Cut Sheet Printers
Maintenance Manual
Models C30 and C30D

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Warnings and Cautions

A WARNING denotes a hazard. It calls attention to a procedure or practice, which, if not done correctly or adhered to, could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

A CAUTION denotes a hazard. It calls attention to a procedure which, if done incorrectly or inattentively, could damage or destroy part or all of the product. Do not proceed beyond a CAUTION until the indicated conditions are fully understood and met.

Conventions

The following conventions are used throughout this manual:

> **Note**
> **Notes contain important information set off from the text.**

> **Caution**
> **Caution messages indicate procedures which, if not observed, could result in damage to the equipment.**

> **Warning**
> **Warning messages call attention to situations that could result in personal injury.**

Preface

The C30/C30D Maintenance Manual contains all the information needed to maintain and service Hewlett Packard C30 and C30D printers. The C30 printer series are high-speed, non-impact printers utilizing electrophotographic imaging technology.

The information in this maintenance manual is for authorized field representatives who are familiar with basic printer operations. It serves as a supplement to training classes and provides a basis for discussion with regional field service engineers and customer support representatives.

Using This Manual

This manual is organized into the following sections:

Chapter 1, "Printer and Troubleshooting Overview"

Reviews the organization of the manual, the way the printer works, and how to trouble-shoot the printer, including some standard procedures to follow when troubleshooting. This chapter also includes a chart detailing exactly what each causes each error code, illustrations of all sensors in the printer, and a list of abbreviations used throughout the manual.

Chapter 2, "TAG Cross- Reference Tables"

Provides cross-reference tables; look up specific printer problem description (in either the mechanical malfunction, error code, or print quality description tables), then turn to the TAG indicated on the chart to troubleshoot the problem.

Chapter 3, "Troubleshooting Analysis Guide (TAGs)"

Detailed step-by-step procedures to help you isolate and resolve specific printer problems. If you are not sure which TAG to start with, begin with the overview, TAG 001.

Chapter 4, "Print Quality Samples"

Shows print test patterns indicating specific problems, and referencing the TAG that treats each problem.

Chapter 5, "Diagnostic Tests"

Reviews each printer software diagnostic.

Chapter 6, "Wiring Diagrams and Electrical Data"

Shows printer schematics and locations of individual components.

Chapter 7, "Removal/Replacement Procedures"

Outlines procedures to follow when removing and replacing printer parts, also called FRUs (Field-Replaceable Units).

Chapter 8, "Options"

Provides information about the optional High Capacity Input and High Capacity Output accessories and the optional hard disk upgrade.

Chapter 9, "General Printer Maintenance"

Reviews printer maintenance procedures to complete during service calls.

Appendix A

Lists the abbreviations and acronyms used in the manual.

Index

Provides a list of references to topics and part numbers mentioned in the Maintenance Manual

Other Manuals

The *C-Series Illustrated Parts Catalog* shows every FRU and CRU (customer-replaceable unit) in the printer, including part number information. This information is frequently updated.

The *HP C30 and C30D Guide to Operations,* C4000-96006, contains all the information needed to operate Hewlett Packard C30 and C30D printers.

The *HP C30/30D and C40D Paper Specifications Guide,* C4672-90002, explains the various papers usable in the printer, how to care for them, and how to minimize paper-related problems with the C30/30D and C40D.

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Printing and Troubleshooting Overview

Theory of Operation

The printer uses an electrophotographic imaging system based on LED array technology. Two key components of the printer are the image generation system (IGS) controller and the printer control logic (PCL) board.

Image Generation System (IGS) controller: Each printer is equipped with an IGS controller, which provides the interface between the host computer, the PCL board, LED printhead, and the disk drives. The controller may be an EIGS or RIGS board.

Printer Control Logic (PCL) board: The PCL board directs the mechanical functions of the printer and print cycle timing. The PCL board also receives initial machine information, such as empty paper cassettes, paper jams, and fuser unit problems.

The illustration on the following page details the printing process. The numbers represent the sequence of events from the time that the system interface receives data, through the production of a print image, to the preparation for another print.

1   Receiving data
Data from the host is received by the Signal Interface (SI) PCA and is passed to the Image Generating System (IGS) PCA, which temporarily stores the data in RAM. The data may consist of information generated on the host computer and sent over the host communication interface or it may consist of information generated by printer software, such as a request for test prints or to print the directory of a diskette.

2   Bit Image
The IGS transforms the host file into a bit map image of 1s and 0s and stores them in user bitmap RAM. Bitmap memory is nothing more than an electronic piece of paper.

3   Charging the photoconductor belt
When the IGS controller has a full page of data, it causes the PCL board to turn on the main motor, which rotates the photoconductor belt. As the photoconductor belt rotates, the charge corona applies a high negative charge to it, which repels toner from the photoconductor belt except in the areas to print.

4   Exposing the image
The negatively charged belt then passes the LED printhead, where the IGS controller turns the LEDs on and off to discharge the areas of the belt at a density of 300 dots per inch. The 1s in the bitmap memory turn the LEDs on; 0s turn the LEDs off. The discharged areas create a latent mirror image of the print on the photoconductor belt.

5   Developing the image
As the photoconductor belt continues to rotate, it brings the latent image to the developer unit. A negative developer bias is applied to toner and the toner is transferred to the surface of the photoconductor belt. The negatively charged toner (which clings to small metal carrier beads) is attracted to the discharged areas of the belt. The carrier beads do not transfer. The belt, with the developed image on its surface, rotates out of the developer unit. At this time you can remove the photoconductor belt and read what is printed on it, which you may need to do when troubleshooting print problems.

6   Activating paper

As the image is being developed, a sheet of paper is transported to the photoconductor belt. The PCL board controls this activity. A series of paper pick-up, feed, and timing rollers guide the paper so the developed image is properly registered with the leading edge of the sheet.

7   Transferring the image to the paper

Next, the paper contacts the surface of the photoconductor belt. Above the paper and the belt is the transfer corona, which has a high positive charge, and attracts the developed image from the belt to the surface of the paper. At this point, you can remove the printed image to verify print quality, but the toner is not yet fused.

8   Fusing the image to the paper

The vacuum transport unit advances the paper with the developed image to the fuser unit where heat and pressure bond the toner to the paper. The finished print then arrives at the paper output tray.

9   Cleaning routine

After a print is made, the photoconductor belt must be cleaned for the next print. The belt first passes the erase lamp where any remaining latent image is erased. The belt continues to the cleaning unit where a charged brush rotates against the surface to remove any residual toner. This toner is recycled to the developer unit for reuse.
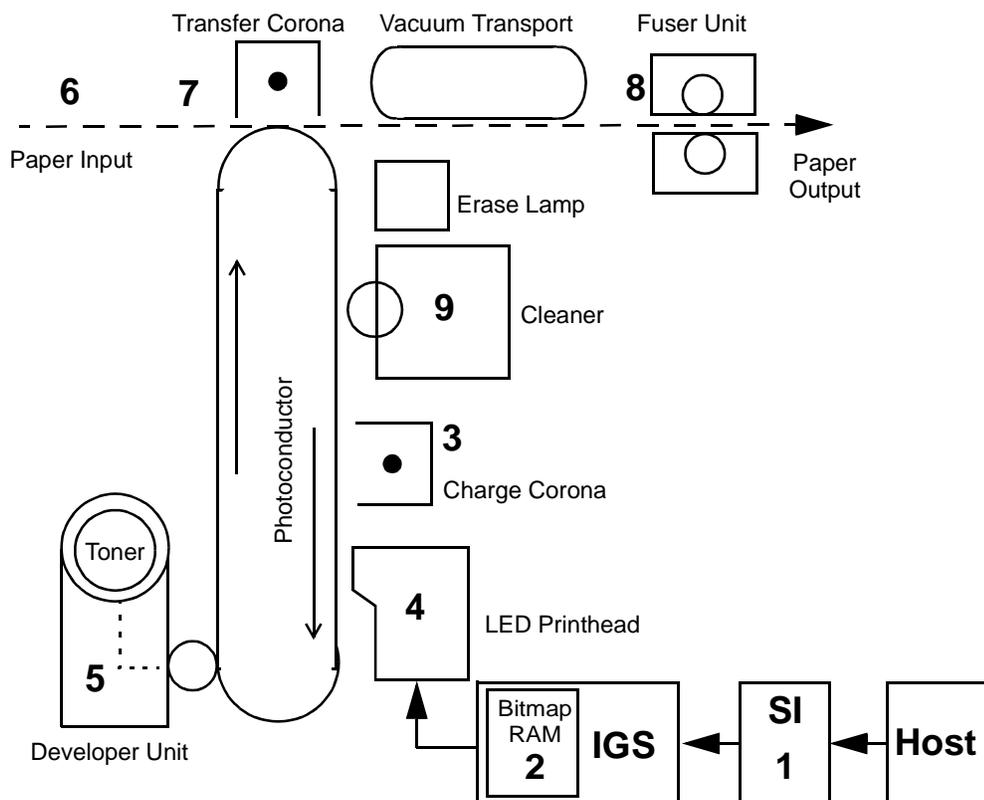
Figure 1-1. Cycle of Operation

Paper Path and Cycle Sequence

The IGS board signals the PCL board that a page of data is ready to be printed. When this happens the following sequence takes place.

Simplex Printing

1 PCL software downloaded to the PCL board from the disk drive system turns on the main motor.

2 The PCL board engages the paper pick clutch which causes the roller to feed a sheet of paper.

3 The paper is passed to the feed roller where the PCL board has engaged the feed roller clutch.

4 The feed roller passes the paper to the paper timing roller. Prior to reaching the paper timing roller, the paper passes over the paper timing sensor. (If the paper does not energize this sensor in a specified amount of time, an error 020/021 will occur.) The leading edge of the paper is registered against the paper timing roller. The paper timing clutch is engaged and the paper is passed over the photoconductor for transfer. This registers the paper to the printer and the image to the paper. The paper timing sensor signal also alerts the PCL to inform the IGS that it can begin to send the data.

5 The PCL board engages the paper timing roller clutch and, at the same time, turns on the transfer corona to provide a high positive voltage. The developed image on the photoconductor comes in contact with the paper and the high positive voltage causes the image to transfer to the paper.

6 Because the toner is not yet fixed to the paper, a vacuum transport assembly, gripping the paper from the back side, moves the paper to the fuser unit, where heat and pressure bond the toner to the paper.

7 Upon leaving the fuser unit, the paper comes in contact with the paper exit sensor. (If the paper does not energize this sensor in a given amount of time after leaving the paper timing sensor [step 4], an error 022 will occur.)

8 The exit roller moves the paper to the exit tray. (If the exit sensor is not cleared in a specified amount of time, an error 023 will occur.)

Duplex Printing

When duplex is selected, the PCL board controls the paper motion with page scheduling assistance from the IGS board. The duplex page router is engaged. When in duplex mode, it is important to note that the printer runs multiple pages through the paper path at the same time to increase speed. (See Figure 1-2, "Paper Path," on page 1-6.)

1 In a duplex job, the duplex router solenoid behind the fuser is engaged and mechanical fingers route the paper to the duplex area. Also, the "A" roller clutch engages to turn the "A" and "B" rollers (connected via a belt).

2 The paper upon passing through the "B" roller comes in contact with the duplex sensor. (If the paper does not energize this sensor in a given amount of time, an error 060 will occur.)

3 The "C" roller bidirectional motor turns on and passes the paper into the turnaround tray. The paper sensor in the turnaround tray is activated and the paper is center registered. (If the paper does not energize this sensor in a given amount of time after leaving the duplex sensor, an error 061 will occur.)

4 At this time the solenoid for the router at the turnaround tray engages so the paper can be routed to be printed on the duplex side.

5 In a given amount of time after the paper energizes the paper sensor in the turnaround tray, the bi-directional motor reverses and passes the paper to the paper timing roller. (If the paper does not energize the paper timing sensor in a given amount of time after leaving the turnaround sensor, an error 062 will occur.)

6 At this point, the same steps happen as during a simplex cycle.
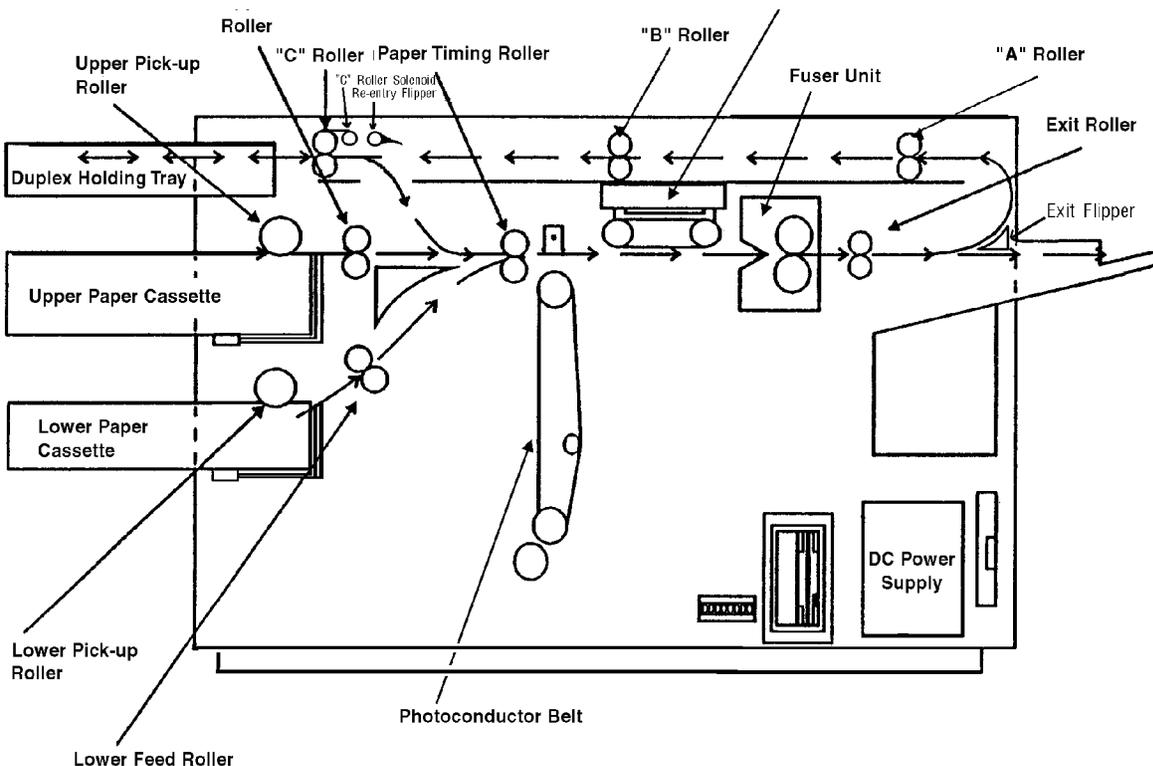
Figure 1-2. Paper Path

Error Code Technical Definitions

The following table lists the printer error codes and their descriptions.

Table 1-1. Error Code Technical Definitions

Type	Error	Description
Cassette Errors	010, E10	PCL board detected no signal from upper paper cassette empty sensor indicating no paper present
	011	PCL board detected no signal from lower paper cassette empty sensor indicating no paper present
	012, E12	PCL board detected no signal from upper cassette in switch
	013	PCL board detected no signal from lower cassette in switch
Paper Jams in the Primary Paper Path	020	PCL board detected that the paper being fed from the upper cassette did not reach the timing paper sensor within the allotted time
	021	PCL board detected that the paper being fed from the lower cassette did not reach the timing paper sensor within the allotted time
	022	PCL board detected that the exit paper sensor did not activate or the timing sensor did not deactivate within the allotted time
	023	PCL board detected that either: **1.** The exit paper sensor (within the printer) became activated but did not deactivate within the specified time. **2.** (HCO only). The paper exit sensor (within the HCO) did not become activated or deactivated within the allotted time
	025	PCL board detected that the timing paper sensor was activated immediately after one of the covers was closed
	026	PCL board detected that either the exit paper sensor (within the printer) or the paper exit sensor (within the HCO) was activated immediately after one of the covers was closed
	027	PCL board detected paper in the duplex area after clearing a jam
Toner Control Errors	030	PCL board detected a signal from the high-voltage power supply unit indicating an abnormal load on the bias voltage to either the developer unit, cleaner unit, or printhead-cleaning bias plates.
	031	PCL board detected a signal from the toner patch sensor board indicating that the reference voltage level on the photoconductor was too low.
	032	PCL board detected a signal from the toner patch sensor board indicating that the toner patch on the photoconductor was too light.
	035	PCL board detected too many successive signals from the toner patch sensor board for a toner feed.
	036	PCL board detected no developer unit electrical interlock signal from the J25 connector.

Table 1-1. Error Code Technical Definitions (Continued)

Type	Error	Description
OPC Rotation Errors	040	PCL board sensed that the signal from the photoconductor seam sensor either was not of sufficient amplitude or did not show the proper timing.
	041	PCL board detected an abnormally high amount of current needed to drive the photoconductor seam sensor LED (within the photo-conductor unit).
	042	PCL board detected an open connection to the photoconductor seam sensor LED (within the photoconductor unit).
	044	PCL board detected a signal from the high-voltage power supply unit indicating that either the charge corona or transfer corona cir-cuits have an open connection.
	045	PCL board detected a signal from the high-voltage power supply unit indicating an abnormally high load on the bias voltage to the charge corona.
	046	PCL board detected a signal from the high-voltage power supply unit indicating an open connection in the charge corona circuit (diagnostic test only).
HVPS Errors	050	PCL board detected a signal from the high-voltage power supply unit indicating an abnormally high load on the bias voltage to the transfer corona.
	051	PCL board detected a signal from the high-voltage power supply unit indicating an open connection in the transfer corona circuit (diagnostic test only).
	055	PCL board detected that the current needed to drive the erase lamp assembly was either higher or lower than the specified limits.
Duplex Jams	060	PCL board detected that the exit paper sensor did not deactivate or the paper path sensor did not activate within the allotted time.
	061	PCL board detected that the duplex paper path sensor did not deactivate, the turnaround tray sensor did not activate in the allot-ted time, or the duplex paper path sensor activated at POR.
	062	PCL board detected that paper leaving the duplex turnaround tray did not reach the timing sensor within the allotted time or the duplex turnaround sensor was activated at POR.
Fuser Control Errors	070	PCL board sensed, via the fuser thermistor, that the temperature of the fuser unit did not change within the allotted time.
	071	PCL board sensed an open connection in the fuser thermistor cir-cuit
	072	PCL board sensed that the resistance of the fuser thermistor was too low indicating that the temperature of the fuser unit was higher than the specified limit.
	073	PCL board sensed that the resistance of the fuser thermistor was too high indicating that the temperature of the fuser unit was lower than the specified limit.

Table 1-1. Error Code Technical Definitions (Continued)

Type	Error	Description
Jogger Errors	081	PCL board activated the jogging motor but did not detect a change in the signal from the front sensor in the job offset assembly (diagnostic test only).
	082	PCL board activated the jogging motor but did not detect a change in the signal from the rear sensor in the job offset assembly (diagnostic test only).
	083	PCL board activated the jogging motor but did not detect a change in the signal from either the front or rear sensors in the job offset assembly.
	084	PCL board detected a signal from the duplex control board #2 indicating that the registration side sensor did not activate after command was sent to the duplex control board #2 to turn on the resist motor (diagnostic test only).
	085	PCL board detected a signal from the duplex control board #2 indicating that the registration side sensor did not deactivate after a command was sent to the duplex control board #2 to turn on the resist motor (diagnostic test only).
	086	PCL board detected a signal from the duplex control board #2 indicating that either the registration side sensor was activated and would not deactivate or was deactivated and would not activate after a command was sent to the duplex control board #2 to turn on the resist motor.
LVPS Errors	090	PCL board detected that one of the cover interlocks was not activated (diagnostic test only).
	097	PCL board detected a signal from the IGS board indicating the absence of +12 Vdc.
	098	PCL board detected a signal from the IGS board indicating the absence of ,-12 Vdc.
	099	PCL board detected a signal from the IGS board indicating the absence of +24 Vdc.
Controller Errors	100, 102	IGS board detected a failure of the PCL board status codes.
	101	PCL board detected that the IGS board was in a halt state (diagnostic test only).
	121-127	PCL board detected an error in the communication between the PCL board and the IGS board.
	130-134	PCL board detected an error during the internal diagnostic testing of the PCL board.
	140	PCL board detected an error during the internal diagnostic testing of the PCL board.
	145	PCL board detected an error during the internal diagnostic testing of the PCL board.
	160-182	PCL board detected an error during the internal diagnostic testing of the PCL board.
	199-215	PCL board detected an error in the communication between the PCL board and the IGS board.
	301-401	IGS board detected an error during the internal diagnostic testing of the IGS board.

Table 1-1. Error Code Technical Definitions (Continued)

Type	Error	Description
DD Errors	405-409	IGS board detected an error in the program RAM during the internal diagnostic testing of the IGS board.
	450-566	IGS board detected an error during the internal diagnostic testing of the IGS board and software.
Controller Errors	570-586	IGS board detected an error when communicating with the floppy disk drive.
	600-610	IGS board detected an error during the internal diagnostic testing of the IGS board.
Communication Errors	701-703	IGS board detected an error when communicating with a host using RS232 communications.
	770-784	IGS board detected an error when communicating with a host using RS422 communications.
	888	IGS board detected that the PCL board was in a halt or reset state.

Sensor and Switch Locations

The following pages illustrate the locations of the printer's sensors and switches. , lists them.

Left end view

Upper paper
size sensor

Lower paper size sensor

Upper cassette present
micro switch

Upper cassette
paper present sensor

Lower cassette
present
micro switch

Lower cassette
paper present sensor

Left end view

Duplex registration sensor

Front left view

Top view, duplex

Duplex cover
interlock switch

Duplex paper path sensor

Sensor and Switch Locations

Photoconductor seam sensor

Top view

Paper timing sensor

Front view

Developer right view

Toner patch sensor
(TPS)

Developer left view

Toner empty sensor

Automatic toner control
(ATC)

Paper exit sensor
Paper full sensor

Right side view

Top left, duplex tray view

Top interlock switch

Front interlock switch

Front view

Sensor and Switch Locations

Rear interlock switch

Rear view

Table 1-2. Sensor and Switch List

Sensor/Switch Name	Page No.
Automatic toner control sensor	1-12
Cassette paper present sensors, upper and lower	1-11
Cassette present micro switches, upper and lower	1-11
Duplex registration sensor	1-11
Duplex paper path sensor	1-11
Duplex cover interlock switch	1-11
Interlock switch, top	1-13
Interlock switch, front	1-13
Interlock switch, rear	1-14
Paper exit sensor	1-13
Paper full sensor	1-13
Paper size sensors, upper and lower	1-11
Paper timing sensor	1-12
Photoconductor seam sensor	1-12
Toner empty sensor	1-12
Toner patch sensor	1-12

Troubleshooting Overview

Throughout the printer's life problems occur, such as those indicated when an error code displays on the operator panel, a printer produces poor quality prints, or the printer malfunctions. Use the tools provided in this manual to diagnose and resolve printer problems.

These tools include:

- The Troubleshooting Analysis Guide, which contains troubleshooting procedures called TAGs. *TAG 001: Troubleshooting A Printer Problem* provides an overview of how to use TAGs.

- Cross reference tables, which link error codes, print quality problems, and mechanical malfunctions to specific TAGs.

- Print quality samples, which you can use to identify a printing problem and its associated TAGs.

- Diagnostics, through which the printer checks itself for a range of problems.

The next several pages review troubleshooting basics and standard procedures followed in every troubleshooting session, including:

- Identifying whether a problem belongs to the printer or host
- Isolating protocol converter problems
- Running test prints
- Reading the error log
- Confirming line power
- Using TAGs
- Power-On Reset
- Installing the interlock by-pass tool
- Checking continuity
- Producing a developed image
- Producing a toner patch
- Completing a service call
- Clearing the error log

General Troubleshooting Tips

When a printer problem arises, swapping out all printer supplies may temporarily mask the problem. *This is an unsatisfactory, short-term, and expensive solution to correcting the problem*. Dust and other contamination, rather than printer supplies, are more often the causes of problems. Clean consumable connectors, alignment guides, and areas before changing consumables.

Many failures add excess toner to the printer's engine. When you are advised to de-tone the printer as part of a problem fix, run at least 200 test prints before evaluating whether the problem has been resolved.

The Problem: Printer or Host?

The printer is one component in a large host system. Before you start any troubleshooting, make sure that the problem really belongs to the printer rather than to some other component in the host system. Print quality problems and mechanical malfunctions are almost always associated with the printer. However, host interface and software emulation problems can be caused by some other component of the host system even though, at first Z glance, they appear to be printer problems. For instance, text printed in the wrong location on a page, improper page breaks, and missing segments of data strongly indicate a host, not a printer, problem.

The first step in troubleshooting any problem is to isolate the printer from the host system; you can then run test prints. Producing test prints exercises the printer as a stand-alone ones machine, ensuring that the basic printer software and all mechanical functions of the printer are working.

Running Test Prints

To run test prints:

1   Disconnect the host interface.

2   Run a series of test prints. A directory of the boot device and multiple listings of fonts print, followed by an unformatted and formatted error log. A continuous flow of the test pattern then prints. To run test prints:

- For simplex printers, press:

    STOP

    TEST

- For duplex printers, press:

    STOP

    DUPLEX

    TEST

- To *stop* printing the test pattern, press:

    STOP

On pressing STOP, the printer will print all test prints stored in the printer's buffer, then stop.

If the test pattern prints successfully, the problem probably originates with the host system or a protocol converter connected to the host.

Protocol Converters

Many protocol converters have a self-test function or configuration mode that enables the user to check the proper functioning of the control. You can reconnect the host interface and ask the customer to exercise this function of the converter. If the printer receives data and prints it (even if the output is garbled) you have isolated the problem as one that belongs to the host or the protocol converter. The problem is not a printer problem and the customer must seek assistance elsewhere in resolving the problem.

Reading the Error Log

One of the sheets printed prior to the test pattern is the formatted error log maintained by the printer in a file named ERROR.LOG.

- The first line of the formatted log lists paper jams. A 3-digit error code (or codes) is followed by a 4-digit number indicating how many times the error has occurred since the error log was last cleared. (See "Clearing the Error Log" on page 1-24.)

- The second line lists the last 15 errors.

- The last line indicates the last error that required a power-on-reset (POR).

Paper Jams

020 0001 021 0000 022 0001

023 020 020 022 022 022 022 071 042 000 000 000 000 000 000

000

Last 15 errors

Last error requiring POR (not used)
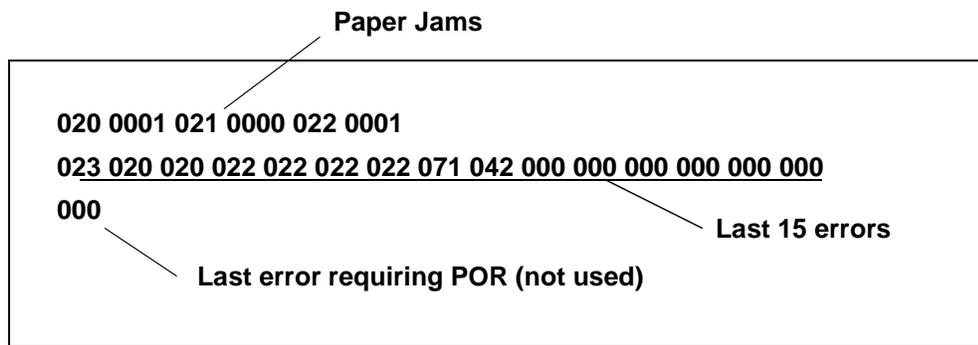
Figure 1-3. Sample Simplex Printer Error Log

Confirming Line Power

Erratic printer problems can be caused by improper line power. As a rule, the voltage of the outlet should be checked at installation. However, if you are unable to isolate an intermittent problem, the power should be checked again. Consult your country's national electric code for the proper procedures to check for acceptable voltages, as shown in Table 1-3, "Acceptable Voltages".

Table 1-3. Acceptable Voltages

Probe connections	100-127v printer	200-240v printer
red to AC hot black to AC neutral	120v +/- 10%	230v +/- 10%
red to AC neutral black to ground	3 vac or less	3 vac or less
red to AC hot black to ground	120v +/- 10%	230v +/- 10%

Please see Chapter 5, "Diagnostic Tests" for additional information about running diagnostic printer tests.

Please see Chapter 6, "Wiring Diagrams and Electrical Data" for additional information about the printer's electrical systems.

Using the Troubleshooting Analysis Guide (TAG)

The Troubleshooting Analysis Guide provides problem-solving sequences to help you identify and resolve printer problems. Each TAG addresses a particular symptom or error code of the printer. The TAG number often matches an error code displayed on the printer's operator panel.

Sample TAG

TAG 001: Troubleshooting a Problem

Error Code: **All related error messages are listed here.**
Possible Causes: **All possible causes are listed here.**
Possible Defects: **All possible defective parts are listed here. (In no particular order.)**

---

1   To start:

- Disconnect all peripheral cables

- Power-on-reset the printer.

Did all of the status lights come on, followed by 888 flashing briefly and an error code?

Yes: Run test prints, following the procedure outlined in Section 1, then repeat this step. If the answer is still no, refer to the mechanical malfunctions cross-reference chart in Section 2 to determine which TAG to follow. Then turn to that TAG.

Yes: Note the error message and continue.

---

2   Power-on-reset the printer.

Did the power-on-reset end with an error code?

No: Continue.

Yes: Refer to the error code cross-reference table in Section 2, using either the code that displayed after steps 1 and 2, or if multiple error codes continue to appear, the first error code that displays. Turn to the TAG associated with the code.

---

3   **Did only the READY light come on with no numeric display?**

No: Continue

Yes: Go to TAG 753

Each TAG walks through a comprehensive procedure specific to a single problem. As you progress through a TAG and eliminate possible causes, you may be directed to another step out of sequence in the same TAG or to another TAG altogether.

The TAG number and its title may be followed by a listing of possible error messages, possible causes, or possible defective parts related to the TAG.

The TAG then directs you to perform certain tasks. Based on the results of these tasks, the TAG poses questions that can be answered by either yes or no. For yes answers, you follow one path; for no answers, follow another path. Some of the paths may lead you to other TAGs, so that you can methodically diagnose and resolve problems. When you have corrected a problem, you will be directed to TAG 002 to confirm that the problem has been completely resolved and standard cleanup procedures observed.

If it's not clear how to diagnose a problem you're working on, follow the steps outlined in TAG 001, which includes references to the cross reference tables contained in Chapter 2, "". Or, you may turn directly to the tables to get started.

As you use TAGs, you will sometimes refer to other sections of this manual for additional information:

- Chapter 4, "Print Quality Samples" contains print quality samples you'll use to compare the customer's test prints with flawed and good print samples.

- Chapter 5, "Diagnostic Tests" outlines how to conduct printer diagnostic tests.

- Chapter 6, "Wiring Diagrams and Electrical Data" provides all wiring and connector diagrams.

- Chapter 7, "Removal/Replacement Procedures" provides step-by-step procedures for removing and replacing all field-replaceable parts on the printer.

- Chapter 8, "Options" reviews printer options (HCI, HCO) information.

- Chapter 9, "General Printer Maintenance" presents general printer maintenance procedures.

Standard Procedures

While using the TAGs, you may be asked to perform some of the following procedures. Specific instructions for completing these procedures are included here, rather than repeated in the body of each TAG. Please read this information before following any TAG.

Power-on-reset (POR)

When directed to power-on-reset the printer:

1 Turn off the printer.

2 Wait at least 5 seconds.

3 Turn the power back on.

Checking Continuity

Warning
Make sure the printer is turned off and the power disconnected. Failure to do so may result in personal injury, equipment damage, or both.

To perform a continuity check:

1 Turn off the printer and disconnect the power cord.

2 Set your meter to the lowest ohm setting.

3 Interpret the results as follows:

- An infinite reading indicates an open circuit.
- A zero or specific reading indicates continuity.

4 To check an open or short circuit to ground:

- Turn off the printer and disconnect the power cord.
- Locate the circuit in question. (Refer to Chapter 6, "Wiring Diagrams and Electrical Data", for circuit locations.)
- Check all connectors and wiring on each side for corrosion, foreign objects, bent pins, loose socket housings, and/or loose wires.

Warning
The printer is equipped with safety interlock switches on all of its covers. These switches disable parts of the printer when the covers are opened. These areas present the risk of electrical shock, burns, and injury from mechanical hazards.

Installing the Interlock By-pass Tool

The interlock by-pass tool overrides the cover interlock switches, allowing you to operate the printer with the covers open. The interlock by-pass tool is a white plastic, "V"-shaped tool with two finger pads. To use the tool, open the cover and locate the interlock switch (for locations, see illustrations beginning page 1-11). Squeeze the tool between thumb and fore finger and insert it into the interlock switch.

The printer ships with two spare interlock by-pass tools concealed behind the right cover. Replace them when you are finished using them.

Caution
Do not attempt to close the printer cover while the interlock bypass tool is in place.

Producing a Developed Image

Producing a developed image helps determine where exactly in the print cycle a problem may be occurring. To produce a developed image:

1 Open the top cover and install an interlock by-pass tool.

2 Power-on-reset the printer.

3 Run a series of test prints. The directory of the boot device will print, followed by continuous test patterns.

4 As test patterns print, observe paper moving from the upper paper tray to the paper timing roller where it pauses briefly.

5 When a sheet of paper begins to move from the paper timing roller, turn off the printer.

6 Remove the photoconductor unit.

7 Examine the photoconductor belt to verify that a developed image was produced.

Producing a Toner Patch

To produce a toner patch:

1 Turn off the printer.

2 Open the top cover and install an interlock by-pass tool.

3 Turn on the printer.

4 Start running test prints using Simplex Print mode. When the leading edge of the first print enters the fuser unit, remove the interlock by-pass tool.

5 Remove the photoconductor unit.
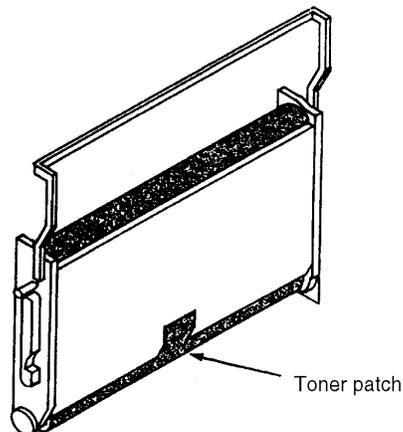
Toner patch

Figure 1-4. **Producing a Toner Patch on the Photoconductor Unit**

6 Examine the photoconductor unit to verify that a toner patch has been produced. You may have to rotate the belt slightly to observe the patch.

Caution

Do not touch the surface of the photoconductor belt; this damages the belt and results in poor print quality.

Completing a Service Call

After resolving any printer problem, complete the service call as follows:

1 Reassemble the printer.

2 Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".

3 If you have removed the printer's diskette(s), reinstall them.

4 Power-on-reset the printer.

5 Clear the error log. (See the procedure described next.)

6 Run test prints in both the simplex and duplex mode from both the upper and lower paper cassettes.

7 Fill in the Repair/Maintenance log. Make sure the problem description and steps taken to resolve the problem are clearly documented.

Clearing the Error Log

1 Enter the diagnostic mode of the printer:

- Turn off the printer and wait 5 seconds.
- Hold down the STOP and TEST keys simultaneously as you turn the printer back on.
- The tone, followed by "00" on the display, indicates you are in the test mode. This takes approximately 1 minute.

2 Press: CANCEL to advance the counter to "110."

3 Press READY to activate the procedure. "0" appears on the display, indicating the A: drive.

4 Press: CANCEL to advance to the drive where the error log is maintained. This is usually the boot drive.

Table 1-4. Drive Indication

Display	Indication
0	Diskette drive A:
1	Diskette drive B:
2	Hard drive C:

5 Press: READY to select the drive specified. "1-0" appears on the display.

Caution

At this point, be careful! "1-0" represents the clear error log function. Do not advance the counter to "1-1," which represents the format disk option.

---

6 Press: READY to select the clear error log function. "6-0" appears on the display.

Caution

If "7-0" appears, press STOP immediately. DO NOT CONTINUE WITH THIS PROCEDURE. POR the printer and start over.

---

7 Press: CANCEL to clear the error log. "6-1" appears on the display.

8 Press: STOP to exit the procedure.

9 Cycle printer power to exit diagnostic mode.

10 Confirm that the error log has been cleared. When you run your test prints, check to make sure the error log entries appear as "0000."

Chapter 2

Chapter Contents

TAG Cross-Reference Tables

This section contains the three cross reference charts for troubleshooting print problems:

Error Code/TAG Cross-Reference

Error codes, which appear on the 3-digit display of the operator's panel, indicate a wide variety of printer problems related to the control boards, software, and/or host communication problems. On the chart find the error code in question, then turn to TAG associated with the code.

Table 2-1. Printer Error Codes

Code	Printer Error Code Meaning	Go to TAG
010	Upper paper tray out of paper	010
011	Lower paper tray out of paper	011
E10	Envelope feeder out of envelopes	E10
012	Upper paper tray not plugged in	012
013	Lower paper tray not plugged in	013
E12	Envelope feeder not plugged in	E12
020	Upper paper tray paper jam	020
021	Lower paper tray paper jam	021
022	Transfer or fuser area paper jam	022
023	Exit area paper jam	023
025	Transfer or fuser area paper jam not cleared	025
026	Exit area paper jam not cleared	026
027	Duplex area paper jam	902
030	Developer bias short	030
031	Toner patch sensor reference level too low	031
032	Toner patch sensor black patch too light	032
035	No toner	035
036	No developer	036
040	Photoconductor seam sensor malfunction	040
041	Photoconductor seam sensor short	040
042	Photoconductor seam sensor open	040
044	Charge corona open	044
045	Charge corona short	045
046	Charge corona open	044
050	Transfer corona short	050
055	Eraser lamp malfunction	055
057	Fan stopped sensor	752
060	Duplex area 1 paper jam	902
061	Duplex area 2 paper jam	902
062	Duplex area 3 paper jam	902
069	Duplex tray not plugged in	900

Error Code/TAG Cross-Reference

Table 2-1. Printer Error Codes (Continued)

Code	Printer Error Code Meaning	Go to TAG
070	Fuser lamp or thermal fuse malfunction	070
071	Fuser thermistor open or no fuser	071
072	Fuser temperature too high	072
073	Fuser temperature too low	070
081	No front job offset sensor	083
082	No back job offset sensor	083
083	Job offset mechanism malfunction	083
084	Duplex tray registration sensor not activated	901
085	Duplex tray registration sensor not deactivated	901
086	Duplex registration tray malfunction	901
090	Cover open	900
097	DC +12v power failure	097
098	DC -12v power failure	098
099	DC +24v power failure	099
100	PCL board command timeou	100
101	IGS controller diagnostic failure	101

Table 2-2. PCL/IGS Communication Error Codes

Code	PCL/IGS Communication Error Code Meaning	Go to TAG
121	No controller command; PCL board VSC command asserted	201
122	Command tag asserted; VSC command not asserted	201
123	VSS not asserted; PCL board status tag asserted	201
124	VSS asserted after PCL board sent status	201
125	VSS not asserted again though PCL board expects it	201
126	Command tag asserted during data byte sequence	201
127	PCL board detected parity/overrun on command line	201

Table 2-3. PCL Error Codes

Code	PCL Error Code Meaning	Go to TAG
130	Address or length error at initial microcode load	130
131	Checksum error at initial microcode load	130
132	RAM error at initial microcode load	100
133	No next block at initial microcode load	130
134	Incorrect format in initial microcode load file	130
140	PCL board ROM checksum error at power on diagnostic	100

Table 2-3. PCL Error Codes (Continued)

Code	PCL Error Code Meaning	Go to TAG
145	PCL board RAM error at power on diagnostic	100
160	PCL board PIA1 register error after reset	100
161	PCL board PIA1 registers read/write error	100
162	PCL board PIA1 PA or PB read/write error	100
170	PCL board PIA2 register error after reset	100
171	PCL board PIA2 register read/write error	100
172	PCL board PIA2 PB read/write error	100
180	PCL board PTM register error after reset	100
181	PCL board PTM read/write error	100
182	No IRQ generation on PTM	100

Table 2-4. PCL/IGS Communication Error Codes

Code	PCL/IGS Communication Error Code Meaning	Go to TAG
199	VSS not asserted before communication test	201
200	Status tag not asserted	201
201	Timeout waiting for a failed IGS controller	201
202	No data received after VSS line asserted	201
203	VSS asserted after PCL board sent status	201
204	Status tag asserted after VSS not asserted	201
205	No command tag after status tag not asserted	201
206	VSC command not asserted after command tag asserted	201
207	No data received after VSC asserted	201
208	VSC command asserted after command line asserted	201
209	Command tag asserted after VSC not asserted	201
210	No RQI after "request RQI" command	201
211	Parity error on command line	201
212	Parity or overrun sensed by PCL board	201
213	Incorrect command received from PCL board	201
214	Incorrect command received from IGS controller	201
215	No transfer buffer empty on asynchronous communications interface adapter after PCL board sent data	201

Error Code/TAG Cross-Reference

Table 2-5. IGS Firmware Error Codes

Code	IGS Firmware Error Code Meaning These error codes signal a problem with the IGS controller firmware. No TAGs address these problems; report them to the printer's manufacturer.	Go to TAG
301	Status received after VSS asserted	No TAG
302	Status tag asserted after VSS not asserted	No TAG
303	VSC command not asserted after command tag asserted	No TAG
304	VSC command asserted after data was sent	No TAG
305	VSC command not asserted for next data byte	No TAG
306	Status tag asserted while data was being sent	No TAG
307	Parity error on command line	No TAG

Table 2-6. PCL Failure Error Codes

Code	PCL Failure Error Code Meaning	Go to TAG
380	PCL board failure - command retries	201
381	PCL board failure - command rejected	201
382	PCL board failure - bad command received	201
383	PCL board failure - unexpected byte received	201
384	PCL board failure - no status received	201
385	PCL board failure - bad status information block count	201
386	PCL board failure - bad status information block offset	201
387	PCL board failure - parity error	201
389	Floppy disk retry	130

Table 2-7. IGS Software Error Codes

Code	IGS Software Error Code Meaning These error codes signal a problem with the IGS controller software. No TAGs address these problems; to determine whether the faulty software is the customer's or the manufacturer's, contact the printer's manufacturer.	Go to TAG
397	IGS software trap	No TAG
398	IGS software trap	No TAG
399	IGS software trap	No TAG

Table 2-8. IGS/Disk Drive Error Codes

Code	Disk Drive Error Code Meaning	Go to TAG
401	Fatal IGS PB error	No TAG
450	Incorrect diskette	130
451	Diskette format error or incorrect disk	130
454	Fatal trap	200
455	Trap	200
500	Incorrect PIT0 registers contents; no reset	200
501	PIT0 register read/write error	200
502	No countdown/zero detection in PIT0 timer	200
503	PIT0 timer; no halt	200
504	No PIT0 timer interrupt	200
505	Incorrect PIT2 registers contents; no reset	200
506	PIT2 register read/write error	200
507	No countdown/zero detection in PIT2 timer	200
508	PIT2 timer; no halt	200
509	No PIT2/timer interrupt	200
520	No DMAC reset	200
521	DMAC registers read/write error	200
522	No DMA transfer	200
523	No DMA transfer termination	200
524	No DMAC termination interrupt	200
525	No software abort operation	200
526	No software abort interrupt	200
527	DMAC operation error	200
528	DMA transfer error	200
529	Two-channel DMA transfer error	200
530	No two-channel DMA transfer	200
540	PCL board serial controller registers read/write error	200
541	PCL board break condition detected	200
542	PCL board serial controller transmitter not ready	200
543	No PCL board serial controller transfer	200
544	PCL board serial controller transfer error	200
545	Host serial controller registers read/write error	200
546	Host transmitter not ready	200
547	No serial controller interrupts	200
548	Host serial controller/PCL board parity error	200
549	Serial controller unexpected interrupt	200
550	Two-channel transfer error	200
551	No PCL board/serial controller interrupt on break	200

Table 2-8. IGS/Disk Drive Error Codes (Continued)

Code	Disk Drive Error Code Meaning	Go to TAG
552	No serial controller/DMAC interaction	200
553	Serial controller/DMAC transfer count error	200
554	Serial controller/DMAC transfer error	200
555	RS232 send/receive path error	200
556	RS232 DTR/DTC path error	200
557	RS232 RTS/CTS path error	200
558	RS422 send/receive path error	200
559	RS422 send clock/receive clock path error	200
560	CRTC register read/write error	200
561	No page begin (PIT2) interrupt	200
562	No CRTC address generation	200
563	No VSYNC generation (end of page)	200
564	No end of page (PIT2) interrupt	200
565	No CRTC count termination	200
566	VSYNC timeout error	200
570	Drive controller/SCSI read/write error	200
571	Drive controller busy timeout	200
572	Diskette is write protected	130
573	Drive not ready	130
574	Drive controller restore error	130
575	Drive controller seek error	130
576	Drive controller read sector error	130
577	Drive controller read sector data/checksum error	200
578	Drive controller write sector error	200
579	Drive controller read/modify/write error	200
580	No drive controller/PIT0 interrupt	200
581	No drive controller-DMA interaction	200
582	Drive controller/DMAC transfer error	200
583	Drive controller/DMAC transfer count error	200
584	Drive controller/DMAC read sector error	200
585	Drive controller/DMAC write sector error	200
586	Drive hard error	130

Table 2-9. Bit Map RAM Error Codes

Code	Bit Map RAM Error Code Meaning	Go to TAG
600	Bit-map RAM data path error	200

Table 2-9. Bit Map RAM Error Codes (Continued)

Code	Bit Map RAM Error Code Meaning	Go to TAG
601	Bit-map RAM bank selection error	200
602	Bit-map RAM refresh error	200
603	Bit-map RAM address path error	200
604	Incorrect ALU operation in bit-map RAM data path	200
605	Incorrect origin data modifications	200
606	Total bit-map RAM bank fault	405
610	Bit-map RAM chip error	405

Table 2-10. Host Communication Error Codes

Code	Host Communication Error Code Meaning	Go to TAG
701	No communication with host	753
702	Host communication protocol error	753
703	Host communication recoverable error	753
770-784	Ethernet communication error	No TAG; contact software support

Print Quality/TAG Cross-Reference

Poor quality prints are another indication of printer problems. Begin by running a set of test prints. Then, compare the test prints to the samples located in Chapter 4, "Print Quality Samples". The chart summarizes the possible print quality problems you may encounter and recommends a TAG to follow to address the problem.

Table 2-11. Blank Print TAGs

Blank Prints	Go to TAG
Complete	800
Partial	800
With dark horizontal bands	800

Table 2-12. Light Print TAGs

Light Prints	Go to TAG
With carrier particles	801
With background	811
With voids/white spots	802
With light vertical streaks	803
With blank or white vertical lines	803
With light horizontal bands	804

Table 2-13. Dark Print TAGs

Dark Prints	Go to TAG
Dark black prints	805
With dark spots or scratches	806
With dark blotches	810
With dark vertical streaks (without fusing)	812
With dark vertical streaks (with fusing)	808

Table 2-14. Skewed Path TAGs

Skewed Prints	Go to TAG
Simplex	807
Duplex	901

Table 2-15. Misregistration TAGs

Misregistered Prints	Go to TAG
Simplex	807
Duplex	901

Table 2-16. Smeared, Blurred, and Uneven Print TAGs

Smeared, Blurred, Uneven Prints	Go to TAG
Smeared vertical streaks	809
Blurred prints	809
Uneven density	810
Prints with background	811
Prints with background and residual images	811
Prints with residual images	813
Prints with offset images	814

Table 2-17. Additional Print Quality Problem TAGs

Additional Print Quality Problems	Go to TAG
Wrinkled or torn prints	706
Prints improperly fused	812
Prints exhibiting printhead problems	815

Mechanical Malfunction/TAG Cross-Reference

The chart below outlines possible mechanical malfunctions and recommends an appropriate TAG to follow to resolve the problem.

Table 2-18. Operator Panel Problems TAGs

Operator Panel Problems	Go to TAG
Blank with AC power fan and cooling fan on	500
Blank with AC power fan on	500
Blank with no fans on	600
All lights on	610
Incomplete display immediately after POR	610
Close cover light remains on	600
Remove prints light remains on or lights	700
Add toner light remains on	035
Machine check light is on with no numerical Display	201
One or more lights are off at POR	610
Tone not working	610
Incorrect paper size	702
Other operator panel malfunctions	610

Table 2-19. Output Tray Problem TAGs

Output Tray Problems	Go to TAG
Sensor not sensing condition	701
Jogging incorrectly	083
Will not stop jogging	083
Job offset incorrect	083

Table 2-20. Cassette Problem TAGs

Cassette Problems	Go to TAG
Upper cassette	703
Lower cassette	704

Table 2-21. Paper Handling Problem TAGs

Paper Handling Problems	Go to TAG
Multiple paper feed	705
Multiple sheet feeds and jams	705
Wrinkled or torn paper	706
Simplex: misregistration and paper skew	807
Duplex: misregistration and paper skew	901
Paper will not feed from upper cassette	012
Paper jam in duplex area	902
Upper paper guide not closing	707

Table 2-22. Counter Problem TAGs

Counter Problems	Go to TAG
Supplies seem to have short life span	750
Incorrect counting	750

Table 2-23. Communication Problem TAGs

Communication Problems	Go to TAG
Printer will produce test prints	753
Incorrect data being printed	753

Table 2-24. Additional Mechanical Malfunction TAGs

Additional Mechanical Malfunctions	Go to TAG
Test prints won't run after POR	130
Cooling fan not running	752
Vacuum transport unit fan not running	752
Circuit breaker trip	600
Main drive motor not turning off	751

Chapter 3

Troubleshooting Analysis Guide (TAGs)

Chapter Contents

Troubleshooting Analysis Guide (TAGs)

Troubleshooting Analysis Guide (TAGs)

This chapter describes each of the TAGs used to diagnose and resolve specific printer problems related to error codes, print quality, and mechanical malfunctions.

Chapter 1, "Printer and Troubleshooting Overview", is an overview of how the TAGs are organized and how to use them. If you are using a TAG for the first time, please refer to this chapter for more specific instructions.

Chapter 2, "", provides comprehensive tables which cross reference specific error codes, print quality problems, and mechanical malfunctions to the TAGs contained in this chapter.

As you use these TAGs, you may need to refer to other chapters of this manual for additional information. Please turn to these chapters as required.

TAG 001: Troubleshooting a Problem

If you are not sure how to troubleshoot a printer problem, start with this TAG. This and all TAGs assume you are familiar with standard procedures, such as power-on-reset, presented in Chapter 1, "Printer and Troubleshooting Overview". In addition, TAG may refer you to Chapter 2, "", which contain:

- Error code cross-reference table
  Arranged by error code; refers you to the TAG associated with the code.

- Print quality cross-reference table
  Arranged by description of print-quality problem; refers you to the TAG associated with the problem.

- Mechanical malfunction cross-reference table
  Arranged by description of the mechanical malfunction; refers you to the TAG associated with the malfunction.

---

1 To start:
- Disconnect all peripheral cables.
- Power-on-reset the printer.

Did all of the status lights come on, followed by 888 flashing briefly and an error code?

No: Run test prints, following the procedure described in Chapter 1, "Printer and Troubleshooting Overview", then repeat this step. If the answer is still no, refer to the mechanical malfunctions cross-reference table in Chapter 2, "" to determine which TAG to follow. Then turn to that TAG.

Yes: Note the error code and continue.

---

2 Power-on-reset the printer.

Did the power-on-reset end with an error code?

No: Continue.

Yes: Refer to the error code cross-reference table in Chapter 2, "", using either the code that displayed after steps 1 and 2, or if multiple error codes continue to appear, the first error code that displays. Turn to the TAG associated with the code.

---

3 **Did only the READY light come on with no numeric display?**

No: Continue.

Yes: Go to TAG 753: External Communications Malfunction.

---

4 **Did only the READY and ON LINE lights come on with no numeric display?**

No: Continue.

Yes: Go to TAG 753: External Communications Malfunction.

---

5 **Did the READY, ON LINE, and JOB IN PROCESS lights come on with no numeric display?**

No: Refer to Chapter 2, "" to determine which TAG to follow, then turn to that TAG.

Yes: Continue.

6	Run test prints from the upper cassette by completing the following:

- Power-on-reset the printer.
- Run test prints from the upper cassette.

Did an error code appear while running the prints?

No: Continue.

Yes: Look up the code in Chapter 2, "" to determine which TAG to follow, and then turn to that TAG.

7	Run test prints from the lower cassette by completing the following:

- Press STOP and allow the cycle to finish.
- Remove the upper cassette.
- Power-on-reset the printer.
- Run test prints from the lower cassette.

Did an error code appear while running test prints?

No: Continue.

Yes: Look up the code in Chapter 2, "" to determine which TAG to follow, then turn to that TAG.

8	Check communications by completing the following:

- Turn the printer off.
- Reinstall all communication cables.
- Reinstall the upper cassette.
- Power-on-reset the printer.
- Re-run the customer's problem print job.

Does the job fail?

No: Continue.

Yes: Go to TAG 753: External Communications Malfunction.

9	Complete the following:

- Run test prints.
- Re-run the customer's problem print job.

Does an error code appear?

No: Continue.

Yes: Look up the code in Chapter 2, "", then turn to TAG indicated in the table.

10	Run a job which is known to be good.

- Compare the output from the problem print job to the output from the good print job.

Can you identify the problem?

No: Return to the beginning of the TAG, following the procedures carefully to determine the kind of problem your customer has.

Yes: Identify the problem as either a print quality problem or a mechanical malfunction, find the problem in the appropriate cross-reference table, identify a TAG addressing that problem, then turn to that TAG.

TAG 002: Check & Problem Resolution

> **Note**
>
> **Follow the procedure described in this TAG when you have completed an action to resolve a problem, and are sent to this TAG from another TAG**

1   Complete any actions directing you to this TAG.

- Make sure all connectors, covers, parts, and hardware have been reinstalled.

In the course of resolving the printer problem, did you complete the every-call cleaning procedure?

No: Continue.

Yes: Go to #3 in this TAG.

2   Clean the printer thoroughly, following the every-call cleaning procedure described below.

1   Remove these major printer supplies:

- Photoconductor unit; place it in its protective packaging
- Cleaner unit
- Developer unit
- Fuser unit

2   Inspect and vacuum the printer:

- Inspect the areas in the printer around the developer unit, cleaner unit, photoconductor unit, and fuser unit for damage and wear.
- Vacuum these areas to remove all excess toner, contamination, and/or foreign objects.

3   Clean internal areas:

- Clean the erase lamp with a cotton swab.
- Clean the printhead bias plates with a soft cloth.
- Clean the LED lens with a cotton swab, making sure no lint remains on the lens.

4   Inspect and clean the fuser unit:

> **Warning**
>
> **The fuser unit may be hot**

- Inspect the unit for damage and contamination; repair or replace as necessary.
- Clean the fuser unit connector, both on the fuser unit and in the printer, with a cotton swab.
- Vacuum in and around the rollers to remove excess toner, contamination, and any foreign objects.
- Reinstall the fuser unit.

5   Inspect and clean the developer unit:

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Clean any excess toner from the developer unit with a soft cloth.
- Clean the toner patch sensor lens with a cotton swab, making sure no lint remains on the lens.
- Vacuum the felt areas around the magnetic roller, being careful not to vacuum toner from

the magnetic roller.
- Reinstall the developer unit.

6   Inspect and clean the cleaner unit/charge corona:

Caution
Handle gently to avoid breaking the corona wire

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Remove the charge corona from the cleaner unit.
- Clean the grid with the cleaner brush.
- Remove the grid to expose the corona wire.
- Clean the corona wire with a cotton swab or corona cleaning tool.
- Reinstall the grid.
- Clean any excess toner from the cleaner unit with a soft cloth.
- Reinstall the charge corona in the cleaner unit.
- Reinstall the cleaner unit.

7   Clean and inspect the photoconductor unit area

Caution
Do not touch the photoconductor belt as this *permanently* **damages the unit**

- Clean the photoconductor seam sensor inside the printer with a cotton swab or compressed air.
- Remove the photoconductor from its protective packaging.
- Inspect the photoconductor for damage or contamination; repair or replace as necessary.
- Reinstall the photoconductor unit.

8   Clean the transfer corona

Caution
Handle gently to avoid breaking the corona wire

- Remove the transfer corona.
- Clean the transfer corona housing with a soft cloth.
- Clean the transfer corona wire with a cotton swab.
- Reinstall the transfer corona.

Have you completed the every-call cleaning procedure?

No: Complete the procedure, then continue.

Yes: Continue.

3 Run test prints to confirm print quality, in both simplex and duplex modes and from upper and lower paper cassettes. When you enter test print mode by pressing the keys listed below, the following items print in the order listed: a directory of the boot device and multiple listings of fonts; a formatted and unformatted error log; a continuous flow of test prints.

1 Power-on-reset the printer.

2 Run test prints:

- For simplex printers, press:
  STOP
  TEST
- For duplex printers, press:
  STOP
  DUPLEX
  TEST

3 Stop printing the pattern by pressing STOP. On pressing STOP, the printer will stop generating test prints. The printer will print all test prints stored in the printer's buffer, then stop.

Are the test prints clean and printing correctly?

No: Go to Chapter 4, "Print Quality Samples"; identify a sample with the problem you see in the test print; then turn to the TAG indicated.

Yes: Continue.

---

4 Clear the error log:

> **Caution**
>
> **With this procedure you can either clear the error log or format a disk. Pay careful attention to the options you select.**

1 Enter the diagnostic mode of the printer:

- Turn off the printer and wait 5 seconds.
- Hold down the STOP and TEST keys simultaneously as you turn the printer back on.
- The tone, followed by 001 on the display, indicates you are in the test mode. This takes about 1 minute.

2 Press: CANCEL to advance the counter to 110.

3 Press: START to activate the procedure. 0 appears on the display, indicating the A: drive.

4 Press: CANCEL to advance to the drive where the error log is maintained. This is usually the boot drive.

Display	Indication
0	Diskette drive A:
1	Diskette drive B:
2	Hard drive C:

5   Press: START to select the drive specified. 1-0 appears on the display

---

Caution

1-0 represents the clear error log function. Do not advance the counter to 1-1, which represents the format disk option, described in the *Guide to Operations*

---

6   Press: START to select the clear error log function. 6-0 appears on the display.

Caution

If 7-0 appears, press STOP immediately. DO NOT PROCEED

---

7   Press: CANCEL to clear the error log. 6-1 appears on the display.

8   Press: STOP to exit the procedure.

9   Confirm that the error log has been cleared; to do this, power-on-reset the printer and run test prints, checking to make sure the error log entries appear as 0000.

Do the error log entries appear as 0000?

No: Return to the beginning of this step.

Yes: Continue.

---

5   Fill in the Repair/Maintenance record taped inside the printer's front cover.

- Make sure the problem description and steps taken to resolve the problem are clearly documented.
- Reinstall all connectors, covers, parts, and hardware.

You have successfully resolved the printer's problem. Congratulations!

TAG 010: Upper Cassette Malfunction

Error Code:	**010**
Possible Causes:	**Cassette empty**
	Paper incorrectly loaded
Possible Defects:	**Upper paper empty actuator**
	Upper paper empty sensor
	Upper cassette tray
	Upper pressure lever
	Upper cassette release cam
	Upper cassette release latch
	Upper cassette release lever
	Spring
	Connectors/wiring
	PCL board

1   Make sure paper is in the upper cassette.

- Make sure the paper is loaded correctly so that the side and rear guides are positioned securely against the paper in the cassettes.
- Power-on-reset the printer.
- Run test prints.

Is error code 010 displayed?

No: The paper was loaded incorrectly. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

2   Check upper cassette:

- Remove the upper cassette.
- Inspect the upper paper empty sensor actuator for binding, or for a damaged or broken part.

Is it in good working order?

No: Replace the actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

3   Check voltage:

- Open the rear door and install an interlock by-pass tool.
- Check the voltage from TP3-15 to ground on the PCL board.
- Activate the upper paper sensor actuator manually.

Does the voltage change from 0 Vdc to +12Vdc?

No: Replace the upper paper empty sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

4   Check pressure lever:

- Reinsert the upper cassette.
- Watch the pressure lever as the cassette is inserted.

Does the pressure lever elevate the paper to the correct feeding position?

No: Check the following for defects or incorrect mounting:

- Cassette tray
- Damper assembly
- Upper pressure lever
- Upper cassette release cam
- Upper cassette release latch
- Wire cable, pulley and spring
- Upper cassette release lever

Replace the defective part, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

E10: Envelope Tray Out of Envelopes

This TAG refers to the error code for the envelope tray, which handles 75 envelopes.

Error Code:	**E10**
Possible Causes:	**Cassette empty**
	Envelopes incorrectly loaded
Possible Defects:	**Upper paper empty actuator**
	Upper paper empty sensor
	Paper size sensor assembly
	Envelope cassette tray
	Upper pressure lever
	Upper cassette release cam
	Upper cassette release latch
	Upper cassette release lever
	Spring
	Connectors/wiring
	PCL board

---

1 Make sure envelopes are in the envelope cassette.

- Make sure the envelopes are correctly loaded.
- Power-on-reset the printer.
- Remove and insert the envelope cassette while watching the operator panel.

Does 1-8 appear on the operator panel?

No: Replace the upper paper size sensor assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2 Run a job in which you are using envelopes.

Is error code E10 displayed?

No: The cassette was loaded incorrectly. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 Remove the envelope cassette.

- Inspect the paper empty sensor actuator.

Is it in good working order?

No: Replace the actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4 Open the rear door and install an interlock by-pass tool.

- Check the voltage from TP3-15 to ground on the PCL board.
- Activate the upper paper sensor actuator manually.

Does the voltage change from 0Vdc to +12Vdc?

No: Replace the upper paper empty sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

E10: Envelope Tray Out of Envelopes

5 Reinsert the envelope cassette.

- Watch the pressure lever as the cassette is inserted.

Does the pressure lever elevate the envelopes to the correct feeding position?

No: Check the following for defects or incorrect mounting:
- Cassette tray
- Damper assembly
- Upper pressure lever
- Upper cassette release cam
- Upper cassette release latch
- Wire cable, pulley and spring
- Upper cassette release lever

Replace the defective part, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 011: Lower Cassette Malfunction

Error Code:	**011**
Possible Causes:	**Cassette empty**
	Paper incorrectly loaded
Possible Defects:	**Lower paper empty actuator**
	Lower paper empty sensor
	Lower cassette tray
	Lower pressure lever
	Lower cassette release cam
	Lower cassette release latch
	Lower cassette release lever
	Spring
	Connectors/wiring
	PCL board

---

1   Make sure paper is in the lower cassette.

- Make sure the paper is loaded correctly so that the side and rear guides are positioned securely against the paper in the cassettes.
- Power-on-reset the printer.
- Run test prints.

Is error code 011 displayed?

No: The paper was loaded incorrectly. Turn to TAG 002: Check & Problem Resolution

Yes: Continue.

---

2   Remove the lower cassette.

- Inspect the lower paper empty sensor actuator for binding, or for a damaged or broken part.

Is it in good working order?

No: Replace the actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   Open the rear door and install an interlock by-pass tool.

- Check the voltage from TP3-14 to ground on the PCL board.
- Activate the lower paper sensor actuator manually.

Does the voltage change from 0 Vdc to +12Vdc?

No: Replace the lower paper empty sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

4   Reinsert the lower cassette.

• Watch the pressure lever as the cassette is inserted.

Does the pressure lever elevate the paper to the correct feeding position?

No: Check the following for defects or incorrect mounting:

• Cassette tray
• Lower pressure lever
• Lower cassette release cam
• Lower cassette release latch
• Wire cable, pulley and spring
• Lower cassette release lever

Replace the defective part, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 012: Upper Cassette Not Latched

Error Code: **012**

Possible Defects: **Upper cassette release cam**
                             Upper cassette release latch
                             Upper cassette in latch
                             Upper pressure lever
                             Spring
                             Wire cable and pulley
                             Upper cassette
                             Upper cassette in switch
                             Upper paper size sensor
                             Lower paper size sensor
                             Connectors or wiringr
                             PCL board

---

1   Turn off the printer and unplug the power cord.

- Verify that J/P40 and J/P52 are connected properly.
- Remove the upper cassette.
- Inspect it for damage.
- Reinsert the cassette.

Is the upper cassette properly latched?

No: Continue.

Yes: Go to #3 in this TAG.

---

2   Check for damage:

- Upper cassette release cam
- Upper cassette release latch
- Upper cassette in latch
- Upper pressure lever
- Spring
- Wire cable and pulley

Are any of these parts damaged?

No: Return to the beginning of this TAG.

Yes: Replace the damaged parts, then turn to TAG 002: Check & Problem Resolution.

---

3   Remove the upper cassette.

- Make sure the upper cassette in switch actuator is functioning properly.

Is it in good working order?

No: Replace the actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

TAG 012: Upper Cassette Not Latched

---

4   Run diagnostic test 002.

Is 1-0 displayed?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

---

5   Install the upper cassette.

Is a value other than 1-0 displayed?

No: Continue.
Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

6   Turn the printer off and unplug the power cord.
   • Remove the upper cassette.
   • Loosen the upper paper size sensor assembly for access to the circuit board.
   • Disconnect J/P46.
   • Activate the cassette in switch.
   • Check P46-1 to P46-2 for continuity.

Is there continuity?

No: Replace the upper cassette in switch or wire hardness W58, then turn to TAG 002: Check
        & Problem Resolution.
Yes: Continue.

---

7   Reconnect J/P46.
   • Disconnect J/P40 and J/P45.
   • Check P40-49 to P45-2 for continuity.

Is there continuity?

No: Go to #10 in this TAG.
Yes: Continue.

---

8   Check P40-48 to P45-3 for continuity.

Is there continuity?

No: Continue.
Yes: Replace the upper paper size sensor assembly. If this does not resolve the problem,
        replace the PCL board. Turn to TAG 002: Check & Problem Resolution.

---

9   Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-8 to J47-3 for continuity.

Is there continuity?

No: Replace lower paper size sensor assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from:
P45-3 to P47-3,
P43-8 to J52-3, or
P40-48 to P52-3.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to TAG 002: Check & Problem Resolution

---

10   Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-9 to J47-2 for continuity.

Is there continuity?

No: Replace the lower paper size sensor assembly.

Yes: Repair or replace the connectors or wiring from:
P45-2 to P47-2,
P43-9 to J52-2 or
P40-49 to P52-2.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to TAG 002: Check & Problem Resolution

TAG E12: Envelope Tray or Feeder Not Latched

Error Code:	**E12**
Possible Defects:	**Upper cassette release cam**
	Upper cassette release latch
	Upper cassette in latch
	Upper pressure lever
	Spring
	Wire cable and pulley
	Envelope cassette or high capacity envelope feeder
	Upper cassette in switch
	Upper paper size sensor
	Lower paper size sensor
	Connectors or wiring
	PCL board

1   Turn off the printer and unplug the power cord.

- Confirm that J/P40 and J/P52 are connected properly.
- Remove the envelope tray or high capacity envelope feeder.
- Inspect it for damage.
- Reinsert the envelope tray or feeder.

Is the upper cassette properly latched?

No: Continue.

Yes: Go to #3 in this TAG.

2   Check for damage:

- Upper cassette release cam
- Upper cassette release latch
- Upper cassette in latch
- Upper pressure lever
- Spring
- Wire cable and pulley

Are any of these parts damaged?

No: Return to the beginning of this TAG.

Yes: Replace the damaged parts, then turn to TAG 002: Check & Problem Resolution.

3   Remove the envelope tray or feeder.

- Make sure the upper in switch actuator is functioning properly.

Is it in good working order?

No: Replace the actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4   Run diagnostic test 002.

Is 1-0 displayed?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

5   Install the envelope tray.

Is a value other than 1-0 displayed?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

6   Turn the printer off and unplug the power cord.
   • Remove the envelope tray or feeder.
   • Loosen the upper paper size sensor assembly for access to the circuit board.
   • Disconnect J/P46.
   • Activate the cassette in switch.
   • Check P46-1 to P46-2 for continuity.

Is there continuity?

No: Replace the upper cassette in switch or wire harness W58, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Reconnect J/P46.
   • Disconnect J/P40 and J/P45.
   • Check P40-49 to P45-2 for continuity.

Is there continuity?

No: Go to #10 in this TAG.

Yes: Continue.

---

8   Check P40-48 to P45-3 for continuity.

Is there continuity?

No: Continue.

Yes: Replace the upper paper size sensor assembly. If this does not resolve the problem, replace the PCL board. Then turn to TAG 002: Check & Problem Resolution.

9 Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-8 to J47-3 for continuity.

Is there continuity?

No: Replace the lower paper size assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from:
P45-3 to P47-3,
P43-8 to J52-3, or
P40-48 to P52-3.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to TAG 002: Check & Problem Resolution.

10 Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-9 to J47-2 for continuity.

Is there continuity?

No: Replace the lower paper size sensor assembly.

Yes: Repair or replace the connectors or wiring from:
P45-2 to P47-2,
P43-9 to J52-2, or
P40-49 to P52-2.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to TAG 002: Check & Problem Resolution.

TAG 013: Lower Cassette Not Latched

Error Code: **013**

Possible Defects: **Lower cassette release cam**
                       Even Lower cassette release latch
                       Lower cassette in latch
                       Lower pressure lever
                       Spring
                       Lower cassette
                       Lower cassette in switch
                       Lower paper size sensor
                       Connectors or wiring
                       PCL board

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P40 and J/P52 are connected properly.
- Remove the lower cassette.
- Inspect it for damage.
- Reinsert the cassette.

Is the lower cassette properly latched?

No: Continue.

Yes: Go to #3 in this TAG.

---

2   Check the following for damage:

- Lower cassette release cam
- Lower cassette release latch
- Lower cassette in latch
- Lower pressure lever
- Spring

Are any of these parts damaged?

No: Return to the beginning of this TAG.

Yes: Replace the damaged parts, then turn to TAG 002: Check & Problem Resolution.

---

3   Remove the lower cassette.

- Make sure the lower cassette in switch actuator is functioning properly.

Is it in good working order?

No: Replace the actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4   Run self diagnostic test 003.

Is 1-0 displayed?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

TAG 013: Lower Cassette Not Latched

---

5 | Install the lower cassette.

Is a value other than 1-0 displayed?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

6 | Turn the printer off and unplug the power cord.
- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P48.
- Activate the cassette in switch.
- Check P48-1 to P48-2 for continuity.

Is there continuity?

No: Replace the lower cassette in switch or wire harness W59, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7 | Reconnect J/P48.
- Disconnect J/P43 and J/P40.
- Check P40-50 to P43-10 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P43-10 to J52-1 or P40-50 to P52-1. Then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

8 | Check P43-8 to P40-48 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P43-8 to J52-3 or P40-48 to P52-3. Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the lower paper size sensor assembly. If this does not resolve the problem, replace the PCL board. Then turn to TAG 002: Check & Problem Resolution.

TAG 020: Paper Jam/Misfeed in Upper Cassette Area

Error Code:	**020**
Possible Causes:	**Paper incorrectly loaded**
	Wrong weight or type of paper loaded
	Paper path obstructed
Possible Defects:	**Upper pick-up roller assembly**
	Upper feed roller assembly
	Upper pick-up roller drive assembly
	Upper paper guide assembly
	Lower paper guide assembly
	Upper paper cassette
	Pick pressure adjustment
	Main drive gear assembly
	Paper feed drive belt
	Paper feed drive idler assembly
	Paper timing sensor.
	Wiring or connectors
	PCL board

---

1 Check both paper paths and remove any paper jams.

- Make sure paper is loaded properly in both cassettes.
- Make sure the paper guides are positioned properly.
- Make sure the upper pick-up roller, feed roller, and pinch roller assemblies are clean.
- Verify that J/P40, J/P60, J/P66, and J/P68 are connected properly.
- Confirm that the paper in the cassettes meets paper specifications, described in the *Guide to Operations* manual.
- Power-on-reset the printer.
- Run test prints from the upper cassette.

Is error code 020 still displayed?

No: Go to #14 in this TAG.

Yes: Continue.

---

2 Turn the printer off and inspect the following for damage or binding:

- Upper paper guide assembly
- Lower paper guide assembly
- Paper feed drive belt
- Paper feed drive pulley
- Paper feed drive idler assembly
- Main drive gear assembly
- Upper pick-up roller drive assembly

Are all the parts in good working order?

No: Replace any damaged parts, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   Clear the paper path.
- Remove the upper cassette.
- Power-on-reset the printer.
- Run test prints from the lower cassette.

Is error code 021 displayed?

No: Go to #10 in this TAG.

Yes: Continue.

---

4   Clear the paper path.
- Inspect the paper timing sensor actuator for damage or binding.

Is it in good working order?

No: Replace the paper timing guide assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

5   Check the voltage between TP3-16 and ground on the PCL board.
- With the printer powered on, press and release the paper timing sensor.
- Check for a voltage change from 0 Vdc to +12 Vdc.

Does the voltage change from 0 Vdc to +12 Vdc?

No: Go to #9 in this TAG.

Yes: Continue.

---

6   Check TP3-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Return to the beginning of this TAG.

---

7   Check J/P91-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

8   Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P91-1 to P8-13, then turn to TAG 002: Check & Problem Resolution.

9	Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P57.
- Check the following for continuity:.
    P40-16 to P57-2
    P40-25 to P57-1
    P40-12 to P57-3

Is there continuity on all?

No: Repair or replace the connectors or wiring from P40-25 to J/P58-1 to P57-1, P40-16 to J/P58-2 to P57-2, or P40-12 to J/P58-3 to P57-3. Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the paper timing guide. If this does not resolve the problem, replace the PCL board. Then turn to TAG 002: Check & Problem Resolution.

10	Turn the printer off.

- Open the back cover and install an interlock by-pass tool.
- Remove the paper feed cover to expose the upper paper pick roller assembly.

Warning

To avoid the risk of injury, use extreme caution as gears and belts are exposed

---

- Run diagnostic test 006, testing the upper pick-up roller clutch.
- Check TP3-9 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #12 in this TAG.

11	Turn off the printer and unplug the power cord.

- Disconnect J/P40 and J/P68.
- Check P40-9 to J68-2 and P40-11 to J68-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-9 to J68-2 or P40-11 to J68-1. Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the upper pick-up roller assembly, then turn to TAG 002: Check & Problem Resolution.

12	Run diagnostic test 006, testing the upper feed roller clutch.

- Check TP3-6 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #14 in this TAG.

---

13   Turn off the printer and unplug the power cord.

- Disconnect J/P40 and J/P66.
- Check P40-6 to J66-2 and P40-11 to J66-1 for continuity.

Is there continuity?

No: Repair or replace connectors or wiring from P40-6 to J66-2 or P40-11 to J66-1. Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the upper feed roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

14   Inspect the upper pick-up roller assembly for damage or binding.

Is it in good working order?

No: Replace the upper pick-up roller assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15   Inspect the upper feed roller assembly for damage or binding.

Is it in good working order?

No: Replace the upper feed roller assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: The upper pick-up roller or the feed rollers may not be delivering paper to the paper timing sensor at the correct time. Return to the beginning of this TAG.

TAG 021: Paper Jam/Misfeed in /Lower Cassette Area

Error Code:	**021**
Possible Causes:	**Paper loaded incorrectly**
	Wrong weight or type of paper loaded
	Paper path obstruction
Possible Defects:	**Lower pick-up roller assembly**
	Lower feed roller assembly
	Lower pick-up roller drive assembly
	Upper paper guide assembly
	Lower paper guide assembly
	Lower paper cassette
	Pick pressure adjustment
	Main drive gear assembly
	Idler assembly
	Paper feed drive belt
	Paper feed drive idler assembly
	Paper timing sensor
	Wiring or connectors
	PCL board

---

1 Check both paper paths and remove any jams.

- Make sure paper is loaded properly in both cassettes.
- Make sure the paper guides are positioned properly.
- Check that the pick-up roller, feed roller, and backup roller assemblies are clean.
- Verify that J/P40, J/P62, J/P67, and J/P69 are connected properly.
- Confirm that the paper in the cassettes meets paper specifications, which are described in the *Guide to Operations* manual.
- Remove the upper cassette.
- Power-on-reset the printer.
- Run test prints from the lower cassette.

Is error code 021 displayed?

No: Go to #14 in this TAG.

Yes: Continue.

---

2 Turn the printer off and inspect the following for damage or binding:

- Lower paper guide assembly
- Upper paper guide assembly
- Paper feed drive belt
- Paper feed drive pulley
- Paper feed drive idler assembly
- Main drive gear assembly
- Lower pick-up roller drive assembly

Are all the parts in good working order?

No: Replace the damaged parts, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 Clear the paper path.
- Reinsert the upper cassette.
- Power-on-reset the printer.
- Run test prints from the upper cassette.

Is error code 020 displayed?

No: Go to #10 in this TAG.

Yes: Continue.

---

4 Clear the paper path.
- Inspect the paper timing sensor actuator for damage or binding.

Is it in good working order?

No: Replace the paper timing guide assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

5 Check the voltage between TP3-16 and ground on the PCL board.
- With the printer powered on, activate the paper timing sensor.
- Check for a voltage change from 0 Vdc to +12 Vdc.

Does the voltage change from 0 Vdc to +12 Vdc?

No: Go to #9 in this TAG.

Yes: Continue.

---

6 Check TP3-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Return to the beginning of this TAG.

---

7 Check J/P91-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

8 Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P91-1 to P8-13, then turn to TAG 002: Check & Problem Resolution.

---

9 Turn the printer off and unplug the power cord.
- Disconnect J/P40 and J/P57.
- Check the following for continuity:
  P40-16 to P57-2

P40-25 to P57-1
P40-12 to P57-3

Is there ground?

No: Repair or replace the connectors or wiring from:
P40-25 to J/P58-1 to P57-1,
P40-16 to J/P58-2 to P57-2, or
P40-12 to J/P58-3 to P57-3.

Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the paper timing guide. If this does not correct the problem, replace the PCL board. Then turn to TAG 002: Check & Problem Resolution.

---

10 Turn off the printer.

- Open the back cover and install an interlock by-pass tool.
- Remove the paper feed cover to expose the lower paper pick-up assembly.

Warning

To avoid the risk of injury, use extreme caution as gears and belts are exposed

---

- Run diagnostic test 006, testing the lower pick-up roller clutch.
- Check TP3-8 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #12 in this TAG.

---

11 Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P69.
- Check P40-8 to J69-2 and P40-10 to J69-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from:P40-8 to J69-2 or P40-10 to J69-1. Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the lower pick-up roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

12 Run diagnostic test 006, testing the lower feed roller clutch.

- Check TP3-5 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #14 in this TAG.

---

13   Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P67.
- Check P40-5 to J67-2 and P40-11 to J67-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-5 to J67-2 or P40-11 to J67-1. Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the lower feed roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

14   Inspect the lower pick-up roller assembly for damage or binding.

Is it in good working order?

No: Replace the lower pick-up roller assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15   Inspect the lower feed roller assembly for damage or binding.

Is it in good working order?

No: Replace the lower feed roller assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: The lower pick-up roller or lower feed roller may not be delivering the paper to the paper timing sensor at the correct time. Return to the beginning of this TAG.

TAG 022: Paper Jam in the Transfer or Fuser Area

Error Code: 022

Possible Causes: **Paper loaded incorrectly**
Wrong weight or type of paper loaded
Paper path obstruction

Possible Defects: **Fuser unit**
Paper supply
Paper timing roller assembly
Fuser drive assembly
Fuser drive belt
Vacuum transport unit
Exit roller assembly
Upper paper guide assembly
Lower paper guide assembly
Paper timing guide assembly
Pick pressure adjustment
PCL board
Connectors or wiring.

Caution

**When clearing this jam, be careful not to get toner on your clothing,
as it may stain. If toner gets on your clothing, rinse your clothes
with cold water immediately to avoid stains**

---

1 Check the paper path and remove any jammed paper.

Warning

The fuser unit may be very hot

- Check the fuser unit for paper wrapped around the heat roller.

Is paper wrapped around the heat roller?

No: Continue.

Yes: If the paper is black or very dark with no printing, go to TAG 805: Black Prints. If the paper is very dark and does have printing, go to TAG 811: Background/Residual Images/ Dark Prints.

---

2 Check both paper paths for damage or obstructions.
- Confirm that J/P13, J/P22, J/P40, J/P58, and J/P65 are connected properly.
- Check that the paper is properly loaded.
- Confirm that the paper in the cassettes meets paper specifications, described in the *Guide to*

TAG 022: Paper Jam in the Transfer or Fuser Area

Operations manual.
- Check that the fuser unit is installed properly.
- Power-on-reset the printer.
- Run test prints.

Is error code 022 still displayed?

No: Paper incorrectly loaded, incorrect paper type in use, or a loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Has the fuser unit been replaced recently?**

No: Continue.

Yes: Go to #5 in this TAG.

---

4   Replace the fuser unit.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: The fuser unit was at fault. Turn to TAG 002: Check & Problem Resolution.

---

5   Inspect the following for damage:
- Upper paper guide assembly
- Paper timing roller assembly
- Lower paper guide assembly
- Paper timing guide assembly

Are any of these parts damaged?

No: Continue.

Yes: Replace the damaged part, then turn to TAG 002: Check & Problem Resolution.

---

6   **Is more than one sheet of paper jamming?**

No: Go to #8 in this TAG.

Yes: Continue.

---

7   Make sure the natural curl of the paper is turned up in the cassettes.
- Make sure the paper is under the corner separators.
- Make sure the rear and side paper guides are positioned properly.
- Make sure the paper being used does not have a high static charge.
- Run test prints.

Does the multiple feed problem still exist?

No: The paper appears to be at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Adjust the paper tension lever or pick pressure, as described in Chapter 9, "General Printer Maintenance", then turn to TAG 002: Check & Problem Resolution.

8   Check the paper path for jams.

- Open the printer's front cover and insert the interlock bypass tool.
- Power-on-reset the printer.
- Run test prints.
- Watch the end of the paper timing roller shaft.

Does the paper timing roller shaft turn?

No: Continue.

Yes: Go to #14 in this TAG.

---

9   Check TP3-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #12 in this TAG.

---

10   Check J/P91-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

11   Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P91-1 to P8-13, then turn to TAG 002: Check & Problem Resolution.

---

12   Run diagnostic test 006, testing the paper timing roller clutch.

- Check TP3-7 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #14 in this TAG.

---

13   Turn off the printer and unplug the power cord.

- Disconnect J/P40 and J/P65.
- Check P40-7 to J65-2 and P40-11 to J65-1 for continuity.

Is there continuity on both?

No: Repair or replace the connectors and wiring from: P40-7 to J65-2 or P40-11 to J65-1. Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the paper timing roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

14   **Does paper stop or jam either before or during entry into the fuser unit?**

No: Go to #17 in this TAG.

Yes: Continue.

---

15   Remove the fuser unit.

- Check the fuser unit rollers for damage or toner contamination.

Are they damaged or contaminated with toner?

No: Continue.

Yes: Replace the fuser unit, then turn to TAG 002: Check & Problem Resolution.

---

16   Inspect the following for damage or binding:

- Fuser unit
- Fuser drive belt
- Fuser drive assembly

Are any of these parts damaged?

No: Go to #22 in this TAG.

Yes: Replace the damaged parts, then turn to TAG 002: Check & Problem Resolution.

---

17   Turn the printer off.

- Check for paper jams.
- Inspect the exit roller, and exit pinch roller assemblies for damage, binding and contamination.

Are these parts in good working order?

No: Repair or replace the defective parts, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

18   Run test prints.

- Check the leading edge of the prints for improper registration.

Is there improper registration?

No: Continue.

Yes: Go to TAG 807: Misregistered/Skewed Prints (Simplex) or TAG 901: Misregistration/ Skewed Prints (Duplex).

---

19   Inspect the vacuum transport unit for damage or binding.

Are the parts in good working order?

Repair or replace the vacuum transport unit, then turn to TAG 002: Check & Problem Resolution.

No: Continue.

Yes: Open the top cover and install an interlock by-pass tool.

20 Power-on-reset the printer.

- While the main motor is running, cover all of the holes in the vacuum unit with a piece of paper.

Does the vacuum transport unit fan hold the paper in place?

No: Continue.

Yes: Return to the beginning of this TAG.

---

21 Use extreme caution: Check for 100 Vac from J/P22-1 to J/P22-2.

Is the voltage 100 Vac?

No: Continue.

Yes: Replace the vacuum transport assembly.

---

22 Power-on-reset the printer. Use extreme caution:

- While the main motor is running, monitor J/P13-6 and J/P13-3 for 100 Vac.

Is the voltage 100 Vac?

No: Replace the power control board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from J22-1 to P13-6 or J22-2 to P13-3. Then turn to TAG 002: Check & Problem Resolution.

TAG 023: Paper Jam in the Output Area

Error Code:	**023**
Possible Causes:	**Paper path obstruction**
	Output tray obstruction
Possible Defects:	**Exit paper sensor**
	Fuser drive unit
	Exit roller assembly
	Exit pinch roller assembly
	PCL board
	Connectors or wiring

If the printer has a high capacity output unit (HCO), unplug and remove it before you begin. Test the printer without the HCO; if the problem remains, proceed with this TAG. If the problem occurs only with the HCO, the HCO is causing the problem. Repair or replace the HCO.

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P50 and J/P40 are connected properly.
- Check the paper path and remove any paper jams.
- Check the output tray and remove any paper jams.
- Power-on-reset the printer.
- Run test prints.

Is error code 023 displayed?

No: Loose connectors or obstructions were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   **Is paper stopped or jammed at the output tray?**

No: Continue.

Yes: Go to #5 in this TAG.

---

3   Inspect the exit paper sensor actuator for damage or binding.

Is it in good working order?

No: Repair or replace the exit paper sensor actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4   Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P49.
- Check the following for continuity:
  P40-24 to P49-2,
  P40-26 to P49-1, and

P40-13 to P49-3.

Is there continuity?

No: Repair or replace the connectors or wiring from:
P40-26 to J/P50-1 to P49-1,
P40-24 to J/P50-2 to P49-2, or
P40-13 to J/P50-3 to P49-3.

Yes: Replace the exit paper sensor.

---

5   Turn the printer off and unplug the power cord.

- Open the back cover and install an interlock bypass tool.
- Remove the fuser drive cover.
- Inspect the following for damage, binding, or contamination:
  - Exit roller assembly
  - Exit roller drive gear
  - Exit pinch roller assembly

Are all the parts in good working order?

No: Replace the defective parts, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

---

6   Remove the fuser unit.

- Inspect the following for damage or binding:
  - Fuser drive assembly
  - Fuser drive belt
  - Main drive gear assembly

Are all the parts in good working order?

No: Replace the defective parts, then turn to TAG 002: Check & Problem Resolution.
Yes: Reinstall the fuser unit and continue.

---

7   Run diagnostic test 009.

- Watch the fuser drive and the exit roller assembly.

Are they in good working order?

No: Replace the defective parts, then turn to TAG 002: Check & Problem Resolution.
Yes: Replace the fuser unit, then turn to TAG 002: Check & Problem Resolution.

TAG 025: Paper in Input Area Before Printing

Error Code: **025**

Possible Defects: **Paper timing sensor**
PCL board
Connectors or wiring

---

1 Turn the printer off and unplug the power cord.

- Check the paper path and remove any paper jams.
- Confirm that J/P58 and J/P40 are connected properly.
- Inspect the paper timing sensor actuator for damage or binding.

Is it in good working order?

No: Replace the paper timing guide assembly and continue.

Yes: Continue.

---

2 Power-on-reset the printer.

Is error code 025 displayed?

No: Jammed paper, loose connectors, or the sensor actuator were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 Check TP3-25 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4 Loosen the paper timing guide.

- Confirm that J/P57 is connected properly.

Is J/P57 connected properly?

No: Continue.

Yes: Go to #6 in this TAG.

---

5 Reconnect J/P57.

- Reinstall the paper timing guide.
- Power-on-reset the printer.

Is error code 025 still displayed?

No: J/P57 was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

6   Turn the printer off and unplug the power cord.

- Loosen the paper timing guide.
- Disconnect J/P57 and J/P40.
- Check the following for continuity:
  - P40-16 to P57-2
  - P40-25 to P57-1
  - P40-12 to P57-3

Is there continuity?

No: Repair or replace the connectors or wiring from:

- P40-25 to J/P58-1 to P57-1
- P40-16 to J/P58-2 to P57-2
- P40-12 to J/P58-3 to P57-3

Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the paper timing guide. If that doesn't resolve the problem, replace the PCL board. Then turn to TAG 002: Check & Problem Resolution.

TAG 026: Paper in Output Area Before Printing

Error Code:	**026**
Possible Defects:	**Exit paper sensor**
	PCL board
	Connectors or wiring

If the printer has a high capacity output unit (HCO), unplug and remove it before beginning this TAG. Test the printer without the HCO; if the problem remains, proceed with this TAG. If the problem occurs only with the HCO, the HCO is causing the problem. Repair or replace the HCO.

---

1 Turn the printer off and unplug the power cord.
- Check the paper path and remove any paper jams.
- Confirm that J/P50 and J/P40 are connected properly.
- Inspect the exit paper sensor actuator for damage or binding.

Is it in good working order?

No: Replace the exit paper sensor actuator and continue.

Yes: Continue.

---

2 Power-on-reset the printer.

Is error code 026 displayed?

No: Jammed paper, loose connectors, or sensor actuator were at fault; go to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 Check J/P40-26 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue

---

4 Turn off the printer and unplug the power cord.
- Remove the exit cover.
- Disconnect J/P49 and J/P40.
- Check the following for continuity:
  P40-26 to P49-1,
  P40-24 to P49-2, and
  P40-13 to P49-3

Is there continuity?

No: Repair or replace the connectors or wiring from:
  P40-26 to J/P50-1 to P49-1,
  P40-24 to J/P50-2 to P49-2, or
  P40-13 to J/P50-3 to P49-3.
  Then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the exit paper sensor. If this doesn't resolve the problem, replace the PCL board.
  Then turn to TAG 002: Check & Problem Resolution.

TAG 030: Developer Bias Short/Failure

Error Code:	**030**
Possible Defects:	**Cleaner unit**
	High voltage unit
	DC power supply
	Connectors or wiring
	PCL board
	Printhead assembly
	Power control #2 board
	Developer unit

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P23, J/P24, J/P40, J/P41, J/P96, and J/P85 are connected properly.
- Power-on-reset the printer.

Is error code 030 still displayed?

No: A loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   Check the voltages, as described in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Has the developer unit been replaced recently?**

No: Go to #5 in this TAG.

Yes: Continue.

---

4   Replace the cleaner unit.

- Run test prints.

Is error code 030 still displayed?

No: The cleaner unit was defective; turn to TAG 002: Check & Problem Resolution.

Yes: Reinstall the original cleaner unit and go to #6 in this TAG.

---

5   Replace the developer unit.

- Install a new toner cartridge.
- Run test prints.

Is error code 030 still displayed?

No: The developer unit was defective; turn to TAG 002: Check & Problem Resolution.

Yes: Reinstall the original developer unit and continue.

6 Open the back cover and install an interlock by-pass tool.
- Power-on-reset the printer.
- Check TP4-35 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #11 in this TAG.

Yes: Continue.

---

7 Check J/P23-5 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P41-35 to P23-5, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

8 Turn the printer off and unplug the power cord.
- Disconnect J/P41 and J/P24.
- Check the following for continuity:
  P41-31 to P24-1
  P41-30 to P24-2
  P41-40 to P24-3

Is there continuity?

No: Repair or replace the connectors or wiring from:
  P41-31 to P24-1
  P41-30 to P24-2
  P41-40 to P24-3
  Then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9 Disconnect P85 from the high voltage unit.
- Check P85-3 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P85-3 to J25-7, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

10 Disconnect J/P96.
- Check P96-1 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the developer power supply lead from J/P96-1 to P85-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

---

11   Check TP3-27 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

12   Check J/P12-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Repair or replace the connectors or wiring from P40-27 to P12-1, then turn to TAG 002: Check & Problem Resolution.

---

13   Check J/P11-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

---

14   Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P8-11 to P11-1, then turn to TAG 002: Check & Problem Resolution.

TAG 031: Toner Patch Reference Level Too Low

Error Code:	**031**
Possible Causes:	**Contamination of the toner patch sensor or printhead lens**
Possible Defects:	**Photoconductor unit**
	Connectors or wiring
	PCL board
	Developer unit

1 Turn the printer off and unplug the power cord.

- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Clean the toner patch sensor on the developer unit.
- Clean the printhead lens.
- Run at least 200 test prints to detone the printer's engine.

Has the problem been resolved?

No: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

2 Check the voltages, as described in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

3 **Have the photoconductor and developer units been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

4 Replace the photoconductor unit.

- Run 200+ test prints to reduce toner concentration in the developer unit.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor was at fault; turn to TAG 002: Check & Problem Resolution.

5 Replace the developer unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution. If the problem reappears, the toner/carrier mix may be old or contaminated.

6   Turn the printer off and unplug the power cord.

- Remove the developer unit.
- Disconnect J/P41.
- Check P41-47 to J25-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-47 to J25-3.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 032: Toner Patch Too Light

Error Code:	**032, 033**
Possible Defects:	**Photoconductor unit**
	IGS board
	PCL board

---

1   Check the voltages, as described in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   **Have the photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

---

3   Replace the photoconductor unit.

• Run 200+ test prints to reduce toner concentration in the developer unit.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor was at fault; turn to TAG 002: Check & Problem Resolution.

---

4   Turn the printer off and unplug the power cord.

• Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
• Clean the toner patch sensor on the developer unit.
• Clean the printhead lens.
• Run at least 55 test prints

Has the problem been resolved?

No: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue

---

5   Run test prints.

Do the test prints appear overtoned, dark, or have background?

No: Go to #8 in this TAG

Yes: Continue.

---

6   Develop a toner patch, as described in Chapter 1, "Printer and Troubleshooting Overview".

Is the toner patch developed and properly positioned?

No: Replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue

---

7   Check the toner patch sensor board in the developer unit for loose wiring connectors.

Are all connectors and wiring connected properly?

No: Reconnect the wiring and connectors or replace the developer unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Go to TAG 808: Prints Overtoned/Dark Vertical Streaks, TAG 811: Background/Residual Images/Dark Prints, or both, to identify the problem further.

---

8   **Do the prints appear light or blank?**

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the photoconductor unit, then turn to TAG 002: Check & Problem Resolution.

TAG 035: Out of Toner or ADD TONER Indicator On

Error Code:	**035**
Possible Causes:	**Photoconductor unit**
	Toner cartridge seal not removed
	Toner cartridge empty
	High print coverage
Possible Defects:	**PCL board**
	Developer unit connectors or wiring

An 035 error may occur if the print coverage exceeds 25%. Do not run high print coverage jobs for extended periods of time.

---

1 Power-on-reset the printer.

- Run test prints.

Is error code 035 displayed?

No: Continue.

Yes: Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance". Clean the toner patch sensor and the printhead lens, then continue.

---

2 Check the voltages, as described in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 **Has the photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #5 in this TAG.

---

4 Replace the photoconductor unit.

- Run 200+ test prints to reduce toner concentration in the developer unit.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor unit was at fault. Turn to TAG 002: Check & Problem Resolution.

---

5 **Has the seal has been removed from the toner cartridge?**

No: Continue.

Yes: Go to #7 in this TAG.

6 Remove the toner cartridge seal.

- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: The toner cartridge seal was at fault. Turn to TAG 002: Check & Problem Resolution.

---

7 Turn the printer off and unplug the power cord.

- Disconnect J/P41.
- Remove the developer unit.
- Check P41-48 to J25-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-48 to J25-6, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board. If this resolves the problem, then turn to TAG 002: Check & Problem Resolution. If the problem is still not resolved, go to TAG 610: Operator Panel Malfunction.

TAG 036: Developer Unit Not Installed

Error Code:	**036**
Possible Defects:	**Developer unit not installed properly**
	Connectors or wiring
	PCL board

---

1   Turn the printer off and unplug the power cord.

- Make sure the developer unit is installed properly.
- Confirm that J/P41 is connected properly.
- Confirm that the proper developer unit is installed.
- Power-on-reset the printer.

Is error code 036 displayed?

No: A loose connector or improper developer unit was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   Check the voltages, as described in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   Turn the printer off and unplug the power cord.

- Disconnect J/P41.
- Check P41-45 to P41-46 for continuity.

Is there continuity?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

4   Remove the developer unit.

- Check P41-45 to J25-12 and P41-46 to J25-8 for continuity.

Is there continuity on both?

No: Repair or replace the connectors or wiring from: P41-45 to J25-12 or P41-46 to J25-8, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the developer unit, then turn to TAG 002: Check & Problem Resolution.

TAG 040: Photoconductor Seam Sensor Malfunction

Error Code: **040, 041, 042**

Possible Defects: **Photoconductor unit**
                     Main motor gear
                     Main motor gear keys
                     Main drive gear assembly
                     Main drive motor assembly
                     Connectors or wiring
                     PCL board
                     Software
                     Seam sensor
                     Transfer corona

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P4, J/P9, J/P12, J/P14, J/P20, J/P40, J/P41, J/P63 (photoconductor seam sensor), J/P64, J/P251, and J/P252 are connected properly.
- Remove the photoconductor unit.
- Clean the photoconductor unit contacts, the guide rail contacts, and the photoconductor cavity.
- Clean the seam sensor lens and cavity, and remove any obstructions.
- Reinstall the photoconductor unit.
- Power-on-reset the printer.

Is error code 040, 041, or 042 still displayed?

No: Loose connectors or dirty contacts were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   **Has the photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

---

3   Replace the photoconductor unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor was at fault. Turn to TAG 002: Check & Problem Resolution.

---

4   Open the top cover and insert an interlock by-pass tool.

- Run diagnostic test 009.

Does the photoconductor belt rotate?

No: Continue.

Yes: Go to #11 in this TAG.

---

5   **Is error code 041 or 042 displayed while running diagnostic test 009?**

No: Continue.

Yes: Go to #12 in this TAG.

TAG 040: Photoconductor Seam Sensor Malfunction

---

6   Turn the printer off.
- Remove the photoconductor unit.
- Inspect it for damaged drive mechanism or belt slippage.

Is it in good working order?

No: Replace the photoconductor unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Reinstall the photoconductor unit.
- Remove the interlock by-pass tool and close the top cover.
- Open the back cover and install an interlock by-pass tool.
- Remove the main drive motor assembly cover.
- Turn the printer on.
- Run diagnostic test 009.
- Watch the main motor.

Does the main motor gear turn while running diagnostic test 009?

No: Continue.

Yes: Replace the main motor gear, main motor gear key, or both, or replace the main drive gear assembly, as needed. Then turn to TAG 002: Check & Problem Resolution.

---

8   Run diagnostic test 009. Use extreme caution:
- Check J/P20-2 to J/P20-3 for 100 Vac while the test is running.

Is the voltage 100 vac?

No: Continue.

Yes: Replace the main drive motor assembly, then turn to TAG 002: Check & Problem Resolution.

---

9   Run diagnostic test 009. Use extreme caution:
- Check J/P14-2 to J/P14-3 for 100 Vac while the test is running.

Is the voltage 100 Vac?

No: Continue.

Yes: Repair or replace the connectors or wiring from P14-2 to P20-3 or P14-3 to P20-2; then turn to TAG 002: Check & Problem Resolution.

---

10   Turn the printer off and unplug the power cord.
- Disconnect J/P40 and J/P12.
- Check P40-33 to P12-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-33 to P12-7.

Yes: Replace the power control board; if this does not correct the problem, replace the PCL board. Then turn to TAG 002: Check & Problem Resolution.

---

11 Remove the photoconductor unit.
- Inspect the photoconductor belt for damage.
- Check the timing hole for contamination or blockage.

Are the photoconductor belt and the timing hole both in good working order?

No: Replace the photoconductor unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

12 Turn the printer off.
- Disconnect J/P40.
- Turn the printer on.
- Check TP3-20 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

13 Check TP3-21 for between +2 to +6 Vdc.

Is the voltage between +2 to +6 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

14 Turn the printer off and unplug the power cord.
- Remove the photoconductor unit.
- Disconnect J/P63, observing carefully the plug's orientation before you remove it.
- Check the following for continuity:
    - P40-19 to J/P64-1 to J/P252, which is the center connector contact on the photoconductor guide rail;
    - P40-21 to J/P64-2 to J/P251, which is the top connector contact on the photoconductor guide rail;
    - P40-18 to J/P 64-3 to P63-1;
    - P40-20 to J/P64-4 to P63-2.

Is there continuity on all?

No: Repair or replace the connectors or wiring that did not have continuity, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15 Repair or replace the photoconductor seam sensor.
- Reconnect J/P40 and J/P63.
- Reinstall the photoconductor.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Go to TAG 002: Check & Problem Resolution.

---

16   Clean both the photoconductor LED and seam sensor using a cotton swab or compressed air.

- Run diagnostic 009.
- Using an oscilloscope connected to TP3-20 on the PCL board, adjust the signal so that it matches figure A by moving the sensor bracket closer or farther from the photoconductor unit. Figure B illustrates a bad signal. Note that 7ms is the recommended minimum length of time the waveform should maintain 0v; you may have to settle for less. The two small signals prior to the 12v signal are from the smaller holes in the photoconductor unit; the larger signal is from the cutout for the PC sensor.

Figure A

12V

0V

7 ms

Figure B

12V

0V
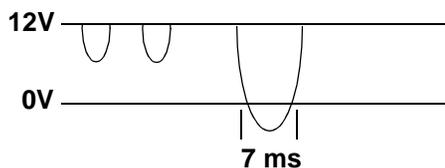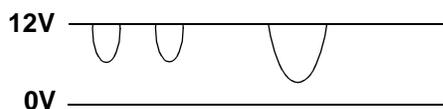
Is the signal adjusted to match that illustrated in Figure A?

No: Repeat this step until the signal has been adjusted properly.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 044: Charge Corona/Transfer Corona Circuit Open

Error Code: 044

Possible Defects: Charge corona
Transfer corona
Connectors or wiring
High voltage unit
Upper paper guide
Charge corona terminal assembly
PCL board

---

1 Turn the printer off and unplug the power cord.

- Verify that J/P23 and J/P41 are connected properly.
- Make sure the high voltage unit charge corona lead is connected properly.
- Make sure the transfer corona lead is connected properly.
- Verify that the charge corona and transfer corona ground circuits are connected properly.
- Remove the transfer corona from the upper paper guide.
- Clean the transfer corona housing and contacts.
- Clean the transfer corona wire.
- Inspect the transfer corona socket in the upper paper guide for contamination.
- Verify that the transfer corona static eliminator brush on the transfer corona housing is grounded to the transfer corona metal housing.
- Reinstall the transfer corona.
- Clean the charge corona contacts.
- Power-on-reset the printer.
- Run test prints.

Is error code 044 displayed?

No: Loose connectors or a dirty transfer corona were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2 **Has the charge corona been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

---

3 Replace the charge corona and photoconductor unit.

- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original charge corona and photoconductor unit, and continue.

Yes: The charge corona was at fault. Turn to TAG 002: Check & Problem Resolution.

4   Remove the transfer corona.

- Inspect the housing for jammed paper.

Is paper jammed inside the transfer corona housing?

No: Continue.

Yes: Remove the jammed paper and check the transfer corona for damage, then turn to TAG 022: Paper Jam in the Transfer or Fuser Area.

---

5   Run diagnostic test 011.

Is error code 046 displayed?

No: Continue.

Yes: Go to #11 in this TAG.

---

6   Run diagnostic test 012.

Is error code 051 displayed?

No: Continue.

Yes: Go to #8 in this TAG.

---

7   Run diagnostic test 012.

Is error code 050 displayed?

No: The problem appears to be intermittent. Go to TAG 050: Transfer Corona Circuit Shorted.

Yes: Go to TAG 050: Transfer Corona Circuit Shorted.

---

8   Turn the printer off and unplug the power cord.

- Remove the transfer corona.
- Inspect the transfer corona wire.

Is the transfer corona wire damaged?

No: Continue.

Yes: Replace the transfer corona, then turn to TAG 002: Check & Problem Resolution.

---

9   With the upper paper guide assembly in its fully upright position, check the transfer corona's lower receptacle for continuity to ground.

Is there continuity?

No: Replace or repair the upper paper guide assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

10   Disconnect high voltage unit lead to the transfer corona.

- Check the transfer corona's upper receptacle to the lead removed from the high voltage unit for continuity.

Is there continuity?

No: Replace the upper paper guide assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Go to #13 in this TAG.

---

11 Turn the printer off and unplug the power cord.

- Disconnect the charge corona lead from the high voltage unit.
- Check for continuity the charge corona lead terminal assembly's lower contact to the lead removed from the high voltage unit.

Is there continuity?

No: Repair or replace the charge corona lead or the charge corona terminal assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

12 Remove the cleaner unit.

- Disconnect J/P85.
- Check for continuity between the connector for the charge corona terminal assembly's upper contact and J/P85-10 at the high voltage unit.

Is there continuity?

No: Repair or replace the connectors or wiring, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

13 Disconnect J/P41 and J/P23.

- Check P41-35 to P23-5 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-35 to P23-5, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

14 Check P41-39 to P23-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-39 to P23-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15 Reconnect the power.

- Turn the printer on.
- Check J/P41-35 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Determine whether the high voltage unit or the charge corona terminal assembly is at fault, replace the faulty unit, then turn to TAG 002: Check & Problem Resolution.

TAG 045: Charge Corona Circuit Shorted

Error Code: **045**

Possible Defects: **Charge corona**
High voltage unit
Charge corona terminal assembly
Connectors or wiring
PCL board

---

1 Turn the printer off and unplug the power cord.
- Verify that J/P23, J/P41, J/P85, P124, P143, and the high voltage unit charge corona lead are connected properly.
- Clean the charge corona contacts.
- Power-on-reset the printer.
- Run test prints.

Is error code 045 displayed?

No: Loose connectors or dirty contacts were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2 **Has the charge corona been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

---

3 Replace the charge corona and photoconductor unit.
- Run test prints.

Is error code 045 still displayed?

No: The charge corona was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Reinstall the original charge corona and photoconductor unit, then continue.

---

4 Turn the printer off and unplug the power cord.
- Disconnect the charge corona lead from the high voltage unit.
- Check for continuity the charge corona terminal assembly's lower contact to the lead removed from the high voltage unit.

Is there continuity?

No: Repair or replace the high voltage lead or the charge corona terminal block, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

5   Reconnect the charge corona high voltage lead.

- Disconnect P23 and J/P41.
- Check J/P41-34 to P23-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-34 to P23-6, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

6   Check P41-35 to P23-5 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-35 to P23-5.

Yes: Replace the high voltage unit. If this corrects the problem, turn to TAG 002: Check & Problem Resolution. If this does not correct the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 050: Transfer Corona Circuit Shorted

Error Code:	**050**
Possible Defects:	**Transfer corona**
	High voltage unit
	Connectors or wiring
	PCL board
	Upper paper guide assembly

1 Turn the printer off and unplug the power cord.

- Verify that J/P23, J/P41 and the transfer corona high voltage unit lead are connected properly.
- Power-on-reset the printer.
- Run test prints.

Is error code 050 displayed?

No: A loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

2 Turn the printer off and unplug the power cord.

- Remove and clean the transfer corona housing and contacts.
- Check between the two terminals on the back of the transfer corona for continuity.

Is there continuity?

No: Continue.

Yes: Repair or replace the transfer corona, then turn to TAG 002: Check & Problem Resolution.

3 Reinstall the transfer corona.

- Power-on-reset the printer.
- Run test prints.

Is error code 050 displayed?

No: A dirty transfer corona was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

4 Turn the printer off and unplug the power cord.

- Disconnect the transfer corona lead from the high voltage unit.
- Check the transfer corona high voltage unit lead for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Repair or replace the upper paper guide assembly or transfer corona, then turn to TAG 002: Check & Problem Resolution.

5   Reconnect the transfer corona high voltage unit lead.

- Disconnect J/P23 and J/P41.
- Check P41-37 to P23-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-37 to P23-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

6   Replace the transfer corona.

Has the problem been resolved?

No: Replace the high voltage unit. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If the problem has not been resolved, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 055: Erase Lamp Malfunction

Error Code:	**055**
Possible Defects:	**Erase lamp assembly**
	Connectors or wiring
	PCL board

1   Turn the printer off and unplug the power cord.

- Verify that J/P26, J/P40 are connected properly.
- Power-on-reset the printer.

Is error code 055 displayed?

No: Continue.

Yes: Go to #3 in this TAG.

2   Run diagnostic test 013.

Is the value displayed less than 220?

No: A loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

3   Run diagnostic test 009.

- Watch all the LEDs on the erase lamp.

Do all the LEDs on the erase lamp come on, even momentarily?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

4   Run diagnostic test 013.

- Check J/P26-2 for +12 Vdc immediately. After the start of the test, the voltage may drop to 0 Vdc.

Did you measure +12 Vdc?

No: Continue.

Yes: Go to #6 in this TAG.

5   Turn off the printer and unplug the power cord.

- Disconnect J/P26 and J/P40.
- Check P26-2 to P40-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P26-2 to P40-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

_6_   Turn off the printer and unplug the power cord.

- Disconnect P26 and P40.
- Check P26-1 to P40-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P26-1 to P40-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the erase lamp assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, turn to TAG 002: Check & Problem Resolution.

TAG 070: Fuser Unit Malfunction

Error Code:	**070, 073**
Symptoms:	**No AC power at the fuser**
Possible Defects:	**Fuser unit**
	Power control #2 board
	AC power supply unit
	DC power supply unit
	Connectors or wiring
	PCL board

Note

A lack of continuity can result in fuser unit damage. If there is no continuity, replace the fuser unit when replacing the connectors and/or wiring

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P44, J/P4, J/P10, J/P11, J/P12, J/P70, J/P40, J/P41, J/P8, and J/P5 (bottom of fuser unit) are connected properly.
- Verify that the fuser unit is installed properly.
- Read the following steps before taking further action.
- Power-on-reset the printer.
- Watch through the output tray opening to see if the fuser lamp comes on.

Note

If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.

Is error code 070 or 073 displayed?

No: A loose connector was at fault.Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   **Has the fuser unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

---

3   Replace the fuser unit.

- Power-on-reset the printer.
- Watch through the output tray opening to see if the fuser lamp comes on.
- If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

4   Power-on-reset the printer.

- Watch through the output tray opening to see if the fuser lamp comes on during the 15 seconds following the output tray jogging test.
- If the fuser lamp comes on immediately after power on, turn the printer off and replace the AC power supply.

Does the fuser lamp light?

No: Go to #10 in this TAG.

Yes: Continue.

---

5   Read this entire step before taking any action.

- Power-on-reset the printer.
- Check the voltage between TP4-21 and ground on the PCL board for a voltage increase during the 15 seconds following the output tray jogging test.

Caution

If the voltage does not increase within 15 seconds, turn the printer off immediately or additional damage may occur.

Did the voltage remain constant for 15 seconds after the output tray jogging test?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6   Check TP4-22 on the PCL board for +5 Vdc.

Caution

Do not allow the printer to remain on for more than five seconds or additional damage may occur.

Is the voltage approximately +5 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Turn the printer off and unplug the power cord.

- Remove the fuser unit.
- Disconnect J/P41.
- Check P41-22 to P5-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-22 to P83-1 or J83-1 to P5-6, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

8   Check P41-21 to P5-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41- 21 to P83-2 or J83-2 to P5-7, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Reinstall the fuser unit.

• Check P41-21 to P41-22 for resistance.

Is the resistance between I KΩ and 400 KΩ?

No: The new fuser unit seems to be defective. Replace it with a new fuser unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

10   Power-on-reset the printer.

• Check J/P10-2 for +24 Vdc during the 15 seconds following power-on-reset.

Is the voltage +24 Vdc?

No: Go to #16 in this TAG.

Yes: Continue.

---

11   Turn the printer off.

• Continue to check J/P10-2 for +24 Vdc.

• Power-on-reset the printer.

Does the voltage drop from +24 Vdc to 0 Vdc during the 15 seconds following the output tray jogging test?

No: Go to #24 in this TAG.

Yes: Continue.

---

12   Power-on-reset the printer. Use extreme caution:

• Check J/P44-1 to J/P44-2 for at least 100 Vac during the 15 seconds following the output tray jogging test.

Is the voltage at least 100 Vac?

No: Go to #15 in this TAG.

Yes: Continue.

---

13   Turn off the printer.

- Remove the fuser unit.
- Clean the contacts of connector J/P5.
- Disconnect J/P44.
- Check J44-2 to J5-4 and J44-1 to J5-1 for continuity.

Is there continuity on both?

No: Repair or replace the connectors or wiring as needed, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

14   Reinstall the fuser unit.

- Power-on-reset the printer.

Has the problem been resolved?

No: Replace the fuser unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Cleaning the contacts resolved the problem. Turn to TAG 002: Check & Problem Resolution.

15   Power-on-reset the printer. Use extreme caution:

- Check J/P4-1 to J/P4-2 for at least 100 Vac during the 15 seconds following the output tray jogging test.

Was the voltage at least 100 Vac?

No: Replace the AC power supply, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from J/P4-1 to J/P44-1, or J/P4-2 to J/P44-2, then turn to TAG 002: Check & Problem Resolution.

16   Check J/P10-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #19 in this TAG.

17   Check J/P11-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace power control #2 board, then turn to TAG 002: Check & Problem Resolution.

18   Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P11-1 to P8-11, then turn to TAG 002: Check & Problem Resolution.

19   Turn the printer off and unplug the power cord.

- Disconnect J/P70 and J/P10.
- Check P70-1 to P10-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P70-1 to P10-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

20   Check P70-2 and P10-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P70-2 to P10-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

21   Reconnect J/P70.

- Connect negative lead of meter to P10-2 and positive lead of meter to P10-1.

Is the resistance approximately 550KΩ?

No: Replace the AC power supply, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

22   Disconnect J/P12.

- Check J10-2 (power control #2 board) for continuity to ground.

Is there continuity?

No: Continue.

Yes: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

---

23   Reconnect J/P10 and J/P12.

- Disconnect J/P40.
- Check P40-36 for continuity to ground.

Is there continuity?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P40-36 to P12-1, then turn to TAG 002: Check & Problem Resolution.

---

24   Power-on-reset the printer.

- Check TP3-36 on the PCL board for a voltage change from +24 Vdc to 0 Vdc during the 15 seconds after the output tray jogging test.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Go to #11 in this TAG.

TAG 071: Open Fuser Thermistor

Error Code:	**071**
Possible Defects:	**Connectors or wiring**
	Fuser unit
	PCL board

---

1 Turn the printer off and unplug the power cord.
- Make sure the fuser unit is installed properly.
- Confirm that J/P41 and J/P44 are connected properly.

Has the fuser unit been replaced recently?

No: Continue.

Yes: Go to #3 in this TAG.

---

2 Replace the fuser unit.
- Power-on-reset the printer.

Is error code 071 displayed during power-on-reset?

No: The fuser unit was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Reinstall the original fuser unit and continue.

---

3 Turn the printer off and unplug the power cord.
- Disconnect J/P41.
- Remove the fuser unit.
- Check P41-21 to P5-7 and P41-22 to P5-6 for continuity.

Is there continuity on both?

No: Repair or replace the connectors or wiring as necessary, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4 Check P41-21 and P41-22 for continuity to ground.

Is there continuity to ground on either?

No: Replace the fuser unit. If this resolves the problem, then turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring that have continuity to ground:
P41-21 to P44-2,
J44-2 to P5-7, or
P41-22 to P44-1, J44-1 to P5-6;
then turn to TAG 002: Check & Problem Resolution.

TAG 072: Fuser Unit Temperature Too High

Error Code: **072**

Possible Defects: **Connectors or wiring**
Fuser unit
AC power supply unit
PCL board

The conditions that cause error code 072 often cause the fuser unit's thermal fuse to open. This usually necessitates replacement of the fuser unit.

1 Turn the printer off and unplug the power cord.

- Verify that J/P44, J/P40, J/P10, J/P70, and J/P8 are connected properly.
- Make sure the fuser unit is properly installed.
- Read the following steps before taking further actions.
- Power-on-reset the printer.
- Watch through the output tray opening to see if the fuser lamp comes on.
- If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

2 **Has the fuser unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

3 Replace the fuser unit.

- Power-on-reset the printer.
- Watch through the output tray opening to see if the fuser lamp comes on during the 15 seconds after the output tray jogging test.
- If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: The fuser unit was at fault. Turn to TAG 002: Check & Problem Resolution.

4 Power-on-reset the printer.

- Watch the fuser unit's lamp.

Does the lamp turn on before error code 072 is displayed?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

5	Turn the printer off and unplug the power cord.

- Disconnect J/P41.
- Check P41-21 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring that have continuity to ground:
P41-21 to P44-2, or J44-2 to P5-7; then turn to TAG 002: Check & Problem Resolution.

6	Check P41-21 to P41-22 for resistance.

Is the resistance at least 1K‡WW?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

7	Remove the fuser unit.

- Check P41-21 to P5-7 for resistance.

Is there resistance?

No: Continue.

Yes: Repair or replace the connectors or wiring that have resistance:
P41-21 to P44-2, or J44-2 to P5-7; then turn to TAG 002: Check & Problem Resolution.

8	Check P41-22 to P5-6 for resistance.

Is there resistance?

No: Replace the fuser unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring that have resistance: P41-22 to P44-1, or J44-1 to P5-6; then turn to TAG 002: Check & Problem Resolution.

TAG 083: Job Offset Mechanism Malfunction

Error Code:	**081, 082, 083**
Symptoms:	**Jobs not offsetting**
	Jobs offsetting improperly
	Continuous jogging
Possible Defects:	**Job offset mechanism**
	Jogging motor
	Connectors or wiring
	Tray front sensor
	Tray rear sensor
	Power control #3 board

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P100, J/P101, J/P102, J/P19, J/P40, J/P54, J/P53, and J/P55 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   **Does the output tray jog continuously?**

No: Go to #4 in this TAG.

Yes: Continue.

---

3   Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P102.
- Check P40-32 for continuity to ground.

Is there continuity to ground?

No: Replace the power control #3 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P40-32 to P102-2, then turn to TAG 002: Check & Problem Resolution.

---

4   Run diagnostic test 008.

Does the output tray move back and forth?

No: Continue.

Yes: Go to #15 in this TAG.

---

5   Run diagnostic test 008. Use extreme caution:

- Check J/P19-1 to J/P19-3 for 100 Vac while the test is running.

Is the voltage 100 Vac?

No: Continue.

Yes: Replace the jogging motor, then turn to TAG 002: Check & Problem Resolution.

6	Run diagnostic test 008.

<div style="border: 1px solid black; padding: 10px;">

Caution

Check J/P101-2 to J/P101-1 for 100 Vac while the test is running

</div>

Is the voltage 100 Vac?

No: Go to #9 in this TAG.

Yes: Continue.

7	Turn the printer off.

- Disconnect J/P101 and J/P19.
- Check P101-2 to P19-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P101-2 to P19-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

8	Check P101-1 to P19-3 for continuity.

Is there continuity?

No: Repair or replace the connector or wiring from P101-1 to P19-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the job offset assembly, then turn to TAG 002: Check & Problem Resolution.

9	Run diagnostic test 008.

- Check J/P102-2 for +12 Vdc while the test is running.

Is the voltage +12 Vdc?

No: Go to #11 in this TAG.

Yes: Replace the power control #3 board, then turn to TAG 002: Check & Problem Resolution.

10	Run diagnostic test 008.

- Check TP3-32 on the PCL board for +12 Vdc while the test is running.

Is the voltage +12 Vdc?

No: Repair or replace the connectors or wiring from P102-2 to P40-32, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 083: Job Offset Mechanism Malfunction

---

11   Run diagnostic test 008.

- Check J/P102-1 for +12 Vdc while the test is running.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the power control #3 board, then turn to TAG 002: Check & Problem Resolution.

---

12   Run diagnostic test 008.

- Check TP3-35 on the PCL board for +12 Vdc while the test is running.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P102-1 to P40-35, then turn to TAG 002: Check & Problem Resolution.

---

13   Run diagnostic test 008.

Does the tone sound steadily while the output tray moves back and forth?

No: Continue.

Yes: Repair or replace the job offset assembly, then turn to TAG 002: Check & Problem Resolution.

---

14   Turn the printer off and unplug the power cord.

- Disconnect J/P53, J/P55, and J/P40.
- Check P40-26 to P53-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-26 to J/P54-1 to P53-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15   Check P40-23 to P53-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-23 to J/P54-2 to P53-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

16   Check P40-13 to P53-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-13 to J/P54-3 to P53-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

17   Check P40-26 to P55-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-26 to J/P54-4 to P55-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

18   Check P40-22 to P55-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-22 to J/P54-5 to P55-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

19   Check P40-13 to P55-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-13 to J/P54-6 to P55-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

20   Reconnect J/P40, J/P53, and J/P55.

- Run diagnostic test 008.

Is error code 083 displayed?

No: Continue.

Yes: Verify again that J/P40, J/P53, J/P55, and J/P54 are connected properly. If they're not, connect them properly, then turn to TAG 002: Check & Problem Resolution. If they are, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

21   Interchange P53 and P55.

- Run diagnostic test 008.

Does the error code change from 081 to 082?

No: Continue.

Yes: Adjust the tray front sensor position. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the tray front sensor, then turn to TAG 002: Check & Problem Resolution.

---

22   **Does the error code change from 082 to 081?**

No: Replace the job offset assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Adjust the tray rear sensor position. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the tray rear sensor or job offset sensor, then turn to TAG 002: Check & Problem Resolution.

TAG 097: +12 Vdc Power Shorted or Sensing Problem

Error Code: **097**

Possible Defects: **DC power supply unit**
Connectors or wiring
Signal interface board
IGS board
Optional external attachment
Power control #2 board
Power control #3 board
Developer unit
Paper timing sensor
Upper paper empty sensor
Lower paper empty sensor
Output tray full sensor
Paper exit sensor
Tray front sensor
Tray rear sensor
Erase lamp
PCL board

Possible Defects, Duplex Printers:
Duplex control board #1
Duplex control board #2
Paper path sensor
Cover open sensor
Restart side sensor
Restart paper sensor

---

1   Turn off the printer and unplug the power cord.

- Verify that J/P303, J/P331, J/P323, J/P305, J/P310, J/P306, J/P32, and J/P33 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

3   Turn the printer off.

- Disconnect J/P330.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

No: Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #35 in this TAG.

---

4   Turn the printer off.

- Disconnect J/P32.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #8 in this TAG.

Yes: Continue.

---

5   Turn the printer off.

- Reconnect J/P32.
- Disconnect J/P74.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6   **Does the printer have an attachment option?**

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Turn the printer off.

- Reconnect J/P74.
- Disconnect the DC cable (J/P73) for the attachment option.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the attachment option, then turn to TAG 002: Check & Problem Resolution.

TAG 097: +12 Vdc Power Shorted or Sensing Problem

---

8   Turn the printer off.
- Reconnect J/P32.
- Disconnect J/P91.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #13 in this TAG.

Yes: Continue.

---

9   Turn the printer off.
- Reconnect J/P91.
- Disconnect J/P40 and J/P41.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

10   Turn the printer off.
- Reconnect J/P40.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #15 in this TAG.

Yes: Continue.

---

11   Turn the printer off.
- Reconnect J/P41.
- Remove the developer unit.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the developer unit, then turn to TAG 002: Check & Problem Resolution.

---

12   Turn the printer off and unplug the power cord.
   - Reconnect J/P41.
   - Remove the fuser unit.
   - Check P41-49 to P25-4 and P41-50 to P25-1 for continuity to ground.

Is there continuity?

No: Go to #15 in this TAG.

Yes: Repair or replace the appropriate connectors or wiring, then turn to TAG 002: Check & Problem Resolution.

---

13   Turn the printer off and unplug the power cord.
   - Reconnect J/P91.
   - Disconnect J/P8 and J/P32.
   - Check J8-6 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P8-6 to P32-10 to P91-3, then turn to TAG 002: Check & Problem Resolution.

---

14   Reconnect J/P32 and J/P8.
   - Disconnect J/P77.
   - Turn on the printer.
   - Check J/P8-3 for +12Vdc.

Is the voltage +12 Vdc?

No: Replace the DC power supply, then turn to TAG 002: Check & Problem Resolution.
Yes: Replace the disk drive assembly, then turn to TAG 002: Check & Problem Resolution.

---

15   Turn the printer off.
   - Reconnect J/P41.
   - Disconnect J/P58, J/P60, and J/P62.
   - Turn the printer on.
   - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #21 in this TAG.
Yes: Continue.

---

16   Turn the printer off.
   - Reconnect J/P58.
   - Turn on the printer.
   - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #19 in this TAG.
Yes: Continue.

TAG 097: +12 Vdc Power Shorted or Sensing Problem

---

17   Turn the printer off.
  - Reconnect J/P60.
  - Turn the printer on.
  - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #20 in this TAG.

Yes: Continue.

---

18   Disconnect J/P61.
  - Check P62-1 to P61-1 for continuity to ground.

Is there continuity?

No: Replace the lower paper empty sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P62-1 to P61-1, then turn to TAG 002: Check & Problem Resolution.

---

19   Disconnect J/P58 and J/P57.
  - Check P58-1 to P57-1 for continuity to ground.

Is there continuity?

No: Replace the paper timing sensor.

Yes: Repair or replace the connectors or wiring from P58-1 to P57-1, then turn to TAG 002: Check & Problem Resolution.

---

20   Disconnect J/P60 and J/P59.
  - Check P60-1 to P59-1 for continuity to ground.

Is there continuity?

No: Replace the upper paper empty sensor.

Yes: Repair or replace the connectors or wiring from P60-1 to P59-1, then turn to TAG 002: Check & Problem Resolution.

---

21   Turn the printer off and unplug the power cord.
  - Disconnect J/P40.
  - Check for continuity to ground:
    P40-25 to J58-1, P40-25 to J60-1, and P40-25 to J62-1.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P40-25 to J58-1, P40-25 to J60-1, or P40-25 to J62-1, then turn to TAG 002: Check & Problem Resolution.

---

22 Turn the printer off.

- Reconnect J/P40, J/P58, J/P60, and J/P62.
- Disconnect J/P50 and J/P54.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #30 in this TAG.

Yes: Continue.

---

23 Turn the printer off.

- Reconnect J/P50.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #27 in this TAG.

Yes: Continue.

---

24 Turn the printer off.

- Reconnect J/P54.
- Disconnect J/P53.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the front tray sensor, then turn to TAG 002: Check & Problem Resolution.

---

25 Turn the printer off.

- Disconnect J/P55.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the rear tray sensor, then turn to TAG 002: Check & Problem Resolution.

---

26 Turn the printer off and unplug the power cord.

- Disconnect J/P54.
- Check J54-1 and J54-4 for continuity to ground.

Is there continuity to ground at either?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from: J54-1 to P53-1 or J54-4 to P55-1, then turn to TAG 002: Check & Problem Resolution.

---

27   Turn the printer off.
- Remove the exit cover.
- Disconnect J/P49 and J/P51.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #29 in this TAG.

Yes: Continue.

---

28   Turn the printer off.
- Reconnect J/P49.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the paper exit sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the output tray full sensor, then turn to TAG 002: Check & Problem Resolution.

---

29   Turn the printer off and unplug the power cord.
- Disconnect J/P50.
- Check J50-1 and J50-4 for continuity to ground.

Is there continuity at either?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from: J50-1 to P49-1 or J50-4 To P51-1, then turn to TAG 002: Check & Problem Resolution.

---

30   Turn the printer off.
- Disconnect J/P40.
- Check P40-26 for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Repair or replace the connectors or wiring from: P40-26 to P54-1, P40-26 to P54-4, P40-26 to P50-1, or P40-26 to P50-4, then turn to TAG 002: Check & Problem Resolution

---

31   Turn the printer off.
- Reconnect J/P40, J/P50, and J/P54.
- Disconnect J/P12.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

---

32   Turn the printer off and unplug the power cord.

- Disconnect J/P40.
- Check P40-34 to P12-8 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P40-34 to P12-8, then turn to TAG 002: Check & Problem Resolution.

---

33   Reconnect J/P40 and J/P12.

- Disconnect J/P102.
- Turn on the printer.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the power control #3 board, then turn to TAG 002: Check & Problem Resolution.

---

34   Turn off the printer and unplug the power cord.

- Disconnect J/P40.
- Check P40-35 to P102-1 for continuity to ground.

Is there continuity?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from P40-35 to P102-1, then turn to TAG 002: Check & Problem Resolution.

---

35   Turn off the printer.

- Reconnect J/P330.
- Disconnect J/P323.
- Turn on the printer.
- Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #40 in this TAG.

Yes: Continue.

---

36   Turn off the printer.

- Reconnect J/P323.
- Disconnect J/P305.
- Turn on the printer.
- Check J/P330-2 for +12Vdc.

Is the voltage +12 Vdc?

No: Go to #39 in this TAG.

Yes: Continue.

TAG 097: +12 Vdc Power Shorted or Sensing Problem

---

37   Turn off the printer.

- Reconnect J/P305.
- Disconnect J/P310 (inside the duplex tray).
- Turn on the printer.
- Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #4 in this TAG.

---

38   Turn the printer off and unplug the power cord.

- Disconnect J/P305.
- Check P305-2 and P310-2 for continuity to ground.

Is there continuity?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace connectors or wiring P305-2 to P310-2, then turn to TAG 002: Check & Problem Resolution.

---

39   Turn off the printer and unplug the power cord.

- Disconnect J/P323.
- Check J323-2 and J305-2 for continuity to ground.

Is there continuity at either?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace the connectors or wiring from J323-2 to J305-2, then turn to TAG 002: Check & Problem Resolution.

---

40   Turn off the printer.

- Reconnect J/P323.
- Disconnect J/P306.
- Turn on the printer.
- Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #45 in this TAG.

---

41   Turn off the printer and unplug the power cord.

- Disconnect J/P331.
- Check J331-2 to P306-2 for continuity to ground.

Is there continuity?

No: Repair or replace the connectors or wiring from: P330-2 to P331-2, or P330-2 to P323-2.

Yes: Repair or replace the connectors or wiring from J331-2 to P306-2.

---

42   Turn off the printer.

- Reconnect J/P310.
- Disconnect J/P320 and J/P322.
- Turn on the printer.
- Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #44 in this TAG.

43   Turn off the printer and unplug the power cord.

- Disconnect J/P312.
- Check for continuity to ground: P312-1 to P320-1, and P312-4 to P322-1

Is there continuity?

No: Replace the duplex control board #2, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P312-1 to P320-1, or P312-4 to P322-1, then turn to TAG 002: Check & Problem Resolution.

44   Turn off the printer.

- Reconnect J/P320.
- Turn on the printer.
- Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the restart side sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the restart paper sensor, then turn to TAG 002: Check & Problem Resolution.

45   Turn off the printer.

- Reconnect J/P306.
- Disconnect J/P319 and J/P318.
- Turn on the printer.
- Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #47 in this TAG.

Yes: Continue.

46   Turn off the printer.

- Reconnect J/P319.
- Turn on the printer.
- Check J/P330-2 for +12 Vdc.

Is the voltage at +12 Vdc?

No: Replace the paper path sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the cover open sensor, then turn to TAG 002: Check & Problem Resolution.

TAG 097: +12 Vdc Power Shorted or Sensing Problem

47 Turn off the printer and unplug the power cord.

- Disconnect J/P309.
- Check for continuity to ground:
  P309-4 to P319-1, and
  P309-3 to P318-1

Is there continuity at either?

No: Replace duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from:
P309-4 to P319-1, or
P309-3 to P318-1;
then turn to TAG 002: Check & Problem Resolution.

TAG 098: -12 Vdc Power Shorted

Error Code:	**098**
Possible Defects:	**Connectors or wiring**
	DC power supply unit
	PCL board
	IGS board
	Signal interface board
	External attachment option

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P8, J/P32, J/P33, J/P73, and J/P74 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check J/P32-3 for -12 Vdc.

Is the voltage -12 Vdc?

No: Continue.

Yes: Replace PCL board, then turn to TAG 002: Check & Problem Resolution.

---

3   Turn the printer off.

- Disconnect J/P32.
- Turn the printer on.
- Check J/P8-8 for -12 Vdc.

Is the voltage -12 Vdc?

No: Continue.

Yes: Go to #5 in this TAG.

---

4   Turn the printer off.

- Disconnect J/P8.
- Check P8-8 to P32-3 for continuity to ground.

Is there continuity?

No: Replace the DC power supply, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P8-8 to P32-3.

---

5   Turn the printer off.

- Reconnect J/P32.
- Disconnect J/P74.
- Turn the printer on.
- Check J/P8-8 for -12 Vdc.

Is the voltage -12 Vdc?

No: Replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6   **Does the printer have an attachment option?**

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Turn the printer off.

- Reconnect J/P74.
- Disconnect the DC cable (J/P73) for the attachment option.
- Turn the printer on.

Is the voltage at J/P8-8 -12 Vdc?

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the attachment option, then turn to TAG 002: Check & Problem Resolution.

TAG 099: +24 Vdc Power Shorted

Error Code:	**099**

Possible Defects: **DC power supply unit**
     AC power supply unit
     Connectors or wiring
     PCL board
     IGS board
     Power control #2 board
     High voltage unit
     Paper timing clutch
     Upper feed roller clutch
     Upper pick-up clutch
     Lower pick-up clutch
     Lower feed roller clutch
     Counter assembly

Possible Defects, Duplex Printers:
     Duplex control board #1
     Duplex control board #2
     Route motor
     In solenoid
     'C' roller solenoid
     'A' roller clutch
     Exit solenoid
     Restart motor

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P11, J/P8, J/P32, J/P33, J/P91, J/P303, J/P305, J/P306, J/P310, J/P323, and J/P331 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

3   Turn the printer off.

- Disconnect J/P330.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #22 in this TAG.

---

4   Turn the printer off.

- Reconnect J/P330.
- Disconnect J/P11.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #11 in this TAG.

Yes: Continue.

---

5   Turn the printer off.

- Reconnect J/P11.
- Disconnect J/P10.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #7 in this TAG.

Yes: Continue.

---

6   Turn the printer off.

- Reconnect J/P10.
- Disconnect J/P70.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P10 to P70, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the AC power supply unit, then turn to TAG 002: Check & Problem Resolution.

---

7   Turn the printer off.

- Reconnect J/P10.
- Disconnect J/P12.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace power control #2 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

8   Turn the printer off.

- Reconnect J/P12.
- Disconnect J/P41.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Turn the printer off.

- Reconnect J/P41.
- Disconnect J/P23.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

---

10   Turn off the printer and unplug the power cord.

- Disconnect J/P41.
- Check P41-35 to P23-5 for continuity to ground.

Is there continuity?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from P41-35 to P23-5, then turn to TAG 002: Check & Problem Resolution.

---

11   Turn the printer off.

- Reconnect J/P11.
- Disconnect J/P91.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #21 in this TAG.

Yes: Continue.

---

12   Turn the printer off.

- Reconnect J/P91.
- Disconnect J/P40 and J/P41.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

13   Turn the printer off.

- Reconnect J/P40.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #16 in this TAG.

Yes: Continue.

---

14   Turn the printer off.

- Reconnect J/P41.
- Disconnect J/P81.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P41-26 to P81-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15   Turn the printer off.

- Reconnect J/P81.
- Disconnect J/P82.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from J81-1 to P82-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the counter assembly, then turn to TAG 002: Check & Problem Resolution.

---

16 Turn the printer off.
- Reconnect J/P41.
- Disconnect J/P69.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the lower pick-up roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

17 Turn the printer off.
- Reconnect J/P69.
- Disconnect J/P65.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the paper timing roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

18 Turn the printer off.
- Reconnect J/P65.
- Disconnect J/P66.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the upper feed roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

19 Turn the printer off.
- Reconnect J/P66.
- Disconnect J/P67.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the lower feed roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

20 Turn the printer off.

- Reconnect J/P67.
- Disconnect J/P68.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from:
   P40-10 to J69-1,
   P40-11 to J65-1,
   P40-11 to J66-1,
   P40-11 to J67-1, or
   P40-11 to J 68-1;
   then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the upper pick-up roller assembly, then turn to TAG 002: Check & Problem Resolution.

---

21 Turn the printer off and unplug the power cord.

- Disconnect J/P8, J/P11, and J/P91.
- Check P8-11 to P11-1 and P8-13 to P91-1 for continuity to ground.

Is there continuity?

No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from:
   P8-13 to P91-1, or
   P8-11 to P11-1;
   then turn to TAG 002: Check & Problem Resolution.

---

22 Turn the printer off.

- Reconnect J/P330.
- Disconnect J/P323.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #27 in this TAG.

Yes: Continue.

---

23 Turn the printer off.

- Reconnect J/P323.
- Disconnect J/P305.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #26 in this TAG.

Yes: Continue.

24	Turn the printer off.

- Reconnect J/P305.
- Disconnect J/P310 (inside duplex tray).
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #29 in this TAG.

25	Turn the printer off and unplug the power cord.

- Disconnect J/P305.
- Check P305-1 and P310-1 for continuity to ground.

Is there continuity?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace the connectors or wiring from P305-1 to P310-1, then turn to TAG 002: Check & Problem Resolution.

26	Turn the printer off and unplug the power cord.

- Disconnect J/P323.
- Check J323-1 and J305-1 for continuity to ground.

Is there continuity?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace the connectors or wiring from J323-1 to J305-1, then turn to TAG 002: Check & Problem Resolution.

27	Turn the printer off.

- Reconnect J/P323.
- Disconnect J/P306.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #31 in this TAG.

---

28   Turn the printer off and unplug the power cord.

*   Disconnect J/P331.
*   Check J331-1 and P306-1 for continuity to ground.

Is there continuity?

No: Repair or replace the connectors or wiring from:
P330-1 to P331-1 or
P330-1 to P323-1;
then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P331-1 to P306-1, then turn to TAG 002: Check & Problem Resolution.

---

29   Turn the printer off.

*   Reconnect J/P310.
*   Disconnect J/P321.
*   Turn the printer on.
*   Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the restart motor, then turn to TAG 002: Check & Problem Resolution.

---

30   Turn the printer off.

*   Reconnect J/P321.
*   Disconnect J/P312.
*   Turn the printer on.
*   Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P312 to J321, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the duplex control board #2, then turn to TAG 002: Check & Problem Resolution.

---

31   Turn the printer off.

*   Reconnect J/P306.
*   Disconnect J/P313.
*   Turn the printer on.
*   Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the route motor, then turn to TAG 002: Check & Problem Resolution.

32 Turn the printer off.
- Reconnect J/P313.
- Disconnect J/P314.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the "in" solenoid, then turn to TAG 002: Check & Problem Resolution.

---

33 Turn the printer off.
- Reconnect J/P314.
- Disconnect J/P315.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the "C" roller solenoid, then turn to TAG 002: Check & Problem Resolution.

---

34 Turn the printer off.
- Reconnect J/P315.
- Disconnect J/P316.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the "A" roller clutch, then turn to TAG 002: Check & Problem Resolution.

---

35 Turn the printer off.
- Reconnect J/P316.
- Disconnect J/P317.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue

Yes: Replace the exit solenoid, then turn to TAG 002: Check & Problem Resolution.

---

36   Turn the printer off.

- Reconnect J/P317.
- Disconnect J/P308 and J/P309.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair the duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from:
P309 pins 7 through 10 to J313 pins 1 through 4
P308-1 to J314-1
P308-2 to J315-1
P308-3 to J316-1, or
P308-4 to P317-1;
then turn to TAG 002: Check & Problem Resolution.

TAG 100: PCL Board Interface Malfunction

Error Code:	**100, 132, 140, 145, 160-162, 170-172, 180-182**
Symptoms:	**PCL board failure**
Possible Defects:	**Connectors or wiring**
	PCL board

---

1   Turn off the printer and unplug the power cord.

- Verify that J/P40, J/P41, J/P33, and J/P91 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   **Was an error code displayed during the power-on-reset?**

No: Refer to the mechanical malfunctions cross-reference table in "Mechanical Malfunction/ TAG Cross-Reference" on page 2-12.

Yes: Continue.

---

3   **Was the error code the same as the one used to enter this TAG?**

No: Refer to the error code cross-reference table in "Error Code/TAG Cross-Reference" on page 2-3.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 101: IGS Controller Diagnostic Failure

Error Code: 101

Possible Defects: IGS board

1 Power-on-reset the printer.

Is error 101 displayed on the operator panel.

No: The problem may be caused by power fluctuation. Turn to TAG 002: Check & Problem Resolution.

Yes: Replace the IGS controller, then turn to TAG 002: Check & Problem Resolution.

TAG 130: Diskette/Disk Drive Malfunction

Error Code:	**130, 131, 133, 134, 450, 451, 572-576, 586**
Symptoms:	**Test prints do not run**
Possible Defects:	**Diskette**
	Disk drive assembly
	Connectors or wiring
	PCL board
	IGS board
	DC power supply

Electrical problems on wires J/P31 to J/P79 and J/P31 to ground may cause diskette and disk drive malfunctions. If this TAG does not correct the problem, suspect an intermittent failure from the disk drive to the IGS board cable and replace the cable from J/P31 to J/P79 to J/P30.

The causes of error code 574 or 576 may alter the information on the diskette. You may have to   replace the diskette with another known to be good.

---

1 Verify that a diskette has been inserted properly.
  - Verify that the write/protect notch is closed.
  - Turn off the printer.
  - Verify that J/P8, J/P77, J/P79, and J/P31 are connected properly.
  - Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2 **Is error code 451 displayed?**

No: Go to #5 in this TAG.

Yes: Continue.

---

3 Power-on-reset the printer.

Is error code 451 still displayed?

No: Go to #5 in this TAG.

Yes: Continue.

---

4 Replace the diskette with another diskette known to be correct for the customer's system configuration.
  - Power-on-reset the printer.

Is error code 451 still displayed?

No: The diskette was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Replace the disk drive assembly, then turn to TAG 002: Check & Problem Resolution.

TAG 130: Diskette/Disk Drive Malfunction

---

5   **Is error code 572 displayed?**

No: Go to #7 in this TAG.

Yes: Continue.

---

6   Turn the printer off and unplug the power cord.
- Disconnect J/P31 and J/P79.
- Check P31-28 to P79-28 for continuity to ground.

Is there continuity?

No: Replace the disk drive assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

---

7   **Is error code 573 displayed?**

No: Go to #13 in this TAG.

Yes: Continue.

---

8   Turn the printer on.
- Check J/P8-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Check J/P77-4 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from P8-1 to P77-4, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

10   Check J/P8-3 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

11   Check J/P77-1 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the connectors or wiring from P8-3 to P77-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

12   Turn the printer off and unplug the power cord.
- Disconnect J/P31 and J/P79.
- Check for continuity to ground: P31-34 to P79-34, P31-32 to P79-32, P31-16 to P79-16, and

---

P31-10 to P79-10.

Is there continuity on any?

No: Replace the disk drive assembly. If this does not resolve the problem, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

---

13 **Is error code 574 displayed?**

No: Go to #16 in this TAG.

Yes: Continue.

---

14 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check P31-30 to P79-30 for continuity.

Is there continuity?

No: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15 Check for continuity to ground: P31-18 to P79-18, P31-24 to P79-24, and P31-26 to P79-26.

Is there continuity on any?

No: Replace the disk drive assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

---

16 **Is error code 575 displayed?**

No: Go to #18 in this TAG.

Yes: Continue.

---

17 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check P31-20 to P79-20 and P31-18 to P79-18 for continuity.

Is there continuity on each?

No: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the disk drive assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

---

18 **Is error code 576 displayed?**

No: Go to #21 in this TAG.

Yes: Continue.

---

19 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check for continuity:

TAG 130: Diskette/Disk Drive Malfunction

> P31-22 to P79-22,
> P31-24 to P79-24,
> P31-26 to P79-26,
> P31-28 to P79-28, and
> P31-32 to P79-32.

Is there continuity on each?

No: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

20 Check for continuity to ground:
P31-20,
P31-22,
P31-26, and
P31-32.

Is there continuity to ground on any?

No: Replace the disk drive assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace wire harness W46.

---

21 **Is error code 130, 131, 133, or 134 displayed?**

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

22 **Can the printer run test prints?**

No: Continue.

Yes: Replace the disk drive assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

---

23 Turn the printer off and unplug the power cord.
- Disconnect J/P31 and J/P79.
- Check P31-34 to P79-34 for continuity to ground.

Is there continuity?

No: Replace the disk drive assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

TAG 200: IGS Internal Communication Malfunction

Error Code: 401, 454, 455, 500-509, 520-530, 540-566, 570, 571, 577-585, 600-605

Symptoms: IGS board failure

Possible Causes: IGS program error

Possible Defects: Wiring or connectors
IGS board
Software
Signal interface

---

1 Turn the printer off and unplug the power cord.

- Verify that J/P31, J/P32, J/P33, J/P79, and J/P74 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

---

2 **Was an error code displayed?**

No: Refer to the mechanical malfunctions cross-reference table in "Mechanical Malfunction/ TAG Cross-Reference" on page 2-12.

Yes: Continue.

---

3 **If the operator panel displayed more than one error code, was it the first code that displayed on the panel that led you to this TAG?**

No: Look in "Error Code/TAG Cross-Reference" on page 2-3 for the first error code that displayed, then turn to the TAG referenced in the table.

Yes: Continue.

---

4 Turn the printer off.

- Disconnect J/P31 and J/P79.
- Check P31-34 for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Replace wire harness W46, then turn to TAG 002: Check & Problem Resolution.

---

5 Replace the IGS board, making sure that IGS EPROM version is correctly matched to the software release installed on the printer.

- Power-on-reset the printer.

Has the problem been resolved?

No: Reinstall the original IGS board and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6 **Does this printer contain a hard drive?**

No: Continue.

Yes: Go to #8 in this TAG.

---

7   Replace the software diskettes in drives A and B.

- Power-on-reset the printer.

Has the problem been resolved?

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Software diskettes were at fault. Turn to TAG 002: Check & Problem Resolution.

---

8   Disconnect J/P76 (hard drive cable).

- Insert the emulation diskette into drive A.
- Power-on-reset the printer.

Has the problem been resolved?

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Reconnect J/P76 and reload the software onto the hard drive; instructions for loading software onto the printer's hard drive are outlined in the *Guide to Operations*. Then turn to TAG 002: Check & Problem Resolution.

TAG 201: IGS-PCL Interface Malfunction

Error Code:	**121-127, 199-215, 380-387**
Symptoms:	**Communication failure between the IGS board and the PCL board**
Possible Causes:	**Insufficient delay period between power off and power on** **Electrical spikes** **Optional hard drive not spinning up**
Possible Defects:	**Connectors or wiring** **PCL board** **IGS board** **DC power supply** **High voltage power supply** **Optional hard drive**

---

1   **Is error code 201 displayed?**

No: Go to #3 in this TAG.

Yes: Continue.

---

2   Turn the printer off and unplug the power cord.

- Verify that J/P33 is connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Confirm that the IGS firmware is correct for the version of software being used; then replace the IGS board. Turn to TAG 002: Check & Problem Resolution.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

3   **Is error code 121 or 123 displayed?**

No: Go to #6 in this TAG.

Yes: Continue.

---

4   Turn the printer off and unplug the power cord.

- Confirm that J/P33 is connected properly.

Are the connectors or wiring damaged?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

5   Replace the PCL board.

- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6   Replace the IGS board.

• Power-on-reset the printer.

Has the problem been resolved?

No: If error code 121 or 123 brought you to this TAG, replace the DC or high voltage power supply, then turn to TAG 002: Check & Problem Resolution. For all other error codes, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 405: IGS Bit-Map RAM Malfunction

Error Code: **606, 600, 610**

Possible Defects: **IGS board**

1   The IGS bit-map RAM has malfunctioned. Replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

TAG 500: +5 Vdc Power Malfunction

Error Code:	**500**
Symptoms:	**Operator panel blank with AC power supply cooling fan running**
Possible Defects:	**DC fuse**
	DC power supply unit
	Connectors or wiring
	Operator panel circuit board
	PCL board
	IGS board
	Disk drive assembly
	LED printhead assembly
	Attachment option
	AC power supply
	Signal interface board
	Duplex control board #1
	Duplex control board #2

---

1 Turn off the printer and unplug the power cord.

- Confirm that J/P94, J/P4, J/P41, J/P91, J/P90, J/P6, and J/P8 are connected properly.
- Power-on-reset the printer.

Is the operator panel still blank?

No: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2 Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Go to #7 in this TAG.

Yes: Continue.

---

3 Check J/P91-5 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from P8-10 to P91-5, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4 Check J/P94-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from P8-14 to J94-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

5   Check J/P42-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from P94-1 to J/P90-1 to P42-1, then turn to
TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6   Turn the printer off and unplug the power cord.
- Disconnect J/P8 and J/P42.
- Check P42-20 to P8-15 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P42-20 to J/P90-20 to J/P94-2 to P8-15,
then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the operator panel circuit board. If this resolves the problem, turn to TAG 002:
Check & Problem Resolution. If this does not resolve the problem, replace the PCL
board, wire harness W72, or wire harness W63, then turn to TAG 002: Check & Problem
Resolution.

---

7   Turn the printer off.
- Disconnect J/P330.
- Turn the printer on.
- Check J/P8-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Go to #15 in this TAG.

---

8   Turn the printer off.
- Disconnect J/P8.
- Turn the printer on.
- Check J/P330-3 for +5 Vdc.

Is the voltage +5 Vdc?

No: Go to #22 in this TAG.

Yes: Continue.

---

9   Turn the printer off.
- Reconnect J/P8.
- Disconnect J/P77.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the disk drive assembly, then turn to TAG 002: Check & Problem Resolution.

TAG 500: +5 Vdc Power Malfunction

---

10   Turn the printer off.
- Reconnect J/P77.
- Disconnect J/P27.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the LED printhead assembly, then turn to TAG 002: Check & Problem Resolution.

---

11   Turn the printer off.
- Reconnect J/P27.
- Disconnect J/P91.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

12   Turn the printer off.
- Reconnect J/P91.
- Disconnect J/P32.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

---

13   Turn the printer off.
- Reconnect J/P32.
- Disconnect J/P94.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Replace wire harness W36, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

14   Turn the printer off.

- Disconnect J/P42.
- Check P42-1 for continuity to ground.

Is there continuity to ground?

No: Replace the operator panel circuit board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P94-1 to J/P90-1 to P42-1, then turn to TAG 002: Check & Problem Resolution.

---

15   Turn the printer off.

- Reconnect J/P330.
- Disconnect J/P331.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Go to #17 in this TAG.

Yes: Continue.

---

16   Turn the printer off.

- Reconnect J/P331.
- Disconnect J/P306.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from J331-3 to P306-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

---

17   Turn the printer off.

- Reconnect J/P331.
- Disconnect J/P333.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Go to #20 in this TAG.

Yes: Continue.

---

18   **Does the printer have an attachment option?**

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

19	Turn the printer off.

- Reconnect J/P333.
- Disconnect J/P73, the DC cable for the attachment option.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the attachment option, then turn to TAG 002: Check & Problem Resolution.

20	Turn the printer off.

- Reconnect J/P333.
- Disconnect J/P323.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Replace wire harness W127 or W128, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

21	Turn the printer off.

- Disconnect J/P310, found inside the duplex tray.
- Check P310-3 for continuity to ground.

Is there continuity to ground?

No: Replace the duplex control board #2, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from J323-3 to J/P305-3 to P310-3, then turn to TAG 002: Check & Problem Resolution.

22	Turn the printer on. Use extreme caution:

- Check from J/P6-1 to J/P6-2 (neutral) for 100 Vac or more.

Is the voltage at least 100 Vac?

No: Continue.

Yes: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

23	Use extreme caution: Check from J/P4-7 to J/P4-8 (neutral) for 100 Vac or more.

Is the voltage at least 100 Vac?

No: Replace the AC power supply unit.

Yes: Repair or replace the connectors or wiring from:
P4-7 to P6-1 or
P4-8 to P6-2;
then turn to TAG 002: Check & Problem Resolution.

TAG 600: AC Power Malfunction

Error Code:	**600**
Symptoms:	**Operator panel blank with fans not running**
	Printer Open indicator on
	Circuit breaker keeps tripping
Possible Defects:	**Upper fuse in the AC power supply**
	AC power supply unit
	DC power supply unit
	Connectors or wiring
	Power control #2 board
	Power control #3 board
	Fuser unit
	Back cover interlock switch
	Front cover interlock switch
	Top cover interlock switch
	Toner supply motor
	Cooling fans
	Jogging motor
	Main drive motor
	Vacuum transport unit
	Operator panel assembly

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P44, J/P84, J/P4, J/P9, J/P12, J/P40, J/P6, and the AC power cord are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Turn the printer off.

- Open the back cover and install an interlock by-pass tool.
- Turn the printer on. Use extreme caution:
- Check from J/P9-2 to J/P9-1 for +100 Vac.

Is the voltage +100 Vac?

No: Go to #4 in this TAG.

Yes: Continue.

---

3   Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P12.
- Check P40-29 to P12-3 and P40-30 to P12-4 for continuity.

Is there continuity on each?

No: Repair or replace the connectors or wiring as needed.

Yes: Replace the power control #2 board. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 600: AC Power Malfunction

---

4 **Does the PRINTER OPEN light come on with all the covers closed?**

No: Go to #25 in this TAG.

Yes: Continue.

---

5 Operate the top and front cover interlock switch actuators.

Are the interlock switch actuators working properly?

No: Repair or replace any defective actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6 Use extreme caution: Check from J/P4-4 to J/P4-3 for +100 Vac.

Is the voltage +100 Vac?

No: Continue.

Yes: Repair or replace the connectors or wiring from: P9-2 to P4-4 or P9-1 to P4-3. If this is a duplex printer and the problem remains, go to TAG 900: Top Cover Interlock Malfunction, Duplex. If this corrects the problem, turn to TAG 002: Check & Problem Resolution.

---

7 Turn the printer off and unplug the power cord.

• Remove the upper fuse in the AC power supply unit.

• Check the fuse for continuity.

Does the fuse have continuity?

No: Continue.

Yes: Go to #10 in this TAG.

---

8 Replace the upper fuse in the AC power supply unit.

• Reconnect the power.

• Power-on-reset the printer.

Was the power-on-reset successful?

No: Go to #14 in this TAG.

Yes: Continue.

---

9 Remove the developer unit.

• Run diagnostic test 010 for approximately 5 seconds, then stop.

• Turn the printer off and unplug the power cord.

• Remove the fuse.

• Check the fuse for continuity.

Does the fuse have continuity?

No: Go to #12 in this TAG.

Yes: A defective fuse was at fault. Turn to TAG 002: Check & Problem Resolution.

10	Reinstall the fuse.

- Disconnect J/P4.
- Close the top cover.
- Check P4-5 to P4-6 for continuity.

Is there continuity?

No: Go to #34 in this TAG.

Yes: Continue.

11	Remove the AC power supply unit.

- Operate the front cover interlock switch.
- Check for continuity as you operate the front interlock switch.

Does the front cover interlock switch have continuity?

No: Repair or replace the front interlock switch, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the AC power supply unit, then turn to TAG 002: Check & Problem Resolution.

12	Disconnect J/P13.

- Install a new upper fuse in the AC power supply unit.
- Run diagnostic test 010 for approximately 5 seconds, then stop.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

13	Disconnect J/P18.

- Check P13-5 to P18-1 for continuity to ground.

Is there continuity to ground?

No: Replace the toner supply motor, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P18-1 to P13-5, then turn to TAG 002: Check & Problem Resolution.

14	Turn off the printer.

- Disconnect J/P9.
- Install a new upper fuse in the AC power supply unit.
- Turn the printer on for 5 seconds, then off.
- Remove the upper fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Go to #20 in this TAG.

Yes: Continue.

---

15   Reconnect J/P9.
- Install a good upper fuse in the AC power supply unit.
- Disconnect J/P13 and J/P14.
- Turn the printer on for 5 seconds, then off.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

16   Reconnect J/P13 and J/P14.
- Disconnect J/P20, J/P21, J/P22, and J/P326 (duplex printers).
- Power-on-reset the printer.
- Wait 2-1/2 minutes, then turn the printer off.
- Remove the upper fuse in the AC power supply unit.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Repair or replace connectors or wiring that have continuity to ground: P21-1 to P13-4, P22-1 to P13-6, J326-1 to P13-4, or P20-2 to P14-6; then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

17   Turn the printer off.
- Reconnect J/P21.
- Turn the printer on for 5 seconds, then off.
- Remove the upper fuse in the AC power supply unit.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the large cooling fan assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

18   Turn the printer off.
- Reconnect J/P20.
- Turn the printer on for 2-1/2 minutes, then off.
- Remove the upper fuse from the AC power supply unit.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the main drive motor, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

19	Turn the printer off.

- Reconnect J/P22.
- Turn on the printer for 2-1/2 minutes, then off.

Was the power-on-reset successful?

No: Replace the vacuum transport unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the small cooling fan assembly, then turn to TAG 002: Check & Problem Resolution.

20	Reconnect J/P9.

- Disconnect J/P100.
- Install a new upper fuse in the AC power supply unit.
- Run diagnostic test 008 for approximately five seconds, then turn off the printer.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Go to #23 in this TAG.

Yes: Continue.

21	Turn off the printer.

- Reconnect J/P100.
- Install a good upper fuse in the AC power supply unit.
- Disconnect J/P101.
- Run diagnostic test 008 for approximately five seconds, then stop.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the power control #3 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

22	Disconnect J/P19.

- Check P101-2 to P19-2 for continuity to ground.

Is there continuity to ground?

No: Replace the jogging motor, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P101-2 to P19-2, then turn to TAG 002: Check & Problem Resolution.

23	Disconnect J/P4 and J/P9.

- Check P4-4 to P9-2 and P4-4 to P100-1 for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Repair or replace the connectors or wiring from P4-4 to P9-2 or P4-4 to P100-1; then turn to TAG 002: Check & Problem Resolution.

TAG 600: AC Power Malfunction

---

24   Close the top cover.

  • Check P4-5 for continuity to ground.

Is there continuity?

No: Replace the AC power supply, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the top cover interlock switch assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, repair or replace the connectors or wiring from: P4-5 to J/P84-1 to P131, or P132 to J/P84-2 to P4-6; then turn to TAG 002: Check & Problem Resolution.

---

25   **Is the operator panel blank and are the cooling and AC power supply fans off?**

No: You have chosen an incorrect TAG. Refer to the mechanical malfunctions cross-reference table in "Mechanical Malfunction/TAG Cross-Reference" on page 2-12, to identify a more appropriate TAG.

Yes: Continue.

---

26   Turn off the printer and unplug the power cord.

  • Check the wall power outlet for proper voltage.

Is the voltage correct? If the circuit breaker was reset after beginning this TAG, answer no.

No: Go to #28 in this TAG.

Yes: Continue.

---

27   Unplug power cord from the printer and the wall outlet.

  • Check the power cord for continuity.

Is there continuity?

No: Replace the power cord, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the AC power supply, then turn to TAG 002: Check & Problem Resolution.

---

28   Disconnect J/P4.

  • Check P4-1 for continuity to ground.

Is there continuity?

No: Go to #30 in this TAG.

Yes: Continue.

---

29   Remove the fuser unit.

  • Check P4-1 to J/P44-3 to J5-1 to the fuser unit for continuity to ground.

Is there continuity?

No: Replace the fuser unit, making sure the fuser has the proper voltage rating, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace connectors or wiring that have continuity, then turn to TAG 002: Check & Problem Resolution.

---

30   Check J4-1 at the AC power supply unit for continuity to ground.

     Is there continuity?

     No: Continue.

     Yes: Replace the AC power supply unit, then turn to TAG 002: Check & Problem Resolution.

---

31   Check P4-7 for continuity to ground.

     Is there continuity?

     No: Go to #33 in this TAG.

     Yes: Continue.

---

32   Disconnect J/P6.

     • Check P4-7 to P6-1 for continuity to ground.

     Is there continuity?

     No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

     Yes: Repair or replace the connectors or wiring from P4-7 to P6-1, then turn to TAG 002: Check & Problem Resolution.

---

33   Check J4-7 at the AC power supply unit for continuity to ground.

     Is there continuity?

     No: The customer's circuit breaker may be defective. Verify that the wall outlet has the proper voltage. If it does, continue; otherwise, turn to TAG 002: Check & Problem Resolution.

     Yes: Replace the AC power supply unit, then turn to TAG 002: Check & Problem Resolution.

---

34   Disconnect J/P84.

     • Check P4-5 to P84-1 and P4-6 to P84-2 for continuity.

     Is there continuity on both?

     No: Repair or replace the connectors or wiring that lack continuity, then turn to TAG 002: Check & Problem Resolution.

     Yes: Continue.

---

35   Check J84-1 to P131 and J84-2 to P132 for continuity.

     Is there continuity on both?

     No: Repair or replace the connectors or wiring that lack continuity, then turn to TAG 002: Check & Problem Resolution.

     Yes: Continue.

---

36   Check J131 to J132 (top interlock switch) for continuity while activating the top cover interlock switch.

     Is there continuity?

     No: Repair or replace the top cover interlock switch, then turn to TAG 002: Check & Problem Resolution.

     Yes: You have failed to isolate the problem. Return to the beginning of this TAG.

TAG 610: Operator Panel Malfunction

Error Code:	**610**
Symptoms:	**One or more message indicators will not light**
	Incomplete numbers are displayed
	Tone does not work properly
	All status lights remain on
	One or more function keys do not work
Possible Causes:	**Operator panel**
	Connectors or wiring
	PCL board

---

1   Turn the printer off and unplug the power cord.

- Turn the volume control (on operator panel inside front cover) up fully.
- Verify that J/P90, J/P42, J/P8, J/P41, and J/P94 are connected properly.
- Run diagnostic test 001.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   **Do the status lights stay on continuously?**

No: Continue.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

3   Turn the printer off and unplug the power cord.

- Disconnect J/P42, J/P91, J/P8, and J/P32.
- Check P8-15 to P42-20 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P8-15 to J/P94-2 to J/P90-20 to P42-20, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4   Reconnect J/P42, J/P91, J/P8, and J/P32.

- Power-on-reset the printer.
- Press each function key and listen for the tone.
- Test prints may be produced. Press the STOP key or turn the printer off to quit.

Did you hear the tone after pressing each function key?

No: Go to #14 in this TAG.

Yes: Continue.

---

5   **Is one of the function keys not working properly?**

No: Go to #16 in this TAG.

Yes: Continue.

---

6   Turn the printer off and unplug the power cord.

- Disconnect J/P42 and J/P41.
- Check P42-18 to P41-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P42-18 to J/P90-18 to P41-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Check P41-3 to P42-18 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P42-18 to J/P90-18 to P41-3, then turn to TAG 002: Check & Problem Resolution.

---

8   Check P42-17 to P41-4 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P42-17 to J/P90-17 to P41-4, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Check P41-4 to P42-17 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P42-17 to J/P90-17 to P41-4, then turn to TAG 002: Check & Problem Resolution.

---

10   Check P42-16 to P41-5 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P42-16 to J/P90-16 to P41-5, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

11   Check P41-5 to P42-16 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P42-16 to J/P90-16 to P41-5, then turn to TAG 002: Check & Problem Resolution.

---

12   Check P42-15 to P41-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P42-15 to J/P90-15 to P41-6, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

TAG 610: Operator Panel Malfunction

---

13 Check P41-6 to P42-15 for continuity to ground.

Is there continuity?

No: Replace the operator panel. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P42-15 to J/P90-15 toP41-6, then turn to TAG 002: Check & Problem Resolution.

---

14 Turn the printer off and unplug the power cord.
- Disconnect J/P41 and J/P42.
- Check P41-18 to P42-3 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P41-18 to J/P90-3 to P42-3, then turn to TAG 002: Check & Problem Resolution.

---

15 Check P41-18 to P42-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-18 to J/P90-3 to P42-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the operator panel. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

16 Run diagnostic test 001.
- Note which status lights come on and what is displayed each time the tone sounds. Some of the status lights may be very dim.
- Refer to the table at the end of this TAG.

Is the combination of lights and display you noted identified in the table?

No: Replace the operator panel. If this resolves the problem, then turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

17 Turn the printer off and unplug the power cord.
- Disconnect J/P41 and J/P42.
- Check the wiring indicated on the table below.

Is there an open or short to ground continuity?

No: Replace the operator panel. If this resolves the problem, then turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the defective connectors or wiring, then turn to TAG 002: Check & Problem Resolution.

Wiring Table

Refer to the table below to check the wiring for an open or short to ground. In the display panel illustrations, "on" status lights (which may be dimly lit) are black.

Table 3-1. Drive Indication

Wiring	Failure Description	Operator Panel
J/P42-7 to J/P90-7 to J/P41-14	Open No indications	
J/P42-7 to J/P90-7 to J/P41-14	Short to ground	
J/P42-11 to J/P90-11 to J/P41-10	Open	
J/P42-12 to J/P90-12 to J/P41-9	Open	
J/P42-13 to J/P90-13 to J/P41-8	Open	
J/P42-14 to J/P90-14 to J/P41-7	Open	**All lights ON** **CLR PAPER JAM light may be very dim**
J/P42-8 to J/P90-8 to J/P41-13	Open	
J/P42-8 to J/P90-8 to J/P41-13	Short to ground	**CLOSE COVER light may be very dim**
J/P42-9 to J/P90-9 to J/P41-12	Open	
J/P42-9 to J/P90-9 to J/P41-12	Short to ground	**ADD PAPER light may be very dim**

TAG 610: Operator Panel Malfunction

Table 3-1. Drive Indication

Wiring	Failure Description	Operator Panel
J/P42-10 to J/P90-10 to J/P41-11	Open	
J/P42-10 to J/P90-10 to J/P41-11	Short to ground	**CLR PAPER light may be very dim**
J/P42-11 to J/P90-11 to J/P41-10	Short to ground	
J/P42-12 to J/P90-12 to J/P41-9	Short to ground	
J/P42-13 to J/P90-13 to J/P41-8	Short to ground	
J/P42-14 to J/P90-14 to J/P41-7	Short to ground	

TAG 700: Output Tray Circuit Malfunction

Error Code:	**700**
Symptoms:	**Output Tray Full light remains on, will not light, or lights prematurely**
Possible Defects:	**Output tray full sensor**
	Connectors or wiring
	Job offset assembly
	PCL board
	High capacity output unit

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P50 and J/P40 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   **Is a high capacity output unit installed on the printer?**

No: Go to #4 in this TAG.

Yes: Continue.

---

3   Turn off the printer.

- Remove the high capacity output unit.
- Turn on the printer.

Has the problem been resolved?

No: Continue.

Yes: The high capacity output unit is malfunctioning. Refer to Chapter 8, "Options", for instructions on repairing the high capacity unit.

---

4   Inspect the output tray full sensor actuator for damage or binding.

Is it in good working order?

No: Replace the actuator, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

5   **Does Output Tray Full come on too soon?**

No: Continue.

Yes: Repair or replace the job offset assembly, then turn to TAG 002: Check & Problem Resolution.

6 Turn the printer off and unplug the power cord.

- Disconnect J/P51 and J/P40.
- Check P40-26 to P51-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-26 to J/P50-4 to P51-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7 Check P40-17 to P51-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-17 to J/P50-5 to P51-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

8 Check P40-13 to P51-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-13 to J/P50-6 to P51-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9 Verify that the output tray full sensor is mounted properly.

- Verify that it moves down fully.

Is the output tray full sensor in good working order?

No: Replace the sensor, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board. If this resolves the problem, then turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace wire harness W71 or W52, then turn to TAG 002: Check & Problem Resolution.

TAG 702: Paper Size Detection Malfunction

Error Code:	**702**
Symptoms:	**Incorrect paper size displayed**
Possible Defects:	**Upper cassette**
	Lower cassette
	Upper paper size sensor
	Lower paper size sensor
	Connectors or wiring
	PCL board

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P52 and J/P40 are connected properly.
- Remove the upper and lower cassettes.
- Make sure that the rear and side paper guides are securely against the paper.
- Power-on-reset the printer.
- Insert the cassette exhibiting the problem.

Does the display still indicate the incorrect paper size?

No: A loose connector or incorrectly positioned paper guides were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   Remove the cassette exhibiting the problem.

- Take out the paper.
- Inspect the two paper size sensing balls on the bottom of the cassette by changing positions of the side and rear paper guides.

Is the paper size sensing mechanism in good working order?

No: Replace the defective cassette, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   Inspect the upper and lower paper size sensor assemblies.

Is either paper size sensor assembly damaged or improperly mounted?

No: Continue.

Yes: Remount, repair or replace the faulty paper size sensor assembly, then turn to TAG 002: Check & Problem Resolution.

---

4   Remove the upper paper size sensor assembly.

- Disconnect the upper circuit board from its mounting.
- Inspect the paper size sensor circuit board and mounting for damage or contamination.

Is the circuit board or mounting damaged or contaminated?

No: Continue.

Yes: Repair or replace the upper paper size sensor assembly, then turn to TAG 002: Check & Problem Resolution.

TAG 702: Paper Size Detection Malfunction

---

5   Remove the lower paper size sensor assembly.

- Disconnect the circuit board from its mounting.
- Inspect the paper size sensor circuit board and mounting for contamination or damage.

Is the circuit board or mounting contaminated or damaged?

No: Continue.

Yes: Repair or replace the lower paper size sensor assembly, then turn to TAG 002: Check & Problem Resolution.

---

6   **Is the paper size sensing problem occurring with the upper cassette?**

No: Go to #8 in this TAG.

Yes: Continue.

---

7   Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P45.
- Refer to the tables at the end of this TAG.
- Check the connectors or wiring for the upper paper size sensor.

Is there a wiring problem?

No: Replace the upper paper size sensor assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring that are defective, then turn to TAG 002: Check & Problem Resolution.

---

8   Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P43.
- Refer to the table at the end of this TAG.
- Check the connectors or wiring for the lower paper size sensor.

Is there a wiring problem?

No: Replace the lower paper sensor assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring that are defective, then turn to TAG 002: Check & Problem Resolution.

Wiring for the Upper Paper Size Sensor

Refer to the following table when performing continuity checks for an open or short to ground for the upper paper size sensor.

Table 3-2. Wiring for the Upper Paper Size Sensor

Wiring Upper Paper Size Sensor				
P40-41	to J/P52-10	to J43-1	to J47-10	to J45-10
P40-42	to J/P52-9	to J43-2	to J47-9	to J45-9
P40-43	to J/P52-8	to J43-3	to J47-8	to J45-8
P40-44	to J/P52-7	to J43-4	to J47-7	to J45-7
P40-45	to J/P52-6	to J43-5	to J47-6	to J45-6
P40-46	to J/P52-5	to J43-6	to J47-5	to J45-5
P40-47	to J/P52-4	to J43-7	to J47-4	to J45-4
P40-48	to J/P52-3	to J43-8	to J47-3	to J45-3
P40-49	to J/P52-2	to J43-9	to J47-2	to J45-2

Wiring for the Lower Paper Size Sensor

Refer to the following table when performing continuity checks for an open or short to ground for the lower paper size sensor.

Table 3-3. Wiring for the Lower Paper Size Sensor

Wiring for the Lower Paper Size Sensor		
P40-41	to J/P52-10	to J43-1
P40-42	to J/P52-9	to J43-2
P40-43	to J/P52-8	to J43-3
P40-44	to J/P52-7	to J43-4
P40-45	to J/P52-6	to J43-5
P40-46	to J/P52-5	to J43-6
P40-47	to J/P52-4	to J43-7
P40-49	to J/P52-2	to J43-9
P40-50	to J/P52-1	to J43-10

TAG 703: Upper Cassette Malfunction

Error Code:	**703**
Symptoms:	**Upper cassette does not load or unload properly**
	Upper cassette does not latch properly
Possible Defects:	**Upper cassette**
	Upper pressure lever
	Upper cassette release latch
	Upper cassette release
	Damper assembly
	Upper cassette release cam
	Wire cable/roller/spring

---

1 Inspect the upper cassette for damage.

Is the upper cassette in good working order?

No: Replace the upper cassette, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2 Inspect the following for damage:

- Upper pressure lever
- Upper cassette release latch
- Upper cassette release
- Damper assembly
- Upper cassette release cam
- Wire cable/roller/spring

Are all parts in good working order?

No: Repair or replace the damaged part, then turn to TAG 002: Check & Problem Resolution.

Yes: Only mechanical defects and malfunctions can cause this type of problem. Carefully rein-spect each part. Repair or replace and defective parts, then turn to TAG 002: Check & Problem Resolution.

TAG 704: Lower Cassette Malfunction

Error Code:	**704**
Symptoms:	**Lower cassette does not load or unload properly**
	Lower cassette does not latch properly
Possible Defects:	**Lower cassette**
	Lower pressure lever
	Lower cassette release latch
	Lower cassette release
	Lower cassette release cam
	Spring

---

1 Inspect the lower cassette for damage.

Is the lower cassette in good working order?

No: Replace the lower cassette, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2 Inspect the following for damage:

- Lower pressure lever
- Lower cassette release latch
- Lower cassette release
- Lower cassette release cam
- Spring

Are all the parts in good working order?

No: Repair or replace the damaged part, then turn to TAG 002: Check & Problem Resolution.

Yes: Only mechanical defects and malfunctions can cause this type of problem. Carefully reinspect each part. Repair or replace the damaged part, then turn to TAG 002: Check & Problem Resolution.

TAG 705: Multiple Paper Feeding

Error Code:	**705**
Possible Causes:	**Wrong weight or type of paper loaded**
	Paper improperly loaded
Possible Defects:	**Upper feed roller assembly**
	Lower feed roller assembly
	Paper cassette

1 Remove paper from the cassette.

- Fan the paper stack and place it in the cassette.
- Make sure the paper curl is turned up in the cassette.
- Make sure the paper is under the corner separators.
- Make sure the rear and side paper guides are positioned properly.
- Make sure the paper being used does not have a high static charge.
- Confirm that the paper in the cassettes meets paper specifications, outlined in the Guide to Operations at the back of this manual.
- Run at least 20 test prints.

Has the problem been resolved?

No: Continue.

Yes: The paper being used was at fault. Turn to TAG 002: Check & Problem Resolution.

2 Adjust the paper tension lever or pick pressure as outlined in Chapter 9, "General Printer Maintenance".

Has the problem been resolved?

No: Replace the pick-up roller assembly, then turn to TAG 002: Check & Problem Resolution.

TAG 706: Paper Damaged or Wrinkled

Error Code:	**706**
Possible Causes:	**Paper incorrectly loaded**
	Wrong weight or type of paper loaded
	Paper path obstructed
Possible Defects:	**Fuser unit**
	Exit roller assembly
	Exit pinch roller assembly

---

1 Make sure the paper being used is not damaged.

- Make sure the paper is loaded properly.
- Make sure the side and rear paper guides in the paper cassettes are positioned properly.
- Check both upper and lower paper paths for obstructions or roller contamination.
- Confirm that the paper in the cassettes meets paper specifications, outlined in the Guide to Operations at the back of this manual.
- Power-on-reset the printer.
- Run test prints from the upper cassette.

Are the prints wrinkled or damaged?

No: Continue.

Yes: Go to #3 in this TAG.

---

2 Remove the upper cassette.

- Power-on-reset the printer.
- Run test prints from the lower cassette.

Are the prints wrinkled or damaged?

No: The paper in use was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 Run a test print from the cassette exhibiting the problem.

Is the print on the paper skewed?

No: Continue.

Yes: Go to TAG 807: Misregistered/Skewed Prints (Simplex).

---

4 Remove the exit cover assembly.

- Inspect the exit roller assembly for damage, wear, or contamination.
- Inspect the exit pinch roller for damage, wear, or contamination.

Is either part damaged, worn, or contaminated?

No: Replace the fuser unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the part as needed, then turn to TAG 002: Check & Problem Resolution.

TAG 707: Upper Paper Guide Assembly Not Closing

Error Code:	**707**

Possible Causes: **Obstructions**
Photoconductor unit front or rear latch arm springs
Photoconductor unit latch arms in incorrect position
Upper paper guide latching mechanism damaged or binding
Front or rear photoconductor unit guides damaged

Possible Defects: **Photoconductor latch arms**
Upper paper guide latch
Photoconductor guide rails

---

1 Check under the upper paper guide assembly for obstructions.

- Remove the photoconductor unit from the printer.
- Inspect the front and rear photoconductor unit latch arm springs for damage.
- Inspect the front and rear photoconductor unit guide rails for damage.
- Make sure there are no obstructions in the mounting area of the photoconductor unit.
- Make sure the upper paper guide latching mechanism is functioning properly.
- Make sure the photoconductor unit latch arms are in the upper position.

Are all parts in good working order?

No: Repair or replace any malfunctioning parts, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2 Remove the photoconductor unit.

- Close and lock the upper paper guide.

Did the upper paper guide lock into place?

No: Replace the upper paper guide, then turn to TAG 002: Check & Problem Resolution.

Yes: Only mechanical defects and malfunctions can cause this type of problem. Go to #1 in this TAG and carefully reinspect each part.

TAG 750: Counter Malfunction

Error Code:	**750**
Symptoms:	**Counter does not count**
	Counter counts too often
	Consumable components require replacement too frequently
Possible Defects:	**Counter assembly**
	Connectors or wiring
	PCL board

---

1   Run diagnostic test 007.

Is the counter functioning properly?

No: Continue.

Yes: The counter is working correctly. Turn to TAG 002: Check & Problem Resolution.

---

2   Verify that J/P41, J/P81, and J/P82 are connected properly.

• Run diagnostic test 007.

Is the counter functioning properly?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

3   **Is the counter either counting when it shouldn't or counting too many times?**

No: Go to #5 in this TAG.

Yes: Continue.

---

4   Replace the counter.

• Run test prints.

Has the problem been resolved?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: The counter was at fault. Turn to TAG 002: Check & Problem Resolution.

---

5   Check TP4-26 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6   Check TP4-25 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #8 in this TAG.

Yes: Continue.

7	Run test prints.

- Check TP4-25 for a voltage change from +24 Vdc to 0 Vdc while running the prints.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the counter, then turn to TAG 002: Check & Problem Resolution.

8	Turn the printer off and unplug the power cord.

- Disconnect J/P41 and J/P82.
- Check P41-26 to J82-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-26 to J/P81-1 to J82-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

9	Check P41-25 to J82-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-25 to J/P81-2 to J82-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the counter. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 751: Main Drive Motor Runs Continuously

Error Code: **751**

Possible Defects: **Power control #2 board**
                             Connectors or wiring
                             PCL board

1   Turn the printer off and unplug the power cord.

- Disconnect J/P12 and J/P40.
- Check P40-33 for continuity to ground.

Is there continuity?

No: Replace the power control #2 board. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P40-33 to P12-7, then turn to TAG 002: Check & Problem Resolution.

TAG 753: External Communications Malfunction

Error Code:	**753**
Symptoms:	**Test prints can be made but jobs do not run**
	Jobs do not print correctly
Possible Causes:	**Improper DIP switch settings**
	Host computer
	Improper application
Possible Defects:	**IGS board communications cable**
	Cable connectors
	Signal interface board
	Diskette
	Wrap connector
	DC power supply unit
	Attachment options.

Note

Communication problems may require trial replacement of numerous parts. After each trial replacement, run the job that exhibited the failure.

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P8, J/P32, J/P74, and J/P92 are connected properly.
- Verify that all communication cables are attached properly.
- Verify that the correct diskette is installed in the printer.
- Confirm that the DIP switches on the signal interface board are set to their proper positions.
- Power-on-reset the printer.
- Confirm that the printer's soft configuration is set properly.
- Run the failing job.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors, software configuration, or DIP switches were at fault. Determine which of these is at fault, correct the problem, then turn to TAG 002: Check & Problem Resolution.

---

2   Turn the printer off.

- Recheck the diskette for suitability.
- Verify that the DIP switch settings on signal interface boards are correct.
- Power-on-reset the printer.
- Confirm that the printer's software configuration is set correctly to the interface you are using.

Has the problem been resolved?

No: Continue.

Yes: Software configuration or DIP switch settings were at fault. Determine which of these is at fault, correct the problem, then turn to TAG 002: Check & Problem Resolution.

---

3 Turn off the printer and unplug the power cord.

- Remove fuse FH2, which is mounted to the signal interface board, and check for continuity.

Is there continuity?

No: Install a new fuse and retest. If the fuse is okay, turn to TAG 002: Check & Problem Resolution. If the new fuse fails, replace the signal interface board or attachment option and install a new fuse, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4 Disconnect the interface cable from the printer.

- Disconnect any attachment option.
- Install the RS-232C and RS-422 wrap connectors.
- Run diagnostic test 103.

Did the diagnostic test run properly?

No: Continue.

Yes: Go to #11 in this TAG.

---

5 Turn the printer off and unplug the power cord.

- Inspect J/P71 (RS-232C), J/P72 (RS-422), and J/P74 for connector body cracks or damaged pins.

Is there a problem with the connectors or pins?

No: Go to #7 in this TAG.

Yes: Continue.

---

6 Replace the signal interface board.

- Run diagnostic test 103.

Did the diagnostic test run properly?

No: Continue.

Yes: The signal interface board was at fault. Turn to TAG 002: Check & Problem Resolution.

---

7 Open the back cover and install an interlock by-pass tool.

- Power-on-reset the printer.
- Check J/P32-10 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the connectors or wiring from P8-6 to P32-10, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

8 Check J/P32-3 for -12 Vdc.

Is the voltage -12 Vdc?

No: Continue.

Yes: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

TAG 753: External Communications Malfunction

---

9   Check J/P8-8 for -12 Vdc.

Is the voltage -12 Vdc?

No: Replace the DC power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace connectors or wiring from P8-8 to P32-3, then turn to TAG 002: Check & Problem Resolution.

---

10   **Does the problem appear while using RS-232C communications?**

No: The problem may be caused by the IGS board, signal interface board, host computer, or host interface cable. Determine which of these are at fault, correct the problem, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

11   Turn the printer off and unplug the power cord.

- Install a breakout box on the printer to confirm that the host interface cable works as outlined in the table that follows.
- Reconnect all communication lines.
- Reconnect any external attachment option.
- Power-on-reset the printer.
- Run the failing job again.

Table 3-4. RS-232 Cable Reference Table

Host Computer		Printer			Description
Signal	Pin #	Directions	Pin #	Signal	
FG	1		1	FG	
SG	7		7	SG	
TD	2	_ <	2	TD	Data Out (status)
TD	2	< _	3	RD	Data In (CMD/Data)
RTS	4	_ <	4	RTS	Optional; continuous positive voltage for host computers that require a "printer present" indication.
CTS	5	<	5	CTS	Must go to a positive voltage from the host computer. It is only looked at by the printer at power-on initialization.
DSR	6	< _			
DTR	20	_	20	DTR	Depends on printer soft configuration option 15. DTR will always be a positive voltage if set to "DTR High." DTR will change from a positive to a negative voltage if set to "DTR Pacing" and the buffer is full

Does your cable work as outlined in the Cable Reference Table above?

No: The problem appears to be related to the host computer or host interface cable. Correct the problem, then turn to TAG 002: Check & Problem Resolution.

Yes: The problem may be caused by the IGS board, signal interface board, or outdated printer software. Determine which of these is at fault, correct the problem, then turn to TAG 002: Check & Problem Resolution.

TAG 754: Attachment Option Malfunction

Error Code: **754**

Symptoms: **Job fails only when an attachment option is used.**

Possible Causes: **Lack of voltage**

Possible Defects: **Attachment option**
Communication cables
Cable connectors
Signal interface board
Signal interface board fuse
IGS board
Host computer
Host interface cable

Communication problems may require trial replacement of numerous parts. After each trial replacement, run the job that exhibited failure.

---

1 Turn off the printer and unplug the power cord.

- Disconnect all attachment cables.
- Open the back cover and install an interlock by-pass tool.
- Confirm that J/P8, J/P32, and J/P74 are connected properly.
- Confirm that the signal interface board DIP switches are set correctly.
- Reinstall all communication cables.
- Power-on-reset the printer.
- Confirm that the printer has been correctly configured using the printer's soft configuration mode.
- Run the failing job.

Has the problem been resolved?

No: Continue.

Yes: Loose or damaged connectors, software configuration, or DIP switches were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2 Turn the printer off and unplug the power cord.

- Check the signal interface board fuse for continuity.

Does the fuse have continuity?

No: Continue.

Yes: Go to #5 in this TAG.

---

3 Disconnect the cables from the attachment option to the printer.

- Replace the signal interface board fuse.
- Turn on the printer for five seconds, then turn it off.
- Check the signal interface board fuse for continuity.

Does the fuse have continuity?

No: Replace the signal interface board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

TAG 754: Attachment Option Malfunction

4	Reconnect the attachment cables.

• Turn on the printer for five seconds, then turn it off.
• Check the signal interface board fuse for continuity.

Does the fuse have continuity?

No: Replace the attachment option, then turn to TAG 002: Check & Problem Resolution.

Yes: The signal interface board fuse was at fault. Turn to TAG 002: Check & Problem Resolution.

5	Turn on the printer.

• Check for the indicated voltages:
  J73-1 should be +5 Vdc;
  J73-3 should be +12 Vdc;
  J73-4 should be -12 Vdc;
  J73-6 should be +5 Vdc.

Are all voltages correct?

No: Replace the signal interface board. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this doesn't resolve the problem, go to TAG 753: External Communications Malfunction, step 4.

Yes: Continue.

6	Turn off the printer and unplug the power cord.

• Replace the external attachment option.
• Reconnect all communication cables.
• Run the failing job.

Has the problem been resolved?

No: The problem appears to be related to the host computer or the host interface cable. Correct the problem, then turn to TAG 002: Check & Problem Resolution.

Yes: The external attachment option was at fault. Turn to TAG 002: Check & Problem Resolution.

TAG 800: Prints Blank or With Dark Horizontal Bands

Error Code: **800**

Possible Defects: **Photoconductor unit,**
                      Printhead assembly
                      IGS board
                      Main drive gear assembly
                      Connectors or wiring
                      Transfer corona
                      High voltage unit
                      Upper paper guide assembly
                      Developer unit

If there is a developed image on the paper other than dark horizontal bands, follow TAG 804: Prints With Light Horizontal Bands.

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P7, J/P27, J/P41, J/P23, J/P30, J/P31, and transfer corona high voltage unit lead are connected properly.
- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors or contamination were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Have the photoconductor unit, charge corona, developer unit, and toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

---

4   Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall original photoconductor unit and charge corona and continue.

Yes: The photoconductor unit was at fault. Turn to TAG 002: Check & Problem Resolution.

5   Replace the developer unit and toner cartridge.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution. If the problem recurs, the toner carrier mix may be old or contaminated.

---

6   Produce a developed image on the photoconductor.

Is a developed image on the photoconductor?

No: Go to #10 in this TAG.

Yes: Continue.

---

7   Remove and clean the transfer corona unit.
- Clean the transfer corona unit contacts in the upper paper guide.
- Inspect the transfer corona contacts for proper alignment.
- Reinstall the transfer corona unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

8   Turn the printer off and unplug the power cord.
- Remove the transfer corona unit.
- Check the lower transfer corona unit contact, with the upper paper guide assembly in its fully upright position, for continuity to ground.

Is there continuity?

No: Replace the upper paper guide assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Replace the transfer corona unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Replace the upper paper guide assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

Yes: The transfer corona unit was at fault. Turn to TAG 002: Check & Problem Resolution.

10	Run diagnostic test 111.

- Watch the printhead LEDs while the test is running.

Do the LEDs illuminate?

No: Go to #18 in this TAG.

Yes: Continue.

11	**Are the prints blank without dark bands?**

No: Go to #15 in this TAG.

Yes: Continue.

12	Remove the photoconductor unit and place it in its protective packaging.

- Remove the developer unit.
- Inspect the drive coupling on the developer unit for damage.

Is the coupling damaged?

No: Continue.

Yes: Replace the developer unit, then turn to TAG 002: Check & Problem Resolution.

13	Rotate the drive coupling on the developer unit clockwise.

- Watch the magnetic brush.

Does the magnetic brush turn?

No: Replace the developer unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

14	Reinstall the photoconductor unit.

- Run diagnostic test 009.
- Watch the developer drive coupling at the rear of the developer unit cavity.

Does the developer drive coupling turn?

No: Repair or replace the main drive gear assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

15	**Do the prints have one or more horizontal dark bands?**

No: The problem has not been identified. Go back to TAG 001: Troubleshooting a Problem and begin again.

Yes: Continue.

---

16   Turn the printer off and unplug the power cord.

- Remove the photoconductor.
- Clean the photoconductor unit contacts and guide rail contacts.
- Check the bottom connector contact on the photoconductor guide rail for continuity to ground.

Is there continuity?

No: Repair or replace the grounding circuit wiring, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

17   Reinstall the photoconductor unit.

- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Replace the photoconductor unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

TAG 801: Prints Light or Light With Carrier Particles

Error Code: 801

Possible Defects: **Photoconductor unit**
Connectors or wiring
Main drive gear assembly
Transfer corona unit
Power control #2 board
Print-head assembly
High voltage unit
Toner supply motor
PCL board
Upper paper guide assembly
Developer unit

If the problem still exists after completing this TAG, go to TAG 800: Prints Blank or With Dark Horizontal Bands.

---

1 Run test prints.

• Examine the letters A, V, and W for jaggedness on the diagonal lines.

Are they jagged?

No: Continue.

Yes: Refer to Chapter 4, "Print Quality Samples". Review the printhead problem print samples, identify one similar to the test prints, and turn to the associated TAG.

---

2 Turn the printer off and unplug the power cord.

• Verify that J/P12, J/P13, J/P18, and J/P41 are connected properly.
• Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
• Clean the printhead lens and toner patch sensor located on the developer unit.
• Turn the printer on.
• Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

3 Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4 **Have the photoconductor unit, charge corona, developer unit, and toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #7 in this TAG.

TAG 801: Prints Light or Light With Carrier Particles

---

5 Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona and continue.

Yes: Run at least 200 test prints to detone the engine, then turn to TAG 002: Check & Problem Resolution.

---

6 Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

7 Produce a developed image on the photoconductor.

Is the developed image on the photoconductor correct?

No: Go to #11 in this TAG.

Yes: Continue.

---

8 Remove and clean the transfer corona unit.

- Clean the transfer corona unit contacts in the upper paper guide.
- Inspect the transfer corona contacts for proper alignment.
- Reinstall the transfer corona unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

9 Turn the printer off and unplug the power cord.

- Remove the transfer corona unit.
- Check the lower transfer corona unit contact, with the upper paper guide assembly in its fully upright position, for continuity to ground.

Is there continuity?

No: Repair or replace the upper paper guide assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

10 Turn the printer off and unplug the power cord.
- Replace the transfer corona unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Replace the upper paper guide assembly. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

Yes: The transfer corona unit was at fault. Turn to TAG 002: Check & Problem Resolution.

---

11 Open the front cover and install an interlock by-pass tool.
- Remove the photoconductor unit.
- Remove the developer unit.
- Run diagnostic test 010.
- Watch the toner motor coupling in the developer unit cavity.

Does the coupling turn?

No: Go to #20 in this TAG.

Yes: Continue.

---

12 Inspect the toner drive coupling on the developer unit for damage.

Is the coupling damaged?

No: Continue.

Yes: Replace the developer unit, then turn to TAG 002: Check & Problem Resolution.

---

13 Rotate both the drive couplings on the developer unit clockwise.

Do both drive couplings rotate freely?

No: Replace the developer unit, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

---

14 Reinstall the photoconductor unit.
- Run diagnostic test 009.
- Watch the developer drive coupling in the developer cavity.

Does the coupling turn?

No: Repair or replace the main drive gear assembly, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

---

15 Turn the printer off and unplug the power cord.
- Disconnect J/P41, J/P24, and J/P23.
- Check the following for continuity:
  P41-30 to J24-4,
  P41-38 to J23-2,
  P41-43 to J25-5,
  P41-44 to J25-2,
  P41-47 to J25-3,
  P41-48 to J25-6,
  P41-49 to J25-4, and
  P41-50 to J25-1.

Is there continuity on all?

No: Repair or replace the connectors or wiring that do not have continuity, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

16 Reconnect J/P23, J/P41, and J/P24.
- Reinstall the developer unit.
- Power-on-reset the printer.
- Check TP4-30 for +24 Vdc for one minute.

Is the voltage +24 Vdc for the first minute after power-on-reset?

No: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

---

17 Run test prints.
- Check TP4-30 for 0 Vdc while running the prints.

Does the voltage change to 0 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

---

18 **Is a meter with a high voltage probe available?**
No: Go to #24 in this TAG.
Yes: Continue.

---

19 Power-on-reset the printer.
- Run test prints.
- Using a high voltage probe, check J/P25-7 for the proper voltage, as outlined in Chapter 9, "General Printer Maintenance".

Is the voltage correct?

No: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.
Yes: Go to #25 in this TAG.

---

20 Run diagnostic test 010. Use extreme caution:

- Check J/P13-5 to J/P13-2 for 100 Vac while the test is running.

Is the voltage 100 Vac?

No: Go to #22 in this TAG.

Yes: Continue.

---

21 Run diagnostic test 010. Use extreme caution:

- Check J/P18-1 to J/P18-2 for 100 Vac while the test is running.

Is the voltage 100 Vac?

No: Repair or replace the connectors or wiring from P18-1 to P13-5, P18-2 to P13-2, or both.

Yes: Replace the toner supply motor, then turn to TAG 002: Check & Problem Resolution.

---

22 Run diagnostic test 010.

- Check TP3-31 for 0 Vdc while the test is running.

Is the voltage 0 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

23 Turn the printer off and unplug the power cord.

- Check P40-31 to P12-5 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-31 to P12-5.

Yes: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

---

24 Turn the printer off and unplug the power cord.

- Replace the high voltage unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original high voltage unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

25 Turn the printer off and unplug the power cord.

- Replace the charge corona terminal assembly.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original charge corona terminal assembly and continue.

Yes: Turn to TAG 800: Prints Blank or With Dark Horizontal Bands.

TAG 801: Prints Light or Light With Carrier Particles

---

26 Turn the printer off and unplug the power cord.

- Replace the printhead assembly unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original printhead assembly unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

27 Turn the printer off and unplug the power cord.

- Replace the IGS board.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original IGS board and go to TAG 800: Prints Blank or With Dark Horizontal Bands.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 802: Prints With Voids or White Spots

Error Code:	**802**
Possible Causes:	**Wrong weight or type of paper loaded**
Possible Defects:	**Photoconductor unit**
	Developer unit

1 Perform the every-call cleaning procedure.

- Confirm that the paper in the cassettes meets paper specifications, outlined in the *Guide to Operations* manual.
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

2 Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

3 **Have the photoconductor unit, developer unit, and fuser unit been replaced recently?**

No: Continue.

Yes: Refer to the Chapter 4, "Print Quality Samples". Compare the test prints with the print samples and identify a sample having the same print flaw as the test prints; turn to the TAG listed under the sample.

4 Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona, and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

5 Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

6   Replace the fuser unit.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit. Refer to the Chapter 4, "Print Quality Samples". Compare the test prints with the print samples, and identify a sample having the same print flaw as the test prints; turn to the TAG listed under the sample.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 803: Prints With Light or White Vertical Streaks

Error Code: **803**

Possible Defects: **Transfer corona unit**
                                    Printhead assembly unit
                                    Photoconductor unit
                                    Developer unit

---

1   Turn off the printer and unplug the power cord.

- Verify that J/P13, J/P30, and J/P31 are connected properly.
- Make sure the customer's paper supply is not at fault.
- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors or contamination were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Have the photoconductor unit, charge corona, and developer unit been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

---

4   Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona, and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

5   Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

6 Turn on the printer.

- Produce a developed image on the photoconductor.

Are there vertical streaks on the photoconductor belt image?

No: Replace the transfer corona unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the printhead assembly unit, then turn to TAG 002: Check & Problem Resolution.

TAG 804: Prints With Light Horizontal Bands

Error Code:	**804**
Possible Causes:	**Loose printhead connectors**
Possible Defects:	**Transfer corona unit**
	Photoconductor unit
	Charge corona

---

1 Turn the printer off and unplug the power cord.

- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Mainte-nance".
- Verify that J/P30 and J/P31 are connected properly.
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2 Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 **Have the photoconductor unit and charge corona have been replaced recently?**

No: Continue.

Yes: Go to #5 in this TAG.

No: Replace the photoconductor unit and charge corona.

Yes: Turn on the printer.

---

4 Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona, then continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

5 Replace the transfer corona unit.

Has the problem been resolved?

No: Replace the photoconductor unit. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, refer to the Chapter 4, "Print Quality Samples". Compare the test prints with the print samples, and identify a sample having the same print flaw as the test prints; turn to the TAG listed under the sample.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 805: Black Prints

Error Code:	**805**
Possible Causes:	**Contaminated toner/carrier mix**
Possible Defects:	**Charge corona**
	Printhead assembly
	Connectors or wiring
	PCL board
	IGS board
	High voltage unit
	Charge corona lead
	Photoconductor unit
	Developer unit
	Charge corona terminal assembly

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P23, J/P24, J/P41, and the charge corona high voltage lead are connected properly.
- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Clean the contacts on the charge corona.
- Open the printer's top cover and install an interlock by-pass tool.
- Run diagnostic test 009.

Is the photoconductor belt covered with toner?

No: Loose connectors or contamination were at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Has the photoconductor unit, charge corona, developer unit, and cleaner unit been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

---

4   Replace the photoconductor unit and charge corona.

- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona, then continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

5   Replace the developer unit, toner cartridge, and cleaner unit.

- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and cleaner unit, then continue.

Yes: Turn to TAG 002: Check & Problem Resolution. If the problem recurs, the toner/carrier mix may be old or contaminated.

---

6   Turn the printer off and unplug the power cord.

- Disconnect J/P41, J/P23, and J/P24.
- Check P41-33 to P23-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-33 to P23-7, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Check P41-30 to P24-4 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-30 to P24-4.

Yes: Continue.

---

8   Replace the charge corona terminal assembly.

- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

9   Replace the high voltage unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original high voltage unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

10   Replace the printhead assembly.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original printhead assembly and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

11   Replace the IGS board.

- Run test prints.

Has the problem been resolved?

No: Replace the charge corona lead wiring, then turn to TAG 002: Check & Problem Resolution.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 806: Prints with Dark Spots or Scratches

Error Code: 806

Possible Causes: **Paper path contamination**
Paper supply defects
Toner

Possible Defects: **Photoconductor unit**
Charge corona
Fuser unit
Developer unit
Cleaner unit

---

1 Turn the printer off and unplug the power cord.

- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

---

2 Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 **Have the photoconductor unit, charge corona, fuser unit, cleaner unit, and developer unit with new toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #8 in this TAG.

---

4 Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

5 Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6 Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

7 Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution. If this problem recurs, the toner/carrier mix may be old or contaminated.

---

8 Inspect the paper being used for scratches or dark spots.

Does the paper have any problems?

No: Continue.

Yes: Replace the paper. Turn to TAG 002: Check & Problem Resolution.

---

9 Inspect the following for damage or binding:

- Main drive motor gear
- Main drive gear assembly
- Developer coupling on the developer unit and the printer

Are these mechanisms in good working order?

No: Replace the defective parts, then turn to TAG 002: Check & Problem Resolution.

Yes: Verify that the photoconductor, charge corona, developer, and fuser units are new. If these items are new, defective or contaminated toner may be the cause of the problem. Replace the developer and cleaner units with units from the printer's manufacturer, then turn to TAG 002: Check & Problem Resolution.

TAG 807: Misregistered/Skewed Prints (Simplex)

If this problem occurs in the duplex printing mode only, go to TAG 901: Misregistration/ Skewed Prints (Duplex).

Error Code:	**807**
Possible Causes:	**Paper incorrectly loaded**
	Wrong weight or type of paper loaded
Possible Defects:	**Upper cassette**
	Lower cassette
	Upper paper guide assembly
	Lower paper guide assembly
	Paper timing guide assembly
	Paper timing roller assembly
	Upper pick-up roller assembly
	Upper feed roller assembly
	Upper pinch rollers
	Lower feed roller assembly
	Lower pick-up roller assembly
	Lower pinch rollers
	Paper feed drive belt
	Paper feed idler assembly
	Main drive gear assembly
	PCL board

If the test pattern has a 20 line indicator at the top of the page, registration is correct when the line of the indicator is at the leading edge of the print (+ or -2).

If the problem varies from print to print, a mechanical binding malfunction may be at fault.

---

1 Inspect both paper cassettes for damage.

- Make sure the paper in the cassettes is loaded properly.
- Make sure the side and rear paper guides are positioned properly.
- Inspect both paper paths for contamination and remove any obstructions.
- Confirm that the paper in the cassettes meets paper specifications, outlined in the Guide to Operations at the back of this manual.
- Power-on-reset the printer.
- Remove and insert the cassette causing the problem. Confirm that the code, which displays on the operator's panel, corresponds to the paper size in the cassette. (The codes and the paper sizes to which they correspond are listed in the *Guide to Operations*. Refer to TAG 702: Paper Size Detection Malfunction.
- Run test prints from the upper cassette.

Is the problem with the upper cassette?

No: Go to #5 in this TAG.

Yes: Continue.

TAG 807: Misregistered/Skewed Prints (Simplex)

---

2   Remove the upper cassette.
- Power-on-reset the printer.
- Run test prints from the lower cassette.

Is the problem also with the lower cassette?

No: Go to #4 in this TAG.

Yes: Continue.

---

3   Turn the printer off and unplug the power cord.
- Inspect the following for damage or contamination:
  - Paper timing roller assembly
  - Upper paper guide assembly
  - Lower paper guide assembly
  - Paper timing guide assembly
  - Paper feed drive belt
  - Paper feed idler assembly
  - Main drive gear assembly

Are these parts clean and in good working order?

No: Repair or replace the parts as needed, then turn to TAG 002: Check & Problem Resolution.

Yes: Go to #7 in this TAG.

---

4   Inspect the following for damage and contamination:
- Upper pick-up roller assembly
- Upper feed roller assembly
- Upper pinch rollers
- Upper cassette

Are these parts clean and in good working order?

No: Repair or replace the parts as needed, then turn to TAG 002: Check & Problem Resolution.

Yes: You have not isolated the problem. Return to the beginning of this TAG.

---

5   Remove the upper cassette.
- Power-on-reset the printer.
- Run test prints from the lower cassette.

Is the problem with the lower cassette?

No: Incorrectly loaded paper was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6 Inspect the following for damage or contamination:

- Lower pick-up roller assembly
- Lower feed roller assembly
- Lower pinch rollers
- Lower cassette.

Are these parts clean and in good working order?

No: Repair or replace the parts as needed, then turn to TAG 002: Check & Problem Resolution.

Yes: You have not isolated the problem. Return to the beginning of this TAG.

---

7 **Is misregistration the symptom of the problem?**

No: Skew problems can only result from mechanical causes. Return to the beginning of this TAG.

Yes: Continue.

---

8 Run test prints.

Is the amount of misregistration within + or - 2 lines of the 20-line indicator from the leading edge of the test print?

No: Continue.

Yes: The registration is within specification. Turn to TAG 002: Check & Problem Resolution.

---

9 Open the printer's rear cover and insert an interlock by-pass tool.

- Set the four registration switches on the PCL board to off.
- Run test prints.
- Based on the test prints, increase the registration by changing the switches. Refer to the following chart.

Did resetting the switches resolve the problem?

No: Replace the paper timing roller assembly, then turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the upper paper guide assembly or the paper timing guide, then turn to TAG 002: Check & Problem Resolution.

Yes: Turn to TAG 002: Check & Problem Resolution.

Table 3-5. PCL Board Switch Settings

Setting Number	DIP Switches			
	1	2	3	4
0	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	ON
2	OFF	OFF	ON	OFF
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	OFF
5	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF

TAG 807: Misregistered/Skewed Prints (Simplex)

Table 3-5. PCL Board Switch Settings

Setting Number	DIP Switches			
	1	**2**	**3**	**4**
7	OFF	ON	ON	ON
8	ON	OFF	OFF	OFF
9	ON	OFF	OFF	ON
10	ON	OFF	ON	OFF
11	ON	OFF	ON	ON
12	ON	ON	OFF	OFF
13	ON	ON	OFF	ON
14	ON	ON	ON	OFF
15	ON	ON	ON	ON

TAG 808: Prints Overtoned/Dark Vertical Streaks

Error Code:	**808**
Possible Causes:	**Clogged cleaner**
	Contaminated toner/carrier mix
Possible Defects:	**Cleaner unit**
	Photoconductor unit
	Charge corona
	High voltage unit
	Power control #2 board
	PCL board
	Connectors or wiring
	Developer unit

Overtoned print and dark print problems are very similar. If this TAG does not resolve the problem, go to TAG 811: Background/Residual Images/Dark Prints.

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P23, J/P12, J/P25, and J/P41 are connected properly.
- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance"

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Have the photoconductor unit, charge corona, cleaner unit, and developer unit with toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #7 in this TAG.

---

4   Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona, then continue.

Yes: Run at least 200 test prints to detone the printer's engine, then turn to TAG 002: Check & Problem Resolution.

---

5   Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6   Replace the developer unit with toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution. If the problem recurs, the toner/carrier mix may be old or contaminated.

---

7   Turn the printer off.

- Open the front cover and install an interlock by-pass tool.
- Remove the developer unit.
- Power-on-reset the printer.
- Watch the toner motor coupling at the rear of the developer cavity.

Does the coupling turn continuously?

No: Go to #10 in this TAG.

Yes: Continue.

---

8   Check TP3-31 for 0 Vdc.

Is the voltage 0 Vdc?

No: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Turn off the printer and unplug the power cord.

- Disconnect J/P12 and J/P40.
- Check P40-31 to P12-5 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-31 to P12-5, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the power control #2 board. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this doesn't resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

10   Reinstall the developer unit.

- Run test prints.
- Check TP3-31 for a voltage change from +12 Vdc to 0Vdc while running test prints.

Does the voltage change from +12 Vdc to 0Vdc every other print cycle?

No: Go to #14 in this TAG.

Yes: Continue.

---

11   Turn the printer off and unplug the power cord.

- Disconnect J/P41.
- Remove the developer unit.
- Check for continuity:
  P4 P41-44 to P25-2,
  P41-47 to P25-3, and
  P41-50 to P25-1.

Is there continuity at each?

No: Repair or replace the connectors or wiring from:
      P41-44 to P25-2,
      P41-47 to P25-3, or
      P41-50 to P25-1;
      then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

12   Verify that the connector is securely plugged into the toner patch sensor circuit board, which is mounted on the developer unit.

Is it connected properly?

No: Reconnect the connector, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

13   Clean the printhead lens and toner patch sensor.

- Reinstall the developer unit.
- Reconnect J/P41.
- Run test prints while checking TP3-31 for a voltage change.

Does the voltage still change from +12 Vdc to 0 Vdc every other print cycle?

No: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Replace the developer unit and cleaner unit, then turn to TAG 002: Check & Problem Resolution.

---

14   Turn the printer off and unplug the power cord.

- Disconnect J/P41 and J/P24.
- Check P41-30 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P41-30 to P24-2, then turn to TAG 002: Check & Problem Resolution.

---

15 Reconnect J/P24.

- Disconnect J/P23.
- Check P41-38 to P23-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-38 to P23-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

16 Remove the developer unit.

- Check P85-8 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P85-8 to J25-7, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

17 **Is a meter with a high voltage probe available?**

No: Go to #19 in this TAG.

Yes: Continue.

---

18 Reinstall the developer unit.

- Reconnect J/P85.
- Run test prints.
- Using a high voltage probe, check J/P25-7 for the proper voltage, as outlined in Chapter 9, "General Printer Maintenance".

Is the voltage correct?

No: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Go to #20 in this TAG.

---

19 Reconnect J/P85.

- Reinstall the developer unit.
- Replace the high voltage unit.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original high voltage unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

20   Repair or replace the PCL board.

•   Run test prints.

Has the problem been resolved?

No: Reinstall the original PCL board. Confirm that the photoconductor, charge corona, developer unit, and fuser units are new. If these items are new, the toner/carrier mix may be old or contaminated. Replace the developer and cleaner units with units from the printer's manufacturer. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. Otherwise, turn to TAG 811: Background/Residual Images/Dark Prints.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 809: Blurred or Smeared Vertical Streaks on Prints

Error Code:	**809**
Possible Defects:	**Photoconductor unit**
	Charge corona
	Cleaner unit
	Fuser unit
	Vacuum transport unit
	Fuser unit drive gear
	Fuser drive idler and spring
	Fuser drive belt
	Main drive assembly
	Printhead assembly
	Power control #2 board

1   Turn the printer off and unplug the power cord.

- Verify that J/P23, J/P41, and J/P13 are connected properly.
- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Mainte-nance".
- Clean the printhead lens.
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

3   **Have the photoconductor, charge corona, cleaner, or fuser units been replaced recently?**

No: Continue.

Yes: Go to #7 in this TAG.

4   Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor and charge corona and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

5   Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6   Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

7   Check the following for damage:

- Vacuum transport unit
- Vacuum transport assembly ozone filter
- Fuser unit drive gear on the fuser unit and fuser unit cavity
- Fuser drive belt
- Main drive assembly
- Cleaner unit drive belt
- Cleaner drive idler assembly
- Cleaner drive assembly

Are they in good working order?

No: Repair or replace the parts as needed, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

8   Open the printer's top cover and install an interlock by-pass tool.

- Turn the printer on.
- Wait until the motor turns on, then proceed.
- Verify the vacuum transport fan is running by placing a sheet of paper over the holes in the transport unit.

Does the vacuum fan hold the paper?

No: Go to #10 in this TAG.

Yes: Continue.

---

9   Inspect the vacuum transport belts and gear for damage or binding.

Is the vacuum transport unit in good working order?

No: Repair or replace the vacuum transport unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Go to #12 in this TAG.

TAG 809: Blurred or Smeared Vertical Streaks on Prints

---

10   Run test prints. Use extreme caution:

- Check J/P22-1 to J/P22-2 for 100 Vac.

Is the voltage 100 vac?

No: Continue.

Yes: Replace the vacuum transport unit, then turn to TAG 002: Check & Problem Resolution.

---

11   Run test prints. Use extreme caution:

- Check J/P13-6 to J/P13-3 for 100 Vac.

Is the voltage 100 vac?

No: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from J22-1 to P13-6 or J22-2 to P13-3, then turn to TAG 002: Check & Problem Resolution.

---

12   Inspect the fuser drive assembly and the fuser drive belt for damage or a slipping belt.

Are they in good working order?

No: Replace the parts that are defective, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the printhead assembly, then turn to TAG 002: Check & Problem Resolution.

TAG 810: Uneven Density or Dark Areas on Prints

Error Code:	810
Possible Defects:	**Photoconductor unit**
	Charge corona
	Developer unit
	Cleaner unit

---

1   Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".

- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Have the photoconductor unit, charge corona, cleaner unit and developer unit with new toner cartridge been replaced recently?**
No: Continue.

Yes: Go to TAG 811: Background/Residual Images/Dark Prints.

---

4   Replace the photoconductor unit and charge corona.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

5   Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6   Replace the developer unit and toner cartridge.

• Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and toner cartridge, then turn to TAG 811: Background/Residual Images/Dark Prints.

Yes: Turn to TAG 002: Check & Problem Resolution. If the problem recurs, the toner/carrier mix may be old or contaminated.

TAG 811: Background/Residual Images/Dark Prints

Error Code:	**811**
Possible Causes:	**Contaminated toner/carrier mix**
Possible Defects:	**Photoconductor unit**
	Charge corona
	Cleaner unit
	Developer unit
	Erase lamp assembly
	High voltage unit
	Power control #2 board
	Connectors or wiring
	PCL board
	Charge corona terminal assembly
	Cleaner terminal assembly

---

1   Turn the printer off and unplug the power cord.

- Verify J/P23, J/P24, J/P85, and the charge corona high voltage lead are connected properly.
- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Clean the contacts on the charge corona.
- Clean the printhead lens and toner patch sensor located on the developer unit.
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or a loose connector was at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Have the photoconductor unit, charge corona, cleaner unit and developer unit with new toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #5 in this TAG.

---

4   Replace the photoconductor unit and charge corona.

- Run 200+ test prints, then evaluate the test print background.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and charge corona and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

5   Replace the developer unit and cleaner unit.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and cleaner unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6   Remove the photoconductor unit from the printer.
- Run diagnostic test 013.
- Watch the erase lamp while the test is running.

Are all the erase lamps on?

No: Replace the erase lamp assembly, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

7   Turn the printer off.
- Open the front cover and install an interlock by-pass tool.
- Remove the developer unit.
- Power-on-reset the printer.
- Watch the toner motor coupling in the developer cavity.

Does the coupling turn continuously before error code 036 is displayed?

No: Continue.

Yes: Go to #21 in this TAG.

---

8   Reinstall the developer unit.
- Run test prints.
- Check TP3-31 for voltage change from +12 Vdc to 0 Vdc while running test prints.

Does the voltage change from +12 Vdc to 0 Vdc every other print cycle?

No: Go to #11 in this TAG.

Yes: Continue.

---

9   Turn the printer off and unplug the power cord.
- Disconnect J/P41.
- Remove the developer unit.
- Check for continuity: P41-44 to J25-2, P41-47 to J25-3, and P41-50 to J25-1.

Is there continuity on each?

No: Repair or replace the connectors or wiring: P41-44 to J24-2, P41-47 to J25-3, or P41-50 to J25-1; then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

10   Verify that the toner patch sensor board connector, mounted on the developer unit, is connected properly.

Is it connected properly?

No: A loose connection was at fault. Turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

---

11   Turn the printer off and unplug the power cord.
   • Disconnect J/P41 and J/P24.
   • Check P41-30 to P24-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-30 to P24-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

12   Reconnect J/P24.
   • Disconnect J/P23.
   • Check P41-33 to P23-7 for continuity.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P41-33 to P23-7, then turn to TAG 002: Check & Problem Resolution.

---

13   Reconnect J/P23.
   • Disconnect J/P85 from the high voltage unit.
   • Check P85-8 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P85-8 to J25-7, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

14   Reinstall the developer unit.
   • Reconnect J/P85.
   • Disconnect J/P41 and J/P24.
   • Check P41-40 to P24-3 for continuity.

Is there continuity?

No: Repair or replace the connector or wiring from P41-40 to P24-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15   Reconnect J/P41 and J/P24.

- Turn the printer on.
- Run test prints.
- Check TP4-40 for 0.5 Vdc while running the prints.

Is the voltage 0.5 Vdc?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

16   **Is a meter with a high voltage probe available?**

No: Go to #19 in this TAG.

Yes: Continue.

---

17   Using a high voltage probe, check J/P25-7 for the proper voltage, as described in Chapter 9, "General Printer Maintenance".

Is the voltage correct?

No: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

18   Check the charge corona, transfer corona, grid, and cleaning bias described in Chapter 9, "General Printer Maintenance".

Are any of the values out of specification?

No: Go to #20 in this TAG.

Yes: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

---

19   Replace the high voltage unit.

Has the problem been resolved?

No: Reinstall the original high voltage unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

20   Replace the PCL board.

Has the problem been resolved?

No: Reinstall original PCL board. Go back to #3 in this TAG. If this does not resolve the problem, the IGS board, cleaner terminal assembly, or charge corona terminal assembly may be at fault. Determine which of these is at fault, correct the problem, then turn to TAG 002: Check & Problem Resolution.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

21   Check J/P40-31 for 0 Vdc.

Is the voltage 0 Vdc?

No: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

22   Turn the printer off and unplug the power cord.

- Disconnect J/P40.
- Check P40-31 for continuity to ground.

Is there continuity?

No: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

23   Disconnect J/P12.

- Check P40-31 and P12-5 for continuity to ground.

Is there continuity?

No: Replace the power control #2 board, then turn to TAG 002: Check & Problem Resolution.

Yes: Repair or replace the connectors or wiring from P40-31 to P12-5, then turn to TAG 002: Check & Problem Resolution.

TAG 812: Uneven or No Fusing on Prints

Error Code:	**812**
Possible Causes:	**Wrong weight or type of paper loaded**
Possible Defects:	**Fuser unit**
	Connectors or wiring
	AC power supply unit
	PCL board

---

1   Turn the printer off and unplug the power cord.

- Verify that J/P44, J/P4, J/P10, J/P11, J/P12, J/P40, J/P83, J/P91, and J/P8 are connected properly.
- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2   Check the voltages, as outlined in Chapter 9, "General Printer Maintenance"

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3   **Have the fuser unit and developer unit with new toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

---

4   Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

5   Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6   Power-on-reset the printer.

- Watch through the output tray opening to see if the fuser lamp comes on.

Does the lamp light within 1.5 minutes?

No: Go to TAG 070: Fuser Unit Malfunction.

Yes: Continue.

---

7   Run test prints.

Does the print seem to be excessively dark or do the characters feel raised on the paper?

No: Continue.

Yes: Go to TAG 808: Prints Overtoned/Dark Vertical Streaks.

---

8   Confirm that the paper in the cassettes meets paper specifications, outlined in the *Guide to Operations* manual.

Is the paper within specification?

No: Do not use this paper. Turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Turn the printer off and unplug the power cord.

- Remove the fuser unit.
- Disconnect J/P41.
- Check P41-22 to P5-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-22 to P83-1, or J83-1 to P5-6, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

10   Check P41-21 to P5-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-21 to P83-2, or J83-2 to P5-7, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

11   Reinstall the fuser unit.

- Check P41-21 to P41-22 for resistance.

Is the resistance between I KΩ and 400 KΩ?

No: Replace the fuser unit. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 813: Residual Images on Prints

Error Code:	**813**
Possible Defects:	**Cleaner unit drive belt**
	Cleaner unit
	High voltage unit
	Photoconductor unit
	Erase lamp assembly
	Developer unit

---

1 Turn the printer off and unplug the power cord.

- Perform the every-call cleaning procedure, described in Chapter 9, "General Printer Maintenance".
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to TAG 002: Check & Problem Resolution.

---

2 Open the printer's back cover.

- Remove the paper feed drive cover.
- Check the cleaner unit drive belt.

Is the belt attached?

No: Repair or replace the cleaner unit drive belt, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

3 Check the voltages, as outlined in Chapter 9, "General Printer Maintenance".

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

4 **Have the cleaner unit, developer unit with new toner cartridge, and photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #8 in this TAG.

---

5 Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

6   Replace the developer unit and toner cartridge.

     •   Run test prints.

     Has the problem been resolved?

     No: Reinstall the original developer unit and continue.

     Yes: Turn to TAG 002: Check & Problem Resolution.

---

7   Replace the photoconductor unit and charge corona.

     •   Run test prints.

     Has the problem been resolved?

     No: Reinstall the original photoconductor unit and charge corona, then continue.

     Yes: Turn to TAG 002: Check & Problem Resolution. If the problem recurs, the toner may be old or contaminated.

---

8   Turn the printer off and unplug the power cord.

     •   Disconnect J/P40 and J/P24.

     •   Check P40-40 to P24-3 for continuity.

     Is there continuity?

     No: Repair or replace the connector or wiring from P40-40 to P24-3, then turn to TAG 002: Check & Problem Resolution.

     Yes: Continue.

---

9   **Is a meter with a high voltage probe available?**

     No: Go to #11 in this TAG.

     Yes: Continue.

---

10   Check the charge corona, transfer corona, grid, and cleaning bias described in Chapter 9, "General Printer Maintenance".

     Are any of the values out of specification?

     No: Go to #12 in this TAG.

     Yes: Replace the high voltage unit, then turn to TAG 002: Check & Problem Resolution.

---

11   Replace the high voltage unit.

     Has the problem been resolved?

     No: Reinstall the original high voltage unit and continue.

     Yes: Turn to TAG 002: Check & Problem Resolution.

---

12   Repair or replace the cleaner terminal assembly.

     •   Run test prints.

     Has the problem been resolved?

     No: Reinstall the original cleaner terminal assembly, then go back to #5 in this TAG.

     Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 815: Prints Resulting From Printhead Malfunctions

Error Code:	**815**
Possible Causes:	**Additional lines or missing lines on page.**
Possible Defects:	**Printhead assembly**
	Connectors or wiring
	IGS board

1 Turn off the printer and unplug the power cord.

• Replace wire harness 46.

Has the problem been resolved?

No: Continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

2 Turn off the printer and unplug the power cord.

• Replace the printhead assembly.

Has the problem been resolved?

No: Replace the IGS board, then turn to TAG 002: Check & Problem Resolution.

Yes: Turn to TAG 002: Check & Problem Resolution.

TAG 900: Top Cover Interlock Malfunction, Duplex

Error Code: 900

Possible Defects: **Cover open sensor**
                       PCL board
                       Duplex control board #1
                       Connectors or wiring

Complete TAG 600: AC Power Malfunction before starting this TAG.

---

1   Turn the printer off and unplug the power cord.
   - Verify that J/P306, J/P307, J/P309, and J/P318 are connected properly.
   - Confirm that the top and front covers are closing completely.
   - Power-on-reset the printer.

   Is error code 090 displayed?

   No: Loose connectors or obstructions were at fault. Turn to TAG 002: Check & Problem Resolution.

   Yes: Continue.

---

2   Open the printer's top cover and insert the interlock by-pass tool.
   - Turn on the printer.
   - Check J/P309-3 on duplex control board #1 for +12 Vdc.

   Is the voltage +12 Vdc?

   No: Replace the duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

   Yes: Continue.

---

3   Check J/P309-1 on duplex control board #1 for +12 Vdc.

   Is the voltage +12 Vdc?

   No: Continue.

   Yes: Go to #5 in this TAG.

---

4   Turn the printer off and unplug the power cord.
   - Disconnect J/P318 and J/P309.
   - Check the following for continuity:
     P309-1 to P318-2,
     P309-3 to P318-1, and
     P309-5 to P318-3.

   Is there continuity?

   No: Repair or replace the wiring or connectors from:
       P309-1 to P318-2,
       P309-3 to P318-1, or
       P309-5 to P318-3;
       then turn to TAG 002: Check & Problem Resolution.

   Yes: Replace the cover open sensor, then turn to TAG 002: Check & Problem Resolution.

---

5   Turn on the printer.

- Check J/P36-1 on the PCL board for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 901: Misregistration/Skewed Prints (Duplex)

Error Code:	**901**
Possible Causes:	**Wrong weight or type of paper loaded**
Possible Defects:	**Duplex holding tray sensors**
	Duplex holding tray motor
	Duplex drive/clutch
	Pinch rollers A and B
	Route separator
	Duplex control board #2
	Connectors or wiring
	PCL board

Registration is correct when the top (+ or -2) of the 20-line indicator, found on the top of a test print, is at the leading edge of the print.

If the problem varies from print to print, suspect a mechanical binding problem. if problems exist in the simplex mode, go to TAG 807: Misregistered/Skewed Prints (Simplex).

---

1   Verify that the upper and lower paper cassettes are not damaged.

- Confirm that the paper in the cassettes meets paper specifications, outlined in the *Guide to Operations* manual.
- Make sure the paper in both paper cassettes is loaded properly.
- Make sure the side and rear paper guides in the paper cassettes are positioned properly.
- Check both paper paths for obstructions or contamination.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Turn to TAG 002: Check & Problem Resolution.

---

2   Turn the printer off and unplug the power cord.

- Inspect the following for damage or contamination:
  - Duplex drive/clutch assembly
  - Timing belts
  - Upper paper guide assembly
  - Pinch roller springs
  - Route separator and springs

Are these parts clean and in good working order?

No: Repair or replace any damaged parts as needed, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

TAG 901: Misregistration/Skewed Prints (Duplex)

3   Verify that J/P305, J/P310, J/P311, J/P312, J/P320, J/P321, and J/P322 are connected properly to duplex control board #2.

- Verify that J/P306, J/P307, J/P308, J/P309, and J/P324 are connected properly to duplex control board #1.
- Verify that J/P315 and J/P316 are connected properly to the "A" and "C" roller clutches.
- Run test prints in duplex.

Did the test indicate an error code?

No: Registration or skew problems can only result from mechanical causes. Return to the beginning of this TAG.

Yes: Continue.

---

4   **Did the side guides in the duplex tray move in and out while the test was running?**

No: Go to #8 in this TAG.

Yes: Continue.

---

5   Check J/P312-1 on duplex control board #2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace duplex control board #2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6   Manually move the side guides in the duplex tray to the inside positions.

- Check J/P312-2 on duplex control board #2 for 0 Vdc.

Is the voltage 0 Vdc?

No: Continue.

Yes: Replace duplex control board #2, then turn to TAG 002: Check & Problem Resolution.

---

7   Turn the printer off and unplug the power cord.

- Disconnect J/P320 and J/P312.
- Check the following for continuity:
  P312-1 to P320-1,
  P312-2 to P320-2, and
  P312-3 to P320-3.

Is there continuity?

No: Repair or replace the wiring or connectors from:
P312-1 to P320-1,
P312-2 to P320-2, or
P312-3 to P320-3;
then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the side sensor. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace duplex control board #2, then turn to TAG 002: Check & Problem Resolution.

8	Run diagnostic test 017.

Did diagnostic test 017 indicate a duplex tray paper sensor problem?

No: Continue.

Yes: Go to #13 in this TAG.

9	Turn the printer off.

- Disconnect J/P312 and J/P321.
- Check P312-7 to J321-1 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-7 to J321-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

10	Check P312-8 to J321-2 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-8 to J321-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

11	Check P312-9 to J321-3 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-9 to J321-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

12	Check P312-10 to J321-4 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-10 to J321-4, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace duplex control board #2. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this does not resolve the problem, replace the registration motor, then turn to TAG 002: Check & Problem Resolution.

13	Check J/P312-4 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace duplex control board #2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

TAG 901: Misregistration/Skewed Prints (Duplex)

---

14   Manually activate the duplex tray paper sensor.

- Check J/P312-5 for 0 Vdc.

Is the voltage 0 Vdc?

No: Replace the duplex tray paper sensor. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this doesn't resolve the problem, repair or replace the wiring or connectors from:
P312-4 to J322-1,
P312-5 to J322-2, or
P312-6 to J322-3;
then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

15   Manually activate the duplex tray paper sensor.

- Check J/P36-6 on the PCL board for 0 Vdc.

Is the voltage 0 Vdc?

No: Replace duplex control board #2. If this resolves the problem, turn to TAG 002: Check & Problem Resolution. If this doesn't resolve the problem, repair or replace the wiring or connectors from P311-7 to J/P305-11 to P36-4, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the PCL board, then turn to TAG 002: Check & Problem Resolution.

TAG 902: Paper Jam in Duplex Area

Error Code:	**027, 060, 061, 062**
Possible Causes:	**Paper incorrectly loaded**
	Paper path not clear
Possible Defects:	**Duplex drive/clutch**
	"A" roller clutch
	Duplex input solenoid
	"C" roller clutch
	Duplex feed motor
	Duplex control board #1
	Connectors or wiring

---

1 Turn the printer off and unplug the power cord.

- Verify that J/P306, J/P307, J/P308, J/P309, J/P313, J/P314, J/P315, J/P316, J/P317, and J/P319 are connected properly.
- Check the following components for damage:
  - Duplex drive/clutch
  - Timing belts
  - Route separator
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to TAG 002: Check & Problem Resolution.

---

2 Turn on the printer.

- Run diagnostic test 017.

Is the duplex paper path sensor in good working order?

No: Continue.

Yes: Go to #7 in this TAG.

---

3 Turn the printer off.

- Disconnect J/P309.
- Turn on the printer.
- Check J309-4 on duplex control board #1 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace duplex control board #1, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

---

4 Check J/P309-2 on duplex control board #1 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace duplex control board #1, then turn to TAG 002: Check & Problem Resolution.
Yes: Continue.

TAG 902: Paper Jam in Duplex Area

---

5   Turn the printer off.

- Reconnect J/P309.
- Disconnect J/P319.
- Turn the printer on.
- Check J319-1 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the wiring or connectors from P309-4 to J319-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

6   Check J319-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the wiring or connectors from P309-2 to J319-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the paper pass sensor, then turn to TAG 002: Check & Problem Resolution.

---

7   Turn the printer on.

- Run diagnostic test 018.

Is the "A" roller clutch in good working order?

No: Continue.

Yes: Go to #10 in this TAG.

---

8   Turn the printer off.

- Disconnect J/P308.
- Turn the printer on.
- Check J308-3 on the duplex control board #1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

9   Turn the printer off.

- Reconnect J/P308.
- Disconnect J/P316.
- Turn the printer on.
- Check P316-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the wiring or connectors from P308-3 to J316-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the "A" roller clutch, then turn to TAG 002: Check & Problem Resolution.

10	Turn the printer on.

- Run diagnostic test 018.

Is the input solenoid in good working order?

No: Continue.

Yes: Go to #13 in this TAG.

11	Turn off the printer.

- Disconnect J/P308.
- Turn on the printer.
- Check J308-1 and J308-5 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

12	Disconnect J/P314.

- Check for continuity:
  P308-1 to J314-1
  P308-5 to J314-2

Is there continuity?

No: Repair or replace the wiring or connectors from:
  P308-1 to J314-1 or
  P308-5 to J314-2;
  then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the input solenoid, then turn to TAG 002: Check & Problem Resolution.

13	Turn the printer on.

- Run diagnostic test 018.

Is the C roller solenoid in good working order?

No: Continue.

Yes: Go to #16 in this TAG.

14	Turn off the printer.

- Disconnect J/P308.
- Turn on the printer.
- Check J308-2 and J308-6 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

15	Disconnect J/P315.

- Check the following for continuity:
  P308-2 to P315-1, and

P308-6 to P315-2.

Is there continuity?

No: Repair or replace the wiring or connectors from:
P308-2 to P315-1, or
P308-6 to P315-2,
then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the "C" roller solenoid, then turn to TAG 002: Check & Problem Resolution.

---

16   Turn the printer on.
- Run diagnostic test 016.

Is the feed motor in good working order?

No: Continue.

Yes: Go to #21 in this TAG.

---

17   Turn the printer off.
- Disconnect J/P309.
- Check P309-7 to P309-8 for continuity.

Is there continuity?

No: Go to #19 in this TAG.

Yes: Continue.

---

18   Check P309-9 to P309-10 for continuity.

Is there continuity?

No: Continue.

Yes: Replace duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

---

19   Disconnect J/P313.
- Check the following for continuity:
P309-7 to J313-1,
P309-8 to J313-2,
P309-9 to J313-3, and
P309-10 to J313-4.

Is there continuity?

No: Repair or replace the wiring or connectors from P309 to J313 that have no continuity,
then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

---

20   Check the following for continuity:
- P313-1 to P313-2
- P313-3 to P313-4

Is there continuity?

No: Replace the route motor, then turn to TAG 002: Check & Problem Resolution.

Yes: Replace the duplex control board #1, then turn to TAG 002: Check & Problem Resolution.

21	Turn the printer on.

• Check J/P306-3 to J/P306-4 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the wiring or connectors from P306-3 to J/P331-3 to P330-3, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

22	Check J/P306-2 to J/P306-4 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the wiring or connectors from P306-2 to J/P331-2 to P330-2, then turn to TAG 002: Check & Problem Resolution.

Yes: Continue.

23	Check J/P306-1 to J/P306-4 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the wiring or connectors from P306-1 to J/P331-1 to P330-1, then turn to TAG 002: Check & Problem Resolution.

Yes: Return to the beginning of this TAG.

TAG 902: Paper Jam in Duplex Area

Print Quality Samples

Chapter Contents

Print Quality Samples

Print Quality Samples

This section contains flawed test prints, along with a good test print for comparison. Compare print samples from your customer's print job or from test prints you've run with the samples in this section. If you find a match, note the TAG (i.e., troubleshooting procedure) listed under the sample. Turn to that TAG to begin troubleshooting. All of the TAGs are outlined in Chapter 3, "Troubleshooting Analysis Guide (TAGs)"

If your customer's prints show more than one problem, resolve them one at a time, in the order in which they are listed in this section.

Sample 1: Good Quality Print
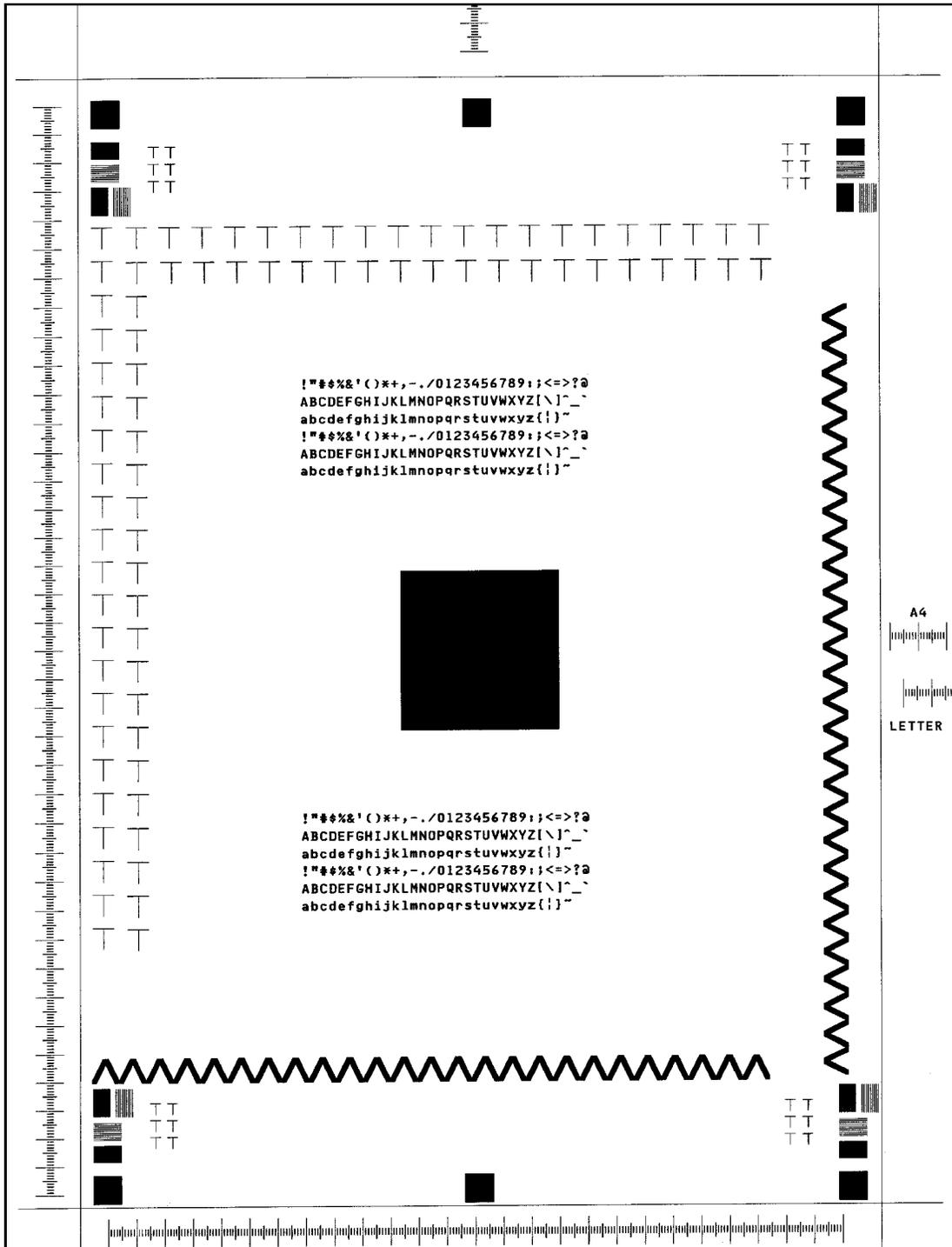
Figure 4-1. **Good Quality Print**

Description: Good, properly registered print.

Sample 2: Washout
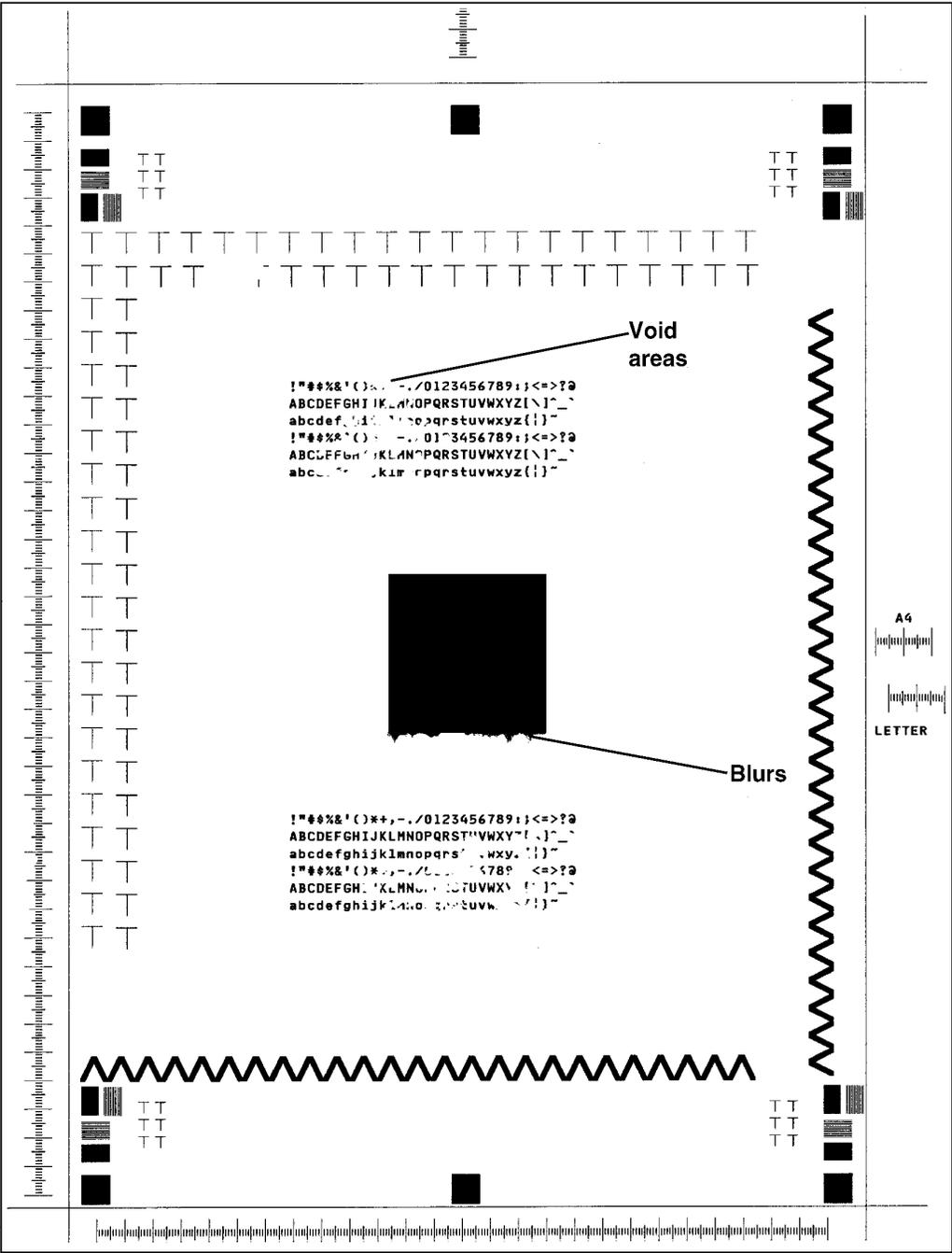
Void
areas

Blurs

Figure 4-2. Washout

Description: Void areas, light spots, or blurs. This is a composite of possible symptoms.

Go to TAG 801: Prints Light or Light With Carrier Particles, TAG 802: Prints With Voids or White Spots, TAG 809: Blurred or Smeared Vertical Streaks on Prints, or TAG 810: Uneven Density or Dark Areas on Prints.

Sample 3: Blank Print
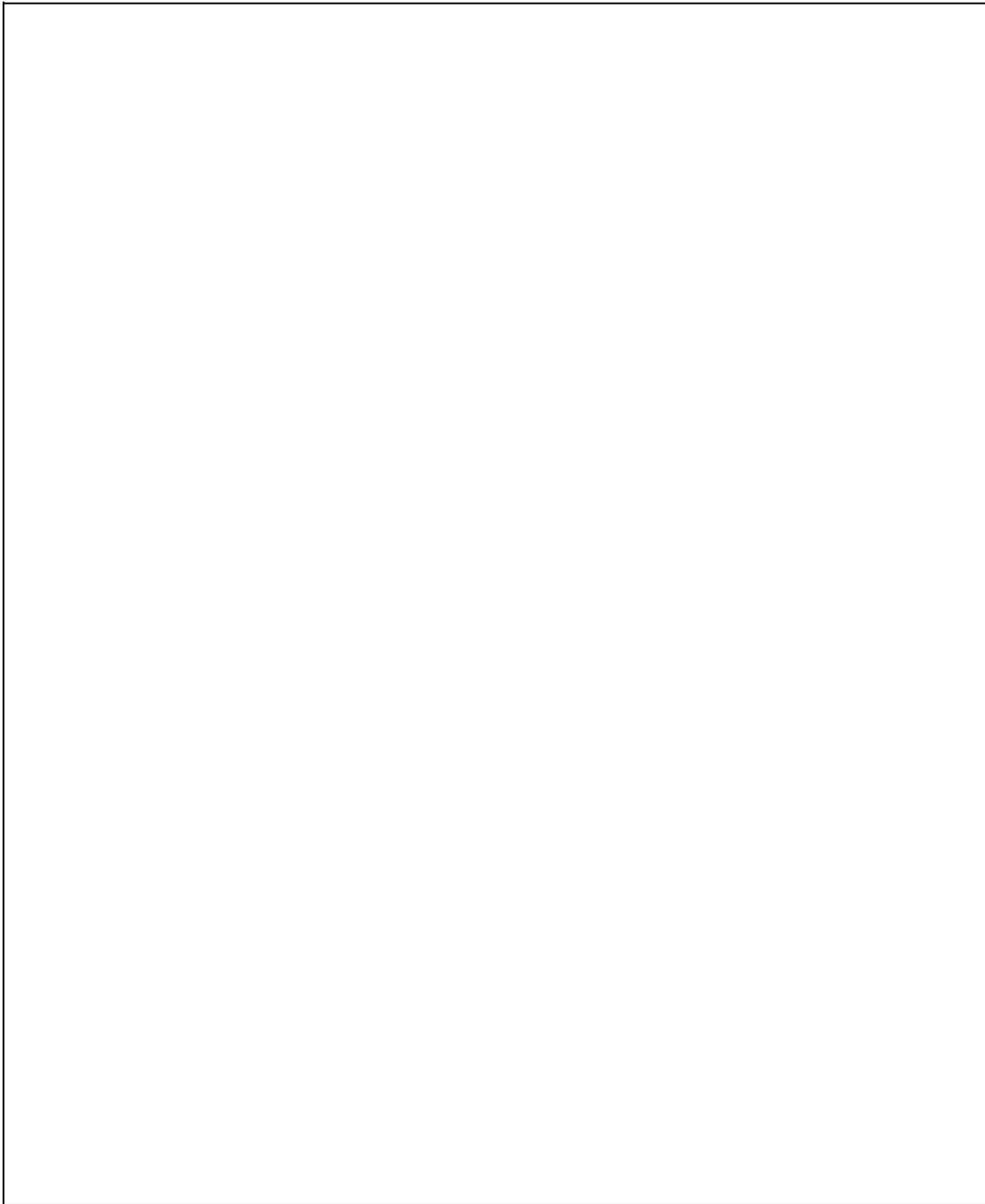
Figure 4-3. Blank Print

Description: No images or characters. The paper is not discolored.

Go to TAG 800: Prints Blank or With Dark Horizontal Bands, TAG 815: Prints Resulting From Printhead Malfunctions.

Sample 4: Light Print
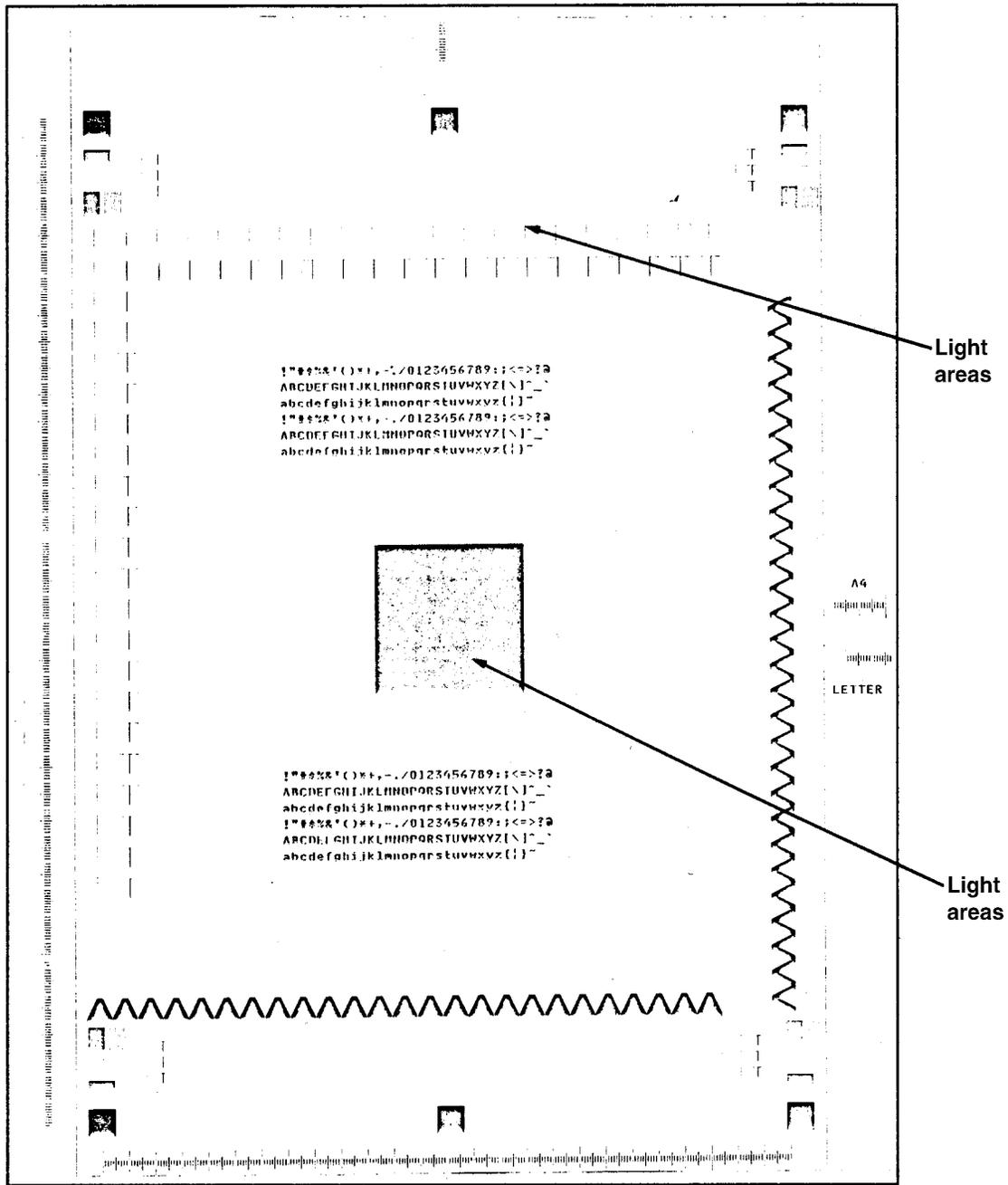
Figure 4-4. Light Print

Description: Images or characters are lighter than normal. Examine the letters H, T, M, and E; if the vertical strokes are dark enough but the diagonal strokes are stair-stepped, the problem is related to the printhead. Carrier particles may make the print feel gritty.

Go to TAG 801: Prints Light or Light With Carrier Particles.

Sample 5: Light Print With Background
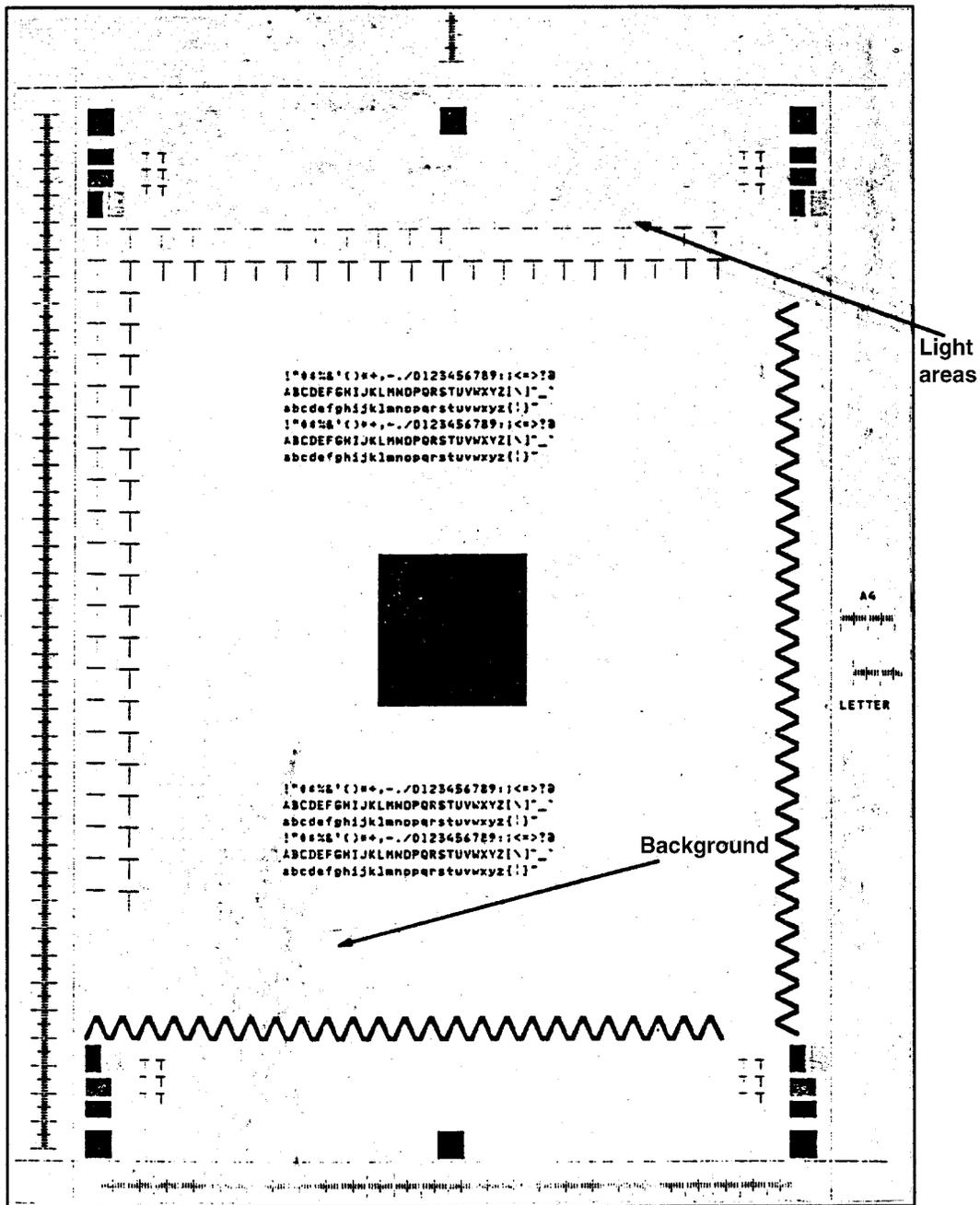
Figure 4-5. Light Print With Background

Description: Images or characters lighter than normal, ranging from a few dark specks to a large speckled background.

Go to TAG 811: Background/Residual Images/Dark Prints.

Sample 6: Voids or White Spots
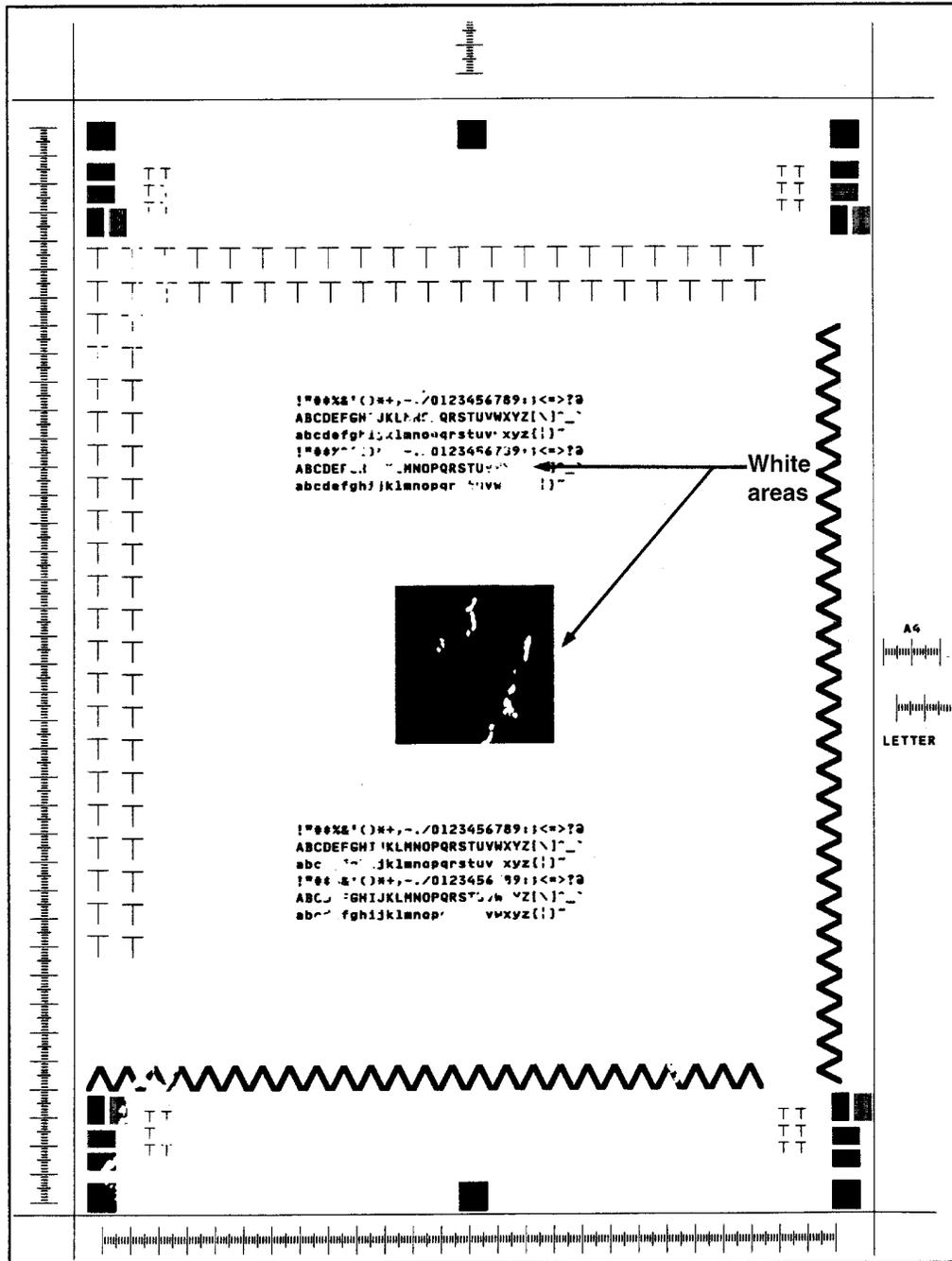
Figure 4-6. **Voids of White Spots**

Description: Voids or white spots in image areas.

Go to TAG 802: Prints With Voids or White Spots.

Sample 7: Light Vertical Streaks
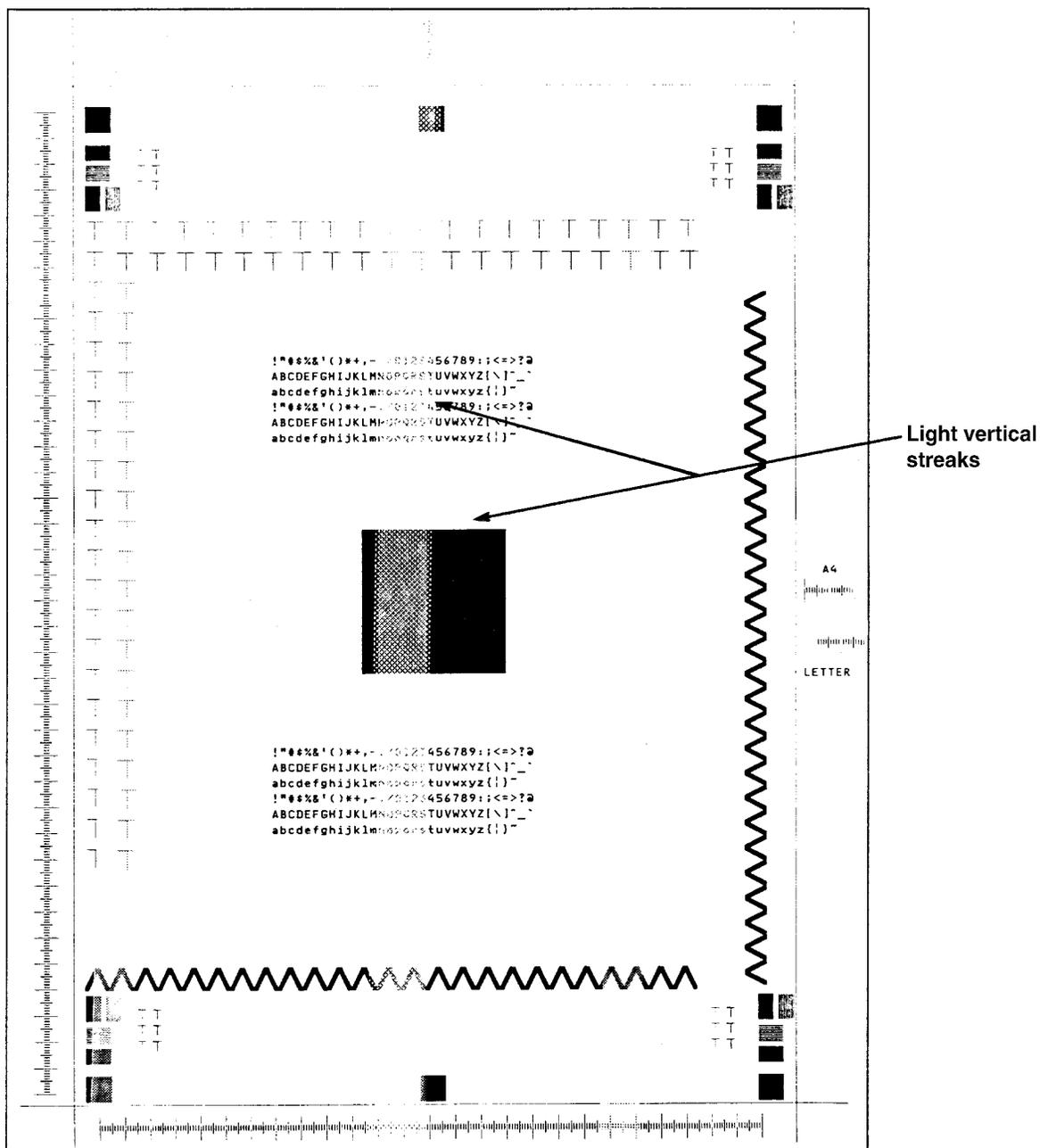
Figure 4-7. **Light Vertical Streaks**

Description: One or more light vertical streaked areas of varying widths.

Go to TAG 803: Prints With Light or White Vertical Streaks.

Sample 8: Blank Vertical Bands
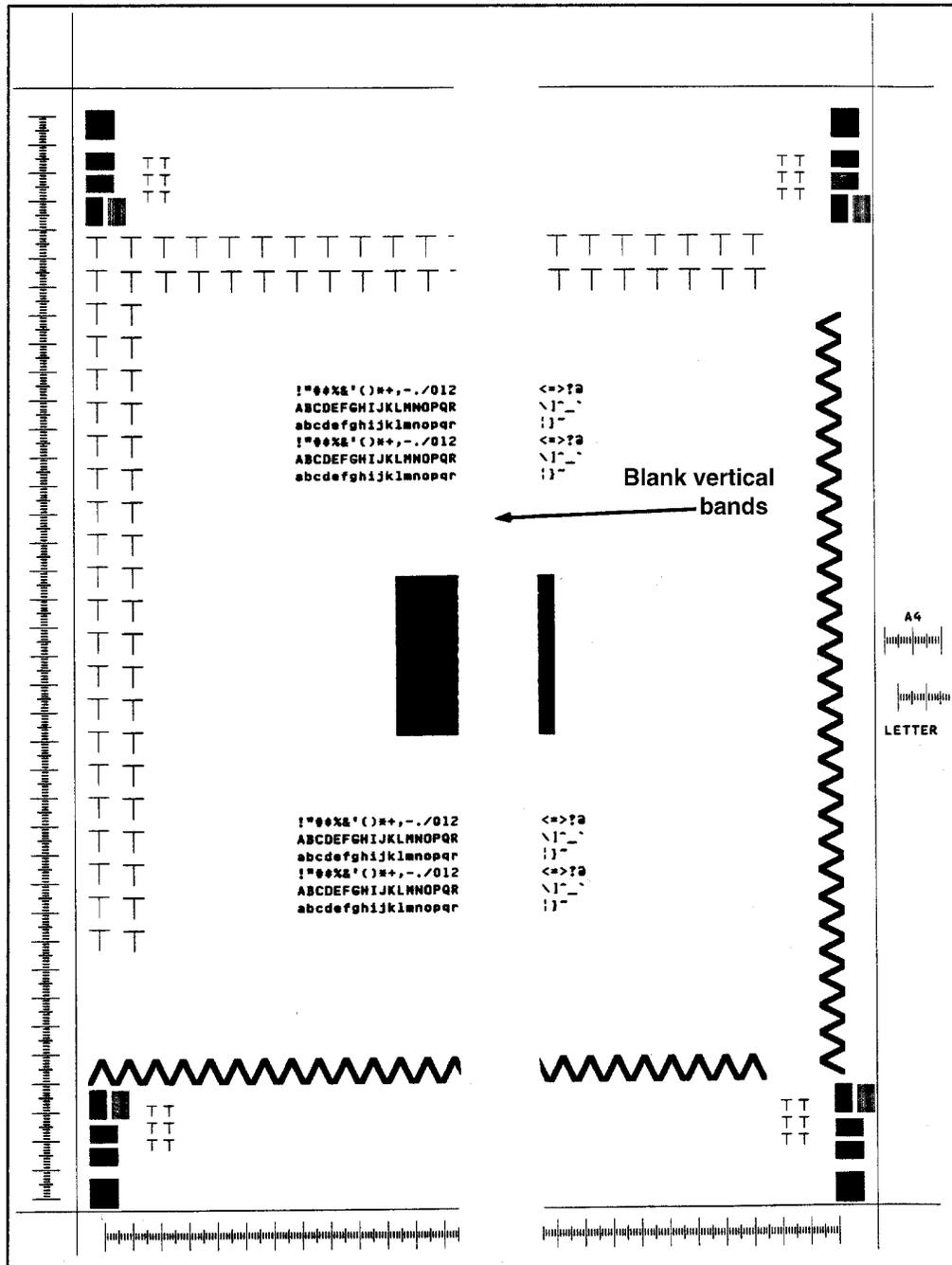
Figure 4-8. Blank Vertical Bands

Description: One or more vertical blank bands of varying widths extend over the entire length.

Go to TAG 803: Prints With Light or White Vertical Streaks.

Sample 9: Light Horizontal Bands
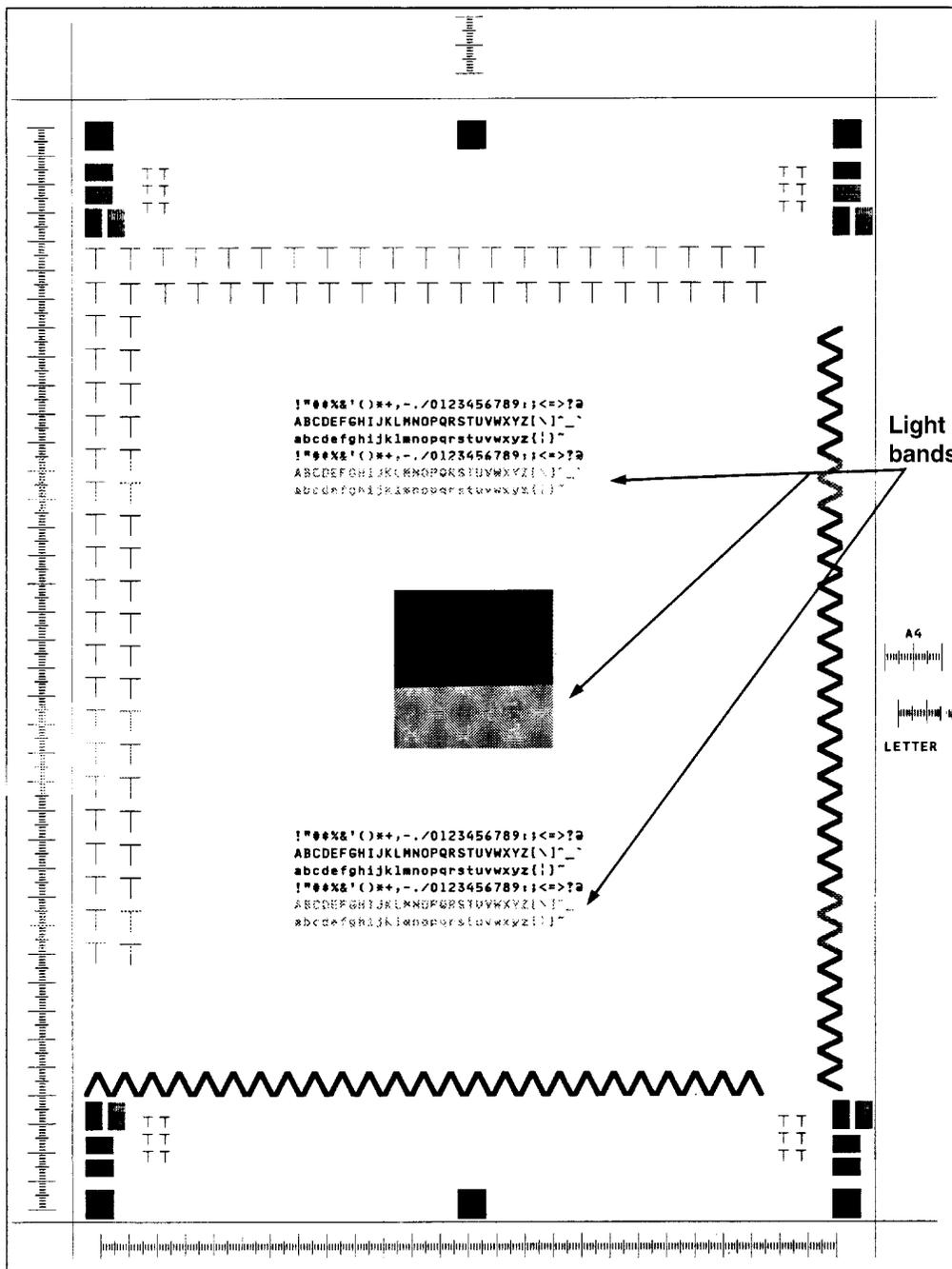
Figure 4-9. Light Horizontal Bands

Description: One or more light horizontal bands of varying width.

Go to TAG 804: Prints With Light Horizontal Bands.

Sample 10: Black or Dark Print
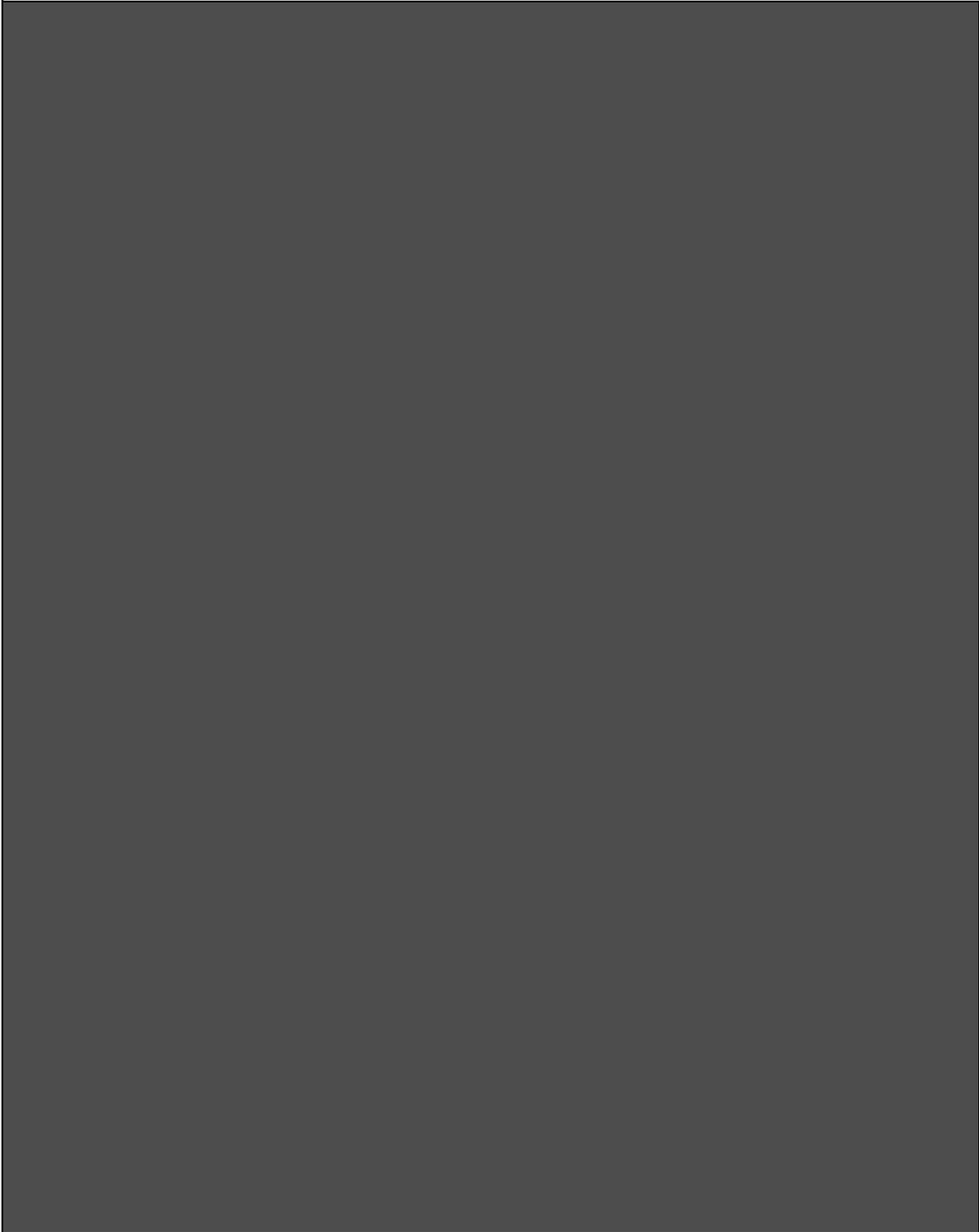
Figure 4-10. Black or Dark Print

Description: Black or very dark with no visible images.

Go to TAG 805: Black Prints, TAG 811: Background/Residual Images/Dark Prints.

Sample 11: Dark Specks, Lines, or Areas
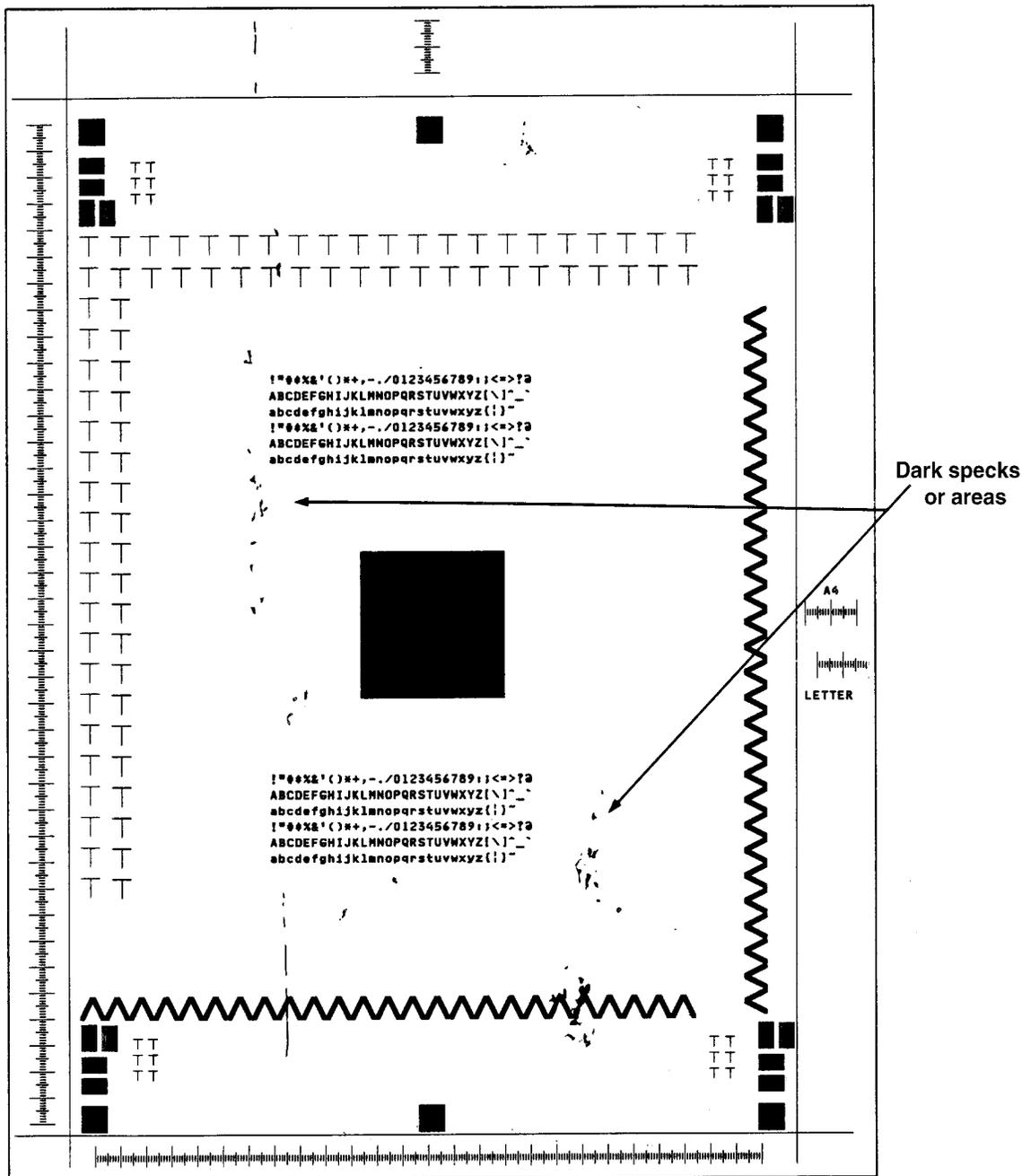
Figure 4-11. **Dark Specks, Lines, or Areas**

Description: Dark specks or lines (like scratches), some in the same place on each print.

Go to TAG 806: Prints with Dark Spots or Scratches, TAG 810: Uneven Density or Dark Areas on Prints.

Sample 12: Dark Vertical Lines
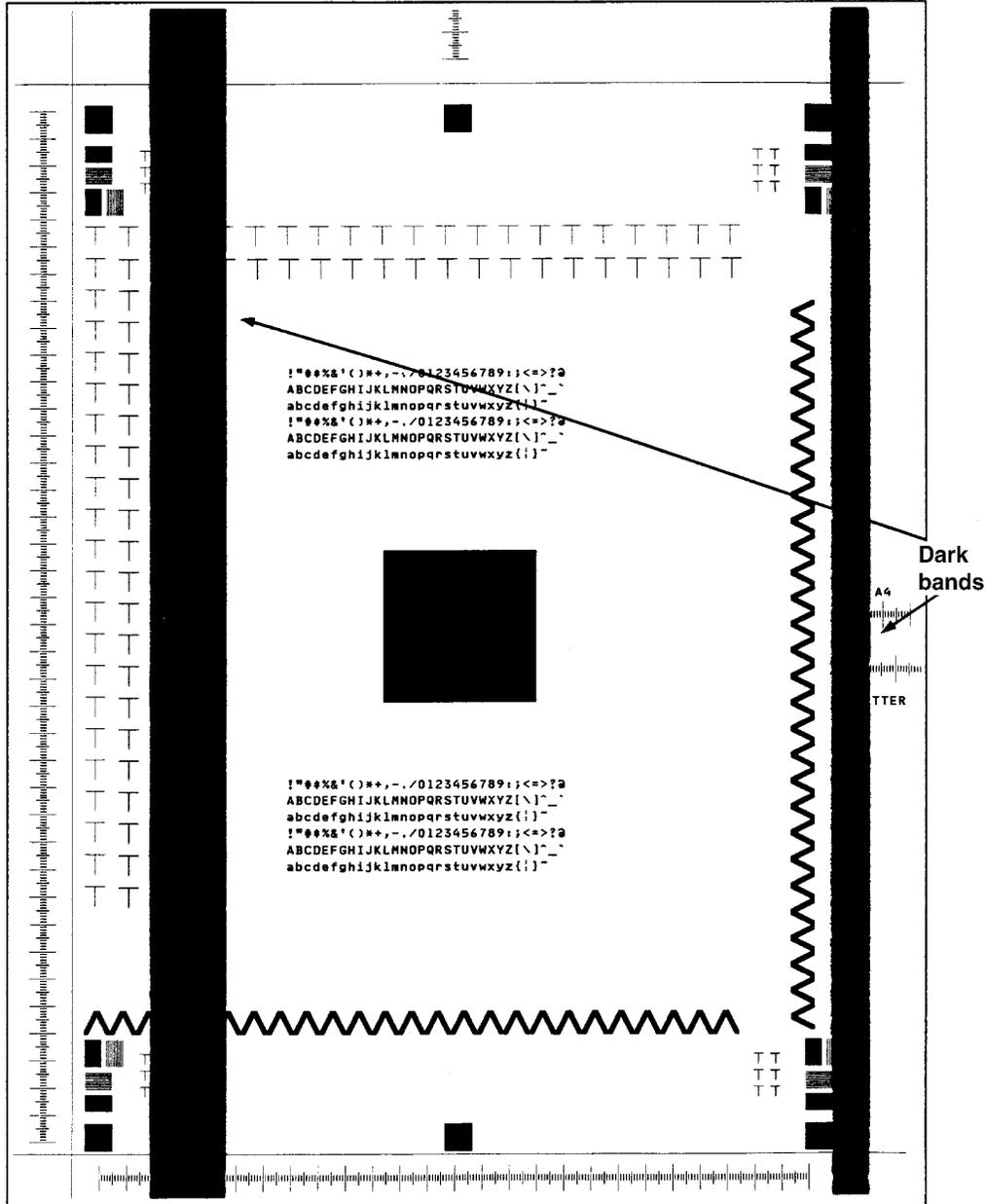
Figure 4-12. Dark Vertical Lines

Description: One or more dark lines of varying density. If the image can be rubbed off, go to TAG 812: Uneven or No Fusing on Prints. If the image cannot be rubbed off, go to TAG 808: Prints Overtoned/Dark Vertical Streaks.

Go to TAG 812: Uneven or No Fusing on Prints, TAG 808: Prints Overtoned/Dark Vertical Streaks.

Sample 13: Skewed Prints
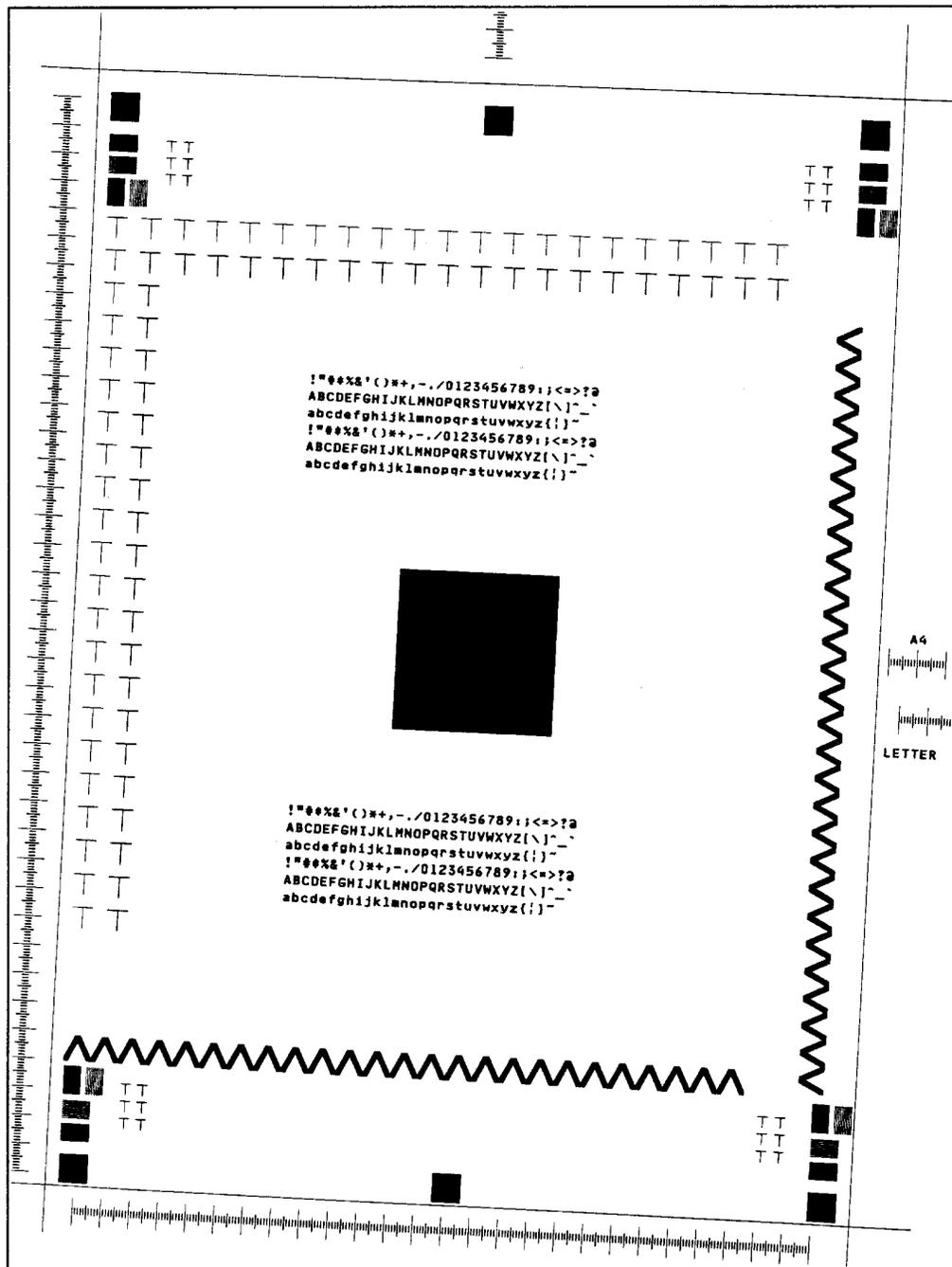
Figure 4-13. Skewed prints

Description: The entire image is not located squarely on the paper.

Go to TAG 807: Misregistered/Skewed Prints (Simplex) or TAG 901: Misregistration/ Skewed Prints (Duplex).

Sample 14: Misregistration
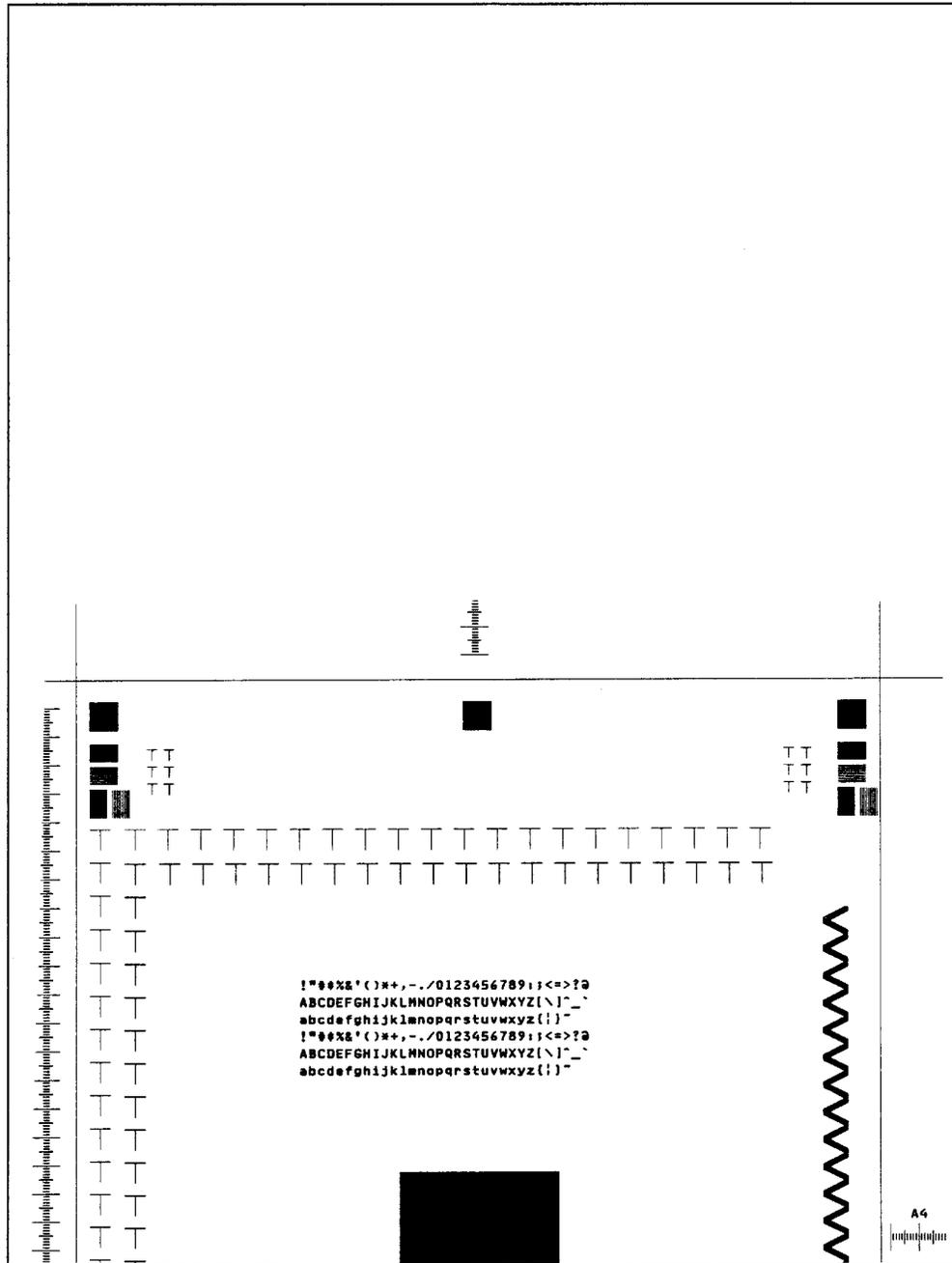
Figure 4-14. Misregistration

Description: The entire image is not correctly located from the leading edge of the paper. The top or bottom image area may be missing.

Go to TAG 807: Misregistered/Skewed Prints (Simplex) or TAG 901: Misregistration/ Skewed Prints (Duplex).

Sample 15: Overtoned Print
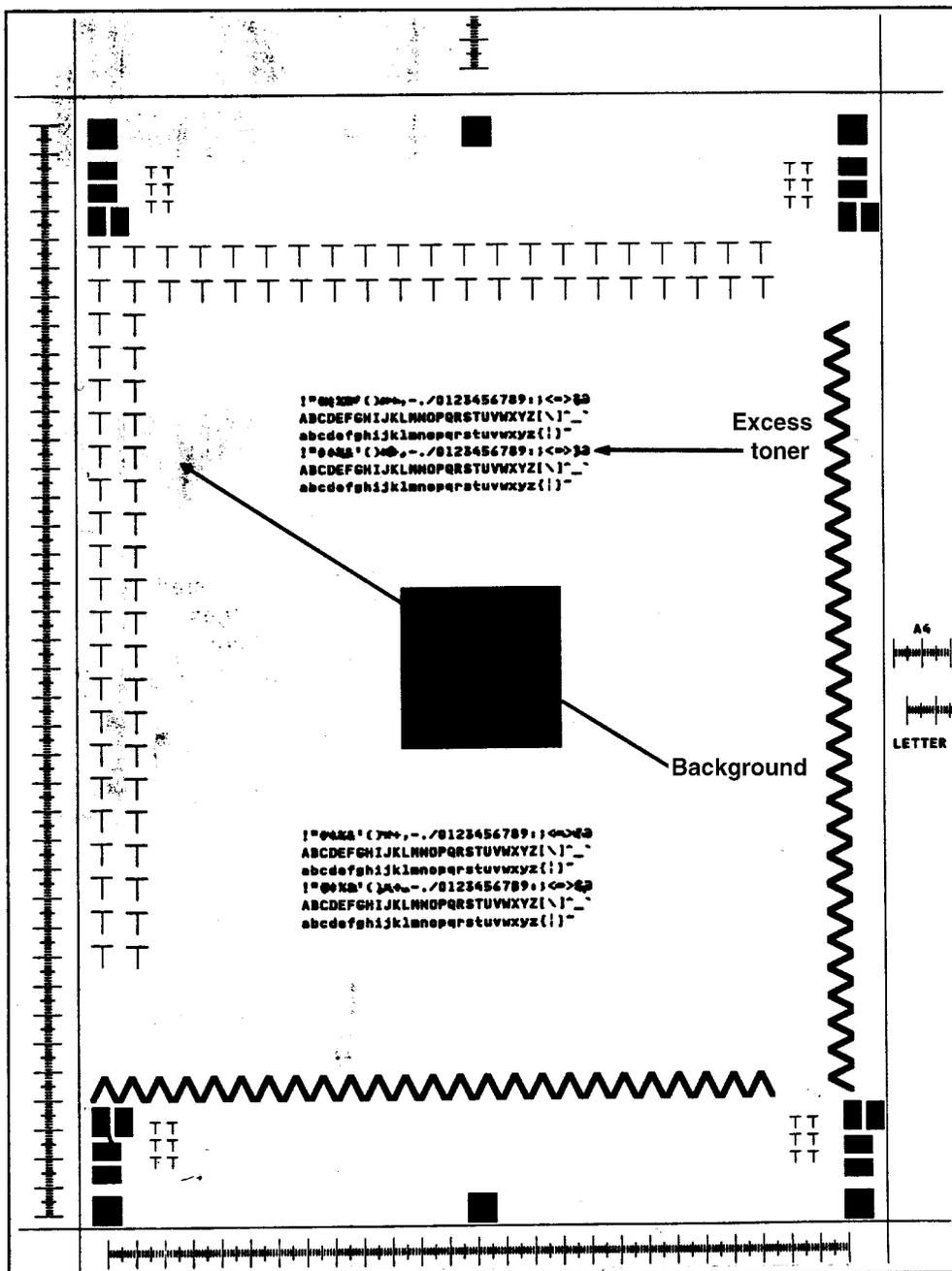
Figure 4-15. Overtoned Print

Description: Similar to dark print quality problems. Narrow gaps between letters and images may be filled with toner. Excess toner may be present on the surface of the print. Extra toner can also cause background in the white areas.

Go to TAG 809: Blurred or Smeared Vertical Streaks on Prints.

Sample 16: Blurred Images or Characters
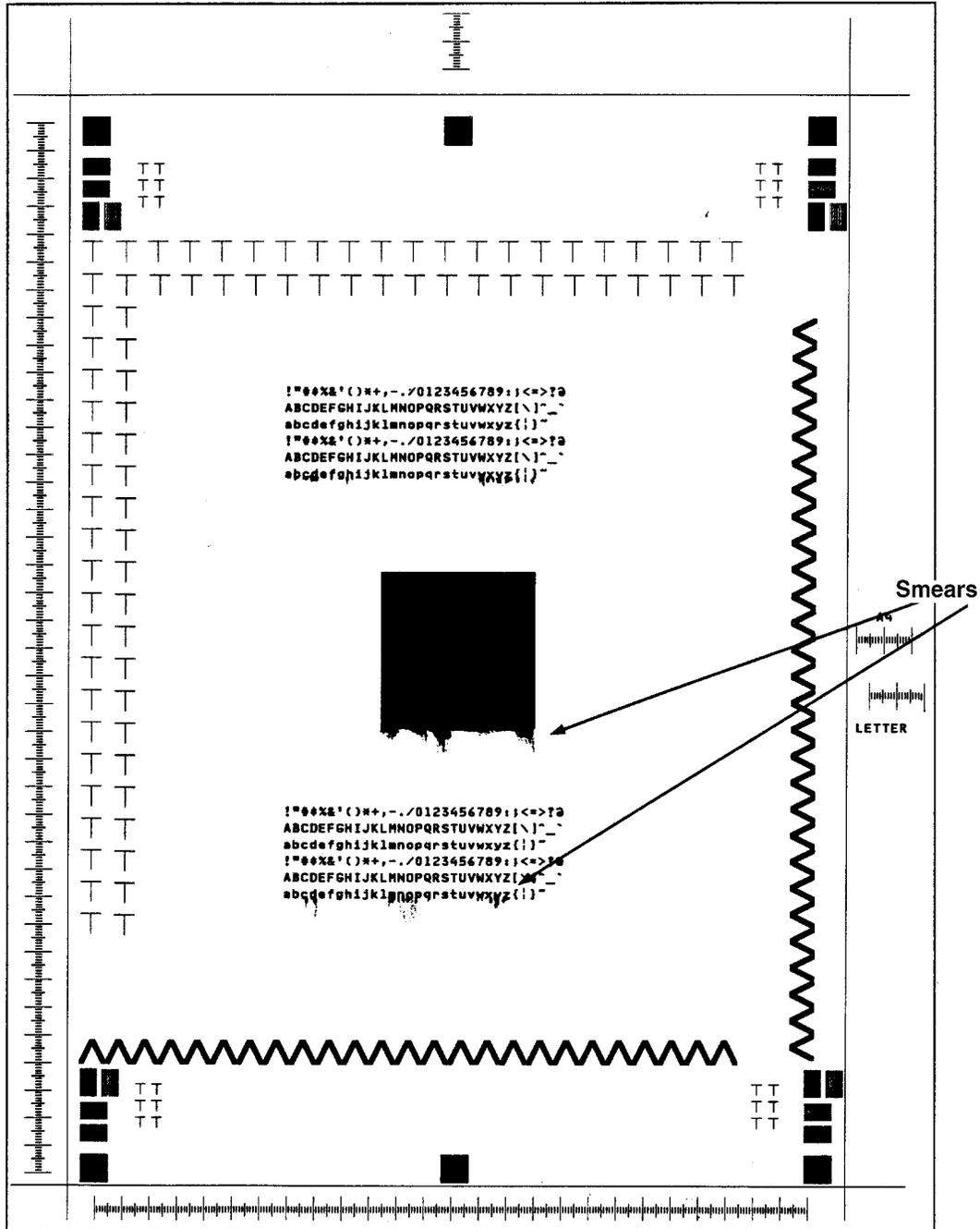
Figure 4-16. **Blurred Images or Characters**

Description: The images or characters are not clear. The lower edges of images and/or characters are extended and may appear smeared.

Go to TAG 809: Blurred or Smeared Vertical Streaks on Prints.

Sample 17: Varying Print Density
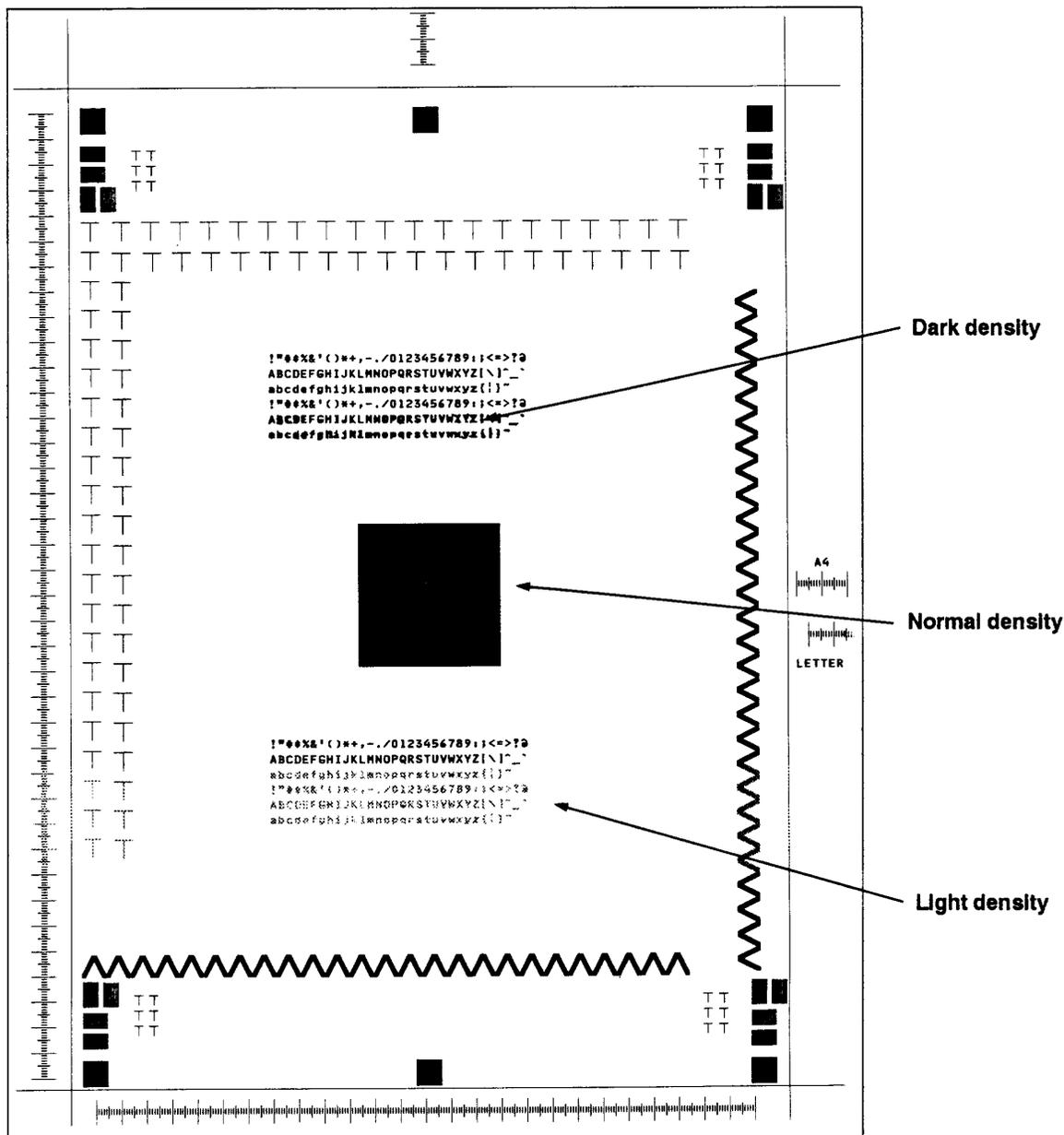
 Figure 4-17. **Varying Print Density**

Description: Some areas of the print are lighter or darker than normal. Examine the letters H, T, M, and E on your test print. If the vertical sections are sufficiently dark, but the diagonal sections appear stair-stepped, the problem may be is related to the printhead.

Go to TAG 810: Uneven Density or Dark Areas on Prints, TAG 815: Prints Resulting From Printhead Malfunctions.

Sample 18: Background
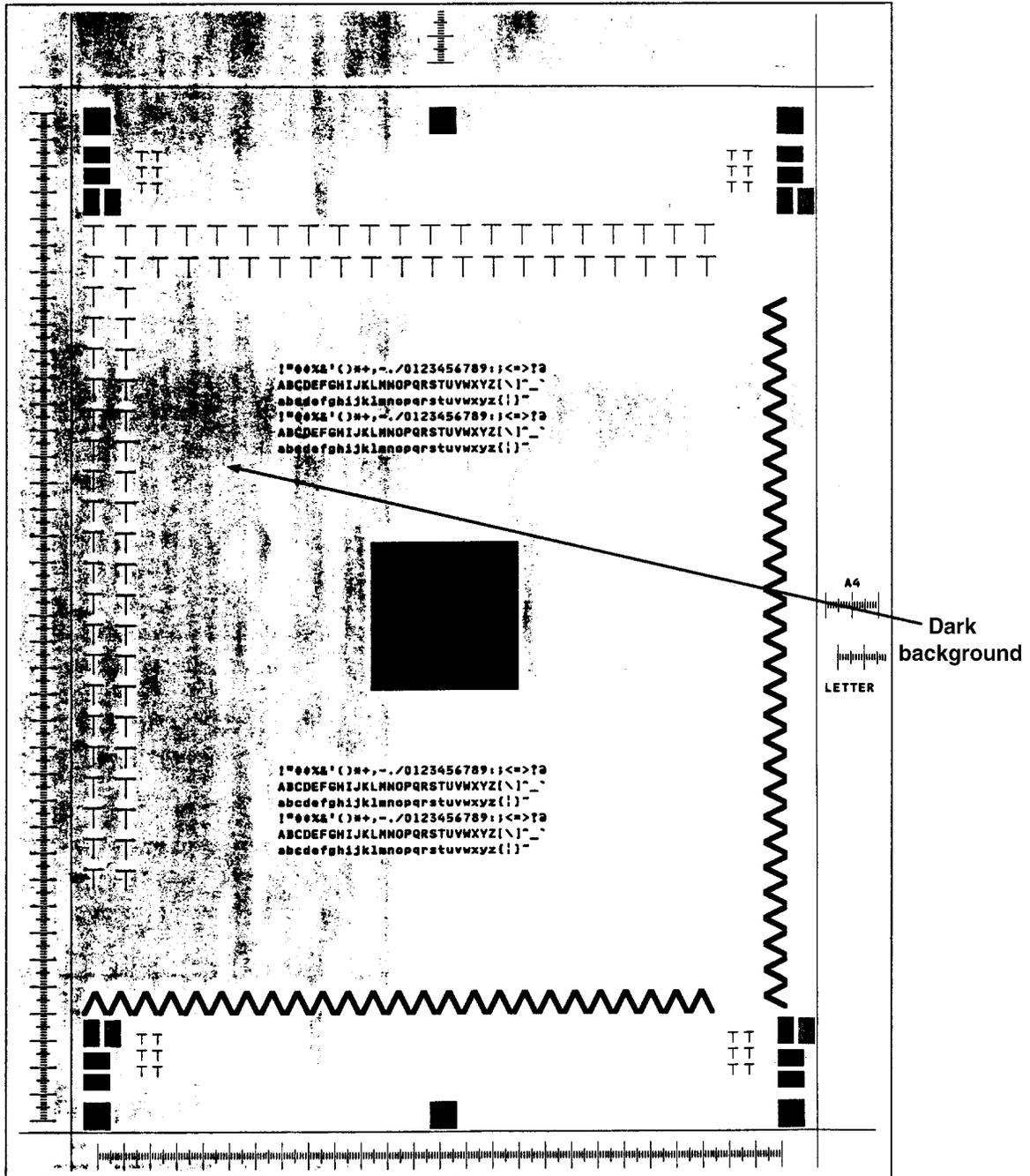
Dark
background

Figure 4-18. **Background**

Description: White areas on the prints have varying degrees of specks appearing in a specific pattern.

Go to TAG 811: Background/Residual Images/Dark Prints.

Sample 19: Residual Images
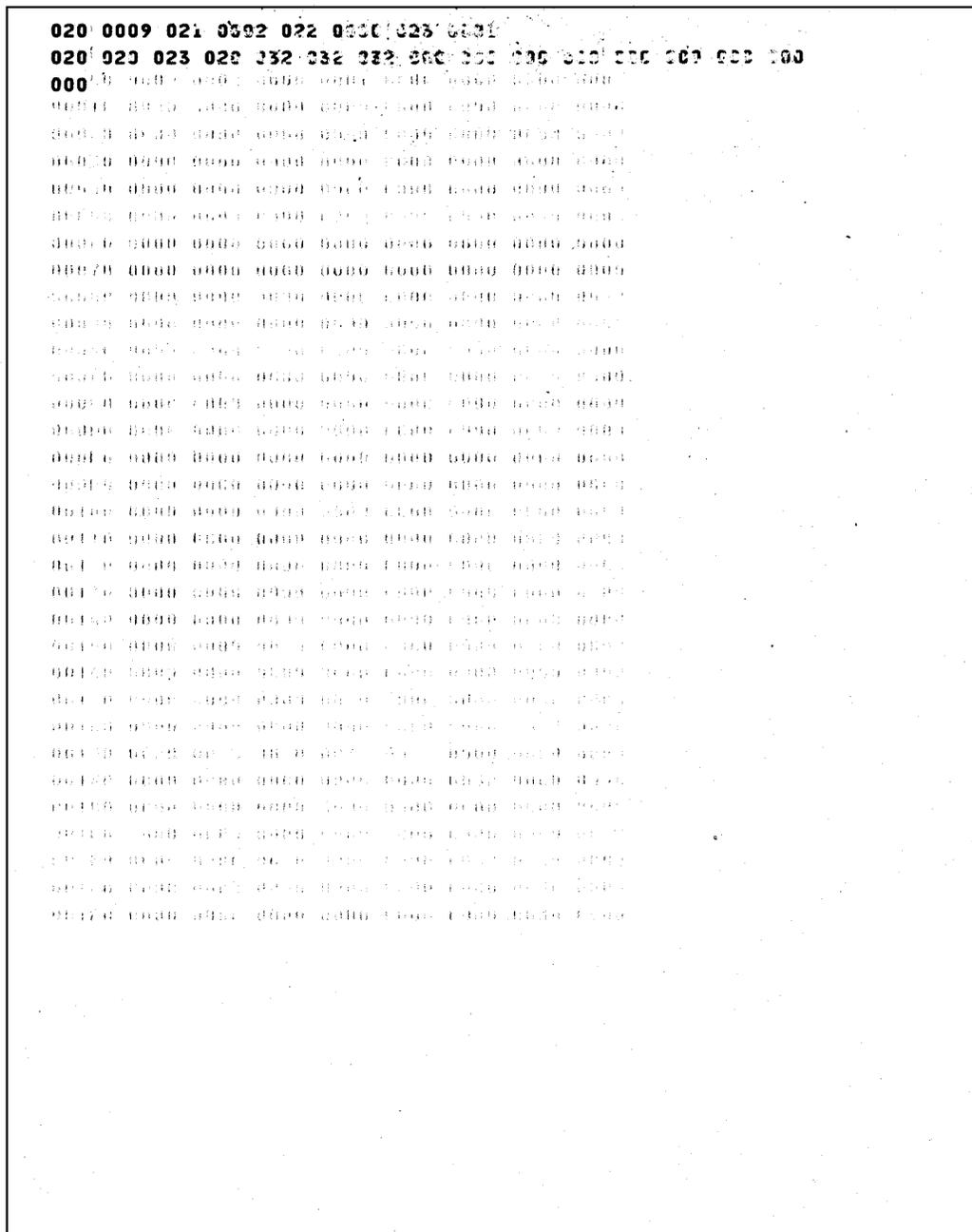
Figure 4-19. Residual Images

Description: Images from a previous print are visible. White areas on the print may have varying degrees of specks appearing in a specific pattern.

Go to TAG 811: Background/Residual Images/Dark Prints, TAG 813: Residual Images on Prints.

Sample 20: Wrinkles
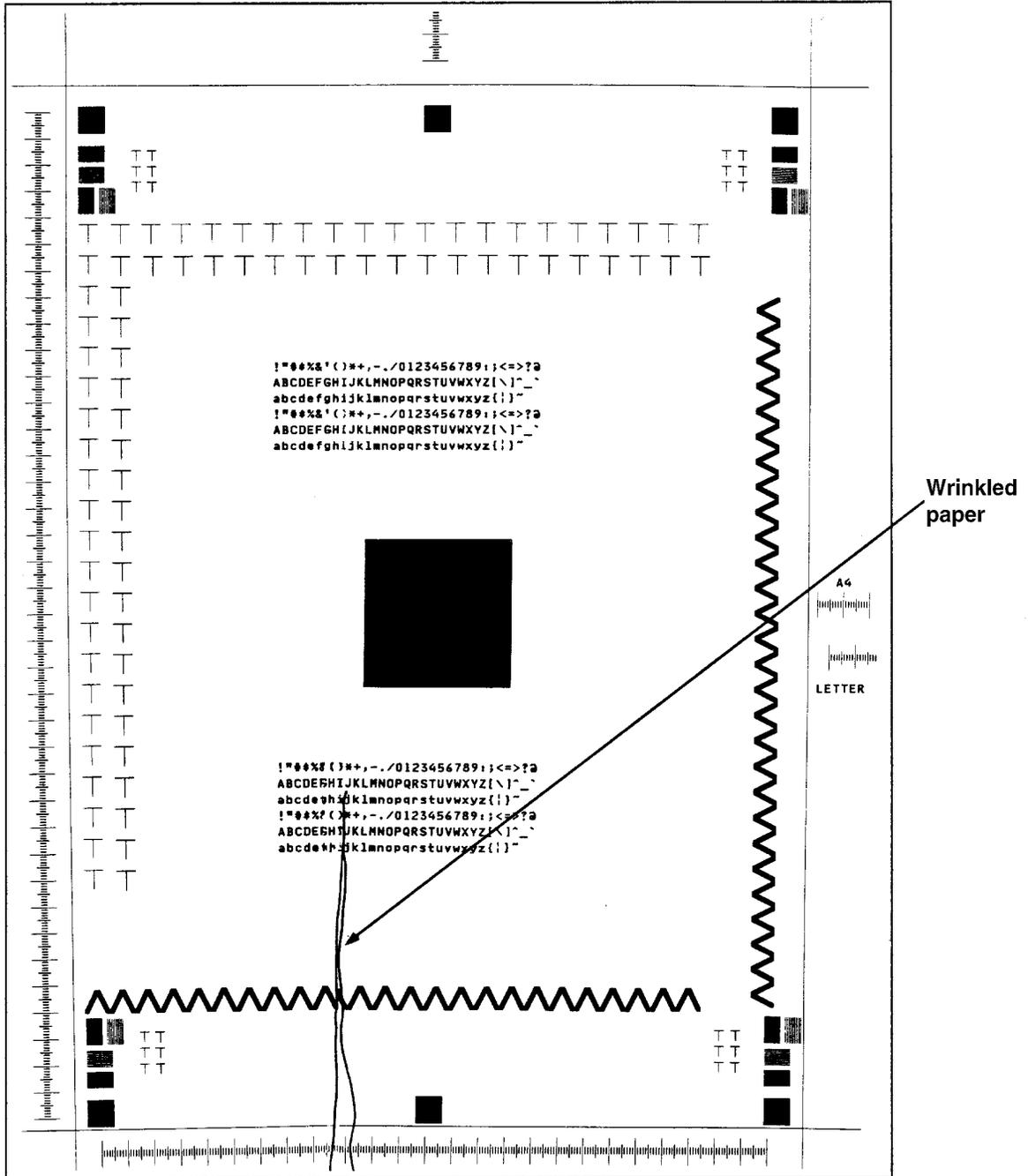
Figure 4-20. Wrinkles

Description: Wrinkles or creases, often at the top or bottom.

Go to TAG 706: Paper Damaged or Wrinkled.

Sample 21: Fusing Problems
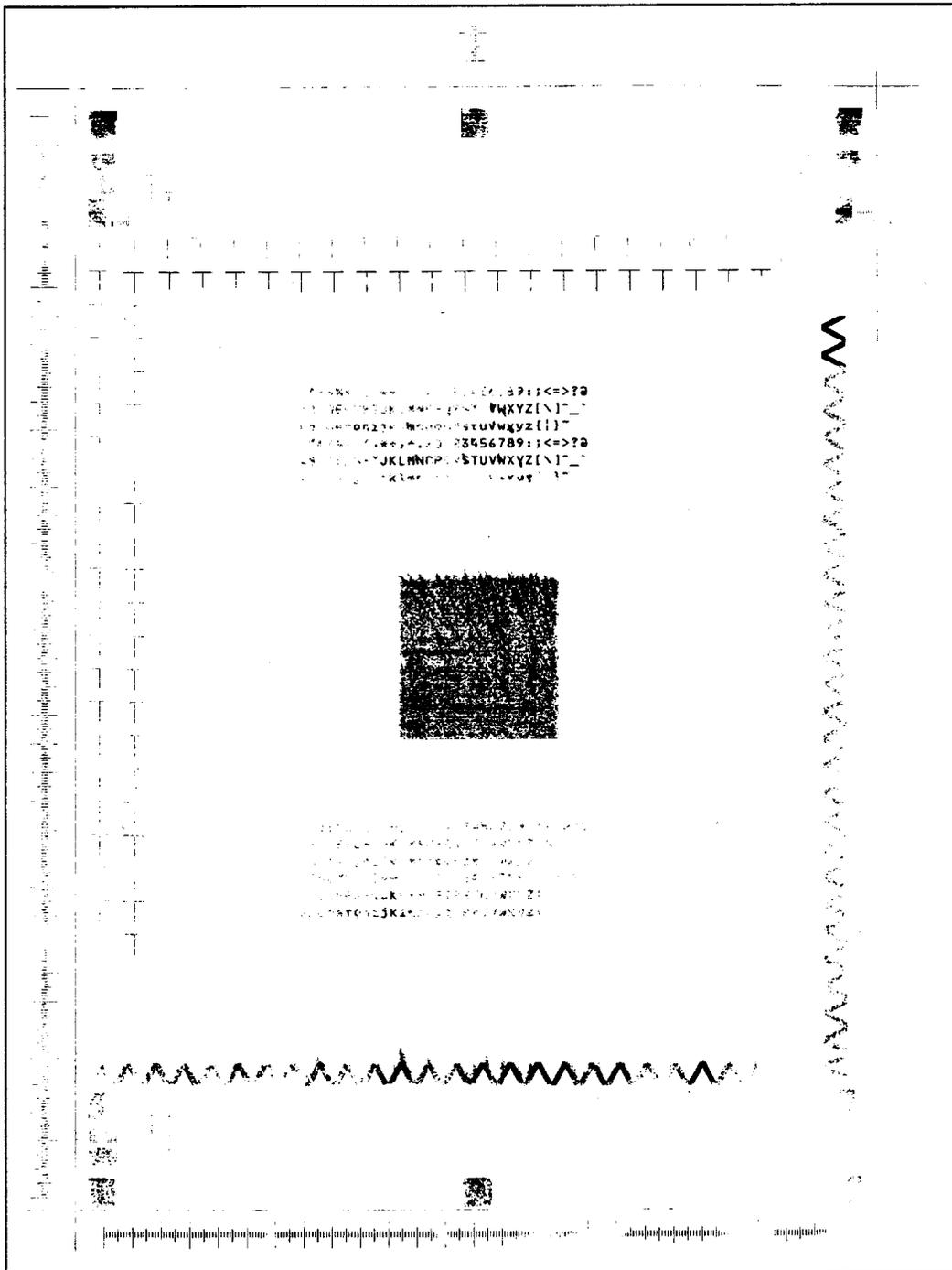
Figure 4-21. Fusing Problems

Description: Images or characters may rub off the surface.

Go to TAG 812: Uneven or No Fusing on Prints.

Diagnostic Tests

Chapter Contents

Diagnostic Tests

Diagnostic Tests

This section provides step-by-step instructions for running each of the diagnostic tests available through the self-diagnostic mode of the printer. Each test is referenced by number. Check the contents page to find the page on which a specific test is described.

How to Run Diagnostics

Follow these steps to access the self-diagnostic mode of the printer:

1 Turn off the printer and wait five seconds.

2 Hold down the STOP and TEST keys simultaneously as you turn the printer back on. Continue to hold the keys down until O appears on the display. The STANDBY light flashes as the printer accesses its soft diagnostic mode, which takes approximately 1 minute. The tone, followed by 001 on the display, indicates you can now run a test.

3 Change the counter to the number of the test you wish to run by pressing CANCEL to increase the counter or # TEST to decrease the counter. If you press these keys before a test is complete, a long tone sounds and the test continues without interruption.

4 Press READY to run the test.

5 Press STOP to end the test (in most cases; see specific diagnostic procedures for directions on exiting a test).

6 To exit diagnostic mode, cycle printer power.

Most errors or conditions reported are valid for about 90 seconds, which is the timeout period set for most of the diagnostic tests described in this section.

Note
Only diagnostics useful for field maintenance are documented in this manual.

---

001   Operator Panel Test

1   Turn the volume control on the operator panel up fully.

2   Go to: 001

3   Press: READY to run the test.

4   Confirm that the tone sounds and all lights turn on and off continuously.

5   Press: STOP to exit.

002   Upper Cassette Test

1   Make sure the upper paper cassette is installed with paper, the side and rear guides securely against the edges of the paper in the cassette.

2   Go to: 002

3   Press: READY to run the test.

4   Refer to the chart below to confirm that the code that displays corresponds to the paper size in the cassette. (For example, if the cassette holds letter size paper, "1-3" should appear on the display.) This indicates the paper size sensor is working properly. The following codes indicate paper sizes:

Table 5-1. Paper Size Codes

Display	Indication
1-0	Cassette not installed
1-1	A4-size paper in use
1-2	B5-size paper in use
1-3	Letter-size paper in use
1-4	Legal-size paper in use
1-5	Executive 1 size paper in use
1-6	Executive 2 size paper in use
1-7	Executive 3 size paper in use
1-8	Envelopes in use
1-9	Undefined paper size

5   Press: STOP to exit.

003   Lower Cassette Test

1   Make sure the lower paper cassette is installed with paper, the side and rear guides securely against the edges of the paper in the cassette.

2   Go to: 003

3   Press: READY to run the test.

4   Refer to the chart below to confirm that the code that displays corresponds to the paper size in the cassette. (For example, if the cassette holds letter size paper, "1-3" should appear on the display.) This indicates the paper size sensor is working properly. Table 5-1, "Paper Size Codes", lists the paper size codes.

Note

A 1-9 is displayed when a high-capacity paper feed unit is installed; refer to "021 - High Capacity Unit Input Test"

---

5   Press: STOP to exit.

(004 intentionally excluded)

005   *Sensor Test Sequence*

1 Go to: 005

2 Press: READY to run the test. The code for the first sensor (i.e., "0-0" or "0-1") appears on the display, confirming that the sensor is working properly.

Note
No paper moves through the machine, so indications of
"No paper at sensor location" are normal.

---

3 Press: READY to advance to the next sensor. The display changes, showing the code for the next sensor as outlined in Table 5-2, "Sensor Test Displays", below.

Table 5-2. Sensor Test Displays

Sensor Description	Display
Upper paper cassette	0-0: Cassette full 0-1: Cassette empty
Lower paper cassette	1-0: Cassette full 1-1: Cassette empty
Paper timing sensor	2-0: No paper at sensor location 2-1: Paper at sensor
Paper exit sensor	3-0: No paper at sensor location 3-1: Paper at sensor
Paper full sensor	4-0: Tray empty 4-1: Tray full
Jogging sensor, front	5-0: Tray in front position 5-1: Error – tray in rear position
Jogging sensor, rear	6-0: Tray in rear position 6-1: Error – tray in front position
PC seam sensor	7-0: Active 7-1: Not active
Developer interlock	8-0: Developer unit in place 8-1: Developer unit not in place

4 To check a specific sensor, press READY repeatedly until the code on the display corresponds to the sensor you want to check. Manually activate the sensor. Confirm that the display changes when you activate the sensor. Refer to "Sensor and Switch Locations" on page 1-11 for sensor locations.

5 Press: STOP to exit.

006   Paper Transport Clutch Test Sequence

1   Go to: 006

2   Press: READY to run the test. The first clutch engages, signaled by a continuous clicking sound. "3-0" appears on the display, corresponding to the upper pick-up roller clutch.

3   Press: READY to test the next clutch. Listen for the clicking sound as the next clutch engages. The number on the display changes to indicate the next clutch. The display codes and the clutch they represent are listed in Table 5-3, "Clutch Test Displays".

Table 5-3. Clutch Test Displays

Display	Indication
3-0	Upper pick-up roller clutch
3-1	Lower pick-up roller clutch
3-2	Upper feed roller clutch
3-3	Lower feed roller clutch
3-3	Paper timing roller clutch

4   Repeat Step 3 until you have tested all of the clutches.

5   Press: STOP to exit.

007   Counter Test

1   Open the front cover.

2   Go to: 007

3   Press: READY to run the test.

- Confirm that the page counter advances by 1.
- The test then exits automatically.

008   *Jogging Motor Test*

1   Go to: 008

2   Press: READY to run the test. The output tray jogs back and forth.

3   Confirm that a tone sounds each time the tray contacts the sensor at each side.

The codes in the following table indicate specific error conditions:

Table 5-4. Jogging Motor Test Error Displays

Display	Indication
081	Front tray sensor signal not received
082	Rear tray sensor signal not received
083	No signal received from either sensor
090	Close covers

4   Press: STOP to exit.

009   *Photoconductor Test*

1   Go to: 009

2   Press: READY to run the test. The main motor rotates the photoconductor belt.

3   Confirm that a tone sounds repeatedly, indicating that the photoconductor belt is rotating.

These codes may indicate specific error conditions:

Table 5-5. Photoconductor Error Test Displays

Display	Indication
030	Developer bias short detected
040	Photoconductor seam sensor not received or detected or the developer unit is not installed
041	Seam sensor (sender) short
042	Seam sensor (sender) open or the photoconductor is not installed
055	Erase lamp malfunction

4   Press: STOP to exit

010   *Toner Supply Motor Test*

1   Open the front and top covers.

2   Remove the photoconductor unit and the developer unit. Place the photoconductor unit in its protective packaging.

3   Insert the interlock by-pass tool in the front cover. Close the top cover.

4   Go to: 010

5   Press: READY to run the test. The toner supply motor runs continuously.

6   Observe the toner supply motor through the open developer unit cavity. Confirm that the motor is turning counterclockwise, accompanied by a "1" on the display.

7   Press STOP and READY alternately several times to verify the toner supply motor starts and stops. (This stops and restarts the test.)

These codes may indicate specific error conditions:

Table 5-6. Toner Supply Motor Test Error Displays

Display	Indication
4-0	You forgot to remove the developer unit
090	You forgot to insert the interlock by-pass tool

8   Press: STOP to exit.

9   Reinstall the developer unit and photoconductor unit.

10 Remove the interlock by-pass tool and close the front cover.

011   Charge Corona Test

1   Remove the photoconductor unit and place it in its protective packaging. Close the top cover.

2   Go to: 011

3   Press: READY to run the test. The charge corona turns on and off repeatedly.

4   Confirm that the display alternates between "0" and "1," accompanied each time by a brief tone. The display indicates the following:

Table 5-7. Charge Corona Test Displays

Display	Indication
0	Charge corona off
1	Charge corona on

These codes may indicate specific error conditions:

Table 5-8. Charge Corona Test Error Displays

Display	Indication
041	Photoconductor seam sensor short
045	Charge corona short
046	Charge corona open
4-1	You forgot to remove the photoconductor

5   Press: STOP to exit.

6   Reinstall the photoconductor unit.

012 Transfer Corona Test

1 Remove the photoconductor unit and place it in its protective packaging. Close the top cover.

2 Go to: 012

3 Press: READY to run the test. The transfer corona turns on and off repeatedly.

4 Confirm that the display alternates between "0" and "1," accompanied each time by a brief tone. The display indicates the following:

Table 5-9. Transfer Corona Test Displays

Display	Indication
0	Transfer corona off
1	Transfer corona on

These codes may indicate specific error conditions:

Table 5-10. Transfer Corona Test Error Displays

Display	Indication
041	Seam sensor (sender) short
050	Transfer corona short
051	Transfer corona open or not installed
4-1	You forgot to remove the photoconductor

5 Press: STOP to exit.

6 Reinstall the photoconductor unit.

013   *Erase Lamp Test*

1 Open the top cover and insert the interlock by-pass tool.

2 Remove the photoconductor unit and place it in its protective cover.

3 Select: 013

4 READY to run the test. The erase lamp turns on with all LEDs lighted.

5 Verify that all LEDs are illuminated and a number(s) appears on the display. The number is a readout from the A/D converter and does not affect the erase lamp test.

These codes may indicate specific error conditions:

Table 5-11. Erase Lamp Test Error Displays

Display	Indication
041	Seam sensor (sender) short
055	Erase lamp malfunction
4-1	You forgot to remove the photoconductor unit

6 Press: STOP to exit.

7 Reinstall the photoconductor unit.

8 Remove the interlock by-pass tool and close the top cover.

(014 intentionally excluded)

015   *Negative Developer Bias Test*

1   Open the top cover and insert the interlock by-pass tool.

2   Remove the photoconductor unit and place it in its protective packaging.

3   Go to: 015

4   Press: READY to run the test. The negative developer bias turns on and off repeatedly.

5   Confirm that the display alternates between "0" and "1," accompanied each time by a brief tone. The display indicates the following:

Table 5-12. Negative Developer Bias Test Displays

Display	Indication
0	Negative developer bias off
1	Negative developer bias on

These codes may indicate specific error conditions:

Table 5-13. Negative Developer Bias Test Error Displays

Display	Indication
030	Developer bias short
041	Seam sensor (sender) short
090	You forgot to insert the interlock by-pass tool
4-1	You forgot to remove the photoconductor unit

6   Press: STOP to exit.

7   Reinstall the photoconductor unit.

8   Remove the interlock by-pass tool and close the top cover.

---

016 *Duplex Feed Motor Test*

1 Go to: 016

2 Press: READY to run the test. The duplex feed motor operates at full forward speed and "7-0" appears on the display.

3 Press: READY to advance to the next motor speed.

4 Listen for the following motor frequencies and check the code that displays as you move through the test sequence. The codes and their meaning are outlined in the chart below:

Table 5-14. Duplex Motor Feed Test Displays

Display	Indication
7-0	Full forward speed (high frequency)
7-1	Low forward speed (low frequency)
7-2	Full reverse speed (high frequency)
7-3	Half reverse speed (low frequency)

Note: To view roller movement while running the duplex feed motor test, open the duplex cover and bypass the cover interlock switch.

These codes may indicate specific error conditions:

Table 5-15. Duplex Motor Feed Test Error Displays

Display	Indication
069	Duplex is not installed.
090	Cover is open. Close cover

5 Press: STOP to exit.

017   *Duplex Input Sensor Test Sequence*

1   Go to: 017

2   Press: READY to run the test. The code for the first sensor (i.e., "0-0" or "0-1") appears on the display, confirming that the sensor is working properly.

Note
No paper moves through the machine, so indications of
"No paper at sensor location" are normal.

---

3   Press: READY to advance to the next sensor. The display changes, showing the code for the next sensor as outlined in the chart below.

Table 5-16.   Duplex Input Sensor Test Displays

Sensor Description	Display
Paper sensor	0-0: No paper 0-1: Paper at sensor
Cover sensor	1-0: Cover closed 1-1: Cover open
Duplex tray sensor	2-0: No paper 2-1: Paper at sensor

4   To check a specific sensor, press READY repeatedly until the code on the display corresponds to the sensor you want to check, then manually activate the sensor. Confirm that the display changes when you activate the sensor.

These codes may indicate specific error conditions:

Table 5-17.   Duplex Input Sensor Test Error Displays

Display	Indication
069	Duplex tray not installed
090	Cover is open. Close cover

5   Press: STOP to exit.

018 Duplex Clutch Test Sequence

1 Go to: 018

2 Press: READY to run the test. The first flipper engages, accompanied by a continuous clicking sound, and "7-0" appears on the display.

3 Press: READY to activate the next clutch or flipper. Listen for the clicking sound as it engages. The number on the display changes to indicate the next clutch or flipper. The display codes and the clutch or flipper they represent are listed in the following chart.

Table 5-18. Duplex Clutch Test Displays

Display	Indication
7-0	Duplex exit flipper
7-1	Duplex roller clutch A
7-2	Duplex re-entry flipper
7-3	Duplex roller C solenoid

4 To check a specific clutch or flipper, press READY repeatedly until the code on the display corresponds to the item you want to check. Manually activate the sensor. Confirm that the display changes when you activate the sensor. For the locations of the sensors, see "Sensor and Switch Locations" on page 1-11.

These codes may indicate specific error conditions:

Table 5-19. Duplex Clutch Test Error Displays

Display	Indication
069	Duplex is not installed.
090	Cover is open. Close cover.

5 Press: STOP to exit.

019   *Duplex Tray Paper-Guide Motor Test*

1   Go to: 019

2   Press: READY to run the test.

3   Press: READY again. The paper guide in the duplex tray moves to and from its home position.

4   Confirm that the paper guide in the duplex tray moves back and forth each time you press READY.

These codes may indicate specific error conditions:

Table 5-20. Duplex Tray Paper Guide Motor Test Displays

Display	Indication
069	Duplex tray not installed
084	Duplex tray registration sensor not active
085	Duplex tray registration sensor active
090	Cover is open. Close cover.

5   Press: STOP to exit.

020 High-Capacity Output Unit Test

1   Go to: 020

2   Press: READY to run the test. The code for the first sensor (i.e., "0-0" or "0-1")
appears on the display, confirming that the sensor is working properly.

Note
**No paper moves through the machine, so indications of
"No paper at sensor location" are normal.**

---

3   Press: READY to advance to the next sensor. The sensor's code appears on the dis-
play; codes and their meaning are outlined in Table 5-21, "High-Capacity Output Unit
Test Displays", below.

Table 5-21. High-Capacity Output Unit Test Displays

Sensor Description	Display
Installation sensor	0-0: Unit not installed 0-1: Unit installed
Paper exit sensor	1-0: No paper at sensor location 1-1: Paper at sensor
Paper full sensor	2-0: Paper not full 2-1: Paper full
Lower limit sensor	3-0: Tray stationary or moving down 3-1: Tray moving up

4   To check a specific sensor, press READY repeatedly until the code on the display cor-
responds to the sensor you want to check. Manually activate the sensor. Confirm that
the display changes when you activate the sensor.

5   Press: STOP to exit.

021   High-Capacity Input Unit Test

1 Go to: 021

2 Press: READY to run the test. The display registers the paper size installed in the unit, as outlined on the chart ("1-0" will appear on the display if a high-capacity input unit is not installed.)

3 Verify the correct paper size, as follows:

Table 5-22. High-Capacity Input Unit Test Displays

Display	Indication
1-1	A4-size paper in use
1-3	Letter-size paper in use
1-4	Legal-size paper in use

4 Press: STOP to exit.

022   Envelope Fuser Solenoid Test

1 Remove the photoconductor unit and place it in its protective packaging.

2 Go to: 022

3 Press: READY to run the test. The main motor turns on and "0" appears on the display.

4 Press: READY again to activate the envelope fuser solenoid.

5 Listen for a clicking sound and confirm that the display alternates between "0" and when the solenoid is activated. If you hear no clicking, either the machine does not have an envelope fuser installed or the solenoid is not working properly.

6 Check for the following conditions:

Table 5-23. Envelope Fuser Solenoid Test Displays

Display	Indication
4-1	You forgot to remove the photoconductor unit.
090	Cover is open. Close cover.

7 Press: STOP to exit.

(023-100 intentionally excluded)

101   EIGS/MIGS Board Test

1   Select: 101

2   Press: READY to run the test.

3   If an error is found:

- The error code appears.
- Look up the code in "Error Code/TAG Cross-Reference" on page 2-3 to determine which TAG to follow.
- Power-on-reset to exit.

4   If no errors are found:

- The test continues to run.
- After about five minutes, press STOP to exit.

102   EIGS/MIGS Board Test (Continuous Loop)

1   Go to: 102

2   Press: READY to run the test.

3   If an error is found:

- The error code is displayed for at least 1 second.
- Look up the code in "Error Code/TAG Cross-Reference" on page 2-3 to determine which TAG to follow.
- If the test resumes, press STOP to exit; if the test does not resume, power-on-reset.

4   If no errors are found:

- The test continues to loop.
- Press STOP to exit.

103   *Communication Loop-back Test (Single Loop)*

1   Remove the interface cable from the printer.

2   Check to make sure the four DIP switches on the signal interface board have been pulled toward the printer's back cover. Close the back cover.

3   Install the RS-232C and RS-422 loop-back connectors, found in the tool kit mounted inside the right printer cover.

   If you do not have loop-back connectors, jumper the connections as outlined in Table 5-24, "RS-232 Loopback Connections" and Table 5-25, "RS-422 Loopback Connections".

Table 5-24. RS-232 Loopback Connections

RS-232 Loopback Connection Reference		
pin 2	◄─────►	pin 3
pin 4	◄─────►	pin 5
pin 8	◄─────►	pin 20
pin 17	◄─────►	pin 24

Table 5-25. RS-422 Loopback Connections

RS-232 Loopback Connection Reference		
pin 2	◄─────►	pin 4
pin 9	◄─────►	pin 11
pin 7	◄─────►	pin 6
pin 14	◄─────►	pin 13

4   Go to: 103

5   Press: READY to run the test.

6   If an error code appears, check the "Error Code/TAG Cross-Reference" on page 2-3 to determine which TAG to follow.

7   If no error is detected, the test exits automatically.

8   Press: STOP to exit, if an error is detected. (For some errors, you may have to power-on-reset the printer.)

9   Remove the wrap connectors.

10   Reinstall the interface cable.

104 *Communication Loop-back Test (Continuous Loop)*

1 Remove the interface cable from the printer.

2 Make sure the DIP switches on the signal interface board have been pulled toward the printer's back cover. Close the back cover.

3 Install the RS-232C and RS-422 loop-back connectors, found in the tool kit mounted inside the right printer cover. If you do not have loop-back connectors, jumper the connections as outlined in Table 5-24, "RS-232 Loopback Connections," on page 5-21 and Table 5-25, "RS-422 Loopback Connections," on page 5-21.

4 Go to: 104

5 Press: READY to run the test.

6 If an error is detected, the error code is displayed briefly and the test continues. Note the error code and check the "Error Code/TAG Cross-Reference" on page 2-3 to determine which TAG to follow.

7 If no errors are found, the test continues to loop. Allow the test to continue for at least one minute.

8 Press: STOP to exit. (For some errors, you may have to power-on-reset the printer.)

9 Remove the loop-back connectors.

10 Reinstall the interface cable.

105 *EIGS Program RAM Test (Continuous Loop)*

1 Go to: 105

2 Press: READY to run the test.

3 If an error code appears before the test has run for five minutes, look up the code in "Error Code/TAG Cross-Reference" on page 2-3 to determine which TAG to follow.

4 Otherwise, a "201" may display after about five minutes, indicating that the test has run successfully.

5 Power-on-reset the printer to exit.

> **Note**
> **This test does not run on printers with MIGS boards.**

(106 intentionally excluded)

107   *EIGS/MIGS Bit Map Test (Single Loop)*

1   Go to: 107

2   Press: READY to run the test.

3   If no error is detected, the test exits automatically.

4   If an error code appears, look it up in "Error Code/TAG Cross-Reference" on page 2-3 to determine which TAG to follow.

5   Press: STOP to exit, if an error is reported.

108   *EIGS/MIGS Bit Map Test (Continuous Loop)*

1   Go to: 108

2   Press: READY to run the test.

3   If no errors are detected:

- The test continues to loop.
- Press STOP to exit.

4   If an error is found:

- The error code displays briefly. If more than one error is detected, the error codes appear sequentially.
- Look up the codes in the "Error Code/TAG Cross-Reference" on page 2-3 to determine which TAG to follow.
- Power-on-reset to exit after codes display.

(109 intentionally excluded)

110   *Format Disk/Clear Error Log*

Caution
When using the 110 function of the self-diagnostic mode,
any existing data on the specified disk is at risk!

- To format a disk, refer to the *Guide to Operations* manual.

5 To clear the error log, follow the procedure on clearing the log found in "Clearing the Error Log" on page 1-24.

Caution
If you access this function by mistake, do not proceed.
Press STOP immediately to exit the utility.

---

111   *LED Printhead Test*

1 Open the top cover.

2 Remove the photoconductor unit and place it in its protective packaging.

3 Remove the developer station.

4 To help you identify the LEDs, place a white sheet of paper in the photoconductor cavity over the printhead's fiber optics.

5 Go to: 111

6 Press: READY to run the test. The LED printhead turns on.

7 Verify that the LEDs cycle on and off from front to back.

These codes may indicate specific error conditions:

Table 5-26. LED Printhead Test Error Displays

Display	Indication
4-1	You forgot to remove the photoconductor unit
040	Seam sensor (sender) short

8 Press: STOP to exit.

9 Reinstall the photoconductor unit.

112 *Disk Drive Test (Single Loop With Stop on Error)*

This test reads data from the drive selected. It checks the seek function, cycle redundancy, parity, checksum, directory and allocation table integrity, and disk format.

1 Go to: 112

2 Insert a diskette or diskettes in the diskette drive or drives you wish to test.

3 Press: READY to run the test. "0" appears on the display indicating the A: drive.

4 Press: CANCEL to advance to the drive you wish to test.

Table 5-27. Disk Drive Test Drive Indications

Display	Indication
0	Floppy drive A:
1	Floppy drive B:
2	Hard drive C:

5 Press: READY to activate the drive.

6 If no errors are found, the test exits automatically.

7 If an error code appears, refer to the Table 2-8, "IGS/Disk Drive Error Codes," on page 2-7, to determine which TAG to follow.

8 Press: STOP to exit, if errors are found.

9 To test another drive, repeat this procedure starting with Step 2.

113 *Disk Drive Test (Continuous Loop)*

This test reads data directly from the drive selected. It checks the seek function, cycle redundancy, parity, checksum, directory and allocation table integrity, and disk format.

1 Go to: 113

2 Insert a diskette or diskettes in the diskette drive or drives you wish to test.

3 Press: READY to run the test. "0" appears on the display indicating the A: drive.

4 Press: CANCEL to advance to the drive you wish to test. Table 5-27, "Disk Drive Test Drive Indications," on page 5-25 lists the drive indications.

5 Press: READY to activate the drive.

6 If an error code appears, look it up in Table 2-8, "IGS/Disk Drive Error Codes," on page 2-7, to determine which TAG to follow.

7 Power-on-reset to exit.

113 Disk Drive Test (Continuous Loop)

Wiring Diagrams and Electrical Data

Chapter Contents

Wiring Diagrams and Electrical Data

Wiring Diagrams and Electrical Data

This section provides a reference guide for all information related to the electrical system of the printer, including:

- An index, arranged by connector number, to the connector's location in the printer and on the simplex and duplex schematics, which are found in this chapter.

Note

Connectors are referred to by J/P (jack/plug) numbers throughout this manual. Use the J/P number when looking up the connector in the index, schematics, and illustration.

- Complete connection diagram showing plugs, connectors, and wiring.

- Connector locations and illustrations.

- Voltage isolation diagrams.

- Host interface signal definitions and DIP switch settings.

Connector (J/P) Index

Connector	Page	Schematic Location
J/P 1	6-7	simplex/duplex F5
J/P 2	6-12	simplex/duplex F4
J/P 3	6-12	simplex/duplex F4
J/P 4	6-12	simplex/duplex E6
J/P 5	6-10	simplex/duplex E5
J/P 6	6-12	simplex/duplex E7
J/P 7	6-12	simplex/duplex D8
J/P 8	6-12	simplex/duplex D7
J/P 9	6-12	simplex/duplex C4
J/P 10	6-12	simplex/duplex C4
J/P 11	6-12	simplex/duplex B4
J/P 12	6-12	simplex/duplex B4
J/P 13	6-12	simplex/duplex B3
J/P 14	6-12	simplex/duplex C3
J/P 15	6-9	simplex/duplex D11
J/P 18	6-13	simplex/duplex B3
J/P 19	6-13	simplex/duplex C3
J/P 20	6-13	simplex/duplex C3
J/P 21	6-13	simplex/duplex B3
J/P 22	6-9, 6-13	simplex/duplex C3
J/P 22-1	6-8	duplex C2
J/P 23	6-13	simplex/duplex A7
J/P 24	6-13	simplex/duplex B7
J/P 25	6-13	simplex/duplex C4
J/P 26	6-13	simplex/duplex B6
J/P 27	6-13	simplex/duplex C6
J/P 30	6-13	simplex/duplex B6
J/P 31	6-11	simplex/duplex B8
J/P 32	6-11	simplex/duplex B8
J/P 33	6-11	simplex/duplex B8
J/P 36	6-11	duplex C8
J/P 37	6-11	simplex/duplex C8
J/P 40	6-11	simplex/duplex C8
J/P 41	6-11	simplex/duplex C8
J/P 42	6-6	simplex/duplex B9

Connector	Page	Schematic Location
J/P 43	6-7	simplex/duplex D10
J/P 44	6-13	simplex/duplex E5
J/P 45	6-7	simplex/duplex C10
J/P 46	6-7	simplex/duplex C9
J/P 47	6-7	simplex/duplex D10
J/P 48	6-7	simplex/duplex C10
J/P 49	6-9	simplex/duplex E9
J/P 50	6-13	simplex/duplex E9
J/P 51	6-9	simplex/duplex E9
J/P 52	6-13	simplex/duplex D9
J/P 53	6-9	simplex/duplex D10
J/P 54	6-9, 6-13	simplex/duplex E10
J/P 55	6-9	simplex/duplex D10
J/P 56	6-13	simplex/duplex B4
J/P 57	6-10	simplex/duplex E9
J/P 58	6-13	simplex/duplex E9
J/P 59	6-7	simplex/duplex E9
J/P 60	6-13	simplex/duplex E9
J/P 61	6-7	simplex/duplex E10
J/P 62	6-13	simplex/duplex E10
J/P 63	6-10	simplex/duplex C5
J/P 64	6-14	simplex/duplex C5
J/P 65	6-14	simplex/duplex F8
J/P 66	6-14	simplex/duplex F9
J/P 67	6-14	simplex/duplex F9
J/P 68	6-14	simplex/duplex F9
J/P 69	6-14	simplex/duplex F10
J/P 70	6-14	simplex/duplex E5
J/P 71	6-14	simplex/duplex A8
J/P 72	6-14	simplex/duplex A8
J/P 73	6-14	simplex/duplex A8
J/P 74	6-11	simplex/duplex B8
J/P 76	6-11	simplex/duplex B8
J/P 77	6-14	simplex/duplex C6
J/P 79	6-14	simplex/duplex C6
J/P 81	6-14	simplex/duplex A5
J/P 82	6-6	simplex/duplex A4

Connector	Page	Schematic Location
J/P 83	6-14	simplex/duplex E5
J/P 84	6-14	simplex/duplex E6
J/P 85	6-14	simplex/duplex B6
J/P 87	6-11	simplex/duplex C8
J/P 90	6-15	simplex/duplex B9
J/P 91	6-11	simplex/duplex C8
J/P 94	6-15	simplex/duplex B8
J/P 95	6-6	simplex/duplex C3
J/P 96	6-15	simplex/duplex C5
J/P 100	6-15	simplex/duplex D4
J/P 101	6-15	simplex/duplex D3
J/P 102	6-15	simplex/duplex C4
J/P 119	6-7	simplex/duplex C9
J/P 120	6-7	simplex/duplex C9
J/P 121	6-15	simplex/duplex B6
J/P 122	6-15	simplex/duplex B6
J/P 124	6-15	simplex/duplex B6
J/P 127	6-7	simplex/duplex C9
J/P 128	6-7	simplex/duplex C9
J/P 131	6-10	simplex/duplex E6
J/P 132	6-10	simplex/duplex E6
J/P 139	6-15	simplex/duplex B6
J/P 140	6-15	simplex/duplex B6
J/P 143	6-15	simplex/duplex B6
J/P 251	6-15	simplex/duplex B5
J/P 252	6-15	simplex/duplex B5
J/P 255	6-15	simplex/duplex A5
J/P 305	6-10	duplex E3
J/P 306	6-8	duplex E2
J/P 307	6-8	duplex E3
J/P 308	6-8	duplex E2
J/P 309	6-8	duplex E2
J/P 310	6-10	duplex F3
J/P 311	6-10	duplex F3
J/P 312	6-10	duplex F3
J/P 313	6-8	duplex F2
J/P 314	6-8	duplex E2
J/P 315	6-8	duplex E2

Connector	Page	Schematic Location
J/P 316	6-8	duplex E2
J/P 317	6-9	duplex D2
J/P 318	6-6	duplex F1
J/P 319	6-8	duplex F2
J/P 320	6-10	duplex G2
J/P 321	6-10	duplex G2
J/P 322	6-10	duplex F2
J/P 323	6-15	duplex D3
J/P 324	6-15	duplex E3
J/P 330	6-15	simplex/duplex E8
J/P 331	6-15	duplex D3
J/P 333	6-15	simplex/duplex A8, simplex/duplex D2
J/P 500	6-15	simplex/duplex A8
J/P 800	6-15	simplex/duplex E5

Connector Locations

The illustrations that follow show the relative location of all accessible connectors in the printer, and illustrate the connector (except for a few instances in which the connector is so simple that an illustration is unnecessary). For the connector's schematic location, refer to the chart on the preceding pages.

Connectors Inside the Front Cover

J/P 42

J/P 95

J/P 82

J/P 318
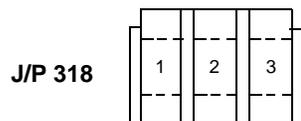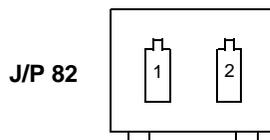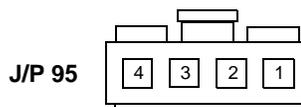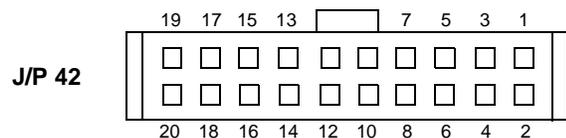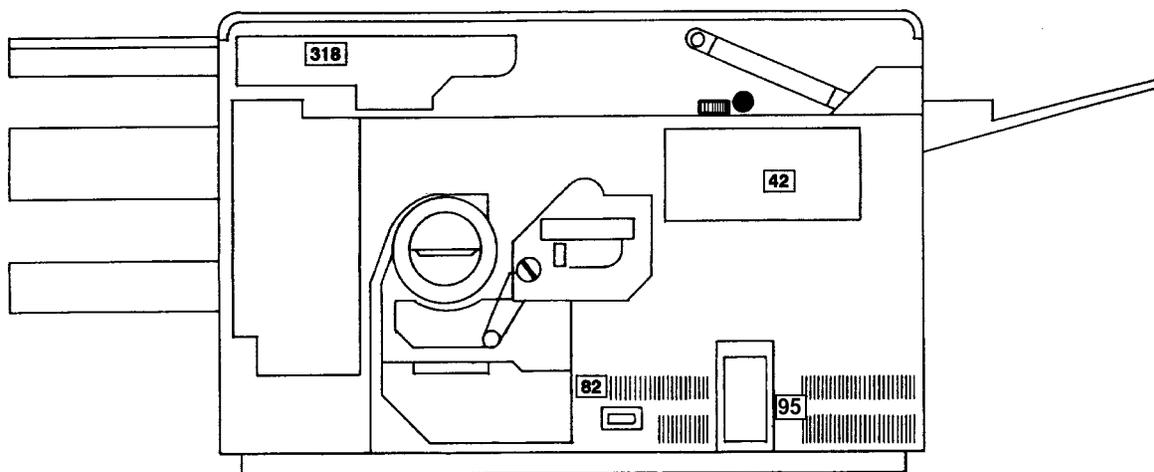
Connectors Inside the Left Cover

J/P 1

```
3   6   9
2   5   8
1   4   7
```

J/P 43, 45, 47

```
10  9  8  7  6  5  4  3  2  1
```

J/P 59, 61

```
1   2   3
```

J/P 46, 48

```
2   1
```

J/P 119, 120, 127, 128

```
1
```
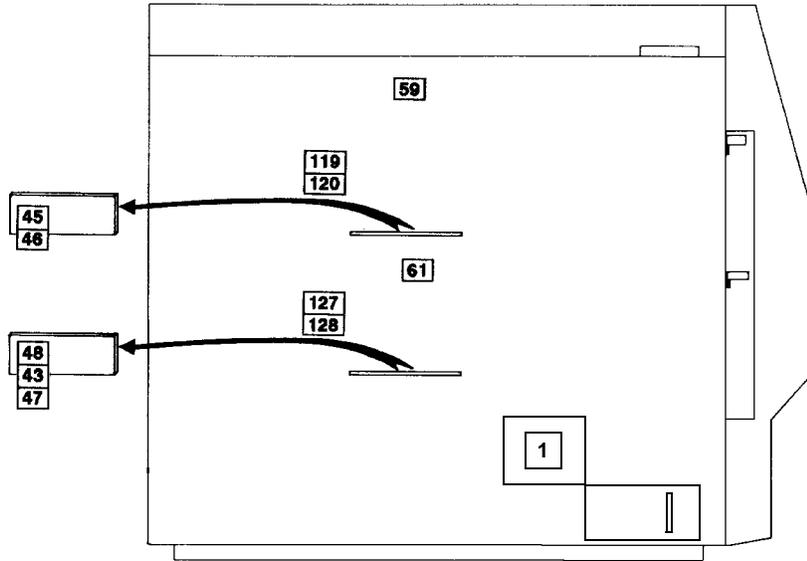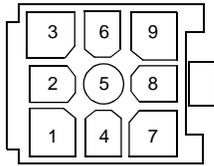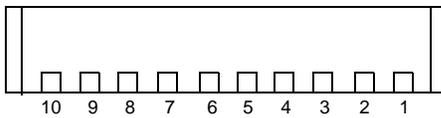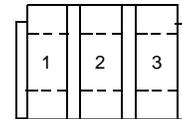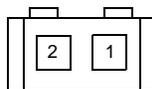
Connectors on the Duplex Cover

Duplex Control Board #1

J/P 22-1 | 3 | 2 | 1 |

J/P 314 | 1 | 2 |

J/P 306 | 1 | 2 | 3 | 4 |

J/P 315 | 1 | 2 |

J/P 307 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

J/P 308 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

J/P 316 | 1 | 2 |

J/P 309 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

J/P 319 | 1 | 2 | 3 |

J/P 313 | 1 | 2 | 3 | 4 |
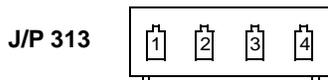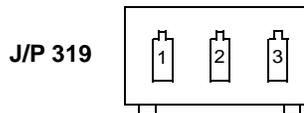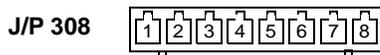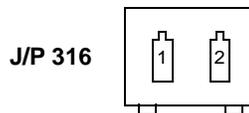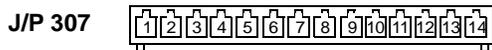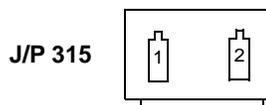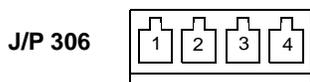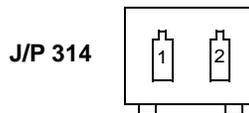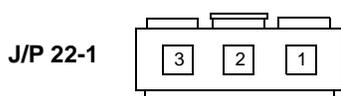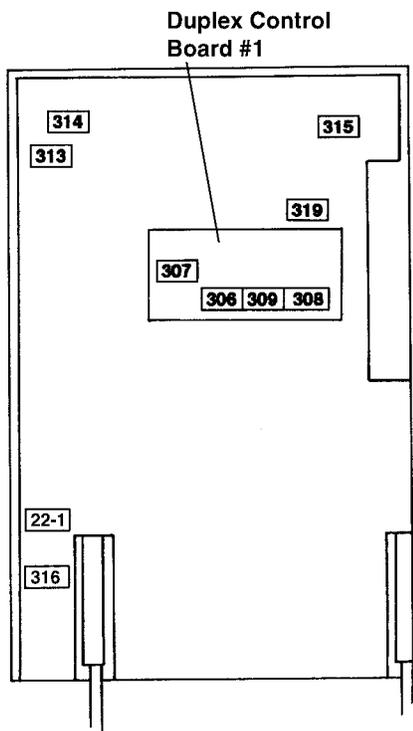
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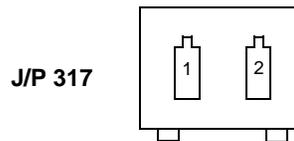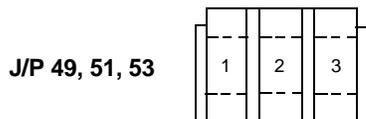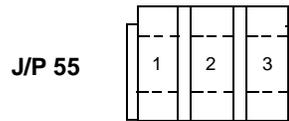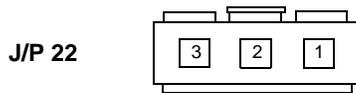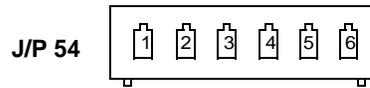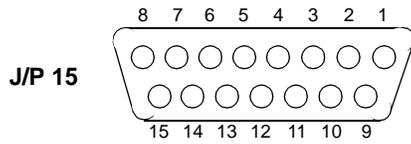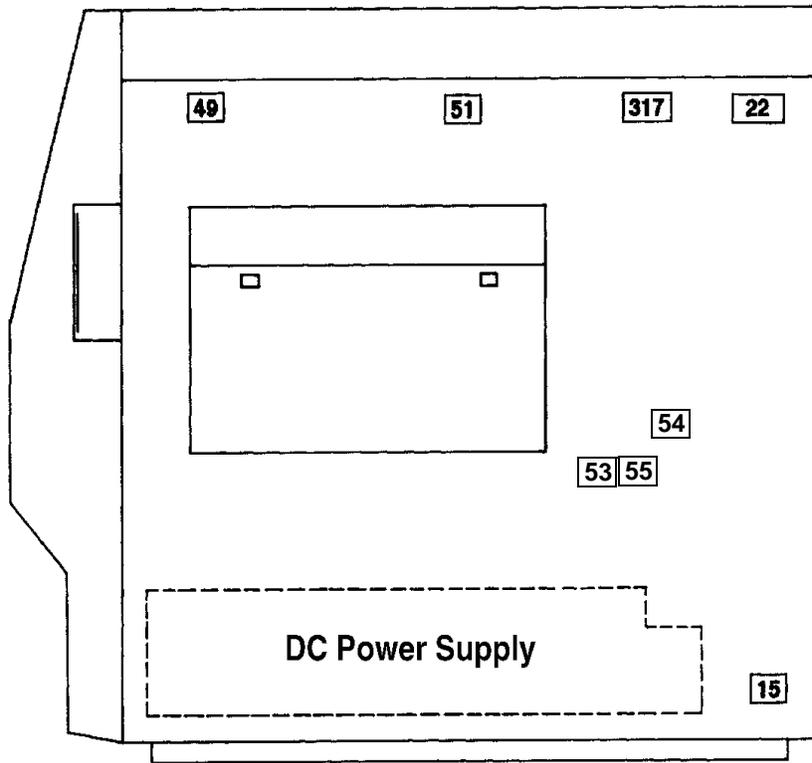
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J5 is located under
the fuser
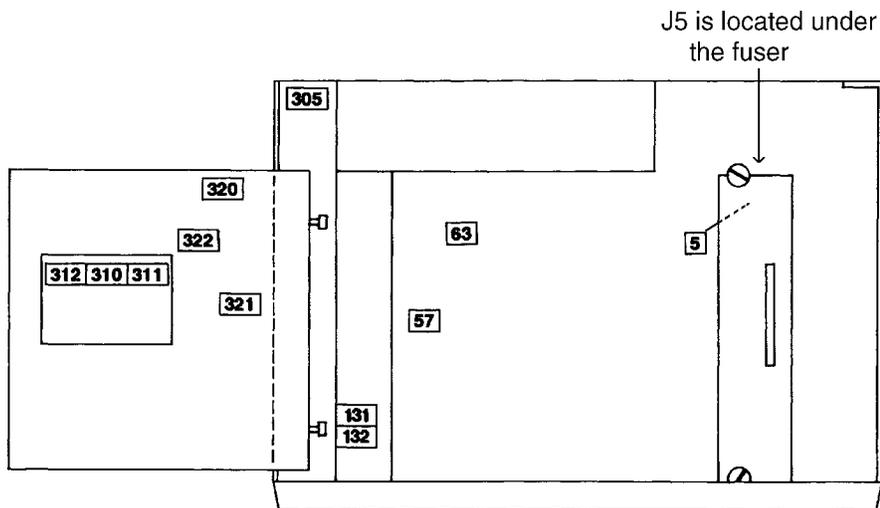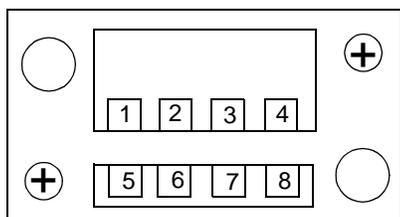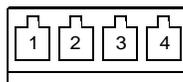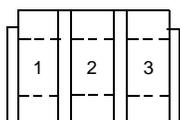
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J/P 57	**J/P 311**
J/P 63	**J/P 312**
J/P 131-132	**J/P 320**
J/P 305	**J/P 321**
	J/P 322
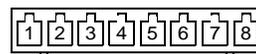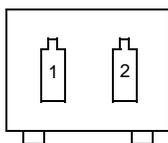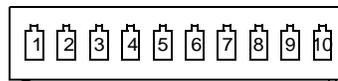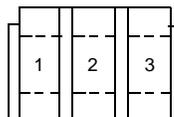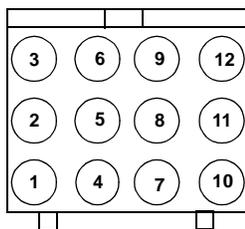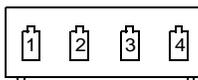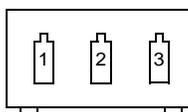
Connectors on the Back Cover

	2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60
J/P 31	• •
	• •
	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59

J/P 32

11	10		9	8	7
6	5	4	3	2	1

J/P 74

	2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
	• • • • • • • • • • • • • • • • • • • •
	• • • • • • • • • • • • • • • • • • • •
	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39

J/P 33

15 13 11 9 7 5 3 1
• • • • • • • •
• • • • • • • •
16 14 12 10 8 6 4 2

J/P 76

	2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
	• •
	• •
	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49

J/P 36

19 17 15 13		7 5 3 1
□ □ □ □ □ □ □ □ □ □
□ □ □ □ □ □ □ □ □ □
20 18 16 14 12 10 8 6 4 2

J/P 87

15 13 11 9 7 5 3 1
• • • • • • • •
• • • • • • • •
16 14 12 10 8 6 4 2

J/P 37

15 13 11	5 3 1
□ □ □ □ □ □ □ □
□ □ □ □ □ □ □ □
16 14 12 10 8 6 4 2

J/P 91

1	2	3	4	5	6

J/P 40, 41

	2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
	□ □
	□ □
	1 3 5 7 9 15 17 19 21 23 25 27 29 31 33 35 41 43 45 47 49

Connectors Inside the Back Cover (J/P2-14)

Connectors Inside the Back Cover (Continued) J/P18-62

J/P 18

| 3 | 2 | 1 |

J/P 26

| 1 | 2 |

J/P 19, 20

| 4 | 3 | 2 | 1 |

J/P 27

3	6
2	5
1	4

J/P 21, 22

| 3 | 2 | 1 |

J/P 23

| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

J/P 30 →

26	●	●	25
24	●	●	23
22	●	●	21
20	●	●	19
18	●	●	17
16	●	●	15
14	●	●	13
12	●	●	11
10	●	●	9
8	●	●	7
6	●	●	5
4	●	●	3
2	●	●	1

J/P 24

| 1 | 2 | 3 | 4 |

J/P 25

6	12
5	11
4	10
3	9
2	8
1	7

J/P 44

| 1 | 2 |

J/P 50

| 1 | 2 | 3 | 4 | 5 | 6 |

J/P 52

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

J/P 54

| 1 | 2 | 3 | 4 | 5 | 6 |

J/P 44

| 1 | 2 |

J/P 56, 58, 60, 62

| 1 | 2 | 3 |
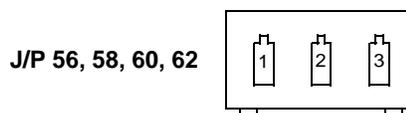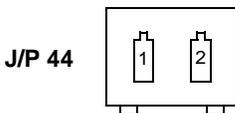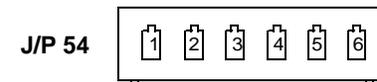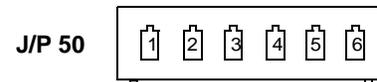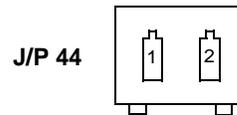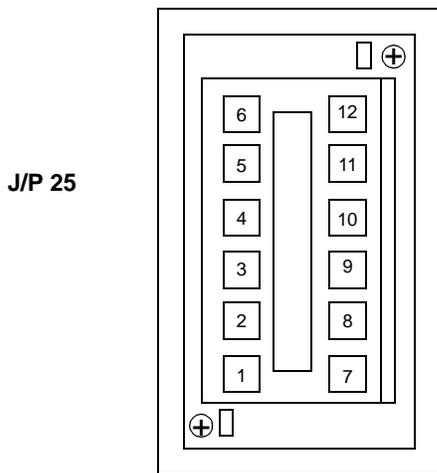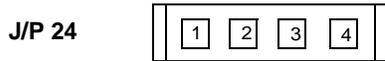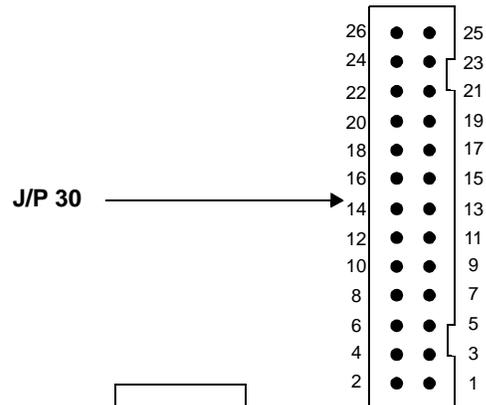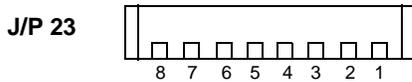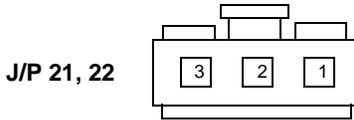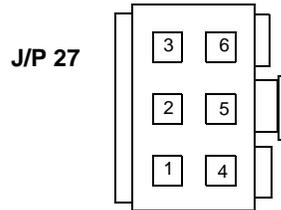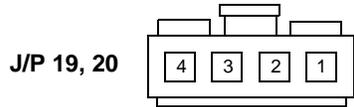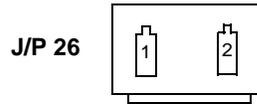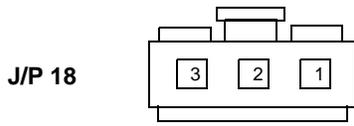
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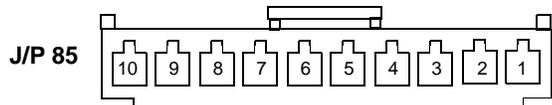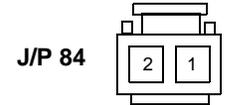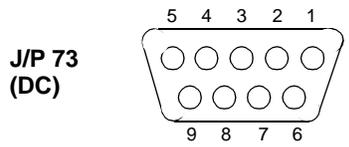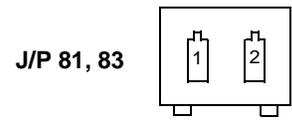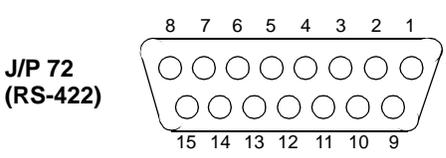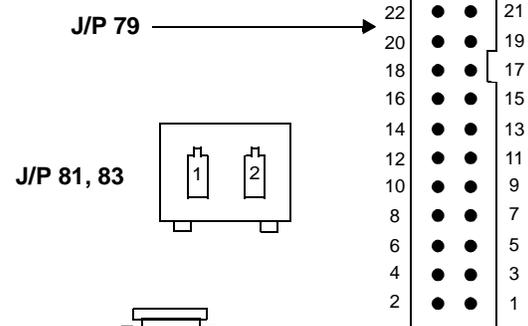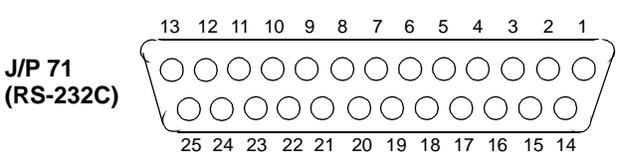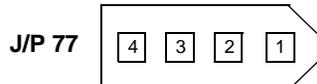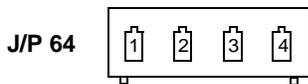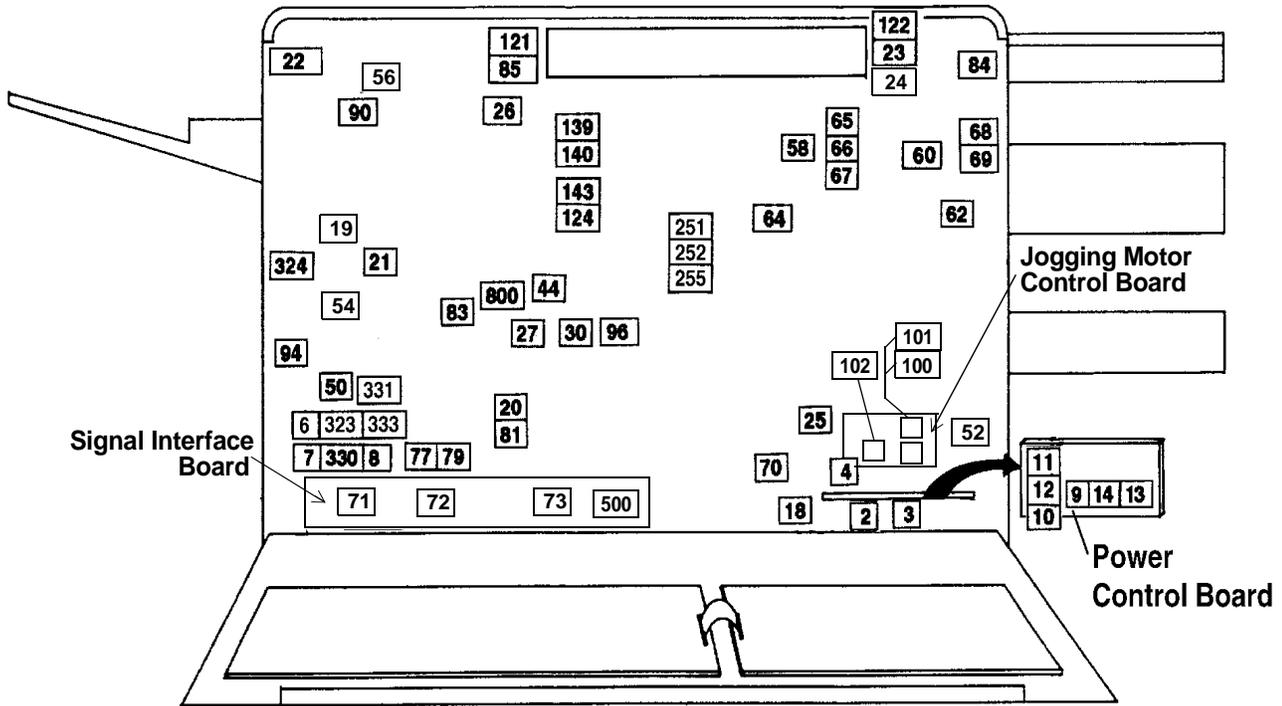
Connectors Inside the Back Cover (Continued) J/P 90-800

J/P 90

21	17	13	9	5	1
22	18	14	10	6	2
23	19	15	11	7	3
24	20	16	12	8	4

J/P 94

2 1

J/P 96

1

J/P 100

1 2

J/P 101

1 2 3

J/P 102

2 1

J/P 121, 122, 124 139, 140, 143

1
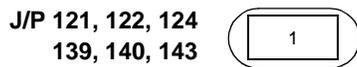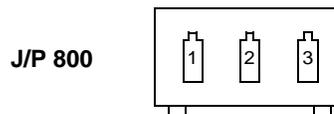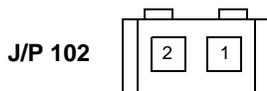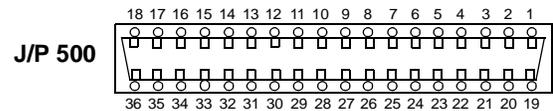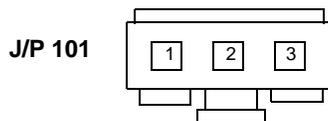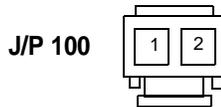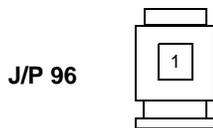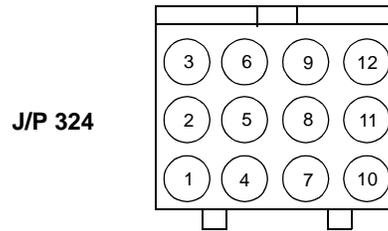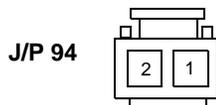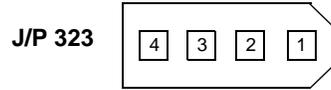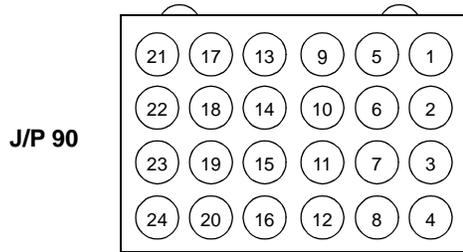
J/P 251, 252, 255   not illustrated

J/P 323

4 3 2 1

J/P 324

3	6	9	12
2	5	8	11
1	4	7	10

J/P 330, 331

4 3 2 1

J/P 333

2 1

J/P 500

18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19

J/P 800

1 2 3

Voltage Isolation Diagrams

Use the following voltage isolation diagrams to locate the presence or loss of proper DC potentials within the printer. Simplex circuit are shown first, followed by duplex circuits.
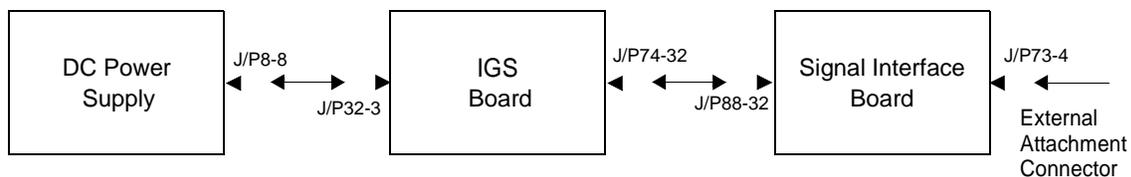
Figure 6-1. (Simplex) -12 Vdc Circuits
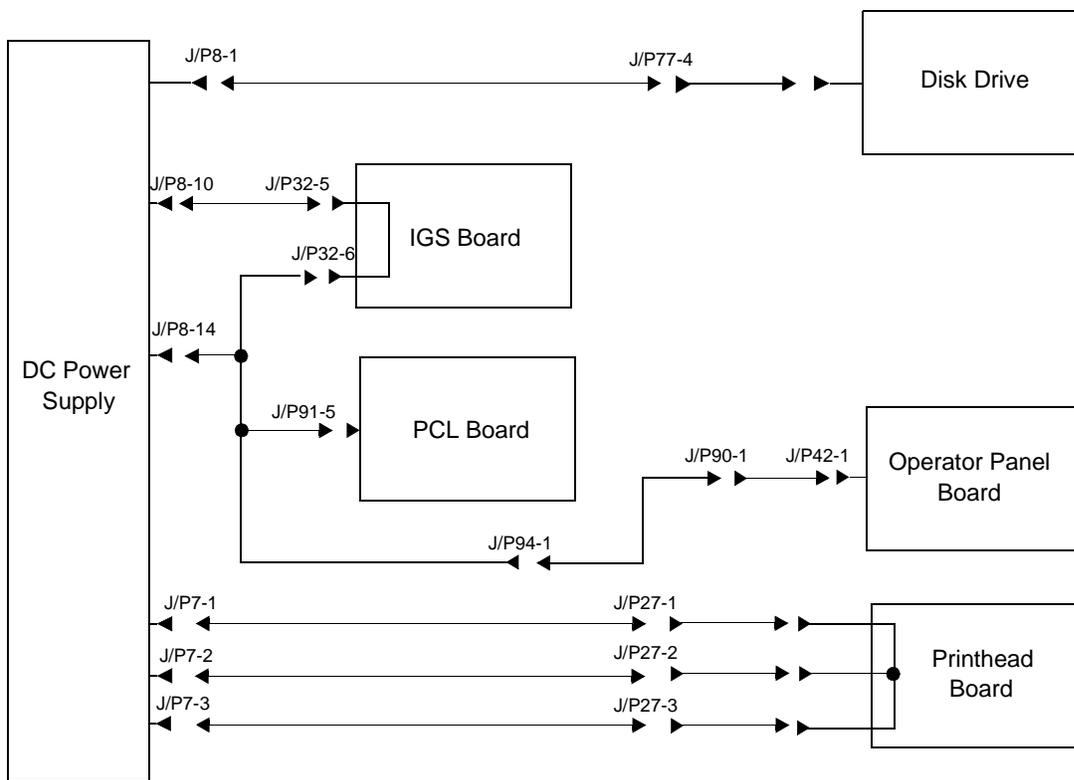
Figure 6-2. (Simplex) +5 Vdc Circuit
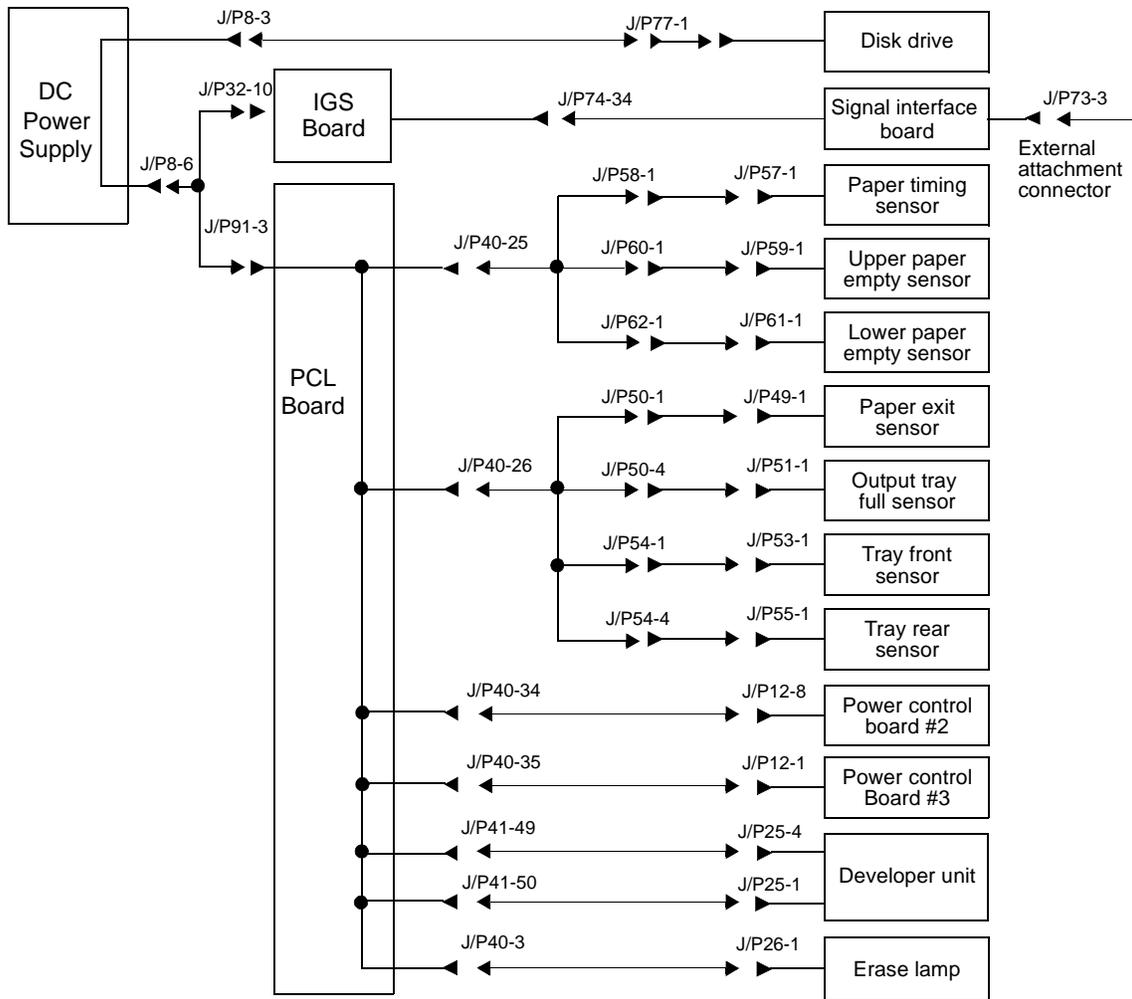
Figure 6-3. (Simplex) +12 Vdc Circuits

Voltage Isolation Diagrams
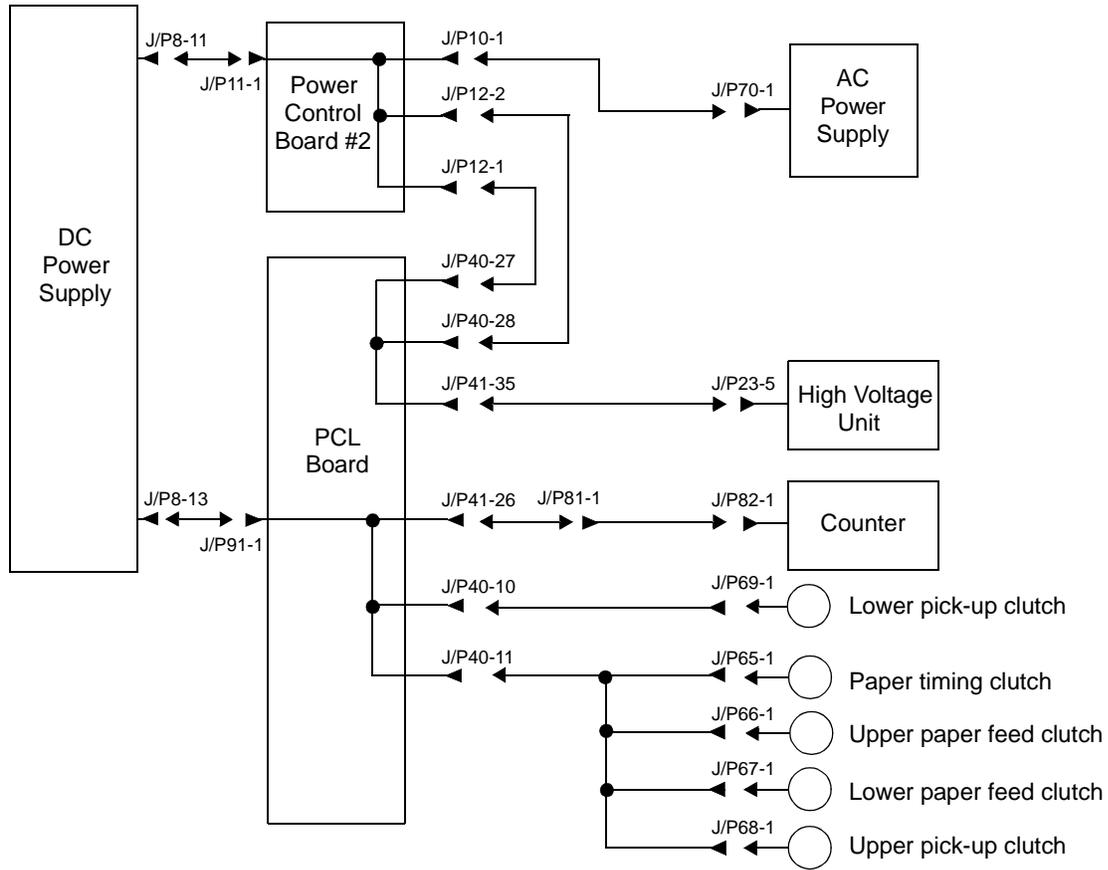
Figure 6-4. (Simplex) +24 Vdc Circuits
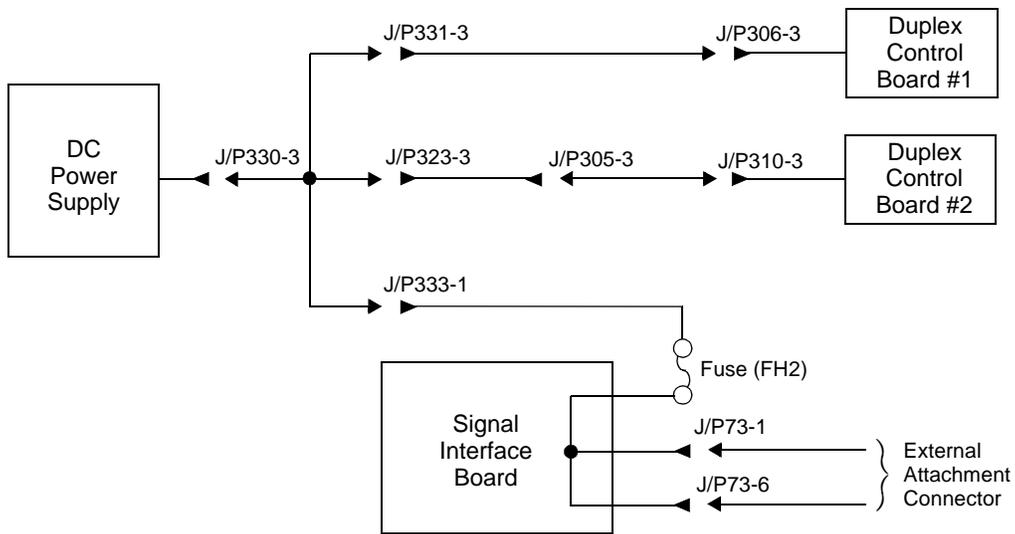
Figure 6-5. (Duplex) +5 Vdc Circuit
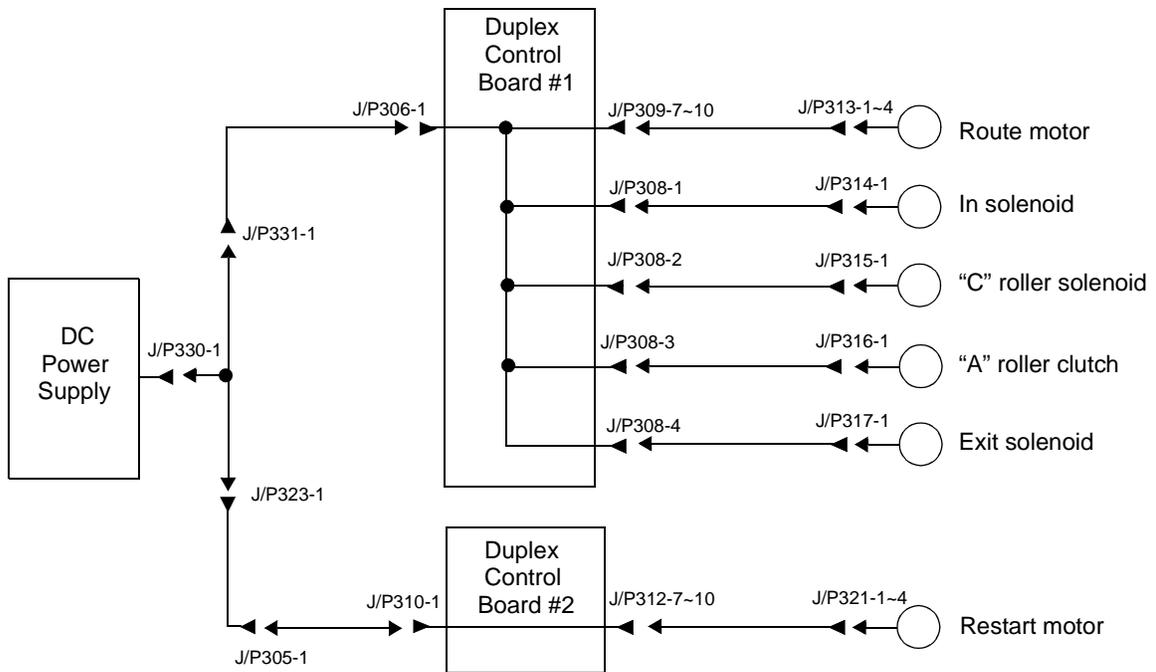
Figure 6-6. (Duplex) +24 Vdc Circuits

Voltage Isolation Diagrams
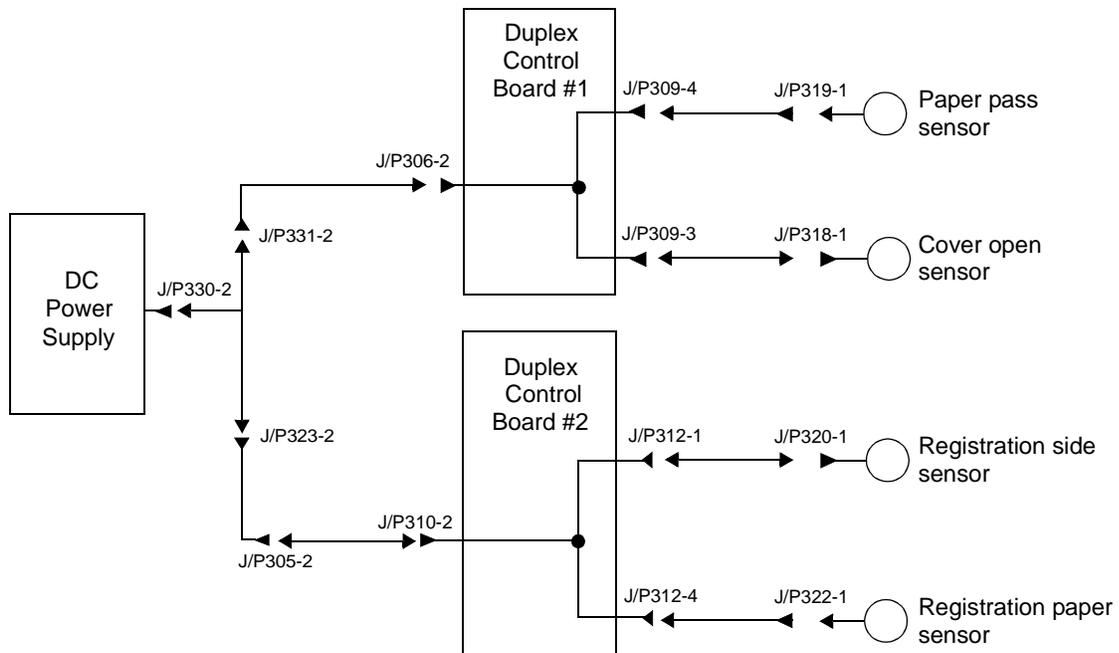
Figure 6-7. (Duplex) +12 Vdc Circuits

Ground System

J/P4-9 – AC power supply

J/P5-8 – Fuser unit

J/P6-3 – DC power supply

J/P18-3 – Toner supply motor

J/P19-4 – Jogging motor

J/P21-3 – Large cooling fan

J/P326-3 – Small cooling fan

J/P22-3 – Vacuum transport unit

J/P23-8 – High voltage unit

J/P20-1 – Main motor

J/P 255 – Photoconductor unit

J/P305-12 – Duplex control board #2

Back cover to frame grounding strap

Charge corona

Transfer corona
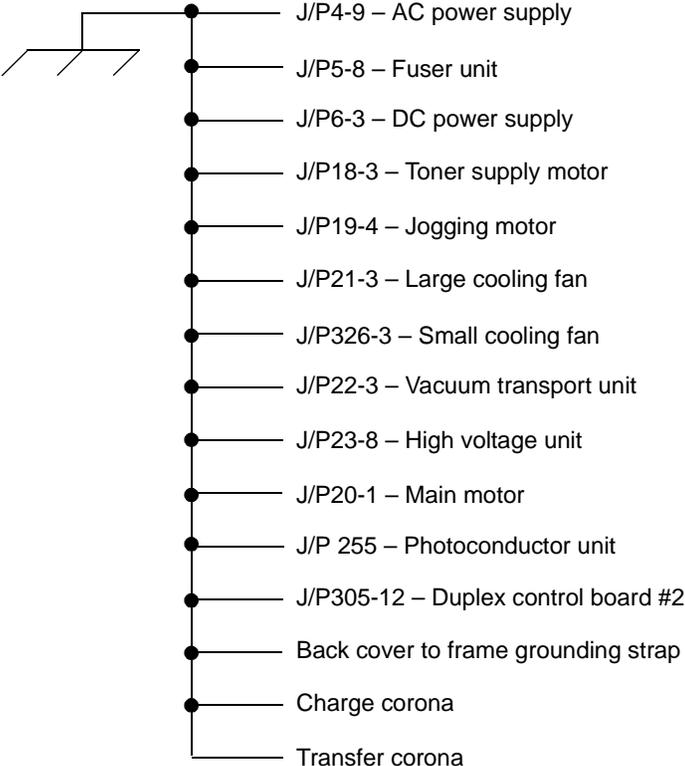
Host Interface Reference

Standard printers support three host interfaces: RS-232C, RS-422, and Centronics Parallel. User-level information about the installation, configuration, and use of these interfaces is included in the printer's *Guide to Operations*.

RS-232C Host Interface

A printer is standard data terminal equipment (DTE), designed specifically for a direct connection to a standard data communication equipment (DCE) host. The standard signal definitions for DTE to DCE equipment are outlined in the table that follows.

Table 6-1. RS-232C DCE to DTE Signal Definitions

Pin	Signal Name	Function
1	FG	Frame or chassis ground
2	TD	Transmitted data
3	RD	Received data
4	RST	Request to send
5	CTS	Clear to send
6	DSR	Data set ready
7	SG	Signal ground
8	DCD	Data carrier detect
9		Positive DC test voltage
10		Negative DC test voltage (unassigned)
11	(S)DCD	Secondary data carrier detect
12	(S)CTS	Secondary clear to send
13	(S)CTS	Secondary clear to send
14	(S)TD	Secondary transmitted data
15	TC	Transmitter clock
16	(S)RD	Secondary received data
17	RC	Receiver clock
18	RDC	Receiver debit clock
19	(S)RTS	Secondary receive to send
20	DTR	Data terminal ready
21	SQ	Signal quality detect
22	RI	Ring indicator
23	DRS	Data rate select
24	(TC)	External transmitter clock
25	BSY	Busy

Standard DCE to DTE RS-232C Cable

The standard DCE host to the printer (DTE) pin configuration follows..

Table 6-2. Standard DCE to DTE Signal Definition

Host Signal	DCE		DTE	Printer Signal
GND	1	←——————→	1	GND
GND	7	←——————→	7	GND
RI	22		22	RI
DTR	20	←——————→	20	DTR
DCD	8		8	DCD
DSR	6		6	DSR
RTS	4	←——————→	4	RTS
CTS	5	←——————→	5	CTS
TD	2	←——————→	2	TD
RD	3	←——————→	3	RD

Special Considerations for RS-232 Host Interface Users

If the READY light comes on and the ON-LINE light does not come on when you are installing the printer, one or more of the pin signals on the RS-232 cable may be incorrect. The host computer may be using a non-DCE RS-232C port. If so, you may have to modify your cable or purchase a new cable with the proper pin assignments. Several possible alternate RS-232C cable configurations follow.

DTE Host to Printer (Option 1)

Table 6-3. DTE Host to Printer Connector Wiring (Option 1)

Host Signal	DCE		DTE	Printer Signal
GND	1	←——————→	1	GND
GND	7	←——————→	7	GND
DTR	20		20	DTR
DCD	8		8	DCD
DSR	6		6	DSR
RTS	4		4	RTS
CTS	5		5	CTS
TD	2		2	TD
RD	3		3	RD

DTE Host to Printer (Option 2)

Table 6-4. DTE Host to Printer Connector Wiring (Option 2)

Host Signal	DCE		DTE	Printer Signal
GND	1	←——————→	1	GND
GND	7	←——————→	7	GND
DTR	20		20	DTR
DCD	8		8	DCD
DSR	6		6	DSR
RTS	4		4	RTS
CTS	5		5	CTS
TD	2		2	TD
RD	3		3	RD

IBM PC/XT to Printer

Normally, the IBM PC/XT comes with a parallel interface for the printer with a 25-pin female connector. To run RS-232, you must install a serial board, which will have a male connector.

Table 6-5. IBM PC/XT to Printer Connector Wiring

PC/XT Signal	DTE		DTE	Printer Signal
-------	1		1	FG
TD	2		2	TD
RD	3		3	RD
RTS	4		4	RTS
CTS	5		5	CTS
DSR	6		6	DSR
SG	7		7	SG
DCD	8		8	DCD
DTR	20		20	DTR

IBM PC/AT to Printer

Normally, the IBM AT comes with a 9-pin serial connector.

Table 6-6. IBM PC/AT to Printer Connector Wiring

PC/AT Signal	DCE		DTE	Printer Signal
DCD	1		1	FG
RD	2		2	TD
TD	3		3	RD
DTR	4		4	RTS
SG	5		5	CTS
DSR	6		6	------
RTS	7		7	SG
CTS	8		8	DCD
RI	9		20	DTR

Macintosh Communication Port to Printer

Normally, the Macintosh comes with a 9-pin male connector.

Table 6-7. Macintosh Communication Port to Printer Connector Wiring

Macintosh Signal	DCE		DTE	Printer Signal
FG	1	←——————→	1	FG
	2		2	TD
SG	3		3	RD
	4		4	RTS
TD	5		5	CTS
	6		6	------
DSR	7		7	SG
	8		8	DCD
RD	9		20	DTR

RS-422 Host interface

The RS-422 host interface uses the signal definitions defined below. A shielded cable is required with the shield connected on one end only, preferably at the printer end.

Table 6-8. RS-422 Host Interface Connector Wiring

Host Signal				Printer Signal
GND	1	←——————→	1	FG
SG	8	←——————→	8	SG
TD	2	←——————→	2	TD
	9		9	
RD	4	←——————→	4	RD
	11		11	
DCD	5	←——————→	5	DCD
	12		12	
ST2	6	←——————→	6	ST2
	13		13	
ST1	7	←——————→	7	ST1
	14		14	
DTR	3	←——————→	3	DTR
	10		10	

Centronics Parallel Host Interface

The Centronics Parallel host interface uses the signal definitions defined below.

Table 6-9. Centronics Parallel Signal Definitions

Pin	Signal Name	Function
1	DS	Data strobe (active low)
2	DB0	Data bit 0
3	DB1	Data bit 1
4	DB2	Data bit 2
5	DB3	Data bit 3
6	DB4	Data bit 4
7	DB5	Data bit 5
8	DB6	Data bit 6
9	DB7	Data bit 7
10	ACK	Acknowledge (active low)
11	BSY	Busy (active high)
12	PE	Paper empty (active high)
13	SEL	Select (active high)
14	AF	Auto feed
15		Not used
16	SG	Signal ground
17	FG	Frame or chassis ground
18	PLH	Peripheral logic high
19 to 30		Signal ground
31	IP	INIT
32	ERR	Error (active low)
33 to 35		Not used
36	SI	Select input

IBM Parallel to Printer

Table 6-10. IBM Parallel to Printer Connector Wiring

Host Signal			Printer Signal
DS	1	←——→	1	DS
DB0	2	←——→	2	DB0
DB1	3	←——→	3	DB1
DB2	4	←——→	4	DB2
DB3	5	←——→	5	DB3
DB4	6	←——→	6	DB4
DB5	7	←——→	7	DB5
DB6	8	←——→	8	DB6
DB7	9	←——→	9	DB7
ACK	10	←——→	10	ACK
BSY	11	←——→	11	BSY
PE	12	←——→	12	PE
SEL	13	←——→	13	SEL
AF	14	←——→	14	AF
ERR	15	←——→	32	ERR
IP	6	←——→	31	IP
SI	17	←——→	36	SI
GND	18	←——→	33	GND
GND	19	←——→	19	GND
GND	20	←——→	21	GND
GND	21	←——→	23	GND
GND	22	←——→	25	GND
GND	23	←——→	27	GND
GND	24	←——→	29	GND
GND	25	←——→	30	GND

Special Considerations for Centronics Parallel Interface Users

For DOS host computers, add the following line to the AUTOEXEC.BAT file:

```
MODE PRN,,P
```

To edit the AUTOEXEC.BAT file, use any text editor or the EDLIN facility of DOS. If you do not know how to edit this file, refer to the reference manual that came with the DOS software.

Circuit Board Settings

Several of the circuit boards in the printer have jumpers and/or DIP switches used to control the functionality of the board. These settings are described the following section.

Signal Interface Board Settings

The signal interface board has both jumpers and DIP switches used to control host interface interactions.
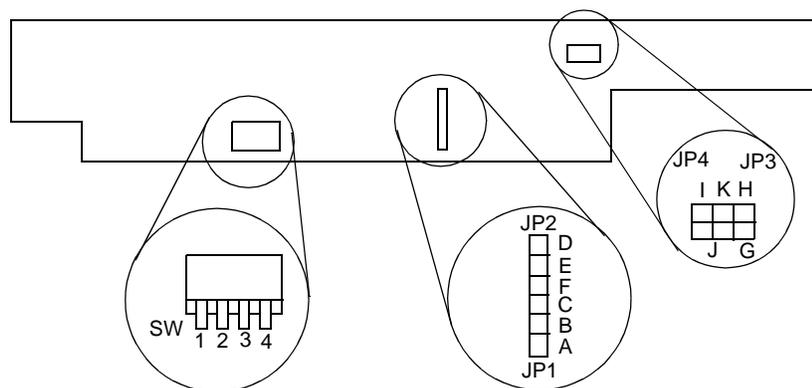
Figure 6-8. Signal Interface Board Jumper/Switch Locations

In general, the four jumpers on the signal interface board should remain as set at the factory. The jumpers control the following:

Table 6-11. Signal Interface Board Jumper Settings

Jumper	Direction	Description
JP1	b-c a-b	Baud rate crystal oscillator on IGS board 3.6854 MHz Baud rate crystal oscillator on IGS board 7.3728 MHz
JP2	d-e e-f	Unsolicited status reports enabled after power-on-reset Unsolicited status reports disabled after power-on-reset
JP3	g-h No jumper	ERR (pin 32) error line output enabled ERR (pin 32) error line output disabled
JP4	i-j j-k	PE (pin 12) out of paper line enabled PE (pin 12) out of paper line disabled

The four DIP switches on the signal interface board should be changed based on the host interface being used.

For an RS-232C host interface: the DIP switches may be set in either direction; they have no effect on an RS-232C interface.

For an RS-422 host interface: set all four DIP swiches to ON by raising them up away from the printed circuit board.
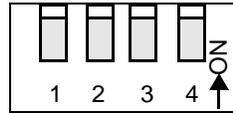
Figure 6-9. **RS-422 Host Interface DIP Settings**

For a Centronics Parallel Host Interface: set all four DIP switches to OFF by pushing them down toward the printed circuit board.
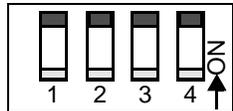
Figure 6-10. **Centronics Parallel Host Interface DIP Settings**

PCL Board Settings

The PCL board uses DIP switches to control the registration of prints. Change these settings only if directed to do so when following TAG #807.

Printhead Circuit Board Settings

The printhead circuit board uses jumpers to match printhead characteristics to controller characteristics. Do not change these jumper settings; they should remain as set at the factory.
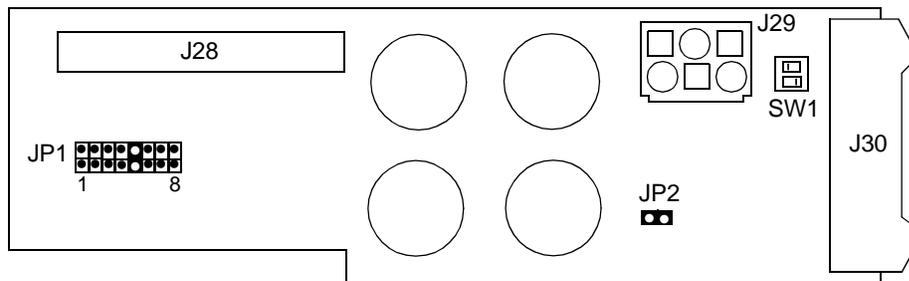
Figure 6-11. **Printhead Circuit Board Jumper/Switch Locations**

Power Supply Strapping

The input source voltage for the printer is set by a strapping plug located behind the left cover near the AC power switch. The strapping options and corresponding voltages are shown in the following table.

Table 6-12. AC Power Strapping

Jumper Pins	AC Voltage
1 to 3	100
1 to 4	120
1 to 5	200
1 to 6	220
1 to 7	230
1 to 8	240
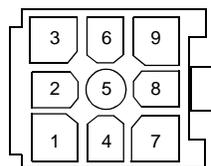
Strapping Plug

Removal/Replacement Procedures

Chapter Contents

Removal/Replacement Procedures

Removal

This section includes step-by-step instructions for removing all field service replaceable parts in the printer. Each part is addressed under its own heading, as outlined on the preceding contents pages. Most of the procedures are applicable to both the simplex and duplex printer models. When the procedures differ between the two printers, the word simplex or duplex is included in parentheses.

Before You Begin

To remove a part, follow the instructions provided. To replace a part, follow the steps in reverse order unless otherwise noted. During reassembly, make sure to reconnect all connectors properly and seat gears and other moving parts properly.

Power Considerations

Before removing a part, make sure the printer is turned off and that the power cord is disconnected.

Photoconductor Removal

If it is necessary to remove the photoconductor unit as part of a removal procedure, make sure to place it in its protective packaging.

Front Cover Removal

To remove the front cover:

1   Open the front cover.

2   While holding the cover up halfway, unhook the strap from the right side.

3   **Duplex only:** Remove the strap from the left side.

4   Slide the front cover to the right off its hinges.

Right Strap

Left Strap
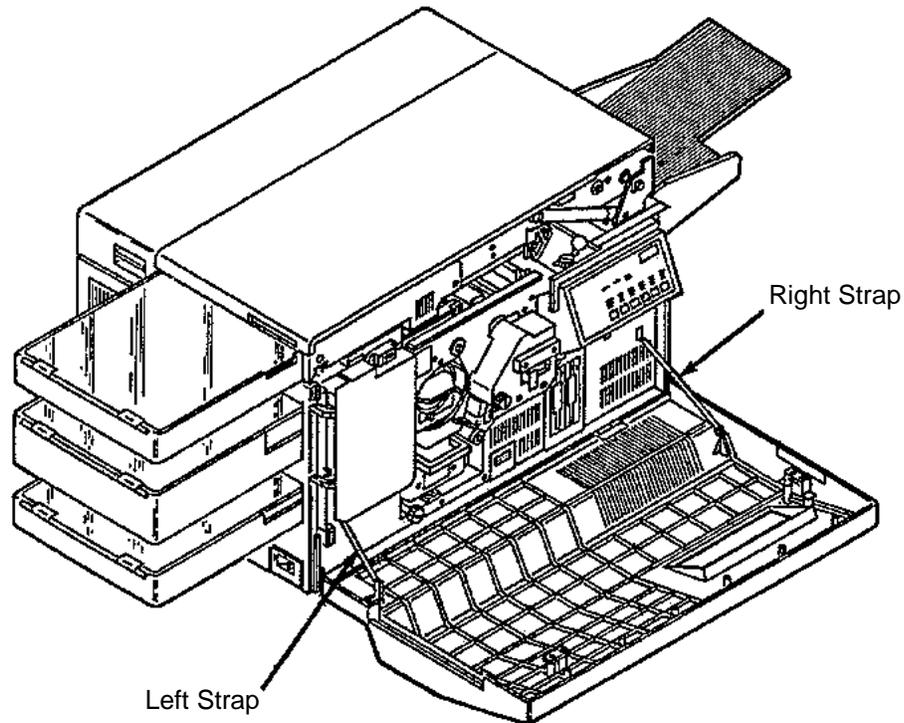
Back Cover Removal

To remove the back cover:

1 Remove all external cables and attachments.

2 Open the top and back covers.

3 Disconnect CN31, CN32, CN37, CN40, CN41, CN74, and CN91.

4 Duplex only: Disconnect CN36.

5 For the hard drive option, disconnect the drive's data cable.

6 Remove the ground screw from the back cover.

7 While supporting the back cover, remove the screw holding each strap.

Caution: hold the plastic strap to avoid throwing the screw as it comes loose.

8 Lift the back cover up and away from the printer.
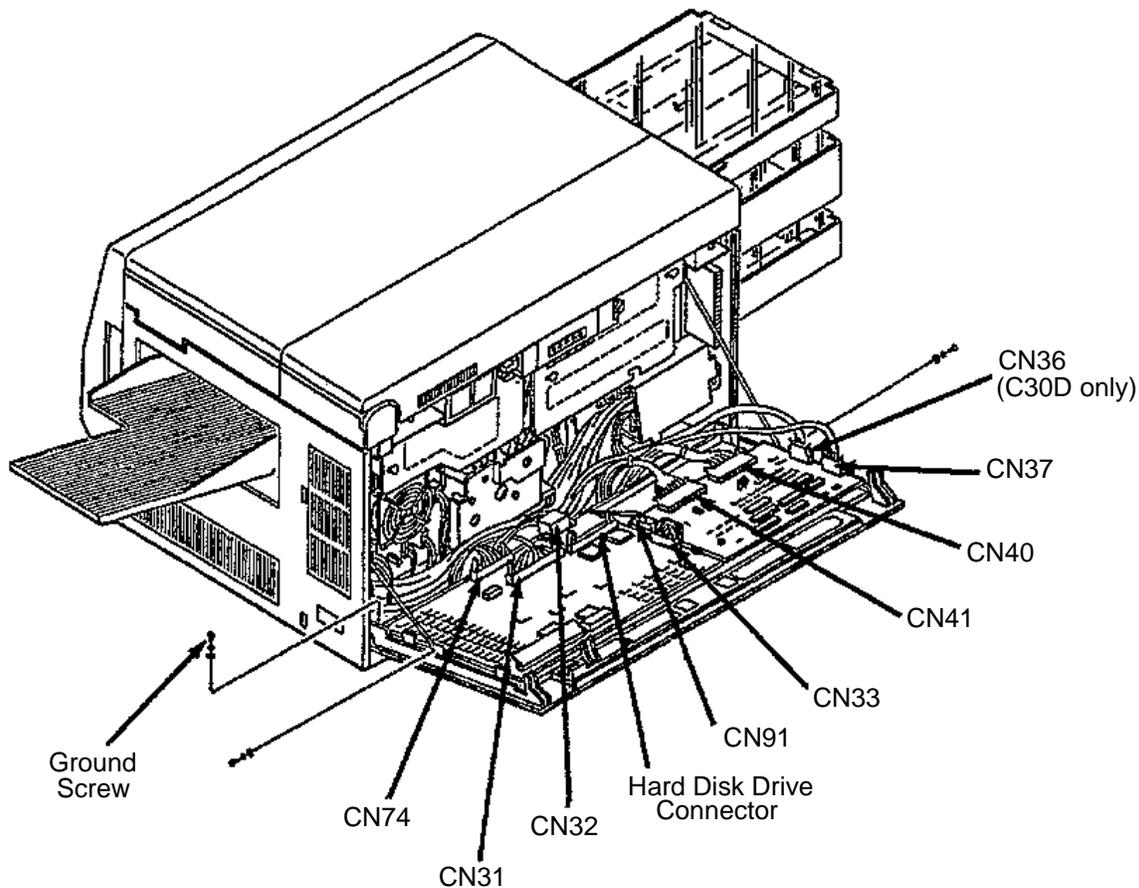
Lower Back Cover Removal

To remove the lower back cover:

1 Disconnect all external cables and attachments.

2 Open the back cover.

3 Loosen the two screws holding the lower back cover in place.

4 Lift the back cover off its hinges.

5 While supporting the back cover, lift the lower back cover out and away from the printer.

6 Return the back cover to its hinges.

Loosen Screws

Lower Back Cover
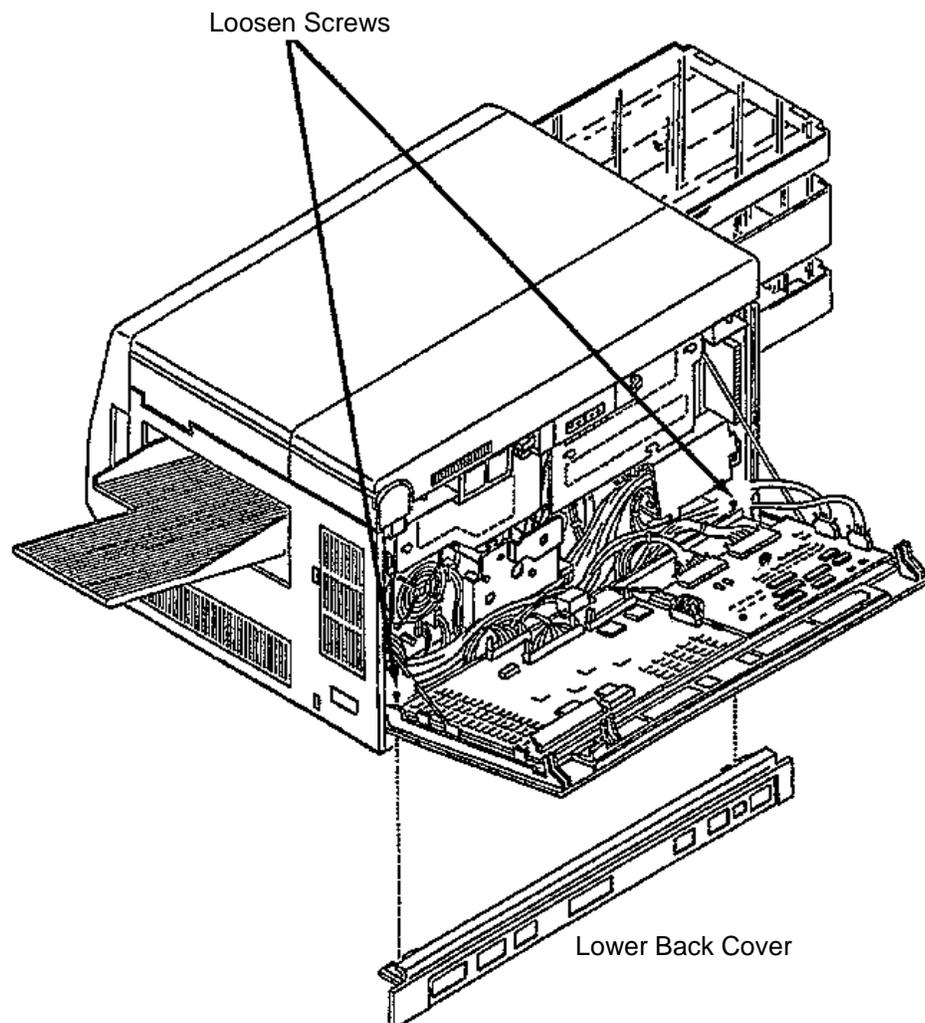
Left Side Cover Removal

To remove the left side cover:

1   Open the top, back, and front covers.

2   **Duplex only:** Remove the duplex tray by disconnecting P305 and loosening the two thumb screws.

3   Remove the upper and lower paper cassettes.

4   Loosen the two screws for the left side cover.

5   Lift the cover up and away from the printer.

Replacement Note:

When reinstalling, make sure the inside mounting tabs are properly positioned.
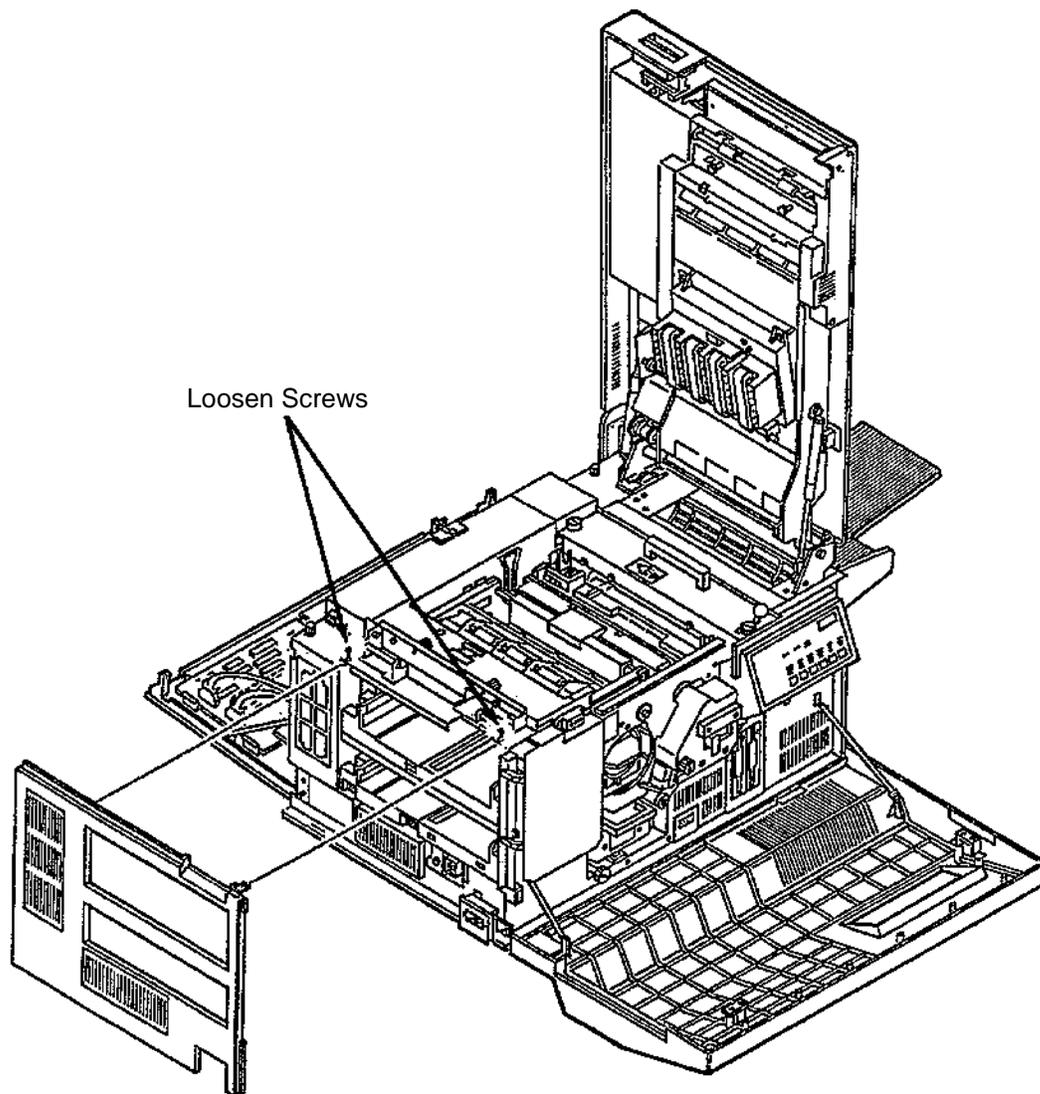
Loosen Screws

Right Side Cover Removal (Simplex)

> **Note**
> **The service kit is attached inside the right side cover.**

To remove the right side cover:

1   Remove the paper output tray.

2   Open the top and front covers.

3   Loosen the two screws holding the right side cover.

4   Pull the cover out and away from the printer.

Replacement Note:

When reinstalling, make sure the inside mounting tabs are properly positioned.

Loosen Screws
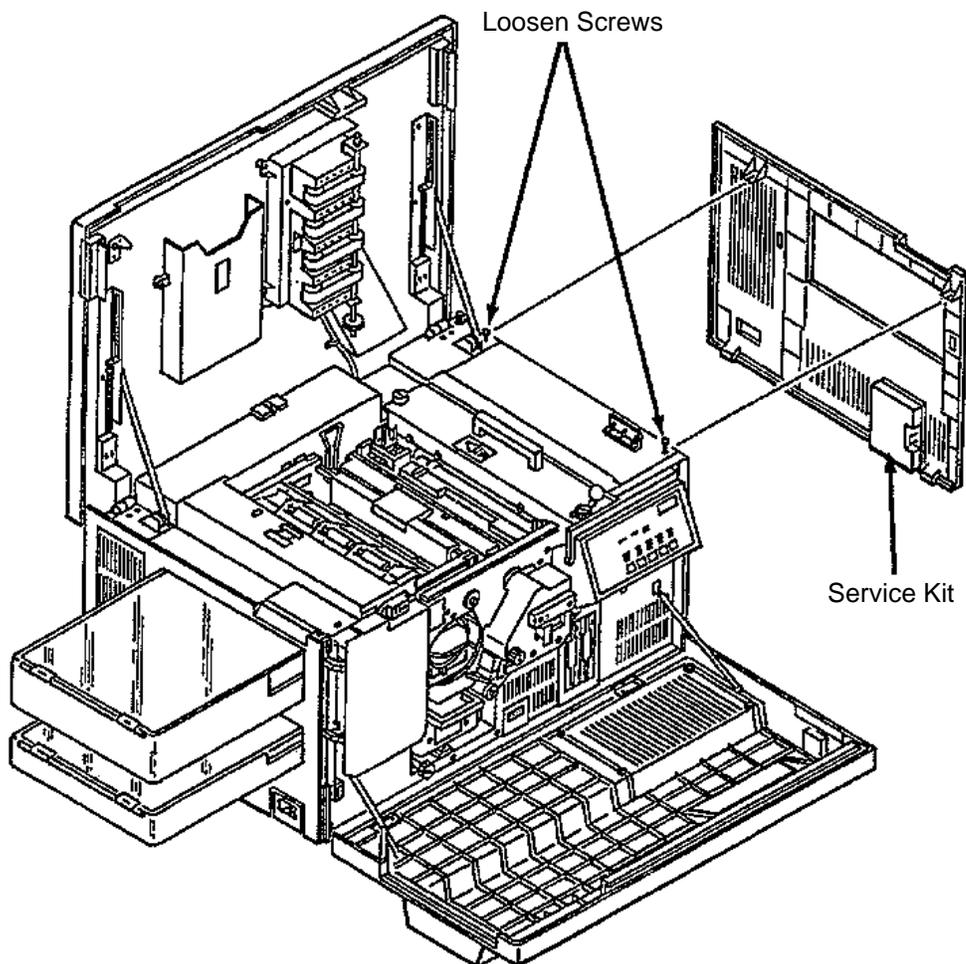
Service Kit

Right Side Cover Removal (Duplex)

> **Note**
> **The service kit is attached inside the right side cover.**

To remove the right side cover:

1   Remove the paper output tray.

2   Open the top, back, and front covers.

3   Remove the two screws holding the right side cover in place.

4   Close the top cover.

5   Pull the cover out and away from the printer.

Replacement Note:

Tighten the screws first. Then, gently lift the bottom tabs into place. Hold the top of the right side cover in place as you open the top cover. (This avoids the possibility of damaging the top cover.)

Service Kit
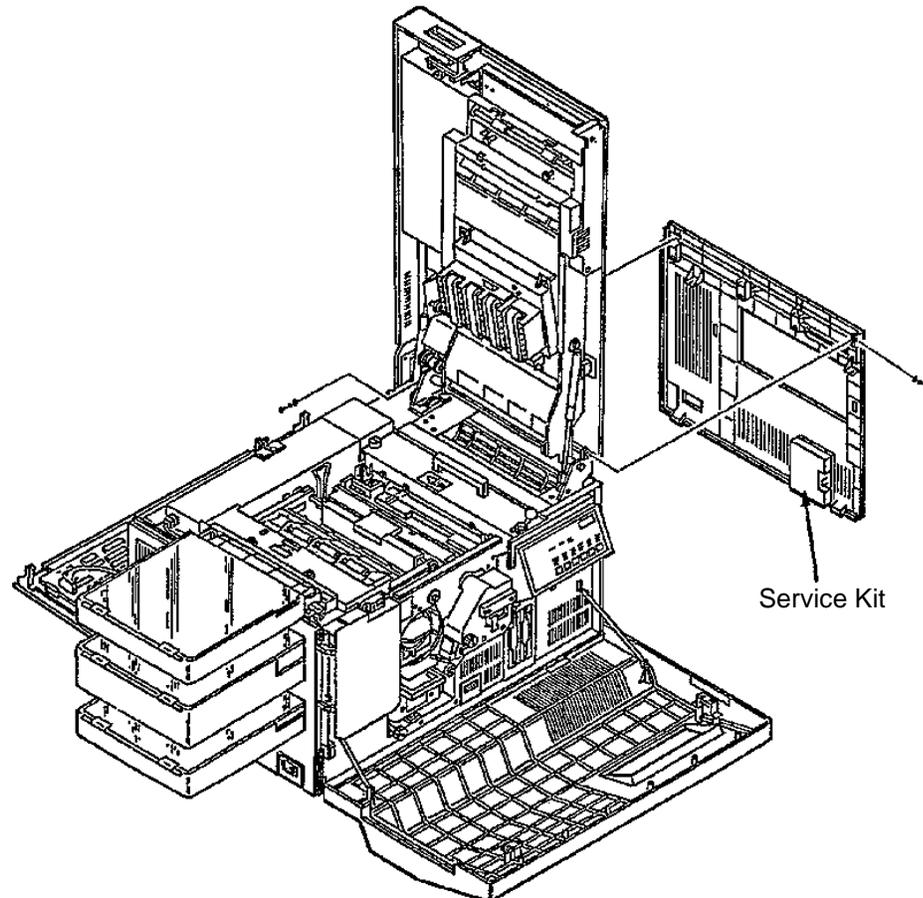
Vacuum Transport Unit Removal (Simplex)

To remove the simplex vacuum transport unit:

1 Open the top and back cover.

2 Disconnect CN22A.

3 Remove the retaining clip holding the cable in place.

4 Remove the ground screw on the left side of the back cover.

5 Remove the harness stays holding the cable in place.

6 Remove the vacuum transport unit (four screws).

Ground Screw

Retaining Clip

CN22A

Back Detail

Vacuum Transport Unit Removal (Simplex)

Mounting Screws
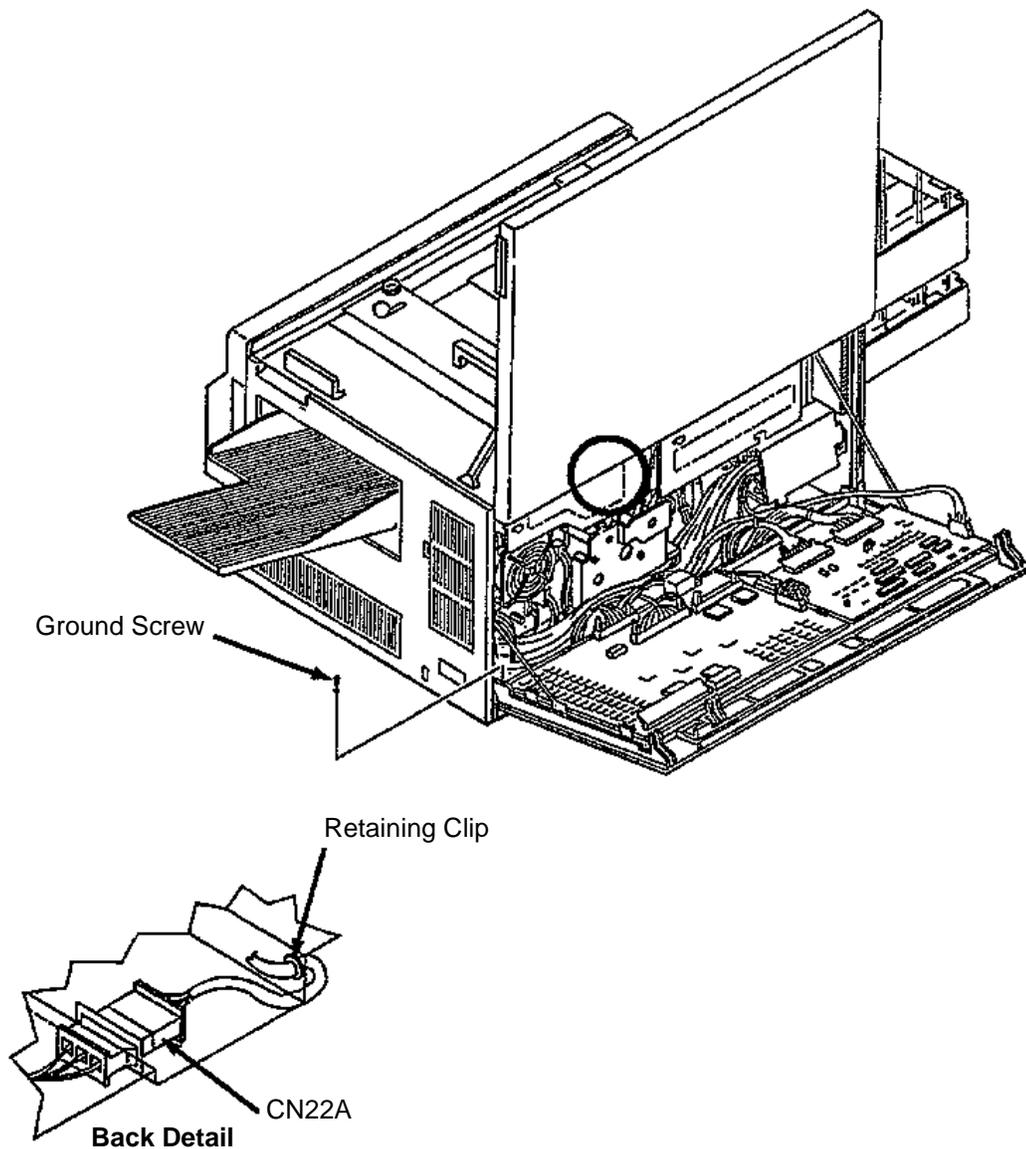
Vacuum Transport Detail
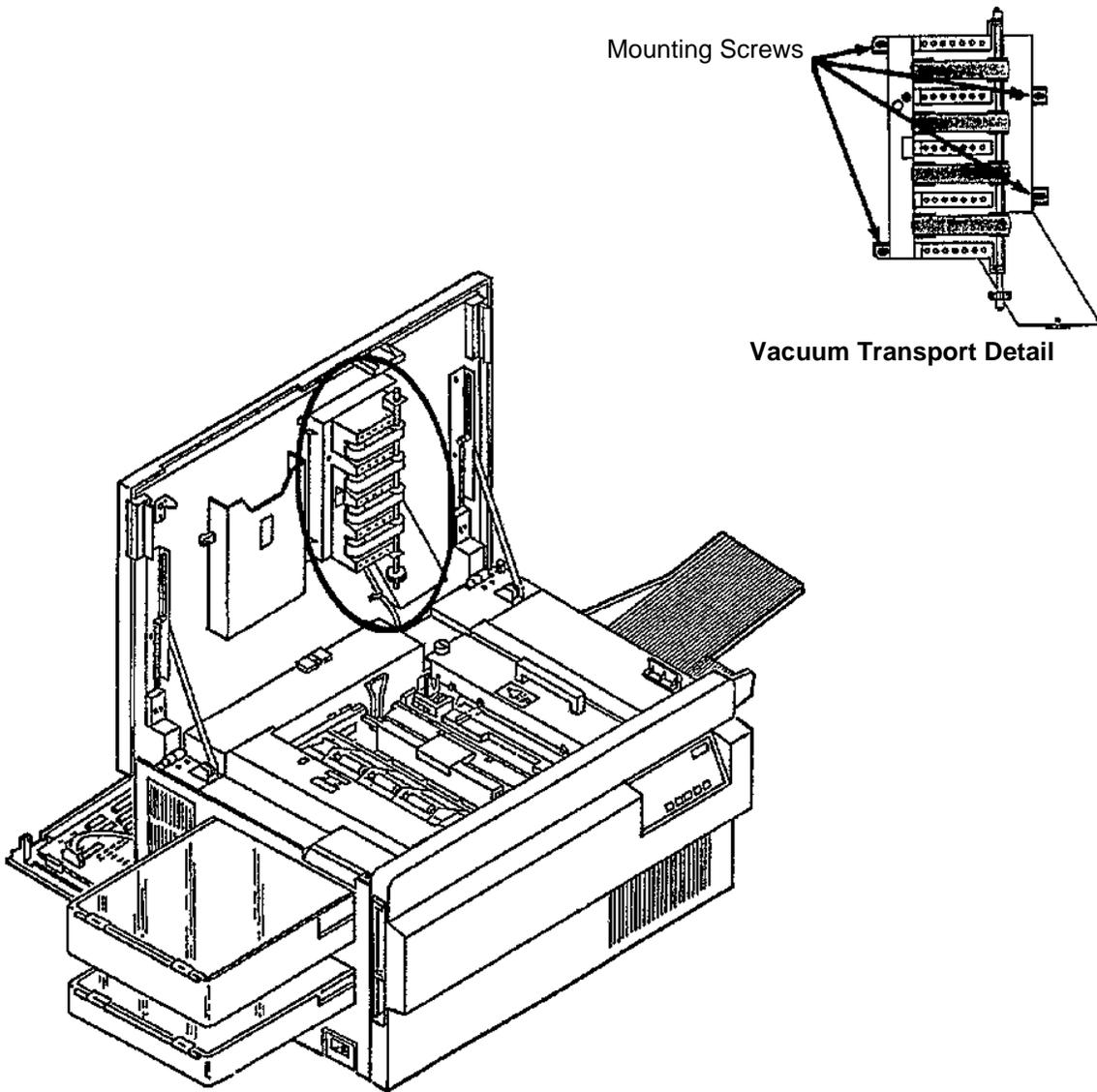
Vacuum Transport Unit Removal (Duplex)

To remove the duplex vacuum transport unit:

1   Open the top cover.

2   Remove the upper duplex roller cover (four screws).

3   Remove the lower duplex roller cover (four screws).

4   Disconnect CN22.

5   Remove the C-clip from the gas spring on the side marked "up." Gently move the gas spring out of the way so it does not block the wire harness area.

6   Remove the four harnesses stays holding the cable in place.

7   Remove the three ground screws.

8   Remove the vacuum transport unit (four screws).
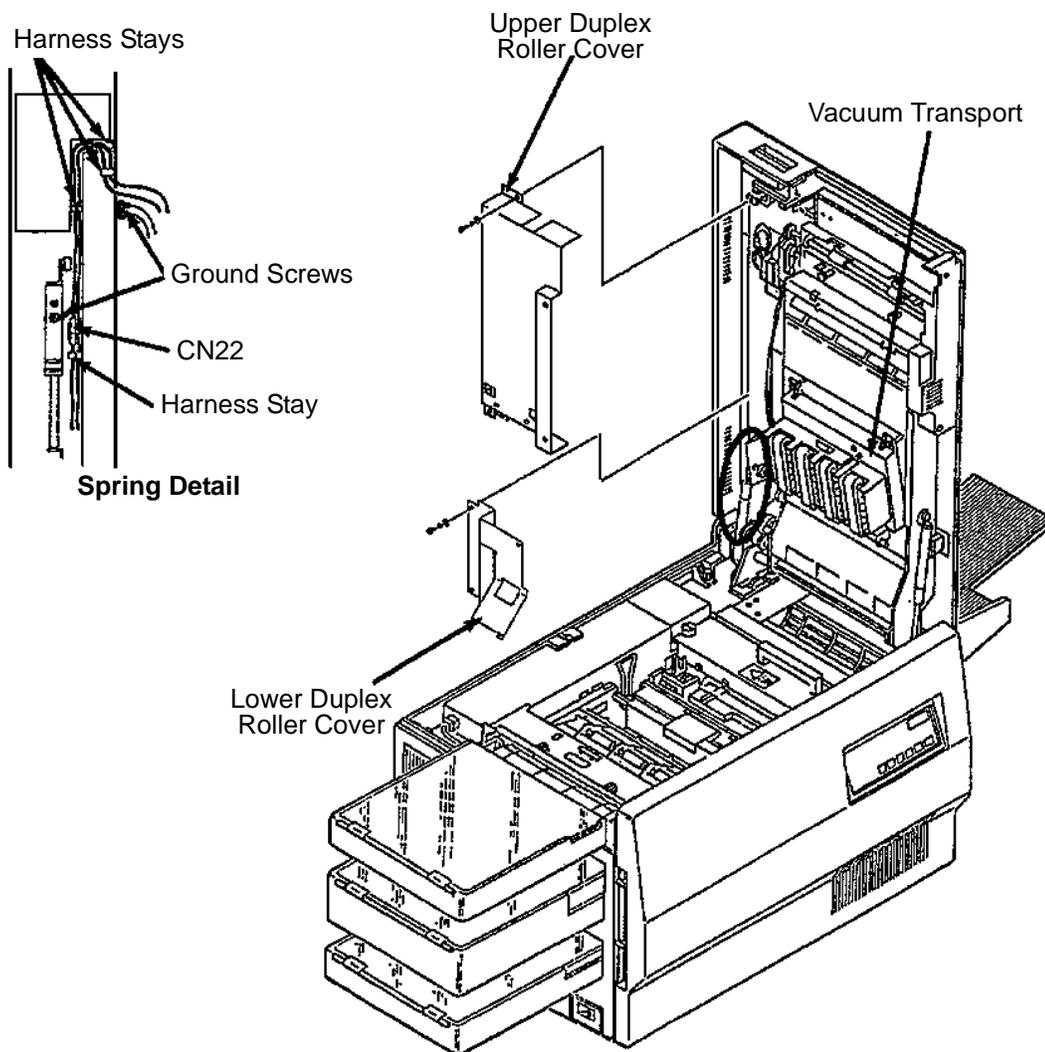
Top Cover Removal

To remove the top cover:

1 Open the top cover.

2 Remove the vacuum transport unit from the top cover. It is not necessary to remove it completely from the printer (see page 7-11).

3 Remove the four screws for each support assembly.

4 Lift the top cover up and away from the printer.

Vacuum Transport Unit

Support Assembly Detail
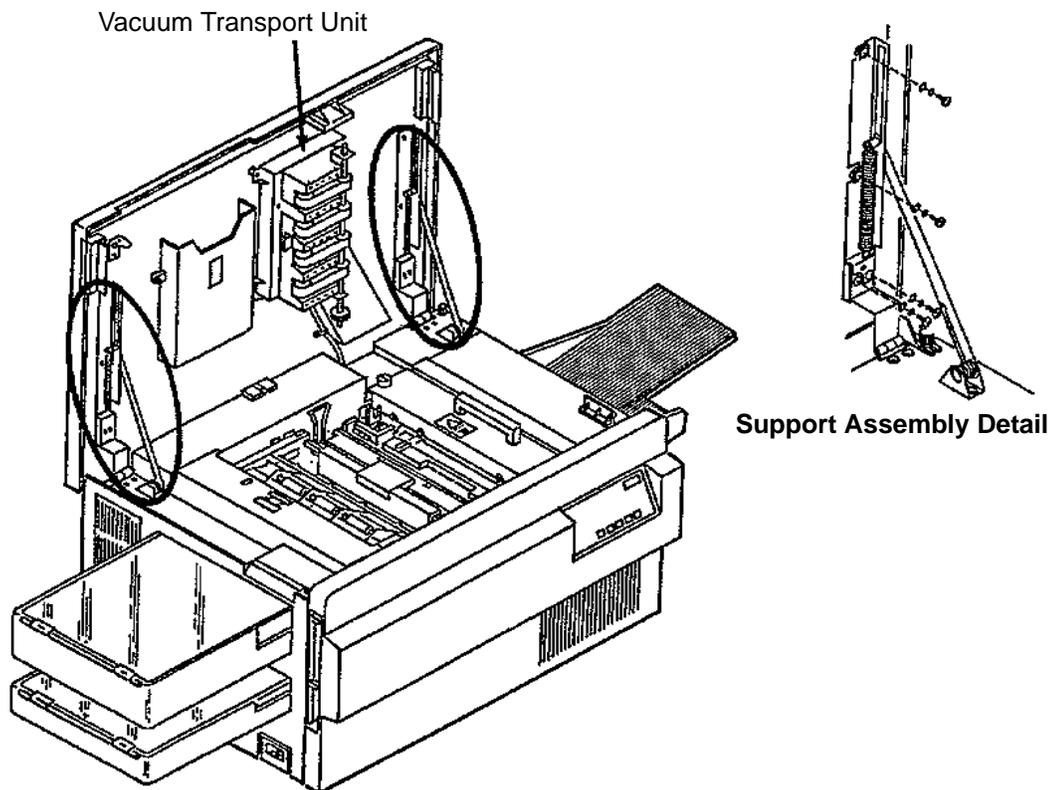
Top Cover Support Removal

To remove the top cover support:

1   Open the top cover.

2   Remove the spring from the top cover support (single screw).

3   Remove the screws holding the support to the base of the printer.

Replacement Note:

Replace one support at a time so that the other remains in place to stabilize the top cover.

Spring Screw

Support Detail
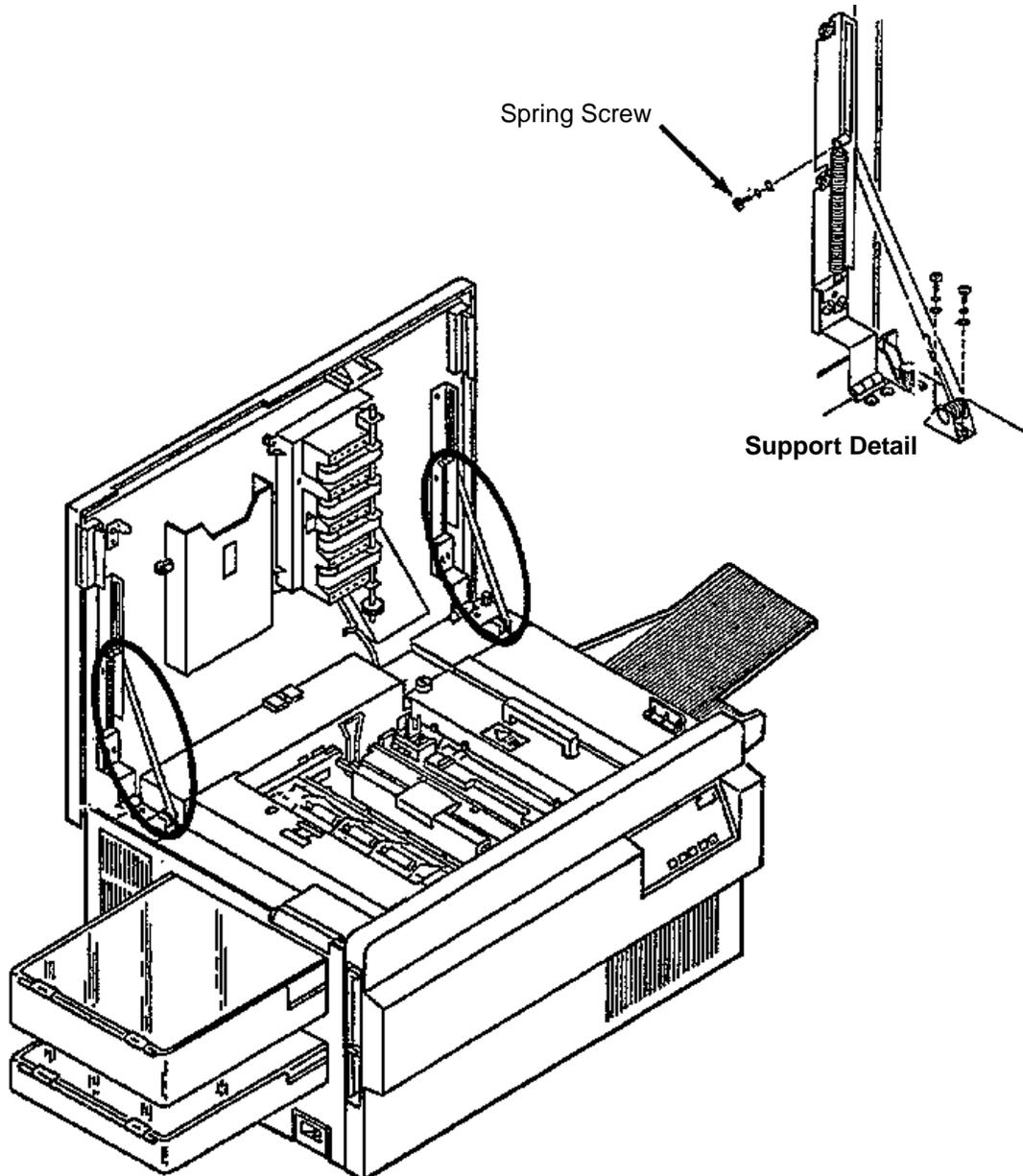
Top Cover Hinge Removal

To remove the top cover hinge:

1   Open the top cover.

2   Remove the two screws holding the hinge/support to the top cover.

3   Remove the two screws holding the hinge/support to the printer base.

4   While supporting the top cover, loosen the top two screws.

5   Remove the hinge.

Replacement Note:

Replace one hinge at a time so that one always remains in place to support the top cover.

Loosen Screws

Hinge Detail
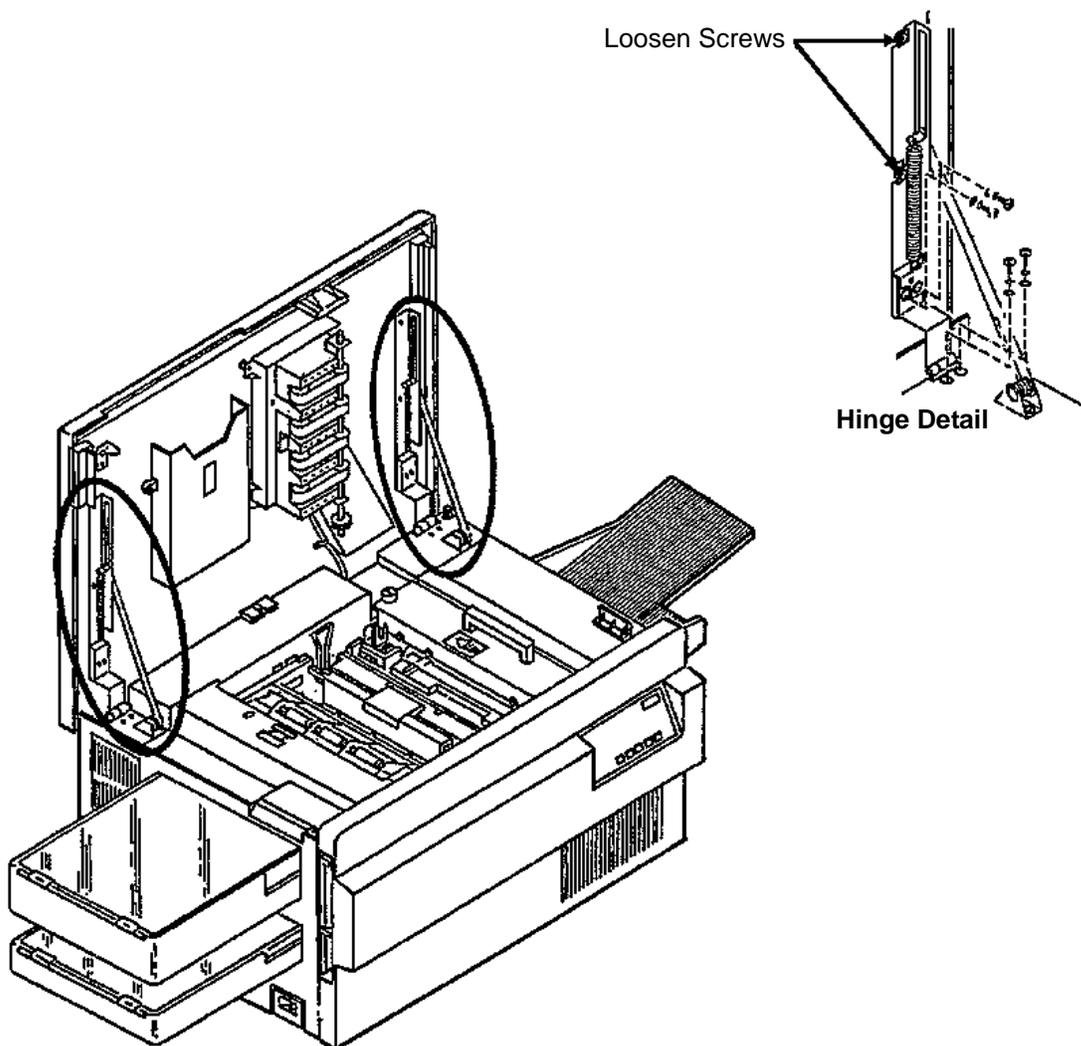
Rear Duplex Cover Removal

To remove the rear duplex cover:

1   Open the top cover.

2   Remove the lower screw for the rear duplex cover.

3   While supporting the cover, remove the upper screw for the rear duplex cover.

Replacement Note:

Do not substitute longer screws to hold the rear duplex cover in place.

Upper
Screw

Lower
Screw

Mounting Screw Detail
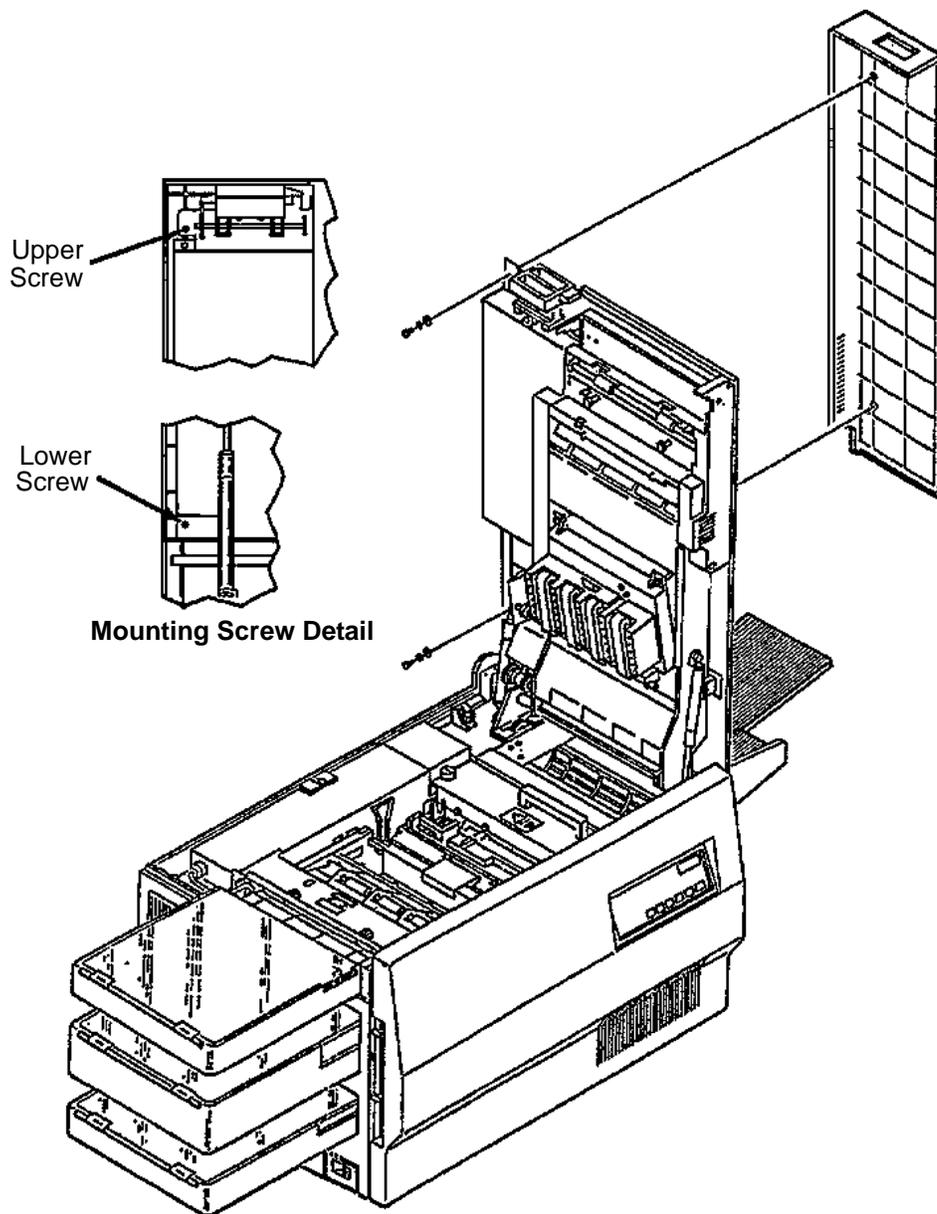
Front Duplex Cover Removal

To remove the front duplex cover:

1 Open the top cover.

2 Remove the rear duplex cover (see).

3 Close the top cover.

4 Open the front duplex cover.

5 Remove the C-clip from each gas spring.

6 While supporting the cover, remove each gas spring from its post and lower it.

7 Close the front duplex cover.

8 Remove the front hinges from the top cover (two screws each).

9 Remove the two screws from each front cover hinge.

Gas Spring

C-Clip

Inside Front
Duplex Cover

Gas Spring Detail
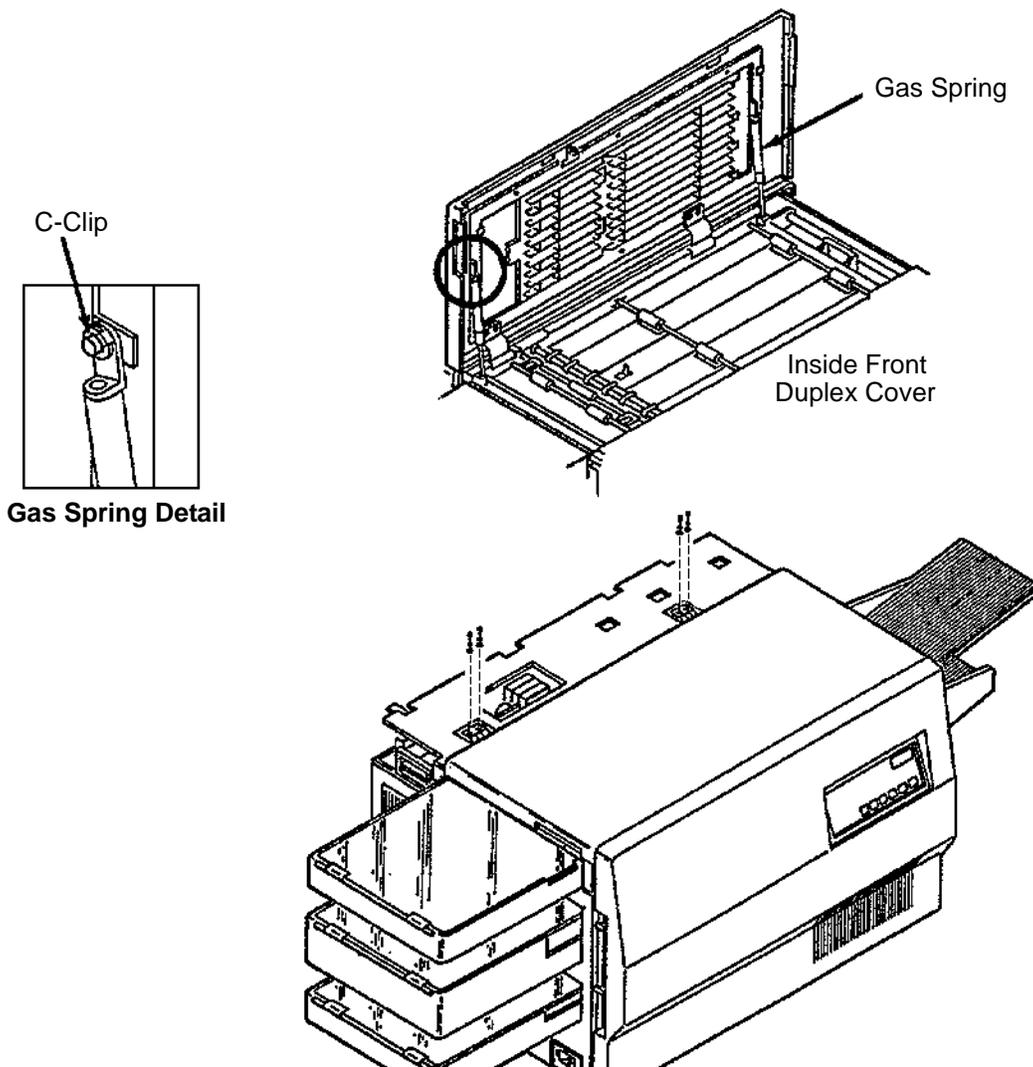
Operator Panel Removal

To remove the operator panel:

1 Open the front cover.

2 Remove the two screws holding the operator panel in place.

3 Disconnect connector CN42.

4 Remove the ground screw.

Ground Screw

CN42
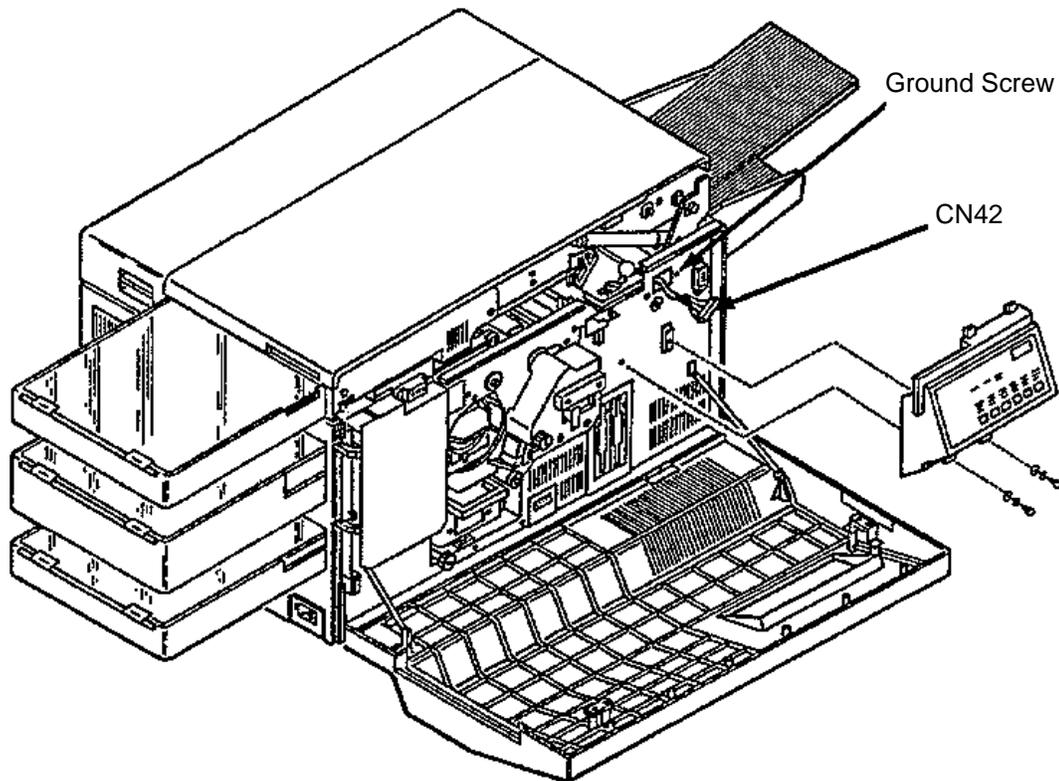
Counter Removal

To remove the counter:

1   Open the front cover.

2   Remove the screw holding the counter in place.

3   Pull out the counter.

4   Disconnect connector CN82.

CN82
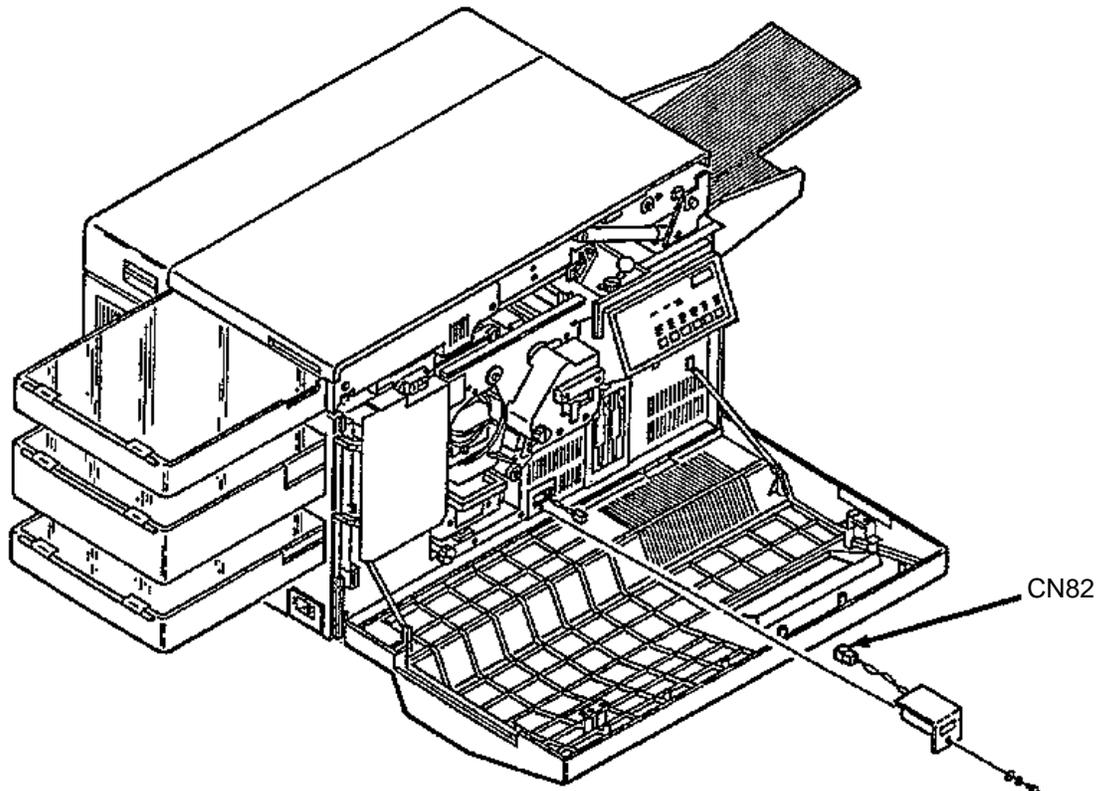
IGS Board Removal

To remove the IGS board:

1 Open the back cover.

2 Disconnect connectors CN31, CN32, CN33, and CN74.

3 For the hard drive option, disconnect the drive's data cable.

4 Push the two retaining clips away from the board.

5 Remove the IGS board.
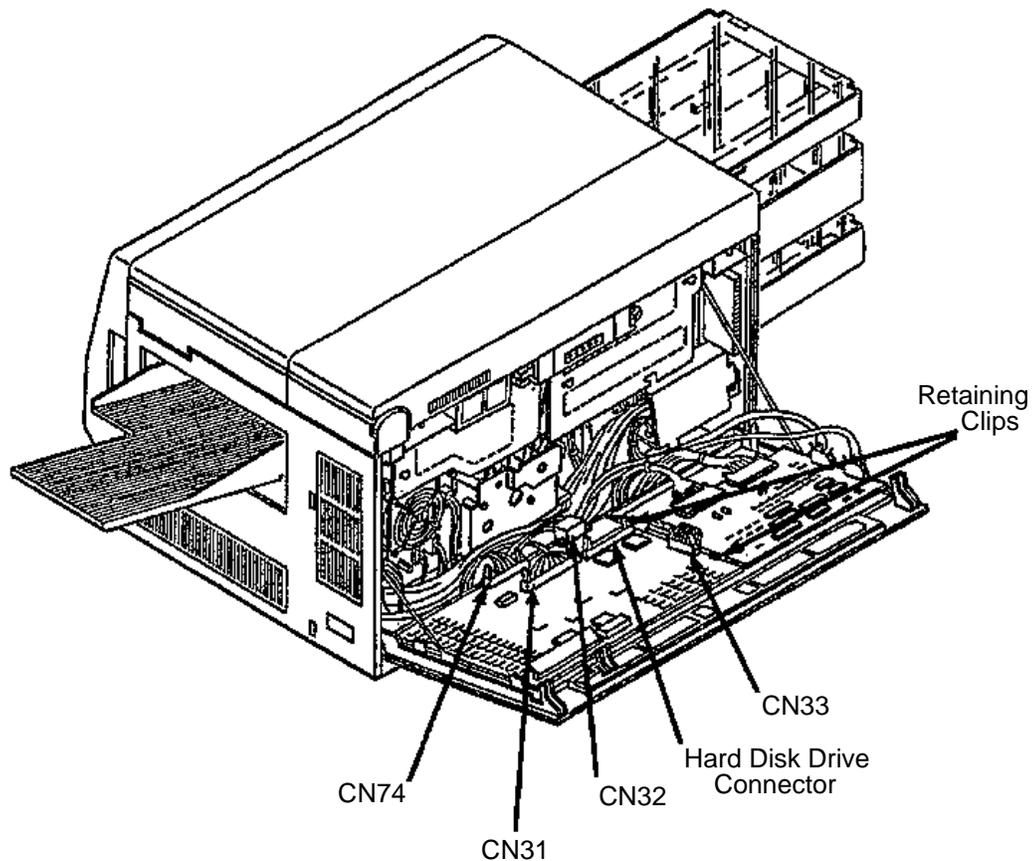
PCL Board Removal

To remove the PCL board:

1 Open the back cover.

2 Disconnect connectors CN33, CN37, CN40, CN41, and CN91.

3 **Duplex only:** also disconnect connector CN36.

4 Push the two retaining clips away from the board.

5 Remove the PCL board.

6 Change the settings of the DIP switches on the replacement PCL to match the switch settings on the original PCL.
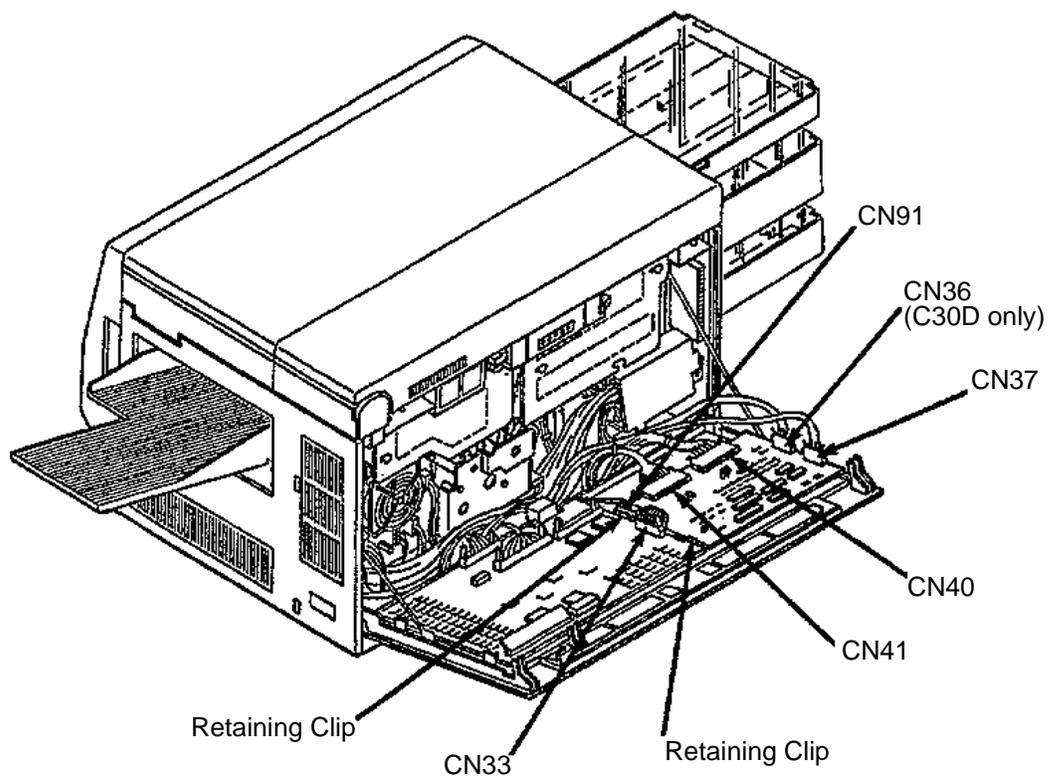
Printhead Assembly Removal

To remove the printhead assembly:

1 Open the front, top, and back covers.

2 Remove the photoconductor unit and place in its protective packaging.

3 Remove the cleaner unit.

4 Remove the fuser drive cover (three screws).

5 Remove the main drive cover (one screw).

6 Remove the gear stay cover (one screw).

7 Remove the gear stay (three screws).

8 Disconnect connectors CN27, CN30, and CN96 (see back detail).

9 Remove the two back screws holding the printhead assembly in place.

Fuser Drive
Cover

CN27

CN30

CN96

Mounting Screws

Gear Stay

Gear Stay Cover

Main Drive Cover
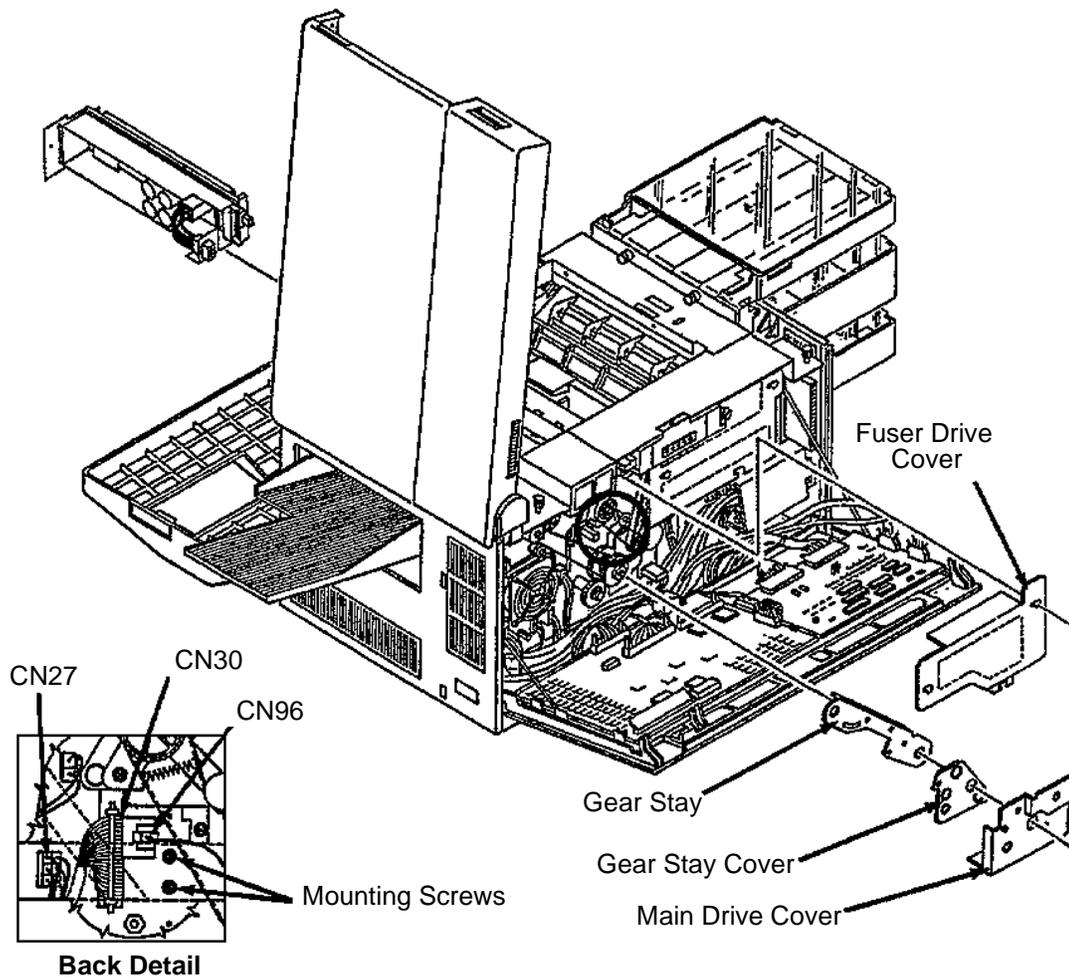
Back Detail

10 Remove the two front screws holding the printhead assembly in place.

11 Pull the printhead assembly from the front of the printer.

Replacement Note:

Do not change the DIP switch setting on the replacement printhead circuit board. These are set at the factory.

Front Detail   Mounting Screws
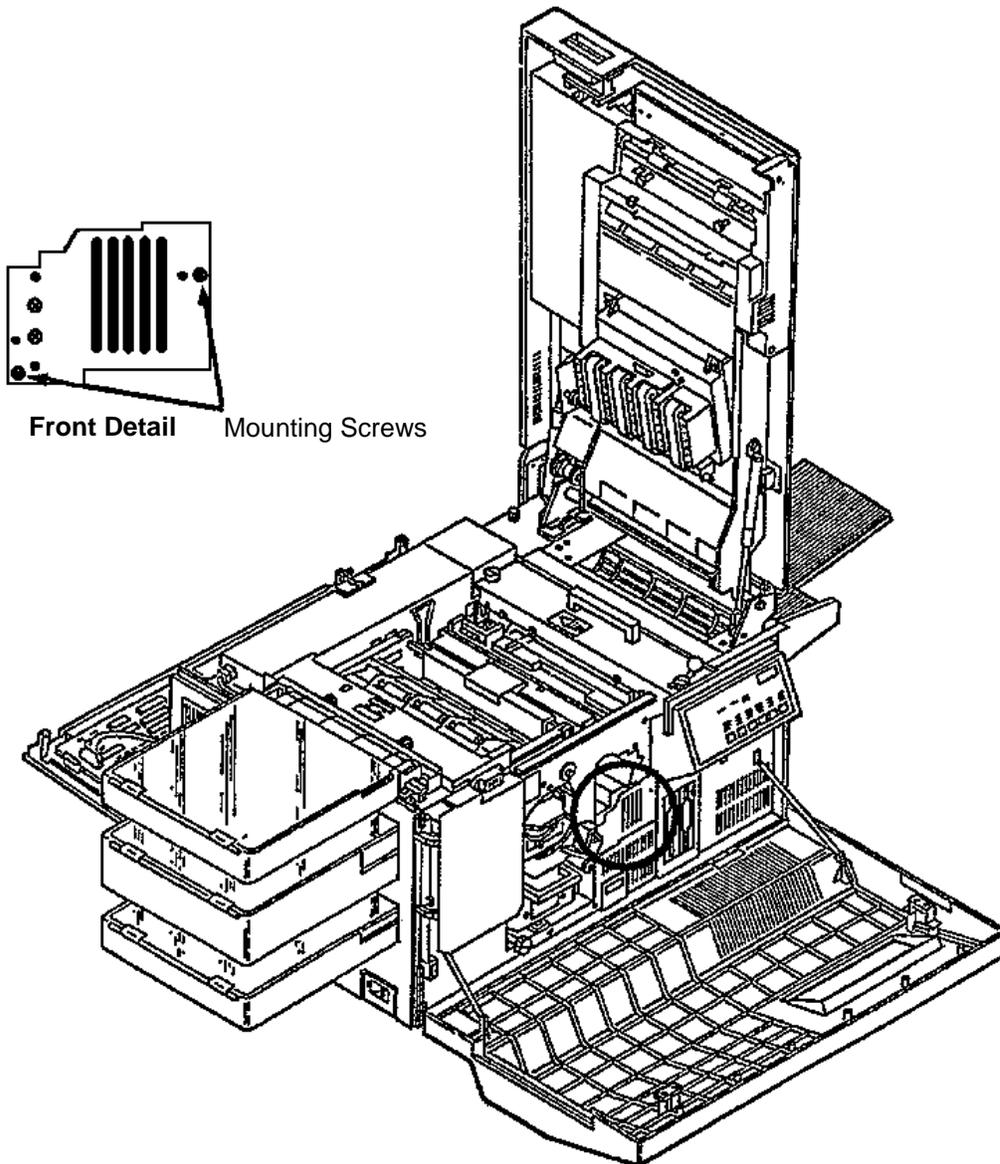
Disk Drive Housing Removal

To remove the disk drive housing:

1 Open the front and back covers.

2 Remove the diskette(s).

3 Disconnect CN77 and CN79.

4 For the hard drive option, disconnect the drive's data cable.

5 Loosen the thumbscrew on the back of the disk drive housing.

6 Remove the disk drive housing from the front of the printer. Be careful not to damage the cables on the sharp edges of the chassis.

Replacement Note:

For A drives, set the jumper on the drive circuit board to 0; for B drives, set the jumper to 1.

CN79

Hard Disk Drive
Connector

CN77

Thumbscrew

Back Detail
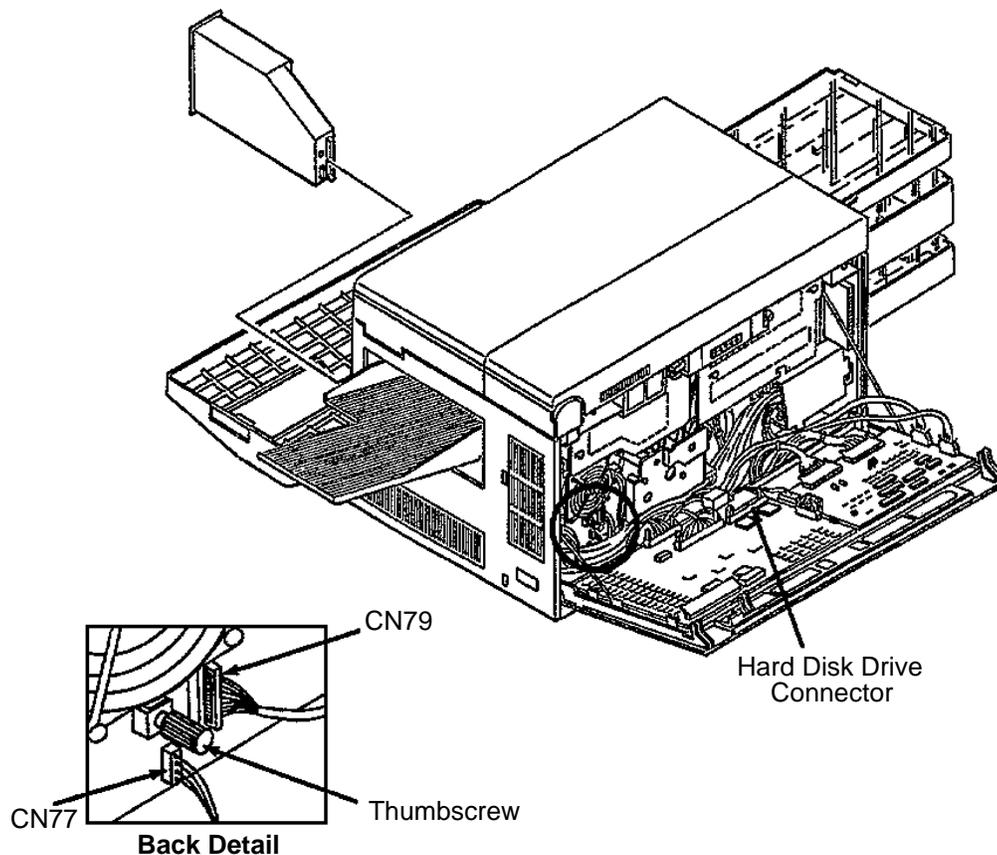
Cooling Fan Removal

To remove the cooling fan:

1   Open the back cover.

2   Remove the fuser drive cover (three screws).

3   Disconnect CN21.

4   Remove the cooling fan (four screws).

CN21

Cooling Fan Detail
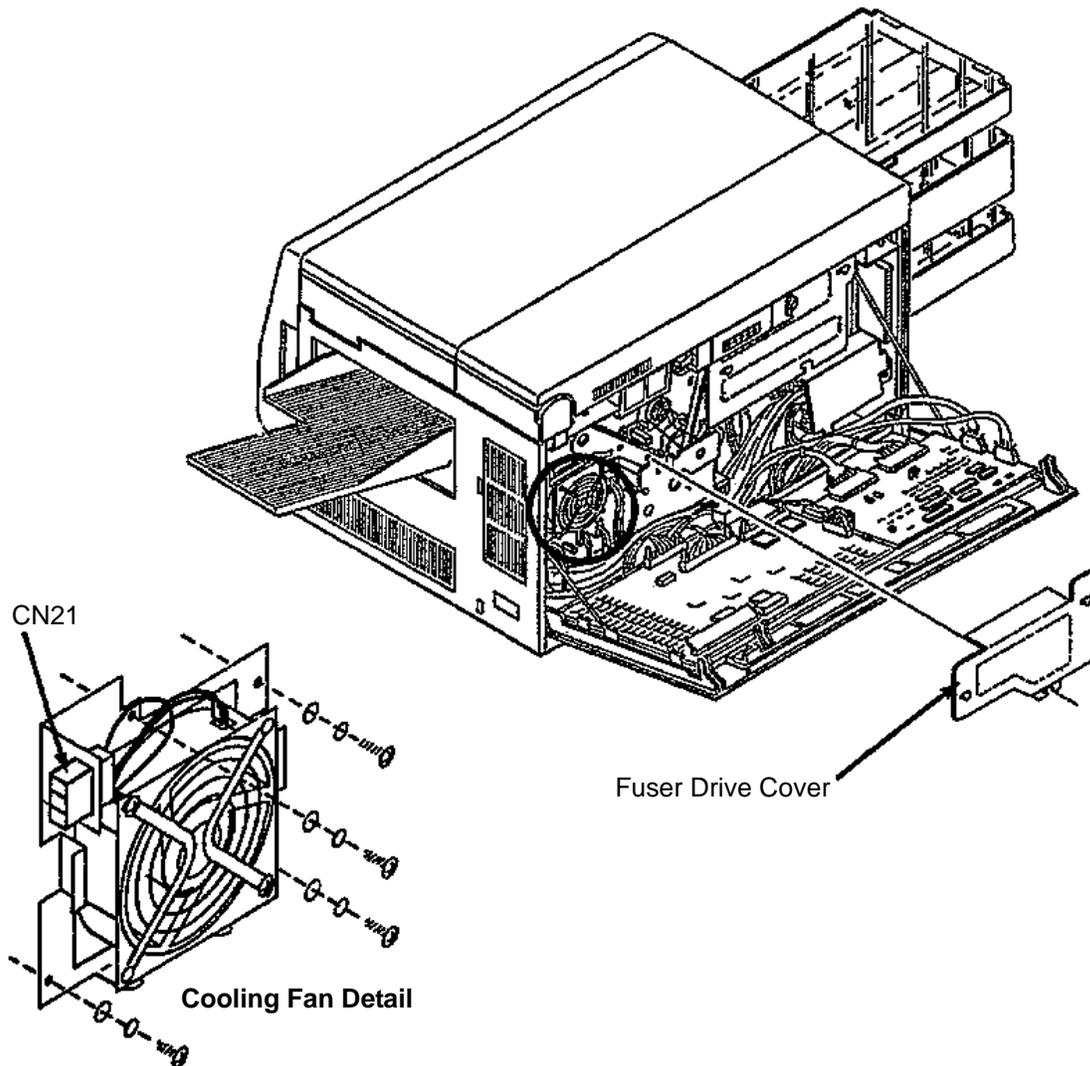
Fuser Drive Cover

Duplex Fan Removal

To remove the duplex fan:

1   Open the back and top covers.

2   Remove the fuser drive cover (three screws).

3   Remove the EMI grounding plate (if present) from the rear of the printer (four screws).

4   Remove the four screws holding the duplex fan in place.

5   Disconnect CN326.

6   Lift the duplex fan from the printer.

CN326

Fuser Drive Cover
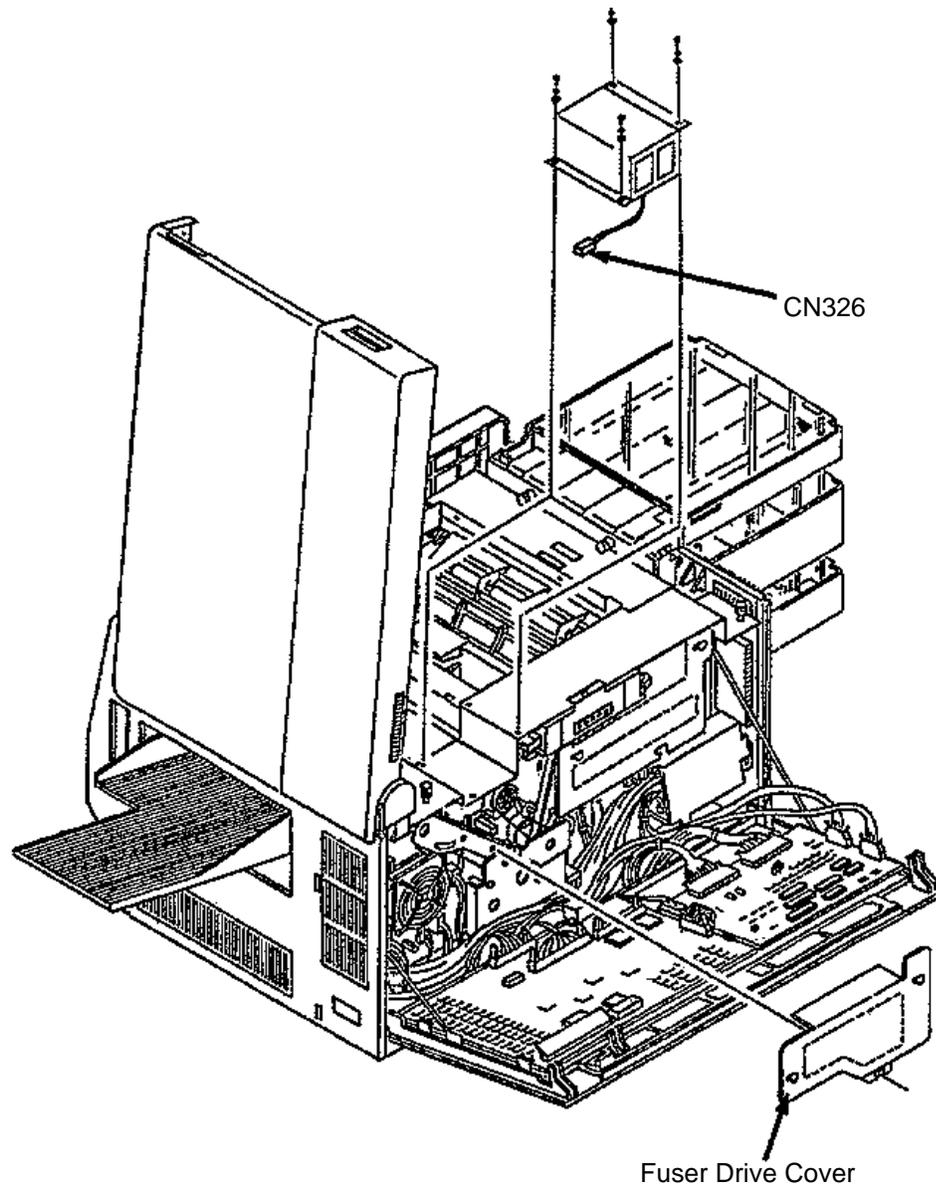
Toner Motor Removal

To remove the toner motor:

1   Open the back cover.

2   Disconnect CN18.

3   Remove the toner motor (three screws).

CN18

Toner Motor Detail
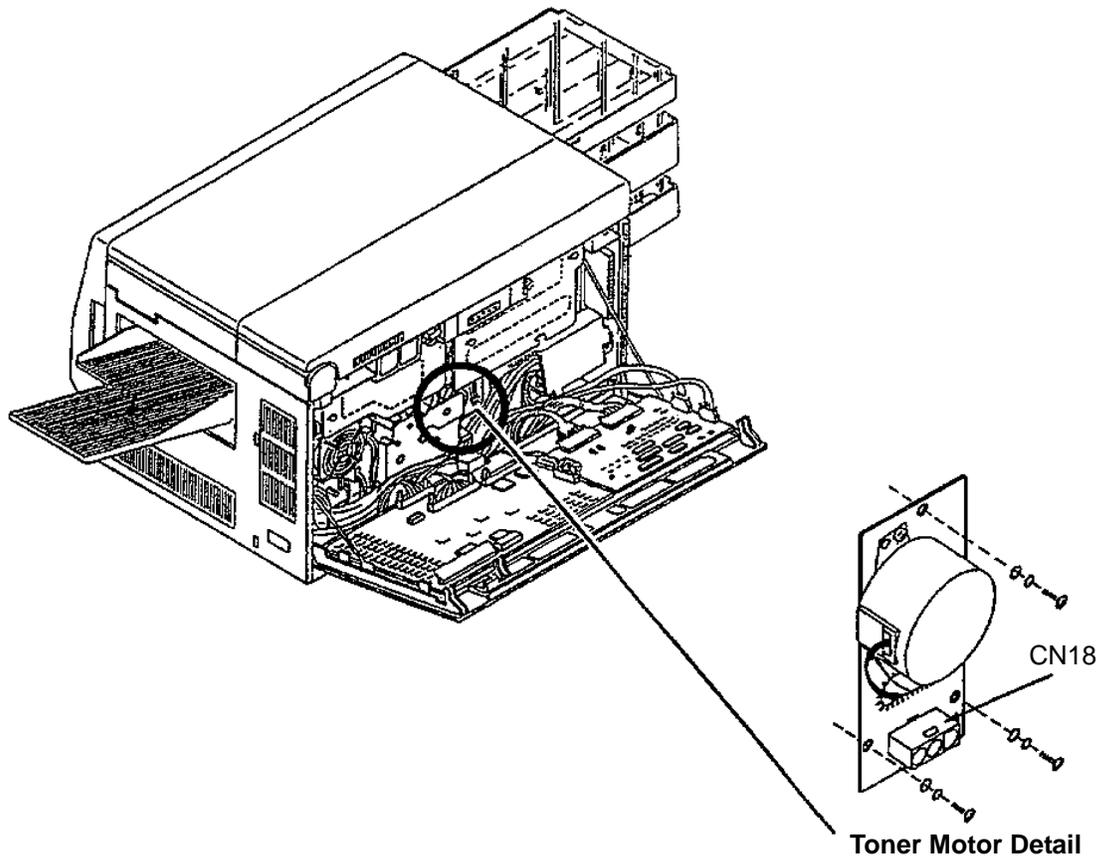
AC Power Supply Removal

To remove the AC power supply:

1 Open the front, back, and top covers.

2 **Duplex only:** Remove the duplex tray.

3 Remove the upper and lower paper cassettes.

4 Remove the left side cover (see page 7-8).

5 Remove the paper feed drive cover (three screws).

6 Remove the power control board cover (one screw).

7 Disconnect CN4 and CN70.

Paper Feed Drive Cover

Power Control
Board Cover

CN4

Power Control Board

CN70
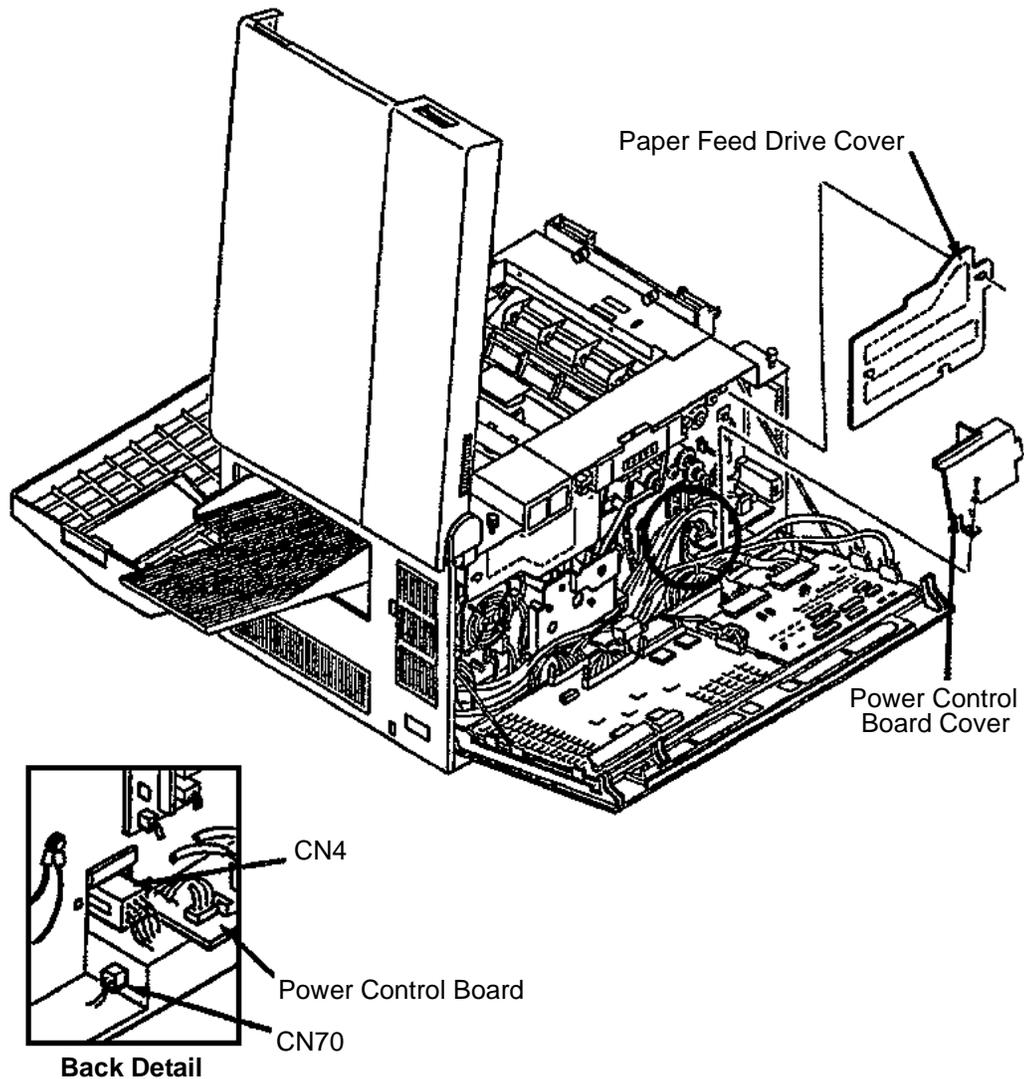
Back Detail

8 From the side of the printer, remove the three screws holding the AC power supply in place.

9 Slide the AC power supply out from the side of the printer.

Note: Make sure that strapping plug P1 is correctly configured and installed on connector J1. For jumper settings, see "Power Supply Strapping" on page 6-32.

Strapping
Plug
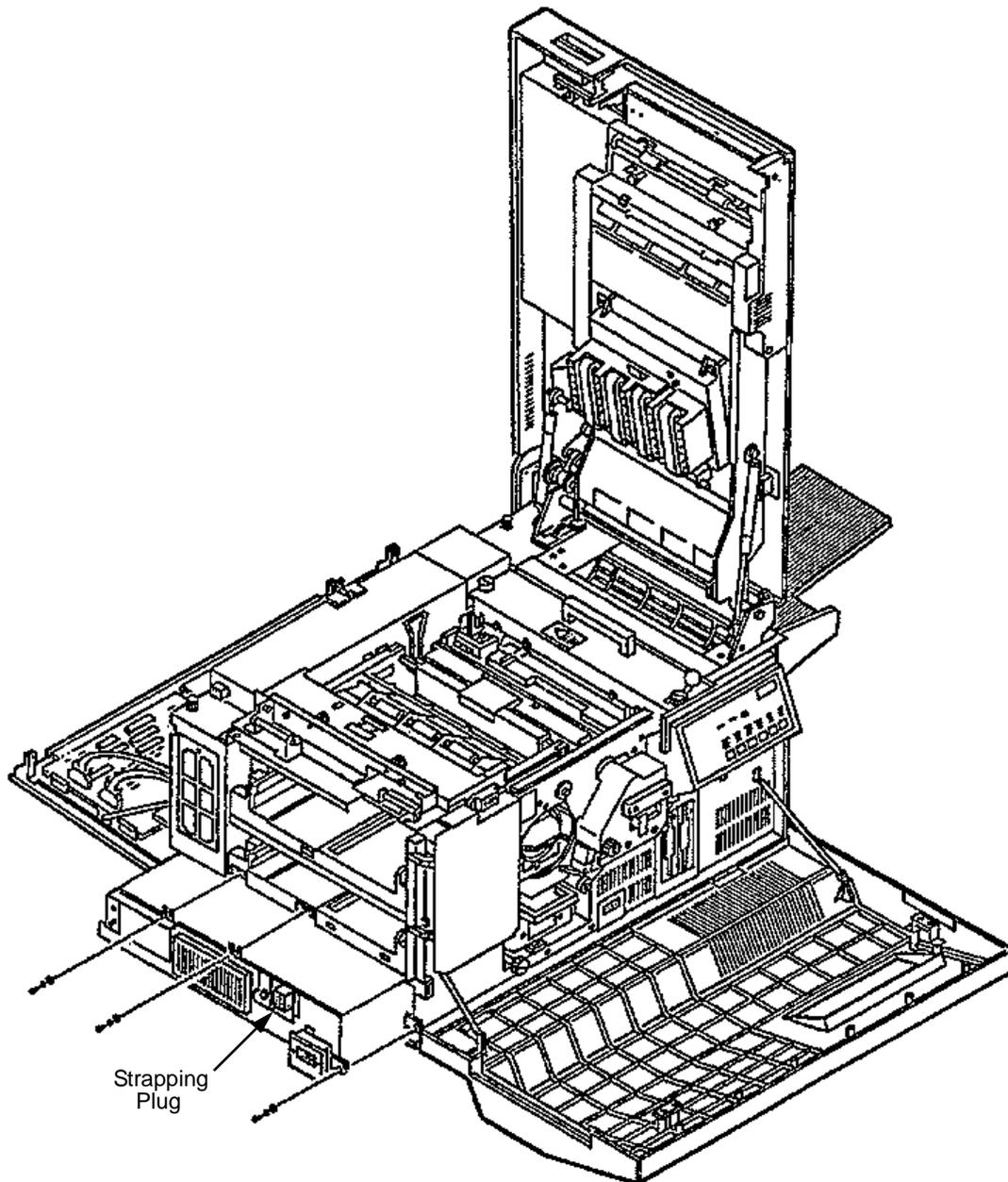
DC Power Supply Removal

To remove the DC power supply:

1 Open the front, top, and back covers.

2 Disconnect CN6, CN7, CN8, and CN330.

3 Remove the output tray.

4 Remove the right side cover (see page 7-9).

5 Remove the bracket for the output tray guide (two screws).

6 Remove the DC power supply (two screws).

Replacement Note:

When replacing the output tray bracket, make sure it is seated inside the DC power supply.

Bracket Screws

DC Power Supply Screws

Right Side Detail

CN330

CN6

CN7   CN8

Back Detail
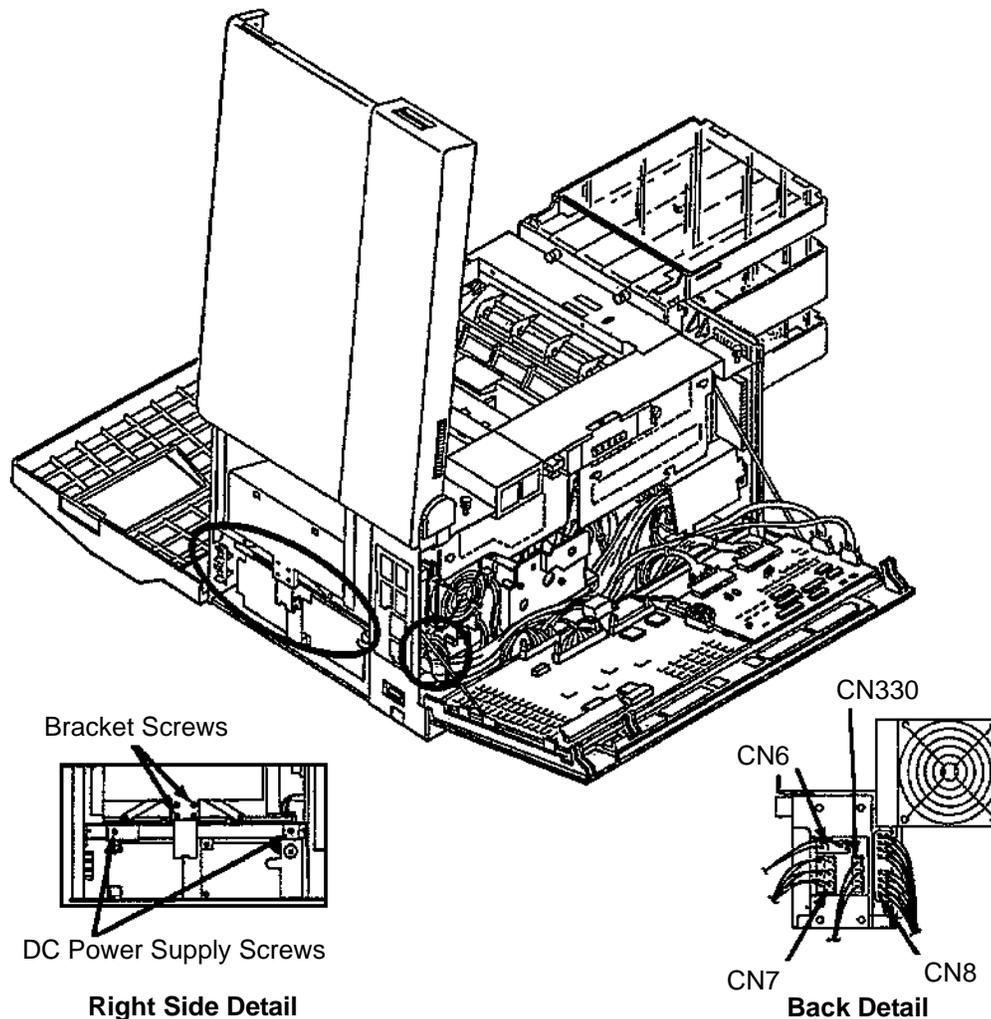
High Voltage Unit Removal

To remove the high voltage unit:

1 Open the top and back covers.

2 Remove the EMI grounding plate (if present) from the rear of the printer (four screws).

3 From the top, loosen the screw holding the high voltage unit in place.

4 Pull the high voltage unit out from the back of the printer.

5 Disconnect connectors CN23, CN24, CN85, and the two high voltage leads.

6 Remove the high voltage unit.

Photoconductor Seam Sensor Removal

To remove the photoconductor seam sensor:

1   Open the front, back, and top covers.

2   Remove the photoconductor and place in its protective packaging.

3   Remove the developer unit.

4   Remove the paper feed drive cover (three screws).

5   Remove the bracket holding CN64 in place (one screw).

6   Remove the screw holding the seam sensor bracket in place. It is situated under the bracket for CN64.

Paper Feed Drive Cover

CN64 Bracket

Mounting Screw
(under CN64 bracket)

Back Detail
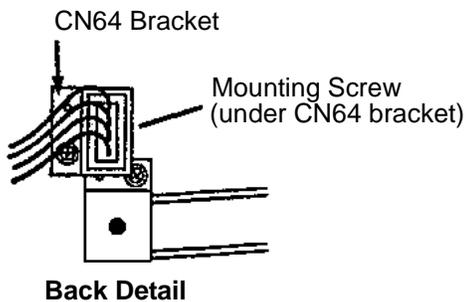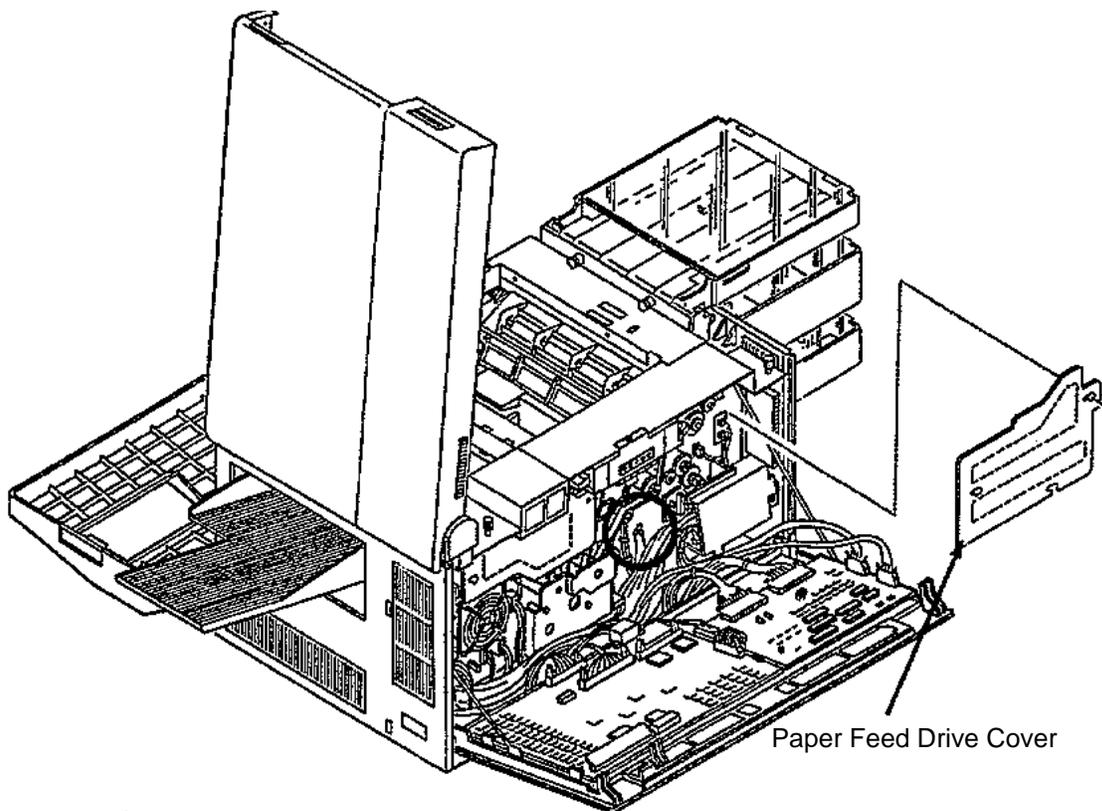
Photoconductor Seam Sensor Removal

7   From inside the empty photoconductor cavity, disconnect connector CN63.

8   Lift the photoconductor seam sensor and bracket up out of the printer.

Note: Use caution not to bend the bracket.
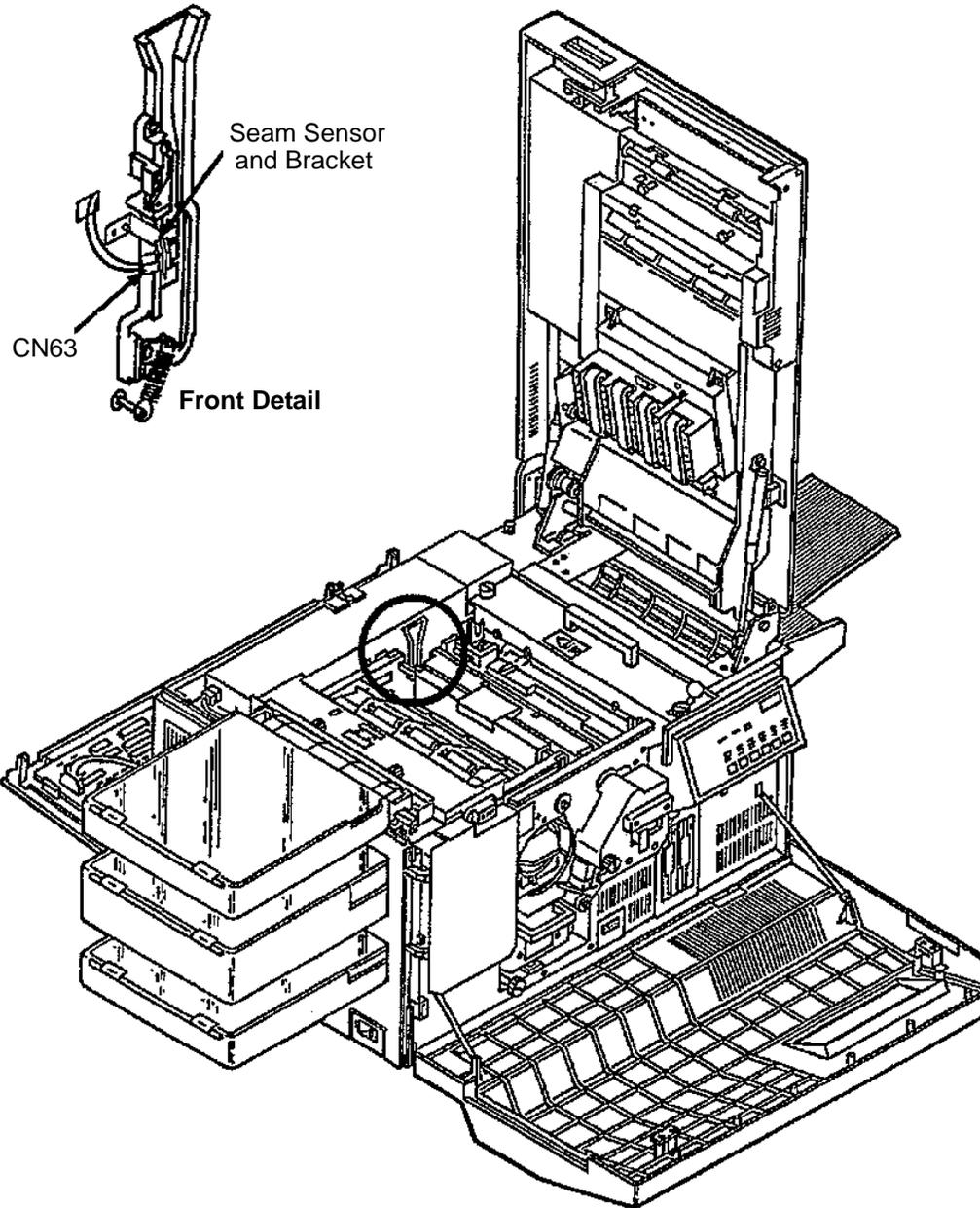
Photoconductor Rear Guide Rail Removal

To remove the photoconductor rear guide rail:

1 Open the front, back, and top covers.

2 Remove the photoconductor and place in its protective packaging.

3 Remove the developer unit.

4 Remove the paper feed drive cover (three screws).

5 Remove the photoconductor seam sensor (see illustration on).

6 Remove the spring at the base of the guide rail. To do this, gently pull the spring forward off its post.

7 Disconnect CN64.

8 Remove the ground screw.

9 Remove CN64 from its bracket.

Paper Feed Drive Cover

Ground Screw

CN64

Back Detail

10 From inside the photoconductor cavity, remove the two screws holding the guide rail in place.

11 Push CN64 and the ground wire through the photoconductor cavity to the front of the printer.

12 Lift the photoconductor guide rail from the printer.

Spring

Front Detail
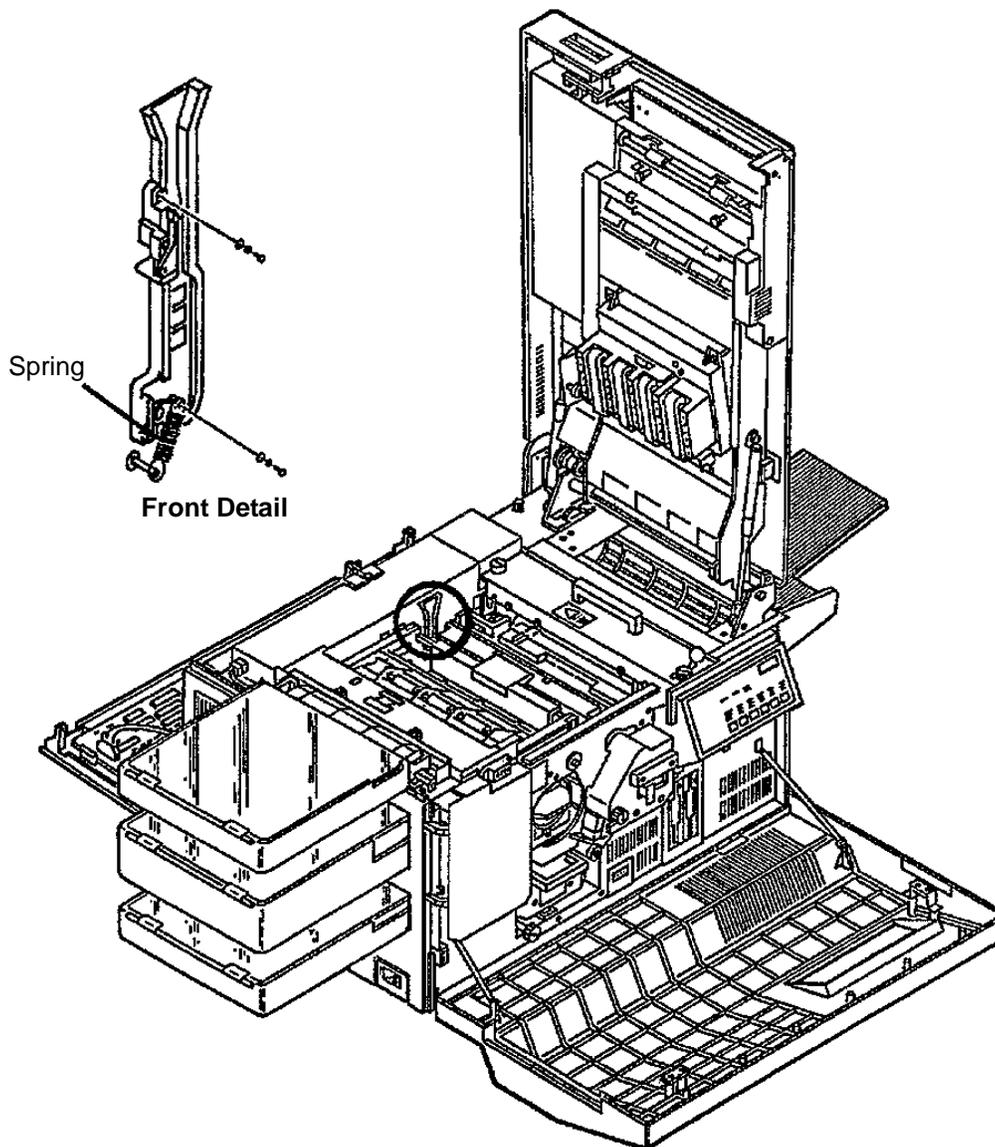
Signal Interface Board Removal

To remove the signal interface board:

1 Disconnect all external cables and attachments.

2 Open the back cover.

3 Remove the lower back cover (see page 7-7).

4 Disconnect CN74 and P333.

5 Remove the signal interface board (two screws).

Replacement Note:

Replicate the DIP switch settings and jumper locations on any new signal interface board.

Jumpers

DIP Switches

CN74
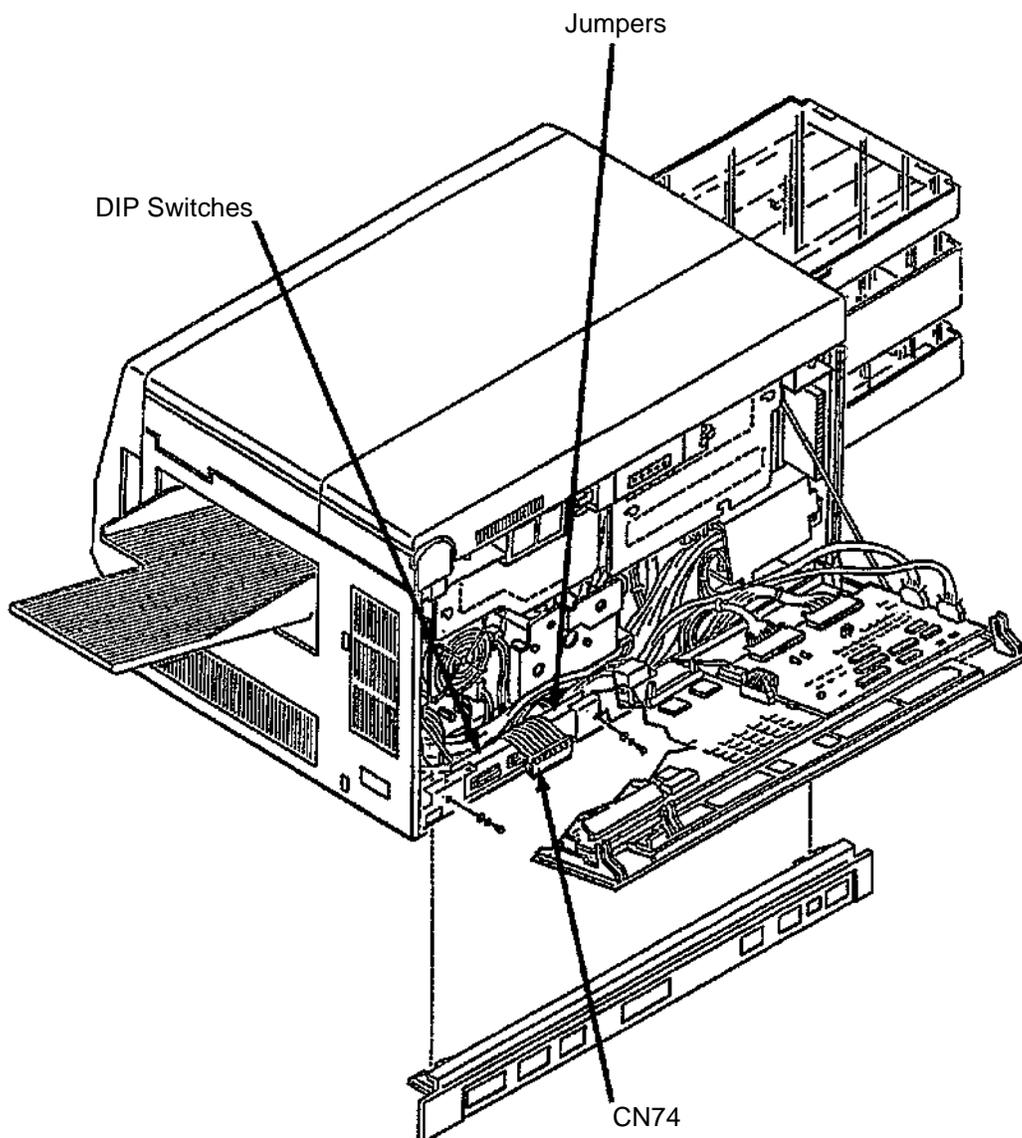
Power Control Board Removal

To remove the power control board:

1 Open the back cover.

2 Remove the paper feed drive cover (three screws).

3 Remove the power control board cover (one screw).

4 Disconnect CN9, CN10, CN11, CN12, CN13, and CN14.

5 Remove power control board (two screws).

Replacement Note:

Be sure that the back of the board is mounted properly in the frame slots.

Power Control
Board Cover

Paper Feed Drive Cover

Mounting Slots

CN14

CN13

CN9

CN11

CN12

CN10

Power Control Board Detail
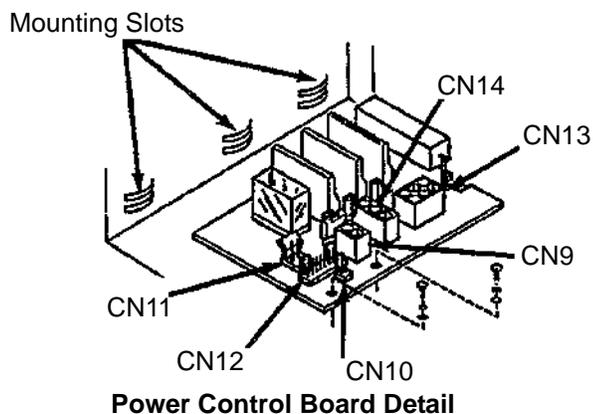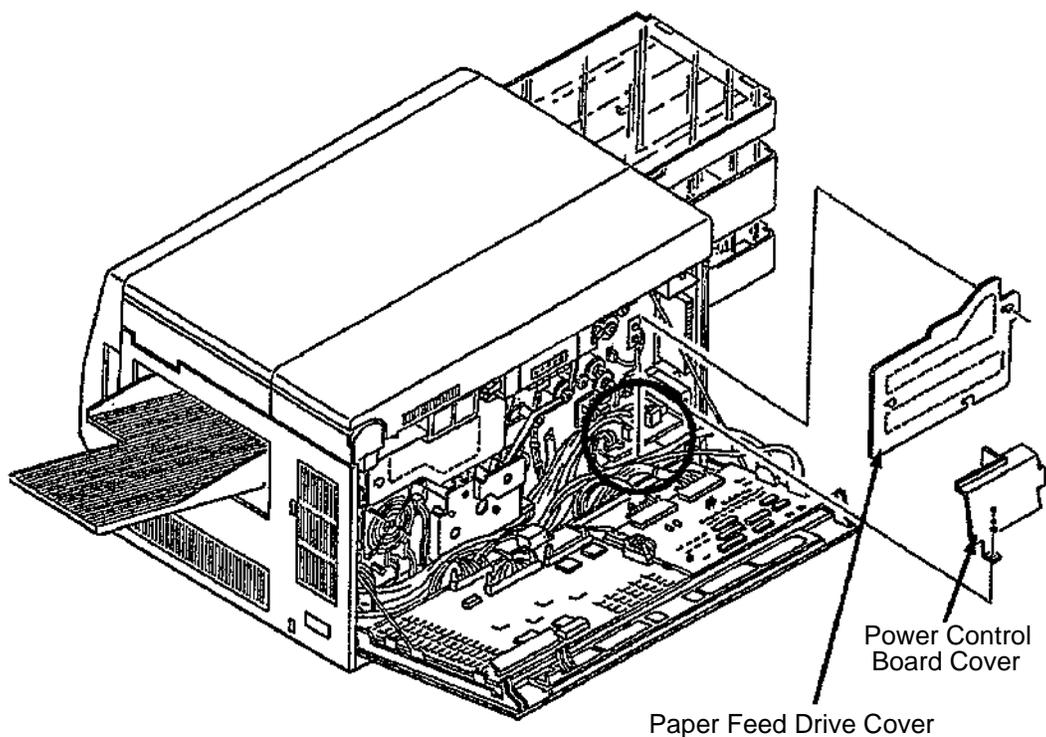
Jogging Motor Control Board Removal

To remove the jogging motor control board:

1 Open the back cover.

2 Remove the paper feed drive cover (three screws).

3 Remove the power control board cover (one screw).

4 Disconnect CN100, CN101, and CN102.

5 Disengage the board. To do this, pinch the two standoffs on the board.

6 Lift the board from its mounting bracket.

Power Control
Board Cover

Paper Feed Drive Cover

Standoffs

CN101

CN100

CN102   Mounting Bracket
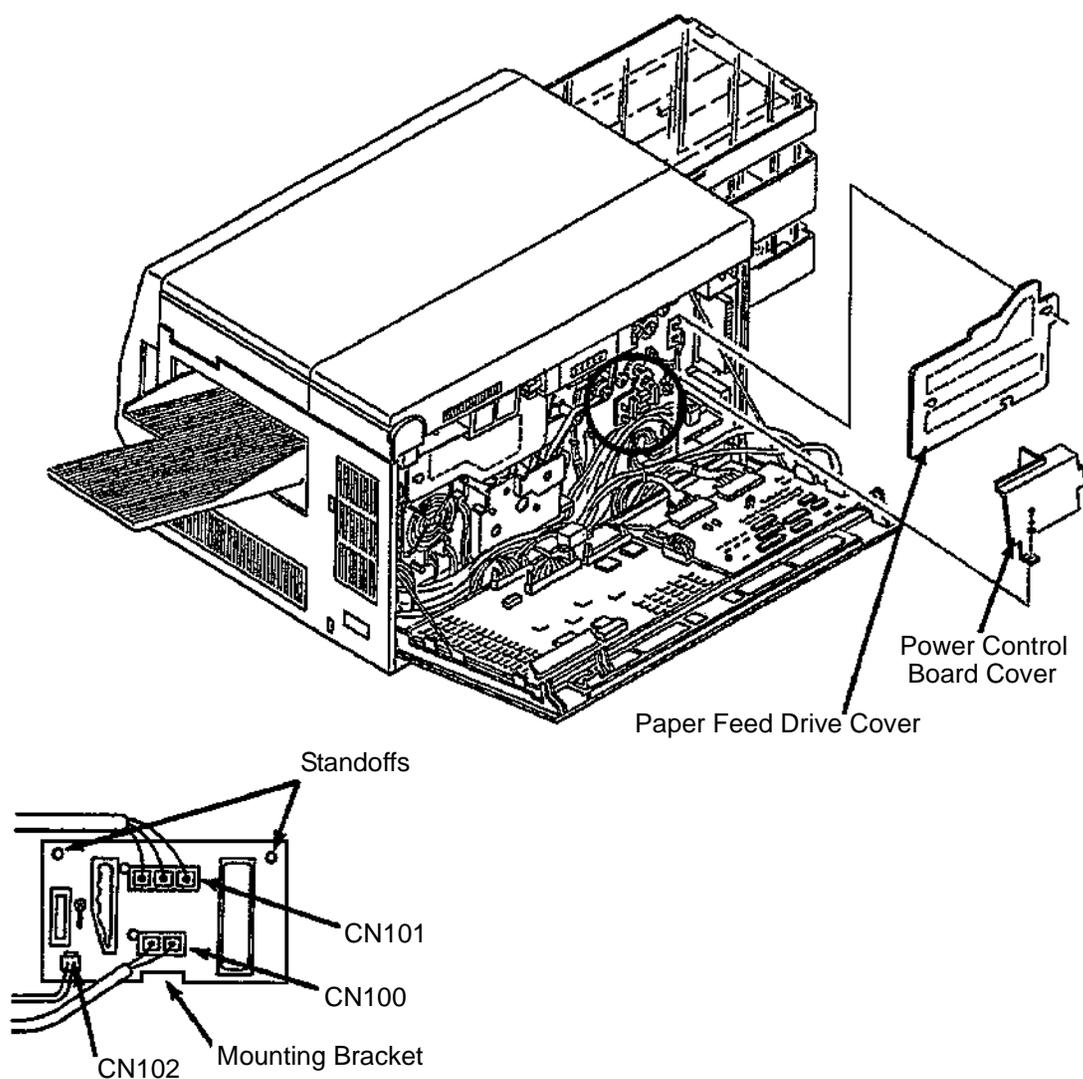
Jogging Motor Power Control Board Detail

Upper or Lower Paper Size Sensor Removal

To remove the upper or lower paper size sensor:

1 **Duplex only:** Remove the duplex tray.

2 Remove the upper and lower paper cassettes.

3 Using a small screwdriver, pry up the paper size sensor. Turn the sensor counterclockwise and lift up.

4 For the upper paper size sensor, disconnect CN45 and CN46.

5 For the lower paper size sensor, disconnect CN43, CN47, and CN48.

Note
Be careful not to damage the cables when disconnecting

Upper Paper
Size Sensor

Lower Paper
Size Sensor

CN46

Pry Slot

CN45

Upper Paper Size Sensor Detail

CN48

CN43

Pry Slot

CN47
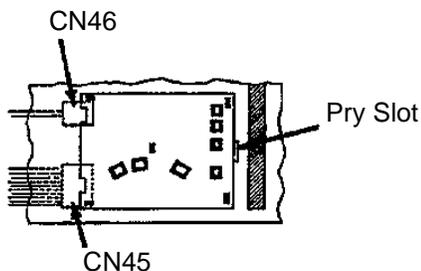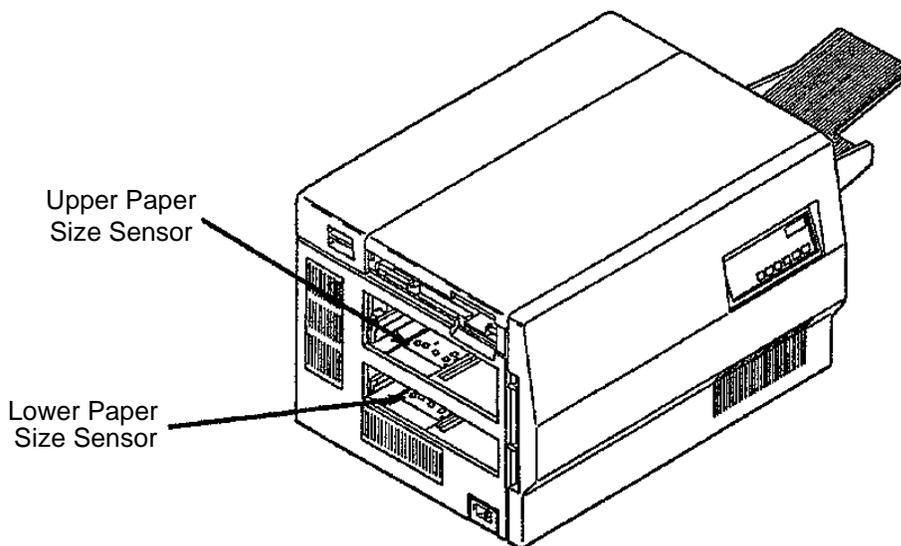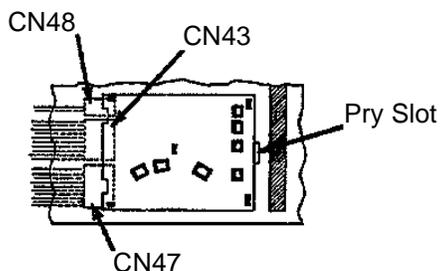
Lower Paper Size Sensor Detail

Upper Cassette Mount Removal

To remove the upper cassette mount:

1 Open the front, back, and top covers.

2 **Duplex only:** Remove the duplex tray.

3 Remove the upper and lower paper cassettes.

4 Remove the left side cover (see page 7-8).

5 Remove the paper feed drive cover (three screws).

6 Remove the power control board cover (one screw).

7 From the back, remove the two screws holding the upper cassette mount in place.

8 Loosen the CN62 jack and pull it to the back of the printer.

9 Disconnect CN62.

Mounting Screws

CN62

Back Detail

Power Control Board Cover

Paper Feed Drive Cover
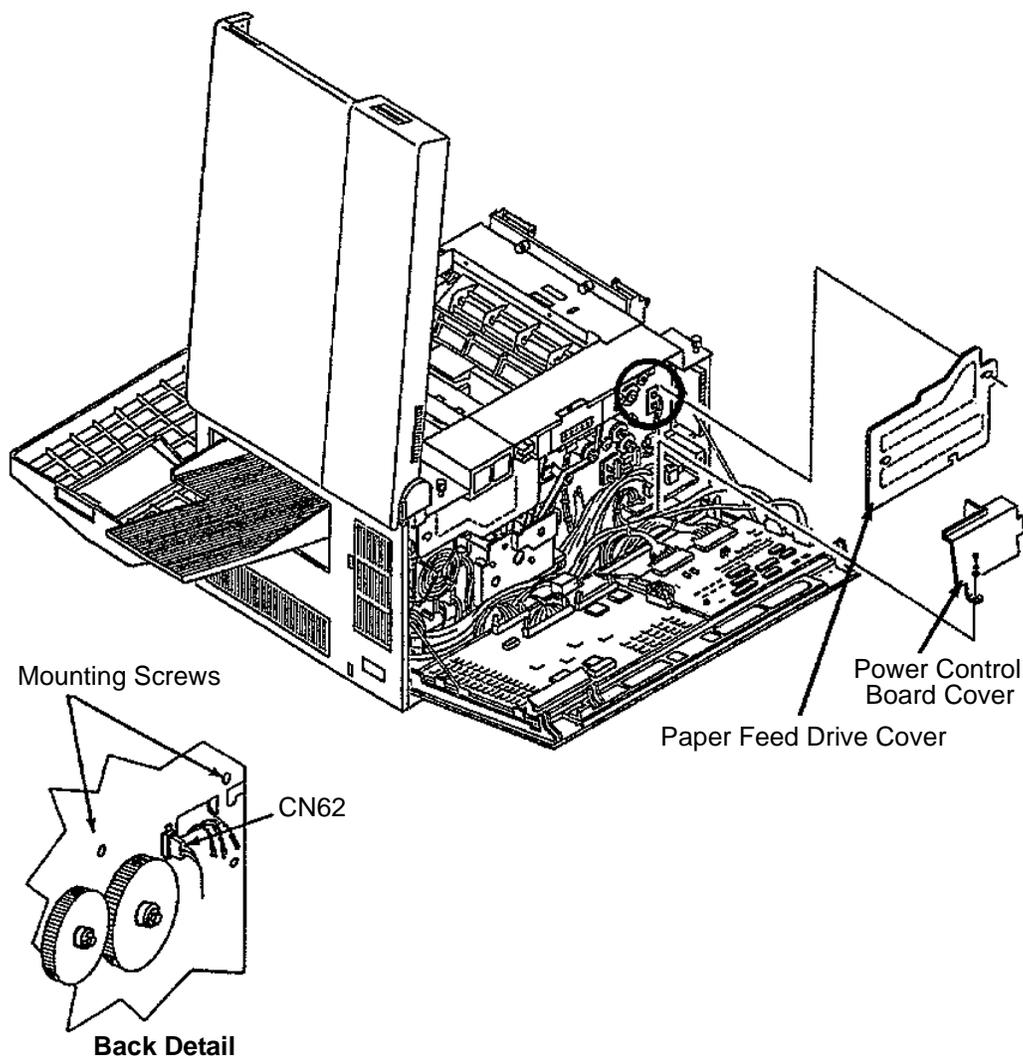
Upper Cassette Mount Removal

10 Remove the upper paper size sensor (see).

11 Remove the cassette release cover (two screws).

12 Remove the plastic guide on the vertical edge of the printer. Depress the tabs visible through the cassette housing. Gently turn the guide and lift from the printer.

Upper Paper Size Sensor

Cassette Release Cover
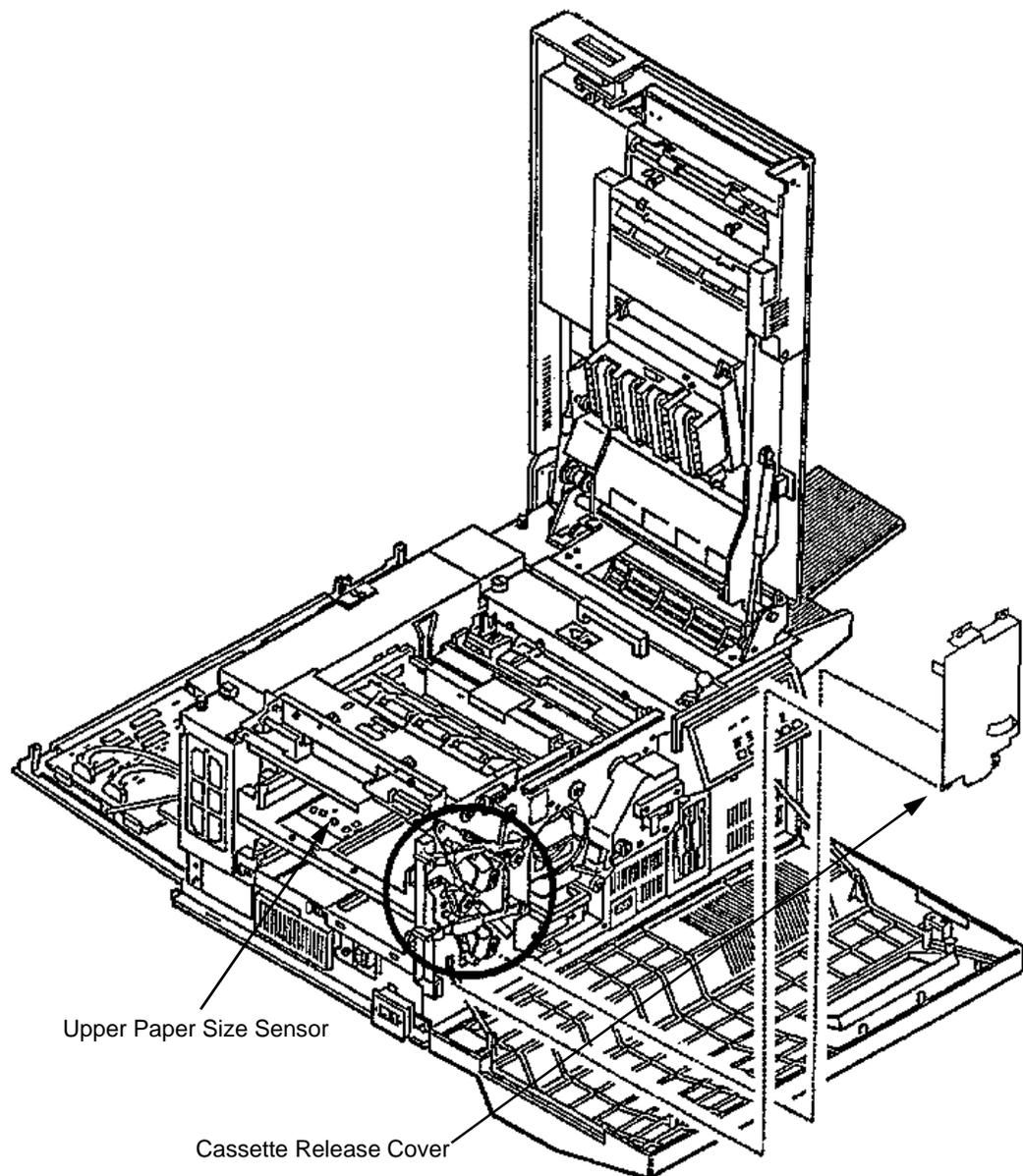
13 For the tray release mechanisms:

- Remove the upper and lower cassette release levers (one spring and C-clip each).
- Set the paper tension levers to their minimum (–) position.
- Carefully release the cable tension springs from their cables (only included on more recent versions of the printer); remove the springs and cables.
- Remove the upper and lower latches (one spring and C-clip each).
- Remove the upper and lower cams (one screw each).
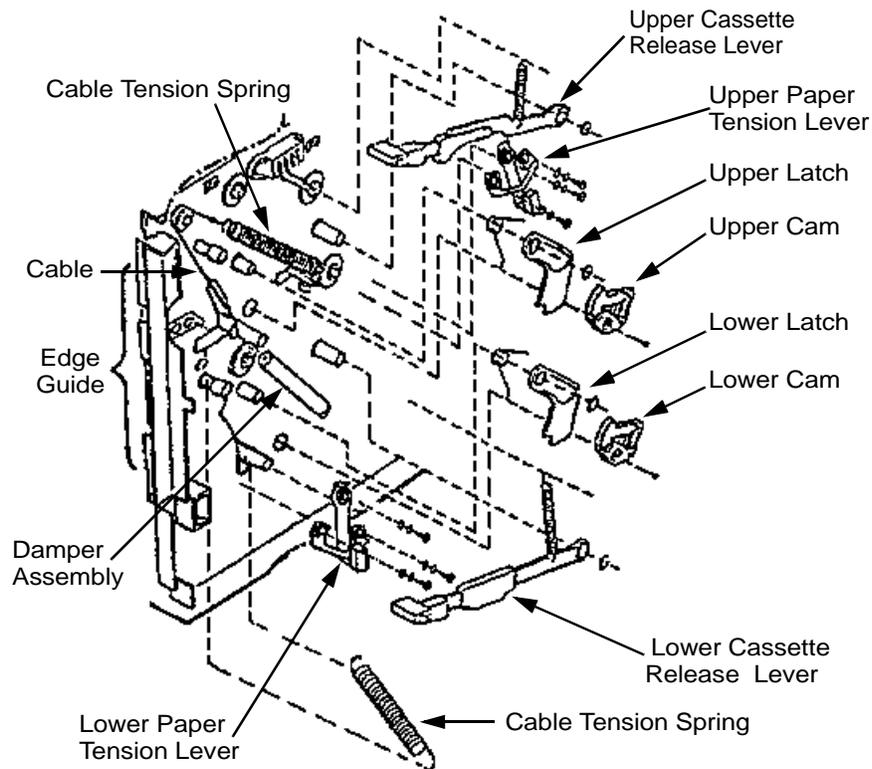
14 Disengage the top of the damper assembly. Push it to the right out of the way.

Upper Cassette Mount Removal

15 Remove the lower bracket (four screws; two front and two back).

16 Remove the tray (four screws; two front and two back).

17 Remove the upper tray lift arm (two screws with two plastic retainers).

18 Remove the upper bracket (four screws; two front and two back).

19 Remove the screws holding the upper cassette mount in place (two front and two side).

20 Pull the upper cassette mount from its front and back mounting pins.

21 Rotate the upper cassette mount upwards and out of the printer.

Paper Lift Arm

Retainers

Cassette Mount Detail

Mounting Screws

Upper Bracket

Upper Cassette Mount

Tray

Lower Bracket

Left Side Detail

Upper Bracket

Upper Cassette Mount

Tray

Lower Bracket

Front Mounting Screw Detail

Upper Bracket

Upper Cassette Mount

Tray

Lower Bracket

Back Mounting Screw Detail
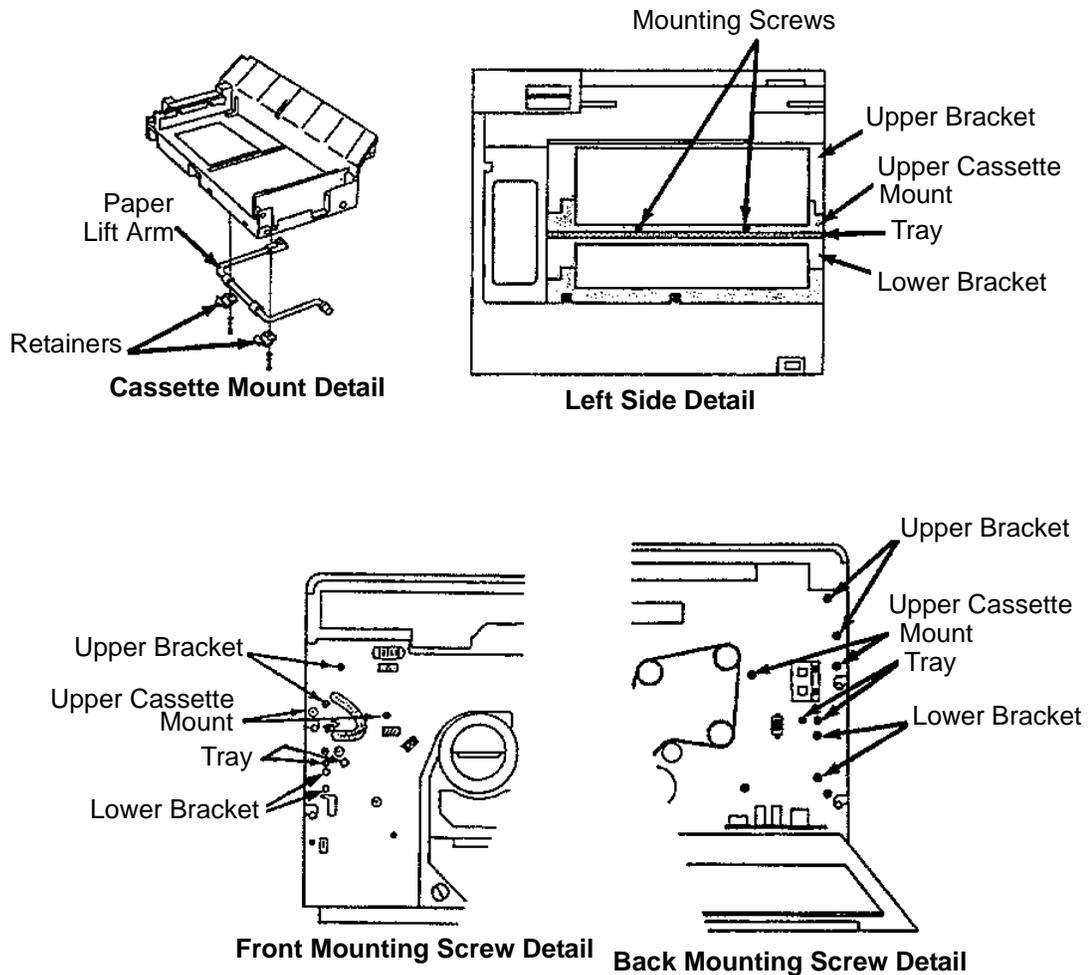
Lower Cassette Mount Removal

To remove the lower cassette mount:

1 Open the front, back, and top covers.

2 **Duplex only:** Remove the duplex tray.

3 Remove the upper and lower paper cassettes.

4 Remove the left side cover (see page 7-8).

5 Remove the paper feed drive cover (three screws).

6 Remove the power control board cover (one screw).

7 Remove the power control board (see page 7-38).

8 From the back, remove the two screws holding the lower cassette mount in place.

Power Control
Board Cover

Paper Feed Drive Cover

Power Control Board

Mounting Screws

Back Detail
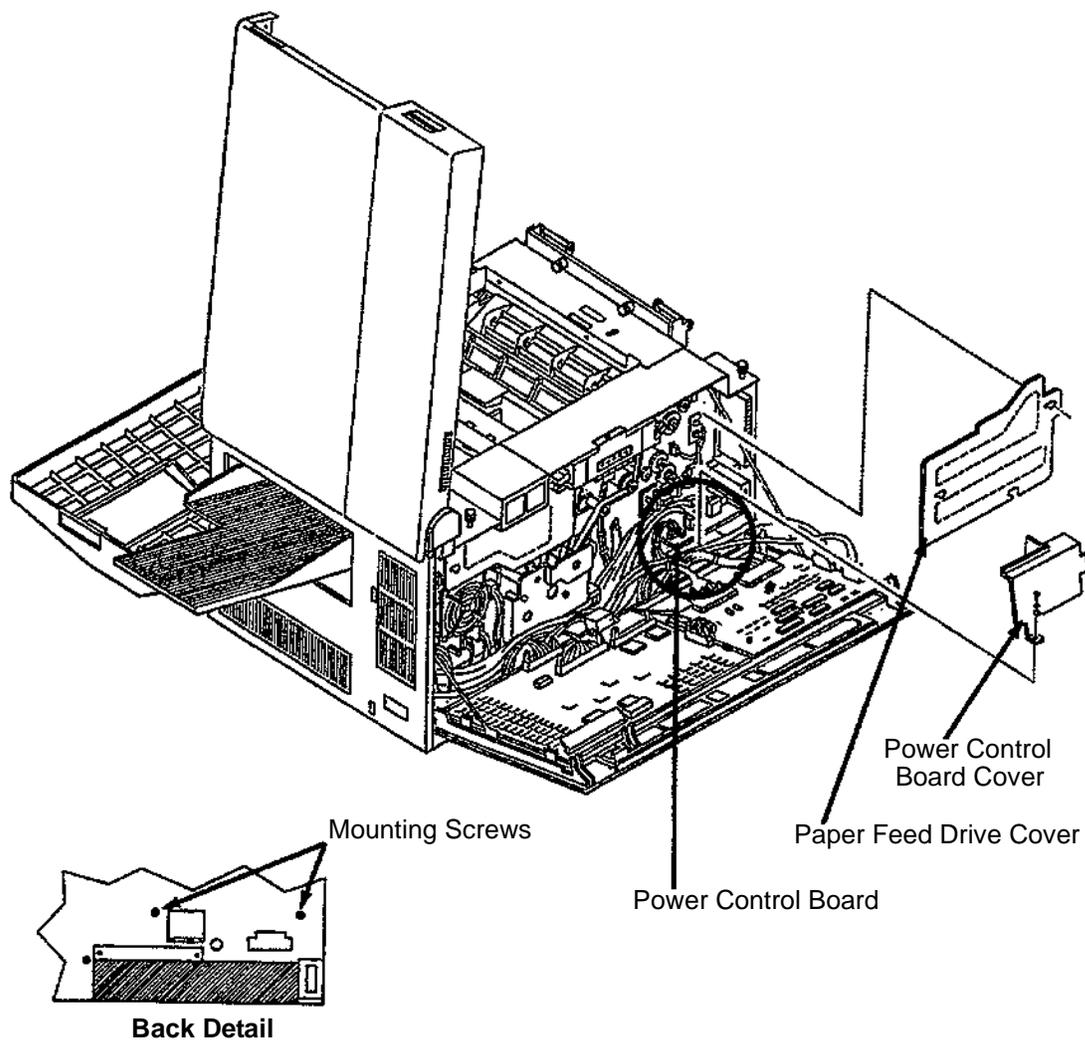
Lower Cassette Mount Removal

9 Remove the lower paper size sensor (see).

10 Remove the cassette release cover (two screws).

11 Remove the plastic guide on the vertical edge of the printer. Depress the tabs visible through the cassette housing. Gently turn the guide and lift it from the printer.

Lower Paper Size Sensor

Cassette Release Cover
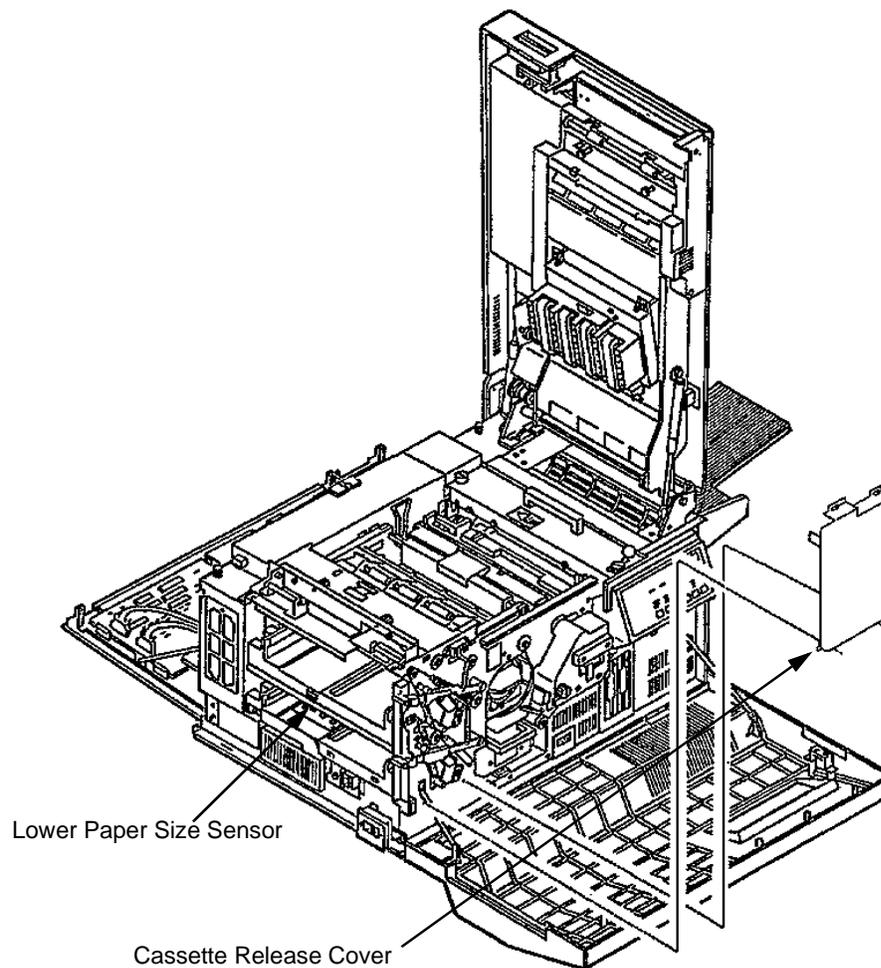
12 For the lower tray release:

- Remove the lower cassette release lever (one spring and C-clip).
- Set the lower paper tension lever to its minimum (–) position.
- Carefully release the cable tension spring from its cable (only on the most recent versions of the printer); remove the spring and cable.
- Remove the lower latch (one spring and C-clip).
- Remove the lower cam (one screw).
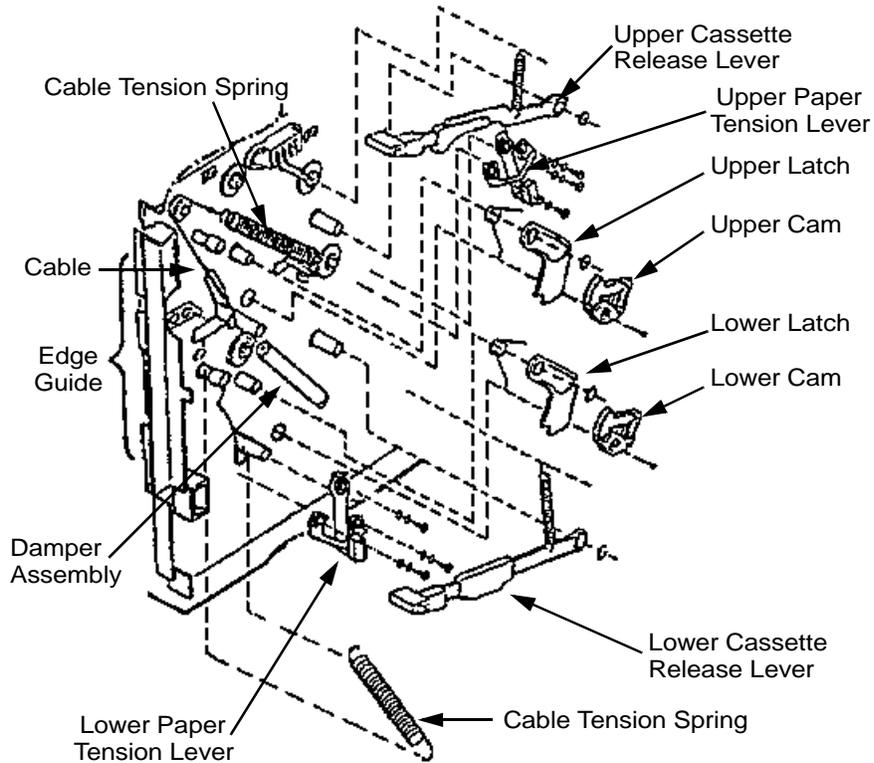
Lower Cassette Mount Removal

13 Remove the lower bracket (four screws; two front and two back).

14 Remove the tray (four screws, two front and two back)

15 Remove the AC power supply (see).

16 Remove the lower tray lift arm (two screws with two plastic retainers).

17 Remove the screws holding the lower cassette mount in place (two front and two side).

18 Pull the lower cassette mount from its front and back mounting pins.

19 Rotate the lower cassette mount upwards and out of the printer.

Paper
Lift Arm

Retainers

Cassette Mount Detail

Tray

Lower Bracket

Lower Cassette
Mount

Mounting Screws

Left Side Detail

Tray

Lower Bracket

Lower Cassette
Mount

Front Mounting Screw Detail

Tray

Lower Bracket

Lower Cassette
Mount

Back Mounting Screw Detail
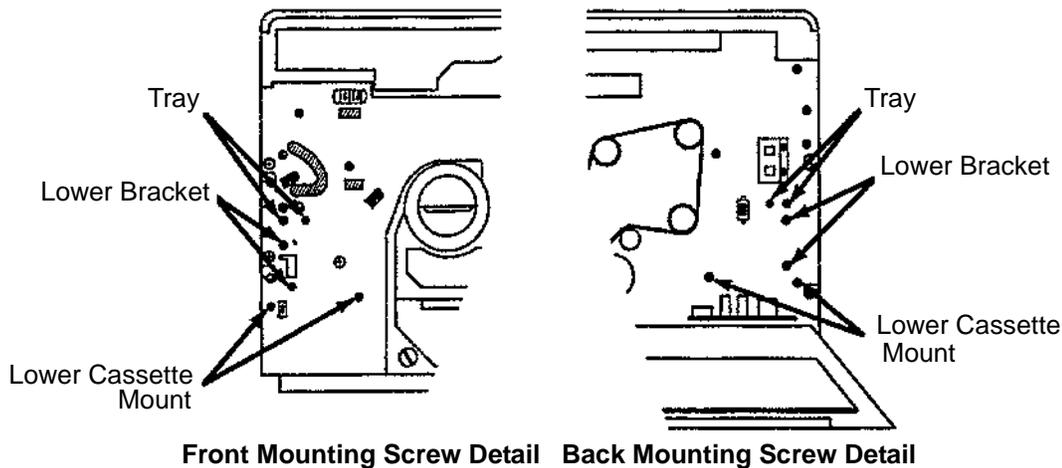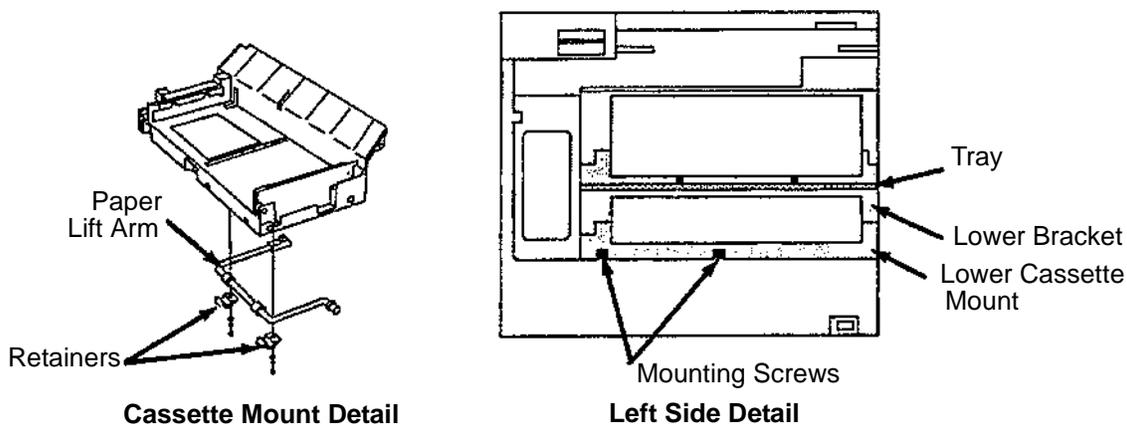
Upper Paper Guide Removal

To remove the upper paper guide:

1   Open the front, back, and top covers.

2   Remove the paper feed drive cover (three screws).

3   Disconnect the transfer corona high voltage lead from the HVPS.

4   Disconnect the ground screw for the transfer corona.

Paper Feed Drive Cover

High Voltage Lead

Ground Screw

Mounting Screw
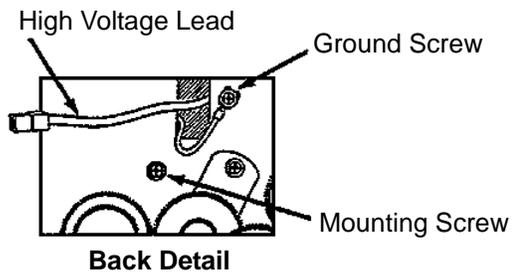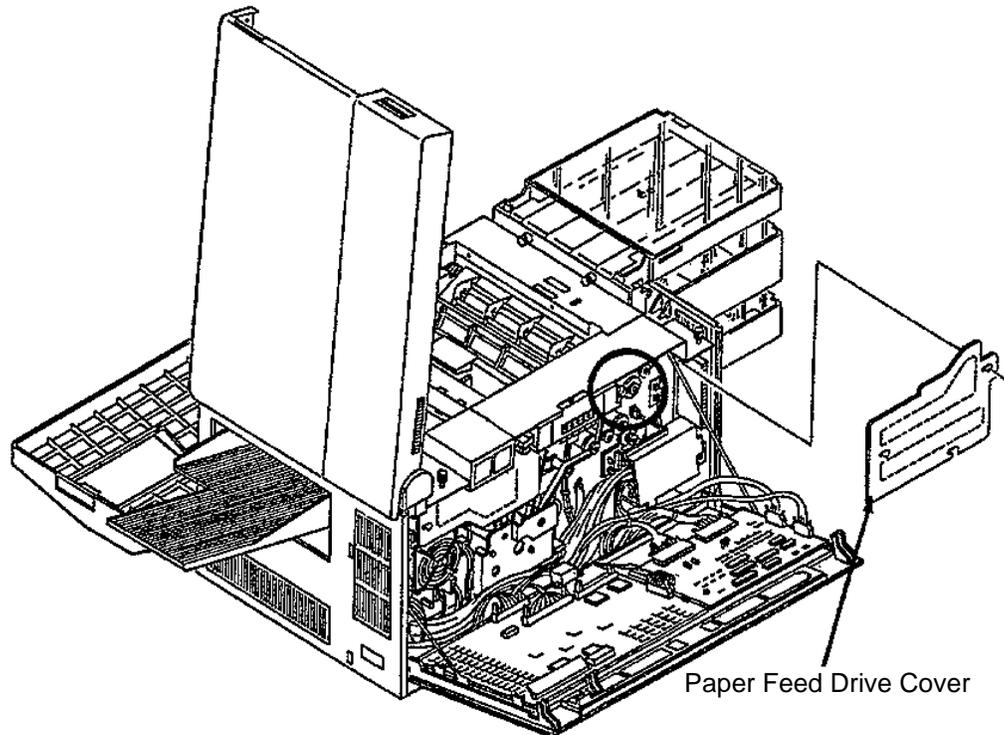
Back Detail

5 Remove the cassette release cover (two screws).

6 Raise the upper paper guide.

7 Remove the back screw holding the upper paper guide in place.

8 Remove the front screw holding the upper paper guide in place.

9 Release the two springs at the base of the upper paper guide.

10 Lift the upper paper guide out of the printer.

Mounting Screw

Front Detail

Springs

Cassette Release Cover
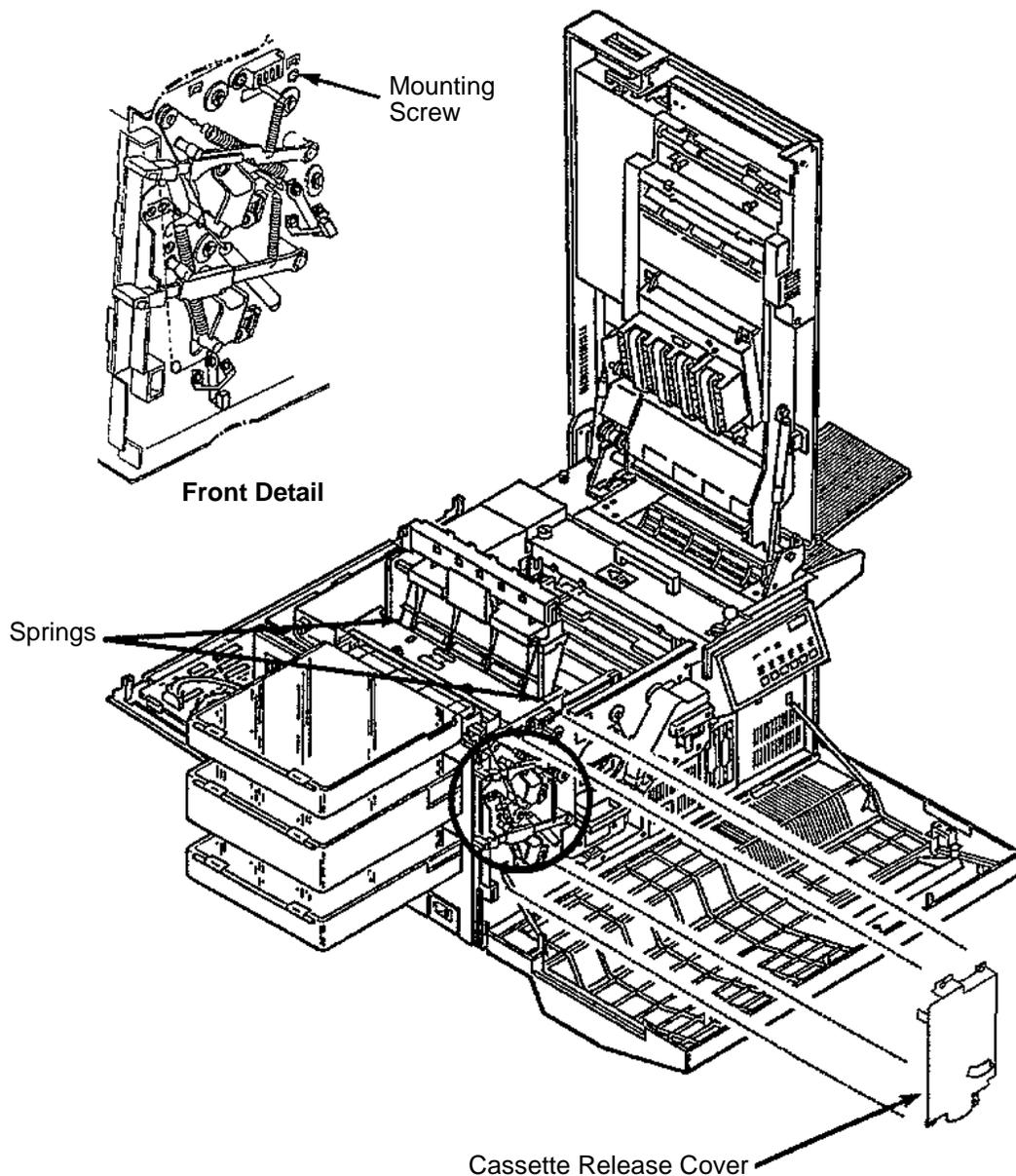
Upper Paper Guide Roller Removal

To remove the upper paper guide roller:

1 Open the top cover.

2 Remove the two springs at each end of the roller. To do this, press down gently on the end of the spring and move it out from under the plastic.

3 Raise the upper paper guide.

4 Remove the roller and bearings from the underside of the upper paper guide.

Upper Paper Guide Underside

Springs
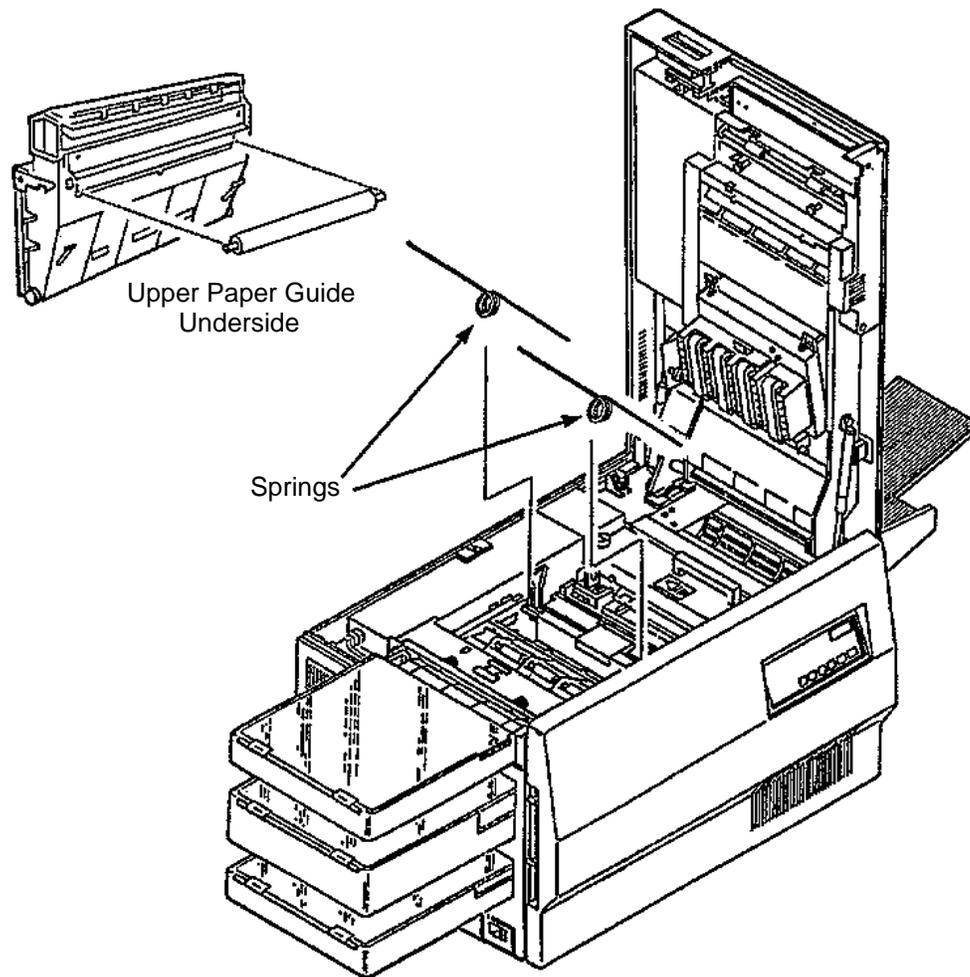
Lower Paper Guide Removal

To remove the lower paper guide:

1   Open the top cover.

2   Raise the upper paper guide.

3   Raise the lower paper guide slightly.

4   Push the base of the lower paper guide toward the back of the printer until the front mounting peg is free.

5   Lift the lower paper guide out of the printer.

Note: Use caution. This piece is made of plastic and can easily break if mishandled.

Mounting Pegs
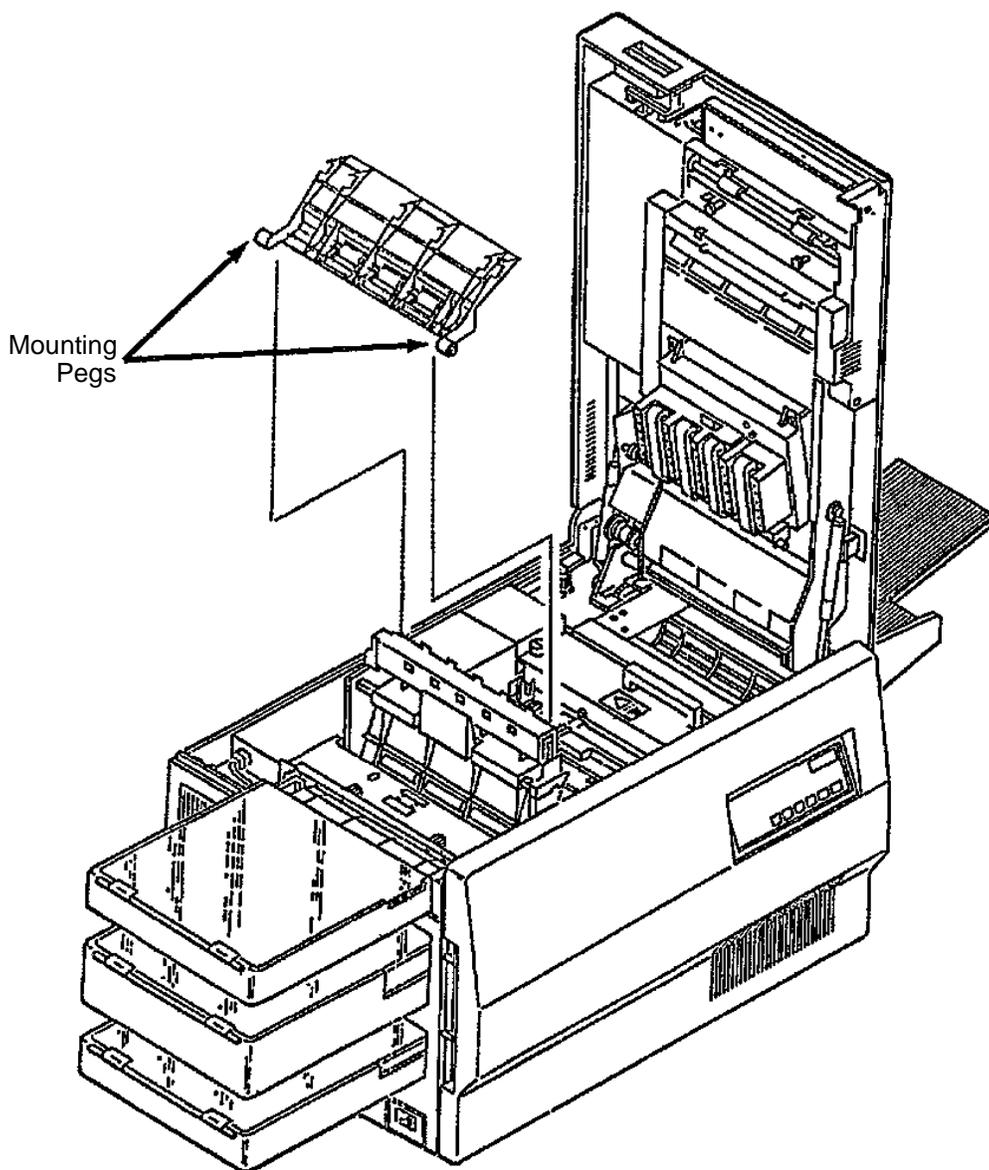
Paper Timing Guide Removal

To remove the paper timing guide:

1   Open the front, back, and top covers.

2   Raise the upper paper guide.

3   Remove the lower paper guide (see).

Lower Paper Guide

Paper Timing Guide

Mounting Screw

Front Detail
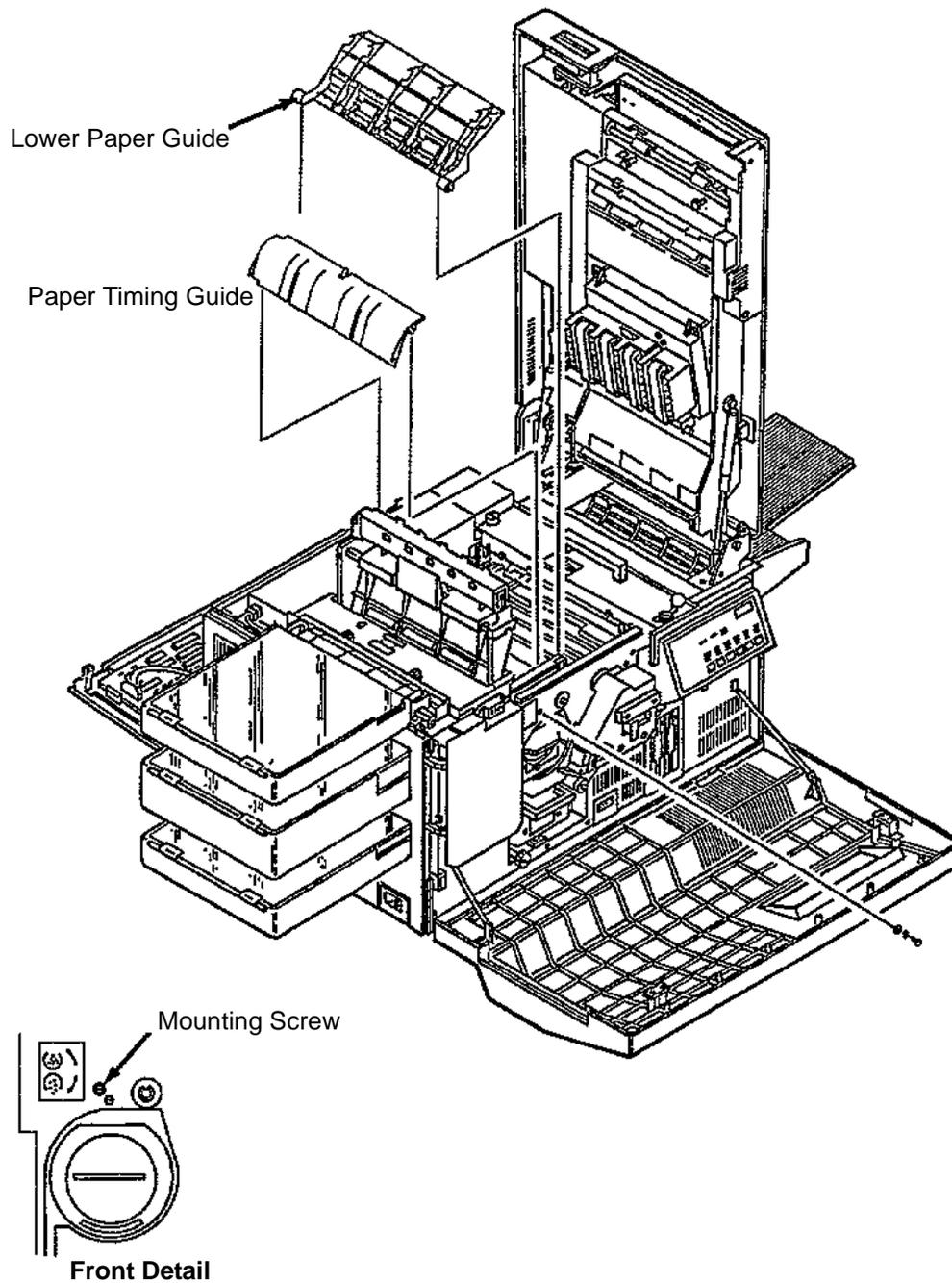
Paper Timing Guide Removal

4   Remove the paper feed drive cover (three screws).

5   Remove the back screw holding the paper timing guide in place. Remove the paper timing guide.

6   Disconnect CN58.

Paper Feed Drive Cover

Mounting Screw

CN58

Back Detail
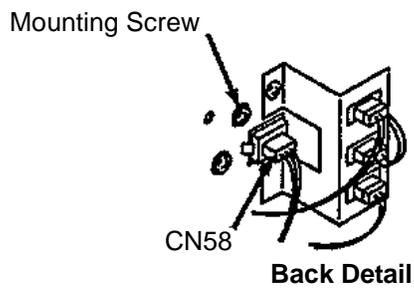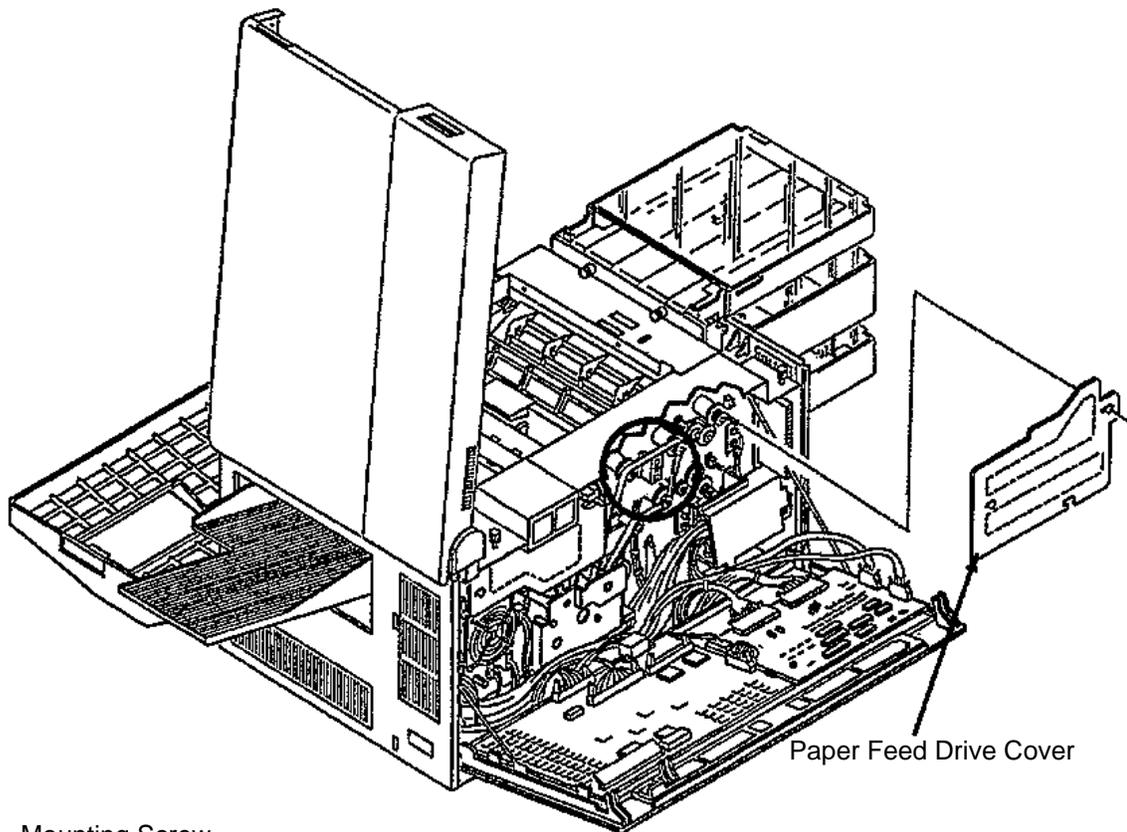
Cleaner Drive Belt Removal

To remove the cleaner drive belt:

1 Open the back cover.

2 Remove the fuser drive cover (three screws).

3 Remove the main drive cover (one screw).

4 Lift the idler arm and slide the cleaner drive belt off the gear.

Idler Arm

Main Drive
Cover

Fuser Drive
Cover

Cleaner Drive Belt Detail
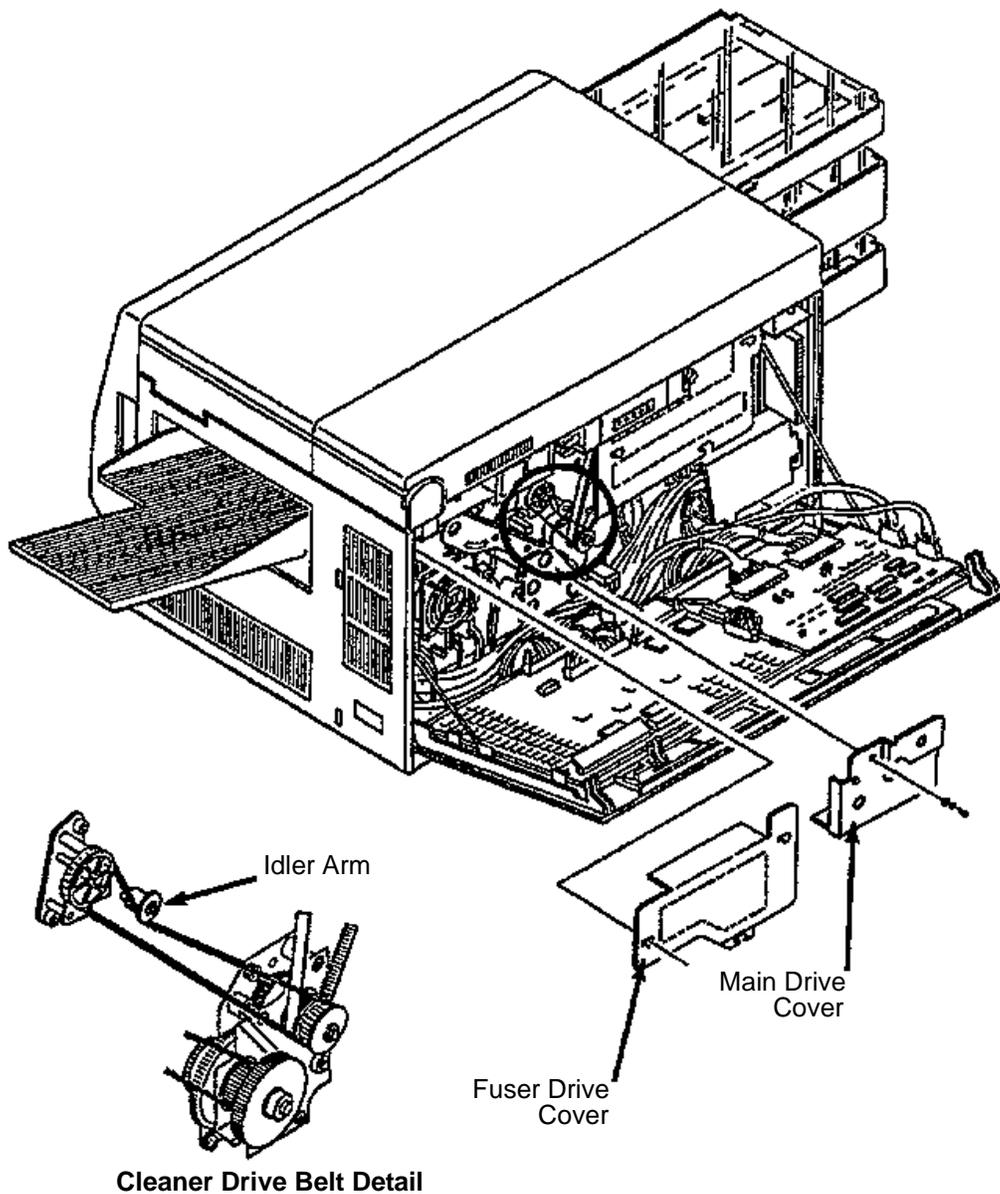
Cleaner Drive Removal

To remove the cleaner drive:

1   Open the back cover.

2   Remove the fuser drive cover (three screws).

3   Remove the main drive cover (one screw).

4   Remove the cleaner drive belt (see).

5   Remove the two high voltage leads.

6   Remove the cleaner drive (three screws).

High Voltage Leads

Main Drive
Cover

Fuser Drive
Cover

Drive Belt

Cleaner Drive Detail
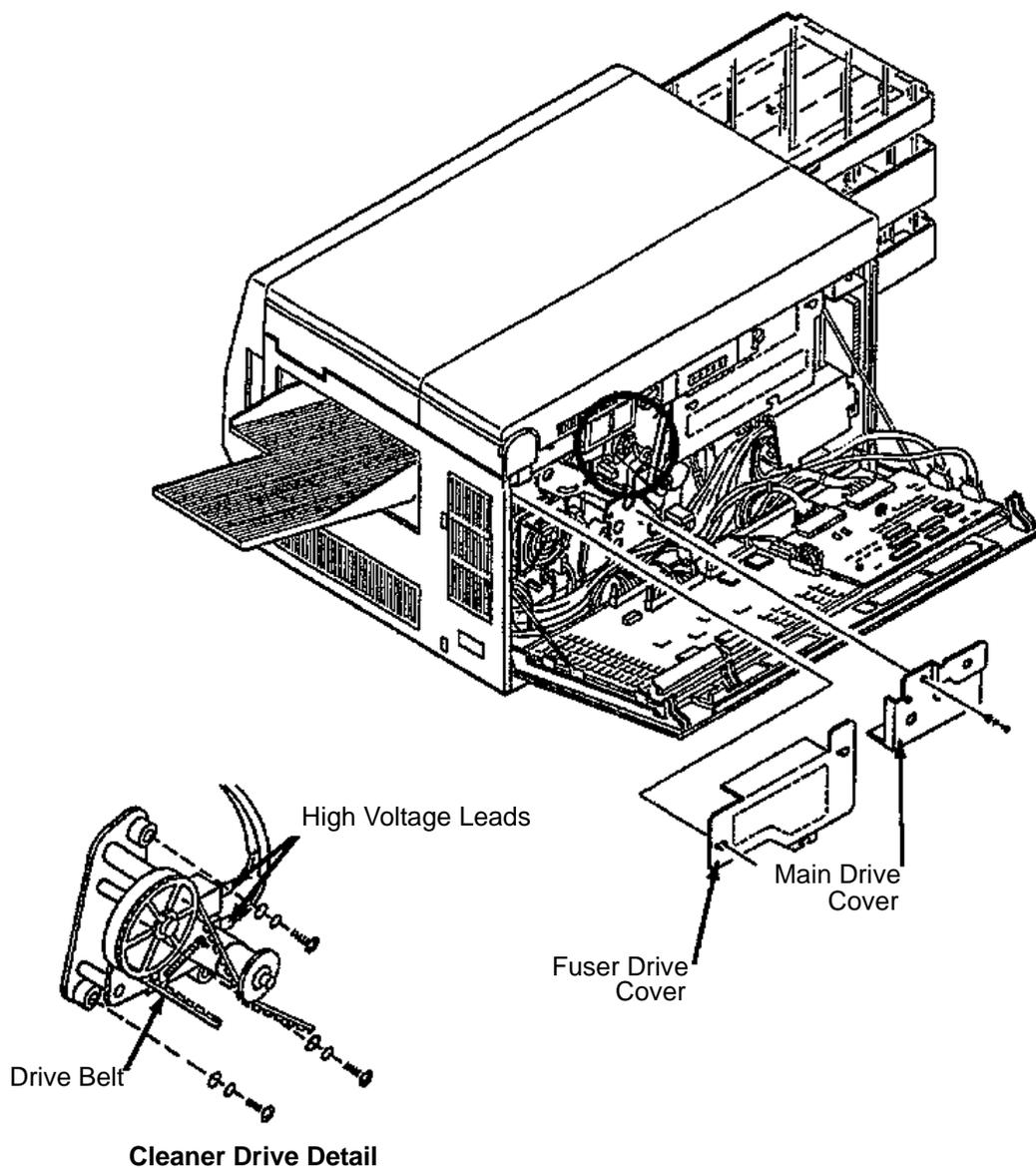
Fuser Drive Belt Removal

To remove the fuser drive belt:

1 Open the back cover.

2 Remove the fuser drive cover (three screws).

3 Remove the main drive cover (one screw).

4 Remove the gear stay cover (one screw).

5 Remove the gear stay (three screws).

6 Remove the main drive gear and bearing (single C-clip).

7 Remove the single upper left screw and the two lower screws holding the fuser drive in place.

8 Loosen the upper right screw for the fuser drive and pivot the drive down.

9 Slide the fuser drive belt off the gear.
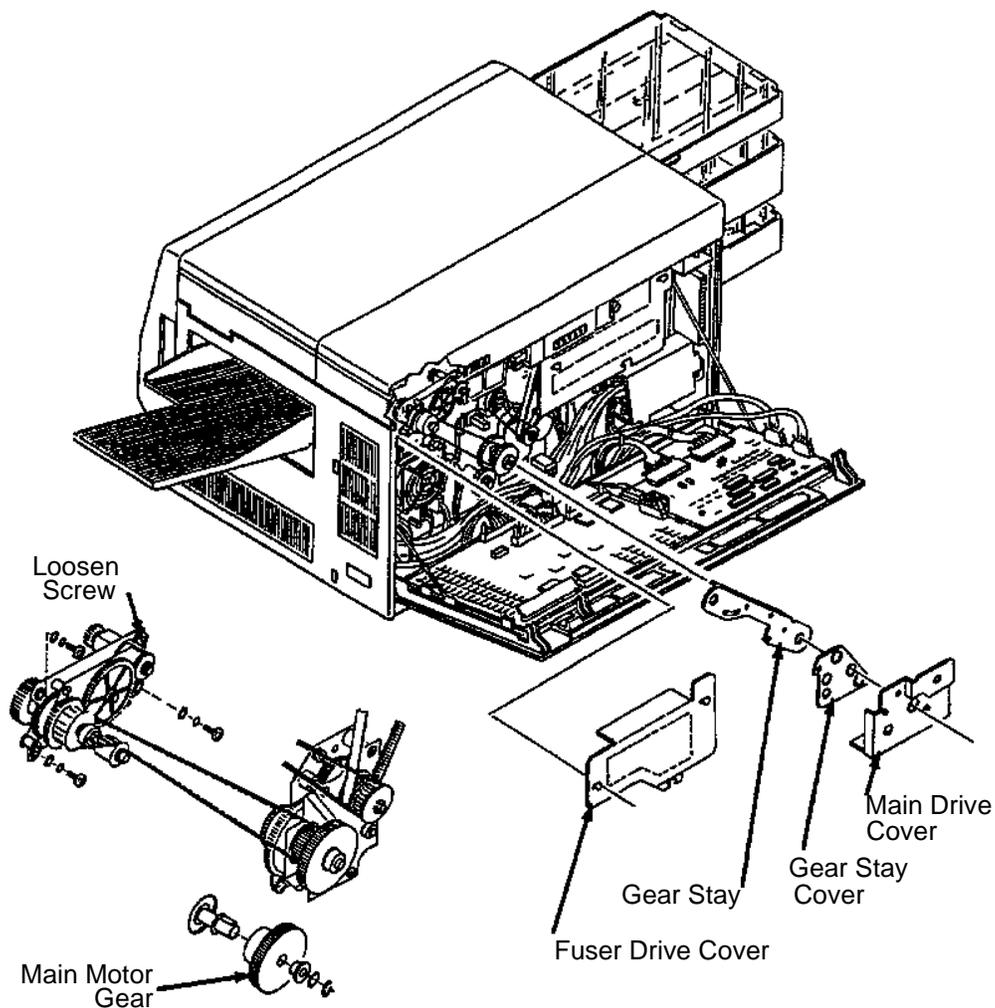
Fuser Drive Removal

To remove the fuser drive:

1   Open the back cover.

2   Remove the fuser drive cover (three screws).

3   Remove the main drive cover (one screw).

4   Remove the gear stay cover (one screw).

5   Remove the gear stay (three screws).

6   Remove the fuser drive belt (see).

7   Remove the fuser drive (four screws).

Fuser Drive Detail

Gear Stay

Gear Stay Cover

Main Drive Cover
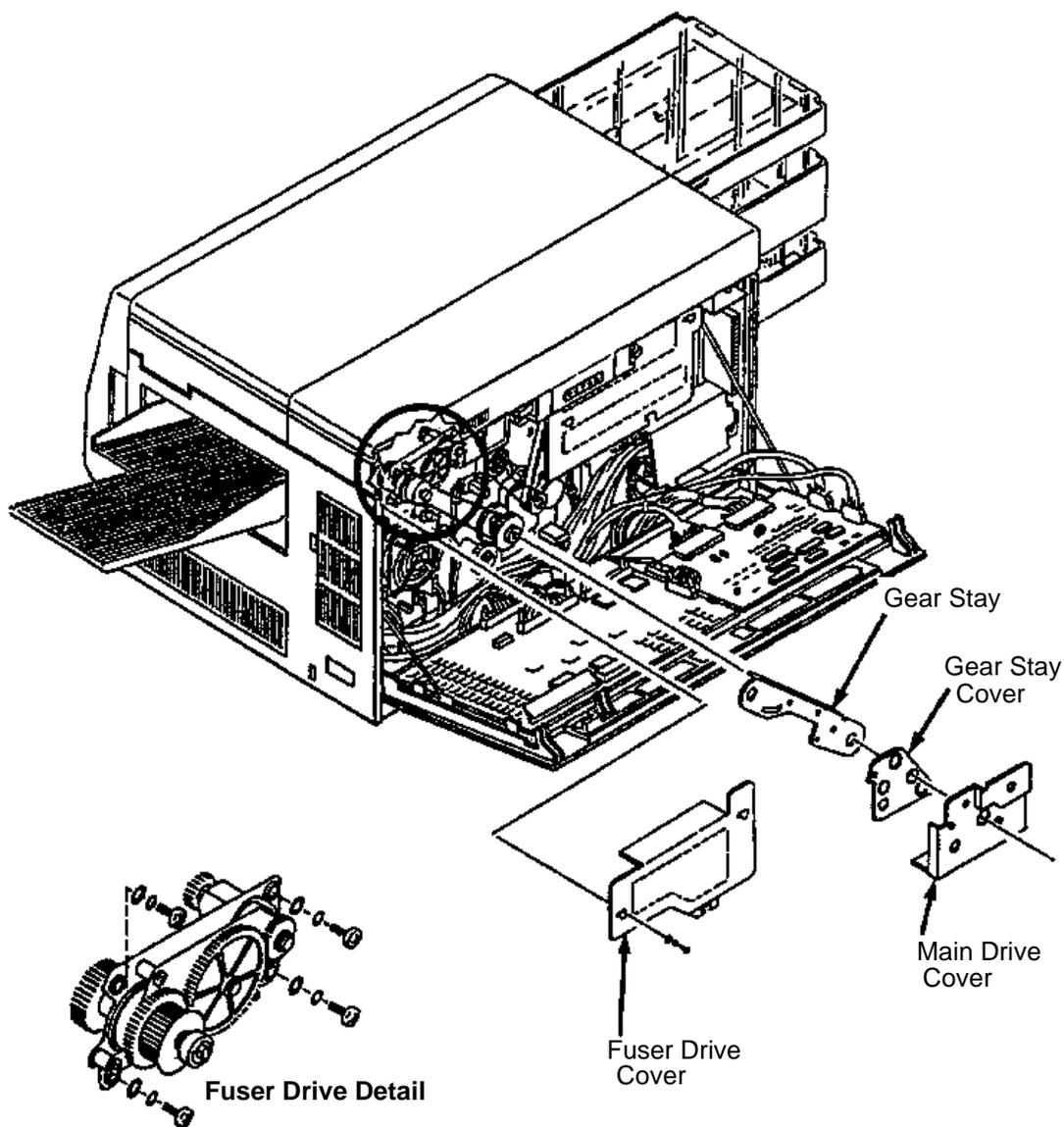
Fuser Drive Cover

Paper Feed Drive Belt Removal

To remove the paper feed drive belt:

1   Open the back cover.

2   Remove the fuser drive cover (three screws).

3   Remove the paper feed drive cover (three screws).

4   Remove the main drive cover (one screw).

5   Remove the cleaner drive belt (see).

6   Push down on the idler arm and slide the paper feed drive belt off the gear.
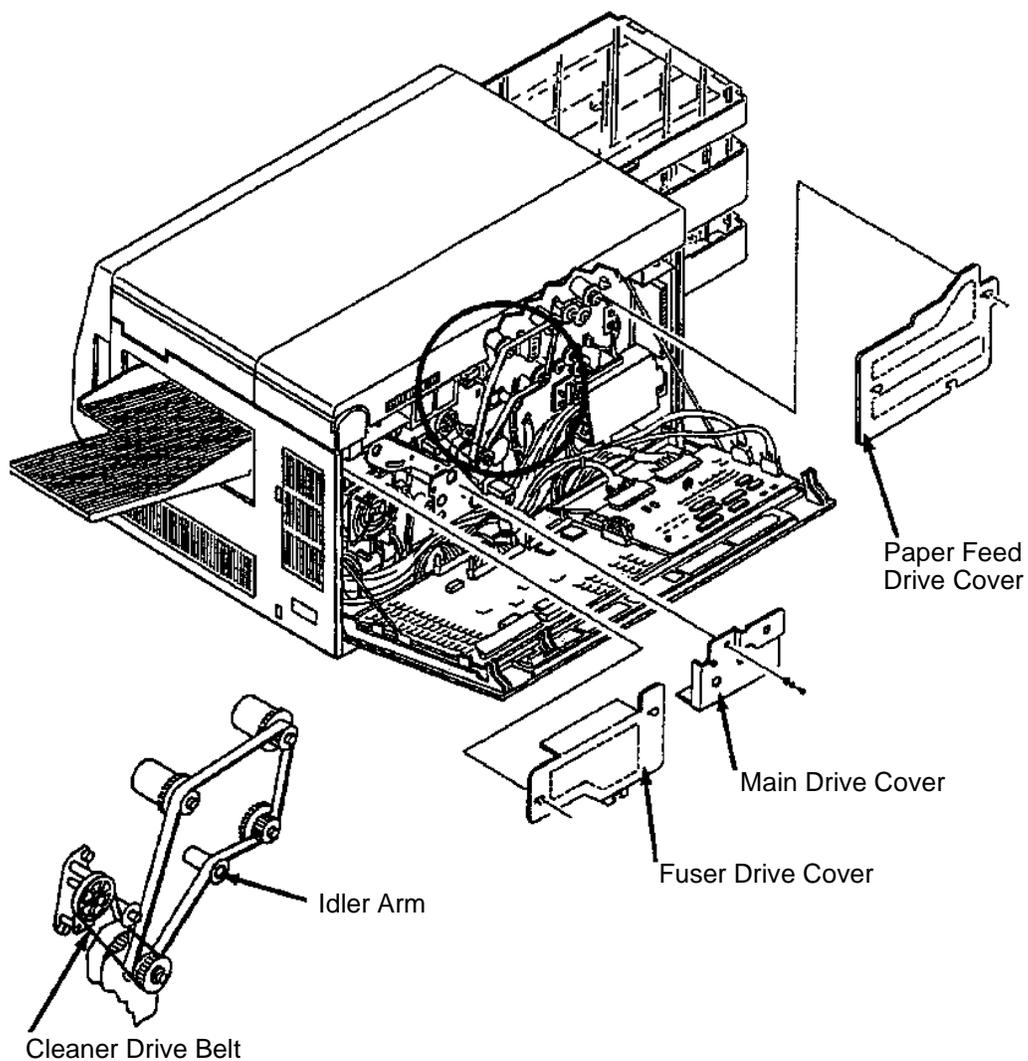
Paper Feed Drive Belt Detail

Paper Timing Roller Removal

To remove the paper timing roller:

1 Open the front, back, and top covers.

2 Raise the upper paper guide.

3 Remove the photoconductor and place it in its protective bag.

4 Remove the paper feed drive cover (three screws).

5 Remove the paper feed drive belt from the paper timing roller gear.

6 Disconnect CN65.

7 Unscrew the standoff post from the collar surrounding the end of the roller.

8 Remove the front C-clip and bearing.

9 Slide the paper timing roller out the back of the printer.

Replacement Notes:

- Reinstall the original collar and standoff post with any new paper timing roller.
- Be sure to align all of the guide pins or the C-clip will not fit correctly.

Paper Feed Drive Cover

CN65

C-Clip and Bearing

Collar

Standoff Post

Cassette Release Cover

Front Detail
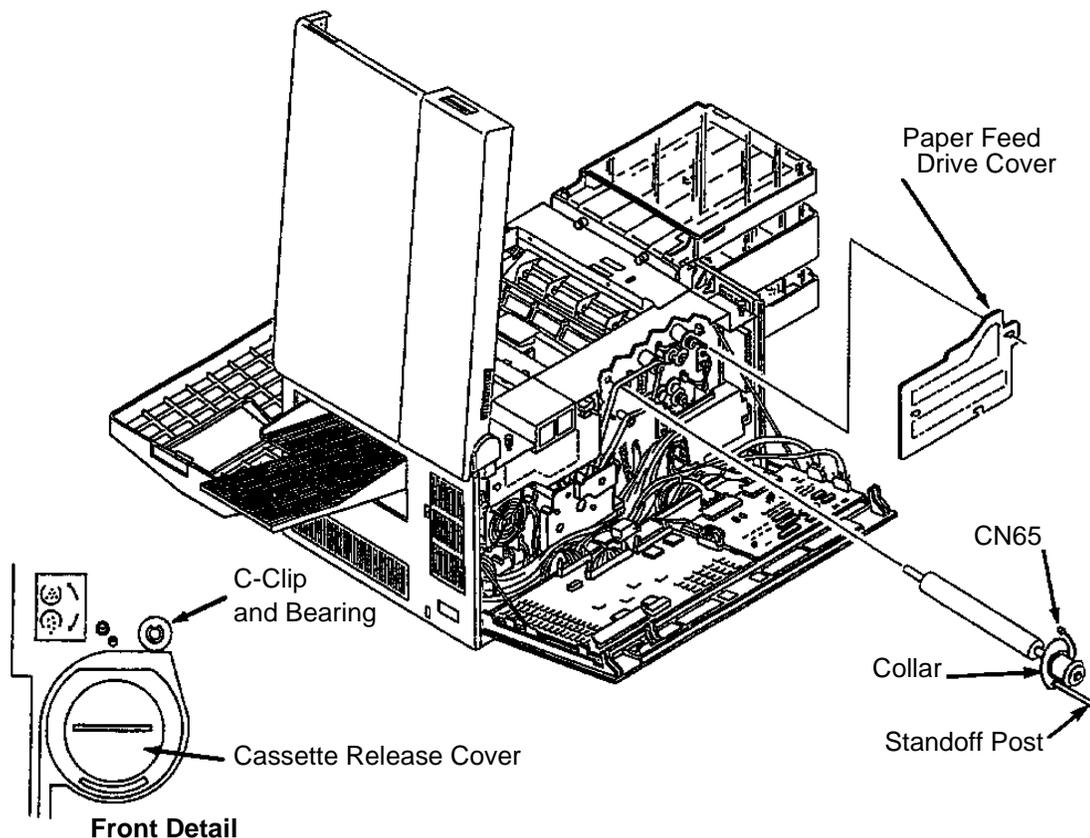
Upper Feed Roller Removal

To remove the upper feed roller:

1 Open the front and back covers.

2 Remove the paper feed drive cover (three screws).

3 Disconnect CN66.

4 Remove the paper feed drive belt from the upper feed roller gear.

5 Remove the cassette release cover (two screws).

6 Remove the front C-clip and bearing.

7 Slide the upper feed roller out the back of the printer.

Paper Feed
Drive Cover

CN66

C-Clip and Bearing

Front Detail   Cassette Release Cover
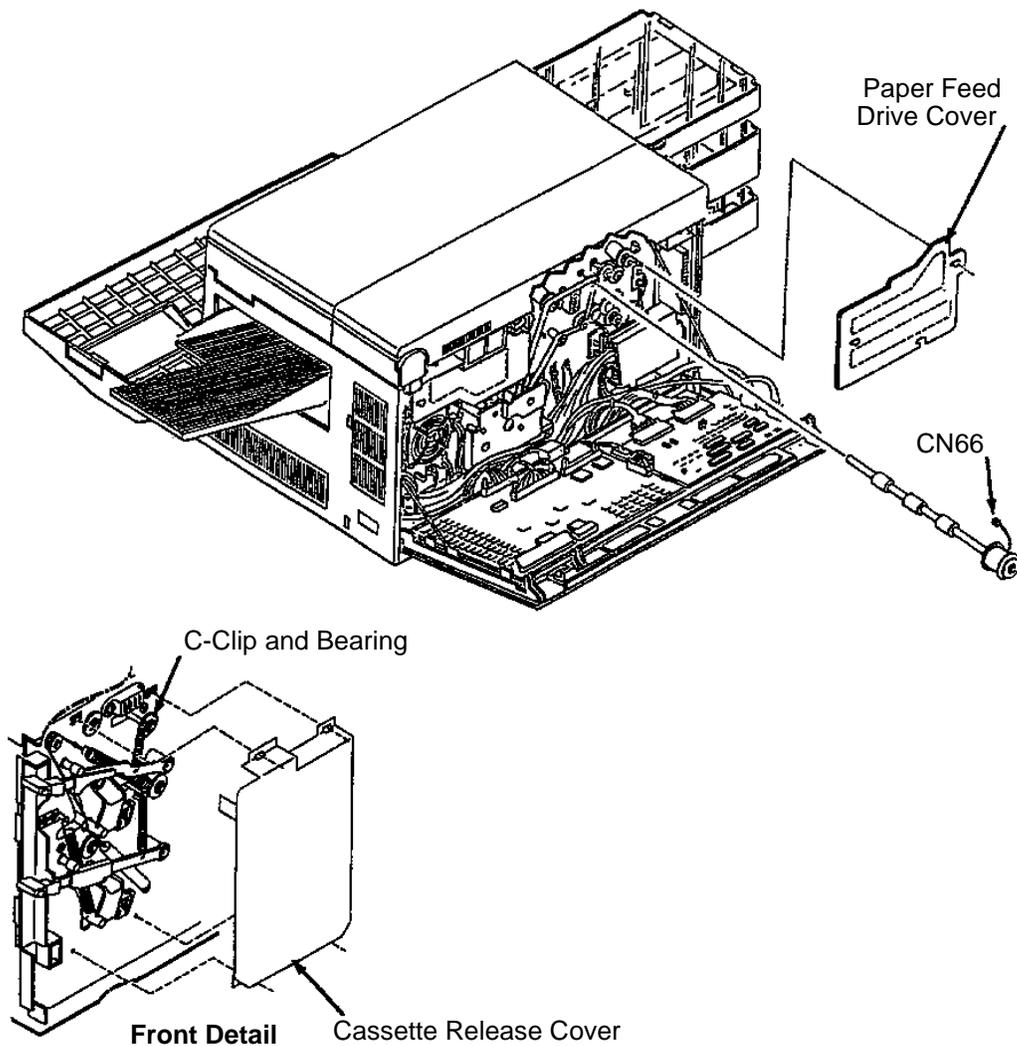
Lower Feed Roller Removal

To remove the lower feed roller:

1 Open the front and back covers.

2 Remove the paper feed drive cover (three screws).

3 Disconnect CN67.

4 Remove the paper feed drive belt from the lower feed roller gear.

5 Remove the cassette release cover (two screws).

6 Remove the front C-clip and bearing.

7 Slide the lower feed roller out the back of the printer.

Paper Feed
Drive Cover

CN67

C-Clip and Bearing

Front Detail   Cassette Release Cover
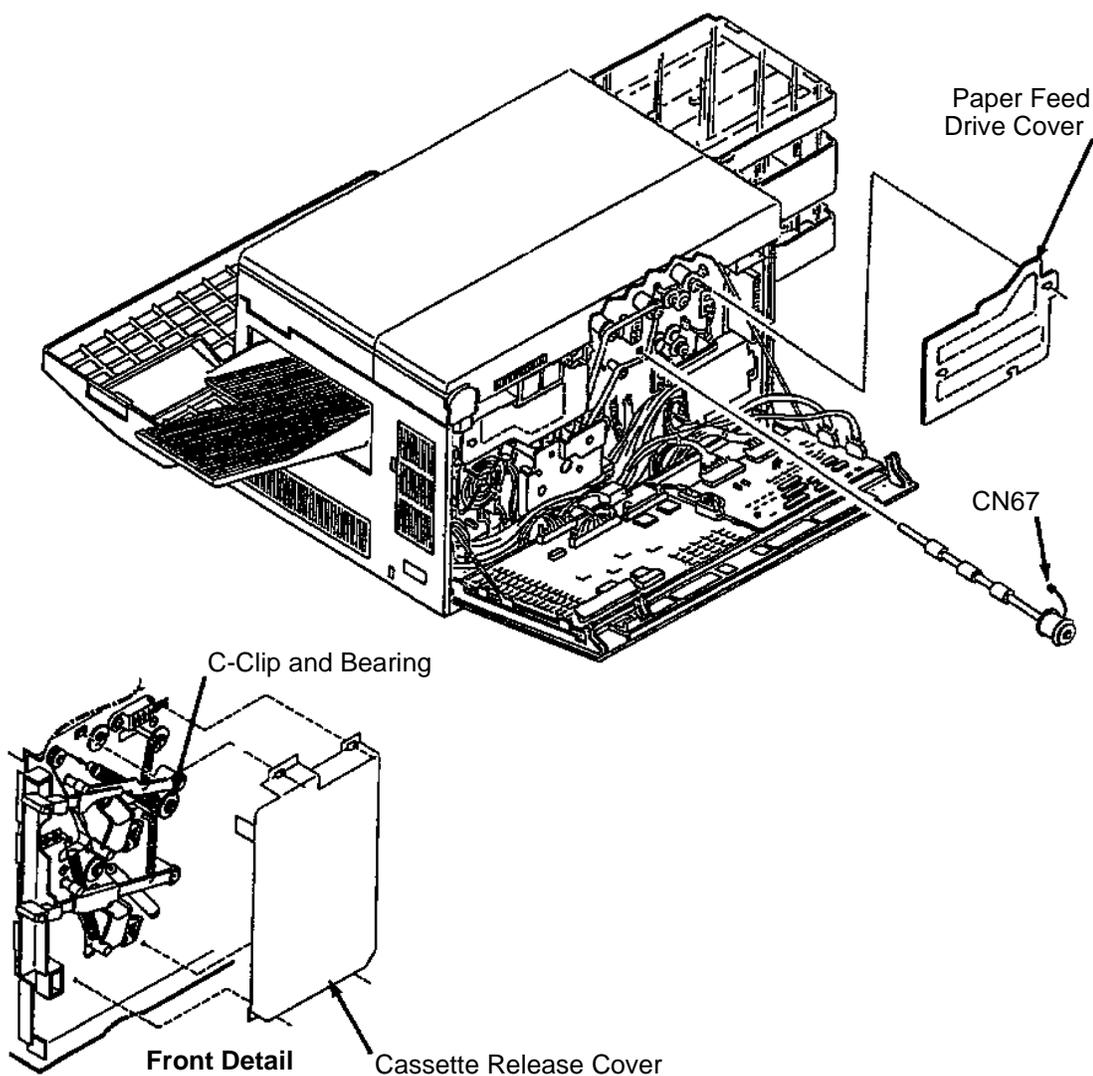
Upper Pick-Up Roller Removal

To remove the upper pick-up roller:

1   Open the front and back covers.

2   Remove the paper feed drive cover (three screws).

3   Disconnect CN68.

4   Remove the cassette release cover (two screws).

5   Remove the front C-clip and bearing.

6   Slide the upper pick-up roller out the back of the printer.

Note: You may need to remove the EMI grounding plate.
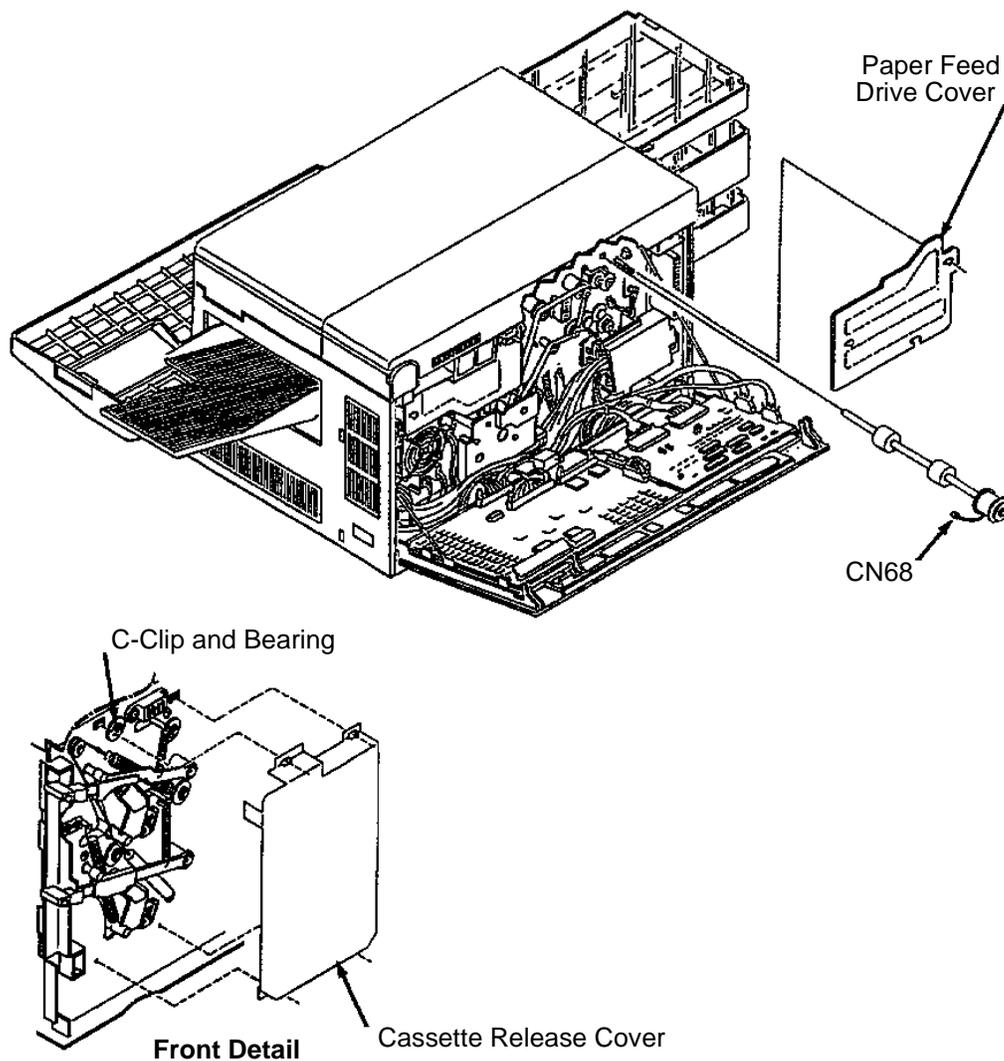
Paper Feed
Drive Cover

CN68

C-Clip and Bearing

Front Detail   Cassette Release Cover

Upper Pick-Up Roller Drive Removal

To remove the upper pick-up roller drive:

1   Open the back cover.

2   Remove the paper feed drive cover (three screws).

3   Remove the upper pick-up roller drive (three screws).

Note: You may need to remove the EMI grounding plate.

Paper Feed
Drive Cover
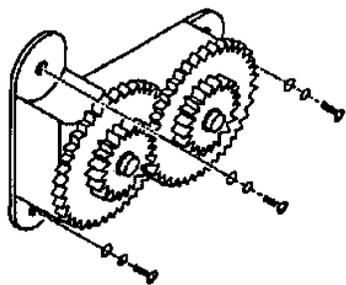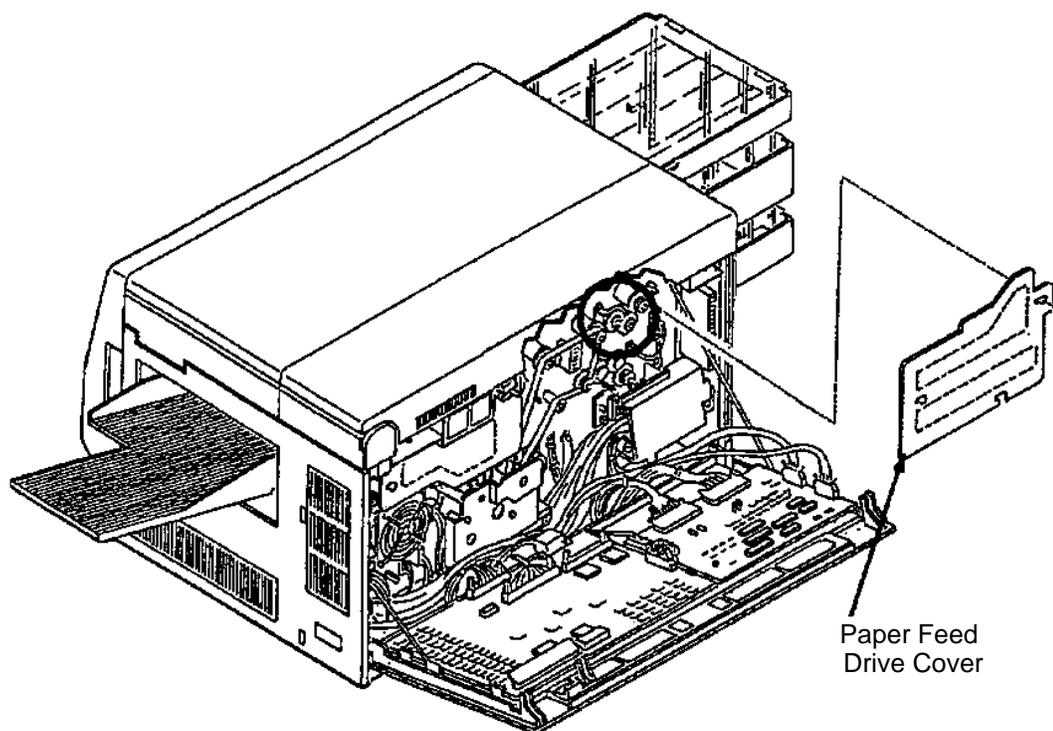
Upper Pick-up Roller Drive Detail

Lower Pick-Up Roller Removal

To remove the lower pick-up roller:

1 Open the front and back covers.

2 Remove the paper feed drive cover (three screws).

3 Disconnect CN69.

4 Remove the cassette release cover (two screws).

5 Remove the front C-clip and bearing.

6 Slide the lower pick-up roller out the back of the printer.
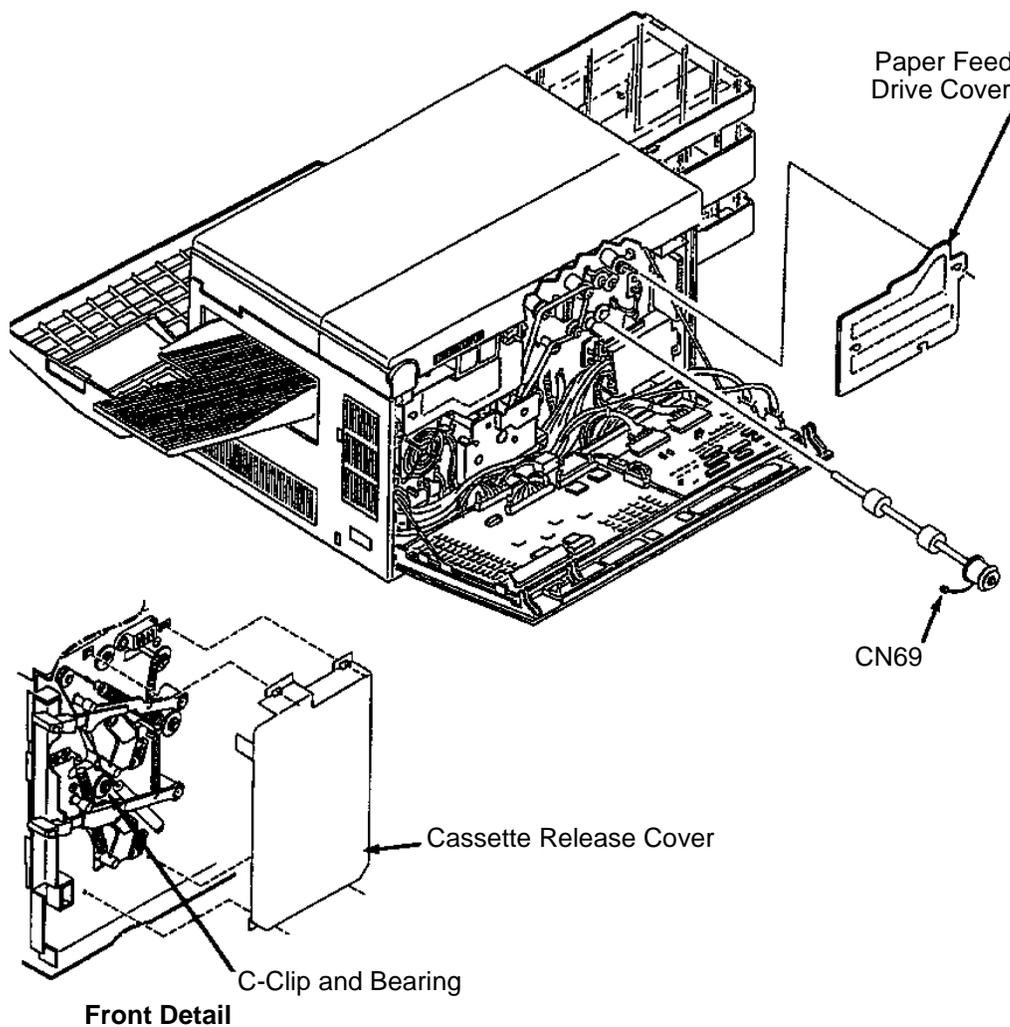
Paper Feed
Drive Cover

CN69

Cassette Release Cover

C-Clip and Bearing

Front Detail

Lower Pick-Up Roller Drive Removal

To remove the lower pick-up roller drive:

1   Open the back cover.

2   Remove the paper feed drive cover (three screws).

3   Remove the lower pick-up roller drive (three screws).

Paper Feed
Drive Cover
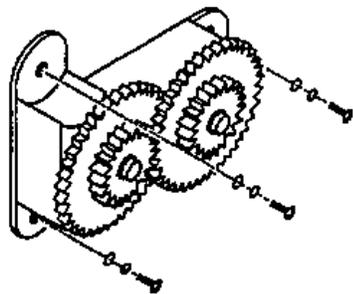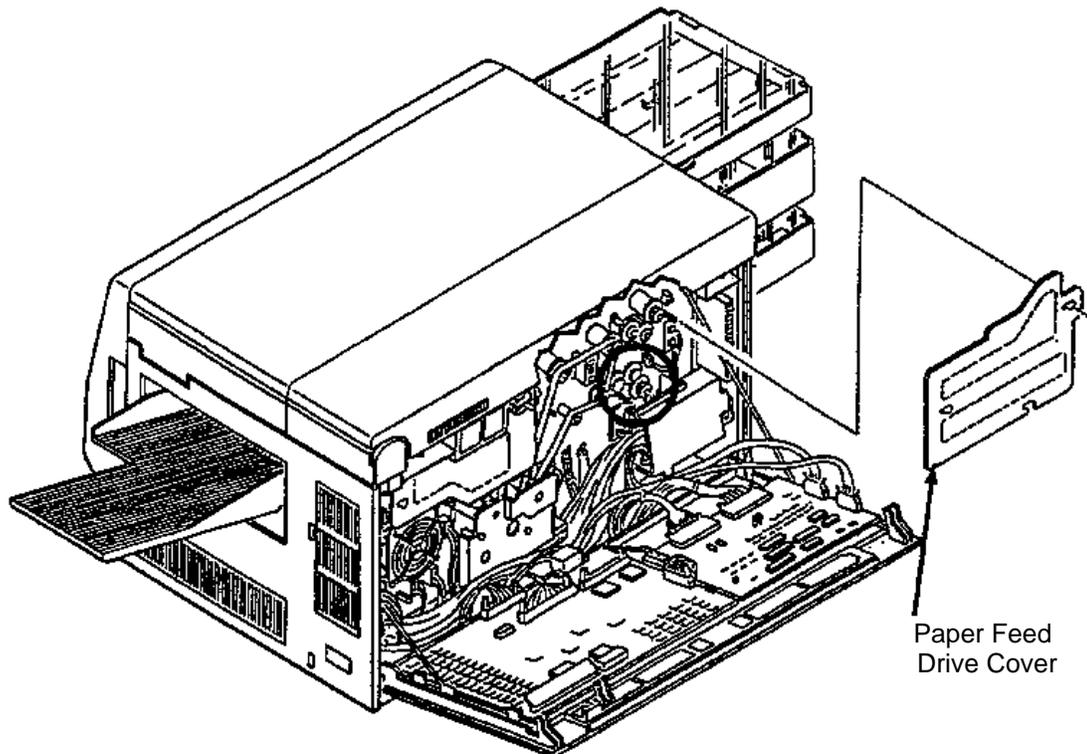
Lower Pick-up Roller Drive Detail

Job Offset Assembly Removal

To remove the job offset assembly:

1 Open the front, top, and back covers.

2 Remove the paper output tray.

3 Remove the right side cover (see).

4 Remove the operator panel (see).

Output Option
Mounting Pin

Mounting Screws

Front Detail

5 Remove the DC power supply (see page 7-31).

6 Remove the mounting bracket for the DC power supply (two screws).

7 Remove the fuser drive cover (three screws).

8 Disconnect CN19 and CN54.

9 Remove the five screws holding the job offset assembly in place (three front and two back).

10 Remove the fuser drive cover mounting post.

11 Remove the output option mounting pin (single screw, located on the front of the printer).

12 Remove the job offset assembly.

Fuser Drive Cover

Bracket

Mounting Pin

CN19

CN54

Fuser Drive Cover Mounting Post

Bracket Mounting Screws

Mounting Screws

Right Side Detail

Back Detail
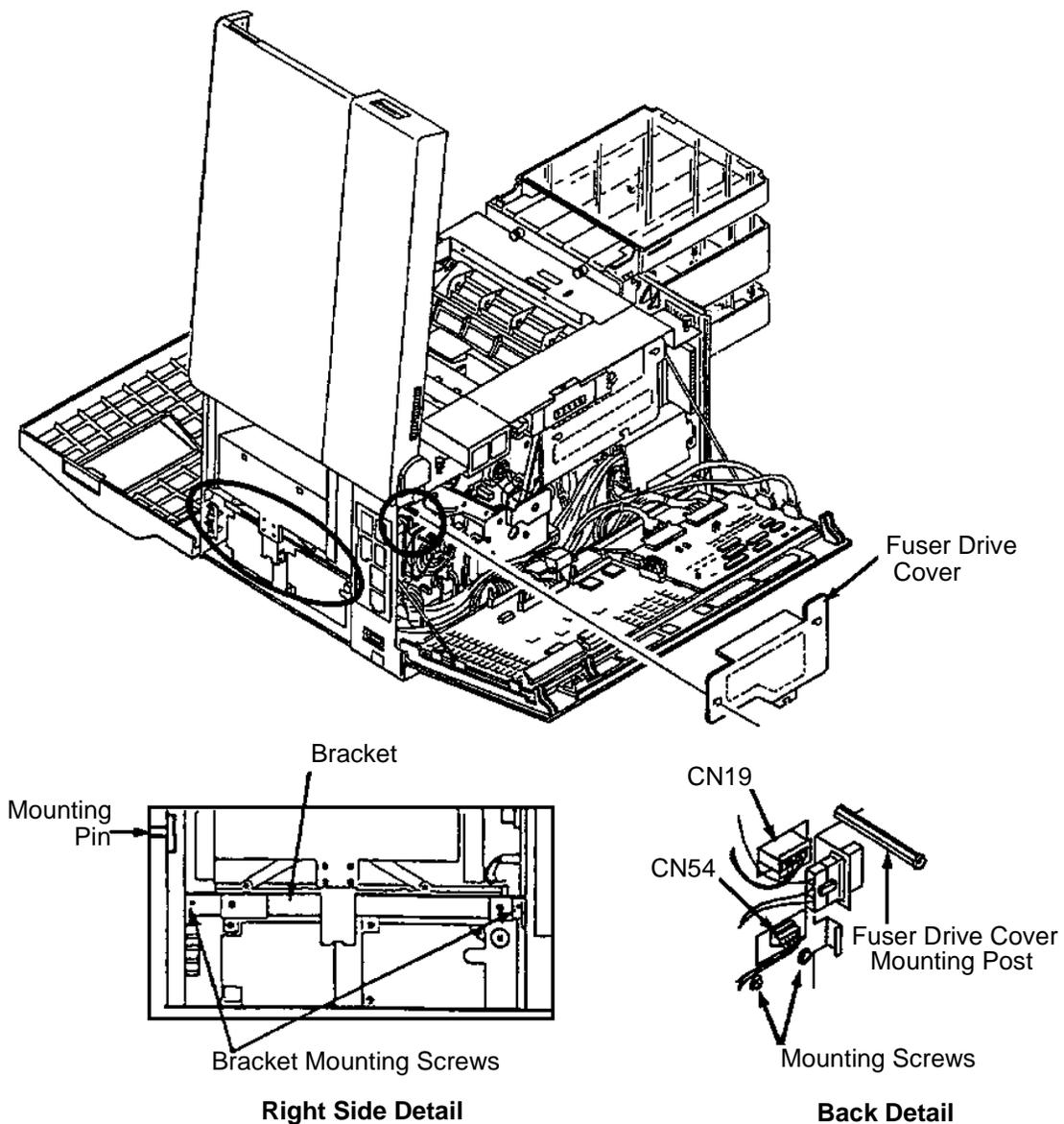
Exit Pinch Roller Removal

To remove the exit pinch roller:

1 Open the front, back, and top covers.

2 Remove the fuser.

3 Remove the operator panel (see page 7-19).

4 Remove the front screw holding the exit pinch roller in place.

5 Remove the front screw holding the exit guide in place.

Exit Pinch Roller Screw

C-Clip and Bearing

Exit Guide Screw

Front Detail

6 Remove the fuser drive cover (three screws).

7 Remove the back screw holding the exit pinch roller in place.

8 Lift the exit pinch roller from the printer.

Note: Use caution so as not to damage the paper full or exit sensors.

Mounting Screw

Fuser Drive Cover

Back Detail
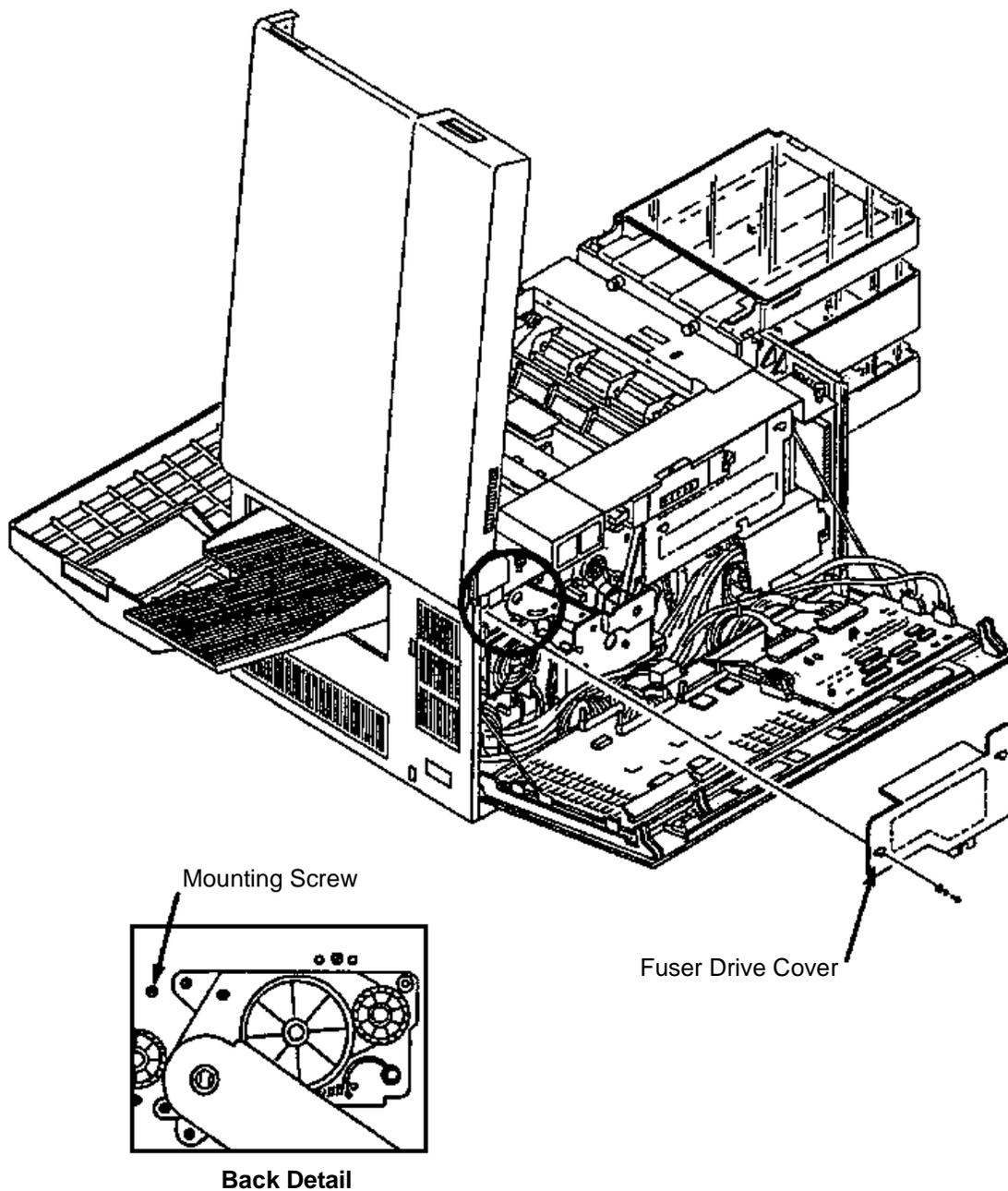
Upper Static Brush Removal

To remove the upper static brush:

1 Open the top and front covers.

2 Remove the fuser.

3 Remove the upper static brush from the exit pinch roller assembly (two screws).
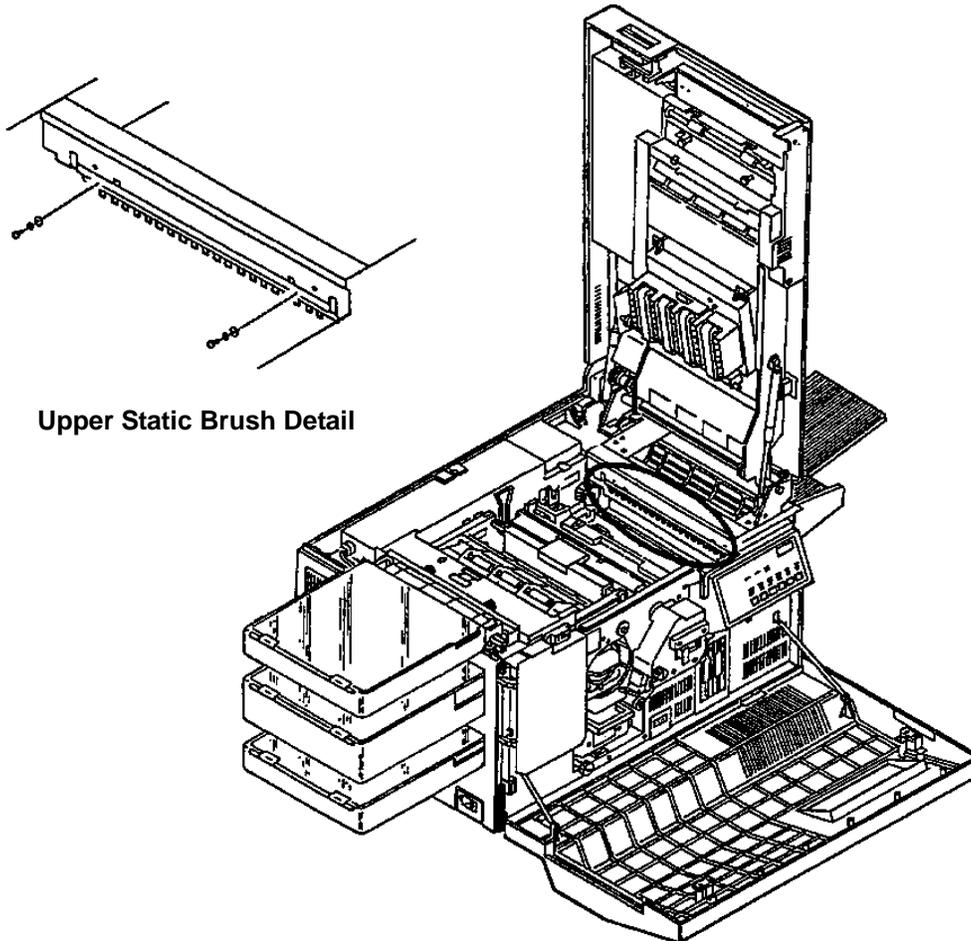
Upper Static Brush Detail

Lower Static Brush Removal

To remove the lower static brush:

1   Open the top, front and back covers.

2   Remove the fuser.

3   Remove the operator panel (see page 7-19).

4   Remove the exit pinch roller assembly (see page 7-69).

5   Remove the lower static brush (two screws).

Mounting Screws

Lower Static Brush
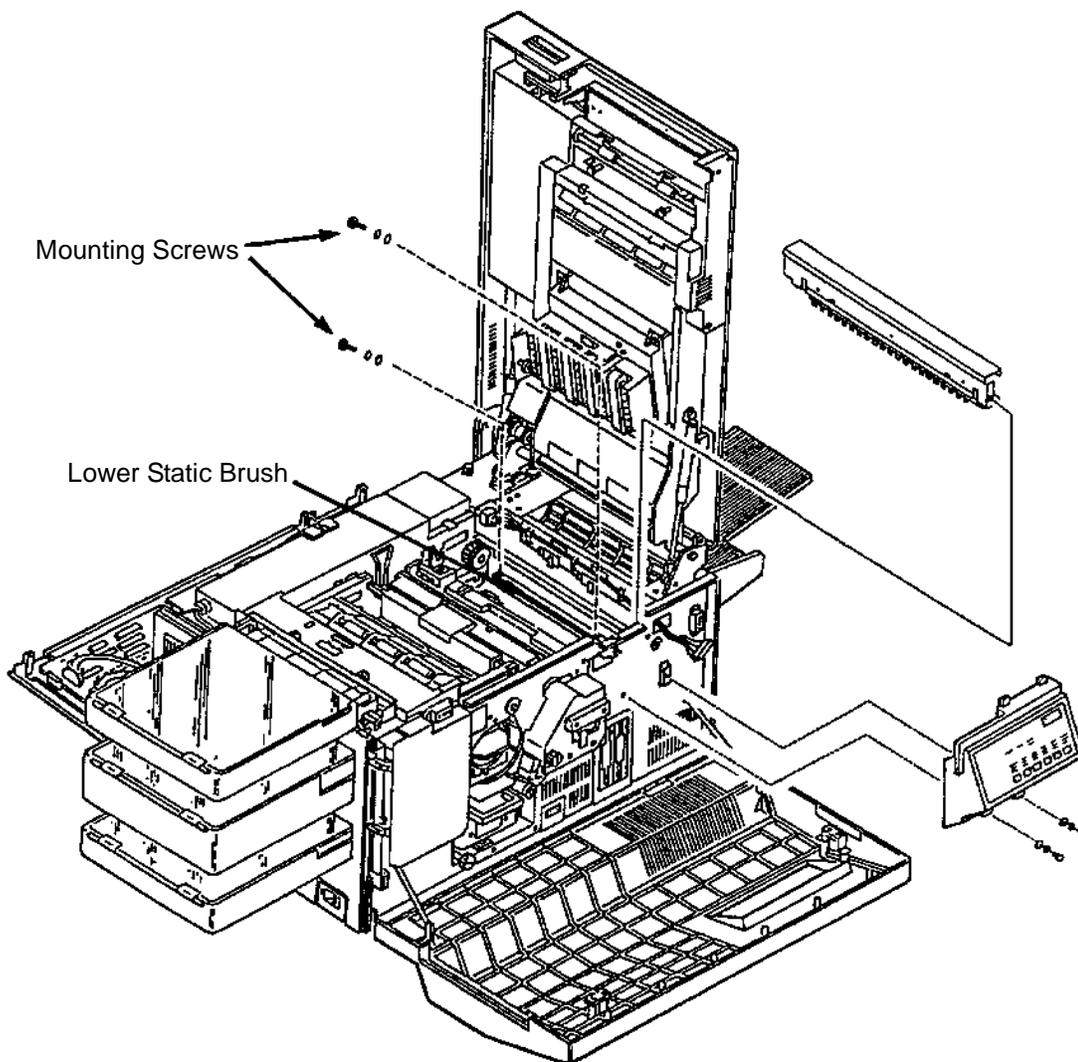
Exit Roller Assembly Removal

To remove the exit roller assembly:

1 Open the front, back, and top covers.

2 Remove the fuser.

3 Remove the operator panel (See page 7-19).

4 Remove the front screw holding the exit guide in place.

C-Clip and Bearing

Exit Guide Screw

Front Detail
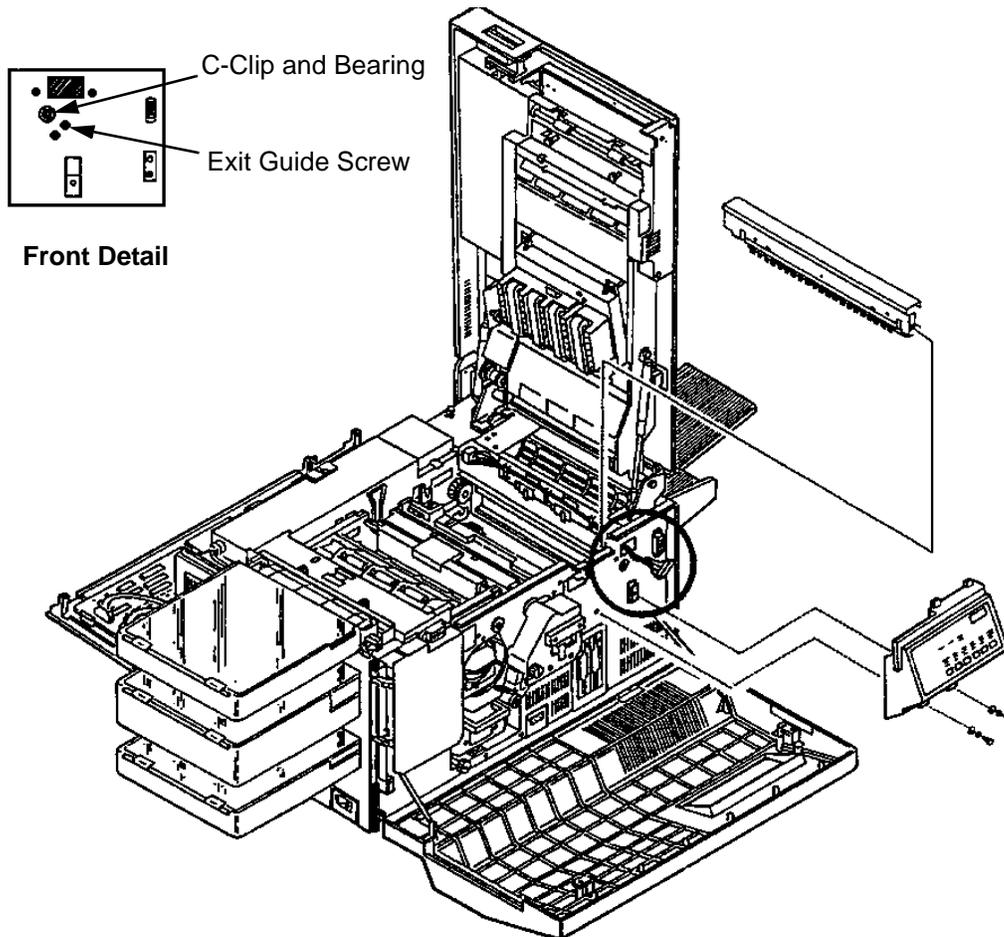
Exit Roller Assembly Removal

5 Remove the fuser drive cover (three screws).

6 Remove the exit pinch roller (see).

7 **Duplex only:** Remove the lower duplex drive (three screws).

8 Remove the back screw holding the exit guide in place.

9 Tilt the exit guide toward the center of the printer.

10 Remove the front C-clip and bearing.

11 Slide the exit roller out the back of the printer.

Note: Use caution so as not to damage the paper full or exit sensors.

Exit Guide

Fuser
Drive
Cover

Exit Pinch Roller Screw

Exit Guide Screw

Lower Duplex Drive
(C30D only)

Back Detail
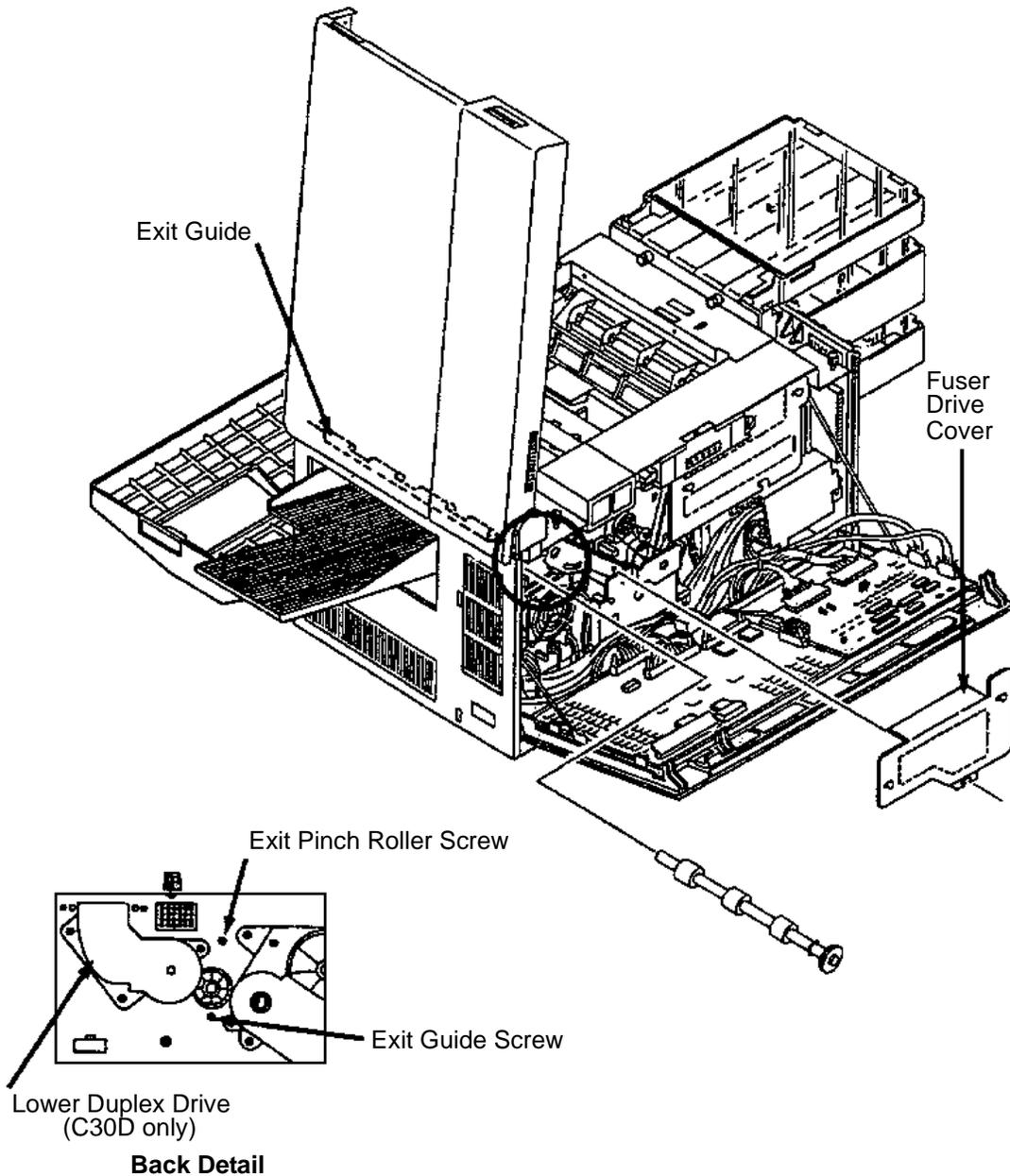
Exit Cover Removal (Simplex)

To remove the simplex exit cover:

1 Open the front, back, and top covers.

2 Remove the fuser.

3 Remove the right side cover (see page 7-9).

4 Remove the paper output tray.

5 Remove the operator panel (see page 7-19).
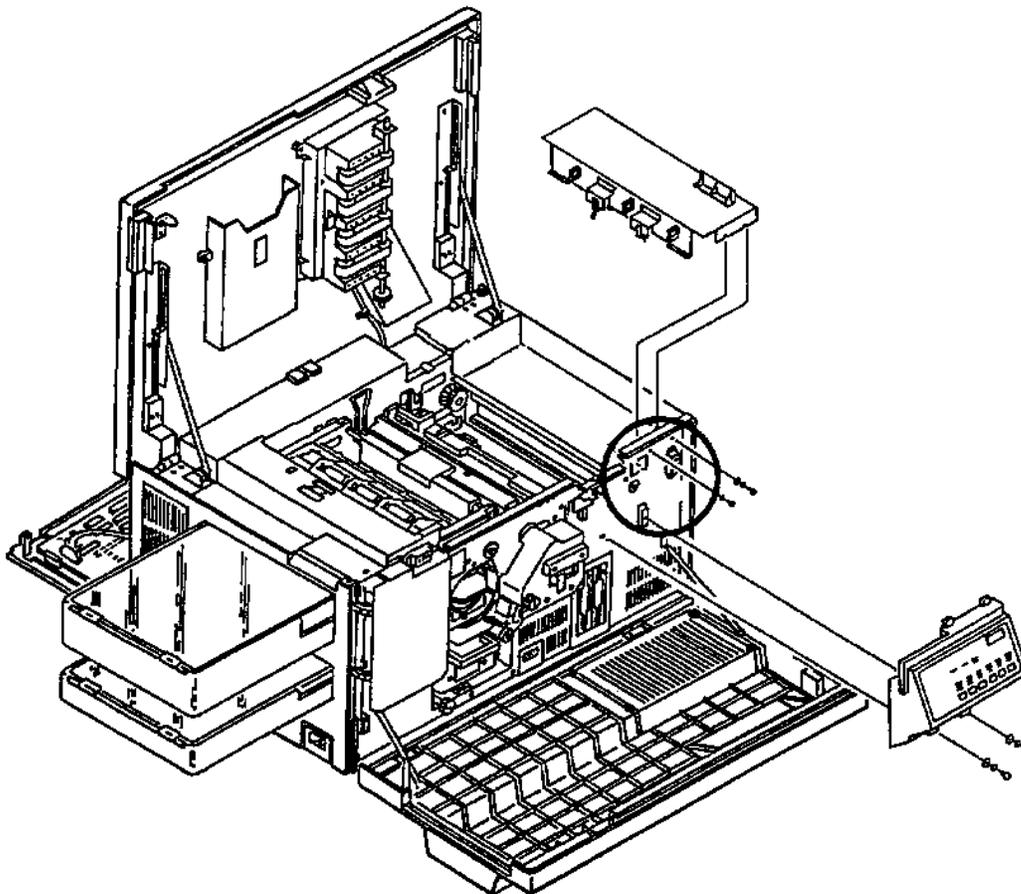
Mounting Screws
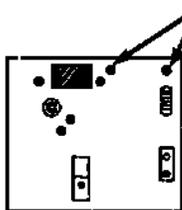
Front Detail

Exit Cover Removal (Simplex)

6 Remove the fuser drive cover (three screws).

7 Remove the exit pinch roller (see page 7-69).

8 Disconnect CN49 and CN51.

9 Remove the four screws holding the exit cover in place (two front and two back).

10 Remove the wiring harness for CN42, CN49, and CN51 from the exit cover.

11 Lift the exit cover from the printer.

Mounting Screws

Fuser Drive Cover

Back Detail
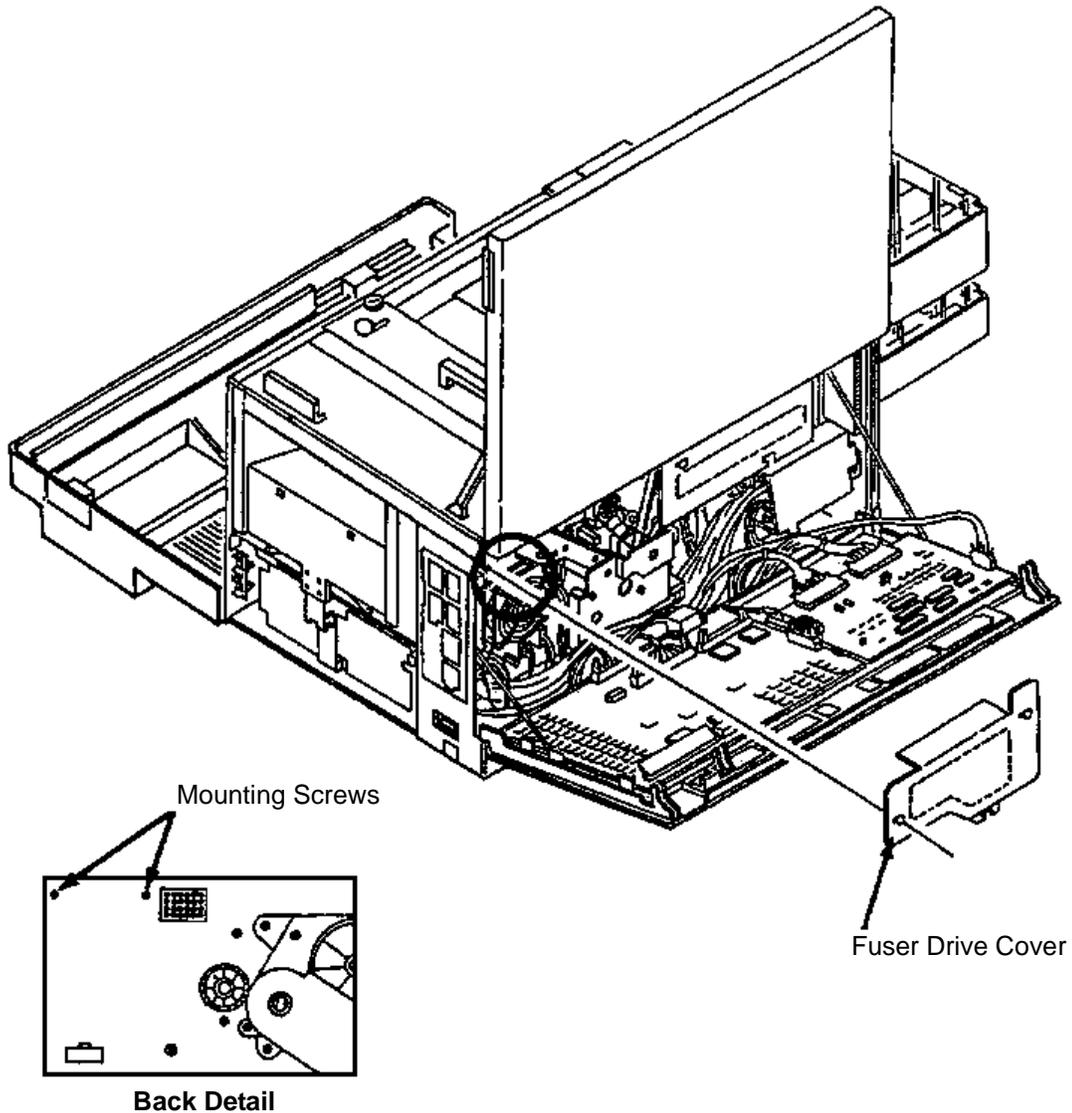
Exit Cover Removal (Duplex)

To remove the duplex exit cover:

1 Open the front, top, and back covers.

2 Remove the fuser.

3 Remove the paper output tray.

4 Remove the right side cover (see page 7-10).

5 Remove the operator panel (see page 7-19).
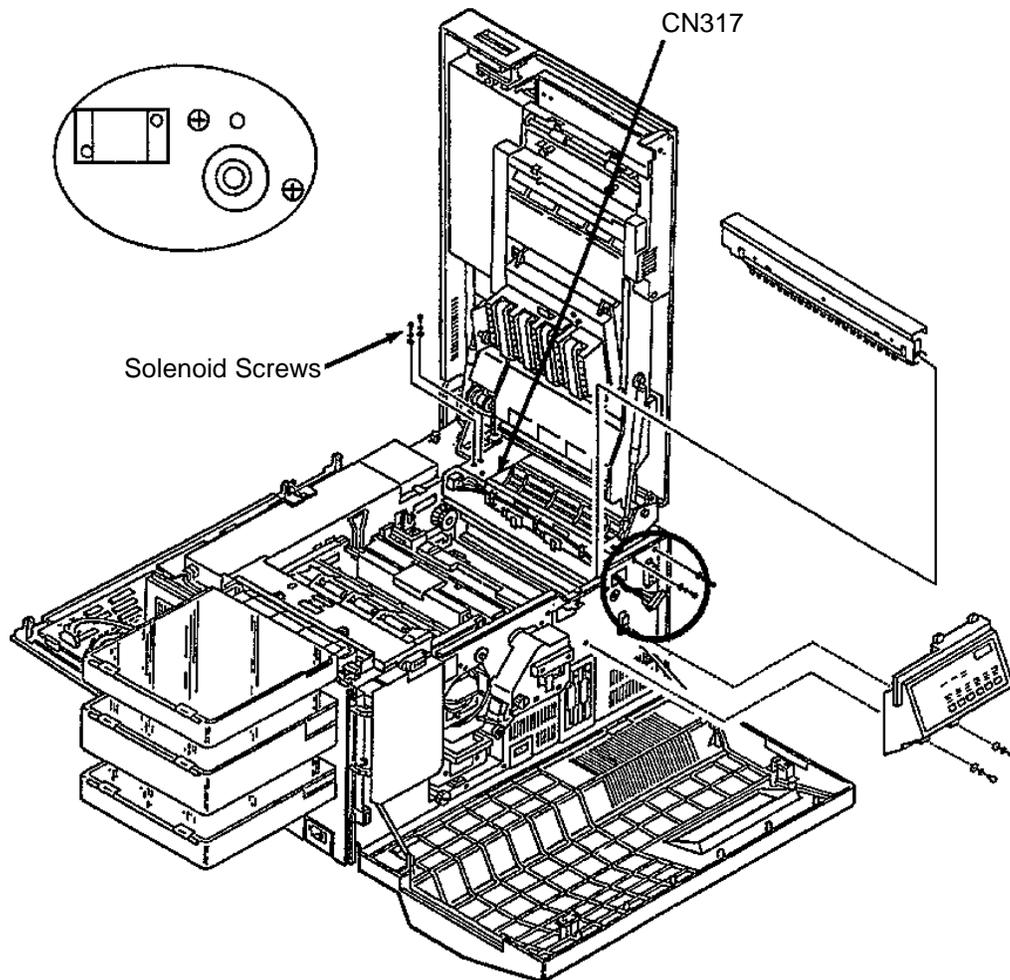
Exit Cover Removal (Duplex)

6 Remove the fuser drive cover (three screws).

7 Remove the exit pinch roller (see).

8 Disconnect CN49 and CN51.

9 Remove the wiring harness for CN42, CN49, and CN51 from the exit cover.

10 Disconnect CN317.

11 Remove the four screws holding the exit cover in place (two front and two back).

12 Lift the exit cover from the printer.

13 Remove the solenoid from the exit cover (two screws).

Mounting Screws

Fuser Drive Cover

Back Detail
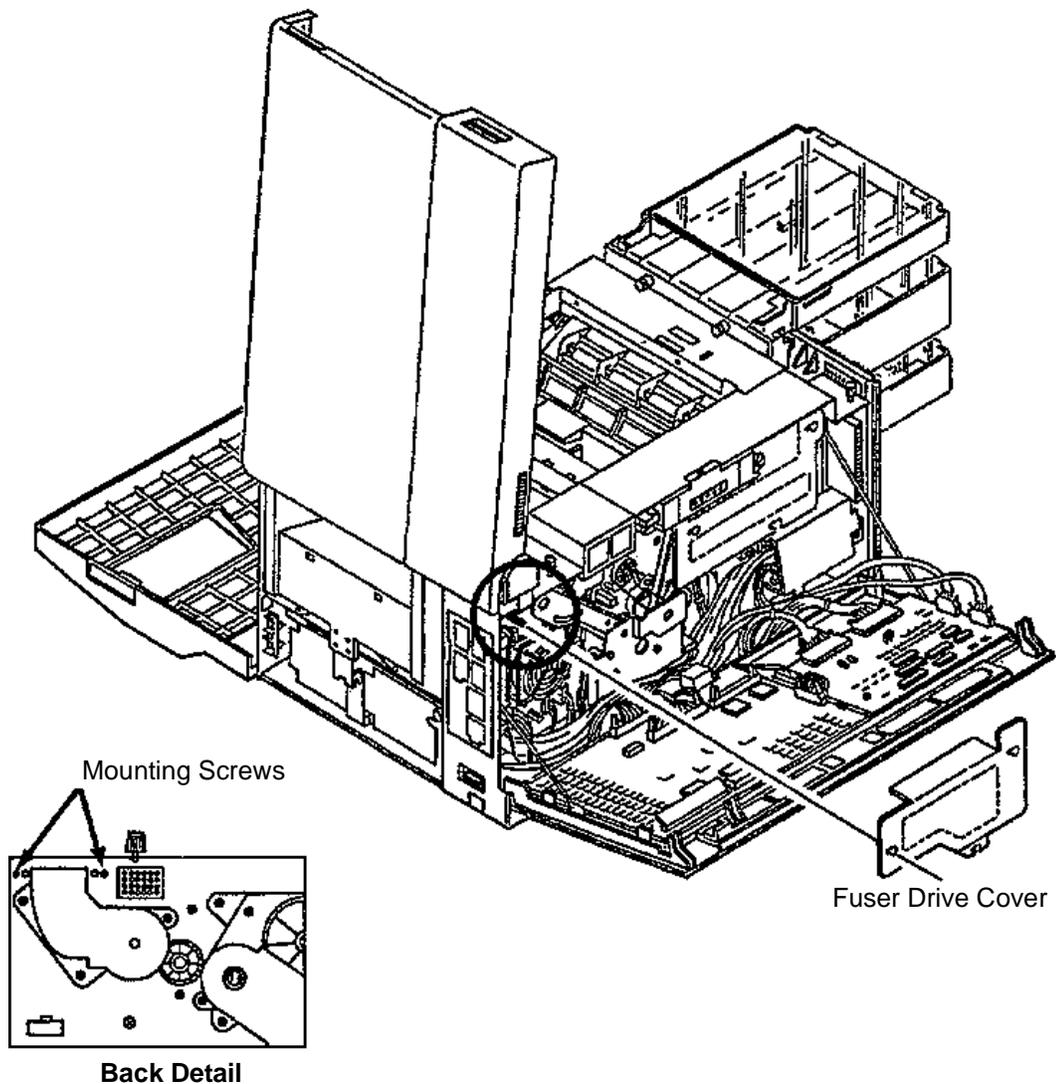
Paper Exit Sensor Removal

To remove the paper exit sensor:

1   Open the front, back, and top covers.

2   Remove the fuser.

3   Remove the operator panel (see page 7-19).

4   Remove the exit pinch roller (see page 7-69).

5   Disconnect CN49.

6   Remove the two screws holding the exit cover in place (one front and one back).

7   Tilt the exit cover assembly toward the center of the printer.

8   From the underside, remove the paper exit sensor (single screw).

CN49

Paper Exit Sensor Detail
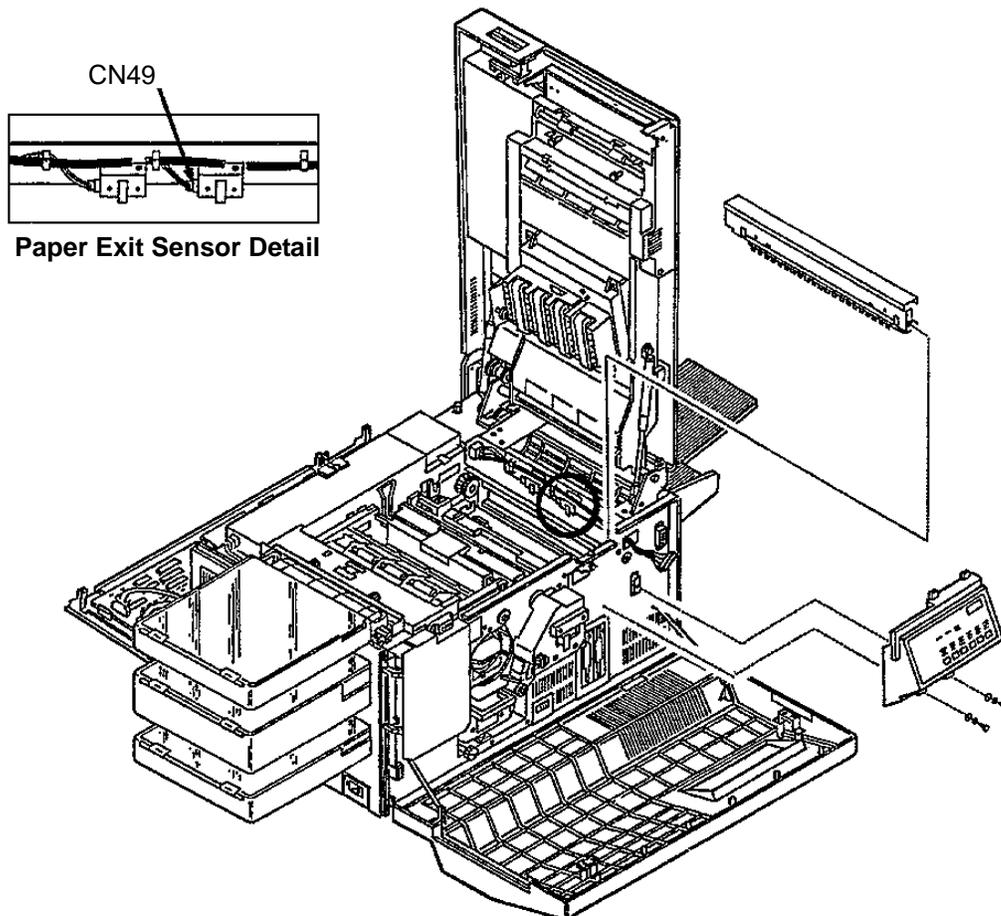
Paper Full Sensor Removal

To remove the paper full sensor:

1 Open the front, back, and top covers.

2 Remove the fuser.

3 Remove the operator panel (see page 7-19).

4 Remove the exit pinch roller (see page 7-69).

5 Disconnect CN51.

6 Remove the two screws holding the exit cover in place (one front and one back).

7 Tilt the exit cover toward the center of the printer.

8 From the underside, remove the paper full sensor (single screw).

CN51

Paper Full Sensor Detail
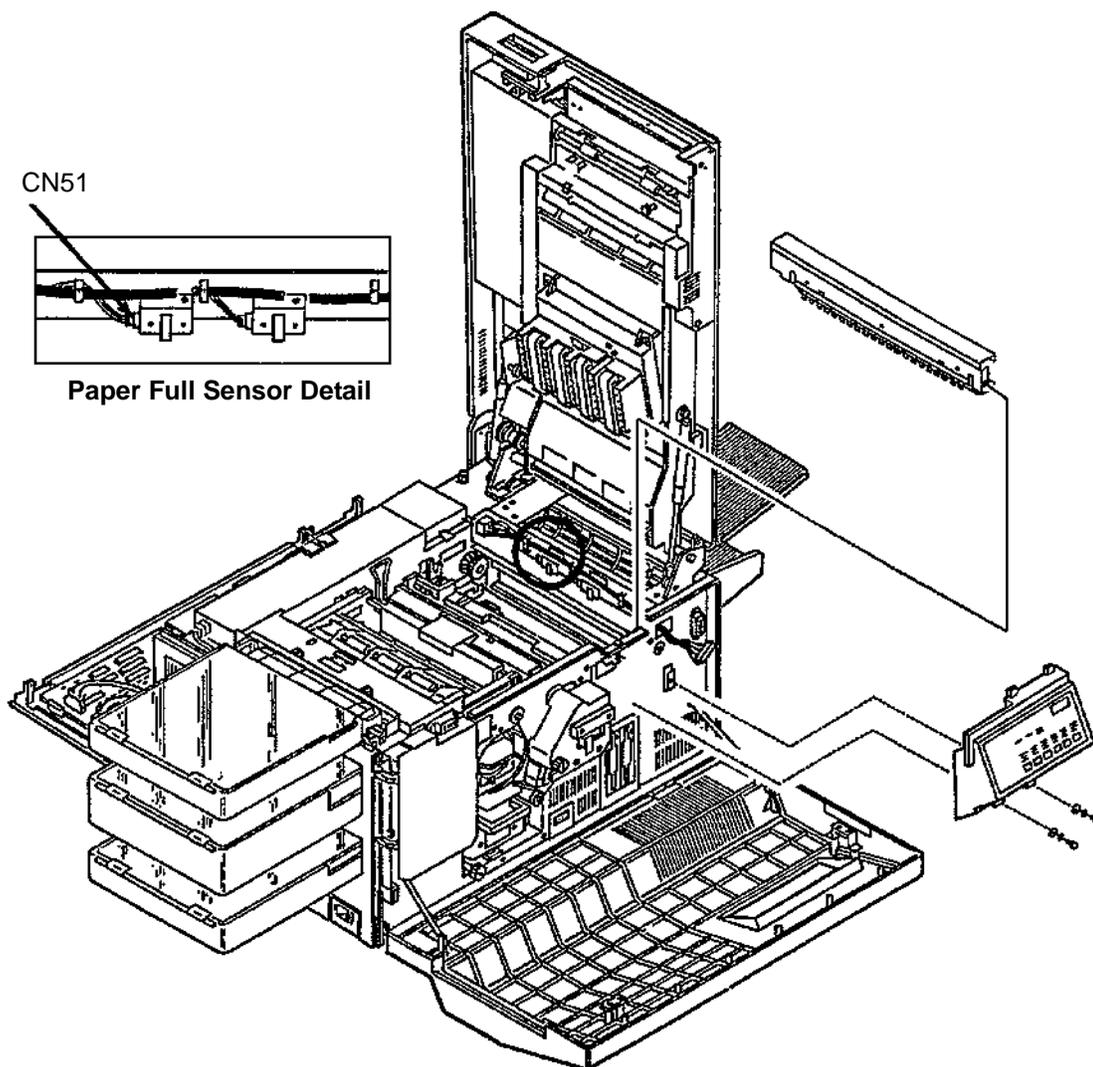
Front Cover Interlock Switch Removal

To remove the front cover interlock switch:

1   Open the front, top, and back covers.

2   **Duplex only:** Remove the duplex tray.

3   Remove the upper and lower paper cassettes.

4   Remove the left side cover (see page 7-8).

5   Remove the AC power supply (see page 7-29).

6   Remove the AC power supply top cover (two screws).

7   Disconnect the two wires connected to the interlock switch.

8   Remove the front interlock switch (two screws).

Wires
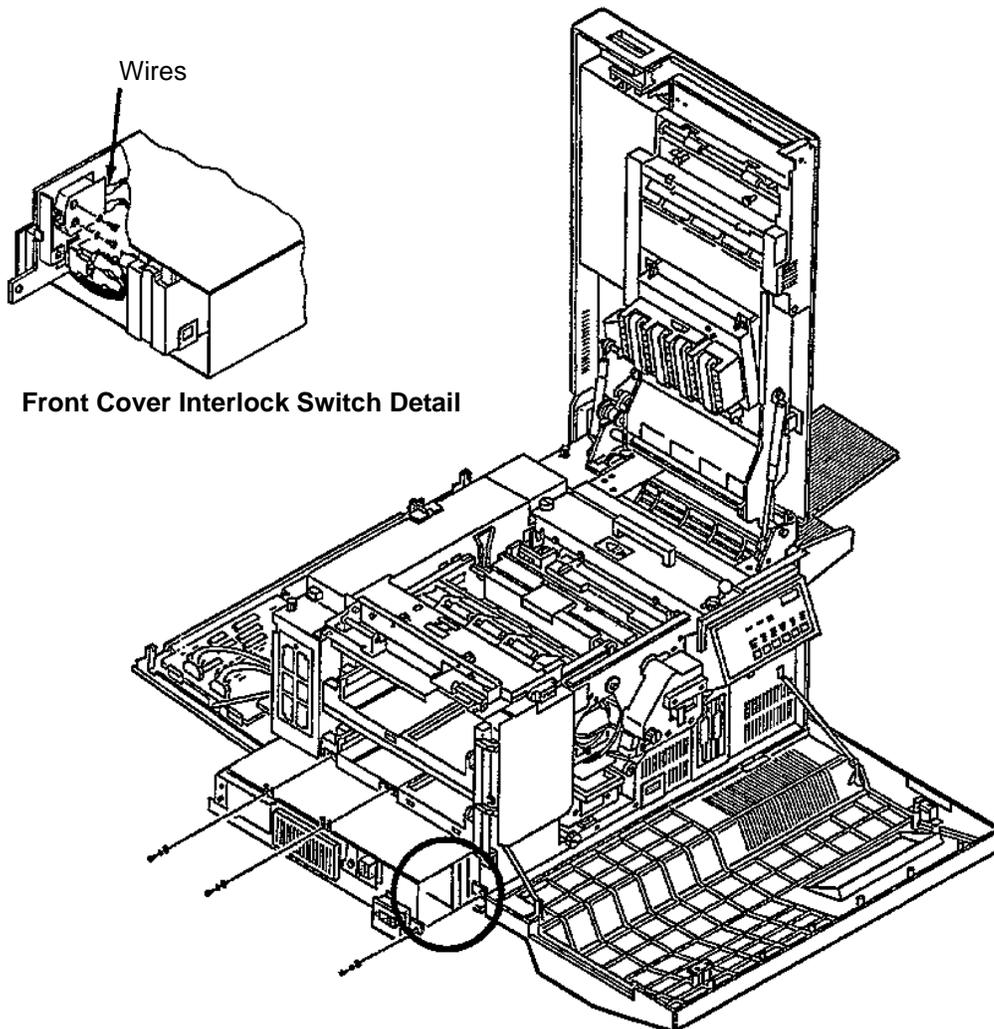
Front Cover Interlock Switch Detail

Back Cover Interlock Switch Removal

To remove the back cover interlock switch:

1   Open the front, top, and back covers.

2   **Duplex only:** Remove the duplex tray.

3   Remove the upper and lower paper cassettes.

4   Remove the left side cover (see page 7-8).

5   Remove the AC power supply (see page 7-29).

6   Remove the AC power supply side cover (one screw).

7   Disconnect the four wires connected to the interlock switch.

8   Remove the back cover interlock switch (two screws).

Back Cover Interlock Switch Detail
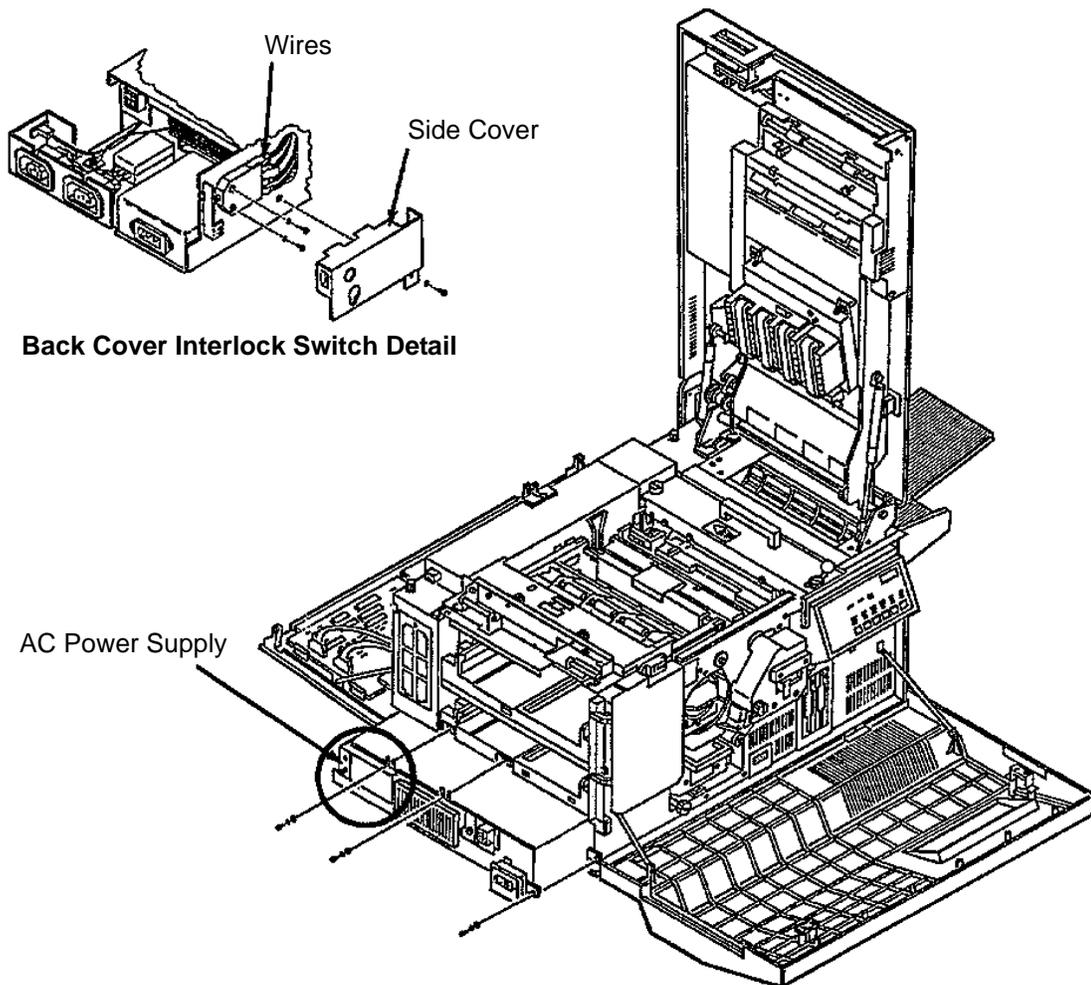
Top Cover Interlock Switch Removal

To remove the top cover interlock switch:

1   Open the top, front, and back covers.

2   **Duplex only:** Remove the duplex tray.

3   Remove the upper and lower paper cassettes.

4   Remove the left side cover (see).

5   **Duplex only:** Remove the duplex tray mount (four screws).

6   Remove the paper feed drive cover (three screws; duplex two screws).

7   Disconnect the two wires connected to the interlock switch.

8   Remove the top cover interlock switch (two screws).

Duplex Tray
Mount
(C30D only)

Paper Feed
Drive Cover

Wires
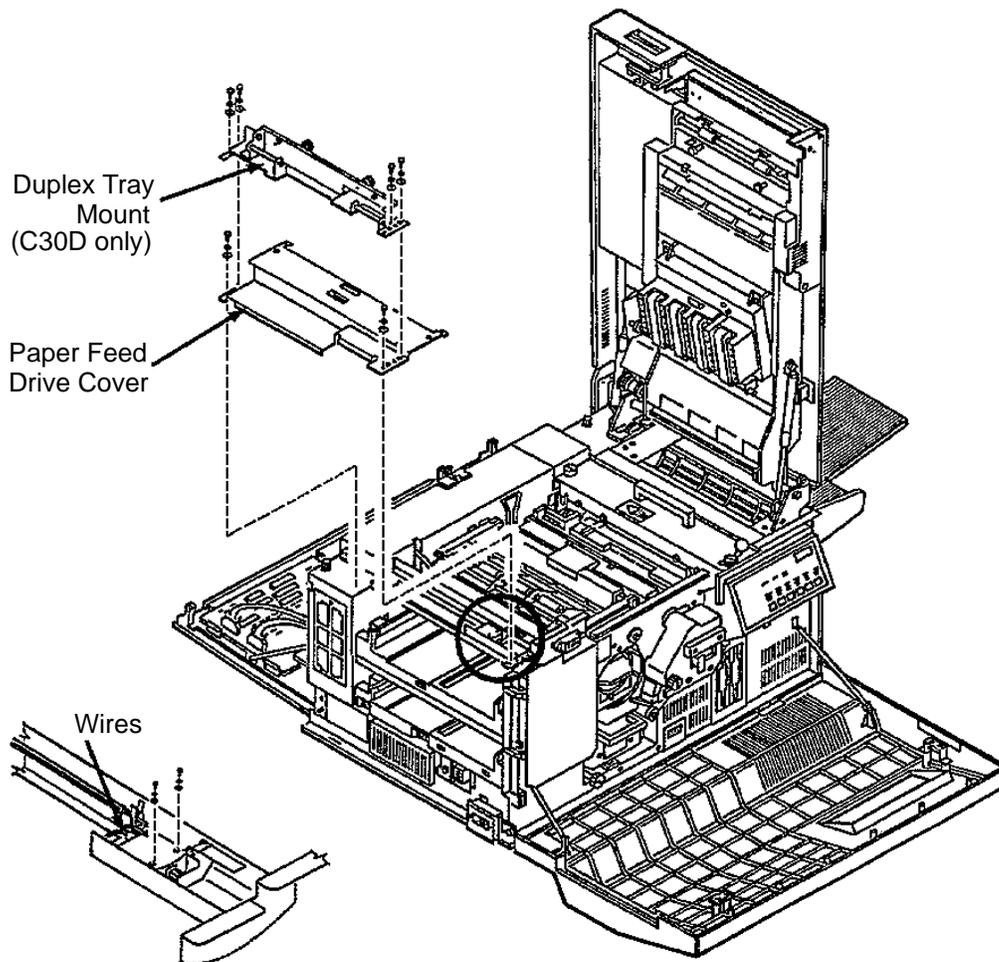
Top Cover Interlock Switch Detail

Erase Lamp Removal

To remove the erase lamp:

1   Open the top and back covers.

2   Remove the photoconductor and place it in its protective packaging.

3   Remove the fuser drive cover (three screws).

4   Disconnect CN26.

5   Remove the screw holding the erase lamp in place.

6   Disengage the front of the erase lamp from its guide pin.

7   Slide the unit out from the back of the printer.

Mounting Screw

CN26

Fuser Drive Cover

Back Detail
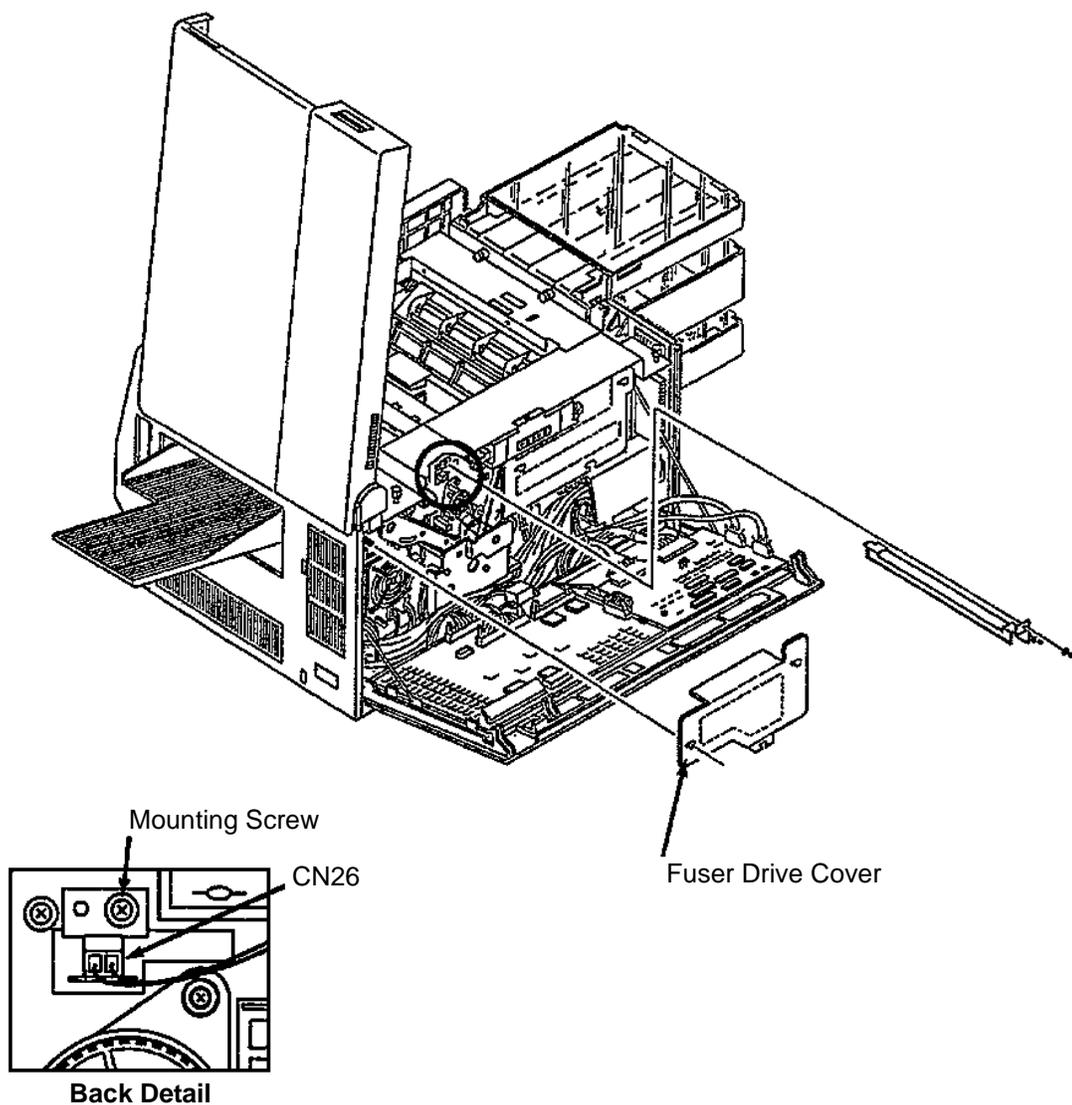
EP Cover Removal

To remove the EP cover:

1 Open the front, back, and top covers.

2 Remove the fuser.

3 Remove the photoconductor and place it in its protective packaging.

4 Remove the cleaner unit.

5 Remove the operator panel (see page 7-19).

Vacuum Transport
Supports

Support Screw

EP Cover Screws

Front Detail
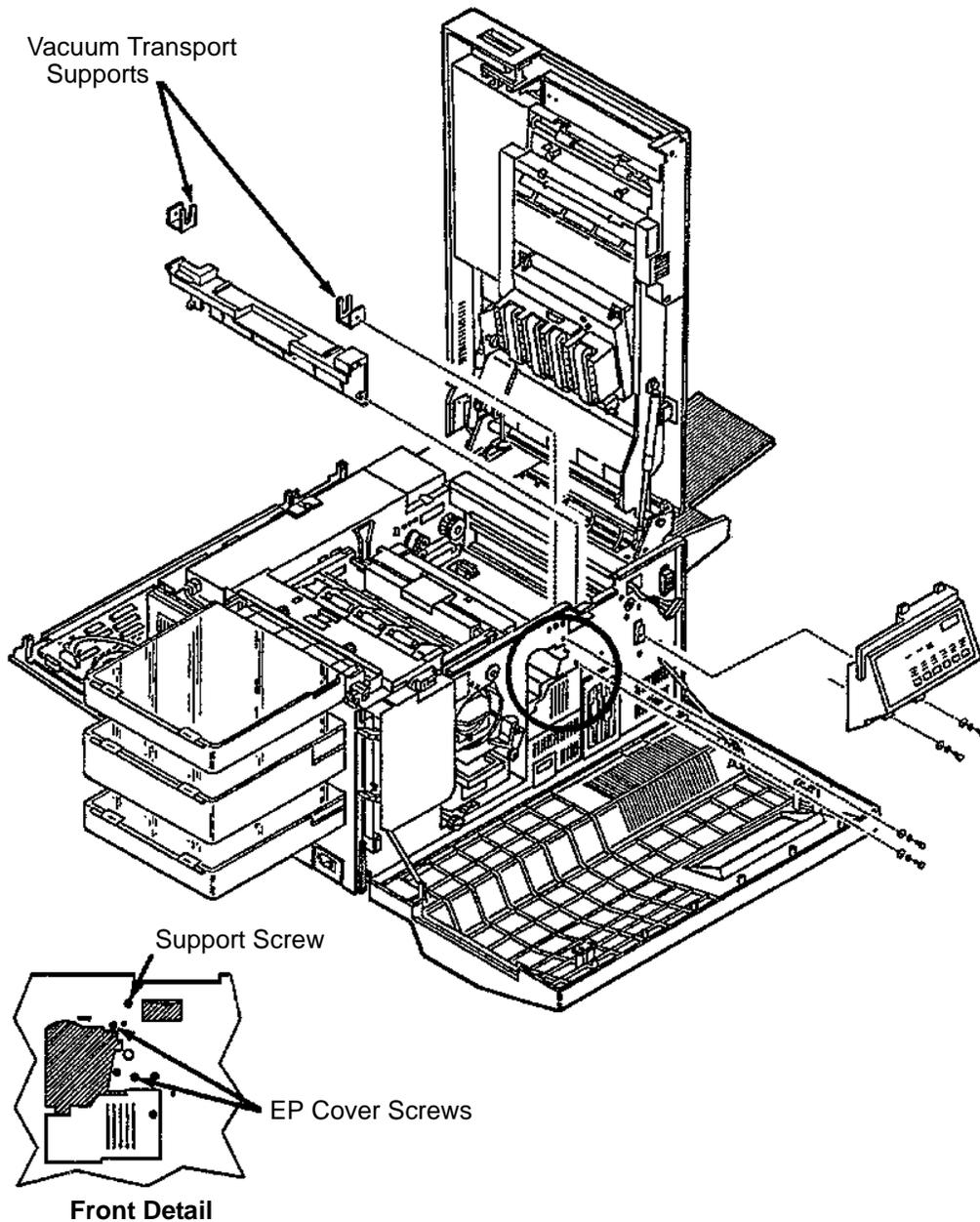
6 Remove the fuser drive cover (three screws).

7 Remove the two supports for the vacuum transport unit (one screw each).

8 **Duplex only:** Remove the duplex fan (see page 7-27).

9 Remove the four screws holding the EP cover in place (two front and two back).

10 Remove the upper right screw holding the fuser drive in place.

11 Lift the EP cover straight up and out of the printer.

Replacement Note:

The higher of the two drive shaft support arms should be facing the left side of the printer.

Support Screw

Fuser Drive Screw

Fuser Drive Cover

EP Cover Screws

Back Detail
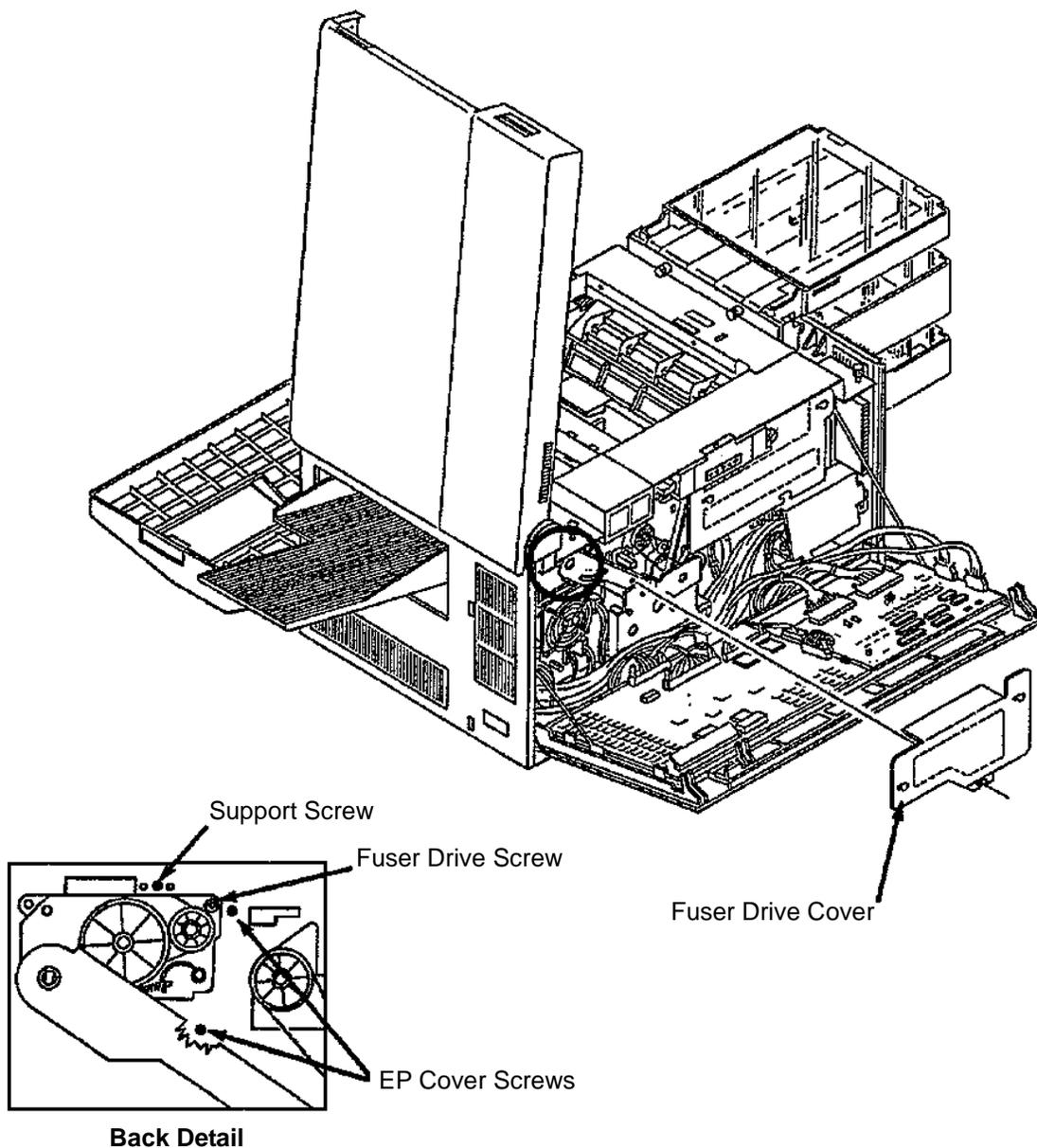
Main Motor Removal

Caution
Do not allow the capacitor contacts to short out against your body or the printer frame.

To remove the main motor:

1 Disconnect all external cables and attachments.

2 Open the front, back, and top covers.

3 Remove the photoconductor and place it in its protective packaging.

4 Remove the cleaner unit.

5 Remove the back cover (see page 7-6).

6 Remove the lower back cover (see page 7-7).

7 Remove the signal interface board (see page 7-37).

Drive Shaft Key

Main Motor Gear

Main Drive Cover

Gear Stay Cover

Gear Stay
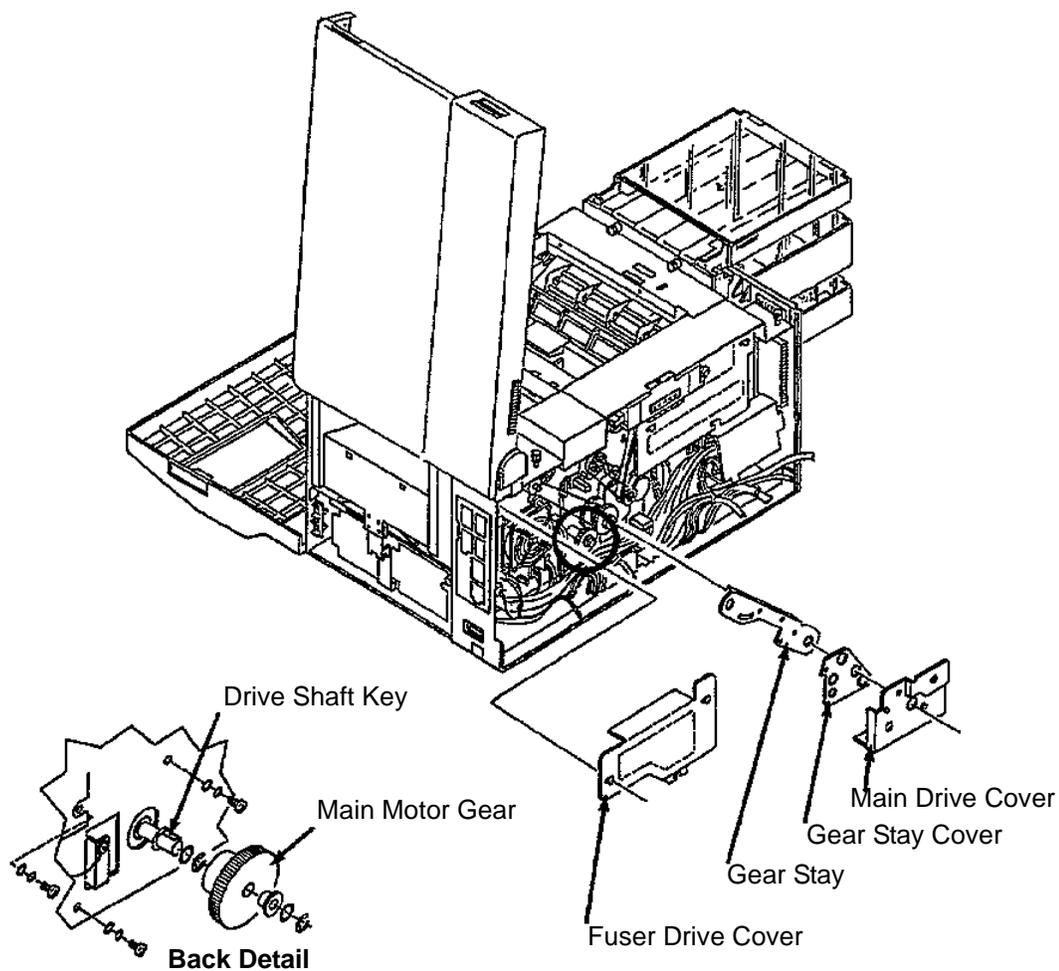
Fuser Drive Cover

Back Detail

8 Remove the right side cover (see page 7-9).

9 Remove the counter (see page 7-20).

10 Remove the main drive cover (one screw).

11 Remove the fuser drive cover (three screws).

12 Remove the gear stay cover.

13 Remove the gear stay (three screws).

14 Remove the disk drive housing (see page 7-25).

15 Remove the printhead (see page 7-23).

16 Remove the DC power supply (see page 7-31).

17 Remove the main motor gear and bearing (two C-clips).

18 Disconnect CN95.

19 From the right side, remove the two screws holding the main motor in place.

20 From the back, remove the three screws holding the main motor in place.

21 Remove the main motor through the side of the printer.

Replacement Notes:

- Remove the drive shaft key from the old motor. Replacement motors are not supplied with a key.
- Be sure to tuck the CN95 connector under the motor after installation so that the wires do not protrude into the disk drive assembly area.

Main Motor Detail

Capacitor

CN95

Capacitor Contacts
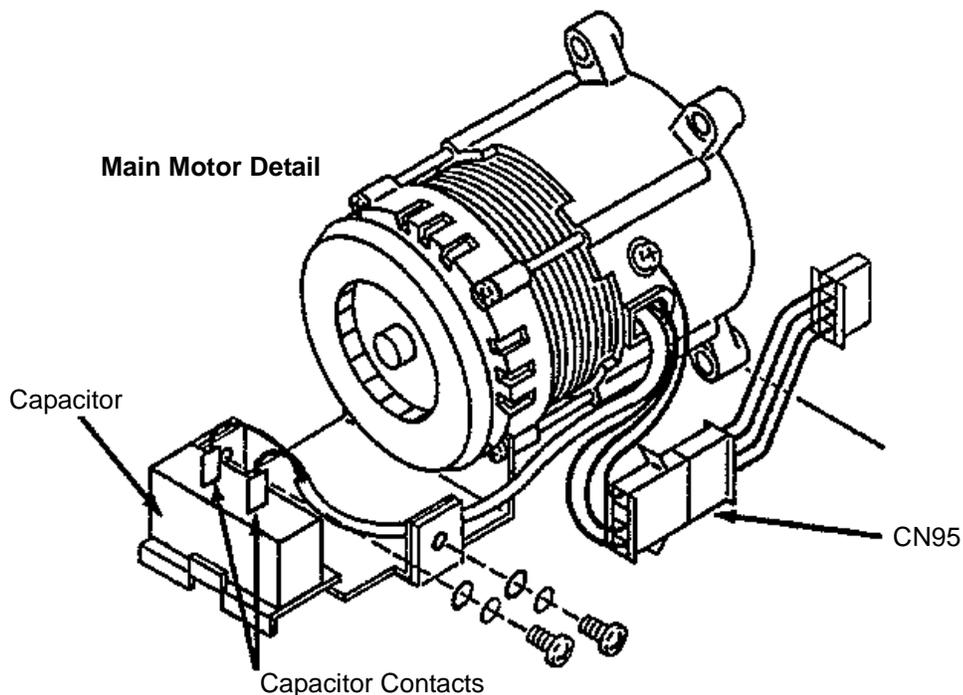
Main Gear Drive Removal

To remove the main gear drive:

1 Open the back cover.

2 Remove the lower back cover (see page 7-7).

3 Remove the paper feed drive cover (three screws).

4 Remove the fuser drive cover (three screws).

5 Remove the main drive cover (one screw).

6 Remove the gear stay cover (one screw).

7 Remove the gear stay (three screws).

8 Remove the cleaner drive belt (see page 7-55).

9 Remove the paper feed drive belt (see page 7-59).

10 Remove the main gear drive (three screws).

Main Gear Drive Detail

Paper Feed
Drive Cover

Main Drive
Cover

Gear Stay Cover

Gear Stay

Fuser Drive Cover
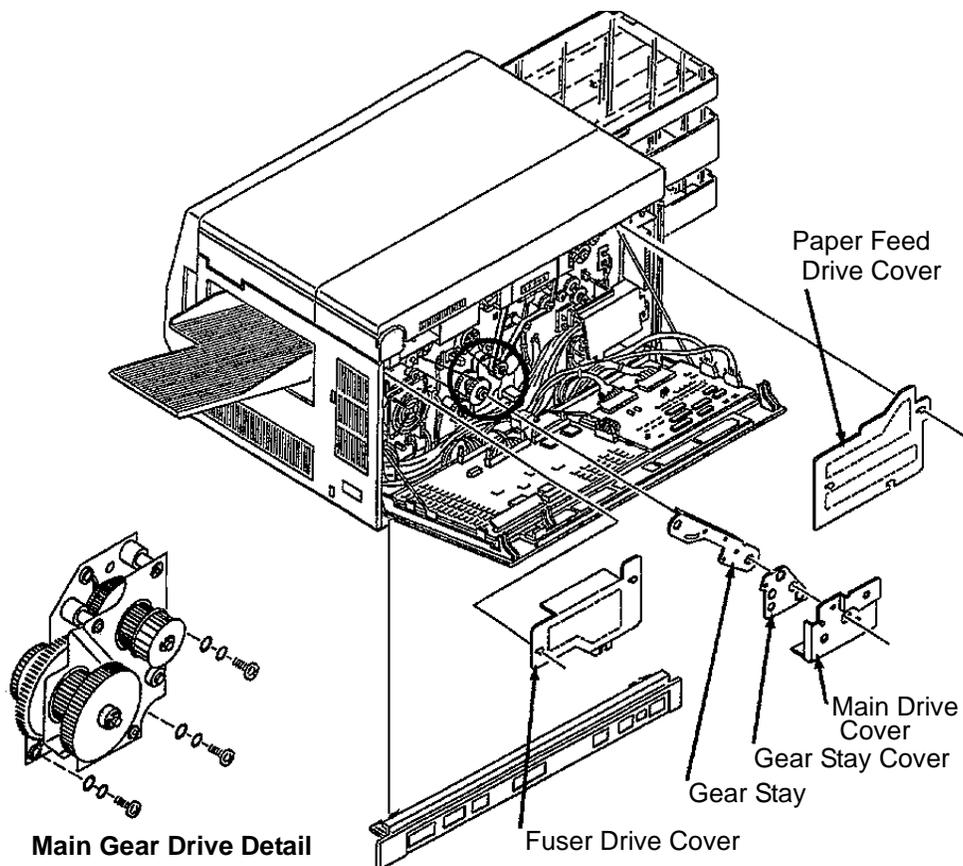
Duplex Control Board #1 Removal

To remove duplex control board #1:

1   Open the top cover.

2   Remove the duplex control board cover (two screws).

3   Disconnect CN306, CN307, CN308, and CN309.

4   Disengage duplex control board #1. To do this, pinch the four standoffs on the board one at a time.

5   Lift the board from the mounting bracket.

Duplex Control Board Cover

CN308

CN309   CN306

CN307

Standoffs

Duplex Control Board #1 Detail
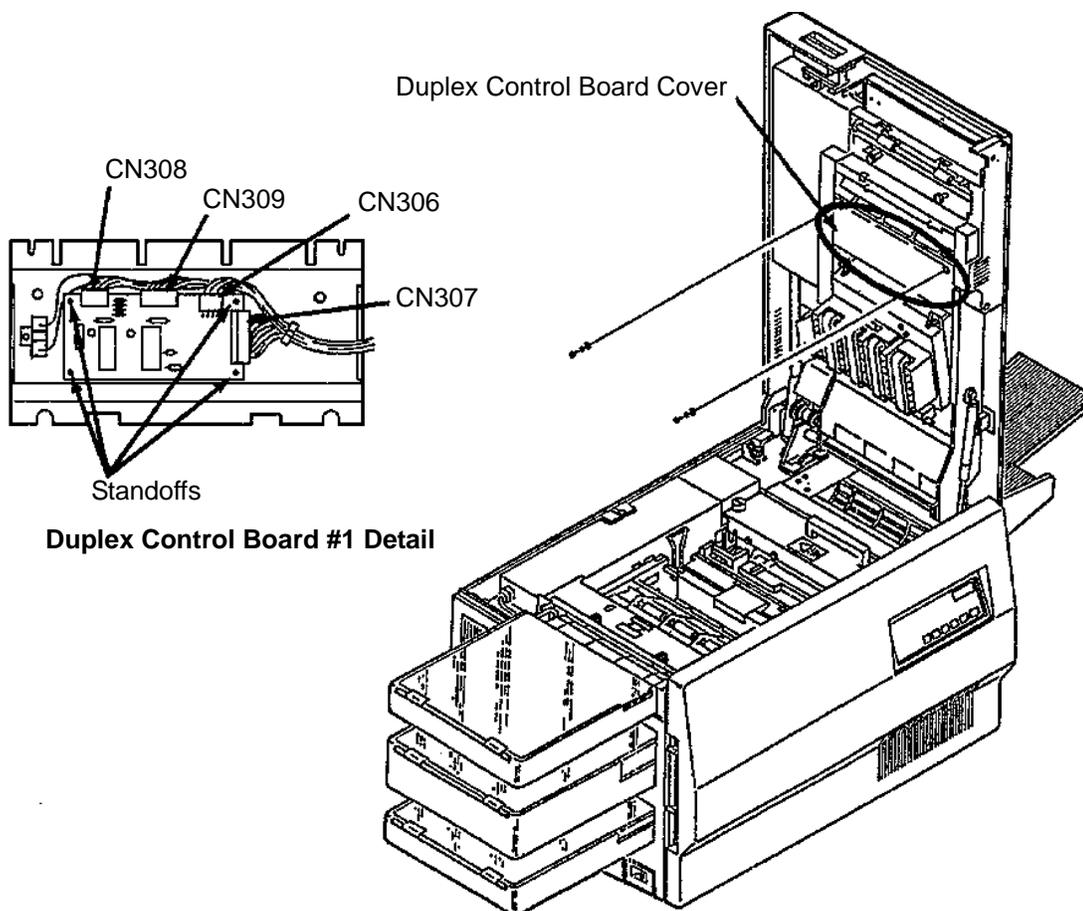
Duplex Control Board #2 Removal

To remove duplex control board #2:

1 Open the top cover.

2 Remove the duplex tray.

3 Remove the paper guide from the duplex tray (four screws).

4 Disconnect CN310, CN311, and CN312.

5 Remove duplex control board #2 (two screws).
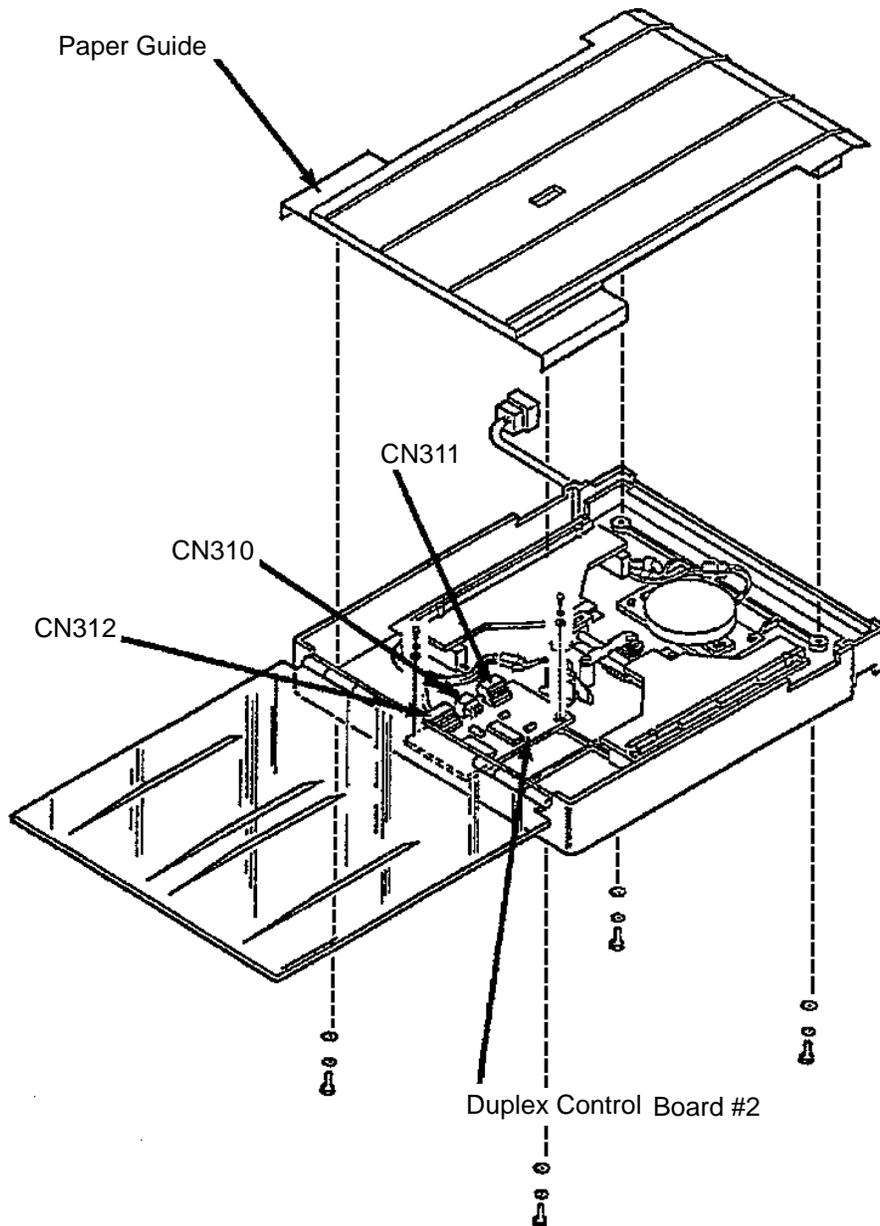
Duplex Tray Registration Motor Removal

To remove the duplex tray registration motor:

1 Open the top cover.

2 Remove the duplex tray.

3 Remove the paper guide inside the duplex tray (four screws).

4 Disconnect CN321.

5 Remove the registration motor (two screws).

Paper Guide

CN321

Mounting Screws

Registration Motor Detail
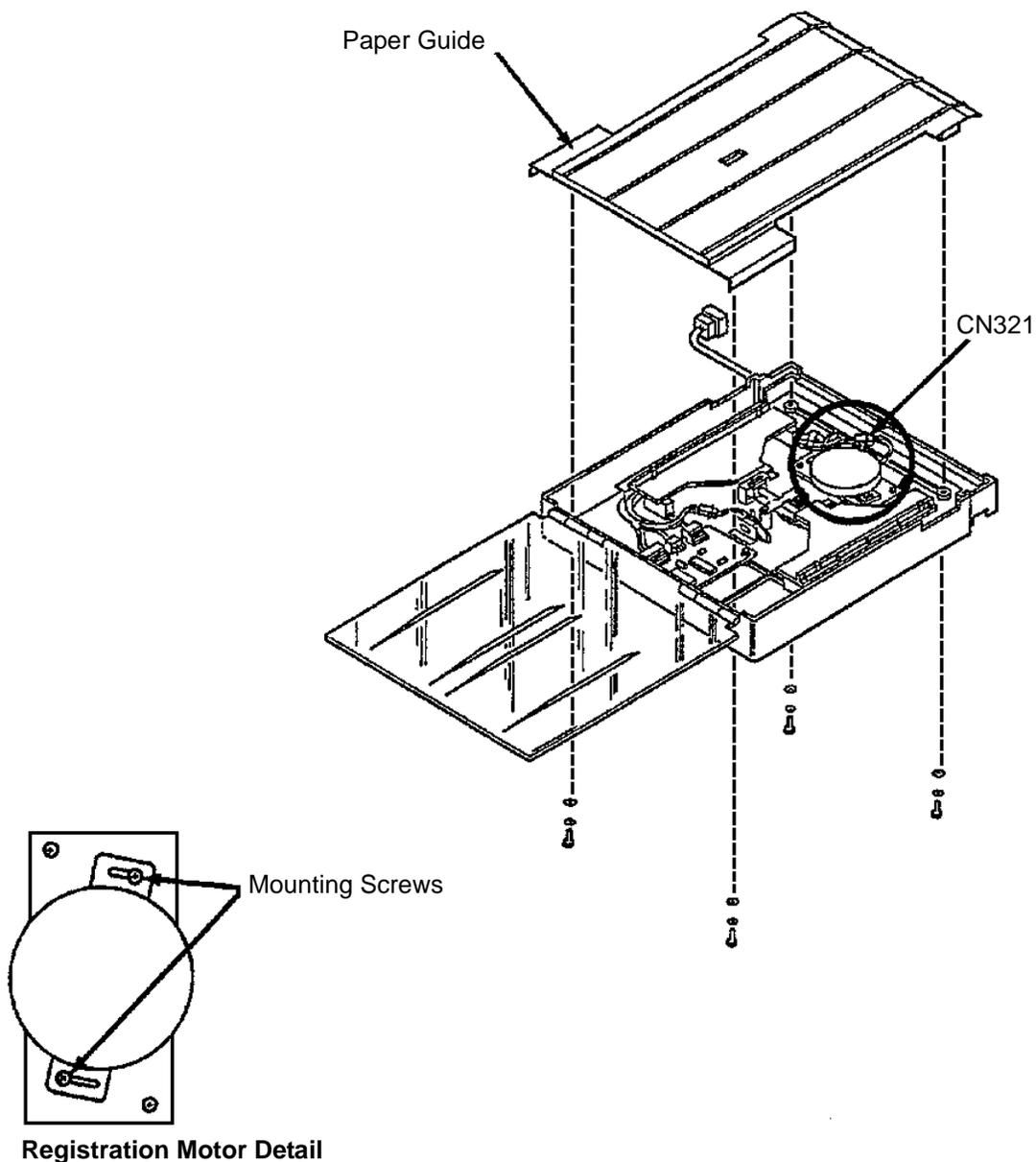
Duplex Skew Correction Cable Removal

To remove the duplex skew correction cable:

1 Open the top cover.

2 Remove the duplex tray.

3 Remove the paper guide from inside the duplex tray (four screws).

4 Slide the skew correction guides toward the center of the duplex tray.

5 Remove the bracket holding the shaft in place (two screws).

6 Remove the screw holding the cable mounting plate in place.

7 Lift the skew correction guides and shaft up out of the duplex tray.

8 Remove two screws holding each pulley assembly in place.

9 Remove the spring from the cable.

10 Lift the skew correction cable and pulley assemblies from the duplex tray.

Replacement Notes:

The placement of the mounting bead is critical. Set it on precisely. Replace parts in this order:

- First reinstall the pulley assembly.
- Then, wrap the cable three times around the drive gear pulley.
- Finally, connect the spring.

Duplex Skew Correction Cable Removal

Paper Guide

Skew Correction Guides

Mounting Plate Screw

Shaft Bracket

Shaft

Mounting Bead

Skew Correction Cable

Drive Gear Pulley

Cable Mounting Plate

Tension Spring

Pulley Assembly
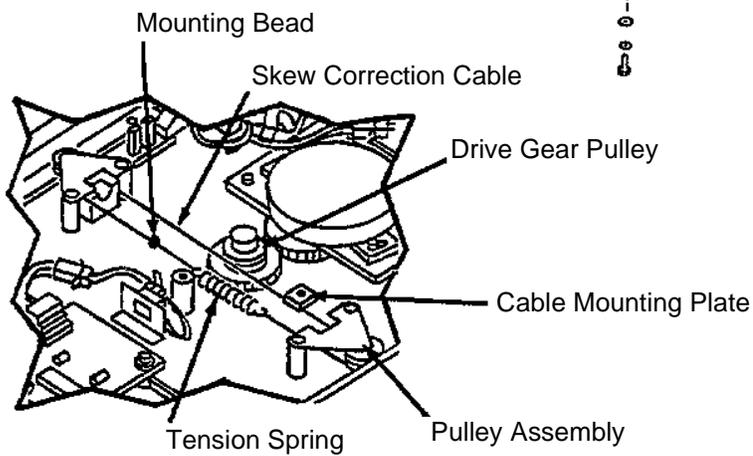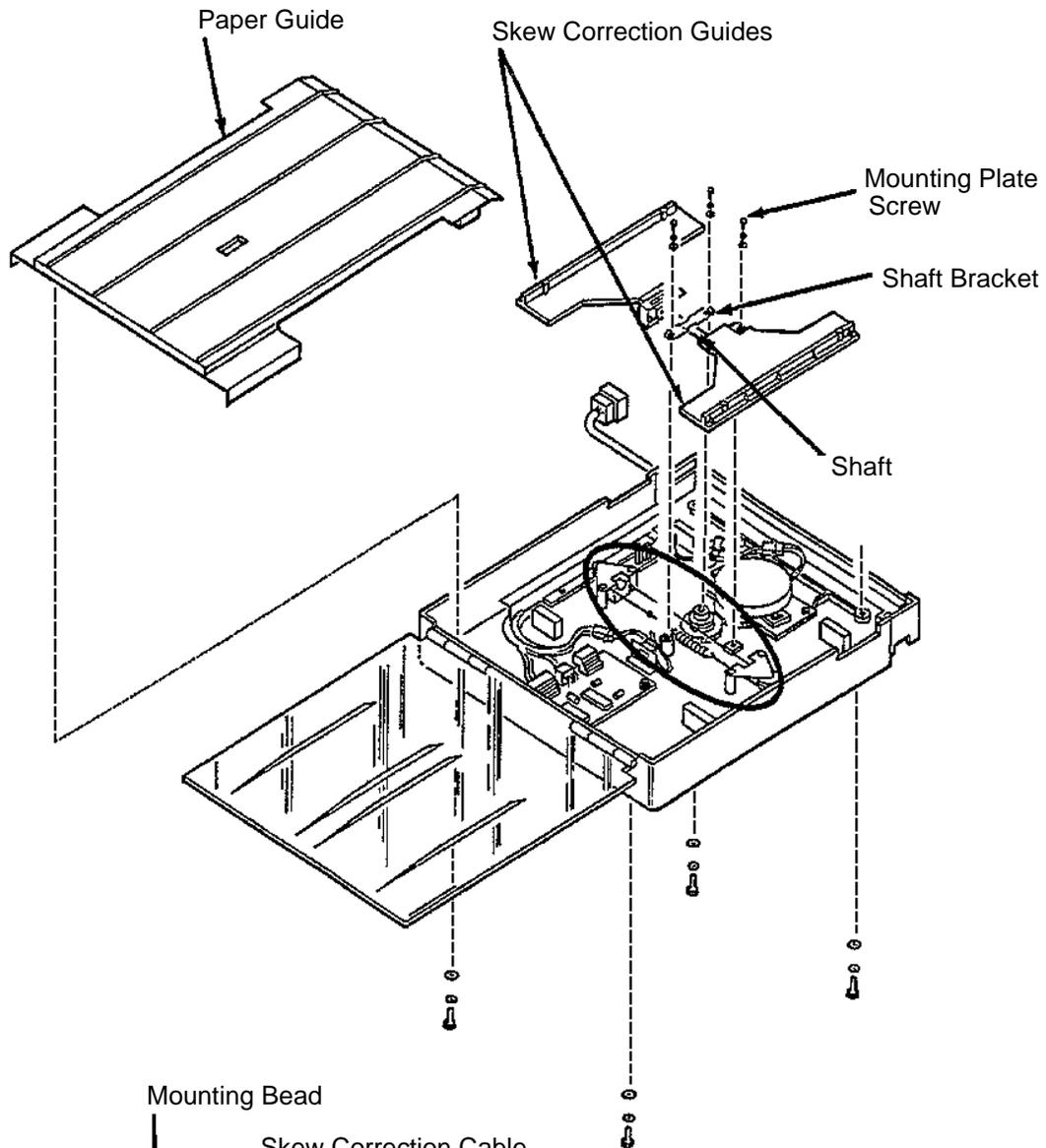
Skew Correction Cable Detail

Upper Duplex Drive/Clutch Assembly Removal

To remove the upper duplex drive/clutch assembly:

1   Open the top cover.

2   Remove the rear duplex cover (see page 7-17).

3   Remove the lower duplex roller cover (four screws).

4   Disconnect CN316.

5   Remove the upper duplex drive/clutch assembly (three screws).
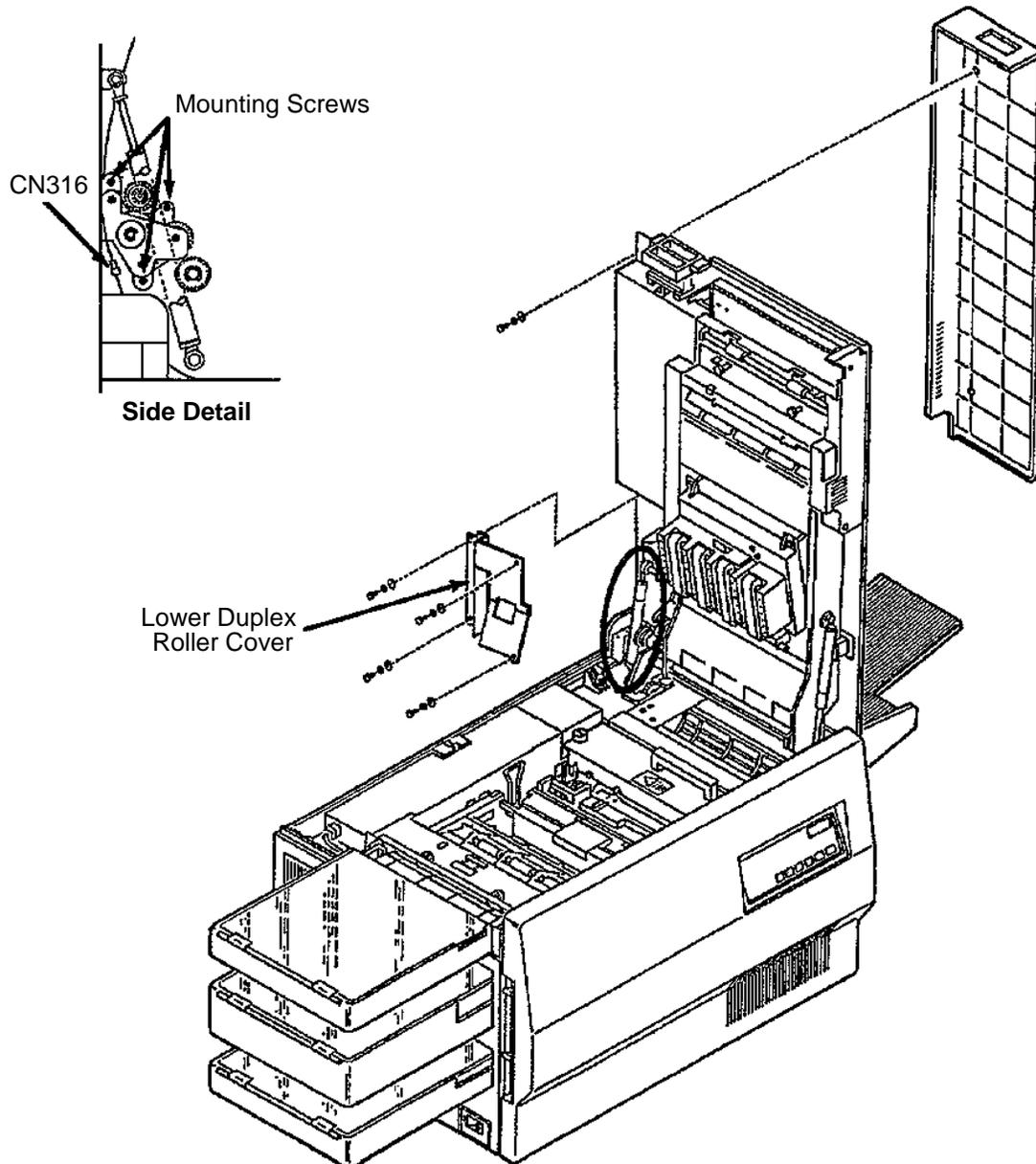
Duplex Route Motor/Solenoid Assembly Removal

To remove the duplex route motor/solenoid assembly:

1   Open the top cover.

2   Remove the rear duplex cover (see page 7-17).

3   Remove the upper duplex roller cover (four screws).

4   Disconnect CN313 and CN314.

5   Remove the duplex route motor/solenoid assembly (three screws).

Mounting Screws

CN314

CN313

Duplex Route Motor/Solenoid Detail

Upper Duplex
Roller Cover
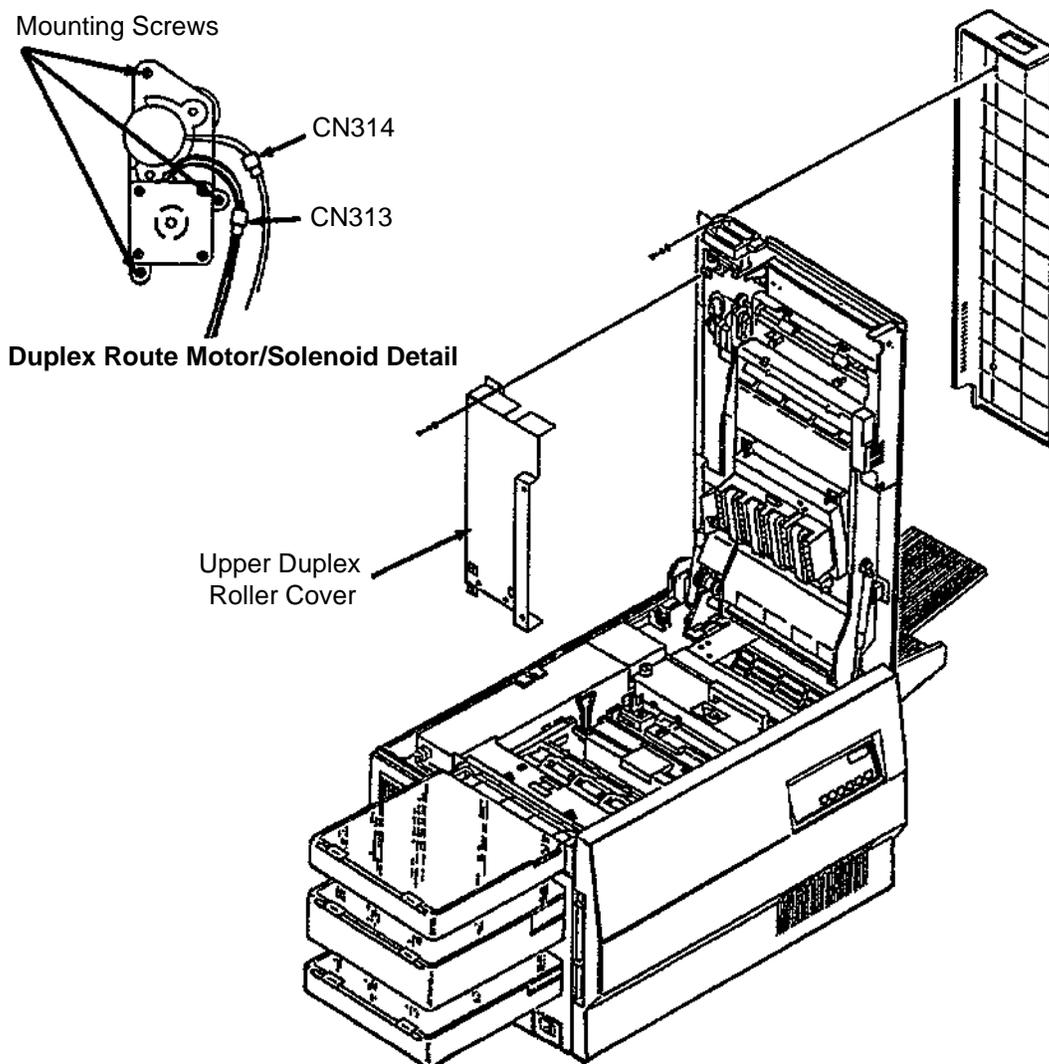
"A" Roller Removal

To remove the "A" roller:

1 Open the top cover.

2 Remove the rear duplex cover (see page 7-17).

3 Remove the lower duplex roller cover (four screws).

4 Remove the front C-clip and bearing from the "A" roller.

5 Lower the top cover to a 45 degree angle.

6 Slide the "A" roller out the back of the printer.

A Roller

Side Detail

Lower Duplex
Roller Cover
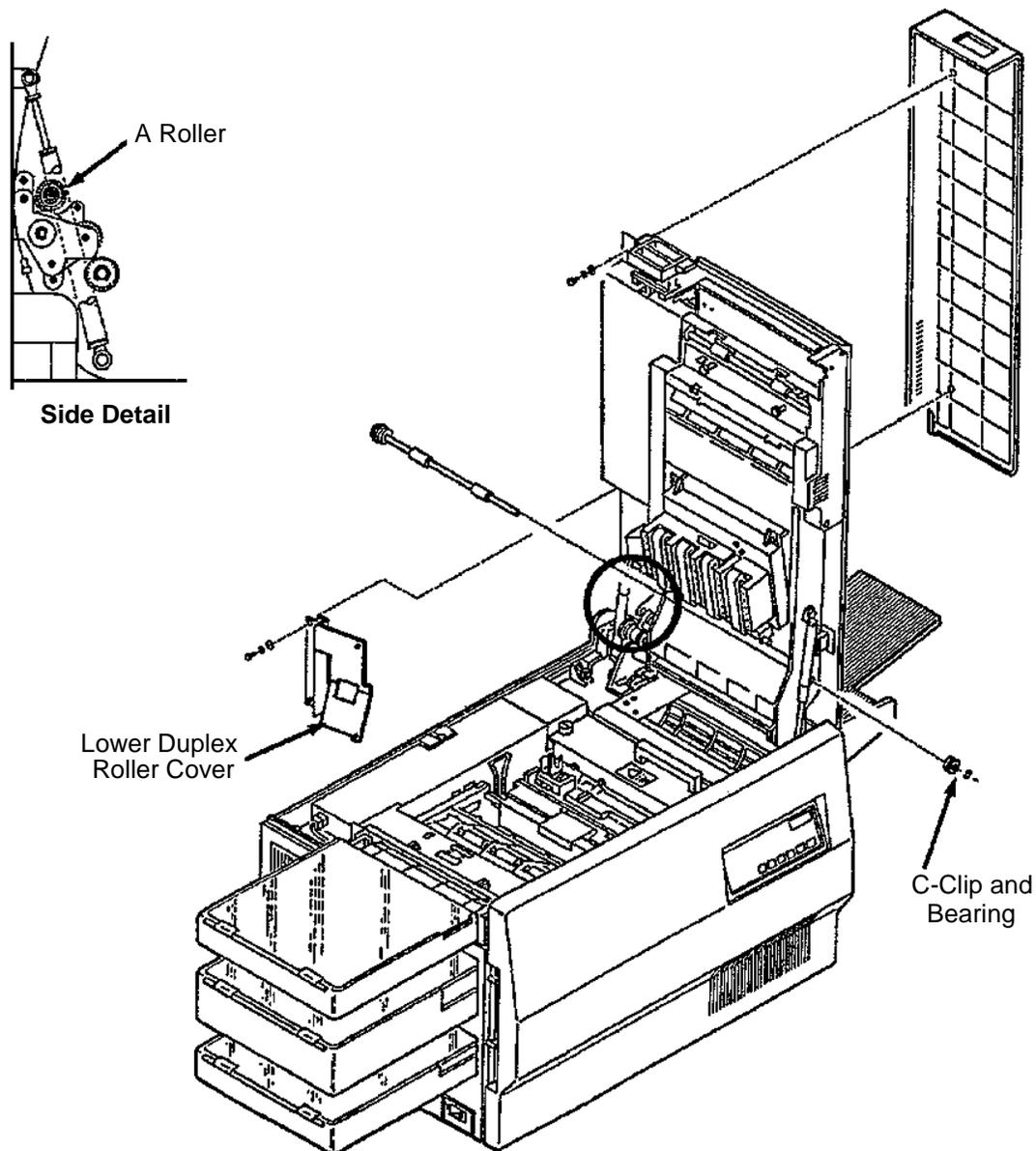
C-Clip and
Bearing

"B" Roller Removal

To remove the "B" roller:

1   Open the top cover.

2   Remove the rear duplex cover (see page 7-17).

3   Remove the upper duplex roller cover (four screws).

4   Remove the lower duplex roller cover (four screws).

5   Remove the front C-clip and bearing from the "B" roller.

6   Remove two screws holding the duplex control board cover in place.

7   Move the cover to the left out of the way.

8   Loosen the screw holding the idler roller in place.

9   Remove the duplex drive belt.

10 Remove the drive gear (single C-clip).

11 Slide the "B" roller out from the back of the printer.
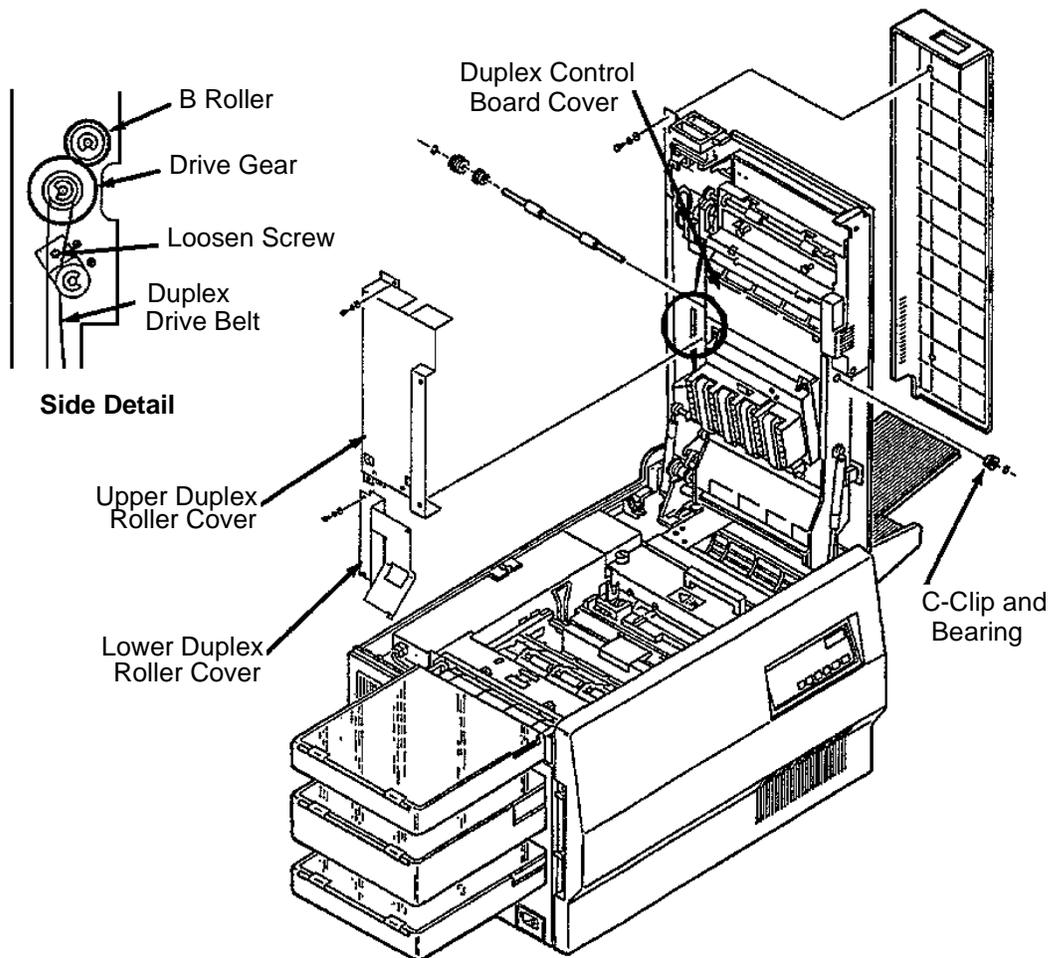
"C" Roller Removal

To remove the "C" roller:

1   Open the top cover.

2   Remove the rear duplex cover (see).

3   Remove the upper duplex roller cover (four screws).

4   Remove the front mechanism cover (two screws).

5   Remove the front C-clip and bearing from the "C" roller.

6   Slide the "C" roller out from the back of the printer.

Upper Duplex
Roller Cover

C-Clip and Bearing
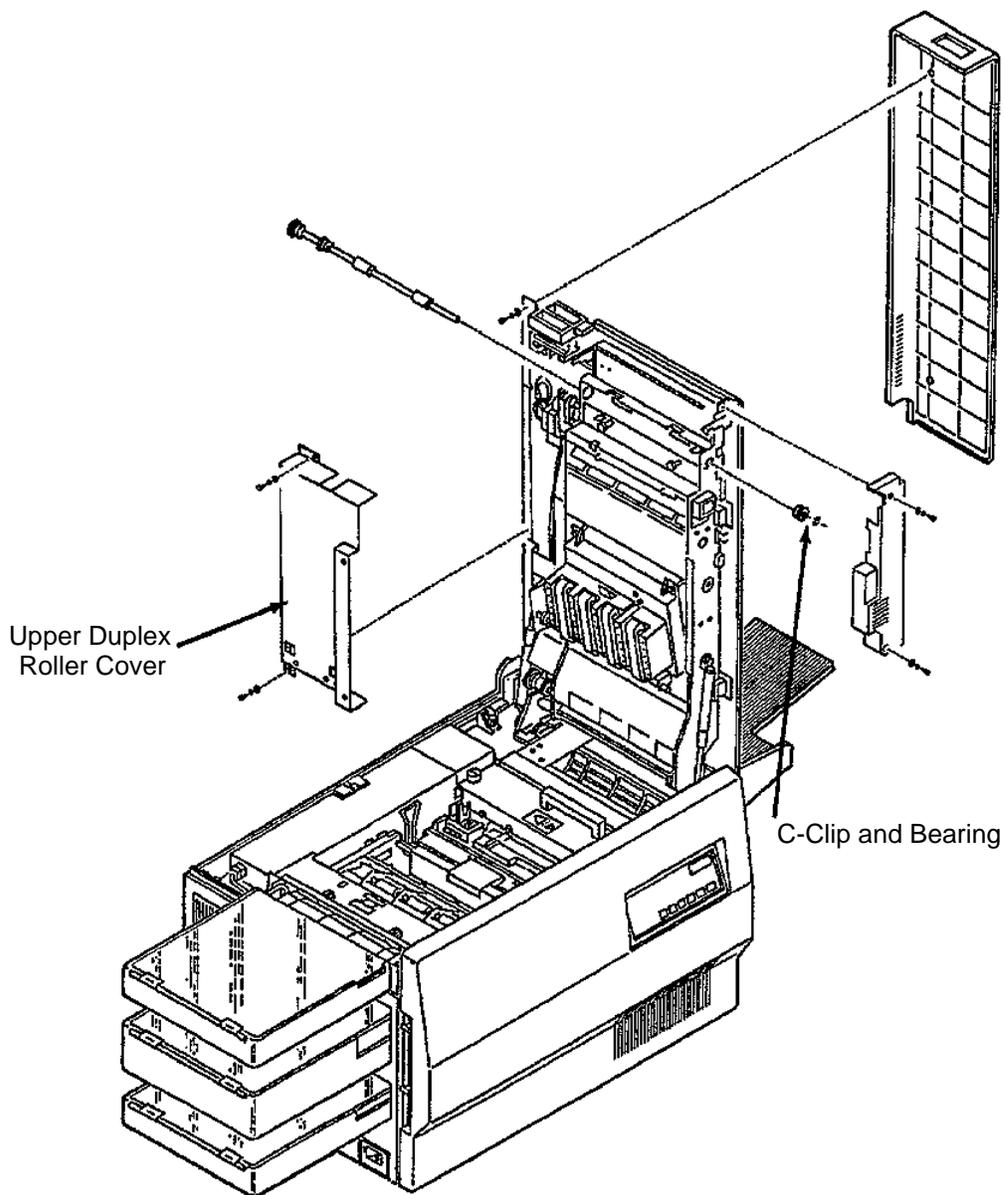
"C" Roller Solenoid Removal

To remove the "C" roller solenoid:

1 Open the top cover.

2 Remove the front mechanism cover (two screws).

3 Disconnect CN315 and cut the cable tie securing the wires to the mounting plate.

4 Remove the two screws holding the "C" roller solenoid in place.

5 Loosen the set screw securing the actuator arm to the "C" roller.

6 Disengage the solenoid from the actuator arm and remove it.

Replacement Note:

Install a new cable tie to secure the wires from CN315 to the mounting plate.

Actuator Arm

Mounting Screws

C Roller Solenoid Detail

CN315
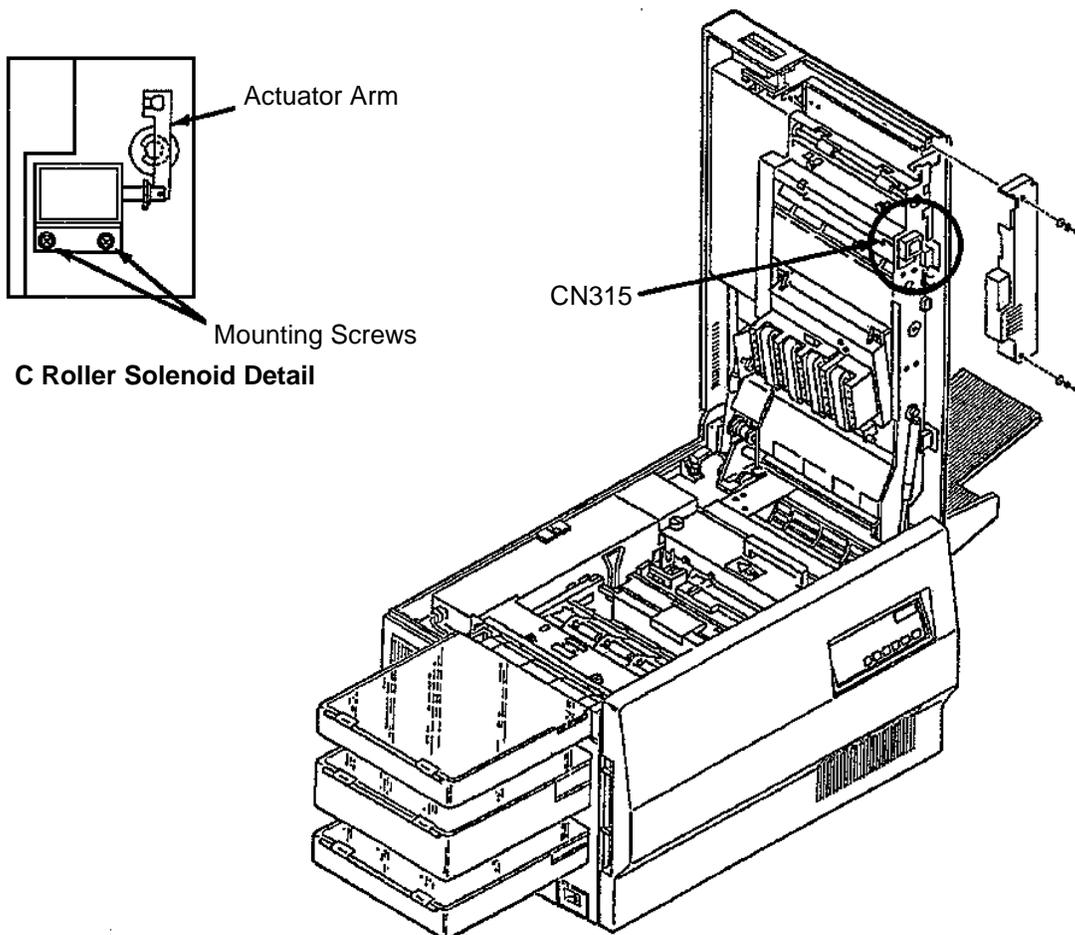
Duplex Route Separator Removal

To remove the duplex route separator:

1   Open the top cover.

2   Remove the rear duplex cover (see page 7-17).

3   Remove the upper duplex roller cover (four screws).

4   Remove the duplex route motor/solenoid assembly (see page 7-96).

5   Remove the front mechanism cover (two screws).

6   Open the duplex cover.

7   Remove screw holding the return arm in place.

8   Disengage the return spring.

Duplex Route Motor/
Solenoid Assembly

Return Arm Screw

Return Arm

Return Spring

Side Detail

Front
Mechanism
Cover

Upper Duplex
Roller Cover
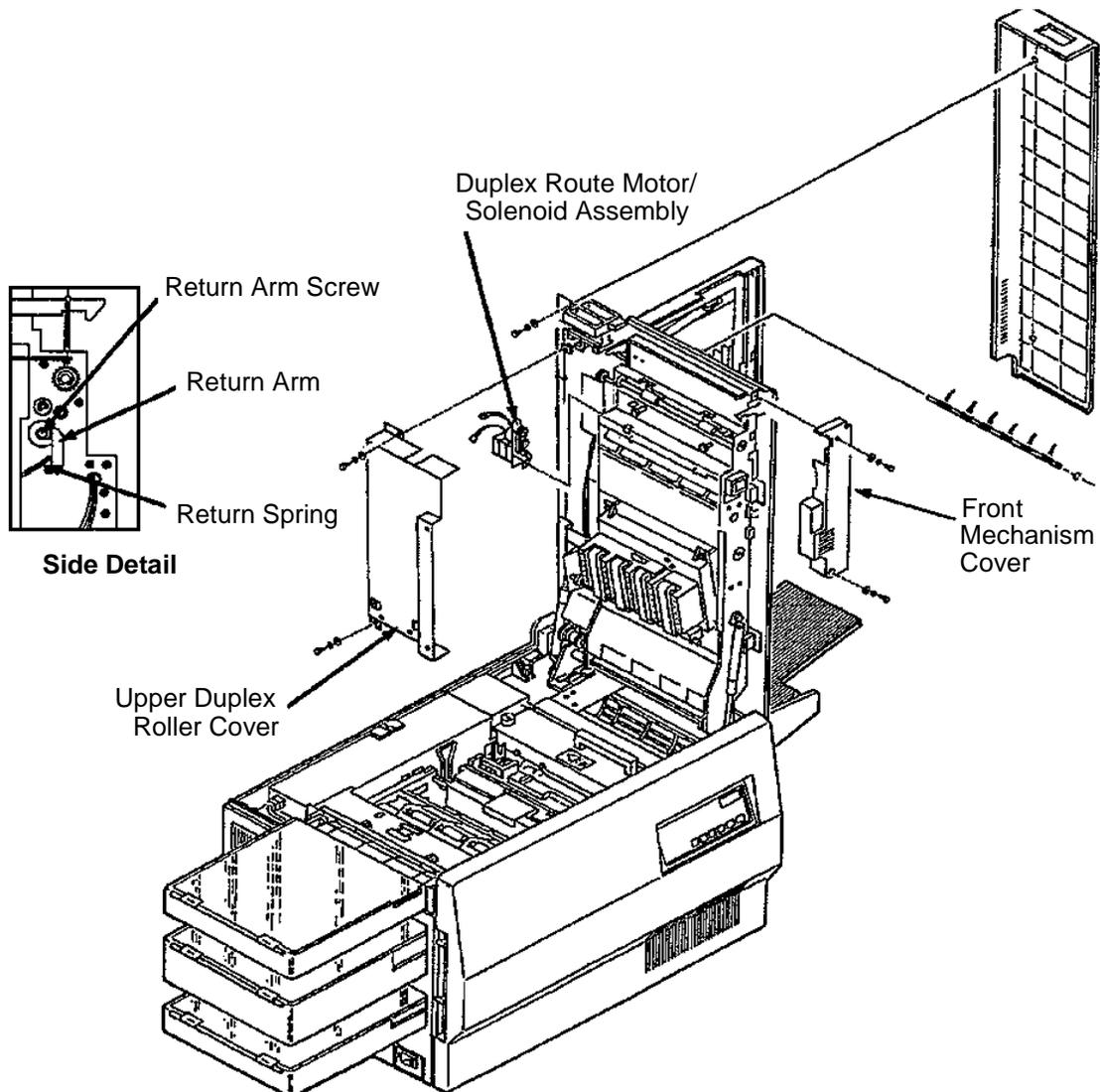
Duplex Route Separator Removal

9 Remove the front C-clip from the route separator.

10 Disengage the route separator from its side supports.

11 Lift the route separator out from the duplex cover.

C-Clip Location
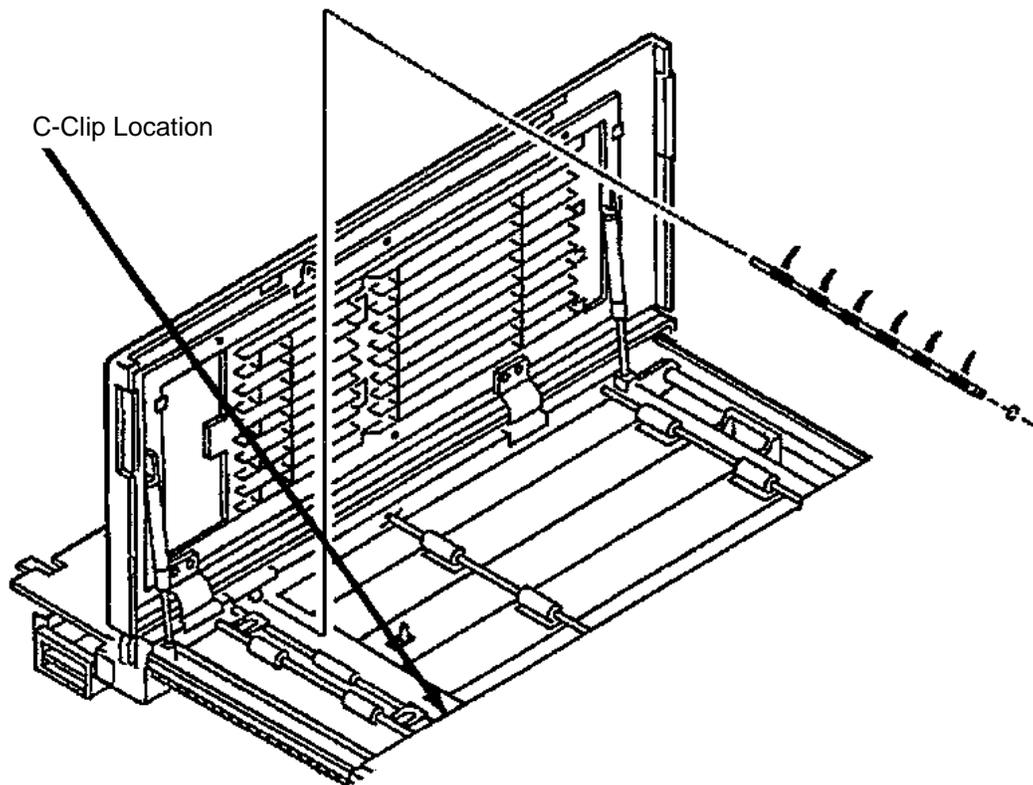
Duplex Paper Path Sensor Removal

To remove the duplex paper path sensor:

1 Open the top cover.

2 Remove the two screws holding the duplex control board cover in place.

3 Move the cover to the left out of the way.

4 Disconnect CN319.

5 Remove the duplex paper path sensor (single screw).

Paper Path Sensor

Duplex Control
Board Cover

CN319

Mounting Screw

**Paper Path Sensor
Underside Detail**
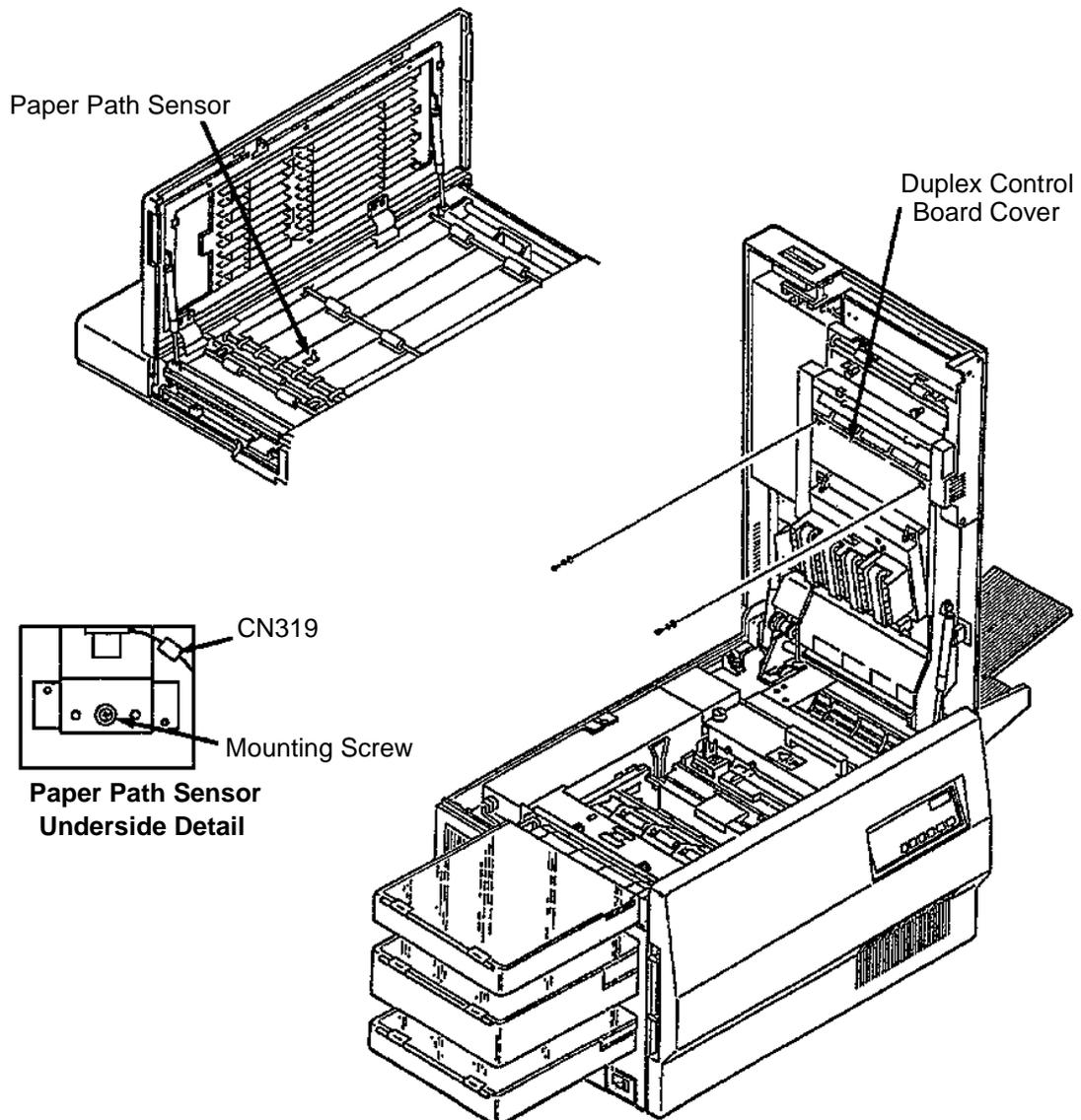
Duplex Paper Path Sensor Removal

Options

Chapter Contents

Options

Introduction

This section provides information on testing and troubleshooting of specific printer options not covered elsewhere in this manual. These options include the 1200-sheet and 2500-sheet feeders, the 1400-sheet stacker, and the hard disk.

Installation instuctions for the sheets feeders and for the sheet stacker are included in the *C30/C30D Guide to Operations* manual. Installation instructions for the hard disk are included with the packaged option.

For a complete list of the parts contained in the 1200-sheet feeder, the 2500-sheet feeder, and the 1400-sheet stacker, please see the *Illustrated Parts Catalog*.

1200-Sheet/2500-Sheet Feeder

Table 8-1. 1200-Sheet/2500-Sheet Component Acronyms

Acronym	Component
DSW	Door Switch (magnetic door lock)
IEM	Input Elevator Motor (M1 – elevator motor)
ILLS	Input Lower Limit Sensor
IPES	Input Paper Tray Sensor
IPM	Input Pick-up Motor (M2 – paper pick-up motor)
IULS	Input Upper Limit Sensor
NF	AC Noise Filter
NPS	No Paper Solenoid
PCSW	Power Control Switch (slope tray interlock switch)
PES	Paper End Sensor
PHS	Paper Head Sensor
SOL	Solenoid
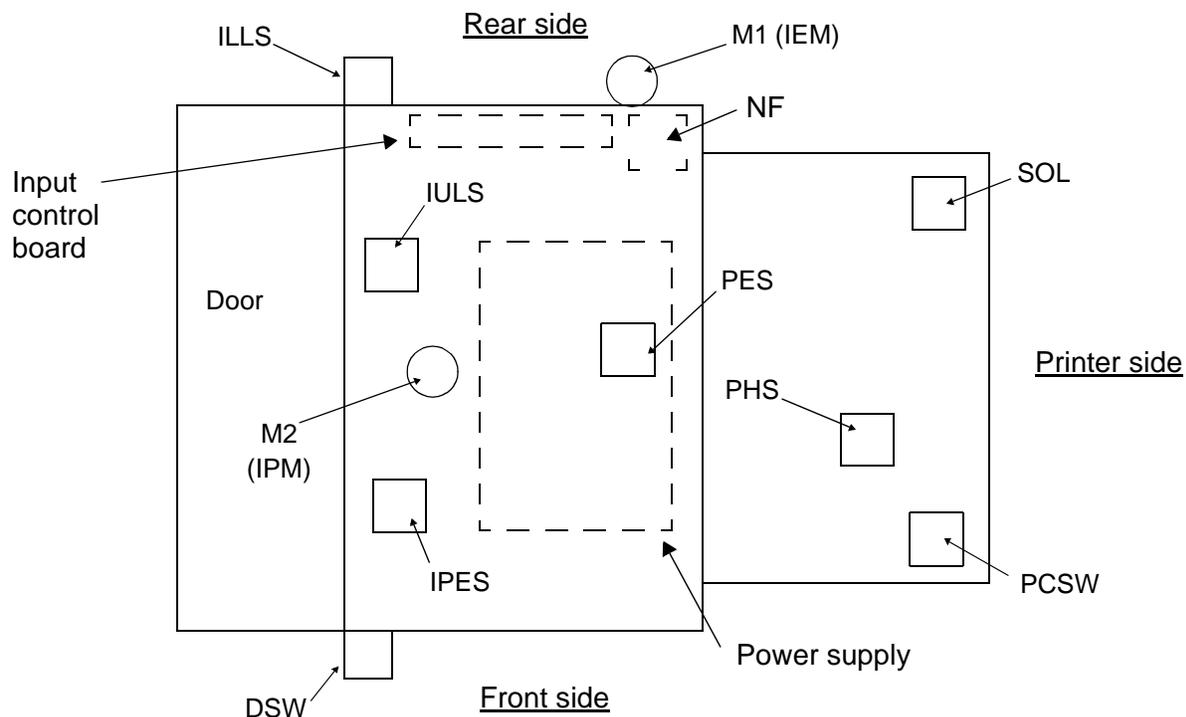
Figure 8-1. 1200-Sheet/2500-Sheet Physical Locations

Bench Test Procedure

The bench test procedure references the component acronyms in Table 8-1 on page 8-4 and the component locations in Figure 8-1 on page 8-4. To bench test the printer:

1 Turn the printer's main power switch off, then disconnect the unit's power cord.

2 Press down the printer's lower cassette release lever, then remove the unit from the printer and place it on a work bench or other suitable surface.

3 Remove the paper size lever, then lift up the slope tray and place the lever between the slope tray and the frame. This will bypass the interlock switch (PCSW) located under the slope tray, allowing 12 Vdc to be applied to the input control board.

Note: The slope tray is normally lifted into operating position by the printer's lower paper lift arm.

Slope Tray

Paper Size Lever

Paper Supply Tray
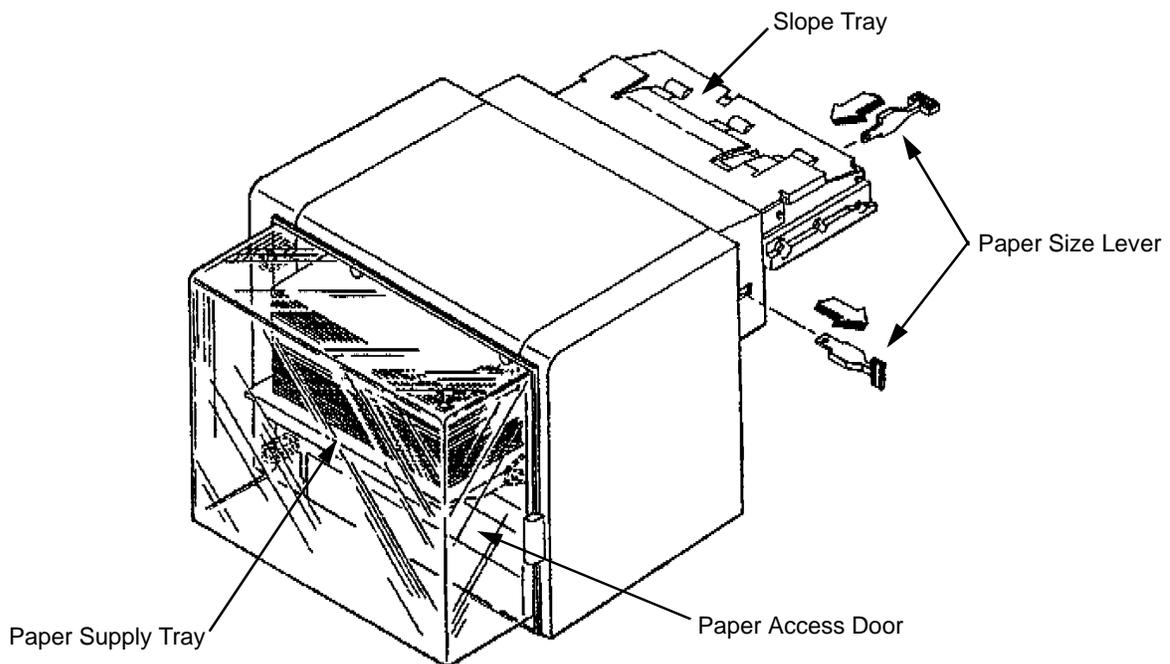
Paper Access Door

Figure 8-2. Bench Test Procedure

4 Restore AC power to the unit (either the unit's power cord or the printer's power cord may be used).

5 Open the paper access door. The elevator motor (M1) should turn on, moving the paper stock down. There is an actuator attached to the elevator's chain drive that will activate photosensor ILLS signalling the input control board that the paper supply tray is completely down.

Note: Remove any paper that may be on the unit's slope tray

6 Close the paper access door. The elevator motor (M1) should turn on, moving the paper stack up. There are two actuators that must enable two photosensors. Photosensor IPES signals the input control board that paper is present on the elevator. Photosensor IULS signals the input control board that the upper limit for the paper supply tray and paper stack has been reached.

7 With the paper supply tray all the way up and with no paper present on the slope tray (indicated to the input control board by photosensor PES, located in the middle of the paper path), the pick-up roller assembly motor (M2) will turn on and transport a piece of paper to the slope tray.

8 When the paper in transported to the slope tray, note that the (SOL) solenoid (under the slope tray) energizes.

Note: The solenoid causes contact with the printer's paper present sensor.

9 By removing the piece of paper from the slope tray, photosensor PHS signals the input control board to turn the pick-up motor (M2) on to replace the piece of paper that was removed.

10 When the last sheet of paper has been fed from the paper supply tray to the slope tray, the actuator arm of photosensor IPES falls through a hole in the paper supply tray. This signals the input control board to turn the elevator motor (M1) on to move the paper supply tray down. The paper supply tray will remain down until the paper access door is reopened (more paper is loaded), then closed.

11 When the last sheet of paper has been removed from the slope tray, confirm that the solenoid (SOL) de-energizes.

Prefeed Adjustment Procedure

Because of subsequent revision to the input controller PCA, prefeed adjustments are no longer necessary nor possible.

Input Control Board Logic

The table below indicates switching logic for the unit's various components. Except for the power control switch (PCSW), each component can be monitored from the various pins of CN508 (located on the input control board).

When performing these checks, use test point TP 1 (located below CN507 on the input control board).

Table 8-2. Monitoring Input Control Board Logic at Connector CN508

Connector	Component	Monitored	Condition
CN508-4	PHS	High Low	Paper present No paper present
CN508-13	PES	High Low	Paper present No paper present
CN508-19	IPES	High Low	Paper present No paper present
CN508-16	IULS	High Low	Limit No Limit
CN508-21	DSW	High Low	Door open Door closed
CN508-10	ILLS	High Low	Limit No Limit
CN508-2	NPS	High Low	ON Off
CN508-25, 26	IPM (M2)	+12 Vdc 0 Vdc	Feed No feed
CN508-23	IEM (M1)	+12 Vdc 0 Vdc	Up Off
CN508-24	IEM (M1)	+12 Vdc 0 Vdc	Down Off
CN507-2	PCSW	0 Vdc +12 Vdc	Unit mounted Unit not mounted
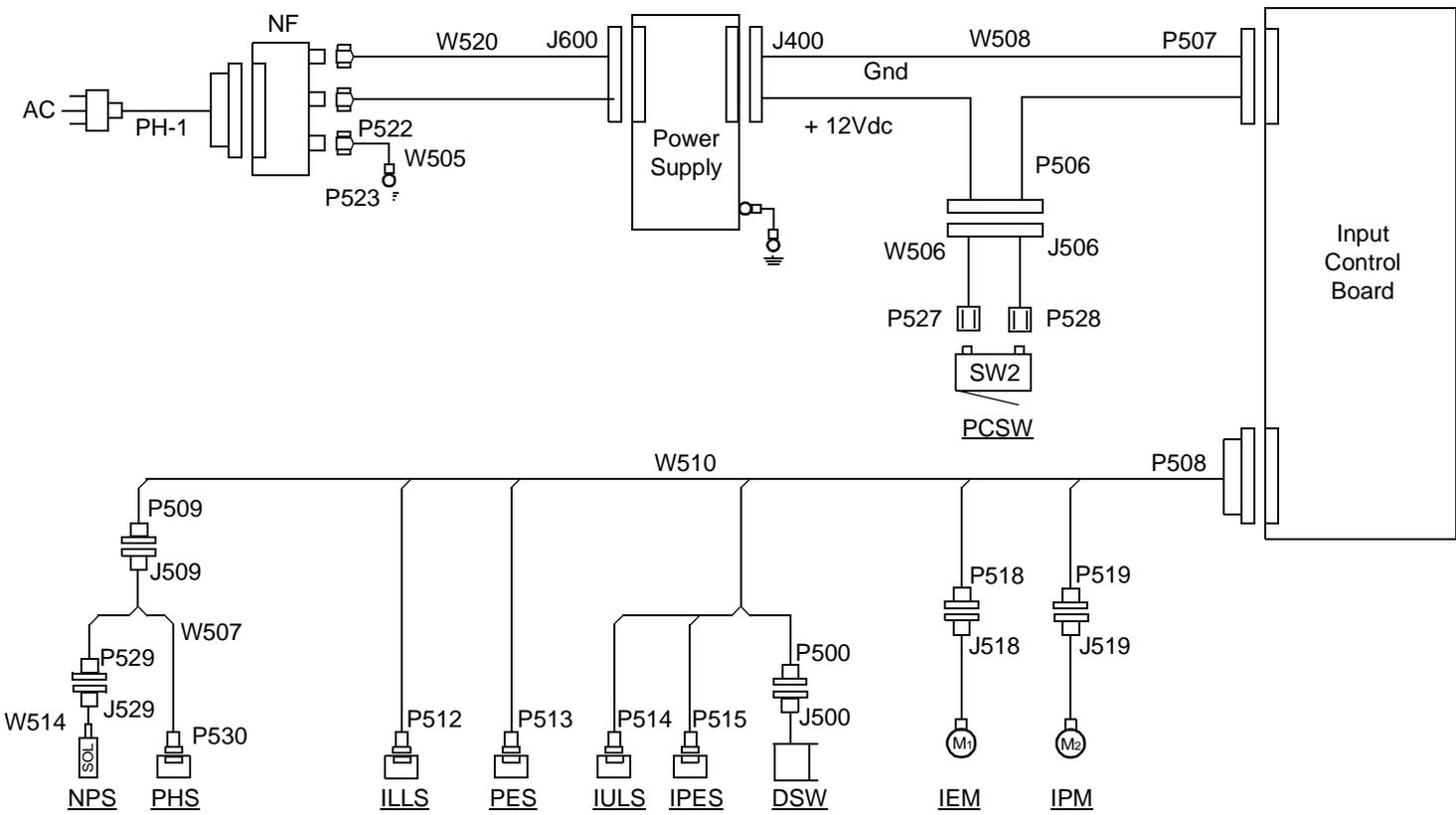
Figure 8-3. Connection Diagram for 1200-Sheet/2500-Sheet Feeder

1400-Sheet Stacker

Table 8-3. 1400-Sheet Stacker Component Acronyms

Acronym	Component
ERM	Exit Roller Motor (M1)
EPS	Exit Paper Sensor
ERS	Exit Roller Sensor
OEM	Out Elevator Motor (M2)
OELS	Out Elevator Limit Sensor
OEPS	Out Exit Paper Sensor
OJFM	Out Jogging Front Motor (M4)
OJFS	Out Jogging Front Sensor
OJRM	Out Jogging Rear Motor (M3)
OJRS	Out Jogging Rear Sensor
OLLS	Out Lower Limit Sensor
OULS	Out Upper Limit Sensor
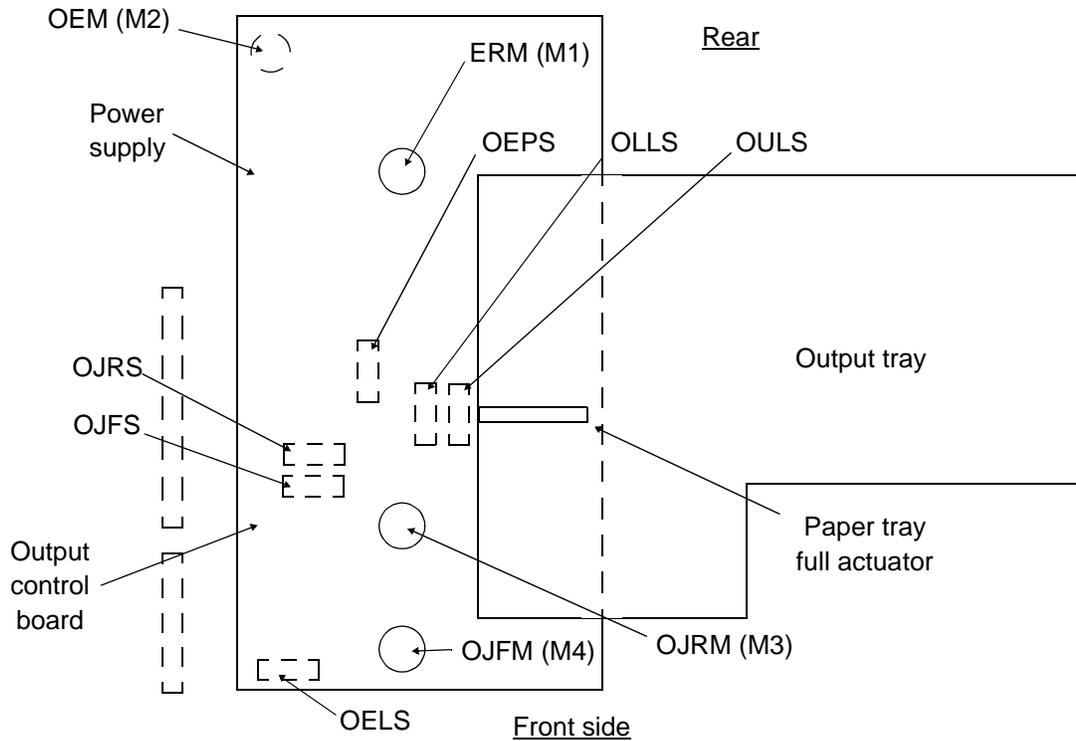
Figure 8-4. 1400-Sheet Stacker Component Locations

Bench Test Procedure

The bench test procedure references the component acronyms in Table 8-3 on page 8-9 and the component locations in Figure 8-4 on page 8-9.
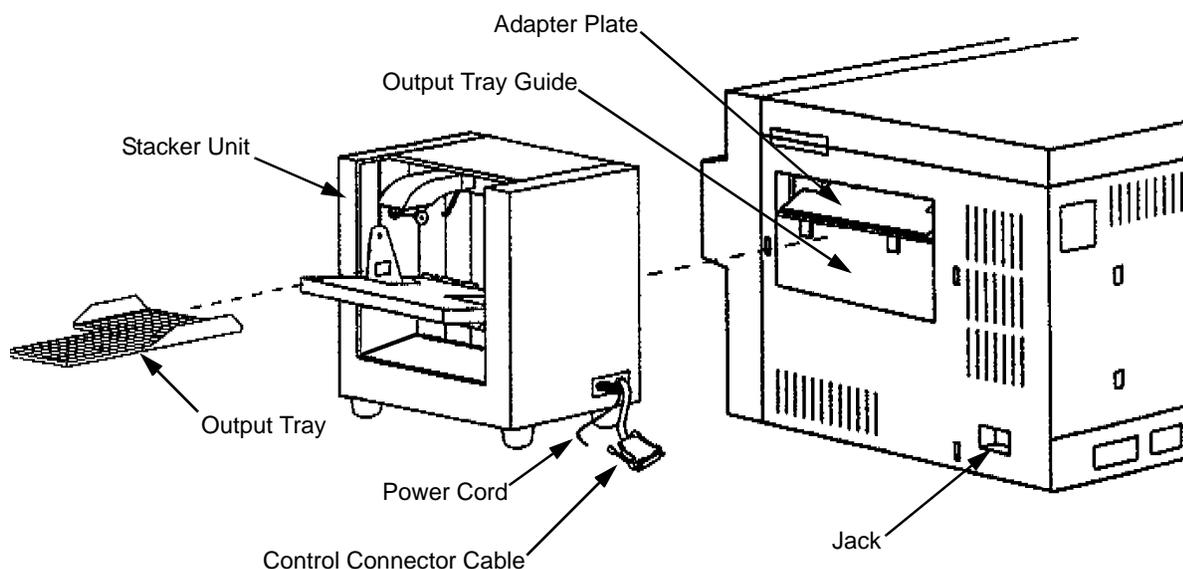
Figure 8-5. **1400-Sheet Stacker Bench Test Preparation**

To bench test the 1400-sheet stacker:

1 Turn the printer's main power switch off.

2 Remove the output tray from the stacker unit.

3 Disconnect the stacker unit's power cord from the printer and from the stacker, then disconnect the unit's control connector cable from the printer's jack.

4 Remove the stacker unit from the printer, then place it on a work bench or other suitable surface.

5 Remove the printer's power cord from the wall outlet and the printer's lower back cover.

6 Observe the pin configuration of the stacker unit's control connector cable plug .
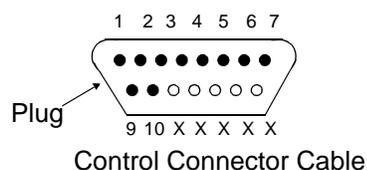
7 Place a jumper from pin 9 to pin 10 (ground). Using the printer's power cord in place of the unit's power cord, plug the printer's power cord in the stacker unit, then into the wall outlet.

8 With the power applied to the stacker unit, the exit roller motor (ERM-M1) will be off. This will signal the output control board to turn the exit roller motor (ERM-M1) on.

9 Remove the jumper from pin 9 and pin 10.

10 Lift the paper tray full actuator to enable photosensor OLLS to signal the output control board to cause the elevator motor (OEM-M2) to turn on and lower the output tray guide.

11 As the output tray guide reaches its lowest allowable position, photosensor OELS is enabled and signals the output control board to turn the elevator motor (OEM-M2) off.

12 Releasing the paper tray full actuator then enables photosensor OULS to signal the output control board to turn the elevator (OEM-M2) on and raise the output tray guide.

13 As the output tray guide reaches its highest allowable position, the paper tray full actuator enables both photosensor OLLS and photosensor OULS, which in turn signal the output control board to turn the elevator motor (OEM-M2) off.

14 Disconnect the power cord from the stacker, then place a jumper from pin 3 to pin 6 and a second jumper from pin 2 to pin 7.

15 Reconnect the power cord, then (from the printer side of the unit) insert a folded piece of paper into the unit to trigger the actuator and enable photosensor OEPS. This will signal the output control board to turn the jogging rear motor (OJRM-M3) on.

16 After jogging has occurred, remove the piece of paper then reinsert it. This will again trigger the actuator and enable photosensor OEPS. This will signal the output control board to turn the jogging front motor (OJFM-M4) on.

17 The procedure is completed. Disconnect the power cord, remove the jumpers, then reinstall the unit into the printer.

Connector Locations
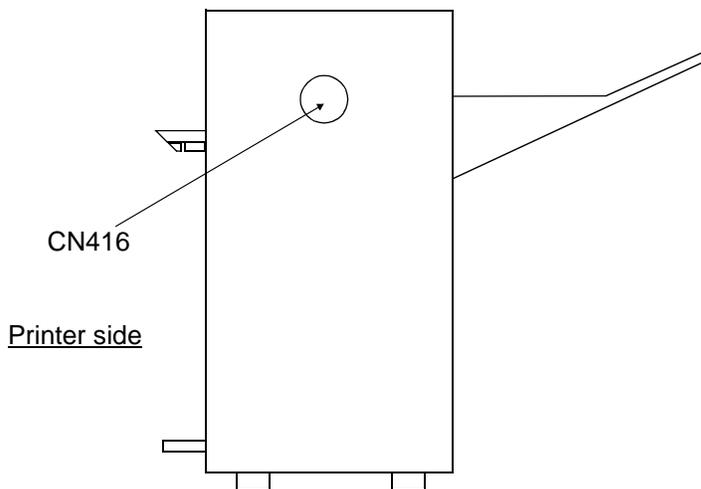
Figure 8-6. Connector Locations (front view, cover removed)

Connectors/circuit boards shown with broken lines are concealed from view.
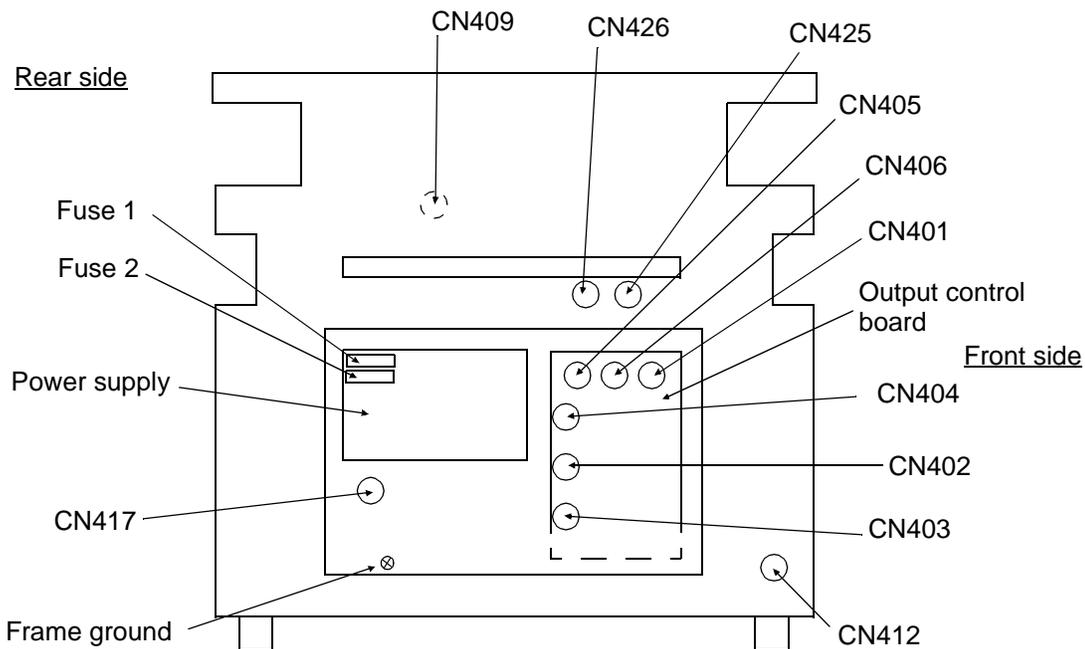
Figure 8-7. Connector Locations (left side view, left cover removed)

Output side

Printer side

CN415

CN424 (AC power)

CN420 (Control connector plug)
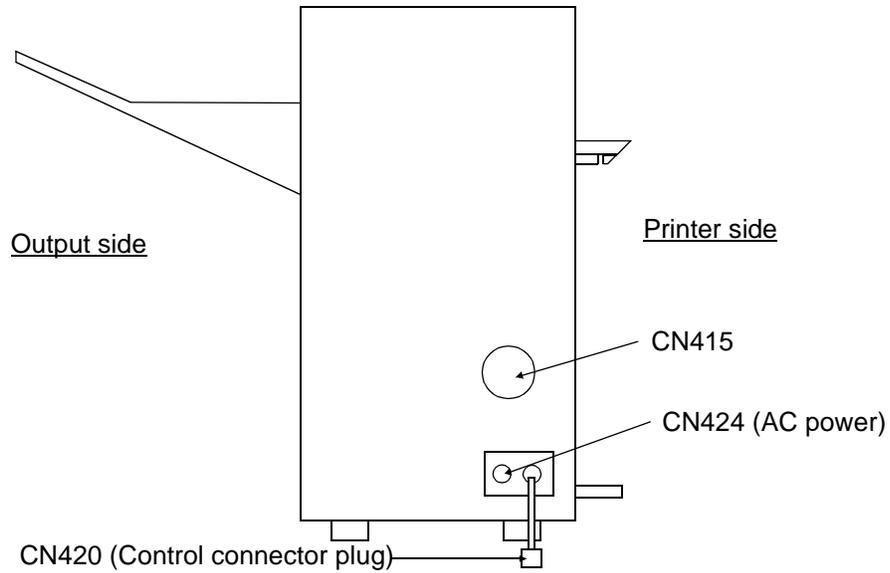
Figure 8-8. Rear Side View (cover removed)

Connectors/circuit boards shown with broken lines are concealed from view.

CN413

CN419

Printer side

Output side

CN414

CN407

CN408
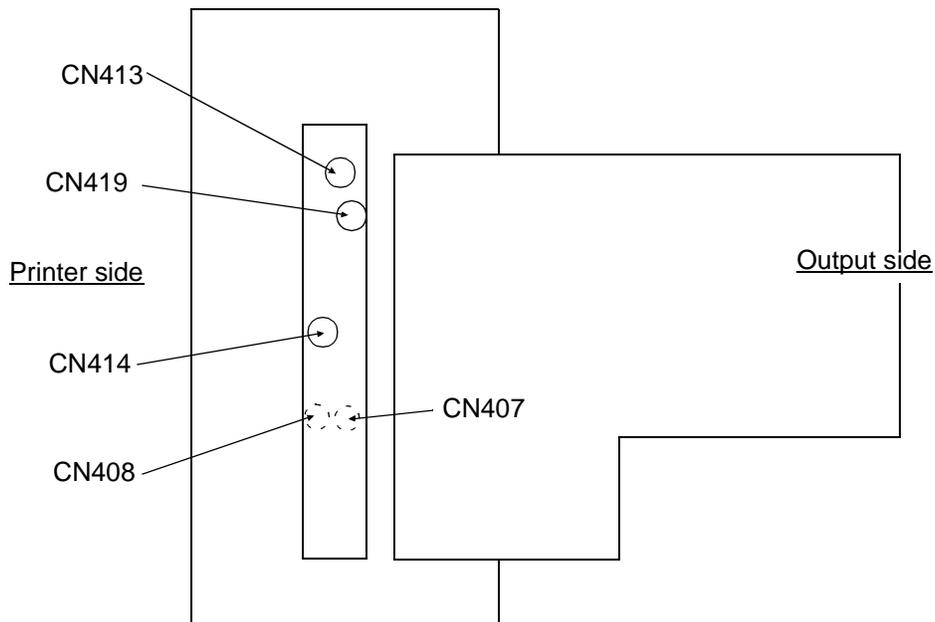
Figure 8-9. Top View (top cover removed)

Output Control Board Logic

The table below details specific stacker actions and which sensors supply the signals needed for each action. Signals from the printer are also included.

Table 8-4. Stacker Actions and Sensor Inputs

Action	Sensor Input
Elevator up (Wait signal to printer)	OULS OLLS OELS
Elevator stop	OULS OLLS OELS
Remove prints (signal to printer)	OULS OLLS OELS
Elevator down	OULS OLLS OELS
Paper exit	EPS OEPS
Paper exit jam (023)	OEPS
Jogging start	From printer
Jogging	ERS (from printer) OJRS OEPS OJFS
Jogging stop	From printer

Figure 8-10. Connection Diagram for the 1400-Sheet Stacker
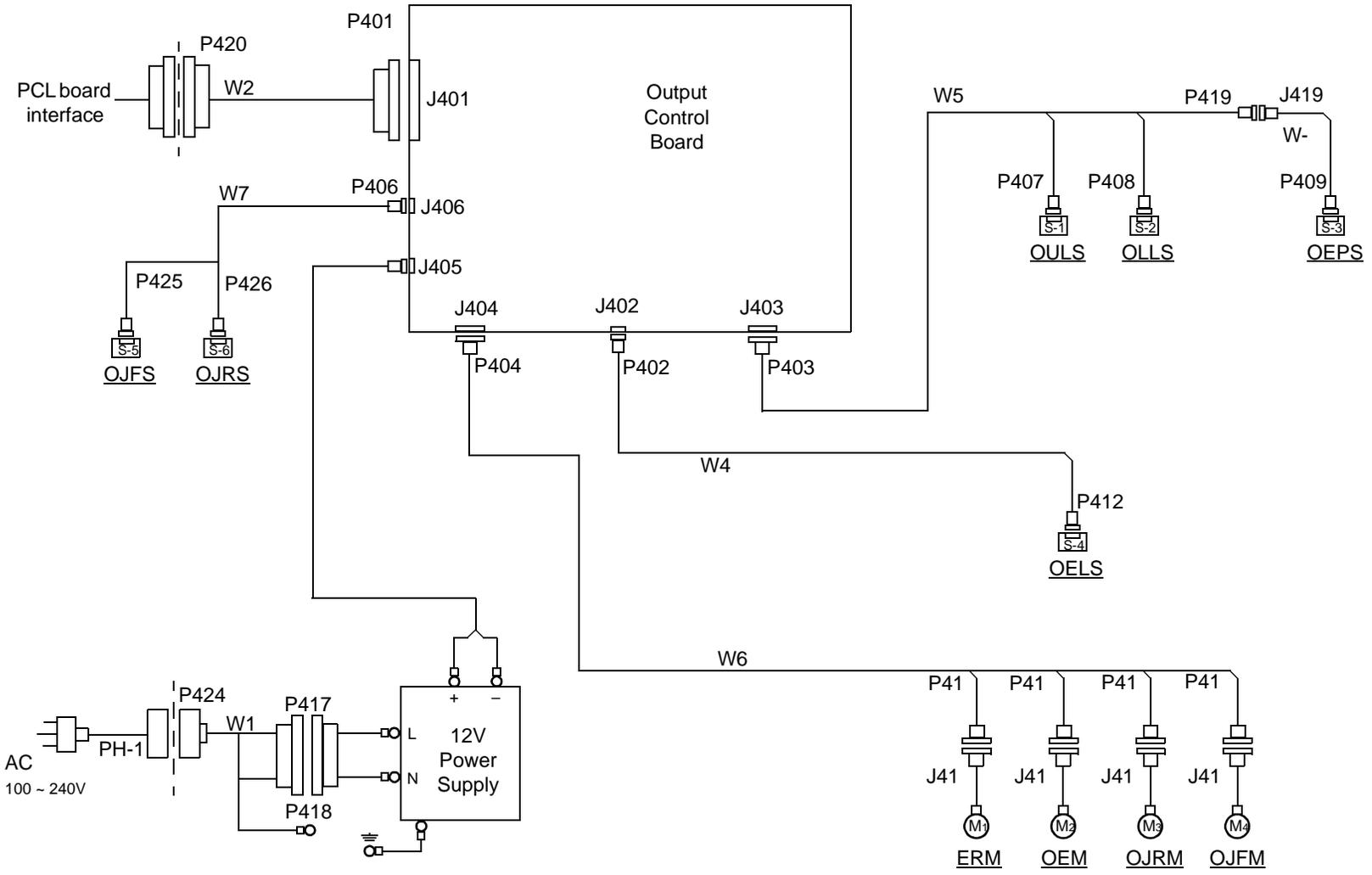
Hard Disk

Instructions for installing and updating a hard disk are included with the packaged option. Please refer to the original documentation.

Troubleshooting Hard Disk Problems

If you have difficulty installing your hard disk:

- Service Error 573 is most often caused by a loose cable. Recheck all cable connections and retry the load process. Note that it may be necessary to remove the disk drive assembly to recheck the cable connections at the hard disk.

- Make sure that the data cable from the hard disk is connected securely to both the back of the drive and to the controller board.

- Make sure that the printer's floppy drive is configured as the A: drive (i.e., make sure that the jumper on the back of the drive is on DS0).

If your hard disk still does not function correctly, note any error codes displayed and report them to your service representative.

General Printer Maintenance

Chapter Contents

General Printer Maintenance

Introduction

This section describes the primary printer maintenance procedures to be completed during service calls. In addition, this introduction reviews safety precautions, tool requirements, and the printer maintenance record.

Every-Call Cleaning Procedure (page 9-6)

The every-call cleaning procedure, as the name implies, is performed every time the printer is serviced. It includes a thorough cleaning of the printer, requiring the removal of all major components and performance of specific cleaning tasks related to each one. It also includes vacuuming all excess toner and other contamination from the interior of the printer.

Paper Feed Tension Adjustment Procedure (page 9-8)

You may need to adjust the paper feed tension to correct jamming.

Lubrication Procedures (page 9-9)

Lubrication procedures are performed whenever needed, though lubrication should be applied sparingly. The required lubricants, including oil, molycote and red grease, can be purchased from the printer's manufacturer.

Tune-Up Procedure (page 9-16)

The tune-up maintenance procedure is performed when the printer has yielded sub-standard prints after you've completed standard maintenance procedures, or has printed one- to two-million images. A tune-up maintenance kit is required for this procedure.

Safety Precautions

Whenever servicing sophisticated electronic/electro-mechanical equipment, common sense, training, caution and experience help in avoiding accidents and mishaps. Be aware of the following safety precautions:

- Follow all instructions in this document.
- Follow all warnings and instructions marked on the printer.
- Unplug the printer when performing any removal, replacement or cleaning procedure.
- Ensure that the power source for the printer matches the power specification label located above the power outlet on the back of the printer.
- Keep combustible materials away from the printer.
- Provide adequate ventilation for the printer so that slots and openings in the cabinet sides are not blocked.
- Do not push objects of any kind through the cabinet slots. They may contact dangerous voltage points or other hazards.

- Do not expose the printer to liquids of any kind.
- Protect the power cord. Do not place it in a traffic pattern or allow anything to rest on it.

Tool Requirements: Service Kit

A service kit intended for use solely by the service technician is shipped inside the right side cover of the printer. This kit includes:

- Interlock by-pass tools (2)
- RS-232C loop back assembly
- RS-422 loop back assembly
- Multimeter jumpers (2)
- Corona cleaner brush

Tools/Supplies

To service the printer properly, you will also need to carry the following:

- Soft cleaning cloth
- Cotton swabs
- Corona cleaner
- Basic set of hand tools suitable for office automation equipment repair
- Digital multimeter with test leads, alligator clips, and a high voltage probe
- Service vacuum cleaner, properly grounded and equipped with a 10 micron filter

End User Cleaning Kit

Printers are shipped with an end-user cleaning kit taped inside the front cover. The cleaning kit consists of:

- Cotton swabs
- Corona cleaner brush

This kit is intended for use by the end user.

Printer/Maintenance Record

A maintenance record must be kept for every printer. During the initial service call or at the time of installation, set up a maintenance record for the customer. A copy of the form, illustrated on the following page, should be kept in the *Guide to Operations* so that the maintenance form is always easily accessible.

HISTORY LOG

To Be Completed By User   To Be Completed By HP

Page Counter	Operator	HP Notified Date/Time	Down-Time	HP Customer Engineer On Site	Date	Time

Malfunction Description:			Action Required and Comments:			

Malfunction Description:			Action Required and Comments:			

Malfunction Description:			Action Required and Comments:			

Every-Call Cleaning Procedure

Perform the every-call cleaning procedure every time the printer is serviced. When troubleshooting a printer problem, you may be directed to complete this procedure as you isolate or correct the problem. If the procedure is not specifically called out, always complete it before concluding the service call.

The every-call cleaning procedure begins by removing the major consumable supplies from the printer. When the supplies are out, use a toner vacuum to vacuum the printer thoroughly. Clean each consumable supply, following the instructions listed in this section, before returning it to the printer. Conclude the every-call procedure by running test prints to confirm the print quality.

The location of all major printer supplies and instructions for their removal are outlined later in this manual.

Remove Major Consumable Supplies

- Photoconductor unit; place it in its protective packaging.
- Cleaner unit
- Developer unit
- Fuser unit

Inspect and Vacuum

- Inspect the areas in the printer around the developer unit, cleaner unit, photoconducto unit, and fuser unit for damage and wear.
- Vacuum these areas to remove all excess toner, contamination, and/or foreign objects.

Clean Internal Areas

- Clean the erase lamp with a cotton swab.
- Clean the printhead bias plates with a soft cloth.
- Clean the LED lens with a cotton swab, making sure no lint remains on the lens.

Clean the Fuser Unit

- Inspect the unit for damage and contamination; repair or replace as necessary.
- Clean the fuser unit connector, both on the fuser unit and in the printer, with a cotton swab.
- Vacuum in and around the rollers to remove excess toner, contamination, and any foreign objects.
- Reinstall the fuser unit.

Clean the Developer Unit

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Clean any excess toner from the developer unit with a soft cloth.
- Clean the toner patch sensor lens with a soft cloth, making sure no lint remains on the lens.
- Vacuum the felt areas around the magnetic roller, being careful not to vacuum toner from the magnetic roller.
- Reinstall the developer unit.

Clean the Cleaner Unit/Main Charger

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Remove the charge corona from the cleaner unit.
- Clean the grid with the cleaner brush.
- Remove the grid to expose the corona wire.
- Clean the corona wire with a cotton swab.
- Reinstall the grid.
- Clean any excess toner from the cleaner unit with a soft cloth.
- Reinstall the charge corona in the cleaner unit.
- Reinstall the cleaner unit.

Clean the Photoconductor Unit Area

- Clean the photoconductor seam sensor inside the printer.
- Remove the photoconductor from its protective packaging.
- Inspect the photoconductor for damage or contamination; repair or replace as necessary.
- Reinstall the photoconductor unit.

Clean the Transfer Corona

- Remove the transfer corona.
- Clean the transfer corona housing with a soft cloth.
- Clean the transfer corona wire with a cotton swab.
- Reinstall the transfer corona.

Run Test Prints

- Run test prints to verify print quality.

Adjusting Paper Feed Tension

Printers With Paper Tension Levers

Recently released simplex and duplex printers have pressure tension levers inside the front cover, as illustrated in Figure 9-1, Paper Feed Tension Levers, below:

Lower Paper Tension Lever   Upper Paper Tension Lever
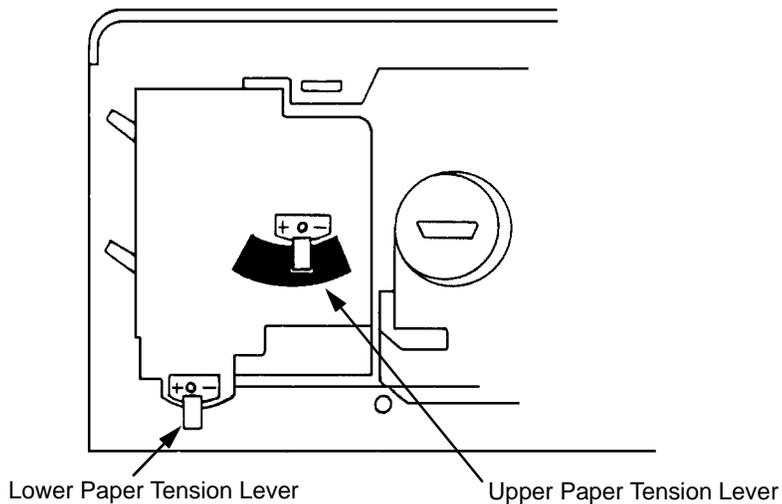
Figure 9-1. Paper Feed Tension Levers

To adjust the tension:

1   Open the printer's front cover.

2   Identify the cassette whose tension is to be adjusted, and select the correct lever.

3   Adjust the tension:

- To correct multiple feeds: move the lever toward the minus sign, decreasing the feed pressure.

- To ease paper feeds: move the lever toward the plus sign, increasing the feed pressure.

4   Close the front cover, then print paper from the cassette you are adjusting.

5   If the paper is still not feeding properly, repeat Steps 3 through 5 until the feed is properly adjusted.

Lubrication Procedure

Complete the lubrication procedure as-needed. Apply lubrication sparingly. Insufficient lubrication may result in unnecessary noise and premature wear of components; excessive lubrication may contaminate printer supplies and make the printer difficult to keep clean.

The following printer illustrations indicate where lubrication may be required. Charts following the illustrations include symbols that indicate the type of lubricant to use on each component:

▼   Oil

●   Molycote

■   Red grease

Figure 9-2. **Front View Lubrication Points**

Front View Lubrication Tables

Table 9-1. All Printers – Front View Lubrication

Symbol	Part	Lubricant
▼ 1	Front roller bearings (paper feed, paper pickup, timing and exit rollers)	oil
▼ 2	Vacuum transport drive shaft	oil
▼ 3	Fuser drive bearing	oil
▼ 4	Upper paper guide roller	oil
■ 5	Fuser drive gear	red grease
■ 6	Vacuum transport drive gear	red grease
■ 7	Vacuum transport gear	red grease
● 8	Vacuum transport rollers	Molycote

Duplex Only

Table 9-2. Duplex Front View Lubrication

Symbol	Part	Lubricant
▼ 9	Duplex roller bearings	oil
● 10	Lower duplex drive assembly	Molycote
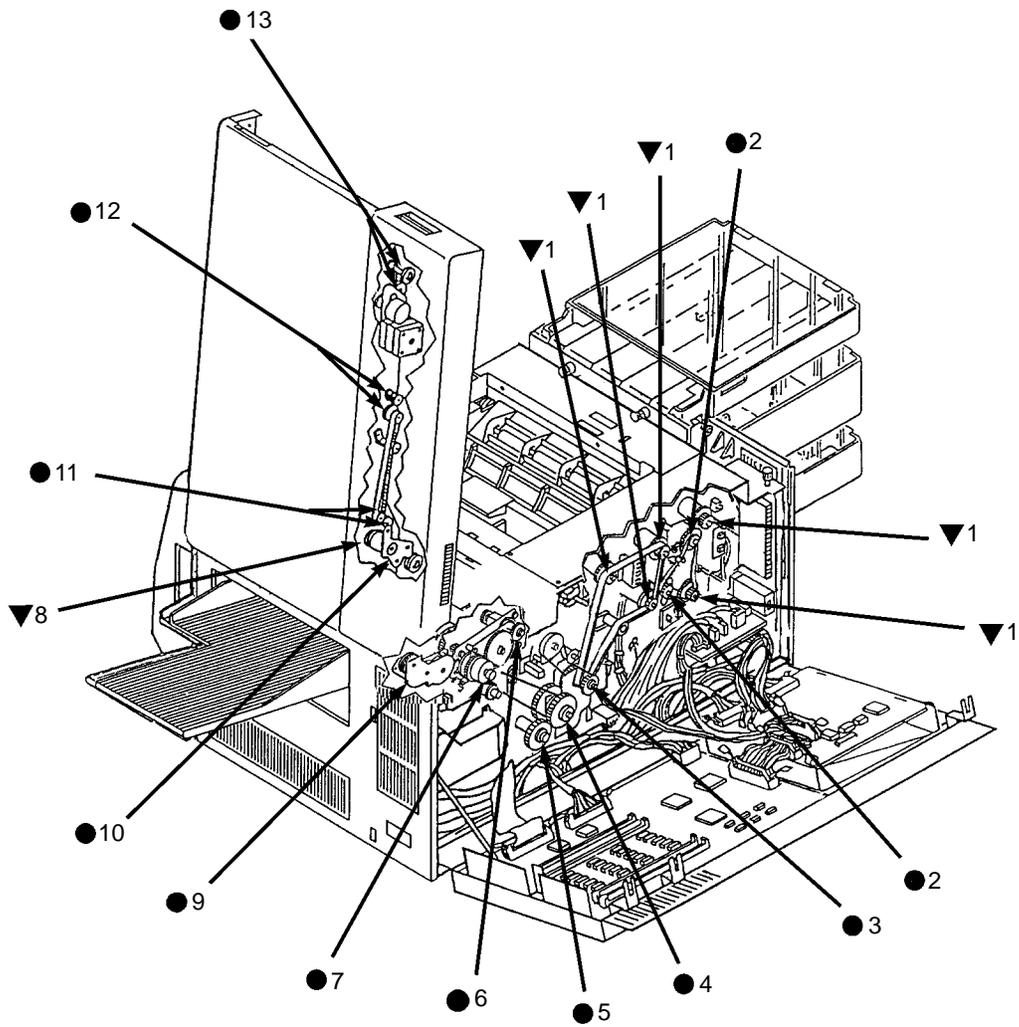
Figure 9-3. **Rear View Lubrication**

Rear View Lubrication Tables

Table 9-3. All Printers – Rear View Lubrication

Symbol	Part	Lubricant
▼ 1	Clutch shafts: upper pick-up roller, lower pick-up roller, upper feed roller, lower feed roller, paper timing roller	oil
● 2	Upper and lower pick-up roller drive assemblies	Molycote
● 3	Main drive gear assembly	Molycote
● 4	Main drive gear	Molycote
● 5	Main drive motor gear	Molycote
● 6	Fuser drive gear	Molycote
● 7	Fuser drive assembly	Molycote

Duplex Only

Table 9-4. Duplex Only Rear Lubrication

Symbol	Part	Lubricant
▼ 8	Clutch shaft bearing	oil
● 9	Lower duplex drive assembly	Molycote
● 10	Upper duplex drive assembly	Molycote
● 11	A roller drive gears	Molycote
● 12	B roller drive gears	Molycote
● 13	C roller drive gears	Molycote
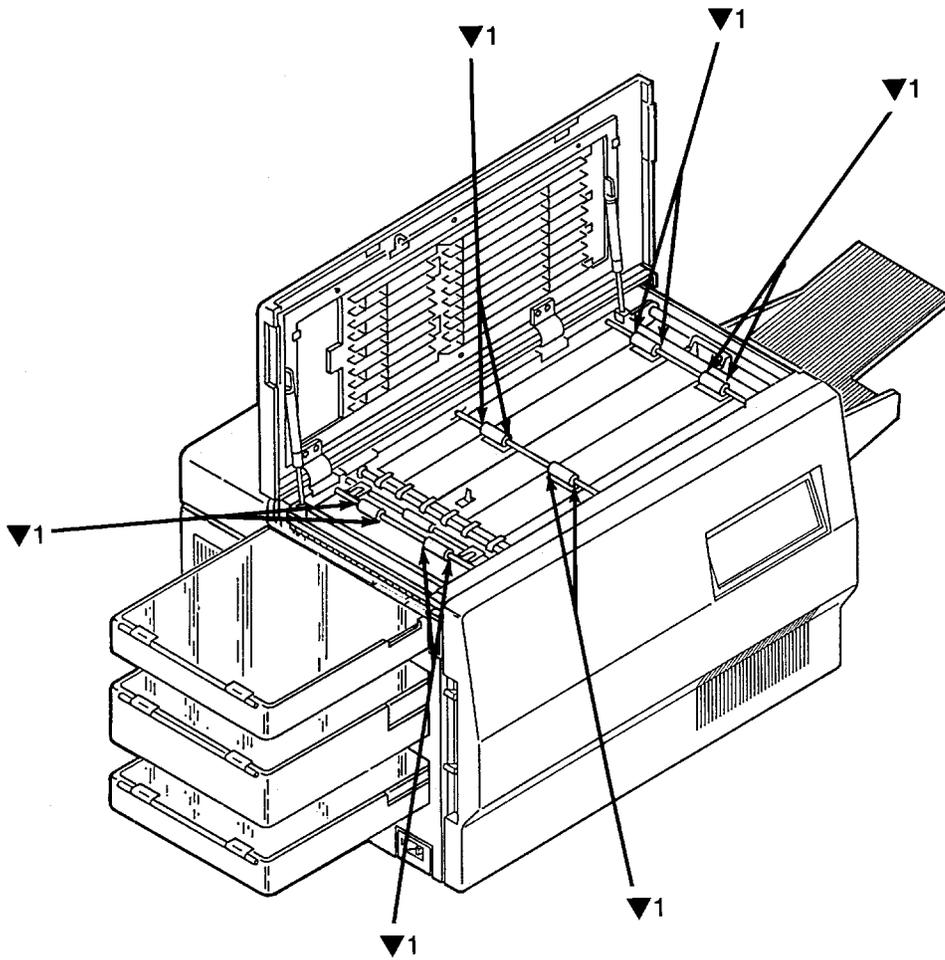
Figure 9-4. Duplex Only: Top View Lubrication

Table 9-5. Duplex Top View Lubrication

Symbol	Part	Lubricant
▼ 1	Duplex pinch rollers	oil
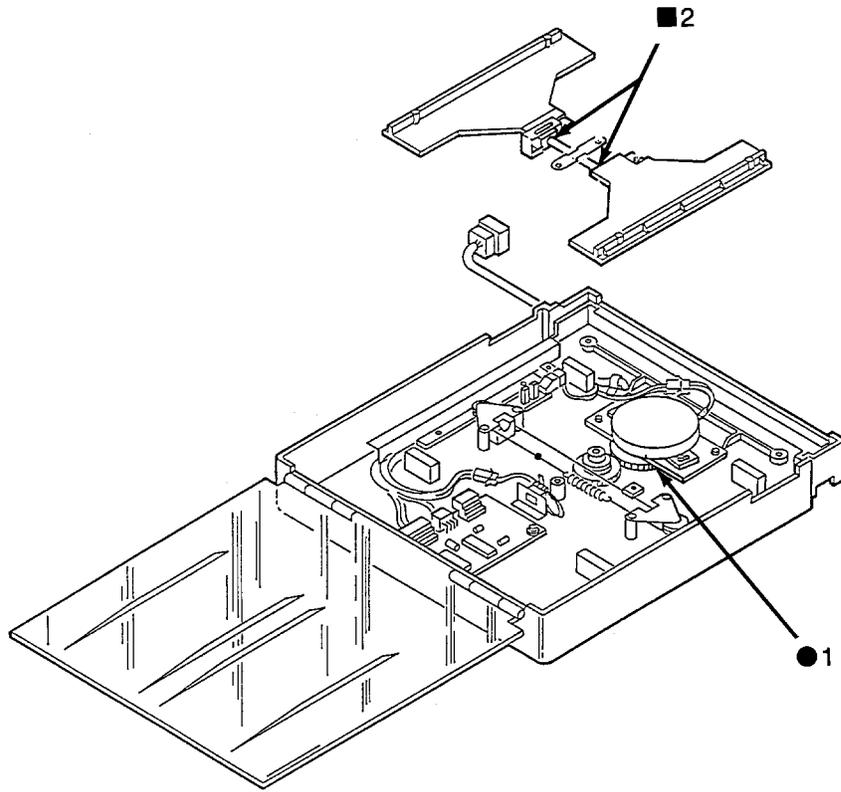
Figure 9-5. Duplex Only: Duplex Holding Tray Lubrication

Table 9-6. Duplex Holding Tray Lubrication

Symbol	Part	Lubricant
● 1	Drive gears	Molycote
■ 2	Tray shaft	red grease

Tune-Up Maintenance Procedure

The tune-up maintenance procedure should be performed when the printer: jams frequently; yields sub-standard print quality even after completing regular maintenance procedures; and has printed more than one- or two-million prints. At this point in the life of the printer, the roller assemblies, transfer corona, and static brushes must be replaced. All of the required components are packaged together in a Tune-Up Maintenance Kit.

1 For detailed instructions on how to replace each of these components, refer to Chapter 7, "Removal/Replacement Procedures". General guidelines follow for unpacking the component, along with an outline of the order in which the components should be replaced.

2 Unpack the maintenance kit, which is shipped in a folded cardboard pack. Remove the shipping carton and unfold the cardboard pack.

3 Make sure that you have received all of these replacement components, shown in Figure 9-6, "Tune-Up Kit Components," on page 9-17:

- Roller assembly, lower feed
- Roller assembly, upper feed
- Roller assembly, paper timing
- Roller assembly, exit
- Roller assembly, upper paper guide
- Transfer corona
- Roller assembly, upper pick up
- Roller assembly, lower pick up
- Static brush, upper (in cardboard folder)
- Static brush, lower (in cardboard folder)
- Label (taped to the top of the package)

4 Unplug the printer.

5 Open the top cover.

6 Remove the photoconductor unit. Place the unit in its protective packaging in a safe place away from the work area.
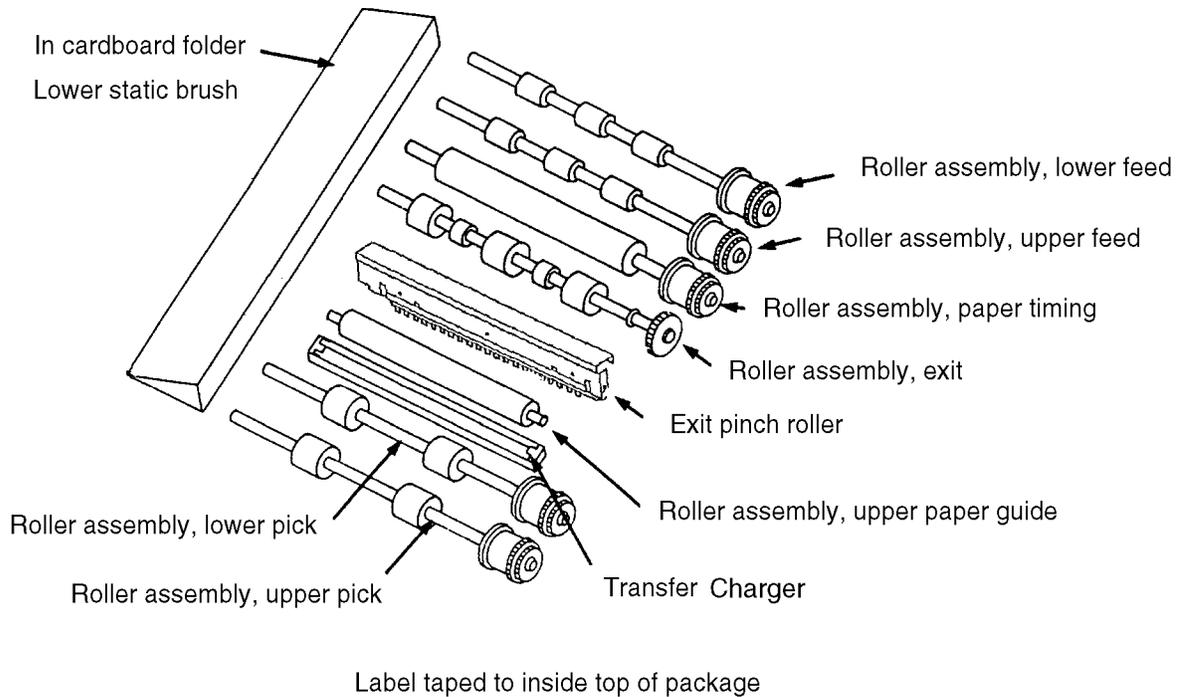
Figure 9-6. Tune-Up Kit Components

7 Replace the component assemblies in this order:

- Paper timing roller
- Exit roller
- Upper pick up roller
- Lower pick up roller
- Upper feed roller
- Lower feed roller
- Transfer corona
- Lower static brush
- Upper static brush
- Upper paper guide roller

8 Perform the every-call cleaning procedure on page 9-6.

9 Plug in the printer and turn it on.

10 Run test prints to ensure that the paper feeds correctly through the printer.

11 Fill in the label with the date and meter count. Affix it inside the front cover next to the printer's serial number.

Tune-Up Maintenance Procedure

Appendix A
Abbreviations and Acronyms

ACIA . . . . Asynchronous Communication Interface Adapter

ALU . . . . Arithmetic Logic Unit

APA . . . . All Points Addressable

ARC . . . . "A" Roller Clutch (Duplex only)

ARIF. . . . . Array Interface

ATC . . . . Auto Toner Control

CLEANER . . . . . Cleaner Unit

CNT . . . . Counter

COOLING FA2 . Cooling Fan

COS . . . . Cover Open Sensor (Duplex only)

CRS . . . . "C" Roller Solenoid (Duplex only)

CRT . . . . Cathode Ray Tube

CRTC . . . . CRT Controller

CRU . . . . Customer-Replaceable Unit

DB-. . . . . Developer Bias Negative

DB+ . . . . Developer Bias Positive

DC P.S.1 . . . . DC Power Supply

DEV . . . . Developer Unit

DMAC . . . . Direct Memory Access Controller

DMC. . . . . Dynamic Memory Controller

DRAM . . . . Dynamic Random Access Memory

DUPLEX1 . . . . . Duplex Control #1 (Duplex only)

DUPLEX2 . . . . . Duplex Control #2 (Duplex only)

EIGS. . . . . Enhanced Image Generation System

EL. . . . . Eraser LED

EPROM. . . . . . . Erasable Programmable Read Only Memory

EPP . . . . Electrophotographic Process

EPS . . . . Exit Paper Sensor

ERASER . . . . . . Erase Lamp

EV30 . . . . Enhanced Video K30 printer

EXS. . . . . Exit Solenoid (Duplex only)

FA4 . . . . Cooling Fan (Duplex only)

FDC. . . . . Floppy Disk Controller

FDD. . . . . Floppy Disk Drive

FL . . . . Fuser Halogen Lamp

FRU. . . . . Field-Replaceable Unit

FUSER . . . . Fuser Unit

HCI . . . . High Capacity Input

HCO . . . . High Capacity Output

HEAD . . . . LED Array Print Head

HDD . . . . Hard Disk Drive

HVU . . . . High Voltage Unit

IGS . . . . Image Generation System

IGS CONT . . . . Image Control System

I.L. SW Front . . Interlocking Switch (Front)

I.L. SW Top. . . . Interlocking Switch (Top)

INS . . . . In Solenoid (Duplex only)

IPL. . . . . Initial Program Load)

Jogging . . . . Jogging Motor

L PAPS . . . . Lower Paper Sensor

LN03 . . . . DEC emulation language

LPC . . . . Lower Paper Feed Clutch

LPE . . . . Lower Paper Empty Sensor

LPP . . . . Lower Pick Up Clutch

LPSS . . . . Lower Tray Interlock Switch

Main . . . . Main Motor

MAP . . . . Maintenance Analysis Procedures

Abbreviations and Acronyms

MCH . . . . .Charge Corona Unit

MCS . . . . .Charge Corona Sensor

MIGS . . . . .Minter Image Generation System

MPU . . . . .Micro Processing Unit

MUX. . . . . .Multiplexer

OPC. . . . . .Organic Photoconductor

OPPNL . . . . . . .Operator Panel

PC . . . . .Photoconductor

PCL. . . . . .Hewlett-Packard Printer Control Language (Software)

PCL. . . . . .Printer Control Logic Board (Hardware)

PCL5. . . . . .HP Printer Control Language (Version 5)

PCU. . . . . .Photoconductor Unit

PFS . . . . .Paper Full Sensor

PH 1 . . . . .A.C. Power Cord

PIA . . . . .Peripheral Interface Adapter

PIT . . . . .Parallel Interface/Timer

PMP . . . . .Page Map Primitives

POR. . . . . .Power On Reset

PPS . . . . .Paper Path Sensor (B-C Sensor) (Duplex only)

PROM . . . . .Programmable Read Only Memory

PS . . . . .PostScript

PSS . . . . .Photoconductor Seam Sensor

PTM . . . . .Programmable Timer Module

PTS . . . . .Paper Timing Sensor

PW CONT2 . . . .Power Control #2

PW CONT3 . . . .Power Control #3

PWBA. . . . . . . .Printed Wire Board Assembly

RAM . . . . .Random Access Memory

Resist Motor . . . .Registration Motor (Duplex only)

ROM . . . . .Read Only Memory

Root Motor . . . . ."C" Roller Motor (Duplex only)

RPS . . . . Registration Paper Sensor (Duplex only)

RSS . . . . Registration Side Sensor (Duplex only)

SCC . . . . Serial Communication Controller

SIG IF or SIF. . . Signal Interface Board

SRAM . . . . Static Random Access Memory

SRC . . . . System Reference Code

SRMR2 . . . . Side Registration Motor Control #2 (Duplex only)

Suction FA3 . . . . Suction Fan

SW5 . . . . Upper Cassette In Switch

SW6 . . . . Lower Cassette In Switch

TAG . . . . Troubleshooting Analysis Guide

TC . . . . Toner Concentration

TCH . . . . Transfer Corona Unit

TCS . . . . Transfer Corona Sensor

TDS . . . . Toner Density Sensor

TES . . . . Toner Empty Sensor

TFS . . . . Tray Front Sensor

TH . . . . Thermistor

TO SIG IF . . . . . To Signal Interface

TO SIG IF CENT To Signal Interface Centronics

TONER . . . . Toner Motor

TPS . . . . Timing Paper Sensor (Schematics)

TPS . . . . Toner Patch Sensor (Printer)

TRC . . . . Timing Roller Clutch

TRS . . . . Tray Rear Sensor

PAPS . . . . Upper Paper Sensor

UMT 1-3 . . . . . . Usage Meter Drive Signal

UPC . . . . Upper Paper Feed Clutch

UPE . . . . Upper Paper Empty Sensor

UPP . . . . Upper Pick Up Clutch

UPSS . . . . Upper Tray Interlock

VPCL. . . . . Video Printer Control Logic Board

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