



FEATURES OF BASICODE				COMMANDS NOT IN BASICODE			
able beep	Simple core of BASIC	Standard tape loading	40 x 24 text	High res graphics	Colour	Full sound	Structured programming
				✓	✓		
				✓	✓	✓	✓
					✓		
			✗		✓		
					✓		
				✓	✓	✓	
✗			✗				
						✓	
✗		✗	✗				
✗		✗	✗				

restrictions imposed on the format of the code. For example, variables must be initialised before any operations can be performed on them, so before the command `LETT=T+1` can be executed, `T` must first be set to zero.

There are also some limitations on the use of several of the BASIC keywords. For example:

```
5000 INPUT "PASSWORD?";AS
```

is forbidden by BASICODE-2. The correct format of this line is:

```
5000 PRINT "PASSWORD?": INPUT AS
```

In addition, a program line may not exceed 60 characters in length, and the screen size is assumed to be 24 lines of 40 characters.

It is worth considering at this point why all these restrictions are necessary. In order to include as many machines as possible within the scope of BASICODE there was a 'lowest common denominator' approach to the design. Inevitably there was a trade-off between the sophistication of BASICODE and the number of computers able to make use of it. This led to a certain amount of 'levelling down' to the capabilities of the weaker machines, thus resulting in the limitations placed on more advanced models.

For example, a number of features that the home micro user may look for when purchasing a computer are not catered for in the BASICODE format. There is no facility built into the system to

vary the pitch and duration of sounds. There is only the rather primitive BEEP command to work with. Similarly, BASICODE only allows the programmer to produce graphics in low resolution mode. Even these can only be programmed in black-and-white.

Another problem is that since BASICODE was first invented there has been a great deal of progress in the development of BASIC's structured programming techniques. There is no allowance made by BASICODE for case statements such as `WHILE...WEND` or even a `DEF FN` command. Structuring is left to the `GOSUB` command on which the protocol of the language largely depends.

On the other hand, it is worth noting that despite these restrictions, some of the machines supported by BASICODE are unable to live up to even the modest standards set by the protocol. For example, the Vic-20, ZX81, TRS-80 and Video Genie all support displays that are less than the 40x24 character standard.

However, the dedicated programmer should find programming in BASICODE to be a challenge. Because the rules are restrictive, a great deal of care has to be taken by the programmer to ensure that the program written is portable. The programmer has to remember to stay strictly within the 50 or so keywords and operators that the language uses, and use `GOSUB` commands to replace non-standard instructions such as `CLS`. It must also be borne in mind that some of the machines catered for by BASICODE have very limited memory capacity, and long programs, although they may be perfectly valid in BASICODE, simply will not fit into the available RAM on some machines. It would be perfectly possible to write a program that runs on your own machine but the acid test would lie in SAVEing it and trying to run it on another machine.

Within the main program, the programmer may wish to add certain features that otherwise would not be allowed. This is achieved by adding `REM` statements that explain precisely what the programmer has in mind. The authors of BASICODE recommend that these statements be enclosed within the lines 20000-24999, although this is not compulsory. After the user has loaded the program, features that are tailored to suit the user's own machine may be added.

Full instructions on the use of BASICODE-2 are provided in the package supplied by the BBC for use in conjunction with the *Chip Shop* series of transmissions. The user receives a cassette with the translation programs for the various machines on side one. Although most computers require loading of a single BASICODE-2 translation program, the BBC Micros and the Vic-20 have separate `LOAD` and `SAVE` programs. All of the programs are separated with spoken messages to help the user find the appropriate one. On side two of the cassette are 18 demonstration programs to give some idea of the capabilities of BASICODE.

Given the bewildering variations in what is supposed to be a standard language, the authors of BASICODE have succeeded remarkably well in gathering so many machines under one umbrella.



IAN MCKINNELL

The BASICODE-2 manual and cassette is available by sending a cheque or postal order for £3.95 made payable to Broadcasting Support Services to:

Broadcasting Support Services  
P.O. Box 7  
London  
W3 6XJ