# *AT 1183*

# USER'S MANUAL


D·A·S·I

DATA ACCESS SYSTEMS, INC.

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TABLES



FIGURES

The DASI AT1183 has been designed to operate within a variety of datacom environments and is adaptable to the various needs of the user. This manual is intended to provide the user with the information necessary to install the AT1183, set configuration options, and use the numerous features of the terminal.

The manual is divided into the following sections:

**Section 1: Installation** indicates how to unpack the terminal and install it for use on a datacom line.

**Section 2: Terminal Operation** describes the various features of the terminal: status lines and status messages, video attributes, windowing, and so forth.

**Section 3: Configuration Menus** describes the numerous configuration options of the terminal

**Section 4: Commands** describes how the various keyboard and datacom commands are used.

**Section 5: Softkey Definition** describes softkeys may be defined by the user or by a host program, and how to use the Autoexec feature.

**Section 6: Communications** provides the user with general information on the electrical interfaces of the terminal and the Burroughs Poll/Select protocol, and describes how the terminal's line monitor is used.

**Section 7: The Auxiliary Port** describes the basic operation of the terminal's auxiliary port and how to use the print commands.

The manual also includes several appendices which provide the user with quick-reference material, and an index.

## IMPORTANT NOTICE

This product incorporates the latest in electronic engineering design. To reduce power consumption and improve operating efficiency, some components turn off automatically when they are not in use. To benefit fully from this technology and extend the life of your terminal, **leave the terminal plugged in and turned on at all times.**

# SECTION 1

# INSTALLATION

1-1

## UNPACKING AND INSPECTION

The DASI AT1183 shipping carton contains the following: the terminal (the Cathode Ray Tube and electronics unit), the keyboard, and the power cord (see Figure 1-1). As each item is removed, it should be examined for signs of handling or environmental damage. If any item is damaged, the user should not continue with the installation, and should notify the carrier immediately. The shipping carton and all packing materials should be saved in case the terminal should need to be shipped again.

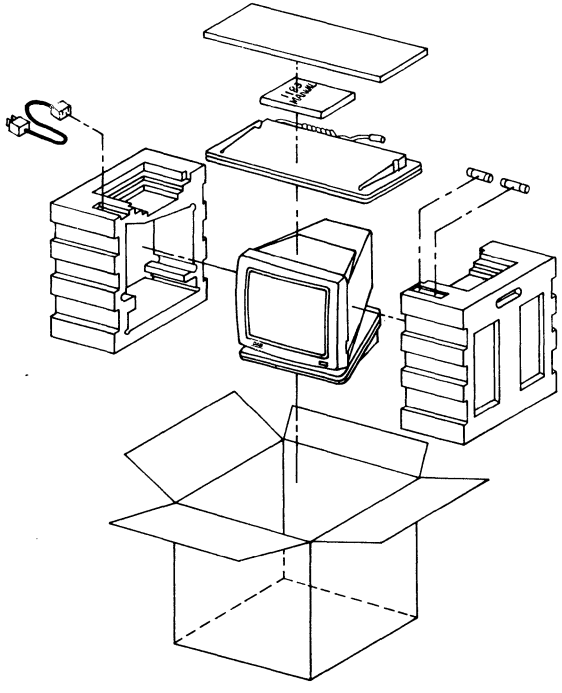


**Figure 1-1. Contents of the AT1183 Shipping Carton**

1-2

## DATACOM INTERFACE

The terminal must be configured for either the EIA RS232-C or Burroughs Two-Wire Direct (TDI) communications interface. The terminal is configured for the appropriate interface by the setting of a set of switches which are located at the back of the terminal stand. The settings for the respective interfaces are presented in Table 1-1 (in this table, "UP" indicates the switch is set to OFF and "DOWN" indicates it is ON). The switch settings are also shown in Figure 1-2.

**Table 1-1. Interface Switch Settings**

| Switch Number | EIA RS232-C | Burroughs TDI |
|---|---|---|
| 1 | UP | DOWN |
| 2 | UP | DOWN |
| 3 | UP | DOWN |
| 4 | DOWN | UP |
| 5 | DOWN | UP |

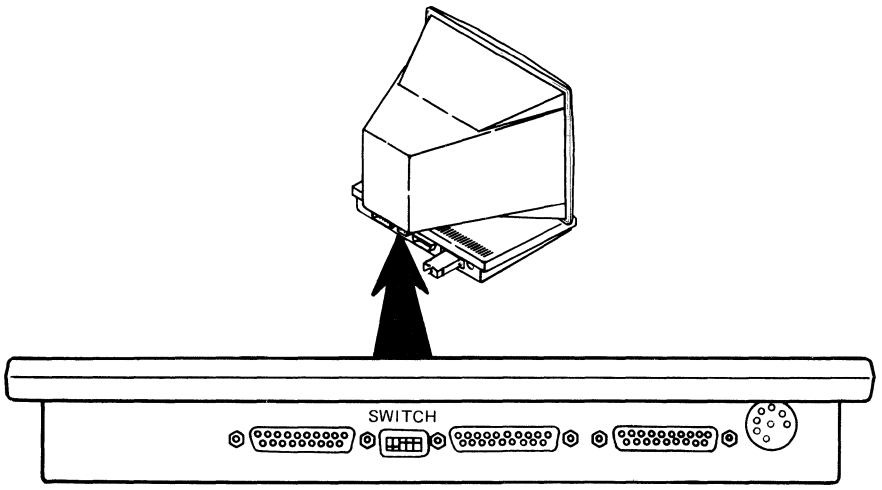



**Figure 1-2. The Interface Switch Settings**

## AC POWER SETTING

The terminal is configured for either 110 VAC or 220 VAC operation, and will operate on either 50 Hz or 60 Hz. The voltge selector is inside a pocket area in the back of the CRT (Cathode Ray Tube). Figure 1-3 indicates the location of the voltage selector and the fuse holder. A straight blade screw driver may be used to turn the slot on the voltage selector until either "110" or "220" aligns under the downward-pointing triangle. The appropriate power cord is provided with the terminal.

The fuse holder, which is between the power cord socket and the voltage selector, has either a 1.0 amp fuse (for 110 volts) or a 0.5 amp fuse (for 220 volts), depending on the power requirements.

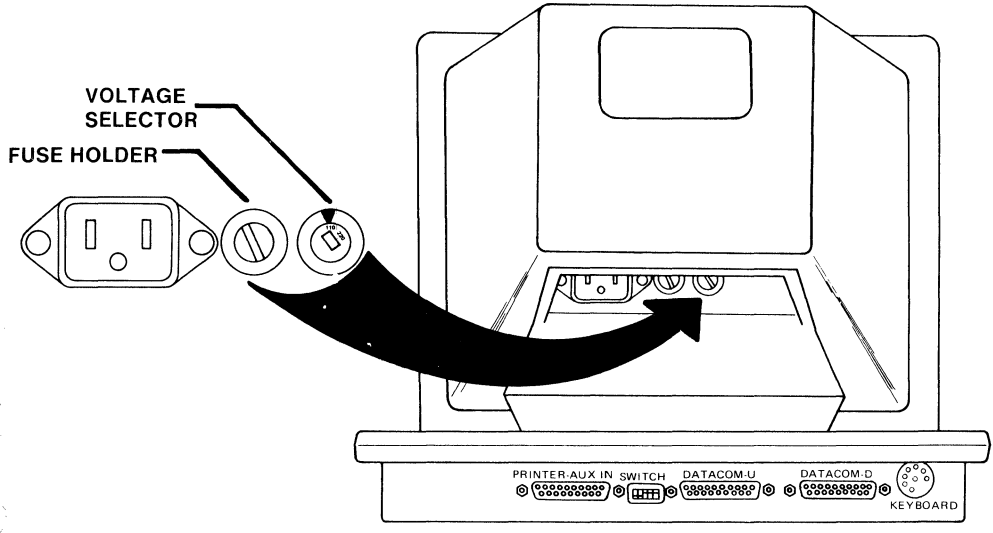



**Figure 1-3. The AT1183 Voltage Selector and Fuse Holder**

1-4

## CABLING

A power cord is supplied with the terminal. This is a three-pronged cable which plugs into the terminal inside a pocket area provided at the back of the CRT (see Figure 1-4). In addition, either an RS232-C or TDI cable will be needed to accommodate the type of interface which will be used. (Cables are optionally provided with the terminal.) The cables plug into the back of the terminal stand in the appropriate male and female sockets (see Figure 1-5, page 1-5).

The AT1183 may be concatenated to other terminals in the following manner. The interface switch setting (RS232/TDI) sets the configuration for the *upstream* connection (the connection to a modem or host computer). The *downstream* connection is always RS232. If the upstream connection is configured as TDI, the terminal will convert the TDI signals to RS232 signals for the downstream connector.

The keyboard attaches to the terminal through a special connector. The socket for this connector is at the back, right-hand edge of the terminal (see Figure 1-6, page 1-6).

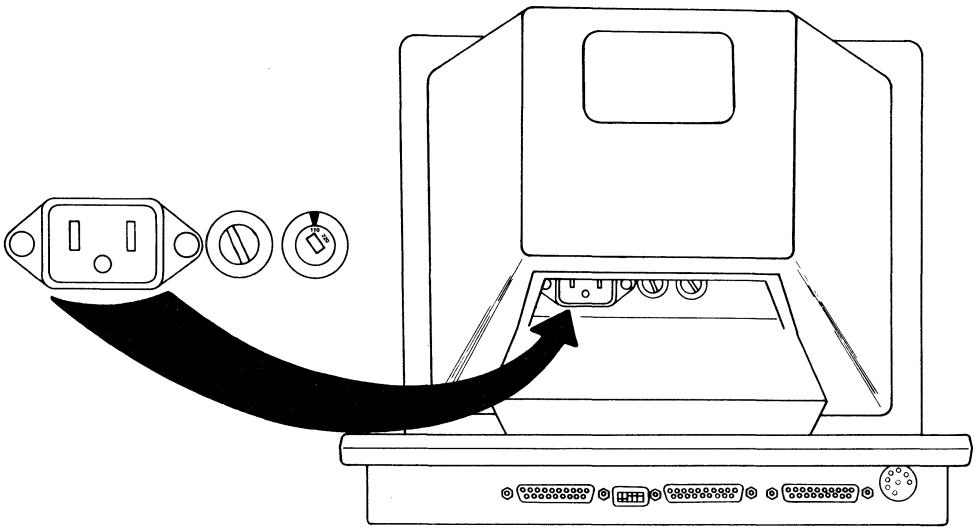


**Figure 1-4. Power Cord Socket**

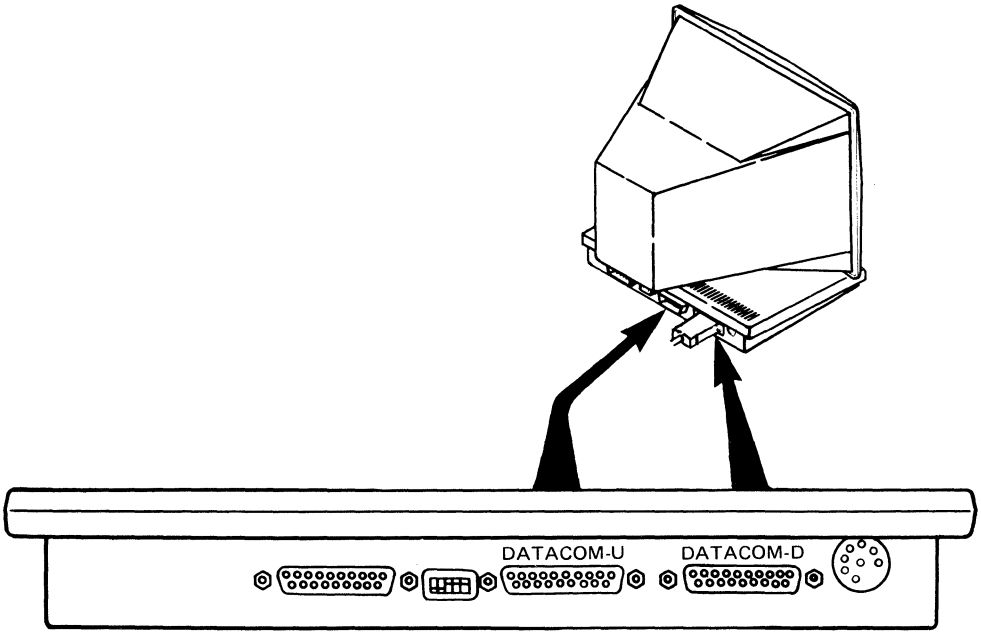



**Figure 1-5. TDI/RS232 Cable Connections**

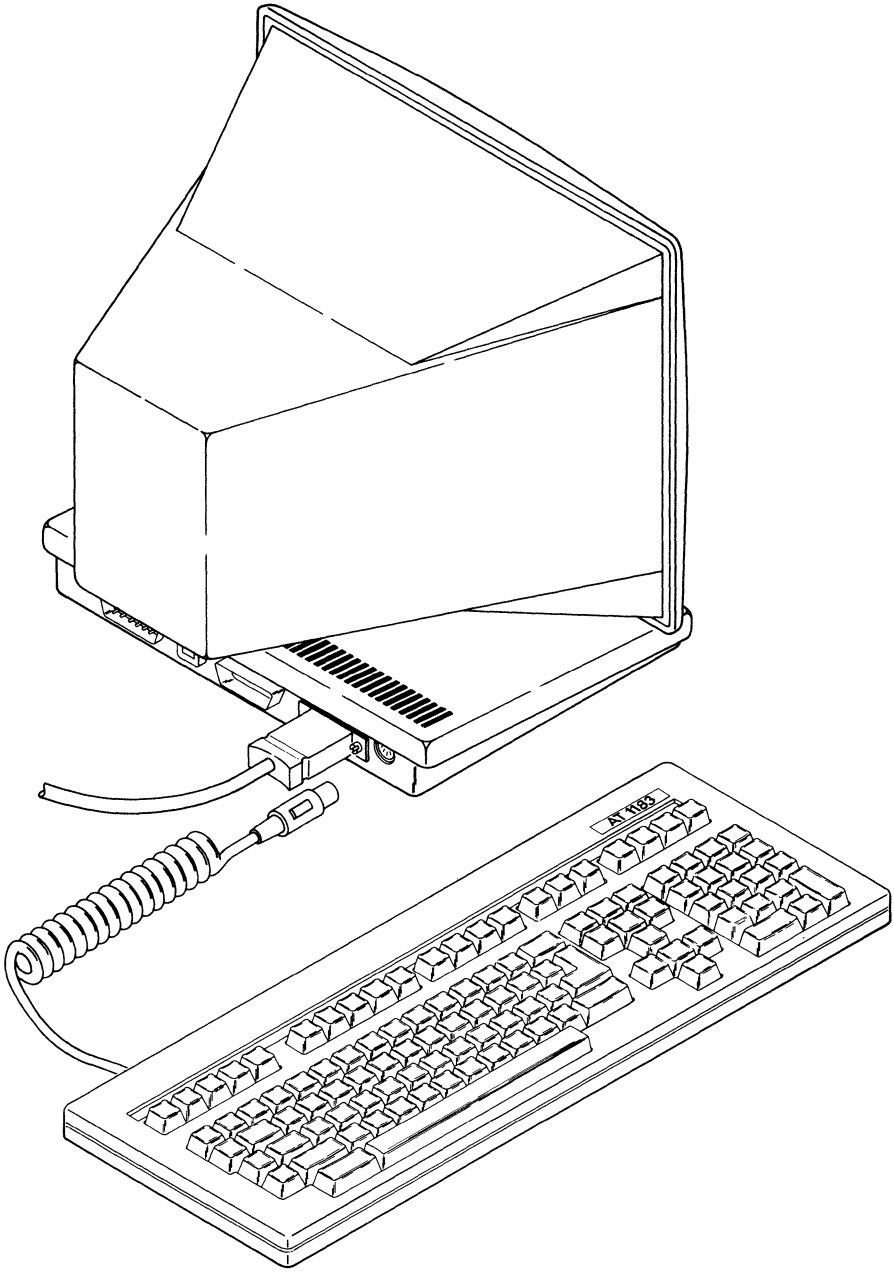



**Figure 1-6. Connecting the Keyboard to the Terminal**

# DEFINING DATACOM OPTIONS

Once the cables have been properly attached to the terminal, the user will need to define some of the configuration options so that the terminal will properly communicate with the host. The following steps should be used:

1. Power on the terminal by pressing the red ON/OFF switch at the right edge of the CRT (see Figure 1-7). When the terminal is powered on, the ON/OFF switch lights and the terminal is taken through a power-on self test.

   When the self test is successfully completed, a *beep* sounds and status information appears on a status line. If the message "CMOS Config Error" is also displayed, it should be ignored until the necessary datacom options have been correctly defined and saved.

2. Refer to Section 3, Configuration Menus, to define options in the Datacom Menu and the Station Menu for Station #1. Although four stations may be defined for the AT1183, only one station definition is required to initially establish communication with the host. For datacom test purposes, the only option of the Station Menu which must be defined is the station's address.

   The configuration settings should then be saved only temporarily; do not permanently save the configuration definitions.

3. The user will also need to enter softkey definition mode and save current softkey definitions; this is done only to avoid having the error message *CMOS Softkey Error* displayed. Refer to Section 5, Entering and Exiting Softkey Definition Mode. Even if no softkeys are defined, the empty buffer space will still need to be saved.

4. Before the current configuration definitions are saved permanently, the user should be sure that communication has been properly established with the host system. After this interface has been tested, the desired configuration settings may be permanently saved (refer to Section 3, Saving Configuration Options).

## DEFINING DATACOM OPTIONS

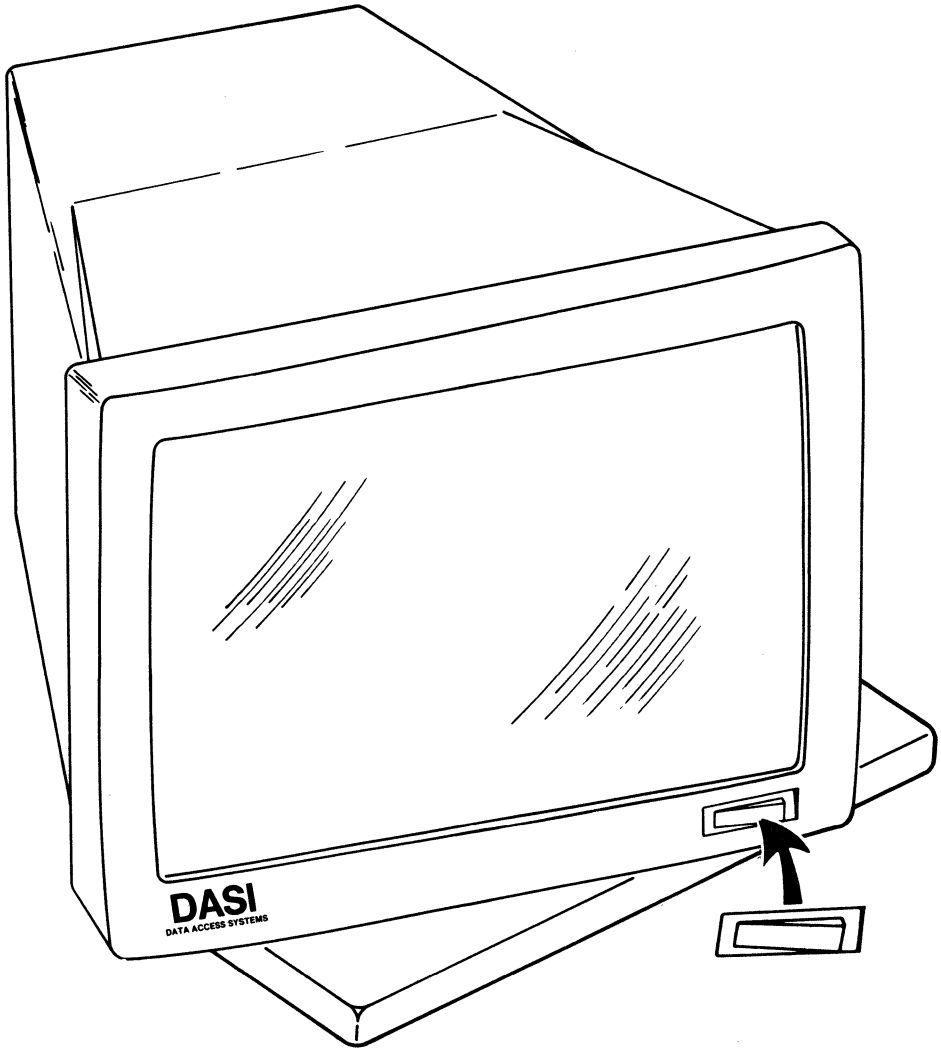



**Figure 1-7. The Power ON/OFF Switch**

# SECTION 2

# TERMINAL OPERATION

2-1

## GENERAL INFORMATION

This section provides the user with general information about the operation of the AT1183. It includes descriptions of the keyboard and screen presentation, error messages, and the various datacom states. The uses of forms mode and insert mode are also described.

The AT1183 is shown in Figure 2-1. The AT1183 CRT/electronics unit is designed to be adjustable in its base (see Figure 2-2). This unit may be tilted and turned so that the user may work comfortably.

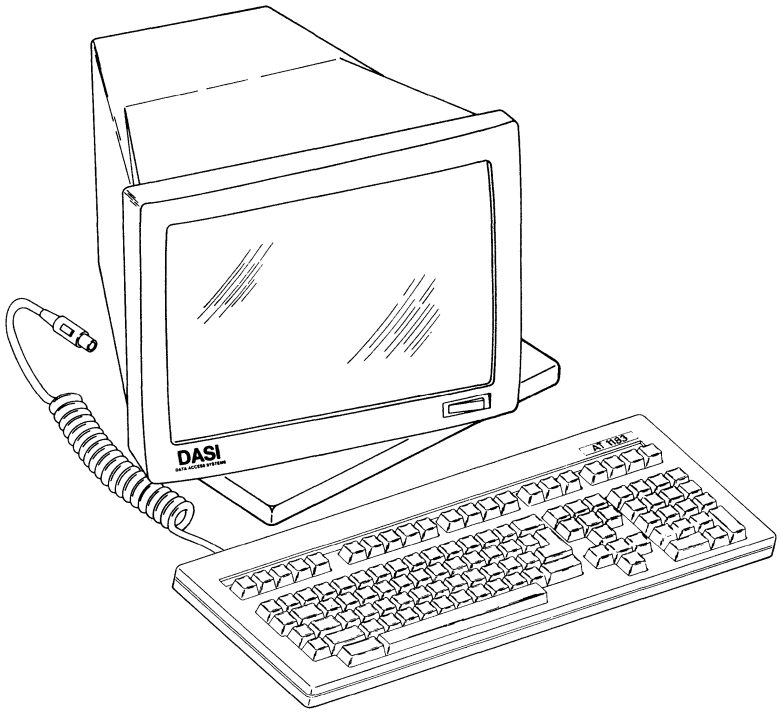
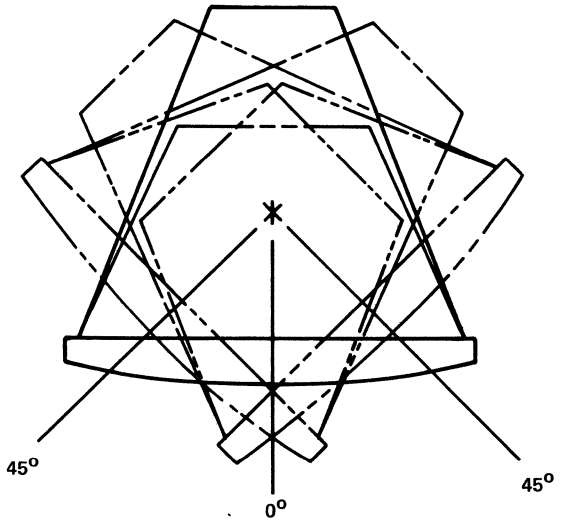
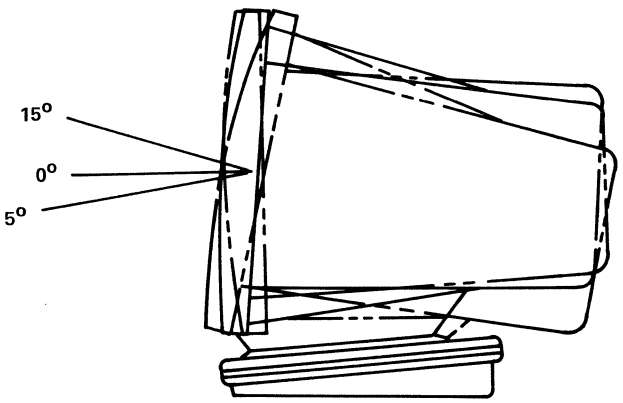



**Figure 2-1. The AT1183 Terminal and Keyboard**




TOP VIEW




SIDE VIEW

**Figure 2-2. Positioning the CRT/Electronics Unit**

# THE TERMINAL AS MULTIPLE STATIONS

The AT1183 may actually be defined as four separate stations. The stations must share the basic datacom settings for the terminal, the keyboard, security, auxiliary port definitions, and some other definitions which apply to the terminal as a single unit. However, each station may be assigned a set of pages and its own address, and is further defined using numerous configuration options. These options are described in Section 3. A station is *enabled* for use in the Buffer Menu, and its address is defined in its Station Menu.

While the keyboard and the currently displayed page are both assigned to one of the AT1183 stations at a time, the user may also display a page from another station; this is done through windowing, and is further described under Windowing, in this section.

The relationship between the AT1183 stations and the datacom interface, keyboard, and auxiliary port (Aux Input and Aux Output) is shown in Figure 2-3. In the figure, the dashed lines indicate that a unit may be attached to any one station at a time. For example, the keyboard may be used by one station while the Aux output port (i.e., a printer) is used by another.

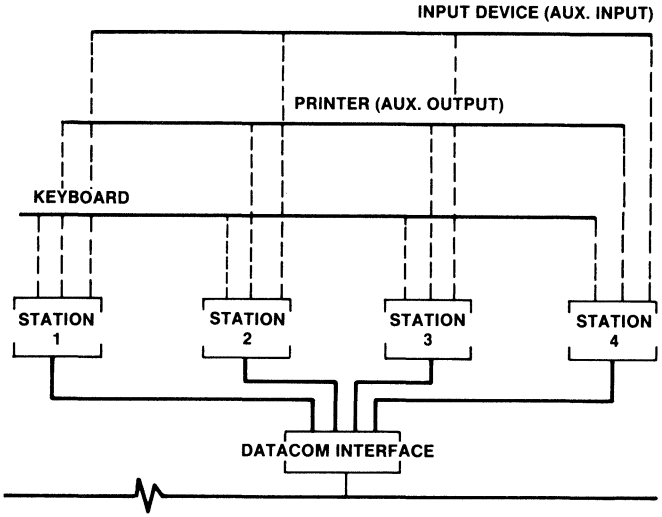



**Figure 2-3. The AT1183 Stations — Relationship to Datacom Interface, Keyboard, and Auxiliary Port**

# TERMINAL OPERATION

2-4

## SCREEN PRESENTATION

Data may be displayed with 40, 66, 80, or 132 columns across the screen, and either 12 or 24 rows. The 132 column display, for example, allows users to display print file data. The 12 row by 40 column display allows users to display double high/ double wide characters. Each character is formed using a 7 x 9 dot matrix within a 10 x 14 dot cell, with lower case descenders extending 2 dot rows below the normal character matrix. Characters may also be displayed in a variety of attributes.

In addition to the 24 or 12 lines of data, there are four *status lines* displayed at the bottom of the screen. The status lines are used as follows:

Status line #1, line 25 — First user display line for current station.
Status line #2, line 26 — Second user display line.
Status line #3, line 27 — Third user display line.
Status line #4, line 28 — Terminal messages and status information.

The screen display, including status line locations, is shown in Figure 2-4. Commands which are used to write to the user status lines are described under Terminal Control and Status Messages, in Section 4.

A screen save feature, which is provided as a configuration option, causes the display to appear blank after a user-defined amount of time; this only happens when the user has not pressed any keys and there have been no datacom messages for the configured amount of time (see Section 3, Convenience Menu). The feature is intended to prolong the life of the screen. The display data will reappear when any key is pressed or a datacom message is received.

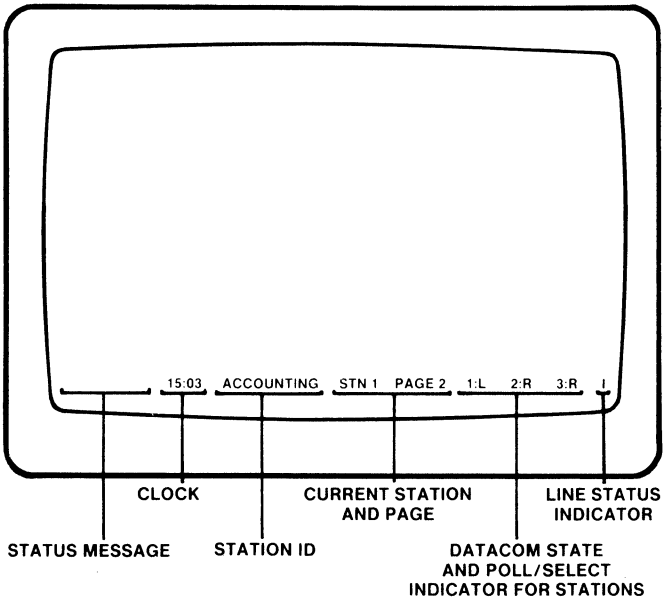



**Figure 2-4. Screen Display**

## Status Lines

The terminal uses the last status line (line 28) to display the following information:

| <Status Msg> <Clock> <Stn ID> Stn n Page n 1:ab 2:ab 3:ab 4:ab <Status> |
|---|

Status Message — Predefined terminal status messages are displayed. These messages are described in this section (Status Messages and Status Line CMOS Error Messages), as well as in any applicable section, such as Section 3, Error Messages.

Clock — When the **ENABLE CLOCK DISPLAY** command is used, the terminal's time-of-day clock is displayed.

Station ID — When characters are entered in the *Station ID* configuration option of a station menu, the station ID of the current station is displayed.

Stn n Page n — The current station number (1 through 4) and respective station's current page are displayed.

### For each station

The following information is displayed after the defined station numbers (designated as "1:ab", "2:ab", "3:ab", "4:ab").

(a) Datacom State:

L = Local State
R = Receive State
X = Transmit (XMIT) State

(b) Poll/Select Indicator:

P = Poll received in the last 0.2 seconds.
S = Select received in the last 0.2 seconds.
Blank = Neither a poll nor a select received in the last 0.2 seconds.

If a station is not enabled (in the Buffer Size Menu), its status area will be blank.

### For the datacom line interface of the terminal (<Status>)

Line Status Indicator:

C = Contention Mode.
A = Active (not in contention mode: characters have been received or transmitted in the last 0.1 second).
Blank = Not in contention mode: no activity for up to 0.1 second.
I = Inactive (not in contention mode and no activity for over 0.1 second).

## ▶ Status Messages (Other Than CMOS Errors)

The messages described in Table 2-1 may be displayed in the last status line. These messages and any messages on the user status lines are cleared when the LOCAL key is pressed.

**Table 2-1. Status Line Internal Messages (Other Than CMOS Errors)**

| Message | Meaning |
|---|---|
| Aux In Data Lost | Data from the auxiliary input port have overflowed the *Auxiliary Input Buffer,* and some characters have been lost. |
| Bad Attempts=n | There have been "n" unsuccessful attempts to enter the *Keyboard Lock Password* since the last time a valid password was entered. This message is displayed after a valid password is entered. |
| Bad Password | The password entered is not the one defined. |
| Chars/Line Mismatch | The user is attempting to display stations that are incompatible for windowing (e.g., a 40-column station and a 66-column station). |
| Datacom Buffer Overflow | The user is attempting to transmit a message that is larger than the size of the terminal's *Datacom Buffer.* When this occurs, nothing is transmitted. |
| Datacom Error | A protocol error has been detected on the datacom line. A protocol error occurs when a certain character string is expected and something else is received instead. The message is NOT displayed when an EOT is received in an unexpected place. |
| DEC Uses Printer Port | The user must remove all station definitions that are set to printer. |
| Illegal Station Value | The user is attempting to enter a station number other than 1 through 4. |
| Keyboard Data Lost | The user pressed a character key with the displayed page in the transmit state, or with the displayed page in the receive state and *Key Flip to Local* configuration option is set to N. The message is also displayed when the Keyboard Buffer is full and the user tries to press another key. |
| Must Be Single Wide | The user is trying to enter line monitor with a station that has 40 or 66 chars/line. |
| Print Buffer Busy | A screen print command has been issued while a datacom message is being received in the *Print Buffer.* |
| Print Buffer Overflow | The *Print Buffer* is too small to temporarily hold the data being sent to the printer. |
| Printer Not Ready | The "Printer Ready" interface pin indicates a not ready status and there is data in the *Print Buffer* waiting to be printed. |

**Table 2-1. Status Line Internal Messages (Other Than CMOS Errors) Cont.**

| Message | Meaning |
|---|---|
| Receiving Pg n Stn m | The terminal is currently receiving a message on page number "n" of station "m". The message is cleared when the message has been entirely received and processed. |
| Softkey Call Limit | The user has nested too many calls for the current softkey (the limit is 10 calls). |
| Station Already Chosen | The user has specified the same station number for both the upper and lower display windows. When two stations are displayed at the same time, they must be different. To display only one station, "0" is entered for the lower window. |
| Station Has No Pages | The user is attempting to display a station that has no display pages specified (destination is defined as printer). |
| Station(s) Not Enabled | The user is using the **GO TO STATION N** command for a station which is not enabled (see the Buffer Menu), or is trying to access a disabled station using the **REDEFINE WINDOW** command. |
| Window Has No Station | The user is trying to use the **SWAP WINDOW** command when double window mode is not active (only one station's page is being displayed). |

## Status Line CMOS Error Messages

When the terminal is powered on or reset, or a new configuration or softkey definition is stored, non-volatile memory (CMOS) is read and checked for errors. When an error is detected in CMOS memory, the terminal assigns default values to the part of CMOS that has the error (configuration or softkeys) and displays an error message. When a CMOS error message is displayed, the user should set up and save the part of CMOS (configuration or softkeys) that caused the error. If the error message is displayed repeatedly, it may indicate a hardware problem that requires repair of the terminal; most likely the replacement of the CMOS battery.

The following are possible CMOS error messages:

| | |
|---|---|
| CMOS Bad Version | The configuration part of CMOS memory has a version level that is incompatible with the current firmware. |
| CMOS Config Error | The configuration part of CMOS memory has a bad checksum. |
| CMOS Softkey Error | The softkey part of CMOS memory has a bad checksum. |

## Screen Brightness and Contrast

The user may adjust the brightness and contrast of the screen display to the desired levels. The brightness is adjusted by moving the Screen Brightness dial and the contrast level is adjusted by moving the Contrast dial — both dials are at the right side of the terminal screen (see Figure 2-5).

## Screen Save Feature

If the terminal displays the same image for a long period of time, the characters in the display tend to *burn into* the screen. To prevent this from happening, the terminal has a Screen Save feature that causes the screen to blank out. This feature only goes into effect when the user has not pressed a key or a datacom message has not been received for a certain period of time; the user determines the period of time by entering a non-zero value in the *Minutes to Screen Save* configuration option (in the Convenience Menu). This feature is disabled when the configuration value is set to zero.

Once the screen has blanked out, the display reappears when a datacom message is received, or any of the keyboard keys are pressed. The user should note that whatever key is pressed is acted upon in some way. For example, if the user presses the space bar, a blank space will appear at the cursor position, overwriting the character at the cursor. Therefore, either the ALT key or the SHIFT key should be pressed to avoid altering the data.

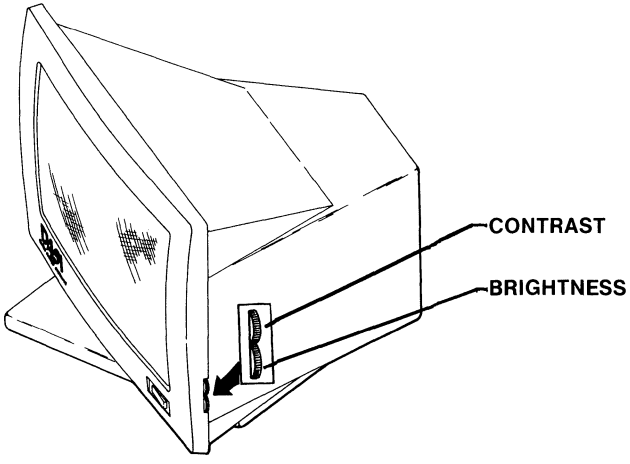



**Figure 2-5. The Screen Brightness and Contrast Controls**

## Video Attributes

The following attributes may be used to enhance or highlight a field of data:

reverse video (black characters on green or amber)
underlined characters
blinking characters
bright characters
secure (hidden) video

The reverse video feature may also be applied to an entire page. The REV key toggles the reverse video flag for a display page; it reverses green or amber characters on black to black characters on green or amber and vice versa. Each page has a reverse video flag which determines the video setting (normal or reverse video) for the page.

## Time-of-Day Clock

The AT1183 has a built-in clock which may be displayed when the user desires. It is a 24-hour clock that displays the hour, minutes, and seconds. When a 24-hour clock is used, 3:00 p.m. is displayed as 15:00, and 5:00 p.m. is displayed as 17:00.

If the clock is enabled, it is displayed on the fourth status line. When the terminal is powered on, the clock starts at 00:00:00 and is not displayed until the **CTRL R X** command sequence is issued from the keyboard, or the **ESC R X** command is issued from datacom. To understand how to set the time-of-day clock, read through the various clock commands described under Terminal Control and Status Commands, in Section 4.

## Windowing

The terminal has the capability of displaying information for two different stations at the same time. The **REDEFINE WINDOW** command is used to control whether one or two windows are displayed (referred to as single and double window mode, respectively). Each window displays a page for its assigned station. If only one window is used, the lower window is 0 and the upper window displays a page from any assigned station. If two windows are being used, the two stations are assigned different windows; each window uses half the screen. The various window display formats are shown in Figure 2-6.

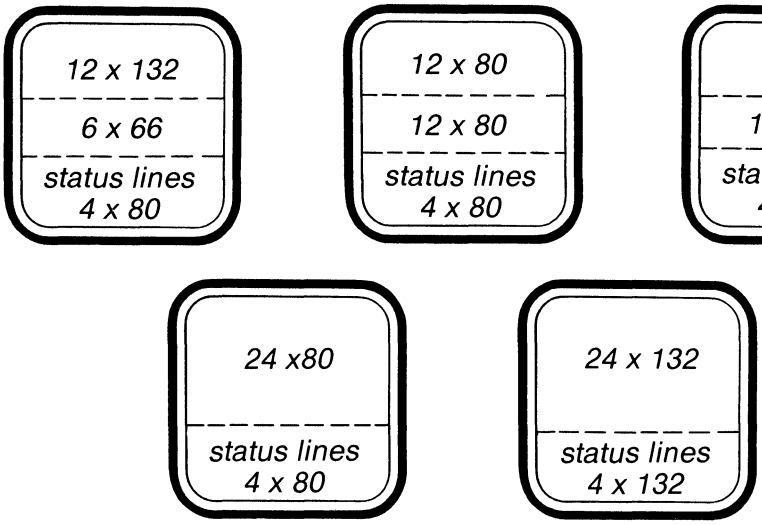



**Figure 2-6. Window Display Formats: Lines By Characters**

Only certain character/line display combinations can be displayed at the same time. A 40 character/line station may be displayed with an 80 character/line station, and vice versa; a 66 character/line station may be displayed with a 132 characer/line station, and vice versa. However, a 40 character/line station cannot be displayed along with a 66 character/line station, nor can an 80 character/line station be displayed with a 132 character/line station. Character height, however, does not affect display compatibility. The display combinations are due to CRT (Cathode Ray Tube) hardware frequency limitations.

Though only one window is active at a time (the cursor window), the second is dynamically updated. For example, assume station 3 is in the upper window and station 1 is in the lower window, with the cursor on station 1. If a message comes in for station 3, it will be displayed in the upper window (the message may be received on any page assigned to station 3). The user may then use the **SWAP WINDOWS** command to move the cursor from station 1 (the lower window) to station 3 (the upper window).

The **NEXT/PREVIOUS STATION** commands and the **GO TO STATION N** command may also be used in dual window mode. Their action is best understood by the following example:

Station 1 chars/line = 40
Station 2 chars/line = 66
Station 3 chars/line = 80 in upper window and active
Station 4 chars/line = 80 in lower window (inactive)

If the user presses the NEXT STATION key while the cursor is in the upper window (station 3), the terminal will attempt to take station 4 and put it in the upper window. Since this would leave station 4 in the upper and lower windows, the terminal instead searches for the next compatible station to replace station 4 in the lower window. In this example, station 1 would be displayed in the lower window while station 4 is displayed in the upper window.

If the user presses NEXT STN again, station 1 is displayed in the upper window and station 3 in the lower window. Station 2 cannot be displayed because of its incompatibility with the other screens.

When the **GO TO STATION N** command is used while two windows are displayed, the terminal attempts to display the desired station (dependent on compatibility). If the user specifies one of the currently displayed stations, the terminal searches for a different station to display with it; it searches for the *next* compatible station.

## ▶ Keyboard

The keyboard includes character keys, function keys and other special-use keys, an arrow key pad, and a numeric key pad (see Figure 2-7). When the user presses a character key, the character appears on the current page at the cursor position and the cursor moves to the right. When the cursor reaches the right-most edge of a line, it moves down to the beginning of the next line. When the cursor reaches the very last character position on the page, it moves to the first character position on the page or remains at the bottom of the page, depending on the station's configuration option settings. The first character position on a page is called the *home* position; its location is row 1/column 1 on the page.

The arrow keys may be used to move the cursor without affecting the data on the page. The arrow keys and other keys which move the cursor are discussed in Section 4, under Cursor Positioning Commands; in that section, "From Keyboard" indicates the keystroke(s) used to move the cursor.

A function key label strip is provided with the keyboard. In addition, the "home" positions of the keyboard are marked; these positions are marked with a raised line on the "F" and "J" character keys, and with a raised dot on the "5" of the numeric key pad (see Figure 2-8).

The function key label strip provides key definitions for both Burrough ET1100 functions and DEC VT 220 functions. The labels in black represent the Burroughs emulation. Labels appearing in red are DEC VT 220 keyboard functions, to be used when the AT1183 is in the DEC VT 220 mode.

Also, function labels appear on the vertical face of some keys. These labels are used when the AT1183 is in the DEC VT 220 mode.

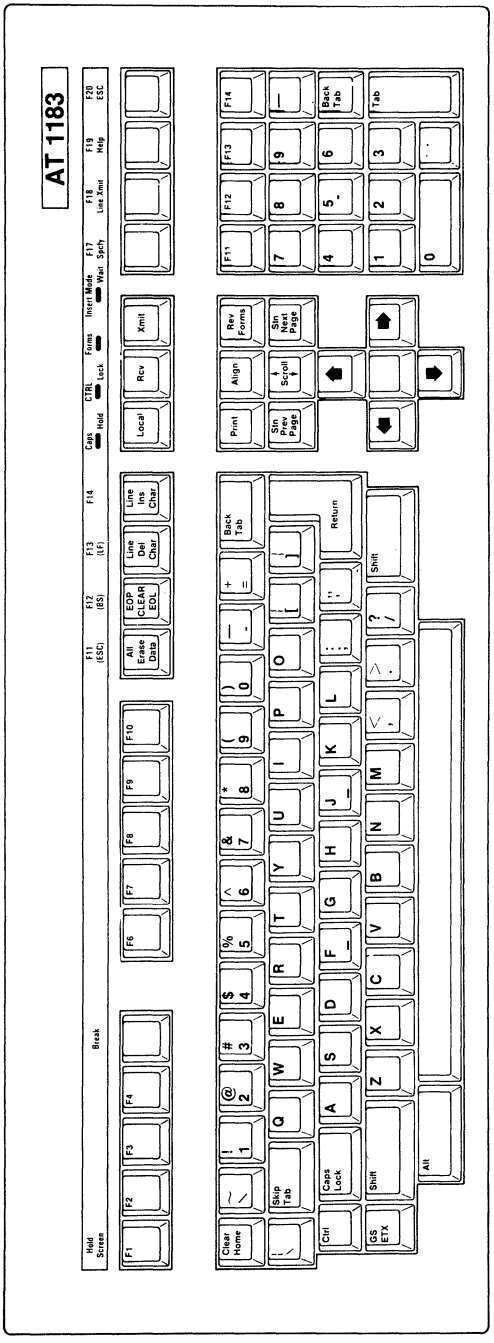



**Figure 2-7. The Keyboard**

## Positioning the Keyboard

Since the keyboard is attached to the terminal by a flexible cord, the user may move it into a comfortable position. The keyboard may also either remain flat, or it may be placed in a tilted position. It is placed in a tilted position when the hinged feet at the back of the keyboard are rotated outward (see Figure 2-9).

## Keyboard Lock Feature

The terminal keyboard may be *locked* by specifying a *Keyboard Lock Password* in the Security Menu. This prevents use of the keyboard until the correct password is entered. When the terminal is powered on or reset, the password is required before normal keyboard usage may begin. If the user wishes to lock the keyboard (i.e., the user leaves the terminal unattended), the **SET KEYBOARD LOCK** command may be used; when this command is used, the keyboard remains locked until it is unlocked when the correct password is entered. The **SET KEYBOARD LOCK** command is described under Terminal Control and Status Messages, in Section 4. If the *Keyboard Lock Password* is forgotten, the *Security Menu Password* will also permit keyboard access.

## Auto Logoff Feature

Another keyboard lockout concept has been added to the terminal. By entering the softkey setup mode and programming the ALT-T key code, the user can automatically send the contents of the ALT-T softkey when the keyboard timer has expired. Whenever the ALT-T key code is programmed with any sequence, the AT1183 will transmit that message, effectively overriding the keyboard lock feature.

The contents of the ALT-T key code could be a CTRL R R, in which case the terminal keyboard will be locked.

On terminal delivered with firmware revision 4.XX or higher, the KEYBOARD LOCK feature and the AUTO LOGOFF feature have been consolidated. When the keyboard lock timer has expired, the terminal will check and execute the contents of the ALT-T key. If this key is not specifically programmed, the terminal will take no action. If the user wishes to lock the keyboard, the ALT-T key must be programmed with a CTRL-RR sequence. In essence, the ALT-T key is for use whenever the user desires the terminal to react when the keyboard lock timer has expired.

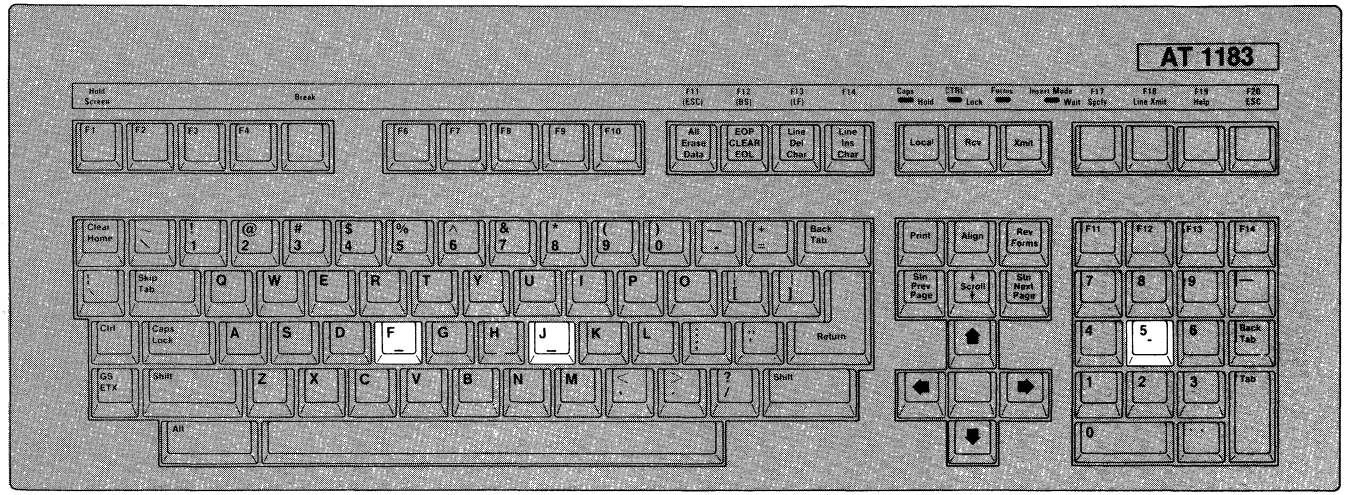



Figure 2-8. The Keyboard "Home" Positions

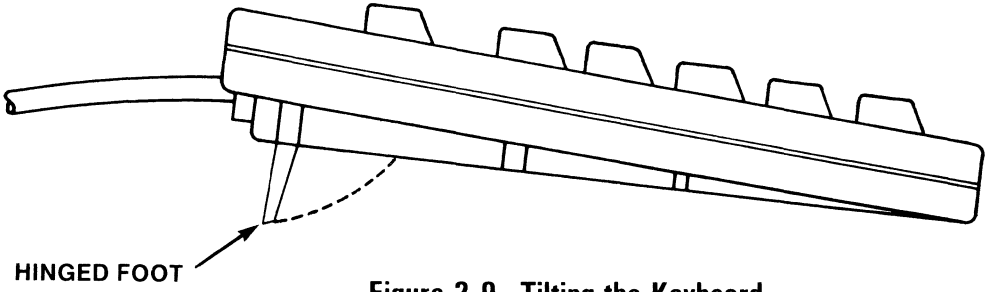



Figure 2-9. Tilting the Keyboard

## INDICATOR LIGHTS

The indicator lights represent the different status functions for the AT1183 (Burroughs) mode and the DEC VT220 mode.

The terminal has four indicator lights which are located on the keyboard. For the AT1183 mode these indicators are labelled Caps, Ctrl, Forms, and Insert Mode. When an indicator is lit, its feature is currently being used. For example, when the Forms indicator is lit, the currently displayed page is in forms mode. The indicators have the following meanings:

| | |
|---|---|
| Caps | This indicates that when any alphabetic character key is pressed, the character will appear in upper case. |
| Ctrl | This indicates that the terminal is in the control state (the CTRL key has been pressed). When a control command is issued, this light remains lit until the control command is processed.<br><br>When the CTRL key is pressed along with the SHIFT key, the Ctrl indicator remains lit and the terminal remains in the control state until the user presses the CTRL key again. |
| Forms | This indicates that the currently displayed page is in forms mode. |
| Insert Mode | This indicates that the station is currently in insert mode. Refer to Insert Mode, in this section, for further information. |

The commands that cause the indicators to light are described in Section 4.

# ALARMS

The terminal has an audible alarm which is located in the keyboard unit. The alarm is used to call the user's attention to one of several conditions. Whether or not this alarm is operational is dependent upon the state of an internal "Beep Flag." The Beep Flag is initially set from the terminal configuration (refer to the Convenience Menu), and may be toggled by use of the CTRL ? command. Table 2-2 describes the conditions which may cause the alarm to sound.

**Table 2-2. Audible Alarm Conditions**

| Cause | Description |
|---|---|
| NAK to Select | The terminal is responding to a datacom Select sequence with a NAK; this occurs when the station selected is not in the receive state. |
| Fast Select | The terminal has received a Fast Select sequence, and the station selected is not in the receive state; the *Fast Select Forces Receive* configuration option for the station is also set to N. |
| Broadcast Select/ Group Select | The terminal has received either a Broadcast Select or a Group Select message. |
| End-of-Page | The user has moved the cursor forward over the end-of-page alarm position. |
| Bell Character in Message | A datacom message has been received which has a BEL control character in it. |
| ESC ? in Message | A datacom message has been received which has an ESC ? sequence in it. |
| Planting Character in Protected Field | The user has attempted to enter a character into a protected area (using the keyboard). |
| Power-up Diagnostics | The power-up diagnostic program has completed. This is not affected by the Beep Flag. |
| Line Monitor | Datacom characters are being received/transmitted faster than the line monitor can display them. |
| CTRL ? Command | The CTRL ? keyboard command has just toggled the Beep Flag ON. |
| CTRL R B Command | The user has entered the CTRL R B command at the keyboard. This command is not affected by the beep flag. |
| Printer Busy/Not Ready | The printer attached to the AUX port has reported a printer busy or printer Not ready state |
| Data Comm Buffer Busy | The user tried to transmit when Data Comm buffer was processing an incoming/outgoing message |

## SECURITY

The terminal has several security features which protect the line monitor, configuration settings, softkey definitions, and autoexec definition selected by the user. In addition, when the keyboard is locked, it may only be unlocked when the correct password is entered. The passwords are defined in the Security Menu (refer to Section 3).

When a password is defined, the terminal displays Enter <password name> Password and Press RETURN when ready. The terminal then waits for the user to type the password in the hidden field. For example, if a Line Monitor Password is defined when the user presses **CTRL SPACE R**, the terminal displays Enter Line Monitor Password and awaits keyboard entry. As the keys are pressed, the characters are entered in a secure video field (invisible to the user); after entering the password, the user presses RETURN. If the password is correct, the line monitor display begins. If the password is incorrect, the message Bad Password is displayed. The user may press **CTRL SPACE R** again and attempt to enter the correct password.

When the Keyboard Lock feature is used, the terminal displays the message Bad Attempts=n (n is a counter) when a valid Keyboard Lock Password is entered. The counter "n" is stored even if the terminal is powered off or reset; the counter is set to "0" when a valid keyboard password is entered.

Since all passwords are defined in the Security Menu(F8 in the Configuration Mode), this menu may be displayed when a password needs to be viewed. However, the user should also define a Security Menu Password to restrict password viewing.

## DATACOM STATES

A station may be in one of four datacom states: transmit, receive, local, or idle. These states are described in the following paragraphs (they are also discussed in Section 4).

### ▶ Transmit State

The user transmits data to the host by pressing XMIT. This puts the station in the transmit state and moves the datacom pointer to the cursor position. While the station is in the transmit state, the message is actually transmitted when the host polls the station.

If the host tries to send a message to a station that is in the transmit state, the station responds with a NAK character to indicate that it is not ready to receive a message. However, if the host sends a Fast Select message when a station's *Fast Select Forces Receive* configuration option is set to Y, then the transmit state for the station is overridden: the station is forced into the receive state so that it will accept the message. The station is also put in the receive state when the host sends a Broadcast Select or Group Select message, so that it receives the message.

After the station sends a message to the host in response to a poll, it is automatically put in the receive state. When the station is in the receive state, it can receive messages from the host.

The station is also taken out of the transmit state when the LOCAL key is pressed; this puts the station in the local state. When the cursor is on the same page as the datacom pointer and the station is in the transmit state, the only keyboard entries that will be accepted are the following: **LOCAL, CAPS LOCK, NEXT PAGE, PREV PAGE, NEXT STN, PREV STN, SCROLL UP, SCROLL DOWN, SHIFT-LOCAL, XMIT** (and single line transmit), **ALIGN,** and **SPCFY.**

## ▶ Receive State

When a station is in the receive state, it will accept a message from the host when it receives a Select, Fast Select, Broadcast Select, or Group Select message. The message is accepted on the page containing the datacom pointer. The datacom pointer may be moved during the interpretation of the message by escape sequences or control characters that are included in the message. Before a message is displayed, the user may move the datacom pointer by moving the cursor to the desired location and pressing RCV.

While a station is in the receive state, it responds to a poll from the host by indicating it has no message to send. When the host sends the station a Select sequence, the terminal responds with an ACK character to indicate that it is ready to receive a message.

If the *Stay In Receive* configuration option is set to Y, the station will remain in the receive state after a message is received. If a message contains a control sequence directing the station to enter the transmit or receive states, it will do so. Otherwise, the station automatically returns to the local state.

Unless the *Key Flip To Local* configuration option is set to Y, when the station is in the receive state and the cursor and datacom pointer are on the same page, the only keys accepted for input are the following: **LOCAL, CAPS LOCK, NEXT PAGE, PREV PAGE, NEXT STN, PREV STN, SCROLL UP, SCROLL DOWN, SHIFT-LOCAL, XMIT** (and single line transmit), and **SPCFY.**

If the *Key Flip To Local* configuration option is set to Y, pressing any key other than those listed will cause the station to flip from the receive state to the local state. The only exception to this is if the *Datacom Buffer* currently contains a message which is in the process of being received. In this case, the key flip to local function is temporarily disabled (the keystroke is ignored and a "Keyboard Data Lost" status message is displayed) to prevent losing the message in the buffer.

## ▶ Local State

When a station is in the local state, it responds to input from the keyboard regardless of the position of the cursor and datacom pointer. The station also indicates to the host that it has no message to send and that it is not ready to receive.

If the host sends a Fast Select message when the station's *Fast Select Forces Receive* configuration option is set to Y, then the station is put in the receive state and it accepts the message. The station is also put in the receive state when the host sends a Broadcast Select or Group Select message, so that it receives the message.

## ▶ Idle State

When the terminal is in the configuration mode, softkey definition mode, or autoexec edit mode, or it is going through power-up diagnostics, all of the logical stations for the terminal are in the idle state. When a station is in the idle state, it indicates to the host that it has no messages to send, and that it is not ready to receive messages; even Broadcast Select and Group Select messages are refused.

# FORMS MODE

Forms mode is a characteristic of a given page; this means that a page may be either in forms mode or not in forms mode. When a page is in forms mode, data may be displayed in either *protected* or *unprotected* fields. Data presented in protected fields cannot be altered by the user, although a datacom message can write into these fields. The user may, however, enter data into unprotected fields using the keyboard or a datacom message.

Form fields may wrap around from the end of a line to the beginning of the next line, or from the end of a page to the beginning of the page.

## ▶ Protected Fields

There are two types of protected fields:

Non-transmittable protected fields — These fields may contain data which are not normally transmitted from the station to the host. The fields usually contain either instructions which prompt the user, or identifying labels for unprotected fields.

Transmittable protected fields — These fields contain data which are to be part of the data transmissions from the station to the host, but should not be altered by the user. The fields may contain display identification numbers or other identifying data.

## ▶ Unprotected Fields

Data in unprotected fields may be transmitted to the host along with any transmittable protected data. There are two types of unprotected fields:

left-justified fields — When characters are entered into a left-justified unprotected field, the cursor moves from left to right as the user presses the character keys.

right-justified fields — When characters are entered into a right-justified unprotected field, the cursor always remains at the right-hand edge of the field. When the user presses a character key, the preceding character moves to the left. Characters appear in the normal sequence, but they move to the left as they are entered and the cursor stays at the right-most character position.

right-justified fields (continued) —

If the user presses a character key when the cursor is not at the right-most position of a right-justified field, then the keystroke is ignored (as if the cursor were in a protected field).

From datacom, right-justified fields are filled from left to right, in the same way as left-justified fields.

A valid form must contain at least one unprotected field.

## ▶ Delimiters

Delimiters are used to separate unprotected fields and transmittable protected fields from non-transmittable protected fields. An opening delimiter begins each field and a closing delimiter (or another opening delimiter) ends it; these delimiter characters may or may not be displayed on the screen, depending on the *Invisible Delimiters* configuration option for the current station.

The closing delimiter is a triangle with one point facing left (ASCII RS character). The symbol used for the opening delimiter depends on the nature of the field between the delimiters:

left-justified unprotected field — For this field, the opening delimiter is a triangle with one point facing right (ASCII US).

right-justified unprotected field — For this field, the opening delimiter is a triangle with one point facing upward (ASCII GS).

transmittable protected field — For this field, the opening delimiter is a rectangle that has a smaller rectangle in its top left corner (ASCII FS).

Refer to Section 4, Forms Layout Commands, for information on how delimiters may be placed on the screen from the keyboard or from datacom.

## ▶ Forms Home Position

When a page is in forms mode, the terminal finds the *home* position by starting at the upper left corner of the page and scanning forward to the first open delimiter. The terminal then scans forward to the first unprotected character which becomes the *forms home* position. If the first unprotected field is a right-justified field, the *forms home* position is the right-most position of the field.

## Entering and Exiting Forms Mode

A host program may put a page in forms mode by sending an ESC W sequence or a DC2 control character. The page must have at least one unprotected field for the page to be put in forms mode. When the cursor page is in forms mode, the Forms indicator is lit.

An ESC X sequence or a DC2 control character may then be used to take the page out of forms mode. A page may also be taken out of forms mode when a message is received and the *SOH Exits Forms* configuration option is set to Y.

If the cursor page contains a valid form, the user may put the page in forms mode by pressing the FORMS key or CTRL W. When FORMS is pressed again or CTRL Q, the page exits from forms mode. If the *Forms Exit Clears Page* configuration option is set to Y, the page is also cleared when forms mode is exited.

## INSERT MODE

Insert mode is an editing mode. When a page is in the insert mode, the Insert indicator is lit. The method of character insertion depends on whether the **INSERT CHARACTER IN LINE** or **INSERT CHARACTER IN PAGE** command is used, and whether the page is in forms mode:

**INSERT CHARACTER IN LINE** command (the user presses INS CHAR) — When a character key is pressed, characters from the cursor to the end of the line shift right. The new character appears at the cursor position and the cursor shifts right.

**INSERT CHARACTER IN PAGE** command (the user presses CTRL INS CHAR) — When a character key is pressed, characters from the cursor to the end of the page shift right. When a character is at the end of a line, it moves into the next line. The new character appears at the cursor position and the cursor moves to the right.

*Forms Mode — When INS CHAR or CTRL INS CHAR is pressed, character insertion continues only to the end of the cursor field.*

If the *Add Blank On Insert* configuration option is set to Y, a blank is also inserted at the cursor position when the INS CHAR key is pressed.

When a page is not in insert mode, the character at the cursor position is overwritten when a character key is pressed.

# SECTION 3

# CONFIGURATION MENUS

3-1

## GENERAL INFORMATION

The AT1183 has a series of configuration menus which allow the user to define the various characteristics of the terminal. The terminal's baud rate, parity, transmission mode (sync/async), passwords, screen blankout time and cursor type (i.e., block, underline, etc.) are defined as configuration options, but these are only a few of the numerous options listed in the configuration menus. Some of these options must be configured to match the current datacom requirements. Each AT1183 station (up to four stations) is defined through the Buffer Menu and a Station Menu. Default values are provided for the various options; however, the user may want to make changes so that the terminal is adjusted to his or her specific needs.

The following menus are used:

Convenience Menu
Security Menu
Buffer Size Menu
Datacom Menu
Print Menu
Station Menus (four)

## ENTERING AND EXITING CONFIGURATION MODE

One key sequence is used to access all the configuration menus. Each menu is displayed as a formatted screen. The function keys (F1 through F14) are specially defined for configuration mode; the settings of these keys are displayed at the bottom of the formatted screen.

To enter configuration mode, the user presses CTRL SPACE S. The Convenience Menu is the first menu displayed. The other menus are accessed when one of the designated function keys is pressed; however, if a *Configuration Password* is defined, the user is prompted for the password before any menus other than the Convenience Menu or Security Menu may be accessed.

The user exits configuration mode by pressing any of the following function keys: F1 (Quit), F2 (Temporary Save), or F3 (permanent Save). *If the F1 key is pressed, any changes to configuration settings are not saved.* If any changes have been made to the configuration settings, the F2 key or F3 should be pressed. These keys are further described under Key Usage, which follows.

## KEY USAGE

When the terminal is in configuration mode, the character keys function according to normal usage. However, the user cannot use the character keys to enter values into a *selection field.* A selection field has predefined settings. For example, the *Parity* configuration option may be set to Odd, Even, or None; the SCROLL UP/SCROLL DOWN key must be used to toggle through these legal values for the selection field.

The cursor movement and special function keys are listed below:

| | |
|---|---|
| arrow keys | The arrow keys (up arrow, dn arrow, lf arrow, rt arrow) may be used to move the cursor within a configuration field, or to another configuration field. |
| TAB | This key moves the cursor to the following configuration field. If the cursor is in the last field, it moves to the first field. |
| BACK TAB | This key moves the cursor to the preceding configuration field. If the cursor is in the first field, it moves to the last field. |
| SCROLL UP | This key scrolls through the configuration option settings for a field. If the cursor is in a numeric configuration field, the options are listed in ascending order. |
| SCROLL DOWN | This key is similar to the SCROLL UP key. The SCROLL DOWN key also scrolls through the configuration option settings for a field. If the cursor is in a numeric configuration field, the options are listed in descending order. |
| CLEAR EOL | This key erases characters from the cursor to the end of the field (if the cursor is in a text field). |
| RETURN | This key behaves the same as the TAB key. |

The function key definitions are displayed on screen with each configuration menu. They have the following uses:

**Function Key Definitions**

| | | |
|---|---|---|
| F1 | Quit | Exits from configuration mode, but does not save any configuration changes. |
| F2 | Temporary Save | Saves the current configuration settings before exiting from configuration mode. The option settings are saved only until the terminal is powered off or reset. |
| F3 | Permanent Save | Saves the current configuration settings in non-volatile memory before exiting from configuration mode. If option settings are saved permanently, when the terminal is powered off or reset, the permanent settings are still used. |
| F4 | Print Screen | This key is used to print the currently displayed configuration menu on the printer attached to the terminal's auxiliary port or uses "PRINT" key in Rev. 3.XX or higher. |
| F6 | Convenience | This key accesses the Convenience Menu once the terminal is in configuration mode. |
| F7 | Buffers | This key accesses the Buffer Size Menu once the terminal is in configuration mode. |
| F8 | Security | This key accesses the Security Menu once the terminal is in configuration mode. |
| F9 | Datacom | This key accesses the Datacom Menu once the terminal is in configuration mode. |
| F10 | Print | This key accesses the Print Menu once the terminal is in configuration mode. |
| F11-F14 | Station 1-4 | Each of these function keys accesses a different station menu (i.e., the F11 key accesses the menu for station #1; F12 accesses the menu for station #2, etc.). |

If a *Configuration Password* is defined, the user is prompted for it before the Buffer, Datacom, Print, or Station menus may be accessed. If a *Security Menu Password* is defined, the user is prompted for it before the Security menu may be accessed. If a *Configuration Store Password* is defined, the user is prompted for it before the terminal permanently saves a configuration.

While the terminal is in configuration mode, softkey processing is partially disabled. When the user presses a key, its original definition is used; this allows the F1 through F14 keys to perform their designated functions for configuration mode. However, any softkey currently in process when the terminal enters configuration mode will finish processing. For example, the user may want to use the following softkey definition:

{Ctrl-space}S{F11}{Down}{ScDn}{F3}

This softkey toggles the Fast Fill Screen option for station 1 while the terminal is in configuration mode. (The "Next Key As Is" function for softkey definition must be used for {F3}.)

## SAVING CONFIGURATION SETTINGS

When changes are made to the configuration settings, the user may store the settings temporarily or permanently:

Temporary Configuration Settings — The user saves current configuration options temporarily by pressing F2 when the terminal is in configuration mode; this means that when the terminal is powered off/on or reset, or certain configuration changes cause the terminal to go through a restart sequence, the permanent configuration settings will be used instead.

Permanent Configuration Settings — When the user stores configuration options permanently, these settings are used even when the terminal is powered off/on, or reset. To store the current configuration settings permanently, the user presses F3 while the terminal is in configuration mode.

The permanent configuration settings are also accessed when the user presses CTRL SPACE D. The permanent settings overwrite any temporary settings, making the temporary settings unavailable.

Figure 3-1 indicates what determines the current configuration options, and how the current settings may be affected by key sequences and ESC sequences (writing in scratchpad memory).

## RESTORING THE DEFAULT CONFIGURATION SETTINGS

The default configuration settings are always available to the user; to use the default settings as the current configuration, the user presses CTRL SPACE T. If the default settings overwrite temporary settings, the temporary settings are no longer available.

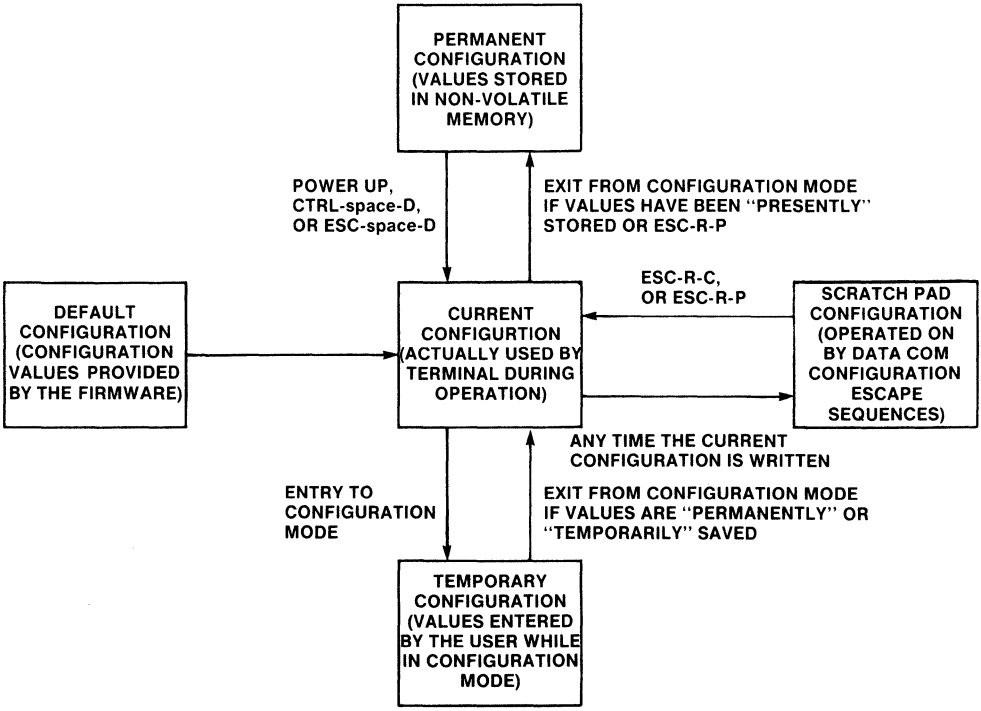



**Figure 3-1. Current Configuration Settings**

## ENTERING CONTROL CHARACTERS IN CONFIGURATION FIELDS

The **PLANT CONTROL CHARACTER ON SCREEN** command is used to enter control characters in configuration fields; it may, for example, be used to enter characters in the XON Character or XOFF Character options of the Print Menu. Though this command is discussed in Section 4, it will be briefly reviewed here.

The **PLANT CONTROL CHARACTER ON SCREEN** command has the form:

CTRL H (character)

The character must be selected from the ASCII code chart (see Appendix A) and is derived by stripping the top three bits off the hexadecimal character value. As this command is actually simpler than it sounds, some examples will clarify its use.

Example 1: Planting SOH in a field. The user presses:

CTRL H ! or CTRL H A or CTRL H a

As shown by the example, the control character is column 0 of the ASCII code chart is created by using the character from column 2, 4 or 6.

Example 2: Planting DC1 in a field. The user presses:

CTRL H 1 or CTRL H Q or CTRL H q

As shown by the example, the control character in column 1 of the ASCII code chart is created by using the character from column 3, 5 or 7.

The EOT control character is used by some of the configuration options as a default setting. For example, to disable a password, an EOT character is needed, since a blank is a possible password. To enter the EOT in a field, the user must press CTRL H $ or CTRL H D or CTRL H d.

## ERROR MESSAGES

After every keystroke in configuration mode, the validity of the configuration is checked. If the keystroke would make an invalid configuration, the keystroke is ignored, the *beep* will sound and one of the following error messages will be displayed on a status line. The error message disappears when the user enters the next keystroke.

**Table 3-1. Configuration Mode Error Messages**

| Message | Meaning |
|---|---|
| Cannot Have 0 Pgs Here | The user is attempting to enter all zeros in the Pages Desired configuration option for Station #1 of the Buffer Size Menu. Station #1 must have at least one display page defined.<br><br>The message is also displayed when the user enables a station with zero pages and sets its Data Dest. to Screen. |
| Display Buffer Overflow | The user is attempting to define more total display pages than Display Buffer memory can contain. |
| Illegal Character | The user is attempting to enter a character that is not allowed in a field. For example, the user is entering a numeric character in a field that may only contain alphabetic characters, a decimal point when it is not allowed, or an illegal alphabetic value in an alphabetic field. |
| Invalid Command | The user is trying to execute a function which is not currently available. |
| New Exceeds Maximum | The user is attempting to enter a value that is greater than the maximum in a numeric field. |
| New Less Than Minimum | The user is attempting to enter a value that is less than the minimum in a numeric field. |
| Not Enough Total Lines | The Lines/Page value times the number of pages for a station is less than 24 (or 12, if double high). |
| Out Of Memory | The user is trying to define a buffer using more bytes than are cumulatively available (for the Buffer Size Menu). |
| Too Many Lines | The user is attempting to define more than the maximum number of lines for a page. |
| Use Scroll Key | The user is attempting to enter characters in a field when only the SCROLL UP/SCROLL DOWN keys may be used to access the predefined options. |
| Data Comm Buffer Busy | The user has requested a transmit function and the Data Comm Buffer is in use by an inbound or outbound message. "Beep" is sounded. |

## CONVENIENCE MENU

The Convenience Menu is as follows:

```
Y   Key Click
Y   Cursor Blink
Block   Cursor Type
N   Reverse Unprotected Fields
Y   Auto-Home Cursor On Page Change
005   Minutes To Screen Save (0 = Never)
 30   Keys/Sec Repeat Rate
 .5   Second Delay Before Start of Repeat
 .5   Beep Length
Loud   Beep Level
Y   Initial Beep Flag
```

| Option | Description |
|---|---|
| Key Click | Determines if a click will sound when a key is pressed.<br>Default: Y<br>Options: Y or N. |
| Cursor Blink | Determines if the cursor will blink on the screen. If the Cursor Type is No Cursor, this option is ignored.<br>Default: Y<br>Options: Y or N. |
| Cursor Type | Determines the appearance of the cursor on the screen, if any.<br>Default: Block<br>Options: Half (the cursor is half the height of the Block cursor), No Cursor, Block, Underline. (Selection field.) |
| Reverse Unprotected Fields | Determines the reverse video status of an unprotected field when a page is in forms mode. When this option is set to Y, unprotected fields have a video attribute that is opposite from protected fields.<br>Default: N<br>Options: Y or N. |

| Option | Description |
|---|---|
| Auto-Home Cursor On Page Change | When moving to a new display page, this option determines whether the cursor is moved to the *home* position on the new page (Y), or is placed in the row/column it previously occupied on the display page.<br><br>For example: this option is set to Y. When page 3 was displayed, the cursor was in row 3, column 27. If the user presses the NEXT PAGE key while displaying page 2, the cursor will again be in row 3, column 27 of page 3.<br>Default: Y<br>Options: Y or N. |
| Minutes to Screen Save | Determines the number of minutes that may elapse before the Screen Save feature takes effect; this means that the screen is blanked out to prevent displayed characters from *burning into* the screen. This feature only takes effect when a key has not been pressed and no message has been received from the host for the set number of minutes. If this field contains a zero, the Screen Save feature is not used.<br>Default: 005<br>Options: A decimal value (0 - 255). |
| Keys/Sec Repeat Rate | Determines the number of times a key is repeated while it remains pressed. When a key is pressed, it will take effect once. If the key is still being pressed after the *Delay Before Start of Repeat*, the key will automatically repeat at the *Keys/Sec Repeat Rate*.<br>Default: 30<br>Options: 0, 1, 2, 3, 5, 6, 7.5, 10, 15, 30.<br>(Selection field.) |
| Second Delay Before Start of Repeat | Determines the number of seconds that elapse before the pressed key repeats itself.<br>Default: .5<br>Options: 0.5 - 1.5. (Selection field.) |

| Option | Description |
|---|---|
| Beep Length | Determines the number of seconds the *beep* sounds when a beep command is issued.<br>Default: .5<br>Options: 0.125, 0.25, 0.5, 1.0. (Selection field.) |
| Beep Level | Determines the intensity of the *beep* sound.<br>Default: Loud<br>Options: Loud or Soft. (Selection field.) |
| Initial Beep Flag | Determines the status of the terminal's Beep Flag when the terminal is powered on or reset.<br>Default: Y<br>Options: Y or N. |

## SECURITY MENU

The Security Menu maintains the various passwords required by the terminal. Each password may be up to six characters. If any password has an EOT as the first character (the default), then the user will not be required to give the password. If a password field is blank (without EOT), the terminal will expect a password of a blank space. The menu is as follows:

```
000 Minutes To Keyboard Lock (0 = Never)
E_T_____ Keyboard Lock Password
E_T_____ Configuration Password
E_T_____ Configuration Store Password
E_T_____ Softkey Password
E_T_____ Softkey Store Password
E_T_____ Autoexec Edit Password
E_T_____ Line Monitor Password
E_T_____ Security Menu Password
```

| Options | Description |
|---|---|
| Minutes To Keyboard Lock | If this field is set to 0, it has no effect. If a value of 1-255 is entered in the field, and the user has not pressed a key for that number of minutes, then the keyboard password will be required before the keyboard is again available for use. |
| Keyboard Lock Password | If this password is defined, the user must enter the password whenever the terminal is powered on or reset, or the *Minutes To Keyboard Lock* has expired (refer to this configuration option description), or CTRL R R is pressed. |
| Configuration Password | The user is prompted for this password before the terminal will display any configuration menu other than the Convenience and Security Menus. |
| Configuration Store Password | When the F3 key (Permanent Save) is pressed the user is prompted for this password before the configuration settings are stored. |
| Softkey Password | The user is prompted for this password before the terminal enters softkey definition mode. |
| Softkey Store Password | The user is prompted for this password before the current softkey definitions are stored (when the F2 key has been pressed while the main menu of configuration mode is displayed). |
| Autoexec Edit Password | The user is prompted for this password before the terminal enters autoexec edit mode. |
| Line Monitor Password | The user is prompted for this password before the terminal will enter line monitor mode. |
| Security Menu Password | The user is prompted for this password before the Security Menu may be accessed. |

# BUFFER SIZE AND DISPLAY CHARACTERISTICS MENU

The RAM (Random Access Memory) that is allocated to user-definable buffers is divided into about 49000 bytes which are dedicated to station display pages, and approximately 16126 decimal bytes which are dedicated to other buffer definitions.

The 16126 decimal bytes are used for the *Softkey Buffer, Datacom Buffer, Local Forms Buffer, Keyboard Buffer, Auxiliary Input Buffer, and Print Buffer.* The Print Buffer is automatically allocated the remaining available bytes of this segment of memory; this buffer size is not user-definable.

The Buffer Size Menu is as follows:

| | Non-Volatile | | Volatile | | | |
|---|---|---|---|---|---|---|
| | 04093 | | 04000 **Softkey Buffer** | | | |
| | | | 03000 **Datacom Buffer** | | | |
| | 0 | | 05000 **Local Forms Buffer** | | | |
| | | | 00032 **Keyboard Buffer** | | | |
| | | | 00512 **Auxiliary Input Buffer** | | | |
| | | | 3582 **Print Buffer** | | | |
| | **Enabled** | **Data Dest.** | **Chars/Line** | **Double High** | **Lines/Page** | **Pages Desired** |
| Station #1 | Y | Screen | 80 | N | 024 | 012 |
| Station #2 | Y | Printer | 80 | N | 024 | 000 |
| Station #3 | N | Screen | 80 | N | 024 | 000 |
| Station #4 | N | Screen | 80 | N | 024 | 000 |
| | | | Remaining Display Memory: 3011 | | | |

| Option | | Description |
|---|---|---|
| Softkey Buffer | Non-Volatile memory | This buffer size determines the amount of non-volatile memory used to store softkey definitions permanently.<br>Default: 04093 (may vary in different revisions)<br>Options: A decimal value from 0 to 4093. |
| | Volatile memory | This buffer size determines the amount of volatile memory used to store softkey definitions temporarily.<br>Default: 04000<br>Options: A decimal value from 0 to 16125. |

| Option | Description |
|---|---|
| Datacom Buffer | This buffer stores datacom messages while they are being sent to or received from the host.<br>Default: 03000<br>Options: A decimal value from 0 to 16125. |
| Local Forms Buffer | Non-Volatile memory — This buffer size determines the amount of non-volatile memory used for permanent local forms storage (datacom messages). The user cannot set this buffer size; it is automatically set to the number of bytes remaining after the non-volatile softkey buffer size is subtracted from the total available non-volatile buffer space (4093 bytes).<br>Default: 0<br>Volatile memory — This buffer size determines the amount of volatile memory used to store segments of datacom messages which can be called by escape sequences from the host. The buffer stores the messages temporarily.<br>Default: 05000<br>Options: A decimal value from 0 to 16125. |
| Keyboard Buffer | This buffer stores key sequences until they can be processed by the terminal.<br>Default: 00032<br>Options: A decimal value from 1 to 16126. |
| Auxiliary Input Buffer | This buffer stores characters sent from an input device attached to the terminal's auxiliary port until they can be processed by the terminal.<br>Default: 00512<br>Options: A decimal value from 0 to 16125. |
| Print Buffer | This buffer temporarily stores data sent to the printer attached to the terminal's auxiliary port. The user cannot set this buffer size, since it is automatically assigned the number of bytes remaining after the other buffer sizes are defined. (16126 decimal bytes minus the preceding buffer sizes = Print Buffer size.)<br>Default = 3582. |

| Option | Description |
|---|---|
| **Stations** | |
| Enabled | Determines if the station is logically enabled for use. Station 1 is always enabled.<br>Default: Stations 1 & 2 - Y; stations 3 & 4 - N.<br>Options: Y or N. |
| Data Dest | Determines whether messages are displayed on a station's page or sent directly to the printer.<br>Default: Station 1, 3, 4 - Screen; station 2 - Printer.<br>Options: Screen or Printer. (Selection field.) |
| Chars/Line | Determines the number of characters displayed per line of a display page.<br>Default: 80<br>Options: 40, 66, 80, 132. (Selection field.) |
| Double High | Determines the way in which characters are displayed on a page. When "Chars/Line" is set to 40 or 66 and "Double High" is set to Y, then characters will appear double high/double wide. When "Chars/Line" is set to 80 or 132 and "Double High" is Y, a blank space is inserted between the character lines.<br>Default: N<br>Options: Y or N |
| Lines/Page | Determines the number of lines assigned to the page. Any enabled station that will use the screen must have a total number of lines ("Lines/Page" times number of pages) of at least 24 (or 12, if double high).<br>Default: 024<br>Options: 001 through 203, with the following limitations:<br>132 char/line page — 1 min/61 max<br>80 char/line page — 1 min/101 max<br>66 char/line page — 1 min/123 max<br>40 char/line page — 1 min/203 max |
| Pages Desired | Determines the number of logical pages which are allocated for the station's display buffer.<br>Default: 12 for station 1, 0 for stations 2-4.<br>Options: A decimal value from 0 to 255. |

## DATACOM MENU

The Datacom Menu contains information pertaining to the protocol requirements for the terminal. The menu is as follows:

```
  9600   Baud Rate
 Async   Sync / Async
 N       Use Alternate Poll Characters
 Y       Allow Rcv Key If Keyboard Locked
 Y       Parity Checking
         Group Address
         Group Select Address
 000     Transmit To Receive Delay
 005     Minimum CTS Delay (ms)
 000     RTS Hold (ms)
         Logical Ack Character
 01920   Min Print Buffer Free Space
         For Print Stns To Ack Dcom
```

| Option | Description |
|---|---|
| Baud Rate | Determines the datacom line speed for the terminal in bits per second.<br>Default: 9600<br>Options: 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 9600, 19200, 38400. (Selection field.) |
| Sync/Async | Determines the transmission mode.<br>Default: Async<br>Options: Async, Sync. (Selection field.) |
| Use Alternate Poll/ Select Chars | Determines whether the standard poll and select characters (70 - "p", 71 - "q") are used, or the alternate poll and select characters (7B - "{", 7C - "\|"). <br>Default: N<br>Options: Y or N. |
| Allow Rcv Key If Keyboard Locked | Determines if the RCV key is enabled (Y) when the keyboard is locked.<br>Default: Y<br>Options: Y or N. |

| Option | Description |
|---|---|
| Parity Checking | Determines if the terminal checks that each datacom character received is the correct parity (even for async, or odd for sync).<br>Default: Y<br>Options: Y or N. |
| Group Address | Determines the group poll address, if any, for the terminal. Though the terminal may be defined as four separate stations, the group address is shared by all stations defined in the terminal.<br>Default: none (EOT EOT)<br>Options: A 2-character address. |
| Group Select Address | Determines the group select address (if any) the host system uses when sending messages to the terminal.<br>Default: none (EOT)<br>Options: A character address. |
| Transmit To Receive Delay | Determines the number of milliseconds after the terminal drops the request-to-send signal before enabling the receive circuit.<br>Default: 000<br>Options: A decimal value from 0 to 255. |
| Minimum CTS Delay | Determines the minimum number of milliseconds the terminal waits after raising request-to-send before it transmits characters. After this number of milliseconds has elapsed, the clear-to-send pin of the datacom interface is checked; if it is driven FALSE, the terminal will continue to wait until it is TRUE before transmitting.<br>Default: 005<br>Options: A decimal value from 0 to 255. |
| RTS Hold | Determines the number of milliseconds the terminal maintains the request-to-send signal after the last character has been transmitted.<br>Default: 000<br>Options: A decimal value from 0 to 255. |

| Option | Description |
|---|---|
| Logical Ack Character | Determines which character is used as a *logical ACK* character. This character is used to control data transmissions from a host program to the station, and is used in conjunction with the *Min Print Buffer Free Space For Print Stns To Ack Dcom* option.<br><br>When a station has its *Data Dest* set to Printer, and a message is received, the remaining *Print Buffer* size is checked. When the free buffer space is the minimum, this ACK character is sent as a message to the host.<br>Default: EOT (no character is sent)<br>Options: Any single ASCII character. |
| Min Print Buffer Free Space For Print Stns To Ack Dcom | If a select is received for a station which has *Data Dest* set to Printer, the amount of free space in the *Print Buffer* is checked. If the free space is at least as much as this option, the terminal responds to the select with an ACK; otherwise, it responds with a NAK.<br>Default: 01920<br>Options: A decimal value from 0 to 16125. |

# PRINT MENU

The Print Menu contains options pertaining to the auxiliary port which is usually used to interface with a printer. The configuration settings are dependent on the capabilities and requirements of the device attached to this port. The Print Menu also contains options for the auxiliary input port. The menu is as follows:

```
                              COMMUNICATIONS

1200 Baud Rate          Even Parity          7 Data Bits          1 Stop Bits

                              Handshaking

XON/XOFF  Input Pin Usage (Pin 2)    XON Character          XOFF Character
N Busy Handshake (Pin 4)             0 Busy Signal

                        Printer Control Character Mappings

NUL  SOH  STX  ETX  EOT  ENQ  ACK  BEL  BS   HT   LF   VT
FF   CR   SO   SI   DLE  DC1  DC2  DC3  DC4  NAK  SYN  ETB
CAN  EM   SUB  ESC  FS   GS   RS   US

XMIT CHAR FOR AUX-IN
```

| Option | Description |
|---|---|
| | **Communications** |
| Baud Rate | Determines the bits per second transmission rate to an auxiliary device. This transmission rate is independent of the baud rate for the datacom line of the terminal.<br>Default: 1200<br>Options: 75, 110, 134.5, 150, 200, 300, 600; 1200, 1800, 2000, 2400, 3600, 4800, 9600, 19200, 38400. (Selection field.) |
| Parity | Determines the parity of characters sent to an auxiliary device, as required by the device.<br>Default: Even<br>Options: Even, Odd, None. (Selection field.) |
| Data Bits | Determines the number of bits used to represent a character, as required by the auxiliary device.<br>Default: 7<br>Options: 7 or 8. |
| Stop Bits | Determines the number of stop bits used between characters, as required by the auxiliary device.<br>Default: 1<br>Options: 1 or 2. |
| Ignore Rcv Parity | Determines whether the parity of characters received from the auxiliary device is checked.<br>Default: Y<br>Options: Y or N. |
| | **Handshaking** |
| Input Pin Usage (Pin 2) | Determines how pin 2 of the auxiliary port is used.<br>Default: XON/XOFF<br>Options: XON/XOFF, Aux Input, None. (Selection field.)<br>XON/XOFF =This option regulates the transmission of data to an auxiliary device, allowing the device to turn character transmission on and off.<br>Aux Input = Data received on pin 2 is placed in the Auxiliary Input Buffer.<br>None = Pin 2 of the auxiliary port is not used. |

| Option | Description |
|---|---|
| XON Character | Determines which character indicates XON.<br>Default: DC1<br>Options: Any single ASCII character. |
| XOFF Character | Determines which character indicates XOFF.<br>Default: DC3<br>Options: Any single ASCII character. |
| Busy Handshake (Pin 4) | Determines if the "busy" signal of pin 4 is obeyed. (Refer to Section 7, The Auxiliary Port, to understand how this signal is used.)<br>Default: N<br>Options: Y or N. |
| Busy Signal Sense | If the "Busy Handshake" option is set to Y, then this option determines which signal value indicates that the printer is busy.<br>Default: 0<br>Options: 0 (represents low) or 1 (represents high). |
| Xmit Char For Aux In | If the "Input Pin Usage (Pin 2)" option is set to Aux Input, the input data are scanned for characters matching this character. Any matching characters are turned into XMIT key codes before being processed.<br>Default: ETX character.<br>Options: Any single ASCII character. |

## Printer Control Character Mappings

When printing from the screen, there may be a need to handle any control characters on the screen in a special way, since different printers handle control characters in different ways.

Control characters are those characters with hexadecimal values of 00 through 1F. The most common control characters found in screen data are forms delimiters and video attribute characters, although other control characters may also be present. When screen data are printed, control characters are changed into the characters configured in the Screen Print Control Character Map (blanks, by default). For example, opening and closing forms delimiters may be mapped into printable characters, such as "[" and "]".

## STATION MENUS

The AT1183 may be defined as four separate stations. Each station is defined using several configuration options. All stations use the configuration options defined in the preceding menus; the display pages for the individual stations are defined separately in the Buffer Size Menu.

The Station Menu for Station #1 is accessed when F11 is pressed; the Station Menu for Station #2 is accessed when F12 is pressed; the F13 and F14 keys access the Station Menus for Stations #3 and #4, respectively. Each menu uses the same list of configuration options, as follows:

| | | | | |
|---|---|---|---|---|
| **Datacom** | | | | |
| | **Station Address** | **Station ID** | **Initial Outboard Xmit Num** | Y **Process Rcvd Xmit Num** |
| | N **Fast Fill Screen** | Y **Fast Select Forces Receive** | Y **Key Flip To Local** | Y **Stay In Receive** |
| | Multiple **Dcom SK Load Style** | Y **Forms Xmit To Cursor** | N **Single Line Transmit** | N **Specify Uses Hex** |
| | Stay In RCV **DC1 Handling** | Toggle Frms **DC2 Handling** | N **Dcom FF Clears Tabs** | Y **Dcom VT Sets Tab Stop** |
| | N **SOH Exits Forms** | N **SOH Clears Page** | N **Plant ETX** | N **ETX Advnces Cursor** |
| | N **Plant HT** | N **Plant CR** | Y **CR Implies LF** | N **LF Implies CR** |
| **Keyboard** | | | | |
| | N **Plant HT** | N **Plant CR** | Y **CR Implies LF** | |
| **Edit** | | | | |
| | Y **Add Blank On Insert** | N **Forms Exit Clears Page** | 024 **EOP Alarm Row** | 080 **EOP Alarm Column** |
| | ( **Alt Opening Delimiter** | ) **Alt Closing Delimiter** | N **Invisible Delimiters** | \| **Initial Search Character** |
| | Y **Lower Case Allowed** | Y **Initial Caps Lock** | N **Field Overflow Inhibit** | N **Page Wrap** |
| **Print** | | | | |
| | Y **Stop At Cursor** | Y **Form Feed At End Of Page** | CR-LF **End Of Line Action** | Y **CR Is End Of Line** |
| **Tabs** | Fixed | | | |

| Option | Description |
|---|---|
| | **Datacom** |
| Station Address | Determines the unique address of the station on the datacom line.<br>Default: none (EOT EOT)<br>Options: A 2-character address. |
| Fast Fill Screen | Determines if a datacom message is displayed as each character is received, or after all characters are checked for the correct parity and the block check character is verified as correct. If this option is set to N, the entire message may not be displayed until character parity and the block check character are correct.<br>Note that if this option is set to Y, and an error occurs while a message is being received, the screen data may be corrupted.<br>Default: N<br>Options: Y or N. |
| Softkey Load Style | Determines the procedure used to download softkey definitions (definitions received through datacom ESC R K messages).<br>Default: Multiple<br>Options: Multiple or Single. (Selection field.)<br>Multiple = The dowload procedure is similar to that used for the Burroughs TD 830, MT 983, and ET 1100 terminals. Each escape message which defines softkeys overwrites the temporary *Softkey Buffer* contents. Multiple softkeys may be defined in a single message.<br>Single = The download procedure is similar to that used for the Burroughs SR 100/110 and Visual 383 terminals. Each such escape message defines only one softkey. The definition replaces any existing temporary definition for the specified key. |

| Option | Description |
|---|---|
| DC1 Handling | Determines how the station responds to a DC1 from datacom.<br>Default: Stay in RCV<br>Options: Stay in RCV, Clr to EOL. (Selection field.)<br><br>Stay in RCV = When a DC1 is received anywhere in a message, the station remains in the receive state after the message is received. If the message also contains an escape sequence that puts the station in the transmit state, it overrides the DC1.<br>Clr to EOL = When a DC1 is received, all data from the datacom pointer to the end of the line are erased. This setting does not affect the state of the station. |
| SOH Forms Action | If the datacom pointer page is in forms mode, this option determines if the page exits forms mode when a message is received.<br>Default: Exit/Home<br>Options: None, Exit, Exit/Home |
| Plant HT | Determines if the horizontal tab character (HT) from datacom is displayed on the screen.<br>Default: N<br>Option: Y or N. |
| Station ID | Identifies the station to the user; this ID is displayed on the fourth status line when the station is the current keyboard station. The user may, for example, want to enter "Billing" for a station used to access billing software.<br>Default: blanks<br>Options: Up to 10 characters. |
| Fast Select Forces Receive | Determines if the station is automatically put in the receive state when a Fast Select message is received.<br>Default: Y<br>Options: Y or N. |

| Option | Description |
|---|---|
| Forms Xmit To Cursor | Determines which data are transmitted on a page that is in forms mode. When the cursor is in the *home* position, all transmittable data on the displayed page are transmitted. See the **CHANGE TO TRANSMIT** command in Section 4 for more details about which data are transmitted.<br>Default: Y<br>Options: Y or N.<br>Y = Only unprotected fields and transmittable protected fields between the "home" position and the cursor location are transmitted.<br>N = All unprotected fields and transmittable protected fields are transmitted. |
| DC2 Handling | Determines how the station responds to a DC2 control character from datacom.<br>Default: Toggle Frms<br>Options: Toggle Frms, Move Right. (Selection field.)<br>Toggle Frms = When a DC2 is received, it toggles the current page into or out of forms mode.<br>Move Right = When a DC2 is received, it moves the datacom pointer one space right. This setting does not affect the page mode. |
| SOH Clears Page | Determines if the receiving page is cleared when a message is received. If this option is set to N, the page is not cleared before the message is interpreted.<br>Default: N<br>Options: Y or N. |
| Plant CR | Determines if the CR control character from datacom is displayed on the screen.<br>Default: N<br>Options: Y or N. |

| Option | Description |
|---|---|
| Initial Outbound Xmit Num | Determines the first character that is used as a transmission number for messages sent to the host system, after the terminal is powered on or reset.<br>Default: none (EOT)<br>Options: Any ASCII character: usually, EOT (disables sending transmission numbers), 0, 1, @, or A. |
| Key Flip To Local | Determines if a user may put the station in the local state by pressing any key. This option only applies when the datacom pointer is on the same page as the cursor, the station is in the receive state, and no data are in the *Datacom Buffer* to be displayed. The following keys are exceptions: XMIT and line transmit, RCV, CAPS LOCK, CTRL, NEXT PAGE, PREV PAGE, SCROLL UP, SCROLL DOWN, NEXT STN, PREV STN, ALIGN, SPCFY.<br>Default: Y<br>Options: Y or N.<br>Y = Place the station in the local state.<br>N = Ignore keystroke and display Keyboard Data Lost. |
| Single Line Transmit | Determines if the XMIT key and the "ESC (" sequence transmit a single line (Y) or an entire page (N).<br>Default: N<br>Options: Y or N. |
| FF Clears Tabs | Determines if a datacom FF control character will clear all tab stops in addition to clearing the page. This option only applies when the *Tabs* option is set to Variable.<br>Default: N<br>Options: Y or N. |
| Plant ETX | Determines if the ETX (end-of-text) character from datacom is displayed on the screen.<br>Default: N<br>Options: Y or N. |

| Option | Description |
|---|---|
| CR Implies LF | Determines if the station interprets a datacom CR control character to include a LF (line feed).<br>Default: Y<br>Options: Y or N. |
| Process Rcvd Xmit Nums | Determines whether or not the station verifies that transmission numbers received in datacom messages are correct. If this option is set to Y and two messages received in a row have the same transmission number, the second message is discarded.<br>Default: Y<br>Options: Y or N. |
| Stay In Receive | Determines if the station remains in the receive state after it receives a message or is put in the local state.<br>Default: Y<br>Options: Y or N.<br>Y = Stay in the receive state. (Unless a command in the message causes the station to change to the transmit state.)<br>N = Change to the local state. (Unless a command in the message causes the terminal to change to the transmit or receive state.) |
| Specify Uses Hex | Determines whether a column number and row number transmitted when the SPCFY key is pressed are hexadecimal values, or ASCII characters (affects the **REPORT CURSOR POSITION** command).<br>Default: N<br>Options: Y or N. |
| VT Toggles Tab Stop | Determines if a datacom VT control character toggles a tab stop at the current datacom pointer column. This option only applies when the *Tabs* option is set to Variable.<br>Default: Y<br>Options: Y or N. |

| Option | Description |
|---|---|
| ETX Advances Cursor | Determines if the datacom pointer is advanced to the next character position when an ETX character from a datacom message is planted on the page, or if it will remain at the ETX marker. This option is only used when the *Plant ETX* option is set to Y.<br>Default: N<br>Options: Y or N. |
| LF Implies CR | Determines if the station interprets a datacom LF control character to include a CR (carriage return).<br>Default: N<br>Options: Y or N. |
| | **Keyboard** |
| Plant HT | Determines if the tab character (HT) is displayed on the screen when the TAB key is pressed.<br>Default: N<br>Options: Y or N. |
| Plant CR | Determines if the carriage return character (CR) is displayed on the screen when the RETURN key is pressed.<br>Default: N<br>Options: Y or N. |
| CR Implies LF | Determines if the cursor moves to the first position of the current line (N), or next line (Y) when the RETURN key is pressed.<br>Default: Y<br>Options: Y or N. |
| | **Edit** |
| Add Blank On Insert | Determines if a blank is inserted before the character at the cursor position when the INS CHAR key is pressed.<br>Default: Y<br>Options: Y or N. |

| Option | Description |
|---|---|
| Alt Opening Delimiter | Determines which character will be replaced by the US character (right pointing triangle) when forms mode is entered. This character is used to begin an unprotected field.<br>Default: [<br>Options: Any single ASCII character. |
| Lower Case Allowed | Determines if only upper case characters may be entered from the keyboard. When this option is set to N, only upper case letters are allowed; the CAPS LOCK key does not toggle Caps Lock off until the option is set to Y.<br>Default: Y<br>Options: Y or N. |
| Forms Exit Clears Page | Determines if the page is cleared when forms mode is exited.<br>Default: N<br>Options: Y or N. |
| Alt Closing Delimiter | Determines which character will be replaced by the RS character (left pointing triangle) when forms mode is entered. This character is used to end an unprotected field.<br>Default: ]<br>Options: Any single ASCII character. |
| Initial Caps Lock | When this feature is set to Y, Caps Lock is initially on for a station; all alphabetic characters appear in upper case. The CAPS LOCK key may be used to toggle the Caps Lock feature off (if the *Lower Case Allowed* option is set to Y).<br>Default: Y<br>Options: Y or N. |
| EOP Alarm Row | The End Of Page Alarm may be used to alert the user that the cursor is reaching the end of the page. The alarm sounds when the cursor moves over this row and the column specified in the *EOP Alarm Column* option.<br>Default: 024<br>Options: A decimal value. |

| Option | Description |
|---|---|
| Invisible Delimiters | Determines if the opening and closing field delimiters are visible.<br>Default: N<br>Options: Y or N |
| Field Overflow Inhibit | Determines cursor movement after a character is entered in the last position of a left-justified field.<br>Default: N<br>Options: Y or N.<br>Y = The cursor moves to the closing delimiter of the field, which is protected. The user must use the cursor movement keys to move the cursor to other fields (usually the TAB key is used to advance to the next field).<br>N = The cursor automatically moves into the next field. |
| EOP Alarm Column | The End Of Page Alarm may be used to alert the user that the cursor is reaching the end of the page. The alarm sounds when the cursor moves over this column and the row specified in the *EOP Alarm Row* option.<br>Default: 080<br>Options: Any decimal values from 0 to 132. |
| Initial Search Character | Determines which character is initially used as the search character in search mode.<br>Default: :<br>Options: Any single ASCII character. |
| Page Wrap Inhibit | Determines cursor movement after a character is entered in the last position of a page which is not in forms mode.<br>Default: N<br>Options: Y or N.<br>Y = The cursor stays in the same position, and a "beep" sounds (if the Beep Flag is on).<br>N = The cursor wraps to the *home* position of page. |

| Option | Description |
|---|---|
| | **Screen Print** |
| Stop At Cursor | Determines if the cursor location specifies what data are printed from the screen when a print command is used. If the cursor is at the home position, all data on the screen are printed.<br>Default: Y<br>Options: Y or N.<br>Y = All data from the home position to the character position preceding the cursor are printed.<br>N = All data are printed, regardless of the location of the cursor. |
| Form Feed At End Of Page | Determines if a form feed character is inserted at the end of text when a print command is used to print data from the screen.<br>Default: Y<br>Options: Y or N. |
| End Of Line Action | Determines what characters, if any, are inserted after every display line when data are printed from the screen.<br>Default: CR-LF<br>Options: CR-LF, LF only, CR only, Nothing. (Selection field.) |
| CR Is End Of Line | Determines if a CR character in a line on the screen is treated as the end of the line, causing remaining characters on the line to be ignored.<br>Default: Y<br>Options: Y or N.. |

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| Option | Description |
|---|---|
| Tabs | Determines if tabs are fixed at predefined columns, or variable so that the user may define the tab columns. The fixed tab columns are: 1, 9, 17, 25, 33, 41, 49, 57, 65, 73, 81, 89, 97, 105, 113, 121, and 129.<br>Default: Fixed<br>Options: Fixed or Variable. |
| Initial Variable Tabs | Determines which tab stops will initially be used when the *Tabs* option is set to Variable. A tab is set when the user moves the cursor to a desired column and presses a character key. A tab is removed when the user replaces a character with a blank space.<br>Default: same as the Fixed tab columns.<br>Options: A "T" (or any other non-blank character) is entered in columns where tabs are desired, and blanks are in all other columns. |

## DEFAULT CONFIGURATION SETTINGS

Table 3-2 is a list of the configuration options and the default settings. The options are listed, in alphabetical order, within the respective option menu. The only menu excluded from this table is the Security Menu; this menu consists of the various passwords optionally used for the terminal, with all passwords set to unused as the default, and the Keyboard Lock timer is unused.

**Table 3-2. Default Configuration Settings**

| Option | Setting | |
|---|---|---|
| **Convenience Menu** | | |
| Auto-Home Cursor On Page Change | Y | |
| Beep Length | .5 | seconds |
| Beep Level | Loud | |
| Cursor Blink | Y | |
| Cursor Type | Block | |
| Initial Beep Flag | Y | |
| Key Click | Y | |
| Keys/Sec Repeat Rate | 30 | keys/sec |
| Minutes To Screen Save | 5 | minutes |
| Reverse Unprotected Fields | N | |
| Second Delay Before Start Of Repeat | .5 | seconds |
| **Buffer Size and Display Characteristics Menu** | | |
| Auxiliary Input Buffer | 512 | |
| Datacom Buffer | 3000 | |
| Keyboard Buffer | 32 | |
| Local Forms Buffer | 5000 | |
| Softkey Buffer | 4000 | |
| Print Buffer | 3582 | (Remaining Bytes) |

# CONFIGURATION MENUS



| Option | Setting | |
|---|---|---|
| Stations | | |
| Chars/Line | 80 | |
| Data Dest. (1, 3, & 4) | Screen | |
| (2) | Printer | |
| Double High | N | |
| Enabled (1 & 2) | Y | |
| (3 & 4) | N | |
| Lines/Page | 24 | |
| Pages Desired (1) | 12 | |
| (2, 3, & 4) | 0 | |

**Datacom Menu**

| | | |
|---|---|---|
| Allow Rcv Key If Keyboard Locked | Y | |
| Baud Rate | 9600 | |
| Group Address | EOT EOT | |
| Group Select Address | EOT | |
| Logical Ack Character | EOT | |
| Minimum CTS Delay | 005 | milliseconds |
| Min Print Buffer Free Space For Print Stns To ACK Dcom | 01920 | |
| Parity Checking | Y | |
| RTS Hold | 000 | milliseconds |
| Sync/Async | Async | |
| Transmit To Receive Delay | 000 | milliseconds |
| Use Alternate Poll/Select Chars | N | |

**Print Menu**

| | | |
|---|---|---|
| Baud Rate | 1200 | |
| Busy Handshake | N | |
| Busy Signal Sense | 0 | |
| Data Bits | 7 | |
| Ignore Rcv Parity | N | |
| Input Pin Usage | XON/XOFF | |
| Parity | Even | |
| Stop Bits | 1 | |
| XOFF Character | DC3 | |
| XON Character | DC1 | |

| Option | Setting |
|---|---|
| **Station Menus — Datacom** | |
| CR Implies LF | Y |
| DC1 Handling | Stay In RCV |
| DC2 Handling | Toggle Frms |
| ETX Advances Cursor | N |
| Fast Fill Screen | N |
| Fast Select Forces Receive | Y |
| FF Clears Tabs | N |
| Forms Xmit To Cursor | Y |
| Initial Outbound Xmit Num | EOT |
| Key Flip To Local | Y |
| LF Implies CR | N |
| Plant CR | N |
| Plant ETX | N |
| Plant HT | N |
| Process Rcvd Xmit Nums | Y |
| Single Line Transmit | N |
| SK Load Style | Multiple |
| VT Toggles Tab Stop | Y |
| SOH Clears Page | N |
| SOH Forms Action | Exit/Home |
| Specify Uses Hex | N |
| Station Address | EOT EOT |
| Stay In Receive | Y |
| Station ID | (blank) |
| **Keyboard** | |
| CR Implies LF | Y |
| Plant CR | N |
| Plant HT | N |

| Option | Setting |
|---|---|
| **Edit** | |
| Add Blank On Insert | Y |
| Alt Closing Delimiter | ] |
| Alt Opening Delimiter | [ |
| EOP Alarm Column | 80 |
| EOP Alarm Row | 24 |
| Field Overflow Inhibit | N |
| Forms Exit Clears Page | N |
| Initial Caps Lock | Y |
| Initial Search Character | \| |
| Invisible Delimiters | N |
| Lower Case Allowed | Y |
| Page Wrap Inhibit | N |
| **Print** | |
| CR Is End Of Line | Y |
| End Of Line Action | CR-LF |
| Form Feed At End Of Page | Y |
| Stop At Cursor | Y |
| **Tabs** | |
| | Fixed |

# SECTION 4

# COMMANDS

4-1

## GENERAL INFORMATION

Most of the commands described in this section may be issued from the keyboard via a keystroke or series of keystrokes, and through datacom messages. Both the keyboard and datacom sequences are presented, along with a description of each command. The commands are divided into several broad groups: cursor positioning, data entry, edit, video attribute, forms layout, data communications, and terminal control and status. The only commands excluded from this section are those used to print data through the auxiliary port.

The term *cursor* is used throughout, but if the command is issued through a datacom message, the term *datacom pointer* should be substituted. On certain occasions, the datacom pointer and the cursor will be on different pages. For example, if the user transmits a message on page 1 and then uses a keyboard sequence to display page 4, the cursor will be on page 4 while the datacom pointer remains on page 1, awaiting the response to the transmit.

## MODIFIER KEYS

The SHIFT, CTRL, and ALT keys are used as *modifier keys;* this means that they are used to modify the definition of another key. They are used as follows:

SHIFT — The SHIFT key must be pressed at the same time as the key it modifies. For example, SHIFT-SCROLL UP is pressed to move the screen window over preceding data in the display buffer; the two keys must be pressed simultaneously.

CTRL — The CTRL key may be pressed before the key it modifies, or it may be pressed at the same time as the key it modifies. However, if a command uses three keystrokes (i.e., CTRL <keystroke> <keystroke>), then CTRL should only be pressed while the first subsequent key is pressed; otherwise, the command will not be recognized.

For example, CTRL H / is used to begin the underline attribute for a field. CTRL and H may be pressed at the same time, and then released before the / key is pressed.

The CTRL key cannot modify function keys.

ALT — The ALT key must be pressed at the same time as the key it modifies (both keys are pressed simultaneously). The ALT key only modifies function keys (F1 through F14).

# CURSOR POSITIONING COMMANDS

The following commands only move the cursor and have no effect on the data on the screen.

## Miscellaneous Commands

### CURSOR DOWN

From Keyboard: 

From Datacom LF

This command moves the cursor down one line, keeping the cursor in the same column. If the cursor is on the last line of the page, it moves to the top line.

If the *Datacom — LF Implies CR* configuration option is set to Y, an LF from datacom moves the cursor to the beginning of the next line.

### CURSOR UP

From Keyboard: 

From Datacom: DC3

This command moves the cursor up one line, keeping the cursor in the same column. If the cursor is at the first line of the page, it moves to the last line.

### CURSOR RIGHT

From Keyboard: 

From Datacom: ESC C (and DC2 if the *DC2 Handling* configuration option is set to Move Right)

This command moves the cursor right one space. If the cursor is in the last character position of a line, it moves into the first character position of the next line; if it is at the last character position of the page, it moves to the first character position of the page.

## CURSOR LEFT

From Keyboard: 

From Datacom: BS

This command moves the cursor left one space. If the cursor is in the first character position of a line, it moves to the last character position of the preceding line; if it is at the first character position of the page, it moves to the last character position of the page.

## HOME CURSOR

From Keyboard: 


From Datacom: CR

This command moves the cursor to the *home* position. If the page is not in forms mode, this is the upper left corner of the page. If the page is in forms mode, this is the *forms home* position.

## RETURN CURSOR

From Keyboard: 


From Datacom: CR

This command moves the cursor to the beginning of the current line. Depending on the *Keyboard — CR Implies LF* and *Datacom — CR Implies LF* configuration options, the cursor may also move down one line.

If the *Keyboard — Plant CR* configuration option is set to Y when this command is issued from the keyboard, a CR character (a down-pointing triangle) is planted on the page at the current cursor position before the cursor moves. This also happens when the *Datacom —Plant CR* configuration option is set to Y when the command is issued from datacom.

When this command is issued from the keyboard while the page is in forms mode, the cursor advances to an unprotected field (after the movement described in the preceding paragraphs). If the cursor is moved into a right-justified unprotected field, it advances to the right-most position.

### POSITION CURSOR

From Keyboard: 

cr

From Datacom: ESC " cr
or ESC ~ ccrr

This command positions the cursor at any specified row and column on the page. The characters which should follow CTRL < or ESC " depend on the Specify Uses Hex configuration setting for the station. If this option is set to N, then the "cr" code should be used. If Specify Uses Hex is set to Y, then a hexadecimal location (ccrr) should be specified.

The "cr" code consists of a column code (c), and a row code (r). The column code and row code are both selected from the standard ASCII symbols. These positioning codes are listed in Appendix E.

If the column code is invalid or outside the acceptable range, the cursor will not move at all. When this happens, the row code is displayed since the terminal stops analyzing the command sequence when it encounters the invalid code. If the row code is invalid or outside the acceptable range, the cursor will not move and a code is not displayed.

If a hexadecimal location is used, the location is specified by two hex characters for column, followed by two hex characters for row.

### SCROLL UP

From Keyboard: 


From Datacom: none

This command moves the screen window over the data in the display buffer. When the command is issued, the cursor remains in the same position on the screen, while data from the display buffer moves up one line; the first displayed line is scrolled off the displayed page and each line shifts up. If the end of the display buffer is already displayed on the screen, this command has no effect.

### SCROLL DOWN

From Keyboard: 


From Datacom: none

This command moves the screen window over the data in the display buffer. The cursor remains in the same position on the screen, while data from the display buffer moves down one line; the last displayed line is scrolled off the displayed page. If the screen is already at the beginning of the display buffer, this command has no effect.

### ALIGN CURSOR WITH DATACOM POINTER

From Keyboard: 


From Datacom: ESC &

This command moves the cursor to the page, row, and column of the datacom pointer. When the cursor is moved, the display window shifts to continue displaying the cursor.

## ▶ Tab Commands

If the Tabs configuration option is set to Fixed, the fixed tabs are in effect. This automatically puts tab stops in columns 1, 9, 17, 25, 33, 41, 49, 57, 65, 73, 81, 89, 97, 105, 113, 121, and 129.

Variable tab stops are in effect when the *Tabs* configuration option is set to Variable. Variable tab stops are affected in the following ways:

**SET, REVERSE, OR CLEAR CURRENT TAB STOP** commands These commands may be used to set, reverse, and clear tab stops from the keyboard or from datacom. When one of these commands is issued, it affects the tab stops on all lines for the column of the cursor. When the terminal is turned off, however, the current tab stops are removed. The tab stops are set to the default tab stops when the terminal is either turned on or reset.

**CLEAR ALL TAB STOPS** command This command clears all current tab stops in all columns when it is issued from the keyboard or from datacom.

*Initial Variable Tabs* configuration option The initial tab stops are copied to the current tab stops when the terminal is turned on or reset. These default values may only be set or cleared when the terminal is being configured.

The commands to set, clear, and reverse current tab stops only take effect if the *Tabs* configuration option is set to Variable.

## TAB RIGHT

From Keyboard: Tab

From Datacom: HT

This command advances the cursor to the next tab stop. If the cursor is at the last tab stop of a line, it moves into the first tab stop of the next line. If no tab stops are set, the cursor moves to the *home* position. If the page is in forms mode, the cursor moves to the starting position of the next unprotected field, moving into a following line, when necessary.

Depending on the *Keyboard — Plant HT* and the *Datacom — Plant HT* configuration options, an HT character (an arrow pointing to the right) may be placed on the page when the TAB key is pressed, or when an HT is received from datacom. This character is placed before the cursor is moved.

## TAB LEFT

From Keyboard: Back Tab

From Datacom: none

This command moves the cursor backward to the preceding tab stop; it moves to a previous line, if necessary. If no tabs are set, the cursor moves to the *home* position. If the page is in forms mode, the cursor moves to the first character position of the preceding unprotected field.

## SET CURRENT TAB STOP

From Keyboard: Ctrl Tab

From Datacom: none

This command sets a tab stop in the cursor column. The command only has an effect when the *Tabs* configuration option is set to Variable (refer to the Station Menus in Section 3).

### CLEAR CURRENT TAB STOP

From Keyboard: 


From Datacom: none

This command clears the tab stop in the cursor column. The command only has an effect when the Tabs configuration option is set to Variable.

### REVERSE CURRENT TAB STOP

From Keyboard: 


From Datacom: VT (or ESC .)

This command reverses the set/clear status of the tab stop in the cursor column. When this command is issued from datacom, the *VT Toggles Tab Stop* configuration option must be set to Y before the command will have an effect. The command is only effective when the *Tabs* configuration option is set to Variable.

### CLEAR ALL CURRENT TAB STOPS

From Keyboard: 


From Datacom: ESC # (and FF when the *FF Clears Tabs* option is set to Y)

This command clears all current tab stops, in all columns. The command only has an effect when the *Tabs* configuration option is set to Variable.

## ▶ Page Commands

### NEXT PAGE

From Keyboard: 


From Datacom: none

This command advances the cursor to the page with the next higher number. When the next page is displayed, the display window shifts to display the top line of the new page first. If the *Auto-Home Cursor On Page Change* configuration options is set to Y (the default), the cursor moves to the *home* position of the new page. If the cursor is already on the highest numbered page of the station, page 1 is the next page displayed.

When the command is issued from datacom, the datacom pointer moves to the *home* position of the next page (regardless of the *Auto-Home Cursor On Page Change* setting), and the display window is not affected.

## PREVIOUS PAGE

From Keyboard: Stn Prev Page

From Datacom: none

This command moves the cursor to the previous page (the page with the next lower number). When the previous page is displayed, the display window shifts so that the top line of the new page is the first line displayed. If the *Auto-Home Cursor On Page Change* configuration option is set to Y (the default), the cursor moves to the *home* position of the new page. If the cursor is already on page 1, the next page displayed is the last defined page for the station.

When the command is issued from datacom, the datacom pointer moves to the *home* position of the next page (regardless of the *Auto-Home Cursor On Page Change* setting), and the display window is not affected.

## GO TO PAGE SPECIFIED

From Keyboard:

From Datacom: ESC $ (code)

When this command is issued from datacom, the datacom pointer is moved to the *home* position (if the *Auto-Home Cursor On Page Change* configuration option is set to Y) of the page specified by the "code". The code is the character associated with the desired page number, as shown in Appendix E. For example, to go to page 4, the datacom sequence would be: ESC $ #

## Station Commands

### NEXT STATION

From Keyboard: 


From Datacom: none

This command is used to advance the cursor to the most-recently displayed page of the next station. If the cursor is on a page of the last defined station, it moves to the most-recently displayed page of station 1.

### PREVIOUS STATION

From Keyboard: 


From Datacom: none

This command is used to move the cursor to the most-recently displayed page of a previous station. If the cursor is on a page of station 1, it moves to the most-recently displayed page of the last defined station.

### GO TO STATION n

From Keyboard: 


From Datacom: none

This command is used to move the cursor to the most-recently displayed page of station "n" (where n is from 1 to 4). The user must specify a station that is "enabled" and has at least one display page defined for it (refer to the Buffer Menu).

# COMMANDS AFFECTING DATA ENTRY

The following commands affect the way data is entered on display pages, either from the keyboard or through datacom messages. The commands include those required for entering and existing forms mode and search mode. Forms mode is discussed in Section 2 and Forms Layout commands are detailed in another part of this section.

## Miscellaneous Commands

### ACTIVATE CAPS LOCK

From Keyboard: 


From Datacom: ESC Y

This command locks the keyboard so that letters are entered in upper case only, while the SHIFT key performs its usual function with other keys. While this command is issued, the Caps Lock indicator is lit.

### DEACTIVATE CAPS LOCK

From Keyboard: 


From Datacom: ESC Z

This command unlocks the keyboard so that upper case letters are entered only when the SHIFT key is used. When this command is issued, the Caps Lock indicator is turned off.

If the *Lower Case Allowed* configuration option is set to N, this command has no effect.

### TOGGLE CAPS LOCK

From Keyboard: 


From Datacom: none

This command toggles Caps Lock to activated and deactivated. If the *Lower Case Allowed* configuration option is set to N, this command has no effect.

### PLANT END-OF-TEXT (ETX) ON SCREEN

From Keyboard: 


From Datacom: none

This command places an end-of-text ETX mark on the screen at the cursor position. The cursor then moves to the variable start-of-transmission point mobile home. This allows the user to transmit only data between the mobile home position and the ETX mark.

## EXPAND BLANKS

From Keyboard:

From Datacom: ESC ^ (code)

This command generates a string of blanks. The number of blanks generated is determined by the code, which is a single character from the table in Appendix E.

## PLANT CONTROL CHARACTER ON SCREEN

From Keyboard: Ctrl H (character)

From Datacom: ESC ' (character)

This command plants a control character at the cursor position. The control character is formed by stripping the top three bits off the specified character. From the keyboard, this function may be performed on any character. From datacom, only characters with ASCII codes 20 through 3F (hexadecimal) will be operated on and all others are ignored.

The character is actually very simple to select. For example, to plant an EOT character on the screen, the user enters:

CTRL H D

A control character in column 0 of the ASCII code chart is obtained by using the character from column 2, 4 or 6 of the same row. For control characters in column 1, the user would enter a character from column 3, 5 or 7 of the same row. The ASCII code chart is shown in Appendix A.

# Forms Mode Commands

## ENTER FORMS MODE

From Keyboard: 


From Datacom: ESC W

This command causes the cursor or datacom pointer page to enter forms mode. When the command is issued, the terminal first converts all alternate delimiter characters to true delimiters, and then scans the page to see if any valid unprotected fields exist. If at least one unprotected character is found on the page, then the page is marked in forms mode and the cursor moves to the *forms home* position; the Forms indicator is also lit.

## EXIT FORMS MODE

From Keyboard: 


From Datacom: ESC X (also, at start of a message if *SOH Exits Forms* configuration option is set to Y)

This command causes the cursor or datacom pointer page to exit forms mode. If the page was actually in forms mode, the cursor moves to the *home* position. If the *Forms Exit Clears Page* configuration option is set to Y, the page is also cleared when forms mode is exited from the keyboard.

## TOGGLE FORMS MODE

From Keyboard: 


From Datacom: DC2 (If *DC2 Handling* configuration option is set to Toggle Forms)

If a page is not currently in forms mode, this command performs the **ENTER FORMS MODE** command. If a page is currently in forms mode, the command performs the **EXIT FORMS MODE** command.

## Search Mode Commands

The following commands are used for the search mode. Search mode is a special mode that allows the user to alter characters that are marked with a search character, even characters in protected areas may be altered. This mode is usually used to facilitate locating and correcting errors marked with the search character.

While a station is in search mode, **SHIFT-SKIP TAB** (at the left side of the keyboard) may be used as a skip key. If the page is in forms mode, pressing the skip key moves the cursor to the next occurrence of the search character (default is ":") or to the start of the next unprotected field, whichever comes first. If the station is not in forms mode, pressing the skip key moves the cursor to the next occurrence of the search character, or to the "home" position if there is no search character on the screen. While in search mode, the user may enter any character to replace the search character (even if it is in a protected area), if the search character was reached using the **SKIP** command.

The default search character is defined in the *Initial Search Char* configuration option for the station; this character may be redefined using the **SET SEARCH CHARACTER** command. After a search character is defined and the station is in search mode, the cursor advances to the next occurrence of the search character or to the start of the next unprotected field, whichever comes first.

### ENTER SEARCH MODE

From Keyboard: 


From Datacom: ESC E

This command causes the station to enter search mode and moves the cursor to the first occurrence of the search character, or to the "home" position of the page, whichever comes first.

### EXIT SEARCH MODE

From Keyboard: 


From Datacom: ESC F

This command causes the station to exit search mode and resets the search character to the default character defined in the *Initial Search Char* configuration option.

### SET SEARCH CHARACTER

From Keyboard: Ctrl E

From Datacom: ESC — (n)

This command is used to specify a text character, represented by "n", as the character for which the search is made.

### SKIP

From Keyboard: Shift Skip Tab

From Datacom: none

This command moves the cursor to the next occurrence of the search character. If no search character is found, the cursor moves to the *home* position.

## EDIT COMMANDS

Edit commands alter the data on a page. If an edit command is issued from the keyboard, the cursor page is altered; if the command is issued from datacom, the datacom pointer page is altered. Certain commands also move the cursor or datacom pointer.

## ▶ Character Edit Commands

### INSERT CHARACTER IN LINE

From Keyboard: Line Ins Char

From Datacom: ESC !

This command toggles the insertion of characters on and off. When character insertion is toggled on, the Insert indicator is lit and characters may be inserted before an existing character on a line.

To begin the insertion, the user moves the cursor directly on the character before which new characters will be inserted. If the *Add Blank On Insert* configuration option is set to "Y" when INS CHAR is pressed, the character at the cursor position and all subsequent characters on the line move one space to the right, up to the end of the line, and a blank space appears at the cursor location. Any character shifted right at the right-most edge of the current line is lost. As the character keys are pressed, the new characters appear at the cursor position and the following characters on the line continue to move to the right. When the cursor reaches the end of the line, it continues inserting characters on the next line.

If the *Add Blank On Insert* configuration option is set to "N", then characters at the cursor and to the right of it shift right only when a character key is pressed.

To terminate character insertion, INS CHAR or any function key except CAPS LOCK may be pressed.

On a page that is in forms mode, this command affects left-justified fields only. As new characters are inserted, existing characters move right only to the end of the field. If the *Field Overflow Inhibit* configuration option is set to N, when the cursor reaches the end of the field, it continues inserting characters in the next field.

The ESC ! datacom sequence shifts existing data to the right one space, but does not put the page in insert mode. (Note that text characters that follow do not move existing data.) The datacom sequence may be used to put characters in protected areas. If the page is in forms mode, the movement of data to the right stops at the next field delimiter of any sort (opening or closing).

## INSERT CHARACTER IN PAGE

From Keyboard: 


From Datacom: ESC @

This command is similar to the **INSERT CHARACTER IN LINE** command. It allows characters to be inserted before an existing character, but characters at the end of the line will wrap around to the next line, up to the end of the page. If the page is full, the last character on the page will be lost. When the cursor reaches the end of the page, it wraps to the beginning of the top line, continuing character insertion.

To terminate character insertion, INS CHAR or any function key except CAPS LOCK may be pressed.

On a page that is in forms mode, this command has the same effect as the **INSERT CHARACTER IN LINE** command; character insertion continues up to the end of a field.

The ESC @ datacom sequence is similar to the sequence ESC ! — **INSERT CHARACTER IN LINE.** With ESC @, all existing data to the end of the page move to the right (with wrapping of line boundaries), but the page is not put in insert mode. If the page is in forms mode, data movement stops at the next field delimiter of any type (opening or closing).

## DELETE CHARACTER FROM LINE

From Keyboard: 


From Datacom: ESC %

This command removes characters on a line. To begin removing characters, the user places the cursor directly on the character to be removed. When DEL CHAR is pressed, the character at the cursor position is removed. Characters to the right of the cursor on that line move one space left, creating a blank space at the end of the line.

When a page is in forms mode, the cursor removes characters to its right in a left-justified field; characters move left up to the end of the field, creating a blank space at the end of the field. In a right-justified field, the cursor removes characters to its left; characters to the left of the cursor shift right, creating a blank space at the beginning of the field. If the command is invoked from datacom when the page is in forms mode, characters shift left up to the next field delimiter, without regard to the type of field the cursor is in or the type of delimiter that follows it.

## DELETE CHARACTER FROM PAGE

From Keyboard: 


From Datacom: ESC P

This command is similar to the **DELETE CHARACTER FROM LINE** command. It is used to remove existing characters; however, characters at the beginning of following lines wrap around to a previous line, creating a blank space at the end of the page.

On a page that is in forms mode, this command has the same effect as the **DELETE CHARACTER FROM LINE** command.

## ▶ Line Edit Commands

### ROLL LINES DOWN

From Keyboard: 


From Datacom: ESC T

This command moves all lines of data down one line; the bottom line moves to the top of the page. The cursor, however, does not move. This command has no effect on a page that is in forms mode.

### ROLL LINES UP

From Keyboard: 


From Datacom: ESC S

This command moves all lines of data up one line; the top line moves to the bottom of the page. The cursor, however, does not move. This command has no effect on a page that is in forms mode.

### EXCHANGE LINE DOWN

From Keyboard: 


From Datacom: ESC >

When this command is issued, the line on which the cursor is located changes places with the line below it. The cursor moves down with the current line, retaining its position in the line. If the cursor is at the bottom of the page, the line and cursor move to the top of the page.

### EXCHANGE LINE UP

From Keyboard: 


From Datacom: ESC <

When this command is issued, the line on which the cursor is located changes places with the line above it. The cursor moves up with the current line, retaining its position in the line. If the cursor is at the top of the page, the line and cursor move to the bottom of the page.

### INSERT LINE

From Keyboard: 


From Datacom: ESC L

This command inserts a blank line at the cursor line. The line on which the cursor is located and all of the lines below it move downward. The cursor moves to the beginning of the blank (inserted) line. If there is a line at the bottom of the page, it is lost.

This command has no effect on a page that is in forms mode.

### DELETE LINE

From Keyboard: 


From Datacom: ESC M

This command removes the line that is at the cursor location. The lines below the cursor move up and a blank line is created at the bottom of the page. The cursor moves to the beginning of the line that replaces the deleted line.

This command has no effect on a page that is in forms mode.

### CLEAR TO END OF LINE

From Keyboard: 


From Datacom: ESC K (or DC1, if the *DC1 Handling* configuration option is set to "Clr To EOL")

This command removes data from the cursor to the end of the line. If a page is in forms mode, it removes unprotected data to the end of the field. When the command is issued from the keyboard, erasure occurs to the right in a left-justified field, and to the left in a right-justified field. If the command is issued from datacom, erasure always occurs to the right.

## ▶ Page Edit Commands

### CLEAR TO END OF PAGE

From Keyboard: EOP CLEAR EOL

From Datacom: ESC J

This command removes data from the cursor to the end of the page. On a page that is in forms mode, only unprotected data are removed. If the command is issued from the keyboard, and the cursor is in a right-justified field, it removes all characters in the right-justified field, as well as all unprotected data up to the end of the page.

### CLEAR PAGE

From Keyboard: All Erase Data

From Datacom: FF

This command clears the entire page and moves the cursor to the *home* position. On a page that is in forms mode, only unprotected data are removed.

### EXIT FORMS MODE AND CLEAR PAGE

From Keyboard: Shift + All Erase Data

From Datacom: (at the beginning of a message if the *SOH Clears Page* configuration option is set to Y)

This command causes a page to exit forms mode; it then clears the entire page (including any protected data) and places the cursor in the *home* position.

# VIDEO ATTRIBUTE COMMANDS

One or more of the following attributes may be used to enhance or highlight a field of data:

reverse video (black characters on green or amber)
underlined characters
blinking characters
bright characters
secure (hidden) video

The reverse video feature may be used for the entire screen. The data on the screen may be displayed as black characters on a green or amber background instead of green/amber characters on a black background. Each page has a *page reverse video* flag which determines its reverse video status.

## Combinations of Video Attributes

The beginning of a video attribute is marked using a keyboard or datacom command sequence; the attribute then extends to an end-of-field delimiter or to the end of the line. Fields with different attributes may overlap. When the reverse video is turned on for the entire screen, fields which have already been reversed are converted back to green or amber on black; blinking fields and underlined fields retain their characteristics, but with color reversal.

If a reverse video field begins in the middle of a line, a blinking video field may start at some point in the middle of the reverse video field, making the last portion of the field both reversed and blinking. Underlining may be superimposed on a blinking field or a bright field, and other combinations may be obtained in the same manner.

Each beginning-of-field character occupies a space, even though these characters only appear as blanks on the screen. If a space or other character is entered at the same position as a beginning-of-field character, the field will be cancelled (the beginning-of-field character is overwritten).

## Interaction of Reversed and Secured Fields

The status of the reverse video after a start-of-secure character depends on the previous video status and secure status, as follows:

| Last Video Status* | Last Secure Status | New Video Status* |
|---|---|---|
| Normal | Not Secure | Reversed |
| Reversed | Not Secure | Normal |
| Normal | Secure | Normal |
| Reversed | Secure | Reversed |

**Relative to the screen as a whole*

The relationship is logically formed as: New Video = NOT (Last Video Status XOR Last Secure Status)

The status of the reverse video after a start-of-reverse character, or after a start-of-field with the *Reverse Unprotected Fields* configuration option set to Y, depends only upon the secure status of the previous character, as follows:

| Last Secure Status | New Video Status* |
|---|---|
| Not Secure | Reversed |
| Secure | Normal |

**Relative to the screen as a whole*

The relationship is logically formed as: New Video = NOT Last Secure Status.

## ▶ Reverse Video Page Commands

### TURN ON REVERSE VIDEO (PAGE)

From Keyboard: Ctrl U

From Datacom: ESC N

This command turns the reverse video flag on for the page.

### TURN OFF REVERSE VIDEO (PAGE)

From Keyboard: 


From Datacom: ESC O

This command turns the reverse video flag off for the page.

### TOGGLE REVERSE VIDEO (PAGE)

From Keyboard: 


From Datacom: none

This command toggles the reverse video flag for the page.

## Field Attribute Commands

The commands that follow are used to begin enhanced video fields. These fields end with an end-of-field delimiter, as described under Forms Layout commands. If no end-of-field delimiter is found, the attribute continues to the end of the line.

### BEGIN REVERSE VIDEO (FIELD)

From Keyboard: 


From Datacom: SO

This command begins a reverse video field; it extends until it reaches an end-of-field delimiter or to the end of the line. (Refer also to Interaction of Reversed and Secured Fields, in this section.)

### BEGIN UNDERLINE (FIELD)

From Keyboard: 


From Datacom: SI

This command begins an underline under the displayed data. The underline extends until it reaches an end-of-field delimiter or to the end of the line.

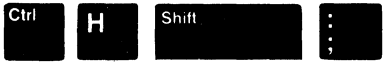
## BEGIN BLINK (FIELD)

From Keyboard: 


From Datacom: CAN

This command causes data beyond the specified position to blink approximately once per second. The blinking video extends until it reaches an end-of-field delimiter or to the end of the line.

## BEGIN BRIGHT (FIELD)

From Keyboard: 


From Datacom: SUB

This command increases the brightness of the data. The bright video extends from the specified position until it reaches an end-of-field delimiter or to the end of the line.

## BEGIN SECURE (FIELD)

From Keyboard: 


From Datacom: EM

This command suppresses the display of data beyond the specified position (although the data are still in the terminal memory). The suppression continues until an end-of-field delimiter or the end of the line is reached. This attribute interacts with the reverse video field attribute, as described under Interaction of Reverse and Secured Fields, in this section.

## END ALL ATTRIBUTES

From Keyboard: 


From Datacom: ETB

When this command is issued from the keyboard or from datacom, it ends all video attributes without affecting forms fields.

# FORMS LAYOUT COMMANDS

The commands described in this section are used to define the protected and unprotected fields for forms mode. If the cursor page is in forms mode, these commands are ignored when entered from the keyboard. These commands may, however, be invoked from datacom while a page is in forms mode; in this case, the page is checked to verify that the form is still valid after any field delimiters are planted. A valid form must contain at least one unprotected field. If the form is no longer valid, the page is taken out of forms mode.

## Use of Alternate Delimiters

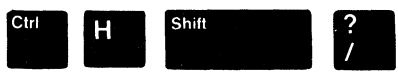
The beginning delimiter and end-of-field delimiter for a left-justified unprotected field may be entered with the use of the following default alternate characters:

left bracket ([) — used for the beginning of left-justified unprotected field delimiter.
right bracket (]) — used as the end-of-field delimiter

These alternate delimiters are simple text characters which are easy to include in an application program on the host computer. The characters may be changed by entering the desired characters in the *Alt Opening Delimiter* and *Alt Closing Delimiter* configuration options. The alternate delimiters are transformed into the standard triangular delimiters when an attempt is made to enter forms mode, whether or not there are valid unprotected fields on the screen.

## Commands

### BEGIN LEFT-JUSTIFIED UNPROTECTED FIELD

From Keyboard: 


From Datacom: US

This command plants an opening left-justified field delimiter at the cursor position. The character is a right-pointing triangle.

### BEGIN RIGHT-JUSTIFIED UNPROTECTED FIELD

From Keyboard: 


From Datacom: GS

This command plants an opening right-justified field delimiter at the cursor position. The character is a triangle.

### BEGIN TRANSMITTABLE PROTECTED FIELD

From Keyboard: 


From Datacom: FS

This command plants an opening transmittable protected field delimiter at the cursor position. When a page is in forms mode, such a field is transmitted along with unprotected data when the user presses XMIT. However, the user cannot change the protected data from the keyboard.

### END FIELD

From Keyboard: 


From Datacom: RS

This command places an end-of-field delimiter at the cursor position. This delimiter is used to end any of the fields indicated above (e.g., to end a left-justified or right-justified unprotected field) and may also be used to terminate video attributes.

## DATA COMMUNICATIONS COMMANDS

The following commands help determine communication with the host system.

### CHANGE TO LOCAL

From Keyboard: 


From Datacom: none

This command forces the station into the local state, regardless of its current datacom state. When the station is configured so that it will not permit keyboard data entry in the receive state, the LOCAL key will still function. However, if a softkey definition is being processed, the station does not go into the local state until the softkey finishes execution.

This command performs the following functions:

1. Puts the station of the current page in local status.
2. Clears any status line messages.
3. Interrupts any message which is currently being sent or received.
4. If the cursor is on a page that is in line monitor mode, the monitor mode is terminated and the page is cleared.
5. Throws away any keystrokes in the *Keyboard Buffer* which are not yet processed.

The keystrokes Shift Local will:

1. End any printing in process (any data not yet printed are discarded).
2. Clear the status line messages Printer Not Ready or Printer Buffer Busy.

## CHANGE TO TRANSMIT

From Keyboard: Xmit

From Datacom: ESC (

This command is used to transmit messages to the host. If the *Single Line Transmit* configuration option is set to N, when this command is issued from the keyboard or from datacom, the station for the cursor page is put in the transmit state, the datacom pointer is moved to the cursor location, and data are copied from the cursor page to the *Datacom Buffer*. When the host polls the station, the data are transmitted.

If data are entered from the keyboard while the cursor and datacom pointer are on the same page and the station is in the transmit state, the message Keyboard Data Lost is displayed on the status line at the bottom of the screen and the keystrokes are ignored.

The data that are transmitted depend on the following factors:

1. Is the page in forms mode?
2. Is the station configured to transmit data only up to the cursor position (*Forms Xmit To Cursor* configuration option)?

3. Is the cursor in the first unprotected ("home") position on the screen? Is it at the beginning of a line (for single-line transmit only)?
4. Is the station in search mode?
5. Has an ETX, HT, or CR character been placed on the screen from datacom or from the keyboard?
6. Is the variable start-of-transmission point (*mobile home*) currently different from the location of physical "home"?

The effects of forms mode, the *Forms Xmit to Cursor* configuration option, and the cursor position are presented in Table 4-1.

If the station is in search mode, all data on the page are transmitted, regardless of forms mode and the factors listed in Table 4-1. The transmission, however, is subject to the effect of the special characters. The variable start-of-transmission point is obeyed in a search mode transmit.

The effects of the special characters are as follows:

ETX: If the ETX character is encountered before transmission has ended, it is the last character transmitted.

When the station is not in search mode, and there is an ETX anywhere on the page being transmitted (either ahead of the cursor or behind it), transmission begins at the cursor and goes forward, instead of beginning at the *home* position. If the ETX is encountered before transmission has ended, it is the last character transmitted. However, no wrapping occurs and the transmission ends at the end of the page being transmitted.

When the station is in search mode and there is an ETX anywhere on the screen, transmission begins at the variable start-of-transmission point and ends at the ETX.

If the ETX is put on the screen using the ETX key, the cursor is automatically positioned at the *mobile home* position. (Refer to the **SET VARIABLE START-OF-TRANSMISSION POINT** command, which follows.) This allows the user to transmit from *home* to the ETX.

CR (From datacom with the *Datacom — Plant CR* configuration option set to Y (or ESC'-)) (From the keyboard CTRL H- or RETURN with the *Keyboard — Plant CR* configuration option set to Y) — If the CR character is encountered in a message that is being transmitted, it is the last character of a line placed in the Datacom Buffer (except ETX).

HT (From datacom with *Datacom — Plant HT* configuration option set to "Y" (or ESC')) (From the keyboard CTRL H) or TAB with the *Keyboard — Plant HT* configuration option set to Y) — If the HT character is encountered before transmission has ended, it is transmitted. Loading of the *Datacom Buffer* skips to the next tab stop position or to the next unprotected field if the page is in forms mode. If other factors end the transmission before the next tab stop or unprotected field, the HT signifies the end of the transmission. If an ETX is encountered while skipping, it terminates the message.

If the station is in search mode, the HT character is processed as a command to skip to the next tab stop, regardless of whether or not the page is in forms mode.

If no tab stops are defined and the page is not in forms mode, the HT is the last character stored in the *Datacom Buffer.*

**Table 4-1. Data Transmission Factors**

| Forms Mode | Forms Xmt To Cursor | Cursor Position | Data Transmitted from Page Being Displayed |
|---|---|---|---|
| NO | (no effect) | after *mobile home* | All data between *mobile home* and last character ahead of cursor. |
| NO | (no effect) | at or before *mobile home* | All data from *mobile home* to end of page. |
| YES | NO | (no effect) | All unprotected data and protected transmittable data. |
| YES | YES | after *mobile home* | All unprotected data between *mobile home* and last character ahead of cursor (if the cursor is in a right-justified field, the transmission stops with the character under the cursor). |
| YES | YES | at or before *mobile home* | All unprotected data from *mobile home* to end of page. |

## SEND ONE LINE FROM PAGE

From Keyboard: Ctrl Return (or Xmit with *Single Line Transmit* configuration option set to Y)

From Datacom: ESC ( (if the *Single Line Transmit* configuration option is set to Y)

If the page is not in forms mode, this command sends data on the cursor line in one of two ways:

1. If the cursor is at the start of the line, all data from the cursor to the end of page are transmitted.

2. If the cursor is not at the start of the line, all data between the start of the line and the last character before the cursor are transmitted.

The effect of this command is subject to the special characters listed under the **CHANGE TO TRANSMIT** command, described in this section.

If the page is in forms mode or search mode, the effect of the command is the same as the ordinary page transmit function.

## SEND NUMERICAL CONTROL MESSAGE

From Keyboard: Ctrl (message code) Xmit

From Datacom: none

This command transmits a message of the following format:

STX ESC (message code) ETX

where the message code is any two digits (using digits 0 through 9). The message has no effect on the data on the screen.

## CHANGE TO RECEIVE

From Keyboard: Rcv

From Datacom: DC1 (If *DC1 Handling* configuration option is set to Stay in Rcv)

This command moves the datacom pointer to the cursor position and marks the station of the cursor page in receive mode. When the host polls the station, it responds that it has no message to send. When the host sends a Select message, the station responds that it is ready to receive a message. Data from the host are written to the display buffer starting at the datacom pointer.

If the *Fast Select Forces Receive* configuration option is set to Y, a Fast Select message is placed at the datacom pointer whether the station is in the receive or transmit state; however, if the station is in the local state, the Fast Select message is placed at the cursor position. A Broadcast Select or Group Select message is always placed at the datacom pointer.

If a page of memory is being used for the line monitor, that page cannot be marked as ready to receive. However, when the *Fast Select Forces Receive* configuration option is set to Y, a Fast Select message will be received and displayed. A Broadcast Select or Group Select message will also be received and displayed. If this happens, line monitor mode is exited first, as if the LOCAL key had been pressed.

When a message is displayed on the screen, the following configuration options affect the display process:

*SOH Clears Page* — If this option is set to Y and the page is in forms mode, the page is cleared and forms mode is exited. The datacom pointer is placed in the "home" position before the message is displayed; otherwise, the message is positioned starting at the current datacom pointer location.

*SOH Exits Forms* — If this option is set to Y and the page is in forms mode, the page will exit from forms mode. The datacom pointer position is not changed by this option before the message is displayed.

Refer to the discussion of the *Fast Fill Screen* configuration option for information on how it affects message receipt (refer to Section 3).

## SET VARIABLE START-OF-TRANSMISSION POINT *(MOBILE HOME)*

From Keyboard: Ctrl Clear Home

From Datacom: ESC D

This command sets the start-of-transmission point, or *mobile home*, to the cursor position. *Mobile home* is set to 1,1 (row 1, column 1, or the *home* position) when the terminal is restarted, and when the position is set with the cursor in the "home" position.

Any position on the screen can be defined as *mobile home*. Once *mobile home* is established and the station is placed in transmit mode, any data between *mobile home* and the cursor are transmitted, depending upon configuration settings and the presence of any ETX characters.

Usually, the *mobile home* feature is only used in datacom functions (i.e., for sending a message) and in the ETX keyboard function. Other functions use the physical *home* position (upper left corner of the page), or *forms home*.

## REPORT CURSOR POSITION

From Keyboard: F17 Spcfy

From Datacom: none

This command sends a message to the host, indicating the current cursor location. The message has the following form:

STX ESC" (location code) ETX

where the *location code* is derived in the same way it is derived for the **POSITION CURSOR** command. If the *Specify Uses Hex* configuration option is set to Y, then a 4-digit hexadecimal value should be used in place of a *location code;* the first two digits indicate a column number and the last two digits indicate a row number.

The *location code* consists of a column code and a row code. The column code is obtained by adding 31 to the cursor column; this value is translated into hexadecimal and is represented by the corresponding ASCII character. The row code is similarly obtained by adding 31 to the cursor row number. In both cases, the number must be translated into the character which represents the numeric value. A complete list of the ASCII characters can be found in Appendix A.

# TERMINAL CONTROL AND STATUS MESSAGES

The commands described in this section are used to redefine the display window, store forms locally, read or set the terminal configuration through a host program, and take care of miscellaneous terminal/keyboard functions such as displaying status messages and datacom error counters, and locking the keyboard.

## ▶ Local Forms Storage

A host program can store a message or portion of a message (such as an entire form) in the terminal and later recall the message as often as desired by use of an escape sequence. This can greatly reduce datacom line traffic and host system overhead.

Such messages or forms are stored in the *Local Forms Buffer* of the terminal memory. Each form has a form ID; this ID is ten characters long and may contain any ASCII non-control characters. The number of forms that may be stored is limited to the amount of space allocated to the *Local Forms Buffer* (refer to the Buffer Menu in section 3). Each form consumes space equal to the form length, plus ten bytes for the ID, plus two bytes of internal overhead.

### STORE FORM IN LOCAL BUFFER

From Keyboard: None

From Datacom: ESC / (ten characters ID) (body of form) ETX

This datacom command stores the specified form in the *Local Forms Buffer.* The body of the form may contain anything that is legal in a datacom message, including escape sequences and control characters. If the entire form does not fit in the buffer, it is removed; no fragments will be stored in the buffer. If another form with the same ID is already stored, the previous form is deleted. The body of the form is not modified in any way in the storing process, except that blanks are compressed internally. The forms are only stored in volatile memory; this means that they are lost when the terminal is powered off or reset.

## STORE FORM IN LOCAL (NON-VOLATILE) BUFFER

From Keyboard: None

From Datacom: ESC RF

This command stores forms which are in the *volatile local forms buffer* in the *non-volatile local forms buffer.* If the *non-volatile buffer* is smaller than the *volatile buffer,* the terminal stores as many forms as possible in the *non-volatile local forms buffer.*

The user may specify the *volatile and non-volatile local forms buffer* sizes in the buffer size menu.

## ACCESS LOCAL FORM

From Keyboard: 

(ten character ID)

From Datacom: ESC \ (ten character ID)

When the terminal receives an ESC \ (ID) datacom message, it searches for the ID in the *Local Forms Buffer.* If the ID is not found, the sequence is ignored. If it is found, the body of the form is interpreted as if it had been included in the datacom message at the position of the ESC (ID) sequence. The datacom message can have other text, escape sequences, and control characters before and after the ESC sequence, all of which are processed normally.

If the *Datacom Buffer* is available for use, the user may enter a CTRL SPACE Z (ID) sequence which actually puts ESC (ID) ETX in the *Datacom Buffer* and it is treated as if it had been received as a datacom message; this allows local forms to be called up directly from the keyboard.

## LIST LOCAL FORM IDS

From Keyboard: 


From Datacom: ESC _

The host system can determine what local forms are resident in a terminal by sending ESC —. The terminal responds by sending:

" (ID1) (ID2) ... (IDn) ETX"

where the message contains all form IDs currently stored.

## Remote Terminal Configuration

The configuration of the AT1183 may be read and/or set by a host program using a scratchpad copy of the current configuration. See Appendix I for the layout of the scratchpad copy of the configuration.

A host program sends the following sequence to determine the current configuration of a terminal:

STX ESC R T aaaabb ETX

aaaa — A starting address of scratchpad memory (hexadecimal).
bb — Length, in bytes (hexadecimal).

In response, the terminal sends a message to the host that contains the configuration stored in the scratchpad, starting at address "aaaa", and continuing for "bb" bytes ("aaaa" and "bb" are in hexadecimal). The message consists of "bb" pairs of hexadecimal digits; each pair represents one byte of configuration memory.

### DATACOM MESSAGES

| Message | Description |
|---|---|
| **ESC R H aaaa bb cc ... cc** | This datacom message is used to write hexadecimal data "cc ... cc" starting at address "aaaa" with a length of "bb" bytes into a scratchpad copy of the current configuration. |

**ESC R A aaaa bb dddd ... dd** This message is like the ESC R H sequence, except that data (dddd ... dd) are treated as ASCII characters rather than pairs of hexadecimal digits. The hexadecimal address is still represented by "aaaa" and "bb" is the hexadecimal number of bytes to write.

**ESC R C** This message copies the scratchpad into the current configuration of the terminal.

**ESC R P** This message copies the scratchpad into both the current configuration and non-volatile (permanent) configuration memory.

If ESC R C or ESC R P are successful (the scratch pad does not contain inconsistent data), the terminal is reset and "******" is sent to the host program. If the escape sequences are not successful, the scratch pad is reinitialized from the current configuration and nothing is sent to the host program.

### SET BUFFER SIZE

From Keyboard:

From Datacom: ESC R B xxx yyy zzz

This datacom command determines the sizes of the *Datacom, Display,* and *Softkey Buffers.* The message contains three 3-character hexadecimal values; when the message is formatted and sent, there should be no spaces between each 3-character value. "xxx" determines the *Datacom Buffer* size; "yyy" determines the *Display Buffer* Size; "zzz" determines the *Softkey Buffer* size.

## ▶ Miscellaneous Commands

### REDEFINE WINDOW

From Keyboard: Ctrl R W "X" "Y" (Where "X" is top window and "Y" is bottom window)

From Datacom: none

This command is used to define the station or stations which will have pages displayed. The desired stations must be *enabled* (see the Buffer Menu). The desired station(s) must be:

1. Legal (in the range of 0-4).
2. Enabled.
3. Compatible (regarding chars/line).
4. Have one or more pages defined (*Data Dest* of Print may have 0).
5. Different (cannot use the same station in both windows).

When the user presses CTRL R W, the following prompts are displayed:

Enter Station #(1-4) For Upper Window — When the user enters a valid (and enabled) station number and presses RETURN, the following prompt is displayed.

Enter Station # For Lower Window (0 If No Lower Window Desired) — To use only one window (the full screen), the user should enter "0" and press RETURN. Otherwise, the user should enter a second station number.

After the user enters the second station number, the terminal checks that conditions 2 through 5, listed above, are satisfactorily met. If any condition is not met, the user is prompted to enter station numbers again. Once the **REDEFINE WINDOW** command is issued, the user must enter acceptable station numbers before the command is exited.

When pages from two stations are displayed at the same time, the cursor will be in the upper window.

As described in Section 2, under Windowing, when two stations are displayed at the same time, the stations must have similar character display formats. A 40 character/line station may be displayed with an 80 character/line station, and a 66 character/line station may be displayed with a 132 character/line station. However, a 66 character/line station cannot be displayed with a 40 character/line station, and a 132 character/line station cannot be displayed with an 80 character/line station.

Display format restrictions also apply when the NEXT STN or PREV STN keys are pressed. While the active window (the cursor is in this window) will change to the next or previous station, the station displayed in the inactive window might also change, but this new station number will vary according to the display format requirements. When NEXT STN is pressed, the terminal attempts to shift the display to the next station. When PREV STN is pressed, the terminal attempts to shift the display to the previous station. When the user specifies the station for the inactive window as the NEXT/PREV STN, the terminal also changes the station displayed in the inactive window.

## SWAP WINDOWS

From Keyboard: 


From Datacom: none

This command moves the cursor to the other station window displayed. For example, if the cursor is in the lower window when the command is issued, it moves into the upper window, changing stations as it moves. The stations remain in their respective windows. The command only has an effect when double window mode is being used.

## WRITE TO FIRST STATUS LINE

From Keyboard: 

(text)

From Datacom: ESC R S (hh) (text)

This command sends a message to the first user status line for the station associated with the keyboard. After the user presses CTRL R S, the subsequent characters will appear on the first user status line as the character keys are pressed. The user status line text ends when any function key is pressed, or when the user enters 80 characters.

When the user displays a page from another station, the status line message for the previous station is stored, and is displayed when a page for that station is again displayed. Each station may have a different message on the first user status line.

When the command is issued from datacom, it also displays a message on the first status line. "hh" represents the total number of characters (in hexadecimal) of the message text. For example, to display "GOOD MORNING!", the following sequence would be sent:

ESCRSODGOOD MORNING!

(The message should begin with STX and end with ETX.) The message starts at column 1 of the status line.

An alternate method may also be used:

ESC R A (nnnn) (hh) (text)

where "nnnn" represents a hexadecimal value in the range 0300 to 034F. The values will vary according to the desired column number; each value represents the simulated starting address for the message. (The value 0300 corresponds to the first position of the status line.)

Therefore, the message:

ESCRA0310ODGOOD MORNING!

would begin at the sixteenth column of the first status line.

## SEND FUNCTION KEY CONTENTS TO PRINTER PORT

From Keyboard: 


From Datacom: NONE

This command allows the user to transmit any character sequence to the printer port WITHOUT appearing on the screen. Always terminate the message to the printer with an EXT character that tells the system to send the message.

## SEND FUNCTION KEY CONTENTS TO DATACOMM

From Keyboard: 


From Datacom: NONE

This command allows the user to send the contents of any function key directly to the datacomm port for transmission to the host. The system uses the address of the currently displayed station as defined in the configuration for the transmission address. All messages must be terminated in the function key definition with an EXT character. This character initiates the XMIT.

## WRITE TO SECOND STATUS LINE

From Keyboard: Ctrl R U (text)

From Datacom: ESC R U (hh) (text)

This command is like the **WRITE TO FIRST STATUS LINE** command, only it displays a message on the second user's status line. Unlike the first status line message, however, only one message is stored and displayed for the second status line. All stations defined for the terminal will display the same message. A maximum of 132 characters may be used.

## WRITE TO THIRD STATUS LINE

From Keyboard: Ctrl R V (text)

From Datacom: ESC R V (hh) (text)

This command is like the WRITE TO FIRST STATUS LINE command, only it displays a message on the third user's status line. Unlike the first status line message, however, only one message is stored and displayed for the third status line. All stations defined for the terminal will display the same message. A maximum of 132 characters may be used.

## DISPLAY DATACOM STATISTICS LOG

From Keyboard: Ctrl R L

From Datacom: none

This command displays the following on the screen: DC nn nn

Each value represents the number of datacom errors which have occurred since the terminal was last restarted. The counters, maintained within the AT1183, range from 0 to 15 (hexadecimal 0F); if more than 15 errors occur, a counter still remains at 15 (hexadecimal 0F). The error counters are cleared when the terminal is restarted.

ERROR CONDITIONS COUNTED IN ERROR LOG

Communications Protocol Errors
A station receives ..
These errors cause ...

Parity Errors
... while receiving ....

BCC Errors

Buffer Overflow
... while receiving ...

## SEND ERROR COUNTER TO HOST

From Keyboard: Ctrl R L

From Datacom: ESC R L

When a station receives this datacom sequence, it responds by sending a message of the following format:

STX hh 00 00 00 00 ETX

where "hh" is an error counter. (The spaces are inserted here for clarity.)

## ENABLE CLOCK DISPLAY

From Keyboard: Ctrl R X

From Datacom: ESC R X

This command displays the time-of-day clock on the last status line.

## DISABLE CLOCK DISPLAY

From Keyboard: Ctrl R Y

From Datacom: ESC R Y

This command removes the time-of-day clock display.

## SET TIME-OF-DAY CLOCK

From Keyboard: Ctrl R Z hh:mm:ss

From Datacom: ESC R Z hh:mm:ss

This command sets the time-of-day clock to hh:mm:ss, where hh is the hour (00-23), mm is minutes, and ss is seconds. Two digits must be used for each value; leading zeros should be used when necessary. An invalid value sets the clock to 00:00:00.

## SET KEYBOARD LOCK

From Keyboard: Ctrl R R

From Datacom: ESC R R

If a Keyboard Lock Password has been specified when this command is issued, then the terminal requests the password before any keyboard input is subsequently accepted. If the Allow Rcv Key If Keyboard Locked option is set to Y, pressing the RCV puts the station in the receive state.

## TOGGLE "BEEP" FLAG

From Keyboard: Ctrl Shift ? /

From Datacom: none

This command toggles the current state of the Beep Flag. This flag determines whether or not an audible alarm will sound under various conditions. If the beep sounds when the user presses CTRL ?, then the Beep Flag has just been toggled ON.

### SOUND AUDIBLE ALARM

From Keyboard: Ctrl R B

From Datacom: ESC ? (or BEL)

When this command is issued from the keyboard, it sounds the audible alarm, regardless of the Beep Flag setting. When the command is issued from datacom, it sounds the audible alarm only if the Beep Flag is set to ON.

### FILL DISPLAY BUFFER WITH E'S

From Keyboard: Ctrl [ ] M

From Datacom: none

This command fills the display buffer for the current station with E's. The command will probably be used when the terminal is being serviced.

### DISPLAY RESIDENT CHARACTER SET

From Keyboard: Ctrl [ ] C

From Datacom: ESC SPACE C

This command displays the character set of the terminal. When the command is issued from the keyboard, the characters are displayed as five lines of 32 characters each, with blanks between the characters, and video attributes suppressed. When the command is issued from datacom, the characters are planted sequentially from the *home* position of the page, but without blanks, and the video attributes are not suppressed.

### DISPLAY FIRMWARE VERSION

From Keyboard: Ctrl [ ] V

From Datacom: ESC SPACE V

When this command is issued from the keyboard, the dated version of the terminal firmware is displayed. When the command is issued from datacom, the terminal responds by sending a message that contains the dated version of its firmware to the requesting host program.

# SECTION 5

# SOFTKEY DEFINITION

5-1

## GENERAL INFORMATION

The user will discover that certain key sequences or messages (transmitted to the host) are used repeatedly. Such operations may be defined as single or coupled keystrokes. These keystrokes are termed *softkeys*. For example, the user may want to store a log-on or sign-on message as a softkey definition.

Up to 76 softkeys may be defined by the user (depending on buffer space). Most of the keys on the keyboard may be used for softkeys, if desired; in addition to defining a key as a softkey by itself, some keys may be defined along with the SHIFT, CTRL, and ALT keys. A softkey may even be defined to call another softkey.

The user may protect softkey definitions by entering a password in the *Softkey Password* and *Softkey Store Password* configuration options of the Security Menu. Then, in order to view, or change and save softkey definitions, the correct passwords are required.

The *Autoexec* feature is also described in this section. This feature is automatically implemented when the terminal is powered on or reset. The feature is intended to handle any procedures that may be required when the terminal is first powered on (such as logging on the host, or loading local forms).

## ENTERING AND EXITING SOFTKEY DEFINITION MODE

The user presses CTRL SPACE L to enter softkey definition mode. If a *Softkey Password* has been defined, the user is prompted for the password. If the password is accepted, the main menu for softkey definition is displayed. This menu contains a list of the currently defined softkeys and includes the following information for each softkey:

1. The name of the defined key.
2. Up to the first 15 characters of the key definition. Special keys appear as question marks, but the character keys appear as themselves. For example, if a softkey is defined as HOME then HELLO,USER1 and XMIT, the following is displayed for the defined key: ?HELLO,USER1?
3. The length of the definition (in bytes), with one extra byte included as a *terminating* byte.

# SOFTKEY DEFINITION



The function key definitions for softkey definition mode and the amount of available temporary *Softkey Buffer* space are also displayed, along with the promt: Enter Key To Redefine.

Two buffers are provided for the storage of softkey definitions and are displayed at the bottom of the screen: a temporary *Softkey Buffer* and a permanent buffer. The temporary *Softkey Buffer* size is defined in the Buffer Menu; when a softkey is defined and the edit is saved, the definition is stored in this *working buffer.* Before exiting softkey definition mode, the user may save the softkey definitions permanently by pressing the F2 key (Permanent Save) while the main menu is displayed. When storing the softkeys, the terminal will list only keys it is able to fit into permanent memory. The user then exits from softkey definition mode by pressing the F1 (Exit) key.

When softkeys are only saved temporarily, the definitions are lost when the terminal is powered off or restarted, and when certain configuration changes cause the terminal to go through a power up sequence. When softkey definitions are saved permanently, however, the definitions are saved whether the terminal is powered off or restarted; the definitions are stored in non-volatile (permanent) memory.

## KEY USAGE

The SHIFT, CTRL, and ALT keys may be used in a softkey definition to modify other keys, but may not be defined themselves; these keys are called *modifier keys* and are described in Section 4. In addition, the CAPS LOCK and LOCAL keys cannot be redefined or used as part of a softkey definition.

The following keys may be used to move the cursor and edit softkey definitions: HOME, up arrow, dn arrow, lf arrow, rt arrow, TAB, BACK TAB, CLEAR EOP, INS CHAR, and DEL CHAR. When SKIP is pressed, blanks are created up to the next tab stop. The NEXT PAGE key moves the cursor to the end of the current softkey definition. The CAPS LOCK key may be used to shift keys.

When the main menu for softkey definition mode is displayed, the F1 through F4 keys have the following uses:

F1 Exit. When exiting from softkey definition mode, softkey definitions will only be stored temporarily unless the user first presses the F2 key (Permanent Save).

F2 Permanent Save. Permanently saves softkey definitions; this means that the softkey definitions are available even when the terminal is powered off or reset. The Permanent Save process is complete when the "Press Any Key to Continue" prompt is displayed.

When F2 is pressed, the terminal stores softkeys using the procedure described under Storing Softkey Definitions Permanently, and then displays the prompt: Press Any Key To Continue. When the user presses a key, the *Enter Key To Redefine* prompt is displayed.

F3 Print Screen. Prints the currently displayed screen on the printer attached to the auxiliary port.

F4 Next Key As Is. This key must be pressed before keys which have special use during softkey definition mode may be entered and defined as softkeys. When the main menu is displayed, F4 must be pressed before the F1 through F4 keys can be defined as softkeys. For example, to define the F2 key as a softkey, the user must press F4 F2 at the Enter Key To Define prompt.

When a softkey is *being defined*, the F4 key must be pressed before any of the following keys: HOME, up arrow, dn arrow, lf arrow, rt arrow, TAB, BACK TAB, CLEAR EOP, INS CHAR, DEL CHAR, SKIP, NEXT PAGE, F1 through F5.

## DEFINING SOFTKEYS

When the softkey definition screen is displayed, the user presses the key(s) which are used in a definition. The terminal displays the key(s) that were pressed, the number of bytes a key occupies in the *Softkey Buffer*, and the number of bytes available in the temporary *Softkey Buffer*. The current key definition is also displayed on the screen. As the user enters the new definition, the old definition is overwritten on the screen.

For example: the F1 key is defined to perform the operations HOME, CLEAR EOP, enter the letters AT1183, and RETURN. The keystrokes are displayed on the screen when the user presses the indicated keys. (F4 must be pressed before HOME and CLEAR EOP.)

While the user is defininig a softkey, the F1 through F5 keys have the following special uses:

F1 Quit This Edit. Allows the user to abandon the current softkey definition. In this case, any changes to the current softkey are not saved, and the previous definition of the key (if any) si restored. The user is returned to the Enter Key To Redefine prompt.

F2 Save This Edit. Saves the current softkey definition before returning to the Enter Key To Redefine prompt. Since this saves the definition only temporarily, the user will want to decide whether or not the definition should be permanently saved before exiting from softkey definition mode.

F3 Print Screen. Prints the currently displayed softkey definition on the printer attached to the auxiliary port.

F4 Next Key As Is. This key must be pressed before the keys which have special use during softkey definition mode may be entered as part of a definition. This includes the following keys: HOME, up arrow, dn arrow, lf arrow, rt arrow, TAB, BACK TAB, CLEAR EOP, INS CHAR, DEL CHAR, SKIP, NEXT PAGE, F1 through F5.

F5 Call a Softkey. When this key is pressed, {Call} appears as part of the softkey definition. This causes the softkey to call the next key. For example, if the user presses F5 F10, then {Call}{F10} is displayed, indicating that the F10 key will be called and its definition performed.

This feature extends the use of a softkey without using additional Softkey Buffer space. (For further information, refer to Softkey Calling, in this section.)

Each key is represented by an abbreviation, as shown in Table 5-1. These abbreviations appear in bright reversed video, and are enclosed in braces.

## SOFTKEY CALLING

If the "Call a Softkey" function is used in a softkey definition, only the "Call" function and the key to be called are stored as part of the calling key's definition. If the user presses the calling key after exiting softkey definition mode, the softkey definition is processed normally until the "Call" function is encountered. At that point, the called softkey definition is processed as if it had just been pressed. After the called softkey definition has been processed, the terminal resumes processing of the calling softkey.

For example:

F7 contains: This is a {Call} {F9} day!
F9 contains: GREAT

When F7 is pressed, This is a GREAT day!, is displayed on the screen.

A called softkey may also call another softkey; this is called **NESTING** softkeys. At any moment, the AT1183 can keep track of up to 10 levels of nesting. If a softkey call would require more than 10 levels, Softkey Call Limit is displayed on the status line and the call is ignored. Softkey loops should also be avoided when "calls" are used. An example of this dreadful situation would be if the F9 key, in the previous example, instead contained "GREAT {Call} {F7}" thus establishing an infinite loop. THIS SITUATION CAN CAUSE PROBLEMS.

**Table 5-1. Softkey Definition Screen Abbreviations**

| Key | Abbreviation |
|---|---|
| ALIGN | {Algn} |
| Autoexec Function * | {AutoX} |
| BACK TAB | {BTab} |
| CHAR INS | {ICLn} |
| CHAR DEL | {DCLn} |
| CLEAR | {Clr} |
| CLEAR EOL | {CEol} |
| CLEAR EOP | {CEop} |
| CTRL CHAR DEL | {DCPg} |
| CTRL CHAR INS | {ICPg} |
| CTRL ETX | {DEL} |
| CTRL GS | {FS} |
| DN ARROW | {Down} |
| ERASE DATA | {ErsD} |
| ERASE ALL | {ErAl} |
| ESC | {ESC} |
| ETX | {ETX} |
| F1 - F14 | {F1} - {F14} |
| FORMS | {Form} |
| GS | {GS} |
| HELP | {Help} |
| HOME | {Home} |
| LF ARROW | {Left} |
| LINE INS | {ILn} |
| LINE DEL | {DLn} |
| LINE XMIT | {LXmit} |
| NEXT PAGE | {NxPg} |

**Table 5-1. Softkey Definition Screen Abbreviations (Continued)**

| Key | Abbreviation |
|---|---|
| NEXT STN | {NxStn} |
| PREV PAGE | {PrPg} |
| PREV STN | {PrStn} |
| PRINT | {PrDt} |
| RCV | {Rcv} |
| RETURN | {Ret} |
| REV | {Rev} |
| RT ARROW | {Rght} |
| SCROLL UP | {ScUp} |
| SCROLL DOWN | {ScDn} |
| SHIFT-PRINT (print unprotected data) | {PrAl} |
| SKIP | {Skip} |
| Softkey Call* | {Call} |
| SPECIFY | {Spfy} |
| TAB | {Tab} |
| UP ARROW | {Up} |
| XMIT | {Xmit} |
| Numeric Pad 0 - 9 | {n0} - {n9} |
| Numeric Pad - | {n-} |
| Numeric Pad | {n.} |
| Numeric Pad BACK TAB | {nBTab} |
| Numeric Pad TAB | {nTab} |

* Not an actual key.

The CTRL, ALT, and SHIFT keys are used to modify other keys, and do not in themselves have an abbreviation on the softkey definition screen. The abbreviation of a key which is entered after CTRL is pressed, is preceded by "C-"; the SHIFTed version of a key is preceded by "S-"; and the ALTered version of a key is preceded by "A-". For example, ALT-F5 is displayed as {A-F5}. The ALT key can only modify the function keys.

## ERROR MESSAGES

When the user is defining softkeys, one of the following error messages may be displayed.

| | |
|---|---|
| Softkey Table Full | The user has attempted to define more than 76 softkeys. |
| Softkey Too Big | The current softkey definition requires too many bytes or will not fit on the screen. Perhaps, a "call" to another softkey could be used to accommodate the definition. |

## RESTORING ORIGINAL DEFINITIONS

The user may restore the original function of a key by entering its own key code in place of another definition. The original function of the key is not restored through an *empty* key definition; instead, the key is deactivated.

For example, if the HOME key has been redefined as a softkey, the user should remove the current definition, and then press F4 HOME (the F4 key only needs to be pressed before certain keys). When the list of softkeys is displayed, the HOME key will not appear as a defined softkey.

## RESTORING PERMANENT DEFINITIONS

The user may restore permanent softkey definitions by pressing CTRL SPACE D; this key sequence also restores permanent configuration settings (overwriting any temporarily saved settings). The permanent softkey definitions overwrite any temporary softkey definitions. Permanent softkey definitions are restored when an ESC SPACE D message is sent from datacom.

## SAVING SOFTKEY DEFINITIONS PERMANENTLY

When the user defines a softkey, the definition is only stored temporarily. The softkey definitions may, however, be stored in non-volatile memory so that they are retained when the terminal is turned off and on again, or reset. To do this, the F2 key (Permanent Save) must be pressed when the Enter Key To Redefine prompt is displayed. The number of softkey characters stored depends on the size of the non-volatile softkey buffer (default is 4000 bytes or 4000 characters); this buffer size is defined in the Buffer Size Menu. If a *Softkey Store Password* is defined, the user is prompted for the password before the current definitions are permanently stored.

# SOFTKEY DEFINITION



The procedure for storing softkey definitions in non-volatile memory is as follows:

1. One softkey at a time is selected to see if it can fit into the available space. The first softkey listed in the softkey definition screen is the first key tested. Testing proceeds in consecutive order to the end of the softkey list displayed in the main menu.

2. The amount of space that a given key takes up in non-volatile memory is set by the following formula:

   Number of keystrokes in the definition (this total is shown as the softkey's length on the definition screen, and is the amount of space taken up by the softkey in the *Softkey Buffer.*

   + 1 (For the "terminating" byte.)

   = Total space taken by the given softkey in non-volatile memory

3. If the total space calcualted fits into the space available in non-volatile memory, the softkey is stored and the next softkey is selected for testing at step 1.

4. If the softkey is too big, it is not saved. The next softkey is then selected for testing at step 1.

When the terminal has finished storing softkey definitions, a list of all keys that were successfully stored in non-volatile memory is displayed and the user is prompted to *press any key to continue.* When a key is pressed, the list of all currently defined keys is displayed and the user is again prompted to define a key.

# DEFINING SOFTKEYS FROM DATACOM

Host programs may also define softkeys for the AT1183. This is done through the following message command sequence:

ESC R K hhh (key code list)

hhh — This represents a 3-digit hexadecimal number indicating the number of key codes in the key code list that follows.

(key code list) — This is a list of the codes (in hexadecimal) for all of the keys used to define the softkey, beginning with the code for the key which is being defined. A diagram showing the code for each key is given in Appendix D.

The key definition is added to the temporary *Softkey Buffer*, if there is room. The softkey definition from datacom replaces the current (temporary) definition of the key, and replaces the definition of the key as itself. This temporary definition does not, however, replace a permanently saved softkey definition.

For example, to define the F1 key as a softkey consisting of HOME, HELLO and XMIT, the following sequence would be entered through datacom:

ESC R K 008 E1 84 48 45 4C 4C 4F 8A

"008" indicates the number of keystrokes that will follow. The spaces are inserted in the sequence for clarity; after the ESC character, the actual sequence is RK008E18448454C4C4F8A. (The message should begin with an STX and end with ETX.) As shown in Appendix D, the codes have the following meanings:

| | |
|---|---|
| E1 | F1 |
| 84 | HOME |
| 48 | H |
| 45 | E |
| 4C | L |
| 4C | L |
| 4F | O |
| 8A | XMIT |

This method of softkey loading is compatible with the Burroughs SR 100/SR 110 terminals and the Visual 383 terminal, but incompatible with the Burroughs TD 830, MT 983, and ET 1100 terminals. The user can specify the method used to store softkey definitions by setting the *Softkey Load Style* configuration option (in Station Menus) to either Single or Multiple. If Single is entered in the configuration option, the method described above is used to store softkeys. If Multiple is entered in the configuration option, the method of handling the ESC R K sequence is changed to match that used by the Burroughs ET 1100 terminal. **MULTIPLE** differs from the **SINGLE** method of softkey loading in the following ways:

1. In the Multiple style, when ESC R K is encountered in a datacom message, all softkeys in the temporary *Softkey Buffer* are removed. The Single style allows discrete programming of individual keys, without removing any existing softkeys.

2. In the Multiple style, the ESC R K sequence may define more than one softkey. In fact, because the sequence removes temporary softkey definitions all softkey definitions must be loaded using one ESC R K sequence. The Single style loads only one key per each ESC R K sequence.

3. The key codes in the *key code list* are mapped (as closely as possible) from the Burroughs ET 1100 key codes to AT1183 key codes (see Appendix D). The *key code list* portion of the sequence is structured as follows:

   <key><definition>*<key><definition>*<key><definition>**

   <key> — is the 2-digit key code of a key being defined. As is true of the Burroughs software, the key code is ignored by the terminal and the definitions are assigned to function keys, beginning with F1 through F10 and continuing with SHIFT-F1 through SHIFT-F10. The Multiple style allows 20 softkeys to be defined through a datacom message. The Single style allows the entire keyboard to be programmed.*

   <definition> — is a list of the 2-digit key codes defining the <key>.
   * — is the 2-digit key code A9 (the code for the LOCAL key). A9 A9 terminates the sequence.

Note that the 3-digit key code count which follows ESC R K is the count of all key codes up to and including the A9 that terminates the sequence.

## SOFTKEY UPLOADING

A host program may obtain the terminal's softkey definitions so that the definitions may be stored for downloading. Two different escape sequence messages are used to do this: ESC R ( allows the host to determine which softkey definitions have changed, and ESC R ) hh is used to upload a softkey definition.

When the AT1183 receives an ESC R ( command sequence, the terminal responds by transmitting a message containing the key codes for all keys that have been redefined. For example, if keys F8, HOME, and RETURN have been redefined, then the following messge would be sent to the host program:

STX E8 84 EB ETX

The spaces are inserted in the example for clarity.

*except LOCAL, CTRL and SHIFT keys

When the AT1183 receives an ESC R ) hh command sequence ("hh" is a 2-digit key code), it responds by transmitting a message which contains the softkey definition of the key code "hh". For example, if the F1 key (key code E1) has been defined to consist of HOME, HELLO and XMIT, then when the host sends the message ESC R ) E1 (with no spaces in the actual message), the terminal responds by sending:

STX ESC R K 008 E1 84 48 45 4C 4C 4F 8A ETX

A host program could read a terminal's softkey definition and store it for downloading. The program would send an ESC R ( message to the station to determine which keys are newly defined. (This list only includes newly defined softkeys; therefore, the program will not be able to determine which softkey definitions have changed without uploading all current definitions.) The program may use the list to obtain the new softkey definitions. These definitions may be stored by the program and downloaded at a later time (refer to Defining Keys From Datacom, in this section).

This feature is also useful for programs that define softkeys for users accessing the software. When a user finishes using the program, the keys may then be redefined to the user's definitions.

## SUGGESTED SOFTKEYS

The F1 through F14 keys may be defined in three different levels: each key by itself, and each key with the SHIFT, and ALT keys. The following keys may also be used without eliminating access to any terminal function:

- Any numeric pad keys: these keys may also be redefined along with SHIFT.
- Any alphabetic key along with CTRL.
- Any numeric key on the typewriter keyboard along with CTRL.

## THE AUTOEXEC FEATURE

When the user has defined a sequence of keystrokes for the Autoexec feature, the keystrokes are executed when the terminal is powered on or restarted (CTRL space D), and when certain configuration changes are made that require the terminal to go through a power-up sequence.

To enter autoexec edit mode, the user presses CTRL SPACE A. If an *Autoexec Edit Password* is defined, the user is prompted for the password before the terminal enters autoexec edit mode.

Once the terminal is in autoexec edit mode, the cursor movement keys and editing keystrokes are the same as those used for editing softkey definitions. The F1 through F5 function keys are also similar to those used during softkey definition mode.

F1 — Quit This Edit.
F2 — Save This Edit. (A permanent save.)
F3 — Print Screen.
F4 — Next Key As Is.
F5 — Call A Softkey.

In the event that an Autoexec definition prevents the terminal from completing a power-up sequence, or prevents it from restarting, the user should press the LOCAL key and restart the power-up sequence, holding the key down until the terminal completes its power-up sequence. The LOCAL key is used as a bypass to the Autoexec feature.

# SECTION 6

# COMMUNICATIONS

6-1

## GENERAL INFORMATION

This section contains information concerning the electrical interfaces for the AT1183 and describes use of the terminal's line monitor mode. Diagrams of the Burroughs Poll/Select Protocol are also provided.

## ELECTRICAL INTERFACES

The AT1183 may be configured for either the EIA RS232-C or the Burroughs TDI (Two-Wire Direct) interface by the setting of a set of switches located at the back of the terminal base. If the terminal will be concatenated to other terminals, the RS232 switch settings should be used. (Refer to Section 1, Installation, for information on the switch settings.) Table 6-1 shows the pin configuration of the RS232-C line and Table 6-2 shows the pin configuration of the TDI line.

**Table 6-1. RS232-C Pin Configuration**

| Pin No. | RS232 Signal Name | Signal Definition |
|---|---|---|
| 1 | AA | Frame Ground |
| 2 | BA | Transmit Data |
| 3 | BB | Receive Data |
| 4 | CA | Request to Send |
| 5 | CB | Clear to Send |
| 6 | CC | Data Set Ready |
| 7 | AB | Signal Ground |
| 8 | CF | Carrier Detect |
| 15 | DB | Transmit Clock (synchronous transmission) |
| 17 | DD | Receive Clock (synchronous transmission) |
| 20 | CD | Data Terminal Ready |

**Table 6-2. TDI Pin Configuration**

| Pin No. | TDI Signal Definiton |
|---|---|
| 1 | Frame Ground |
| 2 | Transmit and Receive Data |
| 7 | Signal Ground |

## WORD LENGTH AND PARITY

If the terminal is configured for asynchronous communication, even parity and 7 data bits are used. If it is configured for synchronous communication, odd parity and 7 data bits are used.

## BURROUGHS POLL/SELECT PROTOCOL

The AT1183 interfaces with Burroughs equipment using the Burroughs Poll/Select protocol; this includes the poll, select, fast select, broadcast select, group select, contention, and group poll components of the protocol. Figures 6-1 through 6-6 are provided to diagram these interfaces. This information will be of assistance to the user when the AT1183 Line Monitor feture is being used.

The following notations are used in the diagrams:

ad1 — This is the first character of a station's address.
ad2 — This is the second character of a station's address.
[xmn] — Indicates an optional transmission number.
bcc — A parity check character, referred to as a block check character.

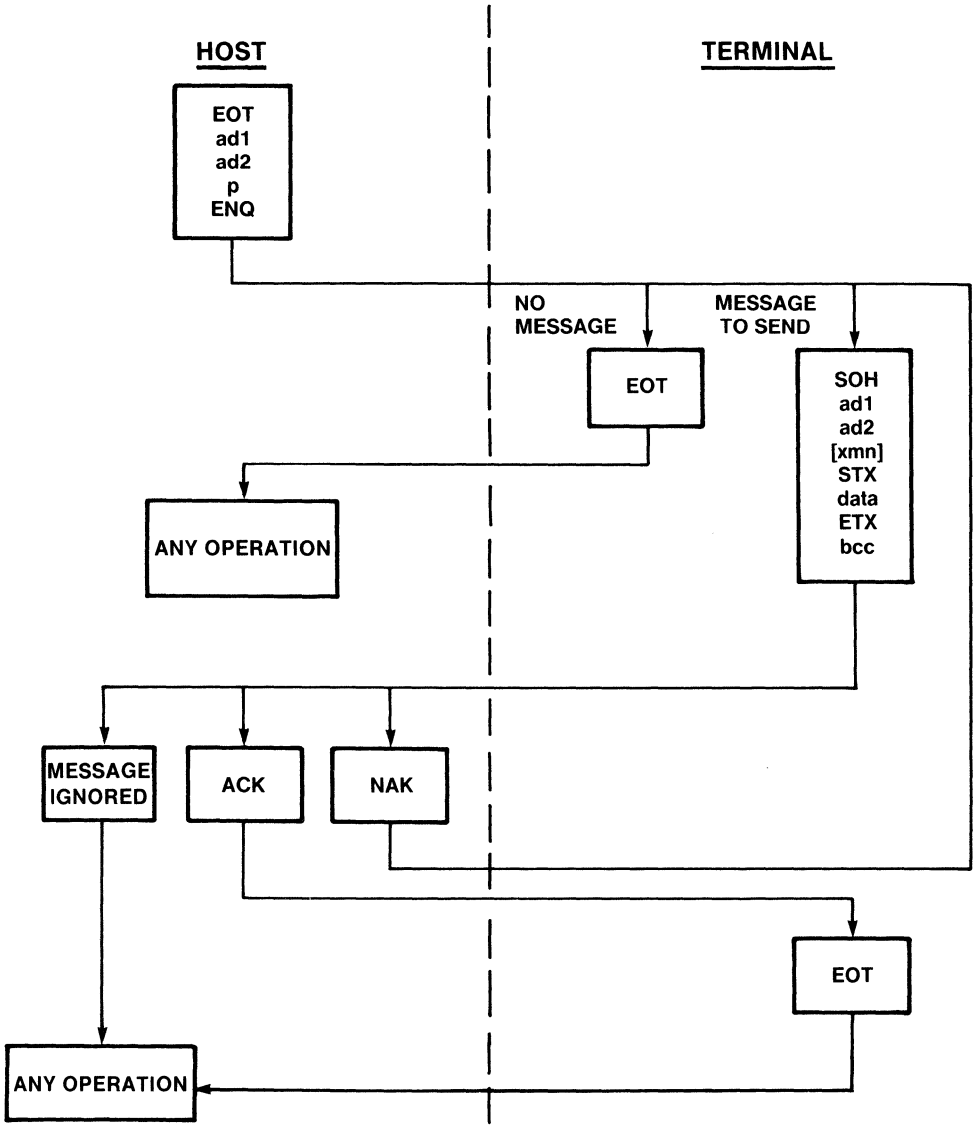



Figure 6-1. Poll

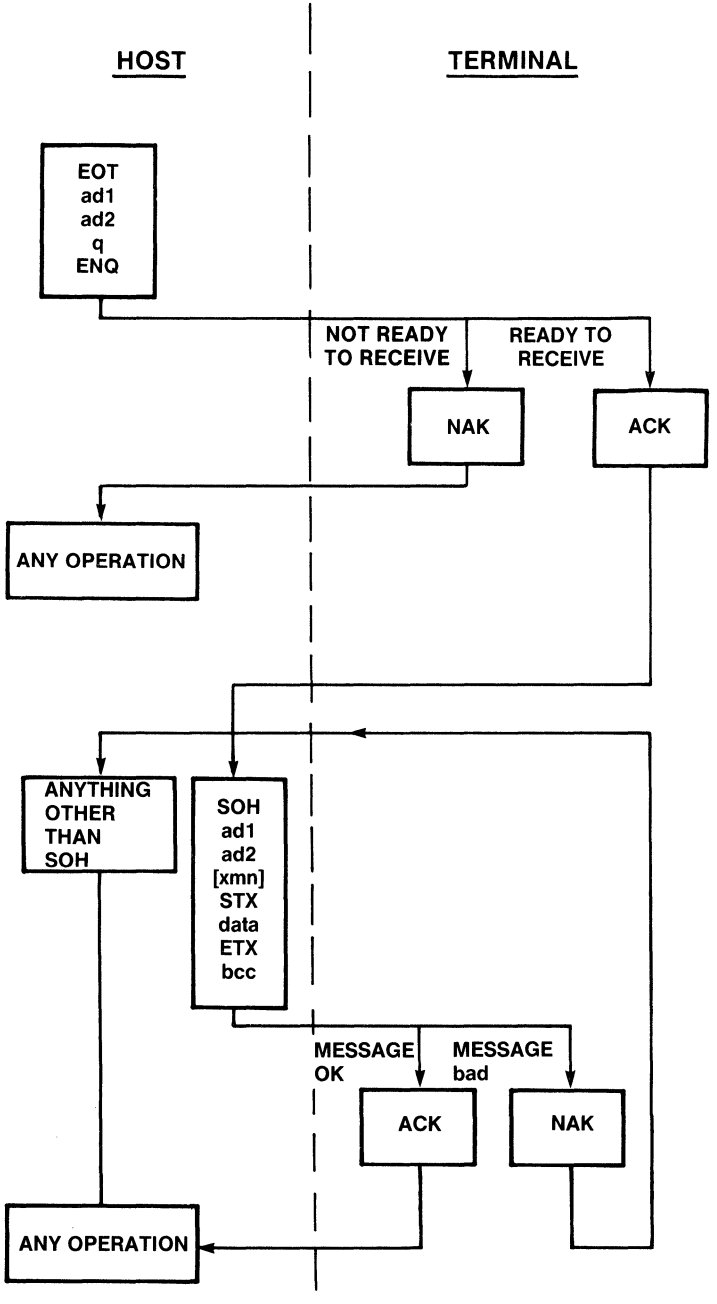
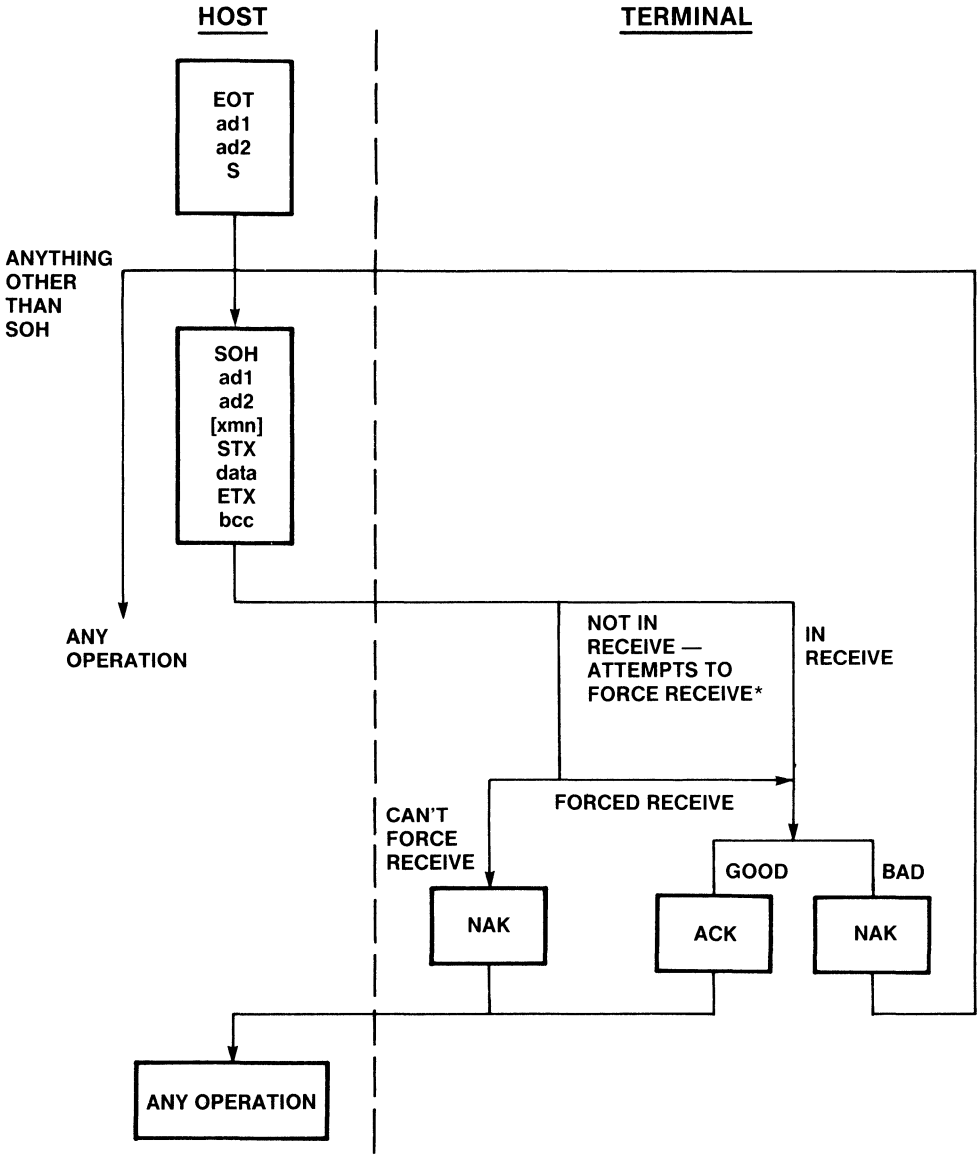



**Figure 6-2. Select**




*Refer to the "FAST SELECT FORCE RECEIVE" section under "TERMINAL CONFIGURATION".

**Figure 6-3. Fast Select**

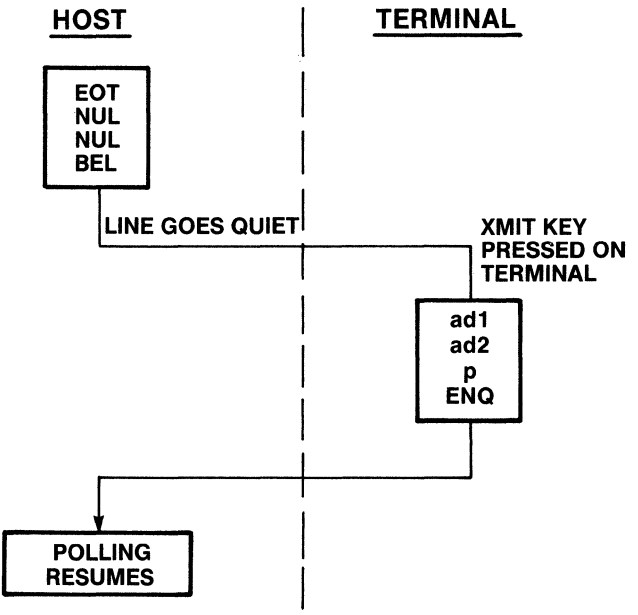



**Figure 6-4. Contention**

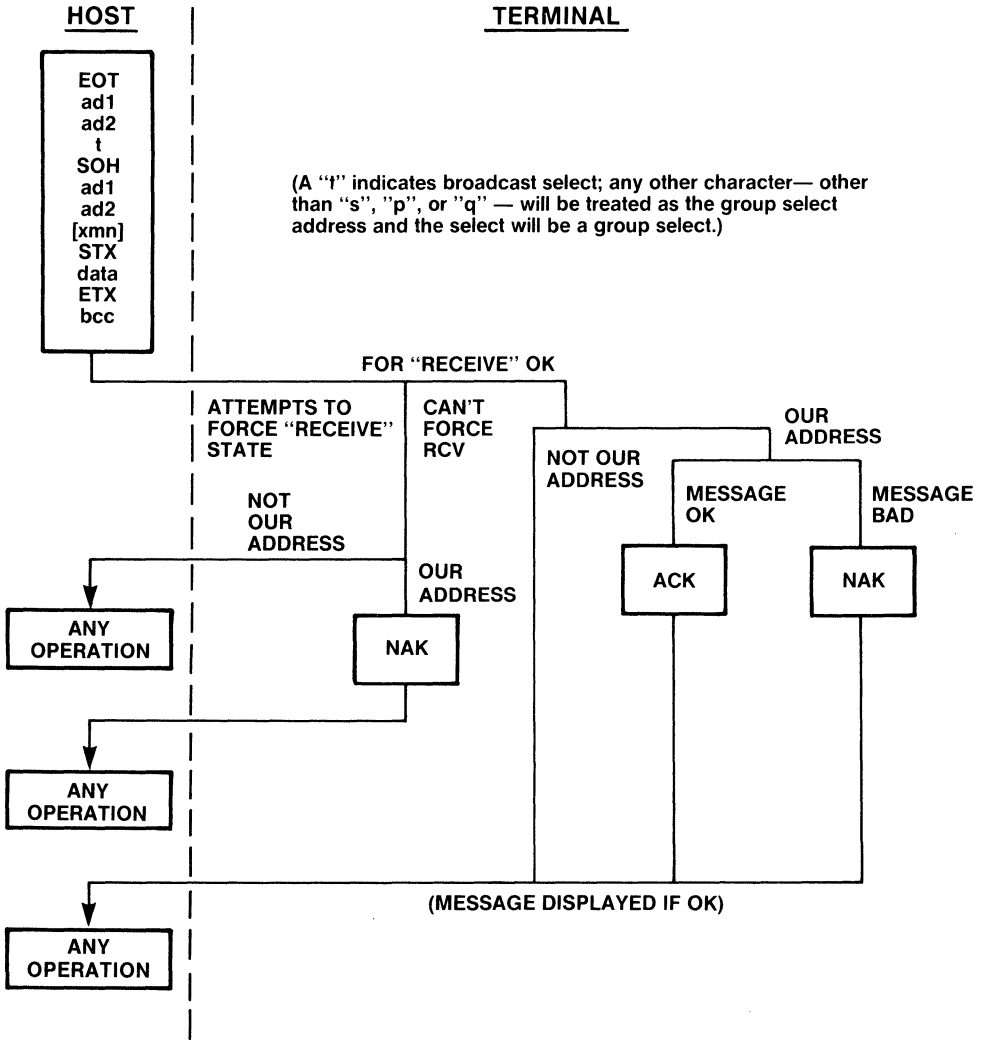



**Figure 6-5. Broadcast Select/Group Select**

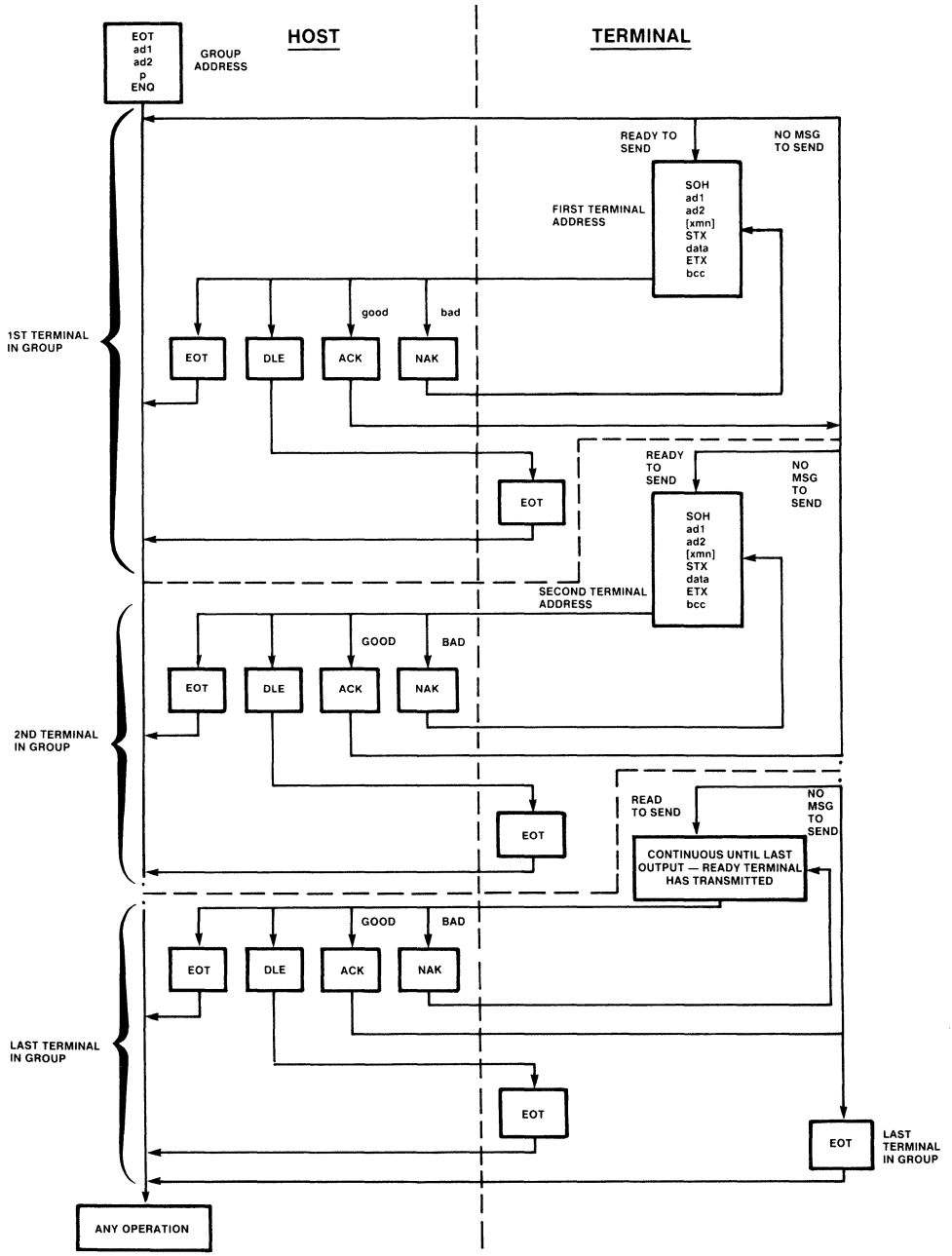



**Figure 6-6. Group Poll**

# LINE MONITOR MODE

The AT1183 allows the user to view line activity by use of the terminal's line monitor mode. The line monitor is a useful substitute for expensive, special-purpose line monitors. The monitor is a continuous display on a page of the terminal, whether the page is displayed or not. The line monitor mode may be enabled for any one page of display memory, and the use of this mode may be restricted by a password. The user may want to use double window mode to display the line monitor in one window, while continuing work on another station.

If the terminal is on a TDI line, all line activity for all terminals on the line can be monitored. If it is on an RS232 line, all the characters sent to and from the terminal, as well as all characters sent to other terminals on the line may be monitored; however, messages sent from other terminals on the line to the host will not be seen.

Control characters in the line monitor mode are displayed as small, double-character mnemonic symbols (refer to Appendix C for examples). Characters are placed in a 256-byte buffer before being passed from the datacom firmware to the line monitor display firmware. If this buffer overflows, a *beep* sounds to warn the user that some characters have been lost Characters received with errors (parity, framing, or overrun) are displayed in reverse video.

The terminal does not display field attributes (underlining, blinking, bright, secure, and reversed video) on the page that is in line monitor mode. This ensures that the output of the line monitor is readable.

## ▶ Entering and Exiting Line Monitor Mode

Before entering line monitor mode, the user selects a page of display memory to be used for the line monitor display. The line monitor will not display on a station that uses double wide characters (40 or 66 characs/line). Then the user presses CTRL SPACE R to enter line monitor mode. If a *Line Monitor Password* is defined, the user is prompted for the password. When the password is accepted, the page is cleared and line monitor characters are displayed, beginning in the upper left corner of the page. Characters are displayed from left to right across a line and begin at the left edge of the next line when a line is full. When the last line is full, the display begins again at the first line.

The line monitor mode is terminated when the user presses LOCAL while the cursor is on the line moitor page.

It is possible to "window" the line monitor page.

## Restricted Keys

Most keyboard functions are disabled while the cursor is on the page in line monitor mode. The only keys that function are:

| | |
|---|---|
| LOCAL | Turns off line monitor mode. |
| NEXT PAGE | Moves the cursor to the next page of display memory. |
| PREV PAGE | Moves the cursor to the previous page of display memory. |
| NEXT STN | Moves the cursor to a page of the next station. |
| PREV STN | Moves the cursor to a page of the previous station. |
| CLEAR | Clears the page and restarts the line monitor. |
| HOME | Also clears the page and restarts the line monitor. |

ALL ERASE DATA clears the page and restarts the line monitor. Any other key acts as a toggle to temporarily suspend the line monitor display or resume it. When a key is pressed, the cursor is positioned immediately after the most recently displayed character. The display resumes when a key is pressed again. While the line monitor is running, the cursor character is suppressed.

## Continuous Use of the Line Monitor

The user may leave the line monitor running on one page, and use the other pages of display memory for other functions. In this way, the line monitor is used to continuously monitor communication between the AT1183 station(s) and the host. Although data cannot be transmitted from or received on the page that is in line monitor mode, its use does not suspend any functions for the other pages.

The line monitor mode is terminated when the following occurs:

1. If the station which is in line monitor mode receives a Broadcast Select or Group Select message while the datacom pointer is on the line monitor page, the line monitor mode is terminated and the page is cleared before the message is displayed.

2. When the user enters configuration mode or softkey definition mode, the line monitor is turned off. This happens regardless of which page the monitor is on.

## Line Monitor Print Features

The AT1183 is capable of printing the line monitor screen to aid in the troubleshooting of complex data communication problems. When the user is in the line monitor mode, and the line monitor screen is the currently displayed screen, press the "PRINT" key.

All control characters are replaced by a two character abbreviation surrounded by "<" and ">". All spaces are printed as "underscores" to facilitate the counting of characters.

This print function will "unwrap" the screen by printing the oldest data first. This print function will only print what is on the screen at the time the "PRINT" key is depressed. Therefore, it is recommended that the user utilize the 132 column mode if there is a need to print the line monitor. This will give the user approximately 4000 characters of printable data.

# SECTION 7

# THE AUXILIARY PORT

7-1

## GENERAL INFORMATION

A printer or input device may be attached to the terminal through the connector marked "AUX PORT" at the back of the terminal base (see Figure 7-1). The user may print data from a display screen using a print command, and the host may send data to be printed on the printer. Host data intended for the printer passes through the terminal even though the printer's address is polled and selected independently. This allows the printer to print data while the terminal is used for a totally unrelated function. If the *Data Destination* configuration option for a station is set to Printer, data are passed directly to the printer rather than being displayed on the screen. The text portion of printer messages is passed to the printer in the same form as it is received. (For information on printer options, refer to Section 3, Print Menu.)

Once options in the Print Menu have been properly defined, the user will only need to be sure that the printer is properly attached to the terminal, and that both printer and terminal are turned on in order for the printer to receive print messages. The print buffer provides temporary storage for print messages, allowing the printer address to remain in receive mode rather than local mode.

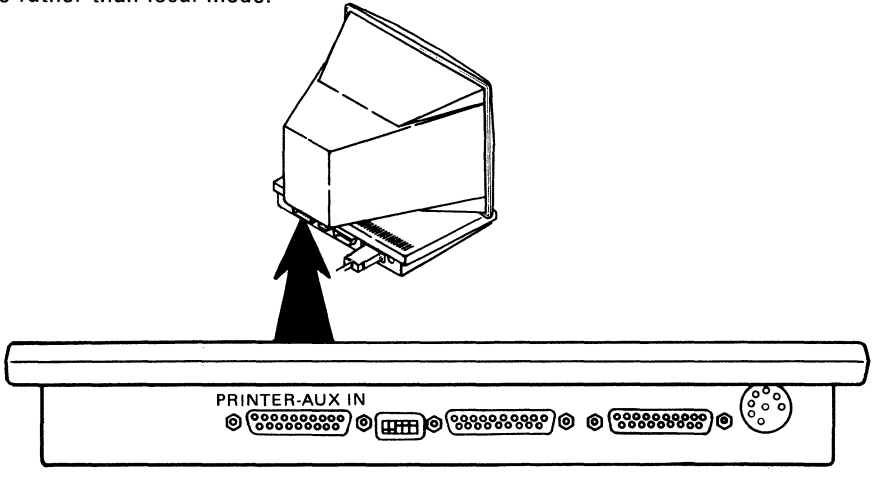



**Figure 7-1. The Auxiliary Port**

## PRINTER COMMUNICATION

The following types of handshaking are available for the printer interface. The pin signals may be used to regulate transmittal of data from a station to the printer, preventing the terminal from sending data to the printer faster than the data can be accepted.

Printer Busy — If the *Busy Handshake* configuration option is set to Y, pin 4 of the printer interface is used to sense a *busy* signal from the printer. This signal indicates to the terminal that the printer is currently printing data and cannot yet accept additional data. The terminal does not attempt to send data to the printer again until the *busy* signal is turned off. The *Busy Signal Sense* configuration option allows the terminal to work with printers that have either sense of the signal (true = busy, or true = not busy).

Printer Ready — Pin 20 of the printer interface is used to sense a *ready* signal from the printer. Unlike the *busy* signal which indicates that the printer is only temporarily unable to accept additional data, the *not ready* signal indicates an error condition which requires user intervention (e.g., the printer is off-line or out of paper, there is a paper jam).

When the terminal has data to print and there is a *not ready* signal, *Printer Not Ready* is displayed on a status line to warn the user that the printer requires attention. This status line message is re-displayed every ten seconds and is discontinued only when the printer indicates that it is ready, or when SHIFT-LOCAL is pressed to reset the print section of the terminal.

XON/XOFF — If the *Input Pin Usage* configuration option is set to XON/XOFF, then pin 2 of the interface may be used to receive characters from the printer that turn off and turn on data transmission to the printer.

Characters received from the printer are scanned for the configured XOFF character (default is DC3) to disable transmission, and for the configured XON character (default is DC1) to enable transmission. When the terminal is powered on or reset, transmission to the printer is initially enabled.

All configured handshakes must permit transmission before the terminal may send a character to the printer. For example, if both *busy* and *XON/XOFF* are configured, the pin signals would have the following results:

| Busy Pin | Receive Data | Transmit Data |
|---|---|---|
| off | | printing |
| on | | idle |
| on | XOFF | idle |
| off | | idle |
| off | XON | printing |

## AUXILIARY INPUT

When the "Input Pin Usage" configuration option is set to Aux Input, the auxiliary port may be used for asynchronous RS232 input to a station.

The terminal checks that each character received through the auxiliary port has the correct parity and framing. If parity or framing is incorrect, or there are overrun errors, the character is ignored. If the *Ignore Rcv Parity* configuration is set to Y, parity is not checked. Each character is then checked to determine if it matches the *Xmit Char For Aux In*; if so, a XMIT key code (8A) is placed in the *Auxiliary Input Buffer.* The terminal then checks for ASCII control characters (00 - 1F hex). When a character is not a control character, it is immediately placed in the *Auxiliary Input Buffer* (the buffer size is defined in the Buffer Menu). When a character is a control character, it is mapped to a key code, as follows:

| Character | Hex Code | Key Code |
|---|---|---|
| BS | 08 | 81 — lf arrow |
| HT | 09 | E9 — TAB |
| LF | 0A | 80 — dn arrow |
| FF | 0C | 99 — ERASE ALL |
| CR | 0D | EB — RETURN |

All other control characters are ignored.

# THE AUXILIARY PORT



If the auxiliary port is configured for eight data bits with no parity, non-ASCII data may be received through the auxiliary port. In this case, the characters are interpreted as function key codes. For example, if a character's hexadecimal representation is 8A, it is treated as key code 84, which is the HOME key; when this character is received, it is as if the HOME key had been pressed.

## AUXILIARY PORT CONFIGURATION

The pin configuration of the auxiliary port is shown in Table 7-1.

**Table 7-1. Auxiliary Port Pin Designations**

| Pin No. | RS232 Signal Name | Signal Definitions |
|---|---|---|
| 1 | AA | Frame Ground |
| 2 | BA | Receive Data (for XON/XOFF handshake or auxiliary input data) |
| 3 | BB | Transmit Data |
| 4 | | Printer Busy |
| 5* | CB | Clear to Send |
| 6* | CC | Data Set Ready |
| 7 | AB | Signal Ground |
| 8* | CF | Carrier Detect |
| 20 | CD | Printer Ready |

These pins are tied together internally, and to a +12 VDC source (RS232 logical "ON").

## PRINT COMMANDS

The commands listed in this section are used to send data from a displayed page to the printer attached to the auxiliary port.

The print commands are modified by various configuration options. However, these configuration options only affect printing from display pages, and do not affect messages received through the printer's datacom address:

*Form Feed At End Of Page* If this configuration option is set to Y, a form feed character follows each printed page. (This does not affect the CTRL/ESC ] print command.) If this configuration option is set to N, no form feed is added.

*Stop At Cursor* If this configuration option is set to Y, only data between the "home" position and the last character before the cursor are printed. When the cursor is at the "home" position, all data are printed. If, however, this configuration option is set to N, the entire page is printed, regardless of the cursor position.

*End Of Line Action* This configuration option determines which characters are inserted into the print data after every line. The choices are:

Carriage Return and Line Feed
Carriage Return
Line Feed
None

*CR Is End Of Line* If this configuration option is set to Y and a carriage return character (CR) is in a line to be printed, the *End Of Line Action* characters are sent to the printer, but not the remaining characters in the line. If this configuration option is set to N, the CR character is passed to the printer and the rest of the line is processed normally.

*Control Character Map* This map allows each of the 32 ASCII control characters to be mapped to some other character (such as blank) before being sent to the printer. The *End Of Line Action* and *Form Feed At End Of Page* characters, however, are not mapped.

# THE AUXILIARY PORT



### PRINT ALL DATA

From Keyboard: 


From Datacom: ESC ;

This command is used to print all data from the displayed page.

### PRINT ALL DATA, WITH NO FORM FEED

From Keyboard: 


From Datacom: ESC ]

This command is used to print data on the displayed page and omit any form feeds (regardless of how the *Form Feed At End Of Page* configuration option is set).

### PRINT ALL UNPROTECTED DATA

From Keyboard: 


From Datacom: ESC :

This command is used to print all unprotected data; spaces are substituted for protected areas.

# APPENDIX A

A-1/A-2

## ASCII CODE CHART

| | | | | BIT 7 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BIT 6 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| | | | | BIT 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| BIT 4 | BIT 3 | BIT 2 | BIT 1 | COL / ROW | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 0 | 0 | 0 | 0 | 0 | NUL | DLE | SP | 0 | @ | P | ` | p |
| 0 | 0 | 0 | 1 | 1 | SOH | DC1 | ! | 1 | A | Q | a | q |
| 0 | 0 | 1 | 0 | 2 | STX | DC2 | " | 2 | B | R | b | r |
| 0 | 0 | 1 | 1 | 3 | ETX | DC3 | # | 3 | C | S | c | s |
| 0 | 1 | 0 | 0 | 4 | EOT | DC4 | $ | 4 | D | T | d | t |
| 0 | 1 | 0 | 1 | 5 | ENQ | NAK | % | 5 | E | U | e | u |
| 0 | 1 | 1 | 0 | 6 | ACK | SYN | & | 6 | F | V | f | v |
| 0 | 1 | 1 | 1 | 7 | BEL | ETB | ' | 7 | G | W | g | w |
| 1 | 0 | 0 | 0 | 8 | BS | CAN | ( | 8 | H | X | h | x |
| 1 | 0 | 0 | 1 | 9 | HT | EM | ) | 9 | I | Y | i | y |
| 1 | 0 | 1 | 0 | A | LF | SUB | * | : | J | Z | j | z |
| 1 | 0 | 1 | 1 | B | VT | ESC | + | ; | K | [ | k | { |
| 1 | 1 | 0 | 0 | C | FF | FS | , | < | L | \ | l | \| |
| 1 | 1 | 0 | 1 | D | CR | GS | - | = | M | ] | m | } |
| 1 | 1 | 1 | 0 | E | SO | RS | . | > | N | ^ | n | ~ |
| 1 | 1 | 1 | 1 | F | SI | US | / | ? | O | — | o | DEL |

# APPENDIX B

B-1/B-2

## EBCDIC CODE CHART

| Col / Row | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | NUL | DLE | | | SPACE | & | — | } | | | | | { | } | \ | 0 |
| 1 | SOH | DC1 | | | | | / | | a | j | ~ | | A | J | | 1 |
| 2 | STX | DC2 | | SYN | | | | | b | k | s | | B | K | S | 2 |
| 3 | ETX | DC3 | | | | | | | c | l | t | | C | L | T | 3 |
| 4 | | | | | | | | | d | m | u | | D | M | U | 4 |
| 5 | HT | NL | LF | | | | | | e | n | v | | E | N | V | 5 |
| 6 | | BS | ETB | | | | | | f | o | w | | F | O | W | 6 |
| 7 | DEL | | ESC | EOT | | | | | g | p | x | | G | P | X | 7 |
| 8 | | CAN | | | | | | | h | q | y | | H | Q | Y | 8 |
| 9 | | EM | | | | | | ' | i | r | z | | I | R | Z | 9 |
| A | | | | | [ | ] | \| | : | | | | | | | |
| B | VT | | | | . | $ | , | # | | | | | | | | |
| C | FF | FS | | DC4 | < | * | % | @ | | | | | | | | |
| D | CR | GS | ENQ | NAK | ( | ) | _ | ' | | | | | | | | |
| E | SO | RS | ACK | | + | ; | > | = | | | | | | | | |
| F | SI | US | BEL | SUB | ! | ^ | ? | " | | | | | | | | |

# APPENDIX C

C-1/C-2

## LINE MONITOR CHARACTERS AND SPECIAL CHARACTERS

| | | |
|---|---|---|
| $^{N}_{U}$ = NUL | $^{V}_{T}$ = VT | $^{S}_{Y}$ = SYNC |
| $^{S}_{H}$ = SOH | $^{F}_{F}$ = FF | $^{E}_{B}$ = ETB |
| $^{S}_{X}$ = STX | $^{C}_{R}$ = CR | $^{C}_{N}$ = CAN |
| $^{E}_{X}$ = ETX | $^{S}_{O}$ = SO | $^{E}_{M}$ = EM |
| $^{E}_{T}$ = EOT | $^{S}_{I}$ = SI | $^{S}_{B}$ = SUB |
| $^{E}_{Q}$ = ENQ | $^{D}_{L}$ = DLE | $^{E}_{c}$ = ESC |
| $^{A}_{K}$ = ACK | $D_1$ = DC1 | $^{F}_{S}$ = FS |
| $^{B}_{L}$ = BEL | $D_2$ = DC2 | $^{G}_{S}$ = GS |
| $^{B}_{S}$ = BS | $D_3$ = DC3 | $^{R}_{S}$ = RS |
| $^{H}_{T}$ = HT | $D_4$ = DC4 | $^{U}_{S}$ = US |
| $^{L}_{F}$ = LF | $^{N}_{K}$ = NAK | |

# APPENDIX D



## AT1183 KEY CODES

In the following table, "C-" represents CTRL and "S-" represents SHIFT.

| Row \ Col | 00-1F | 20-3F | 40-5F | 60-7F |
|---|---|---|---|---|
| 0 | C-@ | (space) | @ | |
| 1 | C-A | ! | A | a |
| 2 | C-B | " | B | b |
| 3 | C-C | # | C | c |
| 4 | C-D | $ | D | d |
| 5 | C-E | % | E | e |
| 6 | C-F | & | F | f |
| 7 | C-G | ' | G | g |
| 8 | C-H | ( | H | h |
| 9 | C-I | ) | I | i |
| A | C-J | * | J | j |
| B | C-K | + | K | k |
| C | C-L | , | L | l |
| D | C-M | - | M | m |
| E | C-N | . | N | n |
| F | C-O | / | O | o |
| 10 | C-P | 0 | P | p |
| 11 | C-Q | 1 | Q | q |
| 12 | C-R | 2 | R | r |
| 13 | C-S | 3 | S | s |
| 14 | C-T | 4 | T | t |
| 15 | C-U | 5 | U | u |
| 16 | C-V | 6 | V | v |
| 17 | C-W | 7 | W | w |
| 18 | C-X | 8 | X | x |
| 19 | C-Y | 9 | Y | y |
| 1A | C-Z | : | Z | z |
| 1B | C-[ | ; | [ | { |
| 1C | C- | < | | \| |
| 1D | C-] | = | ] | } |
| 1E | C- | > | | ~ |
| 1F | C-_ | ? | _ | DEL |

# APPENDIX D



## AT1183 KEY CODES

| Row \ Col | 80-9F | A0-BF | C0-DF | E0-FF |
|---|---|---|---|---|
| 0 | Down | C-(space) | n0 | ETX |
| 1 | Left | A-F1 | n1 | F1 |
| 2 | Rght | A-F2 | n2 | F2 |
| 3 | Up | A-F3 | n3 | F3 |
| 4 | Home | A-F4 | n4 | F4 |
| 5 | ICLn | A-F5 | n5 | F5 |
| 6 | DCLn | A-F6 | n6 | F6 |
| 7 | ILn | A-F7 | n7 | F7 |
| 8 | CEo1 | A-F8 | n8 | F8 |
| 9 | ErsD | A-F9 | n9 | Tab |
| A | Xmit | A-F10 | n. | BTab |
| B | Rcv | A-F11 | n- | Ret |
| C | Local | A-F12 | nTab | Esc |
| D | Form | A-F13 | nBTab | Help |
| E | Spfy | A-F14 | | NxStn |
| F | PrAl | | GS | PrStn |
| 10 | ScDn | C-0 | F9 | C-Home |
| 11 | PrPg | C-1 | F10 | S-F1 |
| 12 | NxPg | C-2 | F11 | S-F2 |
| 13 | ScUp | C-3 | F12 | S-F3 |
| 14 | Clr | C-4 | F13 | S-F4 |
| 15 | ICPg | C-5 | F14 | S-F5 |
| 16 | DCPg | C-6 | S-F9 | S-F6 |
| 17 | DLn | C-7 | S-F10 | S-F7 |
| 18 | CEop | C-8 | S-F11 | S-F8 |
| 19 | ErAl | C-9 | S-F12 | Skip |
| 1A | | C-: | S-F13 | C-Tab |
| 1B | Caps | C-; | S-F14 | C-BTab |
| 1C | S-Locl | C-< | Call | C-Ret |
| 1D | Rev | C-= | AutoX | Algn |
| 1E | | C-> | LXmit | |
| 1F | PrDt | C-? | FS | |

# APPENDIX E



## POSITIONING CODES

These codes are used in the commands for absolute cursor positioning, page selection, and blank compression.

| Number | Character | Number | Character |
|---|---|---|---|
| 1 | space | 27 | : |
| 2 | ! | 28 | ; |
| 3 | " | 29 | < |
| 4 | # | 30 | = |
| 5 | $ | 31 | > |
| 6 | % | 32 | ? |
| 7 | & | 33 | @ |
| 8 | ' | 34 | A |
| 9 | ( | 35 | B |
| 10 | ) | 36 | C |
| 11 | * | 37 | D |
| 12 | + | 38 | E |
| 13 | ' | 39 | F |
| 14 | - | 40 | G |
| 15 | . | 41 | H |
| 16 | / | 42 | I |
| 17 | 0 | 43 | J |
| 18 | 1 | 44 | K |
| 19 | 2 | 45 | L |
| 20 | 3 | 46 | M |
| 21 | 4 | 47 | N |
| 22 | 5 | 48 | O |
| 23 | 6 | 49 | P |
| 24 | 7 | 50 | Q |
| 25 | 8 | 51 | R |
| 26 | 9 | 52 | S |

# APPENDIX E



## POSITIONING CODES

| Number | Character | Number | Character |
|---|---|---|---|
| 53 | T | 75 | j |
| 54 | U | 76 | k |
| 55 | V | 77 | l |
| 56 | W | 78 | m |
| 57 | X | 79 | n |
| 58 | Y | 80 | o |
| 59 | Z | 81 | p |
| 60 | [ | 82 | q |
| 61 | | 83 | r |
| 62 | ] | 84 | s |
| 63 | | 85 | t |
| 64 | — | 86 | u |
| 65 | | 87 | v |
| 66 | a | 88 | w |
| 67 | b | 89 | x |
| 68 | c | 90 | y |
| 69 | d | 91 | z |
| 70 | e | 92 | { |
| 71 | f | 93 | \| |
| 72 | g | 94 | } |
| 73 | h | 95 | ~ |
| 74 | i | 96 | DEL |

# APPENDIX F



## CONTROL SEQUENCES

| | |
|---|---|
| CTRL SPACE n | Go to station number n (where n has a range of 1-4). |
| CTRL SPACE A | Enter autoexec edit mode. |
| CTRL SPACE B | Immediately blanks screen (goes into screen saver) |
| CTRL SPACE C | Display resident character set. |
| CTRL SPACE D | Restart terminal, including power-up diagnostics. |
| CTRL SPACE L | Enter softkey definition mode. |
| CTRL SPACE M | Fill display buffer with E's. |
| CTRL SPACE R | Enter line monitor mode. |
| CTRL SPACE S | Enter configuration mode. |
| CTRL SPACE T | Copy default settings into the current configuration. (Does not save unless F3 executed from setup) |
| CTRL SPACE V | Display firmware level. |
| CTRL SPACE Z id | Request local form ID. |
| CTRL SPACE / | Move cursor to other window (double window mode). |
| CTRL nn XMIT | Send numeric control messages. |
| CTRL : | Print unprotected data. |
| CTRL ; | Print entire page. |
| CTRL ] | Print from screen, no form feed. |
| CTRL ? | Reverse *beep* flag setting, and beep if turned on. |
| CTRL < cr | Set cursor column to c and row to r using Appendix E positioning codes. (cr is a location code.) |
| CTRL @ ccrr | Set cursor column (cc) and row (rr) using hexadecimal. |
| CTRL A | Enable search mode. |
| CTRL B | Line movement down. |
| CTRL E n | Set search character. |
| CTRL H char | Place control character at cursor. |
| Examples: | |
| CTRL H . | Begin reverse video. |
| CTRL H / | Begin underline. |
| CTRL H 8 | Begin blinking video. |
| CTRL H 9 | Begin secure video. |
| CTRL I | Disable reverse video. |
| CTRL M | Roll the screen down one line. |
| CTRL N | Roll the screen up one line. |
| CTRL O | Clear all tab stops. |
| CTRL P | Toggle a tab stop. |
| CTRL Q | Exit forms mode. |

# APPENDIX F

F-2

## CONTROL SEQUENCES

| | |
|---|---|
| CTRL R B | Sound the *beep* regardless of Beep Flag. |
| CTRL R C | Redirect keyboard (and softkey) input directly to Datacom Buffer. "ETX" key will transmit message. |
| CTRL R E | Wait for datacom end of message. |
| CTRL R F | Displays list of all local forms stored in terminal. |
| CTRL R K | Allows copying of any screen to softkey ("cut & paste") |
| CTRL R L | Display datacom error log. (Complex Datacom Statistics —Rev 4.0) |
| CTRL R P | Redirect keyboard (and softkey) input directly to the printer port, "ETX" key initiates transmission, (Revision 4.XX & higher). |
| CTRL R R | Reset keyboard to locked condition (if keyboard lock password configured). |
| CTRL R S (text) | Write to first user status line. |
| CTRL R U (text) | Write to second user status line. |
| CTRL R V (text) | Write to third user status line. |
| CTRL R W | Redefine window. |
| CTRL R X | Enable time-of-day clock display. |
| CTRL R Y | Disable time-of-day clock display. |
| CTRL R Z hh:mm:ss | Set time-of-day clock. |
| CTRL S | Disable search mode. |
| CTRL T | Enable lower case mode. |
| CTRL U | Enable reverse video. |
| CTRL V | Line movement up. |
| CTRL W | Enter forms mode. |
| CTRL Y | Disable lower case. |
| CTRL DEL CHAR | Delete character from page. |
| CTRL INS CHAR | Insert character in page. |
| CTRL HOME | Variable start-of-transmission point. |
| CTRL rt arrow | Advance page. |
| CTRL lf arrow | Page back. |
| CTRL BACK TAB | Clear tab. |
| CTRL TAB | Set tab. |
| CTRL RETURN | Same as carriage return except that a CR character is never planted on the page (regardless of the Keyboard —Plant CR option). |

Caution: Undefined CTRL sequences may produce random results which are subject to change at any time.

# APPENDIX G



## DATACOM ESCAPE SEQUENCES

| | |
|---|---|
| ESC SPACE C | Display resident character set. |
| ESC SPACE D | Restart terminal, transmit "*******" after passing diagnostics. |
| ESC SPACE V | Transmit firmware level. |
| ESC ! | Insert character in line (per character). |
| ESC " column row | Set cursor column and row. |
| ESC ~ hhhh | Set cursor column and row (in hex). (Revision 2.XX & below) |
| ESC # | Clear all current tab stops. |
| ESC $ <code> | Select page. |
| ESC % | Delete character from line. |
| ESC ( | Send. |
| ESC & | Align cursor with datacom pointer. |
| ESC ' char | Plant control character at datacom pointer. |
| ESC - char | Set search character. |
| ESC . | Set/reset tab stop at current position. |
| ESC : | Print unprotected data. |
| ESC ; | Print entire screen. |
| ESC ] | Print from screen with no form feed. |
| ESC < | Line movement down. |
| ESC > | Line movement up. |
| ESC ? | Beep. |
| ESC @ | Insert character in page (per character). |
| ESC ^<code> | Blank expansion. (Revision 2.XX & below). |
| ESC ~ <code> | Blank expansion (Revision 3.XX & above). |
| ESC / <id> <data> | Store local form. |
| ESC \ <id> | Recall local form. |
| ESC _ | Transmit list of local form ID's. |
| ESC C | Move the cursor right one space. |
| ESC D | Set variable start-of-transmission point *(mobile home).* |
| ESC E | Enable search mode. |
| ESC F | Disable search mode. |
| ESC J | Clear to the end of the page. |
| ESC K | Clear to the end of the line. |
| ESC L | Insert line. |
| ESC M | Delete line. |

# APPENDIX G

G-2

## DATACOM ESCAPE SEQUENCES

| | |
|---|---|
| ESC N | Reverse video on. |
| ESC O | Reverse video off. |
| ESC P | Delete character from page. |
| ESC R A aaaa bb dddd...dd | Writes ASCII data into terminal current configuration scratchpad. |
| ESC R A nnnn hh <message> | Send message to status line. |
| ESC R B xxx yyy zzz | Set *Datacom, Display,* & *Softkey Buffer* sizes. |
| ESC R C | Causes the terminal configuration scratchpad to be copied into the current configuration. |
| ESC R F | Save temporary local forms to permanent *local forms buffer* (CMOS). |
| ESC R H aaaa bb cc...cc | Writes hexadecimal data into terminal's current configuration scratchpad. |
| ESC R K hhh<data> | Load softkeys. |
| ESC R L | Send error log to host. |
| ESC R P | Causes terminal's current configuration scratchpad to be copied into permanent configuration memory (CMOS). |
| ESC R R | Lock keyboard if configuration set. |
| ESC R S hh <message> | Send a message to the first status line. |
| ESC R T aaaabb | Causes terminal to transmit current configuration from its scratchpad. |
| ESC R U | Write to second user status line. |
| ESC R V | Write to third user status line. |
| ESC R X | Enable time-of-day clock display. |
| ESC R Y | Disable time-of-day clock display. |
| ESC R Z hh:mm:ss | Set time-of-day clock. |
| ESC R ( | Send message to host with the key codes for redefined softkeys. |
| ESC R ) hh | Upload softkey definition to host: hh is a 2-digit code for the softkey. |
| ESC S | roll up. |
| ESC T | Roll down. |
| ESC W | Enter forms mode. |
| ESC X | Exit forms mode. |
| ESC Y | Disable lower case. |
| ESC Z | Enable lower case. |

# APPENDIX H

H-1/H-2

## DATACOM CONTROL CHARACTERS

The following datacom control characters are listed in the order in which they appear in the ASCII code chart.

| | |
|---|---|
| NUL | Reserved for the protocol. |
| SOH | Reserved for the protocol; this character may cause erasure of data and/or forms exit on the page in which the message is received. |
| STX | Reserved for the protocol. |
| ETX | Reserved for the protocol. |
| EOT | Reserved for the protocol. |
| ENQ | Reserved for the protocol. |
| ACK | Reserved for the protocol. |
| BEL | Beep. |
| BS | Backspace. |
| HT | Tab. |
| LF | Line feed (optionally preceded by a CR). |
| VT | Optionally set a variable tab stop. |
| FF | Clear the screen and home the cursor; optionally, clear all variable tab stops. |
| CR | Carriage return (line feed, optional). |
| SO | Begin reverse video. |
| SI | Begin underlined video. |
| DLE | Reserved for protocol. |
| DC1 | Stay in receive mode, or clear to end of line. |
| DC2 | Forms mode toggle, or advance cursor one space. |
| DC3 | Reverse line feed. |
| DC4 | Home the cursor. |
| NAK | Reserved for protocol. |
| SYN | Reserved for protocol. |
| ETB | Terminate video attributes without affecting form fields. |
| CAN | Begin blinking video. |
| EM | Begin secured video. |
| SUB | Begin bright video. |
| ESC | Begin an escape sequence. |
| FS | Place a begin transmittable, protected field character at the current cursor position. |
| GS | Place a begin right-justified, unprotected field character at the current cursor position. |
| RS | Place an ending delimiter at the current cursor position. |
| US | Place a begin unprotected field character at the cursor position. |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

This appendix includes the contents of the AT1183 datacom configuration tables. All numbers listed are given in hexadecimal.

| Byte | Bit | Content |
|---|---|---|
| 80 | 7 | Datacom Mode<br>0 = Async<br>1 = Sync |
| | 6 | Unused — set to 0 |
| | 5 | SOH Clear Page<br>0 = No<br>1 = Yes |
| | 4 | Forms Mode Transmit<br>0 = Home To Cursor<br>1 = Entire Form |
| | 3 | DC1 Interpretation<br>0 = Clear To End Of Line<br>1 = Set Stay In Receive Flag |
| | 2 | Unused — set to 0 |
| | 1 | Unused — set to 1 |
| | 0 | Datacom Parity Check<br>0 = Check Parity<br>1 = Ignore Parity |
| 81 | | Baud rate, part 1 — see Table I-1 |
| 82 | | Minimum Clear-To-Send Delay (in msec.)<br>(If Byte 88 Bit 4 = 1) |
| 83 | | Transmit-To-Receive Delay (in msec.)<br>(If Byte 88 Bit 5 = 1) |
| 84 | | Lines Per Page minus 1 |
| 85 | | Unused |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| 86 | | Alternate Opening Forms Delimiter |
| 87 | | Alternate Closing Forms Delimiter |
| 88 | 7 | Unused — set to 0 |
| | 6 | Primary Station Transmission Numbers<br>0 = Not added to outbound messages<br>1 = Add to outbound messages |
| | 5 | Transmit-To-Receive Delay Enable<br>0 = Disabled<br>1 = Enabled |
| | 4 | Minimum Clear-To-Send Delay Enable<br>0 = Disabled<br>1 = Enabled |
| | 3 | Unused — set to 0 |
| | 2 | Unused — set to 0 |
| | 1 | Initial Primary Station Transmission Number<br>0 = "0"<br>1 = "@"<br>(If Bit 6 = 1) |
| | 0 | Unused — set to 0 |
| 89 | | Primary Station Address — 1st Character |
| 8A | | Primary Station Address — 2nd Character |
| 8B | | Group Select Character |
| 8C | | Baud Rate, Part 2 — see Table I-1 |
| 8D | | Language — Currently must be 01 (US) |
| 8E | | Group Poll Address — 1st Character |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| 94 | | Display memory end address MSB |
| 95 | | Display memory end address LSB |
| 96 | 7 | Page Wrap Inhibit (keyboard entry)<br>0 = Page Wrap Allowed<br>1 = Page Wrap Inhibited |
| | 6 | Keyboard Plant Tab Character<br>0 = Disabled<br>1 = Enabled |
| | 5 | Fixed/Variable Tabs<br>0 = Fixed<br>1 = Variable |
| | 4 | Datacom Plant ETX Character<br>0 = Disabled<br>1 = Enabled |
| | 3 | Forms Exit From Keyboard<br>0 = Exit Forms Mode<br>1 = Exit Forms Mode & Clear Page |
| | 2 | Datacom VT Interpretation<br>0 = Toggle Variable Tab Stop<br>1 = Ignored |
| | 1 | Datacom FF Interpretation<br>0 = Clear Page<br>1 = Clear Page & Clear Variable Tabs |
| | 0 | Datacom DC2 Interpretation<br>0 = Toggle Forms Mode<br>1 = Move Datacom Pointer Right 1 Position |
| 97 | | End Of Page Alarm Column (00 - 83) |
| 98 | | End Of Page Alarm Row (00 - FF) |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| 8F | | Group Poll Address — 2nd Character |
| 90 | | Unused — set to 00 |
| 91 | | Unused — set to 00 |
| 92 | 7 | RTS Hold Enable<br>0 = Disabled<br>1 = Hold RTS On After Xmit<br>(Byte FF07 gives msec. to hold) |
| | 6 | Lower-case Lockout (for keyboard entry)<br>0 = Lower case enabled<br>1 = Lower case locked out |
| | 5 | Cursor Display<br>0 = Displayed<br>1 = Non-Displayed |
| | 4 | Field Overflow Inhibit (forms mode keyboard entry)<br>0 = Field Overflow Allowed<br>1 = Field Overflow Inhibited |
| | 3 | Height of characters<br>0 = Double high<br>1 = Single high |
| | 2 | Width of characters<br>0 = double wide<br>1 = single wide |
| | 1 | Cursor Blink<br>0 = Non-Blinking Cursor<br>1 = Blinking Cursor |
| | 0 | Datacom Line Feed Interpretation<br>0 = Line Feed nly<br>1 = CR + LF |
| 93 | | Unused — set to 0 |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| 99 | | Display memory start address MSB — set to 0 |
| 9A | | Display memory start address LSB — set to 0 |
| 9B | 7 | Print Control Character Mapping<br>0 = Enabled<br>1 = Disabled |
| | 6 | Beep on NAK to Select<br>0 = Disabled<br>1 = Enabled |
| | 5 | Screen Print Action At End Of Line<br>0 = CR/LF<br>1 = none |
| | 4 | Unused — set to 0 |
| | 3 | Primary Station State After Processing Received Message<br>0 = Local<br>1 = Receive |
| | 2 | Unused — set to 0 |
| | 1 | Unused — set to 0 |
| | 0 | Unused — set to 0 |
| 9C | | Datacom buffer start address MSB — set to 0 |
| 9D | | Datacom buffer start address LSB — set to 0 |
| 9E | | Datacom buffer end address MSB |
| 9F | | Datacom buffer end address LSB |
| A0 | 7 | Single Line XMIT Mode<br>0 = XMIT Home is "Mobile Home" (Page XMIT Mode)<br>1 = XMIT Home is 1st column of current line (Single Line XMIT Mode) |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| (byte A0, cont.) | | |
| | 6 | Keyboard Plant CR Character<br>0 = Disabled<br>1 = Enabled |
| | 5 | Keyboard RETURN Key Interpretation<br>0 = CR/LF<br>1 = CR only |
| | 4 | Datacom Plant CR Character<br>0 = Disabled<br>1 = Enabled |
| | 3 | Datacom CR Interpretation<br>0 = CR/LF<br>1 = CR only |
| | 2 | Datacom Advance Pointer When Planting ETX<br>0 = Don't Advance<br>1 = Advance Datacom Pointer<br>(If Byte 96 Bit 4 = 1) |
| | 1 | Datacom SOH Exits Forms<br>0 = Datacom Pointer Page Taken Out Of Forms Mode At Start Of Message Interpretation<br>1 = Datacom Pointer Page Forms Mode Unaltered |
| | 0 | Datacom Plant HT Character<br>0 = Disabled<br>1 = Enabled |
| A1 | 7 | Unused — set to 0 |
| | 6 | Specify key format<br>0 = Specify sends in ASCII<br>1 = Specify sends in Hex |
| | 5 | Fast Fill Screen<br>0 = disable<br>1 = enable |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| (byte A1, cont.) | | |
| | 4 | Unused — set to 1 |
| | 3 | Unused — set to 0 |
| | 2 | Unused — set to 0 |
| | 1 | Unused — set to 0 |
| | 0 | Unused — set to 0 |
| A2 | | Keyboard Buffer size MSB |
| A3 | | Keyboard Buffer size LSB |
| A4 | | Printer Address |
| A5 | | Printer Address |
| A6 | | Printer Buffer size MSB |
| A7 | | Printer Buffer size LSB |
| A8 | 7-4 | Repeat delay<br>0 = .5 seconds<br>1 = .6 seconds<br>2 = .7 seconds<br>3 = .8 seconds<br>4 = .9 seconds<br>5 = 1.0 seconds<br>6 = 1.1 seconds<br>7 = 1.2 seconds<br>8 = 1.3 seconds<br>9 = 1.4 seconds<br>10 = 1.5 seconds |
| | 3-0 | Repeat rate<br>0 = 1.0 char/sec<br>1 = 2.0 char/sec |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| (byte A8, cont.) | | |
| | 3-0 | Repeat rate<br>0 = keys never repeat<br>0 = 1 char/sec<br>2 = 2 char/sec<br>3 = 3 char/sec<br>4 = 4 char/sec<br>5 = 5 char/sec<br>6 = 6 char/sec<br>7 = 7.5 char/sec<br>8 = 10 char/sec<br>9 = 15 char/sec<br>10 = 30 char/sec |
| A9 | 7 | Cursor type<br>0 = underline<br>1 = block |
| | 6 | Unused — set to 1 |
| | 5 | Unused — set to 1 |
| | 4 | Unused — set to 1 |
| | 3-2 | Alarm level<br>00 = soft<br>01 = loud |
| | 1-0 | Key click<br>0x = off<br>1x = on |
| AA | | Unused — set to 0 |
| AB | | Unused — set to 0 |
| AC | | Unused — set to 0 |
| AD | 7 | Parity Check of incoming data on aux port<br>0 = enable<br>1 = inhibit |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| (byte AD, cont.) | | |
| | 6 | Printer parity<br>0 = Even<br>1 = Odd |
| | 5 | Number of printer stop bits<br>0 = 1 stop bit<br>1 = 2 stop bits |
| | 4 | Printer Busy sense<br>0 = 0 is Busy<br>1 = 1 is Busy |
| | 3-2 | Printer bits/char<br>0 = 7 bits<br>1 = 8 bits |
| | 1 | Generate printer parity<br>0 = disabled<br>1 = enabled |
| | 0 | Unused — set to 1 |
| AE | | Printer baud rate part 1 (see Table I-1) |
| AF | | Printer baud rate part 2 (see Table I-1) |
| B0..B4 | | Unused — Set to 0 |
| B5 | | Logical Ack character |
| B6 | | Printer XON character |
| B7 | | Printer XOFF character |
| B8..103 | | Unused — Set to 0 |
| 0102 | | Softkey Buffer start MSB — set to 0 |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| 0103 | | Softkey Buffer start LSB — set to 0 |
| 0104 | | Softkey Buffer end MSB |
| 0105 | | Softkey Buffer end LSB |
| 0106.. FEFF | | Unused |
| FF00 | | DASI AT1183 Configuration Table Version |
| FF01 | | Unused — set to 0 |
| FF02 | 7 | Unused |
| | 6 | Unused |
| | 5 | Reverse Video Unprotected Fields<br>0 = Disabled<br>1 = Enabled |
| | 4 | unused — set to 0 |
| | 2,3 | Cursor Shape<br>00 = Underline<br>01 = Block<br>10 = Non-Displayed<br>11 = Half-Block |
| | 1 | Key Click<br>0 = Disabled<br>1 = Enabled |
| | 0 | Initial Beep Flag<br>0 = Beep Disabled<br>1 = Beep Enabled |
| FF03 | 1 .. 7 | Unused |
| | 0 | Cursor Auto-Home On Page Change<br>0 = Disabled<br>1 = Enabled |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| FF04 | | Unused — set to 0 |
| FF05 | | Unused — set to 0 |
| FF06 | | Primary Station Initial Outbound Transmission Number Character |
| FF07 | 4..1 | Unused |
| | 0 | Received Transmission Number Handling<br>0 = Ignore<br>1 = Discard Duplicate Messages |
| FF08 | | Unused — set to 0 |
| FF09 | | Unused — set to 0 |
| FF0A | | Unused — set to 0 |
| FF0B | 3..7 | Unused |
| | 2 | Display During Receive<br>0 = Disabled<br>1 = Enabled |
| | 1 | Unused — set to 1<br>0 = No<br>1 = Yes |
| | 0 | Fast Select Forces Receive<br>0 = No<br>1 = Yes |
| FF0C | | RTS Hold Time (in msec.) |
| FF0D | 7 | Auxiliary Port Stop Bits<br>0 = 1 stop bit<br>1 = 2 stop bits |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| (byte FF0D, cont.) | | |
| | 6 | Auxiliary Port Data Bits<br>0 = 7 data bits<br>1 = 8 data bits |
| | 4,5 | Auxiliary Port Parity<br>00 = Even<br>01 = Odd<br>10 = none<br>11 = none |
| | 0..3 | Auxiliary Port Baud Rate — see Table J2 |
| FF0E | 7 | Printer Busy Sense<br>0 = 0<br>1 = 1 |
| | 3..6 | Unused |
| | 2 | Printer Busy Handshake Enable<br>0 = Disabled<br>1 = Enabled |
| | 0,1 | Auxiliary Port Input Pin Usage<br>00 = none<br>01 = XON/XOFF<br>10 = Auxiliary Input Data<br>11 = Illegal |
| FF0F | | XON Character |
| FF10 | | XOFF Character |
| FF11 | | Minimum Print Buffer free Space Required for print to ACK Datacom LSB |
| FF12 | | Minimum Print Buffer free Space Required for print to ACK Datacom MSB |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| FF13 | | Screen Print Options: |
| | 5..7 | Unused |
| | 4 | Handling Of Data After CR Character On A Line<br>0 = Print Rest Of Line<br>1 = Treat CR As End Of Line, Resume Printing At Beginning Of Next Line |
| | 2,3 | End Of Line Handling<br>00 = No Characters Added<br>01 = CR Added<br>10 = LF Added<br>11 = CR/LF Added |
| | 1 | End Of Page Handling<br>0 = No Characters Added<br>1 = FF Added |
| | 0 | Print To Cursor / Whole Page<br>0 = Whole Page<br>1 = Home To Cursor |
| **Screen Print Control Character Map** | | |
| FF14 | | NUL |
| FF15 | | SOH |
| FF16 | | STX |
| FF17 | | ETX |
| FF18 | | EOT |
| FF19 | | ENQ |
| FF1A | | ACK |
| FF1B | | BEL |
| FF1C | | BS |
| FF1D | | HT |
| FF1E | | LF |
| FF1F | | VT |
| FF20 | | FF |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| (Screen Print Control Character Map, cont.) | | |
| FF21 | | CR |
| FF22 | | SO |
| FF23 | | SI |
| FF24 | | DLE |
| FF25 | | DC1 |
| FF26 | | DC2 |
| FF27 | | DC3 |
| FF28 | | DC4 |
| FF29 | | NAK |
| FF2A | | SYN |
| FF2B | | ETB |
| FF2C | | CAN |
| FF2D | | EM |
| FF2E | | SUB |
| FF2F | | ESC |
| FF30 | | FS |
| FF31 | | GS |
| FF32 | | RS |
| FF33 | | US |
| FF34 | 1..7 | Unused |
| | 0 | Lower Case Lockout<br>0 = Lower Case May Be Enabled<br>1 = Lower Case May Not Be Enabled |
| FF35 | | Initial Search Character |
| FF36-FF3F | | Initial Variable Tab Stop bit map (Treated As An Array Of 80 Bits, col 1 = byte FF36 bit 7)<br>bit = 0 —> no tab stop,<br>bit = 1 —> tab stop |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| **Buffer Sizes** | | |
| FF40 | | Local Forms Buffer Size — MSB |
| FF41 | | Local Forms Buffer Size — LSB |
| FF42 | | Print Buffer Size — MSB |
| FF43 | | Print Buffer Size — LSB |
| **Passwords** | | |
| FF44-FF49 | | Configuration Password |
| FF4A-FF4F | | Configuration Store Password |
| FF50-FF55 | | Line Monitor Password |
| FF56-FF5B | | Softkey Password |
| FF5C-FF61 | | Softkey Store Password |
| FF62-FF67 | | Keyboard Lock Password |
| FF68-FF6D | | Security Menu Password |
| FF6E-FF73 | | Autoexec Edit Password |
| FF74-FF7D | | Station Identification |
| FF7E | 7 | Double Window Status (READ ONLY)<br>0 = Single window mode<br>1 = Dual window mode |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| (byte FF73, cont.) | | |
| | 6 | Insert blank in page when enter insert mode<br>0 = Disabled<br>1 = Enabled |
| | 5-4 | Unused — set to 0 |
| | 3 | Softkey load style<br>0 = each escape sequence defines only 1 softkey<br>1 = one escape sequence may define multiple softkeys |
| | 2 | Unused — set to 0 |
| | 1 | Invisible delimiters<br>0 = disabled<br>1 = enabled |
| | 0 | Charcaters per line<br>0 = 80 chars/line<br>1 = 132 chars/line |
| FF7F | 7-5 | Unused — set to 0 |
| | 4 | Key Flip To Local<br>0 = disabled<br>1 = enabled |
| | 3-2 | Alarm length<br>00 = 0.13 sec<br>01 = 0.25 sec<br>10 = 0.5 sec<br>11 = 1.0 sec |
| | 1 | Process RCV key if keyboard locked<br>0 = disabled<br>1 = enabled |
| | 0 | Unused — set to 0 |
| FF80 | | Minutes of keyboard inactivity before screen saver activates (0 disables) |

# DATACOM CONFIGURATION TABLES

| Byte | Bit | Content |
|---|---|---|
| FF81 | | Auxiliary Buffer size MSB |
| FF82 | | Auxiliary Buffer size LSB |
| FF83-<br>FF89 | | Initial Variable Tab Stop bit map for cols 81-132<br>(An Array Of 52 Bits, col 81 = byte FF82 bit 7)<br>bit = 0 —< no tab stop,<br>bit = 1 —< tab stop |
| FF8A | | Minutes of keyboard inactivity before keyboard locks (if keyboard password set). 0 disables |
| FF8B | | Alternate Auxiliary input transmit character |
| FF8C | | Non-Volatile Softkey Buffer size LSB. |
| FF8D | | Non-Volatile Softkey Buffer size MSB. |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

**Table I-1: Baud Rates for Setting Through Addresses > F000**

| Baud Rate | Part 1 | Part 2 |
|---|---|---|
| 75 | 41 | 0A |
| 110 | 7E | 0A |
| 134.5 | 80 | 0A |
| 150 | A1 | 0A |
| 200 | B0 | 0A |
| 300 | D1 | 0A |
| 600 | A1 | 09 |
| 1200 | D1 | 09 |
| 1800 | E1 | 09 |
| 2000 | E5 | 09 |
| 2400 | E9 | 09 |
| 3600 | F0 | 09 |
| 4800 | F5 | 09 |
| 9600 | A1 | 08 |
| 19200 | D1 | 08 |
| 38400 | E9 | 08 |

# APPENDIX I



## DATACOM CONFIGURATION TABLES

**Table I-2: Baud Rates for Setting Through Addresses < F000**

| Baud Rate | Byte FF0D, Bits 0 .. 3 |
|---|---|
| 75 | 0 |
| 110 | 1 |
| 134.5 | 2 |
| 150 | 3 |
| 200 | 4 |
| 300 | 5 |
| 600 | 6 |
| 1200 | 7 |
| 1800 | 8 |
| 2000 | 9 |
| 2400 | A |
| 3600 | B |
| 4800 | C |
| 9600 | D |
| 19200 | E |
| 38400 | F |

# APPENDIX J

# THE AT1183 DEC EMULATION

J-1

## GENERAL INFORMATION

This appendix describes the way in which the user may access the DEC VT220 emulation on the AT1183. The DEC emulation requires some special settings in the Buffer Menu and it has a special station menu. This feature is only available through **STATION 4** on the AT1183 stations. A special DEC emulation keyboard is also provided; the keyboard has red legends on the keys and red legends on the keyboard label strip to indicate DEC key usage.

## CONFIGURATION MENU DEFINITIONS

The following paragraphs describe the configuration settings required to run the DEC emulation.

**Buffer Menu — Station 4**

The user will need to make the following changes to station 4 on the Buffer Menu to implement the DEC emulation feature:

| Option | Description |
|---|---|
| Remaining Display Memory | This configuration option must have a value of approximately 3500 before the user will be able to set station 4 to the DEC station. |
| Data Destination | This station must be set to a Data Destination on DEC. Since the DEC station uses the auxiliary port, this station can only be set to DEC if none of the other stations have a Data Destination on Printer.<br><br>If the user attempts to set the Data Destination for station 4 to DEC while another station has a Data Destination on Printer, the error messgae "DEC Uses Printer Port" will be displayed. |
| Chars/Line | The DEC station uses either 80 or 132 characters per line. If the user enters 40 or 60 for this configuration option, the station defaults the value to 80. |

| Option | DESCRIPTION |
|---|---|
| | After the station is in operation, the DEC display width may vary between 80 and 132 characters/line because of DEC escape sequences. |
| Double High | This configuration option is ignored. |
| Lines/Page | This configuration option is ignored. |
| Pages Desired | This configuration option is ignored. |

The Auxiliary Input and Print Buffers will remain unused; this memory space may be allocated to other buffers, if desired.

### Print/Auxiliary Input Menu

The Baud Rate, Parity, Stop Bits, and Data Bits configuration settings on the Print Menu all apply to DEC communication. **The station ignores all other Print Menu configuration settings.**

### Station Menu — Station 4

If the user sets the Data Destination for station 4 to DEC, the DEC Station Menu is displayed when the user presses the F14 function key in configuration mode.

Y Kbd Echo To Screen
Interpret Controls
Y Warning Bell
VT220 Terminal ID
* Replacement for Unsupported Characters
N Auto Answerback Enabled

Shift Lock
N Auto Wrap Line
Y Margin Bell
VT200 - 7 bit controls Terminal Type

N CR Implies L
N Limit Transmit Speed
Unlocked User Softkeys

Y Enable Break Key
64 XOFF Level
Unlocked User Features

Answerback Message 000 Answerback Message Length

| Option | Description |
|---|---|
| Kbd Echo To Screen | Determines the way in which data are handled. If this configuration option is set to N, keyboard data only go to the host via the printer/auxiliary input port. If it is set to Y, keyboard data are both echoed to the screen and sent to the host.<br><br>Default: Y<br>Options: Y or N. |
| Lock | Determines if all keys on the keyboard are shifted when the CAPS LOCK key is pressed (Shift), or if only the alphabetic keys are shifted when the CAPS LOCK key is pressed (Caps).<br><br>Default: Shift<br>Options: Shift or Caps. |
| CR Implies LF | Determines whether a carriage return character advances the cursor to the beginning of the next line (Y), or it moves the cursor to the beginning of the current line (N). If this configuration option is set to Y, the screen display also scrolls up, if necessary.<br><br>Default: N<br>Options: Y or N. |
| Enable Break Key | Determines whether the BREAK key has an effect or is ignored.<br><br>Default: Y<br>Options: Y or N. |
| Controls | Determines the effect on control characters. If this option is set to Interpret, control characters are acted upon normally.<br><br>If the option is set to Display, control characters are not acted upon; they are only displayed. However, line feed and form feed characters both display and move the cursor to the next line.<br><br>Default: Interpret<br>Options: Interpret or Display. |

| Option | Description |
|---|---|
| Auto Wrap Line | Determines cursor movement when it reaches the end of a line. If this option is set to Y, when a text character is written to the display and the cursor is at the right margin, the cursor moves to the beginning of the next line. The display also scrolls, if necessary.<br><br>If this option is set to N, when a text character is written to the display and the cursor is at the right margin, the cursor remains stationary. Each additional character overwrites the previous one on the screen.<br><br>Default: Y<br>Options: Y or N. |
| Limit Transmit Speed | Determines data transmission speed. If this configuration option is set to Y, data are transmitted at the configured baud rate, but at a maximum of 60 characters per second. If the option is set to N, data are transmitted at the configured baud rate without any limitations.<br><br>Default: N<br>Options: Y or N. |
| XOFF Level | Determines when an XOFF character is sent to the host to temporarily stop host data transmissions. Characters received from the host are placed in a 200 byte buffer until they can be processed. If the station receives characters too rapidly, the buffer could overflow and cause a loss of data.<br><br>If this option is set to 64 or 128, then the station will send an XOFF character to the host when the buffer contains that number of characters. The XOFF character (DC3) causes the host to stop sending data to the station. As the buffer empties, the station sends an XON character (DC1) to the host, causing the host to resume data transmission. |

| Option | Description |
|---|---|
| | If this option is set to Never, then data transmission from the host is not controlled.<br><br>Default: 64<br>Options: 64, 128, Never. |
| Warning Bell | Determines whether the station beeps when it processes a Bell Character (CTR1 G), or if it ignores the Bell character.<br><br>Default: Y<br>Options: Y or N. |
| Margin Bell | Determines whether or not the station beeps when the cursor approaches the right margin.<br><br>Default: Y<br>Options: Y or N. |
| User Softkeys | Determines whether the DEC emulation softkeys may be loaded (Unlocked), or if they may not be loaded (Locked).<br><br>Default: Unlocked<br>Options: Unlocked or Locked. |
| User Features | Determines whether or not the user or host may change certain terminal features. If this option is set to Unlocked, either the host or user may change autorepeat, normal/reverse video, tab stops, and keyboard lock using escape sequences. If the option is set to Locked, such changes cannot be made.<br><br>Default: Unlocked<br>Options: Unlocked or Locked. |
| Terminal ID | Determines the station's response to a host request for device attributes.<br><br>Default: VT220<br>Options: VT220, VT100, VT101, VT102 |

## J-6

| Option | Description |
|---|---|
| Terminal Type | Determines to what control sequences from the host the station will respond.<br><br>Default: VT200 - 7 bit controls<br>Options: VT200 - 7 bit controls, VT200 - 8 bit controls, VT52, VT100. |
| Auto Answerback Enabled | Determines if the station sends an XON character (DC1) along with an answerback message to the host when the user first accesses the DEC station (Y), or if the station only sends an XON character (N).<br><br>Default: N<br>Options: Y or N. |
| Answerback Message | Determines the text on the answerback message which is sent to the host. The answerback function may be invoked from the host, the keyboard, or when the Auto Answerback Enabled configuration option is set to Y.<br><br>Default: blanks<br>Options: A maximum of 20 characters. |
| Answerback Message Length | Determines the number of characters transmitted to the host in an answerback message.<br><br>Default: 000<br>Options: A decimal value from 0 to 20. |
| Tabs | Determines the initial tab stops for the DEC station.<br><br>Default: 1, 9, 17, 25, 33, 41, 49, 57, 65, 73, 81, 89, 97, 105, 113, 121, and 129.<br>Options: A "T" (or any other non-blank character) is entered in columns where tabs are desired, and blanks are in all other columns. |

# THE AT1183 DEC EMULATION



## ENTERING AND EXITING DEC EMULATION MODE

Once station 4 is defined as a DEC station, the user may access the station using the NEXT/PREV STN keys and by using the GO TO STATION command. If the user uses any of these commands and the resulting station is station 4 (with Data Destination set to DEC), then the terminal sves the entire Burroughs mode screen and displays the DEC mode screen. When the AT1183 is in DEC mode and the user presses the NEXT/PREV STN keys, the terminal saves the DEC mode screen and restores the Burroughs mode screen when it displays the next/previous station.

When the AT1183 is in the Burroughs mode, any characters received via the printer/auxiliary port are buffered in the DEC datacom receive buffer. These characters will not be processed until the user accesses the DEC station. If XOFF handshaking is configured and the receive buffer fills to the configured level (i.e., 64 or 128), the station sends an XOFF character to the host to prevent buffer overflow.

When the AT1183 is in the DEC emulation mode, the Burroughs datacom line remains in operation. The terminal responds with an **EOT** if it is polled. It responds with a **NAK** when it is selected (any type on select). When the DEC station is being used, the poll/select and line activity status line indicators are maintained. "DEC VT220" is displayed as the station ID, and "Stn 4" is displayed in the station number field.

## LINE DRAWING CHARACTER SETS

The DEC VT220 mode does not support the line drawing character set found typically in DEC VT220 and VT220 emulations. Instead of the required line drawing character set, the VT220 mode in the AT1183 terminal substitutes asterisks (*) in place of the line drawing characters. This provides accurate screen presentations, while remaining within the AT1183's hardware boundaries.

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In this index, the configuration options are listed as they are spelled in the various menus. The commands are listed under **COMMANDS**, and CTRL and ESC sequences are also enumerated.

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# AT 1183 EXECUTIVE

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