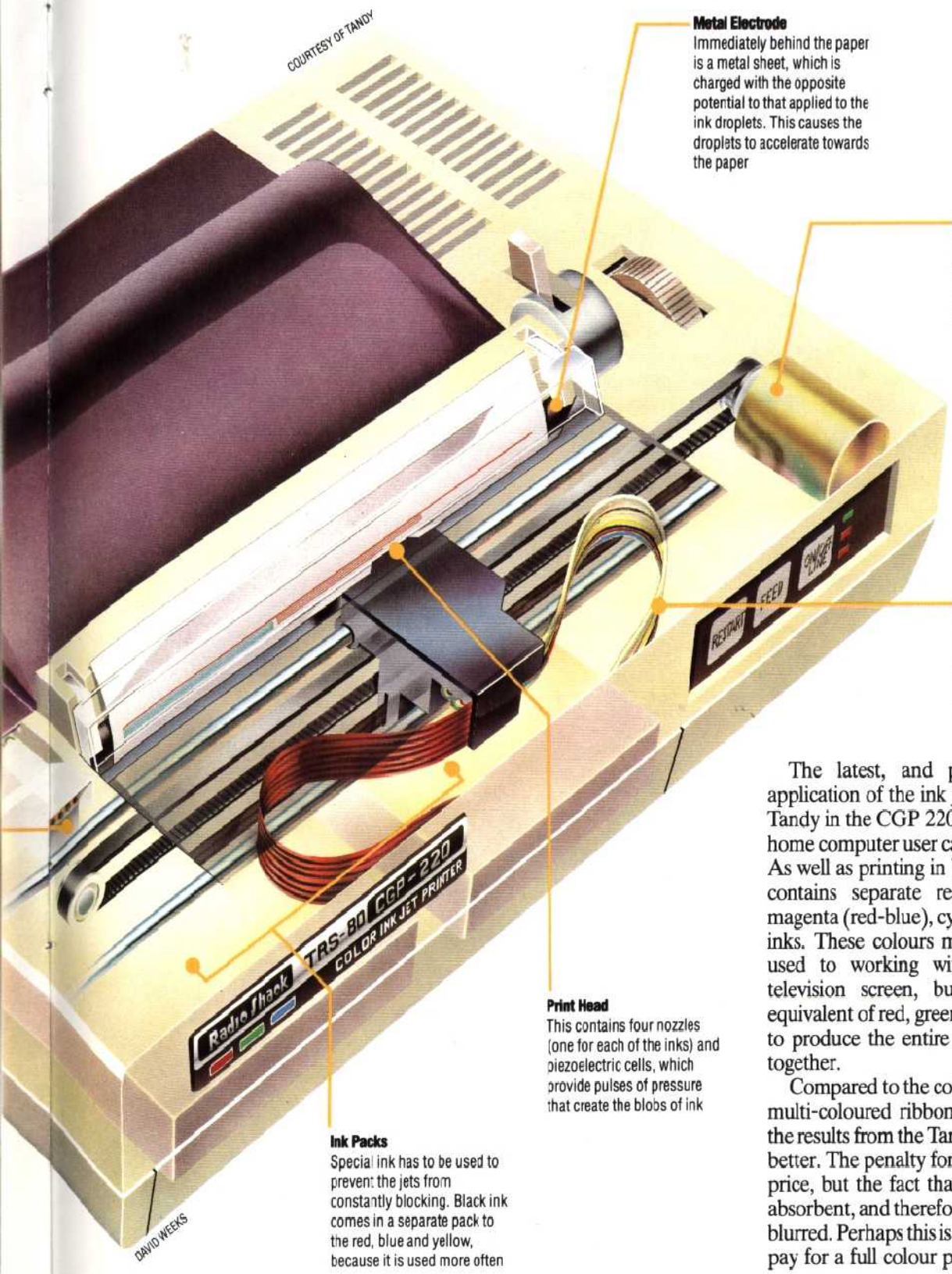
passes of the printing head to create each line of characters, but this is speeded up by allowing the printer to operate in both directions. While the first buffer's worth of characters is being printed out in this way, the next buffer is being filled for printing as soon as the first one is empty. The only difference between the ink jet and the matrix unihammer is that the former fires electrically charged droplets of ink at a page, while the latter imprints a needle through an ink covered ribbon.

In their commercial form, ink jet printers can produce a printed sheet in just a few seconds. The quality of printout, however, can depend on the paper quality: the more absorbent the paper, the more the ink soaks in and blurs the image. At their best, ink jet printers can produce an output quality several times better than that of a dot matrix printer. For large volume business printing they are perfectly adequate. If you need high quality *and* high speed printing, then the laser printer (which works on the same principles as a photocopier) is the only answer.



Metal Electrode
Immediately behind the paper is a metal sheet, which is charged with the opposite potential to that applied to the ink droplets. This causes the droplets to accelerate towards the paper

Drive Motors
The traverse of the print head is achieved with a conventional motor, while the paper advance is driven by a stepper motor — as on a dot matrix printer

Flexible Links
Most printers feature flexible ribbon cables between the PCB and print head. An ink jet has the additional problem of feeding four different inks to a fast-moving device

Print Head
This contains four nozzles (one for each of the inks) and piezoelectric cells, which provide pulses of pressure that create the blobs of ink

Ink Packs
Special ink has to be used to prevent the jets from constantly blocking. Black ink comes in a separate pack to the red, blue and yellow, because it is used more often

The latest, and possibly most interesting, application of the ink jet principle is that used by Tandy in the CGP 220 machine. Here, at last, the home computer user can find true colour printing. As well as printing in black, the Tandy CGP 220 contains separate reservoirs and nozzles for magenta (red-blue), cyan (blue-green) and yellow inks. These colours may be unfamiliar to those used to working with colour graphics on a television screen, but they are the painter's equivalent of red, green and blue, and it is possible to produce the entire spectrum by mixing them together.

Compared to the colour printing achieved from multi-coloured ribbons fitted to matrix printers, the results from the Tandy system are considerably better. The penalty for this is, surprisingly, not the price, but the fact that the paper used has to be absorbent, and therefore the printout can be rather blurred. Perhaps this is not really such a big price to pay for a full colour printout of your work.