DTC MICRO FILE
Document Processor

DOC - A Document Generation Program

Version 1.Ø

INTRODUCTION

"DOC" is a text processing and formatting program for the D.T.C. Microfile. It provides facilities for the generation and printing of large documents, such as manuals, contracts, brochures, and reports. Using the facilities of DOC, text may be paginated, justified, and formatted on the output printer. Independent control of headings and footings for left-hand and right-hand pages is also provided.

Version 1.Ø of DOC will run in a minimal (8K RAM) Microfile with any standard terminal device. For users of D.T.C. terminals, DOC supports special functions provided, such as one-and-a-half line spacing, superscripts, and subscripts.

INPUT FILES

Input to DOC is generated using the Microfile Editor. The input file consists of text and commands. Text is the part of the file that is formatted and printed by DOC. Text includes imbedded control information for such purposes as causing underlining, and controlling hyphenation and line "breaking". Commands are lines that are interspersed with the text (but differentiated by having a special character in the first column). Commands are used to control the overall format of the document by setting the page length, line length, indentation, headings, footings, and format mode. Commands can even change the default control and command special characters to others of your own choosing.

DOCUMENT OUTPUT

Document output may be directed to either the terminal or the line port of the Microfile. Output may be started at any page and can be stopped, if desired, between pages. A "check" mode of operation supresses all printout, but will check for errors in formatting the document.

RUNNING THE PROGRAM

To format and print a file using DOC, type the command:

RU DOC file [Dn] [C] [S] [L] [sheet]

The elements in square brackets are optional. With the exception of [Dn], which must always immediately follow the file name when it is used, the optional fields may appear in any order. The options are:

C - Check run. All other options are ignored. The entire document is read and formatted internally, but not printed. Any error messages are printed on the terminal, and a count of the number of "sheets" to be printed is given.

S - Stop between pages. The printer will stop between pages of output. When a new sheet of paper has been inserted and aligned, pressing Carriage-Return will restart printing.

L - Line port. Output from DOC (except for error messages) will be directed to the line port of the Microfile, rather than to the terminal.

sheet - Starting sheet number. Each page of output is called a "sheet". Sheets are numbered consecutively from 1, regardless of visible page numbering. It is possible to start printing at other than the first sheet of output by specifying the number of the first sheet to be printed. If no sheet number is given, printing begins with sheet 1 (the first sheet of the file).

Printing will always stop twice, regardless of the S option -- once before the first sheet is printed and once after the last sheet is printed. Pressing Carriage-return will let the program continue.

A form-feed character (L^C) is inserted before the first sheet printed and after every sheet printed.

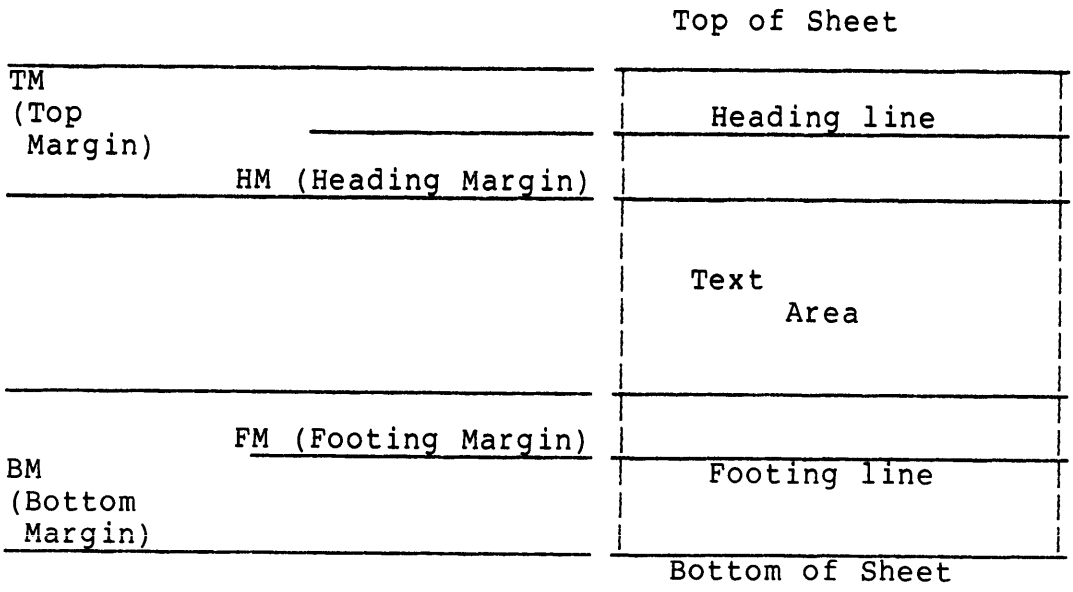
The Microfile display will keep you informed regarding the current location in the document. The leftmost two digits show the current sheet number. The rightmost two

digits show the number of lines remaining on the current sheet. Before the first sheet is started, the display will read "AAAA". At the end of the run the display will read "FFFF".

At any time, depressing the ATTN/BREAK key will stop the program and return to the Microfile monitor.

DOCUMENT FORMAT

The layout of text on a page of output ("sheet") is governed by the vertical and horizontal format control values specified. The vertical format values determine the location of the heading and footing lines, and the number of lines of text that will fit on a page. The horizontal format values determine the left and right margins and the paragraph indent values. Vertical format is shown below:



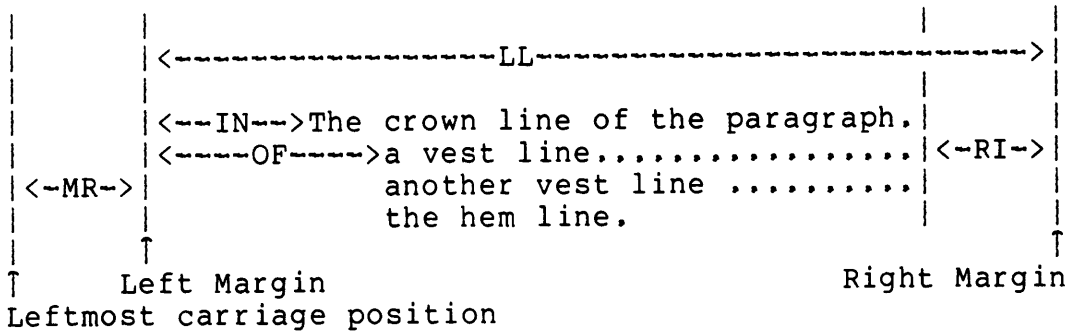
The default values for these controls are:

TM=5, HM=2, FM=2, BM=5, PL=66

PL is the total number of lines on a page. The available text area is Pl-BM-TM , though the last available line will never be used except to print the last line of a paragraph.

HORIZONTAL FORMAT

Within the text area, lines are laid out horizontally depending on the horizontal control variables. A typical paragraph is shown below:



The left margin value must be specified only if change bars are to be printed (and then only if they will appear on a "left" page). Right indent (RI) and offset (OF) values are used only when assembling lines under the "concat" or "justify" format modes. For "no format" mode only the indent (IN) value is used. Transparent format lines do not use any of the values. Centered text is centered between the left and right margins.

The default value for all of these parameters is zero, except for line length (LL), which is 65.

LEFT and RIGHT PAGES

Documents are normally printed with facing pages, left and right. A left page will always have an even visible page number. A right page will usually have an odd visible page number. It is possible to force all pages to be formatted as right hand pages (see the RH command).

Left page headings, footings, and page numbers appear aligned to the left margin. Left page change bars appear in the left margin. Right page headings, footings, and page numbers appear aligned to the right margin. Right page change bars appear in the right margin.

TEXT CONTROLS

The document generator assembles and places text on lines within the document. To do this, it has to know which characters are printable and which are not. It also processes control sequences that tell it when it can "break" a line of text and when to underscore text. These conventions are described below.

PRINTING CHARACTERS

The program interprets all 95 of the normal ISO/ASCII characters as printable graphics. With two exceptions, all control characters are placed into the line but are assumed to be of "zero width". That is, they do not take any space. The two control characters that are not zero width are DEL, which prints on some D.T.C. printers, and V^C (control-V), which prints (as "£") on all D.T.C. printers.

ESCAPE SEQUENCES

Escape sequences of characters (e.g. ESC S or ESC s) are used to perform functions such as rolling the carriage up and down (for super- and subscripts), and for other control purposes. The program recognizes the two and three character escape sequences used on D.T.C. terminals, and saves them for printing with the document. Escape sequences are considered to be of zero net horizontal and vertical space, so compensating sequences must be used to insure proper overall document formatting. In particular, direct tabs are not recommended except in "no format" and "transparent" format modes.

CONTROL SEQUENCES

Certain one and two character sequences may appear within text to control functions such as underscore and hyphenation. These are described below:

/U - Start an underscore sequence. Underscoring will continue until...

/u - Stop an underscore sequence. For instance, /Uword/u will print as word. Intermediate spaces are also underscored.

/w - Word break. This is used within a word to tell the program that is is possible to break the word at this point if end-of-line is reached. (e.g. end-/wof-/wline).

/- - Conditional hyphen. A conditional hyphen code acts as a word break, so that a word can be broken at line end, but will print a hyphen only if the word is actually broken. (e.g. Micro/-file).

- Hard blank. Line justification involves replacing ordinary (soft) blanks within the line by a variable number of blanks when the line is printed. The hard blank character is converted as though it were a regular character, however, so that it can be used to open up words or to force a fixed number of blanks between words. Hard blanks are never kept at either end of a line, however.

// - Print character "/". This is how you print the control character.

/# - Print character "#". This is how you print the hard blank graphic.

The "/" and "#" characters can be changed to other characters if desired (see the CC command).

In addition to the above text controls, the two characters: "." and "," are control characters when used as the first character of an input line. These characters signal that the line is a command line. The actual character used for these functions is also changeable, if desired.

COMMANDS

Command lines are introduced by a "." or "," in column one of an input line. A "." in column one will cause a paragraph "break" before the command is executed. A "," will not. The paragraph break is described below under the BR command.

Once into a command line, several commands may appear, separated by spaces. Each command must be prefixed by "." or ",", however. Commands fall into several classes, and are described in this manual in groups according to those classes. A summary of commands appears below, followed by individual command descriptions.

VERTICAL LAYOUT

PL - Page length.
TM - Top margin.
HM - Heading margin.
FM - Footing margin.
BM - Bottom margin.

HORIZONTAL LAYOUT

LL - Line length.
MR - Margin size (left side).
IN - Indent crown line of paragraph.
OF - Offset vest lines of paragraph.
RI - Right indent.

HEADINGS

HE - Define text for all headings.
HL - Define text for left heading only.
HR - Define text for right heading only.

FOOTINGS

FT - Define text for all footings.
FL - Define text for left footing only.
FR - Define text for right footing only.

PAGE CONTROL

PN - Page number control.
RH - Force right-hand page format.

TEXT FORMATTING

BR - Break (force end of) paragraph.
TR - Transparent text format.
NF - No format (with margin control).
CE - Center text.
CO - Concatenate text to fill lines.
JU - Justify text to right boundary.

SPACING

SS - Single Space text.
HS - One-and-a-half space text.
DS - Double Space text.
PA - Go to new page.
CP - Conditionally page.
SP - Space insert.
US - Unconditionally Space.
CS - Contiguous Space insert.

CONTROL

IC - Indicate Change (change bars).
TB - Define tab stops.
CM - Comment.
CC - Change Control character.

VERTICAL LAYOUT

PL - Page Length

The PL command sets the page length in units of lines. The new page length will take effect with the next new page. At the start of a run, the page length is set to 66 lines.

Format: PL n

TM - Top Margin

The TM command sets the size of the top margin, which includes all lines from the top of the page to the first line of the text area. The default top margin is 5 lines.

Format: TM n

HM - Heading Margin

The HM command sets the size of the heading margin, which is the number of blank lines between the heading line and the text. The default heading margin size is 2 lines. When changing the top or heading margins, always make sure that TM > HM.

Format: HM n

FM - Footing Margin

Analogous to the heading margin, the footing margin is the number of lines between the last line of the text area and the footing line. The default footing margin is 2 lines.

Format: FM n

BM - Bottom Margin

The bottom margin is the total number of lines between the last line of the text area and the bottom of the page. The default bottom margin is 5 lines. When changing the bottom or footing margins, always make sure that BM > FM. Also, always make sure that at least one line of text is available (i.e. PL > TM+BM).

Format: BM n

HORIZONTAL LAYOUT

LL - Line Length

Line length defines the horizontal extent of the available printing area on the page. Only change bars are deliberately placed outside of this area. The default line length is 65 characters.

Format: LL n

MR - Margin Size

This parameter defines the size of the margin area to the left of the text. All output (with the exception of "transparent" text) is moved to the right MR places before printing. Only change bars, if used, will be deliberately placed into the margin area. The margin size must be at least 3 characters to accomodate change bars. Tabs are also shifted to account for the margin size. The default margin size is zero.

Format: MR n

IN - Indent

The first line of a paragraph, and all lines processed as "no format" lines (but not centered or transparent text), is indented by IN character positions. Note that IN and MR are additive, and that the total indentation on paper will be the sum of these two. The default value of indentation is zero.

Format: IN n

OF - Offset

Second and subsequent lines of a paragraph assembled with "concatenate" or "justify" formats will be indented by the offset value, OF. As with indent, OF and MR are additive. The offset value may be either larger or smaller or the same as the indent value. Values of OF larger than IN are useful for creating lists and tables.

Format: OF n

RI - Right Indent

The right side of lines assembled with "concatenate" or "justify" formats will be indented from the right margin (which is at LL+MR) by the number of characters specified in RI. This allows short lines to be printed, but still keeps headings and change bars aligned with the desired right margin (as would not happen if one merely reduced LL). The default value of RI is zero.

Format: RI n

HEADINGS and FOOTINGS

HE - All headings

Text following the HE directive is used for all headings (both left and right pages). The text for all heading and footing directives is processed transparently. That is, control characters such as /U and /u are not recognized, nor is #. The text is stored as read, however, and leading and trailing blanks are preserved, so that offsetting from the left or right margins is possible. To underscore, explicitly enter the backspace and underscore text into the line.

Format: HE text (to end of line)

HL - Left Headings

Text following the HL directive is used for headings on left hand pages only. If RH (force right-hand page) is in effect, the left heading will not be used at all.

Format: HL text (to end of line)

HR - Right Headings

Text following the HR directive is used for headings on right hand pages only. If RH is in effect, this will be the only heading used.

Format: HR text (to end of line)

FT - All Footings

Text following the FT directive is used for all footings (both left and right pages).

Format: FT text (to end of line)

FL - Left Footings

Text following the FL directive is used for footings on left hand pages only. If RH is in effect, the left footing will not be used at all.

Format: FL text (to end of line)

FR - Right Footings

Text following the FR directive is used for footings on right hand pages only. If RH is in effect, this will be the only footing used.

Format: FR text (to end of line)

PAGE CONTROL

PN - Page number mode

This command sets the location of the page number on the printed output, or can turn it off altogether. The options are HEAD, FOOT, and OFF. In all cases the option may be abbreviated by its first character. OFF supresses visable page numbering. However the page number is kept internally updated. HEAD places the page number in the heading line. FOOT places the page number in the footing line. By default, page numbers appear in the footing.

Page numbers on left hand pages appear at the left margin, and are followed by two spaces before the heading or footing text is printed. Page numbers on right hand pages appear at the right margin, preceeded by two spaces. the heading or footing text is shifted as necessary to avoid conflict with the page number.

Format: PN option (FOOT, HEAD, OFF)

RH - Right Hand Pages

This command forces the program to treat all pages as though they were right hand pages. This affects placement of headings, footings, page numbers, and change bars.

Format: RH

TEXT FORMATTING

BR - Break Paragraph

This command causes the program to break (terminate) the current paragraph being collected in "concatenate" or "justify" mode. The paragraph will be entirely printed before any subsequent commands or text are read or acted upon. The command character "." has the same effect.

Format: BR

TR - Transparent Text

All text following the command line containing this command, up to the next format command (except BR) is printed directly, without regard to margins, lines, etc. The parameter following the TR command tells the program how many lines it should assume were printed. This command is useful mainly for imbedding plots and other non-textual material in the document. If not enough lines remain on the current page to cover the assumed line count, a new page is started prior to continuing with the transparent text.

Format: TR n

NF - No Format

Lines in this mode are printed as input, including leading blanks, but are indented IN characters before printing. All text controls (/U, etc.) are active and available. A diagnostic will be issued if the line extends beyond the right margin.

Format: NF

CE - Center Text

Text in this mode is centered on the page between the left and right margins. Leading and trailing ordinary blanks are removed first, but hard blanks (#) are not, and may be used to offset text from the center.

Format: CE

CO - Concatenate Text

Text in this mode is gathered from the input without regard to input line boundaries, and is made up into paragraphs and indented according to the current IN, OF, and RI specifications. Spaces are compacted, so that multiple spaces (or an end of line) are converted to single spaces in the output, except following ".", "?", "!", or any of these followed by one or more """, ")", "]", or "}". Hard blank codes must be used to introduce explicit extra space. Text is gathered until it will no longer fit on the current line, then it is automatically continued on the next line. Lines may "break" between words, or following a conditional hyphen (/-) or word break (/w) code. Underscore, if in progress, will be continued on the next line.

A new paragraph is signaled by an input line containing a space or a tab in column 1, or by a command line containing "." or "BR". If a command line has neither of these, text may flow from around the command line to be incorporated into print lines. (See the description of change bar processing for an example of this).

Format: CO

JU - Justify Text

This text format is very similar to CO. The only difference is that the lines to be printed will be "justified" by the addition of spaces between words, to line up evenly at the right print boundary (LL-RI). Trailing blanks of all types (hard and soft) are removed prior to justification. To prevent the appearance of white space in the text, justification proceeds alternately from right to left and from left to right on successive lines of text. The Hem line (last line) of a paragraph is never justified.

Format: JU

SPACING

SS - Single Space

This command causes all subsequent output to be single spaced in the text area. As this is the default case, SS is only needed to restore single spacing if it has been changed.

Format: SS

HS - One-and-a-Half Space

This command causes all subsequent output to have an additional half line spacing added. This is done by sending ESC-h to the printer, so it will only work on D.T.C. terminals.

Format: HS

DS - Double Space

This command causes all subsequent output to have one blank line inserted after each printed line.

Format: DS

PA - New Page

This command causes the current page to be completed and a new page started. PA may be followed by a parameter, either a page number or RIGHT. If a page number is given, it will be the visible number of the next sheet. RIGHT forces the next page number to be odd, by adding one if necessary, so that the next sheet represents a right hand page.

Format: PA option (number, RIGHT, or nothing)

CP - Conditional Page

This command causes a new page to be started only if there are fewer than n lines remaining on the current page. If at least n lines remain, no action is taken.

Format: CP n

SP - Space

This command will print n blank lines on the page, but will not print beyond the end of the page. It also will not print if currently at the top of a page. Spacing commands are not affected by the settings of SS, HS, or DS, and all spacing is always single spaced.

Format: SP n

US - Unconditional Space

This command will unconditionally place n blank lines into the document. Blank lines may be at the top or bottom of a page if desired, and may even extend across page boundaries.

Format: US n

CS - Contiguous Space

This command will place a block of n contiguous blank lines on a page. If the current page does not have enough room, a new page will be started before placing the lines. This command is usually used to leave room for figures, etc.

Format: CS n

CONTROL FUNCTIONS

IC - Indicate change

This command is used to turn change bar printing on and off. The change bar symbol may be any character. It is placed outside of the text printing area, separated from the margin by two character positions. The command "IC=character" turns on the change bar. "IC" alone turns it off. The character to be used must immediately follow the "=". An example of change bar use is given below:

```
This is an
,IC=|
example
,IC
of change bar use.
```

would print as:

| This is an example of change bar use.

Format: IC [=character]

TB - Define Tab Stops

The document generator will process tab characters in the text and will convert them to appropriate positions on

the page for columnar text. No tabs are actually used on output, they are instead converted to an appropriate number of blanks. A maximum of 15 tab positions may be specified. They must be in ascending order. Tab setting will be offset by the MR value, so are relative to the start of the printable line.

When tabbing in "concatenate" or "justify" format modes, tabs should be restricted to the first line of a paragraph. Justification will only be performed over the area between the last tab character and the end of the line. This allows tables with textual material in the rightmost column. Note: to align second and subsequent lines of text in tabular form, use the OF command.

Format: TB tabcol [tabcol...]

CM - Comment

Comment text is ignored by the document generator, but may used to insert notations that will be seen when editing or printing the input text file.

Format: CM any text (to end of line)

CC - Change Control Character

This command may be used if it is necessary (or desired) to change any of the text or command control characters, "/", "#", "." or ",". The new control character must immediately follow the "=" character. To change a character back, use the current value of the control. For example:

```
.CC .=& ,CM change to ampersand for command control
...
&CC &=. ,CM change back to period
```

Format: CC old-character =new-character