sinclair
ZX Spectrum

Microdrive Expansion System

Tasword Two
by Tasman Software

Masterfile
by Campbell Systems

Business Cartridge

Loading Instructions

Insert the BUSINESS cartridge in Microdrive 1. Press RUN and
ENTER. A Menu will appear on the screen.
- To load Tasword 2 press 1.
- To load Masterfile press 2.
Chapters 1 & 2 of your Microdrive and Interface Manual tell you
how to set up the Expansion System.

Tasword Two Instruction manual

Getting started with Tasword

Learning to use Tasword

Tasword is designed to be easy to use. We suggest that you learn to use Tasword by the following steps:

(1) Read "How Tasword Works" on pages 5 to 7 of this manual;

(2) Load Tasword as described on page 1;

(3) Type in a few lines of text paying attention to the features described in the "How Tasword Works" section of this manual. Experiment with some of the control keys – they are all described on pages 14 to 24;

(4) Load the Tasword Tutor text file following the procedure described on page 13;

(5) Take your time working through Tasword Tutor and experiment as much as you like. Refer to the control key descriptions in the manual (pages 14 to 24) as you work through Tasword Tutor;

(6) You will now be sufficiently familiar with Tasword to use it to produce your own text files. As you continue to use Tasword you will discover which of the facilities are most useful to you and you will find that you remember the relevant control keys. Don't forget that the help pages are always there;

(7) Configure Tasword for your interface and printer as described on pages 26 to 28. Save Tasword, following the instructions on page 11, and use this cartridge as your working copy. Keep the original as your back up copy.

How Tasword works

The Text File

Tasword operates on a text file which contains whatever you type in from the keyboard. This text file can be up to 320 lines long. Your television is a "window" which shows you 22 lines of the text file. Certain "Control Keys" move the window up or down the text file. Moving the window is called "scrolling".

The Window

Tasword normally shows you all 64 characters on each line of the text file. The window can be "opened" to show just 32 of the characters on each line at normal Spectrum character size. This is done using the Extended-mode-C control key as described on page 22.

The Keyboard

Each time you press a single key the character marked in white on that key (a letter or a numeral) appears on the screen at the cursor position. The exception is the ENTER key which moves the cursor to the beginning of the next line.
To type a capital letter hold the CAPS SHIFT key down and press the relevant key.
Certain single characters are marked in red *on* the keys:

(! # @ ↓ $ % & ' _ < > ; " ↑ – + = : £ ? / * , .)

To type one of these characters hold the SYMBOL SHIFT key down while you press the relevant key.
Some single characters are marked in red *below* the keys:

[ ] @ ~ | \ { }

To type one of these characters you must enter "Extended Mode" (see p.8) and then hold SYMBOL SHIFT down while pressing the relevant key.

The red markings on some of the letter keys are not single characters but are words or double characters. (T O ; T H E N ; < = etc.) These are the Tasword "Control Keys". The white markings above the number keys are also Control Keys.

Auto Repeat

If pressure is kept on any key then after a slight delay the key action is repeated. This applies to both character keys and control keys.

The Control Keys

With the exception of ENTER one of the SHIFT keys must be held down to obtain a control key action. When a control key is pressed Tasword manipulates the text file in some way. For example the arrow keys (CAPS SHIFT 5, 6, 7, and 8) move the cursor. another useful control key is EDIT (CAPS SHIFT 1) which displays the help page on the screen. The help page gives a brief description of each control key action and is reproduced below.

```
EDIT .......help page
CAPS LOCK ...capitals lock
TRUE VIDEO ..cursor to word left
INV. VIDEO ..cursor to word right
ARROWS .....cursor movement
GRAPHICS ...printer control chars
DELETE .....delete characters
                move line left
<> .........centre line
>= .........move line right
AND ........insert line/character
```

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```
OR .........go to end of text
AT .........go to start of text
STOP .......load/save/print text
NOT ........delete line
STEP .......reform to end of para
TO .........scroll down
THEN .......scroll up
ENTER ......start of next line
CAPS+SYMBOL SHIFT-enter or leave
extended mode
```

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ENTER returns to text, Both shift keys for the other help page.

A full description of the action of each of the above control keys is given on pages 14 to 18.

While the help page is showing press both CAPS SHIFT and SYMBOL SHIFT to see the Extended Mode help page. Press the two shift keys again to return to the normal mode help page.

When the help page is showing press ENTER to go back to where you were in the text file.

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Extended Mode

To perform some operations on the text file you must put Tasword into "Extended Mode" by pressing CAPS SHIFT and SYMBOL SHIFT at the same time. The bottom line of the display flashes to remind you that Tasword is in Extended Mode.

The Extended Mode help page is displayed when EDIT (CAPS SHIFT 1) is pressed while in Extended Mode. This help page shows which keys are control keys in Extended Mode and it is reproduced below.

TASWORD
Extended Mode Control Keys

SCROLLING
F – fast scroll down
G – fast scroll up

ZX PRINTER
P – print text file
L – large printing on marker
K – large printing off marker

MISCELLANEOUS
C – change window on text
X – clear text file
R – replace or find text
I – insert mode on/off
EDIT – help page
ARROWS – cursor movement

FORMATTING
E – right justify on/off
W – word-wrap on/off
J – justify line
K – unjustify line

MARGINS
A – set left margin at cursor
S – reset margins to normal
D – set right margin at cursor

BLOCK COMMANDS
B – mark beginning of block
V – mark end of block of text
N – copy marked block to cursor
M – move marked block to cursor

SYMBOL SHIFT and key to type these characters:
[ ] @ ~ ¦ \ { }

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ENTER returns to text. Both shift keys for the other help page.

A full description of the action of each Extended Mode control key is given on pages 19 to 24.

Pressing the two shift keys while the Extended Mode help page is showing will put the normal mode help page on the screen.

To return to normal Tasword mode from Extended Mode Press CAPS SHIFT and SYMBOL SHIFT at the same time. The bottom line of the display will stop flashing to show you that Tasword is in normal mode.

Word-Wrapping

Unless overridden by the Extended-Mode-W control key Tasword word-wraps automatically at the end of each line. This means that if your last word on a line does not fit onto the line then the whole word is transferred to the beginning of the next line. The only time you will normally use the ENTER key when typing in text is when you want to start a new paragraph. You will soon find that when you are typing in text you will only occasionally look at the screen – Tasword keeps the text neat and leaves you free to concentrate on the keyboard.

Justification

As well as word-wrapping when a word overflows the end of a line Tasword automatically justifies the line that has just been finished. The words in the line are spaced out by inserting spaces between them so that the text spreads across the screen. This gives the text a neat appearance with no jagged margin on the right hand side.

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The automatic justification can be turned off using the Extended-Mode-E control key (p.20). This results in the typed text having a "ragged right" appearance that may be, according to personal preference, more appropriate for the task in hand.

It is straightforward to change text that has already been typed from right justified to ragged right or vice versa. Simply use the Extended-Mode-E control key to turn right justification on or off and then use the normal mode STEP control key (p.18) to rejustify the desired paragraphs.

Tall Cursor

When you type the last character in a line Tasword moves the cursor to the beginning of the next line. The cursor becomes taller. If you type a character when the cursor is tall Tasword will assume that the character is part of the last word on the previous line and word-wrap. If the word on the previous line is finished you must type a space – as you would have done anyway if you had not looked at the screen – before typing the next word.

If the last character on a line is a punctuation mark Tasword will not word-wrap when you begin the next line even if you type a character when the cursor is tall. It will ignore the first two spaces that you type so that you do not indent a line accidentally.

Good Typing Practice

Help Tasword help you by following the two simple rules of good typing practice:

(1) Always type at least one space after the full stop at the end of a sentence or after any other punctuation mark;

(2) Always begin a new paragraph by indenting (typing spaces at the beginning of) the first line or by leaving a blank line between paragraphs, or by doing both.

Running Tasword

Tasword starts running when loaded. You will see the cursor flashing at the beginning of an empty text file and the line number and other information at the bottom of the screen. You can now type in text or load a previously created text file.

To load Tasword Tutor load Tasword as described above. Then follow the instructions on page 13.

If you have gone into Basic then to continue running Tasword press R for RUN and the ENTER.

Saving Tasword

Please Note: *The facility to save Tasword has been included to allow you, the purchaser, to make back-up copies and to save your customised versions of Tasword. Passing copies of Tasword to a third party is a breach of copyright.*

To make a back-up or customised copy of the Tasword program press the STOP (symbol shift A) control key while Tasword is running. A list of options will appear on the screen as shown on page 17. Press T to save the Tasword program, put a blank but formatted cartridge into drive 1, and press ENTER.

Saving and Loading Text Files

Saving

You can save the text you have typed onto tape as a "text file". Press the STOP (symbol shift A) control key while Tasword is running in normal mode and the list of options shown on page 17 will appear on the screen. Choose the "save text file" option by pressing the S key and Tasword will ask you to type in a name for the text file. Type in a name for your text file, which can be up to ten characters long, and then press ENTER.

After verifying the text file the STOP control key options will re-appear on the screen. Press the Y key to return to the text file.

Loading

Loading a text file will clear all the text that is currently in the Tasword Text File.

To load a text file from microdrive use the STOP control key while Tasword is running in normal mode. The press the J key to select the "load text file" option. Tasword will ask you to type the name of the text file you want to load. Type the text file name, press ENTER. The text file will appear on the screen as soon as it has loaded.

Merging

Merging is loading a text file from cartridge and putting it in the Tasword text file *after* any text that is already there. To do this use the STOP control key and then press the M key to select the "merge text files" option. Tasword will then prompt you to follow the same procedure as described in "loading" above.

The merge will fail if there is not enough room for both the text files (320 lines). You will then be in Basic: press R for RUN and then ENTER to continue running Tasword.

Tasword Tutor

Tasword Tutor is a text file which helps you familiarise yourself with the use of the control keys.

Follow the normal procedure for loading a text file by taking the following steps:

(1) Press the normal mode STOP control key (symbol shift A);

(2) Select the "load text file" option by pressing the J key;

(3) Press ENTER as prompted by Tasword to confirm you choice;

(4) Tasword will ask you for the text file name. Type tutor and press ENTER.

Tasword Tutor will appear on the screen as soon as it has loaded.

The Control Keys

The action of the normal mode Tasword control keys are described below. Tasword is in normal mode when the bottom line of the display is *not* flashing.

The appropriate shift key must be held down when a control key is pressed. The E N T E R key is the exception to this rule.

Edit   caps shift 1

The normal mode help page is displayed when E D I T is pressed. When the help page is showing press E N T E R to go back to the text file or press C A P S S H I F T and S Y M B O L S H I F T simultaneously to see the Extended Mode help page.

Caps Lock   caps shift 2

A capital letter can be typed by holding C A P S S H I F T down and pressing the required letter key. Once the C A P S L O C K control key is pressed every letter key pressed will give a capital letter. Pressing C A P S L O C K a second time will turn the capitals lock off.

A message appears at the bottom of the screen when the capitals lock is on.

True Video   caps shift 3

This control key moves the cursor to the end of the next word to the left of the cursor. This provides a rapid way of moving the cursor left along a line.

Inv. Video   caps shift 4

This key moves the cursor to the beginning of the next word to the right. This gives a quick way of moving the cursor to the right along a line.

If you overshoot your last item of text using this key there will be a short delay while Tasword checks that there is no subsequent text in the text file.

Arrows   caps shift 5, 6, 7, and 8

The arrows on the 5, 6, 7, and 8 keys are used to move the cursor to any required position on the screen.

Graphics   caps shift 9

This key is used to type the graphics symbols printed on the number keys 1 to 8. When G R A P H I C S is pressed a message appears at the bottom of the screen to remind you that when you press one of the number keys 1–8 you will type the graphics character given by the **grey** pattern on the key.

To obtain the graphics character given by the white pattern on the key hold C A P S S H I F T down and press the key.

Press G R A P H I C S a second time to turn graphics off.

The graphics characters are printed as typed on the ZX printer but are used as control characters for full width printers. The use of the graphics characters as control characters is described on pages 26 and 27.

Delete   caps shift 0

The D E L E T E key deletes the character under the cursor and moves the remainder of the line left one position. Note that characters which are mis-typed can be typed over once the cursor have been moved to the correct position and you do not have to use the D E L E T E key to do this. The D E L E T E key is

useful for correcting mistakes as they are made and for removing unwanted characters.

<=   symbol shift Q

This moves the text under and left of the cursor left one character position. There is no effect if there is already a character at the left margin. Text within margins (see p.24) is not affected by this control key and if the cursor is inside a margin no text is moved.

<>   symbol shift W

This key centres the text on the line containing the cursor between the margins. It is useful for headings. Text inside margins (see p.24) is not moved and there is no action if the cursor is inside a margin.

>=   symbol shift E

This key moves the text under aand to the right of the cursor right one character position. There is no action if there is a character on the right margin. Text inside margins (see p.24) is not moved and there is no action if the cursor is inside a margin.

And   symbol shift Y

This key is used to insert new lines, words, and characters into the text file.

To insert a blank line position the cursor at the beginning of the line following the line to be inserted. Press A N D to insert the new line. (New lines are inserted automatically when Insert Mode is turned on – see page 20.)

To insert additional words between existing words position the cursor on the space between the words. Pressing the A N D key then throws the words to the right of the cursor onto a new line. The addition text can then be typed in. Use the A N D key again to create additional blank lines to type on as required or turn Insert Mode on (see p.20).

To insert a character in the middle of a word position the cursor over the character to the right of the required position. When the A N D key is pressed the line is unjustified (see p.10 for the meaning of this) and a space is created for the new character to be typed. If the line cannot be unjustified then a new line will be created as described in the previous paragraph.

These insertion procedures will usually destroy the justification of the paragraph. The justification can be recovered using the S T E P key (see p.18).

The A N D control key has no effect within margins except when the cursor is in column 1.

Or   symbol shift U

When the key is pressed Tasword finds and displays the end of the text file.

At   symbol shift I

This key is used to jump back to the beginning of the text file.

Stop   symbol shift A

This key is usually use to save, load, and print text files. The following list of options is displayed when S T O P is pressed. (The numbers in brackets refer to the page in this manual on which the option is described.

```
catalogue/changedrive       d
print text file             p    (p.21)
save text file              s    (p.12)
load text file              j    (p.12)
merge text file             m    (p.13)
return to text file         y    (p.18)
define graphics/printer     g    (p.26)
save Tasword                t    (p.11)
into Basic                  b    (p.18)
```

Pressing y will take you back to the text file. Pressing b to go into Basic allows you to do other tasks while still holding Tasword in the memory. To run Tasword again press R for RUN and then ENTER.

Not
symbol shift S

This key deletes the line that the cursor is on. All subsequent lines are moved up.

Step
symbol shift D

This key reforms the text from the line containing the cursor to the end of the paragraph. The end of the paragraph is detected by the occurence of a blank or an indented line. The STEP key is very useful for tidying up text in which you have made insertions and deletions.

If margins are set (see p.24) then only the text within the margins will be reformed.

The STEP key will rejustify the text if Right Justify is on and will leave the text "ragged right" if Right Justify is off (see p.10). The STEP control key can therefore be used to change the format of a paragraph from right justified to ragged right and vice versa.

To
symbol shift F

The TO key scrolls the display down one line of the text file.

Then
symbol shift 6

This key scrolls the display up one line of the text file.

Enter

This key moves the cursor to the beginning of the next line. If Insert Mode is ON (see page 16) a new line is also inserted.

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The Extended Mode Control Keys

To enter or leave Extended Mode press CAPS SHIFT and SYMBOL SHIFT at the same time.

The bottom line of the display flashes when Tasword is in Extended Mode.

The following characters are typed in Extended Mode by holding SYMBOL SHIFT down and pressing appropriate key:

[ ] a~ ¡ \ { }

No other characters are typed in Extended Mode.

The following are control keys in Extended Mode. They are described in their approximate order on the keyboard, reading from top to bottom and left to right.

Edit
caps shift 1

This key puts the Extended Mode help page onto the screen when Tasword is in Extended Mode. Press the two shift keys at the same time to see the normal mode help page. Press ENTER to return to the text file.

Arrows
caps shift 5, 6, 7, and 8

These keys move the cursor just as they do in normal mode.

W – Word wrap on/off
This Extended Mode control key is used to turn the automatic word-wrap off or on. The "W/W" message at the bottom of the screen indicates whether the word-wrap is on or off. Word-wrapping is described on page 9.

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E – Right justify on/off
This control key turns the automatic right justification off or on. The "R.Justify" message at the bottom of the screen tells you the current status. Justification is described on pages 9 and 10. When justification is on the text typed will be reformed at the end of each line to the right margin; when justification is off the text has the "ragged right" appearance of this paragraph.

R – Replace or find text
This facility allows you to find the next occurrence of a given word or to replace all the following occurences of a given word with another word or group of words. The implementation of this control key is from the current cursor position. (To find or replace from the beginning of the text use the normal mode AT control key before using this Extended Mode key.)

When the R key is press in Extended Mode Tasword asks you to type the word to be replaced or found. you must type a single word – Tasword will not accept your input if you include spaces.

Press ENTER after you have typed the word to be replaced or found and Tasword will ask you for the text that the word is to be replaced with. Just press ENTER to find the next occurrence of the word you typed. To replace all the following occurrences of the word that you specified type up to 32 characters of text (which can include spaces) and then press ENTER.

Tasword will reform each paragraph in which it replaces text according to whether Right Justification is on or off at the time the find and replace command is executed. There is a short delay after the final replacement before Tasword continues.

I – Insert Mode on/off
When Insert Mode is turned on Tasword creates a new blank line for you to type on whenever a line of text is completed or ENTER is pressed. Turning Insert Mode on is useful when you want to type some lines of text in the middle of some existing text.

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P – Print Text on ZX Printer

If a ZX Printer is connected the text file will be printed when this key is pressed. The display scrolls through the text file during printing. To quit the print hold the Q key down.

A – Set Left Margin

When this key is pressed the left margin is set to immediately before the current cursor position. The margin setting is indicated by part of the screen changing colour. The use of margins is described on page 24.

S – Clear Margins

This key clears the margins to the normal positions at the extreme left and right of the display.

D – Set Right Margin

This key sets the right margin to immediately after the cursor position. The position of the right margin is indicated by screen colour. See page 24 for a description of margins.

F – Fast Scroll Down

Tasword scrolls down 22 lines (one screenful) every time this key is pressed in Extended Mode. This is a useful way of scrolling quickly through your text.

G – Fast Scroll Up

When G is pressed in Extended Mode Tasword scrolls up 22 lines.

J – Justify Line
The line that the cursor is on is right justified by this key.

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H – Unjustify Line

The line that the cursor is on is unjustified by deleting any surplus spaces between words.

L – Large Printing ON Marker for ZX Printer

When this key is pressed in Extended Mode a line is inserted into the text file containing the message "print at double height on". The line is inserted above the line that the cursor is on, so use this control key when the cursor is in the first line that you want printed at double height. Tasword will not print this marker line when the text file is printed on the ZX Printer but subsequent lines will be printed at double height.

Use the normal mode **not** control key if you wish to delete this marker.

K – Large Printing OFF Marker for ZX Printer

A "print at double height off" message is inserted by this key in Extended Mode. The message is on a line inserted above the line that the cursor is on, so use this key when the cursor is in the first line that you want printed at normal height.

To delete this marker line use the normal mode **not** control key.

X – Clear Text File

All text is removed from the text file when this key is pressed in Extended Mode. To prevent accidental erasure Tasword asks for confirmation when you press this key.

C – Change Window on Text

This Extended Mode control key is used to open or close a 32 character wide Window on the text file. When the Window is closed the screen shows the full 64 characters in each line. When the Window is opened the border changes colour to indicate an open Window. With the Window open the screen shows a 32

character wide part of the text file with the characters shown at normal Spectrum size. The window may be scrolled sideways by using the arrow keys to move the cursor. Sideways scrolling takes place automatically as text is typed.

B – Beginning of Block Marker

Blocks of text may be moved or copied from one part of the text file to another. The beginning and end of the block to text must be "marked" before it can be moved or copied. The Extended Mode B key is used to tell Tasword that the line of text that the cursor is in is the first line of a block. Tasword will mark the beginning of the block by inserting a large open bracket symbol on the line above the first line of your block.

There is a short delay when this key is used while Tasword checks that there is not already a Beginning of Block Marker in the text file. You cannot have more than one Beginning of Block Marker in the file at any one time.

To delete a block marker move the cursor to the line containing the marker and use the normal mode **not** control key to delete the line.

V – End of Block Marker

This key is used to mark the line that the cursor is one as the last line of a block of text. Tasword marks the end of the block by inserting a large close bracket symbol on the line below. There is a delay while Tasword checks that there is not already and end of block marker in the text.

Use the normal mode **not** control key to delete a block marker.

M – Move Block of Text

A block of text that has been marked is moved to a new position when the M key is pressed in Extended Mode. The text is moved to new lines that are created *above* the line containing the cursor when the M key is pressed.

N – Copy Block of Text

The action of this Extended Mode Control key is identical to the Move Block M key described above except that the block of text is copied to a new position rather than moved.

Margins

The Extended Mode A and D control keys are used to set the left and right margins respectively as described on page 21. The Extended Mode S control key clears the margins.

When margins are set the text that is typed will normally be put only between the two margins. Word-wrap and justification take place as through the margin positions represent the edges of the screen.

Margins are useful for automatically indenting part of your text. Paragraphs can be highlighted by having different margin settings, or a list of paragraphs can be typed and numbering and other annotations can be put within the margins.

When a margin is set part of the screen will change colour to represent the margin setting. (When the window is set at 64 characters per line the actual margin position may be one greater than indicated by the screen colour).

The cursor moving arrows can be used to move the cursor into the margins to set new margin positions or to type text within a margin. The < =, < >, and > = text moving and centering control keys do not affect the text inside the margins and do not work at all when the cursor is within a margin. The A N D text insertion control key does not operate inside margins except when the cursor is in column 1. The S T E P control key reforms just the text that is between the left and right margin. The find and replace (Extended Mode R) command ignores margin settings. The automatic paragraph rejustification that takes place on text replacement may modify the format of text that has been typed with margins set.

Interfaces

You can send your text files to printers provided that you have an interface between your Spectrum and your printer. Different interfaces each have their own "printr control code" and they use them in different ways.

You must tell Tasword the printer control code for your interface. This is done by using the normal mode S T O P control key and then selecting the "d e f i n e g r a p h i c s / p r i n t e r" option by pressing the 6 key. This procedure is described in the following section.

Some interfaces require their own software to be loaded into the Spectrum. An enclosed leaflet describes how you can merge this software with Tasword.

Printers

To send your text to the ZX printer use the Extended Mode P control key (see page 21).

To send your text to to other printers press the normal mode S T O P control key and then press the P key to select the "p r i n t t e x t f i l e" option. Tasword will ask for your required line spacing and then print the text file. You can stop the printing at any time by holding down the Q key.

Printer Initialisation

You must tell Tasword the codes that your printer uses for carriage return and linefeed. You can do this by pressing the normal mode S T O P control key and then choosing the "d e f i n e g r a p h i c s / p r i n t e r" option. This procedure is described on the next page.

Graphics Characters

The Spectrum graphics characters are not sent to full width printers (as opposed to the ZX printer) but they are interpreted by Tasword as a sequence of printer control characters. In this way Tasword helps you make effective use of the capabilities of your printer. You can, for example, define a particular graphics character to be the sequence of codes that instructs your printer to print enlarged text. (If your printer has this facility). Then you can simply type this graphics character into your text and the text following will be printed in the enlarged form.

Another useful control character your printer may obey is "form feed" (move to the top of the next page). You could then define one of the graphics symbols to be the form feed control and type this character into your text wherever you require the printing to start on a new page.

Tasword Two comes with the graphics characters defined as shown on the normal mode help page for the Epson FX-80 printer. Some of these codes are valid for the Epson MX-80 and other printers.

To define your own printer control characters you must use the "define graphics/printer" facility which is described on the next page.

The Define/Graphics Printer Facility

Press the normal mode STOP control key (Symbol Shift A) and the list of options shown on page 17 will appear on the screen. Choose "define graphics/printer" by pressing the G key. Tasword will ask you to confirm you choice by pressing ENTER.

A list of the graphics symbols along with their Spectrum character codes on the left and the sequence of pre-defined printer control codes on the right will appear on the screen.

Specify the graphics character you want to redefine by typing the character code (the number to the left of the symbol) and pressing ENTER.

Type the decimal number for each control code as prompted by Tasword. If your sequence is less than four numbers then terminate the sequence by just pressing ENTER.

On entering the fourth number Tasword will redisplay the symbols and codes. You can redefine another graphics symbol by typing the appropriate code as described above.

When you press ENTER without having typed a number Tasword will go on to ask you:

(1) The control code that your interface uses. Enter the appropriate number. (i.e. 27 for the Hilderbay, 5 for the Euroelectronics Interface)

(2) The control codes that your printer uses for linefeed and carriage return. If your printer uses one code for both then enter zero for the second code.

(3) The character width of the left margin on printing. This is set to eight characters by default.

When you answer the final question Tasword returns to the STOP control key list of options.

When you save Tasword you will automatically also save all the codes that you have set. In this way you can create your personal view of Tasword that you have customised to your system and your requirements.

Additional Information

The following information is provided to allow you to modify the Tasword characters. A certain amount of programming knowledge is assumed. Characters that you redefine will be reproduced on the ZX Printer but not on other printers. Some full width printers have internal RAMs that allow you to define your own characters.

The Spectrum user defined graphics characters cannot be used.

The character generator for the 64 character per line (64cpl) characters is in a table from 61184d to 62079d and whose base address is 60928d. This includes the 64cpl graphics characters. Each character is represented in this table by eight sequential bytes in the normal way. The four most significant bits of each byte must be zero.

With the exception of the graphics symbols the ROM character table is used to generate the 32cpl characters so these cannot be changed.

The sixteen 32cpl graphics characters are held in a table from 60928d to 61055d whose base address if 59904d.

Interfaces — Additional Information

To configure Tasword Two for a particular interface use the define graphics/printer facility as described on page 26 of the manual. After allowing you to define graphics symbols Tasword will ask if you want to redefine the inteface control codes. Respond by pressing y for yes and Tasword will ask you for four interface control codes.

When you have created your customised version of Tasword Two save the program as described on page 11.

Tasman Interface

Use the define graphics/printer facility (obtained by pressing STOP and then the 6 key) to specify the following interface control codes:

```
Interface control code 1:        0
                    code 2:        0
                    code 3:        0
                    code 4: 64836
```

The tape is supplied with these codes set.

Kempston Interface "S" and "E"

Follow the instructions supplied with the Kempston Interfaces.

Sinclair ZX Interface 1

Load Tasword and enter Basic by pressing the STOP control key and the the B key. Add the following two lines of Basic:

```
279 FORMAT"b";X:OPEN #3;"b"
281 CLOSE #3
```

Where X in line 279 is your printer baud rate. RUN Tasword and create your customised version by pressing the STOP control key and then the T key.

The interface codes should be as supplied on the tape for the Tasman Interface.

To quit printing the q key must be held down until the printer stops and this may take some time. The printing can be stopped immediately by press BREAK but you **must** then restart the program by executing GOTO 281.

Tasword Two and the ZX Microdrives

The drive used by Tasword Two on loading is drive 1: this number is shown in brackets on the S T O P control key menu. The drive being used can be changed by pressing the d key when the S T O P control key menu is showing. You can have Tasword Two in drive 1 and a cartridge containing your text files in drive 2.

The catalogue for the current drive is shown on the screen whenever the Load, Save, or Merge text file options are chosen. If you do not like the resulting delay then remove the CAT statements in lines 1000 and 2000.

A file cannot be saved onto a microdrive cartridge with the same name as a file that is already there. The program can be changed to erase any existing file with the same name before saving by putting the statement

ERASE "m";md;a$

at the beginning of line 1030. This is not recommended as you may inadvertantly lose text and also the system takes some time to erase non-existent files. It is probably better to save each version of a document with a different name and to erase unwanted files from Basic.

To save a file onto cassette press the S T O P control key and then B to enter Basic and then execute:

SAVE"NAME"CODE 32000,A AND VERIFY""CODE

To load a text file from cassette enter Basic and execute:

LOAD""CODE

In each case just execute R U N to continue running Tasword Two.

If the program enters Basic and fails with a Microdrive error report due to, for example, there being no cartridge in the current drive, you will not have lost your text. Just execute R U N.

Hilderbay Interface

You must incorporate the printer software into Tasword. Load the 48K Hilderbay printer software (NOT the "mini-software") and break into the program after the machine code has loaded by pressing Caps Shift and Space for "Break". Amend line 640 so that it reads:

640 SAVE"printcode"CODE st,65361-st

Then press R to R U N and create a customised printer program on tape as described in the interface documentation in which you specify that the codes for printer carriage return and linefeed are zero.

Load Tasword and enter Basic by pressing the S T O P control key and then the B key. Execute the following two statements, taking care to type the correct numbers:

POKE 59818,217
POKE 59832,217

Then incorporate your customised printer program by putting the tape into your cassette player and executing:

LOAD"printcode"CODE 57856

taking care to type the correct number after the C O D E statement.

Now R U N Tasword and use the define graphics/printer facility (obtained by pressing S T O P and then the 6 key) to specify the following interface control codes:

```
Interface control code 1:      21
                 code 2:       0
                 code 3:       0
                 code 4: 65150
```

And then specify the codes for carriage return and linefeed on your printer. (13 and 10 on Epsons.)

Morex Interface

You must incorporate the printer software into Tasword. Load the 48K Morex printer software and customise it for your printer as described in the Morex manual. In particular, ensure that the serial/parallel flag (64517) has the correct value and that the baud rate is set correctly if you are printing serially. Also ensure that tokens will be printed by executing:

POKE 64519,1

Save your customised printer software onto tape by executing:

SAVE"printcode"CODE 64519,1

Load Tasword and enter Basic by pressing S T O P control key and then the B key. Execute the following two statements, taking care to type the correct numbers:

POKE 59818,5
POKE 59832,5

Then incorporate your customised printer program by putting the tape into your cassette player and executing:

LOAD"printcode"CODE 57856

taking care to type the correct number after the C O D E statement.

Now R U N Tasword and use the define graphics/printer facility (obtained by pressing S T O P and then the G key) to specify the following interface control codes:

```
Interface control code 1:       0
                 code 2:       0
                 code 3:       0
                 code 4: 64973
```

And then specify the codes for carriage return and linefeed on your printer. (13 and 0 works on Epsons.)

Euroelectronics ZX Lprint

Follow the instructions supplied with the Euroelectronics interfaces.

ADS Interface

Tasword Two can be configured for the ADS interface by the following procedure. The software supplied with the ADS Interface is **not** used.

(1) Load Tasword.

(2) Enter Basic by pressing the S T O P control key and then the B key followed by E N T E R.

(3) Execute the following instructions, taking care to type the correct numbers:

```
POKE 57978,32
POKE 57979,12
POKE 57997,245
POKE 57998,219
POKE 57999,157
POKE 58000,203
POKE 58001,103
POKE 58002,32
POKE 58003,250
POKE 58004,241
POKE 58005,211
POKE 58006,157
POKE 58007,201
```

(4) RUN Tasword and create your customised version by pressing the STOP control key and then the T key.

The interface control codes should be as supplied on the tape for the Tasman Interface.

The program Tasword Two is copyright and it is sold subject to the condition that it shall not be lent, resold, hired out, or otherwise circulated.

TASMAN SOFTWARE LTD
Springfield House, Hyde Terrace, Leeds LS2 9LN

NOTICE:
All efforts have been made to ensure there are no errors in this manual or in the program Tasword Two. Neither Tasman Software nor Sinclair Research can assume responsibility for any errors or their consequences either in this manual or in the program Tasword Two.

Masterfile Instruction manual

Contents

Glossary of Terms

ADD	Insert a new *record* onto the end of the file
ARGUMENT	In *search mode*, something with which *records* are to be compared
AUTO-PROMPT	Where new data *items* are solicited automatically
BACK OUT	Change one's mind
COMMAND MODE	Where cursor is flashing K and awaits line number or Basic keyword
DATA NAME	Legend associated with a *data reference*
DATA REFERENCE	Letter A–Z by which data items are identified
DISPLAY MODE	Where *selected records* are viewed in a *report*
EDIT MODE	Where *report* formats are created/altered
EMPTY FILE	One devoid of *records*, *data names*, *report formats*
FILE	Collection of *records*, and associated *data names* and *report formats*
GENERAL	Overall attributes of a *report*
INVERT	Flip select status of all *records*
ITEM	Data, 1–128 characters in length
LITERAL TEXT	Static text, e.g. a heading, in a *report*
MAIN MENU	The *menu* offered when the program is loaded
MENU	List of key options
MICRO-PRINT	Compression of displayed text on the screen
MM	Abbreviation for *main menu*
NULL TEXT	Legend shown in a *report* in the absence of an *item*
PAD	Fill out data with spaces in a *report*
PROMPT	Instructions to the user, or small *menu*

PURGE	Erase all *selected records*
RAM	Random access memory available for operating the program
RECORD	Collection of up to 26 *items*, each with a different *data reference*
REPORT	Display of *selected records*
REPORT ELEMENT	A part of a *report*, e.g. heading, box, data spec.
REPORT REFERENCE	Character 0–9, A–Z identifying a *report*
RESET	Clear select status of all *records*
SEARCH MODE	Where *records* are *selected* or otherwise by comparing with an *argument*
SELECTED	Eligible for display in a *report*
SEQUENCE	Where *records* are listed in ascending order by one *item*
UPDATE MODE	Where a *record* can be altered
USER BASIC	Basic which you can supply for special processing

Overview

MASTERFILE is a filing and retrieval system for use with the 48K ZX Spectrum. It is almost entirely machine-coded for compactness and speed, and offers about 32K of data per file. Files can be saved and loaded independently from the program, and stored either on cassette or Microdrive cartridge. Because MASTERFILE display formats are user-defined, the range of applications is enormous, both for domestic use and for business. Address lists, library catalogues, personnel files, stock inventories, school exam results, family trees – all these are easily handled by MASTERFILE.

Some of the main features of the program are:

Menu-driven
Dynamic variable-length file
User-defined data names and report formats
Sequence by any data type
File search by any number of criteria
Display 1–22 records per screen
Micro-print feature for up to 51 characters per line
Print to the ZX Printer
Print to other printers via suitable interface
Total/average
Up-date, copy, erase any record
Save/load files, save program
Optional User Basic interface
Microdrive compatible
Speed of operation

File Structure

A file is an organised collection of data which is stored on cassette or cartridge, and which can be loaded into RAM for enquiry or update purposes. It may be simple like a telephone list, or complex like a personnel data file. But in every case, a file is made up of records, each of which is usually related to a particular identifying item e.g. a person, a recipe, a part number. Each MASTERFILE record is in turn made up of up to 26 different items of data e.g. name, address, telephone number, stock level. Data items are all treated by MASTERFILE as being of variable length, up to 128 characters long. There is no rigid record structure, and items can be stored in any order within a record; for this reason items are tagged with a data reference letter. A record cannot have more than one of any data reference: this is an important limitation to bear in mind when designing the structure of your file. All data is stored in character format.

One of the many advantages of a computer file over a card index system is that you can sort it into any order. MASTERFILE does not actually sort your file, but instead lets you view it in any sequence you choose. And you can have different logical views of the same data in different sequences, a feature normally seen only in large computer systems. Further, you can be selective about which items are required in a report, and choose the display style. You will compose a report format for each view of the file which you need. Once the formats are built, they are saved automatically as part of the file.

While items are referred to using a single letter, you can associate a word or phrase with each reference letter, which MASTERFILE then displays whenever you use data references. (Especially in AUTO-PROMPT, q.v.) We call these *data names*, and these names are also stored automatically as part of your file.

Planning a File

We do recommend that you work through the section entitled 'EXERCISE' before starting your own file. After that, we suggest the following approach.

The most important task is to decide what data is to go into each record. Allocate a letter A–Z to each kind of data you wish to store. Try to estimate the average record size, using the formula $1 + N + D$, where N is the number of items per record, and D is the average number of keystrokes of data per record. Then divide this into 32,000 for the approximate maximum number of records. Also allow a few dozen bytes for each display format which you will compose.

Remember that while any item can be present or not in a record, you cannot have more than one item of the same data reference in one record. If your file does require multiple items associated with a given person, then you must either have multiple records (which wastes file space), or allocate a range of different data references – which can complicate file searching.

The next step is to allocate a name or description for each data reference. Do this as described in DATA NAMES, after creating an empty file – see EMPTY FILE.

Next, add just a few records – see ADD A RECORD MODE.

Now comes the hard work, where you must design and specify the way you want to view your file. Remember that you can have many different views, different sequences, different formats, different contents. Start with a simple format – it may be helpful to plan it on paper first. Leave embellishments such as lines and boxes until last, after you have 'frozen' the positions of your data and headings. Give special attention to the 'interval' which affects the spacing between displayed records. See EDIT MODE, MICRP-PRINT and WORD PROCESSING.

Once you are satisfied with your report format(s), and your data organisation, you are ready to build your file. Do remember to take a file save from time to time.

Menus, Prompts, Modes

MASTERFILE menus are yellow and respond to upper-case or lower-case keys impartially. When MASTERFILE is loaded, it presents the Main Menu (MM). The MM screen also displays the file name (up to 10 characters) and the MASTERFILE version number. When a key corresponding to one of the options on the menu is used, MASTERFILE either takes the indicated action, or immediately offers another menu or prompt. A prompt is a one-line instruction or menu in the lower part of the screen, and takes priority over any other menu. All the yellow menus and prompts respond to just a single key. But where MASTERFILE requires a textual response, the flashing L cursor appears and you terminate your response with the ENTER key.

MASTERFILE nearly always offers a menu or prompt, but there is one exception: when in DISPLAY mode the menu would obliterate your display, so it is not usually shown. But you can overlay your display with the menu, by using the Q key – and use Q again to remove the menu.

MASTERFILE operates in a variety of modes, usually shown by a blue heading. (But not DISPLAY mode – we leave lines 0–21 to you. DISPLAY mode always shows Report n in red on line 22.) The important modes are described in the glossary, and some modes – SEARCH, DISPLAY, MM – are accessible by several menu routes.

It would be a little dangerous to allow a single-key response to erase data, so MASTERFILE always asks for confirmation via the Y key. Likewise, User Basic is potentially drastic, and again requires Y to confirm. If you see Y to confirm you can back out with any key except Y.

Basic Command Mode

With a few exceptions, MASTERFILE runs under machine code control and the BREAK key is ineffective. But if you need to adapt the Basic (e.g. for Microdrive) or if you need to put in your own User Basic, then you must get into COMMAND mode. This can be done only when MASTERFILE offers a flashing L cursor, e.g. press L at MM. If you then respond with CAPS SHIFT held down and 6, you get H STOP in INPUT etc and now you are in COMMAND mode and can list and alter the Basic.

To resume MASTERFILE processing, give the command GOTO 1, which takes you to the main menu again. GOTO 1 should also be used to recover any accidental drop into COMMAND Mode. Do not CLEAR or RUN, since these will cause MASTERFILE to fail.

Main Menu Options

The main menu represents the top logical level of processing and offers functions which affect the file as a whole. Some functions are described more fully elsewhere in this manual.

A Add a new record onto the end of the file. A one-byte record is inserted and you can see the Recs= and Sel= counts increment. See ADD A RECORD MODE, q.v.

C Lists all report references, together with top-most heading of each report. You can switch to DISPLAY mode by pressing the report reference of your choice, or you can use ENTER to return to MM.

D Switch to DISPLAY mode to view selected records. The report format used will be either the first one created, or the last one used. If there are no report formats yet, EDIT mode is entered. Several other menus offer a D option. See DISPLAY MODE.

E Switch to EDIT mode to review or update report formats. See EDIT MODE.

L Load a file which has been saved via MM V, F etc. See LOAD AND SAVE.

N Review or update names. See DATA NAMES.

S Switch to SEARCH mode to identify records according to the values of data they contain. See SEARCH MODE.

I Invert the SELECT status of every record. Selected records will become unselected, and vice versa.

R Reset the SELECT status of all records to unselected, which will show Sel=00000. To select all records, use R then I.

P Purge – i.e. erase – all selected records. As with all erasures, confirm with the Y key.

T Compute total and average of numeric data across all selected records. T is also available from DISPLAY mode. See TOTAL/AVERAGE.

V Save program and file, or file only. See LOAD AND SAVE.

U Process all selected records via User Basic. See USER BASIC.

Empty File

You should keep a version of MASTERFILE which has an empty file, and use it whenever you need to start a new file application. To create your empty file, you must clear the example file as follows:

(a) Erase all records: MM R I P Y
(b) Erase all report formats: MM E. Then R 1 X Y which erases report format 1. Then R 2 X Y to erase report 2, and so on for 3, 4, etc. Then M back to MM.
(c) Erase all data names: MM N. Then E Y, E Y, etc until no more data names are displayed. Then M back to MM.

Now save the program, via MM V P EMPTY etc. This also provides you with an additional back-up of the program. You may also wish to save the empty file by itself, via MM V F EMPTY etc. *Note that an empty file still contains essential system information within F $*

Data Names

It is advisable – although not essential – to give each of your data references a name. Data names can be up to 128 characters in length, and are stored as part of the file. They are essential if you wish to use auto-prompt when adding new records. Use MM N to review or alter your data names. You will see the same menu as appears in ADD A RECORD mode, but options F and D do not function. Use A to add a new data name, N to browse through the names, R to replace a name, E to erase a name. Use M or D to return to MM. The order in which you add data names determines the order in which data is auto-prompted.

Edit Mode

Entered via MM E, EDIT mode is concerned with the creation and modification of report formats. Up to 36 report formats may be defined, giving that many logical views of your selected records. Some effort is required to edit a report format, but this is typically a once-only task.

The menu reached via MM E invites you to create a new format via A or review/alter an existing format via R. You can also use M to return to MM.

After A or R, give the report reference 0—1, A—Z, as prompted. The report reference R e f n is then shown at top right while in EDIT mode.

When a report format is first created, it is given the following G e n e r a l characteristics:

a) Background paper colour of 7 (white)
b) Screen border colour of 7
c) Sequence – none, unsorted
d) Interval of one record every 2 lines

You can change these at any time just by using menu option R while G e n e r a l is displayed. You are then prompted for a to d. Reply to a and b with key 0—7. Reply to c with the data reference of the data by which the report is to be sequenced, or else E N T E R if no sequence is required. Reply to d with 1—22, being the interval down the screen at which records are displayed.

To show just one record per screen, use an interval of 22. To list one record every line, use an interval of 1.

You must add some *report elements*: these describe headings, lines, boxes, and data to appear in the report. There is no limit to the number of elements. You can even display the same data more than once. Use EDIT menu option A to add a new element, whereupon another menu asks what kind of element is being added. All elements except data elements are static, and will always appear whether or not any records are selected. They are:

L   Literal – e.g. title, column heading, currency symbol

B   Box – a rectangle drawn to pixel resolution

H   Horizontal line

V   Vertical line

For a literal, press L and supply the data as prompted, i.e. *line number, Micro-print*, column, paper, bright* or not, *inverse* or not, *flash* or not, and the literal text. If text overflows the right-most column it will resume on the next line, column 0. Ink colour is not prompted – MASTERFILE always uses contrast.

* *See MICRO PRINT, next chapter*

For a *box*, press B and supply as prompted the co-ordinates of the top-left corner, depth in pixels less 1, width in pixels less 1.

For a *line*, press H or V and supply as prompted the left-most or top-most pixel, and the length in pixels less 1.

So much for the static elements – now we consider the data elements. Data elements specify which items of a record are to be displayed, where, and with what attributes. Having pressed A to add an element, press D and reply to a quite long list of prompts:

(a) *Data reference* of the target item
(b) *Line* – the line at which the first selected record is to display the item
(c) *Micro Print**
(d) *Column*
(e) *Width* – number of columns wide. MASTERFILE lets you display data in any character rectangle
(f) *Depth* – number of lines deep
(g) *Spectrum attributes* – paper, bright or not, inverse or not, flash or not
(h) *Pad or not* – Pad will fill the rectangle with the chosen paper colour
(i) *Null text* – if data is absent in a record, then you can supply text to appear in its place, e.g. n o t k n o w n, or –. The default null text is a single space.

Numeric data will be shown right-justified, provided that the field depth is 1, and P a d = N.

The above fully describes how an item of the *first* selected record appears in your report. Items from further records will be displayed lower down the screen, at whatever interval you have in G e n e r a l.

You can browse through your report elements by using N (next element), and any element can be replaced by using R and then following the prompts. there is also an element erase option, E.

You can go straight to DISPLAY mode via D, to see the result of your changes.

The report format as a whole can be erased using X, or copied using C. C – copy – is very useful when you want to build a format similar to one already built; perhaps you just want the same layout but different sequence. After C or X you see the initial EDIT menu.

An interesting use of Null Text is to use an unused data reference in a data element. This is how we get the lines of dashes between records in our example file, REPORT 2. The null text is a line of dashes, and always appears because the target data reference is never present in the records.

Plan your report formats on paper before coding them. Aim for an exact number of records per screen, by choosing suitable line numbers and interval. Beware overlapping elements, or overlapping records – MASTERFILE does not check for these.

Micro Print

The normal character size of Spectrum allows 32 columns across the TV screen. By compressing the characters to 6-bit or even 5-bit width, instead of the normal 8-bit width, more characters per line are made possible. The Micro-print feature allows two degrees of compression, either to 42-column pitch or to 51-column pitch. Thus any display can show text in normal or compressed form, or any mixture. Both literal text and data text can be so treated.

The advantages of Micro-print are not only that more data per screen is seen, but especially with 42-pitch the clarity can be enhanced due to the improved proportions of the characters. The only drawback is that Micro-print takes a little longer to generate, and data is 'painted' rather than 'flashed up'.

The way to specify Micro-print is as follows:

In EDIT mode, when supplying a literal or data element, you are prompted with M i c r o - p r t Y / N. Reply with the N key to stay with 32-pitch for that element. Otherwise, press Y and then you are prompted with 4 2 - P i t c h Y / N. Reply Y to select 42-pitch, or N to select 51-pitch characters. Then when you are prompted for column and width (in the case of data elements), you will find that MASTERFILE lets you extend to column 41 or 50, according to which pitch you selected.

Due to the way that Micro-print was built into MASTERFILE (at version 08) we have had to suppress the FLASH option for Micro-printed text. Indeed, EDIT mode displays your Micro-print pitch in place of the FLASH status, when you review such elements of a report.

Notice that when giving column number for a Micro-print element, the number is in terms of the selected pitch. The text will be displayed at X co-ordinate calculated as 6 times the column (if 42-pitch) or 5 times (if 51-pitch). The approximate 'real' column number is 6/8 or 5/8 of the Micro-print column.

Because of the attribute geometry of the ZX Spectrum, paper and ink colours must change only at natural character boundaries, so your Micro-print text colour extends both sides to a natural character edge.

The Micro-print feature of MASTERFILE is a licensed adaptation of a package called MICROPRINT, which can be used in your own programs. The package is available from:

Myrmidon Software
P.O. Box 2, Tadworth, Surrey, KT20 7LU, England.

Word Processing

When data is displayed via DISPLAY mode, MASTERFILE performs rudimentary word-processing such that leading blanks are ignored, a clean left margin is maintained, and word-breaks are minimised. This means that text can be entered without having to worry about spacing. MASTERFILE will start a new line rather than split a word, unless the last line is already reached.

The vertical line character (V L C) has a special use in MASTERFILE. A V L C is found via Sinclair extended mode symbol-shift S, i.e. the little red mark under the S key of the Spectrum keyboard The V L C is a force-line-break signal, so you may wish to use it in an address for example. You key the text as a single data item but with V L Cs as line separators. Now when the data is displayed in a 4-line-deep paragraph, for example, each V L C forces a change of line. This is ideal for address labels.

Notice that when in UPDATE mode, item data is shown without word-processing, and V L Cs are visible. But in DISPLAY mode the V L Cs do not appear.

If there is insufficient room to display an item, truncation occurs on the screen. Text is printed to the end of the paragraph and the full data is kept in the file.

Add a Record Mode

The usual way to add a new record is via MM A, which builds an empty record onto the end of the file. The menu then invites you to add (insert) an item (A), auto-prompt items (P), or exit to DISPLAY mode (D) or to MM (M). Other menu options are shown, but are not immediately applicable.

To put data into a new record, you can use A and supply the data reference and the text. The text is a maximum of 128 characters, and trailing spaces are dropped. No tokens, graphics, colour controls, are allowed – they are altered to ? if entered. C A P S S H I F T / L O C K may be used. The item is displayed in bright white under its red data ref/name.

An alternative method of data entry is via (P), which is Auto-Prompt. This causes MASTERFILE to solicit each item by scanning your data names. Auto-prompt obviates the need to remember all your data references, and also makes it unlikely to omit an item. You just enter text, concluding with E N T E R for each prompted item. MASTERFILE briefly displays it before prompting the next item. If you have no data for an item, just use E N T E R on its own. E N T E R quickly followed by S P A C E will end the prompts.

Having added one or more items, you can browse through them for checking, using N for each next item. And you can replace using R, or erase using E. Instead of holding the N key down to reach an item, you can summon it directly using the G key followed by the target data ref. But if you attempt to G an item which is not present, MASTERFILE waits for you to give a different ref or back out via E N T E R.

If you use R to start a replacement, and wish to back out, just delete or blank your reply and press E N T E R. MASTERFILE will leave the original item intact.

Before you can add another record, you must first go back to MM (M).

There is a way to insert a record at a particular place in the file – using DISPLAY mode C. See DISPLAY MODE.

Note: You can add another record without going back to MM by using the = menu option, provided that at least one item is present in the current record.

Display Mode

DISPLAY mode is for viewing your selected records in a way dictated by one of your report formats. You can display via MM D, but there are many other menus which offer the same D option. The report format used is that which was last used, or else the first format. Another way to DISPLAY mode is via MM C where you choose a report ref.

The contents of lines 0–21 depend upon your report format – you have a free hand here. Line 22 shows the following:

Report n	Q=menu	No more
(red)	(yellow)	(blue)

where n is the report reference, and the blue legend can be . . more when there are more records to be displayed than there is room for on the current screen.

Once line 22 is displayed – some sequenced reports can take a few moments to fill the page – a list of menu functions is available. The menu is not normally shown, but you can summon it with Q – and banish it again with Q. The functions are as follows:

N   If . . more is shown in line 22, use N to see the next page of the report.

1—9   Advance the report by 1–9 records. Use 1—9 to position a record at top-of-screen ready for options U, E, O and C below.

0   Backspace the report by one record. Note that for sequenced reports this can take several seconds.

B   Resume the report from the first record.

P   Copy lines 0–21 to the ZX Printer, or equivalent. Use the S (single) to print just the current page. Or, use A (all) to print the current page and all further pages. To abort a print, hold the H key down or use BREAK and GO TO 1.

U   Enter UPDATE mode with the top-most displayed record. If DISPLAY mode is resumed from UPDATE mode, the same target record is shown.

E   Erase top-most record. (Y to confirm).

O   (Letter O) un-selects the top-most record. The record is not erased.

C   Copy the top-most record. A new record identical to the top-most record is inserted next to it. The copy record can now be altered via U etc, and so here we have a means of inserting a record at a particular place in the file.

S   Enter SEARCH mode.

T   Compute and display total/average.

R   Switch to a different report format, resuming at the same top record as currently displayed. You are prompted for the new report ref, and so it just needs two keys to switch from one report to another. The reports need not be in the same sequence. This facility is particularly useful to switch from a summary report (say 20 records per page) to a full expansion (1 record per page) of the top record.

M   Return to MM.

Q   Display the menu just described – press Q again before doing anything else.

Update Mode

This mode is where a record can be updated, i.e. its component items can be reviewed, replaced or erased, and new items can be added. The target record for update is always the top one displayed in DISPLAY mode. Indeed, UPDATE mode can normally only be reached from DISPLAY mode, with at least one record displayed. Use N and 1—9 keys to position the target record at the top of the screen, then press U. Now your options are almost identical to those described in ADD A RECORD MODE, and indeed the same menus and prompts are offered. The difference is that you can use D to resume DISPLAY mode at the *same* target record on completion of the update.

Exercise

Here is a short exercise showing how to set up a simple file of names and telephone numbers, starting from an empty file. Follow the steps described in EMPTY FILE before starting this. We shall use the following notation:

    ‡=ENTER key is pressed
    (Do not key the comments in brackets)

Follow this exercise exactly, and slowly – taking note of every menu and prompt. Start at MM of the empty file. We show the menu responses as capital letters but you can use unshifted keys. Here we go:

NANname‡ATtel number‡M (This defines two data names: name for data ref N and tel number for data ref T. Now we will add some records:)

AANJones P‡AT01–234 5678‡M (We have stored one record, with the telephone number of P. Jones. Now for another record:)
APAtkins R‡0232–66554‡M (This time we used auto-prompt to enter the data for R. Atkins. Do a few more this way:)
APSmith John‡2332–45664‡M
APAirport‡01–887 23459‡M
APHairdresser‡876–5432‡M
(We now have 5 records, and now we must use EDIT mode to compose a report format so we can view our file:)
EA1 (start of report ref 1)
AL0‡N8‡1YNNTelephone–List‡ (Puts a heading 'Telephone-List' in blue at line 0 column 8.)
ADN3‡N1‡16‡1‡7YNNN‡ (To show names starting at line 3, col 1, 16 characters max, 1 line deep, paper white, bright, inverse no, flash no, pad no, no null text.)
ADT3‡N18‡14‡2YNNN–––‡ (To show tel numbers starting at line 3, col 18, 14 characters max, 1 line deep, paper red, bright, inverse no, flash no, pad no, null text of '---'.)
(We can now test the report by going to DISPLAY mode:)
D (Looks OK, but how about sorting it by name, and making a few other changes? Go back to EDIT mode:)
MER1 (Review report ref 1:)
R76N3‡ (Background paper stays white, border set to yellow, sequence by N, interval to 3 lines.)
AB0‡165‡163‡255‡ (Now we have described a box. See the effects of these changes now:)
D (The display is sorted by name – see why it is best to place initials after surnames – and note the border and interval changes. Now reset interval to 2 and finish off with some refinements:)
MER1 (Review report ref 1:)
R76N2‡ (resets interval to 2)
ADZ4‡N0‡32‡1‡7NNNN––––––––––––––––––
––––––––––‡ (We have used data ref Z which is absent from our file. There are 32 dashes. See the effect:)
D (Now let us update Jones – his number has changed:)
3 (Puts Jones at the top)

U (to UPDATE mode)
G T (get telephone number)
R Ø 1—9 9 5 3 3 1 1‡D (replace with new data, return to DISPLAY mode.)
(Finally, we can take a save of the file:)
M V F T E L N U M‡‡

We leave you to experiment further – edit more report formats, update the file, explore the search facilities, etc. Leave no menu option untried.

Search Mode

We have seen that MM R I will make the whole file available for DISPLAY mode viewing. But when a file is very long, it is more useful to let the computer pick out just the records you need. SEARCH mode does this, and very swiftly, by looking at a particular item in each record and comparing it with an argument which you supply. Records which qualify are flagged as *selected* and are reflected in the Sel=nnnnn value. To start a search from scratch, you would ensure that no records are selected initially. Use MM R to set Sel=00000. Now use MM S to start the search dialogue.

The first search menu invites A (all) or L (sel) or M (MM). Use A to search all unselected records, and select those which match. Use L to search only those records already selected, and unselect those which do not match. The use of L will decrease the count if any selected records fail to match.

Having pressed A or L, you are then asked for the data reference of the items to be compared. Press the corresponding key, or back out via E N T E R.

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The next menu asks whether the data is to be treated as character (C) or numeric (N). Numeric data is normalised in flight to nnnnnnnnnnn.nn, e.g. 23.198 is treated as 00000000023.19 for the purpose of the comparison.

The next menu asks for the type of comparison, and a good way to remember your choice here is the acronym *GLUES*. Note that S (scan) only works if the previous menu response is C, denoting character search.

Finally, you are asked for the argument, i.e. the value with which the target items are to be compared. If you have chosen numeric treatment, then the argument must be numeric too.

MASTERFILE then responds by updating the S e l = n n n n n count and re-offering the top SEARCH menu, from which you can refine the search further, or exit to MM or to DISPLAY mode.

Now let us examine in more detail the comparison process. For a numeric search, the meanings of G, L, U and E should be self-evident. But if a record does not have a target item present, then the comparison is deemed to fail even if the comparison type is U (unequal). If a record is met with a non-numeric target item, then the search halts with the prompt N O N – N U M E R I C D A T A : S K I P (O R) U P D A T E. If you choose U then the search cannot be resumed directly. S (skip) moves on to the next record. If there are several non-numeric records together, you may need to keep S pressed for several seconds.

Character search is a little more involved. (1) Upper case and lower case letters are considered equal for the purpose of comparison. (The same applies to sequence in DISPLAY mode.) (2) If the argument is shorter than the item in the record, but equal as far as it goes, then argument and item are considered equal. Thus if we search for 'FRED' we will match records having 'FREDERICK', 'fred', 'Freda', etc. (3) If the argument is longer than the item in the record, they will not match. The argument 'FRED' will not match a record 'FRE'.

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Character scan (S) hunts for equality anywhere within the target items, so that the argument 'FRED' will match strings within the data 'Alfred the Great', 'Manfred Mann', or 'Aunt Freda'.

There is a way to search based upon the presence or absence of an item, regardless of its value, since an absent item is considered to start with binary zero. Thus a character search with argument ' Ø ' (note the leading blank) will differentiate records with the item from those without it. Use comparison type L to select those records without the item, and G to select those with the item.

We have chosen the search menu letters so that with practice you will soon make searches without even looking at the menus. Your search parameters are listed on the screen to remind you what you entered. You can reach SEARCH mode directly from DISPLAY mode, as well as from MM.

We finish this chapter with a short example of a three-pass search, which you can use on the example file. We will search for all records where 'salary' is between 14000 and 15000 and 'department' is 'admin'. Using the same notation as in the earlier EXERCISE section, we start at MM:

R S A S N G 1 4 0 0 0‡ (gives us everyone with salary over 14000)
L S N L 1 5 0 0 0‡ (keeps only those with salary below 15000)
L D C E a d m‡ (keeps only those with department starting 'adm')
D (display the selected records)

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Total/Average

MASTERFILE can compute and display the total and average of numeric items of selected records. As with numeric search, the data is normalised in flight, ignoring any decimal places beyond the second. The total is displayed with most leading zeros suppressed. Any non-numeric item halts the process with the same skip/update option as described in SEARCH mode. If a selected record has no target item, then it is deemed to have value zero for the purpose of computing the average. Negative numbers are not acceptable, and the only non-numeric character allowed is a single decimal point.

Total/average can be done from MM Or from DISPLAY mode. The result is shown in lines 19–21. In DISPLAY mode, this can be printed.

It is possible only to total items of one data reference at a time. For more complex arithmetic processing one must write some User Basic, q.v.

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Statistics

MASTERFILE gives an almost constant display of file statistics, in line 23. This clears only while text is being keyed. The display consists of:

```
Recs=nnnnn Sel=nnnnn Spa=nnnnn
```

The first count is the number of records in the file, and does not include the special data names and report format records which share F$ with the file proper.

The second count is the number of records currently flagged as SELECTED, i.e. eligible for display in DISPLAY mode, and eligible for User Basic, total/average etc. Note that when records are first created, they are created as SELECTED.

The third figure is the approximate number of RAM bytes available for file expansion. The figure varies by a small amount depending upon the machine stack, but is a good guide to the amount of spare space you have. Any attempt to overflow the file will result in a flashing red prompt FILE FULL in the lower part of the screen. Press any key to resume, but with the last operation aborted. It is recommended that old records be purged, or the file split into two files (again via MM P), when spare bytes fall below 500 or so.

User Basic

Although MASTERFILE is a versatile filing system, all it does is hold data, search it, and present it. Any processing on the data is done by virtue of you updating individual items. But if you are prepared to write some Basic, you can convert MASTERFILE into a file processor too. With User Basic you can examine and even update the file. For example, suppose you have a file of pupil records, with a series of exam result items in each record – you can compute the average mark for each pupil and store this as an extra item in each record.

User Basic is given control by MM UY. Only *selected* records are passed to User Basic for processing. The program as delivered has no User Basic other than a simple return, so that MM UY has no effect on the file until some extra Basic is inserted.

When you invoke User Basic via MM UY, Basic is given control at specific line numbers, as follows:

Line 4900. Control comes to 4900 just once, before any records are processed. You can use this control point to establish parameters for use at the other points, e.g. INPUT a discount rate, or set a switch. As with each control point, you must terminate with a GOTO USR R statement.

Line 5000. Control comes here at the start of each selected record, but before any data from the record is passed. Use this to perform any record initialisation, e.g. zero an accumulator. Terminate with GOTO USR R.

Line 6000. Control comes here once for each item in a selected record. The item is accessible in C$, which is a dimensioned character array, length 130. C$(1) is the data reference A–Z, and CS(2 TO) is the data itself, rightfilled with spaces. You can store it into another variable if you need to use the data later on. Think of line 6000 as 'data capture'. Terminate with GOTO USR R.

Line 7000. Control comes here once for each selected record, after all items have been seen at line 6000. Here you can perform processing on the data you captured at line 6000, and then set up C$ in one of the following ways:

(a) LET C$="" to signal that no change is to be made to the record.
(b) LET C$="X" – which sets C$(2 TO) to blanks – to signal that the item whose data ref is 'X' is to be erased, if present on the record. 'X' must be capital A–Z.
(c) LET C$="X" and C$(2 TO)=data, to signal that the item whose data ref is 'X' is to be inserted, or replaced if already there. 'X' must be capital A–Z.

Control must be returned to MASTERFILE proper via GOTO USR R.

Note that only one data item per record can be affected by line 7000 in any one pass of User Basic. You might be able to provide multiple item updates using several passes, but this would need some clever use of line 4900 etc.

Line 9000. Control comes here once, after all selected records have been processed. You may use this point to print totals, reset switches, beep a 'completion' signal, etc. Control must be returned to MASTERFILE via GOTO USR R.

The order in which records are passed through User Basic is unsequenced, ie the order the records were first added to the file. You must not re-dimension C$, and on no account disturb variables F$ and R. Be prepared for relatively long delays while User Basic processes the file. Completion of User Basic processing is signalled by return of MM.

Use the technique described in BASIC COMMAND MODE to get into a position to code your User Basic. Once it is coded, GOTO USR 1 to return to MM. Test it on just a few selected records

initially. When it works, take a program save via MM VP etc, so that you can use it thereafter.

We finish this chapter with a simple example of User Basic, where in a stock file there are records which contain two relevant items, quantity of stock Q, and unit cost C. We require to generate a new item V being the value of stock, computed as the product of quantity x unit cost (Q*C). Further, we wish to be able to recalculate all value data on demand. It is very easy:

```
4900    GOTO USR R
5000    LET C=0: LET Q=0: GOTO USR R
6000    IF C$(1)="Q" THEN LET Q=VAL C$(2 TO)
6010    IF C$(1)="C" THEN LET C=VAL C$(2 TO)
6020    GOTO USR R
7000    LET C$="V": LET C$(2
        TO)=STR$(Q*C): GOTO USR R
```

Line 4900 has no file initialisation to do. Line 5000 sets variables C and Q to zero in case we don't find data in a record – better a zero value than misleading residue of previous record. Line 6000 etc captures the Q and C items, and also converts them to numeric into variables of the same name – but we could have used any suitable variable names. Line 7000 builds a 'V' item and passes it back for insertion or replacement. By the way, we avoided the slicker '7000 LET C$="V"+STR$(...' because a bug in ROM sometimes gives a wrong result with string concatenation.

In the above example, any non-numeric data in the quantity or unit cost data would halt with a Basic diagnostic. For this situation, or any other halt, just recover with GOTO 1.

This version of Masterfile offers a choice of microdrive (1-8) and cassette (0) on all LOAD/SAVE functions. VERIFY is automatic on cartridge and optional on cassette.

For program save to microdrive, only the Basic component is saved (including the File), whereas on cassette the machine code is saved too.

Ensure that *Spa=nnnnn* shows at least 600 bytes spare before attempting to save programs or files to microdrive.

Some Pokes

To patch the machine code logic of MASTERFILE, get into BASIC COMMAND Mode, and use POKE with no line numbers. Then GOTO 1 and take a save via MM VP etc. (Or for Microdrive, save the machine code as described under MICRODRIVE.)

Here are some possibilities:

(a) If you want more than 26 data references, we can increase the range to allow 0–9 and the special characters between 9 and A, as follows:

POKE 65534,48

(b) When text is being keyed, the PIP note is deliberately more audible than the Spectrum default. You can POKE this to taste at 65535.

Output to Non-ZX Printers

There are many interfaces which can connect dot-matrix and other printers to a Spectrum. Because MASTERFILE does its printing using a Basic COPY (in line 4010), you must choose an interface which will support COPY. Also, the interface code must not clash with MF mcode, which runs in the top 8K or so of RAM. *TASMAN, HILDERBAY*, and *KEMPSTON* all have printer

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interfaces compatible with MASTERFILE. The *KEMPSTON* interface even has transparent COPY support.

There are two methods of COPY – ASCII and HIR-RES. ASCII transmits just standard ASCII characters as generated via the SCREEN$ function. The advantages of ASCII are printing speed and compatibility with all kinds of printer, e.g. daisy-wheel – disadvantages are that hi-res lines and boxes are not reproduced; neither is Micro-Print data. HI-RES transmits dot-for-dot, but is somewhat slower, and is only applicable to dot-matrix printers. Many interfaces can also copy a double-size image of the screen – 4 dots for every screen pixel.

At the date of issue of this manual, the three named interfaces all support both ASCII and HI-RES COPY to a large range of printers, and are compatible with MASTERFILE.

If you wish to print ASCII text beyond column 31, then you can LPRINT through your interface within User Basic. However, you must then take responsibility for formatting the output. Also, there is no way to sequence the selected records as they pass through User Basic.

For more information about interfaces, please contact the suppliers named above. Advice is also available from *TRANSFORM Ltd* who retail both printers and interfaces, and who also have experience with MASTERFILE. See the computer press, such as *Sinclair User*, for addresses and telephone numbers.

For output to 'real' printers of full-width reports, a companion product 'MF-PRINT' is available from Campbell Systems. (Price: see current advertisements.)

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