

• PROTECTING YOUR LASER PRINTER INVESTMENT •

“WHAT’S WRONG WITH THIS PICTURE?”

□ Andy Niemic

As the owner of a laser printer you have reason to be proud. The quality of your printed documents now show you are a professional. But what you *don't know* about your laser printer and what you *should know* about your laser printer are the reasons why it's important for you to read on.

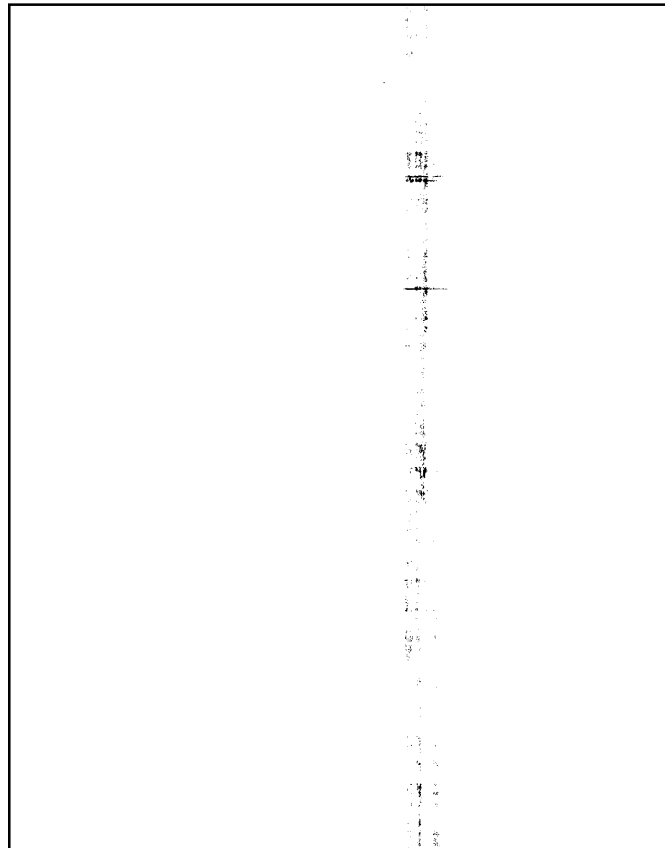
Your health surely depends on it!!!

The key to protecting your investment and health is common sense and printer maintenance. And it may be something you can do yourself! But how do you know when a repair technician is really needed?

What follows are a number of print defect examples. As a laser printer owner, you may have already seen many of these and wondered what caused the problem. These examples will give you an idea as to what may be causing the problems and what you can and *cannot* do to fix it.

To be totally honest with you, some of the print defects can be caused by other than what is listed in this article. However, the examples provided give the most common reason for the defect.

Don't despair! Just keep reading and I will try to give you enough information to make a judgment call. If nothing else, you'll be able to rule out what can't be fixed without the aid of an expensive repair bill.



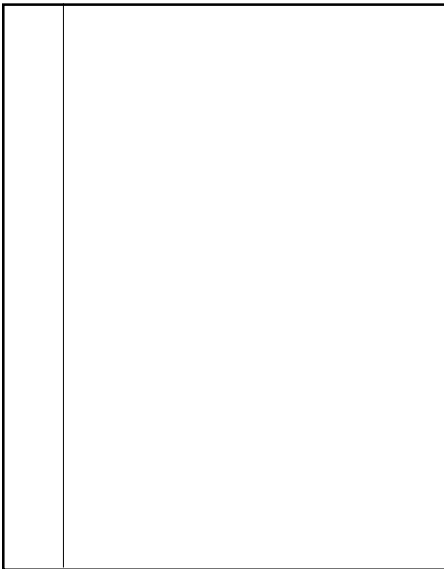
Andy Niemic is a respected writer of technical information and how-to manuals. As a world renown expert and consultant, he has set many of the standards for the laser printer repair industry and the cartridge recycling industry. He continues to evaluate products and procedures for these industries.

EXAMPLE #1

Smudges down the page, even if nothing is being printed.

ANSWER:

The answer here is multiple choice. It could be toner agglomerations built-up behind the doctor blade in the cartridge, high moisture in the area where the printer is being used, bad toner or a bad wiper blade.



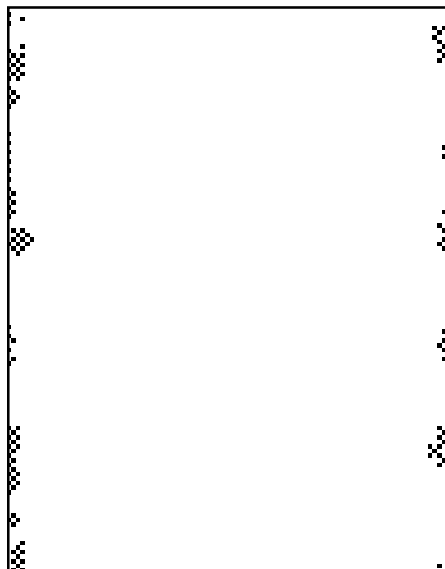
EXAMPLE #2

A thin vertical line down the page.

ANSWER:

The surface of the drum in the cartridge has a scratch. The number one cause is from shaking the cartridge and getting crusted toner in contact with the drum. There is nothing you can do but replace the cartridge.

NOTE: The standard drum used by the O.E.M. is designed to fail within one cycle of use. Sometimes even before all the toner is used in the cartridge. Never reuse the O.E.M. drum if the cartridge is going to be remanufactured. Insist on an aftermarket long life drum.

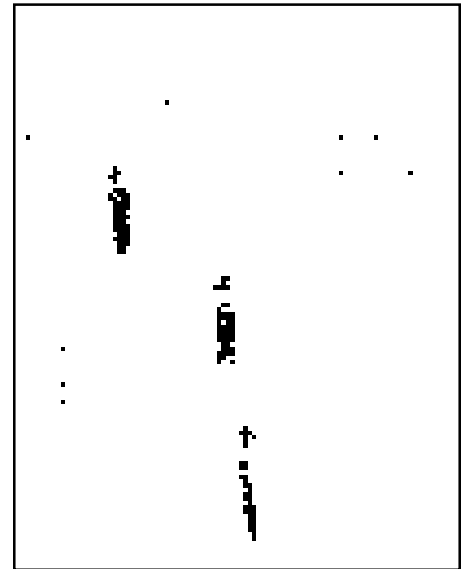


EXAMPLE #3

Gray shading on either side of the page or both sides. Normally a problem associated with the standard O.E.M. type drum and usually happens according to "Murphy's Law" when you need your print quality to be at its best.

ANSWER:

The gray shading usually occurs when the O.E.M. drum is wearing out. There is nothing you can do but replace the cartridge.



EXAMPLE #4

This print defect has small black dots or sporadic streaking down page. Spots will move and be different from page to page.*

ANSWER:

Dirty corona wire in cartridge. Clean the cartridge corona wire, using the green plastic cleaning tool found inside the printer. Print out 10 copies of text. By the 10th copy the spots should be gone. This will correct the problem 99% of the time.

If the problem persists, use a cotton swab moistened with rubbing or denatured alcohol to clean the cartridge corona wire.

Do not use stanard Isopropyl alcohol! The 30% water content will make printouts worse. You want alcohol that will evaporate almost instantly.

NOTE: If the spot repeats exactly the same way every 2-1/2 to 3 inches down the page and sheet to sheet, the problem is a defect in the photo sensitive drum surface. The cure is to replace the drum or the cartridge.

**Hewlett-Packard recognized their part in this problem in 1991. Due to certain design flaws of the cartridge and printer, a more serious problem—a righthand side black band on the page of about 3/8-inch to 1/4-inch wide appears about 2,000 to 2,500 prints into the cycle. This was subsequently fixed in later cartridges.*

The 3 Most Common Problems

THE MOST COMMON PROBLEM:

White streaking as you would expect if the cartridge was empty.

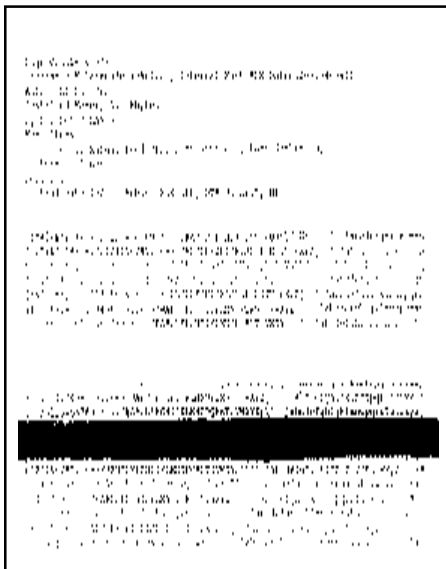
ANSWER: *The pull tab on the cartridge to release the toner has not been removed.*

PROBLEM: Paper jams frequently and envelopes won't feed properly, combined with a high level of frustration.

ANSWER: *Paper pick-up/feed roller and transfer guide assembly are worn and in need of replacement.*

PROBLEM: A persistent, thin black vertical line prints down the page, and continues even when the cartridge has been changed.

ANSWER: *The fuser assembly has a cut in the upper roller (usually) and must be replaced.*

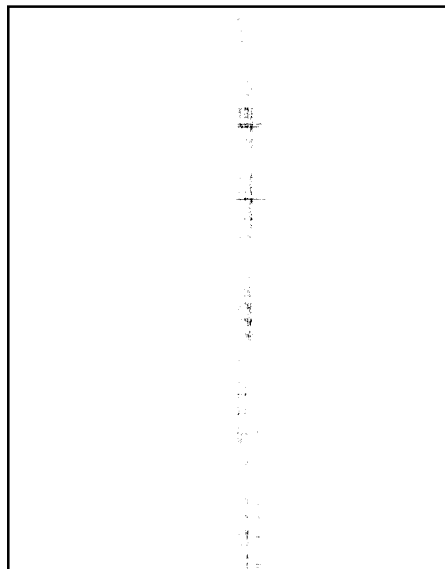


EXAMPLE #5

This print defect occurred on an SX printer that had a 340,977 page count.

ANSWER:

The high voltage power supply is bad.

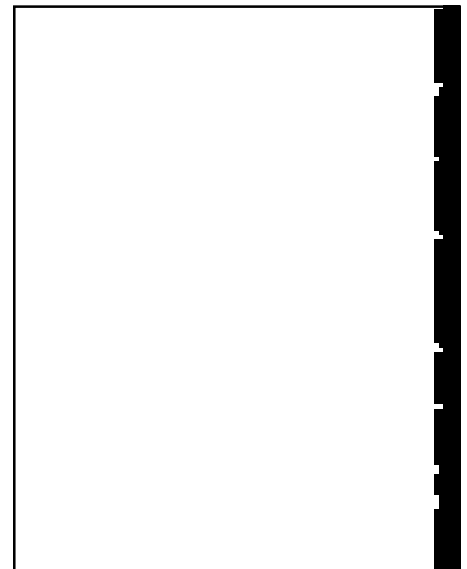


EXAMPLE #6

A smudge prints down the center of the page.

ANSWER:

Wiper blade is bad.



EXAMPLE #7

Heavy black line down the right side of the page. This usually occurs during a heavy, continuous printing cycle (over 150 sheets) or it can be an indication the drum in the cartridge is wearing out.*

ANSWER:

If the problem is from overheating, having a spare cartridge handy and changing the cartridges will give the drum a chance to cool down. Before re-using the offending cartridge, clean the corona wire with alcohol. Remember the printer was not designed to be used as a printing press.

NOTE: O.E.M. original drum only—If the black line persists after cleaning it and allowing the cartridge to cool down, the drum is wearing out and the cartridge should be replaced.

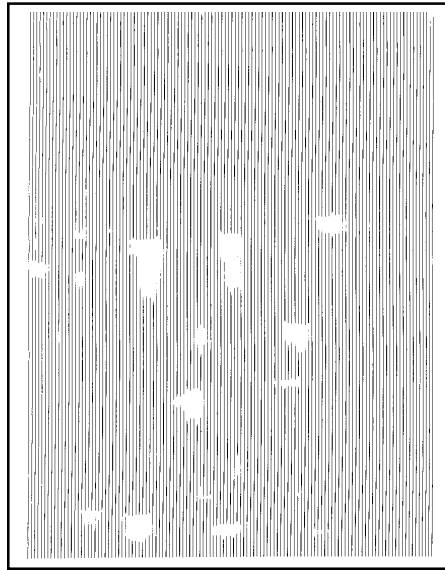


EXAMPLE #8

Print smeared.

ANSWER:

The DC controller board inside the printer was bad and kept the corona wire in the cartridge energized all the time. It ruined the drum and wiper blade inside the cartridge as well.



EXAMPLE #9

This print defect usually occurs when the printer has been off for several days.

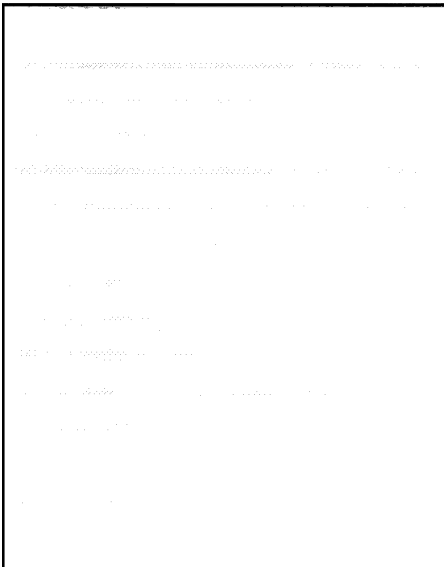
ANSWER:

Wet paper. Paper acts like a sponge and will absorb water. Sometimes enough moisture has been absorbed to result in dark and light prints. In extreme cases, as shown above, some areas of the page fail to print at all.

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EXAMPLE #10

This print defect occurred after the cartridge had been remanufactured a few times.

ANSWER:

Poor contact between the copper contact (inside the magnetic roller) and the magnetic roller.

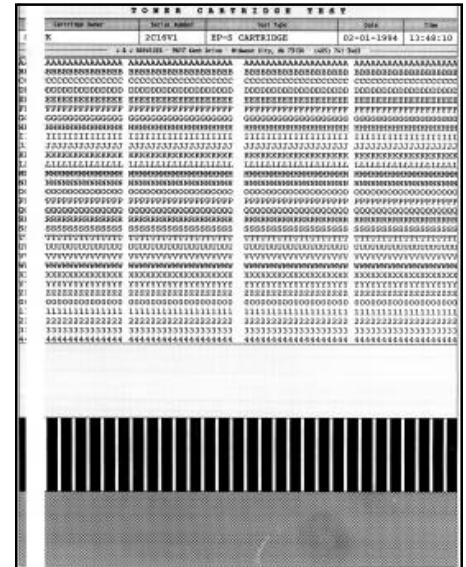


EXAMPLE #11

Uneven light printouts.

ANSWER:

The conductive gear on the aftermarket drum stopped conducting properly. The industry has gone away from using aftermarket drums with conductive gears for this reason.



EXAMPLE #12

Non-printing (white) band down the printed page.

ANSWER:

A screw from the printer fell into the bracket that holds the mirror assembly. It blocked the light from the laser and caused a non-printing area.

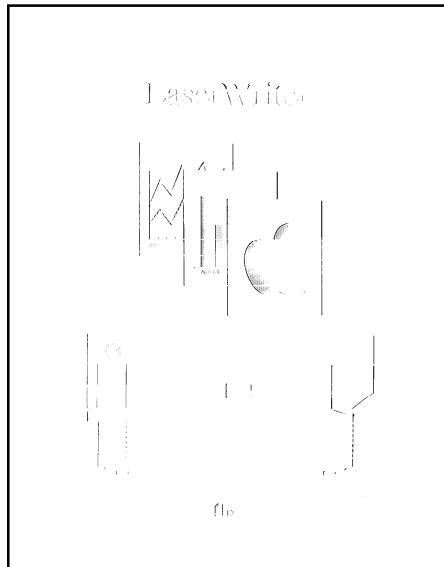


EXAMPLE #13

This print defect does not occur often, but shows up more frequently as the cartridge begins to age.

ANSWER:

The insulator on the magnetic roller is broken or missing. There are two insulators, however the shorter of the two is most likely the culprit.

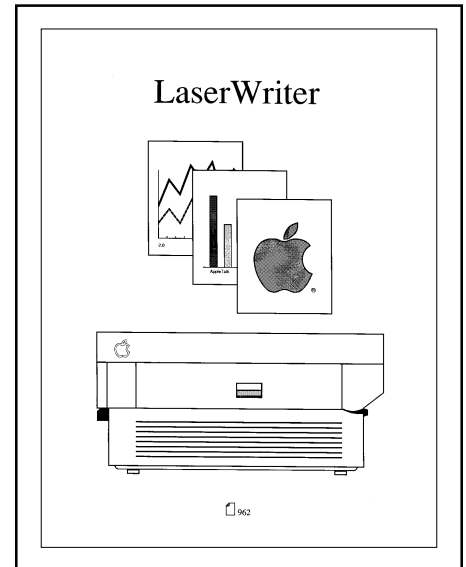


EXAMPLE #14

This print defect has images in the right place, but some of the data is missing. If you put Example #14 over Example #15 you would see the parts of the above image have been printed without distortion.

ANSWER:

The laser unit in the printer is bad.

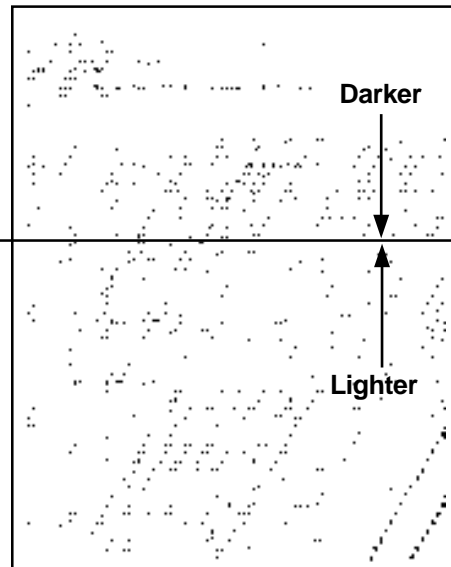
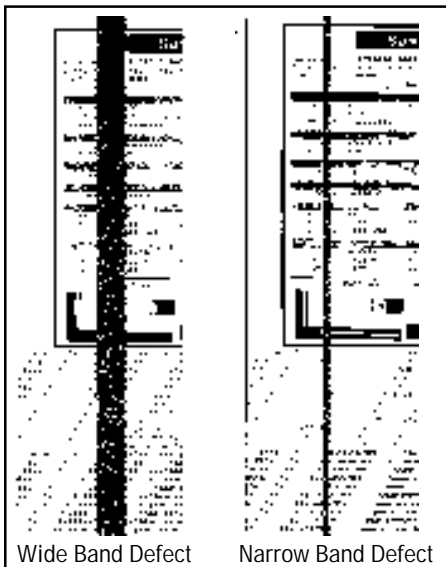


EXAMPLE #15

This is how the printed page in Example #14 should look.

ANSWER:

Although the example was printed from an Apple LaserWriter, it could happen on any laser printer. In this particular case, the output from the laser unit was 3.3 mv instead of 35+ mv.



What constitutes a well-printed page?

EXAMPLE #16

These print defects are related. The wide band usually occurs while remanufacturing the cartridge, the narrow band usually occurs once the cartridge is placed in the printer.

ANSWER:

WIDE BAND: A metal spring attached itself to the magnetic roller. Any small metallic object can be attracted to the magnetic roller during remanufacturing.

NARROW BAND: A screw from the inside of the printer (usually the lid) has fallen into the cartridge and was picked-up by the magnetic roller.

PREVENTION TIP: Tighten all screws in the laser printer every six months.

EXAMPLE #17

The top 1/3 of the page prints darker than the bottom 2/3 of the page

ANSWER:

The darker image on the first 1/3 of the page tells me there is a connection to the drum since the drum repeats three times down the page. The darker image on the top 1/3 is actually normal for an aftermarket drum. At the beginning of the cycle (top of page) the drum is at its highest charge. By the second and third revolution the drum has lost some of the charge and prints lighter. More than likely, the printer's density setting was set at 5 or below, which is too low for use with an aftermarket drum. Turn the density setting in the printer to 7 or 9 and the problem will disappear. You will get more prints from the cartridge, too.

ANSWER:

If you're printing primarily text, just about any cartridge will meet your needs. It is only when you print very large type, graphics or halftones (photos) that the quality of the cartridge is truly tested.

Most laser printers have some method of adjusting the density or blackness of the printed page. The darker the setting, in the case of density dials on SX printers the lower the number, the more toner is used on the page.

When printing halftones, the hardest test for a cartridge, focus on the gradients. If they appear "blotchy" or "blurry" it's a good indicator the density setting is too high or the cartridge is of inferior quality.

To learn about other printer maintenance you can do yourself, see additional information on the following topics:

"Poison Gas From Your Laser Printer and How To Control It"

Changing your ozone filter

"Repair Fuser & Paper Pick-Up Assemblies"

Step-by-step instructions with photos

"Care & Feeding of Your Laser Printer"

Basic laser printer maintenance and are recycled toner cartridges in your best interest

As I stated in the beginning, as the owner of a laser printer you have a right to be proud. As the owner of a laser printer, you also have the right to be healthy and keep most of your hard earned money. For information on purchasing pictorial manuals, quality ozone filters, and other products for the laser printer, contact:



Unicorn Graftix, Inc.

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