the printer works on it, thus freeing the computer for other operations. More expensive printers have large buffers built in.

The print speeds quoted by the manufacturers should, however, be taken with a pinch of salt. As with car fuel consumption figures, these are always given for ideal conditions and often bear little resemblance to real life! Printer speeds are calculated for the production of a single line of text composed of the same character. Normal text, with its different characters, spaces, line feeds and carriage returns, slows down the print head. Thus, a printer with a quoted speed of 160 cps would probably average only about 100 cps when printing out a program listing.

The quality of the characters produced on the paper varies considerably from printer to printer. It depends mainly on how many pins are used in the print head — the mechanism that forms the characters on the paper. The cheapest models use just seven pins in the print head, whereas the more expensive machines can have 16 or more. On the Commodore printer, which has only seven pins, the characters are produced as a seven by six matrix of dots. The Canon PW1080, however, uses a 16 by 23 matrix to produce its characters. Consequently, the individual dots cannot be seen and the characters have a clearly defined, 'solid' appearance. For program listings, the quality of the print is not really important; whereas for word processing it obviously is.

A dot matrix printer is really a dedicated microcomputer; it uses ROM and RAM memory chips and has a microprocessor. As such, it can be programmed to do other things apart from printing text. This is done by sending special control codes from your micro to the printer, or by setting small switches — known as DIP (Dual In-line Package) switches — inside the printer case. For example, the standard ASCII character set, which is stored in the printer's memory, can be altered to suit different alphabets. In Britain, the hash sign (#) is often changed to print as a pound sign (£).

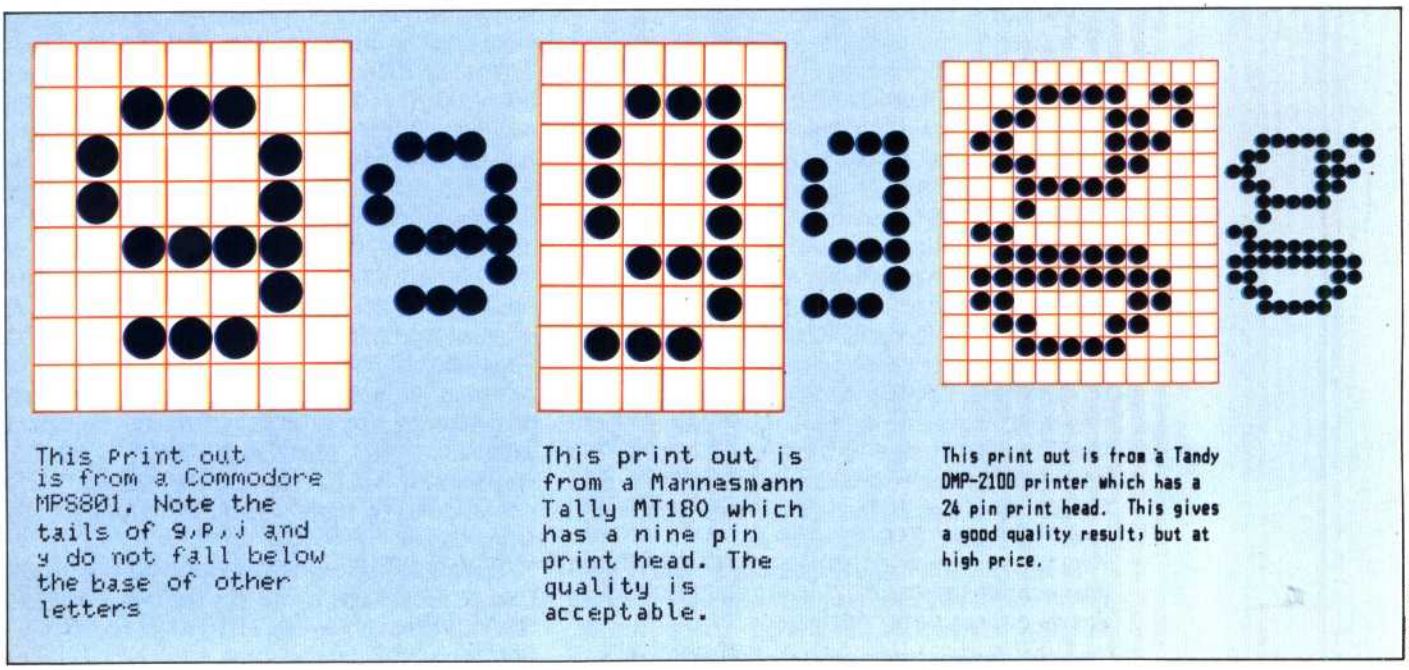
Other special effects include double-width characters, emphasised (darker, heavier) text, and different line spacings. The Epson FX80 is one of the more versatile dot matrix printers and has over 70 of these printing features. It can print in italic characters, underline text automatically and allows proportional spacing.

The Epson range of printers has become something of an 'industry standard'. This means that much of the software that requires a printer — word processing packages, invoice programs, etc. — assumes you have an Epson. This is an important point, for the different makes of printer are by no means compatible.

Other considerations may well influence the choice of printer; certainly, reliability is an important factor. A cheap £200 printer might be all right for producing the occasional listing but it is unlikely to stand up to the continual daily use that an office printer would suffer. Similarly, noise is one factor that is often overlooked: if you like to burn the midnight oil, some printers can be positively deafening at one o'clock in the morning. Does it have a friction feed? All dot matrix printers come with a 'tractor' feed, which will work only with continuous paper — the type with sprocket holes up the sides. If single sheets of paper must be printed, however, a friction feed is necessary.

Finally, perhaps the most important factor — will it work with your micro? Most dot matrix printers come with either a Centronics parallel socket or an RS232 serial interface. If a printer does not have the right one for your micro, then sometimes an alternative interface can be fitted, although this can add over £50 to the price. Even with the right interface, the correct cable is needed to connect the printer to the computer.

Pinprick Details
These print samples show the difference in quality between several dot matrix printers. The main reason for the variation is the number of 'pins' in the print head; those with the most pins have the most detailed characters. The first sample uses only seven pins, and can't produce the 'tails' of the letters g, p, q and y below the line. It is said to lack 'true descenders'



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