

Congratulations!

You have chosen Hewlett-Packard's new 2622A Display Station, another technological advance in reliable terminals. The terminal's flexibility, extensive features, and ease of operation can save you valuable time and computer resources in a wide range of applications.

This user's manual has been prepared to acquaint you with your terminal and to serve as an aid to achieving optimum performance. This manual tells you how to install and use the terminal both off-line (by itself) and on-line (connected to a computer). It should answer most questions you have about how to use the terminal.

Detailed programming and accessory installation information is contained in the HP 2622A Reference Manual 02622-90008. The HP 2622A Service Manual 02622-90007 (ordered separately) provides information regarding troubleshooting, repair, and theory of operation.



**FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE
STATEMENT**

The Federal Communications Commission (in Subpart J, of Part 15, Docket 20780) 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 instructions manual, may cause interference to radio communications. As temporarily permitted by regulation it has not been tested for compliance with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. 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 measures may be required to correct the interference.

Introducing the HP 2622A
Getting to Know Your Terminal
The Keyboard
Function Keys
Configuring Your Terminal
Using Your Terminal By Itself
Using Your Terminal With A Computer
Using Your Terminal With The Integral Printer
Maintaining Your Terminal
In Case of Difficulty
Escape Codes
Appendix A
Appendix B
Index

How To Use This Manual

This manual is written as an introduction to the terminal. It describes most of the terminal's features so that you can become familiar with its capabilities without worrying about all of the functional details. Once you have become familiar with the terminal, or if you desire detailed information on specific features, you can refer to the Reference Manual. If you are already familiar with HP 2622 series terminals, you need not read the entire manual. You can use the index at the back of the manual to locate answers to specific questions you may have.

This manual consists of the following sections and appendices.

Section 1 — *Introducing the HP 2622A.* This section provides a general description of the terminal and briefly describes its capabilities.

Section 2 — *Getting to Know Your Terminal.* This section explains how to identify terminal options and accessories. In addition, it gives instructions for preparing your terminal for use.

Section 3 — *The Keyboard.* This section gives the location and describes the function of each of the major key groups.

Section 4 — *Function Keys.* This section describes and tells how to use the function keys; eight keys to which various functions can be assigned.

Section 5 — *Configuring Your Terminal.* This section describes how to configure your terminal to suit your needs.

Section 6 — *Using Your Terminal By Itself.* This section gives step-by-step examples of using the terminal in typical operations. These operations can be performed without peripheral devices or a computer system.

Section 7 — *Using Your Terminal With A Computer.* This section explains how to use the terminal with a computer system.

Section 8 — *Using Your Terminal With the Integral Printer.* This section provides information on how to use the terminal with the optional integral printer.

Section 9 — *Maintaining Your Terminal.* This section gives instructions for cleaning the terminal.

Section 10 — *In Case of Difficulty.* This section explains what to do if the terminal does not work properly.

Appendices — The appendices contain condensed programming information for all the terminal features and pictures of the foreign language keyboards which are offered as options.

Index — An index is provided for quick access to all information contained in the manual.

Terms Used In This Manual

A brief glossary of terms that you should know is given in the following table. Being familiar with these terms will help you to better understand the material presented in this manual.

TERM	DESCRIPTION	TERM	DESCRIPTION
CURSOR	The blinking underline on the display that tells you where the next character or space will appear when entered.	LINE	A row of characters; may be thought of as a line of text in a book.
DATACOMM	Abbreviation for "data communication" (transfer of data between the terminal and a computer).	LOCAL MODE	Operating the terminal without the aid of a computer system (that is, "off-line").
DATA TRANSFER OPERATION	The process of transferring (or copying) data from one device to another.	PAGE	The number (24) of display memory lines which can be displayed on the screen.
"DESTINATION DEVICE"	The device that receives the data in a data transfer.	REMOTE MODE	Operating the terminal with the aid of a computer system (that is, "on-line").
DEVICE CONTROL OPERATION	The process of skipping lines, moving printer paper, or transferring data between devices.	"SOURCE" DEVICE	The device that supplies the data in a data transfer.
FORM FEED	Moves the printer paper to the top of the next page.		
FUNCTION KEYS	Eight keys located at the top of the keyboard which are used in association with eight labels displayed along the bottom of the screen. The function of each key can be changed by changing the associated label.		

Introducing the HP 2622A	1-1
High Resolution Display	1-3
Display Memory	1-3
Keyboard	1-3
Function Keys	1-3
Function Control Keys	1-3
Configuration	1-4
Data Communications	1-4
Self-Test	1-4

Introducing The HP 2622A

1



Highlights of the HP 2622A are:

1 Versatile keyboard:

- Easy to use.
- Eight variable function keys.
- 68-key typewriter-style keyboard layout.
- Multiple character sets representing national languages.
- Calculator-style numeric key pad.
- Terminal control keys.
- Display control keys.
- Edit keys.

2 High resolution display screen:

- Bright, clear screen display.
- Enhanced 7×11 dot characters in a 9×15 dot cell.
- 24-line by 80-character screen; 48-line by 80-character display memory.
- Display enhancements include:
 - Inverse video.
 - Blinking characters.
 - Underline characters.
 - Half bright.
- Displayable control code characters.

The HP 2622A Display Terminal is a versatile character or block mode terminal. In addition to typical terminal features, the terminal has a format mode for data entry applications. Forms may be displayed and enhanced by the optional line drawing set. The terminal can display up to 80 characters and has an optional printer.

3 Integral printer option:

- Can print data entry-type forms, including a line drawing set.
- Can operate in report print and metric print modes as well as standard print mode.

4 Special function keys:

Eight multi-function keys with functions selectable using three keyboard keys:

- **AIDS** key—Redefinable configuration, service keys, printer operations, margin/tab/start column selection
- **MODES** key—Local/remote operating mode selection, block mode, modify mode, automatic line feed, memory lock, display functions, line mode, terminal test mode.
- **USER KEYS** key—Enables user to define functions for the function keys.

Configuration:

- Local:
 - Configurable from keyboard or by computer program.
 - Screen displayable configuration data.
 - Redefinable configuration using function keys.
 - Keyboard features selectable: caps lock.
 - Configuration memory protection.
 - User-programmable **RETURN** key.
- Remote:
 - Data transfer rates up to 9,600 baud.
 - Character, line or page block data transfers.
 - EIA RS-232-C Data Communications interface.

Self test:

- Exhaustive terminal, data communications, and integral printer tests.

High Resolution Display

The HP 2622A Display Terminal has a screen with a 150 mm by 215 mm (6 inches by 8.5 inches) viewing area capable of displaying up to 1920 characters on 24 lines of 80 characters. Each character is formed by a 7×11 dot matrix within a 9×15 dot cell. This permits the precise formation of complex character symbols with ample separation between adjacent characters, both vertically and horizontally.

Display Memory

The HP 2622A Display Terminal display memory can store 3840 characters (48 lines of 80 characters each). In addition to this storage, 256 more bytes are available for a data communication buffer.

Keyboard

The HP 2622A keyboard is a separate unit that is linked to the display portion of the terminal by a flexible cable. The keyboard layout is similar to that used for standard office typewriters. It has 68 keys that include eight function keys and three keys for specifying the family of functions to be assigned to the function keys. Most of the remaining keys support the ASCII-coded character set. A numeric pad, similar to that used for calculators, is included.

Any one of six character sets covering eight languages and an optional Line Drawing Set ROM can be installed and assigned to the keyboard keys.

Function Keys

The function keys are the eight keys located across the top of the keyboard. These keys perform the functions indicated by screen labels assigned to each key. The screen labels are displayed in half-bright, inverse video across the bottom of the screen (rows 25 and 26).

Function Control Keys

Three additional keyboard keys are used to select the family of functions available through the function keys. The  key allows each of the function keys to be assigned a string of up to 80 characters selected by the user. The  key assigns terminal operating modes to the function keys for selection by the user. The  key accesses a tree of functions assignable to the function keys by user selection. This tree comprises most of the functions assignable to the functions keys.

See Section 4 for a discussion of the function and function control keys.

Configuration

The HP 2622A provides you with the ability to change the configuration of the terminal directly from the keyboard using the function keys. The current configuration can be displayed on the screen and then changed by simply pressing the appropriate function key. The portion of memory used to store this configuration is non-volatile; a battery is used to preserve it whenever the main power source is shut off.

Data Communications

You can transfer data to and from a computer in character mode (one character at a time), block line mode (one line at a time), or block page mode (the entire contents of the display). In block line or block page mode, you can compose text and edit it before sending it to the computer.

The terminal operates at a transfer rate of up to 9,600 baud and offers full-duplex, asynchronous, point-to-point communications using the EIA RS-232-C communications interface specifications. Connection to a computer is direct or through a modem.

In addition to these features, the HP 2622A provides, as an option, an integral thermal printer which can be used to produce a permanent copy of your data transactions.

Section 7 contains further information on data communications.

Self-Test

This terminal is engineered for high reliability, ease of testing, and, if required, rapid repair. By using the test function, you get a go/no-go indication of the terminal's operating condition. Refer to Section 10 for further information on the terminal's self test function.

2

Getting To Know Your Terminal	2-1
How to Identify Options and Accessories	2-1
Preparing Your Terminal for Use	2-2
Turning the Terminal On and Off	2-3
On	2-3
Off	2-3

Getting To Know Your Terminal

How to Identify Options and Accessories

Any options you request when you order the terminal are delivered installed within the terminal. Accessories, such as data communication cables, are delivered with the terminal, usually in the same carton but packaged separately. Upon delivery of the terminal, verify that the options and/or accessories you ordered are included in the shipment received.

An identification label is located on the rear panel of your terminal (see figure 2-1). The first section of this label states the power requirements of the terminal. The next section states the model number and the serial number. The third section lists any options included with the terminal.

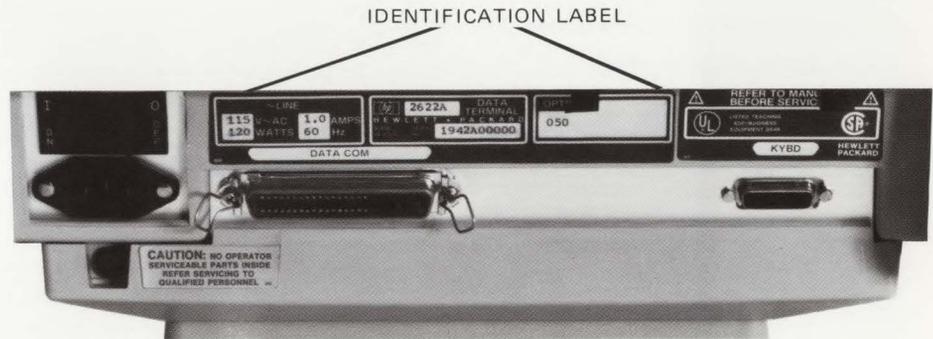


Figure 2-1. HP 2622A Identification Label, Rear Panel

Table 2-1 is a list of options available for the HP 2622A Display Station.

Table 2-1. HP 2622A Options

OPTIONS	DESCRIPTION
001	Swedish/Finnish Keyboard and ROM
002	Danish/Norwegian Keyboard and ROM
003	French Keyboard and ROM
004	German Keyboard and ROM
005	United Kingdom Keyboard and ROM
006	Spanish Keyboard and ROM
013	50 Hz, 240V Power
014	60 Hz, 100V Power
015	50 Hz, 220V Power
016	50 Hz, 100V Power
050	Integral Printer
202	Line Drawing Character Set

When communicating with Hewlett-Packard regarding your terminal, specify the model, serial, and the option numbers to ensure accurate identification by Hewlett-Packard. A list of Hewlett-Packard Sales and Service Offices is included at the back of this manual.

NOTE

If your terminal is already installed, you can ignore the following material and proceed to "Turning the Terminal On and Off."

Preparing the Terminal for Use

This terminal is designed to operate in a wide range of environments. It is self-contained and provides easy access to the operator controls so that normal installation does not require that you open the unit. The terminal should be opened only by a qualified service person (refer to the HP 2622 Service Manual, HP Part No. 02622-90007).

To install the terminal, complete the following steps.

1. Place the terminal on any sturdy, convenient surface such as a desk, table, or stand designed for such a purpose. Avoid plush or spongy surfaces that might restrict the flow of air through the vents in the base of the terminal (figure 2-2). For example, do not use a typewriter pad beneath the terminal.



Figure 2-2. Cooling Airflow Through the Terminal

2. Connect and secure the keyboard cable hood connector to the socket connector labeled KYBD on the terminal's rear panel (see figure 2-3).
3. This step is required to connect the terminal to an external data processing device, such as a computer. Connect and secure the data communications cable hood connector to the datacomm socket connector on the terminal's rear panel. The cable hood connector must be securely held in place by the wire clamps provided with the socket connector. Connect the other end of this cable to the appropriate external device.
4. Set the main power switch on the terminal's rear panel (see figure 2-3) to the OFF position.
5. Connect the power cord to the connector located just below the main power switch. Ensure that the voltage to be supplied matches your terminal's power requirements (see the power requirements label on the rear panel of the terminal).
6. Plug the 3-prong connector into the outlet for the main power source.

WARNING

For your safety, a 3-prong grounded power outlet must always be used.

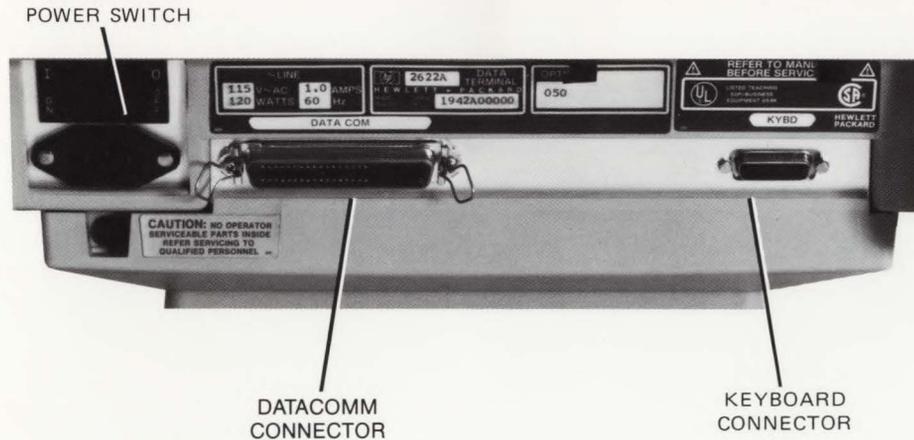


Figure 2-3. HP 2622A Power Switch and Connector Positions



Figure 2-4. HP 2622A Initial Screen Display

Turning the Terminal ON and OFF

ON

When the installation of the terminal is completed, set the main power switch on the rear panel (see figure 2-3) to the ON position. After approximately 15 seconds, the terminal is ready to use. If the terminal beeps more than once during power up, the terminal may be faulty; refer to section 10, Terminal Test to check for proper operation. Figure 2-4 illustrates the condition of the display screen as it appears following the initial application of power to the terminal.

When the terminal is ready to use, the cursor is displayed in screen column 1, row 1. In addition to the cursor, the primary level of function key labels is displayed across the bottom of the screen (figure 2-4).

If the message DEFAULT CONFIG USED is present at the bottom of the screen, the battery that protects non-volatile memory may have been accidentally jarred loose during shipment or unpacking. Ensure that the battery pack is securely seated (see Section 9 for instructions about removing and replacing the battery pack) then turn off the power and turn it on again. If the message remains, perform a terminal test (refer to Section 10, Terminal Test, for instructions) to determine if the terminal is malfunctioning or if the battery is dead or missing. If the test completes successfully, replace the battery. If the message persists after the battery has been replaced, contact your nearest Hewlett-Packard sales and service office (listed at the end of this manual) for help.

OFF

To shut off your terminal, simply set the main power switch to the OFF position.

3

The Keyboard	3-1
Character Set Group	3-2
ESC Key Operations	3-2
CTRL Key Operations	3-2
ENTER Key Operations	3-3
Numeric Group	3-3
Selectable Character Sets	3-3
Display Group	3-5
Moving the Cursor	3-6
Scanning the Display Memory	3-7
Edit Group	3-8
Terminal Control Group	3-10
Reset	3-10
Break	3-10
Function Keys Group	3-10
Function Control Keys	3-11
AIDS Key	3-11
MODES Key	3-11
USER KEYS Key	3-11
What to Do in Case of Difficulty	3-11

The Keyboard

3



Figure 3-1. Terminal Keyboard

Before learning to control devices and transfer data, you should become familiar with the keyboard. Figure 3-1 shows the keyboard layout. The keyboard consists of the following functional groups:

- **Character Set Group.** This group of keys is similar to a standard typewriter keyboard. It is used for entering data into the terminal workspaces.
- **Display Control Group.** This group controls movement of the display to view or operate on portions of the display memory. It also controls the cursor position.
- **Edit Group.** Text can be easily changed using the insert and delete functions of the edit group.
- **Terminal Control Group.** This group is used to initialize the terminal or interrupt data communications operations while in remote mode.
- **Function Keys Group.** Keys in this group can either be assigned a function from a selection of functions or be assigned a unique function by the user.
- **Function Control Keys.** Three keys, each used to select one of three separate families of functions to be assigned to the function keys.

The remainder of this section briefly describes each of the keyboard groups.



Character Set Group

The alphabetic, numeric, and symbol keys are all located in the character set group. This is the largest group of keys on the keyboard. The basic character set is made up of 128 characters. This includes upper and lower case alphabetic characters, punctuation, and some commercial symbols. In addition, several non-displaying characters are also available. The non-displaying characters are used primarily for special applications. Refer to the Reference Manual for additional information on non-displaying characters.

The standard or base character set is indicated on the keys. The **SHIFT** key selects upper case or shifted characters and is also used for adding a function to several other keys (**USER KEYS**, **TAB**, **AIDS**, and **HOME**). The **BACK SPACE** and **RETURN** keys are used in the same manner as on a typewriter. Three **TAB** keys are available. The primary **TAB** key, at the left side of the keyboard, can be used to tab either left or right. When it is pressed, the cursor moves to the next tab stop to the right. **SHIFT** **TAB** moves the cursor to the next tab stop to the left. A right tab key (**TAB** **←**) and a left tab key (**TAB** **→**) are located in the numeric pad group. The **CAPS** key selects all capital letters, overriding the Caps Lock selection on the terminal configuration menu.

EXERCISE

Try typing a few lines of text to get used to the keyboard. Remember, this part of the terminal works very much like a typewriter. Note that, by using the **BACK SPACE** key, you can overwrite and change characters.

The **ESC** and **CTRL** keys are used to provide additional character codes and to generate special control codes for various terminal operations. The use of the **ESC** and **CTRL** keys is explained below.

ESC Key Operations

The **ESC** key is used to extend the operating functions of the terminal. Unlike the **CTRL** key, the **ESC** key is pressed first, then released, before pressing any other keys. Some functions require only that one key be pressed following the **ESC** key to perform the function; while other functions require a sequence of character keys be pressed following the **ESC** key. These sequences must always be terminated with an upper case character, rather than a lowercase character, to tell the terminal that the sequence has ended. All the escape code functions are listed in the appendix at the end of the manual.

CTRL Key Operations

The **CTRL** key can be used to add another function to the **SHIFT** key. It is also used together with other keys to generate ASCII control codes (see appendix A). Be sure to hold down the **CTRL** key while pressing the other key.

ENTER Key Operations

When the terminal is set for Remote (on-line) mode, the **ENTER** key allows you to send blocks of data to a computer. The **ENTER** key functions differently depending upon whether the terminal is in Format Mode (**ESC W**) and on the **BLOCK MODE** and **REMOTE MODE** key settings. Refer to the Reference Manual for information on use of the **ENTER** key in Remote mode.

In Local mode, the **ENTER** key can be used to produce a copy of all data in the display on the integral printer.



Numeric Group

The numeric keys at the right of the keyboard act in the same way as the keys in the alphanumeric group. These keys are arranged to make it easy to enter numeric data and use tabs. In addition to the numeric keys, the pad holds a “dash” or “minus” key, a **TAB ←** key, a **TAB →** key, and a decimal **[.]** key.



Figure 3-2. Location Of Keys Which May Change With Character Set Selection

Selectable Character Sets

USASCII is the standard character set with optional Swedish/Finnish, Danish/Norwegian, French, German, United Kingdom, and Spanish character sets. You can select either “QWERTY” or “AZERTY” French keyboard configurations. When a national language option is installed, it adds the extended Roman character set to the USASCII character set. Refer to Section 5, Configuring the Terminal, and Appendix B for information on character set selection. There are 16 keys which might be different depending on the character set selected. Figure 3-2 locates the keys and table 3-1 associates the key location, the character set, and the character produced when the key is pressed.

The Keyboard

Several "mute" keys are used in French and Spanish character sets. These are keys used to produce certain characters which contain both the alphabetic character and a diacritic mark (such as **^** or **'**). When the diacritic mark is typed, it remains on the screen but the cursor remains in the same position awaiting the alphabetic character. When one of the acceptable characters (**a, e, i, o, u, A, O, U**) is typed in, the cursor moves on to the next character position. If the character typed in is not one of the acceptable characters, the last character typed in is displayed and the cursor moves to the next position.

Table 3-1. Characters Which Change With Character Set Selection

LANGUAGE	CHARACTERS
USASCII	# ^ & - + ~ Q W Y { } A : " Z @ < > ? 3 6 7 - = \ q w y [] \ a ; ' z 2 , . /
SVENSK/SUOMI	# & / ? ' é * Q W Y Å ü > A Ö Ä Z " ; : - 3 6 7 + é ' q w y å ü < a ö ä z 2 , . -
DANSK/NORSK	# & / ? ' ^ ~ Q W Y Å * > A Æ Ø Z " ; : - 3 6 7 + @ \ q w y å ì < a æ ø z 2 , . -
FRANCAIS azM, az	§ + / ? " £ A Z Y Ç * > Q è ' W " ; : - 3 6 7 ' ^ \ a z y å & < q é ' w 2 , . -
FRANCAIS qwM, qw	§ + / ? " £ Q W Y Ç * > A è ' Z " ; : - 3 6 7 ' ^ \ q w y å & < a é ' z 2 , . -
DEUTCH	& / ? ' ^ Q W Z ü * > A Ö Ä Y " ; : - 3 6 7 ß ' £ q w z ü * < a ö ä y 2 , . -
UK	£ & ^ ? / ~ Q W Y { } > A @ Z " ; : - 3 6 7 + ' q w y [] < a * \ z 2 , . -
ESPAÑOL M and ESPAÑOL	§ & ; / ? ~ Q W Y { } > A Ñ @ Z " ; : - 3 6 7 + ' q w y ' # < a ñ * z 2 , . -



Display Group

The display group consists of the , , , ,  and  keys, , , and  keys. The , , ,  and  keys are used to position the cursor and the  and  keys, , and  keys are used to control the display.

The display screen holds up to 24 lines of 80 characters each. This is called a "page" and you can select the previous page and the next page. When the display has been filled with data, the top line rolls off the screen. As you type each line, the display will roll up to make room for the new line. This continues until display memory (which holds 48 lines) is filled. At this point, if you enter another line, one line will be lost from display memory to make room for the new line. The display group keys allow you to "page" or scroll through the display memory assigned to the workspace to display characters that have rolled off the screen.

The  and  keys allow you to scan the display memory one line at a time.

The  and  keys allow you to move the display one page forward or backward in the workspace. When you press these keys, the information presently displayed is replaced with the next or previous page of the display memory.

Moving the Cursor

The cursor position is controlled by five keys. The  and  keys move the cursor in the vertical dimension, the  and  keys move it in the horizontal dimension, and the  key locates it at the left margin of the first line in the screen and displays the first page in the display memory.

Table 3-2 describes the function of each key.

Table 3-2. Cursor Control Key Functions

KEY	FUNCTION	KEY	FUNCTION
	Cursor Up—Moves the cursor up one row each time the key is pressed. If the key is held down, the cursor moves up until either the key is released or it reaches the top row of the display memory where it wraps around to row 24 of the screen.		Cursor Right—Moves the cursor right one column each time the key is pressed. If the key is held down, the cursor moves right until either the key is released or the last column of the display is reached. If the key is held down after the last column is reached, the cursor moves to the first column of the following row. This action continues as long as the key is held down or until column 80 of the last line of text in display memory is reached; then, the cursor moves to column 1 of row 1.
	Cursor Down—Moves the cursor down one row each time the key is pressed. If the key is held down, the cursor moves down until either the key is released or the last row of display memory is reached where it wraps around to row 1 of the screen.		Home Cursor—The cursor is moved to the left margin of the first row of the display memory and rolls the text in display memory down as far as possible so that the first line of text in memory appears in row 1 of the screen.
	Cursor Left—Moves the cursor left one column each time the key is pressed. If the key is held down, the cursor moves left until either the key is released or the first column of the display is reached. If the key is held down after the first column is reached, the cursor moves to the last column of the preceding row. This action continues as long as the key is held down or until column 1 of the first line of text in display memory is reached; then, the cursor moves to column 80 of row 24.	 	Cursor Home Down—The cursor is moved to the left margin of the row following the last used row in the display memory. If the cursor line is not displayed when the keys are pressed, the display is scrolled up until the cursor line is displayed.

Scanning the Display Memory

The display is controlled by the **ROLL UP** and **ROLL DOWN** keys, and the **NEXT PAGE** and **PREV PAGE** keys. With these keys, the contents of the display memory can be scrolled vertically past the display screen, or the next or previous set of lines (page) can be called to the display screen (figure 3-3).

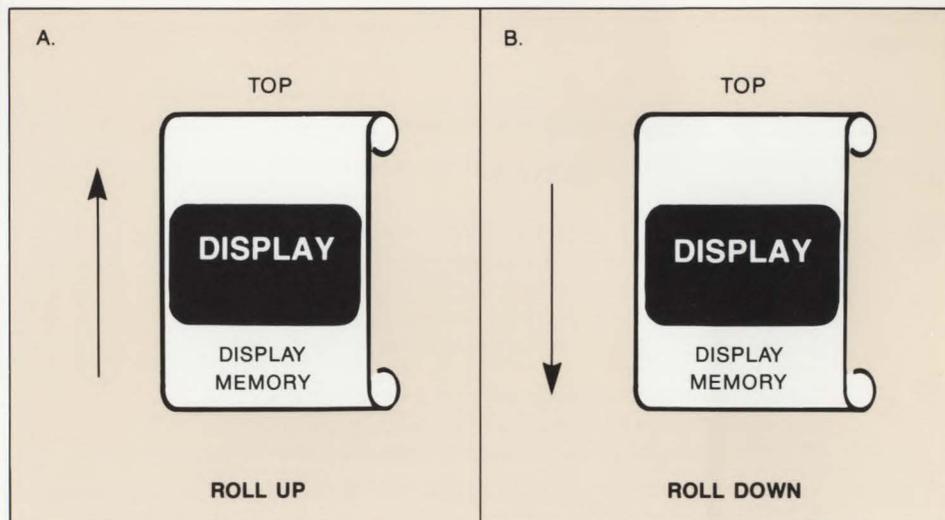


Figure 3-3. Operation of ROLL UP and ROLL DOWN Keys

Table 3-3 describes the function of the **ROLL UP** and **ROLL DOWN**, and the **NEXT PAGE** and **PREV PAGE** keys.

Table 3-3. Display Control Key Functions

KEY	FUNCTION
ROLL DOWN	Scrolls the contents of display memory down one row each time the key is pressed. If the key is held down, the contents of display memory is scrolled down until either the key is released or the first row of display memory is displayed as the first row of the display screen.
ROLL UP	Scrolls the contents of display memory up one row each time the key is pressed. If the key is held down, the content of display memory is scrolled up until either the key is released or the last row of display memory is displayed as the first row of the display screen.
NEXT PAGE	Allows you to display the next 24 lines.
PREV PAGE	Allows you to display the previous 24 lines.



Edit Group

Displayed data can be edited by inserting or deleting characters or lines, deleting the portion of a line to the right of the cursor, or deleting all data in display memory beginning at the cursor position.

Table 3-4 lists the function of each edit key.

Table 3-4. Edit Key Functions

KEY	FUNCTION	KEY	FUNCTION
CLEAR DSPLY	Clears the display from the cursor position to the end of the workspace.	INS CHAR	This key allows you to insert characters into a line without overwriting existing characters. The new characters are inserted at the cursor position. The existing characters are shifted right one character position for each character entered. Characters shifted past the right margin are lost.
CLEAR LINE	Clears the line from the cursor to the end of the line.		When this insert character function is enabled, the characters "IC" are displayed in the status line at the bottom of the screen.
INS LINE	Inserts a blank line preceding the one in which the cursor is located. The line in which the cursor is located and subsequent lines are pushed down one line and the cursor is moved to the left margin of the blank line.		To deactivate the insert character function, press the INS CHAR key a second time. After this, any characters entered will overwrite existing characters, as usual.
DEL LINE	Deletes the line in which the cursor is located. Subsequent lines are scrolled up to take its place and the cursor is moved to the left margin.	DEL CHAR	This key deletes the character at the cursor position.
			When you press down the DEL CHAR key, characters to the right of the deleted character (up to the right margin) will be shifted left one character position for each character deleted.



Terminal Control Group

The terminal control group keys, which consist of the **RESET** and **BREAK** keys, are located in the upper right corner of the keyboard. These keys are used to reset the terminal and temporarily interrupt datacomm operations.

RESET Key

Soft Reset. Pressing the **RESET** key once results in a "soft reset" which unlocks the keyboard, clears any error messages, turns off Display Functions mode, stops printer operations and data communication transfers, and rings the keyboard bell.

Hard Reset. Pressing the **SHIFT**, **CTRL**, and **RESET** keys simultaneously produces a "hard reset." This causes the terminal to be set to the initial power-on state (reinitialization of the datacomm channel, the screen to be cleared, the user keys to be reset to the default values) and the keyboard bell to be rung. This key should not be used unless necessary to clear the terminal (refer to Section 10, In Case Of Difficulty).

BREAK Key

The **BREAK** key can be used to interrupt the operation of the terminal's data communication function to the computer. Refer to the Reference Manual for additional information.



Function Keys Group

The function keys group consists of keys **f1** through **f8**. The eight function key labels along the bottom of the display are associated with keys **f1** through **f8** in a positional relationship. For example, the third label from the left is associated with the third key from the left (**f3**). When the key is pressed, the function suggested by the label is performed. By changing the functions assigned to the labels, each key can be made to perform multiple functions. The functions assigned to the labels are changed using the Function Control keys (**AIDS**, **MODES**, and **USER KEYS**) and certain function keys.

Many of the functions needed for routine data entry (and which are normally initiated by keyboard keys) are incorporated into the function keys on the HP 2622A terminal. Refer to Section 4, Function Keys, for information on accessing these functions.



Function Control Keys

The function control keys consist of the **AIDS**, **MODES**, and **USER KEYS** keys. These three keys are used to select the family of functions available to the function keys.

AIDS Key

The **AIDS** key accesses multiple sets of function key labels (eight labels in a set, one for each function key). Most of the terminal functions are accessed through the **AIDS** key.

MODES Key

The **MODES** key selects only one set of function labels which are used to select terminal operating modes. These are Line Modify, Modify All, Block mode, Remote mode, Terminal Test mode, Memory Lock mode, Display Functions mode, and Auto Linefeed mode. The labels for these modes are also displayed when the terminal is initialized after a power-on or hard reset.

USER KEYS Key

Pressing **SHIFT** **USER KEYS** enables you to assign up to 80 characters of data to each function key. You can also assign the labels to the function keys and specify the disposition of the data assigned to each key. The data can be specified for local use at the terminal only, for transmission to the computer only, or to be treated as data entered normally from the keyboard. Refer to "User Definable Function Keys" in Section 4 for loading and executing the user keys.

What to Do in Case of Difficulty

If the key or function you try does not work properly, or if an error message appears on the screen, refer to Section 10. A list of messages and their meanings is given there. In addition to the list of messages, Section 10 contains information about error recovery, testing the terminal, and where to get service assistance if you should require it.

4

Function Keys	4-1
MODES Function Key Labels	4-2
AIDS Function Key Labels	4-4
Labels—Upper and Lower Case	4-5
Labels with an Asterisk	4-5
Aids Set	4-5
Device Control Set	4-8
Device Modes Set	4-9
To Devices Set	4-11
Margin/Tab/Col Set	4-12
Config Set	4-13
Service Set	4-14
User Definable Function Keys	4-15
User Key Modes	4-16
Definition Mode	4-16
Initiating Definition Mode	4-16
Defining a Function Key	4-16
Leaving Definition Mode	4-16
Use Mode	4-16
Initiating Use Mode	4-16
Leaving Use Mode	4-17

Function Keys

The function keys consist of keys **f1** through **f8** located along the top of the keyboard. They are used in association with function key labels displayed along the bottom of the screen. The function suggested by the label is performed when the associated key is pressed. The association between the labels and the function keys is positional. For example, the third label from the left is associated with the third key from the left (**f3**) (see figure 4-1).



Figure 4-1. Function Keys and Labels

Each function key can be made to perform various functions by changing the corresponding function key label. The function key labels are changed using the **MODES**, **AIDS**, and **USER KEYS** keyboard keys and the function keys themselves. There are three groups of function key labels:

- Mode function key labels.
- Predefined function key labels.
- User-definable function key labels.

The mode function key labels, which are accessed through the **MODES** key, enable selection of seven modes in which the terminal can operate. These labels also appear on the screen after a hard reset or power-on operation. Most of the user-initiated operations are accessed using the **AIDS** key. The user-definable function key capability enables the user to assign functions and labels of his own choosing to the eight function keys. This capability is accessed through the **SHIFT** and **USER KEYS** keys.

MODES Function Key Labels

The **MODES** key displays the Modes set of function key labels, as follows:

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

Except for **TERMINAL TEST**, these labels are used to activate or deactivate the major terminal modes. Each of the function keys, when these labels are displayed, can activate the mode denoted by the label (the label contains an asterisk when the mode is active). Alternately pressing the function key produces and deletes the asterisk. Table 4-1 describes the functions of the function keys when the Modes labels are displayed.

Table 4-1. MODES Key Set of Function Key Labels

LABEL	FUNCTION
LINE MODIFY	Used only in Remote mode. When enabled, this mode allows editing a line of data while in Character mode, then using the ENTER or RETURN key to transmit the line to the computer as a block. Line Modify mode ends when the ENTER or RETURN key is pressed.
MODIFY ALL	Similar to LINE MODIFY except that Modify All mode is not ended by the ENTER or RETURN key. Modify All mode transmits a line to the computer as a block. When Modify All mode is active, an asterisk is present in the label. When Modify All mode is not selected, the asterisk is absent from the label.
BLOCK MODE	This label is used only in Remote mode. When active (asterisk present in the label), typed data is displayed but not sent to the computer until after the ENTER key has been pressed. Otherwise, the terminal is in Character mode and each character is transmitted to the computer as typed.
REMOTE MODE	When selected (an asterisk present in the label), the terminal is in Remote mode (prepared for communications with the computer). When not selected (asterisk is absent from label), the terminal is selected for Local mode.
TERMINAL TEST	Initiates a go/no-go test of overall terminal operation. On completion of the test, a test pattern which includes all character sets the terminal is capable of displaying are displayed on the screen.

Table 4-1. MODES Key Set of Function Key Labels (Continued)

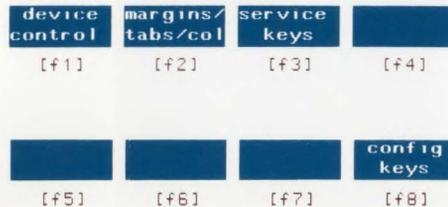
LABEL	FUNCTION
<p>MEMORY LOCK</p>	<p>Operates in two modes; overflow protect and display lock.</p> <p>Overflow Protect. When Memory Lock mode is activated and the cursor is in the first line of the display, data can be entered to the end of display memory. When the end of memory is reached, no more data can be entered and the bell sounds.</p> <p>Display Lock. Invoked by activating Memory Lock mode; deactivated by turning off Memory Lock mode. When Display Lock mode is entered, all data between the first line displayed and the line in which the cursor is located is frozen. Then, when new data is entered following the displayed data, the new data, when it is entered beyond the last line on the screen, scrolls up under the frozen data and the lines scrolled up off the screen are inserted in memory immediately preceding the first line of frozen data.</p> <p>When the ROLL UP key is pressed in Display Lock mode, the lines succeeding the frozen lines roll up under the frozen lines.</p>
<p>DISPLAY FUNC'NS</p>	<p>When ON, the action normally produced by any keyboard control key, such as RETURN, TAB, or any of the display or edit groups of keys, is not performed. Instead, an ASCII character or escape sequence representing the function is displayed on the screen.</p>
<p>AUTO LF</p>	<p>When on, generates a line feed with every carriage return, (pressing the RETURN key).</p>

AIDS Function Key Labels

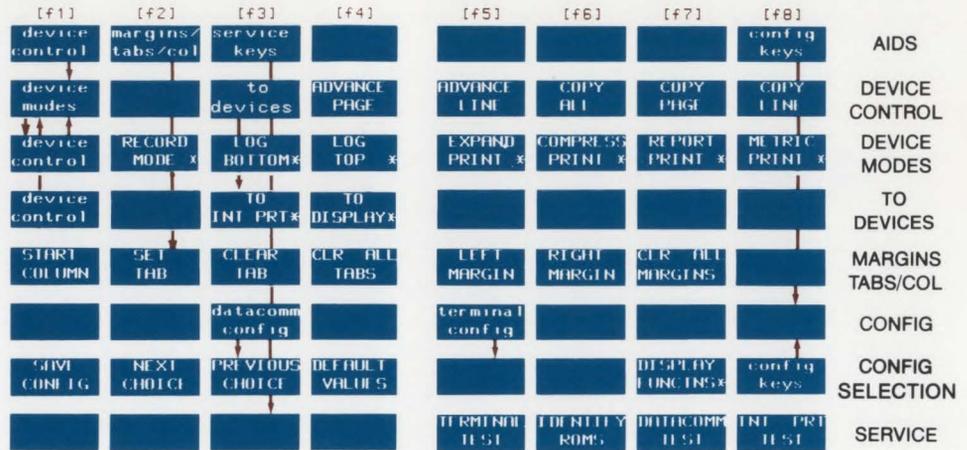
Most of the terminal capabilities are accessed, directly or indirectly, through the **AIDS** key. Some of these capabilities are listed below:

- Set or clear margins.
- Set or clear tabs.
- Send data to the internal printer.
- Select the start column for data transmissions.
- Select either of two types of configuration menus for configuration changes.
- Execute terminal tests.

There are four predefined function key labels which are accessed by pressing the **AIDS** key. These function key labels are shown below:



The remaining sets of labels are accessed, directly or indirectly, through the Aids set. Figure 4-2 illustrates how to access each set of labels.



NOTE: Those labels which include an asterisk (*) signify functions which, when enabled, include the asterisk to indicate that the function is enabled.

Figure 4-2. Function Key Labels Accessed Through the **AIDS** Key

Labels—Upper And Lower Case

The titles in the function key labels are written in both upper- and lower-case letters. Those written in lower-case letters are used only to change to another set of function key labels. Those written in upper-case letters perform the function suggested in the label.

Labels With An Asterisk

Two types of function key labels might contain an asterisk; those which can be changed from on to off (“toggled”), and those which are mutually exclusive with another label. Alternate presses of keys that can be “toggled” display an asterisk in the associated label. The asterisk indicates that the function displayed in the label is selected; absence of the asterisk indicates the function is not selected.

Other function keys which have an asterisk capability can not be toggled but have a mutually exclusive nature. Such keys exist as a group in which only one label can contain an asterisk at a given time. The **EXPAND PRINT**, **COMPRESS PRINT** set of labels and the **REPORT PRINT** and **METRIC PRINT** set of labels are two such groups in that only one type of print can be selected at a given time.

To return the terminal to normal operation after using the predefined function keys, simply press the **AIDS** key. Any selections you have made using toggling function keys will still be in effect, and the Aids set of labels will be displayed.

Aids Set

The Aids set of labels is used only to access other sets of labels. Each label in the Aids set names another set of labels. Some sets of labels are not directly accessible from the Aids set. In such cases, several such sets form a group; with one of the sets accessible from the Aids set. The other sets in the group are then accessible through the key that was pressed in the Aids set. There are two such groups: the Device Modes group, and the Config group. (The Config group will not be covered in detail in this manual; see the Reference Manual.) Table 4-2 describes the functions of the Aids set.

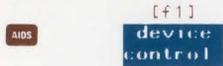
Table 4-2. AIDS Key Set of Function Key Labels

LABEL	FUNCTION								
device control	<p>Displays the following set of labels which are used to control the transfer of data to the integral printer:</p> <table border="1"> <tr> <td>[f1] device modes</td> <td>[f2] [REDACTED]</td> <td>[f3] to devices</td> <td>[f4] ADVANCE PAGE</td> </tr> <tr> <td>[f5] ADVANCE LINE</td> <td>[f6] COPY ALL</td> <td>[f7] COPY PAGE</td> <td>[f8] COPY LINE</td> </tr> </table>	[f1] device modes	[f2] [REDACTED]	[f3] to devices	[f4] ADVANCE PAGE	[f5] ADVANCE LINE	[f6] COPY ALL	[f7] COPY PAGE	[f8] COPY LINE
[f1] device modes	[f2] [REDACTED]	[f3] to devices	[f4] ADVANCE PAGE						
[f5] ADVANCE LINE	[f6] COPY ALL	[f7] COPY PAGE	[f8] COPY LINE						
margins/ tabs/col	<p>Displays the following set of labels which enable control of margins, tabs, and selection of the start column for transmission of data to a computer in Remote mode:</p> <table border="1"> <tr> <td>[f1] START COLUMN</td> <td>[f2] SET TAB</td> <td>[f3] CLEAR TAB</td> <td>[f4] CLR ALL TABS</td> </tr> <tr> <td>[f5] LEFT MARGIN</td> <td>[f6] RIGHT MARGIN</td> <td>[f7] CLR ALL MARGINS</td> <td>[f8] [REDACTED]</td> </tr> </table>	[f1] START COLUMN	[f2] SET TAB	[f3] CLEAR TAB	[f4] CLR ALL TABS	[f5] LEFT MARGIN	[f6] RIGHT MARGIN	[f7] CLR ALL MARGINS	[f8] [REDACTED]
[f1] START COLUMN	[f2] SET TAB	[f3] CLEAR TAB	[f4] CLR ALL TABS						
[f5] LEFT MARGIN	[f6] RIGHT MARGIN	[f7] CLR ALL MARGINS	[f8] [REDACTED]						
service keys	<p>Displays the following set of service labels which allow for a terminal test, identification of all ROMs used in the terminal, a datacomm test, and an integral printer test:</p> <table border="1"> <tr> <td>[f1] [REDACTED]</td> <td>[f2] [REDACTED]</td> <td>[f3] [REDACTED]</td> <td>[f4] [REDACTED]</td> </tr> <tr> <td>[f5] TERMINAL TEST</td> <td>[f6] IDENTIFY ROMS</td> <td>[f7] DATACOMM TEST</td> <td>[f8] INT PRT TEST</td> </tr> </table>	[f1] [REDACTED]	[f2] [REDACTED]	[f3] [REDACTED]	[f4] [REDACTED]	[f5] TERMINAL TEST	[f6] IDENTIFY ROMS	[f7] DATACOMM TEST	[f8] INT PRT TEST
[f1] [REDACTED]	[f2] [REDACTED]	[f3] [REDACTED]	[f4] [REDACTED]						
[f5] TERMINAL TEST	[f6] IDENTIFY ROMS	[f7] DATACOMM TEST	[f8] INT PRT TEST						

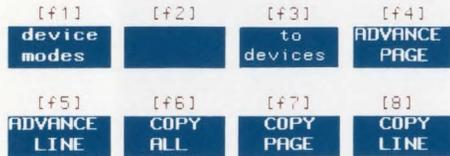
Table 4-2. AIDS Key Set of Function Key Labels (Continued)

LABEL	FUNCTION																
config keys	<p data-bbox="437 267 975 319">Displays the following set of key labels for selecting the datacomm or terminal configuration menus:</p> <table data-bbox="475 340 916 481"><tr><td data-bbox="475 340 576 361">f1</td><td data-bbox="587 340 687 361">f2</td><td data-bbox="699 340 799 361">f3</td><td data-bbox="810 340 911 361">f4</td></tr><tr><td data-bbox="475 361 576 409">config</td><td data-bbox="587 361 687 409">config</td><td data-bbox="699 361 799 409">datacomm config</td><td data-bbox="810 361 911 409">config</td></tr><tr><td data-bbox="475 417 576 439">f5</td><td data-bbox="587 417 687 439">f6</td><td data-bbox="699 417 799 439">f7</td><td data-bbox="810 417 911 439">f8</td></tr><tr><td data-bbox="475 439 576 481">terminal config</td><td data-bbox="587 439 687 481">config</td><td data-bbox="699 439 799 481">config</td><td data-bbox="810 439 911 481">config</td></tr></table>	f1	f2	f3	f4	config	config	datacomm config	config	f5	f6	f7	f8	terminal config	config	config	config
f1	f2	f3	f4														
config	config	datacomm config	config														
f5	f6	f7	f8														
terminal config	config	config	config														

DEVICE CONTROL SET. The Device Control set of keys is accessed by pressing



and consists of the following set of labels:



The Device Control set of keys is used to select the amount of data to be copied (all, page, or line) to the internal printer and allows skipping one page or one line on the internal printer. Table 4-3 describes the functions of the Device Control set.

Table 4-3. Device Control Set of Function Key Labels

LABEL	FUNCTION								
device modes	Displays the following Device Modes set of labels: <table border="1"> <tr> <td>[f1] device control</td> <td>[f2] RECORD MODE *</td> <td>[f3] LOG BOTTOM*</td> <td>[f4] LOG TOP *</td> </tr> <tr> <td>[f5] EXPAND PRINT *</td> <td>[f6] COMPRESS PRINT *</td> <td>[f7] REPORT PRINT *</td> <td>[f8] METRIC PRINT *</td> </tr> </table>	[f1] device control	[f2] RECORD MODE *	[f3] LOG BOTTOM*	[f4] LOG TOP *	[f5] EXPAND PRINT *	[f6] COMPRESS PRINT *	[f7] REPORT PRINT *	[f8] METRIC PRINT *
[f1] device control	[f2] RECORD MODE *	[f3] LOG BOTTOM*	[f4] LOG TOP *						
[f5] EXPAND PRINT *	[f6] COMPRESS PRINT *	[f7] REPORT PRINT *	[f8] METRIC PRINT *						
to devices	Displays the following To Devices set of labels: <table border="1"> <tr> <td>[f1] device control</td> <td>[f2] (blank)</td> <td>[f3] TO INT PRT*</td> <td>[f4] TO DISPLAY*</td> </tr> <tr> <td>[f5] (blank)</td> <td>[f6] (blank)</td> <td>[f7] (blank)</td> <td>[f8] (blank)</td> </tr> </table>	[f1] device control	[f2] (blank)	[f3] TO INT PRT*	[f4] TO DISPLAY*	[f5] (blank)	[f6] (blank)	[f7] (blank)	[f8] (blank)
[f1] device control	[f2] (blank)	[f3] TO INT PRT*	[f4] TO DISPLAY*						
[f5] (blank)	[f6] (blank)	[f7] (blank)	[f8] (blank)						
ADVANCE PAGE	If the integral printer has been selected as the destination device, and METRIC or REPORT MODE is selected, this key causes the printer to skip to the top of the next page. If not in METRIC or REPORT MODE, then the printer advances one line.								
ADVANCE LINE	If the integral printer has been selected as the destination device, this key causes the printer to skip the next line, leaving it blank.								
COPY ALL	If the integral printer has been selected as the destination device, all contents of the display memory, starting with the line in which the cursor is positioned, are copied to the printer.								
COPY PAGE	If the integral printer has been selected as the destination device, all lines in the display memory which are displayed on the screen, starting with the line in which the cursor is positioned, are copied to the printer.								
COPY LINE	If the integral printer has been selected as the destination device, the line in which the cursor is positioned is copied to the printer.								

DEVICE MODES SET. The Device Modes set of keys is accessed by pressing in sequence



and consists of the following set of labels:



This set enables copying the entire screen, transferring a line of data to the internal printer using either the "log top" or "log bottom" method (refer to Section 7 for details on top and bottom logging), printing in expanded or compressed form, and printing in report or metric format. Table 4-4 describes the functions of the Device Modes set.

Table 4-4. Device Modes Set of Function Key Labels

LABEL	FUNCTION																
device control	Displays the following Device Control set of labels: <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>[f1]</th> <th>[f2]</th> <th>[f3]</th> <th>[f4]</th> </tr> </thead> <tbody> <tr> <td>device modes</td> <td></td> <td>"to" devices</td> <td>ADVANCE PAGE</td> </tr> <tr> <th>[f5]</th> <th>[f6]</th> <th>[f7]</th> <th>[f8]</th> </tr> <tr> <td>ADVANCE LINE</td> <td>COPY ALL</td> <td>COPY PAGE</td> <td>COPY LINE</td> </tr> </tbody> </table>	[f1]	[f2]	[f3]	[f4]	device modes		"to" devices	ADVANCE PAGE	[f5]	[f6]	[f7]	[f8]	ADVANCE LINE	COPY ALL	COPY PAGE	COPY LINE
[f1]	[f2]	[f3]	[f4]														
device modes		"to" devices	ADVANCE PAGE														
[f5]	[f6]	[f7]	[f8]														
ADVANCE LINE	COPY ALL	COPY PAGE	COPY LINE														
RECORD MODE *	In Record mode while in Remote mode, data from the computer is sent directly to the selected "to device", bypassing the terminal's display memory. If the terminal isn't in Remote mode, the contents of the terminals display memory is sent to the "to device". <p>While in record mode, the keyboard is disabled except for the BREAK, RESET, and RECORD MODE keys. Record mode can be terminated by pressing the RECORD MODE or RESET keys or by pressing the SHIFT, CTRL, and RESET keys simultaneously.</p>																
LOG BOTTOM*	When log bottom is selected, a line feed (whether produced directly or from an end-of-line wraparound) results in the line the cursor leaves being copied to the integral printer (provided it has been selected). The data in display memory is not changed. The LOG BOTTOM and LOG TOP labels are mutually exclusive; if one is selected while the other is selected, the one previously selected is automatically deselected.																

Table 4-4. Device Modes Set of Function Key Labels (Continued)

LABEL	FUNCTION
LOG TOP	If a line is added after the display memory is filled with data, the line which is scrolled off the top of the display memory is copied to the integral printer (provided it has been selected). The LOG TOP and LOG BOTTOM labels are mutually exclusive; if one is selected while the other is selected, the one previously selected is deselected.
EXPAND PRINT	The integral printer will print 5 characters per inch (approximately double the normal width). The vertical height remains the same (40 characters per line). EXPAND PRINT and COMPRESS PRINT are mutually exclusive; if one is selected, the other is deselected.
COMPRESS PRINT	The integral printer will print characters which are compressed horizontally (16.2 characters per inch which is 132 characters per line). The vertical height remains the same. EXPAND PRINT and COMPRESS PRINT are mutually exclusive; if one is selected, the other is deselected.
REPORT PRINT	Report format is selected for the integral printer and produces an 11-inch page. Report format is a three-line top margin, 60 lines of text, and a three-line bottom margin with a small tic mark to indicate the end of one page and the start of a new one. REPORT PRINT and METRIC PRINT are mutually exclusive; if one is selected, the other is automatically deselected.
METRIC PRINT	Metric format is selected for the integral printer. Metric format is a three-line top margin, 64 lines of text, and a three-line bottom margin with a small tic mark to indicate the end of one page and the start of a new one. REPORT PRINT and METRIC PRINT are mutually exclusive; if one is selected, the other is automatically deselected.

To Devices Set

The To Devices set of keys is accessed by pressing the following keys in sequence:



and consists of the following set of labels:



This set enables selection of the integral printer, or the display as the destination device for data transfers. Table 4-5 describes the functions of the To Devices set of keys.

Table 4-5. To Devices Set Of Function Key Labels

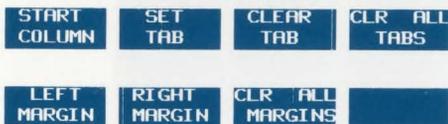
LABEL	FUNCTION																
device control	Displays the following set of labels which are used to control the transfer of data to the integral printer:																
	<table border="1"> <thead> <tr> <th>f1</th> <th>f2</th> <th>f3</th> <th>f4</th> </tr> </thead> <tbody> <tr> <td>device modes</td> <td></td> <td>to devices</td> <td>ADVANCE PAGE</td> </tr> <tr> <th>f5</th> <th>f6</th> <th>f7</th> <th>f8</th> </tr> <tr> <td>ADVANCE LINE</td> <td>COPY ALL</td> <td>COPY PAGE</td> <td>COPY LINE</td> </tr> </tbody> </table>	f1	f2	f3	f4	device modes		to devices	ADVANCE PAGE	f5	f6	f7	f8	ADVANCE LINE	COPY ALL	COPY PAGE	COPY LINE
f1	f2	f3	f4														
device modes		to devices	ADVANCE PAGE														
f5	f6	f7	f8														
ADVANCE LINE	COPY ALL	COPY PAGE	COPY LINE														
TO INT PRT*	Selects the integral printer as the destination device. When on, an asterisk is displayed in the label.																
TO DISPLAY*	Selects the display as the destination device. When on, an asterisk is displayed in the label.																

Margins/Tabs/Col Set

The margins/tabs/col set of keys is accessed by pressing



and consists of the following set of labels:



This set is used to set or clear tabs and the left and right margins and to set Start Column. Table 4-6 describes the functions of the Margin/Tab/Col set.

Table 4-6. Margins/Tabs/Col Function Key Labels

LABEL	FUNCTION
START COLUMN	Sets the start column to the column that the cursor is in when the key is pressed. This value is stored in non-volatile memory. The start column feature is used only in Line Modify or Modify All mode. In Remote mode (provided the terminal is not in Format or Block mode), for the last line in the display memory on which text is entered, a logical start of text pointer is set at the column of the line in which the user types the first character. Then, when the user presses the ENTER or RETURN key, the terminal starts transmitting from the column indicated by the logical start of text pointer. If the line on which data was entered was not the last line in memory or if the line is entered by the computer, no logical start of text pointer is generated by the terminal. In this case the terminal starts transmitting text from the column indicated in the Start Col field of the Terminal Configuration menu.
SET TAB	Sets a tab in the column in which the cursor is located.
CLEAR TAB	Clears any tab set in the column in which the cursor is located.
CLR ALL TABS	Clears all tabs.
LEFT MARGIN	Sets the left margin at the column in which the cursor is positioned.
RIGHT MARGIN	Sets the right margin at the column in which the cursor is positioned.
CLR ALL MARGINS	Sets the left margin at column 1 and the right margin at column 80 (the default left and right margins).

Config Set

The Config Set of keys consists of two sets of labels; the first set is accessed by pressing



and consists of the following set of labels:



Once the above set of key labels is accessed, pressing either **f3** or **f5** will access the following set of labels:



The first set of labels above is used to select two configuration menus: datacomm config and terminal config. The second set of labels above is used to set values in the specific configuration menu. Refer to Section 5 and the Reference manual for more information on configuration. The functions of the Configuration set are described in Table 4-7.

Table 4-7. Configuration Set of Key Labels

LABEL	FUNCTION
datacomm config	Displays the datacomm configuration menu, which is then used to select the datacomm parameters.
terminal config	Displays the terminal configuration menu, which is then used to select the terminal operating characteristics for both local and remote operation.
SAVE CONFIG	Saves the current configuration in non-volatile memory, and removes the menu from the screen.
NEXT CHOICE	Used with the configuration menus. If the cursor is positioned in one of the menu fields, the NEXT CHOICE key selects the next parameter of the list for that field.
PREVIOUS CHOICE	Selects the previous parameter of a field in the config menu.
DEFAULT VALUES	Displays the configuration menu default values.
DISPLAY FUNCTNS*	When on, the action normally produced by any keyboard control key, such as RETURN , TAB , or any of the display or edit groups of keys, is not performed. Instead, an ASCII character or escape sequence representing the function is displayed.
config keys	Displays the following configuration key labels:

Service Set

The Service Set of keys is accessed by pressing



and consists of the following set of labels:



This set is used to run the self-tests shown above. Table 4-8 describes the functions of the service set of keys.

Table 4-8. Service Set of Function Key Labels

LABEL	FUNCTION
TERMINAL TEST	Performs a test of the terminal.
IDENTIFY ROMS	Displays a list of the ROM's installed in the terminal, supplying their part numbers and data codes (a code identifying the version of firmware code contained in the ROM).
DATACOMM TEST	Initiates the data communications test. Requires the Data Comm Self Test Hood, part no. 02620-60056 mounted on the DATA COMM connector at the rear of the terminal.
INT. PRT TEST	Initiates the integral printer test.

User Definable Function Keys

Each function key can be programmed with a character string of up to 80 characters. A type character (L, T, or N) is assigned to the character strings. The type can be defined for local use only (with the letter "L" assigned to it), for transmission to the computer only (with the letter "T" assigned to it), or to act as data entered normally from the keyboard (with the letter "N" assigned to it). Programmed this way, the function keys are useful for entering (with only a couple of keystrokes) any often-used character string of up to 80 characters.

Each of the eight function keys can be assigned a label of up to 16 characters. The label can serve as a reminder of the content of the character string when the character string is not displayed.



Figure 4-3. User Definable Function Key Menu with Default Values

The function keys have default assignments which become effective whenever the terminal is turned on, a hard reset is performed, or the **DEFAULT VALUES** function key is pressed. These assignments are shown in figure 4-3. The default character string assignments for the eight function keys consist of two characters each (the ESC character and one lower-case letter). The default type character for all function keys is "T," as shown in the figure. The default character strings have no preassigned meanings. One use for them is to transmit them to a computer where they can be interpreted by a program. The program can apply any desired interpretation to the character string, thus accomplishing a complex operation with a couple of keystrokes. For example, the program might be designed to output a complex data entry form to the terminal when prompted by receipt of the character string from one of the function keys.

User Key Modes

The function keys are associated with user-definable functions in two modes: Definition mode and Use mode. In Definition mode, the function keys are assigned labels, type characters, and character strings. In Use mode, the keys are made active so that, when the key is pressed, the character string assigned the key will be printed out on the display (provided the type character assigned to the key is "L" or "N" and the terminal is in Local mode). (If the type character is "T" and the terminal is in remote mode, the character string will be transmitted to the computer. However, the character string will not be displayed on the terminal screen.) When Use mode is entered (by pressing ) , the labels assigned to the keys appear along the bottom of the screen in the normal label position.

Definition Mode

INITIATING DEFINITION MODE. To initiate Definition Mode, press the  key while holding down the  key. This causes the current key assignments to be displayed. Use the tab keys or cursor-positioning keys to position the cursor for making entries on the User Keys menu.

DEFINING A FUNCTION KEY. To define a function key, first choose the type character (L for local use only, T for transmit only, and N for treatment as though it was entered from the keyboard). Use either the **PREVIOUS CHOICE** or the **NEXT CHOICE** function key to select your choice of entry. The default field type is T.

Next, enter the label to be assigned to the function key. The label appears on the definition menu as two 8-character blocks. The first block appears on the screen located above the second block when the label is displayed at the bottom of the screen in Use mode. The default labels for the keys are the labels f1 through f8.

Finally, type in the character string on the line below the label blocks. Use the **DISPLAY FUNCTNS** function key to enter keystrokes from the Edit and Display groups of keyboard keys. When entered in Display Functions mode, the keystroke operation will not be performed until the function key to which it is assigned is pressed. For example, if a  keystroke is assigned to one of the function keys in Display Functions mode, the cursor will be homed when the function key is pressed in Use mode.

LEAVING DEFINITION MODE. Definition mode can be terminated by pressing any one of three keys: , , or . The  or  key returns the terminal to the normal screen display. To enter Use mode, refer to the following paragraph.

Use Mode

INITIATING USE MODE. To initiate Use mode, press the  key once.

EXAMPLE

This example assigns a company name and address to key  to appear as follows:

```
ACME Co.
1000 Star Rt.
New York, NY
```

- Press the  key and check whether an asterisk is present in the **AUTOLF** label. If so, press the associated function key to remove the asterisk.
- Press the  key while holding down the  key. This initiates Definition mode and displays the User Key menu.
- Locate the cursor under the type field for  and press the **NEXT CHOICE** function key until an "L" appears in the field. This indicates the character string is for use at the terminal only.
- Move the cursor to the label line and type in your choice of label for the function key.
- Move the cursor to the left margin of the character string field.

- Press the **DISPLAY FUNCTNS** function key to produce an asterisk in the **DISPLAY FUNCTNS** label.
- Type "ACME Co. **RETURN** 1000 Star Rt. **RETURN** New York, NY **RETURN**."
- Press the **DISPLAY FUNCTNS** function key to remove the asterisk from the label. (This turns off Display Functions mode.)
- Press the **MODES** key, then press the **AUTO LF** function key to add an asterisk to the label. (This turns on Auto LF mode.)
- Press the **USER KEYS** key, note that your label has replaced the "f1" label. Press the function key with your label on it. The data you typed into the function line on the User Keys menu should appear on the screen. Note that because AUTO LF is selected, a line feed is added following each **RETURN** when the function key is pressed in Use mode.

LEAVING USE MODE. To leave Use mode and display the formerly displayed set of labels, simply press the **USER KEYS** key.

5

Configuring The Terminal	5-1
Introduction	5-1
Configuration Menus	5-2
How to Print a Menu	5-2
How to Display a Menu	5-2
Configuring	5-4
To Return to Normal Operation	5-4
Terminal Configuration	5-5
Datacomm Configuration	5-5

Introduction

The method provided for making terminal configuration changes is a configuration menu. A menu is a list of configuration parameters which are displayed on the screen. Each parameter has an associated space for a value which you select. Many of the parameters have a system-defined list of values. For others, you must enter the value from the keyboard. For parameters with system-defined values, two function key labels are displayed with the menu to enable you to scroll forward (**NEXT CHOICE**) or backward (**PREVIOUS CHOICE**) through the list of values.

Sufficient information is supplied in this section to enable you to configure the terminal provided you know the function or purpose of the menu fields on the datacomm and terminal configuration menus. This information is available in the Reference Manual if you should wish to configure the terminal and do not have the information.

The terminal contains a battery-powered portion of memory called non-volatile memory in which the set of configuration values are stored to save them when power to the terminal is shut off. The set saved is the one last stored by the user. If none has been stored by the user, the default set is stored. When a menu is called to the display screen, the values currently in use are displayed. When power to the terminal is turned on, the set of configuration values stored in non-volatile memory becomes the active set.

The sequence for changing a set of configuration values is to display the menu, make the desired changes, and store the values in non-volatile memory. The act of storing the values in non-volatile memory also makes them the active set.

Configuration Menus

All configuration requirements for the terminal are contained in two menus; the terminal configuration menu for enabling selection of terminal characteristics and the datacomm configuration menu for selecting datacomm protocol.

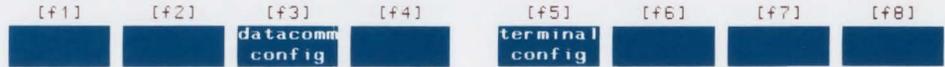
How to Print a Menu

If the terminal is equipped with an integral printer, the configuration menus can be printed by displaying the menu on the screen; then, pressing the **ENTER** key. (The terminal must be in local mode.)

How To Display A Menu

To display a menu, perform the following:

1. Press the **AMS** key to display the Primary set of function key labels.
2. Press the **config keys** function key to display the configuration set of function key labels shown below.



3. Press **datacomm config** (**f3**) or **terminal config** (**f5**) key to display the next set of function key labels shown below.



Table 5-1 lists the function key labels and their functions.

Table 5-1. Configuration Mode Function Key Labels

LABEL	FUNCTION
	<p>Saves the displayed configuration parameters in non-volatile memory, makes the set of parameters the active configuration set, and returns to normal operating mode with the Modes set of function key labels displayed.</p>
	<p>Most of the fields on the menus have a list of acceptable values (some have only two). These keys scroll forward or backward through the list.</p>
	
	<p>Displays the default values for the configuration.</p>
	<p>When on, the action normally produced by any keyboard control key, such as  ,  , or any of the display or edit groups of keys, is not performed. Instead, an ASCII character representing the function is displayed on the screen. Also used to define the Return BLK Terminator field and Record Separator fields.</p>
	<p>Ends Configuration mode without saving the displayed values. Any changes made on the menu are lost if they have not been saved. Returns to normal operating mode with the Configuration set of function key labels displayed.</p>

Configuring

To change a selection on a menu, perform the following steps:

1. Place the cursor at the character position to be changed. This can be done using the **TAB** key or the cursor-positioning keys. The **TAB** key moves the cursor to the next selection field each time the key is pressed.
2. If the choices are restricted to a system-defined list of selections (such a field is underlined), use either the **NEXT CHOICE** or **PREVIOUS CHOICE** function key to cycle through the list of selections until the desired one is displayed.
3. If the choices are not restricted to a system-defined list (not underlined), enter the desired value from the

keyboard, using display functions mode, if needed.

4. To store the new menu values in non-volatile memory after you have made all desired changes, press the **SAVE CONFIG** function key.

To Return to Normal Operation

Pressing the **SAVE CONFIG** key will return the previous display contents to the display and save the displayed configuration values in non-volatile memory. However, if you wish to return the previous display contents to the display without saving the displayed configuration values, you can press the **AIDS**, **MODES**, or **USER KEYS** keyboard keys or the **config keys** function key to do so.

Terminal Configuration

Figure 5-1 illustrates the terminal configuration and the default values. Refer to the Reference Manual for a description of the menu fields.

```

Language  USASCII
ReturnDef  CR

LocalEcho  OFF      CapsLock  OFF
XmitFunctn(A)  NO    SPOW(E)   NO
InhHndShk(G)  NO    Inh DC2(H)  NO

FrameRate  60

Start Col  01      Ascii 8 Bit  NO
InhEolWrp(C)  NO   Line/Page(D)  LINE

FldSeparator  F    ElkTerminator  F
  
```

Figure 5-1. Terminal Configuration Menu

Datacomm Configuration

The datacomm configuration menu is shown in figure 5-2. The values shown are default values. Refer to the Reference Manual for a description of all menu fields.

```

                                DATACOMM CONFIGURATION

SendRate  2400      Parity  [0's]
                                Chk Parity  [N]
                                SR(CH)  [L]
                                EngAck  YES

RecvFace  None
XmitFace  None

                                CS(CE)Xmit  [N]
  
```

Figure 5-2. Typical Default Datacomm Configuration Menu

6

Using Your Terminal By Itself	6-1
Introduction	6-1
Screen	6-1
Entering Data	6-2
Correcting Data	6-2
Technique of Data Entry	6-2
Tabs	6-2
Setting Tabs	6-2
Using Tabs	6-2
Clearing Tabs	6-2
Margins	6-2
Left Margin	6-3
Right Margin	6-3
Moving a Block of Text	6-3
Record Mode	6-4
Display Features	6-4
Using Display Enhancements	6-5
Using Alternate Character Sets	6-7

Using The Terminal By Itself

Introduction

The terminal can store up to 3,840 characters (48 lines of 80 characters each) and can be used without being connected to a computer (Local mode). It can be used alone when first learning to use it or when preparing data for printing or later transmission to the computer.

We will use the terminal in Local mode to learn how to enter and correct data. Once you have been introduced to the basic terminal, later sections will describe how to use the terminal with a computer and with the integral printer.

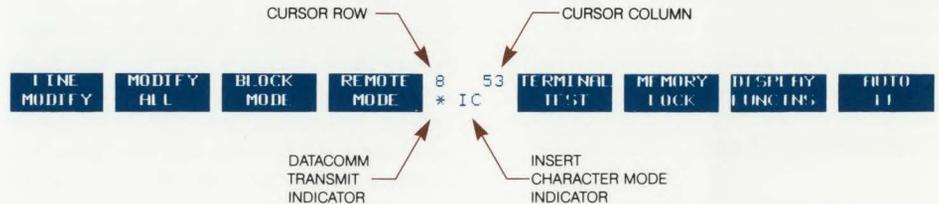


Figure 6-1. Status Indicator Locations

Screen

The display screen is capable of displaying up to 24 contiguous lines of display memory data. These 24 lines of data are considered to be one page of data.

The screen actually provides 26 rows of 80 character positions each for the display. Rows 1 through 24 are used to display the content of one page of display memory. Rows 25 and 26, at the bottom of the screen, are used to display the currently active set of function key labels, a current cursor position column and row indicator, datacomm transmit indicator, and IC for indicating Insert Character Mode. The status indicator locations are shown in figure 6-1.

Entering Data

One of the most important uses of the terminal is data entry. Data is entered using the keyboard. The data can then be sent to a computer, printed out on the integral printer, or both.

As an example, enter the following name and data:

```
John Doe           June 7, 1980
```

Correcting Data

If you make an error or wish to change an entry you have made, you can use any of the cursor or edit keys discussed earlier. For example, to add the middle initial "L" to the entry in the previous example, move the cursor under the "D", press the **INS CHAR** key (the characters "IC" are displayed in the status line at the bottom of the screen), and type "L."

```
John L. Doe       June 7, 1980
```

Type the correction; then, press the **INS CHAR** key again to return to normal overwrite mode.

Techniques Of Data Entry

To simplify data entry, you can use tabs, margins, specially defined data fields, and data forms. The following text describes how to use tab stops and mar-

gins; refer to the Reference Manual for information on specially defined data fields and data forms.

Tabs

SETTING TABS. To set a tab, move the cursor to the desired column and press the **AIDS** key to display the Aids set of function key labels. Then press the **margins / tabs / col** function key to display the Margin/Tab/Col set of function key labels. Now press the **SET TAB** function key. Once a tab is set, the **TAB** keys (one located on the left side of the keyboard and the other two in the numeric pad) can be used to move the cursor to the next tab setting.

USING TABS. Once tab positions have been set, you can tab using the **TAB** keys in the same manner that you would on a typewriter. You can tab backwards to the previous tab position by pressing the **TAB** key at the left of the keyboard while holding down the **SHIFT** key. When you are at the first tab position in a line and you backtab, the cursor moves to the last tab position in the previous line. Once the cursor has reached the first tab position in the first line of memory, no further backtabbing movement is made. The left margin is always treated as a tab.

CLEARING TABS. You can clear individual tabs by moving the cursor to the tab position, accessing the Margin/Tab/Col set of

labels, and pressing the **CLEAR TAB** function key. All of the tab stops can be cleared at once without having to position the cursor. Simply press the **CLR ALL TABS** function key.

Margins

You can set the left and right margins to make the entry of data easier. When the terminal is turned on or a hard reset is performed, the margins are set at columns 1 and 80. You can set new margins as described below.

LEFT MARGIN. Move the cursor to the desired left margin setting. With the Margin/Tab/Col labels displayed, press the **LEFT MARGIN** key.

RIGHT MARGIN. Move the cursor to the desired right margin setting. With the Margin/Tab/Col labels displayed, press the **RIGHT MARGIN** key.

If the cursor is moved as a result of hitting an alphanumeric character key or the space bar, the following events will occur. The terminal will beep when you are eight characters from the right margin. When the right margin is reached, the cursor will move to the left margin of the next line if end-of-line wraparound is selected (InhEolWrp (C) **NO** in terminal config menu).

If the cursor is moved using the , the terminal will not beep when you are near the right margin. When column 80 is reached, the cursor will move to the left margin of the new line whether or not end-of-line wraparound is selected.

The left margin cannot exceed the right margin. An invalid margin setting will not be accepted and will cause the terminal to beep.

EXAMPLE

Set the margins for a 40 column page centered on the screen.

```

column numbers
2           3           4           5           6
0           0           0           0           0

This is an example using margins to control data
entry.
```

With the Margin/Tab/Col labels displayed, move the cursor to column 20 and press the **LEFT MARGIN** function key. Then move the cursor to column 59 and press the **RIGHT MARGIN** function key.

Place the cursor back at column 20 by pressing  and begin typing.

Margins are changed by setting new margins (or restored to the default left margin at column 1 and the right margin at column 80 by a hard reset). They are cleared by pressing the **CLR ALL MARGINS** function key. Also, the margins are set to their default values when format mode is entered.

Moving A Block Of Text To Another Location On The Display

You can move blocks of text using Memory Lock mode.

For example, in the following text, move the paragraphs into the proper order.

Initial order:

```

(Top of screen)
3. This is paragraph 3. It
   should be last in this
   group.
2. This is paragraph 2. It
   should be second.
1. This is paragraph 1. It
   should be first.
   (blank line)
```

1. Press the  key and type in the paragraphs as shown. Be sure to press  following the last line.
2. Position the cursor in the first line of paragraph 2.
3. Press the  key, then press the **MEMORY LOCK** function key to turn on Memory Lock mode.
4. Use the  key until the remaining paragraphs have rolled up under the cursor position and off the screen.
5. Turn off Memory Lock mode by pressing the **MEMORY LOCK** function key so the asterisk disappears from the label.

6. Press the  key.

The display should appear as follows:

(Top of screen)

2. This is paragraph 2. It should be second.
1. This is paragraph 1. It should be first.
3. This is paragraph 3. It should be last in the group.

7. Now move paragraph 1 by positioning the cursor in the first line of paragraph 1 and turning on Memory Lock mode as described in step 3.

8. Use the  key until the cursor is in the first line of paragraph 3.

9. Turn off Memory Lock mode as described in step 5, and press the  key. The paragraphs should now be in order.

The display should appear as follows:

(Top of screen)

1. This is paragraph 1. It should be first.
1. This is paragraph 2. It should be second.
3. This is paragraph 3. It should be last in the group.

Note that if the data is not on the first page of memory, the  key can be used instead of the  key to view the newly ordered text.

Record Mode

If in local mode, record mode copies the contents from display memory to the selected "to" device. To initiate record mode, press



An asterisk will appear in the Record Mode label to indicate that record mode is enabled. While in record mode, the keyboard is disabled except for the , , and "RECORD MODE" keys. Pressing , or  , , or "RECORD MODE" function key will terminate record mode.

Display Features

The terminal provides the following display features:

- **DISPLAY ENHANCEMENTS**—Parts of the display can be underlined, blinking, inverse video, or half bright or any combination of these.
- **LINE DRAWING CHARACTER SET**—The keyboard can be used to select characters from Line Drawing character set if the line drawing option is present.

The following features are available in Format mode:

- **PROTECTED FIELDS**—Data cannot be entered and changed. Data will not be sent to the computer.
- **UNPROTECTED FIELDS**—Data can be entered and changed. Data will be sent to the computer.

Forms can be created with these features to make data entry easier. The forms used are similar to paper forms except that they are displayed on the terminal screen. Forms are made by defining "fields" of one or more characters. Each character can be given one or more of the display features. Once a form is created, it can be stored in the computer and displayed as needed. Refer to the Reference Manual for information on using these features.

Using Display Enhancements

The terminal includes as a standard feature the following display enhancement capabilities:

- **Half Bright**—characters are displayed at half intensity (grey).
- **Underline**—an underline is displayed below the normal character.
- **Inverse Video**—the screen is white and characters are black.
- **Blinking**—characters including the inverse video, underline, and half bright features blink.

The display enhancements are used by assigning one or more of them to a field. The selection sequence is `ESC & D <enhancement character>`. The enhancement character (A through O) is used to select the combination of display enhancements to be assigned to the field. The following table lists the enhancement character for each of the combinations. The field is ended by `ESC & D @` (end enhancement), by selecting another enhancement, or by the end of the current line.

NOTE

In the above selection sequences (`ESC & D` and `ESC & D A`), the enhancement character “D” should be a lowercase “d” character.

	enhancement character															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Half Bright									x	x	x	x	x	x	x	
Underline				x	x	x	x					x	x	x	x	
Inverse Video			x	x			x	x			x	x			x	
Blinking		x		x		x		x		x		x		x		
End Enhancement	x															

EXAMPLE

Define columns 10 through 14 of line 5 to be inverse video and blinking.

Step 1. Position the cursor at column 10 in line 5.

Step 2. Type `ESC & D SHIFT C`.

Step 3. Move the cursor to column 15 in line 5.

Step 4. Type `ESC & D @` (this ends the enhancements). The field should be white, and if you type in the field, the characters should blink.

NOTE

In the above example, use a lowercase "d" keycap (enhancement character) instead of an uppercase "D" keycap in steps 2 and 4.

Step 5. Type the word `TERMINAL` beginning in column 9 of line 5. It should appear as shown below:

```
  1      1  
  0      5  
  ↓      ↓  
TERMINAL
```




Using Your Terminal With A Computer	7-1
Introduction	7-1
Preparing the Terminal for Use On-Line	7-1
Reconfiguring the Datacomm Port	7-1
Selecting Operating Modes	7-1
Remote	7-1
Block Mode	7-1
Auto LF	7-2
Caps Lock	7-2
If a Modem is Used	7-2
Sending Data to the Computer	7-2
Character Mode	7-3
Normal Operation	7-3
Modify Mode	7-3
Using Start Column	7-4
Block Mode	7-6
Receiving Data from the Computer	7-7
To the Display	7-7
To the Integral Printer	7-7
Record Mode	7-7

Using the Terminal With A Computer

Introduction

The HP 2622A can be connected to a computer system either directly or through a modem.

Preparing The Terminal For Use On-Line

Preparing the terminal for use on-line consists of reconfiguring the datacomm, if necessary, and selecting the operating modes. The following procedures are not complete; they consist only of those procedures most likely to be needed. For complete information on configuring the terminal/computer link, refer to the Reference Manual.

Reconfiguring The Datacomm Port

Following is a suggested procedure for selecting the configuration values to be associated with the datacomm port on the HP 2622A terminal.

- Display the Config set of function key labels by pressing



- Display the datacomm menu by pressing the **datacomm config** key (**f3**).
- Make any necessary changes to the menu, then save the values in non-volatile memory by pressing the **SAVE CONFIG** key.

Selecting Operating Modes

The **MODES** key is used for selecting Remote, Block, Modify All, and Auto LF modes.

REMOTE. For the terminal to communicate with the computer, Remote mode must be selected. To select Remote mode, press the **MODES** key to display the Modes labels, then, if no asterisk is present in the **REMOTE MODE** label, press the associated function key to produce an asterisk in the label.

BLOCK MODE. Block mode is used to select whether data will be sent to the computer character-by-character or in blocks of characters. When Block mode is not selected, the characters are sent to the computer as they are typed. This mode of operation is used for conversational exchanges with the computer. In Block mode, the characters are stored in the terminal as they are typed. They are not sent to the computer until the **ENTER** key is pressed. This enables you to edit your data before sending it to the computer. The block is sent by pressing the **ENTER** key. The block can be one of two sizes; a line or a page. The block size selection is made on the terminal configuration menu.

To select the block size, display the terminal configuration menu by pressing in sequence



Then place the cursor in the Line/Page field and use the **NEXT CHOICE** key to display your choice of block size. With your choice displayed, press the **SAVE CONFIG** key to store the displayed configuration values in non-volatile memory.

AUTO LF. Normally, automatic line feed is not selected when communicating with a computer. To select it, display the Modes labels by pressing the **MODES** key, then, if no asterisk is present in the **AUTO LF** label, press the associated function key once to produce an asterisk in the label.

CAPS LOCK. Unless the computer system to which your terminal is connected accepts lower-case letters, Caps Lock mode should be selected. Caps Lock is selected on the terminal configuration menu. To access the menu, press in sequence



With the menu displayed, position the cursor at the Caps Lock field and use the **NEXT CHOICE** key to display your choice of ON or OFF; then press the **SAVE CONFIG** key to store the configuration values in non-volatile memory.

When Caps Lock mode is enabled, the terminal generates only Teletype-compatible codes: upper case ASCII (00-5F, hex) and DEL (7F, hex). Unshifted alphabetic keys (a-z) generate the codes for their uppercase equivalents, the <, |, and > keys generate the codes for [, \, and] (respectively), and the / and ~ keys are ignored.

Caps Lock mode is different than Caps Mode. Caps Mode is enabled by pressing the **CAPS** key. When caps mode is enabled, all unshifted alphabetic keys generate uppercase letters and all shifted alphabetic keys generate lowercase letters. This mode is used primarily as a typing convenience and only affects the 26 alphabetic keys.

If A Modem Is Used

If a modem is used, it may be necessary to turn on the modem, make modem speed and parity settings, or dial a telephone number. Baud rate and parity settings should be the same values used for the terminal. These settings can be observed by displaying the datacomm configuration menu.

Sending Data To The Computer

Data can be sent to the computer from the keyboard in either Character or Block mode. Block mode enables editing the data before sending it. Modify mode is available for editing data before transmission while operating in Character mode.

Character Mode

NORMAL OPERATION. In Character mode, each character is sent to the computer, automatically, as it is typed into the keyboard.

MODIFY MODE. While operating in Character mode, two Modify modes can be used to edit data already displayed on the screen before sending it to the computer. These modes are Line Modify and Modify All. For example, if you have transmitted to the computer a string of data which contains an error and the computer returns an error message, instead of retyping the data you can enter Line Modify mode, correct the error using the keyboard edit keys, and retransmit the string by pressing the **RETURN** or **ENTER** key.

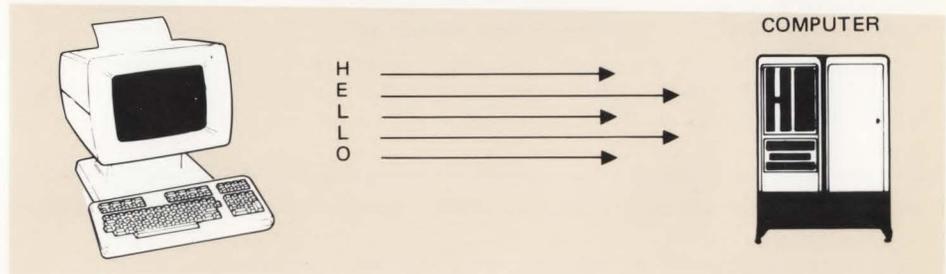
Modify All mode is used in the same manner as Line Modify mode except that, unlike Line Modify mode, Modify All mode does not end when the **RETURN** or **ENTER** key is pressed. To enter Line Modify mode, press

```
[MODES]      [f1]
               LINE
               MODIFY
```

The mode is ended when the **ENTER** or **RETURN** key is pressed. To enter Modify All mode, press

```
[MODES]      [f2]
               MODIFY
               ALL
```

An asterisk is present in the **MODIFY ALL** label when the mode is activated. Pressing the **MODIFY ALL** key while in Modify All mode ends the mode and removes the asterisk from the label.



USING START COLUMN. The start column feature is used only in Line Modify or Modify All mode. Provided certain conditions are met, the start column feature can be used to transmit data to the computer, ignoring any data to the left of a selected column.

Here is a description of how the start of column feature works. Under the following conditions, the terminal firmware sets a "logical start of text" pointer for each line of text.

1. The terminal must be in Remote mode, and may be in Block or Format mode when the line is entered.
2. The character to which the pointer applies must be entered from the keyboard (not from the computer).
3. At the time the line is entered, it must be the bottommost, non-blank line in the workspace.

This logical start-of-text pointer is set at the leftmost column in which a character is typed from the keyboard. Then, when you press the **ENTER** or **RETURN** key to transmit the text to the computer, transmission starts at the column indicated by the pointer. However, if no pointer exists for the line, transmission starts at the column specified in the Start Col field of the Terminal Configuration menu or the START COLUMN set in tabs/margins level of the function keys.

EXAMPLE

Assume that the computer prompts you with a colon (:) on the terminal and that you enter a BUILD command to this prompt:

```
:BUILD TF;REC=128,1,F,BINARY;NOCCTL;DEV=DISC;CODE=0;DISC=1023,8,1  
└─ Computer Prompt ─┬──────────┬── Your Response
```

The logical start-of-text point for this line (at the bottom of memory) does not exist until you enter the B in the BUILD command, at which time the pointer is set to column 2.

When Line Modify or Modify all are enabled in character mode, the logical start-of-text pointer is used as the starting point for data transmission when the **RETURN** key or **ENTER** is pressed. If the line has no logical start-of-text pointer, the Configuration Start Column value is used to determine the starting point of the data transmitted.

If you are in character mode, there may be times you will find yourself transmitting a command string to the host computer and receive an error message in response. To correct this command string without retyping the whole line again, you simply enable the Line Modify mode.

Line Modify mode permits you to switch temporarily to Modify All mode, select any line of display memory, edit that line, and transmit it.

EXAMPLE

Assume you entered a BUILD command, pressed **RETURN** and the system came back with an error message.

```
:BUILD TF;REC=128,1,F,DINARY;NOCCTL;DEV=DISC;CODE=0;DISC=1023,8,1
      ^
EXPECTED "ASCII" OR "BINARY".      (CIERR 274)
```

To correct this statement, simply enter Line Modify mode and position the cursor to the appropriate line and character on the screen. Retype BINARY and press **ENTER** or **RETURN**. The BUILD command is transmitted to the computer and there was no need to retype the whole line.

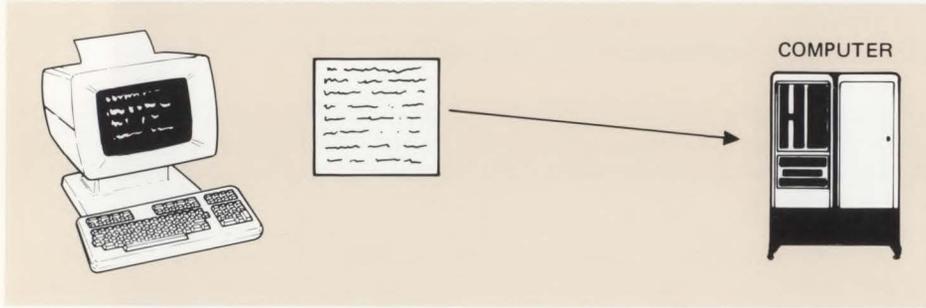
To free the start-of-text pointer, simply home the cursor above the line you want to begin the deletion and clear display. This will remove the pointer from all the lines below the character marked by the cursor through the last character in memory.

Block Mode

In Block mode, data is stored in the terminal until the **ENTER** key is pressed, then it is transmitted as a block of data. The block size can be either a line or a page, as selected on the terminal configuration menu for the terminal connected to the computer. To enter Block mode, press



An asterisk is present in the **BLOCK MODE** label while Block mode is active. To return to Character mode, remove the asterisk from the label by pressing the **BLOCK MODE** key again.



Receiving Data From The Computer

To The Display

No special action is required to receive data from the computer other than making sure that the baud rate and parity match that of the computer system. When the terminal is in Remote mode, data is normally displayed on the screen as it is received.

To The Integral Printer

The terminal can be set to perform on-line data logging—automatically routing data, when it is received from the computer, to the integral printer. You can do this using two methods; logging from the top of display memory or logging from the bottom (figure 7-1). When data is logged from the top, the top line in display memory is routed to the integral printer when it is crowded off the top of display memory by lines added at the bottom. When bottom logging is used, a line is routed to the printer when the cursor leaves the line to begin a new line. If top logging is used, the data remaining in display memory when communication with the computer is completed is left uncopied to the printer. To perform either top or bottom logging, proceed as follows:

- Display the **device control** label by pressing



- Display the Device Modes set of labels by pressing



- Select either **LOG BOTTOM** (**f3**) or **LOG TOP** (**f4**).

Record Mode

If in Remote Mode, record mode copies data from the datacomm line to the selected "to" device. To initiate record mode, press



An asterisk will appear in the Record Mode label to indicate that record mode is enabled. While in record mode, the keyboard is disabled except for the **BREAK**, **RESET**, and **RECORD MODE** keys. Pressing **RESET**, or **SHIFT**, **CTRL**, **RESET**, or **RECORD MODE** function key will terminate record mode.

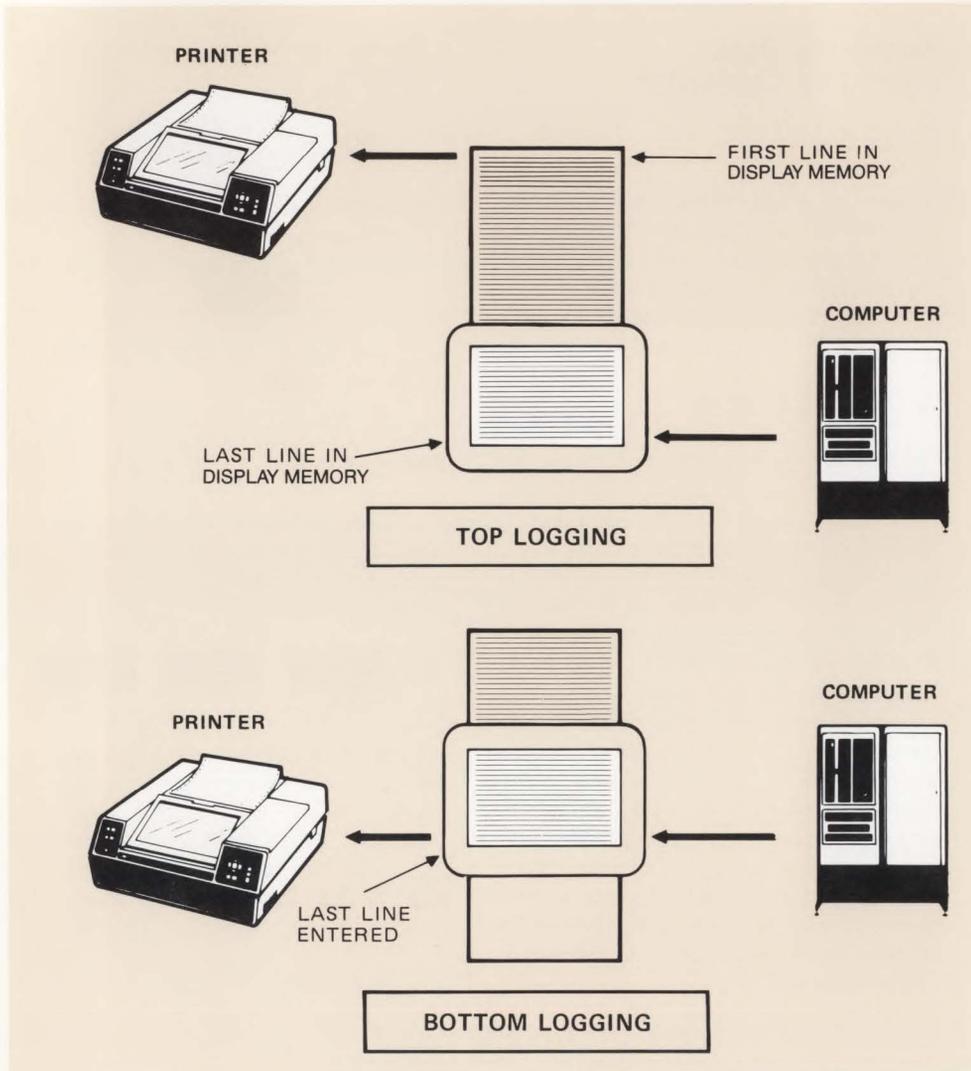


Figure 7-1. Data Logging

8

Using Your Terminal With The Integral Printer . 8-1

Introduction 8-1

Procedure 8-1

Using Your Terminal With The Integral Printer

Introduction

You can copy data from the display to the integral printer. Two copy methods can be used: copying data after all data entry has been completed or copying while data is being entered into display memory (data logging). The procedure is similar for both methods.

NOTE

The blinking, half-bright, and inverse video enhancements are printed as boxes. The underline enhancement prints as an underline.

Procedure

The steps for copying data by either method are as follows:

- Display the Device Control labels by pressing

- Select the Destination Devices set of labels by pressing

- Select the integral printer by pressing the TO INT PRT key.

- If data logging is to be used, display the Device Modes set of labels by pressing

Then select either

For the data logging method, this completes the setup procedure; at this point, you can begin to enter data.

To disengage the printer after you have completed your data entry, press either

a second time.

This will remove the asterisk from the softkey label and disengage the printer.

- If data logging is not used, display the Device Control set of labels (if they are not already displayed) by pressing the **device control** key.

If you wish to skip a line or a page on the integral printer before beginning printing, you can do so by pressing the **ADVANCE LINE** or **ADVANCE PAGE** key. (**ADVANCE PAGE** works only in Report or Metric mode.) Then select the amount to be printed by pressing the **COPY ALL**, **COPY PAGE**, or **COPY LINE** key. **COPY ALL** copies all data in display memory between the line containing the cursor and the end of display memory.

Once the specified amount of data has been printed, the integral printer automatically disengages itself.

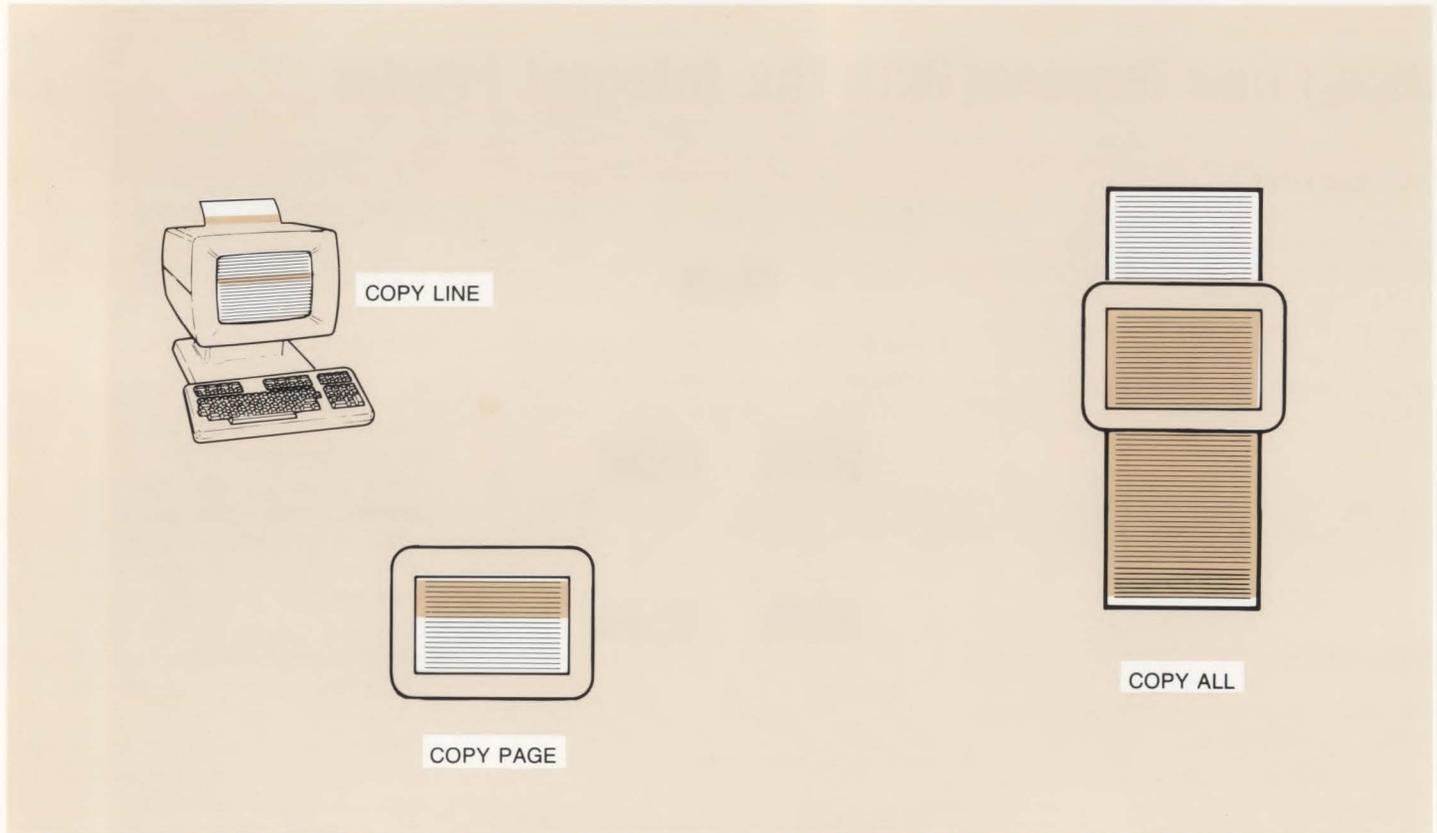


Figure 8-1. Copy Operations

9

Maintenance	9-1
Introduction	9-1
Loading Printer Paper	9-1
Battery Replacement	9-2
Cleaning	9-3

Introduction

Maintenance of the terminal consists of loading paper into the integral printer (for terminals containing one), replacing the battery which powers non-volatile memory under power off conditions, and cleaning the screen, plastic housing, and keyboard to remove dust and grease.

Loading Printer Paper

The integral printer uses a thermal printing paper produced specifically for use in the integral printer. Printer paper can be purchased through your local HP Sales and Service office using the following nomenclature and part number:

1 box (24 rolls) Thermal Paper (blue), HP part no. 9270-0638.

1 box (24 rolls) Thermal Paper (black), HP part no. 9270-0656.

CAUTION

It is recommended that you always use the HP thermal paper in your integral printer because use of non-HP paper can shorten the life of the print head and the print quality might be affected. Also, if you have an HP Warranty Service Contract, you must use HP Thermal Paper to maintain a valid contract.

Load printer paper according to the following instructions:

1. Lift the top cover of the printer mechanism (figure 9-1). An illustration of the correct paper position and flow is embossed on the underside of the cover.

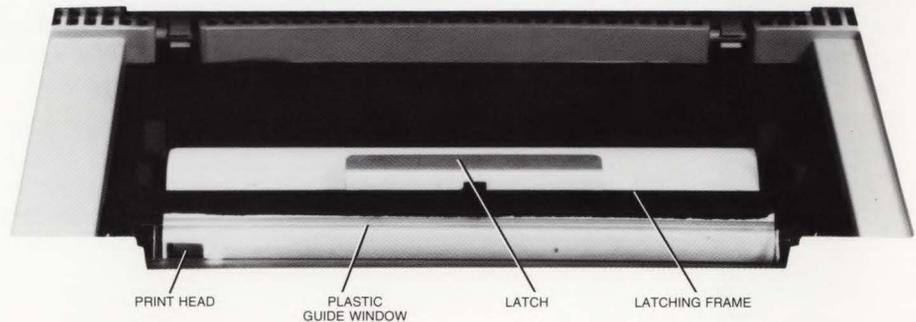


Figure 9-1. Printer Mechanism.

2. Press the latch toward the front of the terminal to release the latching frame. Lift the hinged latching frame to its forward position.
3. Remove any paper remaining in the printer.
4. The cardboard cylinder on which the paper is rolled is held in place by a metal rod which passes through the cylinder. Lift the cylinder upward and forward along the guide slots to remove the cylinder and rod.
5. Remove the rod from the cylinder and insert it in the new roll of paper.

NOTE

The paper is coated with print material on one side only and must be inserted correctly in the printer to produce print. The paper must feed toward the front of the terminal from the underside of the paper roll. See the embossed illustration on the underside of the top cover.

6. Place the ends of the metal rod in the guide slots on either side of the print mechanism and press down and toward the rear until the rod snaps into place.

CAUTION

The print head (figure 9-1) is relatively fragile and susceptible to damage; be careful not to strike it while loading paper.

7. Feed the leading edge of the paper through the latching frame between the latching frame and the clear plastic guide window.
8. Lower the latching frame into place without locking it.
9. Align the sides of the paper with the guide lines embossed on each side of the guide window.

NOTE

Each new roll of paper has a glue spot, used to hold the roll intact, near the leading edge of the roll. The print head should not be allowed to pass over this glue spot during print operations.

10. Feed approximately 12 inches of paper through the latching frame so that the glue spot is beyond (outside) the print head and guide window.
11. Press down the latch until it locks into place with an audible click. If the latch is not locked, a printer error will be printed at the bottom of the screen when a printer operation is attempted.
12. Tear off any excess paper using the guide window as a cutting edge.
13. Close the top cover.

NOTE

If subsequent print operations appear normal except that no print image appears, the paper may have been installed backwards. An image can be printed on only one side of the paper.

Battery Replacement

Configuration data stored in non-volatile memory is protected from destruction by a storage battery located above the rear panel of the terminal (figure 9-2). The battery should be replaced every 12 months. A new battery can be obtained through commercial sources by requesting Mallory Battery, Type TR133. In addition to commercial sources, you can order batteries through your local HP Sales and Service Office using the following nomenclature and part number:

HP 2622A Battery, HP Part No. 1420-0259.

You may want to record the configuration data on paper before removing the old battery in case the configuration data should be destroyed when the battery is removed (although, normally, data will not be lost if terminal power is left on while the battery is replaced).

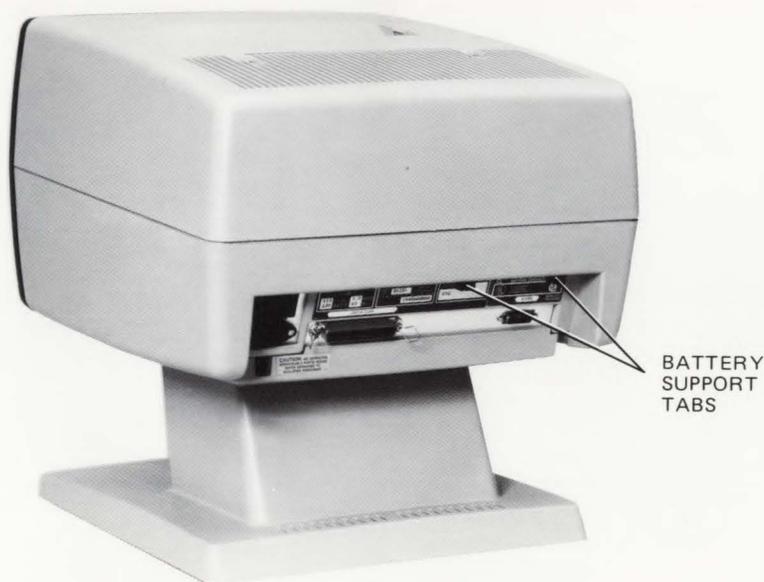


Figure 9-2. Battery Support Location.

To replace the battery, perform the following procedures:

1. If the terminal power is off, turn it on and wait until the terminal is ready to operate. (This will prevent loss of data in the Configuration Menus.)
2. Squeeze the tabs (figure 9-3) toward the center of the battery support with enough pressure to disengage the flanges which hold the battery support in the terminal, and pull down to free the battery support from the terminal.
3. Remove the old battery from the support.
4. Insert the new battery in the support making sure the positive end of the battery is located at the positive end of the support (+ to + and - to -).
5. Reinsert the battery support in the terminal. A slotted guide in the outward-facing side of the support ensures that the battery support is inserted with the right polarity.

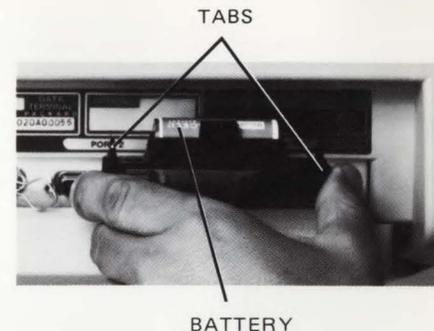


Figure 9-3. Battery Replacement.

Cleaning

First, dust lightly using a damp, lint-free cloth. The cloth should not be wet, but just damp enough to pick up dust. Paper towels are fine. Avoid wiping dust or lint into the keyboard area.

CAUTION

Do not use petroleum-based cleaners, such as lighter fluid, or cleaners containing benzene, trichloroethylene, dilute ammonia, ammonia, or acetone. These cleaners could harm the plastic surfaces. Also, avoid spraying cleaner between the keyboard keys.

Smudges and fingerprints can be removed using most conventional cleaners (such as "SNAP" glass and plastic cleaner, manufactured by Mist Products Inc., 16 Watch Hill Rd., Croton-on-Hudson, N.Y. 10520).

10

In Case Of Difficulty	10-1
Introduction	10-1
Error Messages	10-1
Malfunction at Power-On	10-3
Configuration Checking	10-3
Resetting the Terminal	10-3
Soft Reset	10-3
Hard Reset	10-3
Self-Tests	10-4
Terminal Test	10-4
Printer Test	10-5
How to Get Help	10-5

Introduction

This section contains explanations of error messages, instructions for determining if a malfunction has actually occurred, error recovery instructions, and testing information. Once you have determined that the terminal is not functioning properly, procedures for requesting service are included at the end of this section under the heading "How to Get Help".

Error Messages

The terminal generates two kinds of error messages of concern to the user; user error messages and printer test error messages. User error messages occur when the user makes an error while using the terminal and printer test error messages occur while the integral printer is being tested. The messages appear on lines 25 and 26, replacing the function key labels. To clear an error message and restore the labels, press the **RETURN** key. User error messages and their meanings are listed in table 10-1. Printer test error messages and their meanings are listed later under the heading "**PRINTER TEST**".

Table 10-1. User Error Message Meanings

MESSAGE	MEANING
<code>Default configs used</code> <code>Press RETURN to clear</code>	This message occurs whenever non-volatile memory is found to be malfunctioning or cannot be read for any reason. In this case, a default set of configuration parameters is used. See Reference Manual for more detailed information.
<code>Integral printer error</code> <code>Press RETURN to clear</code>	Something is wrong with the integral printer. It may just be out of paper or the metal latch (under the plastic printer lid) may not be pressed down securely.
<code>No ``to'' device</code> <code>Press RETURN to clear</code>	You attempted to perform a device-to-device data transfer without having first defined a "to" device.

Malfunction at Power-On

When the power switch is set to ON, the terminal should beep once. Then, a power-on test should be performed for about 15 seconds. After a successful test, it should beep once and bring up initial screen display as shown in figure 2-4.

However, if the terminal fails to beep at all, make sure that the keyboard is connected properly.

If the terminal beeps continuously 1 to 14 times (after the initial beep), and the primary level of function key labels do not come up, refer to "How to Get Help".

Configuration Checking

Sometimes what appears to be a terminal malfunction may be caused by incorrect configuration for the job you are trying to do. When the terminal appears to malfunction, the usual procedure is to reset the terminal, then, if the problem isn't corrected, a terminal test is performed and a call for service is made if the test fails. However, resetting the terminal disrupts printer and datacomm operations and resets (hard reset only) some of the configurable items to the values stored in non-volatile memory. Check the configurable items to ensure that the configuration is compatible with the task you are trying to perform. Refer to Section 5 for configuration instructions.

Resetting the Terminal

It may be necessary to use the **RESET** key to clear the terminal of an error condition. There are two types of reset: a soft reset and a hard reset. Either type resets printer and datacomm operations. In addition, a hard reset resets the active configuration values to the values stored in non-volatile memory, and all data in display memory is destroyed. For these reasons, you may not wish to hard reset the terminal unless you are quite certain it is necessary.

Soft Reset

A soft reset is performed by pressing the **RESET** key. The effects are listed below. Configuration values are preserved during a soft reset.

- The keyboard bell rings.
- The keyboard is unlocked.
- If the Display Functions capability is active, it is turned off.
- Line Modify Mode is turned off.
- Operations of all devices controlled by the terminal are stopped.
- All datacomm transfers are cancelled and any data stored in the datacomm buffer is cleared out.
- The screen is not cleared.

Hard Reset

A hard reset is performed by simultaneously pressing the **CTRL**, **SHIFT**, and **RESET** keys. A hard reset has the following effects:

- User keys (**f1** – **f8**) are reset to default values.
- All data in display memory is destroyed.
- All configurations are reset to the values stored in non-volatile memory.
- The keyboard, if disabled, is enabled.
- CAPS mode is turned off.
- Screen displays MODES level softkeys.
- The left margin is set to column 1 and the right margin is set to column 80.
- All tabs are cleared.
- The following capabilities, if on, are turned off:
 1. Display functions.
 2. Line Modify mode.
 3. Insert character.
 4. Memory Lock mode.
- The following functions are turned off for terminals containing an integral printer:
 1. Report mode selection.
 2. Log top or log bottom selection.
 3. Record Mode.

Self-Tests

Two tests are available to the user: a terminal test, for checking the terminal for proper operation; and a datacomm test, for checking the datacomm configuration.

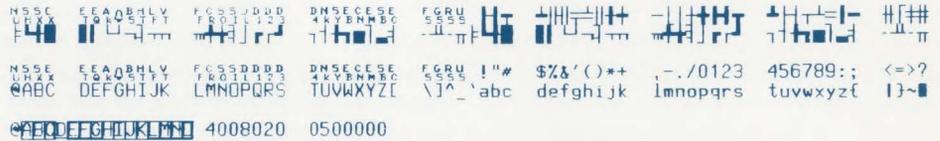


Figure 10-1. Terminal with Line Drawing Set Option Test Pattern

Terminal Test

The terminal test will tell whether or not the terminal is operating correctly. The test can be initiated by either one of the procedures listed below.

1. Press the following keys, in sequence:



2. Press, in sequence:



If the test is successful, indicating the terminal is operating correctly, a test pattern (figure 10-1) will appear on the screen. If the test pattern does not appear, or an error message appears in the softkey rows, refer to the "How to Get Help" paragraph at the end of this section.

Printer Test

The printer test checks out only the integral printer. To initiate the test, press the following keys, in sequence:



If the test results are satisfactory, a printer test pattern which includes all the characters the terminal can produce is printed out (figure 10-2). If the test is unsatisfactory, an error message, **INTEGRAL PRINTER ERROR**, will be printed out. This means the printer latch is not locked, the printer is out of paper, or the printer self-test has failed.

How to Get Help

If the terminal doesn't complete the terminal test correctly, the terminal is probably malfunctioning. At this point you can either perform further tests, as described in the Reference Manual, or contact your nearest Hewlett-Packard service office. A list of service offices is supplied at the end of this manual.

```
@AEC DEFGHIJK LMNOPQRS TUVWXYZ \]^_`abc defghijk lmnoprs tuvxyz{ |}~■
@ABC DEFGHIJK LMNOPQRS TUVWXYZ \]^_`
@BEC DEFGHIJK LMNOPQRS TUVWXYZ \]^_` 'abc defghijk lmnoprs tuvxyz{ |}~■ !"% &'()*+,-./01234 56789:;<=>?@
@ABC DEFG @ABC DEFG @ABC DEFG @ABC DEFG
```

Figure 10-2. Printer Test Pattern

A

Terminal Control Function	A-1
Cursor Control Operations	A-3
Configuration Operations	A-4
Data Operations	A-5
Format Mode	A-6
Function Key and Error Message Operations	A-6
Display Enhancements Operations	A-7
Alternate Character Set Selection	A-7

KEY(S)	CODE	FUNCTION	KEY(S)	CODE	FUNCTION
TERMINAL CONTROL FUNCTION					
ENTER	(as used in Local mode)	⌘ 0		⌘ E	Hard reset (power on reset)
AIDS	margins / tabs /col	SET TAB	⌘ 1	⌘ F	Cursor home down
AIDS	margins tabs /col	CLEAR TAB	⌘ 2	⌘ G	Move cursor to left margin
AIDS	margins / tabs /col	CLR ALL TABS	⌘ 3	⌘ H	Cursor home up
AIDS	margins / tabs /col	LEFT MARGIN	⌘ 4	⌘ I	Horizontal tab
AIDS	margins / tabs /col	RIGHT MARGIN	⌘ 5	⌘ J	Clear display from cursor to end of memory
AIDS	margins / tabs /col	CLR ALL MARGINS	⌘ 9	⌘ K	Clear line from cursor to end of line
			⌘ Ⓞ	⌘ L	Insert line
^			⌘ A	⌘ M	Delete line
v			⌘ B	⌘ P	Delete character
>			⌘ C	⌘ Q	Start insert character mode
<			⌘ D	⌘ R	End insert character (⌘ Q)
				⌘ S	Roll up
				⌘ T	Roll down
				⌘ U	Next page
				⌘ V	Previous page
			CTRL SHIFT RESET		
			SHIFT		
			RETURN (with Auto LF disabled)		
			TAB or TAB		
			CLEAR DISP		
			CLEAR LINE		
			INS LINE		
			DEL LINE		
			DEL CHAR		
			INS CHAR		
			INS CHAR		
			ROLL UP		
			ROLL DOWN		
			NEXT PAGE		
			PREV PAGE		

KEY(S)	CODE	FUNCTION	KEY(S)	CODE	FUNCTION
TERMINAL CONTROL FUNCTION (continued)					
	⌘ W	Format mode on	⌘ h		Cursor home up
	⌘ X	Format mode off	⌘ j		Backtab
MODES	⌘ Y	Display Functions mode on	⌘ j		Begin User Key Definition mode
MODES	⌘ Z	Display Functions mode off	⌘ k		End User Keys Definition mode
	⌘ [Start unprotected field	⌘ l		Begin Memory Lock mode
	⌘]	End unprotected field	⌘ m		End Memory Lock mode
	⌘ ^	Primary terminal status request	⌘ p		Default definition for user definable function key f1
	⌘ \	Sense cursor position (relative)	⌘ q		Default definition for user definable function key f2
	⌘ a	Sense cursor position (absolute)	⌘ r		Default definition for user definable function key f3
	⌘ b	Unlock keyboard	⌘ s		Default definition for user definable function key f4
	⌘ c	Lock keyboard	⌘ t		Default definition for user definable function key f5
	⌘ d	Transmit a block of text to computer	⌘ u		Default definition for user definable function key f6
	⌘ f	Modem disconnect	⌘ v		Default definition for user definable function key f7
RESET	⌘ g	Soft reset	⌘ w		Default definition for user definable function key f8

KEY(S)	CODE	FUNCTION	CURSOR CONTROL OPERATIONS	
TERMINAL CONTROL FUNCTION (continued)			NOTE	
AIDS service keys	TERMINAL TEST	⌘ z	Initiate terminal self test	Columns and rows are numbered starting with 0 as the leftmost column and the top row.
MODES TERMINAL TEST		⌘ ^	Primary terminal status request	⌘ &a <col>c <rows>Y Moves the cursor to column "col" and screen row "row" or the screen (screen relative addressing).
		⌘ ~	Secondary terminal status request	⌘ &a <col>c <row>R Moves the cursor to column "col" and row "row" in memory (absolute addressing).
				⌘ &a ± <col>c ± <row>Y Moves the cursor to column "col" and row "row" (on the screen) relative to its present position ("col" and "row" are signed integers). A positive number indicates right or downward movement and a negative number indicates left or upward movement.
				⌘ &a ± <col>c ± <row>R Moves the cursor to column "col" and row "row" relative to its present cursor position in memory ("col" and "row" are signed integers). A positive number indicates right or downward movement and a negative number indicates left or upward movement.

CONFIGURATION OPERATIONS

⌘ &q 0L Unlock configuration.
 ⌘ &q 1L Lock configuration.

ESCAPE SEQUENCE	MENU FIELD	ENTRY VALUE	X
⌘ &k <x>A	AUTO LF	OFF ON	x=0 x=1
⌘ &k <x>B	BLOCK	OFF ON	x=0 x=1
⌘ &k <x>C	Caps Lock	OFF ON	x=0 x=1
⌘ &k <x>J	FrameRate	60 50	x=0 x=1
⌘ &k <x>L	LocalEcho	OFF ON	x=0 x=1
⌘ &k <x>M	MODIFY ALL	OFF ON	x=0 x=1
⌘ &k <x>N	SPDW		
⌘ &k <x>P	Caps Mode	OFF ON	x=0 x=1

⌘ &k <x>R	REMOTE	OFF ON	x=0 x=1
⌘ &s <x>A	XmitFunctn(A)	NO YES	x=0 x=1
⌘ &s <x>B	SPDW(B)	NO YES	x=0 x=1
⌘ &s <x>C	InhEolWrp(C)	NO YES	x=0 x=1
⌘ &s <x>D	Line /Page(D)	LINE PAGE	x=0 x=1
⌘ &s <x>G	IndHndShk(G)	NO YES	x=0 x=1
⌘ &s <x>H	Inh DC2(H)	NO YES	x=0 x=1

DATA OPERATIONS

The following escape sequences control data transfer to and from the integral printer and display memory. Only effective if printer present.

`Esc &p <a>d d <c>d
<Y>`

Copies "Y" amount of data to destination devices "a", "b", and "c". As many destinations as desired can be specified.

**a, b,
and c DEVICE**

3 Display.

4,6 Integral printer.

y ACTION

B Copy the Line in which the cursor is located.

F Copy the display screen from the line in which the cursor is located (cursor line) to the last displayed line.

M Copy the contents of display memory from the cursor line to the end of memory.

`Esc &p <x>^`

Requests the status of device "x".

x DEVICE

4,6 Integral printer.

`Esc &K <x>S`

Enables Expanded, Compressed, or Normal Character mode for the integral printer as designated by the character "X".

x ACTION

0 Disable both Expanded and Compressed Character modes.

1 Initiate Expanded Character mode.

2 Initiate Compressed Character mode.

`Esc &p <y>u <z>C`

Performs the action specified by "z" on device "y".

z ACTION

0 Generates 1 form feed.

1 Space "x" lines.

2-10 Generates 1 form feed.

11 Turn on Log Bottom mode.

12 Turn on Log Top mode.

13 Turn off any logging mode.

14 Print normal characters.

15 Print expanded characters.

16 Print compressed characters.

17 Turn on Report mode.

18 Turn on Metric Report mode.

19 Turn off any Report mode.

y DEVICE

4,6 Integral printer.

3 Display.

`Esc &p <num>p 20C`

Turn on Record Mode.

< num > p is optional.

< num > is the decimal equivalent of an ASCII character that will turn off Record mode.

DATA OPERATIONS (continued)

`⌘ & p <x> W <data string>` Transfers "x" bytes of the data string from the computer to the selected destination device in binary form.

`⌘ & p W <data string>` Transfers the data string, in ASCII form, from the computer to the printer selected as the destination device. The string is terminated either by the 256th byte or by an ASCII line feed character.

FORMAT MODE

`⌘ [` Starts a field.

`⌘]` Ends the field.

FUNCTION KEY AND ERROR MESSAGE OPERATIONS

To enable and disable the function keys (F1 thru F8), use the following escape sequence:

`⌘ & j <x>`

- | x | MEANING |
|---|---|
| A | Display the Modes set of function key labels. |
| B | Enable the User function keys. (The user key labels are displayed.) |
| C | Clears the message from the screen and returns the last displayed level of function key labels. |
| @ | Remove the function key labels from the screen. However, they are still enabled. |

To enable or disable the Function Control Keys:

S Disable the **AIDS**, **MODES**, and **USER KEYS** keys.

R Enable the **AIDS**, **MODES**, and **USER KEYS** keys.

To replace the function key definition with your own message:

`⌘ & j <string length> L <message>`

"String Length" — a number (up to 160) indicating the number of characters in the string.

"Message" — the content of the message.

To define functions for the function keys:

`⌘ & f <attribute> a <key> k <label length> d <string length> L <label> <string>`

TERM	SYMBOL	MEANING	DEFAULT
Attribute	0	Normal (N)	0
	1	Local only (L)	
	2	Transmit only (T)	
Key	1	f1 function key	
	2	f2 function key	
	3	f3 function key	
	4	f4 function key	
	5	f5 function key	
	6	f6 function key	
	7	f7 function key	
	8	f8 function key	
Label length	0	Number of characters in the label.	0
	thru 16		
String length	0	Number of characters in the string.	1
	thru 80		
	-1	Clears the content of the string.	
Label	(none)	The label is entered at this point in the sequence.	
String	(none)	The character string is entered at this point in the sequence.	

DISPLAY ENHANCEMENTS OPERATIONS

To start and end display enhancements:

ESC &d <char> Selects the display enhancement indicated by "char" to begin at the present cursor position.

		"char"															
		@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Half-Bright										X	X	X	X	X	X	X	X
Under-line					X	X	X	X						X	X	X	X
Inverse Video			X	X			X	X			X	X				X	X
Blinking		X		X		X		X		X		X		X		X	
End Enhancement	X																

ALTERNATE CHARACTER SET SELECTION

ESC) B

Selects line drawing as alternate character set.

B

Keyboards and Character Sets	B-1
7-Bit vs. 8-Bit Operation	B-4
Alternate Character Set Selection	B-5
USASCII Character Set	B-6
Extended Roman Character Set	B-9
Line-Drawing Set	B-9

Keyboards and Character Sets

Depending on the option selected, a terminal comes with one of three types of character ROM installed, as shown below:

OPTION	CHARACTER SET(S)
Standard	USASCII
001-006	USASCII, Extended Roman, and Line-Drawing sets
202	USASCII and Line-Drawing sets

Figures B-1 through B-7 show the national keyboards which are available as options 001 through 006. These options also include the extended Roman character set ROM. This ROM contains many characters used in the languages represented in options 001 through 006 but not found in the USASCII character set (see tables B-1 and B-2).



Figure B-1. Swedish/Finnish Keyboard (Option 001)



Figure B-2. Danish/Norwegian Keyboard (Option 002)



Figure B-3. French Keyboard (Option 003), AZERTY Layout



Figure B-4. French Keyboard (Option 003), QWERTY Layout

7-Bit vs. 8-Bit Operation

The terminal can operate in 7-bit or 8-bit mode. It is configured for 7-bit operation by setting the ASCII 8 Bit field of the Terminal Configuration menu to "NO". If this field is set to "YES", the terminal is configured for 8-bit operation. Parity operation is allowed only in 7-bit mode; in 8-bit mode, the Parity field (on the Datacomm Device menu) must be set to "NONE" for communication with the computer or external device.



Figure B-5. German Keyboard (Option 004)



Figure B-6. United Kingdom Keyboard (Option 005)



Figure B-7. Spanish Keyboard (Option 006)

Alternate Character Set Selection

The “base” language for the terminal is the language selected on the Terminal Configuration menu; the alternate character set can be the line-drawing set (which comes with options 001 through 006 and option 202) or the extended Roman character set (which comes with options 001 through 006). One of these two sets is selected as the “active” alternate character set using an escape sequence, which can be entered from either a program or the keyboard. Provided the terminal is in 8-bit mode, `ESC) A` selects the extended Roman character set as the active alternate character set. If the terminal is in 7-bit mode, `ESC) B` selects the line-drawing set as the active alternate character set. At power-up time or after a hard reset, the terminal defaults to the extended Roman character set as the active alternate character set if the terminal is configured for 8-bit operation and to the line-drawing set if the terminal is configured for 7-bit operation.

Pressing the **CTRL** and **N** keys simultaneously selects the active alternate character set as the character set accessed by the keyboard keys. Pressing the **CTRL** and **O** keys simultaneously returns the terminal to the base language.

When the terminal is in 7-bit mode and the active alternate character set is selected as the character set accessed by the keyboard, it remains as the character set accessed by the keyboard to the end of the current line. The alternate character set must be selected anew for each line.

When the active alternate character set is selected as the keyboard character set in 8-bit mode, it remains in effect until the base set is reselected with a **CTRL O**.

When the terminal is in 8-bit mode, they can also be displayed by selecting the alternate character set as the character set accessed by the keyboard. This can be done by pressing simultaneously the **CTRL** and **N** keys. This cannot be done in 7-bit mode.

USASCII Character Set

If the terminal is equipped with the ROM containing the extended Roman character set (table B-2), and is configured for 7-bit operation, the characters #, @, [, \,], ^, \, {, |, }, and ~ in table B-1 are replaced on the screen with one of the following sets of characters, depending on the national language selected on the Terminal Configuration menu.

LANGUAGE	KEYBOARD OPTION #	DECIMAL VALUE										
		35	64	91	92	93	94	96	123	124	125	126
USASCII	(standard)	#	@	[\]	^	\	{		}	~
Swedish/Finnish	001	#	é	Ä	Ö	Å	ü	é	ä	ö	å	ü
Danish/Norwegian	002	#	ø	æ	Ø	Å	^	\	æ	ø	å	~
French	003	É	à	·	ç	î	^	\	é	ù	è	·
German	004	É	í	Ä	Ö	ü	^	\	ä	ö	ü	ß
United Kingdom	005	É	@	[\]	^	\	{		}	~
Spanish	006	#	@	í	Ñ	ç	·	\	{	ñ	}	~

Extended Roman Character Set

All USASCII (table B-1) and extended Roman characters (table B-2) are accessible using the keyboard keys under the following conditions:

- a. The terminal is configured for 8-bit operation.
- b. The extended Roman character set is selected as the active alternate character set.
- c. The active alternate character set is selected as the keyboard set (by pressing the **CTRL** and **N** keys).

In 8-bit mode, the eighth data bit is used by the firmware code to select either the USASCII or extended Roman character set. If the terminal is configured for 8-bit mode but does not include the 8K ROM which contains the extended Roman character set, the eighth bit is still used for selection of the USASCII character set, but any keystrokes, which would access the extended Roman characters if the appropriate ROM was present, display spaces.

If the terminal is configured for 7-bit operation, the extended Roman character set is selected as the active character set, and the active alternate character set is selected as the keyboard set (by pressing the **CTRL** **N** keys), the terminal defaults to the base character set.

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INDEX

Index

- AIDS key 1-2,3-11,4-4
- AIDS key set 4-5
- alternate character set 6-7
- alternate character set, using 6-7

- BACK SPACE key 3-2
- battery location 9-3
- Block Mode 7-6
- bottom data logging 7-7, 7-8
- BREAK key 3-10

- Character Mode 7-3
- Character Mode, Line Modify Mode 7-3
- Character Mode, Modify All Mode 7-3
- Character Mode, Modify Mode 7-3
- Character Mode, normal operation 7-3
- Character Mode, using start column 7-4
- Character Set Group 3-2
- character set, alternate 6-7
- checking, configuration 10-3
- CLEAR DSPLY key function 3-7
- clearing tabs 6-2
- computer, receiving data from 7-7
- computer, send data to 7-2
- computer, using the terminal with 7-1
- Config Set 4-13
- configuration 1-4
- configuration checking 10-3
- configuration, local 1-2
- Configuration Menu 5-2
- Configuration Mode 5-3
- configuration, remote 1-2
- configuration, terminal 5-1, 5-5
- Configuring the datacomm port 7-1
- Configuring the terminal 5-1
- correcting data 6-2
- CTRL key 3-2
- CTRL key operations 3-2
- cursor column indicator 6-1

- Cursor Down key 3-6
- Cursor Home Down key 3-6
- Cursor Home key 3-6
- Cursor Left key 3-6
- Cursor Right key 3-6
- cursor row indicator 6-1
- Cursor Up key 3-6
- cursor, definition of iv
- Cursor, moving the 3-6

- data communication cable 2-2
- data correction 6-2
- data entering 6-2
- data logging 7-7, 7-8
- data logging, bottom 7-7, 7-8
- data logging, top 7-7, 7-8
- data transfer operation, definition of iv
- data, from the computer to the display 7-7
- data, logging 7-7, 7-8
- data, receiving data from the computer 7-7
- data, sending data to the computer 7-2
- Datacomm 1-2
- datacomm configuration menu 5-5
- datacomm port, configuring 7-1
- datacomm transmit indicator 6-1
- definition, "destination" device iv
- definition, "source" device iv
- definition, cursor iv
- definition, data transfer operation iv
- definition, datacomm iv
- definition, form feed iv
- definition, function keys iv
- definition, line iv
- definition, local mode iv
- definition, page iv
- definition, remote mode iv
- DEL CHAR key function 3-9
- DEL LINE key function 3-9
- Device Control Set 4-8

- Device Modes Set 4-9
- display 1-1, 1-3
- Display Control key functions 3-8
- display enhancements 6-4, 6-5
- display features 6-4
- Display Group keys 3-5
- display memory 1-3

- Edit Group keys 3-8
- Edit key functions 3-9
- ENTER key 3-3
- entering data 6-2
- error messages 10-1
- ESC key 3-2

- Function Control Group keys 3-11
- Function key labels, Aids set 4-4
- Function key labels, Config set 4-13
- Function key labels, Configuration mode 5-3
- Function key labels, Device Control set 4-4
- Function key labels, Device Modes set 4-9
- Function key labels, Service set 4-14
- Function key labels, To Devices set 4-11
- Function key labels,
 - uppercase and lowercase 4-5
- Function keys 1-2,1-3,3-10
- Function Keys group 3-10
- Function keys, definition of iv

- How to get help 10-5

- identification label 2-1
- In case of difficulty 3-11
- insert character indicator 6-1
- integral printer 1-2, 8-1

- keyboard 1-1, 1-3
- keyboard key groups 3-1
- keyboard, Character Set group 3-2
- keyboard, Display group 3-3

keyboard, Edit group	3-8	Modify All mode	7-3	SHIFT key	3-2
keyboard, Function Control Keys group	3-11	Modify mode	7-3	soft reset	10-3
keyboard, Function Keys group	3-10	NEXT PAGE key	3-8	start column, using	7-4
keyboard, Numeric group	3-3	on-line, using the terminal	7-1	TAB keys	3-2
keyboard, Terminal Control group	3-10	operating modes	7-1	tabs	6-2
labels, function key	4-1, 4-2	operating modes, Auto LF	7-2	tabs, clearing	6-2
labels, function key, configuration mode	5-3	operating modes, Block	7-1	tabs, setting	6-2
labels, function key, with asterisk	4-5	operating modes, Modify All	7-3	tabs, using	6-2
Line Modify mode	7-3	operating modes, Remote	7-1	Terminal Configuration menus	5-2, 5-5
loading printer paper	9-1	options	2-2	Terminal Control group keys	3-10
Local mode, definition of	iv	options, how to identify	2-1	terminal, cleaning	9-3
logging, data	8-1	page, definition of	iv	terminal, installation	2-2
malfunction at power-on	10-3	paper, printer	9-1	terminal, preparation for use	2-2
Margin/Tabs/Col Set	4-12	paper, thermal	9-1	terminal, preparing for use on-line	7-1
margins	6-2	part number, battery	9-2	terminal, resetting	10-3
margins, left	6-3	part number, printer paper	9-1	terminal, tests	10-4
margins, right	6-3	power cord	2-2	terminal, turning on and off	2-3
menu, configuration	5-2	power-on malfunction	10-3	terminal, using with a computer	7-1
menu, Configuration	5-5	predefined function key labels	4-1	terminal, using with the integral printer	8-1
menu, Configuration, Datacomm	5-5	printer	8-1	terms used in this manual	iv
menu, how to display	5-2	printer paper	9-1	test, printer	10-5
menu, how to print	5-2	Protected Fields	6-4	test, terminal	10-4
menu, Terminal Configuration	5-2, 5-5	receiving data from the computer	7-7	text, moving a block	6-13
model number	2-1	Record Mode	6-4, 7-7	thermal paper	9-1
modem	7-2	Remote Mode	7-1	underlining characters	6-4
MODES function key labels	4-2	replacement, battery	9-2	Unprotected Fields	6-4
MODES key	1-2, 3-11	replacement, printer paper	9-1	User Definable Function Keys	4-15
modes, Auto LF	7-2	RESET TERMINAL key	3-10	User Definable Function Keys Menu	4-15
modes, Block	7-1, 7-6	resetting the terminal, hard reset	10-3	User Key modes	4-16
modes, Caps	7-2	resetting the terminal, soft reset	10-3	User Key modes, Definition mode	4-16
modes, Caps Lock	7-2	RETURN key	3-2	User Key modes, Definition mode, defining a function key	4-16
modes, Character	7-3	scanning memory using the ROLL and PAGE keys	3-7	User Key modes, Definition mode, leaving definition mode	4-16
modes, Configuration function keys	5-3	screen, description of	6-1	User Key modes, Use mode	4-16
modes, Line Modify	7-3	selectable character sets	3-3	User Key modes, Use mode, initiating	4-16
modes, Local, definition of	iv	selecting operating modes	7-1	User Key modes, Use mode, leaving	4-17
modes, Modify	7-3	self-test	1-2, 1-4	USER KEYS	1-2
modes, Modify All	7-3	sending data to the computer	7-2	USER KEYS key	3-11
modes, Record	6-4, 7-7	Service Set	4-14	User Definable function key labels	4-1
modes, Remote	7-1	setting tabs	6-3	using block mode	7-1, 7-6
modes, selecting	7-1	using the start column feature	7-4	using your terminal with a computer	7-1
modes, selecting operation	7-1	using your terminal with the integral printer	8-1		
modes, Use	4-16				
modes, User Key	4-16				

