HP700/32

USER'S MANUAL

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In the U.S. and Canada, this terminal is warranted by Hewlett-Packard against defects in materials and workmanship for one year from date of original purchase. If you transfer ownership, this warranty is automatically transferred to the new owner and remains in effect for the original one year period.

During the warranty period we will repair or, at our option, replace at no charge any unit that proves to be defective, provided it is returned, shipping prepaid, to an identified Hewlett-Packard repair facility. You are responsible for all customs duties in connection with the return of the unit.

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If your hardware should fail during the warranty period, return the failed piece of equipment to an HP Field Repair Center in your area. When sending equipment to a Field Repair Center, use the original shipping container if possible. Insure the equipment.

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Warranty Information(Except U.S.A. and Canada)

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This equipment generates, uses and can radiate radio frequency energy and if not installed and used in strict accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits of a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protections against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever steps may be required to correct the interference.

For Germany

Electromagnetic Interference Regulations

This equipment was tested in a typical system configuration and meets the General License requirements in Germany (FTZ 1046/84). As a proof of compliance it carries the VDE Radio Protection Mark with the index 0871-B/P for peripherals.

If this equipment is to be operated with a system,

- and if the General License is being claimed, the complete system has to comply with the General Licensing requirements.
- which has its own FTZ-Serial-License, and for which an operating license has been granted or requested, usually no further steps are necessary.

Ergonomic Statement

This product has been tested in accordance with the requirements of the Equipment Safety Law and carries the GS Safety Mark.

The following characteristics:

- ZH 1/168 Font Set
- Refresh Rate
- Positive and Negative Polarity
- Column Width

may be software influenced. Therefore, it was only possible to verify the basic capabilities of these ergonomic requirements.

The user will have to assure that the characteristics stated above meet with the individually-used software.

United Kingdom Telecom Statement

Interconnection directly, or by way of other apparatus of ports marked "U.K. WARNING. CONNECT ONLY APPARATUS COMPLYING WITH BS6301 TO THIS (THESE) PORT(S)" with ports not so marked, may produce hazardous conditions on the network, and advice should be obtained from a competent engineer before such a connection is made. Connection to the network must be disconnected before the equipment power plug is removed. Connection to the network must not be hardwired. This apparatus complies with BS6301. Connect only apparatus complying with BS6301 to the ports of this apparatus.

For Japan

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Printing History

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The VT320, VT220, VT100, VT52 LA34, LA36, LA75, LA100 and LA120 are products of Digital Equipment Corporation. DEC is a registered trademark of Digital Equipment Corporation.

Where to Find More Information

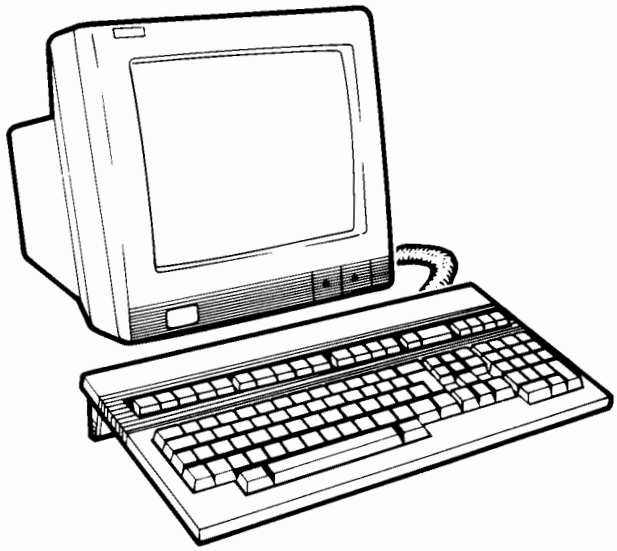
If you need more detailed information about the terminal, or intend to write programs for the terminal, refer to the *HP 700/32 Reference Manual* (part number C1017-90002). You can obtain the *HP 700/32 Reference Manual* by contacting your local HP Sales Office. Or, call HP's Direct Marketing Division at (800) 538-8787.

Preface

The **HP 700/32 Display Terminal** is a versatile, high-performance, reliable ANSI-compatible display terminal. The **HP 700/32** offers ergonomic features, powerful functionality and superior display quality.

The HP 700/32 is compatible with the DEC VT320 terminal, supporting both the VT320's 7-bit and 8-bit controls. It is also compatible with the DEC VT220, VT100 and VT52 terminals.

The keyboard is functionally compatible with the VT320's keyboard.



Ergonomics

- Tilt and swivel display unit
- Etched/dark anti-glare display screen
- High resolution characters
- Full overscan display screen (page white CRT)
- Brightness and contrast controls on the front panel
- Detached, slant adjustable, low-profile keyboard with sculptured keys and tactile feedback
- Small footprint

Compatibility

- Compatible with the DEC VT320
- Compatibility modes:
  - VT320, 7-bit controls
  - VT320, 8-bit controls
  - VT100
  - VT52

Display Screen

- 14 inch; choice of page white (with full overscan), green or amber phosphor
- User area of the screen configurable from 24 to 55 lines
- User selectable 0, 1, 2 or 3 lines for terminal status and host messages
- 80 or 132 columns
- 7 x 13 characters in 10 x 16 cells (24 line user area)
- 4 pages of display memory
- CRT screen saver
- Dark or light display background
- Block or underline cursor, blinking or nonblinking
- Display enhancements: bold and normal intensity, blinking, inverse, underline and secret
- Refresh rates: 72 Hz, 60 Hz or 50 Hz

Keyboard

- 105 keys; functionally compatible with the VT 320's keyboard
- 18 user programmable keys (15 function keys plus three other keys), each programmable in 4 states
- 30 host programmable keys
- Keyboards available in national layouts

Communication

- Port 1:
  - EIA Standard RS-232C (male 25-pin D-type connector)
  - EIA Standard RS-423 (6-pin MMJ connector)
- Port 2:
  - DEC-compatible, EIA Standard RS-423 serial printer (aux) port (6-pin MMJ connector)
- Baud rates up to 38,400 (both ports)

Other Features

- Easy to use Setup menus
- Non-volatile RAM for saving setup specifications
- Smooth scroll
- Keyclick enable/disable
- Compose characters
- VT320-compatible character set repertoire including ISO-Latin 1

Contents

1

Installation

This chapter tells you how to install the terminal, turn it on and off, and adjust the terminal for your comfort.

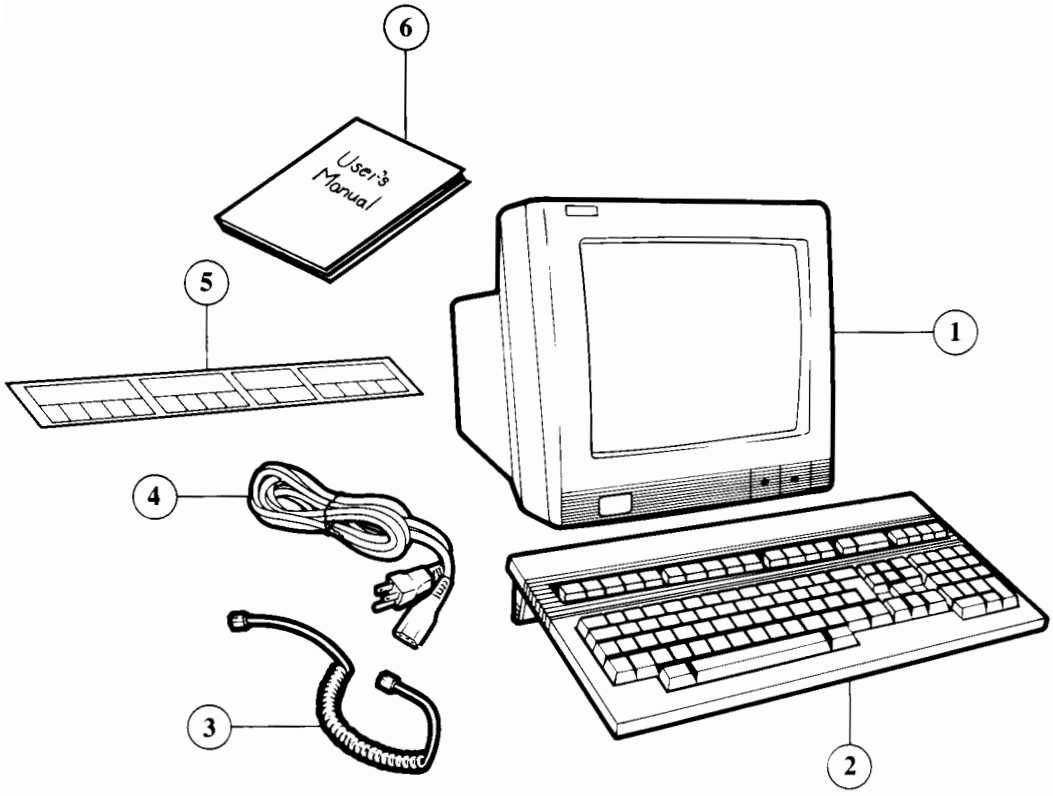


Figure 1-1. Shipping Container Contents

1) Display Unit 2) Keyboard 3) Keyboard Cable 4) Power Cable 5) Keyboard Template 6) User's Manual

Getting Ready

Visual Inspection

If the terminal is still in the shipping container, unpack it. You should have the display unit, keyboard, keyboard cable, power cord, keyboard template and this manual (see Figure 1-1). Keep the container and other packing material in case the terminal has to be repacked at a later date.

Visually inspect the items. If any of the items are missing or appear damaged in any way, do not install the terminal. Instead, contact an HP Sales and Service Office.

Caution

Under no circumstances should you open your terminal to expose its internal circuitry. Only a qualified service engineer should perform maintenance procedures that require opening the terminal case.

What You'll Need

The terminal can be connected to a host computer via EIA RS-232C or RS-423 interfaces. *Only one of these interfaces can be used at a time.* Modem connection is supported on either of these interfaces (full duplex operation only on the 6-pin interface).

- If you are going to connect the terminal to a computer or modem via the terminal's RS-232C connector, you will need a shielded 25-pin male RS-232C cable.
- If you are going to connect the terminal to a computer via the terminal's RS-423 connector, you will need a 6-pin MMJ cable. (The Modified Modular Jack (MMJ) is a 6-pin phone type modular jack that has an offset locking tab.) *If you are going to use the terminal in Europe, this cable must be shielded in order to meet VDE requirements.*

The terminal's auxiliary port can be connected to a serial printer or to a serial input device (such as a bar code reader). If you are going to use the auxiliary port, you will need a 6-pin MMJ cable for that purpose.

Cables for data communications and the auxiliary port are not shipped with the terminal. The cables you use must match the pin assignments specified in Appendix A; otherwise, the terminal will not work properly.

The power cord plugs into a grounded power outlet. The HP 700/32 works with any voltage rating from 100 to 240 VAC. There is no voltage setting for you to adjust on the terminal.

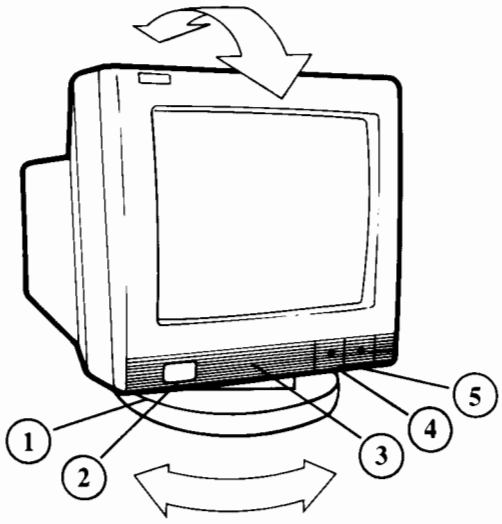


Figure 1-2. Terminal Controls

1) Tilt and Swivel Pedestal 2) Power Switch 3) Service Door 4) Contrast Control 5) Brightness Control

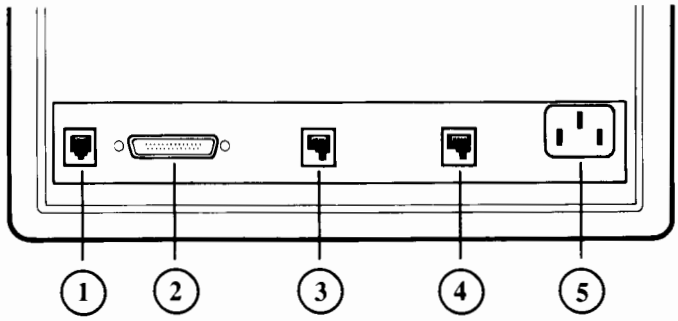


Figure 1-3. Display Unit Rear Panel Connections

1) Keyboard connector 2) Port 1: RS-232C connector 3) Port 1: RS-423 connector 4) Auxiliary port (Port 2) 5) Power cord connector

Connecting the Cables

1. Place the terminal on a hard, level surface such as a desk, table or stand designed for this purpose.
2. Make sure the power cord is not yet connected to the terminal. Also, make sure the power on/off button is set to off (pushed in is on, flush with the panel is off). The power button is located on the lower left front of the display unit (Figure 1-2).
3. Connect the keyboard cable. Both ends are identical. Plug one end into the rear of the display unit (Item 1 in Figure 1-3). Plug the other end into the connector located at the center rear of the keyboard (Figure 1-4).
4. Connect the terminal to a computer or modem using either Port 1's RS-232C connector or the RS-423 connector:
   - *If you are using the RS-232C connector,* connect the cable to Port 1's 25-pin connector on the terminal's rear panel (Item 2 in Figure 1-3). The other end must be connected to the a RS-232 computer port controller or modem. If you are connecting to a modem, follow the installation instructions in its manual.
   - *If you are using the RS-423 connector,* connect the cable to Port 1's 6-pin offset phone connector on the terminal's rear panel (Item 3 in Figure 1-3). The other end must be connected to a RS-423 computer port controller or modem. If you are connecting to a modem, follow the installation instructions in its manual.

Note

Only one of the Port 1 interfaces can be used at a time. Do not connect cables to both Port 1 interfaces at the same time.

5. If you have an auxiliary device (such as a printer), connect its cable to the auxiliary port. The auxiliary port is labeled **Port 2** on the terminal's rear panel (Item 4 in Figure 1-3). The other end must

be connected to the printer or serial input device according to the instructions in that device's manual.

6. Connect the power cord. Plug the slotted end of the power cord into the AC socket on the right rear of the display unit (Item 5 in Figure 1-3). Plug the three-pronged end of the power cord into the electrical outlet. The outlet should be properly wired and grounded.

Caution

Don't set objects on top of the display unit or near its rear panel, as this would block the unit's air vents.

Turning the Terminal On and Off

To turn on the terminal, press the power button on the left front of the display unit. The button remains in while the terminal is on. (If the terminal doesn't turn on, make sure it is plugged into a power outlet.)

You'll hear a beep when you turn on the terminal. In Chapter 3, "The Display Screen" section provides an illustration of what the screen may look like when it is on.

To turn off the terminal, push the power button again so that it is flush with the front panel.

Caution

When turning the terminal off and on in rapid succession, wait at least five seconds for the terminal to completely power down before turning the terminal back on again.

Adjacent to the power button is an entry door to the front of the display unit. Unobtrusive in appearance, *this door is provided for terminal service and repair functions.* Pushing down lightly on the door opens it. Moving it gently back into place closes it.

Adjusting for Comfort

You can adjust the tilt and swivel of the display unit, the angle of the keyboard, the lie of the keyboard cable, and the brightness and contrast of the display screen for your convenience.

To adjust the *tilt,* move the top of the display unit gently up or down until the angle is most comfortable for you. (See Figure 1-2.) The display unit remains tilted at the angle in which you leave it.

The base of the display unit allows you to *swivel* the unit freely to the right and left (Figure 1-2).

The keyboard can either lie flat or be raised at an angle. *To raise the keyboard at an angle,* flip down the bar on the rear underside of the keyboard (Figure 1-4).

So that the it lies more conveniently, you can *route the keyboard cable* along to the right or left inside the grooves on the rear of the keyboard.

The *brightness and contrast controls* are slide switches under the front right corner of the display unit (Figure 1-2). Sliding these switches adjusts the brightness and contrast.

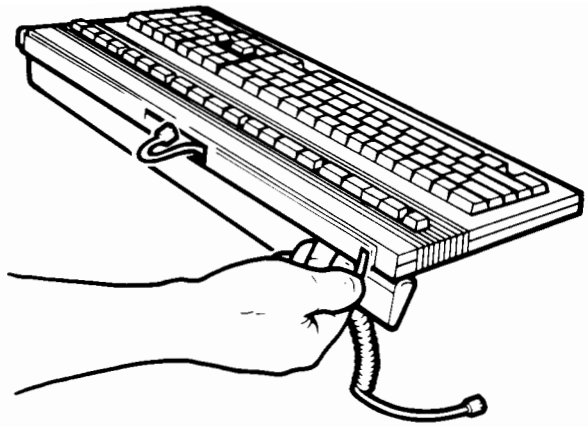


Figure 1-4. Keyboard Cord Attachment and Angle Adjustment

Setup Requirements

The terminal's default Setup specifications are correct for many but not all situations. Depending on the requirements of the host computer system, applications and auxiliary devices, you may have to change some of the terminal's Setup specifications. The terminal's Setup Mode is explained in Chapter 2.

2

Terminal Setup

Introduction

This chapter tells you how to use the HP 700/32 Display Terminal's Setup Mode.

Setup Mode consists of a series of menus which let you:

- configure the terminal so that it can communicate properly with your computer, application programs and peripherals,
- set some of the terminal's features for your convenience, and
- program the terminal's programmable keys.

You won't use Setup Mode very often. For instance, you'll use Setup Mode when you first set up your terminal to work with a computer or printer. And occasionally you may want to use Setup Mode to make minor adjustments to specific features of the terminal. Also, you'll use Setup Mode if you want to program or reprogram any of the terminal's programmable keys.

Use Setup Mode to configure your HP 700/32's communications port to match the host computer port. If there's a printer or serial input device connected to the terminal, look up its communication requirements in its manual.

Using Setup Mode is summarized as follows:

- Enter Setup Mode.
- Access a Setup Menu that contains fields you want to change.
- Make the changes. Setup value changes can be temporary, lasting only until you turn off or reset the terminal. Or you can save the changes (of that menu) for ongoing use.
- Continue to another Setup Menu and make more changes as needed.
- Exit Setup Mode when you are finished changing Setup values.

Entering and Exiting Setup Mode

To enter Setup Mode, press the **Setup** *key.* The first Setup menu (`Global`) temporarily replaces whatever data had been on the screen.

If the terminal's receive handshaking is enabled (it is by default), the computer stops sending data to the terminal until you exit Setup Mode. Thus, no data incoming to the terminal will be lost as long as the terminal's receive handshaking is enabled.

Caution

If you enter Setup Mode while the terminal's receive handshaking is NOT enabled, then it is possible that incoming data from the computer could be lost. The terminal's input buffer can store up to 255 characters. Any data received beyond this limit when handshaking is disabled will be lost.

To exit Setup Mode, press the **Setup** *key.* The data that was on the screen when you entered Setup is redisplayed. Any Setup changes you made are put into effect.

How to Use the Setup Menus

Although each Setup Menu is different in its contents, all of the Setup Menus have the same format, as shown in Figure 2-1.

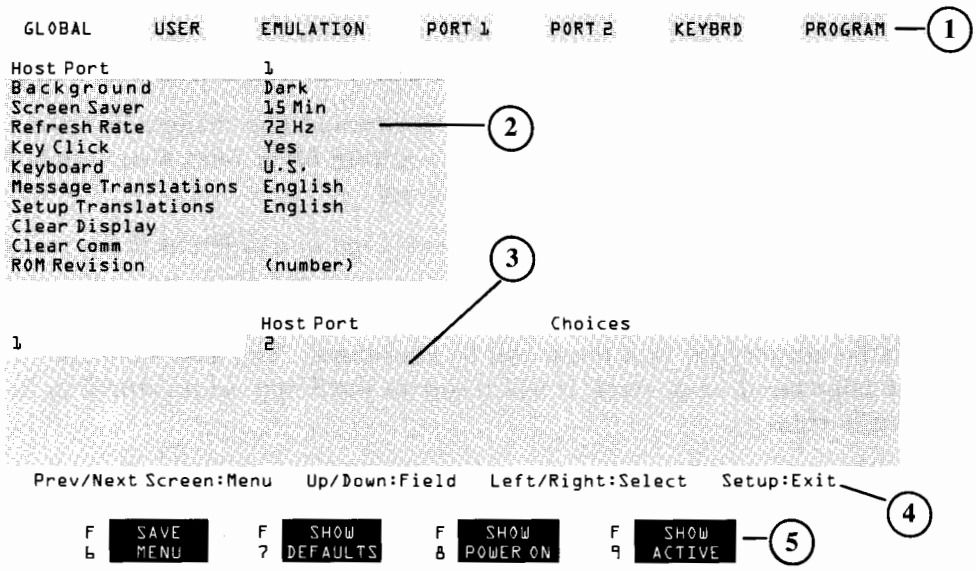


Figure 2-1. The Setup Menus Have the Same Format

1) Menu titles 2) Fields 3) Parameters 4) Reminder line 5) Setup labels

Going From One Setup Menu to Another

The names of the Setup Menus are at the top of the screen. The name of the current menu is highlighted.

- To move to a different menu, press the **Prev Screen** or **Next Screen** keys.

How to Change Setup Values

1. Access the Setup menu that has a field setting you want to change.
2. Select a field you want to change by pressing the up or down arrow keys ([▲] or [▼]). A field is highlighted when it's selected. The possible parameters (choices) for the field are displayed in the parameters window.
3. Select the parameter you want by pressing the left or right arrow keys ([◄] or [►]). A parameter is highlighted when it's selected.

How to Save Changes for Power On Use

Changes that you make in Setup Mode are *per menu.* The changes in Setup values can be temporary, lasting only until you turn off or reset your terminal. Or you can save the the changes for ongoing use.

To make temporary changes for any Setup menu, go to a different Setup menu or exit Setup **without** *using* [Save Menu]. The values last displayed in the menu will be activated when the terminal exits Setup Mode; however the terminal's non-volatile memory for that menu will be unchanged. The next time the terminal is powered on or reset, it will revert to the Setup values stored in its non-volatile memory.

To save changes made in any menu so that the changes will be in effect when the terminal is next powered on or reset, press [F6] [SAVE MENU] *and then exit Setup Mode.* This stores the values of the current Setup menu in non-volatile memory (NV RAM). The stored values become active when you exit Setup Mode, and will be active the next time that the terminal is powered on or reset.

Using the Setup Labels

To perform a Setup Label function press the corresponding function key as shown below:

Table 2-1. Setup Labels and Corresponding Function Keys

SAVE MENU	*SHOW DEFAULTS*	*SHOW POWER ON*	*SHOW ACTIVE*
F6	F7	F8	F9

SAVE MENU	Press F6. The displayed values of the current menu are made active immediately and will be put into effect when you exit Setup Mode. Also, the displayed values (for the current menu only) are saved in non-volatile memory and will be put into effect when the terminal is next powered on or hard reset.
SHOW DEFAULTS	Press F7. Displays the factory default values for all of the menu's fields. This does not change the settings saved in non-volatile memory.
SHOW POWER ON	Press F8. Shows the values which are now stored in non-volatile memory and will be in effect when the terminal is next powered on or reset.
SHOW ACTIVE	Press F9. Displays the currently active settings. This does not change the settings saved in non-volatile memory.

Global Setup Menu

Table 2-2 describes the possible values for the Global Setup Menu. Default values are listed first.

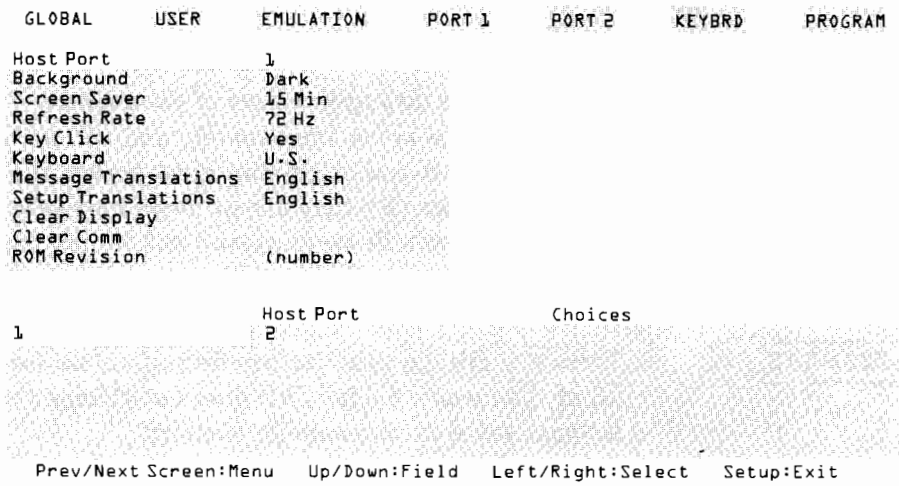


Figure 2-2. Global Setup Menu

Table 2-2. Fields in the Global Setup Menu

Field	Choices	Description
Host Port	1 2	**1** sets Port 1 for communication with the computer and Port 2 for communication with an auxiliary device. **2** sets Port 2 for computer, Port 1 for auxiliary device.

Table 2-2. Fields in the Global Setup Menu
Continued

Field	Choices	Description
Background	Dark Light	*For green and amber CRT's:* **Dark** (default) sets the display for light characters on a dark display background. **Light** sets for dark characters on a light display background. *For page white CRT's::* Same except that **Light** is the default.
Screen Saver	15 min 10 min 5 min Off	**Off** disables the screen saver feature so that the display remains on while the terminal is powered on. The other selections indicate how long the display remains on in the absence of any data from the computer or input from the keyboard. Any keystroke or data from the computer turns the display back on without loss of data.
Refresh Rate	72 Hz 50 Hz 60 Hz	Specifies the screen refresh rate. Select the rate that provides the clearest display quality for your environment.
Key Click	Yes No	**Yes** enables, **No** disables the audible click sound when the keys are pressed.
Keyboard	US UK Can. Fr. Danish Dutch Finnish Flemish French German (DIN) German Italian Norwegian Portuguese Spanish Swiss Fr. Swiss Ger. Swedish	Tells the terminal which keyboard version you're using. This allows the terminal to use the characters that match the characters on the keyboard.

Table 2-2. Fields in the Global Setup Menu
Continued

Field	Choices	Description
Message Translations	English Danish Dutch Finnish French German Italian Norwegian Spanish Swedish	Specifies the language in which the terminal's message labels will be displayed.
Setup Translations	English Francais Deutsch	Specifies the language in which the terminal's Setup Menus will be displayed.
Clear Display	(no selections)	Selecting this field clears the treminal's screen when you exit Setup Mode. Whatever data that had been on the screen when you entered Setup Mode is lost.
Clear Comm	(no selections)	Selecting this field aborts all communications and print operations currently in progress and clears all of the terminal's buffers. Sends Xon to the host computer. Turns off Controller Print Mode. Resets the Xoff flags for the ports.
ROM Revision	(number)	States the terminal's firmware version number.

User Setup Menu

Table 2-3 describes the possible values for the User Setup Menu. Default values are listed first.

Note

The **Display Ctrl Codes** and **Aux Mode** fields in the User Setup Menu always revert to their default values when the terminal is powered on or reset.

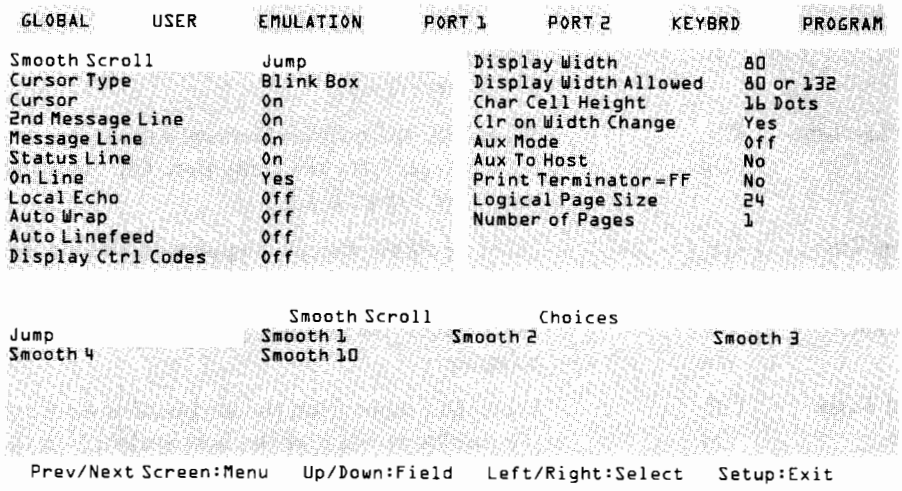


Figure 2-3. User Setup Menu

Table 2-3. Fields in the User Setup Menu

Field	Choices	Description
Smooth Scroll	Jump Smooth 1 Smooth 2 Smooth 3 Smooth 4 Smooth 10	**Jump** causes rapid scrolling at the speed in which data is received from the computer. The numbers indicate the possible smooth scrolling speeds in lines per second.
Cursor Type	Blink Box Steady Line Steady Box Blink Line	Sets the cursor as either a blinking underline, blinking rectangle, unblinking underline or unblinking rectangle.
Cursor	On Off	Selects whether or not the cursor will be displayed.
2nd Message Line	On Off	When **On,** the top Message Line is reserved for messages from the computer. **Off** blanks this line. (See Figure 3-1.)
Message Line	On Off	When **On,** the bottom Message Line is reserved for messages from the computer. **Off** blanks this line. (See Figure 3-1.)
Status Line	On Off	Same as above, except it applies to the Status Line. (See Figure 3-1.)
On Line	Yes No	**Yes** enables, **No** disables communication with the computer.
Local Echo Mode	Off On	When **On,** input from the keyboard is directed to the display screen and the host system (via the host port). When **Off,** the input is sent only to the host system.

Table 2-3. Fields in the User Setup Menu
Continued

Field	Choices	Description
Auto Wrap	Off On	**On** specifies that when the cursor reaches the right margin and a new character is received, the cursor automatically wraps to the beginning of the next line. **Off** does not allow the cursor to wrap, thereby causing the last character on the line to be overwritten.
Auto Linefeed	Off On	Determines whether or not a line feed is sent in addition to a carriage return when the **Return** or **Enter** key is pressed.
Display Ctrl Codes	Off On	When **On,** control characters will be displayed instead of acted upon. *This field always reverts to its default value when the terminal is powered on or reset.*
Display Width	80 132	Sets the screen display to be 80 columns or 132 columns.
Disply Width Allowed	80 or 132 80	Sets the maximum display width. Selecting **80** disables the host from setting the display to 132 columns. **80 or 132** allows either width. *Caution: Changing this field's setting clears the terminal's display memory.*
Char Cell Height	16 Dots 10 Dots 8 Dots	Specifies the number of dots that constitute the height of characters on the screen. The less dots, the more lines that can fit on the screen (depending on the logical page size and number of display pages). **16** dots allows a maximum of 27 lines on the screen; **10** dots allows up to 44 lines maximum; **8** dots allows up to 55 lines maximum. Setting for 10 or 8 dots will result in empty user area on the screen if both the logical page size and number of pages are at default.

Table 2-3. Fields in the User Setup Menu
Continued

Field	Choices	Description
Clr on Width Change	Yes No	**Yes**, the screen will clear when the screen width is changed (between 80 and 132 columns). **No**, the screen won't clear when the screen width is changed.
Aux Mode	Off Copy Controller Auto	**Off** turns off the Aux Mode and sets the terminal for normal printing (e.g., printing can be invoked from the keyboard or by escape sequences). **Copy** causes every character from the main port to be sent to the display screen and the auxiliary port. **Controller** causes data from the main port to be routed to the auxiliary port without being displayed on the screen. **Auto** causes all data to be sent to the display screen; then, after a VT, LF or FF is received, the data is copied to the auxiliary port. *This field always reverts to its default value when the terminal is powered on or reset.*
Aux to Host	No Yes	When **No**, data coming into the auxiliary port is ignored. **Yes** causes all data coming from the auxiliary port to be sent directly to the host without being displayed on the screen.
Print Terminator = FF	No Yes	Selects whether print page operations are terminated with no character (**No**) or by a form feed character (**Yes**).
Logical Page Size	24 ... 96	The logical page size can be from 24 to 96 lines. Press the Enter key to change the logical page size. *Caution: Changing this field's setting clears the terminal's display memory.*
Number of Pages	1 ... 4	There can be from one to four display pages. Press the Enter key to change the number of display pages. *Caution: Changing this field's setting clears the terminal's display memory.*

Emulation Setup Menu

Table 2-4 describes the possible values for the Emulation Setup Menu. This menu contains specifications for the terminal's emulation modes and ANSI operations. Default values are listed first.

Note

The **Keypad Mode** and **Cursor Keys** fields in the Emulation Setup Menu always revert to their default values when the terminal is powered on or reset.

```
 GLOBAL     USER     EMULATION     PORT 1     PORT 2     KEYBRD     PROGRAM

Emulation                VT320
Terminal Id              VT320
Control Codes            7-Bit
Characters Mode          8-Bit
Preferred Char Set       DEC Supplemental
Keypad Mode              Numeric
Cursor Keys              Normal
Print Scroll Region      Off
User Features Locked     No
User Keys Locked         No
Data Processing Keys     Yes

                         Emulation                Choices
VT320                    VT100          VT52

  Prev/Next Screen:Menu   Up/Down:Field   Left/Right:Select   Setup:Exit
```

Figure 2-4. Emulation Setup Menu

Table 2-4. Fields in the Emulation Setup Menu

Field	Choices	Description
Emulation	VT320 VT100 VT52	This field sets the compatibility mode for the terminal. Select the emulation that matches your application requirements. The **VT320** selection, besides supporting VT320 and VT220 applications, also supports most VT100 application programs.
Terminal ID	VT320 VT100 VT101 VT102 VT220	Specifies which terminal ID is sent in response to a Device Attributes request.
Control Codes	7-Bit 8-Bit	**8-Bit** causes the terminal to generate 8-Bit codes when transmitting to the host computer. **7-Bit** causes the terminal to use 7-bit equivalent control codes. *This field is automatically set to* **7-Bit** *when any emulation mode except VT320 is selected.*
Characters Mode	8-Bit 7-Bit	The 7-bit mode selection is available only if the **Keyboard** field in the Global Menu is NOT set to *U.S.* **7-Bit** selects the character set that is appropriate for the current setting of the **Keyboard** field. **8-Bit** sets the terminal to use the Multinational Character Set and enables use of the 8-bit User Preferred Set.
Preferred Character Set	DEC Supplemental ISO 8859-Latin 1	This field specifies the preferred supplemental character set.
Keypad Mode	Numeric Application	**Numeric:** The auxiliary keypad functions in numeric mode, sending the ASCII characters that match its keycaps. **Application:** The auxiliary keypad sends escape sequences which can be assigned customized functions by applications.

Table 2-4. Fields in the Emulation Setup Menu Continued

Field	Choices	Description
Cursor Keys	Normal Application	**Normal:** The cursor (arrow) keys send escape sequences that move the cursor. **Application:** The cursor keys send escape sequences that can be assigned customized functions by applications.
Print Scroll Region	Off On	**Off:** the entire display contents will be printed when the terminal receives a print screen command or when you press the **Print Screen** key while holding down **Shift**. **On:** just the region between the top and bottom scrolling margins is printed.
User Features Locked	No Yes	When locked, settings for the following Setup fields cannot be altered by the host computer: **Tab Stops, Background, Smooth Scroll, Auto Repeat** and **Keyboard Lock Enable**. If your applications require control of these features, then this field should be set to **No.**
User Keys Locked	No Yes	When locked, the host computer cannot reprogram the terminal's function keys.
Data Processing Keys	No Yes	**No** specifies that characters on the left side of the keycaps will be used. **Yes** specifies that characters on the right side of the keycaps will be used. *If you are using the U.S. keyboard, select NO.* For any other keyboard, choose that setting that fits your application requirements.

Port 1 and Port 2 Setup Menus

These menus specify how the terminal will communicate with the host computer and auxiliary device.

By default, Port 1 is dedicated to the host computer and Port 2 to any optional auxiliary device that may be connected to the terminal. However, these port designations can be switched using the **Host Port** field in the Global Setup Menu. Both ports are bidirectional.

Note

The Port 1 and Port 2 menus are the same with following differences: the **DRSI, CTS, CD** and **Disconnect Delay** fields are only in the Port 1 menu; the **Xmit Pace** has different default values for Port 1 and Port 2.

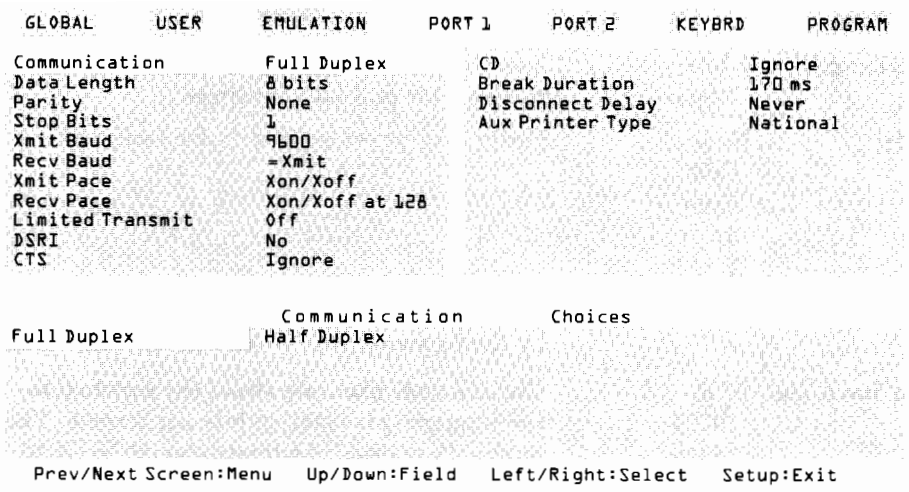


Figure 2-5. Port 1 Setup Menu

Table 2-5 describes the possible values for the Port 1 and Port 2 menus. Default values are listed first.

Table 2-5. Fields in the Port 1 and Port 2 Setup Menus

Field	Choices	Description
Communication	Full Duplex	Data sent to the computer must be echoed back by the computer to be displayed on the screen. Transmitted data isn't sent to the screen by the terminal. The RTS signal is always high.
	Half Duplex	Data sent to the computer also is sent to the screen. For Port 1 only: the RTS signal is high only when there is data to send. (Port 2 has no RTS.)

Table 2-5. Fields in the Port 1 and Port 2 Setup Menus Continued

Field	Choices	Description
Data Length	8 bits 7 bits	Select the data length. Each port may send and receive 7 bit or 8 bit characters.
Parity	None Odd Even 0 1	Parity may be set separately for each port.
Stop Bits	1 2	Selects the number of stop bits sent and expected by the terminal.
Xmit Baudrate	9600 19200 38400 300 600 1200 2400 4800	The transmit baudrate (from the terminal to the computer) is listed in bits per second. The terminal's transmit baudrate should be set to match the host computer's receive baudrate. The terminal can be set at different transmit and receive baudrates (so long as the rates match those of the host computer). Baudrates for Port 1 and Port 2 do not necessarily have to match. *The default Xmit baudrate for Port 2 is 4800; the default for Port 1 is 9600.*
Recv Baudrate	= Xmit 300 600 1200 2400 4800 9600 19200 38400	The receive baudrate (incoming to the terminal from the computer) is listed in bits per second. The terminal's receive baudrate should be set to match the host computer's transmit baudrate. **&= Xmit** sets the terminal's receive baudrate to match the terminal's transmit baudrate.

Table 2-5. Fields in the Port 1 and Port 2 Setup Menus Continued

Field	Choices	Description
Xmit Pace	Xon/Xoff DSR DSR/Xon/Xoff None	**Xon/Xoff** (default for Port 1) sets the terminal to stop transmitting when an Xoff is received and resume transmitting when an Xon is received. **DSR** sets the terminal so that the DSR signal must be active (high) for the terminal to transmit or recieve data. **DSR/Xon/Xoff** (default for Port 2) combines those two selections. **None** sets the terminal for no transmit pacing.
Recv Pace	Xon/Xoff at 128	Selecting **Xon/Xoff at 128** will cause an Xoff to be sent when the buffer reaches 128 characters and an Xon to be sent when the buffer has emptied down to 32 characters.
	DTR	Selecting **DTR** causes the DTR control line to lower when the receive buffer fills to 128 characters; the DTR line is raised when the buffer empties to 32 characters.
	DTR/Xon/Xoff	This selection combines both of the above forms of handshaking (Xoff sent/DTR lowered at 128; Xon sent/DTR raised at 32).
	None	**None** sets the terminal for no receive pacing. The other parameters for this field involve the port's receive buffer which can hold up to 255 characters.
	Xon/Xoff at 64	Selecting **Xon/Xoff at 64** will cause an Xoff to be sent when the buffer reaches 64 characters and an Xon to be sent when the buffer has emptied down to 32 characters.

Table 2-5. Fields in the Port 1 and Port 2 Setup Menus Continued

Field	Choices	Description
Limited Transmit	On Off	**Off** allows unlimited transmit speed. **On** limits data transmission to no more than 150 characters per second. (This may reduce interrupt processing overhead on some systems.)
DRSI	No Yes	*Port 1 only.* **No:** the baud rate is NOT dependent upon the DRSI (Data Rate Select Iput) signal. **Yes:** the baud rate is dependent upon the DRSI signal. This field only pertains to data communications over modems.
CTS	Ignore Required	*For Port 1 only.* **Ignore:** the CTS signal is ignored for data transmission. **Required:** the CTS signal must be active (high) for the terminal to transmit data.
CD	Ignore Required	*For Port 1 only.* **Ignore:** the CD signal is ignored for data transmission. **Required:** the CD signal must be active (high) for the terminal to receive data.
Break Duration	170 250 500	Specifies in milliseconds the duration of the break signal generated by the Break key.
Disconnect Delay	Never 2 Sec 60 ms	*For Port 1 only.* Specifies the length of time (if any) that the CD signal must be low before the terminal automatically disconnects the datacomm line. **2 Sec** (default): If the CD signal drops for 2 seconds the terminal initiates a disconnect. **60 ms:** same as 2 Sec except the time is 60 milliseconds. Set at 60 ms only if your terminal is in the United Kingdom. **Never:** the terminal will not automatically disconnect the communications line when the DSR or CR signals drop. For any of these settings, a modem disconnect can be caused by an escape sequence for that purpose or by typing Shift + Ctrl + Break.

Table 2-5. Fields in the Port 1 and Port 2 Setup Menus Continued

Field	Choices	Description
Aux Printer Type		Selects the protocol and character set to be used when performing local print operations via the auxiliary port. This field is ignored in Copy Print Mode and Controller Print Mode.
	National	Supports printers with the ASCII character set or the current 7-bit national character set. No escape sequences are transferred to the printer. (For instance, DEC LA34, LA36 and LA120 printers.)
	Nat'l + Line Drawing	Supports printers with the Special graphics character set and the ASCII or current 7-bit national character set. (For instance, DEC LA100 printers.)
	ANSI	Supports ANSI printers, assuming the DEC Supplemental character set is the preferred supplemental set. (For instance, DEC LA75 printers.)
	ANSI/ ISO Latin-1	Supports ANSI printers, assuming the ISO Latin-1 character set is the preferred supplemental set. (For instance, DEC LA75 printers.)
	HP	Supports HP PCL (printer control language) printers. (For instance, the HP QuietJet.)

Keyboard Setup Menu

Table 2-6 describes the possible values for the Keyboard Setup Menu. Default values are listed first.

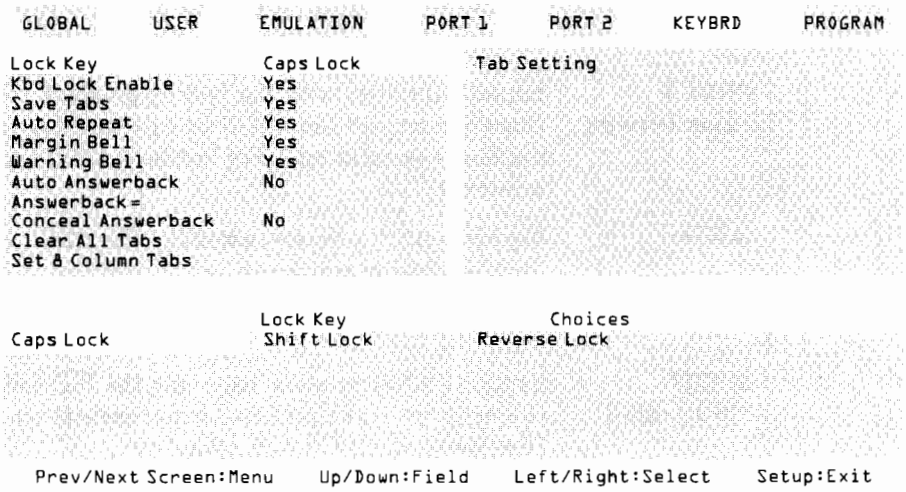


Figure 2-6. Keyboard Setup Menu

Table 2-6. Fields in the Keyboard Setup Menu

Field	Choices	Description
Lock Key		This field specifies the function of the **Lock** key. Pressing **Lock** toggles the lock mode on and off.
	Caps Lock	Caps Lock Mode is active: all alphabetic keys send uppercase characters.
	Shift Lock	Shift Lock Mode is active: all alphabetic keys send uppercase characters, and the numeric/symbol keys send the characters at top of their keycaps. (Pressing **Shift** also turns off this lock mode.)
	Reverse Lock	Reverse Lock Mode is active: same as Caps Lock Mode except that holding **Shift** down while pressing an alphabetic key causes the lowercase character to be sent.
Kbd Lock Enable	Yes No	**Yes:** applications can lock the keyboard; **No:** they can't.
Save Tabs	Yes No	When **Yes**, tabs are saved in non-volatile memory. When **No**, the tab settings revert to their default setting when the terminal is powered on or reset.
Auto Repeat	Yes No	**Yes** enables, **No** disables Auto Repeat. When enabled, most keys will repeat automatically if held down longer than 1/2 second. (The following keys do not auto repeat: **Return**, **Setup**, **Hold Screen**, **Break**, **Print Screen**, **Lock** and **Compose Character**.)
Margin Bell	Yes No	Enables or disables the terminal's bell sounding when the cursor nears the right margin.
Warning Bell	Yes No	Specifies whether or not the bell sounds for operator error and Ctrl-G.

Table 2-6. Fields in the Keyboard Setup Menu Continued

Field	Choices	Description
Auto Answerback	No Yes	If **Yes,** the answerback message (if one has been created) is automatically sent to the computer after a communications line is established. **No** disables this function.
Answerback =	(fill-in)	This field lets you enter a message of up to 30 characters. Either of the following three conditions can cause this message to be sent to computer: when Ctrl + Break is typed at the keyboard, when an ENQ character is received from the computer, or when the communications line is established and the `Auto Answerback` field is set to *Yes.* The first character typed in this field clears the old message and starts a new message.
Conceal Answerback	No Yes	If set to **No,** the Answerback message will be displayed in the Program Setup Menu. **Yes:** the Answerback message is not displayed. Once set to **Yes,** you cannot change this feature except by filling in the **Answerback** field again.
Clear All Tabs	—	Pressing the Enter key while this field is highlighted erases all saved tabs.
Set 8 Column Tabs	—	Pressing the Enter key while this field is highlighted sets tabs at every eighth column. This is the default tab setting.
Tab Setting	—	This field lets you set tab stops. The top ruler line is for columns 1-80; the bottom line is for columns 81-132. Use the arrow keys to highlight a column. Press ▶ or ◀ to move the highlight. Press the Spacebar or Enter key to set a tab stop (marked by a **T**) or clear a tab stop.

Programmable Key Setup Menu

This menu lets you program (that is, define special functions for) some of the terminal's keys.

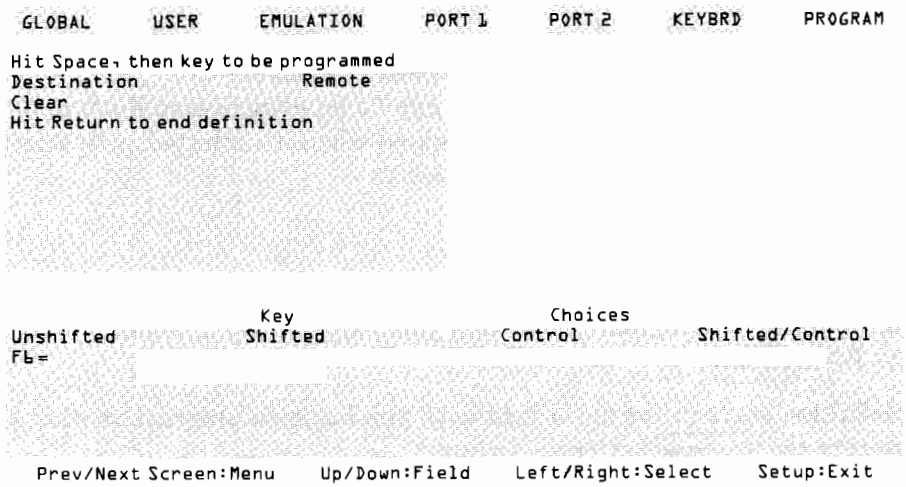


Figure 2-7. Program Setup Menu

In all, 18 keys are programmable: the 15 function keys (F6 through F20 on the top row of the keyboard), plus the Enter, Return and Backspace keys.

Each of the 18 programmable keys may be programmed in four *states:*

- Unshifted (the programmable key pressed by itself)
- Shifted (the programmable key pressed while the Shift key is held down)
- Control (the programmable key pressed while the Ctrl key is held down)
- Shifted/Control (the programmable key pressed while both Shift and Ctrl are held down)

Thus there is a total of 72 separate programmable key combinations.

To program a key:

1. Enter Setup Mode, if not already in Setup Mode, and display the Program Setup Menu if it's not already displayed.
2. Select the field `Hit Space, then key to be programmed` if it's not already selected. A field is highlighted when it's selected. (To select a different field, press the ▲ or ▼ key.)
3. Select a key to program:
   a. Press the Spacebar key.
   b. Press the key (or key combination) you want to program.
4. Type in the program (definition) you want the key to send.
5. Press Return.

The definition stays in the fill-in field until you begin to program another key by pressing the Spacebar key (step 3 above).

For example, to program [F10] to send the message `Run Program` when it's pressed while the [Ctrl] key is held down:

1. Select the `Hit Space, then key to be Programmed` field.
2. Press the [Spacebar].
3. Press [F10] while holding down [Ctrl].
4. Type `Run Program .`
5. Press [Return].

Note

In the menu, `Hit Return to end definition` is not an active field. Rather, it simply reminds you that to mark an end to a definition, you must press [Return].

Another feature of this menu is that it lets you specify the destination of where the definition string will be sent. The possible destinations are:

- `Remote` The string is sent to the computer (default).
- `Local` The string is sent to display screen.
- `Rem & Local` The string is sent both to the computer and display screen.
- `Printer` The string is sent to the printer.

To change the string destination:

1. Select the `Destination` field. (To change the selected field, press the [▲] or [▼] key.)
2. If you want to select (highlight) a different desitination, press the [◄] or [►] arrow key.

To save definitions in non-volatile RAM (for ongoing use), use [SAVE MENU] before exiting Setup. Otherwise, the definitions are saved only temporarily until the terminal is powered off or reset.

If you want to delete all the stored definitions select the `Clear` field and press [Enter]. Use **caution** with this, however, as it erases all the definitions immediately.

Notes

- A maximum of 1024 bytes can be stored in NV RAM, total for all the programmed keys. If you reach the 1024 byte limit, the terminal will not let you enter any more characters.
- Up to 80 characters can be included in each definition.
- *The escape sequence for programming function keys* (summarized in Appendix B) *does not limit each string to 80 bytes.*
- Control characters and escape sequences can be included in the definitions.
- Each control character counts as one character. Each space character counts as one character.
- To remove characters in a definition, press **Backspace**.
- Storage of the Answerback message takes up part of 1024 bytes of non-volatile memory available for programmed keys. The Answerback message can be up to 64 characters long. Storage of the Answerback message is treated just the same as any other definition string.
- Keeping the definition strings as short as possible allows definitions for more keys to be saved for ongoing use.
- To program a key to be a dead key, use the characters \ D (backslash, capital D) as the only two characters in the definition.
- To program a key as a single \ (backslash) character, enter \ \ (two backslashes) as the only two characters in the definition.

3

Using the Terminal

This chapter describes how to use the keyboard and display. It also describes how the terminal can be used with a connected printer.

Note

If you don't know how to turn the terminal on and off or adjust its controls, refer to the last two pages of Chapter 1.

The Display Screen

The terminal's screen can display light characters on a dark background (default), or dark characters on a light background. This feature is selectable in Setup Mode.

Also selectable in Setup Mode is the terminals screen-saver feature. You can set the terminal so that the display screen automatically turns off if there has been no use of the keyboard or input from the computer during a specified amount of time. This helps preserve the display unit. Pressing any key, or receiving any input from the computer, automatically turns the screen back on without loss of data.

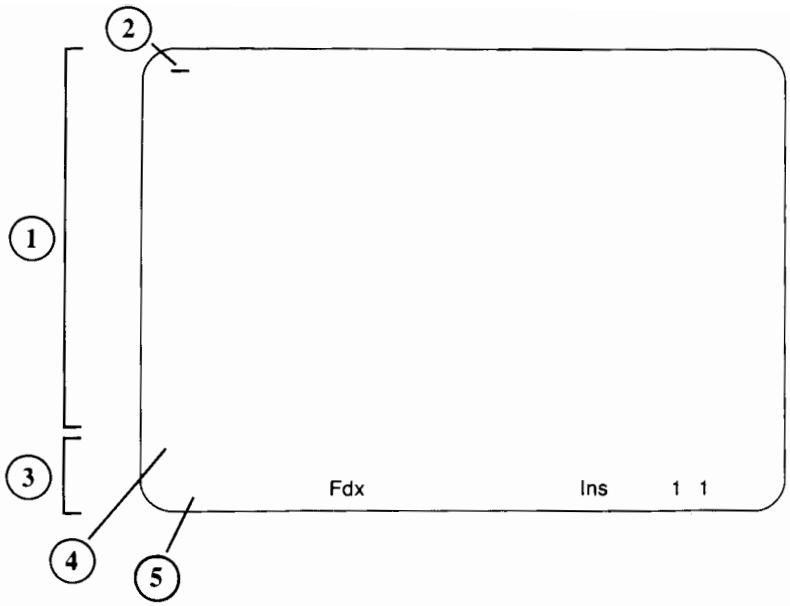


Figure 3-1. The HP 700/32 Display Screen

1) User area: 80 or 132 columns 2) Cursor 3)Message area 4) User message lines 5) Status line

The Screen Areas and Cursor

The top portion of the screen is the **user area (1).** *By default, the user area consists of one page (24 lines) of display memory.* However, the logical page size can be changed in Setup to a maximum of 96 lines. The maximum number of lines that can be displayed at once on the screen is 55. The number of screen columns, 80 (default) or 132, is selectable in Setup. (Application programs can change these settings.)

The **cursor (2)** indicates where the next character you type will appear on the screen. The cursor style is selectable in Setup Mode.

The **message area (3)** may be blank, or it may consist of one, two or all three of the following message lines, depending upon Setup settings and the application program:

- The **User Message Lines (4).** By default, there are *two* user message lines which can be used by application programs to display messages. One or both of these lines can be disabled in Setup or by the application program, thereby adding one or two lines, respectively, to the user area.
- The terminal's **Status Line (5)** displays brief messages regarding the operating status of the terminal. This line, too, can be disabled in Setup or by the application, thereby adding another line to the user area. When enabled, the Status Line is always the bottom line of the display.

One example of Status Line information is its indication of the cursor's current position by line number followed by column number. For example, `1 1` indicates that the cursor is at the top left of the screen in first line and first column. (See "Status Line Messages".)

Status Line Messages

Specific fields (areas) of the status line are reserved for the messages. Table 3-1 illustrates all the possible status messages and the fields where they will appear. Only one status message can be displayed at each position at any given time. (In Table 3-1, **Fld** stands for "Field". The field numbers do not appear on the Status Line, only the messages.)

Table 3-1. Status Line Message Locations

Fld 1	Fld 2	Fld 3	Fld 4	Fld 5	Fld 6	Fld 7	Fld 8	Fld 9	Fld 10	Fld 11	Fld 12	Fld 13	Fld 14	Fld 15
Lock	Comp	*	*	*	>	Fdx	*	>	Cop	Aux	DCC	Ins	*p*	*r c*
HldScr		▮	▮	▮	<	Hdx	▮	<	Prn					
Caps		-	-	-	=	Loc	-	=	Aut					

The terminal's status messages are summarized in Table 3-2.

Table 3-2. Descriptions of the Status Line Messages

Field	Message	Description
1	Lock	The keyboard is locked.
1	HldScr	The **Pause** key has been pressed preventing data from reaching the screen. Press **Pause** again to clear.
1	Caps	The terminal is in a Lock Mode: either Caps Lock, Shift Lock or Reverse Lock. Alphabetic keys pressed unshifted display in uppercase. In Shift Lock, numeric/symbol keys display only the upper symbols on their keycaps. In Reverse Lock, shifted alphabetic keys display in lowercase. Press the **Lock** key to clear.
2	Comp	Indicates you have started a compose character sequence.

Table 3-2. Descriptions of the Status Line Messages Continued

Field	Message	Description
3	*	Host port DSR line is active.
3	▮	Host port DSR line is inactive.
3	-	Host port DSR line is ignored.
4	*	Host port CTS line is active.
4	▮	Host port CTS line is inactive.
4	-	Host port CTS line is ignored.
5	*	Host port CD line is active.
5	▮	Host port CD line is inactive.
5	-	Host port CD line is ignored.
6	>	There is data in the host port input buffer.
6	<	There is data in the host port output buffer.
6	=	There is data in both of the host port buffers.
7	FDx	The terminal is in Full Duplex Mode.
7	HDx	The terminal is in Half Duplex Mode.
7	Loc	The terminal is operating in Local Mode (not in communication with the computer).
8	*	Auxiliary port DSR line is active.
8	▮	Auxiliary port DSR line is inactive.
8	-	Auxiliary port DSR line is ignored.
9	>	There is data in the auxiliary port input buffer.
9	<	There is data in the auxiliary port output buffer.
9	=	There is data in both of the auxiliary port buffers.
10	Cop	Copy Print Mode is on.
10	Prn	Controller Print Mode is on.
10	Aut	Auto Print Mode is on.
11	Aux	Auxiliary to Host Mode is on.
12	DCC	Display Control Codes Mode is on.
13	Ins	The terminal is in Insert Character Mode. Inserts characters you type. Any characters to the right of the cursor are moved right. Any characters that pass the right margin are lost.
14	*p*	Page of display memory currently displayed in the user area of the screen. Can be blank, **1**, **2**, **3** or **4**.
15	*r c*	Cursor position by row (from 1 to 96) and column (from 1 to 132).

The Keyboard

There are 105 keys on the HP 700/32's keyboard.

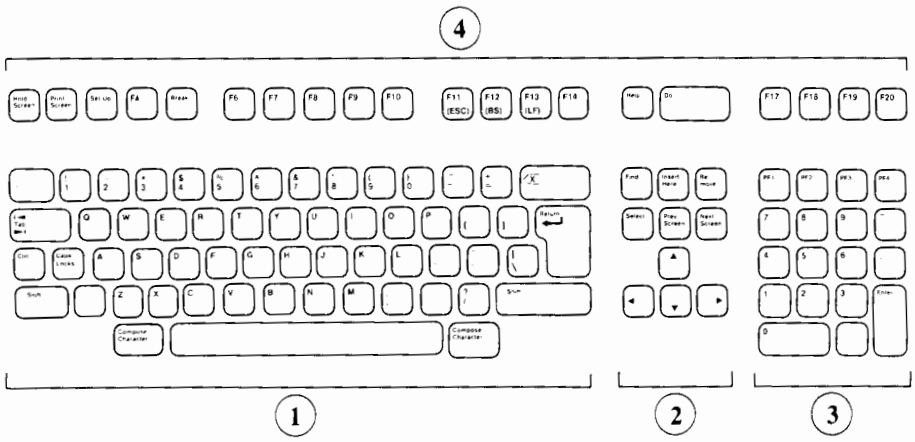


Figure 3-2. The HP 700/32 Keyboard

1) Typewriter Keypad 2) Middle Keypad 3) Auxiliary Keypad 4) Top Row Keys

Typewriter Keys

The typewriter keys let you type letters, numbers and symbols just as you would with a typewriter.

Most keys are repeated if held down for more than a half second. You can turn off this feature in Setup Mode. (The following keys do not auto repeat: Setup, Return, Hold Screen, Break, Print Screen, Lock and Compose Character.)

Special Keys on the Typewriter Keypad

Special keys on the typewriter keypad are described in Table 3-3.

Table 3-3. Special Keys on the Typewriter Keypad

Key	Description
< X	In most applications, pressing this key moves the cursor left one space, erasing the character at that space. The effect of this key always depends upon the application program.
Caps Lock	Toggles on and off Caps Mode, which can be either Caps Lock, Shift Lock or Reverse Lock, as specified in Setup. All the Caps modes set the alphabetic keys to uppercase. Shift Lock also sets the numeric/symbol keys to uppercase. In Reverse Lock, pressing an alphabetic key while holding down Shift displays the letter in lowercase. When any of the Caps modes is on, **Lock** is displayed on the Status Line (if that line is enabled). Press Caps Lock again to turn the Caps Mode off. Shift Lock Mode also can be turned off by pressing Shift.
Compose Character	This key lets you create characters that are not on the keyboard's keycaps. Refer to the "Composing Characters" section later in this chapter.
Ctrl	This key is used with certain keys to provide application-dependent or predefined functions. Press the indicated key while holding down Ctrl.
Return	Moves the cursor to the beginning of the next line when the **Auto Linefeed** field in Setup Mode is set to YES; to the beginning of the same line if this field is set to NO.

Table 3-3. Special Keys on the Typewriter Keypad Continued

Key	Description
Shift	Selects a key's upper symbol and capitalizes alphabetic keys. Turns off Shift Lock Mode. Is used in conjunction with some keys for additional functions. For these, you hold down Shift while pressing the other key.
Tab	In most applications, pressing this key moves the cursor to the next tab stop or to the right margin if no tabs are encountered.

Middle Keypad

Except for the local functions described below, the functions of the keys on the middle keypad depend upon your application programs.

In most applications, though, the keys perform the functions indicated on their labels. For instance, pressing the [▲] key in most applications causes the cursor to move up one line.

Local Functions

If the terminal is configured to have a page size greater than can be displayed on the screen at one time, the following keystroke combinations allow you to view portions of the display memory.

For *local paging* (that is, to view previous or next pages of the display memory):

- press [Prev Screen] while holding down the [Shift] and [Ctrl] keys, or
- press [Next Screen] while holding down the [Shift] and [Ctrl] keys.

For *local scrolling* (that is, to view previous or next lines of display memory one at a time):

- press [▲] while holding down the [Shift] and [Ctrl] keys, or
- press [▼] while holding down the [Shift] and [Ctrl] keys.

Note that when you use the above keystroke combinations:

- the cursor does not move, and
- the screen reverts to its prior state as soon as data is received or you press any key.

Auxiliary Keypad

The Auxiliary Keypad can operate in either of two modes: Numeric Mode or Application Mode. The mode of operation can be specified in Setup (using the **Keypad Mode** field) or by application programs.

In Numeric Mode, this keypad sends the characters on its keycaps. To facilitate rapid entry of numeric data, the keypad is arranged like a calculator. The **Enter** key has the same effect as **Return** in most applications. Also, the **Enter** key selects parameters in the terminal's Setup Mode.

In Application Mode, the Auxiliary Keypad sends predefined codes that can be used by applications for special purposes. The manuals for your applications should explain any special functions that have been assigned to these keys.

The **PF1**, **PF2**, **PF3** and **PF4** keys on the top row of the Auxiliary Keypad are "program function" keys that also can be used by application programs for specialized functions.

Top Row Keys

The top row of keys on the HP 700/32's keyboard contains keys that have predefined functions and keys that are designed to be used by application programs.

When the terminal is in VT320 Mode, application programs can assign special functions to keys **F6** through **F20** including **Help** and **Do**. These keys can be assigned to perform special functions when they are pressed while you hold down the **Ctrl**, or **Shift** keys. Consult your applications' manuals to see if special functions have been assigned to these keys.

Table 3-4 describes the top row keys that have predefined functions.

Table 3-4. Special Function Top Row Keys

Key	Description
Hold Screen	Press once to tell the computer to stop sending data to the terminal (scrolling stops). Press again to tell the computer to resume sending data (scrolling resumes). When active, `HldScr` is displayed on the status line. This key has no effect if Xon/Xoff and DTR handshaking have been disabled.
Print Screen	The effect of pressing this alone is application-dependent. When Print Screen is pressed while holding down Shift it initiates a local print screen operation; either the entire display memory contents or the scrolling region (as per Setup's `Print Scroll Region` field) is sent to the Aux port. Pressed while holding down Shift and Ctrl cancels a local print screen operation. Pressed while holding down Ctrl toggles Auto Print Mode on and off. When the terminal is in Setup Mode, pressing Print Screen prints the current menu.
Setup	Press this key to enter and exit Setup Mode. Press Setup while holding down Ctrl to soft reset the terminal. Press Setup while holding down Shift and Ctrl to hard reset the terminal. *Caution: Hard reset clears the display memory.*
Break	Pressing this key sends a break signal out the main port, the effect of which depends upon your computer's programming. The break signal can last for 170 milliseconds, 250 ms. or 500 ms., selectable in Setup's `Break Duration` field. Pressing Break while holding down Shift and Ctrl causes a modem disconnect (if applicable). Pressing Break while holding down Ctrl sends the answerback message (if there is one).
F11 ESC	In VT100 and VT52 modes this key sends an escape character.

Table 3-4. Special Function Top Row Keys Continued

Key	Description
F12 BS	In VT100 and VT52 modes this key sends the backspace (BS) character which normally moves the cursor back one space.
F13 LF	In VT100 and VT52 modes this key sends the line feed (LF) character which normally moves the cursor down one line in the same column.

Printing

If you have a serial printer connected to your terminal, you can print data using the methods described here. Of course, the printer must be ready for operation and properly connected to the terminal. The terminal's setup must match the printer's requirements.

Printing the Screen Contents

Press the Print Screen key while holding down the Shift key. This causes the display contents to be sent to the printer. The current value of the `Print Scroll Region` field in Setup Mode dictates whether the entire screen is printed or just the scrolling region. (The scrolling region is the area between the top and bottom margins set by an application program.)

Auto Print Mode

In Auto Print Mode, all data received from the computer to be displayed on the screen. Then, after a LF, VT or FF character is received, the data also is sent to the printer attached to the terminal.

There are two ways to turn on Auto Print Mode. One way to is to press Print Screen while holding down the Ctrl key. The other way is select *Auto* in the `Aux Mode` field in Setup. `Aut` is displayed on the Status Line (if enabled) when Auto Print Mode is on.

There are two ways to turn off Auto Print Mode. One way is to press Print Screen again while holding down Ctrl. The other way is to select **Off** in the `Aux Mode` field in Setup.

Copy Print Mode

Copy Print Mode is similar to Auto Print Mode except that in Copy Print Mode, every character received from the computer is sent directly both to the display screen and to the printer attached to the terminal.

You can turn on Copy Print Mode by selecting *Copy* in the `Aux Mode` field in Setup. `Cop` is displayed on the Status Line (if enabled) when Copy Print Mode is on. To turn off Copy Print Mode, select *Off* in this same field.

Controller Print Mode

In Controller Print Mode, all data received from the computer is sent to the printer without being displayed on the screen.

You can turn on Controller Print Mode by selecting *Controller* in the `Aux Mode` field in Setup. `Prn` is displayed on the Status Line (if enabled) when Controller Print Mode is on. To turn off Controller Print Mode, select *Off* in this same field.

Serial Input Devices

If you have connected a serial input device (such as a barcode reader) to the terminal's auxiliary port (Port 2), you must turn on *Aux to Host Mode* in order to direct data from the auxiliary port to the host computer. To turn on Aux to Host mode, access the User Menu in Setup and set the `Aux to Host` field to *Yes*. When Aux to Host Mode is on, data from the auxiliary port is routed to the host computer without being displayed on the terminal's screen. To turn off Aux to Host Mode, set the `Aux to Host` field to *No*.

Terminal Resets

There are two terminal resets: a soft reset and hard reset.

Soft Reset:

- To perform a soft reset of the terminal, press the Setup key while holding down the Ctrl key.

A soft reset resets many of the terminal's operating parameters to their defaults. It does not alter the terminal's non-volatile memory, character set selection or user-programmed keys. It does not cause a host disconnect.

Hard Reset:

- To perform a hard reset of the terminal, press the Setup key while holding down the Shift and Ctrl keys.

A hard reset restores (recalls) the Setup values last saved in the terminal's non-volatile memory. It causes a communications disconnect. It also clears the terminals' volatile memory (that is, erases the display screen contents). It's equivalent to turning the terminal on and off again.

Composing Characters

The HP 700/32 Display Terminal's compose character feature lets you generate characters that aren't on the keyboard. Tables 3-5 and 3-6 list the extra characters available through this feature.

How to Locate the Characters You Want

The terminal's compose characters are listed in Tables 3-5 and Table 3-6. Which of these tables you use depends upon the current settings of four Setup fields:

- `Characters Mode`
- `Preferred Char Set`
- `Keyboard`
- `Data Processing Keys`

Multinational Character Set Mode

When the `Characters Mode` field is set to *8-bit*, use Table 3-5 as a compose character guide.

The 8-bit setting of the `Characters Mode` field puts your terminal in **Multinational Character Set Mode.**

There are two possible multinational character sets. Which one is being used depends upon the current setting of the `Preferred Char Set` field in Setup. The two are:

- ISO Latin-1
- DEC Supplemental

These two multinational character sets share most of the same characters with only a few differences. Thus, the characters in Table 3-5 apply to both of them, except where noted.

National Character Set Mode

When the `Characters Mode` field is set to *7-bit*, use Table 3-6 as a compose character guide.

The 7-bit setting for the `Characters Mode` field puts your terminal in **National Character Set Mode.**

Table 3-6 contains sections for each of the keyboard languages supported by the terminal, plus a section for *data processing keys.* Which section of Table 3-6 you use depends on `Data Processing Keys` and `Keyboard` fields in Setup.

If the `Data Processing Keys` field is set to *Yes,* then use the **Data Processing Keys** section of Table 3-6.

If the `Data Processing Keys` field is set to *No,* then use the section within Table 3-6 that matches your keyboard language (i.e., the current setting of the `Keyboard` field in Setup). For example, if the `Keyboard` field is set to *Swedish,* then refer to the Swedish section of Table 3-6.

Compose Sequences

There are two ways to compose characters: the three-key sequence and the two-key sequence. The two-key sequence is the faster method of the two, but more characters are available to you via the three-key sequence.

If your keyboard language is set to *U.S.,* then the only compose character method you can use is the three-key sequence method. All other keyboard languages allow you to use either the three-key sequence or two-key sequence method.

Three-Key Sequence

1. Locate the character you want to compose in the left hand column of Table 3-5 or 3-6.
2. Press the **Compose Character** key. Compose is displayed in the Status Line (if the Status Line is enabled).
3. Type the two corresponding characters from the middle ("Three-Key Sequence") column.

For example, to generate the cent sign, press **Compose Character**, then type c and / (lowercase c and the slash character.)

You can enter the two characters in step 3 in any order unless the table states "this order only".

Two-Key Sequence

1. Locate the character you want to compose.
2. Type the corresponding two characters in the right hand column.

In the two-key sequence, the first character typed is a diacritical character. These are the grave accent, acute accent, circumflex, tilde, umlaut and ring mark. When you type a diacritical character, Compose is displayed on the Status Line (if the Status Line is enabled). The second character completes the sequence. You must type the diacritical character first.

Completing or Canceling a Sequence

When you successfully complete a compose sequence, the composed character is displayed or sent to the host, and Compose is blanked from the Status Line. If you enter an invalid sequence, the terminal's bell sounds (if the warning bell has been enabled in Setup) and the sequence is canceled.

If you accidentally begin a compose sequence, you can cancel it by pressing the **Backspace**.

In Tables 3-5 and Table 3-6, **Or** indicates two or more possible sequences for the same character, and **(space)** indicates a space character.

Table 3-5. Compose Character Sequences: Multinational Character Set Mode

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
"	quotation mark	" (space)	" (space)
#	number sign	++	
'	apostrophe	' (space)	' (space)
@	commercial at sign	aa *or* AA	
[	opening bracket	((	
\	backslash	/< *or* </ *or* //	
]	closing bracket	))	
^	circumflex	^ (space)	^ (space)
`	single quote mark	'(space)	' (space)
{	opening brace	(-	
|	vertical line	/^ *or* ^/	
}	closing brace	)-	
~	tilde	~ (space)	~ (space)
¡	inverted !	!!	
¢	cent sign	C/ *or* C| *or* c/ *or* c|	
¥	yen sign	Y- *or* Y= *or* y- *or* y=	
§	section	S0 *or* SO *or* S! *or* s0 *or* sO *or* s!	
¤	currency sign	xo *or* XO *or* x0 *or* X0	
©	copyright sign	co *or* CO *or* c0 *or* C0	
ª	female ordinal indicator	a_ *or* A_	
«	open angle quotation mark left	<<	
°	degree sign	0^ *or* (space) *	
±	plus minus sign	+_	
¹	superscript 1	1^	
²	superscript 2	2^	
³	superscript 3	3^	
µ	micro sign	u *or* /U *(this order only)*	

Table 3-5. Compose Character Sequences: Multinational Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
¶	paragraph sign	p! *or* P!	
·	middle dot	.^ *or* ^.	
£	pound sign	L- *or* L= *or* l- *or* l=	
º	masculine ordinal indicator	_ O *or* _ o	
»	angle quotation mark right	>>	
¼	fraction one-quarter	14 *(this order only)*	
½	fraction one-half	12 *(this order only)*	
¿	inverted ?	??	
À	A grave	A‘	‘A
Á	A acute	A’	’A
Â	A circumflex	A^	^A
Ã	A tilde	A~	~A
Ä	A umlaut	A”	”A
Å	A ring	A* *or* A°	°A
Æ	AE	A E *(this order only)*	
Ç	C cedilla	C,	
È	E grave	E‘	‘E
É	E acute	E’	’E
Ê	E circumflex	E^	^E
Ë	E umlaut	E”	”E
Ì	I grave	I‘	‘I
Í	I acute	I’	’I
Î	I circumflex	I^	^I
Ï	I umlaut	I”	”I
Ñ	N tilde	N~	~N
Ò	O grave	O‘	‘O
Ó	O acute	O’	’O
Ô	O circumflex	O^	^O
Õ	O tilde	O~	~O
Ö	O umlaut	O”	”O

Table 3-5. Compose Character Sequences: Multinational Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
Œ	OE ligature*	OE *(this order only)*	
ø	O slash	O/	
Ù	U grave	U‘	‘U
Ú	U acute	U’	’U
Û	U circumflex	U^	^U
Ü	U umlaut	U”	”U
Ÿ	Y umlaut	Y”	”Y
à	a grave	a‘	‘a
á	a acute	a’	’a
â	a circumflex	a^	^a
ã	a tilde	a~	~a
a	a umlaut	a”	”a
å	a ring	a* *or* a°	°a
æ	ae	ae *(this order only)*	
ç	cedilla	c,	
è	e grave	e‘	‘e
é	e acute	e’	’e
ê	e circumflex	e^	^e
e	e umlaut	e”	”e
ì	i grave	i‘	‘i
í	i acute	i’	’i
î	i circumflex	i^	^i
ı	i umlaut	i”	”i
ñ	n tilde	n~	~n
ò	o grave	o‘	‘o
ó	o acute	o’	’o
ô	o circumflex	o^	^o
õ	o tilde	o~	~o
o	o umlaut	o”	”o
œ	oe ligature	oe *(this order only)*	
ù	u grave	u‘	‘u

*Only in the DEC supplemental character set.

Table 3-5. Compose Character Sequences: Multinational Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
ú	u acute	u'	'u
û	u circumflex	u^	^u
ü	u umlaut	u"	"u
ß	German small sharp s	ss	
ø	o slash (small)	o/	
ÿ	y umlaut (small)	y" *or* y"	"y
	no break space@	sp sp	
¦	broken vertical bar@	|| *or* !	
¬	logical not@	- *or* , *or* *	
	soft (syllable) hyphen@	- -	
®	registered trademark@	R O	
¯	macron@	- ^	
¾	three quarters@	3 4 *	
÷	division sign@	- :	
×	multiplication sign@	x x	
´	acute accent@	' '	
¸	cedilla@	' '	
¨	diaeresis@	" "	(sp)
Ý	Y acute@	Y'	Y'
ý	y acute@	y'	y'
Þ	capital Icelandic thorn@	T H	
þ	small Icelandic thorn@	t h	
Ð	capital Icelandic Eth@	- D	
ð	small Icelandic Eth@	- d	

@ Only in the ISO Latin-1 character set.

Table 3-6. Compose Character Sequences: National Character Set Mode

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
BRITISH KEYBOARD			
£	pound sign	-l *or* -L *or* =l *or* L=	
\	backslash	/<	
"	quotation mark	"(space)	
'	apostrophe	'(space)	
~	tilde	~(space)	
}	right brace	)-	
{	left brace	(-	
|	vertical bar	^/	
@	commercial at sign	aa *or* AA *or* aA	
[	left bracket	((	
]	right bracket	^))	
	backslash	/<	
GERMAN KEYBOARD			
Ä	A umlaut	"A	
Ü	U umlaut	"U	
ä	a umlaut	"a	
ü	u umlaut	"u	
§	section sign	so *or* OS *or* !s *or* !S *or* OS *or* OS	
Ö	O umlaut	O"	
ö	o umlaut	o"	
^	circumflex accent	^(space)	
`	grave accent	` (space)	
#	number sign	++	
ß	German small sharp s	ss	
"	quotation mark	"(space)	
'	apostrophe	'(space)	

Table 3-6. Compose Character Sequences: National Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
DANISH and NORWEGIAN KEYBOARDS			
Æ	AE	A E *(this order only)*	
æ	ae	a e *(this order only)*	
#	number sign	++	
Å	A ring	A*	
ø	O slash	O/	
å	a ring	a*	
ø	o slash	o/	
"	quotation mark	"(space)	
`	grave accent	`(space)	
~	tilde	~(space)	
"	quotation mark	"(space)	
@	commercial at sign	aa *or* AA *or* aA	
SWISS KEYBOARDS			
à	a grave	a`	`a
ç	c cedilla	c,	
ê	e circumflex	e^	^e
é	e acute	e'	`e
è	e grave	e`	^i
î	i circumflex	i^	^i
ô	o circumflex	o^	^o
û	u circumflex	u^	^u
ù	u grave	u`	`u
ä	a umlaut		a
ö	o umlaut		o
ü	u umlaut		u
<	less than sign	.)	
>	greater than sign	(.	
"	umlaut	" (space)	
'	apostrophe	'(space)	
^	a circumflex	a^	^a

Table 3-6. Compose Character Sequences: National Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
SWEDISH KEYBOARD			
#	number sign	++	
Å	A ring	A*	
É	E acute	E'	
Ü	U umlaut	U"	
å	a ring	a*	
é	e acute	e'	
ü	u umlaut	u"	
Ö	O umlaut	O"	
Ä	A umlaut	A"	
ö	o umlaut	o"	
ä	a umlaut	a"	
"	quotation mark	"(space)	
'	apostrophe	'(space)	
FRENCH KEYBOARD			
£	pound sign	L- *or* l- *or* L@ *or* l@	
§	section	s! *or* S! *or* so *or* So *or* Os *or* OS *or* 0s *or* 0S	
è	e grave	e‘	‘e
ù	u grave	u‘	‘u
`	grave accent	‘ (space)	‘(space)
à	a grave	a‘	‘a
ç	c cedilla	c,	
é	e acute	e'	
^	circumflex	^ (space)	^ (space)

Table 3-6. Compose Character Sequences: National Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
SPANISH KEYBOARD			
£	pound sign	L- *or* l- *or* L@ *or* l@	
§	section	s! *or* S! *or* so *or* So *or* Os *or* OS *or* 0s *or* 0S	
¡	inverted !	!!	
¿	inverted ?	??	
°	degree sign	(space)*	
~	tilde mark	(space)~	
Ñ	N tilde	N~	
ñ	n tilde	n~	
^	circumflex accent	^(space)	^(space)
`	grave accent	`(space)	`(space)
Ç	c cedilla	c,	
"	quotation mark	"(space)	
'	apostrophe	'(space)	
DATA PROCESSING KEYS			
"	quotation mark	"(space)	
'	apostrophe	'(space)	
~	tilde	~(space)	
}	right brace	)-	
{	left brace	(-	
|	vertical bar	^/	
@	commercial at sign	aa *or* AA *or* aA	
[	left bracket	((	
]	right bracket	^))	
\	backslash	/<	

Table 3-6. Compose Character Sequences: National Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
FLEMISH KEYBOARD			
£	pound sign	L- *or* l- *or* L@ *or* l@	
§	section	s! *or* S! *or* so *or* So *or* Os *or* OS *or* 0s *or* 0S	
è	e grave	e‘	‘e
ù	u grave	u‘	‘u
`	grave accent	‘ (space)	‘(space)
à	a grave	a‘	‘a
ç	c cedilla	c,	
é	e acute	e’	
^	circumflex	^ (space)	^ (space)
"	quotation mark	(space)	
°	degree sign	(space)	
CANADIAN (FRENCH) KEYBOARD			
à	a grave	a‘	‘a
ç	c cedilla	c,	
ê	e circumflex	e^	^e
é	e acute	e’	‘e
è	e grave	e‘	^i
î	i circumflex	i^	^i
ô	o circumflex	o^	^o
û	u circumflex	u^	^u
ù	u grave	u‘	‘u
#	number sign	++	
'	apostrophe	’(space)	
â	a circumflex	a^	^a

Table 3-6. Compose Character Sequences: National Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
FINNISH KEYBOARD			
Ä	A umlaut	"A	
Ü	U umlaut	"U	
ä	a umlaut	"a	
ü	u umlaut	"u	
Ö	O umlaut	O"	
ö	o umlaut	o"	
#	number sign	++	
"	quotation mark	"(space)	
'	apostrophe	'(space)	
Å	A ring	A*	
å	a ring	a*	
@	commercial at sign	aa *or* AA *or* aA	
é	e acute	e'	
DUTCH KEYBOARD			
£	pound sign	L- *or* l- *or* L@ *or* l@	
`	grave accent	` (space)	
^	circumflex	^ (space)	
"	quotation mark	(space)	
'	apostrophe	' (space)	
ÿ	y umlaut	ij *(this order only)*	
|	vertical bar	/ ^	
ƒ	florin	f - *(this order only)*	
~	tilde	~ (space)	
¾	fraction three-quarter	34 *(this order only)*	
¼	fraction one-quarter	14 *(this order only)*	
½	fraction one-half	12 *(this order only)*	

Table 3-6. Compose Character Sequences: National Character Set Mode Continued

Compose Character	Description	Three-Key Sequence	Two-Key Sequence
ITALIAN KEYBOARD			
£	pound sign	L- *or* l- *or* L@ *or* l@	
§	section	s! *or* S! *or* so *or* So *or* Os *or* OS *or* 0s *or* 0S	
è	e grave	e‘	‘e
ù	u grave	u‘	‘u
`	grave accent	‘ (space)	‘(space)
à	a grave	a‘	‘a
ç	c cedilla	c,	
é	e acute	e’	
^	circumflex	^ (space)	^ (space)
ì	i grave	i‘	‘i
ò	o grave	o‘	‘o
"	quotation mark	(space)	
°	degree sign	(space)*	
PORTUGUESE KEYBOARD			
Ã	A tilde	A~	~A
Õ	O tilde	O~	~O
ã	a tilde	a~	~a
õ	o tilde	o~	~o
~	tilde	~(space)	
Ç	C cedilla	C,	
ç	c cedilla	c,	
^	circumflex	^ (space)	
"	quotation mark	(space)	
@	commercial at sign	AA *or* Aa *or* aA *or* aa	

4

Troubleshooting and Maintenance

Problems and Solutions

If you encounter a problem in using the HP 700/32 Display Terminal, it may be something that you can easily fix yourself. This chapter contains possible problems and solutions. If your terminal does require repair service, contact an HP Sales and Service Office.

Caution

Under no circumstances should you open your terminal to expose its internal circuitry. Only a qualified customer representative should perform maintenance procedures that require opening the terminal case.

The following indications of problems are in bold type followed by possible solutions.

The power button is pushed in, but the display is blank.

- Press any key. If the screen saver feature has blanked the screen, this will restore the display.
- Brightness may be turned down. Adjust the brightness control.
- Turn the power off and on again. If you didn't hear a beep, make sure the power cord is plugged securely into the terminal and power outlet. Make sure the power outlet is on.

The screen goes blank while the terminal is on.

- The screen saver feature is probably on. This feature blanks the screen after a specified period of inactivity. Press any key to cause the display screen to come back on without any loss of data.

There is no response on the display when you press keys.

- If the message `Lock` is displayed on the status line, then the keyboard is locked. Press **Setup** while holding down the **Ctrl** key (soft reset).
- If the DSR, CTS or CD signal is required, but is not currently active, this may lock the keyboard. If this has locked the keyboard, change the Setup so that the signal is ignored and/or DSR handshaking is not used.
- If the message `HldScr` is displayed on the Status Line, press the **Hold Screen** key.
- Press the **Setup** key. The first menu of Setup Mode should appear. If it doesn't, then make sure that the keyboard cable is securely connected to the keyboard and display unit.
- Go into Setup Mode and set the `Online` field to *No*. Exit Setup Mode and press keys to see if characters display on the screen. If the terminal doesn't display alphabetic characters in local mode, and it is correctly installed (as described in Chapter 1), then the terminal requires repair service.
- Make sure the data communications cable to the host port is securely connected to the rear of the terminal.
- Go into Setup Mode and set the User Menu's `On Line` field to *Yes*. Exit Setup and try typing characters again.
- Press the **Break** key to send a break signal to the host.
- Go into Setup Mode and make sure that all the Setup fields involving communications with the computer are set properly. Use the worksheet at the end of this manual as a guide for which fields to check.
- If you are using a modem, make sure it is working properly.
- The host computer system may be down.

Characters you type are displayed twice.

- Go into Setup Mode and select *Full Duplex* in the `Communication` field for the port you are using to communicate with the computer (Port 1 by default).
- Also make sure that the `Local Echo` field in Setup is set to *Off*.

The screen displays nonsense characters (garbage).

- Make sure that all the Setup fields for the port you are using for communicating with the computer (Port 1 by default) are set correctly.

The printer attached to your terminal is not printing correctly.

- Make sure the printer is plugged in and powered on. If the printer doesn't power on, make sure the power outlet has power. (For instance, connect a lamp to the outlet and turn the lamp on.)
- Make sure the printer cable is connected securely to the terminal and the printer.
- Go into Setup Mode and make sure all the Setup fields for communicating with the printer (Port 2 by default) are set correctly.
- Ask a technician to see if the pin assignments for the printer cable are correct.

Error codes are displayed at the bottom of the screen when the terminal is powered on.

- Try powering on the terminal again while holding down the D key. If the condition persists, the terminal requires service by a qualified technician.

`Defaults used. Press Return to continue.` **is displayed at the bottom of the screen when the terminal is powered on.**

- Non-volatile memory could not be accessed, so the terminal's default Setup values were invoked. Try powering on the terminal again. If the condition persists, the terminal requires service by a qualified technician.

Preventive Maintenance

Regularly clean the display unit and keyboard to remove dust and grease. Unplug the power cord, then 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.

If smudges or fingerprints persist, 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, dilute ammonia, ammonia, or acetone. These cleaners may harm the terminal's plastic surface.

A

Pin Assignment Connections

Port 1 has two alternates: the 25-Pin RS-232C or the 6-Pin RS-423. Only one of these can be used at a time.

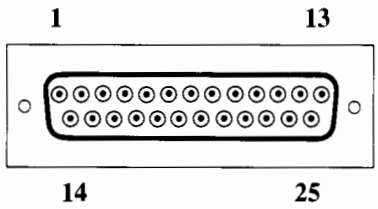


Figure A-1. PORT 1: RS-232C Male 25-Pin D-Subminature Connector

Table A-1. PORT 1: 25-Pin RS-232 Pin Assignments

Pin	Signal	Description	Direction
1	SHLD	Shield Ground	—
2	TXD	Transmitted Data	Out
3	RXD	Received Data	In
4	RTS	Request to Send	Out
5	CTS	Clear to Send	In
6	DSR	Data Set Ready	In
7	GND	Signal Ground	—
8	RR	Receiver Ready	In
12	DRSI	Data Rate Select Input	In
20	DTR	Data Terminal Ready	Out
23	DRSO	Data Rate Select Output	Out

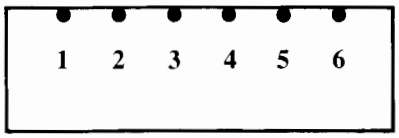


Figure A–2. PORT 1: RS-423 6-Pin MMJ Connector

Table A–2. PORT 1: 6-Pin RS-423 Pin Assignments

Pin	Signal	Description	Direction
1	DTR	Data Terminal Ready	Out
2	TXD+	Transmitted Data	Out
3	TXD-	Ground reference for DTR & TXD+	Out
4	RXD-	Ground reference for DSR & RXD+	In
5	RXD+	Received Data	In
6	DSR	Data Set Ready	In

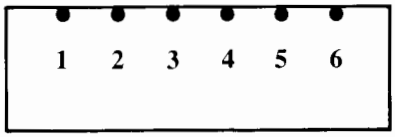


Figure A–3. PORT 2: 6-Pin MMJ Connector (Auxiliary Port)

Table A–3. PORT 2: 6-Pin RS-423 Pin Assignments

Pin	Signal	Description	Direction
1	DTR	Data Terminal Ready	Out
2	TXD+	Transmitted Data	Out
3	TXD-	Ground reference for DTR & TXD+	Out
4	RXD-	Ground reference for DSR & RXD+	In
5	RXD+	Received Data	In
6	DSR	Data Set Ready	In

B

Terminal Commands Summary

This appendix lists the HP 700/32 Display Terminal's commands. If you want more detailed information on the terminal's commands, refer to the *HP 700/32 Reference Manual* (part number C1017-90002). You can obtain the *HP 700/32 Reference Manual* by contacting your local HP Sales Office. Or, call HP's Direct Marketing Division at (800) 538-8787.

Note Spaces are used between command elements in this appendix for readability. Do not use spaces, though, when you enter the commands. For instance, ESC H is printed here with a space between the elements; don't include a space between the ESC and H when you enter the command.

C0 Codes and C1 Codes

Supported ASCII C0 Control Codes

Mnemonic	Hex	Description
NUL	00	Null Ignored
ENQ	05	Enquiry. The answerback message is sent.
BEL	07	Bell. Sounds the bell if enabled.
BS	08	Backspace. Moves the cursor one position to the left; no action if the cursor is at the left margin.
HT	09	Horizontal Tab. Moves the cursor to the next tab stop or to the right margin if no further tab stops are in the line. No auto wrap.
LF	0A	Line Feed. Executes a line feed or a new line operation (see New Line Mode).
VT	0A	Vertical Tab. Interpreted as LF.
FF	0C	Form Feed. Interpreted as LF.
CR	0D	Carriage Return. Moves cursor to column 1 of the current line.
SO	0E	Shift Out. Character set currently designated as G1 is invoked into GL.
SI	0F	Shift In. Character set currently designated as G0 is invoked into GL.
DC1	11	Device Control 1 (Xon). Causes the terminal to resume transmission if Xon/Xoff handshaking is enabled.
DC3	13	Device Control 3 (Xoff). If Xon/Xoff is enabled, causes the terminal to stop transmission of all codes except Xon and Xoff.
CAN	18	Cancel. Aborts current escape sequence or device control string; the Cancel character is not displayed.
SUB	1A	Substitute. Aborts current escape sequence or device control string; displays reverse question mark.
ESC	1B	Escape. Escape sequence introducer.
DEL	7F	Delete. Ignored.

Supported C1 Control Codes

Mnemonic	Hex	7-Bit Code Extension Equivalent	Description
IND	84	ESC D	Index. Moves cursor down a line in the same column; scroll up if cursor is at bottom margin.
NEL	85	ESC E	Next line. Moves cursor to beginning of next line; scroll up if cursor is at bottom margin.
HTS	88	ESC H	Horizontal Tab Set. Sets a tab stop in the column currently occupied by the cursor.
RI	8D	ESC M	Reverse Index. Moves cursor up a line in the same column; scrolls down if cursor is at top margin.
SS2	8E	ESC N	Single Shift G2. The character set designated as G2 is temporarily invoked into GL for the next graphic character received.
SS3	8F	ESC O	Single Shift G3. The character set designated as G3 is temporarily invoked into GL for the next graphic character received.
DCS	90	ESC P	Device Control String. Introducer of a device control string.
CSI	9B	ESC [	Control Sequence Introducer. Introduces a control sequence.
ST	9C	ESC \	String terminator. Close of a string opened by DCS
OSC	9D	ESC]	Operating System Command Introducer. Ignored until ST is received.
PM	9E	ESC ^	Privacy Message Introducer. Ignored until ST is received.
APC	9F	ESC _	Application Program Command Introducer. Ignored until ST is received.

Key Codes

Codes Sent By Edit Keys (VT320 Mode Only)

Key Name	Code Sent
Find	CSI 1~
Insert Here	CSI 2~
Remove	CSI 3~
Select	CSI 4~
Prev Screen	CSI 5~
Next Screen	CSI 6~

Codes Sent By the Unshifted Top Row Keys*

Key Name	Code Sent in VT320 Mode	Code Sent in VT100/VT52 Modes
F6	CSI 17~	
F7	CSI 18~	
F8	CSI 19~	
F9	CSI 20~	
F10	CSI 21~	
F11	CSI 23~	ESC
F12	CSI 24~	BS
F13	CSI 25~	LF
F14	CSI 26~	
Help	CSI 28~	
Do	CSI 29~	
F17	CSI 31~	
F18	CSI 32~	
F19	CSI 33~	
F20	CSI 34~	

*Hold Screen, Print Screen, Set-Up, and Break send no codes to the host.

Codes Sent by the Main Keypad's Special Keys*

Key Name	Code Sent	Key Name	Code Sent
Delete	DEL	Tab	HT
Return	CR *or* CR/LF	Space Bar	SP

*Ctrl, Lock, Shift and Compose Character send no codes to the host.

Codes Sent By Auxiliary Keypad Keys

Key Name	Numeric Mode	Application Mode VT320/VT100	Application Mode VT52
0	0	SS3 p	ESC ? p
1	1	SS3 q	ESC ? q
2	2	SS3 r	ESC ? r
3	3	SS3 s	ESC ? s
4	4	SS3 t	ESC ? t
5	5	SS3 u	ESC ? u
6	6	SS3 v	ESC ? v
7	7	SS3 w	ESC ? w
8	8	SS3 x	ESC ? x
9	9	SS3 y	ESC ? y
,	, (comma)	SS3 l	ESC ? l
–	– (minus)	SS3 m	ESC ? m
.	. (period)	SS3 n	ESC ? n
Enter	CR or CR LF	SS3 M	ESC ? M
PF1	SS3 P	SS3 P	ESC P
PF2	SS3 Q	SS3 Q	ESC Q
PF3	SS3 R	SS3 R	ESC R
PF4	SS3 S	SS3 S	ESC S

Codes Sent By Cursor Keys

Key Symbol	VT320/VT100 Normal	VT320/VT100 Applic.	VT52
▲	CSI A	SS3 A	ESC A
▼	CSI B	SS3 B	ESC B
►	CSI C	SS3 C	ESC C
◄	CSI D	SS3 D	ESC D

Keyboard Generated Control Characters*

Name	Key + Ctrl	Key + Shift + Ctrl	Name	Key + Ctrl	Key + Shift + Ctrl
2	NUL		**Q**	DC1	PU1
A	SOH		**R**	DC2	PU2
B	STX		**S**	DC3	
C	ETX		**T**	DC4	CCH
D	EOT	IND	**U**	NAK	MW
E	ENQ	NEL	**V**	SYN	SPA
F	ACK	SSA	**W**	ETB	EPA
G	BEL	ESA	**X**	CAN	
H	BS	HTS	**Y**	EM	
I	HT	HTJ	**Z**	SUB	
J	LF	VTS	**3 or [**	ESC	CSI
K	VT	PLD	**4 or /**	FS	ST
L	FF	PLU	**5 or]**	GS	OSC
M	CR	RI	**6**	RS	PM
N	SO	SS2	**7**	US	APC
O	SI	SS3	**8**	DEL	
P	DLE	DCS			

*Codes sent when the key is pressed while holding down the Ctrl key. Holding down both the Ctrl key and the Shift key will generate 8-bit version.

Terminal Configuration

Set Compatibility Mode

Mode	Command
VT52 mode	CSI ?21
VT100 mode	CSI 61"p
VT320 mode, 8-bit controls	CSI 62"p
	or
	CSI 62;0"p
	or
	CSI 62;2"p
	or
	CSI 63"p
	or
	CSI 63;0"p
	or
	CSI 63;2"p
VT320 mode, 7-bit controls	CSI 62;1"p
	or
	CSI 63;1"p

Set Compatibility Mode (Alternate Method) @

Mode	Command
VT52	DCS * xe ~ P6 ST
VT100	DCS * xe ~ P? ST
VT320, 7-bit controls	DCS * xe ~ P- ST

@These commands cause a soft reset.

The following C1 Control Transmission commands determine whether or not the terminal will translate C1 codes into their 7-bit extension equivalents for transmission to the host.

Set C1 Control Transmission (VT320 Mode only)

Control Transmission	Command
7-Bit (C1 Codes translated into their 7-bit extension equivalents)	ESC <space>F
8-Bit (No translation)	ESC <space>G

Resets, Display Test, Modem Disconnect

Reset Type	Command
Soft Reset	CSI ! p
Hard Reset	ESC c
Hard Reset	DCS * xe *OW ST
Display Test	DCS * xe Z ST
Disconnect Modem	DCS * xe f ST

Save/Restore Setup Values

Command	Parameter/ Action
DCS P* xe *s* ST	where *s* = 0 Restores all NV ram setup values except for ports 1 and 2. 1 Restores all default setup values except for ports 1 and 2. 2 Stores all active setup values in NV ram.

Terminal Operating Modes

Terminal Operating Modes

Mode	Description	Command
Cursor Movement Keys	Set to Application	CSI ? 1 h
	Set to Cursor	CSI ? 1 l
Columns	Set Columns to 132	CSI ? 3 h
	Set Columns to 80	CSI ? 3 l
Scrolling*	Set to Smooth Scrolling	CSI ? 4 h
	Set to Jump Scrolling	CSI ? 4 l
Screen Display*	Set to Reverse Video	CSI ? 5 h
	Set to Normal Video	CSI ? 5 l
Cursor Origin Mode	Set to Origin	CSI ? 6 h
	Set to Absolute	CSI ? 6 l
Auto Wrap	Set Auto Wrap Mode On	CSI ? 7 h
	Set Auto Wrap Mode Off	CSI ? 7 l
Auto Repeat*	Set Auto Repeat Mode On	CSI ? 8 h
	Set Auto Repeat Mode Off	CSI ? 8 l
Print Form Feed	Set to On	CSI ? 18 h
	Set to Off	CSI ? 18 l
Print Extent	Set to Full Screen	CSI ? 19 h
	Set to Scrolling Region	CSI ? 19 l

*This mode can be locked in Setup.

Terminal Operating Modes
Continued

Mode	Description	Command
Cursor Visibility	Set to On (Enable)	CSI ? 25 h
	Set to Off (Disable)	CSI ? 25 l
Character Set	Set to 7-Bit	CSI ? 42 h
	Set to 8-Bit	CSI ? 42 l
Auxiliary Keypad	Set to Application	CSI ? 66 h
	Set to Numeric	CSI ? 66 l
Auxiliary Keypad	Set to Application	ESC =
	Set to Numeric	ESC >
Destructive Backspace	Set to On	CSI ? 67 h
	Set to Off	CSI ? 67 l
Data Processing Keys	Set to On	CSI ? 68 h
	Set to Off	CSI ? 68 l
Keyboard*	Lock	CSI 2 h
	Unlock	CSI 2 l
Insert/Replace	Set to Insert Mode	CSI 4 h
	Set to Replace Mode	CSI 4 l
Send/Receive	Set to Local Echo Off	CSI 12 h
	Set to Local Echo On	CSI 12 l
Line Feed/New Line	Set to New Line Mode	CSI 20 h
	Set to Line Feed Mode	CSI 20 l
Set Terminal	Set to VT52 Mode	CSI ? 21

*Mode can be locked in Setup.

Controlling the Screen

Cursor Control

Description	Command @
Move cursor up *n* line(s); no scroll up	CSI *n* A
Move cursor down *n* line(s); no scroll down	CSI *n* B
Move cursor right *n* column(s); no auto wrap	CSI *n* C
Move cursor left *n* column(s); no auto wrap	CSI *n* D
Position cursor at *l*, *c* (depends on setting of Origin Mode)	CSI *l*; *c* H *or* CSI *l*; *c* f
Home up cursor	CSI H *or* CSI f
Move cursor down a line in same column; scroll up if at bottom margin	ESC D (IND)
Move cursor up a line in same column; scroll down if at top margin	ESC M (RI)
Move cursor to beginning of next line; scroll up if at bottom margin	ESC E (NEL)
Save cursor-related attributes	ESC 7
Restore cursor-related attributes	ESC 8
Cursor displayed	CSI ? 25 h
Cursor not displayed	CSI ? 25 l
Display page *n*	DCS *xew *pn* ST
@*n* = number; *l* = line number; *c* = column number; *pn* = page number	

Editing

Action @	Command
Insert *n* blank lines	CSI *n* L
Delete *n* blank lines	CSI *n* M
Insert *n* blank characters (VT320 only)	CSI *n* @
Delete *n* characters	CSI *n* P
@These actions begin at the cursor's current position.	

Setting Margins

Margins	Command @
Top and Bottom Margins	CSI *t* ; *b* r
@*t* = line number of top margin; *b* = line number of bottom margin; *t* and *b* are included in the scrolling region.	

Using Tabs

Action	Command
Set Tab Stop at Cursor Column	ESC H
Clear Tab Stop at Cursor Column	CSI g *or* CSI 0 g
Clear All Tab Stops	CSI 3 g
Move Cursor to Next Tab Stop	CTRL I

Scrolling (Cursor Reverts to Prior Position upon Data Reception)

Action	Command
Home Down	CSI >1s
Home Down	CSI >0s
Go to (*number*) Next Page	CSI *n* U
Go to (*number*) Previous Page	CSI *n* V
Scroll Up (*number*) of Lines	CSI *n* S
Scroll Down (*number*) of Lines	CSI *n* T

Character Size (Selects Number of Character Rows in the Table) @

Action	Command	Screen Rows (*l* Parameter)
Select Number of Rows	CSI 18 *l* * x	*l* = 16 27 rows (default) *l* = 10 44 rows *l* = 8 55 rows
@ Includes Display Area, Message Area and Status Line		

The Message Area

Action	Command/Parameters
Select Destination for Received Data	Command: CSI *s* $ }
Selects Main Display	If *s* = 0
Selects Message Line 1	If *s* = 1
Set Status and Message Lines On/Off	Command: CSI *s* $ ~
Status and Message Lines Off	If *s* = 0
Status Line On; Message Line Off	If *s* = 1
Message Line On	If *s* = 2
Set Status and Message Lines On/Off	Command: CSI 15 ; P*a* ; P*l* * x
Status/Message Lines Off	If P*a* = 1
Status/Message Lines On	If P*a* = 2
Affects Message Line 1	If P*l* = 2
Affects Message Line 2	If P*l* = 1
Affects Status Line	If P*l* = 3

Graphic Renditions

Action	Command/Parameters
Set Graphic Rendition(s)	Command: CSI *s* {;*s*} m
Turn Off All Attributes	If *s* = 0
Bold	If *s* = 1
Underscored	If *s* = 4
Blinking	If *s* = 5
Inverse (Reverse) Video	If *s* = 7
Secret On	If *s* = 8
Normal Intensity	If *s* = 22
No Underline	If *s* = 24
No Blinking	If *s* = 25
Normal Video (Reverse Off)	If *s* = 27
Secret Off	If *s* = 28

Logical Page Size and Number of Pages

Action	Command
Set Logical Page Size @	CSI 9 ; *n* * x (*n* = number of rows)
Set Number of Pages #	CSI 10 ; *p* * x (*p* = number of pages)
@*n* can be 24-96 (if max width is 80) or 24-55 (132 width)	
#*p* can be 1-4 (if max width is 80) or 1-2 (132 width)	

Screen Width

Action	Command
Set Screens to 132 Columns @	CSI ? 3 h
Set Screens to 80 Columns	CSI ? 3 l
Do Not Clear Screen when Screen Width is Changed	CSI 20 ; 1 * x
Clear Screen when Screen Width is Changed	CSI 20 ; 2 * x
Set Maximum Screen Width Allowed	CSI 8 ; *p* * x (*p* must = either 132 or 80)
@ Ignored if max display width is 80.	

Line Attributes

Line/Action	Command
Cursor Line Becomes:	
Top Half of a Double-Width/Double-Height Line	ESC # 3
Bottom Half of a Double-Width/Double-Height Line	ESC # 4
Single-Width/Single-Height (Normal) Line	ESC # 5
Single-Width/Double-Height Line	ESC # 6

Erasing Characters (Erasing includes beginning and ending characters)

Action	Command
Erase *n* Characters Starting at Cursor*	CSI *n* X
Erase from Cursor Position to End of Line	CSI 0 K *or* CSI K
Erase from Start of Line to Cursor Position	CSI 1 K
Erase the Whole Line	CSI 2 K
Erase from Cursor Position to End of Screen	CSI 0 J *or* CSI J
Erase from Start of Screen to Cursor Position	CSI 1 J
Erase the Whole Screen	CSI 2 J
Erase All Erasable Characters from Cursor to End of Line (attributes not affected)*	CSI ? 0 K *or* CSI ? K
Erase All Erasable Characters from Start of Line to Cursor Position*	CSI ? 1 K
Erase All of the Line's Erasable Characters*	CSI ? 2 K
Erase All Erasable Characters from Cursor to End of Screen (attributes not affected)*	CSI ? 0 J *or* CSI ? J
Erase All Erasable Characters from Start of Screen to Cursor Position*	CSI ? 1 J
Erase All of the Screen's Erasable Characters*	CSI ? 2 J
Set Subsequent Characters to be Erasable*	CSI 0 " q *or* CSI 2 " q
Set Subsequent Characters to be Non-Erasable*	CSI 1 " q

***Command may be used only in VT320 Mode.**

Set User-Preferred Character Set (VT320 Mode Only)

Action	Command
Select DEC Supplemental Character Set	DCS 0 ! u % 5 ST
Select ISO Latin-1 Character Set	DCS 1 ! u A ST

Set Character-Set Mode (VT320 Mode Only)

Action	Command
Set for 7-Bit Characters	CSI ? 42 h
Set for 8-Bit Characters	CSI ? 42 l

Designating the 94 Character Set

Designation	Command
G0	ESC (*s*
G1	ESC) *s*
G2	ESC * *s*
G3	ESC + *s*
	where *s* =
	B (ASCII)
	%5 (Supplemental)
	0 (Special Graphics)
	A (United Kingdom)
	R (French)
	K (German))
	E or 6 or ‘ (Danish/Norwegian)
	Z (Spanish)
	H or 7 (Swedish)
	= (Swiss)
	name (Soft Character Set)
	< (User Preferred)

Designating the 96 Character Set

Designation	Command
G1	ESC − *s*
G2	ESC . *s*
G3	ESC / *s*
	where *s* =
	A (ISO Latin-1)
	< (User Preferred)
	name (Name of Soft Character Set)*

***The name of the soft character set can consist of 0, 1 or 2 immediate characters in Hex range of 20 through 2F and a final character in the Hex range of 30 through 7E; this can also be a 94 character set**

Invoking Character Sets

Mnemonic	Hex	Sequence	Description
LS0	0F	SI	Lock Shift G0, Left: invoke G0 into GL
LS1	0E	SO	Lock Shift G1, Left: invoke G1 into GL
LS1R*	1B 7E	ESC ~	Lock Shift G1, Right: invoke G1 into GR
LS2*	1B 4F	ESC N	Lock Shift G2, Left: invoke G2 into GL
LS2R*	1B 7D	ESC }	Lock Shift G2, Right: invoke G2 into GR
LS3*	1B 6F	ESC o	Lock Shift G3, Left: invoke G3 into GL
LS3R*	1B 7C	ESC |	Lock Shift G3, Right: invoke G3 into GR
SS2	8E *or* 1B 4E	SS2 *or* ESC N	Single Shift G2, Left; invoke G2 into GL for only the next received graphic character
SS3	8F *or* 1B 4F	SS3 *or* ESC O	Single Shift G3, Left; invoke G3 into GL for only the next received graphic character

***VT320 Mode Only**

Soft Character Sets

In VT320 Mode, you can download a soft character set by using this command:

DCS *fn; cn; e; ccw; sw; t; cch; ss;* {*name sxbp*1; *sxbp*2; ... *sxbpn*} ST

The command string can contain up to 94 characters. For a list of allowable command parameters refer to the table below.

Downloading Soft Character Sets (VT320 Mode Only)

Parameter	Description/Value
DCS	Device Control String Introducer
fn	Font number 0 or 1
cn	First Usable Position in Buffer (0-94 or 95)
e	Erase Control, where: 0 or 2 = erase all characters in set 1 = erase only characters being loaded
ccw	Cell Width (Pixels), where: 0 = 15 for 80 columns; 9 for 132 columns (default) 1 = not used 2 = 5w x 10h (VT220 compatible) 3 = 6w x 10h (VT220 compatible) 4 = 7w x 10h (VT220 compatible) 5 = 5w 6 = 6w ⋮ 14 = 14w 15 = 15w
sw	Screen Width, where: 0 or 1 = 80 columns 2 = 132 columns (default)
t	Text or Full-Cell, where: 0 or 1 = Text 2 = Full-Cell

Downloading Soft Character Sets (VT320 Mode Only) Continued

Parameter	Description/Value
cch	Character Cell Height (Pixels), where: 0 = 12 (default) 1 = 1 5 = 5 6 = 6 ⋮ 11 = 11 12 = 12
ss	Size of Set, where: 0 = 94 Characters (default) 1 = 96 Characters
;	End of One and Beginning of another DCS Parameter
name	Name of Soft Character Set (see "Invoking Character Sets")
sxbpn	Sixel Bit Patterns: ASCII Characters for Upper Columns / is Required Separator ASCII Characters for Lower Columns
ST	String Terminator

Clearing a Soft Character Set

Action	Command
Clear Downloaded Soft Character Set	DCS 1; 1; 2; { *sp* @ ST where *sp* = the space character

Programming the Function Keys

In VT320 Mode, you can use this command to program the function keys. A total of 1024 bytes are available for the user key strings.

DCS *pc; pl | kyn/stn{ ; kyn/stn;}* ST

Assigning Programs to Function Keys (VT320 Mode Only)

Parameter	Description/Value
DCS	Device Control String Introducer
pc	Clear Parameter, where: 0 = clear all keys (default) 1 = clear only redefined keys
pl	Lock Parameter, where: 0 = lock keys to prevent redefinition (default) 1 = don't lock keys
kyn	Key Number, where:

key number	key combination	key number	key combination
17	Shift + F6	37	Ctrl + F6
18	Shift + F7	38	Ctrl + F7
19	Shift + F8	39	Ctrl + F8
20	Shift + F9	40	Ctrl + F9
21	Shift + F10	41	Ctrl + F10
23	Shift + F11	43	Ctrl + F11
24	Shift + F12	44	Ctrl + F12
25	Shift + F13	45	Ctrl + F13
26	Shift + F14	46	Ctrl + F14
28	Shift + Help	48	Ctrl + Help
29	Shift + Do	49	Ctrl + Do
31	Shift + F17	51	Ctrl + F17
32	Shift + F18	52	Ctrl + F18
33	Shift + F19	53	Ctrl + F19
34	Shift + F20	54	Ctrl + F20

stn	Definition String; Hex Pairs for Each Character in the String
ST	String Terminator

Printing and Aux to Host Mode

Printing

Action	Command
Auto Print Mode On	CSI ? 5 i
Auto Print Mode Off	CSI ? 4 i
Print Controller Mode On	CSI 5 i
Print Controller Mode Off	CSI 4 i
Print Controller Mode Off and send acknowledgement	CSI ? 90 i
Print Display Screen	CSI i *or* CSI 0 i
Print the Cursor Line	CSI ? 1 i

Auxiliary to Host Mode

Action	Command
Turn On Bi-Directional Mode. (Data May be Sent and Received Via the Printer Port.)	CSI ? 9 i
Turn Off Bi-Directional Mode. (Data Cannot be Received by the Printer Port.)	CSI ? 8 i

VT52 Mode Escape Sequences

Description	Sequence
Cursor Up	ESC A
Cursor Down	ESC B
Cursor Right	ESC C
Cursor Left	ESC D
Select and Enable Alternate Character Set	ESC F
Select and Enable Base Character Set	ESC G
Home Cursor	ESC H
Reverse Linefeed	ESC I
Erase to End of Screen	ESC J
Erase to End of Line	ESC K
Direct Cursor Address @	ESC Y *r c*
Enter Alternate Keypad Mode	ESC =
Exit Alternate Keypad Mode	ESC >
Enter VT52 Mode	ESC { ? 21
Enter VT100 Mode	ESC <
Identify (Request from Host)	ESC Z
Identify (Request from Terminal)	ESC / Z
Enter AutoPrint Mode	ESC ^
Exit AutoPrint Mode	ESC _
Enter Print Controller Mode	ESC W
Exit Print Controller Mode	ESC X
Print the Screen	ESC]
Print the Cursor Line	ESC V
@ Use ASCII values for row and column, e.g. 20H is 1, 21H is 2 etc.	

Reports

Reports

Request = Host to terminal;	**Response** = Terminal to host
Primary device attributes request: (product type)	CSI c *or* CSI 0 c *or* ESC Z
Send terminal ID	DCS *xe^ ST
Responses:	
VT320, VT320	CSI ?63;1;2;6;7;8;9;11;14 c
VT320, VT220	CSI ?62;1;2;6;7;8;9 c
VT100, VT100	CSI ?1;2 c
VT101, VT100	CSI ?1;0 c
VT102, VT100	CSI ?6 c
Secondary device attributes request: (firmware and options)	CSI > c *or* CSI > 0 c
Response:	
VT320 Mode only	CSI >24;11.0;0c
Terminal status request	CSI 5 n
Responses:	
working properly	CSI 0 n
malfunctioning	CSI 3 n
Cursor position request:	CSI 6 n
Response:	
(r = row; c = column)	CSI *r* ; *c* R
Printer status request:	CSI ? 15 n
Responses:	
Printer is ready	CSI ? 10 n
Printer is not ready	CSI ? 11 n
Printer is not connected	CSI ? 13 n

Reports
Continued

Function key status request:	CSI ? 25 n
Responses:	
Function keys unlocked	CSI ? 20 n
Function keys locked	CSI ? 21 n
Keyboard language request:	CSI ? 26 n
Responses:	CSI ?27;*l*n *where l* = 1 US 2 U.K. 3 Flemish 4 Canadian (French) 5 Danish 6 Finnish 7 German 8 Dutch 9 Italian 10 Swiss (French) 11 Swiss (German) 12 Swedish 13 Norwegian 14 French/Belgian 15 Spanish 16 Portuguese 17 German (DIN)
Terminal state request:	CSI 1 $ u
Responses:	DCS 1 $ *s d d* ST *where:* *s* = 2-byte checksums *d* = data strings
Host restores terminal state:	DCS 1 $ p *d d* ST

Reports
Continued

Cursor information request:	CSI 1 $ w
Response:	DCS 1 $ u *d d* ST *where: d* = data strings
Host restores presentation style:	DCS 1 $ t *d d* ST
ANSI set/reset state request:	CSI *s* $ p *where: s* = 2 keyboard action 3 display controls 4 insert/replace 12 send/receive 20 line feed/new line
Responses:	CSI *s* ; *x* $ y *where: x* = 0 unrecognized mode 1 set 2 reset 3 permanently set 4 permanently reset
Set ANSI states:	CSI *s* ;..; *s* h
Reset ANSI states:	CSI *s* ;..; *s* l

DEC private set/reset state request:	CSI ? *s* $ p *where: s* = 1 cursor keys 2 ANSI 3 columns 4 scrolling 5 screen 6 origin 7 autowrap 8 autorepeat 18 print form feed 19 printer extent 25 cursor enable 42 character set mode 66 auxiliary keypad 67 backarrow key 68 data processing keys
Response:	CSI ? *s* ; *x* $ y *where: x* = 0 unrecognized mode 1 set 2 reset 3 permanently set 4 permanently reset
Set DEC private states:	CSI ? *s* ;..; *s* h
Reset DEC private states:	CSI ? *s* ;..; *s* l

Controlling functions request:	DCS $ q *s* ST *where: s* = $} data destination "q selective erase mode (on/off) "p erase all/part of line $~ status line: status/ message r scroll region boundaries m selected character attributes
Response:	DCS *v* $ r *s..s* ST *where: v* = 0 request invalid 1 request valid *s* = parameter selections of functions; see above *example:* 0$~ = message lines off
Tab stop information request:	CSI 2 $ w
Responses:	DCS 2 $ u *d*/{*d*} ST *where: d* = tab stop column number
Host restores tab stops:	DCS 2 $ t *d*/{*d*} ST
User-preferred character set request:	CSI & u
Response for DEC Supplemental:	DCS 0 ! u %5 ST
Response for ISO Latin-1:	DCS 1 ! u A ST

Reports
Continued

Printer buffer empty request Terminal to notify host when terminal's print buffer is empty (capacity is 136 characters).	CSI 23*x
Response:	Pu1
Last command status request:	CSI 14 * x
Responses:	
operation failed	CSI 14 0 x
operation succeeded	CSI 14 1 x

C

Keyboards

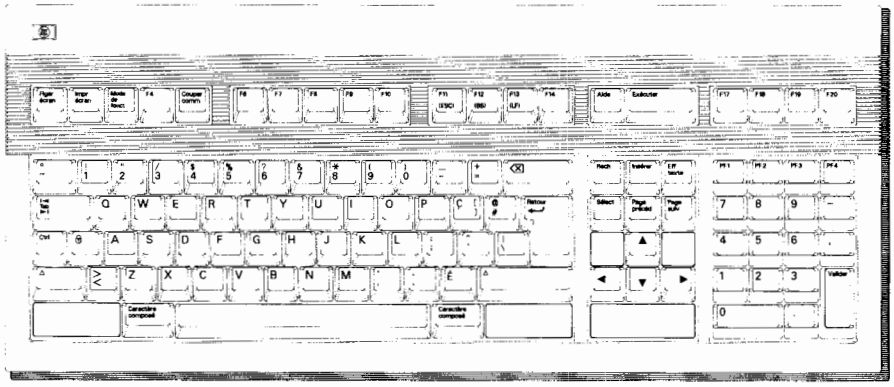


Figure C-1. Canadian—French

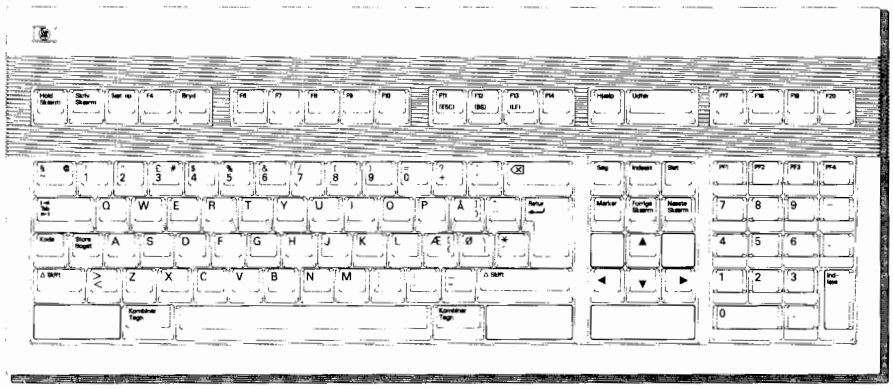


Figure C-2. Danish

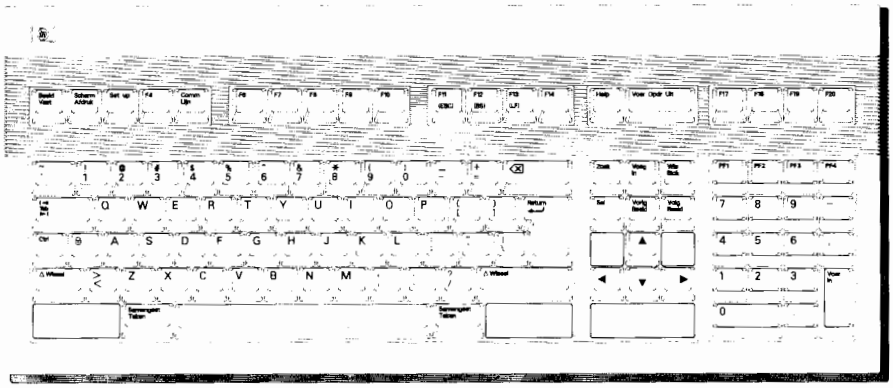
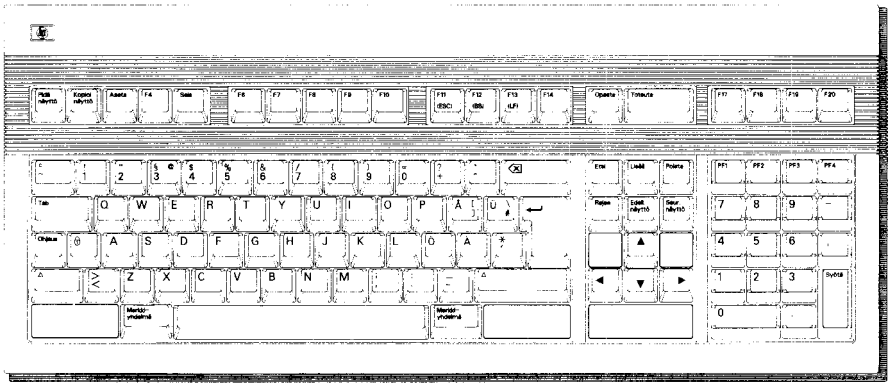


Figure C-3. Dutch

C-2 Keyboards



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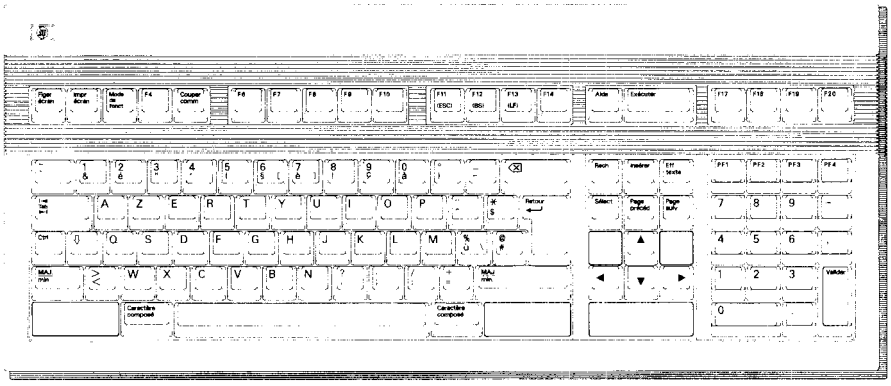

Figure C-5. French

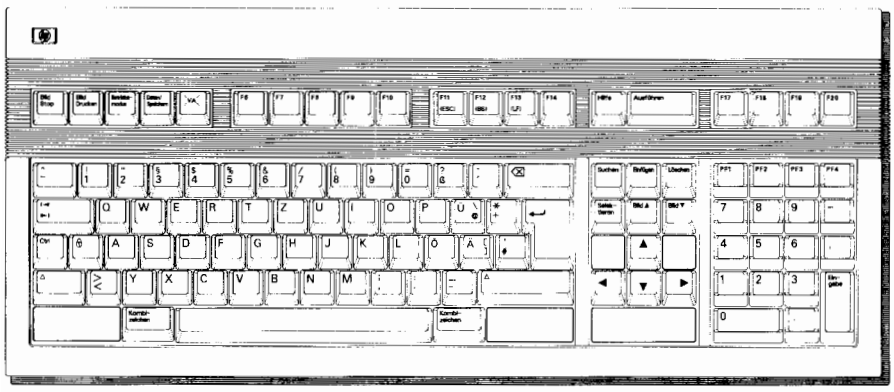

Figure C-6. German

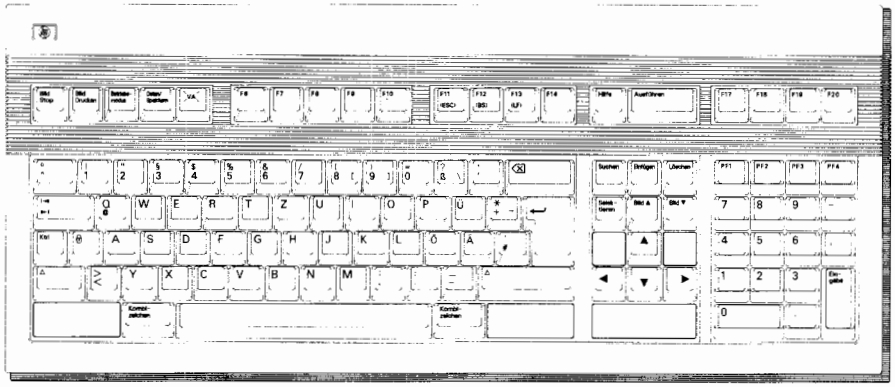

Figure C-7. German (DIN)

C-4 Keyboards

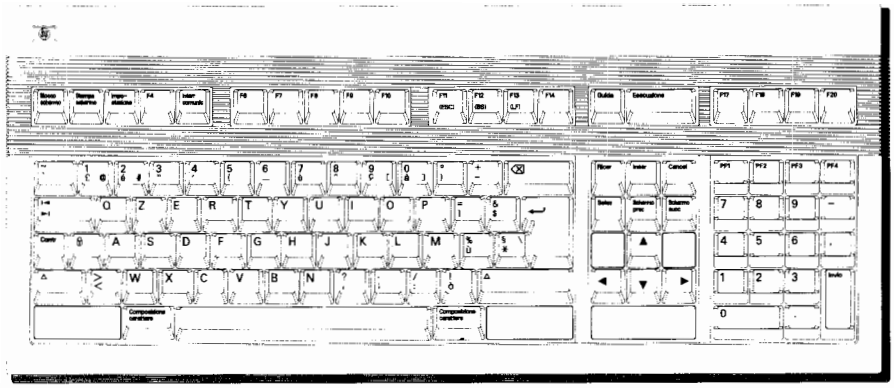

Figure C-8. Italian

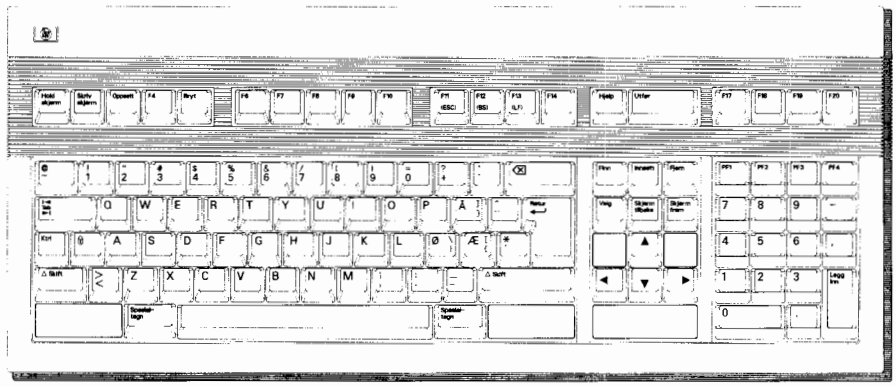

Figure C-9. Norwegian

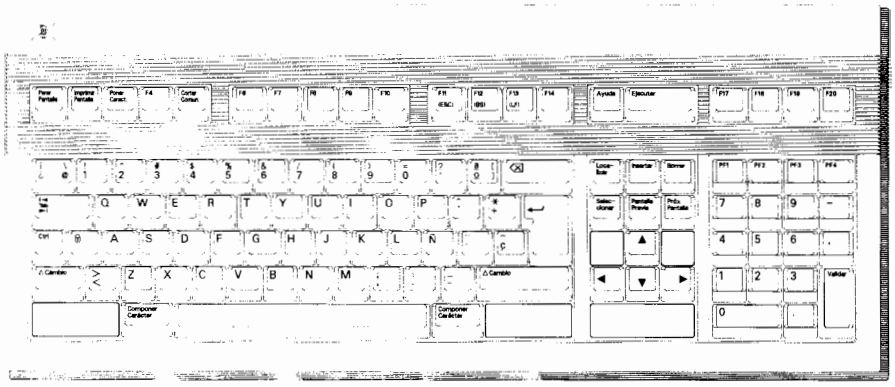

Figure C-10. Spanish

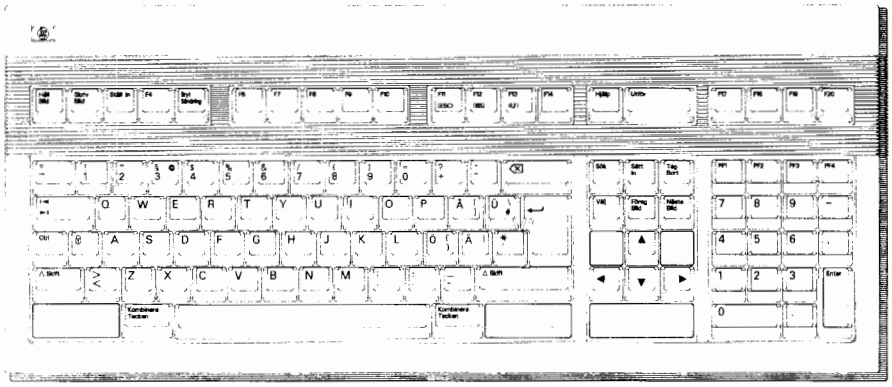

Figure C-11. Swedish

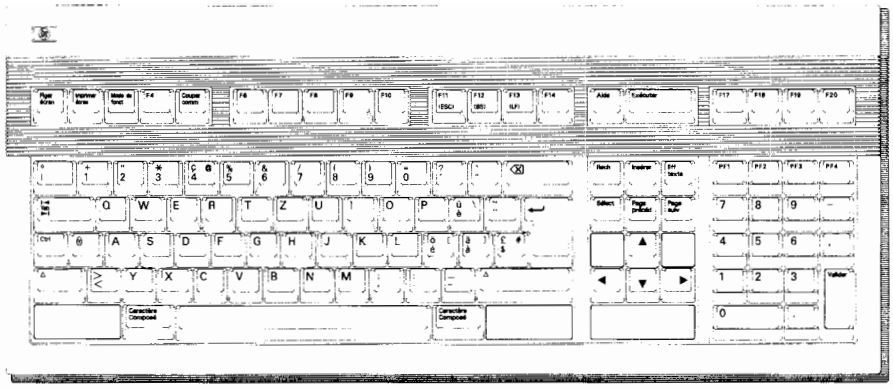

Figure C-12. Swiss—French

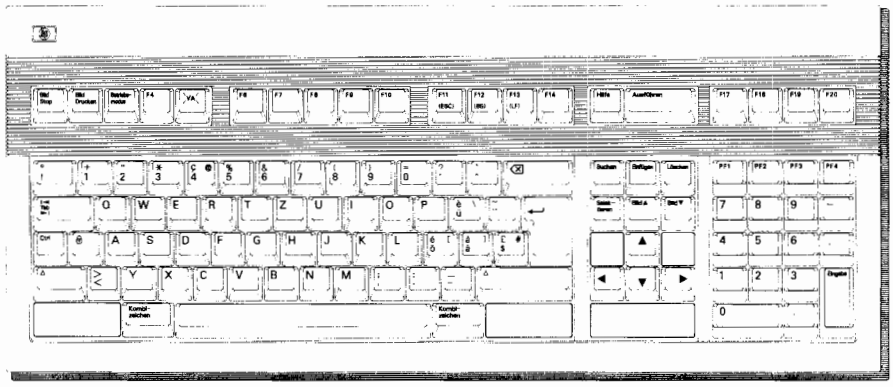

Figure C-13. Swiss—German

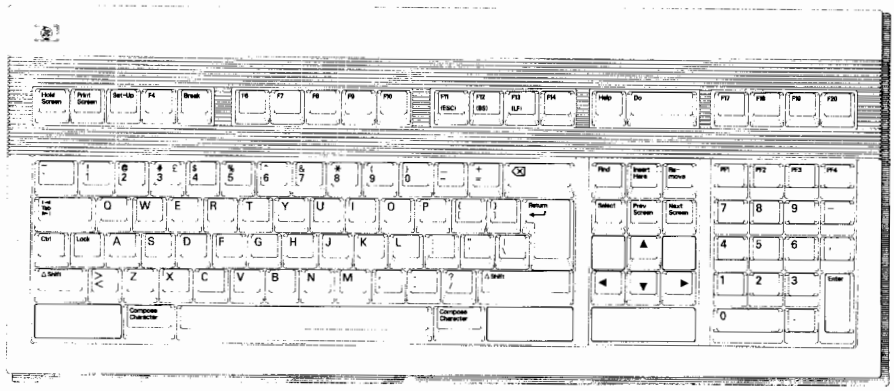

Figure C-14. United Kingdom

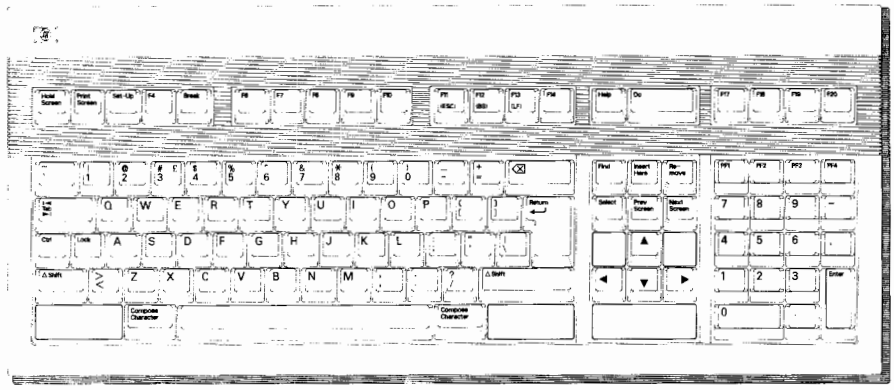

Figure C-15. United States

Index

T

U

V

W

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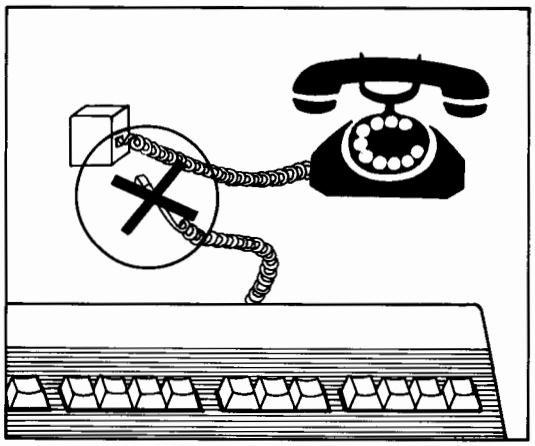

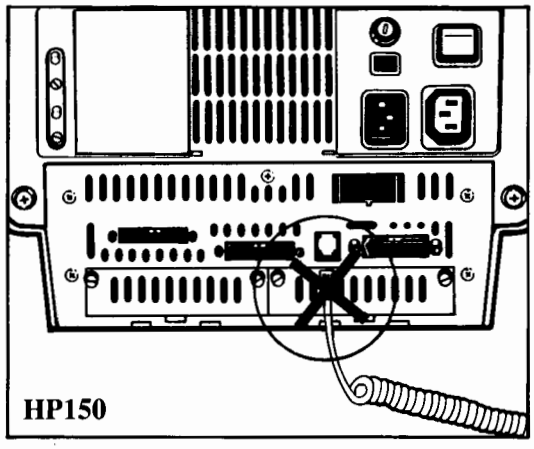

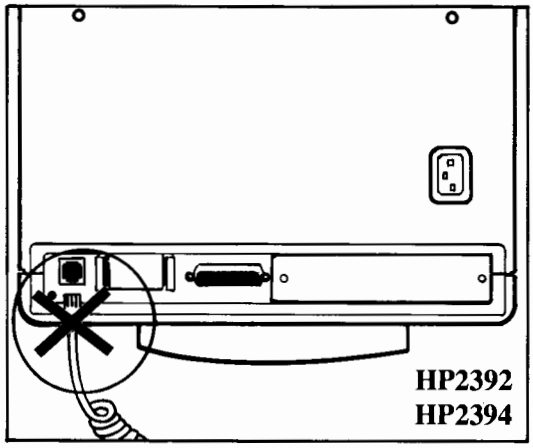

Compatibility List
Liste de Compatibilité
Tastatur/Bildschirm Kombinationen
Lista di Compatibilità
Lista de Compatibilidades

Keyboard/Clavier Tastatur/Tastiera Teclado	Terminal/Terminale Bildschirm
C1400A	700/92 700/94
C1401A	700/41
C1402A	700/22
C1403A	700/71
C1404A	700/71

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KEYBOARD INSTALLATION INSTRUCTIONS
NOTICE D'INSTALLATION DU CLAVIER
INSTALLATIONSANLEITUNG FÜR DIE TASTATUR
ISTRUZIONI PER L'INSTALLAZIONE DELLA TASTIERA
INSTRUCCIONES DE INSTALACION DEL TECLADO