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For Germany

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The following characteristics:
- ZH 1618 Font Set
- Refresh Rate
- Positive and Negative Polarity
- Column Width

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Printing History

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Preface

Welcome

Your HP 700/92 or HP 700/94 display terminal has many features to make your work easier.

This book describes how to install and operate your terminal. Inside you will find tasks your terminal can perform when you press the right keys.

How to Use this Book

Installation Chapter 1 tells how to install your terminal and prepare it for use.

Terminal Configuration Chapter 2 guides you through setting up your terminal using its configuration menus.

Using the Terminal Chapter 3 provides in-depth information on how your terminal functions.

Function Keys Chapter 4 describes operations you can access using the terminal’s function keys.

ANSI Operation Chapter 5 tells how the terminal functions with computers that use ANSI protocol.

Troubleshooting and Maintenance Chapter 6 contains procedures to follow if the terminal malfunctions.

International Keyboards Appendix A illustrates international keyboard layouts.

Where to Find More Information

The HP 700/92 and HP 700/94 Display Terminals Reference Manual (PN 5957-9982) contains further operating information for programmers, system managers and other computer professionals.

VT220, VT100 and VT52 are products of Digital Equipment Corporation.
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Appendix A: International Keyboards

Index
Installation

Introduction

This chapter tells how to install the terminal and prepare it for use.

Figure 1-1. Terminal Components

1) Display Unit  2) Keyboard  3) Keyboard Cable  4) Power Cable
Choosing a Site for Your Terminal

Place the terminal on a hard, level surface such as a desk, table or stand designed for this purpose.

---

**CAUTION**

Do not place objects on top of the display unit, as this blocks the unit's air vents.

---

**Keyboard Cable**

To connect the keyboard cable to the keyboard:

1. Unwrap the cable. Take the longest flat portion of the cable and plug the connector into the jack at the rear of the keyboard (recessed in the center back).

2. Route the cable to the right or left as desired. Tuck the flat portion of the cable under the cable channel protector at the rear of the keyboard. Direct the cable through the slot at the end of the cable channel.

Figure 1-2. Connecting and Routing Keyboard Cable
Making Terminal Rear Panel Connections

Refer to Figure 1-3 when making all cable connections on the terminal’s rear panel.

Figure 1-3. Terminal Rear Panel Connections

1) Port 1 (Datacomm) 2) Port 2 (Printer)
3) Keyboard Connector 4) Power Connector

Terminal Keyboard Connection

One end of the keyboard cable is connected to the keyboard as described earlier in this chapter. Connect the other end to the terminal’s rear panel. The connector clicks into place when installed correctly.

Datacomm Connection

The Datacomm cable is the link from your terminal to a host computer. In its standard configuration, the terminal communicates with a computer through Port 1 over an RS232C dataComm cable.

To connect the dataComm cable to your terminal, perform the following steps:

1. Insert the RS232C connector into the socket provided in port 1 on the terminal. The connector shell is shaped so that it fits onto the socket in the correct position.

2. After fully inserting the connector into the socket on the terminal, tighten the two screws that secure the connection.
NOTE
If you use Port 2 for your datacom connection, be sure to configure your terminal properly (see Chapter 2).

Printer Connection
Port 2 provides a standard RS232C connector for connecting a printer. To connect a printer cable to Port 2, follow the instructions for connecting a datacom cable (see connectors are the same in both cases). Remember, if you use Port 2 as your datacom rather than Port 1, be sure to configure the terminal appropriately.

Power Cable Connection
An appropriate power cable is supplied with your terminal.

WARNING
Turn the terminal off before applying power. The power button on the front lower left-hand corner of the terminal is flush with the front panel when the terminal is off (see Figure 1-5). Also, for your safety, use only power cords with a 3-prong connector.

Insert one end of the power cord into the AC socket on the back of the terminal. Then plug the 3-prong connector on the other end of the cable into an electrical outlet.

Terminal Controls
To turn on the terminal, make sure it is connected to a power source. Press the power button shown in Figure 1-4. The button remains depressed in the ON position.

1-4 Installation
1) Power  2) Brightness  3) Contrast

When the terminal turns on, its bell sounds twice. After approximately 10 seconds, when the terminal has successfully performed its power-on self-test, the bell sounds a third time.

Use the brightness and contrast slide controls (under the right-front corner of the terminal) to adjust the display for comfortable viewing.

The terminal is now ready for use. If the terminal does not power on as described, refer to Chapter 6 for troubleshooting procedures.

NOTE
The display unit is equipped with a circular base that swivels 180 degrees. Be sure that the base is centered properly (so that you can turn the display 90 degrees to the left or right).
Terminal Configuration

Introduction

Most of the time your terminal is used online with a host computer. Data entered at the keyboard is sent to a computer for processing, and data from the computer is displayed on the screen and/or sent to an external printer.

The terminal must be configured to operate correctly. This chapter shows the configuration menus available (except for ANSI configuration, which is described in Chapter 5). Consult your Data Processing department or your system documentation for the terminal configuration parameters required for your application.

Selecting Operating Modes

The terminal can be operated in several modes when connected to a computer. These modes are described in the following paragraphs. Press [MODES], then [MODE] to display the MODES labels, then proceed with your selections.

Remote Mode

Press [REMOTE] to activate remote mode, allowing your terminal to communicate with your host computer. When Remote Mode is activated, an asterisk appears in the label "REMOTE".

Block Mode

[REMOTE] selects whether data is sent to the computer in blocks of characters (Block Mode) or character-by-character as they are typed (Character Mode). (In Block Mode, pressing [RETURN] sends the data to the computer.)

Choose the mode required for your application. When Block Mode is active, an asterisk appears in the label "BLOCK MODE". When Character Mode is selected the asterisk is removed.
Auto LF

The LF (line feed) selects whether or not a line feed is generated when the [Print] key is pressed. When you select automatic line feed, an asterisk appears in the label field. If your terminal is communicating with a computer in character mode, automatic line feed should normally be deactivated.

Making Menu Selections

The procedure for making selections from any of the menus is essentially the same. Once you have displayed the menu you want, follow these steps:

- Press [↑] repeatedly until the cursor is in the field containing the setting you want to change.
- Press [←] or [→] to cycle through predefined selections in a menu field until the selection you want is displayed in the field. For a menu field with no predefined values, type in your selection directly.

Saving Your Selections

- Press [Esc/End] to save and activate your selections and return to normal operation.

NOTE

Pressing [Esc/End] before saving settings restores the previously displayed values, exits the menu and returns the [End] labels to the screen.

More Selection Options

While a menu is displayed on the screen, you can:

- Press [←] to display the default settings (the factory-set values stored in memory).
- Press [→] to display the settings that are active when you turn the terminal on (these are either settings you’ve already saved in memory, or the default settings).
- Press [Esc/End] to recall currently active menu settings. A program from a host computer can change current menu settings. Press [Esc/End], then [←] or [→] to compare the current settings with the power-on settings and identify any changed values.

2-2 Terminal Configuration
Global Configuration Menu

Perform the following steps to choose operating features in the menu:

- Press \( \text{[F2]} \), then \( \text{[F3]} \) to display the function key screen-labels for available menus.
- Press \( \text{[F4]} \) to display the GLOBAL CONFIGURATION menu.
- To make your selections, review Making Menu Selections at the beginning of this chapter.

**Figure 2-1. Global Configuration Menu (Default Values Shown)**

<table>
<thead>
<tr>
<th>Menu Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame Rate</td>
<td>( \text{[F2]} ), ( \text{[F3]} ), or ( \text{[F4]} ). Select the rate that gives you a flicker-free screen display.</td>
</tr>
<tr>
<td>Display Off</td>
<td>( \text{[F2]} ), ( \text{[F3]} ), or ( \text{[F4]} ). This activates the screen-saver option that automatically turns off the display after the prescribed time interval. No data is lost. To redisplay, press ( \text{[F5]} ).</td>
</tr>
<tr>
<td>Light Background</td>
<td>( \text{[F2]} ) for dark characters displayed on a white screen or ( \text{[F3]} ) for light characters on a dark screen.</td>
</tr>
<tr>
<td>Columns</td>
<td>( \text{[F2]} ) or ( \text{[F3]} ) column display screen data is lost when you change this field and save it.</td>
</tr>
<tr>
<td>Cursor Type</td>
<td>( \text{[F2]} ) for blinking line or ( \text{[F3]} ) for blinking box cursor.</td>
</tr>
<tr>
<td>Key Click</td>
<td>( \text{[F2]} ) turns on audible keyclick, ( \text{[F3]} ) suppresses it.</td>
</tr>
<tr>
<td>Auto Repeat</td>
<td>( \text{[F2]} ) makes keys repeat when pressed and held down, ( \text{[F3]} ) disables this function.</td>
</tr>
<tr>
<td>Warning Bell</td>
<td>( \text{[F2]} ) makes bell tone sound when an internal error occurs (or the computer sends a warning tone), ( \text{[F3]} ) disables this function.</td>
</tr>
</tbody>
</table>

Terminal Configuration 2-3
## Terminal Configuration Menu

To define the specific terminal operating conditions you want for your application:

- Press [Cursor], then [Menu] to display the labels for available menus.
- Press [Return] to display the TERMINAL CONFIGURATION menu.
- To make your selections, see Making Menu Selections at the beginning of this chapter.

### Figure 2-2. Terminal Configuration Menu (Default Values Shown)

<table>
<thead>
<tr>
<th>TERMINAL CONFIGURATION</th>
<th>FORMAT MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datacomm/ExtDev</td>
<td></td>
</tr>
<tr>
<td>Terminal ID</td>
<td></td>
</tr>
<tr>
<td>Local Echo</td>
<td></td>
</tr>
<tr>
<td>Xon/Xoff</td>
<td></td>
</tr>
<tr>
<td>In/NoIn</td>
<td></td>
</tr>
<tr>
<td>Line Separators (C)</td>
<td></td>
</tr>
<tr>
<td>Tab+Spaces</td>
<td></td>
</tr>
<tr>
<td>Right Terminator (E)</td>
<td></td>
</tr>
<tr>
<td>Num/Pad TabComma (N)</td>
<td></td>
</tr>
<tr>
<td>Return=Enter (N)</td>
<td></td>
</tr>
<tr>
<td>Form=Buffer Size (D)</td>
<td></td>
</tr>
<tr>
<td>Decimal Type</td>
<td></td>
</tr>
<tr>
<td>Imp Dec Digits</td>
<td></td>
</tr>
<tr>
<td>Frame=In</td>
<td></td>
</tr>
<tr>
<td>All Fields</td>
<td></td>
</tr>
<tr>
<td>Print Fields</td>
<td></td>
</tr>
</tbody>
</table>

### NOTE

Some fields in the Terminal Configuration Menu appear only in the HP 700/94.

---

### 2-4 Terminal Configuration
<table>
<thead>
<tr>
<th>Menu Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datacomm/ExtDev</td>
<td>3030 selects port 1 as the line of communication to the computer, port 2 to an attached printer. 2222 selects port 2 for computer, port 1 for printer.</td>
</tr>
<tr>
<td>Keyboard</td>
<td>3 specifies the US keyboard is in use. Select another setting if you're using a national language option keyboard other than USASCII.</td>
</tr>
<tr>
<td>Terminal ID</td>
<td>Identifies terminal for computer applications. Type in the setting you need for your task.</td>
</tr>
<tr>
<td>Language</td>
<td>2 specifies the national language the terminal is currently operating in. Select the national language option you intend to use.</td>
</tr>
<tr>
<td>Local Echo</td>
<td>$ specifies that characters you type are both displayed onscreen and sent to host computer; 2 specifies that typed characters are not displayed as they are sent to the computer (although most computers &quot;echo&quot; them back to the screen).</td>
</tr>
<tr>
<td>Caps Lock</td>
<td>$ makes all characters uppercase letters. $ allows you to choose upper or lower case letters using the key.</td>
</tr>
<tr>
<td>Start Col</td>
<td>Under certain conditions, the terminal ignores any characters to the left of the start column you select here.</td>
</tr>
<tr>
<td>Bell</td>
<td>20 allows bell to tone when cursor reaches right margin. 28 disables it.</td>
</tr>
<tr>
<td>Rm: Fnc1n(49)</td>
<td>Specifies whether escape code functions are executed at the terminal or transmitted to the host computer.</td>
</tr>
<tr>
<td>SPDn(B)</td>
<td>Specifies whether or not spaces entered at the keyboard write over (erase) existing characters.</td>
</tr>
<tr>
<td>InhEolWrp(C3)</td>
<td>Specifies whether or not characters you type automatically wrap to the next line after the right margin is reached (i.e., inhibit end-of-line wrap).</td>
</tr>
<tr>
<td>Ltr/Pge(CD)</td>
<td>Specifies whether a line or a page of data is transmitted when the terminal is in Block Mode.</td>
</tr>
<tr>
<td>Menu Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>inhibit-stx(G3)</td>
<td>Determines handshaking type to be used when transferring blocks of data to a computer.</td>
</tr>
<tr>
<td>inhibit-DCE(H)</td>
<td>Determines block transfer handshaking method.</td>
</tr>
<tr>
<td>esc inter(M)</td>
<td>Controls the transfer of escape sequences to a printer.</td>
</tr>
<tr>
<td>FormsBufSize(256x)</td>
<td>Selects amount of terminal memory allocated to forms cache, which decreases available display memory (HP 700/94 only).</td>
</tr>
<tr>
<td>F4 separator</td>
<td>Specifies the field separator character the terminal transmits at the end of each protected field in block mode when you press [em].</td>
</tr>
<tr>
<td>BlkTerminator</td>
<td>Specifies the block terminator character the terminal transmits at the end of a transfer operation.</td>
</tr>
<tr>
<td>return=enter</td>
<td>Specifies whether or not the [tab] key functions as the [enter] key.</td>
</tr>
<tr>
<td>return=def</td>
<td>Specifies the definition of the [tab] key.</td>
</tr>
<tr>
<td>tab=spaces</td>
<td>Specifies whether or not the [tab] key generates ASCII space codes for applications requiring this function. Normal HP operation requires a [tab] setting.</td>
</tr>
<tr>
<td>term mode</td>
<td>[en, [em], [en], [em]]. Select the mode for your application.</td>
</tr>
<tr>
<td>decimal type</td>
<td>Specifies whether the US (,) or European (.) decimal notation is used (HP 700/94 only).</td>
</tr>
<tr>
<td>impDecDigits</td>
<td>Specifies the number of places to the right of the decimal in an imprinted decimal field (HP 700/94 only).</td>
</tr>
<tr>
<td>transmit</td>
<td>Specifies whether you want all fields or only those fields which you have modified to be transmitted from a form (HP 700/94 only).</td>
</tr>
<tr>
<td>print</td>
<td>Specifies whether you send all of a form or only the unprotected and transmit-only fields to a printer for hardcopy output.</td>
</tr>
</tbody>
</table>

2-6 Terminal Configuration
Datacomm Configuration Menu

Make menu selections as described in this section to allow your terminal and computer to "talk" to each other:

- Press \( \text{Menu} \) then \( \text{Menu} \) to display the labels for available menus.
- Press \( \text{Menu} \) then \( \text{Menu} \) to display the DATACOMM CONFIGURATION menu.
- To make your selections, see Making Menu Selections at the beginning of this chapter.

Figure 2-3. Datacomm Configuration Menu (Default Values Shown)

<table>
<thead>
<tr>
<th>Datacomm Configuration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BaudRate</td>
<td>9600</td>
</tr>
<tr>
<td>Parity/DataBits</td>
<td>None</td>
</tr>
<tr>
<td>EnqAck</td>
<td>Off</td>
</tr>
<tr>
<td>Asterisk</td>
<td>Off</td>
</tr>
<tr>
<td>RecvFace</td>
<td>DTR/XOFF</td>
</tr>
<tr>
<td>XmitFace</td>
<td>None</td>
</tr>
<tr>
<td>CTS/CDxFF</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaudRate</td>
<td>Selects the transmission rate (bits per second) you need for communication with your computer.</td>
</tr>
<tr>
<td>Parity/DataBits</td>
<td>Selects the type of parity and number of bits per byte that fits your computer application.</td>
</tr>
<tr>
<td>EnqAck</td>
<td>Selects whether or not the Enquire / Acknowledge type of handshaking protocol is to be used.</td>
</tr>
<tr>
<td>Asterisk</td>
<td>Selects whether you want the line transmission indicator (+) to appear in the status line or not.</td>
</tr>
<tr>
<td>CHk Parity</td>
<td>Selects checking or ignoring parity for each received data byte.</td>
</tr>
<tr>
<td>SR(CCH)</td>
<td>Selects the desired state for moderm transmission.</td>
</tr>
<tr>
<td>RecvFace</td>
<td>Selects the desired method of &quot;handshaking&quot; for terminal-to-computer communication.</td>
</tr>
<tr>
<td>XmitFace</td>
<td>As in RecvFace, selects appropriate handshaking method.</td>
</tr>
<tr>
<td>CTS/CDxFF</td>
<td>Selects the appropriate state for transmission control line.</td>
</tr>
</tbody>
</table>

Terminal Configuration 2-7
# External Device Configuration Menu

Make menu selections as described in this section to allow your terminal and printer to “talk” to each other.

- Press **[Home]**, then **[Menu]** to display the labels for available menus.
- Press **[Menu]**, then **[Menu]** to display the EXTERNAL DEVICE CONFIGURATION menu.
- To make your selections, see Making Menu Selections at the beginning of this chapter.

Figure 2-4. External Device Configuration Menu (Default Values Shown)

<table>
<thead>
<tr>
<th>Menu Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaudRate</td>
<td>Selects the transmission rate (bits per second) you need for communication with your printer.</td>
</tr>
<tr>
<td>Parity/DataBits</td>
<td>Selects the type of parity and number of bits per byte that fits your printer application.</td>
</tr>
<tr>
<td>Printer Nulls</td>
<td>Selects the number of null codes to be transmitted to a printer after each ASCII control code.</td>
</tr>
<tr>
<td>Printer Type</td>
<td>Select [PAR] or [MARK] to specify how your printer handles national characters. Consult your printer’s manual to determine the appropriate setting:</td>
</tr>
<tr>
<td>SRRXmit</td>
<td>Specifies the control line for transmitting data.</td>
</tr>
<tr>
<td>SRRInvert</td>
<td>When SRRXmit is set to true, specifies whether or not the true state of the control line is inverted from +12V to -12V.</td>
</tr>
<tr>
<td>Xmit Pace</td>
<td>Specifies the type of handshaking protocol to be used between terminal and printer.</td>
</tr>
<tr>
<td>CSICDBXmit</td>
<td>Selects the appropriate state for transmission control line.</td>
</tr>
</tbody>
</table>

## 2-8 Terminal Configuration
Using the Terminal

Screen Display

When you first turn the terminal on, the screen display looks like this:

Figure 3-1. Initial Screen Display

1) Your Work Area  2) Cursor  3) Function Key Labels  4) Status Line

1. Your work area. Lines 1 through 24 display your work area, where letters and symbols appear as you type them on the keyboard.

2. The cursor. A blinking underline or block that locates the place on the screen that the next letter you type will appear.

3. Function key labels. Lines 25 and 26 display labels that identify the functions that keys (5) through (8) currently perform.

4. The status line. Line 27 is the status line. Indicators tell which of several operating states are currently active.

Using the Terminal  3-1
Screen Labels for Function Keys

The eight function key labels tell what tasks the corresponding eight function keys currently perform. An uppercase label indicates a performable task—an asterisk in a label tells you it is active (more than one function at a time can be active). A lowercase label indicates that pressing the corresponding function key displays another label set, so you can cycle through all available functions. Two numbers between the labels for ** and * tell where the cursor is: the first is the row, the second the column.

Status Line Indicators

The status line displays these indicators:

<table>
<thead>
<tr>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blo</strong>ck</td>
<td>The keyboard is locked while the terminal performs a task. The message clears when the task is completed.</td>
</tr>
<tr>
<td>*</td>
<td>A modem is being used for data transmission. The &quot;*&quot; appears only when the <em>Modem</em> field in the Dataccom Configuration Menu is enabled.</td>
</tr>
<tr>
<td><strong>Bl</strong>ank</td>
<td>Tells the active operating mode: Blank = normal operation; <strong>E1</strong> = VT100 emulation; <strong>E20</strong> = VT20 emulation; <strong>E5</strong> = VT51 emulation.</td>
</tr>
<tr>
<td><strong>Ca</strong>ps</td>
<td>All typed letters are uppercase (press <strong>c</strong> with a key for lowercase). Press <strong>Caps</strong> to turn on or off.</td>
</tr>
<tr>
<td><strong>Ins Ch</strong>ar</td>
<td>Characters are inserted at the cursor (normally they replace existing characters). If the line is already full, overflow characters are lost. Press <strong>InsCh</strong> to turn on or off.</td>
</tr>
<tr>
<td><strong>Ins W</strong>rap</td>
<td>Same as <strong>InsCh</strong>, except when you insert characters in a line that is already full, the characters that overflow the margin wrap to the beginning of the next line. If the next line becomes full, a new line is inserted.</td>
</tr>
<tr>
<td><strong>ST</strong>OP</td>
<td>The <strong>S</strong> key has been pressed, halting communication to and from the computer. Press <strong>S</strong> again to resume transmission.</td>
</tr>
<tr>
<td><strong>L1L2L3L4</strong></td>
<td>These replace the LED indicators on a VT100. Their meanings depend on the currently running host program (see Chapter 5).</td>
</tr>
</tbody>
</table>
The Keyboard

The terminal’s keyboard consists of several groups of keys. This section describes the functions of the keys in each group.

Figure 3-2. Terminal Keyboard

1) Typewriter keys  2) Numeric keypad  3) Display control
4) Edit keys  5) Terminal control  6) Function keys

Typewriter Keys

The typewriter keys function like a standard typewriter. The keys include capital and small letters, numbers, punctuation marks and commercial symbols. Several typewriter keys perform special tasks described in the following paragraphs.

[Image of typewriter keys]

When pressed with another key, produces uppercase letters or the top symbol on keys with two symbols. When pressed with a function key, performs the function indicated on the top of the key (for example, [Ctrl] [Clear] resets the terminal).

Activates CAPS mode. Makes all letters you type on the screen capitals (number and symbol keys remain unaffected). CAPS appears at the bottom of the screen. While in CAPS mode, use the [Ctrl] key to type individual lowercase letters. Press [Ctrl] again to return to normal operation.
Moves the cursor to the next set tab. (See \texttt{Tab}) moves the cursor back to the previous set tab. In a menu or a form with protected fields, \texttt{Tab} moves the cursor from one unprotected field to another. The \texttt{(0)} key on the numeric keypad functions the same as the \texttt{Tab} key.

Moves the cursor to the first column of the current line. When automatic line feed (AUTO LF) is on, \texttt{(Tab)} moves the cursor to the left margin of the next line. Normally, a host computer generates the automatic line feed, so you don't have to turn on AUTO LF.

Moves the cursor back one space at a time. \texttt{Back} spaces over characters without deleting them. In some computer applications, \texttt{Back} crosses characters as it moves backwards.

Press with another key or series of keys to control terminal functions. For example, \texttt{(Ctrl-C)} makes the terminal beep. \texttt{(Ctrl-F)} combinations require pressing and holding down all keys in the combination simultaneously.

Press and hold down as you press a character key to display a character from the extended character set (Figure 3-3). \texttt{Esc Char} message appears in screen status line. The extended characters and symbols are from national languages other than English. To type an accented character, first press the desired accent (the \texttt{C}, \texttt{H}, \texttt{I}, \texttt{J}, and \texttt{K} keys are accents), then press the vowel you want accented.

3.4 Using the Terminal
NOTE
To use extended characters, set Parity/DataBits to 7/7 in the DATACOMM CONFIGURATION menu. To print extended characters, set Parity/DataBits to 8/8 in the EXTERNAL DEVICE CONFIGURATION menu.

Numeric Keypad
The numeric keypad on the right side of the keyboard contains number and symbol keys arranged like an adding machine or calculator. The numeric keypad generates other characters in EM100, EM52 and EM220 Modes (see Chapter 5).
Display Control Keys

Display control keys either move the cursor around the screen or bring a different portion of your data onto the screen.

▲ Moves the cursor to “home position”—the left margin of line 1 of the screen (and display memory). [Up] ▼ moves the cursor to the left margin of line following the last line of your data.

▲ Moves the cursor up one line (after it hits the top line, the cursor reappears at the bottom of the screen). [Up] ▼ does the same thing as [Down].

Scroll up

Scrolls lines of text up the screen, displaying lines that were below the screen window.

▼ Moves the cursor down one line (after it hits the bottom line, the cursor reappears at the top of the screen). [Down] ▲ does the same thing as [Up].

Scroll down

Scrolls lines of text down on the screen, displaying lines that were above the screen window.

c Moves the cursor left one space. You can keep moving left from the first space of a line to the last space of the previous line.

▲ Moves the cursor right one space. You can keep moving right from the last space of a line to the first space of the next line.

Display the next segment of your data that was below the screen window (up to 24 lines).

Display the previous segment of your data that was above the screen window (up to 24 lines).

3-6 Using the Terminal
Editing Keys

The terminal has editing capabilities that allow you to modify data on the screen.

Erase Line

Erases all data in a line from the cursor’s position to the end of the line. `[ESC] [DEL]` moves the cursor to the beginning of the last and erases the entire line of data.

Delete Text

Deletes all characters from the cursor’s position to the end of your data (including those not currently displayed). `[DEL]` (or `[BS]`) moves the cursor to home position (the 1st column of the 1st line) and then performs the clear display function.

Insert Line Above

Inserts a new blank line above the current line. The cursor moves to the left margin of the new line, and the following lines move down.

Delete Line

Deletes the line containing the cursor and moves the following lines up.

Insert Char

Activates Insert Character mode. (`[INS]` appears at the bottom of the screen.) All subsequent characters you type are inserted at the cursor. If the line becomes full, the letters pushed to the right margin are lost. Press `[INS]` again to return to normal operation. `[BS]` (or `[DEL]`) functions like `[INS]`, except letters pushed to the right margin are wrapped to the next line. `[INS]` appears in the status line. If the next line becomes full, a new line is inserted.

Delete Char

Deletes the character at the current cursor position. Characters in front of the right margin move left to fill the gap. `[DEL]` (or `[BS]`) deletes the character at the current cursor position AND replaces the last character of the line with the character from the left margin of the next line.
Terminal Control Keys

Two keys control specific terminal functions: \[ F1 \] and \[ F2 \].

\[ F1 \] Sends a "break" signal to the computer, which usually ends the application currently running. \[ F1 \] \[ F2 \] performs a "soft reset" of the terminal. \[ F1 \] \[ F3 \] \[ F4 \] performs a "hard reset" of the terminal (see Chapter 6). \[ F1 \] \[ F5 \] causes a long break (2 seconds).

\[ F2 \] Temporarily stops data coming to the display from a computer when \[ F2 \] \[ F1 \] are set to the Datacom Configuration Menu. \[ F2 \] \[ F2 \] initiates a long break in transmission to and from the host computer.

Use in combination with other characters to control terminal operations. \[ F2 \] key combinations (escape sequences) are used to control the terminal from a computer program. Consult the Reference Manual for details on escape sequence programming. \[ F2 \] \[ F3 \] sends a DELETE character to the host computer. Its meaning depends on the application program.

\[ F3 \] Sends a block of data to the host computer when the terminal is operating in Block Mode. \[ F3 \] \[ F4 \] prints all your data, including text on the screen and any not currently being displayed.

Function Keys

The function keys provide control of many important terminal operations. Chapter 4 describes how to access these operations. Two keys provide your access to the function keys.

\[ F4 \] Turns the display of the function key labels along the bottom of the screen on and off (the user keys are active even when the labels are not displayed). \[ F4 \] \[ F5 \] \[ F6 \] \[ F7 \] \[ F8 \] \[ F9 \] displays the user keys menu. You can define the eight function keys as user keys to perform repetitive tasks or type frequently used key sequences. Chapter 4 describes how to define and operate the user keys.

\[ F5 \] Displays the primary set of system labels. \[ F5 \] \[ F4 \] \[ F5 \] \[ F6 \] \[ F7 \] \[ F8 \] \[ F9 \] displays the labels 1-8 and activates the user function keys (see Chapter 5).

3-6 Using the Terminal
Using the Terminal with a Printer

This section describes how you can obtain hardcopy of what is on your terminal screen by sending the data to a printer.

Configuring the Terminal

Terminal-to-printer communications must be properly configured so that the terminal can correctly transmit data.

You select the proper operating characteristics via the External Device Configuration Menu (see Chapter 2).

Selecting the Printer as the Destination

The destination is the "to" device for a data transfer. Selecting the printer as the "to" device allows data to be sent to it from the screen.

To select a printer as the "to" device:

- Press [print], then press [print].
- Press [print]. This specifies a printer as the destination. [print] which sets the terminal screen as the destination for data, functions only when the terminal is in Record Mode.

Logging Data

Data logging causes data entered from the keyboard or received from the computer to be sent automatically to the "to" device (or printer, for example). To activate data logging:

- Press [log on], then press [log on] or [log off]. Pressing the key again deactivates the function.

Log Top

The top line of data in display memory is sent to the printer as it is rolled off the top of memory by new lines added at the bottom.

Log Bottom

A line of data is sent to the printer when the cursor leaves that line to begin a new line.
Screen Copy

To copy data that is currently on the screen, you use the device control function keys or the \( \text{ESC} \) key.

To use the function keys press \( \text{ESC} \), then \( \text{FUNCTION} \). Choose the function you desire by pressing the appropriate function key listed below:

- Press \( \text{FUNCTION} \) to copy all the data from the line containing the cursor to the last line of memory.
- Press \( \text{FUNCTION} \) to copy all the data from the line containing the cursor to the last line displayed on the screen.
- Press \( \text{FUNCTION} \) to copy the line containing the cursor.
- Press \( \text{FUNCTION} \) to make the printer skip to the top of the next page.
- Press \( \text{FUNCTION} \) to make the printer skip a line.

Using The Print Keys: If the terminal is set for local mode, pressing \( \text{FUNCTION} \) copies the contents of memory to the printer.

NOTE

Refer to the Print field in the Terminal Configuration Menu (described in Chapter 23 for more information on how the print key functions.

3-10 Using the Terminal
Function Keys

What Are Function Keys?
The eight function keys at the top of the keyboard perform the functions indicated by the eight corresponding labels that display at the bottom of the screen.

Uppercase labels perform the indicated function. An asterisk appears in a label to show the function is active. Several labels in a set can be active at the same time. When two labels activate mutually exclusive functions, turning on one label removes the asterisk in the other.

Lowercase labels lead to other label sets, allowing you to cycle through all the functions available.
System Labels

The [Tab] key displays the system function labels.

<table>
<thead>
<tr>
<th>Label</th>
<th>New Label Set Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Defines how you print information to a printer connected to the terminal.</td>
</tr>
<tr>
<td></td>
<td>Formats the display of information on the screen.</td>
</tr>
<tr>
<td></td>
<td>Performs several terminal tests.</td>
</tr>
<tr>
<td></td>
<td>Selects one or more video enhancement.</td>
</tr>
<tr>
<td></td>
<td>Provides field choices for creating forms.</td>
</tr>
<tr>
<td></td>
<td>Calls up menus to select precisely the operating characteristics you desire.</td>
</tr>
</tbody>
</table>

4-2 Function Keys
Device Control Labels

The Device Control labels control printing functions described below:

<table>
<thead>
<tr>
<th>Label</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET PRINTER ON</td>
<td>Displays the labels that control logging of data and record mode.</td>
</tr>
<tr>
<td>SET PRINTER OFF</td>
<td>Sets the terminal to print data to a connected printer.</td>
</tr>
<tr>
<td>SET PRINTER ON</td>
<td>Sets terminal to “print” data to the display (valid only when Record Mode is on).</td>
</tr>
<tr>
<td>SET PRINTER ON</td>
<td>Advances the printer to a new page.</td>
</tr>
<tr>
<td>SET PRINTER ON</td>
<td>Advances paper in printer one line.</td>
</tr>
<tr>
<td>SET PRINTER ON</td>
<td>Prints all your information, starting with the line containing the cursor.</td>
</tr>
<tr>
<td>SET PRINTER ON</td>
<td>Prints all the information on the screen, starting with the line containing the cursor.</td>
</tr>
<tr>
<td>SET PRINTER ON</td>
<td>Prints the line containing the cursor.</td>
</tr>
</tbody>
</table>

Device Modes Labels

You can automatically route information to a printer using the Mode set:

<table>
<thead>
<tr>
<th>Label</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET PRINT</td>
<td>Displays the print labels.</td>
</tr>
<tr>
<td>SET PRINT</td>
<td>Turns Record Mode on and off. Copies data from display memory or datacomm to the configured destination device.</td>
</tr>
<tr>
<td>SET PRINT</td>
<td>As the cursor enters a new line, the previous line prints on a printer (continuous logging).</td>
</tr>
<tr>
<td>SET PRINT</td>
<td>Prints each line as it scrolls off the top of the workspace (continuous logging).</td>
</tr>
</tbody>
</table>

Function Keys 4-3
Margins/Tabs/Col Labels

This set of labels determines how the information on the screen is formatted.

Label | Function
--- | ---
SET COL | Sets start column to current cursor column. You can then send information to a computer beginning with the column specified. SET COL must be on, and you must use Line 1 Modify or Modify All mode. Press [Esc] or [End] to start transmitting data.

SET TAB | Sets tab at the current cursor column.

clear tab | Clears tab at the current cursor column.

clear all | Clears all tabs.

SET LMT | Sets left margin at the current cursor column.

SET RMT | Sets right margin at the current cursor column.

SET LMT | Sets left margin at column 1, right margin at column 80.

Service Key Labels

The Service Key set allows you to perform various tests of the terminal's functions.

Label | Function
--- | ---
TEST 1 | Performs a test of the terminal.

TEST 2 | Lists the ROM installed in the terminal, indicating its part number.

TEST 3 | Tests data communications on Port 1.

TEST 4 | Tests data communications on Port 2.

4-4 Function Keys
## Modes Labels

The modes labels control many of the terminal's operating conditions.

<table>
<thead>
<tr>
<th>Label</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1-8&gt;</td>
<td>Allows editing of a line of text without having to retype the entire line. Operates only while Remote Mode is active and Block Mode is off. To edit a line, press &lt;1-8&gt; and edit the text, then press &lt;2-8&gt; or &lt;1&gt; to transmit the edited line to the computer. (Line Modify automatically turns off.)</td>
</tr>
<tr>
<td>&lt;9-16&gt;</td>
<td>Similar to Line Modify, except that Modify All Mode remains on after the line has been transmitted. Press &lt;16-13&gt; again or exit Modify All Mode.</td>
</tr>
<tr>
<td>&lt;17-24&gt;</td>
<td>In Remote Mode operation, sends text to the computer all in one block. Characters appear on the screen as you type them, but are not transmitted to the computer until you press the &lt;17&gt; key. When Block Mode is off, the terminal transmits characters to the computer as you type them.</td>
</tr>
<tr>
<td>&lt;25-32&gt;</td>
<td>Sets the terminal to operate &quot;online&quot; with a computer. Turning off Remote Mode puts the terminal offline for Local Mode operation.</td>
</tr>
<tr>
<td>&lt;33-40&gt;</td>
<td>Sets the display to scroll your information in an even flow, rather than &quot;jumping&quot; the lines.</td>
</tr>
<tr>
<td>&lt;41-48&gt;</td>
<td><strong>Overflow Protection:</strong> To ensure against data loss when memory is full, select Memory Lock while the cursor is in the first screen line. When the end of memory is reached, the keyboard locks, the terminal beeps and MEMORY FULL appears on the screen. To continue entering text, press &lt;48&gt; to unlock the keyboard, then delete some text or turn off Memory Lock.</td>
</tr>
<tr>
<td>&lt;49-56&gt;</td>
<td><strong>Display Lock:</strong> You can &quot;freeze&quot; data on the screen by turning on Memory Lock in a line of text. All lines above the cursor's current line become locked in place on the screen. Then enter data normally. When the screen fills up, any further data entered forces the first line of unfrozen text to scroll under the frozen data. Lines scrolled off the screen are inserted in memory immediately preceding the first frozen line.</td>
</tr>
<tr>
<td>&lt;57-64&gt;</td>
<td>Allows you to enter control characters on the screen without having the terminal perform the control operations indicated (carriage return and linefeed are displayed AND executed).</td>
</tr>
<tr>
<td>&lt;65-72&gt;</td>
<td>Sets the terminal to advance the cursor to the next line when you press &lt;65&gt;, which normally places the cursor at the beginning of the current line.</td>
</tr>
</tbody>
</table>

### Function Keys

4-5
# Enhance Video Labels

The **Enhance** labels give keyboard control of available video enhancements.

<table>
<thead>
<tr>
<th>Label</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIT</td>
<td>Displays the <strong>Modify</strong> labels for creating forms.</td>
</tr>
<tr>
<td>ON</td>
<td>Activates the currently selected state (either on or off) for every enhancement. Use to enable or disable any enhancement.</td>
</tr>
<tr>
<td>OFF</td>
<td>Inhibits display of characters entered in this field. Use to define password fields. When you type a password, the characters display in blank spaces but the information is sent to the computer (Remote Mode must be on).</td>
</tr>
<tr>
<td>INVERT</td>
<td>Inverts display intensity, e.g., changes dark background with bright characters to dark characters on bright background.</td>
</tr>
<tr>
<td>BLK</td>
<td>Causes the characters in the field to blink on and off.</td>
</tr>
<tr>
<td>UND</td>
<td>Underlines all characters, including blanks.</td>
</tr>
<tr>
<td>HIGHLIGHT</td>
<td>Displays all characters in the field at half intensity.</td>
</tr>
</tbody>
</table>

---

## 4-6 Function Keys

- **EDIT**
- **ON**
- **OFF**
- **INVERT**
- **BLK**
- **UND**
- **HIGHLIGHT**
Config Keys Labels

Through the **Com port** labels you access the terminal’s five configuration menus.

<table>
<thead>
<tr>
<th>Label</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Label Image]</td>
<td>Displays Datacomm Configuration Menu.</td>
</tr>
<tr>
<td>![Label Image]</td>
<td>Displays the External Device Configuration Menu.</td>
</tr>
<tr>
<td>![Label Image]</td>
<td>Displays the Terminal Configuration Menu.</td>
</tr>
<tr>
<td>![Label Image]</td>
<td>Displays the ANSI Configuration Menu (not displayed in HP Mode).</td>
</tr>
<tr>
<td>![Label Image]</td>
<td>Displays the Global Configuration Menu.</td>
</tr>
</tbody>
</table>

Format Mode

This section describes the function key label sets that allow you to define fields using the keyboard (rather than escape sequences from a host computer program).

You use the **Field set** to logically define fields within a form. Within this label set you access the **Field** menu to let you define precisely the field edit characteristics you desire (see Figure 4-1).
Defining Fields
You can use the label sets described in this section to define three field types: Protected Fields, Unprotected Fields and Transmit-Only Fields.

Protected Fields
When the terminal is in Format mode, it safeguards any information that occurs in a protected field. You cannot enter data into these fields. If you press a character key, the cursor advances to the next unprotected field before the terminal accepts the character. All areas that you do not explicitly define as either unprotected or transmit-only fields become protected fields.

Unprotected Fields
These fields accept data. The terminal positions the cursor to the next unprotected field under these conditions:
- you request the next field by pressing the \( \text{fn} \) key.
- you have entered a character in the last character position of the current field.
- you attempt to enter data in a protected area.

Transmit-Only Fields (HP 700/94 Only)
The information in these fields rarely changes. Each time you transmit data to the computer, the terminal sends this information, but it also “retains” a copy on the terminal screen in preparation for the next transfer. Thus, you need not fill in these fields on every form. (Common examples might be the day’s date or the identification number of the keyboard operator who is filling out the forms.) Most cursor movements (such as those “automatically” generated by the terminal or you pressing the \( \text{fn} \) key) skip transmit-only fields. To change the entry in a transmit-only field, you must move the cursor to the field by using the cursor-positioning keys.

Data Checking (HP 700/94 Only)
Your terminal can test keyboard-entered data to verify that it is either alphabetic or numeric. If an input character fails the test, the terminal gives a warning “beep”; displays an error message indicating what type of data this field accepts, and locks the keyboard. Pressing the \( \text{fn} \) key clears the condition. You may then enter the correct information.

To have the terminal perform edit checks, you must define fields with edit-checking capabilities.

4-8 Function Keys
Define Fields Labels

You can use the parenthetical set to specify field types when designing a form.

<table>
<thead>
<tr>
<th>Label</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Displays the parenthetical set of labels.</td>
</tr>
<tr>
<td></td>
<td>Defines all character positions between the cursor and either the start of the next field, a &quot;stop field&quot; marker, or the end of the line (whichever comes first) as an unprotected field. Any character can be entered in an unprotected field. Data in unprotected fields can be transmitted to the computer in Remote mode. An unprotected field is ended by either a &quot;stop field&quot; marker (produced with the [C=] key) or the end of the line.</td>
</tr>
<tr>
<td></td>
<td>(HP 700/94 only.) Defines all character positions between the cursor and the start of the next field, a &quot;stop field&quot; marker, or the end of the line (whichever comes first) as a transmit-only field. In Remote mode, data in a transmit-only field is transmitted to the computer along with data in any unprotected field. In Format mode, the [SE] keys skip over transmit-only fields. Data can be entered in a transmit-only field by cursor positioning keys. The [C=] key must be used to end a transmit-only field. Transmit-only fields can be further defined as alphanumeric, alphabetic only, numeric only, or any combination of these fields.</td>
</tr>
<tr>
<td></td>
<td>Defines the end of any unprotected or transmit-only type field (by generating a &quot;stop field marker&quot;).</td>
</tr>
<tr>
<td></td>
<td>(HP 700/94 only.) Defines the start of each edited field.</td>
</tr>
<tr>
<td></td>
<td>(HP 700/94 only.) Displays the field definition menu (Figure 4-7).</td>
</tr>
</tbody>
</table>

Turns on Format Mode. In this mode, the fields (defined using the Define Fields label set) are activated. When Format mode is entered, all memory is protected unless specifically defined otherwise using the Define Fields function keys. Normal procedures to define the display enhancements, field, and character sets, then enter Format mode and enter data into the fields.

Function Keys 4-9
Figure 4-1. Field Definition Menu (HP 700/94 Only)

<table>
<thead>
<tr>
<th>FIELD TYPE</th>
<th>ATTRIBUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. ALL CHARACTERS</td>
<td>0. SPEC INDEX</td>
</tr>
<tr>
<td>1. ALPHABETIC</td>
<td>1. ZERO PAD</td>
</tr>
<tr>
<td>2. ALTS RIGHT</td>
<td>2. INTEGER/FILL</td>
</tr>
<tr>
<td>3. ALPHANUMERIC</td>
<td>3. SIGN DECIMAL/FILL</td>
</tr>
<tr>
<td>4. INTEGER</td>
<td>4. IMPLICIT DECIMAL/FILL</td>
</tr>
<tr>
<td>5. SIGN DECIMAL</td>
<td>5. NUMERIC</td>
</tr>
</tbody>
</table>

Define Edits Labels (HP 700/94 Only)

The labels are displayed along with the Field Definition Menu.

<table>
<thead>
<tr>
<th>Label</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGE</td>
<td>Turns on the desired field type and explicit attributes.</td>
</tr>
<tr>
<td>NEXT</td>
<td>Cycles forward through the values of each of the highlighted fields to select the choice for display in that field.</td>
</tr>
<tr>
<td>PREV</td>
<td>Cycles backward through the values of each of the highlighted fields to select the choice for display in that field.</td>
</tr>
<tr>
<td>EXIT</td>
<td>Displays the default values for the field type and attributes.</td>
</tr>
</tbody>
</table>

4.10 Function Keys
<table>
<thead>
<tr>
<th>Field Type</th>
<th>Valid Input Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL CHARACTERS</td>
<td>All characters</td>
</tr>
<tr>
<td>ALPHABETIC</td>
<td>Uppercase and lowercase alphabetic characters and spaces</td>
</tr>
<tr>
<td>AUTO UPSHIFT</td>
<td>All characters</td>
</tr>
<tr>
<td>ALPHANUMERIC</td>
<td>Uppercase and lowercase alphabetic characters, digits, spaces, periods, dashes, commas and plus signs</td>
</tr>
<tr>
<td>INTEGER</td>
<td>Digits and spaces</td>
</tr>
<tr>
<td>SIGNED DECIMAL</td>
<td>Digits, minus sign or plus sign, decimal point or comma, and spaces</td>
</tr>
<tr>
<td>IMPLIED DECIMAL</td>
<td>Digits, plus sign or minus sign, decimal point or comma, and spaces</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>None</td>
</tr>
<tr>
<td>INTEGER FILL</td>
<td>Digits and spaces</td>
</tr>
<tr>
<td>SIGNED DECIMAL FILL</td>
<td>Digits, minus sign or plus sign, decimal point or comma, and spaces</td>
</tr>
<tr>
<td>IMPLIED DECIMAL FILL</td>
<td>Digits, plus sign or minus sign, decimal point or comma, and spaces</td>
</tr>
<tr>
<td>NUMERIC</td>
<td>Digits, spaces, periods, commas, minus sign, and plus sign</td>
</tr>
</tbody>
</table>

Function Keys 4-11
User-Definable Function Keys

You can define keys \( \text{[F1]} \) through \( \text{[F8]} \) to perform your own unique tasks. With the user-defined key feature, you can customize your terminal to suit many applications.

Until you enter your own definitions, the user-definable function keys have predefined default definitions.

Defining Keys \( \text{[F1]} \) through \( \text{[F8]} \)

To define \( \text{[F1]} \) through \( \text{[F8]} \), press the \( \text{[Esc]} \) and \( \text{[More]} \) keys together to display the definition menu (Figure 4-2).

Figure 4-2. User-Defined Key Menu

1) Label Line 2) Definition Line 3) Type Field

You define three fields for each user key: the transmission "type" character, the label, and the key definition itself.

4-12 Function Keys
TYPE CHARACTER. This tells the terminal how to interpret your key definition. The three type characters are L, T and N:

- L (local execution)—the terminal performs the function locally; nothing is transmitted to the computer.
- T (transmit)—the terminal transmits the definition string to the computer; nothing happens locally.
- N (normal keyboard operation)—the terminal interprets the definition string as though you entered it directly from the keyboard. Position the cursor in the type field for key \( \text{F1} \). Press \( \text{Alt-Tab} \) or \( \text{Shift-Tab} \) until the desired selection is displayed in that field.

LABEL FIELD. Assign a label to each function key to remind you which function that key performs. The maximum label size is 16 characters: 8 characters in the label’s upper half, and 8 characters in the label’s lower half.

On the definition menu, the label field is in two 8-character blocks. The first block forms the upper half of the label, the second block, the lower half. The default labels for the keys are the titles “F1” through “F8”.

Position the cursor in the first block of the first key’s label field and type the top half of your first label. Then type the bottom half of the label.

DEFINITION FIELD. Position the cursor on the line below the label blocks. Now type the definition for the first user key. The definition can be up to 80 characters long.

Use \( \text{Alt-Tab} \) to enter keys that have special functions. When \( \text{Alt-Tab} \) is on, the function of a special key is inhibited so that you can include the special key in your definition. The symbol for that special key appears in the definition line.

When you have finished defining keys \( \text{F1} \) through \( \text{F8} \), press \( \text{Esc} \) to exit the definition menu and display the last set of function labels you used.

**Using Your Newly Defined Keys \( \text{F1} \) through \( \text{F8} \)**

You activate the user-defined keys \( \text{F1} \) through \( \text{F8} \) by pressing \( \text{Alt-Fn} \) to display the user-defined function key labels. Press a function key and your definition is executed.

*Function Keys* 4-13
ANSI Operation

This chapter tells how to use your terminal in ANSI X3.64 operations. The features provided in ANSI X3.64 mode are in addition to the HP Mode features already described in this book.

NOTE

The term "ANSI" appearing here does not imply endorsement of this product by the American National Standards Institute. "ANSI" refers specifically to Institute's X3.64 1979 Standard, which defines a set of terminal control sequences known as the ANSI Standard.

ANSI X3.64 operation implements control sequences from the ANSI Standard used by DEC terminals. Certain DEC private control codes are also implemented. This allows the terminal to run most applications written for the VT100, VT52 and VT220 terminals.

Three modes are available in ANSI X3.64 operation:

1. EM100 Mode—the terminal functions like a VT100 terminal when using software on a DEC computer system written specifically for the VT100.
2. EM220 Mode—the terminal operates like a VT220 terminal when using software for the VT220.
3. EM52 Mode—the terminal operates like a VT52 terminal when using software on a DEC system written for the VT52.
How to Select Operating Modes

Choose the operating mode you desire in the Term Mode field of the TERMINAL CONFIGURATION menu.

Press [SPACE], then [ADJUST], then [DISPLAY] to display the menu (Figure 5-1).

Figure 5-1. Terminal Configuration Menus (Default Values Shown)

To select the desired operating mode:

- Use the [UP] or cursor control keys to position the cursor in the Term Mode field.
- Press [ADJUST] or [DISPLAY] to display the desired setting. Choose [MORE] [NEW] or [FIND] to operate in the emulation mode you require.
- Press [ENT] to enter the selected operating mode. This step also saves the selection in nonvolatile memory and returns the System labels to the screen.

When the operating mode is changed from HP to an emulation mode or vice versa, display memory is cleared. This leaves the screen blank except for function key labels and status indicators. The cursor moves to the upper left-hand corner of the screen.

5-2 ANSI Operation
Configuring the Terminal for ANSI Operations

Before using the terminal in EM100, EM12 or EM220 Mode, you must make certain configuration settings.

Make sure your terminal is in Remote Mode and that the datacomm is configured correctly for your system.

Using the ANSI Configuration Menu

The ANSI Configuration Menu allows you to tailor the terminal for specific application programs running on a standard DEC computer system.

To display the ANSI Configuration Menu:

- Ensure that the terminal is currently operating in EM100, EM52 or EM220 Mode (check the status line). If the terminal is in HP Mode, change Modes by following the procedures described in the previous section.
- Press [Esc], then [Menu], then [Menu] to display the ANSI Configuration Menu shown in Figure 5-2. Settings made in this menu apply to EM100, EM52 and EM220 Mode operations.

Figure 5-2. ANSI Configuration Menu (Default Values Shown)

<table>
<thead>
<tr>
<th>ANSI CONFIGURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MultiPage</td>
</tr>
<tr>
<td>Cursor Off</td>
</tr>
<tr>
<td>Shift Lock</td>
</tr>
<tr>
<td>Control Codes</td>
</tr>
<tr>
<td>EM100 ID</td>
</tr>
<tr>
<td>Print Area</td>
</tr>
<tr>
<td>Auto Answerback</td>
</tr>
<tr>
<td>Connect Answerback</td>
</tr>
<tr>
<td>User All Tabs</td>
</tr>
<tr>
<td>ANSI &amp; Colon Tabs</td>
</tr>
</tbody>
</table>

Refer to Chapter 2 for information on how to make menu selections.
The ANSI Configuration Menu allows you to define the following fields:

<table>
<thead>
<tr>
<th>Menu Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Multispec**               | Specifies amount of display memory available. 
**2** indicates subsequent applications use a single page of memory (24 lines). 
**2** indicates all available memory is used. |
| **Backspace Key**           | Defines **Back** key functions for use in software applications. 
**Back** indicates **Back** is pressed by itself functions as a normal **Back** key, and **Back** provides a DELETE key function. |
| **Cursor Off**              | **ESC** turns off the cursor, **ESC** allows it to display normally. |
| **User Features Locked**    | **ESC** prevents user convenience features from being changed by the computer. 
**ESC** lets you lock in these features so they can only be changed from the keyboard: 
**ESC Auto Repeat**, 
**ESC Smooth scroll**, 
**ESC Light background**, 
**ESC Tab stops** and 
**ESC Keyboard lock**. 
**ESC** allows computer to change them in a software application. |
| **Shift Lock**              | Affects **Shift** key operation. 
**Shift** sets **Shift** to function normally, that is, locking alphabetic keys to uppercase without affecting number and symbol keys. 
**Shift** selects another function for the **Shift** key: alphabetic keys still generate uppercase characters, but number/symbol keys generate the top character shown on the key. 
When **Shift** is active, you can access lowercase alphabetic keys and the bottom characters on number or symbol keys by pressing the **Shift** key. |
| **User Defined Keys Locked**| **Shift** prevents a host computer from changing user-defined key definitions via software applications. 
**Shift** lets a computer change them. |
| **Control Codes**           | **SCT** or **SCT**. Selects whether 7 bit or 8 bit control codes are transmitted in response to status requests from the computer. |
| **Keypad in Appl. Mode**    | **SCT** specifies normal use of the numeric keypad. 
**SCT** puts the numeric keypad into Application Mode, and the keys generate escape sequences used in specific software applications. |
| **EM100 ID**                | Supplies terminal identification for host computer applications. 
Choose **EM100**, **EM100**, **EM100**, or **EM100** as needed for your application. |

5-4 ANSI Operation
<table>
<thead>
<tr>
<th>Menu Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cursor Keys in Applic. Mode</td>
<td>▼ specifies normal cursor key functions (in EM100, EM52 and EM220 modes). ▼ redefine cursor keys as Application Mode cursor keys that generate special escape sequences.</td>
</tr>
</tbody>
</table>
| Print Area | Affects print page command in DEC software applications. 
posal selects the entire page for printing. posarea specifies just the area within the scroll boundaries for printing. The scroll region is defined by the application. |
| Print Terminator + FF | Selects whether print page operations are terminated with no character + or with a form feed character + FF. |
| Answer Back | Certain ANSI applications require a message for response from a host computer enquiry. You can enter a message in this field up to 30 characters long. ▼ sends the message from the keyboard.) The first character typed in this field clears the old message and starts a new one. Press ▼ ▼ to enter control characters into the message, where they are displayed as the appropriate symbols. (Remember to press ▼ ▼ again to turn off display functions mode and return the keys to generating normal characters.) |
| Auto Answerback | Allows the answrback message to be sent to the computer automatically after a communications line is established. ▼ turns on this function. ▼ turns it off. |
| Conceal Answerback | Pressing ▼ when the cursor is in this field turns on the “conceal answerback” function. When you activate this function, the message ▼ displays instead of the defined answerback message. |
| Clear All Tabs | Pressing ▼ when the cursor is in this field clears all tabs set via the ANSI Configuration Menu. |
| Set 8 Column 133 | Pressing ▼ when the cursor is in this field sets a tab stop in every 8th column. |
| 12345678901234567890 | To set or clear a tab stop in a particular column, position the cursor in that column using the cursor movement keys. Then press ▼ to activate a 1 in that column. The lower line of numbers in this field represent columns 81 through 132. |

ANSI Operation | 5-5 |
Status Line Indicators

EM100, EM52 and EM220 Mode operations add special indicators to the terminal’s status line. The following section describes the functions of the new indicators. See Chapter 3 for information about all other displayable status line indicators.

EM100 Mode Indicators

In EM100 Mode, the terminal mode indicator EM100 appears in the status line. This shows that the terminal is currently operating in EM100 Mode.

The Status Line can also display up to four additional symbols in EM100 Mode—L1, L2, L3, or L4—which are activated by a program running on the host computer. These four symbols are provided to simulate the four LED indicators on a VT100 keyboard, allowing applications utilizing these LED indicators to run without modification on your terminal. The meaning of symbols L1 through L4 depends on the program used.

EM52 Mode Indicator

In EM52 Mode, the Status Line displays the indicator EM52 to inform you that the terminal is operating in EM52 Mode.

EM220 Mode Indicator

In EM220 Mode, the Status Line displays the indicator EM220 to inform you that the terminal is operating in EM220 Mode. As in EM100 Mode, L1 through L4 display when activated by a host computer program.

Keyboard Operation in Emulation Modes

The functions of several keys are changed when the terminal is operating in EM100, EM220 or EM52 Mode.
Numeric Keypad

A numeric keypad overlay is supplied for use in emulation modes. The overlay indicates the new functions of the numeric pad keys:

The keys on the numeric keypad with new functions include:

1. The keys ▼, ▼, ▼ and ▼. These keys act as program function keys [PF], [PF], [PF] and [PF], whose functions vary with the application program being used. The ▼ key also generates a line feed character.

2. The [F6] key. This key becomes the ▼ key.

3. The [F7] key. This numeric pad key becomes the ▼ key, operating like the ▼ key does in normal HP Mode operation.

In addition, the numeric keys on the keypad can be set by a host computer program to perform special functions. These functions vary with the program being used; their meanings are defined and explained by the software controlling them.

Alphanumeric Keys

Certain keys on the alphanumeric or "typewriter" portion of the keyboard are affected in EM100, EM220 and EM12 Modes. These keys include the following:

1. The [Backspace] key. This key functions as a normal backspace or as a delete key.

2. The [Insert] and [Delete] keys. These keys are disabled.

3. The [Home] key, located on the lower left portion of the keyboard, duplicates the operation of the [Home] key. When in an emulation Mode, you may press either [Home] or [Home] for a carriage return.

4. The [Ctrl], [Shift], [Alt], [Alt], [Alt] and [Alt] keys are disabled when the terminal is set for single-page operations (see the Configuring The Terminal For ANSI Operations section earlier in this chapter).

In addition, the following two key sequences are added to the terminal's operating features:

- Press the [Ctrl] and [Alt] keys simultaneously to transmit the user-configured Answerback Message to the host computer.

- Press the [Ctrl] and [Alt] keys simultaneously to transmit a 3.5 second BREAK to the host computer.

ANSI Operation 5-7
Using the Keyboard in VT220 Applications

The terminal keyboard emulates VT220 keyboard functions when the terminal is operating in EM100, EM220 or EM52 Mode.

On the main keypad, the following edit key equivalents are available:

- [Shift-Enter] equals the VT220 Select key.
- [Delete] equals the VT220 Find key.
- [Insert] equals the VT220 Insert Here key.
- [Backspace] equals the VT220 Remove key.
- [Home] equals the VT220 Prev Screen key.
- [End] equals the VT220 Next Screen key.

On the numeric keypad, these key equivalents are available:

- 1 equals the VT220 PF1 key.
- 2 equals the VT220 PF2 key.
- 3 equals the VT220 PF3 key.
- 4 equals the VT220 PF4 key.

The top row of keys on your keyboard emulate VT220 user keys. Press [Ins] (Insert) to activate the new VT220 functions. Press [Home] to return these keys to their HP Mode user definitions.

The new VT220 function keys F6 through F20 perform operations defined by the application program in use.

The following table shows the key equivalents produced when you press [Ins] (Insert):

<table>
<thead>
<tr>
<th>Key</th>
<th>Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hold Screen</td>
</tr>
<tr>
<td>F6</td>
<td>= F6</td>
</tr>
<tr>
<td>F7</td>
<td>= F7</td>
</tr>
<tr>
<td>F8</td>
<td>= F8</td>
</tr>
<tr>
<td>F9</td>
<td>= F9</td>
</tr>
<tr>
<td>F10</td>
<td>= F10</td>
</tr>
<tr>
<td>F11</td>
<td>= F11</td>
</tr>
<tr>
<td>F12</td>
<td>= F12</td>
</tr>
<tr>
<td>F13</td>
<td>= F13</td>
</tr>
<tr>
<td>F14</td>
<td>= F14</td>
</tr>
<tr>
<td>F15</td>
<td>= F15</td>
</tr>
<tr>
<td>F16</td>
<td>= F16</td>
</tr>
<tr>
<td>F17</td>
<td>= F17</td>
</tr>
<tr>
<td>F18</td>
<td>= F18</td>
</tr>
<tr>
<td>F19</td>
<td>= F19</td>
</tr>
<tr>
<td>F20</td>
<td>= F20</td>
</tr>
</tbody>
</table>

5-8 ANSI Operation
Troubleshooting and Maintenance

Included in this chapter are procedures to follow if the terminal should happen to malfunction.

NOTE
A qualified service engineer should perform all maintenance procedures that require opening this unit. The controls available to you are readily accessible. Under no circumstances should you open your terminal to expose its internal circuitry.
Error Messages

The terminal generates several kinds of status checks and diagnostic error messages. Most error messages occur when you enter data that the terminal was not expecting or request a service that the terminal cannot perform. However, some errors result from incompatible settings in the configuration menu.

The error messages appear on lines 25 and 26; they replace the function key labels. Pressing the **key clears the error message, restores the function key labels, and unlocks the keyboard.

Here is a list of the terminal’s error messages and their meanings:

<table>
<thead>
<tr>
<th>Message</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default configuration; Press RETURN to clear</td>
<td>Configuration settings stored in non-volatile memory have been reset to their default values. If this condition persists, call your HP service representative.</td>
</tr>
<tr>
<td>No &quot;TOP&quot; device; Press RETURN to clear</td>
<td>You have attempted to perform a data transfer operation without first defining the destination (&quot;to&quot; device).</td>
</tr>
<tr>
<td>Source = destination; Press RETURN to clear</td>
<td>You have defined the same device as the source and the destination for a data transfer.</td>
</tr>
<tr>
<td>MEMORY FULL; Press RETURN to clear</td>
<td>Display memory is full and Overflow Protect is preventing accidental loss of data. Either disable Memory Lock or delete some lines from the workspace.</td>
</tr>
<tr>
<td>Function locked; Press RETURN to clear</td>
<td>The terminal function you attempted has been disabled.</td>
</tr>
</tbody>
</table>

6-2 Troubleshooting and Maintenance
If the Terminal Malfunctions

Some terminal problems may arise during normal operation. You should conduct the following procedures (in their presentation order) before calling a service representative.

Configuration Checking

What sometimes appears to be a terminal malfunction may be an incorrect terminal-computer configuration. When the terminal appears to malfunction, before resetting the terminal or conducting any tests, you should verify that the parameters in each configuration menu are correct for the task at hand.

Resetting the Terminal

Occasionally, you may find it necessary to reset the terminal to clear an error condition. There are two types of reset: a soft reset and a hard reset. Both types temporarily halt printer datacomm operations. Additionally, a hard reset activates the configuration values stored in non-volatile memory and destroys all data in workspace memory. (That is, a hard reset returns the terminal to its power-on condition.)

For these reasons, you should use discretion when considering a reset operation.
SOFT RESET. You perform a soft reset by pressing [CTRL] [BREAK]. A soft reset has these effects:

- The terminal bell rings.
- The active configuration values remain in effect.
- The terminal preserves all data stored in workspace memory.
- The window maintains the current screen display.
- The terminal unlocks the keyboard.
- If Display Functions is enabled, the terminal disables it.
- If Record Mode is active, the terminal cancels its selection.
- The terminal stops all operations by devices (such as printers) which it controls.
- The terminal stops transferring data to the datacomm line.

HARD RESET. You perform a hard reset by simultaneously pressing the [CTRL], [BREAK], and [ESC] keys. A hard reset has these effects:

- The terminal bell rings.
- The terminal resets all configuration parameters to the values stored in non-volatile memory.
- The terminal destroys any data stored in workspace memory.
- The terminal unlocks the keyboard.
- The terminal displays the Modes set of function key labels.
- The terminal sets the left margin to column 1 and the right margin to the workspace width.
- The terminal clears all tabs.
- If enabled, resets all the following:
  A. Display Functions
  B. Line Modify
  C. Insert Character
  D. Memory Lock
  E. CAPS Mode
  F. Record Mode
  G. Monitor Mode
  H. Any special datacomm modes
  I. Extended Character Mode
  J. Top or Bottom Logging

6-4 Troubleshooting and Maintenance
Terminal Self-Test

Press [TEST] then [ENTER] to initiate the terminal’s self test.

When the test completes successfully, the terminal displays a test pattern on the screen. If the test pattern does not appear or if an error message replaces the function key labels, contact your nearest Hewlett-Packard sales and service office for assistance.

Preventive Maintenance

One simple procedure which helps ensure the proper operation of your terminal is to keep the screen and keyboard clean.

Cleaning the Screen and Keyboard

You should regularly clean your terminal to remove dust and grease. First, dust lightly using a damp, lint-free cloth. (Paper towels are fine.) The cloth should be just damp enough to pick up dust. Avoid wiping dust or lint into the keyboard area.

If smudges or fingerprints persist, you can use a mild solution of soap and water. Remember to wring the cloth thoroughly; otherwise, rubbing the dirty areas will drip water over the terminal. Avoid getting any liquid between the keys.

CAUTION

Never use petroleum-based cleaners, such as lighter fluid, or cleaners containing benzene, trichloroethylene,斗志 ammonia, ammonia, or acetone. These cleaners may harm the plastic surfaces.

Troubleshooting and Maintenance 6-5
International Keyboards

Figure A-1. French Canadian

Figure A-2. German
A-2 International Keyboards
Figure A-6. English Canadian

Figure A-7. Spanish (Latin America)

Figure A-8. Norwegian

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