

HP 2392A

Display Terminal

HP 2394A

Data Entry

Terminal

User's Manual

**RADIO FREQUENCY INTERFERENCE (RFI) STATEMENTS
FOR THE UNITED STATES**

Federal Communications Commission (FCC)

The US Federal Communications Commission (in 47 CFR 15.818) has specified that the following notice be brought to the attention of the users of this product.

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in 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 protection 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 EUROPE

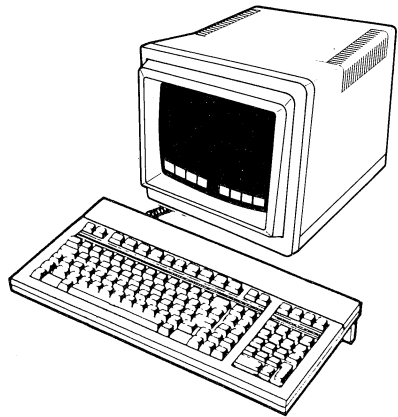
Verband Deutscher Elektroniker (VDE)

This equipment has been certified to comply with the German standard VDE 0871 level B.

Congratulations!

You have selected one of Hewlett-Packard's new alphanumeric display terminals. The terminal's versatility, ease-of-use and extensive features can save you valuable time and computer resources in a wide range of applications. The terminal's features include:

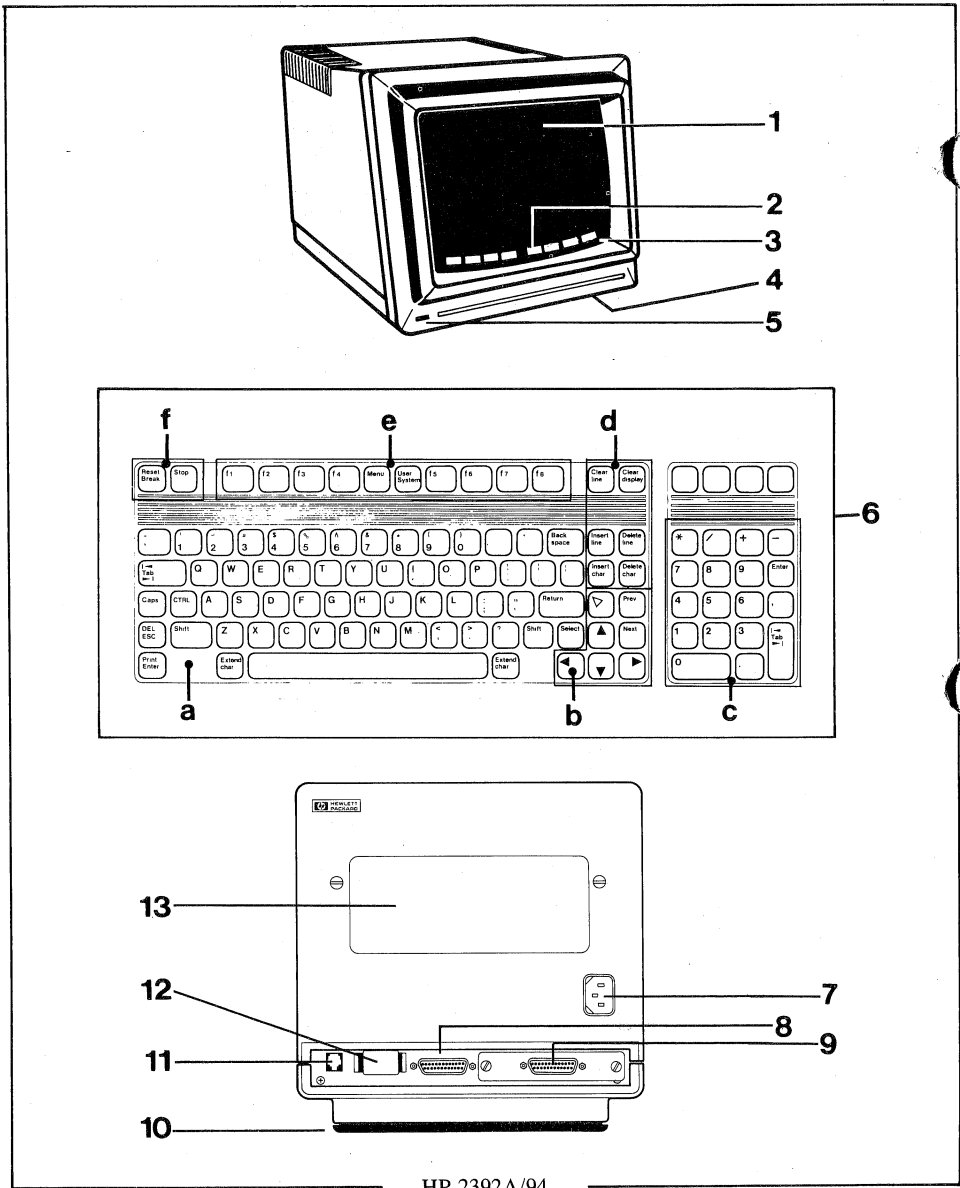
- Up to four pages of display memory* and one datacomm port.
- Block Mode or Character Mode data communications.
- Simple to use terminal controls accessible via keyboard function keys and screen labels.
- ON/OFF switch and brightness control at the front of the terminal.
- Terminal TILT and SWIVEL, allowing the screen to tilt up to 20 degrees, and rotate up to 360 degrees. This makes the terminal adaptable to different users and tasks, and allows the screen to be moved to avoid unwanted reflections and glare spots.
- Terminal small base area saves desk space.
- Easy-to-use low-profile keyboard, with retractable stand.



This user manual has been prepared to acquaint you with the terminal. It describes how to use the terminal both off-line (by itself) and on-line (connected to a computer), and also with a printer. It should answer your questions about the terminal's keyboard and screen operations.

Detailed information on how to program the terminal using Escape sequences is contained in the Reference Manual (part number 02394-90001). The Service Manual (part number 02394-90003), which may be ordered separately, describes troubleshooting and service procedures.

* The standard HP 2392A terminal has up to four pages of display memory. The standard HP 2394A terminal has up to eight pages of memory.



HP 2392A/94

- 1 = display screen
- 2 = display labels
- 3 = display Status Line
- 4 = display brightness rotary switch
- 5 = power ON/OFF pushbutton

- 6 = keyboard:
 - a = character set group
 - b = cursor and display control group
 - c = numeric group
 - d = edit group
 - e = function key group
 - f = terminal control group

- 7 = power cable connector
- 8 = port 1 (RS232C/HP422 computer port)
- 9 = port 2 Datacomm Module (optional printer port)
- 10 = swivel pedestal
- 11 = battery support
- 12 = battery support
- 13 = identification label

**HP 2392A DISPLAY TERMINAL
HP 2394A DATA ENTRY TERMINAL
USER'S MANUAL**

How To Use This Manual

Terms Used In This Manual

Comparison Of The HP 2392A And The HP 2394A

Section 1 – Installing the Terminal

Section 2 – Getting Started

Section 3 – The Keyboard

Section 4 – The Display Screen

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Summary of HP Parameterized Escape Sequences

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CERTIFICATION

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Roseville Terminal Division
8020 Foothills Blvd.
Roseville, California 95678

How To Use This Manual

This manual contains information on both the HP 2392A Display Terminal and the HP 2394A Data Entry Terminal. The 2394A Data Entry Terminal has all the features of the HP 2392A Display Terminal plus enhanced data entry features. The enhanced features of the HP 2394A terminal are pointed out throughout the manual by listing the product number (HP 2394A) next to the feature or by footnotes. A feature comparison between the two products appears on page VI. The additional features are also noted in the index in the same manner.

TERMS USED IN THIS MANUAL

The following table explains some of the terms used in this manual (in alphabetical order)

TERM	DESCRIPTION
ACTIVATE/ DEACTIVATE	Switch ON/OFF a particular terminal function or mode.
BLOCK MODE	Applies when the terminal is in Remote Mode. Data typed on the keyboard is stored in the terminal's memory, and is not transmitted to the computer until the [Enter] key is pressed. The data is then sent in a block of one line or page(s), as configured. This allows the data to be composed and edited before it is sent to the computer.
CHARACTER MODE	Applies when the terminal is in Remote Mode. Data typed on the keyboard is transmitted to the computer one character at a time (i.e. as it is typed). The computer interprets the data transfer as complete (terminated) when the [Return] key is pressed.
COLUMN	A vertical row of characters on the screen. The columns are numbered from 1 through 80, starting with the first character position on the left side of the screen (see Figure 4-1).
CONFIGUR- ATION	The setting of the terminal-to-device data communication parameters, and some terminal operating states (see Section 5).
CURRENT COLUMN/ LINE/PAGE	The column/line/page containing the cursor.
CURSOR	The blinking underline on the screen that indicates where the next character or space appears when the character is typed on the keyboard or received from the computer. The current line and column position of the cursor is indicated by numbers at the bottom of the screen (see Figure 2-1).
DATA	A general term for information; such as words, numbers and codes, or any combination of the three.
DATACOMM	Abbreviation for "data communications" (the transfer of data between the terminal and a computer or external device).
DATACOMM MODULE	A small optional printed circuit card (installed in port 2), used to provide the connection between the terminal and an external device.
DATA TRANSFER	The process of moving (or copying) data from one device to another, such as from the display screen to a printer.
DIACRITIC	A mark such as an accent, circumflex or tilde used to modify the phonetic nature of an alphabetic character. Used with the national language keyboards.
ECHO	In Character Mode, data typed on the keyboard can be displayed on the terminal either directly it is entered (local echo) or as a re-transmission from the computer (remote echo). In Block Mode, a local echo is always used.
EDIT CHECKS	In format mode, editing is performed by the terminal to insure that data is in the specified format before it is returned to the host computer, such as numeric-only, total fill, etc.
ENHANCE- MENT, DISPLAY	Programmable screen video characteristics such as blinking, half-bright, inverse-video and underline.
EXTERNAL DEVICE	The device (e.g. printer) connected to the terminal.

TERM	DESCRIPTION
ENTER	To type data on the keyboard. The [Enter] key is used to trigger the transfer of entered data from the terminal to the computer; in Block Mode the block of data is transmitted, in Character Mode all the current line of data displayed on the screen is re-transmitted.
ESCAPE SEQUENCE	A sequence of one or more characters, where the first character is Esc (the ESCape control character), which the terminal recognizes as a special command rather than data. These sequences are normally issued by the computer to control the terminal. They are summarized at the end of this manual, and described in detail in the Reference Manual.
FORMAT MODE	Mode allowing forms to be created on the screen that contain protected and unprotected fields (you can only enter data in the unprotected fields, see Page 4-5).
FORMS CACHE	Forms Cache capability enables the system to store forms locally in the terminal. Rather than transmitting a form to the terminal each time it is needed, forms to be used in a work session can be sent to the terminal at the beginning of the session. Forms can then be transferred locally from forms cache to the screen.
FUNCTION KEYS AND SCREEN LABELS	The function keys are the eight keys labeled [F1] to [F8] located at the top of the keyboard, and are used in association with eight labels along the bottom of the screen. The function (i.e. action) of each key can be changed from the keyboard by changing the associated label (see Section 4). This allows the keys to be used as pre-set terminal control keys or user-defined keys.
INVERSE VIDEO	In normal video the characters are clear and the background is dark. Using inverse video, the characters are dark and the background is clear.
LINE	A horizontal row on the screen, capable of containing up to 80 characters (may be thought of as a line of text in a book).
LINE FEED	The movement of the cursor from the current line to the next line (see Return).
LOCAL MODE	Operating the terminal without the aid of a computer system (that is, "off-line"), so that data entered at the terminal remains in the terminal's memory.
MEMORY, DISPLAY	The part of the terminal's memory used to store data entered on the keyboard and/or received from a computer.
MEMORY, NON-VOLATILE	The part of the terminal's memory used to save configuration parameters and user-defined function key definitions when the terminal is powered-off.
MODE	A terminal operating state (see Block, Character, Local and Remote).
MODIFY DATA TAG	The Modify Data Tag allows the user to send only those fields in a form which have been modified. This feature may be enabled by the Terminal Configuration Menu in the Transmit field.
PAGE	The 24 lines of data (including blank lines) that can be displayed on the screen at any given time.
PORT	A connector for receiving/transmitting data from/to a device.
REMOTE MODE	Operating the terminal with the aid of a computer system (that is, "on-line"). Data entered at the terminal can be sent to the computer, and data from the computer is displayed on the screen.
RESET	Set a particular function or mode to its initial state.

TERM	DESCRIPTION
RETURN	The carriage return generated by the [Return] key causes the cursor to be returned to the left margin of the current line. If automatic line feed is on, the cursor is returned to the left margin of the next line. Also see Character Mode.
ROMAN 8	A character set comprising USASCII and extended Roman set (national characters).
SIMULTAN- EOUSLY PRESS	To correctly use the [CTRL] and [Shift] keys with other keys requires that you press and hold down [CTRL] or [Shift] before pressing and then releasing the other key.
STATUS LINE	The bottom line (27th) of the screen used to display terminal status information.
WRAP- AROUND	The movement of the cursor from the right margin in a line to the left margin in the next line.

Comparison of the HP2392A and the HP2394A

FEATURES	HP 2392A	HP 2394A
Display		
Size	12"	12"
Format:		
Columns	80	80
Lines	24	24
Softkeys/Labelling Status	25th, 26th 27th	25th, 26th 27th
Character Cell	9 × 14	9 × 14
Video Enhancements ¹	UL, IV, B, HB, SV	UL, IV, B, HB, SV
Phosphor Memory	Green Up to 4 pages std. Up to 8 pages opt.	Green Up to 8 pages std.
Total Memory (Std.)	16K RAM	48K RAM
Forms Cache	No	Yes
Forms Cache Directory	No	Yes
Field Attributes ²	P, UNP	P, UNP, T-0
Modified Data Tags	No	Yes
Forms Tab Control	No	Yes
Data Edit Checks	No	11 Checks
Line Drawing Set	Yes	Yes
Keyboard		
Typewriter	Yes	Yes
Detached	Yes	Yes
Numeric Pad	Yes	Yes
Cursor Keys	Yes	Yes
Editing Keys ³	IC, DC, IL, DL	IC, DC, IL, DL
Function Keys		
Fixed Definition	None	8
User Definable	8	8
Menu Aids for Forms Design		
Video Enhancements Menu	No	Yes
Field Attributes	No	Yes
Local Edits Menu	No	Yes
Sketch Forms Menu	No	Yes
Select, Return, and Tab Keys	Fixed	Programmable

HP 2392A/HP 2394A Comparison (continued)

FEATURES	HP 2392A	HP 2394A
Data Communications		
Mode:		
Character/Line	Yes	Yes
Block	Yes	Yes
Remote Configuration via ESC Sequences	No	Yes
Speed	110-19200 baud	110-19200 baud
Interface:		
RS232	Std.	Std.
HP422	Std.	Std.
X.25 PAD	Std.	Std.
Protocol — ENQ/ACK, X ON/OFF	Yes	Yes
ANSI Capability	No cost option	No cost option
Hard Copy		
Printer Ports:		
RS232	Optional	Optional
Centronix-type parallel	Optional	Optional

Keys:

- ¹ UL=Underline IV=Inverse Video B=Blinking HB=Halfbright SV=Security Video
² P=Protected UNP=Unprotected
³ IC=Insert Character DC=Delete Character IL=Insert Line DL=Delete Line

Installing The Terminal _____ SECTION **1**

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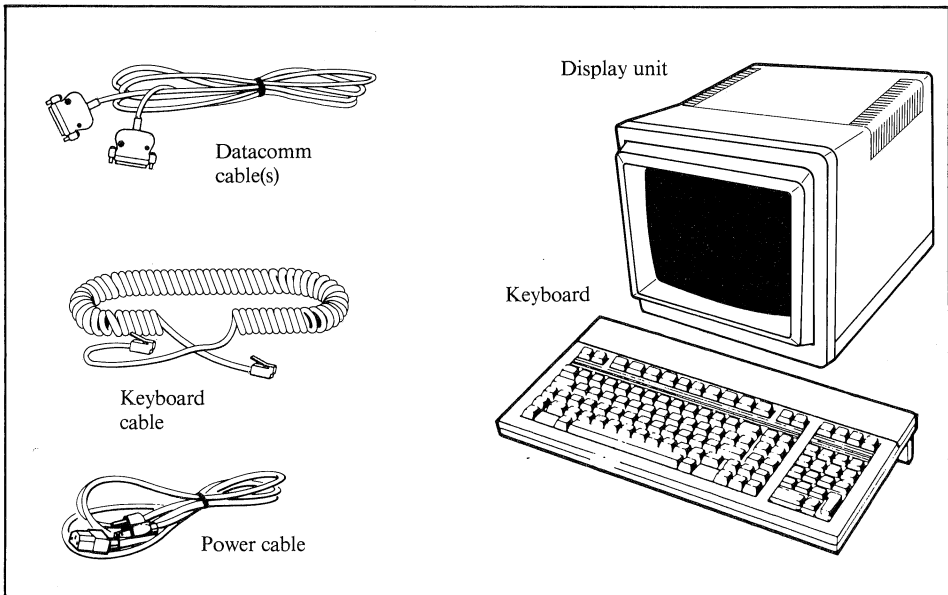


Figure 1-1. The Terminal

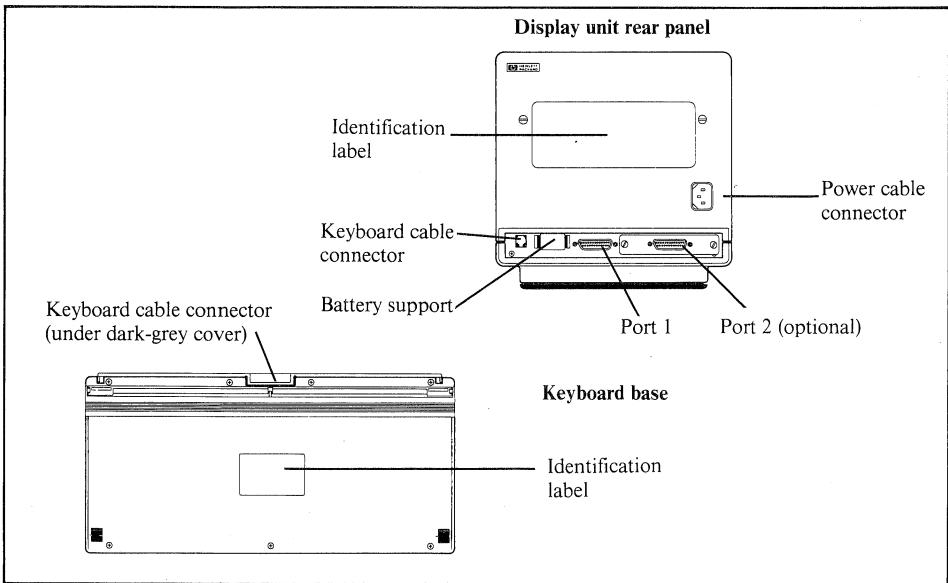


Figure 1-2. Rear Of Display Unit And Keyboard

INTRODUCTION

Installing the terminal is as easy as:

- 1) Unpacking the components from the shipping cartons.
- 2) Identifying options and accessories.
- 3) Connecting the datacomm cable, keyboard cable and the power cable.

This section provides a step-by-step guide to installing the terminal. If the terminal is already installed, refer to Section 2 for details on how to switch it ON, as well as how to use it by itself (off-line), with a computer (on-line), and with a printer.

UNPACKING AND INSPECTING THE TERMINAL



WARNING



IF TERMINAL IS DAMAGED DO NOT CONNECT IT TO AN ELECTRIC POWER SUPPLY; NOTIFY THE NEAREST HEWLETT-PACKARD OFFICE.

If the shipping carton is undamaged, open the top and carefully remove the contents. Place the display unit, keyboard and accessories on a clean, dry, stable surface (if possible retain the shipping carton for future use). Ensure that the correct options/accessories have been delivered by checking that all the items listed on the carton's packing list are included, and that the received shipment contains all ordered items.

In any correspondence with Hewlett-Packard regarding your terminal, specify the model, serial and option numbers listed on the identification label on the rear of the terminal.

GETTING TO KNOW THE TERMINAL

The terminal comprises a keyboard and display unit (see Figure 1-1). The standard terminal provides up to four pages of display memory and has one datacomm port.

Identifying Options And Accessories

An identification label located on the back of the terminal states the power requirement, model number and serial number. A similar label on the base of the keyboard provides the keyboard's product number and serial number (see Figure 1-2). Table 1-1 lists the options which may be ordered with the terminal. After receiving the terminal, you can also order some options as accessories (see Table 1-2).

The HP 2392A/HP 2394A data sheet, available from your local HP office, contains complete specifications.

Table 1-1. HP 2392A/HP2394A Standard Terminal And Options

	Description
Standard terminal	<p>115 V 60 Hz operation HP 2392A: Up to four pages of memory (16K RAM) HP 2394A: Up to eight pages of memory (32K RAM) A minimum of 16K is allocated to forms cache. Total memory = 48K RAM American USASCII keyboard One datacomm port: port 1 = 25-pin RS232C/HP422 port</p>
Options	
015	230V/50 Hz
049	ANSI X 3.64 operation
092	25-pin RS232C datacomm module
093	8-bit parallel datacomm module
	User installable Port 2
101	Swedish
102	Norwegian
103	French
104	German
105	English, UK
106	Spanish, European
107	Canadian, French
108	Canadian, English
109	Italian
110	Dutch
111	Finnish
112	Danish
113	Swiss, German
114	Swiss, French
115	Spanish, Latin American
116	Flemish
160	Memory extension (adds an additional four pages of display memory)*
301	US modem cable (same as accessory 40242M)
302	European modem cable (same as 40242M)
303	RS232C cable (same as 40242C)
304	HP direct connect type 232 cable (same as 40242X)
305	EMP protect cable (same as 40242Y)
306	HP direct connect type 422 cable (same as 40242P)
	Computer cables (see Reference Manual for further details)
Accessories	See Table 1-2

*This additional 16K of RAM is only available on the HP 2392A.

PREPARING THE TERMINAL FOR USE

The terminal is designed to operate in a wide range of applications. It is self-contained and provides easy access to the operator controls so that normal installation does not require the terminal to be opened.

Installing The Terminal

Place the display unit on any sturdy convenient surface such as a table, desk or stand. Ensure there is sufficient space for the keyboard, and the datacomm, keyboard and power cables. To prevent overheating, leave an air gap of at least 10 cm (4 in) between the display unit and any other equipment.

The rear of the display unit (shown in Figure 1-2) is equipped with a power cable connector (center-right), keyboard cable connector (bottom far-left), battery support (bottom left), and datacomm ports:

- Port 1 (See Figure 1-2) is a combined “RS232C and HP direct connect 422 input/output datacomm port”. It is a 25-pin socket connector that can accept either an RS232C plug or an HP422 plug (refer to Table 1-1 for the relevant cable). This allows communications.

Table 1-2. HP 2392A/HP 2394A Terminal Accessories

Number	Description	
40210M	Current loop datacomm module	
40210P	8-bit parallel datacomm module	
40210R	25-pin RS232C datacomm module	
40242A	Combined RS232C and HP422 adapter. Male (25-pin)/female (50-pin), 1 m (3 ft)	
40242C		RS232C cable. Female (25-pin)/male (25-pin), 5 m (16 ft)
40242M	US/European modem cable. Male (25-pin)/male (25-pin), 5 m (16 ft)	
40242P	HP direct connect type 422 cable. Male (25-pin)/male (5-pin), 5 m (16 ft)	
40242X	HP direct connect type 232 cable. Male (25-pin)/male (3-pin), 5 m (16 ft)	
40242Y	EMP protect cable. Male (25-pin)/male (25-pin), 5 m (16 ft)	
40242Z	RS232C modem bypass cable. Male (25-pin)/female (25-pin), 5 m (16 ft)	
40242D	Parallel printer cable. Amphenol male (36-pin)/male (36-pin), 2 m (6.6 ft)	
40242E	Current loop cable. Male (9-pin)/male (9-pin), 5 m (16 ft)	
40242G	Serial (RS232C) printer cable. Male (25-pin)/male (25-pin), 5 m (16 ft)	
46010A	} Keyboards	
46010AC		American USASCII
46010AD		Canadian, French
46010AE		German
46010AF		Spanish, European
46010AG		French
46010AH		Dutch
46010AL		Canadian, English
46010AM		Spanish, Latin American
46010AN		Norwegian
46010AQ		Swiss, French
46010AR		Swiss, German
46010AS		Swedish
46010AU		English, UK
46010AW		Flemish
46010AX	Finnish	
46010AY	Danish	
46010AZ	Italian	

- Port 2 (see Figure 1-2) is a “module port”. This port is protected by a blank panel when the terminal is delivered. If required, this panel may be removed and a Datacomm Module fitted to provide a second communications port for an external device, usually a printer. This Datacomm Module must be ordered as an option (see Table 1-1) or an accessory (see Table 1-2).

When you receive the terminal, ensure that the battery support is securely installed. Then install the Datacomm Module (if required), before connecting the datacomm cable(s), keyboard cable, and power cable as described below.

Installing A Datacomm Module/Port 2

CAUTION

The Datacomm Module must be handled with care. It must NOT be jarred nor allowed to come into contact with dirt, liquids or electrostatic discharge.

The Datacomm Module is a small printed circuit card that provides the connection between the terminal and the device cable. The rear of the module is equipped with a connector for plugging into port 2 of the terminal. The front of the module is equipped with a metal panel on which is mounted a connector for the device cable. The type of connector depends on the module used (see Table 1-2).

Install the module as follows:

- 1) Ensure that the power cable is disconnected from the terminal.
- 2) Unscrew the two screws securing the port 2 blanking panel in position, and remove the panel. See Figure 1-3.
- 3) Remove the Datacomm Module from its transportation packing. Hold it by the metal panel (component side up), and carefully slide it rearwards along the port 2 slot runners. Then gently press the metal panel to ensure that the module engages with the terminal (see Figure 1-3).
- 4) Secure the module in position by tightening the two locking screws on either side of the metal plate.

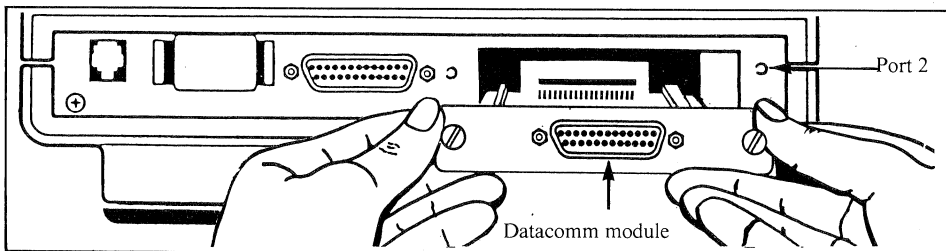


Figure 1-3. Installing A Datacomm Module

Connecting The Datacomm Cable(s)

NOTE

- 1) When you connect the cables, make sure they are not tangled and that they do not restrict the terminal's swivel action. Also datacomm cables must not lie next to high voltage power cables.
- 2) On terminals equipped with two datacomm ports, the terminal may be connected to two external devices. However, the terminal can communicate with only ONE computer at a time.
- 3) The terminal can be connected to the computer either directly (hardwired), through a modem (across telephone lines) or via a cluster controller. The terminal can be connected to the printer using a direct connection only.
- 4) The cables listed in Tables 1-1 and 1-2 provide RFI filtering, and must be used to comply with the FCC and VDE notices at the front of this manual.

The datacomm cable (from the computer and/or device) must be connected to the correct port on the rear of the terminal (see Figure 1-2). The port connector is female, consequently the datacomm cable must be fitted with a male connector. The standard terminal has one port (port 1), but may be equipped with a Datacomm Module to provide it with a second port. The available cables are listed in Table 1-1.

Terminals equipped with only one port can only be connected to a computer. The connection must be configured as described in Sections 2 and 5.

For terminals equipped with two ports, normally port 1 (Figure 1-2) is used for the computer connection, and port 2 (Figure 1-2) for an external device such as a printer (i.e. port 1 = computer, 2 = printer). However, if required the role of these two ports can be changed (i.e. port 1 = printer and port 2 = computer). The port assigned to the computer (datacomm) and printer (external device), as well as the configuration parameters, must be set as described in Sections 2 and 5.

Align the datacomm cable connector with the appropriate port. The shape of the connectors ensures a proper connection when they are correctly aligned. Gently press and rock the cable connector until the connection is made. Lock the connector in position using the screws (or clips on certain Datacomm Modules).

Connecting The Keyboard Cable

The keyboard cable must be connected to the keyboard before being connected to the display unit. Both ends of the cable are equipped with a similar male connector plug. For the keyboard connection:

- 1) Remove the dark-grey plastic cover on the top edge of the keyboard that covers the keyboard's connector socket. Gently squeeze it at the center and pull it straight out (see Figure 1-4).
- 2) Align the keyboard cable's male connector plug with the keyboard's female connector socket (see Figure 1-4). The shape of the connectors ensures they can only connect when correctly aligned. Then press the cable's plug into the keyboard's socket, ensuring that the plug's locking tab secures them together.

- 3) Place the cable in the cable channel at the rear of the keyboard, ensuring that the cable passes through the slot at the end of the cable channel. Choose the slot most convenient for using the keyboard.
- 4) Replace the plastic cover over the cable channel as follows: hold the cover in both hands, and bend each end towards the keyboard. Then clip the cover in position at the cable end of the channel, before clipping in the other end in place. Press the cover at the center to ensure it is correctly located, with the plastic lug over the recess under the keyboard cable connector.

Connect the cable to the display unit as follows: align the keyboard cable's male plug with the display unit's socket (rear bottom far left, see Figure 1-2). Then gently press the cable's plug into the display unit's socket, ensuring that the locking tab secures the connectors together.

Note that for ergonomic reasons, the distance between the display unit and keyboard should be no more than 1 m (40 inches).

The base of the keyboard is equipped with a hinged stand that allows the keyboard to be mounted either flat on the table or at a slight angle.

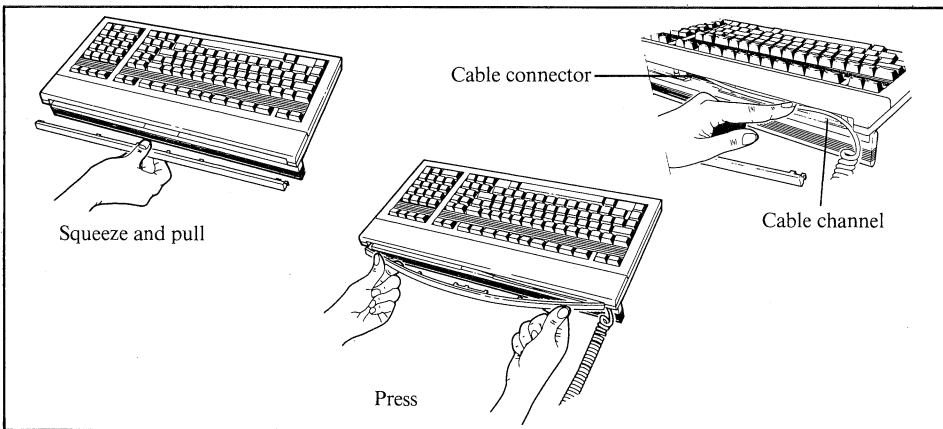


Figure 1-4. Keyboard Cable Cover

Connecting The Power Cable



WARNING



- 1) For safety, a 3-prong grounded site power outlet socket must be used.
- 2) Ensure that the terminal's operating voltage (indicated on the rear panel label) corresponds to the site line voltage. If required, the terminal's voltage setting may be changed by an HP customer engineer.

An appropriate power cable is supplied with the terminal. To install the cable, first check that the power switch at the front of the terminal is OFF (protruding). Plug the power cable's female connector into the terminal's power cable connector (Figure 1-2, rear center right). Then plug the power cable's 3-prong connector into the site's power outlet socket.

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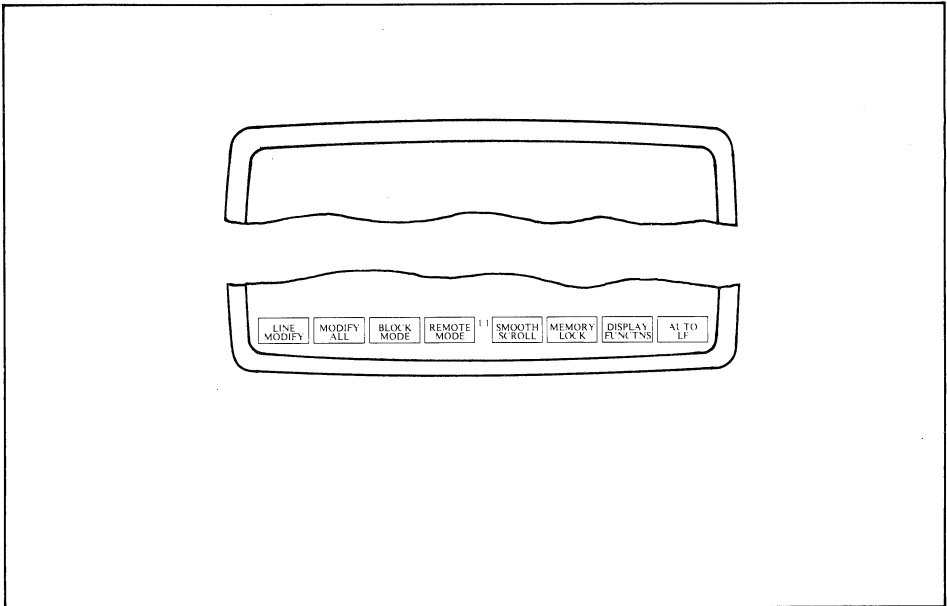


Figure 2-1. The Display Screen At Power-on

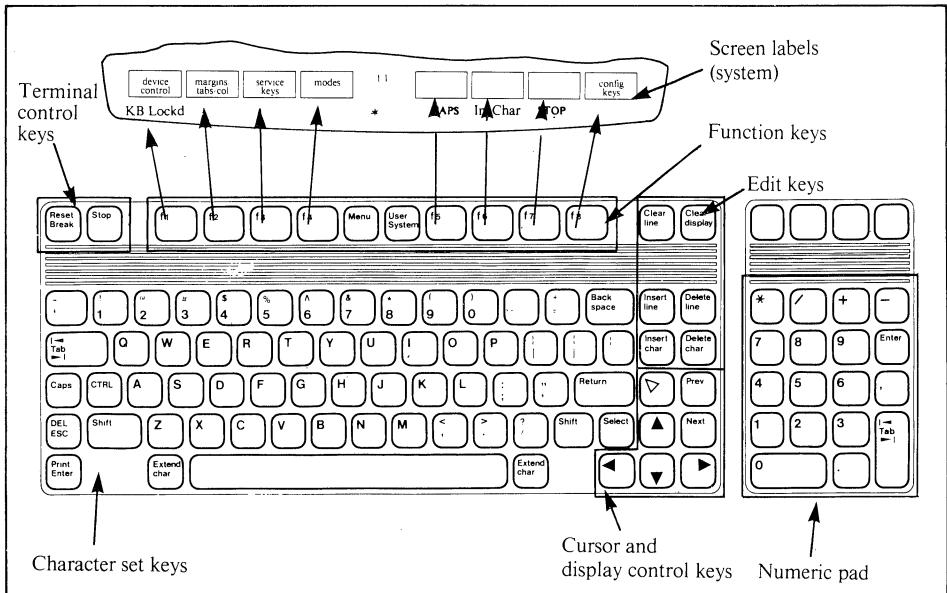


Figure 2-2. Function Keys And Screen Labels Of The HP 2392A

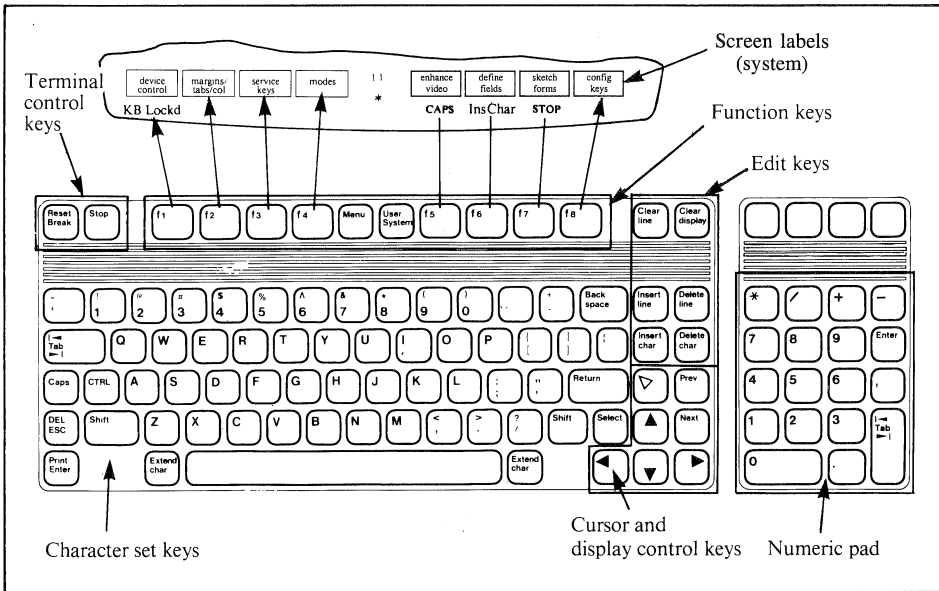


Figure 2-3. Function Keys And Screen Labels Of the HP 2394A

SWITCHING THE TERMINAL ON/OFF

ON

Power ON the terminal by pressing in the power switch at the lower left-hand corner on the front of the terminal (see Figure 2-1). The following occurs:

- 1) The terminal beeper sounds. Then after approximately 10 seconds (when the terminal has successfully performed its power-on self test) the terminal beeper sounds a second time.
- 2) The screen then displays (see Figure 2-1):
 - a) The cursor at the top left-hand corner (line 1, column 1).
 - b) The eight labels associated with the MODES function (at the bottom). An asterisk in a label indicates the function is active. An asterisk is also displayed in the Status Line if a modem is operational. The rest of the screen is blank.

If the message "Default configs used Press RETURN to clear" is displayed at the bottom of the screen in place of the labels, the batteries used to protect the non-volatile memory may have been jarred loose. Consequently, the terminal is using the pre-defined default configuration values, which may be incorrect for your application. Ensure that the battery support is securely seated (as described in Section 6), before checking the configuration as described on Pages 2-10, 2-11, 2-16, 2-17, and 2-23.

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

The knob under the right-hand side of the screen adjusts the display brightness. Display centering, focusing or height adjustments must be done by an HP customer engineer.

OFF

To switch OFF the terminal, simply press the power switch again so when released it protrudes from the terminal.

In Remote Mode, switching OFF the terminal resets configuration parameters temporarily changed by the host computer. This may cause communications problems when the terminal is subsequently switched ON.

TERMINAL MAIN FEATURES

Keyboard

The keyboard has alphabetic and numeric keys similar to those on a typewriter, but arranged in colored functional groups for ease of use (See Figures 2-2 and 2-3):

- 1) The character set group allows alphabetic and numeric characters, as well as mathematical and commercial signs to be entered. It also contains data control keys such as **[Back space]** and **[Return]**.
- 2) The cursor and display control group moves the cursor and data around the screen.
- 3) The numeric group comprises a numeric key pad for the rapid entry of numeric data.
- 4) The edit group allows data to be inserted in and deleted from the display.
- 5) The function keys group selects one of several sets of labels for display at the bottom of the screen, and accesses the function indicated by the corresponding label.
- 6) The terminal control group is used to interrupt terminal-to-computer communications. It is also used to initialize the terminal.

When you press a key, the corresponding character is entered in the terminal. The character indicated at the bottom-half of the keycap is normally entered when the key is pressed on its own; the character indicated on the top-half of the keycap is entered when the key is shifted (simultaneously pressed with **[Shift]**). For the alphabetic keys, the lower-case letter is entered when the key is pressed on its own, and the upper-case letter when the key is shifted. This can be reversed using the **[Caps]** key. The terminal buffers (or "remembers") your keystrokes, allowing you to type at high speed and not lose any characters.

Refer to Section 3 for a complete description on how to use the keyboard.

Function Keys

The keyboard contains function keys **[f1]** to **[f8]**, which can be used as preset terminal control keys or as user-defined keys. The functions of the keys are indicated in the associated labels at the bottom of the display screen.

[f1] to [f8] as terminal control keys. The terminal has five main sets of function labels. Each set assigns specific controls to the labels/function keys. Pressing the **[User System]** key displays the primary level (SYSTEM, See Figures 2-2 and 2-3) from which the main sets of labels can be accessed.

These sets are:

- **<device control>** – used to control an external printer (only displayed on terminals fitted with two ports).
 - **<margins/tabs/col>** – used to control screen margins, tabs and the start column.
 - **<service keys>** – used to test the terminal
 - **<modes>** – used to access terminal control modes.
 - **<config keys>** – used to configure the terminal.
- } See Section 4 for details

Pressing a function key selects the function indicated by the associated label. The screen labels that are printed in lower-case letters are used to access a sub-set of labels. The screen labels printed in CAPITAL letters are used to control the function indicated by the label. The function key toggles the specified function ON and OFF. When a function is ON, an asterisk (*) appears in the associated screen label.

Note that the HP 2394A terminal has three additional main label sets.

These sets are:

- **<enhance video>** – used to enable the display enhancements
- **<define fields>** – used to control the selection of the different field types
- **<sketch forms>** – used to draw forms

[f1] to [f8] as user-defined keys. The HP 2392A terminal has a set of user-definable labels and user-definable function keys. These are accessed when you simultaneously press keys **[Shift]** and **[User System]** (they are also accessed when you press **[CTRL]** and **[User System]**, or **[Menu]** twice). The user-defined labels appear on the screen; then when you press one of the function keys **[f1]** to **[f8]**, the user-defined string of characters is generated. This allows you to enter often-used data with a single keystroke.

By default, the user-defined labels are **<f1>** to **<f8>** and the function keys generate characters Esc p to Esc w. If you simultaneously press keys **[CTRL]** and **[Menu]**, a menu is displayed that allows you to define the information contained in the user-defined labels and function keys. See Section 3 (Function Key Group) for more details.

The HP 2394A terminal offers 8 user-definable function key definitions **plus** the 8 permanent definitions (the default values). The user can invoke the function key default definitions by press **[Shift]** **[f1]** to **[Shift]** **[f8]**.

Display Screen

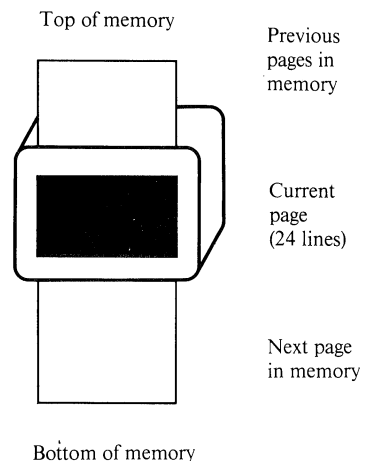
The display can contain up to 24 lines of data and up to 80 characters per line. Lines 25 and 26 display the screen labels, and line 27 status information. Refer to Section 4 for more details.

Display memory. The HP 2392A display memory contains at least one-and-a-half pages (screen of data). This number is increased to four pages when no display enhancements are used. If the terminal has the optional memory extension, the display memory is increased to an average eight pages (when no display enhancements are used).

The memory extension is standard in the HP 2394A terminal.

Display enhancements. The display screen has the following enhancements that operate on a character-by-character basis: half-bright, underline, inverse video and blinking (in any combination), plus security (e.g. used for non-displayed passwords). In the HP 2392A terminal, all these enhancements are programmable using Escape sequences as described in the Reference Manual.

However, these Escape sequences may also be entered on the keyboard to activate/deactivate particular enhancements. When on, the enhancements are active from the current cursor position to the end of the current line or to an existing change in enhancement (or character set) in the line, whichever occurs first. The enhancements are propagated along the line as characters are entered, and are automatically deactivated when:



- An Escape sequence for another enhancement is entered.
- The Escape sequence for end enhancement is entered. This switches off the current enhancement(s) from the cursor position to the end of the line or to an existing change in enhancement (or character set) in the line.
- The line containing the enhancement is deleted.
- The cursor enters a new line.

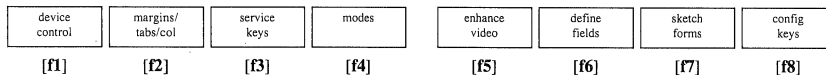
Table 2-1 lists the Escape sequences used to control the enhancements. The sequence "Esc&d" must precede the display enhancement selected by one of the enhancement selection characters (upper-case A through O and S). Letters that are common to several enhancements allow these enhancements to be active at the same time. For example, pressing keys [ESC], [&], [d] and [A] causes all subsequent data entered in the line to blink. To stop the blinking, re-position the cursor at the start of the blinking, then press keys [ESC], [&], [d] and [@].

Table 2-1. Display Enhancement Operation

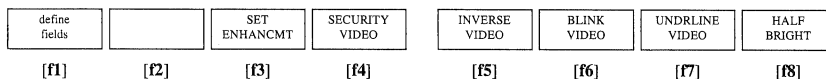
Enhancement	Esc&d followed by one of the enhancement selection characters
	@ A B C D E F G H I J K L M N O S
Half-bright	H I J K L M N O
Underline	D E F G L M N O
Inverse video	B C F G J K N O
Blinking	A C E G I K M O
Security field	S
End enhancement	@

In the HP 2394A terminal, the various display enhancements can be set using the function keys as follows:

- 1) Press the [User System] key to display the SYSTEM labels:



- 2) Then press key [f5] (now labeled <enhance video>) to display the labels:



The [SET ENHANCMT] key activates the currently selected state (whether on or off) of every enhancement.

For example to define columns 10 through 14 of line 5 to be inverse video and blinking:

- 1) Press the key [f5] (labeled <INVERSE VIDEO>) and the key [f6] (labeled <BLINK VIDEO>) to enable these enhancements. When enabled, an asterisk is present in these key labels.
- 2) Position the cursor at column 10 in line 5.
- 3) Press the key [f3] (labeled <SET ENHANCMT >). The selected enhancements take effect when characters are typed on the screen. Notice, the enhancements begin at the cursor position and continue through the end of the line (or through the next column in which another display enhancement begins).
- 4) Position the cursor at column 15 in line 5.
- 5) Press the key [f3] (labeled <SET ENHANCMT >).
- 6) Type the word TERMINAL beginning in column 9 of line 5. It should appear as shown below.

```

      1      1
      0      5
      ↓      ↓
TERMINAL

```

Here is a list of the different display enhancements and their functions:

Note that each function must be activated or deactivated using key [f3] (labeled <SET ENHANCMT >).

- 1) Security Video. To secure characters in a field, press key [f4] (labeled <SECURITY VIDEO>). The characters in a field defined as a security field are stored in memory but are not displayed. Their place on the screen is left blank. If the field is later returned to the unsecure state, the characters will be displayed.
- 2) Inverse Video. To invert the intensity of the background and all characters in the field, press key [f5].
- 3) Blink Video. To cause the characters in the field to blink on and off, press key [f6] (Labeled <BLINK VIDEO>).
- 4) Underline Video. To underline all characters (including blanks), press key [f7] (labeled <UNDERLINE VIDEO>).
- 5) Half Bright. To cause characters in the field to be displayed at half intensity (grey), press key [f8] (labeled <HALF BRIGHT >).

Screen Labels. The labels displayed in half-bright inverse video at the bottom of the screen are used in conjunction with the function keys [f1] to [f8] at the top of the keyboard (see Figure 2-2 and 2-3).

Status Line. The bottom line of the screen displays terminal status information:

- KB Lockd = keyboard locked indicator.
- * = modem active indicator (modem operational).
- ANSI or EM52 = sets ANSI or EM52 mode.
- CAPS = capitals indicator ([Caps] key pressed).
- Ins Char = insert character active indicator ([Insert char] key pressed).
- STOP = [Stop] key active indicator.

See Section 4
"STATUS LINE"
for details

NOTE

The following paragraphs explain how to use the terminal by itself, with a computer and with a printer. For more detailed information on the keyboard, screen labels and configuration menus, refer to Sections 3, 4 and 5.

USING THE TERMINAL BY ITSELF

When the terminal is in Local Mode, it may be used by itself. All data entered on the keyboard is treated locally. If a printer is connected, it may be used as described on Page 2-27.

Preparing The Terminal For Use By Itself

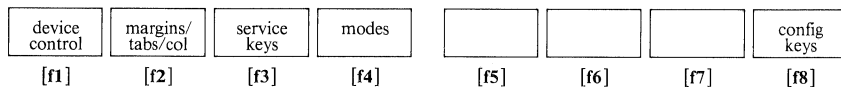
To use the terminal by itself, you must set it to Local Mode, then configure it. This may be done as described below.

Selecting Local Mode

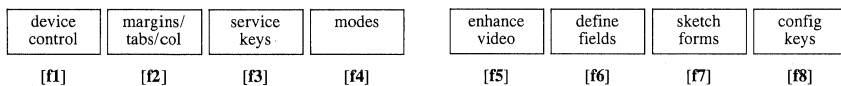
The Local Mode is controlled by the function keys as follows:

- 1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

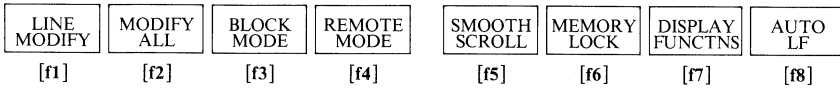


HP 2394A:



<device control> is only displayed if the terminal has a second port

2) Then press key [f4] (now labeled <modes>) to display the MODES labels:



You can now select local mode and also AUTO LF (automatic line feed).

Local. For the terminal to operate by itself, Local Mode must be selected. You should do this using key [f4] (labeled <REMOTE MODE>). When Local Mode is selected there is NO asterisk in the <REMOTE MODE> label.

Auto LF. Key [f8] (labeled <AUTO LF>) determines whether or not the terminal automatically generates a line feed with every carriage return (such as when the [Return] key is pressed). An asterisk appears in the label (<AUTO LF*>) when you activate automatic line feed. The asterisk is removed from the label when you deactivate this function.

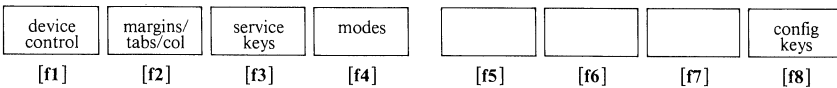
Configuring The Terminal

The terminal must be configured to operate correctly. You must specify, for instance, which national keyboard is used and which national language you want for the screen label. You make the configuration selections from the keyboard. The selections remain in effect even when the terminal is switched OFF then ON, and only requires to be altered if you change the keyboard or want the labels to appear in a different language.

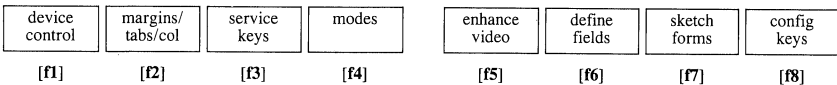
The terminal can be configured using the function keys as follows:

1) Press the [User System] key to display the SYSTEM labels:

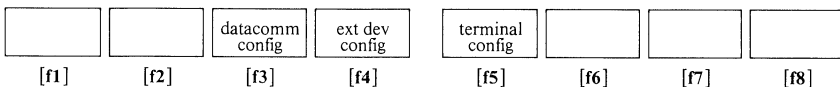
HP 2392A:



HP 2394A



2) Then press key [f8] (now labeled <config keys>) to display the main configuration labels:



<ext device config> is only displayed
if the terminal has a second port

- 3) Press key [f5] (now labeled <terminal config>) to display the Terminal Configuration Menu and the terminal configuration labels (see Figure 2-4).
- 4) To alter any of the parameters contained in the menu, place the cursor at the start of the selected parameter field (using the [Tab] or cursor control keys), then use key [f2] (<NEXT CHOICE>) or [f3] (<PREVIOUS CHOICE>) to display the desired value. Among the parameters that can be selected, the most important are:
 - a) Datacomm/ExtDev – in terminals with two ports, this parameter selects which port is used by the computer (datacomm) and which by the external device.
 - b) Keyboard – this selects the keyboard used so that the correct characters are generated. The product number on the base of the keyboard gives the keyboard type (see Table 1-2).
 - c) Language – this selects which language the labels and error messages will be displayed in.
 - d) TermMode – selects the terminal mode. Value should be “HP” for terminal to operate as described in this manual.

For the other parameters, the default values should be valid for most applications.

Press key [f1] (<SAVE CONFIG>) to store the value in the terminal’s non-volatile memory, which causes the SYSTEM labels to be displayed. For further details, refer to Section 5.

TERMINAL CONFIGURATION			
Datacomm/ExtDev	<input type="text" value="PORT 1/PORT 2"/>	Keyboard	<input type="text" value="USASCII"/>
Terminal Id	<input type="text" value="2392A"/>	Language	<input type="text" value="ENGLISH"/>
LocalEcho	<input type="text" value="OFF"/>	CapsLock	<input type="text" value="OFF"/>
XmitFunctn (A)	<input type="text" value="NO"/>	SPOW (B)	<input type="text" value="NO"/>
Inh HndShk (G)	<input type="text" value="NO"/>	Inh DC2 (H)	<input type="text" value="NO"/>
Start Col	<input type="text" value="01"/>	Bell	<input type="text" value="ON"/>
EscXfer (N)	<input type="text" value="NO"/>	Line/Page (D)	<input type="text" value="LINE"/>
FldSeparator	<input type="text" value="Us"/>	Blkterminator	<input type="text" value="Rs"/>
ReturnDef	<input type="text" value="Cr"/>	TermMode	<input type="text" value="HP"/>
Note: “Datacomm/ExtDev” is only displayed when the terminal is equipped with a second port (port 2). “CapsLock” only affects USASCII keyboard (ignored by terminal with national keyboard).			
Terminal Configuration Menu Labels			
<input type="text" value="SAVE CONFIG"/>	<input type="text" value="NEXT CHOICE"/>	<input type="text" value="PREVIOUS CHOICE"/>	<input type="text" value="DEFAULT VALUES"/>
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value="DISPLAY FUNCTNS"/>	<input type="text" value="config keys"/>

Figure 2-4. Terminal Configuration Menu (Default Values) Of The HP 2392A

TERMINAL CONFIGURATION											
Datacomm/ExtDev	<input type="text" value="PORT1/PORT2"/>	Keyboard	<input type="text" value="USASCII"/>								
Terminal ID	<input type="text" value="2394A"/>	Language	<input type="text" value="ENGLISH"/>								
Local Echo	<input type="text" value="OFF"/>	CapsLock	<input type="text" value="OFF"/>								
XmitFunctn (A)	<input type="text" value="NO"/>	SPOW (B)	<input type="text" value="NO"/>								
InhHndShk (G)	<input type="text" value="NO"/>	Inh DC2 (H)	<input type="text" value="NO"/>								
		Start Col	<input type="text" value="01"/>								
		Bell	<input type="text" value="NO"/>								
		InhEolWrp (C)	<input type="text" value="NO"/>								
		Line/Page (D)	<input type="text" value="LINE"/>								
		Esc Xfer (N)	<input type="text" value="NO"/>								
		FormsBufSize (256x)	<input type="text" value="0"/>								
FldSeparator	<input type="checkbox"/>	BlkTerminator	<input type="checkbox"/>								
Tab=Spaces	<input type="text" value="NO"/>	Return=Enter	<input type="text" value="NO"/>								
		ReturnDef	<input type="checkbox"/>								
		TermMode	<input type="text" value="HP"/>								
FORMAT MODE											
Decimal Type	<input type="text" value="US"/>	Imp Dec Digits	<input type="text" value="2"/>								
		Transmit	<input type="text" value="All Fields"/>								
		Print	<input type="text" value="Fields"/>								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">SAVE CONFIG</td> <td style="padding: 2px;">NEXT CHOICE</td> <td style="padding: 2px;">PREVIOUS CHOICE</td> <td style="padding: 2px;">DEFAULT VALUES</td> <td style="padding: 2px;">POWER ON VALUES</td> <td style="padding: 2px;">ACTIVE VALUES</td> <td style="padding: 2px;">DISPLAY FUNCTIONS</td> <td style="padding: 2px;">config keys</td> </tr> </table>				SAVE CONFIG	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT VALUES	POWER ON VALUES	ACTIVE VALUES	DISPLAY FUNCTIONS	config keys
SAVE CONFIG	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT VALUES	POWER ON VALUES	ACTIVE VALUES	DISPLAY FUNCTIONS	config keys				

Figure 2-5. Terminal Configuration Menu (Default Values) of the HP 2394A.

These additional parameters appear in the HP 2394 Terminal Configuration Menu:

- d) FormsBufSize (256x). This selects the size of the forms cache (see Section 4).
- e) TermMode. This selects the desired operating mode — HP, ANSI or EM52.
- f) Decimal Type. This specifies whether the decimal point is to be in US (.) or European (,) notation.
- g) Implied Dec Digits. This specifies the desired number of character positions to the right of the decimal point in implied decimal unprotected fields.
- h) Transmit. This specifies whether you want all fields or only those fields which have been modified to be transmitted from a formatted display (modified data tag).
- i) Print. This specifies whether you want all of display memory or only unprotected fields from display memory to be printed

Entering Data

Displayable characters entered from the keyboard appear on the screen as they are typed, in the position indicated by the cursor. The character indicated on the bottom-half of the keycap is entered when the key is pressed on its own; the character indicated on the top-half of the keycap is entered when the key is shifted (simultaneously pressed with **[Shift]**). With alphabetic keys, the lower-case letter appears when the key is pressed on its own, and the upper-case letter when the key is shifted. This can be reversed using the **[Caps]** key.

The keys **[◀]**, **[▶]**, **[▲]**, **[▼]** and **[▽]** move the cursor across the screen in the direction indicated on the keycap. **[Shift]** with **[▽]** homes down the cursor. **[Shift]** with **[▲]** scrolls the page up the screen, and **[Shift]** with **[▼]** scrolls the page down the screen; smooth scrolling can be activated using the **<SMOOTH SCROLL>** screen label (see page 2-11). Keys **[PREV]** and **[Next]** cause the previous and next page (24 lines) to be displayed (Figure 3-4, Section 3, depicts this operation). The **[Return]** key can be used to return the cursor to the left margin.

For example, to enter data on the screen:

- 1) Press key **[▼]** to move the cursor to the 24th line on the display (the line number is displayed between the fourth and fifth label). Then enter your name (and any other data) on this line; e.g: William Shakespeare; 1564-1616.
- 2) Now simultaneously press **[Shift]** and **[▲]** to roll your name up the screen. Note that the cursor remains in the same position on the screen, but the cursor line indicator increases in value to indicate the cursor position in display memory. Then press **[Shift]** with **[▼]** to roll down the screen. Note that rolling automatically stops when your name reaches the cursor (as the first line in display memory is now at the top of the screen).
- 3) Then press the **[Next]** key. Your name (and the cursor) jump to the top of the screen, with the next (blank) page displayed underneath. Pressing **[Prev]** returns your name to the bottom of the screen, with the previous (blank) page displayed above.

Extended Characters ([Extend char] key)

The **[Extend char]** key may be pressed simultaneously with an alphanumeric key to access the national and displaced USASCII characters not indicated on the keycaps. The correspondence between the keys and the characters is shown in Figure 3-3. The terminal's Datacomm Configuration menu must have the "Parity/DataBits" field set to "None/8" (as described on Pages 2-20,21), otherwise the terminal's beeper sounds and no character is generated.

Alternate Line Drawing Character Set

The terminal has an alternate line drawing character set that allows the keyboard's alphanumeric keys to generate lines of varying shape and thickness. The correspondence between the keys and the lines is shown in Figure 3-2. This may be used, for example, to draw forms, tables and illustrations on the screen. See Section 4 for information on the HP 2394A terminal's screen-labeled function key line drawing capability.

The line drawing character set is activated by simultaneously pressing keys **[CTRL]** and uppercase or lowercase **[N]**.

The line drawing character set is deactivated (keys generate alphanumeric characters) by simultaneously pressing keys **[CTRL]** and uppercase or lowercase **[O]**. The line drawing set is automatically deactivated when the cursor enters a new line.

Editing Data

Data displayed on the screen can be corrected in the line or position indicated by the cursor using the keyboard's edit keys (such as [Insert line], [Delete line] and [Delete char]). The key [Insert char] is used to activate/deactivate insert mode, when active the message "Ins Char" appears in the Status Line. (Note in ANSI/EM52 mode, these data editing keys are disabled).

For example, to edit the previous example "William Shakespeare; 1564 - 1616" changing it to "William Shakespeare; born 1564 and died 1616":

- 1) Use the cursor control keys to move the cursor after the semi-colon (;).
- 2) Press the [Insert char] key (the message "Ins Char" appears in the Status Line).
- 3) Enter the word "born", and notice "1564-1616" moves to the right. Move the cursor under the hyphen (-), and press the [Delete char] key to remove the hyphen. Then enter the words "and died". The line should appear as follows: "William Shakespeare; born 1564 and died 1616".
- 4) Press the key [Ins char] again. This switches off the insert character mode and removes the "Ins Char" message from the Status Line.

Data Entry Techniques

Text margins and tabs (similar to those on a typewriter) can be set using the function keys as follows:

- 1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

device control	margins/ tabs/col	service keys	modes				config keys
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

HP 2394A:

device control	margins/ tabs/col	service keys	modes	enhance video	define fields	sketch forms	config keys
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

- 2) Then press key [f2] (now labeled < margins/tabs/col >) to display the labels:

START COLUMN	SET TAB	CLEAR TAB	CLR ALL TABS	LEFT MARGIN	RIGHT MARGIN	CLR ALL MARGINS	TAB= SPACES
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

The margins and tabs can be set as described below.

Margins

The margins are the limits of the line of text; the left margin is the start of a line and the right margin the end of the line. Characters overflowing the right margin automatically appear at the left margin. The terminal automatically beeps when you reach the eighth character position from the right margin (provided the "Bell" field in the Terminal Configuration Menu is set to "ON").

At power-on, the left margin is column 1, and the right margin column 80. You can change these margins as follows:

- 1) To set the left margin, move the cursor across the line to the desired position and press key [f5] (labeled <LEFT MARGIN>).
- 2) To set the right margin, move the column to the desired position to the right of the left margin, then press key [f6] (labeled <RIGHT MARGIN>).

To reset the margins to their power-on value, press key [f7] (<CLR ALL MARGINS>).

(Note in ANSI/EM52 mode, the margin control keys are disabled).

Tabs

Tab stops are reference columns on the screen; for example, a single column of data in a table. Any number of tab stop positions are available (up to 80). The cursor jumps to the next tab stop when the [Tab] key is pressed. The cursor jumps to the previous tab stop when keys [Shift] and [Tab] are simultaneously pressed. Tab stops outside the left or right margin are ignored.

A tab stop is always set in the left margin. Additional stops may be added by moving the cursor across the line to the desired position and pressing <SET TAB> (key [f2]).

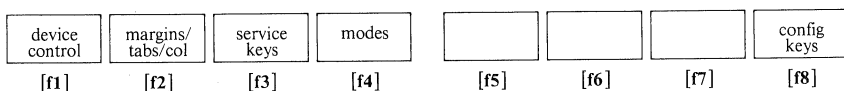
Individual tab stop(s) may be cleared by moving the cursor to the tab stop position, then pressing <CLEAR TAB>. Alternatively, all the tab stops may be cleared (except for the implicit stop at the left margin) by pressing <CLR ALL TABS>. At power-on, all the tab stops set using the <SET TAB> label are cleared, except for the implicit stop in the left margin (column 1 at power on). (Note in ANSI/EM52 mode, tab stops can also be set via the ANSI Configuration Menu).

Memory Lock

Memory Lock provides overflow protection for the display memory, and enables blocks of text to be locked on the screen. This allows text to be relocated on the screen. The memory lock control is accessed as follows:

- 1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:



HP 2394A:

device control	margins/ tabs/col	service keys	modes	enhance video	define fields	sketch forms	config keys
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

2) Then press key [f4] (now labeled <modes>) to display the MODES labels:

LINE MODIFY	MODIFY ALL	BLOCK MODE	REMOTE MODE	SMOOTH SCROLL	MEMORY LOCK	DISPLAY FUNCTNS	AUTO LF
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

Memory Lock can be used as described below.

Overflow Protect

Overflow Protect is used to prevent data loss due to memory overflow. It is enabled by activating Memory Lock in the first line on the screen:

- 1) Use the [▲] key to move the cursor to the first line on the screen.
- 2) Then press key [f6] (labeled <MEMORY LOCK>), and ensure that an asterisk appears in the label (<MEMORY LOCK*>).

Data can then added up to the end of the display memory. At the end of the memory, no additional data can be added; if attempted, the error message “MEMORY FULL Press RETURN to clear” is displayed. Existing data, however, can be modified, provided no new lines or display enhancements are created.

Overflow Protect Mode is disabled by deactivating Memory Lock (pressing [f6] again).

Display Lock

Display lock is used to lock lines of text at the top of the screen (such as column headings in tables) so they do not move when using Roll Up/Down and Home Up/Down. Display lock is enabled by activating Memory Lock below the last line of data that you want to be retained on the screen. This locks all the data between the first line on the screen and the line above the cursor. If new lines are added (below the locked ones) and the screen is full, existing non-locked lines are rolled up under the locked lines and placed in the memory above the locked data. Roll Up/Down and Home Up/Down may be used to move the non-locked lines under the locked ones. Note that edit keys, including [Insert line] and [delete line], can still be used in the locked area but the total number of locked lines remains the same. Therefore when the cursor is in the locked area, inserting a line will push a locked line into the unlocked area, and deleting a line may pull a non-locked line into the locked area.

Display lock can be used to relocate blocks of text on the screen. For example, to correct the order of the following text displayed at the top of the screen.

```
TOP OF SCREEN _____
Line 5  It comes upon me. Art thou anything?
Line 1  *** Enter the ghost of Caesar ***
Line 2  How ill this taper burns! Ha! Who comes here?
Line 3  I think it is the weakness of mine eyes
Line 4  that shapes this monstrous apparition.
```

To move "line 5" to the last position:

- 1) Press the [▷] key, ensure the text is at the top of the screen.
- 2) Position the cursor in "line 1" (i.e. after "line 5").
- 3) Activate memory lock by pressing key [f6] (labeled <MEMORY LOCK>); ensure an asterisk appears in the label <MEMORY LOCK*>. This locks "line 5" on the screen.
- 4) Use [Shift] [▲] to roll up lines 1, 2, 3 and 4 under line 5 and off the top of the screen.
- 5) Deactivate memory lock (repress key [f6]) and ensure the asterisk disappears from the label <MEMORY LOCK>.
- 6) Press the [▷] key, the text should then be displayed as follows:

```
TOP OF SCREEN _____
Line 1  *** Enter the ghost of Caesar ***
Line 2  How ill this taper burns! Ha! Who comes here?
Line 3  I think it is the weakness of mine eyes
Line 4  that shapes this monstrous apparition.
Line 5  It comes upon me. Art thou anything?
```

Reset

The [Reset Break] key pressed on its own = BREAK, pressed with [Shift] = SOFT RESET, pressed with [Shift] and [CTRL] = HARD RESET.

- In Local Mode BREAK has no action.
- A SOFT RESET of the terminal unlocks the keyboard, etc. (see Section 3).
- A HARD RESET is equivalent to power-on, except that a terminal self test is not performed. (The user-defined keys/labels retain their preset values. They are reset to their default values by a hard reset from the computer).

USING THE TERMINAL WITH A COMPUTER (on-line)

When in Remote Mode, the terminal can be used with a (remote) computer. Data entered on the keyboard can be sent to a computer for processing, and data from the computer can be displayed on the screen and/or sent to an external printer. This is also known as on-line operations.

The terminal can be connected to the computer system directly, through a modem (across telephone lines) or through a cluster controller. Since the terminal can only receive data from one device, only one computer at a time can be connected to the terminal.

Preparing The Terminal For Use With A Computer

To use the terminal with a computer, you must configure the terminal and the terminal-to-computer data communications, as well as set the terminal to Remote Mode. This may be done as described below.

Configuring The Terminal

The terminal must be configured to operate correctly, this can be done as described on Pages 2-11, 2-12, 2-13. Contact your EDP department for a list of the terminal configuration parameter values required for your application. Typical parameters to check are:

- 1) Datacomm/ExtDev – in terminals with two ports, this parameter selects which port is used by the computer (datacomm) and which by the external device.
- 2) Keyboard – should be set to select the keyboard used.
- 3) Language – should be used to select the labels/error message language.
- 4) CapsLock – may be used if the computer cannot accept lower case letters (USASCII keyboard only). That is, the terminal generates only teletype-compatible codes.
- 5) LocalEcho – should be selected in Character Mode if the computer does not perform a remote echo.
- 6) Line/Page – should be used in Block Mode to select the block size.
- 7) TermMode – used to select the terminal's operating mode. The normal setting should be "HP", which allows the terminal to operate with an HP computer as described in this manual. (If "ANSI" or "EM52" mode are selected, refer to Section 7.)

For the remaining parameters, in most cases the default values should be valid.

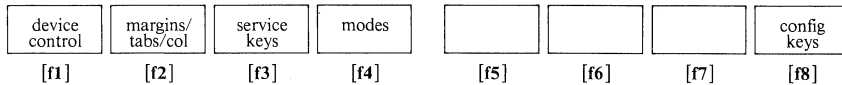
Configuring The Terminal-to-computer Communications

The terminal-to-computer communication parameters must be configured for the terminal to correctly transmit/receive data. This must be done initially from the keyboard. Once set, provided the computer is not changed, the configuration does not require changing (even if the terminal is switched OFF then ON).

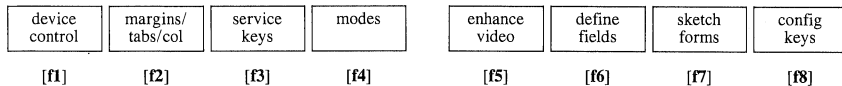
Contact your EDP department for a list of the datacomm configuration parameter values required for your application. In most cases, you will find that the terminal's pre-defined default values are valid. However, if required, the parameters can be changed as described below. This should only be done when the terminal is off-line, and before trying to log onto the computer.

1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

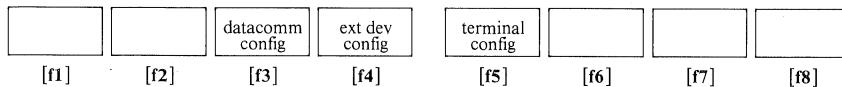


HP 2394A:



< device control > is only displayed if the terminal has a second port

2) Then press key [f8] (now labeled < config keys >) to display the main configuration labels:



< ext device config > is only displayed if the terminal has a second port

3) Press key [f3] (now labeled < datacomm config >) to display the datacomm configuration menu and the datacomm configuration labels (see Figure 2-6).

4) To alter any of the parameters contained in the menu, place the cursor at the start of the selected parameter field (using the [Tab] or cursor control keys), then use key [f2] (<NEXT CHOICE>) or [f3] (<PREVIOUS CHOICE>) to display the desired value. Among parameters that can be selected, the most important are:

- a) BaudRate – selects the communications speed.
- b) Parity/DataBits – allows data checking. The value should normally be “None/8”.

Press key [f1] (<SAVE CONFIG>) to store the value in the terminal's non-volatile memory (this causes the SYSTEM labels to be displayed). For further details, refer to Section 5.

DATACOMM CONFIGURATION							
BaudRate	<input type="text" value="2400"/>	*	Parity/DataBits	<input type="text" value="None/8"/>		EnqAck	<input type="text" value="YES"/>
Asterisk	<input type="text" value="OFF"/>		Chk Parity	<input type="text" value="NO"/>	SR (CH)	<input type="text" value="LO"/>	
RecvPace	<input type="text" value="None"/>					CS (CB) Xmit	<input type="text" value="NO"/>
XmitPace	<input type="text" value="None"/>						
Note: With a current loop datacomm module, parameter "CS (CB) Xmit" should be set to "NO".							
HP 2392A Datacomm Configuration Menu Labels							
<input type="text" value="SAVE CONFIG"/>	<input type="text" value="NEXT CHOICE"/>	<input type="text" value="PREVIOUS CHOICE"/>	<input type="text" value="DEFAULT VALUES"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="DISPLAY FUNCTNS"/>	<input type="text" value="config keys"/>
HP 2394A Datacomm Configuration Menu Labels							
<input type="text" value="SAVE CONFIG"/>	<input type="text" value="NEXT CHOICE"/>	<input type="text" value="PREVIOUS CHOICE"/>	<input type="text" value="DEFAULT VALUES"/>	<input type="text" value="POWERON VALUES"/>	<input type="text" value="ACTIVE VALUES"/>	<input type="text" value="DISPLAY FUNCTNS"/>	<input type="text" value="config keys"/>

Figure 2-6. Datacomm Configuration Menu Labels (Default Values)

Selecting The Terminal Operating Modes

The terminal can be operated in several modes when connected to a computer. These modes are controlled by the function keys as follows:

- 1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

<input type="text" value="device control"/>	<input type="text" value="margins/tabs/col"/>	<input type="text" value="service keys"/>	<input type="text" value="modes"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="config keys"/>
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

HP 2394A:

<input type="text" value="device control"/>	<input type="text" value="margins/tabs/col"/>	<input type="text" value="service keys"/>	<input type="text" value="modes"/>	<input type="text" value="enhance video"/>	<input type="text" value="define fields"/>	<input type="text" value="sketch forms"/>	<input type="text" value="config keys"/>
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

* The default baud rate in the HP 2394A terminal is 9600.

2) Then press key [f4] (now labeled <modes>) to display the MODES labels:

LINE MODIFY	MODIFY ALL	BLOCK MODE	REMOTE MODE	SMOOTH SCROLL	MEMORY LOCK	DISPLAY FUNCTNS	AUTO LF
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

REMOTE MODE, BLOCK/CHARACTER MODE and AUTO LF (automatic line feed) can now be selected.

Remote. For the terminal to operate with a computer, Remote Mode must be selected. Use key [f4] (labeled <REMOTE MODE>). When Remote Mode is selected an asterisk appears in the label (<REMOTE MODE*>).

Block mode. Key [f3] (labeled <BLOCK MODE>) is used to select whether data is sent to the computer in blocks of characters (Block Mode) or character-by-character as they are typed (Character Mode). The setting must conform to the computer program. When Block Mode is selected an asterisk appears in the label (<BLOCK MODE*>). When Character Mode is selected the asterisk is removed.

When in Block Mode, the size of the block transmitted to the computer (line or page(s)) must be selected using the Terminal Configuration Menu (see Page 2-12, 13).

Auto LF. Key [f8] (labeled <AUTO LF>) selects whether or not a line feed is generated with every carriage return (such as when the [Return] key is pressed). When you select automatic line feed, an asterisk appears in the label (<AUTO LF*>). When you deactivate automatic line feed, the asterisk is removed. When communicating with a computer in Character Mode, automatic line feed should normally be deactivated.

Record Mode

Record Mode is only accessible from the keyboard on terminals equipped with two ports. This mode allows data to be transferred from the computer to the destination ("to") device in blocks of up to 256 characters. The destination can be the screen and/or the external device. All keyboard data entries are disabled while the terminal is operating in Record Mode.

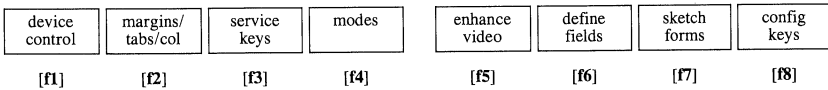
To use this mode, first select the "to" device(s) and then select Record Mode as follows:

1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

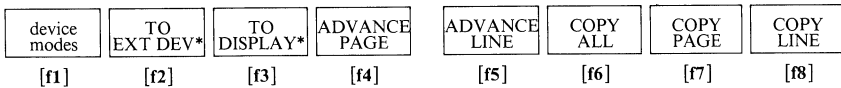
device control	margins/ tabs/col	service keys	modes				config keys
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

HP 2394A:



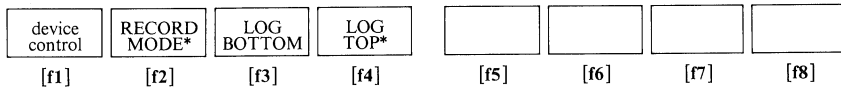
<device control> is only displayed if the terminal has a second port

2) Then press key [f1] (now labeled <device control>) to display the device control labels:



3) Select the destination by using keys [f2] (<TO EXT DEV>) and [f3] (<TO DISPLAY>); either or both may be activated.

4) Then press key [f1] (<device modes>) to display the labels:



5) Press key [f2] and ensure an asterisk appears in the label (<RECORD MODE*>). While in Record Mode, the keyboard is disabled except for the [Shift], [CTRL] and [Reset Break] keys, and <RECORD MODE> label (key [f2]). Pressing [f2] again terminates Record Mode.

If data logging or data copying operations are required, refer to Page 2-30 for details.

If A Modem Or Cluster Controller Is Used

If a modem or cluster controller is used, it may be necessary to turn it on and configure it (refer to the manufacturer's instructions). The data transmission speed and parity setting should be the same as the terminal's. The terminal's settings may be observed by displaying the Datacomm Configuration Menu (Figure 2-7).

Receiving Data From A Computer

No special action is required to receive data from a computer, other than setting the terminal to Block Mode or Character Mode, making sure that the port is correctly configured, and assigning the correct destination for data. If a printer is used, refer to Page 2-27.

Sending Data To The Computer

Data can be sent from the keyboard to the computer in either Block Mode or Character Mode.

Block Mode

In Block Mode, data entered on the keyboard is displayed on the screen and stored in the terminal until the [Enter] or [Print Enter] key is pressed. A copy of the data is then transmitted as a block. The block size can be either a line or page(s), and is selected in the Terminal Configuration Menu.

Character Mode

Normal operations. In Character Mode, each character is sent to the computer as it is typed on the keyboard. The "LocalEcho" field in the Terminal Configuration Menu selects if the typed data is displayed directly it is entered (local echo) or as a re-transmission from the computer (remote echo). Pressing the [Return] key informs the computer that the transfer is finished (terminated). The [Enter] key may also be used to terminate a transfer. Its use, however, depends on the computer program. This is because pressing [Enter] retransmits the current line, and if the "InhHndShk (G)" and "InhDC2 (H)" fields in the Terminal Configuration Menu are set to "YES" and "NO" respectively the handshake is activated. See the Reference Manual for details.

Modify mode. When operating in Character Mode, two modify modes are available for editing a line of data displayed on the screen and re-transmitting it to the computer. These two modes are called Line Modify and Modify All, and are activated as follows:

- 1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

device control	margins/ tabs/col	service keys	modes				config keys
[f1]	[f2]	[f2]	[f4]	[f5]	[f6]	[f7]	[f8]

HP 2394A:

device control	margins/ tabs/col	service keys	modes	enhance video	define fields	sketch forms	config key
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

- 2) Then press key [f4] (now labeled < modes >) to display the MODES labels:

LINE MODIFY	MODIFY ALL	BLOCK MODE	REMOTE MODE	SMOOTH SCROLL	MEMORY LOCK	DISPLAY FUNCTNS	AUTO LF
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

Key [f1] controls Line Modify mode. For example, if a line of data sent to the computer contains an error and the computer returns an error message, you need not retype all the data. Instead, simply move the cursor into the line to be corrected, activate Line Modify mode, correct the error, and retransmit the entire line by pressing the [Return] or [Enter] key. This automatically deactivates Line Modify mode.

Key [f2] controls Modify All Mode. Modify All is used in the same way as Line Modify. The one difference is the mode is NOT automatically deactivated when the [Return] or [Enter] key is pressed, but must be deactivated by pressing key [f2] again.

Start column. The terminal automatically sets a logical start-of-text pointer in the leftmost column in which data was entered from the keyboard. In Modify Line and Modify All mode, the transmission starts from this pointer when the [Return] or [Enter] key is pressed. If no pointer exists for the line (such as for a line received from the computer), the transmission starts from the start column defined in the Terminal Configuration Menu. All characters to the left of the start column (such as a computer prompt) are ignored. See the Reference Manual for details.

The start column feature (accessed in the margins/tabs/col labels) may be used to temporarily change the start column. To access the start column feature:

- 1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

device control	margins/tabs/col	service keys	modes				config keys
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

HP 2394A:

device control	margins/tabs/col	service keys	modes	enhance video	define fields	sketch forms	config keys
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

- 2) Then press key [f2] (now labeled < margins/tabs/col >) to display the labels:

START COLUMN	SET TAB	CLEAR TAB	CLR ALL TABS	LEFT MARGIN	RIGHT MARGIN	CLR ALL MARGINS	TAB= SPACES
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

- 3) Move the cursor along the line to the desired start point, then press key [f1] (labeled < START COL >). This temporarily redefines the start column set in the Terminal Configuration Menu. The start column returns to the value set in the Terminal Configuration Menu at power-on or after a hard reset. See to the Reference Manual for further details.

Data Communications Control Keys

The following keys are used when communicating with the computer:

- [Back space]** Moves the cursor one character position backwards along the line. The displayed character remains on the screen. In Character Mode communications, backspace causes the previous entered character to be deleted from the computer file. Consequently, **[Back space]** (not **[◀]**) should normally be used to move the cursor backwards along the line in order to correct an error in data sent to the computer.
- [Print Enter]** Pressed on its own = ENTER, pressed with **[Shift]** = PRINT.
- PRINT copies the data in the display memory to the printer. An error message is displayed if the printer is not set as the "to" device (see Page 2-30).
 - In Remote Mode ENTER triggers a transfer of a copy of the data in display memory to the computer: the current line in Character Mode; the current line or page(s), as configured, in Block Mode.
- [Reset Break]** Pressed on its own = BREAK, pressed with **[Shift]** = SOFT RESET, pressed simultaneously with **[Shift]** and **[CTRL]** = HARD RESET.
- In Remote Mode BREAK interrupts the terminal-to-computer data communications. The computer's response depends on the program; for example, it may cause the computer to exit the current application program and return to the main system program.
 - SOFT and HARD RESET operate the same as for local mode (see Section 3).
- [Return]** Used to return the cursor to the left margin of the line. Also in Character Mode data communications with the computer, used to log onto the computer in order to receive a "user prompt", and to terminate a data transfer to the computer.
- [Select]** Used to indicate to the computer a selected position on the screen; e.g., the start of a form or menu.
- [Stop]** Acts as an ON/OFF toggle switch to temporarily halt (then start) the flow of data from the computer to the screen. This allows received data to be checked in small quantities. When ON, the message "STOP" appears in the Status Line. The Datacomm Configuration Menu must have the "RecvPace" field set to "XON/XOFF" (see Page 2-21, otherwise **[Stop]** has no effect.)

USING THE TERMINAL WITH AN EXTERNAL DEVICE

When the terminal is equipped with a second port, it can be used with an external device (such as a printer).

Preparing The Terminal For Use With A Device

To use the terminal with a device, it is necessary to configure the terminal and the terminal-to-device communication parameters, as well as assign the external device as the “to” device for the keyboard and/or computer data. Contact your EDP department for a list of the configuration parameter values required by your application.

Configuring The Terminal

The terminal must be configured to operate correctly. This may be done as described on Pages 2-11, 12, 13). Use the parameter “Datacomm/ExtDev” to select which port is used by the computer (datacomm) and which by the external device.

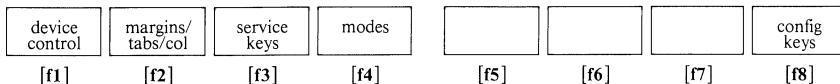
Configuring The Terminal-to-device Communications

The terminal-to-device communication parameters must be configured so that the terminal can correctly transmit data. This must be initially done from the keyboard. Provided the device is not changed, the configuration does not require changing (even if the terminal is switched OFF then ON).

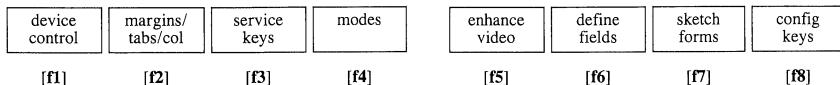
Refer to the external device’s technical documentation for the appropriate configuration parameters. In most cases, you will find that the terminal’s pre-defined default values are valid. However, if required, the parameters can be changed as described below.

- 1) Press the [User System] key to display the SYSTEM labels:

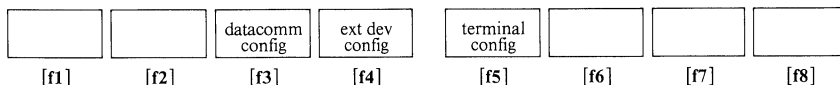
HP 2392A:



HP2394A:



- 2) Then press key [f8] (now labeled <config keys>) to display the main configuration labels:



- 3) Press key [f4] (now labeled <ext dev config>) to display the external device configuration menu and the configuration labels (see figure 2-7). The label is only available on terminals equipped with two ports.

4) To alter any of the parameters contained in the menu, place the cursor at the start of the selected parameter field (using the [Tab] or cursor control keys), then use key [f2] (<NEXT CHOICE>) or [f3] (<PREVIOUS CHOICE>) to display the desired value. Among the parameters that can be selected, the most important are:

- a) BaudRate – this selects the terminal-to-device data transmission rate.
- b) PrinterType – this selects the printer type for the transmission of national characters (see the Reference Manual for details).

Press key [f1] (<SAVE CONFIG>) to store the value in the terminal's non-volatile memory, which causes the SYSTEM labels to be displayed.

EXTERNAL DEVICE CONFIGURATION							
BaudRate	<input type="text" value="2400"/>	Parity/DataBits	<input type="text" value="None/8"/>	PrinterNulls	<input type="text" value="000"/>		
PrinterType	<input type="text" value="ROMAN8"/>						
XmitPace	<input type="text" value="None"/>	SSRXmit	<input type="text" value="NO"/>	SRRInvert	<input type="text" value="NO"/>	CS (CB) Xmit	<input type="text" value="NO"/>

Note: With parallel datacomm module, parameters "SRRXmit" and "CS (CB) Xmit" should be set to "NO".							
HP 2392A External Device Configuration Menu Labels							
<input type="button" value="SAVE CONFIG"/>	<input type="button" value="NEXT CHOICE"/>	<input type="button" value="PREVIOUS CHOICE"/>	<input type="button" value="DEFAULT VALUES"/>	<input type="button" value=""/>	<input type="button" value=""/>	<input type="button" value="DISPLAY FUNCTNS"/>	<input type="button" value="config keys"/>
HP 2394A External Device Configuration Menu Labels							
<input type="button" value="SAVE CONFIG"/>	<input type="button" value="NEXT CHOICE"/>	<input type="button" value="PREVIOUS CHOICE"/>	<input type="button" value="DEFAULT VALUES"/>	<input type="button" value="POWER ON VALUES"/>	<input type="button" value="ACTIVE VALUES"/>	<input type="button" value="DISPLAY FUNCTNS"/>	<input type="button" value="config keys"/>

Figure 2-7. External Device Configuration Menu (Default Values)

Selecting The Device As The Destination

The destination is the "to" device for a data transfer.

In Local Mode, data entered on the keyboard always appears on the screen. Setting the external device as the "to" device allows data to be copied from the screen to the printer as described on Page 2-30 (in Local Mode, setting the display as the "to" device has no effect).

In Remote Mode:

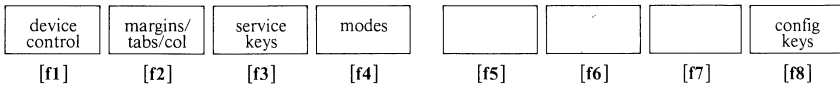
- For a Local Echo, data entered on the keyboard always appears on the screen. Setting the external device as the “to” device allows data to be copied from the screen to the printer as described on Page 2-30.
- For data received from the computer (either as a direct transmission or as a remote echo of a keyboard entry):
 - For normal operations the data appears on the screen, and the external device can be set as the “to” device for data logging (top/bottom) operations.
 - If Record Mode is selected, the display and/or the external device can be selected as the destination. Record Mode only operates for data received from the computer, as described on Pages 2-22 and 2-30.

Note that when logging data in Remote Mode or when using Record Mode, the terminal to computer datacomm must either use a handshake, or a communications speed (baud rate) equal to or less than the baud rate used for the printer (see the Reference Manual).

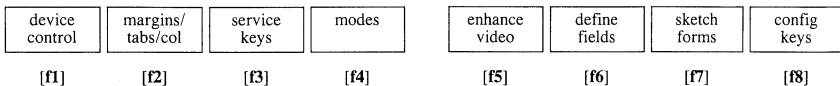
Specify the “to” device as follows:

- 1) Press the [User System] key to display the SYSTEM labels:

HP 2392A:

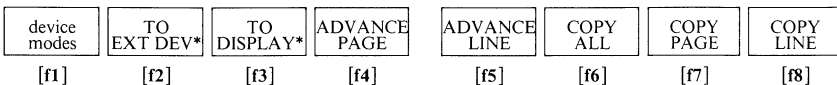


HP 2394A:



<device control> is only displayed if the terminal has a second port.

- 2) Then press key [f1] (now labeled <device control>) to display the labels:

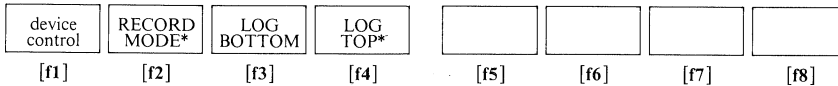


- 3) Select the destination using key [f2] (<TO EXT DEV>) and/or [f3] (<TO DISPLAY>). Either or both may be activated (but <TO DISPLAY> only has an action when using Record Mode).

Logging Data

Data logging causes data entered in the terminal (through the keyboard or received from the computer) to be automatically sent to the “to” device. This is achieved as follows:

- 1) Press key [f1] (<device modes>) to display the labels:



- 2) Press key [f2], [f3] or [f4] to select RECORD MODE or LOG BOTTOM or LOG TOP (ensure an asterisk appears in the label). Pressing the key again deactivates the function. LOG BOTTOM and LOG TOP are mutually exclusive (they cannot both be selected at the same time), so activating top logging automatically deactivates bottom logging (and vice-versa).
 - a) In Record Mode, data is transferred from the computer to the destination devices in blocks of up to 256 characters. While in Record Mode, the keyboard is disabled except for the [CTRL], [Shift], and [Reset Break] keys, and <RECORD MODE> label (key [f2]).
 - b) When the top logging is used, the top line of data contained in the display memory is sent to the device when it is rolled off the top of the memory by new lines being added at the bottom. LOG TOP is inhibited if overflow protect is active (see Page 2-17).
 - c) With log bottom, a line of data is sent to the device when the cursor leaves it to start a new line (e.g. when current line is full, or a line feed is performed when [RETURN] key pressed).

When logging data in the Local Mode, if neither the device nor display is set as the “to” device, the error message: “No “TO” device Press RETURN to clear” is displayed. If only the display is set as the “to” device, the error message: “Source = Destination Press RETURN to clear” is displayed. (A message is not displayed in Remote Mode).

Copying Data

Copying data causes data on the screen to be copied to the device. You can do this using:

- 1) The DEVICE CONTROL labels (see previous page): <ADVANCE PAGE>, <ADVANCE LINE>, <COPY ALL>, <COPY PAGE> and <COPY ALL> can be stopped (at end of current line) by pressing the [Return] key.
- 2) [Print Enter] key – pressed on its own = ENTER, pressed with [Shift] = PRINT. In Local Mode, PRINT or ENTER causes a copy of all the data in the display memory (except any lines locked at top of screen using memory lock, see Page 2-16) to be sent to an external printer. In Remote Mode, PRINT copies the displayed data to the printer, and ENTER triggers a transfer of a copy of the displayed data to the computer. When a configuration menu is displayed (in both Local and Remote Mode), PRINT or ENTER copies the menu to the external printer (when the User Key Definition Menu is displayed the [Print Enter] key operates “normally”, see Section 3).

When data is being copied to an external device, keyboard entries are not executed until the transfer is complete (and only the last eight alphanumeric entries are recorded in memory).

If the external device is not set as the “to” device (and the display is not set as the “to” device) the error message: “No “TO” device Press RETURN to clear” is displayed. If only the display is set as the “to”, the error message: “Source = Destination Press RETURN to clear” is displayed (because the display is automatically the “from” device when copying data). If a second port is not installed, no action is taken.

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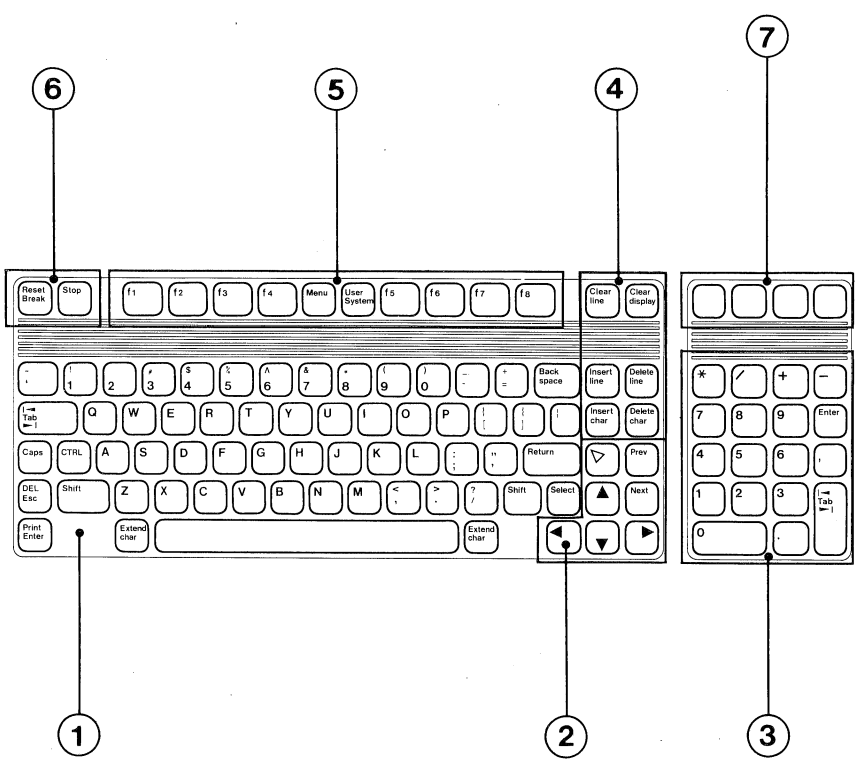
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- 1 = character set group
- 2 = cursor and display control group
- 3 = numeric group
- 4 = edit group
- 5 = function key group
- 6 = terminal control group
- 7 = non-functioning keys

Refer to Figures 3-7 and 3-8 for the English and Canadian keyboards.

Figure 3-1. The Keyboard (American USASCII)

NATIONAL LANGUAGE KEYBOARD OPTIONS

The terminal may be equipped with one of several keyboards – American or national language (the available keyboards are listed in Table 1-1). Each keyboard generates characters from the ROMAN 8 character set. This set of characters includes the 128 standard USASCII characters plus Roman Extension characters (accented characters).

On the American keyboard, the keycaps are marked with the ASCII character, and the keys are arranged in QWERTY order.

On the national keyboards, the keycaps are marked with the national characters (and in the national language), and the alphabetic/symbol keys are arranged in the order normally used by that language. Some ASCII characters (and also some national characters) are displaced; that is the position of certain keys generating the same characters varies from keyboard to keyboard. See Figure 3-6 to 3-22.

The terminal must be configured for the type of keyboard used. In this way, the character indicated on the keycap is the character generated on the screen (see Sections 2 and 5). In addition:

- 1) When the terminal is configured for 7-bit operations, only the characters indicated on the keycaps can be displayed. Other national characters and displaced ASCII characters cannot be accessed via the [Extend char] key.
- 2) When the terminal is configured for 8-bit operations, all the ROMAN 8 characters can be accessed. The Roman Extension and displaced ASCII characters not directly available (not indicated on the keycaps) are accessible using the [Extend char] key.

KEYBOARD FUNCTIONAL GROUPS

Each keyboard has 107 keys. Pressing a key causes the corresponding character to be entered into the terminal, and if a key is continuously pressed the character is repeated. These keys can be divided into six functional groups (see Figure 3-1) which are color-coded on the keyboard (white, light-grey and dark-grey) for ease of use:

- 1) Character Set Group. This group contains keys similar to those on a typewriter – alphabetic keys A to Z, numeric keys 0 to 9, mathematical/commercial signs and control keys such as [Backspace], [Enter] and [Return].
- 2) Cursor and Display Control Group. This group controls the position of the cursor and the movement of the displayed data on the screen (such as roll up).
- 3) Numeric Group. This group forms a numeric key pad for the rapid entry of numeric data.
- 4) Edit Group. This group allows data to be inserted in and deleted from the displayed text.
- 5) Function Keys Group. These keys are used to select the type of information contained in the screen labels (at the bottom of the screen), and access the function indicated by the corresponding label.
- 6) Terminal Control Group. The keys in this group are used to interrupt terminal-to-computer and terminal-to-device communications, and initialize the terminal.

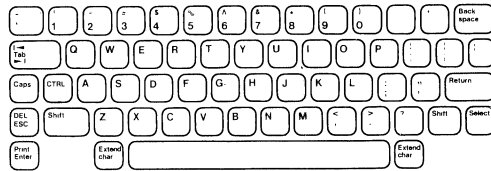
Note the four unmarked keys above the numeric pad are non-functioning keys.

CHARACTER SET GROUP

This is the largest group on the keyboard, comprising 60 keys capable of generating 96 characters; including upper and lower-case alphabetic characters, numeric characters, space, punctuation, and some commercial symbols. Several data control keys are also available. The character indicated on the bottom-half of the keycap is the standard (or base) character generated by the key. The character indicated on the top-half of the keycap is the shifted character.

Displayable Character Keys

The displayable characters include alphanumerics, punctuation and commercial symbols. Pressing a key causes the character indicated on the keycap to be entered into the terminal. A space is entered using the un-marked space bar at the bottom of the keyboard.



The character indicated at the bottom-half of the keycap is entered when the key is pressed on its own. The character indicated on the top-half of the keycap is entered when the key is shifted (simultaneously pressed with **[Shift]**). For the alphabetic keys, the lower-case letter is entered when the key is pressed on its own, and the upper-case letter when the key is shifted. This may be reversed using the **[Caps]** key. The terminal buffers (or “remembers”) your keystrokes, allowing you to type at high speed without losing any characters.

The position of the keys generating the same character varies from keyboard to keyboard. Because of this, if the keyboard is not the same as that set in the Terminal Configuration Menu, the character generated by a key will not correspond to that indicated on the keycap. Any keyboard can be used to generate characters from any national language (provided the “Parity/DataBits” field in the Datacomm Configuration Menu is set to “None/8”) as follows:

- 1) Using the **[Extend char]** key; in which case Figure 3-3 should be consulted to determine the character generated by each key.
- 2) By changing the configured keyboard type; in which case Figures 3-6 to 3-22 should be consulted to ascertain the character generated by each key.

Line-drawing Character Set (HP mode)

The terminal has an alternate line-drawing character set that allows the keyboard’s alphanumeric keys to generate lines of varying thicknesses and angles. This character set may be used, for example, to draw tables and illustrations on the screen, and is also used by the computer to create forms. The correspondence between the alphanumeric characters and the line elements is shown in Figure 3-2. Note that as the position of keys generating the same alphanumeric character varies from keyboard to keyboard, so does the position of line elements. Also, national language characters that do not have a corresponding line element generate a space. See Section 4 for information on the HP 2394A terminal’s screen-labeled function key line drawing capability.

Diacritical Combinations

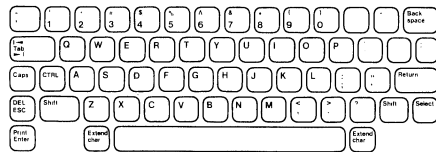
Some national keyboards employ accented characters that do not appear on a keycap but which are formed by combining two characters; normally a diacritic mark plus an alpha character (for example, a circumflex plus a vowel). The terminal handles these characters as follows:

- 1) When a character is typed that corresponds to the first part of a diacritical combination (for the configured keyboard type), it is displayed on the screen and the cursor remains under it.
- 2) When the next character is typed:
 - a) If it is a valid character (one giving a valid diacritical combination) the combination is displayed and the cursor moves to the next character position.
 - b) If it is an invalid character (other than space), it replaces the previously displayed character.
 - c) If it is a space, the first character remains displayed on the screen, and the cursor moves to the next character position.

Table 3-2 lists diacritic marks on all keyboards in 7-bit operations. Table 3-3 lists diacritic marks on all keyboards in 8-bit operations.

Data Control Keys

Several keys are available to control the data displayed on the screen:



[Back space] Moves the cursor one character position backwards along the line, stopping at column 1 (see Page 2-26 for using it with a computer).

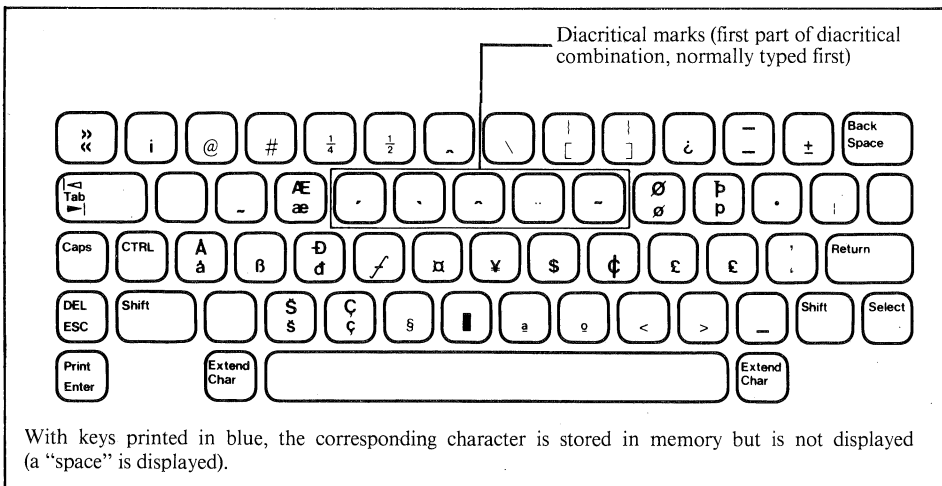


Figure 3-3. Correspondence Between Keys And Extended Characters Accessed Via [Extend char] Key (for all keyboards)

[Caps] Acts as a toggle switch, changing letters A to Z from lower-case to upper-case, and vice-versa (the other keys are not affected). When upper-case is selected, the message "CAPS" is displayed in the Status Line. The **[Shift]** key still remains active; when upper-case is selected using the **[Caps]** key, pressing **[Shift]** causes a shift to lower-case (and vice-versa). At power-on or after a hard reset the **[Caps]** key is de-activated.

Note that when the terminal is configured to use a USASCII keyboard, if the CAPS LOCK feature is selected in the Terminal Configuration Menu, the terminal is permanently set to upper-case (i.e. deactivating the **[Caps]** key); the character set group numeric keys, however, can still be shifted.

[CTRL] The CONTROL key has two functions:

- 1) Pressed simultaneously with an alphanumeric key, it may be used to access a set of "non-displayable" control characters, primarily used for terminal control applications (see the Reference Manual for details). For example **[CTRL]** with **[G]** generates control character BEL, which makes the terminal beep. These control characters can, however, be displayed symbolically when the terminal's Display Function mode is enabled (see Section 4).
- 2) Pressed simultaneously with the **[Shift]** and **[Reset Break]** keys it resets the terminal to the power-on state (see the Terminal Control Group). Pressed with **[Menu]** it displays the User Function Key Definition Menu. Pressed with **[User System]** it sets the function keys as user-defined keys (see the Function Key Group).

[DEL ESC] Pressed on its own = ESC, pressed with **[Shift]** = DEL.

- 1) ESC is used to generate the Escape control character. This character (followed by one or more alphanumeric characters) initiates terminal controls similar to those normally available to the computer; see the Reference Manual for details.
For example, to home up the cursor (left margin of first line), press **[ESC]** and then capital **[H]**.
- 2) DEL is used to generate the Delete character. In Local Mode, this character is displayed as "■". In Remote Mode, the displayed character and its use depends on the application program.

[Print Enter] Pressed on its own = ENTER, pressed with **[Shift]** = PRINT.

- 1) In Local Mode, ENTER or PRINT homes up the cursor (if memory lock is ON, home-up is below the last locked line) and causes a copy of all the data in display memory to be sent to the external printer. If the external device is not set as the "to" device (and the display is not set as the "to" device, see Section 4), an error message is displayed: "No "TO" device Press RETURN to clear", and the keyboard is locked until the **[Return]** (or **[Shift]** **[Reset Break]**) key is pressed. If only the display is set as the "to" device, the error message "Source-Destination Press RETURN to clear" is displayed. If a second port is not installed, no action is taken.
- 2) In Remote Mode, ENTER triggers a transfer of a copy of the displayed data to the computer; in Character Mode the current line, in Block Mode the current line or all the pages in memory, as configured (see Section 5).

If a computer is not connected: in Character Mode no action is taken; in Block Mode the keyboard may be locked (depending on the handshake, see the Reference Manual), and can be un-locked by pressing the [Shift] [Reset Break] keys.

PRINT homes up the cursor and copies all the data in display memory to the printer; if the printer is not set as the "to" device an error message is displayed (the same as for Local Mode). The <device control> screen labels also control the transfer of data to the printer (see Section 4).

- 3) When a Terminal/Datacomm/External Device Configuration Menu is displayed (in both Local and Remote Mode), ENTER or PRINT copies the menu to the printer. When the User Function Key Definition Menu is displayed, ENTER (in Remote Mode) sends a copy of the data in the mode, label and key fields to the computer; in Character Mode the current key, in Block Mode the current key or all keys, as configured. PRINT (or ENTER in Local Mode) copies all the menu to the printer. An error message is displayed if the printer is not set as the "to" device (the same as for Local Mode).

[Extend char] Used when the terminal is configured for 8-bit operations to "extend" the alphanumeric keys allowing them to access extended characters. That is it provides additional national characters and displaced ASCII characters not indicated on the keycaps. The correspondence between the alphanumeric keys and the extended characters is shown in Figure 3-3.

To generate an extended character, simultaneously press [Extend char] and the relevant alphanumeric key. Note that if the terminal is not configured for 8-bit operations ("None/8" in the Terminal's Datacomm Configuration Menu), the beeper sounds and no extended character is generated. On USASCII keyboard, the beeper also sounds and no extended character is generated if the "CapsLock" field in the Terminal Configuration Menu is set to "YES".

[Return] Normally generates the Carriage Return control character (but this may be changed using the Terminal's Configuration Menu, see Section 5). The Carriage Return character causes the cursor to be re-positioned in the left margin of the current line. In addition:

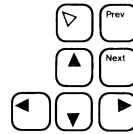
- 1) It stops a local copy all/copy page data transfer (at end of current line) to an external device.
- 2) If automatic line feed is enabled (see Page 2-22 and Section 4), the cursor is repositioned in the left margin of the next line.
- 3) In Remote Mode using Character Mode communications, the Carriage Return character may also be used to terminate the data transmission. However, automatic line feed should be disabled as the computer normally generates the line feed character.

[Select] Used to transmit the characters "Esc&P" to the computer. How the computer interprets the characters depends on the application program. To use the select feature, move the cursor to the relevant position on the screen then press the [Select] key. (Note in ANSI/EM52 mode the [Select] key is disabled).

[Shift] Acts like the Shift key on a typewriter; when pressed simultaneously with a key, it causes the character indicated on the top-half of the keycap to be entered (this may be reversed on alphabetic keys using the [Caps] key). It can also shift some control keys in order to perform the control indicated in blue on the keycap; i.e. Reset, User, Tabl ◀, DEL, and Print.

- I◀ Pressed on its own = TAB ▶**I**, pressed with **[Shift]** = TAB **I**◀.
- [Tab] 1) The tab stops are set via the margins/tabs/columns screen labels (see Page 2-16 and Section 4), or in ANSI/EM52 mode via the ANSI Configuration Menu.
- ▶I 2) TAB ▶ moves the cursor right to the next tab stop on the current line, or to the left margin in the next line if no tab stop is encountered.
- 3) TAB ◀ moves the cursor to the left to the previous tab stop on the line, or to the left margin of the current line if no tab stop is encountered. If the cursor is currently in the first column, it is moved to the first encountered tab stop in the previous line.
- 4) In “forms mode” (and menus) tab stops are ignored, and the **[Tab]** key moves the cursor from one unprotected field to another (See Page 4-6).*

CURSOR AND DISPLAY CONTROL GROUP



The screen can display 24 adjacent lines from the display memory (see Figure 3-4). This group of keys controls the position of the cursor and the movement of displayed data up and down the screen, and contains the following keys:

- [▽] Pressed on its own = HOME UP, pressed with **[Shift]** = HOME DOWN.
- 1) HOME UP moves the cursor to the left margin of the first “non-locked” line, rolling text down as required. The left margin can be altered using the **< margins/tabs/col >** screen label (see Page 2-16 and Section 4), and the “first non-locked line” is the next free line after those locked using the **< MEMORY LOCK >** label (described in Section 4). In forms mode (and menus) HOME UP moves the cursor to the start of the first unprotected field.
- 2) HOME DOWN moves the cursor to the left margin in line below the last “non-locked” line, rolling text up the screen as required.
- [▲] Pressed on its own = CURSOR UP, pressed with **[Shift]** = ROLL UP.
- 1) CURSOR UP moves the cursor up the screen one line at a time. When the cursor reaches the top of the screen, it re-appears at the bottom.
- 2) ROLL UP scrolls the “non-locked” lines of the display memory up the screen (and under any locked lines) until the last line, which remains displayed at the top of the screen; see Figure 3-4. Lines locked on the screen using the **< MEMORY LOCK >** label cannot be rolled up or down. You can set the terminal to smooth scroll (“even” flow of displayed data) or normal scroll (“jumps” a line at a time) using the **< SMOOTH SCROLL >** screen label (see Section 4).

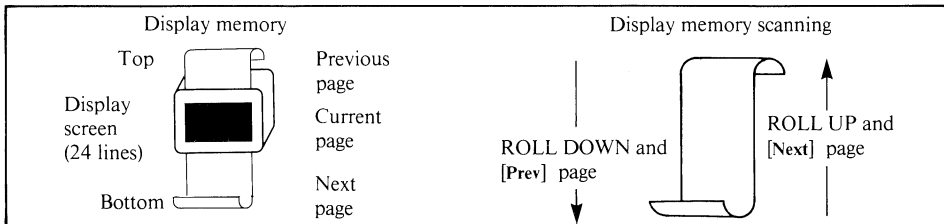


Figure 3-4. Scanning The Display Memory

* NOTE: On the HP 2394A terminal, the tab sequence can be altered. See Section 4 “Format Mode Tab Sequence Control” for more information.

- [▼] Pressed on its own = CURSOR DOWN, pressed with [Shift] = ROLL DOWN.
- 1) CURSOR DOWN moves the cursor down the screen one line at a time. When the cursor reaches the bottom of the screen, it re-appears at the top.
 - 2) ROLL DOWN scrolls the “non-locked” lines of the display memory down the screen. If the first line on the screen is the first line in the memory, no roll down is performed (as the roll down key cannot be used to create new lines at the top of the memory). Lines locked on the screen using the <MEMORY LOCK> label cannot be rolled down. The <SMOOTH SCROLL> screen label sets the terminal to jump scroll or smooth scroll (see Section 4).
- [▶] Moves the cursor to the RIGHT one character position at a time. When the cursor reaches the 80th column (right most) it re-appears in column 1 (left most) of the next line.
- [◀] Moves the cursor to the LEFT. When the cursor reaches column 1 it re-appears in column 80 of the previous line.
- [Next] Scans the display memory forward, causing the currently displayed page (non-locked lines) to be replaced by the NEXT page (see Figure 3-4). Holding the key down repeats the operation until the last line in display memory appears at the top of the screen. Lines locked on screen using <MEMORY LOCK> are not affected.
- [Prev] Causes the PREVIOUS page (non-locked lines) of display memory to be displayed. Holding the key down repeats the operation until the first line of display memory appears at the top of the screen.

NUMERIC GROUP

The numeric keys are at the right-hand side of the keyboard. These keys are arranged to simplify the entry of numeric data, “period” (decimal point), asterisk, slash, plus sign, minus sign (hyphen), comma, the use of tabs, and the [Enter] key.



EDIT GROUP

The edit keys may be used to modify data displayed on the screen. (Note in ANSI/EM52 mode, the [Insert line], [Delete line], [Insert character] and [Delete character] keys are disabled).



- [Clear line] Clears the line from the current cursor position to the end of the line.
- [Clear display] Clears all the display memory (and screen) from the current cursor position to the end of the memory.
- [Insert line] Inserts a new blank line above the current line, and moves the cursor to the left margin of the new line. The line that previously contained the cursor (and subsequent lines) are moved down the screen. When the display memory is full, inserting a new line causes an existing line in the memory to be lost (deleted); this is normally the first line in the memory but if it is being displayed, the last line is lost.

- [Delete line]** Deletes the line containing the cursor, and moves the cursor to the left margin. All subsequent lines are moved up the screen.
- [Insert char]** Toggles ON/OFF insert character mode. When ON, causes the symbol "Ins Char" to be displayed in the Status Line. Entered characters are then inserted in the line at the cursor position (without overwriting existing characters), and the cursor and remaining characters in the line move to the right margin. Characters overflowing the right margin are lost.
- [Delete char]** Deletes the character at the current cursor position, and moves the remaining characters on the line to the left.

TERMINAL CONTROL GROUP



The terminal control keys are used to interrupt terminal-to-computer communications, and initialize the terminal as follows:

- [Stop]** In Remote Mode, acts as an ON/OFF toggle switch to temporarily halt (then start) the flow of data from the terminal's datacomm buffer (data received from the computer) to the screen. This allows received data to be displayed on the screen in short passages for checking purposes. When ON, the symbol "STOP" appears in the Status Line. **[Stop]** has no effect in Local Mode.

NOTE

This key will only operate when the X-ON/X-OFF receive pacing handshake is enabled in the Datacomm Configuration Menu. This prevents a datacomm buffer overflow (as the **[Stop]** key only has a local action). See the Reference Manual for details.

- [Reset Break]** Pressed on its own = BREAK, pressed with **[Shift]** = SOFT RESET, pressed with **[Shift]** and **[CTRL]** = HARD RESET.

- 1) In Local Mode, BREAK has no action. In Remote Mode, BREAK may be used to interrupt the terminal-to-computer data communications (by setting the datacomm to the low state for 200 milliseconds); this is also known as a system BREAK. The computer's response depends on the application program.

NOTE

A system BREAK normally causes the computer to exit the current application program and return to the main program, which may cause loss of data if a data transfer is in progress.

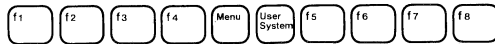
- 2) SOFT RESET makes the terminal beep, unlocks the keyboard, clears any error messages, deactivates Display Function Mode and Record Mode, stops any terminal operations currently in progress, stops datacomm and/or printer data transfers, clears the datacomm buffer, and displays the previous screen labels.

NOTE: If the computer is sending data when you perform a SOFT RESET, some loss of data may occur.

- 3) A HARD RESET is similar to power-on, except that a self test is not performed. It causes a soft reset and clears the display memory (and screen), resets the left/right margin to column 1 and 80 respectively, clears all tab stops set via margins/tabs/col screen label (except implicit stop in left margin), and deactivates: Insert Character Mode, Line Modify Mode, Smooth Scroll, Memory Lock, [Caps] key and top/bottom logging. It also reinitializes the configuration menu parameters to their power-on (saved) setting, and sets the labels to the MODES level. User-defined keys/labels retain their pre-reset values (they are reset to their default values by a hard reset from the computer).

NOTE: In Remote Mode, a HARD RESET causes the loss of the terminal's configuration parameters temporarily set by the host computer. This may cause communication difficulties, the loss of data received from the computer, and interrupt communications.

FUNCTION KEY GROUP



The eight function keys [f1] to [f8] at the top of the keyboard perform the functions indicated by the corresponding labels at the bottom of the screen. [f1] controls the left-most label, and [f8] the right-most. The two function control keys [Menu] and [User System] are used to select the type of information contained in the screen labels. This allows the function keys to be operated as pre-set terminal control keys or user-defined keys.

[User System] Pressed on its own = SYSTEM (function keys as pre-set terminal control keys).
 Pressed with [Shift] or pressed with [CTRL] = USER (function keys as user-defined keys).

- 1) SYSTEM allows access to five sets of function labels, where each set assigns specific terminal controls to the eight labels/function keys (see the labels tree on the inside of the rear cover). Pressing [User System] returns the labels to primary level (SYSTEM), which are:
 - <device control> - used to control an external printer (only displayed if terminal equipped with second port).
 - <margins/tabs/col> - used to control screen margins, tabs and the start column.
 - <service keys> - used to test the terminal.
 - <modes> - used to access terminal control modes.
 - <config keys> - used to configure the terminal.

Pressing a function key ([f1] to [f8]) selects the function indicated by the associated label. The screen labels that are in lower-case letters are used to access a sub-set of labels. The screen labels in CAPITAL letters are used to control the function indicated by the label. The function key toggles the specified function ON and OFF. When a function is ON an asterisk (*) appears in the associated label. For more detailed information on the pre-set controls, refer to Section 4.

NOTE: The HP 2394A terminal has three additional main label sets. These sets are:

- <enhance video> - used to enable the display enhancements
- <define fields> - used to control the selection of the different field types
- <sketch forms> - used to draw forms

- 2) USER causes the function keys to operate as defined in the User Function Key Definition Menu (described in the [Menu] key below). The screen labels contain the information defined by the user, and the function keys generate (in the current line) the characters defined by the user.

[Menu]

Pressed on its own = toggle ON/OFF the screen labels and Status Line and set function keys as user-defined keys, pressed with [CTRL] = User Function Key Definition Menu.

- 1) Pressing [Menu] once switches OFF the screen labels and Status Line, and sets the function keys to operate as user defined keys (see (2) below). Pressing the [Menu] key again switches ON the Status Line and the user-defined screen labels (and leaves the keys operating as user-defined keys). This is equivalent to pressing [Shift] [User System] or [CTRL] [User System].
- 2) The User Function Key Definition Menu lets you specify the information contained in the screen labels and function keys. This allows you to enter frequently used data with only one keystroke. By default, the user-defined labels are <f1> to <f8>, and the function keys generate and transmit characters Esc p to Esc w. To change a parameter, simply display the menu (see Figure 3-5), then place the cursor in the relevant portion of the screen and make the desired change using:

- Menu labels <NEXT CHOICE> and <PREVIOUS CHOICE> when the cursor is in the first “operating mode” field to select how the data contained in the key is to be treated:

L = Locally executed on the terminal.

T = Transmitted to the computer. The data is automatically “terminated”; that is, it acts as if you also pressed the [Return] key (in Character Mode) or [Enter] key (in Block Mode). The data is only displayed if echoed by the computer.

N = Normal (acts as if the data was entered from the keyboard). In Remote Mode you must terminate the data using the [Return] or [Enter] key. If required, in Character Mode a “Cr” character may be appended to the data to automatically terminate it.

- The keyboard’s alphanumeric keys to specify the content of the labels, in two lines of up to 8 characters (i.e. up to 16 characters per label); and the data contained in the function key, up to 80 characters per key. For these fields, the menu label <DISPLAY FUNCTIONS> allows terminal control characters to be entered (and displayed symbolically). Consequently, alphanumeric characters, control characters and escape sequences can be included. However, when the menu is displayed the alternate character set and display enhancements are inhibited (e.g. a line element cannot be displayed in the menu). Note that the [Print Enter] key operates “normally” (even when DISPLAY FUNCTIONS is on), which allows the menu to be printed on the external device, see Page 3-8.
- Menu label <DEFAULT VALUES> to return all the labels and function keys to their default setting (regardless of the cursor position), and moves cursor to the first “operation mode” field.

Exit the menu using the [User System] or [Menu] key. The definitions (defined locally or from the computer) are automatically retained in the terminal’s non-volatile memory, and are saved after the terminal is powered OFF/ON

or a hard reset is performed locally. The definitions are replaced by the default values after a hard reset from the computer.

NOTE: When the User Function Key Definition Menu is displayed, all the keys operate “locally” (except [Shift], [Print Enter], [Reset Break] and [Stop] which operate “normally”). Note that the edit operation of the [Insert char], [Delete char] and [Clear line] keys only affects the field containing the cursor (the text movement/editing operation of the [Next], [Prev], [Insert Line], [Delete line] and [Clear Display] keys is inhibited). In addition, locally entered data and Escape sequences are processed, but incoming displayable data (from the computer) causes the screen to return to normal operations and the data to be displayed.

For example, to set label <f7> to

A play

 and to set function key [f7] to locally generate the text “Julius Caesar – play by William Shakespeare written circa 1599”: press keys [CTRL] and [Menu] (to display the User Function Key Definition Menu). Enter the data in the menu and set key [f7] to local operation as shown in Figure 3-5. To use the key/label definition, press keys [Shift] [User System] (to display the user labels), and note that label <f7> is marked “A play”. Then press key [f7] to display, in the current line, the text “Julius Caesar...”.

Press keys [CTRL] and [Menu] to display the User Function Key Definition Menu

Function key	Operation mode (L, T or N)	Top line of label (maximum 8 characters)	Bottom line of label (maximum 8 characters)
f1 Esc p	T	LABEL	<input style="width: 100px; height: 20px;" type="text"/>
f2 Esc q	T	LABEL	<input style="width: 100px; height: 20px;" type="text"/>
f3 Esc r	T	LABEL	<input style="width: 100px; height: 20px;" type="text"/>
f4 Esc s	T	LABEL	<input style="width: 100px; height: 20px;" type="text"/>
f5 Esc t	T	LABEL	<input style="width: 100px; height: 20px;" type="text"/>
f6 Esc u	T	LABEL	<input style="width: 100px; height: 20px;" type="text"/>
f7 Esc v	L	LABEL	<input style="width: 100px; height: 20px; text-align: center;"/> A <input style="width: 100px; height: 20px; text-align: center;"/> play
Julius Caesar – play by William Shakespeare written circa 1599			
f8 Esc w	T	LABEL	<input style="width: 100px; height: 20px;" type="text"/>

User function key definition menu labels

	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT VALUES			DISPLAY FUNCTNS	
--	-------------	-----------------	----------------	--	--	-----------------	--

Figure 3-5. User Function Key Definition Menu

The HP 2394A terminal offers 8 user-definable function key definitions **plus** the 8 permanent definitions (the default values). To invoke default definitions, pressing [SHIFT] [f1] to [SHIFT] [f8].

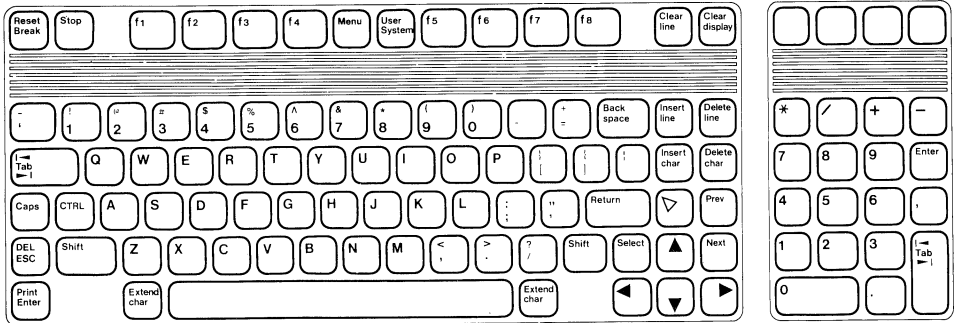


Figure 3-6. American USASCII Keyboard (standard) "USASCII"

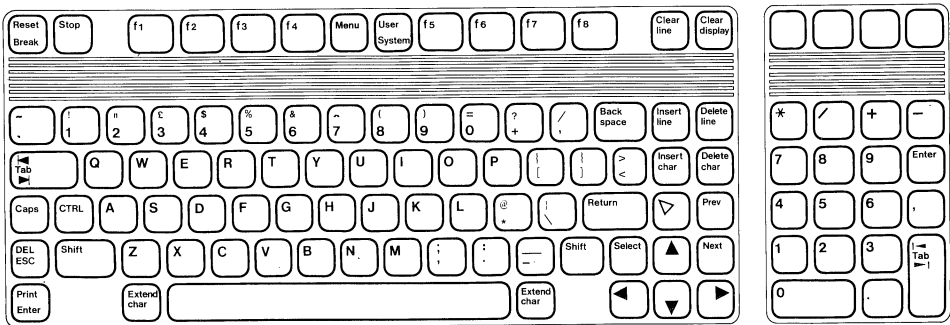


Figure 3-7. English (UK) Keyboard (option 105) "UK"

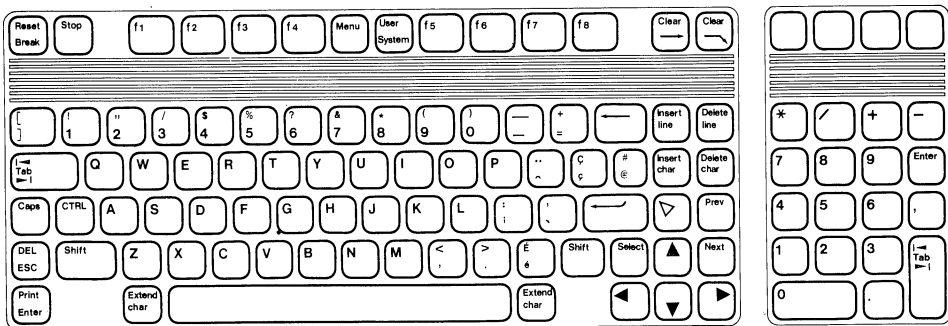


Figure 3-8. Canadian (English) Keyboard (option 108) "ENGLISH CANADIAN"

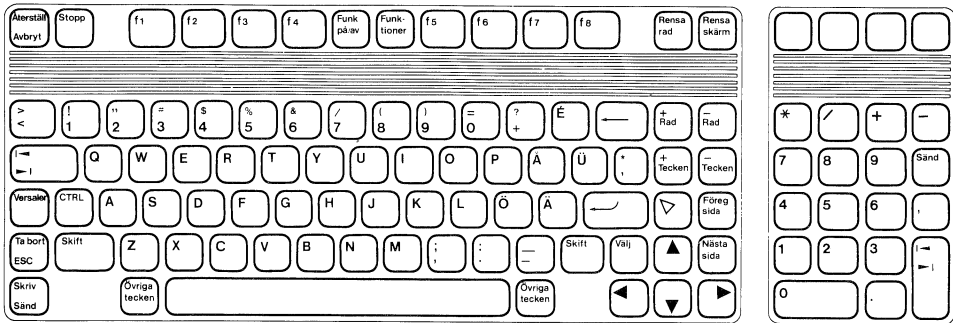


Figure 3-9. Swedish Keyboard (option 101) "SVENSK"

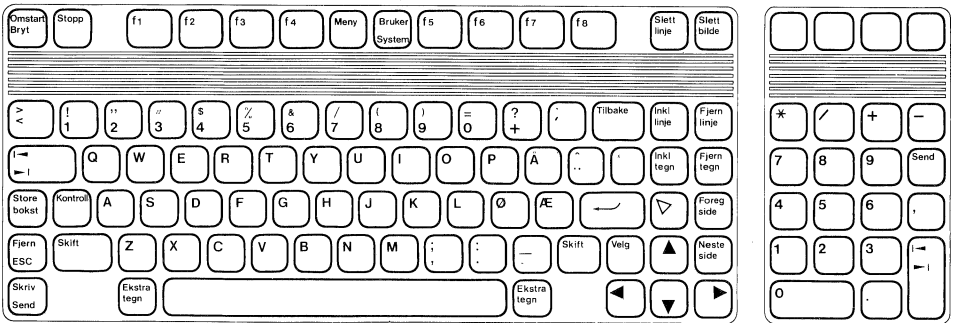


Figure 3-10. Norwegian Keyboard (option 102) "NORSK"

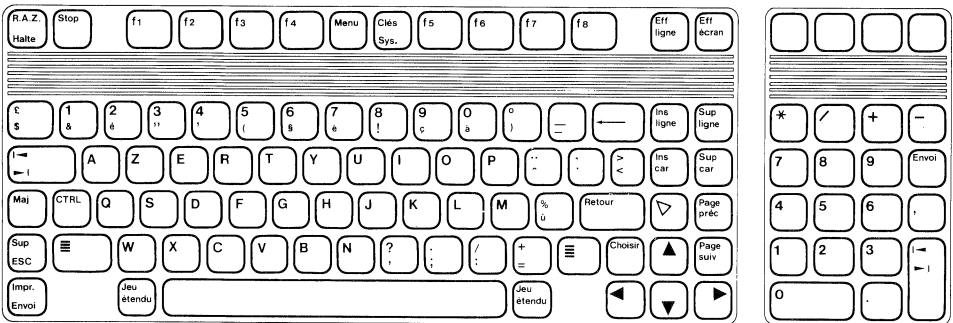


Figure 3-11. French Keyboard (option 103) "FRANÇAIS"

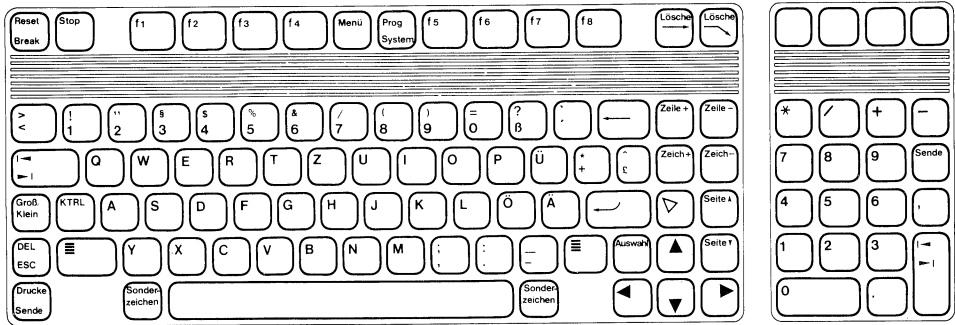


Figure 3-12. German Keyboard (option 104) "DEUTSCH"

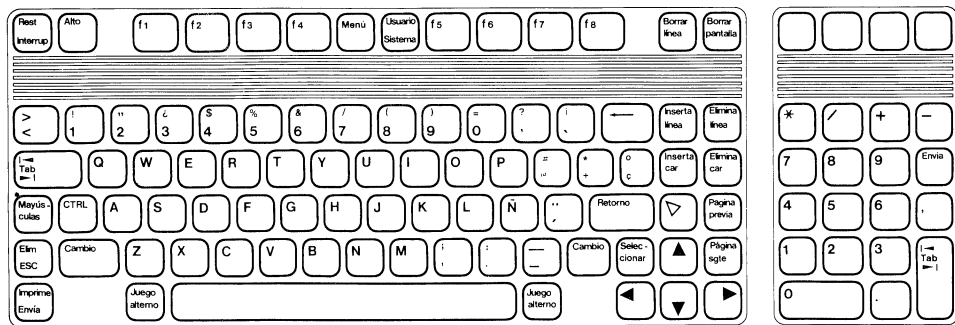


Figure 3-13. Spanish (European) Keyboard (option 106) "ESPAÑOL EUR."

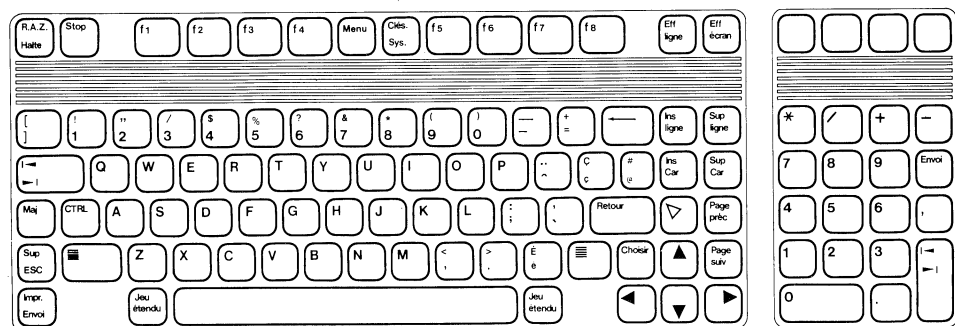


Figure 3-14. Canadian (French) Keyboard (option 107) "CANADIEN FRANÇAIS"

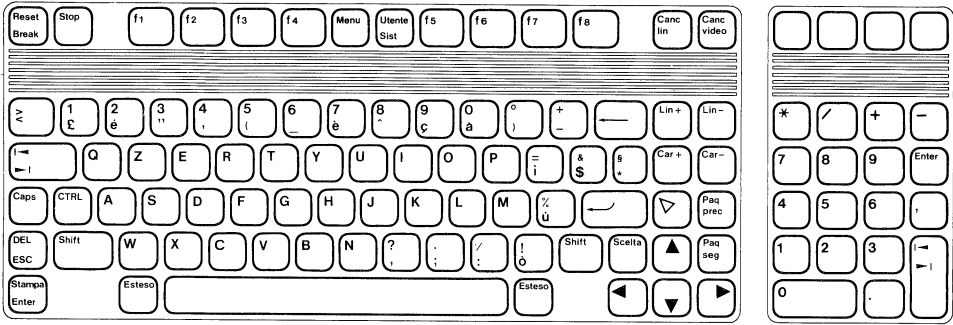


Figure 3-15. Italian Keyboard (option 109) "ITALIANA"

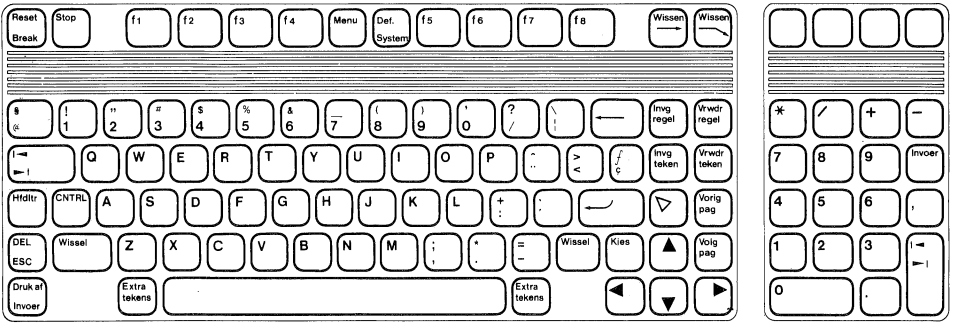


Figure 3-16. Dutch Keyboard (option 110) "NEDERLANDS"

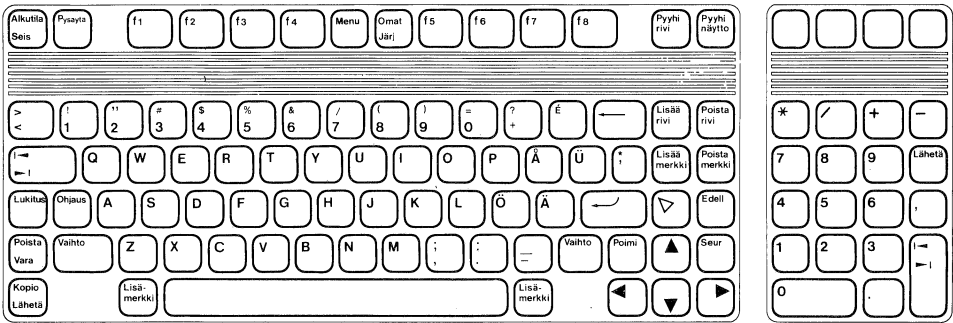


Figure 3-17. Finnish Keyboard (option 111) "SUOMI"

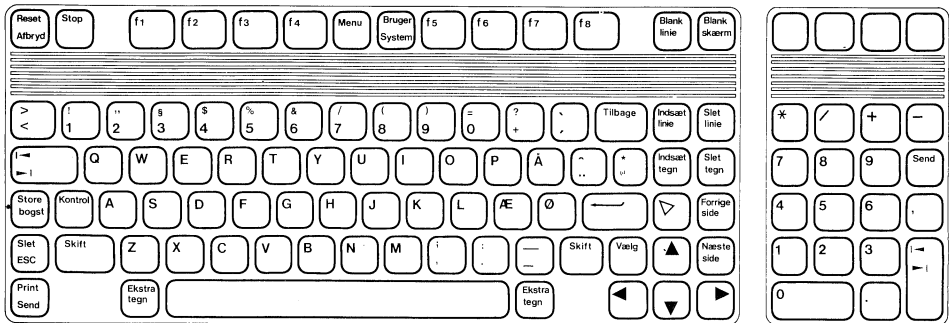


Figure 3-18. Danish Keyboard (option 112) "DANSK"

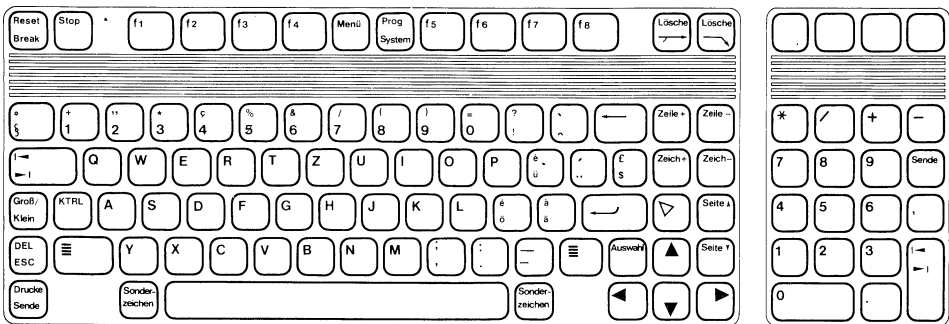


Figure 3-19. Swiss (German) Keyboard (option 113) "SCHWEIZ-DEUTSCH"

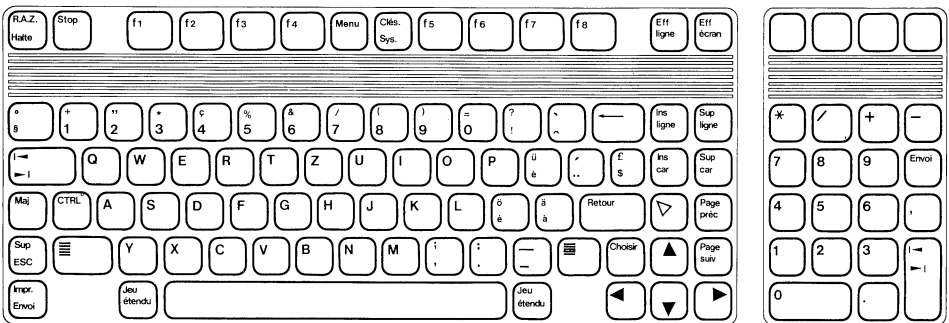


Figure 3-20. Swiss (French) Keyboard (option 114) "SUISSE ROMAND"

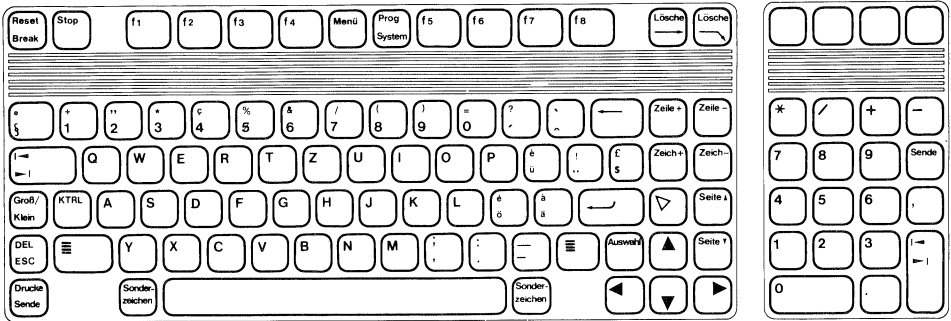


Figure 3-21. Swiss (German)* Keyboard (option 113) "SCHWEIZ-DEUTSCH*"

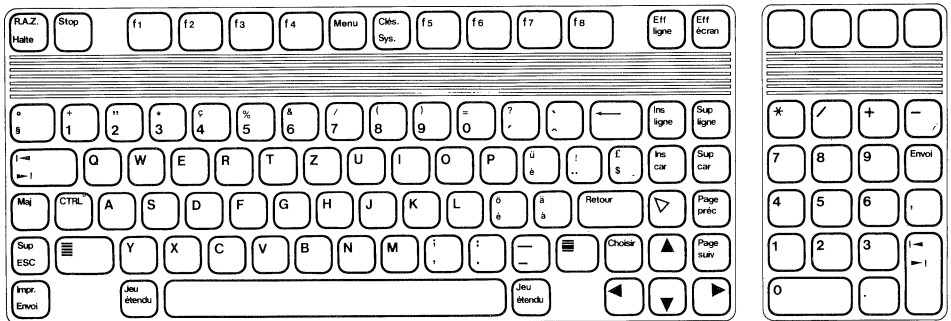


Figure 3-22. Swiss (French)* Keyboard (option 114) "SUISSE ROMAND*"

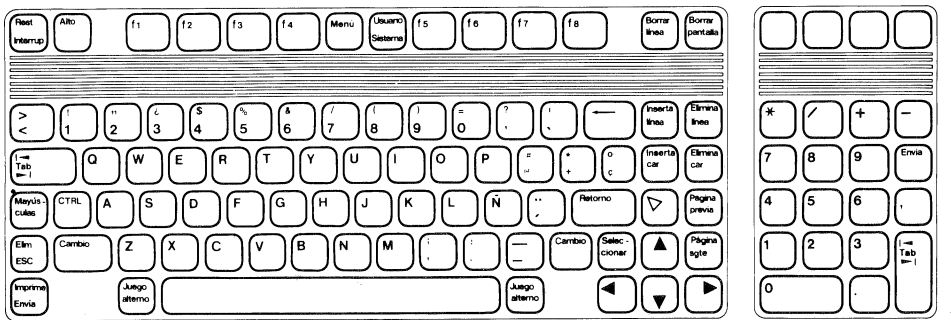


Figure 3-23. Spanish (Latin American) Keyboard (option 115) "ESPAÑOL LAT."

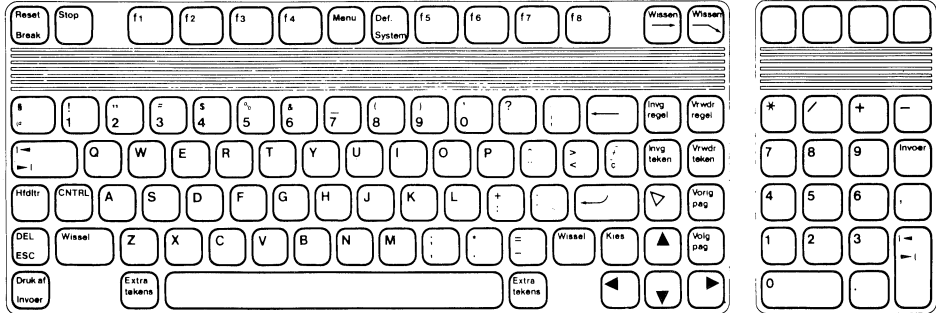


Figure 3-24. Flemish Keyboard (option 116) "VLAAMS"

Table 3-2 lists the USASCII characters replaced by national characters on the national keyboards. Note that when the terminal is configured for 7-bit operations (that is the "Parity/DataBits" field in the Datacomm Configuration Menu set to one parity bit and seven data bits), these national characters should be used to access the indicated line drawing elements. However,

Table 3-2. USASCII Characters Replaced By National Characters On National Keyboards (7-bit operations)

KEYBOARDS	CHARACTERS													
	#	'	<	>	@	[\]	^	'	{		}	~
USASCII	#	'	<	>	@	[\]	^	'	{		}	~
Danish	§	'	<	>	@	Æ	Ø	Å	^	'	æ	ø	å	..
Dutch	#	'	<	>	@	ç	\	§	^	'	f		'	..
Finnish	#	'	<	>	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Flemish and French	£	'	<	>	à	°	ç	§	^	'	é	ù	è	..†
English Canadian and French Canadian	#	'	<	>	@	[ç]	^	'	é	Ç	É	..
Swiss French and Swiss German	£	'	é	è	à	°	ç	§	^	'	ä	ö	ü	..
Swiss French* and Swiss German*	£	'	é	è	à	°	ç	§	^	'	ä	ö	ü	..
German	£	'	<	>	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß
Italian	£	'	<	>	§	°	ç	é	^	ù	à	ò	è	ì
Norwegian	#	'	<	>	@	Æ	Ø	Å	^	'	æ	ø	å	..
European Spanish	#	'†	<	>	@	í	Ñ	¿	°	'†	'	ñ	ç	..†
Latin Spanish	#	'†	<	>	@	í	Ñ	¿	^	'	'	ñ	ç	..†
Swedish	#	'	<	>	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
U.K.	£	'	<	>	@	[\]	^	'	{		}	~
Line Drawing Elements	T	T̄	#	≠	F	=	..	ll	.	F	=	..	ll	.

Note: In 7-bit operations, characters marked by a "†" are diacritical marks. (See Table 3-3 for diacritical marks in 8-bit operations).

when the terminal is configured for 8-bit operations (that is the “Parity/DataBits” field set to “None/8”), the USASCII characters shown in Figure 3-2 must be used to access the line drawing elements; USASCII characters that do not appear on the keyboard must be accessed using the [Extend char] key (see Figure 3-3).

Table 3-3. Diacritical Marks In 8-bit Operation

KEYBOARDS	DIACRITIC MARKS
USASCII	None
Danish	ˆ ˘ ˙ ˚
Dutch	ˆ ˘ ˙ ˚
Finnish	None
Flemish and French	ˆ ˘ ˙ ˚
English Canadian and French Canadian	ˆ ˘ ˙ ˚
Swiss French and Swiss German	ˆ ˘ ˙ ˚
Swiss French* and Swiss German*	ˆ ˘ ˙ ˚
German	None
Italian	ˆ
Norwegian	ˆ ˘ ˙ ˚
European Spanish	ˆ ˘ ˙ ˚
Latin Spanish	ˆ ˘ ˙ ˚
Swedish	None
U. K.	None
[Extend char] Key	ˆ ˘ ˙ ˚ ˛



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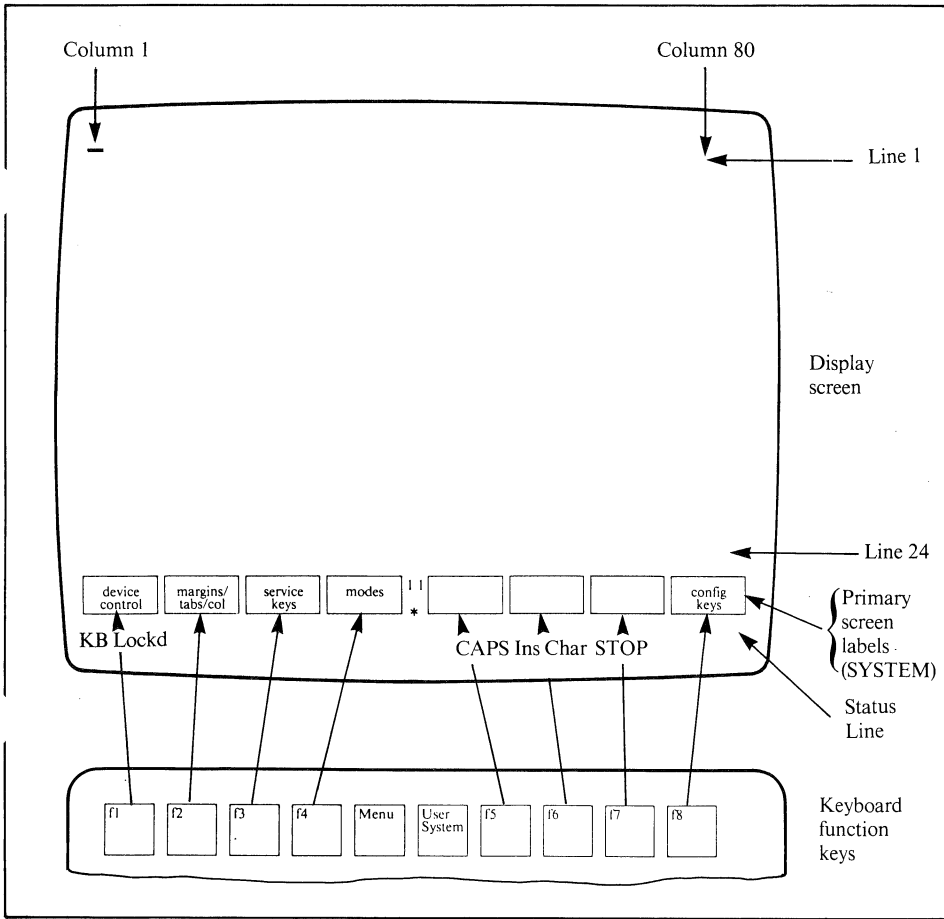


Figure 4-1. The Screen Of The HP 2392A

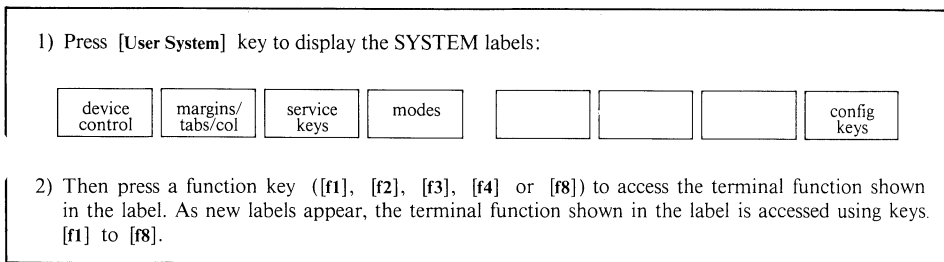


Figure 4-2. How To Use The Screen Labels Of The HP 2392A

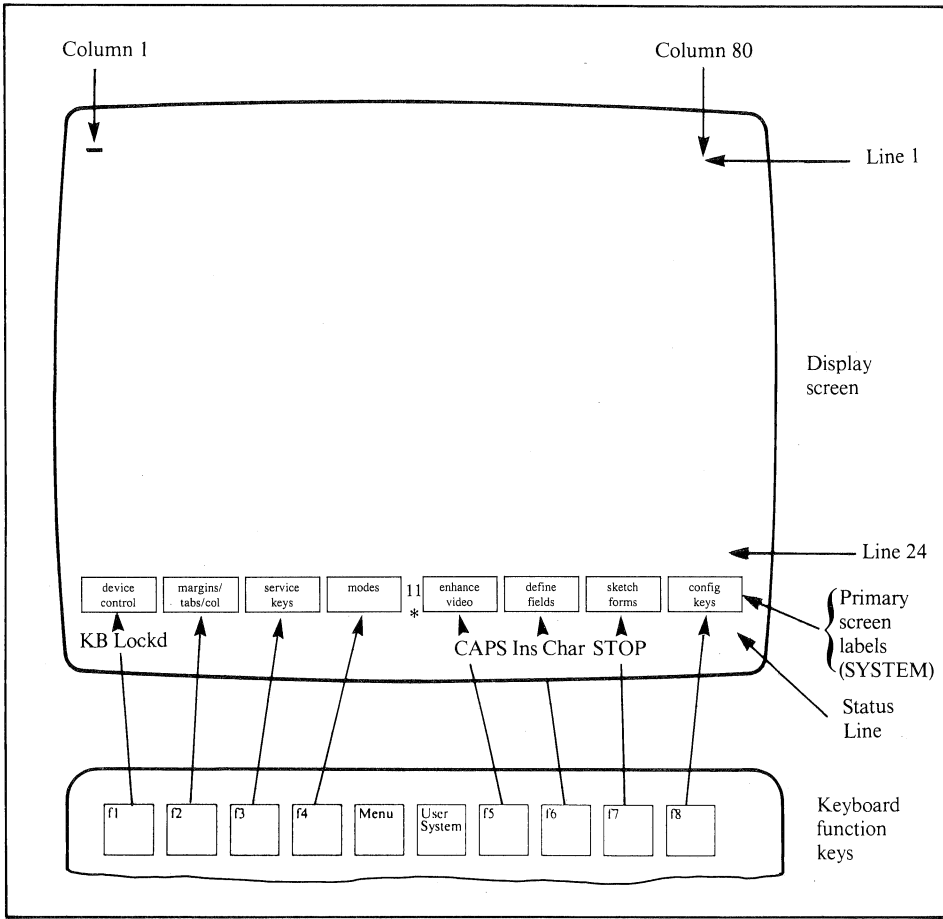


Figure 4-3. The Screen Of The HP 2394A

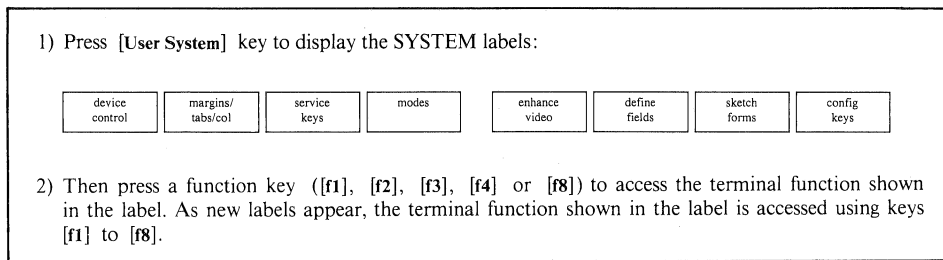


Figure 4-4. How To Use The Screen Labels Of The HP 2394A

THE SCREEN

The display screen contains 27 lines. You use the first 24 to display entered data (up to 80 characters per line). The three bottom lines are reserved for the terminal's use: the 25th and 26th display the function key labels (and also error messages), and the 27th is the Status Line.

DISPLAY MEMORY

The standard HP 2392A terminal stores up to four pages of data (96 lines) in display memory. When you use display enhancements, the terminal stores a minimum of two pages (48 lines); with security attributes (and display enhancements) on each line, one-and-a-half pages (36 lines) of storage are available. If the terminal has the optional memory extension, it stores (on average) up to eight pages of data (144 lines). It stores a minimum of four pages (96 lines) when using display enhancements, and three-and-a-half pages (84 lines) with security attributes (and display enhancements) on each line.

NOTE: The memory extension has been incorporated into the standard HP 2394A terminal.

DISPLAY ENHANCEMENTS

You can enhance the screen display on a character-by-character basis with half-bright, underline, inverse video and blinking (in any combination). You can also define security fields, in which data entered in the display memory does not appear on the screen. The Reference Manual describes the Escape sequences used to program these enhancements from the host computer. From the keyboard, you can enter the same escape sequences to activate or deactivate a particular enhancement (see Page 2-8). When you select an enhancement, each new character you type on that line is enhanced accordingly. Enhancements are automatically deactivated when the cursor enters a new line. Note that when the display memory is full, activating a display enhancement may cause existing data in memory to be lost. This is normally the first line in memory, but if it is being displayed the last line is lost.

NOTE: On the HP 2394A terminal, the display enhancements can be accessed through the function keys (< **enhance video** >).

Forms Mode (Format Mode)

Forms mode allows forms to be created by designating areas of the screen as protected and unprotected fields. The mode and the fields are programmed by Escape sequences from the host computer (see the Reference Manual).

NOTE: On the HP 2394A terminal, the mode and the fields can also be programmed using the function keys. See "Terminal Control Labels".

You can enter data only in the unprotected fields. The edit operation of the **[Insert char]**, **[Delete char]** and **[Clear line]** keys only affects the field containing the cursor (the editing operation of the **[Insert line]** and **[Delete line]** keys is inhibited). The **[Clear display]** key clears all the data in all subsequent unprotected fields. A protected field cannot be overwritten by data either entered from the keyboard or received from the host computer. If you press a character key while the cursor is in a protected field, the terminal automatically advances the cursor to the next unprotected field before

accepting the character. The terminal also advances the cursor to the next unprotected field when you press the **[Tab]** key, or when you enter a character in the last character position in the current unprotected field. **[Shift] [Tab]** moves the cursor to the start of the unprotected field, or to the start of the previous unprotected field if the cursor was in the first character position.

NOTE: The HP 2394A terminal allows the tab sequence to be altered. This capability allows the tab key to access unprotected fields in a logical sequence even though they may be grouped vertically. This is accomplished by defining the form into 1 or more vertical columns. The tab sequence will occur normally within each column. When the cursor reaches the bottom right field in the left-most column, pressing the **[TAB]** key will cause the tab character to move to the top left field of the next column. See the Reference Manual for more details. (See "Cursor Control Operations" in the Summary of the HP Parametized Escape Sequences.)

The operation of Forms Mode varies according to the application program used.

The HP 2394A terminal has the following additional features available in Format Mode:

- **TRANSMIT ONLY FIELDS** - Displayed data will be sent to the computer but cannot normally be changed.
- **DATA CHECKING** - Data can be checked to determine the field type, such as unrestricted fields, alphabetic fields, integer fields, and signed/implied decimal fields.

Transmit-Only Fields

The cursor never automatically moves to a transmit-only field; the **[TAB◀]** and **[TAB▶]** keys skip over any transmit-only fields. When a character is entered into the final position of a transmit-only field, the cursor automatically advances to the start of the next subsequent unprotected field.

NOTE: When defining an unprotected or transmit-only field, you may specify a field type (which has a set of implied attributes) and some explicit field attributes. Some of these attributes are checked as each data character is entered into the field, others are checked when the cursor is ready to leave the field, and still others are checked when the data in the form is to be transmitted to the host computer. (Refer to Table 4-1. for a list of the available attributes by field type and the valid input characters for each.) See "Data Checking" for more information on using the different field types.

Table 4-1. Attributes by Field Type

Field Type	Valid Input Characters
<ALL CHARACTERS>	All characters
<ALPHABETIC>	Upper/lowercase alphabetic characters and spaces.
<AUTO-UPSHIFT>	All characters
<ALPHANUMERIC>	Upper-lowercase alphabetic characters, digits, spaces, periods, dashes, commas, and plus signs.
<INTEGER>	Digits and spaces
<SIGNED DECIMAL>	Digits, minus sign, plus sign, decimal point or comma, and spaces.
<IMPLIED DECIMAL>	Digits, plus sign, minus sign, decimal point or comma, and spaces.
<CONSTANT>	None.
<INTEGER FILL>	Digits and spaces.
<SIGNED DECIMAL FILL>	Digits, minus sign, plus sign, decimal point or comma, and spaces.
<IMPLIED DECIMAL FILL>	Digits, plus sign, minus sign, decimal point or comma, and spaces.
<NUMERIC>	Digits, spaces, periods, commas, minus sign, and plus sign.

For further information on field attributes, refer to Section IV of the Reference Manual.

Data Checking

While in Format Mode the terminal can test data to make sure that the right field type is entered. If an invalid character is typed, the character is not entered. The terminal will beep and refuse to accept further entries until the error is cleared by pressing the [RETURN] key. You then continue entering data. The fields are defined by pressing the [User System] key, then pressing the <define fields> ([f6]) and the <define edits> ([f6]) function keys, in sequence.

Example:

This example specifies the field type, the attributes used, and a menu, then defines column 1 through 9 as an unprotected field.

- 1) Press the [User System] key, then press the <define fields> ([f6]) and the <define edits> ([f6]) function keys, in sequence. The following <define edits> function key labels and menu are displayed:

EDIT CHECKS					
FIELD TYPE	<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 2px; width: 30px; text-align: center;">0</div> <div style="width: 60%;"> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> 0. ALL CHARACTERS 1. ALPHABETIC 2. AUTO UPSHIFT 3. ALPHANUMERIC 4. INTEGER 5. SIGNED DECIMAL </td> <td style="width: 50%; vertical-align: top;"> 6. IMPLIED DECIMAL 7. CONSTANT 8. INTEGER/FILL 9. SIGNED DECIMAL/FILL 10. IMPLIED DECIMAL/FILL 11. NUMERIC </td> </tr> </table> </div> </div>	0. ALL CHARACTERS 1. ALPHABETIC 2. AUTO UPSHIFT 3. ALPHANUMERIC 4. INTEGER 5. SIGNED DECIMAL	6. IMPLIED DECIMAL 7. CONSTANT 8. INTEGER/FILL 9. SIGNED DECIMAL/FILL 10. IMPLIED DECIMAL/FILL 11. NUMERIC		
0. ALL CHARACTERS 1. ALPHABETIC 2. AUTO UPSHIFT 3. ALPHANUMERIC 4. INTEGER 5. SIGNED DECIMAL	6. IMPLIED DECIMAL 7. CONSTANT 8. INTEGER/FILL 9. SIGNED DECIMAL/FILL 10. IMPLIED DECIMAL/FILL 11. NUMERIC				
ATTRIBUTES	<table style="width: 100%; border: none;"> <tr><td style="border: 1px solid black; padding: 2px;">OPTIONAL</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">NO JUSTIFY</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">NO TOTAL FILL</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">REGULAR MDT</td></tr> </table>	OPTIONAL	NO JUSTIFY	NO TOTAL FILL	REGULAR MDT
OPTIONAL					
NO JUSTIFY					
NO TOTAL FILL					
REGULAR MDT					

SAVE EDITS	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT EDITS				
------------	-------------	-----------------	---------------	--	--	--	--

- 2) Press the [TAB◀] and the [TAB▶] keys to access any of the unprotected fields (field type and attributes) in the menu.
- 3) Press the <NEXT CHOICE> ([f2]) or the <PREVIOUS CHOICE> ([f3]) function keys to select the desired field type or attributes.
- 4) Press the <save edits> ([f1]) function key to enable the field type and attributes you selected. When you do this, the menu disappears from the screen and the function key labels change back to the <define fields> set, as follows:

enhance video	START UNPROTCT	START XMIT FLD	STOP FIELD		START EDITS	define edits		FORMAT MODE
---------------	----------------	----------------	------------	--	-------------	--------------	--	-------------

- 5) Move the cursor to column 1 of line 3 in which the unprotected field begins.
 - 6) Press the <START UNPROTCT> ([f2]) function key. If you want the field to include edit checks, press the <START EDITS> ([f5]) function key.
 - 7) Enter a space for each character that you wish the field to accomodate through column 9.
 - 8) Press <STOP FIELD> ([f4]) function key.
- “Terminal Control Labels” lists the function key labels for the <define fields> and the <define edits> keys along with their functions.

Forms Cache

In applications that require various forms for accepting different sets of data, each form may be displayed many times on the terminal. The time required to display each form on the terminal may add significant overhead to the application.

The size of forms cache is selected in 256 byte blocks from a field in the terminal configuration menu or from the escape **&q** sequence.

To select the size of forms cache using terminal configuration, initiate the following:

[User System],

config keys

,

terminal config

Tab over to the **FormsBufSize (256x)** field and enter the amount of 256 byte blocks desired (0-95) and then press **<SAVE CONFIG>**. Note that the size of forms cache is dependent upon the terminal's datacomm configuration, presence of an internal printer, and the size of random access memory (RAM) available.

Forms cache size can also be selected using the following escape sequence:

E_C & q 4 te 2 { <number of 256 byte blocks> L

Once the size of forms cache has been allocated, forms can be designed, numbered, named, accessed, transferred, purged, and verified using the escape sequences listed under Forms Cache in the Summary of HP Parametized Escape Sequences. Usage of forms cache is discussed in the Reference Manual.

Forms Cache allows an application to pre-load the terminal with information that will subsequently be displayed on the terminal's CRT. From a remote source, forms may be designed and stored in display memory for later retrieval and use. Rather than transmitting a form to the terminal each time it is needed, all of the forms to be used in a work session can be sent to the terminal at the beginning of a session. When a form is needed, it can be transferred from forms cache to the screen using an escape sequence.

Forms Cache Directory

The forms cache directory allows an application program to determine exactly which forms are currently stored in forms cache. This provides an application program with the ability to easily determine if any or all of its associated forms have already been downloaded to cache memory. The feature is useful when several different programs in an application share one or more common forms, or an application is stopped and restarted on the same terminal. See Forms Cache in the Summary of HP Parametized Escape Sequence.

STATUS LINE

The bottom line of the screen displays the following terminal status information:

KB Lockd Keyboard locked; no data can be entered. This occurs:

- 1) During a data transfer to the computer.
- 2) When awaiting a confirmatory "handshake" from the computer after pressing the [Enter], [Select] or "transmit" user key (when Terminal Configuration Menu fields "InhHndShk (G)" and "InhDC2 (H)" are set to "YES" and "NO" respectively, see the Reference Manual).
- 3) When the terminal is in Record Mode (see Page 2-22).
- 4) When a lock-keyboard instruction is received from a program running in the host computer. e.g. under certain circumstances when sending data over an X.25 network.

Only keys [Shift], [CTRL] and [Reset Break] function (when an error message is displayed, only these keys and [Return] function).

* Modem indicator showing the modem is active. The "asterisk" parameter in the Datacomm Configuration Menu controls the "*" (see section 5).

CAPS Keyboard set to capitals using [Caps] key.

ANSI or EM52 ANSI or EM52 mode set in TermMode field in Terminal Configuration Menu. For details, see Section 7.

Ins Char [Insert char] key active indicator.

STOP [Stop] key active indicator (indicates flow of data from computer to screen temporarily halted, see Page 3-11 for details).

SCREEN LABELS (function keys)

Screen labels are displayed in half-bright inverse video at the bottom of the screen. These labels indicate the operation of the function keys [f1] to [f8] at the top of the keyboard, see Figure 4-1, 4-3. The labels tree inside of the rear cover shows the available labels. Two keys, [Menu] and [User System], control access to keys [f1] to [f8] as follows:

- 1) [Menu] switches OFF/ON the labels and Status Line, and sets function keys as user-defined keys (see (3) below).
- 2) [CTRL] with [Menu] displays the user function key definition menu.
- 3) [Shift] with [User System] (or [CTRL] with [User System]) displays the user-defined labels, and sets keys [f1] to [f8] to operate as specified in the User Function Key Definition Menu.
- 4) [User System] displays the primary level (SYSTEM) of the pre-set terminal control labels. The label sets are described in the rest of this section.

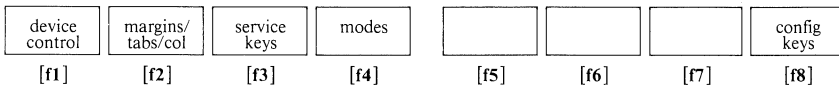
} See
Section 3
for
details

Terminal Control Labels

All the terminal controls displayed in the screen labels are accessed using function keys [f1] to [f8]. Pressing a key selects the mode/function indicated by the associated label. Blank labels indicate the corresponding function keys are inactive. Labels in lower-case letters access a sub-set of labels. Labels in CAPITAL letters control the mode/function indicated by the label. The function key toggles the specified mode/function ON and OFF. When a mode is ON an asterisk (*) appears in the associated label. Pressing the [User System] key always returns the labels to the SYSTEM level.

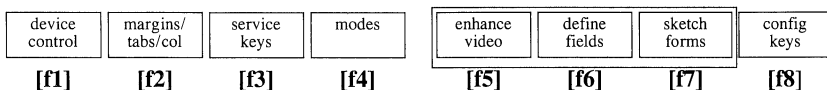
The remainder of this section describes the sets of function labels in the order of the labels tree illustration inside the rear cover.

SYSTEM Labels



LABEL	FUNCTION (SYSTEM)
< device control >	Displays first of two sets of labels controlling external device (label NOT displayed if terminal does NOT have two ports).
< margins/tabs/col >	Displays the labels controlling the margins, tabs, and selecting the start column (for data transmissions to the computer).
< service keys >	Displays labels used to perform terminal self tests.
< modes >	Displays labels controlling terminal's main operating modes.
< config keys >	Displays labels used to access datacomm, external device, and terminal configuration menus.

The HP 2394A terminal has the following additional system labels:



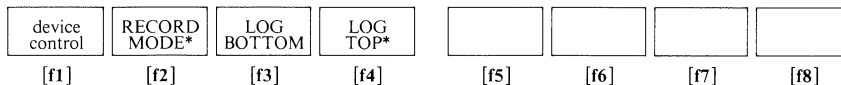
LABEL	FUNCTION (SYSTEM)
< enhance video >	Displays labels controlling the display enhancements.
< define fields >	Displays first of two sets of labels controlling the selection of the different field types.
< sketch forms >	Displays first of three sets of labels used to draw forms.

< device control > Labels (only displayed if terminal has two ports).



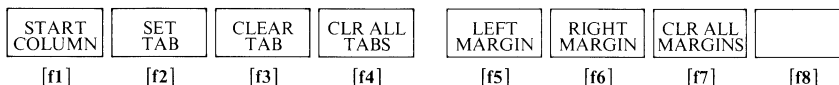
LABEL	FUNCTION (DEVICE CONTROL, first set of device labels)	
< device modes >	Displays second of two sets of labels controlling external device (see < device modes > labels).	
< TO EXT DEV* >	Sets external device (printer) as "to" device for data entered on keyboard and/or received from computer.	One or both may be active (* in label). If neither active, displayable data from computer may be lost.
< TO DISPLAY* >	Sets terminal display as "to" device for data received from the computer in Record Mode.	
	If external device set as "to" device:	If only display set as "to" device:
< ADVANCE PAGE >	Advances paper in external device by one (blank) page.	Terminal ignores request and displays error message: Source = Destination Press RETURN to clear
< ADVANCE LINE >	Advances paper in external device by one (blank) line.	
< COPY ALL >	Copies to external device data in memory (line containing cursor to end of memory).	If neither display nor device set as "to" device: Terminal ignores request and displays error message: No "TO" device Press RETURN to clear
< COPY PAGE >	Copies to external device data on screen (line containing cursor to end of page).	
< COPY LINE >	Copies to external device data in line containing the cursor.	
<p>Note: 1) COPY PAGE and COPY ALL can be stopped at end of line by pressing the [Return] key.</p> <p>2) Keys [Print] or [Enter] in Local Mode and [Print] In Remote Mode copy all data in memory to device (from cursor home-up to end of memory).</p> <p>3) Keys [Print] or [Enter] can be used to copy a Datacomm Configuration Menu or Function Key definition Menu to the external device (refer to Page 2-22 for more information).</p>		

< device modes > Labels (only displayed if terminal has two ports)



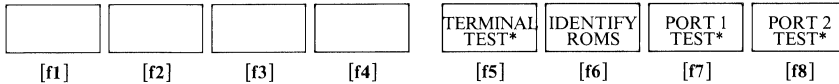
LABEL	FUNCTION (DEVICE MODES, second set of device labels)
< device control >	Displays first of two sets of labels controlling the external device (see < device control > labels).
< RECORD MODE* >	Activates/deactivates Record Mode; this mode only operates when the terminal is in Remote Mode as it causes computer data to be sent in blocks (of up to 256 characters) from the datacomm buffer to the "to" device (printer and/or display set by < device control > labels, see Page 2-15).
< LOG BOTTOM* >	Activates/deactivates Log Bottom Mode (deactivates Log Top Mode), which causes current line to be copied to external device when cursor moves to a new line (e.g. when cursor wraps round or a line feed is performed when [Return] pressed).
< LOG TOP* >	Activates/deactivates Log Top Mode (deactivates Log Bottom Mode), which causes line rolling off the top of the display memory (when the memory is full) to be copied to the external device. If overflow protect is active (see < MEMORY LOCK > label), LOG TOP is inhibited.
<p>Note: A device (the display and/or external device) MUST be set as the "to" device using the < device control > labels. If no "to" device exists, when the data transfer is attempted (in Local Mode), the following error message is displayed: No "TO" device Press RETURN to clear (refer to Page 2-30 for details).</p>	

< margins/tabs/col > Labels



LABEL	FUNCTION (SCREEN MARGINS, TABS AND START COLUMN)
< START COLUMN >	Sets the start column for data transfers to computer using labels < LINE MODIFY > and < MODIFY ALL > (see < modes > labels). The default start column is set in the Terminal Configuration Menu (see Section 5).
< SET TAB >	Sets a tab stop in column containing the cursor. Any number of tabs can be set per line (up to 79), the cursor skips to tab stop using the [Tab] key. (Tab stops are ignored in "forms mode").
< CLEAR TAB >	Clears the tab stop from the column containing the cursor.
< CLR ALL TABS >	Clears all the tab stops set using < SET TAB > label (in all columns except implicit stop at left margin).
< LEFT MARGIN >	Sets screen left margin in column containing the cursor, cursor moves to a left margin when cursor wraps round or [Return] key pressed. (Function disabled in ANSI/EM52 mode).
< RIGHT MARGIN >	Sets screen right margin in column containing the cursor. The right margin cannot be set to the left of the left margin (and vice-versa), if attempted the beeper sounds and the terminal ignores the request. (Function disabled in ANSI/EM52 mode).
< CLR ALL MARGINS >	Clears ALL the margins set by the user, resetting left margin to column 1 and right margin to column 80. (Function disabled in ANSI/EM52 mode).

< service keys > Labels



LABEL	FUNCTION (SERVICE KEYS, see Section 6 for details)
< TERMINAL TEST >	Causes terminal to perform a self-test lasting approximately 2 seconds (see Section 6 for details). [Shift] [f5] starts continuous self-test, which is stopped by repressing [f5].
< IDENTIFY ROMS >	Displays a list of the ROMs installed in terminal, supplying their part numbers (see Section 6).
< PORT 1 TEST >	Initiates port 1's data communications test. The port must be equipped with a test connector (see Section 6). [Shift] [f7] starts continuous port 1 test, which is stopped by repressing [f7].
< PORT 2 TEST >	Label only displayed when terminal equipped with a Datacomm module (port 2). Initiates port 2's data communication test (similar to port 1 test). [Shift] [f8] starts continuous port 2 test, which is stopped by repressing [f8].
Note: An asterisk only appears in labels < TERMINAL TEST >, < PORT 1 TEST > and < PORT 2 TEST > when the continuous test is initiated (key simultaneously pressed with [Shift]).	

< modes > Labels



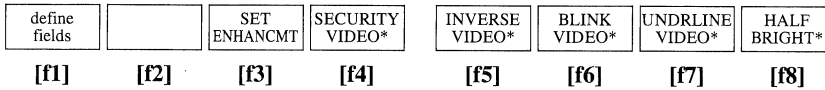
LABEL	FUNCTION (MODES)
< LINE MODIFY >	Activates/deactivates Line Modify Mode (also deactivated by [Enter] or [Return] keys). This mode is used in Remote Mode with Character Mode data transfers to correct a line of text, without having to re-type the complete line (see Page 2-17). When active it allows the line of text containing the cursor to be corrected and transmitted to the computer as a block when the [Return] or [Enter] key is pressed. The start column for the transfer can be set using the < START COL > label (see < margins/tabs/col > label).
< MODIFY ALL >	Activates/deactivates Modify All Mode. This mode is similar to Line Modify mode, except it is not deactivated by the [Return] or [Enter] key but only by pressing [f2] < MODIFY ALL > again (see page 2-24).
< BLOCK MODE* > (Disabled in ANSI/EM52 mode)	Toggles between Block Mode (asterisk) and Character Mode (no asterisk) Remote Mode communications; see "Terms Used In This Manual". The setting is retained in non-volatile memory. In Block Mode the size of the block transmitted to the computer must be set in the Terminal Configuration Menu (see Section 5).
< REMOTE MODE* >	Toggles terminal between Remote Mode (asterisk) and Local Mode (no asterisk); see "Terms Used In This Manual". The setting is retained in non-volatile memory; the Remote Mode configuration may be specified using the Datacomm Configuration Menu (see Section 5).
< SMOOTH SCROLL >	Activates/deactivates Smooth Scroll. Smooth scroll causes the text to scroll smoothly up/down the screen when using [Shift] [▲] or [Shift] [▼].

Continued ...

< modes > labels (continued)

LABEL	FUNCTION (MODES)
<MEMORY LOCK*>	<p>Activates/deactivates Memory Lock. Memory Lock can be used in Overflow Protect Mode or Display Lock Mode.</p> <p>Overflow Protect – used to prevent data loss due to memory overflow. Enabled by activating Memory Lock in the first line on the screen. Data can then be added up to the end of the display memory. At the end of the memory, no additional data can be added; if attempted the error message: “MEMORY FULL Press RETURN to clear” is displayed. However, existing data can be modified, provided no new lines (or video enhancements) are created. Overflow Protect Mode is disabled by deactivating Memory Lock.</p> <p>Display Lock – used to lock lines of text on the screen (so they do not move using Roll Up/Down and Home Up/Down). Enabled by activating Memory Lock, disabled by deactivating Memory Lock. When Display Lock is enabled, all data between the first line on the screen and the line containing the cursor is locked on the screen. If new lines are added (below locked ones), when the screen is full they are rolled up under the locked lines and placed in the memory above the locked data. Roll Up/Down and Home Up/Down may be used to move the non-locked lines under the locked ones (see page 2-16 for details).</p>
<DISPLAY FUNCTNS*>	<p>Activates/deactivates Display Functions Mode. In this mode, control characters (generated by keys such as [Return], [Tab], [Esc], edit keys) and control code (generated by [CTRL] plus a character key) are displayed as symbols on the screen. The terminal does not perform the function indicated by the key. The [Return] key, however (when set to generate a Carriage Return character), displays a C_R symbol, and causes a carriage return and line feed to be performed. If automatic line feed is on, an L_F symbol is also displayed. The [Enter] key operates “normally”. Note that this display functions mode is separate to that available when menus are displayed.</p>
<AUTO LF*>	<p>Activates/deactivates automatic line feed. Automatic line feed causes a line feed with every carriage return (see [Return] key Section 3). In Remote Mode using Character Mode communications, automatic line feed should be deactivated as the computer normally performs it.</p>

<enhance video> Labels



LABEL	FUNCTION (ENHANCE VIDEO)
<define fields>	Selects the Define Fields set of Enhancement group function key labels.
<SET ENHANCMT>	Activates the currently selected state (whether on or off) of every enhancement. This key must be used to activate or deactivate any enhancement.
<SECURITY VIDEO*>	Characters in a field defined as a security field are stored in memory but are not displayed. Their place on the screen is left blank. If the field is later returned to the unsecure state, the characters will be displayed.
<INVERSE VIDEO*>	Inverts the intensity of the background and all characters in the field. The characters are made dark on a light background instead of the normal light characters on a dark background.
<BLINK VIDEO*>	Causes characters in the field to blink on and off.
<UNDERLINE VIDEO*>	Underlines all characters (including blanks).
<HALF BRIGHT*>	Causes the characters in the field to be displayed at half intensity (grey).

< define fields > Labels

enhance video	START UNPROTECT	START XMIT FLD	STOP FIELD	START EDITS	define edits		FORMAT MODE*
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

LABEL	FUNCTION (DEFINE FIELDS)
< enhance video >	Displays the Enhance Video set of labels.
< START UNPROTECT >	Defines all character positions between the cursor and either the start of the next field, a "stop field" marker, or the end of the line (whichever comes first) as an unprotected field. Any type of character can be entered in an unprotected field. Data in unprotected fields can be transmitted to the computer in Remote mode. (A transmit-only field is started using the < START XMIT FLD > key.) An unprotected field is ended by either a "stop field" marker (produced with the < STOP FIELD > key) or the end of the line.
< START XMIT FLD >	Defines all character positions between the cursor and the start of the next field, a "stop field" marker, or the end of the line (whichever comes first) as a transmit-only field. In Remote mode, data in a transmit-only field is transmitted to the computer along with data in any unprotected field. In Format mode, the [TAB] keys skip over transmit-only fields. Data can be entered in a transmit-only field by positioning keys. The < STOP FIELD > key must be used to end a transmit-only field. Transmit-only fields can be further defined as alpha-numeric, alpha-only, numeric only, or any combination of these fields.
< STOP FIELD >	Defines the end of any unprotected or transmit-only type field (by generating a "stop field marker").
< STARTS EDITS >	Defines the start of each edited field.
< define edits >	Displays the field definition menu.
< FORMAT MODE* >	In this mode, the fields (defined using the Define Fields function key label set) are made active. When Format mode is entered, all memory is protected unless specifically defined otherwise using the Define Fields function keys. Normal procedure is to define the display enhancements, field, and character sets, then enter Format mode and enter data into the fields. An asterisk in the < FORMAT MODE > label indicates the mode is active. Alternate presses of the associated function key activate and deactivate the mode.

< define edits > Labels

SAVE EDITS	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT EDITS				
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

LABEL	FUNCTION (DEFINE EDITS)
< save edits >	Enables the desired field type and explicit attributes.
< NEXT CHOICE >	Allows cycling forward or backward through the values of each of the unprotected fields to select the choice for display in that field.
< PREVIOUS CHOICE >	
< DEFAULT VALUES >	Displays the default values for the field type and attributes.

< sketch forms > Labels

draw lines	define lines			LEFT MARGIN	RIGHT MARGIN	TOP MARGIN	BOTTOM MARGIN
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

LABEL	FUNCTION (SKETCH FORMS)
< draw lines >	Displays the Draw Lines set of forms-drawing labels. These labels enable drawing and erasing horizontal and vertical lines.
< define lines >	Displays the Define Lines set of function key labels. These labels enable selection of the type of lines to be drawn using the Draw Lines set (single, double, bold, inverse video, underline, and blinking line).
< LEFT MARGIN >	Sets the left margin at the column in which the cursor is currently positioned.
< RIGHT MARGIN >	Sets the right margin at the column in which the cursor is currently positioned.
< TOP MARGIN >	Sets the top margin at the row in which the cursor is currently positioned. The top margin applies only to the Sketch Forms function keys. If the cursor is homed using the [↖] key, it will move to the left margin of the first row in the workspace.
< BOTTOM MARGIN >	Sets the bottom margin at the row in which the cursor is positioned. The bottom margin, like the top margin, applies only to the Sketch Forms function keys.

< draw lines > Labels

sketch forms	ERASE MODE*	FROM CURSOR	TO CURSOR	HORIZNTL LINE	VERTICAL LINE	HORIZNTL SEGMENT	VERTICAL SEGMENT
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

LABEL	FUNCTION (DRAW LINES)
< sketch forms >	Displays the Sketch Forms set of function key labels. These labels enable drawing a line around the visible data or window perimeter and setting the left, right, top, and bottom margins for the window in which the cursor is positioned.
<ERASE* MODE >	Used with the <FROM CURSOR>, <TO CURSOR>, <HORIZNTL LINE>, <VERTICAL LINE>, <HORIZNTL SEGMENT>, and <VERTICAL SEGMENT> function keys to erase existing lines in the window in which the cursor is located. Line drawing is inhibited when this mode is active. An asterisk in the <ERASE MODE > label indicates the mode is active. Alternate presses of the associated function key activate and deactivate the mode. In <ERASE MODE >, the performance is the same except the line or box is erased.
<FROM CURSOR > <TO CURSOR >	Used together to set boundaries for drawing and erasing line segments. For drawing, the type of line should be defined first using the Define Lines set of labels. The default is a single line. Pressing the <FROM CURSOR> key defines the current cursor position as the "from" position. Pressing the <TO CURSOR> key defines the cursor position when the key is pressed as the "to" position. If the "to" position is in the same column or row as the "from" position, a single line is drawn between the two positions. If both the row and column of the "to" position are different from the "from" position, four line segments are drawn to form a box with the two positions located at diagonally opposite corners of the box. If the <TO CURSOR> key is pressed without the first pressing the <FROM CURSOR> key, the last "to" position is taken as the default "from" position. If, after a hard reset, the <TO CURSOR> key is pressed without first pressing the <FROM CURSOR> key, the first column and first row of the workspace is taken as the default "from" position.
< HORIZNTL LINE >	Draws a horizontal line, as defined using the Define Lines set of function key labels, between two boundaries which can be one of the following: 1) A margin defined using the Sketch Forms set of function keys. 2) A workspace boundary.
< VERTICAL LINE >	Draws a vertical line, as defined using the Define Lines set of function key labels, between two boundaries which can be one of the following: 1) A margin defined using the Sketch Forms set of function keys. 2) A workspace boundary.
< HORIZNTL SEGMENT >	Draws a horizontal line, as defined using the Define Lines set of function key labels, between two boundaries which can be one of the following: 1) A margin defined using the Sketch Forms set of function keys. 2) A workspace boundary. 3. A vertical line.
< VERTICAL SEGMENT >	Draws a vertical line, as defined using the Define Lines set of function key labels, between two boundaries which can be one of the following: 1) A margin defined using the Sketch Forms set of function keys. 2) A workspace boundary. 3) A horizontal line.

< define lines > Labels

draw lines	SINGLE LINE*	DOUBLE LINE*	BOLD LINE*	INVERSE VIDEO*	BLINK VIDEO*	UNDRLINE VIDEO*	HALF BRIGHT*
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

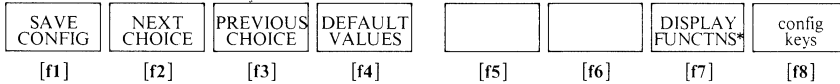
LABEL	FUNCTION (DEFINE LINES)
< draw lines >	Displays the Draw Lines set of Forms group labels. These labels enable drawing and erasing horizontal and vertical lines.
< SINGLE LINE* >	Defines the line to be drawn, using the Draw Lines set of labels as a single line. This is the default choice; if no line selection is made, a single line is drawn when the Draw Lines function keys are used.
< DOUBLE LINE* >	Defines line to be drawn, using the Draw Lines set of labels, as a double line.
< BOLD IINE* >	Defines the line to be drawn, using the Draw Lines set of labels, as a bold line.
< INVERSE VIDEO* >	Defines the line to be drawn, using the Draw Lines set of labels, as an inverse video line.
< UNDRLINE VIDEO* >	Draws an underline under the line of character positions selected using the Draw Lines set of labels. In the case of a vertical string of character positions, a short horizontal line is drawn across the bottom of each character position.
< BLINK VIDEO* >	<p>Defines the line of character positions selected using the Draw Lines set of labels as blinking video.</p> <ol style="list-style-type: none"> 1) An asterisk in a label indicates the mode is active. The mode, if inactive, is activated by pressing the associated function key. 2) The three labels < SINGLE LINE >, < DOUBLE LINE >, and < BOLD LINE > are mutually exclusive; if one is selected, either of the other two previously selected is automatically deselected. 3) The three labels < INVERSE VIDEO >, < UNDRLINE VIDEO >, and < BLINK VIDEO > have a toggling action. Alternate presses of the associated function key activates and deactivates the mode. These enhancements are not mutually exclusive.
< HALF BRIGHT* >	Defines the line to be drawn, using the Draw Lines set of labels, as a half intensity line.

< config keys > Labels

		datacomm config	ext dev config	terminal config			
[f1]	[f2]	[f3]	[f4]	[f5]	[f6]	[f7]	[f8]

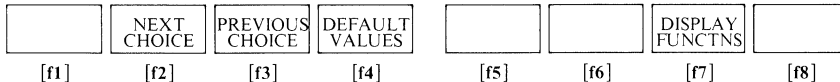
LABEL	FUNCTION (CONFIGURATION MENUS, see Section 5 for details)
< datacomm config >	Causes terminal to display the Datacomm Configuration Menu and the screen labels used to control the menu (with cursor in first parameter field).
< ext dev config >	Label only displayed when terminal equipped with Datacomm module (port 2). Causes terminal to display the External Device Configuration Menu and the labels used to control the menu (with cursor in first parameter field).
< terminal config >	Causes terminal to display the Terminal Configuration Menu and the labels used to control the menu (with cursor in first parameter field).

Datacomm/ext dev/terminal Configuration Menu Labels (see Section 5)



LABEL	FUNCTION (CONFIGURATION MENU CONTROL KEYS, see Section 5 for details)
<SAVE CONFIG>	Saves the displayed configuration parameters in the non-volatile memory, and returns terminal to normal operations with SYSTEM labels.
<NEXT CHOICE>	Most menu fields have a pre-set list of acceptable settings (some only have two). The <NEXT CHOICE> and <PREVIOUS CHOICE> keys scroll forward/backward through this list.
<PREVIOUS CHOICE>	
<DEFAULT VALUES>	Sets ALL the parameter fields to their pre-set default values (irrespective of where the cursor is positioned), and moves cursor to first parameter field.
<DISPLAY FUNCTNS*>	When cursor is in a parameter field that can have any value, allows control characters to be entered and displayed symbolically in the field. Control characters may be accessed using [CTRL] and the relevant alphabetic key (the edit and page control keys are inhibited).
<config keys>	Terminates the configuration mode without saving the entered values, and returns the terminal to normal operations with Configuration Key Menu labels.

User Function Key Definition Menu Labels (see Section 3)



LABEL	FUNCTION (USER MENU CONTROL KEYS, see Section 3 for details)
<NEXT CHOICE>	When the cursor is in the operating mode field (field "L", "T" or "N"), the <NEXT CHOICE> and <PREVIOUS CHOICE> keys scroll forwards/backwards through "L", "T" and "N" values.
<PREVIOUS CHOICE>	
<DEFAULT VALUES>	Sets ALL the parameter fields to their pre-set default values (irrespective of where the cursor is positioned), and moves cursor to first "operating mode" field.
<DISPLAY FUNCTNS>	When the cursor is in a parameter field that can have any value (e.g. label or key field), it allows terminal control characters to be entered and displayed symbolically in the field. Control characters can be accessed using [CTRL] and the relevant alphabetic key (the edit and page control keys can also be used). The control operation(s) signified by the control character(s) in the key field is performed when the key is subsequently used.



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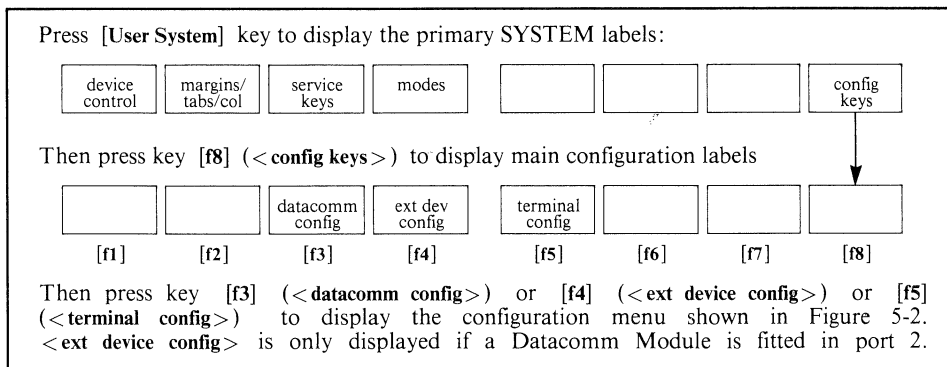


Figure 5-1. How To Display A Configuration Menu On The HP 2392A

DATACOMM CONFIGURATION			
BaudRate	<input type="text" value="2400"/>	Parity/DataBits	<input type="text" value="None/8"/>
Asterisk	<input type="text" value="OFF"/>	Chk Parity	<input type="text" value="NO"/>
RecvPace	<input type="text" value="None"/>	SR (CH)	<input type="text" value="LO"/>
XmitPace	<input type="text" value="None"/>	EnqAck	<input type="text" value="YES"/>
		CS (CB) Xmit	<input type="text" value="NO"/>
Note: With current loop datacomm module, parameter "CS (CB) Xmit" should be set to "NO".			
-----OR-----			
EXTERNAL DEVICE CONFIGURATION			
BaudRate	<input type="text" value="2400"/>	Parity/DataBits	<input type="text" value="None/8"/>
PrinterType	<input type="text" value="ROMAN 8"/>	SRRXmit	<input type="text" value="NO"/>
XmitPace	<input type="text" value="None"/>	SRRInvert	<input type="text" value="NO"/>
		PrinterNulls	<input type="text" value="000"/>
		CS (CB) Xmit	<input type="text" value="NO"/>
Note: Menu only available if terminal has second port (i.e. port 2 fitted with Datacomm module). Also with parallel datacomm module, parameters "SRRXmit" and "CS (CB) Xmit" should be set to "NO".			
-----OR-----			
TERMINAL CONFIGURATION			
Datacomm/ExtDev	<input type="text" value="PORT1/PORT2"/>	Keyboard	<input type="text" value="USASCII"/>
TerminalId	<input type="text" value="2392A"/>	Language	<input type="text" value="ENGLISH"/>
LocalEcho	<input type="text" value="OFF"/>	CapsLock	<input type="text" value="OFF"/>
XmitFunctn (A)	<input type="text" value="NO"/>	SPOW (B)	<input type="text" value="NO"/>
InhHndShk (G)	<input type="text" value="NO"/>	Inh DC2 (H)	<input type="text" value="NO"/>
FldSeparator	<input type="text" value="␣"/>	BlkTerminator	<input type="text" value="␣"/>
		StartCol	<input type="text" value="01"/>
		InhEolWrp (C)	<input type="text" value="NO"/>
		EscXfer (N)	<input type="text" value="NO"/>
		ReturnDef	<input type="text" value="␣"/>
		Bell	<input type="text" value="ON"/>
		Line/Page (D)	<input type="text" value="LINE"/>
		TermMode	<input type="text" value="HP"/>
Note: "Datacomm/ExtDev" is only displayed when the terminal is equipped with a second port. "CapsLock" only affects USASCII keyboard (ignored by terminal with national keyboard).			
Datacomm/device/terminal configuration menu labels			
<input type="text" value="SAVE CONFIG"/>	<input type="text" value="NEXT CHOICE"/>	<input type="text" value="PREVIOUS CHOICE"/>	<input type="text" value="DEFAULT VALUES"/>
			<input type="text" value="DISPLAY FUNCTNS"/>
			<input type="text" value="config keys"/>

Figure 5-2. Datacomm/Device/Terminal Configuration Menus (default values (2392A))

Press [User System] key to display the primary SYSTEM labels:

device control	margins/ tabs/col	service keys	modes	enhance video	define fields	sketch forms	config keys
----------------	----------------------	--------------	-------	---------------	---------------	--------------	-------------

Then press key [f8] (<config keys>) to display main configuration labels

[f1]	[f2]	datacomm config	ext dev config	terminal config	[f6]	[f7]	[f8]
------	------	-----------------	----------------	-----------------	------	------	------

Then press key [f3] (<datacomm config>) or [f4] (<ext device config>) or [f5] (<terminal config>) to display the configuration menu shown in Figure 5-2. <ext device config> is only displayed if a Datacomm Module is fitted in port 2.

Figure 5-3. How To Display A Configuration Menu On The HP 2394A

DATACOMM CONFIGURATION			
BaudRate	<input type="text" value="9600"/>	Parity/DataBits	<input type="text" value="None/8"/>
Asterisk	<input type="text" value="OFF"/>	Chk Parity	<input type="text" value="NO"/>
RecvPace	<input type="text" value="None"/>	SR (CH)	<input type="text" value="LO"/>
XmitPace	<input type="text" value="None"/>	EnqAck	<input type="text" value="YES"/>
		CS (CB) Xmit	<input type="text" value="NO"/>
Note: With current loop datacomm module, parameter "CS (CB) Xmit" should be set to "NO".			
-----OR-----			
EXTERNAL DEVICE CONFIGURATION			
BaudRate	<input type="text" value="2400"/>	Parity/DataBits	<input type="text" value="None/8"/>
PrinterType	<input type="text" value="ROMAN 8"/>	SRRXmit	<input type="text" value="NO"/>
XmitPace	<input type="text" value="None"/>	SRRInvert	<input type="text" value="NO"/>
		PrinterNulls	<input type="text" value="000"/>
		CS (CB) Xmit	<input type="text" value="NO"/>
Note: Menu only available if terminal has second port (i.e. port 2 fitted with Datacomm module). Also with parallel datacomm module, parameters "SRRXmit" and "CS (CB) Xmit" should be set to "NO".			
-----OR-----			

(continued on next page)

TERMINAL CONFIGURATION			
Datacomm/ExtDev	<input type="text" value="PORT1/PORT2"/>	Keyboard	<input type="text"/>
Terminal ID	<input type="text" value="2394A"/>	Language	<input type="text"/>
Local Echo	<input type="text" value="OFF"/>	CapsLock	<input type="text" value="OFF"/>
XmitFunctn (A)	<input type="text" value="NO"/>	SPOW (B)	<input type="text" value="NO"/>
InhHndShk (G)	<input type="text" value="NO"/>	Inh DC2 (H)	<input type="text" value="NO"/>
FldSeparator	<input type="checkbox"/>	BlkTerminator	<input type="checkbox"/>
Tab=Spaces	<input type="text" value="NO"/>	Return=Enter	<input type="text" value="NO"/>
		ReturnDef	<input type="checkbox"/>
		TermMode	<input type="text" value="HP"/>
		Start Col	<input type="text" value="01"/>
		Bell	<input type="text" value="NO"/>
		InhEolWrp (C)	<input type="text" value="NO"/>
		Line/Page (D)	<input type="text" value="LINE"/>
		Esc Xfer (N)	<input type="text" value="NO"/>
		FormsBufSize (256x)	<input type="text" value="0"/>
FORMAT MODE			
Decimal Type	<input type="text" value="US"/>	Imp Dec Digits	<input type="text" value="2"/>
		Transmit	<input type="text" value="All Fields"/>
Note: "Datacomm/ExtDev" is only displayed when the terminal is equipped with a second port. "CapsLock" only affects USASCII keyboard (ignored by terminal with national keyboard).			
Datacomm/device/terminal Configuration Menu Labels			
<input type="button" value="SAVE CONFIG"/>	<input type="button" value="NEXT CHOICE"/>	<input type="button" value="PREVIOUS CHOICE"/>	<input type="button" value="DEFAULT VALUES"/>
<input type="button" value="POWER ON VALUES"/>	<input type="button" value="ACTIVE VALUES"/>	<input type="button" value="DISPLAY FUNCTIONS"/>	<input type="button" value="config keys"/>

Figure 5-4. Datacomm/Device/Terminal Configuration Menus (default values) (2394A)



Configuring The Terminal _____ SECTION **5** From The Keyboard

INTRODUCTION

For the terminal to operate correctly, the relevant operating characteristics must be configured. Similarly, for the terminal to correctly communicate with a device, the terminal-to-device communication parameters must be configured; that is, both the terminal and the device must “speak the same language”.

HOW TO CONFIGURE THE TERMINAL

The terminal is configured from the keyboard using a configuration menu. This is a list of configurable parameters displayed on the screen which can be modified from the keyboard. Three menus are available (see Figure 5-2 and 5-4).

- Datacomm configuration menu – used to select the terminal-to-computer communication characteristics. Most of the parameters must conform to a fixed system-defined list of values.
- External device configuration menu – used to select the terminal-to-device communication characteristics. For most devices (such as printers), the parameters are not fixed and can be set to any value, provided they are the same on both the terminal and the device.
- Terminal configuration menu – used to select the terminal’s operating modes/characteristics. For example, the keyboard used must be selected for the correct characters to be generated, and the port assignment must be correctly set to allow the terminal to communicate with a computer/device.

The User Function Key Definition Menu is described in Section 3. (An ANSI Configuration Menu is available when ANSI or EM52 is set in the TermMode field in the Terminal Configuration Menu. For details, see Section 7.)

Using The Configuration Menus

For most applications, you will find that the terminal’s default parameters may be used. However, if you need to change a parameter, simply display the relevant menu (as shown in Figure 5-1), then place the cursor in the relevant parameter field (displayed in half-bright inverse video) using the cursor control or [Tab] key (the cursor is displayed in full-bright inverse video in the parameter fields, and in “normal” video outside the fields). Make the desired change using:

- 1) The configuration menu labels <NEXT CHOICE> and <PREVIOUS CHOICE> for parameters that take a value from a pre-defined list (such as Baud rate). These parameter fields have an underline.
- 2) The keyboard’s alphanumeric keys for parameters that can have any value; e.g. parameters where any character can be specified (such as the Fld Separator, Blk Terminator and Return default). These parameter fields have NO underline. For these parameters only, the configuration menu label <DISPLAY FUNCTIONS> allows terminal control characters to be entered (and displayed symbolically). The control characters may be accessed using [CTRL] and the relevant alphabetic key (see the Reference Manual).

NOTE

When a configuration menu is displayed, the page control and edit keys are inhibited. In addition, all the keys operate "locally" (except [Stop] and [Reset Break] which operate "normally"). This is because no data is transmitted to the computer. Data (including Escape sequences) received from the computer is stored in the terminal's buffer and not executed until the menu is exited.

- 3) The configuration menu label <DEFAULT VALUES> to return ALL the parameters to their pre-defined default values (irrespective the cursor's position), and moves the cursor to the first parameter field.

To return to the main configuration labels WITHOUT saving the changes, press key [f8] <config keys> (the previous values are retained).

To save the new values (and put them into effect), press key [f1] (<SAVE CONFIG>). This automatically causes the SYSTEM labels to be displayed (and the terminal to return to normal operations). The values defined from the keyboard are stored in the terminal's non-volatile memory and are saved when the terminal is switched OFF then ON.

The parameter values may also be changed from the host computer. These values are displayed in the menu but are not saved in non-volatile memory. The terminal reverts to the previously saved (power-on) values when it is switched OFF or a hard reset occurs. See the Reference Manual for further information on configuration menu terminology and settings.

NOTE

If the terminal is equipped with a parallel port (option 093), this port can only be used with a printer. Displaying the Terminal Configuration Menu and attempting to use the "Datacomm/Ext/Dev" field to set this port for the computer, displays the error message "Function locked Press RETURN to clear".

Printing Screen Menus

If required, the menu displayed on the screen can be printed on an external device using the [Print Enter] key, see Section 3 for details.

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Table 6-1. Terminal Error Messages

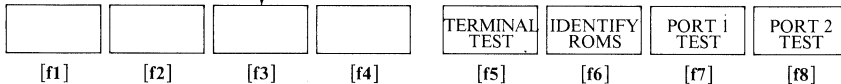
ERROR MESSAGE	MEANING
Default configs used Press RETURN to clear	Non-volatile memory reset. Battery may have jarred loose. Check batteries and battery support.
No "TO" device Press RETURN to clear	You attempted to perform a terminal-to-device or computer-to-device data transfer without having first defined the "to" device.
Source = destination Press RETURN to clear	You have defined the same device (e.g. display) as the "from" device and "to" device when copying data. The display is automatically the "from" device.
MEMORY FULL Press RETURN to clear	Memory Lock mode set to overflow protect, and memory now full.
Function locked Press RETURN to clear	The function you attempted to use has been disabled. i.e. attempting to set a parallel printer port as the computer port, or attempting to access a configuration menu locked-out programmatically.

Press [User System] key to display the SYSTEM labels: *

HP 2392A:



Then press key [f3] (<service keys>) to display the test labels:



<PORT 2 TEST> only displayed if terminal has second port

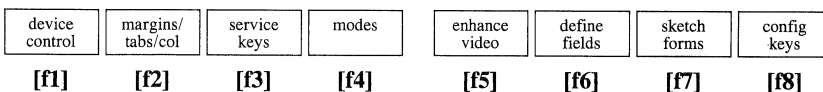
Press key [f5] (<TERMINAL TEST>) or [f6] (<IDENTIFY ROMS>) or [f7] (<PORT 1 TEST>) or [f8] (<PORT 2 TEST>) to select desired test. Port 1 and port 2 require test connectors to perform the port test.

[Shift] with [f5] or [f7] or [f8] starts a continuous test (with asterisk in label) which can be stopped by pressing relevant [f5], [f7] or [f8] key again (when test labels are displayed).

Using label	Message	Meaning
Any test label	TESTING!	Terminal performing specified test (lasts about two seconds).
<TERMINAL TEST>	Test pattern	Test OK.
	RAM ERROR # Press RETURN to clear	Error found in specified Random Access Memory (# 1 to # 4).
	ROM ERROR # Press RETURN to clear	Error found in specified Read Only Memory (# 1 or # 2).
<IDENTIFY ROMS>	Firmware ROMs -----	List of part numbers of terminal ROMs (the current firmware revision).
<PORT 1 TEST> and also <PORT 2 TEST>	PORT 1 ERROR # (or PORT 2 ERROR #) Press RETURN to clear	Error found in port, where error code specifies error (see service manual) e.g. ERROR # 1 = no test connector.

Figure 6-1. How To Use The Self-test Labels (continued)

*HP 2394A SYSTEM labels:



INTRODUCTION

If the terminal doesn't do what you expect it to do or displays an error message (in place of the labels), check its operation as described below. When an error message is displayed, the keyboard is locked out. Note that when the keyboard is locked, normally only keys [CTRL], [Shift] and [Reset Break] function, but if an error message is displayed the [Return] key also functions.

IF THE TERMINAL DOES NOT OPERATE CORRECTLY

Power-on failure. If the terminal does not power-on correctly (as described in Section 2 and later in this section), switch it OFF then ensure:

- 1) The power cable is properly attached.
- 2) The terminal is set for the site voltage (the required voltage is marked on the rear of the terminal), and the site power outlet is operating correctly.
- 3) The keyboard cable is correctly fitted.

Switch ON the terminal (ensure the brightness control is correctly set. If the failure is repeated, contact your local HP office.

Screen label failure. If the screen labels are not displayed they may have been switched OFF. Press the [Menu] key once to switch them ON.

If the screen labels displayed when the [User System] key is pressed appear to contain garbled data, ensure the Language parameter in the Terminal Configuration Menu is correctly set (see Section 5). The user definable labels (displayed by pressing [Menu] twice, or pressing [Shift] with [User System], or pressing [CTRL] with [User System]) may be altered as described in Section 3.

If pressing keys [Menu], or [User System], or label <modes> causes the terminal to beep (and existing labels to remain displayed), these keys have been locked programmatically.

Entered data error. If the character displayed on the screen when a key is pressed does not correspond to that shown on the keycap, ensure the "Keyboard" parameter in the Terminal Configuration Menu is correctly set (see Section 5).

Typical Errors

Local Mode Errors

- 1) If entered characters are not displayed, the keyboard may have been accidentally locked out. Simultaneously press keys [Shift] and [Reset Break] to perform a soft reset (see Section 3). Alternatively, the terminal may be set to the Remote Mode; you can change the setting to Local Mode following the procedure described in Section 2.

- 2) If data cannot be transferred to the external printer, ensure that the terminal and printer are correctly configured, and <TO EXT DEV*> is set ON in the device control labels (see Section 5). Also check the printer cable connection, and ensure the printer is switched ON and set to ON-LINE (or REMOTE).

Remote Mode Errors

If you have problems with the terminal's connection to the host computer, contact your EDP department.

You can clear terminal errors by resetting the terminal using keys [Shift] and [Reset Break]. Use the [Reset Break] key with caution, as it may cause loss of data and/or loss of terminal configuration settings (see Section 3). Typical errors you may encounter include:

- 1) Entered characters not being displayed:
 - a) The keyboard may be locked (the message "KB Lockd" appears on the Status Line). See Section 4 for a list of the conditions that may cause the keyboard to be locked.
 - b) The terminal is set to Record Mode.
 - c) The computer not echoing data. If required, the terminal's Local Echo may be enabled (see Section 5).
 - d) The computer is still processing previously entered data or has an error.
- 2) If a data transfer from the computer stops half way, ensure the [Stop] key has not been pressed (the message "STOP" appears in the Status Line). Otherwise the fault may be due to a computer error.
- 3) If the DEL character "■" appears on the screen, data may have been lost due to an error in communications between the terminal and the host computer (in which case contact your EDP department).
- 4) If data cannot be transferred to the computer, ensure that the terminal is correctly configured. Also check that the data cable is firmly attached. Contact your EDP department if the malfunction continues.

ERROR MESSAGES

See Table 6-1 for a list of the terminal error messages. When an error message is displayed, the terminal ignores the requested action and the keyboard is locked until [Return] or [Shift] [Reset Break] is pressed.

Uppercase letters A-Z	Lowercase letters a-z	Numbers 0-9	Special characters !"#	Special characters \$%&'()*+,-./:;<=>?
Uppercase letters A-Z	Lowercase letters a-z	Numbers 0-9	Special characters !"#	Special characters \$%&'()*+,-./:;<=>?
Uppercase letters A-Z	Lowercase letters a-z	Numbers 0-9	Special characters !"#	Special characters \$%&'()*+,-./:;<=>?
Uppercase letters A-Z	Lowercase letters a-z	Numbers 0-9	Special characters !"#	Special characters \$%&'()*+,-./:;<=>?

Figure 6-2. Terminal Test Pattern (Typical)

TERMINAL SELF-TESTS

Figure 6-1 details the self-tests (ports can only be tested when equipped with appropriate test connectors, and following the procedures described in the service manual). If the terminal is operating correctly, pressing <TERMINAL TEST> displays the test pattern shown in Figure 6-2.

TERMINAL POWER-ON STATE

At power-on the terminal beeps. After approximately 10 seconds (when the terminal has successfully performed its power-on self test) the terminal beeps again. The terminal is then set as follows:

- 1) The cursor is displayed at the top left-hand corner of the screen (column 1, line 1), and the display memory is cleared.
- 2) The eight labels associated with the MODES function are displayed at the bottom of the screen.
 - a) Four operating controls associated with the MODES function are inactive (no asterisk in label): LINE MODIFY, SMOOTH SCROLLING, MEMORY LOCK and DISPLAY FUNCTIONS.
 - b) The remaining four MODES operating controls (MODIFY ALL, BLOCK MODE, REMOTE MODE and AUTO LF), plus the parameters set using the terminal's configuration menu, are set as you configured them before powering OFF (these parameters are stored in non-volatile memory).
- 3) The Status Line symbol "*" is displayed if the terminal is connected to the computer via an operational modem.
- 4) Certain keys and parameters are reset as follows:
 - a) The keyboard is unlocked.
 - b) The [Caps] key is inactive (set to lower-case). With USASCII keyboards, the terminal may still generate upper-case characters if the Terminal Configuration Menu's CAPS LOCK feature is ON.
 - c) The User Keys retain the definitions given to them before powering off.
 - d) The left margin is column 1.
 - e) The right margin is column 80.
 - f) Tab stop is column 1. (Note in ANSI/EM52 mode, tab stops set in ANSI Configuration Menu are retained).
 - g) The "insert character" edit function is switched OFF.
 - h) The Record Mode is switched OFF (this stops the terminal from automatically sending data to an external device).
 - i) Stops top/bottom logging, Line Modify Mode, Smooth Scroll and Memory Lock.

TERMINAL MAINTENANCE

Periodically clean the terminal and change the batteries.

CAUTION

- 1) Do NOT spray liquids directly into the keyboard, terminal or connectors.
- 2) Do NOT use petroleum-based cleaners, or cleaners containing acetone, ammonia, benzene or chlorinated hydrocarbons as they may damage the terminal.

Cleaning

Clean the screen regularly using a conventional spray cleaner, as dirt and finger prints affect the effectiveness of the screen's anti-glare treatment and may cause unnecessary reflections. Dust the keyboard and terminal as required using a lint-free cloth or paper towel lightly moistened with warm water (avoid wiping dust into the display unit ventilation slots and keyboard).

Battery Replacement

Two batteries are located in a battery support at the rear of the display unit. They are used to power the terminal's memory that stores configuration menu settings and user function key definitions. The batteries should be replaced every 12 months. The battery type is Union Carbide Eveready E90 or Duracell MN 9100 (HP part number 1420-0255).

To avoid losing the terminal's configuration settings if the terminal is accidentally switched OFF while the batteries are removed, make a written record of the current settings or print them on the external device (see Section 5 for details).

Replace the batteries as follows:

- 1) If the terminal is switched OFF, turn it ON and wait until it is ready for use. This prevents configuration menu selections from being lost.
- 2) Squeeze the tabs on either side of the battery support (see Figure 6-3) so they disengage from the terminal, and simultaneously pull outwards to release the support.
- 3) Remove the old batteries from the support.
- 4) Insert the new batteries in the support, ensure the "+" and "-" on the battery correspond with the "+" and "-" on the support.
- 5) Replace the support in the terminal, the shape of the support ensures it can only be inserted when correctly positioned. Check that the support tabs are correctly engaged with the terminal.

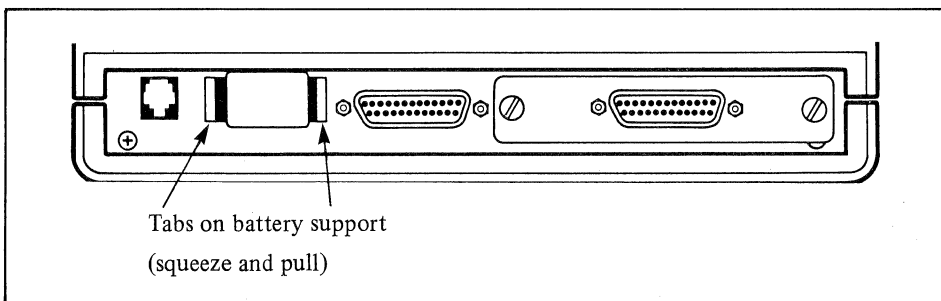


Figure 6-3. Battery Support (rear of display unit)

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INTRODUCTION

Option 049 provides features that enable the HP 2392A/HP 2394A Display Terminal to use standard software application programs on DEC® computer systems.

When equipped with Option 049, the 2392A/2394A terminal has three operating modes:

- 1) HP Mode—the terminal functions as described in the HP 2392A/HP 2394A User's Manual
- 2) ANSI Mode — the terminal functions like a DEC VT100® terminal when using software on a DEC computer system written specifically for the VT100
- 3) EM52 Mode — the terminal operates like a DEC VT52® terminal when using software on a DEC system written for the VT52

This manual supplement describes how to use the 2392A/2394A terminal in ANSI and EM52 Modes, emphasizing the functional differences between the two new modes and HP Mode operation.

The following sections tell how to select operating modes, how to configure the terminal for ANSI and EM52 Mode operations, and how these modes affect keyboard functions and other terminal characteristics.

HOW TO SELECT OPERATING MODES

You can select the terminal's operating mode:

- via the TermMode setting in the Terminal Configuration Menu
- using keyboard-entered escape sequences
- by commands issued from a host computer program

NOTE: The instructions in the following sections refer to several sets of function keys and their associated screen labels. Figure 7-6 at the end of this supplement illustrates the label sets used. Refer to the User's Manual for more information on function key operations.

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Using The Terminal Configuration Menu

The primary method for selecting operating mode—and the only one that saves the selected mode in nonvolatile memory—is via the TermMode setting in the Terminal Configuration Menu.

To display the Terminal Configuration Menu:

- Press the [User System] key to display the SYSTEM labels
- Press [f8] <config keys> to display the main configuration labels
- Press [f5] <terminal config> to display the Terminal Configuration Menu

The Terminal Configuration Menu appears on the screen as shown in Figure 7-1 and 7-2.

TERMINAL CONFIGURATION							
Datacomm/ExtDev	PORT1/PORT2		Keyboard	USASCII			
TerminalId	2392A		Language	ENGLISH			
LocalEcho	OFF	CapsLock	OFF	Start Col	01	Bell	ON
XmitFunctn (A)	NO	SPOW (B)	NO	InhEolWrp (C)	NO	Line/Page (D)	LINE
InhHndShk (G)	NO	Inh DC2 (H)	NO	EscXfer (N)	NO		
FldSeparator	␣	BlkTerminator	␣	ReturnDef	␣	TermMode	HP

SAVE CONFIG	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT VALUES			DISPLAY FUNCTNS	config keys

Figure 7-1. Terminal Configuration Menu with default settings (bottom row shows labels for function keys used in making menu selections of the HP 2392A)

TERMINAL CONFIGURATION							
Datacomm/ExtDev	PORT1/PORT2		Keyboard	USASCII			
Terminal ID	2394A		Language	ENGLISH			
Local Echo	OFF	CapsLock	OFF	Start Col	01	Bell	NO
XmitFunctn (A)	NO	SPOW (B)	NO	InhEolWrp (C)	NO	Line/Page (D)	LINE
InhHndShk (G)	NO	Inh DC2 (H)	NO	Esc Xfer (N)	NO		
				FormsBufSize (256x)	0		
FldSeparator		BlkTerminator		Return=Enter	NO	ReturnDef	
Tab=Spaces	NO			TermMode	HP		
FORMAT MODE							
Decimal Type	US	Imp Dec Digits	2	Transmit	All Fields	Print	Fields
SAVE CONFIG	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT VALUES	POWER ON VALUES	ACTIVE VALUES	DISPLAY FUNCTIONS	config keys

Figure 7-2. Terminal Configuration Menu with default setting of the HP 2394A

To select the desired operating mode—HP, ANSI or EM52:

- Using the [Tab] or cursor control keys, position the cursor at the TermMode field (the lower right-hand corner of the menu)
- Press [f2] <NEXT CHOICE> or [f3] <PREVIOUS CHOICE> until the desired TermMode setting is displayed
- Press [f1] <SAVE CONFIG> to enter the selected operating mode. This step also saves the selection in non-volatile memory—so the terminal always powers on in the mode selected—and returns the SYSTEM labels to the screen.

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

NOTE: You may need to make other selections in the Terminal Configuration Menu as required by your application. Ask the Data Processing Manager at your site to assist you in determining the proper settings. Consult the User's Manual for more information about using the Terminal Configuration Menu.

Using Keyboard-Entered Escape Sequences

You can TEMPORARILY change the terminal's operating mode by typing the appropriate escape sequence from the keyboard. The escape sequences that change operating modes are listed in Table 1. These sequences alter the TermMode setting in the Terminal Configuration Menu JUST FOR THE CURRENT SESSION. When you perform a hard reset or turn the terminal off and back on, the operating mode reverts to the previously saved setting.

If your application requires frequent mode changes, you may want to define the terminal's User Keys with the escape sequences that change operating modes (Table 1). This method allows you to change modes by pressing a single key. Consult the User's Manual for instructions on defining and using the User Function Keys.

ACTION	ESCAPE SEQUENCE
HP to ANSI Mode	ESC & k 1 \
ANSI to HP Mode	ESC & k 0 \
EM52 to ANSI	ESC & <
ANSI to EM52	ESC & [? 2 1

Table 7-1. Escape Sequences Used to Change Modes

Selecting Operating Mode Programmatically

You can also change operating mode via commands issued from a host computer program. The escape sequences used to change modes are listed in Table 1. Consult the Reference Manual for complete information on programming the terminal.

CONFIGURING THE TERMINAL FOR ANSI OPERATIONS

Before using the terminal in ANSI or EM52 Mode, you must make certain configuration settings. Some of these settings allow the terminal to talk to the host computer; other settings allow application programs to run properly on the terminal.

Make the appropriate selections following the instructions in this section.

Using The ANSI Configuration Menu

Option 049 provides the terminal with an additional menu—the ANSI Configuration Menu. This new menu allows you to make several settings to tailor the terminal for specific application programs running on a standard DEC computer system.

To display the ANSI Configuration Menu:

- Ensure that the terminal is currently operating in ANSI or EM52 Mode (“ANSI” or “EM52” appears in the status line)
- Press the [User System] key to display the SYSTEM labels
- Press [f8] <config keys> to display the main configuration labels
- Press [f6] <ansi config> to display the ANSI Configuration Menu as shown in Figure 7-3. Settings made in this menu apply to both ANSI and EM52 Mode operations. Note that the <ansi config> label appears only when the terminal is in ANSI or EM52 Mode

ANSI CONFIGURATION									
MultiPage	<input type="text" value="YES"/>	BackspaceDef (Unshft/shft)	<input type="text" value="Backspace/Del"/>						
Answerback Message	<input type="text"/>								
T	T	T	T	T	T	T	T	T	T
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890
<input type="button" value="SAVE CONFIG"/>	<input type="button" value="NEXT CHOICE"/>	<input type="button" value="PREVIOUS CHOICE"/>	<input type="button" value="DEFAULT VALUES"/>	<input type="button" value="ANSWER BACK"/>	<input type="button" value="CLR ALL TABS"/>	<input type="button" value="DISPLAY FUNCTNS"/>	<input type="button" value="config keys"/>		

Figure 7-3. ANSI Configuration Menu shown with default settings (bottom row shows labels that apply to the function keys used in making menu selections)

As in other menus, use function keys [f1] through [F8] when making menu selections. Table 7-2 describes the operation of the function keys while the ANSI Configuration Menu is displayed.

LABEL	FUNCTION (ANSI MENU CONTROL KEYS)
<SAVE CONFIG>	Saves the displayed configuration parameters in the non-volatile memory, and returns terminal to normal operations with SYSTEM labels.
<NEXT CHOICE>	When the cursor is in the "MultiPage" or "Backspace def" field or "Tab stop" line, the <NEXT CHOICE> and <PREVIOUS CHOICE> keys scroll forward/backward through the pre-set list of values.
<PREVIOUS CHOICE>	
<DEFAULT VALUES>	Set all displayed parameter fields to their pre-set default values (regardless of the cursor position), and moves cursor to the first parameter. The Answerback Message is only reset (to no message) when the Answerback field is displayed.
<ANSWER BACK>	Toggles ON/OFF "Answerback Message" field. When ON, it allows you to enter data in the field. Note that a configured Answerback message cannot be recalled from non-volatile memory.
<CLR ALL TABS>	Clear all the tab stops in menu (in all columns except implicit tab at left margin).
<DISPLAY FUNCTNS*>	When cursor is in a "Answerback Message" field, allows control characters to be entered and displayed symbolically in field.
<config keys>	Terminates the configuration mode without saving the entered values, and returns the terminal to normal operations with main configuration labels displayed.

Table 7-2. Function Key Operations For ANSI Menu

To make a selection in the ANSI Configuration Menu:

- Using the [Tab] or cursor control keys, position the cursor in the desired field of the menu
- Press [f2] <NEXT CHOICE> or [f3] <PREVIOUS CHOICE> to display the desired setting
- Use other function keys as needed to define each field appropriately
- When you are finished making selections in the ANSI Configuration Menu, press [f1] <SAVE CONFIG> to store the settings in non-volatile memory and re-display the SYSTEM labels

The ANSI Configuration Menu allows you to define the following four fields:

- 1) MultiPage — specifies the amount of display memory available in the terminal. Changing the MultiPage setting clears the contents of display memory. This blanks the screen and positions the cursor in the upper left-hand corner of the screen when you exit the menu.

When MultiPage is set to "NO", subsequent applications use a single page of memory (24 lines) for all operations. This setting should be used when running host computer programs designed for ANSI terminals with a single page of memory. Ask your Data Processing Manager for assistance in determining whether your application is meant for a terminal with only one page of display memory). If single-page operation is selected, the [Next], [Prev], [Shift] [▲] (ROLL UP) and [Shift] [▼] (ROLL DOWN) keys are disabled.

When MultiPage is set to "YES", all available memory (up to 4 pages on the standard 2392A terminal and up to 8 pages on the standard 2394A terminal) is used in subsequent program operations.

- 2) BackspaceDef(Unshft/shft) — defines the function of the **[Back space]** key for use in DEC software applications. Normally the **[Back space]** key simply moves the cursor backward a character at a time. Some programs, however require this key to be a DELETE key that deletes a character as it backspaces.

When set to DEL/BACKSPACE, the **[Back space]** key functions as a DELETE key when pressed by itself, and as a normal BACKSPACE key when pressed simultaneously with the **[Shift]** key.

When set to BACKSPACE/DEL, the **[Back space]** functions as a normal BACKSPACE key when pressed by itself, and as a DELETE key when pressed with the **[Shift]** key.

- 3) Answback Message — allows you to define an “answerback message”. Some ANSI applications require such a message in response to a host computer enquiry (ENQ).

The Answback field does not appear unless **[f5] <ANSWER BACK>** is pressed first. Once the field is displayed, you can enter the answerback message you need (up to 40 characters long). Pressing **[f7] <DISPLAY FUNCTIONS>** lets you enter control characters into the answerback message, where they are displayed as the appropriate symbols. Note that your definition is not redisplayed when you re-enter the menu. When you press **[f5] <ANSWERBACK>** upon re-entering the menu, a blank field is displayed, allowing you to define and save a new message.

- 4) Tab — allows you to set tab stops for subsequent use in in ANSI and EM52 operations.

To set a tab stop, use the cursor control keys to position the cursor in the desired column on the tab stop indicator line (bottom of menu). Press **[f2] <NEXT CHOICE>** or **[f3] <PREVIOUS CHOICE>** to toggle a tab stop on and off. A “T” on the tab stop indicator line shows an active tab stop. Press **[f6] <CLEAR ALL TABS>** to clear all tabs.

Making Additional Terminal Settings

To use the terminal in ANSI or EM52 Mode, you must also configure the terminal data communication parameters to conform with those of the host system being used. You must set the terminal to Remote Mode operation as well.

Datacomm Configuration

To display the Datacomm Configuration Menu:

- Press the **[User System]** key to display the SYSTEM labels
- Press **[f8] <config keys>** to display the main configuration labels.
- Press **[f3] <datacomm config>** to display the Datacomm Configuration Menu as shown in Figure 7-4.

DATACOMM CONFIGURATION							
BaudRate	<input type="text" value="2400"/>	Parity/DataBits	<input type="text" value="None/8"/>			EnqAck	<input type="text" value="YES"/>
Asterisk	<input type="text" value="OFF"/>	Chk Parity	<input type="text" value="NO"/>	SR (CH)	<input type="text" value="LO"/>		
RecvPace	<input type="text" value="None"/>					CS (CB) Xmit	<input type="text" value="NO"/>
XmitPace	<input type="text" value="None"/>						
HP 2392A:							
<input type="text" value="SAVE CONFIG"/>	<input type="text" value="NEXT CHOICE"/>	<input type="text" value="PREVIOUS CHOICE"/>	<input type="text" value="DEFAULT VALUES"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="DISPLAY FUNCTNS"/>	<input type="text" value="config keys"/>
HP 2394A:							
<input type="text" value="SAVE CONFIG"/>	<input type="text" value="NEXT CHOICE"/>	<input type="text" value="PREVIOUS CHOICE"/>	<input type="text" value="DEFAULT VALUES"/>	<input type="text" value="POWER ON VALUES"/>	<input type="text" value="ACTIVE VALUES"/>	<input type="text" value="DISPLAY FUNCTNS"/>	<input type="text" value="config keys"/>

Figure 7-4. Datacomm Configuration menu with default settings (bottom row shows function key labels)

To make a selection in the Datacomm Configuration Menu:

- Use the **[Tab]** key or cursor control keys to position the cursor at a desired field
- Press **[f2]** <NEXT CHOICE> or **[f3]** <PREVIOUS CHOICE> to display the desired setting
- Press **[f1]** <SAVE CONFIG> to save the settings in non-volatile memory and re-display the SYSTEM labels

See the User Manual for complete descriptions of the selections available in the Datacomm Configuration Menu. Your Data Processing manager can assist you in determining the exact settings required by the host computer system.

Selecting Remote Mode

For ANSI or EM52 Mode operations, set the terminal to Remote Mode:

- Press the **[User System]** key to display the SYSTEM labels
- Press **[f4]** <modes> to display the MODES labels
- Press **[f4]** <REMOTE MODE> to activate Remote Mode. An asterisk appears in the label when it is active (<REMOTE MODE*>).

The terminal is now ready for online operations. Refer to the User's Manual for a complete description of MODES function keys.

NOTE: In ANSI and EM52 Modes, the terminal is automatically set for Character Mode operation. Therefore, when the MODES labels are displayed, no asterisk appears in the <BLOCK MODE> label and **[f3]** is functionally disabled. Ensure that the <AUTO LF> label has no asterisk in it when running programs that require disabling automatic line feed.

* The default baud rate in the HP 2394A terminal is 9600.

STATUS LINE INDICATORS

ANSI and EM52 Mode operations add special indicators to the terminal's status line. The following section describes the functions of the new indicators. See the User's Manual for information about all other displayable status line indicators.

ANSI Mode Indicators

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

The Status Line can also display up to four additional symbols in ANSI Mode—L1, L2, L3, or L4—which are activated by a program running on the host computer. These four symbols are provided to simulate the four LED indicators on a VT100 keyboard, allowing applications utilizing these LED indicators to run without modification on the HP 2392A/HP 2394A. The meaning of symbols L1 through L4 depends on the program used.

EM52 Mode Indicator

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

KEYBOARD OPERATION IN ANSI AND EM52 MODES

The functions of several keys are changed when the terminal is operating in ANSI or EM52 Mode. Figure 7-5 shows the keys whose functions are changed.

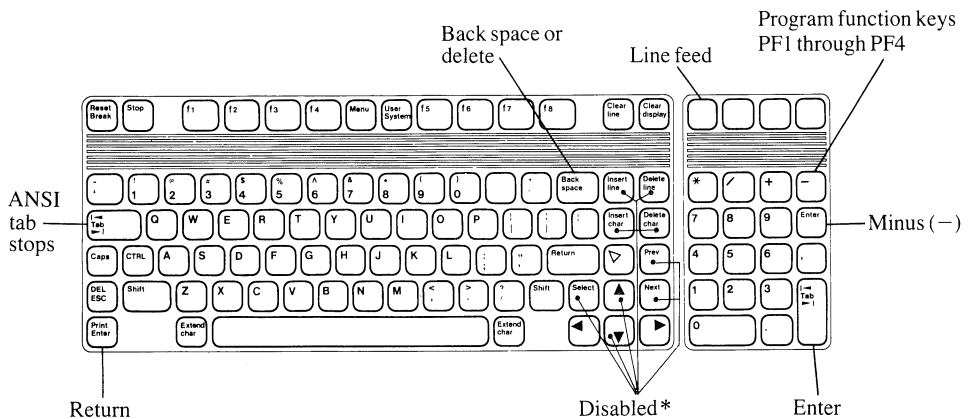


Figure 7-5. Keys Altered in ANSI and EM52 Modes Numeric Keypad

* Only shift ▲ and shift ▼ are disabled. The unshifted ▲ and ▼ still work.

Numeric Keypad

A numeric keypad overlay (HP part number 5180-6303) is supplied with Option 049. The overlay, illustrated in Figure 7-6, indicates the new functions of the numeric pad keys in ANSI and EM52 Modes. For your convenience, mount the overlay on the numeric keypad for ANSI and EM52 operations.

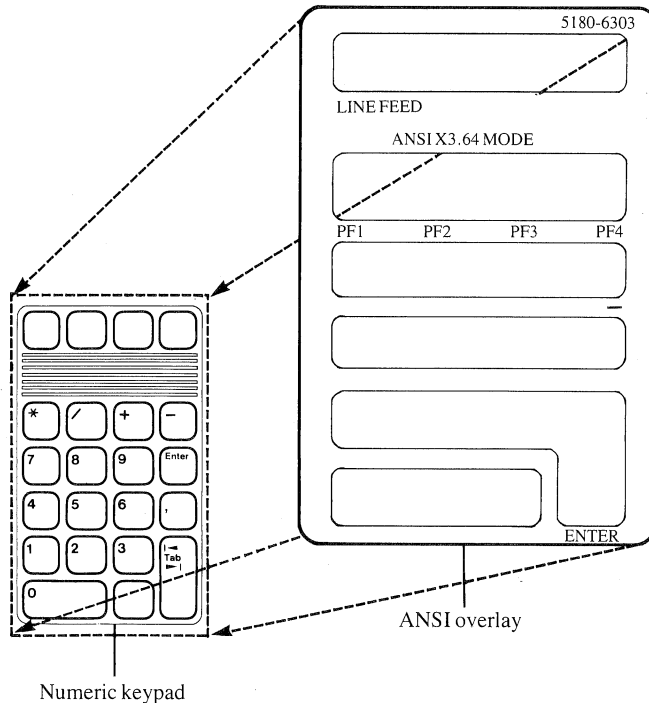


Figure 7-6. ANSI Numeric Keypad Overlay

The keys on the numeric keypad with new functions include:

- 1) The unmarked key directly above the [*] key. This key functions as the Linefeed key.
- 2) The keys [*], [/], [+], and [-]. These keys act as program function keys [PF1], [PF2], [PF3] and [PF4], whose functions vary with the application program being used.
- 3) The [Enter] key. This key becomes the [-] key in ANSI and EM52 Modes.
- 4) The [Tab] key. This numeric pad key becomes the [Enter] key, operating like the [Return] key does in normal HP Mode operation.

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

Alphanumeric Keys

Certain keys on the alphanumeric or “typewriter” portion of the keyboard are affected by ANSI and EM52 operation. These keys, illustrated in Figure 7-5, include the following:

- 1) The **[Tab]** key. Pressing the **[Tab]** key while in ANSI or EM52 Mode moves the cursor to the tab position set in the ANSI Configuration Menu.
- 2) The **[Back space]** key. This key functions as a normal backspace or as a delete key (see the ANSI Configuration Menu section for a description of how to configure and use the **[Back space]** key).
- 3) The **[Insert line]**, **[Delete line]**, **[Insert char]** and **[Delete char]** keys. These keys are disabled during ANSI or EM52 Mode operation (they are available for use when making selections in the ANSI Configuration Menu).
- 4) The **[Select]** key is disabled in ANSI and EM52 Modes.
- 5) The **[Enter]** key, located on the lower left portion of the keyboard, duplicates the operation of the **[Return]** key. When in ANSI or EM52 Mode, you may press either **[Enter]** or **[RETURN]** for a carriage return.
- 6) The **[Next]**, **[Prev]**, **[Shift] [▲]** (ROLL UP) and **[Shift] [▼]** (ROLL DOWN) keys are disabled when the terminal is set for single-page operations (see the “CONFIGURING THE TERMINAL FOR ANSI OPERATIONS” section).

In addition, the following function keys are affected in ANSI and EM52 Mode operations:

- The **<Right Margin>**, **<Left Margin>** and **<Clear All Margins>** functions keys are disabled.
- The **<Block Mode>** key is disabled and the terminal is always forced into Character Mode.

Finally, the following two key sequences are added to the terminal’s operating features:

- Press the **[CTRL]** and **[Break]** keys simultaneously to transmit the user-configured Answerback Message to the host computer system. See “Using the ANSI Configuration Menu” for further information.
- Press the **[CTRL]** and **[Stop]** keys simultaneously to transmit a 3.5 second BREAK to the host computer.

HP 2392A
SYSTEM labels

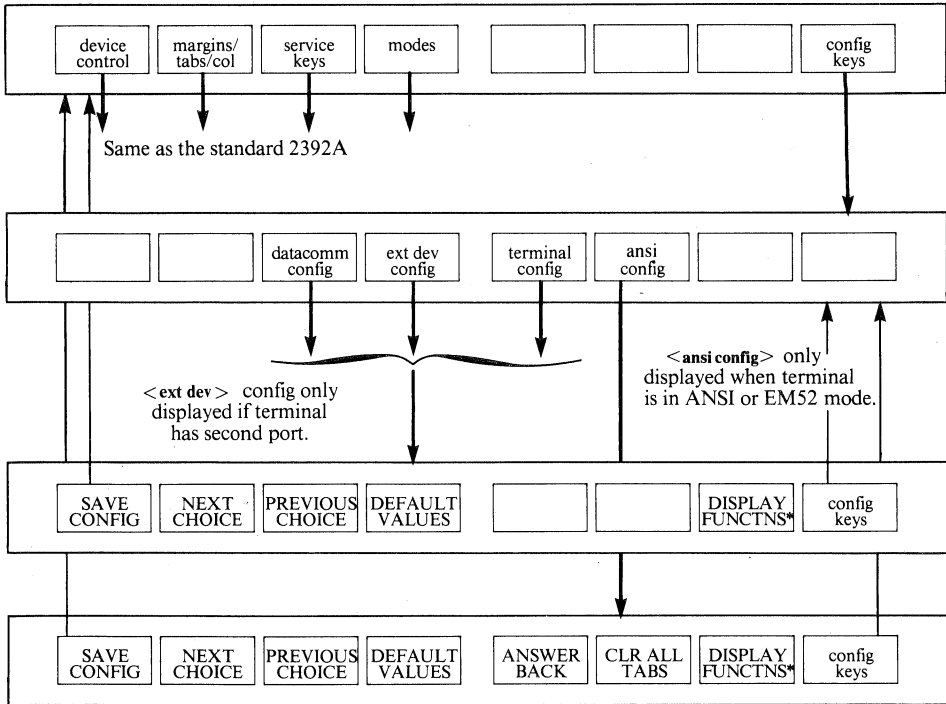


Figure 7-7. ANSI Operation Screen Labels Tree for the HP 2392A

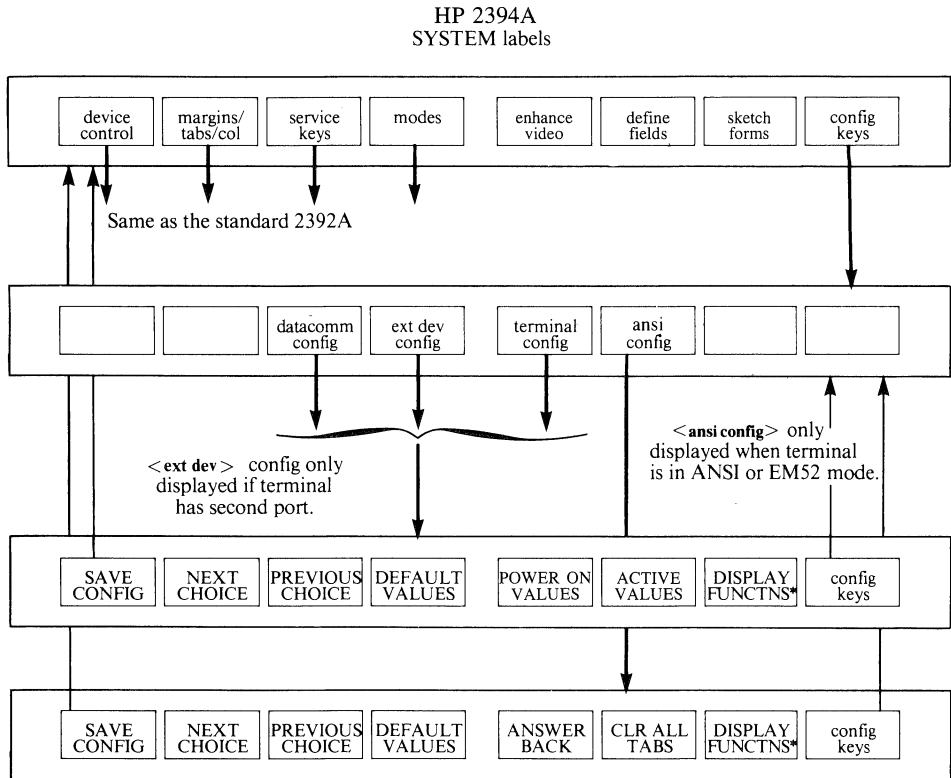


Figure 7-8. ANSI Operation Screen Labels Tree for the HP 2394A



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SUMMARY OF HP PARAMETERIZED ESCAPE SEQUENCES

Terminal Control Functions

Esc0	Home up and copy all memory to external device	EscL	Insert line
Esc1	Set tab	EscM	Delete line
Esc2	Clear tab	EscP	Delete character
Esc3	Clear all tabs	EscQ	Start insert mode
Esc4	Set left margin	EscR	End insert mode
Esc5	Set right margin	EscS	Roll up
Esc9	Clear all margins	EscT	Roll down
Esc@	Delay one second	EscU	Next page
EscA	Cursor up	EscV	Previous page
EscB	Cursor down	EscW	Format mode ON
EscC	Cursor right	EscX	Format mode OFF
EscD	Cursor left	EscY	Display function mode ON
EscE	Hard reset	EscZ	Display function mode OFF
EscF	Cursor home down	Esc[Start unprotected field
EscG	Move cursor to left margin	Esc]	Stop unprotected field
EscH	Cursor home up	*Esc}	Start transmit-only field
EscI	Horizontal tab	Esc^	Primary status request
EscJ	Clear display from cursor to end of memory	Esc -	Sense cursor relative position (on screen). Returns “Esc&a” sequence
EscK	Clear line from cursor to end of line		

*Valid only on the HP 2394A terminal.

Esc a Sense cursor absolute position in memory. Returns ‘‘Esc&a’’ sequence
 Esc b Unlock keyboard
 Esc c Lock keyboard
 Esc d Transmit a block to the computer
 Esc f Modem disconnect
 Esc g Soft reset
 Esc h Cursor home up
 Esc i Back tab
 Esc j Begin user key definition mode
 Esc k End user key definition mode and display user key labels
 Esc l Begin memory lock mode
 Esc m End memory lock mode
 Esc p/w Default definition for user keys
 Esc z Initiate terminal self test
 Esc ~ Secondary terminal status request

Cursor Control Operations (‘‘Esc&a’’ Family)

(Columns and lines start with 0 as leftmost column and top line)

Esc&a <col> c <line> Y	Move cursor to column <col> (1-80) and line <line> (1-24) on screen (Screen relative addressing)
Esc&a <col> c <line> R	Move cursor to column <col> and line <line> in memory (Memory absolute addressing). Rolls text, if necessary.
Esc&a± <col> c± <line> Y	Offset cursor on screen by <col> columns and <line> lines from present position (Screen relative addressing)
Esc&a± <col> c± <line> R	Offset cursor in memory by <col> columns and <line> lines from present position (Memory absolute addressing)
*Esc&a <col ₁ > X...<col _n > S	Alters current tab sequence by splitting currently defined form into two or more vertical windows of <col> columns. <col _n > is the starting column of the nth+1 window. (Tab Sequence Control)

Display Enhancement Operations

Esc&d <CHAR>—
select the display enhancement
indicated by <CHAR>

Esc&ds <CHAR>—
enables both
security field and other selected
enhancement(s).

Display Enhancement Character

Enhancement	<CHAR> @ABCDEFGHIJKLMNOS
Half-bright	HIJKLMNO
Underline	DEFG LMNO
Inverse video	BC FG JK NO
Blinking	A C E G I K M O
Security field	S
End Enhancement	@

* Valid only on the HP 2394A terminal.

FORMAT MODE	
E_C]	Starts a field.
* E_C & e <x>e <y>	Starts an edit rule of type “y” with valid character type “x” specified.
	y MEANING
	R Required
	T Total fill
	J Justify
	x TYPE
	0 All characters (default)
	1 Alphabetic-only
	2 Auto upshift
	3 Alphanumeric
	4 Integer-only
	5 Signed decimal
	6 Implied decimal
	7 Constant
	8 Integer with fill
	9 Signed decimal with fill
	10 Implied decimal with fill
	11 Numeric-only
* E_C & k <n>X	Selects the decimal type. For “n” = 0, the decimal type is US (default); for “n” = 1, the decimal type is European. (Decimal Type)
* E_C & k <x>Y	Selects the number of implied decimal digits “x”; where “x” can be any digit from 0 to 9 and the default is 2. (Implied Decimals)
* E_C & k <x>Z	The data transmitted when the ENTER key is pressed is selected by “x”. (Transmit)
	x MEANING
	0 Transmits data within the unprotected and Transmit-Only fields (default).
	1 Transmits data from any unprotected or Transmit-Only fields which have been modified.
E_C]	Ends the field

Function Key Definition (“Esc&f” family)

	User keys programming	Default
Esc&f <attribute> a	Attribute: 0 = N, 1 = L, 2 = T	0
<key> k	Key: 1 = [f1] to 8 = [f8]	1
<label length> d	No. of chars in label: 0 to 16 (32 diacritical combinations)	0
<string length> L	No. of chars in string: 0 to 80 (160 diacritical combinations)	1
† <label><string>	-1 clears string	
Esc&f <key> E	Trigger the execution of the <key>: -1 = [Enter], 1 = [f1] to 8 = [f8] *0 = [Return]	

Label/Function Key Operation (“Esc&j” family)

Esc&j@	Remove screen labels, and enable user function keys
Esc&jA	Display the modes set of labels
Esc&jB	Enable the user function keys (the user keys labels are displayed)
Esc&jC	Clear <message> and restore current screen labels
Esc&jS	Disable function control keys [User System] and [Menu] and label <modes> (if used, terminal beeps)
Esc&jR	Enable function control keys [User System] and [Menu] and label <modes>
Esc&j	<message length> L <message> Replace the function keys definition by a <message>. <message length>: 0 to 160 (320 diacritical combinations). Terminal beeps at end of displayed <message>. Labels restored by “Esc&jC” or pressing [Return].

* Valid only on the HP 2394A terminal.

† The <label> and <string> may contain display enhancements on the HP 2394A terminal.

Data Operations (“Esc&p” family)— ignored if no second port

Esc&p[<x> d] <x> D	Selects device <x> as the destination device (displays an “*” in selected “to” device screen label and turns off previous “to” device): x=3 display, x=4 external device and [<x>d] = optional.
For the following sequences, if “<x> d” (destination) parameter is not specified, the selected “to” devices in the screen labels are assumed to be the destinations.	
Esc&p 4d <Y>	Copy “<Y>” amount of data to external device (“4 d”). Y=B: Copy the line where the cursor is located Y=F: Copy the display screen from the line in which the cursor is located to the last displayed line. Y=M: Copy the contents of the display memory from the cursor to the end of the memory.
Esc&p <a> d dW <data string>	Transfers the ASCII data string from the computer to the selected “TO” device. The string is terminated either by the 256th byte or by an ASCII line feed. Where, <a> and : 3 = display, 4 = external device.
Esc&p <a> d d<x> W<data string>	Transfers “<x>” bytes of the data string from the computer to the selected “TO” device in binary form. Where, <a> and : 3 = display, 4 = external device.
Esc&p <x> p<y> u<z> C	Performs the action specified by “<z>” on device “<y>” as shown below.

<z>	ACTION	<y>	DEVICE
0	Generate one form feed	4	External device
1	Space number of lines set by parameter "<x>"	3	Display
2-10	Generates one form feed	<x> OPTIONAL PARAMETER	
11	Turn on Log bottom mode	Optional parameter to define the character to turn OFF Record Mode. Or it may be used in conjunction with 1C (parameter <z>) to specify the number of lines to advance.	
12	Turn on Log Top mode		
13	Turn off any logging mode		
14-19	Ignored		
20	Turn on Record Mode		

*Forms Cache (Storage)	
E _c & q 4te2{<x>L	Selects the size of forms cache (storage). Where "x" is the number of 256 byte blocks. It is a decimal value between 0 and 95. The maximum value is a function of the amount of display memory installed and the amount of memory allocated for data comm buffers.
E _c & p9^<form#>p	Returns the forms cache status condition.
E _c & p9u <form#>p <x>	General form to define, purge, and transfer a form. Where "9u" is the device assignment, "form#" specifies the form number from 1-255, and "x" is the following:
x	MEANING
0L or L	purge specified form
f	transfer a form to the screen
<form-size>L<form-contents>	define a form (known length)
<form-contents>L	define a form (unknown length, multi-blocked)
Note: The "<" and ">" shown above are part of the escape sequence.	

*Valid only on the HP 2394A terminal.

Configuration ("Esc&q") - saved in non-volatile memory

Esc&q<x>L <x>

0=Unlock all configuration menus

1=Lock all configuration menus; plus functions <MODIFY ALL>. <BLOCK MODE>, <REMOTE MODE> and <AUTO LF> is used error message displayed: "Function locked Press RETURN to clear").

*The following list of E_C &q escape sequences are only valid on the HP 2394A terminal.

$\langle E_C \text{ \&q } \langle x \rangle t \langle y \rangle L \rangle$ Locks or unlocks menu “x” where “x” and “y” are as follows:

“x”	MENU
1	Datacomm
2	Invalid
3	Invalid
4-8	Terminal Configuration
9	Service Keys (valid only in lock parameter)

“y”	Action
0	Unlock
1	Lock

† These E_C sequences are used to change the Configuration Operations, Terminal Configuration menu, and External Device menu entry values. The active values are changed as well as those in non-volatile memory.

Escape Sequence	Menu Field	$\langle x \rangle$ value	
$E_C \&q \langle m \rangle te 1 \{ \langle x \rangle A$	Auto line feed	0 = OFF, 1 = ON	Modes Labels
$E_C \&q \langle m \rangle te 1 \{ \langle x \rangle B$	Block mode	0 = OFF, 1 = ON	
$E_C \&q \langle m \rangle te 1 \{ \langle x \rangle M$	Modify	0 = OFF, 1 = ON	
$E_C \&q \langle m \rangle te 1 \{ \langle x \rangle R$	Remote	0 = OFF, 1 = ON	
$E_C \&q \langle m \rangle te 1 \{ \langle x \rangle C$	Caps Lock	0 = OFF, 1 = ON	Terminal Config. Menu
$E_C \&q 8 te 0 \{ \langle x \rangle D$	Bell	0 = OFF, 1 = ON	
$E_C \&q \langle m \rangle te 1 \{ \langle x \rangle L$	Local Echo	0 = OFF, 1 = ON	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle A$	XmitFnctn (A)	0 = NO, 1 = YES	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle B$	SPOW (B)	0 = NO, 1 = YES	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle C$	InhEolWrp (C)	0 = NO, 1 = YES	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle D$	Line/Page (D)	0 = NO, 1 = PAGE	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle G$	InhHndShk (G)	0 = NO, 1 = YES	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle H$	InhDC2 (H)	0 = NO, 1 = YES	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle I$	ASCII 8 Bits	0 = NO, 1 = YES	
$E_C \&q \langle m \rangle te 0 \{ \langle x \rangle N$	EscXfer (N)	0 = NO, 1 = YES	
$E_C \&q \langle m \rangle te 2 \{ \langle x \rangle S$	StartCol	1-80	
$E_C \&q \langle m \rangle te 2 \{ \langle x \rangle L$	FormsBufSize	0-255	
$E_C \&q \langle m \rangle te 2 \{ \langle x \rangle F$	FldSeparator	0-127	
$E_C \&q \langle m \rangle te 2 \{ \langle x \rangle R$	Blk Terminator	0-127	
$E_C \&q 8 te 1 \{ \langle x \rangle R$	RETURN = ENTER	0 = NO, 1 = YES	

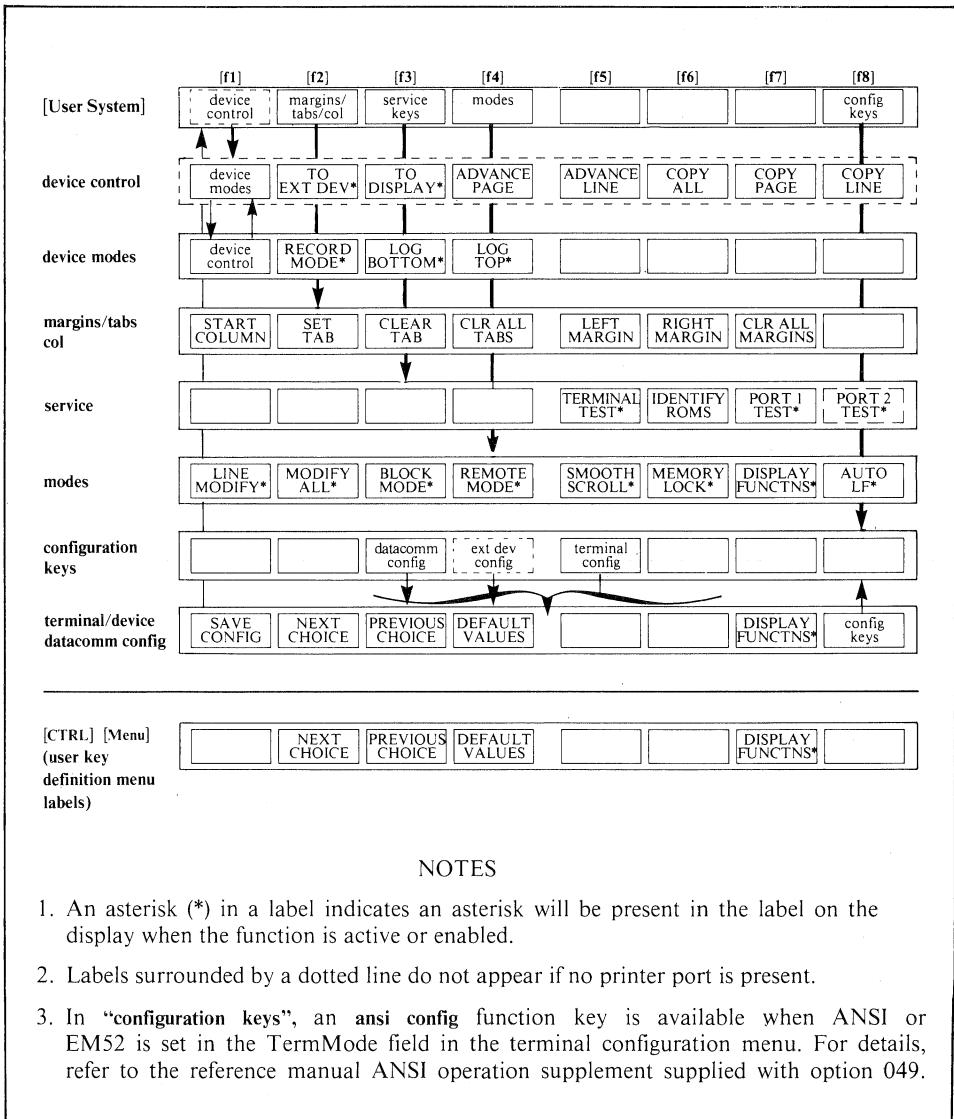
Esc&q 8te 1{ <x>A	RETURN Def (first character)	See note	} Terminal Config. Menu
Esc&q 8te 1{ <x>B	RETURN Def (second character)	See note	
Note: "x" indicates the decimal value of the ASCII code for the desired character.			
Esc&q 8te 1{ <x>T	Tab = Spaces	0 = NO, 1 = YES	
Esc&q 8te 1{ <x>U	DATAComm/PRINTER	0 = PORT1/PORT2 1 = PORT2/PORT1	} Format Mode
Esc&q <m>te 2{ <x>X	Decimal Type	0 = US, 1 = EUR	
Esc&q <m>te 2{ <x>Y	Implied Dec Digits	0-9	
Esc&q <m>te 2{ <x>Z	Transmit	0 = All Fields 1 = Modified fields	
Esc&q 8te 1{ <x>N	Printer Nulls	"x" = no. of nulls (0-255)	} External Device

† Valid on the HP2394A Terminal

Configuration Operations ("Esc&k" family)

		<x> value	
Esc&k <x>A	Auto line feed	0 = OFF, 1 = ON	} Modes Labels
Esc&k <x>B	Block mode	0 = OFF, 1 = ON	
Esc&k <x>M	Modify All	0 = OFF, 1 = ON	
Esc&k <x>R	Remote	0 = OFF, 1 = ON	
Esc&k <x>[Smooth Scroll	0 = OFF, 0 ≠ ON	
Esc&k <x>C	Caps Lock	0 = OFF, 1 = ON	} Terminal Config. Menu
Esc&k <x>D	Bell	0 = OFF, 1 = ON	
Esc&k <x>L	Local Echo	0 = OFF, 1 = ON	
Esc&k <x>\	TermMode	0 = HP, 1 = ANSI	
Esc&k <x>I	7/8 bits use	0 = prev parity/7 1 = no parity/8	} Datacomm menu
Esc&k <x>K	Auto Keyboard Lock	0 = OFF, 1 = ON	
Esc&k <x>N	Spow latch	0 = OFF, 1 = ON	
Esc&k <x>P	Caps Mode [Caps] key	0 = OFF, 1 = ON	
Esc&k <x>]	[Select] key	0 = OFF, 1 = ON	

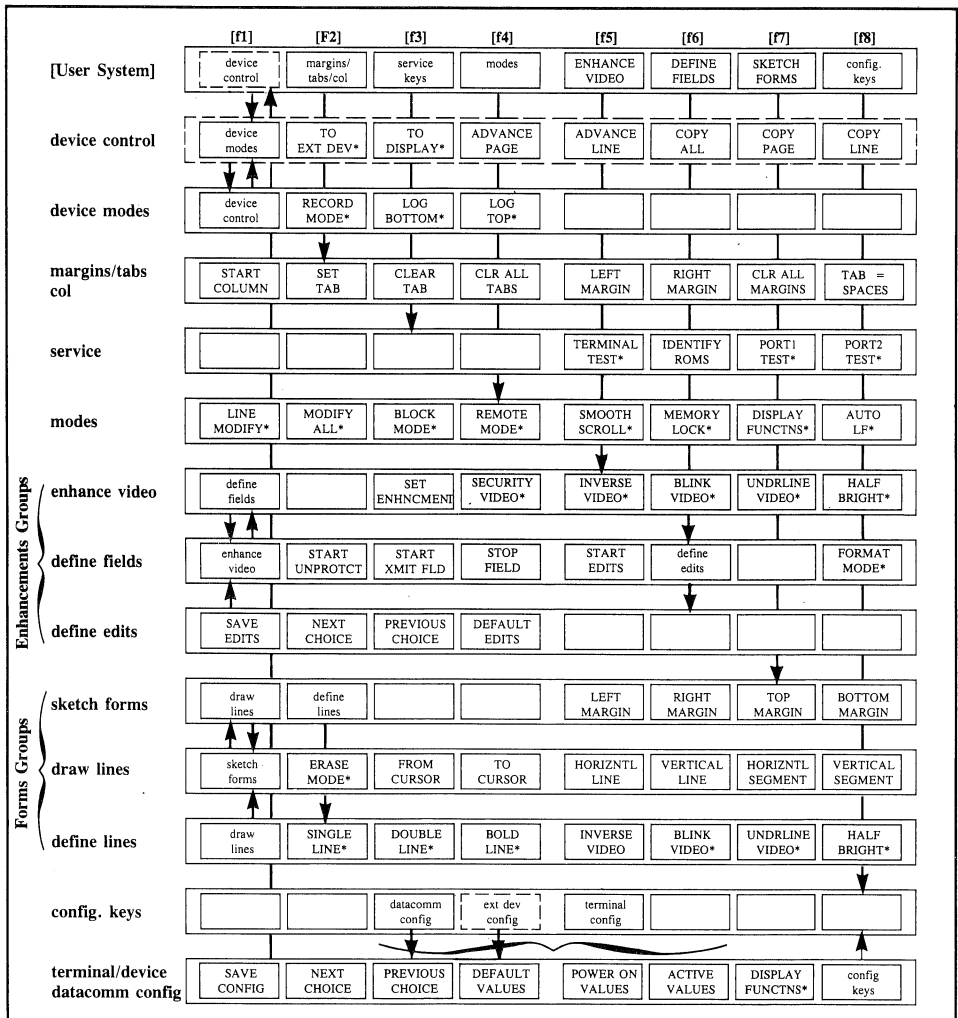
HP 2392A Screen Label Tree



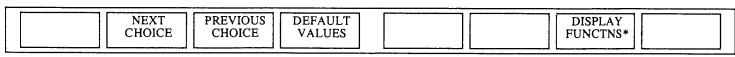
NOTES

1. An asterisk (*) in a label indicates an asterisk will be present in the label on the display when the function is active or enabled.
2. Labels surrounded by a dotted line do not appear if no printer port is present.
3. In "configuration keys", an `ansi config` function key is available when ANSI or EM52 is set in the TermMode field in the terminal configuration menu. For details, refer to the reference manual ANSI operation supplement supplied with option 049.

HP 2394A Screen Label Tree



[CTRL] [Menu]
(user key
definition menu
labels)



NOTES

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