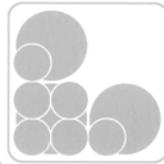




PARTS ON DEMAND LIMITED

TECH TIPS April 2004



600 DPI
Resolution Enhancement

PRINTER PARTS



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PRINTER REPAIRS

High
Performance



PRINTER TRAINING

PCL 5

PRINTER MANUALS

LaserJet

PRINTER TECH SUPPORT

- *This Issue Contains:*
- Optra S Image Problem
- Fuser errors 50.x Error



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Optra S Image Problem

Scenario:

You are troubleshooting an Optra S with a peculiar image problem. The print fades in and out down the left-hand side of the page, but never in the same place. As an experienced technician, you replace the toner cartridge, but the problem remains. Then you replace the charge roller and transfer roller without any luck. Next, you perform a stop test and the results show a perfect image on the image drum. Okay, it has to be the high voltage power supply. After installing the high voltage power supply, you wait patiently for the final result. Confident you are victorious, you watch that piece of paper roll out of the machine and you can barely contain your excitement only to discover the image defect is still there. Now what? I have seen this unusual problem not once, but several times, and the culprit is not a defective cartridge, charge roller, high voltage power supply, or even the engine board, but a small piece of plastic the size of a 10 cent piece.

This small plastic disc is part of a larger mechanism that drives the drum, and a vital part at that. This mechanism is called the developer drive assembly and is located on the left-hand side behind the printer's controller board. (Figure 1). The developer drive consists of three gears; one contains a spring-loaded shaft that engages and disengages the developer drive coupler. (Figure 2a.) This coupler meets with a small wheel on the left-hand side of the toner cartridge allowing the image drum to rotate. (Figure 2b.) The coupler moves into the printer to engage the drum when the top door is closed and disengages when the top door is opened. But how does a defective drive assembly cause the image to fade in and out and never in the same place?



Figure 1. The developer drive is located on the left side behind the printer's controller board.

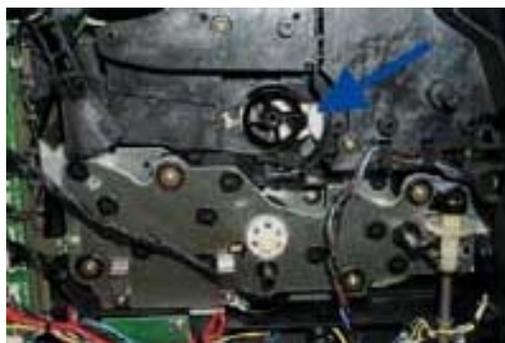


Figure 2a & 2b. The black wheel is spring-loaded and engages and disengages with the hub on the toner cartridge.

The developer drive coupler consists of four white plastic discs, the ones mentioned earlier that enable the coupler to engage with the cartridge evenly. (Figure 3.) If one of these discs is missing, the image drum rotates disproportionately. This uneven rotation causes the left side of the toner cartridge to lift slightly, producing a gap between the image drum and the transfer roller. Therefore, the image on the drum does not transfer completely to the paper, and the end result consists of light areas down the left-hand side of the page. (Figure 4.)

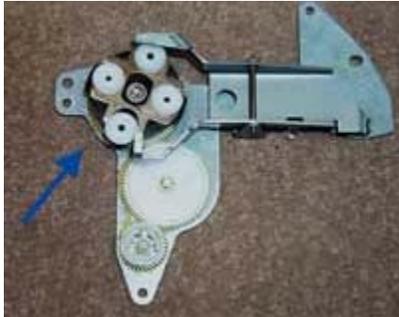


Figure 3. The drive coupler that engages with the toner cartridge contains four white plastic discs, which rotate the toner cartridge evenly.



Figure 4. This is an example of the image defect with a missing disc. Since the drum is rotating disproportional, the end-result is poor transfer.

Before I discovered the missing disc, this problem had me perplexed, since the transfer roller or high voltage power supply cause most transfer problems. I never would have suspected the developer drive assembly, since defective cartridge drive assemblies, on most laser printers, usually leave horizontal lines down the page, cause paper jams or do not print anything at all.

The solution to this problem is to replace the developer drive assembly since the discs are unavailable. The part number for the developer drive assembly is 99A0135.

To replace the developer drive assembly, remove the left side panel by releasing the two left door latches (Figure 5.) Next, loosen the controller board shield screws: three along the top and three along the bottom. (Figure 6.) To detach the controller board, remove four screws: two on the right side, one in the upper left hand corner and the last one located on the back left-hand side beneath the parallel port. (Figures 7a & 7b.) Finally, locate the developer drive and remove the screws that hold it in place. (Figure 8.) When installing the new assembly, make sure the white plastic wheel is aligned with the hub on the main drive assembly. (Figure 9.) Although this is an easy procedure to perform, it is wise to have the Optra S series machine type service manual handy for further assistance (part number 12G0139).



Figure 5. To replace the developer drive assembly, first remove the left panel by releasing the latches.



Figure 6. Next, loosen the six outer controller board screws and remove the metal shield.



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Figure 7a. To remove the controller board, remove two screws on the right and one in the upper left-hand corner.



Figure 7b. The fourth controller board screw is located in the back left-hand corner under the parallel port.

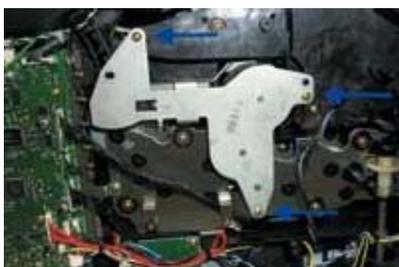


Figure 8. Finally, remove the developer drive assembly by removing three screws.

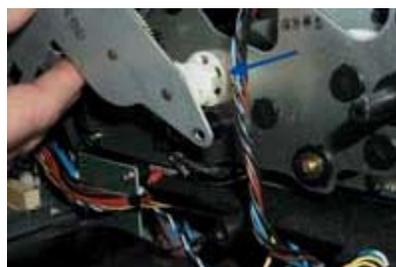


Figure 9. When installing the new developer drive assembly, make certain the plastic wheel is aligned with the hub on the main drive assembly.

Although solving this problem took a little time, troubleshooting unusual image problems is an opportunity to become more familiar with a machine you know little about. So, until next time, the case of the missing disc is solved.

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FUSER ERRORS (50.x) IN THE HP8100/HP8150

Fuser errors in the HP LaserJet 8100 and 8150 are really no different than in any other laser printer, but there seems to be some confusion about how to fix them. Part of this is due to an unfortunate omission in the service manual, and part of it is due to a misunderstanding of terminology.

We will clear up both sources of confusion. In the event of 50.x fuser errors, the service manual tells you to check fuser connections, then reseal or replace the fuser, then replace the DC controller. None of this is wrong, but there is a significant omission, and that is the low voltage power supply.

As in any laser printer, the fuser is heated by 220V (or 110V) AC, which is routed through the low voltage power supply. The DC controller monitors and controls the whole process. So any of the three assemblies (fuser, power supply, DC controller), or bad connections between any two of them, can cause fuser errors. A bad fuser or a bad power supply causes most fuser errors. It is very rare for the DC controller to cause the error, so that would be the last thing to try. If it's not the fuser (and this can be easily checked with a multimeter, it's almost always the power supply.

The other source of confusion is that people tend to think of 220V (or 110V) AC as high voltage rather than low voltage. So if it does occur to them that a power supply may be causing a fuser error, their natural impulse is to replace the high voltage power supply. But in a laser printer, the high voltage power supply is only used to charge up the toner cartridge and transfer roller. These voltages are internally generated by the power supply. The voltage for the fuser, on the other hand, is not internally generated—it's just the AC line voltage, routed through the printer. And it is always routed through the low voltage power supply, so that would be the one to replace for a fuser error.

You might wonder how the low voltage power supply can cause a fuser error if the printer is just routing an external voltage through the power supply. The answer is that the AC line voltage is not applied to the fuser at all times. If it were, the heating element in the fuser would just get hotter and hotter until it burned out (or started a fire!).

The low voltage power supply contains a switching circuit that applies the voltage to the fuser only as needed to maintain a temperature hot enough to fuse toner to paper, but not so hot as to scorch the paper or start a fire. It is this switching circuit that goes bad. To sum up, if you get a 50.x error in an HP LaserJet 8100 or 8150, the fuser is still the most likely cause. But if the fuser passes inspection, test the low voltage power supply, with the DC controller the last thing to look at.

Part numbers for HP LaserJet 8100/8150

Fuser (220V) RG5-4319
LVPS (220V) RG5-4301
DC controller RG5-4375

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POD Policy

RMA- RETURN MERCHANDISE AUTHORIZATION

- An RMA number assigned by POD must be put on the outside and inside of your returned product package for adequate identification. Products returned without a valid RMA number will be refused at POD.
- The customers RMA number is valid only for 30 calendar days from date of issue.

EXCHANGE ITEMS

- Products must be:
 - 1) Returned within the specified date on the Exchange Docket.
 - 2) Repairable, no alterations, or missing parts.
 - 3) Be an exact equivalent of the part shipped out.

RETURNED PROCESS

- On receipt of RMA and Exchange parts POD will inspect it to confirm that it is:
 - 1) The correct part returned.
 - 2) Eligible for product return.
- If not, then POD will have the option of:
 - 1) Returning it with an explanation
 - 2) Providing no refund for a RMA
 - 3) Not accepting the part as an Exchange unit.

RESTOCKING FEE

- POD at its discretion may charge a restocking fee to recover costs in processing and re-testing goods returned. A minimum fee of \$20.00 may be applicable.

MISCELLANEOUS

- Manuals, rollers and special order items are not returnable.
- POD is not responsible for damages incurred in transit.
- The customer is responsible for return shipping.
- All products must be returned within the allocated time issued by POD.

WARRANTY PERIOD

- New products carry the Original Manufacturer Warranty.
- Exchange Units carry a 90 day warranty.

These policies are to be read in conjunction with PODs Terms and Conditions.

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