

WORD PROCESSOR

A WORD processor is ideal for writing letters and reports instead of using a typewriter or pen and paper. When you make a typing error or change your mind, the word processor enables you to edit the text with ease. No longer will you need to use unsightly crossing-out rubbers or Tippex and find you need to start again because it's such a mess after all the changes. To load and run the word processor simply type

LOAD "WORD"

and press Enter.

When loading has been completed the various options available are displayed.

An option is chosen by pressing the appropriate key as indicated. Pressing Break (Caps Shift Space) at any time will bring you back to the display of options.

Getting started

Suppose you want to type a short letter to your friend about your recent holiday. Begin by pressing key **1**.

In the middle of the screen you will see START and END displayed. These mark the beginning and the end of the letter. However since you haven't written anything yet there is no text in between.

At the top of the screen is displayed the time that has elapsed since you started using the program, the number of words you have entered so far, and the number of characters you can key in before the computer's memory is full.

Start typing your letter exactly as in this sample, mistakes and all:

*i have just had a supper
holiday in blackpool.*

If you didn't manage to type that in successfully, press Break followed by **0** and then in answer to the question "Are you sure?" press **Y**. Then start again by pressing **1**. If you still have difficulty, read on.

Now to start correcting the letter.

By using the cursor control keys (Caps Shift with 5, 6, 7 and 8) the flashing cursor can be made to move about the text to any position you want. First correct the word *blackpool* to read *Blackpool* with a capital *B* by moving the cursor onto the *l* after the *b*. Now press Delete (Caps Shift 0) and the *b* is rubbed out. Next press **B** while holding down the Caps Shift key and the word *Blackpool* should now be correct. The first word *i* can be changed to *I* in a similar way. (Note that upper and lower case letters and symbols are obtained in the normal way with the Caps Shift, Caps Lock (Caps Shift 2) and Symbol Shift keys.)

Now correct *supper* to read *super* by moving the cursor onto the *e* and pressing Delete (Caps Shift 0).

All letters should start with *Dear Eric*, or something similar. To insert this into the letter, move the cursor to the start of the first line and type:

Dear Eric,

followed by Enter.

Similarly, a letter would end with *Yours sincerely, Carol*. So move the cursor to the end of the last line and press Enter. If you want a blank line before *Yours sincerely* press Enter again. Then type:

*Yours sincerely,
(Enter Enter)*

Carol

You should now have a complete and perfectly laid out short letter. If you want to add to it, change it or put more spaces or blank lines in, just move the cursor to the appropriate place and type what you want to say.

While you have been typing you may have noticed that the figures below WORDS and FREE displayed at the top of the screen have changed. These indicate how many words are contained in your letter and how much space you have left if you wish to extend your letter.

If you now press Break, the options that are available to you will be displayed again. So far you have only been using the large letter editing mode. Pressing **2** will now show your letter in normal sized characters. You could have written your letter in this mode if you had preferred.

Having written your letter you might like to save it for later – or even to send it to Eric on tape. If you now press Break followed by **5** you will be asked to enter the file name. Make sure you have a tape with nothing useful on it and enter:

letter1 (Enter)

and your letter to Eric is saved as a file called "letter1".

If you wish to check that the File has been saved correctly, rewind the tape, press **6** and enter the file name again to verify it.

Suppose you now want to write the same letter to Chris. Press **2** so that Eric's letter is shown. Then edit the letter by replacing the word *Eric* with the word *Chris*. You have now written two letters that are almost the same with the minimum of effort. The second letter can now be saved in the same way, using a different file name.

To start a completely new file, press Break, then **0** followed by **Y**. Pressing **1** or **2** shows that there is no file there any more.

To load Eric's letter back in, press Break then **7** followed by **Y** to the first question. Then type:

letter1 (Enter)

making sure the correct tape is ready. Pressing **7** or **2** will show that Eric's letter is back.

If you have a printer you might like to print the letter so that you can post it to Eric. To do this press Break then **3**.

If you reply to all the questions like this:

16 (Enter) N N
8 (Enter) N (any key)

the letter should be printed out.

A more detailed description of the various options and functions follows.

Options

Break (Caps Shift Space). This always terminates the present operation to allow one of the following options to be selected.

- 1 This selects the editing mode with double size characters and 16 characters per line.
- 2 This selects the editing mode with normal size characters and 32 characters per line.
- 3 This selects the printer option. You have the choice of selecting the maximum number of characters per line (any number from five to 32), as well as the width of the left margin in character widths and the size of the characters. The maximum number of characters per line depends on the character size and the margin chosen. If Paged mode is chosen, this causes the print out to be divided into pages containing the number of lines chosen with a gap between each page.

Paged mode will also take into account the end of page markers. When one of these is encountered, the next line is printed on the next page. If paged mode is not selected, then page end markers are ignored and printing is continuous.

The preview of text enables the printing format chosen to be viewed before actual printing, though it is always shown in normal size characters.

If the preview is too fast to read, pressing any key will halt the display until a key is pressed again. The printing option has been designed to operate a Spectrum printer or equivalent.

- 4 This enables the Tab key (see "Editing Functions") to be set. There are four tab values, which must be chosen in ascending order. The maximum tab value is 32. If less than four tab values are required, give the last few the same value. The effect of the Tab key when in the editing mode is to move the cursor to the column position indicated by the next tab value, which it does by inserting spaces. The next tab value is the lowest tab value that is greater than or equal to the present cursor position. For example, suppose the tab values are 5, 10, 12 and 15, and the cursor is at present at the beginning of the line in Column 0. If the tab key is pressed at this stage, the effect would be the same as pressing Space five times, so moving the cursor to Column 5. If *xyz* is now typed, so that the cursor is now in Column 8, and the Tab key is again pressed, the next tab value is 10. So the effect is that Space has been pressed twice to move the cursor to Column 10. If *abc* is now typed, taking the cursor to Column 13, and the Tab key is pressed again, since the cursor is beyond the third tab value this value is ignored and the fourth tab value of 15 is used. So effectively the cursor moves to Column 15 by the insertion of two spaces.

Pressing the Tab key when the cursor is beyond the largest tab value has no effect. A tab value larger than the number of characters per line is also ignored.

5 This enables the text at present in memory to be saved. Simply enter the name of the file followed by Enter. The file name must follow the same rules as for program file names.

Ensure that there is nothing on the tape you are going to use.

- 6 This enables text that has just been saved to be checked against the file still in memory. If they do not match, the report "tape error" occurs. IN B. The file will not verify correctly after a return to an editing mode has been made since saving.

- 7 This enables a file to be loaded from tape. Simply press **Y** if you are sure you do not want the file at present in memory, and enter the file name followed by Enter. The file already in memory will be destroyed by loading in another file, so be sure this has been saved if you wish to keep it. If the message "The file loaded was not a text file" is displayed after loading it means that either the file has been corrupted or it wasn't a text file.

- 8 This displays the functions available in an editing mode.

- 9 This changes the normal Spectrum character set for an alternative set or vice versa.

- 0 This simply erases the file in memory. Only press **Y** if you are sure you do not want the present file in memory.

Editing functions

The following functions are obtained by pressing Caps Shift and the key indicated. These only operate when in an editing mode.

- 1 The Copy key. It is used when using the copy function See **4** below.
- 2 Caps Lock. This switches between capitals and lower case letters as normal.
- 3 This displays the typing speed in words per minute for the present text file. When a

file is loaded or saved, this information is loaded or saved with it. This makes it possible for typing speeds to be correctly shown for a particular file, even though it may have been started and saved the previous day. Typing speed is calculated from the number of words in the file and the total time spent in an editing mode and not the time spent at the keyboard.

- 4 This enables a section of text to be copied to the cursor position. To use first position the cursor at the destination point for the copied text. Then press Caps Shift **4**. Next move the cursor to the start of the text to be copied and press the Copy key. The screen display will then revert to the situation that existed when Caps Shift **4** was pressed, except that the top line of the screen will show the line of text being copied. Each press of the Copy key copies another character. The left and right cursor keys move the line of text being copied, rather than the cursor. The up and down cursor keys are not used. The rest of the keys behave normally, inserting text at the cursor point. To exit this function press Caps Shift **4** again.

- 5 The cursor left key.
- 6 The cursor down key.
- 7 The cursor up key.
- 8 The cursor right key.
- 9 This inserts an end of page marker at the cursor point. These markers are used in the paged mode when printing.

- 0 The Delete key.

Symbol Shift The Tab key.

Further advice and information

It is always a good idea to save sections of long text at regular intervals. By doing this, you can ensure most of the text has been safely saved should you experience a power failure or similar mishap.

The time display will lose time during tape and printer operations as these halt the timer.

When loading and verifying, file names must be specified. A null file name will not load or verify.

If you have a Spectrum+, the extra keys provided behave as follows:

True Video	Caps Shift 3
Inv Video	Caps Shift 4
Break	Caps Shift Space
Delete	Caps Shift 0
Graph	Caps Shift 9
Extended mode	Caps Shift Symbol Shift
Edit	Caps Shift 1
Caps Lock	Caps Shift 2
Cursor Left	Caps Shift 5
Cursor Right	Caps Shift 8
Cursor Up	Caps Shift 7
Cursor Down	Caps Shift 6

DATABASE

A DATABASE is an ideal way of storing information such as names, addresses, telephone numbers and ages. Each of these four pieces of information is called a field. Together they make a record. So a database is really like an electronic filing cabinet containing a lot of individual records.

You will find that your micro can manipulate information in the database very easily and very quickly. In no time at all it can search for one particular item and display it for you on the screen. It can also carry out a multiple sort and provide you – in the following example for instance – with a list of all the people in your file who live in Liverpool and whose ages range from 15 to 25.

There are two types of field – numeric and string. The former is used for numbers (such as ages). String fields are used for words. But it should be noted that entries such as telephone numbers are also regarded as strings because they may include characters like spaces and hyphens. The main difference between the two becomes apparent when they are sorted. When treated as a number, 2 comes before 11. But when it is a string, 11 comes before 2 – just as aa comes before b in a telephone directory.

To load and run the database program simply type:

LOAD "DBASE"

and press Enter.

When loading has been completed, the various options are displayed.

Choose the one you want by pressing the appropriate key as indicated.

Getting started

To set up a file of records we must tell the computer what type of information we wish to keep in each record. As an example we shall set up a file of records to hold the names and addresses of a group of friends. A typical record would be:

SURNAME: JONES
FIRST NAME: SIMON
ADDRESS1: 6 BROAD LANE
ADDRESS2: LIVERPOOL
TELEPHONE: 051-633 8000
AGE: 42

Each line of information in the record is known as a *field*, so this record has six fields, with the address being split over two fields.

Selecting Option B from the menu will allow you to start setting up the file. The first piece of information that you will need to tell the computer is the number of fields you need for each record. We have decided to have six fields, so in answer to the question: "How many fields per record?" key in **6** and press Enter.

The next step is to give a name to each of the fields so that from now on we will be able to refer to them by name rather than number. The computer will also need to know whether to treat the information stored in each field as a number or as a string, as well as the maximum number of characters to expect for each field.

For the field title enter **SURNAME**. The computer will then ask for the field type to be entered. Since this field will contain only alphabetic characters and we will not want to perform arithmetic operations on them, enter **S** for string. Finally we need to tell the computer the maximum number of characters to expect for the field. The maximum allowed for any field is 21, so we will enter 21.

Now repeat this for fields 2 to 4, using this table as a guide:

Field No.	Title	Type	Length
1	SURNAME:	String	21
2	FIRST NAME:	String	20
3	ADDRESS1:	String	21
4	ADDRESS2:	String	20

In field 5 we are going to store the telephone numbers. But although this information is numeric we are going to tell the computer to treat it as a string. If we were to use a numeric field then telephone numbers starting with a zero would lose the leading zero.

5	TEL:	String	15
6	AGE:	Numeric	3

After entering the details for field 6 you will find the screen displays a summary of all the fields. You are then given the opportunity to make changes to any of the details entered. As an example we shall change the title of field 5 to TELEPHONE. Answer **N** to the question: "Is this correct?" and then enter 5. Row 5 of the field summary should now change colour. All you need to do is retype the information for this field and enter TELEPHONE instead of TEL for the title. Once you are satisfied with the field definitions press **Y** and you will be returned to the menu.

Adding records (Option C)

Now that we have set up a file we can start to add records to the database. The number of the record being entered is always displayed at the top of the screen. The title of the field for which the computer is expecting an input is printed on the left. So the first field title to be displayed for our file will be **SURNAME**. To enter the first record type:

SURNAME: JONES
FIRST NAME: SIMON
ADDRESS1: 6 BROAD LANE
ADDRESS2: LIVERPOOL
TELEPHONE: 051-633 8000
AGE: 42

When you have finished entering the record a list of possible options will appear at the bottom of the screen.

If you wish to modify the record press **A**. Each field is then displayed in turn, along with the prompt: "Is this correct?". If you wish to change your entry for the field then press **N** and key in the new information. Pressing **Y** will allow you to go on to the next field. If you want to add another record press **N**. Otherwise press **M** to return to the menu.

Loading a file (Option A)

A demonstration file has been provided with the program. This will give you an opportunity to experiment with the features outlined below without having to enter your own set of records.

Select the load option by pressing **A**. Loading a new file will erase any records already stored. As a precaution, if a file has already been set up the computer will ask if you are certain you want to load a new file. Now enter the filename of the file you want to load. You must use a filename, not just press Enter. The demonstration file is called DFILF. You must ensure that the tape is in the correct position (The file follows the Database program).

Once the file has been loaded you can perform various operations on the records by selecting the appropriate option from the menu.

List records (Option F)

This option allows you to examine the records that have already been entered. After selecting this option you will be asked if you want to print out the records. If you do, press **B**. If not, press **A**. You must now tell the computer which records you wish to see. For example, if you would like to look at records 3, 4, 5 and 6 you should enter 3 (Enter) followed by 6 (Enter). The first record you requested will then be displayed, and at the bottom of the screen you will see a list of the possible options available to you.

Pressing **N** will allow you to move to the next record. If you wish to delete the record displayed on the screen press **D**. Pressing **A** will allow you to alter the record. This operates in the same way as if you had selected Option E from the main menu or when adding records (Option C) and has already been described. To return to the menu press **M**.

Field search (Option G)

This option allows you to find any record quickly without having to go through each record in turn. After selecting the option, you must state which field you wish to search through. The options available then depend on whether the field is a string or numeric one.

If you have selected a string field you can choose to search for a specific string or for part

of a string. The difference is that if for example you search for row as a specific string the word rows would not be found. But it would have been had you asked for a part string search.

- For a numeric field you have four options:
- Search for a specific value X (i.e. the number you entered)
 - Search for values X (i.e. any numbers greater than the one you entered)
 - Search for values X (i.e. any numbers less than the one you entered)
 - Search for a X : b (i.e. a number between two limits that you enter)

Replace field (Option H)

This powerful option allows you to replace any information stored in a field without having to go through all the records making the amendments yourself. You can replace a number, string or part string. The method of operation is similar to the field search already described, except that the fields are replaced by your new entry rather than just displayed.

Multi-field sort (Option I)

You can sort your records into numerical or alphabetical order with this option. It is usual and quickest to sort on just one field (such as names), but if you want to take account of other factors you can select other fields. For example, *Smith (age 24)* could be listed before *Smith (age 28)*.

You must select at least one field for the sort. Pressing Enter or entering zero for sort fields 2 to 4 will terminate the field selection. You will then be asked if you wish to sort into ascending or descending order. Press **A** or **B** and the computer will sort your records. When all the records have been sorted, you may examine them in their new order using Option F.

Field summary (Option D)

This option lists the titles of the field, their length and type.

Save current file (Option J)

This option allows you to save all the records that you have entered. You should use it frequently so that the chance of losing your work (such as in the event of a power failure or similar mishap) is minimised.

After saving, you are given the opportunity to verify your file. If you answer **Y**, rewind your tape and enter the filename.

End program (Option K)

This option terminates the program. If you have a file in memory you will be asked: "Do you wish to SAVE the data file?" If you answer **Y** you will be asked to input your file name and the file will be saved. If you answer **N** your file will be lost.

SPREADSHEET

A SPREADSHEET consists of rows and columns of "boxes" in which you can place numbers, labels or mathematical formulae. Used for home finance, for instance, it is an ideal and easy to use means of keeping tabs on your income and expenditure. Setting up a spreadsheet is quite simple but can be time consuming. However, once it has been prepared to your own specifications, it can be amended quickly and effortlessly.

To illustrate how it is created these instructions show you how to set up an imaginary household budget spreadsheet. You should then have no trouble devising your own for any application you may wish to try.

To load and run the spreadsheet program simply type:

LOAD "SPREAD"

and press Enter.

When the program has loaded you are asked the question: "Create file?" Answer **Y**.

Next select 14 columns and 14 rows. When asked if you require continuous updating answer **N**. The reason for this is that each update takes a short time, and when you are initially setting up the spreadsheet it is best to avoid this delay.

The spreadsheet should now be on the screen. You will find a list of the keys and their uses at the end of this section. You will note that letters have been chosen logically and this will help you to memorise them.

The first thing to do is to enter a label in the top left hand corner. This is done by pressing **T** and then typing **MONEY**, and then Enter. It will be assumed that you will remember to press Enter after all future entries, so it will not keep appearing in this text.

Now you need column headings. Ensure that the cursor is under column B, press **C** and enter **JANUARY**. Move the cursor right and repeat the process for the other months. The final column - **N** - should be given the heading **TOTAL**.

The row labels are entered in a similar way. You must use **R** to label rows. Set up rows like this:

ROW 2: Label **MORTGAGE**
 ROW 3: Label **FOOD**
 ROW 4: Label **FUEL**
 ROW 5: Label **LEISURE**
 ROW 6: Label **OTHER**
 ROW 7: Label **TOT OUT**
 ROW 8: Label **EARNINGS**
 ROW 9: Label **B.FWD**
 ROW 10: Label **TOT IN**
 ROW 11: Label **TOT OUT**
 ROW 12: Label **BALANCE**
 ROW 13: Label **SAVE**
 ROW 14: Label **C.FWD**

Now press **H** to move the cursor to its home position - that is, to display the top left hand corner of the spreadsheet. You can now enter some formulae.

Box 7 will contain the sum of all the boxes above it. The formula for this is:

$$B7=B2+B3+B4+B5+B6$$

To enter this, move the cursor to box B7, press **F** and type the rest of the formula after the "B7:" that will appear on the screen. Press Enter and after a short delay the formula will be accepted.

Similar formulae are required along the rest of row 7. This is achieved by pressing **D** with the cursor still on B7. Then move the cursor right to C7 and press **Z**. You should see that the formula for C7 is now set. Repeat this procedure for the other columns. This means keep pressing **D**, cursor right and **Z** in that order.

You can check what functions you have entered at any time by pressing **L**. If there are too many to list on the screen, press Enter to list any remaining formulae, or to return to the spreadsheet.

Enter the row formulae in a similar way. Move the cursor to box N2, and use **F** to enter the formula:

$$N2=B2+C2+D2+E2+F2+G2+H2+I2+J2+K2+L2+M2$$

Use the copy facility again to enter similar formulae in boxes N3, N4, N5, and N6.

Now row 9 needs the formulae inserting. The formulae required are C9=B14, D9=C14, etc. These are entered using **F** with the cursor at the appropriate box. The boxes on row 10 are the sum of the boxes on rows 8 and 9. Use **F** to set up B10 and the copy facility to copy the formula to the other boxes. (B10=B8+B9, C10=C8+C9, etc.)

Row 11 is the same as row 7, so the copy facility can be used to enter formulae such as B11=B7 along the row. Row 12 is row 10 - row 11 and is set up in exactly the same way.

Enter the formulae for total earnings in box N8. That is:

$$N8=B8+C8+D8+E8+F8+G8+H8+I8+J8+K8+L8+M8$$

We will assume that 75 per cent of the money remaining is saved and the rest is carried forward to the next month. This leaves two more rows of formulae to set. Set up box B13 with this formula:

$$B13=B12*0.75$$

and copy it to the rest of the row. Row 14 will be row 12 - row 13, and is set up as before. If you wish, you can enter formulae for other boxes such as earnings (for example, C8=B8, etc.) or allow for inflation (such as C5=B5*1.01).

You are now ready to start entering numbers, but it is a good idea to save your work first. Do this by pressing **S** and answering the questions as they appear. To enter numbers, move the cursor to the relevant box, and type the number. At the start, you answered **NO** to the question: "Continuous updating?". This saves time if you have a lot of entering to do. Any time you wish to update the spreadsheet, just press **U**.

On the tape (after the graphics program), you will find a sample file called MONEY for you to load. It was set up following these instructions. Load it by first loading the program, or press **Q** if it is already loaded. Answer **N** to the question: "Create file?" question **MONEY** to the old file name.

Although you have now set up a spreadsheet, there are still some function keys that you have not yet tried. You have already used **L** to display all the formulae on the spreadsheet. If you only want to see a particular one, move the cursor to that box and press **E**. If you want to completely clear a formula, press **W** (again with the cursor on the box). If you wrongly enter a number, pressing **O** will return the previous number.

Z and **Q** are used when you wish to enter a new file. The first only clears the numbers, but leaves labels and formulae intact, while the latter allows you to start a new spreadsheet without reloading the program.

The print option - **P** - allows you to print out the spreadsheet.

As with many user-defined spreadsheets you may need to update several times to ensure that the correct values are in each box.

This is not a bug but an effect created by the method of updating being row by row from the top to the bottom of the spreadsheet in that order. In certain circumstances, for example where formulae like B2=B4 and B4=B3 are entered, the updating of B2 (to equal B4) will take place first, B4 will then be updated to equal B3 but as B2 has already been updated the result will be that B2 does not equal B4! A further update will correct. To check that all required updates have been made keep an eye on the box at the extreme bottom right of your spreadsheet. This is usually, but not always, the last box to change (although it is always the last to be updated).

What the function keys do

- C** Insert new column label.
- D** Duplicate (copy) a function (use in conjunction with **Z** - see instructions).
- E** Examine (display) the formula in the box indicated by the cursor.
- F** Enter new formula.
- G** Load the graphics program.
- H** Send cursor home.
- L** List all formulae on the spreadsheet.
- O** Return old (last) number.
- P** Obtain a printout.
- Q** Quit current file and restart.
- R** Insert new row label.
- S** Save the file.
- T** Insert new title (corner) label.
- U** Update (if you are not continuously updating).
- W** Wipe (clear) a formula from a box.
- Z** Zero (clear) all values from the spreadsheet.