

Printers

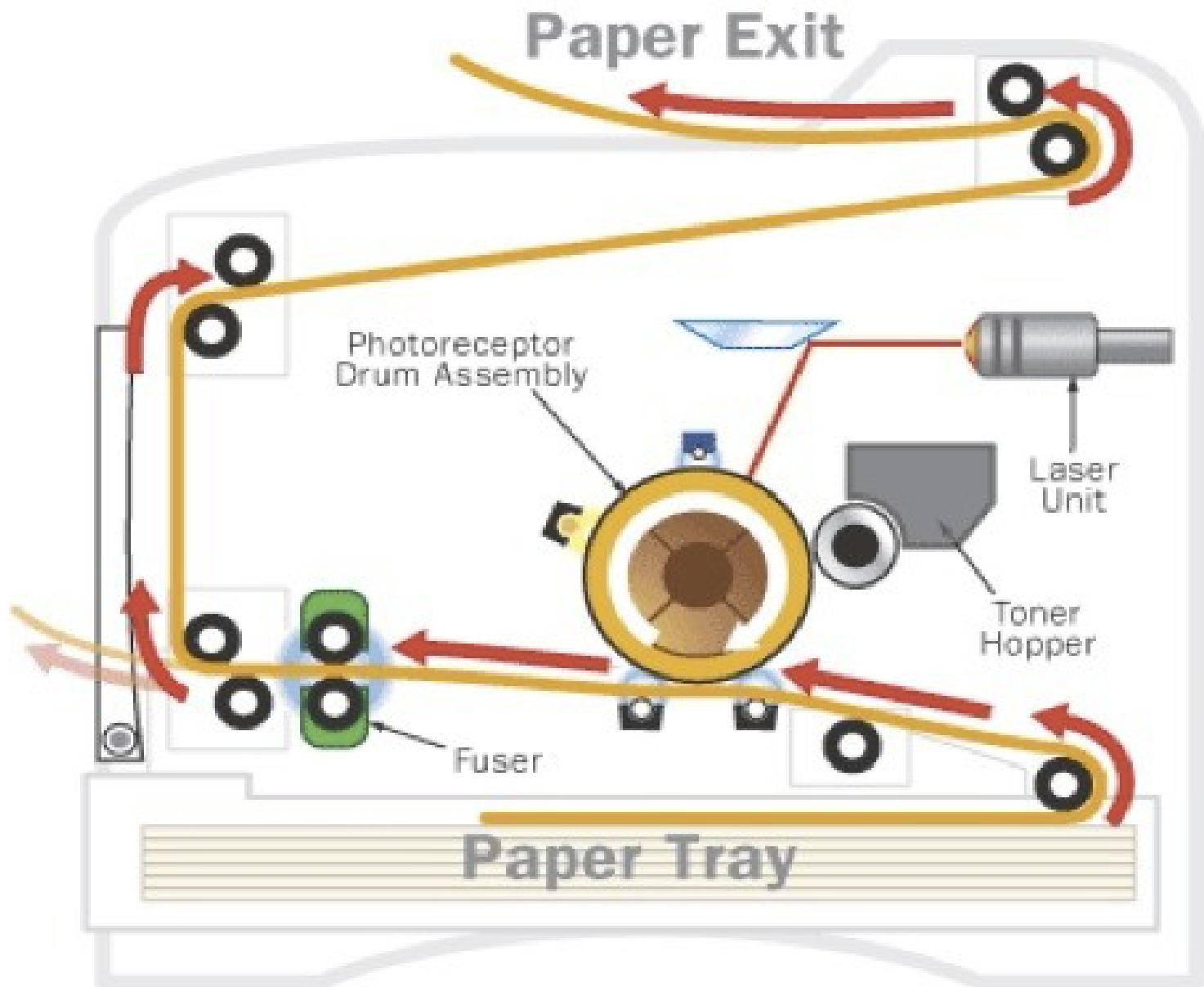
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Printer types

- Toner-based printers (Laser printer)
- Liquid inkjet printers
- Thermal printers

Laser printer





The primary principle at work in a laser printer is static electricity.

Static electricity is simply an electrical charge built up on an insulated object, such as a balloon or your body.

A laser printer uses this static electricity phenomenon as a sort of "temporary glue."

the drum is given a total positive charge

As the drum revolves, the printer shines a tiny laser beam across the surface to discharge certain points. In this way, the laser "draws" the letters and images to be printed as a pattern of electrical charges -- an electrostatic image.

the printer coats the drum with positively charged toner -- a fine, black powder.

With the powder pattern affixed on the drum, the drum rolls over a sheet of paper

The Drum puts the toner on to the paper

The printer passes the paper through the fuser, which is a pair of heated rollers.

This dries the ink on to the paper, and also is why the paper is warm coming out of a laser printer.

What can break

Fuser

The cogs on the belt and drum

Springs can go

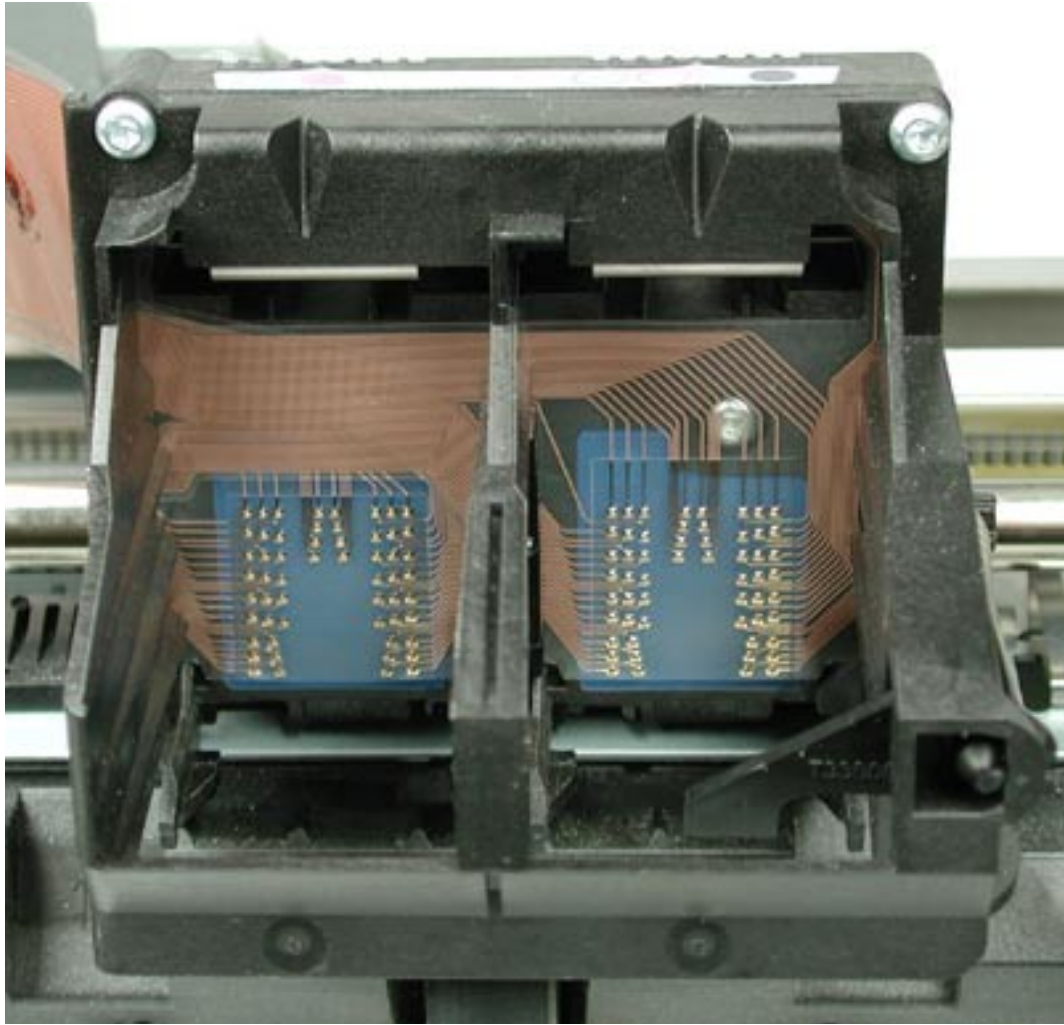
Sensors can break

The inkjet

This is a non impact printer, nothing touches the paper.

Think of a injet printer link a spray gun

The Print head is the core of an inkjet printer, the print head contains a series of nozzles that are used to spray drops of ink.



The print head stepper motor moves the print head assembly (print head and ink cartridges) back and forth across the paper.

How does it spray (Two types)

Thermal bubble - Used by manufacturers such as Canon and Hewlett Packard, this method is commonly referred to as bubble jet. In a thermal inkjet printer, tiny resistors create heat, and this heat vaporizes ink to create a bubble. As the bubble expands, some of the ink is pushed out of a nozzle onto the paper.

How does it spray (Two types)

Piezoelectric - Patented by Epson, this technology uses piezo crystals. A crystal is located at the back of the ink reservoir of each nozzle. The crystal receives a tiny electric charge that causes it to vibrate. When the crystal vibrates inward, it forces a tiny amount of ink out of the nozzle. When it vibrates out, it pulls some more ink into the reservoir to replace the ink sprayed out.

Where does it break

Stepper motor fails

Belt becomes loose

Cartidge needs to be replaced.

Figuring out where the problem is

- Read the manual, there is normally a test button (e.g. hold down the power button for 10 sec and a diagnostic page will pop out)
 - Problem is with the computer if it works
 - If it doesn't work, problem is with the printer

Trouble shooting

- Replace the USB cable
- Replace the cartridge (they perform the main functions)
- Use a can of compressed air to blow out dust...
Dust kills printers!
- See if there is a diagnostic print out
- Diagnostics will spin the individual parts