ALL UNDER CONTROL

ELITE

```
ABCDEFGHIJKLMNOP
QRSTUVWXYZabcdef
ghijklmnopqrstuv
wxyz0123456789 !
"£$%&'()*+,-./:;
<=>?@[\]^_`{|}~
```

PICA

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
0123456789 !"
£$%&'()*+,-./
:;<=>?@[\]^_`
{|}~
```

EMPHASISED PICA ITALIC

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
0123456789 !"
#$%&'()*+,-./
:;<=>?@[¥]^_`
{/}~
```

ENLARGED ELITE

```
ABCDEFGH
IJKLMNOP
QRSTUVWX
YZabcdef
ghijklmn
opqrstuv
wxyz0123
456789 !
"£$%&'()
*+,-./:;
<=>?@[\]
^_`{|}~
```

DOUBLE-STRIKE CONDENSED PICA

```
ABCDEFGHIJKLMNOPQRSTUVW
XYZabcdefghijklmnopqrst
uvwxyz0123456789 !"£$%&
'()*+,-./:;<=>?@[\]^_`{
|}~
```

Dotted Around
Dot matrix printers offer a range of typefaces such as Pica, Elite, and Italic, and typestyles such as condensed, enlarged and emphasised. All the examples shown here were produced by the Epson FX-80

Even the cheapest dot matrix printers incorporate a range of 'special effects', such as the ability to print in large characters, which can make a print-out a far more exciting document visually. Here, we show you how such effects are obtained — and how to get your computer and printer 'talking' to each other in the first place!

A dot matrix printer can do far more than simply produce program listings. A quick leaf through the pages of the printer's user manual will show you that a variety of 'special effects' can be produced on paper. Even the cheapest dot matrix printers will let you alter the size of the characters printed on the paper. Normally, the text is printed out at 80 characters per line, but this number can be increased by selecting the 'condensed print' mode (which uses smaller characters), or decreased by selecting 'enlarged print'. In a similar way, the line spacing — the gap between the lines of text — can be altered. A large spacing given by four lines per inch, for example, could be reduced to, say, eight lines per inch, giving a heavier density print-out.

The printer that we will look at in detail here, the Epson FX-80, is a fine example of a machine that has a wide range of printing features. The emphasised mode, which prints out text in darker type, and the alternative mode, which switches from the normal typeface to *italic* characters, are two of its standard facilities. But perhaps its most interesting feature is its ability to change any of the characters stored in the printer's memory, an extremely useful facility for foreign alphabets or for printing scientific symbols. Before going on to investigate how these features are produced, however, let's consider how a printer goes about the simple task of printing out a program listing.

The way that a computer 'talks' to a printer varies from machine to machine. The Dragon, for example, uses a simple variation of the LIST command — LLIST — to instruct the printer to produce a copy of a program. Other machines require the opening of 'channels' or 'streams' to gain access to the printer. As the exact method varies so much, it is best to consult your computer's user manual — the printer manual is unlikely to be of much use here.

Having established communication between the two machines, your first print-out may be a little disappointing. The most likely problems are that all the text has been printed out in one indecipherable black line, or there are blank lines between each line of the program. The explanation for both these faults lies in the difference between a 'line feed' character and a 'carriage return' character. After your computer has sent a line of text to the printer, it also sends a carriage return character, which moves the print head back to the left margin ready to print a new line. Some computers also send a line feed character to move the paper up one line; others assume that the printer does this automatically. To further complicate matters, most printers have an internal switch that decides whether the printer generates its own line feeds or not. If either of these problems occurs, find this switch — by consulting the printer manual — and flick it to the alternative position.

Apart from producing program listings, a printer can also be used as an output device — instead of characters being displayed on the screen, they are printed out on paper. Again, the exact method of doing this varies from computer to computer — the 'standard' BASIC command is LPRINT and this is used by the Spectrum and Oric. On a Commodore 64, OPEN1,4 followed by PRINT#1,"HELLO" would print the word 'HELLO'. With a Dragon micro the same task is accomplished using PRINT#—2,"HELLO". The BBC Micro uses VDU2 followed by PRINT "HELLO" and the VDU3 command. The programming examples that we give here use LPRINT, so you might have to alter this for your machine.

ADDRESS LABELS

```
10 LPRINT "MR JOHN SMITH"
20 LPRINT "3 THE PARADE"
30 LPRINT "ANYTOWN"
40 LPRINT "ABC 123"
50 FOR I=1 TO 7
60 LPRINT
70 NEXT I
100 GOTO 10
```

This listing is a simple program to produce address labels. These can be purchased on a roll with sprocket holes on both sides, so that they can be used with the tractor feed on the printer. Because it does not use any special control codes, the program will work with any make of printer. As it stands, the program will print the same name and address repeatedly. You might want to alter it so that you can input different names and addresses, or even have it read them from a data file. The FOR...NEXT loop between lines 50 and 70 prints seven blank lines, and is used to position the print head at the beginning of each label correctly. The exact number of blank lines may need to be adjusted for your machine.

Our program is quite adequate for simply printing labels, but to print something more complex, like an invoice or letterhead, we are going to have to use some of the special effects that we