N – Number Conversion

This routine will convert Hex numbers to Decimal or vice versa.

Type N The Number command.

The screen will display:

NUMBER H/D?

Type H (for Hex) or D (for Decimal) to indicate the number system of the number you wish to convert.

Type H to convert a Hex number to Decimal.

The screen will scroll, and show 'H' (followed by the cursor. Now enter four Hex digits. (You must enter leading zeros when entering a Hex number).

Type 4000
Type ENTER

The display will now show:

H 4000 = 16384

with the prompt and cursor on the bottom line.

To convert from Decimal to Hex, Type D instead of H in response to "NUMBER H/D?", and enter your decimal number, without leading zeros. Again type ENTER to produce an answer.

The MONITOR in Practice

The purpose of this section is to explain the operations of the MONITOR that affect all commands, and which have not been covered so far, and to give some general precautions when using machine code.

1) The MONITOR display produces white characters on a blue background. After lengthy tests with various colour combinations, this gave the most readable display.

2) The loudspeaker will emit a short Beep when a key is pressed. The length of the Beep has been adjusted to give an easily audible sound, without slowing down the response time of the keyboard. The System Variable PIP does not affect the MONITOR'S keyboard Beep.

3) As has been explained earlier, the MONITOR uses its own internal Stack except when a program is running. The program Stack is reset from "SP" in the data block shown in Appendix A whenever a 'J' (Jump) or 'C' (Break Continue) command is executed. When the 'Y' (Return) command is used, the program Stack is cleared and reset to its normal Basic starting point as defined in the System Variable ERR SP.

4) The CPU register values stored in the addresses shown in Appendix A are only reloaded into the CPU when a Jump (J) or Break Continue (C) command is executed. Returning to Basic (to access your machine code via the USR function) resets the CPU register values as defined by the Basic ROM routines.

5) In addition to the precautions shown on Page 180 of the Sinclair manual advising you not to use the I or IY registers in machine code programs, it is recommended that, if you need to use the alternative BC, DE and HL register pairs and wish to return to Basic after your machine code program, you should save the values held in the alternative registers at the start of your program, and reload them before returning to Basic.

6) The Spectrum MONITOR does not have its own Save and Load routines because the Basic Save and Load routines in the Spectrum allow you to record machine code programs onto cassette. Having written your machine code, you would use the Number Conversion (N) command to convert your Hex start and end addresses into Decimal, calculate the length of your program, and use the Return (Y) command to return to Basic to Save and Verify your machine code.