

Introduction to Ink Jet Printers

Basic Inkjet Printers

Inkjet printing :

- 1. is a non-impact method.
- 2. Ink is emitted from
 - a. : liquid ink in various colours being squirted at the paper
 - b. print head scans the page in horizontal strips,
 - 1.) motor assembly to move it from left to right and back,
 - 2.) another motor assembly rolls the paper in vertical steps
 - 3.) To speed things up, the print head prints:
a vertical row of pixels at a time.

Basic Inkjet Printers

inkjet technology

- 1. most common is "drop on demand" (DOD).
 - a. squirting small droplets of ink onto paper,
 - b. through tiny nozzles:
 - c. like turning a water hose on and off 5,000 times a second.
- 2. The amount of ink propelled onto the page is determined by:
 - a. the Printer software that dictates:
 - 1.) which nozzles shoot droplets,
 - 2.) and when.
- The nozzles used in inkjet printers are hair fine. (REALLY SMALL)

Bubble Jet Printers

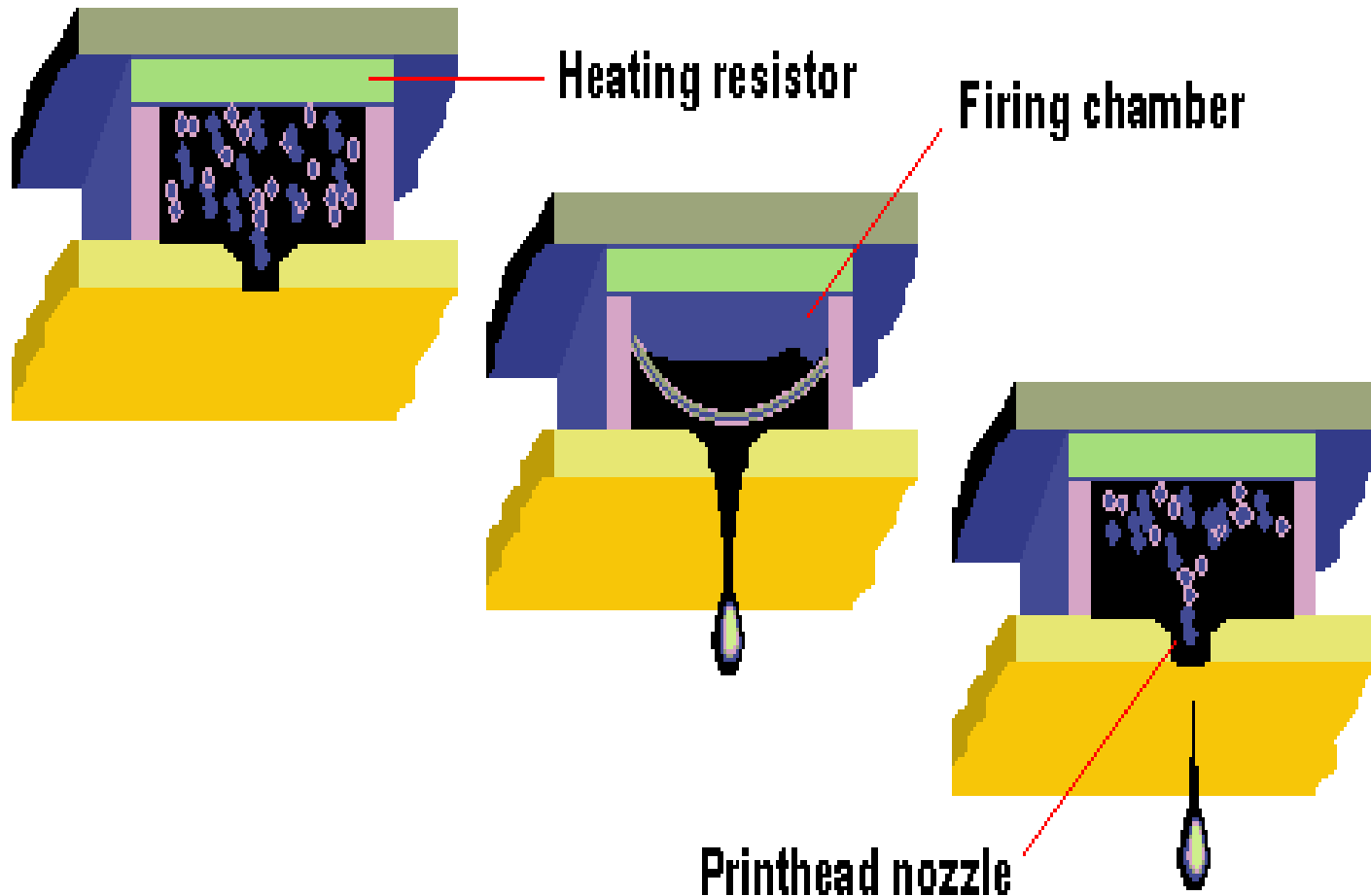
Thermal bubble –

- 1. Used by manufacturers 'Canon' and 'Hewlett Packard',
- 2. Called **bubble jet**.
- a. tiny resistors create heat,
- b. heat vaporizes ink to create a bubble.
- c. bubble expands,
- d. ink is pushed out of a nozzle onto the paper.
- e. bubble "pops" (collapses),
 - 1.) a vacuum is created.
 - 2.) pulls more ink into the print head from the cartridge.

Bubble Jet Printers

- f. A typical bubble jet print head has:
 - 1.) 300 or 600 tiny nozzles,
 - 2.) all of them can fire a droplet simultaneously.

Bubble Jet Printers

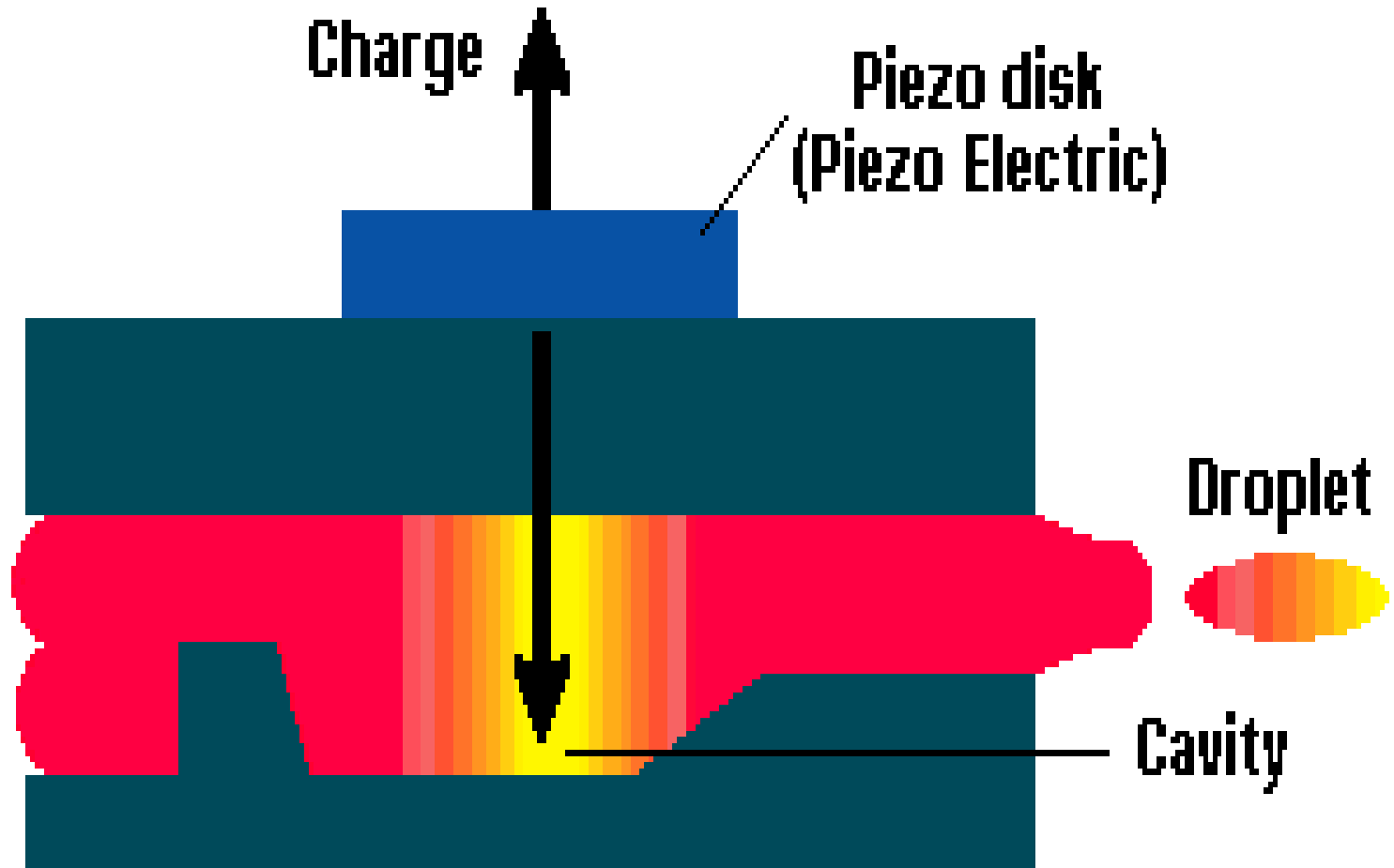


Piezoelectric Printers

Piezoelectric –

- 1. Patented by 'Epson'
- 2. technology uses **piezo crystals**.
- 3. A crystal is located at the back of the ink reservoir of each nozzle.
- 4. crystal receives a tiny electric charge that causes it to vibrate.
 - a. vibrates inward, it forces a tiny amount of ink out of the nozzle.
 - b. vibrates out, it pulls ink into the reservoir to replace the ink sprayed out.

Piezoelectric Printers



Print Cycle

Click "OK" to Print

When you click a button to print, here is What happens:

- The Computer software sends the data to the printer software in the Computer.
- The Printer Software:
 - A. translates the data that the printer can understand
 - B. checks to see that the printer is online and available to print.
- Data is sent by the Printer Software:
 - A. from the computer to the printer
 - B. via the CABLE connection

Print Cycle

- Printer receives the data from the computer.
- A, It stores a certain amount of data in a [buffer](#).
- B. allow the computer to finish with the printing process quickly,
- If Printer has been idle for a period of time:
 - A. short clean cycle to make sure that the print head(s) are clean.
 - B. PRINTER activates the paper feed stepper motor.

Print Cycle

- Print head stepper motor uses the belt to move the print head assembly across the page.
- A. motor pauses:
 - 1.) for the merest fraction of a second
 - 2.) each time that the print head sprays
 - a. dots of ink on the page
 - b. moves a tiny bit before stopping again.
 - c. This stepping happens so fast that it seems like a continuous motion.

Print Cycle

- Multiple dots are made at each stop.
- A. It sprays the CMYK colors in precise amounts
- B. make any other color imaginable.
- At the end of each complete pass,
- A. paper feed stepper motor advances the paper a fraction of an inch.
- B. print head is reset to the beginning side of the page,
- 1.) in most cases, simply reverses direction
- 2.) begins to move back across the page as it prints.

Print Cycle

- This process continues until the page is printed.
- A. printer may be able to print **16 pages per minute** (PPM) of black text
- B. take a couple of minutes to print one, full-color, page-sized image.
- Once the printing is complete,
 - A. print head is parked.
 - B. paper feed stepper motor spins pushing the completed page into the output tray.

Printers & Ink

- **Paper and Ink**
- Inkjet printers are fairly Cheap.
- **Facts,**
- **1.** manufacturers sell their printers at a loss.
- **2.** You can find the printer on sale for less than you would pay for a set of the ink cartridges!
- **Why?**
- a. Because - hardware is sold at or below cost.
- b. must buy the other products that work with that hardware.
- c. can't buy a printer from Manufacturer A and ink cartridges from Manufacturer B.
- They will not work together.

Types of Cartridges



Refilling Cartridges

- **Refilling Cartridges**
- A few things to be aware of:
- Make sure the refill kit is for your printer model.
- If the wrong type of ink is used, it can degrade the output or possibly damage the printer.
- Virtually all desktop inkjets for home or office use have water-based ink.
- Most manufacturers require that you use only their approved ink.
- Refill kits normally will void your warranty.
- While you can refill cartridges, be very careful of the ones that have the print head built into the cartridge.

Refilling Cartridges

- You do not want to refill these more than two or three times,
- the print head will begin to deteriorate and could damage your printer.
- If You are using:
 - A refilled Cartridge
 - A re-manufactured Cartridge (not from OEM)
-
- **DO NOT TELL** OEM when you call or email.

How to Refill

- **How to Refill Inkjet Cartridges**
- Cartridges = fairly simple designs,
 - a. can be refilled using ink kits instead of being replaced.
 - b. Specific directions for refilling inkjet cartridges may vary by type.
 - c. **Google your Printer Model for specific Directions.**
- **EXAMPLE:** Epson Workforce 500 refill cartridges

Refill Kits



Refill Hints

- Make Sure your order includes **specific steps** for your Printer Model.
- Cover the refill area with Newspapers.
- Wear Rubber Gloves, Old Clothes.
- Cartridges Sealed or Air Vents. (Air replaces ink)
- Inkwells: cyan, yellow, magenta & black.
- Run a Printer Cleaning cycle after refill.
- May require waiting overnight to print.

Good Resources for Ink

Epson ink cartridges, refillable Epson printer cartridges & reusable Epson ink Cartridges - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://ccs-digital.com/epson-ink.asp

Let's Find Out Most Visited Getting Started Most Visited Windows

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NX415 - T089 (S, Bu, Bf)

Search by Cartridge (click Go after selection)
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Done

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