Burroughs

# Reference Manual

# B 20 Systems Font

(Relative to Release Level 4.0)

Distribution Code SA

Priced Item
Printed in U.S.A
January 1985

1168556

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# Reference Manual

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# INTRODUCTION

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*B 20 Systems Editor Reference Manual*
*B 20 Systems Operating System (BTOS) Reference Manual*

# SECTION 1

# OVERVIEW

You use the Burroughs Font Designer to design character fonts interactively.

You can modify the B 22 character font and the B 25 character font purely in software. In contrast, most other systems (including the B 21 series) have character fonts based on Read-only Memory (ROM). These fonts are impossible to change. On a B 22 system, each character is defined by a 10-by-15 dot matrix. On a B 25 system, each character is defined by a 9-by-12 dot matrix.

Burroughs provides a standard character font; however, you can customize your own to replace it. You can also load the new font from any Burroughs language or application system. (See section 12 for more information.)

**CAUTION**

> You must be careful when you make any font changes. If you change or eliminate a necessary symbol, you may be unable to read the output of a program.

## FILE REQUIREMENTS

The Font Designer requires four files to operate on each of the B 20 systems. Before you use Font Designer, make sure the following files are present on your system.

B 22 SYSTEMS:

[sys]<sys>FontDesigner.run
[sys]<sys>sys.font (your existing system font file)
[sys]<sys>B22FDfont
[sys]<sys>B22FDscreen

B 25 SYSTEMS:

[sys]<sys>FontDesigner.run
[sys]<sys>Tlsys.font (your existing system font file)
[sys]<sys>TlFDfont
[sys]<sys>TlFDscreen

# MEMORY REQUIREMENTS

The Font Designer requires 67 bytes of memory to operate. The FDscreen files are 17 disk sectors long, and the FDfont files are 7 disk sectors long. Each font file produced by the Font Designer requires 17 disk sectors.

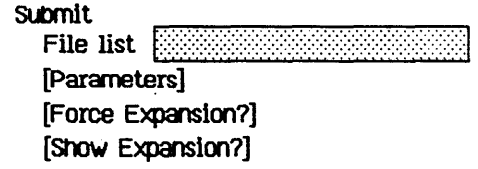
# INSTALLING THE FONT DESIGNER

You can install the Font Designer on B 22 or B 25 hard disk standalone systems or on B 25 dual floppy drive standalone systems. The program is available in either 8" or 5 1/4" media.

## Hard Disk Standalone Systems

To install the Font Designer on B 22 or B 25 hard disk standalone systems, use the following procedure:

1. Insert the Font Designer disk into drive F0.
2. Type *SUBMIT* in the Executive **Command** field.
3. Press **RETURN**. The following form appears:




4. Type *[f0]<sys>install.sub* in the **File list** field.

5. Press **GO** to start the installation. During the installation, the following prompt appears: **If this is a cluster system and the cluster is not disabled, then power down all cluster workstations. Press GO when ready.**

6. If you are using a cluster system, turn off all cluster workstations.

7. Press **GO.** The system installs all necessary files in the <sys> directory and creates a new command, Font Designer. A message informs you when installation is complete, and the following prompt appears: **If this is a cluster system, resume cluster operations.**

8. Turn on any cluster workstations that were turned off earlier.

9. Remove the Font Designer disk, and store it in a safe place.

## Dual Floppy Disk Standalone Systems

To install the Font Designer on B 25 dual floppy disk standalone systems, use the following procedure:

1. Place the system disk in drive F0.

2. Boot the system.

3. Remove the system disk from drive F0.

4. Place the Font Designer disk in drive F0. The Executive **Command** field appears on the screen.

# SECTION 2

# CONCEPTS

## FONT

A font is a group of graphic symbols representing the hexadecimal codes of the characters (letters, numbers, punctuation marks, spaces, etc.) that appear on the screen in response to pressing keys on the keyboard. Gothic, script, cursive, foreign language, and italic are font types, for example. Except for the standard font that Burroughs supplies, you must define any new font.

## SCREEN FORMAT

When you use the Font Designer, the screen is always in 80-column mode.

## FRAMES

The Font Designer screen is divided into six frames:

- the Scaled Character frame
- the Character frame
- the Character Code frame
- the Work Area frame
- the Sample Text frame
- the Sample Text Character Codes frame

The Font Designer screens for the B 22 and the B 25 systems are shown in figures 2-1 and 2-2, respectively.

**NOTE**

The name Font Designer and its version number appear in the top left of the screen in an area referred to as the Status frame. Messages appear here also. If you press **CANCEL**, the messages disappear.

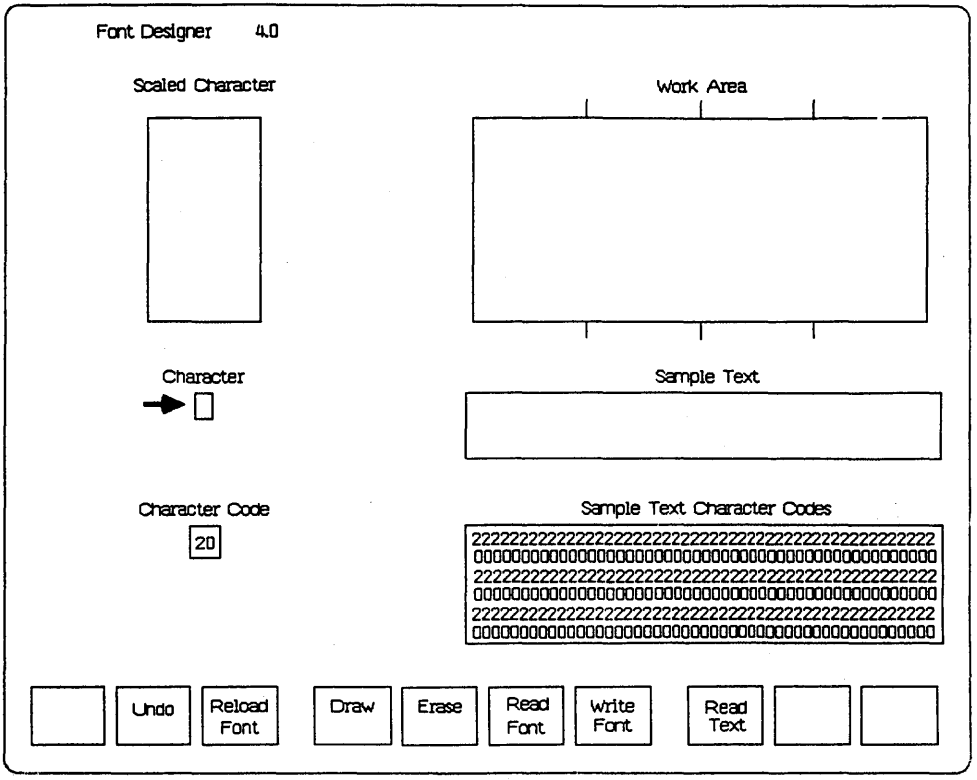



**Figure 2-1. Font Designer Screen on a B 22 System**

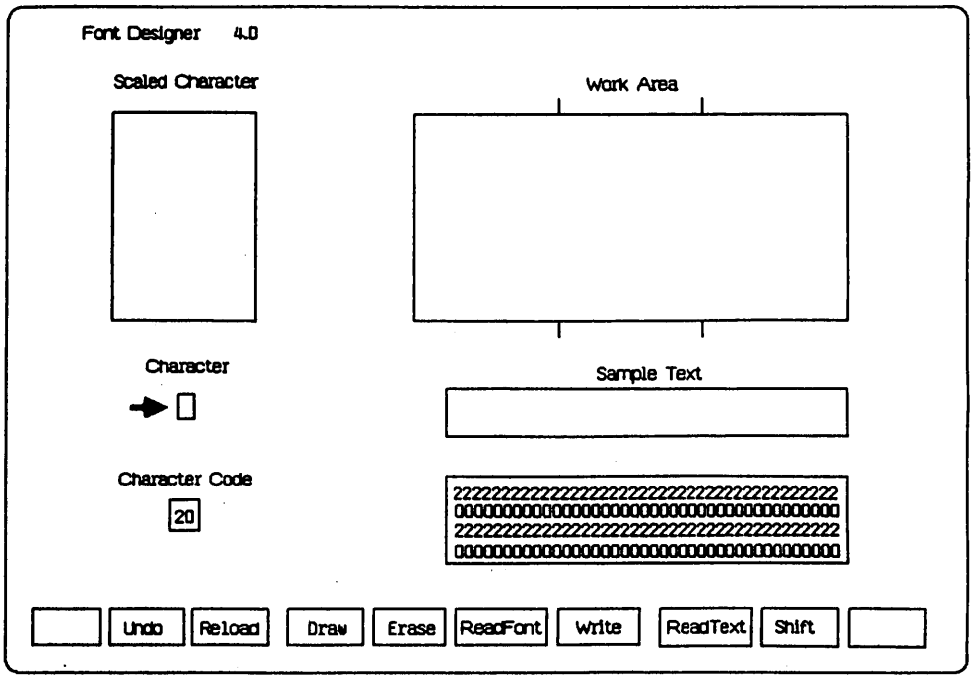



**Figure 2-2. Font Designer Screen on a B 25 System**

## Scaled Character Frame

The Scaled Character frame displays an enlarged version of the character you are editing. Each character cell in the frame represents one pixel in the 10-by-15 (B 22 systems) or 9-by-12 (B 25 systems) dot matrix of the character being edited.

## Character Frame

The Character frame displays (in actual size) the character you are editing. When the Font Designer screen first appears, an arrow points to this frame, indicating that the cursor is at this location.

### Character Code Frame

The Character Code frame displays the hexadecimal code of the character you are editing.

### Work Area Frame

On the B 22 system, the Work Area frame can display up to four enlarged characters. On the B 25 system, the Work Area frame can display up to three enlarged characters. You use this frame to design characters and show the relationships between them. This frame is initially blank.

### Sample Text Frame

The Sample Text frame displays text as it appears in the font you are currently editing. In this frame, you can type three lines of 40 characters on the B 22 system, or two lines of 40 characters on the B 25 system. This frame is initially filled with spaces.

### 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 you first activate the Font Designer, this frame contains rows of 2's and rows of 0's; each 2-0 combination represents one character position in the Sample Text frame.

## FUNCTION KEYS

If you have a B 22 system, you use seven of the ten function keys when you design a new font (**f2** through **f8**). If you have a B 25 system, you use eight of the ten function keys when you design a new font (**f2** through **f9**). A Function Key

Display at the bottom of the Font Designer screen contains rectangles representing each function key on the keyboard. The keys used by the Font Designer display the names of the functions they initiate.

The function key assignments are:

- **f2** Undo
- **f3** Reload Font
- **f4** Draw Pixel
- **f5** Erase Pixel
- **f6** Read Font
- **f7** Write Font
- **f8** Read Text
- **f9** Half-bit Shift (B 25 systems only)

These key functions are explained in detail in sections 6 through 9 of this manual.

# SECTION 3

# ACTIVATING THE FONT DESIGNER

You activate the Font Designer from the Executive. Use the following procedure:

1. Type *FONT DESIGNER* in the **Command** field.

2. Press **RETURN.** This form appears:


3. Fill in the **Font file** field with the name of either an existing font file that you want to edit, or a new file that you want to create. If you specify an existing file, it must be of the correct type, either 10-by-15 or 9-by-12 character size (see appendix B for more information). If you specify a new file, the Font Designer begins execution with a copy of the standard character font.

**CAUTION**

Do not attempt to edit the operating system's standard character set (font files [Sys]<Sys>Sys.Font or [Sys]<Sys>T1Sys.Font); or the Font Designer's character set (font files [Sys]<Sys>B22FDFont or [Sys]<Sys>T1FDFont).

4. Press **GO.** The screen goes blank for a few seconds, and then the Font Designer screen appears.

When you first activate the Font Designer, the following occurs:

- Character 20h (the space) is mapped into the Scaled Character frame.
- Character 20h appears in the Character frame and in all 120 positions of the Sample Text frame for B 22 systems, and in all 80 positions for B 25 systems.
- The number 20 appears in the Character Code frame.
- Rows of 2's and 0's (zeros) appear in the Sample Text Character Codes frame.
- An arrow points to the Character frame, indicating that the cursor is in this frame.
- The red light (LED) on the **f3** key goes on, indicating that the Reload Font function (see section 6) is activated.

# SECTION 4

# CURSOR CONTROL

## APPEARANCE

A cursor is always present on the Font Designer screen. It appears as a blinking underscore 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 you first activate the Font Designer, the cursor is in the Character frame. If you press **NEXT** or **RETURN**, you can move the cursor from frame to frame as follows: Character to Character Code to Sample Text to Sample Text Character Codes to Scaled Character and back to Character. If you press **CODE** and **RETURN** simultaneously, or **CODE** and **NEXT** simultaneously, the cursor traverses the frames in reverse order.

A bold arrow to the left of the appropriate frame indicates the cursor location. If you move the cursor to another frame, the arrow moves simultaneously.

You can never place the cursor in the Work Area frame by pressing **NEXT**. When the cursor is at the right edge of the Scaled Character frame, pressing **Right Arrow**, or **CODE** and **Right Arrow** simultaneously, moves it to the Work Area frame. When the cursor is at the left edge of the Work Area frame, pressing **Left Arrow**, or **CODE** and **Left Arrow** simultaneously, 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

The four cursor keys control cursor movement within frames. If you press **CODE** simultaneously with one of these four keys, you can produce other movements.

If you hold down **CODE** and press any one of the cursor keys, the cursor quickly moves in the direction you specify to the edge of the frame in which it is located. For example, if the cursor is not located at the top of the frame and you press **CODE** and **Up Arrow** simultaneously, the cursor moves to the top edge of the frame in which it is located.

**BACKSPACE** operates like **Left Arrow**; it does not erase characters. If you press a key that is not pertinent to the context of that frame, the system emits an audio signal.

# SECTION 5

# TYPING CHARACTERS INTO FRAMES

## CHARACTER EDITS

When you first activate the Font Designer, the red light (LED) on the **f3** key goes on. You can turn the LED off and on by pressing the **f3** key.

If the **f3** key LED is lit, as you edit (update) a character in the Scaled Character frame, the Font Designer simultaneously edits the representation of that character in the Character frame, and all occurrences of that character in the Sample Text frame.

If the **f3** key LED is not lit, the Font Designer does not perform updates until you light it.

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

## CHARACTER FRAME

You can type a single character into the Character frame by pressing the key alone, or in combination with **SHIFT**, **CODE**, or **SHIFT** and **CODE**. There are certain characters that you cannot type directly into this frame because they activate Font Designer functions. You use the **CODE**-single quote (**CODE-'**) command followed by the desired keystroke to enter these characters.

## CHARACTER CODE FRAME

The only characters you can type 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.

## SAMPLE TEXT FRAME

You can type the same characters 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 you can type 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. You have not entered the character until you type its second digit. (If you change the first digit of the character code and then move the cursor past the second, it has the same effect as typing the second digit.)

# SECTION 6

# EDITING A CHARACTER

## CALLING UP CHARACTERS

To call up a specific character from the keyboard, you 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. You move the cursor to the Scaled Character frame by pressing **CODE** and **NEXT** simultaneously.

To call up a specific character by its character code, you 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. You move the cursor to the Scaled Character frame by pressing **CODE** and **NEXT** twice simultaneously, or **NEXT** three times.

Each character cell within the Scaled Character frame represents one pixel within the dot matrix of the character you are editing. To design a new character, you draw and erase with the **f4** and **f5** function keys respectively.

## DRAWING DOTS: f4 KEY

When you press the **f4** key, the character cell changes to a solid, light-colored square when the cursor is in either the Scaled Character or Work Area frame. This square represents one pixel (one dot turned on) within the dot matrix of the character you are editing. The cursor now appears as a dark square within the solid light square.

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

## ERASING DOTS: f5 KEY

When you press the **f5** key, the character cell changes to a solid, dark-colored square when the cursor is in either the Scaled Character or Work Area frame. This square represents one pixel (or one dot turned off) within the dot matrix of the character you are editing. The cursor now appears as a light square within the solid dark square.

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

## SELECTION

A selection is a rectangular area of the screen that you designate for applying some action to a group of character cells. You mark the selected area by creating a boundary of four temporary cursors, one at each corner of the rectangle.

You can either turn the character cells in a selected area on or off, or move or copy the content of an area to another position.

### Making a Selection

You use the **MARK** and **BOUND** keys to make a selection.

To make a selection, use the following procedure:

1. Position the cursor at any corner of the desired rectangle and press **MARK**. The Font Designer creates a temporary cursor at this position.

2. Move the cursor to the position you want as the diagonally opposite corner of the rectangle and press **BOUND**.

Three more temporary cursors appear, one at the bounded position, and one each at the other two corners of the defined rectangle. If you press **BOUND** again at a different

position, the MARKed corner of the selection remains fixed, and the rectangle adjusts to the new diagonal created by 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 choose a new operation that causes a new selection. Moving the cursor to another frame does not affect the selection.

You can make only one selection at a time. When you make a selection, the Font Designer removes the previous selection if one exists.

## Drawing Dots in a Selection: CODE-f4

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

## Erasing Dots in a Selection: CODE-f5

To erase all the light-colored squares in a selection, you press **CODE** and **f5** simultaneously. The four temporary cursors disappear. On the B 25 system, erasing a whole line removes any half-bit shift information as well. For a discussion of half-bit shifting, see section 9.

## Moving a Selection: MOVE and CODE-MOVE

Use the following procedure to select an area that you want to move:

1. Select the area you want to move (called the source area).

2. Position the cursor at the location that corresponds to the top left corner of the area you want to move to (called the target area).

3. Press **MOVE**.

The Font Designer deletes the content of the selected source area and replaces the content of the target area with an exact image of the selected source area; however, the new image extends only as far as the edges of the frame. On the B 25 system, moving an entire row moves any half-bit shift information as well (only if you move the entire row and position the cursor in the far left column of the target area).

To merge the source area into the target area, you press **CODE** and **MOVE** simultaneously. In this way, you can create a new character by moving one character on top of another, such as a diagonal through a zero to create the zero used in some computer typefaces.

## Copying a Selection: COPY and CODE-COPY

Use the following procedure to copy a selected area:

1. Move the cursor to the location corresponding to the top left corner of the target area.

2. Press **COPY**.

The content of the selected source area does not change. The content of the target area is replaced with an exact image of the selected source area, except that the new image extends only as far as the frame edges. Source and target areas can overlap. In this case, the copy is the same as if no overlap had occurred; however, the copy overwrites as much of the source area as it overlaps. If you copy an entire row on the B 25 system, you copy any half-bit shift information as well (only if you copy an entire shifted row and position the cursor in the far left corner of the target frame).

To merge the source area into the target area, you press **CODE** and **COPY** simultaneously. You use this type of copy to create a bold character by copying one character on top of itself, one position offset.

## UNDO: f2 KEY

Until you place a new character in the Scaled Character frame, you can undo any editing within that frame by pressing **f2** (the cursor must be in the Scaled Character frame to undo any editing). When you press **f2**, you replace whatever is in the Scaled Character frame with the character that you 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 do not want to lose the original character, you must copy it into the Work Area frame before calling up a new character for editing.

## RELOAD FONT: f3 KEY

When you first activate the Font Designer, the red light (LED) on the **f3** key goes on, indicating that the Reload Font function is turned on. The Font Designer updates the character in the Character frame (and any representations of the character in the Sample Text frame) when:

- you press **f4**, **f5**, **CODE-f4**, or **CODE-f5**
- you move or copy a selection into the Scaled Character frame

**NOTE**

On the B 22 system, the video display flickers each time the character is updated. To eliminate the flicker, you can press **f3** 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, you press **f3** to turn on the Reload Font function.

The video display on the B 25 system does not flicker. Therefore, the Reload Font function should always remain on.

# SECTION 7

# READING AND WRITING FONTS: f6 AND f7 KEYS

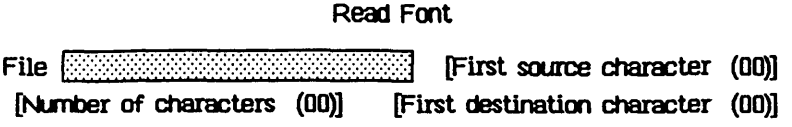
## INTRODUCTION

In addition to using the Font Designer to edit a single font whose name you specify when you activate the Font Designer, you can use the Font Designer to read characters from another font into the font you are editing. You can also write out characters from your edited font to another font file.

## READING A FONT FILE

To read a font file, use the following procedure:

1. Press **f6** to activate the Read Font function. The following form appears:




2. Fill in the **File** field with the name of a font file that contains the characters you want to read into the character font you are editing. Press **RETURN.**

3. Fill in the **[Number of characters (00)]** field with the hexadecimal number of characters you want to read from the file. Press **RETURN.** The default value is 00; it reads the entire character font.

**NOTE**

You can read (but not edit) font files from the B 22 system on the B 25 system and

vice versa; however, they are treated in the format of the system you are reading them on.

4. Fill in the **[First source character (00)]** field with the hexadecimal number of the source character you want to begin the transfer with. Press **RETURN.** The default value is 00; it reads from the first character of the file.

5. Fill in the **[First destination character (00)]** field with the hexadecimal number of the destination character you want to begin the transfer with. Press **RETURN.** If you used the 00 default value in the **[Number of characters]** field, use the 00 default here, too. The default value, 00, begins the transfer at the first character of the character font you are editing.

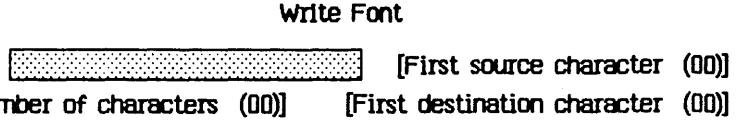
6. Press **GO.** (You cannot use **CANCEL** to stop the Read Font operation once it has started.)

As the Font Designer reads characters, they overwrite characters of the character font you are editing.

## WRITING A FONT FILE

To write a font file, use the following procedure:

1. Press **f7** to activate the Write Font function. The following form appears:




2. Fill in the **File** field with the name of a font file in which you want to write characters from your edited font. Press **RETURN.**

3. Fill in the **[Number of characters (00)]** field with the hexadecimal number of characters you want to write from the font you are editing. Press

**RETURN.** The default value is 00; it reads the entire character font.

4. Fill in the **[First source character (00)]** field with the hexadecimal number of the source character you want to begin the transfer with. Press **RETURN.** The default value is 00; it reads from the first character of the file.

5. Fill in the **[First destination character (00)]** field with the hexadecimal number of the destination character you want to begin the transfer with. Press **RETURN.** If you used the 00 default value in the **[Number of characters (00)]** field, use the 00 default here, too. The default value, 00, starts writing at the first character of the file.

6. Press **GO.**

All characters that you write out of your edited font overwrite the original characters of the destination file. If the destination file does not exist, the Font Designer creates it. If the destination file does exist, the original is renamed as filename-Old, and a copy is created in which to store the new character font.

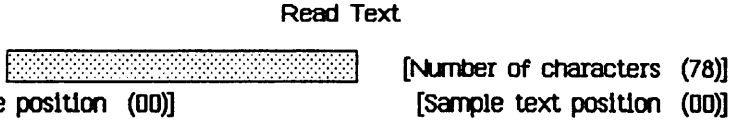
# SECTION 8

# READING A TEXT FILE: f8 KEY

To fill the Sample Text frame with a previously recorded text file, use the following procedure:

1. Before starting a font designing session, use the Editor (see the *B 20 Systems Editor Reference Manual* ) to create a file that contains all the characters you want to display. (Such a file could consist of a lowercase alphabet, an uppercase alphabet, and all the numbers and special symbols of the keyboard.)

2. Press **CODE** and **T** simultaneously, or the **f8** key to activate the Read Text function. The following form appears:




3. Fill in the **File** field with the name of an ASCII text file from which you want to read characters into the Sample Text frame. Press **RETURN.** (This prevents having to type in all the characters you want to examine in the Sample Text frame.)

4. Fill in the **[File position (00)]** field with the hexadecimal number of the character you want to begin the transfer with. Press **RETURN.** The default value, 00, reads from the first character of the file.

5. Fill in the **[Number of characters (00)]** field with the hexadecimal number of characters you want to read from the file into the Sample Text frame. You cannot enter a number greater than 78 on B 22 systems. On B 25 systems, the default value is 50, although 78 appears as the default on the screen. To fill the Sample Text frame, use the default. Press **RETURN.**

6. Fill in the **[Sample text position (00)]** field with the hexadecimal number of the position in the Sample Text frame at which you want to begin reading characters from the file. Press **RETURN.** 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.

7. Press **GO.**

# SECTION 9

# HALF-BIT SHIFT: f9 KEY

This feature applies only to the B 25 system.

The B 25 system has the ability to shift a character row right by one-half a pixel. This allows you to design characters that are smoother and more pleasing to the eye.

You can accomplish the half-bit shift of a character row in the Scaled Character frame or Work Area frame only.

You position the cursor over the appropriate row and press **f9** to shift that row to the right by one-half a pixel. To shift the row back to its original position, you press **f9** again.

If the half-bit shift is executed in the Scaled Character frame, and the LED is on, the results appear in the Scaled Character frame, the Character frame, and the Sample Text frame. In the Scaled Character frame and the Work Area frame, a small right-pointing arrow highlights a shifted row by appearing in the leftmost position of that row.

In the Work Area frame, each of the character areas can be half-bit shifted independently. Shifted pixels at the end of a row do not shift farther than the character area boundary.

To move or copy a half-bit shifted row as part of a selected area, you must include the entire row in the selection and position the cursor in the far left column of the target area.

# SECTION 10

# FINISHING A DESIGNING SESSION: FINISH

When you are through designing a font, you press **FINISH.** The following form appears:

Finish?
[Save? (Yes)] 

You then press **GO** to save the current character font as a file with the name you specified when you activated the Font Designer.

If the file exists, it is renamed as filename-Old, and a file is created to store the new character font.

If you do not want to save the current character font, type *No* and then press **GO.**

**NOTE**

If you are using a dual floppy disk standalone system, the screen does not clear when you exit the Font Designer. Instead, the message, **Please mount the [sys] volume....,** appears. You must remove the Font Designer disk from the F0 drive and place the system disk in the drive if you wish to continue with another operation.

If you copy the Exec.run file to the Font Designer disk, the screen clears after you exit the program.

# SECTION 11

# CREATING A NEW CHARACTER: A TUTORIAL

## INTRODUCTION

Using this tutorial section, you can practice:

- constructing a new character with the Font Designer
- saving the new font

You will create a new character: a special Z with a line through it. You will put this character into the character font at the position corresponding to **CODE-Z** (FA).

**NOTE**

B 25 system screens are shown in the figures of this tutorial. Screens for the B 22 system have the differences noted in section 2. The character size on the B 22 is larger because it has a larger (10-by-15) dot matrix.

## CONSTRUCTING A NEW CHARACTER: SLASHED Z

1. At the Executive command level, type *Font Designer.*
2. When the Font Designer form appears, type in the name of the font you want create; for example: *MyFont.*
3. Press **GO.** The Font Designer screen (shown in figure 2-2) appears. The Character frame contains the cursor only. The Scaled Character frame, the Work Area frame, and the Sample Text frame are blank. The Character Code frame contains the

number 20, and the Sample Text Character Codes frame contains alternating rows of 2's and 0's.

4. Press **SHIFT** and the letter **Z** simultaneously 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 the screen shown in figure 11-1. The Character Code frame now shows 5A.

5. To copy a character, press **NEXT** twice. The cursor is now in the Sample Text frame.

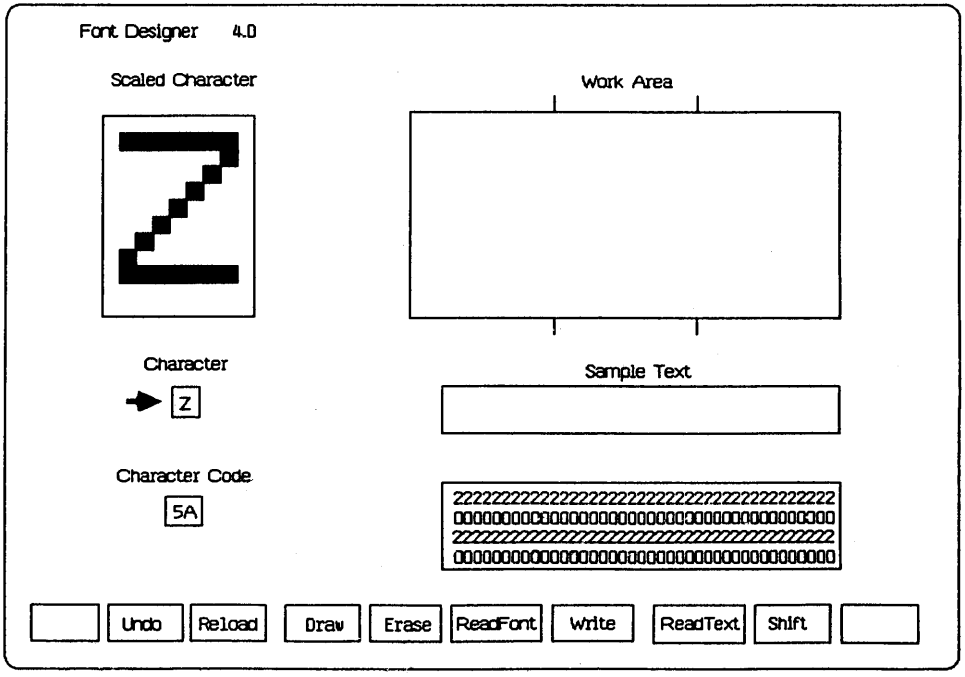



**Figure 11-1. Font Designer Screen After You Call Up Capital Z**

6. Type **SHIFT-Z** and **CODE-Z.** A capital Z and a capital T with a bar above it appear. The Font Designer screen now looks like the screen in figure 11-2.

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

8. Press **MARK** and then **CODE-Right Arrow.** The cursor moves to the upper right corner of the frame, leaving a temporary cursor in the upper left corner.

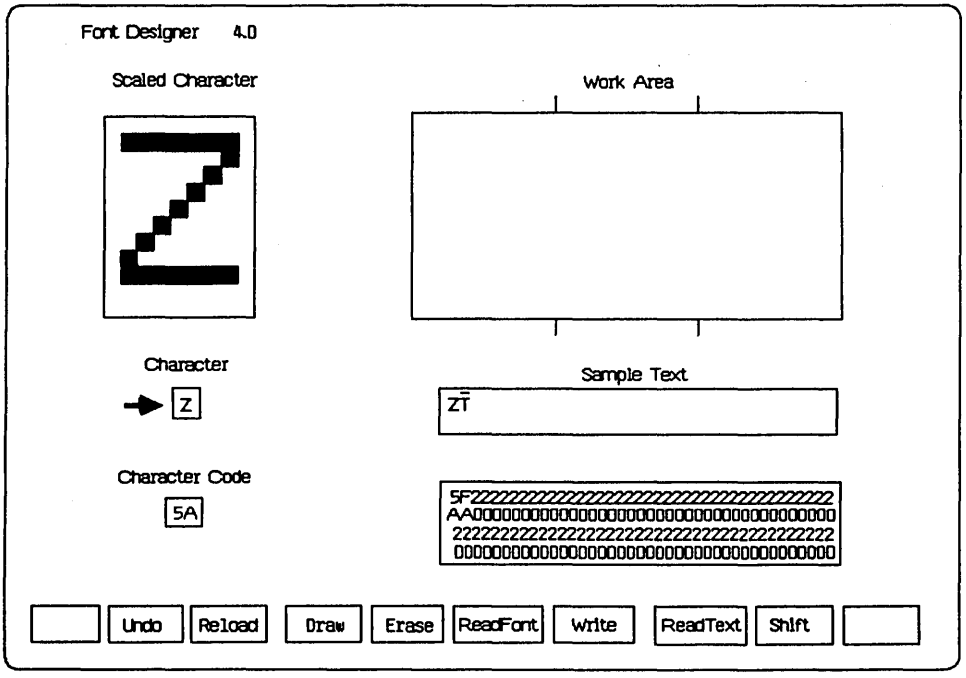



**Figure 11-2. Font Designer Screen with Characters in the Sample Text Frame**

9. Press **CODE-Down Arrow.** The cursor moves to the lower right of the frame.

10. Press **BOUND.** Two more temporary cursors appear. Now there is one cursor in each corner of the Scaled Character frame; you have selected the entire frame.

11. Press **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.

12. Press **CODE-Up Arrow.** The cursor moves to the upper left corner of the Work Area frame.

13. Press **COPY.** The Font Designer displays a copy of the enlarged Z in the left quarter of the Work Area frame (B 22 systems) or in the left third of the Work Area Frame (B 25 systems). 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 the screen shown in figure 11-3.

14. To call up a new character, press **NEXT.** The cursor appears in the Character frame.

15. Type **CODE-Z.** The T with a bar above it appears in the Character frame. The Font Designer displays the character in the Scaled Character frame. The Character Code frame now shows FA.

16. To change the character Z, press **CODE-NEXT.** The cursor appears in the upper left corner of the Scaled Character frame.

17. Press **CODE-Right Arrow.** The cursor moves to the upper right corner of the frame.

18. Press **Right Arrow.** The cursor appears in the upper left corner of the Work Area frame.

19. Press **MARK;** then 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.

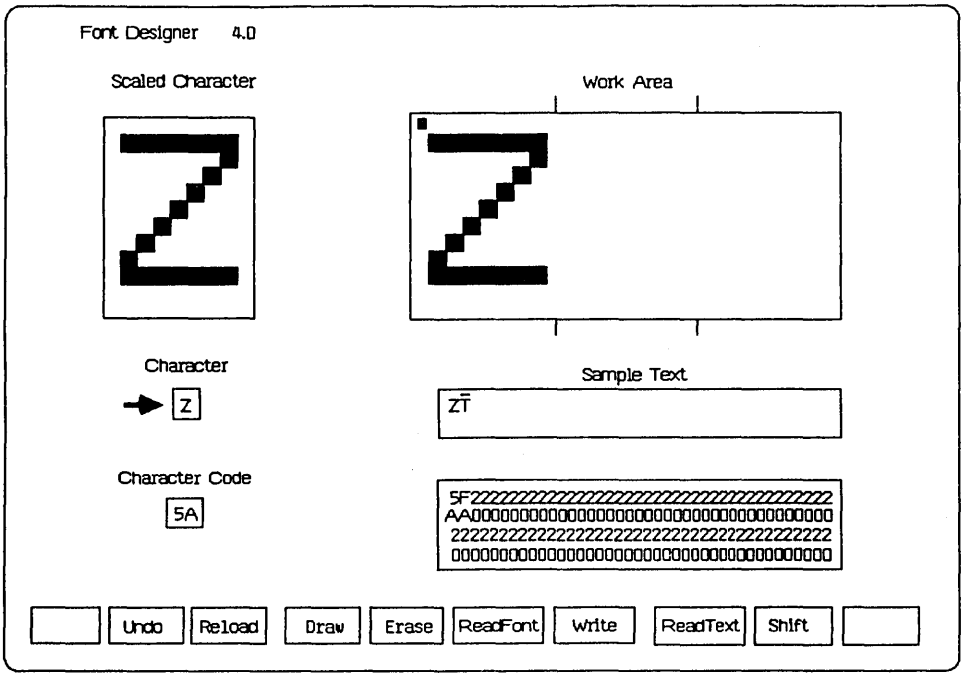



**Figure 11-3. Font Designer Screen After You Copy a Character to the Work Area Frame**

20. Use **Right Arrow** to move the cursor to the column that corresponds to the right edge of the Z. (You can move the cursor farther right, but you must move it at least that far.)

21. Press **BOUND.** Four temporary cursors now delineate the corners of the selection. Make sure that the rectangle contains the letter Z entirely in the Work Area frame. (If you did not move the cursor far enough to the right, do so now; then press **BOUND** again. This creates a new selection.)

22. 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.

23. Press **CODE-Up Arrow.** The cursor moves to the upper left corner of the Work Area frame.

24. Press **Left Arrow.** The cursor appears in the upper right corner of the Scaled Character frame.

25. Press **CODE-Left Arrow.** The cursor moves to the upper left corner of the Scaled Character frame.

26. Press **COPY.** The Font Designer removes the T with a bar above it from the Scaled Character frame and displays a copy of the Z. 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. In the Sample Text frame, the T with a bar above it becomes a Z also. The Character Code and Sample Text Character Codes frames show no change.

27. Press **f3.** The LED goes off.

28. Move the cursor down the left edge of the Scaled Character frame to the middle of the Z.

29. Move the cursor two positions to the right, and press **MARK.** The Scaled Character frame now looks like the frame in figure 11-4a.

30. Now move the cursor five positions to the right, and press **BOUND.** The Scaled Character frame looks like the frame in figure 11-4b.

31. Press **CODE-f4.** The selection you defined (a straight line in this case) fills with light-colored squares. The Scaled Character frame now looks like the frame in figure 11-4c.

32. Press **f3.** The LED lights, and the new character appears in the Character and Sample Text frames.

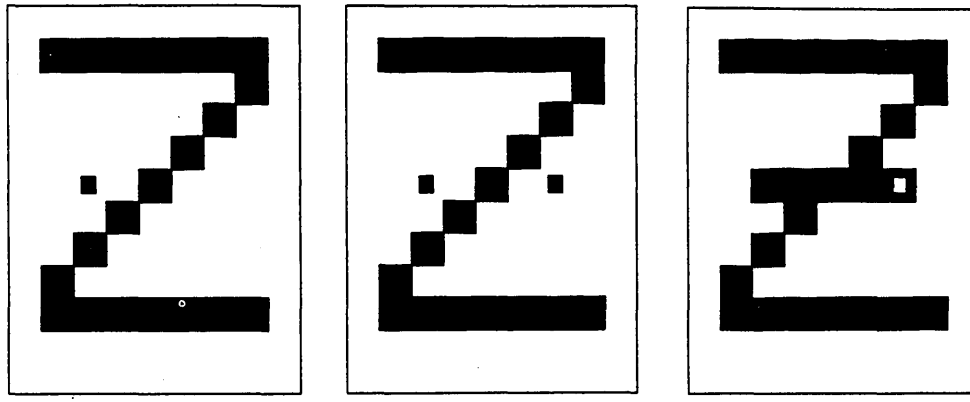



**Figure 11-4. Scaled Character Frame. (a) The Selection After Pressing MARK. (b) The Selection After Pressing BOUND. (c) The Selection After Pressing CODE-f4.**

## SAVING THE NEW FONT

To save the new font, press **FINISH** and then **GO.** You have now created a new font file called MyFont.

This file differs from the standard character font because you have replaced the capital T with a bar above it at the **CODE-Z** (FA) position with a slashed Z.

If you do not want to save this file, you press **FINISH.** You then type *No* in the **[Save? (Yes)]** field and press **GO.**

# SECTION 12

# USING A NEW FONT

Once you have created a new font file, you can use it to:

- replace the standard character font with the new file
- call LoadFontRam from an application system

## INSTALLING THE NEW FONT

When the Executive first loads (and again after each Logout command), it calls LoadFontRam to load the standard character font, which is contained in the file [Sys]<Sys>Sys.Font or in the file [Sys]<Sys>TlSys.Font. If you replace one of these standard files 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.

If you are using a dual floppy disk standalone system, you can place your customized font file on the disk in disk drive F1. To activate the file, you must type *[F1]* at the beginning of the file name (for example, *[F1]<sys>Myfont*) in the **Font file** field of the Font Designer form.

## CALLING LoadFontRam

Any program executed on a B 22 or B 25 can call the BTOS procedure, 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. For more information, see the *B 20 Systems Operating System (BTOS) Reference Manual.*

# APPENDIX A

# STATUS MESSAGES

The Font Designer has error and informational messages to assist you in using the program. The following list contains these messages with an explanation and/or problem-solving instruction for each.

**Font file cannot be edited on this workstation**

This message appears briefly on a blank screen. Control then returns to the Executive level and you see the **Command** prompt.

**Next character typed will be entered literally**

This informational message appears after you press **CODE-'**. It indicates that a key normally used for a function or action by the Font Designer (**FINISH, Right Arrow,** etc.) is temporarily released from its function, and you can display its character on the screen. Press the function or action key whose character you wish to display.

**No command assigned to function key**

You pressed a function key that has no operation assigned to it. Check the Function Key Display on the Font Designer screen for the function key assignments. Unlabeled keys have no function.

# APPENDIX B

# FONT FILE DESCRIPTIONS

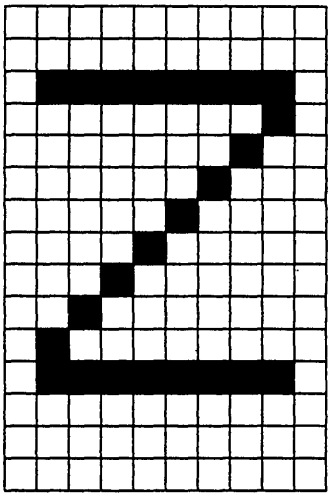
The system font files, sys.font (B 22 systems) and tlsys.font (B 25 systems), contain information for turning on the pixels of the 256 keyboard codes. Each character consists of 16 words (32 bytes) for a total of 4096 words (8192 bytes). An edited font file contains an additional nine-byte code which designates the system on which the font file was first edited. However, the system ignores any data after the 8192nd byte and does not load it in the font RAM.

Since the B 22 system has a dot matrix of 15 rows by 10 columns and the B 25 has a matrix of 12 rows by 9 columns, their respective font files store different information. Therefore, you cannot edit a font file created on one type of system on the other.

The 16 words per key code are numbered from 0 to 15. On the B 22 system, word 0 is not used, word 1 describes the top row, and word 15 describes the bottom row. Within each word, bits describe the individual pixels from left to right for a row. Bits are numbered from 0 to 15 with 0 being the low order bit. Bit 9 designates the left column, bit 0 designates the right column, and bits 15 through 10 are always zero. Figure B-1 illustrates the letter Z in word representation on the B 22 system.

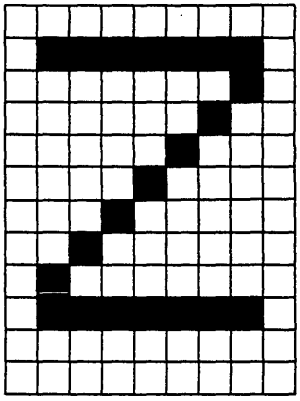
On the B 25 system, word 0 describes the top row, word 11 describes the bottom row, and words 12 through 15 are not used. Bit 8 designates the left column and bit 0 designates the right column.

The B 25 system has a Half-bit Shift function which allows the centering of characters for even numbers of illuminated pixels in a row. If the Half-bit Shift function is on, the bit 9 is set; if the Half-bit Shift function is off, the bit 9 is zero. Bits 15 through 10 are always zero. Figure B-2 illustrates the letter Z in word representation on the B 25 system.



| Hexadecimal | Word Number |
|---|---|
| 0000 | 1 |
| 0000 | 2 |
| 01FE | 3 |
| 0002 | 4 |
| 0004 | 5 |
| 0008 | 6 |
| 0010 | 7 |
| 0020 | 8 |
| 0040 | 9 |
| 0080 | 10 |
| 0100 | 11 |
| 01FE | 12 |
| 0000 | 13 |
| 0000 | 14 |
| 0000 | 15 |

**Figure B-1. Letter Z in Word Representation on the B 22 System**



| Hexadecimal | Word Number |
|---|---|
| 0000 | 0 |
| 00FE | 1 |
| 0002 | 2 |
| 0004 | 3 |
| 0008 | 4 |
| 0010 | 5 |
| 0020 | 6 |
| 0040 | 7 |
| 0080 | 8 |
| 00FE | 9 |
| 0000 | 10 |
| 0000 | 11 |

**Figure B-2. Letter Z in Word Representation on the B 25 System**

For both the B 22 and B 25 systems, bytes 0 through 8 of the last sector of the font file describe the font. These tags are as follows:

```
B 22 tag =  00 09 01 00 0F 09 0E 00
B 25 tag =  04 08 00 00 0B 08 0B FF 09
```

Table B-1 describes each of these tags.

**Table B-1. Font File Tag Descriptions**

| Byte | Description |
|---|---|
| 0 | Corresponds to hardware type. Hardware type equals 0 for B 22 systems and 4 for B 25 systems. |
| 1 | Leftmost bit position for a character in a word. |
| 2 | Number of the word that represents the top row. |
| 3 | Rightmost bit position for a character in a word. |
| 4 | Number of the word that represents the bottom row. |
| 5 | Width minus 1 in pixels of a character. |
| 6 | Height minus 1 in pixels of a character. |
| 7 | Half-bit shift allowed. 0 = false; FFh = true. |
| 8 | Half-bit shift bit position in a character (B 25 systems only). |

# APPENDIX C

# STANDARD CHARACTER SET

Table C-1 describes the 256-entry character set used when the keyboard is in encoded or character mode. The standard encoding is in the Keyboard Encoding Table, and the standard font is in the font RAM. Table C-2 shows the graphical representation of the characters of table C-1.

## CODE KEYS

When the keyboard is in character mode, the two **CODE** keys are special kinds of **SHIFT** keys. If you press either or both when you press a non-SHIFT key, the high-order bit of the key turns on. For example, **CODE-A** generates 80h + 61h = 0E1h, **CODE-Spacebar** generates 80h + 20h = 0A0h, etc. Note that you can generate any of the values 80h...0FFh from the keyboard in this way.

In addition, some of the character codes in the range 80h to 0DFh have keyboard encodings that do not require the **CODE** key.

## LEGEND FOR TABLE C-1

Uppercase alphabetics denote the actual label on the key cap (for example, **FINISH, SHIFT**).

Lowercase alphabetics describe the non-literal key cap label (for example, **Left Arrow**) or video display character (for example, **Dagger**).

A hyphenated key name (for example, **SHIFT-6**) denotes the key combination generated when you press a combination of **SHIFT** and/or **CODE** and another key.

The symbols (SH-L'), (SH-R'), (0'), and (NEXT') denote the four empty key posts covered by the double keys **Left-SHIFT**, **Right-SHIFT**, numeric-0, and **NEXT**, respectively.

The names num 0, num 1, etc. denote the keys on the numeric pad to distinguish them from the corresponding keys on the typewriter pad.

**Table C-1. Standard Character Set**

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| 00 | null | HELP |
| 01 | up arrow | Up Arrow |
| 02 | see table C-2 | MARK |
| 03 | ¢ | SHIFT-6 |
| 04 | filled square | FINISH |
| 05 | empty square | PREV PAGE |
| 06 | 1/2 | 1/2 |
| 07 | bell | CANCEL |
| 08 | backspace | BACKSPACE |
| 09 | tab | TAB |
| 0A | new line | RETURN<br>NEXT |
| 0B | down arrow | Down Arrow |
| 0C | formfeed | NEXT PAGE |
| 0D | see table C-2 | BOUND |
| 0E | left arrow | Left Arrow |
| 0F | double dagger | MOVE |
| 10 | 1/4 | SHIFT-1/2 |
| 11 | single dagger | SCROLL UP |
| 12 | right arrow | Right Arrow |
| 13 | trough | SCROLL DOWN |
| 14 | raised dot | COPY |
| 15 | division sign | f1 |
| 16 | vertical bar | f2 |
| 17 | see table C-2 | f3 |
| 18 | see table C-2 | f4 |
| 19 | similarity | f5 |
| 1A | paragraph sign | f6 |
| 1B | filled circle | GO |
| 1C | not | f7 |
| 1D | see table C-2 | f8 |
| 1E | see table C-2 | f9 |
| 1F | see table C-2 | f10 |

Table C-1. Standard Character Set (Cont)

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| 20 | space | space |
| 21 | ! | SHIFT-1 |
| 22 | " | SHIFT-' |
| 23 | # | SHIFT-3 |
| 24 | $ | SHIFT-4 |
| 25 | % | SHIFT-5 |
| 26 | & | SHIFT-7 |
| 27 | ' (single quote) | ' |
| 28 | ( | SHIFT-9 |
| 29 | ) | SHIFT-0 |
| 2A | * | SHIFT-8 |
| 2B | + | SHIFT-= |
| 2C | , (comma) | , |
| 2D | - (hyphen) | - |
| 2E | . (period) | . |
| 2F | / | / |
| 30 | 0 | 0 |
| 31 | 1 | 1 |
| 32 | 2 | 2 |
| 33 | 3 | 3 |
| 34 | 4 | 4 |
| 35 | 5 | 5 |
| 36 | 6 | 6 |
| 37 | 7 | 7 |
| 38 | 8 | 8 |
| 39 | 9 | 9 |
| 3A | : | SHIFT-; |
| 3B | ; | ; |
| 3C | < | SHIFT-[ |
| 3D | = | = |
| 3E | > | SHIFT-] |
| 3F | ? | SHIFT-/ |
| 40 | @ | SHIFT-2 |
| 41 | A | SHIFT-a |
| 42 | B | SHIFT-b |
| 43 | C | SHIFT-c |
| 44 | D | SHIFT-d |
| 45 | E | SHIFT-e |
| 46 | F | SHIFT-f |
| 47 | G | SHIFT-g |
| 48 | H | SHIFT-h |
| 49 | I | SHIFT-I |
| 4A | J | SHIFT-j |

Table C-1. Standard Character Set (Cont)

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| 4B | K | SHIFT-k |
| 4C | L | SHIFT-l |
| 4D | M | SHIFT-m |
| 4E | N | SHIFT-n |
| 4F | O | SHIFT-o |
| 50 | P | SHIFT-p |
| 51 | Q | SHIFT-q |
| 52 | R | SHIFT-r |
| 53 | S | SHIFT-s |
| 54 | T | SHIFT-t |
| 55 | U | SHIFT-u |
| 56 | V | SHIFT-v |
| 57 | W | SHIFT-w |
| 58 | X | SHIFT-x |
| 59 | Y | SHIFT-y |
| 5A | Z | SHIFT-z |
| 5B | [ | [ |
| 5C | \ (back slash) | SHIFT-num 8 |
| 5D | ] | ] |
| 5E | ^ (caret) | ^ |
| 5F | _ (underline) | SHIFT-- |
| 60 | reverse accent | SHIFT-num 1 |
| 61 | a | a |
| 62 | b | b |
| 63 | c | c |
| 64 | d | d |
| 65 | e | e |
| 66 | f | f |
| 67 | g | g |
| 68 | h | h |
| 69 | i | i |
| 6A | j | j |
| 6B | k | k |
| 6C | l | l |
| 6D | m | m |
| 6E | n | n |
| 6F | o | o |
| 70 | p | p |
| 71 | q | q |
| 72 | r | r |
| 73 | s | s |
| 74 | t | t |
| 75 | u | u |

Table C-1. Standard Character Set (Cont)

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| 76 | v | v |
| 77 | w | w |
| 78 | x | x |
| 79 | y | y |
| 7A | z | z |
| 7B | { | SHIFT-num 4 |
| 7C | (broken vertical bar) | SHIFT-num 7 |
| 7D | } | SHIFT-num 5 |
| 7E | ~ (tilde) | SHIFT-^ |
| 7F | filled rectangle | DELETE |
| 80 | null | CODE-HELP (SH-L') |
| 81 | see table C-2 | CODE-Up Arrow SHIFT (SH-L') |
| 82 | see table C-2 | CODE-MARK (SH-R') |
| 83 | see table C-2 | CODE-SHIFT-6 SHIFT (SH-R') |
| 84 | see table C-2 | CODE-FINISH (0') |
| 85 | see table C-2 | CODE-PREV PAGE SHIFT (0') |
| 86 | see table C-2 | CODE-1/2 (NEXT') |
| 87 | see table C-2 | CODE-CANCEL SHIFT (NEXT') |
| 88 | see table C-2 | CODE-BACKSPACE |
| 89 | see table C-2 | CODE-TAB |
| 8A | see table C-2 | CODE-RETURN CODE-NEXT |
| 8B | see table C-2 | CODE-Down Arrow |
| 8C | 0 (superscript) | CODE-NEXT PAGE |
| 8D | 1 (superscript) | CODE-BOUND |
| 8E | 2 (superscript) | CODE-Left Arrow |
| 8F | 3 (superscript) | CODE-MOVE |
| 90 | 4 (superscript) | CODE-SHIFT-1/2 |
| 91 | 5 (superscript) | CODE-SCROLL UP |
| 92 | 6 (superscript) | CODE-Right Arrow |
| 93 | 7 (superscript) | CODE-SCROLL DOWN |
| 94 | 8 (superscript) | CODE-COPY |

Table C-1. Standard Character Set (Cont)

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| 95 | 9 (superscript) | CODE-f1 |
| 96 | 0 (subscript) | CODE-f2 |
| 97 | 1 (subscript) | CODE-f3 |
| 98 | 2 (subscript) | CODE-f4 |
| 99 | 3 (subscript) | CODE-f5 |
| 9A | 4 (subscript) | CODE-f6 |
| 9B | 5 (subscript) | CODE-GO |
| 9C | 6 (subscript) | CODE-f7 |
| 9D | 7 (subscript) | CODE-f8 |
| 9E | 8 (subscript) | CODE-f9 |
| 9F | 9 (subscript) | CODE-f10 |
| A0 | A circle | CODE-space |
| A1 | a circle | CODE-SHIFT-1 |
| A2 | A umlaut | CODE-SHIFT-' |
| A3 | a umlaut | CODE-SHIFT-3 |
| A4 | O umlaut | CODE-SHIFT-4 |
| A5 | o umlaut | CODE-SHIFT-5 |
| A6 | O slashed | CODE-SHIFT-7 |
| A7 | o slashed | CODE-' |
| A8 | U umlaut | CODE-SHIFT-9 |
| A9 | u umlaut | CODE-SHIFT-0 |
| AA | c cedilla | CODE-SHIFT-8 |
| AB | e circumflex | CODE-SHIFT-= |
| AC | e grave | CODE-, |
| AD | e acute | CODE-- |
| AE | AE ligature | CODE-. |
| AF | ae ligature | CODE-/ |
| B0 | see table C-2 | CODE-0 |
| B1 | see table C-2 | CODE-1 |
| B2 | degree | CODE-2 |
| B3 | copyright symbol | CODE-3 |
| B4 | registered symbol | CODE-4 |
| B5 | trademark symbol | CODE-5 |
| B6 | see table C-2 | CODE-6 |
| B7 | see table C-2 | CODE-7 |
| B8 | see table C-2 | CODE-8 |
| B9 | see table C-2 | CODE-9 |
| BA | see table C-2 | CODE-SHIFT-; |
| BB | see table C-2 | CODE-; |
| BC | see table C-2 | CODE-SHIFT-[ |
| BD | see table C-2 | CODE-= |
| BE | see table C-2 | CODE-SHIFT-] |
| BF | see table C-2 | CODE-SHIFT-/ |

**Table C-1. Standard Character Set (Cont)**

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| C0 | see table C-2 | CODE-SHIFT-2<br>SHIFT-HELP |
| C1 | see table C-2 | CODE-SHIFT-a<br>SHIFT-Up Arrow |
| C2 | see table C-2 | CODE-SHIFT-b<br>SHIFT-MARK |
| C3 | see table C-2 | CODE-SHIFT-c<br>SHIFT-BOUND |
| C4 | see table C-2 | CODE-SHIFT-d<br>SHIFT-FINISH |
| C5 | see table C-2 | CODE-SHIFT-e<br>SHIFT-PREV PAGE |
| C6 | see table C-2 | CODE-SHIFT-f |
| C7 | see table C-2 | CODE-SHIFT-g<br>SHIFT-CANCEL |
| C8 | see table C-2 | CODE-SHIFT-h<br>SHIFT-DELETE |
| C9 | see table C-2 | CODE-SHIFT-i<br>SHIFT-GO |
| CA | see table C-2 | CODE-SHIFT-j<br>SHIFT-f9 |
| CB | see table C-2 | CODE-SHIFT-k<br>SHIFT-Down Arrow |
| CC | see table C-2 | CODE-SHIFT-l<br>SHIFT-NEXT PAGE |
| CD | see table C-2 | CODE-SHIFT-m<br>SHIFT-f8 |
| CE | see table C-2 | CODE-SHIFT-n<br>SHIFT-Left Arrow |
| CF | see table C-2 | CODE-SHIFT-o<br>SHIFT-MOVE |
| D0 | see table C-2 | CODE-SHIFT-p<br>OVERTYPE |
| D1 | see table C-2 | CODE-SHIFT-q<br>SHIFT-SCROLL UP |
| D2 | see table C-2 | CODE-SHIFT-r<br>SHIFT-Right Arrow |

Table C-1. Standard Character Set (Cont)

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| D3 | see table C-2 | CODE-SHIFT-s<br>SHIFT-SCROLL DOWN |
| D4 | see table C-2 | CODE-SHIFT-t<br>SHIFT-COPY |
| D5 | see table C-2 | CODE-SHIFT-u<br>SHIFT-f1 |
| D6 | see table C-2 | CODE-SHIFT-v<br>SHIFT-f2 |
| D7 | see table C-2 | CODE-SHIFT-w<br>SHIFT-f3 |
| D8 | see table C-2 | CODE-SHIFT-x<br>SHIFT-f4 |
| D9 | see table C-2 | CODE-SHIFT-y<br>SHIFT-f5 |
| DA | see table C-2 | CODE-SHIFT-z<br>SHIFT-f6 |
| DB | see table C-2 | CODE-[ |
| DC | see table C-2 | CODE-SHIFT-num 8<br>SHIFT-f7 |
| DD | see table C-2 | CODE-] |
| DE | see table C-2 | CODE-^ |
| DF | see table C-2 | CODE-SHIFT--<br>SHIFT-f10 |
| E0 | see table C-2 | CODE-SHIFT-num 1 |
| E1 | see table C-2 | CODE-a |
| E2 | see table C-2 | CODE-b |
| E3 | see table C-2 | CODE-c |
| E4 | see table C-2 | CODE-d |
| E5 | see table C-2 | CODE-e |
| E6 | see table C-2 | CODE-f |
| E7 | see table C-2 | CODE-g |
| E8 | see table C-2 | CODE-h |
| E9 | see table C-2 | CODE-i |
| EA | see table C-2 | CODE-j |
| EB | see table C-2 | CODE-k |
| EC | see table C-2 | CODE-l |
| ED | see table C-2 | CODE-m |

Table C-1. Standard Character Set (Cont)

| Character Code (hexadecimal) | Video Display Character | Key |
|---|---|---|
| EE | see table C-2 | CODE-n |
| EF | see table C-2 | CODE-o |
| F0 | see table C-2 | CODE-p |
| F1 | see table C-2 | CODE-q |
| F2 | see table C-2 | CODE-r |
| F3 | see table C-2 | CODE-s |
| F4 | see table C-2 | CODE-t |
| F5 | see table C-2 | CODE-u |
| F6 | see table C-2 | CODE-v |
| F7 | see table C-2 | CODE-w |
| F8 | see table C-2 | CODE-x |
| F9 | see table C-2 | CODE-y |
| FA | see table C-2 | CODE-z |
| FB | see table C-2 | CODE-SHIFT-num 4 |
| FC | see table C-2 | CODE-SHIFT-num 7 |
| FD | bar chart | CODE-SHIFT-num 5 |
| FE | bar chart | CODE-SHIFT-^ |
| FF | bar chart | CODE-DELETE |

## Table C-2. Graphic Representation of the Standard Character Set

| Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character | Character Code (hexa-decimal) | Video Display Character |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | | 20 | | 40 | @ | 60 | ` | 80 | | A0 | Á | C0 | ┣ | E0 | ╙ |
| 01 | ↑ | 21 | ! | 41 | A | 61 | a | 81 | | A1 | á | C1 | ┫ | E1 | ┃ |
| 02 | ◣ | 22 | " | 42 | B | 62 | b | 82 | $l_0$ | A2 | Ñ | C2 | ┻ | E2 | ┠ |
| 03 | ¢ | 23 | # | 43 | C | 63 | c | 83 | $l_1$ | A3 | ñ | C3 | ╋ | E3 | ┤ |
| 04 | ■ | 24 | $ | 44 | D | 64 | d | 84 | $l_2$ | A4 | Ö | C4 | ┣ | E4 | ┍ |
| 05 | □ | 25 | % | 45 | E | 65 | e | 85 | $l_3$ | A5 | ö | C5 | ┫ | E5 | ┡ |
| 06 | ½ | 26 | & | 46 | F | 66 | f | 86 | $l_4$ | A6 | Ø | C6 | ┃ | E6 | ┢ |
| 07 | Δ | 27 | ' | 47 | G | 67 | g | 87 | $l_5$ | A7 | ø | C7 | ┻ | E7 | ┧ |
| 08 | ├ | 28 | ( | 48 | H | 68 | h | 88 | $l_6$ | A8 | Ü | C8 | ┣ | E8 | ┑ |
| 09 | ┤ | 29 | ) | 49 | I | 69 | i | 89 | $l_7$ | A9 | ü | C9 | ┳ | E9 | ┗ |
| 0A | ↙ | 2A | * | 4A | J | 6A | j | 8A | $l_8$ | AA | ç | CA | ┸ | EA | ┛ |
| 0B | ↓ | 2B | + | 4B | K | 6B | k | 8B | $l_9$ | AB | ê | CB | ┼ | EB | ┏ |
| 0C | ↘ | 2C | , | 4C | L | 6C | l | 8C | $^0$ | AC | é | CC | ┳ | EC | ┓ |
| 0D | ◢ | 2D | - | 4D | M | 6D | m | 8D | $^1$ | AD | è | CD | ┻ | ED | └ |
| 0E | ← | 2E | . | 4E | N | 6E | n | 8E | $^2$ | AE | Æ | CE | ━ | EE | ┘ |
| 0F | ↕ | 2F | / | 4F | O | 6F | o | 8F | $^3$ | AF | æ | CF | ┼ | EF | ┌ |
| 10 | ¼ | 30 | 0 | 50 | P | 70 | p | 90 | $^4$ | B0 | β | D0 | ┣ | F0 | ┐ |
| 11 | ↑ | 31 | 1 | 51 | Q | 71 | q | 91 | $^5$ | B1 | Ł | D1 | ╟ | F1 | ╠ |
| 12 | → | 32 | 2 | 52 | R | 72 | r | 92 | $^6$ | B2 | ° | D2 | ╢ | F2 | ╒ |
| 13 | ∪ | 33 | 3 | 53 | S | 73 | s | 93 | $^7$ | B3 | © | D3 | ╢ | F3 | ╣ |
| 14 | | 34 | 4 | 54 | T | 74 | t | 94 | $^8$ | B4 | ● | D4 | ╫ | F4 | ╤ |
| 15 | ÷ | 35 | 5 | 55 | U | 75 | u | 95 | $^9$ | B5 | ™ | D5 | ╫ | F5 | ╞ |
| 16 | ‖ | 36 | 6 | 56 | V | 76 | v | 96 | $^0$ | B6 | ' | D6 | ╤ | F6 | ╥ |
| 17 | $ | 37 | 7 | 57 | W | 77 | w | 97 | $^1$ | B7 | $'_1$ | D7 | ╧ | F7 | ╨ |
| 18 | ⁜ | 38 | 8 | 58 | X | 78 | x | 98 | $^2$ | B8 | $'_2$ | D8 | ═ | F8 | ╩ |
| 19 | ≃ | 39 | 9 | 59 | Y | 79 | y | 99 | $^3$ | B9 | $'_3$ | D9 | ╪ | F9 | ╠ |
| 1A | ¶ | 3A | : | 5A | Z | 7A | z | 9A | $^4$ | BA | $'_4$ | DA | ┘ | FA | ╒ |
| 1B | ● | 3B | ; | 5B | [ | 7B | { | 9B | $^5$ | BB | $'_5$ | DB | ┼ | FB | ╣ |
| 1C | ¬ | 3C | < | 5C | \ | 7C | ¦ | 9C | $^6$ | BC | $'_6$ | DC | ┬ | FC | ╕ |
| 1D | ↖ | 3D | = | 5D | ] | 7D | } | 9D | $^7$ | BD | $'_7$ | DD | ┴ | FD | ▓ |
| 1E | ± | 3E | > | 5E | ^ | 7E | ~ | 9E | $^8$ | BE | $'_8$ | DE | ╨ | FE | ▓ |
| 1F | ↘ | 3F | ? | 5F | _ | 7F | ■ | 9F | $^9$ | BF | $'_9$ | DF | ╥ | FF | ▓ |

# APPENDIX D

# GLOSSARY

**ASCII**
ASCII is the American Standard Code for Information Interchange. ASCII defines the codes of the character set used for information interchange between the equipment of different manufacturers. B 20 systems use ASCII as the standard character set in the Font Designer operations.

**BTOS**
BTOS is the operating system used by B 20 systems.

**Character Cell**
See Pixel.

**Character Set**
A character set is the denotation unit comprised of two distinct but closely related elements: the keyboard and font. The keyboard denotes hexadecimal codes that correspond to characters (letters, numbers, etc.) produced by pressing keys. The font denotes the graphic representations of the characters that appear on the screen.

**Default**
A default is the value used by the system if you do not specify a value in a field.

**Dot Matrix**
Dot matrix is the method for forming character symbols out of pixels (dots). The number and arrangement of pixels of the matrix differs between systems. The B 22 system has a 10-by-15 dot matrix (150 pixels) for each character, while the B 25 system has a 9-by-12 (108 pixels) matrix.

**Executive**
The Executive is an interactive application program which you can execute in the primary application partition. It accepts commands from the operator and requests BTOS to load tasks to execute those commands.

**Font**
Font is a set of graphic symbols representing the hexadecimal codes of characters (letters, numbers,

punctuation marks, spaces, formatting keys, etc.) that appear on the screen in response to pressing keys on the keyboard.

**Font File**
The font file stores the font definition of a character set.

**Frame**
A frame is a separate, rectangular area of any width and height that appears on the screen.

**Function Key Display**
The Function Key Display appears at the bottom of the Font Designer screen and defines the usage of the function keys.

**Half-bit Shift**
Half-bit shift is the font designing function found only on B 25 systems that enables you to shift a row of dot matrix cells to the right by one-half a pixel. This allows the centering of character rows that have an even number of illuminated pixels.

**Hexadecimal System**
Hexadecimal is the name of the notation system of representing numbers in base sixteen. The numerals 0 through 9 mean what they normally do, and A equals 10, B equals 11, etc. up through F equals 15. Each key on a keyboard has an assigned two-digit hexadecimal code.

**LED**
LED is the light-emitting diode indicated by a red light on a keyboard key.

**LoadFontRam**
LoadFontRam is the BTOS service that loads a character font file into a system. It reads the character font from the specified file into the specified memory area and then transfers the font to the font RAM.

**Pixels**
Pixels are square-shaped cells which make up the dot matrix of a character symbol. The Font Designer allows you to design or edit characters by drawing (turning on) or erasing (turning off) these individual cells. When the pixel is lit, it appears as a solid, light-colored square; when it is not lit, it is a solid dark-colored square.

**Read Font**
Read Font is the function of the Font Designer that allows you to choose character symbols from another font and incorporate them into the character font you are designing.

**Read Text**
Read Text is the function of the Font Designer that allows you to display in the Sample Text frame examples of character symbols from previously recorded files for reference purposes.

**Reload Font**
Reload Font is the function of the Font Designer that controls the updating of a character between frames. When the LED of the **f3** key is on, the system reloads the font and activates the update mode. Any changes made in the Scaled Character frame simultaneously reflect in the Character and Sample Text (if applicable) frames.

**Selection**
Selection is the process of the Font Designer that enables you to define all or part of a character symbol to use in a designing session.

**Standard Character Set**
The standard character set is the 256-entry set of characters, font and keyboard, used by B 20 systems when the keyboard is in character mode. The standard encoding is in the Keyboard Encoding Table, and the standard font is in the font RAM.

**Sys.font**
The [sys]<sys>sys.font file contains the font for the standard character set on B 22 systems.

**Tlsys.font**
The [sys]<sys>tlsys.font file contains the font for the standard character set on B 25 systems.

**Undo**
Undo is the function of the Font Designer that enables you to cancel the current changes made to a character symbol.

**Video Display Flickering**
Video display flickering occurs on B 22 systems when you edit a font.

**Write Font**
Write Font is the function of the Font Designer that allows you to place characters of the font you are editing into another font file.

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