GIGI™

Character Set Editor
Manual

February 1981

GIGI™ Character Set Editor Manual

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This manual describes the GIGI Character Set Editor; the manual also provides usage information on command and keyboard operations, as well as command reference information in alphabetical order.

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PREFACE

MANUAL OBJECTIVES

This manual contains both usage and reference information describing GIGI's Character Set Editor. Usage information is intended to introduce the GIGI Character Set Editor and show its capabilities and features. Reference information describes Character Set Editor functions in detail.

INTENDED AUDIENCE

This manual is intended for all users of the GIGI Character Set Editor. The *GIGI/ReGIS Handbook* provides complete information on the graphics features of the terminal and on terminal features that adapt the terminal to the user operating environment.

STRUCTURE OF THE DOCUMENT

The manual has three parts:

Part 1: Getting Started
Part 1 contains information describing the features and capabilities of the Character Set Editor and describes the screen and keyboard layout the Character Set Editor uses. This part also provides information on how to invoke the Character Set Editor.

Part 2: Using GIGI'S Character Set Editor
Part 2 describes how to use Character Set Editor commands and how commands relate to each other.

Part 3: Command Descriptions
Part 3 contains detailed descriptions of the Character Set Editor commands in alphabetical order.

GIGI DOCUMENTS

The manuals listed below are companion documents to this document.

GIGI Terminal Usage Documentation
GIGI/ReGIS Handbook AA-K336A-TK
GIGI BASIC Manual AA-K335A-TK

Software Documentation
Graphics Editor Manual AA-J942A-TK
Slide Projection System Manual AA-J943A-TK
RITE Manual AA-J944A-TK
Data Plotting Package Manual AA-J956A-TK
ReGIS Application Library Manual AA-J884A-TK

CAI Course Documentation
GIGI/ReGIS CAI Primers
Student Guide AA-K329A-TE
VAX/VMS GIGI/ReGIS CAI Primers
Course Administrator Guide AA-K328A-TE
RSTS/E GIGI/ReGIS CAI Primers
Course Administrator Guide AA-K347A-TC

Hardware Documentation
VK100 Terminal Installation and Owners Manual EK-VK100-IN
LA34 Read Only Printer User's Guide EK-L34RO-UG

CONVENTIONS USED IN THIS DOCUMENT

Braces: Choose one or more of the elements within the braces; all parentheses and brackets that appear within the command syntax must be coded as shown.

Elipses: Indicate that the preceding command element or elements may be repeated.

Italic: Specifies a variable entry for a command option, both in syntax specifications and in detailed descriptions of options. The following syntax specification for commands illustrates these conventions:

Braces enclose optional entries

Italics specifies a variable entry

WRITE FILE *filespec* { CHARACTER *"character . . ."* } { INTO *"character . . . ."* }

Elipses mean more than
one entry may be coded

1

1 INTRODUCTION
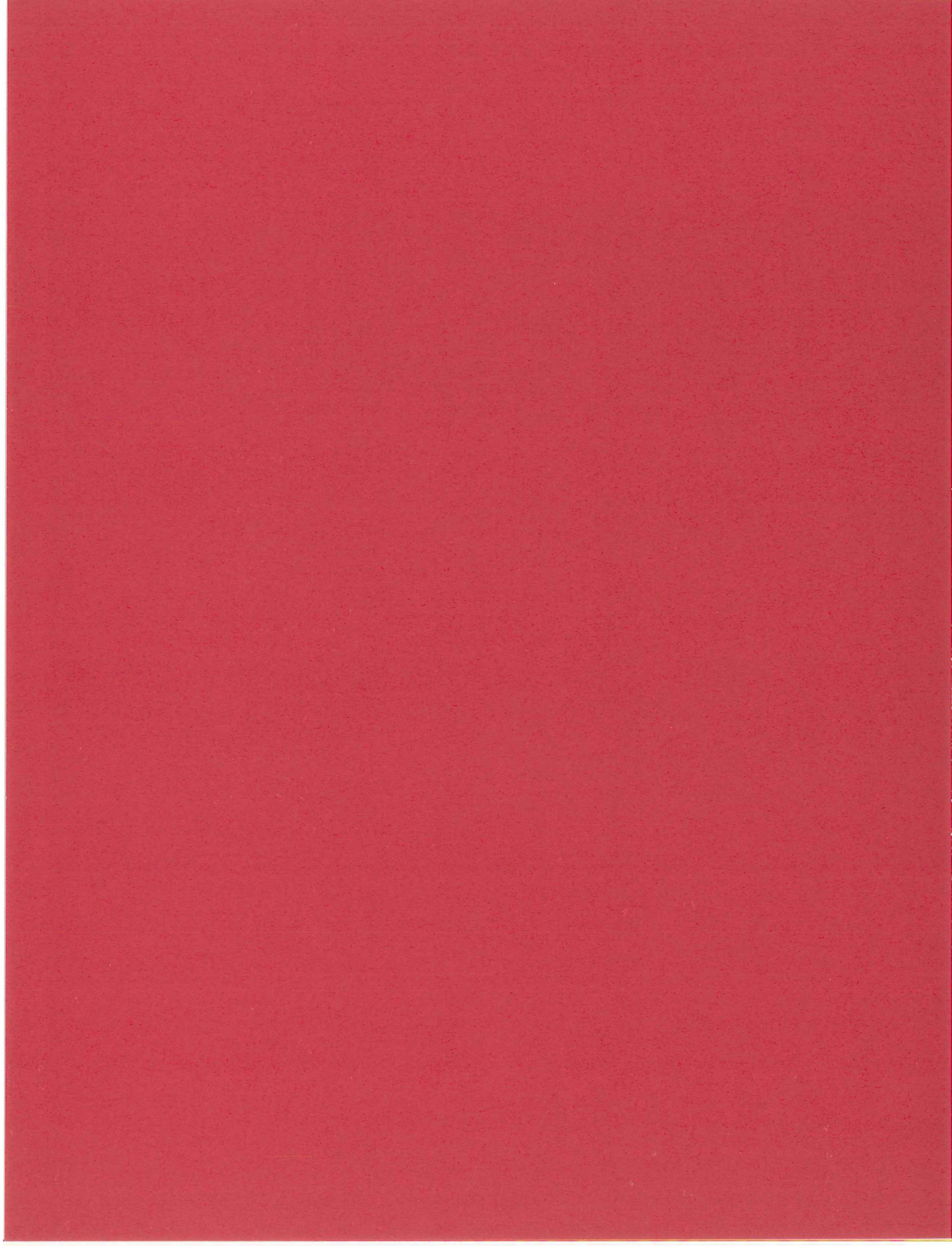
A character set is a group of characters which you can display as text, for example the alphabetic, numeric, and special characters you see on a terminal keyboard. GIGI has four character sets, one of which is a built-inASCII character set. This built-in character set consists of the 95 ASCII characters (space through ~) you can display using GIGI's standard keypad.

The remaining three character sets, referred to as alternate character sets, are programmable; you can create characters for these alternate character sets using the Character Set Editor. You can define characters from another alphabet, for example the Greek alphabet, and use the Greek characters for text displays. In the example below, the first line is displayed using GIGI's built-in character set, the second line using an alternate Greek character set, and the third line using a character set designed for the APL programming language.

```
GIGI displays Text...

GIGI βλσπλαψσ Τεχτ...

∇⌿∇⍳ DISPLAYS ∧EXT...
```

GIGI's Character Set Editor is an interactive screen editor designed to simplify the creation and editing of characters for GIGI's three alternate character sets. To make it easy to create alternate character sets, the Character Set Editor provides commands that allow you to:

- Create and edit alternate characters (EDIT and MOSAIC commands).
- Control display of alternate characters (CLEAR, DIMENSION, REDRAW, and SHOW commands).
- Manipulate characters within a file of alternate characters (COPY, FONT-NAME, and REGIS commands).
- Read and write files containing edited alternate characters (READ and WRITE commands).
- Load characters into GIGI's alternate character sets for use in graphic text displays (the USE command).

After you have loaded characters into the alternate character sets, you can use the characters in text displays by means of the GIGI Graphics Editor program or by means of the ReGIS T (text) command. For information on the Graphics Editor, refer to the *GIGI Graphics Editor Manual*; for information on the ReGIS T (text) command, refer to the *GIGI/ReGIS Handbook*.

HOW GIGI RELATES ALTERNATE CHARACTERS TO BUILT-IN ASCII CHARACTERS

Each character in an alternate character set corresponds positionally to a character in the GIGI-defined ASCII character set. This means that you can create characters that correspond to the positions for unshifted characters (for example, lowercase alphabetic characters), shifted characters (for example, uppercase alphabetic characters), and for the space character. In the Figure 1, the text on the left is displayed using the built-in character set and the text on the right is displayed using alternate character set 1, which contains characters programmed to correspond to the Greek alphabet.

Figure 1.
Correspondence between GIGI's built-in ASCII characters and alternate characters

HOW GIGI DISPLAYS CHARACTERS

Each of GIGI's character sets (including the built-in character set) consists of 95 character frames in GIGI storage; each frame is 8 dots wide and 10 dots high. When used meaningfully, the frame contains an image such as an alphabetic character. Initially, character set 0 contains the ASCII character set and character sets 1, 2, and 3 are blank. In the Figure 2, the frame on the left has no dots set, whereas the frame on the right contains the character "T" created by setting dots with Character Set Editor commands.

Figure 2.
Example of a pattern in a character frame
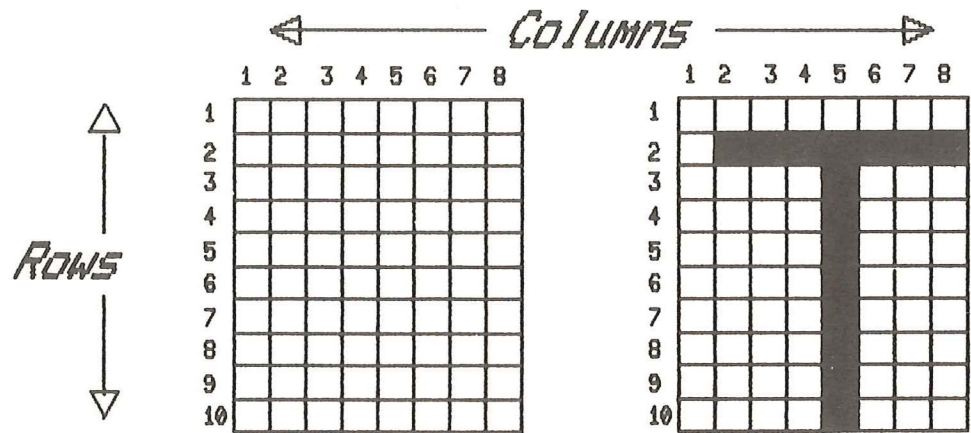
The image that comprises the letter T is created by setting dots in the frame. When the letter is displayed, dots are drawn and make the image in the frame look like the letter T. The image that you create when you set dots in the character frame is called a character pattern.

Character Spacing

To create spacing for strings of characters, GIGI automatically generates a space as column 9 in the character frame. To set the pattern for column 9, GIGI replicates column 1 of the character. Thus, dots set in column 1 are replicated in column 9.

You can override display of this replication by specifying explicit frame sizes with the DIMENSION command. In this case, you can direct the Character Set Editor to not generate column 9 for the character frame. Figure 3 illustrates how GIGI spaces between characters.
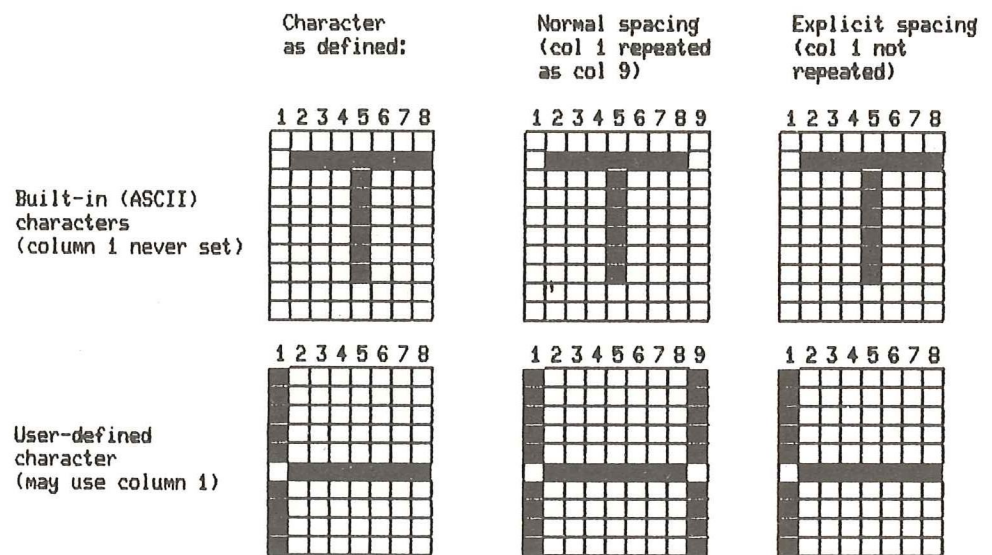
In Figure 3, the character on the top row is from the built-in GIGI character set; the character in the second row is a user-defined character.

The left-most frames show how the characters are defined. For built-in ASCII characters, column 1 is never set because it is usually replicated. The user-defined character shows the dots set in column 1.

The middle frames show GIGI replicating column 1 for the ASCII character and replicating the dots set in the user-defined character.

The right-most frames demonstrate explicit spacing, in which GIGI does not replicate the first column. Although the DIMENSION command allows you to see what the character looks like without column 1 replicated, you must specify explicit spacing when you actually use the character in a text display.

You can specify explicit spacing for text displays using ReGIS spacing commands; for information on how to specify explicit spacing, refer to the *GIGI/ReGIS Handbook*. Also, the GIGI Graphics Editor provides commands for creating explicitly-spaced mosaics; for further information, refer to the *GIGI Graphics Editor Manual*.

CHARACTER SET FILES

The Character Set Editor maintains the characters you create in a file in host memory. When you have created all the characters you need for your application, save them by writing them to host on-line storage. Once the characters are saved in a file, you can access them any time by means of a Character Set Editor command.

Chapter 5, "Character Sets and Files" discusses the format and usage of files created by the Character Set Editor and how to write and read files of alternate characters.

HOW TO USE THE CHARACTER SET EDITOR

Figure 4 illustrates the process of creating and using alternate characters.

Figure 4.
Process for creating and using alternate characters
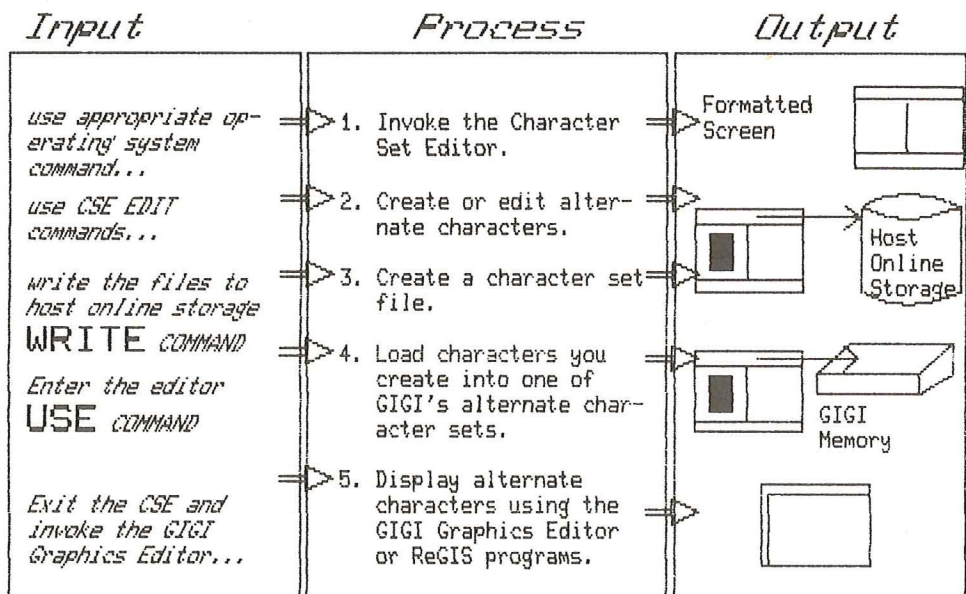
1. Invoke the Character Set Editor using the appropriate operating system command. The Character Set Editor responds by displaying a screen formatted for the creation of alternate characters. The commands for invoking the Character Set Editor are described in this chapter; the format of the screen is described in Chapter 2.
2. Use editing commands to create and manipulate characters until those characters are suitable for your application. You enter some Character Set Editor commands using the main keypad; you enter other Character Set Editor commands using the auxiliary keypad keys. The Character Set Editor keypad layout is described in Chapter 3. Chapter 4 describes how to use Character Set Editor commands to create alternate characters.
3. Save the characters you have created in a host file. Chapter 5 describes this process.
4. Load the alternate characters you have created into one of GIGI's alternate character sets by entering the Character Set Editor USE command. The USE command is described in Chapter 5.

Once you have created the alternate characters you need and loaded them into an alternate character set, you can use the characters in text displays and pictures. The GIGI Graphics Editor provides commands for using GIGI's alternate character sets for text displays in pictures. Also, you can write programs using ReGIS which can make use of alternate character sets. Refer to the *GIGI Graphics Editor Manual* for information on how to use the GIGI Graphics Editor; refer to the *GIGI/ReGIS Handbook* for infomation on how to use alternate character sets with ReGIS.

INVOKING THE CHARACTER SET EDITOR

The GIGI Character Set Editor is available for use on three of DEC's operating systems:

- VMS on VAX machines
- RSTS/E on PDP-11 machines
- TOPS-20 on DECSYSTEM-20 machines

Each of these operating systems displays a prompt on the command line and has a unique method for logging on the system. The following paragraphs list manuals containing information on how to log onto the systems and describe how to invoke the GIGI Character Set Editor on each of the systems.

The sections below show command lines that may be modified by your system manager. If you have problems invoking the Character Set Editor on your system, ask your system manager for help.

Invoking the Character Set Editor on VAX/VMS

The document *VAX/VMS Primer*, Order Number AA-D030A-TE, provides information on how to log into the VMS operating system and get started using the system. This document also references other operating system-specific information you may need to get started using VMS.

VMS prompts you with a dollar sign on the command line; to invoke the Character Set Editor on the command line, enter:

$RUN SYS$SYSTEM:CSE < CR >

The Character Set Editor then displays the screen and prompts you for a command.

Invoking the Character Set Editor on RSTS/E

The document *RSTS/E System User's Guide*, Order Number AA-5133B-TC, provides information on how to log into the RSTS/E operating system and get started using the system. This document also references other operating system-specific information you may need to get started using RSTS/E.

RSTS/E prompts you with 'Ready'; to invoke the Character Set Editor, enter:

RUN $CSE < CR >

The Character Set Editor then displays the screen and prompts you for a command.

Invoking the Character Set Editor on TOPS-20

The document *Getting Started With TOPS-20*, Order Number AA-4187D-TM, provides information on how to log into the TOPS-20 operating system and get started using the system. This document also references other operating system-specific information you may need to get started using TOPS-20.

TOPS-20 prompts you with an at-sign (@) on the command line; to invoke the Character Set Editor on the command line, enter:

@RUN PS: < SUBSYS > CSE < CR >

The Character Set Editor then displays the screen and prompts you for a command.

2 CHARACTER SET EDITOR SCREEN LAYOUT

The Character Set Editor uses GIGI, the monitor screen, editor commands, and keypad functions to manipulate images on the screen. This chapter describes the areas of the editor-formatted screen and the use of each area. Also, this chapter describes how the editor uses the GIGI keyboard.

SCREEN LAYOUT

The Character Set Editor formats the screen into discrete areas, each of which is useful in editing characters in a character set. This section shows the Character Set Editor screen layout and describes the functions performed in each area of the screen. Figure 5 shows how the Character Set Editor formats the screen.

Figure 5.
GIGI Character Set Editor screen layout

```
Current font:    !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
                                                        1
Font name        PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
   2


                 3                              4



Command: 5
```

1 Character Set Display Area: consists of 6 lines; shows correspondence of built-in character set to the character set being created or edited.

2 Font name: displays the name of the character set.

3 Character Composition Area: displays frames for composing either single characters or mosaics.

4 Utility Display Area: displays the character selection grid, variations of characters, and command menus.

5 Command Entry Area: provides line for entering main keypad commands and for selecting characters to be edited.

Character Set Display Area

The Character Set Editor uses the character set display area to display both the built-in ASCII character set and the characters being edited. The characters being edited reside in host memory.

The editor displays the entire built-in character set above each corresponding character in the alternate set, as shown in Figure 6.

Figure 6.
Display of GIGI's built-in character set and corresponding example characters from an alternate character set
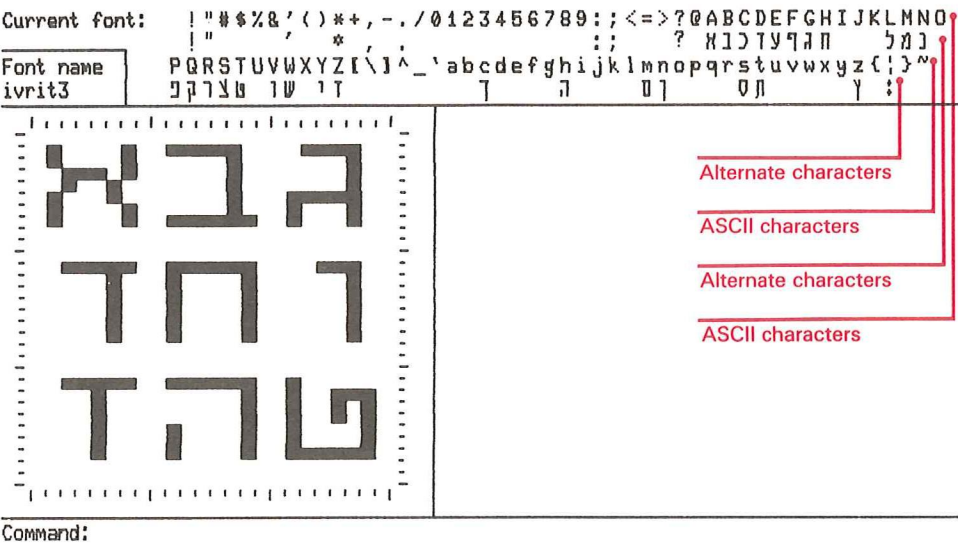
As you can see in Figure 6, there are four lines of characters displayed in the character set display area. The first and third lines display the built-in ASCII character set; the second and fourth lines display the characters you create in the active alternate character set. The Character Set Editor displays each part of a character as you create it.

Notice also that some characters in the example character set remain undefined. The Character Set Editor sets only the characters that you explicitly create using the commands and keypad functions described in the following chapters.

The Font Name Display Area

The font name display area is the area at the lower-left corner of the character set display area. This area contains a space you can use to name the character set you are working with.

The editor assigns the name you enter in this space to the active character set. This name is entered in the ReGIS file created when you write the file to disk. (Refer to the *GIGI/ReGIS Handbook* for information on ReGIS alphabet names.)

Note, however, that the name you enter in this area is not the name of the file containing the characters being created. You name the file using the WRITE command, described below.

The Utility Display Area

The utility display area is the area on the right side of the screen; the editor uses this area to display one of four displays:

- A selection grid for selecting characters to be composed or edited when you enter the MOSAIC command.
- Variations of characters when you enter the SHOW CHARACTER command.
- Menus (either the main menu or menus of command options), when you enter the HELP command or press the question mark key (?).
- Alternate keypad layout when you press the question mark key (?), a request for help, while you are editing either a single character or a mosaic.

The Character Selection Grid

When you enter the MOSAIC or the SHOW MOSAIC command, the editor uses the utility area to display a 10-character by 10-character selection grid. You can enter any character any number of times (until there is no more room on the grid). Figure 7 shows the format of the selection grid when you enter the MO-SAIC command.

Figure 7.
Format of the character selection grid
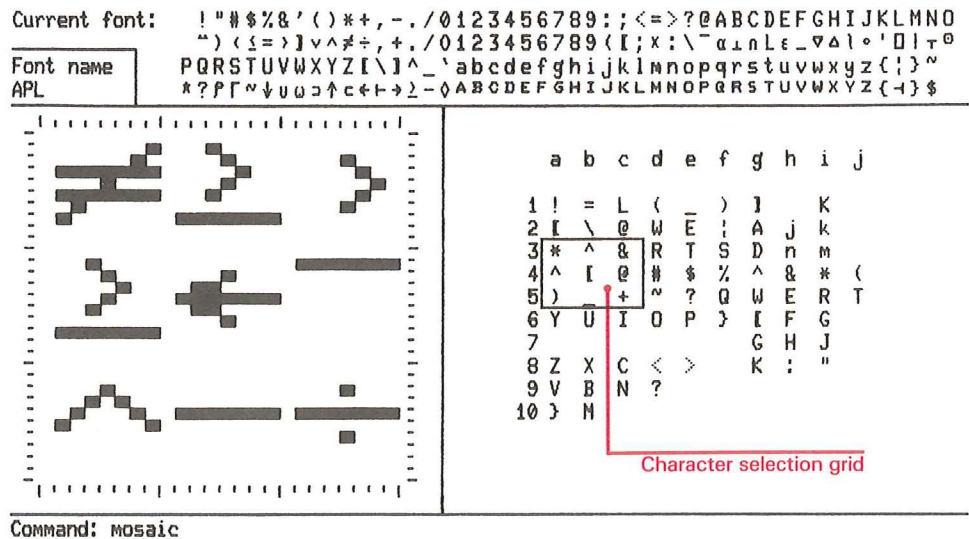
Within the grid is a 3-character by 3-character window; you select characters for editing by moving this window around the selection grid until the characters you wish to compose or edit are within the window.

Move the window by moving the cursor with the auxiliary keypad arrows. The window moves in relationship to the character at which the graphics cursor is positioned; the character set editor centers the window on the cursor. To move the window, move the cursor to a location on the grid where you want to center the window. Then press the WINDOW key (key 5 on the auxiliary keypad).

The characters within the selection window are expanded and displayed in the character composition area. (The character composition area is described in detail below.)

Character Variation Display

When you enter the SHOW CHARACTER command, the editor uses the utility area to display a character you specify. Using SHOW CHARACTER command options, you can display the character in various sizes and degrees of tilt and italic. Figure 8 shows the format of the utility display area when you specify the SHOW CHARACTER command.

Figure 8.
Format of the utility display area for the SHOW CHARACTER command

Three variations of the greek character delta
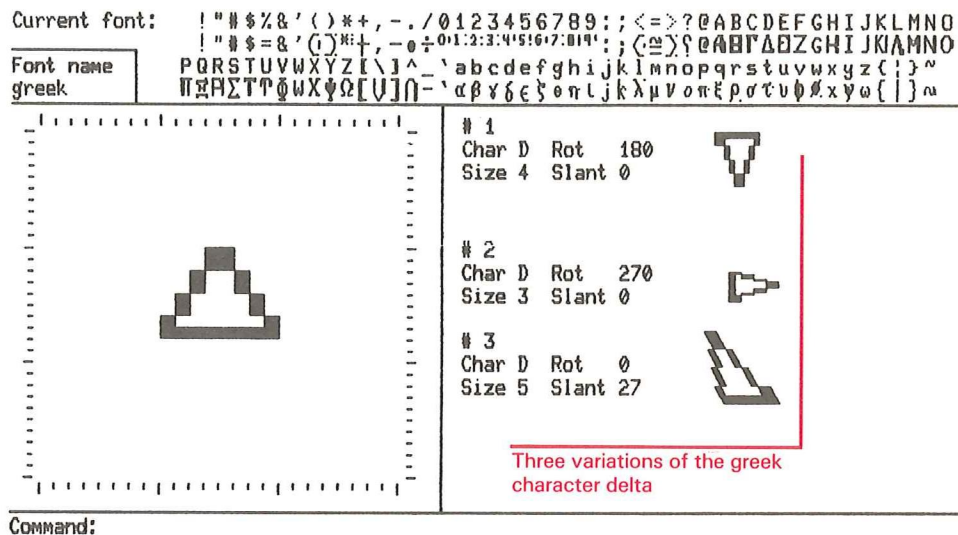
Command Menus

Menus are lists of commands or command options that the editor displays on the screen. You can scan these lists to choose the editing function you wish to perform.

There are two types of menus: the main menu (which lists all the editor commands) and options menus (which list the options available for a given command). You direct the editor to display the main menu by entering a question mark; to direct the editor to display command options, enter the command followed by a question mark. Figure 9 shows the main menu; command menus are shown with individual command descriptions, below.

Figure 9.
Character Set Editor main menu
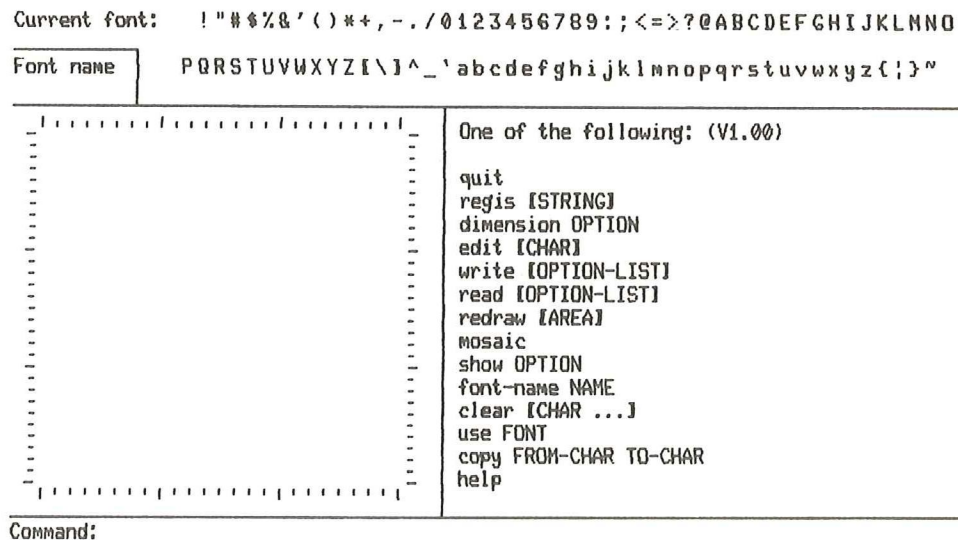
Character Composition Area

The character composition area is a display area spanning 16 text lines each 40 text characters long. This area is used for composing and editing characters.

For simple (single-character) editing, the composition area contains a single composition frame. The frame is made up of cells; eight cells across and ten cells down. These cells correspond to the dots that make up the character you are composing. So when you draw on the cell, the Character Set Editor sets dots for the character you are composing. Likewise, when you erase cells in the frame, the editor erases the corresponding dots in the real character.

Initialize the composition area for composing a single character by specifying a character when you enter the EDIT command. Figure 10 shows the composition frame before and after you select and edit a character.

Figure 10, screen A.
Empty composition frame
displayed when the letter M
is edited
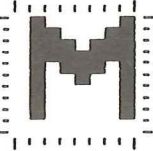
```
Current font:    ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O
Font name        P Q R S T U V W X Y Z [ \ ] ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~
```

Mode: NO-CHANGE

Figure 10, screen B.
Composition frame containing the
newly-created alternate character

```
Current font:    ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O
                                                                                                           M
Font name        P Q R S T U V W X Y Z [ \ ] ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~
```

1   M
Char M Rot   0
Size 1 Slant 0

Mode: NO-CHANGE

At the same time you are editing a character, you can display the character in various forms in the utility display area by means of the DISPLAY command. These displays allow you to see what the character being edited will look like in its normal size and with various attributes set for it, for example, italic, rotation, and various intermediate sizes. Part 2 of this manual provides descriptions of simple and mosaic editing.

For mosaic editing, the composition area is formatted into nine discrete composition frames, each of which corresponds to one of the ASCII characters contained within the character selection window of the character selection grid. Figure 11 shows the relationship between the characters within the character selection window and frames in the composition area.

Figure 11.
Relationship between character selection window and character composition area frames
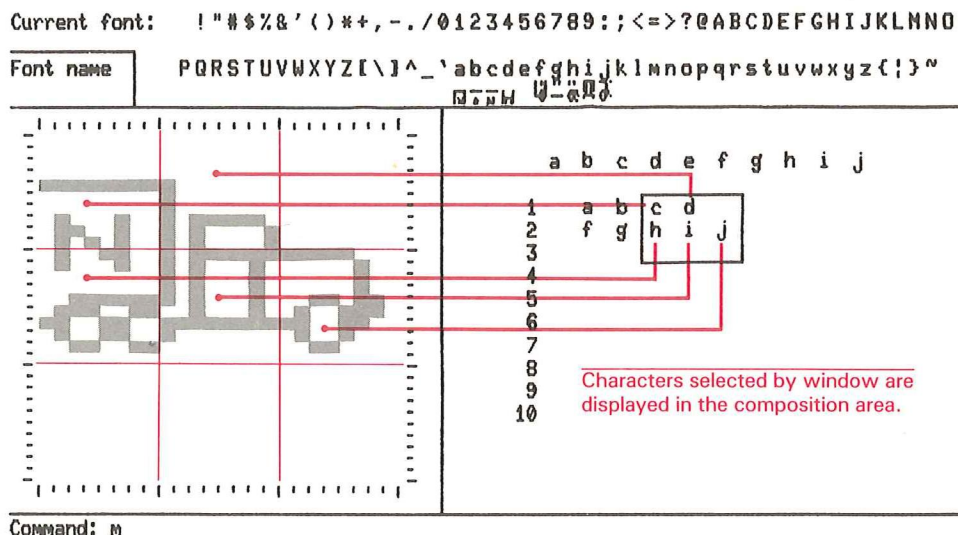
As you can see in Figure 11, the characters selected in the mosaic on the right are displayed in the composition area. In this example, they form a mosaic picturing the front of a truck.

Initialize the composition area for mosaic editing by entering the EDIT command with no characters specified.

Although the mosaic frame represents 9 distinct characters, the editor treats the frame as a single working area. That is, setting a row or column sets all the cells across all three characters. Furthermore, if there are duplicate characters in the composition area, cells set in one of those characters are set in the duplicated characters. For example, when you enter the letter "a" twice in the same mosaic and then set a cell in for the character corresponding to "a", the Character Set Editor sets the cell in both "a" characters.

The Command Entry Area

The command entry area is used to enter Character Set Editor commands and for GIGI/host communications. Also, information and messages appear in this area, for example, when you omit a command keyword. Chapter 4 describes how to use the command entry area.

KEYBOARD LAYOUT

This section shows the keyboard layout used by the Character Set Editor for both the main keypad keys and the auxiliary keypad keys.

The Main Keypad

The Character Set Editor uses the keys on the main keypad for specifying characters to be edited and for entering commands. Keys on the auxiliary keypad are used mainly for character composition. The arrow keys at the top of the main keypad and the RETURN key have special functions when in edit or edit mosaic mode. Figure 12 shows GIGI's keyboard layout and highlights the keys on the main keyboard which the Character Set Editor makes use of.

Figure 12.
GIGI's Keyboard

Arrow Keys

The arrow keys located above the main keypad can be used in both command mode and edit mode. When in command mode, these keys move the text cursor around the character selection grid to select the set of characters to be edited. When in edit mode, these keys move the graphics cursor around the composition area.

The RETURN Key

The RETURN key, in addition to its normal use as command terminator, is used to exit (or "return") from mosaic mode or edit mode to command mode. Figure 12 shows the location of the RETURN key on the standard keypad.

Auxiliary Keypad

The auxiliary keypad keys perform the editing functions required to compose a character in edit mode. Chapter 3, "Character Set Editor Commands," describes the layout and functions of the auxiliary keypad keys. Chapter 4, "Creating Characters," describes how to use these keys to perform on-screen composition of characters.

2

Using the
Character Set Editor
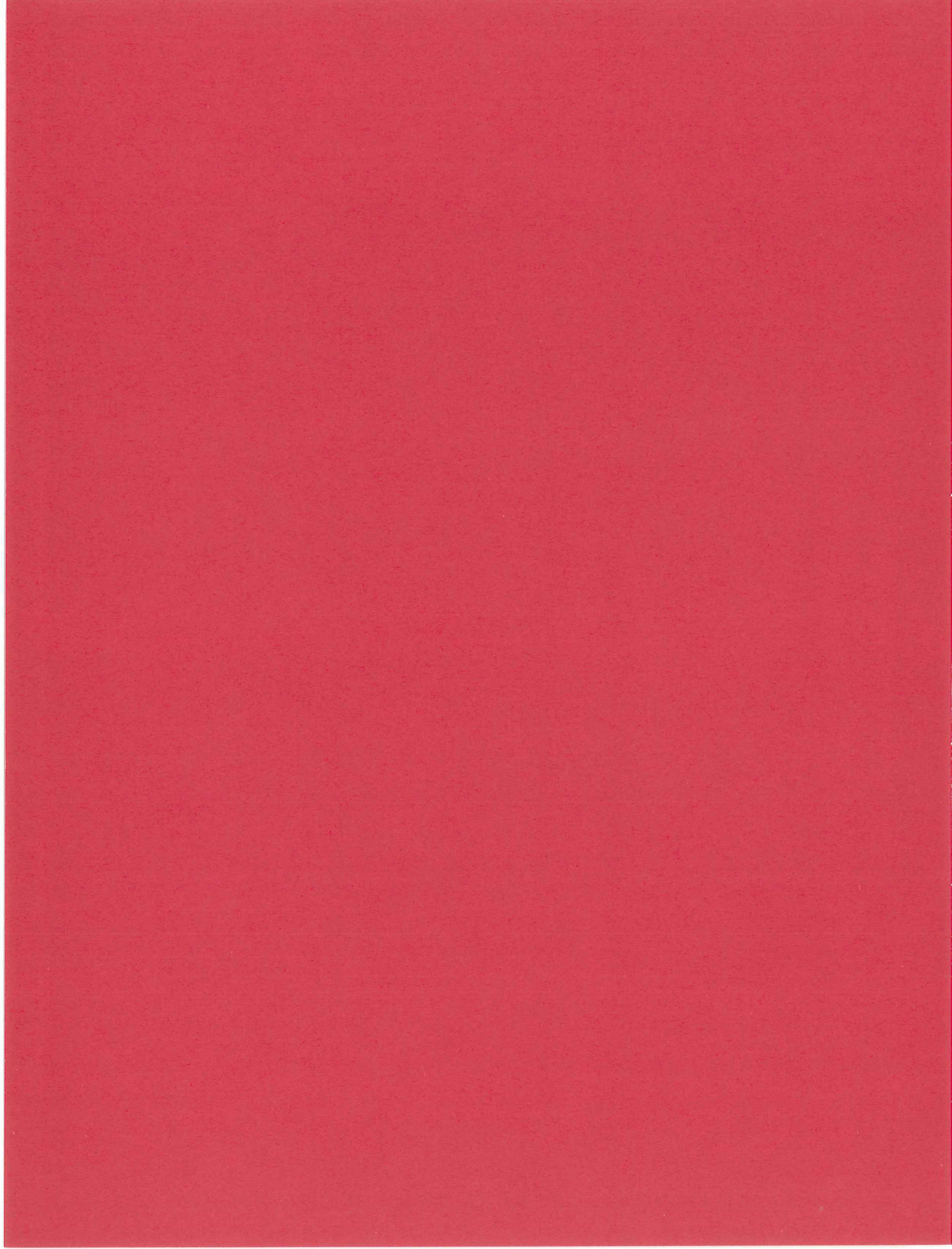
3 CHARACTER SET EDITOR COMMANDS

The Character Set Editor provides commands that you enter via the main keypad (that is, typing the command) and commands which execute when you press one of the keys on the auxiliary keypad. The following paragraphs give an overview of how both types of commands work.

MAIN KEYPAD COMMANDS

Main keypad commands are used to communicate with the Character Set Editor and with the operating system. Table 1 lists the main keypad commands by category and provides a brief description of the function each command performs.

Table 1. Character Set Editor Main Keypad Commands

Character Editing Commands	
CLEAR	Clears a character or characters in the character set file to blanks.
COPY	Copies the pattern for a specified character into another character.
EDIT character	Selects a single character for editing; activates the auxiliary keyboard keys for editing and composition.
EDIT	Displays frame for composing multiple characters you select by entering characters in the selection grid in the utility area. EDIT also activates the auxiliary keypad for editing and composition.
FONT-NAME	Assigns a name to the active character set.
Character Display Commands	
DIMENSION	Scales the width and height of characters you are creating; also, scales the display of the character composition area.
SHOW CHARACTER	Displays variations of a selected character, for example, various sizes, slants, and rotations of a character.
SHOW ALTERNATE	Displays the shapes of the characters defined in the 10x10 character selection grid.
MOSAIC	Allows you to enter characters in the 10x10 character selection grid in the utility area. You select characters interactively by moving the graphics cursor and entering characters onto the grid from the keyboard.
REDRAW	Regenerates a part or parts of the screen display.
File Control Commands	
READ	Reads characters from a character set file into the active character set. Characters read into the active character set are displayed below their corresponding characters in the built-in character set.
WRITE	Writes either the entire active font or selected characters from the active font into the specified file.
QUIT	Exits the Character Set Editor to return control of the terminal to the host operating system.

Entering Main Keypad Commands: Command Mode

Command mode is that mode of editor operation in which you enter commands by typing commands on the main keypad. The Character Set Editor prompts you in the command entry area with the prompt:

Command:

To see a list of valid commands, enter the HELP command or press the question mark key (?) followed by a carriage return. The Character Set Editor displays a list of valid commands in the utility display area. To see a list of options for any given command, enter the command name followed by a question mark. The Character Set Editor then displays the command format and any options available with that command.

Enter commands after the prompt. Then, depending on the command you enter, use the arrow keys in combination with keys on the auxiliary keypad to create or edit characters.

AUXILIARY KEYPAD COMMANDS: EDIT MODE

Edit mode is that mode of editor operation in which you can compose characters in the character composition area. To enter edit mode, specify the EDIT command with either a single character (to edit a single character) or with no character (to edit mosaics). In both cases, the Character Set Editor activates the auxiliary keypad and enters edit mode.

In edit mode, use the auxiliary keypad to directly control cursor movement and to set and clear cells in characters. Use the auxiliary keys described below to set, clear, or flip the cells or sets of cells in the composition area.

The auxiliary keypad keys perform the editing functions required to compose a character in edit mode. Figure 13 shows the layout of the auxiliary keypad; Table 2 lists the name of each key along with its function.

Figure 13.
Character Set Editor auxiliary keypad layout
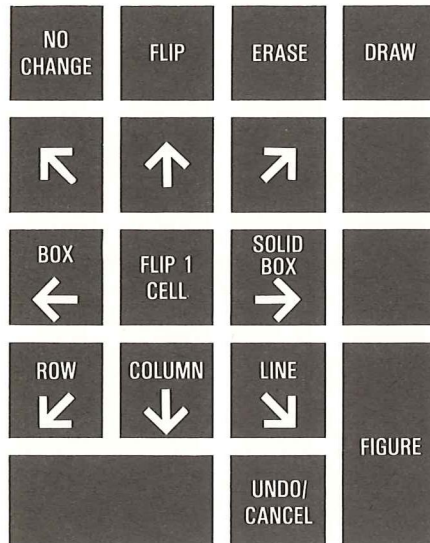
Table 2. Character Set Editor Auxiliary Keypad Key Functions

Draw Mode Keys	
DRAW	Sets (that is, turns on) each cell pointed to as you move the graphics cursor around the character composition frame.
ERASE	Clears (that is, turns off) each cell pointed to as you move the graphics cursor around the character composition frame.
FLIP	Reverses each cell pointed to as you move the graphics cursor around the character composition frame.
NO-CHANGE	Performs no operation; allows you to move the graphics cursor around the character composition frame without changing cells.
FLIP 1 CELL	Directs the Character Set Editor to flip the setting of the current cell. If the cell is set, the Character Set Editor turns it off; if not set, the Character Set Editor sets it.
Figure Drawing Keys	
FIGURE	Requests the Character Set Editor to draw a figure you select: the current row or column, a line of cells, a box or a solid box.
LINE	Specifies that you want the Character Set Editor to draw a line between two cells you select interactively.
BOX	Specifies that you want to draw a box using the opposite corners you select interactively.
SOLID-BOX	Specifies that you want to draw a solid box (all cells set) using opposite corners you select interactively.
UNDO/CANCEL	Reverses the effect of the most-recently entered composition frame modification.
Directional Keys	
⬉ ⬆ ⬈ ⬅ ➡ ⬋ ⬇ ⬊	Move the graphics cursor in the specified direction in either the character composition area or the character selection grid.

EXITING FROM EDIT MODE: THE RETURN KEY

Press the RETURN key on the main keypad to terminate editing and return to character set Character Set Editor command level.

4 CREATING CHARACTERS

You create characters by editing characters in a character set file. The editor allows you to edit a single character on a one-character composition frame or many characters on a large composition area. Editing single characters is referred to as simple editing; editing multiple characters on the same composition area is referred to as mosiac editing.

In both types of editing, the auxiliary keypad keys perform the functions that actually create an image in character frames. This image is created by setting or clearing cells in character frames. When you enter edit mode, the auxiliary keypad keys perform three general functions:

- Move the cursor around the frame (directional keys).
- Set the draw mode (NO-CHANGE, FLIP, ERASE, or DRAW keys).
- Flip the setting of a single cell in the frame (FLIP 1 key).

USING DIRECTIONAL KEYS TO MOVE THE CURSOR

The directional keys move the cursor around the composition frame. The editor operates on (sets or clears) the cell at which the cursor is pointing. The editor provides the draw mode keys and the FLIP 1 key for use with the directional keys in drawing images in the composition frame.

Directional Keys

SETTING THE DRAW MODE

The draw mode defines the function (setting or clearing a cell) the editor performs when you move the cursor with the directional keys. You set the draw mode by pressing one of the draw mode keys:

- DRAW to set each cell you move the cursor to.
- ERASE to clear each cell you move the cursor to.
- FLIP to flip the setting of cells you move the cursor to.
- NO-CHANGE to move the cursor without changing cells.

Draw Mode Keys

FLIP 1 KEY

FLIP 1 and NO-CHANGE Keys

When you enter edit mode, the default draw mode is NO-CHANGE. In other words, when you move the cursor around the composition frame with the cursor keys, no cells are modified unless you press the FLIP, ERASE, DRAW or FLIP 1 keys.

In NO-CHANGE mode, you can draw by pressing the FLIP 1 key at cells you want to set or clear. The editor reverses the setting of the cell at which the graphics cursor is currently pointing. The following Greek character delta was created using the FLIP 1 key along with the directional keys:
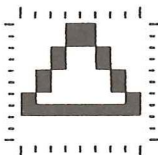
KEYS FOR DRAWING FIGURES

Figure Drawing Keys

In edit mode, the editor provides command keys for setting all the cells in an entire row or column and for drawing lines and boxes between cells you specify interactively.

Initiating the Figure: the FIGURE Key

You tell the editor that you want to draw a figure by pressing the FIGURE key. The editor responds by prompting you for the type of figure you want to draw:

Specify type of figure

You then press the key corresponding to the type of figure you want to draw, ROW or COLUMN, LINE, BOX, or SOLID-BOX.

Setting Rows and Columns

To set all the cells in a row or column, move the cursor to the row or column you want to set and press the FIGURE key. When the editor prompts you for the type of figure, press the appropriate key. The editor returns to edit mode after the column or row is set.

Drawing Lines and Boxes

You draw both lines and boxes by setting two points on the composition frame. In both cases, you must press the FIGURE key to tell the editor you want to draw a figure. Next, for a line, move the cursor to the point on the composition area where you want the line to begin, then press the FIGURE key again. The editor now prompts you for the end point of the line:

Other corner of box

You then move the cursor to the cell you want for the end of the line, press the FIGURE key, and the editor draws the line for you.

Use the same procedure for drawing boxes and solid-boxes. When you press the BOX or SOLID-BOX key, the editor marks the cell at which the graphics cursor is pointing as the corner of a rectangle. You then move the cursor to another cell, press the BOX or SOLID-BOX key again, and the editor marks that cell as the diagonally-opposite corner of the rectangle and draws the specified rectangle.

Follow the same procedure to draw a solid box, but use the SOLID-BOX key rather than the BOX key. The editor fills in the box (sets all the cells within the rectangle) when you complete the process.

THE UNDO/CANCEL KEY

The UNDO key reverses the effect of the most recent modification of the composition area. For example, if the last composition operation set an entire row (that is, you pressed the DRAW key and the ROW key) that row would revert to its state before the DRAW ROW took place.

UNDO/CANCEL Key

DISPLAYING VARIATIONS OF CHARACTERS

As you edit the character in the composition area, the editor changes the corresponding character in the character display area and, if you have entered the SHOW CHARACTERS command, the changes are also reflected in the character being displayed in the utility area.

These additional displays allow you to see what the character being edited will look like in its normal size and with various attributes set for it, that is, italic, double width or height, and in various intermediate sizes. Figure 8, above, shows how the editor formats the character variations displayed via the SHOW CHARACTERS command.

Initially, the editor displays square cells in a square composition area; while this may be appropriate for many situations, there are other situations in which you may want to see the characters you create in the scale in which they will be displayed. Use the DIMENSION command to set the scale for both characters and the composition area to the dimensions you need.

DIMENSION is especially useful in situations where you are creating characters which set dots in column 1. You can direct the editor to not replicate the first column by specifying explicit dimensions for the character. In Figure 14, screen A shows the replication of the first row of dots, whereas screen B shows no replication.

Figure 14. Screen A.
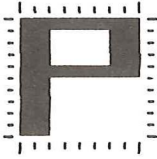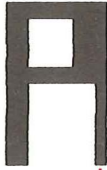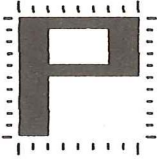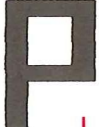
Font name | PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{¦}~
P

1
Char P Rot   0
Size 9 Slant 0

Column 1 replicated

Command:
Mode: NO-CHANGE

Figure 14. Screen B.

Font name | PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{¦}~
P

1
Char P Rot   0
Size 9 Slant 0

Replication suppressed

Command:
Mode: NO-CHANGE

Also, DIMENSION is useful for composing mosaics in the proportions in which they are actually displayed. In Figure 15, screen A shows the unscaled character P, whereas screen B shows the character P scaled to look like an actual display.

Current font: ! "#$%&'( )*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO

Font name   PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{¦}~

Mode: NO-CHANGE

Current font: ! "#$%&'( )*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO

Font name   PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{¦}~

Mode: NO-CHANGE

EDITING SINGLE CHARACTERS

In simple editing, a single character from the alternate character set is mapped to a single 8-cell by 10-cell frame in the character composition area. Each cell in the frame corresponds to a pixel (or dot) in the character being created. This enlarged representation makes editing the character easier and more precise.
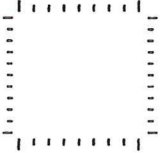
To edit a single character, for example the uppercase character D, enter the command:

EDIT D

The editor then displays a single empty composition frame:

```
Current font:    !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO

Font name        PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~


                     I I I I I I I I I
                   _                   _
                   I                   I
                   I                   I
                   I                   I
                   I                   I
                   I                   I
                   I                   I
                   _                   _
                     I I I I I I I I I



Mode: NO-CHANGE
```

When the editor displays the frame and activates the auxiliary keypad for editing, you can edit (that is, set or clear) the cells in the frame.

EDITING MOSAICS

Mosaics are groups of alternate characters programmed to fit together to form a pattern. You create the mosaic using programmed alternate characters and control characters. GIGI handles control characters (for example, carriage returns and line feeds) just as they are handled normally; you can use control characters to fit programmed characters into mosaics. The truck in the example below was created using alternate characters in two strings with carriage return after the first string:
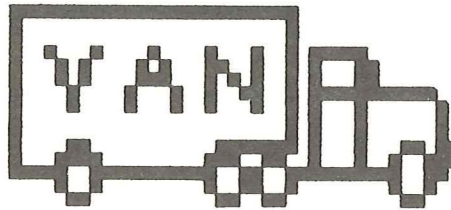
To edit a mosaic character like this truck:

1. Enter the MOSAIC command to display the character selection grid and activate the auxiliary keypad. The editor displays the selection grid.

2. Type into the character selection grid the characters from the master ASCII character set for which you want alternate characters. Enter a character, then move the cursor to the next position at which you want a character to fit in the mosaic, then type in the character. Continue this process until you have enough characters in the composition area to form the mosiac.

3. Press the WINDOW key on the auxiliary keypad to select the 3-character by 3-character window to be edited in the composition area. The selection window maps the characters contained in the window to frames in the composition area.

4. Enter EDIT (with no other characters on the command line) to compose alternate characters.

5. Use the directional keys and the function keys on the auxiliary keypad to set and clear cells for appropriate characters.

   Figure 16 shows the characters from the built-in ASCII character set which map to the alternate characters to form the mosaic of the truck.
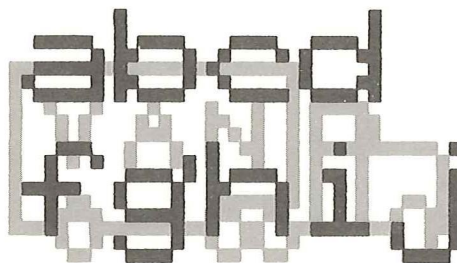
The ASCII characters define the pattern in which the alternate characters, programmed to be parts of the truck, are displayed. Figure 16 shows this correspondence. A carriage return character immediately follows the "d" character.

5 CHARACTER SETS AND FILES

The character set editor interacts with the host computer to create and maintain character set files. Files are maintained as REGIS files formatted to be easily read into one of GIGI's alternate character sets.

The general form of the file is:

L(a" character_set_name")
L" " character_set_number;
L" character"character_definition;
      .
      .
      .

where the letter L is the ReGIS Load command.

(a"character_set_name")
Defines a name for the character set being created. This name is specified by means of the FONT-NAME command and appears in the character set name display area when you enter this command.

" "character_set_number;
Defines the number of the alternate character set for which characters are being defined. You can specify 1, 2, or 3, depending on which of the alternate character sets you plan to use.

"character"character_definition;
Comprise definitions of each of the characters you define for the character set. *Character* is the built-in ASCII character for which an alternate character is being defined. *Character_definition* consists of eight hexadecimal digits GIGI interprets in order to set dots in the character cell. There is one of these definitions in the file for each of the alternate characters you define.

Refer to the *GIGI/ReGIS Handbook* for information on how to use the ReGIS Load command and all of its options.

Use the editor commands READ and WRITE commands to access and manipulate the character sets contained in these files. This section describes how the editor handles character set files and provides examples of how to use the READ and WRITE commands.

WRITING CHARACTER SET FILES

Once you have created alternate characters for an application, you save those characters by writing the file in which they are contained to host on-line storage. Use the WRITE command to write the file.

WRITE directs the editor to write either the entire active character set or selected characters from the active character set into the specified file. For example, the following command saves five characters into a file called TRUCK.FNT in host on-line storage:

Command: WRITE FILE GREEK CHARACTER "a b c d e" INTO "t u v x y"

The default filetype for files written by the editor is .FNT. Notice that you can write characters corresponding to a, b, c, d, and e in the active character set into characters corresonding to t, u, v, x, and y in the host file.

The list of characters must be enclosed in either single or double quotes; characters must be separated by blanks. When quote or blank characters are required in the character list, use the strings *qu* and *sp*, respectively, in place of them.

READING HOST-RESIDENT CHARACTER SET FILES

Use the READ command to read a file of alternate characters from host on-line storage. For example:

Command: READ FILE GREEK

loads a file containing greek characters for editing. Once the Character Set Editor loads the file, you can load the file into one of GIGI's alternate character sets for use in text displays.

LOADING AND USING ALTERNATE CHARACTER SETS

Except for GIGI's built-in ASCII character set, the character sets you create using the editor reside in files in the host machine on-line storage. To load one of these character sets into an alternate character set, you must first read it into the editor's active alternate character set, then load the character set into one of GIGI's alternate character sets, for example:

READ FILE GREEK
USE 1

These two commands read the greek character set from host on-line storage into the active character set and then load the characters into alternate character set 1.

Once you load the alternate character set you use it by means of either ReGIS T (text) commands or by means of GIGI's Graphics Editor. For information on the ReGIS T command, refer to the *GIGI/ReGIS Handbook*; for information on the GIGI Graphics Editor, refer to the *GIGI Graphics Editor Manual*.

3

Command Descriptions
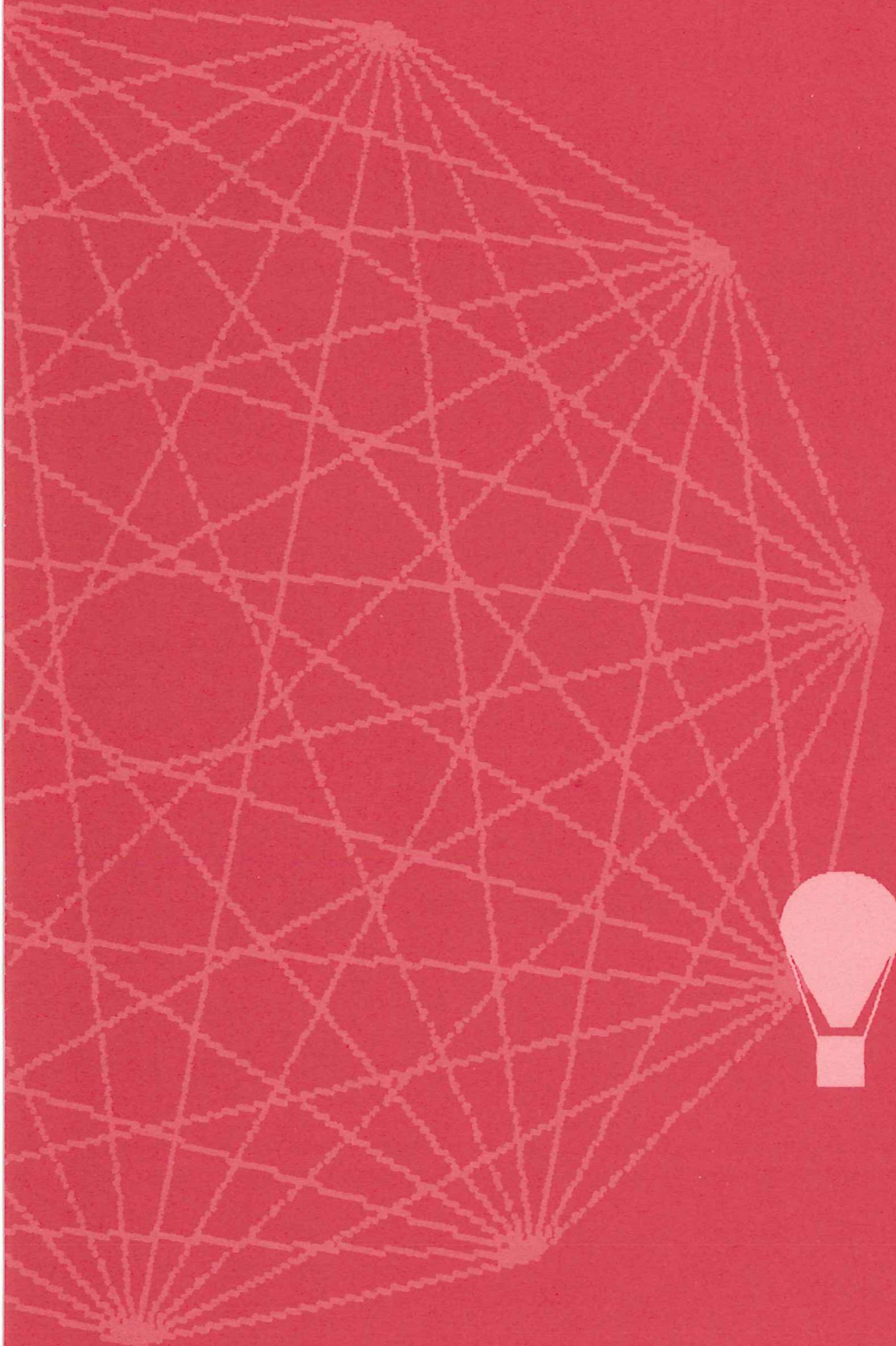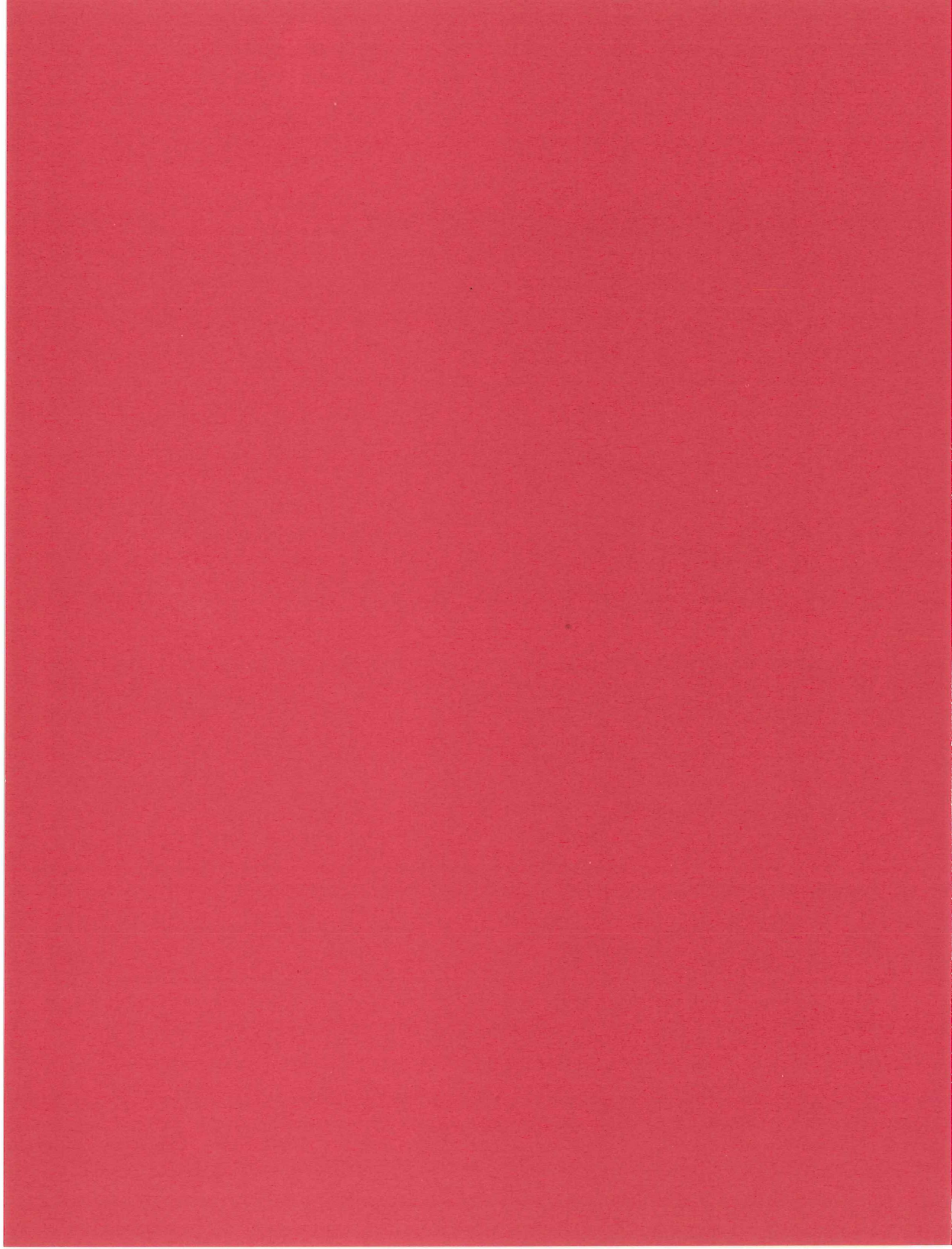
6 CHARACTER SET EDITOR COMMAND DESCRIPTIONS

This chapter provides complete descriptions of and syntax for specifying character set editor commands. The commands are arranged in alphabetical order for easy reference.

CLEAR COMMAND

The CLEAR command clears a character or characters in the active character set to blanks. The format for specifying the CLEAR command is:

CLEAR { *character . . .* }

Specified with no parameters, CLEAR clears all characters in the active character set.

CLEAR *character* clears the specified character.

COPY COMMAND

Use the COPY command to copy the character pattern from one character into the text cell for another character. Specify the COPY command in the form:

COPY *from__character to__character*

where *from__character* specifies the character whose image is to be copied and *to__character* specifies the character into which the image is copied.

DIMENSION COMMAND

Use the DIMENSION command to:

- Explicitly control the width and height display of characters you are creating.
- Scale the display of the character composition area.

The DIMENSION command provides the ability to override GIGI's replication of column 1 into column 9 when you are creating characters. However, when you actually use the characters in text displays, you must explicitly override the replication using the ReGIS T (text) command.

Specify the DIMENSION command in the following form:

DIMENSION $\left\{ \begin{array}{l} \text{CHARACTER } \textit{height width} \\ \text{WINDOW } \textit{height width} \end{array} \right\}$

where:

CHARACTER *height width*

Specifies the character whose rows and columns are to be defined. *Height* defines the character height limit explicitly. *Width* defines the character width explicitly.

Width allows you to override GIGI's replication algorithm. That is, to evenly space graphic text characters, GIGI replicates the first column of dots in each text cell. You can override this replication factor by specifying an explicit width.

WINDOW *height width*

defines the scale for the character composition area mosaic window. *Height* defines the height of each cell in the window in dots; default is 10. *Width* defines the width of each cell in the window in dots; default is 12.

This feature is useful for composing mosaics in the proportions in which they are actually displayed.

Figure 17 shows the help file the Character Set Editor displays when you type a question mark (?).

Figure 17.
DIMENSION command menu


```
Current font:    ! "#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
Font name        PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

                                              One of the following: (V1.00)

                                              window HEIGHT WIDTH
                                              characters ROWS COLUMNS




Command:
```

EDIT COMMAND

Use the EDIT command to edit either a single character or multiple characters. The EDIT command maps the cells in the composition area to the pixels of the real alternate character displayed in the character display area and enables the auxiliary keypad for editing the character. The format for specifying the EDIT command is:

EDIT $\{$ *character* $\}$

where:

EDIT

Specified with no *characters* on the command line, EDIT activates the auxiliary keypad for editing the current mosaic frame as a 24x30 cell unit.

To return to command mode, press the RETURN key.

EDIT *character*
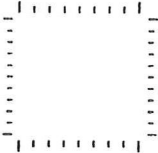
Directs the editor to edit a single alternate character as an 8x10 cell frame and activates the alternate keypad for editing. This specification allows you to directly edit a single character.

Figure 18 shows the help file the Character Set Editor displays when you type a question mark (?).

Figure 18.
EDIT command menu

NO-CHANGE	FLIP	ERASE	DRAW
↖	↑	↗	
← BOX	FLIP 1 CELL	→ SOLID-BOX	
↙ ROW	↓ COLUMN	↘ LINE	F I G U R E
		UNDO/ CANCEL	

Current font: ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O

Font name   P Q R S T U V W X Y Z [\ ] ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { ¦ } ~

Mode: NO-CHANGE

FONT-NAME COMMAND

The FONT-NAME command assigns a name to the character set currently being edited. Specify the FONT-NAME command in the form:

FONT-NAME *name*

where *name* is the name assigned to the character set and may be up to 10 characters long.

Once assigned, the fontname appears in the character set name display area on the top-left corner of the screen. Also, *name* is stored in the ReGIS file as the ReGIS alphabet name. Refer to the *GIGI/ReGIS Handbook* for information on alphabet names (and the ReGIS Load command).

Note that the font name and the filename need not be the same. GIGI allows you to assign a font name to the active character set, but that fontname is internal to GIGI. Filenames are significant to your host operating system. A file containing alternate characters is saved by the host operating system when you enter the WRITE command.

HELP COMMAND

Use the HELP command to display a list of valid commands along with the layout of the auxiliary keypad. The format for specifying the HELP command is:

HELP

HELP and the question mark key perform the same function. When you enter the HELP command or press the question mark key, the editor displays the help file formatted as shown in Figure 19.

Figure 19.
Main HELP menu

```
Current font:    !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO

Font name        PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

   ._I.........I...............I........._.    One of the following: (V1.00)
   :                                     :
   :                                     :     quit
   :                                     :     regis [STRING]
   :                                     :     dimension OPTION
   :                                     :     edit [CHAR]
   :                                     :     write [OPTION-LIST]
   :                                     :     read [OPTION-LIST]
   :                                     :     redraw [AREA]
   :                                     :     mosaic
   :                                     -     show OPTION
   :                                     :     font-name NAME
   :                                     :     clear [CHAR ...]
   :                                     :     use FONT
   :                                     :     copy FROM-CHAR TO-CHAR
   -                                     :     help
   .I.........I...............I........._

Command:
```

MOSAIC COMMAND

The MOSAIC command allows you to enter characters in the 10x10 character selection grid in the utility area. You select characters interactively by moving the graphics cursor with the auxiliary keypad arrow keys and entering characters onto the grid from the main keypad.

To return to command mode, press the RETURN key.

The format for specifying the MOSAIC command is:

MOSAIC

In mosaic mode, the WINDOW key on the auxiliary keypad centers the mosaic window at the cell at which the graphics cursor is currently pointing. You can then use the alternate keypad keys to compose characters.

QUIT COMMAND

The QUIT command directs the editor to return the terminal to monitor command mode.

The format for entering the QUIT command is:

QUIT

READ COMMAND

The READ command reads into the active character set either an entire alternate character set or selected characters from an alternate character set. Characters read into the active character set are displayed below their corresponding characters in the master character set. When no options are specified, the character set read replaces the current alternate character set, if one exists. The READ command is specified as follows:

READ *filespec* { CHARACTERS *"character ..."* } { INTO-CHARACTERS *"altchar ..."* } $\left\{\begin{array}{l}\text{SET}\\\text{CLEAR}\\\text{REVERSE}\\\text{COMPLEMENT}\end{array}\right\}$

where:

filespec

File specification for the file containing the alternate character set. If *character*, described below, is not specified, the characters from the alternate character set file are read into the active character set.

CHARACTERS *character ...*

Optional alternate characters selected from the character set contained in *filespec*. When specific characters are selected, only those characters are read into the positions in the active character set specified by *altchar*, described below.

The list of characters must be enclosed in either single (') or double (") quotes; characters must be separated by blanks. Space and quote characters in the list may be specified by the strings *sp* and *qu*, respectively.

If *altchar* is not specified, *character* is read into its corresponding position in the active character set. For example, if the alternate character Z is selected, it is read into the Z position in the active character set.

INTO-CHARACTERS *altchar ...*

Position in the alternate character set into which *character* is read. *altchar* characters correspond position-for-position with characters specified by *character*, above.

If *altchar* is specified, you must also specify a corresponding *character*. Otherwise, the editor disregards the alternate characters and places *character* characters in their normal character set position.

SET

Read an alternate character (or characters) and set its cells on; merge with currently-active character set by setting currently-set cells, that is, the new character will have cells set which are set either in the current character or in the character being read.

CLEAR

Read an alternate character (or characters); merge with currently-active character set by turning off currently-set cells when those cells correspond to cells set in the character set being read.

REVERSE

Read an alternate character (or characters) with cells reversed (that is, set cells are turned off and vice versa); do not merge with currently active characters. Note that these reversed characters replace the characters in the active character set.

COMPLEMENT

Read an alternate character (or characters); merge with currently-active character set by complementing currently-set cells when those cells correspond to cells in the character set being read. (That is, the only cells set in the new characters are those which were set neither in the active character set nor in the character set being read.) Figure 20 shows the menu screen for the READ command.

Figure 20.
Menu screen for the READ command

```
Current font:     !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
 _____
| Font name |      PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
|_____|

 _|''''''''|'''''''''|''''''''|_     One of the following: (V1.00)
 -                              -
 -                              -     characters "CHAR CHAR ..."
 -                              -     into-characters "CHAR CHAR ..."
 -                              -     file FILESPEC
 -                              -     reverse (reads complement of file into font)
 -                              -     set (font bits from 1-bits in file)
 -                              -     clear (font bits from 1-bits in file)
 -                              -     complement (font bits from 1-bits in file)
 -                              -
 -                              -
 -                              -
 -                              -
 -                              -
 -|''''''''''|''''''''''|''''''''|

Command:
```

REDRAW COMMAND

The REDRAW command redraws a part or parts of the screen display.

The format for specifying the REDRAW command is:

REDRAW { 1 2 3 }

where:

1 redraws the Character Set Display Area.

2 redraws the Character Composition Window.

3 redraws the Character Variation Display Area.

If you specify REDRAW with no number, the Character Set Editor redraws the entire screen display.

REGIS COMMAND

The REGIS command allows you to examine and edit (add to and delete from) the ReGIS file currently stored in character set memory.

The format for specifying the REGIS command is:

REGIS $\left\{ \begin{array}{c} string \\ ? \end{array} \right\}$

where:

string
Specifies a string (for example, ReGIS command or commands) to be inserted at the current location in the file.

?
Directs the editor to display the currently-active ReGIS file.

When you enter the REGIS command with no options, the editor places GIGI in graphics mode and displays the current ReGIS command.

Substitution Symbols
The Character Set Editor interprets the percent symbol (%) as a substitution symbol. You can use the substitution symbol in a ReGIS string that is interpreted by the editor. When the editor encounters the symbol, it stops and allows you to insert any string you want at that place in the file.

Resuming Execution
Enter the REGIS command with no arguments to execute the current ReGIS command.

SHOW COMMAND

Use the SHOW command to specify the following types of displays in the utility display area:

- Variations of the character being edited.
- A blank area.
- The ASCII mosaic map, that is, ASCII characters entered in the map.
- The alternate character mosaic map, that is, the alternate character patterns in the map.

The format of the SHOW command is as follows:

$$\text{SHOW} \left\{ \begin{array}{l} \text{CHARACTER } character \left\{ \begin{array}{l} size \\ slant \\ rotation \end{array} \right\} \\ \\ \text{NOTHING} \\ \text{MOSAIC-MAP} \\ \text{ALTERNATE-CHARACTER-MOSAIC} \end{array} \right\}$$

CHARACTER
Display a character in various sizes, slants, and rotations.

character
is a character to be shown in the character variation display area. If there is not enough room in the utility display area to display the character, the Character Set Editor asks you whether you want to delete a character to make room for the new one.

size
specifies the size attribute of the character variation. Values that may be specified for *size* are 0 through 9; the default is 1.

slant
specifies the degree of italic slant for the variation character. This attribute gives the character an italic appearance. Values that may be specified for *slant* are specified in degrees between -45 and 45; the default is 0.

rotation
specifies the degree of rotation of the character. Values that may be specified for *rotation* are: 0, 45, 90, 135, 180, 225, 270, and 315.

NOTHING
Generates a blank display on the utility display area.

MOSAIC-MAP
Displays the mosaic map of ASCII characters from which characters are selected for composition in the character composition area.

ALTERNATE-CHARACTER-MOSAIC
Generates a display of the mosaic map of the images of the alternate character images as they are laid out on the mosaic map. For example, if the characters that comprise a truck are arranged such that they form the image of truck, the mosaic map will show the truck.

There are two menu screens for the SHOW command:

Figure 21.
Main menu for SHOW

```
Current font:    !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO

Font name        PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{¦}~

  |'''''''''|''''''''''|'''''''''|_     One of the following: (V1.00)
-                                   -
-                                   -   nothing
-                                   -   characters [CHAR [OPTION-LIST]]
-                                   -   mosaic-map
-                                   -   alternate-character-mosaic
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
 |'''''''''|'''''''''|''''''''''|'''

Command:
```

Figure 22.
Options menu for SHOW

```
Current font:    !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO

Font name        PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{¦}~

  |'''''''''|''''''''''|'''''''''|_     One of the following: (V1.00)
-                                   -
-                                   -   edited-character
-                                   -   space
-                                   -   CHAR
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
-                                   -
 |'''''''''|'''''''''|''''''''''|'''

Command:
```

USE COMMAND

The USE command directs the character set editor to load the active character set into one of GIGI's three alternate character set memories, enabling that character set for use. Once loaded by the USE command, the characters in the alternate character sets may be used regardless of whether the Character Set Editor is executing.

Specify the USE command as follows:

USE $\left\{ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right\}$

where 1, 2, and 3 specify alternate character sets 1, 2, or 3 respectively. When you invoke the character set editor, character set 1 is the default.

WRITE COMMAND

WRITE directs the editor to write either the entire active font or selected characters from the active font into the specified file. The format for specifying the WRITE command is:

WRITE FILE *filespec* { CHARACTER *"character ..."* } { INTO *"character ...."* }

where:

FILE *filespec*

Specifies the output file in which the alternate character set characters are saved. If *filespec* is omitted, the editor prompts for a filename. The default filetype is FNT. If there is no previously read or written file, the editor prompts you for a file specification. If the specified file does not exist, it is created.

CHARACTER *"character ..."*

Specifies selected characters to be written to the file specified by *filespec*, described above. If *character* is not specified, the entire font is written to the specified file.

The list of characters must be enclosed in either single or double quotes; characters must be separated by blanks. When quote or blank characters are required in the character list, use the strings qu and sp in place of them.

INTO *characters ...*

Specifies the ASCII character that corresponds to the position into which alternate characters are loaded. For example, you could write alternate character A into the character frame corresponding to the ASCII character X.

Figure 23 shows the menu screen for the WRITE command.

Figure 23.
Menu screen for the WRITE command

```
Current font:    ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O
Font name        P Q R S T U V W X Y Z [ \ ] ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~

 _ ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! _      One of the following: (V1.00)
 _                                               _
 _                                               _         characters "CHAR CHAR ..."
 _                                               _         into-characters "CHAR CHAR ..."
 _                                               _         file FILESPEC
 _                                               _
 _                                               _
 _                                               _
 _                                               _
 _                                               _
 _                                               _
 _                                               _
 _                                               _
 _                                               _
 _ ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !

Command:
```

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