



Front Cover

OKIDATA

Service Guide

OKIJET 2500 Service Manual

P/ N 59228801

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03/20/98

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Service Manual - OKIJET 2500**0 Introduction**

Front Cover	1
Disclaimer/Copyright	2
About This Manual	3
Organization	4
....Section 1 - SERVICE CALL PROCEDURES	5
....Section 2 - REPAIR ANALYSIS PROCEDURES (RAPs)	6
....Section 3 - IMAGE QUALITY REPAIR ANALYSIS PROCEDURES (RAPs)	7
....Section 4 - REPAIR / ADJUSTMENT PROCEDURES	8
....Section 5 - PARTS LIST	9
....Section 6 - GENERAL PROCEDURES	10
....Section 7 - WIRING DATA	11
How To Use This Manual	12
Reference Symbology	13
Special Symbols	14
Signal Nomenclature	15
DC Voltage Levels	16
Switches and Relay Contacts	17
Back Cover	18

1 Service Call Procedures

Introduction	19
....Printer Maintenance	20
....Initial Actions	21
....System Checkout / Final Action	22

2 Repair Analysis Procedures (RAPs)

Error LED On RAP	23
Power LED Blinking RAP	24
Low Ink LED(s) On RAP	25
Error LED Flashing RAP	26
1.1 Power on RAP	27
2.1 Selection/Indication RAP	28
6.1 Carriage TAP	29
6.2 Encoder RAP	30
8.1 Paper Feed RAP	31
9.1 Blank Print RAP	32

3 Image Quality RAPs

IQ 1 Image Defect Entry RAP	33
IQ 1 Image Defect Entry RAP Table	34

4 Repair / Adjustment Procedures

REP 1.0 Printhead	35
REP 1.1 Paper Tray Assembly	36

Table of Contents

Page

REP 1.2 Cartridge Cover	37
REP 1.3 Top Cover	38
REP 1.4 Exit Guide	39
REP 1.5 Paper Feed / Carriage Assy.	40
REP 1.6 Power Supply	41
REP 1.7 Main Control Board	42
REP 1.8 Waste Ink Pad	43
REP 1.9 Pump	44
REP 1.10 Maintenance Station	45
REP 1.11 Encoder	46
REP 1.12 Control Panel Assembly	47
REP 1.13 Paper Path Sensor (SW 1)	48
REP 1.14 Back Pad	49
REP 1.15 Printhead Ribbon Cable	50
REP 1.16 Ink Level Sensor	51
ADJ 2.0 Printhead Alignment	52
5 Parts List	
PL 1.1 Printer Components	53
PL 2.1 Paper Feed / Carriage Assembly Components (Part 1 of 3)	54
PL 2.1 Paper Feed / Carriage Assembly Components (Part 2 of 3)	55
PL 2.1 Paper Feed / Carriage Assembly Components (Part 3 of 3)	56
Part Number Index	57
6 General Procedures	
Diagnostics	58
....GP 1 Printhead Test	59
....GP 2 Printing with DOS	60
Product Specifications	61
....Physical Characteristics	62
....Electrical Requirements	63
....Printer Capabilities	64
....Supplemental Items	65
Printer Overview and Technical Overview Introduction	66
....Printer Overview	67
.....Printer Specifications	68
.....Features and Operation	69
.....Safety Notes	70
.....Printer Installation	71
....Printer Operation	72
.....Loading the paper	73
.....Test print mode	74
.....Connecting the printer to a computer	75

Table of Contents

Page

.....Control panel	76
.....Printing	77
....Printer Maintenance	78
.....Cleaning	79
.....Replacing the Printhead	80
.....Troubleshooting	81
.....Removal / Replacement of the printer components	82
Technical Overview	83
....Power and Control	84
.....Standby power	85
.....Run control functions	86
.....Main Control Board	87
.....Control Panel Assembly	88
.....Bi-Directional Cable	89
....Printing and Priming	90
.....Printing	91
.....Print control	92
.....Cleaning and Priming	93
....Ink Level Sensing	94
.....Ink Cartridge Present	95
.....Low Ink Detection	96
.....Out of Ink Detection	97
....Carriage Drive	98
.....Carriage drive	99
.....Carriage movement at power on	100
....Encoder	101
.....Status code	102
....Paper Supply / Paper Feed	103
.....Paper supply	104
.....Paper feed	105
.....Load and eject mechanism	106
....Sensors and status indicators	107
.....Sensors	108
.....Status indicators	109
7 Wiring Data	
Plug / Jack Location Index	110
Plug / Jack Location Drawings	111
....Figure 7-1. Main Control Board and Power Supply	112
....Figure 7-2. Carriage Assembly (Bottom View)	113
....Figure 7-3. Carriage	114
....Figure 7-4. Front View	115
Block Schematic Diagrams (BSDs)	116
....Chain 1 AC/DC Power Generation	117
....Chain 2 Selection and Indication	118

Table of Contents**Page**

....Chain 3 Machine Run Control

119

....Chain 8 Paper Feed

120

....Chain 9 Print Control

121



Front Cover

OKIDATA

Service Guide

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Service Manual - OKIJET 2500

Chapter 0 Introduction

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Service Manual - OKIJET 2500

Chapter 0 Introduction

Page: 3

About This Manual

This manual contains Repair Analysis Procedures, Repair Procedures, Adjustment Procedures, Parts List, Diagnostic Procedures, and Wiring Data information that will enable a Service Representative to repair the Printer.

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Service Manual - OKIJET 2500

Chapter 0 Introduction

Page: 4

Organization

This manual is divided into seven sections. The title and description of each section are listed below.

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Section 1 - SERVICE CALL PROCEDURES

This section contains the following:

- Initial Actions / System Checks
- System Checkout
- Final Action

Initial Actions / System Checks

This diagram identifies how to collect the data necessary to decide how to proceed with the service call. It classifies the problem and refers you to the appropriate Repair Analysis Procedure.

System Checkout

The System Checkout procedure is used to verify that the printer is operating properly after a repair has been made.

Final Action

The Final Action procedure identifies the steps that must be performed before finishing the repair.

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Section 2 - REPAIR ANALYSIS PROCEDURES (RAPs)

This section contains the Repair Analysis Procedures (RAPs) necessary to repair faults. When using a RAP, always exit the procedure when the fault is fixed. Do not perform the remaining steps.

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Section 3 - IMAGE QUALITY REPAIR ANALYSIS PROCEDURES (RAPs)

This section contains the Repair Analysis Procedures (RAPs) necessary to repair print quality faults. The first RAP, IQ 1 Image Defect Entry RAP, is used to classify a print quality problem and will reference the RAP to be used to repair the problem. When using a RAP, exit the procedure when the fault is fixed. Do not perform the remaining steps.

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Section 4 - REPAIR / ADJUSTMENT PROCEDURES

This section contains the repair and adjustment procedures for the printer.

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Section 5 - PARTS LIST

This section contains the detailed Parts List for the printer.

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Section 6 - GENERAL PROCEDURES

This section contains Diagnostic Procedures and Product Specifications for the Printer. An Overview and Technical Overview section are also included.

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Section 7 - WIRING DATA

This section contains Plug/ Jack Location Drawings and Block Schematic Diagrams (BSDs).

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How To Use This Manual

The Service Call Procedures will direct you to the proper section of the Service Manual.

You should begin the service call with the Initial Actions / System Checks Procedure. From there, you will be referenced to either Section 2, Status Indicator RAPs or Section 3, Image Quality RAPs.

If you are sent to Section 3, you will perform the IQ 1 Image Defect Entry RAP to classify the print quality problem. You will then be directed to the proper RAP to begin your troubleshooting. From these RAPs you may be referenced to other sections of the manual to make checks, adjustments or to replace parts.

When you have made a repair, return to the System Checkout / Final Action to complete the call.

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Reference Symbology

Notes, adjustments, and parts lists support the checklists and the RAP information. The symbols that refer to this supportive data are shown below.

Note

This symbol is used to refer to notes found on the same page.

Adjustments

ADJ 4.1 This symbol refers to an adjustment procedure located in Section 4 of this Service Manual. The number adjacent to the symbol indicates the number that is assigned to that adjustment.

Parts List**PL 10.6**

Refers to the parts list located in Section 5 of this Service Manual. The number after the PL designation indicates the number that is assigned to that part.

Special Symbols

Descriptions of all commonly used graphic symbols are included in order to aid in troubleshooting when using the RAPs.

Interrupt Horizontal Signal



This indicates the continuation of a signal line which is interrupted in a horizontal direction.

Standby Power Input



This indicates the continuation of a standby power line which is interrupted in the vertical direction.

Left to Right Flow



This indicates the direction of signal flow.

Feedback



This indicates a feedback signal.

Flag



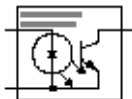
This is used to identify an area of a Circuit Diagram that you should check.

Ground



This indicates a machine ground.

LED / Phototransistor Sensor



This type of sensor is used in the paper path. It uses reflected light to switch the sensor off and on.

Without Tag Change



This signal indicates that the area the triangle points to has not been modified by the tag number in the circle.



This symbol indicates that the entire page has not been modified by the tag number in the circle.

With Tag Change



This symbol indicates that the area the triangle points to has been modified by the tag number in the circle.



This symbol indicates that the entire page has been modified by the tag number in the circle.

WARNING



A warning is used to alert the personnel to an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in injury or loss of life.

CAUTION



A caution is used to alert the personnel to an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.



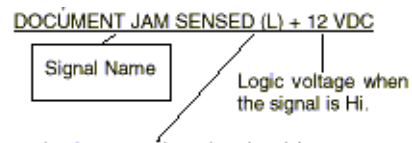
Service Manual - OKIJET 2500

Chapter 0 Introduction

Signal Nomenclature

The signal is named to imply the condition of the machine when the signal is available.

For example:



Logic state when the signal is available in its named state. In this case, the signal is LOW when a document jam is sensed.

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DC Voltage Levels

DC voltages should be measured between the test point and machine GND, unless instructed otherwise. The table below shows the values of the voltages.

Nominal Voltage	Logic State	Actual Voltage Ranges
+5 VDC	H	+4.8 to +5.2 VDC
	L	0.0 to +1.0 VDC
+42 VDC	H	+39.0 to +44.0 VDC
	L	0.0 to +3.0 VDC

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Switches and Relay Contacts

Safety interlock switch that is open.



Safety interlock switch that is closed.



Switch or relay contacts with momentary contacts shown normally open.



Switch or relay contacts with momentary contacts shown normally closed.

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Introduction

Use the Service Call Procedures as a maintenance guide when performing any service on the printer.

- Printer Maintenance - This section contains a list of the printer subsystem components to be cleaned and /or lubricated and the cleaning and lubricating materials to be used, when that subsystem is accessed during a repair.
 - Initial Actions / System Checks - This diagram identifies and classifies the printer problem and refers you to the appropriate RAP in order to repair the problem. When the problem has been repaired, perform the System Checkout / Final Action.
 - System Checkout / Final Action - This procedure should be completed at the end of every repair call to ensure that the printer is operating properly.
-

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Printer Maintenance

Introduction

When the printer is being serviced, the following maintenance procedure should be performed.

Procedure

Clean the following parts every time the printer is serviced:

Description	Procedure
Cover	Clean using a Lint Free Tissue and water.
Paper Feed Roller	Clean using a Lint Free Tissue and water.
Paper Feed Pinch rollers and Paper Feed Guide	Clean using a Lint Free Tissue and water.
Maintenance Station	Clean using a Lint Free Tissue and water.

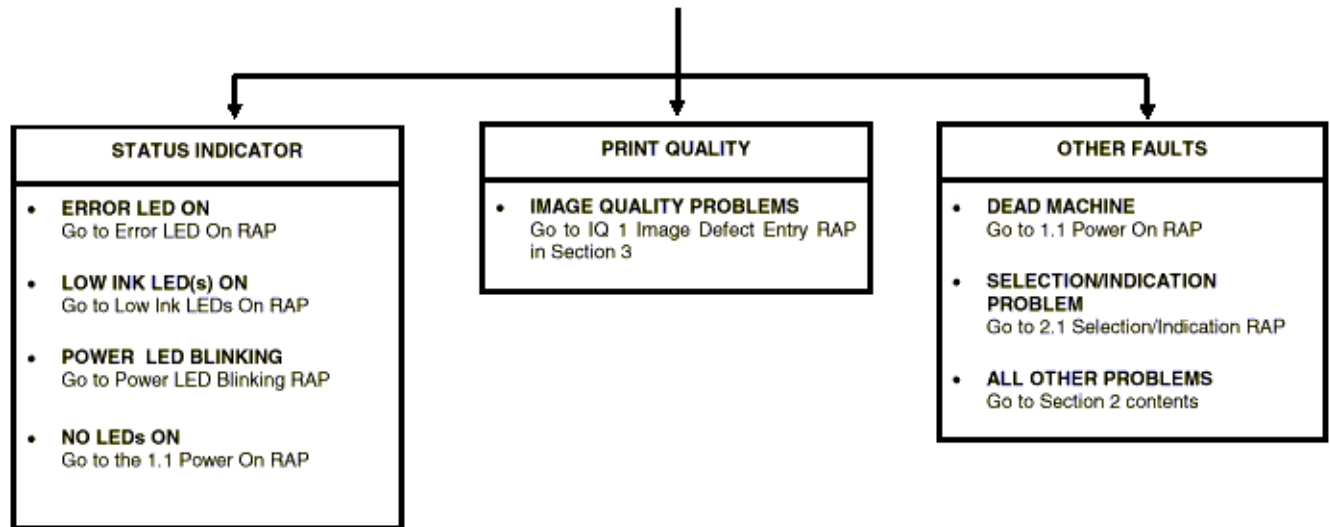


Service Manual - OKIJET 2500

Chapter 1 Service Call Procedures

Initial Actions

1. QUESTION THE OPERATOR.
2. VERIFY, CLASSIFY AND REPAIR THE PROBLEM.



System Checkout / Final Action

Reset the Ink Level Sensing count to zero. Perform the following:

- Install a Color Printhead with empty ink cartridges.
- Run a Test Print.
- Remove the Printhead and install a Color Printhead with full ink cartridges.
- Run a Test Print.
- The NVM counts are now set to zero.

Print a file.

The Printer prints the selected file.

Y N

Refer to Initial Action / System Checks to begin your repair.

Evaluate the print.

Is the image quality acceptable?

Y N

Go to the image quality RAP identified by the IQ 1 Image Defect Entry RAP (Section 3).

Print and check the "Printing Alignment Test pattern".

The alignment is good.

Y N Go to the Printhead Alignment Procedure (Section Four).

Clean exterior of machine. Use a lint free tissue and water. Provide a sample of the Test Print.



Service Manual - OKIJET 2500

Chapter 2 Repair Analysis Procedures (RAPs)

Error LED On RAP

Initial Action:

Ensure a color printhead is installed.

Remove the power cord from the printer for 10 seconds, then reinstall it.

Press the Power switch.

The Error LED is on steady.

Y N

The Error LED is flashing.

Y N

Press and hold the **Resume/FF** button for 2 seconds to print the demo print.

The Error LED is steady.

Y N

The Error LED is flashing.

Y N

Check the interface cable and connectors for an open wire or bad connection. If OK, replace the Main Control Board.

Go to Error LED Flashing RAP.

Remove the power cord from the printer for 10 seconds, then reinstall it.

Press and hold the Power switch for about 2 seconds.

The carriage was noisy.

Y N

The printhead stopped at each ink cartridge during the power-on cycle.

Y N

Go to 6.2 Encoder RAP.

A

B

C

D

Go to 8.1 Paper Feed RAP.

Go to 6.1 Carriage RAP.

Go to Error LED Flashing RAP.

One or more low ink LED(s) are blinking.

Y N

Go to 6.1 Carriage RAP.

Go to Low Ink LED(s) on RAP.



Service Manual - OKIJET 2500
Chapter 2 Repair Analysis Procedures (RAPs)

Power LED Blinking RAP

Remove the power cord from the printer for 10 seconds, then reinstall it.

The Power LED blinks.

Y	N
	Printer is OK.

Go to 2.1 Selection/Indication RAP.

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Service Manual - OKIJET 2500

Chapter 2 Repair Analysis Procedures (RAPs)

Low Ink LED(s) On RAP

Initial Action:

Ensure all the ink cartridges are full and properly seated.

Go to Flags 1 and 2. Check the wires and connections for an open circuit. **The wires are good.**

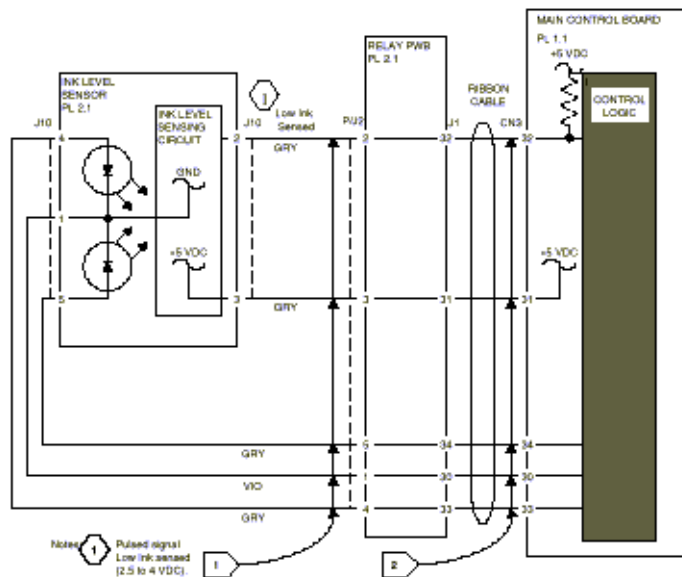
Y N

- Repair the wires or connections if possible.
- Replace the main control board.
- If the problem still exists, replace the Printer.

Replace the Ink Level Sensor (PL 2.1) located in Chapter 5.

Replace the main control board.

If the problem still exists, replace the printer.





Service Manual - OKIJET 2500

Chapter 2 Repair Analysis Procedures (RAPs)

Error LED Flashing RAP

Note: This procedure will work only when the Error LED is flashing.

Note: In the following procedure, the Error LED and Power LED will be used to display an 8 bit binary error code. The LEDs will flash in 1/2 second intervals. The code will be displayed 4 bits at a time. The LED code is as follows (See Figure 1):

1 = Both Error and Power LEDs lit

0 = Error LED only is lit

1. Press and release the Resume/ FF button, while observing the Error and Power LEDs.
2. 4 bits will be flashed in 1/ 2 second intervals followed by a pause, then 4 more bits in 1/ 2 second intervals. After the cycle, the Error LED will continue to flash.
3. Determine the code and go to the Error Code Chart (Table 1) for the corrective action.
4. Repeat step 1 as many times as necessary to determine the code.

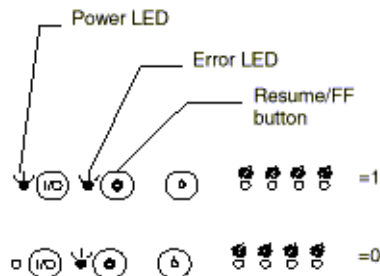


Figure 1. LED Code

Error Code	Error Description	Corrective Action
1000 1000	ROM error	Replace the Main Control Board
1000 1100	RAM error	Replace the Main Control Board
1100 1000	EPR0M error	Replace the Main Control Board
1110 1000	CPU error	Replace the Main Control Board
1100 1111	Carriage home position error	Go to 6.1 Carriage RAP

1.1 Power on RAP

Refer to Figure 1. **There is +42 VDC measured on the Main Control Board.**

Y

N

Disconnect the power cord.
Check fuse F1 on the Power Supply.

F1 is blown.

Y

Go to Flag 1 (Figure 2) and check the wires for an open circuit. If good, replace the Power Supply. If problem still exists, replace the Main Control Board.

Replace the blown fuse.

If the problem is not corrected, replace the Power Supply (PL 1.1).

Refer to Figure 1. There is +5 VDC measured on the Main Control Board.

Y

N

Go to Flag 2 and check for a short to ground. If OK, replace the Power Supply. If problem still exists, replace Main Control Board.

Replace the Main Control Board before replacing the Control Panel Assembly.

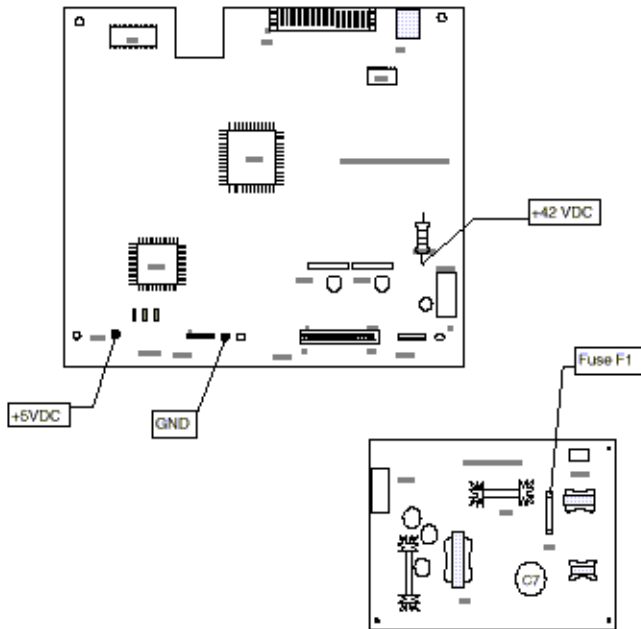


Figure 1. Voltage Measurements

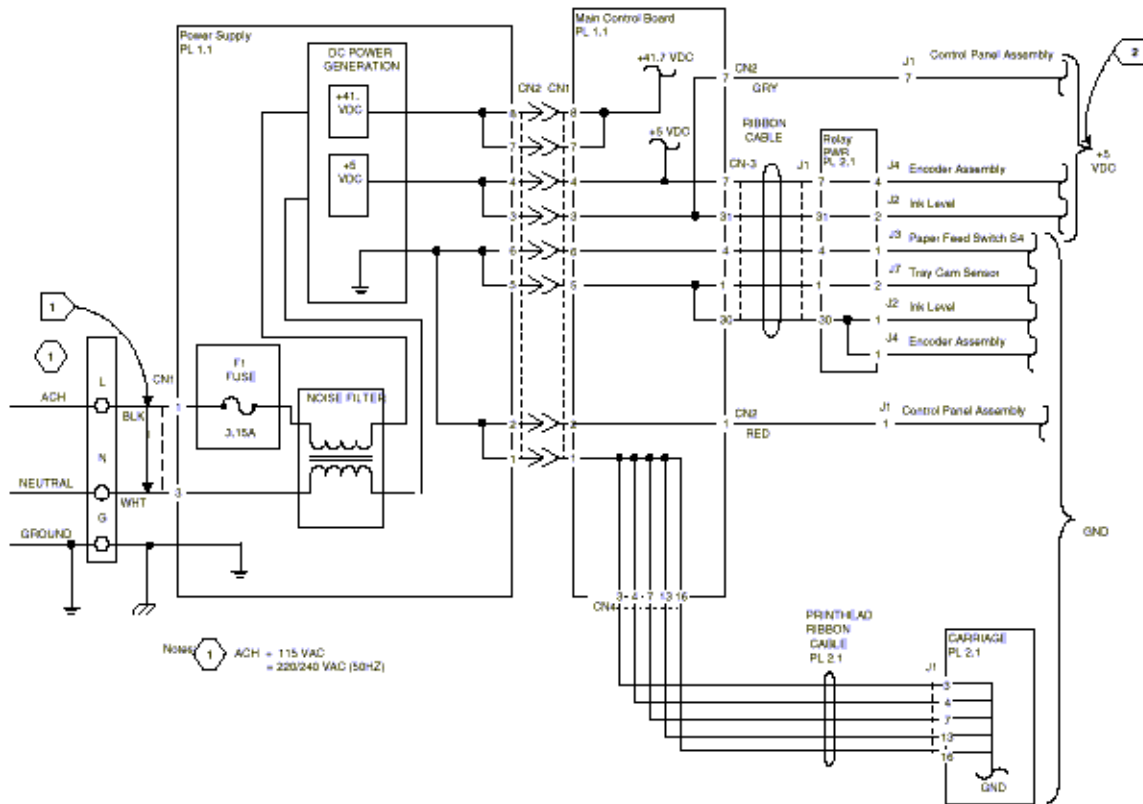


Figure 2. Power distribution

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2.1 Selection/Indication RAP

Load paper.

Disconnect and then reconnect the power cord while observing the LEDs.

All LEDs light momentarily when the power cord is reconnected.

Y N

One or more LEDs light.

Y N

Go to 1.1 Power on RAP.

Go to Flag 1 and Flag 2 and check for an open wire. If OK, replace the Control Panel Assembly.

All LEDs go out in approximately 10 seconds.

Y N

If the Power LED remains on (flashing), go to Flag 3 and check for an open wire. If OK, replace the Control Panel Assembly.

Press and hold the Power button for approximately 2 seconds to turn on the printer.

Press and hold the **Resume/FF** button for 2 seconds.

Paper feeds.

Y N

Go to Flag 5 and check for an open wire.
If good, go to 8.1 Paper Feed RAP.

A

A

Press the Cartridge Change button.

The carriage moves to the center position.

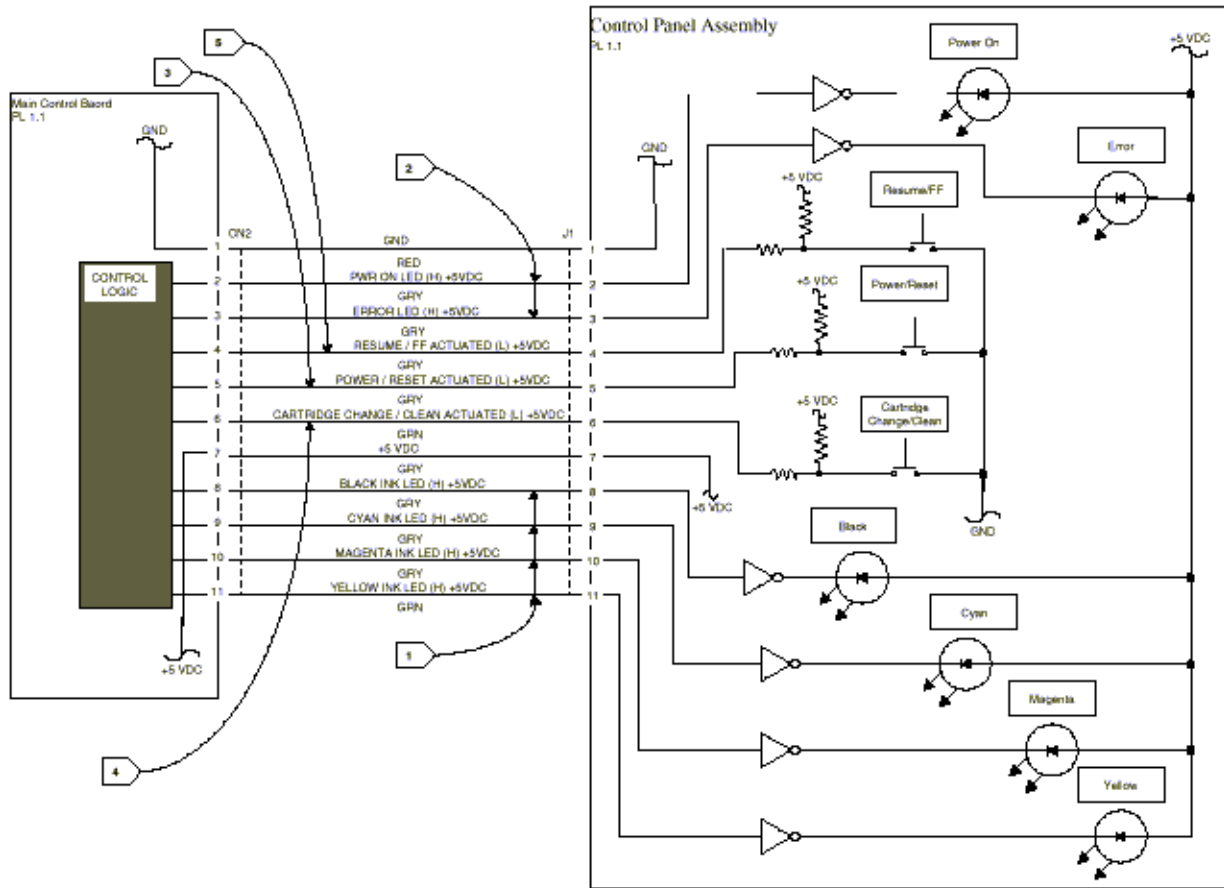
Y N

Go to Flag 4 and check for an open wire.
If OK, replace the Control Panel Assembly.

For printer set up problems when printing from a DOS application, consult GP 2 Printing with DOS Procedure in Section 6.

Examples of printer set up problems.

Just a few lines of data are printed and then the paper continues to line feed without printing.



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6.1 Carriage TAP

Disconnect and then reconnect the power cord.

Press and hold the Power switch.

The carriage moves.

Y N

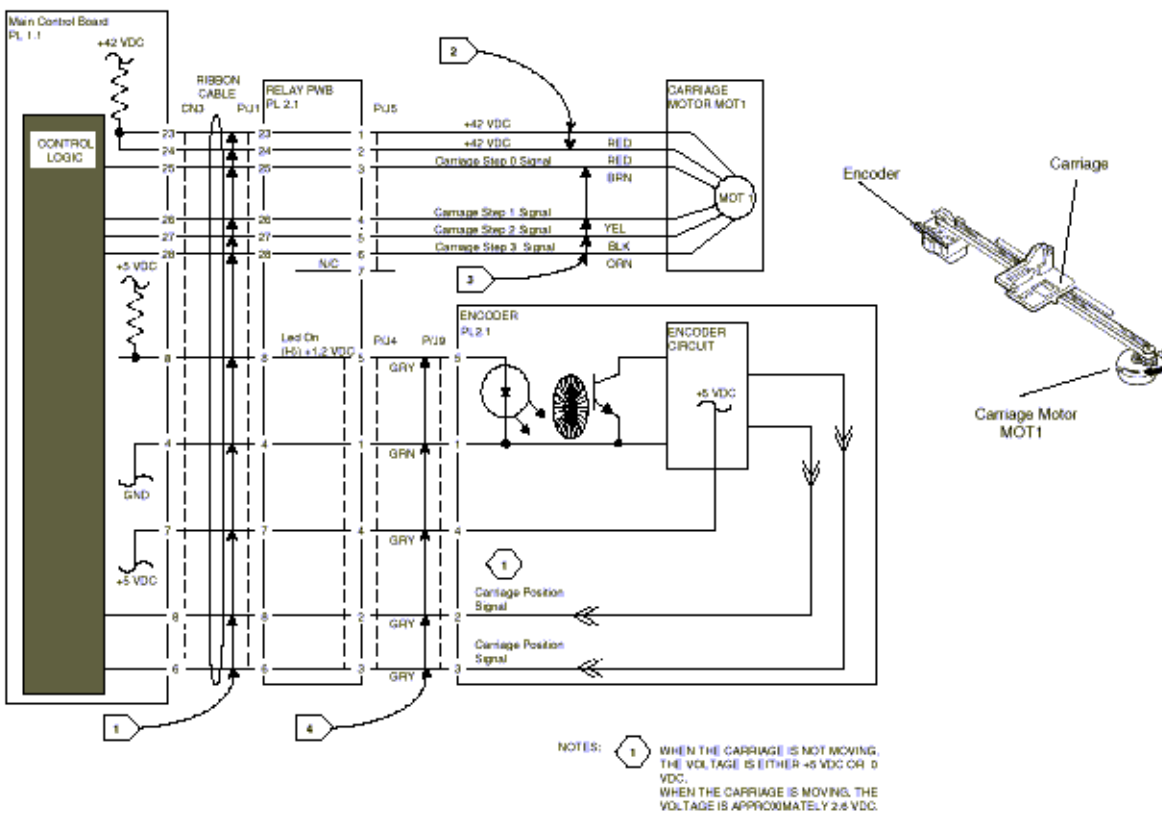
- Go to Flag 1 and check the ribbon cable for being open or damaged.
- Go to Flag 2 and check for an open circuit. If the wire is good, replace the Main Control Board.
- Check / replace the ribbon carriage cable.
- Check the teeth on the belt.
- Check the teeth on the carriage motor.
- Check for 42 volts.
- If 42 volts aren't being supplied by the power supply, replace the power supply.
- Check / replace the carriage motor.

Perform the following:

- Check that the Printhead ribbon cable going to CN4 on the Main Control Board is connected properly.
- Go to Flag 2 and Flag 3 and check for an open circuit.
- If the wires are good, replace the Printhead Ribbon Cable (PL 2.1---see Chapter 5).
- If the problem continues replace the Main Control Board (PL 1.1).
 - Check / replace the ribbon carriage cable.
 - Check the teeth on the belt.
 - Check the teeth on the carriage motor.
 - Check for 42 volts.
 - If 42 volts aren't being supplied by the power supply, replace the power supply.
 - Check / replace the carriage motor.

6.2 Encoder RAP

- Go to Flag 1 and check the ribbon
- Go to Flag 4 and check for an open circuit.
- Replace the Encoder.
- Go to 6.1 Carriage RAP.



8.1 Paper Feed RAP

Clear any paper in the printer.

Disconnect and then reconnect the power cord.

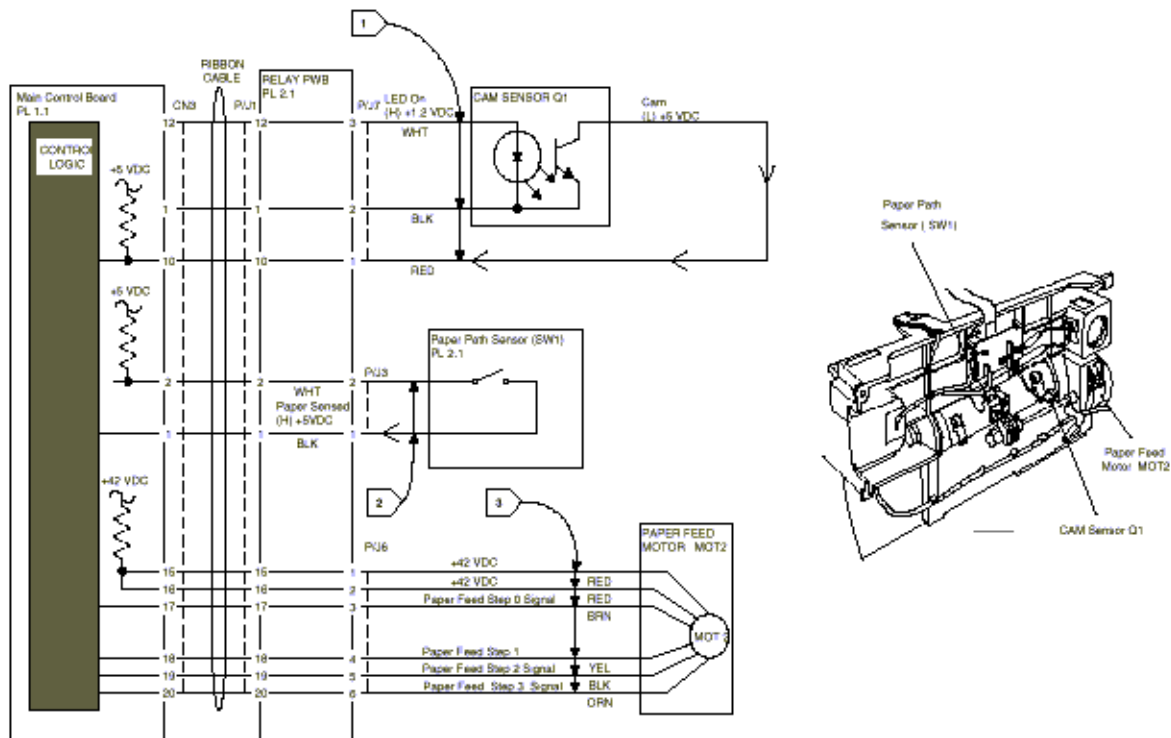
Press and hold the Power switch for about 2 seconds.

Press and hold the **Resume/FF** button for 2 seconds to print the demo print.

The paper feeds or partially feeds.

Y N

- Check that the Paper Tray is installed correctly (REP 1.1)
 - Go to Flag 1 and check the cam sensor circuit for an open.
 - If OK, go to Flag 3 and check for an open circuit. If paper feed motor circuit is defective, replace the paper feed motor.
 - If the wires are good, replace the Main Control Board.
-
- Go to Flag 2 and check the paper feed switch circuit for an open.
 - If OK, go to Flag 3 and check for an open circuit.
 - Replace the Back pad.
 - If the problem still exists, replace the Main Control Board.



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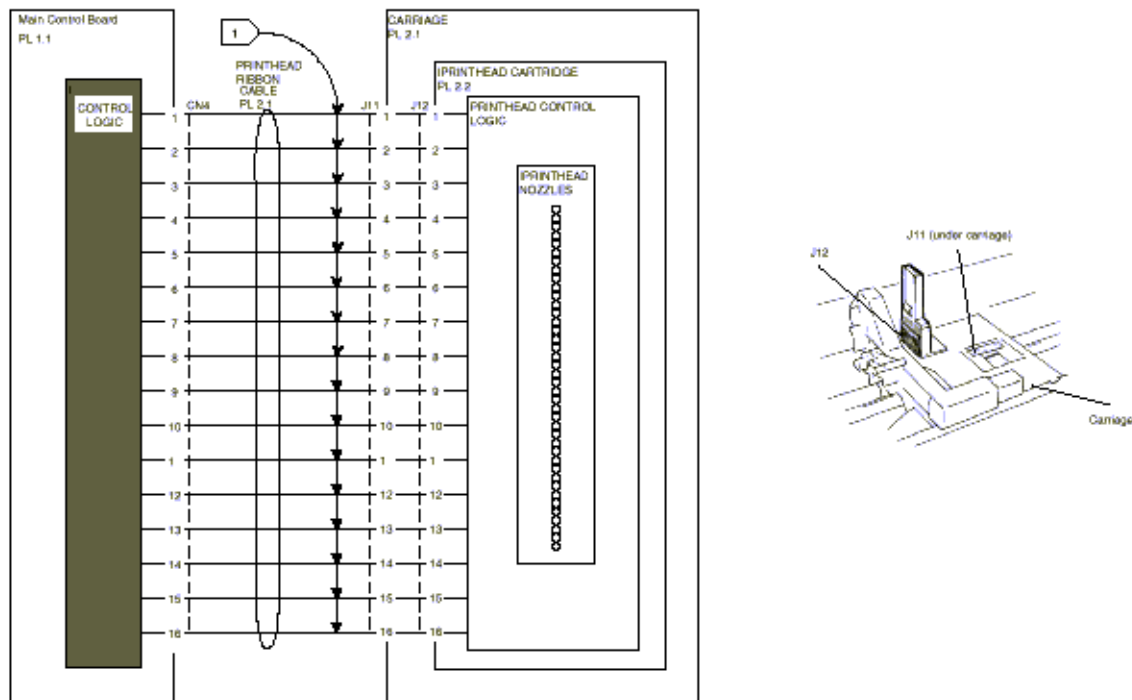
9.1 Blank Print RAP

Initial Action:

Ensure that the Printhead latch is positioned towards the rear.

Unlatch the Printhead, reset the Printhead and latch it back into position. If problem still exists:

- Replace the Printhead.
- Go to Flag 1 and check the ribbon cable for being damaged.
- Check the terminals of J11 on the Carriage Assembly and J12 on the Ink Cartridge for being contaminated or damaged. Clean or repair as necessary.
- If the problem still exists, replace the Printhead Ribbon Cable (PL 2.1--see Chapter 5).





Service Manual - OKIJET 2500

Chapter 3 Image Quality RAPs

IQ 1 Image Defect Entry RAP

1. Print the Test Print:
 - a. Load paper into the Paper Tray.
 - b. Press and hold the **Power on / Reset** button for approximately 2 seconds and then release, to switch the Printer power off.
 - c. While pressing and holding the **Resume/ FF** button press and release the **Power on / Reset** button. The printer prints the test print shown in Figure 1. When the test print is complete, the printer initializes and returns to the Ready status.
 - d. If the test print fails to print, repeat steps a through c.
2. Refer to the DEFECT Column in Table 1 that best describes the image quality problem.
3. If the problem is with external input only, replace the Main Control Board.



Figure 1. Test Print

IQ 1 Image Defect Entry RAP Table

DEFECT	CAUSE	SOLUTION
Blank print	<ul style="list-style-type: none"> ● Printhead 	<ol style="list-style-type: none"> 1. Remove and reinstall the Printhead. 2. Press the Cartridge Change / Clean button for 2 seconds to clean and restore the Printhead. Repeat if necessary. <p>If the problem still exists go to the 9.1 Blank Print RAP.</p>
White horizontal lines and Streaks	<ul style="list-style-type: none"> ● The Printhead nozzles may be blocked. 	<p>Perform the following:</p> <ol style="list-style-type: none"> 1. Press the Cartridge Change / Clean button for 2 seconds to clean and restore the Printhead. 2. Make another Test Print. If the print still has lines and streaks repeat the above process up to 5 times. 3. If the problem still exists, replace the Printhead.
Print is faint or missing	<ul style="list-style-type: none"> ● A non recommended paper is being used or the paper is damp. 	<p>Replace the paper.</p>
	<ul style="list-style-type: none"> ● Defective Cartridge. ● The ink supply may be nearly empty. ● The Printhead nozzles may be blocked. 	<p>Perform the following:</p> <ol style="list-style-type: none"> 1. Press and hold the Cartridge Change / Clean button for 2 seconds to clean and restore the Printhead. 2. Run a Test Print. If the print is still faint, repeat the process up to 2 more times. 3. If the problem is still not corrected replace the Printhead.
Blurry or jagged vertical lines	<ul style="list-style-type: none"> ● Printhead Alignment 	<p>Perform ADJ 2.0 Printhead Alignment Procedure</p> <p>If the problem still exists switch the printer to the High Quality print mode (in the printer driver).</p>
	<ul style="list-style-type: none"> ● Paper 	<p>Turn the paper over to print on the opposite side.</p>
Print image is clipped or off edge of media	<ul style="list-style-type: none"> ● Print off edge of media. 	<p>Ensure that the Print Driver setup has the correct selection of media size and type.</p>
	<ul style="list-style-type: none"> ● Document margins may exceed printer margins. 	<p>Adjust margins in the application as necessary.</p>

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REP 1.0 Printhead**Parts List on PL 2. 2****Removal**

1. Open the Cartridge Cover (PL 1.1).
2. Center the carriage using either of the following procedures:
 - Press the Cartridge Change / Clean button.

WARNING: Switch off the power. Disconnect the power cord from the wall outlet.

- Grasp and manually move the belt (PL 2.1) in order to center the Printhead (Figure 1).

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality defects or a blank page could result. If necessary, prime the printhead after reinstallation. (See below to Refer to the Replacement / Priming section of this procedure.)

3. Move the Printhead lock lever toward the front of the printer.
4. Lift and remove the Printhead. Store it in the Storage Box.

Replacement / Priming

1. Install the Printhead onto the Printhead vertical guide.
2. Move the Printhead lock lever toward the rear of the printer.
3. Close the Cartridge Cover.
4. Press the Resume / FF button to prime the Printhead.

NOTE: The optional high capacity printhead is shown. Refer to the User's Documentation for illustrations of the standard printhead.

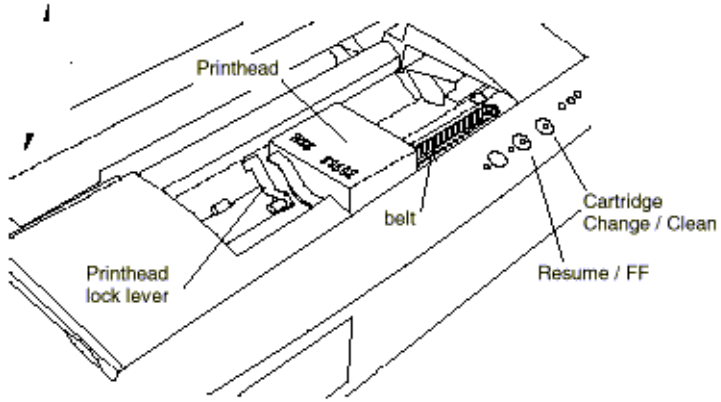


Figure 1.

0400101A LAT

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REP 1.1 Paper Tray Assembly

Parts List on PL 1. 1

Removal

1. Remove the Output Tray (PL 1.1).
2. Press the two handles toward the rear of the printer to release the latches (Figure 1).
3. Pivot the Paper Tray Assembly toward the back of the printer to disengage the three tabs at the bottom of the Paper Tray Assembly from the tabs on the Paper Feed / Carriage Assembly.
4. Lift the Paper Tray Assembly from the printer.

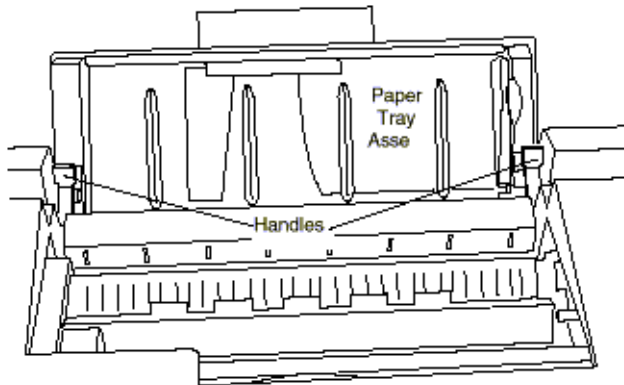


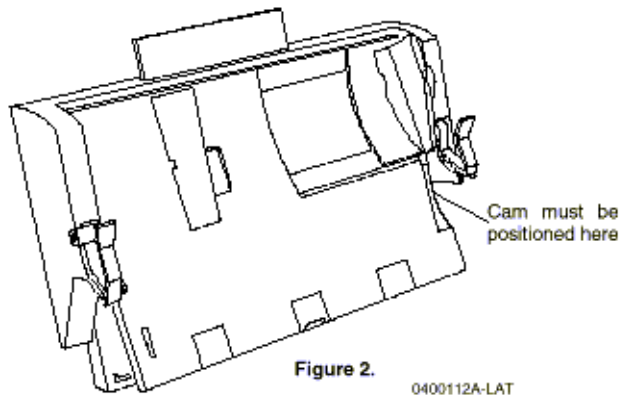
Figure 1.

0400111A-LAT

Replacement

1. Retract the moveable face of the Paper Tray Assembly by pressing it toward the back of the Paper Tray Assembly.
2. Insert the Paper Tray Assembly into the printer (with bottom of tray touching the bottom of the tray opening on the printer) ensuring the moveable face is behind the white cam (near the bottom, on the left). See Figure 2.
3. Engage the three tabs at the bottom of the Paper Tray Assembly with the tabs on the Paper Feed / Carriage Assembly.
4. Rotate the Paper Tray Assembly toward the front of the printer.
5. Engage the two latches by gently pulling the handles downward and toward the front of the printer until the latches snap into position.

6. Reinstall the Output Tray.



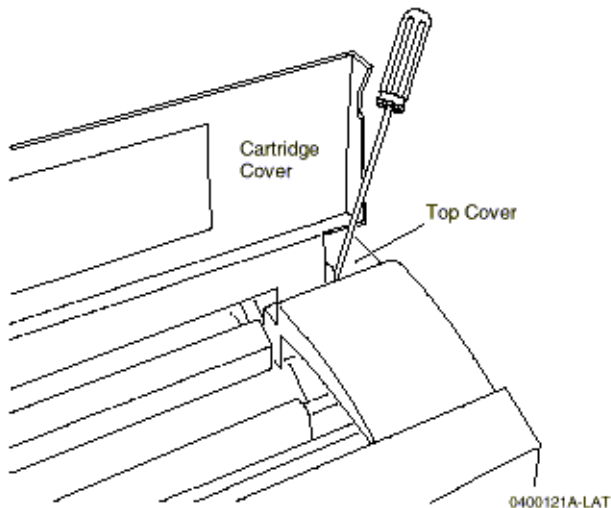
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REP 1.2 Cartridge Cover**Parts List on PL 1. 1****Removal**

1. Open the Cartridge Cover (PL 1.1).
2. Utilizing a screwdriver or similar tool, slightly separate the Cartridge Cover and Top Cover at either pivot to release the Cartridge Cover pivot from the Top Cover (Figure 1).
3. Lift the Cartridge Cover from the printer.

Replacement

1. Insert either Cartridge Cover pivot into the corresponding Top Cover pivot hole.
2. Utilizing a screwdriver or similar tool, slightly separate the Cartridge Cover and Top Cover at the opposite pivot.
3. Position the Cartridge Cover pivot to engage with the pivot hole of the Top Cover.
4. Close the Cartridge Cover.

**Figure 1.**

REP 1.3 Top Cover

Parts List on PL 1. 1

Removal

CAUTION: Store the Printhead in the Storage Box. Leaving the cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality defects or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord from the wall outlet.

2. Remove the Output Tray (PL 1.1).

3. Remove the Paper Tray Assembly (REP 1.1).

4. Remove the Cartridge Cover (REP 1.2).

5. Lay the printer on it's back; release the three front latch tabs (Figure 1).

CAUTION: While removing the Top Cover from the printer, take care not to damage the ribbon cable that is connected to the Control Panel Assembly, which is located inside the Top Cover.

NOTE: The rear of the Top Cover has three locator tabs and two latch tabs.

6. Return the printer to its normal operating position. Lift and hold the front of the cover slightly while releasing the two rear latch tabs. Then lift the rear of the cover and pivot towards the FRONT of the printer to remove.

Replacement

1. Ensure the ribbon cable is properly routed and not twisted during Top Cover installation.

2. If previously disconnected, reconnect ribbon cable to the Control Panel Assembly.

3. Position the Top Cover on the printer. Align and latch the rear latches; then the front latches.

4. Reinstall the following:

a. Cartridge Cover (REP 1.2)

b. Paper Tray Assembly (REP 1.1)

c. Output Tray (PL 1.1)

d. Printhead (REP 1.0)

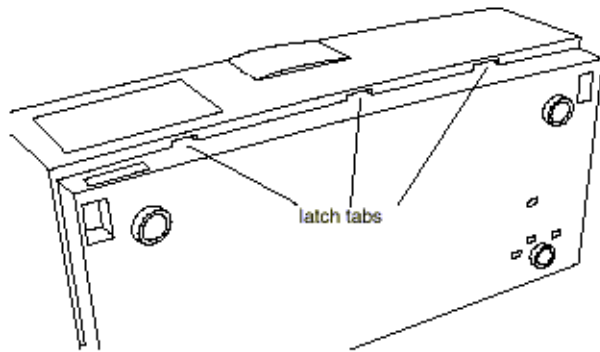


Figure 1.

0400131A-LAT

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REP 1.4 Exit Guide**Parts List on PL 2. 2****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality defects or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord from the wall outlet.

2. Remove the Output Tray (PL 1.1).

3. Remove the Cartridge Cover (REP 1.2).

4. Position both thumbs at the lower, front corners of the Exit Guide (Figure 1). Apply modest pressure simultaneously toward the rear and up to unlatch the Exit Guide.

5. Rotate the guide approximately 90° up and toward the rear of the printer.

6. Lift the Exit Guide from the printer.

Replacement

1. Hold the Exit Guide so the star wheels (10) are facing the front of the printer.

2. Lower the Exit Guide into the printer to engage the pivots with the slots in the Paper Feed / Carriage Assembly.

3. Rotate the Exit Guide completely toward the front of the printer.

4. Position both thumbs at the lower, front corners of the Exit Guide (Figure 1). Apply moderate pressure simultaneously toward the rear and down to latch the Exit Guide.

5. Reinstall the Cartridge Cover (REP 1.2).

6. Reinstall the Output Tray (PL 1.1).

7. Reinstall the Printhead (REP 1.0).

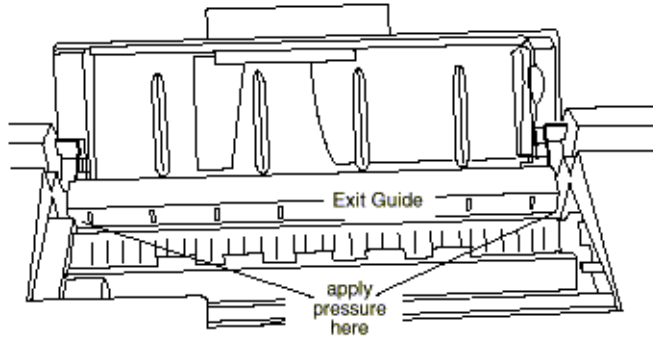


Figure 1.

0400141A-LAT

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REP 1.5 Paper Feed / Carriage Assy.**Parts List on PL 2. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality defects or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the Output Tray (PL 1.1).

3. Remove the Paper Tray Assembly (REP 1.1).

4. Remove the Cartridge Cover (REP 1.2).

5. Remove the Top Cover (REP 1.3).

6. Loosen screw; disconnect ground wire from ground plate near front, left corner of Paper Feed / Carriage Assembly (Figure 1).

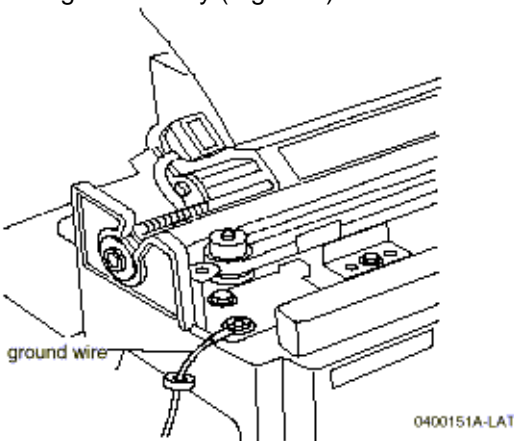
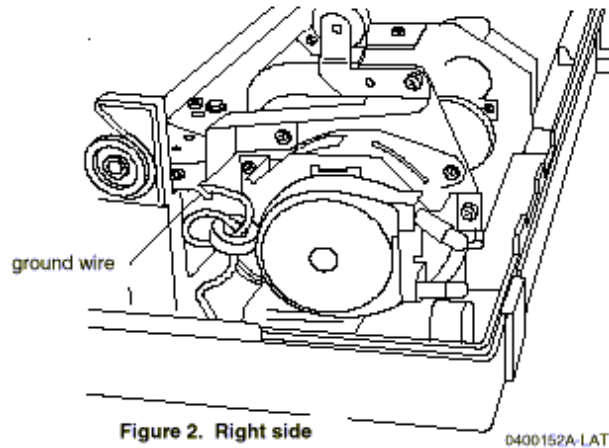
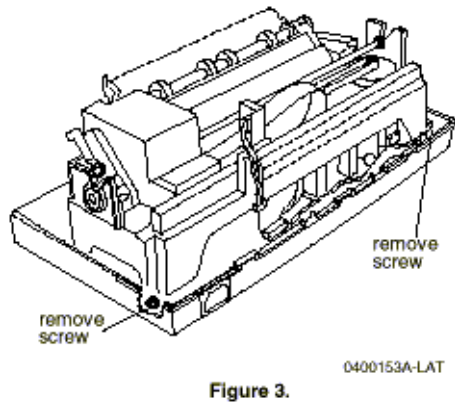


Figure 1. Left side

7. Disconnect ground wire from grounding plate at right side of printer (Figure 2).

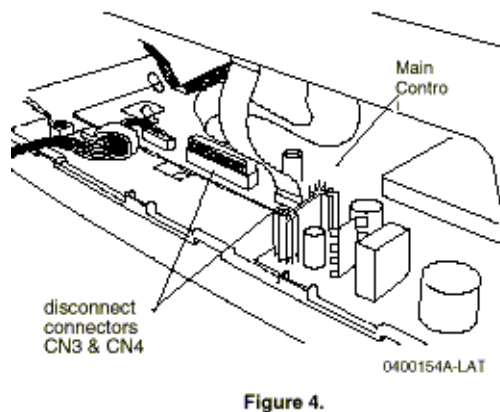


8. Remove the screws (2) from the two front corners of the Paper Feed / Carriage Assembly (Figure 3).



9. Lift the front of the assembly slightly, then slide the assembly toward the front of the printer until it contacts the front wall of the base.

10. Lift the front of the assembly to access the Main Control Board ribbon cable connectors, CN3 & CN4; disconnect from the Main Control Board (Figure 4).

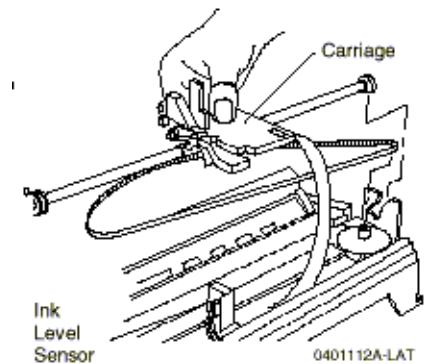


11. Remove the assembly from the base.

Replacement

1. Lift the front of the assembly to access the Main Control Board ribbon cable connectors, CN3 & CN4; reconnect to the Main Control Board (Figure 4 - see above).

2. Allow the Paper Feed / Carriage Assembly to rest on the printer base. Slide the assembly rearward to engage the rear mounts.



3. Reinstall the two front screws.

4. Reconnect the ground wire to the ground plate on the right side of the printer.

5. Reconnect the ground wire to the ground plate on the left, front corner of the printer; tighten screw.

6. Reinstall the following:

a. Top Cover (REP 1.3)

b. Cartridge Cover (REP 1.2)

c. Paper Tray Assembly (REP 1.1)

d. Output Tray (PL 1.1)

e. Printhead (REP 1.0)

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REP 1.6 Power Supply**Parts List on PL 1. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink to dry out. Image quality defects a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the Power. Disconnect the power cord at the wall outlet.

2. Remove the Output Tray (PL 1.1).

3. Remove the Paper Tray Assembly (REP 1.1).

4. Remove the Cartridge Cover (REP 1.2).

5. Remove the Top Cover (REP 1.3).

6. Remove the Paper Feed / Carriage Assembly (REP 1. 5).

7. Disconnect Power Supply power cord connector CN1 from the Power Supply (Figure 1).

8. Remove the four mounting screws.

9. Slide the Power Supply toward the right side of the printer to disengage Power Supply connector CN2 from the Main Control Board connector CN1; lift the Power Supply from the printer.

Replacement

1. Position the Power Supply into the printer base.

2. Slide the Power Supply toward the left side of the printer to engage Power Supply connector CN2 with the Main Control Board (Figure 1).

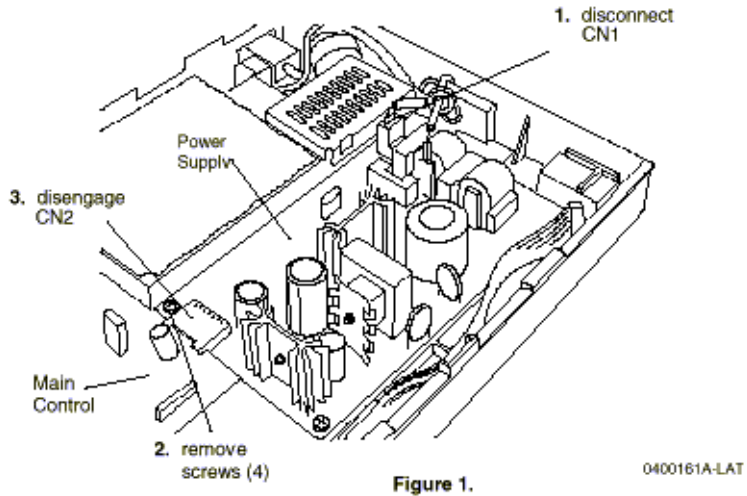
3. Install the four mounting screws.

4. Reconnect the Power Supply power cord connector CN1.

5. Replace the following:

a. Paper Feed / Carriage Assembly (REP 1. 5)

- b. Top Cover (REP 1.3)
- c. Cartridge Cover (REP 1.2)
- d. Paper Tray Assembly (REP 1.1)
- e. Output Tray (PL 1.1)
- f. Printhead (REP 1.0)



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REP 1.7 Main Control Board**Parts List on PL 1. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality defects or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the cartridge in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the Output Tray (PL 1.1).

3. Remove the Paper Tray Assembly (REP 1.1).

4. Remove the Cartridge Cover (REP 1.2).

5. Remove the Top Cover (REP 1.3).

6. Remove the Paper Feed / Carriage Assembly (REP 1. 5).

7. Remove the Power Supply (REP 1.6).

8. Disconnect Main Control Board connector CN2 from the Main Control Board (Figure 1).

NOTE: The two screws securing the PC interface cable connector to the Main Control Board are longer than the others. Ensure to replace them in their correct positions.

9. Remove the eight mounting screws and ground wire (Figure 1).

NOTE: It may be necessary to detach the ribbon cable and ferrite from the printer base before removing the Main Control Board.

NOTE: Exercise care not to deform the two PC interface cable connector wire-form locks during Main Control Board removal.

10. Remove the Main Control Board.

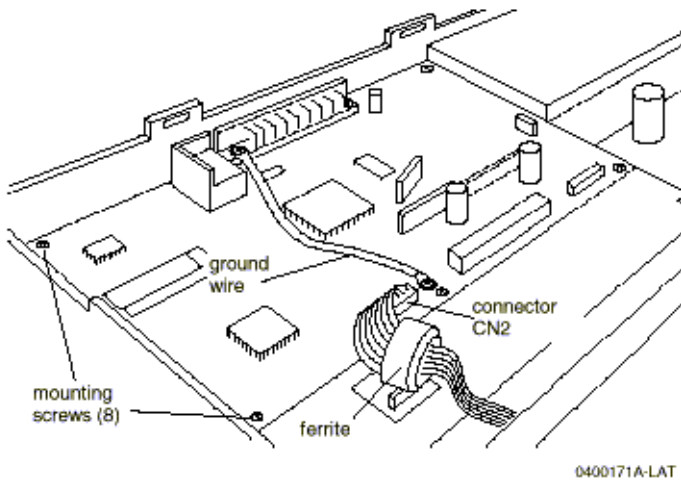


Figure 1. Main Control Board

Replacement

NOTE: There are 2 different length screws securing the Main Control Board. Be sure to reinstall the two longer screws through the PC interface cable connector.

1. Position the Main Control Board into the printer base.
2. Reinstall the ground wire as per Figure 1.
3. Reinstall mounting screws.
4. Reconnect connector CN2 to the Main Control Board.
5. If previously detached, reattach the ribbon cable and ferrite to the printer base.
6. Replace the following:
 - a. Power Supply (REP 1.6)
 - b. Paper Feed / Carriage Assembly (REP 1. 5)
 - c. Top Cover (REP 1.3)
 - d. Cartridge Cover (REP 1.2)
 - e. Paper Tray Assembly (REP 1.1)
 - f. Output Tray (PL 1.1)
 - g. Printhead (REP 1.0)

REP 1.8 Waste Ink Pad**Parts List on PL 1. 1****Replacement**

NOTE: There are 2 different length screws securing the Main Control Board. Be sure to reinstall the two longer screws through the PC interface cable connector.

1. Position the Main Control Board into the printer base.
2. Reinstall the ground wire as per Figure 1.
3. Reinstall mounting screws.
4. Reconnect connector CN2 to the Main Control Board.
5. If previously detached, reattach the ribbon cable and ferrite to the printer base.
6. Replace the following:
 - a. Power Supply (REP 1.6)
 - b. Paper Feed / Carriage Assembly (REP 1. 5)
 - c. Top Cover (REP 1.3)
 - d. Cartridge Cover (REP 1.2)
 - e. Paper Tray Assembly (REP 1.1)
 - f. Output Tray (PL 1.1)
 - g. Printhead (REP 1.0)

Removal

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality defects or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

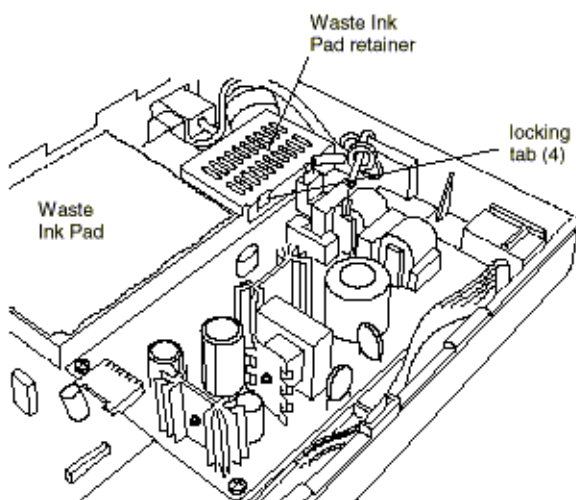
WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

- a. Output Tray (PL 1.1)
 - b. Paper Tray Assembly (REP 1.1)
 - c. Cartridge Cover (REP 1.2)
 - d. Top Cover (REP 1.3)
 - e. Paper Feed / Carriage Assembly (REP 1. 5)
3. Remove Waste Ink Pad retainer by releasing the four locking tabs with screwdriver or other similar tool (Figure. 1).

Replacement

1. Ensure flange on one end of the pad retainer is toward the right side of the printer.
2. Snap the retainer into position.
3. Replace the following:
 - a. Paper Feed / Carriage Assembly (REP 1. 5)
 - b. Top Cover (REP 1.3)
 - c. Cartridge Cover (REP 1.2)
 - d. Paper Tray Assembly (REP 1.1)
 - e. Output Tray (PL 1.1)
 - f. Printhead (REP 1.0)



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Figure 1.

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REP 1.9 Pump**Parts List on PL 2. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality defects or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

a. Output Tray (PL 1.1)

b. Paper Tray Assembly (REP 1.1)

c. Cartridge Cover (REP 1.2)

d. Top Cover (REP 1.3)

e. Paper Feed / Carriage Assembly (REP 1. 5)

3. Remove the Pump from the Paper Feed / Carriage Assembly.

a. Note routing of inlet tube; disconnect tube at connector beneath Maintenance Station (Figure 1).

b. Note routing of outlet tube; remove cable tie; slide tube through frame.

c. Remove two Pump mounting screws. (Figure 2).

d. Slide pump from motor shaft.

Replacement

1. Install the pump onto the motor shaft.

2. Reinstall the two mounting screws.

CAUTION: Ensure the pump tubing is not kinked or otherwise restricted during reinstallation.

3. Route inlet tube as shown in Figure 1; reconnect; clamp into position.

4. Route outlet tube as shown in Figure 1; install two cable ties on tube at either side of frame to ensure tube exits onto Waste Ink Pad.

5. Reinstall the following:

a. Paper Feed / Carriage Assembly (REP 1. 5)

b. Top Cover (REP 1.3)

c. Cartridge Cover (REP 1.2)

d. Paper Tray Assembly (REP 1.1)

e. Output Tray (PL 1.1)

f. Printhead (REP 1.0)

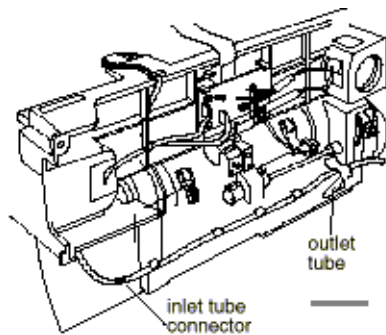


Figure 1.

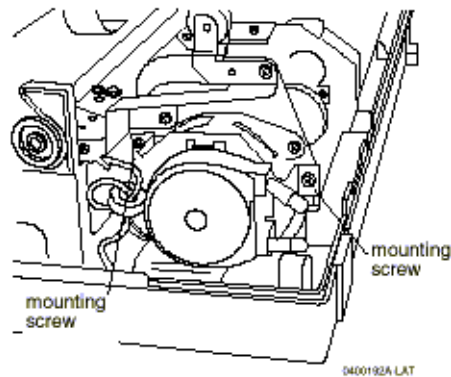


Figure 2.

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REP 1.10 Maintenance Station**Parts List on PL 2. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

a. Output Tray (PL 1.1)

b. Paper Tray Assembly (REP 1.1)

c. Cartridge Cover (REP 1.2)

d. Top Cover (REP 1.3)

3. Observe the routing of the tube from the Maintenance Station to the connector located below the Maintenance Station. Disconnect this tube at the tube connector.

4. Move the Printhead carriage to the extreme right side of the printer.

5. Remove the mounting screw (Figure 1).

6. Lift and hold the left side of the paper pressure baffle approximately six millimeters away from the Maintenance Station.

NOTE: Observe the tube routing during Maintenance Station removal.

7. Slide the Maintenance Station toward the front of the printer to disengage the mounting tabs, then lift upward to remove Maintenance Station from the printer.

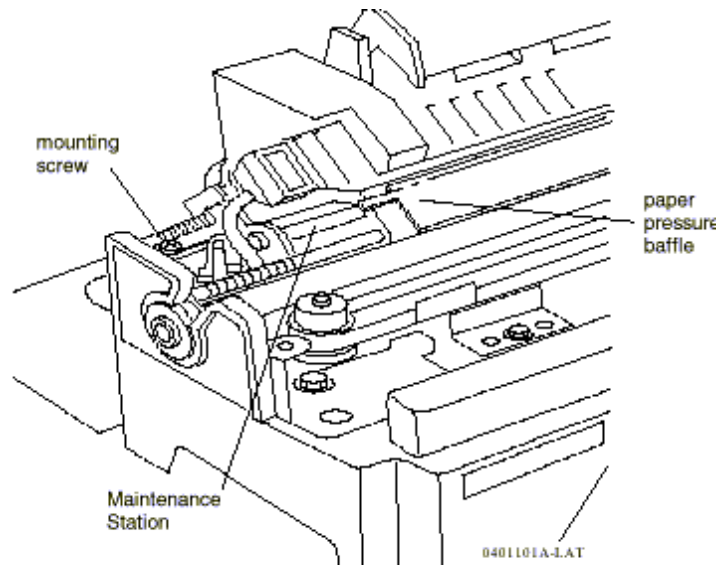


Figure 1.

Replacement

CAUTION: Ensure the Printhead carriage is positioned to the extreme right side of the printer.

1. Route the Maintenance Station tube as observed during removal.
2. Lift and hold the left side of the paper pressure baffle approximately six millimeters away from the Maintenance Station.
3. Lower the Maintenance Station into position to insert the mounting tabs.
4. Slide the Maintenance Station toward the rear of the printer to engage the mounting tabs.
5. Secure with mounting screw (machine threads).
6. Connect tube to its mating connector.
7. Ensure tube is routed between the pinch arm and the Maintenance Station body (Figure 2).
8. Reinstall the following:
 - a. Top Cover (REP 1.3)
 - b. Cartridge Cover (REP 1.2)
 - c. Paper Tray Assembly (REP 1.1)
 - d. Output Tray (PL 1.1)
 - e. Printhead (REP 1.0)

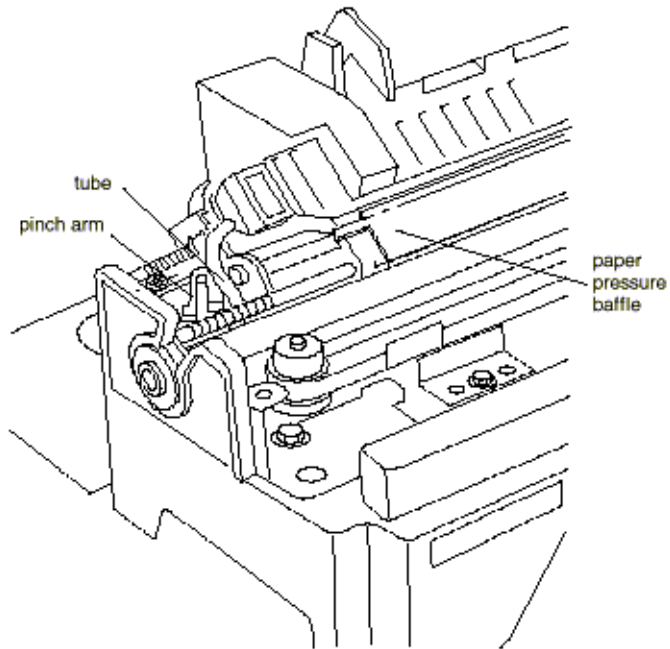


Figure 2.

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REP 1.11 Encoder**Parts List on PL 2. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

- a. Paper Output shelf (PL 1.1)
- b. Paper Tray Assembly (REP 1.1)
- c. Cartridge Cover (REP 1.2)
- d. Top Cover (REP 1.3)
- e. Paper Feed / Carriage Assembly (REP 1. 5)
- f. Maintenance Station (REP 1.10).

3. Remove the belt (PL 2.1) from the carriage motor pulley (right end).

4. Remove the belt from the Encoder pulley (left end).

CAUTION: A ribbon cable is attached to the bottom of the carriage assembly. Do not damage it while removing the carriage assembly.

5. Rotate the carriage shaft cams so that their flats are aligned with the sides of the slot on each side frame (Figure 1).

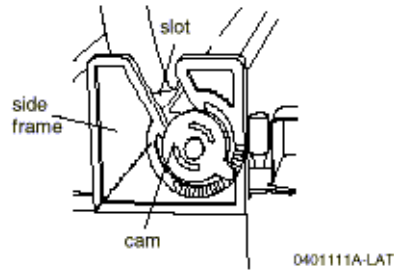


Figure 1.

NOTE: Expect moderate to heavy resistance when removing carriage end cams from printer side frames.

CAUTION: Ensure no portion of carriage is beneath ink level sensor during carriage removal. Simultaneously slide both cams from their respective slots (Figure 2).

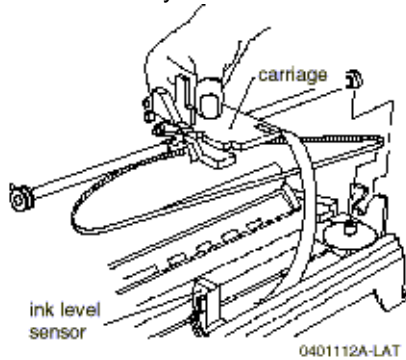


Figure 2.

CAUTION: Take care not to damage ribbon cable while removing the carriage.

6. Remove the carriage from printer side frames (Figure 2).

7. Position the Paper Feed / Carriage Assembly as shown in Figure 3..

8. Disconnect the Encoder connector (J4) from the Relay BOARD (Figure 3).

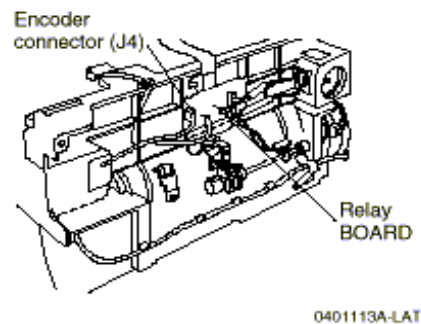


Figure 3.

NOTE: Observe Encoder harness routing before removing Encoder.

9. Release the Encoder harness from the carriage tabs.

10. Return the Paper Feed / Carriage Assembly to its upright position.

11. Remove the screw and ground strap (Figure 4).

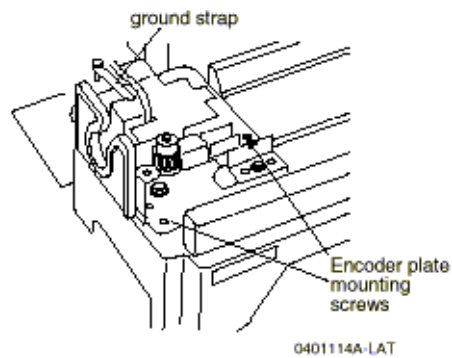


Figure 4.

12. Remove the two Encoder plate mounting screws; remove the Encoder plate and Encoder (Figure 4).

13. Disconnect harness from Encoder.

14. Remove the screw securing Encoder to Encoder plate; remove Encoder; retain spring.

Replacement

1. Position and hold the spring on the plate; install Encoder on the plate; reinstall the screw securing Encoder to the plate, but DO NOT tighten.

2. Route the Encoder harness through Paper Feed / Carriage Assembly.

3. Reinstall Encoder on Paper Feed / Carriage Assembly; install two mounting screws and the ground strap.

4. Reconnect Encoder harness (J4) to Relay Board; secure harness to carriage tabs.

Caution: It is physically possible to cross-connect the Encoder Harness (J4) and the Low-ink Sensor (J2) on the Relay Board since they use the same type of connector. By doing so, the Main Logic Board may be damaged.

5. Reinstall Maintenance Station; reinstall the machine screw.

6. Reconnect Maintenance Station tube.

7. Ensure tube is properly located behind the pinch arm. Consult Maintenance Station Replacement, REP 1.10.

8. Reinstall carriage into Paper Feed / Carriage Assembly. Ensure carriage ribbon cable is properly secured and not twisted.

9. Rotate both carriage shaft cams to align pointer with index mark (Figure 5).

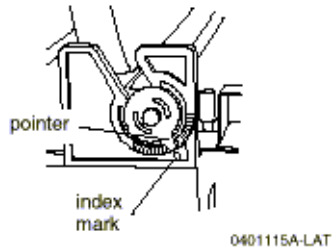


Figure 5.

10. Reinstall carriage belt onto Encoder pulley (left side).
11. Reinstall carriage belt onto drive motor pulley.
12. Tighten screw that secures Encoder to the plate.
13. Ensure both ground straps (left and right side) are firmly contacting the carriage shaft. Reform straps as required.
14. Reinstall the following:
 - a. Paper Feed / Carriage Assembly (REP 1. 5)
 - b. Top Cover (REP 1.3)
 - c. Cartridge Cover (REP 1.2)
 - d. Paper Tray Assembly (REP 1.1)
 - e. Output Tray (PL 1.1)
 - f. Printhead (REP 1.0)

REP 1.12 Control Panel Assembly**Parts List on PL 1. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

- a. Output Tray (PL 1.1)
- b. Paper Tray Assembly (REP 1.1)
- c. Cartridge Cover (REP 1.2)
- d. Top Cover (REP 1.3)

3. Position the Top Cover on its top.

NOTE: There is non-captured hardware under the Control Panel Assembly. **DO NOT** reposition the Top Cover with the control panel assembly board removed.

4. Remove the mounting screws (3) from the Control Panel Assembly; remove the board (Figure 1).

5. Disconnect the ribbon cable from the board.

Replacement

1. Connect the ribbon cable to the Control Panel Assembly.

2. Ensure the buttons and lenses are properly positioned in the Top Cover. Carefully install the board into the Top Cover. Secure with the three mounting screws.

3. Reinstall the following:

- a. Reinstall the Top Cover (REP 1.3).
- b. Reinstall the Cartridge Cover (REP 1.2).

- c. Reinstall the Paper Tray Assembly (REP 1. 1).
- d. Reinstall the Output Tray (PL 1.1).
- e. Reinstall the Printhead (REP 1.0).

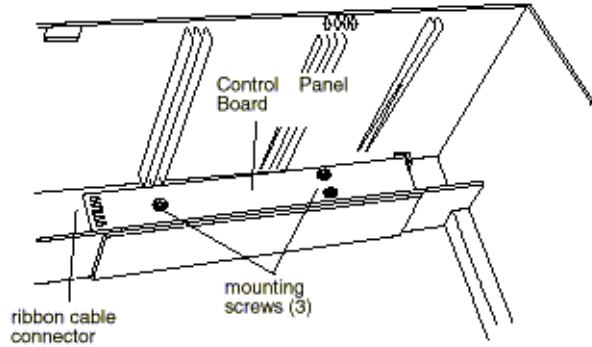


Figure 1.

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REP 1.13 Paper Path Sensor (SW 1)**Parts List on PL 2. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

a. Output Tray (PL 1.1)

b. Paper Tray Assembly (REP 1.1)

c. Cartridge Cover (REP 1.2)

d. Top Cover (REP 1.3)

e. Exit Guide (REP 1.4)

f. Paper Feed / Carriage Assembly (REP 1. 5)

3. Position the Paper Feed / Carriage Assembly as shown in Figure 1.

4. Disconnect J3 from the Relay Board. See Figure 1.

5. Remove mounting screw.

6. Remove Paper Path Sensor.

Replacement

1. Position the Paper Path Sensor (SW 1) in the Paper Feed / Carriage Assembly. Reinstall the mounting screw.

2. Connect J3 to the Relay BOARD.

3. Reinstall the following:

a. Paper Feed / Carriage Assembly (REP 1. 5)

- b. Exit Guide (REP 1.4)
- c. Top Cover (REP 1.3)
- d. Cartridge Cover (REP 1.2)
- e. Paper Tray Assembly (REP 1.1)
- f. Output Tray (PL 1.1)
- g. Printhead (REP 1.0)

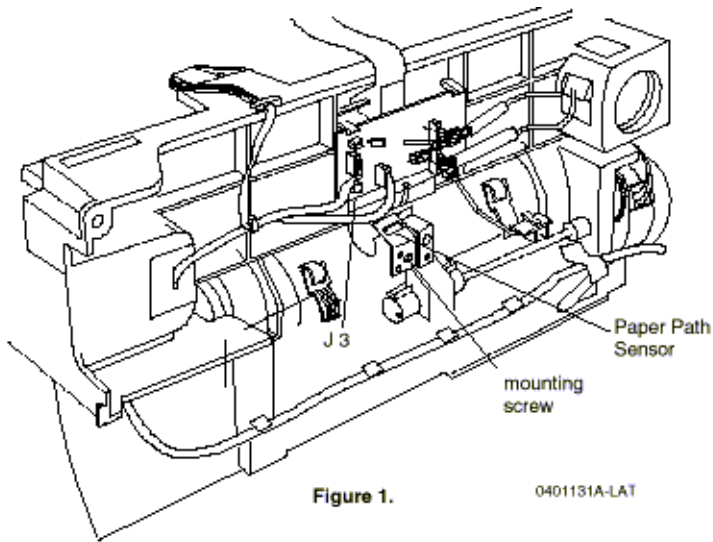


Figure 1.

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REP 1.14 Back Pad**Parts List on PL 2. 1****Removal**

CAUTION: Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

a. Output Tray (PL 1.1)

b. Paper Tray Assembly (REP 1.1)

c. Cartridge Cover (REP 1.2)

d. Top Cover (REP 1.3)

e. Exit Guide (REP 1.4)

f. Paper Feed / Carriage Assembly (REP 1. 5)

3. Position the Paper Feed / Carriage Assembly as shown in Figure 1

4. Remove the Back Pad mounting screw (Figure 1).

5. Remove the retainer bracket and spring.

6. Remove the Back Pad.

Replacement

1. Position the Back Pad in the Paper Feed / Carriage Assembly.

2. Reinstall the spring; then the mounting bracket.

3. Reinstall the mounting screw.

4. Reinstall the following:

- a. Paper Feed / Carriage Assembly (REP 1. 5)
- b. Exit Guide (REP 1.4)
- c. Top Cover (REP 1.3)
- d. Cartridge Cover (REP 1.2)
- e. Paper Tray Assembly (REP 1.1)
- f. Output Tray (PL 1.1)
- g. Printhead (REP 1.0)

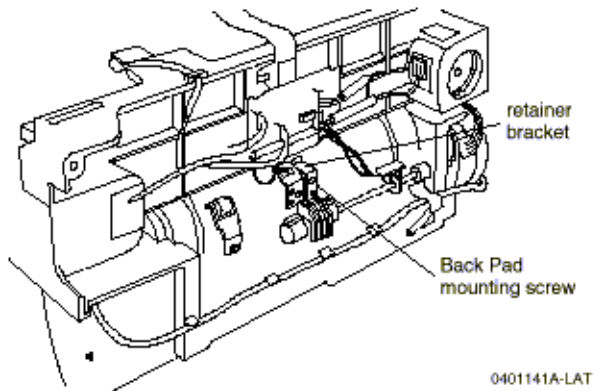


Figure 1.

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REP 1.15 Printhead Ribbon Cable**Parts List on PL 2. 1****Removal**

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0. Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

a. Output Tray (PL 1.1)

b. Paper Tray Assembly (REP 1.1)

c. Cartridge Cover (REP 1.2)

d. Top Cover (REP 1.3)

e. Paper Feed / Carriage Assembly (REP 1. 5)

3. Remove the belt (PL 2.1) from the carriage motor pulley (right end).

4. Remove the belt from the Encoder pulley (left end).

5. Rotate the carriage shaft cams so that their flats are aligned with the sides of the slot on each side frame (Figure 1).

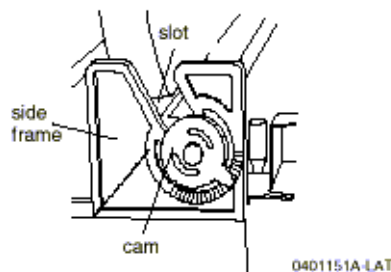
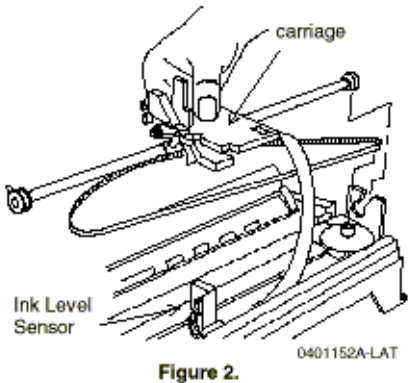


Figure 1.

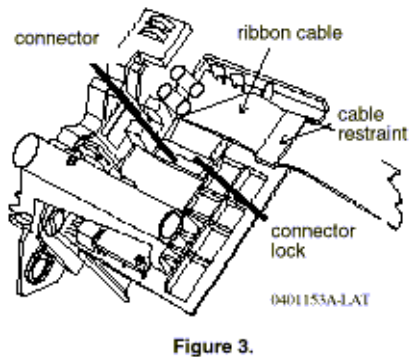
NOTE: Expect moderate to heavy resistance when removing carriage from printer side frames.

CAUTION: Ensure no portion of carriage is beneath Ink Level Sensor during carriage removal. During

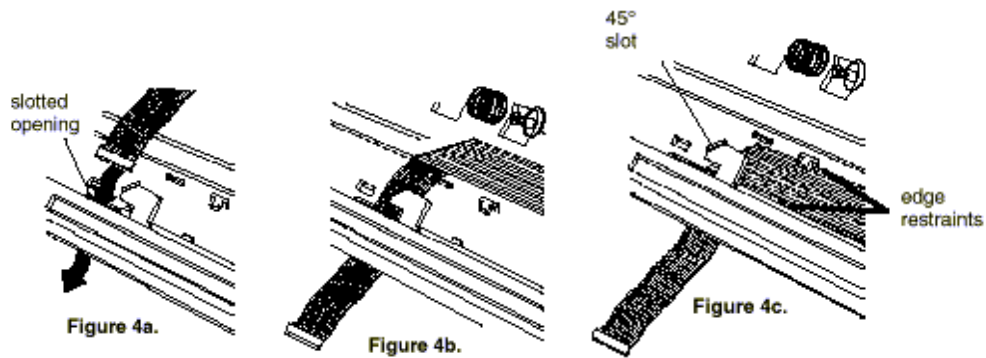
removal / replacement, it is necessary to simultaneously slide both cams from / to their respective slots. A ribbon cable is attached to the carriage board. Do not damage the jack or connector lock while removing carriage (Figure 2).



6. Remove the carriage from the Paper Feed / Carriage Assembly.
7. Remove the carriage shaft from carriage.
8. Position the carriage upside down (Figure 3).

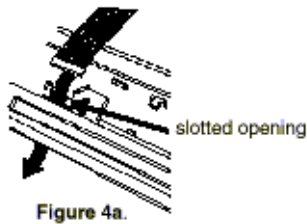


9. Slide the lock to the unlocked position.
10. Disconnect the ribbon cable from the carriage board.
11. Slide the ribbon cable from the carriage cable restraint.
12. Note the installed position of the ribbon cable on the Paper Feed / Carriage Assembly in the area shown in Figure 4c.
13. Release the cable from the two cable edge restraints.
14. Slide the cable to the left through the 45° slot; then pull the cable upward and out through the slotted opening.

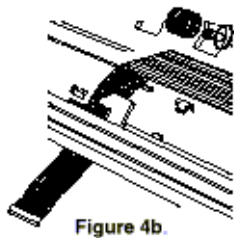


Replacement

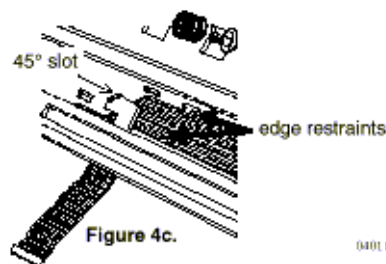
1. Insert the appropriate end of the ribbon cable through the slotted opening in the Paper Feed / Carriage Assembly approximately three inches (Figure 4a).



2. Gently maneuver the cable to the right through the 45° slot until positioned as shown in Figure 4b.



3. Pull the cable downward through the slotted opening until the 45° fold is positioned as shown in Figure 4c.



4. Lock the cable beneath the cable edge restraints. The printed side of the ribbon cable should be facing upward.

5. Insert the free end of the cable into the carriage board connector; slide the connector lock to the locked position. Ensure the cable is below the molded cable restraint (Figure 3).

6. Reinstall the carriage shaft into the carriage.

CAUTION: Ensure the ribbon cable is not twisted after the carriage has been reinstalled in its normal operating position.

7. Reinstall the cams on the carriage shaft; reattach carriage to the Paper Feed / Carriage Assembly; position the cams as shown in Figure 5.

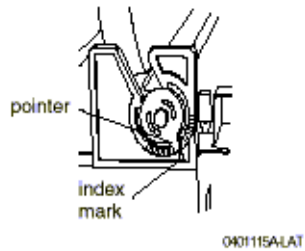


Figure 5.

8. Reinstall the Paper Feed / Carriage Assembly (REP 1. 5).

9. Reinstall the Top Cover (REP 1.3).

10. Reinstall the Cartridge Cover (REP 1.2).

11. Reinstall the Paper Tray Assembly (REP 1.1).

12. Reinstall the Output Tray (PL 1.1).

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REP 1.16 Ink Level Sensor

Parts List on PL 2. 1

Removal

CAUTION: Store the Printhead in the Storage Box. Leaving the Printhead removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank page could result. If necessary, prime the printhead after reinstallation. (REP 1.0)

1. Remove the Printhead (REP 1.0). Store the Printhead in the Storage Box.

WARNING: Switch off the power. Disconnect the power cord at the wall outlet.

2. Remove the following:

- a. Paper Output Tray (PL 1.1)
- b. Paper Tray Assembly (REP 1.1)
- c. Cartridge Cover (REP 1.2)
- d. Top Cover (REP 1.3)

3. Disconnect the ribbon cable from the Ink Level Sensor Board (Figure 1).

4. Remove the screw; remove the Ink Level Sensor.

Caution: It is physically possible to cross-connect the Encoder Harness (J4) and the Low-ink Sensor (J2) on the Relay Board since they use the same type of connector. By doing so, the Main Logic Board may be damaged.

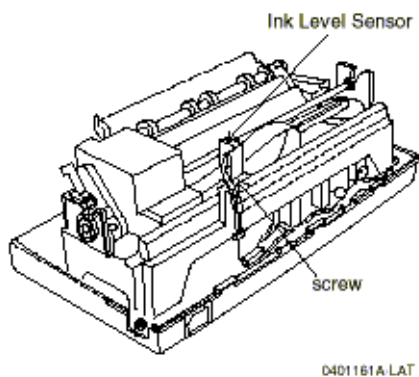


Figure 1.

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ADJ 2.0 Printhead Alignment

Purpose

The purpose is to ensure the vertical print alignment is within specification.

Adjustment

1. Print the Bi-Directional Printing Alignment Test Pattern:

NOTE: Before this adjustment can be performed, electrical power must be disconnected from the printer for at least 10 seconds.

- a. Disconnect the power cord from the wall outlet for at least 10 seconds, then reconnect.
- b. Load paper into the Paper Tray Assembly.
- c. While pressing and holding the **Cartridge Change / Clean** button, press and release the **Power On / Reset** button.

The printer will print the test pattern shown in Figure 1.

d. If the test pattern fails to print, repeat steps a through c.

2. Check for correct vertical alignment of the center grid line set (00). If OK, press the **Power On / Reset** button to exit the test. Otherwise, adjust as necessary.

NOTE: Figure 1 shows the test pattern. Each vertical line is formed by three short lines. If the three lines are properly aligned, perfectly straight lines will be printed. The adjustment moves only the middle line of the three lines. The adjustment range is -16 to +16.

NOTE: The grid line set numbering on the test pattern is relative to the actual setting (0 to +16). If the actual setting is 10, then grid line set at 00 equals 10 and grid line set at -1 equals 9, etc. Observe the Bi-directional Grid Adjust Test Pattern to determine whether the value needs to be increased or decreased.

3. Change the current value to a setting that will align the three short lines of the center grid line set.

- a) Press the **Resume / FF** button to decrease the current value.
 - b) Press the **Cartridge Change / Clean** button to increase the current value.
 - c) Store the new value by pressing the **Power On / Reset** button.
4. Press the **Power On / Reset** button to save the new setting and exit the test.

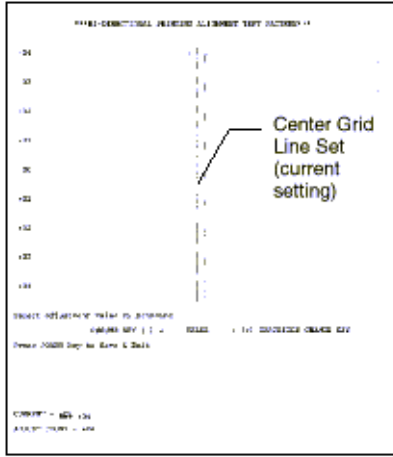


Figure 1. Bi-directional Grid Adjust Test Pattern

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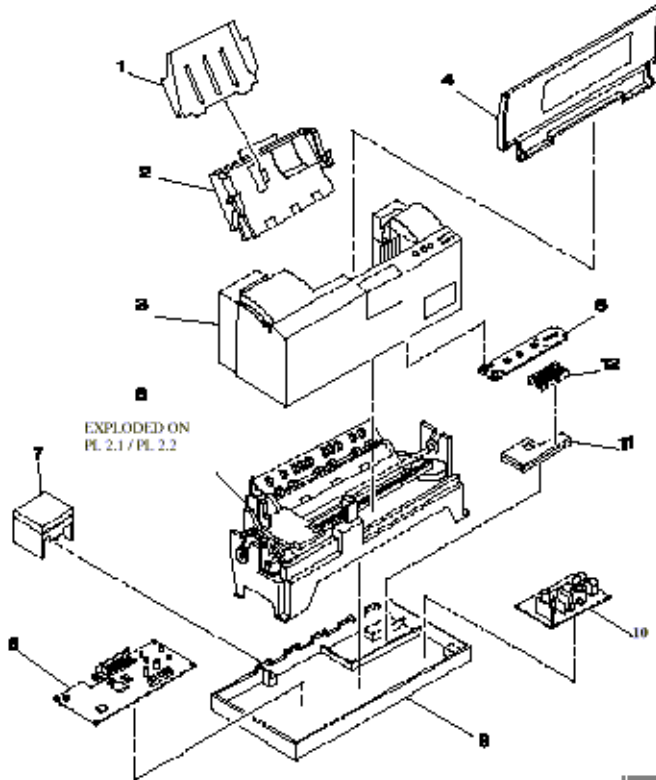


Service Manual - OKIJET 2500

Chapter 5 Parts List

PL 1.1 Printer Components

Item #	OKIDATA PART #	Tracking #	DESCRIPTION
1	50223101	50k35130	Tray: Output
2	50222801	50k39300	Assembly: Paper Tray
3	53079401	802E0660	Cover: Top
4	53067801	802E0670	Cover: Cartridge
5	50115101	101k29360	Panel: Control
6	--	--	Paper Feed / Carriage Assembly
7	53591201	60K1010	Box: Storage
8	55069201	160k56120	Controller: Main (Adj 2.1)
9	--	--	Printer Base (Not Spared)
10	56416001	105k16290	Supply: Power
11	50517501	19E40730	Pad: Waste Ink





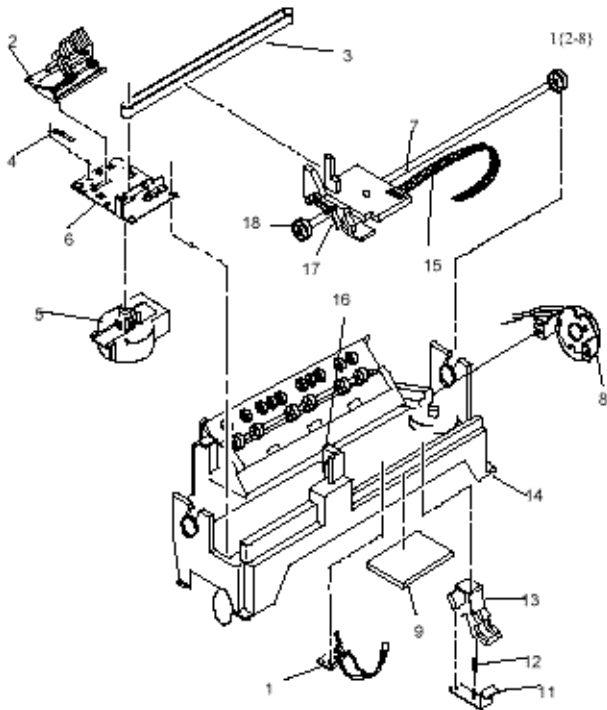
Service Manual - OKIJET 2500

Chapter 5 Parts List

PL 2.1 Paper Feed / Carriage Assembly Components (Part 1 of 3)

Item #	OKIDATA PART #	Tracking #	DESCRIPTION
1	--	--	P/O Paper Feed / Carriage Assembly (REF: PL1.1 ITEM 6)
2	50223001	97K25461	Maintenance Station
3	--	--	Belt (P/O Item 1)
4	--	--	Ground Strap (P/O Item 1)
5	50222601	146K00490	Encoder (ADJ 2.1 2.2)
6	--	--	Encoder Plate (P/O Item 1) (ADJ 2.1 2.2)
7	--	--	Carriage (P/O Item 1) (ADJ 2.1 2.2)
8	50222701	127K22240	Assembly: Pump

Note: P/O = Part of





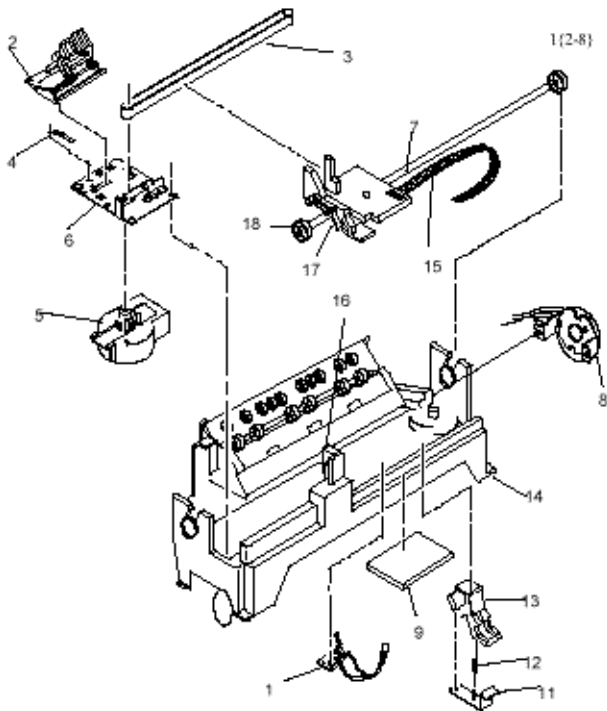
Service Manual - OKIJET 2500

Chapter 5 Parts List

PL 2.1 Paper Feed / Carriage Assembly Components (Part 2 of 3)

Item #	OKIDATA PART #	Tracking #	DESCRIPTION
9	--	--	Board: Relay (P/O Item 1)
10	50411301	130k56490	Sensor: Paper Path (SW1)
11	--	--	Back Pad Retainer (P/O Item 1)
12	--	--	Spring (P/O Item 1)
13	50517401	19E35770	Pad: Back
14	--	--	Paper Feed / Carriage Housing (P/O Item 1)
15	56635701	12E8630	Cable: Ribbon Printhead
16	55626201	130K58470	Sensor: Low Ink
17	50810101	11E09080	Lever: Cartridge
18	50608401	29E29490	Pin: Cartridge

Note: P/O = Part of





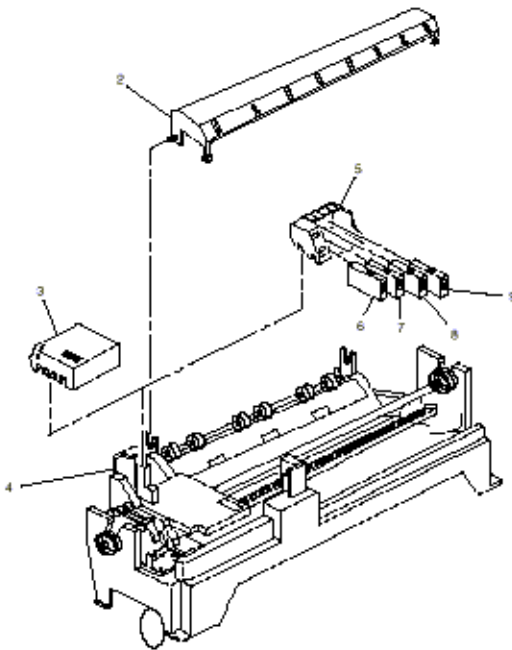
Service Manual - OKIJET 2500

Chapter 5 Parts List

PL 2.1 Paper Feed / Carriage Assembly Components (Part 3 of 3)

Item #	OKIDATA PART #	Tracking #	DESCRIPTION
1	--	--	P/O Paper Feed / Carriage Assembly (Ref: PL1.1 Item 6)
2	50222901	38K11210	Assembly: Exit Guide
3	52110101	8R07638	Printhead: High Capacity (Black)
4	--	--	Paper Feed / Carriage Housing (Part Of Item 1)
5	52111601	8R07887	Printhead: Color Nouvelle (Consumable)
6	52110001	8R07660	Ink Cartridge: Black (Consumable)
7	52110002	8R07661	Ink Cartridge: Cyan (Consumable)
8	52110003	8R07662	Ink Cartridge: Magenta (Consumable)
9	52110004	8R07663	Ink Cartridge: Yellow (Consumable)

P/O = Part Of



1 { 2 - 14 }



Service Manual - OKIJET 2500

Chapter 5 Parts List

Part Number Index

OKIDATA Part Number	Tracking Part Number	Tracking Part Number	Description	PL LOC.	Comment
52110101		8R07638	Printhead: High Capacity Black	2.2	Consumable, Avg. Life 1,460 pages
52111601		8R07659	Printhead: Color Nouvelle	2.2	Consumable, Avg. Life 3,000 pages
52110001		8R07660	Ink Cartridge: Black	2.2	Consumable
52110002		8R07661	Ink Cartridge: Cyan	2.2	Consumable
52110003		8R07662	Ink Cartridge: Magenta	2.2	Consumable
52110004		8R07663	Ink Cartridge: Yellow	2.2	Consumable
56635701		12E8630	Ribbon Cable Printhead	2.1	RSPL
50517401	5023BZ9 002A	19E35770	Pad: Back	2.1	RSPL
50517501	5022BZ3 001B	19E40730	Pad: Waste Ink	1.1	RSPL
50608401	4980BM3 001A	29E29490	Pin: Cartridge	2.1	RSPL
50810101	6501BZ9 005A	11E09080	Lever: Cartridge	2.1	RSPL
50222901	3551BZ9 012A	38K11210	Assembly: Exit Guide	2.2	RSPL
53067801	4D10001 05AXR0	802E0670	Cover: Cartridge	1.1	RSPL
53079401	3551BM0 0230A	802E0660	Cover: Top	1.1	RSPL
50223101	3390BM2 014B	50K35130	Tray: Output	1.1	RSPL
50222801	6733BZ9 001C	50K39300	Assembly: Paper Tray	1.1	RSPL
53591201		600K1010	Box: Printhead Storage	1.1	RSPL
50223001		97K25461	Maintenance Station	2.1	RSPL
50115101	6871B034 5AB	101K29360	Panel: Control	1.1	RSPL
56416001	670BX00 05A	105K16290	Supply: Power	1.1	RSPL
50222701	5859BZ9 001A	127K22240	Assembly: Pump	2.1	RSPL
50411301	4931B000 40A	130K56490	Sensor: Paper Path	2.1	RSPL
55626201	6501BZ9 005A	130K58470	Sensor: Low Ink	2.1	RSPL

50222601	6615B000 01A	146K00490	Assembly: Encoder	2.1	RSPL
55069201	14Y00441 00XR0	160K56120	Controller: Main	1.1	RSPL
53589802			Box: Shipping OKIJET 2500	N/A	RSPL
53591201	60K01010		Box: Printhead Storage	N/A	RSPL
53592501			Corrugated Packing (Top)	N/A	RSPL
53592502			Corrugated Packing (Bottom)	N/A	RSPL
56631801			Cord: AC 120 V (Bulk)	N/A	RSPL
Whole Unit					
62600501			OKIJET 2500	N/A	N/A
62600502			OKIJET 2500 (Multi-lingual)	N/A	N/A
User's Documentation					
59286801			Quick Start (English Only)	N/A	Documentation
59286803			Quick Start (Spanish)	N/A	Documentation
59286802			Quick Start (French)	N/A	Documentation
59286601			User's Guide (English*)	N/A	Documentation
59286701			User's Guide (F/S/P)	N/A	Documentation
59286804			Quick Start (Portuguese)	N/A	Documentation
Service Documentation					
58220301			Service Training Kit	N/A	Documentation
Includes:					
58323401			Sheet: ID (English Only)	N/A	Documentation
58323501			Sheet: Read Me First (English Only)	N/A	Documentation
59276501			Manual: Certification (English Only)	N/A	Documentation
59276601			Manual: Service (English Only)	N/A	Documentation
59274901			Quick Start (English Only)	N/A	Documentation
59275701			User's Guide (English Only)	N/A	Documentation

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Diagnostics

GP 1 Printhead Test

GP 2 Printing with DOS

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Service Manual - OKIJET 2500

Chapter 6 General Procedures

GP 1 Printhead Test

Procedure

1. Print the Test Print:

- a. Load paper into the Paper Tray.
- b. Press and release the **Power On / Reset** button to switch the Printer power off.
- c. While pressing and holding the **Resume / FF** button, press and release the **Power On / Reset** button. The printer prints the test print shown in Figure 1. When the test print is complete, the printer initializes and returns to the Ready status.
- d. If the test print fails to print, repeat steps a through c.

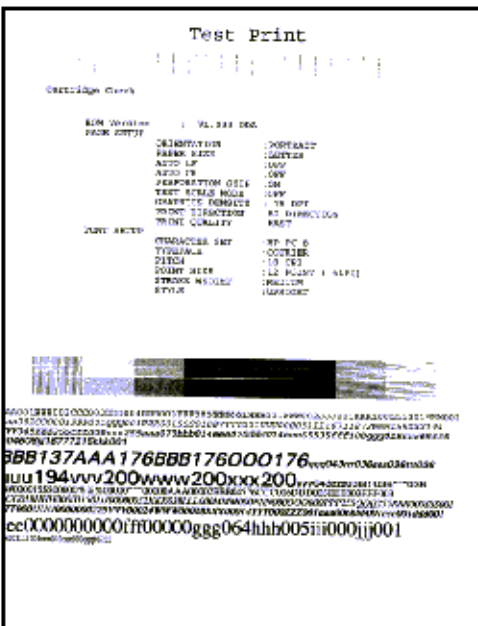


Figure 1. Test Print



Service Manual - OKIJET 2500

Chapter 6 General Procedures

GP 2 Printing with DOS

Procedure

DOS mode operation requires the DOS application to send CMYK data to the printer as if it were a HP 550c.

Note: The following procedure is required only if printing in DOS, not in Windows.

Note: You will need to have suitable HP 550c capable printer drivers for their DOS applications.

Note: Please refer to readme.txt in the DOS Panel setup for issues concerning this product.

Your printer comes with an additional utility that has been designed for the DOS user. This utility is called the DOS Printer Panel. The DOS Printer Panel utility allows you to communicate with the printer directly from your computer. With this utility, you can do the following:

- Review and modify the current printer settings.
- Determine printer status and any error conditions.

Note: The following procedure is required only if printing in DOS, not in Windows 1. Please use the following steps to install your DOS printer panel onto your computer:

1. Start at MS- DOS and insert the DOS diskette supplied with the printer into the A drive.
2. Type 'A: install' and press the Enter key. The installer message is displayed.

Note: If you insert the floppy disk to the B drive, type 'B:install.' Hit any key to display the DOS PRINTER PANEL Installer menu. The Install Directory menu is displayed. The factory default settings are shown.

Control Panel Installer	
Install Directory	
C:\ OKIDATA\ InkJet\	
Exit	Start Install

Make any necessary changes to the DOS PANEL Installer menu. To change any of this information, press the up and down arrow keys until the option you want to change is highlighted, then press the **Enter** key. Enter your new choice, then press the **Enter** key to exit the option.

3. If no change is made to the Install menu Press the **Enter** key to begin installation.

- If the Installer menu has been changed, use the TAB key until Start Installation is highlighted. Press the **Enter** key to begin installation. The directory of the name specified in the message will be created and the program on the disk will be copied in the specified directory.
- The files will be copied and a message will appear that the installation has been successfully

completed.

4. Press any key to return to the DOS prompt.

Note: The Installation ERROR message will be displayed if an error occurs during the installation. Press the ESC key to exit installation and return to the DOS prompt. If any other key is pressed, the screen returns to the Installer menu and the Install Directory will be highlighted. This error message generally occurs when the program on the floppy disk could not be copied to the specified drive and directory. Verify the directory name.

Refer to "Setting up the Printer for DOS" section for information on how to set up the printer.

Check if:

- directory name is too long --> rename
- illegal characters are used --> rename
- directory already exists --> rename

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Product Specifications

Physical Characteristics

Electrical Requirements

Printer Capabilities

Supplemental Items

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Physical Characteristics

WIDTH	16-3/8" (416 mm)
DEPTH	11-3/4" (299 mm)
HEIGHT	7-5/8" (193 mm)
WEIGHT	10.1 Pounds (4.6 kg)

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Electrical Requirements

107 - 125 VAC (USCO)

220/240 VAC +/- 10% (RXL)

POWER CONSUMPTION

RUNNING	0.6 amps
---------	----------

POWER SAVER	0.15 amps
-------------	-----------

Printer Capabilities**Table 1.**

Type	Desktop InkJet Printer (Portable)
Print Paper Size	Minimum 3.9" x 3.9" (100 mm x 100 mm) Maximum 9" x 14" (229 mm x 356 mm)
Copy Paper Weights	Paper: 16 to 36 lb. (60 - 135 g/m ²) Optimum paper: 20 lb. (75 g/m ²) Envelopes: 20 to 24 lb. (75-90 g/m ²) Card Stock: 90 lb. (163 g/m ²)
Paper Tray Capacity	150 Sheets 20 lb. (75 g/m ²)
Output Tray Capacity	50 Sheets 20 lb. (75 g/m ²)
Throughput	Black with High Capacity Printhead - 5 ppm Back with Color Printhead - 4 ppm Color with Color Printhead - 1 ppm



Service Manual - OKIJET 2500

Chapter 6 General Procedures

Supplemental Items

Supplies

Printhead High Capacity Black	52110101
Printhead: Color	52111601

Ink Cartridges

Black	52110001
Cyan	52110002
Magenta	52110003
Yellow	52110004
Printhead Storage Box	53591201

Documentation

User's Documentation

Quick Start (English Only)	59286801
Quick Start (Spanish)	59286803
Quick Start (French)	59286802
Quick Start (Portuguese)	59286804
User's Guide (English Only)	59286601
User's Guide (F/S/P)	59286701
Registration / QA Card	
MSDS Material	
End User License Agreement	

Service Documentation

Service Training Kit	58220301
Includes:	
Sheet: ID (English Only)	58323401
Sheet: Read Me First (English Only)	58323501
Manual: Certification (English Only)	59276501
Manual: Service (English Only)	59276601
Quick Start (English Only)	59274901
User's Guide (English Only)	59275701

(F/S/P) = French, Spanish, Portuguese

Printer Overview and Technical Overview Introduction

Printer Overview

- This section provides a brief overview of the printer. Also included are the operator activities that will help you to become familiar with the printer features. This section is divided into the following categories:
 - Printer overview
 - Printer operation
 - Printer maintenance

Technical Overview

- This section provides a brief technical overview of the printer. This section is divided into the following categories:
 - Power and Control
 - Printing and priming
 - Carriage Drive
 - Paper Supply / Paper Feed
 - Sensors and Status Indicators



Printer Overview

Printer Specifications

Features and Operation

Safety Notes

Printer Installation

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Printer Specifications

Read the "Specification" information in the User Guide.

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Features and Operation

For detailed description of the following features and operation, refer to the User Guide.

Safety Notes

Printer Installation

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Service Manual - OKIJET 2500

Chapter 6 General Procedures

Page: 70

Safety Notes

Read the "Important Safety Instructions" in the User Guide.

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Printer Installation

Refer to "Set Up" in the User Guide for the following information and activities.

Read the information listed below in the User Guide. If your printer is not installed, perform the steps indicated.

- "Select a Location"
- "Unpack"
- "Remove the Packing Materials"

If your printer is already installed, familiarize yourself with the following information in the User Guide.

- Read "Getting to Know Your Printer". Refer to the illustrations and locate each part on the printer.
- Read "Connect to Power". Attach the power cord.

Points to remember:

- The power cord must be disconnected from the wall outlet to complete shut off the power to the printer.
- Some or all of the lights on the control panel may come on and go off when you plug in the printer.

Printer Operation

Read "Install the Printhead and Ink Cartridges", in the "User's Guide".

Install the Ink Cartridges into the Printhead if they are not installed. (If the Ink Cartridges are already installed, do not remove them). You will practice removing and installing the Printhead later in this module.

Loading the paper

Test print mode

Connecting the printer to a computer

Control panel

Printing

Loading the paper

Read "Load Paper", in the User's Guide.

Load several sheets of paper into the Paper Tray. Be sure that the paper guide is correctly positioned to match the size of the paper being used.

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Test print mode

Read "Print the Demo Page", in the User's Guide. A host computer is not required to run the demo prints. A demo print should be run each time the printer is moved or when a Printhead or Ink Cartridge is replaced.

- Read "Print the Demo Page".
- Perform the Demo Print test.

Note: The test may be canceled by pressing the Power On / Reset button.

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Connecting the printer to a computer

If a computer is available, "Connecting to the Computer ".

- Read "Install the Printer Driver ".
 - Perform the "Installation on Windows 3.x®" or the "Installation on Windows 95®" printer driver
-

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Control panel

Read the following information and locate the buttons and lights on the printer:

- Power On / Reset button
- Power On LED
- Cartridge Change / Clean button
- Error LED
- Low Ink LED(s)

You will have an opportunity to use these buttons and observe these lights later in this module.

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Printing

Read "Checking Printer Settings".

Points to remember:

- The Paper Tray may be used for media such as plain paper, paper faced labels, transparencies, photo glossy, fabric transfer, or envelopes.
 - Envelopes should not be placed on top of other print media. The envelope guide must be raised to position the envelopes.
-

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Printer Maintenance

- **Cleaning**
 - **Replacing the Printhead**
 - **Troubleshooting**
 - **Removal / Replacement of the printer components**
-

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Cleaning

Briefly familiarize yourself with the "Cleaning the Printer" in the "Maintenance" section of the User Guide.

Points to remember

- Printer power should be turned off and the power cord should be unplugged before cleaning the printer.
 - Use only water, not detergent or alcohol, to clean the printer. Be sure not to drop water inside the printer.
-

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Replacing the Printhead

Read the "Replacing / Swapping the Printhead" information in the "Maintenance" section of the User Guide.

Practice removing the Printhead by following the removal steps. Reinstall the Printhead by following the replacement steps.

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Troubleshooting

Briefly familiarize yourself with the "Troubleshooting" section of the User Guide.

Points to remember:

- The user should try all the steps before calling for service. The user should also be prepared to report a description of the problem accurately when calling for service.

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Removal / Replacement of the printer components

Refer to the "Repair / Adjustment," section in this service manual (Section 4) and perform the following removal and replacement procedures:

- Printhead
- Paper Feed / Carriage assembly
- Top Cover assembly

To perform the exercises in the next section, Reinstall the Top cover assembly.

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Technical Overview

Power and Control

Printing and Priming

Ink Level Sensing

Carriage Drive

Paper Supply / Paper Feed

Sensors and Status Indicators

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Power and Control

The power and control functions provide electrical power from the wall receptacle to all the printer components. These functions also control the operation of all the electrical components during the print cycle.

This topic is divided into the following sections:

- Standby power
 - Run control
-

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Standby power

The purpose of standby power is to provide the printer with AC power and low voltage DC power. Figure 1 shows the standby power components.

When the power cord is plugged into the power receptacle, ACH (AC High) and ACN (AC Neutral) are sent to the Power Supply. The Power Supply converts the AC voltage to +42 VDC and +5 VDC. The +42 VDC is used by the Main Control Board and the motors in the printer. The +5 VDC is used by the Main Control Board and other components in the printer.

The Power On/ Reset switch does not remove DC power from the printer. It merely enables and disables the printer operation.

Figure 1 shows the location of the Power Supply.

Locate the Power Supply in the printer.

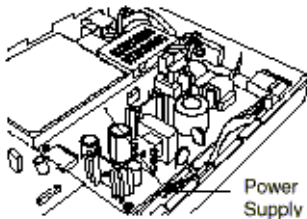


Figure 1. Power Supply

Run control functions

The run control components perform the following principle functions:

- Monitor the input signals during standby.
 - Provide the output signals to switch the printer components on and off at the correct time during the print cycle.
 - Monitor the input signals to detect a printer malfunction during the print cycle.
-

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Main Control Board

The Main Control Board is the principal printer control component. The Main Control Board contains the control logic, which sends signals that are preprogrammed to synchronize the mechanical drive systems and the electrical functions that control the printer. Figure 2 shows the location of the Main Control Board.

Locate the Main Control Board in the printer.

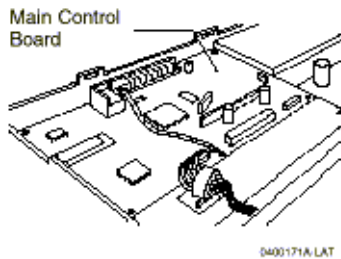


Figure 2. Main Control Board

Control Panel Assembly

The Control Panel Assembly on the front of the printer contains the pushbuttons (which allow the user to operate the printer) and indicators (which show the user the status of the printer).

The Control Panel Assembly, located behind the front of the Top Cover, is connected to the Main Control Board by a ribbon cable.

When the operator selects a mode, the Control Panel Assembly Board sends a signal to the Main Control Board. The Main Control Board interprets the signal and provides a signal to switch on the corresponding LEDs on the console, which indicates the current mode and the printer status.

Locate the Control Panel Assembly Board on the printer.

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Bi-Directional Cable

The Printer is connected to the PC via a parallel cable. If a unidirectional cable is used, only basic Printer status information is transmitted to the PC. In order to achieve the best results from the printer, a Bi-directional cable must be used. A Bi-directional cable provides for complete two way communications between the Printer and the PC. Printer Status (Ready, Not Ready, Printhead and Ink levels) and error signals are communicated to the PC via the cable.

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Printing and Priming

The purpose of the printing subsystem is to supply and deliver ink for the printing process.

This topic is divided into the following sections:

- Printing
- Print Control
- Cleaning and Priming

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Printing

The Printhead, located on the Carriage, contains the nozzles and the Ink Cartridges. The black Printhead has a single row of 128 microscopic nozzles. The color Printhead has 120 nozzles, evenly divided for each of the four colors. Ink is ejected from the nozzles to form an image on the paper. The Printhead, Ink Cartridges, and the nozzles are shown in Figure 3.

Note: Be sure not to touch the exposed nozzles.

Locate the following components on your printer:

- Printhead
- Ink Cartridge(s)
- Nozzles

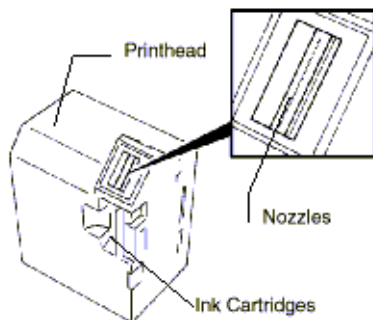


Figure 3. Printhead, Ink Cartridges, and the nozzles

A microheater is located inside each nozzle. Current is applied to the microheater, which heats the ink inside the nozzle. As the ink heats, a bubble forms, as shown in Figure 4. The pressure from the expanding bubble ejects the ink from the nozzle. After the ink has been ejected from the nozzle, the current is turned off. When the ink cools, the bubble disappears, and the nozzle fills with ink again.

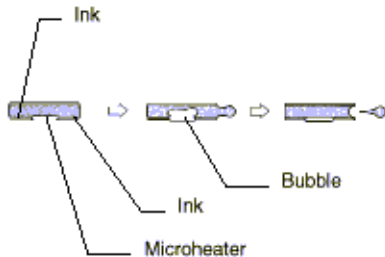


Figure 4. Ink ejection from the nozzle

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Print control

The print control logic in the Main Control Board sends the print signals to the Ink Cartridge control logic in the Ink Cartridge through a ribbon cable. The ink control logic then turns on the microheaters to eject the ink from the appropriate nozzles. This forms the characters or the graphics as the Carriage scans. The power and ground signals are also sent to the Ink Cartridge. An enable signal is sent from the cartridge to inform the Main Control Board that a cartridge is present.

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Cleaning and Priming

The cleaning and priming functions are used to clean the Ink Cartridges and the nozzles in order to maintain optimum print quality. When the Cartridge Change / Clean button is pressed, the ink that is clogging the nozzles is ejected and removed by the cleaning components. Also, when an Ink Cartridge is replaced and the button is pressed, the priming function takes place automatically. The cleaning and priming components are shown in Figure 5. When the Cartridge Change / Clean button is pressed, the Carriage and the Printhead move to the right into position for Printhead removal and replacement.

When the button is pressed again, the Carriage and Printhead move to the left into to the parked position. At the same time the waste ink tube is clamped by the pinch arm on the Maintenance Station and temporarily restricted. As the paper feed motor rotates, it actuates the pump. The pump action creates a small vacuum on the blocked tube. This creates suction that pulls ink from the Printhead. The waste ink tube moves the ink to the waste ink pad located in the printer base.

The pump is actuated whenever the Paper Feed Motor rotates, creating flow from the Printhead to the pump.

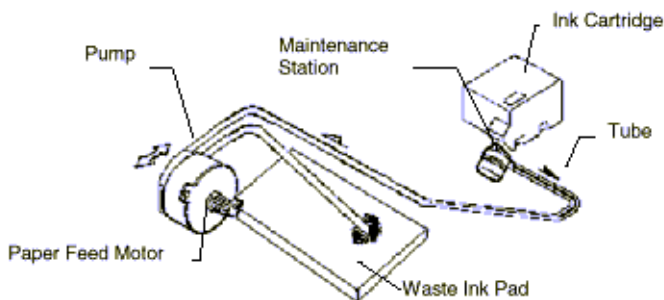


Figure 5. The cleaning and priming components

To prevent excessive ink use, the Printhead is moved from the maintenance station whenever the paper feed motor is on (except during priming).

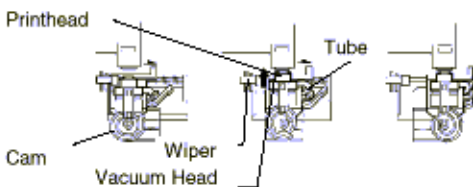


Figure 6. The Maintenance Station

Ink that remains on the nozzles is removed by the wiper, show in Figure 6.

Locate the following components on your printer:

- Maintenance station
 - Pump
 - Tubes
 - Wipers
-

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Ink Level Sensing

The Ink Level Sensor measures for a color printhead being present, low, and out of ink conditions. Two angled reflective surfaces are molded into each cartridge. The Ink Level Sensor contains two emitters (ink cartridge present and ink level) and a shared detector.

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Ink Cartridge Present

As the carriage is moved, the Ink Level Sensor scans the printheads four color cartridges. The Ink Sensors ink cartridge present emitter is energized and its beam reflects off both surfaces and returns to the shared detector (See Figure 7). If an ink cartridge is not present, or is incorrectly installed, no beam will be reflected and the printer will display a cartridge missing error condition.

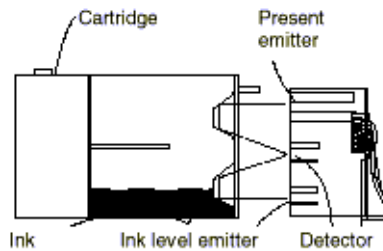


Figure 7. Ink Sensing

Low Ink Detection

The Ink Level Sensor scans the cartridge ink levels. The sensors level emitter is energized and signals for each cartridge are checked by the shared detector. Infrared light from the emitter is absorbed by the ink in the rear reservoir. If the rear reservoir is empty, the reflective surfaces return a low signal. The printer will display a low ink condition, warning the user that the cartridge will soon be empty. with approximately 10% of the usable ink remaining.

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Out of Ink Detection

As printing continues, after the low ink condition is detected, the number of drops printed is reduced by a NVM counter. This value is communicated to the printer status display via a bi-directional parallel cable and is reflected in the ink level "Gas Gauge" on the users PC screen. This **low** ink counter is reset to full, when the "not low" to low state change is first detected. Once the counter has reached zero, the printer status screen will display an out of ink error condition. The user must then replace the empty ink cartridge to continue printing. After the user performs a Cartridge change in the printer, the cartridge levels are scanned and the state change is detected by the Ink Level sensor. The state changes from low ink to not low and resets the counters in NVM and clears the out of ink error.

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Carriage Drive

The purpose of the Carriage subsystem is to position the Printhead for the printing process.

This topic is divided into the following sections:

- Carriage drive
 - Encoder
-

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Carriage drive

The Carriage Motor, MOT1, is a stepper motor that is controlled by the Main Control Board.

The motor moves the Carriage from right to left and left to right on the Carriage shaft via the Carriage belt and pulleys. The pulleys are mounted on the Encoder (discussed later in this module) and the Carriage Motor. A spring on the Encoder prevents slack in the Carriage belt.

The Carriage Home Sensor detects the Carriage at the home position. The sensor is mounted on the underside of the Carriage. At power on, or after an error has been cleared, the Carriage moves to the right, and then to the left. When the Carriage moves to the home position, the Home Sensor detects the Carriage home plate (which is located on the Encoder plate) and a home position detection signal is sent to the Main Control Board. The Carriage drive components are shown in Figure 7.

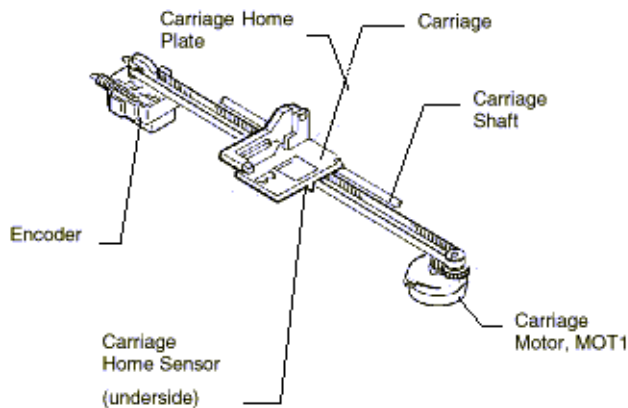


Figure 7. Carriage drive components

Locate the following components on the printer:

- Carriage
- Carriage Home Sensor
- Carriage Shaft
- Carriage belt and pulleys

Carriage movement at power on

The Carriage movement sequence at power on is described below:

1. The Carriage moves to the right to activate the Carriage Home Sensor. This action also wipes the ink nozzles.
2. The Paper Feed Motor turns on and rotates the cam gear, which moves the bottom of the paper tray in and out. This prepares the first sheet of paper to feed into the printer.
3. The Carriage moves to the right about three inches. The Carriage stops for approximately one second. Then the Carriage increments to the left, where the ink level in the Ink Cartridges is monitored by the Ink Level Sensor. The Carriage then returns to the home position.
4. A page is printed and ejected into the Paper Output Shelf. When print data is received, the Carriage moves to the right, the Paper Feed Motor turns on, and the paper is fed to the printing position.
5. The process is repeated for additional pages.
6. When the printing is finished, the Carriage returns to the home position.

Switch off the printer power. Switch on the printer power and observe the Carriage movement described in steps 1 through 3 above.

Refer to steps 1 through 5 in the "Replacing / Swapping the Printhead" section of the User Guide and remove the Printhead. (Do not discard the Printhead.) Be careful not to touch the uncovered nozzles or nozzle area.

Refer to the "Replacing/ Swapping the Printhead" section of the User Guide and reinstall the Printhead.

Encoder

The Encoder, shown in Figure 8, tracks the Carriage position. The Encoder contains a disk that has 480 radial lines. The disk is mounted on the same shaft as the Encoder pulley that is moved by the Carriage belt.

(See "Carriage drive" information in this module.) The photosensor detects each radial line and sends a reference signal to the Main Control Board for each 1/ 600 of an inch of Carriage movement from the home position. The Main Control Board uses this signal to position the Carriage.

Locate the following components on your printer:

- Encoder
- Carriage motor

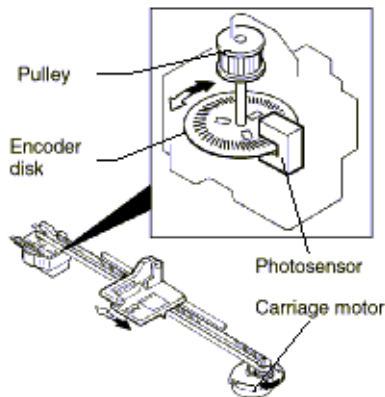


Figure 8. Encoder



Service Manual - OKIJET 2500

Chapter 6 General Procedures

Status code

Error Lamp On (steadily) -- The Main Control Board monitors the Encoder signal by comparing the current Carriage position to the expected Carriage position. If the Carriage is not at the expected position, the error lamp will illuminate.

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Paper Supply / Paper Feed

The purpose of the paper supply and paper feed subsystem is to store, transport and eject the paper from the printer.

This Topic is divided into the following sections:

- Paper supply
 - Paper feed
 - Load/ Eject mechanism
-

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Paper supply

For multisheet feeding, paper is supplied to the printer via the Paper Tray. The Paper Tray holds up to 150 sheets of paper. (See Table 1. Printer Capabilities). Paper guides in the Paper Tray are adjusted to match the size of the paper. Envelopes and cards can be inserted into the Paper Tray for printing by flipping the envelope guide to match the size of the envelopes. Extremely thin paper and chemically processed paper (such as thermal paper) should be avoided as they may result in paper misfeeds.

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Service Manual - OKIJET 2500

Chapter 6 General Procedures

Paper feed

The paper feed assembly feeds and ejects the paper. The rotational force of the Paper Feed Motor, MOT 2, drives the loading and paper feed mechanisms for registering, feeding and ejecting the paper. Each of these functions is controlled independently by changing the direction of the motor rotation.

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Load and eject mechanism

The Paper Feed Motor, MOT 2 (when turning in the clockwise direction) rotates the paper loading gears and the cam. These gears and cam operate at power up. The cam gear also rotates when paper is loaded (before it is fed). When the cam rotates, the bottom of the Paper Tray moves in and out to position the paper stack in the tray. At the same time the Back pad is energized and moves into the path to prevent more than one sheet of paper being fed at a time. The Back pad is retracted after the lead edge of the sheet reaches the Paper Path Sensor, SW1.

When the motor rotates in the counterclockwise direction, the paper feed gears, paper feed and exit rolls turn. Paper is fed by the paper feed roller until it is in position for the Printhead to begin placing ink on the paper. At the end of the job, the paper is pressed against the exit roller by the starwheels in the exit guide and is ejected into the paper output shelf. Signals from the Main Control Board control the incremental movement of the Paper Feed Motor and the Carriage Motor. This control of the Paper Feed Motor and Carriage Motor allows for precise placement of the ink on the paper.

Locate the following components on your printer:

- Paper Feed Motor
- Cam
- Paper Tray

Run the Demo Print. Observe the operation of the Paper Tray and the Paper Feed mechanism during the print cycle.

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Sensors and status indicators

Sensors

Status Indicators

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Sensors

The Paper Path Sensor, SW1, detects the presence of the paper and sends a signal to the Main Control Board. This signal is used as a reference for the top margin. If the top margin is not detected, no signal is sent to the Main Control Board. If the top margin is not detected, the error lamp will light, indicating there is no paper in the Paper Tray. The Paper Path Sensor is shown in Figure 9.

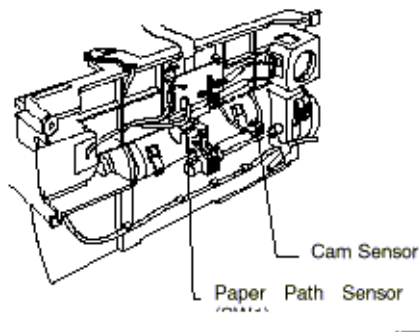


Figure 9. Paper Path Sensor and Cam Sensor

The Cam Sensor, Q1, is located on the cam shaft. The sensor detects the movement of the cam shaft during the power on cycle and sends a cam sensor signal to the Main Control Board. The Main Control Board uses this signal to control the Paper Feed Motor during the paper loading cycle. The Cam Sensor is shown in Figure 9.

Status indicators

Error LED on (steady). The error LED comes on when the sensor does not detect the cam rotating (Paper Feed Motor is not on).

Locate the Paper Path Sensor and the Cam Sensor on the printer:

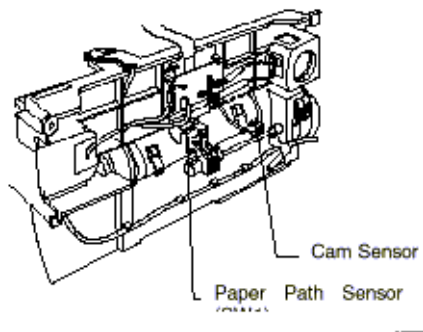


Figure 9. Paper Path Sensor and Cam Sensor

Plug / Jack Location Index

P/J NO.	LOCATION	FIG.
CN1	On Main Control Board	7-3
CN1	On Power Supply	7-3
CN2	On Main Control Board to Control Panel Board	7-3
CN2	On Power Supply	7-3
CN4	On Main Control	7-3
J1	On Distribution Board to Main Control Board	7-4
J2	On Distribution Board to Low Ink Sensor Q2	7-4
J3	On Distribution Board to Paper Path Sensor SW1	7-4
J4	On Distribution Board to P/J9	7-4
J5	On Distribution Board to Carriage Motor MOT1	7-4
J6	On Distribution Board to Paper Feed Motor MOT2	7-4
J7	On Distribution Board to Cam Sensor Q1	7-4
J9	On Encoder Assembly	7-4
J10	On Low Ink Sensor Q2	7-5
J11	On Carriage	7-5
J12	On Carriage	7-5

Plug / Jack Location Drawings

Figure 7-1. Main Control Board and Power Supply

Figure 7-2. Carriage Assembly (Bottom View)

Figure 7-3. Carriage

Figure 7-4. Front View

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Service Manual - OKIJET 2500

Chapter 7 Wiring Data

Figure 7-1. Main Control Board and Power Supply

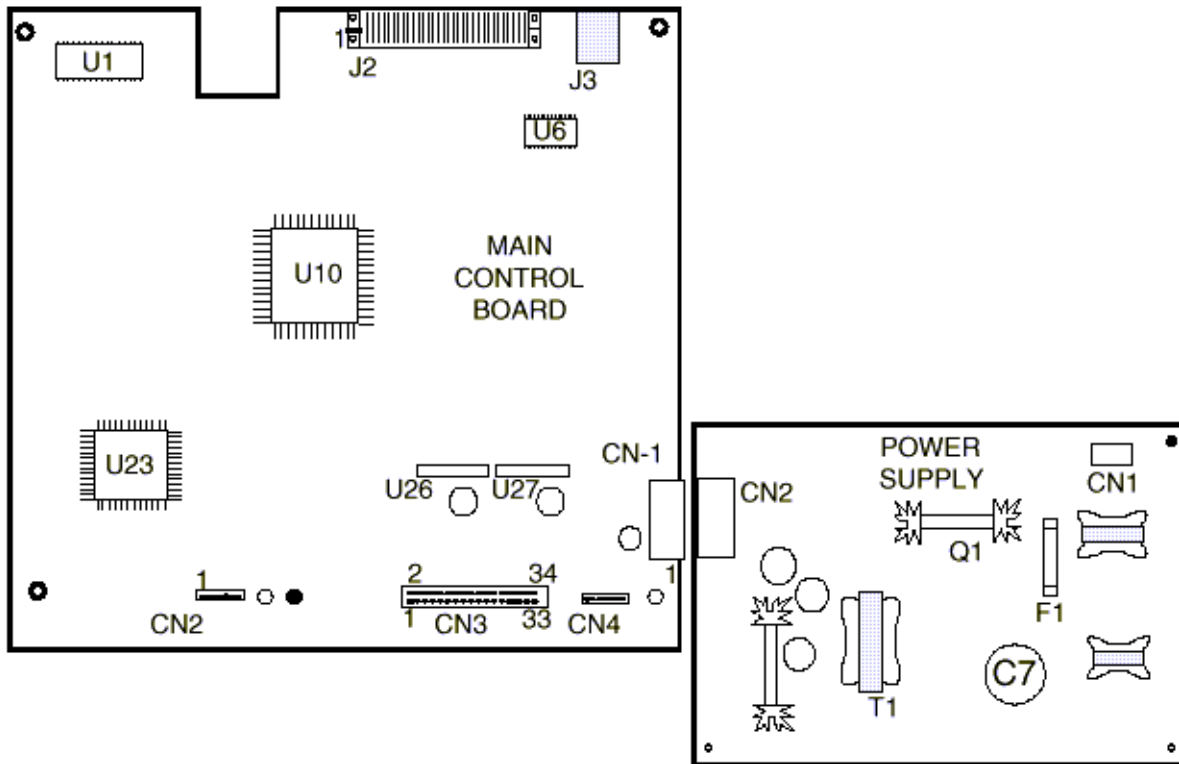


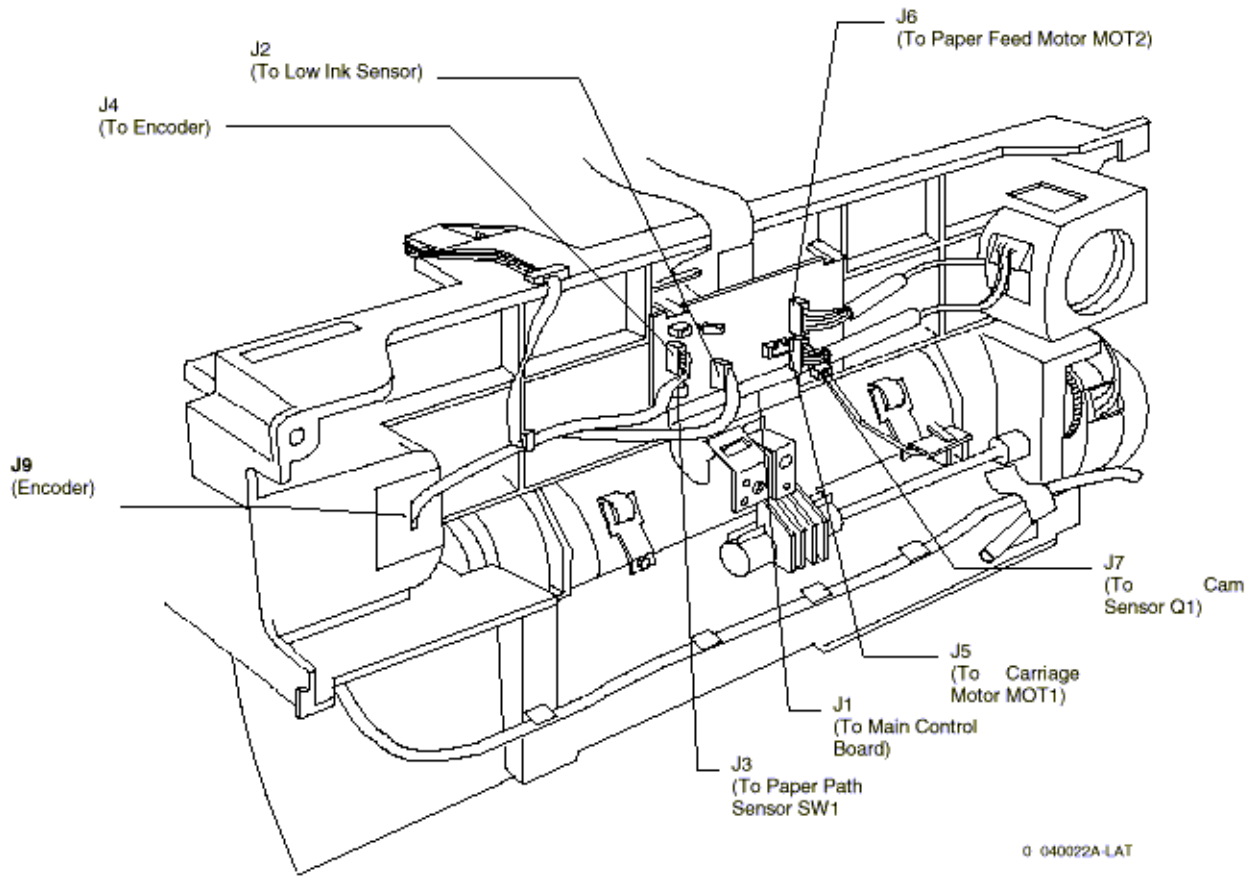
Figure 7-1. Main Control Board and Power Supply



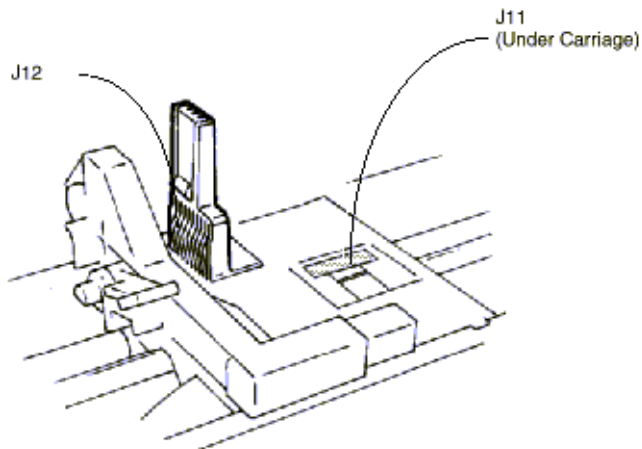
Service Manual - OKIJET 2500

Chapter 7 Wiring Data

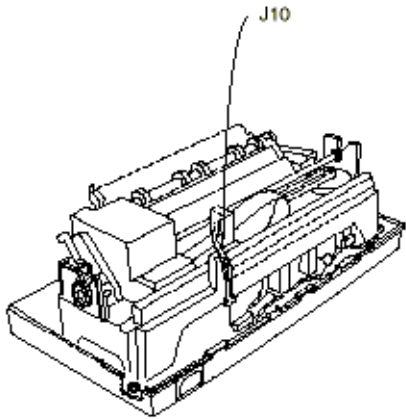
Figure 7-2. Carriage Assembly (Bottom View)



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Figure 7-3. Carriage

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Figure 7-4. Front View

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Block Schematic Diagrams (BSDs)

Chain 1 AC/DC Power Generation

Chain 2 Selection and Indication

Chain 3 Machine Run Control

Chain 8 Paper Feed

Chain 9 Print Control

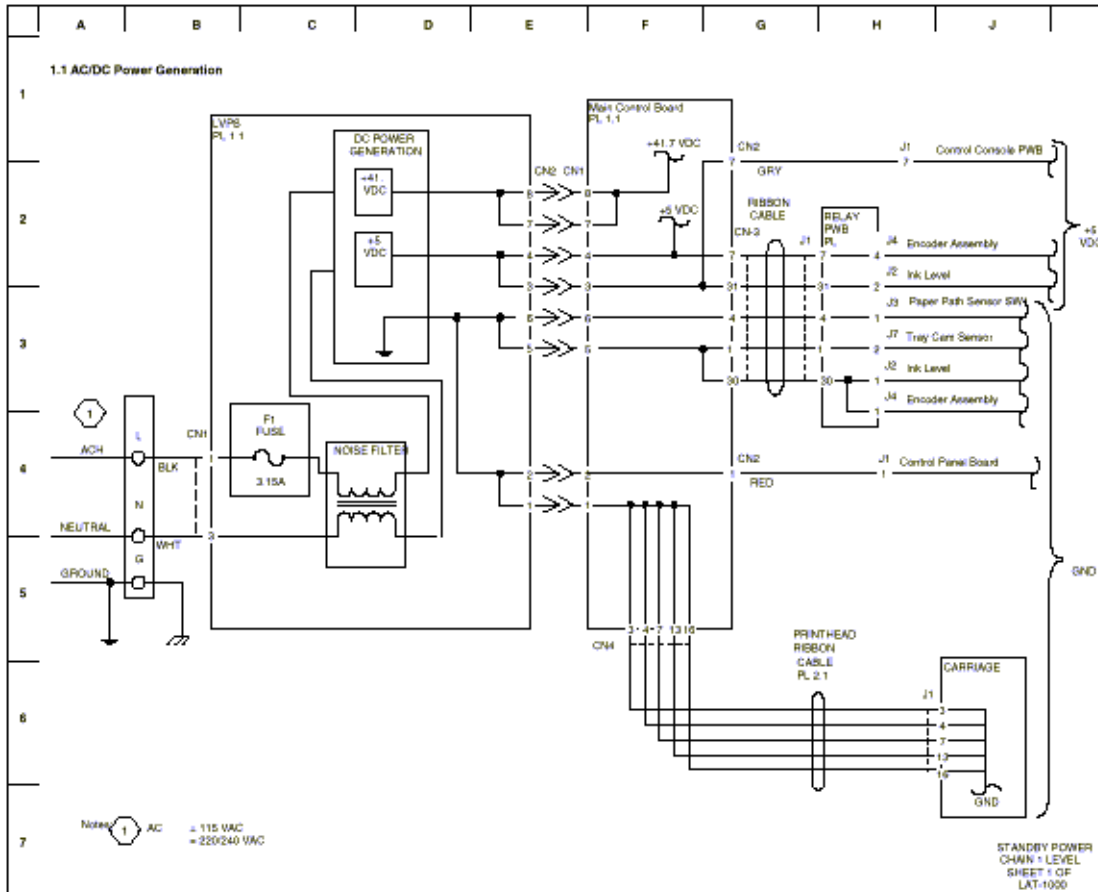
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Service Manual - OKIJET 2500

Chapter 7 Wiring Data

Chain 1 AC/DC Power Generation



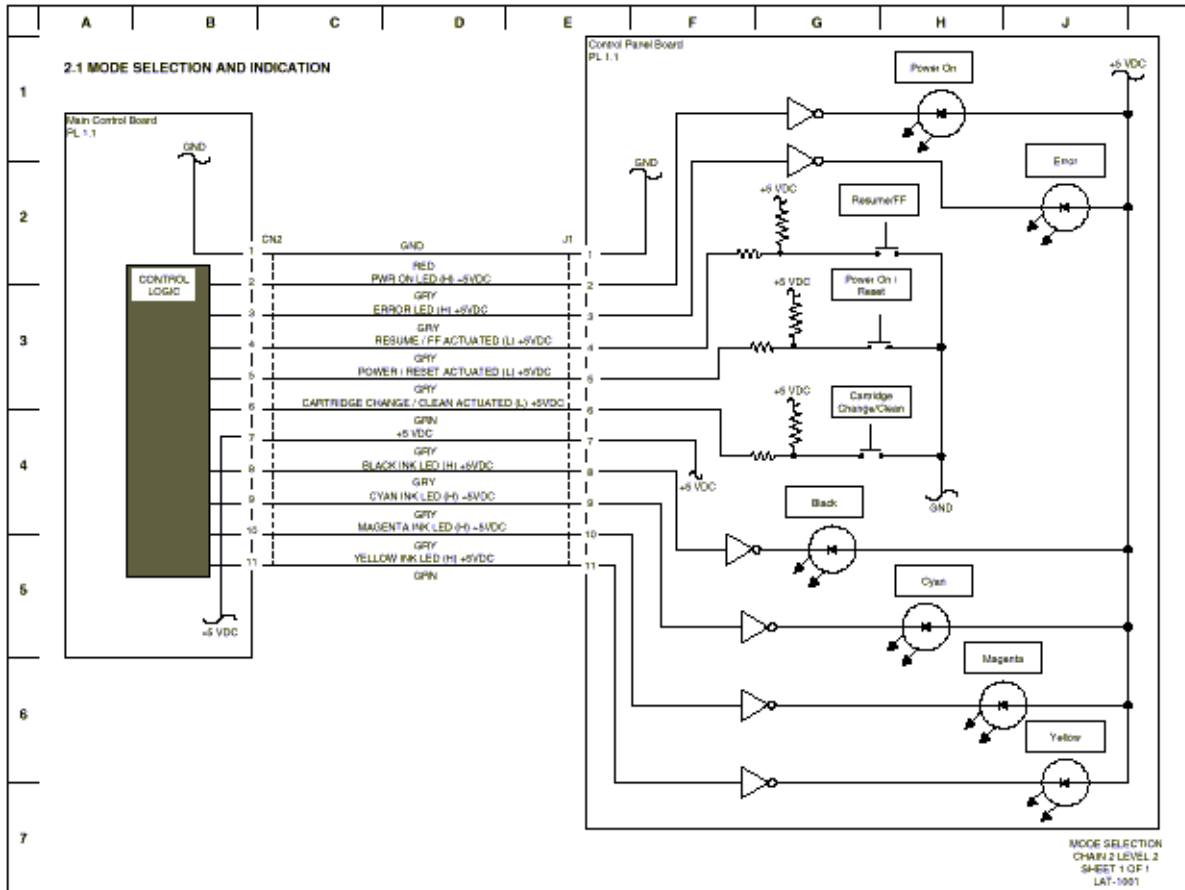
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Chapter 7 Wiring Data

Chain 2 Selection and Indication



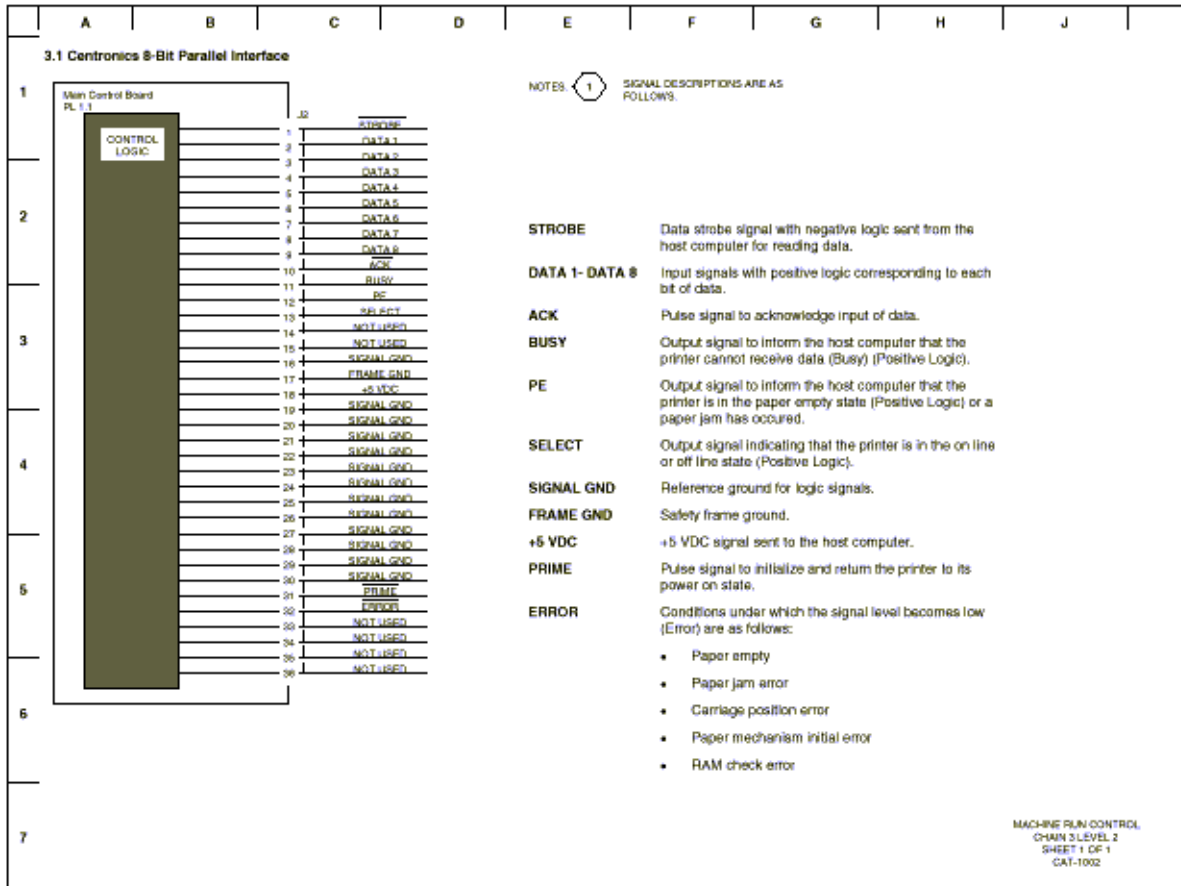
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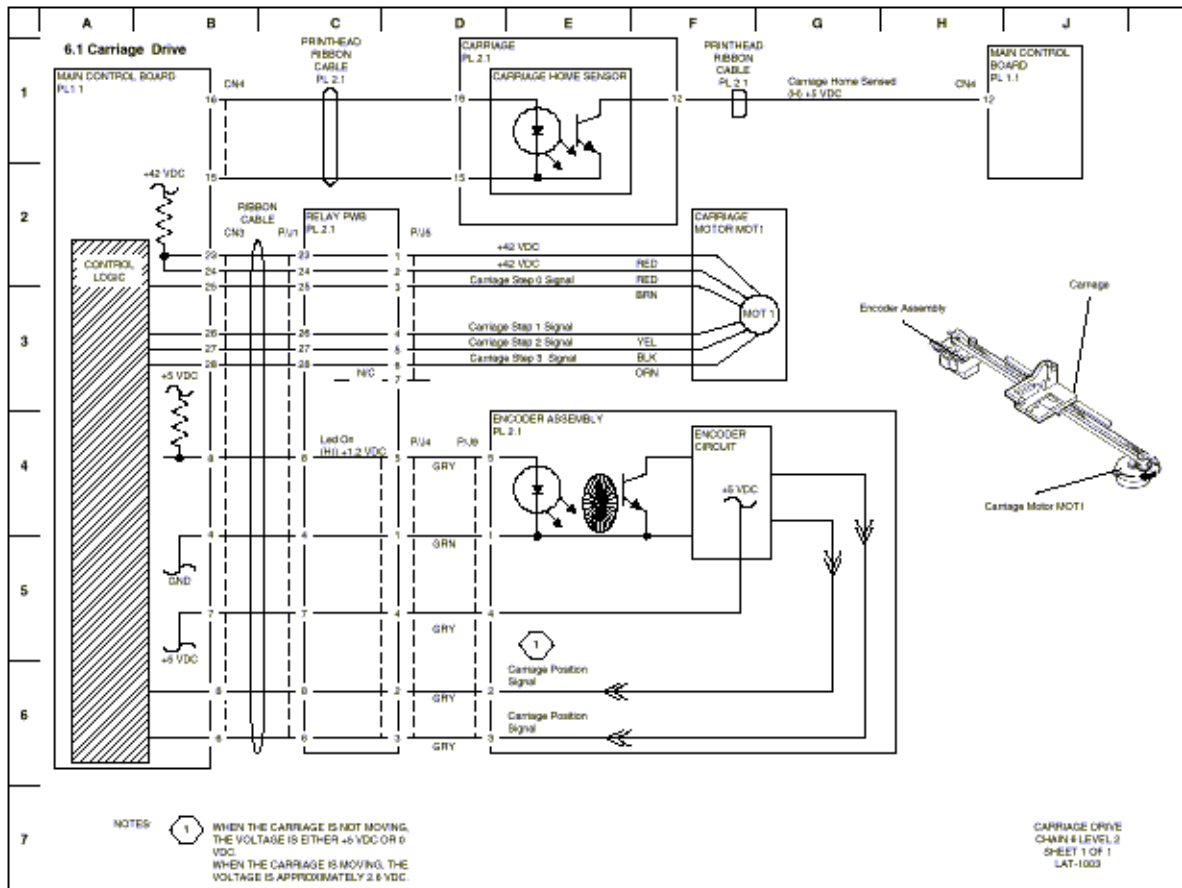
Service Manual - OKIJET 2500

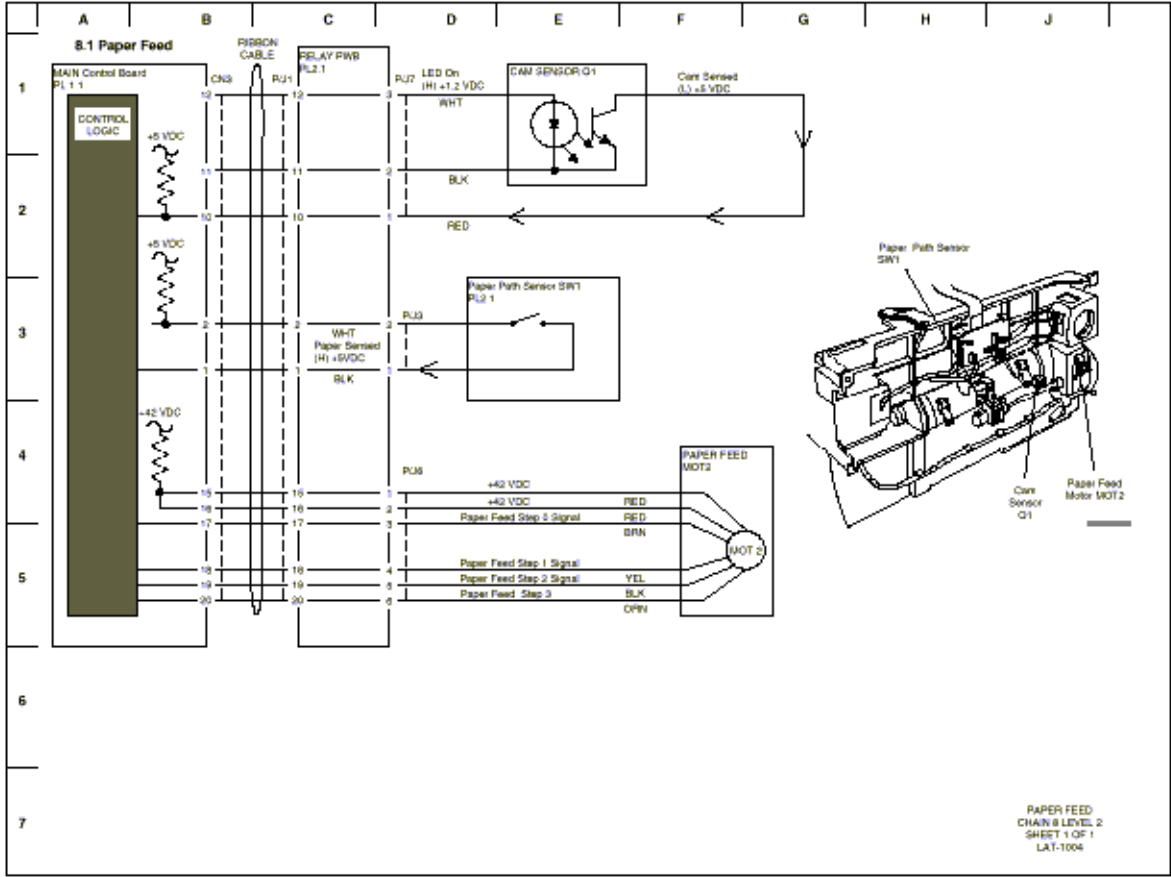
Chapter 7 Wiring Data

Chain 3 Machine Run Control



Chain 8 Paper Feed





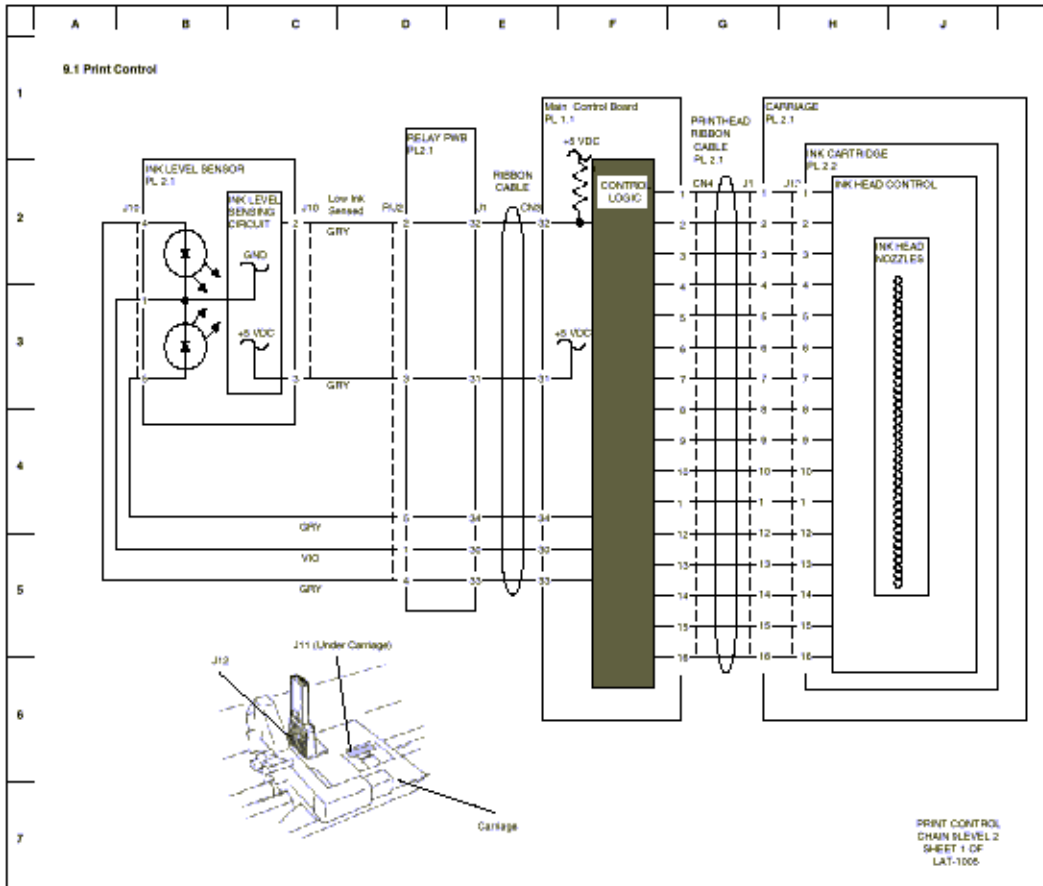
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Chapter 7 Wiring Data

Chain 9 Print Control



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