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HP700/71

USER'S MANUAL



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PACKARD

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COMPUTER APPLICATIONS PTY. LTD.
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WATERLOO NSW 2017
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HP 700/71

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Manual Part Number C1005-90002
Printed in Singapore
September 1987

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PACKARD**

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The IBM 3191 Display Station, IBM 3274 Control Unit, IBM 3276 Control Unit, IBM 3174 Control Unit, IBM 3299 Multiplexer, IBM 3178 Display Station, IBM 4701/2 Controller, IBM 3270 Information Display System and its Entry Assist Public Switched Network and Response Time Monitor functions and Keyboard Definition Utility are products of International Business Machines Corporation.

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Roseville Terminals Division
8020 Foothills Blvd.
Roseville, CA 95678-6502

Printing History

First Edition—September 1987 (Printed in Singapore)

Where To Find More Information

The following IBM publications provide additional information about control unit customization features and terminal-to-system communication.

IBM 3270 Information Display System—Entry Assist User's Guide (GA23-0119)

IBM 3270 Information Display System—3274 Control Unit Description and Programmer's Guide (GA23-0061)

IBM 3270 Information Display System—3274 Control Unit Customizing Guide (GA23-0065)

IBM 3270 Information Display System—X.25 Operation (GA23-0204)

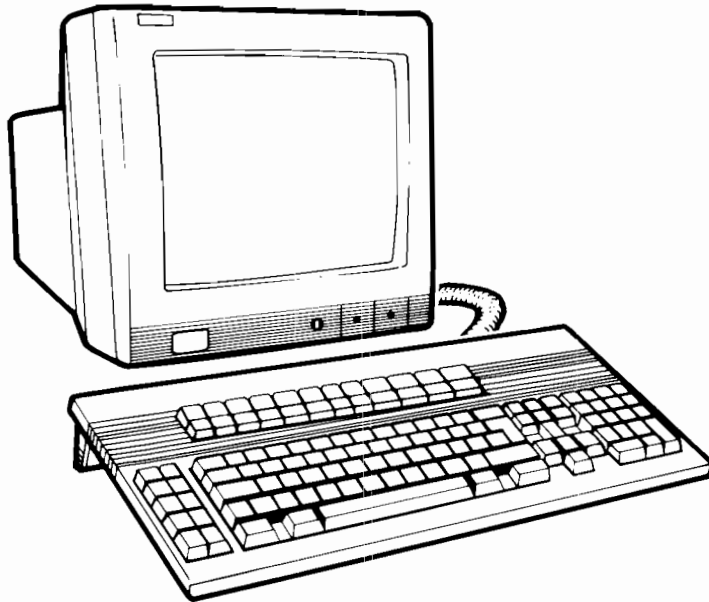
Preface

The **HP 700/71 Display Terminal** is a versatile, highly reliable, low-cost, IBM-compatible terminal. Designed and built in the Hewlett-Packard tradition of quality, the HP 700/71 offers ergonomic features, superior display quality and exceptional value.

The HP 700/71 is compatible with the IBM 3191 Display Station and offers both 102 key and 122 key keyboards.

The HP 700/71 can be connected to the IBM 3174/3274/3276 and 470x Control Units or the IBM 3299 Multiplexer. This allows the terminal to communicate with IBM System 360/370, 43xx, 308x, 8100 and 9370 processors or equivalent systems. The terminal can also be connected to IBM 43xx processors via appropriate device adapters.

The IBM Entry Assist, Public Switched Network and Response Time Monitor functions, available through customized control units, are supported by the HP 700/71.



The logic element, display screen and tilt/swivel pedestal are integrated in one unit: the display unit. Thus, the HP 700/71 is much easier to assemble than many other terminal models.

Features of the HP 700/71 Display Terminal include:

Ergonomics

- Tilt and swivel display screen
- Etched/dark anti-glare screen
- Brightness and contrast controls
- Bell volume control
- Detached, slant adjustable, low-profile keyboard
- Small footprint

Compatibility

- Plug compatible with the IBM 3191 Display Station

Display Screen

- 14 inch; choice of green or amber phosphor
- 24 line x 80 column user area
- 25th line for status messages
- 7 x 12 character matrix in a 9 x 15 cell with half dot shift (equivalent to a 14 x 11 character matrix in a 18 x 15 cell for most characters)
- User selectable auto dim feature (10, 30, 60 minutes delay or off)

Keyboard

- IBM compatible 102 and 122 key keyboards and overlays
- 24 function keys for application use
- Keyboard available in national layouts
- Sculptured keys with tactile feedback

Communication

- IBM 3270 Information Display System coax type A protocol (2.359 Mhz)

Additional Features

- Easy to use Setup menu
- Non-volatile RAM for saving setup specifications
- Block/underline cursor (blinking or non-blinking)
- Security lock and keys

Table of Contents

Chapter 1. Installation

Getting Ready	1-1
Preparing the Terminal for Use	1-3
Security Keylock and Keys	1-6
Turning the Terminal On and Off	1-7
Testing and Adjusting the Terminal	1-7
Starting and Exiting the Offline Test	1-8
The Offline Test Screen	1-8
Brightness and Contrast Controls	1-9
Adjusting the Bell and Keyclick Volume	1-10
Setting the Display Auto Dim	1-11

Chapter 2. Setup Mode

Entering and Exiting Setup Mode	2-1
Introduction to the Setup Menu	2-3
Configuration Switch Settings	2-3
Emulation Mode and Native Mode	2-3
User Defined Keyboard Layouts	2-4
Numeric Lock Mode	2-4
Using the Setup Menu	2-4

Chapter 3. Using the Terminal

The Display Screen	3-1
The Screen Areas	3-1
The Cursor	3-2
Display Attributes and Fields	3-3
Status Line Messages	3-3
Readiness and System Connection Messages	3-5
Input Denied Messages	3-6
Communications Messages	3-8
Response Time Monitor Messages	3-9
Shifts and Modes Messages	3-10
Printer Status Messages	3-11
Entry Assist Messages	3-12
The Keyboard	3-13
Typewriter Keys	3-14
Display Control Keys	3-16
System Interaction Keys	3-18
Function Keys and Adjustment Keys	3-20
Numeric Keypad	3-21
Extended Select Mode Capabilities	3-21

Chapter 4. Troubleshooting and Maintenance

Problems and Solutions	4-1
Terminal Tests	4-4
Preventive Maintenance	4-5

Index

1

Installation

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

Getting Ready

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

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

CAUTION

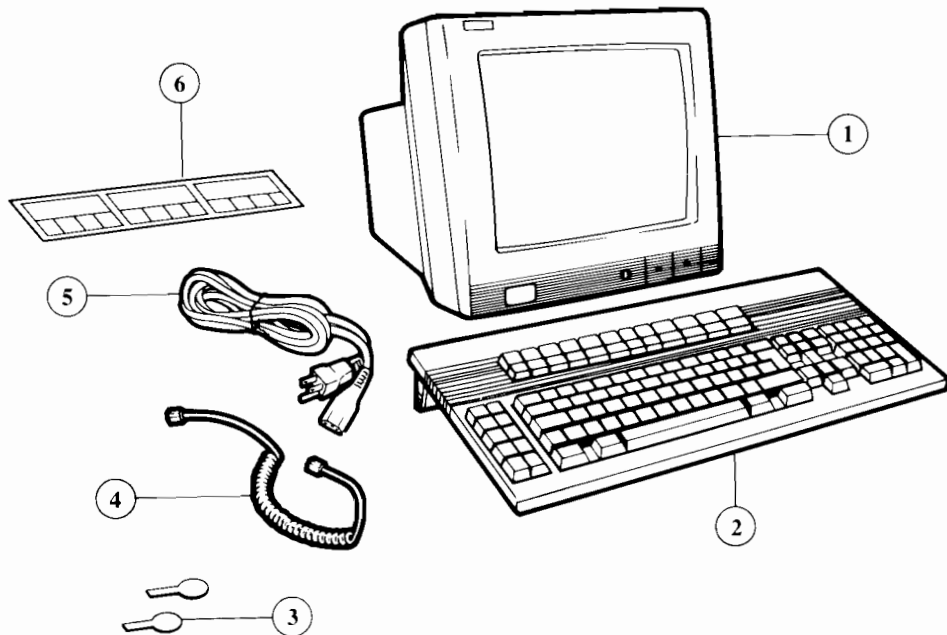
Under no circumstances should you open your terminal to expose its internal circuitry. Only a qualified service engineer should perform maintenance procedures that require opening the terminal case.

You will need a RG-62AU coaxial cable with BNC-type connectors to connect the terminal to a control unit, device adapter or communications network. This cable is not shipped with the terminal.

You will have to plug the power cord into a grounded power outlet. The HP 700/71 works with any voltage rating from 100 to 240 VAC. Unlike many other terminal models from other manufacturers, there is no voltage setting for you to adjust on the HP 700/71.

Air ventilation for the terminal is through the top, rear and bottom. Do not obstruct its ventilation. Don't set anything on top of the terminal or close to its rear panel.

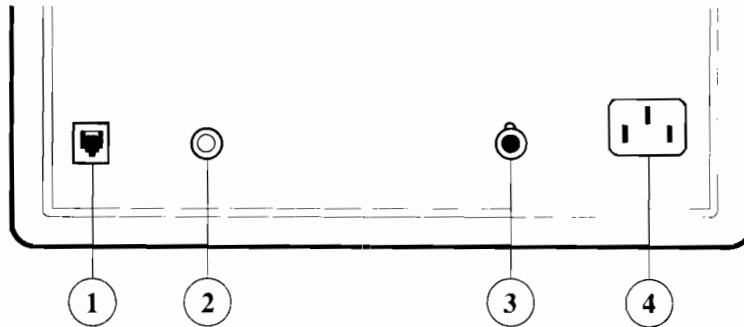
Figure 1-1. Terminal Components



-
- 1) Display unit 2) Keyboard 3) Two security keys
4) Keyboard cable 5) Power Cord
6) Appropriate keyboard overlays for either the 102 key or the 122 key keyboard

1-2 Installation

Figure 1-2. Terminal Rear Panel Connections



- 1) Keyboard cable receptacle 2) Bell volume control**
3) Communications port 4) Power cord socket

Preparing the Terminal for Use

Unlike terminals produced by other manufacturers, the HP 700/71's logic element and tilt/swivel base are integrated into the display unit. Thus, the HP 700/71 is much easier to assemble than many other terminal models.

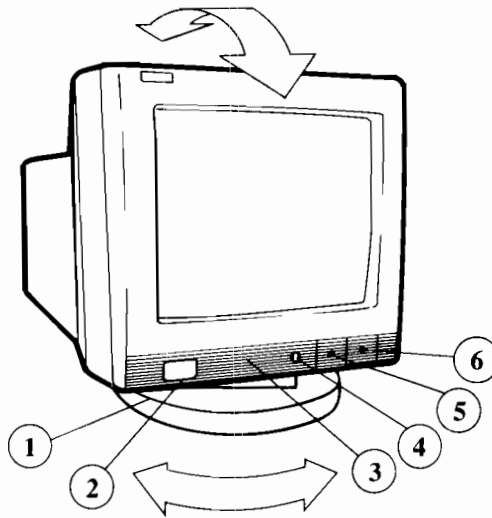
- 1.** Make sure the power cord is not connected to the terminal. Also, make sure the power on/off button is set to off (pushed in is on, flush with the front panel is off). The power button is located on the lower left front of the display unit.
- 2.** Connect the keyboard cable. Both ends are identical. Plug one end into the receptacle on the rear of the keyboard. Plug the other end into the keyboard cable receptacle on the left rear of the terminal.
- 3.** Connect the communications cable to the terminal's communications port. The communications port is located at the rear of the terminal ("3" in Figure 1-2). (The other end of the cable must be connected to a control unit or device adapter.) The port's connector is shaped so that the cable fits in only one way. Slide the cable-end onto the port connector and then turn it clockwise so that the cable is securely connected.

4. Connect the power cord. Plug the slotted end of the power cord into the AC socket on the right rear of the terminal. Plug the three-pronged end of the power cord into an electrical outlet. Note that the outlet must be properly wired and grounded.
5. Adjust the tilt and swivel of the display unit, and the angle of the keyboard, for your convenience.
 - To adjust the tilt, move the top of the display unit gently up or down until the angle is most comfortable for you. The display unit remains tilted at the angle in which you leave it.
 - The base of the display unit allows you to swivel the unit freely to the right and left.
 - The keyboard can either lie flat or be raised at an angle. To raise the keyboard at an angle, flip down the bar on the rear underside of the keyboard.

NOTE

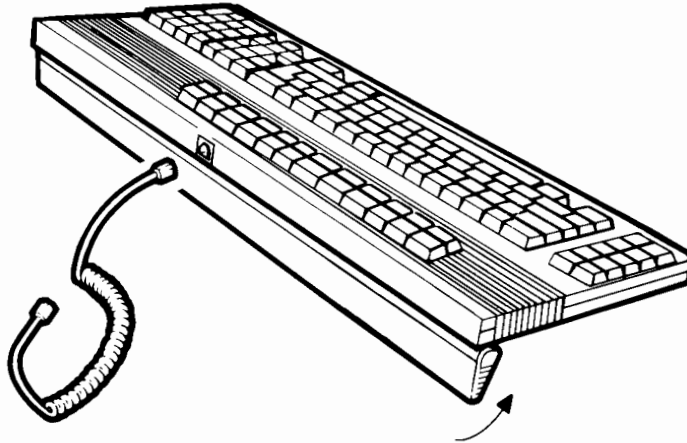
The operation of the terminal may be unpredictable if the keyboard layout is incorrectly specified in Setup Mode. The default setting of the keyboard layout is correct in many, but not all, situations. Read Chapter 2 of this manual, "Terminal Setup".

Figure 1-3. Terminal Controls



-
- 1) Tilt and swivel pedestal 2) Power switch 3) Service Door**
4) Security Keylock 5) Contrast control 6) Brightness control

Figure 1-4. Keyboard Angle Adjustment



Security Keylock and Keys

The security keylock provides security against unauthorized use of the terminal. (The lock is illustrated in Figure 1-3.) Two security keys are shipped with the terminal.

To unlock the terminal, insert the key and turn it fully to the right. To lock the terminal, insert the key and turn it full to the left. The keys can be removed in either position.

Using the key to lock the terminal 1) blanks the screen above the bottom line, 2) prevents the terminal from accepting data or keystrokes, and 3) causes the message **X o-m** to be displayed on the bottom line (i.e., the Status Line).

Store one of the keys away for safekeeping. Also, record the keys' code number. The keys' code number matches the keylock's code number. If you need to order additional keys, you can identify them by this code number. To order additional keys, contact:

Illinois Lock Company
301 West Hintz Road
Wheeling, Illinois 60090
(312) 537-1800

Turning the Terminal On and Off

The normal procedure for turning on the terminal (when not performing the Offline Terminal Test) is to simply press the power button on the front left of the terminal. The button remains pushed in while the terminal is on.

You'll hear two beeps (separated by a few seconds) when you turn on the terminal. In Chapter 3, "The Display Screen" section provides an illustration of what the screen may look like when it comes on.

NOTE

In the lower left corner of the screen, on the bottom line, one of these messages should be displayed: **4** , **6**

I or i , or **4700** . If none of these messages is displayed, refer to Chapter 4.

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

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

Testing and Adjusting the Terminal

To ensure that the terminal is working properly, and to learn how to make several adjustments for your convenience, run the terminal's Offline Test after you've connected the cables and power cord. The Offline Test lets you:

- Test the terminal.
- Adjust the display's brightness and contrast.
- Adjust the bell and keyclick volume.
- Set the auto dim feature.

Starting and Exiting the Offline Test

To run the Offline Test:

1. Make sure the terminal is unlocked. If necessary, insert the security key in the keylock and turn it all the way to the right.
2. If the terminal is on, turn it off. Wait five seconds for the terminal to completely power down.
3. Press in the power button while holding down any key except the **Reset** key. After the second beep, release the key. The Offline Test screen is displayed.

Figure 1-5 shows an example of how the test pattern may look. Note that the appearance of the test pattern varies depending upon the keyboard you are using.

To exit the Offline Test:

- Press the **Reset** key. This returns the terminal to its normal operating state.

The Offline Test Screen

The Offline Test performs a quick check of the terminal's components and lets you make sure the keyboard is operating properly.

If there is a problem with the terminal's components, L or LL will be displayed on the bottom line of the screen (near the center of the line). Should L or LL appear, power off the terminal and run the test again to see if the condition clears. If the condition persists, the terminal requires repair service.

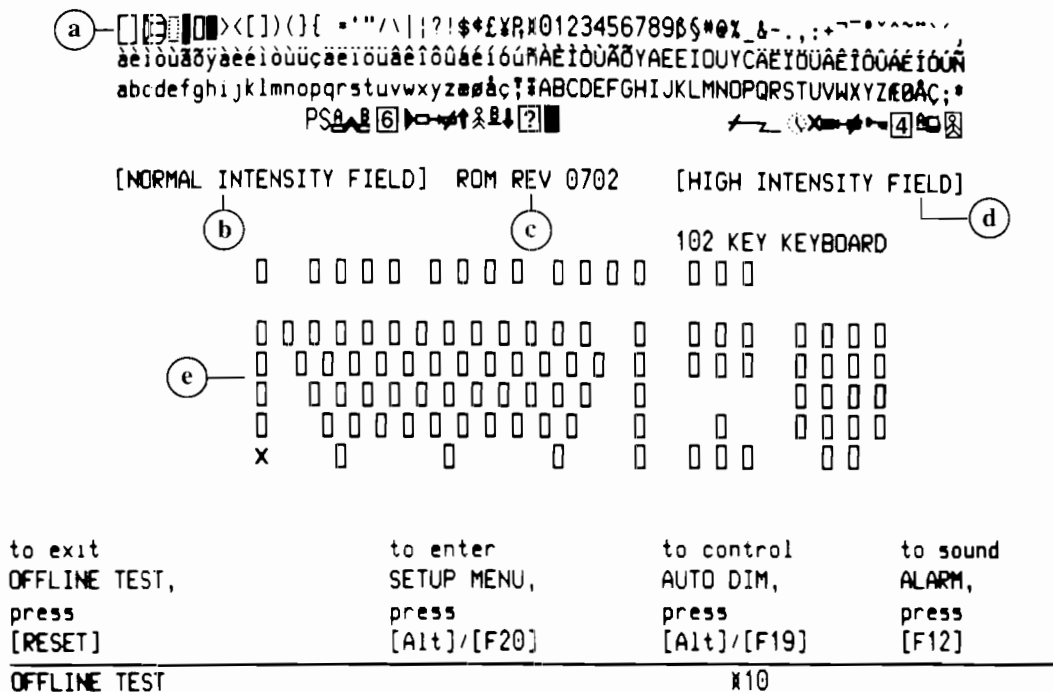
The center portion of the test screen ("e" in Figure 1-5) displays a pattern that corresponds to the layout of the terminal's keyboard. To ensure that the keyboard is operating properly, press any key except **Reset**. This should reverse the image of the corresponding key position in the pattern. If the image does not reverse, make sure the keyboard cable is attached correctly. Run the test and press a key again. If the problem persists, the terminal requires repair service.

If the terminal requires repair service, contact your local HP Sales and Service Office.

Figure 1-5. The Offline Test Screen



HP 700/71



- a) Terminal's Character Set b) Normal Intensity Characters
c) ROM Revision Number d) High Intensity Characters e) Keyboard Portion

Brightness and Contrast Controls

The Brightness and Contrast Controls are slide switches under the front right corner of the display unit (see Figure 1-3). Sliding these switches adjusts the brightness and contrast.

The Brightness Control adjusts the brightness of all characters on the screen. The Contrast Control adjusts the brightness only of characters displayed in normal intensity. In effect, it adjusts the contrast between high intensity characters and normal characters. In Figure 1-5, “d” indicates characters displayed in high intensity. All the other characters in the test screen are displayed in normal intensity.

You can use the Brightness and Contrast Controls at any time, not just when the Offline Test pattern is displayed.

Adjusting the Bell and Keyclick Volume

The Volume Control knob on the terminal's rear panel sets the volume for both the terminal's bell and keyclick.

The terminal bell provides audible indication that the terminal has performed a task. For instance, the bell sounds (e.g., the terminal beeps) when the terminal is powered on. Application programs can make use of the terminal's bell.

The keyclick is the clicking sound that keys can make when pressed. The “Function Keys and Adjustment Keys” section of Chapter 3 describes how to turn the keyclick on and off.

While the Offline Test screen is displayed, you can adjust the bell and keyclick volume by following these steps:

1. Press the **[PF12]** key (if you have the 122 key keyboard) or the **[F12]** key (on the 102 key keyboard). This sounds the bell unless the volume has been turned all the way down.
2. Turn the bell volume knob clockwise to increase volume or counterclockwise to decrease volume. This affects the volume for both the terminal's bell and keyclick.
3. Continue pressing **[PF12]** or **[F12]** and adjusting the volume until it is comfortable for you.

The Volume Control can be adjusted at any time. However, the **[PF12]** and **[F12]** keys sound the bell only when the Offline Test screen is displayed.

Setting the Display Auto Dim

The HP 700/71 has an auto dim capability that will help prolong the life of the display screen.

When auto dim is enabled, the screen will go blank (except for the bottom line and cursor) if there has been no input from the keyboard or computer for a specified length of time. The screen returns to normal as soon as you press any key or data is received from the computer. No data is lost.

There are four auto dim settings. Each is associated with a symbol that is displayed on the screen's bottom line (near the center of the line). The four symbols and settings are:

- ⏻10 The screen will go blank after 10 minutes of inactivity.
- ⏻30 The screen will go blank after 30 minutes of inactivity.
- ⏻60 The screen will go blank after 60 minutes of inactivity.
- ⏻XX Auto dim is turned off.

You can alter the auto dim setting only while the Offline Test screen is displayed. To alter the setting:

- Press **[PF19]** or **[F7]** while holding down the **[Alt]** key.

This key stroke combination cycles through the four settings. The symbol on the bottom line indicates which is the current setting.

The auto dim setting is stored in the terminal's non-volatile memory for ongoing use.

One more symbol is associated with this feature during normal operation:

- ⏻ Is displayed when auto dim has blanked the screen.

Setup Mode

This chapter explains how to use the terminal's Setup Mode. Setup Mode lets you ensure that your terminal is set correctly for your keyboard and applications, and lets you to turn Numeric Lock Mode on and off.

You won't need to use Setup Mode very often, though. In fact, in most situations, Setup Mode need only be used once. After you've just installed the terminal, use Setup Mode to see if the keyboard setting is correct and to change the setting if necessary. After that, you'll only need to use Setup Mode if you change keyboards or want to turn Numeric Mode on or off.

Entering and Exiting Setup Mode

Setup Mode can be accessed only while the Offline Test screen is displayed on the screen. *To enter Setup Mode:*

1. Make sure the terminal is unlocked. If necessary, insert the security key in the keylock and turn it all the way to the right.
2. If the terminal is on, turn it off. Wait five seconds for the terminal to completely power down.
3. Press the power button while holding down any key except the **Reset** key. After the second beep, release the key. The Offline Test screen is displayed.
4. Press the **PF20** key or the **F8** key while holding down the **Alt** key. The Setup Menu is displayed. The Setup Menu is illustrated in Figure 2-1.

Exit Setup Mode after you've finished using the Setup Menu (as explained in the following pages). To exit Setup Mode, press the **[PF20]** or **[F8]** key while holding down the **[Alt]** key.

When you exit Setup Mode, the keyboard setting is activated and is saved in the terminal's non-volatile memory so that it will be invoked whenever the terminal is powered on. Upon exiting Setup Mode, the terminal returns to its normal operating state.

Figure 2-1. The Setup Mode Menu

HP 700/71 SETUP MENU

a —

1	☒	1
2	☒	0
3	☒	0
4	☒	0
5	☒	0
6	☒	0
7	☒	0
8	☒	1

↑ 1 ON
↓ 0 OFF

to exit and save
SETUP MENU,
press
[Alt]/[F20]

b — 12345678 EMULATION MODE

0	000000	U.S. English
0	000001	U.K. English
0	000010	Canadian French
0	001101	(Not Offered)
0	010000	Austrian/German
0	010001	Belgian
0	010011	Danish
0	010100	Swiss French
0	010101	Swiss German
0	010110	French (Azerty)
0	011000	Italian
0	011001	Norwegian
0	011010	Portugese
0	011011	Spanish
0	011100	Spanish-Speaking
0	011101	Finnish/Swedish

c — 12345678 NATIVE MODE

*1	000001	Typewriter /ASCII
1	000010	Data Entry
1	100001	User Defined A
1	100010	User Defined B
1	100011	User Defined C
1	100100	User Defined D

d — 12345678 NUMERIC LOCK

1	ON
* 0	OFF

OFFLINE SETUP

x10

a) Switch Settings b) Emulation Mode Keyboard Layout Table
c) Native Mode Keyboard Layout Table d) Numeric Lock Indication

Introduction to the Setup Menu

Configuration Switch Settings

Many terminals use DIP switches for keyboard layout specification. The HP 700/71, however, uses the Setup Mode Menu for this purpose.

The Setup Mode Menu has a picture of eight DIP switches ("a" in Figure 2-1). This is analogous to the physical DIP switches used on other terminals. Beneath each pictured switch is either a 0 or 1 which indicates that the switch is either OFF (0) or ON (1).

Emulation Mode and Native Mode

The menu has two keyboard layout tables: one for Emulation Mode and the other for Native Mode ("b" and "c", respectively, in Figure 2-1). All the keyboard layouts with 0 in the first switch setting are in Emulation Mode. All layouts with 1 in the first switch setting are in Native Mode.

The 122 key keyboard can operate in either Emulation Mode or Native Mode. The 102 key keyboard operates only in Native Mode.

In Emulation Mode, the 122 key keyboard emulates an 87 key keyboard. If you are replacing a terminal (such as an IBM 3178 Display Station) that had an 87 key keyboard, and your applications expect an 87 key keyboard, then you should choose a keyboard layout that is in Emulation Mode.

The 122 key keyboard can have any Native Mode setting. The 102 key keyboard, however, operates only in the Native Mode Typewriter setting. Even if you choose a different keyboard setting for the 102 key keyboard, it will still operate in the Native Mode Typewriter setting.

In order to operate the 102 key keyboard in Native Mode, connect the terminal to an IBM 3274 Control Unit with Configuration Support D, release 63 microcode or higher, and with 3274 RPQ #71.0825, or an IBM 3174.

In order to operate the 122 key keyboard in Native Mode, the terminal must be connected to an IBM 3274 Control Unit (or equivalent) with a Configuration Support D with Release 63 Microcode or higher, or an IBM 3174 Control Unit.

On the HP 700/71 terminal, the **Ex Se** key is operable only if the keyboard is in Native Mode. The **Ex Se** key is the means by which the Extended Select Mode capabilities are obtained. Thus, in order to use Extended Select Mode capabilities such as Entry Assist the keyboard must be in Native Mode.

User Defined Keyboard Layouts

The User Defined A/B/C/D layouts listed under Native Mode refer to keyboard layouts that can be created by using IBM's Keyboard Definition Utility. The HP 700/71 supports user defined keyboard layouts for its 122 key keyboard in Native Mode. If your computer department wants you to select one of the four user defined keyboard layouts, you also may want to attach new labels to the keycaps of the keys that have been redefined.

In Native Mode, the third switch indicates whether or not the Keyboard Definition Utility will be accepted by the terminal. 1 means that terminal will accept a user defined keyboard layout; 0 means that a user defined keyboard layout will not be accepted.

Numeric Lock Mode

The lower right of the menu ("d" in Figure 2-1) states whether Numeric Lock Mode is OFF or ON. The second switch controls Numeric Lock Mode. Setting it to 0 turns Numeric Lock Mode OFF; setting it to 1 turns Numeric Lock Mode on.

When Numeric Lock Mode is on, it allows applications to display fields on your terminal's screen that accept only numeric characters, periods, commas and the minus sign. When Numeric Lock Mode is off, applications cannot control your display screen in this way.

Using the Setup Menu

The current keyboard layout setting is the row of 8 numbers below the pictured dip switches.

Look at the current keyboard layout setting to see if it matches the required setting for the keyboard attached to your terminal. The keyboard table portion of the menu lists the correct switch settings for the possible keyboard layouts. Check also to make sure that the second switch is set correctly for Numeric Lock Mode per your application's requirements.

You'll notice several highlighted areas on the menu. For instance, the Numeric Lock field is highlighted to indicate whether the current setting turns Numeric Lock Mode on or off.

If the current layout setting matches one of the keyboard layout selections in the tables, then that selection is highlighted. For example, when switches 1, 3, 4, 5, 6, 7 and 8 are all set to 0, then the U.S. English keyboard layout in the Emulation Mode table is highlighted.

Follow these steps if you want to change a switch setting:

1. Select the switch you want to change. The blinking cursor (on the 0 or 1 below the switch) indicates the currently selected switch. To move the cursor, press either  to go left or  to go right.
2. Once the cursor is on the switch number you want to change, press  or “1” to set the switch to 1 (ON), or press  or “0” to set the switch to 0 (OFF).

When you are finished using the Setup Menu, press  or  while holding down the  key. The displayed setting is activated immediately. It's also saved in the terminal's non-volatile memory so that it's invoked every time the terminal is powered on. You exit Setup Mode and return to the terminal's normal state.



Using the Terminal

This chapter describes how to use the keyboard and display screen. It also describes how the terminal can be used with printers connected to the control unit.

NOTE

If you don't know how to turn the terminal on and off or adjust its controls, refer to "Turning the Terminal On and Off" in Chapter 1.

The Display Screen

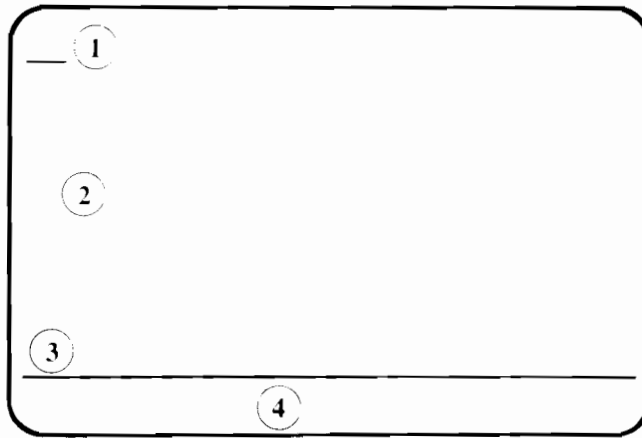
The Screen Areas

The user workspace of the screen is 24 lines x 80 columns. It displays a single page of display memory and can contain up to 1920 characters simultaneously.

The Separator Line separates the user workspace of the screen from the Status Line.

The bottom line of the screen is the terminal's Status Line. It displays messages indicating the terminal's status.

Figure 3-1. The HP 700/71 Display Screen



- 1) The cursor 2) 24 lines of user area
3) Separator line 4) Status line

The Cursor

The cursor indicates where the next character you type will appear on the screen. The cursor style can be block or underline, blinking or non-blinking.

To change the cursor style from block to underline or vice versa, press the **Alt Cr** key while holding down the **Alt** key.

To change the cursor from blinking to non-blinking or vice versa, press the **Cr Bnk** key while holding down the **Alt** key.

Display Attributes and Fields

The HP 700/71 Display Terminal supports the same display attributes as the IBM 3191 Display Station and the IBM 3178 Display Station.

Application programs, working via the IBM 3270 Information Display System or other applicable system, can cause the terminal's display screen to be formatted or unformatted. Data can be entered at any location of the screen when the screen is unformatted.

Application programs can also define fields on the screen as protected or unprotected. Data cannot be entered into protected fields and can be entered into unprotected fields. Further, unprotected fields can be defined to accept alphanumeric characters or to accept only numeric characters. Fields can be defined to be blank (nondisplayed), as well as displayed in normal or high intensity. The terminal's Contrast Control can be used to adjust the difference in appearance between normal and high intensity characters.

Status Line Messages

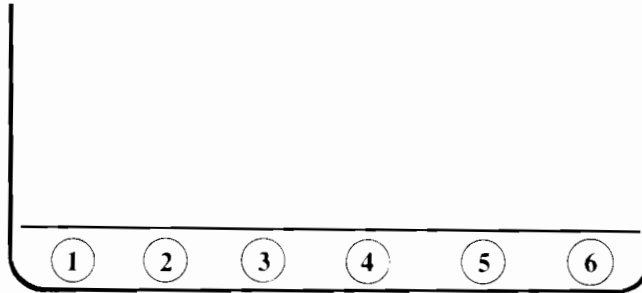
The Status Line, located at the bottom of the screen below the separator line, displays messages indicating the terminal's current operational status. The messages appear in the form of symbols, words and numbers.

Tables 3-1 through 3-7 provide a quick reference guide to the status line messages.

There are six categories of messages. Specific areas of the Status Line are reserved for each message category. The Status Line normally displays multiple messages from several categories at the same time.

The figure below identifies the message categories and illustrates the areas of the Status Line reserved for each category:

Figure 3-2. Status Line Message Areas



-
- 1) Readiness and System Connection 2) Input Denied
3) Communications and Response Time Monitor 4) Shifts and Modes
5) Printer Status 6) Entry Assist

These messages are generated by the controller or system to which the terminal is connected. The only exceptions are the auto dim messages which are generated by the terminal.

Readiness and System Connection Messages

The messages in this category indicate the terminal's communications status and readiness.

Depending on the connection, one of the following five messages must be present:

[4] , **[6]** , **4700** , **I or i** , **S** . If none of these five is present, then the terminal is not connected to a controller or system (see Chapter 4).

Table 3-1. Readiness and System Connection Messages

Message	Name	Description
[4]	Ready	The terminal is connected to an IBM 3274 Control Unit.
[6]	Ready	The terminal is connected to an IBM 3276 Control Unit.
S	Ready	The terminal is connected to an IBM 3174 Control Unit.
I or i	Ready	The terminal is connected to an IBM 43xx Processor.
4700	Ready	The terminal is connected to an IBM 4700 controller.
A	Online	The terminal is online using non-SNA communication.
B	Online	The terminal is online using SNA communication.
N	—	The terminal is communicating via a X.21 or X.25 public switched network.
■	My Job	The terminal is in session with an application program.
⊗	System Operator	The terminal is connected to the system operator/control program. Press [SysRq] while holding down [Alt] to enter and exit this mode, or enter a command.
[?]	Unowned	The terminal is not logically connected to a controller, processor or control program.
TEST	Test	The terminal is in online or offline test mode.

Input Denied Messages

When any of these messages are displayed all but a few of the terminal's keys are locked, thereby preventing data entry from the keyboard. The keys that remain unlocked are **Alt**, **Alt Gr**, **Alt**, **Ctrl**, **Cr Bnk**, **Dv Cnl**, **Ex Sel**, **Reset**, **Shift**, **SysRq** and **Test**.

Pressing **Reset** usually unlocks the keyboard. **Reset** does not unlock the keyboard, however, when the *Wait*, *Printer Busy*, *Printer Very Busy*, *Printer Not Working* and *Security Key* messages are displayed.

Table 3-2. Input Denied Messages

Message	Name	Description
X 	Wait	The system needs time to perform a function. If the wait lasts more than a few minutes, contact your supervisor or the system administrator.
X ? +	What?	The last input from the keyboard was not accepted.
X SYSTEM	System Lock	The keyboard has been locked by the system.
X 	Go Elsewhere	The action requested by the last keystroke was inappropriate for the cursor's current position.
X  >	Field Full	The input field is full. Note that spaces which look blank may actually contain blank characters that can be deleted.
X  NUM	Numeric Only	This field accepts only numeric characters (0 through 9, period and minus sign).
X  #?	What Number?	You did not enter a valid number.
X -f	Minus Function	The function you requested is not available.
X  nnn	Machine Check	There is a problem with the terminal or control unit. Press Reset and try the operation again. If the message persists, refer to the control unit's manuals.

Table 3-2. Input Denied Messages (continued)

Message	Name	Description
X  5nn	Comm Check	A communication problem has occurred.
X PROG nnn	Program Check	There is a problem with the data coming from the system. The application program may be incorrect for the terminal.
X  X	Operator Unauthorized	You requested a function that is unavailable to your terminal at the present time.
X -S	Minus Symbol	The symbol key you pressed is not supported.
X 	Printer Busy	The printer assigned to the terminal for screen copy is busy. You can wait for the print operation to finish or press  to cancel it either before it has started or in progress. You cannot cancel print operations initiated by the system.
X 	Printer Very Busy	Same as X  except that a longer amount of time is required.
X 	Printer Not Working	The printer assigned to your terminal is not available. If  nn also is displayed, the printer stopped during a print operation. Press  to cancel the print request.
X  ' + ?	Invalid	You entered an invalid diacritical (accent) character sequence. Applicable only to some non-U.S. keyboards.
X  ~ + ?	Accent Key	
X  ^ + ?	Sequence	
X  ° + ?		
X  + ?		
X  	Operator Comm Check	You requested unavailable communications function.
X 	Message Received	A control program message was received and rejected.
X 	Security Key	The security lock has locked the terminal. Use the security key to unlock the terminal.
X	System Check	Transmission between terminal and control unit is in error.

Communication Messages

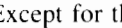
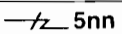
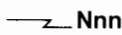
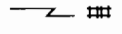
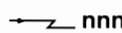
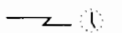
Except for the  **5nn** and  messages, the rest of the messages in this category can be displayed only if the control unit has been customized for X.25 or X.21 Public Switched Network communication. In such an environment,  **DIAL** and  **LOCAL** are redefined function keys.

Table 3-3. Communication Messages

Message	Name	Description
 5nn	Comm Error	An error has been detected in the communication link between the control unit and host system.
	Call Ready	The terminal is ready to communicate on a X.21 or X.25 public switched network.
 Nnn	Call Request	A call request is in progress, but the connection has not yet been established.
 #?	Dial In	The  DIAL key was pressed. Enter the host system's network address.
 ###	Dial In (Other Terminal)	Another terminal connected to the same control unit is dialing the host system.
	Outgoing Call	An outgoing call request from the terminal is in process.
 nnn	Outgoing Call Request	An outgoing call request from the terminal is in progress, but the connection has not yet been established.
	Incoming Call	The terminal is answering a call from the network.
	Disconnecting	The terminal is in the process of disconnecting from the network.
 599	Local	The  LOCAL key was pressed; the terminal is now offline.
 xxxxx*	Call Ready Error	This is a communications error code message.
 xxxxx*	X.25 Comm Error	This is a X.25 communications error code message.
	Reserved	This symbol should be ignored. Press  .

Response Time Monitor Messages

These messages can be displayed at your terminal only if the control unit to which your terminal is attached has been customized for the Response Time Monitor function.

Table 3-4. Response Time Monitor Messages

Message	Name	Description
U:	Unauthorized	The terminal is not authorized to display response time.
U:SS.t	Response Time (Short)	Indicates, in seconds (<i>ss</i>) and tenths of a second (<i>.t</i>), how long it took for the last data transmission to the host system to be completed.
U:mm.SS	Response Time (Long)	Same as the above message except the response time is longer (<i>mm</i> for minutes, <i>ss</i> for seconds).
U:???	Canceled	The response time function has been canceled.

Shift and Mode Messages

These messages indicate operational modes of the terminal and the auto dim status.

Table 3-5. Shift and Mode Messages

Message	Name	Description
↑	Shift	Sets the keyboard to capitalize alphabetic keys or select the upper symbol of non-alphabetic keys.
NUM	Numeric	The keyboard is in Numeric Lock Mode and the cursor is in a field that accepts only the numeric characters 0–9, period and minus sign.
^	Insert	The terminal is in Insert Mode. Entered characters are inserted at the cursor position; any characters to the right of the cursor are moved right. Pressing Reset ends Insert Mode.
▶	Extended Select	You pressed the Ex Sel key, thereby putting the terminal in Extended Select Mode. You can enter this mode only if the control unit has been customized to support the Extended Select function. Pressing the Alt key ends Extended Select Mode.
⏏	Auto Dim	The auto dim feature has blanked the screen because there has been no input to the screen for a specified amount of time (either 10, 30 or 60 minutes). Pressing any key or receiving any data from the computer causes the screen contents to be redisplayed.
⏏ XX	Auto Dim Off	The auto dim feature is turned off. Lack of input to the screen will not cause the screen to go blank.
⏏ 10	Auto Dim at 10	The auto dim feature will blank the screen after 10 minutes of inactivity (no input from the keyboard or computer).
⏏ 30	Auto Dim at 30	The screen will go blank after 30 minutes of inactivity.
⏏ 60	Auto Dim at 60	The screen will go blank after 60 minutes of inactivity.

Printer Status Messages



These messages indicate printer status.

Table 3-6. Printer Status Messages

Message	Name	Description
  - -	Assign Printer	The  key was pressed. Enter the number for the printer you want assigned to the terminal or press  .
  nn	Printer Assigned	Indicates the printer (identified by number nn) assigned to the terminal.
  nn	Printer Printing	The printer identified by nn is printing the data sent to it by your terminal.
  nn	Printer Failure	The printer (identified by nn) has stopped during a print operation. Press  to cancel the operation. You may be able to assign a different printer.
  ??	What Printer?	The terminal's printer assignment was changed. Press  to display the terminal's new printer assignment.

Entry Assist Messages

These messages can be displayed at your terminal only if the control unit to which your terminal is attached has been customized for the Entry Assist function.

Table 3-7. Entry Assist Messages

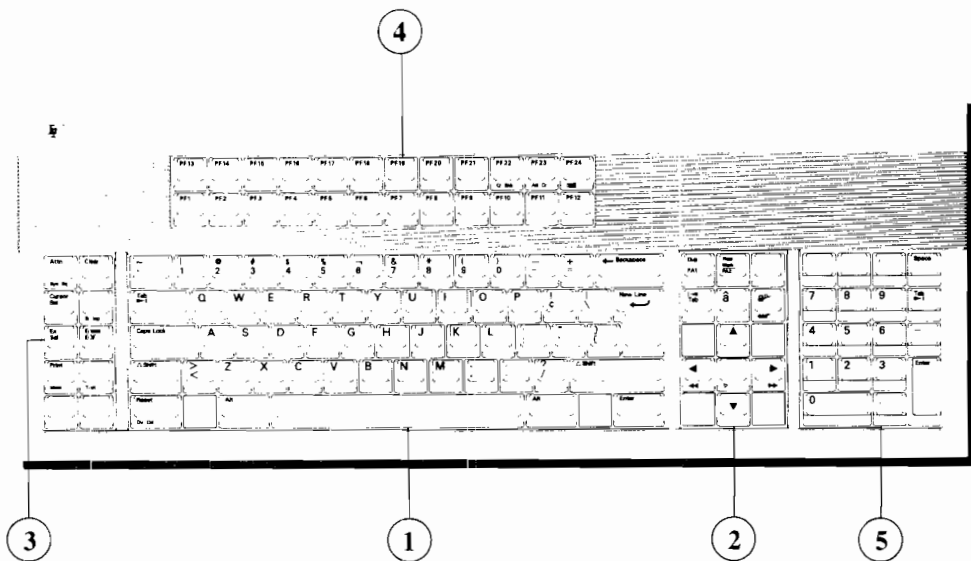
Message	Name	Description
DOC	Document Mode	The key redefined as DOC On/Off in Extended Select Mode has been pressed, putting the terminal in Document Mode.
↓	Word Wrap On	The key redefined as WRAP On/Off in Extended Select Mode has been pressed. Word wrap is enabled.
RR/CC	Cursor Position	Indicates the cursor's position in the screen. The format is row number followed by column number. Pressing the key redefined as Cursor Position in Extended Select turns this capability on and off.

The Keyboard

The HP 700/71 Display Terminal comes with either a 122 key keyboard or 102 key keyboard. These keyboards are illustrated below.

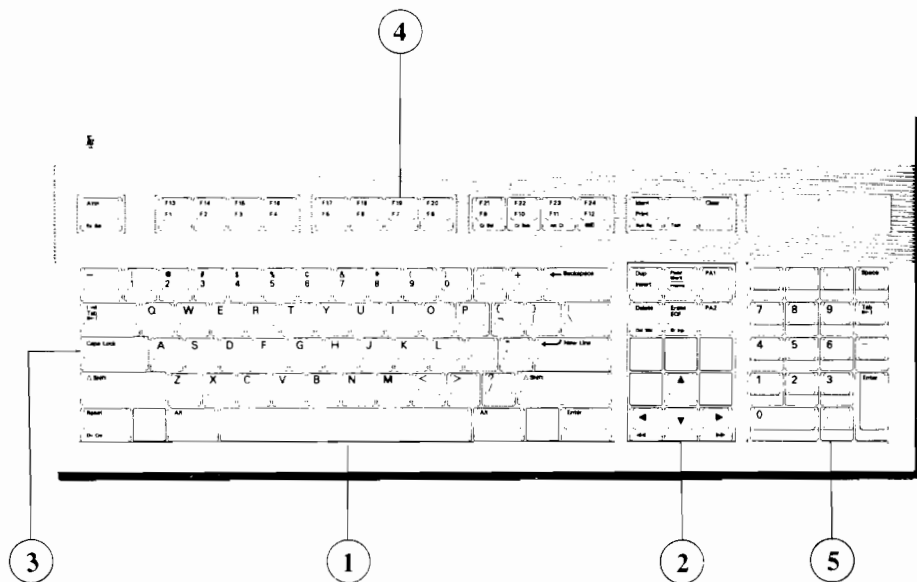
You can enable or disable the clicking sound keys can make when they are pressed. Pressing the **PF24** or **F12** key while holding down the **Alt** key enables or disables the key click sound.

Figure 3-3. The HP 700/71's 122 Key Keyboard



- 1) Typewriter keys 2) Display control keys 3) System interaction keys
4) Function and adjustment keys 5) Numeric keypad

Figure 3-4. The HP 700/71's 102 Key Keyboard



- 1) Typewriter keys 2) Display control keys 3) System interaction keys
4) Function and adjustment keys 5) Numeric keypad

Typewriter Keys

The typewriter keys let you type letters, numbers and symbols just as you would with a typewriter. The letter, number and symbol keys, as well as the **Backspace**, **Back Tab**, **New Line**, **Spacebar** and **Tab** keys repeat when held down for more than a half second. Table 3-8 summarizes the typewriter keys that perform tasks.

Table 3-8. Tasks Performed by the Typewriter Keys

Key	Description
	Pressing the  sets the terminal to perform the function labeled on the front of a key. For example, pressing the  key while holding down the  key causes the function labeled on the front of the key () to be performed. In this case the cursor moves left at double speed.
	Moves the cursor to the left one space. From the screen's left edge of the screen, moves the cursor to the right edge of the screen on the previous line. When at the left edge of the top line, moves the cursor to the right edge of the bottom line.
	Moves the cursor back to the first position of the current input field, or if already there, to the first position of the previous input field. When at the first input field, moves the cursor down to the last input field. Homes the cursor if there are no input fields.
	Turns on Caps Lock Mode which sets the keyboard to capitalize alphabetic keys and select the upper symbol of non-alphabetic keys. The  is displayed on the Status Line. Pressing  turns off Caps Lock Mode.
	Causes the cursor to move down one or more lines to the first position of the next input field. When at the screen's last input field, moves the cursor up to the first input field. If there are no input fields, the cursor moves to the home position (top left corner of the screen).
	The effect is the same as Caps Lock except lasts only as long as the  key is pressed. Also turns off Caps Lock Mode.
 or 	Moves the cursor one character to the right, overwriting with a space the character that had been in that position. Wraps from the right edge of the screen to the left edge of the next line.
 or 	Moves the cursor to the next input field. When at the last input field, moves the cursor up to the first input field. Homes the cursor if there are no input fields.

Display Control Keys

The display control keys control cursor movement and such functions as duplicating, erasing and clearing data from the screen.

In addition, **Reset** and **Dv Cnl** are useful for unlocking the keyboard from Input Denied conditions.

The following display control keys repeat when held down for more than a half second:

, , , , ,  and **Delete**.

Table 3-9. Display Control Keys

Key	Description
 	These keys move the cursor up and down the screen in the direction of the arrows. If the cursor passes through the upper or lower edge of the display, it resumes moving in the same column from the opposite edge of the display.
 	These keys move the cursor left and right across the screen in the direction of the arrows. Moving the cursor through the right side of the display causes it to reappear at the beginning of the next lower line. Moving it through the left edge causes it to reappear at the end of the next higher line. Moving the cursor through top left corner of the display causes it to reappear at the bottom right corner, and vice versa.
 	Pressing these keys while holding down the Alt key causes the cursor to move at double speed. Cursor direction is the same as when not pressing Alt .
Clear	Clears the display area above the Separator Line except for the cursor. Data may be lost depending upon the application program.
Dv Cnl	Device Cancel. Press the Reset key while holding down the Alt key. Cancels print requests that were issued from your terminal. However, depending on how long ago the print request was issued, some or all of the print operation may still be completed. Canceling print requests from your terminal unlocks the keyboard from Printer Busy, Printer Very Busy and Printer Not Working conditions. If the request came from the system, pressing this key causes the X(U) message to be displayed.
	Delete. Deletes the character at the cursor position. All characters to the right of the cursor that are on the same line and in the same field are moved left one space. Inserts a null character at the end of the field or line, whichever is first.
Delete	If the field contains multiple lines, only the line containing the cursor is affected. When enabled by IBM's Entry Assist function, pressing Delete while holding down the Alt key deletes the next word.

Table 3-9. Display Control Keys (continued)

Key	Description
Dup	Duplicate. Press the Dup key while holding down the Shift key. Causes the symbol to be displayed where the cursor had been and moves the cursor to next input field. When in the last field, displays the same symbol and moves the cursor up to the first input field. Although the effect of this key depends on the application program, it is generally used for copying data from one input field to the next.
Erase EOf	Erase to end of field. When the cursor is in an input field, pressing this key erases all data from the cursor position to the end of the field. If the screen is unformatted, all characters from the cursor to the end of the screen are erased. Pressing this key in a protected (non-input) field causes the X ← → message to be displayed.
Er Inp	Erase Input. Press the Er Inp key while holding down Alt . Erases all data from all the input fields (unprotected areas) on the screen.
Field Mark	Press this key while holding down the Shift key. The symbol is displayed at the cursor position. The cursor moves to the next position in an input field or, if at the end of an input field, to the first position of the next field. Using this key when the cursor is in a non-input field causes X ← → to be displayed on the Status Line. The effect of this key is application-dependent.
Home	On the 122 key keyboard, press this key while holding down Alt . On the 102 key keyboard, press the Home key. Moves the cursor to the first input position of the screen or to the top left corner of the screen if the screen is unformatted.
Insert	Turns on Insert Mode: ^ is displayed on the Status Line when Insert Mode is on. Inserts characters you type in input fields. However, to insert a character, there must be a null character (appearing as a blank) at the end of the input field. For each character inserted, all characters to the right of the cursor in the field are moved one space right. If there are multiple lines in the field, the insertion wraps to the following line(s). If there are no null characters at the end of the field, then no more characters can be inserted and the X ← → message is displayed on the Status Line. If this key is pressed when the cursor is not in an input field, the X ← → message is displayed. Press Er Inp to clear these messages and turn on/off Insert Mode.
Reset	Take the keyboard from Input Denied conditions except when the <i>Wait</i> , <i>Printer Busy</i> , <i>Printer Very Busy</i> , <i>Printer Not Working</i> and <i>Security Key</i> message is displayed. Cancels a diacritical (accent) character entry. Turns off Insert Mode.

System Interaction Keys

The system interaction keys pertain to the terminal's interaction with the control unit and/or host computer system. Additionally, keys in this group pertain to the terminal's access to printers attached to the control unit. Also, the **Ex Sel** key provides access to extended capabilities (Entry Assist, Response Time Monitor and Public Switched Networks) supported by customized control units and host systems.

Table 3-10. System Interaction Keys

Key	Description
Attn	Attention. In general, pressing this key interrupts the application program. Specific effects of this key are application-dependent. Only operable when B is displayed on the Status Line; otherwise, pressing this key causes X -f to be displayed on the Status Line.
Cursr Sel	Cursor Select. On 122 key keyboard, press the Cursr Sel key. On the 102 key keyboard, press F9 key while holding down the Alt key (Cr Sel). This key provides an easy way to choose from a list of options in application programs that are designed to accept this key. This key is analogous to the function of light pens on some terminals. There are two types of fields that support use of the Cursr Sel key: Selection fields and Attention fields. These fields are preceded by designator characters. Selection fields are preceded by either a ? or >. The ? means that the field is unselected. The > means the field has been selected. To select or unselect one of these fields, position the cursor in the field and use the Cursr Sel key. When you've finished selecting fields on the screen, position the cursor in an Attention field. Attention fields are preceded by either a & or null character. Using Cursr Sel when the cursor is in an Attention field notifies the program that you have completed your selections. If you use the Cursr Sel key in fields that are not designed to accept it, the X ← → message is displayed on the Status Line.
Cr Sel	
Enter	Pressing this key sends data from the display to the control unit or host system. The <i>Wait</i> message is displayed until the transmission is completed. Operable only when ■ or ☒ is displayed on the Status Line; otherwise, pressing this key causes X -f to be displayed on the Status Line.



Table 3-10. System Interaction Keys (continued)

Key	Description
Ex Sel	Extended Select. On the 102 keyboard, press the Attn key while holding down Alt. On the 122 keyboard, press Ex Sel. Operable only when the keyboard layout is a Native Mode layout. Use of this key causes ► to be displayed on the Status Line, indicating that the terminal is in Extended Select Mode. Pressing Alt turns off Extended Select Mode. In Extended Select Mode, the terminal can access the Extended Select capabilities of Entry Assist, Response Time Monitor and X.25/X.21 Public Switched Networks. Pressing this key has no effect unless the control unit or host system is customized to support any of these extended capabilities. While in Extended Select Mode, some keys are redefined. Refer to the "Extended Select Capabilities" section of this manual for more details.
Ident	Printer assignment identification. On the 122 key keyboard, press the Print key while holding down Alt. On the 102 key keyboard, press the Ident key while holding down the Shift key. The Ident key causes the □-□- - or □-□nn to be displayed on the Status Line. The printer number identifies the printer that will be used when you press the Print key. You can enter a printer number or press Reset to leave the printer assignment unchanged. If you enter an invalid number, ✕ ← ? → is displayed. Printer numbers fall into two categories: 1 through 31 for individual printers, and 70 through 85 for printer classes. If you enter an invalid number (no printer or printer class having that number), ✕ ? # ? is displayed on the Status Line.
Print	Pressing this key sends the contents of the display screen to the printer assigned to your terminal. The message □-□- - indicates that the printer identified by nn is printing your data. If the printer is printing other jobs before it can get to your data, the message ✕ □-□- ? or ✕ □-□- ? ? is displayed. You can wait until your job is printed (no data entry can be performed while you wait) or you can cancel the print request by pressing the Qv Cnl key. You can change the printer assigned to your terminal by pressing the Ident key and entering a new, valid printer number. If necessary, ask the system administrator for a list of valid printer numbers. The Operator Unauthorized message is displayed if no printer is assigned to your terminal or the assigned device cannot accept your data. The Printer Failure message is displayed if the printer stops operating while printing your data.

Table 3-10. System Interaction Keys (continued)

Key	Description
 	Program Access keys. The effects of these keys depend upon the application program. These keys are operable only when  (My Job message) is displayed on the Status Line; otherwise, pressing these keys causes  (Minus Function message) to be displayed.
	System Request. On the 122 key keyboard, press the  key while holding down  . On the 102 key keyboard, press the  key while holding down  . The effect of this key depends upon the application program. Generally, however, this key switches control of the terminal from an application program to the system control program and vice versa. In most instances, use of this key clears the display screen which may result in loss of data.

Function Keys and Adjustment Keys

The function keys on the top of the keyboard send predefined codes to the system. Application programs can assign special functions to be performed when they receive a function key's code.

Both the 122 and 102 key keyboards have 24 function keys or the equivalent. There are 24 function keys on the 122 key keyboard (—). The 102 key keyboard has function keys  through  which, when pressed while holding down the  key, become  through .

Some of the function keys also allow you to adjust some of the terminal's features for your convenience. These keys are summarized in Table 3-11. Note that these keys have labels on their front sides; this means they can be used in conjunction with the  key.

Table 3-11. Terminal Adjustment Keys

Key	Description
	Press  or  while holding down the  key. Changes the cursor shape to underline or block.
	Press  or  while holding down the  key. Turns on and off the clicking sound keys can make when they are pressed.
	Press  or  while holding down the  key. Turns on and off cursor blinking.

Numeric Keypad

The Numeric Keypad on the right hand side of the keyboard contains numbers and symbol keys arranged for rapid entry of numeric data. The  key on the Numeric Keypad has the same effects as the other  key on the keyboard.

Extended Select Mode Capabilities

The HP 700/71 Display Terminal supports the following extended functions available from IBM for the IBM 3270 Information Display System:

- Entry Assist Function
- Public Switched Network (X.21/X.25) Operation
- Response Time Monitor Function

In order for any terminal connected to a control unit or system to use these extended capabilities:

- The control unit must be customized to provide these capabilities.
- The terminal's keyboard must be operating in Native Mode.

If your control unit has been customized to support the extended capability you want to use, pressing the  key turns on Extended Select Mode. If the control unit has not been customized to support any of these extended capabilities, then the  key has no effect.

When Extended Select Mode is on,  is displayed on the Status Line. Pressing the  key turns off Extended Select Mode and returns your terminal to its normal operating state.

In Extended Select Mode, many of the function keys are redefined to provide the extended capabilities.

The IBM publications listed earlier in this manual under "Where to Find More Information" offer detailed information about the extended functions of the IBM 3270 Information Display System.

Troubleshooting and Maintenance

Problems and Solutions

If you encounter a problem in using the HP700/71 Display Terminal, it may be something that you can easily fix yourself. Read this chapter before calling for repair service.

CAUTION

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

WARNING

Do not disconnect the keyboard cable while the terminal is powered on as doing so could damage the terminal.

Symptoms of problems are in bold type followed by possible solutions.

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

- Brightness and/or Contrast may be turned down. Adjust these controls.
- Turn the power off and on again. If you didn't hear the terminal beep, make sure the power cord is plugged securely into the terminal and power outlet. Make sure the power outlet is on (for instance, plug a lamp into the outlet).

The screen area above the Separator Line goes blank while the terminal is powered on.

- The auto dim feature is probably on. This feature blanks the screen after either 10, 30 or 60 minutes of inactivity. Press any key except **Reset** to make the display screen come back on without any loss of data.

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

- If **X**  is displayed on the Status Message line, turn the security key clockwise.
- If **X**  is displayed, wait. The system is performing a function. Contact the computer department if the wait lasts more than a few minutes.
- If **X**  or **X**  is displayed, wait for the print operation to finish or press the **Dev Cnl** key.
- If **X**  is displayed, press **Dev Cnl**.
- If any other **X** message is displayed on the Status Line, press the **Reset** key.
- Make sure the communication cable is connected securely to the terminal.

Neither [4] , [6] , I or i nor 4700 is displayed in the left-most corner of the Status Message Line.

- Make sure the communications cable is connected securely to the terminal.
- If other terminals connected to the same controller or system are inoperative, the problem probably stems from the controller or system.
- Check with the computer department to make sure the communication cable is correctly attached to the controller or system, and that the terminal has been configured properly into the system.

Full-bright characters appear the same as normal characters.

- Adjust the Contrast Control so that full-bright characters appear brighter than normal display characters.

The keyboard clicker does not sound.

- Either the keyclick is turned off or the Volume Control is turned all the way down. First try turning the Volume Control clockwise and then pressing some keys. If the keyclick still doesn't sound, then the keyclick is probably turned off. Press [PF24] or [F12] while holding down the [Alt] key.

The screen displays nonsense characters.

- Make sure the keyboard layout specified in the Setup Menu matches the keyboard connected to the terminal and the keyboard configured in the controller.

No beeps are sounded when the terminal is powered on.

- Adjust the Volume Control to a comfortable volume level. If the problem persists, the terminal requires repair service.

The terminal beeps continuously when powered on.

- Try powering the terminal off and on again. If the problem persists, the terminal requires repair service.

The Setup Menu is displayed when you power up the terminal.

- The terminal's non-volatile memory was lost. Enter the appropriate Setup information and power off the terminal. Power on the terminal again. If the problem persists, the terminal requires repair service.

The Offline Terminal Test Pattern won't appear on the screen.

- Brightness may be turned down. Adjust the brightness and try to run the test again. If the problem persists, the terminal requires repair service.

L or LL is displayed on the Status Message Line when the terminal is powered on or when the Offline Test is run.

- Try powering off and on again and running the Offline Test again. If the problem persists, the terminal requires repair service.

Terminal Tests

There are two terminal tests: an offline test and online test.

The Offline Terminal Test function is supplied by the terminal's firmware. This test is described in Chapters 1 and 2.

Online terminal testing is supplied by the control unit. The HP 700/71 Display Terminal supports online tests designed for the IBM 3191 and compatible display stations.

To start online testing, press the **Test** key while holding down the **Alt** key. To exit from online testing, press **Test** again while holding down **Alt**.

CAUTION

Online testing may discontinue an application's control of the terminal and cause loss of data.

Preventive Maintenance

Regularly clean the display unit and keyboard to remove dust and grease. Dust lightly using a damp, lint-free cloth. (Paper towels are fine.) The cloth should be just damp enough to pick up dust. Avoid wiping dust or lint into the keyboard.

If smudges or fingerprints persist, use a mild solution of soap and water. Remember to wring the cloth thoroughly; otherwise, rubbing the dirty areas will drip water over the terminal. Avoid getting any liquid between the keys. For stubborn smudges, alcohol-based wipe cloths may be used.

CAUTION

Never use petroleum-based cleaners such as lighter fluid, or cleaners containing benzene, trichloroethylene, dilute ammonia, ammonia, or acetone. These cleaners may harm the terminal's plastic surface.

R

rear panel 1-3
repeating keys 3-16
Reset key 3-17
Response Time Monitor 3-18
ROM revision number 1-9

S

saving setup changes 2-5
security keys and keylock 1-6
separator line 3-1
Setup Mode 2-1
Shift key 3-15
Spacebar key 3-15
status line 3-3
SysRq key 3-20

T

Tab key 3-15
terminal tests 4-4
Test key 4-4
troubleshooting 4-1
tilt adjustments 1-4

U

unlocking the keyboard 3-6
user defined keyboard layouts 2-4

V

ventilation of the terminal 1-2

W

warning bell 1-10
word wrap 3-12

X

X.25 and X.21 PSN communications 3-8



Reader Comment Card

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Manual Title (User's or Reference):

1. What is your occupation, and what applications are you running on your terminal?
2. Did you buy or influence the purchase of your terminal?
3. What computer systems are you using? Would you classify yourself as a beginning, intermediate or advanced user of your computer system(s)?
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5. Were there particular sections, pages, illustrations that you found particularly helpful (or particularly confusing)? Please comment:

6. How do you rate the following:

	Excellent	Good	Fair	Poor
Depth of Coverage	4	3	2	1
Illustrations	4	3	2	1
Organization	4	3	2	1
Overall Content	4	3	2	1
Overall Appearance	4	3	2	1

7. What is your experience with terminals?

☐ None ☐ Beginner ☐ Intermediate ☐ Advanced

8. Please provide any additional comments you have about the manual.

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