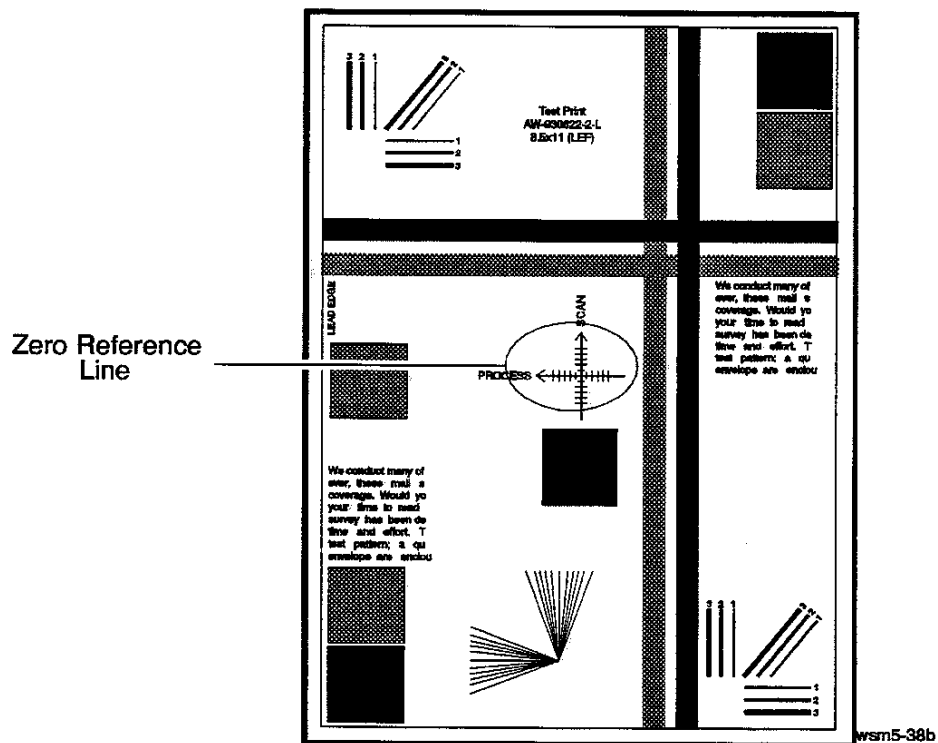


Figure 6.

Registration (Inboard to Outboard)

Measure the registration on two consecutive System Controller test patterns. Fold the outboard edge to the inboard edge and crease the paper. Observe the fold at the zero reference line.

The fold is within ± 2.0 mm from the zero reference line, Figure 7.

- Y The printed test patterns meet the Inboard to Outboard registration specification. Go to the **Skew** checkout on the next page.
- N Go to 7.5.14, Misregistered Image RAP.

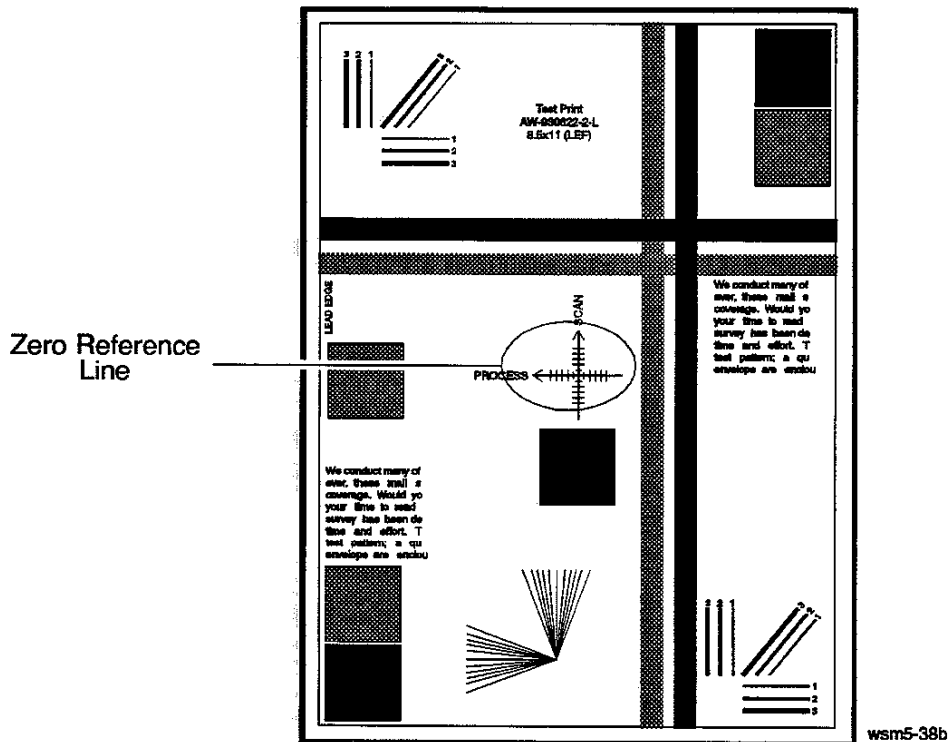


Figure 7.

Skew

Observe the Printer Engine Controller PWB test pattern. Measure the dimensions 'A' and 'B' on two consecutive test patterns and check the following, Figure 8.

- The difference between 'A' and 'B' should be no more than 2.0 mm from any source.

The skew on the test patterns meets the specification.

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

N Go to 7.5.21, Skewed Image RAP.

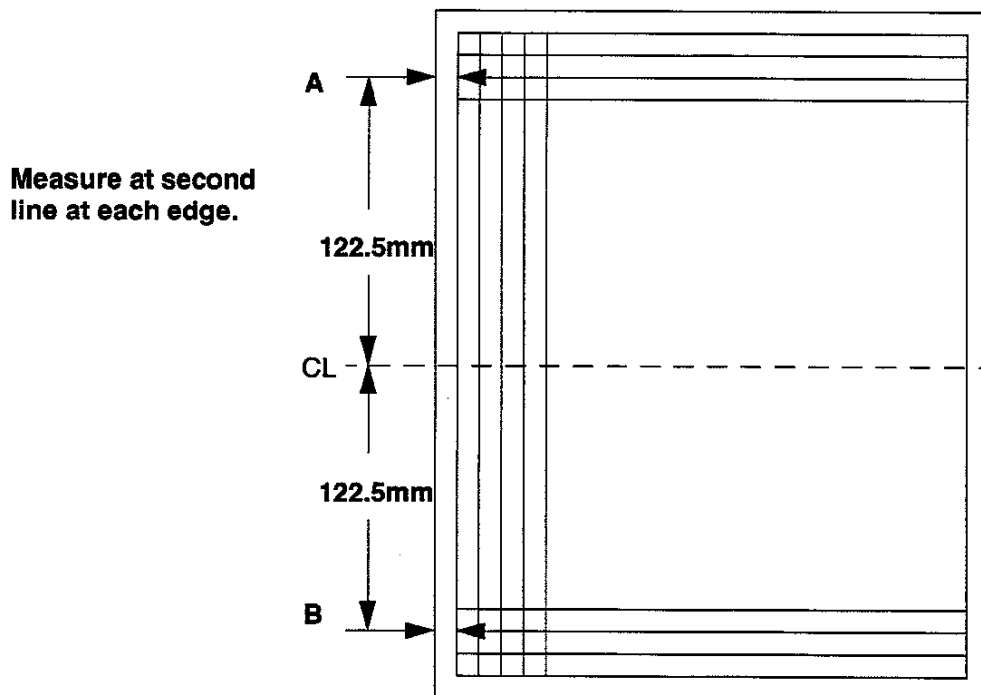


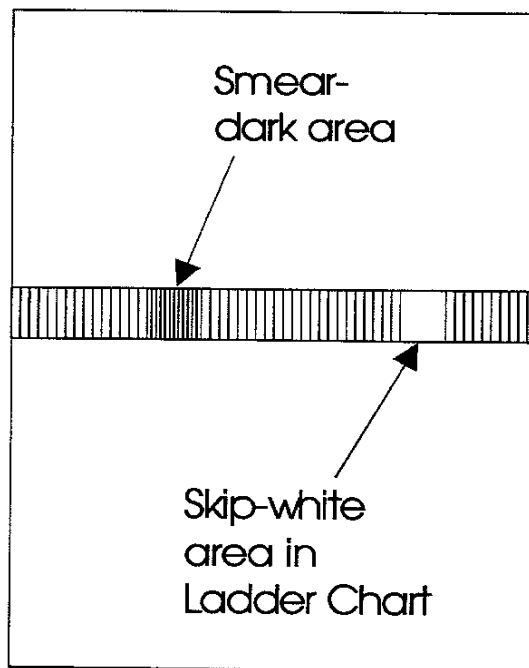
Figure 8.

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.

The test prints are free from skips and smears.

- Y Go to the **Spots** checkout on the next page.
- N Go to 7.5.22, Skips/Smears RAP.



skpsmr

Figure 9.

Spots

See 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.

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 7.5.12, Spots RAP.

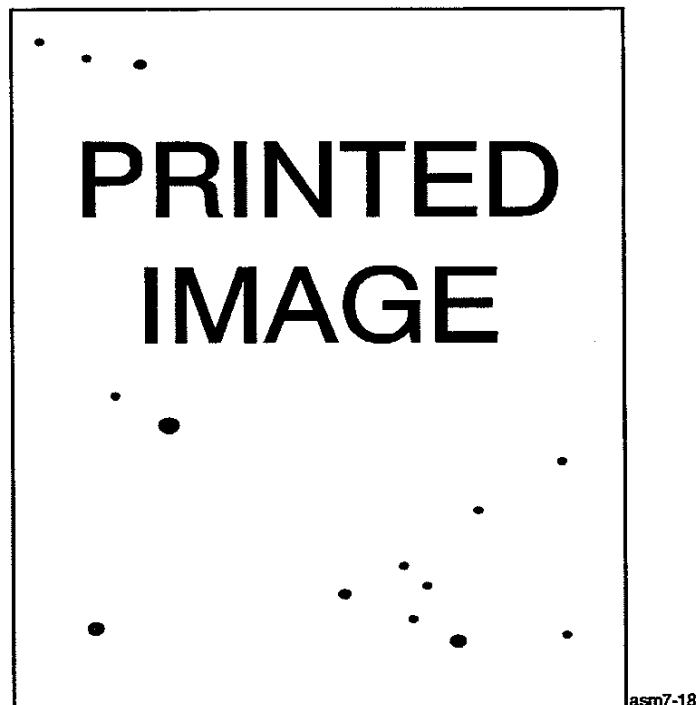


Figure 10.

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 7.5.15, Streaks RAP.
 - N Go to Step 3.
- 3 There is a residual image (ghosts) on the Test Prints.
 - Y Go to 7.5.16, Residual Image RAP.
 - N Go to Step 4.
- 4 There is print damage: wrinkles, creases, tears, etc.
 - Y Go to 7.5.18, Damaged Prints RAP.
 - N Go to Step 5.
- 5 There are character defects on the print sample.
 - Y Go to 7.5.11, Character Defects RAP.
 - N There are no print defects. Return to 7.2.1 Entry Level RAP, Step 7.

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 clip on the EP Cartridge is in proper contact with the ground spring in the Drum Support.

Procedure

- 1 Generate 5 prints of the System Controller test pattern, 5.1.4.7 Test Menu, from Tray1. Load new paper into Tray 1 and make 5 additional prints. Compare these prints with the first 5 prints. The second set of prints are good and meet the image quality specifications.
 - Y Check the storage conditions for the paper.
 - N Go to Step 2.
- 2 Image quality varies from inboard to outboard.
 - Y Go to Step 4.
 - N Go to Step 3.
- 3 Image quality varies from lead edge to trail edge.
 - Y Look for defects in paper supply, paper feed, transportation and buckle that could cause non-uniformity. Check the storage conditions for the paper.
 - N Return to 7.5.3 Image Quality Checkout.
- 4 Perform the following:
 - Inspect the Transfer Corotron for foreign materials. Clean or replace as necessary, PL 7.
 - Inspect the Photoreceptor for deterioration or contamination. Replace the EP Cartridge, PL 6.
 - Inspect the ROS window for contamination.
 - 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.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.5 Black Prints



PROBLEM

The entire print is black.

asm7-11

INITIAL ACTIONS:

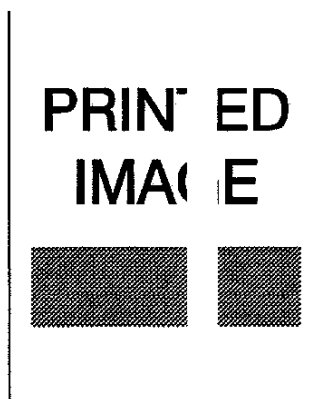
- Generate the System Controller Test Print, 5.1.4.7 Test Menu, and Printer Engine Controller PWB Test Print, 5.2.2 Diagnostic Mode 2.
- If both prints are completely black, replace the EP Cartridge. If there is no change in the prints, go to the High Voltage Power Supply Checkout RAP and ensure that the EP Cartridge charge circuit is operating properly.
- If any image is visible on the prints, go to the Background RAP.

PROCEDURE:

- 1 Loosen the thumbscrews securing the System Controller PWB. Slide the board out approximately two inches.
- 2 Disconnect the Engine/System Controller Harness from the System Controller PWB.
- 3 Generate a print engine test print, 5.2.2 Diagnostic Mode 2. The test print is black.
 - Y Replace the Printer Engine Controller PWB, PL 8.
 - N Replace in the following order until the problem is resolved:
 - Engine/System Controller Harness, PL 8.
 - System Controller PWB, PL 9.
 - Laser Assembly, PL 6.
 - Laser Scanner Harness, PL 6.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.6 Horizontal Deletions



PROBLEM

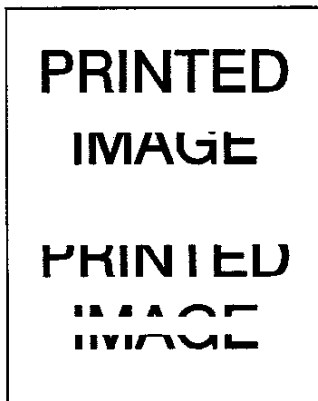
There are areas of the image that are extremely light or missing entirely. These missing areas form wide bands that run horizontally across the page and parallel with the direction of scanning. There should be no Deletions with a diameter larger than 0.5mm visible on Test Prints.

asm7-12

- 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 Printer Engine Controller PWB test prints, 5.2.2 Diagnostic Mode 2. The problem is resolved.
 - Y Return to Final Actions.
 - N Go to Step 2.
- 2 Remove the EP Cartridge. Obstructions, such as dust or lint fibers, are found between the Laser Assembly and the EP Cartridge.
 - Y Clean the Laser Scanner Window and the Erase Lamp with a cloth moistened with alcohol, and dry with a lint-free cloth. If the problem persists, go to Step 3.
 - N Go to Step 3.
- 3 The Transfer Corotron is clean and in good condition.
 - Y Go to Step 4.
 - N Replace the Transfer Corotron, PL 7, if necessary.
- 4 Remove the Fuser and check the Heat Roll for damage. The roll is in good condition.
 - Y Replace the EP Cartridge. If the problem persists, Replace the Main Drive Motor, PL 6.
 - N Replace the Fuser Assembly, PL 5.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.7 Vertical Deletions



PROBLEM

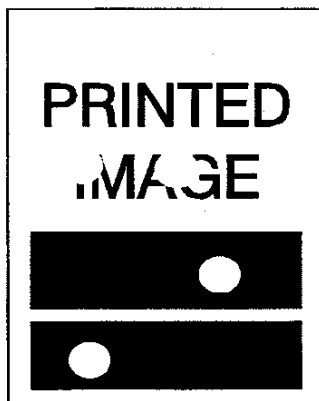
There are areas of the image that are extremely light or missing entirely. These missing areas form wide bands that run vertically along the page in the direction of paper movement. There should be no Deletions with a diameter larger than 0.5mm visible on Test Prints.

asm7-14

- 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, 5.1.4.7 Test Menu. The problem is resolved.
 - Y Return to 7.5.3, Image Quality Checkout.
 - N Go to Step 2.
- 2 Remove the EP Cartridge. Obstructions, such as dust or lint fibers, are found between the Laser Assembly and the EP Cartridge.
 - Y Clean the Laser Scanner Window and the Erase Board with a cloth moistened with alcohol, and dry with a lint-free cloth. If the problem persists, go to Step 3.
 - N Go to Step 3.
- 3 There is moisture on the Laser Scanner Window.
 - Y Check the operation of the Fuser Exhaust Fan. Clean the Laser Scanner Window and the Erase Board with a cloth moistened with alcohol, and dry with a lint-free cloth. Inspect the Laser Scanner Window for scratches. Replace the Laser Assembly if necessary, PL 6.
 - N Go to Step 4.
- 4 Clean the Transfer Corotron. The problem is resolved.
 - Y Return to 7.5.3, Image Quality Checkout.
 - N Replace the Transfer Corotron, PL 7. If the problem persists, Go to Step 5.
- 5 Remove the Fuser and check the Heat Roll for damage. The rolls are free of damage and contamination.
 - Y Replace the EP Cartridge, PL 6.
 - N Replace the Fuser, PL 5, if necessary.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.8 Spot Deletions



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.

asm7-17

PROCEDURE:

- 1 Ensure that the paper is not damp. Replace with fresh paper from an unopened ream.
- 2 If the deletions occur at approximately 4.92 inch (125 mm) intervals vertically on the prints, a portion of the photoreceptor may have been damaged. Inspect the EP Cartridge, and replace it, if necessary, PL 6.
- 3 Refer to Section 5 (Fuser Temperature Set) and ensure that the fuser temperature is set to the proper default setting.
- 4 Remove the Fuser and check the Heat and Pressure Rolls for damage or contamination. Replace the Fuser if necessary, PL 5.
- 5 Inspect the Transfer Corotron, clean or replace if necessary, PL 7.
- 6 Perform the following in the order given:
 - Replace the Laser Assembly, PL 6.
 - Replace the Printer Engine Controller PWB, PL 8.
 - Replace the Laser Scanner Harness, PL 6.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.9 Light Prints



PROBLEM

The overall image density is lighter than normal.

asm7-7-9

INITIAL ACTIONS

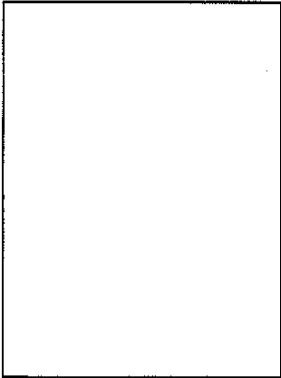
- Ensure that the print density control is set to mid range.
- Ensure that the paper is not damp. Replace with paper from a fresh ream if necessary.
- Clean the Laser Scanner window and the Erase Board.

PROCEDURE:

- 1 Open the Top Cover and visually inspect the left drum grounding plate on the EP Cartridge and the EP Grounding Spring on the white plastic left drum support. The ground components are free of damage or contamination.
 - Y Go to Step 2.
 - N Repair or replace the EP Ground Spring, PL 7, and EP Cartridge, PL 6.
- 2 The Fuser Exhaust Fan operates properly
 - Y Go to Step 3.
 - N Go to the FAN FAILURE RAP, 7.3.1.
- 3 The Transfer Corotron is clean and in good operating condition.
 - Y Go to Step 4.
 - N Clean or replace the Transfer Corotron, PL 7.
- 4 The problem persists after performing the following procedures.
 - ADJ 4.9, Developer Bias Adjustment procedure.
 - 7.4.6, High Voltage Power Supply Checkout procedure.
 - Y Replace the EP Cartridge PL 6, the Laser Assembly, PL 6.
 - N Return to 7.5.3 Image Quality Checkout.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.10 Blank Prints



PROBLEM

The entire print is blank.

asm7-10

INITIAL ACTIONS:

Generate the System Controller Test Print, 5.1.4.7 Test Menu, and Printer Engine Controller PWB Test Print, 5.2.2 Diagnostic Mode 2. Verify that both types of prints are entirely blank.

Specification: The prints should be clearly readable.

PROCEDURE:

- 1 If only the System Controller test print is blank, replace the following in sequence:
 - Engine/System Controller Harness, PL 8.
 - System Controller PWB, PL 9.
- 2 If both prints are blank, ensure that the Laser Assembly is properly grounded.
 - Switch the printer power OFF.
 - Set the DVM to measure resistance and connect the black lead to frame ground.
 - Place the red probe in P/J21-11 on the Laser Assembly. There is less than 10 Ohms resistance to ground.

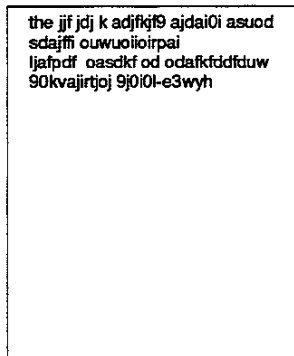
Y Go to Step 3.

N Replace Laser Scanner Harness, PL 8.
- 3 Ensure that the Laser Assembly is properly seated. If there is moisture on the Laser Scanner Window, go to: 7.3.1, Fan Failure.
- 4 Remove the EP Cartridge and ensure that there are no obstructions between the Laser Scanner Window and the EP Cartridge. There are obstructions.
 - Y Remove obstruction.
 - N Go to Step 5.
- 5 Inspect the Laser Scanner Harness for damaged, crimped, or broken wires. Harness is free of damage.
 - Y Go to Step 6.
 - N Replace Laser Scanner Harness, PL 8.

- 6 Open the Top Cover and visually inspect the drum grounding plate on the left side of the EP Cartridge and the EP Grounding Spring on the white plastic left drum support for damage or contamination. Repair or replace the EP Ground Spring or the EP Cartridge if necessary.
- 7 Perform ADJ 4.9, Developer Bias Adjustment Procedure.
- 8 Perform 7.4.6, High Voltage Power Supply Checkout.
- 9 Replace the Laser Assembly, PL 6.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.11 Character Defects



PROBLEM

Garbled print, missing, repeating, or scrambled characters are problems relating to font data or character generation. These are print defects not related to the xerographic process.

INITIAL ACTIONS:

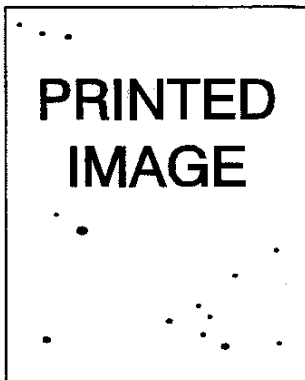
- Generate a printer Configuration Sheet. Ask the customer to verify that the printer and host settings match.
- Ensure that the host interface cable meets specification. The maximum length is:
 - Parallel: 10 ft. (3.0 meters).
 - Serial: 50 ft. (15.2 meters).
 - Optional Interface: Refer to the network specifications for the environment where the printer is installed.

PROCEDURE:

- 1 Disconnect the host interface cable. Generate System Controller Test Prints, 5.1.4.7 Test Menu. The test prints are acceptable.
 - Y Go to Step 2.
 - N Replace the System Controller PWB, PL 9.
- 2 Inform the customer that they may have bad font data. Ask the customer to reload the font. Go to Step 3, if problem not resolved.
- 3 The defect only occurs on an optional interface (Ethernet, Appletalk/LocalTalk).
 - Y Check the optional interface configuration. Replace the interface. Refer to the appropriate removal procedure.
 - N When the problem is resolved, return to 7.5.3, Image Quality Checkout.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.12 Spots



PROBLEM

Toner deposits that are in non-image areas.

asm7-18

INITIAL ACTIONS:

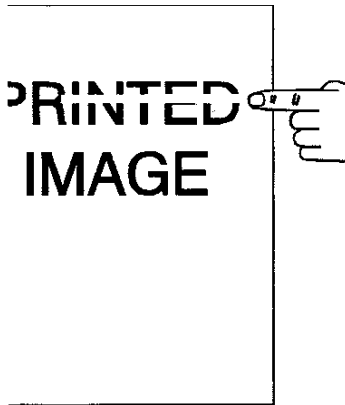
- Inspect the Fuser Cleaning Felt for excessive contamination. Replace it if necessary.
- Check the paper supply for spot contamination prior to printing. Replace with clean paper if necessary.

PROCEDURE:

- 1 Any spots that occur at approximately 4.92 inch (125 mm) intervals vertically on the prints may be caused by a drum defect. Remove the EP Cartridge and inspect the green print cartridge drum surface for scratches or contamination. Replace the EP Cartridge, PL 6, if necessary. Advise the customer to avoid touching the drum.
- 2 Spots that occur at approximately 2.25 inch (56 mm) intervals vertically on the prints may be caused by contamination of or damage to the magnetic development roll. Replace the EP Cartridge, PL 6.
- 3 Inspect paper path for toner contamination. Clean paper path.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.13 Unfused Image



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.

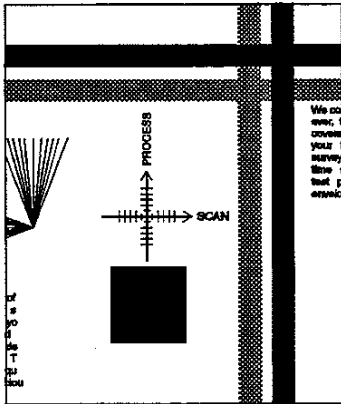
asm7-23

PROCEDURE:

- 1 Generate a Printer Engine Controller PWB test print, 5.2.2 Diagnostic Mode 2. The Fuser Heat Lamp lights while the printer is operating.
 - Y Go to Step 2.
 - N Go to 7.3.4, Fuser Failure RAP.
- 2 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 package.
- 3 Check the Fuser Heat Roll and Pressure Roll for damage. Replace the Fuser Assembly, PL 5, if necessary.
- 4 Ensure that the Fuser Thermistor is clean and contacting the Heat Roll. Replace the Fuser Sensor Assembly, PL 5, if necessary.
- 5 Check for proper contact between the Heat Roll and Pressure Roll by inspecting the following:
 - Tension arms
 - Tension springs
- 6 Ensure that the fuser temperature is set to the factory default value (Section 5, Fuser Temperature Set).
- 7 When the problem is resolved, go to 7.5.3 Image Quality Checkout.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.14 Misregistered Image



PROBLEM

Displaced position of the image from its intended position on the print.

asm5-35c

PROCEDURE:

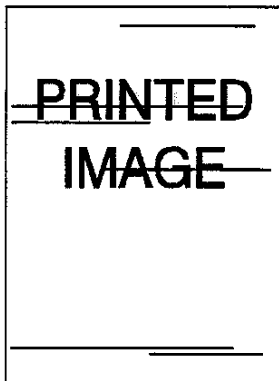
- 1 The paper trays are installed properly and that the pressure plates and snubbers (metal tabs located on the front of the paper trays) are not damaged.
 - Y Go to Step 2.
 - N Repair or replace the Paper Tray, PL 2.
- 2 The paper path, between the paper trays and the Registration Roll, is free of obstructions.
 - Y Go to Step 3.
 - N Clean or repair the paper path components.
- 3 The vertical registration varies between prints.
 - Y Replace the Registration Transport, (REP 4.4.1).
 - N Go to Step 4.
- 4 Perform the Vertical Registration and Horizontal Registration adjustments (see Section 5, General Procedures).

Does the registration change or meet specification?

 - Y Go to Step 5.
 - N Replace the Printer Engine Controller PWB, PL 8.
- 5 Replace the Paper Tray. If the problem persists, replace the following components. Registration Transport, PL 3, Main Drive Motor Assembly, PL 6, Printer Engine Controller PWB, PL 8.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.15 Streaks



PROBLEM

Extraneous dark lines/bands in or across the process direction. These are Print Engine defects not related to the System Controller or Host Data.

asm7-16

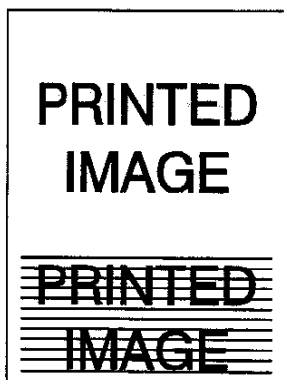
PROCEDURE:

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, PL 6, if necessary.
- Inspect Fuser Heat and Pressure Rolls for contamination or damage. Clean or replace Fuser Assembly, PL 5.
- Inspect condition of Fuser Cleaning Felt. Replace the Fuser Cleaning Felt, PL 5, if necessary.
- Inspect Transfer Corotron for cleanliness/damage. Clean/replace the Transfer Corotron, PL 7, as necessary.
- Clean/inspect paper path.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.16 Residual Image



PROBLEM

There are ghost images appearing on the page. The images may be ghosts of the previous page or from the page being printed.

asm7-19

- 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 occurs at intervals of approximately 4.92 inches (125 mm) vertically on the paper.
 - Y Replace the EP Cartridge, PL 6.
 - N Go to Step 3.
- 3 The residual image occur at intervals of approximately 3.75 inches (95 mm) vertically on the paper.
 - Y Inspect and clean the Fuser Heat/Pressure Roll. Replace the Fuser, PL 5, as necessary.
 - N Go to Step 4.



WARNING! The Main Drive Motor will run when DG 90 is enabled. Be extremely careful around moving parts.

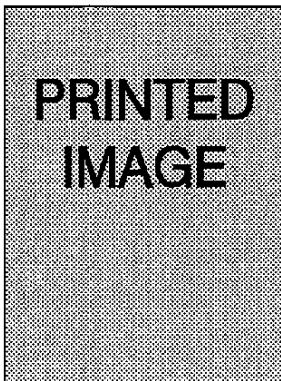
- 4 Enter the output component Test (90) for the Erase LEDs.

The LEDs light.

 - Y Replace the Fuser Cleaning Felt, PL 5. If the problem persists, replace in the following order: EP Cartridge, PL 6. Replace the HVPS, PL 8.
 - N Go to the Erase Board RAP.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.17 Background



PROBLEM

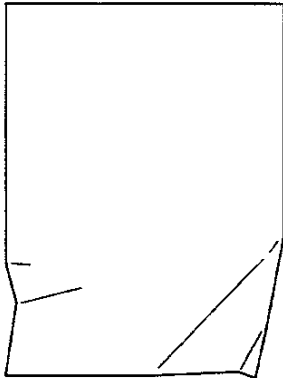
There is toner contamination on all or part of the page. The contamination appears as a very light gray dusting. Refer to Rating Guide (82P284). The Background area on any print should be at, or below, area 3 on the rating guide.

asm7-20

- 1 Turn the green print density knob on top of the High Voltage Power Supply fully in either direction and generate several System Controller test prints, 5.1.4.7 Test Menu. The degree of background changes, indicating that the High Voltage Power Supply is operating correctly.
 - Y Go to Step 2.
 - N Go to the High Voltage Power Supply Checkout Procedure, 7.4.6.
- 2 The Transfer Corotron is clean.
 - Y Go to Step 3.
 - N Clean or replace Transfer Corotron, PL 7, as necessary.
- 3 Perform ADJ 4.9, Developer Bias Adjustment procedure. The developer bias is operating properly.
 - Y Replace the EP Cartridge, PL 6.
 - N Replace the High Voltage Power Supply, PL 8.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.18 Damaged Prints



PROBLEM

The printed page is wrinkled, creased, or torn.

asm7-22

INITIAL ACTIONS:

- Load fresh paper from an unopened ream and make several prints. Observe the damage that occurs.
- Go to Step 1

PROCEDURE:

- 1 The paper path is free of obstructions, damage or contamination.
 - Y Go to Step 2.
 - N Clean, repair, or replace components as necessary.
- 2 All baffles (paper guides) and transports are properly aligned and seated.
 - Y Go to Step 3.
 - N Repair as required.
- 3 The Transfer Corotron is fully seated and the nylon paper guide line is in place.
 - Y Go to Step 4.
 - N Reseat, repair, or replace as necessary.
- 4 The Fuser Exhaust Fan is operating properly.
 - Y Go to Step 5.
 - N Go to "FAN FAILURE" RAP, 7.3.1.
- 5 The Fuser Cleaning Felt is installed properly.
 - Y Go to Step 6.
 - N Reseat or replace Cleaning Felt as necessary. Repair the Fuser if necessary.
- 6 Paper is wrapped around the Heat Roll or trapped in the Fuser area.
 - Y Go to Open Front Cover Clear Paper Path (E4) RAP.
 - N Go to Step 7.

7 The Heat Roll and Pressure Roll are free of wear or damage.

Y Go to Step 8.

N Replace the Fuser, PL 5, as required.

8 The Fuser Stripper Fingers are free of contamination or damage.

Y Go to Step 9.

N Replace the Fuser, PL 5.

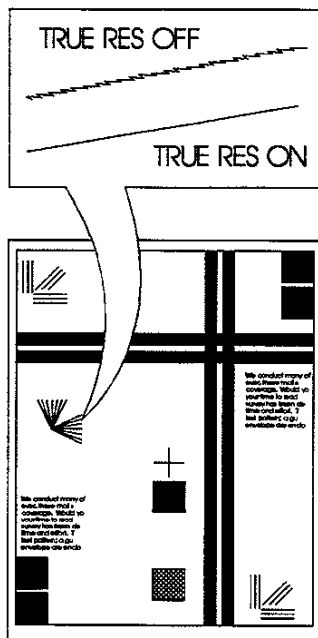
9 The post fusing area is free of any obstructions.

Y If there is no observable obstructions, replace the Fuser, PL 5.

N Clean the area. Remove all obstructions. Replace any damaged components.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.19 TrueRes Smoothing



PROBLEM

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.

trueres

INITIAL ACTION:

- Ensure that TrueRes Smoothing is switched “ON”, 5.1.4 Menu Mode.

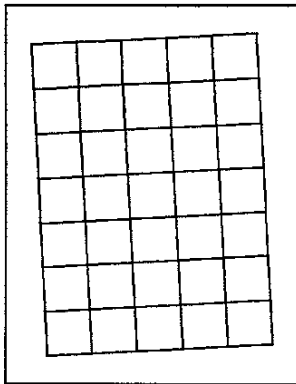
NOTE: TrueRes Smoothing may be listed in the Menu Mode as “Resolution Enhancement”.

PROCEDURE:

- 1 Run five System Controller test prints, 5.1.4.7 Test Menu. 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 a 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 9.
- 5 Switch “ON” TrueRes Smoothing.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.21 Skewed Image



PROBLEM

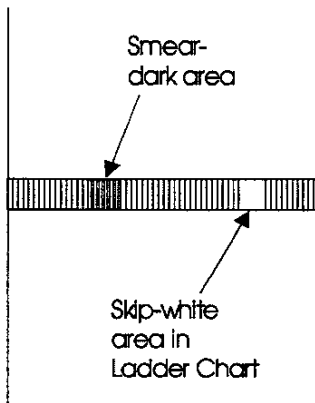
The printed image is not parallel with the sides of the page.

- 1 Generate a Printer Engine Controller PWB test pattern, 5.2.2 Diagnostic Mode 2. Measure, on each side of the paper, from the border of the test pattern to the lead edge of the paper at the left and right sides of the print. Compare the A and B measurements. The measurements are equal within ± 2.0 mm, or .079 inches.
 - Y Return to 7.5.3, Image Quality Checkout.
 - N Go to Step 2.
- 2 Skewing occurs only when feeding from the Multi-Sheet Bypass Feeder (MBF).
 - Y Go to Step 4.
 - N Go to step 3.
- 3 Skewing occurs when feeding from only one paper tray.
 - Y Go to Step 7.
 - N Go to step 11.
- 4 The Multi-Sheet Bypass Feeder is installed properly.
 - Y Go to Step 5.
 - N Repair or replace the Multi-Sheet Bypass Feeder as required. Go to Step 5 if problem persists.
- 5 The Multi-Sheet bypass feed slot is damaged or obstructed.
 - Y Repair or replace the Multi-Sheet Bypass Feeder as required. Go to Step 6 if problem persists.
 - N Go to Step 6.
- 6 The Multi-Sheet Bypass Feeder retard assembly or feed in chute are worn or damaged.
 - Y Replace parts as necessary.
 - N Go to Step 7.

- 7 The following paper transport components, associated with the tray being used when the skew occurs, are in proper operating condition.
- Feed Rolls
 - Turn Roll Assemblies
- Y Go to Step 8.
- N Repair or replace as necessary.
- 8 The snubbers (the metal tabs located on the front of the paper tray) are not bent and they are free of burrs.
- Y Go to Step 9.
- N Replace the paper tray, PL 2.
- 9 The pressure plate is not damaged, and that there is sufficient tension.
- Y Go to Step 10.
- N Replace the paper tray, PL 2.
- 10 The end plate and side plate are properly aligned.
- Y Go to Step 11.
- N Replace the Paper Tray, PL 2.
- 11 The Registration Roll is clean and rotates smoothly.
- Y Go to Step 12.
- N Clean the Registration Roll. If problem persists replace the Registration Transport, PL 3.
- 12 The Registration Pinch Roll is clean and rotates smoothly.
- Y Go to Step 13.
- N Clean the Pinch Roll. If problem persists replace the Registration Transport, PL 3.
- 13 The paper path is clear of any obstructions.
- Y Go to Step 14.
- N Remove any obstructions. Replace any damaged components as necessary.
- 14 The Laser Assembly is seated properly.
- Y Go to Step 15.
- N Reseat the Laser Assembly. Replace the Laser Assembly, PL 6.
- 15 The spring loaded Jam Access Doors, located in the rear of the printer, are in the proper position.
- Y Go to Step 16.
- N Position the Inner and Outer Jam Access Doors. Replace Jam Doors as necessary.
- 16 The rollers and springs inside the Jam Doors are in proper operating condition.
- Y Replace the EP Cartridge, PL 6, if problem persists, replace the Registration Transport, PL 3.
- N Repair or replace as necessary.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

7.5.22 Skips/Smears



PROBLEM

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.

skpsmr

- 1 There are Skips present on Test Prints.
 - Y Check mechanical drive to EP Cartridge for smooth motion. If OK, replace EP Cartridge. If problem is not resolved go to Horizontal Deletions.
 - N Go to Step 2.
- 2 There are Smears present on Test Prints.
 - Y Check the following:
 - Paper stock -make sure it meets specification.
 - Mechanical drive to EP Cartridge.
 - Fuser and Mechanical Drive to Fuser for smooth operation.
 - Registration Transport for contamination and wear. Clean/replace as necessary.
 - Transfer Corotron Assembly for damage.
 - Prefuser Transport for contamination/wear.
 - Replace EP Cartridge, PL 6.
 - N Return to 7.5.3, Image Quality Checkout.

NOTE: When the problem has been resolved, return to 7.5.3 Image Quality Checkout, to verify that no other image quality defects exist.

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 7.2.1, Entry Level RAP and troubleshoot printer.
- 2 The printer has HOST Option PWB(s) installed.
 - Y Go to Step 3.
 - N Go to 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 8.
- 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 Anacom G80 or similar 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 9.
- 6 The job prints free of data corruption.
 - Y Go to Step 7.
 - N Replace the System Controller PWB, PL 9.
- 7 The problem is related to the Serial Port.
 - Y Go to Serial/Parallel RAP.
 - N Go to Step 8.
- 8 The AppleTalk/LocalTalk Option PWB is installed in the Printer.
 - Y Go to AppleTalk/LocalTalk RAP.
 - N Go to Ethernet RAP.

7.6.2 Serial/Parallel RAP

You were directed to this RAP because the printer does not respond or 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 and go to Step 1.
- 1 The interface being used is Serial.
 - Y Go to Step 2.
 - N Go to Step 3.
 - 2 The Configuration Sheet matches the HOST computer the customer is using.
 - Y Go to Step 3.
 - N Configure printer to match customer's computer. Switch the printer power OFF, then ON. Generate another Configuration Sheet and perform Step 2 again.
 - 3 The Serial and/or Parallel Interfaces is(are) indicated as "Port Enable - ON".
 - Y Go to Step 5.
 - N Configure "Enable Port - ON" for interface(s) being used by customer. Once properly enabled, go to Step 4.
 - 4 Generate a new Configuration Sheet. The Configuration Sheet indicates "Enable Port - ON" for interface(s) being used.
 - Y Go to Step 5.
 - N Replace the System Controller PWB, PL 9.
 - 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 9.
 - 6 The problem is either in the HOST Interface Cable(s) or the HOST System(s). Inform customer and assist in inspection of cable(s) and HOST System(s). The problem is 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 or 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.
 - Reconnect the HOST Interface Cable, notify customer if any visual signs of damage are noticed.
 - Switch the printer power ON.
 - Generate a Configuration Sheet and go to Step 1.
- 1 The AppleTalk/LocalTalk PWB is listed on the Configuration Sheet.
 - Y Go to Step 2.
 - N Go to Step 6.
 - 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 Replace the AppleTalk/LocalTalk PWB, PL 9. If the problem still exists, the problem is in either the Network Cable, the 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 5.
 - 5 Enable printer Hex Dump, 5.1.4.6 System Menu, and have System Administrator send a 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.
 - 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 9.
 - N Replace AppleTalk/LocalTalk PWB, PL 9.

7.6.4 Ethernet RAP

You were directed to this RAP because the printer does not respond or 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 Novell/Ethernet PWB.
 - Reseat the Novell/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 and go to Step 1.
- 1 The Ethernet Menu is listed on the Configuration Sheet.
 - Y Go to Step 2.
 - N Go to Step 8.
 - 2 The HOST environment being used is NOVELL.
 - Y Go to Step 3.
 - N Go to Step 5.
 - 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 Replace the Novell/Ethernet PWB, PL 9. If the problem still exists, Inform the System Administrator that the problem is either in the HOST Interface Cable, the Twisted Pair Concentrator, the Coaxial "T" Connectors, or the HOST System.
 - 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 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 6.
 - N Replace the Novell/Ethernet PWB, PL 9. If the problem still exists, Inform the System Administrator that the problem is either in the HOST Interface Cable, the Routing Table, the IP Address is incorrect, or the HOST System.
 - 6 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.

7 Enable printer Hex Dump, 5.1.4.6 System Menu, and have System Administrator send a job. Review results with the System Administrator. The problem is solved.

Y Go to Final Actions.

N Call for Technical Assistance.

8 Switch the printer power OFF. Move Novell/Ethernet PWB to another option port on the System Controller PWB. Switch the printer power ON. Generate a Configuration Sheet. The Ethernet Menu is listed on the Configuration Sheet.

Y Replace the System Controller PWB, PL 9.

N Replace Novell/Ethernet PWB, PL 9.

7.7 Memory

7.7.1 Memory Card Check-Out Procedure

You were directed to this Procedure because one or both of the Memory Cards (Font Cards) is not being detected by the System Controller PWB.

INITIAL ACTIONS

- Reseat all Memory Cards.
 - 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, 5.1.4.7 Test Menu. The Memory Card installed in the printer is identified on the Font Listing.
 - Y Go to Step 3.
 - N Go to Step 7.
 - 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, 5.1.4.7 Test Menu. The Memory Card just installed in the printer is identified on the Font Listing.
 - Y Go to Step 4.
 - N Go to Step 8.
 - 4 Have 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 Have the customer order a new Memory Card.
 - 5 Print PCL Font List, 5.1.4.7 Test Menu. The Memory Card is identified on Font Listing.
 - Y Go to Step 6.
 - N Go to Step 7.
 - 6 Have 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 Have the customer order a new Memory Card.
 - 7 Switch the printer power OFF. Move Memory Card to other Memory Card slot in printer. Switch the printer power ON and print a PCL Font List, 5.1.4.7 Test Menu. The Memory Card is identified on the Font Listing.
 - Y Replace the System Controller PWB, PL 9.
 - N Have the customer order a new Memory Card.

8 Switch the printer power **OFF**. Remove identified Memory Card and move 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 9.

N Have the customer order a new Memory Card.

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 and place it adjacent to Printer. Reconnect System Controller PWB and switch the printer power ON. The UI displays the error code "0001" during power on.
 - Y Go to Step 3.
 - N Go to Step 5.
- 3 Switch the printer power OFF. Remove all Optional PWB's, including any Simms, from the System Controller PWB. Switch the printer power ON. The UI displays the error code "0001" during power on.
 - Y Replace the System Controller PWB, PL 9.
 - N Go to Step 4.
- 4 Switch the printer power OFF. Install one of the Optional PWB's removed from Step 3 onto the System Controller PWB. Switch the printer power ON. The UI displays the error code "0001" during power on.
 - Y Replace Option PWB installed in Step 4.
 - N Repeat Step 4 by installing each Optional PWB including SIMM one at a time until error code "0001" is displayed on the UI. Replace PWB which causes error code to be displayed.
- 5 Switch the printer power OFF. Check wiring going to System Controller PWB for damage. Wire damage is found.
 - Y Replace the Engine/System Controller Harness, PL 8.
 - N Reinstall the System Controller PWB and go to Final Actions.

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 Final Actions.
 - N Go to Step 2.
- 2 Switch the printer power OFF. Remove the System Controller PWB and place it adjacent to Printer. Reconnect System Controller PWB and switch the printer power ON. The UI displays the error code "0040" during power on.
 - Y Go to Step 3.
 - N Go to Step 4.
- 3 Switch the printer power OFF. Remove Postscript PWB from 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 9.
 - N Replace the Postscript PWB, PL 9.
- 4 Switch the printer power OFF. Check wiring going to System Controller PWB for damage. Wire damage is found.
 - Y Replace the Engine/System Controller Harness, PL 8.
 - N Reinstall the System Controller PWB and go to Final Actions.

7.8.3 Error Code 0100, 0101, or 0102 RAP

You were directed to this RAP because the UI displayed the error code "0100 or 0101 or 0102" during the "Power On" diagnostics.

INITIAL ACTIONS

- Reseat all SIMM PWBs on the System Controller PWB.
- 1 Switch the printer power OFF, wait 30 seconds, then switch the printer power ON. The UI displays "ONLINE ___ _ READY" within 2 minutes.
 - Y Go to Final Actions.
 - N Go to Step 2.
 - 2 Switch the printer power OFF. Remove the System Controller PWB and place it adjacent to Printer. Reconnect System Controller PWB and switch the printer power ON. The UI displays the error code "0100 or 0101 or 0102" during power on.
 - Y Go to Step 3.
 - N Go to Step 8.
 - 3 The UI displays the error code "0100" during power on.
 - Y Go to Step 4.
 - N Go to Step 5.
 - 4 Switch the printer power OFF. Remove SIMM(s) from Slot 0 (J209) and, if installed, Slot 1 (J210) on the System Controller PWB. Install SIMM removed from Slot 0 into Slot 1 on the System Controller PWB. Switch the printer power ON. The UI displays the error code "0101" during power on.
 - Y Replace SIMM presently installed in Slot 1 on the System Controller PWB, PL 9.
 - N Replace the System Controller PWB, PL 9.
 - 5 The UI displays the error code "0101" during power on.
 - Y Go to Step 6.
 - N Go to Step 7.
 - 6 Switch the printer power OFF. Remove SIMM(s) from Slot 1 (J210) and, if installed, Slot 0 (J209) on the System Controller PWB. Install SIMM removed from Slot 1 into Slot 0 on the System Controller PWB. Switch the printer power ON. The UI displays the error code "0100" during power on.
 - Y Replace SIMM presently installed in Slot 0 on the System Controller PWB, PL 9.
 - N Replace the System Controller PWB, PL 9.
 - 7 Switch the printer power OFF. Remove SIMM(s) from Slot 2 (J211) and, if installed, Slot 0 (J209) on the System Controller PWB. Install SIMM removed from Slot 2 into Slot 0 on the System Controller PWB. Switch the printer power ON. The UI displays the error code "0100" during power on.
 - Y Replace SIMM presently installed in Slot 0 on the System Controller PWB, PL 9.
 - N Replace the System Controller PWB, PL 9.

8 Switch the printer power OFF. Check wiring going to System Controller PWB for damage. Wire damage is found.

Y Repair the wire damage and go to Final Actions.

N Reinstall the System Controller PWB and go to Final Actions.

Notes

