

Burroughs

**Reference
Manual**

**B 20 Systems
Font**

(Relative to Release Level 3.0)

*Priced Item
Printed in U.S.A.
March 1984*

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Manual**

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INTRODUCTION

This manual provides descriptive and operational information for the Burroughs Font Designer used in Burroughs B 20 System applications. The information is presented as follows:

Section 1,	Overview
Section 2,	Concepts
Section 3,	Invoking the Font Designer
Section 4,	Cursor Control
Section 5,	Typing Characters into Frames
Section 6,	Editing a Character
Section 7,	Reading and Writing Fonts: The f6 and f7 Keys
Section 8,	Reading a Text File: the f8 Key
Section 9,	Finishing a Designing Session: FINISH
Section 10,	B 25 Support
Section 11,	Creating New Characters: A Tutorial
Section 12,	Using a New Font
Section 13,	Format of a Font File
Section 14,	Error Codes

The following additional technical manual is referenced within this manual:

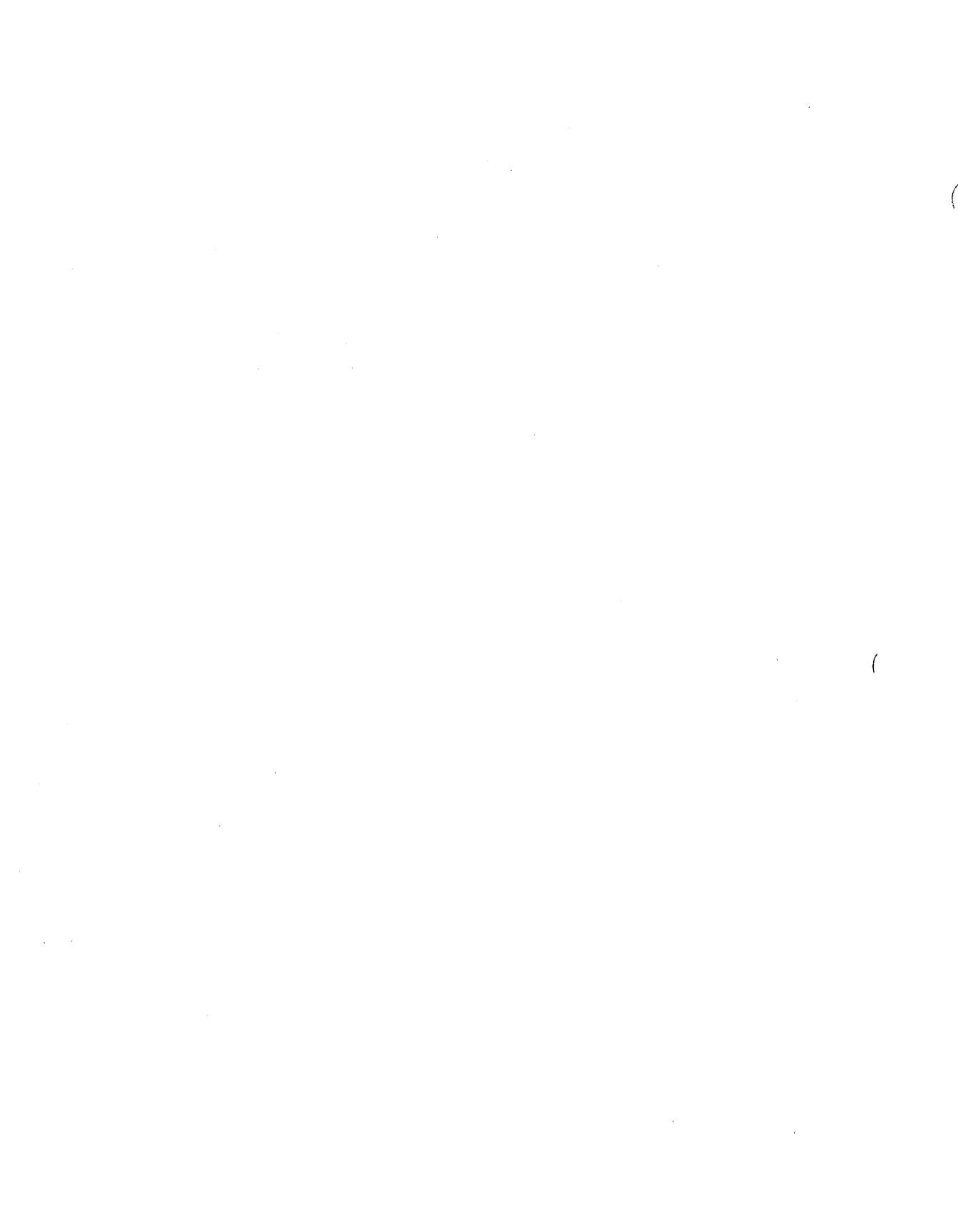
B 20 Systems Editor Reference Manual, form 1148673

SECTION 1

OVERVIEW

The Burroughs Font Designer is a systems software product used to interactively design character sets (fonts).

The character set of the Burroughs B 22 or B 25 system can be modified purely in software; in contrast, most other systems, including the B 21 series, have ROM-based (and therefore difficult to change) character sets. Each character is defined by a 10-by-15 dot matrix on the B 22 and a 9-by-12 dot matrix on the B 25. Burroughs provides a standard character set. However, you can customize your own set to replace it. You can also load the new font from any Burroughs language or application system. (See section 12.)



SECTION 2

CONCEPTS

FONT

A font is a particular character set. Different kinds of fonts are ASCII, EBCDIC, Roman, foreign language, italic, etc. Except for the standard character set supplied by Burroughs, you must define any new font.

SCREEN FORMAT

When the Font Designer has control of the system, the video display is always in 80-column mode.

FRAMES

The Font Designer screen is divided into the Status Frame and six other frames: the Scaled Character Frame, the Character Frame, the Character Code Frame, the Work Area Frame, the Sample Text Frame, and the Sample Text Character Codes Frame. The Font Designer screen is shown in Figure 2-1.

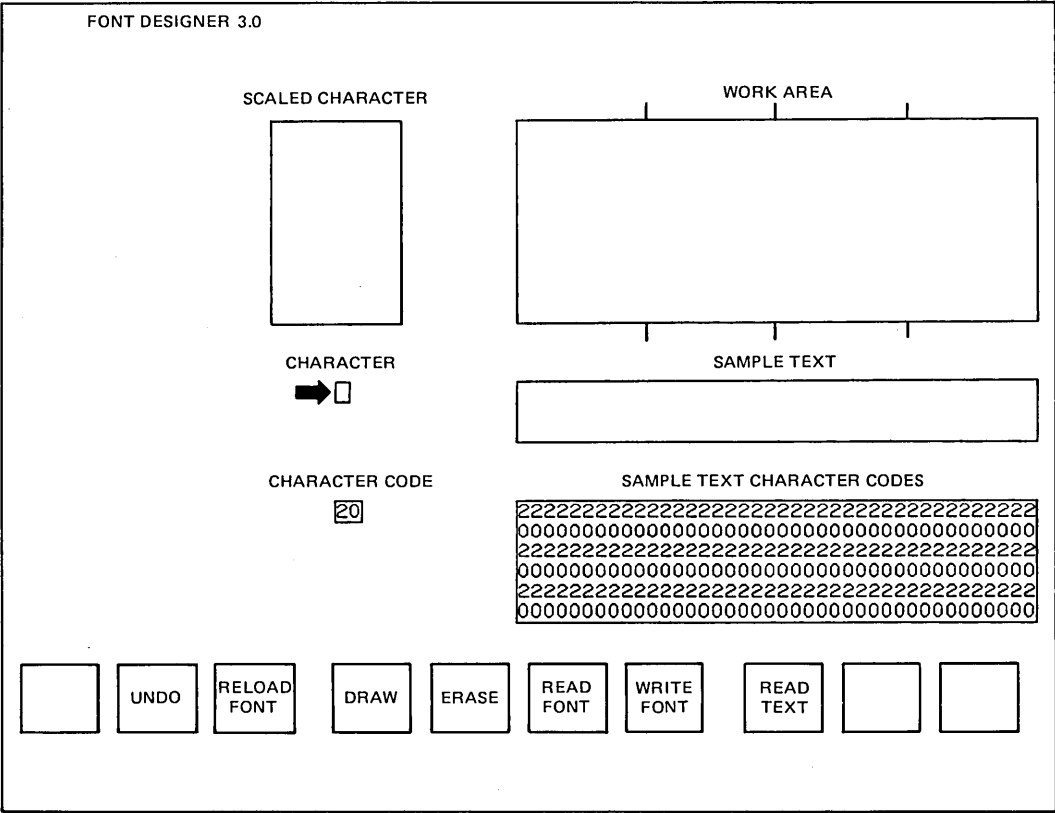


Figure 2-1. Font Designer Screen

The Status Frame occupies the right portion of top line of the video display. Error messages appear in the Status Frame.

Scaled Character Frame

The Scaled Character Frame displays an enlarged version of the character being edited. Each character cell in this frame represents one pixel in the 10-by-15 dot matrix of the character being edited.

Character Frame

The Character Frame displays in true size the character being edited.

Character Code Frame

The Character Code Frame displays the hexadecimal code of the character being edited.

Work Area Frame

The Work Area Frame is used to design characters and show the relationships between them. It is initially blank.

Sample Text Frame

The Sample Text Frame is initially filled with spaces. When you type into this frame, it displays characters as they appear in the font currently being edited.

Sample Text Character Codes Frame

The Sample Text Character Codes Frame displays the hexadecimal codes of the characters of the Sample Text Frame. The two digits of each code are arranged vertically. When the Font Designer is first invoked, this frame contains rows of 2's and rows of 0's, with each 2-0 combination representing one character position in the Sample Text Frame.

FUNCTION KEYS

Eight of the ten function keys (f2-f9) are used in designing a new font. A strip on the keyboard is labeled like this:

	RELOAD				READ	WRITE	READ	SHIFT	
	UNDO	FONT	DRAW	ERASE	FONT	FONT	TEXT	*	
f1	f2	f3	f4	f5	f6	f7	f8	f9	f10

f1 and f10 are not used. READ TEXT is assigned to f8 as well as being accessible via CODE-T.

All function keys are treated as commands. Those that are not currently labeled will yield an error message if pressed.

NOTE

This is applicable to a B 25 workstation only. This key will not be displayed or recognized on a B 22.

SECTION 3

INVOKING THE FONT DESIGNER

INTRODUCTION

To invoke the Font Designer from the Executive, type "Font Designer" in the command field of the command form (see the B 20 System Software Operation Guide, form 1148772). Press RETURN. The form illustrated below then appears.

Font Designer
Font file _____

Fill in "Font file" with the name of either an existing font file to be edited or a new file to be created. If you specify an existing file, it must be a font file. (See Section 12.) If you specify a new file, the Font Designer begins execution with a copy of the standard character set.

CAUTION

Do not attempt to edit the font files [Sys]<Sys>Sys.Font (the B 22 Operating System standard character set), [Sys]<Sys>T1Sys.Font (the B 25 Operating System standard character set), [Sys]<Sys>T1FDFont (the B 25 Font Designer character set) or [Sys]<Sys>B22FD Font (the B 22 Font Designer character set).

After filling in the form, press GO. The screen is blank for a few seconds, and then the Font Designer screen is displayed.

SCREEN

When the Font Designer first takes control of the system, character 20h (the space) is mapped into the Scaled Character Frame. That character then appears in the Character Frame and in all 120 positions of the Sample Text Frame. The number 20 appears in the Character Code Frame and rows of 2's and 0's appear in the Sample Text Character Codes Frame.

SECTION 4

CURSOR CONTROL

APPEARANCE

There is always a cursor on the Font Designer screen.

The cursor appears as a blinking underline except when it is within the Scaled Character or the Work Area Frame. Then it appears as a small nonblinking square, light- or dark-colored, depending on the background.

MOVEMENT BETWEEN FRAMES

When the Font Designer is first invoked, the cursor is in the Character Frame. NEXT or RETURN moves the cursor from frame to frame in the order: Character to Character Code to Sample Text to Sample Text Character Codes to Scaled Character and back to Character. CODE-RETURN or CODE-NEXT traverses the frames in reverse order.

The NEXT or RETURN key never places the cursor in the Work Area Frame. When the cursor is at the right edge of the Scaled Character Frame, pressing the right-arrow key moves it to the Work Area Frame. When the cursor is at the left edge of the Work Area Frame, pressing the left-arrow key moves it to the Scaled Character Frame.

When the cursor is in the Work Area Frame, pressing NEXT moves the cursor to the Character Frame.

MOVEMENT WITHIN FRAMES

Cursor movement within frames is controlled by the four cursor keys: up, down, left, and right arrow. The CODE key is sometimes used with these four keys to produce other movements. BACKSPACE is like the left-arrow key in this case (it does not erase characters).

The cursor moves differently, depending on which frame or field it is in. Within any frame, pressing a key not pertinent to the context of that frame briefly sounds the keyboard beeper.

CODE-left arrow quickly moves the cursor to the left edge of the frame within which it is located, CODE-up arrow quickly moves the cursor to the top edge of the frame within which it is located, etc. Within the Work Area, CODE-left and CODE-right arrows can be used to move between the character divisions.

SECTION 5

TYPING CHARACTERS INTO FRAMES

CHARACTER EDITS

As a character is being edited in the Scaled Character Frame, the representation of that character in the Character Frame is constantly updated, if the LED of function key f3 (Reload Font) is lit. The update is also performed on all instances of the character in the Sample Text Frame. If the f3 LED is not lit, updates are not performed until it is pressed.

Edits performed in the Work Area do not affect any font.

CHARACTER FRAME

A single character can be typed in the Character Frame by pressing the key alone, or in combination with SHIFT, CODE, or SHIFT and CODE. (Those few characters that cannot be entered directly into this frame, because they invoke functions of the Font Designer, can be entered using the Character Code Frame described below or by typing CODE-' which enters the next key literally.

The Font Designer displays an enlarged version of the character in the Scaled Character Frame, and changes the character code in the Character Code Frame correspondingly.

CHARACTER CODE FRAME

The only characters that can be typed in the Character Code Frame are the hexadecimal digits 0 to 9 and A to F.

The Font Designer displays an enlarged version of the character in the Scaled Character Frame, and changes the character in the Character Frame correspondingly. The character is not entered until its second digit is typed.

SAMPLE TEXT FRAME

The same characters can be typed in the Sample Text Frame as in the Character Frame.

The Font Designer changes the character code in the corresponding position of the Sample Text Character Codes Frame.

SAMPLE TEXT CHARACTER CODES FRAME

The only characters that can be typed in the Sample Text Character Codes Frame are the hexadecimal digits 0 to 9 and A to F. The cursor automatically moves in the correct direction for completing one character code and beginning the next.

The Font Designer changes the character in the corresponding position of the Sample Text Frame. The character is not entered until its second digit is typed. Changing the first digit of the character code, and then moving the cursor past the second, has the same effect as typing the second digit.

SECTION 6

EDITING A CHARACTER

INTRODUCTION

To call up a specific character from the keyboard, move the cursor to the Character Frame, and type the character. The Font Designer displays an enlarged version of the character in the Scaled Character Frame. Move the cursor to the Scaled Character Frame by pressing CODE-NEXT.

To call up a specific character by its character code, move the cursor to the Character Code Frame, and type the character code. The Font Designer displays an enlarged version of the character in the Scaled Character Frame. Move the cursor to the Scaled Character Frame by pressing CODE-NEXT twice, or NEXT three times.

Each character cell within the Scaled Character Frame represents one pixel within the dot matrix of the character being edited. To design a new character, dots are drawn and erased with f4 and f5.

DRAWING DOTS: THE f4 KEY

Pressing the f4 key changes the character cell to a solid, light-colored square when the cursor is in either the Scaled Character or Work Area Frame. This square represents one pixel within the dot matrix of the character being edited (or one dot turned on). The cursor now appears as a dark square within the solid light square.

The cursor does not move when f4 is pressed. To turn on another square, move the cursor to the desired position and press f4.

ERASING DOTS: THE f5 KEY

Pressing the f5 key changes the character cell to a solid, dark-colored square when the cursor is in either the Scaled Character or Work Area Frame. This square represents one pixel within the dot matrix of the character being edited (or one dot turned off). The cursor now appears as a light square within the solid dark square.

The cursor does not move when f5 is pressed. To turn off another square, move the cursor to the desired position and press f5.

SELECTION

An important concept in the Font Designer is the selection : a rectangular area of the screen that is designated for the purpose of applying some action to a group of character cells. The selected area is indicated by a boundary of four temporary cursors, one at each corner of the rectangle. There is only one selection at a time; making a new selection removes any previous selection that may exist.

The selection is used to turn on or off the character cells of an area, or to move or copy the contents of an area to another position.

Making a Selection

A selection is made using the MARK and BOUND keys.

Position the cursor at any corner of the desired rectangle and press MARK. A temporary cursor is created in this position.

Move the cursor to the position you want to be the diagonally opposite corner of the rectangle, and press BOUND. Three more temporary cursors appear, one at the bound position, and one each at the other two corners of the defined rectangle. Pressing BOUND again at a different position leaves the MARKed corner of the selection fixed, and adjusts the rectangle to the new diagonal by creating three new temporary cursors.

The four temporary cursors look exactly like the "permanent" cursor, but they are fixed. The permanent cursor overlays a temporary one when they are in the same position.

The selection remains selected (and the temporary cursors remain in position), until you delete it. Moving the cursor to another frame does not affect the selection.

A single line or column can also be MARKed and BOUND.

Pressing MARK again removes the previous selection and makes a new selection of a single cell.

Drawing Dots in a Selection: CODE-f4

To fill a selection completely with light-colored squares, press CODE-f4. The four temporary cursors disappear.

Erasing Dots in a Selection: CODE-f5

To erase all the light-colored squares in a selection, press CODE-f5. The four temporary cursors disappear.

Moving a Selection: MOVE and CODE-MOVE

Select the area to be moved, then position the cursor at the location corresponding to the top left corner of the target area. Press MOVE. The content of the selected source area is deleted; the content of the target area is replaced with an exact image of the selected source area as it was before the deletion, except that the new image extends only as far as the edges of the frame. Source and target areas can overlap; the move that is made in this case is just the same as if no overlap had occurred.

To merge the source area into the target area, use CODE-MOVE. Use this type of move to create a new character by moving one character on top of another, such as a diagonal through a 0 (Ø) to create the 0 used in some computer typefaces.

Copying a Selection: COPY and CODE-COPY

Select the area to be copied, then position the cursor at the location corresponding to the top left corner of the target area. Press COPY. The content of the selected source area is untouched; the content of the target area is replaced with an exact image of the selected source area as it was before the deletion, except that the new image extends only as far as the edges of the frame. Source and target areas can overlap; the copy that is made in this case is just the same as if no overlap had occurred, but the copy overwrites as much of the source as it overlaps.

To merge the source area into the target area, use CODE-COPY. Use this type of copy to create a boldface character by copying one character on top of itself, one position offset.

UNDO: THE f2 KEY

Any editing within the Scaled Character Frame can be undone by pressing f2, until you place a new character into the Character Frame. Pressing f2 replaces whatever is in the Scaled Character Frame with the character that was originally called up from either the Character or the Character Code Frame.

Once you place a new character into the Character Frame, the editing becomes a permanent part of the character set. If you don't wish to lose the original character, copy it into the Work Area Frame before calling up a new character for editing.

RELOAD FONT: THE f3 KEY

When the Font Designer is first invoked, the LED of the f3 key lights. This is the Reload Font function. While f3 is lit, and while the cursor is within the Scaled Character Frame, each time f4, f5, CODE-f4, or CODE-f5 is pressed, or each time a selection is moved or copied into the Scaled Character Frame, the character in the Character Frame is updated. (The video display image jumps each time this happens.) In addition, any representations of the character in the Sample Text Frame are also updated.

If you wish to eliminate the video display jump, press f3 once to turn off the Reload Font function. Now edits within the Scaled Character Frame are not reflected in the Character Frame. When you have designed one or more new characters, press f3 and the font reloads.

SECTION 7

READING AND WRITING FONTS: THE f6 AND f7 KEYS

INTRODUCTION

The Font Designer is usually used to edit a single font whose name is specified when invoking the Font Designer. The edited font is then saved when you press FINISH at the end of the designing session. However, it is also possible within the Font Designer to read in or write out a font explicitly.

READING A FONT FILE

Invoke the Read Font form during a designing session by pressing f6. The form illustrated below then appears.

Read Font	
File _____	[First source character (00)]
[Number of characters (00)] _____	[First destination character (00)]

Fill in "File" with the name of a font file from which to read characters into the character set being edited.

Fill in "[Number of characters]" with the hexadecimal number of characters to read from the file. The default value, 00, reads in the entire character set.

Fill in "[First source character]" with the hexadecimal number of the source character with which to begin the transfer. If you used the 00 default in "[Number of characters]", use the 00 default here too. The default value, 00, reads from the first character of the file.

Fill in "[First destination character]" with the hexadecimal number of the destination character at which to begin the transfer. If you used the 00 default in "[Number of characters]", use the 00 default here too. The default value, 00, begins transfer at the first character of the character set being edited.

All characters read in overwrite characters of the set being edited.

WRITING A FONT FILE

Invoke the Write Font form during a designing session by pressing f7. The form illustrated below then appears.

Write Font	
File _____	[First source character (00
[Number of characters (00)]	[First destination character (00

Fill in "File" with the name of a font file to which to write characters from the character set being edited.

Fill in "[Number of characters]" with the hexadecimal number of characters to write from the character set being edited into the file. The default value, 00, writes the entire character set.

Fill in "[First source character]" with the hexadecimal number of the source character with which to begin the transfer. If you used the 00 default in "[Number of characters]", use the 00 default here too. The default value, 00, writes from the first character of the character set being edited.

Fill in "[First destination character]" with the hexadecimal number of the destination character at which to begin the transfer. If you used the 00 default in "[Number of characters]", use the 00 default here too. The default value, 00, starts writing at the first character of the file.

All written characters overwrite other characters as specified. If the destination file does not exist, it is created. If the destination file does exist, a -OLD file is created.

SECTION 8

READING A TEXT FILE: THE f8 KEY

It is also possible to fill the Sample Text Frame with a previously recorded text file. Invoke the Read Text form during a designing session by pressing the f8 key or by pressing CODE-T. The form illustrated below then appears.

File _____	Read Text	[Number of characters (78)]
[File position (00)]		[Sample text position (00)]

Fill in "File" with the name of an ASCII text file from which to read characters into the Sample Text Frame. This prevents having to type in all the characters you wish to examine in the Sample Text Frame. Prior to the font designing session, create (with the Editor) a file that contains all the characters you wish to display. (See the B20 Systems Reference Manual, form 1148673.) Such a file might consist of a lowercase alphabet, an uppercase alphabet, and then all the numbers and special symbols of the keyboard.

Fill in "[File position]" with the hexadecimal number of the character with which to begin the transfer. The default value, 00, reads from the first character of the file.

Fill in "[Number of characters]" with the hexadecimal number of characters to read from the file into the Sample Text Frame. You cannot enter a number greater than 78. To fill the Sample Text Frame, use the 78 default. 78h is the same as 120 decimal, the number of characters in the Sample Text Frame.

Fill in "[Sample text position]" with the hexadecimal number of the position in the Sample Text Frame to begin reading characters from the file. The default value, 00, is the upper left corner of the Sample Text Frame. No matter where you start reading text into the Sample Text Frame, the frame fills only to the lower right corner. It does not wrap back to the upper left corner as when you enter text from the keyboard.

SECTION 9

FINISHING A DESIGNING SESSION: FINISH

After you have designed the character set, press FINISH. The form illustrated below then appears.

Finish [Save? (Yes)] _____

Press GO to save the current character set as a file with the name specified when you invoked the Font Designer.

If the file exists, it is overwritten and a -OLD file is created. If the file does not exist, it is created.

If you do not wish to save the current character set, type No and then press GO.

SECTION 10

B 25 SUPPORT

This release of the Font Designer supports the B 25 font as well as the B 22 font. The B 25 font is a 9x12 dot matrix (compared to 10x15 for the B 22). The system font for the B 25 is called TlSys.Font.

HALF BIT SHIFT: THE f9 KEY

The B 25 workstation supports the Half Bit Shift (f9) command. The B 25 video has the ability to allow a character row to be shifted right by 1/2 a pixel. This allows the design of characters which are more pleasing to the eye than the resolution might otherwise allow.

Pressing f9 while in the Scaled Character area or the Work area will cause the row on which the cursor sits to be half bit shifted. Pressing f9 again in the same row will turn off the half bit shift. Thus f9 is a toggle. If the cursor is in the Scaled Character area, the effect will be seen in the Scaled Character area, Character frame and Sample Text area (if the character had been typed there previously). A shifted row in either the Scaled or Work area is indicated by a small arrow in the left most position of the row as well as a pixel shift. In the Work area each character area can be shifted independently.

Note that shifted pixels at the end of a row do not shift past the character boundary.

A half bit shifted row will be unshifted when the row is cleared by using CODE-f5 on a row selection or entire character selection.

On a copy or move, half bit shift information from selection will be copied or moved only if entire rows are selected; otherwise the half bit shift of the destination will be used.

RELOAD FONT: THE f3 KEY

The Reload Font (f3) key need never be turned off for a B 25 since there is no video jump penalty.

SECTION 11

CREATING NEW CHARACTERS: A TUTORIAL

INTRODUCTION

This section illustrates the steps necessary to construct new characters with the Font Designer, and then how to save the new font.

Start by entering the Font Designer by giving the "Font Designer" command to the Executive. Fill in the "Font file" field with the name of the font you wish to create, say, "MyFont."

You see the Font Designer screen, as shown in figure 2-1. The Character Frame contains only the cursor, a blinking underline. The Scaled Character, Work Area, and Sample Text Frames are blank. The Character Code Frame contains 20, and the Sample Text Character Codes Frame contains alternating rows of 2's and 0's.

Suppose you want to create two new characters, a special Z with a line through it (Z), as used by many Europeans to distinguish the Z from the 2, and a boldface Z. You want to put these characters into the character set positions corresponding to SHIFT-= (2B) and SHIFT-CODE-Z (DA), respectively.

Note

The user may select different character set positions depending upon local preference.

CALLING A CHARACTER

Press SHIFT-Z to call up the capital Z. The Font Designer displays an enlarged Z in the Scaled Character Frame. The Font Designer screen now looks like figure 11-1.

The Character Code Frame changes to 5A. Press NEXT twice. The cursor is now in the Sample Text Frame. Type SHIFT-Z, SHIFT=, and SHIFT-CODE-Z. A capital Z, a plus, and a horizontal line (mid-character high) appear, and the Font Designer screen now looks like figure 11-2.

COPYING A CHARACTER

Press NEXT twice more. The cursor, in the form of a small, light-colored square, appears in the upper left corner of the Scaled Character Frame.

Press MARK. Press CODE-right arrow. The cursor moves to the upper right of the frame, leaving a temporary cursor in the upper left. Press CODE-down arrow. The cursor moves to the lower right of the frame. Press BOUND. Two more temporary cursors appear. Now there is one cursor in each corner of the Scaled Character Frame, and the entire frame has been selected.

Press the right arrow once. The cursor appears in the lower left corner of the Work Area Frame. The four temporary cursors remain in the Scaled Character Frame. Press CODE-up arrow. The cursor moves to the upper left corner of the Work Area Frame.

Press COPY. (Do not press MOVE. You'll see why in a moment.) The Font Designer displays a copy of the enlarged Z in the left quarter of the Work Area Frame. The four temporary cursors in the Scaled Character Frame disappear. The permanent cursor remains in the upper left corner of the Work Area Frame.

The Font Designer screen now looks like figure 11-3.

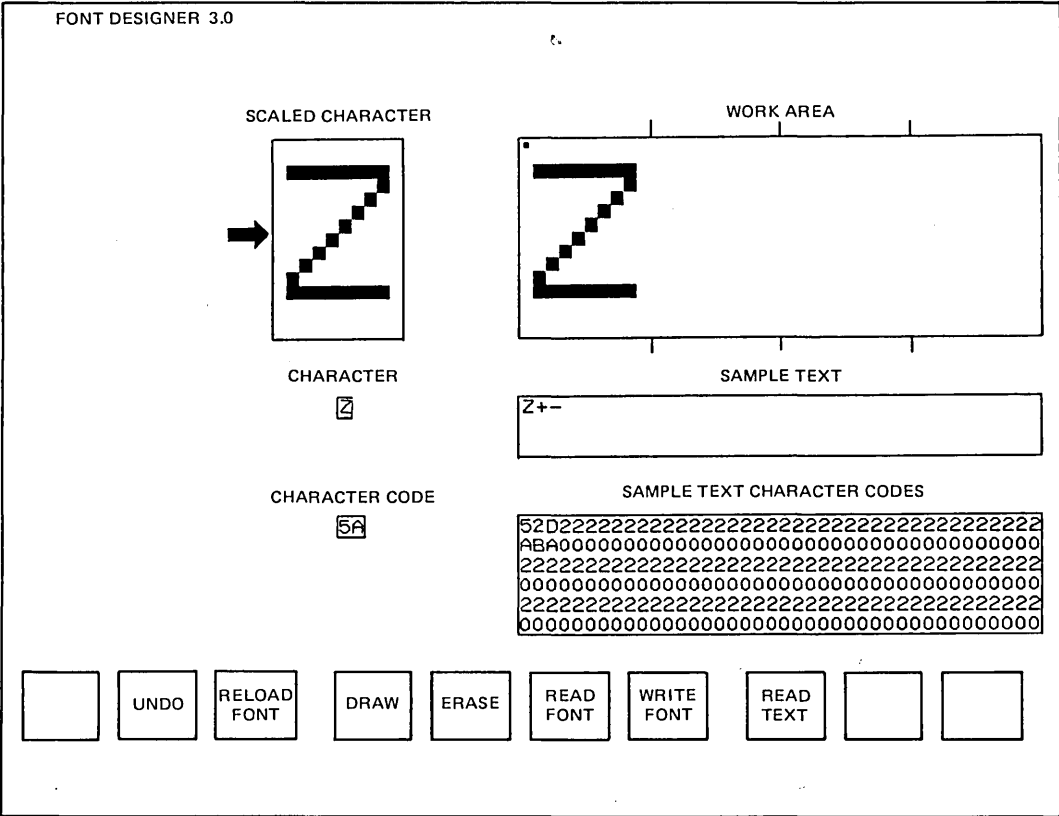


Figure 11-3. Screen After Copying a Character to a Work Area Frame

CALLING A NEW CHARACTER

Press NEXT once. The cursor appears in the Character Frame. (If you had pressed MOVE before, the Z would have moved from the Scaled Character Frame and the frame would have become blank. When you called up another character, the Font Designer would have replaced the Z in the font with a space. Thereafter, whenever you typed Z, you would have gotten a space.) Type SHIFT= . The plus appears in the Character Frame. The Font Designer displays the character in the Scaled Character Frame. The Character Code Frame changes to 2B.

CHANGING THE CHARACTER: Z

Press CODE-NEXT. The cursor appears in the upper left corner of the Scaled Character Frame. Press CODE-right arrow. The cursor moves to the upper right corner of the frame. Press right arrow once. The cursor appears in the upper left corner of the Work Area Frame.

Press MARK. Press CODE-down arrow. The cursor moves to the lower left of the Work Area Frame, leaving a temporary cursor in the upper left of the frame. Move the cursor with the right arrow to the column that corresponds to the right edge of the Z. (It's okay to move the cursor further right than that, but it must be moved at least that far.)

Press BOUND. Four temporary cursors now delineate the corners of the selection. Make sure that the rectangle entirely contains the letter Z in the Work Area Frame. (If you didn't move the cursor far enough to the right, do so now, and then press BOUND again. This creates a new selection.)

Press CODE-left arrow. The cursor moves to the lower left corner of the Work Area Frame, but you see no change because there is already a cursor in this position. Press CODE-up arrow. The cursor moves to the upper left corner of the Work Area Frame. Press the left arrow once. The cursor appears in the upper right corner of the Scaled Character Frame. Press CODE-left arrow. The cursor moves to the upper left corner of the Scaled Character Frame.

Press COPY. (You could have pressed MOVE at this point, but you want the Z to remain in the Work Area Frame for the next operation.)

The Font Designer displays a copy of the Z in the Scaled Character Frame, removing the plus in the process. The four temporary cursors in the Work Area Frame disappear.

Since the f3 LED is lit, the character in the Character Frame becomes a Z, and the plus in the Sample Text Frame becomes a Z also. The Character Code Frame and the Sample Text Character Codes show no change. Press f3. The LED goes off. Move the cursor down the left edge of the Scaled Character Frame to the middle of the Z. Move the cursor two positions to the right, and press MARK. The Scaled Character Frame now looks like figure 11-4.

Now move the cursor five positions to the right, and press BOUND. The Scaled Character Frame looks like figure 11-5.

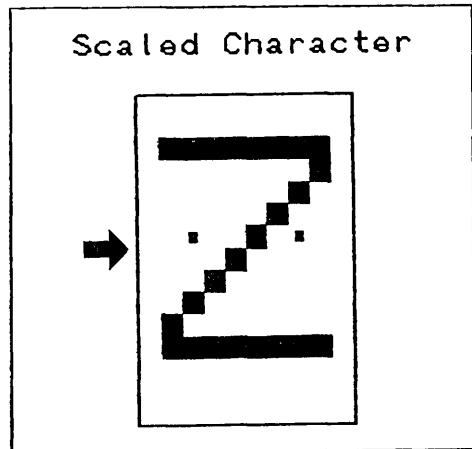
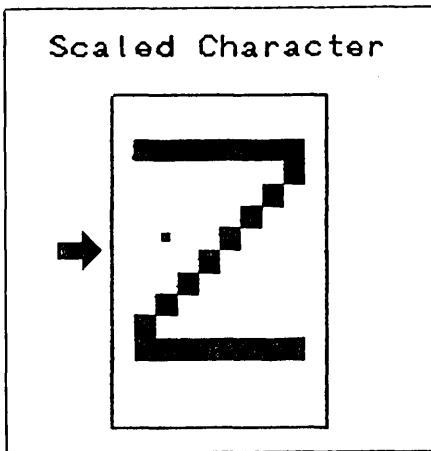


Figure 11-4. MARK the Selection

Figure 11-5. BOUND the Selection

Press CODE-f4, and the selection you defined (a straight line in this case) fills with light-colored squares. The Scaled Character Frame now looks like figure 11-6.

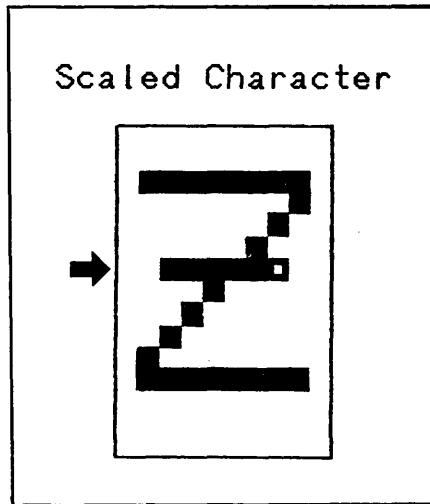


Figure 11-6. CODE-f4

Press f3. The LED lights and the new Z appears in the Character Frame and in the Sample Text Frame.

CREATING ANOTHER CHARACTER: BOLD FACE Z

Press CODE-right arrow. The cursor moves to the right side of the Scaled Character Frame. Press CODE-down arrow. The cursor moves to the lower right corner of the frame. Press the right arrow once. The cursor moves to the lower left corner of the Work Area Frame. Move the cursor with the right arrow to the column that corresponds to the right edge of the Z.

Press MARK. Press CODE-left arrow. The cursor moves to the lower left corner of the Work Area Frame. Press CODE-up arrow. The cursor moves to the upper left corner of the frame.

Press BOUND. Four temporary cursors now delineate the corners of the selection. Make sure that the rectangle entirely contains the letter Z in the Work Area Frame. (This shows that you can MARK a rectangle in any of its four corners, and BOUND it in the diagonally opposite corner. You could just as well have marked it in the upper left corner and bounded it in the upper right corner as before. A COPY or MOVE operation, however, always starts from the upper left corner.)

Press NEXT. Notice that the Z remains selected in the Work Area Frame. Press CODE-SHIFT-Z. The Font Designer displays the horizontal line in the Scaled Character Frame, and the character appears in the Character Frame. DA appears in the Character Code Frame.

Press CODE-NEXT. The cursor appears in the upper left corner of the Scaled Character Frame.

Press MOVE. The Font Designer displays the Z in the Scaled Character Frame and removes it from the Work Area Frame. The four temporary cursors in the Work Area Frame disappear. Since the f3 LED is still lit, a Z appears in the Character Frame and replaces the horizontal bar in the Sample Text Frame.

Press MARK. Press CODE-right arrow. The cursor moves to the upper right corner of the Scaled Character Frame, leaving a temporary cursor in the upper left. Press CODE-down arrow. The cursor moves to the lower right corner of the frame.

Press BOUND. There are now four temporary cursors, one in each corner of the frame, and one permanent cursor that you can't see.

Press CODE-up arrow. The cursor moves to the upper right corner of the Scaled Character Frame, although you see no change. Press CODE-left arrow. The cursor moves to the upper left corner of the frame. Press the down arrow once. The cursor is now along the left edge and one position below the cursor in the upper left corner. The Scaled Character Frame now looks like figure 11-7.

Now press CODE-COPY, and the Font Designer displays the selected Z in the existing Z. The four temporary cursors disappear. The copy is one line lower than the existing Z, and the Scaled Character Frame now looks like figure 11-8 below.

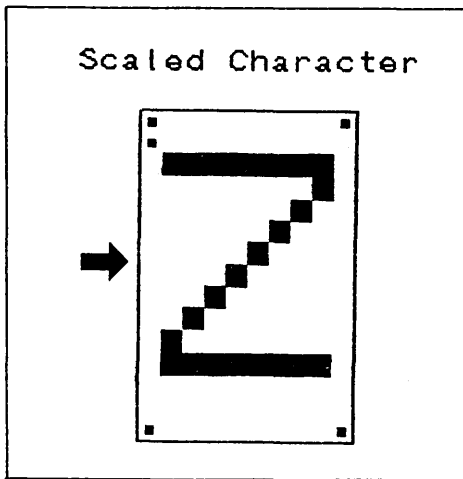


Figure 11-7. Select

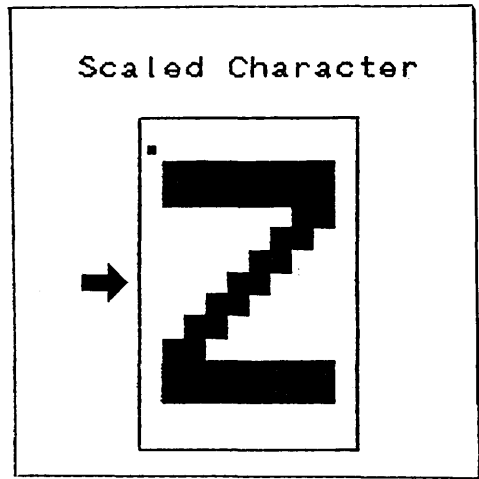


Figure 11-8. CODE-COPY

The new character, a boldface Z, appears in the Character Frame and in the Sample Text Frame.

SAVING THE NEW FONT

Press FINISH. Press GO. You have now created a new font file called MyFont. This file differs from the standard character set by replacing the plus (2B) with Z and the horizontal bar (DA) with a boldface Z.

(

(

SECTION 12

USING A NEW FONT

INTRODUCTION

Once you have created a new font file, you can use it in two ways:

- o replace the standard character set with the new file, or
- o call LoadFontRam (described below) from an application system.

REPLACING THE STANDARD CHARACTER SET

When the Executive first loads (and again after each Logout command), it calls LoadFontRam to load the standard character set, which is contained in the file [Sys]<Sys>Sys.Font on the B22 or [Sys]<Sys>TlSys.Font on the B25. If you replace Sys.Font or TlSys.Font with your customized font file, it is loaded instead.

NOTE

Be careful to save the standard Sys.Font or TlSys.Font (under a different name) before replacing it.

CALLING Load Font Ram

Any program can call LoadFontRam to load a character font from a specified open file. The program uses the new character font, and then again calls LoadFontRam to load a standard font before giving up control.

Description

The LoadFontRam service reads the character font from the specified open file into the specified memory area and then transfers the font to the font RAM. The file must contain a 16-word entry for each of 256 characters. Thus the file is 4096 words (8192) bytes long. Word 0 of each 16-word entry must be 0; words 1 to 15 represent the 15 rows of the character from top to bottom. Only bits 9 to 0 (where bit 0 is the least significant) of each word are used and represent the pixels from left to right.

Procedural Interface

LoadFontRam (fh, pBuffer, sBuffer): ErcType

where

fh is the file handle of an open file containing the character font.

pBuffer is the memory address of the buffer to use in loading the font RAM.

sBuffer is 8704. pBuffer/sBuffer describe the memory area to be used by LoadFontRam. The memory area must be completely contained in the first 128K bytes of memory and its size must be 8704 bytes.

Request Block

Offset	Field	Size (bytes)	Contents
0	sCntInfo	2	6
2	nReqPbCb	1	1
3	nRespPbCb	1	0
4	userNum	2	
6	exchResp	2	
8	ercRet	2	
10	rqCode	2	22
12	fh	2	
14	reserved	4	
18	pBuffer	4	
22	sBuffer	2	8704

SECTION 13

FORMAT OF A FONT FILE

A font file consists of 17 disk sectors, or 4352 words (8704 bytes). Each character consists of 16 words (32 bytes). Bits 0 through 15 are character 0; bits 16 through 31 are character 1, etc.

FONT FILE IDENTIFICATION SEGMENT

The last sector of a font file contains an identification segment. Bytes 0 thru 8 of this sector contain the following font information.

<u>Byte</u>	<u>Description</u>
0	Type of font. Equals Hardware type i.e., = 0 for B 22, = 4 for B 25
1	Leftmost bit position for character in word
2	Topmost word in 16 word character
3	Rightmost bit position for character in word
4	Bottommost word in 16 word character
5	-
6	-
7	Half bit shift (0 = false, 1 = true)
8	Half bit shift bit position in character word

The Font Designer will allow only those files destined for the current workstation type to be edited on that machine, i.e., ID's must match. This can be circumvented by READING a "foreign" font file (f6) into a valid font file for that machine. Note that the file read will be treated as the one destined for the current machine and may be of marginal use.

This font file format may still be used with previous versions of the Font Designer and BTOS.

B 22 CHARACTER FORMAT

Each character consists of 16 pairs of numbers. The first pair is discarded. (The first word of each character is a no op.) This leaves 15 pairs of numbers, representing the 15 scan lines in height of each character as seen on the video display. In each word (each representing one scan line), the high six bits are ignored. The next 10 bits define the line. The highest order bit used of the word corresponds to the leftmost position of the character line.

Figure 13-1 shows the letter Z. Each X represents a character cell turned on.

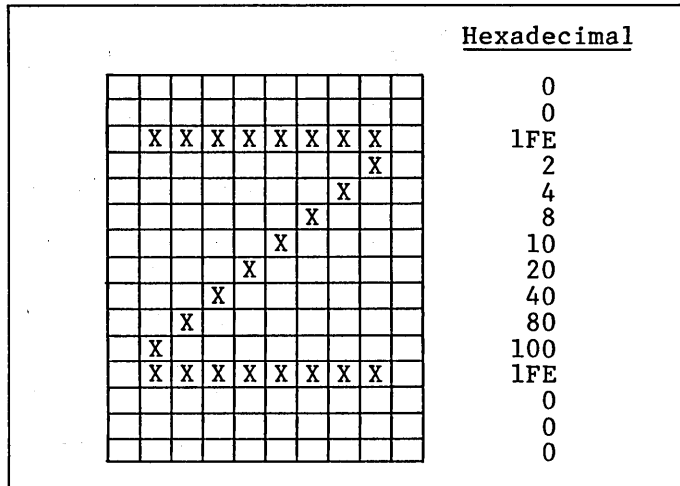


Figure 13-1. Letter Z in Word Representation

B 25 CHARACTER FORMAT

A B 25 font file contains 16-word entries for each of the 256 characters. Word 0-11 represents the 12 rows of the character from top to bottom. Bits 8 to 0 of each word represent pixels from left to right and bit 9 is used for 1/2 bit shift (1=on).

SECTION 14

ERROR CODES

"Font file not editable on this workstation"

This message will be displayed when the user supplies the name of a font file in the command form for the Font Designer for a "foreign" font file (i.e., a B.22 font file on a B 25 workstation).

"No command assigned to function key"

This message will be displayed when an unlabeled function key is pressed while in the Font Designer.

"Next character typed will be entered literally"

This message is displayed after CODE-' is pressed.

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