

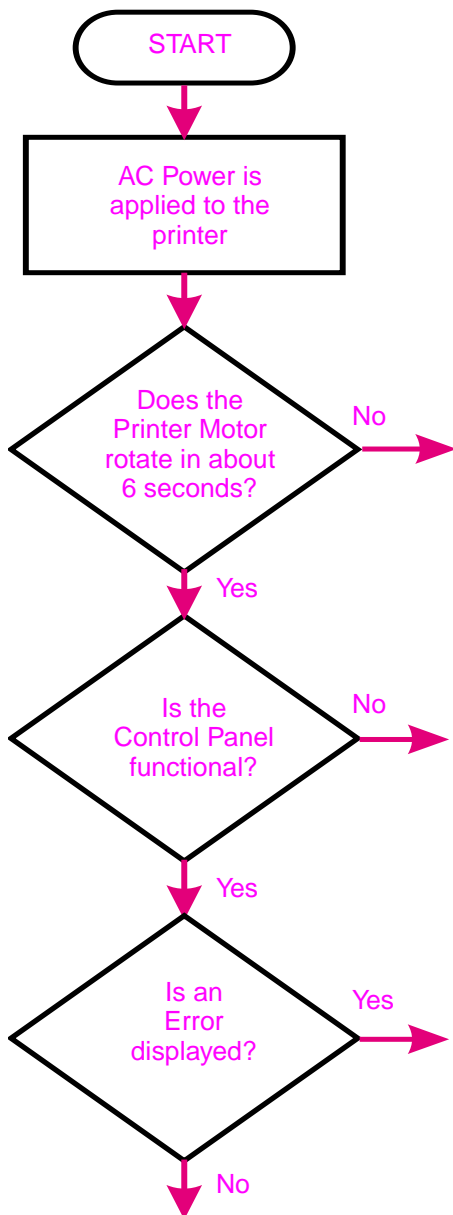
7

Troubleshooting

Chapter contents

General troubleshooting flowchart.	116
Paper path and components	118
DC Controller diagram.	119
Printer error troubleshooting	120
Priority of errors	120
Printer status messages	121
Service and error messages.	123
Image formation troubleshooting.	126
Check the toner cartridge	126
Image defect examples.	127
Troubleshooting checks.	133
Engine test	133
Half self-test functional check	134
Drum rotation functional check	134
High-voltage power supply check	135
Paper curl	137
Troubleshooting tools.	138
Paper path check	138
Repetitive image defect ruler	139
Main wiring diagram	140

General troubleshooting flowchart



When the AC power is first applied to the printer:

- Both the printer motor and the laser/scanner motor rotate for six seconds.
- All of the LEDs illuminate for one second; the "Ready" LED will illuminate after three seconds.

If no error message is displayed, the Printer Door is firmly closed, and the toner cartridge is installed, but the motor does NOT rotate when AC power is applied to the printer:

- 1 Verify that AC power is present at the input power receptacle and that the power cord is firmly inserted into the printer.
- 2 Verify that FU102 is not open. (See Figure 7-2.)
- 3 Verify that motor connector J1 is seated into J401 of the DC Controller. (See Figure 7-2.)
- 4 Verify that the motor is correctly mounted to the printer chassis.
- 5 If all of these conditions are correct, replace the DC Controller PCA and/or the motor.

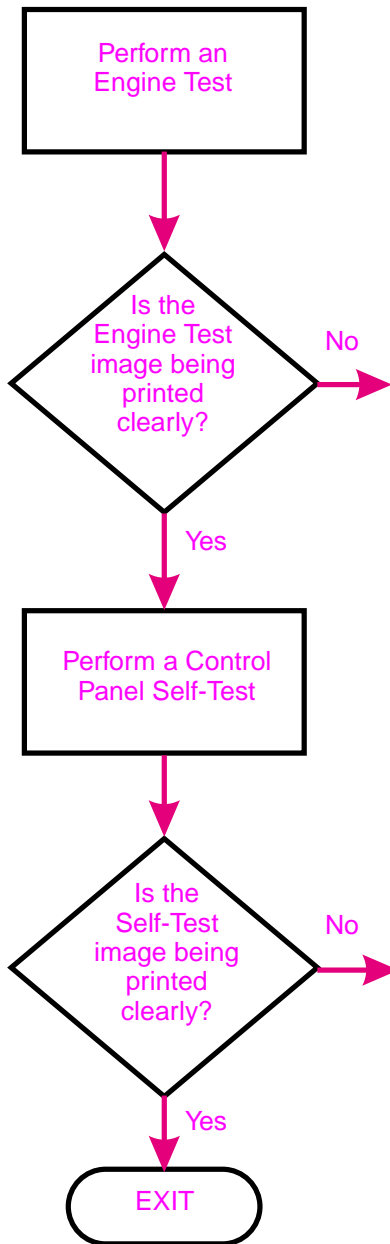
If the Control Panel is not functional:

- 1 Verify that the Control Panel connector J9 is seated into both the Control Panel and the Formatter PCA at J3. (See Figure 7-2.)
- 2 Verify that the Formatter PCA is firmly seated into the DC Controller PCA.
- 3 Perform an Print Engine Test. (See Figure 7-4.)
- 4 If the engine test is successful, replace the Control Panel first, then, if necessary, the Formatter PCA.
- 5 If the engine test is not successful, replace the DC Controller PCA.

If the control panel displays an error, refer to the appropriate section in this chapter to correct the error.

Continued on following page.

General Troubleshooting Flowchart (continued)



Refer to the section “Image Formation Troubleshooting,” later in this chapter.

If the engine test produces a clear print image, yet a Self-Test is not generated by initiating the Control Panel self-test procedure, replace the Formatter PCA.

Paper path and components

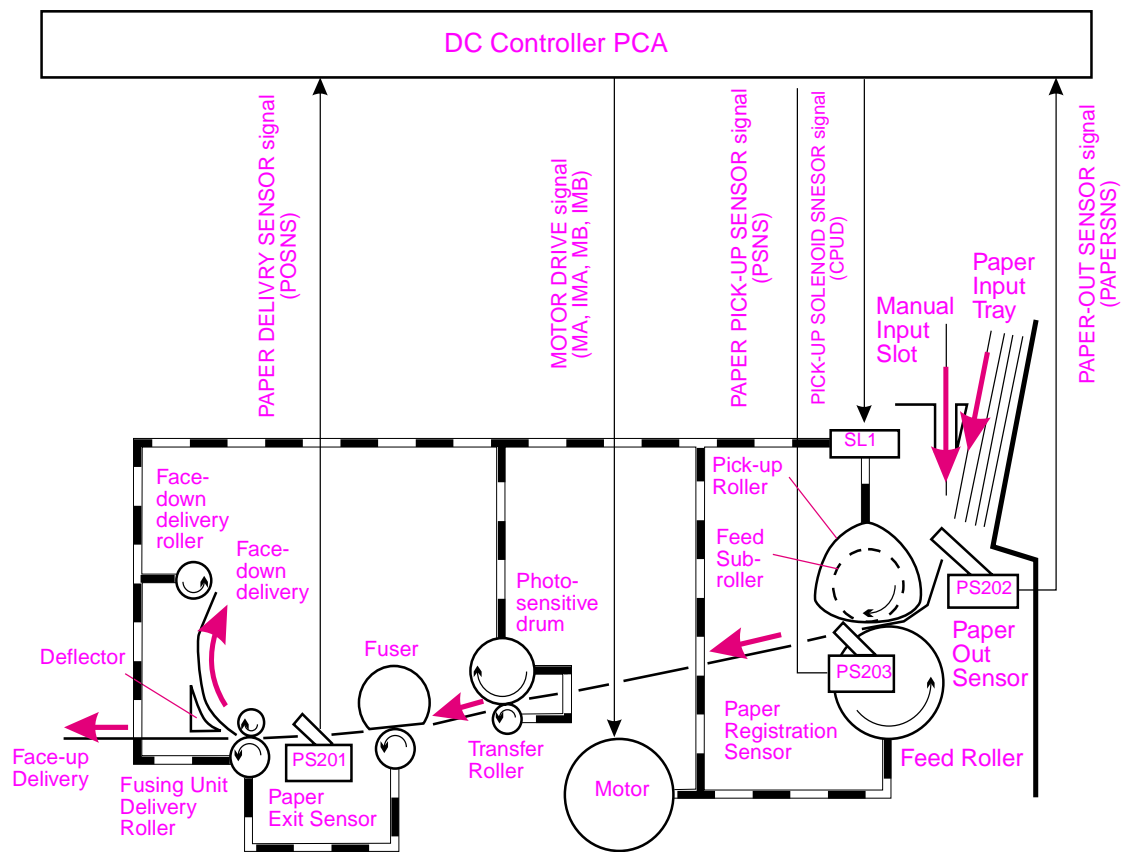
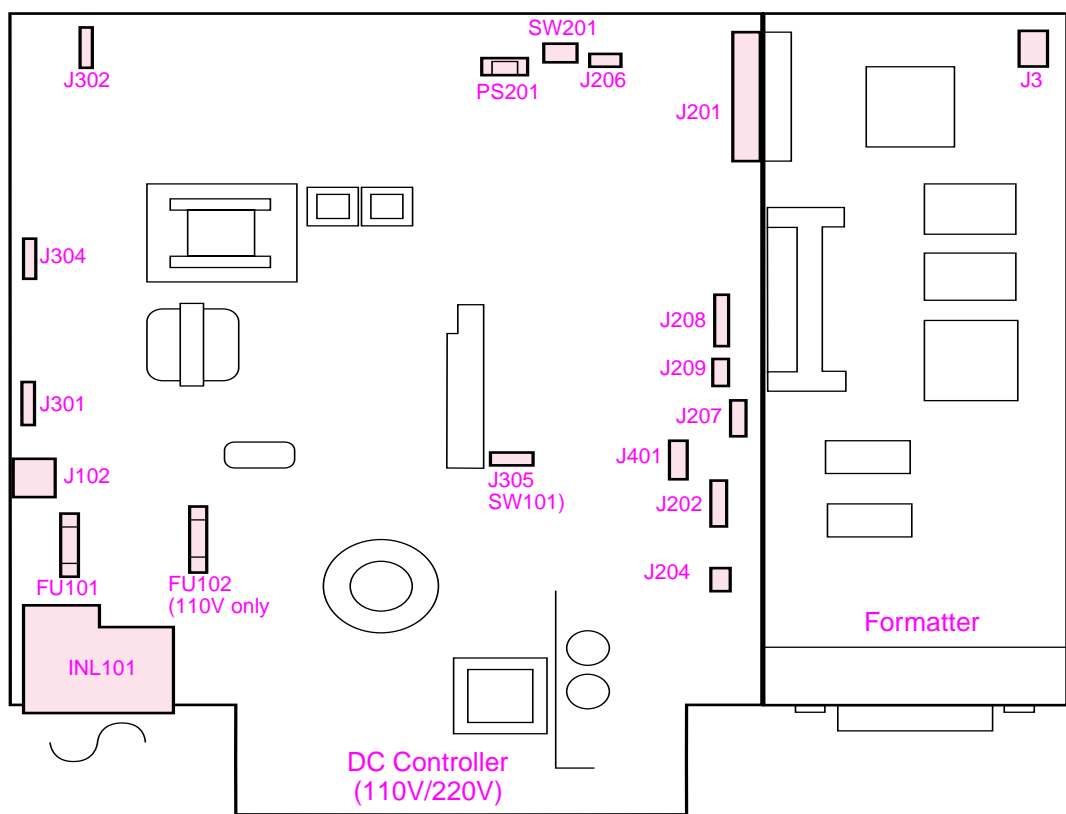


Figure 7-1 Paper path and components

DC Controller diagram



Note: Some of the connectors shown in this diagram are not present on the HP LaserJet 6L Pro

Figure 7-2 DC Controller PCA components

J3	Control Panel Connector (Formatter PCA)		
J102	Fusing Assembly	J202	Paper Registration and Paper-Out Photosensors (PS203 and PS202)
J201	Formatter PCA Connection	J206	Fusing Assembly (thermistor feedback)
J204	Paper Pickup Solenoid (SL1)	J207	Scanner Motor
J301	Developer Bias Contact	J208	Laser Driver/Beam Detect Circuitry
J302	Transfer Roller Contact	209	Door Open/No Toner Cartridge Photosensor (PS204) (HP LaserJet 5Lonly)
J304	Primary Roller Contact	J401	Motor
SW101	+12A Vdc Shutoff Switch	FU101	
SW201	Engine Test Print Switch	FU102	110 volt only
PS201	Fusing Assembly Exit Photosensor	INL101	Input Power Receptacle

Printer error troubleshooting

Information regarding printer status is conveyed by two methods: 1) the printer's Control Panel lights and 2) feedback through the bi-directional I/O that displays at the PC. The basic method of determining error messages uses patterns of lights on the Control Panel LED. Printer messages are categorized into two basic types:

- Status Messages
- Service and Error Messages

Note

Before troubleshooting the printer, cycle the power to the printer to see if the error persists.

Priority of errors

Each error has a priority in relation to the others. If there is more than one error condition at the same time, the highest priority error will be displayed. The priority of errors is:

- 1 Service Errors
- 2 Door Open/No Toner Cartridge
- 3 Paper Jam
- 4 Paper Out
- 5 Memory Error
- 6 Manual Feed

Printer status messages

The following table lists printer LED messages and their meanings and describes recommended actions. For more information on the Front Panel layout, refer to “Using the Control Panel” in Chapter 3, “Installation and Configuration.”

Table 7-1 Printer status messages (Sheet 1 of 2)

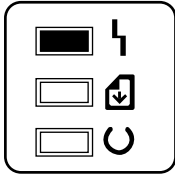
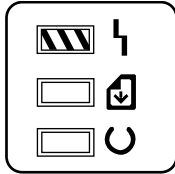
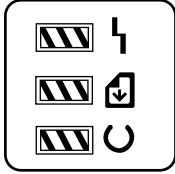
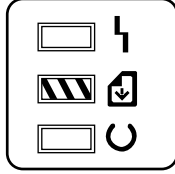
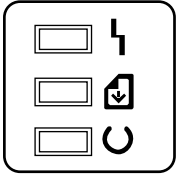
LEDs	Description	Recommended action
	<p>Paper Out Error.</p> <p>Door Open or No EP Cartridge.</p> <p>Paper Jam.</p>	<p>Add paper.</p> <p>Close the printer door and/or verify that the EP cartridge is installed.</p> <p>Clear paper jam.</p> <p>If you have completed these recommended actions and the error persists, see Table 7-3.</p>
	<p>Memory Error. There is either too much data or the data is too complex.</p>	<ol style="list-style-type: none"> 1. Turn Page Protection on within your software application or Windows. 2. Reduce the complexity of the print job. 3. Reduce resolution to 300 dpi within your software application or Windows. 4. Add optional memory to the printer. 5. Make sure Enhanced I/O is on Auto Mode (PCL mode) and resend print job. (See Chapter 3, “PCL Printer Settings.”) 6. If the Auto-Continue variable is on within PJL, the printer will continue printing after 10 seconds. 7. If the Auto-Continue variable is off within PJL, you need to press the Control Panel Button to continue printing.
	<p>Incompatible Memory Card (5L/6L).</p> <p>Initializing/Resetting (6L Pro).</p>	<p>Remove the incompatible memory card and replace it with a 1, 2, 4, or 8 Mb, 70 nsec. or faster memory card. (See Chapter 8 for memory card part numbers.)</p> <p>No action necessary.</p>
	<p>Manual Feed. The printer is waiting for you to add a piece of paper to the single sheet input slot.</p>	<ol style="list-style-type: none"> 1. Make sure the correct paper is loaded into the printer. (See your HP LaserJet 5L User's Manual or the HP LaserJet Printer Family Paper Specifications Guide for more information.) 2. Press and release the Control Panel Button. 3. Turn off manual feed within your software application if you do not wish the printer to pause between sheets.

Table 7-1 Printer status messages (Continued) (Sheet 2 of 2)

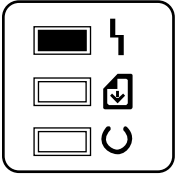
LEDs	Description	Recommended action
	Sleep Mode.	<p>If the printer's LEDs remain off:</p> <ol style="list-style-type: none"> 1. The printer is in Sleep Mode. Press the Control Panel Button or open the EP Door. 2. Power is not supplied to the printer. Check power cord connections and the power source. 3. Print an engine test to determine if the print engine is functional. If the test is successful, replace the Formatter PCA. 4. See the General Troubleshooting Flowchart earlier in this chapter.

Occasionally you may add paper, close the printer door, add the toner cartridge, and clear a paper jam, only to find that the printer still displays an error message. If this happens, troubleshoot using Table 7-3 below.

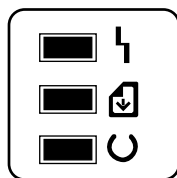
Note

If the error appears and persists only after you attempt to print a page, verify that the motor is functioning. (See "Printing an Engine Test" later in this chapter.)

Table 7-2 Unclearable error

	<p>This error will persist if any of the three paper movement photosensors (PS201, PS202, and PS203) and/or their flags are not functional.</p> <ol style="list-style-type: none"> 1. Verify that all three photosensor flags are not blocked and move freely. (See Figure 7-1 to identify photosensor flag locations.) <ul style="list-style-type: none"> • Paper Out Flag (PS202) (See Figure 5-6.) • Paper Registration Flag (PS203) (See Figure 5-6.) • Exit Sensor Flag (PS201) (See Figure 6-18.) 2. Verify that all connectors are firmly seated. (See Figure 7-2 to identify connector locations on the DC controller.) <ul style="list-style-type: none"> • Door closed/EP Cartridge Photosensor connector (5L only) • Paper-Out and Registration Photosensor Connector (See Figure 5-6.) <p>Note: There is no connector for the Exit Photosensor (PS201) since it is located on the DC Controller PCA. This flag is located beneath the Fusing Assembly. (Refer to Figure 6-18.)</p> <p>If all of the flags move freely and all of the connectors are correctly seated, yet the error persists, replace the DC Controller PCA.</p>
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Service and error messages



Service errors prevent further printer operation until some action is taken. When there is a service error, all of the lights will turn on in a steady state. **Press and hold the Control Panel Button** to see a pattern in the lights. (The error will only be displayed as long as this button is pressed.) Use Table 7-4, "Service and Error Messages," to identify what type of service error has occurred.

Table 7-3 Service and error messages

	<p>ROM/RAM Error. An error was found with the ROM or RAM. The printer believes that the ROM is corrupted or an error has been found in the RAM.</p>	<ol style="list-style-type: none"> 1. Power-cycle the printer by unplugging the printer and plugging it back in. If this doesn't clear the error: 2. Unplug the printer, remove any optional memory, then power the printer back on. If the message clears, replace the memory card. 3. Replace the Formatter PCA.
	<p>Fuser Error. This indicates a fusing assembly malfunction.</p> <p>Note: Chronic fuser failures or fuser overheating or both are indicators of an uninterruptible power supply or battery backup being used with the printer. Uninterruptible power supplies (UPS) should not be used with the printer.</p>	<ol style="list-style-type: none"> 1. Unplug the printer for 10 minutes or more. 2. Verify that the fuser connector is firmly seated in J102 of the DC Controller PCA and that the thermistor connector (left of fusing assembly) is seated into both the printer chassis and J206 of the DC Controller PCA. 3. Remove the connector from J102 of the DC Controller (See Figure 6-14). Measure the resistance between pins one and two of the cable. (This procedure will measure the continuity of the ceramic heating element.) Normal resistance is 30 ohms +/- 10 ohms. If no resistance is measured, replace the heating element. 4. Remove the thermistor (temperature feedback) connector (See Figure 7-3). Measure the resistance between pins one and two. Normal resistance is 440K ohms +/- 30K at 20 degrees C. If the resistance is not measured replace the heating element 5. If the resistance readings are correct, yet the error persists, replace the DC Controller.

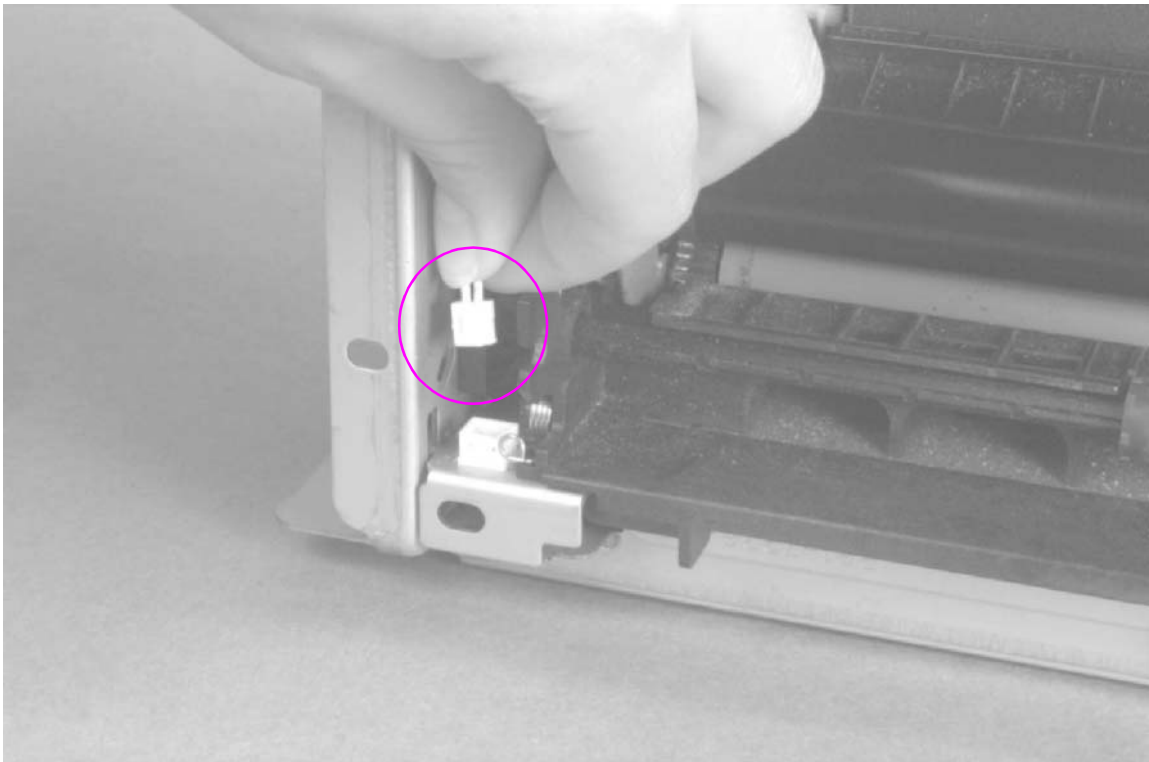


Figure 7-3 Heating element resistance check

Table 7-3 Service and error messages (Continued 2 of 3)

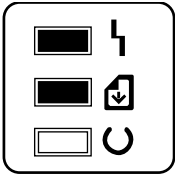
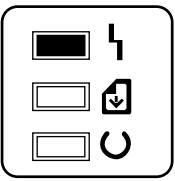
	<p>Beam Error. There are a number of causes for this error, and some of the causes may be transient. (They may disappear.)</p>	<ol style="list-style-type: none"> 1. Power-cycle the printer by unplugging the printer and plugging it back in. 2. Make certain the Laser/Scanner Assembly is correctly seated on the printer chassis. 3. Replace the Laser/Scanner cable (J208 on the DC Controller). 4. Replace the Laser/Scanner Assembly. 5. Replace the DC Controller PCA.
	<p>Engine Error. The formatter and engine are not communicating.</p>	<ol style="list-style-type: none"> 1. Power-cycle the printer by unplugging the printer and plugging it back in. If this doesn't clear the error: 2. Reseat Formatter to DC Controller PCA. 3. Replace the Formatter PCA4. Replace the DC Controller PCA.

Table 7-3 Service and error messages (Continued 3 of 3)

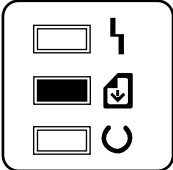
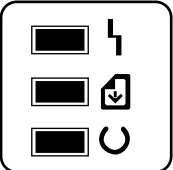
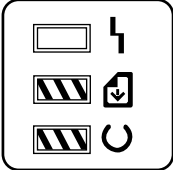
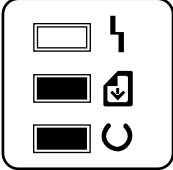
	<p>Scanner Error. Caused by a scanner malfunction.</p>	<ol style="list-style-type: none"> 1. Power-cycle the printer by unplugging the printer and plugging it back in. 2. Ensure condensation caused by moving the printer from a cold to a warm environment hasn't occurred. Allow the printer to acclimate to the warmer room. 3. Verify the two Laser/Scanner Assembly connectors are firmly seated. 4. Replace scanner cable J207 on the DC Controller PCA. 5. Replace the Laser/Scanner Assembly. 6. Replace the DC Controller PCA.
	<p>Formatter Error.</p>	<ol style="list-style-type: none"> 1. Power-cycle the printer by unplugging the printer and plugging it back in. 2. Disconnect the parallel I/O cable and try running a printer self test. Reconnect the parallel cable if the self test is successful and try host/printer communications again. 3. If the error persists, replace the Formatter PCA.
	<p>Firmware Error.</p>	<p>Note the LED pattern and the Bi-Tronics error code. Contact HP technical support with this information as well as a description of what data was sent, the errors encountered prior to the firmware error, the condition of the printer prior to the error, and any other information that may help isolate the error.</p>
	<p>Processor Error.</p>	<p>Note the LED pattern and the Bi-Tronics error code. Contact HP technical support with this information as well as a description of what data was sent, the errors encountered prior to the firmware error, the condition of the printer prior to the error, and any other information that may help isolate the error.</p>

Image formation troubleshooting

Check the toner cartridge

Image formation defects are many times the result of toner cartridge problems. If there is any doubt, always replace the toner cartridge before troubleshooting image defects.

Use the following check list to ensure that the toner cartridge is still operable.

- Ensure that the toner cartridge is seated properly in the cavity.
- Inspect the toner cartridge for remaining toner.
- Check the expiration date of the toner cartridge (stamped on the cartridge box).
- Check the toner cartridge to see if it has been disassembled or refilled.

Note

The full weight of the toner cartridge is 26.1 oz (730 grams), and its empty weight is 22.7 oz. (640 grams).

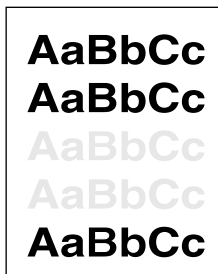
- Inspect the cartridge for leaking toner through worn seals. (If the drum has been manually rotated it may have caused internal damage and toner spills may result).
- Check the surface of the photosensitive drum in the cartridge to see if it has been damaged or scratched. Touching the drum will contaminate the photosensitive surface and may cause spotting and defects during printing.
- Blurred areas on the page may indicate that the drum has been exposed to light for too long. This causes permanent damage to the photosensitive drum. Replace the cartridge.

Image defect examples

This section illustrates some image defects and their possible causes. Since there are many variables in the printing process, you may encounter image defects that are not illustrated in the following examples. If you find a defect that is not illustrated, record the probable cause along with the printing environmental conditions and save a copy of the defect for future reference.

Each example lists, in order, the probable causes of the image defect.

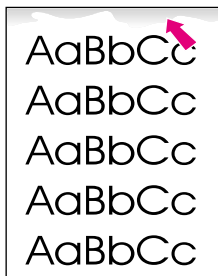
Faded print



Faded or light print may consist of a faded area, an entire page faded, or a block of vertically aligned white streaks.

- The toner cartridge may be getting low on toner. Gently shake the cartridge to redistribute the toner, or replace the cartridge.
- The paper may not meet HP's paper specifications (for example, too moist or too rough). (See the *HP LaserJet 5L User's Manual* or the *HP LaserJet Printer Family Paper Specifications Guide*.)
- Adjust toner density setting through your software or printer driver.
- EconoMode may be on. Turn it off through your software or printer driver.
- There may be discontinuities in the high-voltage contact points. Clean the high voltage contact points on the toner cartridge and transfer roller. (See Figures 7-5 and 7-6.)
- Complete a Half Self-Test to verify that the image is appearing on the drum. (See "Half Self-Test Functional Check" later in this chapter.) If this procedure isn't successful, replace the transfer roller.
- Replace the Laser/Scanner unit.
- Replace the DC Controller.

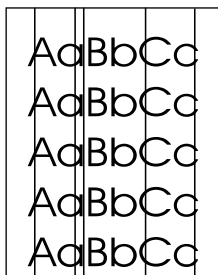
Staining



Stains usually appear as small, round, black dots that occur in the front or the back of a page. Sometimes wide, inconsistent stains appear.

- The paper may not meet HP's paper specifications (for example, too moist).
- You may be printing on the wrong side of the paper. Try removing the paper from the Paper Input Tray and turning it over. (The label on many reams of paper has an arrow indicating the print side.)
- The printer may need cleaning. See "Cleaning Your Printer," in Chapter 4.
- The toner cartridge may be damaged. Replace it if maintenance procedures do not improve print quality.

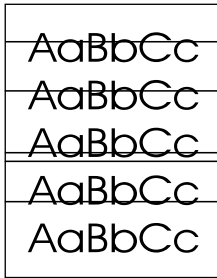
Vertical lines



Sometimes vertically aligned black streaks or smears can appear on successive pages.

- The toner cartridge may be damaged. Replace it.
- The printer may need cleaning. See "Cleaning Your Printer," in Chapter 4.
- Replace the heating element.

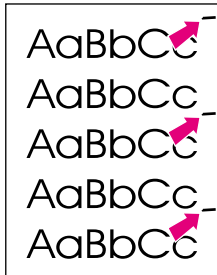
Horizontal stripes



Sometimes horizontally aligned black streaks or smears can appear.

- The toner cartridge may not be installed properly. Remove the cartridge and reinsert it.
- The toner cartridge may be defective. Replace it.
- If the printer still has print quality problems, the printer may require cleaning.
- Replace the heating element.

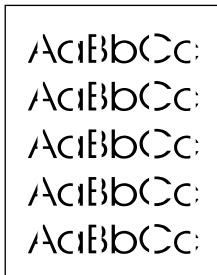
Repetitive defects



Sometimes light character shadows or repetitive marks appear on the page.

- Refer to the “Repetitive Image Defect Ruler” later in this chapter.
- The printer may need cleaning. See “Cleaning Your Printer,” in Chapter 4.
- The toner cartridge may be damaged, causing a repetitive black flaw on every printout. Replace the toner cartridge.
- If using transparencies, use a different type of overhead transparency.
- Your paper texture may be too coarse. Try changing to a paper with a smoother finish.
- The photosensitive drum of the toner cartridge may have been over-exposed to bright light, causing repetitive defects (usually a blurred area). Replace the toner cartridge.

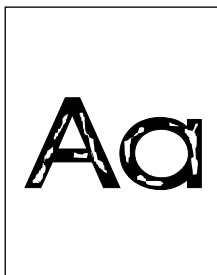
Vertical white stripes



The toner cartridge may be getting low on toner. Gently shake the cartridge to redistribute the toner, or replace the cartridge.

- The printer may need cleaning. (See “Cleaning Your Printer,” in Chapter 4.) You may also need to clean the mirror on the laser scanner by blowing air through the scanner to remove any dust particles.

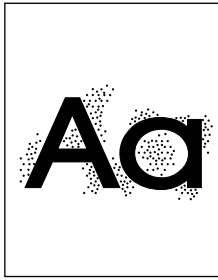
Character voids



Character voids are white areas within the parts of characters that should be solid black.

- If you are using transparencies when you experience this problem, try another type of transparency. Hewlett-Packard transparencies are designed to minimize character voids. (Because of the composition of transparency media, some character voids are normal.)
- You may be printing on the wrong side of the paper. Remove the paper and turn it over. (The label on many reams of paper has an arrow indicating the print side.)
- Your paper may not meet the requirements for the printer.

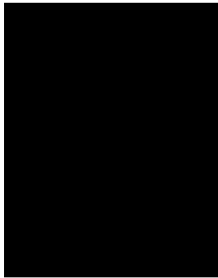
Background scatter



Background scatter results from bits of toner distributed on the front or back of a printed page. Background scatter often is isolated to a specific area of the page.

- Check the environment. High humidity can cause this error.
- Change the paper type, weight, or surface finish. See appendix B of the User's Manual for paper specifications.
- If background scatter occurs on an envelope, try moving the text to an area with no seams. Printing on seams can cause this problem.
- If background scatter covers the entire surface of an envelope, try adjusting the print density through your software or printer driver.
- If this problem occurs on the back of a printed page, it may be caused by spilled toner inside the printer. See "Cleaning Your Printer" in Chapter 4.

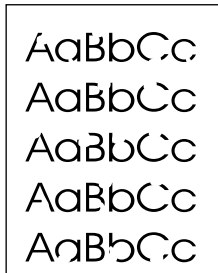
Black page



A page is completely black.

- The toner cartridge may not be installed properly. Remove the cartridge and reinsert it.
- The toner cartridge may be defective. Replace it.
- There may be discontinuities in the high-voltage contact points. Clean the high voltage contact points on the toner cartridge and transfer roller. (See Figures 7-5 and 7-6.)
- Replace the DC Controller or Laser/Scanner unit.

Dropouts



Dropouts are characters that are partially printed.

- The Paper Input Tray may have been loaded with too much paper. Make sure that no more than 100 sheets of paper are loaded.
- A single sheet of paper may be defective. Try reprinting the job.
- Try adjusting the print density through your software or printer driver.
- Try cleaning the rollers.
- The moisture content of the paper may be inconsistent, or the paper may have moist or wet spots on the surface. Try paper from a fresh ream or a different paper manufacturer.
- The paper may have been damaged by inconsistent manufacturing processes. Try paper from a different source.

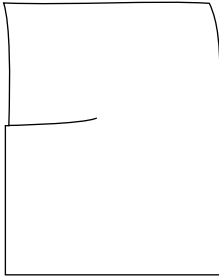
Half of the page is blank or loss of detail



The bottom of the page is blank, or part of a graphics image is cut off. This may mean that your page is too complex for the standard printer memory.

- Set resolution to 300 dpi through your software or printer driver.
- You may need to install additional memory in your printer. See Chapter 6 for memory installation instructions.
- Check your printer driver help screens for suggestions specific to your driver's settings.

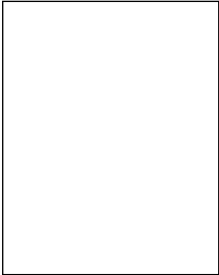
Curled or wrinkled sheets



Media is curled or wrinkled when using the Paper Output Bin.

- Verify that the media you are using meets paper specifications. (See the *HP LaserJet 5L User's Manual* or the *HP LaserJet Printer Family Paper Specifications Guide*.
- Turn the paper over.
- Use the Front Output Slot by pushing the Paper Path Lever to the lower position. This provides the straightest paper path.
- Use Paper Input Support located behind the Paper Input Tray.

Blank page (occasional)

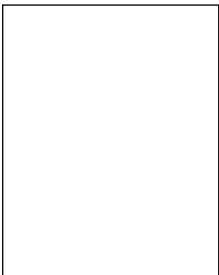


A page is completely blank. If you get occasional blank pages:

- Make sure your page length and margins are set correctly for the paper size you use. If you are printing on small media and your page is blank, try printing on larger media to see where the image is printing. Adjust margins accordingly.
- Some sharing devices or networks may generate a blank page as a separator. Try connecting the printer directly to the computer.
- Your printer may be feeding two or more pages at once because the paper is difficult to separate. Remove the paper from the Paper Input Tray and align the edges of the paper. Although fanning the paper is not generally recommended, it may be an effective way to decrease multi-feeds if the paper was poorly cut by the manufacturer and is sticking together. You may also try turning the paper around to feed the opposite end first.

Your software application may send an extra page eject command. Check your software's printing configuration information. If you are using a word processing program, check for a natural page break and a forced page break that are close to each other, causing a blank page.

Blank pages (all pages)



If *all* of your pages are blank:

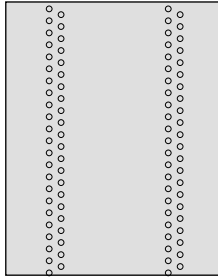
- Make sure you removed the entire length of the sealing tape from the toner cartridge before you installed the cartridge.
- The toner cartridge may be completely out of toner. Replace the cartridge.
- Try printing a self-test page. (See Chapter 3.) If the page is still blank, the printer may need service.
- There may be discontinuities in the high-voltage contact points. Clean the high voltage contact points on the toner cartridge and transfer roller.
- Reseat the Laser/Scanner connectors.
- Replace the Laser/Scanner unit.
- Replace the DC Controller.

Dark background



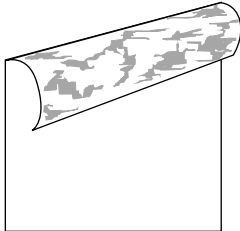
- Adjust the toner density setting through your software or printer driver.
- There may be discontinuities in the high-voltage contact points. Clean the high voltage contact points on the toner cartridge and transfer roller.
- Replace the Laser/Scanner unit.
- Replace the DC Controller.

Dots



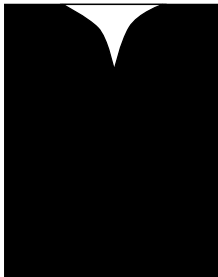
- Clean the static charge eliminator. (See Chapter 4, "Printer Maintenance.")
- There may be discontinuities in the high-voltage contact points. Clean the high voltage contact points on the toner cartridge and transfer roller.
- Replace the transfer roller.

Dirt on the back of the page



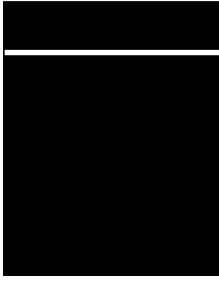
- Use the image defect ruler to determine if the rollers are dirty. If so, clean them. Replace the rollers if they cannot be cleaned sufficiently.
- Clean the heating element.

Blank spots



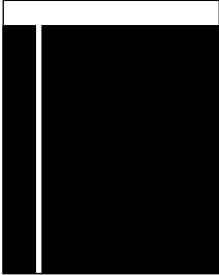
- The paper may not meet HP's paper specifications. Select different paper.
- The moisture content of the paper may be inconsistent, or the paper may have moist or wet spots on the surface. Try paper from a fresh ream or a different paper manufacturer.
- Replace the toner cartridge.
- There may be discontinuities in the high-voltage contact points. Clean the high voltage contact points on the toner cartridge and transfer roller.
- Replace the transfer roller.
- Replace the DC Controller.

White horizontal line

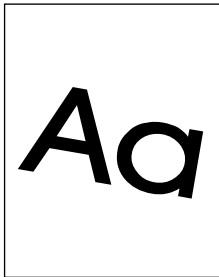


- Replace the toner cartridge.

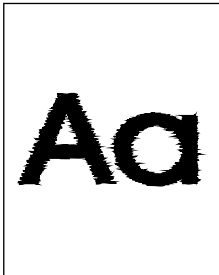
Faulty registration/skewed image



- Unload the paper and re-stack it in the input tray
- Readjust the guides to the width of the paper.
- Too many sheets of paper may have been loaded into the paper input slot. Load no more than 100 sheets of paper.
- The paper may not meet HP's paper specifications. Select different paper.
- Clean the Paper Pickup Roller. If you cannot remove the dirt, the roller may be worn out. Replace the roller.
- Check separation pad and subpads. If they are worn, replace them.
- Clean the Delivery Roller. If you cannot remove the dirt, replace the roller.
- Restack the paper in the paper input source and try reprinting the job.



Distorted image or BD failure



- Make certain the printer is not facing the sunlight.
- The paper may not meet HP's paper specifications. Select different paper.
- Clean the Laser/Scanner Assembly by blowing compressed air in the slot on the bottom of the assembly.
- Make sure the two Laser/Scanner connectors are firmly seated.
- Replace the Laser/Scanner unit.
- Replace the DC Controller.

Troubleshooting checks

Engine test

The engine test print is used to verify that the print engine is functioning correctly. The Formatter PCA is completely bypassed during an engine test, so this test is useful for isolating printer problems. The engine test prints a full page of vertical lines down the entire printable area and is also useful for checking and adjusting registration.

Engine Test Button location

The engine test print button is located on the DC Controller PCA. It is accessible through a hole at the front of the printer. (See Figure 7-4.)

Printing an engine test

The engine test button is accessible without removing the covers. To print an engine test, use a long, non-metallic object (such as a pen or pencil) to press the engine test button. A single test page is printed. (See Figure 7-4.)

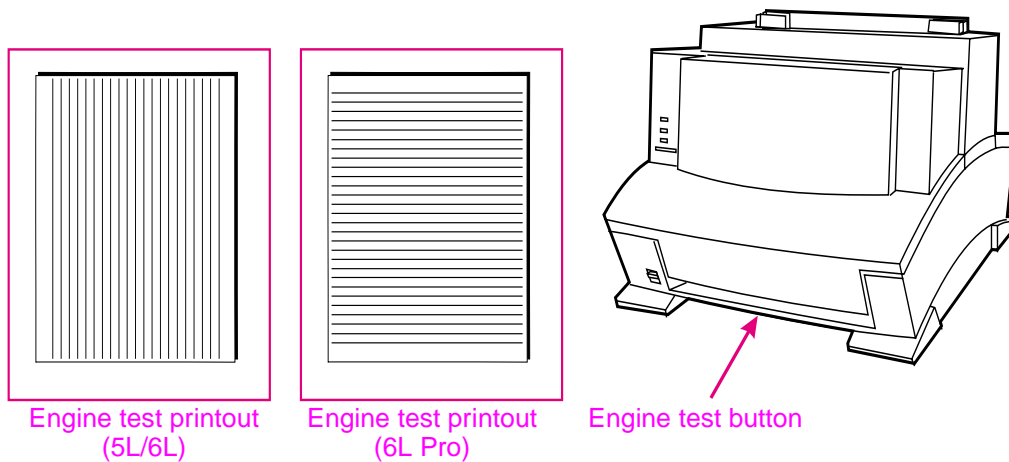


Figure 7-4 **Engine test**

Half self-test functional check

The electrophotographic process can be subdivided into the following stages:

- Cleaning (removing excess toner from drum surface)
- Conditioning (placing a uniform electrical charge on drum)
- Writing (laser strikes surface of drum to create latent image)
- Development (formation of the toner image on drum)
- Transfer (charge to transfer the image to paper)
- Fusing (heat and pressure to produce a permanent image)

The purpose of the Half Self-Test Check is to determine which process is malfunctioning. Perform the test as follows:

- 1 Initiate a self-test.
- 2 Open the Printer Door after the paper advances half-way through the printer (about eight seconds after the Motor begins rotation). The leading edge of the paper should have advanced past the toner cartridge.
- 3 Remove the toner cartridge.
- 4 Open the toner cartridge's drum shield to view the drum's surface.

If a *dark and distinct toner image is present* on the drum's surface, assume that the first four functions of the electrophotographic process are functioning (cleaning, conditioning, writing and developing - see Chapter 5.) Troubleshoot the failure as a transfer or fusing problem.

If *NO image is present* on the photosensitive drum, perform the following functional checks:

- 1 Make sure you have removed the entire length of the sealing tape from the toner cartridge before you installed the cartridge.
- 2 Drum Rotation Functional Check.
- 3 High Voltage Power Supply Check.

Drum rotation functional check

The photosensitive drum, located in the toner cartridge, must rotate for the print process to work. The photosensitive drum receives its drive from the Main Drive assembly. To verify whether the drum is rotating:

- 1 Open the Printer Door.
- 2 Remove the toner cartridge.
- 3 Mark the cartridge's drive gear with a felt-tipped marker. Note the position of the mark.
- 4 Install the toner cartridge and close the Printer Door. The start-up sequence should rotate the drum enough to move the mark.
- 5 Open the printer and inspect the gear that was marked in step 3. Verify that the mark moved.

If the mark did not move, inspect the Main Drive assembly to ensure that it is meshing with the toner cartridge gears. If the drive gears appear functional, and the drum does not move, replace the toner cartridge.

Note

This test is especially important if refilled toner cartridges have been used.

High-voltage power supply check

The High-Voltage Power Supply PCA provides the necessary voltages for the electrophotographic processes. A method for verifying the high-voltage system is given in the table below.

Table 7-4 High-voltage power supply check

Check	Action
Toner Cartridge Connection Points	Visually inspect the three connection points on the underside, right end of the toner cartridge. If they are dirty or corroded, clean the connections. Use alcohol only. If damaged, replace the toner cartridge. (See Figure 7-5 below.)
High Voltage Connector Assembly	This assembly uses spring-loaded pins to contact the toner cartridge. (See Figure 7-6 on the following page.) Verify that the pins are not dirty or corroded and that the spring-loading action is functional. If the pins are dirty, clean using alcohol only; if damaged, replace the High Voltage Connector Assembly.

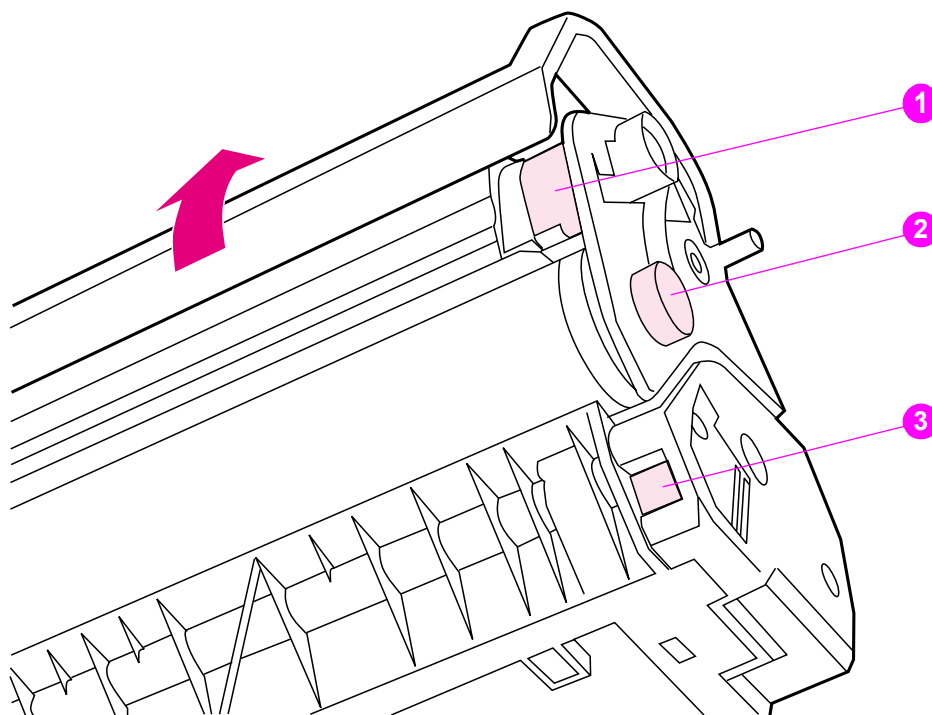


Figure 7-5 Toner cartridge high-voltage connection points (1 of 2)

- 1 Charging
- 2 Drum Ground
- 3 Developing Roller

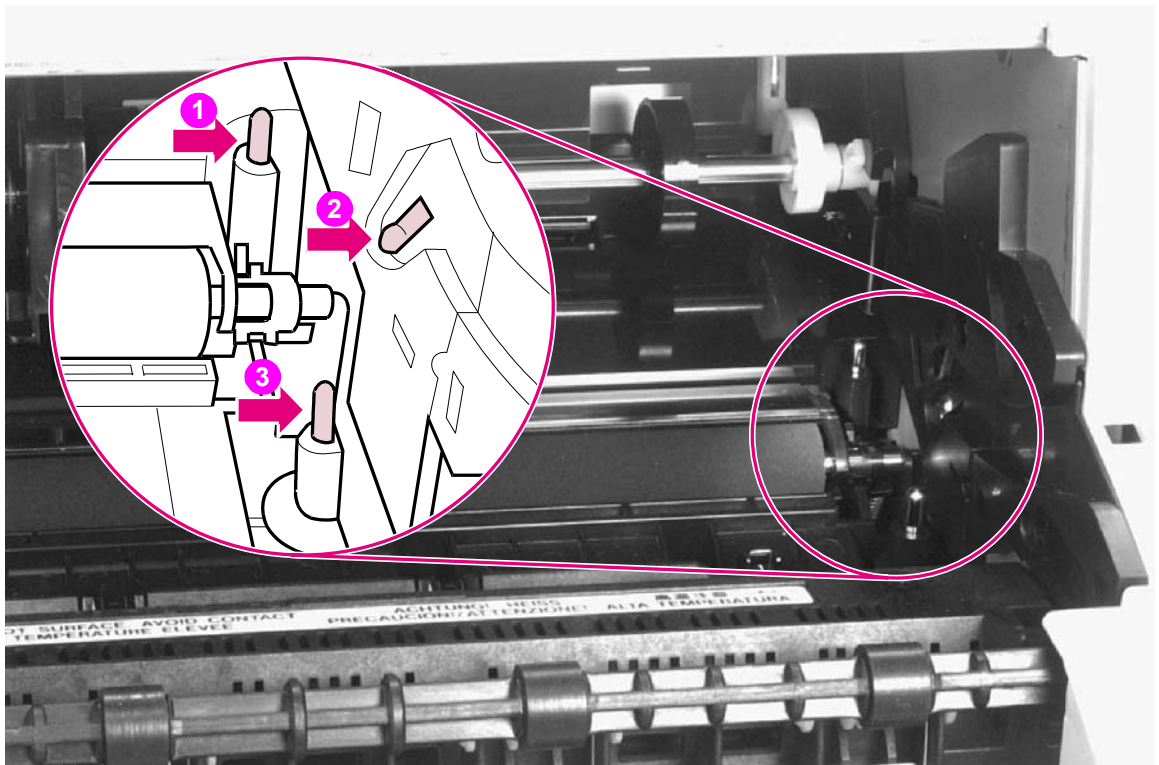


Figure 7-6 Toner cartridge high-voltage connection points (2 of 2)

- 1 Charging
- 2 Drum Ground
- 3 Developing Roller

Paper curl

Paper curl is inherent to the laser printing processes, and occurs when paper is subjected to heat. Paper curl tends to relax as the paper cools while resting on a flat surface. The specification for maximum paper curl when the paper is lying flat before print is 5 mm (0.2 inches).

Although paper curl cannot be totally eliminated, some steps can be taken to lessen its impact, as suggested in the following table.

Table 7-5 Paper curl troubleshooting

Possible causes	Recommended action
Paper path	Try using the front output slot to shorten and straighten the paper path.
Paper surface	The recommended printing surface of the page is usually marked on the end of a ream of paper by a small arrow and the phrase "print this side first." If the incorrect side was face up, turn the paper over. Load paper into the Paper Input Tray with the recommended printing surface facing the front of the printer.
Paper storing and handling	Over time, paper assumes the characteristics of its storage environment. (In a humid environment, paper absorbs moisture. In a dry environment, paper loses moisture.) Paper with higher moisture contents will tend to curl more. Evaluate the storage conditions of the paper.
Paper type	All paper is manufactured differently (texture, moisture content, drying processes, composition, etc.). Change the type of paper being used and reevaluate the paper if curl results.

Troubleshooting tools

Paper path check

If paper is not being picked up or is not moving through the paper path, you may want to observe all of the paper motion activities. Overriding PS204 (5L) or SW101 (6L and 6L Pro) allows you to observe:

- Motor rotation
- Solenoid action
- Kick plate motion
- Paper Pickup Roller motion
- Drive Roller, Transfer Roller, Fuser Roller and Gear, and Delivery Roller Motion

To override PS204 and SW101

- 1 Remove the Printer Covers (Figures 6-2, 6-3, and 6-4).
- 2 **For HP LaserJet 5L Printer only:** Press the Door Open flag down (Figure 7-7, callout 1) and lift the EP Cartridge flag (Figure 7-7, callout 2). These flags are located on top of the printer chassis to the left of the Laser/Scanner assembly.

For HP LaserJet 5L, 6L and 6L Pro Printers: Press SW101 (Figure 7-7, callout 3).

Note

The EP Cartridge flag (Figure 7-7, callout 2) is not present on the HP LaserJet 6L Pro.

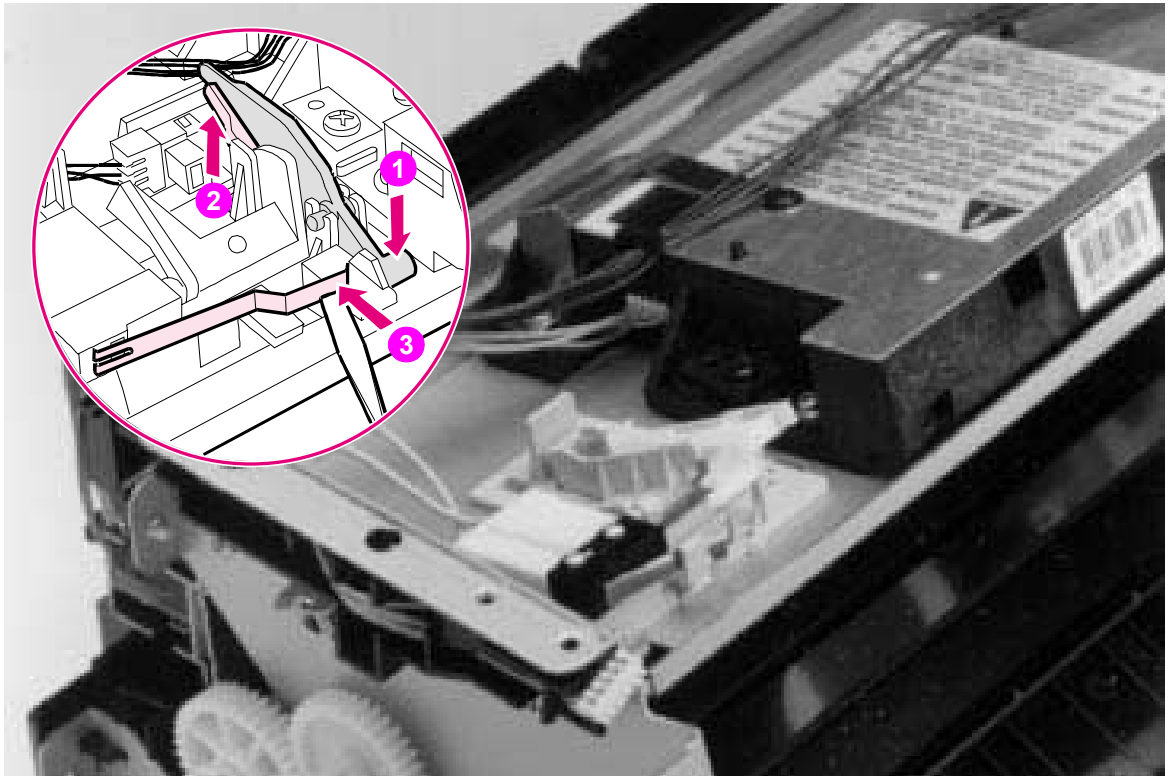


Figure 7-7 Overriding PS204 and SW101

- 3 While holding the flags up, perform either an Engine Test or a Self-Test to observe paper motion. (See procedures earlier in this chapter.)

Repetitive image defect ruler

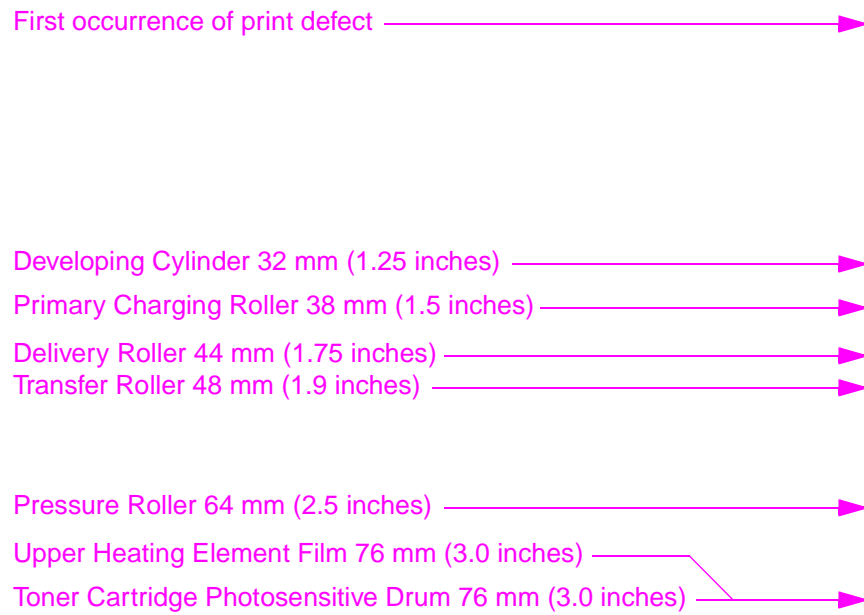
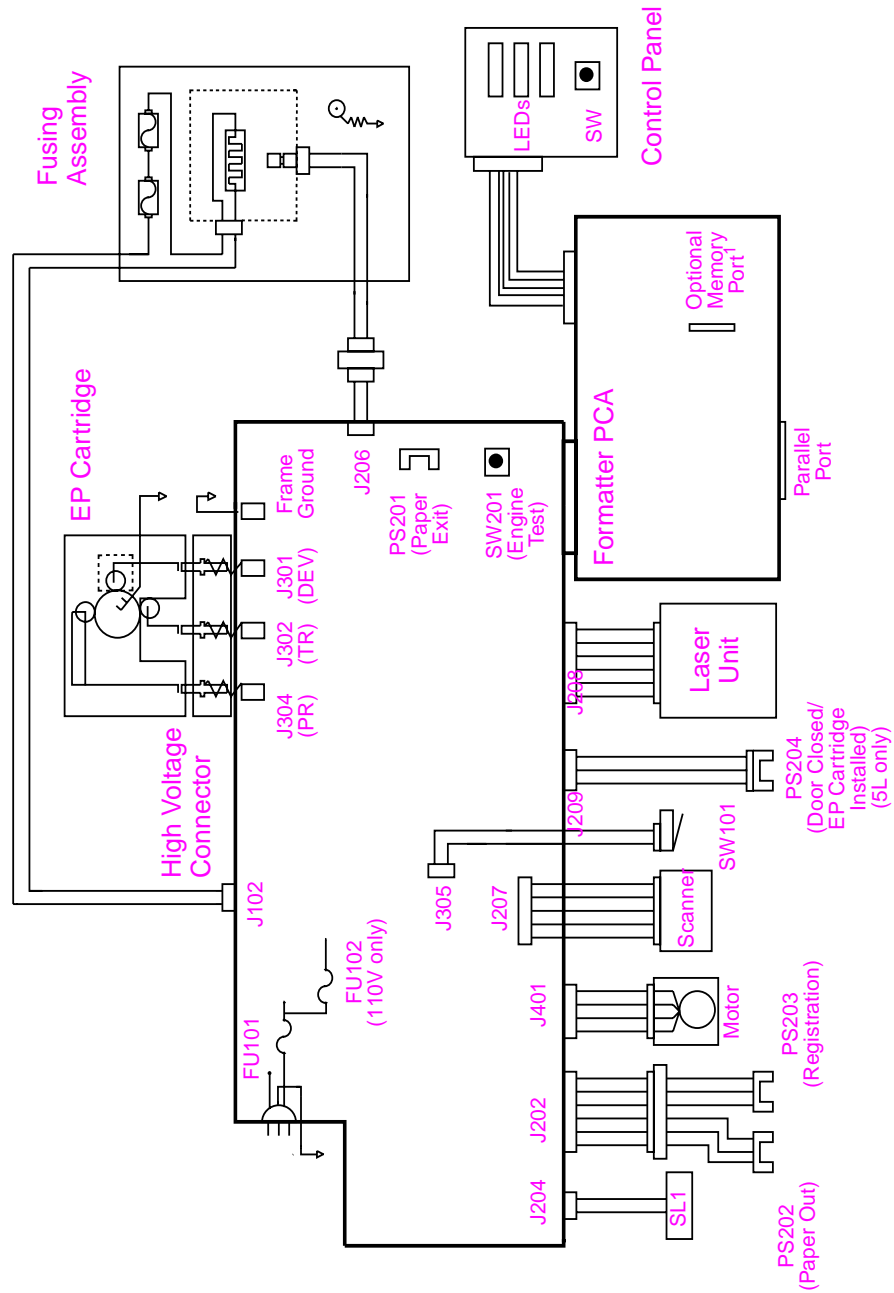


Figure 7-8 Repetitive image defect ruler

Main wiring diagram



¹ Not present on the HP LaserJet 6L Pro

Figure 7-9 **Main wiring diagram**

Table 7-6 Cable pinouts

Connector	Signal name	Remarks
J401 pin 1	MA	Motor Drive Signal
J401 pin 2	MA	Motor Drive Signal
J401 pin 3	MB	Motor Drive Signal
J401 pin 4	MB	Motor Drive Signal
J204 pin 1	+12 V	5L only
J204 pin 2	CPUD	Solenoid SL1 Pickup Drive (5L only)
J202 pin 1	+5V	
J202 pin 2	GND	
J202 pin 3	PAPSENS	"L" when PS202 detects paper
J202 pin 4	+5V	
J202 pin 5	GND	
J202 pin 6	PISNS	"L" when PS202 detects paper
J207 pin 1	+12 V	
J207 pin 2	SCNTAC	Scanner tachometer pulses
J207 pin 3	FG	
J207 pin 4	/SCNON	"L" to rotate scanner motor
J207 pin 5	SCNCLK	Scanner clock reference
J208 pin 1	+5 V	
J208 pin 2	APCSH	APC sample hold
J208 pin 3	/LON	Laser Enable
J208 pin 4	FG	
J208 pin 5	/VDOUT	Laser Drive Signal
J208 pin 6	BDI	Beam Detect Input Signal
J209 pin 1	+5 V	
J209 pin 2	GND	
J209 pin 2	DOSNS	"H" when cartridge is not installed or the front door is open at PS204
J305 pin 1	+12A V	
J305 pin 2	N/U	
J305 pin 3	+12 V	
J206 pin 1	FRSTH	Fusing temperature feedback
J206 pin 2	FG	
J102 pin 1		Fusing assembly drive voltage
J102 pin 2		Fusing assembly drive voltage

