

5. PRINT COMMANDS

In order to obtain a printout of a document, it is first necessary to get the file into memory. When the text is printed, the details governing the appearance of the document are controlled through these three mechanisms:

1. Margin Settings. The margins are set according to the parameters described in section 5.1.
2. Printer Codes. The special codes which make your printer function are contained in the file TW.DAT, described in section 6.2.
3. Dot Commands. Special printer commands can be inserted directly into your text. These commands are recognized because they are at the start of a line and they begin with a period, a situation which would not normally arise. These commands are described in section 5.5.

When you are in the editing mode, you can determine your location in the printout by hitting ^P (Ctrl-P). This command will internally simulate the printing process, including all dot commands, equations, and figures; and stop when it gets to the cursor's location in the file. The corresponding page number and distance in inches from the top line of that page are then displayed.

5.1 Setting Margins

RGB^TechWriter saves formatting information along with the file so that whenever that file is retrieved; the margins, pitch, spacing, and line length are set appropriately for that document. It is best if this information is set properly when the file is saved for the first time, but it is still a good idea to confirm that the margins are set correctly before you attempt to print the text. To check or alter the margin information, use

M - Margin Settings. This command leads you through a list of eight parameters which are stored along with the file. For each parameter, the current value is listed. If that value is satisfactory, you can simply hit the Enter key. If you want to change the parameter, then use the number keys to enter the new value. You can only use the numeric keypad if you hold down the shift key or have hit the NumLock key. Hit the Enter key when you are done typing the new value. After all eight parameters have been reviewed, the text in memory is realigned from beginning to end to insure that it fits into the specified line width. The eight parameters presented are:

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1. Pitch. The number of characters per inch.
2. Line Width. The number of characters per line.
3. Left Margin. Inches of space on the left.
4. Top Margin. Inches of space above the first line.
5. Paper Length. Length of paper in inches (or 0).
6. Text Length. Inches of text on each page.
7. Line Spacing. Zero through Quad (Single=1.0).
8. Page Number Location. Top, Bottom, or Top-Right.

These values are interrelated so that the value entered for one may affect the allowed range of values for subsequent values. For example, the text length cannot be set any greater than the paper length minus the top margin, minus 0.5 inch. This insures that there will be room on the paper for both the text and the header and footer lines. Alternatively, you can set the paper length to 0, in which case RGB^TechWriter lets your printer keep track of the paper length by sending a form feed command at the start of each new page. If you try to enter an invalid response for any of the parameters, a valid response is substituted and the query is repeated. Further information about these parameters is given in section 6.1.

5.2 Print to Printer

Printing is initiated from the file screen menu by entering:

P - Print Text. You will be asked whether you wish to print to the screen, the printer, or the disk. Printing is normally done to a hard-copy printer. However, RGB^TechWriter also supports printing to the screen or to a disk file. These options are described in the sections which follow. Having made your choice, you can then enter the first and last page you want printed. These are page numbers, which will start with page 1 unless this has been changed using the dot command NUMBER (see section 5.5). If you want to start at the beginning, or continue to the end, just hit the Enter key in response to these queries. Next, you will be offered the choice of printing only the odd pages, the even pages, or all of the pages. The default is to print all of the pages. The odd/even options are provided to facilitate double-sided printing. To print double-sided, first print only the odd pages. Then re-feed the paper so that when you next print only the even pages, they will print on the backs. You might want to shift the left margin between the odd and even pages so that the larger margin is always toward the binding (i.e. use 1.25" for the odd pages, 0.75" for the even pages in place of a 1" margin on both sides). You can then specify the number of copies to be printed. Entering 0 at this point is a good way to avoid printing if you have made a mistake or changed your mind. Beyond this point, the activity differs depending on your selection of the screen, printer, or disk. To stop the printout to any of the three devices, just hit "P" again.

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It is strongly recommended that you make a habit of saving your file before you print it, because errors during printing (like running out of paper) can cause the computer to get lost in certain situations. In particular, hitting either Ctrl-Break or Ctrl-C while printing to either the printer or the screen will cause you to exit RGB^TechWriter and lose the text that was in memory.

If you selected the printer as the output device, and your printer supports both data quality and correspondence quality printing, you will be prompted to select between the two. Enter either C for correspondence or D for data quality. If you just hit the Enter key, the print routine is aborted and you return to the file screen menu.

The print routine first processes any dot commands which appear at the beginning of your file. This allows you to set up the page number and header before printing of the first page begins. This initialization stage is terminated upon encountering the first line of text or an EJECT, SKIP, or FIGURE START dot command. The printing process proceeds through the entire text, but is internally suppressed for page numbers which lie outside the range specified in response to the Print Text command. If this range does not start with the first page and your printhead is not initially set to the top edge of the paper, the paper is advanced to the top line of the next sheet, so that the printer will be ready to begin printing when the first page in the specified range is reached. Once a page is encountered that is within the specified page range, the header is printed if one has been defined. The header includes both the user-defined header label and the page number, provided that the page number location has been set to either the top or top-right position. The location of the header line is always 1/2 inch above the first line of text.

Printing of the page proceeds using the specified line spacing until the allowed length of text for that page has been filled. Dot commands are processed as they are encountered. Factors which can cause an early skip to the top of the next page are: insufficient room for an equation, the EJECT or SKIP dot commands, and insufficient room for the minimum block size if specified by a BLOCK dot command (see section 5.5).

The footer is printed at the bottom of each page. This includes both the footer label and the page number, if the page number location has been set to the bottom. The footer line appears 1/2 inch below the last printable line on the page. This corresponds to 1/2 inch plus the text length plus the top margin below the top of the paper. Thus in the typical situation where the top margin is 1 inch, the text length is 9 inches, and the paper is 11 inches, there will be 1/2 inch of margin above the header and below the footer.

After printing the header at the top of each page, any empty lines in the text are skipped so that the next printable line will start on the top line of the page. An empty line is defined as one which contains nothing except spaces and a carriage-return marker.

Any lines which would extend beyond the allowed width of the printer are cut off at the right-hand edge of the paper. When the print routine either reaches the end of the text in memory, the page number exceeds the last one requested, or a stop-print command is issued, the paper is advanced for a final footer and the printhead is returned to the same place it started with respect to the top of the page.

5.3 Print to Screen

The ability to print to the screen is a valuable tool for reviewing your file before committing it to paper. All of the dot commands, page numbers, headers, and footers are active in the print to screen just as they will appear on paper. The only differences in printing to the screen are:

1. The left margin is ignored. This allows longer lines to fit onto the screen's limited 80-column width.
2. Fractional line spacing is rounded. The screen can't put lines up at odd intervals, so each printed line is placed on the closest available screen line. The same number of lines per page will be displayed as will appear on paper.
3. All nonstandard characters are printed as blank spaces. This includes superscripts, subscripts, and alternate characters. Bold characters will appear as normal characters.
4. Right justification will be accomplished by inserting spaces between words, even if your printer supports micro-justification.
5. You can cause the printout to pause for inspection by hitting either Ctrl-NumLock or Ctrl-S. The print is resumed by hitting any key. Warning! Do not hit either Ctrl-Break or Ctrl-C.

5.4 Print to Disk

It is often desirable to create a disk file which looks as much as possible like the printed document. This file can be uploaded to another computer or copied to a printer which RGB^TechWriter doesn't directly support. The file will look just like the printed version with these exceptions:

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1. Fractional line spacing is rounded. Files don't allow fractional line spacing, so each printed line is placed on the closest available file line. The same number of lines per page will be generated as appear on paper.
2. All nonstandard characters are printed as blank spaces. This includes superscripts, subscripts, and alternate characters. Bold characters will appear as normal characters.
3. Right justification will be accomplished by inserting spaces between words, even if your printer supports micro-justification.
4. The "Initial Top Margin" (see section 6.2) is set to zero. If the disk file is later printed on paper, the printhead should start out located at the top edge of the paper.

The disk file created in this way is given the same name as the original file, but with the suffix .PRN, for "Printed Version." This file's format is strictly standard ASCII. None of the extra information about special characters is present in this file. You can review or even modify this file using RGB^TechWriter if the need arises, but you will get scrambled text if you try to print a PRN file using RGB^TechWriter.

5.5 Dot Commands

Whenever a line starts with a period, and is not immediately followed by a number, it is interpreted as a dot command rather than as text to be printed. These commands perform a variety of functions related to the printing of the file. The dot commands which are recognized are listed below. If an unrecognizable dot command is encountered, a warning message is generated and the line is printed as normal text. The commands can be written in either small or capital letters. A synopsis of the available dot commands is contained in the editing menu, accessible from the editor by pressing function key F1. Lines which start with a period are allowed to extend to column 255, regardless of the current setting of the line width.

ALT - This command allows you to define (or redefine) any of the 95 allowed alternate characters directly from within the text. This is particularly useful if you need an unusual character, but don't expect to use it frequently. A single space should be left after the ALT command, followed by the character to be translated, another space, and the corresponding ASCII equivalent string. This format is identical to that used in the TW.DAT printer configuration file, described in section 6.3. The alternate character is redefined when you print the text to screen, printer, or disk; and the new definition remains in effect until you exit to DOS (even if you start editing a new

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file). This means that you could create a file containing nothing but a series of .ALT commands to define a set of alternate characters. To load that character set you could simply get that file into memory and print it to screen. When you subsequently get another file into memory, it will be printed using the new alternate character set.

BLOCK # - This complex command is designed to help avoid stranding only one or two lines of a block of text at the bottom of a page. The value supplied by # can be any positive integer. Initially this value is set to 1. Setting # to a number greater than 1 insures that if a block has more than # lines, no fewer than # lines of the block will appear at the bottom of a page. If the minimum number of lines will not fit, the rest of the page is left blank and the block is started at the top of the next page. The definition of a block is any group of lines which is both preceded and followed by either an empty line, an equation line, or a dot command. An empty line is one which contains nothing but a carriage-return marker. Thus, to make sure that a section title doesn't get separated from the text which follows, set # to 3 or more, and make sure that the blank line between the title and the text contains at least one space so that the title and text are forged into a single block. If you want to create a division between two blocks without inserting an empty line, use the REM dot command.

EJECT - Forces an immediate skip to the top of the next page, leaving the rest of the current page blank except for the footer.

FIGURE - After the current page is completed, the following page is left blank except for the header and footer, including the page number. Place this command immediately after the paragraph which first references a full-page figure. Then wherever that paragraph appears in the printout, the page after it is left blank for pasting in the figure or table.

FOOTER ##### - Sets the footer label to #####, effective with the next page. Special characters like boldface, superscripts, and alternate characters will print as normal characters in the footer. To get a footer on the first page, this command must appear near the start of the text, before any printable text. The footer is printed starting 1/2 inch directly below the first column of the last allowed line location on each page. To turn the footer off, enter the command without any #####.

HEADER ##### - Sets the header label to #####, effective with the next page. Special characters like boldface, superscripts, and alternate characters will print as normal characters in the header. To get a header on the first page, this command must appear near the start of the text, before any printable text. The header is printed starting 1/2 inch directly above the first column of the top line of each page. To turn the header off, enter the command without any #####.

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JUSTIFY ON - Initiates right-justification of the printed text. Only those lines which do not end with a carriage-return marker are justified. The right justification is not shown when editing the text, but it is shown if you print to the screen. If your printer supports horizontal motion indexing (HMI), then the justification is "micro-justification," where the extra space needed to fill out each line is divided equally between all characters and spaces on the line. If your printer does not support HMI, the extra space needed to fill out the line is accomplished by allocating extra spaces between words. The print-to-screen and print-to-disk options use the method of extra spaces between words.

JUSTIFY OFF - Turns off right-justification. This is the default.

NUMBER ## - Sets the page number, effective with the next page. The ## can be any integer value (even negative). The pages which follow will have successive page numbers. The first page of the file is initially set to 1 unless you use this command to set it otherwise, in which case this command must appear near the start of the text, before any printable text.

NUMBER ON - Turns on page numbering, effective with the next page. Page numbering is initially off, so to get numbering you must include this statement in your text. To get a page number on the first page, this command must occur near the start of the text, before any printable text.

NUMBER OFF - Turns off page numbering, effective with the next page.

REM - Remark line. The entire line which starts with this command is ignored, to allow you to insert reminders to yourself.

SKIP #.## - Allocates a contiguous block of empty space which is #.## inches in length. If there isn't enough room left on the current page, the space is placed at the top of the next page, leaving the rest of the current page blank except for the footer.

SPACE #.## - Changes the line spacing to #.##, where #.## is referenced so that 1.0 is single spacing, 2.0 is double spacing, etc. Values from 0.0 to 4.0 are permitted, including fractional spacing like 1.5. The new spacing takes effect immediately, and continues until another SPACE command is encountered. The initial value for SPACE is set from the Margin Setting command (M) in the file screen menu. Printing to the screen or disk can not faithfully reproduce fractional line spacing. Spacing less than 1 is useful for very complex expressions, but see section 4.3 for use of subscripts and superscripts in this case.

TABLE START - This command can be used to indicate the beginning of a table. A "table" could just as easily be a figure, where you leave room to paste in the figure and only type the caption at the bottom. When the text is printed, the table will be inserted where it appears in the text if there is enough room for it on the current page. If there is not enough room, the table is delayed until the top of the next page. The current page is then filled out with the text that follows the table. If another table closely follows the first, it is also delayed until the next page, even if it would fit in the remaining space on the current page. Thus the tables will always appear in the proper sequential order. The line spacing is automatically changed to single spacing beginning with the first line following the TABLE START command. It is restored to its previous value following the TABLE END command. You can change the spacing within the table using the SPACE dot command. You may also use other printer dot commands within the table like SKIP and EJECT. If you use EJECT (to create a full-page table or figure), it should be the last line before the TABLE END command. You can also use equation lines within the table. If the table as defined does not fit on a single page, the table is printed where it appears in the text. This situation can result if you use a TABLE START command but forget the matching TABLE END command.

TABLE END - Identifies the end of a table. This command causes an error message if a preceding TABLE START command has not been encountered. You will want to leave one or two blank lines between the end of the table and the TABLE END command to separate the table from the text which follows.

