

FONT WRITER

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FONT WRITER

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SECTION I - PROGRAM DESCRIPTION

The Font Writer adds a powerful utility to extend the usefulness of TI-Artist. With this program you can create your own type fonts in various sizes, revise existing TI-Artist and CSGD fonts, use TI-Artist instances in your printed documents, create new print graphics, and format documents mixing text and graphics, even on the same line.

It is strictly for use with Epson and compatible dot matrix printers (the TI-99/4A printer, Star Micronics printers including the Gemini series, and Panasonic printers, for example). If you are in doubt whether your printer is compatible or not, it should be able to create dot graphics with 8 vertical dots at a time using control-K (regular density) and control-L (double density) to set the graphics modes. Some printers may not be able to use all the capabilities built into the program. For example, the early Gemini 10 printer (not the 10X), has trouble mixing text and graphics on the same line, although there are ways around the trouble.

The program is written in Extended BASIC with assembly language CALLs. It requires the TI Extended BASIC cartridge, the Mechatronics Extended BASIC Plus cartridge, or the MYARC Extended BASIC II, version 2.10 or later. It is also desirable to have TI-Writer, or the editor in the Editor/Assembler, or an equivalent like TK-Writer, FUNNELWRITER or BA-Writer to prepare your documents. You should be familiar with the dot commands in TI-Writer to get full use of the program, as many of them carry over into this program. A brief summary is included of the commands you can use from TI-Writer.

The program has three main sections: the Editor, the Formatter, and the Manager. The Editor is used to create or edit fonts and images and save them to disk. The Formatter is comparable to TI-Writer's equivalent with full font and graphics capabilities added to the text-only capabilities of TI-Writer. The Manager adds the capabilities to maintain your font files, merge two files, select partial files in case memory limitations become a problem, and convert CSGD pictures and graphics to TI-Artist image format, and vice versa.

SECTION II - HOW TO USE THE FONT EDITOR

1. Getting started. SECTION II is a tutorial, which will take you through each of the Font Writer's capabilities. For best results, perform each step as it is described. First you should make a copy of your program disk, and work with the copy. Put the copied Font Writer disk in your drive one (or your default drive, if different) and select Extended BASIC. Font Writer will load automatically. Or you can enter RUN "DSK.FONT.LOAD" from Extended BASIC for any other drive. The main menu will appear on your screen after a brief pause:

1. EDITOR
2. FORMATTER
3. MANAGER
4. DEFAULTS
5. QUIT

Select DEFAULTS, if it is the first time you are using the program. It will then ask you what drive you will use for your files and data. Enter the correct drive number as appropriate. The default file is a separate d/v80 file on the program disk. It will then ask you for your printer setting, displaying PIO.CR. If you are using a serial interface, change the file to the appropriate setting for your printer. Be sure you include ".CR" in the setting or your graphics will not print correctly. After you have entered your correct printer setting, the program will print your values to disk and return to the main menu. You must not have a write protect tab on the disk when you run the DEFAULT file.

2. Using the Editor. When you select EDITOR from the main menu, the program will take you to a screen where a large grid is displayed. This is your worksheet for editing and creating letters and images. The grid is just a window of a larger area, which is displayed on the right side of the screen in normal size. A white hollow box appears in the larger area showing you what area of picture you are seeing enlarged. Within the grid, the small black hollow square is the cursor. You can move the cursor around with the arrow keys. You may also use the diagonal keys (W, R, C, and Z). If you use the horizontal and vertical arrow keys with the FUNCTION key, you will tab eight pixels at a time, instead of one. The window will also automatically move as you move the cursor, so that the cursor stays generally in the middle of the grid. You may home the cursor at any time to the upper left by typing H.

The cursor acts as a pen, writing whenever it is in the DOWN position. You toggle the pen up and down using the P key. Press it and you will see a message at the bottom of the screen change from PEN UP to PEN DOWN. The pen will write with either black or white ink. The ink color is toggled with the I key. The color in use is also displayed at the bottom of the screen. Set the pen down and select black ink, and try moving the cursor around anywhere you wish. Whatever you write (or erase with white ink) is displayed in the image at the right as well as in the grid.

There are three more status lines at the bottom of the grid. These tell you what file you have open (if any) to load fonts from, what file (if any) you have open to save your fonts to, and what image file (if any) you have open. You will use these later on.

The number keys 1 through 8 add to your capabilities. Make sure you have something on screen to look at, and try each key in turn. The keys are:

1. Invert image.
2. Horizontal mirror.
3. Vertical mirror.
4. Inactive - for future expansion.
5. Slide up.
6. Slide down.
7. Slide left.
8. Slide right.

Any time you want to erase the screen, press the EQUAL (=) key, and you will be presented with a clean grid.

When you are through trying out the different keys, press EQUAL to clear the screen and H to return the cursor to the upper left corner (HOME). Now press ENTER. A new cue will appear right below the grid, "MACRO LETTER:". This is a very powerful function that will let you store any series of keystrokes that can be used over and over again. Several MACROS are stored in the program for demonstration purposes at line 5000. You can insert your own MACROS from lines 5000 to 5025 in their place, if you wish. To try one, press A.

The built-in MACRO A draws a three dimensional letter I for you. But the value of this MACRO extends well beyond printing the letter I. The vertical bar is part of many letters. For an example, press ENTER and B.

When MACRO B has run, which simply places the cursor in a new position, it calls MACRO C automatically. MACRO C creates a horizontal bar, and now you have the letter L pictured in the grid.

Now make sure your printer is turned on, and press FUNCTION P. FUNCTION P prints whatever you have in the grid.

Try one more. Press ENTER and D, which will move the cursor to another new position. Then press ENTER and A again. A new vertical three dimensional bar is drawn to create the letter U. The letter needs a little cleanup, because writing the new vertical left some black squares inside the letter. Use the PEN and INK keys, and the cursor movement keys to finish the letter.

With just the MACROS A (long vertical bar) and C (horizontal bar), you can create many letters of the alphabet; I, L, C, O, F, E, H, A, and T can be drawn with nothing more than a little cleanup. Try a few of them to get used to using the MACROS. The trickiest thing is figuring out where to place the cursor to start each routine. If you make a mistake, use the EQUAL key and try again.

On the disk is a file with a larger set of macros, which can be used to create a whole set of capital letters in another print style. Later you will learn how to load and use the MACROS on the disk, and how to create and use your own MACROS. You will also learn how to save the letters you create to build a complete font that you can use in your printing.

When you are through trying out the built-in MACROS, press FUNCTION 9. You will be presented with another menu:

1. EDITOR
2. FONTS
3. IMAGES
4. FILES
5. MACROS
6. SPRITES
7. EXIT

Briefly, the EDITOR collection takes you back to the grid worksheet. FONTS lets you manage old and new font files as you create or alter them. IMAGES lets you load and save images from disk. FILES lets you catalog, delete, rename, modify protection, and backup disk files. MACROS, of course, lets you load, edit, and save complex graphics operations that can then be used over and over again. SPRITES lets you create and save sprite characters in MERGE file DATA statements. EXIT takes you back to the main system menu. Each of these is explained and gives you a chance to practice them in the following paragraphs.

FILE MANAGER. All the functions on the main EDIT menu depend on files to some extent. Select 4. FILE MANAGER to get started. You will then see a new pull-down menu:

1. CATALOG
2. DELETE
3. PROTECTION
4. RENAME
5. BACKUP
6. EXIT

The purpose of this section is to give you disk manager functions that would otherwise require you to exit the program. The functions should all be familiar to you. Select 1. CATALOG and catalog the program disk. Besides the program files, you will see what fonts (files ending "_F") and images (files ending "_I") are available on the disk. For future use, make a note of the exact filenames of at least one font file and one image file. Then press ENTER to return to the FILE MANAGER menu. From this menu, press 6 to EXIT. It takes you back to the main EDITOR menu.

FONTS. Select 2. FONTS. A new pull-down menu is displayed:

1. OPEN INPUT
2. CLOSE INPUT
3. OPEN OUTPUT
4. CLOSE OUTPUT
5. GET NEXT
6. GET ANY
7. SCAN
8. WRITE TO OUTPUT
9. EXIT

The first four choices enable you to open and close input and output files as needed. You cannot load a character from a font (GET ANY or GET NEXT) without opening that file first, and you cannot save a character (WRITE TO OUTPUT) without opening an output file first. Also, you cannot open the same file for both input and output at the same time. The menus are forgiving and will not let you make a mistake. But *NEVER REMOVE A DISK WITH OPEN FILES ON IT!* You will probably lose the file and may lose the whole disk. It is a good idea never to open a file from an input disk that is not backed up or at least write-protected. If you have a single drive system, you should make yourself a workdisk with the files (fonts and images) you want to use as input on it and leave room for the files you will create. *DO NOT USE YOUR ORIGINAL PROGRAM DISK ON A SINGLE DRIVE SYSTEM* while creating new fonts or images!

SCAN FILE. To get started in the FONT section select 7. SCAN FILE. It will ask you for the name of a font file. Use the name of the file you made a note of (ending with "_F") when you used the FILE MANAGER. If need be, go back through the menus to find a file name. Or you can just use the FONT1_F, which is on the disk. As long as the drive you are using for input is the same as the drive selected in your DEFAULT file, you do not need to enter DSK and the number and period (e.g., DSK2.). When you have entered the filename, the font file will be scanned and you will see displayed all the available characters. It may include upper case characters, lower case characters, numbers, and any punctuation marks and special characters that are in the normal ASCII set. Note what type of characters are included in the font you selected and press ENTER to return to the FONT menu.

OPEN INPUT. Now select 1. OPEN INPUT and enter the filename. Again, you do not need to enter the drive and number as long as it agrees with your default drive. The disk will be accessed to make sure the file is there, and then return you to the FONT menu..

GET ANY. Now you are ready to load a character. Select 6. GET ANY and enter a character at the prompt. That character will be loaded and displayed briefly on the screen. If it is overwritten by a set of lower case letters, it is normal and nothing to be concerned about.

Select 9. EXIT and 1. EDITOR in turn to return to the grid. You will see the character you selected displayed in the grid and in the upper left portion of the normal size display to the right. Make any changes you wish to the character, and use FUNCTION 9 to go back to the main EDITOR menu. Select 2. FONT to return to the FONT menu.

OPEN OUTPUT. Now use the character you have loaded and perhaps modified to start a new character file. Select 3. OPEN OUTPUT and enter a filename of your choice. Make sure the workdisk on which you are entering the new file is not write-protected. You will be asked if you want to open for APPEND. Since this is your first entry, the answer must be No. In later sessions, be sure to use APPEND to add on to a character set, or you will erase the whole thing.

WRITE OUTPUT. Enter 8. WRITE OUTPUT. The character currently in the grid will appear on screen with a backwards white L superimposed on it. This is used to indicate the size of the character (or later, image) to be stored. Use the cursor keys to adjust the backward L to define the lower right corner of the character. The cursor movement is reversed from the grid. In this case, the cursor keys (E, S, D, and X) causes the L-cursor to jump. Fine adjustments are made with the FUNCTION key together with the arrow keys. When positioned correctly, the backwards L should touch, but not cover, the right and bottom edges of the character. With some letters - a large capital T, for example - the backwards L may not actually touch the edge of the letter. Be sure you judge the position accurately, visualizing where the L would touch if it were extended. If you place the cursor too high or too far to the left and cut off part of the character, that part will be lost. If you place the cursor too low, there will usually be no visible effect. If you place the L-cursor too far to the right, you will increase the distance between letters.

Be sure when you create letters that you use the same baseline in the grid for all letters. Most letters should sit on the same bottom line, except for those with descenders, for example, g,j,p,q, and y. Also, be sure you place the characters as close to the upper left corner as the largest character will allow. Any extra space you allow will appear as extra spacing between characters when you print them, since the characters' size is determined by the distance of the L-cursor from the upper left corner. Remember that you can adjust the location of the character within the grid by using keys 5 through 8.

When you are satisfied with the cursor position, press ENTER. You will be asked for the character you are storing. You can either enter the character directly, or you can enter its ASCII code. In most cases, you will just enter the character itself, but there is one key exception. Every character set should include a space character. Without it, words will run together when printed. You cannot enter a space from the keyboard by pressing the space bar! You must enter the number 32, the ASCII code for a space, instead. The program recognizes single characters as those characters, and 2 or 3 character entries as ASCII codes.

When you have entered the character, you are returned to the FONT menu.

GET NEXT. Now enter 5. GET NEXT. The next character from the input file will be entered and displayed. You may modify it from the grid, enter it in your new file, or ignore it as you wish. This is the fastest way to review a font, as it will step through the font for you. With GET ANY, you have to type and enter each character.

EXIT. Before you leave the FONT menu for the last time in a session, ALWAYS CLOSE FILES by pressing both selections 2 and 4. You can never go back by unnecessarily pressing those keys, but you may lose a whole session's work by forgetting to close. EXITing the EDITOR will close files for you; but sooner or later, if you depend on it, you will remove the disk because you are "through with it" first, and the files are lost. Files lost this way MAY be recoverable if you know what to do, but that is beyond the scope of these instructions.

IMAGES. The term "image," as used in this program means the same thing as "instance" in TI-Artist. The two terms may be used interchangeably. Select "3. IMAGES" from the EDITOR menu, and you will see:

1. LOAD
2. SAVE
3. EXIT

LOAD allows you to load an image from a disk into the grid. For example, select LOAD and enter the filename LTBULB_1. Return to the grid and you will see the lightbulb image displayed. You can edit this image in any way you wish and save it as a new image or overwrite the old image. Now return to the IMAGE menu.

Some images are larger than the total available grid area. Select LOAD again and enter GRIDCHAR_1. The image is larger than the total grid area and you are asked for the row and column coordinates (within the image) that you want loaded as the upper left hand corner. Try 1,1 first and return to the grid to see the results. The right hand side of the image does not appear. Now return to the IMAGE menu, select LOAD again, and this time use coordinates 1,8. When you check the grid area, you will see that you have entered the right hand side of the picture this time. You can use this capability to check an image or select and save part of an image for future use, but the original image can be printed in its entirety when you print using the FORMATTER.

SAVE allows you to save the current grid contents to disk as an image. Select SAVE to save the latest image to disk (do it). The backwards L cursor appears as it did with a font save. Define the lower right corner as you did with font characters, but you do not need to fine tune the cursor placement this time. Just be sure you do not cut off any portion you want. You cannot save a larger image than the full grid area will hold, although you can print larger images when using the FORMATTER.

TI-ARTIST images and fonts are interchangeable. You can save a single character as an image or an image as a character. You can also save all or part of a TI-ARTIST picture as an image (using TI-ARTIST, not the FONT EDITOR), load the image into the FONT EDITOR, and save all or part of it as a font character. You can create images from the FONT EDITOR, although TI-ARTIST offers more tools to work with in creating pictures. You can even create and use MACRO files to support building images, if you want to.

MACROS. You were introduced to MACROS early in the EDITOR section. Now you will see how to edit or create your own. Select "5. MACROS" from the main editor menu and you will see:

1. LOAD
2. SAVE
3. EDIT
4. QUIT

Begin by selecting LOAD and you will be asked for a filename. Enter MACRO1, which is on the program disk. When the load is completed, a set of MACROS is available for use on the grid. These are different from the examples built into the EDITOR program that

you worked with previously. Before you go on, return to the grid, and try a few of the MACROS. There are 26 of them designated A through Z. These give you the building blocks by which you can build a complete font set. From the grid, press ENTER and Z, which will run a MACRO that links other MACROS together to create a complete letter. Try it before continuing.

The complete set of MACROS and what they do follows:

- A Move cursor to top left corner of character
- B Move cursor to top middle
- C Move cursor to top right
- D Move cursor to upper left
- E Move cursor to upper right
- F Move cursor to middle left
- G Move cursor to center
- H Move cursor to middle right
- I Move cursor to lower left
- J Move cursor to lower right
- K Move cursor to bottom left
- L Move cursor to bottom right
- M Draw long vertical
- N Draw half vertical
- O Draw quarter vertical
- P Draw horizontal
- Q Draw half horizontal
- R Draw full diagonal (\)
- S Draw full diagonal (/)
- T Draw half diagonal (')
- U Draw half diagonal (")
- V Draw upper left curve
- W Draw upper right curve
- X Draw lower left curve
- Y Draw lower right curve
- Z Demonstration - complete letter R

With this list as a guide, experiment with using the MACROS to create letters and numbers. The starting point for any draw function is the top for verticals, left for horizontals, left for diagonals, and for curves, the point that the curve rounds off. The cursor move functions will place the cursor exactly to the right starting point, once you understand which function to call by these general rules.

All the capitals and all the numbers can be drawn using nothing but these MACROS. Most lower case letters can also be drawn, but you will need to select new starting points, if you want descenders below the line in lower case letters such as g, j, p, q, and y. Some special characters will also require special handling.

This is only one possible structure for MACROS. You can create your own in different sizes and with special styles, serifs, frames, curlicues, or whatever you want to appear repetitively in your character sets. By using the MACROS, you can ensure that every letter will be placed properly with reference to every other, and insure a uniformity of style from one character to the next.

MACROS are stored as a series of commands in a DIS/VAR 80 (text-type) file, one MACRO to a line. A single MACRO can consist of up to 80 characters. You can write them, either as a text file with TI-Writer or equivalent, or by editing an existing set through this program. Return to the MACRO menu, and select 3. EDIT. The program asks you for MACRO LETTER TO EDIT:. Press M for an example, and ENTER. The screen will display

.PD.IB.18.D.R.18.U.L

This translates as Pen Down, Ink Black, 18 spaces Down, 1 Right, 18 spaces Up, and one space Left. This draws the long vertical, as listed in the previous Table of MACROS. All the functions you could perform in the grid can be performed by MACRO commands, also. Here is the complete list.

COMMAND	DESCRIPTION	EXAMPLE
U	Up	.U.
D	Down	.D.
L	Left	.L.
R	Right	.R.
UL	Up and to the Left	.UL.
UR	Up and to the Right	.UR.
DL	Down and to the Left	.DL.
DR	Down and to the Right	.DR.
SU	Slide Up	.SU.
SD	Slide Down	.SD.
SR	Slide Right	.SR.
SL	Slide Left	.SL.
MH	Mirror Horizontal	.MH.

MV	Mirror Vertical	.MV.
CL	CLear grid	.CL.
IN	INvert grid	.IN.
HO	HOme cursor	.HO.
PU	Pen Up	.PU.
PD	Pen Down	.PD.
PT	Pen Toggle	.PT.
IB	Ink Black	.IB.
IW	Ink White	.IW.
IT	Ink Toggle	.IT.
RO	set ROW	.RO 23.
CO	set COLUMN	.CO 1.
R+	add to Row	.R+ 12.
C+	add to Column	.C+ -3.
GT	Go To macro (letter)	.GT C.
GS	GoSub macro (letter)	.GS E.

Macro commands are separated by dots and must be in upper case. Although the GS command may be nested (which means calling one GOSUB from another), this is not recommended, as too many levels of nesting may result in an error. Also note that any macro command may be preceded with a count command consisting only of a number. For example to move up five times, you could define the following macro:

.5.U.

You may use a count with a GS command but this is not recommended, particularly if the count is greater than three. As you saw previously, there are several macros defined in the program when it starts up. These are listed in the DATA statements at line 5000 in the program and may be replaced with your own. Up to 26 may be included, and your final DATA statement must be "STOP". Also note that you can edit macros in TI-Writer since they are stored in DIS/VAR 80 format. However be sure to turn the word wrap (FCTN ZERO) off before typing any lines, and save with the PF option. This ensures that neither control characters nor TAB settings are saved with the file.

SPRITES. Any image or font character that is less than 16 x 16 dots in size can be saved as a sprite definition for use in your own programs. A DATA statement, which consists of the hex string defining the sprite is generated and saved as an Extended BASIC MERGE statement on disk. You may then MERGE this into your program. It saves you the tedious process of figuring out what hex characters define your sprite. The SPRITE menu looks like this:

- 1) SAVE
- 2) PRINT
- 3) EXIT

SAVE. This option allows you to save the definition of the character in the upper left corner of the screen to a MERGE file in the form of DATA statements. You have a choice between writing either the one character in the upper left corner, or the block of four. You will also be asked for a starting line number. The program will automatically increment this number by ten each time the MERGE file is accessed. Please note that because of the way this file is created the final record cannot be written so although it will MERGE in correctly, an error message will be generated after MERGE-ing is complete.

PRINT. This option prints out the character definition to the default printer for your reference. Again you have a choice between a single character and a block of four.

EXIT. Returns to main font editor menu.

SECTION III - HOW TO USE THE FORMATTER

The Artist Formatter gives you the capability to mix graphics, a selected font of your own choosing, and your printer's fonts all on the same page. There are a large number of TI-Artist and CSGD fonts available to choose from or you can create your own to meet your own special needs using the Editor.

The formatter uses "dot" commands just as TI-Writer does. A number of the available commands in TI-Writer are used in the same way in the Artist Formatter. These and the new commands that are added for use with graphics and new fonts are explained in this section.

TESTING THE FORMATTER WITH YOUR PRINTER. To begin, set up your printer for operation. Make sure your default setting (see SECTION II, DEFAULTS) has ".CR" at the end. Then select FORMATTER from the main menu. You will be asked first for the name of the file for the font you want to use. Enter "DSK1.FONT1_F". Next you are asked if you want "Extra Spacing". This feature lets you increase the space between letters, which is sometimes helpful for legibility. Enter "0". Finally, you are asked for the name of the file you want to print. Enter "DKS1.PRINTDEMO1". The font and the text will then load and print.

When the demonstration has finished printing, examine the page. If everything was set up properly, the print and the graphics will look as they should.

IN CASE OF TROUBLE. If there was trouble, particularly if you have space between lines of images that shouldn't be there, there are two things that you can try to correct it. One is to add ".LF" to the end of your default printer setting. The other is to check dip switch settings on your printer. If your printer has a switch controlling automatic line feeds, turn that switch OFF - usually the down position. Whichever you try, run the PRINTDEMO again and see if it corrects the problem. This program has been tested with a variety of Epson compatible printers, and all tested have been able to print this page correctly once the printer was set up properly. If your printer will not set up the page correctly, we would be interested in hearing from you. At present the program will not work for OKIDATA and AXIOM printers, which are NOT Epson compatible. If there is enough demand, these or any other make dot matrix printers may be added.

SECOND TEST. Once you have "PRINTDEMO1" printing satisfactorily, run the file "DSK1.PRINTDEMO2" using the same font and extra spacing (to see the difference). This file, printed correctly, puts text and graphics on the same lines. Most printers will handle this page correctly, too, but we have found that some early GEMINI 10 (not 10X) printers will not mix text and graphics on the same line. Once again, if you have trouble, make sure that any line feed dip switch is in the OFF position. Also, try adding ".LF" at the end of your default setting. If neither works, you may not be able to use this feature directly, although there may be other ways to achieve similar results, which are discussed in the paragraph headed SPECIAL CONSIDERATIONS.

PREPARING FORMATTER FILES. Formatter files are written on a text editor such as TI-Writer or one of its variants, such as FUNNELWRITER, BA WRITER, or TK WRITER. You can also use the Editor from the Editor/Assembler or from any other text editor/word processor program. Whichever you use, do NOT use your editor's own formatter commands or printer commands (control U codes may be used, however). Use only the dot commands described below and listed in the chart at the end of this booklet.

Preparing text is similar to using TI-Writer. Formats are controlled by dot commands as in TI-Writer, and many of TI-Writer's commands are repeated. Even if you are quite familiar with TI-Writer dot commands, read through the following command descriptions, because there are some differences. Each dot command MUST be placed on a separate line. These lines will NOT print or activate a line feed when printing.

.FX Sets text mode using your printer's fonts. It must precede any use of the printer's own fonts.

.GR Sets graphics mode, allowing use of images and fonts.

The next set of commands are identical to TI-Writer's usage:

.F Fill command. Readjusts line length, moving words to fill as much space as possible between margins. TI Writer's adjust command (.AD), which right justifies the text is NOT available.

.NF No Fill. Words will not be moved to fill lines after this command and will print exactly as typed. Margin settings are ignored.

.BP Break Page. Ends the page and any following text or graphics will start at the top of the next page.

.CE n Center. Centers the next line or lines. If a number follows the .CE (optional), that number of lines will be centered between margins. For example, ".CE 3" will center the next three lines. It will center images and special fonts as well as the printer's own text.

.IN n Indent. Indents the first line of each paragraph the number of characters indicated by n. If n is a negative number, it will extend the first line to the left of the current margin, if possible. Note that the distance indented will vary with the size of the font in use.

.LM n Left Margin. Sets the left margin to n. Note that the first space is numbered 0, not 1.

.RM n Right Margin. Sets the right margin to n. Note that in an 80-column line, the last space is numbered 79, not 80.

.LS n Line Spacing. Sets the number of line feeds between each line of text. The default is 1. (See .SP.)

.SP n Spaces. Used to advance the carriage n lines. This only occurs once, whereas, the .LS command creates a constant spacing between lines.

.PL n Page Length. Sets the number of lines that will print before automatically advancing to the next page. The default is 60 lines.

.CO Comment. Any text that follows ".CO" on the same line will not print.

The following command differs slightly from TI-Writer.

.IF Include File. Followed by a filename, the file named will be merged in at that point. Unlike TI-Writer's .IF, it does not permit progressively nested files. The file that is merged must NOT include any .IF commands of its own, or they will be ignored.

Graphics commands:

.II Include Image. Followed by a filename of an image, that image will print beginning at the current left margin, or if preceded by the **.CE** command, will center the image. It is not affected by the indent command.

.IM Image Merge. Used instead of **.II** when you want to mix text and graphics on the same line. This command must follow an **.IL** command.

.IL Image Left. Defines the left margin for an image printed on the same line as text. Must precede the **.IM** line.

Merged images and text work only with special fonts, not with the printer's own fonts. It is possible to overlap text and graphics, so plan your spacing carefully if you do not want this to occur.

.IR Image Row. Followed by a filename (for example, **.IR DSK1.IMAGE_1**), it will create a row of images across the page. It will not work for very wide images, but should work with any image less than 12 characters wide. Test any larger image to see if it works successfully.

.IC Image Complete. If an Image Merge (**.IM**) is in effect when an **.II** or **.IR** is encountered, the **.II** or **.IR** will be ignored. To ensure that this does not happen, precede the **.II** or **.IR** with an **.IC**, which forces the image to complete printing before the **.II** or **.IR** is considered by the program.

.DS ON/OFF Density On/Density Off. Use **.DS ON** for double density characters. Use **.DS OFF** to return to normal density. This affects both fonts and images. In graphics mode, it has the effect of compressing the images or characters horizontally. The compression can be countered by turning Double Width ON.

.DB ON/OFF Double Width. Use **.DB ON** to print double width characters. Use **.DB OFF** to return to normal width.

.KB n Keyboard Entry. Allows you to enter *n* lines directly from the keyboard while printing. The line is not printed until you press ENTER. You can even include dot commands and they will be executed just as if they came from the file. ENTERing a blank line will print a blank line. If you do not want to use all *n* lines, type a single period at the beginning and press ENTER. It will treat the period as a bad dot command and will not advance the line, but it will count as one of your *n* lines. For example, if you set **.KB 8** in your file and find you only need five lines, type a period and ENTER. Repeat period/ENTER a total of three times to reach eight.

.ME Message to yourself. Whatever text you type after **.ME** on the same line will be displayed on the screen. You can use this to prompt you for a following **.KB** entry, or you can just install them to let you see on screen how far the printing has progressed.

SENDING CONTROL CODES TO YOUR PRINTER

TI-Writer assigns special purposes to several characters (caret, ampersand, "at" symbol, and asterisk) for such things as underlining and setting spaces unaffected by the **.FI** function. In the Font-Writer formatter, these characters may be used normally. They do not invoke the special purpose functions.

TJ-Writer uses **.TL** (transliterate) commands as one way of passing control codes to your printer. The **.TL** command is not supported by Font-Writer. In its place, a number of new dot commands are provided. Not all of these are supported by all printers:

.CD ON Condensed print.

.CD OFF

.EX ON Expanded (double width).

.EX OFF

.EM ON Emphasized print.

.EM OFF

.2S ON Double strike.

.2S OFF

.IT ON Italics.

.IT OFF

.NL ON Near letter quality (on some printers).
 .NL OFF
 .EL Elite. Sets 12 characters per inch.
 .PI Pica. Sets 10 characters per inch.
 .RS Reset. Returns all settings to defaults.

The above dot commands may be used in combination with each other, but each must be on a separate line. They cannot be used in the middle of a line.

CONTROL-U CHARACTERS. If you are using TI-Writer, you can use Control-U characters to pass escape commands to your printer for such purposes as underlining, setting italics, and emphasizing text. This is the only way you can alter print within a single line. These capabilities are only hinted at in the TI-Writer manual, so they will be more fully explained here. The first thing to understand is that when you press CONTROL-U while in the TI-Writer Editor, any character you type until you press it again will print as the character whose ASCII code is 64 less. Thus, when you type [(ASCII 91), the special character for ASCII 27 is typed, which looks like a small 1b. ASCII 27 is the escape character, which begins many printer control codes. Listed below are some of the common control codes for most printers and how you can type them from TI-Writer. Check your printer manual for additional ones you can use.

FUNCTION	ASCII	TYPE
Italics ON	27,52	CTL U, [, CTL U, 4
Italics OFF	27,53	CTL U, [, CTL U, 5
Double strike ON	27,69	CTL U, [, CTL U, E
Double strike OFF	27,70	CTL U, [, CTL U, F
Emphasized ON	27,71	CTL U, [, CTL U, G
Emphasized OFF	27,72	CTL U, [, CTL U, H
10 cpi	27,66,1	CTL U, [, CTL U, B, CTL U, A
12 cpi	27,66,2	CTL U, [, CTL U, B, CTL U, B
17 cpi	27,66,3	CTL U, [, CTL U, B, CTL U, C
Double width	27,87,1	CTL U, [, CTL U, W, CTL U, A
Normal width	27,87,0	CTL U, [, CTL U, W, CTL U, @
Underline ON	27,45,1	CTL U, [, CTL U, -, CTL U, A
Underline OFF	27,45,0	CTL U, [, CTL U, -, CTL U, @

RUNNING YOUR FILES. Once you have created your file, run the Artist Formatter. As you have already seen, you will be asked for the name of the font file you want to use. You can just press ENTER, but in that case, any output involving letters in graphics mode will not be printed. CSGD fonts load much faster than TI-Artist fonts, but at present they have a limited character set to choose from, omitting the "/" and "?". The next option is "Extra Spacing," letting you choose how much white space to appear between letters. Finally, you are asked for the name of the file you want to print. You may just press ENTER at this prompt. If so, all entries will be taken directly from the keyboard, unless you use a dot command (.IF) to include another file.

Many existing fonts do not include punctuation, numbers, or lower case letters. After loading a font, the Formatter will check to see if a lower case "a" is present. If it doesn't find one, all lower case letters will be converted to upper case letters. When you construct a font of your own, make sure that any lower case set includes a lower case "a." Punctuation marks, if missing from the font, will be skipped in the printed text.

The carriage return (c/r) is treated as in TI-Writer, but with one difference. If text follows the c/r on a line, all text on the line will be printed before the c/r is executed. Generally, the c/r should be used only as the last character on the line.

Page break characters are also handled slightly differently from TI-Writer. To be sure that page breaks are printed correctly, always include page breaks on a separate line from your text.

SPECIAL CONSIDERATIONS.

If your printer is one that will not handle print and graphics on the same line using the .II and .IL commands, there is another way to achieve it on a limited basis. You can install an image in a character set as an unused letter or special character using the Editor. Then just type that character where you want the image to appear. You can also place several different images on the same line using this technique. It works best where the letter size and image size are similar.

SECTION IV - FONT MANAGER

The Font Manager program allows you to maintain your font files. Using the program you can sort the characters in your fonts, select out characters, and merge part or all of two or more fonts.

The menu for Font Manager is deceptively simple. The options are described below in order.

1. LOAD

The option allows you to load a font into memory. The font will be automatically sorted into ASCII order while being loaded. You have the option to do a 'Selective Load.' If you choose this the Font Manager will scan the font file and present you with a list of all the characters in the font. You can edit this list to remove the characters you don't want to load by deleting them with the Delete (FCTN 1) key or by spacing over them. Because the LOAD option does not clear Font Manager's memory, you can use this Selective Load to merge two fonts into memory. For example you could load the letters from one font, and then load in just the numbers or punctuation marks from a second font. After you finish with 'Selective Load' (or skip it), Font Manager will load in the font. If you try to load in a character over one that already exists in memory, Font Manager will pause and ask you if you want to keep the original in memory or replace it with the one in the font. When the font is loaded you are returned to the main

2. SAVE

The Save option lets you write the font currently in memory out to disk. You are first asked for the file name to write to. Next you are asked whether it is a TI-Artist or CSGD font. If you choose CSGD, the program will begin to save immediately. If you choose TI-Artist, you are then asked if you want to 'Open in Append.' If you answer 'Yes' the current font will be added on to the end of the file name you specified, otherwise a new file will be created (and if the file already exist it will be destroyed). Next you will be asked if you want a 'Selective Save'. Selecting 'Yes' will give you a list of all the characters currently in memory. You can then edit this list to select the characters you wish to write out as in the Load option.

Note: The SPACE character is always sorted as the first character in the font. When editing a list for a 'Selective Save or Load' the space will be the first character. Your font MUST contain a space character

for it to be useful. Be sure not to accidentally edit this character out. The file will then be written out to disk and you will be returned to the Font Manager main menu.

3. PURGE

After using the Load and Save options, memory is not cleared so as to allow you to do multiple manipulations on a single font without having to reload each time. The Purge option clears the current font out of memory.

4. GRAPHICS

This section contains conversion routines to convert CSGD pictures and graphics to TI-Artist images and back again.

1. CSGD GRAPHIC TO IMAGE. This takes any CSGD graphic (saved with a /GR) and makes it into a TI-Artist image.

2. CSGD PICTURE TO IMAGE. This takes any CSGD picture (saved with a /DT) and makes it into a TI-Artist image.

3. IMAGE TO CSGD GRAPHIC. This takes a TI-Artist image and makes it into a CSGD graphic. Note that CSGD graphics are 5 characters high by 5 characters wide. If your image is greater than this, only the upper lefthand corner will be saved to the CSGD graphic.

4. IMAGE TO CSGD PICTURE. This takes a TI-Artist image and makes it into a CSGD picture. Note that it is possible for an image to be too wide to be converted. This is unlikely, however. The maximum width for a CSGD picture is currently 31 characters, which is only one character less than a full screen.

5. EXIT

This option takes you back to the main Font Writer menu.

Thank you

Many thanks to **Walt Howe**, not only for writing most of the documentation, but for extensively testing the programs and offering many helpful suggestions. Thanks to Joyce Corker who spent weeks playing with the programs and coming up with lots of "wouldn't it be nice if . . ." comments which brought into existence many of the features of this program. Thanks to **Dave Rose** for information on how CSGD fonts and graphics are stored.

Warranty Information

Asgard Software extends no warranty for Font Writer beyond the physical part consisting of disks and documentation. Asgard Software does not warrant that the program will perform as stated, or meet the needs of the user in any capacity. Asgard Software is not liable for any damage that may result from the proper or improper use of this program. The physical parts of this program may be replaced free of charge up to 90 days after purchase by returning the disk and documentation to the manufacturer. However, Asgard Software reserves the right to refuse to service or replace these parts if they have been damaged by accident, unreasonable use, neglect, improper service, or any other cause not arising out of defects in material or workmanship. Return all parts that meet these conditions to: Asgard Software, P.O.B. 10306, Rockville, MD 20850.

Font Writer REFERENCE CHART

EDITOR KEYS

- 1 Invert Image
- 2 Horizontal Mirror
- 3 Vertical Mirror
- 5 Slide UP
- 6 Slide DOWN
- 7 Slide LEFT
- 8 Slide RIGHT

Arrow Keys: (E, S, D, X) - move cursor as marked

Diagonals (W, R, C, Z) - move cursor diagonally

FUNCTION with Arrow Keys - jump cursor 8 pixels

H Move cursor HOME (upper left)

P Move PEN UP or DOWN

I Change INK to WHITE or BLACK

O Turn window box ON or OFF

ENTER - Cue MACROS

FUNCTION P - Print grid

= Clear grid

MACRO COMMANDS

COMMAND	DESCRIPTION	EXAMPLE
U	Up	.U.
D	Down	.D.
L	Left	.L.
R	Right	.R.
UL	Up and to the Left	.UL.
UR	Up and to the Right	.UR.
DL	Down and to the Left	.DL.
DR	Down and to the Right	.DR.
SU	Slide Up	.SU.
SD	Slide Down	.SD.
SR	Slide Right	.SR.
SL	Slide Left	.SL.
MH	Mirror Horizontal	.MH.
MV	Mirror Vertical	.MV.
CL	CLeaR grid	.CL.
IN	INvert grid	.IN.
HO	HOme cursor	.HO.
PU	Pen Up	.PU.
PD	Pen Down	.PD.
PT	Pen Toggle	.PT.
IB	Ink Black	.IB.
IW	Ink White	.IW.
IT	Ink Toggle	.IT.
RO	set ROW	.RO 23.
CO	set COLUMN	.CO 1.
R+	add to Row	.R+ 12.
C+	add to Column	.C+ -3.
GT	Go To macro (letter)	.GT C.
GS	GoSub macro (letter)	.GS E.