DVWORD

INTRODUCTION

This word processor has been specifically designed to run on the Tug 80 column card with the Microtan interfaced to a Epson standard Centronics printer for hard copy.

DVWORD is the most complete and effective word processor available for the Microtan system outside Flex and CP/M, using in all modes of operation the 8082 card and providing disc file handling facilities.

As a word processing package DVWORD allows for comprehensive facilities to enable the processing of text to be carried out easily by simple command structures.

This manual has been produced using DVWORD and an EPSON MX-80F/T printer. The format and layout have been achieved using the facilities available from both the software and the printer.

The systems operator is advised to study this manual before real applications are applied.

SYSTEM REQUIREMENTS

Minimum:-

Tugbug Xbug Vbug 6(PTL).
Microtan 65.
Tanex fitted with 8k of ram and two VIAs.
Ram from C000 to DFFF.
Tug 8082 card.
A Centronics compatible printer connected to the second VIA.

Optional:-

Tanram with ram running contiguous from 2000.
Tandos with one or more drives.

ENTRY TO THE WORD PROCESSOR

The package is supplied in cassette form for loading into random access memory, the following should be observed:-

Filename..."DVWORD"

Location...$C000-$DD09

Start $C000

On entry to the program the following message is displayed:-

Initialise (Y/N)?

if a new (Cold) start of the program is required answer "Y" to question, this reply will instruct the program to clear all text storage area memory and set up the required parameters for operating.

If a new start is not required then "N" to the question for a (Warm) start in which case all parameters are unaltered and the text store is saved.

This "Warm" entry allows the operator to leave the main program at any time with the knowledge that the text resident in store will be safe guarded on reentry.

initialising either option will display the program Menu.

The following two abbreviations are used throughout this manual.

CR	a carriage return.
CTRL	a control key.

THE MENU

Entry to the Menu can be obtained from any mode of operation by pressing the "Esc" key on the keyboard. The menu will then be displayed for a choice of operations to be made.

```
T(ext) E(dit) P(rint)
M(emory) W(ords) N(ew) H(elp)
S(earch),** R(eplace),**,**
F(ast) C(uts) D(ump) V(erify) L(oad)
DR(disc read) DW(disc write)
```

By entering the first capital letter of the chosen mode followed by a carriage return (CR), the program will then commence that operation.

T(ext)	Input of text.
E(dit)	Modify text.
P(rint)	Output text to printer.
M(emory)	Gives end of text address.
W(ords)	Counts the number of words in text.
N(ew)	Allows work to commence on a new file.
H(elp)	Gives a listing of the editor control keys, print mode control keys and printer control commands.
S(earch),**	Find string **.
R(eplace),**,**	Replaces string with another.
F(ast)	Set 2400 Baud.
C(uts)	Set 300 Baud.
D(ump)	Save text on cassette.
V(erify)	Verify text on cassette.
L(oad)	Load text on cassette.
DR(disc read)	Fetch text from disc.
DW(disc write)	Save text on disc.
R	Returns control to operating system.

In any mode of operation depressing key ASCII code 23 a # is sent to the vdu.

TEXT INPUT

To enter a new file the T(ext) mode of operation should be selected. Entry into text mode via the menu will set the following:-

The text store management routine will be initialised, page 1 will be selected and the flashing cursor will be positioned at the top left hand corner of the screen awaiting text input from the operator or if text is already present then the last page of text will be displayed with the cursor positioned immediately after the last character entered awaiting text input. Text may be entered by way of the keyboard in the normal manner including the special text handling commands all input will be transferred to the text storage area commencing at memory location $502.

Entries of text whether lines, paragraphs or commands may be terminated by a carriage return (CR), this CR will be indicated on the screen by a special symbol (ASCII code 7E), this symbol is applicable to screen displays only and is not included in any printer reproduction, likewise the special text handling commands are only for screen monitoring purposes.

On completion of a screen of text, automatic page increment will take place without interruption, the operator may continue without the need to monitor screen and page activity.

In text mode three control keys are available to assist text input:-

Carriage return
Delete
CTRL "L" turns on or off underlining.

THE EDITOR

The editor mode may be entered via the menu at any time.

Typing "E" from the menu followed by a (CR) will activate the edit mode and will be followed by a prompt for the user to indicate which page is required for editing.

Enter the required page number followed by (CR).

The editor mode will now manage all text or word corrections in the ram text store. This store will be incremented or decremented accordingly completely automatically.

CURSOR CONTROL KEYS

The following controls give complete control over cursor movement.

CTRL "U" .....Cursor Up.
CTRL "D" .....Cursor Down.
Back space .....Cursor Left.
Tab .....Cursor Right.
CTRL "A" .....Cursor home.

When cursor is positioned over desired character then:-

The delete will remove the character to the left of the cursor.
CTRL "E" will remove character under cursor.
A character may be entered.

When a character has been erased all text to the right of the ursor will be moved one place to the left and the text store will be decremented one character. If it is required a character or characters may be entered, in which case all text will be moved to the right as each new character is entered and the text store will be incremented accordingly. Your systems "delete" or "rubout" key may also be used to delete text, likewise the use of the repeat key in conjunction with delete may also be used to erase text. While in the editing mode the operator must slow the rate of typing to allow the program to adjust the text store if large amounts of text are to be adjusted. If several pages of text were present when text editing was taking place on a previous page, i.e. 12 pages of text were resident in store and editing was taking place on page 1. It can be seen therefore that 12 pages of text have to be managed within the text store as each character is adjusted. Due to the slowness of the 80 column card inserting or removing a character will not adjust the whole screen.

PAGE CONTROL KEYS

During the edit mode pages containing text may be scrolled in both directions using the following keyboard controls:

Line Feed ..... Increment to the next page
CTRL "^".....Decrement to the previous page.
CTRL "P".....Display same page.

The page scrolling function will not increase beyond the last page of text.

BLOCK HANDLING CONTROL KEYS

This allows for the movement of larger amounts of text whilst in the edit mode. A block can be a paragraph, a sentence, part of a line or any combination.

CTRL "B" - set block start.

CTRL "B" marks the beginning of the text area to be moved. Next the cursor must be moved to the end of the block for CTRL "C" and CTRL "E" to be used. The cursor must be after the marker and the enclosed text must be less than 2048 characters in length, approximately one editor page. If the cursor is before the marker or the text length is more than 2048, the start marker will be switched off.

CTRL "C" will save the marked area and mark its end.
CTRL "E" will erase the marked area.
CTRL "T" this will recover saved area and insert it where the cursor is positioned.

CTRL "E" will erase a block of any length and can erase several pages if required. CTRL "T" can only be used once a block has been saved and then as many times as required. A block may start on one page and saved with CTRL "C" on a following page. If a non CTRL character is pressed both start and end markers will be switched off.

CTRL "L" this turns on or off the underlining.
CTRL "S" refer to string handling.

SUMMARY OF THE CONTROL KEYS

^	Display previous page.
linefeed	Display next page.
P	Display the same page.
A	Set cursor home top left.
U	Move cursor up.
D	Move cursor down.
Tab	Move cursor right.
Backspace	Move cursor left.
S	Continue search.
B	Set block start.
C	Save block.
T	Insert block within text.
E	Erase block of text and erase character.
L	Set underlining on or off.
ESC	Return to main menu.

PAGE BOUNDARIES

If sufficient numbers of characters or words are erased or added to a page, the following page of text will be adjusted accordingly and text may be decremented from that page onto the existing page. Likewise, if text overflows the page boundary it will appear on the following page which itself will be adjusted and so on throughout those pages resident.

Note for CTRL "C" refer to page 23.

STRING HANDLING

DVWORD is capable of string handling in two modes - String Search - String Replacement. String search and string replacement are both entered from the main menu.

STRING SEARCH

This searches for a String equal to that specified by the operator.

S,xxx

Where xxx is the string.

If such a string exists anywhere in the text commencing from the beginning of page 1., then the page containing the matching string will be displayed and the edit mode will automatically be entered. If other strings equal to xxx are sought when typing CTRL "S" will continue the search for the next string whilst in the edit mode. Successive string searches equal to xxx will continue from the last string xxx 'ocated or from the top of the screen if a page control key s used. If no string exists equal to xxx then the program will remain in the menu mode.

STRING REPLACEMENT

This command will replace the existing string in the text with the required replacement.

R,xxx,yyy

Where xxx is the string that will be replaced by yyy.

Care should be taken with these commands as DVWORD recognizes th upper and lower case characters whilst string handling. When using the string replacement command the cursor will disappear from the screen during the replacement and only return when the replacement of matching srings is complete. Examination of the altered string can be accomplished with the edit option and page scrolling or the use of the search option.

Note also, that all strings matching to xxx will be indicated or replaced, and if large amounts of text are present is store then the task of searching for a specific string can be tedious, use the correct spelling only and include both upper and lower case characters where necessary. The located string will be indicated by a flashing cursor over the first character of that string.

WORD-WRAP

Word-wrap is a technique that is used to provide even line lengths in text output whether to a printer or to the screen. The variable word-wrap provided in this package provides for automatic word-wrapping control in conjunction with option 1. of the output routine.

With the length of the line determined, word-wrapping will ensure that lines of text are even and that both the left hand beginning of text characters and the right hand end of text characters are parallel to each other and that the line of text contains an evenly spaced line of text throughout the whole line length. Word-wrap also ensures that no word is broken up when the end of a line is reached, such words are either accommodated within that line or moved onto the following line of text and incorporated.

Automatic word-wrapping commences from the left most stop as does tabulation and indenting. The operator is advised to ake into consideration the necessary character counts whilst operating these modes.

Enlarged characters and condensed characters will be subject to different spacing as the setting is treated in the same manner by the word-wrapping process and therefore condensed character space will be less than that in normal character mode, likewise, the enlarged character mode will produce the reverse.

Tab and indent settings must be adjusted accordingly to the number of characters per line when setting the directives in the printer mode.

COMMAND STRUCTURE

The Command Structures are based upon facilities for both text formatting and printer control functions such as enlarged, condensed and emphasized print modes.

The ">" at work.

All control commands are preceded by the character ">" (Hex 3E or "Greater Than" symbol) and each control command must be terminated with a "." (Hex 2E or "Full Stop" symbol) i.e.(>txxx.) Where xxx is a decimal number.

TABULATION

HE >tx. INSTRUCTION:-

This command activates the tabulation mode and will indent the following text on that line only those number of spaces determined by the variable "x" to the right of the left hand stop.

This line indents text six spaces to the right i.e. (>t6).

Note. >tx. must always be positioned after all other commands immediately before text.

The >ix. INSTRUCTION:-

Will indent all the following lines of text x number of paces determined by x to the right of the left hand stop i.e.

This manual was written with >i2. set at the beginning of page one to set all text further to the right of the left hand stop and will continue until instructed otherwise with the following:-

Switch to normal mode >i0

All text now following this instruction will begin at the left hand stop. Using this instruction will create a pseudo margin on the left which must be taken into consideration when further indents to the right are required.

THE >rx. INSTRUCTION:-

Will indent all the following lines of text x number of spaces determined by x to the left of the right hand stop. Use >r0. and all text following this instruction will finish at the right hand stop.

SPECIAL COMMANDS

THE >cx. INSTRUCTION:-

Will output the following line of text to the centre of the page, x should be set to one and the line must end with a carriage return.

THE >1x. INSTRUCTION:-

All text now following this command will indent to the right until the right hand side character is at the end of the right handmargin i.e.

This is normal

Now with the >11.mode set.

Returned to normal with >10. mode set.

This mode is very useful for many applications such as columns of figures, addresses and dates. Also with the aid of the mail-shot facility this mode offers multiple uses.

To use this mode the number of characters in a line must not exceed the number of characters entered for the printing directives otherwise an "Error" condition will occur when the printer routine interprets the command.

THE >sx. INSTRUCTION:-

Will enable columns of text or figures to be output to the printer. >s1. will set spaced output mode, >s0. will set normal output.

The word-wrap still operates but without a straight right hand margin.

THE >mx. INSTRUCTION:-

Messages can be included within text and not output to the printer. >m1. will enable messages to be included, >m0. will set normal output.

CONTROL FUNCTIONS

THE >ox. INSTRUCTION:-

This instruction will output a special printer control character to the printer such as double sized print etc. Control functions can be mixed at the beginning of the line with command instructions i.e. >oxx.>txx.

MAIL-SHOT FACILITIE

The >ax. INSTRUCTION:-

DVWORD offers facilities for a mail-shot.

A file (address) number specified by x in the range of 1-128 can be called and output to screen or printer by the use of this simple command i.e.

Call File 1. (>a1.)

M.O.U.G.
c/o BRIAN GIBBS,
48, BRIGHTSTOWE ROAD,
BURNHAM-on-SEA,
SOMERSET TA8 2HP
0278 786701

Now repeat with >11.>a1.

M.O.U.G.
c/o BRIAN GIBBS,
48, BRIGHTSTOWE ROAD,
BURNHAM-on-SEA,
SOMERSET TA8 2HP
0278 786701

SUMMARY OF COMMANDS

>tx.	Tab.
>lx.	Indent to the right.
>ix.	Indent from the left.
>rx.	Indent from the right.
>cx.	Centre.
>mx.	Message.
>ox.	Printer control codes.
>ax.	Append.
>sx.	Space output.

PRINTER CHARACTERISTICS

Some printers may require special commands before setting special printing modes, eg for Epson printers the emphasised character mode. The printer required that the "escape" mode he set before sepecial code "Esc E" could be recognised as a ommand.

.>o27 ..... Set up Escape mode.
.>o69 ..... Instruct printer to set Emphasised character mode.

These two instructions can be included in the first line of page 1. together if required, i.e. >027.>o69.

Dual commands are permitted in some cases i.e.>o14.>t7. will set enlarged characters commencing 7 places to the right of the left hand left most stop, >t7. in this instance it is 7 Enlarged places to the right.

Individual printer manuals will contain details of these special commands and their effect on text displays. Operators of this software should be acquainted with text formation and layout, it is suggested therefore that some experimentation must be made before important text formation is undertaken.

THE CARRIAGE RETURN

Abbreviated to CR the use of CR's can greatly increase the flexibility for the operator in that text layout can be obtained by the input of CR's in specific places within the text as the program recognizes the CR as an end of line terminator and therefore text layout and spacing can be achieved by simply inputting CR's in the appropriate places. With the input of a CR a new line is activiated and the cursor returned to the left hand margin. This facility is very useful when in the Edit mode.

The program recognizes all standard ASCII characters with the ception of the CR symbol, if this was not so, all text output to the printer would in fact be printed including the CR (ASCII code 7E). Likewise, the special text handling commands are ignored on printer output unless the code is part of a text statement, such as shown .....>t20.

TEXT FORMATTING

The following will demonstrate the use of commands under real conditions, it is required that your printer have the same facilities as those available when writing this manual.

For those interested:- Using a 62 character output per line to printer this section on text handling consumes 4 pages of text on the Microtan system at 82 characters per line on the screen.

Examples of text handling:-

The heading was centred using >c1.

This is the left most stop on the printer without tabulation or indent settings.

There was a CR between these two lines of text and the indent set to >i2. for a more central position on the page from now on.

To tab a further 4 places to the right the Tabulation was set to >t4., note that only the first line of the sentence was printed to the extra 4 places and not the rest.

A CR was input between this and the above to space the text and

this line was tabulated to 8 places to the right.

Another CR between for space and this time the indent was set to (>i30.), if we carry on like this we will run out of room because the characters per line setting in the print mode was for only 62 characters.

The indent was set back to normal with (>i2.) on this line. which will continue if we dont switch it off with a (>i0.) command.

This time the indent was set to
r30.), again if we carry on
like this we will run out of
room because the characters per
line setting in the print mode
was for only 62 characters.

The indent was set back to normal with (>r0.) on this line.
The line above did not contain 60 characters including spaces such as this line and it was also terminated with a carriage return so therefore it was not subject to the 60 character word-wrap which these lines are of course, text now back to normal.

This now shows the (>l1.) mode set for the
indent to right hand margin.
Which will continue if we don't
swith it off with a (>l0.) command.
very good isn't it.

ith the right hand margin indent now switched off we can try the >sx. commands.

Spaced output is switched on by >s1. to enable columns of text to be output, 14 spaces are placed before the first column, 5 spaces between the first and the second and a CR after the right most column.

>tx.	Tab.
>lx.	Indent to the right.
>ix.	Indent from the left.
>rx.	Indent from the right.

This and the above sentence was printed after spaced output was set and it can be seen that the right hand margin is not straight giving a hand typed appearance.

To get back to normal use >s0. now spacing will not take place.

Finally we can try the special control codes like this (>o14.) into the printer to give us text such as:-

As enlarged type with Epson printers.

Or condensed character mode which can be very useful in condensing pages of text and notice how the word-wrap automatically takes care of the 60 characters now assigned to it from the printing directive.

This is a word processor at work.

MAILING FACILITIES

Using the >ax. command.

There are powerful facilities for Mail Shots amd Mail Merging built into this program, these facilities are variable and therefore required that system parameters be set up for individual requirements and applications.

You will require the following information to use these facilities:-

A secondary ram storage area outside the main text storage area must be designated by the operator, this secondary store will contain the text that will be called by the program on command.

A pointer table is used to indicate the start of the memory locations of the text within the secondary store, this P.T. contains facilities for 128 such pointers and is located before the start of the main text commencing at location $400 and ending at location $4FF, each pointer to the secondary store requires two bytes of data i.e.

$400... Low byte of address
$401... High byte of address

With this data selected the P.T. would now point towards the start of text locations in the secondary store.

THE SECONDARY TEXT STORE

The data contained in this store can be a selection of or dedicated to either general text such a paragraphs etc or addresses, in either case the following must be observed. The P.T. must contain the start address of that data and that data in the secondary store must be terminated with a CR and followed by a '0', this will be interpreted by the main program that the data is complete and to output a CR on completion. The '0' is a terminator and is added to the text automatically by the word processor when text is input.

Any further data can follow the last immediately with its start address again following in the P.T. The data in the secondary store may contain 'CR's and commands as a matter of text formation, in which case, these commands will be observed by the main program on output.

To call the text from the secondary store simply use the following command during normal text formation...>a1. This will now call the file number 1. whatever its length or content, .>a2. will call file 2. and so on, it can be seen therefore that the multiple use of such commands will mix normal text with prestored text at will by the use of simple commands, or if required for dedicated applications, the secondary store can be in fact the main storage area which may say be loaded from disc or tape together with the reprogrammed P.T. To take this facility further, once the secondary store contains the required data, whole letters or documents can be output without the need to compile text at all, simply call the data from the secondary store with the appropriate commands.

The secondary text store can be loaded with the text in the following manner:-

The previous page of text under mailing facilities was formatted using normal programming techniques with DVWORD, on completion the M(emory) command located the end of text address in the main text storage area including the terminator '0'. The entire memory contents commencing from memory address $502 to the indicated end of text storage address was then transferred to the designated area of ram i.e. $2000, using the normal Copy command of the monitor Tugbug. All commands including special commands were transferred along with the text into the secondary store area.

Now program the pointer table:-

$400 = $00
$401 = $20

This points to the secondary store address $2000 which contained the beginning of the text in the secondary store.

After reentry into DVWORD in the normal manner the entire page of text was called by the one simple command >a1. no other commands were needed as the entire text formation of that page included its own commands when it was transferred to the secondary store, that included all the special commands referred to earlier in this manual such as printer control commands.

$402 & $403 would contain the memory address of .>a2. and so on with the last address pointer for .>a128. being at $4FE & $4FF. When using the special "a" command the text will not be displayed on the screen during normal text formation in the editor or text options, this would defeat the use of the special "a" commands entirely.

PRINTER SUPPORT

Printer support is provided by this package and is Centronics parallel compatible, similar to that used in the Microtan Tugbug monitor V1.0.

The printer connections will be the same as for V1.0.

NOTES FOR USE WITH DIFFERENT PRINTERS

For those operators wishing to incorporate their own routines, the following information may be useful:-

Characters that require an underline are stored in memory with the most significant bit set to one. The print routine looks at this bit and if it is found to be set loads a non zero value into location 64.

Output.

(1) A line of characters is sent to the vdu.

(2) The same line of characters are then printed.

(3) (a) Location 64 set.
The printer underlines as required in the backward print direction.
Or
(3) (b) Location 64 clear.
The next line of characters are output to the vdu. The same characters are then output to the printer with the printer printing in the backward direction.

(4) And so on.

The printer initialise routine is at CFDD
The print character routine is at D4C8
The print carriage return routine is at D4B9
The print a line of characters routine at D3A8

PRINTER OPTIONS

The printer routine is entered via the main menu, after executing the "P" command several options will be open to the operator.

1. The number of characters required for each line of output within the range of 20 - 150 inclusive.

2. The number of lines per page to be output.

3. An option to "Wait" between pages of output.

4. An option to print page numbers and titles.

5. An option to select a straight right hand margin.

6. Printer ON or OFF option.

7. CTRL "S" will halt output to the printer and vdu.

8. CTRL "P" returns control to print options.

9. CTRL "\" turns printer on.

10. CTRL "]" turns printer off.

NOTES

1. After printing or in the event of a print error the program will return to the main menu.

2. On entry of the required number of characters per line, the automatic word-wrap routine will function.

3. If a continuous output is requested the program will jump to option 5.

4. Replying "Y" to option 4. will request the "title" of the document to be entered. This title will be output to all pages, likewise all pages will contain a page number commencing from "1". The operator must note that the number of lines requested for output per page must be equal to the length of form available in the printer , otherwise page numbers will break the pattern of text. It is advisable before entering into options 2,3,4 to experiment with form lengths and printer options.

5 The option to "Wait" between pages is for cut sheet paper d for Screen output. In conjunction with the other options this option has been provided to allow the operator to view the text as it would appear on paper

6. Replying "N" to option 3 will give continuous output to both the vdu and printer, each page will end with an automatic form feed to the next until printing is complete.

7. Answering "N" to option 6 will output text to the screen only and can be used with the "Wait" command.

8. Answering "N" to option 5 will output only one space between words giving a hand typed appearance.

9. Using CTRL "\" and CTRL "J" with "Y" to wait between pages or CTRL "S" allows for the selection of pages of text to be printed. Note reply "Y" to option 6.

10. Repeated use of CTRL "S" will output one line of text. epressing any other key will resume normal output.

11. For specific printer characteristics printer control codes are generated from this software with the aid of the command structures i.e. >o77.

12. For reference the Microtan screen retains the options selected.

Example. This manual was printed by supplying the following answers on entry to the print option.

```
Please reply to the following:-

Characters per line (20-136)?
62
Lines per page (1-99)?
Enter 0 for continuous print.
58
Wait between pages (Y/N)?
Y
Print page no. and title (Y/N)?
N
Straight right hand margin (Y/N)?
Y
Printer on (Y/N)?
Y

PRESS ANY KEY TO CONTINUE
```

DISC FILE HANDLING

DISC READ

The read disc option is entered from the main menu by typing DR followed by a carriage return.

The word processor responds:-

File retrieval

Enter as

"DRV:Filename"

Enter file name and drive number, failure to enter drive number will default to DRV 0.

The word processor will then request S or B.

Where:-

S = Source - File suffixed WDG.
B = Back up - File suffixed BAK.

WDG and BAK are added automaticly to the file name on disc write.

Select source or back up and the chosen file will be loaded into ram, upon completion the file xxxx loaded is displayed and the main menu is reentered.

DISC WRITE

The write disc option is entered from the main menu by typing DW followed by a carriage return.

The word processor responds:-

File creation

Enter as

"DRV:Filename"

Enter file name and drive number a search is now made to see whether the filename already exists, if not present the word processor creates file xxxx.WDG.

If file is already present a search is now made for the back file BAK of the same name.

If the back up copy is present it will now be deleted, the present source WDG made the back up file BAK and the new source file is saved on disc with the suffix WDG.

If no back up file BAK is found the present source WDG will be made BAK and the new source file saved on disc as WDG.

The main menu is now reentered.

Note for disc read and write refer to page 23.

CASSETTE FILE HANDLING

The cassette file handling routines are entered via the main menu, the required Cuts or Fast speed being set by the input of the capital letter appropriate. To dump data to tape simply input "D" and CR, the program will respond automatically and await from the operator the required filename, on completion input a CR and the dump to cassette will commence. On completion of the file dump the main menu is reentered. Verify and loading of a cassette file are similar to saving a file.

A file name may be up to six characters in length.

THE HELP OPTION

The help option is entered from the main menu by typing "H", to return to the menu press any key. This option outputs to the vdu the following information:-

ESC	Return to Menu.

EDITOR CONTROL KEYS

^	Display previous page.
linefeed	Display next page.
P	Display the same page.
A	Set cursor home top left.
U	Move cursor up.
D	Move cursor down.
Tab	Move cursor right.
Backspace	Move cursor left.
S	Continue search.
B	Set block start.
C	Save block.
T	Insert block within text.
E	Erase block of text and erase character.
L	Set underlining on or off.

PRINT CONTROL KEYS

S	Stop.
	Any key to continue.
\	Printer on.
]	Printer off.
P	Restart print.

PRINT COMMANDS

>tx.	Tab.
>lx.	Indent to the right.
>ix.	Indent from the left.
>rx.	Indent from the right.
>cx.	Centre.
>mx.	Message.
>ox.	Printer control codes.
>ax.	Append.
>sx.	Space output.

DISC AND TEXT BUFFERS

With so many different memory configurations now available for the Microtan the following information on the disc and text buffers has been provided.

THE TEXT BUFFER

The editor is provided with a 2K buffer for saving text with the CTRL "C" command, the package supplied positions this store at $E800-$EFFF.

To make the package more flexible here is provided the necessary modifications to move the above store to a more convenient position.

i.e. move store from $E800-$EFFF to $9800-$9FFF.

```
C522      LDA #$E8   to   LDA #$98
C56A      SBC #$E7   to   SBC #$97
C58D      LDA #$E8   to   LDA #$98
```

THE DISC BUFFER

Similarly to move the disc buffer which is supplied at $E800-$EFFF.

Modify the following addresses:-

```
DA40,   DA48,   DA4E,   DA58,   DA6B,
DA70,   DA73,   DA78,   DA82,   DA89,
DA90,   DA9C,   DAA8,   DC30,   DC35,
DCCE,   DCD3
```

Finally if ram is not available at $C000-$DFFF an eprom version of DVWORD can be fitted at the same address.

FUTURE EXPANSION

Five positions within the program have been provided to facilitate future expansion.

Location C27F JMP $MODULE single character command expansion and location C289 JSR $MODULE2 multiple character command expansion these will allow complete programs to be added to the word processor selectable from the menu, examples include a data base, two pass assemblers etc.

Location C147 JSR $MENU to include extra module titles within the menu, eg DB(data base).

Location D1F3 JMP $COM to allow commands to be decoded in print mode, examples may include output from a real time clock to the printer, bold print etc.

Location D588 JSR $MRHELP to expand the H(ELP) routine.